1962–First Annual Edition

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Handloader's Digest

edited by

JOHN T. AMBER

Editor of **THE GUN DIGEST**

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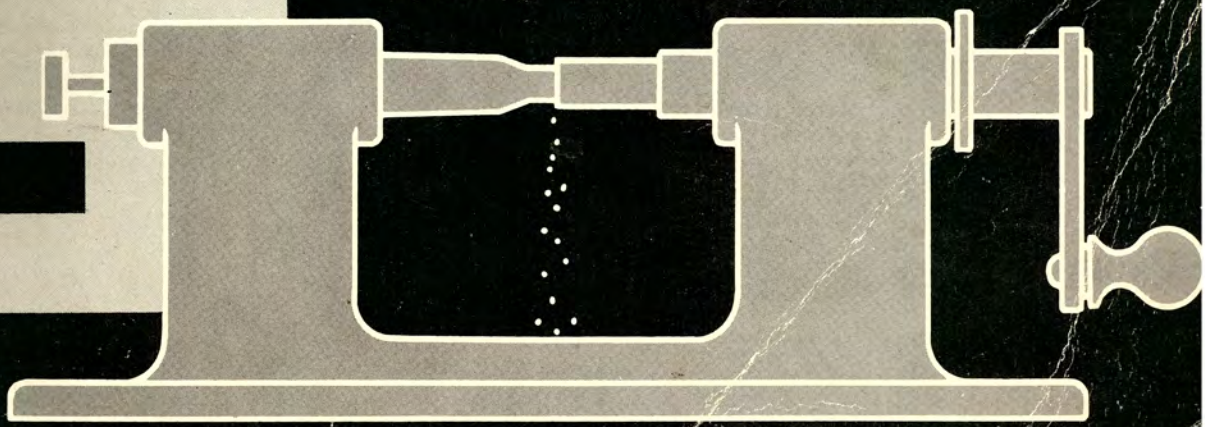

The Encyclopedia For Rifle, Pistol and Shotgun Reloaders

December 6, 1961

THE sport of shooting is an American tradition and a wholesome form of recreation which millions of all ages enjoy in one form or another. Whether it's competitive match shooting, big game hunting, trap or skeet shooting, or just plinking, it holds a unique thrill that cannot be duplicated.

TODAY'S shooter has extended his interest beyond that of merely owning a rifle, pistol or shotgun. He has enhanced his shooting activities by loading his own ammunition. He finds reloading fun, relaxing and providing a rewarding sense of accomplishment. His shooting has taken on a new and serious meaning. Each round he fires is purposeful and its success or failure is much his own doing.

IT IS easy for today's shooter to participate in this rapidly growing hobby. Shooting and sporting goods dealers throughout the nation carry a complete and varied stock of all essentials. Modern tools provide the very finest in safe, precision equipment. The bullet, powder and primer manufacturers offer the highest quality in a wide-range selection. This has enabled the shooter to "tailor-make" his own cartridges as he chooses. Simplified technical manuals guide the beginner, step by step, through all reloading procedures and, in addition, provide a wealth of loading data for all popular cartridges.

HERE, at last, compiled into one excellently prepared volume, is the brand new HANDLOADER'S DIGEST. It is generously illustrated, gives specifications on countless tools and accessories, shows the wide range of components and provides prices for each item. It is gratifying indeed that Editor John Amber and the Gun Digest Company have recognized the significance of reloading in the gun world today. There is no doubt . . . handloading has come of age!

Yours for better shooting thru reloading,

NATIONAL RELOADING MANUFACTURERS ASSN.

Raymond G. Speer

Raymond G. Speer, President

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John Amber (above), Nate Bernstein and Jerry Rakusan, in the throes of putting the HANDLOADER'S DIGEST together.

1st Edition 1962

Edited by

John T. Amber

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Introduction

IN THIS, the 1st edition of the HANDLOADER'S DIGEST, we have brought together a complete listing of all such equipment — the tools, accessories, components, etc., necessary to handload metallic cartridges and shotshells, together with the latest prices.

FOR THE veteran and beginning handloader alike, here is, for the first time, one complete source of reloading information. The tremendous growth of handloading over the past few years makes such a volume a valuable instrument of basic knowledge. No one manufacturer can afford to advertise all of his products in all shooting and hunting publications, and few reloaders can afford to read all of the many publications on the market. This volume, then, is the means of bringing the hundreds of reloading products to the attention of all handloaders. It goes a step further — because the manufacturer with many handloading items cannot afford to buy enough advertising space to completely describe all of his products, we present each reloading item in detail. Most are illustrated and, insofar as possible, all like products are grouped together for better comparison.

THERE IS *no paid advertising in this book.* Some firms, however, have gone to great expense to furnish special material; this, we believe, has made the presentation of their products more comprehensive, more informative. The small manufacturer, too, is well represented.

THIS BIG, comprehensive book will be new — and newly done — with every issue. All articles and original features, small or large — each of high interest to the handloader — will be new. Our display pages will be fully reviewed and revised. *New* products, *new* prices, the newest of reloading information and data will be found in each successive edition of the HANDLOADER'S DIGEST — the first all-inclusive directory of the ammunition reloading field.

AS ALWAYS, we welcome and solicit comments from our readers. If you have any suggestions for improvement in future editions, we'll be pleased to hear from you.

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The Art of Handloading Ammunition

by PHIL SHARPE

FOR MANY YEARS I have been writing about handloading of ammunition. So have many others. We all seem to have overlooked one important point: As we grow old, the younger generation grows up. Many want to know about handloading, and the answers they get from the expert are dished out the way a college professor answers the queries of his postgraduate students. What the newcomers want is *basic* information.

In handling thousands of letters, a simple question keeps turning up. "Some call it *handloading* and some call it *reloading*," writes one chap. "Which is correct?" Both. When you buy new cartridge cases and load them, you are handloading. When you reuse those fired cases, you are reloading.

Let's take a few of the more common questions and analyze them:

1. What is a cartridge case? I have heard them called "hulls." Is this correct?
2. What is the difference in primers? How can I tell which to use?
3. How can I tell what powder to use? What is the difference in powders? Why won't one powder do for everything?
4. Shall I make my own bullets, or should I buy them? Which is better, cast bullets or jacketed type? If I cast my bullets, how can I tell how hard I should make them?
5. What make of tool should I buy? Which is the best?
6. Must I weigh my powder charges, or should I use a measure?
7. How much money can I save by handloading?
8. How much will full equipment cost?
9. How can I tell if my loads are safe?
10. What do they mean by "pressure" and "dangerous pressure?"

Many elaborate tools are used by some handloaders. Here the author is using the Universal multiple turret tool with a variety of dies in different calibers in the head. Note the shell holder turret set up with four types, and the priming rod turret with rods for small and large primers, both round and flat face.

One could go on and on with these questions. Let's look at them from the beginner's standpoint. To those old-timers in the game, reading this may not teach you anything new, but it may bring up matters you learned so long ago that you have forgotten them.

Cartridge Cases

Question One. In the manufacture of a cartridge, the most expensive single unit is the cartridge case. To those who do not handload, this is discarded after the first firing —and actually it is then just as good as new. Let's look at the facts of ammunition cost. Let's take the popular 30-06, or Springfield, cartridge. At this writing a nearby sporting goods dealer is selling them at 19¢ each. If you buy new factory cases, they will have the primer inserted and by the time you pay shipping charges on 100 of them, they will cost you 9¢ each. Primers will cost you about 8¢ each, full powder charge about 1½¢, and bullets of factory-made sporting types about 4¢ each.

Thus, to load from new components will cost you about 14½¢ each. To reload them with factory components such as powder, primer, and bullet will cost about 6½¢ each. If you use cast bullets you make yourself, the cost can be dropped to 3¢ or less.

How many times can a cartridge case be loaded? I don't know. Twenty years ago I took ten each of commercial 30-06 cases consisting of the makes then available: Remington, Winchester, Western, Peters, and the United States Cartridge Company. These 50 cases were all loaded full charge for a test. They were all fired at the same time, all reloaded at the same time, and the firing repeated over and over again. After the 31st loading I quit. The test was becoming too expensive—I had used more than 1600 bullets in those 50 cases, and they were all perfect.

Why do some people call them hulls? I dunno. The late Captain E. C. Crossman may have started it some twenty-five years ago in his writings. Perhaps he got it from the German word *Hülse* or *Hülsen,* which means cartridge case.

Primers

Question Two. We hear terms like mercuric and non-mercuric; corrosive and non-corrosive. Why so many writers try to confuse people on this subject is difficult to understand. Let's tear it apart.

The primer is the cap in the head of the cartridge. Actually it is the heart of a cartridge. Without it, nothing else matters. Leave it out, fill the case with powder and insert a bullet and you still have a dummy—a cartridge which will not shoot. There are two general types of primers, differing in their construction—the Berdan-type and the Boxer-type. First, how do they work?

When you pull the trigger on a gun with a cartridge in

the chamber, the hammer or firing pin travels forward. The nose of this firing pin strikes the center of the primer (in centerfire ammunition) and dents the primer or cap. This jams the very high explosive mixture against a hard object known as the anvil and creates the explosion. This explosion creates a flash, but since the metal cup of the primer prevents this flash from coming back into the shooter's face, it goes forward through the vent or hole in the bottom of the primer pocket in the case head. This ignites the charge of powder in the case, causing it to burn rapidly—*not explode.* If it "exploded," you would have a wrecked gun on the first shot. As the powder burns, it is converted into gas at high pressure—about 50,000 pounds per square inch in high-power rifles. That gas must go somewhere. The barrel is strong; the breech of the gun is strong, and the breech is sealed by the brass cartridge case. Something has to give, and the only thing that can is the bullet. It is pushed through the bore and out into the atmosphere.

The difference between the Berdan and the Boxer? American primers are all of the Boxer type. That little cap is composed of a metal cup, usually of brass and nickel-plated. Inside is a small quantity of high explosive covered with a seal of tinfoil or, more commonly, shellacked paper, and a unit of stamped brass known as the anvil. The design of this anvil varies with the manufacturer, but essentially it is high in the center with relief around the sides to permit the flash of the primer mixture to escape through the vent into the powder chamber of the case.

The Berdan primer is like the above except that it contains no anvil. The anvil required is in the form of a tit bumped into the bottom of the primer pocket in the case itself. Also, these foreign cases using the Berdan primer usually have twin flashholes on either side of the anvil in the primer pocket. *Note this well!*

American loading tools are not designed for Berdan primers. If you use your American dies to attempt decapping of foreign cases, there is no central flash hole for the decapping pin to enter to push out the fired primer; result, a broken firing pin.

Foreign ammunition, primed new cases, and Berdan primers are available in the United States and, with the proper tools for de- and re-capping, they don't pose too much of a problem. For all practical purposes, though, it is best to stick with American, Canadian and foreign cases made to accept the Boxer type primers. ED.

Early primers contained the high explosive, fulminate of mercury. American centerfire primers have discontinued it, since the explosion results in some free mercury which is distributed over the inner walls of the brass case. This attacks the brass and makes it brittle and dangerous. If you live near a high school or college having a chemical laboratory, perform a simple experiment. Give a student a fired cartridge case and ask him to dip the mouth into pure mercury for just an instant, wipe it, and give it back. Set it aside for a week or so, then drop it on the floor and step on it. It will crack and crumble instead of bend. In some European countries, mercury fulminate is still used because they do not expect the cases to be reloaded.

At the turn of the century we began using non-mercuric primers, the basic substitute being potassium chlorate. When this primer mixture is fired, it leaves the salt, potassium chloride, which is distributed over the inside of the case and on through the bore of the barrel. Potassium chloride is similar to sodium chloride—ordinary table salt. This causes barrels to rust.

Perform a simple experiment again[illegible]
razor blade. Shake a small amount of table salt o[illegible]
it set at room temperature for a few days. Watch
where the salt contacts the steel.

Which brings us up to the modern non-corrosive primer. There are various mixtures, but to the ammunition maker the non-corrosive primer is one which *contains no salt!* Thus the non-corrosive primer may be either mercuric or non-mercuric. Fortunately, American makers do not sell a non-corrosive primer containing mercury; so if you have read this far, the problem is settled.

Which primer to use? This is a hot argument among handloaders, yet it is simply answered. Use the *right* one. We have two commercial ammunition firms in this country—the Remington-Peters-DuPont combine, and the Western Winchester combine. Each has individual ideas about primer and primer pocket design. Naturally each designs its primers to fit its own case pockets. Western-Winchester primers are round top or face; Remington-Peters are flat.

With the exception of the freak size used in Government-made 45 auto pistol cases, there are only two standard sizes but four types: There is the large pistol and large rifle, diameter .210; and the small pistol and small rifle, diameter .175. Pistol primers usually fail to properly ignite the powder in rifle cases, and rifle primers are dangerous in pistol cases. Here they are too hot and over-ignite the easy-to-light pistol powders.

You still don't know which to pick? The ammunition-maker's catalog lists all his cartridges. It gives the primer number he uses. Could you do better?

One further word about primers. Treat them respectfully. While the mixture within one is only a small quantity (less than ½-grain weight in most rifle primers), this mixture is *much* more powerful than the same quantity of dynamite. The mixture is pressed into the cup as a moist paste—it would be dangerous to insert it dry. It is then dried before the seal and anvil are assembled. The result is a small solid cake. If you seat primers carelessly so that you leave marks of the seating punch in the form of a slightly crushed primer, you have broken that cake. You will not get accuracy since the explosion of the mixture then becomes erratic, giving variable ignition to the powder.

Thus if you use round face primers, use a cupped face punch to fit. If you use flat face primers, use a flat face punch.

In handloaded ammunition properly assembled, the seated primer should look just as it did before you pressed it into its pocket. Remember that rule.

Powders

Question Three. This is complicated. Let's try to make it as simple as possible. Eliminating shotguns, we have pistol and rifle powders. Pistol powders are designed to burn fast, since they must build all their energy and put it to use in short barrels. Rifle powders burn slow, since they have a much longer barrel in which to work and keep the gas forming to push the bullet through the bore.

In pistol powders, there is little choice. We have Hercules Bullseye, the oldest on the market—continuously made since 1898. It takes such a small amount to develop full power that it is difficult to measure accurately, and many prefer the more recent powders. But Bullseye is still a good powder. DuPont makes their Pistol #6 and their newest Pistol #5066. Before the war DuPont made Pistol #5, and many shooters preferred it to their #6, but #5 was

discontinued. The demand for #5 came back after the war, so DuPont brought out a slightly improved version of the old #5 which they call #5066. I have used all of these powders in quantity—I still don't care which I use.

In the rifle powder field, the problem really begins. Why so many powders? Why can't one do for everything?

The handloader of rifle cartridges can assemble anything he wishes. He can take a Springfield rifle, for instance, and load a very light load with a cast bullet or round ball suitable for use on any indoor gallery range where a 22 rimfire would be safe. His loads will not kick or make objectionable noise.

Perhaps he wants to load that rifle *also* with cast bullets for target work outdoors at 100 yards and under. He develops a comfortable mid-range load.

Or he also wants to develop a very high velocity load with a lightweight jacketed hollow point or soft point bullet for varmint shooting. He wants accuracy and plenty of velocity—the latter so that it will not only kill clean at 200 to 300 yards, but also insure that the bullet will break up on impact with the ground, to prevent it from glancing off to go screaming through the air and endangering life and property in the distance.

Or he wants to duplicate the factory big-game loading, possibly even to increase that loading for more power. He uses the heavier jacketed bullets.

No one powder can meet these varied requirements. For the light indoor gallery loads he needs a low-pressure fast burning powder to handle the very light bullet. For the light jacketed bullet at extreme velocity, he needs a fast burning powder, since the high velocity bullet requires less time to travel through the barrel, and the powder must burn completely to give the bullet the full benefit of its "push."

Now you want to push a heavy hunting bullet through the barrel. If you use the fast powder which performed well with the light high velocity bullet, the heavy bullet offers too much resistance, the gas forms too rapidly, and pressures climb to the danger point. The answer is to use one of the slower burning powders.

Thus the different powders you will need depend on the variation in type of loading and calibers you use. The various powders available, together with loading data for any of the standard cartridges, are fully described in the numerous handloading books available, and in the Belding & Mull and Ideal handbooks. Every beginner should acquire these handbooks and study them before he starts to load.

Editors note: From here on the original article covered the methods and practices of casting lead bullets, all of which are covered in detail in "Casting Lead Alloy Bullets" by Col. Townsend Whelen, elsewhere in this book.

Tools

Question Five. What make of tool should I buy? Which is the best? Let's answer the last question first—there isn't any best! I think that I have owned or used every make of tool currently on the market, and many which have long since disappeared. If you were visiting here in my loading room, you would see nine different popular makes. I could take them one at a time and point out features in every one which outshine points in the others. Just about any one of the tools is good, and you can't go wrong with any standard make. Some cost more than others. Pick one in your price range. Study your personal requirements and check the manufacturer's literature to see if it will do the job.

Note this well: *It isn't the tool which makes perfect ammunition—it is the man handling it!*

In this volume you will find descriptions of all available reloading tools and accessories. Study them, and make your own decisions. A complete list of equipment makers is given in the directory; for more details or specific questions, write directly to the makers or visit your local sporting goods store. ED.

Powder Charges

Question Six. To weigh or not to weigh powder? That is the question. It is smart to weigh powder charges. You can get greater uniformity. With most powder measures you must use a balance to set up and check the measure for the desired charge.

Are measured charges accurate to shoot? Answer number one: All factory ammunition contains measured charges. Answer number two: If you have a good measure and know how to handle it, your assembled ammunition should shoot as well as weighed charges.

Until you are an experienced handloader, never attempt to load those heavy maximum charges. And when you do load them, weigh the charges with extreme care for safety.

There are two general types of powder measures on the market. Most of them are of the rotary drum type in which a hopper, filled with powder, runs the powder into a cavity, either fixed or adjustable. The operator then rotates the drum by means of an operating handle to an upside-down position, thus dumping the charge through a conveyor tube into the waiting case. The other type is the Belding & Mull, in which the hopper feeds into a glass-fronted feed chamber. An adjustable measuring tube, held in the hand, is slid into the socket; the operating handle is pushed to the right, sliding this feed chamber over the measuring tube and filling it. Spring operation then returns the chamber to the closed position, and the filled tube is removed and dumped into the waiting cartridge case. This may sound slow, but actually it functions about as fast as the drum type. It is amazingly accurate.

One night, at the start of the war, an ammunition shipment for a police training schedule failed to arrive. I loaded 1,400 rounds of 38 Special ammunition for the following day's shooting, all charges being run with my B & M.

How "accurate" is a powder measure? No piece of handloading equipment is more dependent on the skill of the operator than the powder measure. With an adjustable powder measure, *accuracy* depends on the way you set and check it. From that point on, what you want is *uniformity*. I have found that this depends on the stroke. When you rotate the drum to the "up" position to fill the measuring chamber with powder, do it sharply so that it hits the stop rather hard. This settles the powder. Maintain a uniform sharp rap on this. You'll get more uniform charges.

Two days ago I finished loading a batch of 1,000 357 Magnum revolver loads, all of which will be chronographed. All charges were measured, and from experience I know that they will read as uniform on the chronograph as though I had painstakingly weighed every charge. About every 20th charge I checked the measure on a laboratory balance. On a 5-grain charge of Pistol #6, my "thrown"

charges were running to a variation of .05 grain—which is close enough.

Economy

Question Seven. I previously mentioned as an example, the cost of handloading a sample cartridge. Handloading equipment costs money. Few handloaders enter the game just to save money. Considering the cost of tool equipment, they cannot save money if they do not shoot a great deal. If they are enthusiastic shooters who burn lots of ammunition in sport and target shooting, they can soon write off the cost of tools in actual cash savings, and are then able to show a profit. It is a known fact that the average handloader shoots many times the number of rounds of the average non-handloader. Furthermore, he develops the loads which he likes and which shoot best in his guns. He has added a new sport to his hobby.

Cost of Equipment

Question Eight. No one can answer this. You might as well ask how much a shooter's guns have cost. Take Bill Jones. He is an ardent fan and shoots all of the time. His guns consist of a couple of War Souvenir military rifles he brought free from Europe. He has altered them to sporters and has done the work himself. Walt Barton, on the other hand, is no more of an enthusiast, but he owns eight fancy custom guns and top grade commercial models, none of which cost less than $150.00 each.

The same applies to handloading equipment. To get personal, I have nine different loading tools and dies for 25 different calibers. I have five powder measures. I guess I have a dozen bullet moulds. I have two electric casting furnaces. I very definitely *could* get along with less—but I like the game. Other handloaders are the same. We like the game. It is a clean, honest sport.

A corner of Phil's loading room in his range house. The labeled machine-gun boxes on the shelves contain components, dies, and other equipment.

Safety

Question Nine. How can you tell if your loads are safe? This is not so easy to answer. Let us assume that you have a good gun. You check the recommended loading data in various handbooks and find that the top load given in your caliber is 48 grains of #4064 powder with the 180-grain bullet. So you load 46 grains of #4064. Need I say more?

Dangerous Pressure

Question Ten. This pressure problem. "Pressure" is nothing to worry about until you get to "dangerous pressure." Ammunition factories have very expensive equipment to test pressures. In assembling factory loads, they establish a maximum pressure level for every caliber. This maximum pressure level is safely below the *dangerous pressure* point, and they are careful not to exceed it.

An entire book could be written on the problem of pressure. But for the handloader there are certain simple signs to look for. The experienced and careful handloader experimentally loads several grains of powder less than the recommended top load. He fires them and loads a grain more and repeats. As he approaches the top, he increases only .5 grain at a time—often .2 grain. He examines each fired case very carefully after each shot. If it shows a badly flattened primer, he cuts back. He is up near the top. If the case shows the slightest increase in resistance to extraction when the gun is *gently* opened, he knows that pressures are too high. If it really sticks, he knows that he has passed the safe point. When you note those signs, don't just quit there—CUT BACK! Reduce the charge a minimum of one grain—preferably two grains. The lower charge will probably shoot better, anyway.

How to Go About It

So much for basic data. You still desire to handload? What, then, do you need to start yourself in the game?

First of all, get those Belding & Mull and Ideal handbooks. Read them from cover to cover before you buy a single piece of equipment. If you want to spend the money, get a good book on handloading and read that.

Then write the tool makers for their literature. Plan on paper what you want.

You are then ready to buy. First, you need a loading tool. Get the one you think best suits your requirements. Pick it on its features rather than its cost. A tool with dies comes to you complete. It will resize the fired brass case, remove the old primer, seat a new one, and seat the new bullet.

Whether or not you use a powder measure, you will need a balance or "scales." Let the measure ride. You will require a unit to weigh powder to set any measure for the desired charge. To begin with, you weigh your charges—the measure can come later. Cost of a suitable balance will run from $10.00 up. There is no limit to the "up." Some ultra-precision analytical balances cost from $500.00 to $1500.00. Yet excellent work can be done on the $7.00 Pacific or the $11.00 Redding.

That is all you need to start.

Don't fan out in all directions at once. Study the loading data in the handbooks and pick one bullet to use. Start with a jacketed rifle bullet. Buy a box of 100 and a can of the recommended powder. Then, after trying that, buy some cast and lubricated bullets from one of the custom sup-

pliers. Get another can of the necessary powders for these bullets, and you are well on your way in the loading game.

You will read much about the headaches of stretching cartridge cases, and the necessity of getting case length gages, case trimmers, and neck reamers. This might mean something to the experienced handloader, but to the beginner it is a lot of confusing hogwash. There is very little stretch to cases fired in a bolt action rifle—practically none in revolvers and pistols. Cases fired in lever-action rifles are inclined to stretch a little, but a careful resizing of the case usually takes care of this.

You read somewhere that case metal flows forward into the neck so that cases have to be trimmed and reamed? Checking this is amazingly simple.

Take a fired case from your rifle. Don't resize it. Take a standard jacketed bullet and insert it in the case mouth with the fingers. It's loose? It will drop into the case? Fine. You have no worry. That case does not need trimming and it does not need reaming. It is OK.

Suppose you can't quite start the bullet with your fingers? Do your cases then need trimming or reaming—or both? Again, a simple test. The chamber of the barrel, just in front of the case neck, is reduced to groove diameter on a slight bevel. If the case is too long for the chamber, it enters this bevel and on firing, it refuses to open up. Thus a new bullet will not enter the case mouth easily. Using a pocket knife, ream this curled-inward mouth slightly. Now try the bullet. It fits the neck loosely? Answer: Your cases have stretched and should be trimmed slightly.

If, after that mouth ream, the neck of the fired case is still too tight for the bullet, you need a neck reaming. Some lots of brass will give you troubles like these, but they are rare. I've trimmed thousands of cases, but rarely out of necessity. I usually do it to "square up" case mouths for precision loads. As to reaming—in thirty years of handloading I have assembled countless thousands of loads. I use reamed cases only in one custom rifle, which was designed and chambered to use reamed cases.

Make it a point to inspect every cartridge after loading, and inspect the case again after firing. If you note defects of any kind, destroy it.

Handloading is by no means as complicated as many writers make it. Don't try to see if you can double the power of factory loads. Don't try to see how much your gun will stand without coming apart. This writer has a simple piece of advice for handloaders, new and old:

"For better handloads, use a little less powder and a lot more horse sense." Try it—it works!

The late Phil Sharpe, author of this article was a reloader-experimenter of world renown. The author of the Complete Guide to Handloading, *the 734 page "bible" of handloaders since its first printing in 1937, he was active in this work until his death in 1959.*

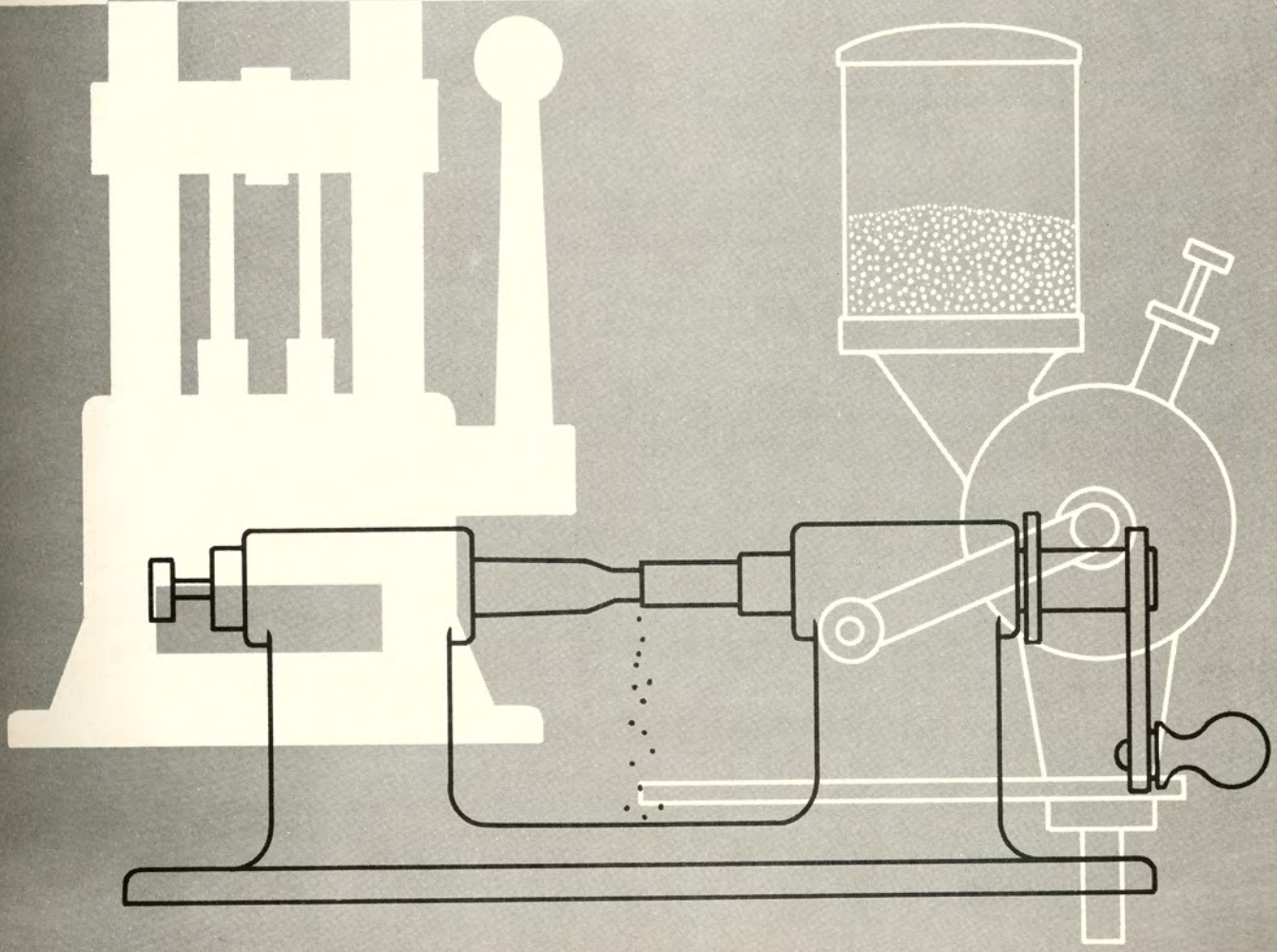
Some changes have occurred since this article first appeared. Belding & Mull's Handbook is out of print; many new items have been introduced, and almost all of the tools and components mentioned have undergone price changes. Our catalog sections show all of the latest tools and their current prices.

Conversion Table — Millimeters to Inches

	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0		.003937	.007874	.01181	.015748	.019685	.023622	.027559	.031496	.035433
1	.03937	.043307	.047244	.051181	.055118	.059055	.062992	.066929	.070866	.074803
2	.07874	.082677	.086614	.090551	.094488	.098425	.102362	.106299	.110236	.114173
3	.11811	.122047	.125984	.129921	.133858	.137795	.141732	.145669	.149606	.153543
4	.157480	.161417	.165354	.169291	.173228	.177165	.181102	.185039	.188976	.192913
5	.196850	.200787	.204724	.208661	.212598	.216535	.220472	.224409	.228346	.232283
6	.236220	.240157	.244094	.248031	.251968	.255905	.259842	.263779	.267716	.271653
7	.275590	.279527	.283464	.287401	.291338	.295275	.299212	.303149	.307086	.311023
8	.314960	.318897	.322834	.326771	.330708	.334645	.338582	.342519	.346456	.350393
9	.354330	.358267	.362204	.366141	.370078	.374015	.377952	.381889	.385826	.389763
10	.393700	.397637	.401574	.405511	.409448	.413385	.417322	.421259	.425196	.429133
11	.433070	.437007	.440944	.444881	.448818	.452755	.456692	.460629	.464566	.468503
12	.472440	.476377	.480314	.484251	.488188	.492125	.496062	.499999	.503936	.507873
13	.511810	.515747	.519684	.523621	.527558	.531495	.535432	.539369	.543306	.547243
14	.551180	.555117	.559054	.562991	.566928	.570865	.574802	.578739	.582676	.586613
15	.590550	.594487	.598424	.602361	.606298	.610235	.614172	.618109	.622046	.625983

PART I

TOOLS AND ACCESSORIES FOR METALLIC CARTRIDGES



Notes on Presses .....

Presses, like any other piece of machinery, are designed to work within certain limits. The largest and strongest presses will handle any job, from neck sizing the 22 Hornet up to swaging 375 caliber bullets. Before buying a press the novice should keep in mind that, as his knowledge of handloading increases, so will his desire to re-load additional cartridges. He should try to anticipate his future requirements.

The handgun shooter, loading for himself only, cannot go wrong buying a Pacific Super, C-H "C" type or some similar press. All handle handgun ammunition with ease, of course, as well as rifle cartridges. The Lyman #310 tool, the old reliable, also handles both types of ammunition. These are sturdy but not fast tools. After a few months, though, suppose our handgunner decides to handload ammo for several friends. In that case his original choice of a press may not be adequate for a larger volume of business handloading.

Or, let's assume instead that he moves on to bullet swaging. Can his original press handle bullet-swaging pressures?

All these things should be carefully thought out before buying any handloading press. It will save time, breakage and money. In any case, it is better to buy just a little stronger press than your present needs call for.

On the other hand, the shooter who travels, who moves and lives, perhaps, in a confined space or the man who does not do much shooting would be wise to purchase a small, light tool — say the Belding and Mull, the Ideal 310 or the Pak-Tool Hand Loader, one of the finest small portable tools. Using this tool a man can sit in his car, canoe or on a log in the woods and reload half a dozen cartridges.

Super "C" Press

$12.00

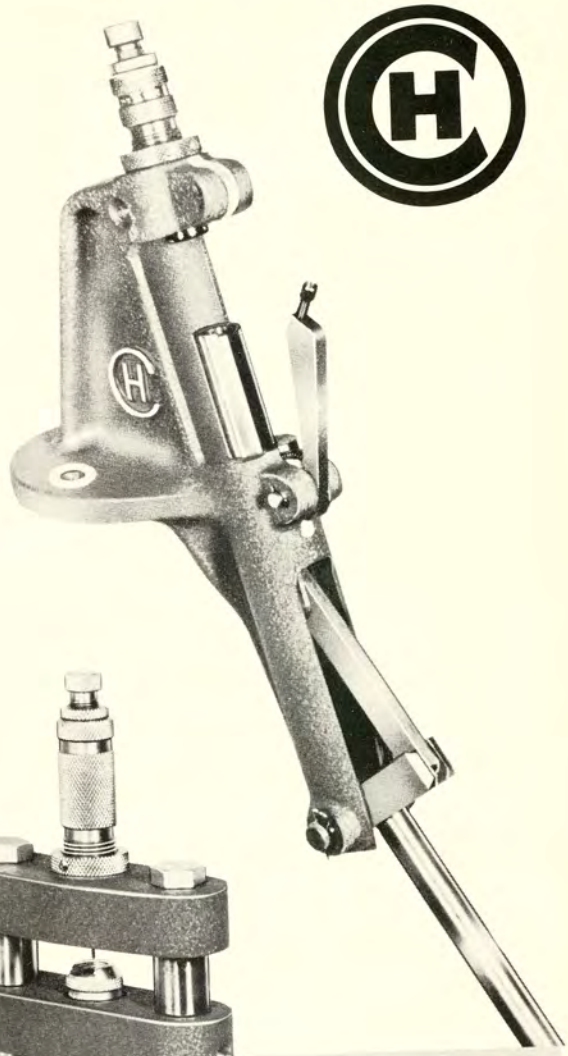
C-H Super "C" Press with Priming Arm ($3) and Shell Holder ($4.50)..... $19.50

This basic "C" type press (your choice of either a DOWNSTROKE or UPSTROKE model) is one of the most popular tools on the market today . . . and for good reason. It is inexpensive, yet performs ALL the operations of tools costing much more. Not a toy, but a precision tool that reloads, forms cases and swages bullets with a minimum of effort.

Depending upon the model you choose, simply press down or lift up on handle to get the proper leverage to complete operation. Resulting ammo is always perfect, insuring you higher scores than ever before. Perfect tool for the beginner, infrequent handloader and professional.

When ordering be sure to specify either UPSTROKE or DOWNSTROKE model "C" PRESS.

(See Dies and Accessories pages for other C-H items)



Magnum "H" Press

This tool is designed for handloaders wishing to reload both centerfire metallic cartridges and shotgun shells. A real work horse, it can turn out thousands of rounds of perfect ammo without ever needing adjustment or realignment. Stroke is 3⅞", more than adequate for reloading the longest cases. Priming arm features an adjustable stop so that you can control the exact seating depth of the primer. All vital parts chrome-plated.

$36.00

Dies, shell holder, priming arm extra.

C-H Reloading Press with Shell Holder ($3) and Primer Arm ($3) **$42.00**

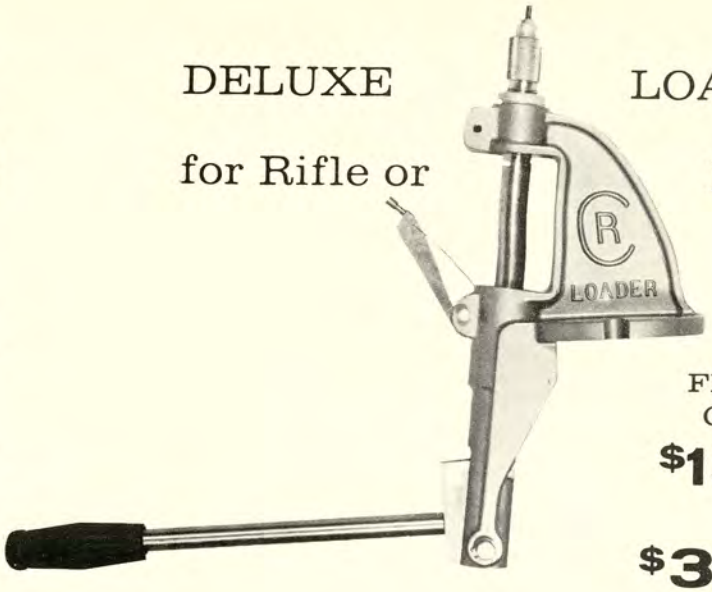
NOTE: This press can easily be converted to reload shotshells for an additional $12 plus your shot shell dies. Dies are available for 12, 16 and 20 gauge at only $30 per set.

The Handloader's PARADISE

C. R. SPECIALTY CO., INC.

ARMS · AMMUNITION · ACCESSORIES

DELUXE LOADER for Rifle or Pistol



- Uses standard loading dies with 7/8 inch 14 thread or may be adapted to take smaller dies.
- Shell holders can be furnished from our stock or uses conventional shell holders used by most "C" type frames.
- Adequate power on up or down stroke to full length size your largest cases.

FRAME ONLY **$13.95**

$34.95

Complete with R.C.B.S. or Pacific Dies, Shell Holder, & Primer Arm

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Efficient, Economical, Easy HANDLOADING

PAK-TOOL

(Leverage System under Patent 2,847,895 by consent of R.C.B.S.)

PAK-TOOL complete for one rifle caliber **$24.75**

PAK-TOOL complete for one pistol caliber **$28.50**

(Postage paid on cash-in-advance orders)

• •

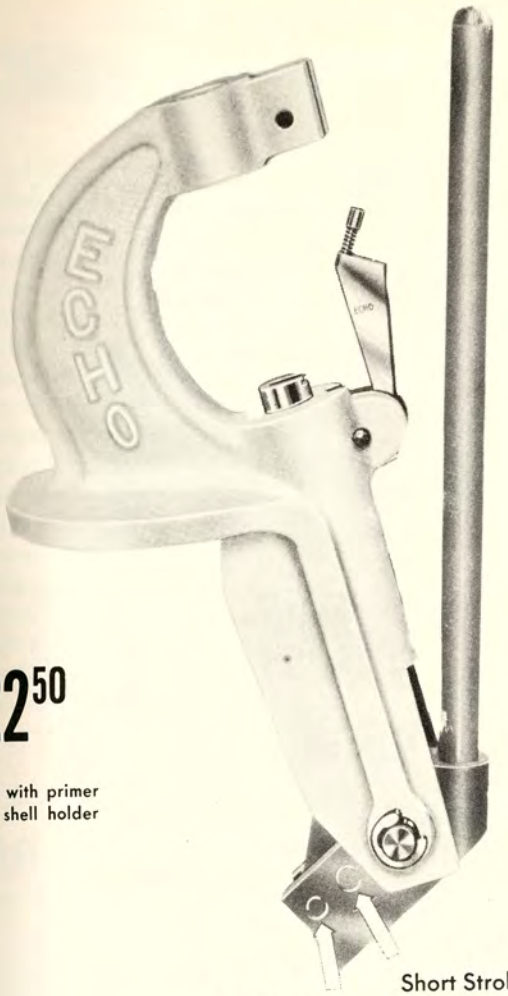
The Pak-Tool, designed for the handloader who lacks room or facilities for a bench tool, is ideal for the bench-rest shooter, the varmint hunter, the man 'way back in the bush or the rifleman who likes to load at the shooting range.

The powerful leverage of the Pak-Tool makes the full length sizing of such cartridges as the 357 and 44 Magnums simple and easy. For rifle cartridges the Pak-Tool neck sizes only. The Pak-Tool is 100% straight line in all of loading operations; with the full-grip cartridge holder to eliminate tearing the case heads, it will do as fine a job of cartridge loading as any tool made. Complete operating instructions enclosed with each Pak-Tool.

W. H. ENGLISH PAK-TOOL

E. C. HERKNER CO.

ECHO



Long Stroke

Short Stroke

$22.50

Complete with primer arm and shell holder

The new Echo "C" is the only loading tool featuring, in the one press, both a short or long stroke and up or down operation. A simple relocating of the toggle pin prepares the tool for the stroke desired. This, plus the unique Echo threaded shell holder head, make the new Echo "C" the most versatile tool made today.

The heavy cast iron frame and heat treated steel block, link and pins permit the Echo "C" to carry a *lifetime* guarantee against breakage.

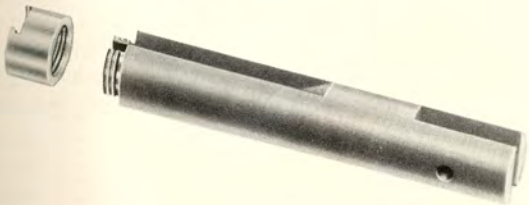
Price includes shell holder and primer arm. Extra primer arms, $2.75.

Echo Wedge Tie Bar

$2.50

The Echo Wedge Tie Bar gives an added reinforcement to the "C" frame for heavy case forming and bullet swaging operations.

- No. 1—Tie Bar fits Echo B and C, Pacific and older B models.
- No. 2—Tie Bar fits early Echo A and C-H models.



Echo Threaded Shell Holder Head

Shell Holder Head only **$2.25**

Shell Holder Ram only (also fits Pacific, C-H, RCBS Jr.) **$3.00**

Shell Holder Ram (Special for RCBS A & A2) **$3.60**

This unique system assures positive alignment and elimination of any side-play or looseness. See Shell Holder Chart on page 49 for calibers available.

HERTER'S Super Model 9

$11.99

No. SA6A Complete with primer rod and shell holder, less dies. State choice or order by caliber.

A fine quality, heavy duty, smooth and fast operating precision reloader at a low price. Genuine steel alloy frame – no aluminum alloy used. Operates like our Model 3M, but has different frame design. Primers are straight line seated by threading the shell holder into the die mounting station and threading primer arm into the head of the ram. This makes it impossible to cant or cock the primer when it is being seated.

The Model 9, operated as either an up- or downstroke press, gives you a full 3½" stroke that accommodates all magnum cases.

HERTER'S Accessories

Automatic Primer Feed for Models 3, 81 and 234 tools speeds up the reloading operation. It is positive in function and will not jam or hang-up. Specify small or large primer tube . $4.19

Extra primer tube (specify small or large) $1.22

Bushing for use with Lyman dies 47

Primer Catcher for Models 3, 81 and 234 tools. Made of heavy formed steel. Out of the way, yet it catches all spent primers . $1.37

HERTER'S Super Model 9A

(not illus.)

Same as the Super Model 9 except has same type of primer arm and operation as our Model 3, 81 and 234. State choice of primer arm and shell holder.

No. SA6B **$12.95**

HERTER'S Model 81 Super

No. SA1E Complete with primer arm, two shell holders and insert, less dies. State choice or order by caliber.

$23.95

A giant in size and performance, the Model 81 is actually two of the Model 3 tools combined. Strength enough for all reloading and swaging – even resizing two cases at once presents no problem.

Holds both dies in place at all times. The two separate piston rams operate on the straight line pressure principle with no chance of torque or twist. Special, individual toggle units produce equal leverage to each piston.

Order any of these Herter's reloading tools today — try it for a full month, and if it does not outperform any competitive tool in your judgment, return it for a full refund.

HERTER'S Super M3

Heavy S.A.E.-approved semi-alloyed steel frame with heavy 2" I-beam type webbing provides ample strength for all reloading operations and bullet swaging. Tremendous leverage is obtained through the use of the downstroke principle of the long 16½" handle and precision machining of the toggles, cams and piston ram.

Tapped for 1¼-18 shotshell dies and furnished with your choice of ⅞-14 or ⅝-30 inserts for metallic cartridges. 3½" stroke will accommodate all magnum cases. Shell holders are locked in place on the piston ram by two set screws. Primer arm, precision made for perfect alignment and of extra heavy construction, is guaranteed not to spring out of alignment under pressure. Each size primer arm (for .175 or .210 diameter primer) is supplied with one concave pin and one flat-head pin for use with convex or flat-top primers.

No. SA1B Complete with primer arm, shell holder and choice of insert, but less dies. State size of shell holder and primer arm desired or order by caliber.

$13.95

HERTER'S Model 3M Super

(not illus.)

No. SA1C Complete with primer rod and shell holder, less dies.

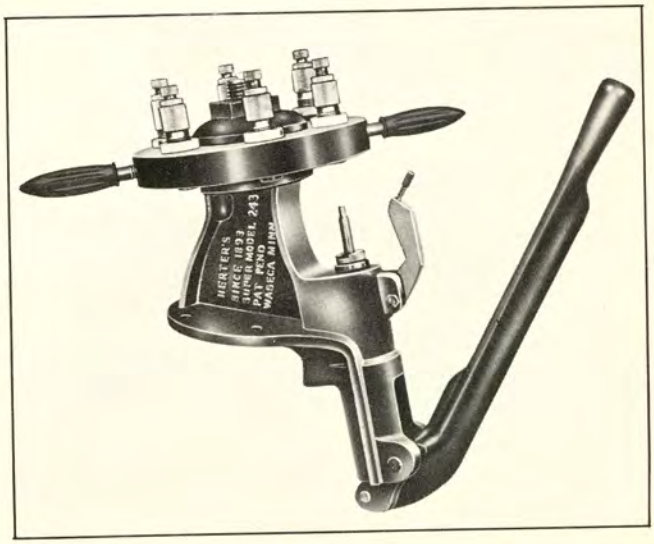
$12.29

Same as our Model 3 except it has a primer rod instead of a primer arm. Shell holder is threaded into die mounting station and primer rod into adapter furnished and into head of the ram. This provides positive alignment between primer rod and case in shell holder and prevents canting or cocking of primers when seating.

HERTER'S Model 234 Super Turret Head

No. SA1F Complete with primer arm, shell holder and insert (your choice), less dies.

$29.95



Identical in all respects to Model 3 except it has a heavy duty six-station turret that permits you to have dies and powder measure mounted for progressive use. A round can be completely reloaded without removing the case from the shell holder.

Indexing of the die plate is on the time-proven turret lathe principle, which insures perfect alignment. Five stations are tapped with the standard ⅞-14 thread size and the 6th station is tapped for the 1¼-18 thread size to accommodate the Herter's shotshell reloading dies. Supplied with your choice of ⅞-14 or ⅝-30 (Ideal) adapters so that 6th station may also be used for rifle and pistol dies.

New! HOLLYWOOD "Senior" Reloading Tool

$67.50

Height 15", shipping weight 45 lbs. stripped (FOB Hollywood).

A massive, precision made tool with leverage and bearing surfaces ample for the most efficient operation in reloading cartridges or swaging bullets. The castings are made of first quality, heat treated Meenite Castings. Precision ground 2½" pillar bearing surface, in one-piece construction with base. Operating handle of ¾" smooth steel 15" long give tremendous leverage and ease of operation with a downward stroke for case sizing or bullet swaging. Sturdy ½" steel tie-down rod furnished for added strength when swaging bullets.

Heavy steel toggle and camming arms held by big ½" steel pins in precision reamed holes. Extra holes are drilled for greater leverage in bullet swaging.

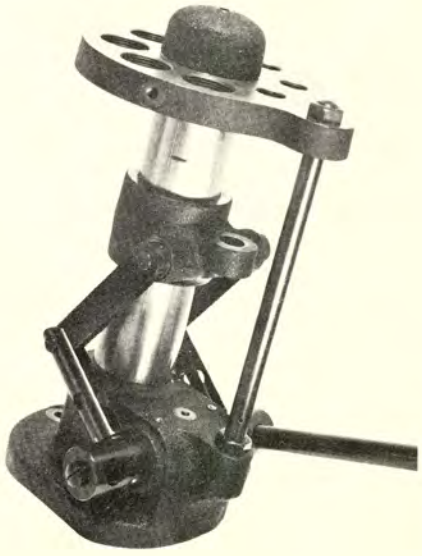
The 1½" steel die bushing is threaded for standard ⅞-14 dies; when removed it allows the tool to be used for shotshell reloading.

New! HOLLYWOOD "Senior" Turret Tool

$87.50

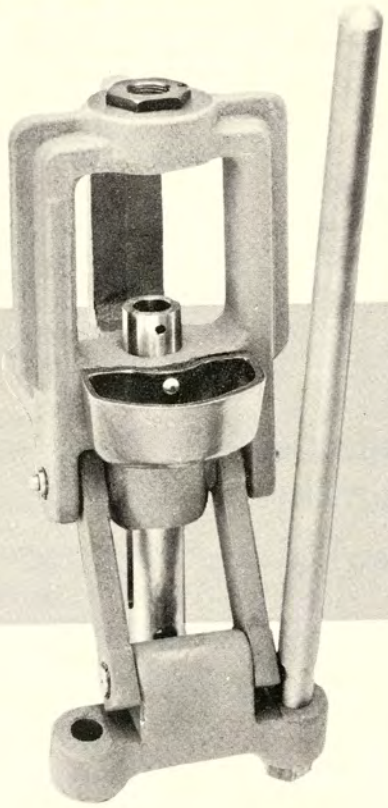
Height 15", weight 45 lbs. stripped (FOB Hollywood).

Same quality and features as the "SENIOR" except with 8-position turret head. Holes in turret may be had tapped 1½" or ⅞" or a combination of the two.



LACHMILLER

"Powerhouse" Press

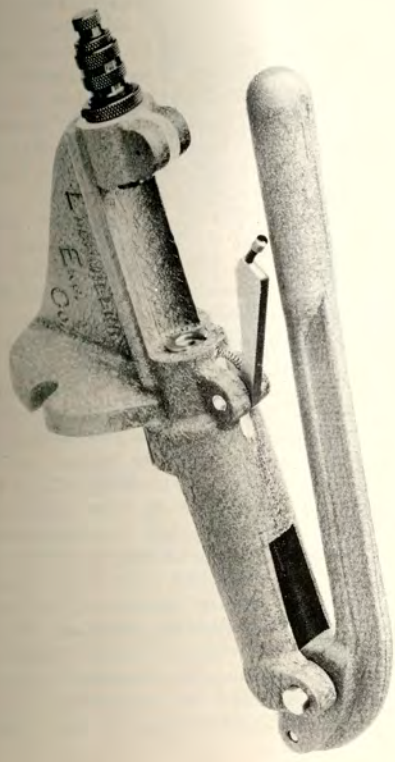


$69.95

(less dies and shell holder)

This new, modern tool, made of ductile iron, has a tensile strength of 80,000 lbs. per square inch. Now you can swage any bullet, form any case and do any reloading operation with ease. The large open front allows plenty of working area; the long solid steel handle gives plenty of leverage for the toughest jobs and is adaptable for right or left hand use. The 3-position bracing supports eliminate all spring or give. The heavy duty ram is precision ground and individually fitted to each tool. Tool die head is bored 1¼-18 for shotshell dies and a ⅞-14 adapter is furnished to take standard metallic dies.

LACHMILLER Model 200 Press



$12.95

(priced less dies, shell holder and primer arm)

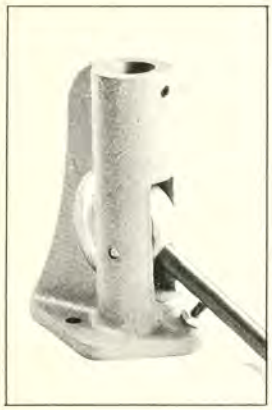
An inexpensive reloading tool, yet machined to the same close tolerances as all other Lachmiller products. It will load all rifle and pistol cartridges and has plenty of strength to full length resize all rifle cases with ease. The frame is made of a tough durable alloy and is slotted to take an auto primer feed. Die station is threaded ⅞-14 to accept all standard dies. The downward pressure stroke and hand fitting handle lets you perform the toughest resizing jobs with ease and comfort.

LACHMILLER Model 400 Press

$37.50

This streamlined, extra strong reloading tool is made from the finest materials available. The main casting is completely machined in one fixture without being removed between operations; this insures perfect alignment of all parts. Die station threaded 1¼-18 for shotshell loading and a ⅞-14 adapter is furnished to handle all standard reloading and swaging dies.

Included with the tool is a handy new primer catcher (this tool does not re-prime) and one shell holder (state caliber). Downstroke pressure and hand fitting handle make any reloading job easier.



LACHMILLER Priming Tool

$6.50

Priced less shell holder ($2.15) and primer rod (90¢)

The Model 400 tool does not have a priming attachment. The priming tool is made as a separate unit and gives you these advantages:

- More than one person can load at the same time
- Trouble-free priming operation
- Stop controlled seating depth
- Sensitive feel assures perfect seating

How Hard Does it Fall?

The keen and increasing interest that sportsmen all over the country have in matters pertaining to gun and ammunition performance is reflected in the flood of letters received each year by manufacturers of these important pieces of sporting equipment.

One of the questions regularly asked has to do with the fall of a bullet or a charge of shot when fired straight up in the air. Many of these correspondents seem to feel that if a bullet is fired straight up it will return to earth with practically no force at all. Such, of course, is not the case.

Dr. C. S. Cummings, Remington's supervisor of physics and ballistics research, discusses this in the following interesting manner:

"Until science learns how to produce a rocket or other projectile with sufficient energy to overcome the earth's gravitational pull and escape into outer space, the statement that 'What goes up must come down' will remain a fact. Elementary physics teaches that if there were no atmosphere, a ball thrown vertically upward would return to earth with exactly the same speed with which it was initially thrown. Nature, however, is not so simple and the atmosphere so necessary to the existence of life on the earth greatly complicates the problem of the velocity of freely falling objects.

"Although in principle the answer to these questions is relatively simple, it is not so easy to give a numerical answer. It is well known that the resistance offered by the air to the passage of a bullet or other object increases in a complicated fashion as the velocity of the bullet increases. For relatively low velocities, for example, the resistance increases approximately four-fold when the velocity is doubled. An object falling freely through the air, then, is acted upon by two opposing forces: first, the force of gravity which tends to increase the velocity of the falling object, and, secondly, the resistance of the air which tends to retard the velocity of the falling object.

"As the velocity of fall increases from zero at the start, the air resistance will correspondingly increase until a point is reached at which the downward pull of gravity is equalled by the upward resistance offered by the air. When this point is reached, the velocity of the object will no longer increase and it will continue its fall at a constant rate. This constant rate is known as the 'terminal velocity.' For fall from very great heights, the motion is further complicated by the varying density of the air.

"The air resistance differs for objects of different shape and weight even though moving with the same velocity so it is necessary to know what this 'resistance characteristic' is for each object being considered. Since it is of fundamental importance in ballistic work, this characteristic is known by the name 'ballistic coefficient.' In order to solve the problem of the freely falling object, it is first necessary to determine the ballistic coefficient of that object and then, using ballistic tables, to find that velocity at which, for this ballistic coefficient, the air resistance is equal to the force of gravity. This velocity is the terminal velocity.

"For spherical shot the determination of the ballistic coefficient is quite simple since a sphere always presents the same surface area and shape to the direction of motion. Carrying out the calculation as described above for spherical shot, we find that for No. 9 shot the maximum downward or terminal velocity is about 75 feet per second. For the larger No. 2 shot the terminal velocity is about 100 feet per second and for the larger 00 Buck shot, the terminal velocity is about 155 feet per second. With a speed of 88 feet per second equalling the rate of 60 miles per hour, it is obvious that even the tiny No. 9 shot would not go unnoticed by a person standing in the way.

"When we come to the terminal velocity of a bullet, however, there are added complications. This is due to the fact that in general the bullet will tend to tumble rather than fall point or heel first. In tumbling, it presents a continually changing surface to the direction of motion so that the ballistic coefficient is no longer a constant.

"In order to handle this problem, it is necessary to use a sort of 'average' ballistic coefficient, which, although by the very nature of the behavior of the falling bullet, cannot be an accurately known quantity, will give results that are reasonably reliable, and which probably represent the lowest value of the various possible terminal velocities. Neglecting the complication due to the residual spin, it can be shown that the ballistic coefficient of a tumbling bullet is approximately the same as that of a sphere of the same weight and surface area. Using this approximation, we find that the terminal velocity of the 40 grain 22 L. R. bullet is of the order of 130 feet per second and the 200 grain 30-06 bullet of the order of 160 f.p.s.

"Any of these figures should be sufficient warning that although the air does have a very considerable cushioning effect and reduces the velocity of the bullet or shot to a value considerably below that with which it originally leaves the gun, under no circumstances should a gun be fired vertically on the assumption that the resistance of the air will reduce the effect of the returning projectile or shot to 'that of a gentle rain.'"

PACIFIC Super DeLuxe Press

A rugged, precision tool guaranteed to do all types of reloading jobs — full length sizing and even bullet swaging. The sturdy frame is made of non-springing Paxmite annealed cast iron. All bearing surfaces are hardened and plated for long life. Toggle adaptable to either up or down stroke.

$18.50

Dies, shell holder, priming arm extra.

The following accessories offer convenience and save both time and labor.

Pacific Primer Catcher has large capacity, and encircles the ram to catch all spent primers, $1.75. The Pacific Level Block, a handy accessory for those who prefer to use the tool in the vertical position, is $4.00. The Pacific Auto Primer Feed eliminates any handling of primers, and its large capacity speeds up the loading operation, $7.00.

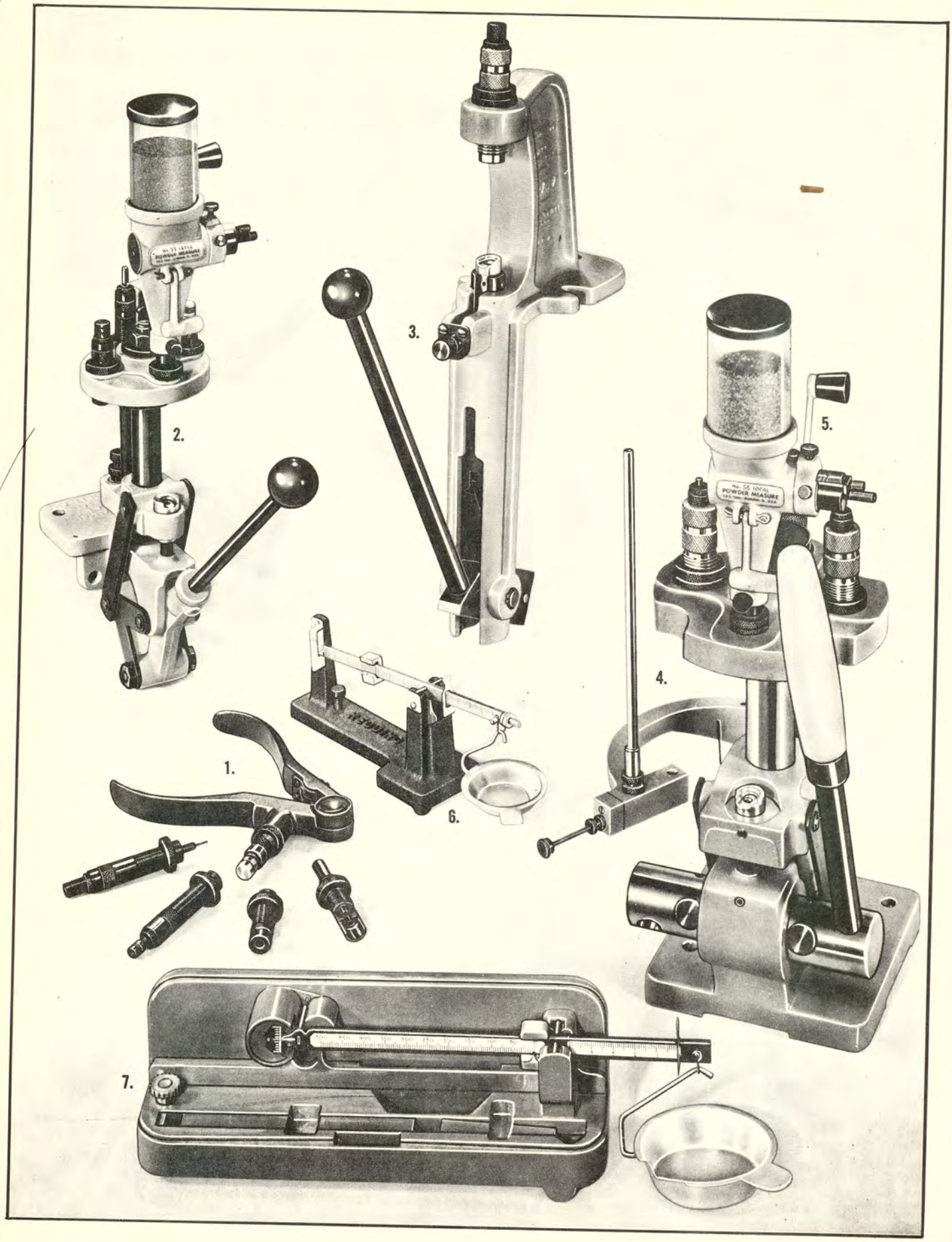
PACIFIC Super Mag Press

- Non-springing Paxmite Annealed cast iron frame.
- Choice of up or down stroke action in one tool.
- Designed for all types of reloading jobs including bullet swaging.
- No need to change dies during loading operation.
- Advanced design action.

Complete with three removable shell holder rams

$74.50

Designed to fit the needs of the reloader who loads a considerable amount of ammunition in many calibers, it incorporates a 3-station die head. A new toggle system, using links attached to the top of the frame, creates a downward force on the head of the tool equal to the upward force of the rams. This keeps the dies in perfect concentricity with the rams at all times. Your choice of either up or down stroke simply by reversing the toggle block. Center-position handle is easily used with either right or left hand. Rams are removable shell holder type.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No. 55 RIFLE
POWDER MEASURE

Lyman Reloading Equipment

(Metallic Cartridges)

1 **The #310 Reloading Tools** are America's favorite reloading equipment — have been for over 80 years. Rugged, reliable and easy to use, the #310 Tool is completely portable; no permanent installations or benches are ever required. It is the ideal **complement** to bench presses; it takes over on the shooting range where the stationary bench press leaves off. No other reloading equipment permits a finer and more precise primer seating procedure. No other tool is as easy to use for the beginner — because each reloading step is performed with a separate die. Bullet seating is also simpler and more uniform due to the two-step expanding plug. Finally, and most important, the #310 Tool is far and away the lowest-priced reloading tool on the market. The beginner's choice, and the expert handloader's alike . . . Price — complete with dies $16.50. Large handles for rifle cartridges . . . small for pistol and short rifle cartridges.

#310 Handle (specify Large or Small) ..... **$ 5.00**
#310 Die Set — Rifle or Pistol **11.50**
Spare Decapping Pins — Package of 10 ..... **1.00**

2 **The Tru-Line Jr. Press** is the fastest tool on the market (except for automatic or progressive loaders). The secret is compact design and short-stroke operation through the "power link" leverage system. Easily performs all loading operations including full-length resizing of pistol cases; neck sizes rifle cases. The rotating turret feature gives the handloader a choice of completing each case without removing the cartridge from the press, or of performing each operation individually on the entire lot of cases. The turret-mounted No. 55 Powder Measure (see right) is a key to the amazing reloading speed of the Tru-Line Jr. Press — and to its reloading precision. Pistol ammunition reloaders will appreciate the inherent safety feature, too: when each round is completed without being removed from the press, it is nearly impossible to double-charge the cartridge. The accessibility of the priming punch speeds priming operation. The two-step expanding dies (standard w/pistol, optional w/rifle sets) — permit more precise bullet-seating and insure top accuracy. No other press which is as fast as the Tru-Line Jr. is, at the same time, as economical — no other press with all the features of the Tru-Line Jr. can be bought for even twice its price.

Press Only **$19.75**
Tru-Line Jr. Rifle or Pistol Die Set Less Priming Punch and Shell Holder ..... **$ 8.50**
J. Shell Holder **1.75**
T. Priming Punch **1.50**
Spare Decapping Pins — Package of 10 ..... **1.00**
#55 Powder Measure shown with Tru-Line Jr. Press **16.00**

3 **The All-American Comet Press** combines simplicity, clean, functional design shaped for strength, and is a heavy-duty reloading press built for a lifetime of precision work. It is as easy to use as its simple lines suggest: adjustable, so powerful leverage can be applied in either up- or down-stroke. The Comet Press is the only "C"-Frame Press in its price range which is designed to reload **all** rifle, pistol or shotgun ammunition with equal ease, equal precision. The All-American Comet Press uses All-American chrome-plated Dies — and can take all other ⅞ by 14 Dies as well. In addition, each Press is supplied with adapters which permit the use of Lyman Ideal Dies. An automatic primer feed is an optional feature. The most versatile of all the "C" presses on the market. Press only $27.50. Slip In Primer Feed . . . $6.50

4 **The All-American Turret Press** is the ultimate in precision reloading equipment — the champion for speed, for accuracy — at a popular price! Here is tremendous power for all operations — including full-length resizing and shotgun slug swaging. The speed of operation of the All-American Turret Press makes it the choice of reloaders who handle large volumes of custom loads — and this feature also makes it the best buy for shooting clubs and police training units, where fast production is a prime consideration. The turret design is a factor in this speed; permits the reloading of each case completely without removing it from the press — or allows for handloading a group of cases step-by-step. Another reason for the tremendous production performance of this press is the No. 55 Powder Measure (described below) which can be mounted directly on the Turret. Finally, the use of the optional automatic primer feed steps up the pace of this operation as well. The All-American Turret Press may be adjusted for up or down stroke leverage, and offers a choice of right- or left-hand operation. The All-American Turret Press measures up in precision to its amazing speed. Finally, its versatility is unexcelled — pistol or rifle ammunition, shotshells (with special dies), rifled-slug swaging — any of these jobs are made to order for the Turret Press.

Press Only **$54.50**
Push Button Primer Feed **9.50**
#55 Powder Measure **16.00**

5 **The #55 Powder Measure** mounts right on the turret of the All-American Turret Press (see left) and the Tru-Line Jr. Press (see No. 2 on this page). A flick of the fingers takes care of the complete powder-loading step — with unfailing, repeatable laboratory precision. Calibrated slides and micrometer screws allow adjustments from the largest to the smallest volume changes with whatever powder used. The integral, threaded drop tube and the knocker assure complete discharge into the cartridge case, and make a funnel unnecessary. Price complete with large and small drop tubes . . . $16.00

6 **Redding Powder & Bullet Scale.** A dependable scale, easy to operate. One-tenth grain accuracy, the Redding has 325 grain capacity. Aluminum powder pan, satin chrome finish beam arm with easy to read graduations. Oil damping system . . . base with leveling screw. Price: $14.00

7 **Lyman-Ohaus 505 Reloading Scale . . .** compact, portable, self-contained in its own dustproof carrying case. Fastest of all scales to use, exclusive magnetic dampening (patent applied for) **assures** extra fast accurate weighing without affecting sensitivity. No oil well to clog or spill. Guaranteed 1/10 grain accuracy. Contrasting graduation lines for easy readings. Almonox bearings for longer life and accuracy. Extra large pan with spout, uniquely designed so that small objects stay at center of pan . . . weighs up to 505 grain capacity. Attractive, diecast case will last a lifetime. Price: $19.50

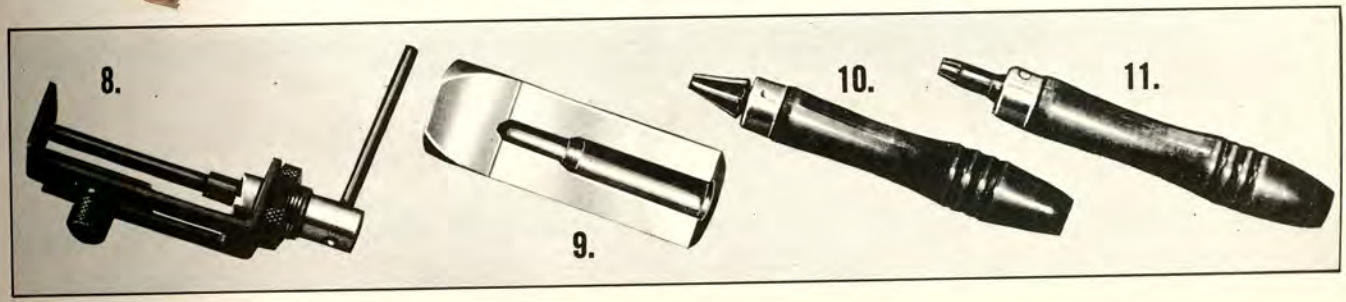
8 **Case Trimmer:** Used with a separate guiderod for each caliber, cases can be trimmed to exact length required. Price . . . $7.00

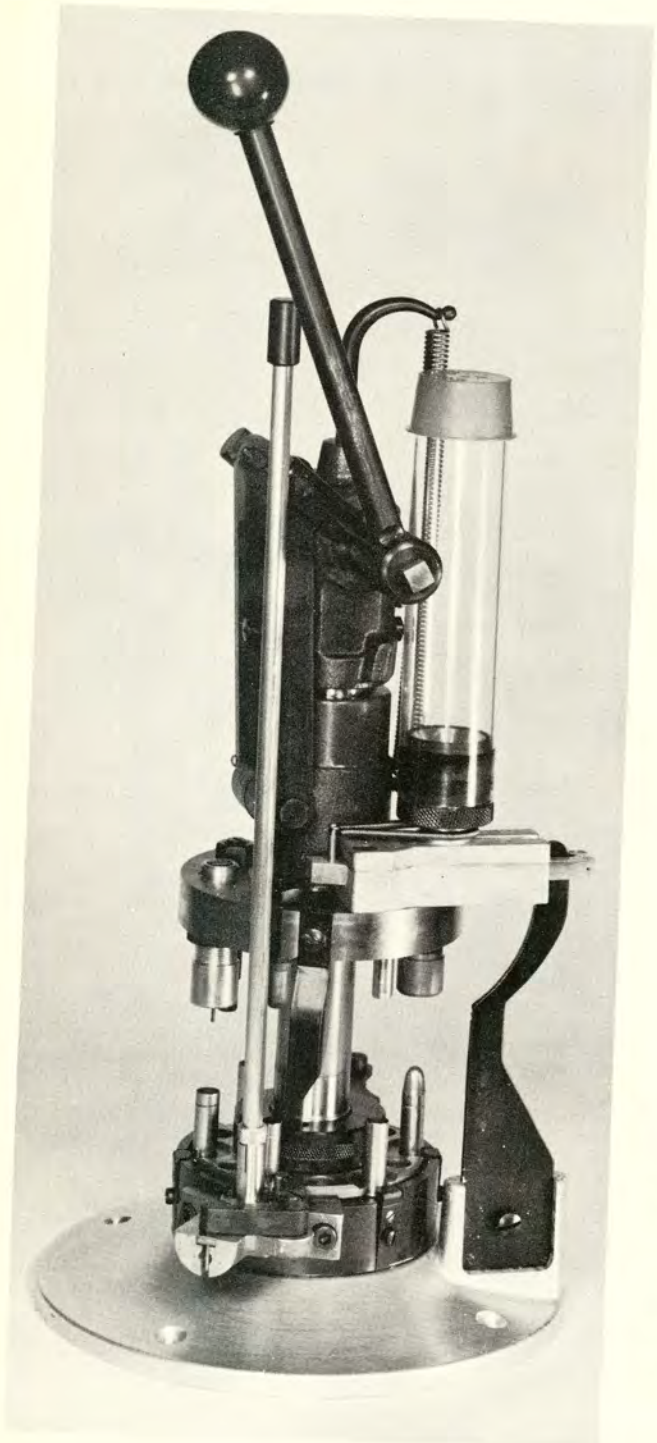
9 **Full Length Resizing Die:** Restores metallic cartridges to original dimensions. (Die illustrated cutaway to show resizing chamber, heavy-duty construction.) Size-Ezy sizing lubricant (in cans or convenient tube) is applied lightly to case prior to resizing. The Full Length Resizing Die, may be used with any workshop vise. or cases can be sized manually.

Full Length Resizing Die . . . $3.50 **Size-Ezy Sizing Grease . . . $ .50**

10 **Shell Chamfering Reamer:** To taper the case mouth, for easier bullet-seating. One size adapts to all cartridges. Price . . . $3.00

11 **Primer Pocket Reamer:** Removes rough metal edges from a primer pocket. Order correct size, large or small (same size as Priming Punch . . . see chart on page 16). Price . . . $2.50





PHELPS *Turret* RELOADER

for the simplest in cartridge reloading

DELUXE MODEL	**$190.00**
STANDARD MODEL	**170.00** for 38 special
EXTRA TOOL HEAD for one caliber	**$ 65.00**
HULME CASE FEEDER	**$ 29.50** extra

(all prices F.O.B. East Orange, N. J. Cash, Certified Check or Money Order)

The design of this type of Reloading Machine has proven itself the very best over the years.

No special training is required to operate because of the series of built-in safeties. Double operation at the same station is impossible and the PHELPS TURRET RELOADER will notify you when the primers are exhausted.

Leading shooters and Police departments have accepted this reloader and report as many as 1100 cartridges reloaded per hour.

Powder charges are delivered with consistant accuracy and the varying height of the powder in the magazine DOES NOT change the powder deposit pressure.

Extra tool heads in many hand gun calibers are available for the Deluxe model. One tool head for each caliber. Caliber changeover is both quick and easy.

All Phelps Turret Reloaders are supplied with carboloy dies, transparent powder magazine, and 100 primer pickup at no extra cost.

Extra Tool Heads are supplied with carboloy dies and 100 primer pickup at no extra cost.

Finest workmanship and materials throughout . . . ALL PARTS and TOOL HEADS are interchangeable with machines of similar designs.

WHEN ORDERING . . . mention number and make of bullet and powder charge to be used. If this is not in the order we will send machine with bullet seating punch most commonly used for the caliber of the machine and the powder slide set for Bull's Eye Powder for that caliber.

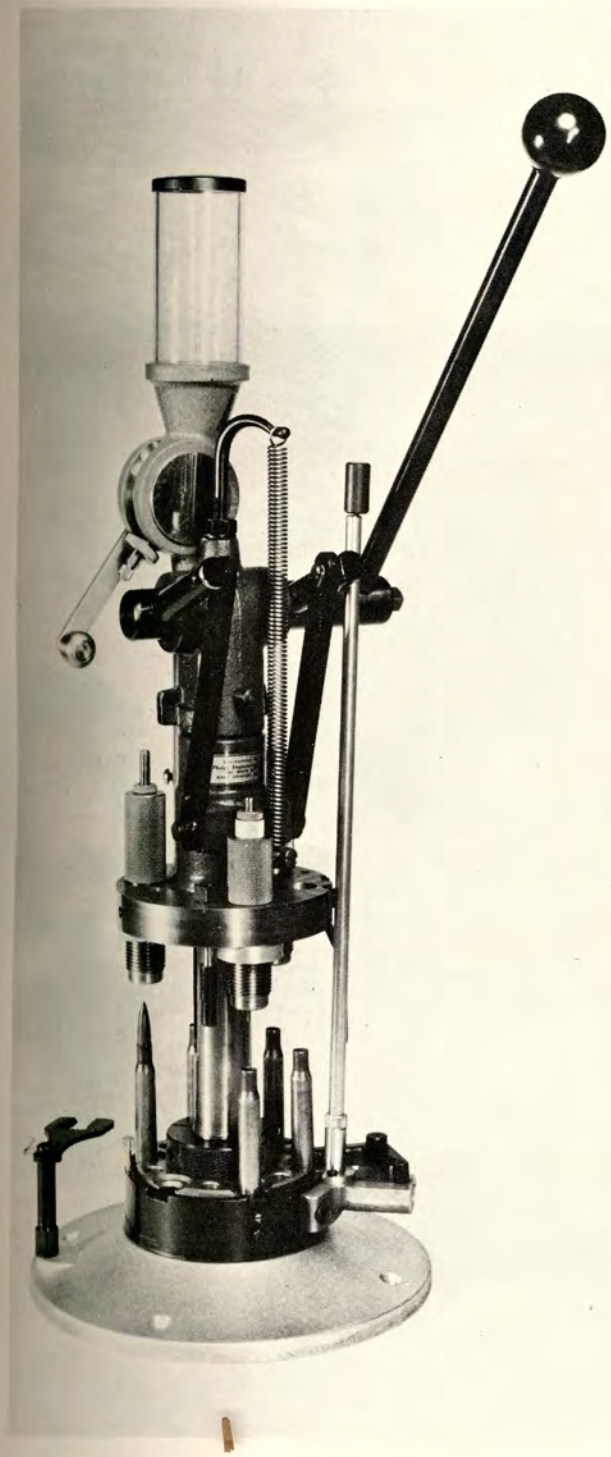
Shell locating straps may be removed for single station operation if desired—PHELPS EXCLUSIVE.

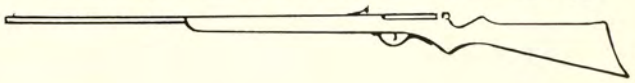
MANUFACTURED BY

Phelps Engineering Co.

487 MAIN STREET • EAST ORANGE, N. J.

PHELPS
"RIFLEMATIC"





COMPLETE WITH 3 DIE SET **$198.50**

RIFLE TOOL HEAD ..... **$ 65.00**

CUSTOM WORK DONE ON ALL TOOL HEADS IF DESIRED

(all prices F.O.B. East Orange, N. J. Cash, Certified Check or Money Order)

The Phelps "RIFLEMATIC" Reloader produces one complete round with every stroke of the operating handle. "RIFLEMATIC" is unique in the rifle reloading field for speed and economy, and it is similar in design to the proven Phelps Turret Reloader for pistol cartridge reloading. Alterations include the use of R.C.B.S. Dies and R.C.B.S. Uniflow Powder Measure. "RIFLEMATIC" is machined to handle 2-Die or 3-Die sets.

With the newly developed Phelps Auto-Adjusting Powder Drop Tube, separate height adjusting operations for different popular calibers is eliminated. The powder assembly is quickly interchangeable with other available tool heads, and it is NOT a separate operation.

The shell locating straps may be removed for single station operations if desired. **These stations are:**

(1) Full length resizing and decapping.
(2) Priming of cases.
(3) Expanding of cases.
(4) Powder dropping.
(5) Bullet seating and crimping.

Cases may be removed at the priming and powder dropping stations for individual inspection.

The Phelps Pistol Tool Head is interchangeable with the "RIFLEMATIC", and the safety cam and powder cam are standard equipment on "RIFLEMATIC" for this purpose. This feature enables this versatile machine to reload practically all pistol and rifle cartridges. "RIFLEMATIC" Tool Heads are NOT interchangeable with the present Phelps Turret Reloader.

When ordering please designate primer size and cartridge caliber.

MANUFACTURED BY

Phelps Engineering Co.

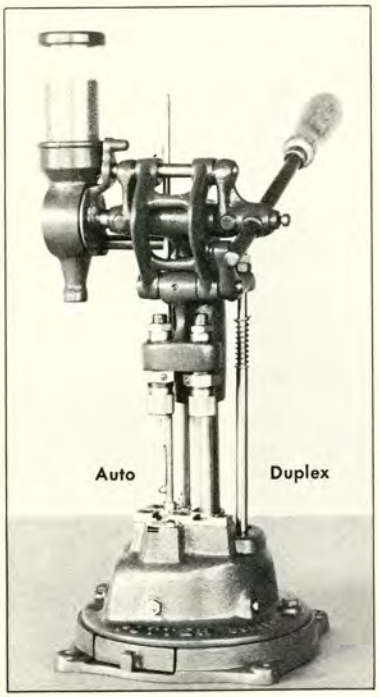
487 MAIN STREET • EAST ORANGE, N. J.

POTTER ENGINEERING COMPANY

All of these reloaders are variations on the STANDARD DUPLEX (not illus.) which operates as a progressive tool. The first case is put into the left slot of the shell holder plate and the top lever drawn forward; this decaps and sizes. Crimp removal and bell-mouthing of handgun cases is done at the same time. An expanding-belling die is also available at $5.50 extra. A forward movement of the side lever then feeds a new primer, seats it in the case and ejects the old primer. Primer seating depth is adjustable, an important feature.

This shell is then held under the powder measure and a second case inserted into the decapping position. The top lever is drawn forward, resizing and decapping the second case and placing a charge of powder in the first case. A bullet is fitted to the first case and it is placed in the right slot of the shell holder plate where the bullet will be seated simultaneously with the other operations. By repeating this sequence, a loaded round can be had with each movement of the lever.

Standard Duplex with dies and powder measure $125.00
As above except with L-L-Carboloy sizing die 138.00



AUTOMATIC DUPLEX—Same as Standard Duplex except without priming lever on left side. Primer is seated automatically on the return stroke of the operating lever.

Automatic Duplex with dies and powder measure **$125.00**

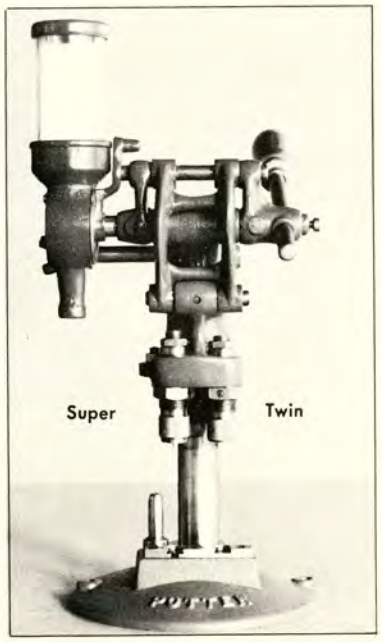
As above except with L-L-Carboloy sizing die $138.00

COMBINATION DUPLEX (not illus.)—Same as the Automatic Duplex except retains the priming lever on left side. This tool may be used either as a Standard or Automatic—all the advantages of both tools.

Combination Duplex with dies and powder measure $150.00
As above except with L-L-Carboloy sizing die 163.00

DUPLEX SUB-BASE (illus. on Auto Duplex)—A convenient accessory for any Duplex tool. The drawer to catch spent primers provides an easy way to remove them for disposal.

$6.50



SUPER TWIN—Same basic machine as the Duplex but without primer feed, manual or auto.

With dies but without powder measure.

$54.50

With dies and powder measure **$69.50**

PRICE LIST

PRICES SLIGHTLY HIGHER IN CANADA

EFFECTIVE JANUARY 1, 1962 – SUBJECT TO CHANGE

RCBS INC. P. O. BOX 729 OROVILLE, CALIFORNIA

PRECISIONEERED **RCBS RELOADING EQUIPMENT**

RCBS MODEL "A-2" PRESS

Designed for rifle, pistol and shotshell reloading and heavy duty case forming. Block "O" frame design eliminates springing so prevalent in "C" type tools. May be operated up or down-stroke; change takes less than 5 minutes with no extras to buy. Compound leverage system makes EVERY operation much easier. Standard 7/8"-14 & 1¼"-18 thread sizes for all popular reloading dies and accessories. Furnished with the RCBS REMOVABLE HEAD TYPE SHELL HOLDER and unique RCBS PRIMER ARM.

Model "A-2" Press complete with Removable Head Type Shell Holder and Primer Arm.
Specify caliber of shell holder and size and type of primer arm **$65.50**

Model "A-2" Press with Primer Arm, less Shell Holder Head.
Specify size and type of primer arm $63.10

Model "A-2" Press Primer Arm—Large Round; Small-Round; Large-Flat; or Small-Flat.
Specify press, size and type $4.50

Primer Plug & Sleeve (Use spring and lock nut from original primer arm.) Large-Round; Small-Round; Large Flat or Small-Flat.
Specify primer type $2.00

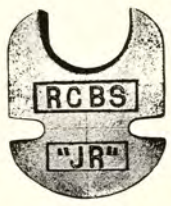
RCBS MODEL "Jr" PRESS

Rugged Block "O" design resists springing. Changes to up or down stroke in minutes -- nothing extra to buy. Standard 7/8"-14 thread for all popular rifle and pistol dies. Ample leverage to do all reloading and case forming.

Reloader Special

Includes: RCBS "Jr." Press, Primer Catcher, Removable Head Type Shell Holder, Universal Primer Arm and one set of RCBS Dies. Available in the following calibers: 222 Rem., 243 Win., 270 Win., 308 Win., 30-06, 30-30, 357 Mag., 38 Spl., 44 Mag., 45 ACP. Ask for RCBS Reloader Special and specify caliber. Regular $45 value.

Now only **$39.90**



Wedge Block

For those who prefer to work with the RCBS "Jr" Press tilted back at slight angle. Mounts between press and bench.

$1.80

Primer Catcher

No more spent primers on the floor! Attaches quickly without screws. For RCBS "Jr" and Pacific Super Presses.

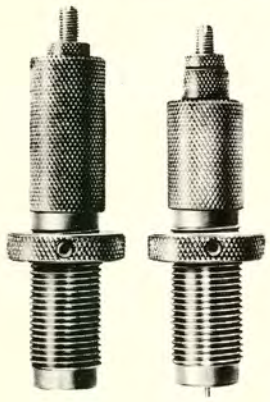
$1.80

RCBS UNIFLOW POWDER MEASURE

No special skills needed to throw consistently accurate charges. Quick, easy adjustment from one charge to another. Powder is poured - not dumped into measuring chamber – no clogging. Powder level is visible in the NEW 5" hopper at all times. Large and small drop tubes take all calibers. Easily mounted on reloading press or bench. Complete with mounting bracket. Special small hole cylinder available for pistol loading.

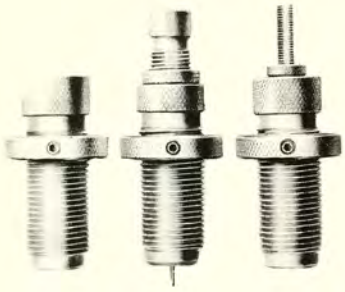
Uniflow Powder Measure
Regular or Small Hole Cylinder **$19.95**

RCBS RELOADING EQUIPMENT



RCBS RIFLE & PISTOL RELOADING DIES

RCBS "Precisioneered" Reloading Dies are manufactured with over 20 years of experience in this specific type of work behind them. Inside and outside surfaces hand polished for years of trouble free reloading. No chrome plating to crack and peel. Inside surfaces drilled and reamed to the most exacting standards. See the RCBS Caliber List and Shell Holder Chart for prices of all die sets. Prices shown below are for standard calibers only. Replacement parts for $15.00 and $18.00 sets are priced slightly higher. Write for prices.



2-DIE RIFLE SETS – $13.50

Sizer and Seater Dies	
Rifle Sizer Die –	
Full Length or Neck	8.50
Rifle Seater Die – with Crimper	5.00
Rifle Expander Unit	2.50
Rifle Expander Ball	1.50
Rifle Expander Rod:	
Specify 8/32" & 10/32"	
10/32" & 10/32" or ¼" & 10/32"	.50
Decapping Pin-Regular or Heavy Duty	
Pack of 5	.60
Seater Plug - Any Bullet Shape	2.00

3-DIE PISTOL SETS – $13.50

Sizer, Expander & Seater Dies	
Pistol Sizer Die	5.00
Pistol Expander Die	5.00
Pistol Seater Die	5.00
Pistol Expander Unit	2.50
Decapping Pin - Regular Pk. of 5	.60
Pistol Seater Plug –	
Round Nose or Wadcutter	2.00
Pistol Decapping Pin Holder	1.00

RCBS SHELL HOLDERS

RCBS Models 'B', 'Jr', PACIFIC and C-H 'C' type presses

$6.00

Ram 3.60

REMOVABLE HEAD TYPE

Heads $2.40

HOLLYWOOD DUNBAR and C-H 'H' type presses

$3.90

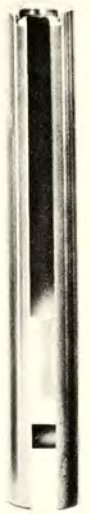
Ram 1.50

RCBS Model 'A' Press

$6.00

Ram 3.60

SOLID TYPE



RCBS Models 'B', 'Jr', PACIFIC and C-H 'C' type presses

$4.50

RCBS Model 'A' Press

$4.50

HEAVY DUTY TYPE

RCBS Models 'B', 'Jr', PACIFIC and C-H 'C' type presses

$4.50

RCBS Model 'A' Press

$4.50

LACHMILLER Press

$3.00

HOLLYWOOD DUNBAR and C-H 'H' Type Presses

$3.00

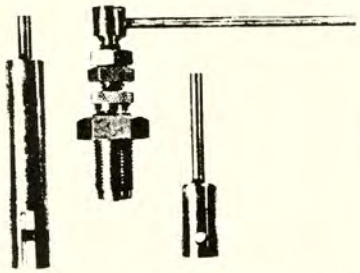
All RCBS Shell Holders are precision machined for the best possible fit to the presses listed. When ordering, specify type (Removable Head, Solid or Heavy Duty), make of press and caliber, number or gauge. See the RCBS Caliber List and Shell Holder Chart.

RCBS RELOADING EQUIPMENT

RCBS Bullet Puller

The RCBS Bullet Puller is designed for use with all reloading presses with the standard 7/8"-14 thread. Working like a draw in a collet chuck on a lathe, the internally machined collets will pull any length bullet of the given caliber quickly and easily without damage to the bullet.

Complete **$7.00**
Collet 3.25



RCBS Primer Pocket Swager

The RCBS Primer Pocket Swager is designed to swage perfectly round, correctly dimensioned primer pockets in .30-06 and .38 Special Government brass. Quick and easy to use. For RCBS, Pacific, Echo and C-H "C" type presses.

Complete **$10.00**
Ram only 4.50

RCBS File Type Case Trimmer

Designed for quick, easy trimming of overall case length. Simply file off any portion of the case. that protrudes above the die. Hardened to withstand the roughest use. Standard 7/8"-14 thread. Available in all calibers having an overall case length of 0.875" or more. **$5.00**

RCBS SHELL HOLDER HEAD EXTENSION FOR FILE TYPE CASE TRIMMER

Used in conjunction with the RCBS Removable Head Type Shell Holder Ram to gain the extra length necessary when using the RCBS File Type Case Trimmer for cases having an overall length of 0.875" to 1.700". **$3.00**

RCBS Stuck Case Remover

The Stuck Case Remover is designed to easily remove stuck cases in RCBS and Pacific Sizer dies. Made in two sizes – 3/8"-24 and 7/16"-20 threads. Complete instructions included. Specify thread size in top of sizer die when ordering. **$1.80**

RCBS Resizing Lubricant

A must for proper lubrication of cases or bullet jackets before sizing or forming. Should be used with the **RCBS Case Lube Pad** shown below. No more stuck cases in sizer dies! Packed in convenient 2-oz. polyethelene bottles. **50¢**

RCBS ALL CLIMATE RESIZING LUBE – a synthetic lubricant for use in cold and extremely cold climates. Remains the proper consistency for resizing regardless of temperature. Packed in convenient 2-oz. cans. Specify "ALL CLIMATE LUBE." **75¢**

RCBS Universal Primer Arm

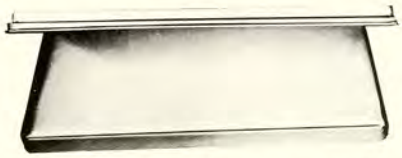
Designed for use with RCBS Model "Jr" and "B" and most "C" type presses. Interchangeable primer plugs and sleeves make changes quick and easy. Furnished complete for Large Round, Small Round; Large Flat and Small Flat primers.

Universal Primer Arm complete **$3.00**
Primer Plug Sleeve ... .30
Primer Plug ..... .30

RCBS Case Neck Brush

Ideal for lubricating inside of the case neck before sizing. Nylon bristles to withstand years and years of service. Available in .22, 6mm, .270, .30, .35 and .45 calibers.

Handle and Brush **$1.20** Extra Brushes **20¢**



RCBS Case Lube Pad

Case Lube Pad ... **$2.10**
Carton of 4 ..... 8.40

Ideal for lubricating cases or bullet jackets before sizing or forming. A thin coating of lubricant is applied to the pad and cases are then rolled across it, for proper lubrication.

RCBS CALIBER LIST and SHELL HOLDER CHART

The number preceeding the caliber indicates the shell holder number. Where two numbers are given for shell holders, the number 3 is for Remington brass and the number 11 is for Winchester, Western, and Norma brass.

INDICATION OF SYMBOLS:

- # Special shell holder required. Order by caliber.
- * Made only in 3 die sets. $15.00 per set.
- ** Made only in 2 die sets. $18.00 per set.
- *** Made only in 3 die sets. $18.00 per set.
- % Made in 3 die sets. $13.50 per set. 4 die sets $18.00 per set

All other dies are made only in 2 die sets at $13.50 per set.

....If you do not see the caliber you want listed, please send three fired cases for estimate. No obligation of course.

....All dies are furnished in two or three die sets as indicated by symbols. If extra dies, such as neck sizer dies or file type trimmer dies are desired, please order these separately.

....All die sets are furnished with full length sizer dies and seater dies with crimper. Neck sizer dies or seater dies without crimpers may be substituted if specified when ordering.

....All RCBS RELOADING DIES are manufactured with the standard 7/8"-14 thread and are designed for use with a Shell Holder lip thickness of .125" - - Except #8, #14, & #22 which are .150".

10 .17 Lovell **
10 .17 A.M.R.C. or Javelina **
10 .17 Woodsman **
10 .17-222 **

1 .218 Bee
1 .218 Bee Improved (several versions-specify)
2 .219 Donaldson Wasp (Elliott & Fuller versions)
2 .219 Zipper
2 .219 Zipper Improved (several versions-specify)

2 .22 Hi Power
.22 J G R
12 .22 Hornet
12 .22 K-Hornet (.22 Kay Chuck)
10 .22 Maximum Lovell
3 .22 Varminter (.22-250)
2 .22-30-30 Improved
10 .22-3000 Lovell
10 .22 Lovell R-2
11 .220 Arrow
11 .220 Kilbourn Improved
11 .220 Mashburn Improved
11 .220 Swift
11 .220 Swift Improved (several versions-specify)
11 .220 Wilson Arrow
10 .222 Remington
10 .222 Remington Magnum
10 .222 K-Remington
10 .223 Remington (.22 AR 15)
3 .228 Ackley Magnum
2 5.6 x 61 Vom Hofe
3 .230 Ackley

11 .240 Cobra
3 .240 Gebby
3 .240 Page Super Pooper
3 .240 Super Varminter
11 .240 Wilson Arrow
3 .243 Mashburn
3 .243 R C B S
11 .243 Rock Chucker
3 .243 Super Rock Chucker (.30-06)
3 .243 Winchester
3 .244 Ackley
4 .244 H & H
3 .244 Mashburn
3 .244 Remington
6mm Lee Navy
3 6mm Remington International
3 6mm Souper
3 6mm - .250
11 6mm - .257
3 6mm - .270
2 6mm - .30-30 Improved
3 6mm - 06
7 6mm - .303 British Improved

3 .25 Gibbs
7 .25 Krag
7 .25 Krag Improved
19 .25 Remington
3 .25 Souper
10 .25 - 20 Single Shot
1 .25 - 20 W. C. F.
3 .25 - 270 I. C. L.
2 .25 - 35
2 .25 - 35 Ackley Improved
3 .25 - 06
3 .25 - 06 Ackley
3 .25 - 06 C. R. P.
3 .25 - 06 Improved (several versions-specify)
4 .250 Ackley Magnum
3 .250 Donaldson
3 .250 Donaldson Ace
4 .250 Gipson Magnum
3 .250 Savage
3 .250 Savage Improved
3 .250 - 06 Wilson
(3 or 11) .257 I. C. L.
(3 or 11) .257 Mashburn Improved
(3 or 11) .257 Roberts
(3 or 11) .257 Roberts Improved (several versions-specify)
4 .257 Weatherby Magnum

3 .256 - 06 Ackley
3 .256 Newton
4 6.5 Apex Magnum
3 6.5 Gibbs
9 6.5 Mannlicher-Schoenauer (6.5x54)
2 6.5 Original Jap (.256 Jap Arisaka)
4 .264 Winchester Magnum
2 6.5 x 48 R
3 6.5 x 51 (6.5 Souper)
9 6.5 x 53
7 6.5 x 53 Rimmed
3 6.5 x 54 Kurtz Mauser
2 6.5 x 55 Norwegian Krag
11 6.5 x 57
2 6.5 x 58
7 6.5 x 68 S
11 6.5 x .257 (6.5 Jap Roberts)
11 6.5 x .257 Roberts Improved (6.5 Jap Roberts Improved)
9 6.5 Carcano

4 .270 Ackley Magnum
4 .270 Belted Newton
4 .270 - 338
3 .270 Improved (several versions-specify)
4 .270 Newton
4 .270 Gibbs
3 .270 Souper
4 .270 Weatherby
3 .270 Winchester and W.C.F.

4 7mm Ackley Magnum
4 7mm Belted Newton
4 7mm - 338
3 7mm Gibbs
(3 or 11) 7mm Improved (7 x 57)
4 7mm Mashburn Magnum
4 7mm Newton
3 7mm Titus
4 7mm Weatherby
(3 or 11) 7 x 57
4 7 x 61 S & H
3 7 x 64
3 7 x 64 Improved (RCBS)
4 7 x 65 Rimmed
3 7mm - 06
3 7mm - 06 Improved
3 7mm x 64 Improved (35° & 40° - Specify)

4 .275 H & H
3 .280 Remington
3 .280 Remington Improved
4 .280 Dubiel
4 .280 Ross
3 .285 O. K. H.
9 7.35 Carcano
2 7.5 Schmidt - Rubin
2 7.5 M A S
13 7.62 Russian
3 7.65 Belgian & Argentine Mauser
2 7.7 x 46 R
2 7.7 Jap

4 .30 Ackley Magnum (# 1, 2 & 3 versions-specify)
4 .30 Alaskan Magnum
4 .30 Belted Newton
4 .30 - 338
14 .30 - 378 Weatherby
17 .30 M1 Carbine %
3 .30 Gibbs
4 .30 Newton
19 .30 Remington
2 .30 - 30 W. C. F.
2 .30 - 30 Improved
14 .30-378 Weatherby
7 .30 - 40 Krag
7 .30 - 40 Krag Improved
3 .30 - 06 Ackley Improved
3 .30 - 06 Improved (several versions-specify)
3 .30 - 06 W. C. F.
4 .300 Ackley Magnum (30° & 40° - Specify)
4 .300 H & H
4 .300 I. C. L. Grizzly
4 .300 R C B S Magnum
3 .300 Savage
4 .300 Weatherby Magnum
7 .303 British
21 .303 Savage
3 .308 Winchester (.30 Titus)
4 .308 Norma Magnum

19 .32 Remington
2 .32 Winchester Special
16 .32 Winchester Self Loading *
1 .32 - 20 W.C.F. %
2 .32 - 40
14 8mm Danish Krag
8mm Lebel
3 8mm (8 x 57)
3 8mm - 06
3 8mm - 06 Improved
13 8 x 50 Rimmed
7 8 x 54 K
3 8 x 56 Mannlicher
3 8 x 57 (8mm)
4 8 x 57 J. R. .318
4 8 x 57 Rimmed
2 8 x 57 R/360
2 8 x 58 Rimmed
3 8 x 60
7 8 x 68 S
2 7.8 x 72 Rimmed
3 7.92 Kurtz Mauser
2 8.15 x 46 Rimmed

4 .33 Newton
14 .33 Winchester
4 .333 B. O. K. H.
4 .333 Belted Newton
3 .333 O. K. H.
4 .334 O. K. H.
4 .338 Winchester
5 .348 Winchester

4 .35 Ackley Magnum (several versions-specify)
4 .35 Belted Newton
3 .35 Brown
4 .35 Newton
9 .35 Remington
3 .35 Whelen
3 .35 Whelen Improved (several versions-specify)
7 .35 Winchester
19 .35 Winchester Self Loading *
4 .350 S. U. Mashburn
4 .350 R C B S Magnum
19 .351 Self Loading Rifle *
3 .358 Winchester
4 .358 Norma Magnum
3 9mm (9 x 57)
3 9 x 56 Mannlicher-Schoenauer
3 9 x 57 (9mm)

3 9.3 x 57
2 9.3 x 57 R/360 *
3 9.3 x 62
2 9.3 x 72 Rimmed *
4 9.3 x 74 Rimmed
3 9.5 x 57
2 .38 - 55 *
14 .38 - 56 W. C. F.
14 .38 - 70 W. C. F.
7 .38 - 72 W. C. F.

4 .375 H & H Magnum
4 .375 H & H Magnum Improved
7 .375 Kynock *
3 .375 Whelen
4 .375 Weatherby Magnum
14 .378 Weatherby Magnum **
5 .40 - 50 Sharps
5 .40 - 60 W. C. F.
5 .40 - 65 W. C. F.
22 .40 - 70 W. C. F.
7 .40 - 72 W. C. F. *
14 .40 - 82 W. C. F.
5 .40 - 90 Sharps
4 .400 Whelen *
4 .400 x 350 Eley **
4 .400 x 360 Eley **
4 .404 B-J Express **
4 .404 Jeffery **
7 .405 Winchester *
.416 Rigby **
2 10.75 x 68

4 .424 O. K. H.
22 11mm (.43 Mauser)
22 .43 Spanish
4 11.15 x 65 R *
15 .44 - 77 Sharps
15 .44 - 90 Sharps
5 .45 - 60 W. C. F.
14 .45 - 70 *
.45 - 75 W. C. F.
14 .45 - 90 W. C. F.
4 .450 Ackley Magnum
4 .450 Alaskan
.450 x 400 x 3¼" Nitro Express **
.450 x 3¼" Nitro Express ***
4 .450 Watts *
4 .458 M. C.
4 .458 Winchester Magnum *
14 .460 Weatherby Magnum **
4 .470 Ackley Magnum ***
.470 Nitro Express **
4 .475 Ackley Magnum ***
.475 Number 2 Nitro **
4 .475 O. K. H. ***
.476 Nitro **
.50 - 70 W. C. F. ***
5 .50 - 110 W. C. F. ***

PISTOL CALIBERS

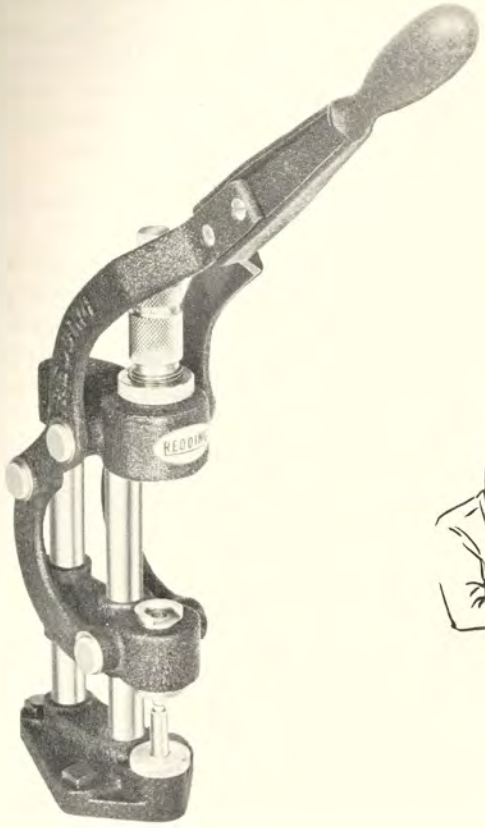
12 .22 Kay Chuck (.22 K-Hornet)
o .22 Remington Jet
6 .256 Winchester Magnum
16 .30 Luger
16 .30 Mauser (7.63)
17 .32 A. C. P. %
10 .32 Colt %
23 .32 S & W Long %
23 .32 S & W Short %
1 .32 - 20 W. C. F. %
8mm Nambu
6 .357 S & W Magnum %
1 .38 A. C. P. Super Auto %
6 .38 Colt Long %
6 .38 S & W %
6 .38 S & W Special %
10 .380 Auto %
4 .38 - 40 W. C. F. %
16 9mm Luger %
3 .41 Colt %
18 .44 Magnum %
7 .44 S & W Russian %
18 .44 S & W Special %
4 .44 - 40 W. C. F. %
3 .45 A. C. P. %
8 .45 Auto Rimmed %
20 .45 Colt Long %
4 .455 Colt %
4 .455 Webley %

SHOT SHELL HOLDERS

Made in Removable Head Hollywood and Lachmiller types only. 12 – 16 – 20 Gauge

REDDING

Standard Reloading Press



$22.50

A compact, easily operated tool for full length or neck resizing and bullet seating of all rifle and pistol cartridges, featuring simple interchangeability of shell holders and primer posts, permanent alignment, best quality materials and workmanship, attractive appearance, and a low price.

Operation of the press is on the down stroke of the handle – a cartridge case is full length or neck formed, decapped, neck expanded, and recapped with one complete handle motion using conventional 7/8-14 threaded dies. Bullet seating is done in second operation after trimming and charging. Primer may be seated by positive stop or by feel.

The handle has been designed for comfortable positive grip – with left or right hand – and is detachable for easy storage. Three mounting holes in the base allow firm mounting to bench or other solid support.

Precision double-bar construction maintains perfect alignment of shell holder, primer post, and die for a lifetime of use and provides maximum operating convenience.

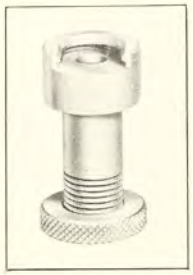
Finished in wrinkle brown enamel and chrome plate. Complete operation instruction furnished and satisfaction guaranteed.

Primer Post

$1.50

Designed to fit the Redding Standard Reloading Press, Redding Primer Posts are made in two sizes: "S" post takes the small diameter primer; "L" post takes the large diameter primer. Posts fully adjustable for primer seating depth and completely chrome-plated. Complete with knurled locking ring.

Shell Holder

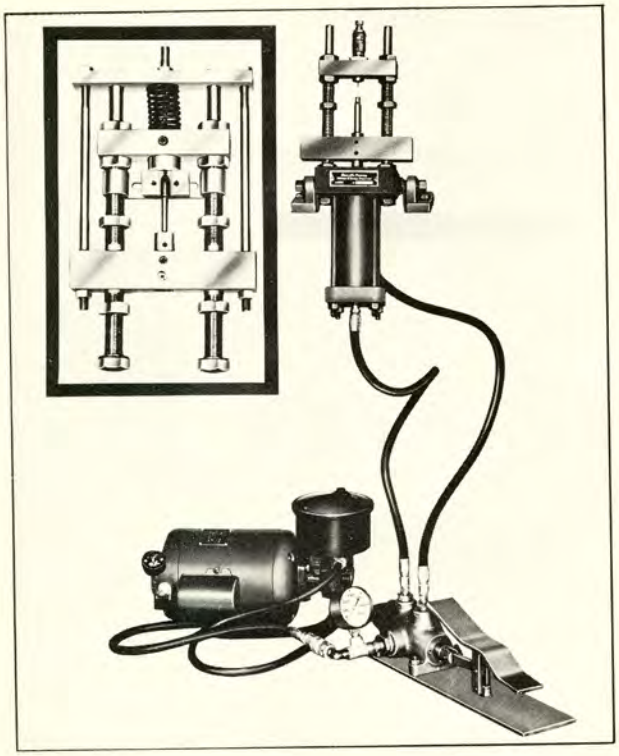


$1.80

Made from the best material, precision machined and finished, and chrome-plated, Redding Shell Holders are designed to fit the Redding Standard Reloading Press. They are easily inserted or removed and are fully adjustable for more convenient angle of operation.

ROZZELLE-DENVER

Hydraulic Reloader and Bullet Swager



Right—the Rozzelle hydraulic loader complete. Inset above shows the bulletmaking setup.

A new concept in reloading speed and ease. This electric-hydraulic unit will perform any reloading operation—even the toughest full length sizing or bullet swaging—with only the gentle motion on the foot control pedal.

One test of this fine machine will convince you of the ease of operation and the complete control of the tremendous power available. There is no finer tool available for the reloader who wants speed and trouble-free loading of large quantities of ammunition.

The Rozzelle-Denver Reloader handles any 7/8-14 dies—neck and full length sizing, bullet seating, bullet pulling, etc. A die bar is available, at extra cost, that will accept the larger shotshell dies. We do not make rifle, pistol or shotshell reloading dies, but we do make bullet swaging dies. (See Bullet Swaging section.)

The material used in these presses is of the highest quality—motors, pumps, valves, hoses and fittings are all guaranteed, and will be replaced if found to be defective.

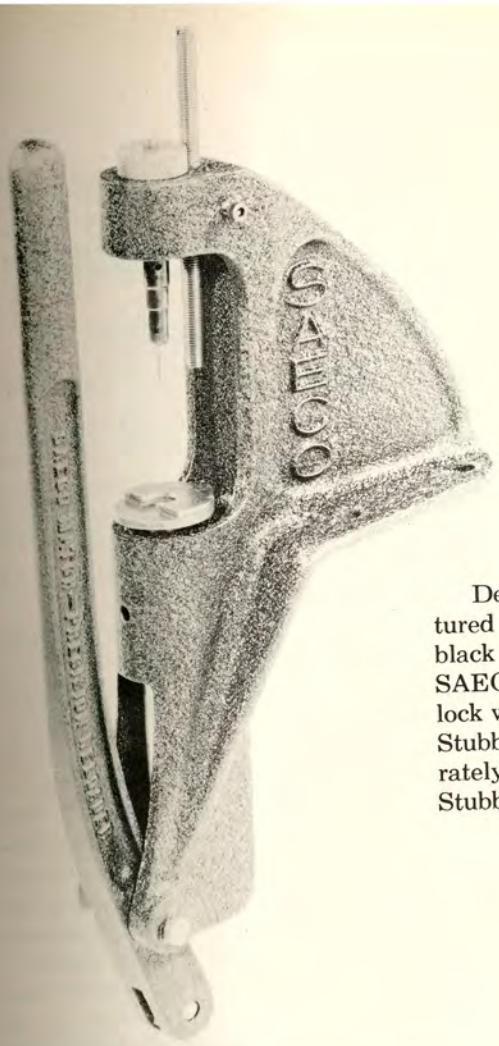
In operation, the electric motor (110-220 V or wired to your specifications) operates the hydraulic pump. With a gentle motion of the foot on the 4-way control pedal, the riser bar, holding the shell holder, brings the case into the sizing die installed in the die bar. The case is sized, and deprimed—the primer dropping out of the bottom of the shell holder toward the back of the machine. The length of stroke is fully adjustable by stop nuts on the vertical riser rods. When the riser bar comes into contact with these stop nuts, the hydraulic fluid pressure rises to a level pre-set on a relief valve. Continued pressure on the foot pedal causes the relief valve to open and it remains so until the foot pedal is released. All prices below are FOB Denver.

UNIT #1 — Complete, ready to operate (less dies) including one shell holder (state caliber), 1HP motor, 3000 PSI pump	$356.95
UNIT #2 — Same as above except 2000 PSI pump	$269.50
UNIT #3 — As above except ¾ HP motor and 800 PSI pump	$237.69
UNIT #4 — As above except with die bar for shotshell dies	$237.95

Hydraulic power units are available for those reloaders who want to convert their present equipment. These units are complete, ready to operate, and are available with various motor/pump combinations from ½ HP motor with 600 PSI pump to 5 HP with 3000 PSI pump. Write for complete specifications and prices.

SAECO

SAECO Match-Precision Press



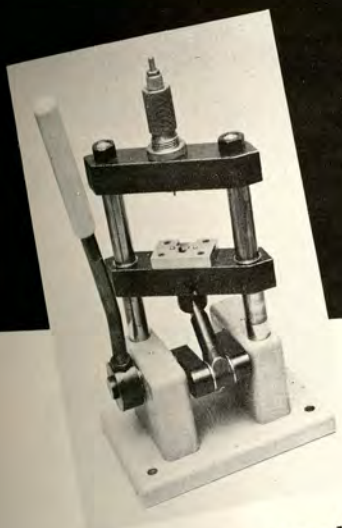
$34.75

Extra SAECO	Shell Holder	$2.50
" "	Priming Punch	1.00
" "	Expander-Decapper	2.50
" "	Bullet Seating Stem	2.00

Designed with rugged cast iron frame and handle, it is manufactured with the usual SAECO quality and precision, and finished in black wrinkle enamel. Threaded 7/8-14 to accept standard dies, the SAECO Match-Precision is provided with an adjustable ram stop and lock which permit the use of the shorter and more economical SAECO Stubby Dies. Concentric, in-line ram performs primer seating accurately and correctly. Press comes complete with one set of SAECO Stubby Dies, shell holder, primer punch and extension tube.

SHOFFSTALL'S Presses

$67.50



Reloading Tool

A precision-made, one die (7/8x14) loading press designed for a lifetime of service and a new ease of operation. The two support rods, placed at an angle on the base, allow the pressures applied to the press to be contained on one center line, and permit the case to be placed in the shell holder from the side for more comfortable operation. Primer seating is done separately.

Included with the press is our new universal shell holder. Spring-loaded jaws handle any case from 22 to 45 caliber. No extra expense for a selection of shell holder sizes.

$25

Primer Seater

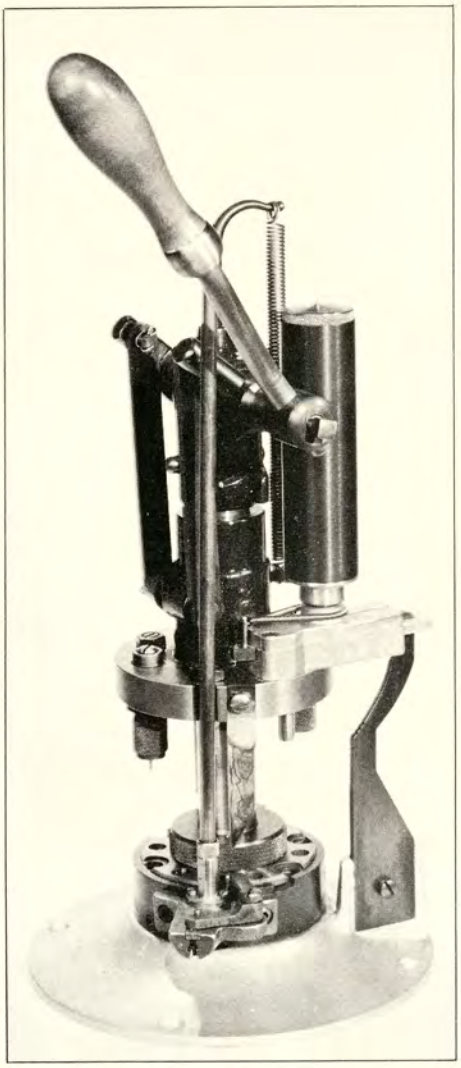
Made to do one job, and do it well, priming of cases with this tool is accurate, simple, and positive. Included is our new 3-jaw universal shell holder which handles all size cases. The primers are fed into position with one smooth pull of the slide. Primer tube holds from 70-90 primers, depending on size. Tubes for .175" and .210" primer sizes are included.

STAR MACHINE WORKS

$160.00

Complete for 38 Special

As above except with Lifetyme Carbide Die $170.00



Progressive Reloader

Specifically designed for fast, efficient reloading of 38 Special handgun cartridges, the Star is unsurpassed in stability of continuous operation by any loader in the field. The non-adjustable powder carrier will throw as accurate a charge as can be metered, and all tools and dies are adjustably mounted in the tool head, performing their operations in their respective positions simultaneously. With each stroke of the operating lever, a completed cartridge is accurately and speedily finished.

There are probably more Star loaders in use, by those who want reliable, fast production, than any other tool made.

STAR Universal Progressive Reloader (not illus.)

For those who want to load both 38 Spec. and 45 ACP, the Star Universal is constructed with the same precision features as the Star Progressive, but will adapt to either of these two cartridges.

NOTE: When ordering, please specify powder charge and type, primer make, and send sample bullet. If no bullet is available, give complete description or catalog number.

Complete for any one caliber	$180.00
As above except with Lifetyme Carbide Die	190.00
Extra tool head for one caliber	55.00
As above except with Lifetyme Carbide Die	70.00

- FASTER AND MORE ACCURATE LOADING
- EASY READING
- DEEP PAN with pouring spout
- BUILT-IN CIRCULAR SPIRIT LEVEL
- 1/10 GRAIN SENSITIVITY
- 1110 GRAIN CAPACITY permits use for complete rounds
- DURALUMIN BEAM
- SELF-ALIGNING AGATE BEARINGS
- PRECISION GROUND KNIVES

THE OHAUS LOADING SCALE

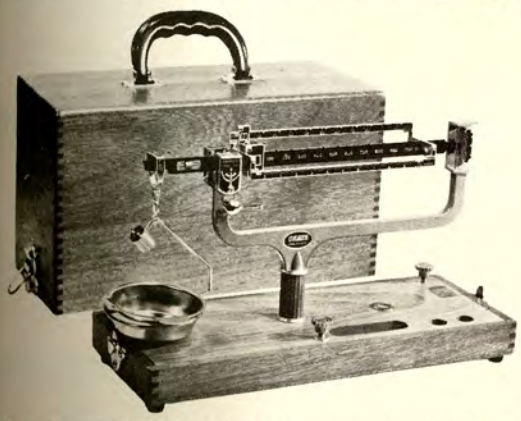
the finest in Reloading

Model 314

List Price **$35.00**

MODEL 315 WITH MAHOGANY CASE

Truly an instrument for those who want the very finest. It incorporates all the fine features found in the Model 314 including spirit level and levelling screws. The pan, bow, and end loop conveniently self-store in case for safe transportation when closed. Case is of genuine mahogany carefully hand-rubbed with long lasting lacquer.



Dimensions: 5¾" x 14½" x 9" Weight: 6¼ lb.

List Price Complete **$54.50**

The OHAUS Loading Scales represent the ultimate of accuracy in hand loading. They are backed by over 50 years of experience in the exclusive manufacture of precision laboratory balances and weights.

These scales have been extensively tested and approved by the nation's leading experts. Several of the design features have been made at their recommendation.

CAPACITY	SENSITIVITY	BEAM CALIBRATION		
		FRONT	CENTER	REAR
1110 GRAIN	.1 (1/10) GRAIN	10 GRAIN X .1 GRAIN	1000 GRAIN X 100 GRAIN	100 GRAIN X 10 GRAIN

CARRYING CASE FOR MODEL 314

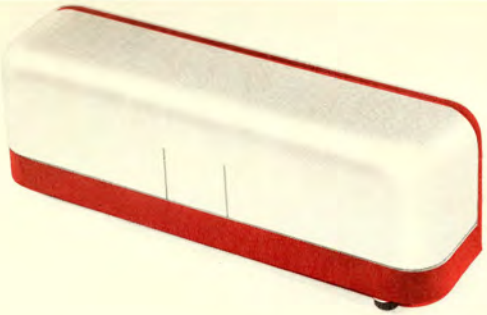
For easy transportation of the basic model scale we recommend this high-grade plywood case finished in durable gray plextone.

List Price **$20.00**

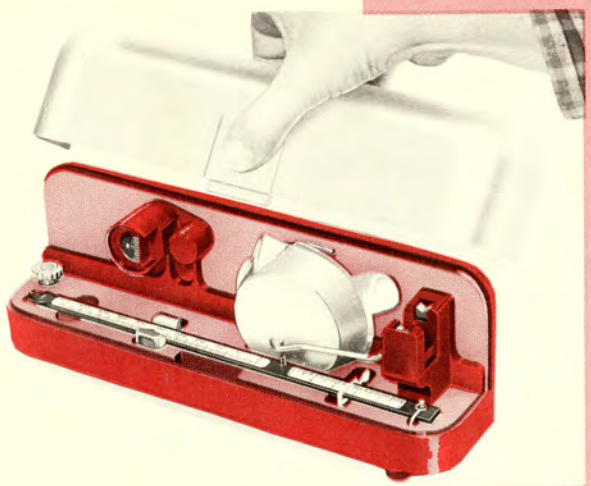
THE NEW OHAUS

PRECISION "505" LOADING SCALE

with MAGNETIC DAMPING ACTION



Compact-dustproof—portable. This is the OHAUS "505" ready to go—anywhere.



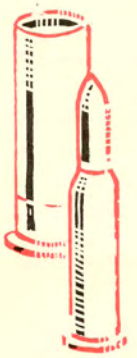
Here at last, is a compact loading scale designed for speed, accuracy and portability.

The built in magnetic damping action on the "505" speeds weighing without affecting sensitivity or accuracy.

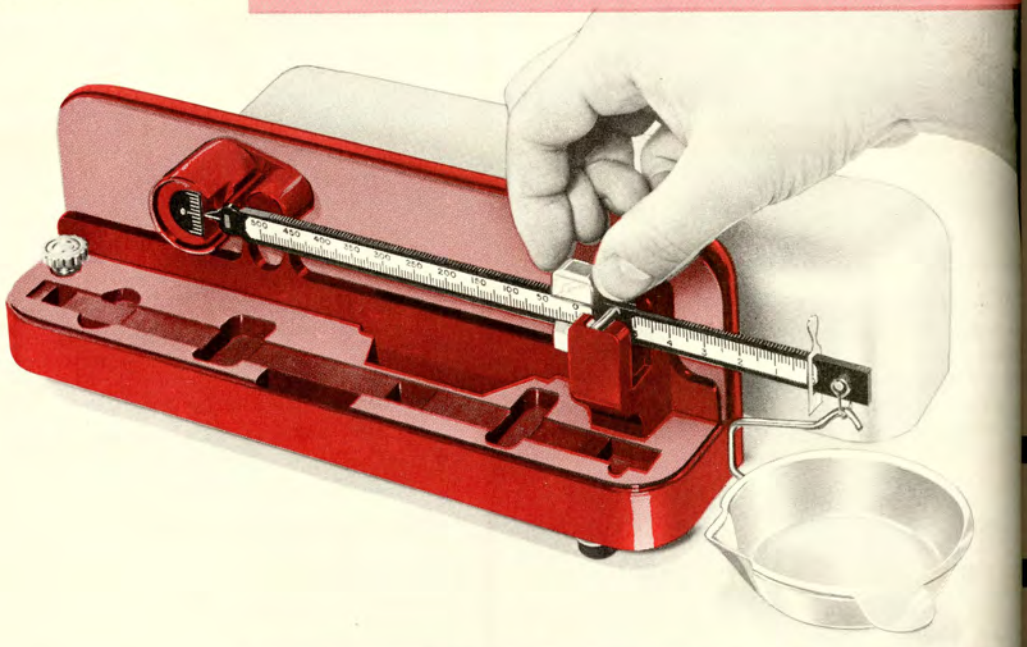
The extra large pan with convenient pouring spout makes weighings easy up to a huge 505 grain capacity.

Lifetime diecast case attractively finished with baked epoxy paint.

A quality product of experience and craftsmanship the new OHAUS "505" sells for only $19.50.



Grip—squeeze—off comes the lid and your OHAUS "505" reveals all parts neatly and compactly stored for instant action.



In seconds the beam and pan are placed in position. Set both poise at zero and level with leveling screw. You're all set now for accurate and fast weighing thanks to OHAUS engineering and design.

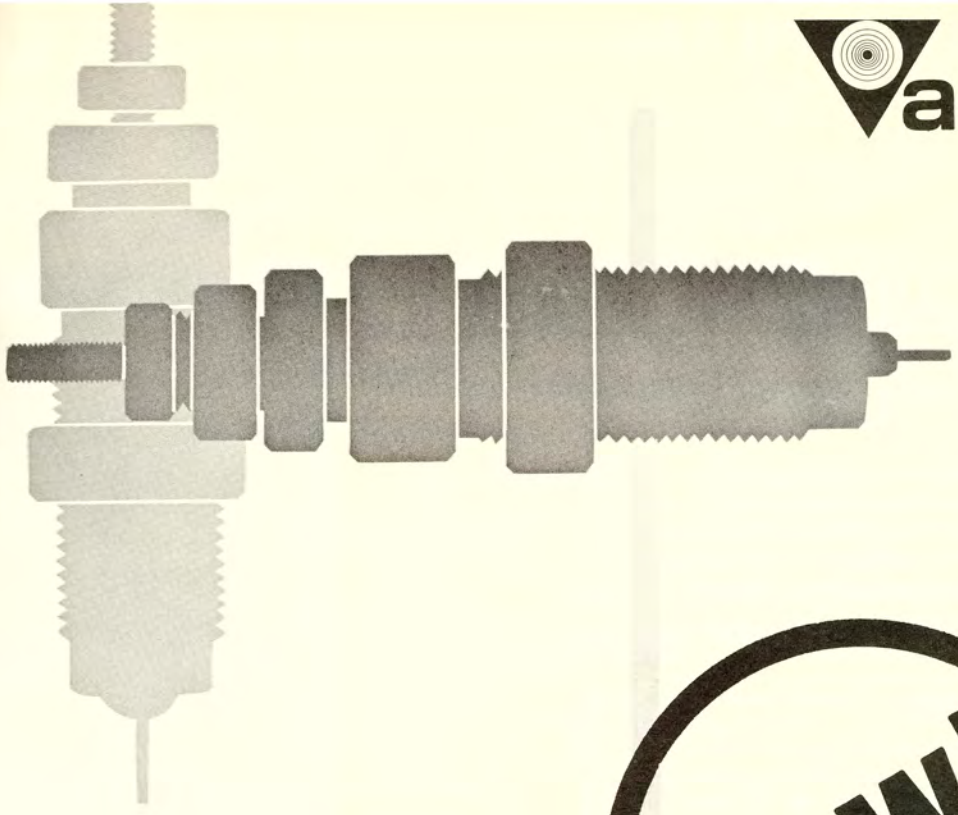
MANUFACTURED BY

OHAUS
SCALE CORPORATION

DISTRIBUTED BY

THE LYMAN GUN SIGHT CORP.
MIDDLEFIELD, CONN.

Vamco



new!

PISTOL CARTRIDGE RELOADING DIE

RIFLE CARTRIDGE RELOADING MASTER DIE

RIFLE CARTRIDGE RELOADING MULTI-DIE KIT

UNIVERSAL PRIMATIC PRIMER SEATER

PRECISION-ENGINEERED BY VALLEY AUTOMATIC MACHINE CO., INC. • VESTAL PARKWAY • VESTAL, NEW YORK

VAMCO PISTOL DIE #200

LOADS ALL CALIBERS!

for all standard loading presses with 7/8" x 14 threads.

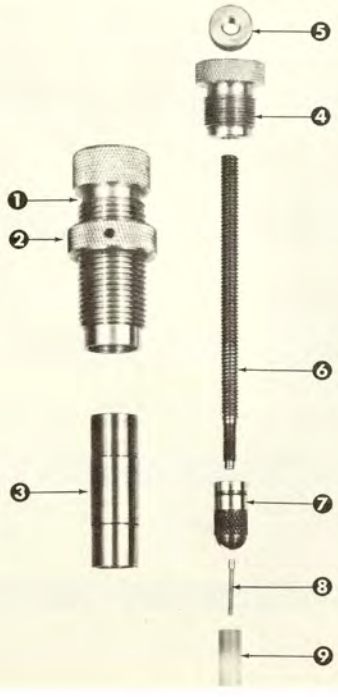
NEW! The Vamco Pistol Die—just one die—combines the functions of old two or three-die sets . . . performs satisfactorily in either a two-stage or three-stage operation . . . assures marksmanship quality and uniformity . . . assembles and adjusts easily for fast, accurate loading of any caliber cartridge!

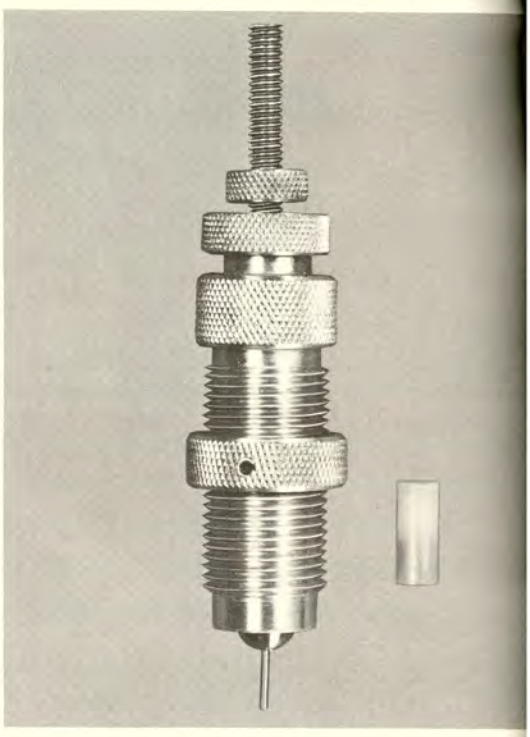
NOW! Old two or three-die sets—which can load only one caliber—are no longer needed for precision reloading. Reloaders can now save the bother and expense of buying entire die sets for each caliber!

EXCLUSIVE! The Vamco Pistol Die full-length sizes, decaps, muzzle expands, bullet seats and crimps. To load additional calibers, no other die is needed—just inexpensive Insert Kits which include mating expanding buttons, pins and resizing inserts.

The Vamco Pistol Die consists of the following components:

1. **DIE BODY** . . . screws into the neck of any standard loading press.
2. **LARGE LOCK RING WITH SLOTTED SET SCREW** . . . locks the die body in position on the loading press.
3. **CRIMPING AND SIZING INSERT** . . . which fits into the insert chamber of the die body to size when end marked "S" is downward, crimp when end marked "C" is downward.
4. **INSERT RETAINER** . . . holds the decapping rod assembly, threads into the die body to lock the crimping and sizing insert in position.
5. **SMALL LOCK RING** . . . threads down the decapping rod to lock it and the insert retainer in position.
6. **DECAPPING ROD** . . . holds the expanding button and decapping pin or the nylon bullet seater, threads through the insert retainer.
7. **EXPANDING BUTTON** . . . holds the decapping pin and threads on the decapping rod.
8. **DECAPPING PIN** . . . fits through the expanding button.
9. **NYLON BULLET SEATER** . . . threads onto the decapping rod.





3-STAGE OPERATION

STEP 1: Full-Length Sizing

STEP 2: Decapping and Muzzle Expanding

STEP 3: Bullet Seating and Crimping

2-STAGE OPERATION

STEP 1: Full-Length Sizing, Decapping and Muzzle Expanding

STEP 2: Bullet Seating and Crimping

The Vamco Pistol Die includes one Insert Kit—in the caliber sp by the reloader—which includes mating expanding button, de pin and a resizing insert.

COMPLETE VAMCO PISTOL DIE

EXTRA INSERT KITS FOR ADDITIONAL CALIBERS

The Vamco Pistol Die (and additional Insert Kits) are available following popular calibers:

.45 LONG COLT	.380 APC
.45 APC and .45 AUTO RIM	.38 SPECIAL
.455 COLT	.38 COLT
.455 WEBLEY	.357 MAGNUM
.44 SPECIAL	9MM LUGER
.44 MAGNUM	.32 LONG COLT
.44 S & W	.32 APC

Other calibers available upon request. .32 S & W

Pistol Die shipping weight: 5 oz.

Vamco®

VAMCO RIFLE MASTER DIE #100

LOADS ALL CALIBERS, LENGTHS AND SIZES

for all standard loading presses with 7/8" x 14 threads.

NEW! The Vamco Rifle Master Die—just one die—performs four loading operations in a simple two-stage set-up . . . and handles cartridges of any caliber, length and size!*

NOW! Reloaders working with several calibers, as is common, **do not** have to buy entire two or three-die sets for each caliber, nor use separate dies for each loading operation!

EXCLUSIVE! The Vamco Rifle Master Die neck sizes, decaps, muzzle expands and bullet seats! When set up to load cartridges using one diameter bullet, it will load numerous cartridges of the same diameter. The same Vamco Rifle Master Die can load **all** calibers; just change the inexpensive, interchangeable Insert Kits which include mating resizing insert, expanding button and decapping pins!

*Recommended for loading jacketed bullets. Inserts available for lead bullets.

The Vamco Rifle Master Die consists of the following components:

1. **DIE BODY** . . . screws into any standard loading press.
2. **POSITION LOCK RING** . . . locks the die body in position on the press.
3. **RESIZING INSERT** . . . fits inside the die body, sizes various length cartridge necks.
4. **INSERT RETAINER** . . . screws over the bullet seater for positioning within the die body, holds the decapping rod assembly.
5. **BULLET SEATER** . . . is held within the die body by the insert retainer, cone-shaped interior handles any shape bullet.
6. **BULLET SEATER LOCK RING** . . . screws down the bullet seater to lock it in position within the insert retainer.
7. **ROD LOCK RING** . . . screws down the decapping rod to hold the rod in position within the bullet seater and insert retainer.
8. **EXPANDING BUTTON** . . . holds the decapping pin and screws onto the bottom of the decapping rod.
9. **DECAPPING PIN** . . . fits into and extends through the expanding button.
10. **DECAPPING ROD** . . . holds the expanding button and decapping pin and is held within the die body by the bullet seater and insert retainer.

2-STAGE OPERATION

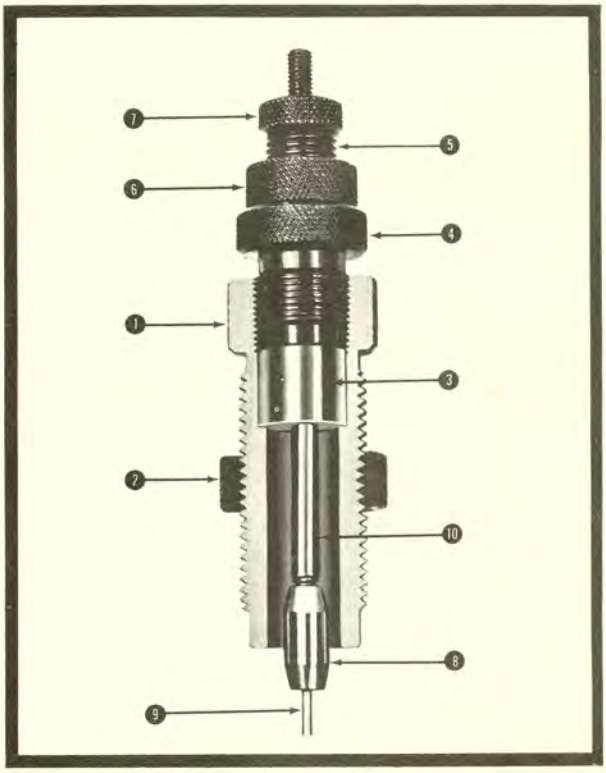
STEP 1: For the first step, the Vamco Rifle Master Die is easily set up and adjusted for neck sizing, decapping and muzzle expanding.

STEP 2: For bullet seating, just remove the decapping rod assembly and resizing insert. Lock the bullet seater and insert retainer in the die body.

The Vamco Rifle Master Die includes one Insert Kit—in the caliber specified by the reloader—which includes mating resizing insert, expanding button and decapping pins.

COMPLETE VAMCO RIFLE MASTER DIE **$13.50**

ADDITIONAL INSERT KITS **$3.00** per caliber



VAMCO MASTER INSERT COMPARISON CHART

22-A INSERT

218	Bee
22	Hornet
22	K Hornet

22-B INSERT

22/3000	Lovell
22/257	Roberts
219	Zipper
22	Lovell R-2
219	Donaldson Wasp
22	Neidner Magnum
22	Savage Hi-Power
22	Newcomb
222	Remington
222	Remington Magnum

22-C INSERT

22/250	
220	Swift
220	Weatherby Rocket

6 M/M-A INSERT

243	Winchester
244	Remington
244	Ackley Improved
243	Rock Chucker

25-A INSERT

25/20	

25-B INSERT

25/35	Winchester
25	Remington
257	Weatherby Magnum

25-C INSERT

250/3000	Savage

25-D INSERT

257	Roberts
25/06	Neidner
25	Ackley Magnum

6.5 M/M-A INSERT

6.5	Jap
6.5	Manlicher
264	Win. Magnum

6.5 M/M-B INSERT

6.5 x 55	
6.5 x 257	Roberts
6.5	Swedish
6.5	Mauser

7 M/M-A INSERT

7 M/M	Weatherby Magnum
7 M/M	.06
7 M/M x 61	Schultz & Larson
257	H & H Magnum
7 x 64	Improved
285	Luft Magnum
7 M/M	Mashburn

7 M/M-B INSERT

280	Remington
280	Ross

7 M/M-C INSERT

7/57	Mauser
7 M/M	Improved

270-A INSERT

270	Savage
270	Weatherby Magnum
270/257	Improved
270	Ackley Magnum
270	Winchester

30-A INSERT

30/30	Winchester
30	Remington

30-B INSERT

300	Savage
7.62	Russian
300	Weatherby Magnum

30-C INSERT

30/06	
300	Magnum
303	Savage
303	British
30/40	Krag
308	Winchester
30	Newton
7.7	Jap

30-D INSERT

32/20	

32-A INSERT

32/40	

32-B INSERT

32	Remington
32	Winchester Wasp

8 M/M-A INSERT

8 M/M	Mauser
8 M/M	Manlicher
8 M/M	.06
8 M/M	Lebel

333-A INSERT

333	OKH
333	Express

338-A INSERT

338	Winchester

348-A INSERT

348	Winchester

35-A INSERT

35	Whelan
358	Winchester
35	Remington
35	Newton
35	Magnum

35-B INSERT

35	Winchester

9 M/M-A INSERT

9 M/M	Mauser
9 M/M	Manlicher

375-A INSERT

38/55	
38/56	

375-B INSERT

.375	H & H
.375	Weatherby Magnum
.378	Weatherby Magnum

45-A INSERT

45/70	
45/90	
458	Winchester Magnum

Rifle Master Die shipping weight: 8 oz.

VAMCO RIFLE MULTI-DIE KIT #150

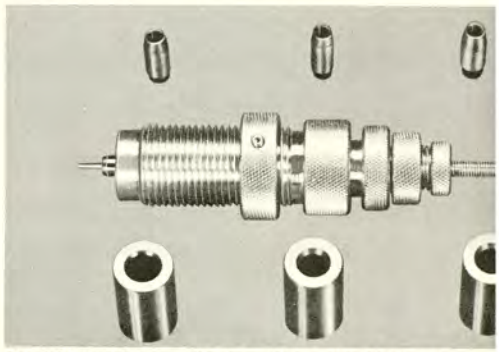
RIFLE MASTER DIE WITH FOUR INSERT KITS—LOADS ALL CARTRIDGES IN FOUR VARIOUS CALIBER CLASSES!

Now, at one low cost—and with only one die—reloaders can neck size, decap, muzzle expand and bullet seat all cartridges in four popular caliber classes! The new Vamco Multi-Die Kit includes the Vamco Master Die . . . plus **four** Insert Kits with mating resizing inserts, expanding buttons and decapping pins. Each kit converts the Master Die to handle cartridges using bullets of the same diameter!

With the old method, reloaders had to buy two or three separate dies to reload only one caliber—plus additional two or three-die sets to load each additional caliber!

VAMCO RIFLE MULTI-DIE KIT **$19.95**

30 different insert kits . . . that load 89 various cartridges . . . at $3.00 per kit



Special insert kits for wildcats made to order. $3.00 each.

Rifle Multi-Die Kit shipping weight: 12 oz.

VAMCO UNIVERSAL PRIMATIC PRIMER SEATER #3

Equipped for Seating Both Large and Small Primers.

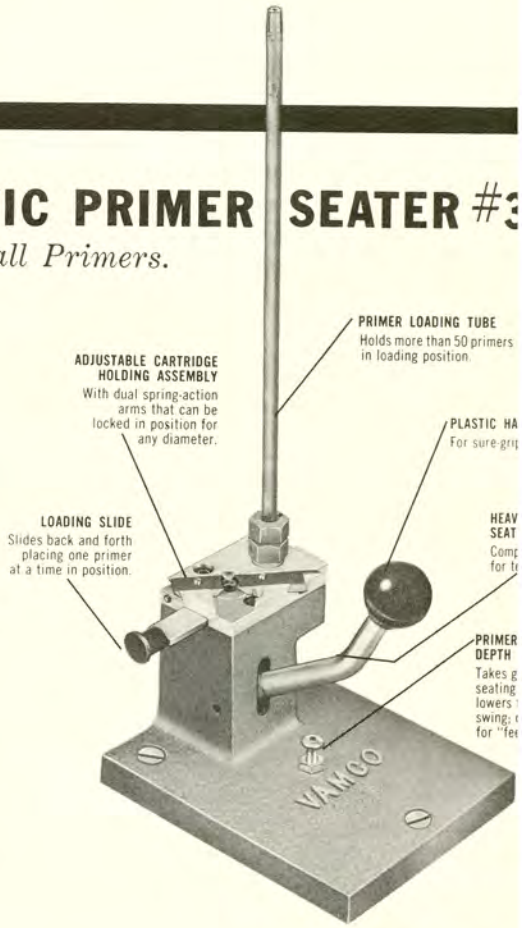
HANDLES ALL SIZE CARTRIDGES!

for fast, accurate, uniform primer seating!

NOW! In one simple operation, reloaders can seat primers perfectly—at the exact depth—in a fraction of the time it takes using older methods! No need to fumble with individual primers, guess at the exact seating depth on each round, or use the old loading press technique!

NEW! The Vamco Universal Primatic Primer Seater holds 50 primers, places each in seating position at the touch of a finger, holds any size cartridge in the exact position, and seats primers perfectly without guessing.

EXCLUSIVE! The Vamco Universal Primatic Primer Seater features an adjustable cartridge holding assembly with dual spring-action arms that automatically adjust to any cartridge diameter—or that lock in position to handle one cartridge size. The loading slide moves in and out at a touch, placing one primer at a time beneath the cartridge holder. The exclusive primer seating depth adjuster can be raised or lowered to regulate the down-motion of the seater arm . . . or removed to enable "feel" seating.



VAMCO UNIVERSAL PRIMATIC PRIMER SEATER #300 $25

Primer Seater shipping weight: .

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Texan® FLIGHT-WEIGHT SCOPES:

STOCK THE LINE WITH A MODEL FOR EVERY SHOOTER!

There's a Flight-Weight model for hunter or target shooter, beginner or expert. You'll find Flight-Weight prices are competitive — shooters find Flight-Weights have features they'd expect to pay much more for!

NEW!

FLIGHT-WEIGHT 3/9

Texan's Flight-Weight 3/9 incorporates every feature a variable power needs for peak performance at all settings: **internal** windage and elevation adjustments, goes from 3 through 9 power with a flick of a dial. Nitrogen-processed, neoprene-sealed to eliminate fogging.
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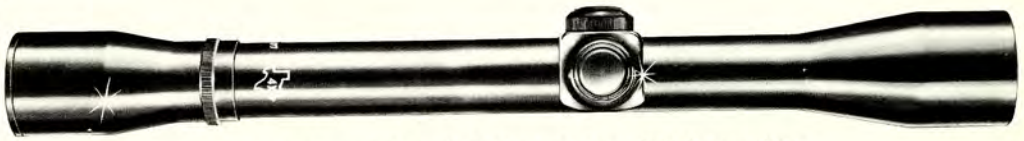
$79.00 suggested retail.

FLIGHT-WEIGHTS are proven sellers!

Remember these three exclusive features, fast making the Flight-Weight line a favorite with shooters everywhere! (1) All-aluminum construction for an average of 25% lighter weight. (2) Factory adjustment for no parallax at 100 yards. (3) Completely corrected 10-lens optical system. New Center-Set reticle holds through windage and elevation adjustments. Nitrogen-processed, neoprene-sealed: eliminates fogging. Suggested retails: 2½X — $42.50, 4X (shown) — $48.00, 6X — $55.00



Texan mounts for all 1" tube scopes, $9.75 complete.

TEXAN *Apache* .22 SCOPES

These rugged all-steel scopes are ideal teammates with .22 caliber rimfire rifles, come complete with mounts to fit all dovetail groove receivers. Workmanship and optical systems on Apaches put them in a class with many more expensive scopes!
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MORE NEW ADDITIONS TO THE *Texan* LINE!

X-FLIGHT BULLETS — highly accurate bullets for cartridge reloading. X-Flights have micro-smooth finish, consistent weight, accurate diameter — come in all popular calibers and designs.

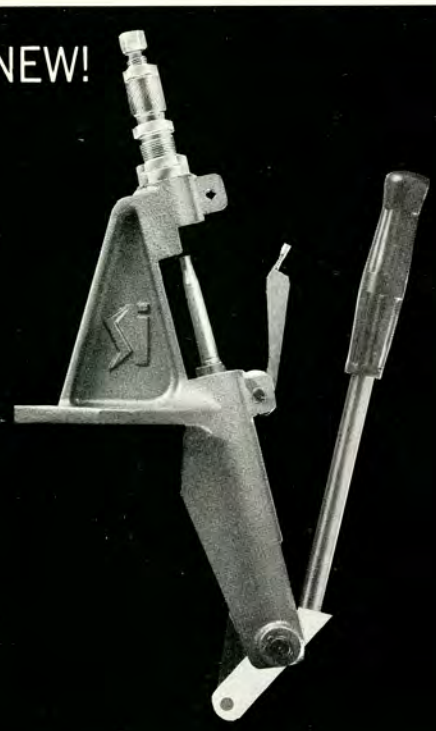
GUN-CARE KITS — for a professional at-home job of bluing, and caring for stocks. Each plastic kit contains two bottles of top quality gun chemicals plus applicator — will refinish two guns.

SOVEREIGN INSTRUMENTS COMPANY P. O. BOX 5355 / 8305 SOVEREIGN ROW / DALLAS, TEXAS

Texan® RELOADING MACHINE

COMPLETE LINE AND PRICE RANGE . . . NATIONALLY ADVERTIS

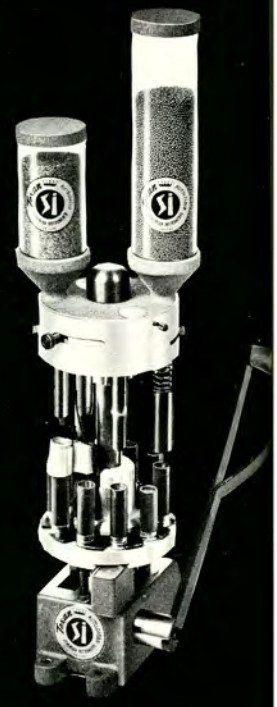
NEW!



C-PRESS model C

This new metallic cartridge reloading press has all the fine features shooters expect from Texan. Loads all popular calibers including magnums; even swages. Exclusive design features: alignment collar supports shell holder ram at top, keeps it true; bored and broached for precise alignment of ram with die; corner relieved for flush mount, solid support. Lever position and linkage can be changed in seconds for up or down stroke. Optional: shell holder — $4.50, primer arm — $3.00, dies (per set) — $13.50.

$12.00 suggested retail



AUTOLOADER model M

Texan's home reloading factory can't be matched for price and quality! Gun clubs and heavy shooters will appreciate the exclusive 10-station automatic turret — no more shifting cases by hand! Reloads 200 shells without refilling, a loaded shell with every pull of the handle. And unlike some progressive reloaders, it can be ordered for either 12, 16 or 20 gauge. Optional: crimp starter, automatic wad feed, automatic primer feed. $149.50 suggested retail

LOADMASTER model D

Here's the work horse of the Texan line— a rugged shotshell reloader that converts from or to 12, 16 or 20 gauge in just 3 minutes, with conversion kits! Model D can be used mounted or unmounted, comes with interchangeable shot and powder bushings for light or medium loads.
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CROWNLOADER model A

Texan's economy priced shotshell reloader for light and medium field loads, trap and skeet. May be ordered for 12, 16 or 20 gauge, converts easily to other gauges. Has every feature for accurate reloading, including built-in wad pressure indicator.
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Texan ends tedious die changing
lic cartridge reloading! Model T's
7-station turret takes sizing an
dies for three different calib
powder measure! Rugged 2-colu
long stroke. Reloads magnums
Optional: automatic primer feed.
$69.75 suggested retail

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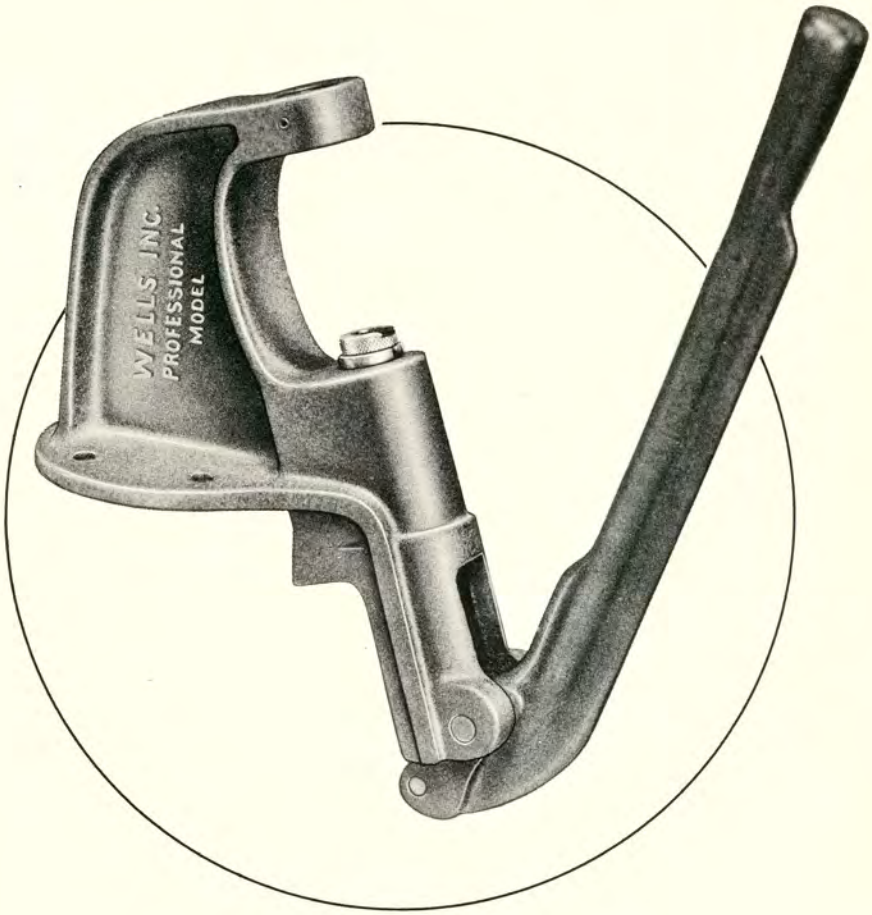
R. F. Wells, Inc. "C" Type Heavy Duty Press



$12.65

Complete with shell holder and primer rod (state choice or order by caliber).

In "C" type presses — the most popular and the best — leverage force on the ram is in a straight line to the die station; in a properly made tool, such as ours is, binding or galling cannot happen. The ram bearing surface in our tool is 3½" long.

●

Our rugged down-stroke "C" press, made of semi-alloyed steel, is guaranteed to full length resize, to reform cases and swage bullets with ease and precision — and without springing of the frame!

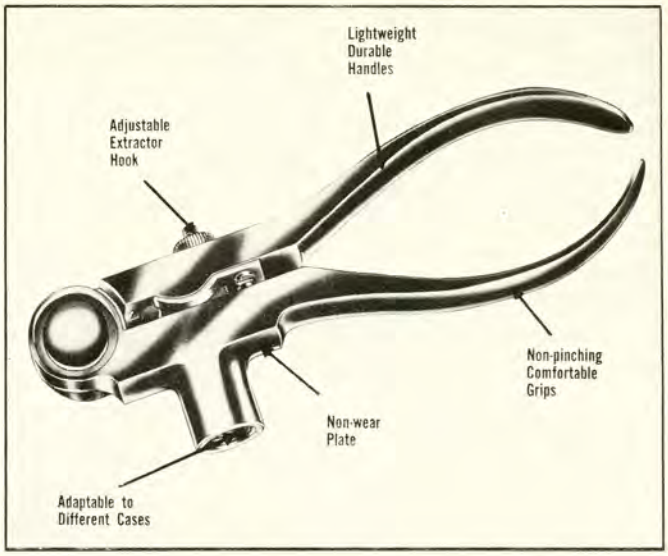
●

The Wells "C" press features quick-removable shell holders, low in cost, an exclusive automatic ram lock to keep the lever upright, and straight line primer seating, using a stiff, non-springing rod instead of an offset primer arm. Any ⅞-14 dies can be used, and a ⅝-30 insert can be had for Ideal dies.

Shipping weight 23 lbs.

Kitchen Table Handloading

by DON MARTIN



THE PROBLEMS, tricks and techniques of handloading are getting more space in gun publications than ever before. It is a good augury for the shooting game – I'm happy for that reason – but too much of it is directed toward the experienced handloader with a fully equipped shop and not enough attention is given the beginner. This article is written for that forgotten man, the chap who lives in an apartment or trailer house, who is short of storage space and has no area to set up a solid work bench for heavy duty tools. It may surprise such a frustrated shooter to know that he can, if he'll be contented with moderate pressure cartridges, do a perfectly adequate job of handloading on a blanket covered kitchen table.

To avoid getting snarled up in explanations and exceptions let's stick to the 38 Special and standard loads. No mention will be made of imitation magnum loads. Even if the magnums do get most of the publicity, the 38 Special is far from obsolete. It cannot be beaten for accuracy. With the right bullets, it has plenty of punch to take care of all varmints up to and including bobcats and lynx. The 38 Special is an efficient defense gun, the choice of a majority of city police departments. It can be loaded into a perfect grouse and rabbit gun. A heavy gun often stays at home when a lighter arm would go for a ride. There is no argument about this fact: A 38 Special, where it is needed, is a jillion times as effective as a "Maggie" ten miles away in a bureau drawer.

It is neither difficult nor complicated to handload ammunition. Basically just four things have to be done. 1) punch out the spent primer; 2) replace it with a new primer; 3) pour a powder charge in the case; 4) seat a bullet on top of it. Then, if the bullet gets out of the barrel and the gun doesn't blow up, a successful job of handloading has been done. Untold numbers of black powder cartridges have been loaded exactly that way. Smokeless powder requires more care and attention and there are additional operations that pay off in higher quality ammunition.

All smokeless powder charges must be measured by weight. There are no bulk smokeless powders suitable for rifle and pistol loading. All are classified as dense, and must be weighed. A powder scale is absolutely essential to their use. There are tables printed for setting powder measures but they are only to be used as an assist in getting the measure started near the desired weight charge. The measure must be checked with the scale and adjusted to throw exactly the correct weighed charge before loading starts. During the loading operation every tenth charge should be weighed to insure against possible change.

A powder measure speeds up the job but it is possible to load without one. A powder dipper can be made by cutting down a cartridge case to the right capacity, a little under the proposed charge. A wire handle can be easily soldered on. With the dipper charge on the scale pan, dribble powder grains from a spoon, by lightly tapping the handle with a pencil, until the scale balances. The Little Dripper* would be even better. Sure, a slow system, but not as bad as it may sound. I often use it when loading experimental ammo for the best accuracy, varying the charge 1/10-grain with every 10 charges. I can complete 50 cartridges in less than two hours, and I could do better on a straight run.

All smokeless powders burn faster as the pressure builds up. Pistol powders are made to burn fast at low pressure. They react to even small excess charges quickly. There is no room for error in maximum pistol charge. They must not be exceeded.

Today, the Lyman 310 and the Pak-Tool are the only ones that will reload cartridges on the kitchen table. Except for full length resizing the 310 does most anything other tools do, while the Pak-Tool does size handgun cases full length. When straight-line bench tools first came on the market it was claimed that they turned out more accurate ammunition than the nutcrackers. Aside from Super-accurate, bench rest ammo, that was sales talk. Great handloads are produced by loaders who take pains and do not take short cuts. A careful worker will make just as good practical cartridges with hand tools as with any others. The only difference is that it will take a little longer.

Standard pressure 38 Special empties, used in one gun, *do not need full length resizing.* There is no theory about it. I have reloaded several hundred 38 Special cases (until they developed rim cracks or primer pocket enlargement) without full length resizing. As a matter of fact, it should not be done if it can be avoided. The less brass is worked the longer it lasts. If more than one gun is used, resizing is likely to be necessary. Cases fired in my Smith & Wesson won't chamber in my 357 Ruger, and a friend's Colt empties will not go all the way down in either of my guns.

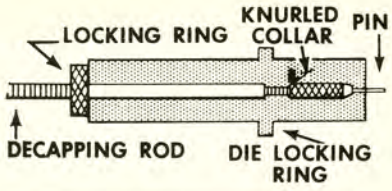
Step by Step

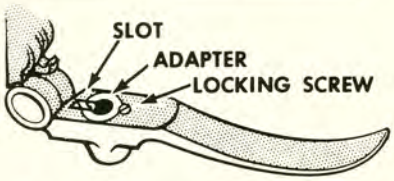
Chamfering Now we'll go through the processes of tong tool reloading, step by step, and assuming you've accumulated 50-100 fired empties, preferably of the same make and lot.

First, ream the case mouth which will prevent the bullet from shaving lead or crumpling the case when it is seated. This, nothing more than removing a thin sliver of brass from the inside of the case muzzle, can be done with a slim-bladed pen knife. Lyman, C-H, Wilson and several others sell shell chamfering reamers at nominal cost that do a perfect job.

Decapping The next process, and a simple one, is to decap the hulls. If this is the first use of the 310, screw in

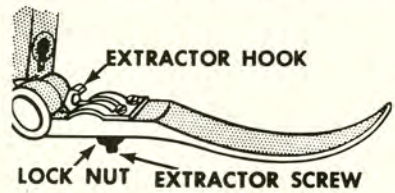
*Made by Shooters Accessory Supply — see Directory pages at back of book for locations of firms mentioned.

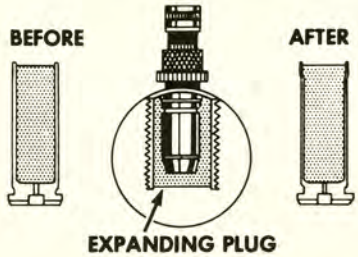




the adapter ring until it is level with the top of the lower handle. Keep the adapter slot exactly lined up with the slot in the handle, then tighten the set screw behind it. Tighten the decapping pin collar so the pin has the least possible play. Screw the decapping pin holder into the adapter ring and rotate the decapping pin rod until the decapping pin protrudes about ⅛-inch above the level of the adapter. Drop a case, mouth down, over the decapping pin and gently close the handles. The spent primer should pop out with slight resistance. If it does not something is wrong. If the handles closed without effort, turn up the extractor rod. If the primer started but did not come all the way out, the same remedy is indicated. If the handles refused to close the extractor pin missed the flash hole. If that is due to an off-center flash hole the case should be discarded. If the case extractor failed to pull the hull out of the decapper tool, it can be adjusted by loosening the lock nut on top of the upper handle. The chances are about 100 to one that there will be no trouble with the decapping operation.

Neck resizing and expanding The neck is "sized" or swaged down to insure a friction-snug bullet fit but, since there is always some variation in the thickness of case wall metal, the job has to be slightly overdone. Uniform inside diameter is achieved by pushing





the case necks over an expanding plug. To cut down labor and wear and tear on the tool the cases require outside lubrication. Lanolin (anhydrous), obtainable at any drug store, RCBS case lube, any good cup grease or oil – even soap! – will do this undemanding job. Grease or oil a soft rag lightly, then use it to clean all soot, dust and grime from the cases, being sure the front end is not neglected. That does the grease job.

Remove the decapping attachment and replace it with the muzzle resizer. Run it up about one-third of its length. Drop in a case and close the handles. Examine the extracted case. Adjust the resizer until the case is sized to the same depth to which you'll seat your bullet. A little less is better than too much. Tighten the locking nut.

The neck expanding plug is a trifle complicated in its adjustment. The front of the plug opens the case just enough to seat the bullet friction tight. It is enlarged at the rear, almost imperceptibly, the idea being to bell the case mouth enough to insure starting the bullet without deforming it or crumpling the case. Place the neck expanding attachment in the tool with the plug backed out of the way. Experiment with a case, advancing the plug slightly, then closing the handles, until you can just feel the rear enlargement working. Bell only the case *mouth*, no more than that – never run below the muzzle.

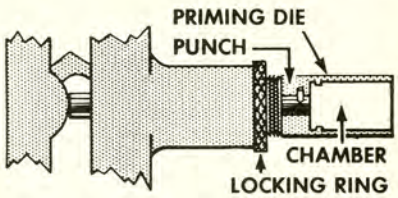
It is quite probable that if the muzzle chamfering operation was properly attended to (it only needs to be done once – the first time the case is handloaded), it will not be necessary to bell the muzzle at all.

Furthermore, and this is the worst heresy you ever read, if your gun chambers have the proper tolerance and are not oversized, you can omit all this muzzle sizing and neck expanding process with small loss. A tight crimp, coupled with inertia in a 150-grain bullet, will supply all the delay needed to completely ignite the three fast pistol powders I recommend. Such by-passing may result in a slight loss of accuracy, but you will have to be a crack shot to notice it. This short cut must not be taken, however, with slower powders such as Unique and 2400 or with a gun light enough to recoil so sharply as to jar the bullet loose in the chamber.

The neck expanding plug should be lubricated sparingly, as the least suspicion of oil or grease will seriously weaken the powder charge. As good a way as any is to whittle out a soft wood plug slightly larger than the case, then reduce it about ⅛-inch from one end until it will loosely enter the case mouth. Place a lightly oiled rag over the plug insert and rotate the case. Or one of the dry lubricants – powdered mica, graphite, etc., on a bristle brush will do nicely.

Repriming The first step in reprimming is to clean all primer fouling from the primer pocket. The best tool for the job is a small screwdriver with all its sharp edges filed off and rounded so there will be no scratching. Run this around the primer pocket once, holding it against the bottom of the pocket. Tap the dust out on a piece of wood. Place the recapping rod in the holder and rotate the assembly into the tool. Adjust it so that with the tool closed the recapping rod just barely enters the primer pocket of a decapped case held in the capping position. By "just barely" only a few thousandths of an inch is meant. Seat the primer to the bottom of the pocket, deep enough to just *not* touch a straightedge held across the base of the case. Some round-type primers may protrude above the case head – if so, go to another primer or discard that batch of cases.

The 310 recapping device is slow, clumsy and badly needs to be redesigned. It may be possible to press primers into the pocket with the thumb so they will stay in place long enough to get the case in the tool and the handles closed. Otherwise they will have to be pushed over the base of the case to the pocket after the case has been put



in the tool. The case has to be held in place with the thumb and finger of one hand while the tool is closed with the other. Keep the tool over the blanket so you can pick up spilled primers easily. Don't leave live primers on the floor to be stepped on. Primers are more easily taken from a small, round bottomed fruit dish than from any other receptacle. Close attention will be required while recapping with this tool. Place no pressure on a primer unless it is squarely over the primer pocket, open end down. If this contraption has any virtue it is that its use will certainly inculcate digital dexterity.

Powder With the primers seated we are ready to drop in the powder charges. Leaving the new Winchester-Western ball powders out until they are better understood, the choice narrows down to Bullseye and Du Pont 6 and 5066. With standard loads and 150-grain bullets there is little difference in their performance. Bullseye appears to be the first choice of target shooters and is certainly the top number for light bullets and squib loadings. 5066 is better for the inexperienced loader. It bulks up more than the others, thus cuts down the danger of inadvertently getting two charges in one case – which could be disastrous. Unique in full loads delivers a small velocity profit with equivalent pres-

sures but it's not suitable for light charges.

We must have a powder scale and a funnel to get the weighed charges in the cases. We badly need a loading block and could use a powder measure very nicely. Our whole philosophy of handloading is to complete one operation before we start another. Without a loading block to securely hold the charged cases upright it will be necessary to seat the bullet as soon as the powder charge is in the case. Get a loading block – they're not that costly – and seat 50 bullets into 50 charged cases. However it is done, do not neglect to take a good hard look in each hull, after the powder is in, *before seating the bullet*. If any don't look normal, dump 'em and weigh again.

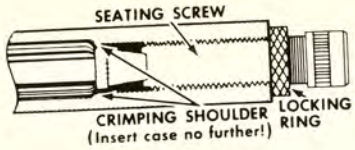
The beginner must take his powder charge from a handbook. The Lyman Reloader's Handbook, the best of all, also contains complete reloading instructions and a vast amount of valuable data. This book usually gives a maximum charge followed by a lighter recommended charge. Stick to the latter until you've acquired some experience. Do not use the maximum load until you have had a lot of experience. The joker in the last sentence is that the more you know about handloading the less you will care about souped-up loadings.

If there is a powder measure, set your scale to the charge desired, then adjust the measure until it throws it exactly. Weigh the first five charges you load and then weigh every tenth charge to the end. No expert handloader ever takes anything for granted. If there is no measure, dip a charge, slightly underweight, put it on the scale and then dribble powder on the pan until it balances. Insist on an exact balance.

Bullets Only recently has it been possible to buy suitable pistol bullets over the counter. Thirty years ago the pistol handloader had to cast his own or shoot blanks. At present prices it will require about $75.00 to set up a bullet factory. With an electric pot bullets can be cast in a modern kitchen, if the manager is sufficiently tolerant and good natured, but it is really a shop job. It will create a storage problem where space is at a premium. Only those who reload in the thousands can effect important savings by making their own bullets. The man who handloads in the hundreds will be many years getting back the cost of his equipment.

A commercial cast, resized and lubricated bullet, round nosed and weighing about 150 grains, is the easiest to start with. No gas check is needed at 38 Special pressures. Swaged and half-jacketed slugs may cause a leading problem. It is better to not experiment until you know you can produce a satisfactory load.

Bullet Seating The easiest way to adjust the bullet seater – complicated by a double adjustment – is with a loaded cartridge. The case must be placed at the exact depth to produce the desired crimp and the bullet seater has to be adjusted to place the crimping groove in the bullet at the same place. Back the bullet seater out until it does not touch the bullet. Back the seating chamber out enough to permit the handles to close on the loaded cartridge in the seating chamber. Then, holding the tool closed, rotate the seating chamber inward as far as possible. Since the loaded round is already crimped this should place the case very nearly right. Still holding the tool closed, run the bullet seater up as far as it will go. Remove the trial cartridge and, holding the tool with the seating chamber pointing upward at a 45-degree angle, push a bullet and powder-charged case into the chamber. Close the handles gently until you are certain the bullet has been pushed into the neck enough to hold it. Remove and take a look. Push in a little more and examine again. By working slowly and carefully you should be able to make the adjustments necessary to bring the crimping groove and case mouth together for the last 64th-inch that effects the crimp and finishes the job. Once the tool seats the bullets properly, tighten the lock nuts and proceed.



The Pak-Tool

Let's take up the Pak-Tool now – simpler to use than the 310, especially in recapping, it will full length size handgun cases if necessary.

All warnings and well-meant adjurations foregoing still apply, of course, so we'll concentrate on tool use only.

Decapping Screw decap rod into long carrier rod, drop cases into inside shell holder, close handle and out pops the fired primer – no critical adjustments are necessary.

Recapping Screw recap rod tightly into long carrier rod. Adjust lock rings so that primer punch end just enters primer pocket when handle is closed as far as it will go. Now relax your hold slightly on the handle, and the decap rod drops down below the bottom of the shell holder. Place a fresh primer in this opening, insert a case in the outside shell holder, close the handle and you're finished.

This is much easier done than described, as you'll see when you try it – and again no touchy adjustment is needed, nor will you have primers falling onto the floor.

Sizing and Expanding Three dies – sizer, expander and seater – are furnished in handgun calibers when you buy a Pak-Tool. To resize, a carrier-rod extension is used into which you'll screw the sizing die. Adjust (much as before) to size the case to the same depth you will seat the bullet. Use the lock rings to let each case be sized alike.

Remove sizer, insert expander and adjust until cases are expanded and the mouth very slightly belled, no more.

Bullet Seating Having charged the cases with powder, remove long carrier rod from Pak-Tool and screw in short carrier rod. Place an empty case and bullet into the seating die, then rotate seating stem down until it can be felt touching bullet – this a first rough adjustment. Now turn seating stem down further, almost – but not quite – to the depth your bullets will be seated.

Remove sample case and bullet, thread short carrier and seating die together and connect to linkage. Place same empty case in inside shell holder, place bullet over case mouth and close tool handle – if adjustment is correct, seating and crimping will also be correctly done, at the same time. If the sample round shows the bullet seated with the crimp groove below the crimped mouth, unscrew seater from carrier

The Pak-Tool disassembled—270 tools at left; re- and decapping rods with carrier rods at center, and 44 Magnum dies at right. A good, if not speedy, loading tool.

The Pak-Tool in Use

1—Decapping is simple—case goes into inside shellholder, rod is inserted into primer pocket, cap expelled.

2—Recapping is even easier—let the tool handle fall open a bit, thus exposing a pocket for the primer in the shellholder; drop a primer in (arrow), place case in shellholder and close handle, seating the primer. Lock nuts adjust to seat primer to uniform depth into bottom of pocket or by feel.

3—Sizing die sizes as desired (neck or full length in pistol cases), die locks in adjustment by knurled rings (arrow).

4—Neck expanding die also opens case mouth to eliminate lead shaving, may be locked in adjustment by lock rings (arrow).

5—Bullet seating—crimping die is adjustable for both crimp position and bullet seating depth (arrow).

rod and retract the seating stem a bit — if the bullet isn't seated far enough in, screw the stem down a little more. Once you've got the correct adjustment, tighten the lock rings and seat bullets in all your charged cases.

Again, all this is far simpler than it reads, and quickly done, too.

The final process is to wipe all excess grease and grime from the cartridges with a dry rag.

Does all this sound a trifle complicated? It's really easy when you have the tool actually in your hands. I've been reloading standard pistol, magnum handguns and high powered rifle ammo for 30 years with no accidents and no trouble. I didn't graduate from Harvard. Anyone can do anything I can.

The conventional round nosed 38 Special bullet will do for targets, tin cans and empty bottles, but it's not efficient as a varmint stopper. A blunt nosed or hollowpoint slug is much more satisfactory. A 148-grain wadcutter on five grains of Unique is pure poison up to about fifty yards. A 115- to 130-grain wadcutter on 2.5 grains of Bullseye is an unbeatable grouse and rabbit load up to 100 feet. Wadcutters lose velocity fast and are not accurate at long range. The best all-round 38 Special bullet is the Keith-Ideal type, hollow pointed and weighing 150 grains or a few grains over. Its single fault is that it is excessively destructive on small game.

Both tools are supplied in nearly all calibers. The 310 will reload pistol and rifle ammunition satisfactorily so long as pressures are held down enough to make full length resizing unnecessary. So will the Pak-Tool, but it will handle handgun cases that need full length sizing. Lyman supplies the 310 in an Economy Set, including their powder measure and Handbook, at $33.50. It would be a beginner's best buy. The Pak-Tool complete is $24.75 in rifle sizes, $28.50 in pistol calibers.

In bygone years, backwoodsmen on long trips, rather than lug a large supply of ammunition along, took a nutcracker tool and the necessary components with them, reloading their brass as they needed it. The buffalo hunters did the same thing. What they could do in their crude camps you can do much more easily and comfortably on a blanket topped kitchen table. If the prospect seems inviting don't let anything stop you from giving it a try.

Notes on Dies for Metallic Cartridges.....

Rifle dies usually come in sets of two. The first die de-primes, resizes. The second die seats the bullet and in some types also crimps the case mouth into the cannelure ring in the bullet. An example of this is the 30-30 Winchester. This cartridge is usually carried in a tubular magazine so that pressure is constantly exerted against the nose of the bullet. As a result, the bullet must be solidly crimped to keep it from pushing back into the case.

There are also handgun dies in sets of two that work the same as rifle dies. The seater die of these sets is invariably a crimping die also. Nowadays, for improved load quality, many handgun die sets consist of 3 or 4 dies. In these the first die simply resizes the case. The second die de-primes and expands the mouth of the case. The third die seats and crimps the bullet. In the four-die set the third die merely seats the bullet and the fourth die crimps the case mouth into the bullet. For the best and most accurate ammunition, it is always advisable to seat the bullet in one operation, then crimp the bullet in a second operation.

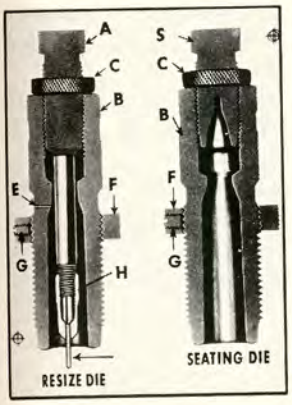
For the man who reloads thousands of cases a year, a sizing die with a Carboloy insert is the type he needs. This ring of Carboloy (an extremely hard substance) will resize a half-million cases before any wear shows! Ordinary steel dies won't, generally, process a third this many. Furthermore, cases don't have to be cleaned when using Carboloy dies. Dirty cases won't scratch the dies nor will the dies scratch the cases. Cases come out of Carboloy dies highly polished.

Some manufacturers offer presses that will use only their dies. When buying replacement dies always be certain that you specify the press in which the dies are to be used. Lyman and Lachmiller are two examples of special die presses.

Some dies are chrome plated, some are not. If proper case lubrication is used there is little difference between the life of these two types of dies.

Every part of a C-H Die is painstakingly designed and manufactured to give the maximum service in time, ease of operation, and durability. Each is precision machined to exacting tolerences from the most expensive heat treated steel.

COMPONENT PARTS OF DIES



Cross Section Of Dies

A – Decapping Unit
B – Die Body
C – Concentric Locking Ring
D – Vent Hole
E – Locking Ring
F – Locking Ring Set Screw
G – Inside Neck Expander
H – Decapping Pin
I – Bullet Seating Stem

C-H Dies Complete (Set of 2)	$13.50
Sizer Complete	9.00
Seater Complete	6.00
Sizer Body only (B)	6.25
Seater Body only (B)	5.00
Expander (H)	1.00
Decapping Unit Less Expander	1.75
Decapping Pin (I)	.10
Seating Stem (S)	1.20
Large Lock Ring (F)	1.00
Small Lock Ring (C)	.40

C-H CASE FORMING DIES

Now you can form your own wildcat cases. Case forming dies reduce commercial brass to smaller proportions so that they can be resized and loaded to the caliber you desire. NOTE: C-H Case Forming dies are necessary to prepare the cases for final reshaping. The final forming operation, however, must be done by the regular full length resizing die. Prices on request.

FORSTER Loading Die Blanks

Complete with lock ring **$2.25**

Extra lock ring ..... 50¢

Completely finished except for chambering and hardening, these are made of C-117 carburizing steel. 7/32" hole drilled the entire length, and one end internally threaded 9/16"x18 or 3/8"x24 for bullet seater or decapping unit. Outside thread 7/8"-14 to fit standard reloading presses. Available in 3¼" or 3¾" length.

HERTER'S Mark I Dies

Standard in type, these dies are made of the finest steel, carefully machined, hand reamed, then hardened, hand polished and chromed for extra long wear. Expander plug and decapping pins are carefully hardened to exact size; bullet seating stems for any shape bullet. Extra wide knurled lock rings included, plus a hex wrench and 2 extra decapping pins.

All seating stems for calibers listed are of the Universal type, except for the 38 Spls., 357 Magnum, 45 ACP, 45 Long Colt, 44 Magnum, 44 Special and 9mm Luger. These caliber dies can be had with seating stems for round nose or flat (wadcutter) type bullets and are 3 piece dies.

2-Die Sets **$4.79**

3-Die Sets **$6.49**

All dies listed are of the non-crimp type other than the 45-70, 45 ACP, 38 Spl., 357 Mag., 348 Win., 32 Win., 30-30 Win., 35 Rem., 30 Carbine, 45 Long Colt, 44 Magnum, 44 Special and 9mm Luger which are crimp type dies. Crimp type dies can be simply backed-off if crimping is not desired.

All dies listed have the straight type expander nipple other than the 45-70, 45 ACP, 38 Spl., 357 Mag., 45 Long Colt, 44 Magnum, 44 Special, 9mm Luger, and 30 Carbine, which have the bell type expander nipple.

Mark II Dies

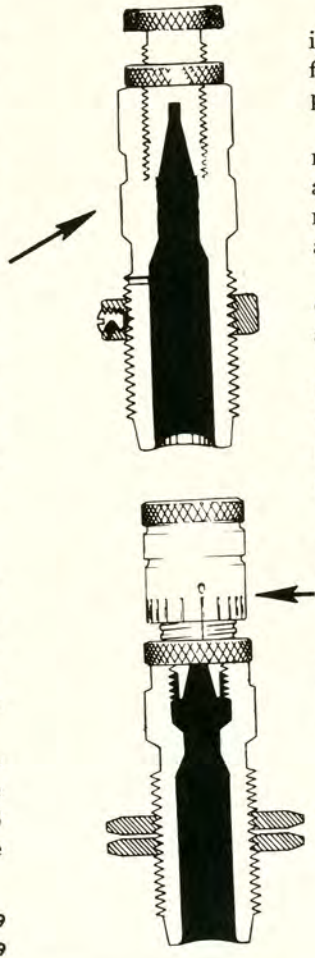
These dies are identical in their quality of materials and expert, controlled processing to our Mark I dies with the exception of the seating die. This die is machined inside to leave the area above the mouth of the case of bullet diameter for a better guide in bullet seating.

All seating stems for calibers listed are of the Universal type, except for the 38 Spls., 45 ACP. These caliber dies can be had with seating stems for round nose or flat (wadcutter) type bullets and are 3 piece dies.

All dies listed are of a non-crimp type other than the 45 ACP, 38 Spl., 30-30 Win., which are crimp type dies. Crimp type dies can be simply backed-off if crimping is not desired.

All dies listed have the straight type expander nipple other than the 45 ACP and 38 Spl., which have the bell type expander nipple.

2-Die Sets $5.49
3-Die Sets 7.19



Professional Match Dies

These new dies are exactly like our Mark I Dies in the superior quality of their construction and finest of steels except for the following important points:

1. Bullet seating stem is micrometer form, permitting the recording of exact seating depth or adjustment, and the ready return to that adjustment at any time. This micro-head stem handles any shape.
2. Lock rings are double (not lead plug type), easily and quickly adjustable, then firmly lockable with an end wrench.

All seating stems for calibers listed are of the Universal type, except for the 38 Spls., 45 ACP. These caliber dies can be had with seating stems for round nose or flat (wadcutter) type bullets and are 3 piece dies.

All dies listed are of a non-crimp type other than the 45 ACP, 38 Spl., 30-30 Win., which are crimp type dies. Crimp type dies can be simply backed-off if crimping is not desired.

All dies listed have the straight type expander nipple other than the 45 ACP and 38 Spl., which have the bell type expander nipple.

2-Die Sets ..... $7.79 3-Die Sets $8.95

HERTER'S

Mark III Dies

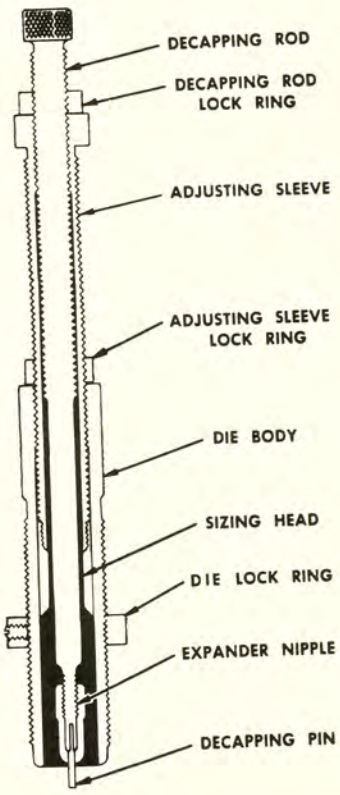
These dies, made of the finest steel, and hand polished, are designed for those reloaders who want to neck size only. Threaded 7/8-14, they include decapping and expanding unit and feature visible bullet seating. Available in 30-06, 300 Sav., 308, 270, 243, 244, 303 Br., 6.5x55, 8x57 and 300 Weatherby calibers. State caliber and choice of expander nipple for either lead or jacketed bullets..... **$5.49**

Universal Dies

These inexpensive dies full length size, neck size or seat bullets from 22 to 8mm calibers. All that is needed are sizing heads and seating heads in the caliber or calibers of your choice.

Made from the finest steels, precision machined and hard chrome plated for extra long wear, the Universal die body (only one is needed) has 7/8-14 thread for use in Herter's and other presses.

See prices and calibers on following page.

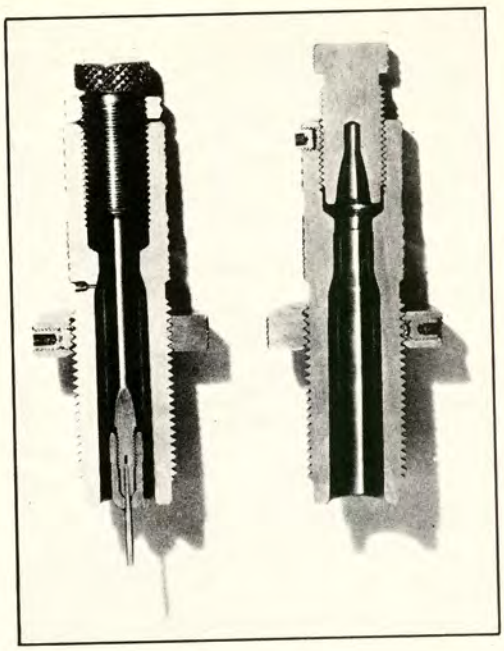


PRICE CHART FOR HERTER'S UNIVERSAL DIE

Size No.	Caliber(s)	Die Complete With Neck Sizing and Seating Heads and Decap Rod & Expander Nipple For Jacketed Bullets. Shpg. Wt.—2 lbs.		Die Complete With Neck Sizing and Seating Heads With Decap Rod & Expander Nipple For Lead Bullets. Shpg. Wt.—2 lbs.		Neck Sizing Head Only Shpg. Wt—3 ozs.		Crimp Head Only. Shpg. Wt—3 ozs.		Bullet Seating Head Only Universal Type. Shpg. Wt—3 ozs.		Die Without Sizing Heads and Seating Rod and Jacketed Expander Nipple. Shpg. Wt.—2 lbs.		Die Without Sizing Heads and Seating Heads With Decap Rod and Large Size Expander Nipple. Shpg. Wt.—2 lbs.		Decapping Rods. Note: One of Each Size Is Needed To Reload The Complete Range of Calibers Listed.		FULL LENGTH SIZING PLUGS FOR THE UNIVERSAL DIE SHPG. WT., 1 LB.		
		Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	Cat. No.	Price	Cat. No.	Caliber	Price
22A	218 Bee, 218 Imp. Bee, 22 Hornet, 22 K Hornet, 22/3000 Lovell 2R.	SF1A1	$6.49	SF1B1	$6.49	SF1C1	$.79			SF1E1	$.69	SF1G1	$5.19	SF1H1	$5.19			SF1K1	300 H&H	$2.19
22B	219 Zip., 219 Imp. Zip., 219 Don. Wasp, 222 Rem., 222 K Remington	SF1A2	6.49	SF1B2	6.49	SF1C2	.79											SF1K2	30-06	2.19
22C	22/250	SF1A3	6.49	SF1B3	6.49	SF1C3	.79											SF1K3	30-40	2.19
22D	220 Swift, 220 Rocket.	SF1A4	6.49	SF1B4	6.49	SF1C4	.79											SF1K4	300 Sav.	2.19
6A	243 Win., 244 Rem. 6 MM Lee Navy	SF1A14	6.49	SF1B14	6.49	SF1C14	.79			SF1E8	.69	SF1G8	5.19	SF1H8	5.19	Decapping Rod Without Expander Nipple or Decapping Pins. 3/16" Diameter For .22 Through 6.5 Calibers. Shpg. Wt.—10 ozs.		SF1K5	308 Win.	2.19
25A	*25/20, *25/35, *25 Rem.	SF1A5	6.49	SF1B5	6.49	SF1C5	.79	*SF1D1	$.79									SF1K6	30-30	2.19
25B	250-3000, 257 Rob., 25 Super, 257 Ackley Imp., 25 Whelen, 250 Ackley Short Mag., 25/06, 25-06 Imp., 257 Weatherby Mag.	SF1A6	6.49	SF1B6	6.49	SF1C6	.79			SF1E2	.69	SF1G2	5.19	SF1H2	5.19	SF1F1	$1.29	SF1K7	7 MM (7x57)	2.19
6.5A	6.5x257 Jap. Rob., 256 Newton, 256 Spence, 6.5/30-06, 6.5/250, 6.5 Jap., 6.5 Mann. Sch., 6.5x58 Rim, 6.5x58 Rimless, 6.5x57 Rim., 6.5x57 Rimless, 6.5x55 Rim, 6.5x55 Rimless, 6.5x52 Rim, 6.5x52 Rimless, 6.5x51 Rimless, 6.5x50.5 Semi-Rimmed, 6.5x308, 6.5 M/M Mauser. 6.5 x 53 Rim & Rimless.	SF1A7	6.49	SF1B7	6.49	SF1C7	.79			SF1E3	.69	SF1G3	5.19	SF1H3	5.19			SF1K8	8 MM (8x57)	2.19
270A	270 W.C.F., 270 Weatherby Mag., 270 Ackley Short Mag., 275 H and H Mag., 275 Rigby, 276 Dubiel.	SF1A8	6.49	SF1B8	6.49	SF1C8	.79			SF1E4	.69	SF1G4	5.19	SF1H4	5.19			SF1K9	270 Win.	2.19
7A	280 Remington, 7 M/M Mauser (7x57), 7 M/M-308, 7 M/M-270, 7 M/M Weatherby Mag., 7 M/M Ackley Short Mag., 7x57 Rimmed, 7x64 Mauser, 7x61 S & H.	SF1A9	6.49	SF1B9	6.49	SF1C9	.79			SF1E5	.69	SF1G5	5.19	SF1H5	5.19	Decapping Rod Without Expander Nipple or Decapping Pins, 1/4" Diameter for 270 Through 8 M/M Calibers. Shpg. Wt.—10 ozs.		SF1K10	257 Rob.	2.19
30A	30-06, 308 Win., 30-40 Krag, 300 Sav., 30 Rem., 30 M1 Carbine, 300 H & H Mag., 300 H & H Imp. Mag., 30 Newton, 300 Ackley Short Mag., 7.62 Russ, 7.62x53, 303 Sav., T-65 Govt., 30-06 Ackley Imp., 300 Weatherby Mag., 7.62x63, 7.62x51.	SF1A10	6.49	SF1B10	6.49	SF1C10	.79			SF1E6	.69	SF1G6	5.19	SF1H6	5.19	SF1F2	1.29	SF1K11	250/3000	2.19
30B	*30-30	SF1A11	6.49	SF1B11	6.49	SF1C11	.79	*SF1D2	.79									SF1K12	257/6.5	2.19
31A	7.7 Jap, 303 British, 303 Savage.	SF1A15	6.49	SF1B15	6.49	SF1C15	.79					SF1G9	5.19	SF1H9	5.19			SF1K13	22 Hor.	2.19
32A	*32 Win. Spl., *32/40 W.C.F., 32 Rem.	SF1A12	6.49	SF1B12	6.49	SF1C12	.79	*SF1D3	.79			SF1G10	5.19	SF1H10	5.19			SF1K14	220 Swift	2.19
8A	8 M/M (8x57), 8 M/M Breda, 8 M/M Special, M/M Improved, 8 M/M Lebel, 8 M/M-06, 8 M/M Gipson, 8x51, 8x56 Mann. Sch., 8x57 Rimmed, 8x60 Rimmed, 8x60 Rimless, 8x60 Magnum.	SF1A13	6.49	SF1B13	6.49	SF1C13	.79			SF1E7	.69	SF1G7	5.19	SF1H7	5.19			SF1K15	222 Rem.	2.19
																		SF1K16	22/250	2.19
																		SF1K17	243 Win.	2.19
																		SF1K18	244 Rem.	2.19
																		SF1K19	6.5 Jap	2.19
																		SF1K20	7.7 Jap	2.19

*CRIMP HEADS: The following calibers— 25/20 25/35 Win., 25 Rem., 30-30 Win., 32 Win. Spl. and 32/40 W.C.F. should be purchased with a crimp head if to be reloaded for a rifle having a tubular magazine. Crimp heads are not supplied with complete die and must be purchased separately.

HOLLYWOOD



Complete 2-die sets **$12.50**

Complete 2-die set in special length (see die chart) **$17.50**

Precision made and beautifully finished to assure accurate reloads, few dies made are equal to these — and none superior. The interiors are finely polished, and the seating dies are now hardened like the sizing dies. This is important when loading crimped shells, as the crimping section of the die receives the most wear. The lock rings are large, 1½" in diameter, and are provided with Allen type set screws for locking into position. Standard ⅞-14 threaded for use in all popular reloading presses.

For the first time you can now reload cartridges such as 50 caliber machine gun, 416 Rigby, 500 Jeffrey, 505 Gibbs, 577 Nitro Exp. and 600 Nitro Exp., in specially made dies. The Hollywood Special Dies have 1½" threads that will fit in the new Hollywood Senior and Turret tools and other presses of sufficient strength whose die stations are threaded to accommodate shotshell dies. $28.50 per set. Special Shell Holders for these large calibers are $6.00 (order by caliber).

LACHMILLER

$8.95 Set

Made of high grade steel only — no aluminum or alloy parts. Sizing dies are correctly heat treated and lapped to a mirror finish. Made in 2-die sets only; see die and shell holder chart for available calibers. Standard ⅞-14 thread for use in all popular loading presses.

Lyman

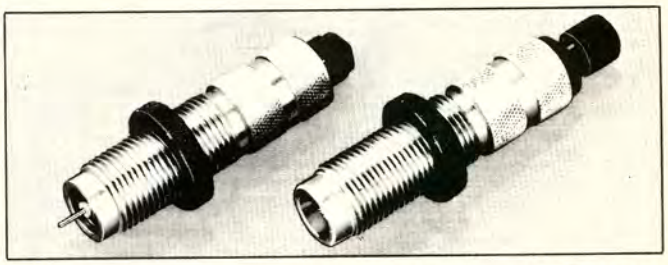
Ideal & All-American Reloading Dies

Lyman Ideal Dies reflect more experience in reloading than any other make on the market. Since first offered over 70 years ago, Ideal dies have undergone continuous improvement to their present day peak of perfection . . . offered in both the six piece set for the #310 Tool, two die Rifle and three die Pistol sets for the Tru-Line Jr. Press (may be used with 7/8" by 14 adapters in other presses), economical Ideal dies produce precision handloads the equal of any made in dies costing many times their price. For cast bullets, use 3 die set with rifle cartridges same as for pistol cartridges.

#310 Die Set — Rifle or pistol **$11.50**
Tru-Line Jr. Rifle or Pistol Dies less priming punch and shell holder **$ 8.50**
***Priming Punch** ..... **$ 1.50**
***Shell Holder** ..... **$ 1.75**

***For use only in Lyman Presses**

NOTE: Both #310 and T. L. Jr. Dies perform only Neck Sizing for rifle cases — Full length resizing can be performed as needed with an Ideal full length hand die. Tru-Line Jr. dies will full-length resize pistol and revolver cases.
Ideal full length hand die **$3.50**



All-American Dies are the experts choice for reloading all popular cartridges . . . are designed for a lifetime of precision performance. Lyman All-American chrome-plated dies have 7/8" by 14 threads. Especially made for Lyman All-American Comet and Turret Presses, they perform equally well in most other 7/8" by 14 thread presses. Beautifully finished . . . machined and precision polished to the closest tolerances . . . All-American dies give years of satisfying performance in the production of accurately dimensioned and perfectly finished handloads. Wide, deeply knurled bands on each die make for easy handling and adjustment. Locking rings are standard on all to assure absolute repositioning, should die be removed from press.

All-American dies for rifle cartridges are two die sets . . . Die "W", performs the full length resizing, decapping, neck expanding and repriming with one up and down stroke of press . . . Die "U", performs the bullet seating and crimping if desired on one stroke. Pistol dies are three die sets . . . Die "Y", performs full length resizing . . . Die "Z", performs decapping, neck expanding and repriming . . . Die "U", seats the bullet and crimps if desired. Only one up and down motion of press is required for each die.

All-American rifle or pistol die set less priming punch and shell holder **$11.50**
***Priming Punch only** ..... **$ 1.50**
***Shell Holder only** ..... **$ 1.75**

***For use only in Lyman Presses**

PARTIAL LIST OF CARTRIDGES THAT CAN BE RELOADED WITH LYMAN TOOLS & DIES
Write to factory for information on any not listed

RIFLE	310 Dies	Tru-Line Jr. Dies	7/8 x 14 A. A. Dies	Priming Punch	Shell Holder
.218 Bee	X	X	X	S	10
.219 Donaldson Wasp	X	X	X	L	6
.219 Zipper	X	X	X	L	6
.219 Zipper, Imp.	X	X	—	L	6
.219 K-Zipper	X	X	—	L	6
.22 Hornet	X	X	X	S	4
.22 K-Hornet	X	X	X	S	4
.22/250 Varminter	X	X	X	L	2
.22 Lovell 2R	X	X	—	S	19
Old-K-Lovell	X	X	—	S	19
New K-Lovell	X	X	—	S	19
.22 Savage Hi-Power	X	X	X	L	6
K-Savage .22 Hi-Power	X	X	—	L	6
.220 Swift	X	X	X	L	5
K-.22 Swift	X	X	—	L	5
.222 Mag.	X	X	X	S	26
.222 Remington	X	X	X	S	26
.243	X	X	X	L	2
.244	X	X	X	L	2
.25-20 Repeater	X	X	X	S	10
.25-35 Winchester	X	X	X	L	6
.25 Remington	X	X	X	L	15
.257 Roberts	X	X	X	L	8
.257 Weatherby	X	X	X	L	13
6.5 Carcano	X	X	X	L	27
6.5 M/M Jap	X	X	X	L	2
.250-3000	X	X	X	L	2
6.5 M/M Mann.-Schoen.	X	X	X	L	3
6.5x55 Swed.	X	X	X	L	27
.264	X	X	X	L	13
.270 Weatherby	X	X	X	L	13
.270 Winchester	X	X	X	L	2
7 M/M Mauser	X	X	X	L	2
.30 M1 U. S. Carbine	X	X	X	S	19
.30-30 Win. & .30 Rem.	X	X	X	L	6-15
.300 Savage	X	X	X	L	2
.300 Weatherby	X	X	X	L	13
.30-40 Krag	X	X	X	L	7
.308 Norma	X	X	X	L	13
.308 Winchester	X	X	X	L	2
.30-06	X	X	X	L	2
.300 H. & H. Magnum	X	X	X	L	13
7 M/M Weatherby	X	X	X	L	13
7.35 Italian	X	X	X	L	3
7.61 S & H	X	X	X	L	13
7.62 M/M Russian	X	X	X	L	17
7.65 Argentine	X	X	X	L	5

RIFLE	310 Dies	Tru-Line Jr. Dies	7/8 x 14 A. A. Dies	Priming Punch	Shell Holder
.303 Savage	X	X	X	L	7
.303 Br. & Can. Ross	X	X	X	L	7
7.7 M/M Jap	X	X	X	L	2
.32-20	X	X	X	L	10
.32-40	X	X	X	L	6
.32 Win. Sp. & Rem. Au.	X	X	X	L	6
8 M/M Mauser	X	X	X	L	2
8 M/M Lebel	X	X	X	L	18-S
.33 Winchester	X	X	X	L	17
.338	X	X	X	L	13
.348 Winchester	X **	X *	X	L	18
.35 Remington	X	X	X	L	2
.35 Winchester	X	X	X	L	7
9 M/M Mauser & Mannlicher-Schoenauer	X	X	X	L	2
.358 Winchester	X	X	X	L	2
.375 H. & H. Magnum	X	X	X	L	13
.375 Weatherby	X	X	X	L	13
.38-40 Winchester	X	X	X	L	14B
.38-55	X	X	X	L	6
.401 Winchester	X	X	—	L	2
.405 Winchester	X	X	—	L	7
.43 Spanish	X	X	—	S-L	18
.44-40 Winchester	X	X	X	L	14B
.45-70 Gov't. & Win.	X	X	X	L	17
.45-90 Winchester	X	X	X	L	17
.458 Winchester	X	X	X	L	13
.30 Luger	X	X	X	S	12
.32 S. & W. Long .32 Colt New Police	X	X	X	S	9
.32 Automatic	X	X	X	S	19
.32-20	X	X	X	S	10
.357 Magnum	X	X	X	S	1
9 M/M Luger	X	X	X	S	12
.38 S. & W.	X	X	X	S	21
.38 Colt Automatic	X	X	X	S	12
.38 Special	X	X	X	S	1
.380 Colt Automatic	X	X	X	S	12
.38/40 (Revolver)	X	X	X	L	14B
.41 Colt	X	X	X	S	41LC
.44 S. W. Russian	X	X	X	L	7
.44 Special Magnum	X	X	X	L	7
.44-40	X	X	X	L	14B
.45 Auto. Rim	X	X	X	L	14A
.45 Colt Automatic	X	X	X	L	2
.45 Colt	X	X	X	L	11

*With special turret **With special handle

OPERATIONS	FULL LENGTH RESIZE	MUZZLE RESIZING	DECAPPING	PRIMING	NECK EXPANDING	SEATING BULLETS	INFORMATION
COMET TURRET	PISTOL (Y) RIFLE (W) (J) SHELL HOLDER	PISTOL (Y) RIFLE (S) & ADAPTER (K) SHELL HOLDER (J)	PISTOL (Z) RIFLE (W) (J) SHELL HOLDER	(J) SHELL HOLDER (T) PRIMING PUNCH	PISTOL (Z) RIFLE (W) (J) SHELL HOLDER	PISTOL AND RIFLE (U) (J) SHELL HOLDER	This chart gives you proper dies to use on each operation. When ordering dies for your reloading tool, specify two things: 1. Cartridge being reloaded 2. Jacketed, or Cast Bullet (give bullet number)
TRU-LINE JR.	RIFLE SEPARATE IDEAL FULL LENGTH RESIZING DIE PISTOL (R)	(R) PISTOL (S) RIFLE (J) SHELL HOLDER	(R) PISTOL (S) RIFLE (J) SHELL HOLDER	(J) SHELL HOLDER (T) PRIMING PUNCH	(F) PISTOL (S) RIFLE (J) SHELL HOLDER	(E) PISTOL AND RIFLE (J) SHELL HOLDER	When reloading rifle cartridges, with cast lead bullets, it is advisable to first obtain a Die F Ideal Expanding Chamber with 2 step plug which will facilitate the seating and crimping of cast bullets. In presses designed for 7/8 x 14 dies it will be necessary to obtain a 7/8 x 14 thread die-adapter.
310 TOOL	RIFLE & PISTOL SEPARATE IDEAL FULL LENGTH RESIZING DIE	(B)	(D)	(C)	(F)	(E)	

#310 DIES	
A. Adapter Die	1.00
B. Muzzle Resizer	1.25
C. Priming Chamber	2.25
D. Decapping Chamber and Rod	2.00
(Separate "D" Decapping Chamber)	1.00
(Separate "D" Decapping Rod)	1.00
E. Double-adjustable Chamber and Bullet-Seating Screw	3.50
(Separate Double-Adjustable Chamber)	2.50
(Separate Bullet-Seating Screw)	1.00
F. Expanding Chamber and Plug	2.00
(Separate Expanding Chamber)	.75
(Separate Expanding Plug)	1.25
For Comet, Turret & Tru-Line Jr. presses:	
J. SHELL HOLDER (any caliber)	1.75
T. PRIMING PUNCH (any caliber)	1.50
Soare Decapping Pins — Package of 10	1.00
(fit all Lyman dies)	

TRU-LINE JUNIOR RIFLE DIES:	
E. Double-Adjustable Chamber and Bullet-Seating Screw	3.50
(Separate Double-Adjustable Chamber)	2.50
(Separate Bullet-Seating Screw)	1.00
S. Combination Die	5.50
(S. Separate Combination Muzzle Resizer)	3.50
(S. Separate Combination Decapping Rod)	1.00
(S. Separate Combination Expanding Button)	1.00

TRU-LINE JUNIOR PISTOL DIES:	
E. Double-Adjustable Chamber and Bullet Seating Screw	3.50
(E. Separate Double-Adjustable Chamber)	2.50
(E. Separate Bullet-Seating Screw)	1.00
F. Expanding Chamber and Plug	2.00
(F. Separate Expanding Chamber)	.75
(F. Separate Expanding Plug)	1.25
R. Full-Length Resizing Die and Decapping Rod	3.50
(R. Separate Full-Length Resizing Die)	2.50
(R. Separate Decapping Rod)	1.00

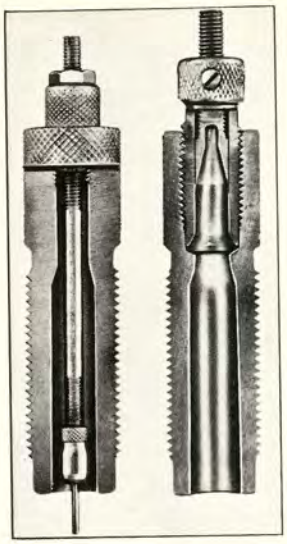
ALL-AMERICAN RIFLE DIE PARTS:	
U. Bullet-Seating Chamber and Screw	4.75
U. Separate Bullet-Seating Chamber)	3.75
U. Separate Bullet-Seating Screw)	1.00
W. Full-Length Resizing Die with Decapping Rod and Expanding Button	7.00
W. Separate Full-Length Resizing Die)	5.00
W. Separate Decapping Rod)	1.00
W. Separate Expanding Button)	1.00

ALL-AMERICAN PISTOL DIE PARTS:	
U. Bullet-Seating Chamber and Screw	4.75
(U. Separate Bullet-Seating Chamber)	3.75
(U. Separate Bullet-Seating Screw)	1.00
Y. Full-Length Resizing Die	3.50
Z. Decapping and Expanding Chamber	3.50
(Z. Separate Expanding Chamber)	1.50
(Z. Separate Expanding Plug)	1.00
(Z. Separate Decapping Rod)	1.00

Lyman
METALLIC SIGHTS • SHOTGUN CHOKES • RELOADING TOOLS
THE LYMAN GUNSIGHT CORPORATION • MIDDLEFIELD, CONNECTICUT

PACIFIC Die Sets

Precision machined from the best grade of steel available, these dies are properly hardened, chrome-plated, inside polished and inspected. They are guaranteed to be the highest quality available at any price.



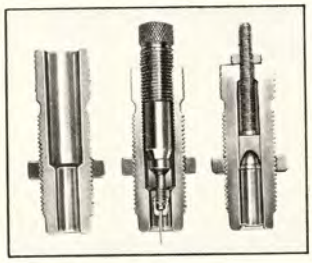
$11.50

Available in 2-die sets for rifle reloading, all (except 22 caliber) have adjustable crimp. 30-06 dies are furnished with a heavy duty decapping unit. When ordering, specify either full length or neck size.

(See Die and Shell Holder Chart for available calibers.)

$13.50

Complete 3-die set



Three-die sets for pistol calibers are designed to load cases with little or no taper. The #1 die is a trimmer body as well as a sizing die, and can be used with the Pacific Cutter-Trimmer assembly.

Sizing die is available with Carbide insert for long life and smoother operation. Price, sizing die only, $22.00; the 3-die set with Carbide insert, $29.50.

PERFECTION DIE CO.
EL RENO, OKLAHOMA

Carboloy Resizing Die

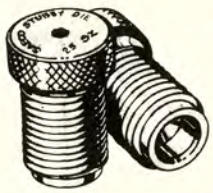
$22.50

Used by custom reloaders and police departments with reports of more than 1 million cases resized without loss of non-galling quality. Made of the hardest metal made by man, these dies size even the dirtiest cases with a high polish — no scratch or gall marks. Precision made throughout, size, alignment and performance is guaranteed. Does not remove all of the flare from case mouth — makes bullet seating easier. Available in 38 Spec. and 45 ACP, threaded 7/8-14 for use in all standard presses. Other sizes available on special order at no extra cost.

SAECO — STUBBY DIES

Rifle dies: made to neck size only, they are short, economical, and are heat treated and polished to the usual high SAECO standards. Available in the following calibers: 22, 6mm, 25, 6.5mm, 270, 7mm, 30, 30-30, 8mm, 338. Because they neck size only, many different cartridges may be reloaded with one die. Because of the difference in neck wall thickness between heavier cases (30-06, 300 Mag., etc.) and lighter cases, we have made a separate 30-30 die. When reloading cases over 2.23", the Extension Tube furnished with each SAECO M-P Press should be used. Each die set comes complete with expander-decapper and bullet seating stem.

Pistol dies: these are full length resizing dies. In operation, the cartridge cases are first full length resized, then the Expander-Decapper and Flaring Punch is installed in the die. The case is then expanded, bellmouthed and decapped in a second operation. This is identical in function to the "3 Die Pistol Sets," so highly recommended and in common use, but requiring three separate dies for the complete operation.



$8.75

The pistol bullet seating and crimping dies function in the conventional manner. All SAECO Stubby Sizing and Crimping Dies are heat treated and polished. Bullet Seating Stems are available for both wadcutter-Keith Type and round nose bullets. Available in the following calibers: 38 Spl. & 357 Mag., 44 Spl. & 44 Mag., 45 ACP, 45 Long Colt.

Vickerman — BULLET SEATERS

SHELL HOLDER EXTENSION CHART

1. 22 Hornet and Hornet Wildcats
2. 218 Bee and Bee Wildcats
3. 2R, 25-20 Single Shot, etc.
4. 219 Zipper, Rimmed Wasp, 25-35, 30-30, etc.
5. 25 Rem, 30 Rem, Rimless Wasp, etc.
6. 22-250, 250 Sav., 300 Sav., 6mm and Wildcat cases of these or shorter lengths having standard (.474) rimless heads.
7. Rem. 222

VICKERMAN SHELL HOLDER EXTENSIONS
Any size. Ea. 80c

VICKERMAN BULLET SEATERS
Any Size. Ea. $8.50

For all bench loading tools using 7/8"—14-thd. Pacific type dies, Pacific, Universal Hollywood, Easton, etc.

A tool that combines the precise straight line bullet seating necessary for finest accuracy, heretofore only found in the best of the hand bullet seaters plus the convenience of using in your bench loading tool.

Made in 11 sizes,— 22, 6mm, 25, 6.5mm (.264), 27, 7mm, 30, 8mm, 338, 35, and 375. Each will seat bullets for all calibers in that size. Example: 22 size will seat bullets for the 22 Hornet, 218 Bee, 219 Zipper, 22 Varminter, 220 Swift and any Wildcat variations using .223 or .224 bullets.

Only necessary extra purchase is inexpensive shell holder extensions for the shorter cases. Example: 30 cal. size will seat bullets for 30-40, 30-06, 300 Magnum, 30 Newton and 30 cal. Wildcats on these cases. If you wished to load the shorter 30-30 case an extension shell holder would be necessary.

Adjustments for seating depth easily made.

One Extension furnished with each 22, 25 and 6mm size Seaters. Ask for size you need.

WEATHERBY Loading Dies .....

7/8-14 Thread Fits Most Reloading Tools

3-piece set, all Weatherby Magnum calibers except 378 and 460 **$17.50**

2-piece set, 378 and 460 Weatherby Magnum **$13.50**

Developed to provide the handloader with the most convenient means of reloading cartridge cases, they are simple to operate, and are made from the finest material available. Careful heat treating and polishing assure the reloader of long life and accurate cartridges. Note the following features:

Visual Bullet Seating Guide — Bullet is introduced into the sliding bullet guide in the cut-away at the side of the die. This sliding guide insures precision alignment of the bullet and cartridge case during the bullet seating operation. Visual observation of the seating operation simplifies seating of the bullet to the proper depth.

Full Length Sizing or Neck Sizing or Both — To neck size rather than full length size, all that is needed is a neck sizing sleeve which is inserted into the bullet seating die. These are available for any Weatherby Magnum caliber at $4.00 each.

Bullet Seating Die Accommodates Many Calibers By Changing Inserts — Extra inserts for any Weatherby Magnum caliber at $2.00 each, are available to make this seating die more versatile than ever.

R. F. Wells, Inc. Full Length Sizing and Seating Dies

These dies, standard 7/8-14, are made of the finest steel, carefully machined, hardened and chrome plated. The decapping rod, of the heavy duty type, has the positive collet type lock for holding the decapping pin. Expander nipples are hardened, ground to .0001" tolerance and edges hand honed to prevent shaving of brass inside the case neck. Furnished with three decapping pins and hex wrench.

All seating dies have universal seating stem except 38 Spec., 9mm Luger, 357 Magnum, 44 Spec. and Magnum, 45 ACP and Long Colt. These may be had with round-nose stem or flat-nose, for wadcutters.

All seating dies are non-crimping except for those calibers above plus 30 Carbine, 30-30, 32 Win. Special, 348 Win., and 45-70. These have crimp rings, though crimping with them is not necessary unless desired.

$4.95
2-Die Set

All sizing dies have straight expander nipples except 38 Spec., 357 Magnum, 9mm Luger, 44 Spec. and Magnum, 45 ACP and Long Colt, 30 Carbine and 45-70. These have belling expanders.

All dies supplied with expander for jacketed bullets unless ordered otherwise.

Wells Expander Die

State caliber **$1.75**

Designed to make the third die of a 3-die set, for those preferring these for handgun cartridges. In use, remove decapping rod assembly from sizing die and use in this expander die. Made in two sizes only (38 Spec., 357 Magnum, 9mm Luger) and (45 ACP, 45 Long Colt, 44 Spec. and Magnum).

WILSON Sizers and Seaters

Straight Line Full Length Resizing Dies

These dies *place no strain on case rim,* and correct headspace is assured at all times.

The body of the die is made of low carbon steel, carburized, and hardened. This gives an extremely hard skin, in and out, with wearing qualities unexcelled. The drift is made of machinery steel, tough but not too hard to be machined. This permits changing drift length to adjust for rifles having other than normal headspace.

As regularly furnished, these dies are adjusted to produce a resized case correct for rifles of normal headspace. If a die is wanted for a rifle having less or more than normal headspace, this adjustment can be made if the customer will mail in several fired cases from his rifle.

We are now serially numbering the dies and drifts. This will appeal to those who buy two or more dies, as they can tell at a glance which drift belongs to which die.

Available in: 22 Hornet, 2-R Lovell, 218 Bee, 219 Donaldson, 222 Rem., 222 Rem. Mag., 219 Zipper, 22-250, 220 Swift, 220 Wilson Arrow, 243 Win., 244 Rem., 25-20, 25-35, 250 Sav., 256 Newton, 257 Roberts, 257x6.5, 250-06, 6.5 Mann., 6.5x55 Norma, 264 Win. Mag., 270 Win., 7mm Mauser, 7x61 S&H, 280 Rem., 30-30, 30-40, 300 Sav., 30-06, 300 H&H Mag., 30-348, 30 Newton, 303 Br., 303 Sav., 308 Win., 308 Norma Mag., 32-20, 32 Spl., 8mm Mauser, 30-06x8mm, 33 Win., 338 Win. Mag., 348 Win., 358 Win., 35 Rem., 35 Whelen, 358 Norma Mag., 375 H&H Mag., 45-70, 458 Win.

Any caliber listed **$7.50**

Adjust to rifles having other than normal headspace **$8.50**

$12.50
Any caliber listed

Chamber Type Bullet Seaters

The body of this straight-line bullet seater is similar to a short section of rifle barrel. The case is aligned and supported by the chamber section from the start to the finish of the seating operation, while the bullet is aligned and seated by the close-fitting plunger in the bore section. With the common 7/8-14 threaded type seater the case is aligned only by the rim for almost the entire seating operation. With this chamber type seater, the case is all the way "home" before any movement of the bullet takes place. There is nothing slow about this seater, either, and for precision seating it is tops.

The seating plunger is made of a special type steel, is finish ground to size, and is absolutely concentric with the opening in the lower end which aligns and seats the bullet. Depth of seating is readily adjusted by means of the threaded cap on the plunger.

Available in: 22 Hornet, 218 Bee, 219 Zipper, 219 Donaldson, (220 Swift, 220 Wilson Arrow), 222 Rem., 222 Rem. Mag., 22-250, 243 Win., 244 Rem., 250 Sav., 250-06, 257 Roberts, 25 Souper, 257x6.5, 6.5x55 Norma, 264 Win. Mag., 270 Win., 7mm Mauser, 280 Rem., 30-06, 300 Sav., 30 Newton, 30-30, 30-40, 308 Win., 300 H&H Mag., 338 Win. Mag., 348 Win., 35 Whelen, 358 Win.

Shell Holder and Die Chart

This chart lists over 100 of the more popular commercial and wildcat cartridges. The number or symbol above the diagonal line is the manufacturer's shell holder designation. Where no number or symbol is shown (but where die sets are indicated), order the shell holder by caliber.

The number or symbol below the diagonal line (or in some cases alone in the box) shows that the manufacturer has die sets available for that caliber. Where an X is shown, the die set contains two dies — where the die set contains 3 dies, this number is shown.

This chart is complete, except for RCBS and C-H, both of whom list upwards of 300-odd shell holder and/or die sets. The full line of RCBS dies and shell holders is shown elsewhere in this section.

SAECO Stubby Dies (sizer, seater and extension for long cases) neck size only. 22 caliber dies load all 22 CF cartridges, etc., except 30-30, which uses special dies.

The Vamco die bodies are universal, and additional calibers may be loaded by buying inserts only. See Vamco display in this section.

				Lyman						Herter's					
Caliber	RCBS	Pacific	Lachmiller	310	Tru-Line	All American	C-H	Hollywood	Wells	Mark I	Mark II	Professional	VAMCO	SAECO	Echo
218 Bee	1/X	7/X	3/X	/X	10/X	10/X	3/X	/X	11/X	11/X			/X	1/	9/
219 Donaldson	2/X	2/X	2/X	/X	6/X	6/X	2/X	/X	/X	/X			/X		3/
219 Zipper	2/X	2/X	2/X	/X	6/X	6/X	2/X	/X	2/X	2/X			/X	2/	3/
219 Zipper Imp.	2/X	2/X	2/X		6/X	6/X		/X	/X	/X					
22 Hornet	12/X	3/X	/X	/X	4/X	4/X	/X	/X	4/X	4/X			/X	12/	7/X
22 K-Hornet	12/X	3/X	/X	/X	4/X	4/X	/X	/X	4/X	/X			/X	12/	7/
22 R2 Lovell	10/X	/X	/X	/X	19/X		/X	/X	13/	13/			/X	10/	17/
22 Hi Power	2/X	2/X	2/X	/X	6/X	6/X	2/X	/X							3/
22 Varminter (22-250)	3/X	1/X	1/X	/X	2/X	2/X	1/X	/X	/X	1/X			/X	3/	1/
222 Rem.	10/X	/X	/X	/X	26/X	26/X	/X	/X	5/X	5/X	/X	/X	/X	10/	14/
222 Rem. Mag.	10/X	/X	/X	/X	26/X	26/X	/X	/X	5/X	5/X			/X	10/	
220 Swift	11/X	4/X	4/X	/X	5/X	5/X	4/X	/X	6/X	26/X			/X	11/	5/
220 Rocket		4/X					4/X						/X		
5.6X51 Vom Hofe	2/X														
243 Win.	3/X	1/X	/X	/X	2/X		1/X	/X	21/X	21/X			/X	3/	1/X
244 Rem.	3/X	1/X	/X	/X	2/X		1/X	/X	1/X	1/X	/X	/X	/X	3/	1/
6mm — 250	3/X						/X								
6mm — 270	3/X														
6mm — 06	3/X														
6mmX61 SH	4/X														
25 Krag	7/X							/X						/X	
25 Rem.	19/X	12/X	5/	/X	15/X	15/X	5/X	/X	9/	9/			/X	19/	19/
25-20 Single Shot	10/X						/X	/X	13/	13/			/X	19/	19/
25-20 WCF	1/X	7/X	3/	/X	10/X	10/X	3/X	/X	11/	11/				10/	9/
25-06	3/X	1/X					1/X	/X					/X	1/	
250 Donaldson	3/X	/X	1/X				1/X	/X					/X		
250 Savage	3/X	1/X	1/X	/X	2/X	2/X	1/X	/X	1/X	1/X			/X	3/	1/
257 Roberts	3-11/X	1/X	1/X	/X	8/X	8/X	1/X	/X	1/X	1/X			/X	3-11/	4/
257 Weatherby	4/X	5/X	6/X	/X	13/X	13/X	6/X	/X		8/			/X	4/	
256 Newton	3/X						1/X	/X	1/	1/					
6.5X54 MS	9/X	/X		/X	3/X	3/X	/X	/X						9/X	24/
6.5 Jap	2/X	4/X	1/X	/X	2/X	2/X	/X	/X	6/X	26/X			/X		23/
6.5X53	9/X						/X	/X	1/						
6.5X53R	7/X	13/X					/X	/X	3/						
6.5X55	2/X	/X	2/X	/X	27/X	27/X	13/X	/X	21/X	21/X	/X	/X		2/	3/
6.5X57	11/X	1/X	6/X				1/X	/X							
264 Win. Mag.	5/X	5/X	6/X				6/X	/X	8/X	8/X				4/	
270 Win.	3/X	1/X	1/X	/X	2/X	2/X	/X	/X	1/X	1/X	1/X	1/X	/X	3/X	1/
270 Weatherby	4/X	5/X	6/X	/X	13/X	13/X	6/X	/X		8/			/X		
7X61 SH	4/X	5/X	6/X				6/X	/X	18/	18/			/X	4/X	25/

Shell Holder and Die Chart —Continued

Caliber	RCBS	Pacific	Lachmiller	Lyman 310	Lyman Tru-Line	Lyman All American	C-H	Hollywood	Wells	Herter's Mark I	Herter's Mark II	Herter's Professional	VAMCO	SAECO	Echo
7X57	3-11/X	1/X	1/X	/X	2/X	2/X	1/X	/X	1/X	1/X			/X	3-11/	1/
7mm — 06	3/X	1/X	1/X										/X		1/
7.7 Jap	2/X	1/X	1/X	/X	2/X	2/X	1/X	/X	6/X	26/X				13/	17/
7.62 Russ.	13/X	/X	/X	/X	17/X	17/X	/X	/X	7/	7/			/X	3/	
280 Rem.	3/X	1/X	1/X				1/X	/X	/X	1/X			/X	19/X	19/
30 Rem.	19/X	12/X	5/X	/X	6-15/X	6-15/X	5/X	/X	9/	9/			/X	17/	21/
30 M1 Carbine	17/3	/X	/3	/X	19/X	19/X	/X	/X	15/X	15/X			/X	2/X	3/
30-30 WCF	2/X	2/X	2/X	/X	6-15/X	6-15/X	2/X	/X	2/X	2/X	2/X	2/X	/X	7/	8/
30-40 Krag	7/X	11/X	8/X	/X	7/X	7/X	8/X	/X	3/X	3/X			/X	3/	1/
30-06	3/X	1/X	1/X	/X	2/X	2/X	1/X	/X	1/X	1/X	1/X	1/X			
300 Sav.	3/X	1/X	1/X	/X	2/X	2/X	1/X	/X	1/X	1/X	1/X	1/X	/X	3/	1/
300 H&H	4/X	5/X	6/X	/X	13/X	13/X	6/X	/X	8/X	8/X			/X	4/	6/
300 Weatherby	4/X	5/X	6/X	/X	13/X	13/X	6/X	/X		18/		18/	/X	4/	
303 British	7/X	11/X	8/X	/X	7/X	7/X	8/X	/X	3/X	3/X	3/X	3/X	/X	7/	8/
303 Sav.	2/X	2/X	/X	/X	7/X	7/X	/X	/X	3/	3/			/X	2/	5/
308 Win.	3/X	1/X	1/X	/X	2/X	2/X	1/X	/X	21/X	21/X	21/X	21/X	/X	3/	1/
308 Norma Mag.	4/X	5/X	6/X	/X	13/X	13/X	6/X		8/						
32 Rem.	19/X	12/X		/X	6/X	6/X	5/X	/X	9/	9/			/X	19/	
32 Win. Spec.	2/X	2/X	2/X	/X	6/X	6/X	2/X	/X	2/X	2/X			/X		3/
32-20 WCF	1/3	7/3	3/3	/X	10/X	10/X	3/X	/X	11/	11/					9/
32-40 WCF	2/X	2/X		/X	6/X	6/X	2/X	/X	2/	2/			/X		3/
8mmX57	3/X	1/X	1/X	/X	2/X	2/X	1/X	/X	1/X	1/X	/X	/X		3/X	1/
8mmX56 M.S.	3/X	1/X					1/X	/X		1/				4/	
8mmX57R	4/X	13/X	7/X					/X		3/				14/	18/
33 Win.	14/X	/X		/X	17/X	17/X	/X	/X	7/	7/				4/X	
338 Win.	4/X	5/X	6/X	/X	13/X	13/X	6/X	/X	8/X	8/X				5/	15/
348 Win.	5/X	/X	/X	/X	18/X	18/X	/X	/X	14/X	14/X			/X		
35 Whelen	3/X	1/X	1/X				1/X	/X		/X			/X	9/	1/
35 Rem.	9/X	/X	1/X	/X	2/X	2/X	/X	/X	1/X	1/X			/X		8/
35 Win.	7/3			/X	7/X	7/X	8/X	/X	3/	3/					
351 Win. S.L.	19/3												/X		
358 Win	3/X	1/X	1/X	/X	2/X	2/X	5/X	/X	9/	9/			/X		
358 Norma Mag.	4/X	5/X					1/X	/X	21/X	21/X					1/
9.3X72R	2/3						6/X	/X	3/	3/			/X		3/
38-55	2/3			/X	6/X	6/X							/X		
38-56	14/X						2/X	/X	2/	2/			/X		6/
375 H&H	4/X	5/X	6/X	/X	13/X	13/X		/X	7/	7/			/X		
375 Weatherby	4/X		6/	/X	13/X	13/X	6/X	/X	8/X	8/			/X		
378 Weatherby	14/X						6/X	/X		/X			/X		
405 Win.	7/3			/X	7/X		/X	/X	7/	7/					8/
11 mm (.43 Mauser)	15/X						8/X	/X	3/	3/					
45-70	14/3	/3	/3	/X	17/X	17/X			/X					15/	26/
45-90	14/X			/X	17/X	17/X	/X	/X	7/X	7/X			/X	14/	18/
458 Win. Mag.	4/3	5/3		/X	13/X	13/X		/X	7/	7/			/X		18/
460 Weatherby	14/X						6/X	/X	8/X	8/X			/X		
PISTOLS							/X								
22 Rem. Jet	6/X	6/3	12/3				12/3								
256 Win. Mag.	6/X	6/	12/				12/3								
30 Luger	16/X	8/X	10/X	/X	12/3	12/3	/3							17/	21/
32 Colt	10/3			/X	/3	/3	10/3	/X	25/	25/				1/	10/
32 ACP	17/3			/X	19/3	19/3	/3	/X	5/	5/					
32 S&W	1/3			/X	9/3	9/3	10/3	/X	25/	25/					
32-20 WCF	1/3	1/3	3/3	/X	10/3	10/3	/X	/X						6/X	2/
38 Special	6/3	6/3	12/X	/X	1/3	1/3	12/3	/X	25/X	6/X	6/X	6/X			
357 Mag.	6/3	6/3	12/X	/X	1/3	1/3	/3	/X	25/X	6/X				6/X	2/
38 Auto.	1/3		5/X	/X	12/3	12/3		/X	19/					1/	
38 S&W	6/3	/3		/X	21/3	21/3	/3	/X	25/	6/				6/	
380 Auto.	10/3	/3	12/X	/X	12/3	12/3	/3	/X	25/	25/					11/
38-40 WCF	4/3	9/3	9/3	/X	14B/3	14B/3	9/3	/X	23/	23/					13/
9mm Luger	16/3	8/3	10/X	/X	12/3	12/3	/3	/X	19/X	19/X				16/	11/
44 Spec. & Mag.	18/3	11/3	8/X	/X	7/3	7/3	8/3	/X	22/X	22/X				18/X	8/
44 S&W Russ.	7/3		8/X	/X	7/3	7/3	8/3	/X	22/	22/				7/	8/
44-40 WCF	4/3	9/3	9/3	/X	14B/3	14B/3	9/3	/X	23/	23/					13/
45 ACP	3/3	1/3	1/X				1/3	/X	1/X	1/X	1/X	1/X		3/X	1/
45 Auto. Rim	8/3	/3	12/X		14A/3	14A/3	/3	/X	24/	24/				8/	22/
45 Colt	20/3	/3	12/X		11/3	11/3	/3	/X	23/X	23/X				20/X	12/
455 Webley & Colt	4/3						/3	/X	8/	8/					

Shell Holders

C. R. Specialty Co.

C.R. does not make their own shell holders. Their presses take standard "C" type holders. See below for firms offering these.

C-H

C-H offers their solid "C" type shell holder at **$4.50;** this holder also fits Pacific and RCBS presses. The shell holder for their "H" press is **$3.00.**

Echo

E. C. Herkner, maker of the Echo tools, offers a 2-piece shell holder with a detachable threaded head. The rams (**$3.00**) will also fit Pacific ,C-H and RCBS Jr. presses. A special ram to fit the standard RCBS and the old Echo A and A2 is **$3.60.** The detachable heads are **$2.25** each.

Herter's

Herter offers two styles of shell holders, both of the detachable head type. The threaded model fits their Model 9 tool; the slotted style fits their Models 3, 81, 234, 9A and 3A presses. All are priced at **93¢** each.

Hollywood

Hollywood shell holders, made to fit their turret and standard presses only, are **$4.00** each. They are not designated by number, and should be ordered by caliber.

Lachmiller

Three styles of shell holders are offered: one-piece for their Model 200, C-H, Pacific, RCBS Jr. and Echo at **$4.05;** short, solid type for their Models 100 and 400 at **$2.15;** detachable head type for their Model 200, C-H, Pacific, RCBS Jr. and Echo at **$2.10.** An adapter for the RCBS A2 to use the detachable head type is available at **$2.50.**

Lyman

Lyman makes only one style shell holder. This will fit their Comet, Turret and Tru-Line Jr. presses. Price, **$1.75.**

Pacific

Pacific offers either a solid (one-piece) or a 2-piece detachable head shell holder for "C" type presses (detachable type only will fit their new Super Mag press). Detachable head shell holder complete, **$6.00;** rams only, **$3.50;** heads only, **$2.50.** Solid shell holder, **$4.50.**

RCBS

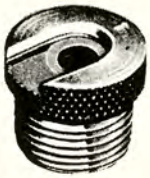
RCBS offers a complete line of shell holders for their presses as well as most other popular makes.

Removable head type (for RCBS "A", "B", "Jr.", Pacific or C-H "C" presses)	$6.00
As above, "Special" sizes and shotshell	8.40
Ram only $3.60 Head only	2.40
Head only, "Special" and shotshell	4.80
Solid type (for RCBS "A", "B", "Jr.", Pacific or C-H "C")	4.50
As above "Special" sizes	6.00

Wells

Wells offers threaded type, detachable head shell holders for their presses at **$1.00** each. They also offer a slotted type for Herter and Lachmiller tools at the same price.

Solid "C" Type



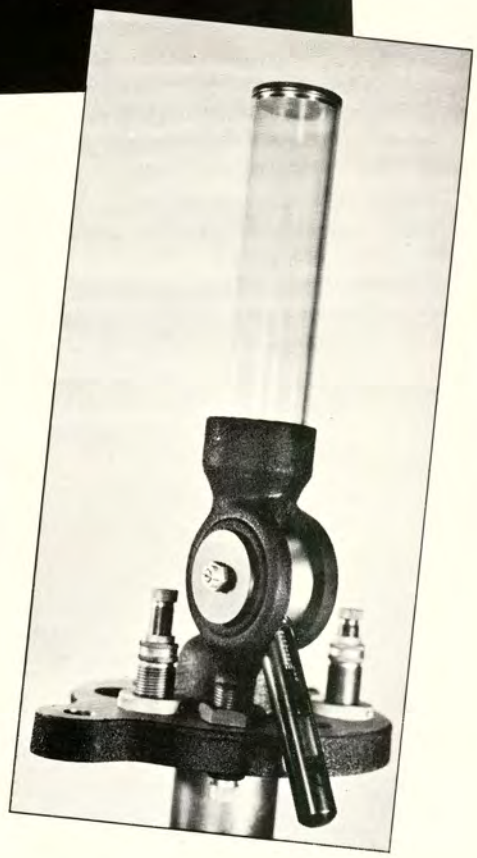
Herter's Detachable Head Types

C-H "H" Type

RCBS Detachable Head Type

HOLLYWOOD Micrometer Powder Measure

$29.95



The first powder measure with precision adjustments. The micrometer adjustments can be used again and again, and will always throw exactly the same charge. Precise charges throughout the range of powder sizes from 2½ grains of Bullseye to 93 grains of 4350. Transparent hopper permits a constant check on amount of powder. Disc baffle assures constant powder pressure on measuring chamber regardless of height of powder in hopper. Precision cast frame and carefully machined, hard coated inside bearing surface accurately matched to the hardened surface of the cylinder bearing combine to allow the measure to cut off and throw powder charges with great precision. Threaded ⅞-14 to fit all standard presses, and fitted with large lock ring to secure measure to tool. May also be mounted on bench using integral thumbscrew bracket. Extra wide bracket available for mounting on thicker bench at $2.75.

Drop tubes thread into frame, bearing against a shoulder to give unobstructed travel of the powder into the shell. Drop tubes made in two sizes, 22 to 270 and 7mm to 45. One drop tube supplied with measure, extra drop tubes $1.00 (special long shotshell drop tube $2.00).

LACHMILLER Powder Measure

$19.95

DISCONTINUED

A custom made measure designed for ultra accuracy, it will throw any type of powder (or shot) without changing any parts. The drum is heat treated and precision ground, then custom fitted to its casting. The finger tip adjustment screw is simple to use and is provided with a positive locking setscrew. The drop tube furnished will accommodate all calibers and gauges. Elevasting is made for mounting on the edge of a bench for cartridge case and drop tube clearance. A stand is available for top-of-bench mounting at $2.95.

Lyman measures will be found in Shotshell Presses Section

MARTIN
Powder Measure

Pat. #2758757

$22.95

The bottom of our hopper is flat, thus prevents packing the powder against the drum and eliminates great variation in charges.

The powder enters the metering chamber at top dead center, then the chamber rotates beyond the powder column — again, powder packing is avoided.

The virtually unbreakable steel handle and knocker pins (8-32 hardened screws) can be quickly altered for left-hand operation, an exclusive feature.

The bottom outlet forms an integral drop tube, suitable for 22 to 45 caliber.

A thumb wheel adjusts the measure from 0 to 95 grains, this adjustment being accurate to 1/10-grain. Arrows indicate direction to turn wheel for increase or decrease of charge.

Made of Zamak, the Martin Powder Measure holds about 5-6 ozs. of powder.

PACIFIC Deluxe
Powder Measure

$19.50

Designed for accurate, easy measurement of all types of powder up to 100 grains per charge, all parts are precision finished for lifetime accuracy. The Deluxe Measure is equipped with large capacity powder hopper and micrometer type adjusting screw. The operator can record settings for future reference. Two plastic drop tubes are included (22 to 30 cal. and 30 to 45 cal.). Approx. shipping weight 3 lbs.

PACIFIC Pistol
Powder Measure

$11.90

With choice of one rotor

Extra rotors **$2.00**

A long time favorite of the handgun reloader, this measure is now supplied with visible powder tube. It's a must for the handgunner who desires speed and accuracy in loading small charges of pistol powder. Equipped with a fixed-charge rotor for 2, 2.5, 2.7, 3, 3.5, 4, 4.5 or 5 grains of Bullseye powder. Approx. shipping weight 1½ lbs.

REDDING Master Powder Measure

$18.50

A top-quality tool designed for the most efficient, accurate, and easy measurement of rifle, pistol, and shotgun powder charges ranging in weight from ½ to 100 grains; machined and finished for lifetime accuracy.

For easy operation, the unit is provided with a specially designed, micrometer-set measuring chamber with lock screw to keep the charge at selected setting (chart shows normal range of charges and settings to be used). Large capacity powder reservoir is of transparent plastic, easily attached and removed. The drop tube, taking all caliber cases from .22 to .600, is also of transparent plastic for visible check of powder flow into the cartridge case. The rotating drum is closely fitted in the frame to eliminate jamming of fine grain powder and can be easily removed for cleaning.

Critical areas of the measure, including operating handle and micrometer, are chrome-plated for wear resistance and rust protection. The frame is brown wrinkle enamel finished, and a knocker, integral with the operating handle is provided.

Measure is designed to be mounted by a positive type mounting bracket directly to a solid support, but clamp type and bench type mounting brackets also available. Satisfaction guaranteed.

REDDING Standard Powder Measure

$12.50

REDDING

Throws accurate charges of all sporting powders with great ease and speed of operation – with a capacity from 0 to 100 grains. Powder pours directly from removable metering chamber into cartridge case. Measure is set by a sensitive, accurate scale. Large capacity reservoir, chrome-plated adjustable metering chamber, positive mounting bracket, attractive wrinkle finish, plus low cost and lifetime design make the Standard Measure the first choice of the economy-minded reloader. Satisfaction guaranteed.

R. F. Wells, Inc.

Powder Measure

$8.75

The most accurate, easiest operated of all measures. Double baffles in the clear plastic hopper keep the powder level and volume in the secondary chamber uniform and of constant density. The powder chamber, nearly 10 times as long as it is wide, permits a cut off diameter ⅓ less than other measures — the result is less error and less shearing of powder grains.

The Wells measure empties in seconds by removing the metering slide. All steel parts are chromed, and the integral base design allows the drop tubes (2 are furnished) to clear the bench.

SAECO "Micro-Setting" Precision Powder Measure

A basic design improvement on the original SAECO measure first introduced in 1946. The new Micro-Setting drum with click-dial adjustment is variable from 2 grains of Bullseye to 95 grains of 4350. The micro-setting drum is ground slightly undersize, hard chrome plated slightly oversize, then finish ground to dimension within .0003". The inside bore is honed to a mirror finish and fitted to the drum to within .00006". Bench stand as shown at right $4.00 extra.

The Micro-Setting drum assembly is available to those who have an old style SAECO measure for $15.50. This includes fitting at factory when old body only is sent.

$24.50

SAECO

SANTA ANITA ENGINEERING CO.

GUN'S ADAMSON SAECO Adapter

$2.95

Make your SAECO Powder Measure more convenient and easier to use. With this adapter attached between the measure proper and stand, the measure is quickly removed and the powder dumped. No more draining of powder from charge spout.

Notes on Powder Scales

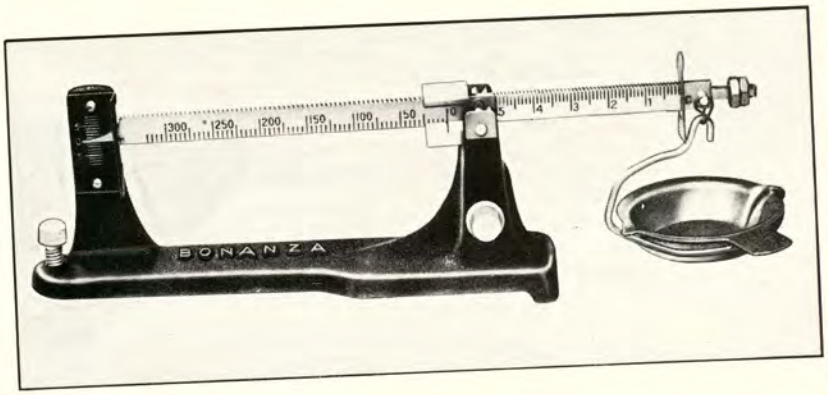
Powder scales are probably the single most important tool in the handloader's kit. So many cartridges are today loaded to near-maximum that it is important to know precisely what the powder charge amounts to. A few grains over may cause severe damage to the firearm and to the shooter.

Powder scales vary tremendously in both price and in quality. Generally, you get what you pay for in powder scales, but some quite inexpensive models do an adequate job. The critical parts of a scale are the knife edges and the bearing surfaces that these knife edges rest upon. They must be hardened and ground correctly, then polished.

Powder scales that have graduated beams with sliding adjustments must have these beams properly machined, calibrated and checked, otherwise incorrect readings will result.

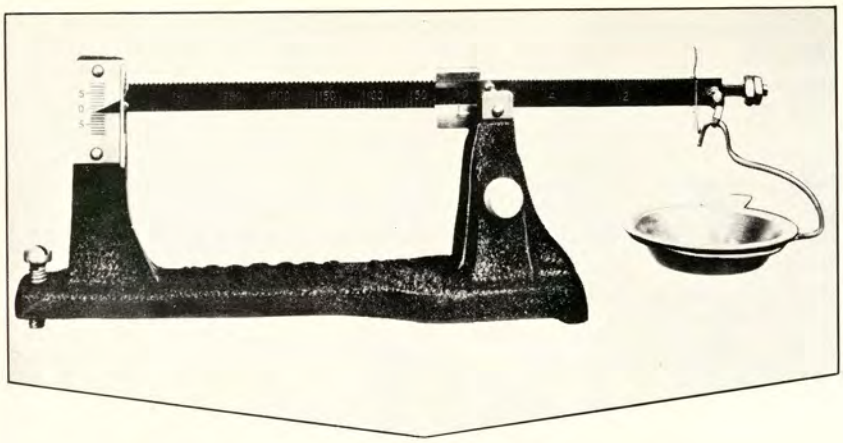
Precision weights are available so that any scale can be checked to make certain that the marked weights are correctly arrived at. Once this zero is known, then the scales may be used with confidence in the future. Most scales have one or more built-in levels and/or leveling screws. Most scales must be level or they won't give the correct reading.

BONANZA Powder and Bullet Scale



Bonanza's new Powder and Bullet Scale is sensitive to 1/20 grain and accurate to 1/10 grain. It features a mechanical dampener and beam lift, large easy-to-read calibrations and big 325-grain capacity. The sensitive beam is heat treated, hand honed and chrome plated. Bearings are hand honed and stop against stainless steel end plates. No effort has been spared in design or manufacture to offer reloaders the finest scale for safe, accurate loads.

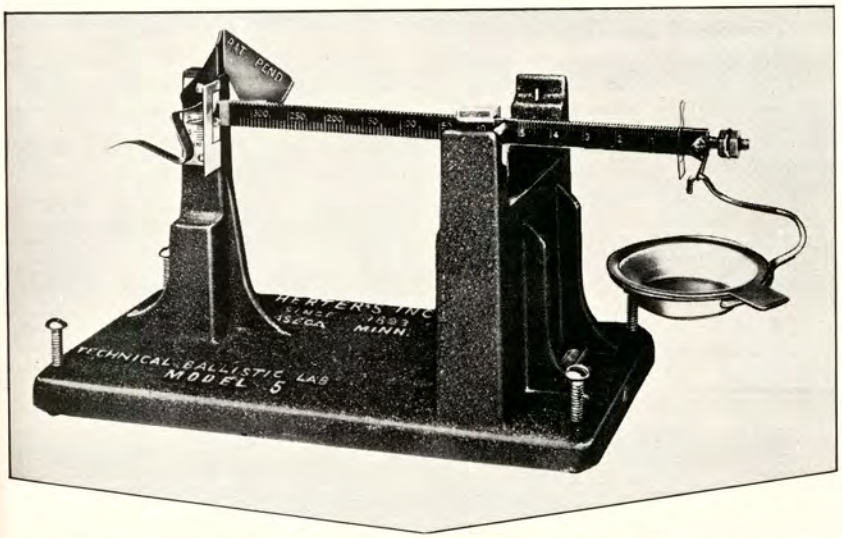
$14.95



HERTER'S Model B Powder Scale

$6.25

Total capacity 325 grains, guaranteed accurate to 1/10-grain. Cast iron stand, chromed brass beam with deep notches and large numerals. Button operates mechanical dampener that also lifts beam from knife edges when scale is not in use, and there is a leveling screw.



HERTER'S Laboratory Powder Scale Model 5

$9.95

This new scale incorporates an imported torsion wire balance at the fulcrum of the beam. No knife edges to wear ever, this system withstands shocks better than any other type. Four leveling screws are included, as well as a cross-level for precise leveling.

The frame is rubber mounted, and our patented Instant Stabilizer at the pointer end gives correct readings with a finger touch. Capacity of 325 grains; built-in oil dampener reservoir; chromed brass beam carries sharp divisions and colored numerals for quick, easy reading.

HERTER'S

Model 1 Powder Scale

$6.71

Total capacity 325 grains, guaranteed accurate to 1/10 grain. Similar to our Model B in quality of construction, but this scale has a built-in oil reservoir in which the dampening fin hangs. Oscillations are quickly dampened for faster reading. Two leveling screws and our Instant Stabilizer are features —a touch of the latter device, attached to the pointer end, gives a reading without any delay at all.

Model 2 Powder Scale

$7.79

Exactly like our Model 1, but includes 3 rubber-mounted leveling screws and a spirit level. Precise leveling eliminates torque on knife edges, thus improves accuracy and uniformity.

Model B Stabilized Powder Scale

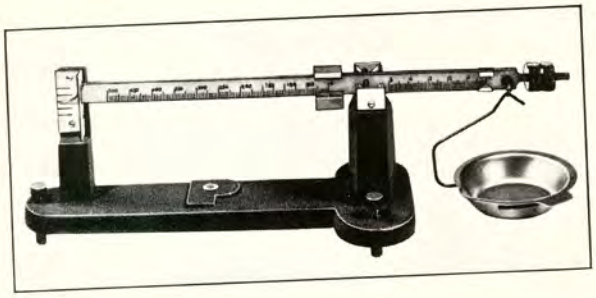
$7.75

Identical with our Model B, but has 3 leveling screws, spirit level and our new Instant Stabilizer (see our Laboratory Powder Scale for description of this feature) — reading can be made quickly, at the touch of a finger.

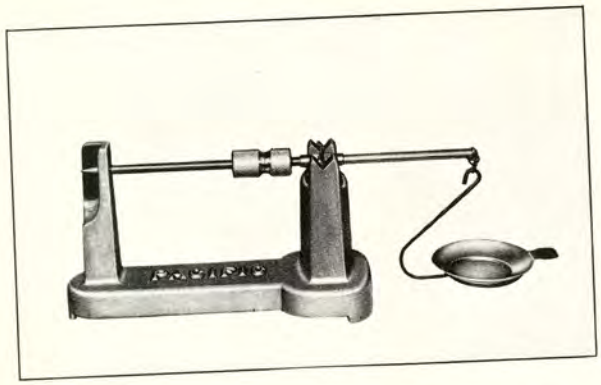
Lyman powder scales will be found in Metallic Presses section

PACIFIC

Pacific Micro Scale $15.40



One of the fastest and most accurate types of scales available. This scale features a single balancing arm beam with two counterpoises for fast and accurate measurements. Two steel knife bearings incorporated in the balancing arm's fulcrum insure accuracy and long life. A built-in oil reservoir reduces and controls oscillation. The Micro-Scale also includes a 1/10-grain over and under scale for checking variations of powder charges or bullet weights without adjusting. Another outstanding feature: two leveling screws and a spirit level are built in the base of the scale to insure that the scale is always in perfect balance. Shipping weight 1¼ lbs.



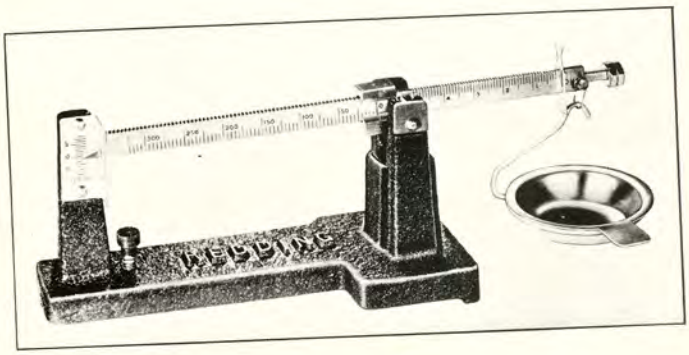
Pacific Standard Scale $11.90

Designed for use by the precision handloader who prefers using the substitute weight method. A built-in oil dampener reduces and controls oscillations, thus permitting faster operation. Two steel knife bearings incorporated in the balancing arm's fulcrum insure accuracy and long life. Included with the price of the scale is a complete set of weights. Shipping weight 2½ lbs.

REDDING

Powder and Bullet Scale

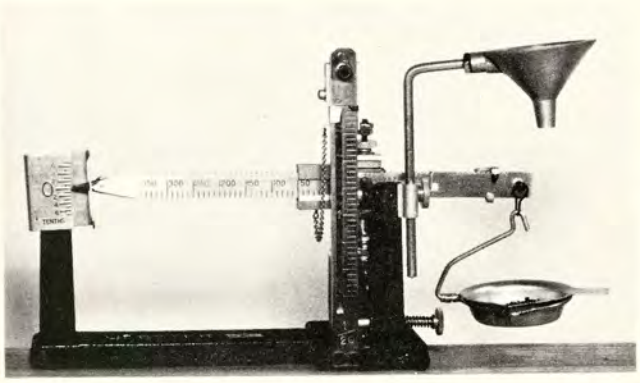
$14.00

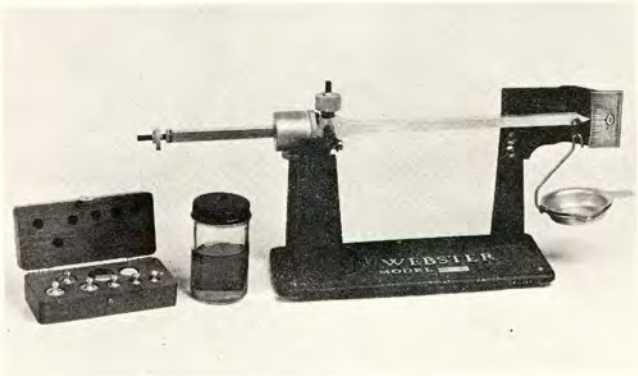


For the beginner or the veteran handloader, the Redding Powder and Bullet Scale combines accuracy, ease of operation, attractive appearance, and low cost. Sturdy satin chrome beam is clearly graduated, with a total capacity of 325 grains. Tenth-grain over-and-under scale with eight-tenth range each side of zero allows checking of variations of powder charges or bullets without further adjustment of counterpoises after setting.

Unit features chrome-plated counterpoises, self-aligning bearings hardened and honed to eliminate rubbing and side friction, burnished aluminum pan and hook, cast iron base with brown wrinkle finish, built-in leveling screw. An integral oil reservoir, into which an aluminum vane attached to the beam hangs, offers hydraulic resistance and quickly stops beam swing for faster scale readings. Guaranteed accurate to a tenth grain.

WEBSTER





Model RWC

$26.50

A refinement of our Model RW-1, the RWC is equipped with a "Chain-O-Matic" weight. The vertical bar attachment provides for readings in one-twentieth grains in addition to all the readings already provided in the versatile RW-1. This is similar to those used on analytical balances; but in a simple form. A gold chain which is connected to the vertical bar and the beam adds or subtracts in twentieths when raised or lowered, quickly and accurately determine exact differences in loads or components, and quickly determine unknown weights. It is ideal for sorting bullets or primers.

GUARANTEE

WEBSTER GUARANTEES AGAINST DEFECTS IN MATERIAL OR WORKMANSHIP. EACH INSTRUMENT IS CAREFULLY ADJUSTED AND INSPECTED BEFORE SHIPMENT AND IS GUARANTEED FOR ACCURACY TO 1/10 GR. OR BETTER.

Model AR-5

PRICES: (Without Weights)

AR-5 500 GRAIN CAPACITY $24.50

AR-10 1000 GRAIN CAPACITY 32.50

This is a super accurate balance built for those who desire the better powder scale. It fits the needs of the most exacting "Bench Rest" and "Varmint" shooters as well as big game hunters. It is accurate enough to meet every need of these sportsmen.

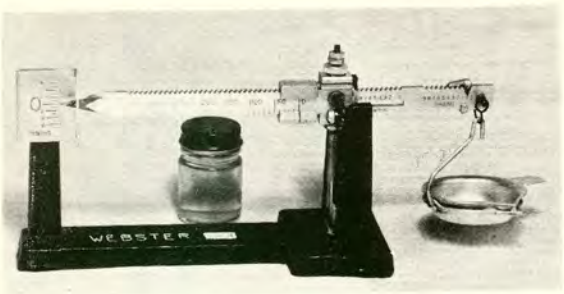
This scale has a base 3⅝ x 8¼ inches, and the alloy aluminum beam is 12¼ inches long. It has a large ¼ inch tool steel knife ground and properly tempered. This beam rests on glass-hardened bearings also of steel that are polished in a special machine. It has the patented WEBSTER'S bearing arrangement and large hydraulic damper. It also has a very effective sensitivity adjustment.

The pan is on the same end of the beam as the dial This makes it much easier to read the indicator point while filling the pan.

FUNNEL ATTACHMENT COMPLETE..... $2.99

The all caliber plastic funnel is attached to the WEBSTER frame in a unique manner. It can be adjusted or removed easily by simply loosening thumb nut. Loading is easy: hold primed case to funnel with one hand, pour powder with other hand; less danger of missing or double loading cartridges. No drilling or tapping is necessary to mount these funnels on any of WEBSTER scales.

WEBSTER Scale Manufacturing Co.



RW-1

PRICE: $16.50

The fine performance of this model has gained the favor of handloaders throughout the land. The Model RW-1 has a capacity of 360 grains in divisions of 1/10 grain. It has three permanently attached weights, each having a graduated and notched portion of the beam. The large weight on the inside is graduated to 10 grains per notch. On the outside there is one for 1/10 grain and one grain.

The polished aluminum alloy beam has large, deep notches which retain the weights at their proper setting with reasonable care when weighing. Should a weight jump a notch in the process of weighing, it is much quicker and easier detected because of larger notches. Avoid the painful experience many of us have had when we are about through weighing and discover that a weight has jumped some notches and we have the whole bunch to dump and weigh over again.

Model RS

PRICE: $10.95, With Set of 60 Grain Weights

This improved model employs the substitution weighing method, which is the most accurate system providing high quality standard weights are used. The sensitivity of this scale is adjusted at the factory. Each division on the dial of the scale reads 1/10 grain. However, the sensitivity can be increased simply by raising or lowering the sensitivity adjustment nut on the top of the beam. This improved model has a capacity of over 500 grains, is very fast and reliable, and is an exceptional value. A set of 60 grain weights is furnished with this model.

PRECISION WEIGHTS

Grain weights in Mahogany boxes. (Not included with scales).

200 grain weight set	$6.50
300 grain weight set	7.50
500 grain weight set	9.00
60 grain weight set (Metal Box)	2.00

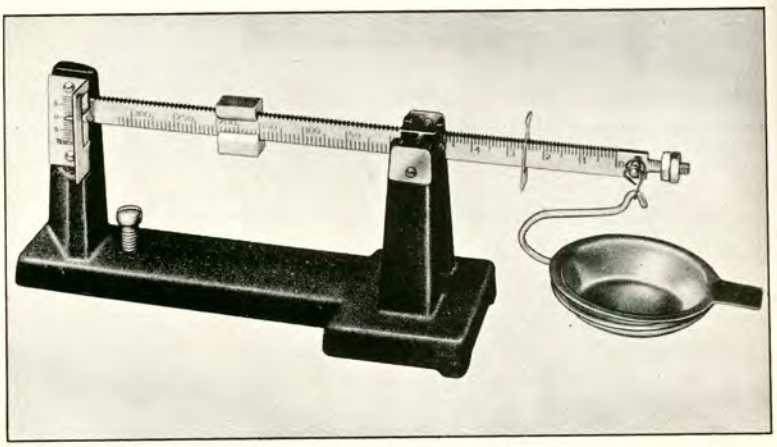
R. F. Wells, Inc. Lock-Beam Powder & Bullet Scale

Precision made, this durable, easy-to-use scale meets the needs of all handloaders, novice or veteran, and is equal to or better than similar scales at twice our price. Accuracy is guaranteed to 1/10-grain, sensitivity to 1/20-grain.

An exclusive feature is our mechanical, spring-operated plunger that raises the beam *at the pointer end* to locked position. The pan can be removed and returned to the hanger without beam movement until the plunger lock is pushed.

Of 325-grain capacity, the chromed beam has deep, clean-cut divisions for positive setting. Numerals are large and colored for easy reading.

$6.95



10 COMMANDMENTS FOR HANDLOADERS

Author reloading—wear safety glasses or goggles to protect eyes from any possibility of accidental injury.

by ROBERT V. THOMPSON

1 Master *light to moderate loads and handloading principles* thoroughly before attempting any heavy loads.
2 Inspect all cases before and after reloading.
3 When charging cases with powder, keep your eyes open and your mouth closed.
4 Perform all operations accurately and carefully.
5 Handle primers carefully and seat them evenly.
6 Never guess at the identity of powder.
7 Use extreme care loading heavy or maximum charges.
8 Never substitute components in maximum loads without first reducing the powder charge.
9 Wear safety glasses or goggles during all handloading operations.
10 Keep detailed records and label all loads.

HANDLOADING IS A MOST useful and satisfying part of the shooting game, yet like many other hobbies it has an element of danger. Components are assembled that develop, in some cartridges, working pressures in excess of 25 tons per square inch. Yet careless handloading can skyrocket these pressures much higher, beyond all safety limits, where they may become disastrous to both shooter and gun. Nevertheless, with a little knowledge and common sense, the art of handloading can safely be the most pleasurable part of your shooting hobby.

Here are ten commandments for handloading which should be adhered to by everyone, whether he be the novice, putting together his first handloads, or the veteran who has reloaded for many years. Often it is the old hand who neglects caution and starts to assemble loads without thought or idea of the resulting pressures. Unfortunately, it's a very human trait to grow careless with constant association, and in the handloading game, carelessness cannot be tolerated. Caution and care must be exercised at all times. These commandments have been put together after years of experience with medium, heavy, and sometimes dangerous loads. They are the result of common sense, respect for powder and primers and some trial and error! Experience has dearly taught that when a powder charge is dropped in a case and capped with a bullet, you had better be dang sure of just what you've brewed. The old saying, "load her up 'til she blows and then cut the load back a ways" is hard on firearms, hands and eyes if the case lets go and hot gas pours back through the action.

A few words of explanation on the basic commandments may be helpful in adapting them to various circumstances.

1. Master light to moderate loads . . . Handloading is an art that is acquired safely only by thoroughly mastering its basic principles and assembling cartridges of known safe pressure. Manuals are available at any handloading dealer, and these should be studied carefully. After the fundamentals and basic principles have been mastered, light and moderate handloads can be assembled. Work with these medium pressure loads until you have a definite knowledge of what happens every time each operation of reloading is performed. Learn to resize and recap cases correctly, to measure powder accurately and consistently and to seat bullets properly, as well as the lesser facets of reloading.

2. Inspect all cases . . . Always keep in mind that the brass cartridge case is the only seal between you and terrific pressures in the breech at the instant of firing. Inspect each case frequently, before and after loading, to be certain it will hold this pressure safely. Many times a hidden defect will show up after the brass has been worked in the loading dies. Any indication of fatigue means that case must be destroyed. Split necks, cracks, rings or heavily bulged sections where the side walls join the solid head are positive indications that the case is ready for the junk box. *If in doubt about any case, destroy it.* Good cases are cheap insurance against accidents; don't take a chance trying to force one more loading from a tired, worn out case.

3. When charging cases . . . Also at this crucial point the "smoking lamp is out." If you feel like making with the conversation or lighting up the old smudge pot, push your chair way back, light up and talk about your last hunting trip. Return to your powder measuring only when you can give it your undivided attention, with plenty of time to do it right. Powder measuring is one of the more exacting stages in reloading. After the cases have been charged

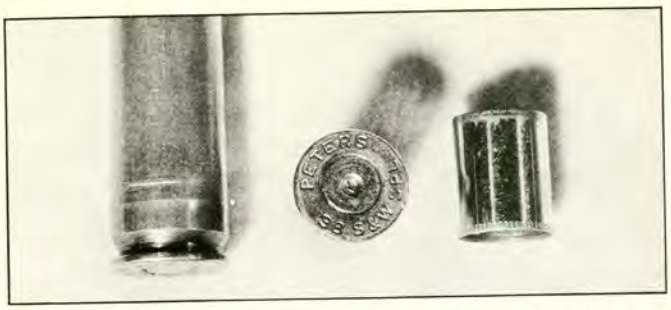
with powder, inspect each one under a good overhead light. Powder level must be consistent and any that received an accidental overcharge, or possibly no charge at all, can be quickly spotted. Any that show a different powder level must be emptied and recharged with the correct amount.

4. Perform all handloading . . . The aim of every handloader should be to safely make cartridges that are tops in accuracy and consistency. Assemble the best loads you can, and don't cut corners by rushing through any of the reloading operations. If you haven't time to do a slow and careful job you haven't time to do the job at all. Handload for quality, not quantity; careless, hurried loads will not only prove inaccurate, they may often prove dangerous. Haste not only makes waste, it also often makes trouble.

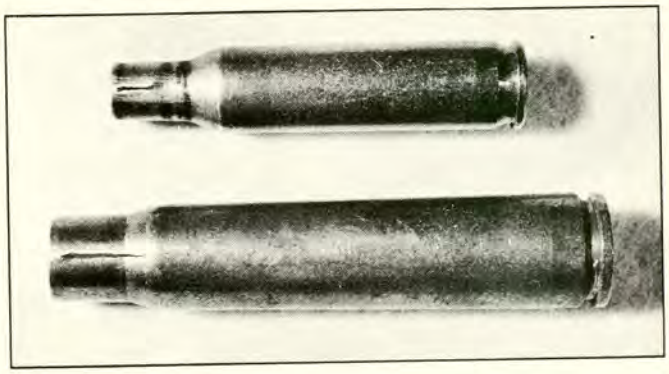
5. Handle primers carefully . . . That little detonator *can be* dangerous. Never ram them into the primer pocket; install with a steady, firm pressure. Resist the impulse to seat them with an extra hard push. This may fracture the priming cake, often resulting in faulty ignition of the powder, and sometimes no ignition at all. A friend ended up in the hospital to have a small piece of brass taken out of his knuckle after the careless use of a large rifle primer. Another handloader I know had a column of primers go off in an automatic primer feed, resulting in rather severe wounds around the face and eyes. Primers are sensitive to the right kind of a blow but handle them properly and you'll never have any trouble.

6. Never guess at the identity . . . If a supply of powder gets mixed up or the number somehow gets lost, DO NOT USE THAT POWDER. Destroy it at once. Smokeless powders are hard to identify, several types being very similar, differing only a few thousands of an inch in dimension. Play safe—keep your powders properly identified. Many good guns have been wrecked through the accidental use of a faster burning powder in place of the correct number.

7. Use extreme care when . . . After becoming thoroughly familiar with light and moderate loads, you will probably be tempted to load some full pressure stuff. Before doing so, several new things must be understood: *Never* begin with a published or listed maximum load! Maximum loads are developed with a particular barrel, and particular lot numbers of cases, primers, powder and bullets. Many variables *must* exist between the tested load and the same load assembled *by you and used in your own rifle.* Your barrel may be slightly tighter, causing an increase in breech pressure. Chamber dimensions are almost certain to be slightly different. Primers and powder are from different lots; bullets, although the same weight and make, may have been made on a different machine, with small variations in dimensions. Cases, even of the same make, may be softer or have less capacity. All of these differences, while negligible in light and moderate loads, become important in maximum loads, where a small increase in pressure may put the load, *in your rifle*, into the critical range. Because of this possibility, always reduce the powder charge on published maximum loads by ten percent for the first loading. If this loading appears safe you can increase one grain at a time until the listed load is reached, if no signs of excessive pressure are evident. Should any indication of too great a pressure develop, reduce your load by 2 or 3 grains and tear down any cartridges with that particular powder loading. Your rifle may handle a listed maximum load with ease, or it may be necessary to use several grains less. You must find that out for your particular application.



Pressure signs to watch for: cases sticking in the chamber, making extraction difficult; excessively flattened or extruded primers, with the firing-pin indent cratered or showing a flow into the firing-pin hole; heavily bulged cases near the solid head portion, and expanded case heads. Measure the case head with a micrometer. If it shows more than .002" expansion over its original diameter, the load is too hot and will eventually cause trouble. Primers that go in very easily also are an indication that the head has been ex-



Top—Signs of high pressure—270 case has slight crack at head section and chamber tool marks. It was reloaded without noticing the crack until the final inspection, which proves the need of that last check before using any reloads. The 38 Spl. case was purposely test loaded with heavy charges and used in a 357 Magnum. One of the large primer, cannelured type, after the fourth reload it came apart at the cannelure. The primer is much flattened for a pistol load, and the cannelure stretched on each firing until it parted, leaving the front portion of the case in the cylinder. Use new or once fired cases.

Middle—Split necks on a 222 Rem. and an 8x57. The 222 was reloaded about 10 times, and the 8mm only once. Check for split necks before and after resizing and destroy any that show signs of splitting.

Bottom—Final inspection. Wipe clean and check case, (cracks, splits, etc.); primer (must seat evenly and not protrude), and bullet (alignment and seating depth).

panded. Cracks developing where the side walls join the solid case head are also indicative of high pressure on cases that have only been reloaded once or twice. Old cases that have been used a number of times will wear out and develop cracks, but for maximum loads use only new or once reloaded cases. Always remember, under the high working pressures of maximum loads the brass case expands and stretches, and if this heavy load is continued in the same case it most assuredly will reach its limit of expansion. When this happens, cases can crack or rupture completely, and sometimes allow the pent up fury of combustion to rush back into the rifle action, where a great deal of damage can result to both rifle and shooter. Tear down or destroy any loads that develop signs of too great pressure.

Maximum loads are hard on barrels as well as brass. A few grains less powder will generally perform as good or better, accuracy is almost always better, and far greater barrel and case life will result.

8. Never substitute components . . . Even though a heavy load has been used for some time without signs of excessive pressure, the powder charge should always be cut several grains when changing *any* of the components. Although manufacturers use every effort to maintain uniformity in their products, some variations are bound to occur, which may push your load over into the critical area, without your knowledge. Different lot numbers of powder or primers, different bullets of the same weight, a different batch of cases, are all capable of adding to your pressure problem. Seating the bullet deeper also calls for a slight reduction in the amount of powder. The load can be increased a grain at a time to its original level only if it is evident that the new components are reacting favorably.

It is wise to buy components in large enough quantities so that you will not be changing them frequently. Thereby you will eliminate the necessary testing of new batches out at frequent intervals.

9. Wear safety glasses . . . When doing any of the loading operations, bullet casting, priming, filling cases with powder, etc., make it a point to wear some type of eye protection. Wear them at all times and they'll soon become a habit—and a good one. Your eyes are worth all the protection you can give them; though accidents are rare if reloading is done carefully, the use of safety glasses or goggles is a wise precaution. Far better to wear them and never have their need, than to have regrets when it's too late.

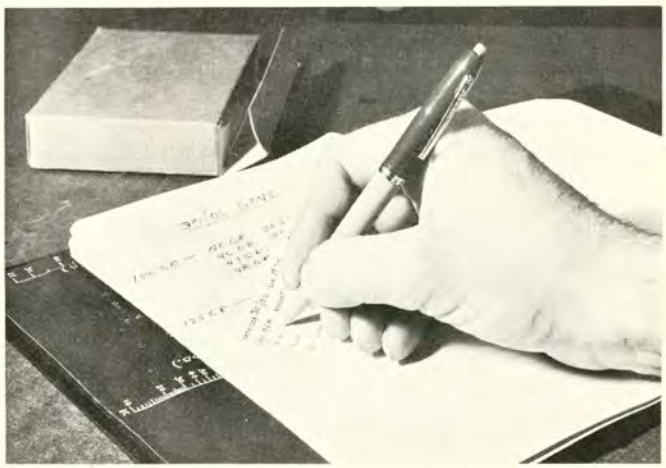
10. Keep detailed records . . . Good records are essential to the handloader. Keep a record file or notebook and record all loading data. Make notes on bullet type, weight and make, lot number and dimensions; powder and lot number, amount used; primer number and lot number; make of case, number of times reloaded, seating depth of bullet, and also test results and remarks on each load. This will make an invaluable reference; always consult it before putting together a batch of cartridges. Your memory may be excellent, but after spending hours to perfect your loads, spend a few minutes to record the data. It is far too easy to assemble a dangerous load if you depend on memory alone.

* * * * *

Handloading is perfectly safe if you'll act sane. Make it a habit to play safe. Take no unnecessary chances. Always keep in mind that you are working with pressures that can damage your rifle and possibly injure you. Be sure of your load and components—make sensible and accurate loads.

Loading powder. This operation should only be done when full attention can be given to it. Visually check all cases to make sure each has the correct amount of powder before seating bullets, or use a depth gauge, easily made.

Several powders look alike and cannot be identified by sight. Top row—No. 4895 and 4320 which look similar. No. 4831, 4350 and Hi-vel No. 2, which appear identical. Although these powders appear similar they would react very differently if used in the wrong application.



Keep records—file data in a notebook and mark labels for each box of reloads with specifications of the loading.

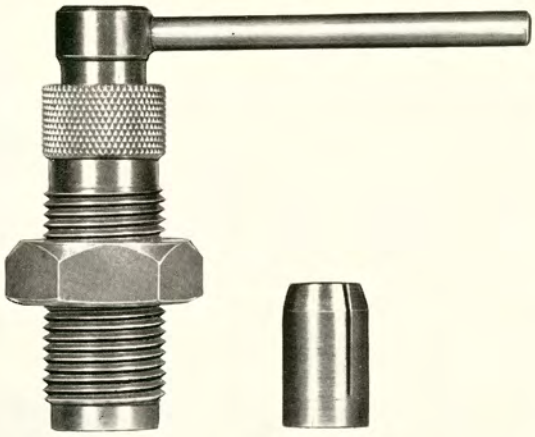
Notes on Handloading Accessories

Gadgets to beguile the reloader are legion — and then some! Just about as many, too, have had their brief day and disappeared. Some of the accessories available are worthwhile indeed, even — to those ammo makers who load in quantity or who are concerned with ultra-precision cartridges — a real necessity. At the other extreme, of course, are items you can well do without, perhaps, but you'll have to decide that question yourself. In between there are small tools of real utility, products which can be helpful to you or not, as your personal needs — or fancied needs — demand.

Further on, in the various divisions of accessories, you'll find additional notes.

Bullet Pullers

FORSTER



Has standard 7/8"-14 threads to fit most reloading tools. Made of steel throughout and designed to tighten the grip on the bullet as pulling pressure is increased. Collets available for 22, 6mm (243-244), 25, 6.5mm, 270, 7mm (280 Rem.), 30, 303, 8mm (32), 358, 357, 45 ACP.

$4.75

With any one collet

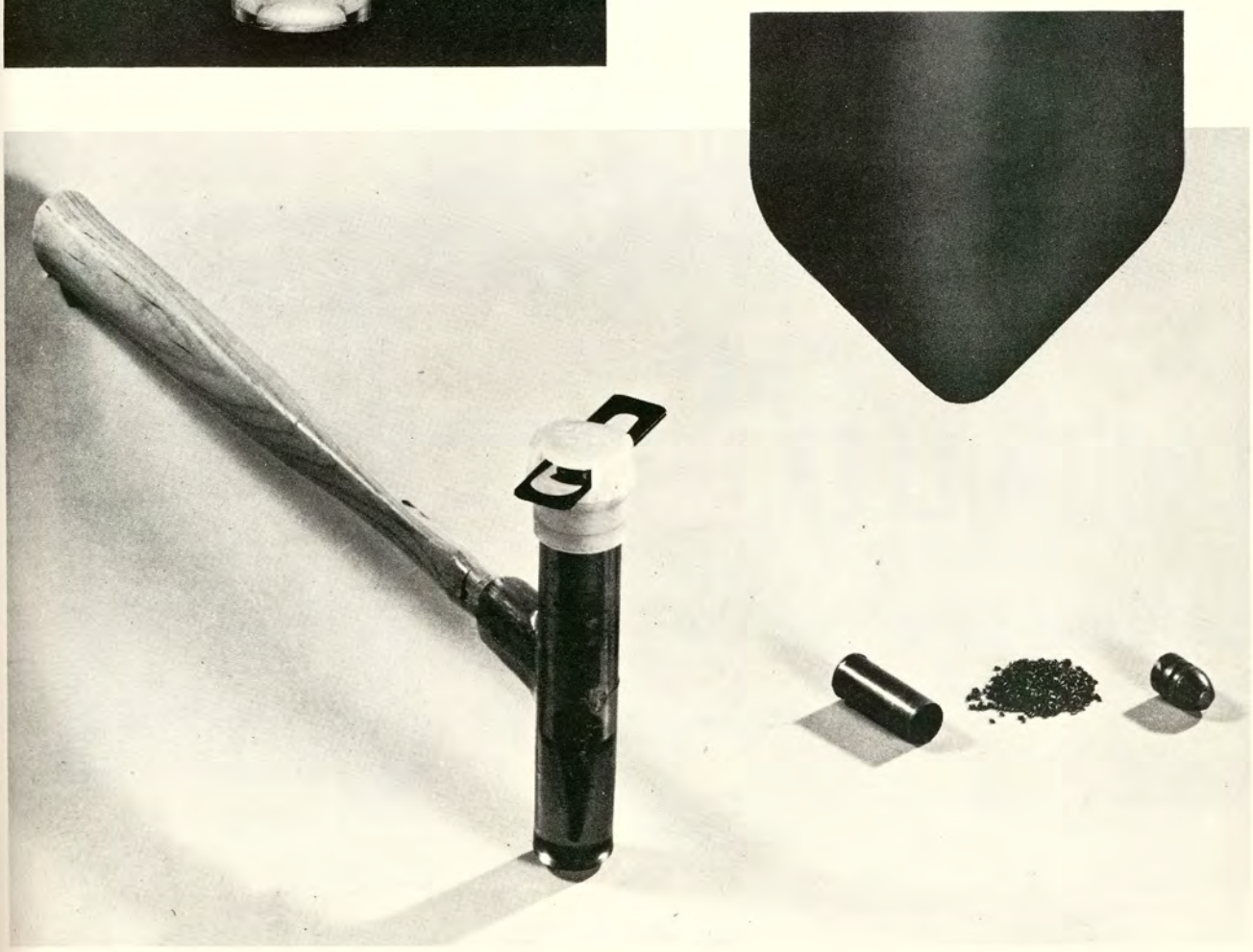
Extra collets $1.50

POWDER FUNNEL $1.00

Load all your cases in this one Powder Funnel, designed to fill all sizes ranging from .22 Hornet through .45-70. No inserts or adjustments required with this full-range funnel. The clear transparent funnel insures a visual check that the right measure of powder is transferred from scales to case.

INERTIA BULLET PULLER $7.70

This puller pulls the bullet without possibility of distorting the case, damaging even a soft lead bullet or losing any powder grains. Quick, safe and sure, the Inertia Bullet Puller handles a full range . . . 22 Hornet through .45-70 and most magnums. **Do not try to pull rim fire cartridges!**



HERTER'S

Model F Bullet Puller

$2.79

A precision tool, made like the Forster, that features a hardened steel collet of special design that actually tightens its grip on the bullet as pull is exerted. Threaded 7/8-14 to fit all standard presses, it comes with blue steel finish complete with one collet of your choice. Collets are available in the following calibers: 22, 6mm (243-244), 25, 6.5mm, 270, 7mm (280), 30, 303, 8mm (32), 358 rifle, 357 pistol, 375, 45 ACP and 348. 98¢ each.

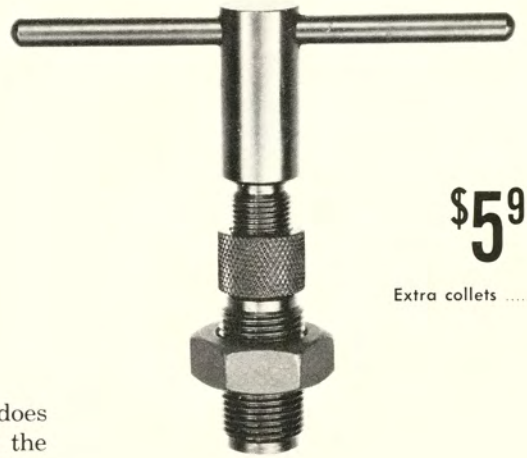
Bullet Puller

$3.98

Featuring hardened and ground collets that will not mark or damage the bullet; chrome plated body, knurled for easy inserting and removal; threaded 7/8-14 to fit all standard presses, this is guaranteed to be one of the finest precision machined pullers on the market today. Choice of one collet with puller. Collets are available in the following calibers: 22, 25, 6.5, 270, 7mm, 30, 8mm, 358, 6mm. $1.00 each.

LACHMILLER

Ball-Bearing Bullet Puller



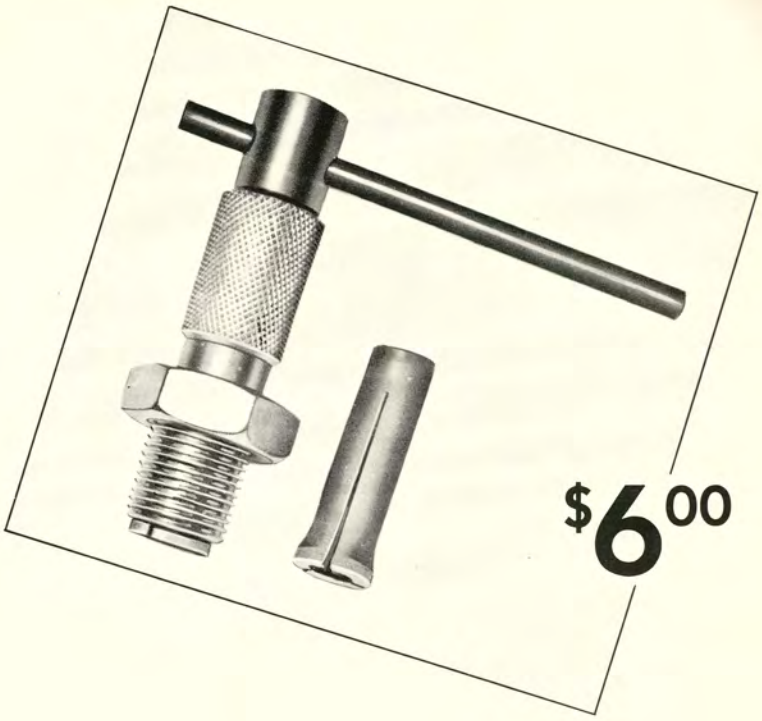
$5.95

Extra collets **$2.95**

Quick, positive action does not mark the bullet and does not turn the case in the shell holder when tightening the collet. Price includes collet for one caliber.

PACIFIC

Pacific Bullet Puller

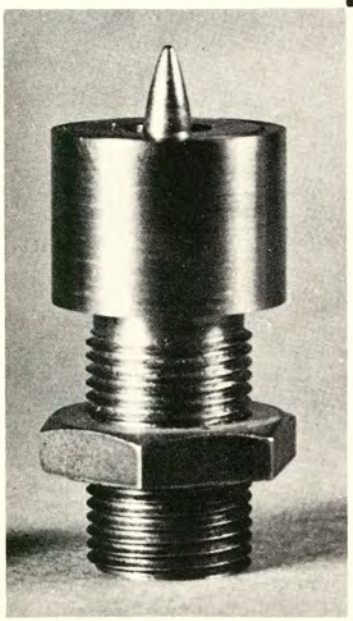


$6.00

Designed to release the pulled bullet as soon as pressure is released. Will not mar or scratch jacketed bullets. Price includes one collet of your choice.

Extra collets (for all popular calibers; state choice) $3.00

Redco Model 800 Bullet Puller



$14.95

The first, and only, high-speed production tool of its type, threaded 7/8-14 to fit standard reloading presses. Guaranteed to pull 22* to 35 caliber bullets — without additional attachments — without harming the bullet.

*22 Hornet, 218 Bee and 222 Remington cannot be pulled because of length.

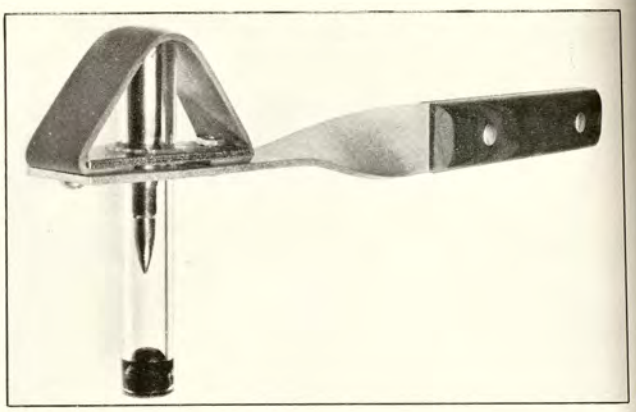
For RCBS bullet pullers see Metallic Presses section.

THREE V PRODUCTS

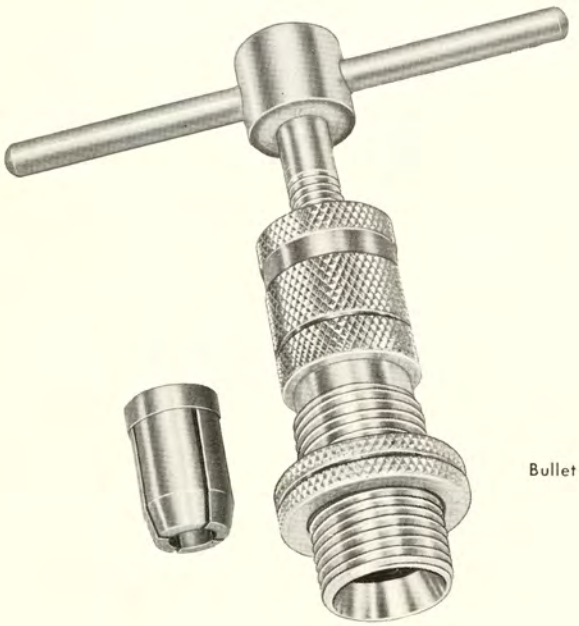
X-15 Bullet Extractor

The fastest operating inertia type extractor on the market. Handles the widest range of cartridges without damage to case or bullet. Included is a large selection of solid washers for rimmed cases; a "C" type washer and a spring clip for all rimless cases.

$7.95



R. F. Wells, Inc. Bullet Puller



Bullet Puller **$2.98** less collet

Extra **$1.00** collets

The most positive working puller on the market, it is precision made, with the collets hardened and ground. It grips any shape jacketed bullet without marring or damage. Collets available in all popular calibers.

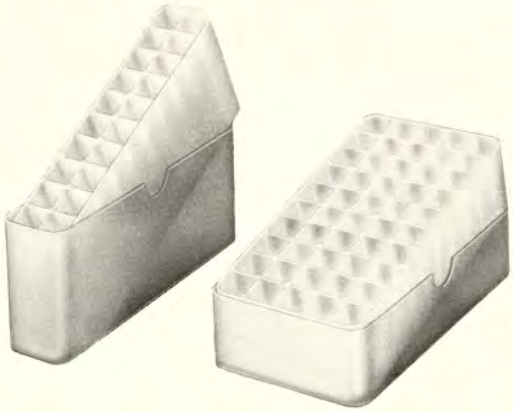
Notes on Cartridge Boxes

Cartridge boxes, be they plastic or cardboard, are a great convenience to the handloader — they provide dust-free storage and a means to keep loads separated. The bottoms of the large-caliber plastic pistol boxes make excellent loading blocks for rifle cartridges.

Bottom of Size 4 makes a loading block for shells up to 30-06. (Bottoms not sold separately.)

Fitz

Pacific



Wells

FITZ Amm-O-Safe — Made of high impact, tough, resilient Fitz Duramite plastic in Hunter Red color ..... **99¢ ea.**

HERTER Plastic Boxes — Made of tough, flexible plastic in non-reflecting opaque white ..... **42¢ ea.**

PACIFIC Cartridge Boxes — Made of the finest box board available. Printed in red, white and blue ..... **10 for $2.50**

WELLS Plastic Shell Boxes — Made of sturdy plastic, white in color ..... **50¢ ea.**

Cartridge Box Size Chart

20 rounds	20 rounds	50 rounds	50 rounds
Rifle 222 — 30-06	300 H&H — 375 Weatherby	Pistol ctgs. to 38 Spec.; also 22 Hornet, etc.	44 & 45 pistol, etc.
Fitz R, Herter 1, Pacific RI, Wells 2	Fitz R, Herter IV, Pacific RII, Wells 3	Fitz 3, Herter II, Pacific PI, Wells 4	Fitz 4, Herter III, Pacific PII, Wells 5

NOTE: Herter plastic box for 25 rounds of 12, 16, 20, 28 gauge shotshells .. 49¢

Cartridge Dimension Tables

Dimensions checked by Hal Mallet of H.M. Tool Co.

Caliber and nominal groove diam.	Twist	Case length (inches)	Max. cartridge over-all length (inches)
Commercial Rifle Calibers			
22 Hornet (.223)	16	1.403	1.723
218 Bee (.224)	14	1.355	1.68
219 Zipper (.224)	16	1.938	2.26
22 Savage (.227)	12	2.050	2.51
220 Swift (.224)	14	2.205	2.68
222 Rem. (.224)	14	1.70	2.13
222 Rem. Mag. (.224)	14	1.85	2.28
25-20 Winch. (.257)	12-14	1.33	1.592
25 Rem. (.256)	10	2.05	2.525
243 Winch. (.243)	10	2.045	2.71
244 Rem. (.243)	10-12	2.233	2.75
257 Roberts (.256)	10	2.233	2.775
250 Sav. (.257)	12-14	1.912	2.515
264 Winch. (.264)	9	2.53	3.33
270 Winch. (.278)	10	2.54	3.34
280 Rem. (.284)	10	2.54	3.33
30-30 Winch. (.308)	10-12	2.0395	3.065
30 U.S. Carbine (.308)	20	1.28	1.68
30 Rem. (.308)	12	2.05	2.525
300 Sav. (.308)	12	1.871	2.60
30-40 Krag (.308)	10	2.25	3.089
30-06 (.308)	10	2.494	3.34
308 Winch. (.308)	12	2.015	2.75
300 H&H (.308)	10	2.85	3.60
32 Winch. Spl. (.320)	16	2.04	2.565
32-40 Winch. (.320)	16	2.13	2.50
32 Winch S.L. (.320)	16	1.29	1.88
32-20 Winch. (.311)	20	1.315	1.592
32 Rem. (.319)	14	2.05	2.525
303 British (.312)	9-12	2.222	3.075
303 Sav. (.308)	10	2.015	2.52
338 Winch. (.338)	10	2.50	3.34
33 Winch. (.338)	12	2.105	2.795
35 Rem. (.357)	16	1.92	2.525
35 Winch. (.351)	16	2.415	3.175
351 Winch. S.L. (.351)	16	1.38	1.90
35 Winch. S.L. (.351)	16	1.1043	1.65
358 Winch. (.358)	12	2.015	2.78
375 H&H (.376)	12	2.85	3.60
38-40 Winch. (.3995)	36	1.305	1.592
38-55 Winch. (.379)	18	2.073	2.55
44-40 Winch. (.428)	36	1.305	1.592

Caliber and nominal groove diam.	Twist	Case length (inches)	Max. cartridge over-all length (inches)
Commercial Rifle Calibers (contd.)			
45-70 Gov't (.458)	22	2.10	2.55
401 Winch. S.L. (.407)	14	1.50	2.005
405 Winch. (.413)	14	2.583	3.175
458 Winch. (.458)	14	2.50	3.34
Weatherby Calibers			
257 (.257)	12	2.54	3.25
7mm (.2835)	12	2.54	3.25
270 (.277)	12	2.54	3.25
300 (.308)	12	2.815	3.562
375 (.376)	12	2.850	3.562
378 (.376)	12	2.915	3.687
460 (.458)	16	2.903	3.75
Foreign Calibers			
6.5 Jap (.262)	7.8-9	1.968	3.01
6.5 x 54 MS (.264)	7.5	2.15	3.05
6.5 Krag (.264)	8	2.16	3.5
7mm Mauser (.2845)	10	2.235	3.065
7.7 Jap (.315)	9.75	2.271	3.14
7.62 Russ. (.310)	9.5	2.114	3.037
8mm Mauser (.323)	9-10	2.24	3.165
308 Norma Mag. (.308)	10-12	2.55	3.34
358 Norma Mag. (.358)	14-16	2.52	3.27
Wildcat Calibers			
218 Mashburn Bee (.224)	14-16	1.33	
219 Don. Wasp. (.224)	14	1.715	
219 Zipper Imp. (.224)	14	1.938	
22/30-30 (.224)	14	2.025	
22-250 (.224)	10-14	1.912	
6mm/30-30 (.243)	10-14	2.025	
6mm Krag Short (.243)	10-14	2.146	
243 Winch. Imp. (.243)	10	2.045	
244 Rem. Imp. (.243)	10-12	2.33	
243 Rockchucker (.243)	10	2.218	
6mm Don. International (.243)	10-14	1.66	
6mm Int. (Rem.) (.243)	10-14	1.912	
25-35 (.257)	10-14	2.314	
250 Sav. Imp. (.257)	10-14	1.912	
257 Robts. Imp. (.257)	10-14	2.333	
25-06 (.257)	10-14	2.49	
25 Krag (.257)	10-14	2.314	
30 Ackley Mag. S (.308)	10-12	2.45	
35 Whelen (.357)	14	2.49	

Over-all length of wildcat cartridges is a matter of personal preference. No standards are available.

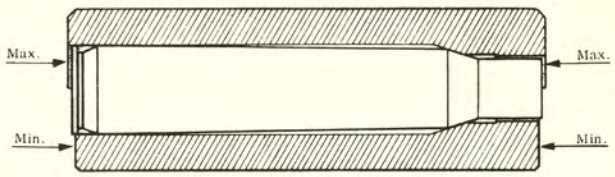
Caliber	Nominal groove dia.	Twist and direction	Case length (inches)	Bullet and over-all length (inches)
Handgun Calibers				
22 LR (S&W)	.2235	15 R	.61	40 gr./ .990
22 LR (Colt)	.222	14 L	.61	40 gr./ .990
25 Auto (Colt)	.224	16 L	.62	50 gr./ .994
30 Luger	.310	9.85 R	.85	93 gr./1.155
30 Mauser	.309	8 R	.99	86 gr./1.360
32 Colt Auto	.311	16 L	.680	71 gr./ .984
32 S&W Long	.313	18.75 R	.605	98 gr./ .930
32-20 Colt	.312	12 R	1.31	100 gr./1.593
32 Colt N.P.	.312	16 L	.92	98 gr./1.27
357 Mag. (S&W)	.357	18.75 R	1.29	158 gr./1.52
38 S&W	.357	18.75 R	.77	145 gr./1.24
38 Spec. (S&W)	.357	18.75 R	1.16	158 gr./1.54
38 Short Colt	.357	16 L	.69	130 gr./1.20
38 Long Colt	.354	16 L	1.03	150 gr./1.36
38 Colt N.P.	.354	16 L	.77	150 gr./1.18
38 Auto	.356	16 L	.90	130 gr./1.280
380 Auto (Colt)	.356	16 L	.68	95 gr./ .984
9mm Luger	—	9.54 R	.752	115 gr./1.155
41 Long Colt	.402	16 L	1.13	200 gr./1.41
44-40 (Colt)	.424	16 L	1.31	200 gr./1.593
44 Spec. (S&W)	.427	20 R	1.17	246 gr./1.593
44 Spec. (Colt)	.427	16 L	1.17	246 gr./1.593
45 Auto	.451	16 L	.90	230 gr./1.275
45 Colt	.452	16 L	1.28	255 gr./1.593
45 Auto Rim (S&W)	.450	14.65 R	.90	230 gr./1.275

FORSTER

Combination Case and Headspace Gauge

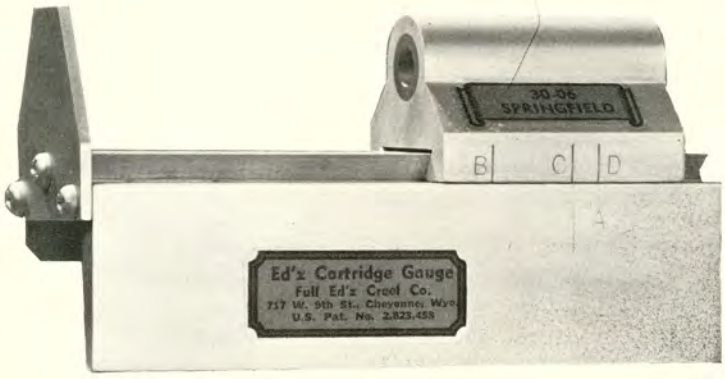
$4.50

Designed to measure head to shoulder length (headspace) as well as over-all length to assure precision ammunition. Available in the following calibers: 222, 219 Don., 22-250, 220, 243, 244, 250 Sav., 257, 270, 7mm, 280, 300 Sav., 308 Win., 30-06, 8mm, 358, 300 H&H, 375 H&H, 38 Spec., 357 Mag., 44 Spec., 44 Mag., 45 ACP, 45 Long Colt.



ED'Z

Cartridge Gauge



$9.60

A well-made tool of aluminum and hardened steel that features a sliding gauge block that indicates the best possible seating depth of all shapes and lengths bullets, as well as the maximum over-all cartridge and maximum case length. Made for all the American and the more popular foreign cartridges. The gauging of two calibers is permitted with the reversible gauging block, which can be obtained in any combination. The gauge complete for gauging any two calibers sells for $9.60 postpaid. Extra two-caliber gauging blocks are priced at $4.90 each postpaid. FULL ED'Z CREEL

HERTER'S Precision Cartridge Case Gauge

The most accurate and finest made multiple case length gauge offered to the handloader. Tested in extremes of temperature with no apparent change in manufacturing tolerances. Chrome plated to eliminate wear and checked for accuracy before and after plating. Calibers clearly marked in raised letters for easy reading. Marked for the folowing calibers:

32 Spec.	45 ACP	250 Sav.	25-35
6.5x55	44 Spec.	22-250 Var.	25 Rem.
220 Swift	38 Spec.	35 Rem.	458 Win.
244 Rem.	357 Mag.	308 Win.	338 Win.
257 Roberts	45 Colt	358 Win.	270 Win.
7mm Mauser	45 Mag.	6.5 Jap	280 Rem.
8mm Mauser	22 Hornet	30-30 Win.	264 Win.
30-06 Springfield	222 Rem.	30 Rem.	300 Weatherby
45 Auto Rim	300 Sav.	243 Win.	300 H & H
			375 Mag.

$1.98

McKILLEN & HEYER
Case Length Gauge

$4.25

45 ACP
44 SPEC
308 WIN.
358 WIN
30 REM
243 WIN
244 REM
257
257 JAP

25 REM *

45 Colt Auto.
38 Special
22 Hornet
22 K-Hornet
222 Remington
222 K-Remington
300 Savage
250 Savage
22-250 Varminter
30-30 Winchester
32 Win. Special
220 Swift
257 Roberts
8mm Mauser
7mm Mauser
30-06 Springfield
270 Winchester
300 H & H Magnum
375 H & H Magnum
All calibers based on full length 30-06 brass.

Here is the one and only multiple case length gauge offered to the handloader today. A quick, easy to use gauge for measuring fired and sized cartridge cases to check for over length cases that will cause DANGEROUS PRESSURES and POOR ACCURACY.

This Gauge is a precision tool that has been thoroughly tested before being placed on the market. It has been subjected to the following extremes of temperature with no apparent change in the manufacturing tolerances after returning to room temperature. A temperature of 400 degrees Fahrenheit for a period of four hours and a temperature of minus 20 degrees Fahrenheit for a period of 48 hours.

The tolerance for each caliber is a maximum of two thousandths of an inch less than the maximum for each caliber.

All gauges are Chrome plated thus assuring the user the hardest surface possible in order to eliminate wear and possible inaccuracy of the gauge.

All gauges are checked for accuracy both before and after Chrome plating and are guaranteed to hold this accuracy under all normal usage and proper handling. THIS IS A PRECISION TOOL and should be handled as such.

All calibers are marked in raised legible letters of sufficient size to enable ease of reading for the life of the gauge.

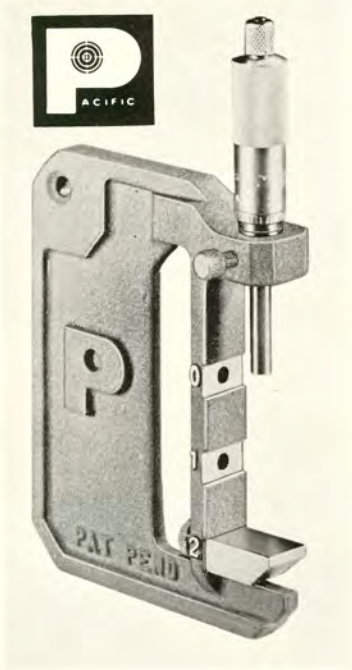
* The 243 Winchester length is just .005 longer than the 25 Remington and 25/35. By using a .005 spacer you will get the correct length for these cases.

Simple to use; Place case after full or neck resizing on the gauge anvil and slide under proper caliber. All cases should be trimmed before use if they do not slide into place easily.

N-K Handloader's Gauge

$5.00

Made of extruded bronze, hard chrome plated for extra wear. One setting of the adjustable jaw gives both minimum and maximum case or cartridge length. For cartridge length, make up dummy (without powder) for each bullet type. Seat so bullet just touches or just misses the rifling; use this to set gauge to proper length. Master rods of correct case length available for most calibers at $1.25.



"Big Mike" Case Gauge

$14.95

A sturdy, precision instrument with a built-in precision micrometer head and 3-stage adjustable anvil that will accurately measure any case from the smallest 1⅜" 22's to the big magnum cases up to 3". Only a micrometer gauge can give you the accuracy you want plus the versatility of measuring any size case without purchasing separate gauges or inserts for each caliber.

WILSON

Cartridge Case Gauges

For rimless cases $5.75

For belted cases $6.75

This cartridge case gauge, first offered to handloaders by us over 20 years ago, is a one-piece, non-adjustable steel cylinder for checking cone-to-head length and over-all length. Each end has both steps milled at one pass for greater accuracy. They are reamed with special reamers giving extra body and neck clearance to eliminate any possibility of contact except at the gauging point.

The right illustration shows the case in position for checking cone-to-head length. If the head projects above the upper step, the case is too long and will function with difficulty in a rifle with correct headspace. If the head drops below the lower step, the case is too short and may rupture when fired. The opposite end of the gauge checks over-all length, as shown in the left view. If the case projects above the upper step, it is too long, and may bottom in the chamber. Many cases will be found to be over maximum, especially if they have been resized several times. Such cases should be trimmed back to minimum or discarded.

The Wilson Cartridge Case Gauge is a useful guide also in setting the case trimmer to proper length, or it may be used in setting up any adjustable full length resizing die.

Available in the following calibers: 220 Swift, 220 Wilson Arrow, 22-250, 222 Rem., 222 Rem. Mag., 243 Win., 244 Rem., 250 Sav., 257 Roberts, 6.5x55 Norma, 270 Win., 7mm Mauser, 280 Rem., 300 Sav., 30-06, 308 Win., 8mm Mauser, 35 Rem., 358 Win. BELTED calibers: 257, 270, 7mm, 300 Weatherby Mag., 264 Win. Mag., 7x61 S&H, 300 H&H Mag., 308 Norma Mag., 338 Win. Mag., 358 Norma Mag.

Notes on Case Mouth Trimmers.....

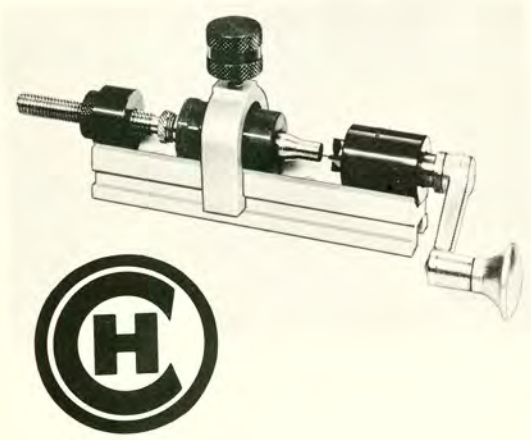
Repeated firings cause brass to flow forward — more pronounced in some calibers than others — and this excess length must be trimmed. Unless such cases are trimmed, chambering effort may be increased, case mouths may wedge into throats and higher pressures result because of lessened neck clearance.

Case trimmers run from hand-held types for minimum, in-the-field brass cutting to "file-type" dies to miniature lathe-style devices.

B-SQUARE
Case Trimmer

With one pilot **$5.00**

A compact, efficient case trimmer that is simple to use. A practical tool for all handloaders. Consists of a precision pilot, hardened steel cutter and plastic handle. Just insert the pilot into the case neck and twist! Extra pilots (available in all standard calibers) $2.00, when ordered with trimmer, $2.50 if ordered separately.



Complete with hardened and hand lapped case holder **$13.50**

Extra case holders.....$1.50

A unique clamp locks case holder in position. Safe! Eliminates danger of fingers being cut when case holder is clamped firmly in position. Insures perfect uniformity from 22 cal. through 45 cal., whether rifle or pistol cases.

FORSTER

Power Case Trimmer

$12.50

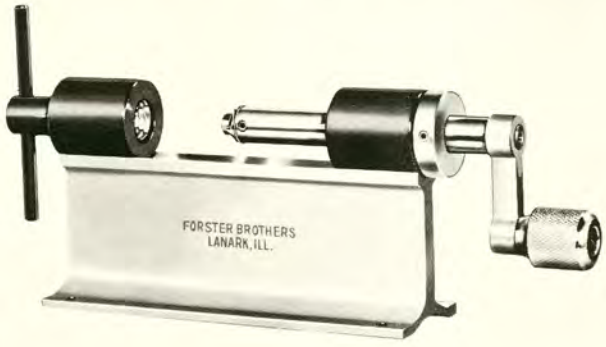
Complete including one collet and one pilot.

$9.00

If you now own a Forster hand operated case trimmer, you may use the collet, collet housing and collet screw, and purchase only the conversion kit to make up a power case trimmer.

Designed to trim cartridge case quickly and easily with any drill press. Can be accurately lined up with the drill press by means of the line-up bar furnished. Non-chattering cutter comes with 3/8" or 1/4" shank optional.

FORSTER Precision Case Trimmer



Complete with one collet and one pilot (state caliber and case) **$14.25**

Extra pilot (state caliber) .....50¢

Extra collets (state caliber) $2.50

Designed to eliminate the shortcomings of other tools, it is superior in design and materials and combines fast and easy operation with dependable, accurate results. The hardened and ground cutter shaft has four staggered cutting teeth to provide fast, smooth chatterless cutting. Browne & Sharpe type collet holds the case without any end movement — all cases cut to same length even if head diameter varies. The stop collar carries a fine adjustment screw. Position of bearing and collet body adjustable by 1/4" steps.

Check Chart of Forster and Herter Collets

FORSTER and HERTER collets have three steps and each collet will handle the popular cartridge cases shown in the following tabulation:

#1 COLLET — 30-06, 243, 264, 270, 308, 338, 358, 401 & 458 Win.; 250 & 300 Sav.; 222, 222 Mag., 244, 35 & 44 Mag. Rem.; 22 Var.; 22-250, 220 Swift, 22 Lovell; 243 Cobra; 243 RCBS; 257 Roberts; 25 Souper; 25-06; 6.5mm Dutch; 6.5x57 Mauser; 6.5mm Jap; 6.5 Mannlicher; 256 Newton; 270 Gibbs; 250, 270, 300 & 375 Weatherby; 7x57 Mauser; 7mm Gradle; 7mm Ackley; 7mm Mashburn; 7x61 S&H; 7x64; 276; 30 & 35 Newton; 300 & 375 Mag.; 303 British; 32 S&W Long; 8x57 & 8x57 JR; 8x60; 35 Whelen; 375-06; 375 Barnes; 38-40; 41 Colt; 44 S&W Spec.; 45 ACP; 45 Long Colt; 450 Watts; 45-70.

#2 COLLET — 22 Hornet; 22K Hornet; 218 Bee & Mashburn; 219 Zipper & Wasp; 22 Sav.; 22/30-30; 6mm/30-30; 25-20; 25-35; 25 Rem.; 30-30; 30 Rem.; 303 Sav.; 32-20; 7.7mm Jap; 9mm Luger; 38 Colt Super; 45 Long Colt.

#3 COLLET — 22 Hornet; 22K Hornet; any Krag case; 30 Carbine; 38 Spec., 357 Magnum; 35 Win.

In addition, Forster-Appelt has a special collet to take 33 Win., 348 Win., 45-70, 45-90.

HERTER'S
Precision Case Trimmer

Precision made and thoroughly tested to give accurate, trouble-free operation. Precision ground and hardened cutter shaft has four cutting teeth for a fast, smooth cut. The desired case length can be accurately set by a stop collar, and a fine adjustment screw permits adjustment to .001" or less. Knurled, free turning crank handle assures smooth and easy operation.

$7.89

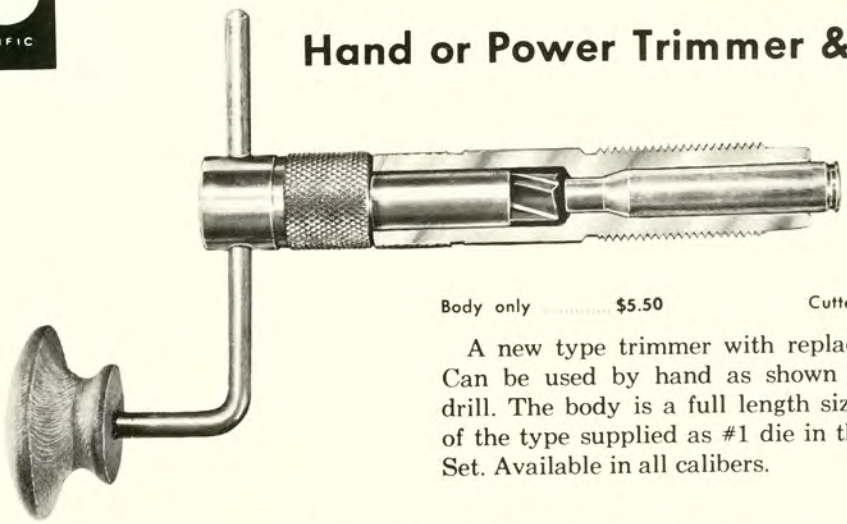
Case trimmer complete with one collet and one pilot (state caliber and case)

Extra pilot (state caliber) ..... **$ .30**

Extra collets (state caliber) **$1.39**

PACIFIC

Hand or Power Trimmer & Case Former



$11.50
Complete

Body only **$5.50**

Cutter assembly only **$6.00**

A new type trimmer with replaceable cutter blade. Can be used by hand as shown or with ¼" power drill. The body is a full length size-and-case-form die of the type supplied as #1 die in the Three Die Pistol Set. Available in all calibers.

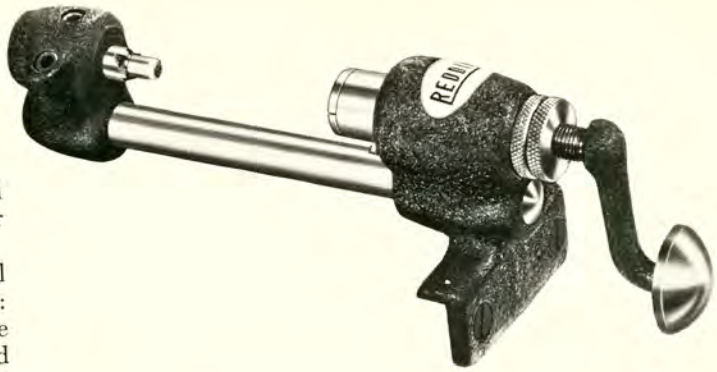
PACIFIC File Type Trimmer & Case Former

$5.00

For trimming and case forming. A fine grade file will not scratch the hardened surfaces. Available in most calibers.

See Metallic Press pages for Lyman case trimmers and RCBS products

REDDING



An extremely fast, easy-to-operate tool that will completely trim and chamfer in one pass any caliber rifle or pistol case.

A unique patented spindle design permits all operations to be done with the handle of the tool: after insertion of case, a one-quarter turn clockwise of handle locks the case; handle is then palmed toward cutter and rotated clockwise to cut; handle is withdrawn to remove case neck from pilot; handle is turned about one-quarter turn counterclockwise to release case.

Approximate setting for case length is obtained by sliding tailstock or cutter holder along the chrome-plated bed rod; final setting is made on the spindle with two lock rings. Easily removable pilot always remains in correct alignment with collet. Entire unit attractively finished. Satisfaction guaranteed.

Master Case Trimmer

$14.50

The WILSON Universal Case Trimmer

QUALITY • ACCURACY • VERSATILITY • SPEED

Rifle Calibers $14.75

Pistol Calibers $15.50

EXTRA SHELLHOLDERS

RIFLE	$1.50
SPECIAL RIFLE	3.00
PISTOL (HARDENED)	2.25

Included with each trimmer, without extra cost. is a hardened steel burring tool, original with us. It is knurled to grip easily, has a pin (Pat. Pend.) to keep case in position while outside edge is burred, and services cases from .22 to .45. Complete operating instructions and a table of cartridge case lengths accompany each trimmer.

QUALITY — A fast, simple and rugged tool, this is the oldest — and best — case trimmer available. No soft metals, no sloppy fits; the shell holders, the base and rails are of hard *steel*. The ground and polished cutter fits its long bearing precisely.

ACCURACY — Because the Wilson Trimmer supports cases and centers them by the body, offset heads (quite common) have no effect on the squareness of the trim. Because no pilots are needed, neck diameter is not a factor — new, sized or fired cases can be trimmed.

VERSATILITY — The Wilson Trimmer handles all cases for 22 to 45 caliber, and one shell holder often handles several calibers, e.g., 270, 280 Rem. and 30-06. This tool also serves well as a jig for inside reaming and primer pocket reaming.

SPEED — Cases are quickly checked and removed by a light tap, the crank is spun easily by the palm or the finger tips. The lock screw controls length — when it hits the bearing, all cutting stops. Rifle Shell Holder available (those within parentheses use the same holder); 22 Hornet, Std. Lovell, 2-R Lovell, (218 Bee, 25-20), 219 Donaldson, 222 Rem., 222 Rem. Mag., (219 Zipper, 22 Sav., 25-35), 220 Weatherby Rocket, (220 Swift, 220 Wilson Arrow), 243 Rockchucker, (22-250, 250 Sav.), (25, 30, 32 Rem., 30-30, 32 Win. Spl.), (257 Roberts, 244 Rem., 7mm), (243, 308, 358 Win.), (257, 270, 7mm, 300, 375 Weatherby Mag.), (264, 338 Win. Mag.), 6.5x55 Norma, 6.5 Mann., 7x61 S&H, 7.62 Russian, (270 Win., 280 Rem., 30-06), 30 M-1 Carbine, (308-358 Norma Mag.), 300 Sav., 30-40, 300 H&H Mag., 303 Br., 303 Sav., 32-20, 32-40, 8mm Mauser, 33 Win., 348 Win., 35 Win., 35 Rem., 9mm Luger, 375 H&H Mag., (378-460 Weatherby Mag.), (38-40, 44-40), 38-55, 45-70, 458 Win. Mag.

PISTOL SHELL HOLDERS available (hardened type): 357, 38 Spec., 38 Auto, 44 Russ., 44 Spec., 44 Mag., 45 Auto and 45 Colt. Because there is little taper in these calibers, cases must be driven into the die with a mallet or arbor press.

LEVER ACTION CASES — Because cases for these rifles swell out, it is not practical to make a die to handle new and fired cases, therefore both types are available. Please notify which is wanted, otherwise we ship dies for fired cases. 30-30, 32 Spec., 300 Sav., 243, 308 and 358 Win. available.

SPECIALS — Send us a few fired cases, carefully packed to prevent damage. If a *STOCK* holder fits, we'll send that, otherwise a special will have to be made.

Notes on Chamfering-Deburring Tools

Cases that have been trimmed will show a burred or roughened mouth, both inside and out. Chamfering tools remove these burrs and also cone the inside of the mouths slightly, making for easier entrance of the bullet. Most handloaders chamfer the inside of *untrimmed* cases for the latter reason. The tools shown here are handy, fast and do a uniform job, but a sharp penknife works well also.

C-H

Handles all cases from 22 to 45 caliber; has center guide pin for outside deburring.

$2.50

PACIFIC

This tool will chamfer and deburr the case mouth without chattering — leaves a smooth even edge.

$1.95

HERTER'S

Deburrs or chamfers the inside and outside of all cases from 22 to 45 caliber. Center pin for holding case mouths steady.

$1.75

FORSTER

Cutters precision ground after hardening for free, clean cutting. Handles all cases from 22 to 45 calibers.

$2.75

WELLS

Removes burrs or chamfers inside and outside of case necks; has center pin to hold case mouths in contact.

$1.25

WILSON

This hardened steel tool is knurled for gripping and has a pin to keep case in position when deburring. Handles all cases from 22 to 45.

$2.75

Notes on Case Lubricants .....

Modern lubricants greatly reduce the effort and drudgery once needed in full length sizing metallic cartridge cases. The high-pressure lubes listed here make for near-effortless operation, and they are relatively inexpensive. Compare them, in use, with ordinary greases and oils — you'll find an amazing difference.

Much of the resizing effort springs from inadequate lubrication of the *inside* of the case neck—don't neglect this area.

In an emergency, anhydrous lanolin or ordinary bath or laundry soap will work very well. So will some of the automotive hypoid gear greases of the molybdenum type.

MOLYKOTE Type U

A light film of Molykote Type U on the outside of the cartridge case will insure ease of resizing, no sticking of case in die, ease of extraction. Handy tube.....**50¢**

ALPHA-MOLYKOTE CORP.

ANDEROL

Built-in anti-wear and extreme pressure properties give slicker, easier, speedier case sizing. Its high cohesion and rust preventive properties make it the first choice of handloaders. **50¢** per can.

LEHIGH CHEMICAL CO.

C-H Die Lube (liquid)

Designed especially for lubricating dies and dies only. Two oz. tube only .....**75¢**

HERTER'S Perfect Lubricant

Specifically formulated and completely tested, it will prevent sticking of cases in sizing dies. Per jar.....**39¢**

LYMAN Size-Ezy Grease

A high-pressure lubricant designed for metallic case sizing. A thin film on the case insures smooth, effortless operation of your sizing dies. Tubes or tins.....**50¢**

PACIFIC Case Sizing Lube

A clean, clear liquid lubricant that stays on the case during the entire sizing operation. 2 oz. plastic bottle.....**50¢**

MOTOR MICA Anti-Friction Compound

A clean, white, dry lubricant, long used by industry for deep drawing — now available to the handloader. A small amount makes resizing easier and reduces die wear.

5 oz. (add 25¢ postage and handling).....**$1.50**

1 lb. (add 45¢ postage and handling).....**$2.40**

SCIENTIFIC LUBRICANTS

"SURE MARK" Case Graphiter

A dry, graphite lube in a handy applier. Puts a light coat of graphite on case necks to be resized. Applicator complete with supply of graphite and set of burnishes adaptable to all calibers from 22 to 45.....**$1.00**

WILKINS & SCHULTZ, INC.

See Metallic Press pages for RCBS products

Notes on Powder Funnels

A handy accessory for the reloader, the powder funnel provides a means of easy transfer of powder from the scale pan. These universal funnels have tapered shell feed tubes that accommodate all cases from the 22's through 45-70.

Fitz

Pacific

Wells

FITZ Ammo-O-Cone — Made of high impact Duramite Plastic in fluorescent red color.....**99¢**

HERTER Clear View — Made of tough, transparent tenite.....**40¢**

PACIFIC — Made of aluminum with spill-proof spout.....**$1.00**

WELLS — Made of clear, durable plastic .....**45¢**

Hollow Pointers

FORSTER

Used on the Forster Precision Case Trimmer, this accurately hollow-points either factory or handloaded pistol cartridges only — assembled rounds with lead bullet in case. Available for 38 Spec., 357 Magnum, 44 Spec., 44 Magnum, 45 Long Colt or 45 ACP, the same drill is used for all calibers — only the guide bushing is changed to handle a different cartridge.

Complete with one guide bushing and drill **$4.75**

Guide bushings only $3.25

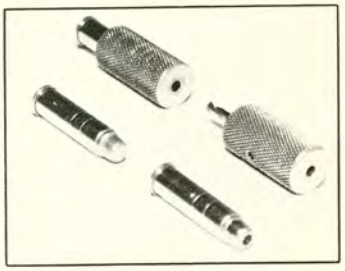
Extra drill only $1.50

FORSTER Universal Hollow Pointer

$4.75

Extra drills (state size wanted) $1.50

A "natural" accessory for the Power Case Trimmer. Available in either 1/16" or ⅛" drill size. Complete with guide bushing and drill for any caliber rifle or pistol cartridge.



GOERG

Enterprises

Hollow Pointer

$5.95

This tool allows the handloader to develop hunting bullets with any hollow point depth to control the expansion of the bullet. Made for 38 Spl., 357 Mag., 44 Spec., 44 Mag. and 45 Colt, it is used on loaded cartridges only.

Belmont

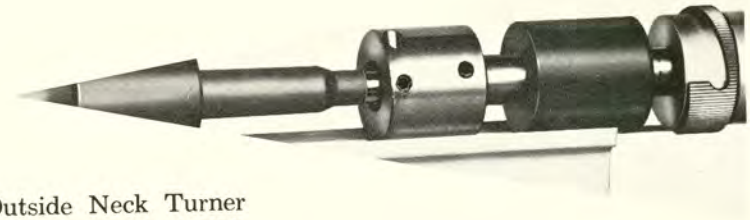
Quick-Change Inserts

Owners of Lachmiller, Herters, RCBS (or any press with 1¼″-18 threaded die station) can now change dies in seconds! Simply screw the master bushing into the die station of the press, attach the inserts to the dies and you are all set for quick, effortless interchanging of dies. Inserts are threaded ⅞″-14 for use on standard dies, or may be had in Lyman ⅝″-30 size.

Master bushing and two inserts	$7.50
Extra inserts	$2.00

FORSTER Outside Neck Reamer

Maximum accuracy in a rifle requires, among other things, that the bullet be perfectly centered in the cartridge case, in line with the chamber and throat of the barrel. This ideal condition is rarely found, since brass cartridge cases are made on a production basis, and held only to the manufacturer's tolerances. After repeated firing the brass of the neck thickens; when this progresses to the point where the loaded case no longer has a clearance of .002″ to .003″ between the neck and the chamber of the gun, the bullet is wedged in the neck of the cartridge; accuracy is lost because of excess pressures or blown primers. The remedy is to reduce the wall thickness of the neck. This can be done with a conventional inside neck reamer. However, this will not always produce neck walls of even thickness. This deficiency prompted the development of the Outside Neck Turner, which will positively produce neck walls of uniform thickness and desired outside diameter when used on the Forster Precision Case Trimmer.



The Outside Neck Turner consists of a cutter head with an adjustable circular Carbide Cutter, to be mounted on the end of the cutter bar of our Case Trimmer. The short pilot used in neck trimming is replaced with an extra long, hardened and precision ground pilot. In operation, the wall of the neck progressively passes between the pilot and the cutter so that all points thereon are reduced to an equal thickness. It will accurately turn any diameter between 200 and 35 caliber. The rate of feed is controlled by rotating the feed cam, and a mechanical stop controls the length of the cut. Cartridges to be "neck turned" must have the neck re-sized and expanded first.

Pilots available: .200″, .224″, .243″, .257″, .263″, .277″, .284″, .308″, .323″ and .358″.

Complete with one pilot (price does not include Case Trimmer). **$10.75**

Additional pilots in any of the above calibers. **$1.75 each**

FORSTER

Neck Reamer

Mounted in the Forster Precision Case Trimmer, this tool provides a simple means of removing excess brass caused by the flowing of brass formed under the high pressures developed in today's cartridges. Available for the following calibers: 22, 6mm (243-244), 25, 6.5mm, 270, 280 (7mm), 30, 7.7mm (303), 8mm (32), 338, 35 (358), 375. The staggered teeth cut smoothly, and are ground to .002″-.003″ over max. bullet diameter. Give name of cartridge and caliber.

$5.50

H & H PAINT SUPPLY CO.

TITE Primer Seal

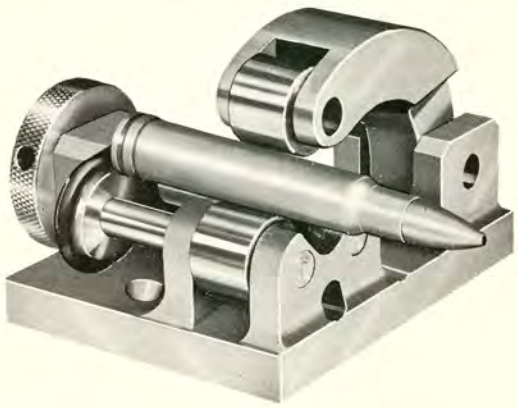
$2.50 Tube

This amazing product, backed by extensive research, is the only specialty item of its kind designed to work under extraordinary service. A fraction of a drop on top of the primer head forms a strong microscopically thin film around the primer pocket — this gives an absolutely perfect gas-tight seal — even in loose fitting, enlarged primer pockets. Although this seal is strong enough to withstand the tremendous pressures during firing, the primers are easily removed with the ordinary primer punch.

HERTER'S

Cartridge Case and Bullet Concentricity Inspector

$5.95



A simple, yet effective means of checking loaded rifle and pistol cartridge cases. Are your case walls concentric with the cartridge base? Are your bullets cocked when seated? Shooters interested in maximum accuracy will want these answers, and this Herter tool will supply them.

HERTER'S Data Sheets

8½″ x 5½″ high, these punched sheets fit standard ring binders. Every important aspect of your load can be recorded on these sheets — and should be. A must for the serious handloader, the experimenter and all who want to record their loads and results. You can't trust your memory.

100 — $1.65 500 — $4.95 1,000 — $7.85

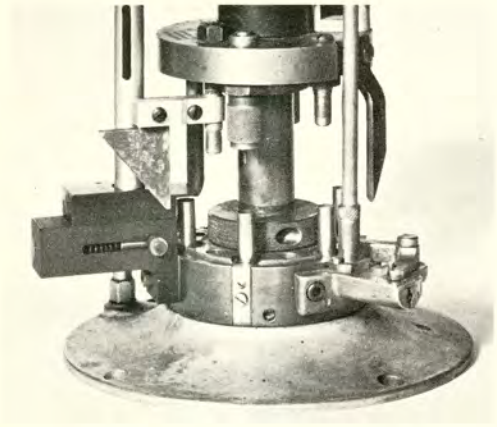
HERTER'S Cartridge Box Labels

How many times have you reloaded a few — or more — rounds, put them aside and then, a week or so later, found it impossible to recall just what went into them? Avoid that potentially dangerous happening with our gummed box labels — there's space for all data.

100 — 67¢ 500 — $2.35 1,000 — $4.05

HULME

Automatic Case Feeder



Installed on the Star or Phelps reloader it expedites the feeding of empty cases, eliminating the individual handling of the case during the reloading cycle.

The Mark II handles both 38 Spec. and 45 ACP and will fit either the Star or Phelps. A selector plate is available to handle 357 and 45 ACP.

▲ Mark II, complete for 38 Spec. and 45 ACP **$29.50**

▲ Mark II, complete for 357 and 45 ACP **$32.50**

The Mark III is available only for the Star Universal Progressive loader and is made in two models.

▲ Mark III, complete for 38 Spec., 44 Spec., 45 ACP and 45 Auto Rim **$32.00**

▲ Mark IIIA, complete for 357 Mag., 44 Mag., 45 ACP, 45 Auto Rim and 45 Colt **$32.00**

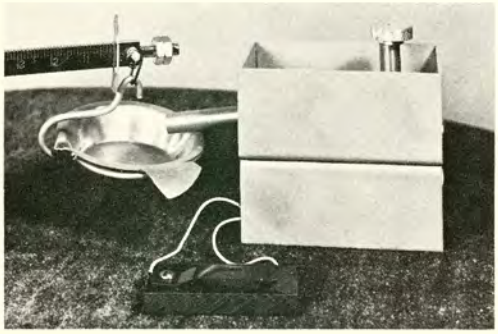
Extra selector plates in above calibers ..... **$ 5.80**

NOTE: Star and Phelps tools made before 1959 require drilling and tapping for installation of the Hulme Case Feeder. If your tool is not already tapped, Hulme will include a drill jig. Tap and drill set available at $2.25.

SHOOTERS ACCESSORY SUPPLY

Little Dripper $2.25

The "Little Dripper" speeds up the tedious job of accurate powder measuring. By setting your powder measure to throw a little under, you can easily adjust your load on the scale by merely turning the knurled handle of the "dripper," thus feeding a few kernels of powder at a time until the exact charge is attained. Precision made to last a lifetime, it is a handy, efficient addition to any handloader's bench.



Electric Dripper $6.50

To meet the demand of the handloader who wants something just a little bit better, just a little handier and, of course, a bit more expensive, we developed the Electric Dripper. An electric vibrator does the work for you, while a switch lets you control the flow of powder.

ULTRA ACCESSORIES for Herter Presses

1. TURRET CONVERSION

Convert your Herter Model 234 tool to 12-position turret. Ship your turret to us and we will precision bore and tap 6 additional 7/8"-14 holes and 6 index holes, plus two new holes for additional handles. We also furnish two handles with rubber grips at no extra charge. If 1¼"-18 holes are desired, add $1.00 per hole.

Complete **$17.50**

We also supply Model 234 tools with this conversion at ..... $50.00 FOB

2. PRIMER CATCHER

Designed for Herter Models 3, 234 and 243 tools (slight alteration needed on some tools). Must be used with old style primer arm or see below for Ultra Primer Arm. Holds 200 primers.

Complete **$3.00**

3. UNIVERSAL PRIMER ARM

For Herters Models 3, 81, 234, 243 tools. Universal setup permits changing from one primer size to another through 3 inserts.

Complete with one insert **$2.50**

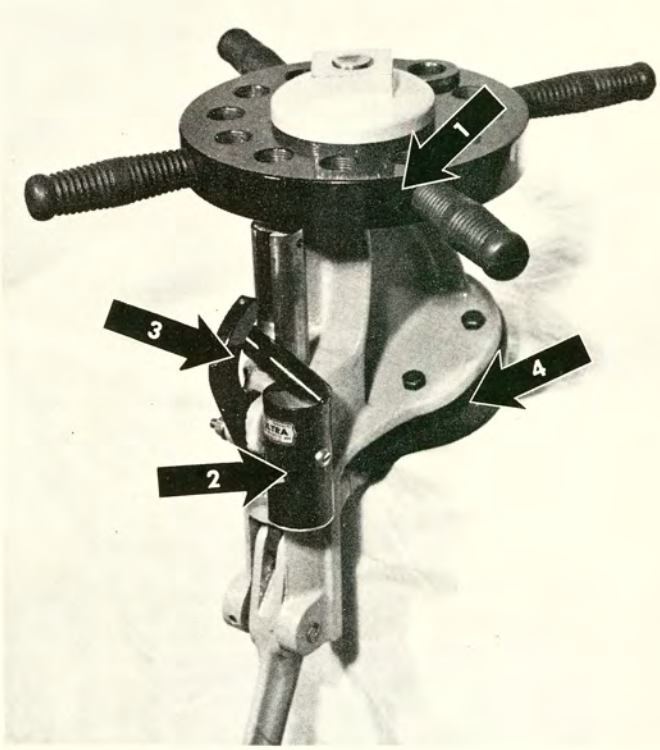
Extra inserts ..... 50¢

If you have the post, cup and spring from old Herter primer arms, order arm with insert only $2.00

4. LEVELING BLOCK

For Herters Models 3, 3M, 81, 234, 243 and Wells C type tools. Made of hardwood and finished in green lacquer. Tools set absolutely level.

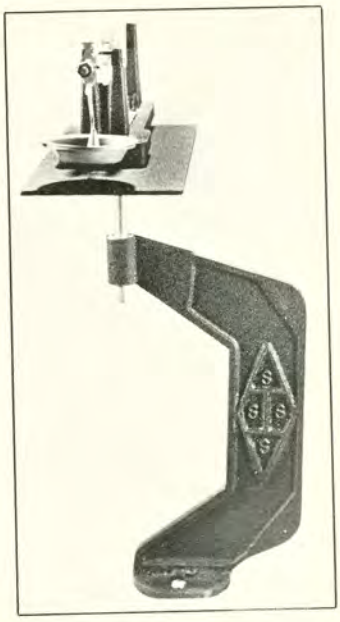
$3.00



ULTRA

SILVER STATES SHOOTERS SUPPLY

Powder Scale Stand



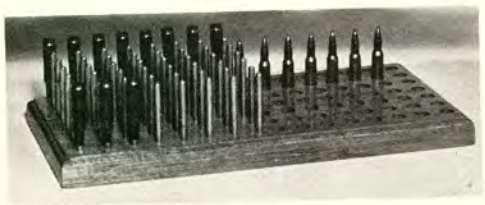
$9.95

Now you can use your powder scale with ease and comfort. This new scale stand, sturdily built and handsomely finished, holds the scale at eye level — adjustable rod permits the scale to be set at most comfortable position. Cast frame can be bolted or clamped to bench.

WEBSTER

Loading Board

$4.50 Each

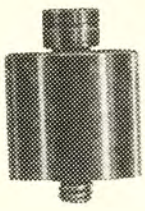


Our Loading Board is made of first grade mahogany, 6" x 12", with 56 aluminum pins with holes to match. Made in all calibers. Also available with 112 holes without pins. Please specify caliber desired.

When using this loading board with the WEBSTER scale, with funnel attached, you will have a combination that will give you speed, accuracy, and spill-free service with the satisfaction of knowing you have done a good job of loading with ease and simplicity. You should try it the WEBSTER way.

R. F. Wells, Inc.

Shell Extractor



When a cartridge case becomes stuck in the sizing die, the safest and fastest method to remove it is with the Wells Shell Extractor. Supplied with hex wrench and can be had with or without the No. 7 drill and ¼-20 tap required.

Shell Extractor (with drill and tap) $2.05
Shell Extractor (without drill and tap) ..... 95¢

Notes on Primer Pocket Tools

Primer seating should be done in clean primer pockets. As you will see, there are many types of tools available for this job — all will do a good job, but none need be used to excess. In fact, some operators rarely clean pockets!

For the reloader interested in maximum accuracy the size of the primer pocket and flash hole are important factors, and a set of gauges to take these measurements can be the means to increased accuracy.

ACC·U·REAM

Flash-Hole Gauges

Primer Pocket Gauges

Flash holes, like primer pockets, vary according to manufacturer, number of firings and loads used. These can now be measured and the cases separated into four uniform groups with these Flash-Hole Gauges. Set of 2 double-ended gauges (minimum, 2 intermediates, No-Go).

Separate cartridge cases into uniform groups to assure the same pressure on each primer at it is seated.

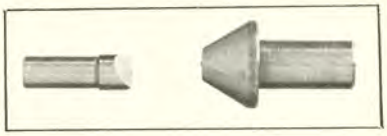
Set of 2 double-ended gauges (min., 2 intermediates, No-Go) for .175 and .210 sizes.

FORSTER Primer Pocket Cleaner

A scraper type tool that mounts on the cutter bar of the Precision Case Trimmer to remove powder residue quickly and easily without removing any metal. Available in .210 or .175 size.

$2.00
Complete with center

$1.00
Extra cleaner only



HERTER'S

GLH Brush Type Cleaner

A special sturdy brass brush that will clean out the primer pockets thoroughly, but will not cut, bend or enlarge them. Available in two sizes for large or small primers.....**70¢**

Primer Pocket Cleaner

Made of hardened and ground die steel, simply rotating this tool in the primer pocket will remove burrs and foreign matter. Made in two sizes for small and large primers .....**65¢**

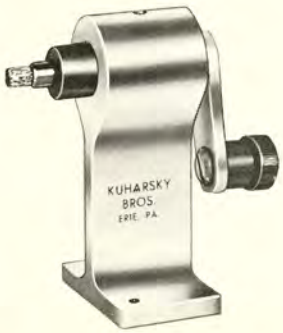
Flash-Hole Gauge

Stepped, multi-diameter gauge gives you a direct reading of the flash-hole size of any pistol or rifle cartridge.....**$2.39**

KUHARSKY BROS.

Primer Pocket Cleaner

Fine steel wire brush scrubs pockets quickly, leaves them clean and bright. For use in any motor or hand driven chuck. Specify large or small primer size....**$1.00**



Pedestal Crank

Designed especially for use with our wire brush cleaner, it fastens easily to a bench, taking the place of costly power equipment. Crank only **$3.95**

R. F. Wells

Primer Pocket Cleaner

Hardened and ground to exacting specifications, this rotary scraping tool quickly and easily cleans the primer pocket. Made in .210 and .175. Specify size desired. .....**95¢**

Primer Pocket Tools for G.I. Brass

Frankford Arsenal and other 30-06 G.I. brass have the primers heavily crimped-in. Because ordinary decapping pins may bend or break under the strain of removing such primers, extra sturdy "punch and base" sets are available from several tool makers.

Because this G.I.-brass tool is fast and handy, many shooters use them in preference to other decapping means. Primer pockets, for one thing, are easily inspected, cleaned or gauged.

ACC-U-REAM

Primer Pocket Reamer

$3.95

Removes *only* the excess crimp in gov't. 30-06 primer pockets. Does not destroy original shape of primer pocket walls. Knurled for ease of handling and chrome-plated for a lifetime of trouble-free performance.

C-H Heavy Duty Decapper-Expander

Not a knock-out-punch, this tool is used in the regular C-H 30-06 sizing die. Only crimp-removal is needed after its use.

$2.75

C-H Primer Pocket Swager

$4.00

Removes G.I. crimp but no brass, and is used in conjunction with C-H Heavy Duty Decapper.

FORSTER

Primer Pocket Chamfering Tool

Complete with center **$5.00**

Chamfering tool only **$4.00**

Will remove most, if not all, of the crimp in military brass, making it easier to seat new primers. Can be used with either Forster case trimmer.

FORSTER

30-06 Bullet Nose Trimmer

$4.75

Rapidly removes the point from 30-06 military bullets prior to hollow-pointing; cuts the nose square, and to uniform length. Complete with guide bushing and specially designed cutter.

HERTER'S Primer Pocket Reamer

Hand-held, hardened and ground tool steel primer pocket reamer. **$1.39**

LACHMILLER

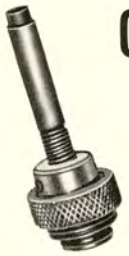
Primer Pocket Swage

$5.95

Forms the primer pocket to correct size, removes the crimp and puts a radius on the edge of the primer pocket. Threaded 7/8-14 for use in all loading tools.

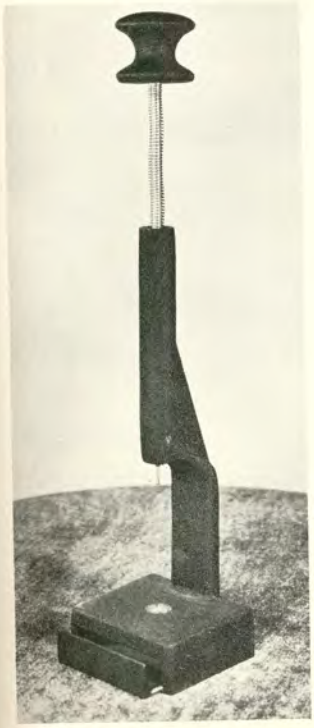
PACIFIC

Primer Pocket Crimp Remover



$5.95

Designed for use with 30-06 size shell holder in Pacific or "C" type copies of the Pacific press. Removes the crimp from G.I. primer pockets without enlarging or deforming.



SILVER STATES

Heavy Duty Decapper

$9.95

Designed to remove the primers from all types of cartridge cases, it works especially well on G.I. cases. This sturdy, one-piece unit is built to give years of trouble free service. Discarded primers drop into built-in compartment.

See Metallic Press pages for Lyman and RCBS tools.

R. F. Wells, Inc. Primer Pocket Swaging Die

$2.97

A fast, accurate means of removing the G. I. crimp. Internal mandrel (usable in any standard 7/8"-14 die) supports the case during swaging; hardened swaging head fits 30-06 shell holder. Possible distortion of rim is eliminated.

WILSON
Primer Pocket Reamers

Reamer and Handle (Case Trimmer *not* included) **$5.00**

Designed for use in the Wilson Case Trimmer, the trimmer acts as a jig for obtaining correct alignment between cartridge case and reamer, and provides firm support during reaming.

By the time the reamer contacts the bottom of the pocket, the outside corner is rounded for easy insertion of the new primer. Since the reamer stops cutting when it hits the bottom of the pocket (no pounding or forcing is used), the flash hole is undamaged and the smooth, neat, properly shaped primer hole insures correct seating of the new primers.

Wilson Punch and Base Sets (not illus.)

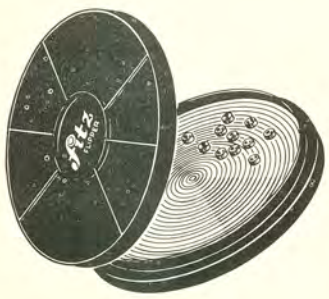
The punch, an insert with spherical end, is made of SAE 50100 steel heat treated to Rc 60-64 for maximum strength. The case hardened base, recessed at the top to support the case head, is counterbored at the bottom to collect the driven-out primers. Punches and bases available in nearly all popular calibers.

Per set **$2.25**

Punch only **$1.50**

Notes on Primer Turner Plates

Here's a handy accessory for any reloader. These plates eliminate any need for handling of primers, and with primers in proper position they can be easily picked up with the primer feed tube.



FITZ Flipper

Made of high-impact Fitz Duramite in brilliant red color. Automatically flips all sizes of rifle or pistol primers base up or base down.....**$1.50**

PACIFIC
Primer Turner Plate

Made of plastic, it permits easy primer handling. After picking up all of the base down primers, merely replace lid and flip over.....**$1.25**

Notes on Wax Bullet Loaders

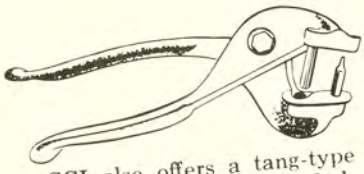
The recent growth of fast-draw shooting has fostered a new interest in reloading cartridges with wax bullets. These wax bullets, propelled only by the force of the exploded primer, are relatively safe, and certainly less expensive to shoot than factory rounds, or even hand-loaded squib loads. Law enforcement agencies, too, have taken to wax bullet shooting.

Most of the wax loading kits come with a supply of modified cases — the modification being an enlargement of the flash hole. This is necessary to prevent setback of the primer to the point where it would bind when the revolver cylinder is turned. This enlargement of the flash hole also gives increased velocity and better accuracy.

C. C. I.

CCI has recently announced a new reusable wax/plastic bullet for indoor shooting. Available in 30, 38, 44 and 45 caliber, these bullets can be used up to 16 times. The special wax and plastic compound will not melt in hot weather, shatter when fired, or foul the rifling.

$4.50 Per 1000



CCI also offers a tang-type re- and decapper for wax bullet reloading. This light, easy-to-use item is the only tool needed to shoot wax bullets—bullet seating is done with the fingers.

$5.95

CASCADE CARTRIDGE, INC.

CONSOLIDATED ARMSLUBE

$10.95

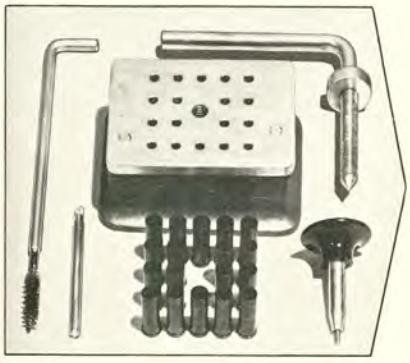
A new re- and decapper designed especially for wax bullet reloaders, using the same leverage system as our Handy Dandy metallic reloader described elsewhere in this book. All you need is wax (½" thick paraffin is recommended) and primers; a supply of modified (enlarged flash holes) cases is furnished. Specify 38 Special, 44 Special 45 ACP or 45 Colt.

FORSTER-APPELT

$4.95

This kit contains everything necessary for reloading wax bullets except the primers. Included in the kit are: a shell holder, primer punch, primer seater, special wax bullet compound, and a supply of modified, unfired cases. Kits are available for 38 Special, 45 ACP and 45 Colt. Extra items may be purchased as follows:

Wax bullet compound, 14 oz. block	$ .59	50 modified 45 Colt cases, new	5.25
50 modified 38 Spec. cases, new	3.60	50 modified 45 ACP cases, new	5.00
50 modified 38 Spec. cases, once fired	2.40	50 modified 45 ACP cases, once fired	2.75



PACIFIC Model 60

$11.90 Any one caliber

Designed for the fastest, easiest method of reloading wax bullets. Uses regular canning wax blocks, available in any grocery store. The wax is not melted, heated or prepared in any way, and the unique design of this loader prevents the wax from crumbling or breaking up. Loads twelve 44-45 caliber or eighteen 38 caliber cases in one operation. Special blacked, modified cases (12 or 18) are furnished with the kit.

Available in 38 S&W, 38 Special, 44 Special, 45 Auto Rim, 45 ACP or 45 Colt.

Extra cases—38 S&W and 38 Special..... 10¢ each
44 Special, 45 ACP, 45 Auto Rim, or 45 Colt..... 15¢ each

LYMAN Accrawax Loading Kit

Now, with Accrawax bullets, the whole family can enjoy target practice and plinking right in its own home or backyard—at less than 1¢ a shot. The Accrawax bullet, propelled only by the force of the primer, can be safely and accurately fired up to 25 feet in any center fire rifle or handgun. No special bullet trap or backstop is required.

Each Accrawax Loading Kit contains:

$11.95 Complete kit

1. Accrawax—a special formula non-fouling and rust inhibiting paraffin compound, bar-formed to correct thickness for loading all calibers.
2. Universal Decapping Rod and Base—Designed to handle all calibers. Specify large or small primer punch.
3. Lever Action Combination Loader and Primer seating tool. Uses standard Lyman shell holder; specify caliber.

Bullet Energy Table

This Bullet Energy Table, published here for the first time, is a vast improvement over existing charts. With this table you can quickly determine: 1. Muzzle energy figures for every bullet weight; most charts jump 5 grains at a time, thus you must interpolate for odd bullet weights. 2. Exact energy figures for each foot second of muzzle velocity; no need for rough approximation. 3. Energy figures for velocities from 500 fs up to 4900 fs. Other tables begin at 1000 or 1100 fs, thus omitting many popular loads such as the 38 Special load of 2.5 grains of Bullseye with a 148-grain bullet. This accurate target load has a muzzle velocity of only 566 foot seconds.

How to Use This Table

All of the tedious work of using the bullet energy formula has been worked out for you. This table lists the multiplying factors for velocities which, when multiplied by the bullet weight (in grains), will give you the energy in foot pounds. This works, of course, for muzzle energies or energies at whatever distance you like.

The left-hand column shows velocities in 100 foot second steps. The top row shows divisions of 10 foot seconds.

To locate the factor for 1130, say, find 1100 in the left-hand column, then follow this line to the right to a point directly under 30 fs—here we find our factor of 2.83. This factor, multiplied by our bullet weight, gives the required energy figure, muzzle or not.

However, to learn the energy of a bullet with a velocity not tabulated, we must locate that factor in this way:

PROBLEM: Find muzzle energy for a 140 grain bullet at 2266 fs.

1.	The factor for 2260 is	11.34
2.	The factor for 2270 is (Note that here we are bracketing our velocity.)	11.44
3.	The difference between these two is	.10
4.	Move decimal point one space to the left	.01
5.	Multiply .01 by 6 (our velocity is 6 fs more than the lower bracketing velocity of 2260)	.06
6.	This must then be added to the factor of 2260	11.34 .06
7.	This, then, is our factor for 2266, which is to be multiplied by our bullet weight.	11.40 x 140
8.	Energy of a 140 grain bullet with a velocity of 2266 fs is (in ft. lbs.)	1596

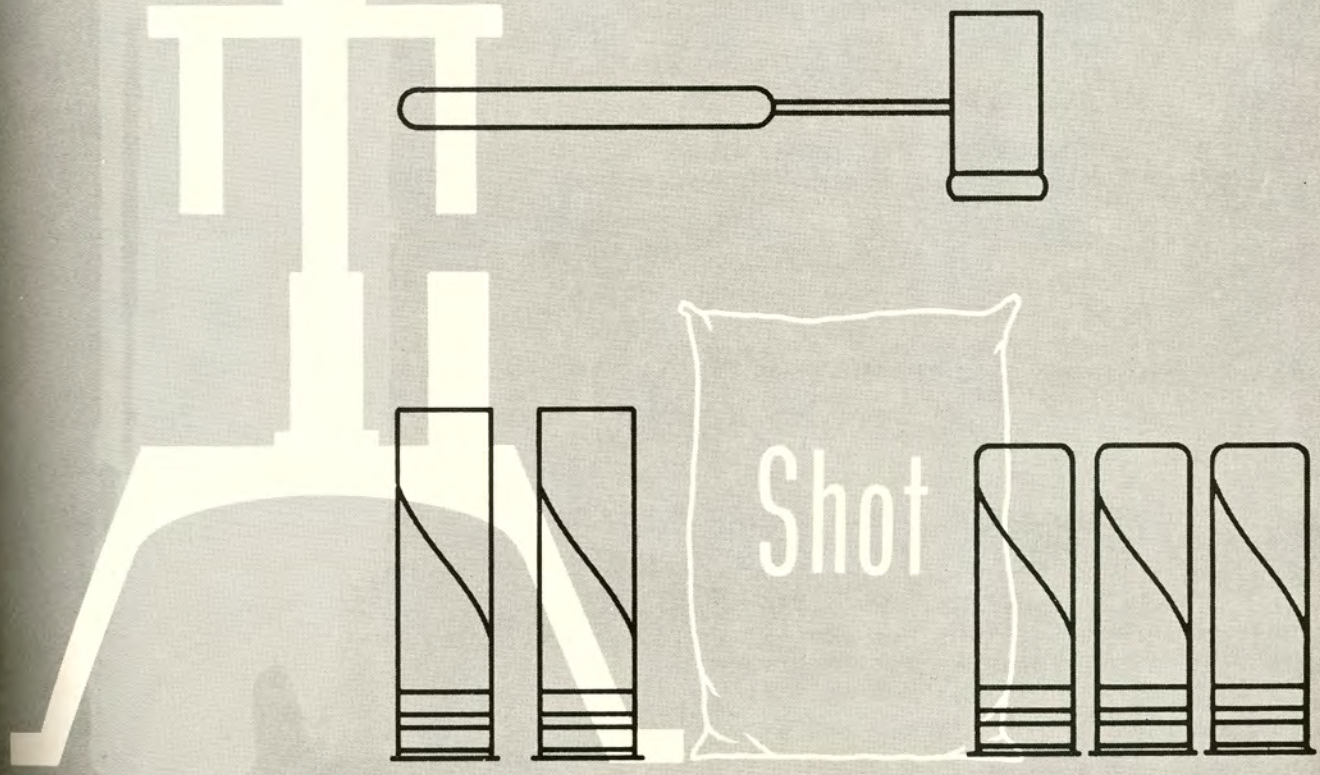
Bullet Energy Table

Multiplying Factors for velocities beyond even 100's — e.g., 550 (500 plus 50) fs = .672

Velocity (100's of foot seconds)	Multiplying Factors	10	20	30	40	50	60	70	80	90
500	.556	.578	.600	.624	.648	.672	.697	.722	.748	.774
600	.800	.827	.854	.882	.910	.939	.968	.998	1.028	1.058
700	1.09	1.12	1.15	1.18	1.21	1.24	1.28	1.31	1.34	1.38
800	1.42	1.45	1.49	1.53	1.56	1.60	1.64	1.68	1.72	1.76
900	1.79	1.83	1.87	1.92	1.96	2.00	2.04	2.08	2.13	2.17
1000	2.22	2.26	2.31	2.35	2.40	2.45	2.49	2.54	2.59	2.63
1100	2.68	2.73	2.78	2.83	2.88	2.93	2.99	3.04	3.09	3.14
1200	3.19	3.25	3.30	3.36	3.41	3.47	3.52	3.58	3.63	3.69
1300	3.75	3.81	3.86	3.92	3.98	4.04	4.10	4.16	4.22	4.29
1400	4.35	4.41	4.47	4.54	4.60	4.66	4.73	4.79	4.86	4.93
1500	5.00	5.06	5.13	5.19	5.26	5.33	5.40	5.47	5.54	5.61
1600	5.68	5.75	5.82	5.90	5.97	6.04	6.12	6.19	6.26	6.34
1700	6.41	6.49	6.57	6.64	6.72	6.80	6.88	6.95	7.03	7.11
1800	7.19	7.27	7.35	7.43	7.51	7.60	7.68	7.76	7.84	7.93
1900	8.01	8.10	8.18	8.27	8.35	8.44	8.53	8.61	8.70	8.79
2000	8.88	8.97	9.06	9.15	9.24	9.33	9.42	9.51	9.60	9.69
2100	9.79	9.89	9.98	10.07	10.17	10.26	10.36	10.45	10.55	10.65
2200	10.74	10.84	10.94	11.04	11.14	11.24	11.34	11.44	11.54	11.64
2300	11.74	11.84	11.95	12.05	12.16	12.26	12.37	12.47	12.58	12.68
2400	12.79	12.90	13.00	13.11	13.22	13.33	13.44	13.55	13.66	13.77
2500	13.88	13.99	14.10	14.21	14.32	14.44	14.55	14.67	14.78	14.89
2600	15.01	15.13	15.24	15.36	15.48	15.59	15.71	15.83	15.95	16.07
2700	16.19	16.31	16.43	16.55	16.67	16.79	16.91	17.04	17.16	17.28
2800	17.41	17.53	17.66	17.78	17.91	18.04	18.16	18.29	18.42	18.55
2900	18.68	18.81	18.93	19.07	19.20	19.33	19.46	19.59	19.72	19.86
3000	20.00	20.13	20.26	20.40	20.53	20.67	20.80	20.93	21.07	21.21
3100	21.35	21.49	21.63	21.77	21.91	22.04	22.18	22.32	22.46	22.60
3200	22.74	22.88	23.03	23.17	23.31	23.45	23.60	23.75	23.90	24.05
3300	24.19	24.34	24.49	24.63	24.78	24.93	25.08	25.22	25.37	25.52
3400	25.67	25.83	25.98	26.13	26.28	26.44	26.59	26.74	26.90	27.05
3500	27.21	27.36	27.52	27.67	27.83	27.99	28.15	28.31	28.47	28.63
3600	28.78	28.94	29.10	29.26	29.42	29.58	29.75	29.91	30.07	30.24
3700	30.40	30.56	30.73	30.90	31.06	31.23	31.40	31.56	31.73	31.90
3800	32.07	32.24	32.41	32.58	32.75	32.92	33.09	33.26	33.45	33.62
3900	33.78	33.95	34.12	34.30	34.48	34.65	34.82	35.00	35.18	35.36
4000	35.53	35.71	35.89	36.07	36.25	36.43	36.61	36.79	36.97	37.15
4100	37.33	37.51	37.70	37.88	38.06	38.25	38.43	38.62	38.80	38.99
4200	39.18	39.36	39.55	39.74	39.92	40.11	40.30	40.49	40.68	40.87
4300	41.06	41.25	41.45	41.64	41.83	42.02	42.22	42.41	42.61	42.80
4400	43.00	43.19	43.39	43.58	43.78	43.98	44.18	44.38	44.58	44.77
4500	44.97	45.17	45.37	45.58	45.78	45.98	46.18	46.38	46.58	46.79
4600	47.01	47.22	47.43	47.64	47.84	48.05	48.26	48.46	48.67	48.88
4700	49.09	49.30	49.51	49.72	49.93	50.14	50.35	50.56	50.77	50.99
4800	51.20	51.41	51.63	51.84	52.05	52.26	52.47	52.69	52.91	53.13
4900	53.34	53.56	53.78	54.00	54.22	54.44	54.66	54.88	55.10	55.32
5000	55.54	55.76	55.98	56.20	56.43	56.65	56.87	57.10	57.33	57.56

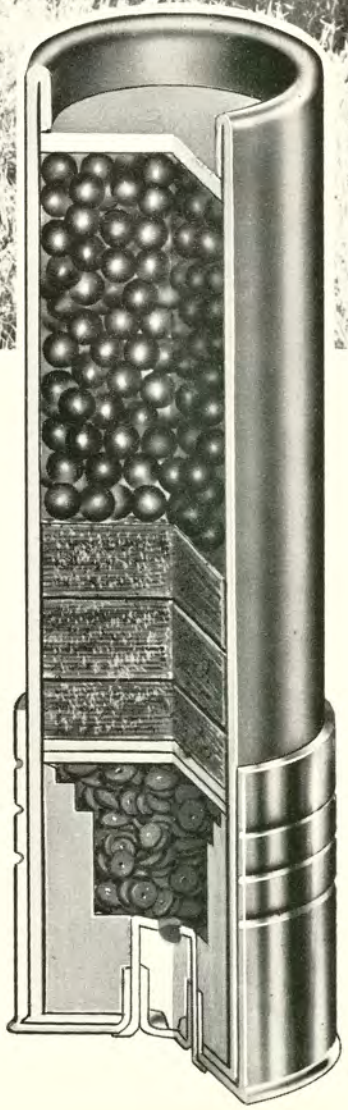
PART I

TOOLS AND ACCESSORIES FOR SHOTSHELLS



SHOTGUN HANDLOADS

The army of shotshell reloaders grows daily—it's easy, simple, and you can save folding money!



by EDMUND WATERS

A LONE PINTAIL DRAKE beat in toward my decoys against a stiff southwester, cupped his wings and began to spiral down behind the seaward dunes. Then a shot flatted out against the gray December sky, from a blind to my right, and he flared. I took him at a full fifty yards for a clean kill, watched as he winged over in a slow roll to drop, breast up, on the red, swamp-stained waters behind the sand dunes at Floras Lake, southwestern Oregon.

That shot was literally in the making for several weeks before I put out my few decoys and hunkered down behind my white, storm weathered driftwood hide. It was a handload carefully matched to the neat little 20-gauge double I carried. It was the end product of methodical testing and experimenting to find just the right combination of powder and shot for this particular gun.

The loading I used that day on those coastal dunes was 260 pellets of number 6 shot. My powder was Alcan's AL8. The ultimate pattern showed an extremely full choked barrel throwing 80% of the load in a 30-inch circle at 40 yards. The modified barrel delivered a uniform 68% pat-

tern – and all this in a gun which, with factory loads, never produced more than 65% in the full choked barrel, and only slightly more than 50% in the modified barrel. But here, with handloads, I was getting 12 gauge performance from a 20 gauge.

But I shouldn't have been surprised. I have seen 12 bores step right up into the Magnum 10 class by careful handloading. Quite often in matching handloaded shells to a particular shotgun, pattern percentages can be improved as much as 10 to 15% over ordinary run-of-the-mill factory loads. And these percentages can be achieved with safety.

Gunners considering handloading usually approach the problem with several questions in mind. The foremost, generally, is the one of economy. What savings can be made by handloading shotshells? How big an investment in tools is required to turn out acceptable shotshells? Are the mechanics of reloading hard to learn?

The Alcan Company of Alton, Illinois, gives this breakdown of cost for a box of 12-gauge shells, using a 3¼-dram, 1¼-ounce hunting load in Western Trap tubes:

25	G209F primers	37.4¢
825	grains AL5	46.6
25	.135″ nitro over-powder wads	3.6
25	⅜″ fiber spacer wads	4.1
31¼	ounces of chilled shot	58.6
	Total	$1.50

This is a saving of about 57% over the retail price of 12-gauge factory loads. You can save up to 70% in reloading for Magnum 10, 5-dram 2-ounce loads, using Western once fired tubes. My 20-gauge loads cost me about $1.00 a box.

Once fired cases, which can often be found around a Skeet or trap field, may be reloaded two, often three times, depending on the make. The best domestic brand for reloading is Western-Winchester; their tubes will stand repeated reloadings. With light, upland loads, I have used them as many as four times with perfect results. The Remington high base, low brass tubes are also excellent, and will stand up under numerous handloads. The Remington low base, high brass cases, however, will take no more than one reloading, their bases tending to separate from the paper after two or three loadings. When this happens the next shell pushes the paper tube remaining in the barrel up into the forcing cone, not a nice complication.

Best, of course, is to start your reloading operation with new cases. These can be obtained from any supplier of reloading components. Those designed for magnum loads will permit four to five reloadings. They cost around $6.00 a hundred for 12 gauge, about $9.00 for the 10-gauge Magnum. Tubes for 16 and 20 gauge cost about $5.00 a hundred. All these prices are for empty, primed cases. Over the life of the tubes they are very inexpensive. Cheaper tubes, about $3.00 a hundred, can be used for lighter loads.

The most economical reloads, however, can be obtained by using brass cases. These can be used almost indefinitely. They are excellent for normal upland and field loads. But, being only 2½ inches in length, they give somewhat more open patterns in guns chambered for 2¾-inch cases. Use brass cases, preferably, with loads requiring small wad pressure, for the reason that brass cases can't be crimped without subtracting from their life – and it's crimping that maintains heavy wad pressure.

Good, practical shotshell reloading tools can be had, with all the dies necessary to reload for one gauge, for less than $30.00. More expensive tools are available, but as in reloading rifle ammunition, the degree of perfection one obtains is more a matter of technique than of tools. A poor craftsman will turn out mediocre ammunition with the most costly tools; a careful, painstaking handloader will work up excellent shotshell reloads with any of the inexpensive tools available.

The small, compact tools such as the Lee and Ward, though not the fastest in the world, will put out good accurate reloads if the operator uses care in their operation. The secret in using these tools is to work for a

The stuff that makes a shotshell — primer, powder, shot, felt and card wads, cases, all by Alcan.

perfect shell every time, taking all the time needed to complete each shell. It may take you all day to load a couple of boxes of shells, but you must remember that you haven't laid out a hundred bucks or so.

The Lyman Vandalia is a very good, relatively inexpensive tool. So is the Herter Model 3 reloading tool. The difference in these tools, when compared with the more expensive reloading presses, is largely one of speed of operation.—ED.

The Acme reloading tool is a very wise choice, if you are going in for a more extensive reloading setup, for this tool loads lots of cases in a hurry, some 150-200 an hour. Another excellent choice is the C-H reloading press.

You need a good accurate powder scale, generally a powder measure as well, for your reloading operations. My setup, which I have found to serve admirably, consists of an electric powder measure manufactured by The Shooters Accessory Supply Company,* and a Pacific powder scale. The electric measure pours the charge directly onto the scale pan to a predetermined amount.

**Now no longer available.*

This enables me to weigh each charge without trouble to one-tenth of a grain. (Some tools, such as the Acme, come with powder and shot measures with fixed-charge cavities for a certain load. With these, you simply change to a different "measure bar" when going to another load.)

There are several of these excellent measures on the market, some quite expensive. The electric powder measure I use, however, carries a modest price tag of less than $15.

How about the mechanics of shotshell handloading? Other than a good grade of common sense, there are no specific requirements. Essentially, it is a matter of keeping your various shotgun powders separate, of knowing the burning characteristics of them, and *loading balanced loads.*

Powders break down into three classifications: ultra progressive such as Alcan's AL8, and AL7; progressive, such as AL5 and Herco; faster burning powders, such as Super M, AL-101, and Red Dot. The progressive powders are used for heavier shot charges and high velocity. The faster burning powders, such as Red Dot and Super M, are for trap loads.

As one drops down in gauge, more progressive powders should be used, even for the light hunting loads. In the 20 bore, using ⅞-ounce of shot, I find AL5 an excellent powder. This same AL5, however, is used in a 10 gauge, behind 1⅝ ounces of shot. Probably the best all-round powder for 12 gauge light field and trap loads is the new Alcan powder AL-101. This powder is a perfect companion for their new primer, number 240. In many ways it is like Super M Ballistite, though you get better, more uniform ignition with AL-101 powder and 240 primers.

Homer Clark, Jr., president of the Alcan Company, once told me that "not over 1% of all the handloaded shotshells sent to their ballistics laboratory for testing were rated as unsatisfactory. Of the loads rated unsatisfactory, a great majority of the trouble was equally divided between: (1) Improper selection of powder-primer combination as compared to the weight of the shot charge used. (2) Using an unsatisfactory wad column." Just a few inexperienced reloaders fail to realize the importance of a proper wad column in shotshells. If the wad column isn't right, you won't get good patterns or velocity in your handloads.

The most critical point in wad seating is pressure. Over-powder wad pressure must complement the type of powder used. Burning characteristics of shotgun powders vary, and so does the pressure needed for proper combustion. This will range from as little as 20 pounds for some of the fast burning powders used in light trap and hunting loads, to as much as 95 pounds pressure for some of the progressive powders.

Improper wad pressure, as well as improperly balanced loads, often are indicated by a loud, sharp, rifle-like report when fired. Such reports in a shotgun indicate that powder is funneling down the barrel, unburned, and is burning in the air at the muzzle of the gun.

Basically, a wad column should contain at least one over-powder wad .125″ thick, and at least one half-inch spacer wad. These are minimum requirements. Better, more uniform results are obtained when at least *two* over-powder wads are used, a .125″ and a .70″ being a good combination. And as the loads permit, at least two felt or fiber spacer wads should be used.

Well made spacer wads, as well as nitro wads, can be bought at a quite modest price. In spite of this, some shotshell handloaders make their own. A breakdown of some of these reloaded shells submitted for testing has turned up everything in the way of wadding from corn meal to newspaper. None of these efforts is conducive to best ballistic performance, as you may well imagine.

A wad column must do five things for best gunning results. (1) It must seal the powder gases away from the shot column. (2) It must lubricate the barrel properly to prevent leading. (3) It must put the right pressure on the powder for proper combustion. (4) It must cushion the shock of the initial explosion to prevent shot distortion. (5) It must space the entire load for proper crimping. These cannot be obtained without the use of proper nitro over-powder wads, and well constructed felt or fiber spacer wads.

Fortunately, only a small fraction of 1% of the loads tested by Alcan were actually dangerous. Shotshell handloads which *are* dangerous come about when some ambitious gunner decides to make a super-super magnum load for his shooting iron. The mistake is rather progressive. First he develops a mere super magnum load. This is usually a fair overload, but modern shotguns being superbly constructed, he gets by with it. His next step gets him in trouble. He adds a bit more powder, a bit more shot and he

Lyman's Vandalia shotshell loader—a complete outfit for only $34.50.

has a "blue pill" indeed. But, again fortunately, he has enough doubt in his mind about his effort to send in a few for testing, and they are caught before they do any harm.

Shotshell reloaders must remember that there is no absolutely sure way of detecting dangerous pressures in a shotgun except in a ballistic laboratory equipped to take both pressures and velocities.

Don't forget this, despite some of the homespun specialists who look knowingly at a shotshell primer and decide what pressures they're getting. Expansion of a shotshell primer shows nothing, even under a magnifying glass, which lends itself to a correct interpretation of pressures. Indeed a barrel could conceivably be blown up without excessive breech pressures.

Just about any shotgun *breech,* from the old Damascus types on up through all those mild steels formerly used, will stand any normal modern shotshell load — if the *barrels* would hold. They are first to give way when using modern progressive powders. The blowup usually comes about a foot or so in front of the breech. What causes this type of bursting is the *sustained pressure curve* of modern progressive powders. Pressures are carried farther toward the muzzle, and the gun is under pressure for a longer time. That means heavier barrels for modern loads. Examine a Model 12 Winchester 12 gauge designed for 3-inch Magnum loads and you'll find the same breech action that is used on the regular 12 gauge, Model 12, 2¾-inch chambered gun. The only difference is in the heavier barrel of the Magnum 12.

There is a terrific safety margin built into all domestic shotguns, and most of the present day imports. With reasonable, common sense care, handloading for a shotgun is absolutely safe. Shotguns, however, do fall into certain classifications — light field-guns for upland gunning or snipe shooting, long range heavy wildfowl guns designed for maximum loads, others in between. No amount of handloading can alter these facts. You cannot safely stuff a *super-super* magnum load into a shell designed for those ultra light, five-pound upland doubles, nor should you try. It is much more important to try for a successful matching of gun and load for the type of shooting you do.

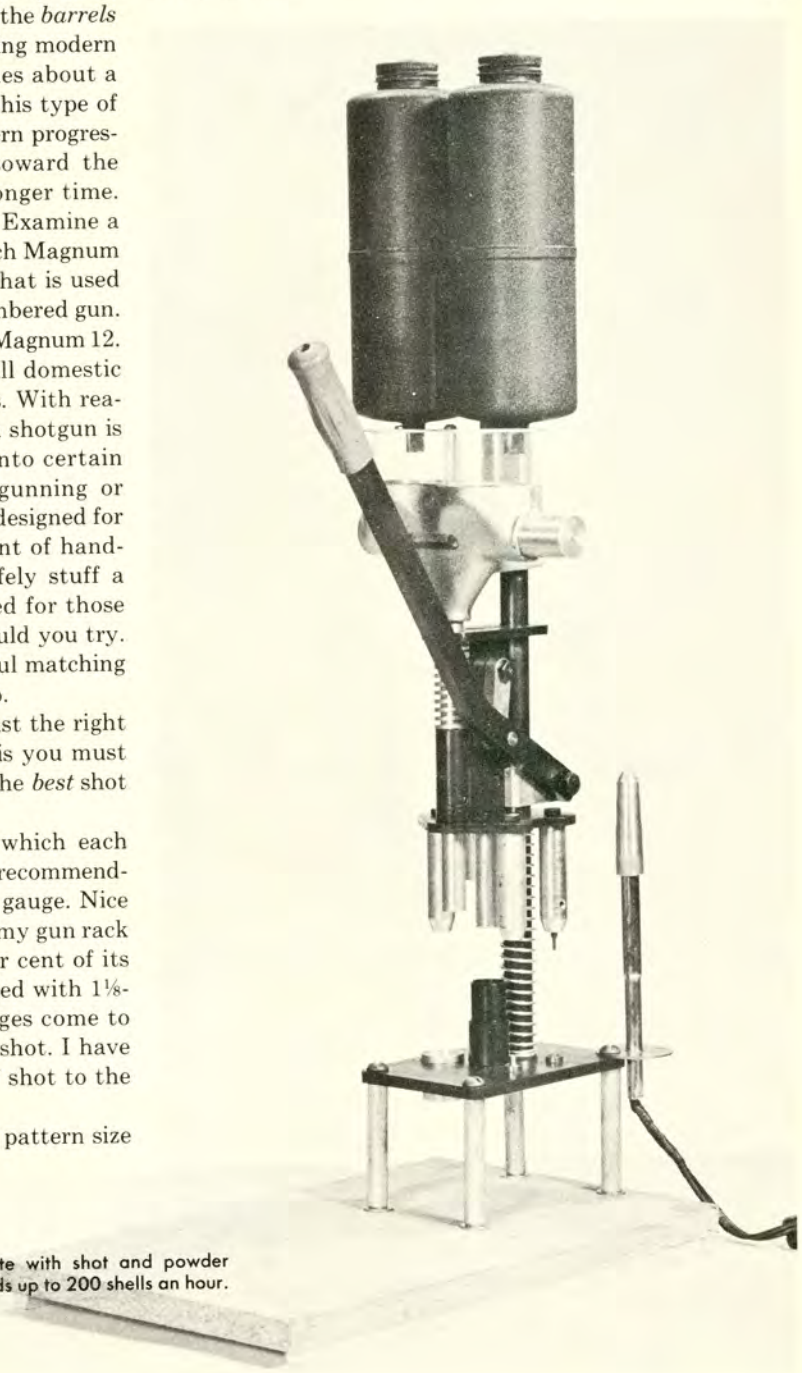
This entails careful search and testing for just the right size shot for your particular gun. In doing this you must get away from any preconceived notion about the *best* shot for any specific game bird.

Recently I read a very learned article in which each gauge had its assigned shot size. This authority recommended nothing larger than number 7 shot for a 20 gauge. Nice informative article but — I have one 20 bore in my gun rack which will, with careful handloads, put 85 per cent of its shot in a 30-inch circle at 40 yards, when loaded with 1⅛-ounces of number 5 shot. I have seen 16 gauges come to their best pattern with an ounce of number 6 shot. I have patterned 12 gauges which handled number 7 shot to the exclusion of all other sizes.

The point is, if you have a 12 which doesn't pattern size 4 shot properly, try number 5. If you find number 5 shaping up on the pattern board, try different recommended handloads. Perhaps you have geese in mind. A close pattern of number 5 shot, nipping around 80%, is a better goose load than an erratic pattern of either 4s or 2s! This is the gist of your handloading — finding just the right combinations for your gunning.

You want long range, close shooting loads for your wildfowling. You also want light loads for your upland shooting. If you are a one gun man, as many handloaders are, it is entirely possible to find both these requirements filled by proper handloads.

You get about what you put into your reloading effort. Careful attention to detail will give you loads fitted to your individual gun no factory shell can duplicate. You shouldn't settle for less.



Acme Model 200 DC Shotshell Loading Tool. Complete with shot and powder chambers, plus a built-on case mouth ironer, the Acme loads up to 200 shells an hour.

Notes on Shotshell Presses

In the selection of a shotshell press the handloader may choose a tool that will produce handloads at rates from 10-20 per hour to 500 or more per hour, that range in price from $10 to $300 and more. He can make adequate hunting loads, special brush loads or match grade target loads.

The simplest of shotshell tools — those by Lee and Ward — offer the occasional shotgun shooter the opportunity to reload his cases with little outlay of cash. It takes a bit more time and effort with these tools as compared to the skeet or trap shooter using the latest progressive tool, and the finished shells may not have the fine look of a commercially loaded shell, but his loads will do the job that he wants done.

The careful operator of a modern progressive tool can be assured of reloads second to none. His shells will be consistent performers at the traps or in the field, will have the clean crimp and smooth body of commercial loads; best of all, he'll have made them with little more than the up and down stroke of the operating handle of his tool.

Between these two extremes are the many single station presses originally designed for reloading metallic cartridges, which will take shotshell dies and do a relatively slow, but entirely adequate job of reloading paper cases. Then there are the multi-station tools that range in efficiency — as well as price — from those using dippers for shot and powder measuring to the near-progressive types which charge the cases from shot and powder hoppers with a flick of the charge bar. These charge bars can be obtained in a wide variety of shot and powder combinations.

Select a press in the price bracket you can afford that has features that you want. Don't expect a lower price press to do things beyond its capabilities, and don't buy a $300 automatic loader unless you want to reload hundreds of shells. In the majority of the presses, the quality of the finished shell is inherent in the press, and is only varied by the competence of the operator.

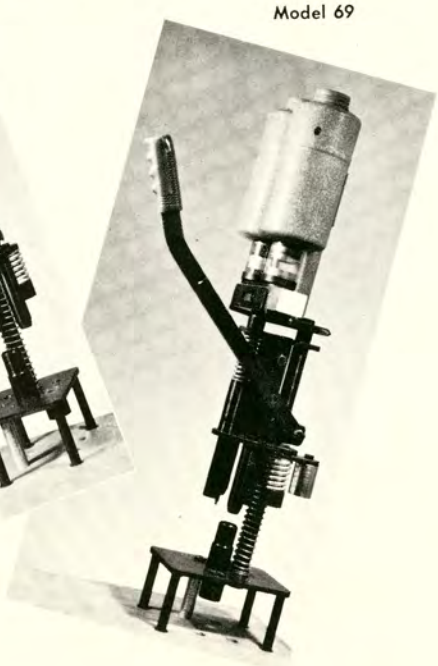
Acme Industries, Inc.

Model Ace

Model 59

$79.95 MODEL ACE — The most complete loader in the world at any price. Features electric shell former and bushings for 250 different loads.

Model 29



Model 69

$59.95

MODEL 59 — A substantial basic loader for battery cup primers only. Includes powder and shot measure and bushings for 25 different loads. Will load 150 shells per hour.

MODEL 69 — Same basic loader as Model 59 but with the added feature of loading caps as well as battery cup primers. Includes bushings for 100 loads.

$69.95

MODELS ACE, 69 and 59 — To load a different gauge, these conversion units are used. Merely remove the hoppers from one or the other of the above models and place on the conversion units, which are complete presses with dies, wad pressure spring, etc.

MODEL 39 Conversion Unit. For battery cups and caps. **$39.95**

MODEL 29 Conversion Unit. For battery cup primers only. **$29.95**

Shellmaster

Complete for one gauge (12, 16, 20 or 28 only) **$75.00**

Dies, plus metering bars, for another gauge **$24.00**

New! Universal Meter Bar holds interchangeable sleeves — makes shotshell loading more economical, faster and easier.

C-H Universal Bar	$2.00
C-H Powder or Shot Sleeves	1.00

A sturdy, simple and easy-to-operate press that uses separate, large capacity powder and shot measures, a feature that precludes the spilling or mixing of powder or shot when setting up some tools with combination powder-shot charge bars. For the same reason, users of the Shellmaster may, optionally, run their cases progressively through the 7 reloading steps or decap, reprime, size, etc., in batches.

Each operation on the Shellmaster ends with a positive stop — primers are uniformly seated, wad pressure is always the same, and the crimp on each case is identical.

The Handloader's PARADISE

C. R. SPECIALTY CO., INC.
ARMS · AMMUNITION · ACCESSORIES

C.R. Jr. Shotshell Loader

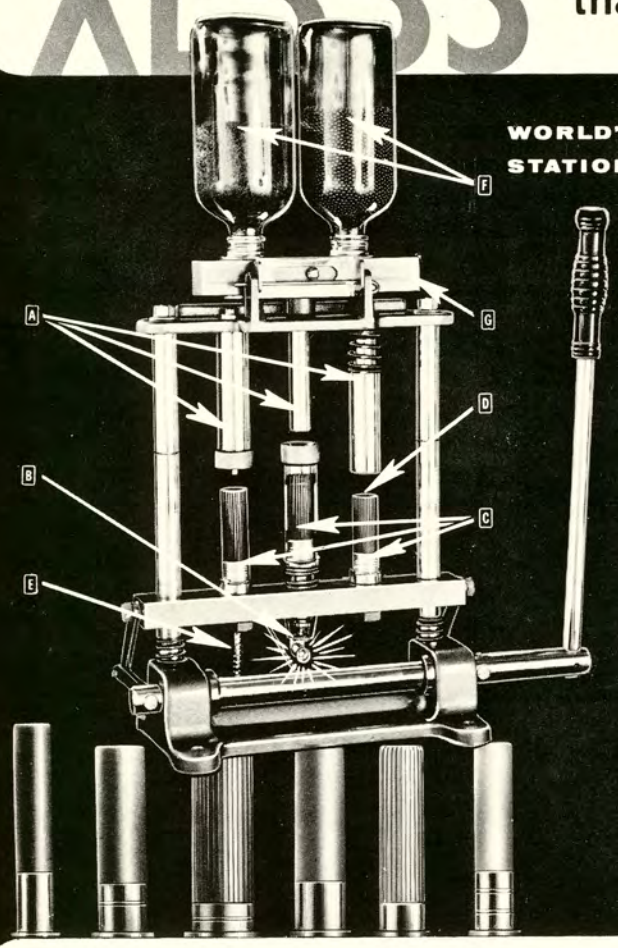
$63.75 Complete

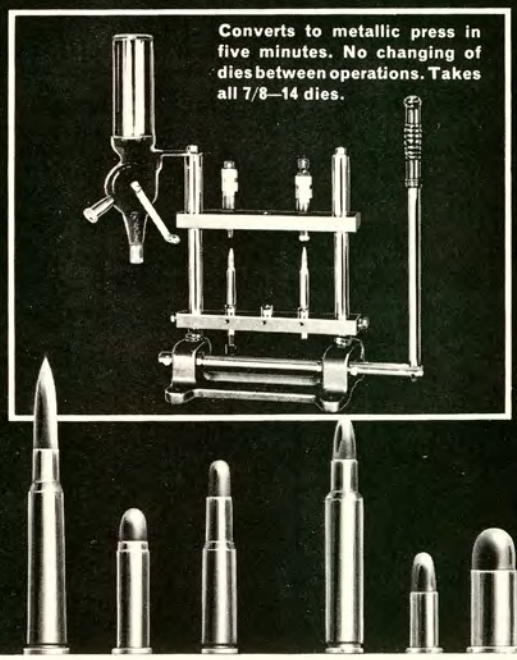
Relatively low-priced, this tool loads 100-150 shells an hour, features calibrated, improved wad guide; enlarged powder and shot capacity (fixed charge bars not used); star or roll crimp and radiused mouths for assured feeding in autos or pumps. A year's guarantee against defective material or workmanship is included. Available in 12 (2¾″ or 3″), 16 or 20 (2¾″ or 3″).

XL-333

the ONE loading press that does everything better

WORLD'S MOST VERSATILE THREE-STATION LOADER! THE XL-333 IS GUARANTEED TO MAKE PERFECT SHELLS FASTER, SAFER, EASIER!





Converts to metallic press in five minutes. No changing of dies between operations. Takes all 7/8—14 dies.

ONLY THE XL-333 HANDLOADER HAS ALL THESE WANTED FEATURES

A **Three easy steps to perfect shells**
1. Deprime—size case—reprime
2. Drop powder—seat wads—drop shot
3. Crimp, size case

B **Exclusive electrical wad pressure indicator** assures uniform pressure everytime.

C **Safety features at all three stages** make the XL-333 the safest press you can use.

D **One stroke adjustable crimp** reshapes and resizes shell to fit all guns.

E **Automatic primer catcher** picks up used primers.

F **Swing down front loading** makes easiest loading of all presses.

G **Simple, smooth, shot dispenser** with special no-jam feature.

The secret of the XL-333's simplicity, speed of operation, and perfect performance is in the masterful engineering of the powerful "H" frame design plus precision machining to the closest tolerances. The XL-333 is beautifully finished from its polished steel moving parts to its super-strong anodized, solid aluminum base. Ordinary care assures a lifetime of trouble-free service. Available in either 12-16-20 ga.

XL-333 Price complete	$90.00 retail
Model H—with automatic heat sizer built in first stage	$99.00 retail
Extra set of dies	$26.00 retail
8-point clip-on Star Crimp—for plastic or paper hulls	$ 4.00 retail

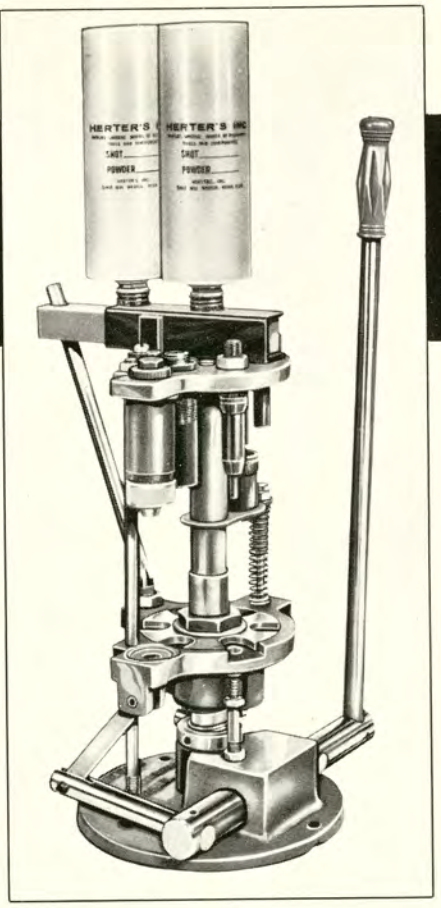
Metallic conversion kit—eight pieces. Does not include powder measure, dies or primer holder.

$18.00 retail

EXCEL, INC. 9375 Chestnut St., Franklin Park, Illinois

HERTER'S

Pro Model 390 Shotshell Loader

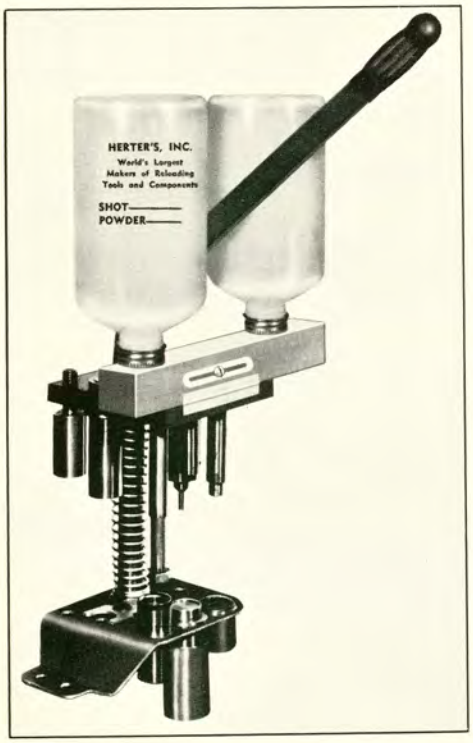


$77.00

A heavy (55-lb.) semi-automatic and progressive tool, except for primer and wad handling, this tool is made of cast iron and steel — no light alloys are used. Powder and shot are loaded automatically (up to 500 or more shells an hour can be completed), reconditions and loads cases with excess headspace or cases in poor condition. Takes standard wads, both sizes of primers and is available for any standard 12 gauge load, paper or plastic. Made in 12 gauge only.

Model 390, extra charge bars $2.95

Model 390, 115 volt crimper for Herter's brass and plastic cases $6.95



Pro Model 900 Shotshell Loader

$41.95

A bench top tool featuring large volume tip-off hoppers, sliding powder-shot charge bars, automatic wad-pressure positive stops and a radiused crimp for reliable loading in pumps or autos. This 6-station tool handles 2¾" or 3" cases in 12 or 20 gauge without extra parts, and the upper frame is a heavy casting. Available in 12, 16 or 20 gauge.

M900, conversion kits for another gauge	$8.95
M900, conversion kits, battery cups to primers (state gauge)	$3.79
M900, extra charge bars	$1.79
M900, 115 volt crimp head for Herter plastic cases	$4.93

HERTER'S Super Speed Model 403 Shotshell Loader

Model 403, extra charge bars $1.79
Model 403, conversion kits for another gauge $9.95
Model 403, conversion kits, battery cup to primer (state gauge) $3.79

$29.00

Our lowest cost press, yet one that produces a perfect shell in four lever strokes. Tip-off plastic powder and shot hoppers are guaranteed not to affect powder stored in them, while a one-stroke tapered crimp and automatic wad guide feed are other features. Available 12 or 20 (2¾" or 3") or 16 gauge.

HERTER'S Pro Model 72 Shotshell Loader

$44.95

As above, but with tip-off plastic hoppers $46.90

As above, but without measures $34.95

A massive, 29-lb. tool capable of loading upwards of 200 shells per hour. Powder and shot are thrown from a rotary cylinder measure, fully adjustable for maximum loads; the hoppers have double baffles, thus insuring uniform charges. A micro-accurate pressure gauge controls wad force, while a micro-disc permits adjusting the shot measure for the shot size in use, an exclusive feature.

The Model 72 mounts on the front of the bench, bringing the work level to bench height. The crimp die forms a positive radius for easy feeding in pump and auto. Available in 12 (2¾" or 3"), 16 or 20 (2¾" or 3") gauge.

HERTER'S Model 73 Shotshell Loader (not illus.)

Identical to Herter's Model 72 except not as heavy construction or as large. Same gauge choices.

$36.95

As at left, but with tip-off plastic hoppers $38.90
As at left, but without measures $24.95
M72 or M73, conversion kits, for another gauge ..... $ 9.75
M72 or M73, conversion kits, battery caps to primer (state gauge) ..... $ 3.79

HOLLYWOOD

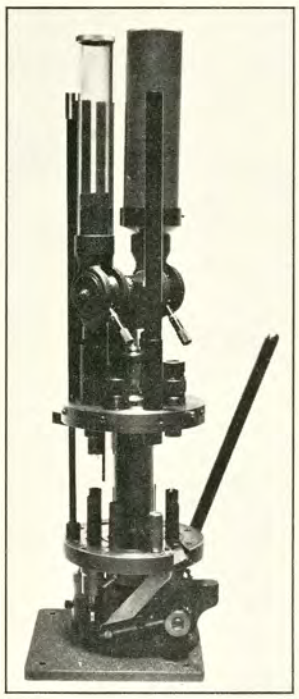
Senior Turret Shotshell Loader

$187.50

Complete as shown for one gauge

Tool stripped	$87.50
Hollywood Shotshell die set	$50.00
Changeover dies for another gauge	$37.50

Loads 200 shotshells or more per hour, and is rugged enough for metallic reloading, including full-length resizing and bullet swaging in any caliber. Turret head has 8 positions available tapped for 1½" die sets or combination of 1½" and ⅞" for both metallic and shotshell dies. Included are New Hollywood Powder and Shot Measures, New Hollywood Shotshell Die Set, Shell Holder, etc.



HOLLYWOOD Automatic Shotshell Loader

$575.00

Complete as shown for one gauge

(Shipping weight 140 lbs. FOB Hollywood, Calif.)

Here is a production turret reloading tool of speed, accuracy and durability, combining the perfection of material, design and workmanship so greatly desired by shotshell reloaders.

Reloads 1800 shells an hour in a progressive rotating system. Picks up its own shell automatically, then continues all succeeding operations: decapping, priming, powder charging, shell processing, wadding to exact, pre-set pressures, shot charging, start and finish of crimp, finally ejects the perfectly reloaded shell; all this with each smooth up-and-down stroke of the operating handle.

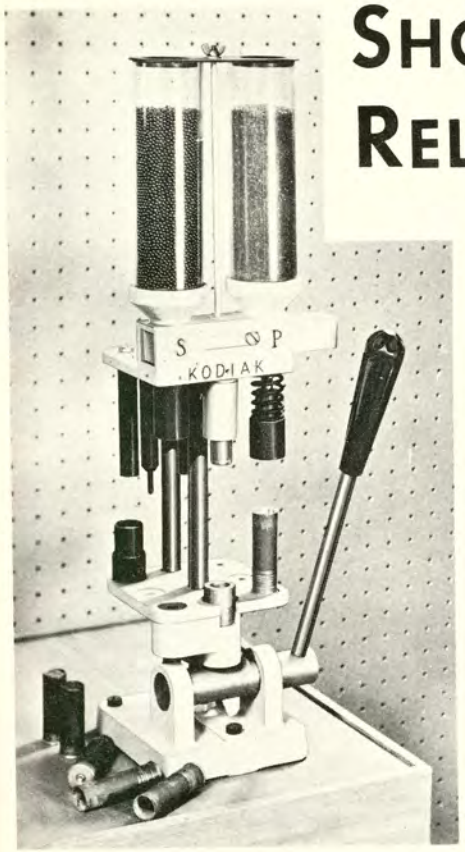
Numerous controls built into this precision reloader prevent malfunctions, but any occurring are easily cleared. Adjustment, when required, is simple.

Comes complete with new Hollywood Dies, new fully adjustable Hollywood Powder and Shot measures with ample capacities for the largest shotshells. No charge bars, and their extra cost, are required.

The Hollywood Automatic Shotshell Reloader will produce shotshells in quantity fully comparable in quality to those made on our hand-operated shotshell tools.

KODIAK

SHOTSHELL RELOADER



$59.95

LACHMILLER Super Jet

$57.50

AVAILABLE IN 12, 16 AND 20 GAUGE WITH

- **Universal Measure Bar of Light and Heavy Loads**
- **Primer Cap and Battery Cup Tools**

- Two open stations for optional accessories.
- Measure bar slides to either side to permit easy removal of powder and shot.
- Single stage crimper with depth adjustment to positive stop.
- Wad pressure indicator with adjustable stop to insure uniform wad pressure.
- Wad guide sleeve fingers are interchangeable with other makes.
- All loading operations are completed in the sizing die.
- Conversion units for different gauges can be interchanged quickly.
- Base plate is drilled to facilitate mounting and attachment of optional accessories.

An economical, fast, easy-to-use press that comes to you complete, ready to load. 7 boxes of uniform, accurate reloads per hour. Adjustable wad pressure, positive wad seating and perfect crimping and sizing combine to make your shotshell reloads accurate and dependable. Extra long shot and powder hoppers available for $2.50 the pair. Conversion for use with Cascade 209B caps available for $6.00. Extra die sets: 12, 16 & 20 ga. (price includes powder and shot drums) $22.50; 10 ga., 2⅞" and Mag.; 28 ga. and 410 ga., 2½ or 3", $27.00. Parts for changing from 2¾" 12 ga. to 3" 12 ga., $13.00; from 2½" 410 ga. to 3" 410 ga., $18.00.

WARRANTY ***"SATISFACTION GUARANTEED OR YOUR MONEY BACK"***

LEE LOADER

FOR SHOTGUN SHELLS

COMPLETE ONLY

$9.95

12, 16 or 20 Gauge

DESIGNED FOR THE SKEET SHOOTER ... PRICED FOR THE HUNTER!

ONLY THE LEE LOADER HAS THE TRIPLE ACTION CHAMBER

This is the secret of the LEE LOADER'S LOW COST. This all steel tool resizes wads, and crimps the shell in one smooth continuous operation. This new concept in design (pat. pend.) makes it possible to manufacture a quality reloading tool at such a low price.

GUARANTEE

The LEE LOADER is unconditionally guaranteed not to wear out or break in any way through normal use. If any part should fail, simply return it to LEE CUSTOM ENGINEERING and it will be replaced AT NO COST!

QUALITY CONSTRUCTION

American-made of steel and aluminum, turned from solid stock, centerless ground, and chrome plated.

SIX EASY STEPS TO THE PERFECT RELOAD!

DECAPPING

PRIMING

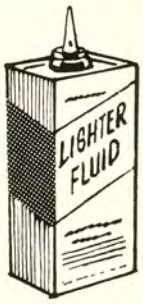
WADDING

ADDING SHOT

CRIMPING

EJECT SHELL

HOW SAFE IS RELOADING?



Reloading your own shells is safer than filling your cigarette lighter!

PROVE IT YOURSELF! Cut a shotgun shell apart. Take a small pinch of powder and place it on a non-flammable surface. Light a match to it! . . . . . **IT WON'T EXPLODE** . . . it only burns. As a further test for safety, place a small pinch of powder on a rock or concrete surface. Now hit it with a hammer! **IT STILL WON'T EXPLODE!**

To be effective, gun powder must be confined and ignited with a primer.

CHARGE TABLE FOR USE WITH THE LEE LOADER

GAUGE	DRAMS EQUIVALENT VELOCITY	OUNCES SHOT	AMT. GRS.	POWDER KIND	MARKING ON POWDER MEASURE	SHOT MEASURE SETTING	WAD PRESSURE POUNDS
12	2¾	1⅛	VOL.	BLACK or BULK	USE SHOT MEASURE SMALL*	SMALL	40
	3	1⅛	23	RED DOT	HERCULES RED DOT 12 GA.	SMALL	80
	3¾	1⅛	34	ALCAN #5	HERCULES RED DOT 12 GA.	SMALL	90
	3	1¼	VOL.	BLACK or BULK	USE SHOT MEASURE LARGE*	LARGE	40
	3¾	1¼	34	ALCAN #5	HERCULES RED DOT 12 GA.	LARGE	90
16	2½	1	18	RED DOT	HERCULES RED DOT 16 GA.	SMALL	80
	2½	1	VOL.	BLACK or BULK	USE SHOT MEASURE SMALL*	SMALL	40
	2¾	1	26	ALCAN #5	HERCULES RED DOT 16 GA.	SMALL	90
	2¾	1⅛	26	ALCAN #7	HERCULES RED DOT 16 GA.	LARGE	90
	2¾	1⅛	VOL.	BLACK or BULK	USE SHOT MEASURE LARGE*	LARGE	40
20	2½	⅞	16	RED DOT	HERCULES RED DOT 20 GA.	SMALL	80
	2¼	⅞	VOL.	BLACK or BULK	USE SHOT MEASURE SMALL*	SMALL	40
	2¼	⅞	24	ALCAN #5	HERCULES RED DOT 20 GA.	SMALL	90
	2½	1	24	ALCAN #7	HERCULES RED DOT 20 GA.	LARGE	90
	2½	1	VOL.	BLACK or BULK	USE SHOT MEASURE LARGE*	LARGE	40

FAST, ECONOMICAL, PORTABLE Reloading time for a box of 25 shells is approximately 17 minutes. With low initial cost the LEE LOADER pays for itself with your first 5 boxes of shells. There is nothing to bolt down, plug in or adjust. It is easy to take on hunting trips, and it stores anywhere.

TRAP OR HUNTING LOADS Your LEE LOADER reloads high or low brass shells, light, medium or heavy loads. With the measures provided there are 5 different load combinations.

THE LEE LOADER RELOADS SHELLS FASTER AND BETTER THAN TOOLS SELLING FOR 3 TIMES THE PRICE!

These tools are accurately machined of steel and aluminum, and with normal care should last a lifetime. Shot and powder measures are marked for gauge and type of powder. All parts are centerless ground and carefully inspected.

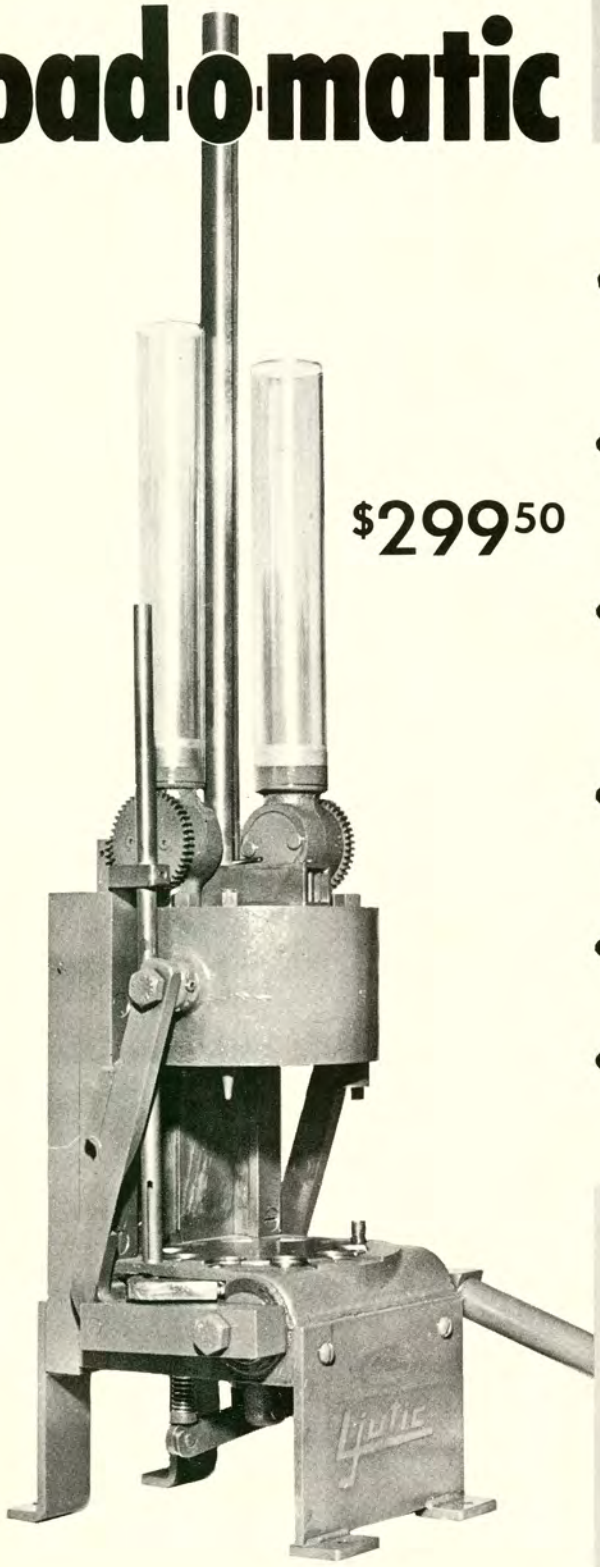
THE LEE LOADER produces finished shells that are extremely uniform, with a neat crimp, and resized to work in all guns, including auto loaders, and throw a good pattern.

Lee Custom Engineering 6026 N. Apple Blossom Lane (N. 6th St.)
Milwaukee 17, Wisconsin

Lyutic
INDUSTRIES, INC.

Load-o-matic

the ONLY reloader with ALL THE EXTRAS



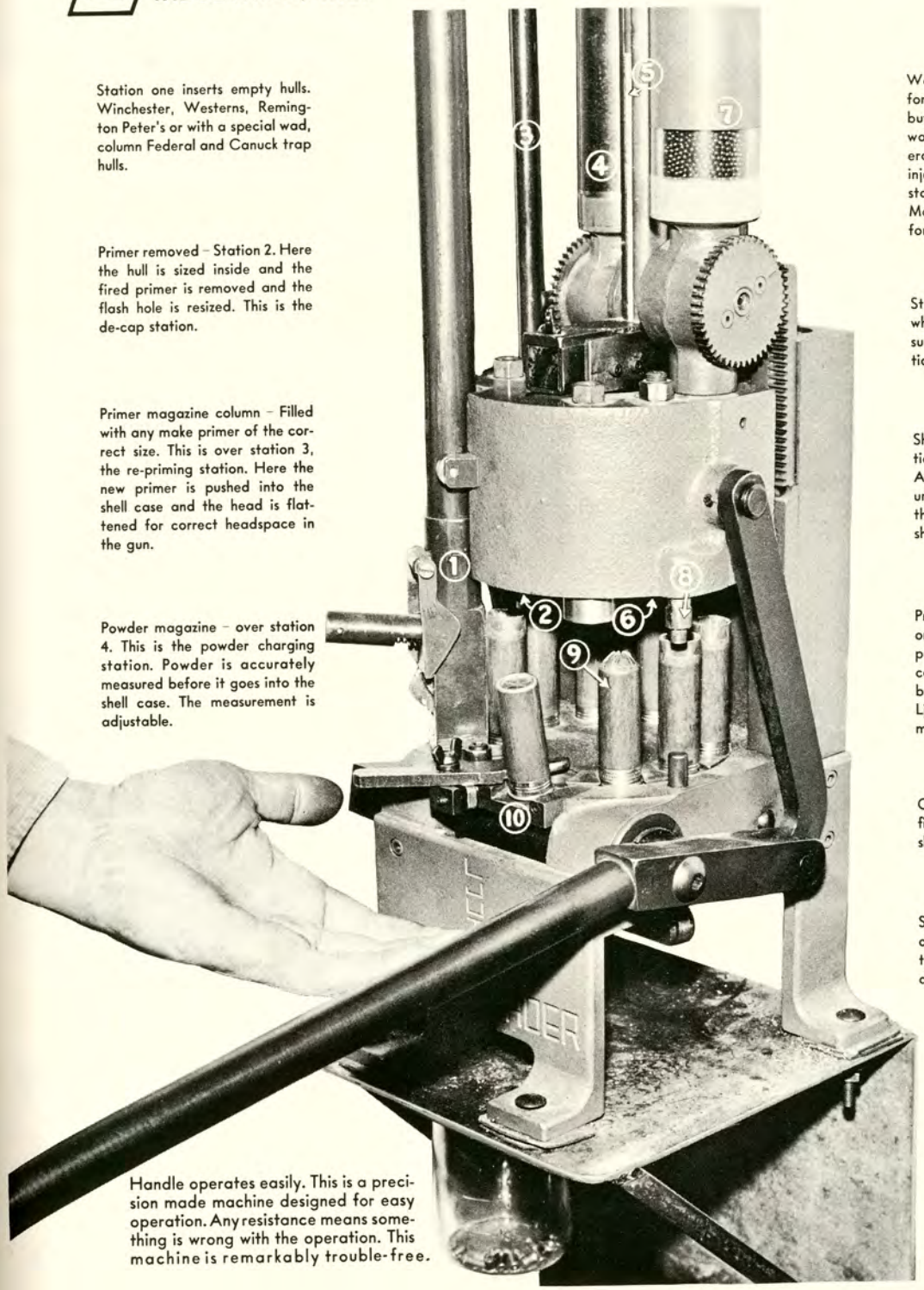
$299.50

- Right-Angle Dog-leg link arm executes link leverage that closes to a stop for past center of arch for greatest possible ease in compounding leverage for ease of operation for the woman reloader.
- Headspace bolt flattens bulged caseheads for perfect controlled headspace, as new primer is inserted for a perfect, like new, primer seal.
- Primer feed is a one piece revolutionary design that requires no flimsy interceptors, cams or fingers, to foul or break. Primers of all makes can be used interchangeably.
- Main back construction of solid steel, 1" thick, 6" wide, and 11" long. Massive construction and will withstand work to no end. Weight of machine complete, 85 lbs.
- Adjustable shot measure, powder measure, and wad columns available for all loads at additional cost.
- Special hoppers and large quantity magazines available, prices upon request.

20 Gauge Available SOON

Ljutic INDUSTRIES, INC.

Auto-loader



Station one inserts empty hulls. Winchester, Westerns, Remington Peter's or with a special wad, column Federal and Canuck trap hulls.

Primer removed – Station 2. Here the hull is sized inside and the fired primer is removed and the flash hole is resized. This is the de-cap station.

Primer magazine column – Filled with any make primer of the correct size. This is over station 3, the re-priming station. Here the new primer is pushed into the shell case and the head is flattened for correct headspace in the gun.

Powder magazine – over station 4. This is the powder charging station. Powder is accurately measured before it goes into the shell case. The measurement is adjustable.

Handle operates easily. This is a precision made machine designed for easy operation. Any resistance means something is wrong with the operation. This machine is remarkably trouble-free.

Wad magazine column. Designed for Ljutic Mono-Wads in mind but any wad can be used. Special wad column is necessary for Federal shells. Station 5 is the wad injection station where the wad starts into the case. (With Ljutic Mono-Wads you use less powder for same muzzle velocity).

Station 6 is wad pressure station which puts proper weight pressure on wad for proper combustion chamber in shell case.

Shot magazine column over Station 7, the shot charging station. Accurately and correctly measured shot charge is dumped into the shell case here. (Adjustable shot measure is extra).

Pre-crimp station – station 8 – only used shell casings can be pre-crimped. If you use new shell casings you must pre-crimp them before putting them into the Ljutic Auto-loader or Load-o-matic.

Crimp Station – Station 9 puts final crimp on shell and here the shell is finished.

Station 10 – Hold out your hand or get a box, for here is where the finished re-loaded shell is delivered to you.

$350

12 gauge only

The Ljutic Auto-Loader will load a box of shells in 38 seconds after the magazines are filled. All stations are adjustable. The more familiar one becomes with Ljutic loading machines the more he sees the fineness and precision of the mechanism. This machine has a six months warranty for parts and workmanship. There is no finer piece of machinery made anywhere in the world today. Ask your dealer or write to Ljutic Industries, Inc., Sutcliffe Star Route, Reno, Nevada. Phone Elgin 5-8102.

Lyman Reloading Equipment (Shotshell)

SHOTSHELL RELOADING pays for itself in a single season of hunting, trap or skeet shooting! By reloading your own shotshells, cost per round is cut in half — and you gain the added benefit of super-accuracy from custom loads, the added enjoyment of a new hobby! You save money, you tailor your ammunition to your kind of shooting, and you become an expert on shotguns and shotgun ammunition. And you can rely on the results: perfect shells, uniform in appearance, performance and predictable accuracy.

1 **Reloading with Comet, and Turret Press** 1-A shows how versatile Lyman reloading equipment can be. These fine presses perform all the simple steps in shotshell reloading: resizing, decapping and priming, powder-wad-and shotloading, and crimping.

2 **The precision dies** which enable the Comet or Turret press to double in brass for shotshells are shown in the color band atop the illustration at left. These complete die sets may be obtained for 12, 16, or 20 gauge— 2. A, wad rammer and pressure gauge assembly 2. B, wad chamber 2. C, crimping chamber 2. D, crimping plug 2. E, full-length resizing die and decapping rod 2. F. priming punch 2. G, shell holder 2. H, shot measure Die Set Price: $24.50.

3 **Shotgun Slug-Swaging Die Set** is another example of the built-in versatility of Lyman reloading equipment. The powerful leverage of the Turret Press is used to turn out rifle slugs in 12, 16, or 20 gauge. A hollow-base slug mould first casts the slugs — then they are placed on the male slug die attached to press, and the Swaging Die complete with knock-out rod is pressed down to size and rifle the slug in one step. Price: $21.75 (parts to convert to another gauge) $15.50.

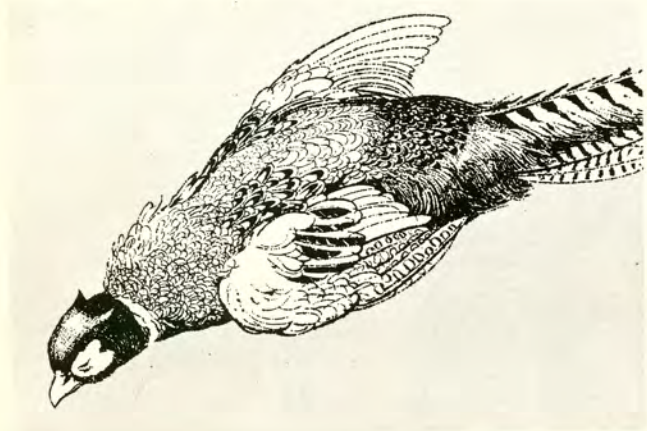
4 **Rotary Cutter** cuts perfect wads from inexpensive composition board or other suitable material — fits any drill press. Price $7.50. 12 - 16 - 20 Ga.

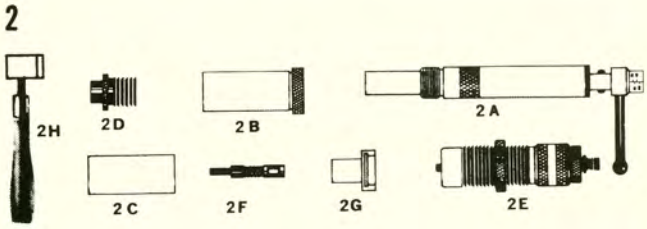
5 **Wad Cutter:** convenient hand-die for shooters desiring to form their own shotshell wads. Price: $3.50. 10 - 12 - 16 - 20 - .410 Ga. Price: $3.50.

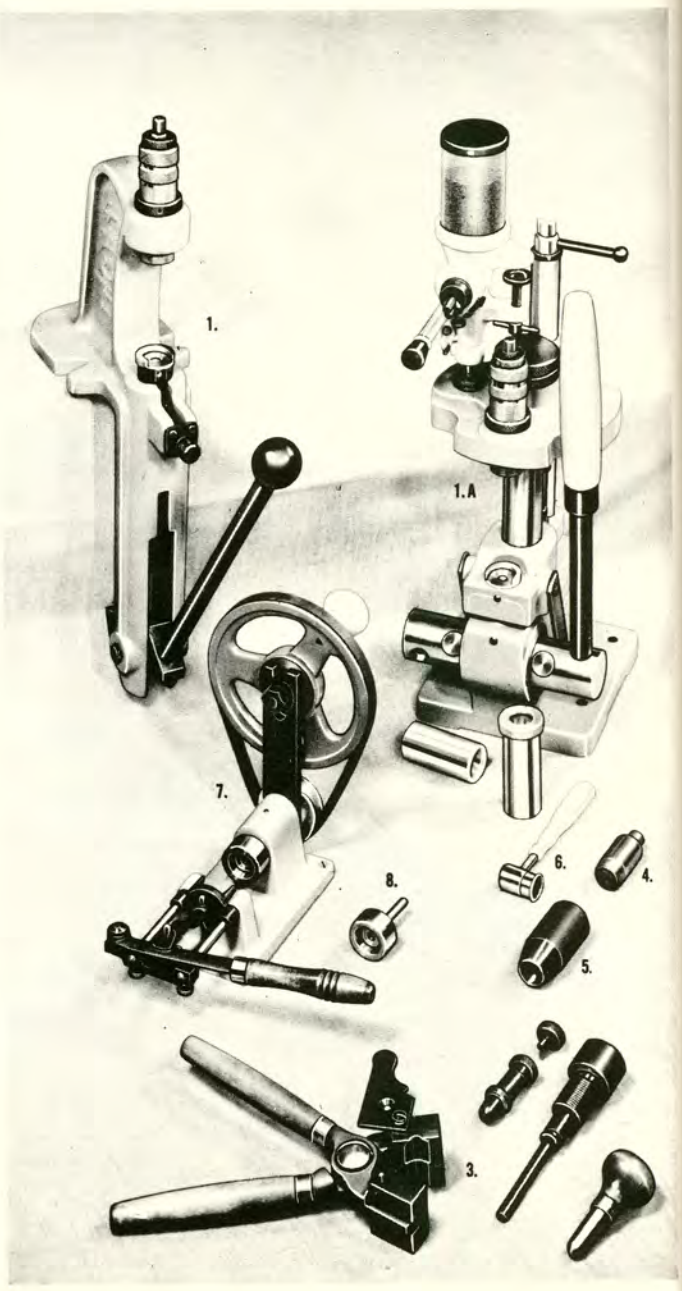
6 **Adjustable Powder** and **Shot Dipper** measures bulk smokeless or black powder in drams, as well as lead and copperized shot — in ounces. Price: $2.00.

7 **Star Crimper** turns a perfect "Old Style" round crimp. Can be hand-operated or power-driven. 10 - 12 - 16 - 20 - 28 - .410 plus spec. slug crimper - 12 - 16 - 20 Ga. Price: $16.50.

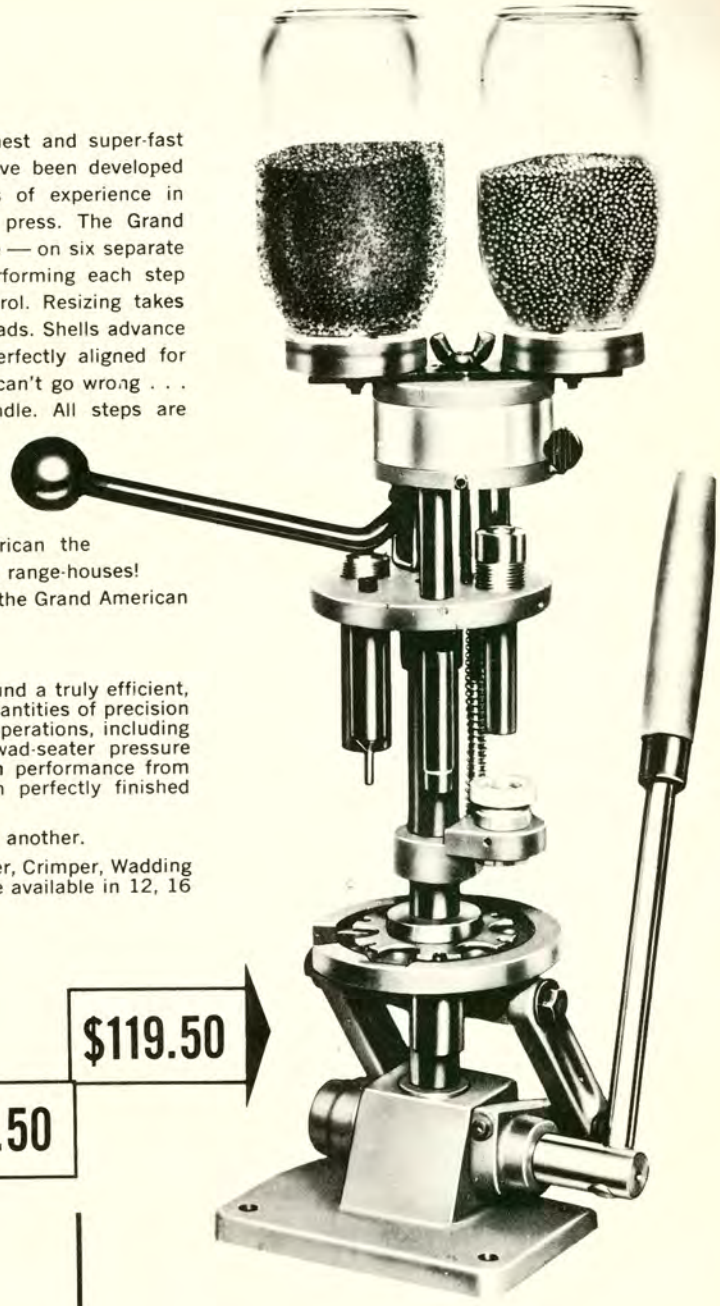
8 **Roll Crimper Head** with drill press adapter. For roll crimping shotshells; mounts in any drill press. Specify 10 - 12 - 16 - 20 - .410 and 12 gauge for rifle slug. Price: $3.50.







PROGRESSIVE SHOTSHELL RELOADING PRESS first, finest and super-fast for shotshell reloading. This precision machine could only have been developed by Lyman — no other company could call on the decades of experience in shotshell reloading which have brought about this superb press. The Grand American Shotshell Reloading Press performs six steps at once — on six separate shotshells. The index table lifts shells to dies on turret, performing each step against positive stops to assure accuracy and pressure control. Resizing takes place on last operational step, delivering crisp, factory-like reloads. Shells advance through all progressive steps with click-stopped precision, perfectly aligned for each operation. Reloading sequences fixed and positive. You can't go wrong . . . all operations performed with one stroke of operating handle. All steps are simultaneous — wad pressures are regulated by built-in gauge. Your Grand American comes to you complete with all tools, dies, powder and shot hoppers in 12 gauge only. Even beginners learn to reload as many as 350 perfect shotshells an hour . . . which makes the Lyman Grand American the perfect choice for trap and skeet shooters, ideal for clubs and range-houses! Whether you reload shotshells by the box or by the barrel . . . the Grand American is best for you — because it's best in its class!



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VANDALIA SHOTSHELL RELOADING SET is designed around a truly efficient, truly economical reloading press, designed to produce large quantities of precision shotshell handloads. This powerful bench press performs all operations, including full-length resizing, with equal ease, equal speed. Built-in wad-seater pressure gauge assures precise seating of wads — pays off in **uniform** performance from shell to shell. An exclusive crimping plug design results in perfectly finished shells, even for the beginner.

This press converts readily from one set of shotshell dies to another.

Each set consists of Full-Length Resizing Die, Crimping Chamber, Crimper, Wadding Chamber, and Decapping Rod. The new VANDALIA die sets are available in 12, 16 and 20 for 2¾" shells using "New Style" crimp. Die sets for 12 and 20 gauge also reload the 3" Magnum shells.

With the new VANDALIA, the average reloader turns out from 50 to 75 shotshells per hour—each one a perfect example of precision in shotshell reloading. And no other shotshell reloading press with this kind of performance is so low in cost.

$119.50

$34.50

Powder and shot charges are precisely — automatically — metered by means of these accurate bushings. Press comes with bushings for favorite load (23 grain Red Dot Powder, 1⅛ ounces shot). See chart below for wide range of inexpensive bushings — one for every type of gun and type of shooting.

TABLE OF GRAND AMERICAN ACCURATE BUSHINGS

1. 21 grains Unique
2. 23 grains Unique
3. 25 grains Unique
4. 30 grains AL-5
5. 32 grains AL-5
6. 21 grains Red Dot
7. 34 grains AL-5 or 22 grains Red Dot
8. 36 grains AL-5 or 36 grains AL-7 or 23 grains Red Dot
9. 32 grains Herco or 37 grains AL-7
10. 33 grains Herco
11. 34 grains Herco
12. 36 grains Herco

A. 1⅛ ounces of shot
B. 1¼ ounces of shot
C. 1⅜ ounces of shot
D. 1½ ounces of shot

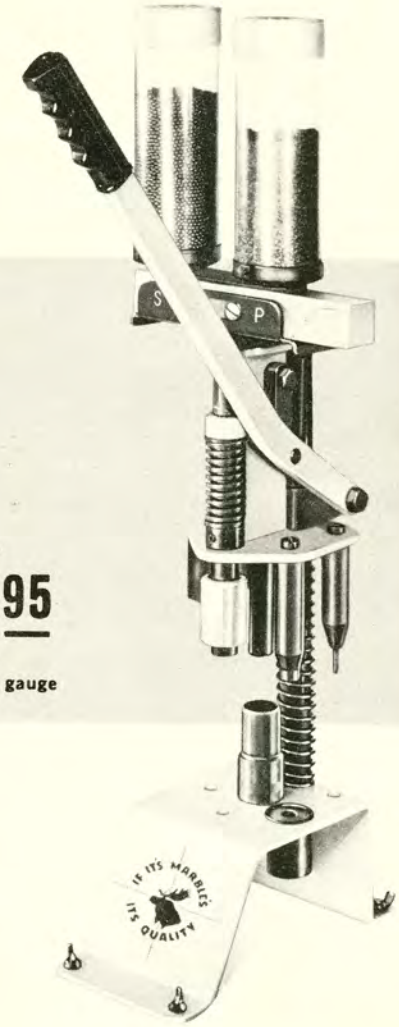
PLEASE SPECIFY NUMBER, LETTER . . . $1.00 EACH

LYMAN GUN SIGHT CORPORATION

MARBLE'S MODEL 49 SHOTSHELL RELOADER

PUTS THE ECONOMY BACK INTO *"LOADING YOUR OWN"*

- It's fast
- It's accurate
- It's safe
- It's precision made
- It's completely assembled . . . ready-to-use
- IT'S PRICED RIGHT



"Perfect results the first time around." That's what beginners as well as old-timers say about this new Marble's Model 49. Simplicity and ease-of-operation make this tool virtually mistake-proof. A little practice and it performs with the speed and accuracy of a machine tool. The Model 49 is versatile, too. It can be converted from one load to another in seconds . . . one gauge to another in minutes. No adjustments are necessary. All operations are completed on positive stop.

They're available in 12, 16 and 20 gauge models, and come completely assembled, tested and ready-to-use. There's Marble quality throughout. And its price puts it in easy reach of any outdoorsman.

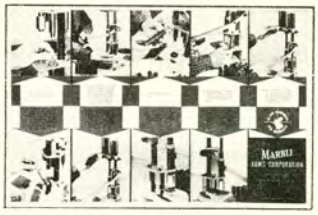
PRICE

$49.95

12, 16 or 20 gauge

MARBLE'S MODEL 49 HAS

- Non-reversible Charging Bar. Cannot be put in wrong. It's hardened to permit use of any type of powder.
- Shell is reprimed and completely resized including brass in one stroke. Resizing Die remains on shell from start to finish. Shell cannot become deformed at any time.
- Wads are seated in one operation. They are fed through unique wad guide which is integral part of tool.
- Wad Ram operates on positive stop. Pre-set at factory for standard 1⅛ oz. loads, but is fully adjustable for other than standard. Direct Reading Gauge feature permits complete versatility.
- Center station charges shot, charges powder, guides and seats wads . . . keeps shell handling at a minimum.
- Crimping operation is foolproof. Absolutely no adjustments for radius and depth of crimp are necessary. Optional Star Crimp Heads handle new cases and even the new plastics.
- The Model 49 is completely safe. Primed shell never touches loader base after repriming operation, eliminating chance of accidental detonation.
- Step-by-step operation is fully illustrated in this Instruction Folder. Explains how simple the 49 really is to handle.



START RELOADING ON THE NEWEST AND MOST PRACTICAL SHOTSHELL PRESS TO HIT THE RELOADER MARKET

IF IT'S MARBLE'S IT'S QUALITY

MARBLE ARMS CORPORATION • GLADSTONE, MICHIGAN, U.S.A.

Price subject to change without notice.

MAYVILLE ENGINEERING CO., INC.

here's why you should buy a mec shotshell reloader

A MEC TOOL FOR EVERY REQUIREMENT

MEC has a complete line of shotshell reloaders . . . one for the sportsman loading primarily for a moderate amount of competitive shooting (skeet and trap), one for the sportsman who wants reloading versatility (skeet, trap and hunting loads), and one for club and group ownership as well as the competitive shooter who needs a real production-line tool.

POPULARLY PRICED

The old axiom does not hold true in the case of MEC reloaders. You get more than you pay for with these tools. The reason MEC can compete with other brands so successfully is that, thru proper design and interchange of parts, they have been able to achieve numerous production economies. This is accomplished without sacrificing quality.

EXCLUSIVE FEATURES

MEC has designed and engineered unique and, in most cases, exclusive features into their tools. Not just "gadgets", these are features that make reloading a pleasure. These are features that make MEC reloaders the most wanted on the market.

GUARANTEED

Every MEC tool is unconditionally guaranteed against any defects in workmanship and materials for a period of 5 years.

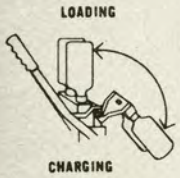
LARGEST SELLER

MEC tools outsell the next two leading brands in number of units as indicated in a recent independent survey conducted among dealers.

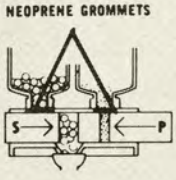
HANDY INSTRUCTION BOOKS

An instruction booklet is attached to every MEC reloader. It shows, pictorially, every step in the loading operation.

Every MEC loader has these exclusive features.

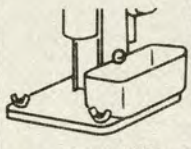


FLIP-TYPE MEASURE
Entire measuring assembly flips down for easy charging or changing of load. There is no dangerous spilling of powder or shot. Containers are shatterproof and airtight . . . preventing contamination of powder and eliminating fire hazard. Charging bars can be changed in seconds.



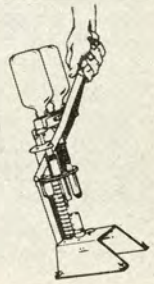
HARDENED CHARGING BAR
Charging bar is non-reversible, eliminating any chance of error. Handles the most abrasive powders with ease. Measuring assembly is provided with neoprene seals to prevent powder leakage, shearing of shot, or jamming.

OPEN BASE
This safety feature prevents any possibility of accidental detonation. Primer never touches metal after priming operation takes place.



PRIMER CATCHER
All tools are equipped with detachable primer catcher which keeps work area clear of spent primers. Eliminates danger of accidentally repriming with spent primer.

SUR-LOCK CRIMP
Makes complete crimp in one stroke. Crimping action "locks" contents with a slight inward taper. Generous factory-like radius at crimped end assures postive feed through any gun. Adjustable for depth of crimp.



ALL STEEL CONSTRUCTION
This feature makes MEC tools lighter, stronger and completely portable. They need not be fastened to bench, and in the case of group ownership, can be readily transported from home to home.

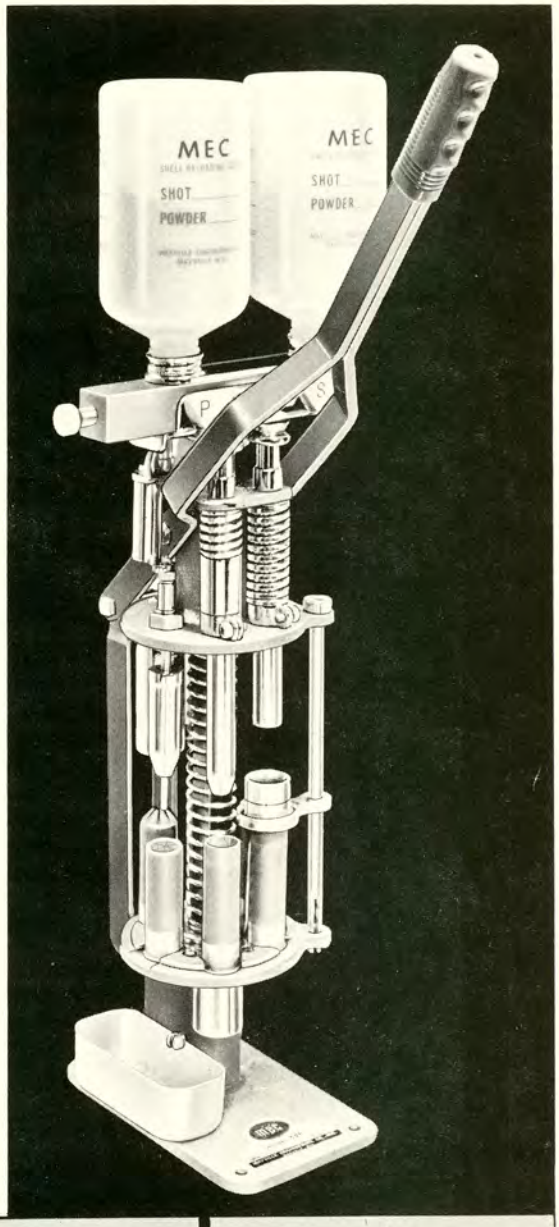
mec 500

$89.95

price complete

12 and 20 gauge only

Fitted in beautiful lifetime chrome

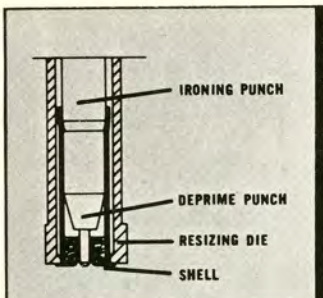


A progressive-type loader priced for individual as well as club or group ownership

One man can turn out better than 500 per on this "progressive-type" model. Ideal for the sportsman who does a lot of competitive shooting, as well as for clubs or group ownership. Because it's light, compact and portable, it can be readily moved from home-to-home. It doesn't require fastening to a bench. The MEC 500 is accurate, easy-to-use, safe, and works with the precision of a high-speed machine tool.

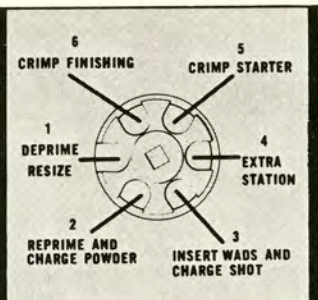
The MEC 500 is foolproof . . . loads *any* hull, including the new plastics. Accommodates all sizes of shot and makes of powder. It comes completely assembled, tested, and ready-to-use . . . without adjustment.

...even the features are progressive



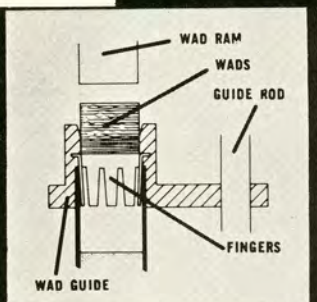
EXCLUSIVE RESIZE-DEPRIME APPARATUS

Truly resizes shell to original diameter and head spacing, making it possible to load **any** shell including the new plastics. Deprimes in the same operation.



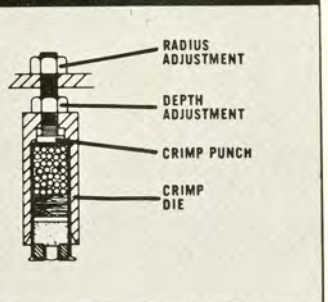
9 OPERATIONS WITH 1 STROKE

One stroke of the press handle performs up to 9 different operations on six individual shells. Shell carrier click-stops at each station. Rotating shellholder aligns shells perfectly at each position.



MECHANI-TROL WAD GUIDE

Mechanically-controlled wad guide permits accurate feeding and positive seating of over powder and filler wads. Wad pressures are completely adjustable. Guide allows the use of any type wads, including plastic in any practical wad column.



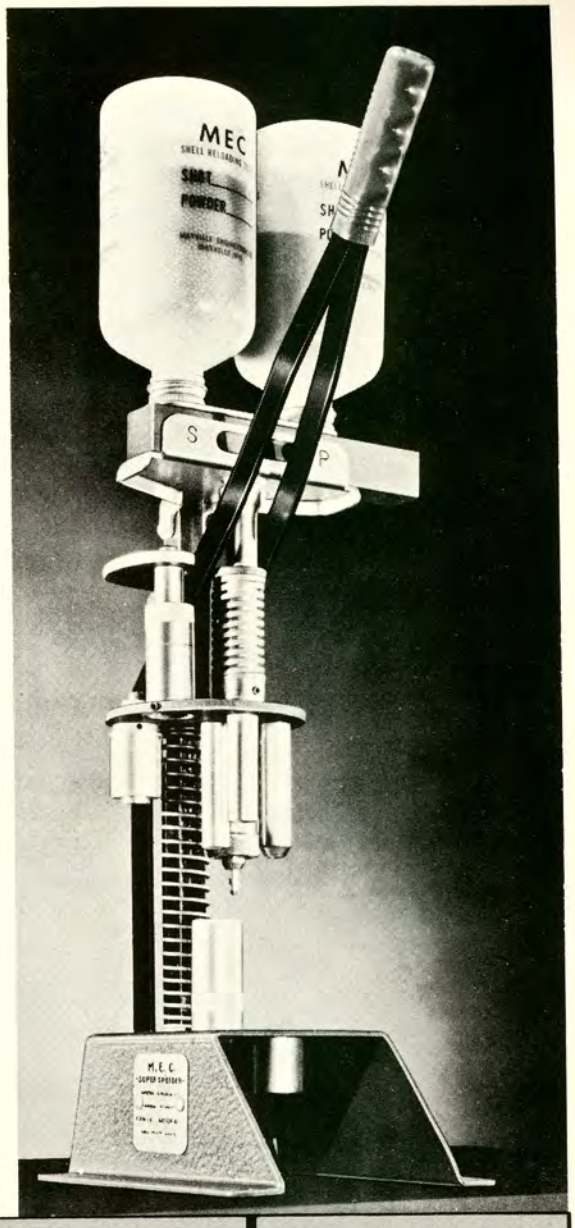
SUR-LOCK CRIMP

Final crimping die is completely adjustable, both for depth of crimp and radius of crimp. Crimping action assures positive feed through any gun. MEC 500 has an extra station for the optional Star Crimp Head, either 6 or 8 point, which is used for new paper and all plastic cases.

mec 400

price complete - - - - - - - - **$57.75**
all gauges

MEC 400 DELUXE
Specially fitted in
beautiful lifetime chrome - - - - - - **$72.75**

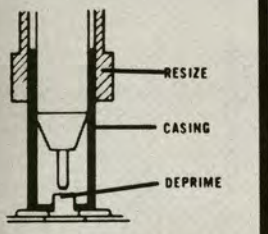


For the sportsman who demands versatility

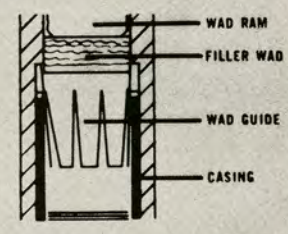
Here's the all 'round tool for the sportsman who loads for competitive shooting as well as for hunting. It's the most versatile of any shotshell reloader on the market, regardless of price. It's fast, accurate, simple to operate, dependable and safe. Available in any gauge from .410 to the 3½", 10 Gauge Magnum. Even amateurs have no trouble turning out perfect reloads everytime.

The MEC 400 needs no adjustments. Four strokes of the press handle processes the entire shell including the unique "sur-lock" crimp. It can be converted from gauge to gauge in minutes . . . load to load in seconds. It comes completely assembled, tested and ready-to-use.

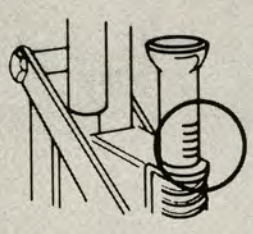
...features you can appreciate



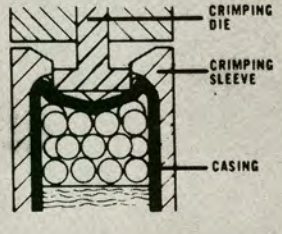
COMBINATION RESIZE-DEPRIME
One stroke of the press handle deprimes and completely resizes the entire shell including brass and rim. Deprimed shell is automatically ejected from die. Old primer drops into primer catcher.



GUIDE-MATIC WAD FEED
Permits quick and accurate seating of filler wads without damaging or deforming wad or bulging finished shell. Wads are placed into guide . . . ram does the seating.

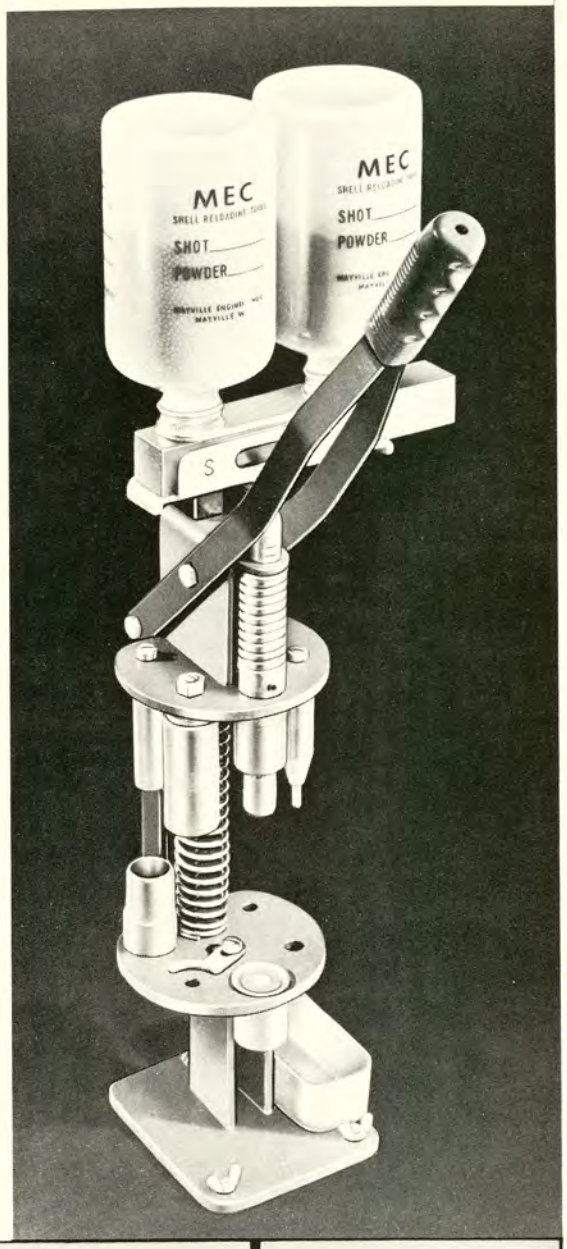


DIRECT READING PRESSURE GAUGE
Automatically compensates for difference in height of base wad. Loads all makes of shells including foreign . . . without adjustment. This makes the MEC 400 more accurate than common types which must be adjusted for each individual load or type of shell.



SUR-LOCK ONE-STROKE CRIMP
Crimps completely in one stroke. Works on standard as well as magnum length shells without additional parts. Crimping action "locks" contents with a slight inward taper. Generous, factory-like radius at crimped end assures positive feed thru any gun.

mec 250



price complete **$48.95**

12, 16 and 20 gauge

MEC 250 DELUXE

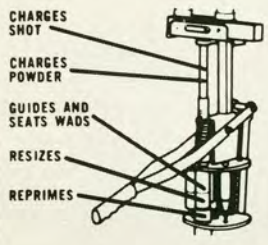
Specially fitted in
beautiful lifetime chrome **$63.95**

Designed specifically for the trap and skeetshooter

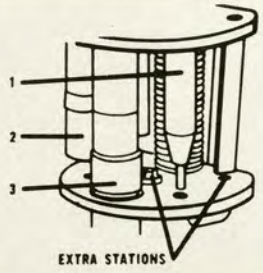
Built for the sportsman primarily interested in competitive shooting . . . the sportsman who wants speed. The MEC 250, the fastest, by far, of all conventional reloading tools, can turn out 250 plus shells per hour when operated by a proficient loader. The operation of the MEC 250 is simple, precise and safe, but above all, it processes uniform, high quality shells . . . everytime.

The MEC 250 loads shells accurately without the usual adjustments. It can be converted to handle other gauges . . . any load. It comes completely assembled, tested and ready-to-use.

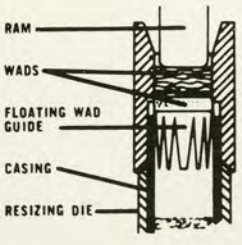
...with features like these



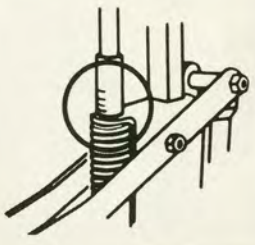
MULTIPLE-DUTY STATION
Performs six operations at one station . . . reducing shell handling to the minimum. One position reprimes, resizes, charges powder, guides and seats wads, and charges shot.



ONLY THREE WORKING STATIONS
Complete shell is processed with only three working stations. Tool has extra stations for installation of cap conversion kit, star crimp head, etc.



FLOATING WAD GUIDE
Permits quick and easy loading and accurate seating of over powder and filler wads . . . separately or in combination, without damaging or deforming wad or bulging finished shell. "Floating" feature permits guide to be tilted or even removed, depending on the loading technique of the operator.



WAD SEATING RAM — POSITIVE STOP OR DIRECT READING
Ram is fully adjustable, but is pre-set at the factory for correct pressure seating of wad column in standard 1⅛ oz. target loads. Direct Reading Pressure Gauge can be used for other than standard loads.

FOR THE MEC 250

Electric Shell Former F33B — Tests cases for blow-out at the brass, and reshapes and reconditions the shell for easy insertion of wads. Makes it possible to re-use shells that might otherwise be discarded. Includes bracket for mounting to bench. Price · · **$4.95**

Cap Conversion Kit 242C-(12-16-20) — Replaces standard depriming and repriming operation by merely removing and replacing caps only (not entire battery as in ordinary method). This kit is for the loading "enthusiast" who loads mostly as a hobby. Available in 12, 16 and 20 gauge. Price · · **$7.00**

Die Sets — Primer Type 241P-(12-16-20) — Complete die sets for converting from one gauge to another. Changeover takes only a few minutes. (Charging Bars Extra). Price · · **$18.50**

Cap-Type Die Sets — Complete Cap-Type Die Sets are also available in 12, 16 and 20 gauge. Price · · **$22.00**

Extra Large Drop Tube 205 — To accommodate shot sizes up to BB. Price · · **$3.00**

3" Resizing Die — For the processing of 3" cases in both 12 Ga. (224-3-12) and 20 Ga. (224-3-20). Die for 2-9/16" 16 Ga. shells (224-9-16) is also available. Price · · **$3.50**

Star Crimp Head 334-(12-16-20) — For the hand loader who wishes to load new cases, a star crimp head is available. It is easily installed in one of the extra stations provided for this purpose, and starts the "star" or folds of the crimp on all gauge shells. Price · · **$3.50**

Charging Bars — A complete assortment of "quick-change" charging bars is available for any load or gauge. Write to MEC for a complete list of Bars. List also recommends proper bar for any combination of shot and powder. Price per bar · · **$3.50**

FOR THE MEC 400

MEC Electric Shell Former — F33B — Tests cases for blow-out at the brass, and reshapes and reconditions the shell for easy insertion of the wads. Makes it possible to re-use shells that might otherwise be discarded. Includes bracket for mounting to loader or to bench. Price · · **$4.95**

MEC Cap Conversion Kit 442C-(12-16-20-28) — Converts Loading Tool to the use of caps. Replaces standard depriming and repriming operation by merely repriming and replacing caps only (not entire battery as in ordinary method). This kit is for the loading "enthusiast" who loads mostly as a hobby. Available in 12, 16, 20 and 28 gauge (1 kit can be used for all gauges). Price · · **$9.00**

Cap-Type Die Sets—Complete Cap Type Die Sets are also available in 12, 16, 20 and 28 gauge.

MEC Die Sets — 441P — (Primer type — all gauges) — Complete die sets for converting to any gauge. Dies can be easily changed in a matter of minutes to accommodate any gauge from .410 to the heaviest 10-gauge Magnum. (Charging bars extra.)

441P-35-10 — (3½" Magnum) · · · **$18.75**
441P-10 — (2⅞") · · · · · · · · · · **$16.00**
441P-12 — (2¾" and 3") · · · · · · **$16.00**
441P-16 — (2¾" only) · · · · · · · **$16.00***
441P-20 — (2¾" and 3") · · · · · · **$16.00**
441P-28 — (2¾" only) · · · · · · · **$16.00**
441P-410 — (2½" and 3") · · · · **$22.50****

*For adapting to 2-9/16" shells, see CRIMPING SLEEVE (below).
**Drop Tube and special dies, brackets, etc., included.

NOTE: Above prices except .410 ga. do not include Drop Tube. 441-P-35-10, 10, 12 and 16 use same Drop Tubes. 441P-20 and 28 use same Drop Tubes. If Drop Tube is necessary, please specify by adding letter "W" to part number and $3.00 to the above prices.

Crimping Sleeve (448-9-16)—For the processing of 2-9/16" shells in 16 gauge. Price · · **$3.50**

Star Crimp Head 434-(10, 12, 16, 20, 28 and 410) — For the hand loader who wishes to load new cases, a star crimp head is available. It consists of a star crimp die and special resizing ring. Price · · **$3.50**

To adapt to other gauges, only new resizing ring (435-10, 12, etc.) is necessary (crimp die need not be changed). Price · · **$1.00**

Resizing Sleeve — 348 — For resizing the finished shell a second time for use in extremely small chambers, or for processing damp or swelled cases. Also may be used in place of the 448 Crimp Sleeve but movement of handle must be slowed to insure proper operation. Price · · **$3.50**

MEC Charging Bars — A complete assortment of "quick-change" charging bars is available for any load or gauge. Write to MEC for a complete list of Bars. List also recommends proper bar for any combination of shot and powder. Price per bar · · **$3.50**

FOR THE MEC 500

Electric Shell Former F33B — Tests cases for blow-out at the brass, and reshapes and reconditions the shell for easy insertion of wads. Makes it possible to re-use shells that might otherwise be discarded. Includes bracket for mounting to bench. Price · · **$4.95**

MEC Charging Bars — A complete assortment of "quick-change" charging bars is available for any load or gauge. See your jobber or write to MEC for a complete list of Bars. List also recommends proper bar for any combination of shot and powder. Price per bar · · **$3.50**

Star Crimp Head — 534 — For the hand loader who wishes to load new cases, a star crimp head is available. Specify whether 6 or 8 point. Price · · **$3.50**

MAKE MORE PROFITS WITH THE LINE THAT OFFERS MORE . . . THE MEC LINE
SEE YOUR DEALER NOW

MAYVILLE ENGINEERING CO., INC.

MAYVILLE, WISCONSIN

PACIFIC

DL-100 LOADER

Available in 12, 12 Mag., 16, 20, 20 Mag., 28, 410, 410 Mag. Gauges

Approximate shipping weight 14 lbs.

COMPLETE
DL-100
LOADER
$65.50

FEATURES:

AUTOMATIC PRIMER FEED – primer is automatically placed into position during loading operation. The only economy priced loader with this feature.

BUILT IN WAD GUIDE – easiest method of wad seating known; found only on DL loading tools. (Pat. Pend.)

QUICK, SIMPLE – cases do not have to be prepared before loading. Fifteen seconds to reload, over one hundred and fifty per hour.

VERSATILE – finished shell will feed into any type gun, even automatics.

ACCURATE, SAFE – every operation ends on a complete stop. Nothing to watch, eliminates all guesswork. Perfect reloads even for beginners.

CONTROLLED WAD PRESSURE – completely adjustable from thirty to ninety pounds; this feature assures proper ignition of any type powder being used.

A PERFECT RELOAD EVERY TIME

Charge Bars available for all popular loads. Cases do not have to be heat-sized when using DL-100 loaders with built-in wad guide.

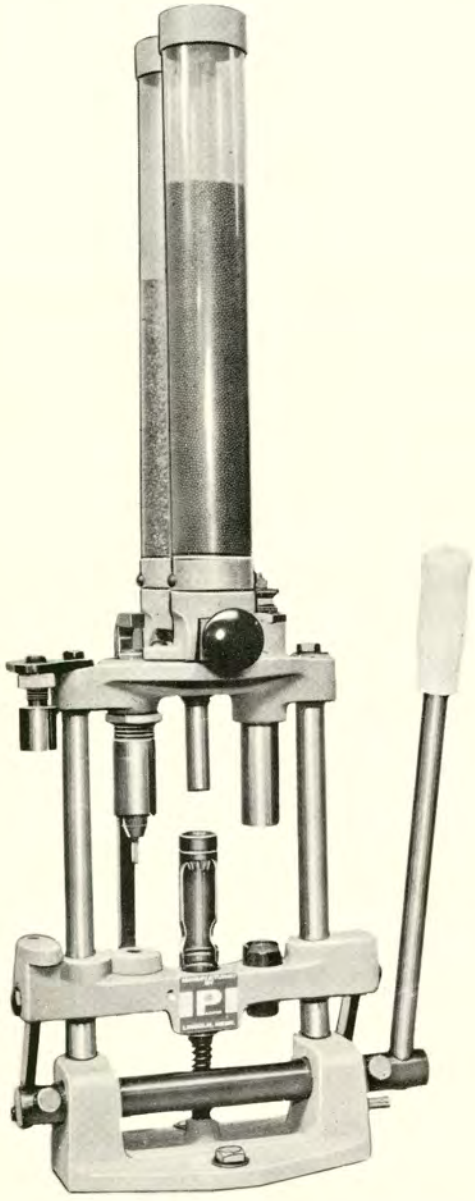
A PRECISION TOOL AT LOWEST POSSIBLE PRICE

Cap Converter Set (for loading caps only)	$ 7.60
Die Set, 12 Mag, 20 Mag, and 410 3-inch (to convert std. length shell)	12.00
Die Set (12, 12 Mag, 16, 20 or 20 Mag, complete)	18.00
Die Set (28, 410 or 410 3-inch complete)	20.00
Charge Bar (not included with die set)	3.60
Crimp Starter die (only necessary when loading new cases)	4.80
Accessory Bracket (must be ordered when using DL Crimp Starter or Taper-Loc die)	1.20
Taper-Loc Die	2.60

PACIFIC

DL-250 LOADER

Available in 12, 12 Mag., 16, 20, 20 Mag., 28, 410, 410 Mag.



FEATURING:

- Over 250 loads per hour.
- Built in patented wad guide.
- Large capacity hoppers.
- All operations end on a complete stop.
- Three loading stations—eliminates excessive handling.
- Completely adjustable.
- Full length resizing of cases.
- Taper-loc Die

The DL-250 loader was designed to fit the need of the sportsman who is proud of his reloads. A perfect, uniform shell is reloaded every time. All operations end on a complete stop. Charge bar is of the positive action type, error is completely eliminated. It is easily seen why the DL-250 has become another great product in the ever growing family of quality reloading tools and accessories.

30 YEARS RELOADING TOOL LEADERSHIP

BUY PACIFIC TOOLS AND ACCESSORIES EXCLUSIVELY
They Are Made For Each Other

DL-250 LOADER
COMPLETE
$99.50

APPROXIMATE SHIPPING WEIGHT 20 pounds

Patent No. 3001436

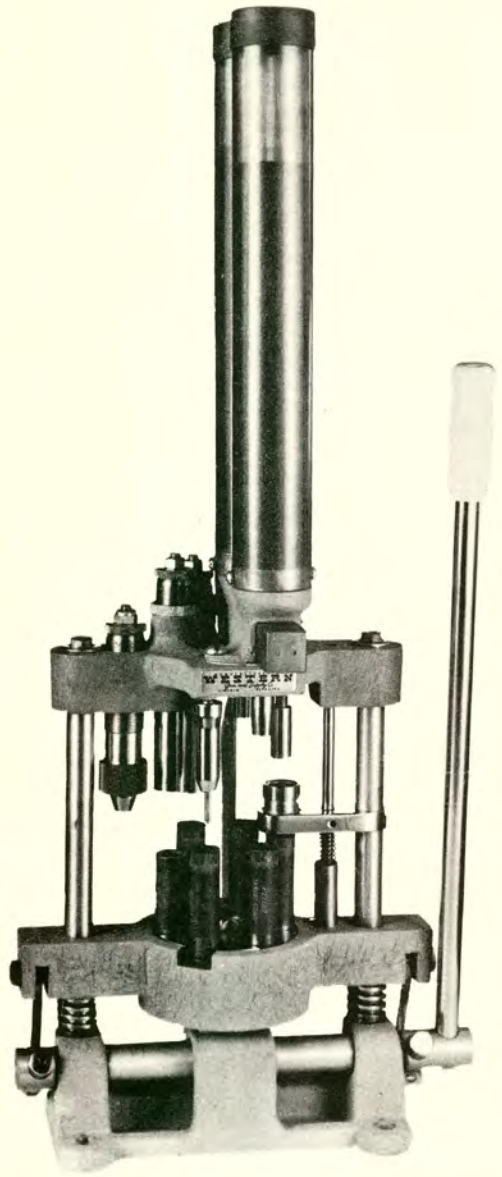
LIST PRICE

Cap converter set (for loading caps)	ea. $ 5.00
DL-250 die set complete (specify gauge)	ea. $32.50
Charge bar bushing (not included with die set)	ea. $ 1.60
Six segment unfired case crimper	ea. $16.00
Eight segment plastic dies (for loading plastic cases)	ea. $16.00

PACIFIC

DL-300 LOADER

Available in 12 Gauge 2¾" Only



DL-300 LOADER COMPLETE

$174.50

Approximate shipping weight 27 lbs.

FEATURES:

- Finished reload has exclusive DL taper-loc crimp.
- Wads and primers inserted directly into loader (no tubes to jam – no helper needed).
- Shell charged automatically.
- Will load any 12 gauge case regardless of condition.
- Will accommodate standard size wads and all sizes of primers. No extra equipment to buy.
- All operations end on a positive stop.
- Completely adjustable.

Each movement of the operating lever down and up loads one complete shell. Cases do not need to be prepared or heat sized prior to loading operation. All surfaces which would normally be exposed to excessive wear are protected with brass or roller bearings.

This new revolutionary machine can be operated with ease by anyone. No engineering degree is required to turn out perfect reloads every time. There is nothing to get out of adjustment since wads and primers are inserted directly into the loader. They cannot become jammed in magazine tubes.

A TRULY PROGRESSIVE TYPE LOADER

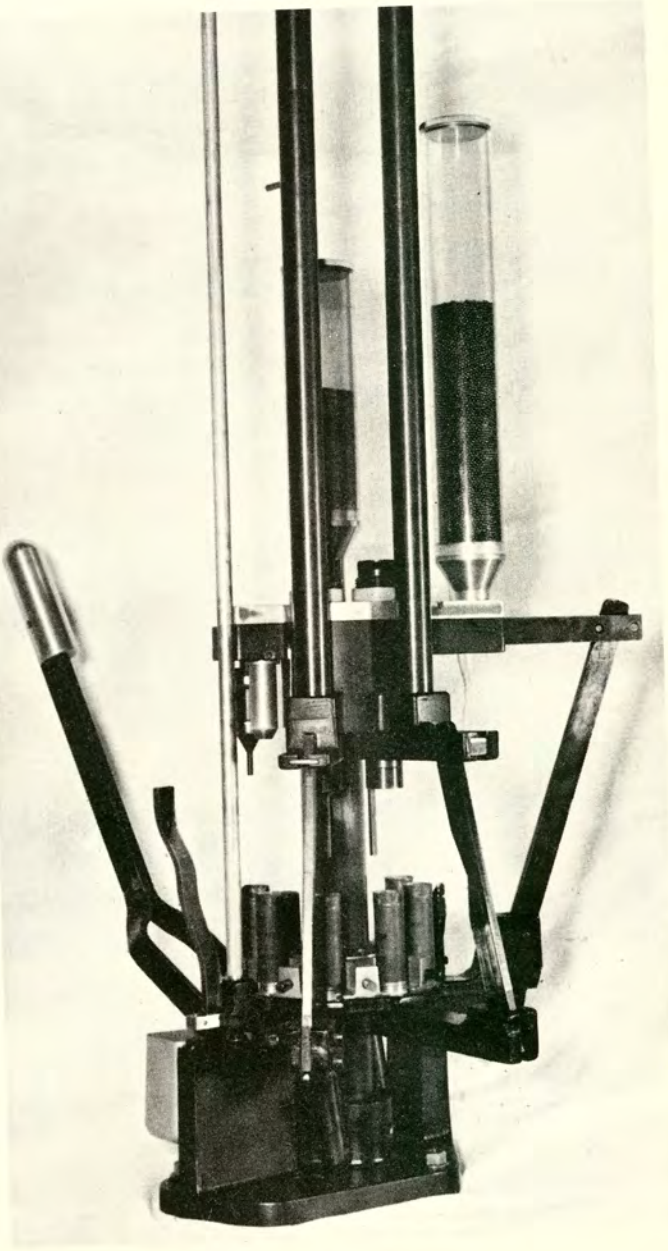
Complete loader (12 ga. only). Specify charge bar desired	**$174.50**
Extra charge bars	**5.20**
Crimp starter die (for loading unfired cases)	**4.80**
Crimp starter bracket	**1.20**

STOUT

Rapid Reloader

12 ga. only (so far), state choice of load	$299.50
Powder and shot bar for changing load	15.00
Primer slide bar for Remington 57 primer	8.00
Star crimper for loading new cases	21.00

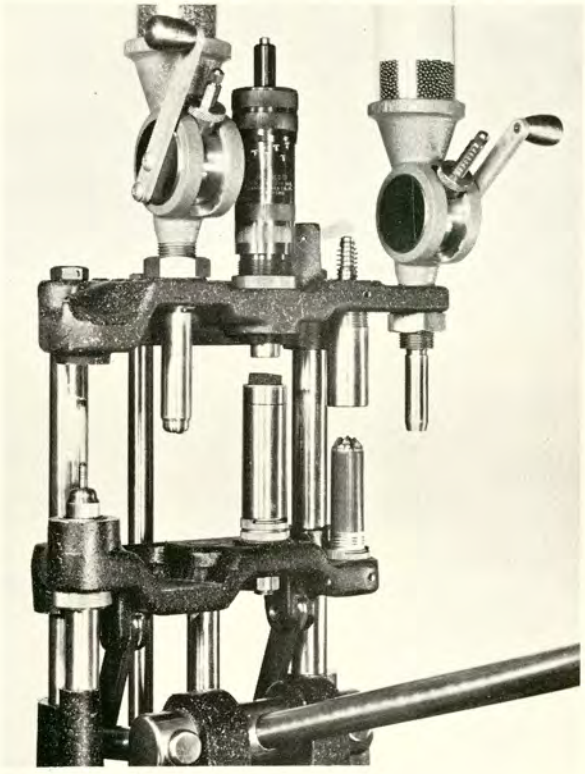
A fully automatic reloader that produces a high quality reloaded shotshell at each stroke of the operating lever. All of these operations are done automatically: decapping; primer feeding; recapping; powder charging; wad feeding; wad seating; shot charging; crimp starting and sizing; completion. Large capacity magazines for powder, wads, shot and primers. Experienced operators can load a box of shells every 2 minutes or 750 shells per hour. A true production tool for the quantity shotshell user. Ready to go, set up to produce a target load of 2¾ or 3 drams equivalent of Red Dot powder and 1⅛ oz. of 7½ shot, with Winchester, Western, Federal or CCI primers (not caps). It can be converted to produce 3¾ / 1¼ oz. shot loads.



VAL-SCOTT

This new, all-purpose reloading press was developed for the express purpose of loading precision ammunition, shotshells usable in any shotgun. Only the Val-Scott offers these exclusive features:

1. Precision-made sizing ring resizes the brass and reshapes the rim to factory specifications — insures positive ejection out of all pump and automatic shotguns.
2. Spacer rings permit resizing of any brass base — eliminates bulges and helps eliminate cut offs.
3. Precision-made, hardened steel tube sizing ring resizes tube to brass base — *any* brass, high, low or intermediate.
4. Combination electric ironer and decapper. Electrically heated plunger tightens cardboard sealer in base of shell, irons out flattened and bulged cases and re-melts wax to make cases firm and less likely to swell after reloading.
5. Micromatic wad seater automatically releases when pre-set pressure is reached.
6. Crimping is done in a positive, mechanical action crimper, pre-set at factory to give best crimps possible — adjustable for desired depth of crimp.

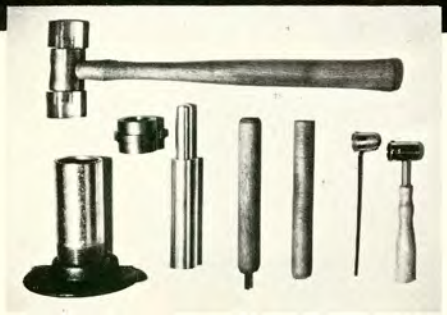


This press is designed for quick and easy conversion for metallic cartridges — simply remove the wad seater and shell holder and install your 7/8-14 pistol or rifle dies and shell holder (C-H type) in this station. The base of this tool is drilled and tapped to take an adjustable primer arm. Metallic conversion prices to be announced.

The press comes complete with dies for one gauge — available for 12, 16, 20 and 28 gauges. **$146.50**

Dies to change over to another gauge..... $41.25

WARD Shotshell Loading Kit



$15.95

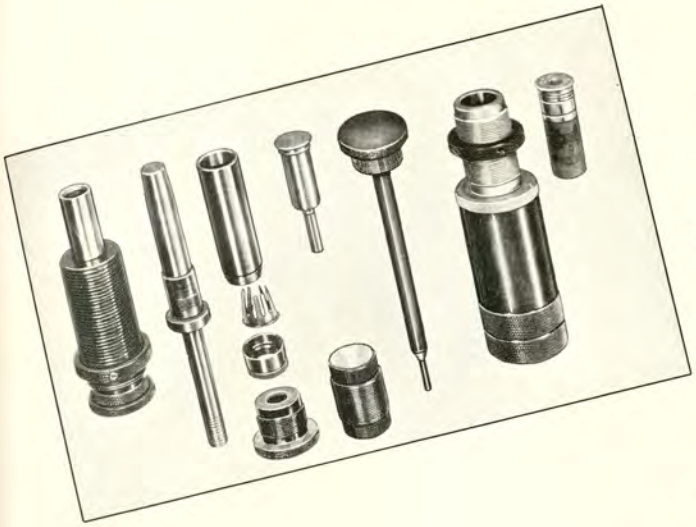
A low cost, efficient set of hand tools, including dip measures, for all gauges. Full length sizes — including the head and rim. Easily loads a shell a minute. Complete for one gauge.

Notes on Shotshell Dies.....

Shotshell dies are designed to perform the following operations: resize the case; decap and recap; insert wads and seat with proper pressure; crimp. All of the shotshell presses shown on the previous pages have dies especially designed for use in those presses. The dies shown here, however, are made to fit any metallic press with 1¼-18 threaded die station. This allows the owner of a metallic-ammo press to reload shotshells without going to the expense of purchasing an additional press. Unless used in a turret or other multi-station press, the reloading operation will be slow, but the quality of the reloads will be on a par with shells loaded in a shotshell press. Note the die hole needed, though — a ⅞-14 threaded station won't work.

These presses are made with 1¼-18 threaded die station — RCBS Model A-2; C-H "H" type; Herter's Models 3, 81 and 234; Lachmiller's Powerhouse and Model 400.

HERTER'S Model Perfect Shotshell Dies

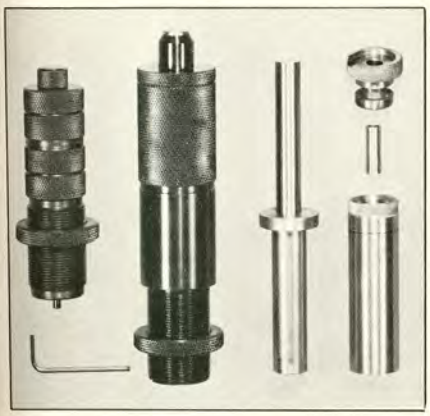


$15.39

Complete, for 12, 16 or 20 gauge

All loading operations are completed within this single die — adjustable for 2¾" or 3" cases, automatic wad seating pressures, full length sizing within the die body and a floating crimp head that forms a perfect star crimp. Its 1¼ x 18 thread fits Herter's Model 3, 81 and 234 and other brand tools. If you have one of these tools, the only other part needed is a shell holder in the gauge of your choice (see below).

Shell holder for 12, 16 or 20 gauge, each	93¢
Die conversion kit, for another gauge	$9.95



LACHMILLER Shotshell Dies

$34.95

The original shotshell dies designed for use with bench tools. A precision indicator contained in the wad seating unit assures absolute pressure control on wad seating. Full resizing (of both paper and brass portions of the case) and decapping are done in one effortless operation. The shell is crimped without any preforming and without aligning the shell to any particular position. The wad guide correctly supports the shell during wad seating. Parts to change to another gauge are available for $21.50.

Lyman shotshell dies will be found in Shotshell Presses section

Notes on Powder and Shot Measures

One of the most important phases of shotshell reloading is the complete understanding of shot and powder measurement. Shot loading is simple if the handloader will follow the recommended charges in the various manuals. In the case of powder charges, there is some misunderstanding about the meaning of "drams equivalent" and bulk and dense powders. This is covered in our comments on powders in Section V, and should be understood by everyone before loading shotshells. With this understood, any of the powder and shot measures, be they the simple dippers or mechanical measures, will do a good accurate job.

Shotshell Loading Measures

The measure that everyone has been asking for. No adjustments are necessary. One drop tube for powder and one drop tube for shot. You can't make a mistake or get the wrong weight of powder with this measure. The low powder column and large capacity hopper assures completely uniform charges and still enough powder to load 4 boxes of shotshells without refilling. One push of the plunger gives you powder or shot — a perfect measure for the shotshell loader.

$8.70

Measure and table mounting bracket, less metering bars

Metering bars each (give weight of powder and shot) **$2.40**

Herter's Combination Powder-Shot Dipper

Fully adjustable for both powder and shot, the settings of this solid aluminum measure may be firmly locked. NOT for dense smokeless powders....**$1.29**

HERTER'S

Powder and Shot Measure

Fully adjustable within a wide range of loads, this is the same measure used on our M72 loader. Powder and shot are thrown alternately with a to-and-fro movement of the lever; if desired, only one hopper can be filled. Comes with a bench stand and is also threaded 7/8-14 for mounting on most loading tools.....**$13.95**

See Lyman shotshell tool pages for their dippers.

Shotshell Accessories

Acme Industries, Inc.

Shell Tester and Former

Standard equipment on the Acme Ace and Model 400 shotshell loaders, this handy accessory is available to those who have other Acme reloaders or any reloader without an electric shell former.

Electric former melts the wax while forming the shell to the correct size for easier, more accurate insertion of wads. Handles 12, 16 and 20 gauge.

$4.95

Extra 10 or 28-410 tips ..... $1.00 each

DOM

Shotshell Neck Resizer

$15

12, 16 or 20 gauge

Resizes and reforms shotshell tubes in any condition; reparaffins the mouth for a tighter, better crimp, and eliminates tearing of case mouth by brass fingers of wad seater. This 115-volt electrically heated ironer does all this easily and efficiently.

NEW! Plasti-Crimper $12

NEW! Metal Case Crimper $6

Left — new plastic case crimp starter die.
Right — new brass case crimp starter die.

Make Perfect Crimps in Plastic and Brass Shotshells

12 gauge only, these new crimpers are usable in no other tool but the C-H Shellmaster press.

Crimp Starter Die

$3.75 each

12, 16, 20 or 28 gauge

Pre-forms mouth of new, unfired paper shotshells for use in crimp die. Designed for station 2 on C-H Shellmaster.

HERTER'S

Crimp Starter Die

Made for use with new, unfired cases, this tool has a 7/8-14 outside threaded shank for mounting in most loading tools, plus a 1/4-20 inside thread for fitting to the top plate of Herter's M72 or M73 shotshell loader (with these the shell must be blocked up). Can also be hand used.

Designed for 12 gauge, but works well with 16 or 20 ..... 59¢

Electric Shell Reformer-Crimp Sealer

Usable with all Herter shotshell loaders (and other tools) this 115 volt unit reforms and stiffens bent or weathered shells, redistributes the wax and may be used to seal the crimp also.

12, 16 or 20 gauge $3.69

Wad Starter Unit

Consisting of die body, brass spring fingers and cap, this is the same wad guide used on Herter's shotshell tools.

12, 16 or 20 gauge, each $2.39
Brass spring fingers (state gauge) ..... 29¢

Lyman accessories will be found in Shotshell Presses section.

LACHMILLER

Crimp Spinner

$2.95

Designed for use in drill press, electric drill or flexible shaft attached to an electric motor, the crimp spinner will tighten the crimp on a star crimp shell or put a roll crimp on a roll crimp shell. Friction heat created by the rotating crimp spinner melts the wax — the wax then hardens and in turn hardens the end of the crimp.

ULTRA Shelldrill

$6.95

With one drill insert (specify size)

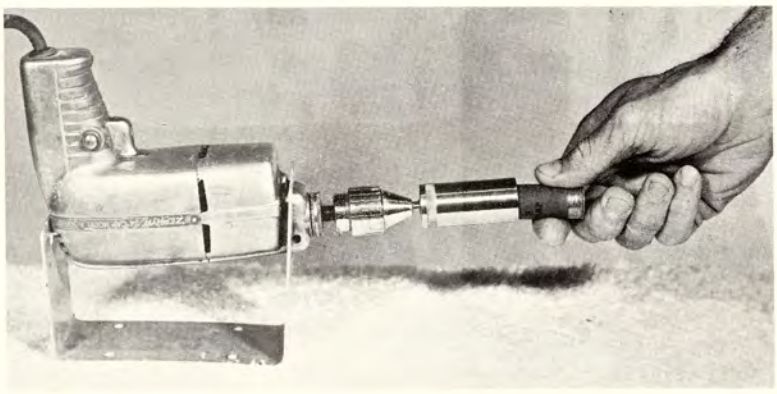
With any two drill inserts $8.50

Extra drill inserts $2.00

Accurately drills out the interior of some of the new high-brass, high-base shotshell cases; permitting the use of 1¼- and 1½-ounce shot loads. After drilling, even the magnum load of 41 grs. of AL-7 powder will be below the top of the brass, preventing its burning through the paper case, causing head separation, etc. Model SD1 fits ½" motor shaft, Model SD2 fits ¼" drill chuck, Model SD3 fits 5/16" and larger drill chucks. Built-in shell ironer smooths mouth of shell and guides shell to assure straight drilling.

WHIT'S Shooting Stuff

Rotary Shotshell Ironer



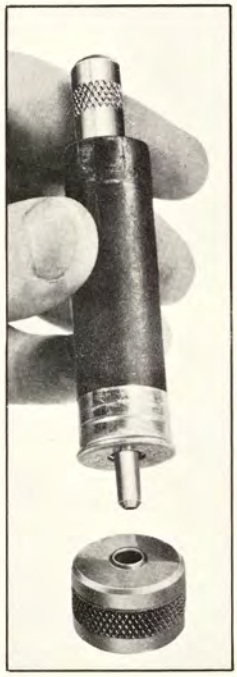
$6.95 each

All gauges except 410

Hardened tool steel device, carrying a ¼" shaft for motor or drill press mounting, that quickly restores shotshells to usable reloadable conditions. Equally useful for cleaning or re-paraffining case mouths.

More Loads per Shotshell

WILLIAMS PPP

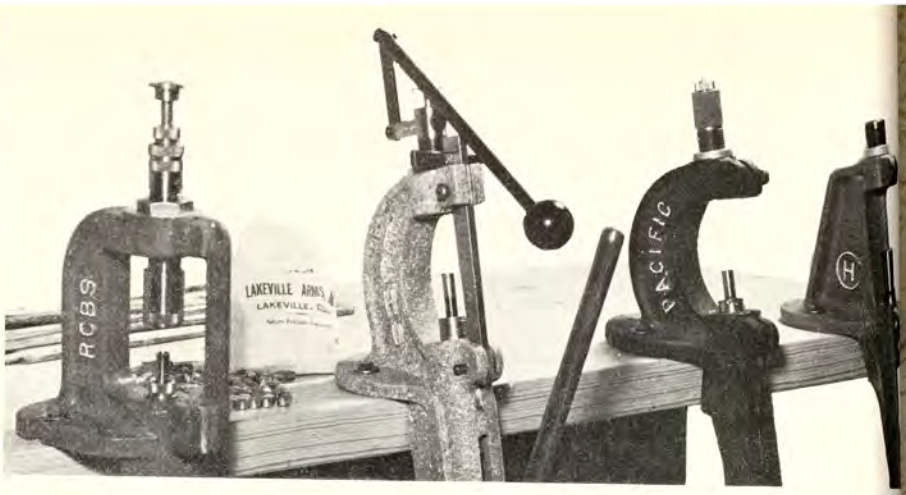


Complete **$2.00**

A new inexpensive tool that will enable the handloader to obtain more loads per shotshell.

After a few reloads, the shotshell primer pocket becomes somewhat enlarged and the new primer will be too loose, or will not fit at all — and a good case is wasted.

This new tool, known as the Williams Primer Pocket Peener, will automatically resize the primer pocket. It's simple to use. Just place peener through primer pocket and insert in resizing block. A light tap with hammer or mallet will bring the primer pocket back to correct size and a shell that would normally be discarded can now be loaded again.



A dream bench for bullet swaging! Presses (l. to r.) are RCBS "Jr. 2" with Bahler dies; Echo with Harvey Lever Dies; Pacific with Ted Smith's dies; C-H Super C with Harvey Cannelure Dies.

Swaged Handgun Bullets

by KENT BELLAH

SOFT, SWAGED handgun bullets seemed as far away as the moon for average reloaders in 1950. Then Jim Harvey of Lakeville Arms made a major break-through with swaging dies for his zinc-washer base Prot-X-bore bullets. The zinc washer, an anti-friction substitute for grease lubing, also prevented deformation of the bullet base by hot powder gas and pressure. In 1956, Harvey created his jacketed Jugulars, "The Most Deadly Bullets," which could be driven at extremely high velocities. Pure lead cores expand faster, delivering more shocking power than any hard alloy. This handgun version of the accurate and deadly rifle pills swaged by bench resters and varminters are the most widely imitated bullets in the world, and with just cause.

As the Jugular name and fame spread, various custom makers produced their version of swaging dies. Custom ammo makers use such bullets in their premium grade loads. Speer Bullet Co., sell vast numbers of their jacketed bullets, and they also supply lead wire and cups for home swaging. Soft, swaged half-jacketed bullets, deadly on varmints or game, make a revolver a trifle like a rifle. Swaging these modern pills is fast, simple, and good fun – they're here to stay! Most dies, or die-press units do a good job.

You can load superior 357 ammo, twice as potent as factory stuff, and save $72 per 1,000 rounds. Or save $112 on custom Jugular fodder! You save even more on 44's. Owners of 38 or 44 Special guns can load them, with safe pressure, to equal the punch of factory Magnum ammo.

Dies, or die-press units do the same job. They cold form lead wire or slugs, making bullets under heavy pressure, ready to shoot without sizing or lube. Surface irregularities, internal defects and air pockets are squeezed out. The lead becomes more dense. High density and softness make lead more efficient than any alloy. Actual terminal shock is far greater than indicated by energy figures that merely tell how hard a bullet hits. You have to see the effect of Hi-V loads on varmints to believe it. You can compare efficiency with alloy bullets by recovering fired pills from sifted moist sand.

Operation of most die sets varies little – put a slug in a jacket, place it in the die, operate the tool handle once or twice and a perfect bullet is ejected. Bullets are extremely uniform throughout the thousands you may make. Weight is usually regulated by screwing the nose punch in or out to match the core.

Excellent jackets are made by Bahler, Lakeville, and Speer, perhaps others. Brittle or inferior jackets can cause plenty of trouble. Defects are non-uniform walls, ragged mouths, drawing with a sharp inside punch that marks the inside base, and inferior material. Best material is a soft, or annealed gilding metal with 5% to 10% zinc to prevent copper fouling.

Speer supplies soft lead wire, as well as antimonial wire. The latter calls for much greater effort in swaging, and could result in damaged tools. Hornady is, I believe, the only supplier of cut lead slugs at present. Division Lead Co. (DIVCO), Summit, Ill., developed "Swag-O-Matic" pure lead wire especially for swaging. It's dead soft, Brinell 4. All of the lead companies furnish lead wire.

DIVCO's Illinois Bullet Alloy No. 4, Brinell 12, popular for cast handgun pills, is made in wire form for those who want a medium hard alloy. The tin content causes it to swage easily, but I still prefer pure lead. Their IBA No. 7, Brinell 18, is fine for hard cast pills, but too hard for swaged handgun bullets.

DIVCO also supplies chilled and coppered shot, plus hundreds of nonferrous metal products.

Lakeville Arms supplies slug- or core moulds for those who want to cast slugs. They work OK, but require extra time, plus casting equipment. Lyman is now producing adjustable slug moulds, and good ones, made along design and dimension ideas furnished by me.

Slugs cut from lead wire are most popular. Good cutters for one or more wire sizes are made by C-H, Bahler, Belmont, Hollywood, Lakeville, Ted Smith, doubtless others. Cutters with tight holes make it difficult to feed wire, especially if it's oversize, bent, or has a "tail" from the last cut. The C-H Universal ($7.50) cuts all sizes of wire. It's the fastest one I've used. On a short timed run I cut slugs at the rate of 4,800 per hour!

The C-H cutter can be used in a vise, but the best deal is to bolt it to a 3″ length of 2″ angle iron mounted on your bench. Tip – use an extra 5/16″ lock nut on the adjustment screw, then use such separate screws for as many slug weights as desired. You'll never need to readjust and waste lead.

Oversize wire can be irritating. Speer cups are a shade small for inserting Harvey cast cores, which slows down production, and may shave lead. They take cut slugs as easily as Bahler and Harvey cups, even slugs with "tails."

The Belmont cutter has interchangeable, polished die sets, and cuts very cleanly.

Scrap lead can be used, but I don't recommend it for premium quality bullets. Scrap may contain anything. It isn't uniformly impure. One police department switched to a good commercial mix at my suggestion, and scores jumped noticeably. The extra cost per box of ammo is only a few cents, and well worth it. Good lead, good jackets,

TRADE MARK

ALCAN SHOTSHELL RELOADER'S MANUAL NO. X

New Unprimed "Alcan-Metal SHOT SHELL

Developed Solely For The Hand Loader

Covered by
United States Patent No. 2973711.
Other patents pending.

12 GAUGE ONLY

- **USE MAX-FIRE WW 209F PRIMER**
- **USE PGS PLASTIC WADS**

Check These Features:

PERFECT SHELLS EVERY RELOAD –

No more bloopers, odd sounding shells, change in recoil due to non-uniform velocity, etc., even though you are reloading the shell the first time or the 20th time.

ECONOMY –

Shell has unbelieveably long life, being several multiples of that obtained with a plastic or paper tube. We have reports from sports writers, etc., that after 20 reloads some cases were still serviceable for an unknown amount of further shooting. Tube life will vary from shell to shell, however, we are being very conservative in stating that when purchasing these tubes at retail price your cost for an empty hull which assures perfect reloads will, for the careful reloader, come to less than six cents per box of 25 empty shells.

METAL OVERLAY CUP–

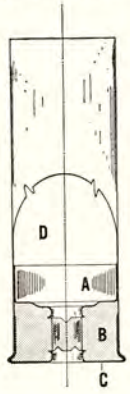
Locked in the shell in such a way that it cannot come out, plus offering full protection to the base wad from hot powder gases. Sealed so tightly that the shell head and metal tube never need sizing below the metal overlay. Reloading normal fired paper shells may allow a paper cup or a portion of an unprotected soft paper base wad to suck out of the shell only to wait in the barrel for the next round. Mr. Reloader, if you have ever worried about your favorite trap gun developing a bulge in the barrel, we are sure you will like this new development.

EASY TO RELOAD –

Can be reloaded on standard types of shot shell loading tools now on the market, with only a moderate cost for a special sizing die. With some tools a simple extra crimp die is also required. The major tool manufacturers have been given specifications for the resizing die and crimping die. We have been assured that kits will be available without delay. In case you have the facilities to make your own dies, the necessary information for making them appears on the opposite page.

COMPARE THIS SUPERIOR CONSTRUCTION

- **A. Metal Overlay Cup**
- **B. Locked In Base Wad**
- **C. Heavy Steel Head**
- **D. Metal Alloy Tube**



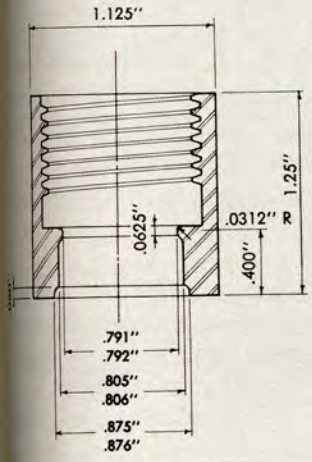
LIGHT IN WEIGHT –

Trap or hunting loads in Alcan-Metal tubes will not weight down your shooting jacket pocket. Increased weight is only approximately five ounces per box of 25 trap loads which is not noticable. The percent of increased weight for hunting loads, such as the 1½ ounce magnum, is indeed even smaller.

NOTE – **The 1962 versions of most shotshell hand loading tools are equipped to load this metal shell without any additional equipment. The older style tools require a special sizing ring and in some cases a special wad guide. ALCAN maintains a stock of parts for certain makes of tools and will be more than pleased to furnish them when required at our cost.**

LOADING DATA FOR "Alcan-Metal" SHOTGUN SHELL

To obtain superior performance and longivity of shell life from the "ALCAN-METAL" shell, we suggest the following procedure.

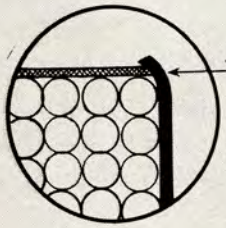


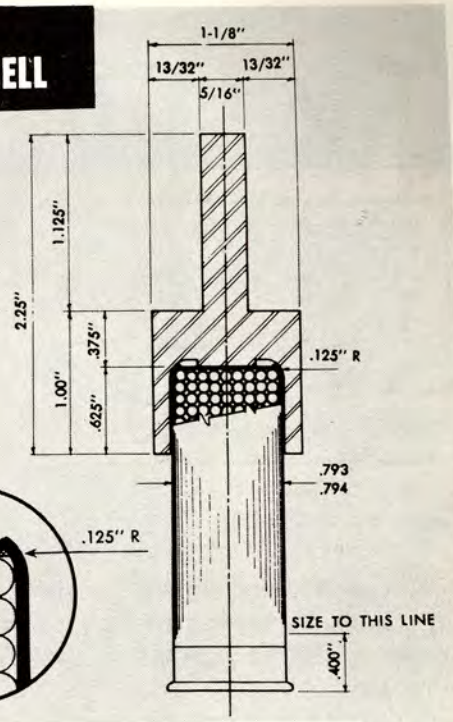
FIRST LOADING—

Seat a WW209F "MAX-FIRE" primer, insert powder charge, insert wads using 11 gauge ALCAN wads (see recommendation on charge table), charge with shot, insert "B" over shot wad and crimp. Please note that a very thin and light top quality cap stock "B" wad is furnished to assure no blown patterns and to maintain percentages equal to those obtainable with normal paper shells.

CAUTION: AVOID OVERCRIMPING

If metal is crimped too much the metal at the mouth of the shell will start to split excessively and the life of the shell will be shortened. CRIMP ONLY ENOUGH TO HOLD THE "B" WAD IN PLACE.





RELOADING—

Wipe off dust and dirt with a slightly oiled cloth, decap, resize and follow same instructions as with first loading. After repeated reloading, small checks appear at the mouth which do not affect the reloading qualities as tube will stretch approximately 3/32" after 10 or more firings, causing fresh metal to move forward to offset slightly weakened mouth metal, resulting in uniform crimp and ballistics throughout shell life. The patented head construction eliminates head resizing. When the shell is resized, the operation should stop approximately 3/32" from the steel head as the life of the shell will be shortened if the head is sized. Unique overlay construction with heavy steel head assures trouble free use in pumps, automatics, etc., if sizing instructions are followed.

ADVANCE NOTICE—

We shall produce a new fluted, transparent, plastic "B" over shot wad for the "ALCAN-METAL" shell in the near future. The transparent wad will allow the reloader to identify the load by seeing the shot size after the shell has been loaded. This "RESEARCHED" wad has been designed to stand more abuse during the loading procedure and in magnum reloads where large shot is used without possibility of blown patterns or reduced pattern percentages. If you are interested in this product we will mail you several samples from our first production if you will drop us a card. Always use the WW209F "MAX-FIRE" primer when loading the "ALCAN-METAL" shotshell.

12 Gauge Charge Table and Wad Column for "ALCAN-METAL" Shell

WAD PRESSURE to be applied to entire wad column

DRAM EQUIVALENT VELOCITY	OUNCES SHOT	70 POUNDS ALCAN AL-5 POWDER		70 POUNDS ALCAN AL-7 POWDER		60 POUNDS ALCAN AL-101 POWDER		50 POUNDS ALCAN AL-120 POWDER		50 POUNDS RED DOT POWDER	
2¾	1⅛					19 Grains 1-.135" nitro 2-⅜" F.B.S.	18 Grains 1-P.G.S.* 2-⅜" F.B.S.†	25 Grains 2-.135" nitro 1-½" F.B.S.	24 Grains 1-P.G.S. 1-.135" nitro 1-½" F.B.S.	21 Grains 1-.135" nitro 2-⅜" F.B.S.	20 Grains 1-P.G.S. 2-⅜" F.B.S.
3	1					19 Grains 2-.135" nitro 2-⅜" F.B.S.	18 Grains 1-P.G.S. 1-.135" nitro 2-⅜" F.B.S.	25 Grains 1-.135" nitro 2-⅜" F.B.S.	24 Grains 1-P.G.S. 2-⅜" F.B.S.	21 Grains 1-.135" nitro 2-⅜" F.B.S.	20 Grains 1-P.G.S. 2-⅜" F.B.S.
3	1⅛					20 Grains 1-.135" nitro 2-⅜" F.B.S.	19 Grains 1-P.G.S. 2-⅜" F.B.S.	26 Grains 2-.135" nitro 1-½" F.B.S.	25 Grains 1-P.G.S. 1-.135" nitro 1-½" F.B.S.	23 Grains 1-.135" nitro 2-⅜" F.B.S.	21 Grains 1-P.G.S. 2-⅜" F.B.S.
3¼	1⅛							28 Grains 2-.135" nitro 1-½" F.B.S.	27 Grains 1-P.G.S. 1-.135" nitro 1-½" F.B.S.		
3¼	1¼	31 Grains 1-.200" nitro 1-½" F.B.S.	30 Grains 1-P.G.S. 1-.070" nitro 1-½" F.B.S.								
3¾	1¼	34 Grains 1-.200" nitro 1-½" F.B.S.	32 Grains 1-P.G.S. 1-.070" nitro 1-½" F.B.S.								
4	1⅜			38 Grains 1-.135" nitro 1-½" F.B.S.	35 Grains 1-P.G.S. 1-½" F.B.S.						
SHORT MAGNUM	1½			39 Grains 1-.200" nitro 1-⅜" F.B.S.	36 Grains 1-P.G.S. 1-.070" nitro 1-⅜" F.B.S.						

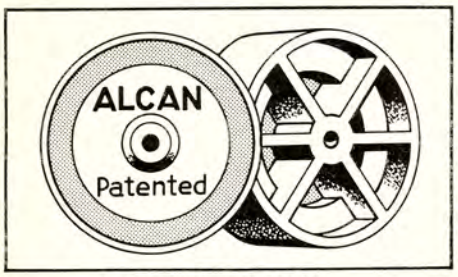
Excellent Skeet, Trap and Light Field Loads

"BAG" YOUR LIMIT WITH THESE LOADS

†F.B.S. — FELTAN-BLUESTREAK, RING-WAXED filler wad.
*P.G.S. — PLASTIC GAS SEAL over powder wad.

Use "B" over shot wad and crimp only enough to hold wad in place!

Alcan PLASTIC WADS



Patent Number 2,986,998

Alcan Patented 12 Gauge Over Powder Wad

1. Reloading is easier and faster when using a correct diameter wad, due to the air-escape in the AIR-WEDGE wad that permits positive seating.
2. When reloading the AIR-WEDGE, we suggest that the powder charge be decreased from 7 to 10%, therefore, this means a 7 to 10% saving to the reloader on powder costs.
3. Superior gas sealing due to the wedging action of the wads to eliminate muzzle flashes or bloopers.
4. Maximum uniformity of velocity and pressure because the AIR-WEDGE wad automatically expands and conforms to the diameter of the fired tube thereby eliminating any gas leakage.
5. The air cushion action improves patterns and reduces recoil effects.

THE PLASTIC AIR-WEDGE over powder wad is designed to obtain the maximum in shell uniformity of reloads, regardless of the variables that face the reloader, including the use of once fired tubes and many times fired tubes.

The AIR-WEDGE wad will eliminate muzzle flashes or bloopers because the flat surface of this wad transfers the first forces of primer explosion through the ribs, expanding the diameter of the wad at its base. The initial expansion of the wad at its base improves uniformity of powder ignition and takes place regardless of the actual wad pressure that is applied to the powder during the loading or the condition of the fired tube.

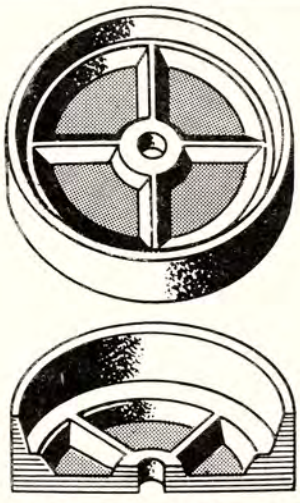
The gas sealing feature of the wad is due to the properly designed sealing lip. The wad, however, is easily seated when reloading because the hole in the center is designed to allow the air to escape. Without this ho the wad would trap air in the shell and would pop repeatedly during your efforts to seat it on the pow or it would have to be made smaller in diameter to s easily and this would result in an inferior shell. Wh the shell is fired the rising breech pressure is also co fined by the filler or card wad that is seated immediate above the Air-Wedge wad and under the shot and furth wedging takes place enabling the wad to continue t wedging action and to function properly.

The AIR-WEDGE makes use of the air cells in t design of the wad to serve as a cushion for the viol action of a smokeless powder explosion once ignition h been accomplished. The air cushion action definitely r duces the feeling of recoil and improves patterns by gener ing correct time-pressure curves.

ALCAN PLASTIC PGS GAS SEAL PLASTIC GAS SEAL Over Powder Wad

Our customers have demanded an economical type plastic over powder wad that would be more efficient than the over powder card wad, even though it did not perform as well as the "AIR-WEDGE" wad. After exhaustive performance tests on various designed wads were run, we finally decided upon the wad that we have designated "PGS", short for PLASTIC GAS SEAL.

The Alcan plastic "PGS" wad is available in the correct diameter for the 10, 12, 16 and 20 gauge shells. The 10 gauge "PGS" is also the correct diameter for the 12 gauge "ALCAN-METAL" shell and the 12 gauge solid brass shells. "CORRECT DIAMETER" is important in an obturating type plastic wad to assure a perfect gas seal when the shell is fired. The patented "hole" in the "PGS" wads allow air to escape and assures the reloader that the wad will not tip when it is inserted in the shell, nor will it tip and pop up after it is securely seated. If you will make a quick check of some of the other plastic wads that are available you will find by comparison tests the ALCAN PLASTIC WADS are MORE RELIABLE and that they will function better ballistically.

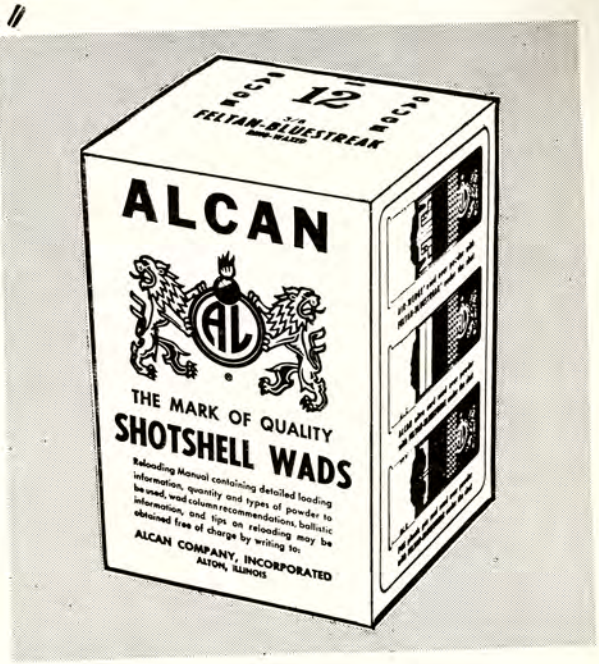


CROSS-SECTION OF PGS WAD

Alcan SHOTSHELL WADS

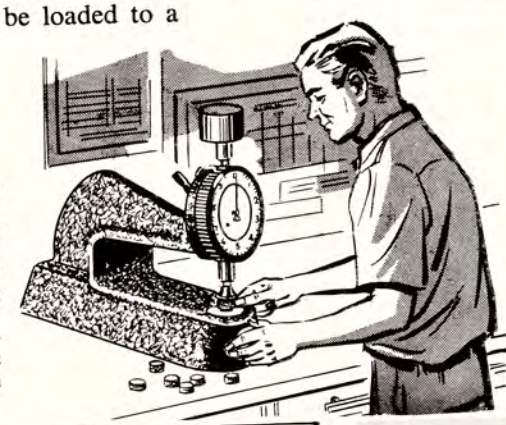
famous FELTAN-BLUESTREAK® WADS

This copyrighted trademark as applied to shot shell wads is a good one to remember. There have been so many inferior quality fiber wads cut from common wall board that ALCAN FELTAN-BLUESTREAK board material is specially formulated and manufactured, coated with a blue color on one side for identification. NO OTHER MAKERS OF WADS HAVE THIS SPECIAL HIGH QUALITY "FELTAN-BLUESTREAK" WAD BOARD MATERIAL. The Alcan 1/4", 5/16", 3/8" and 1/2" FELTAN-BLUESTREAK wads are GROUND FOR PERFECT THICKNESS and are superior to all other filler wads as they are of the proper weights, thereby helping to maintain correct breech pressure. They are exactly of the correct resilence to cushion the initial powder explosion, thus preventing shot distortion. This proper degree of resiliency also helps to hold down breech pressure permitting a shell to be loaded to a higher velocity with safety.



"FELTAN-BLUESTREAK" WADS ASSURE TOP PATTERN PERCENTAGES!

The "FELTAN-BLUESTREAK" Wad is die cut to correct diameter in each gauge, to enable the millions of fibres, which are presented at right angles to the bore, to perform proper scrubbing action preventing accumulation of barrel lead. Molded wads of soft, non-scrubbing fibres or cork products do not give sufficient scrub action, thus allowing a slow build-up of lead with resulting pattern loss. This scrub action of the "FELTAN-BLUESTREAK" is doubly important when using a plastic over-powder wad, because plastic has a total lack of scrub action, placing the entire problem of maintaining excellent pattern percentages through barrel lead control on the filler wad.



ANOTHER FIRST FOR ALCAN!

ALCAN is the only supplier of fibre type wads that are **Precision Ground** to exact thickness for a perfect crimp.

ALCAN "B" Overshot Wads
PLAIN AND PRINTED

The ALCAN "B" overshot wad is made of high quality card so that it may be easily imprinted. It is cut from thin stock making it exceedingly light so that it will not distort the pattern or increase the breech pressure. The printed "B" wads are available in 10 gauge, for ALCAN-METAL and solid brass 12 gauge shells, 12, 16 and 20 gauges and are printed with the Nos. 2, 4, 5, 6, 7, 7½, 8 or 9 of your choice. Be sure to state the gauge and printed number desired.

WAD COLUMN HEIGHT

No. 560 A/W & ¼" F.B.S.
No. 620 A/W & 5/16" F.B.S.
No. 685 A/W & ⅜" F.B.S.
No. 810 A/W & ½" F.B.S.
A/W - AIR-WEDGE
F.B.S. - FELTAN-BLUESTREAK

ALCAN "Nitro" Overshot Wad

The ALCAN .070", .135" and .200" over powder wads are cut from a special ALCAN NITRO CARD that has exactly the necessary tenacity to seal off the powder gases and yet not hard enough to increase pressures or be dangerous when constricted by the choke upon leaving the barrel. ALCAN nitro wads contain NO IMPURITIES that can be abrasive to the barrel of the shotgun. No compounds are used in the manufacturing of the board that will cause deterioration of the powder in the loaded shell. Place the ALCAN NITRO wad directly over the powder exactly as is, NEVER LUBRICATE this wad or treat it in any way when used as an over powder wad.

New- ALCAN "Combo-Wad"

Here is the greatest advancement in shotshell wads in a decade! This new COMBO-WAD is actually two wads in one — an assembly of the two foremost wads in the field — the famous ALCAN AIR-WEDGE and FELTAN-BLUESTREAK. The result — a one-piece wad that assures completely uniform reloads every time with one less operation for the reloader!

ALCAN SHOTSHELL WADS

AVAILABILITY CHART

	.357" — 38 PISTOL	410 Gauge PAPER	410 Gauge BRASS	.44 Cal. PISTOL	.45 Cal. PISTOL	32 Gauge PAPER	32 Gauge BRASS	28 Gauge PAPER	28 Gauge BRASS	24 Gauge PAPER	24 Gauge BRASS	20 Gauge PAPER	20 Gauge BRASS	16 Gauge PAPER	16 Gauge BRASS	14 Gauge BRASS	14 Gauge PAPER	12 Gauge BRASS	12 Gauge PAPER	12 Ga. ALCAN-METAL	10 Gauge PAPER	10 Gauge BRASS	8 Gauge PAPER	4 Gauge PAPER
PLAIN "B"	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	Use .070" NITRO	
PRINTED "B"	—	—	—	—	—	—	—	—	—	—	—	YES	—	YES	—	—	—	YES	YES	YES	YES	—	—	—
.070 NITRO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
.070" NITRO LUBRICATED	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	YES†	—	—	—	—	—	—	—
.135" NITRO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
.135" NITRO LUBRICATED	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	YES†	—	—	—	—	—	—	—
.200" NITRO	—	—	—	—	—	—	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	—	—
.200" NITRO LUBRICATED	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	YES†	—	—	—	—	—	—	—
"AIR-WEDGE" PLASTIC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	YES	—	—	—	—	—	—	—
"PGS" PLASTIC	—	—	—	—	—	—	—	—	—	—	—	YES	—	YES	—	—	YES	YES	YES	YES	—	—	—	—
1/4" FELTAN-BLUESTREAK	*YES	*YES	*YES	*YES	*YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	—
1/4" FELT	*YES	*YES	*YES	*YES	*YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	—
5/16" FELTAN-BLUESTREAK	—	—	—	—	—	—	—	—	—	—	—	YES	—	YES	—	—	—	YES	YES	YES	YES	—	—	—
3/8" FELTAN-BLUESTREAK	—	—	—	—	—	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
3/8" FELT	—	—	—	—	—	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	—
1/2" FELTAN-BLUESTREAK	—	—	—	—	—	—	—	—	—	—	—	YES	—	YES	—	—	—	YES	YES	YES	—	—	—	—
1/2" FELT	—	—	—	—	—	—	—	—	—	—	—	YES	—	YES	—	—	—	YES	YES	YES	—	—	—	—

*NOTE: Not Ring-Waxed. † Use only as filler wad with "AIR-WEDGE" when not enough room for "FELTAN-BLUESTREAK" filler wads.

WAD COLUMN RECOMMENDATIONS

The diameter of the wad is of prime importance because undersized wads will allow gas leakage, resulting in very erratic loads and barrel leading!

It is impossible to load a satisfactory shell without the use of both over powder wads and filler wads. The AIR-WEDGE and PGS plastic wads are molded of a specially selected formulation of plastic and the nitro card type over powder wad is made of a special grade chip board to help seal the powder gases. The over powder wad also prevents lubricant on the filler wads from reaching the powder. If the entire wad column consists of nitro wads only there would be very little cushion to the powder explosion, therefore, poor patterns would result. There is also the possibility of a dangerous load because of lack of resilence in the wad column.

It is also impossible to load a satisfactory shell if the entire wad column consists of filler wads. Such a wad column would be too soft and probably distort when the shell was fired, allowing gas leakage which could, and more than likely would, result in rather poor ballistics and poor patterns.

The question now arises as to how many of each type of wad is required to obtain a satisfactory shell. The minimum requirement is one nitro over powder wad and one 1/4" FELTAN BLUESTREAK wad in the conventional wad column. The use of the minimum wad column is naturally to be avoided where possible, to eliminate any possible gas leakage. For example, we have found that two nitro and one filler wad makes an excellent wad column, or if you prefer, you may use two nitro and two filler wads or one nitro and two filler wads.

A plastic over powder wad such as the "AIR-WEDGE" or the "PGS" may be used in place of the single nitro over powder wad to assure a 100% gas seal. When using the AIR-WEDGE plastic over powder wad it is sometimes necessary to use only a lubricated nitro wad as a filler wad because of insufficient space. The AIR-WEDGE was designed to give maximum gas sealing efficiency and also to cushion the violent action of a smokeless powder explosion so as to improve patterns and to spread out the time pressure curve (recoil). The lubricated nitro wad is used *only with plastic AIR-WEDGE over powder wads* as a filler wad, when there is not enough room for conventional filler type wad, so as to assure proper crimping and to lubricate the barrel of your shotgun.

When loading new shells the height of the wad column is very critical. For this reason ALCAN has made the nitro wads available in .070", .135", .200" thickness and the FELTAN BLUESTREAK wads are available in 1/4", 5/16", 3/8" and 1/2" thickness. It is now possible to obtain a wad column height with the fine adjustment necessary to obtain a perfect crimp.

The .070" nitro over powder card wad should never be the only nitro wad in high velocity hunting loads because it is not thick enough to function properly.

ALCAN RING-WAXED FELTAN-BLUESTREAK AND OTHER FILLER WADS

The wax used on "RING-WAXED" ALCAN wads is not an ordinary product. It has been formulated from years of experience on the part of the manufacturer, and to accepted practices of American and European ammunition companies as the finest lubricant for wads.

ALCAN'S wax formula has the high melting point of 148°F. to give a chance for the wax on the wads to melt during hot storage conditions. If wax, or other wad lubricant melts, the wads stick tight in the paper tube raising breech pressures to possibly a dangerous level. In more extreme cases, should wax melt or thin, the wax can migrate into the powder causing squibbs.

The wax formula has less than 2% oil contents ASTM D-47T%W. There is no free oil to migrate along the tube surface to the over powder wads and change the burning characteristics of the powder.

The wax formula has a specific gravity of only 0.910. Further it adheres to the surface where needed, remaining in a relatively soft state for perfect results.

Because of the nature of the wax formula, RING-WAXED wads yield safer loads, highest possible pattern percentages, absolutely no leading of the shotgun barrel, and all accomplished with extra velocity.

The wad is not completely soaked with heavy paraffin. A soaked or dipped wad adds excessive weight, which must be moved by the powder charge. Loading tables, in use today, do not take these extra heavy dipped wads into consideration, when recommending powder charges. ALCAN charge tables are based on RING-WAXED wads.

RING-WAXED wads have an extra large quantity of lubricant on the edges of the wad for perfect barrel lubrication. There is no wax on the wad, except where it is needed.

No dust or confetti. Wads hold together, RING-WAXED wads do not dry hard. The wads stay at just the right tenacity for consistent ballistics.

The handloader is assured that each one is perfect. 100% inspection is accomplished by a series of gates for thickness and each wad must be whole as well as perfectly round, or it will not roll through the machine.

RING WAXED wads are expensive to manufacture, as each individual wad is carefully rolled over a surface holding melted wax. This expensive process is used to enable the handloader to achieve perfect results.

ALCAN SHOTSHELL POWDER
FOR THE RELOADER

For Superior PERFORMANCE

ALCAN AL-5

Is a progressive burning shotgun powder that will produce maximum velocity in heavy loads. This powder is to duplicate in reloads such shells as Super-X, Super Speed, or Hi-power. This is a smokeless powder made from pure gelatinized nitrocellulose and containing no nitroglycerin. It is a stable product and due to its uniform and progressive burning qualities exceptionally high pattern percentages are obtained.

ALCAN AL-7

This is a very progressive burning powder for magnum loads of high velocity using heavy shot charges. This smokeless powder is made from pure gelatinized nitrocellulose and contains no nitroglycerin. This powder is so dense that it is possible to load a 12 gauge 1⅝ oz. magnum load in a regular Federal 2¾" empty once fired trap load tube. A stable product and due to its uniform and progressive burning qualities exceptionally high pattern percentages are obtained.

ALCAN AL-8

Super-magnum powder for highest velocity with heavy shot charges. This is a coarse grain powder intended for use in heavy loads only. It will not burn well except with recommended shot weight. It requires a good deal of space in the shell and should be loaded in low inside base cases.

NOTE: Powders AL-5, AL-7 and AL-8 are the only shot shell powders available that were developed solely for reloading. ALCAN technicians worked closely with the NOBELKRUT explosives division of the well known firm of AKTIEBOLAGET BOFORS, who manufactures the powders, to bring you these quality products.

ALCAN AL-101

Powder is a natural color, round flake, smokeless powder especially designed for use with the PC57 and PC209 replacement cups, for a perfectly balanced 12 gauge 1⅛ ounce Trap, Skeet or Light Hunting load. This fast burning powder also works perfectly with primers number 645P. It is not necessary to use such expensive and powerful primers as the MAX-FIRE 209, Type 220, or G57F, however, these may be used if you so desire. AL-101 Powder is moisture proof, finely cut, ignites with ease, burns clean, and gives very uniform velocity — pressure results with high pattern percentages, it is a dense powder taking up little space in the shell. The small weight of powder required results in it being economical to use.

AVAILABILITY CHART

AL-5	250 Gram (8.8 ounces) TINS 2¾ Kilogram (6 pounds) FIBRE KEGS 15 Pound METAL KEGS
AL-7	250 Gram (8.8 ounces) TINS 2¾ Kilogram (6 pounds) FIBRE KEGS 15 Pound METAL KEGS
AL-8	250 Gram (8.8 ounces) TINS 2¾ Kilogram (6 pounds) FIBRE KEGS 15 Pound METAL KEGS
AL-101	250 Gram (8.8 ounces) TINS 2¼ Kilogram (5 pounds) FIBRE KEGS
AL-120	8 Ounce TINS 2 Kilogram (4½ pounds) FIBRE KEGS 12 Pound METAL KEGS 24 Pound METAL KEGS
SUPER-M BALLISTITE	250 Gram (8.8 ounces) TINS
NIKE	250 Gram (8.8 ounces) TINS

ALCAN AL-120

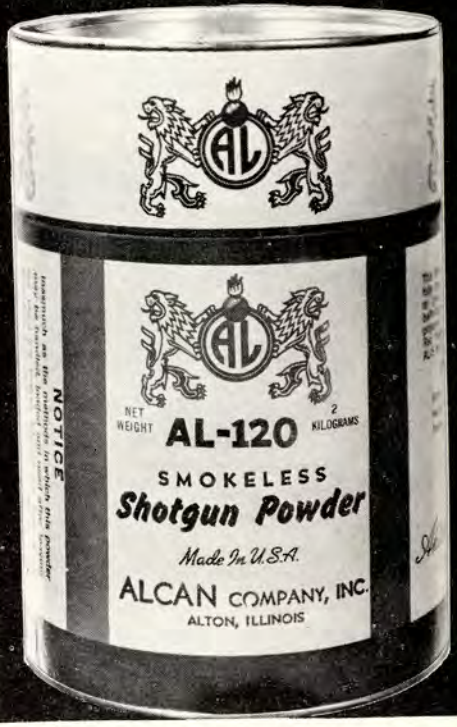
Powder is maroon flecked, perforated hard grains, especially designed for the ALCAN METAL shell, trap and field loads. This powder ignites with ease, burns clean giving exceptionally high, uniform velocity, with moderate breech pressures contributing to high pattern percentages at maximum velocity. This powder is slightly more bulky than average light load powder which results in efficient, low cost wad columns. To be used with ALCAN MAX-FIRE WW209F, G57F, PC209 and PC57 primers.

SUPER-M BALLISTITE

Powder by Baschieri & Pellagri — it has good ballistic properties and, owing to small portions required, insures inexpensive shooting. It is moisture-proof and designed for a perfect trapload with the No. 240 primer.

NIKE POWDER

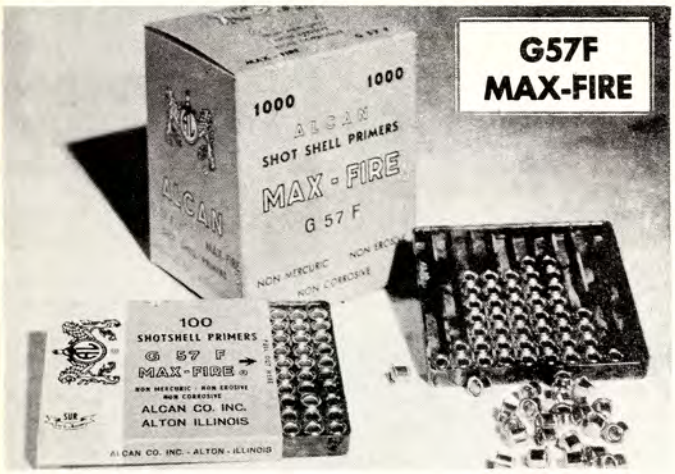
Powder by Baschieri & Pellagri — is in the form of crimson color, square shaped evenly sized lamels of perfectly gelatinized material. It gives low pressures with exceedingly uniform and compact patterns. It is absolutely weather-proof and causes no corrosion of barrels. It is the only shotshell powder suitable for loading perfect quality 12 gauge and 16 gauge rifle slug or single ball loads.



Be Safe... Be Satisfied... Be Sure... REFER TO CHARGE TABLES ON PAGES 13 AND 14

Alcan "Max-Fire"®
SHOTSHELL PRIMERS

NON-ERROSIVE
NON-CORROSIVE
NON-MERCURI



FOR QUALITY RELOADS!

MAX-FIRE Shotshell Primers have more lead Styphnate primi compound than other shotshell primers available. The result is pe fect powder ignition, even in many times fired tubes. These primer have improved ignition to such an extent that there is now litt difference in uniformity of velocity and pressure when using onc fired or several times fired tubes. You can now mix up your empti and still have reloads like factory new shells. This could never b accomplished before MAX-FIRE primers were available. The MAX FIRE primers have a covered flash hole for identification and moistur proofing and are packaged in new flat plastic trays containing 10 primers. These primers have greatly improved ignition characteristic and will not raise breech pressures in new or in once fired shell when used according to Alcan charge table. The MAX-FIRE prime will raise to normal velocity and pressure those shells which migh have been on the low side due to: (1) poor condition of many time fired tubes, (2) humid conditions at the time of loading, (3) lo wad pressure, (4) cold weather muzzle flashes, etc. There is no othe primer on the market today to compare with MAX-FIRE primers fo reloading perfect shotshells.

WW209F MAX-FIRE

Designed for: "ALCAN-METAL" Shells
ALCAN (paper shells with metal overlay base wad)
Western-Winchester
Federal, Revelation, J. C. Higgins, etc.

G57F MAX-FIRE

Designed for: Remington-Peters

"Max-Fire"® is the WINNER!

PLACED
1st, 2nd and 3rd
in the
1960 OLYMPICS!

These primers have won eight of the last "World Championships" and close to 75% of all of the major European titles in the last few years. Even American team shooters use Fiocchi primers in important European championships.

ALCAN PRIMER CUPS

PC209 primer cups for re-assembly of the 209 size batter cup type primer. These primer cups have the outstanding fea ture of a SHAPED AND PRESSED priming charge to assure the reloader of a properly aligned anvil and guarantee correct sensitivity of the re-assembled battery cup primer. It takes special punches and dies on your loading tool to load by this process. A LEAD STYPHNATE PRIMING MIXTURE is used and the re-assembled primer will have most of the out standing features listed for the MAX-FIRE primer. The cups have lacquer over the priming compound to keep them moisture proof until loaded. These are full sized cups with a diameter of .212 inches so that they will not fall out of the battery cup after re-assembling. The PC209 primer may be used with any type of powder.

PC57 PRIMER CUPS — for re-assembly of the 57 Reming ton and Peters battery cup type primer (.185" diameter). Exactly the same features will be found in this cup as those of the PC209 primer cup. Any type of powder may be used with these cups.

ADDITIONAL PRIMER ITEMS

G4F

WINGED MUSKET CAP —
This cap fits all the old Springfields, musket guns, etc., of yester year.

G10F, G11F, G12F PERCUSSION CAPS

G10F PERCUSSION CAP is for nipples .159" to .164" diameter.
G11F PERCUSSION CAP is for nipples .165" to .169" diameter.
G12F PERCUSSION CAP is for nipples .170" to .174" diameter.
Measure nipple at point between 3/32" and 1/8" from end.

ALCAN No. 240

ALCAN No. 240 — For Winchester-Western and Federal fired shells. Designed for lowest possible cost of shooting when using Super M Ballistite, Bulk Smokeless and Black powder. NON-MERCURIC, NON-CORROSIVE.

BERDAN RIFLE & PISTOL

BERDAN Pistol Primer No. 175PB — Dia. .175"
BERDAN Rifle Primer No. 175RB — Dia. .175"
BERDAN Rifle Primer No. 199B — Dia. .199"
BERDAN Rifle Primer No. 210B — Dia. .210"
BERDAN Rifle Primer No. 217B — Dia. .217"
BERDAN Rifle Primer No. 250B — Dia. .250"
No. 1794 Express Rifle BERDAN — Dia. .254"

645B BERDAN

645B BERDAN — This primer designed for repriming the ALCAN type solid brass shotshell. For best results use with Super-M, Acapnia, Nike, DuPont Bulk Smokeless or Black powder. Body diameter .254". This is a new type Non-Mercuric. Primer which will not damage brass cases. Never use Mercuric Primers as your brass shells will become hard and split destroying their useful life.

6.45 5,45 4,45

6,45P PRIMER — Fits 12, 14, 16, 20, 24 and 28 gauge cheap types of European shotshells. In 12 gauge, functions best with Bulk Smokeless, Super-M or black powder. We do not recommend this primer for use with AL-5, AL-7, AL-8, Red Dot, DuPont PB, etc., in 12 gauge. In other gauges, Charge Table can be followed using any powder listed. Body diameter .300".

5,45 PRIMER — Fits ALCAN 32 gauge and 410 gauge Red Dog empty shells. Designed for use with AL-8 or 2400 Rifle powder in these sub-gauges. Body diameter .249".

4,45 PRIMER — Fits specially made odd size small gauge European shot shells. Body diameter .203".

LOADED SHELLS

BB TYPE ROUND BALL **CRIMPED BLANK** **CB TYPE CONIC BULLET**

6MM (22 Caliber)

RIMFIRE LOADED SHELLS

6 MM (22 Caliber) RIMFIRE LOADED SHELLS — These superior quality cartridges are loaded for indoor practice or back yard shooting. Flobert shells contain absolutely no powder charge, however, Fiocchi loads these with an extra amount of carefully charged dry priming mixture. They are considered the top quality and most accurate of this type shell. You may shoot them in regular 22 rifles or smooth bore type European weapons. Of course, the crimped blanks are only to make noise and are used in starter pistols, toy pistols, etc. Non-mercuric and non-corrosive.

9MM

RIMFIRE SHOT SHELLS

9MM RIMFIRE SHOT SHELLS — Special quality all brass nickel plated case with double shot charge, non-mercuric, non corrosive priming and smokeless powder. Very excellent pack with special boxes holding 50 shells. The all brass shell construction allows oversize wads to be used with the result that you will be amazed at the pattern and shooting ability of this little shell.

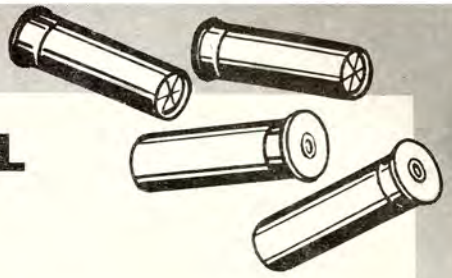
BALLISTIC TIPS ON RELOADING SHOT SHELLS-

So that the handloader will better understand his shells and the recommendations in the charge table, we will very lightly scratch the surface of internal ballistics in language which we hope even the beginner will understand. First, and most important, a handloader should remember that the total weight or volume of powder placed behind a given shot charge is not the governing factor of the breech pressure that will be generated when the shell is fired. It is primarily the burning speed of the powder which determines this, although crimp, wad pressure, primer, number of wads, etc. each play a small part. For example, the breech pressure of the average 2¾ dram equivalent 12 gauge trap load with 1⅛ ounces of shot as loaded by American ammunition companies will have as much breech pressure or possibly more than the hi-velocity maximum load. The difference being that in the 12 gauge trap load a small weight of smokeless powder is used to give 1⅛ ounces of shot the same velocity which would be imparted to it by 2¾ drams of black powder. This small charge of powder burns at a very rapid rate giving a high breech pressure for a very short period of time. The hi-velocity load containing a much greater quantity of powder of progressive burning type will not generate any greater pressure at any point in the chamber than the trap load, however, the duration of pressure is extended giving an entirely different type of pressure curve. With relatively the same height of pressure being sustained for a longer time, a greater velocity is imparted to the shot and this velocity becomes equal to what would be obtained by the use of 3¾ drams of black powder. This might be a good time to explain why American shells are still marked in drams equivalent. The average American shooter would become quite confused if he walked into his favorite store and found shells marked "Loaded with 26 grains Pb—23 grains Red Dot 10—30 grains Red Dot 80—28 grains Lot No. 5321 Ball, etc." We would have no idea of the velocity of the shells. To the credit of the American manufacturers, they have simplified this problem by marking all shells with drams equivalent.

When a box of shells is purchased which has been loaded by an American Company and marked 3¼ drams equivalent with 1⅛ ounces of shot he can be sure that regardless of brand name, the shot will have a velocity (average over 120 feet) of 975 feet per second with No. 4 shot, 955 feet per second with No. 8 shot. These velocities will remain within a small percentage of error regardless of the type or quantity of powder in the various brands of shells with this equivalent marking.

These are set standards for all loads. Right here is another pitfall of the handloader. Many a beginner has cut open a 12 gauge 3¼ dram load with 1¼ ounce of shot and found as much as thirty or more grains of Red Dot powder and proceeded on the assumption that it would be alright for him to do the same. Hercules Powder Company manufactures ten separate types of Red Dot powder which all look exactly alike. These are Red Dot 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100. Red Dot, which we know as canister lot powder is set aside for sale in cans and kegs to reloaders and is Red Dot No. 30. When a lot of Red Dot powder is manufactured it is assigned a relative burning speed number from 10 to 100 and sold to one of the ammunition loading companies, only Red Dot No. 30 is sold to the reloader. The loading company will set up their loading machines for a given shell which is to be marked by drams equivalent and use whatever quantity of this powder is necessary to obtain the standard velocity at safe pressure required to conform to the equivalent marking by which the shooter is accustomed to buying his shells. The handloader should never assume powders are anywhere near the same burning speed just because they look alike. A large charge of Red Dot No. 100 is O.K. with 1¼ ounce of shot in 12 gauge. The same amount of canister lot Red Dot powder (No. 30) with 1¼ ounce shot in 12 gauge would create a very dangerous load. Red Dot canister (No. 30) and Red Dot No. 100 look exactly alike. Never take a gamble on powder. We want to briefly explain why it is necessary to use different powder to attain given velocities at safe pressure with different weight of shot charge. For example, the powder for a dram load behind an ounce of shot in 12 gauge would be required to burn quickly and cleanly with this light charge of shot to build the proper pressure curve. Super M Ballistite is such a powder. It would be impossible to take this powder and load a safe 12 gauge 1¼ ounce load with high velocity for hunting. AL-5 is the proper powder for this range of loads. By the same token, to take a powder like AL-7 which will load the perfect 12 gauge magnum with 1½ ounce shot and attempt to load a trap load would be just as foolish. You would have ignition trouble, muzzle flash etc. It is advisable to decide on the velocity desired with the weight of shot you wish to use, in whatever gauge you are loading.

Consult our loading table and select a powder which will do the job at safe breech pressures. The safe breech pressure is the most important thing and the Alcan charge table assures you perfect reloads. Never try to use one powder for all shot shell reloads if you expect safe and proper results. The rifle handloaders have long had a cabinet full of various types of powder and know very well that the same powder will not serve all purposes. Another important tip on shot shell reloading is to be sure the shell head is supported during priming. All priming of shot shells in the Alcan Ballistic Laboratory is done by seating the primer with a tool having an inside punch which prevents the shell head from being concaved. This supports shell head during priming and assures a well seated primer, flush with head space line which helps to assure good uniform ballistics. A recent development and an IMPORTANT one to remember is that the very powerful post World War II primer prevents DuPont bulk powder from being used to full bulk measure as has been done in the past. DuPont bulk powder is no longer equal "bulk to bulk" to the black powder or the ammunition companies dram equivalent shell markings. Check every bulk powder load before using it and always use the weakest primer possible. A quick rule of thumb is to reduce the dram setting by 20%. You will still get the velocity (drams equivalent) of 20% more than drams used due to todays powerful primer



REQUIREMENTS FOR SUCCESSFUL SHOT SHELL RELOADING

PRIMER-

Non-mercuric, non-corrosive and non-erosive primers with lead styphnate priming compound of special formulation and "Extra Heavy" charge weight to gain uniform and adequate ignition in fired cases are required. This is doubly true where it is impossible to have the same quality of crimp that is found on new factory loaded shells. Such a crimp is impossible to achieve on fired shells because the paper has been burned and damaged from previous firings and therefore the replaced crimp on a reloaded shell offers very little confinement to the load. Years of experience have proved that "Perfectly Normal Factory Primers", such as those used in new factory shells, will not yield sufficient ignition of the powder charge to impart uniform velocity to the shot even when the shells sound and seem to shoot satisfactory. Also, we would suggest that it is most important for the reloader to use a primer with a covered flash hole. This covered flash hole prevents atmospheric conditions from adversely affecting "MAX-FIRE" primers and further prevents the possibility of powder entering into the primer battery cup causing a change in ignition characteristics resulting in undesirable breech pressures.

SMOKELESS POWDER-

To achieve satisfactory reloads very special powders are required since uniform confinement of the powder charge is most difficult when using fired tubes that vary in their condition. Even with a good shot shell reloading tool and careful reloading according to the wad pressure scale, the quality and condition of the fired tube will cause great variation in the percentage of applied wad pressure that flows laterally and the percentage actually exerted against the powder. Also, the condition of the paper tube is of primary importance in determining what percentage of applied wad pressure remains on the powder after the shell is a few hours old. Many a reloader has discovered that his shells, loaded Wednesday night and checked for proper size, must be pushed into the gun chamber on Sunday. This comes from the weak paper tube allowing the shell to expand laterally which also changes powder confinement or load density as it is sometimes called. Special shot shell powders for reloading, such as Alcan powders AL-120, AL-101, AL-5, AL-7 and AL-8, are designed to give ease of ignition coupled with uniform progressive burning, even when loaded under varying confinement conditions or load density.

WADS-

The wads may seem a rather insignificant item and to the novice reloader it would appear that any form of wad should function. This is extremely far from the truth as many reloaders have learned the hard way. The perfect wad column should have the following characteristics: (A), Proper weight, density, and gas sealing characteristics to ballistically produce a correct time-pressure curve in fired shells. (B), Proper cushioning effect when the shell is fired to yield correct pattern percentages. (C), Proper material formulation and lubrication to prevent barrel leading or fouling. For example, an extremely light wad will function most satisfactorily in a new case that has never been fired, due to the added powder confinement gained by a solid crimp, which offsets confinement loss from the light wad. Yet, the same wad used in a once or twice fired case will give variation in velocity and pressure. This same type of extremely light wad, which properly functions in the factory load or the once fired case in hot dry weather, when used in a many times fired case results in extreme variation of velocity and pressure with possibly even bloopers. This is due to the incorrect combination of the light wad and soft crimp. This poor shell, combining a soft crimp and excessively light wads, will often yield even higher pattern percentages than a reload having correct ballistics. This higher pattern percentage is generated from the low velocity and extremely low pressure which in time will definitely give the reloader difficulties. It is amazing to look at the unsatisfactory time-pressure curve generated by a wad column that is not properly designed for reloading as compared to the most satisfactory results obtained ballistically by using wads correctly engineered for proper density and weight for reloading. The wad column must also be properly designed for size, gentle barrel cleaning action, and proper lubricant to prevent barrel leading as well as other fouling deposits from accumulating inside the gun barrel. It is possible to use a wad column yielding perfect results with 75% patterns for the first 25 shots that will, however, after 500 rounds leave such a great amount of fouling in the barrel that pattern percentages will drop to under 50%. It is also possible to ruin an expensive gun should you use shot shell wads containing impurities. Impurities can be in the form of abrasives in the wad material, improper lubricants, improper chemical additives, or the wad material itself, especially plastics, being formulated with undesirable substances. The resultant explosion of a "primer-smokeless powder" combination generates heat over 2000 degrees and pressure over 10,000 pounds per square inch. Can you think of a more perfect chemical reactor! Now think of using wads lubricated with a substance (or plastic wads containing polyvinyl chloride) that leaves a barrel deposit which in turn reacts under high heat and pressure to form hydrochloric acid deposits inside your shotgun barrel. Imagine no more; such products have been sold to the novice reloader with the expected results. The ALCAN "AIR-WEDGE" wads for use over the powder and the "FELTAN-BLUE-STREAK" filler wads were designed, engineered and tested to give the shot shell reloader the finest possible results.

SHOT-

Everyone realizes that quality shot is a necessity but very few people understand why. First, if the lead shot does not contain the prescribed amount of alloy materials it will not be sufficiently hard to maintain good pattern percentages. The reason the shot must be of a certain hardness is due to the fact that it is impossible to make a wad column soft enough, that would not distort soft shot on explosion of the powder charge, without having the ballistic problem of inability to uniformly burn the powder charge as explained in the preceding paragraph. We all know that it is quite easy to obtain very excellent shot patterns by reducing velocity even though you are using soft shot. The trick of the trade is to have proper ballistics, with shot velocity at the proper level, for the job desired and yet maintain maximum pattern percentages. This requires a carefully controlled shot for hardness. Many people also consider that a shot pattern is excellent only by counting the percentage of the pellets within a 30" circle at 40 yards. Naturally, this must be done, however, it is only half of the job. To make this explanation as clear as possible it is quite easy for a reloader to mix No. 2, No. 6 and No. 9 shot in a 12 gauge 1¼ ounce load, using something like 32 grains of AL-5 powder yielding acceptable velocity, and find that a quick check on a piece of pattern paper reveals a tremendous percentage of these mixed pellet sizes have landed within the prescribed 30" circle at 40 yards. Yet, if the same shell were shot into water at approximately 40 yards the reloader would notice that there were three distinct splashes drawn out over a rather long time period. Actually, photographs taken of the shot charge in the ballistics range would reveal an extremely long shot string. Obviously such a shot string, even though the pattern percentage is high, results in a very poor shell. The lesson taught: pellets in a shot charge must be very uniform in roundness, size, and density before all of the pellets have the opportunity to arrive at the point of impact within the shortest number of milliseconds of each other plus yielding a good pattern percentage. Naturally, this condition results in excellent ammunition. Alcan "Chilled" lead shot is very closely checked for hardness, consistency of size and roundness. This kind of shot will give the reloader the results he is seeking.

Nickel coated shot is also made in a special way to warrant the expense to the reloader. The only way to gain absolute uniformity of shot is to make it by a mechanical process, one pellet at a time, to absolute identical size and weight with perfect roundness. Such shot will give the shortest known shot strings in the ammunition business. The only problem that occurs in making this perfect shot is that the process functions better when only moderately hard lead is used. Please note that ALCAN nickel shot is made by a mechanical process before it is nickel plated to assure the reloader of proper results for the money he spends. The finished product, perfect for roundness and weight from pellet to pellet, is then nickel coated to give it maximum hardness resulting in the perfect finished product. In other words, it is almost a waste of money to nickel plate normal shot dropped from a tower as this shot can be dropped using a chilled or hard alloy which at best would only be slightly improved by a nickel coating.

TROUBLE SHOOTING UNSATISFACTORY RELOADS

1. Bloopers or Muzzle Flashes

Can be caused by one or more of the components in your reload being incorrect. However, in many cases the reloader has been getting by with one rather defective component in the reload without realizing it and the moment he adds a second improperly designed component the blooper or muzzle flash occurs. This condition can be caused by a primer without sufficient priming compound causing poor powder ignition or by an incorrectly designed priming compound that does not generate sufficient gas volume to overcome the problem of powder ignition with uniform burning in the weak fired tube. This condition can also be caused by either poor quality filler wads, or in some cases excellent quality filler wads of extremely light weight, improperly used under conditions of minimum powder confinement due to the weak condition of fired shells. It can also be caused by over powder card wads that are too small in diameter, plastic types without proper lateral expansion (obturating) characteristics or poorly engineered plastic wads that generate pressure equalization along the side of the supposed gas sealing lip that naturally results in powder gas leakage upon explosion of the shell. Also, trouble can be caused from using filler wads that do not have the ability to operate with the right compression characteristics, under sudden breech pressure regardless of their weight. It is interesting to note that there is a correct diameter of wad for the type of material employed. If wad diameter is not properly engineered in relation to the material used in its manufacture, the result will be unsatisfactory reloads. It is also interesting to note that it is quite possible, when using plastic wads, to obtain pressure equalization on only a few shells out of each hundred loaded while the balance of the ammunition will be excellent. The appearance of such plastic wads will be quite good and only the diameter and design of the wad, in relationship to the type of plastic used, is incorrect resulting in an improper reaction under the breech pressure. The blooper or muzzle flash can also be caused by the reloader not paying attention to the recommendations as to the type of powder that should be employed in a particular gauge behind a given shot weight. In other words, an extremely slow burning powder, or one which is not designed for reloading, will never achieve a proper time-pressure curve to avoid the danger of bloopers or muzzle flash even if the other components used are of the highest quality. Generally the blooper or muzzle flash is not caused from a single source, but rather an improper combination, such as using a non-recommended "Standard-Power" primer for reloading with moderately incorrect wads. The previously mentioned slightly incorrect combination could conceivably function during the summer months in hot, dry weather. The reloader could experience trouble using precisely the same combination during the first cold damp fall days. Lower temperature will always affect the ignition power of the primer and this already low power primer is further reduced in its ability to ignite the powder which has now also been affected by dampness. Dampness causes powder to be more difficult to ignite and especially so in a fired tube. Mr. Reloader now suddenly finds that his pet load, which functioned fine all summer in spite of the fact that it was not recommended, suddenly turns up giving a few bloopers or muzzle flashes which he simply cannot understand. The real trouble is traced back to using non-recommended components, which were giving shootable reloads just within ballistics limits without Mr. Reloader knowing it, and when the slight added problem of cold wet weather came along his pet concoction failed to function. If our Mr. Reloader had started out using the proper recommended components, resulting in reloads at the center of ballistics balance, he could have continued loading exactly the same load through the cold damp weather. His reloads under the cold damp conditions certainly would have gone to the low side of breech pressure, however, his velocity would have remained within specifications and in all ways his loads would have remained perfect to use. Take almost any reload put together with one single component not properly designed or recommended and add just one more small problem and your troubles can become rather large.

Another cause for bloopers can be paper or foreign material in the primer hole acting as an obstruction for the hot gases from the primer. Be certain that your loading tool does not malform the base wads and also check to see that paper, grass, etc., is not blocking the primer inside the shell. This problem can be almost 100% solved by using the new ALCAN shell for your reloading which contains the patented metal overlay protecting the paper base wad.

SUMMARY — In order to obtain uniform results in reloading shells it is necessary that each step of the loading procedure be as uniform as possible. There should be as little difference in powder and shot charge weights as possible. Care should be taken in applying identical pressure when seating the wad column to avoid variation of powder confinement.

If you notice any change in the sound of the shell or the recoil of your gun when shooting your reloaded ammunition, we suggest that you use the ALCAN Air-Wedge plastic over powder wad. The Air-Wedge wad was specifically designed, engineered and tested for the reloaders use, to eliminate one of the prime variables that can adversely affect uniform reloads. The Air-Wedge wads seals and wedges upon primer explosion and this will vastly improve powder burning, especially when using coated double base powders such as Red Dot.

ALCAN ballistic service is available to the reloader. We require the following information be submitted with any group of shells for tests: (a) Number and make of primer; (b) The name or number of powder; (c) The charge weight of the powder in grains; (d) The number, type and location and pounds of pressure applied in seating and the manufacture of wads; (e) The weight and size of shot. Send six shells that are packed carefully and ship via Railway Express prepaid. We will fire five of these shells to obtain velocity and pressures and the sixth shell will be broken down in our laboratory for examination before starting the actual ballistic test. A ballistics report will be mailed to you and we will give the actual feet per second of velocity and the breech pressure in kilograms per square centimeter and in addition we will fill out ratings on the velocity, pressure, uniformity and give any comments we deem necessary to help you. The total charge for the test and writing the report, as outlined above, is $3.75 per each group of six shells.

2. Barrel Lead

This is generally caused by using poor quality wads. Such wads are not properly designed to accomplish gas sealing, proper cushioning, barrel lubrication, plus the gentle scrubbing action required to keep lead deposits to the very minimum. It can also be caused from using soft lead shot, shot of incorrect alloy or shooting shells with too high a velocity for the hardness of the shot being used.

It is also possible to have extreme leading of a shotgun barrel even when using extremely high quality wads that are improperly combined and used without full consideration of the job to be performed. For example, the use of the highest possible quality of over powder wad manufactured of plastic, such as the Air-Wedge, when combined with the balance of the wad column manufactured of a material not having a gentle scrubbing action such as solid cork or amalgamated cork will result in severe barrel leading. The same statement could be applied to a combination of any plastic over powder wad with a secondary filler wad also manufactured of plastic or other material such as cork that cannot act with gentle scrubbing action. Even wads manufactured of materials capable of scrubbing action can cause barrel lead if they lack lateral expansion characteristics. It is, however, some times advantageous to use one extremely light wad where an unusually long wad column is required using 3 or 4 wads. Such a shell would be a ladies load of 7/8 ounce shot, loaded into an extremely low base Federal fired tube, using Super Ballistite powder. In such a shell, with the AIR-WEDGE plastic over powder wad, a FELTAN-BLUESTREAK wad placed thereon, and the balance of the space in the shell filled up with any type of light wad material such as cork, good results could be achieved without the bad effects of barrel leading. However, if you fail to use one filler wad properly designed for adequate barrel lubrication, lateral expansion characteristics and light scrubbing action, the end result will be barrel leading. It is very interesting to note that shells combining, for example, only cork and plastic wads may give excellent patterns and target breaking characteristics for the first 25 or so rounds fired, yet, the same wad column in continued use will result in so much barrel lead and fouling that at the end of a few hundred rounds the pattern percentages will be extremely poor failing to break even 16 yard targets.

3. Low Pattern Percentages

This condition is generally brought about from the use of soft shot, excessively hard wad column, poor quality of wads, or excessively high velocity for the type and size of shot being used. It can also be caused by improper selection of the powder type for the load desired which results in a very sharp (abrupt) time-pressure curve. In other words, pressure that is not too high but which is too quickly generated. This abrupt impact will result in poor patterns even when using recommended wads. Lead fouling, in the barrel can also be a factor. See preceding paragraph.

4. Excessively High Pattern Percentages

This condition indicates that you are using extremely poor quality non-killing low velocity ammunition. We refer to patterns in excess of 80%. If you have patterns this high you should reduce the pattern to a level of 78 to 80% and take additional velocity on the shot due to the fact that the energy and carrying power of each pellet goes up with the square of the velocity. Low velocity will occur when using a poor primer that is not properly burning a correct type and weight of powder or a correct primer used with a type of powder that is entirely too slow in burning speed. Low velocity is also caused by too small a charge of propellent powder. Very poor quality wads causing an extreme powder gas loss can also be the cause of trouble as well as too soft a wad column causing a quality powder and primer combination to fail to function properly resulting in low velocity and extremely high patterns. Needless to say it is wise to approach solving this problem with extreme caution as you must be positive of what is causing your difficulties before taking any action.

5. Low Recoil

If your recoil is lower than factory shells for the same type of load we suggest one of the same problems that are covered in the preceding paragraph are responsible. Newton's law states that "for every action there is an equal and opposite re-action." Therefore, if your gun has low recoil against your shoulder the velocity of your shot charge is reduced in exact relationship.

6. High Barrel Pressure

This can be caused by the reloader who tries to solve his low velocity loads by stuffing in more powder without knowing exactly what he is doing. Let us assume that a hard to ignite powder not designed for reloading hunting ammunition, and they are on the market, is combined with a primer not quite designed for reloading. Let us say that the breech pressure on this load is at the low level of 6,000 pounds per square inch. Such a low level of pressure could function without a muzzle flash, however, it would be just short of this condition. The energy of the powder is not being utilized so Mr. Reloader stuffs in more powder to bring up the velocity of this obviously low pressure shell. He makes satisfactory progress and raises the pressures to 8,000 or 9,000 pounds. Things look fine at this point but lets take a close look. Certainly the breech of his shotgun will take the 8,000 or 9,000 pounds of pressure since it is designed to function with factory loads that operate usually between 10,000 pounds and 12,000 pounds. Now why is Mr. Reloader not using a safe shell? The extremely slow powder in too great a quantity is carrying the pressure, forward of the thick steel in the breech area, down the barrel to a point that the pressure level that was quite satisfactory for the breech of the gun has now moved to a point where the barrel is thin. There is now danger of blowing up the shotgun at 6" or so from the breech. We can give you another guaranteed way to blow up a shotgun and that is to duplex load with a small quantity of extremely fast burning powder over the primer and a large quantity of extremely slow burning powder placed on top. In other words, the normal shot shell primer, with the weight of shot employed, would merely fail to ignite the entirely too slow burning powder. Now consider a small quantity of a fast burning shot shell powder over the primer, that can be ignited quickly, which will in turn generate sufficient gas volume and heat to burn the slower type of powder. This will generate extremely high barrel pressures causing an explosion somewhere down the barrel. Here again, the condition of high barrel pressures will never develop if the reloader will follow the recommendations in this manual. Never load, buy or shoot a shotgun shell containing two types of powder, duplex loading, without extreme caution.

7. High Breech Pressure

This can be generated from several sources and to name a few is to use hard, or otherwise not recommended, wads behind a weight of powder and shot that is recommended. It can also be caused by selecting the wrong type of powder that is too fast burning for the job at hand and we suggest that you read in this manual, on this page, a detailed example of how one reloader, with apparent logic, was able to blow up a gun by using a quality and well known powder which was the wrong one for his use. It is also quite easy to raise breech pressures considerably beyond acceptable levels, that could easily blow up the breech of a shotgun, by adding a little too much shot in front of the normal recommended wad, powder and primer products. With the recommended weight and type of powder, correct primer, and proper wad column, there is only one satisfactory weight of shot that will yield a standard and correct time-pressure curve in fired shells. It is obvious at this point that if you add additional shot, with the other conditions remaining the same, it would be sufficient to increase the burning speed of the powder causing a rise in the time-pressure curve. It should also be noted that the percentage of the pressure rise is much more rapid than the direct percentage of shot weight added which is in excess of the recommended shot charge. In other words, on certain occasions the addition of only 10% of shot by weight to a given load will almost double the breech pressure. If your reloads are giving correct breech pressures of not over 12,000 pounds and you double this, obviously the gun would blow up! To state this in another way; as much as 1/8 of an ounce of shot added to a 12 gauge load above recommendations when using a fast burning trap load powder could result in increasing from normal breech pressures to proof pressure levels. All shotguns are tested with one single proof shell and if it does not blow up it is satisfactory for sale.

8. High Recoil

High recoil is obviously the result of too much velocity to a given weight of shot for a particular load. High recoil will always be the result of an excess amount of propellent explosive generating more than the required energy which drives the shot at excessive velocity. This condition of high recoil can be generated even at acceptable breech pressures and barrel pressures when using slow burning speeds of powder for light shot weights. We should like to point out that safe pressure ammunition, yielding extremely high velocity generating high recoil due to using slow burning powders with light shot charges, must be considered as a ballistically unbalanced load. This type load will often fail to work properly under cold conditions. See preceding paragraphs. We should like to give you a word of caution at this point and in 99% of the cases of high recoil it is only the result of too much breech pressure or too much barrel pressure or a combination of both. This requires looking into immediately. High recoil can also be generated by using an excessively hard wad column, however, this condition is usually not dangerous.

9. Low Breech Pressure and Barrel Pressure Combined

This can only be caused by having insufficient energy imparted to the shot charge. This can be caused by using the wrong type of powder or primer that does not completely burn the propellent in the barrel regardless of the quantity of propellent used. It can also come from an insufficient charge weight of a correct type powder. This condition is rather well explained in the preceding paragraphs using reverse thinking. Danger can lurk for the reloader in curing this problem so it is suggested that you use only recommended loads thereby avoiding the problem.

10. Extreme Variation of Velocity and Recoil

It is quite possible to use all but one recommended component and arrive to shooting reloaded shells that seem to have satisfactory patterns, breech pressures, barrel pressure, recoil, no bloopers, no barrel lead, except that Mr. Reloader is aware of a variation in performance from shell to shell. This condition is generally brought about by utilizing recommended components throughout the reload with the exception of one single item that is almost up to quality but not quite. One small change from the recommended combined components for reloading and it is quite possible to achieve a variation in the time-pressure curve that will go almost undetected by the novice reloader in spite of the fact that in his box of 25 trap loads, from which he expects 3 drams equivalent velocity, it would not be unusual to find a variation from slightly over 2 drams equivalent velocity to 3¾. Needless to say, this variation will, in time, be apparent to the reloader since it will affect the performance of his reloads for killing game or breaking targets.

HOW TO GET IN TROUBLE RE-LOADING

Let's take Joe, who found a simple way to cook up his own load. Joe's thinking: 21 grains of Red Dot with 1⅛ ounce of shot is correct for 12 gauge, 18 grains with 1 ounce of shot is correct for 16 gauge, and 16 grains with ⅞ ounce of shot is correct for 20 gauge. It therefore appears logical that about a 12% reduction in both shot charge and powder charge for each of the next smaller gauges would seem correct. Therefore, it would seem a good 28 gauge load should be a 12% reduction from 20 gauge or 14 grains of Red Dot with ¾ ounce of shot. He further assumed a good load in 410 gauge should be a 12% reduction from the 28 gauge load or 12½ grains of Red Dot with ½ ounce of shot. NOT TRUE — This load of 12½ grains of Red Dot with ½ ounce of shot in 410 gauge actually blew up the gun for our unsuspecting friend Joe. 410 gauge shotguns are proof tested at approximately 20,000 pounds per square inch. Joe's estimate, which seemed a rather logical assumption, of a good 410 gauge load delivered 36,000 P.S.I.

This true story, except for the fact that to save him embarassment our reloaders name was not really Joe, turned out with a rather happy ending since Joe was not hurt. Perhaps we should say Joe was not physically hurt, however, his pocket book and feelings were hurt through the loss of his favorite 410 gauge gun. The barrel and breech both blew up with a good part of the barrel missing, top side, for about six inches.

Now let's back up and take a good look at Joe's 28 gauge load which he assumed was safe using 14 grains of Red Dot with ¾ ounce of shot. This load under actual ballistics test results in approximately 19,572 pounds per square inch of breech pressure. Factory proof pressure level for 28 gauge guns is about 18,500 P.S.I. Joe's assumption of a good safe 28 gauge load would also very likely have blown up the shotgun.

This little "A, B, C" of re-loading is proof that while a man should think for himself he should not deviate from recommended loads.

Powder type, grain weight, wad pressure and wad column recommendations

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-7 "A" & "B"	ALCAN AL-8 "A" & "B"
10 GAUGE 3½" MAG.	MAX.	2¼		58 Grs.-70 lbs. 2-.135" nitro 1-⅜" F.B.S.
	5¼	2	49 Grs.-70 lbs. 1-.135" nitro 2-⅜" F.B.S.	
	5¼	2	44 Grs.-40 lbs. 1-P.G.S. 2-⅜" F.B.S.	

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-5 "A"	ALCAN AL-5 "B"
10 GAUGE 2⅞"	4¾	1⅝	44 Grs.-70 lbs. 1-.135" nitro 1-⅜" F.B.S.	44 Grs.-70 lbs. 2-.135" nitro 1-⅜" F.B.S.
	4¾	1⅝	41 Grs.-40 lbs. 1-P.G.S. 1-⅜" F.B.S.	41 Grs.-40 lbs. 1-P.G.S. 1-.135" nitro 1-⅜" F.B.S.
	4½	1¼	41 Grs.-70 lbs. 2-.135"nitro 1-⅜" F.B.S.	41 Grs.-70 lbs. 2-.200" nitro 1-⅜" F.B.S.
	3¾	1¼		

IMPORTANT!

Refer to Column "A" for Winchester Ranger, Western Xpert target and field shells. (Remington and Peters 12 gauge target shells only) to obtain correct wad column recommendations.

Refer to Column "B" for Winchester Super-Speed, Western Super-X, Remington and Peters field and high velocity, Federal, J. C. Higgins, Red Head and Revelation shells to obtain correct wad column recommendations.

NOTE: "B" Columns — 12-gauge Super-X and Super-Speed use ¼" less wad than shown for "B" Column. 16-gauge Super-X, Super-Speed, Remington and Federal HV all use "B" column. 20-gauge Super-X, Super-Speed and Remington use ¼" less wad than shown for "B" column. All 10, 28 and 410-gauge shells use wad columns as shown.

ALCAN AL-126 A	ALCAN AL-126 B	SUPER-M BALLISTITE A	SUPER-M BALLISTITE B
37 Grs. 60 lbs. 2-.135" nitro 1-⅜" F.B.S.	37 Grs.-60 lbs. 2-.200" nitro 1-⅜" F.B.S.	21 Grs.-25 lbs. 1-.135" nitro 2-⅜" F.B.S.	21 Grs.-25 lbs. 2-.135" nitro 2-⅜" F.B.S.

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-7 "A"	ALCAN AL-7 "B"	ALCAN AL-8 "A"	ALCAN AL-8 "B"
12 GAUGE 3" MAG.	MAX.	1¾			47 Grs.-70 lbs. 1-.135" nitro 1-⅜" F.B.S.	47 Grs.-70 lbs. 1-.135" nitro 1-½" F.B.S.
	MAX.	1¾			42 Grs.-40 lbs. 1-AIR-WEDGE 1-¼" F.B.S.	42 Grs.-40 lbs. 1-AIR-WEDGE 1-⅜" F.B.S.
	MAX.	1¾			42 Grs.-40 lbs. 1-P.G.S. 1-⅜" F.B.S.	42 Grs.-40 lbs. 1-P.G.S. 1-.135" nitro 1-⅜" F.B.S.
	4⅜	1⅝	3" length shells not made in Ranger and Xpert.	39 Grs.-70 lbs. 2-.200" nitro 1-½" F.B.S.		
	4⅜	1⅝	3" length shells not made in Ranger and Xpert.	34 Grs.-40 lbs. 1-AIR-WEDGE 1-.135" nitro 1-½" F.B.S.		
	4⅜	1⅝	3" length shells not made in Ranger and Xpert.	34 Grs.-40 lbs. 1-P.G.S. 2-.135" nitro 1-½" F.B.S.		

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-6 "A"	ALCAN AL-6 "B"	ALCAN AL-7 "A"	ALCAN AL-7 "B"
12 GAUGE 2¾" MAG.	4¼	1½			Insufficient space in shell for this load.	39 Grs.-70 lbs. 2-.135" nitro 1-¼" F.B.S.
	4¼	1½			Insufficient space in shell for this load.	35 Grs.-40 lbs. 1-AIR-WEDGE 1-¼" F.B.S.
	4¼	1½			Insufficient space in shell for this load.	36 Grs.-40 lbs. 1-P.G.S. 1-.135" nitro 1-¼" F.B.S.
12 GAUGE 2¾"	4⅛	1⅜			38 Grs.-70 lbs. 2-.135" nitro 1-¼" F.B.S.	38 Grs.-70 lbs. 2-.135" nitro 1-⅜" F.B.S.
	4⅛	1⅜			34 Grs.-40 lbs. 1-AIR-WEDGE 1-.070" lub. nitro	34 Grs.-40 lbs. 1-AIR-WEDGE 1-⅜" F.B.S.
	4⅛	1⅜			34 Grs.-40 lbs. 1-P.G.S. 1-¼" F.B.S.	34 Grs.-40 lbs. 1-P.G.S. 1-.135" nitro 1-⅜" F.B.S.
	3¾	1¼	34 Grs.-70 lbs. 1-.135" nitro 1-⅜" F.B.S.	34 Grs.-70 lbs. 1-.135" nitro 2-⅜" F.B.S.		
	3¾	1¼	31 Grs.-40 lbs. 1-AIR-WEDGE 1-.200" lub. nitro	31 Grs.-40 lbs. 1-AIR-WEDGE 1-.135" nitro 1-⅜" F.B.S.		
	3¾	1¼	31 Grs.-40 lbs. 1-P.G.S. 1-⅜" F.B.S.	31 Grs.-40 lbs. 1-P.G.S. 2-⅜" F.B.S.		

ALCAN CHILLED LEAD SHOT

Recognized by the reloading enthusiast as the finest for obtaining high pattern percentages and short strings.

ALCAN shot is of the correct hardness because of rigid quality control of the antimony content and is uniform in roundness, size and density. Available in 5 and 25 pound bags.

ALCAN NICKEL PLATED SHOT

is mechanically made, one shot at a time, to obtain absolute uniformity of shot size, weight and perfect roundness. The shot is then copper coated, followed by a nickel plating to give maximum hardness, longer range and improved patterns. Nickel plated shot is preferred by the professional trap, skeet and pigeon shooter. Nickel shot is available in 5 kilo bags (11 pounds) in shot sizes 2-4-6-7-7½-8 and 11.

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-101 "A"	ALCAN AL-101 "B"	ALCAN AL-120 "A"	ALCAN AL-120 "B"	SUPER-M BALLISTITE "A"	SUPER-M BALLISTITE "B"	RED DOT "A"	RED DOT "B"
12 GAUGE 2¾"	3¼	1⅛			28 Grs.-60 lbs. 1-.135" nitro 1-⅜" F.B.S.	28 Grs.-60 lbs. 2-.135" nitro 1-½" F.B.S.				
	3¼	1⅛			25 Grs.-40 lbs. 1-AIR-WEDGE 1-.135" lub. nitro	25 Grs.-40 lbs 1-AIR-WEDGE 1-½" F.B.S.				
	3¼	1⅛			25 Grs.-40 lbs. 1-P.G.S. 1-⅜" F.B.S.	25 Grs.-40 lbs. 1-P.G.S. 1-.135" nitro 1-½" F.B.S.				
	3	1⅛	20 Grs. 60 lbs. 1-.200" nitro 1-½" F.B.S.	20 Grs.-60 lbs. 1-.200" nitro 1-⅜" F.B.S. 1-½" F.B.S.	26 Grs.-60 lbs. 1-.135" nitro 1-⅜" F.B.S.	26 Grs.-60 lbs 2-.135" nitro 1-½" F.B.S.	20 Grs.-25 lbs. 1-.200" nitro 1-½" F.B.S.	20 Grs.-25 lbs. 1-.200" nitro 1-⅜" F.B.S. 1-½" F.B.S.	23 Grs.-50 lbs. 1-.135" nitro 1-½" F.B.S.	23 Grs.-50 lbs. 1-.135" nitro 2-⅜" F.B.S.
	3	1⅛	19 Grs.-40 lbs. 1-AIR-WEDGE 1-⅜" F.B.S.	19 Grs.-40 lbs. 1-AIR-WEDGE 1-⅜" F.B.S. 1-½" F.B.S.	24 Grs.-40 lbs. 1-AIR-WEDGE 1-.200" nitro lub.	24 Grs.-40 lbs. 1-AIR-WEDGE 1-½" F.B.S.	17 Grs.-25 lbs. 1-AIR-WEDGE 1-½" F.B.S.	17 Grs.-25 lbs. 1-AIR-WEDGE 1-⅜" F.B.S. 1-½" F.B.S.	21 Grs.-40 lbs. 1-AIR-WEDGE 1-⅜" F.B.S. or 1-⅝" F.B.S.	21 Grs.-40 lbs. 1-AIR-WEDGE 1-.070" nitro 1-½" F.B.S.
	3	1⅛	19 Grs.-40 lbs. 1-P.G.S. 1-.070" nitro 1-½" F.B.S.	19 Grs.-40 lbs. 1-P.G.S. 1-⅜" F.B.S. 1-½" F.B.S.	24 Grs.-40 lbs. 1-P.G.S. 1-⅜" F.B.S.	24 Grs.-40 lbs. 1-P.G.S. 1-.135" nitro 1-½" F.B.S.			21 Grs.-40 lbs. 1-P.G.S. 1-.070" nitro 1-½" F.B.S.	21 Grs.-40 lbs. 1-P.G.S. 2-⅜" F.B.S.
	3	1			25 Grs.-60 lbs. 1-.135" nitro 1-½" F.B.S.	25 Grs.-60 lbs. 1-.135" nitro 1-⅜" F.B.S. 1-½" F.B.S.	19 Grs.-25 lbs. 2-.200" nitro 1-½" F.B.S.			

Powder type, grain weight, wad pressure and wad column recommendations

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-5 "A"	ALCAN AL-5 "B"	ALCAN AL-7 "A"	ALCAN AL-7 "B"	ALCAN AL-8 "A"	ALCAN AL-8 "B"
16 GAUGE 2¾" MAG.	MAX.	1¼						37 Grs.-70 Lbs. 1-.135" nitro 1-¼" F.B.S.
	MAX.	1¼						33 Grs.-40 Lbs. 1-PGS 1-.070" nitro 1-¼" F.B.S.
16 GAUGE 2¾"	3	1⅛			27 Grs.-70 Lbs. 1-.135" nitro 1-¼" F.B.S.	27 Grs.-70 Lbs. 1-.135" nitro 1-½" F.B.S.		
	3	1⅛			24 Grs.-40 Lbs. 1-PGS 1-.070" nitro 1-¼" F.B.S.	24 Grs.-40 Lbs. 1-PGS 1-.070" nitro 1-½" F.B.S.		
	2¾	1	26 Grs.-70 Lbs. 1-.200" nitro 1-⅜" F.B.S.	26 Grs.-70 Lbs. 2-.135" nitro 1-½" F.B.S.				
	2¾	1	23 Grs.-40 Lbs. 1-PGS 1-.135" nitro 1-⅜" F.B.S.	23 Grs.-40 Lbs. 1-PGS 1-.200" nitro 1-½" F.B.S.				

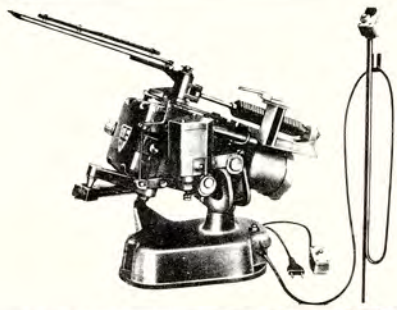
CHARGE TABLE INSTRUCTIONS

These ALCAN Charge Tables were prepared using the most accurate pressure barrels available in conjunction with the latest model of electronic chronographs. All test loads were loaded with ALCAN MAX-FIRE primers and ALCAN wads. The ALCAN Company, Inc., cannot assume any liability for damage which may result from improper use of these charge tables. Magnum loads should be used only in Magnum guns. Be sure to check the powder charge with a quality powder scale before starting to load. NEVER use a bulk powder measure for powders listed in these tables. Do not use an over shot "B" wad on slug loads as the slug can possibly run over the wad and damage the barrel. Use only new tubes and roll type crimp for slug loads. Do not use DuPont bulk or Black powder with this table. Remember, there are 7000 grains to a pound and 437.5 grains to an ounce.

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-101 "A"	ALCAN AL-101 "B"	ALCAN AL-120 "A"	ALCAN AL-120 "B"	SUPER-M "A"	SUPER-M "B"	RED DOT "A"	RED DOT "B"
16 GAUGE 2¾"	2½	1			21 Grs.-60 Lbs. 1-.200" nitro 1-⅜" F.B.S.	21 Grs.-60 Lbs. 2-.135" nitro 1-½" F.B.S.			18 Grs.-50 Lbs. 1-.135" nitro 1-⅜" F.B.S.	18 Grs.-50 Lbs. 2-.135" nitro 1-½" F.B.S.
	2½	1			20 Grs.-40 Lbs. 1-PGS 1-.135" nitro 1-⅜" F.B.S.	20 Grs.-40 Lbs. 1-PGS 1-.200" nitro 1-½" F.B.S.			16 Grs.-40 Lbs. 1-PGS 1-.070" nitro 1-⅜" F.B.S.	16 Grs.-40 Lbs. 1-PGS 1-.200" nitro 1-½" F.B.S.
	2½	⅞	17 Grs.-60 Lbs. 2-.135" nitro 1-½" F.B.S.	17 Grs.-60 Lbs. 2-.135" nitro 2-⅜" F.B.S.			15 Grs.-25 Lbs. 2-.135" nitro 1-½" F.B.S.	15 Grs.-25 Lbs. 2-.135" nitro 2-⅜" F.B.S.		
	2½	⅞	15 Grs.-40 Lbs. 1-PGS 1-.200" nitro 1-½" F.B.S.	15 Grs.-40 Lbs. 1-PGS 1-.200" nitro 2-⅜" F.B.S.			14 Grs.-25 Lbs. 1-PGS 1-.200" nitro 1-½" F.B.S.	14 Grs.-25 Lbs. 1-PGS 1-.200" nitro 2-⅜" F.B.S.		

VELOX II

Electric clay target trap for throwing all angles and deviations automatically. Throws Olympic style targets which is excellent practice to improve your field shooting.



DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-8 "A"	ALCAN AL-8 "B"	ALCAN AL-7 "A"	ALCAN AL-7 "B"	ALCAN AL-5 "A"	ALCAN AL-5 "B"	ALCAN AL-120 "A"	ALCAN AL-120 "B"
20 GAUGE 3" MAG.	MAX.	1⅜		33 Grs.-70 Lbs. 1-.135" nitro 1-⅜" F.B.S.						
	MAX.	1⅜		30 Grs.-40 Lbs. 1-PGS 1-.070" nitro 1-⅜" F.B.S.						
20 GAUGE 2¾" MAG.	3	1⅛	Insufficient space in shell for this load.	32 Grs.-70 Lbs. 1-.135" nitro 1-¼" F.B.S.						
	3	1⅛	Insufficient space in shell for this load.	30 Grs.-40 Lbs. 1-PGS 1-¼" F.B.S.						
20 GAUGE 2¾"	2⅞	1			25 Grs.-70 Lbs. 1-.135" nitro 1-¼" F.B.S.	25 Grs.-70 Lbs. 2-.135" nitro 1-⅜" F.B.S.	24 Grs.-70 Lbs. 1-.135" nitro 1-⅜" F.B.S.	24 Grs.-70 Lbs. 2-.135" nitro 1-½" F.B.S.	19 Grs.-60 Lbs. 1-.135" nitro 1-⅜" F.B.S.	19 Grs.-60 Lbs. 2-.135" nitro 1-½" F.B.S.
	2⅞	1			22 Grs.-40 Lbs. 1-PGS 1-¼" F.B.S.	22 Grs.-40 Lbs. 1-PGS 1-.135" nitro 1-⅜" F.B.S.	22 Grs.-40 Lbs. 1-PGS 1-⅜" F.B.S.	22 Grs.-40 Lbs. 1-PGS 1-.135" nitro 1-½" F.B.S.	18 Grs.-40 Lbs. 1-PGS 1-⅜" F.B.S.	18 Grs.-40 Lbs. 1-PGS 1-.135" nitro 1-½" F.B.S.
	2¼	⅞								
	2¼	⅞								

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-101 "A"	ALCAN AL-101 "B"	SUPER-M "A"	SUPER-M "B"
20 GAUGE 2¾"	2⅛	¾	14 Grs.-60 Lbs. 2-.135" nitro 1-½" F.B.S.	14 Grs.-60 Lbs. 2-.135" nitro 2-⅜" F.B.S.	12 Grs.-25 Lbs. 2-.135" nitro 1-½" F.B.S.	12 Grs.-25 Lbs. 2-.135" nitro 2-⅜" F.B.S.
	2⅛	¾	13 Grs.-40 Lbs. 1-PGS 1-.135" nitro 1-½" F.B.S.	13 Grs.-40 Lbs. 1-PGS 1-.135" nitro 2-⅜" F.B.S.	11 Grs.-25 Lbs. 1-PGS 1-.135" nitro 1-½" F.B.S.	11 Grs.-25 Lbs. 1-PGS 1-.135" nitro 2-⅜" F.B.S.

NOTE: The loads listed below are very little used and therefore we list powder charges only. When using the PGS or AIR-WEDGE plastic over powder wads we suggest powder charges be reduced approximately 10%. The most popular loads are listed elsewhere on these pages.

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-8 "A" & "B"	ALCAN AL-7 "A" & "B"
28 GAUGE	2¼	¾	23 Grs.-70 Lbs. 1-.135" nitro 1-⅜" F.B.S.	
	2⅛	⅝		16 Grs.-70 Lbs. 1-.135" nitro 2-⅜" F.B.S.

DESCRIPTION	DRAM EQUIVALENT VELOCITY	OUNCES SHOT	ALCAN AL-8 "A" & "B"	2400 "A" & "B"
410 GAUGE 3"	MAX.	¾		16 Grs.-50 Lbs. 1-.135" nitro 1-¼" F.B.S.
	MAX.	5/8		15.5 Grs.-50 Lbs. 2-.135" nitro 1-¼" F.B.S.
410 GAUGE 2½"	MAX.	½		15 Grs.-50 Lbs. 1-.135" nitro 1-¼" F.B.S.
	MAX.	⅜	12 Grs.-70 Lbs. 1-.135" nitro 2-¼" F.B.S.	

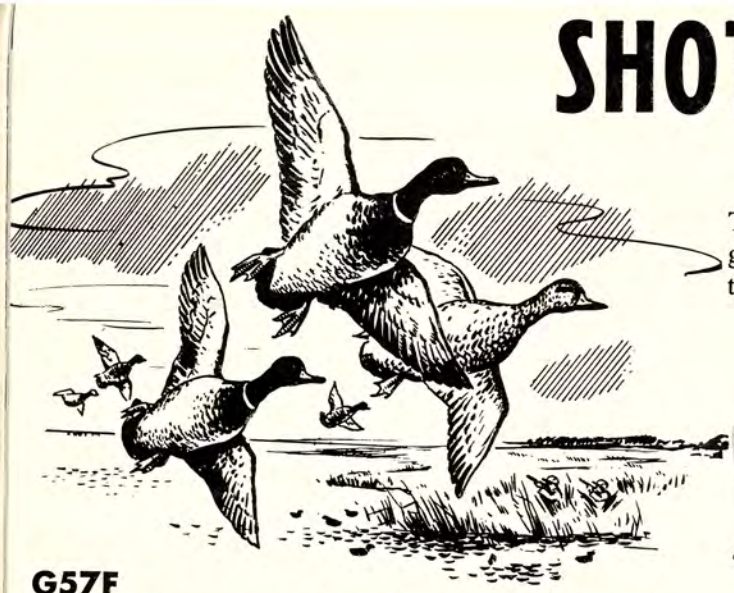
WAD PRESSURE IN POUNDS TO BE APPLIED TO WAD COLUMN

Description	Dr. Equiv. Velocity	Ounces Shot	70 AL-8	70 AL-7	70 AL-5	25 Super-M Ballistite	25 Nike	50 Red* Dot	60 PB DuPont
10 GAUGE 27/8"	5½	1¾		50					
	4¼	1¼			40				
12 GAUGE 2¾"	4	1⅜		37					
	4	1¼			36				
	3½	1¼			32				
	3¼	1¼			30				
	3	1⅛					21	23	27
	2¾	1⅛				17			
	Max. Lyman Rifled Shotgun Slug made with hand casting set—Use 30 Grs. Nike Pwd.								
16 GAUGE	3¼	1⅛		28					
	2¾	1⅛		26					
	2½	1			24		17	18	22
	Max. Lyman Rifled Shotgun Slug made with hand casting set—Use 22 Grs. Nike Pwd.								
20 GAUGE	2½	1		24					
	2⅛	⅞			22		14	16	19
	2⅛	¾				12			
	Max. Lyman Rifled Shotgun Slug made with hand casting set—Use 29 Grs. AL-5 Pwd.								
410 GAUGE	Max.	⅜	12						

* Charges for Hercules Powders as suggested by them.

SHOT SHELL TUBES

(EMPTY)



The finest materials and workmanship to give the maximum number of reloads for the skeet, trap shooter or hunter.

G57F
MAGNUM TYPE SOLID BRASS SHELL

Exclusive feature is the military type underhead rim cut for perfect functioning.

This is the heaviest, strongest, most satisfactory type of solid brass ever offered for use with modern smokeless powders and normal battery cup type G57F primers. Other types of brass shells use rifle or Berdan primers and are intended for use with Bulk or Black powders. These are furnished unprimed that they may be shipped parcel post. Load any type of load up to the full magnums with magnum powders in this brass shell. Available in 12, 16, 20 and 410 gauge, 2½" length. Note this is correct length for proper functioning of brass shells and for any type load. The 2½" 410 gauge will take the regular ¾ ounce load, the 12 gauge the 1⅝ ounce magnum, etc. Now available in 10 gauge 2⅞" length and also in the 12 gauge 2¾" length — box of 10. When ordering wads specify "For solid brass shells" and specify gauge.

BERDAN TYPE SOLID BRASS SHELL

This is the normal type brass shell to use with the regular shot shell 645B Berdan primer. Best results will be had loading with DuPont Bulk, Black Powder or one of our easier igniting powders such as Super-M, Nike in 12, 14 and 16 gauge. Red Dot works well in 20 or 24 gauge. In 28 gauge and 32 gauge, AL-7 works well and in 410 gauge the 645B primer will ignite 2400 for a good ½ ounce load. Available in gauges 12, 14, 16, 20, 24, 28, 32 and 410. These brass shells are 2½" in length, except for 410 gauge, which is 2". Packed 10 shells to a box. When ordering wads specify "For solid brass shells" and specify gauge.

NOTE: Use only ALCAN Non-Mercuric Primers in solid brass shells to prolong their life. Mercuric primers will cause brass cases to become hard and to split.

* ALCAN HIGH BRASS TYPE HV

For High Velocity and Short Magnum Loads

These normal type paper tube brass head shells are fabricated in our plant. Height of the BRASS head is 5/8" wound paper base wad with patented metal overlay cup wa that will not burn out or shoot out. This shell is ENGINEERED for strength, performance and dependability. Require the use of the No. 209 size MAX-FIRE primer. We recommend the use of the ALCAN MAX-FIRE type 220, siz 209 for the job. Available in 12 gauge 2¾" length only Empty UNPRIMED SHELLS packed 100 per box. *Patent No. 2973711, other patents pending.

* ALCAN LOW BRASS TYPE TS

For Skeet, Trap and Light Hunting Loads

This shell, extra strong, is similar in construction to the ALCAN Type HV except that the height of the knurled shell head is .380". Excellent shell for trap, skeet and light hunting loads. Available in 12 gauge 2¾" length only EMPTY, UNPRIMED SHELLS packed 100 per box *Covered by Patent No. 2973711, other patents pending

EMPTY PRIMED SHELLS TYPE CM

Brass head paper tube type. Best quality for magnum loads. Extra thick and extra high brass heads. Special extra hard low inside base wad, double steel reinforced in 10 gauge.

10 gauge 2⅞" & 3½" length, type CM box 100
12 & 20 gauge 3" length, type CM box 100

See Price List for other Types available in 4, 8, 16, 20, 24, 28, 32 and .410 gauge.

Shotshell Reloading Kit 20 GAUGE

Reloading Components for:

- FEDERAL
- RED HEAD
- REVELATION
- J. C. HIGGINS
- AMERICAN EAGLE
- REMINGTON-PETERS
- WESTERN-WINCHESTER

All of the necessary highest quality components to reload your empty shotshell cases to factory specification. SAVE APPROXIMATELY 50% BY RELOADING! When you order your kit please specify the KIT NUMBER AND THE BRAND OF SHELL CASE TO BE LOADED AND CHILLED LEAD SHOT SIZE REQUIRED.

KIT CONTAINS COMPONENTS FOR	GAUGE	TYPE OF LOAD	KIT No. WITH LEAD	SHIPPING WEIGHT	KIT No. WITHOUT LEAD	SHIPPING WEIGHT
200 SHELLS	12	Trap, Skeet, Light Hunting—3 Dr. Equiv. 1⅛ oz.	345L	19 lbs.	345	4 lbs.
150 SHELLS	16	Trap, Skeet, Light Hunting—2½ Dr. Equiv. 1 oz.	346L	13 lbs.	346	3 lbs.
150 SHELLS	20	Trap, Skeet, Light Hunting—2¼ Dr. Equiv. ⅞ oz.	347L	13 lbs.	347	3 lbs.
100 SHELLS	12	Heavy Hunting Load—3¾ Dr. Equiv. 1¼ oz.	348L	13 lbs.	348	3 lbs.
150 SHELLS	16	Heavy Hunting Load—2¾ Dr. Equiv. 1⅛ oz.	349L	15 lbs.	349	3 lbs.
150 SHELLS	20	Heavy Hunting Load—2⅞ Dr. Equiv. 1 oz.	350L	13 lbs.	350	3 lbs.

New! "Alcan-Metal" Shotshell Reloading Kit 12 GAUGE ONLY

1. Ballistics remain constant throughout reloading life of metallic shell.
2. New type metal overlay cup wad will not burn out or shoot out.
3. Long LIFE — METALLIC CASE AND METAL OVERLAY CUP ASSURES MANY MORE RELOADINGS than a paper shell.
4. Steel head construction is the STRONGEST and SAFEST AVAILABLE!
5. Load any RECOMMENDED LOAD FROM TRAP TO 1½ ounce SHORT MAGNUMS!

Kit contains 100 "ALCAN-METAL" EMPTY UNPRIMED SHOTSHELL cases and the necessary highest quality components to load and reload as shown.

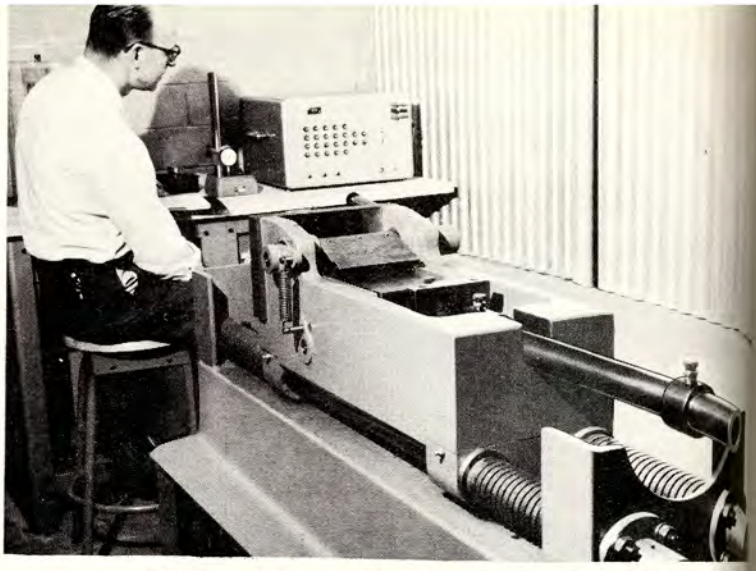
KIT NUMBER	KIT CONTAINS COMPONENTS FOR	TYPE OF LOAD	
112L	200 SHELLS	Trap, Skeet, Light Hunting with lead shot	3 Dr. Equiv. 1⅛ oz.
112	200 SHELLS	Trap, Skeet, Light Hunting without lead shot	
212L	100 SHELLS	Heavy Hunting with lead shot	3¾ Dr. Equiv. 1¼ oz.
212	100 SHELLS	Heavy Hunting without lead shot	
312	100 SHELLS	Short Magnum with lead shot	4 Dr. Equiv. 1½ oz.
312L	100 SHELLS	Short Magnum without lead shot	

PRODUCT DEVELOPMENT

The science of shotshell reloading has made great progress in recent years. As a pioneer in this field, ALCAN has constantly striven for improved methods and materials to give the reloader better products.

The reloading components sold by ALCAN are the result of our many years of experience and close association with gun clubs, sportsmen and hunters far and wide.

Quality components, properly used, are the answer to enjoyable shooting. In the process of searching out the answers for our customers it became necessary to assemble the most modern technical and production facilities a very small portion of which we show you on this page in the form of photographs taken at the ALCAN plant located at Alton, Illinois.



VELOCITY, PRESSURE AND PATTERN TESTING

Reloads are fired in the pressure gun to determine both the rate of pressure rise as well as maximum breech pressure. The shot charge travels through two photo electric screens with the velocity recorded on the electronic counter chronograph, then further down the range, a distance of 40 yards, where the pattern is obtained. The relationship of these two factors soon separate quality reloading components from those of an inferior nature.

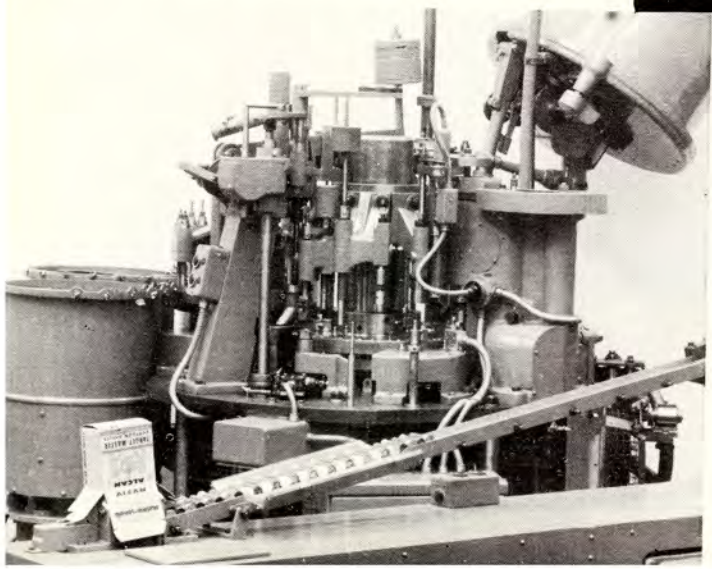
PRIMER DROP TESTING DEVICE

This device is used to determine the "inch-ounces" required to fire primers under controlled laboratory conditions for the purpose of determining their sensitivity to firing pin impact. This type of thorough testing assures the reloader that MAX-FIRE primers will always result in quality ammunition.

QUALITY CONTROL plays an important role at ALCAN

AIR-WEDGE PLASTIC MOLDING INJECTION MACHINE

Yes, this 12 ton monster using a 30 H.P. motor and capable of an injection pressure on the plastic of over 20,000 lbs. per square inch is required to produce AIR-WEDGE over powder wads accurately enough to meet quality standards yet fast enough, over 300 wads per minute, to make this difficult to manufacture product on an economical basis.



SHOTSHELL LOADING MACHINE

ALCAN reloading components, after their development stage, are thoroughly tested and proven in the field. Newly developed products are passed to the production department for the loading of thousands of rounds of ammunition, the shooting of which is to determine final product quality. The machine shown is capable of producing over 4000 shotgun shells per hour. Therefore, it quickly furnishes thousands of rounds of ammunition to our own ALCAN trap and flyer shooting range, as well as local gun clubs, for final product testing. For example, it required almost three years to develop and conduct shooting tests of the AIR-WEDGE wad before sales commenced to the reloader. Careful product development and quality control play an important role at ALCAN.

RETAIL PRICES — ALCAN PRODUCTS

ALCAN AIR-WEDGE® 12 GAUGE PLASTIC OVER POWDER WAD—Packed in three color boxes of 250 each

Price per thousand and available in 12 gauge only	4.95

ALCAN "PGS"® PLASTIC GAS SEAL OVER POWDER WAD — Price per 1000

10, 12, 16 and 20 Gauge Only	2.45

SHOT SHELL WADS — per 1000

	GAUGES 11-12-16-20	GAUGES 4-8 & 10 gauge brass	OTHER GAUGES
"B" thin card for over shot — plain	1.15	2.15	1.55
"B" card for over shot, printed, 12, 16, 20 gauge	2.00	Not Available	Not Available
.070" nitro card for over powder	1.35	2.55	1.75
.070" nitro wad lubricated — 12 gauge only	1.85	Not Available	Not Available
.135" nitro card for over powder	1.65	3.15	1.95
.135" nitro wad lubricated — 12 gauge only	1.95	Not Available	Not Available
.200" nitro card for over powder	2.15	4.15	2.45
.200" nitro wad lubricated — 12 gauge only	2.45	Not Available	Not Available
¼" "FELTAN-BLUESTREAK"® RING-WAXED®	2.65	5.95	2.90
5/16" "FELTAN-BLUESTREAK"® RING-WAXED®	2.65	Not Available	Not Available
⅜" "FELTAN-BLUESTREAK"® RING-WAXED®	2.65	5.95	2.90
½" "FELTAN-BLUESTREAK"® RING-WAXED®	3.25	Not Available	Not Available

ALCAN PRIMERS — NON-MERCURIC and NON-CORROSIVE — Price per 1000

WW209F battery cup shot shell — MAX-FIRE® — for all type powder in Western - Winchester - Federal Cases	14.50
G57F battery cup shot shell — MAX-FIRE® — for all types powder in Remington - Peters Cases	14.50
No. 240 battery cup shot shell — for Super-M or Black Powder in Western - Winchester - Federal Cases	10.75
6,45P battery cup shot shell — for cheapest type imported cases	10.95
5,45 battery cup shot shell — for re-priming Alcan Shells ECONOMAX® brand	9.95
4,45 battery cup shot shell — for small gauge imported tubes	9.50

ALCAN MUSKET CAPS, PERCUSSION CAPS & BERDAN PRIMERS — Price Per 1000

G4F four wing musket caps — extra force	7.95
645B for Berdan type solid brass shells — non-mercuric, non-corrosive type	7.95
G10F, G11F, G12F percussion caps	5.95
175RB, 175PB, 199B, 210B, 217B, 250B Berdan Rifle or pistol	9.50
No. 1794 Express Rifle Berdan, .254" diameter	10.50

ALCAN SHOT SHELL POWDERS—Western Area is Arizona, California, Colorado, El Paso, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

		East	West
SUPER-M BALISTITE Trap and Skeet	per 250 gram tin	1.69	1.85
NIKE Hunting, Trap & Excellent Rifle Slug	per 250 gram tin	2.45	2.60
AL-101 Trap & Skeet	per 250 gram tin	1.95	2.10
AL-120 Trap & Field	per 8 ounce tin	1.80	1.95
AL-5 High Velocity, AL-7 Magnum, AL-8 Super Magnum	per 250 gram tin	2.45	2.60
AL-120 in 2 Kilo Keg		13.50	14.70
AL-5 and AL-7 in 2¾ Kilo Kegs (6 pounds plus)		24.95	26.60
AL-101 in 2¼ Kilo Kegs (5 pounds)		16.80	18.15

"ALCAN-METAL" Empty unprimed shotshells — Price box 100 4.25

EMPTY UNPRIMED SOLID BRASS SHELLS — For Berdan type primer 645B — Price per box 10

12, 14, 16, 20, 24, 28, & 32 gauge, 2½" length	2.75
410 gauge 2" length	1.90

EMPTY UNPRIMED SOLID BRASS SHELLS — New heavy magnum type for G57F primer — Price per box 10

10 gauge 2⅞" length	3.95
12 gauge 2¾" length	2.95
12, 16, & 20 gauge 2½" length	2.80
410 gauge 2½" length	1.95

EMPTY PRIMED SHELLS — TYPE CM —

10 gauge 3½" length — Waxed paper tube	per 100	12.95
10 gauge 2⅞" length — Waxed paper tube	per 100	12.85
12 gauge 3" length — Waxed paper tube	per 100	7.95
20 gauge 3" length — Waxed paper tube	per 100	7.85

RIMFIRE FLOBERT TYPES —

22 rimfire crimped blank cartridge	per 100	1.15
22 rimfire BB type round ball	per 100	1.20
22 rimfire CB type conic bullet	per 100	1.25

9mm RIMFIRE LOADED SHELLS — per box 50 — 4.25

NICKEL SHOT per 5 Kilo (11 pounds) bag — 8.95

Address your inquiries for General Catalog and 1962 Price List to:

Alcan Company, Inc.

RELOADING COMPONENTS • LOADED SHOTSHELLS

Seminary Road • Alton, Illinois

TRADE MARK

ALCAN REGISTERED TRADEMARKS

"COMBO-WAD"
"AIR-WEDGE"
"P G S"
"FELTAN-BLUESTREAK"
"RING-WAXED"
"MAX-FIRE"
"ECONOMAX"
"GAMEMAX"
"MAGNAMAX"
"TRAPMAX"
"SKEETMAX"
"ULTRAMAX"
"FLYERMAX"

and good dies are the secret of superior bullets, absolutely necessary for superior ammunition.

Most dies, such as those by Harvey, Smith, and others, bleed-off lead at the bullet nose, leaving a tit that can be pinched off. I don't think these are any better or worse for handgun pills than the Bahler, C-H (and other) side bleed types. The latter shear the tit to exact bullet diameter, making a "clean," nicer looking bullet.

Adrian Bahler is noted for beautifully made rifle swaging dies. His $48.50 Hand Ejector Pistol Dies are equally well done. Get his $17.50 Auto Ejector Frame if you want faster production and be sure to mention your press (to obtain the proper ram or punch holder), and exact bullet diameter and style. Bahler jackets are fine quality 90/10 gilding metal, made in 45 as well as 38-357 and 44 calibers.

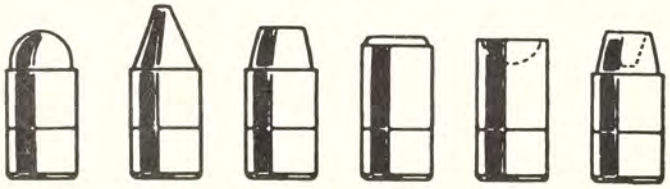
Harvey's popular Lever Ejector Dies fit most 7/8"x14-thread presses, even light "C" types. At $39.75 they are a good buy, and especially for lads who use only one caliber. The slug-cup assembly is placed on the nose punch, held by the shell holder, and the bullet is swaged cup up. Press the lever to eject the bullet into your hand. Harvey's Auto Ejectors at $80 can thrash out nearly twice as many pills. Several custom loaders are using these dies.

Harvey dies are the only ones available with a base ram for either Jugulars or Prot-X-bores, in case you want to swage the zinc washer base pills. C-H base rams, though hard, can be drilled for a dimple in the center, to permit swaging zinc bases. It works with jackets, too, but creates a higher loading density, so charges must be reduced a bit. Harvey's first Jugulars had this hump on the base, being made in Prot-X-bore dies.

New W-W canister Ball Powders promise to be popular. (Their 295HP has been discontinued.)

C. R. Heckman, of C-H Die Co., quickly saw the advantage of swaged bullets. After experimenting with dies in conventional loading presses, including his own, he decided a special swaging press would be best. His Super C loader, made with a shorter stroke and more mechanical advantage, he's named the C-H Swag-O-Matic. The light but strong aluminum alloy frame unit is excellent, making "clean" bullets with no visible bleed-off tit, and superb uniformity.

C-H Swag-O-Matic bullet types are varied, include Heckman's own cup-nose "alley cat stopper." Blank punch is available to design your own bullet.



Excess lead bleeds off just above the jacket. Long jackets prevents a bleed-off and should never be used.

Herter's make an almost exact copy of the Swag-O-Matic, except the frame is cast iron. The material and workmanship were not good on my unit, and the toggle has no stop. Only 12 bullets were swaged before the cast iron frame broke. The bullets were defective, having lead extruded at the shoulder. Two friends bought similar presses that gave identical troubles, yet still another performed OK except for some lead-finning around the shoulder. The low price is attractive, and I'm sorry I can't fully recommend this tool.

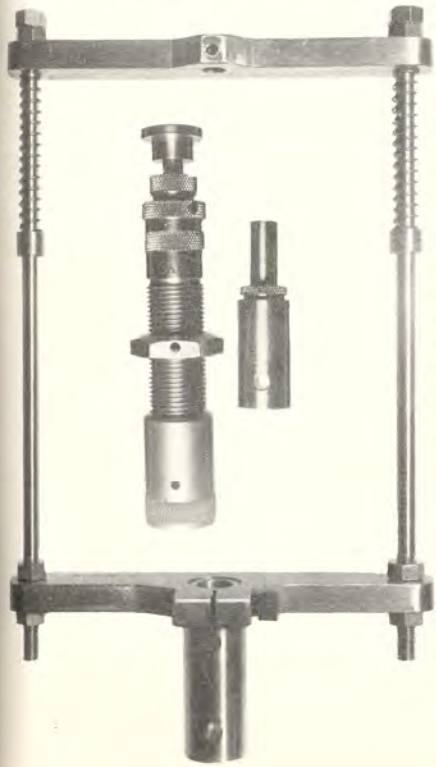
Hollywood dies, created by Lyle Corcoran, are designed for use only in Hollywood tools and 10% tin wire. Soft lead can be used, too. I used one of their first sets and found they made uniform bullets. No leading was experienced at 900 feet per second. If you do have leading, try painting the bases with melted bullet lube.

Hollywood's new 8-hole Senior Turret is the best of this type I've ever used, fast and versatile. A heavy tie rod permits using it for swaging. The massive press weighs 44 pounds, and is well made – much better than some turret presses.

Lachmiller's $14.95 dies work similar to Smith's. Their 3/8" jackets are unalloyed copper. I've never used Sterling or Hemp dies, but a friend tells me both are good. (See last year's GUN DIGEST.)

Ted Smith, of Little Dripper and Electric Dripper fame, hit a new low price with his $7.50 swaging dies, which fit standard presses. Ted recommends his 44 Special shell holder, without center hole, sold extra. Ted admits his dies aren't the finest – they are a minimum cost item, but if all are as good as mine you'll more than recover their cost over buying bullets. We've made about 500 bullets in my dies, and they're still good. The die screws into your press, the depth regulating bullet weight. Bullets are driven out with a plastic or rubber mallet. A hammer batters the dies. I have no complaint on the quality at this low price. Pacific has just announced some $15.50 swaging dies, designed especially for the new Pacific Super Deluxe reloading tool. I have

Bahler dies, beautifully finished inside and out, are shown in his $17.50 Auto Ejector Frame.



Hollywood Gun Shop swaging dies, ultra precisely made, were developed by Lyle Corcoran in 1954.

not yet had an opportunity to try these, but they look good. They also have a wire cutter that mounts in the Super tool.

What swaging problems are we apt to have? I've made thousands of bullets on a Swag-O-Matic production basis with practically no problems. Speed is adequate, even for small police departments. You can swage up to 300 perfect bullets per hour, or more. Harvey and Bahler dies are a bit faster, when set-up for production in RCBS Model A presses. Hollywood dies, in the HGS presses, are also very fast working.

With proper bleed-off, slugs do not have to be cut very uniform, but I like them as uniform as possible. Too little bleed-off results in imperfectly formed bullets, easily detected by visual inspection. Bleed-off can be as little as one grain in some dies if slugs are accurately cut or cast, but about 3 grains is better. Excessive extrusion slows down production and wastes lead. Adjust your slugs (or dies) so perfect bullets are formed every time. Different brands of wire may require a slight adjustment in dies or slugs. Some "lead" wire is not pure lead, and brands may vary in diameter. Cast bullets are not suitable for slugs.

If wire is old and corroded slightly, draw it through a handful of fine steel wool to clean, then wipe with an oiled cloth. Dark lead, oxidized by exposure to air, is OK but should be clean and free of dirt. Jackets should be kept clean, as well as your dies. Slugs and jackets should be kept in a covered box. Jackets don't have to be lubricated, but I think a trace is desirable. I keep a cloth oiled with Anderol Die Lube in a closed glass jar. When I open a new box of jackets I handle the cloth, then knead the jackets. Most of them get a trace of lube.

Ordinary oil and grease is unsuitable for swaging or case sizing. Good stuff, made for the purpose, costs nearly nothing. It eliminates most case sizing and swaging troubles. Good die lube is made by Anderol, C-H, Hollywood, Lakeville, RCBS, and others. In a pinch, anhydrous lanolin or soap will work good – either from your drugstore.

Must jackets be crimped on cores? Harvey recommends it, and sells his $15.75 Cannelure Dies. The fit standard presses, and you can crimp 600 or so per hour. The crimp prevents any possibility of jacket-shedding in flight or on impact. Speer doesn't consider it necessary on their semi-jacketed bullets, nor do most die makers. It does no harm, and it is insurance.

C-H Swag-O-Matic operates like a short stroke reloading press to make perfect bullets. This is the market's hottest item.

Soft pills at Hi-V upset to completely fill the barrel grooves – for 38-357 a diameter of .3555″ to .358″ is OK, with .357″ most popular, and .358″ for targets. For 44's use .429″, for 45 ACP .452″, for 45 Colt .454″.

There have been unsupported charges made that half-jacketed slugs will ruin a bore, based on an old Army study of 45 ACP bore life. The hard core, hard jacket (sometimes steel) GI pills do not fully fill the grooves, which causes gas cutting. Corrosive primers in GI ammo certainly ruined barrels quickly. I've fired 6000 to 7000 hot Jugular type loads in one 357 Magnum. It's good as new except for the outside finish. This much custom ammo sells for $1260, only about $375 to load. $20 for a new tube is a small item, and it will be a heluva time before you need one – if ever! Most bores are ruined by abuse and neglect rather than shooting.

Exhibition shooter D. L. Cooper tried Lyman gas checks on 135-grain Swag-O-Matic wadcutters, using S-O-M wire. Accuracy was superb for his stunts, one of which is splitting bullets on an axe blade to hit targets on both sides of the axe. Bullets must hit nearly dead center, or they miss. For this his charge in a K-38 is 3.2 grains 5066 and CCI primers; for hotter loads he uses 5.5 grains Unique. Cooper probably bagged the first big game with a half-jacket C-H pill, a 127-gr. H.P. in a 357, 16 grains 2400 and CCI primer. The big buck dropped at 80 yards as if hit by lightning. Damage looked like 30-06 work, proof a handgun is adequate with the right bullet well placed.

The best Hi-V jacketed bullet weight for hunting, I think, is about 127-grains in 357's or 220 grains in 44's. Heavier pills lose some of the velocity shock that is more effective on medium game than weight. I've had a 127-gr. penetrate more than 36 inches in a deer, which makes me think a faster expanding hollow point is better. Cavities drilled with the Forster Hollow Pointer I designed for their trimmer open faster than swaged cavities. ⅛″ deep is good for hot loads.

Nearly all 220-gr. pills work well in 44 Magnums with 23 or 24 grains 2400, and you can work up to 26 grains with most. (See the 13th edition of the GUN DIGEST.) The new W-W Ball powder No. 295HP permits a bit higher velocity than 2400. Your dealer has data for the Magnums, worked up by Speer, C-H, and Winchester. CCI has brought out new No. 550 Magnum Small Pistol and No. 350 Magnum Large Pistol primers especially for this powder, which is rather difficult to ignite completely. These give perfect ignition.

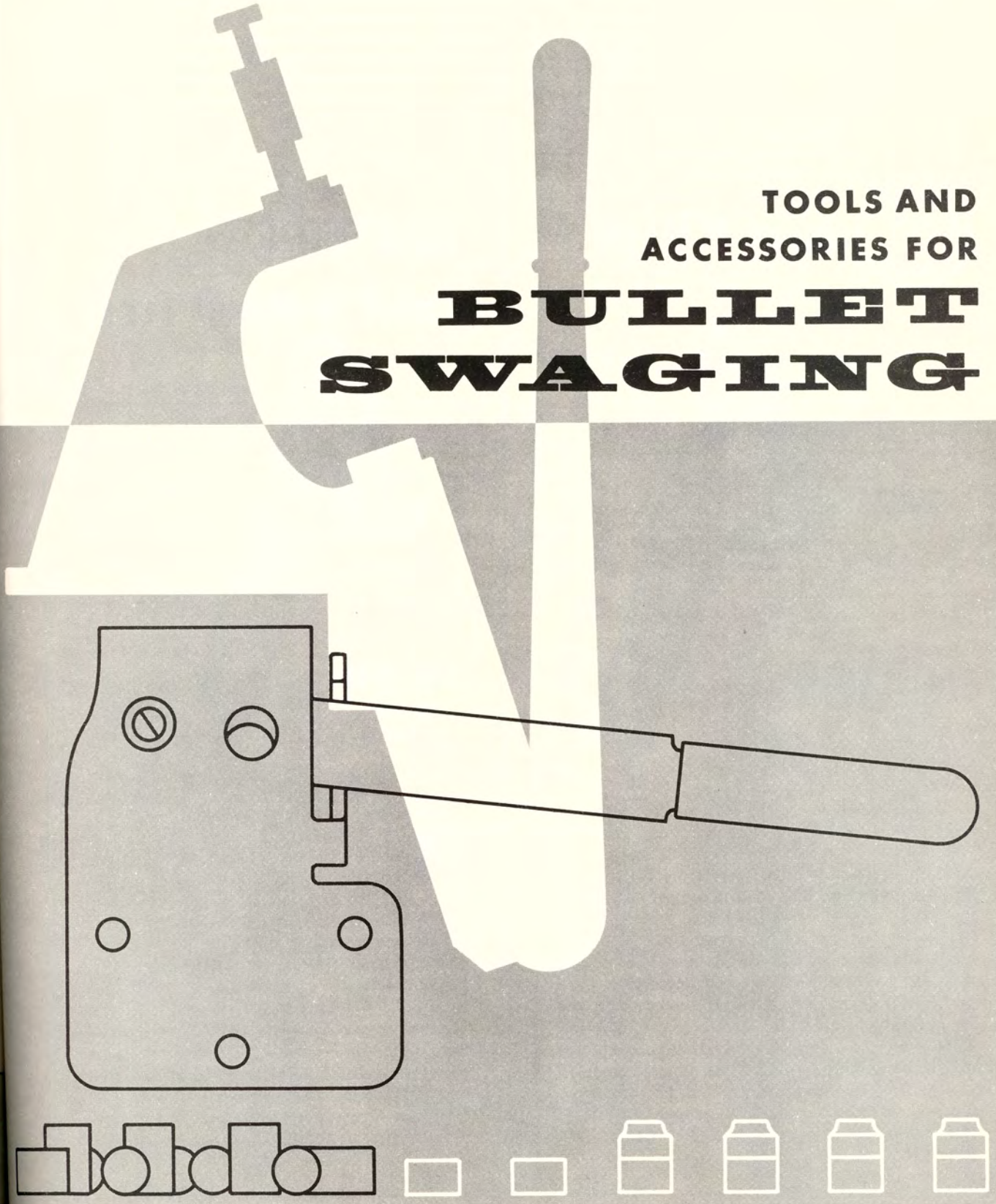
There are two new 44 Magnum cartridges on the market – the Norma Soft Point round, and a Remington Soft point; the latter has a muzzle velocity of 1850 foot seconds! When Harvey's Jugulars first came out, I predicted the big ammo plants would supply premium grade loads with somewhat similar pills. Now Norma has a "first" with their version, while Remington has another first with their new high velocity.

Before long, swaging the deadly half-jacketed handgun bullets may be as common as casting is today. They're "Tomorrow's Bullets Today," to steal some of Roy Weatherby's thunder. Never before has man packed so much shocking power in one cylinder full of cartridges. And you don't have to cast pills like your grandpappy did!

Left—Good and bad 357 loads and pulled bullets. Use proper seater stem to prevent bullet deformation. Below left—Standard Bahler designs and wadcutter, semi-wadcutters with short or long nose, solid or hollow point. Long nose has less bearing surface for higher velocity. Below right—Cast and cut slugs beside jacket. Bullets, swaged in Harvey dies, show bleed-off tit that can be pinched off. Right, short slug makes imperfect bullet, easily detected.

PART III

TOOLS AND ACCESSORIES FOR BULLET SWAGING



Notes on Bullet Swaging Presses

Swaging lead cores or slugs into bullets requires tremendous pressure, therefore presses for such use must be rigid, sturdy and with sufficient leverage to adequately cold form the lead to correct diameter and shape.

Many of the more substantial presses available are adequate for swaging half-jacket pistol and rifle bullets, but only the more solid tools designed for heavy-duty work should be used for the swaging of full jacket rifle bullets.

The handloader who now owns a press of sturdy construction may purchase bullet swaging dies for use in his press. Those who don't own a strong enough press, or who don't want to disturb their dies, should get a separate press for bullet swaging. The big advantage of the presses shown here, designed for bullet swaging only, is that they may be set up and used whenever the need arises without the bothersome task of removing the reloading dies, inserting the swaging dies, etc.

Swag-O-Matic

$33.00
Complete

The first — and the finest — "C" type press with up-stroke operation, specifically designed to do one job and do it well. The rugged cast frame has ample strength and rigidity to assure perfect bullets every time — for a long time! The self-ejecting feature permits rapid operation — one movement of the lever up and down completes and ejects a finished bullet. Complete with die for one caliber and bullet style.

This fine tool permits you to make your own half-jacket pistol or rifle bullets — more uniform and perfect than cast bullets — in half the time. No pots to heat, no hot lead danger, no fumes! For details and prices on Swag-O-Matic dies, see page 134.

HERTER'S Bullet Maker Press

$18.49
Complete

Designed for bullet making only, this press has a sturdy frame made of solid cast iron — not alloy! Special toggle system gives tremendous leverage and can be used as either up or down stroke. Using Herter's bullet dies, you can make any bullet weight desired — a simple adjustment is all that's needed (see page 136 for details on Herter's bullet dies).

Press comes complete with bullet die of the caliber and nose style of your choice, plus complete instructions guaranteed to have you making perfect bullets in 5 minutes or less. You can throw your lead pot, mould and sizer-lubricator away!

Notes on Dies.....

Bullet swaging dies are the keystone to the successful production of lead core, cold formed bullets. In selecting the proper dies for his particular use, the handloader should first decide what type of bullets he wants to make, and for what purpose. It would be foolish to buy expensive dies if the bullets were to be used only for plinking, but it would also be foolish for the perfectionist, the competitive target shooter or the person who wants to produce great quantities of bullets to expect the lower priced dies to perform to his expectations.

Your 7/8-14 press, even if stout enough for bullet swaging operations, won't take the C-H Swag-O-Matic or Herter's dies. These dies were made specifically for their own press, and are not threaded to fit the standard reloading tool.

All of the dies on the following pages will produce accurate, uniform, half-jacket pistol or rifle bullets. The quality and degree of uniformity of the bullets made will depend on the workmanship, design, and manufacturing tolerances of the press and dies in use. These qualities cannot be as high in mass-produced dies selling for a fraction of the cost of the hand honed and fitted dies — don't expect champagne at beer prices!

Here too, the operator is all important in the final quality of the finished bullet. A properly adjusted die that bleeds off just enough lead to assure you of a dense, completely filled bullet, but not enough to cause excessive pressure on the tool and dies, will produce a clean, accurate bullet, properly formed.

BAHLER Dies

Handgun Dies

The ultimate in precision swaging dies. Made of Timken Graph-mo steel, hardened and honed. Punches are tool steel, hardened and fitted to the die. Bullet weight is adjustable, and hollow point bullets are as easily made as solid point. Dies are threaded 7/8"-14.

Punches are made in wadcutter, semi-wadcutter, round nose, spire point or Keith shapes, and in 357", 429", 452" and 454". When ordering specify make and model of press, bullet shape, solid or hollow point and caliber.

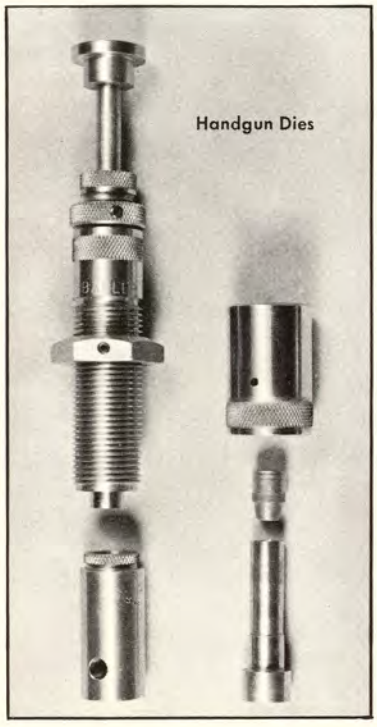
Solid point set	$48.50	Hollow point set	$52.50
Solid point nose punch (to change to different style bullet)			$ 7.50
Hollow point nose punch			$11.50
Parts to change caliber, solid point			$33.75
Parts to change caliber, hollow point			$37.75
Automatic ejector frame			$17.50

Rifle Dies

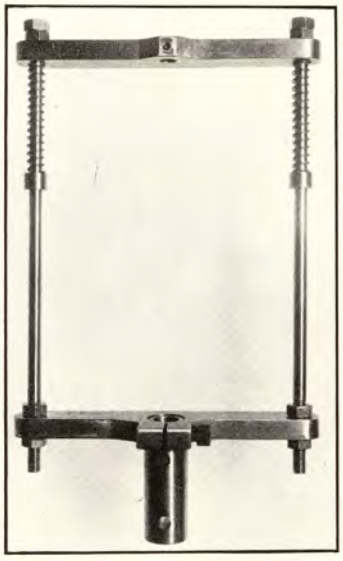
Made in 22, 6mm, 25, 270, 7mm and 30 calibers, dies are precision made, and use the expanding-up principle. All dies are made of Timken Graph-mo steel. Punches are made of high carbon steel, hardened and fitted to the individual swages. Dies are threaded 7/8"-14 to fit standard die stations.

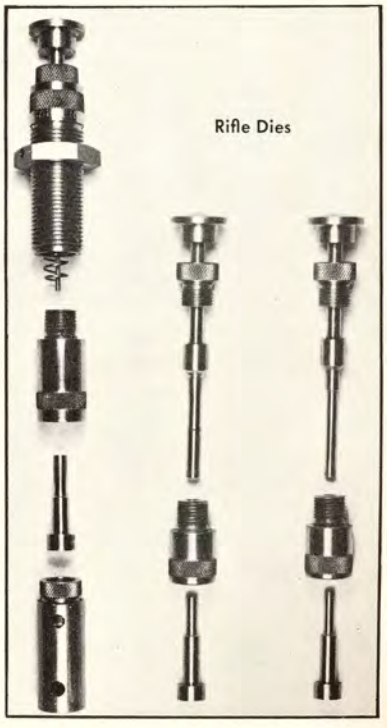
To order, state make and model of press, make and length of jacket, and weight of bullet desired. If jackets are other than RCBS or Sierra, send 10-12 for fitting to punch.

Complete with bullet swage and core seating swage	$ 92.00
As above plus core extruder with punch	$125.00
Automatic ejector frame	$ 17.50


Handgun Dies

Ejector Frame




Rifle Dies

Rifle & Pistol Swaging Dies

Designed specifically for use in the C-H Swag-O-Matic press, these dies are self-ejecting and adjustable for various bullet weights.

Pistol dies are available in the following calibers: 38, 44, 45 ACP and 45 Colt. Six bullet styles: round nose, spire point, wadcutter, semi-wadcutter, cup point and semi-wadcutter hollow point.

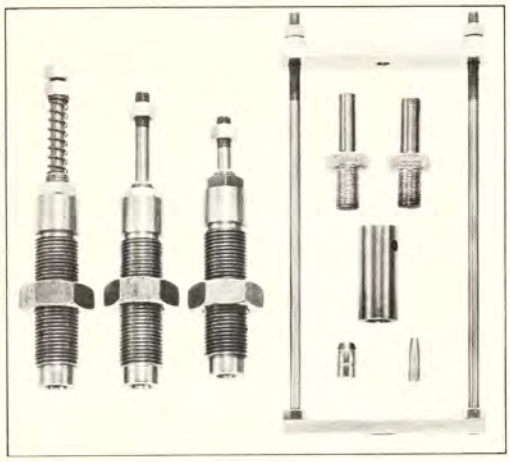
Rifle dies are available in 30 caliber only with choice of round nose, spire point or flat nose bullet style. Designed for velocities up to 3000 fps **$9.00**

A special ejector is available for producing zinc base bullets with your Swag-O-Matic dies. No other accessories or parts required. **$5.00**

$9.00 Each

Extra bullet nose punch	$5.00
Extra bullet nose punch (hollow point)	$7.50

HEMP'S DIES



Custom made swaging dies for rifle and pistol bullets, these are correctly heat treated, precision lapped and finished. Available to factory bullet specifications or made to your own specifications to fit your barrel. These dies are usable in any heavy duty press such as the Hollywood Senior, Pacific Super, RCBS A-2 and others.

Handgun Bullet Swaging Dies These consist of 3 parts: the die body, which controls the diameter of the completed bullet; the ejection ram, flat for jacketed bullets, dimpled for zinc base bullets and the nose die. Two nose dies are furnished, solid and hollow point. The dies feature automatic ejection, adjustable bullet weight and self-trimming of extruded sprue.

Production dies (big rim, heavier type) for handgun bullets are also available to fit standard 7/8-14 presses and those with large die openings such as RCBS A-2, Lachmiller, Pacific, etc.

Complete, one caliber, two nose dies, two base rams, for use in new Hollywood Senior, Pacific, C-H, Echo, RCBS Jr.	$57.85
Production type dies for standard thread (7/8-14) press.	$77.50
Production type dies for RCBS model A-2, Lachmiller, Pacific, Big C or any presses with large hole in top of frame.	$85.00

Rifle Bullet Swaging Dies The dies perform the following functions: swaging the cores; seating cores into jackets; forming the bullet. These dies, like the handgun dies, feature automatic ejection and will produce perfect bullets every time.

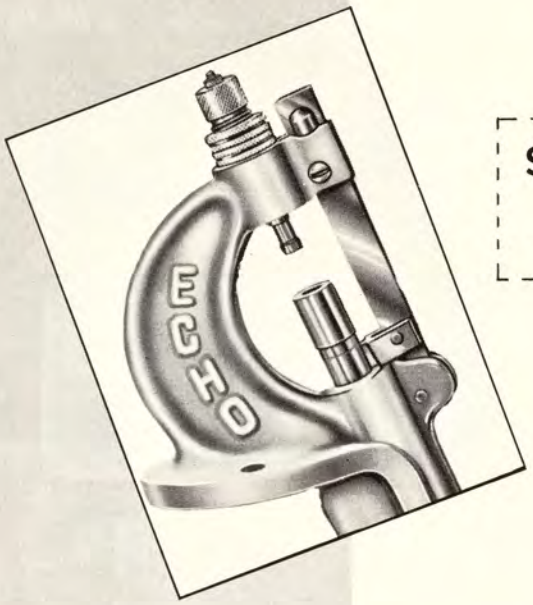
$79.85

Complete, one caliber, for use in New Hollywood Senior press.

$84.75

Complete, one caliber, for 7/8-14 "C" type presses.

Be sure to give make of press when writing.



New Accro-Matic swaging dies shown in Echo "C" press with Wedge Block Tie Bar.

$15.75
For Echo "C"

Now you can swage perfect half-jacketed bullets with these new Accro-Matic die sets. One stroke, up and down, completely swages a bullet. Use them in your present reloading tool; models are available to fit many popular presses.

All die parts are made of selected steels — the parts subjected to wear are carefully hardened to assure long life. These dies feature automatic ejection of the completed bullet on the final stroke. Included with each set is Echo's exclusive Wedge Block Tie Bar to reinforce the "C" frame.

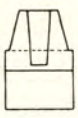
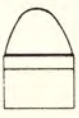
Echo Accro-Matic die sets are made to fit the loading tools listed below. Die bodies and nose punches are interchangeable between sets. Prices below are for dies with solid nose punch; add $1.75 for hollow point.

E. C. HERKNER

ECHO ACCRO-MATIC Die Set Price List

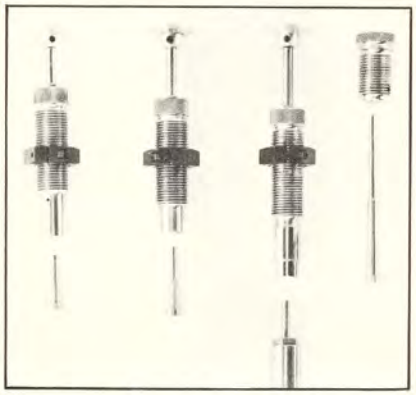
HJ 1001, Fits ECHO "C"	$15.75
HJ 1002, Fits ECHO "A"	16.75
HJ 1003, Fits ECHO "B"	16.75
HJ 1004, Fits New Pacific, Super Deluxe (Lincoln, Neb.)	19.75
HJ 1005, Fits C-H either up or down stroke	19.75
HJ 1006, Fits RCBS JR.	19.75
HJ 1007, Fits Old Pacific Super (California)	19.75
HJ 1008, Fits RCBS Model A and A2	19.75
Extra Nose Punch and Die Bodies Fit All Above	
Nose Punches Solid Point, Specify POINT No. AND Caliber	4.00
Nose Punches, Hollow Point, Specify POINT No. AND Caliber	5.75
Die Bodies, Price includes BOTTOM PUNCH & BOTTOM RING	3.50

Nose Punches Specify Point No. & Caliber

No. 1 Round Nose	No. 2 Flat Point	No. 3 Hollow Point	No. 4 Wad Cutter	No. 5 45. Auto	No. 6 Luger	No. 7 .30 Rifle	No. 8 Core Swage
							
38 & 44 Spec. 45 Colt	38, 44 & 45 Colt	38, 44 & 45 Colt	38 & 44	45 ACP only	30 & 9mm	308	Special order write for quote

BIEHLER & ASTLES

Bullet Swaging Dies



From left to right: core forming die, core seating die and bullet swaging die. Jacket sizing die, at right, is not normally furnished.

B&A bullet swaging dies are made with the precision shooter in mind. They combine the highest quality workmanship and materials, and are unconditionally guaranteed to be completely satisfactory in every respect.

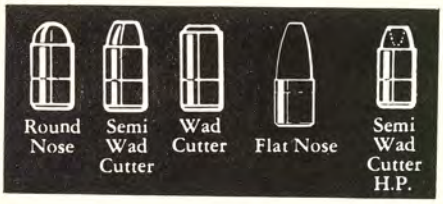
In use, these dies perform the following operations: 1) Cores are formed to a uniform weight. 2) Cores are seated properly into the jackets. 3) The bullet form is swaged. You may purchase the complete set of dies with a separate die body for the core former, core seater and bullet swaging dies, or you may purchase one die body and a set of insert dies.

Bullet swage insert parts only	$60.00
Core seating insert parts only	$22.00
Core forming insert parts only	$26.50
If die body is wanted for each of above, add $12.50.	
Punch holder, for Pacific press	$ 7.50
Punch holder, for RCBS press	$ 7.00
Punch holder, for Hollywood or Dunbar presses	$ 3.50
NOTE: A guide rod extension is necessary for using our dies in Dunbar presses, price	$4.50
Automatic ejection frame, for Pacific, RCBS, and most other presses	$ 8.50
Automatic ejection frame, for Hollywood press	$10.00

HERTER'S

Pistol & Rifle Dies for Super Bullet Maker Press

Made of the finest material available, these dies are guaranteed to produce perfect bullets with ease. Made for use in Herter's Super Bullet Maker press only, they are available in 38, 44, 45 ACP and 45 Colt pistol calibers (in round nose, semi-wadcutter, wadcutter and semi-wadcutter hollow point styles) and in 30 cal. rifle dies, in round nose, flat nose and semi-pointed styles.



Complete die set (add 15¢ for HP) **$4.95**

Extra bullet nose punches (add 30¢ for HP) **$2.49**

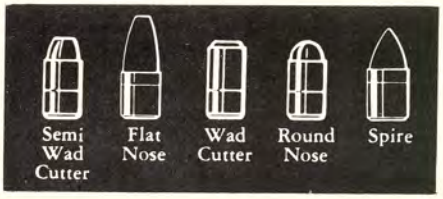
When ordering, give caliber and bullet style.

Pistol & Rifle Dies for 7/8-14 Presses

Complete die set **$5.49**

Extra bullet nose punches **$1.95**

Make accurate, economical, half-jacket pistol bullets in your own 7/8-14 threaded reloading press. These new dies are made of the finest tool steel, hand polished and heat treated. Simple adjustment permits any weight bullet. To change nose styles, all you need are low-cost punches which fit into the shell holder. Bullets are ejected by pressure on the base, not on the soft nose. Available in 38, 44, 45 ACP and 45 Colt handgun calibers and in 22, 6mm and 30 cal. rifle. Hollow points not available.



HOLLYWOOD

Guaranteed to swage uniform, precision bullets in your Hollywood press, these 2-piece precision dies are carefully made and engineered to produce thousands of accurate bullets.

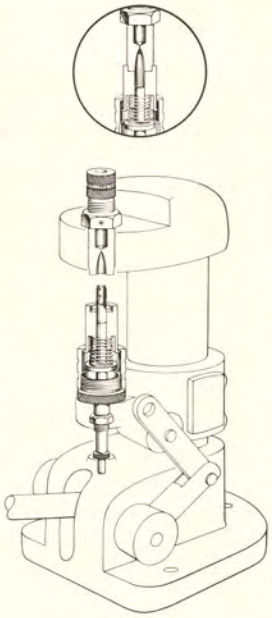
The nose forming piece is top-vented—this carries the bleed-off in pistol bullets and permits the escape of air trapped in the point of the rifle nose-die. Extra nose forming parts are available to change nose style. Write for prices.

Pistol bullet dies available: 38 Spec., 357 Mag., 9 mm Luger, 44 Spec., 44 Mag., 45 ACP and 45 Colt.

$39.50

Rifle bullet dies available: 224, 228, 6mm, 6.5mm, 25, 270, 7mm, 300, 308, 310, 311, 318, 323, 335, 35, 9mm, 9.3mm, 375.

$47.50



LACHMILLER

"Speedline" Swaging Dies

$14.95

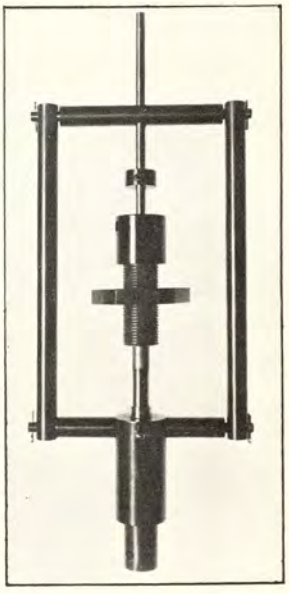
Designed and engineered to produce uniform handgun bullets. Threaded 7/8-14 to fit all standard reloading tools. Available in .357", .429", and .452" diameter, all semi-wadcutter style. Weight of bullets can be changed by altering length of lead wire slug.

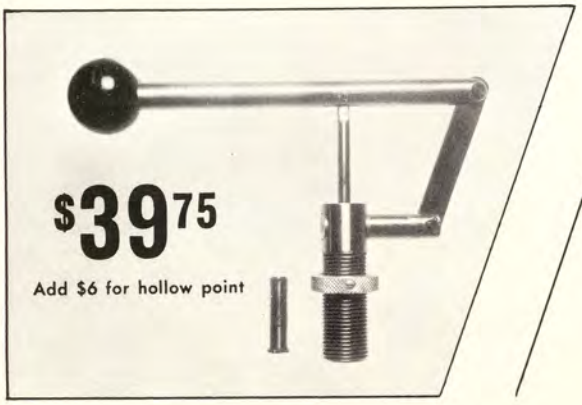
LAKEVILLE ARMS

HARVEY Lever Ejection Swaging Dies

Fast and very simple to use, these dies are precision made and will produce accurate bullets with little effort. Threaded 7/8-14, they will fit any standard loading press. Bullets produced are either Jugular jacketed or Prot-X-Bore zinc base in 38-357, 44 Spec.-Mag., 45 ACP or 45 Colt. Bullet styles are semi-wadcutter in either solid or hollow point.

$80.00





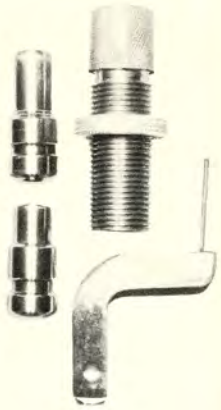
$39.75

Add $6 for hollow point

HARVEY Production Swaging Dies

Made only for the RCBS A or A2 press, these dies produce accurate bullets in quantities up to 450 per hour. The automatic ejector drops a completed bullet with each up and down movement of the tool handle. Same calibers and bullet styles as the Harvey Lever Ejection dies.

L.L.F.
DIE SHOP

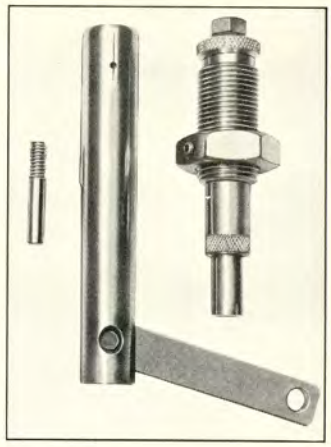


$47.50
Complete die set

Parts required to change caliber	$40.00
Bullet swage die (to change bullet shape)	27.50
Core seating punch (for different brands of jackets)	3.00

Precision made — not mass produced — these dies are made to fit nearly all presses suitable for bullet swaging. Each die adjustable for desired bullet weight. Bullets are automatically ejected after forming. Available in the following calibers: 22, 6mm, 25, 6.5mm, 270, 7mm, 7.35mm, 30, 303, 32, 8mm, 333 and 338. Additional parts available for changing calibers and for different bullet shapes. When ordering, please state make and model of press, brand of jackets to be used and caliber.

PACIFIC

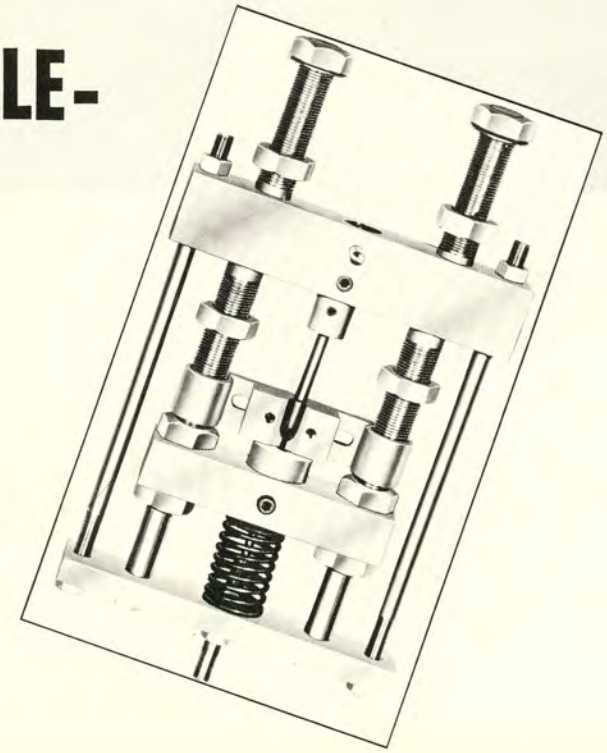


$19.50

Changeover set for different caliber	$11.50
Extra nose punch	5.50
Extra nose punch, hollow point	7.50
Ram for Super Deluxe press	1.40
Ram for Super Mag press	11.20

Threaded 7/8-14, these precision made dies will produce perfect bullets in the Pacific Super Deluxe or Super Mag reloading press. Available for 38-357, 44 Spec.-Mag., 45 ACP or 45 Colt pistol calibers in wadcutter, semi-wadcutter and semi-wadcutter hollow point styles; also for 30 caliber rifle in round nose or hollow point styles.

ROZZELLE-DENVER



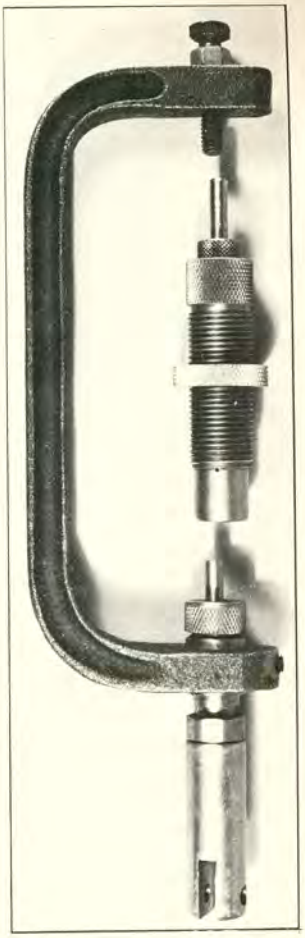
$25.95
Standard calibers

Special diameters $49.95

We can also furnish a high quality core-forming die for use in our press $15.95

These quality bullet swaging 2-die sets are made specifically for the Rozzelle-Denver Hydraulic Reloader. Available in all standard calibers, both rifle and pistol. Features automatic ejection of completed bullet.

SHOOTERS ACCESSORY SUPPLY



Here are low-cost bullet swaging dies that give hunters, plinkers and target shooters the opportunity to make their own high-quality bullets with speed and ease. Threaded 7/8-14, they will convert most standard presses into excellent bullet makers.

Dies are available in the following sizes: .308, .311 (half-jacket rifle plinker bullets). Handgun: .354, .355, .356, .357, .358, .429, .431, .450, .452, .457 and 458. These will make half-jacket bullets for even the highest handgun velocities. Rifle sizes (long jacket) are: .224, .243, .257, .264, .277, .284, .308, .311 and .332. We also have dies for special lead tipped 30-30 bullets in .307, .311 and .323 for use in 30-30, 32 Spec., 8mm, etc. These rifle dies will produce consistently accurate standard type soft- or hollow-point bullets.

$7.50 Pistol

$10.95 Rifle

All of the above dies require a special ram. This ram permits the use of a floating, self-aligning punch. One ram (give make and model of your press) handles all bullet dies. **$3.95**

Core swaging dies are also available in any of the above rifle sizes. These dies form cores of uniform weight, assuring the highest standard of accuracy. **$7.50**

Automatic Ejector Frame. Automatically ejects the finished bullet from the swaging dies; make your swaging job easier and faster. **$7.50**

R. F. Wells, Inc. Bullet Swaging Dies

A high quality steel die, honed, hardened and chrome plated for a life-time of use. Makes perfect half-jacket bullets with speed and ease. Adjustable to any bullet weight. Ejection of finished bullet is from the base end, not the soft nose end — no bullet distortion. Bullet nose styles easily changed by purchase of nose punch only. Nose punches available to fit into standard shell holders or our special nose punch holders for presses listed below. Available in .308 dia. for all 30 cal. rifle bullets in choice of round nose (solid or hollow point) or conical (spitzer). Handgun calibers available in round nose, semi-wadcutter (solid or hollow point) and wadcutter styles: .357 — 38 Spec., 357 Mag; .429 — 44 Spec., 44 Mag; .452 — 45 ACP, 45 Auto Rim; .454 — 45 Long Colt.

$5.95

Less nose punch, nose punch holder or ejection unit

Nose punch to fit conventional type shell holder (state caliber and style)..... **$1.55**

Nose punch to fit special nose punch holder (state caliber and style)..... **$1.60**

Special nose punch holder for the C-H Magnum, Hollywood, Schissel and Dunbar loading tools (interchangeable for all calibers) **$1.10**

Special nose punch holder for the Wells loading tool (interchangeable for all calibers) **$1.10**

Special nose punch holder for Herter and Lachmiller loading tools (interchangeable for all calibers)..... **$1.10**

Special nose punch holder for the Pacific, C-H Super "C," RCBS Model B and Jr., Echo loading tools (complete ramholder interchangeable for all calibers)..... **$2.50**

Hand ejection unit (interchangeable for all calibers)..... **$ .90**

Power ejection assembly (interchangeable for all calibers)..... **$2.45**

Notes on Lead Wire

The lead wire used in bullet swaging should be, usually, of the highest quality pure soft lead. Alloys are generally too hard for the average swaging operation, but there are some that will swage satisfactorily in heavy duty presses. For all practical purposes, pure soft lead is the best and easiest to use.

Pure lead will flow and yet stay in one piece, whereas harder lead alloys tend to shatter or disintegrate. Pure lead bullets have unsurpassed shocking power, and when combined with copper jackets to permit high velocities, make deadly missiles.

The following companies offer lead wire in the following standard sizes for bullet swaging: 3/16", ¼", .290", .305", 5/16", .365" and .390". This wire is available in 10, 25, 100 and 250-lb. spools, and in some instances in cut lengths.

Lead prices fluctuate quite often, and for that reason we cannot show retail prices. Contact your local dealer or write direct for current price sheet. Because of the high shipping cost we suggest you contact the company nearest you.

Anchor Metal Co.
966 Meeker Ave.
Brooklyn 22, N.Y.

Division Lead Co.
7742 W. 61st Place
Summit, Illinois

National Lead Co.
111 Broadway
New York 6, N.Y.

Rochester Lead Works
380 Exchange St.
Rochester 8, N.Y.

Useful Information for the Handloader

Properties of Metals

	Lead	Tin	Antimony	Steel	Copper	Nickel
Specific gravity	11.3	7.3	6.8	7.8	8.7	8.8
Melting point (Fahr.)	625	440	1160	2500	2000	3000
Weight per cubic inch (grains)	2880	1840	1710	1960	2250	2200

METRIC CONVERSION TABLE

To Convert	Multiply by
grams to grains	15.43
grains to grams	.0648
kilograms sq/cm to p.s.i.	14.223
p.s.i. to kilograms sq/cm	.07031
atmospheres to p.s.i.	14.70
p.s.i. to atmospheres	.06804
foot/pounds to kg/m	.1383
kg/m to foot/pounds	7.233
meters to feet	3.281
feet to meters	.3048
inches to millimeters	.254
millimeters to inches	.0394

Case Capacity (Volume) Formula

a — Weight of empty case
b — Weight of case filled with water
c — 252.8 grains (weight of 1 cubic inch of water)

$$\text{X (case volume)} = \frac{b-a}{c}$$

Bullet Sectional Density Formula

SD — Sectional Density
W — Weight (grains)
D — Diameter (inches)
7000 — Number of grain per lb.

$$SD = \frac{W}{7000\ D^2}$$

Composition and Hardness of Common Alloys

	Tin	Antimony	Lead	Brinell Hardness No.
Monotype	9	19	72	28
Linotype	4	12	84	22
Ideal #2	5	5	90	15
1-10 tin-lead	9	—	91	11.5
1-20 tin-lead	5	—	95	10
1-30 tin-lead	3	—	97	9
Ill. Bullet Alloy #4	—			12
Ill. Bullet Alloy #7				18
Lead only	—	—	100	5

Weight Equivalents

7000 grains=1 avoirdupois pound
437.5 grains=1 avoirdupois ounce
15.43 grains=1 gram
.015 grains=1 milligram
1 pound=453.6 grams

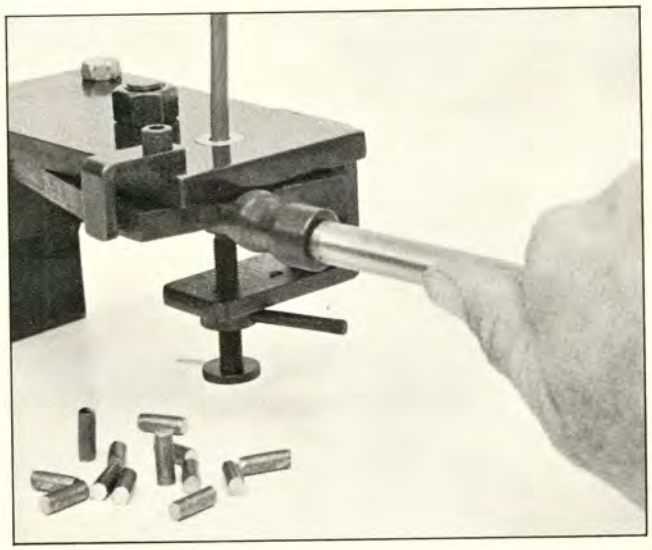
Notes on Lead Wire Cutters .....

Because of the shearing action of all of the lead wire cutters on the market today, some lack of uniformity occurs in the weight of the lead cores cut. This variation in weight is not critical if the swaging dies are properly adjusted to bleed off a small amount of lead each time (impossible in some operations), but accurate cores will save the handloader time and energy. Cutters that are well made with micrometer adjustments come closest to cutting uniform cores, but even these will produce cores with a great weight variation if not operated properly.

To achieve the highest degree of uniformity when using any lead wire cutter there are a few basic rules that should be followed. First, be sure that the lead wire is kept in good condition — a large dent or gouge will affect the weight of the core. If the lead wire is purchased in rolls, it should be cut into 12″ or so lengths for easy handling, and each length rolled on a smooth flat surface to remove kinks or bends. When starting a new piece of wire, cut off about ⅛″ from one end with the wire cutter. You'll notice a ridge across the cut end of the wire — hold the wire so that this ridge runs in the same direction (horizontally or vertically) with each cut. This will help to make your cores more consistent in length, therefore more consistent in weight.

Belmont

Lead Wire Cutter



Precision made to make clean-cut, accurate cores for bullet swaging. Cuts up to 100 pieces a minute. Ruggedly constructed of blued, cold rolled steel plates, separate pairs of hardened steel dies (available for any size wire) do the cutting.

Cutter and one set of dies (state choice)	$15.00
Extra dies (3/16″, 1/4″, 5/16″, 3/8″ or 7/16″	3.00
Bench mounting bracket, light duty	1.25
Mounting bracket, heavy duty	2.25
Spool rack, holds 10 lb. spool of lead wire	2.50

Shipping weights: cutter, 5 lbs.; brackets or spool rack, 3 lbs. All prices FOB.

Belmont Products • Jerome, Idaho

Sterling Lead Wire Cutter

$7.95

A 2-hole cutter for 38 and 44 caliber wire. Adjustable for any length desired, it will make the job of core cutting simple and easy. Mounts on bench or table. Complete with mounting bracket and rubber handle.

HEMP'S

Two styles available; a single hole for your choice of 38 or 44-45 calibers, the double hole cutter will handle both calibers.

Single caliber cutter	$ 7.50
Dual caliber cutter	12.50

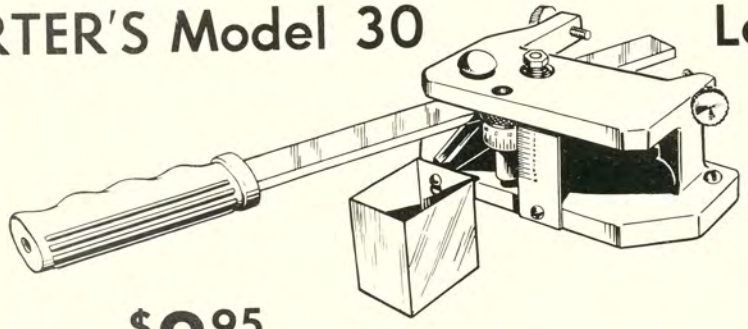
BIRMINGHAM ARMS, INC.

Lead Wire Cutter

$7.50

A lightweight, easy to use cutter with adjustable stop to control size of lead core. Mounts on bench or may be held in vise. Handles all sizes of lead wire.

HERTER'S Model 30 Lead Wire Cutter



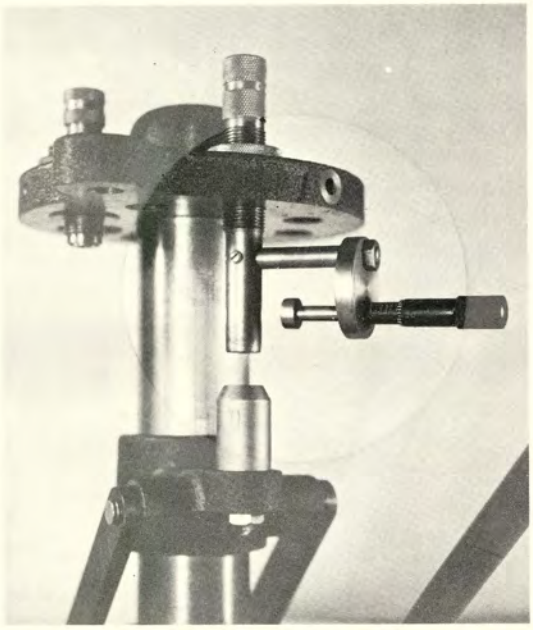
$8.95

Precision made of cast lathe bed iron and hardened tool steel, this cutter features a built-in micrometer adjustment for precise weight and length of core. Special guillotine type cutters cut off square every time. Tool comes with your choice of 22, 6mm, 30, 38, 44 or 45 caliber cutters. Extra cutters 69¢.

HERTER'S

Sturdy solid block construction. Adjustable stop to cut cores any size desired. Slot opening accepts any size lead wire. For use on bench or vise.....**$4.95**

HOLLYWOOD GUN SHOP



$15.00

A new, improved lead core cutter for use on the Hollywood Senior or "Super" tools. Enough power to cut pure lead or alloy wire. Handles all sizes from 3/16″ to 45 caliber. Adjustable for length of core.

Also available with micrometer adjustment in place of standard stop screw. Lengths and weights of cut cores may be recorded for future use.....**$25.00**

LAKEVILLE ARMS

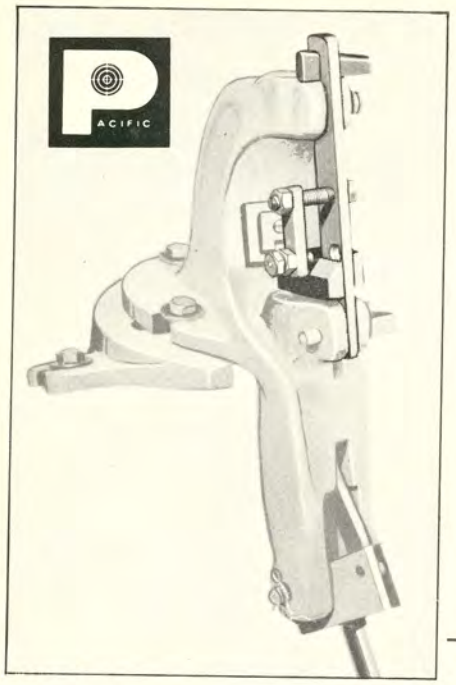
A precision cutter with individual feed holes for .312″ (357-38 cal.) and .348″ (44 or 45 cal.) lead wire. Cores are cut cleanly, giving consistent weights.

$12.50

L.L.F.

An accurate, well-made cutter that will handle all sizes of lead wire. Adjustable stop to control length of cut core.

$12.50



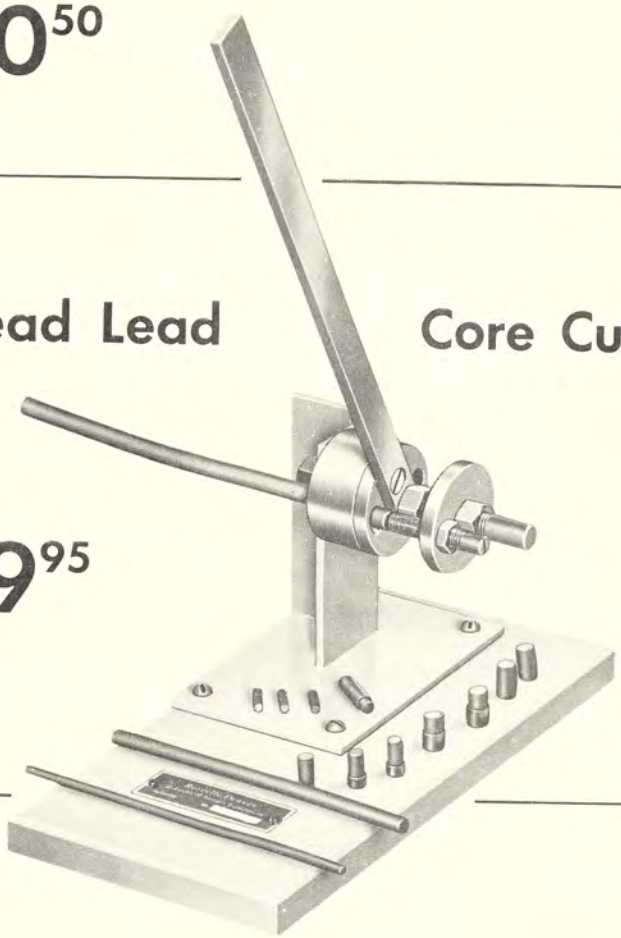
PACIFIC
Lead Wire Cutter

Mounts on the primer feed slots of the Super tool. Cuts cores fast and is adjustable for any length desired. Also acts as a brace bar when swaging bullets in regular Super tool.

$10.50

ROZZELLE Turret Head Lead Core Cutter

A precision instrument that will cut square ends on lead cores and to within 1/10th-grain. Handles spools or rods of wire. Turret head has two feed holes, 5/16" and 27/64", the former handling wire for 22 to 30 caliber bullets and the latter from 38 to 45 caliber.



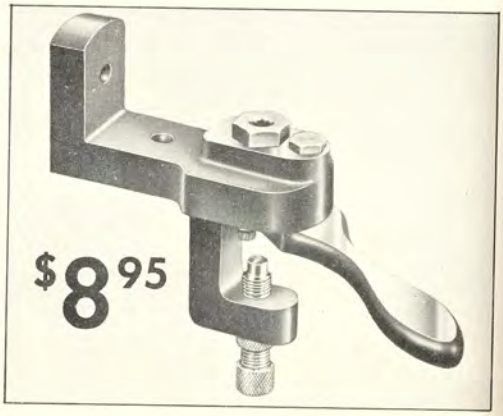
$19.95

R. F. Wells, Inc.
Lead Core Cutter

A quality tool for clean, fast, accurate core cutting, with hardened inserts for both the cutter head and the wire guide. Unique body casting permits mounting on wall, bench top or edge for vertical or horizontal feeding.

Inserts available: .1875" (22 cal.) — .200" (6mm, 25 or 6.5) — .240" (270 or 7mm) — .250" (30, 31 or 32) — .3125" (9mm, 35 or 38) — .375" (44 or 45). Specify size wanted. Extra inserts (2) $2.10.

Micrometer Stop Screw — Removes all guess work in adjusting the Wells Core Cutter. Get exact weight and length of core desired.....**$3.85**



$8.95

Notes on Jackets

Half-jackets are helpful on lead bullets for several reasons. First, they permit the bullet to be driven at higher velocities by offering a gas-tight seal in the bore; at such speeds, too, a plain lead base would be melted. They also control the degree of expansion upon impact, providing more penetration than an unjacketed lead slug. At higher velocities, admittedly, half-jacket bullets will usually lead the bore more than their lubed, all-lead cousins.

Full-jackets for rifle bullets have only recently become available to the handloader. The success of the new rifle bullet swaging dies has caught on with the tremendous interest in handgun bullet swaging. More and more rifle shooters are acquiring reloading tools that are sturdy enough to handle the tremendous forces used in swaging full-jacketed bullets for rifle shooting, and are making their own precision bullets for hunting, plinking, and for serious target shooting.

The best jacket material is soft gilding metal (an alloy of zinc and copper) which prevents copper fouling. Jackets, tapered or straight-wall, should be uniform in wall thickness and length and should have smooth mouths.

Pistol Half-Jackets

BAHLER Gilding Metal Jackets

Cal.	500	1000
38-357	$5.25	$10.50
44	6.25	12.50
45	6.25	12.50

HERTER'S

Made of the finest gilding metal. 38 and 45 cal., 1/4" high; 44 cal., 9/32"; 30 cal., 5/16".

Cal.	250	1000
38	$1.60	$5.95
44	1.80	6.40
45	2.10	7.45
30	1.60	5.95

HODGDON

New — self lubricating half-jackets for low-cost, accurate bullet swaging. These jackets offer you the following advantages:

1. Eliminate leading in light to medium loads, reduce leading in magnum loads. Barrel cleans easier.
2. Give consistent accuracy. Less variation in finished bullet weights.
3. Internal crimp ring assures the jacket stays with the lead.
4. Better gas seal.
5. Make swaging easy, lubricate dies.
6. Make swaging less expensive, which means you can shoot more.

Can be used as an over-powder wad for 38 Spec. shotshells. 38-357 only available now. 44 caliber available soon.

$3.50 per 500 or **$6.95** per 1000, postpaid.

LAKEVILLE ARMS CO.

A quality line of half-jackets for accurate bullets.

Cal.	100	500	1000
38-357	$1.10	$5.40	$10.75
44	1.25	6.20	12.35

SHOOTERS SERVICE

Made of the highest quality gilding metal, these jackets will produce high quality bullets.

Cal.	1000
38-357	$ 9.75
44	10.95

SPEER

Half-jackets of consistent quality. Made of gilding metal to exacting specifications for uniformity and accuracy.

Cal.	1000
38	$ 9.25
44 & 45	10.75

Rifle Jackets

KENRU Reloading Service

A new, precision 30-caliber jacket is now available for discriminating shooters. Made especially for us by Sierra, these jackets have a high degree of wall thickness uniformity and a special mouth taper. They form beautifully, permitting a very small hollow point opening if desired. Available in the following lengths. 1.050" (for 145 to 160 gr. bullets); 1.150" (160 to 175 gr.); 1.250" (175 to 190 gr.).

$16.00 per 1000

SIERRA

High quality, finely finished jackets, available in your choice of lengths to permit a variety of bullet weights. Lengths shown are approximate, plus or minus .005".

Cal.	Length inches	Price per M
270	.820	$15.00
	.975	
	1.074	
7mm	.871	$15.00
	.995	
	1.098	
308	.770	$15.00
	.920	
	1.085	
303	.911	$15.00
	1.056	
8mm	.867	$15.00
	.986	
Hornets	.435	$ 8.00
	.480	
22	.640	$10.00
	.690	
	.705	
	.735	
6mm	.827	$12.50
	.937	
257	.750	$12.50
	.860	
	.975	
	.988	
6.5mm	.960	$12.50
	1.096	

Casting Lead Alloy Bullets

by COL. TOWNSEND WHELEN

IN BLACK POWDER DAYS (prior to about 1896) all bullets were made of lead, usually slightly hardened with a small percentage of tin or antimony to prevent their leading the bore. They were formed with grooves around their cylindrical bearing surfaces, and these grooves were filled with grease or wax to lubricate them and thus further prevent their leading the bore of the rifle. Lead bullets are still used almost universally (except for military purposes) in revolver cartridges, but in centerfire factory loaded rifle cartridges they have been almost entirely replaced by metal cased or jacketed bullets.

There are two reasons for this: (1) Because the demand has been for greater velocity, meaning larger powder charges that generate hotter gas which melts the bases of lead bullets while they are traveling through the bore. Given extremely high velocity, lead bullets may strip in the rifling. (2) It is difficult to prevent a certain amount of deformation of the soft bullets during manufacture, shipping, and use. Metal cased bullets stand up much better under handling and are not deformed so much when they jump from the case through the throat of the chamber into the rifling. They are more accurate for this reason.

However, lead alloy bullets still present many advantages to the handloader, perhaps the chief being economy. Metal cased bullets must still be bought from their manufacturer through retail dealers and cost from $2.00 to $6.00 per hundred depending on weight and caliber. But if the handloader has the necessary mould and accessories (which are not expensive) he can easily make his own lead alloy bullets for the cost of the lead alone, which brings their cost down to only a small fraction of metal cased bullets. It is just beginning to be possible for handloaders to make their metal cased bullets also, but while these are cheaper, the economy is not as great as with lead bullets.

Lead alloy bullets are still very useful and in many cases highly desirable in rifles, while in revolvers they are a necessity. In rifles they can be used for target practice at short and mid ranges for both economy and to lessen the wear on rifle barrels, and for use on target ranges where the higher velocity metal cased bullet loads might be unsafe. They are also useful for reduced loads for small game shooting and for indoor gallery practice. The heavier lead alloy bullets may also be satisfactory for large game. In addition, of course, there are many of the old black powder rifles still in use, and for these lead bullets are a necessity.

Alloy for Lead Bullets

Lead bullets are usually alloyed with a small amount of tin or antimony or both to make them slightly harder so that they will not lead the bore. The amount of tin or antimony used is designed by proportionate weight. Thus an alloy composed of ten pounds of lead to one pound of tin was called a 1 to 10 tin and lead alloy, or a 10% tin alloy. In black powder days most of the bullets used in centerfire rifles were alloyed 1 to 16 or 1 to 20 tin and lead. Generally speaking, the quicker the twist of rifling the greater the proportion of tin used to make the bullet harder. Schuetzen riflemen using 32-40 and 38-55 black powder rifles experimented a lot with various tempers of bullets to get one that caused the most perfect bullet upset in the bore and thus gave the best accuracy.

Today it has been found that generally for lead alloy bullets, either plain base or gas check, for use in modern high velocity rifles having quick twists of rifling, the best alloy is a 1 to 10 tin and lead alloy, or an alloy of 90 parts by weight of lead, 5 parts of tin, and 5 parts of antimony. This 90-5-5 alloy is often called the Ideal Alloy, or Ideal Bullet Metal No. 2, because it was originally developed in conjunction with Ideal reloading tools by the Lyman Gun Sight Corporation. This corporation continues to sell Ideal Bullet Metal No. 2 (90-5-5) in six-pound ingots to handloaders, and it is very convenient for those handloaders who mould their own bullets. This Ideal Bullet Metal No. 2 may be used as a basis for making softer alloys according to the following table:

1 tin to 10 lead equivalent to No. 2 Metal
1 tin to 15 lead equivalent to 2 parts No. 2 Metal to 1 part lead
1 tin to 20 lead equivalent to 1 part No. 2 Metal to 1 part lead
1 tin to 25 lead equivalent to 2 parts No. 2 Metal to 3 parts lead
1 tin to 30 lead equivalent to 1 part No. 2 Metal to 2 parts lead
1 tin to 40 lead equivalent to 1 part No. 2 Metal to 3 parts lead

Bullets for revolvers should not be softer than 1 part of tin to 40 parts of lead, and alloys as hard as 1 to 10 may be used. Often quite a little experimenting is necessary with alloys in preparing revolver bullets to get just the right alloy for an individual revolver that gives fine accuracy but does not lead the bore. But with smokeless powders and the rifles of today, the 1 to 10 tin and lead alloy or the Ideal Bullet Metal No. 2 seems to work excellently in almost all powder loads that are proper for lead bullets. The reason for using antimony is that it has a higher melting point than tin, and accordingly alloys with antimony are not so liable to suffer from powder gases melting the bases of bullets, and consequently slightly larger powder charges can be used with this alloy.

When—for economy—cable sheathing, storage battery plates, plumber solder, or type metal is used for lead, it is almost impossible to accurately determine the hardness of the alloy unless one has a lead tester such as that made by the Potter Engineering Company, which tests the hardness of a slab or ingot of lead by forcing a small steel ball into the lead in much the same manner as Brinell hardness is measured. Then if the metal is not of the required hardness, other kinds of metal can be added to make it right.

The following tools and accessories will be required for casting bullets:

Bullet mould	Blanket or cushion
Lead melting pot	Cloth to cover blanket
Special dipper or ladle	Old tin pan
Lubricant	Cotton gloves
Furnace	Chair
Wooden mallet	Bench or boxes

Bullet moulds are available from only two sources — Lyman Gun Sight Corp. and Hensley & Gibbs. Of these two, Lyman supplies by far the largest variety. H&G no longer make moulds for rifle bullets, and their handgun bullet moulds are not made in less than 4-cavity types.

The cast-iron melting pot, also procurable from reloading tool makers, should hold not less than three pounds of molten metal; or about 15 pounds for quantity casting. Most electric furnaces have the melting pot built in them.

The dipper or ladle for casting with bullet moulds that

Lyman-Ideal Single Cavity Bullet Mould

have one or two cavities should be of the type furnished by reloading tool makers with a spout that fits the pouring hole in the mould. The ordinary plumber's lead dipper will not be satisfactory. But for casting in a multiple cavity mould a ladle of the plumber type with ordinary pouring lip is necessary.

If the home or workshop is supplied with gas, then an ordinary Bunsen burner is very satisfactory as a furnace. One of the larger gasoline single burner furnaces such as the Coleman can also be used. Where electricity is available, one of the special electric furnaces furnished by some makers of loading tools is very convenient.

A cushion or a blanket folded to several thicknesses is needed to let the bullets drop onto as they fall from the mould so they will not be deformed. A piece of cotton cloth to cover the blanket to keep the hot bullets from scorching it is desirable.

The most convenient mallet is a stick or billet of hard wood, about 2 x 2 x 12 inches, with one end rounded for hand grasp. The old tin pan is to dump the hot dross into as it is skimmed off the molten lead from time to time. The bullet lubricant or wax is to flux the lead and to lubricate the joint of the mould.

Arrangement of Materials

As the job of bullet casting is going to take two hours or more, and should not be interrupted, it is well to have everything comfortable and convenient before starting. It is much easier and less tiring if you can rest your elbows on your knees as you cast. Therefore have a sturdy kitchen chair to sit on, and perhaps a cushion on it. Arrange the furnace on a level box or low bench so that the top of the melting pot comes on a level with your knees, and the near edge of the pot about a foot in front of the knees. Cover your lap, knees, and lower legs with a heavy apron or piece of canvas to keep off any possible lead splatter. To the left of the furnace have another box on top of which you place the folded blanket, with the top of the blanket several inches below the top of the melting pot. To the right of the melting pot have a third bench, top about on a level with the top of the pot. This is for the tin pan to receive the dross, to rest the wooden mallet on between casts, for extra metal, etc.

Take off your coat and tie, for you are going to sweat before it is over. Wear the cheap cotton gloves to protect your hands. Have plenty of ventilation in the room.

Casting Bullets

Weigh out the proper proportions of lead, tin and/or antimony. You will mould better bullets if you work with from three to ten pounds of metal in the pot—easier to dip from and that amount of lead holds an evener temperature. The metal will melt quicker if you place only several pounds of lead in the pot at first, and when that is melted, add the remainder gradually. Keep the dipper or ladle in the molten lead constantly except when filling the mould.

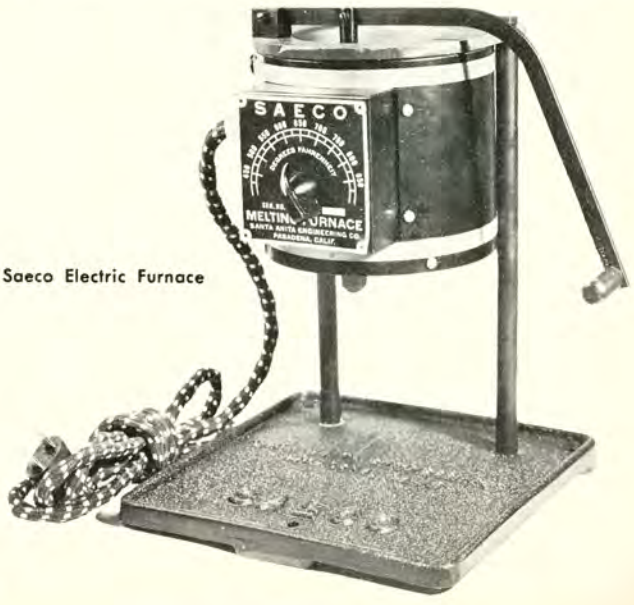
The mould must be very hot, almost as hot as the lead, to cast good bullets. Therefore, to save time, prop the mould up with its cavity block touching the outside of the pot so that it receives some of the heat that comes up around the pot while the lead is melting.

When the alloyed lead is all melted, add a ¾" ball of beeswax, tallow, or bullet lubricant, and stir the metal well with the dipper. The lubricant will begin to smoke and then ignite; if it does not ignite, touch it off with a match. This fluxing helps to mix the metals in the alloy together and causes any impurities or dross to rise to the surface, when it should be skimmed off with the dipper and dumped into the tin pan, leaving the surface of the molten metal bright and mirror-like as it always must be while casting bullets. Fluxing, thorough stirring, and removing the dross may be necessary every fifteen minutes or so while casting, but never skim off dross without first fluxing with the lubricant.

Now fill the dipper about two-thirds full of metal. Hold the mould, top to the right, over the pot; connect the nozzle of the dipper with the pouring hole in the mould, then turn the mould and dipper upright. The lead will then flow from the dipper into the mould, and the weight of lead in the body of the dipper will cause the lead to completely fill the cavity in the mould. Keeping the mould upright, turn the dipper over, leaving a little puddle of liquid lead in the opening of the pouring hole of the mould, and return the dipper to the metal in the pot. The temperature of the lead and the mould should be such that it takes four or five seconds for the sprue—the puddle of lead in the pouring hole—to solidify.

Then take the mallet in the right hand and cut off the sprue by striking the sprue cutter on the mould sharply so that the little piece of sprue falls into the melting pot. Hold the mould over the blanket, open it, and let the bullet drop out onto the blanket. If the bullet does not drop from the mould of its own accord, tap the mould with the mallet at the mould hinge to jar it out. Never strike the mould with anything metal.

A new mould will not cast good bullets until it has become oxidized, nor will any mould cast well until it has become very hot. Practically always you will have to cast ten to thirty bullets before the mould comes to the right temperature to cast good bullets that completely fill the



Saeco Electric Furnace

mould with all their grooves, bases and points perfectly formed. The bullets should be perfect, bright, and shiny. If they have a frosted appearance, it indicates that the metal and mould are too hot. Turn down the gas or current slightly on the furnace. The mould may also be cooled by dipping it for a few seconds into hot water, but only when its cavity is filled with a bullet. With a lead and tin alloy the metal should be at about 600 degrees F., but with an alloy containing antimony the temperature should be higher, about 750 degrees F.

When three or four imperfect bullets have accumulated on the blanket, pick them up with your gloved hand and drop them back into the pot again. Never drop imperfect bullets from the mould into the pot because lead might splash up onto the inside surface of the mould, and adhering there keep the mould from closing completely. If this happens, lift the flake off carefully with a sharp knife.

Never dip from the surface of the metal. Insert the dipper down into the bottom of the pot, turn its cavity up, and bring it to the surface. This stirs the metal at each dip and keeps the alloy properly mixed (the lighter metal—tin and antimony—tends to rise to the top of the molten mass).

Finally you are beginning to cast good bullets, and aside from occasionally fluxing and skimming off the dross you should be able to cast good bullets right along. As they begin to accumulate on the blanket, push them to one side so that you will always have a free spot for the bullets to fall on, and thus no bullet will strike another as it falls.

When you are through casting, turn off the furnace and let the bullets on the blankets cool a bit. Then carefully pick each bullet up in turn and set it base down in a pasteboard box to be conveyed to the loading bench for sizing and lubricating. Never tumble bullets or pour them into a box, or handle them in any way that might dent or damage them, particularly that might dull the edges of their bases, as all such injuries will make them inaccurate.

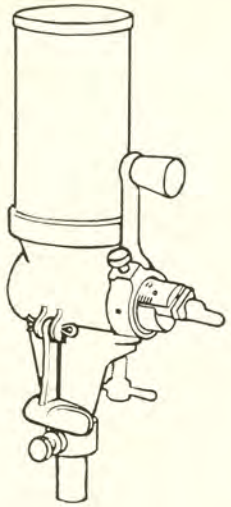
When the mould has cooled so that it can be handled, wipe it off with an oily rag and pack it away. When about to use that mould again, wipe it off inside and out with gasoline and then wipe all the gasoline off with a dry rag. When the metal remaining in the pot has solidified and cooled, scratch the alloy on its surface so that you can identify it afterwards and dump the remaining ingot out of the pot.

Quantity Casting

The above technique will work with bullet moulds having one or two cavities. For casting in large quantities, an armory or multiple cavity mould that casts four to ten bullets at a time is used. These moulds are heavy and tiresome, require considerable skill in their use, and do not pay for themselves unless thousands of bullets have to be cast for police or club use. When using them a large electric furnace with a large lead capacity is desirable. The sprue cutter on these multiple cavity moulds has a deep channel connecting the pouring holes of each cavity. An open ladle is used and the lead is run into the channel until all the cavities are filled, taking care to hold the mould level. Proper lubrication of the joint of the mould is necessary.

Antimony Alloys

There is no difficulty in alloying lead and tin. Just keep the mixture stirred by always dipping from the bottom of the pot. Antimony has a higher melting point than lead. To alloy it with lead, weigh out the proper quantity of the antimony and break it up very fine by pounding with a hammer. Melt the lead and raise it to a red heat, then add the antimony and cover the surface of the metal in the pot with powdered charcoal. Let the metal remain at this heat for a few minutes. Stir occasionally and when the antimony is completely melted, flux with lubricant and skim off the charcoal and dross, then lower the heat slightly to bring the metal to proper casting temperature. With a mixture high in antimony keep the metal hotter and stir more often, and never skim without fluxing and stirring, because the light antimony has a decided tendency to float on top of the lead.



Ideal Powder Measure

Ideal Lubricator and Sizer

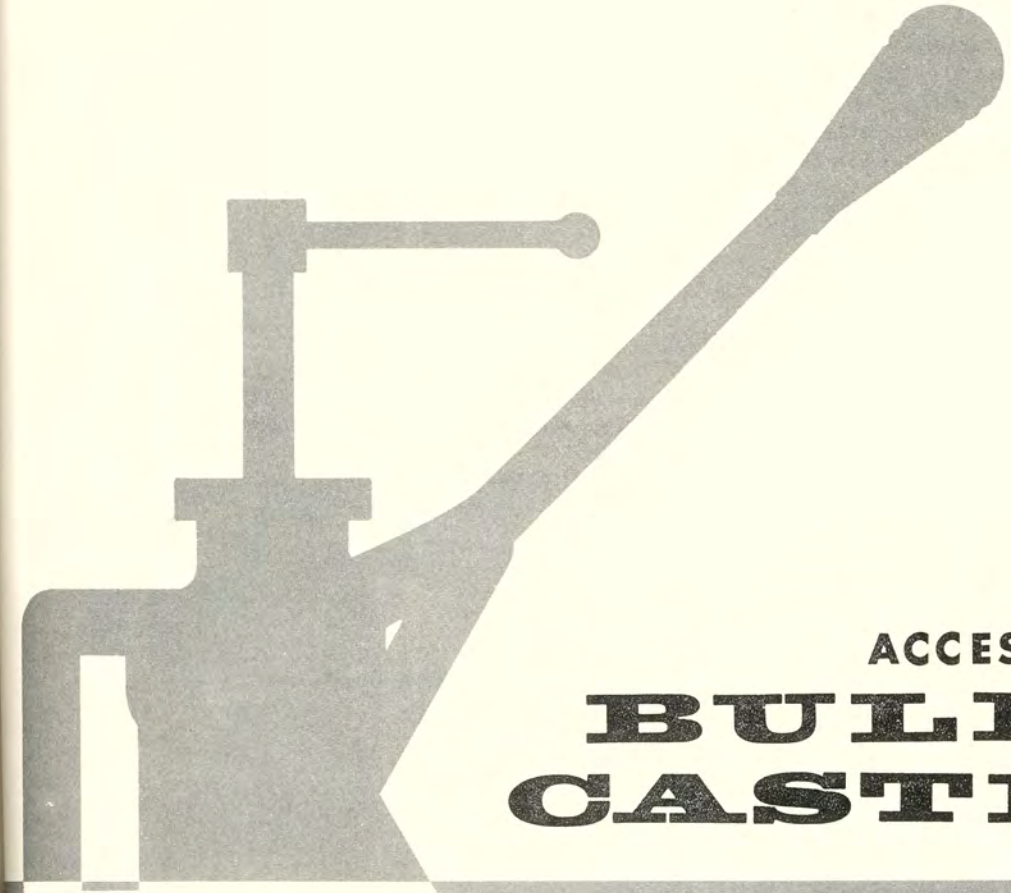
Other Suggestions

After casting for some time the mould may become too hot, and the bullet may not have set, even though the metal in the sprue hole has solidified. Long and heavy bullets require more time to solidify and set than lighter ones. Also if the mould is too hot, the bullets may not have time to shrink much and they may stick and not drop from the mould so readily. The cure for all this is simply to give more time after pouring before you open the mould. Also stop when the mould gets too hot and dip it in warm water, taking care however that there are bullets in the cavities. Do not tighten the cut-off plate screws on the mould so that they bind. The cut-off plate must be left free to swing with its own weight. Use great care never to injure or scratch the cavities or to dull their edges. Never use a metal brush on a mould cavity or face. If a new mould refuses to close completely, it may be that the dowel pins bind a little. Close the mould, gripping the handles tightly, and strike the mould a smart tap on the side with the wooden mallet, which practically always overcomes this difficulty.

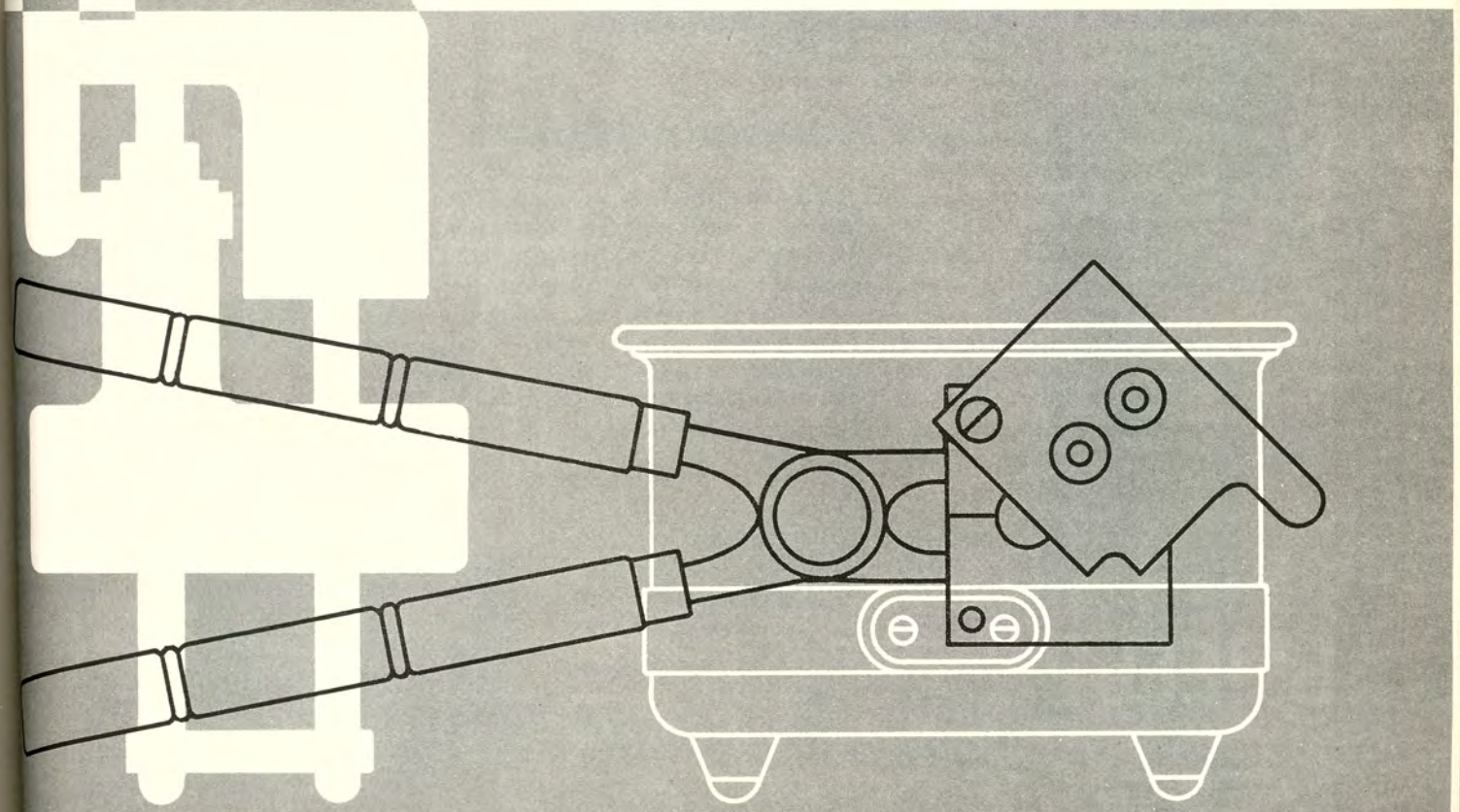
Question: How in thunder did our ancestors ever cast good bullets over a campfire? *Answer:* They cast only round balls, and they trued them up afterwards with a jack-knife!

(Reprinted from *Why Not Load Your Own?*, by courtesy of The Combat Forces Press, Washington, D. C.)

PART IV



TOOLS AND ACCESSORIES FOR BULLET CASTING



Notes on Moulds.....

Cast bullets that do not perform accurately may have some internal defect that causes instability in flight. These defects may not be noticeable when weighing and sorting the bullets after casting, so every precaution should be taken to prevent them while casting.

The alignment of the two blocks is a critical factor in proper bullet casting. Extreme care should be taken that the mould is not dropped or hit with any force. The sprue cutter should be rapped only with a plastic or wood mallet — never steel! All moulds must be properly broken-in to do the best job of casting. After 100 or so bullets are cast, you'll find your mould will be putting out better bullets.

The first 10 or 12 bullets cast from a cold mould should be discarded — it takes at least that length of time for a mould to reach the proper temperature for accurate casting. If the bullet comes out of the mould with wrinkles or open spaces, the mould (or the lead) is too cold. Frosted bullets mean too hot a temperature, though the effect is harmless. Wait long enough for the bullet to harden before cutting off the sprue; cutting the sprue too soon results in a deformed base.

Lead should be poured into the mould slowly to permit the air in the mould cavity to escape, thus preventing air pockets and internal deformities in the bullet.

The oil or grease on a new mould will not permit good bullets to be cast until the lube is burned away. Carbon tet (used in the open air) can be helpful in removing this grease, too.

When you are through casting, leave a bullet in the cavity — this will help prevent rusting, thus eliminating the need to re-grease the cavity.

LAKEVILLE ARMS

Prot-X-Bore Moulds

Our modern SFM (Shoot From the Mould) moulds, manufactured to our specifications by Lyman and Hensley & Gibbs, produce accurate bullets, ready to shoot. No sizing or lubricating needed. The zinc bases are placed into the special groove in the mould, and the bullet is cast around it. Designed to cast pure lead bullets, a small amount of tin or antimony may be added to the metal for bullets to be used in automatic pistols — the resultant bullet having a slightly increased body diameter.

Hensley & Gibbs Moulds — All are SFM. Handles are included in price.

38-357, 135 gr. SP
38-357, 125 gr. SP
44 Spec. & Mag., 158 gr. SP
44 Spec. & Mag., 170 gr. SP
44 Spec. & Mag., 220 gr. SP
45 ACP-Auto Rim, 190 gr. SP
45 Long Colt, 190 gr. SP

4-cavity **$26.50**
6-cavity **$39.00**

NOTE: Form fitted bullet seating stem, $2.25 (Lyman AA, $2.00)

Prot-X-Bore Zinc Bases (per bag of 1000)

38-357 ..... **$3.45**
44 Spec.-Mag. **$3.90**
45 Auto, Rim, Long Colt **$3.90**

Special Prot-X-Bore Sizing Dies for Lyman #45 Lubricator-Sizer (not needed with SFM Moulds).

Top & Bottom Punch ..... **$2.50 pr.**
"H" Die ..... **$2.00 ea.**

Lyman Moulds — Price is for blocks only. Our special wide opening handles are $3.75. Bullets marked* are *not* SFM, and must be sized.

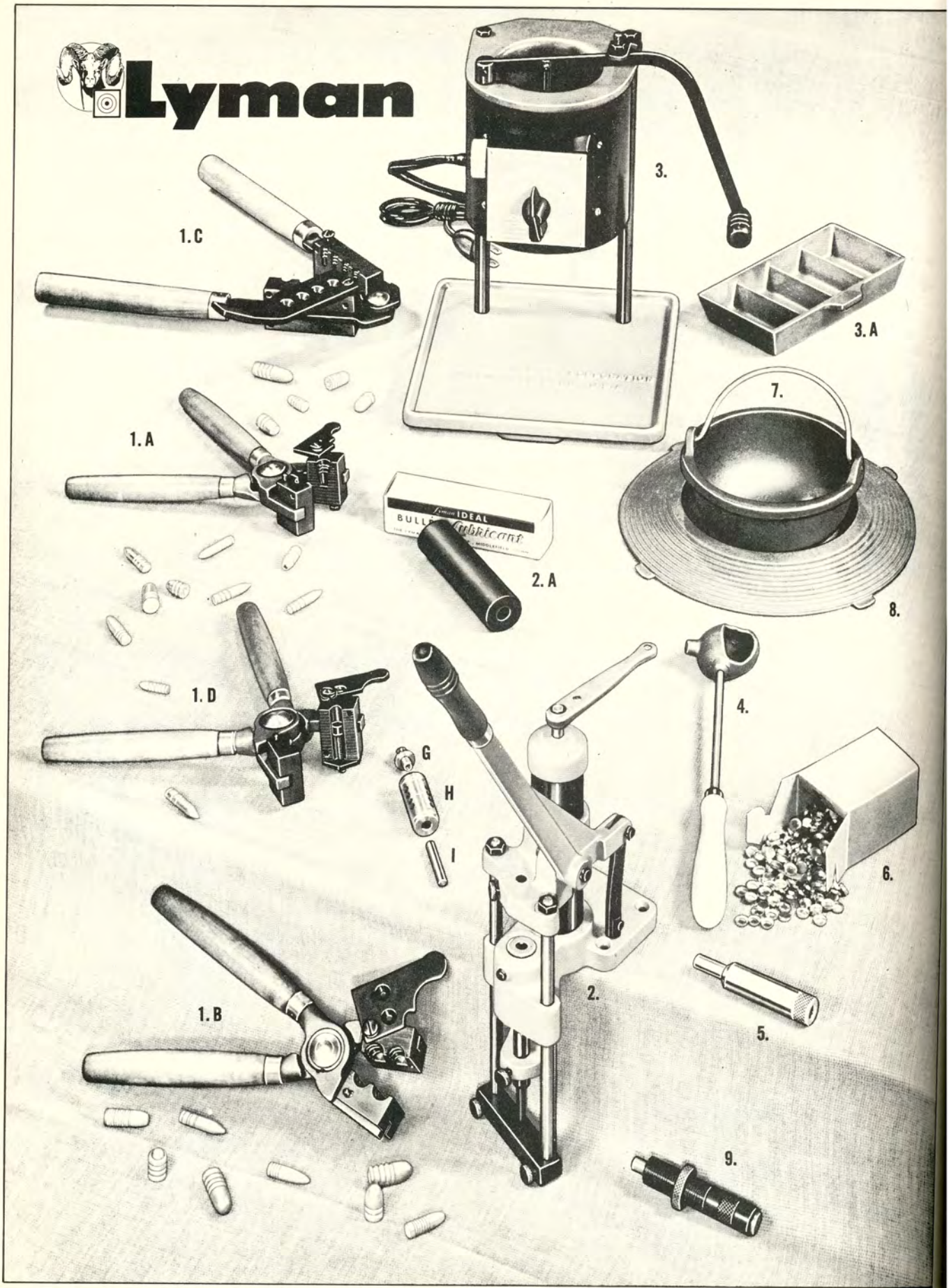
	Single Cavity	Double Cavity
38 Spec.-357 Mag.		
358500, 140 gr. SP	$ 6.75	$10.25
357514, 156 gr. SP	NA	10.25
*358503, 135 gr. WC HP	6.75	10.25
*358503, 135 gr. WC	6.75	10.25
358504, 140 gr. HP	10.25	NA
357 Colt Magnum		
355500, 140 gr. SP	NA	10.25
44 Spec.-Mag.		
429507, 220 gr. SP	6.75	10.25
429508, 220 gr. HP	10.25	NA
*429509, 170 gr. HP	10.25	NA
429509, 170 gr. SP	NA	10.25
45 Auto & Auto Rim		
452505, 190 gr. SP	6.75	10.25
45 Long Colt		
*454506, 190 gr. SP	6.75	10.25

NOTE: 4-cavity moulds in any of the above calibers, with handles, $20.00. Form fitted bullet seating stem $2.25 (Lyman AA, $2.00) Herter and Belding & Mull seating stems must be ordered from these concerns. Please send sample bullet when ordering.

SHOOTERS SERVICE

Shooters Service, under license by Lakeville Arms, also offer the following Lyman made SFM moulds. Handles extra, $3.75.

	Single Cavity	2-Cavity
38-357, 140 gr. SP	$6.75	$10.25
44, 220 gr. SP	6.15	10.25
45 ACP, 190 gr. SP	6.67	10.25


Lyman
1. C
3.
3. A
1. A
7.
IDEAL
2. A
8.
1. D
G
H
I
4.
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2.
5.
1. B
9.

Lyman Bullet Casting Equipment

1 **Lyman Ideal Bullet Moulds** are available in single, double, and four cavity models. Scientifically designed, and specially treated, these moulds are available for over 800 different bullets and round balls. Each mould is precision machined and finished to the closest tolerances — produces bullets uniform in their perfection. Shown: **1. A** single cavity mould (for single bullets or round balls — may be ordered at slight extra cost in hollow-base or hollow-point); **1. B** double cavity, which casts two bullets at each pouring; **1. C** shows four cavity mould — perfect for fast production. Double and four cavity moulds may be ordered at slight extra cost with 2 or 4 different bullet cavities. Each mould is furnished with its integral sprue cutter, insuring perfect bullet bases with every casting. **1. D** illustrates the brand new **Adjustable Bullet Swaging Core Mould.** This single cavity unit is designed for shooters who swage their own bullets . . . forms precision cores with perfectly flat ends, accurate to 3/10 of a grain. An adjustable base-screw permits casting of cores variable in length and weight. This mould is offered in .22, .30, .38, .44, and .45 caliber.

When ordering, please specify whether you want **complete moulds** or **mould blocks** only (the casting block itself, minus handles).
Prices:

Single-Cavity Mould Block	$ 6.50
Single-Cavity Complete	10.00
Hollow Base or Hollow Point, add	3.50

Swaging Core Mould is $13.50 complete, or $10.00 for Mould Block only.

Double-Cavity Mould Block	10.00
Double-Cavity Complete	13.50
Double-Cavity Mould Blocks, with different bullet sizes, add	2.50

Four-Cavity Mould Block	16.00
Four-Cavity Complete	19.50
Each different cavity, add	2.50 ea.

Handles only (not interchangeable specify single-, double-, or four-cavity mould blocks . . . $3.50).

2 **No. 45 Bullet Lubricator and Sizer** prepares cast bullets for use by reducing their diameter to correct size and by adding lubricant to their grooves to prevent lead deposits in the barrel. It lubricates, sizes and seats gas checks (when these are required) all in one operation. It's very fast, powerful and precisely accurate. Sizing dies are changeable to different diameters and bullet shapes. No other sizing equipment with the precision and production capacity of the No. 45 Lubricator and Sizer is, at the same time, so economical. Price: $19.50 less "G", "H", and "I" Dies. Top Punch "G". . . $1.50 ; Die "H" . . . $2.50; Bottom Punch "I" . . . $1.00 **2. A** bullet Lubricant prevents lead deposits in barrel rifling.

3 **Mould Master Bullet Casting Furnace** — this is the furnace the discriminating shooter will select for himself or for his gun club. This large capacity furnace features a thermostatic heat control which automatically maintains the temperature of the lead alloy, within 20 degrees Fahrenheit, plus or minus of any setting from 450 degrees Fahrenheit to 850 degrees Fahrenheit. A calibrated dial with pointer knob permits uniform heat control — even heat from bullet to bullet. It avoids the increased oxidation of the alloy which may be caused by fast fluctuations in temperature. Relatively low in cost, this furnace is a heavy-duty model designed for decades of flawless service. And Mould Master is as safe as it is reliable; the rugged base insures against tip-over even with full 11 lbs. capacity. Alloy is discharged to the Mould or Lead Dipper through a spout on the bottom of the pot. It is operated by a lever controlled valve, and permits Mould Cavity Filling **under pressure.** Results: Air pockets are virtually eliminated and perfect, consistent bullets assured. Slag remains at top of molten metal. The grooved handle of operating lever remains cool at all times. Mould Master operates on 115 volts, A. C. - D. C., 1000 watts — draws about the same amount of power as a household electric iron. **3. A** shows ingot mould for the Mould Master Furnace. Price: $43.50. Ingot Mould is $1.25.

4 **Lead Dipper** handles easily, stays cool, holds just the right amount of metal. Special spout shape makes pouring easy — eliminates danger of air pockets in finished bullet. Price: $1.50.

5 **Kake Kutter** cuts off excess lubricant on cast bullets. Price: $1.00.

6 **Gas Checks** permit higher velocities without excessive lead deposits in the barrel. Easily seated on bullets with Lyman equipment. Price: .22 through .38 caliber per M . . . $3.75, .44-.45 caliber per M . . . $4.00
NOTE: .38 Special same as .35 caliber

7 **Lead Pot** and Price: $2.50

8 **Holder** — functional, economical, stable. Prevents lead from splashing on to stove burner. Price: $1.00

9 No. 310 **Bullet Sizing Die** performs the same operation as the #45 bullet lubricator and sizer — except for the lubricating function. It is specifically designed for use in the simple, portable, 310 Tool. Price . . . $3.00

CONSULT CAST BULLET CHART ON THE FOLLOWING PAGES. FOR COMPLETE DATA ON BULLET-CASTING AND BULLET TYPES AVAILABLE, SEE HANDBOOK DESCRIBED ON PAGE 22.

MOULDS FOR ROUND BALLS can be supplied in these diameters:
.185, .235, .244, .257, .285, .295, .300, .308, .311, .313, .319, .323, .330, .335, .340, .345, .350, .358, .360, .365, .370, .375, .378, .380, .389, .395, .400, .403, .410, .420, .424, .429, .437, .440, U.440, .445, .451, U.451, .454, .457, .465, .470, .475, .485, .490, .498, .500, .509, .512, .515, .520, .526, .535, .542, .550, .558, .562, .575, .589, .595, .600, .615, .625, .635, .648, .662, .672, .678, .690, .715, .760.

DIES FOR NO. 45 LUBRICATOR AND SIZER are available in the following bullet diameters

.223, .224, .225, .228, .244, .245, .257, .258, .259, .263, .266, .278, .280, .285, .287, .291, .299, .301, .308, .309, .310, .311, .312, .313, .315, .316, .318, .319, .320, .321, .323, .325, .338, .340, .350, .354, .355, .356, .357, .358, .359, .360, .366, .375, .377, .378, .379, .380, .386, .400, .401, .403, .406, .410, .412, .414, .419, .424, .427, .428, .429, .430, .431, .434, .439, .446, .450, .451, .452, .454, .456, .457, .459, .509, .512, .515. (.580 Lub. only).

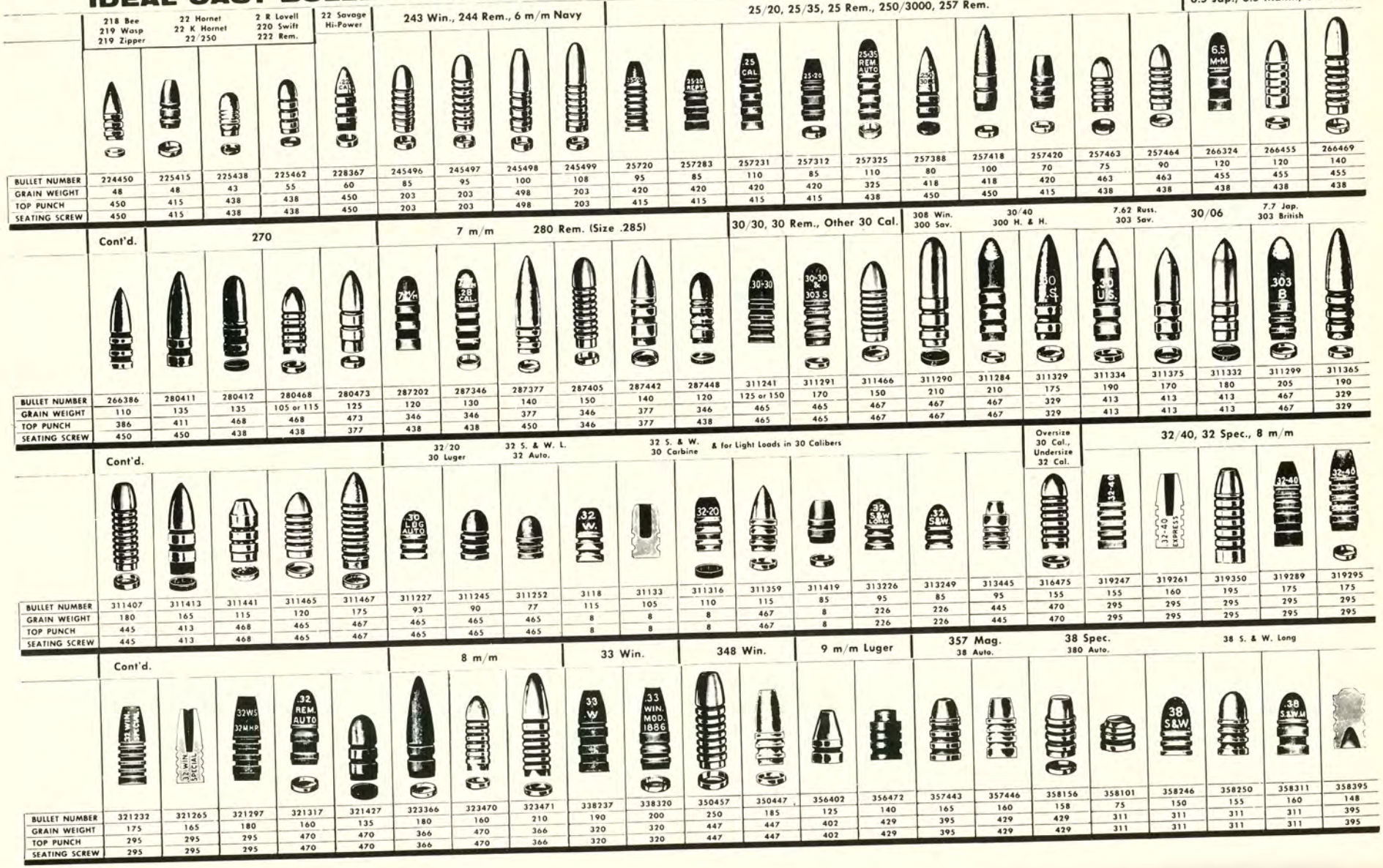
NO. 310 BULLET SIZING DIE illustrated at left performs the same sizing operation as the No. 45 Sizer — but is designed for use with the portable 310 tool (see page 12).

available in the following bullet diameters:

.223, .224, .225, .226, .228, .244, .245, .257, .258, .263, .266, .278, .280, .285, .287, .299, .301, .308, .309, .311, .312, .313, .315, .320, .321, .322, .323, .338, .350, .356, .357, .358, .359, .360, .366, .386, .400, .401, .403, .410, .412, .424, .427, .428, .429, .430, .431, .448, .450, .451, .452, .454, .456, .457, .509, .512, .515.

IDEAL CAST BULLET DESIGNS *(these bullets not to scale)*

Lyman



	218 Bee, 219 Wasp, 219 Zipper	22 Hornet, 22 K Hornet, 22/250	2 R Lovell, 220 Swift, 222 Rem.	22 Savage Hi-Power	243 Win., 244 Rem., 6 m/m Navy				25/20, 25/35, 25 Rem., 250/3000, 257 Rem.											6.5 Jap., 6.5 Mann., 6.5 x 257		
BULLET NUMBER	224450	225415	225438	225462	228367	245496	245497	245498	245499	25720	257283	257231	257312	257325	257388	257418	257420	257463	257464	266324	266455	266469
GRAIN WEIGHT	48	48	43	55	60	85	95	100	108	95	85	110	85	110	80	100	70	75	90	120	120	140
TOP PUNCH	450	415	438	438	450	203	203	498	203	420	420	420	420	325	418	418	420	463	463	455	455	455
SEATING SCREW	450	415	438	438	450	203	203	498	203	415	415	415	415	438	450	450	415	438	438	438	438	438

	Cont'd.	270				7 m/m		280 Rem. (Size .285)				30/30, 30 Rem., Other 30 Cal.			308 Win., 300 Sav.	30/40, 300 H. & H.		7.62 Russ., 303 Sav.	30/06	7.7 Jap., 303 British	
BULLET NUMBER	266386	280411	280412	280468	280473	287202	287346	287377	287405	287442	287448	311241	311291	311466	311290	311284	311329	311334	311375	311332	311299	311365
GRAIN WEIGHT	110	135	135	105 or 115	125	120	130	140	150	140	120	125 or 150	170	150	210	210	175	190	170	180	205	190
TOP PUNCH	386	411	468	468	473	346	346	377	346	377	346	465	465	467	467	467	329	413	413	413	467	329
SEATING SCREW	450	450	438	438	377	438	438	450	346	377	438	465	465	467	467	467	329	413	413	413	467	329

	Cont'd.	32/20, 30 Luger	32 S. & W. L., 32 Auto.	32 S. & W., 30 Carbine & for Light Loads in 30 Calibers								Oversize 30 Cal., Undersize 32 Cal.	32/40, 32 Spec., 8 m/m				
BULLET NUMBER	311407	311413	311441	311465	311467	311227	311245	311252	3118	31133	311316	311359	311419	313226	313249	313445	316475	319247	319261	319350	319289	319295
GRAIN WEIGHT	180	165	115	120	175	93	90	77	115	105	110	115	85	95	85	95	155	155	160	195	175	175
TOP PUNCH	445	413	468	465	467	465	465	465	8	8	8	467	8	226	226	445	470	295	295	295	295	295
SEATING SCREW	445	413	468	465	467	465	465	465	8	8	8	467	8	226	226	445	470	295	295	295	295	295

	Cont'd.	8 m/m			33 Win.		348 Win.		9 m/m Luger		357 Mag., 38 Auto.		38 Spec., 380 Auto.			38 S. & W. Long		
BULLET NUMBER	321232	321265	321297	321317	321427	323366	323470	323471	338237	338320	350457	350447	356402	356472	357443	357446	358156	358101	358246	358250	358311	358395
GRAIN WEIGHT	175	165	180	160	135	180	160	210	190	200	250	185	125	140	165	160	158	75	150	155	160	148
TOP PUNCH	295	295	295	470	470	366	470	366	320	320	447	447	402	429	395	429	429	311	311	311	311	395
SEATING SCREW	295	295	295	470	470	366	470	366	320	320	447	447	402	429	395	429	429	311	311	311	311	395

	Cont'd.													35 Rem. 35 Win.	358 Win. 9 m/m	9.3 x 72 Rifle	375 H. & H., 38/55				41 Long Colt	
BULLET NUMBER	358416	358425	358429	358430	358431	358432	358495	358439	358477	358480	358271	358344	358345	358315	358318	366408	375167	375248	375449	375296	386176	386177
GRAIN WEIGHT	155	115	165	155	155	148 or 160	148	155	150	135	125 or 155	155	115	200	245	250	270	250	260	265	155	190
TOP PUNCH	311	402	429	430	429	429	311	429	429	429	429	344	429	311	311	429	167	449	449	449	(use as cast)	
SEATING SCREW	311	402	429	430	429	429	311	429	429	429	429	344	429	311	311	429	167	449	449	449	167	167

	Cont'd.	38/40			40/60 & other 40 Cal.			401 Win.	405 Win.	44/40	Conical 44 Cal.			44 Russian, 44 Special, 44 Magnum								
BULLET NUMBER	386178	40143	401452	40188	403168	403169	403173	410426	412263	42798	429100	429106	429478	429251	429336	429348	429352	429360	429383	429422	429434	429436
GRAIN WEIGHT	190	170	200	175	195	245	290	240	290	205	170	175	205	250	250	180	245	235	240	220	215	210
TOP PUNCH	178	43	452	88	43	43	43	263	263	98	251	251	251	251	421	348	348	360	251	421	98	251
SEATING SCREW	178	43	452	88	43	43	43	263	263	98	251	251	251	251	421	348	348	360	251	421	98	251

	44 Mag. or Special			43 Spanish	44-77, 44-90	45 Auto. or Auto. Rim.						45 Colt or 455 Webley					45/70			45/90		
BULLET NUMBER	429421	429215	429244	439186	446187	452374	452389	452423	452460	452484	452488	452490	454190	454309	454424	454485	457191	457192	457401	457122	457124	457125
GRAIN WEIGHT	250	215	255	370	465	225	185	245	200	220	195	424	250	235	260	250	300	345	190	325	400	500
TOP PUNCH	421	421	421	187	187	374	374	424	460	374	460	424	190	374	424	190	191	191	401	191	374	374
SEATING SCREW	421	421	421	187	187	374	374	424	460	374	460	235	190	374	424	190	191	191	401	191	374	374

	458 Win., 45/70		50/70	Specials for Muzzle Loaders					
BULLET NUMBER	457406	457483	515141	450225	450229	533476	557489	575213	68569
GRAIN WEIGHT	500	395	440	165	155	52 CAL.		or 585213	69 Cal.
TOP PUNCH	374	191	141	374	460	Hollow Base	SHARPS	58 CAL.	Hollow Base
SEATING SCREW	374	191	141	374	460	MINNIE	Carbine	MINNIE	Minnie

UNDERSIZE MOULD DATA

NOTES: *Bullets cast from Ideal Moulds are from .003 to .005 larger than first three numbers indicate, to allow for sizing.*
The following moulds can be furnished to cast bullets closer to the diameter indicated by the first three numbers:

U225415	U299152	U311329	U357446	U358345	U42798
U225438	U299153	U311334	U358156	U358416	U429185
U225450	U299154	U311359	U358159	U358425	U429215
U257312	U3118	U311365	U358160	U358429	U429244
U257388	U311241	U311413	U358242	U358431	U429421
U257418	U311278	U311414	U358246	U358432	U429478
U266469	U311284	U311466	U358250	U358439	U452374
U280412	U311291	U311467	U358271	U358495	U452460
U280468	U311299	U321297	U358311	U375449	U452423
U287346	U311316	U356402	U358344	U386176	U454190
				U386177	U457124

Lyman

Notes on Lubri-Sizers & Lubricants.....

To be truly accurate, cast bullets must be sized (forced through a die to bring the diameter down to correct measurement), though some bullets shoot well "as cast." The combination tools shown on the following pages do this easily and quickly, and at the same time force a lubricant into the grooves of the bullet.

All lead alloy unjacketed bullets must be lubricated to prevent leading of the bore. Bullet lubricants must not only be able to lubricate properly at high temperatures, they must also maintain this property over years of storage and must not melt in hot climates.

Operated properly, that is, maintaining the proper pressure on the lubricant and hesitating for a moment at the bottom of the downstroke to permit the lubricant to flow into all of the bullet grooves, these tools will help make your bullets more accurate.

Adequate bullet sizing can also be done with simple dies such as the bullet sizing die put out by Lyman for their 310 tool. In this case the bullet may be lubricated by placing them base down into a shallow pan of melted lubricant. The excess lube is then removed using their Kake-Cutter.

Your sizing die-cast bullet combination should, ideally, be one in which a minimum amount of lead is removed. In other words, let your lube-sizer remove only a thousandth or two from the bullet diameter. When you size away too much lead you decrease the lube capacity of the grooves, make the lead area in contact with the bore greater, and you'll have to exert more effort, too, in doing the sizing-lubing.

PHELPS Lubricator-Resizer

Precision made and sturdily constructed for a lifetime of use. Unique Die Puller, supplied with each machine, enables the dies to be removed without harmful hammering. Phelps dies are honed to a high micro finish and gauged to assure exact size. Bullets are placed into machine base-up, and the base remains free of grease throughout the operation. Standard stick lube is used, and the bullets are handled only once. Dies for 38 caliber are standard at .358; dies for 45 caliber standard at .452. Dies are made for most calibers and may be ordered in place of standard dies if you prefer to slug your barrel.

$40.00

Complete with dies

Extra dies (send bullet sample) $5.25

Extra bullet punch (send bullet sample) $1.60

Extra die puller complete ..... 75¢

Lyman lubricators and sizers will be found in Moulds section

New IMPROVED

SAECO

Lubri-Sizer

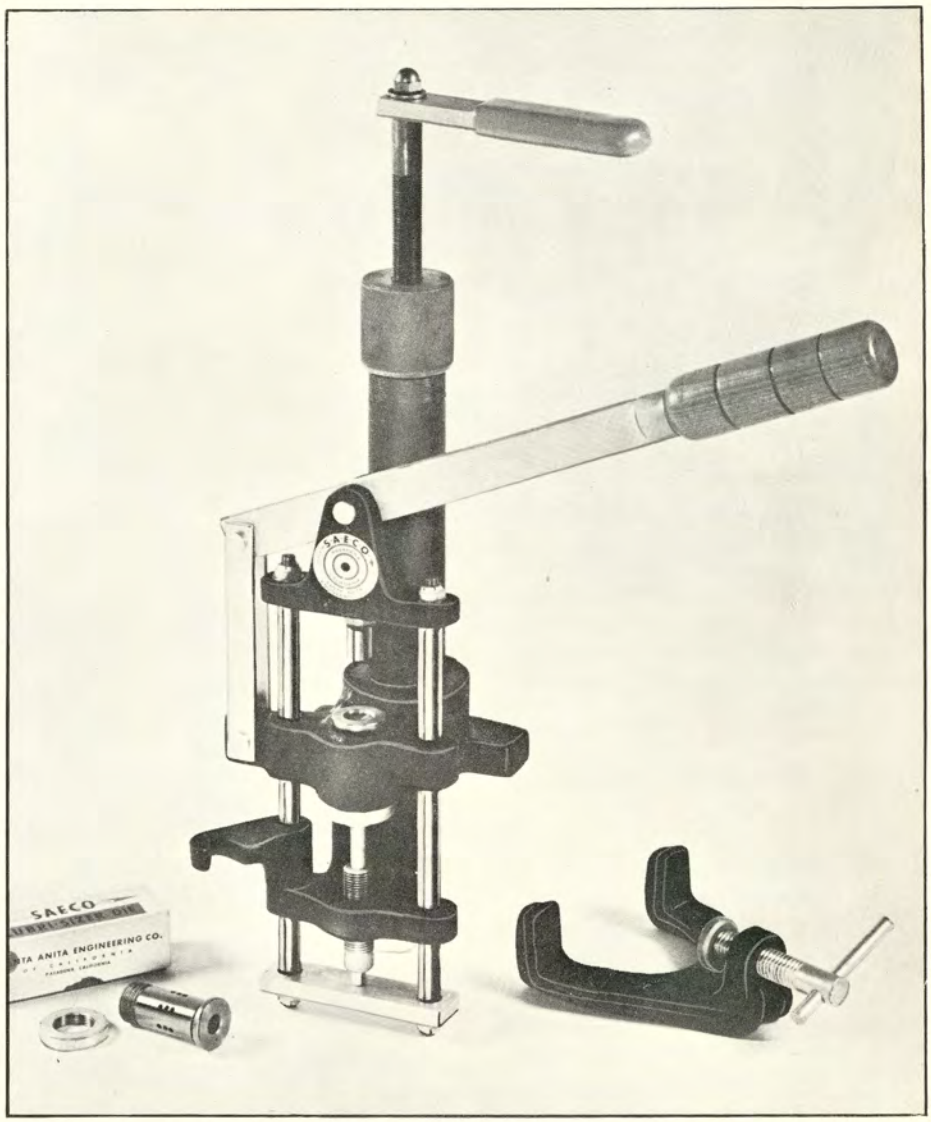
$36.00

SAECO Lubri-Size die, complete $6.50

Extra top punch (specify bullet nose style) $2.00

A new improved version of the famous original SAECO Lubri-Sizer, it is precision made and more sturdy in construction. This new Lubri-Sizer features a spring loaded grease reservoir; special independent double "C" clamp for bench mounting—no clamping strain on the frame; ground parallel rods to assure absolute alignment and bullet concentricity. A gas check seating unit is supplied with each Lubri-Sizer.

The new improved SAECO Lubri-Sizer dies are hardened, then honed to a mirror finish to precise dimensions. Working tolerances are only .0002".



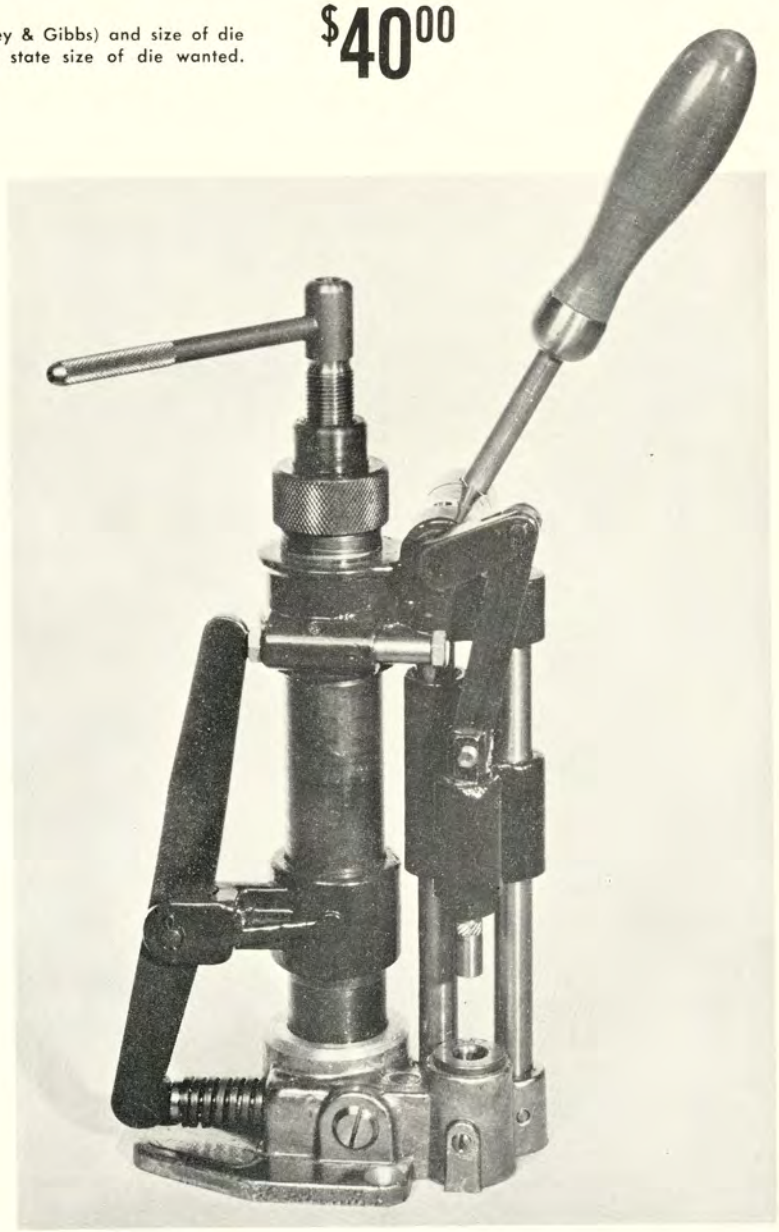
Dies are available in the following sizes. Inside punches and lock rings are fitted to and included with all dies.

.2240	.2440	.2575	.2660	.2680	.2780	.2800	.2870	.3080	.3090	.3100
.3105	.3130	.3210	.3230	.3240	.3490	.3555	.3565	.3575	.3580	.3760
.4010	.4275	.4285	.4300	.4500	.4515	.4540	.4575	.4580		

STAR
Automatic Lubricator & Resizer

Give bullet number (Lyman or Hensley & Gibbs) and size of die wanted, or send sample bullet and state size of die wanted.

$40.00



This lubricator embodies a newly perfected method of lubricating bullets; is substantially and carefully built and is accurate and positive in its operations. A storage pressure system is used in the grease reservoir, by means of a compression spring, which feeds the grease to a high-pressure pump which automatically forces the lubricant into the grooves of the bullet. The bullet is then forced through the die by the entering of the next one.

☆

One setting of the pressure screw greases from 100 to 200 bullets. The bullets, being forced in succession through the die, are processed about three times as fast as in the ordinary lubricator.

☆

This tool is becoming as famous as the PROGRESSIVE RELOADING TOOL among shooters for its accuracy and speed. It is equipped with hardened dies and is adaptable to any caliber. It is sold on a money back guarantee if not satisfactory after a week's trial.

STAR MACHINE WORKS

BULLET LUBRICANT

MIRROR-LUBE

Pat. Pend.

THE BULLET POUCH P.O. BOX 4285
LONG BEACH 4, CALIFORNIA

This lubricant is the result of years of research and experimenting.

It's lubricating qualities are not affected by weather conditions. It leaves the gun barrel in a clean, highly polished, mirror-like state, which it will retain indefinitely; resisting rust and pitting.

The only cleaning necessary is with a DRY bronze bristle brush, followed by a cloth, or swab, slightly dampened with a light gun oil.

Works equally well with either Rifle or Pistol bullets — no matter how "HOT" the load.

This lubricant may be stored indefinitely without separation of ingredients, and is not messy with ordinary handling. Tested and approved by Shooters like You and I — (Not Famous).

In SOLID or HOLLOW Sticks
Price—50¢ per stick, plus postage

THE BULLET POUCH
P.O. Box 4285 Long Beach 4, California

IPCO

Graphite Lubricant

A highly specialized lubricant containing colloidal graphite and special waxes, without resinous or abrasive material.

Available in two forms: ribbons, $3\frac{1}{2}'' \times 1\frac{1}{8}''$, are placed over case mouth, and wads are cut out and left in the case; sticks, $5'' \times 1''$, for use in all pressure lubricators, are available in solid or hollow form.

Ribbons, box of 16 .033 or .046—box of 14 .064	$1
Sticks, solid or hollow (2 to box), per box	$1

Notes on Furnaces & Pots.....

Satisfactory bullet casting may be done with gas-heated lead pots, but the electric furnaces shown on the following pages will not only save time and labor, but will undoubtedly improve the quality of the bullets cast.

It is important that the molten lead be stirred frequently, otherwise the tin and antimony (if any) will separate. If you are using a dipper, insert it into the bottom of the pot and bring it up from the bottom with the opening up. This not only keeps the mixture stirred, but gives you a ladle of clean metal without scum.

Lead and tin alloys require a temperature of about 600 degrees F., while an alloy containing antimony needs about 750 degrees F.

Beeswax or tallow is used to flux the alloy. A small ball (about the size of a marble) of either should be added to the heated alloy, mixed in, and if it does not ignite by itself, it should be lit with a match. This will help mix the metals and cause any slag or impurities to rise to the surface where they can be skimmed off.

Some of the aids to bullet casting are available around the home. A blanket or soft pad should be used to catch the bullets dropped from the mould, and it is wise to use gloves when casting to prevent burns.

FISHER Lead Furnace — Model No. 7

A quality furnace holding 7 lbs. of metal. May be connected to any 110-120 volt AC outlet. Draws 450 watts at 115 volts — less than 3¢ per hour. Heavy duty cord is included with furnace. With this furnace, a snout type dipper and a mould, you are ready to cast bullets with speed and ease.

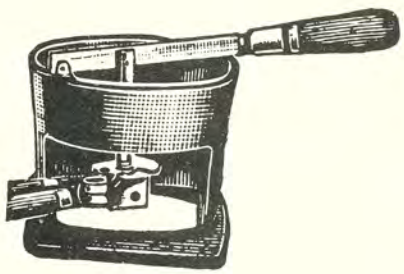
$14.95

Lyman furnaces and pots will be found in Moulds section

THE MERIT MELTING POT

Takes the "job" out of casting bullets.

$14.80

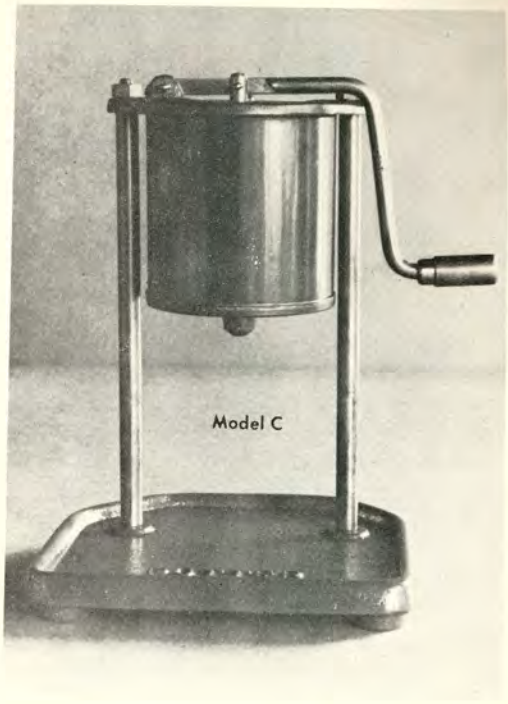


Enjoy a faster and easier method of casting bullets with the Merit Melting Pot.

- There is no bother with slag or dirt as the MERIT POT is gravity feed and the molten metal is drawn from beneath the surface. The flow of metal is controlled by a very simple and efficient valve
- Factory tests have shown that it is possible to cast from 400 to 500 bullets per hour with a single cavity mould. The MERIT POT is of two piece construction and is perfect for use with heavy gang or multiple cavity moulds, as whenever necessary the distance between the discharge nozzle and base may be increased by using spacers and longer screws.
- The gravity feed gives just the right pressure to cast perfect, sharp cornered and uniform bullets, where mould is so cut.
- There are no electric coils to burn out. The MERIT POT can be used on any ordinary gas stove or plate. Gas is the cheapest and most easily controlled heat. Can be readily used on gasoline stove or plumber's firepot.
- When you use the MERIT MELTING POT, simply place the pouring hole of mould in contact with the discharge nozzle of pot, then lift valve release lever and let it drop. The valve automatically shuts off when lever is dropped. The discharge nozzle is so designed as to leave the smallest sprue practical for cutting off.
- The MERIT POT holds approximately twenty pounds of metal and the average heating time is one half hour.

POTTER

Electric Casting Furnaces



Model C — Holds 3½ lbs., draws about 350 watts at 110-120 volts, and is suitable for 1- or 2-cavity moulds. **$22.50**

Model E — Like the Model C but with two heating elements — one for 300 watt use and single cavity moulds, the other for 400 watts and 2- or 3-cavity moulds. **$25.50**

Model D — Like the Model E, but has also a special switch to permit operation at 750 watts, thus making this furnace usable with 4- or 6-cavity moulds. At low heat or 400 watts, single or 2-cavity moulds may be used. **$30.00**

Electric Alloy Mixing Furnace

$24.00

Especially designed to melt lead, tin and/or antimony together, this furnace holds 16 lbs. and draws 900 watts at 110-120 volts.

Equipped with a spout so that the mixture may be easily poured into ingot moulds, for use in the Potter Bullet Casting Furnace, it has two wooden handles arranged for maximum convenience and leverage.

Our Electric Alloy Mixing Furnace may also be used as a lead pot for dip-casting bullets.

Ingot Moulds

$1.40 7 oz. **$1.75** 9 oz.

Each Potter Electric Furnace is supplied with one 6-cavity ingot mould, the cavities of 7 oz. capacity. Extra ingot moulds are available.

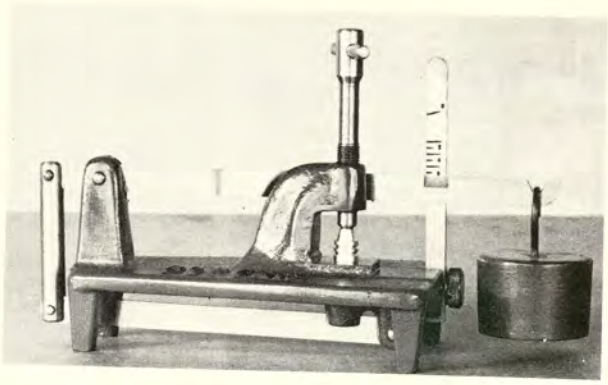
Lead Mixing Kettle

$5.00

Designed with a broad flat base to prevent tipping and for maximum heating area over a gas-or coal stove. Holding 16 lbs. of lead, this kettle has two removable wooden handles for greatest convenience in handling and pouring into ingot moulds.

POTTER
Lead Tester

$28.00



Designed to help the reloader produce bullets of uniform hardness, this instrument measures the hardness of the bullet alloy by forcing a small steel ball into the metal. The depth to which the ball penetrates is indicated on a scale calibrated in terms of hardness.

SAECO Electric Melting Furnace

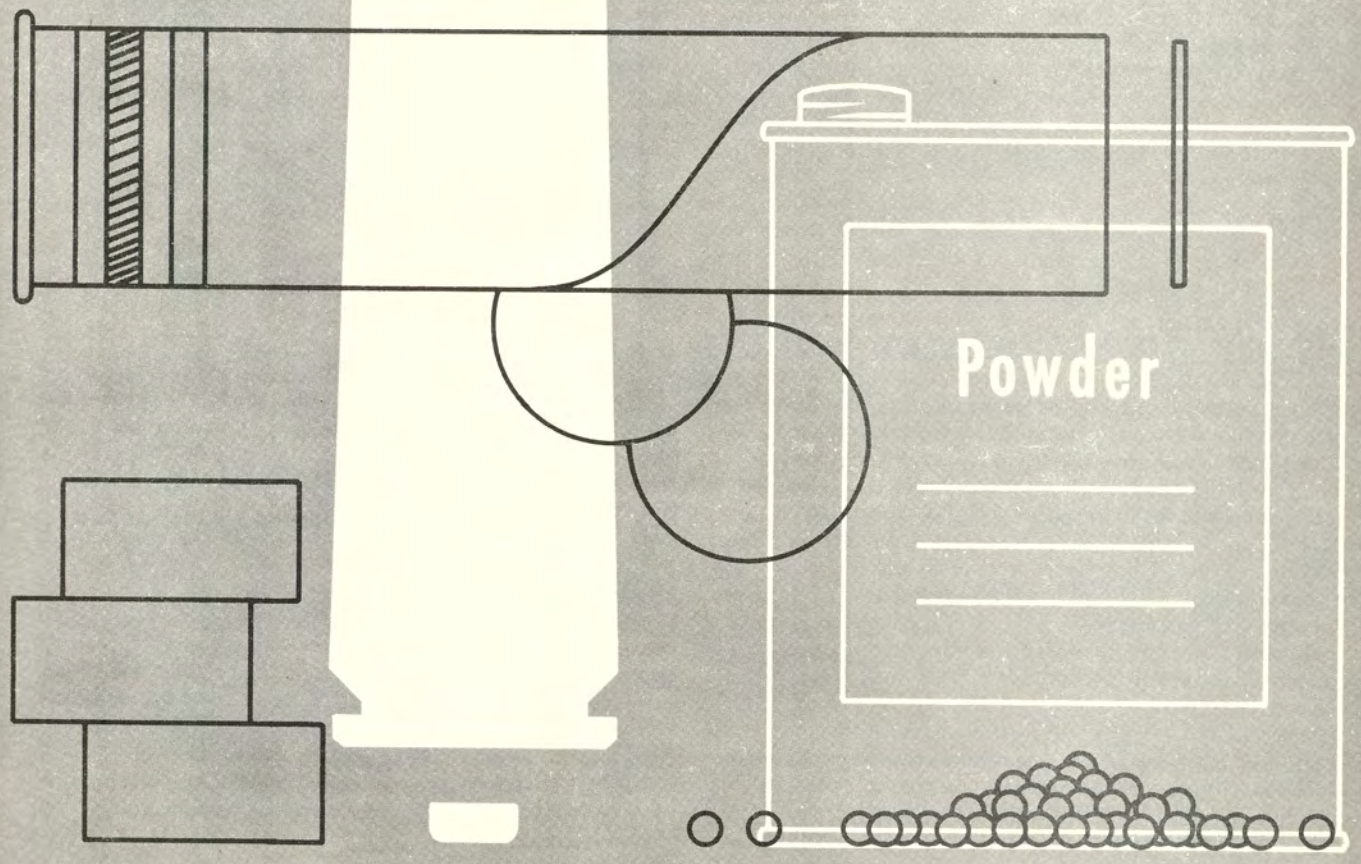
$44.00

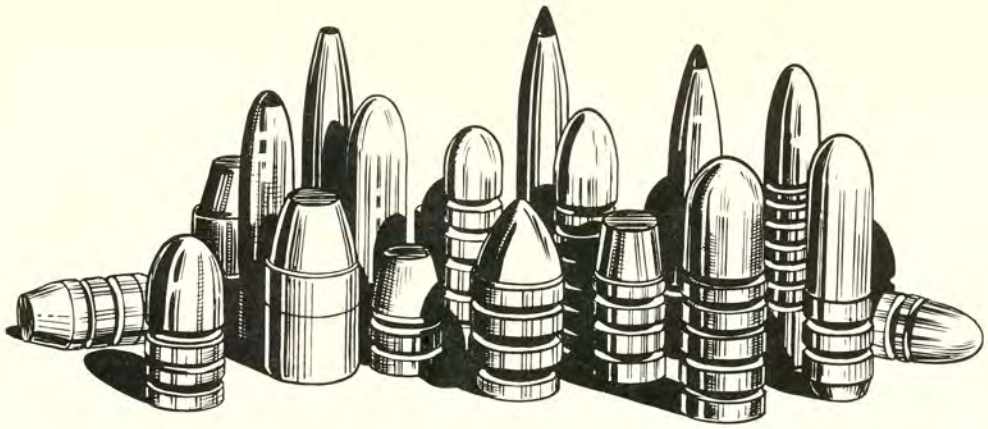
A large capacity, thermostatically controlled furnace, fully guaranteed for one year. The automatic thermostat maintains the desired temperature of the alloy within 20° F plus or minus at any setting from 450° F to 850° F. The alloy is poured into the mould through a spout on the bottom of the pot. This fills each mould cavity under pressure, greatly eliminating air pockets. Slag floats on the top of the alloy, away from the pouring spout. Operating handle remains cool during casting operation. The pot, which holds 11 lbs. of lead, accepts standard 5 lb. ingots without cutting. Fiberglas insulator and 1000 watt heating element permits full heat in 20 minutes. Operates on 110-115 volts AC-DC. An ingot mould, casting four one-pound ingots, is furnished with each furnace.

SANTA ANITA ENGINEERING CO.

PART V

COMPONENTS





Notes on Rifle Bullets

A basic rule for best rifle accuracy is to match the barrel twist to the bullet weight and length. As an example, a 30-06 barrel with a 1 to 10 twist will handle 150- to 220-grain bullets better than those of 90- to 150-grains, with some exceptions. If lightweight, high velocity bullets are to be fired in a 30-06, then a twist of either 1 in 12 or 1 in 14 is generally preferable.

There are many types and classes of rifle bullets, each designed to do more or less specific jobs. Light, high velocity varmint bullets should not be used on big game, nor ought long range target bullets be used for varmint shooting. Try to choose the correct bullet for the job to be done.

It is just as imperative to select a load that will utilize the full potential of the bullet. A heavy hunting bullet must be driven at near maximum velocities to obtain correct expansion, shocking power and penetration. On the other hand a 30-30 bullet, designed for the lower velocities, must not be driven too fast or it will tend to explode on contact and fail to give good performance.

Today virtually all bullet makers make good bullets. Choose one suitable for the job at hand, give it the right velocity and it will do that job — if you do your part!

One of the finest hunting bullets is the Nosler Partition bullet. It is designed to provide satisfactory expansion plus maximum penetration, while retaining approximately two-thirds of its original weight when recovered from game. It is also highly accurate.

Hornady, Speer, Sierra and others, including Remington and Winchester, also make a full line of excellent hunting bullets.

Match bullets are another thing. Many of the best match bullets are handmade and hand-inspected. The fine Sierra 30 cal. 168-grain, soft-swaged bullets are superbly accurate, and so are the 30 cal. 187-grain Norma (No. 567) bullets. In this class it is usually a question of matching the barrel to the bullet, or vice versa. Several smaller makers (you'll find them listed in our Directory) offer excellent match bullets, particularly in the 22 to 6mm range.

Notes on Handgun Bullets

There are today four classes of handgun bullets. The cast lead bullet, relatively hard and lubricated, has been with us many years. It is excellent for target work and hunting at lower velocities.

The swaged lead, lubricated bullet is a relative newcomer. These bullets are just about as perfect as a lead bullet can be. They have no cavities, holes or off-balance hollows. They also make good target and low velocity game bullets.

A new handgun projectile is the zinc base, swaged bullet. Formed from pure lead, this bullet has a machined zinc base swaged and locked onto the bullet. These bullets require no lubrication. The zinc base swabs the lead out of the barrel on each shot. Superbly accurate, they're also excellent hunting bullets. The soft, pure lead gives maximum shocking power. They may be fired at velocities up to factory maximum.

The newest and probably the most revolutionary bullet today is the jacketed or half-jacketed handgun bullet. Some manufacturers use pure lead, others use lead alloys. The softer the lead the greater the shocking power on game. Jackets are swaged right onto the lead cores, permitting high velocity bullet. For hunting it has no equal.

Some manufacturers not only swage the jacket right onto the lead core, they go further and lock the jacket onto the lead core, so that the jacket cannot possibly come off in the barrel, in flight or on impact. This also reduces the bearing surface, thus increasing velocity with no increase in pressures. Locking on the jacket provides a control over bullet expansion on game, tending to stop expansion and furthering penetration in a manner similar to conventional rifle bullets.

"Perfecast" Accuracy Bullets

No. W-97 .32 caliber. 97 grain Wadcutter. An outstanding target bullet for match shooting. H & G #66. Very accurate in machine tests.

Per Box of 100 ..... **$ 2.70**
Per Wood Case of 500 ..... **12.75**
Per Wood Case of 1000 ..... **24.50**

No. R-126 9 MM 126 grain Round Nose. An excellent bullet for feeding the automatic. This bullet is made with a special hard alloy and carries a wallop.

Per Box of 100 ..... **$ 2.75**
Per Wood Case of 500 ..... **13.00**
Per Wood Case of 1000 ..... **25.00**

No. W-146-BB .38 Special 146 grain Wadcutter with a beveled base. Equally as accurate as the bullet shown below. Testing has proved the beveled base prevents almost all leading which all revolvers have a tendency to do. BB reduces this leading in the cylinder and barrel. Hensley mold No. 50-BB.

Per Box of 100 ..... **$ 2.80**
Per Wood Case of 500 ..... **13.00**
Per Wood Case of 1000 ..... **25.50**

No. W-146 .38 Special 146 grain Wadcutter. Nationally known target bullet. One of the most accurate bullets made. Used in matches by the winners. Hensley mold No. 50.

Per Box of 100 ..... **$ 2.80**
Per Wood Case of 500 ..... **13.00**
Per Wood Case of 1000 ..... **25.50**

No. HP-153 .38 Special 153 grain Hollow Point Keith. For Revolver only. Excellent for varmint and game, as bullet mushrooms on impact. Hensley mold No. 51HP.

Per Box of 100 ..... **$ 3.40**
Per Wood Case of 500 ..... **15.75**
Per Wood Case of 1000 ..... **31.00**

No. R-158 .38 Special 158 grain standard round nose. This is the regulation Police Bullet. For Revolver only. Hensley mold No. 39.

Per Box of 100 ..... **$ 2.85**
Per Wood Case of 500 ..... **13.50**
Per Wood Case of 1000 ..... **26.50**

No. SW-160 .38 Special 160 grain Semi-wadcutter Keith. For Revolver only. Highly recommended for Hunting. Makes good magnum load. A real killer. Can be used for Target Shooting. Hensley mold No. 51.

Per Box of 100 ..... **$ 2.85**
Per Wood Case of 500 ..... **13.50**
Per Wood Case of 1000 ..... **26.50**

No. SW-180-2 .45 ACP 180 grain Semi-wadcutter. Proven to be one of the most accurate .45 bullets. This bullet and the single ring bullet next below are the two most popular .45 match bullets. Hensley mold No. 163.

Per Box of 100 ..... **$ 3.30**
Per Wood Case of 500 ..... **15.50**
Per Wood Case of 1000 ..... **30.50**

No. SW-180-1 .45 ACP 180 grain Semi-wadcutter. Same as above bullet except one grease ring. Hensley mold No. 130.

Per Box of 100 ..... **$ 3.30**
Per Wood Case of 500 ..... **15.50**
Per Wood Case of 1000 ..... **30.50**

No. W.C. 200 .45 A.C.P. 200 gr. Full Wadcutter. Primarily for revolvers. Machine test proved it to be an excellent bullet for competitve shooting.

Per Box of 100 ..... **$ 3.80**
Per Wood Case of 500 ..... **17.75**
Per Wood Case of 1000 ..... **35.00**

No. SW-200 .45 ACP Semi-wadcutter 200 grain long nose. Excellent match bullet. Hensley mold No. 68.

Per Box of 100 ..... **$ 3.40**
Per Wood Case of 500 ..... **16.00**
Per Wood Case of 1000 ..... **31.50**
This can be had in Bevel aBse.

No. SW-215 .45 ACP Semi-wadcutter 215 grain. A good match bullet. Hensley mold No. 78.

Per Box of 100 ..... **$ 3.50**
Per Wood Case of 500 ..... **16.25**
Per Wood Case of 1000 ..... **32.00**

No. R-230 .45 ACP 230 grain Standard round nose. This is a copy of government "G.I." ammunition. An all-around bullet, it can be used with a loose or tight automatic as the round nose feeds easily. Hensley mold No. 34.

Per Box of 100 ..... **$ 3.70**
Per Wood Case of 500 ..... **17.25**
Per Wood Case of 1000 ..... **34.00**

No. HP-231 .45 231 gr. Hollow-Point Keith Type. For revolvers. The outstanding bullet for hunting it mushrooms on impact.

Per Box of 100 ..... **$ 4.45**
Per Wood Case of 500 ..... **20.95**
Per Wood Case of 1000 ..... **39.90**

No. SWC-240 .45 Keith bullet 240 grain, Semi-wadcutter. For Revolvers. This is a lighter .45 bullet. Excellent bullet for Hunters. Ideal mold No. 452423.

Per Box of 100 ..... **$ 3.80**
Per Wood Case of 500 ..... **17.75**
Per Wood Case of 1000 ..... **35.00**

No. SWC-250 .45 250 grain Semi-wadcutter Keith. This bullet packs a wallop. The heaviest of all .45 ammunition. Ideal mold No. 454424.

Per Box of 100 ..... **$ 3.90**
Per Wood Case of 500 ..... **18.25**
Per Wood Case of 1000 ..... **36.00**

No. S.W.C. 196 .44 Special, 196 grain Semi-Wadcutter Keith type—can be used for match shooting as well as a hunting load.

Per Box of 100 ..... **$ 3.40**
Per Wood Case of 500 ..... **16.25**
Per Wood Case of 1000 ..... **31.50**

No. H.P.-247 .44 Special, 247 grain Hollow Point Keith type. For revolver only. Ideal for big game, bullet flattens on impact. H & G #503.

Per Box of 100 ..... **$ 4.45**
Per Wood Case of 500 ..... **20.95**
Per Wood Case of 1000 ..... **39.90**

No. SW-250 .44 Special 250 grain Semi-wadcutter Keith. For Revolvers only. Elmer Keith, famed Guide and Hunter uses and recommends as a side-arm ammunition. Rugged and heavy. A real man's bullet. Will kill a deer or bear. Ideal mold No. 429421.

Per Box of 100 ..... **$ 3.90**
Per Wood Case of 500 ..... **18.25**
Per Wood Case of 1000 ..... **36.00**

BALDWIN

22 caliber jacketed bullets ONLY—2 styles only

Solid Point Small Game bullets — 50 and 55 grain only. Made with a heavy jacket and exposed lead core at base, these bullets work best at about 2650 fps. Not recommended for match shooting. Per 100, **$4.00.** (State choice of 50 or 55 grs.)

Match bullets are all handmade — each core is weighed with its own jacket to insure uniform weight. Each production step is completed under exact conditions of pressure, temperature, etc. Standard .224" diameter, or we have oversize and undersize dies to take care of off-standard barrels. Match bullets, Open Point, Soft-Swaged, per 100 **$4.00.** (State weight desired.)

BARNES

Barnes bullets recovered from big game animals.

A complete line of custom made bullets for the handloader who demands the ultimate in accuracy and efficiency. Careful selection of highest quality components and precision workmanship combine to make these the finest bullets available today. The target bullets give you match accuracy — the hunting bullets offer controlled expansion for the shocking power needed to bring down game. Available in 17 calibers and a wide variety of styles and weights. Our most popular bullets are listed below. Write for prices on other calibers.

22 Cal.	**Per C**
.224-50 gr. SSP	$ 6.50
.224-60 gr. SSP	6.50
.227-70 gr. SSP	6.50
.230-70 gr. SSP	6.50
.226-125 gr. SSP	13.00
6mm. Cal.	
.243-90 gr. SSP	6.50
.243-110 gr. SSP	7.50

256 (6.5mm) Cal.	**Per C**
.264-110 gr. SSP	$ 6.50
.264-130 gr. SSP	7.50
.264-150 gr. SSP	8.00
.264-165 gr. SSP	9.50
.264-200 gr. SSP	15.00
270 Cal.	**Per C**
.277-120 gr. SSP	7.50
.277-130 gr. SSP	7.50
.277-150 gr. SSP	8.00
.277-180 gr. RNSP	9.50

30 Cal.	**Per C**
.308-110 gr. CRN	$ 7.00
.308-150 gr. SSP	8.00
.308-180 gr. SSP	9.50
.308-200 gr. SSP	10.00
.308-225 gr. SSP	11.00
.308-250 gr. RNSP	11.00
.308-250 gr. RNS	15.00

375 Mag. Cal.	**Per C**
.375-250 gr. SSP	$11.00
.375-300 gr. RNSP	12.00
.375-300 gr. RNSP	16.00
.375-300 gr. RNS	18.00
.375-350 gr. RNSP	13.00
.375-350 gr. RNS	20.00

SSP = Spitzer Soft Point RNSP = Round Nose Soft Point CRN = Carbine Round Nose RNS = Round Nose Solid

CLADALOY

The bullets priced below are the latest improvement in the machine cast alloy bullets we originated years ago. They are cast of zinc base alloy and coated with copper. This light surface layer of copper is primarily functional in that it increases surface resistance to heat, alters the heat transfer pattern and in other ways generally improves bullet qualities.

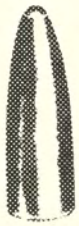
Prices are for 100 bullets, postpaid.

Caliber	Bullet No.	Weight	Type	Price
22	19.224	35 gr.	Gas check	$2.00
25	15.259	60 gr.	" "	2.40
25	14.259	65 gr.	" "	2.40
6.5mm	27.268	78 gr.	" "	2.50
270	5.279	75 gr.	" "	2.50
7mm	23.288	88 gr.	" "	2.50
30	4.311	95 gr.	" "	3.00
30	18.311	96 gr.	" "	3.00
30	1.311	115 gr.	" "	3.00
30	2.309	115 gr.	" "	3.00
32	33.322	106 gr.	" "	3.15
35	36.359	135 gr.	Plain base	3.00
375	38.377	180 gr.	" "	3.25
38 S&W	9.358	90 gr.	" " (Rd. Nose)	2.25
38 S&W	10.358	85 gr.	" " (Wad.)	2.25
8mm	8.324	120 gr.	Gas check	3.25
8mm	7.323	130 gr.	" "	3.25
44	28.430	128 gr.	Plain base (Flat Nose)	2.75
44	29.429	130 gr.	" " (Rd. Nose)	2.75
45 ACP	20.452	130 gr.	" " (Rd. Nose)	2.75
45 ACP	21.452	118 gr.	" " (Wad.)	2.75
45-70	24.458	200 gr.	" " (Rd. Nose)	3.50
45-70	34.457	225 gr.	" " (Flat Nose)	4.25

The figures under "Bullet Number," following the decimal point, indicate the approximate diameter of bullet in thousandths of an inch. All bullets are ready to load; they are lubricated and bullets with gas check bases are gas checked. Zinc alloy bullets are high speed bullets and loads recommended for jacketed bullets should be used.

Forty-Five Brand

	List per 100
22 Caliber (.224 O.D.)	
50 grain semi-pointed	3.05
55 grain semi-pointed	3.05
6 MM (.243 O.D.)	
70 grain hollow point	3.95
85 grain semi-pointed	4.15
100 grain semi-pointed	4.40
25 Caliber (.257 O.D.)	
87 grain hollow point	4.15
100 grain semi-pointed	4.40
117 grain semi-pointed	4.65
6.5 MM (.263 O.D.)	
130 grain semi-pointed	4.80
150 grain round nose	5.15
270 Caliber (.277 O.D.)	
110 grain hollow point	4.65
130 grain semi-pointed	5.00
150 grain round nose	5.25
7 MM (.284 O.D.)	
139 grain hollow point	5.00
175 grain round nose	5.75
30 Caliber (.308 O.D.)	
110 grain round nose	4.55
125 grain hollow point	4.70
150 grain semi-pointed	5.00
150 grain flat nose	5.00
180 grain semi pointed	5.25
220 grain round nose	5.75
303 Caliber or 7.7 MM Jap (.312 O.D.)	
150 grain semi-pointed	5.10
180 grain semi-pointed	5.35
8 MM (.323 O.D.)	
150 grain semi-pointed	5.00
180 grain round nose	5.25
35 Caliber (.358 O.D.)	
200 grain semi-pointed	5.75
250 grain round nose	6.30
375 Caliber (.375 O.D.)	
235 grain semi-pointed	6.30
300 grain round nose	7.35

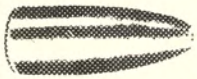


SEMI-POINTED SOFT POINT

Highest quality, precision made for accuracy and distance.

Forty Five Brand rifle bullets have been made for over twelve years and are not a new untried product. They are carefully and scientifically designed and tested over a period of years. They are made on special automatic machines, drawn through tungsten carbide dies for extremely close tolerances, and tumbled for smooth fine finish. The heavy metal jackets, cored with soft alloyed lead, are drawn thin at nose for desired expansion. For hunting or target shooting Forty Five Brand will be found a fine reliable bullet. Try some.

ROUND NOSE SOFT POINT



HOLLOW POINT

GARDINER Bullets

Made in our own shop with special care taken in the swaging of both the cores and the bullets. Our thin jacket bullets are especially designed for varmint hunting — they withstand the highest velocities yet splatter on contact. We pride ourselves on our extremely uniform and accurate bulltes.

Bullets for Varmint Shooting (Made with light weight jackets)	**Per 100**
22 cal. .224 dia. 55 gr. open point	**$3.90**
6mm .243 dia. 75 gr. open point	**4.60**
6mm .243 dia. 80 gr. open point	**4.60**
6mm .243 dia. 85 gr. open point	**4.60**
6mm .243 dia. 85 gr. soft point	**4.60**
25 cal. .257 dia. 85 gr. soft point	**4.60**
30 cal. .308 dia. 115 gr. open point	**4.70**
30 cal. .308 dia. 120 gr. open point	**4.70**

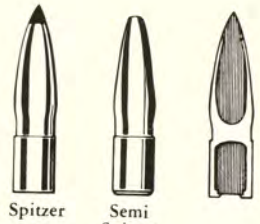
Bullets for Game Shooting (Made with heavy jackets)	
6mm .243 dia. 90 gr. open point	**$4.60**
6mm .243 dia. 100 gr. open point	**4.60**
6mm .243 dia. 90 gr. soft point	**4.60**
25 cal. .257 dia. 100 gr. soft point	**4.60**
30 cal. .308 dia. 150 gr. open point	**4.90**

Full Metal Patched Bullets	
6mm .243 dia. 85 grain	**$4.90**
25 cal. .257 dia. 100 grain	**4.90**

HERTER'S Famous Partition Bullets

Made of solid gilding metal with a specially designed partition jacket to control the exact amount of mushrooming.

Cal.	Weight Grains	Type	Price Per 100
30	150	Spit. SP	**$6.54**
30	180	" "	**6.86**
270	130	" "	**6.54**
6mm	100	Semi Spit.	**5.74**



Spitzer Semi Spitzer

HERTER'S Semi-Jacket Handgun Bullets

Made with finest quality gilding metal jackets, they require no lubrication and can be loaded to a much higher velocity than cast bullets. All are semi-wadcutter type.

Cal.	Weight Grains	Price Per 100
38	158	**$2.39**
44	240	**3.10**
45	230	**2.94**
38	200	**2.87**
38	135	**2.29**
44	220	**2.92**
30	150	**2.49**
30	180	**2.69**

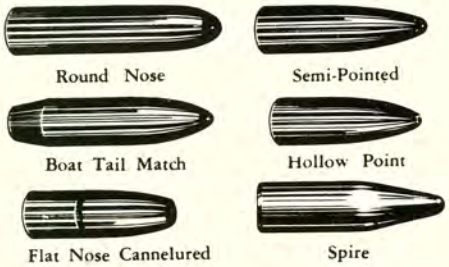
HERTER'S

Jacketed Rifle Bullets

Produced on the most modern micro-precision bullet machinery in the world, and unconditionally guaranteed to be equal or superior to any bullet made in the world.

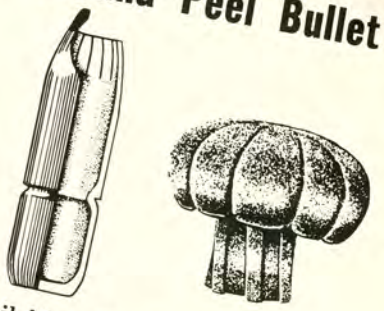
Caliber Diameter	Weight, Grains	Type	Price per 100
22 (.224)	45	SP	$1.97
22 (.224)	50	SP	2.19
22 (.224)	55	SP	2.19
6mm (.243, .244)	85	HP	2.57
6mm (.243, .244)	85	SP	2.74
6mm (.243, .244)	100	SP	2.87
25 (.257)	87	HP	2.74
25 (.257)	100	SP	2.87
25 (.257)	117	SP	2.97
6.5mm (.263)	100	SP	2.87
6.5mm (.263)	130	SP	3.17
6.5mm (.263)	150	RN	3.29
270 (.277)	110	HP	2.97
270 (.277)	130	SP	3.27
270 (.277)	150	RN	3.39
7mm (.284)	139	HP	3.27
7mm (.284)	139	SP	3.27
7mm (.284)	175	RN	3.57
30 (.308)	110	RN	2.90
30 (.308)	125	HP	2.97
30 (.308)	150	SP	3.27
30 (.308)	168	BTM	3.52
30 (.308)	170	RNC	3.52
30 (.308)	180	BTM	3.68
30 (.308)	180	SP	3.43
30 (.308)	220	RN	3.74
30 (.308)	150	FNC	3.27
31 (.312)	150	SP	3.27
31 (.312)	180	SP	3.43
8mm (.323)	150	SP	3.27
8mm (.323)	180	RN	3.43
8mm (.323)	236	RN	3.74
8mm (.323)	180	SP	3.43
33 (.338)	200	RN	3.74
33 (.338)	265	RN	3.97
35 (.358)	200	SP	3.74
35 (.358)	250	RN	3.97
375 (.375)	235	SP	3.97
375 (.375)	300	RN	4.74
45 (.458)	350	RNC	*3.84
45 (.458)	500	RNC	*4.48

*Per box of 50



Abbreviations SP-Semi Pointed; HP-Hollow Point; RN-Round Nose; BTM-Boat Tail Match; FN-Flat Nose; C-Cannelured

Imported Swedish Banana Peel Bullet



Available only in 30 caliber, 180 grain soft point, this bullet was especially developed to give clean, sure, one-shot kills on all big game. The inside of the gilding metal jacket is cut partly through or "scored." On impact the jacket peels back uniformly causing the bullet to mushroom perfectly. The jacket is thicker at the end of the scoring to stop the mushrooming and permit the base of the bullet to remain intact.

Per 100 **$3.97** *Per 1000* **$34.70**

Wasp Waist Sonic Bullets

New wasp-waist design gives better accuracy, perfect mushrooming, lower breech pressures with less variation and maintain velocities for longer ranges. Accuracy tests by an independent laboratory show 15% reduction in group size at 100 meters; 27% reduction at 200 meters and an incredible 50% reduction at 400 meters over regular bullets.

Caliber	Weight Grains	Type	Price Per 100
22 (.224)	55	SP	$2.19
6mm (.243)	85	SP	3.46
270 (.277)	130	SP	3.93
30 (.308)	150	SP	3.93
30 (.308)	180	SP-MT	4.15

NOTE: The 180 gr. 30 caliber bullet has longer tail section (MT — Missile Tail). The 30 caliber bullets are not suitable for use in short-necked cases such as the 300 Savage. Case neck must be long enough to hold the bullet forward of the waist.

HI-PRECISION

A complete line of the finest jacketed bullets for hunters, target shooters and experimenters. Quality control and quality material are combined to give you consistent accuracy in your hunting and target loads.

	List per 100
22 cal. (.224 OD)	
45 gr. Hornet	$2.80
50 gr. S-P	3.05
55 gr. S-P	3.05
6mm (.243 OD)	
70 gr. HP	3.95
85 gr. S-P	4.15
100 gr. S-P	4.40
25 cal. (.257 OD)	
87 gr. HP	4.15
100 gr. S-P	4.40
117 gr. S-P	4.65
6.5mm (.263 OD)	
100 gr. S-P	4.40
130 gr. S-P	4.80
150 gr. RN	5.15

	List per 100
270 cal. (.277 OD)	
110 gr. HP	$4.65
130 gr. S-P	5.00
150 gr. RN	5.25
7 mm (.284 OD)	
139 gr. HP	5.00
175 gr. RN	5.75
30 cal. (.308 OD)	
110 gr. RN	4.55
125 gr. HP	4.70
150 gr. S-P	5.00
150 gr. FNC	5.00
168 gr. SP BT	5.40
170 gr. RNC	5.35
180 gr. SP BT	5.80
180 gr. S-P	5.25
220 gr. RN	5.75
303 cal. or	

	List per 100
7.7mm Jap (.312 OD)	
150 gr. S-P	$5.10
180 gr. S-P	5.35
8mm (.323 OD)	
150 gr. S-P	5.10
180 gr. RN	5.35
33 cal. (.338 OD)	
200 gr. RNC	5.75
265 gr. RNC	6.75
35 cal. (.358 OD)	
200 gr. S-P	5.75
250 gr. RN	6.30
375 cal. (.375 OD)	
235 gr. S-P	6.30
300 gr. RN	7.35
45 cal. (.458 OD)	
350 gr. RNC	12.00
500 gr. RNC	14.00

S-P = semi pointed
HP = hollow point

RN = round nose
FNC = flat nose cannelure

SP BT = soft point boat-tail
RNC = round nose cannelure

Bullets for handloading

Hornady BULLETS

HORNADY MFG. CO. • DEPT. F • GRAND ISLAND, NEBR.

NEW BULLET
for the 45/70 and other 45 caliber rifles

Hornady S-J • 45 caliber 300 grain short jacket rifle bullets

More shooting per dollar with new Hornady S-Js. Remarkably accurate and efficient in all loads shown—tested and proved in our ballistics laboratory. Very satisfactory shooting at about half the usual cost. ***$6.00 per 100***

New BULLET
for the .264 Winchester

- *More retained velocity*
- *More stability*

New shape! The most efficient yet developed for the .264 Winchester Magnum. Its secant ogive spire point—2½ calibers long—is a result of Hornady research and testing to find the profile which would give maximum retained velocity and longest range power. Two diameters assure perfect fit in any .264 rifle.

TESTED LOADS
Velocities instrumental at 15 ft.

in the 45/70 Springfield rifle
22 grs. 4759 — Vel. 1308 f.p.s.
40 grs. HiVel — Vel. 1634 f.p.s.

in the M1886 Winchester rifle
25 grs. 4759 — Vel. 1344 f.p.s.
30 grs. 2400 — Vel. 1513 f.p.s.
20 grs. Unique — Vel. 1644 f.p.s.

in the M70 Winchester Magnum
30 grs. 4759 — Vel. 1338 f.p.s.
34 grs. 2400 — Vel. 1585 f.p.s.

Hufnail Bullets

(Hand Swaged)

My bullets, fully custom made and hand swaged, are higher priced than production bullets, but they are worth it, and they are made in heavy weights not available from the commercial manufacturers. All are Match Grade.

I can also furnish just about any weight desired in the calibers listed, *at no extra cost.*

Cal.		Per C
22	— 55, 60, gr. Hollow Points	$5.50
	45 to 60 gr. FM Jacket	5.50
243	— 80*, 90, 100, 112* gr. Hollow Point	6.00
	70 to 110 gr. FM Jacket	6.00
257	— 100, 117 gr. Hollow Point 125 gr. Spitzer†	6.00
	60 to 125 gr. FM Jacket	6.00
270	— 100, 110, 145*† and 150 gr. Hollow Point	6.50
	90 to 150 gr. FM Jacket	6.50
30	— 150 to 265 gr. Hollow Point or Round Nose	7.00
	110 to 220 gr. FM Jacket	7.00

*Indicates made in Spitzer also, same prices.
†Indicates sectional density of .270.

Hufnail Custom Hand Loads

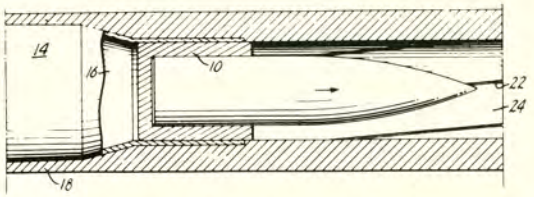
Following are F. O. B. prices using my HAND SWAGED Bullets:

Cal.	New Cases Box 20	New Cases Per 100	Your Cases Box 20	Your Cases Per 100
222	$2.60	$12.00	$1.50	$7.00
22-250	3.40	16.50	1.70	8.00
243	3.50	17.00	2.00	9.50
270	3.75	18.25	2.25	10.75
308	3 60	17.50	2.10	10.00
30'06	3.75	18.25	2.25	10.75

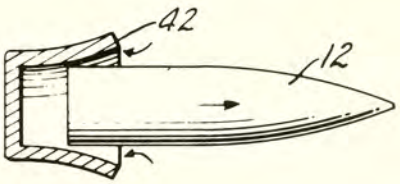
CASH WITH ORDER

HUSK Bullets

Malter Arms Co., 225 W. 34th St., N. Y. 1, N. Y.



Illustrations of Husk bullets, taken from the patent drawings.



$3.95 Per 50

A new concept in bullet design — a sub-caliber bullet seated into a gilding metal Husk! Upon firing, the Husk is squeezed tightly around the bullet proper, causing the bullet to spin as it travels down the bore. When the Husk and the bullet exit from the bore, centrifugal force expands the Husk along pre-scribed lines, causing the Husk to virtually stop in flight; the bullet proper continues on alone.

The bullet is not deformed and unbalanced by the rifling, thus it remains as concentric and accurate as when it was loaded into the case. The Husk also shields the bullet from the gases which disturb ordinary bullets at the muzzle. Available in the following calibers and weights.

Bullet Cal.	Bullet Wgt., grs.	Husk Cal.	Husk Wgt., grs.
224	82	308	18
243	100	308	15
224	82	270	15
243	100	270	12

HI-PRECISION

A complete line of the finest jacketed bullets for hunters, target shooters and experimenters. Quality control and quality material are combined to give you consistent accuracy in your hunting and target loads.

	List per 100
22 cal. (.224 OD)	
45 gr. Hornet	$2.80
50 gr. S-P	3.05
55 gr. S-P	3.05
6mm (.243 OD)	
70 gr. HP	3.95
85 gr. S-P	4.15
100 gr. S-P	4.40
25 cal. (.257 OD)	
87 gr. HP	4.15
100 gr. S-P	4.40
117 gr. S-P	4.65
6.5mm (.263 OD)	
100 gr. S-P	4.40
130 gr. S-P	4.80
150 gr. RN	5.15

	List per 100
270 cal. (.277 OD)	
110 gr. HP	$4.65
130 gr. S-P	5.00
150 gr. RN	5.25
7 mm (.284 OD)	
139 gr. HP	5.00
175 gr. RN	5.75
30 cal. (.308 OD)	
110 gr. RN	4.55
125 gr. HP	4.70
150 gr. S-P	5.00
150 gr. FNC	5.00
168 gr. SP BT	5.40
170 gr. RNC	5.35
180 gr. SP BT	5.80
180 gr. S-P	5.25
220 gr. RN	5.75
303 cal. or	

	List per 100
7.7mm Jap (.312 OD)	
150 gr. S-P	$5.10
180 gr. S-P	5.35
8mm (.323 OD)	
150 gr. S-P	5.10
180 gr. RN	5.35
33 cal. (.338 OD)	
200 gr. RNC	5.75
265 gr. RNC	6.75
35 cal. (.358 OD)	
200 gr. S-P	5.75
250 gr. RN	6.30
375 cal. (.375 OD)	
235 gr. S-P	6.30
300 gr. RN	7.35
45 cal. (.458 OD)	
350 gr. RNC	12.00
500 gr. RNC	14.00

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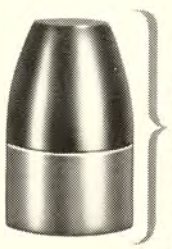

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in the M1886 Winchester rifle
25 grs. 4759 Vel. 1344 f.p.s.
30 grs. 2400 Vel. 1513 f.p.s.
20 grs. Unique Vel. 1644 f.p.s.

in the M70 Winchester Magnum
30 grs. 4759 Vel. 1338 f.p.s.
34 grs. 2400 Vel. 1585 f.p.s.

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(Hand Swaged)

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	70 to 110 gr. FM Jacket	6.00
257	— 100, 117 gr. Hollow Point 125 gr. Spitzer†	6.00
	60 to 125 gr. FM Jacket	6.00
270	— 100, 110, 145*† and 150 gr. Hollow Point	6.50
	90 to 150 gr. FM Jacket	6.50
30	— 150 to 265 gr. Hollow Point or Round Nose	7.00
	110 to 220 gr. FM Jacket	7.00

*Indicates made in Spitzer also, same prices.
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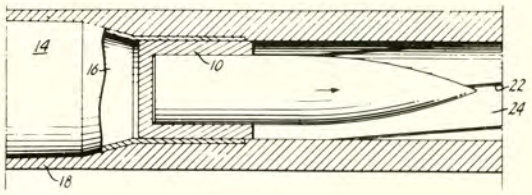
243	3.50	17.00	2.00	9.50
270	3.75	18.25	2.25	10.75
308	3 60	17.50	2.10	10.00
30'06	3.75	18.25	2.25	10.75

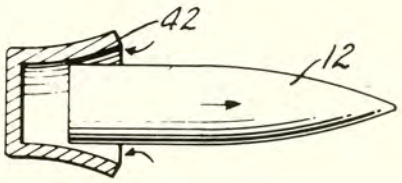
CASH WITH ORDER

HUSK Bullets

Malter Arms Co., 225 W. 34th St., N. Y. 1, N. Y.



Illustrations of Husk bullets, taken from the patent drawings.



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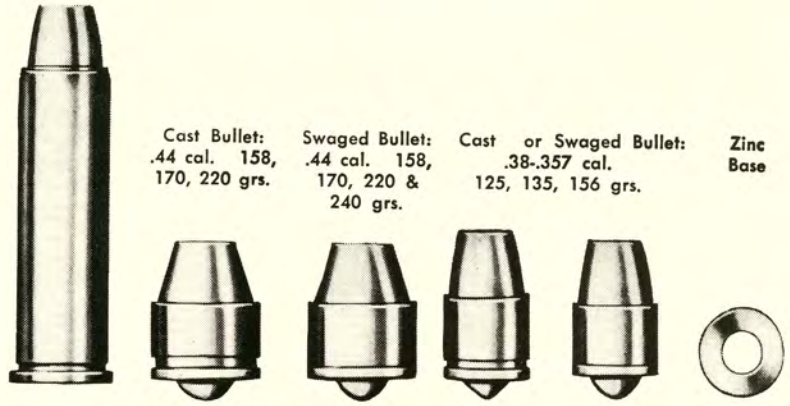
Bullet Cal.	Bullet Wgt., grs.	Husk Cal.	Husk Wgt., grs.
224	82	308	18
243	100	308	15
224	82	270	15
243	100	270	12

LAKEVILLE ARMS



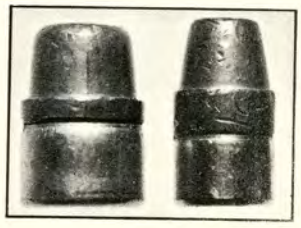
Harvey Prot-X-Bore Bullets

A medium-velocity bullet using a zinc washer locked onto the base. This zinc washer provides a perfect base every time to insure the utmost in accuracy; it coats the inside of the barrel with a thin layer of zinc that prevents rust and (when the gun is broken in) leading. Cores are pure, soft lead for greater shocking power.

38-357	125 gr. SP or HP	$4.15
	135 gr. SP	4.25
	156 gr. SP	4.45
44 Spec. & Mag.	158 gr. SP or HP	$4.55
	170 gr. SP or HP	4.60
	220 gr. SP or HP	4.70
	240 gr. SP	4.75
45 Auto Rim	190 gr. SP	$4.60
45 Long Colt	190 gr. SP	$4.60

Harvey Jugular Jacketed Bullets

.44 Spec. & Mag. 170, 220, 240 grs.



.38-.357 cal. 114, 127, 156 grs.

Designed for maximum velocities in handguns. The special half-jacket provides a lead-free surface which fills the grooves to provide long barrel life and superb accuracy. Pure soft lead core, swaged to form, has greater uniformity and higher density than cast lead. Jacket is crimped on to prevent shedding during flight.

38-357	114 gr. SP	$5.15
	127 gr. SP or HP	5.25
	156 gr. SP	5.80
44 Spec. & Mag.	175 gr. SP or HP	$5.90
	220 gr. SP or HP	6.05
	240 gr. SP	6.30

Write for free booklet of proven loads for these two bullets.

MARKELL

PRECISION CAST BULLETS

A Complete Line... made by Handgun Specialists

Markell Precision Cast Bullets are cast in multiple molds of scientifically prepared alloys by large metal founders in volume to assure uniformity. Each bullet is carefully sized, lubricated and inspected.

Markell Golden Arrow Bullets are heavily copper coated to insure maximum accuracy and prevent leading. Excellent performance in both .44 and .38 magnums. Also available in all other calibers. For Golden Arrow prices add 80c per hundred to all list prices.

No. W-66 .32 Cal. 98 Grain Wadcutter. An outstanding target bullet.
Per Box 100 ..... 2.65
Per Wood Case 500 ..... 12.60
Per Wood Case 1000 ..... 23.85

No. P65 .32 Cal. 98 Grain Semi Wadcutter. Good for hunting.
Per Box 100 ..... 2.65
Per Wood Case 500 ..... 12.60
Per Wood Case 1000 ..... 23.85

No. P-7 9 MM 125 Grain Spire Point Very accurate.
Per Box 100 ..... 2.70
Per Wood Case 500 ..... 12.85
Per Wood Case 1000 ..... 24.30

No. R115 9 MM 125 Grain Round Nose. Excellent for the automatic
Per Box 100 ..... 2.70
Per Wood Case 500 ..... 12.85
Per Wood Case 1000 ..... 24.30

No. R107 .380 ACP 107 Grain Round Nose.
Per Box 100 ..... 2.60
Per Wood Case 500 ..... 12.35
Per Wood Case 1000 ..... 23.40

No. R130 .38 Cal. 130 Grain Round Nose. Excellent for the automatic.
Per Box 100 ..... 2.65
Per Wood Case 500 ..... 12.50
Per Wood Case 1000 ..... 23.85

No. P145 .38 Cal. (Rector) 145 Grain Semi Wadcutter. A very accurate hunting bullet.
Per Box 100 ..... 2.75
Per Wood Case 500 ..... 13.00
Per Wood Case 1000 ..... 25.00

No. W148 .38 Cal. 148 Grain Wadcutter. One of the most accurate target bullet.
Per Box 100 ..... 2.75
Per Wood Case 500 ..... 13.00
Per Wood Case 1000 ..... 25.00

No. BB146 .38 Cal. 146 Grain Wadcutter. Bevel Base for fast reloading.
Per Box 100 ..... 2.75
Per Wood Case 500 ..... 13.00
Per Wood Case 1000 ..... 25.00

No. SW150 .38 Cal. 150 Grain Semi Wadcutter. For target and hunting.
Per Box 100 ..... 2.75
Per Wood Case 500 ..... 13.00
Per Wood Case 1000 ..... 25.00

No. R-158 .38 Cal. 158 Grain Round Nose. Regulation police bullet.
Per Box 100 ..... 2.80
Per Wood Case 500 ..... 13.30
Per Wood Case 1000 ..... 25.20

No. SW160 .38 Cal. (Sharpe) 160 Grain Semi Wadcutter. Excellent for the Magnum.
Per Box 100 ..... 2.80
Per Wood Case 500 ..... 13.30
Per Wood Case 1000 ..... 25.20

No. HP160 .38 Cal. (Sharpe) 148 Grain Hollow Point. For varmint and game.
Per Box 100 ..... 3.40
Per Wood Case 500 ..... 16.15
Per Wood Case 1000 ..... 30.60

No. SW173 .38 Cal. (Keith) 173 Grain Semi Wadcutter. Recommended for hunting.
Per Box 100 ..... 2.85
Per Wood Case 500 ..... 13.55
Per Wood Case 1000 ..... 25.65

No. HP173 .38 Cal. (Keith) 160 Grain Hollow Point. A real killer.
Per Box 100 ..... 3.45
Per Wood Case 500 ..... 16.40
Per Wood Case 1000 ..... 31.05

No. SW1-180 .45 Cal. 180 Grain Semi Wadcutter. One of the most accurate .45 bullets.
Per Box 100 ..... 3.30
Per Wood Case 500 ..... 15.65
Per Wood Case 1000 ..... 29.70

No. SW2-180 .45 Cal. 180 Grain Semi Wadcutter. Same as above with 2 grease grooves.
Per Box 100 ..... 3.30
Per Wood Case 500 ..... 15.65
Per Wood Case 1000 ..... 29.70

No. SW200 .45 Cal. (Crawford) 200 Grain Semi Wadcutter. Excellent match bullet.
Per Box 100 ..... 3.40
Per Wood Case 500 ..... 16.15
Per Wood Case 1000 ..... 30.60

No. SW215 .45 Cal. 215 Grain Semi Wadcutter. A good match bullet.
Per Box 100 ..... 3.45
Per Wood Case 500 ..... 16.40
Per Wood Case 1000 ..... 31.05

No. R230 .45 Cal. 230 Grain Standard Round Nose. Can be used with loose or tight Automatic.
Per Box 100 ..... 3.70
Per Wood Case 500 ..... 17.50
Per Wood Case 1000 ..... 33.30

No. HP240 .45 Cal. (Keith) 240 Grain Hollow Point. A good hunting 45.
Per Box 100 ..... 4.40
Per Wood Case 500 ..... 20.90
Per Wood Case 1000 ..... 39.60

No. SWC250 .45 Cal. (Keith) 250 Grain Semi Wadcutter. The heaviest of all 45 ammunition.
Per Box 100 ..... 3.90
Per Wood Case 500 ..... 18.55
Per Wood Case 1000 ..... 35.70

No. W185 .44 Cal. 185 Grain Wadcutter. A good target bullet.
Per Box 100 ..... 3.40
Per Wood Case 500 ..... 16.15
Per Wood Case 1000 ..... 30.60

No. SWC200 .44 Cal. 200 Grain Semi Wadcutter. For match shooting or hunting.
Per Box 100 ..... 3.40
Per Wood Case 500 ..... 16.15
Per Wood Case 1000 ..... 30.60

No. SW231 .44 Cal. (Boser) 231 Grain Semi Wadcutter. A very accurate bullet.
Per Box 100 ..... 3:70
Per Wood Case 500 ..... 17.50
Per Wood Case 1000 ..... 33.30

No. HP235 44 Cal. Hollow Point 235 Grain. Ideal for big game
Per Box 100 ..... 4.45
Per Wood Case 500 ..... 21.15
Per Wood Case 1000 ..... 40.15

No. SW250 .44 Cal. (Keith) 250 Grain Semi Wadcutter. Can kill a deer or bear.
Per Box 100 ..... 3.90
Per Wood Case 500 ..... 18.55
Per Wood Case 1000 ..... 35.70

NEW GAS CHECKS FOR MAGNUMS

No. GC160 .38 Cal. 160 Grain Gas Check Semi Wadcutter sized .357. For maximum velocities.
Per Box 100 ..... 3.75

No. GC235 .44 Cal. 235 Grain Gas Check Semi Wadcutter sized .429 For maximum velocities.
Per Box 100 ..... 4.80

UNLESS OTHERWISE ORDERED, 9MM are .356; .32's are .313; .38's are .358; .45's are .452; .44's are .429. Other sizes are available. Please specify when ordering.

MARYLAND RESEARCH COMPANY

MARCO
Hydraulic Bullets

Too destructive for ranges under 200 yds., these new "explosive" bullets are the most accurate, destructive and costliest to make.

The secret of this bullet's "explosive" feature is a small amount of light grease placed inside the copper jacket, just behind the lead point. Upon hitting a target, the jacket is immediately opened by the transmission of pressure from the lead nose, through the grease, to the jacket.

Because these are primarily hunting bullets, we have broken down the prices as shown below — buy only what you need. Available only, so far, in cal. 308, 175 gr. BT Spitzer.

Box of 20	$ 2.00
Box of 50	5.00
Box of 100	10.00

norma-precision
Ammunition • Bullets • Cases — SOUTH LANSING, NEW YORK

BULLETS

Stock Number	Caliber	Retail Per 1000
	.22 Cal. .224 Diam.	
501	50 gr. SPP	$30.50
502	50 gr. FJSP	30.50
563	55 gr. SPP	30.50
	6 MM .243 Diam.	
503	75 gr. HP	40.00
504	90 gr. SP	42.00
565	100 gr. FJSP	44.00
566	100 gr. SPSP	44.00
	.25 Cal. .257 Diam.	
505	87 gr. SP	41.50
506	100 gr. SPP	44.00
507	120 gr. SPP	46.50
	6.5 MM .264 Diam.	
510	77 gr. SPP	41.50
508	139 gr. SPPBT	50.00
512	139 gr. FJ MATCH	50.00
509	156 gr. SPR	52.50
513	156 gr. FJR	52.50
	.270 Cal. .277 Diam.	
514	110 gr. SPP	46.50
515	130 gr. SPPBT	50.00
517	130 gr. FJBT	50.00
518	150 gr. SPPBT	52.50
584	150 gr. FJBT MATCH	52.50
	7 MM .283 Diam.	
519	110 gr. SPP	46.50
520	150 gr. SPPBT	52.50
521	150 gr. FJBT MATCH	52.50
523	160 gr. SPPBT	52.50
522	175 gr. SPR	57.50
	.32 ACP .307 Diam.	
555	77 gr. FJ	34.50
	.30 Luger .307 Diam.	
560	93 gr. SPR	35.00
556	93 gr. FJ	35.00
	.30 Cal. .308 Diam.	
524	110 gr. SPR	45.50
525	110 gr. FJR	45.50
529	130 gr. SPPBT	46.50

Stock Number	Caliber	Retail Per 1000
	.30 Cal. (continued)	
530	130 gr. FJBT	$46.50
527	150 gr. SPPBT	50.00
531	150 gr. FJBT	50.00
561	150 gr. SPF (Cann.)	50.00
526	170 gr. SPF (Cann.)	52.50
528	180 gr. SPPBT	52.50
534	220 gr. SPRBT	57.50
535	220 gr. FJRBT	57.50
	.30 Cal. Special Match	
567	187 gr. FJPBT	55.00
	.303 Cal .311 Diam.	
536	130 gr. SPP	46.50
564	150 gr. SPP†	51.00
537	180 gr. SPPBT	53.50
538	215 gr. SPR	57.50
	8 MM .318 Diam.	
539	196 gr. SPR	52.50
	8 MM .322 Diam.	
541	123 gr. SPP	46.50
542	159 gr. SPRBT	50.00
599	159 gr. FJRBT	50.00
540	196 gr. SPR	54.00
543	196 gr. FJR	54.00
545	198 gr. FJBT Match	54.00
546	227 gr. SPRBT	57.50
	9 MM .355 Diam.	
568	116 gr. SPR	44.50
557	116 gr. FJR	44.50
	.35 Cal. .358 Diam.	
547	200 gr. SPSP (Cann.)	57.50
548	250 gr. SPSP (Cann.)	63.00
	.38 Cal. .358 Diam.	
558	148 gr. WC Match	22.50
559	158 gr. LEAD RN	22.50
	9.3 MM .365 Diam.	
562	200 gr. SPF	72.50
549	232 gr. HPBT	68.50
550	286 gr. SPR	72.50
552	286 gr. FJR	72.50
	.44 Cal.	
†577	240 gr. SPF	68.50

Stock Number	Description	Suggested Retail	Suggested Dealer
1390	BERDAN PRIMFRS .216 Diam.	9.50 per M	7.13 per M

101-308	Norma Belt. Mag. Gunsmith Kit	28.95 ea. net
100-358	Norma Belt. Mag. Gunsmith Kit	28.95 ea. net

ABBREVIATIONS

SP—Soft Point
HP—Hollow Point
FJ—Full Jacket
HJ—Half Jacket
P—Pointed
R—Round Nose
F—Flat Nase
BT—Boattail
SPSP—Soft Point, Semi-pointed
FJSP—Full Jacket, Semi-pointed
SPPBT—Soft Point Pointed, Boattail

NORTHRIDGE BULLETS

The finest bullets available for handgun marksmen. Machine formed under 10,000 lbs. pressure, eliminating all internal defects. The grease groove is swaged in — no off balance bullets due to rolled grooves. Production tolerances held to under five-tenths of a grain. Amply lubricated to prevent barrel leading.

	Per 100	Per 1000
38, 147 gr. Wadcutter	$2.25	$18.00
44, 215 gr. Keith W.C.	3.50	29.00
45, 180 or 200 gr. Semi-Wadcutter	3.30	26.00

NOSLER PARTITION BULLETS

Effective April 1, 1961
Prices Subject to Change Without Notice

POSITIVE EXPANSION . . . . . THIN FORWARD JACKET insures uniform peeling
DEADLY SHOCK . . . . . FRONT LEAD creates severe inner tissue damage
MAXIMUM PENETRATION PARTITION holds an astounding two-thirds total bullet weight intact

ALWAYS ACCURATE ***CLEANER KILLS*** ***LESS MEAT SPOILAGE***

IT SAVES TO SHOOT THE BEST

The Result that makes the difference

A perfectly mushroomed bullet containing two-thirds its original weight and expanded to twice its original caliber.

		Box of 50
6 MM		
	85 Gr. Semi Spitzer soft pt.	4.45
	100 Gr. Semi Spitzer soft pt.	4.60
25 CALIBRE		
	100 Gr. Spitzer soft pt.	4.50
	100 Gr. Blunt Nose soft pt.	4.50
	115 gr. Spitzer Soft Point	4.80
	117 Gr. Semi Spitzer soft pt.	4.80
264 CALIBRE		
	125 gr. Spitzer Soft Point	5.00
	139 Gr. Spitzer Soft Point Boat-tail	5.15
	140 gr. Spitzer Soft Point	5.15
270 CALIBRE		
	130 Gr. Spitzer soft pt.	4.95
	150 Gr. Spitzer soft pt.	5.25
	160 Gr. Semi Spitzer soft pt.	5.50
280 REM.		
	140 Gr. Spitzer soft pt.	5.00

		Box of 50
7 MM		
	140 Gr. Spitzer soft pt.	4.95
	160 Gr. Spitzer soft pt.	5.45
	175 Gr. Semi Spitzer soft pt.	5.65
30 CALIBRE		
	150 Gr. Spitzer soft pt.	5.00
	180 Gr. Spitzer soft pt.	5.35
	200 Gr. Blunt Nose soft pt.	5.55
338 CALIBRE		
	210 Gr. Spitzer Soft Point	5.90
	250 Gr Soft Point	6.65
375 CALIBRE		
	270 gr. Soft Point	8.40
	300 gr. Soft Point	8.80

REMINGTON Components

EMPTY PRIMED AND UNPRIMED CENTER FIRE CASES

RIFLE

Caliber	Packed Per Box	KLEANBORE Primer No.	Unprimed Order No. (Mailable)	Primed Order No.	Un-primed Price Per Hundred	Primed Price Per Hundred
218 Bee	50	6½	U 23000	C 23100	$ 7.00	$ 7.20
219 Zipper	20	9½	U 23002	C 23102	11.40	11.60
22 Hornet	50	6½	U 23004	C 23104	7.00	7.20
220 Swift	20	9½	U 23006	C 23106	11.85	12.05
222 Remington	20	6½	U 23008	C 23108	8.35	8.55
222 Remington Magnum	20	6½	U 23010	C 23110	9.25	9.45
243 Winchester	20	9½	U 23014	C 23114	12.00	12.20
244 Remington	20	9½	U 23016	C 23116	12.00	12.20
*25-20 Winchester	50	6½	U 23018	C 23118	7.40	7.60
257 Roberts	20	9½	U 23024	C 23124	12.00	12.20
*25-35 Winchester	20	9½	U 23020	C 23120	11.40	11.60
250 Savage	20	9½	U 23022	C 23122	12.00	12.20
264 Winchester Magnum	20	9½	U 23076	C 23176	15.60	15.80
270 Winchester	20	9½	U 23026	C 23126	12.60	12.80
280 Remington	20	9½	U 23028	C 23128	12.60	12.80
7 MM Mauser	20	9½	U 23070	C 23170	12.60	12.80
30-30 Winchester	20	9½	U 23030	C 23130	10.80	11.00
*30 Remington	20	9½	U 23032	C 23132	10.80	11.00
30-40 Krag	20	9½	U 23036	C 23136	12.60	12.80
30-06 Springfield	20	9½	U 23034	C 23134	12.60	12.80
300 Savage	20	9½	U 23038	C 23138	12.00	12.20
300 H & H Magnum	20	9½	U 23040	C 23140	16.15	16.35
*303 Savage	20	9½	U 23044	C 23144	10.80	11.00
303 British	20	9½	U 23042	C 23142	12.60	12.80
308 Winchester	20	9½	U 23046	C 23146	12.00	12.20
8 MM Mauser	20	9½	U 23074	C 23174	12.60	12.80
*32 Remington	20	9½	U 23048	C 23148	10.80	11.00
32-20 Winchester	50	6½	U 23052	C 23152	7.40	7.60
32 Winchester Special	20	9½	U 23050	C 23150	10.80	11.00
*32-40 Winchester	20	9½	U 23054	C 23154	11.40	11.60
348 Winchester	20	9½	U 23056	C 23156	15.10	15.30
35 Remington	20	9½	U 23058	C 23158	12.00	12.20
351 Self Loading	50	6½	U 23060	C 23160	11.80	12.00
375 H & H Magnum	20	9½	U 23078	C 23178	17.00	17.20
38-40 Winchester	50	2½	U 23062	C 23162	7.40	7.60
*38-55 Winchester	20	9½	U 23064	C 23164	10.80	11.00
44-40 Winchester	50	2½	U 23066	C 23166	7.40	7.60
45-70 Government	20	9½	U 23068	C 23168	10.80	11.00
458 Winchester Magnum	20	9½	U 23080	C 23180	17.00	17.20

PISTOL & REVOLVER

Caliber	Packed Per Box	KLEANBORE Primer No.	Unprimed Order No. (Mailable)	Primed Order No.	Un-primed Price Per Hundred	Primed Price Per Hundred
22 Remington Jet CF Magnum	50	6½	U 23252	C 23352	$5.30	$ 5.50
*25 Automatic Pistol	50	1½	U 23200	C 23300	4.50	4.70
*30 Mauser Automatic Pistol	50	1½	U 23202	C 23302	7.00	7.20
*30 Luger Automatic Pistol	50	1½	U 23204	C 23304	7.00	7.20
*32 Smith & Wesson	50	6½	U 23208	C 23308	3.90	4.10
32 Smith & Wesson Long	50	1½	U 23210	C 23310	3.90	4.10
32 Short Colt	50	1½	U 23214	C 23314	3.90	4.10
32 Long Colt	50	1½	U 23216	C 23316	3.90	4.10
*32 Colt New Police	50	1½	U 23212	C 23312	3.90	4.10
*32 Automatic Pistol	50	1½	U 23206	C 23306	4.40	4.60
357 Magnum	50	6½	U 23218	C 23318	5.30	5.50
9 MM Luger Automatic Pistol	50	1½	U 23248	C 23348	7.00	7.20
*380 Automatic Pistol	50	1½	U 23232	C 23332	4.40	4.60
38 Super Automatic Colt Pistol	50	1½	U 23222	C 23322	5.30	5.50
38 Smith & Wesson	50	1½	U 23224	C 23324	4.40	4.60
38 Special	50	1½	U 23220	C 23320	4.80	5.00
*38 Colt New Police	50	1½	U 23226	C 23326	4.40	4.60
38 Short Colt	50	1½	U 23228	C 23328	4.40	4.60
*38 Long Colt	50	1½	U 23230	C 23330	4.80	5.00
41 Long Colt	50	1½	U 23234	C 23334	5.20	5.40
44 Remington Magnum	50	2½	U 23238	C 23338	7.40	7.60
44 S & W Special	50	2½	U 23236	C 23336	5.70	5.90
45 Colt	50	2½	U 23244	C 23344	7.40	7.60
45 Automatic	50	2½	U 23240	C 23340	7.00	7.20
45 Auto Rim	50	2½	U 23242	C 23342	7.00	7.20

*Available on special order.

BULLET ORDER NUMBERS AND PRICES

Bullet Order Number	Price Per Hundred	Bullet Order Number	Price Per Hundred
		B 22702	$ 2.80
B 22812	$ 5.50	B 22704	2.80
B 22814	5.70	B 22706	3.05
B 22816	3.30	B 22708	3.05
B 22824	5.20	B 22710	3.05
B 22826	5.20	B 22712	3.05
B 22828	5.20	B 22716	3.05
B 22832	5.20	B 22718	4.10
B 22834	5.50	B 22720	4.10
B 22836	5.70	B 22722	4.40
B 22840	5.70	B 22724	4.55
B 22842	3.70	B 22726	4.40
B 22844	3.70	B 22728	3.00
B 22848	3.70	B 22730	3.65
B 22864	5.60	B 22734	3.90
B 22866	5.70	B 22736	4.15
B 22868	5.70	B 22738	4.40
B 22876	5.80	B 22740	4.40
B 22880	6.10	B 22742	4.65
B 22882	6.10	B 22744	4.55
B 22906	6.05	B 22746	5.00
B 22890	4.00	B 22748	5.30
B 22892	4.30	B 22750	5.25
B 22898	12.00	B 22752	4.80
B 22732	2.70	B 22754	5.00
B 22800	2.50	B 22756	5.25
B 22802	2.50	B 22758	5.30
B 22806	2.80	B 22760	5.75
B 22818	2.50	B 22762	3.40
B 22820	2.70	B 22764	3.40
B 22822	2.70	B 22766	4.55
B 22850	2.80	B 22768	5.30
B 22852	2.60	B 22774	5.00
B 22854	2.80	B 22776	5.00
B 22856	3.50	B 22778	5.25
B 22858	2.80	B 22780	5.25
B 22862	3.20	B 22782	5.25
B 22870	2.60	B 22784	5.50
B 22872	2.60	B 22786	5.25
B 22874	2.30	B 22788	5.25
B 22878	3.70	B 22790	5.50
B 22884	4.25	B 22792	5.75
B 22886	4.25	B 22808	4.20
B 22896	3.90	B 22810	4.20

See Remington's insert color page for data on these bullets

New bullets not illustrated on display sheet

B 22912 (6.5mm, 100 gr. PSPCL)	$ 4.40
B 22900 (6.5mm, 140 gr. PSPCL)	5.00
B 22902 (375 cal., 270 gr. SP)	7.20
B 22904 (375 cal., 300 gr. MC)	10.00
B 22908 (45 cal., 500 gr. MC)	20.00
B 22910 (45 cal., 510 gr. SP)	13.00

REMINGTON AMMUNITION COMPONENTS

EMPTY PAPER SHOTGUN SHELLS

Ga.	Length T-TARGET F-FIELD	Remington Ordering Numbers Primed	Remington Unprimed (Mailable)	Peters Primed	Peters Unprimed (Mailable)	Un-primed Price Per Hundred	Primed Price Per Hundred
12	2¾T	S 23400	U 24062	S 23500	U 23580	$5.05	$5.35
12	2¾F	S 23402	U 24064	S 23502	U 23582	5.05	5.35
16	2¾T	S 23410	U 24068	S 23510	U 23584	4.95	5.25
16	2¾F	S 23412	U 24070	S 23512	U 23586	4.95	5.25
16	2⅞F	S 23414	U 24072	S 23514	U 23588	4.90	5.20
20	2¾T	S 23420	U 24074	S 23520	U 23590	4.85	5.15
20	2¾F	S 23422	U 24076	S 23522	U 23592	4.85	5.15

Packed 25 in box, 1000 in case.

EMPTY ALL BRASS SHOTGUN SHELLS

"Kleanbore" Primers for Regular Smokeless Powders

Gauge	Primer	Length Inches	Ordering Numbers Primed	Unprimed (Mailable)	Un-primed Price Per 25	Primed Price Per 25
12	2½	2⅝	S 23190	U 23090	$7.45	$7.50
16	2½	2½	S 23192	U 23092	7.45	7.50
20	2½	2⅜	S 23194	U 23094	7.45	7.50
28	2½	2½	S 23196	NA	—	7.50
410	1½	2	S 23198	NA	—	6.15

Packed 25 in box, 500 in case.

POWER SEAL "H" WAD

Gas Sealing — polyethylene

Ungraphited — for paper or steel/polyethylene shells

Gauge	Order Number	Price Per M
12	W 23602	$5.95
20	W 23604	5.95

Packed 250 in box, 20M in case.

COMBINATION WAD COLUMN PACKAGE
(500 "H" and 500 ½" Mold-Tite Wads)

12 — W 23670 — 4.60

Packed 1000 in box, 20 boxes totaling 20M in case.

MOLD-TITE FILLER WADS

Gauge	Thickness	Order Number	Price Per M
12	¼"	W 23610	$2.65
12	⅜"	W 23612	2.65
12	½"	W 23614	3.25

Packed 500 in box, 20M in case. Ungraphited. Triplex lubricated.

CARDBOARD WADS

Gauge	Thickness	Order Number	Price Per M
10	.050	*W 23700	$1.55
10	.072	*W 23702	1.75
10	.135	*W 23704	1.95
12	.050	W 23706	1.15
12	.072	W 23708	1.35
12	.135	W 23710	1.65
12	.200	W 23732	2.15
16	.050	W 23712	1.15
16	.072	W 23714	1.35
16	.135	W 23716	1.65
20	.050	W 23718	1.15
20	.072	W 23720	1.35
20	.135	W 23722	1.65
28	.050	*W 23724	1.55
28	.135	W 23726	1.95
410	.050	*W 23728	1.55
410	.135	*W 23730	1.95

Packed 1000 in box, no case quantity.
*Available on special order.

"KLEANBORE" PRIMERS

Non-Mercuric — Non-Corrosive

Primer No.		Order No.	Price Per M
1½	Brass. Nickel-plated for Revolver and Pistol Cartridges. Packed 100 in box, 1000 in carton, 25M in case. Weight 28 lbs.	X 22600	$ 8.00
2½	Brass. Nickel-plated. For Revolver and Pistol Cartridges, also Brass Shot Shells except 410 ga. Packed 100 in box, 1000 in carton, 25M in Case. Weight 37 lbs.	X 22604	8.00
6½	Brass. Nickel-plated. For smokeless Rifle Cartridges. Packed 100 in box, 1000 in carton, 25M in case. Weight 29 lbs.	X 22606	8.00
9½	Brass. Nickel-plated. For High Power Rifle Cartridges. Packed 100 in box, 1000 in carton, 25M in case. Weight 40 lbs.	X 22608	8.00
57★	Battery Cup. Used in 10, 12, 16, and 20 gauge shot shells. Packed 100 in box, 1000 in carton, 10M in case. Weight 34 lbs.	X 22612	14.50
69	Copper-plated. Used in 28 and 410 gauge Shot Shells. Packed 100 in box, 1000 in carton, 10M in case. Weight 33 lbs. (Replaces No. 55 but not interchangeable)	X 22614	14.50
Percussion Caps—F. C. Trimmed Edge, foil lined, center fire, sizes 10, 11, 12. These are identical in length, priming mixture, and weight of charge. Inside diameters are: 10—approx. .162"; 11—approx. .167"; 12—approx. .172". 100 in box, 1000 in carton, 50M in case. Weight 35 lbs.	Size 10	X 22616	6.00
	Size 11	X 22618	6.00
	Size 12	X 22620	6.00

PREMIUM FELT WADS

Gauge	Thickness	Order Number	Price Per M
10	¼"	*W 23620	$6.35
10	⅜"	*W 23622	7.75
12	⅛"	*W 23624	5.00
12	3/16"	*W 23626	5.00
12	¼"	W 23628	5.25
12	5/16"	*W 23630	6.25
12	⅜"	W 23632	7.50
12	7/16"	*W 23634	7.50
12	½"	*W 23636	7.95
16	3/16"	*W 23638	5.00
16	¼"	W 23640	5.25
16	5/16"	*W 23642	6.25
16	⅜"	W 23644	7.50
20	3/16"	*W 23646	5.00
20	¼"	W 23648	5.25
20	5/16"	*W 23650	6.25
20	⅜"	W 23666	7.50
28	3/16"	*W 23652	6.25
28	¼"	W 23654	6.25
28	5/16"	*W 23656	7.50
28	⅜"	W 23658	7.75
410	⅛"	*W 23660	6.25
410	3/16"	*W 23662	6.25
410	¼"	*W 23664	6.35

Packed 500 in box, no case quantity.
*Not regularly stocked — available on special order.

REMINGTON LEAD SHOT

Remington supplies **polished** lead shot which is uniform in roundness, size, and hardness in the sizes shown below. This shot is packed in 25 lb. and 5 lb. bags. Please ask your supplier for prices.

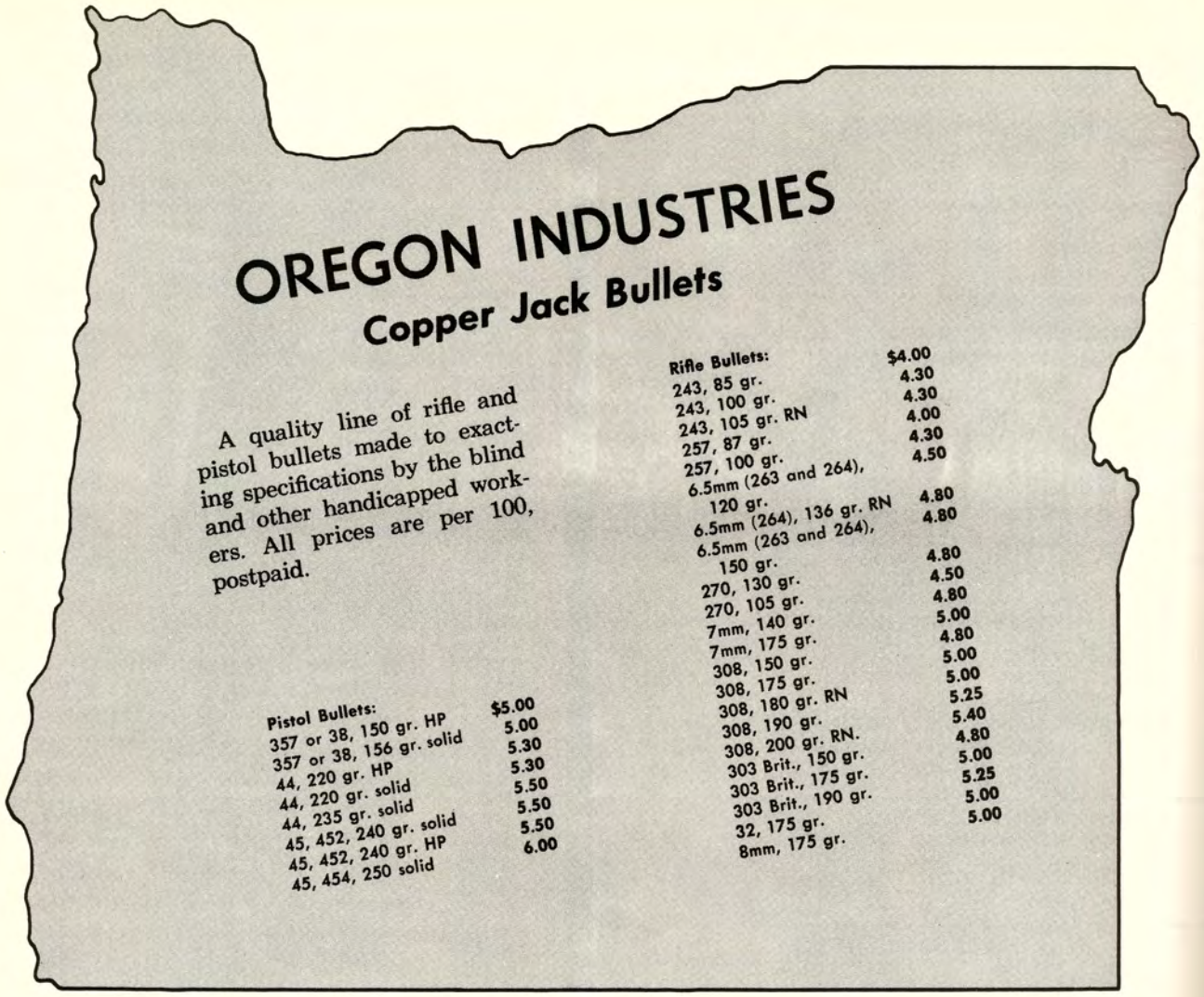
SHOT — COMPARATIVE SIZES — BUCK SHOT

NO.	DUST	12	11	10	9	8	7½	7	6	5	4	2	AIR RIFLE	BB	4	3	1	0	00	000
DIAMETER IN INCHES	.04	.05	.06	.07	.08	.09	.095	.10	.11	.12	.13	.15	.175	.18	.24	.25	.30	.32	.33	.36
APPROX. PELLETS IN 1 OZ.	4565	2385	1380	870	585	410	350	290	225	170	135	90	55	50	340 lb.	300 lb.	175 lb.	145 lb.	130 lb.	98 lb.

REMINGTON ARMS COMPANY, INC., BRIDGEPORT 2, CONNECTICUT

FORM NO. SC-02 Rev.-1

PRINTED IN U.S.A.



OREGON INDUSTRIES

Copper Jack Bullets

A quality line of rifle and pistol bullets made to exacting specifications by the blind and other handicapped workers. All prices are per 100, postpaid.

Pistol Bullets:	
357 or 38, 150 gr. HP	$5.00
357 or 38, 156 gr. solid	5.00
44, 220 gr. HP	5.30
44, 220 gr. solid	5.30
44, 235 gr. solid	5.50
45, 452, 240 gr. solid	5.50
45, 452, 240 gr. HP	5.50
45, 454, 250 solid	6.00

Rifle Bullets:	
243, 85 gr.	$4.00
243, 100 gr.	4.30
243, 105 gr. RN	4.30
257, 87 gr.	4.00
257, 100 gr.	4.30
6.5mm (263 and 264), 120 gr.	4.50
6.5mm (264), 136 gr. RN	4.80
6.5mm (263 and 264), 150 gr.	4.80
270, 130 gr.	4.80
270, 105 gr.	4.50
7mm, 140 gr.	4.80
7mm, 175 gr.	5.00
308, 150 gr.	4.80
308, 175 gr.	5.00
308, 180 gr. RN	5.00
308, 190 gr.	5.25
308, 200 gr. RN.	5.40
303 Brit., 150 gr.	4.80
303 Brit., 175 gr.	5.00
303 Brit., 190 gr.	5.25
32, 175 gr.	5.00
8mm, 175 gr.	5.00

SHOOTERS SERVICE

Under special license from Lakeville Arms, we offer these two fine bullets to discriminating handloaders who want the best accuracy and performance from their handguns.

Prot-X-Bore

Choice of solid or hollow point

	Per 100
38, 135 gr.	$2.55
44, 220 gr.	3.00
45 ACP, 200 gr.	3.00
45 Long Colt, 200 gr.	3.00

Jugular Jacketed

Choice of solid or hollow point

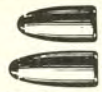
	Per 100
38-357, 127 gr.	$4.55
" 156 gr.	4.80
44 Spec. & Mag., 180 gr.	4.85
" 220 gr.	4.95
" 240 gr.	5.10
" 270 gr.	6.00

Retail Price Per 100

.22 CALIBER .223 Diameter Hornet

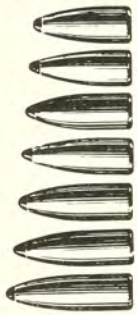
40 gr. Hornet.....$2.80
45 gr. Hornet.....2.80

.22 CALIBER .224 Hornet



40 gr. Hornet.....2.80
45 gr. Hornet.....2.80

.22 CALIBER .224 Diameter High Velocity

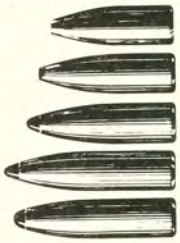


45 gr. Semi-pointed....3.05
45 gr. Spitzer.....3.05
50 gr. Semi-pointed....3.05
50 gr. Spitzer.....3.05
55 gr. Semi-pointed....3.05
55 gr. Spitzer.....3.05
63 gr. Semi-pointed....3.05

.22 CALIBER .224 Diameter Bench Rest

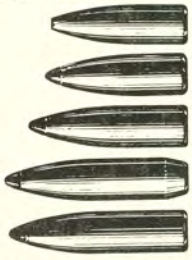
53 gr. Hollow Point....3.75

6 MM .243 Diameter



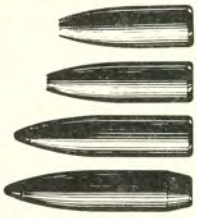
60 gr. Hollow Point....3.65
75 gr. Hollow Point....4.00
85 gr. Spitzer.....4.15
100 gr. Spitzer.....4.40
100 gr. Semi-pointed...4.40

.25 CALIBER .257 Diameter



75 gr. Hollow Point....4.00
87 gr. Spitzer.....4.15
100 gr. Spitzer.....4.40
117 gr. Spitzer Boat Tail 4.65
117 gr. Spitzer Flat Base 4.65

6.5 MM .264 Diameter



85 gr. Hollow Point....4.15
100 gr. Hollow Point...4.40
120 gr. Spitzer.....4.65
140 gr. Spitzer Boat Tail 5.00

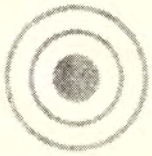
SIERRA RAMPS

	each
Springfield ½" high x 3¼" long	$3.00
Enfield 7/16" high x 3" long	3.00
Mauser ⅜" high x 2¾" long	3.00
Sporter 5/16" high x 2⅜" long	3.00
Lo-Sporter ¼" high x 2⅛" long	3.00

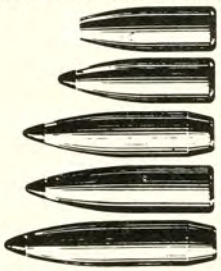
All ramps have standard .093 x ⅜" dove tail, ½" front radius, serrated incline, and are grooved to fit a ⅝" diameter barrel. Ramp may be attached by a #6-48 screw, solder sweating or silver soldering—#6-48 screw included.

GAS CHECKS

(per 1000)
.22 • .25 • .270 • .30 • .32 • 8MM $2.50

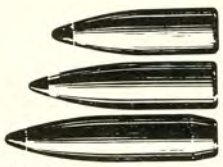


.270 CALIBER .277 Diameter



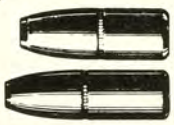
90 gr. Hollow Point....4.45
110 gr. Spitzer.....4.65
130 gr. Spitzer Boat Tail 5.00
130 gr. Spitzer Flat Base 5.00
150 gr. Spitzer Boat Tail 5.25

7 MM .284 Diameter



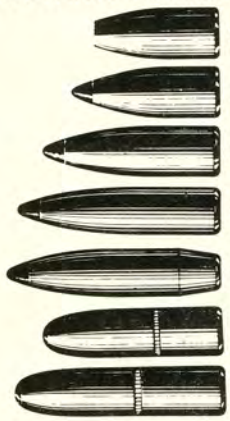
120 gr. Spitzer.....4.65
140 gr. Spitzer.....5.00
160 gr, Spitzer Boat Tail.5.25

30 - 30



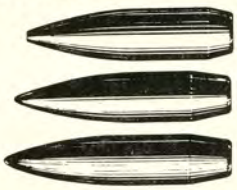
150 gr. Flat Nose 5.00
170 gr. Flat Nose 5.25

.30 CALIBER .308 Diameter



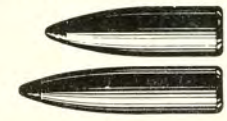
110 gr. Hollow Point...4.55
125 gr. Spitzer.....4.65
150 gr. Spitzer.....5.00
180 gr. Spitzer Flat Base.5.25
180 gr. Spitzer Boat Tail 5.25
180 gr. Round Nose . . . 5.25
220 gr. Round Nose . . . 5.75

.30 CALIBER Competition



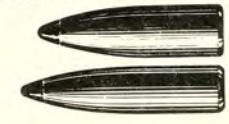
168 gr. International . . 6.00
180 gr. Matchking.....5.50
200 gr. Matchking.....5.75

.303 CALIBER .311 Diameter



150 gr. Spitzer.....5.10
180 gr. Spitzer.....5.35

8 MM .323 Diameter



150 gr. Spitzer.....5.10
175 gr. Spitzer.....5.35

SIERRA BULLETS INC.
600 W. WHITTIER BLVD., WHITTIER, CALIFORNIA

SISK Bullets

All Sisk bullets jackets are of a non-fouling alloy. All bullets, packed 100 to a box, are shipped prepaid. Prices subject to change without notice.

35 gr. Hornet and 36 gr. Spitfire are made in .224″ only since they show the same splendid accuracy in .224″ and in .223″ diameter barrels.

The 50 gr. Lovell and 49 gr. Express bullets can be supplied in .226″ diameter for the 22 Savage Hi-Power at the same price as .224″ diameter. The 40 gr. Express in the 22 Savage Hi-Power makes a powerful load for game even as large as deer, and the 50 gr. Lovell is recommended for blasting varmints.

Cal.	Wgt.	Dia.	Type & Shape	Price
17	25	.172	SP Semi-Pt.	$2.60
	30	.172	″ Semi-Pt.	2.60
22H	35	.224	″ F.J. Blunt	2.60
	40	.223-4	″ F.J. Blunt	2.60
	45	.223-4	″ F.J. Blunt	2.60
Spitfire	36	.224	″ Sharp	2.60
Lovell	41	.223-4	″ Sharp	2.60
	50	.223-4	″ Sharp	2.60
Niedner	54	.223-4	″ F.J. Semi-Pt.	2.80
	62	.223-4	″ F.J. Semi-Pt.	2.80
Express (220 Swift)	42	.223-4	″ Sharp	3.00
	49	.223-4	″ Sharp	3.00
	55	.223-4	″ Sharp	3.00
	63	.223-4	″ Sharp	3.00
Savage Hi-Power	40	.228	″ Blunt	2.60
	55	.227	″ Semi-Pt.	2.80
	63	.227	″ Semi-Pt.	2.80
Benchrest	49	.223-4	HP Sharp	3.20
	55	.223-4	HP Sharp	3.20

SOUTHWEST PRODUCTS, INC.

All of our bullets are swaged from hard SECALLOY, our trade name for a special alloy made exclusively for pistol bullets. We make this metal from virgin metals and extrude it under tremendous pressure into SECALLOY rod. This rod is then precision cut into slugs of the proper weight, which are then cold swaged to shape and machine grooved in lathes. They are then sized and lubricated with a special grease which inhibits leading. We believe them to be the finest pistol bullets in the world — in design, accuracy, and physical properties.

Available in 38 Spec. and 357 Mag. 173 gr. Keith Solid Point or 160 gr. Keith Hollow Point — $4.35 per 100, $32.60 per 1000. 44 Spec.-Mag. and 45 Cold-Auto Rim 250 gr. Keith Solid Point or 235 gr. Keith Hollow Point — $4.95 per 100, $37.10 per 1000.

NOTE: 38 Spec. and 357 Mag. are *not* the same bullet. 45 Colt-AR bullets are *not* suitable for 45 Auto — use 185 or 205 gr. SECALLOY bullets listed below.

The SECALLOY bullets listed below do not have grease grooves — they are super match grade with gas checks.

	Per 100	Per 1000
38 Spec., 149 gr. Wadcutter	$3.35	$25.10
45 ACP, 185 gr. Semi-Wadcutter	3.75	28.10
45 ACP, 205 gr. Semi-Wadcutter	3.75	28.10

WINCHESTER Western

Ammunition Components

POPULAR CENTER FIRE RIFLE BULLETS

Caliber — 22 (.224 dia.)

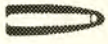
45 gr. S.P.—2245
List per 100—$2.80

46 gr. H.P.—2246H
List per 100—$2.80

48 gr. P.S.P.—2248
List per 100—$3.05

50 gr. P.S.P.—2250
List per 100—$3.05

55 gr. P.S.P.—2255
List per 100—$3.05



56 gr. H.P.—2256H
List per 100—$3.05

Caliber — 6 mm (.243 dia.)

80 gr. P.S.P.—6M80
List per 100—$4.10

100 gr. P.P. (S.P.)—
6M10P
List per 100—$4.40

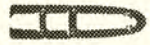
Caliber — 25 (.257 dia.)

60 gr. H.P.—2560H
List per 100—$3.65

87 gr. P.S.P.—2587
List per 100—$4.15

100 gr. S.T. Exp.—
2510S
List per 100—$4.40

117 gr. P.P. (S.P.)—
2511P
List per 100—$4.65



Caliber — 6.5 mm (.264 dia.)

100 gr. P.S.P.—65M10
List per 100—$4.40

140 gr. P.P. (S.P.)—
65M14P
List per 100—$5.00

Caliber — 270 (.277 dia.)

100 gr. P.S.P.—2710
List per 100—$4.55

130 gr. H.P.—2713H
List per 100—$5.00

130 gr. S.T. Exp.—
2713S
List per 100—$5.00

150 gr. P.P. (S.P.)—
2715P
List per 100—$5.25

Caliber — 7 mm (.284 dia.)

175 gr. S.P.—7M17
List per 100—$5.75

Caliber — 30 (.308 dia.)

110 gr. P.S.P.—3011
List per 100—$4.55

125 gr. P.S.P.—3012
List per 100—$4.65

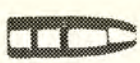
150 gr. P.P. (S.P.)—
3015P
List per 100—$5.00

150 gr. P.P. (S.P.) F.—
3015PF
List per 100—$5.00

150 gr. S.T. Exp.—
3015S
List per 100—$5.00

150 gr. S.T. Exp. H.V.
3015SHV
List per 100—$5.00

150 gr. S.T. Exp. F.—
3015SF
List per 100—$5.00

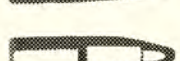


170 gr. P.P. (S.P.) F.—
3017PF
List per 100—$5.25

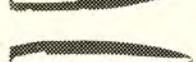
170 gr. S.T. Exp. F.—
3017SF
List per 100—$5.25

180 gr. P.P. (S.P.)—
3018P
List per 100—$5.25

180 gr. S.T. Exp.—
3018S
List per 100—$5.25

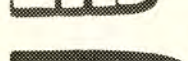


180 gr. F.M.C. Mat.—
3018MC
List per 100—$5.50

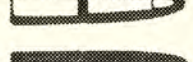


190 gr. S.T. Exp.—
3019S
List per 100—$5.35

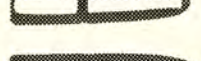
200 gr. S.T. Exp.—
3020S
List per 100—$5.40



220 gr. P.P. (S.P.)—
3022P
List per 100—$5.75

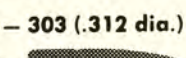


220 gr. S.T. Exp.—
3022S
List per 100—$5.75



Caliber — 303 (.312 dia.)

180 gr. P.P. (S.P.)—
3118P
List per 100—$5.50



215 gr. S.P.—3121
List per 100—$5.70

Caliber — 32 — 8 mm (.322 dia.)

170 gr. P.P. (S.P.) F.—
8M17PF
List per 100—$5.20

170 gr. S.T. Exp. F.—
8M17SF
List per 100—$5.20

200 gr. P.P. (S.P.)—
8M20P
List per 100—$5.60

Caliber — 338 (.338 dia.)

200 gr. P.P. (S.P.)—
3320P
List per 100—$5.70

250 gr. S.T. Exp.—
3325S
List per 100—$6.30

300 gr. P.P. (S.P.)—
3330P
List per 100—$7.00

Caliber — 348 (.349 dia.)

150 gr. S.T. Exp.—
3415S
List per 100—$5.50

200 gr. S.T. Exp.—
3420S
List per 100—$5.70

250 gr. S.T. Exp.—
3425S
List per 100—$6.20

Caliber — 35 (.358 dia.)

200 gr. P.P. (S.P.)—
3520P
List per 100—$5.70

200 gr. S.T. Exp.—
3520S
List per 100—$5.70

250 gr. S.T. Exp.—
3525S
List per 100—$6.20

Caliber — 375 (.375 dia.)

270 gr. P.P. (S.P.)—
3727P
List per 100—$7.20

300 gr. S.T. Exp.—
3730S
List per 100—$7.30

300 gr. F.M.C.—
3730MC
List per 100—$10.00

Caliber — 45 (.457 dia.)

405 gr. S.P.—4540
List per 100—$12.00

500 gr. F.M.C.—
4550MC
List per 100—$20.00

510 gr. S.P.—4551
List per 100—$13.00

BOX QUANTITY

Cal. 22 through Cal. 30 (.308 dia.) bullets packed 100 to the box.

Cal. 303 (.312 dia.) through Cal. 45

ABBREVIATIONS

F.—Flat
F.M.C.—Full Metal Case
H.P.—Hollow Point
Mat.—Match
P.P.(S.P.)—Power-Point (Soft Point)
P.S.P.—Pointed Soft Point
S.P.—Soft Point
S.T. Exp.—Silvertip Expanding

WINCHESTER Western

THESE CARTRIDGE CASES AVAILABLE ON SPECIAL ORDER

CARTRIDGE CASE Caliber & Symbol	List Price per 100
25 Automatic	
C25AP Primed	$ 4.70
U25AP Unprimed	4.50
25-20 Winchester	
C2520 Primed	7.60
U2520 Unprimed	7.40
***25-35 Winchester**	
C2535 Primed	11.60
U2535 Unprimed	11.40
30 Mauser	
C30MP Primed	7.20
U30MP Unprimed	7.00
30 Luger	
C30LP Primed	7.20
U30LP Unprimed	7.00
***30 Remington**	
C30R Primed	11.00
U30R Unprimed	10.80
***30-40 Krag**	
C3040 Primed	12.80
U3040 Unprimed	12.60
***303 Savage**	
C303 Primed	11.00
U303 Unprimed	10.80
***32 Winchester Special**	
C32WS Primed	11.00
U32WS Unprimed	10.80
32 Automatic	
C32AP Primed	4.60
U32AP Unprimed	4.40
32 Short Colt	
C32SCP Primed	4.10
U32SCP Unprimed	3.90
32 Long Colt	
C32LCP Primed	4.10
U32LCP Unprimed	3.90
32 Colt New Police	
CW32CNP Primed	4.10
UW32CNP Unprimed	3.90
***32 Remington**	
C32R Primed	11.00
U32R Unprimed	10.80

CARTRIDGE CASE Caliber & Symbol	List Price per 100
32-20 Winchester	
C3220 Primed	$ 7.60
U3220 Unprimed	7.40
***32-40 Winchester**	
C3240 Primed	11.60
U3240 Unprimed	11.40
***348 Winchester**	
CW348 Primed	15.30
UW348 Unprimed	15.10
***35 Remington**	
C35R Primed	12.20
U35R Unprimed	12.00
***358 Winchester**	
C358 Primed	12.20
U358 Unprimed	12.00
38 Short Colt	
C38SCP Primed	4.60
U38SCP Unprimed	4.40
38 Long Colt	
C38LCP Primed	5.00
U38LCP Unprimed	4.80
38 Colt New Police	
CW38CNP Primed	4.60
UW38CNP Unprimed	4.40
38 Automatic	
C38AP Primed	5.50
U38AP Unprimed	5.30
380 Automatic	
C380AP Primed	4.60
U380AP Unprimed	4.40
38-40 Winchester	
C3840 Primed	7.60
U3840 Unprimed	7.40
***38-55 Winchester**	
CW3855 Primed	11.00
UW3855 Unprimed	10.80
41 Long Colt	
C41LCP Primed	5.40
U41LCP Unprimed	5.20
44-40 Winchester	
C4440 Primed	7.60
U4440 Unprimed	7.40
***45-70 Government**	
CW4570 Primed	11.00
UW4570 Unprimed	10.80

* Packed 20 to the box. All others 50 to the box.

WINCHESTER Western

THESE BULLETS AVAILABLE ON SPECIAL ORDER

RIFLE • PISTOL • REVOLVER

25 Automatic
50 gr. F.M.C.—B25AP
List per 100—$3.00

25-20 Winchester
86 gr. L.—B25201
List per 100—$2.70
86 gr. S.P.—B25202
List per 100—$3.90

30 Mauser
86 gr. F.M.C.—B30MP
List per 100—$3.40

30 Luger
93 gr. F.M.C.—B30LP
List per 100—$3.40

30-30 Winchester
150 gr. H.P.—B30301
List per 100—$5.00

32 Automatic
71 gr. F.M.C.—B32AP
List per 100—$3.30

32 S & W
85 gr. L.—B32SWP
List per 100—$2.50

32 S & W Long
98 gr. L.—B32SWLP
List per 100—$2.70

‡ Not Lubricated.

‡32 Short Colt
80 gr. Lub.—B32SCP
List per 100—$2.50

32 Long Colt
82 gr. Lub.—B32LCP
List per 100—$2.50

32-20 Winchester
100 gr. L.—B32201
List per 100—$2.80
100 gr. S.P.—B32202
List per 100—$4.20

32-20 Winchester HV
80 gr. H.P.—B32203
List per 100—$4.20

32-40 Winchester
165 gr. S.P.—B3240
List per 100—$5.20

357 Magnum
158 gr. Lub.—B3571P
List per 100—$3.50

9 mm Luger
115 gr. F.M.C.—BW9LP
List per 100—$3.70

38 S & W
145 gr. L.—B38SWP
List per 100—$2.60

38 Special
158 gr. L.—B38SIP
List per 100—$2.80
200 gr. L.—B38S3P
List per 100—$3.20
150 gr. Lub.—B38S4P
List per 100—$3.50
148 gr. Lead M-R Mat.—B38SMRP
List per 100—$2.80
158 gr. Lead Mat.—B38SMP
List per 100—$2.80

‡38 Short Colt
130 gr. L.—B38SCP
List per 100—$2.30

38 Long Colt
150 gr. Lub.—B38LCP
List per 100—$2.60

38 Colt New Police
150 gr. L.—BW38CNP
List per 100—$2.60

38 Automatic
130 gr. F.M.C.—B38AIP
List per 100—$3.70

380 Automatic
95 gr. F.M.C.—B380AP
List per 100—$3.70

38-40 Winchester
180 gr. S.P.—B3840
List per 100—$6.10

38-55 Winchester
255 gr. S.P.—BW3855
List per 100—$5.80

41 Long Colt
200 gr. Lub.—B41LCP
List per 100—$3.70

44 S & W
246 gr. L.—BW44SP
List per 100—$4.25

44 Magnum
240 gr. Lub. Gas Check—B44MP
List per 100—$4.25

44-40 Winchester
200 gr. S.P.—B4440
List per 100—$6.10

45 Colt
255 gr. Lub.—B45CP
List per 100—$3.90

45 Automatic
230 gr. F.M.C.—B45AIP
List per 100—$4.30
210 gr. L. Mat.—B45AMRP
List per 100—$3.50
185 gr. F.M.C. Mat.—B45AWCP
List per 100—$4.00

The bullets above are available on special order and are packed 50 to the box.
To figure weight use 7000 grains per pound, add 1 oz. for box.

POPULAR CENTER FIRE RIFLE • PISTOL AND REVOLVER CARTRIDGE CASES

CARTRIDGE CASE Caliber & Symbol	List Price per 100
218 Bee	
C218B Primed	$ 7.20
U218B Unprimed	7.00
***219 Zipper**	
CW219Z Primed	11.60
UW219Z Unprimed	11.40
22 Hornet	
C22H Primed	7.20
U22H Unprimed	7.00
***220 Swift**	
C220S Primed	12.05
U220S Unprimed	11.85
***222 Remington**	
C222R Primed	8.55
U222R Unprimed	8.35
***243 Winchester**	
C243 Primed	12.20
U243 Unprimed	12.00
***250 Savage**	
C250 Primed	12.20
U250 Unprimed	12.00
***257 Roberts**	
C257 Primed	12.20
U257 Unprimed	12.00
***264 Winchester Magnum**	
C264 Primed	15.80
U264 Unprimed	15.60
***270 Winchester**	
C270 Primed	12.80
U270 Unprimed	12.60
***7 mm Mauser**	
C7mm Primed	12.80
U7mm Unprimed	12.60
***30-30 Winchester**	
C3030 Primed	11.00
U3030 Unprimed	10.80
***30-06 Springfield**	
C3006 Primed	12.80
U3006 Unprimed	12.60
***300 H & H Magnum**	
C300H Primed	16.35
U300H Unprimed	16.15
***300 Savage**	
C300 Primed	12.20
U300 Unprimed	12.00
***303 British**	
CW303B Primed	12.80
UW303B Unprimed	12.60
***308 Winchester**	
C308 Primed	$12.20
U308 Unprimed	12.00
***8 mm Mauser**	
CW8mm Primed	12.80
UW8mm Unprimed	12.60
***338 Winchester Magnum**	
C338 Primed	16.40
U338 Unprimed	16.20
***375 H & H Magnum**	
C375H Primed	17.20
U375H Unprimed	17.00
***458 Winchester Magnum**	
CW458 Primed	17.20
UW458 Unprimed	17.00
PISTOL & REVOLVER CASES	
32 S & W	
C32SWP Primed	4.10
U32SWP Unprimed	3.90
32 S & W Long	
C32SWLP Primed	4.10
U32SWLP Unprimed	3.90
357 Magnum	
C357P Primed	5.50
U357P Unprimed	5.30
9 mm Luger	
CW9LP Primed	7.20
UW9LP Unprimed	7.00
38 S & W	
C38SWP Primed	4.60
U38SWP Unprimed	4.40
38 Special	
C38SP Primed	5.00
U38SP Unprimed	4.80
44 S & W	
CW44SP Primed	5.90
UW44SP Unprimed	5.70
44 Magnum	
C44MP Primed	7.60
U44MP Unprimed	7.40
45 Colt	
C45CP Primed	7.60
U45CP Unprimed	7.40
45 Automatic	
C45AP Primed	7.20
U45AP Unprimed	7.00

* Packed 20 to the box — all others 50 per box.

WINCHESTER Western

EMPTY PRIMED SHELLS

low brass shells only

Gauge	Length	List Price per 100
12	2¾ inches	$5.35
16	2⁹⁄₁₆ inches	5.20
16	2¾ inches	5.25
20	2¾ inches	5.15

STAYNLESS PRIMERS

non-corrosive • completely dependable

Primer	Number Symbol	TYPE	Case Contains	Case Wt. Pounds	List Price per 1000
K4001P	1½-108	C.F. Pistol & Revolver	25M	28	$ 8.00
K4002P	6½-116	C.F. Rifle & Revolver	25M	28	8.00
K4003P	7-111	C.F. Rifle, Revolver & Pistol	25M	35	8.00
K4009P	8½-120	C.F. Military & Sporting	25M	36	8.00
K4005P	209	Paper Shotgun Shells	10M	39	14.50

All primers packed 100 per box.

WADS

CARDBOARD WADS

No. (A) .080-inch thick over powder wad.
No. (B) .050-inch thick over shot wad.
NITRO(C) .135-inch thick over powder wad.
NITRO(D) .200-inch thick over powder wad.

SYMBOL	GAUGE	List Price per 1000	Wt. per Box (Approx.)
W10CA	10(A)	$1.35	1 lb.
W10CB	10(B)	1.15	12 oz.
W12CA	12(A)	1.35	14 oz.
W12CB	12(B)	1.15	9 oz.
W12CC	12(C)	1.65	1 lb. 8 oz.
W12CD	12(D)	2.15	2 lbs.
W16CA	16(A)	1.35	1 lb.
W16CB	16(B)	1.15	9 oz.
W16CC	16(C)	1.65	17 oz.
W16CD	16(D)	2.15	1 lb. 8 oz.
W20CA	20(A)	1.35	10 oz.
W20CB	20(B)	1.15	8 oz.
W20CC	20(C)	1.65	16 oz.
W20CD	20(D)	2.15	1 lb. 5 oz.
W28CA	28(A)	1.35	10 oz.
W28CB	28(B)	1.15	8 oz.

Packed 1000 per box.

MOLDED FIBER WADS

edge lubricated

Symbol	Thickness	Gauge	List Price per 1000	Wt. per Box (Approx.)
W12F¼	¼ inch	12	$2.65	14 oz.
W12F⅜	⅜ inch	12	2.65	1 lb. 4 oz.
W12F½	½ inch	12	3.25	1 lb. 6 oz.
W16F¼	¼ inch	16	2.65	12 oz.
W16F⅜	⅜ inch	16	2.65	1 lb.
W16F½	½ inch	16	3.25	16 oz.
W20F¼	¼ inch	20	2.65	12 oz.
W20F⅜	⅜ inch	20	2.65	14 oz.
W20F½	½ inch	20	3.25	15 oz.
W28F¼	¼ inch	28	2.65	10 oz.

Packed 500 per box.

Cases, Metallic and Shotshell

The average case can be reloaded many times over, and it is not unusual to find handloaders that have reloaded a metallic case 20 or more times. Pistol cases, and those rifle cases that must be crimped every time they are reloaded, will have a somewhat shorter life span. Maximum loads shorten case life, too. Shotshell cases won't take as many reloadings, of course — the paper mouth soon frays.

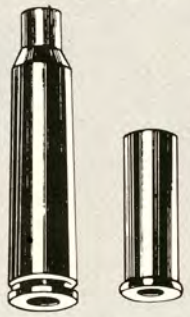
When a cartridge is fired, the case expands to the size of the chamber, then springs back slightly if the brass is correctly annealed. If such cases are to be fired again in the same rifle, only neck sizing is usually needed; full length sizing is generally required if cases will be used in a rifle other than the one they came out of. Standard 7/8-14 dies can do both jobs — for neck sizing only, position the die 1/8" or so away from contact with the shell holder. Full length sizing of paper cases is virtually a must, and all tools are made to do so.

Cases should be carefully examined before and during reloading, and any defective cases discarded. Here are several things to look for: split necks and bodies; incipient head separations; swelling of head and primer pocket, torn or frayed mouths of paper cases.

You'll get better results from your handloads if you keep your cases segregated by make and lot — even cases from the same batch vary a little in weight. Mixed cases will show greater differences in weight (hence volumetric capacity), flash holes, temper or anneal, etc. Shotshells, because of the need for exact wad-column height, should be of the same make and type.

HERTER'S

Made in Sweden of 100% virgin brass for longer reloading life. These cases exceed U.S. and Canadian Army tolerances and specifications, and are made to accept American primers.



No.	Cal.	Per 50	Per 100	Per 1000
SS1PC	38 Special	$1.74	$3.40	$32.50
SS2PC	357 Mag.	1.95	3.83	34.50
SS3PC	9mm Luger	1.69	3.25	30.50

No.	Cal.	Per 20	Per 100	Per 1000
SS2RC	6.5x55	$1.70	$6.30	$56.00
SS3RC	30-06	1.95	8.42	74.00
SS4RC	243	1.74	7.20	64.50
SS5RC	244	1.74	7.20	64.50
SS6RC	270	1.95	8.42	74.00
SS7RC	308	1.80	7.30	65.00

NONTE TAYLOR

Our new, unprimed No. 1 case, manufactured by Kynoch of England, provides the means of making ammunition for most of the old, obsolete rifles that many would like to shoot.

The No. 1 case (other sizes are in the works) is a solid head case carrying the proper primer pocket for U.S.-made large rifle primers. The cases are annealed well-down (about 1½" back from the mouth) to permit major reforming without cracking or splitting. The head is extra heavy to insure many reloadings.

Information Sheet

Rim diameter .605", rim thickness .070", head diameter .503", length 3.25", mouth diameter .460", Boxer primer of .210 diameter. The following cartridges may be formed from this case:

45/120/550 Sharps (45/3¼)
45/2.4" Sharps
44/100 Remington
40/90 Sharps Bottleneck
40/70 Winchester
40/60 Marlin
40/50 Sharps Bottleneck
45/2 ⅞" Sharps
45/2.1" Sharps
44/70 Maynard 1882
40/82 Winchester
40/70 Sharps Bottleneck
40/60 Winchester
38/70 Winchester
45/2.6" Sharps
45/90 Winchester
40/60 Maynard 1882
40/75 Bullard
40/65 Winchester
40/60 Bullard
38/56 Winchester

Many other calibers may be formed by letting the case expand to fill the chamber just ahead of the rim. This is a safe practice, for the case has been designed with walls of sufficient thickness to stand the expansion easily. Thus, such calibers as 44/77 Rem., 43 Spanish, 44 Sharps bottleneck series and many others may be formed.

100 cases	$25.00
20 cases	$5.50
Sample case	50c

We will form these cases, to any of the above calibers at an extra cost of $5.00 per 100.

norma

Norma cases are made of virgin brass by people who know handloading and metallurgy. The cases handle American (Boxer type) primers and are designed and manufactured specifically for the purpose of handloading. In laboratory tests, Norma cases have been fired more than 100 times with maximum loads.

OLYMPIC CHAMPIONSHIP AMMUNITION AND COMPONENTS

EFFECTIVE MARCH 15, 1961

Prices subject to change without notice

Be sure to include stock number when ordering

EMPTY UNPRIMED RIFLE CASES

Stock Number	Caliber	Suggested List Price Per 1000	Box/20
751	.220 Swift	$118.60	$2.38
752	.222 Remington	83.40	1.67
753	.243 Winchester	119.80	2.40
754	.244 Remington	119.80	2.40
755	.250 Savage	119.80	2.40
756	.257 Roberts	119.80	2.40
757	6.5 MM Jap	126.00	2.52
758	6.5 MM Mannlicher-Schoenauer	126.00	2.52
759	6.5 Norma (6.5 x 55)	126.00	2.52
760	.270 Winchester	126.00	2.52
761	7 MM Mauser	126.00	2.52
763	.30 U. S. Carbine (Box/50)	73.80	3.69
764	.30-30 Winchester	108.00	2.16
765	.308 Winchester	119.80	2.40
811	.308 Norma Belted Magnum	161.60	3.24
766	.30-06 Springfield	126.00	2.52
767	.300 H & H Magnum	161.60	3.24
768	.303 British	126.00	2.52
769	7.7 MM Jap	126.00	2.52
770	8 x 57JR .318 Diam. (Rimmed)	126.00	2.52
772	8 MM Mauser .322 Diam.	126.00	2.52
774	.358 Winchester	119.80	2.40
796	.358 Norma Belted Magnum	162.00	3.25
778	.375 H & H Magnum	169.80	3.40
775	9.3 x 57 MM	126.00	2.52
776	9.3 x 62 MM	126.00	2.52
777	9.3 x 74R MM (Rimmed)	161.60	3.24
784	.300 H & H Special Cylindrical	161.60	3.24

Special Cylindrical Cases

For the handloader who wants to form his own wildcat cases Norma offers these special cylindrical cases. Designed specifically for handloaders, they feature: perfect primer pocket and flash hole; slight taper of .008″ per inch; annealed neck. Base dimensions same as 300 H&H. Price, per 100.....**$16.16**

EMPTY UNPRIMED PISTOL CASES

			Box/50
780	.30 Luger	69.80	3.49
779	.32 A.C.P.	44.00	2.20
781	9 MM Luger	69.80	3.49
806	.357 Magnum	53.00	2.65
782	.38 Special	48.00	2.40
808	.44 Magnum†	74.00	3.70

†Available approx. May 1

SANTA FE

UNPRIMED BRASS

$2.52
Box of 20

These high quality imported cases are specifically designed to fill a need of the handloader. Made of virgin brass on the latest automated equipment, they handle standard American primers. Guaranteed to be clean and free from defects. Available in 30-06 and 6.5 x 55 Mauser calibers — other calibers will be available in the future.

Russell L. Campbell

CUSTOM LOADED AMMUNITION

Cases formed for most obsolete, foreign or hard-to-get calibers. All are made from new brass and are trimmed to correct length. Our latest offering is 11mm Spanish (43 cal.) formed from new 348 brass at $25 per 100, postpaid. Write for our latest list or state your needs. We also supply loaded ammunition in hundreds of calibers, modern and obsolete.

LAKEVILLE ARMS

We offer reloaders new primed cases in the following calibers, all packaged in boxes of 50 each.

38 Special	$2.50
357 Magnum	$2.75
44 Magnum	$3.85
44 Special	$2.93
45 Colt	$3.79

All prices FOB Lakeville, Conn.

ROBERT POMEROY

Custom forming of obsolete cases. All are formed from new 45-70 and 30-40 Krag cases or new Norma brass. 45-90, 40-82, 40-70, 38-70, 35 WCF, 40-72 and 38-72 are just a few of the sizes available. Write to me about your needs, other calibers available and prices.

Note: Remington components will be found elsewhere in this section.

Note: Winchester components will be found elsewhere in this section.

Notes on Powder.....

Powders, generally, may be divided into three groups, depending on their use — pistol, rifle and shotgun. Some powders can be loaded for more than one use: Hercules 2400, basically a rifle powder, can be used for high velocity loads in some revolvers, or for 410 shotshells.

The manufacturers' suggested loads should be adhered to completely for accurate safe loads (let the "max" loads go for awhile) and only those powders specified should be loaded. "Wildcatting" of shotshells, too, is unnecessary and dangerous!

Pistol Powders

Smokeless pistol powders are relatively fast burning. The short barrels of pistols demand this quality to achieve best results. Hercules' Bullseye, the oldest smokeless pistol powder made, has a high nitroglycerin content and is finely granulated. This permits it to burn freely and ignite easily under all conditions. It is used successfully in large capacity cases made originally for black powder; in 38 Spec. and 45 ACP target loads, and is the powder most used for factory cartridges. Du Pont's 5066 pistol powder is a straight nitrocellulose powder made in small round flakes. It is a general purpose type adaptable to a wide variety of loads. Hercules' Unique for medium and heavy loads and 2400 for magnum loads have been consistently used, in their proper place, by handloaders for many years. The new Winchester-Western Ball powder for standard loads, 230P, has been rapidly gaining in popularity since its introduction in 1960. W-W 295HP, a ball powder for magnum loads, was discontinued shortly after its introduction. Hodgdon's HS10 and H4227 are surplus military powders repacked into convenient size canisters.

Rifle Powders

Hercules covers the rifle field of handloading powders with just three types: Unique, 2400 and Hi Vel 2. These are all double base types with nitroglycerin and nitrocellulose. Du Pont's IMR (Improved Military Rifle) powders 4198, 4320, 4227, 3031, 4350 and 4064 are (unlike Hercules powders, which differ in composition), basically alike except for size of granulation and a slight difference in coating. Du Pont SR (Sporting Rifle) 4759 is a large grain, uncoated powder. As yet Winchester-Western has not announced a Ball powder for rifle use, but their laboratories are working on them. The Hodgdon surplus rifle powders, available in seven numbers, offer excellent quality at low cost.

Shotgun Powders

Shotgun powders fall into two categories, bulk and dense. The only bulk powder offered today is Du Pont's Bulk Shotgun Smokeless. This powder is best measured with a dipper set to the drams marking required. A modern measure *must* be set to throw the correct charge by adjusting until the dip measure is level full. Du Pont's dense powders are PB (porous base) for high velocity and magnum loads, and the new Hi-Skor for target loads. Hercules Unique is used primarily for medium loads, Red Dot is used for light target loads and Herco, a coarse-grained powder, is used in the heavier loads. 2400 should be used only in low velocity 410 shells. Hodgdon's HS10 requires special components when loaded in 12 gauge shotshells, and the loading data given by Hodgdon should be followed exactly. Alcan offers a wide variety of shotshell powders for handloaders; complete specifications on these will be found on page 6 of Alcan's special catalog bound into this book.

DU PONT HI-SKOR

by JIM HORTON

E I. DU PONT de Nemour, gunpowder makers since Revolutionary days, have long provided the handloader of rifle ammunition with a wide and useful variety of powder types — the rifleman can, using one or another du Pont powder, load any metallic case from the 22 Hornet to the 460 Weatherby.

The shotshell loader hasn't fared so well, at least at du Pont's hands. Their PB and Bulk Shotgun Smokeless powders, suitable only for light to moderate loads, have been the only du Pont shotgun powders available to the reloader until now.

Late in 1961 du Pont announced Hi-Skor shotshell powder, another 23-grain type, and useful only in light loadings. Obviously, this new propellant doesn't fill out the du Pont line (they still don't have a powder that can be put to use in heavier-charge shotshells), but more and better powders are on the way, say the powers at Wilmington, Del.

Hi-Skor, grayish-green and shaped like small washers with a single, center hole, is sold in 8-oz. canisters and 10-lb. drums. Prices were not available at this writing, but they'll probably be in line with PB and BBS costs.

Hi-Skor will not supersede PB-6, happy news for those of you who, like myself, have found PB-6 an excellent powder.

"The density and physical shape of Hi-Skor make it eminently suitable for use in all shotshell reloading tools" says the du Pont literature, but being somewhat of a skeptic, I weighed 10 charges of Red Dot thrown from a 23 (?) grain MEC bar, and then 10 using the same bar with Hi-Skor. Here are the results:

Red Dot	Hi-Skor
21.3 Grs.	20.1 Grs.
21.3	20.1
21.4	20.1
21.3	20.1
21.4	20.1
21.4	20.1
21.5	20.1
21.4	20.1
21.3	20.1
21.3	20.1

Measuring accuracy with Red Dot is excellent, as the results show, but Hi-Skor does even better. This comparison also shows that Hi-Skor can be used with Red Dot fixed charge bars. Don't, however, use Red Dot with bars made (or adjusted) for Hi-Skor, as this would result in powder charges heavier than is practicable from the standpoint of safety.

Anyone using Hi-Skor for the first time should be governed by the following du Pont warranty clause for Hi-Skor:

"The (reloading data) information presented was obtained using components manufactured by the Remington Arms Company, Inc., Bridgeport, Conn. We suggest that these loads be reduced by 10%, initially, to compensate for the varying results obtained with different combinations of components. The loads can then be increased gradually to approach the loads suggested in the attached table."

"Information and suggestions herein are based upon our experience and are offered as part of our service to customers. They are intended for use by persons having technical skill, at their own discretion and risk. We do not guarantee favorable results, and we assume no liability in connection with their use. Our suggestions are not intended as a license to operate under, or a recommendation to infringe, any existing patents."

The du Pont-compiled table that follows was made up using card over-powder wads, not the plastic cup wads that are proving so popular. For this reason charges should be reduced at least 10%, for these better-obturating plastic wads do increase breech pressure. In most cases an increase in velocity is realized, too.

"Hi-Skor"

Gauge	Shell length (inches)	Charge (grains)	Wad pressure (pounds)	Shot weight (ounces)	Vel. fps.	Pressure psi
10	2⅞	26.0	50	1¼	1200	9800
12	2¾	23.0	100	1	1255	10,100
12	2¾	23.0	50	1⅛	1180	10,000
12	2¾	22.0	50	1⅛	1145	9700
16	2¾	17.5	100	1	1185	9600
16	2¾	16.5	50	⅞	1085	9800
20	2¾	14.5	50	⅞	1075	10,300
28	2¾	12.0	50	¾	1025	11,600

Patterns were in order, so 10 shells were loaded with 23 grains of Red Dot, 1⅛-ounce of 7½ shot, one .135" nitro card and a ½" filler wad, plus another ten each using the Remington "H" wads, Sportshell and Alcan PGS plastic over-powder wads, making a total of 40 shells loaded with Red Dot. 40 more shells were then loaded using Hi-Skor and the components above, except that a ⅜" filler wad was used instead of the ½" because of the bulkier nature of Hi-Skor.

Here are my pattern board figures:

	Red Dot	Hi-Skor
Remington "H"	74%	73%
Sportshell	72%	74%
Alcan PGS	75%	78%
.135" card	71%	69%

All of the 80 shots showed a similar pattern density, and distribution of the shot was highly uniform.

Still, the proof of the pudding is in the eating, or in this case, shooting. 50 shells were loaded and shot over the trap, 25 at 16-yard rise and 25 from 25 yards, giving me a score of 25 and 22 — a little over my head on the average!

At a later date I shot a mixed lot of shells, loaded with both Red Dot and Hi-Skor; I could see no difference between the two loads. Velocity, recoil and report seemed about the same, and the targets were broken the same way.

All in all, Hi-Skor should become a popular powder. I think it will give Red Dot a run for its money.

DU PONT Smokeless Powders

Du Pont powders have long been the standard of excellence in quality and performance. Commercial loaders, the military services and the handloaders have confidence in Du Pont's consistently high quality, and have used it as the standard by which to judge all others.

Our laboratories are constantly at work not only developing new, improved products, but performing endless checks to maintain the high standards of our current powders.

All prices shown are factory suggested list

4198 Rifle Developed especially for use in medium capacity cartridges and for reduced loads. An extremely popular powder for handloading.

1-lb. canister **$3.15**

4320 Rifle Intended specifically for use in military cartridges, but is equally satisfactory in all ordinary high-velocity cartridges.

1-lb. canister **$3.15**

4227 Rifle Designed for relatively small capacity cartridges. It is too quick in burning to function to the best advantage in relatively large capacity cartridges, except in reduced loads.

1-lb. canister **$3.15**

3031 Rifle Particularly recommended for medium capacity and mid-range loads. For the purpose indicated the reloader will find this one of the most satisfactory powders on the market.

1-lb. canister **$3.15**

4064 Rifle A powder for large capacity cartridges that has exceptional burning qualities. Consistent accuracy is easily achieved with this powder when it is loaded properly.

1-lb. canister **$3.15**

4350 Rifle An excellent powder designed especially for magnum cartridges. When properly loaded this powder will give very uniform results.

1-lb. canister **$3.15**

4759 Rifle A sporting rifle powder intended especially for reduced loads in high-capacity cartridges, such as the 30-06 Springfield, etc. Affords a uniformity that provides excellent accuracy.

8-ounce canister **$1.60**

5066 Pistol A single base type powder for pistol or revolver cartridges. A general purpose type, 5066 adapts to most loads.

8-ounce canister **$1.60**

PB Shotgun This powder replaces the old Du Pont MX. It is a dense powder for use in high base shells for high-velocity and magnum loads. Single base type.

8-ounce canister **$2.15**

Bulk Smokeless The most versatile of all gun powders, adaptable to most any form of cartridge. Suitable for all-around use, Smokeless Bulk has been a favorite for many years.

$2.15

NEW!!! Hi-Skor Specifically designed for target loads in shotguns. Its ease of loading, smooth ignition, uniform burning and non-fouling characteristics insure consistent performance for hand-loaded shotshells. (For load data, see article by Jim Horton elsewhere in this book.)

8-ounce canister **$2.15**

HERCULES
POWDER

Six types of Hercules smokeless powders are available to handloaders from dealers. These have been selected from the wide range of powders produced for factory loading to provide at least one grade that can be used efficiently and economically for reduced and moderate loads for each type of ammunition.

BULLSEYE®

a high-energy, quick-burning powder designed for pistol and revolver ammunition; available in 11-ounce canisters, 3-pound kegs, and 15-pound kegs.

$2.50 11-oz. can

•

UNIQUE®

an all-round powder, designed for large-caliber pistols and for medium-gauge shot shells. It can also be used for gallery (very light) loads in rifle cartridges; available in 13-ounce canisters, 4-pound kegs, and 15-pound kegs.

$2.75 13-oz. can

•

HERCULES 2400®

a fine-grained powder intended for small-capacity rifle cartridges and for reduced loads, or light projectiles in larger capacity rifle cartridges, 410-gauge shot shells, and high-velocity loads in some revolvers; available in 1-pound canisters.

$3.25 1-lb. can

•

HiVel® No. 2

a larger grained powder designed to burn longer, thus developing desired velocity in military and similar large-capacity center-fire rifle cartridges; available in 1-pound canisters.

$3.25 1-lb. can

•

HERCULES RED DOT®

the preferred powder for light and standard shot shell loading; available in 8-ounce canisters, 3-pound kegs, and 12-pound kegs.

$2.00 8-oz. can

•

HERCO®

a coarser grained shotgun powder for use in heavy loads; available in 4-pound kegs and 15-pound kegs.

$11.60 4-lb. keg

DIVISION LEAD COMPANY
7742 WEST 61st PLACE • SUMMIT, ILLINOIS
RELIANCE 5-8600
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jointly owned by
Inland Steel Co. and Division Lead Co.

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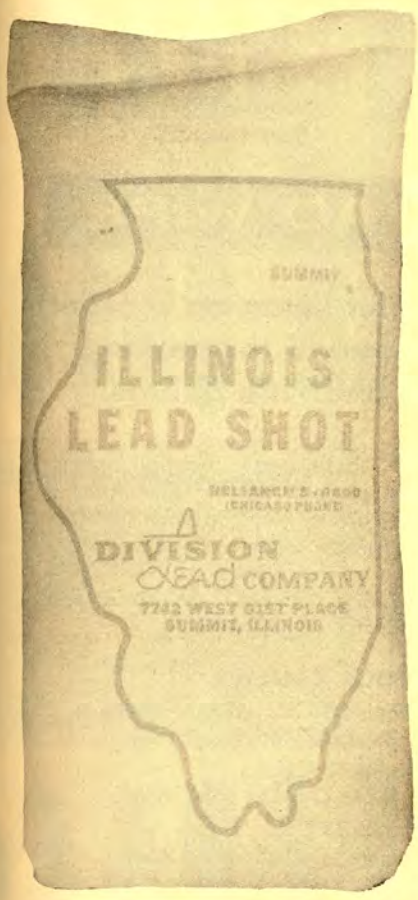


ILLINOIS
Chilled Lead Shot
For the Reloader

"Made Better to Shoot Better"

- Uniformity in Size
- Uniformity of Roundness
- Uniformity of Hardness
- Smoothly Polished

HANDY REFERENCE USAGE CHART

	RECOMMENDED SHOT SIZES									
	9	8	7½	7	6	5	4	3	2	BB	Buck
Skeet Shooting	☆										
Trapshooting		☆	☆								
Quail, Rail, Snipe, Woodcock	☆	☆	☆	☆							
Dove, Partridge, Pigeon		☆	☆	☆	☆						
Crows, Grouse		☆	☆	☆	☆	☆	☆				
Ducks, Pheasant, Prairie Chicken, Rabbits, Squirrel			☆	☆	☆	☆	☆				
Geese, Skunk, Weasel					☆	☆	☆	☆	☆	☆	
Fox, Turkey							☆	☆	☆	☆	
Deer, Wolf, Black Bear											☆

American Standard SHOT CHART

No.	Diameter Inches		Approx. No. Per Oz.
ILLINOIS CHILLED LEAD SHOT			
12	.05	•	2385
11	.06	•	1380
10	.07	•	870
9	.08	•	585
8	.09	•	410
7½	.095	•	350
7	.10	•	299
6	.11	•	225
5	.12	•	170
4	.13	•	135
3	.14	•	109
2	.15	•	90
Air Rifle	.175	●	55
BB	.18	●	50
ILLINOIS BUCK SHOT**			
4	.24	●	21
3	.25	●	19
1	.30	●	11
0	.32	●	9
00	.33	●	8
000	.36		7
0000	.38		6

PF 508

ILLINOIS Long Range Copper Plated LEAD SHOT

RESULTS . . . Which Justify the Name!

FOR DENSER AND HIGHER PERCENTAGE PATTERNS AT EXTENDED RANGES

EXPERTS REPORT —

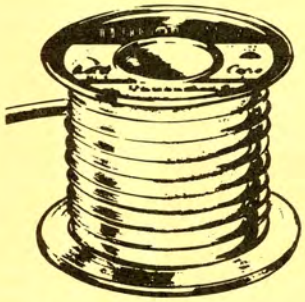
"The plate is heavy enough to prevent deformation in a gun bore, which gives a *more even* and *dense pattern* out where the target is."
(BELLAH—"SHOOTING TIMES")

"Has given some very *startling* results — *results* which justify the trade name."
(SELLS—"GUNS & AMMO")

"The pattern improvement given by (Illinois) copper plated shot was *real*, and *very striking*."
(AMERICAN RIFLEMAN)

Packed in 5 lb. Cans
Available Sizes:
BB-2-4-5-6-7½

ILLINOIS SWAG-O-MATIC LEAD WIRE



Produced especially for Bullet Swaging Tools of types which are recommended for making SHORT JACKETED pistol and rifle bullets.

ADVANTAGES OF USING ILLINOIS SWAG-O-MATIC LEAD WIRE

1. **QUALITY IS ASSURED.** It is produced to controlled specifications with guaranteed uniformity and purity.

2. **PERFECT BULLETS ARE MADE EVERYTIME.** Rejects are eliminated because Swag-O-Matic Wire is extruded under heavy pressure thus achieving optimum density of metal. Swag-O-Matic Wire is void-free and dross-free.

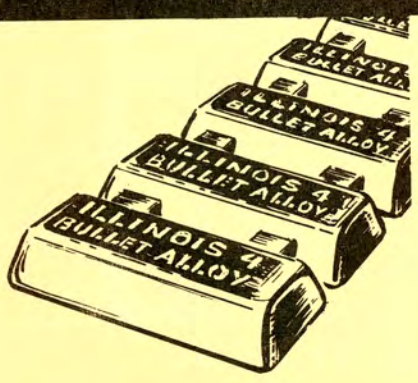
BELLAH — "SHOOTING TIMES" — "With all internal and external air pockets and defects "squeezed out", bullets are beautiful outside and perfect inside. After forming they are so nearly perfect and free of defects as bullets can be made. You are assured of UNIFORM WEIGHT, PERFECT BALANCE and PERFECT ALIGNMENT."

STOCK CALIBERS

Illinois 30 Cal. 3% Antimonial
Swag-O-Matic Lead Wire
Illinois 30 Cal.
Swag-O-Matic Lead Wire
Illinois 38 Cal.
Swag-O-Matic Lead Wire
Illinois 44-45 Cal.
Swag-O-Matic Lead Wire

Other calibers and alloy wires can be furnished on special order.

ILLINOIS BULLET ALLOYS



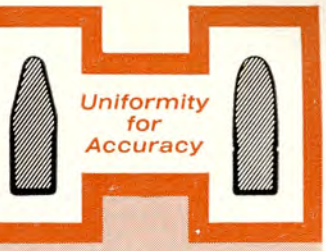
FOR COMPLETE FIELD TEST DATA —
Write for BULLETIN No. 85

DIVISION LEAD COMPANY
7742 WEST 61ST PLACE, SUMMIT, ILLINOIS

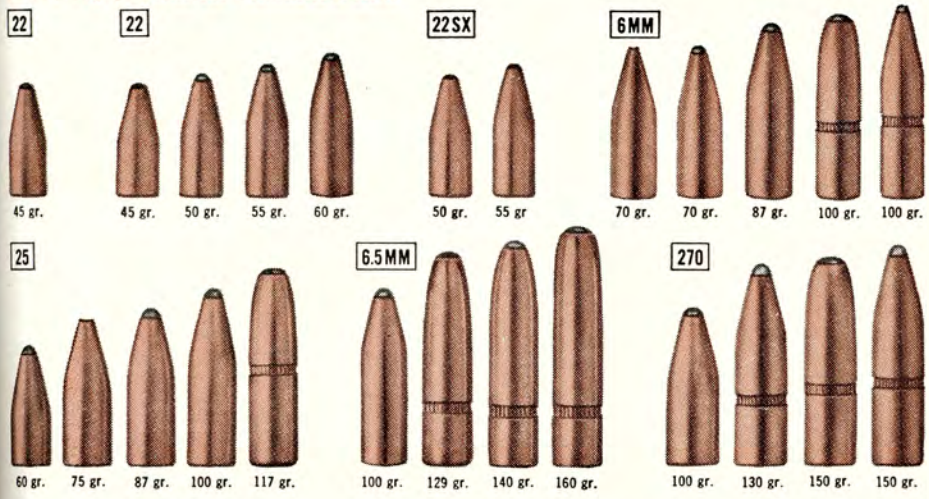
Hornady Bullets

ACCURATE AND DEADLY ON VARMINTS AND GAME

A comprehensive selection for handloaders . . . for every shooting purpose



Bullets photographed actual size • Cannelured as shown

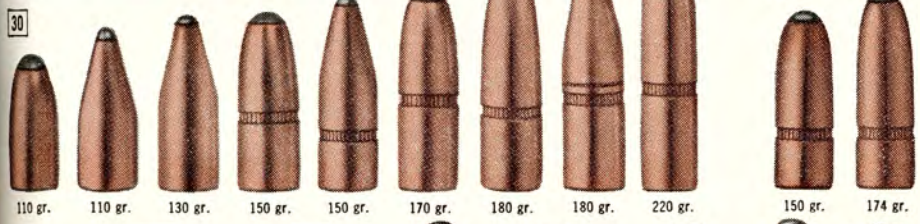


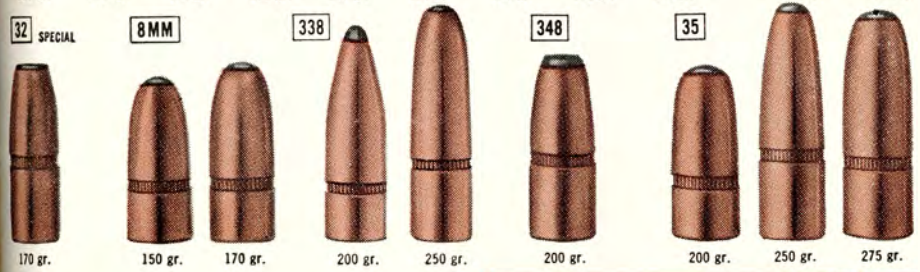
"Finest Game Bullets Going"

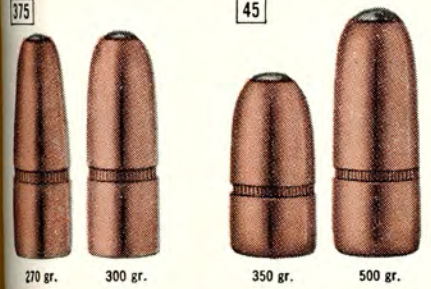
The only bullets made in tungsten carbide dies—unmatched for uniformity and accuracy. Offer dependable killing power over the widest variety of ranges and impact speeds.

SPIRE POINT, killers at long range. Extreme distances attainable.

ROUND NOSE, brush busters for shooting in cover.







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Heavy copper clad steel jackets. Solid nose for world's biggest game.

SAVE

on bullets for plinking with new HORNADY S-J's

$2.85 PER 100

30 CALIBER 100 GR. Short Jacket Rifle Bullets

Load these remarkably efficient little S-J bullets in your 30 caliber cartridge cases to about 3000 f.p.s. and enjoy far more shooting fun per dollar. For targets, varmints, small game. Safe—no richochets. Deadly on impact. Field and laboratory proved. Loading data in boxes.

New HORNADY S-J's for Handguns

Magnum pistol bullets with terrific shocking power. Correct point diameter in relation to overall length gives maximum accuracy. Beveled shoulder crimps perfectly in cartridge cases.

Pistol Cups and Pre-swaged Lead Cores

Uniform gilding metal cups. Cores pre-cut and swaged to correct size. 38, 44, 45 calibers.

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They *stay on* bullets. Calibers 22, 25, 6.5mm, 30, 35, and 44.

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Hornady Bullets

Uniformity for Accuracy

Accurate and deadly on varmints and game

A complete selection for handloaders

PRICE LIST • JUNE, 1961

Bullets

	Price per 100	Quantity wanted
22 CALIBER (.223)		
45 grain Hornet	$2.80	
22 CALIBER (.224)		
45 grain Hornet	$2.80	
50 grain SX (super-explosive)	3.05	
50 grain spire point	3.05	
55 grain SX (super-explosive)	3.05	
55 grain spire point	3.05	
60 grain spire point	3.05	
6MM CALIBER (.243)		
70 grain spire H.P.	$3.95	
70 grain spire point	3.95	
87 grain spire point	4.15	
100 grain spire point	4.40	
100 grain round nose	4.40	
25 CALIBER (.257)		
60 grain spire point	$3.85	
75 grain spire H.P.	4.00	
87 grain spire point	4.15	
100 grain spire point	4.40	
117 grain round nose	4.65	
6.5MM CALIBER (.264)		
100 grain spire point	$4.40	
129 grain round nose	4.80	
140 grain spire point	5.00	
140 grain round nose	5.00	
160 grain round nose	5.25	
270 CALIBER (.277)		
100 grain spire point	$4.55	
130 grain spire point	5.00	
150 grain spire point	5.25	
150 grain round nose	5.25	
7MM CALIBER (.284)		
120 grain spire point	$4.65	
139 grain spire point	5.00	
154 grain spire point	5.25	
154 grain round nose	5.25	
175 grain round nose	5.75	
7.35 CARCANO (.298)		
128 grain	$4.80	
30 CALIBER (.308)		
110 grain spire point	$4.55	
110 grain round nose	4.55	
130 grain spire point	4.75	
150 grain spire point	5.00	
150 grain round nose	5.00	
170 grain flat point (30-30)	5.25	
180 grain spire point	5.25	
180 grain round nose	5.25	
220 grain round nose	5.75	
220 grain full metal jacket	8.50	
303 CAL. AND 7.7 JAP (.312)		
150 grain round nose	$5.00	
174 grain round nose	5.25	
32 SPECIAL (.321)		
170 grain flat point	$5.25	
8MM CALIBER (.323)		
150 grain round nose	$5.00	
170 grain round nose	5.25	
338 CALIBER (.338)		
200 grain spire point	$5.75	
250 grain round nose	6.30	
348 CALIBER (.348)		
200 grain flat point	$5.75	
35 CALIBER (.358)		
200 grain round nose	$5.75	
250 grain round nose	6.30	
275 grain round nose	6.80	
375 CALIBER (.375)		
270 grain round nose	$7.25	
300 grain round nose	7.35	
300 grain full metal jacket	10.00	
45 CALIBER (.458)		
350 grain round nose	$12.00	
500 grain round nose	14.00	
500 grain full metal jacket	20.00	

Short Jacket Bullets

	Price per 100	Quantity wanted
30 CALIBER (.308)		
100 grain	$2.85	
38 CALIBER (.357)		
158 grain	3.50	
44 CALIBER (.429)		
240 grain	4.25	
45 CALIBER		
Colt 250 grain (.454)	4.40	
Rifle 300 grain (.458)	6.00	

Bullet Cups

	Price per 1000	Quantity wanted
30 Caliber	$ 9.25	
38 Caliber	9.25	
44 Caliber	10.75	
45 Caliber	10.75	

Lead Cores

	Price per 1000	Quantity wanted
30 Caliber (110 gr. bullet)	$10.00	
38 Caliber (158 gr. bullet)	12.75	
44 Caliber (240 gr. bullet)	18.75	
45 Caliber (250 gr. bullet)	19.75	

Crimp-on Gas Checks

	Price per 1000	Quantity wanted
22 Caliber	$3.00	
25 Caliber	3.00	
6.5MM Caliber	3.00	
270 Caliber	3.00	
30 Caliber	3.00	
35 Caliber	3.00	
44 Caliber	5.00	

Prices subject to change without notice

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NAME _____

ADDRESS _____

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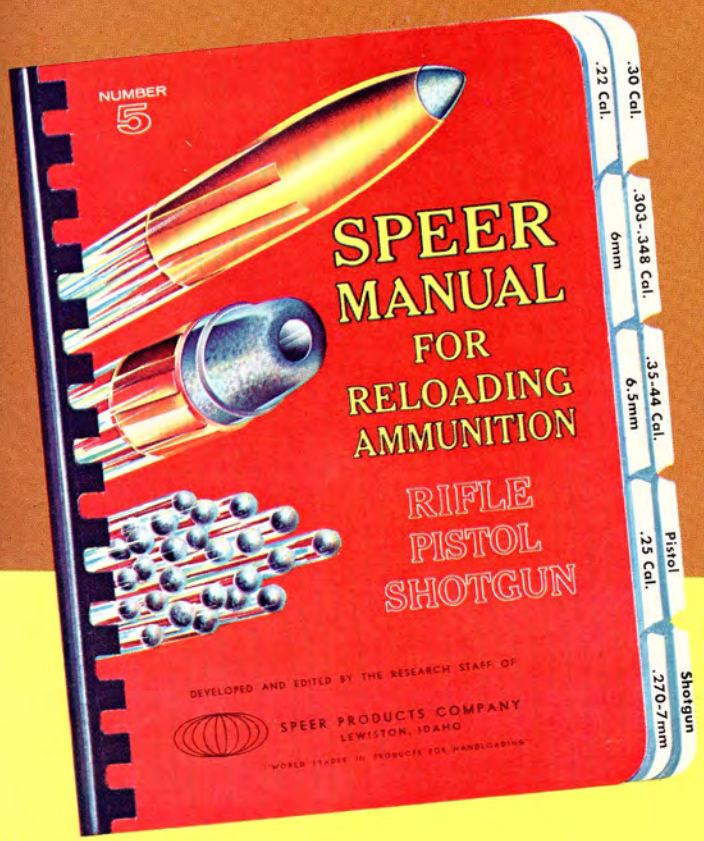
SPEER *Quality* PRODUCTS FOR RELOADING



BIG NEW COMBINED EDITION

Over 290 pages packed with vital information for all reloaders, beginners or expert.

POPULAR WILDCAT CARTRIDGES ADDED
SHOTSHELL RELOADING SECTION ADDED
INDEX TABS ADDED

The new and enlarged Speer Manual is fully illustrated. Complete loading instructions for rifle, pistol and shotgun. Latest cartridges added. Accurate and comprehensive loading data were developed and chronographed (velocity tested) in the Speer Ballistics Laboratory.

Just $2.95 postpaid
or at your dealer

.22 Hornet
.22 K Hornet
.218 Bee
.222 Remington
.222 Rem. Mag.
.219 Zipper
.219 Wasp
.219 Imp. Zipper
.220 Swift
.22/250 Varminter
.243 Winchester
.244 Remington
.240 P. S. P.
.244 H & H Mag.
.250/3000 Sav.
.257 Roberts
.257 Ackley Imp.
.25/06 Neidner
.25 Ackley Mag.
.257 Weatherby Mag.
6.5mm Jap
6.5 x 55 Swedish
6.5 x 57 Mauser
6.5 x .257 Roberts
.264 Winchester
.270 Winchester
.270 Ackley Mag.
.270 Weatherby Mag.
7 x 57 Mauser
.280 Rem.-7mm/06
7 x 61 Sharpe & Hart
7mm Weatherby Mag.
7.35mm Mann. Carcano
.30 M1 Carbine
.30-30 Winchester
.30 Remington
.300 Savage
.308 Winchester
.30/40 Krag
.30/06 Springfield
.30/06 Improved
.300 H & H Mag.
.308 Norma Mag.
.300 Weatherby Mag.
.303 British
7.65mm Argentine
7.7mm Jap
.32 Win. Sp.
.32 Remington
8 x 57 Mauser
8mm/06
.338 Winchester
.348 Winchester
.35 Remington
.358 Winchester
.35 Whelen
.358 Norma Mag.
.375 H & H Mag.
.44 Ruger Carbine

PISTOL

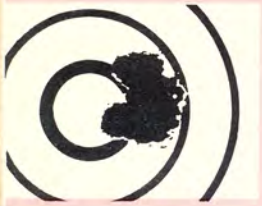
.22 Rem. Jet
.38 Special
.357 Magnum
.44 Special
.44 Magnum
.45 A. C. P.
.45 Auto Rim
.45 Long Colt

SPEER

SPEER PRODUCTS COMPANY
LEWISTON, IDAHO

"WORLD LEADER IN PRODUCTS FOR HANDLOADING"

LOOK AT THIS GRAPHIC PROOF OF SPEER BULLET PERFORMANCE!



Here is a magnificent 10 shot group at 100 yards with Speer .22 caliber 52 grain HP Bullets. (Registered Bench Rest Match, Buffalo, Wyoming).

Speer .25 caliber 100 grain bullets made this fine 5 shot 100 yard group. Fired from a .257 Magnum rifle equipped with an 8X scope.

This group shot in registered competition by Ray Speer measures .290" center to center. It was made with Speer .22 caliber 52 grain HP Bullets and is the Seattle 100 yard range record.

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"MODERN HANDLOADING"

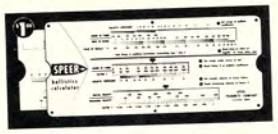
Demonstrates the easy and complete basic steps of reloading. Great for class instruction, clubs, store personnel etc. Anyone can reload after seeing film.

"The Secret Of Shooting Accuracy"

Latest film on reloading. In full color, just released. Tells history of firearms. Shows earliest days of handloading up to modern methods. Educational and entertaining.

These movies will be loaned to you free of charge. Write for immediate booking information. Give as much notice as possible please.

SPEER BALLISTICS CALCULATOR



Know what your bullets are doing at 100 to 1000 yards. Accurately calculates bullet drop, mid-range trajectory, and remaining velocity. Perfect companion to Speer Manual $1.00 ea.

LEAD CORE WIRE AND HALF JACKETS FOR USE IN ALL SWAGING PRESSES.

HALF JACKETS

.30 & .38 Caliber

$2.35/250 $9.25/1000

.44 & .45 Caliber

$2.70/250 $10.75/1000

LEAD CORE WIRE

.250" for .30 Caliber

.300" for .38 Caliber

.365" for .44 & .45 Cal. Packed 12" Lengths

10 lb./box $0.62/lb.

WHAT YOU SHOULD KNOW ABOUT CORES AND JACKETS

FORREST LUTHY
Plant Superintendent

Here at Speer Products Company, thousands of dollars and man hours have gone into core formula research. Proper penetration, controlled expansion, and consistent accuracy challenged the knowledge of our technical staff. Today every Speer Bullet, regardless of type or caliber has its own special core formula. However, a core, regardless of how well formulated, can only be as good as the jacket which encases it. Core and jacket must be compatible to prevent separation. The jacket must be properly constructed to allow the core to do its intended job. Above all, the jacket walls must be perfectly concentric to provide a perfectly centered, perfectly balanced core. This is the most important factor in bullet accuracy.

In the cut-away drawing of the Speer Bullet, (fig. A) you see the heavy wall of the tip or point, so designed for proper penetration. At (fig. B) notice how the jacket wall of the bullet tapers to allow expansion of its core. In (fig. C) the jacket walls thicken again, preventing over-expansion or blow-up.

These are but a few highlights of the great Speer Bullet. It's no wonder that we who make it are so proud of it. It's no wonder too, that Speer Bullets are the fastest growing favorite among reloaders everywhere.

.22 CALIBER .223" SHANK

40 Grain, Type OS
No. 223-40-OS-SP 2.80

45 Grain Spitzer
No. 223-45-4-SP 2.80

.22 CALIBER .224" SHANK

40 Grain, Type OS
No. 224-40-OS-SP 2.80

45 Grain Spitzer
No. 224-45-4-SP 2.80

50 Grain Spitzer
No. 224-50-6-SP 3.05

52 Grain Hollow Point
No. 224-52-6-HP 3.70

55 Grain Spitzer
No. 224-55-6-SP 3.05

6mm .243" SHANK

75 Grain HP
No. 243-75-8-HP 4.15

80 Grain Spitzer
No. 243-80-8-SP 4.15

90 Grain Spitzer
No. 243-90-8-SP 4.20

105 Grain Spitzer
No. 243-105-10-SP 4.50

(6mm Cont.)

105 Gr. Round Nose
No. 243-105-GP-SP 4.50

.25 CALIBER .257" SHANK

60 Grain, Type OS
No. 257-60-OS-SP 3.65

87 Grain Spitzer
No. 257-87-5-SP 4.15

100 Grain Spitzer
No. 257-100-6-SP 4.40

120 Grain Spitzer
No. 257-120-6-SP 4.65

6.5mm .263" SHANK

87 Grain Spitzer
No. 263-87-5-SP 4.15

120 Grain Spitzer
No. 263-120-6-SP 4.65

140 Grain Spitzer
No. 263-140-6-SP 5.00

.270 CALIBER .277" SHANK

100 Grain HP
No. 277-100-8-HP 4.85

100 Grain Spitzer
No. 277-100-6-SP 4.55

(.270 Cal. Cont.)

130 Grain Spitzer
No. 277-130-6-SP 5.00

150 Grain Spitzer
No. 277-150-6-SP 5.25

170 Gr. Round Nose
No. 277-170-GP-SP 5.50

7mm .284" SHANK

130 Grain Spitzer
No. 284-130-6-SP 5.00

145 Grain Spitzer
No. 284-145-6-SP 5.10

160 Grain Spitzer
No. 284-160-6-SP 5.25

7.35mm .298" SHANK

150 Gr. Semi-Spitzer
No. 298-150-SS-SP 5.00

.30 CALIBER .3085" SHANK

110 Grain Type OS
No. 3085-110-OS-SP 4.50

130 Grain HP
No. 3085-130-6-HP 4.90

100 Pak Price

PRECISION SWAGED SPEER BULLETS FOR HANDGUN RELOADS

Speer pistol bullets offer a new standard in weight uniformity and balance resulting in exceedingly accurate reloads. Exclusive long jacket and Speer crimp locks core and jacket in inseparable bond. Prevents barrel fouling, eliminates lead exposure to rifling.

		Retail Price per 100
#358-148-WC	.38 Caliber 148 grain Swaged Lead Wadcutter	$2.25
#357-146-HP	.38 Caliber 146 grain Jacketed Hollow Point	3.25
#357-160-SP	.38 Caliber 160 grain Jacketed Solid Point	3.50
#429-225-HP	.44 Caliber 225 grain Jacketed Hollow Point	4.00
#429-240-SP	.44 Caliber 240 grain Jacketed Solid Point	4.25

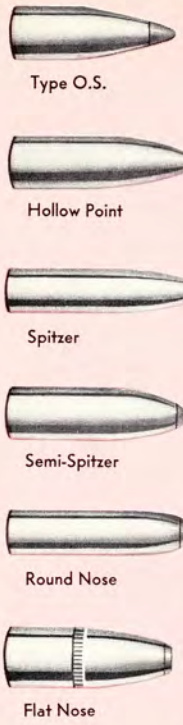
LOWEST PRICE EVER!
$2.85 BOX OF 100
.30 CALIBER

SPEER .30 CALIBER PLINKERS™

Cat. No. 3085-100-JSP

FOR VARMINTS . . . SMALL GAME . . . JUST PLINKING. A 100 grain, high performance bullet at a fraction of standard .30 caliber bullet prices. Thoroughly proven in laboratory and field tests.

FREE LOADING DATA
Free data slip included in each box



6 POPULAR BULLET DESIGNS

Speer Bullet designs are the result of twenty years exhaustive study in bullet flight behavior. They are tested lot by lot for uniform velocity and accuracy in Speer's fully equipped ballistics laboratory. This same facility is used to develop the up-to-date information found in the SPEER MANUAL FOR RELOADING AMMUNITION.

CHOOSE THE CORRECT BULLET FOR THE JOB: For varmint loads, select the type O.S., lighter spitzer, and hollow points in each caliber. For long range, use the spitzer soft points, medium weights. For brush, use a heavy semi-spitzer or round nose for minimum deflection. Flat nose, cannelured for rifles with tubular magazines.

HANDY SPEER BULLET DISPLAY BOARD

Originally designed for dealer sales-aid, the Speer Bullet display board makes handsome decoration for recreation room, den or reloading room. Quick reference to all Speer target and hunting bullets. Conversation piece. Framed with easel back for wall or desk. $7.50 pp.

(.30 Cal. Cont.)


150 Grain Flat Point
No. 3085-150-WR-SP 5.00


150 Gr. Round Nose
No. 3085-150-GP-SP 5.00


150 Grain Spitzer
No. 3085-150-6-SP 5.00


165 Grain Spitzer
No. 3085-165-8-SP 5.15


180 Gr. Round Nose
No. 3085-180-GP-SP 5.25


180 Grain Spitzer
No. 3085-180-6-SP 5.25


200 Gr. Round Nose
No. 3085-200-GP-SP 5.40


200 Grain Spitzer
No. 3085-200-6-SP 5.40

.303 CAL-7.7mm .311" SHANK


150 Grain Spitzer
No. 311-150-6-SP 5.00


180 Gr. Round Nose
No. 311-180-GP-SP 5.25

7.65mm .313" SHANK


175 Gr. Round Nose
No. 313-175-GP-SP 5.25

.32 CALIBER .321" SHANK


170 Grain Flat Point
No. 321-170-WR-SP 5.25

8mm .323" SHANK


125 Grain Type OS
No. 323-125-OS-SP 4.65


150 Grain Spitzer
No. 323-150-6-SP 5.00


170 Gr. Semi-Spitzer
No. 323-170-SS-SP 5.25


225 Gr. Round Nose
No. 323-225-GP-SP 5.75

.338 CALIBER .338" SHANK


200 Grain Spitzer
No. 338-200-6-SP 5.40

(.338 Cal. Cont.)


275 Gr. Semi-Spitzer
No. 338-275-SS-SP 7.00

.348 CALIBER .349" SHANK


180 Grain Flat Point
No. 349-180-W-SP 5.50


220 Grain Flat Point
No. 349-220-W-SP 5.85

.35 CALIBER .3585" SHANK


180 Grain Flat Point
No. 3585-180-R-SP 5.50


220 Grain Flat Point
No. 3585-220-R-SP 5.85


250 Grain Spitzer
No. 3585-250-6-SP 6.50

.375 CALIBER .3755" SHANK


235 Gr. Semi-Spitzer
No. 3755-235-SS-SP 6.50


285 Gr. Semi-Spitzer
No. 3755-285-SS-SP 7.25

100 Pak Price

SPEER BULLETS
Manufactured by Shooters for Shooters

Ray Speer

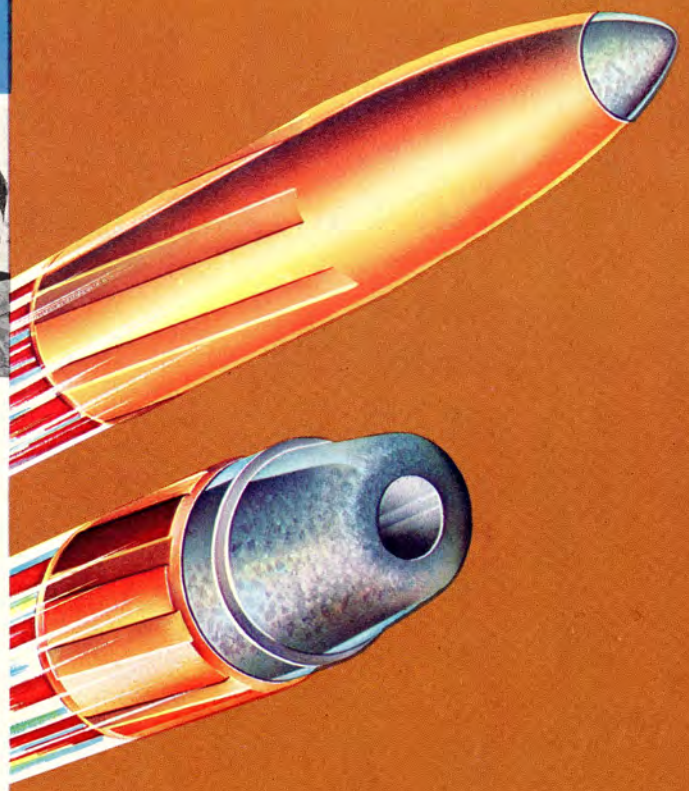
Vernon Speer

Speer Bullets are manufactured by accomplished shooters themselves. Vernon Speer, founder and in charge of research and development, is a life-long big game hunting enthusiast. Ray Speer, sales and promotion manager, an avid match target shooter, travels several thousands of miles each year to participate in shoots and test the production line bullets developed at their Lewiston, Idaho factory. Both are keenly aware of the American Shooter's needs. Speer Bullets reflect the knowledge and experience gained from years of range and game shooting. Needless to say, bullet technology is of special interest to the company.

Speer Products Company is the only full-line bullet company which makes available a reloaders manual. The manual provides complete and thorough performance data for the entire Speer Bullet line. The Speer Reloading Manual is considered the handloading "bible" in the reloading industry. Many of its charts and tables have been incorporated into other loading handbooks. Every load appearing in the Speer Manual has been tested in the Speer tunnel-laboratory. With over 7000 chronographed loads it far exceeds any other existing handbook. It gives the shooter finger-tip reference to loads, powders and bullet performance. With many new loads being tested monthly, it is doubtful that a more complete handbook will ever be available.

The wide range of Speer Bullets, in all calibers, gives the shooter a nearly limitless choice in load and bullet selection. Precision made, under strict quality-control techniques, Speer Bullets are second to none in the American Bullet Industry. Continued production of perfectly balanced bullets is a never ending challenge in the Speer Company. Providing the reloader with an even greater bullet selection and helpful technical aids is, and shall continue to be, the company's aim.

Speer Bullets, backed by the Speer Reloading Manual and exclusive Speer Ballistics Calculator, offer more "easy to understand" technical assistance than any other bullet manufacturer. Only Speer tells you what your load will do before you shoot it!



SPEER
BULLETS

NEW DATA SERVICE FOR RELOADERS OF SPEER BULLETS!

In accordance with the Speer policy of providing reloaders the latest information, Speer Products Company is pleased to announce another EXCLUSIVE service. The Speer Loading Data Service.

*Effective Sept. 1, 1962 every box of Speer Bullets you purchase will contain new loading data sheets for that particular bullet caliber, shape and weight. Incorporated in the data sheet will be;

(A) Recommended bullet use
(B) Mid-velocity loads
(C) Seating depth recommendations
(D) Range Table

*Due to slower distribution in some areas, the next box of Speer Bullets you purchase MAY NOT contain a loading data sheet. We will be happy to send one to you. Just send a postcard with your name, address and the data sheet you wish to:

SPEER PRODUCTS COMPANY
Loading Data
P. O. Box 244
Lewiston, Idaho

HAVE YOU MADE THE SWITCH TO SPEER? THOUSANDS OF OTHER RELOADERS HAVE!

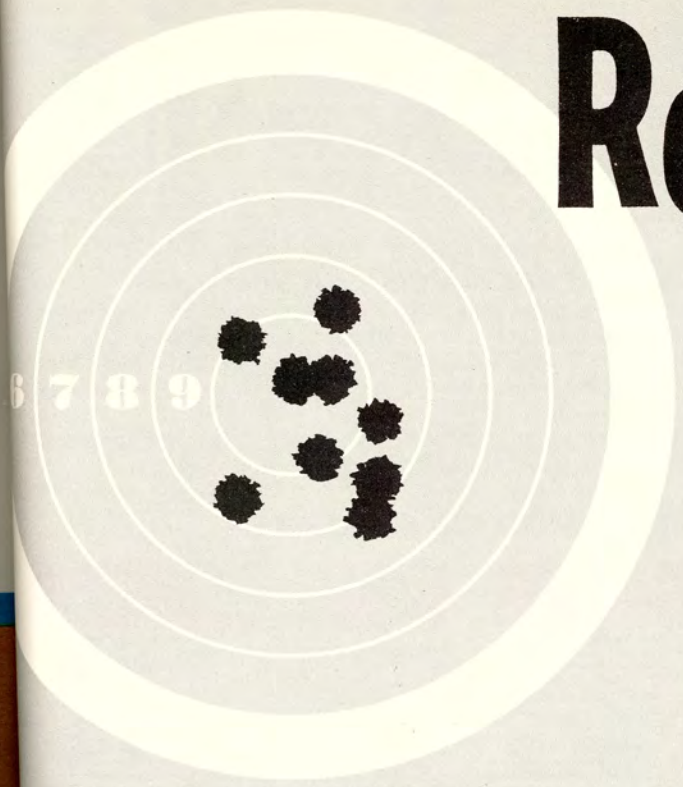
NOW YOU CAN TEST-FIRE SPEER BULLETS BEFORE YOU BUY!

Haven't you often wanted to test-fire a few rounds of a particular bullet (type, weight or caliber) before investing in a full box? NEW AND EXCLUSIVE SPEER SAMPLE SERVICE now makes this possible. Just send 25¢ in coin, to cover cost of handling and mailing. Speer Products Co. will send you a five (5) bullet sample of your choice. Why not test several different ones? Just send 25¢ for each five (5) bullet sample wanted. We'll rush them to you by return mail.

SOLD BY

Remington

BULLETS



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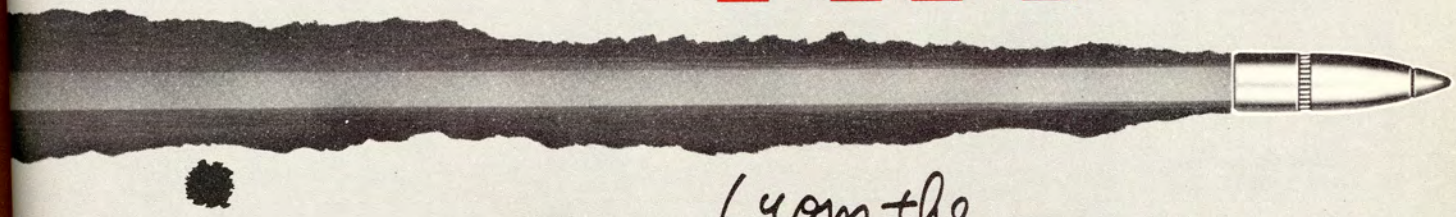

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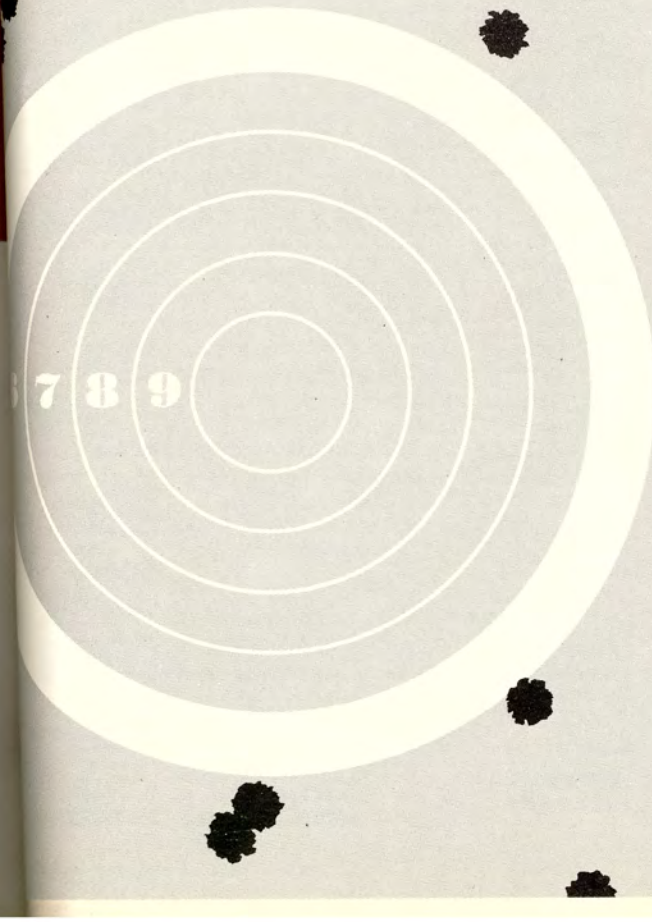

for handloaders....

The wide and varied selection of bullets shown on the other side of this page is one of the many component lines now offered shooters by Remington.

Among other fine ammunition components Remington makes available to handloaders and which are used in famous Remington factory-made loaded ammunition are "Kleanbore" primers, polyethylene "H" wads, over powder wads, felt wads, Mold-Tite wads, lead shot, primers, empty primed paper and all brass shells.

Remington components are all made on the very latest machinery to extremely close tolerances. Careful and painstaking laboratory research and development contribute further improvements to Remington ammunition components. The Remington Arms Company today is a major supplier of the very best in components for handloaders.

REMINGTON ARMS COMPANY, INC., BRIDGEPORT 2, CONNECTICUT

Remington

DU PONT

REMINGTON ARMS COMPANY, INC.
BRIDGEPORT 2, CONN.

"CORE-LOKT" SOFT POINT
A good choice for medium and big game . . . especially when you're hunting in heavy brush. Exclusive Remington "Core-Lokt" design assures deep penetration and controlled expansion—up to double normal caliber!

"CORE-LOKT" POINTED SOFT POINT
A fine bullet for bringing down game at long range, the Remington Pointed Soft Point "Core-Lokt" has flatter trajectory, maximum remaining velocity, maximum striking energy.

"CORE-LOKT" HOLLOW POINT
Here's a real game getter! It assures deep penetration and controlled expansion. Similar in use to Remington Soft Point "Core-Lokt," but designed for less rapid mushrooming.

BRONZE POINT EXPANDING
An excellent all around type of bullet with a unique design, the Remington Bronze Point has good wind-bucking qualities. It travels with a flat trajectory, and has high remaining velocity and fine accuracy at long range.

REMINGTON'S WIDE SELECTION OF BULLETS MEANS MORE GAME, HIGHER SCORES FOR YOU

For best hunting results you need a bullet designed specifically for the job. Remington offers you a wide selection so you can choose the right one for your hunting.

Remington bullets with exclusive "Core-Lokt" design assure deep penetration and controlled expansion up to twice normal size. They are famous for long-range accuracy and absolute dependability.

Combine wide selection, deep penetration, controlled expansion, long-range accuracy, and dependability and you have the best hunting bullets you can buy.

REMINGTON CENTER FIRE JACKETED BULLETS

GRAIN WT. & TYPE	SUGGESTED CALIBERS	ORDER NUMBER	BULLET TYPE
.22 Cal. (.244 Diameter)			
45 Mush	22 Hornet	B 22702	.224
45 SP	22 Hornet	B 22704	
48 SP	220 Swift	B 22706	
50 MC	222 Rem	B 22708	
50 SP	222 Rem	B 22710	
55 SP	222 Rem Magnum	B 22712	
56 Mush	219 Zipper	B 22716	
.243-.244 Cal. (.243 Diameter)			
75 Ptd SP	244 Rem	B 22718	
80 Ptd SP	243 Win	B 22720	
90 Ptd SP	244 Rem	B 22722	
90 Br Pt	244 Rem	B 22724	
100 Ptd SPCL	243 Win	B 22726	
.25 Cal. (.250 Diameter)			
*50 MC	25 Auto Pis	B 22728	
.25 Cal. (.250 Diameter)			
60 Mush	25-20 Win	B 22730	.257
86 SP	25-20 Win	B 22734	
87 SP	250 Sav	B 22736	
100 Ptd SPCL	257 Rob 250 Sav	B 22738	
100 SPCL	250 Sav	B 22740	
117 SPCL	257 Rob 25-35 Win	B 22742	
.270 Cal. (.277 Diameter)			
100 Ptd SP	270 Win	B 22744	
130 Ptd SPCL	270 Win	B 22746	
130 Br Pt	270 Win	B 22748	
150 SPCL	270 Win	B 22750	
.280 Cal. (.283 Diameter)			
100 Br Pt	280 Rem	B 22752	

GRAIN WT. & TYPE	SUGGESTED CALIBERS	ORDER NUMBER	BULLET TYPE
125 Ptd SPCL	280 Rem	B 22754	
150 Ptd SPCL	280 Rem	B 22756	
165 SPCL	280 Rem	B 22758	
7 MM (.284 Diameter)			
175 SP	7 MM Mauser	B 22760	
.30 Cal. (.308 Diameter)			
*85 MC	30 Mauser	B 22762	
*93 MC	30 (7.65 MM) Lug Auto Pis	B 22764	
110 Ptd SP	30-06 SFLD 308 Win	B 22766	
150 Br Pt	300 Sav 30-06 SFLD	B 22768	
150 SPCL	30-30 Win	B 22774	
150 Ptd SPCL	300 Sav 30-06 SFLD 308 Win	B 22776	
*160 MC	30-30 Win	B 22778	
170 Mu CL	30-30 Win	B 22780	
170 SPCL	30 Rem 30-30 Win	B 22782	
180 Br Pt	30-06 SFLD	B 22784	
180 SPCL	300 H & H Mag 30-40 Krag 300 Sav	B 22786	
180 Ptd SPCL	300 H & H Mag 30-40 Krag 300 Sav	30-06 SFLD 308 Win B 22788	
180 THMC	300 H & H Mag 30-06 SFLD	B 22790	
220 SPCL	300 H & H Mag 30-40 Krag 30-06 SFLD	B 22792	
.303 Cal. (.310 Diameter)			
80 Mush	32-20 Win	B 22808	
100 SP	32-20 Win	B 22810	
180 SPCL	303 Sav	B 22812	
215 SP	303 British	B 22814	
.32 Cal. (.311 Diameter)			
*71 MC	32 (7.65 MM) Auto Pistol	B 22816	
.32 Cal. (.320 Diameter)			
*165 SP	32-40 Win	B 22824	

GRAIN WT. & TYPE	SUGGESTED CALIBERS	ORDER NUMBER	BULLET TYPE
*170 Mu CL	32 Win SPL	B 22826	
170 SPCL	32 Rem 32 Win SPL	B 22828	
8 MM (.322 Diameter)			
170 SPCL	8 MM (7.9 MM) Mauser	B 22832	
.348 Cal. (.348 Diameter)			
150 SP	348 Win	B 22834	
200 SPCL	348 Win	B 22836	
.351 Cal. (.351 Diameter)			
180 SP	351 Win SL	B 22840	
9 MM (.354 Diameter)			
*124 MC	9 MM Luger Auto Pistol	B 22842	
.38 Cal. (.355 Diameter)			
*95 MC	380 Auto Pistol	B 22844	
*130 MC	38 Auto Colt Pistol	B 22848	
.35 Cal. (.358 Diameter)			
150 Ptd. SPCL	35 Rem	B 22864	
200 Mu CL	35 Rem	B 22866	
200 SPCL	35 Rem	B 22868	
.38 Cal. (.376 Diameter)			
*255 SP	38-55 Win	B 22876	
.38 Cal. (.399 Diameter)			
180 SP	38-40 Win	B 22880	
.44 Cal. (.425 Diameter)			
200 SP	44-40 Win	B 22882	
.44 Cal. (.431 Diameter)			
240 SP	44 Rem Mag	B 22906	
.45 Cal. (.451 Diameter)			
*185 WC	45 Auto	B 22890	
230 MC	45 Auto	B 22892	
.45 Cal. (.457 Diameter)			
405 SP	45-70 Govt	B 22898	

* Available on Special Order

Br Pt — Bronze Point
LD — Lead
Mush or Mu — Mushroom
SP — Soft Point
SL — Self Loading
THMC — Taper Heel Metal Case
CL — Core-Lokt
MC — Metal Case
Ptd — Pointed
WC — Wad Cutter

MINIMUM UNIT OF SALE — 100 BULLETS

GUIDE FOR SELECTION

HERCULES SMOKELESS POWDERS FOR RELOADING

CENTER-FIRE RIFLE (JACKETED BULLETS)

Cartridge	Bullet Weight (Grains)	Hercules 2400		HiVel No. 2		Unique	
		Charge (Grains)	Velocity (Feet/Sec.)	Charge (Grains)	Velocity (Feet/Sec.)	Charge (Grains)	Velocity (Feet/Sec.)
.22 HORNET	35	9.5	2500	N.R.*	—	N.R.	—
	45	8.7	2400	N.R.	—	4.5	2000
.222 REMINGTON	55	N.R.	—	20.0	3100	N.R.	—
.243 WINCHESTER	80	N.R.	—	35.0	3200	N.R.	—
	100	N.R.	—	31.0	2800	N.R.	—
.244 REMINGTON	75	N.R.	—	37.0	3350	N.R.	—
	90	N.R.	—	34.0	3000	N.R.	—
.250 SAVAGE	87	16.0	2100	31.0	2850	N.R.	—
	100	N.R.	—	26.0	2375	8.0	1200
.257 ROBERTS	117	20.0	2200	30.0	2450	N.R.	—
7MM	140	20.0	1900	38.0	2500	N.R.	—
.270 WINCHESTER	130	N.R.	—	44.0	2800	N.R.	—
.30-30 WINCHESTER	110	16.0	2000	32.0	2725	10.0	1800
	170	N.R.	—	29.0	2175	N.R.	—
.30-'06 SPRINGFIELD	110	28.0	2500	49.0	3075	12.0	1700
	150	26.0	2200	46.0	2700	14.0	1650
	172	N.R.	—	45.0	2650	13.0	1400
.300 SAVAGE	150	20.0	2000	36.0	2600	N.R.	—
.35 REMINGTON	200	24.0	1900	36.0	2000	12.0	1500
.348 WINCHESTER	200	N.R.	—	48.0	2300	N.R.	—

PISTOL AND REVOLVER

Cartridge	Bullet Weight	Bullseye		Unique		2400	
		Charge	Velocity	Charge	Velocity	Charge	Velocity
.32 S&W LONG	98	2.0	800	3.0	725	—	—
.32 COLT	74	2.0	900	2.5	700	—	—
.357 MAGNUM	113	5.0	1340	5.5	1175	—	—
	158	3.5	950	5.0	1050	12.0	1200
.38 SPECIAL	158	3.0	825	3.5	725	—	—
.380 ACP	95	2.5	800	4.0	900	—	—
.45 COLT	230	4.0	800	7.0	850	—	—
.44 S&W SPECIAL	245	4.5	750	7.0	825	—	—
.44 MAGNUM	—	—	—	—	—	16.0	1200

SHOTGUN

Gauge	Shell Length (inches)	Shot Weight (ounces)	Approx. Dram ea.	Unique		Red Dot		Herco		Crimp	
				Charge	Velocity	Charge	Velocity	Charge	Velocity	Folded (inches)	Roll (inches)
10	3	2	5	33.0	1250	33.0	1200	46.0	1300	0.60	0.50
12	2¾	1	2¾	21.0	1150	22.0	1150	N.R.	—		
	2¾	1⅛	3	23.0	1200	24.0	1200	N.R.	—		
	2¾	1¼	3¾	25.0	—	N.R.	—	32.0	1300	0.50	0.40
	2¾	1½	4¼	N.R.	—	N.R.	—	33.0	1270		
	3	1⅝	4¼	N.R.	—	N.R.	—	38.0	1300		
16	2¾	1	2½	17.0	1125	18.0	1125	N.R.	—		
	2¾	1⅛	3¼	N.R.	—	N.R.	—	28.0	1300	0.45	0.35
20	2¾	⅞	2	16.0	1100	16.0	1080	N.R.	—		
	2¾	1	2¾	N.R.	—	N.R.	—	24.0	1200	0.35	0.30
28	2¾	¾	2¼	12.0	1100	N.R.	—	18.0	1170		0.25

.410 gauge—for a 3-inch shell and ¾ oz. of shot use 16.0 grains of 2400 for a velocity of 1050 feet per second.
The thickness of wads should be selected to give the proper amount of free space between the top of the shot and the end of the shell prior to crimping. Wad Seating Pressure: Herco 100 lbs., all other Shotgun Powders 50 lbs.

N.R. = No Recommendation

—WARNING—

The handloading of shot shells and center-fire metallic cartridges should be undertaken only by those who are familiar with and are extremely careful to observe all possible safety precautions and conservative practices.

This guide indicates the general types of ammunition with which Hercules powders can be used. The velocities are approximate. Ballistics of shot shells are affected not only by the type and characteristics of powder but also by the texture and hardness of the wadding, by the kind of primer, crimp, and shell. Metallic cartridge ballistics are also affected by the the weight, diameter, and profile of bullet, depth of seating, strength of crimp, type and characteristics of primer and shell. Individuals who do not have access to equipment for measuring pressures should always depend on factory-loaded ammunition for maximum or near-maximum loads.

Since we do not have any control over the manner in which our powder is stored, handled, loaded, or used after it leaves our plant, we cannot be responsible by warranty or otherwise for the results or effect of its use.

Reprinted courtesy of Hercules Powder Co.

HODGDON

Powders .....

For 16 years shooters — from plinkers to bench rest cranks to elephant hunters — have reloaded using Hodgdon Powders. Testimonials from enthusiastic users in all 50 states, Canada and Mexico, attest to their reliability. Hodgdon's offer a wide choice of burning rates at a low price. You can shoot more and shoot better with Hodgdon Powders.

For our Basic Loading Data booklet on all currently available Hodgdon Powders, send 50¢ to: B.E. Hodgdon, Inc. 7710 W. 50 Hiway, Shawnee Mission, Kansas.

HS10: A good versatile pistol powder, it is also adaptable to mid-range shotshell loads. 1-lb. can, $2.50; 12-lb. keg, $26.

H4227: This is the fastest burning of the IMR series. Well adapted to Hornet, light bullets in 222, and all bullets in 357 and 44 Magnum pistols. 1-lb. can, $2.50; 20-lb. keg, $45.

Spherical H375: Probably the best powder for the 219 Don. Wasp. It gives good performance in larger cases up to 30-06. 1-lb. can, $2.50; 20-lb. keg, $45.

4895: A powder that has been available since WWII from DCM or B.E. Hodgdon, Inc. During these years, more 4895 has been used by rifle cartridge reloaders than any other powder. It may well be considered the most versatile of all rifle propellants.It gives desirable performance in almost all cases from 222 Rem. to 458 Win. Reduced loads, to as low as 3/5 of maximum, still give target accuracy. 1-lb. can, $2.50; 20-lb. keg, $45.

Spherical H380: This number fills a gap between 4320 and 4350. Excellent in 22/250, 220 Swift, the 6mm's, 257, and 30-06. It can be used in moderate charges for 25/06 and bigger cases. 1-lb. can, $2.50; 20-lb. keg, $45.

4831: The most popular of all powders for the Ackley and Weatherby type magnum. Outstanding performance may be expected with medium and heavy bullets in the 6mm's, 25/06, and 270. 1-lb. can, $1.50; 20-lb. drum, $20.50.*

H570 and Spherical H870: These two powders are approximately the same burning rate — very slow. Adaptable to overbore capacity cases such as 257, 6.5mm, 270, and 300 Mags. with heavy bullets. A 3-inch group was recently obtained with H570 in 300 Weatherby at 400 yards. 1-lb. can, $1.50; 20-lb. drum, $20.50.*

5010 (50MG): The slowest burning powder adaptable to sporting arms. Only in large cases and with extremely heavy bullets can pressure be brought up to give good velocity. Accuracy is frequently found by using a case full with medium and heavy bullets. 1-lb. can, $1.50; 20-lb. drum, $20.50.*

BL-C: The first of the spherical powders widely available to handloaders, its best performance is in cases smaller than 30-06. It has won many bench rest matches loaded in the 222 Rem. The BL-C now offered is lot 2, new loading data will be available soon. 1-lb. can, $2.50; 20-lb. keg, $45.

Trap 14: A new shotgun powder for light and standard loads. A charge bar for 23 grs. of Red Dot throws 23 grs. of Trap 14, which equals a 2¾ dram load with 1⅛ oz. of shot. 1-lb. can, $2.50; 12-lb. keg, $26.

* These powders are available in larger drums; write for prices.

Hodgdon Basic Loading Data .....

Caliber	Bullet Wt. Gr.	Charge Grains	Velocity
HS10 powder			
30-06	169	10	1285
30-06	169	13	1502
38 Spec.	145	4	791
38 Spec.	155	4.5	895
38 Spec.	110	6	1079
357 Mag.	146	8.5	1246
357 Mag.	160	8	1142
44 Mag.	240	9.5	1046
44 Spec.	240	7.5	934
45 ACP.	230	5	783
H4227 powder			
22 Hornet	43	10	2460
218 Bee	43	11	2375
220 Swift	55	14	2150
222 Rem.	50	16	2825
257 Robts.	85	17	1935
270	105	15	1600
7mm	130	14	1700
30-06	150	20	1700
45-70	500	26	1243
357 Mag.	148	16	1287
357 Mag.	160	16	1359
44 Spec.	250	19	1120
44 Mag.	250	21	1229
45 Colt	254	20	997
H375 powder			
222 Rem.	55	27	3004
222 Mag.	55	32	3534
22/250	50	40	3872
219 Wasp	55	33	3609
220 Swift	50	41	3798
243 Win.	105	35.5	2650
244 Rem.	105	36	2666
257 Robts.	100	42	2925
270	170	47	2574
7mm.	139	41	2566
30-06	180	50	2559
303 Br.	130	47	2686
4895 powder			
222 Rem.	45	25	3171
222 Mag.	55	29	3449
219 Wasp.	50	28	3312
220 Swift	50	39	4028
243 Win.	75	38	3219
244 Rem.	70	41	3603
250 Sav.	87	37	3208
257 Robts.	100	38	3029
6.5 Jap	156	32	2129
270	130	49	3158
7mm	140	45	2919
30-30	150	35	2349
308 Win.	150	45	2691
30-06	180	47	2588
303 Br.	150	42	2479
8mm.	150	50	2747
300 Wby. Mag.	180	68	2816
35 Rem.	200	39	2069
375 Wby. Mag.	300	76	2566
458 Win.	500	74	2156
H380 powder			
222 Rem.	55	31	3255
222 Mag.	63	32	3418
220 Swift	36	46	4392
243 Win.	70	45	3517
244 Rem.	70	47	3718
257 Robts.	100	44.5	3065
270	130	52	3069
7mm	139	42.5	2597
308 Win.	150	51.5	2746
30-06	150	55	2872
300 Wby.	150	72	3009
375 Wby.	235	78	2492

Caliber	Bullet Wt. Gr.	Charge Grains	Velocity
4831 powder			
22/250	55	42.5	3552
220 Swift	60	46	3734
243 Win.	75	50	3292
244 Rem.	75	52	3659
250 Sav.	100	43	2922
257 Robts.	87	55	3656
257 Wby.	100	71	3525
264 Win.	140	61	3164
270	130	60	3219
30-06	150	63.5	2709
308 Win.	180	53	2523
300 H&H	180	75.5	3013
30-30	170	39	1980
8mm.	170	57.5	2428
348 Win.	200	67	2460
375 H&H	285	88	2712
458 Win.	500	83	1934
H570 powder			
220 Swift	63	46	3293
243 Win.	105	48	2698
244 Rem.	105	48	2783
264 Win.	140	74	3257
270	130	64.5	2974
30-06	250	57	2028
300 H&H	220	85	2740
300 Wby.	220	88	2640
8mm	160	52	1829
375 Wby.	350	90	2125
H870 powder			
22-250	63	45	2766
220 Swift	63	48	3116
243 Win.	105	52	2778
244 Rem.	105	55	3067
264 Win.	120	80	3488
270	150	65	2818
30-06	220	65	2230
300 H&H	200	90	2965
5010 — (50MG) powder			
6mm	105	80	3719
270	150	66	2772
30-06	150	60	2251
300 Wby.	220	94	2603

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BL-C (lot 1)

The following loads apply only to BL-C powder sold before Jan., 1962. BL-C sold after that date is designated as lot 2, and load recommendations will be available from Hodgdon.

Caliber	Bullet Wt. Gr.	Charge Grains	Velocity
218 Bee	50	18	2544
222 Rem.	50	26	3408
250 Sav.	87	33	2844
7 x 57	139	42	2609
30-30	170	32	1997
308	110	51	3193
308	150	47	2772
30-40	150	37	2238
30-06	180	45	2468
8 x 57	170	52	2583
38-40	180	35	1640

WINCHESTER-Western Ball Powders

Ball powder, used for years by Winchester-Western in the loading of commercial and military ammunition, is being offered to handloaders in three shotshell grades and one centerfire pistol type. It is highly suited to handloading because of its stability and clean burning. The smooth, round grains, carefully graphited, flow easily through powder measures, resulting in accurate charges round after round.

Ball powder for centerfire rifle calibers are not yet available. Research programs are underway to develop canister ball powders suitable for the wide range of centerfire rifle calibers.

450 LS Shotshell — 12 oz. **$2.70**
500 HS Shotshell — 16 oz. **$3.10**
540 MS Shotshell — 16 oz. **$3.10**
230 P Pistol — 16 oz. **$2.50**

Recommended Loading Data

Winchester-Western Ball Powder for Shot Shell

The use of Winchester-Western components is strongly recommended. The loads shown below were developed using Winchester-Western cases, 209 primers, and wadding consisting of one over powder card wad and Winchester-Western molded fibre filler wads of the number and thickness specified. Winchester-Western type folded crimp and 70 lb. wad seating pressure was used in all loads.

BALL POWDER should be used in combination with a primer having a foil or paper covering over the flash hole.

The loads may be modified by use of a cup wad replacing the over powder card wad. When this is done, powder charges **must be reduced** as follows to avoid excessive pressures:

All 450LS reduce charge by 1.0 grain.
All 500HS reduce charge by 2.0 grains.
All 540MS reduce charge by 3.0 grains.

These recommended loads will give standard dram equivalent velocities for the shot weights shown. **They should in no case be exceeded. Reduced loads are not recommended except as indicated where cup wads are used.**

BALL POWDER TYPE 450LS

For Target and Standard Shot Shells (High base wad, low brass)

Gauge	Shell Length	Dram. Equiv.	Ozs. Shot	Wadding in inches	Charge in grains	Muz. Vel. ft/sec.
12	2¾	3¼	1¼	N, ⅜, ¼	24.5	1220
12	2¾	3¼	1⅛	N, ⅜, ⅜	25.5	1255
12	2¾	3	1⅛	N, ⅜, ¼	23.5	1200
12	2¾	3	1	N, ⅜, ⅜	25.0	1235
12	2¾	2¾	1⅛	N, ⅜, ¼	22.5	1145
16	2¾	2½	1	N, ⅜, ¼	19.0	1165
20	2¾	2¼	⅞	N, ⅜, ¼	16.0	1155

BALL POWDER TYPE 500HS

For High Velocity Shot Shell Loads (Low base wad, high brass)

Gauge	Shell Length	Dram. Equiv.	Ozs. Shot	Wadding in inches	Charge in grains	Muz. Vel. ft/sec..
10	2⅞	4¾	1⅝	N, ⅜	43.5	1330
12	3	4	1⅜	N, ½, ⅜	37.0	1315
12	2¾	3¾	1¼	N, ⅜, ¼	35.5	1330
16	2¾	2¾	1⅛	N, ¼, ¼	23.0	1185
20	2¾	2½	1	N, ¼, ¼	20.0	1165

BALL POWDER TYPE 540MS

For Magnum Shot Shell Loads (Low base wad, high brass)

Gauge	Shell Length	Dram. Equiv.	Ozs. Shot	Wadding in inches	Charge in grains	Muz. Vel. ft/sec.
10	3½	5	2	N, ⅜, ⅜	56.0	1330
12	3	—	1⅞	N, ¼, ¼	39.0	1255
12	3	4¼	1⅝	N, ⅜, ¼	41.5	1315
12	2¾	4	1½	N, ⅜	40.5	1315
16	2¾	3¼	1⅛	N, ¼, ¼	31.0	1295
16	2¾	3¼	1¼	N, ⅜	30.0	1260
20	3	—	1¼	N, ⅜, ¼	27.0	1220
20	2¾	3	1⅛	N, ⅜	25.0	1220
20	2¾	2¾	1	N, ¼, ¼	25.0	1220
28	2¾	2¼	¾	N, ¼, ¼	21.0	1295

WADDING

N — Nitro card wad .135" thickness.
Filler Wads — molded fiber wad of thickness indicated.

Recommended Loading Data

Winchester-Western Ball Powder for Pistol and Revolver

BALL POWDER TYPE 230P

For Center Fire Pistol and Revolver Cartridges

Caliber	Bullet Wt.	Bullet Type	Primer	Charge in grains	Muz. Vel. ft/sec.
32 S&W	85	lead	1½ - 108	1.4	705
32 S&W Long	98	lead	1½ - 108	2.2	780
32 Colt Auto	71	FMC	1½ - 108	2.0	855
357 Magnum	158	lead	1½ - 108	5.6	1075
38 Special	148	lead	1½ - 108	2.6	770
38 Special	158	lead	1½ - 108	3.7	855
38 Auto	130	FMC	1½ - 108	4.0	955
38 Super Auto	130	FMC	1½ - 108	5.0	1135
380 Auto	95	FMC	1½ - 108	3.0	955
9 mm Luger	115	FMC	1½ - 108	4.5	1140
44-40 Winchester	200	SP	7 - 111	6.4	865
44 Special	246	lead	7 - 111	4.6	755
44 Magnum	240	lead	7 - 111	9.0	1055
45 Auto	185	FMC	7 - 111	3.9	775
45 Auto	210	lead	7 - 111	3.5	710
45 Auto	230	FMC	7 - 111	5.1	850
45 Colt	255	lead	7 - 111	6.2	855

The above loads were developed using Winchester-Western cases, primers and bullets.

Maximum Load Tables

WARNING! THE LOADS GIVEN IN THE FOLLOWING TABLES ARE MAXIMUM

These loads are listed only as a guide. They were found by reliable laboratories to be MAXIMUM for the guns and the components tested, and under the conditions at the time of testing.

Having no control over the many conditions that can affect pressures, we assume no responsibility for the use of these loads. Remember, that while these loads were found to be MAXIMUM in the arms tested, they may well be TOO HOT for your gun.

Pressures in a given rifle are affected by many factors: hot weather raises pressures—and vice versa; your components may raise pressures—your primers, powder lot, cases and bullets will invariably be different than those used in the reported test.

Bullets alone can alter pressures tremendously, even when of the same weight and diameter. For a graphic account of this phenomenon, see the *Illustrated Reloading Handbook* (publ. by the NRA, Washington, 1961) page 122, for "Bullet Types and Pressures," by M. D. Waite. This important and revealing study should be read—and digested —by all handloaders.

Do not use the MAXIMUM loads listed until lower charges have been fired without any indication of excessive pressure. It is recommended that you start by reducing these loads by at least 10%. Remember that in most instances your most efficient load will be well below maximum.

Lacking a pressure barrel and crusher gauges (the method used by ballistic laboratories for determining pressure) the average handloader can recognize signs of excessive pressure by one or more of the following methods.

Primer A primer that has been flattened, and/or shows cratering around the firing pin indent may indicate critical pressure—but not necessarily. Some primer cups are softer than others, hence will reveal these signs when pressure is below maximum. Primers that fall easily from an enlarged primer pocket indicate high pressures, as does that loose primer pocket itself and the gas-smoking that darkens the case at and around the primer.

Extraction Generally, any resistance in extracting the fired case (compared to extraction effort with a standard load) is an indication of high pressure. Because rifle chambers and camming surfaces vary in smoothness, difficult extraction may be due to these factors. Some cases, too, are of softer brass than others; these will resist extraction when, actually, pressures are normal.

Head Expansion It takes high pressures to expand the web area of the cartridge head. Speer contends that an increase of .001" in diameter would "more than indicate excessive pressure."

Maximum Loads for Wildcats

Caliber		4227	4198	3031	4064	4320	4350	2400	Hi-Vel 2	4895	4831	Max. V.
22 K Hornet	40 gr.	13.5*	14					12.3				3218
	45 gr.	12.8*	14.5					12.2				3028
	50 gr.	12	14					11.2*				2802
22 R2 Lovell	40 gr.	18.3*	17.5					14				3595
	45 gr.	17.3*	17.5					12.3				3377
219 Wasp	45 gr.		25	30*	31							3780
	50 gr.			29*	32							3685
	55 gr.			28*	29	30						3500
219 Imp. Zipper	45 gr.		27	34*	35	37				35		3950
	50 gr.			33	35*	35				34		3817
22/250	45 gr.			37*						36		3995
	50 gr.			36	38	39*				35		3970
	55 gr.			35		38*	40			32		3845
244 Ackley Imp.	75 gr.			41	46	44	49		45*	46	52	3775
	90 gr.				37		45		42*	38	50	3452
	105 gr.					37	42				47*	2984
25 Souper	87 gr.			42.5*	44		50		41			3373
	100 gr.			37.5	40		47*			41	48	3160
25 Ackley Mag.	87 gr.				56	57	64		54*	57	69	3579
	100 gr.				52	53	62*			53	65	3446
256 Newton	87 gr.			49	52*					52		3415
	120 gr.				48		54.5*			47		2955
	140 gr.				45		58*			45		2952
270 Savage	100 gr.			41	44*	45	47		41			3266
	130 gr.			37	41*	43	45		39	42		2889
	150 gr.			37	38	41*	43			41	47	2655
270/257 Imp.	100 gr.			43	46	48	55		45	48		3302
	130 gr.			40	41	43	51*			43	55	3032
	150 gr.			37	39	42	53*			41	53	2849
	170 gr.				42		49		38		53*	2681
30-06 Ackley Imp.	150 gr.			48	55	52	60		57*	54	64	3316
	180 gr.				46	48	61*			48	61	3050
	200 gr.				45	47	55*			47	60*	2721**
8mm 06	125 gr.			59*	60	63			60	62		3379
	150 gr.			57	59	61	64		58	61		3150
	170 gr.			54	58*	61	64		56	59		2984
333 OKH	275 gr.				44	45	53			45	57*	2317
35 Whelen	150 gr.		54	64*								3100
	200 gr.			60*	60							2850
	220 gr.			57	60	60*				58		2740
	250 gr.			54	58*	57			55			2542

* Indicates load giving maximum velocity

** 2 loads at same velocity

Maximum Loads for Rifle Cartridges

Caliber		4227	4198	3031	4064	4320	4350	H240	2400	Hi-Vel 2	H4227	BL-C	4895	H380	4831	H570	5010MG	Max. V.
22 Hornet	40 gr.	12.3*							10.8		12.3							3007
	45 gr.	12*	12.5					9	10.3									2826
	50 gr.	12	12.5					9	10		12*							2738
	52 gr.	11.7	12.5					8.7	10		11.7*							2690
	55 gr.	11.5	12.5					8.5	9.5		11.5*							2572
218 Bee	40 gr.	15	15.5					11	12.8		15*							3306
	45 gr.	14.5*	15.5					10.5	12.3		14.5	18.5						3119
	50 gr.	14*	15						12	16.5	14	18.5						2930
	52 gr.	13.7	15						11.7	16.5	13.7	18.5						2859
	55 gr.	13.5	14.7*						11.7	16.5	13.5	18.5						2804
222 Rem.	40 gr.		20.5	24	25.5	28*				24		25	26	28.5				3584
	45 gr.		21.5	24	25.5*	27.5				23.5		24.5	26	28.5				3420
	50 gr.		21	23	25	27*				23		24	26	28.5				3303
	52 gr.		19.5	23*	25	26.5				23		24	26	28				3305
	55 gr.		21	23	25*	26.5				22.5		24	26	28				3209
222 Rem. Mag.	40 gr.	19.5	25*	28		31				28				32				3868
	45 gr.		24	28	28.5	31				28*			29.5					3700
	50 gr.		23	27	28	30				27*			29.5	32				3568
	52 gr.		22.5	26.5	27.5	29.5*				26			29	31				3465
	55 gr.		21.5	26	27.5*	29.5				26		33	28.5	31				3374
219 Zipper	40 gr.		24	28	31	31.5				28			31	34*				3856
	45 gr.		23.5	27	30	30.5				27			30	33*				3738
	50 gr.		23	26.5	29.5	30				26.5			29.5	32*				3630
	52 gr.		22	26	29.5	30				26			29.5	31.5				3519
	55 gr.		22	26	29	29.5*				26			29	31				3393
220 Swift	40 gr.			40	43	44	47			40*			44	45				4290
	45 gr.			39	42	43	47*			39			43	44				4110
	50 gr.			38	41	42*	47			38			42	45				3958
	52 gr.			37	40	41	46			37*			41	45*				3975**
	55 gr.			37	40	41	46*			37			41	44				3838
243 Win.	75 gr.			39	41*	42	47			38			42	42	50			3513
	80 gr.			36	39	40	45*			36			40	40	49			3425
	90 gr.			36	38	39	44*			35			39	39	47			3225
	105 gr.			34	36	37	40*			33			37	37	44			2883
244 Rem.	75 gr.			38	40	42	48*			39			41	42	52			3610
	80 gr.			37	42	41	48*			37			41	41	52			3532
	90 gr.			36	38	40	45			31			39	40	50*			3356
	105 gr.			33	35	36	40			32			36	36	44*			2946
250/3000 Sav.	60 gr.		34	38*	41	42	44			37			42	43				3758
	87 gr.		30	35	38*	39	42			35*			39	39	44			3210**
	100 gr.			33	37*	38	41			34			37	36	44			3088
	120 gr.			31	35	37	40			30			37*	32	44			2878
257 Roberts	60 gr.		36	41	45*	47				41			46	48				3792
	87 gr.			41	43	44*	47			39			44	44				3385
	100 gr.			37	41	41	46			36			40	41	49*			3199
	120 gr.			33	36	37	43			32			37	38	45*			2863
257 Wea. Mag.	60 gr.			61	64	66	74			58*			65					4256
	87 gr.			56	59	61	69*			55			61	58	73			3806
	100 gr.				56	58	66*			52			58		70	79	79	3616
	120 gr.				53	55	63			49			54		67*	78	78	3344
6.5mm Jap Arisaka	87 gr.		32	38	40	41	44			38			41*	41				3386
	120 gr.			35	38	38	43*			34			38	38	44			2999
	140 gr.			33	35	36	41*			32			36	35	44			2736
6.5x57 Mauser	87 gr.		36	42	45	47*	52			41			47	46				3260
	120 gr.			37	39	41	46			37			39	40	49*			2773
	140 gr.			36	38	39	43			36			38		47*	57		2583
6.5x55 Mauser	87 gr.			45	48	49	54			45*			48	50				3368
	120 gr.			41	43	43	50			40			43	43	54*			2812
	140 gr.			37	39	39	47			37			39		51*	56		2634
264 Win. Mag.	87 gr.			54	58	59	67			54			59	55	72*			3824
	120 gr.			51	53	54	62			50			54		67	79	80*	3466
	140 gr.			49	51	52	59			47			52		64	75	76*	3303
270 Win.	100 gr.			49	53	54	60			49*			53	49	64			3492
	130 gr.			46	49	50	57			45			50	46	60*			3180
	150 gr.				47	48	56*			43			48		58	65	65	3010
	170 gr.				45	46	52			41			46		56*	65	65	2803
270 Wea. Mag.	100 gr.			61	66	68	75*			59			68	60	79			3767
	130 gr.			56	60	62	70			54			62		74*	83		3453
	150 gr.				58	59	68			53			59		72	83*	83	3258
	170 gr.				54	55	63			49			55		68	79*	80	3056
7mm. Mauser	130 gr.			42	45	46*	52			42			46	46	55			2963
	145 gr.			40	43	44	50			39			44	44	54*			2890
	160 gr.			39	45	43	49*			38			42	43	53			2775
280 Rem.	130 gr.			47	50	51	58*						50	50	62			3235
	145 gr.			45	48	49	55*						49	47	59	63		3048
	160 gr.			43	46	47	54*						47	45	58	63		2902
7x61 S&H	130 gr.			53	56	57	64			52			57	54	69*			3345
	145 gr.				55	56	63			51			56		68*	77	77	3222
	160 gr.				54	55	62			50			55		67*	77	77	3090
7 mm. Wea. Mag.	130 gr.			58	61	63	71*			57			62		76	84		3475
	145 gr.				59	61	68			55			60		73*	82	82	3347
	160 gr.				57	59	67*			54			59		72	82	82	3201
7.35 Carcano	150 gr.		33	40	41	42*				39			42	42				2622
30-30 Win.	150 gr.		29	34	37 *	38				33			38	38				2415

* Indicates load giving maximum velocity

** 2 loads at same velocity

Maximum Loads for Rifle Cartridges (*continued*)

Caliber		4227	4198	3031	4064	4320	4350	H240	2400	Hi-Vel 2	H4227	BL-C	4895	H380	4831	H570	5010MG	Max. V.
300 Savage	110 gr.		40	45	47*	49				43			48	51				3177
	130 gr.		37	43*	47	48				42			48	49				2944
	150 gr.		33	41	44*	45	49		24	40			44	46				2800
	180 gr.		31	39	42	43	47			38*			42	43				2530
	200 gr.			36	39	40	44			35*			39	40				2331
308 Win.	110 gr.		45*	48	52	54			26.5	50			53	56				3327
	130 gr.		40	48	51	53*				47			53	55				3162
	150 gr.		37	44.5	49*	47	53			42			47	48				2858
	180 gr.			40	43	45	57.5*			39			43	45				2624
	200 gr.			38	41	43	48			37			42	43	50			2470
308 Norma Mag.	110 gr.			62	66*	68	79			61			68		84			3723
	150 gr.			59	64	65	75*			58			65		81			3366
	180 gr.			55	59	60	71			54			59		77*	85		3108
30-40 Krag	110 gr.			44	48	49	55			43*			49	49				3192
	130 gr.			43	47*	48	54			42			48	48				3037
	150 gr.			41	45	46*	51			40			46*	46				2766
	180 gr.			39	42	43	47			38			42*	43	50			2422
	200 gr.			36*	39	40	45			35			40	40	48			2241
30-06	110 gr.			53	58	59	66			54*			59	60				3402
	130 gr.			52	57	57*	64			52			57	58				3234
	150 gr.			51	54	55	61*			50			55	56				3043
	180 gr.			46	50	51	57*			45			50	52	61			2759
	200 gr.			44	48	48	56*			43			48	49	58			2715
300 H&H Mag.	110 gr.			60	64*	66	75			59			65	64	80			3665
	130 gr.			60	63	65	73*			58			64	63	78			3465
	150 gr.			56	59	61	73*			62			64	59	75			3360
	180 gr.				63	57	67			57			60		69*	83	84	3055
	200 gr.				57	57	66			54			54		68*	79	81	2827
300 Wea. Mag.	110 gr.			76	79	82	90*			72			81					4030
	130 gr.			69	73	76	85*			68			75		92			3720
	150 gr.			67	71	74	82			66			73		88*			3515
	180 gr.				68	70	78						70		83*	98	98	3239
	200 gr.				66	67	76						66	69	80	95*	95	3027
303 British	150 gr.			42	45	46	50*			41			45	47				2547
	180 gr.			39	42	43	47			38*			43	44	50			2499
7.7mm Jap	150 gr.			42	46*	46	54			41			46	45	57			2756
	180 gr.			39	42	43*	50			38			42	41	55			2503
32 Win. Spl.	170 gr.		27	34*	36	37	38			33			37					2248
8mm Mauser	125 gr.		46	51*	55	56							56	58				3155
	150 gr.		42	50	53	56*	59			50			54	58				3040
	170 gr.			48.5	51	53	58			48*			51	53				2778
	225 gr.			45	48	49	56*			44			49	50	57			2508
338 Win.	200 gr.			56	62	63	75*			56			63		80			3055
	275 gr.				59	60	69						60	60	75*	85		2669
348 Win.	180 gr.			53	57	58	65			52*			57	58	69			2739
	220 gr.			47	52	53	60			46*			52	54	65			2330
35 Rem.	180 gr.		28	42*	44	45				42				47				2361
	220 gr.		29	36	39*	41				35			39	42				1968
358 Win.	180 gr.		44*	51	52	54				50			54					2743
	220 gr.		42	49	51	53				48*			52					2580
	250 gr.		39	46	48	49	48			45*			49					2443
375 H&H Mag.	235 gr.			74	77*	78	86			69			78	78				2967
	285 gr.			68	73	75	86*			66			75		86			2739
458 Win.	480 gr.		65	70	71	74				69			74	75				2250
	500 gr.		68*	75	76	76				69			74	75	83			2363

* Indicates load giving maximum velocity

Maximum Loads for Handgun Cartridges

Caliber		2400	Unique	Bullseye	5066	4227	AL-8	AL-5	Max. Vel.
22 Rem Jet	40 gr.	10.5	7	3.8	4.5		9.7*		1818
	45 gr.	10.5	7	3.8	4.5		9*		1769
38 Spec.	146 gr.	12	6	3.5	5		10*	8	1113
	148 gr.		6.4	3.5	5*				870
	160 gr.	10.5*	5.5	3.5	5		10	7	1020
357 Mag.	146 gr.	16*	8	3.5	4.5		14	10.5	1436
	148 gr.			3.5	4*				849
	160 gr.	14*	7						1265
44 S&W Spec.	235 gr.	19*	10	3.5	4.5		13	10	1164
	250 gr.	18	9			20*			1209
44 Mag.	235 gr.	24*	10						1454
	250 gr.	23	10			23*			1361
45 Auto	185 gr.			4*	4.5				817
	215 gr.			4*	4.5				814
45 Auto Rim	185 gr.			4*	4.5				796
	215 gr.			4*	4.5				787
	240 gr.	18*	8						1119
	255 gr.	17*	8						1040
45 Colt	235 gr.		10.7*	6.8	9				1050
	250 gr.		10.3*	6.2	7.5				990
	260 gr.		10.3	6.2	7.5				980

* Indicates load giving maximum velocity

Notes on Primers

Commercial primers for metallic ammunition are available in two sizes (diameters). Those measuring .175″ are called "small" primers, those measuring .210″, "large" primers. Each of these is available in two strengths; the weaker pistol primers give a smaller flash, and have thinner cups for positive functioning with the lighter blow given by the weaker mainsprings of handguns. The more powerful are called "rifle" primers. Thus a rifle case, depending on its size, may take either a small or large diameter "rifle" primer — the same for pistol cases.

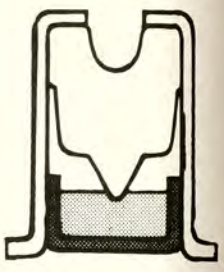
Oil or grease kills primer action — do not handle primers any more than is absolutely necessary, and do not permit them to come in contact with oily tools, cases, etc. Primers are live explosives — handle them with caution and *never* strike them a blow with any hard tool. Keep them in a container that will prevent them from being dropped on the floor or bench.

All primers commercially available today, metallic or shotshell, are non-corrosive and non-mercuric — the NC quality prevents the rusting of the bore because of primer action, while the NM quality means that the brass of the case will not be acted upon and embrittled, as would be the case with mercuric primers.

U.S.-made shotshells (plus some imports and Canadian shells) are primed with battery cup primers by the factories and by most handloaders. Fired cases may be reprimed with the priming element alone, by use of a suitable tool; this effects a considerable money saving, but at the cost of extra time and effort.

Battery cup primers consist of (1) the battery cup itself, usually of copper; (2) the primer or cap, of brass (sometimes nickeled), which contains the priming mixture; (3) the anvil. The anvil lies in the battery cup, its point to the open end of the cup. Into this open end goes the primer or cap.

Battery cup primers for Winchester-Western shotshells will not interchange with those for Remington-Peters cases. The former usually carry the numbers "209" somewhere within the maker's designation, such as Fed209, used by Federal. Remington-Peters shotshell primers are designated "57," and that number is also used by most other makers, such as Alcan's "PC57." "An exception is the R-P primer, made for their 28 gauge and 410 shotshells. Some battery cup primers use a paper, foil or plastic cover over the flash-hole — these help prevent moisture absorption and the possible entry of powder into the primer.



209 type primers (of whatever make) are usable in Winchester-Western, Federal, Monarch, J. C. Higgins, Revelation and Canuck cases.

Remington and Winchester-Western primers are shown elsewhere in this Components section. Alcan primers are described in their catalog, bound into this book.

cascade cartridge, inc.

PRIMERS

THE STANDARD OF QUALITY FOR RELOADING AMMUNITION

THE ONLY COMPLETE PRIMER LINE

Non-corrosive, Non-Mercuric CCI Primers are manufactured for large and small rifle, large and small pistol, and shot-shell. New magnum primers for large and small pistol and for large and small rifle are produced exclusively by CCI. Detailed list and prices appear below.

200 LARGE RIFLE

Unmatched dependable ignition in reloading for all standard large rifle loads.

$8.00 per Thousand

109 SHOTSHELL

Shotshell type primer designed to give superior results in the reloading of Winchester, Western, and Federal shotshells.

$14.50 per Thousand

300 LARGE PISTOL

The work-horse performance primer for use in .44 and .45 caliber.

$8.00 per Thousand

400 SMALL RIFLE

A special primer mixture for use with Ball and other difficult to ignite powders. Recommended for use in Hornet, Bee, 222 and similar small rifle cartridges.

$8.00 per Thousand

157 SHOTSHELL

The counterpart of the 109 but sized to fit the Remington and Peters shotshells.

$14.50 per Thousand

500 SMALL PISTOL

Specially designed for cartridges requiring a small pistol primer. A heavy favorite at police ranges and among sportsman and match target shooters.

$8.00 per Thousand

209B SHOTSHELL CAPS

For economical repriming of the CCI, Winchester, Western, and Federal battery-cup. A $6.50 per thousand savings on reloading shotshell. $8.00 PER THOUSAND

CCI MAGNUM PRIMERS

The major advantage of the CCI Magnum Primer is its ability to ignite deterrent coated powders, so they burn at proper intensity—especially welcomed by large capacity case shooters. The CCI magnum primer eliminates black, sooty residue and greatly lessens vertical dispersion at the target.

Another benefit for shooters using reduced loads is the superheat produced by the primer. It results in uniform burning of the powder even in cases with abnormal air space. The CCI magnum primer produces outstanding results in cold climates because reloads maintain uniform velocity round after round. Available in:

350 Large Pistol — 550 Small Pistol — 250 Large Rifle — 450 Small Rifle

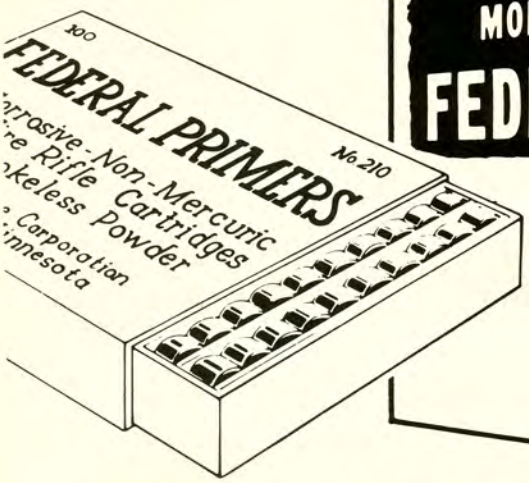
$9.00 PER THOUSAND

CASCADE PRIMERS ARE NON-CORROSIVE AND NON-MERCURIC.

The complete CCI line adds up to **UTMOST DEPENDABILITY AND ACCURACY**

We don't have to make elaborate claims...
FEDERAL PRIMERS *have proved their dependability, high quality and performance*

MORE THAN 5 BILLION FEDERAL PRIMERS



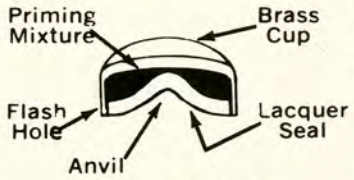
produced for U.S. Govt. and private use proves FEDERAL'S manufacturing know-how!

There is no substitute for experience. When you realize that Federal Cartridge Corporation has made and sold over 5,000,000,000 (five BILLION) primers, what better evidence can you ask to prove their quality and dependability. Federal experience means shooting satisfaction.

Federal Primers give you consistently uniform ignition – the prime requisite for accurate shooting. Neither temperature changes nor humidity changes can alter this uniformity. Independent ballistics laboratories have subjected these Primers to a temperature range of +140°F. to –60°F. and found *no variation in performance.*

Federal Primers are non-corrosive, non-mercuric and dependably stable. Put your trust in Federals – as many of the outstanding bench rest shooters do. Check the records.

Made in the U.S.A. where labor receives an ample salary.



IDENTIFICATION

No. 210 Large Rifle Primers – Brass Cup – RED printing on carton

No. 200 Small Rifle Primers – Nickel plated cup – BLUE printing on carton

No. 150 Large Pistol Primers – Copper plated cup–BLACK printing on carton

No. 100 Small Pistol Primers – Brass cup – GREEN printing on carton

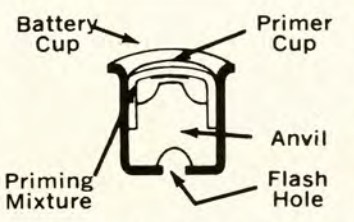
retail price

$8.00 per 1,000

See your Federal Dealer

FEDERAL NO. 209 SHOT SHELL PRIMER

This is a "battery cup" primer–charged with Federal's non-mercuric, non-corrosive, extremely stable patented priming mixture–the same priming mixture as used in Federal's Hi-Power and Monark shotgun shells. Packed 100 to a box, 10 boxes to a carton.



retail price

$14.50 per 1,000

FEDERAL *Sporting Ammunition*

Hi-Power and Monark Shot Shells and .22 Caliber Cartridges

Federal Cartridge Corporation • Minneapolis, Minnesota

For Remington and Winchester primers see their pages in Bullets section.

Notes on Shot

Early shotshell loaders had their choice of using either "soft" or "drop" shot made of pure lead, or "chilled" shot made of lead hardened by a small amount of tin or antimony. The pure lead shot is no longer available. The majority of shooters use "chilled" shot, but also available, and especially popular with long-range shooters, is coated shot such as Alcan's nickel-plated and Lyman's or Division Lead Co.'s copper-plated shot.

All of these hardening methods serve one purpose; to prevent the shot from becoming deformed either by the pressure of the wad column or passage through the bore and the choke constriction.

Table of Recommended Shot Sizes

Game	Shot Size
Fox, Geese, Turkey	BB, 2 or 4
Ducks, Rabbits, Squirrel, Pheasants	4, 5, 6
Dove, Quail, Grouse, Partridge	5, 6, 7½ or 8
Snipe, Woodcock, Rail	7½, 8 or 9
Trap	7½ or 8
Skeet	8 or 9

PACIFIC

Nicaloy Shot

$8.00 ea.

PACIFIC NICALOY SHOT—per 10 lb. bag
Available in #2, 4, 6 and 7½

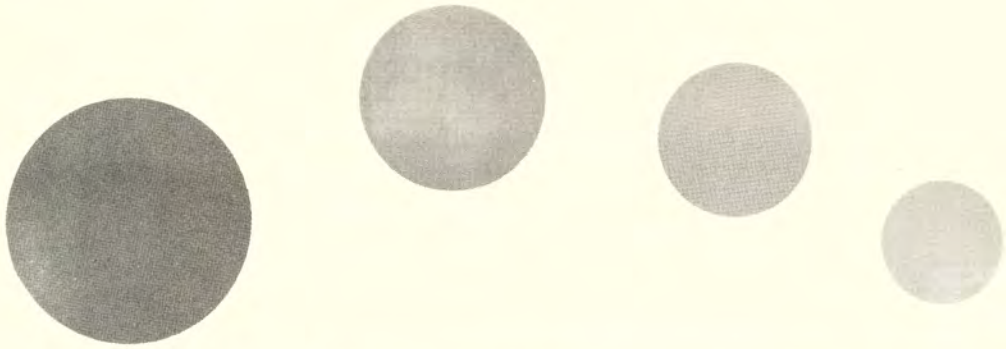
- Maximum Penetration
- More Even Patterns
- Short Shot String
- Eliminates Leading

Nickel plated shot has long been the standard for the finest shot shells manufactured in Europe. This new Pacific product is now available to the American reloader and is superior to any other type of plated shot. Only best quality chilled lead shot is used and covered with heavy, even nickel plate.

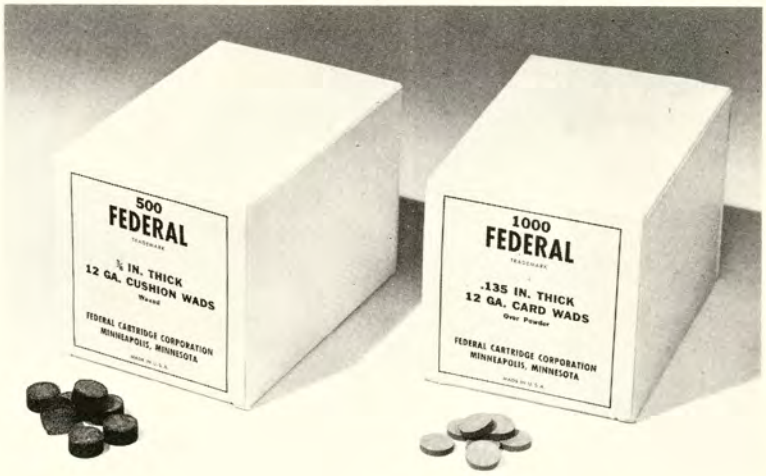
Remington shot will be found listed elsewhere in this Components section. Write to Winchester for their price list on standard shot.

Notes on Wads.....

There are three basic wad types: over-powder, filler and overshot. The over-powder wads are available in card form (made of compressed paper), or as the newer plastic wads. The over-powder wad separates the powder from the softer filler wads and effects a gas seal ahead of the powder. Filler wads are resilient to cushion the initial shock, and are available in a variety of thicknesses to give the proper wad column height for perfect crimps and correct pressure. Since the majority of shotshells loaded today are star crimped, they need no overshot wad. Only the older roll crimp shells require a wad which is held by the crimp to contain the shot in the shell.



FEDERAL CARTRIDGE CORPORATION



Cardboard Wads

Gauge	Thickness	List Price per 1,000	Packed	Weight per case
12	.045 inches	$1.15	1,000 per box 10 boxes (10,000) per shipping case	7.4 lbs.
12	.080 inches	1.35		11.5 lbs.
12	.135 inches	1.65		18.1 lbs.
12	.200 inches	2.15		20 lbs.

Cushion Wads

Gauge	Thickness	List Price per 1,000	Packed	Weight per case
12	⅜ inches	$2.65	500 per box 10 boxes (5,000) per shipping case	14.7 lbs.
12	½ inches	3.25		18.5 lbs.

HERTER'S Shotshell Wads

OVER-POWDER CARD WADS—Guaranteed to contain no impurities or abrasives, and to be properly flexible. Priced per 1000, state gauge and size.

.135" —**$1.06** .200" — **$1.39**

FIBERFELT FILLER WADS—Lightweight, wax-edge-lubricated, guaranteed to contain no impurities or abrasives. Priced per 1000, state gauge and size.

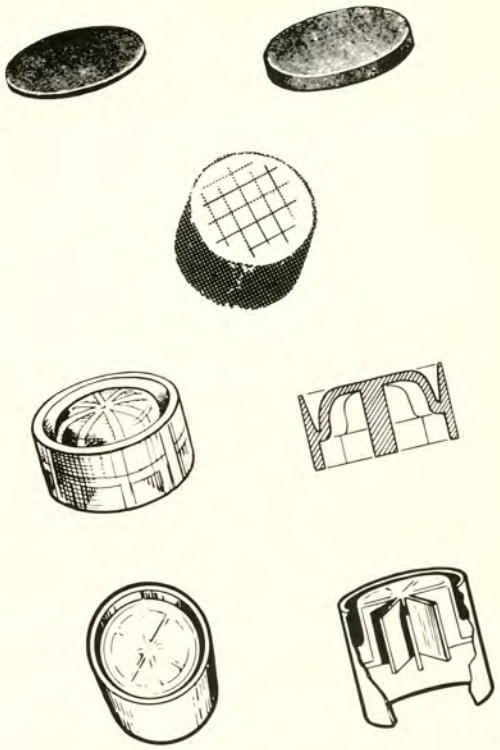
⅜" — **$1.45** ½" — **$1.77** ¼" — **$1.45**

SHAPED CHARGE OVER-POWDER WADS—A unique design exclusive with Herter. These 5/16" polyethylene plastic wads force the powder gases outward, effectively sealing the rim better than any other type.

Price per 1000, 12 gauge only..... **$1.79**

TRACER SHAPED CHARGE, SINGLE COLUMN WAD—Increases the range of your loads and helps your trap score through a more positive gas seal throughout the entire length of the barrel. A full ⅝" in length, the popular wad column for many trap, skeet and hunting loads. Fluorescent red color lets you follow the charge in the air; also available in translucent white.

Price per 1000, 12 gauge only..... **$3.95**



Ljutic INDUSTRIES, INC.

MONO-WAD

$5.75 per M

The Ljutic Mono-Wad is a one piece wad for general use. The finest wad made and the only one piece wad manufactured in the world today. It eliminates the use of a two piece, two or three stage wad column. Ljutic Mono-Wads give less recoil and make possible the use of less powder for the same muzzle velocity and pattern.

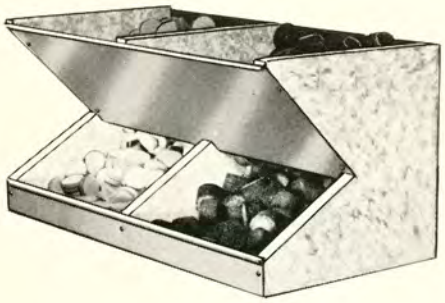
12 Gauge

Use Size—.640 for Western, Winchester & New type Remington - Peters hulls.

And Size—.925 for Federal, Canuks, and Old type Remington and Peters hulls.

20 Gauge Available Soon

Pacific Wad Dispenser



- Convenient - Efficient
- Speeds loading operation
- Allows inspection
- Keeps wads clean and off the floor
- Large capacity 6" x 6" x 12"

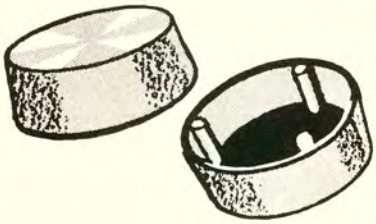
$2.95

This Wad Dispenser is a useful accessory for anyone reloading shot shells. It is also a very handy addition to the rifle or pistol reloading bench.

Approx. Shipping weight 2 lbs.

SPORTSHELL COMPANY

Pressure Plugs



$4.40 Per 1000

A new and superior plastic over powder wad that will give you less recoil, higher velocity and better patterns from your reloads. They weigh only 8½ grains compared to the usual 12½ grains for a .200" card wad.

Three unique molded flanges permit easy stacking in automatic load tubes. They also act as air vents to eliminate back pressure when being seated. Wad height of .025" prevents tipping in guide cage or shell body. 12 gauge only.

NEW! Air Cushion Powder Seals

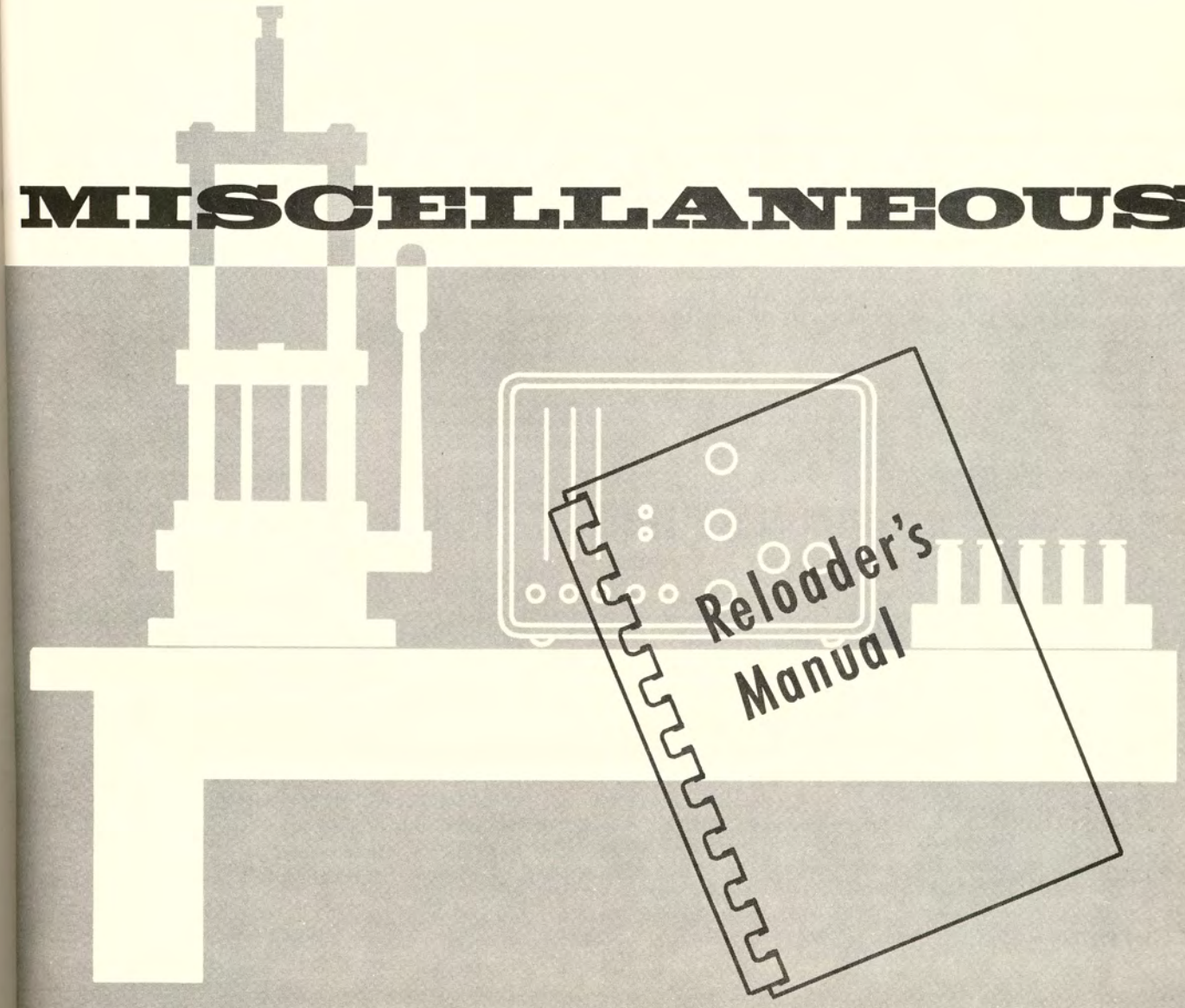
Our regular Pressure Plug described above, plus unique top webs to provide an air cushion that prevents the deforming of shot. This means better, more consistent patterns. 12 gauge only.

$5.00 Per 1000

See Part V "Bullets" pages for Remington wads • *See Part V "Bullets" pages for Winchester wads*

PART VI

MISCELLANEOUS



Notes on Reloading Benches

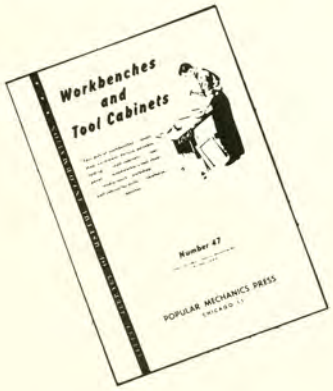
Kitchen table handloads are possible, of course, but a well-organized bench, properly designed for sturdiness and convenience is a must for anyone other than the once-in-a-while reloader. Unfortunately, there are no specific designs available purely for reloading benches — we'll try to do something about this a bit later.

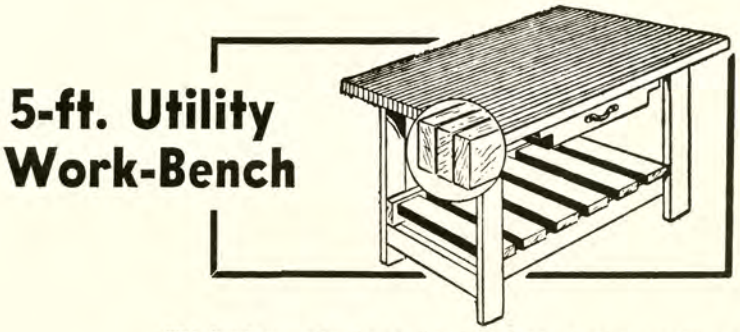
There are, however, a few ways that a handloader can acquire a suitable bench. If he is handy with woodworking tools, he can build one from scratch, and many have done so. There are a few places he can buy plans for various woodworking or hobbiests benches that can be modified for reloading use. The public library has many volumes with workable plans, and most lumber yards offer plans. Popular Mechanics Press, 200 East Ontario Street, Chicago 11, Ill., has a small booklet called "Workbenches and Tool Cabinets" that sells for 25¢. In it are a number of workbenches that lend themselves well to modification for reloading.

Shown here is an advertisement of a Chicago department store offering a well-made bench at an attractive price. This bench, with few alterations makes an excellent handloader's bench. A check of your local lumber dealer, department store or mail-order house will, I'm sure, reveal many such offers.

What are some of the features needed to make a bench suitable for reloading purposes? It must be sturdy and of sufficient weight to hold up under pressures of full-length sizing or bullet swaging, and to prevent its tipping when pressure is exerted on the tool handle. It must be convenient to use, with the work surface of the correct height to permit the operator to stand and work the tool comfortably. There should be ample leg room to allow the operator to be seated at the tool when the less strenuous operations are being performed.

All of the accessories should be within easy reach of the seated operator — dies, gauges, components, etc., should be handy, and yet out of the way. The bench may be of wood, or of metal with a wood top surface.





This bench was advertised in 1961 by Goldblatt's, Chicago, Illinois.

Now, what can we do about the need for a good basic reloading bench design? The publishers of the HANDLOADER'S DIGEST are offering a $25.00 prize for the best reloading bench design submitted by our readers. Second and third prizes of $15.00 and $10.00 will be awarded to the designs offering individual features of exceptional usefulness or convenience. To be eligible, all entries must be postmarked before Dec. 1, 1962. You don't have to be a draftsman to enter; sketches and descriptions of the important features plus a sketch of the complete bench is all that is needed.

Winners and their plans will be published in the 2nd edition of the HANDLOADER'S DIGEST.

Notes on Books & Manuals

The reloading bench without a choice selection of books and/or manuals is by no means complete. No case should be charged or bullet seated until the reloader is sure that the load and bullet he is using is the correct one to do the job he wants done. Whether you are new to reloading or a veteran of many years, a good selection of written material is a must if you are to produce safe, accurate reloads.

The man who wants to enjoy handloading will read as much material on the subject as he can, he'll go beyond the point of looking at the pictures, captions and bold face type and read and heed the cautions and warnings he'll find in all reloading literature. He'll use only the powder type recommended, approach maximum loads with extreme caution and double check the manuals along every step of his operation. He'll be safe, not sorry — slower, of course, but surer.

Best of all, he'll be able to take advantage of years of testing and experimentation by men who have devoted their lives to handloading. It is a sorry sight indeed to see a man buy a loading press, dies, components, etc., and walk out of the store without a manual of some sort.

Ackley's Handbook for Shooters and Reloaders

by P.O. Ackley

While primarily a reference book for wildcatters, the volume contains much important information for all handloaders. Along with the hundreds of commercial and wildcat loads, the theory and practice of reloading and ballistics is covered in detail. $3.00

A 68-page supplement covers 81 additional loads plus chapters on barrel steel, pressures, bore and case capacity and other subjects of interest to handloaders. P.O. Ackley, Murray, Utah, 1959. $1.50

Cartridge Conversions

George C. Nonte, Jr.

The single reference book for handloaders who want to convert commercially available cartridge cases for use in shootable but obsolete arms. Tools and materials needed for case reforming are covered as well as step-by-step instructions on the procedures. Over 300 cartridge data sheets are included, giving complete information on adaptable cases, forming operations required and loading data. 340 pp. illustrated. Stackpole Co., Harrisburg, Pa., 1961. $7.50

Complete Guide to Handloading

by Philip F. Sharpe

A comprehensive, authoritative coverage, but somewhat dated today. This revised 3d edition (1953) of the "handloader's bible" gives much information on tools and techniques, old and semi-new, and on every phase of handloading. Containing over 8000 individual loads for rifle, revolver and pistol cartridges, it discusses practically every variety of shell and primer, bullet and bullet mould, for rifle and revolver. Fully illustrated, 748 pages, index, 7¾" x 10⅜". $10.00

Professional Loading of Rifle, Pistol and Shotgun Cartridges

by Geo. L. Herter and Jacques P. Herter

Over 300 pages covering every phase of reloading with complete data on loads for rifle, pistol and shotgun, loaded and chronographed at the Herter plant.

In addition, hunting methods for big and small game, varmints, etc., are covered in detail. Herter's, Waseca, Minn., 1961. $1.49

Illustrated Reloading Handbook

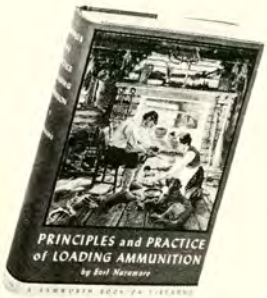
A compilation of 122 articles covering every phase of shotshell and metallic reloading plus information on cast and swaged bullets, powders, primers, etc. Laboratory-tested loading data is covered for over 40 cartridges. Historical notes on firearms and cartridges plus 22 "Here's How I Did It" items round out this valuable book. National Rifle Assn., publishers, Washington 6, D.C. $4.50 (NRA members $3.50).

Lyman Handbook of Cast Bullets

The only volume of its kind in the world, this book tells you everything you need to know about making your own bullets. Over 200 pages cover the history, the proper selection and the procedures of making cast bullets. Special chapters cover accuracy, sizing and lubricating and the large data section contains hundreds of loads by America's top shooters. $2.00

Lyman Reloaders Handbook

For over 80 years this manual has been the reloader's *vade mecum,* his bible of how-to-do-it information. This 42nd edition with 188 pages covers every phase of metallic and shotshell reloading. Handgun, rifle (including wildcats) and shotshell loads number into the thousands and a special chapter is devoted to shooting the muzzleloaders. $2.00



Principles and Practice of Loading Ammunition

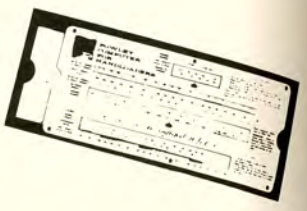
by Earl Naramore

Actually two volumes in one. The first part (565 pp.) deals with ballistics and the principles of cartridge making — plus the chemistry, metallurgy, and physics involved. The second part (350 pp.) is a thorough discussion of the mechanics of loading cartridges. Nothing else quite approaches this superb work. Stackpole, Harrisburg, Pa. $10.00

Powley Computer for Handloaders

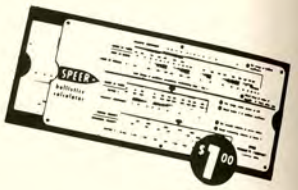
This handy 4″x9″slide chart computes quickly and accurately the following data for handloaders.....$3.50

1. Most efficient powder for guns using Military Rifle powders.
2. Best powder for combination of bullet weight and case.
3. Powder charge.
4. Estimated velocity.



Speer Ballistics Calculator

A handy item for all handloaders, it will accurately calculate bullet drop, mid-range trajectory and remaining velocity up to 1000 yards range. $1.00



Speer Reloading Manual

The new (1961) Speer Manual for Reloading Ammunition is packed with 280 pages of up-to-date information for all reloaders, beginner or expert. Loading information is given for all popular rifle cartridges—both commercial and wildcat—handgun cartridges and shotshells. Also included are over 250 illustrations of components, equipment and how-to-do-it instructions. $2.95.

Why Not Load Your Own?

by Col. Townsend Whelen

Here's a handloading book for everybody. Col. Whelen, the dean of firearms writers, covers the handloading operations in clear concise language. 520 basic loads, ranging from the 22 Hornet to the 45-70 are thoroughly covered, as are basic tools and accessories. Combat Forces Press, Wash., D.C. 237 pp., illus. $5.00

Notes on Chronographs.....

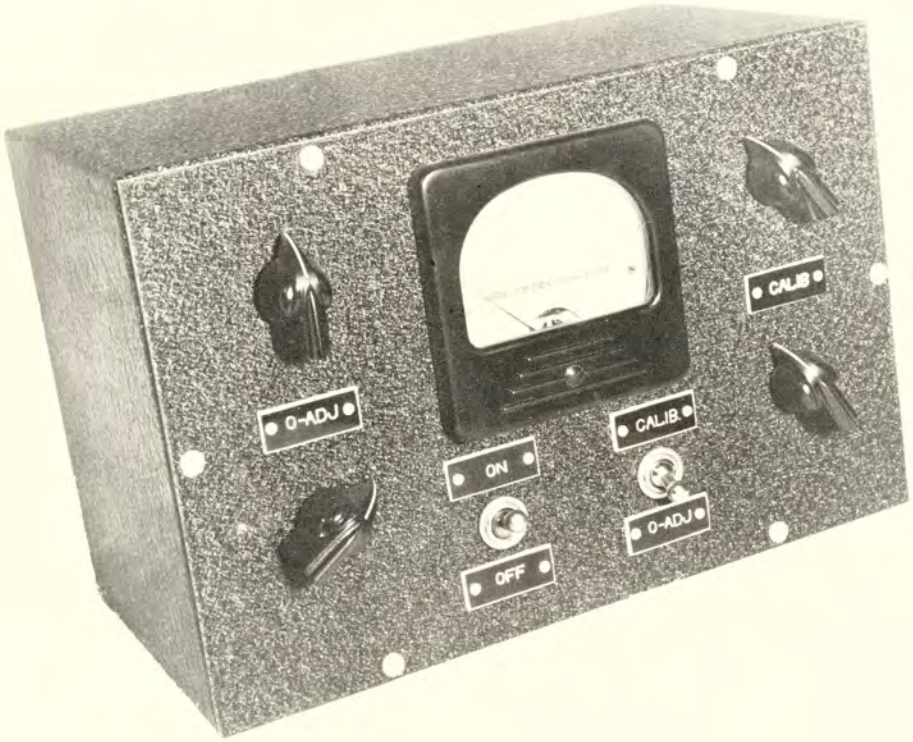
The chronograph, at one time only for the advanced experimenter, is fast becoming a tool within the reach of more handloaders. Modern production methods; new, improved designs, have aroused an interest in this instrument by more and more handloaders. Now he can purchase well-made, dependable instruments capable of accurate readings previously available only to the owners of expensive cumbersome machines. This, of course, is only the beginning. It is not difficult to foresee smaller, less expensive chronographs — perhaps transistorized — in the not too distant future.

While not yet inexpensive enough for the average handloader, the present prices present an opportunity for clubs or groups to have the facilities available for accurate evaluation of members' loads.

Designed for portability, ease of operation and direct reading without calculations. The direct reading is accurate to less than 2% of error.

Three models are available: the Model 12 operates at 1 ampere current from either a 12 V. storage battery or two 6 V. hot shot batteries; the Model 6 operates at 1 ampere current from a standard 6 V. auto battery or a 6 V. hot shot; the Model 110 operates with 110 V., 60 cycle house current.

HOLLYWOOD Chronograph



$97.50

The instrument measures 5″ x 6″ x 9″ and weighs approximately 5 lbs. The metal case has a durable black crackle finish.

Insulated type holders and high quality insulated wires of proper length for 10- and 20-foot tape spacing are included. You may use thin foil tape, one roll of which is supplied with each instrument, or we can supply a silver coated plastic tape. The foil tape is $1.00 per roll; the silver plastic tape is $9.00 per 50 ft. roll.

HANDY DANDY Rifle Reloader

$16.95

A brand-new portable hand tool — low enough in price for the occasional shooter, accurate enough for the bench rester. One look at the outstanding features will show that here, at last, is the tool for the reloader who wants extremely accurate ammunition.

Features

1. Simple decapping plus primer seating; positive feel when primer bottoms
2. Tapered neck sizing
3. Floating chamber, straight line bullet seating
4. Built-on primer pocket cleaner

The tapered neck sizing die is adjustable for correct neck tension. If your particular case cannot be given the proper tension through this adjustment, we will make a die that will — just send us 3 empty cases fired in your rifle.

The alloy bullet seater has an adjustable seating stem, and its unique floating chamber system provides, for the first time, positive straight line seating for any case, minimum or maximum.

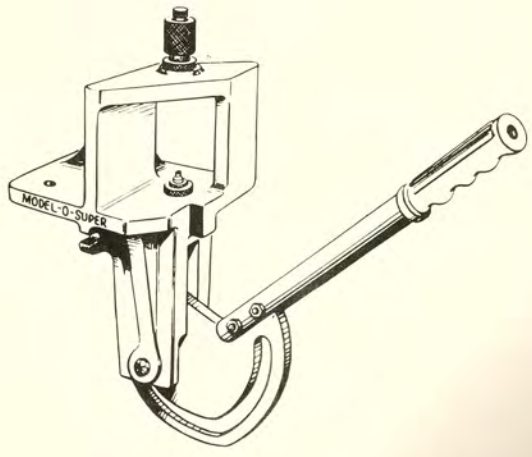
With this tool and powder measure, on-the-range reloading is performed with ease and accuracy.

CONSOLIDATED ARMSLUBE

HERTER'S Model "0" Super Reloading Tool

A new powerful tool that does any reloading job with ease. Cam toggle action provides all the power you need for swaging or full length sizing. The solid lathe bed iron frame and tool steel pins assure long accurate life. A simple change of toggle gives choice of up or down stroke operation. Threaded 7/8-14 to accept standard dies. Comes complete with primer arm and shell holder of your choice (state caliber and primer size), less dies.

$27.95



Too Late to Classify

HANDY DANDY
(Consolidated Armslube)

Bullet Seater

A steel-bodied, straight line seater with a unique floating chamber to assure the accurate bullet seating of any case. Concentricity held to .0003". Comes complete with adjustable, calibrated seating stem and interchangeable Lyman shell holder.

$16.95

HERTER 38 Special Carboloy Die

This full length sizing die, with a carboloy ring set into it, is virtually wear-proof. Many thousands of cases, even nickel plated ones, are easily sized, and the carboloy ring is unaffected. Standard 7/8-14 for use in all popular presses, a hex wrench and 2 extra decapping pins are furnished. Use with our 38 Special Professional seating die.

Our guarantee! Use for a whole year, then return for a full refund if this carboloy die doesn't out-perform all other handgun dies by a wide margin.

Carboloy Sizing Die only $10.79

LACHMILLER
Pistol Bullet Dies

$14.95

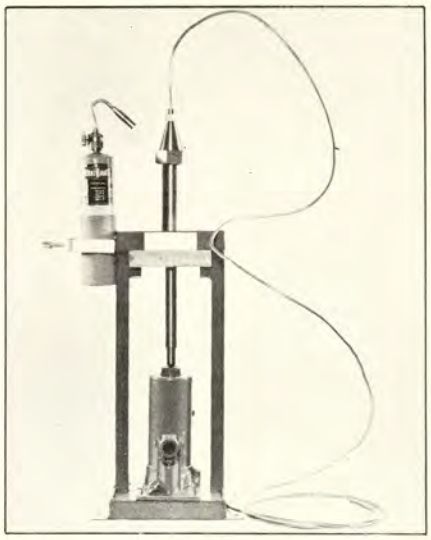
These dies are designed for use in our new series 400 tool. Capable of high production of swaged pistol bullets, they feature automatic ejection of the completed bullet to the top of the die, where they can be easily picked up with the fingers.

Available in .357, .429, .452 and .454 diameters with choice of wadcutter, semi-wadcutter and round-nose shapes.

Morts Multi Machine Co.

Multi-Core Lead Wire Extruder

$59.95 FOB
Less jack and torch



With this tool, plus any 5-10 ton hydraulic jack and a small LP gas torch, you can convert scrap lead into precision formed wire for bullet swaging. Easy to use 10-12 foot lengths can be formed in any size from 30 to 45 caliber. Over 3 pounds of lead extruded in one operation. Weight 40 lbs.

PACIFIC *Military Hollow Pointer*

$11.50

The perfect accessory for the handloader who uses full jacket military ammunition. It will form a perfect hollow point, and is adjustable for depth. No danger of accidentally discharging the cartridge.

Available in the following calibers: 30 carbine, 8mm, 30-06, 7.35 Italian, 7.65 Mauser, 7.62 Russ. and 7mm Mauser.

Too Late to Classify

SHOFFSTALLS *Universal Shell Holder*

$15

✓A new and exciting accessory for metallic cartridge reloaders!

At last, here is a completely universal shell holder that will accept all centerfire cases from 22 Hornet to 45-70. A great time saver if you load several calibers, too.

The case is quickly inserted into the spring-loaded, automatically centering 3-jaw "chuck," and as quickly removed. All loading operations may be performed — full length or neck sizing, repriming, seating, etc. Specify make and model of press.

SHOOTERS ACCESORY SUPPLY

Primer Seater $5.50

Complete control in primer seating is now possible on your loading press. Using only a short stroke, you can seat primers in half the time. Threaded 7/8-14 to fit all standard presses. Uses Echo type threaded shell holder. Price does not include shell holder which is available from us or Echo at $2.25.

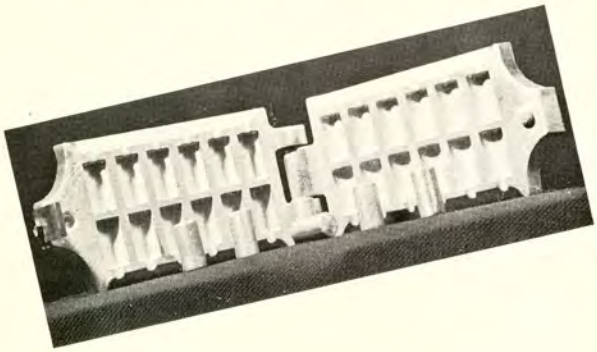
Dies for Handgun Shot Cartridges

$7.95

These specially designed dies will load perfect performing metallic shotshells for all types of hunting. Available in 38 and 45 caliber, they are used in conjunction with your regular reloading dies. Components for 100 shotshells included with dies.

UNITED SPORTS

Core Mould



$5.95

Postpaid

Now you can cast hundreds of .bullet cores in a very short time. These 12-cavity lightweight, unbreakable, aluminum moulds are easy to handle. Available in 38 or 44 caliber. Guaranteed for one year.

ZENITH *Primer Mike*

A fast, dependable micrometer depth gauge that takes all the guess work out of primer seating. Eliminates improperly seated or high primers. Graduated in thousandths of an inch, with primer depth indicated by a plus (high) or minus (low) reading.

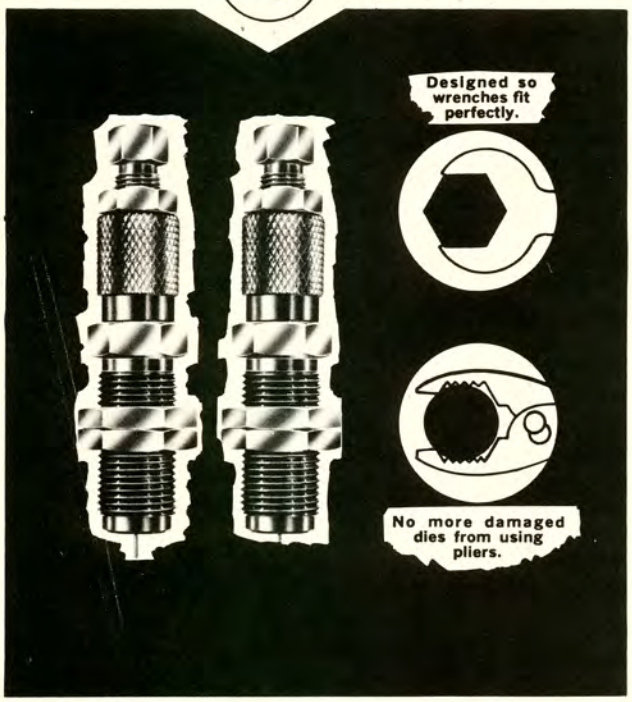
$6.95

Too Late to Classify

NEW!

Texan

HEX DIES

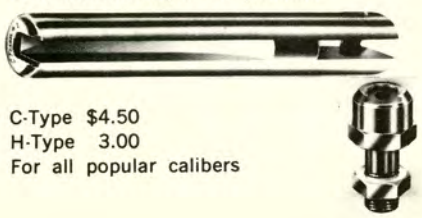


TEXAN HEX-DIES are totally new in design, with exclusive hexagonal grip surfaces. This new shape insures positive grip when setting and unseating, ends damage to dies from use of pliers, eliminates need for set screw in base. Texan Hex-Dies are made of hardened steel, rugged enough to reload thousands of cartridges. And they're self-aligning for straightline bullet seating.

Texan Sizing and Seating Dies fit all presses threaded for 7/8" - 14 dies.

$13.50 per set of two
For all popular calibers.

TEXAN SHELL HOLDERS combine precise, accurate reloads with lasting construction. Texan "H" type shell holder fits Texan's Model T, as well as Hollywood, Dunbar, Universal and C-H presses. The "C" type fits Texan's Model C, Pacific, R.C.B.S., Echo and C-H Super "C" presses.



C-Type $4.50
H-Type 3.00
For all popular calibers

J. C. HIGGINS*

Metallic Shell Reloader

$29.97

A precision-made "C" type press, including chrome-plated dies, shell holder and priming arm. Everything you need to reload your choice of the following calibers: 222 Rem.; 243 Win.; 270; 30-30; 30-06; 38 Spec. Simple to operate; complete instructions included.

J. C. HIGGINS* Shotshell Loader

$42.87

Reload your own shells for as little as 6¢ each! A well-designed tool that is easy to use. Features spring-fingered wad guide that permits fast, true alignment of wads; crimper die makes perfect rolled-edge star crimps every time; large capacity, clear plastic shot and powder hoppers. Choice of 12, 16 or 20 gauge.

* Sears Roebuck & Co

ALL GUN CRANKS are aware that the lighter the bullet in a given rifle cartridge, for equal barrel pressures, the greater will be the muzzle velocity. Another way to put it is – the lower the bullet's sectional density (bullet weight per square inch of caliber) the greater will be the muzzle velocity, for equal barrel pressure. As usually defined, sectional density is the bullet weight in pounds divided by the square of the bullet diameter in inches – w/d^2.

Also, if barrel pressure is increased then muzzle velocity will increase, for bullets of equal sectional density. Since sectional density is purely a matter of bullet weight and caliber – then the other factors affecting muzzle velocity require an intense investigation in any study of muzzle velocity limits.

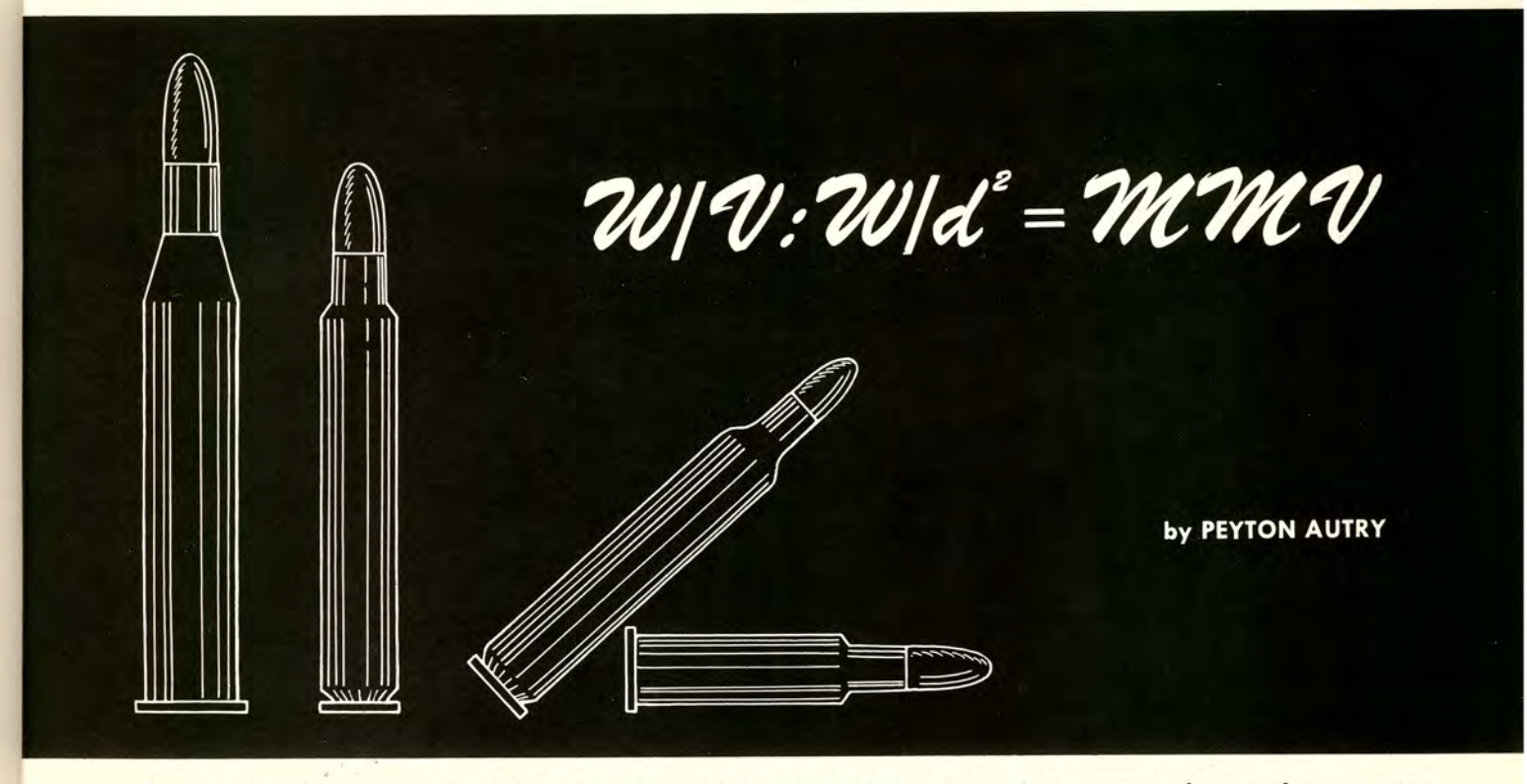
The factors controlling muzzle velocity, as advanced in the past by handloaders, "wildcatters," ballistic experts and others, may be summarized thus, in about the order of their importance:

1. Sectional density
2. Type of powder
3. Weight of powder charge
4. Case capacity
5. Bore capacity
6. Case shape
7. Type of primer
8. Barrel friction
9. Ambient temperature
10. Barrel length
11. Chronograph errors*
12. Loading errors
13. Miscellaneous

It is quite possible to demonstrate the major factors affecting muzzle velocity by analytical methods. These methods, however, are pure ballistic theory and involve the energy and heat equivalents of the powder used and other factors unavailable to or impracticable for the average gun crank.

The author has sought to demonstrate the *relative* importance of these muzzle velocity factors based on chronograph test results. It occurred to me that the reams of published chronograph data on hundreds of loads should provide a quite complete answer on the relative importance of the velocity factors outlined above.

Some time ago I began a systematic study of published chronograph data on a wide assortment of cartridges and loadings. By plotting and cross-plotting these data in the form of graphs it was evident, of course, that one of the major factors governing muzzle velocity is sectional density. A plot of muzzle velocity only *versus* sectional density, using "points" representing a wide variety of loads, gave an indicative plot, but consistent and "smooth" enough for no more than part of the loads checked – proof that another major factor was involved. Various published empirical and rule-of-thumb factors were tried without success. Case capacity and powder weight were used, but even these left much to be desired. The remaining factor to consider, it appeared, was one which would take into account the complete pressure-volume relationship within the barrel. The value of this factor would be recognized by the consistency with which it would give smooth plots of sectional density *versus* muzzle velocity.



by PEYTON AUTRY

Informed riflemen have long known that powder load and bullet weight, among other factors, determine bullet speed.

Here is thoroughly tested, mathematical proof that 95 per cent of maximum muzzle velocity is a function of *powder weight – bore-case volume* against *bullet sectional density*.

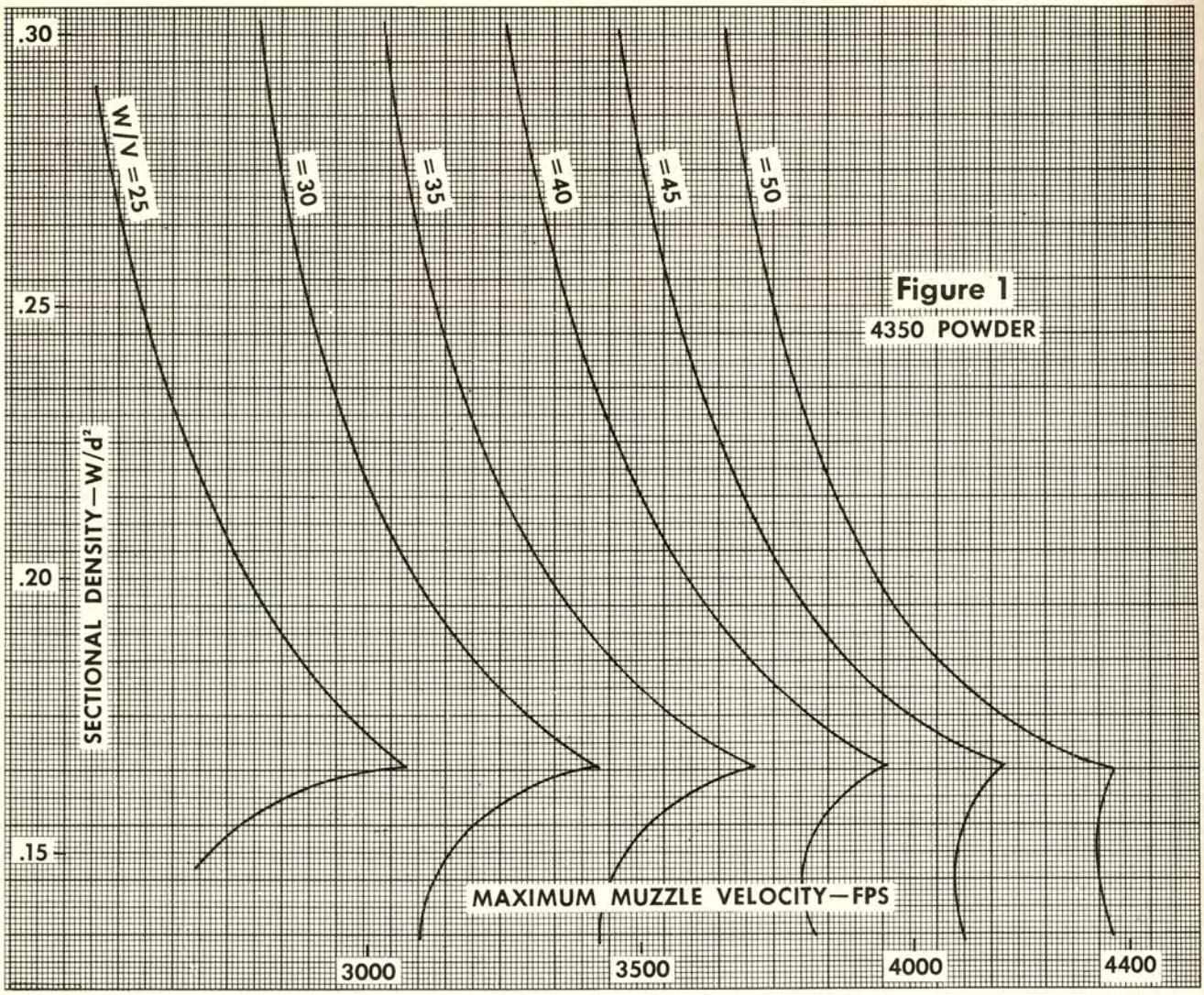
This important, original research, employing the W/V-W/d^2 formula, also demonstrates that *all* other factors – case form and shoulder angles, notably – account for less than 5 per cent of maximum velocity!

Major and Minor Factors

The factor which, in the final analysis, gave smooth plots of test data, takes into account only the amount (weight) of powder which gas-propels the bullet and the volume of case-bore space this gas has to expand into. Since the weight of the powder charge is a measure of the heat energy supplied to the bullets motion, the pressure is dependent upon the amount of the powder charge and the amount of gas volume created behind the bullet as it moves forward. Hence the answer lay in the factor, W/V, which is the weight of the powder divided by the total volume of the barrel and case. The pressure is, of course, affected also by the *type* of powder (or burning rate) and, as stated, the sectional density of the bullet.

A powder of fast burning rate should

*Chronograph errors do not actually affect M.V., but do prevent a true assessment of M.V.



be used only in smaller capacity, smaller caliber rifles, using low sectional density bullets. Conversely, large bore rifles require slower burning powder because large caliber bullets of the same proportions have greater sectional density, and are more difficult to get moving – and also create more expansion volume behind the bullet as it moves along the bore. The greater volume requires a greater charge of slow bulky powder to produce enough gas to fill the bore sufficiently, to maintain adequate pressure, to move the bullet.

It was found that sectional density and the factor, W/V, gave smooth plots of maximum muzzle velocity, plots within less than 5% maximum error of hitting the chronographed muzzle velocity for each of the several hundred loads checked.

Figs. 1 and 2 illustrate this type of plot for 4350 (slow burning) and 4320 (fast burning) powders. These plots are supported by the data given in Tables I and II. The data shown are *average*, of course, and subject to minor – but only minor – variations in other barrels, with other components, etc.

Now, going back to the factors affecting muzzle velocity previously outlined, this means that better than 95% of the maximum velocity attainable by a given load is due to a combination of these major factors:

1. Sectional density of the bullet
2. Type of powder
3. Maximum weight of powder charge
4. Case capacity
5. Bore capacity

It also means that less than 5% of the muzzle velocity is due to:

6. Case shape
7. Primer type
8. Bullet friction in barrel
9. Ambient temperature
10. Barrel length (unless overly long or short)
11. Chronograph errors
12. Loading errors
13. Miscellaneous

Of these last eight factors temperature and barrel length may virtually be eliminated, since the tests were conducted with barrels of nearly the same 24- to 26-inch length, and all near 70 degrees temperature. Testing errors, loading errors and variation in bullet friction probably account for most of the less-than-5% of velocity difference, *leaving little or nothing for variances in case shape and primers.*

Test Data

The test data and loads, etc., used herein have been taken from such sources as *The American Rifleman*, Speer's *Handloaders Manual*, Speer's *Wildcat Handbook*, the *Ideal Handbook*, Sharpe's *Guide to Handloading*, and chronograph tests run for the author. The loads are all maximum recommended loads. Powder charges in excess of those listed may be expected to give difficult extraction and blown primers. Figs. 1 and 2, plotting the major velocity factors, show the maximum muzzle velocity attainable for any given value of W/V (where W is the maximum powder charge in grains and V is the total volume of barrel and case in cubic inches) against sectional density – W/d^2.

Here is the method used in making the curves in figs. 1 and 2, and you'll see also how this example may be used to plot similar curves for other powders.

Weigh a sized case carefully, then fill with water and weigh both case and water. Then, subtracting case weight from weight of water-filled case gives weight of water.

TABLE I—du Pont 4350 Powder

	Cartridge	Bullet wgt. grs.	Sec. dens.	Powder wgt. grs.	Case vol., cu. in.	Bbl. vol., cu. in.	Total vol., cu. in.	W/V	M.V., f.s.	M.V. diff., f.s.*	M.V. diff., %
1	219 Zipper	55	.157	32	.132	.95	1.082	29.8	2975	0	0
2	220 Swift	50	.142	47	.176	.95	1.126	41.7	3910	0	0
3	"	55	.157	46	.176	.95	1.126	40.9	3883	−20	−.5
4	243 Win.	75	.181	47	.205	1.12	1.325	35.5	3459	−80	−2.0
5	"	90	.217	44	.205	1.12	1.325	33.2	3225	+40	+1.2
6	"	105	.254	40	.205	1.12	1.325	30.1	2883	−30	−1.0
7	244 Rem. Imp.	75	.181	49	.228	1.12	1.348	36.3	3598	+30	+.8
8	"	90	.217	45	.228	1.12	1.348	33.3	3311	+130	+3.9
9	"	105	.254	42	.228	1.12	1.348	31.2	2921	−20	−.7
10	250 Sav.	87	.188	42	.166	1.23	1.396	30.1	3145	−30	−.9
11	"	100	.216	41	.166	1.23	1.396	29.4	3010	+30	+1.0
12	"	120	.258	40	.166	1.23	1.396	28.7	2810	0	0
13	25-06	100	.216	55	.250	1.23	1.480	37.2	3328	0	0
14	"	120	.258	52	.250	1.23	1.480	35.1	3042	−70	−2.3
15	257 Wea.	60	.129	74	.316	1.23	1.546	47.7	4229	−50	−1.2
16	"	100	.216	66	.316	1.23	1.546	42.7	3616	0	0
17	"	120	.258	63	.316	1.23	1.546	40.7	3313	−40	−1.2
18	6.5mm Jap	140	.289	41	.169	1.30	1.469	27.8	2736	+30	+1.1
19	270 Sav.	100	.186	47	.190	1.44	1.630	28.8	3004	−30	−1.0
20	"	130	.241	45	.190	1.44	1.630	27.6	2735	−50	−1.8
21	"	150	.278	43	.190	1.44	1.630	26.4	2575	−70	−2.7
22	270 Win.	100	.186	60	.255	1.44	1.695	35.3	3464	0	0
23	"	150	.278	54	.255	1.44	1.695	31.8	2903	0	0
24	"	170	.317	52	.255	1.44	1.695	30.7	2656	−130	−4.9
25	270 Wea.	100	.186	75	.320	1.44	1.760	42.7	3767	−40	−1.1
26	"	130	.241	70	.320	1.44	1.760	39.8	3437	+60	+1.7
27	"	150	.278	68	.320	1.44	1.760	38.6	3250	+20	+.6
28	7 x 57	130	.230	52	.204	1.52	1.724	30.2	2960	−20	−.7
29	"	145	.257	50	.204	1.52	1.724	29.1	2823	−40	−1.4
30	"	160	.284	49	.204	1.52	1.724	28.4	2775	+30	+1.1
31	285 Luft	130	.230	65	.274	1.52	1.794	36.2	3292	+30	+.9
32	"	145	.257	63	.274	1.52	1.794	35.1	3171	−70	−2.2
33	"	160	.284	62	.274	1.52	1.794	34.5	2987	−25	−.8
34	7mm Mash.	130	.230	68	.332	1.52	1.852	36.8	3401	+100	+2.9
35	"	145	.257	64	.332	1.52	1.852	34.6	3161	+70	+2.2
36	"	160	.284	63	.332	1.52	1.852	34.0	3016	−30	−1.0
37	30-06	150	.225	61	.252	1.80	2.052	29.7	3043	+80	+2.6
38	"	180	.270	56	.252	1.80	2.052	27.3	2715	0	0
39	"	200	.301	53	.252	1.80	2.052	25.8	2542	0	0
40	300 Wea.	150	.225	82	.375	1.80	2.175	37.8	3437	+80	+2.3
41	"	180	.270	78	.375	1.80	2.175	35.8	3158	+40	+1.3
42	"	200	.301	76	.375	1.80	2.175	34.9	3004	−20	−.7
43	8mm-06	150	.205	64	.248	1.98	2.280	28.0	2931	−30	−1.0
44	"	170	.232	64	.248	1.98	2.280	28.0	2917	+60	+2.0
45	"	225	.309	59	.248	1.98	2.280	25.8	2544	0	0
46	333 OKH	275	.354	55	.250	2.09	2.340	23.5	2320	0	0
47	333 Exp.	275	.354	63	.296	2.09	2.390	26.4	2455	−30	−1.2
48	35 Newt.	220	.246	83	.334	2.42	2.754	30.2	2880	−50	−1.7
49	"	250	.279	83	.334	2.42	2.754	30.2	2860	−120	−4.2
50	375 H&H	235	.239	86	.320	2.64	2.960	29.0	2820	−50	−1.8
51	"	285	.289	86	.320	2.64	2.960	29.0	2739	−40	−1.5
52	300 Wea.	110	.166	90	.375	1.80	2.175	41.3	4030	+20	+.5
53	30-06 Imp.	110	.166	64	.262	1.80	2.062	31.0	3497	+20	+.6
54	30 Luft Mag.	110	.166	75	.327	1.80	2.127	35.2	3682	−50	−1.4
55	257 Ack. Mag.	60	.129	73	.307	1.23	1.537	47.5	4203	−50	−1.2
56	22-250 Var.	55	.157	42	.170	.95	1.120	37.5	3650	−60	−1.6
57	"	50	.142	42	.170	.95	1.120	37.5	3649	+20	+.6
58	300 H&H	150	.225	77	.313	1.80	2.113	36.4	3349	+30	+.9
59	"	180	.270	69	.313	1.80	2.113	32.7	2998	+15	+.5
60	"	200	.301	66	.313	1.80	2.113	31.2	2823	−30	−1.1
61	"	220	.330	65	.313	1.80	2.113	30.7	2718	−60	−2.2
62	308 Win.	180	.270	51.5	.196	1.80	1.996	25.9	2624	0	0
63	375 H&H	300	.306	81	.320	2.64	2.960	27.4	2634	0	0
64	7 x 57	160	.284	45.5	.204	1.52	1.724	26.3	2529	−60	−2.4
65	"	175	.310	45	.204	1.52	1.724	26	2416	−100	−4.1
66	30-06	180	.270	57	.252	1.80	2.052	27.7	2759	+20	+.7
67	"	200	.301	52	.252	1.80	2.052	25.2	2516	0	0
68	"	220	.330	52	.252	1.80	2.052	25.2	2430	−50	−2.0
69	22-250 Var.	63	.179	39	.170	.95	1.120	34.8	3582	+90	+2.5
70	270 Win.	130	.241	55	.255	1.44	1.695	32.3	3116	+90	+2.9
71	"	150	.278	50	.255	1.44	1.695	29.4	2791	0	0

Loads 1 through 57 from Speer's *Reloading Manuals* No. 3 and 4 for 1959. Maximum loads are listed and should be reduced 5 grains, then worked up to that listed, if at all.

Loads 58 through 71 are as published by *The American Rifleman* and tested by the H. P. White Co.

*Figures show velocity difference, if any, of chronograph reports compared to plot of fig. 1.

TABLE II—du Pont 4320 Powder

	Cartridge	Bullet wgt. grs.	Sec. dens.	Powder wgt. grs.	Case vol., cu. in.	Bbl. vol., cu. in.	Total vol., cu. in.	W/V	M.V., f.s.	M.V. diff., f.s.*	M.V. diff., %
1	219 Zip.	40	.114	31.5	.132	.95	1.082	29	3838	+100	+2.6
2	222 Rem.	55	.157	26.5	.097	.95	1.047	25.3	3193	+110	+3.4
3	"	50	.142	27	.097	.95	1.047	25.8	3303	+110	+3.3
4	219 Zip.	45	.128	30.5	.132	.95	1.082	28.2	3725	+150	+4.1
5	"	50	.142	30	.132	.95	1.082	27.6	3503	+100	+2.9
6	"	55	.157	29.5	.132	.95	1.082	27.2	3393	+110	+3.2
7	219 Wasp	45	.128	31	.126	.95	1.076	28.8	3542	−30	−.9
8	"	50	.142	30.5	.126	.95	1.076	27.4	3444	+100	+2.9
9	"	55	.157	30	.126	.95	1.076	28	3349	0	0
10	22-250	45	.128	40	.170	.95	1.120	35.7	3900	−130	−3.3
11	"	50	.142	39.5	.170	.95	1.120	35.2	3873	+20	+.5
12	"	55	.157	38.5	.170	.95	1.120	34.3	3778	+90	+2.4
13	220 Swift	45	.128	43	.176	.95	1.126	38.1	4013	−140	−3.5
14	"	50	.142	42.5	.176	.95	1.126	37.7	3935	−20	−.5
15	"	55	.157	41	.176	.95	1.126	36.4	3834	0	0
16	250-3000	60	.129	42	.166	1.23	1.396	30.1	3596	−90	−2.5
17	"	87	.188	39	.166	1.23	1.396	27.9	3193	−20	−.6
18	"	100	.216	38	.166	1.23	1.396	27.2	3040	+20	+.6
19	"	120	.258	37	.166	1.23	1.396	26.5	2842	+30	+1.0
20	257 Robts.	60	.129	47	.209	1.23	1.439	32.7	3754	−90	−2.4
21	"	87	.188	44	.209	1.23	1.439	30.6	3385	+40	+1.2
22	"	100	.216	40	.209	1.23	1.439	27.8	3080	−40	−1.2
23	"	120	.258	37	.209	1.23	1.439	25.7	2736	−65	−2.4
24	25-06	87	.188	47	.250	1.23	1.480	31.7	3390	+10	+.3
25	"	100	.216	46	.250	1.23	1.480	31.1	3160	−60	−1.9
26	"	120	.258	45	.250	1.23	1.480	30.4	2902	−120	−4.1
27	6.5 Jap	87	.179	41	.169	1.30	1.469	27.8	3305	+75	+2.3
28	"	120	.247	38	.169	1.30	1.469	25.8	2860	+30	+1.0
29	"	140	.289	36	.169	1.30	1.469	24.5	2625	−20	−.8
30	256 Newt.	87	.179	56	.250	1.30	1.550	36.2	3567	−40	−1.1
31	"	120	.247	51	.250	1.30	1.550	32.9	3030	−110	−3.6
32	"	140	.289	48	.250	1.30	1.550	30.9	2792	−120	−4.3
33	270 Win.	100	.186	53	.255	1.44	1.695	31.3	3465	0	0
34	"	150	.278	48	.255	1.44	1.695	28.3	2895	+30	+1.0
35	"	170	.317	46	.255	1.44	1.695	27.2	2598	−80	−3.1
36	7 x 57	130	.230	46	.204	1.52	1.724	26.6	2963	+20	+.7
37	"	145	.257	44	.204	1.52	1.724	25.4	2787	−40	−1.4
38	"	160	.284	43	.204	1.52	1.724	24.9	2677	−20	−.8
39	30-06	110	.166	59	.252	1.80	2.052	28.7	3350	0	0
40	"	150	.225	55	.252	1.80	2.052	26.8	2998	+40	+1.2
41	"	180	.270	51	.252	1.80	2.052	24.8	2737	+20	+.7
42	"	200	.301	48	.252	1.80	2.052	23.4	2545	0	0
43	30 Luft	110	.166	68	.299	1.80	2.099	32.4	3659	+110	+2.7
44	"	150	.225	60	.299	1.80	2.099	28.6	3131	+60	+1.9
45	"	180	.270	57	.299	1.80	2.099	27.2	2888	+40	+1.4
46	348 Win.	180	.211	58	.282	2.28	2.562	22.6	2655	+60	+2.3
47	"	220	.258	53	.282	2.28	2.562	20.7	2308	+70	+3.0
48	35 Newt.	180	.201	81	.334	2.42	2.754	29.3	3245	+40	+1.2
49	"	220	.246	78	.334	2.42	2.754	28.3	3054	+70	+2.3
50	"	250	.279	77	.334	2.42	2.754	28	2940	+40	+1.4
51	375 Mag.	235	.239	78	.320	2.64	2.960	26.3	2949	+50	+1.7
52	"	285	.289	75	.320	2.64	2.960	25.3	2706	0	0
53	300 Wea.	180	.270	70	.375	1.80	2.175	32.2	3102	+75	+2.4
54	"	200	.301	67	.375	1.80	2.175	30.8	2946	+75	+2.6
55	222 Rem.	50	.142	23.5	.097	.95	1.047	24.3	3005	0	0
56	"	55	.157	23	.097	.95	1.047	22	2686	+80	+3.0
57	308 Win.	180	.270	43	.196	1.80	1.996	21.5	2450	+100	+4.1
58	375 H&H	285	.289	74	.320	2.64	2.960	25	2636	−40	−1.5
59	"	300	.306	70.5	.320	2.64	2.960	23.8	2513	0	0
60	7 x 57	145	.257	41.5	.204	1.52	1.724	24	2603	−70	−2.7
61	30-06	150	.225	53	.252	1.80	2.052	25.9	2904	−20	−.7
62	35 Whelen	180	.201	65	.250	2.75	2.670	24.3	2936	+60	+2.0
63	"	220	.246	59	.250	2.75	2.670	22.1	2654	+120	+4.5
64	22-250	50	.142	38	.170	.95	1.120	34	3966	+130	+3.3
65	"	55	.157	34	.170	.95	1.120	30.3	3546	+30	+.9
66	270 Win.	100	.186	54	.255	1.44	1.695	31.8	3382	0	0

Loads 1 through 52 from Speer's *Reloading Manuals* No. 3 and 4 for 1959. Maximum loads are listed and should be reduced 5 grains and worked up to that listed, if at all.

Loads 53 through 66 are as published by *The American Rifleman* and tested by the H. P. White Co.

*Figures show velocity differences, if any, of chronograph reports compared to plot of fig. 2.

Since one cubic inch of water weighs 252.77 grains, dividing case-water weight by 252.77 gives volume of case, e.g., 126.38 grains of water would equal 0.50 cubic inches.

Bore volume of barrel equals groove diameter (for simplification) squared times .785 times length from chamber mouth to muzzle. In the 30-06, as example, with groove diameter of .308″ and barrel length of 24″ (26½″ less case length), bore volume is approx. 1.80 cubic inches, case volume is .252 cubic inches, or a total of 2.05. Refer to Tables I and II for volumetric capacity of popular cases and barrels, separately and combined.

Now let's check it out for muzzle velocity with 56 grains of 4350 and a 180-gr. bullet with sectional density of .270. For the W/V ratio, $W/V = 56/2.05 = 27.3$ and $W/d^2 = (180/7000)/.308^2 = 270$. Now refer to fig. 1 and it will be seen that these values of W/V and W/d^2 coordinate at a point between 2700 and 2725 feet per second. Since the W/V curves are plotted only for values of 25, 30, 35, etc., some negligible interpolation or "reading between the lines" is necessary.

The actual plots of figs. 1 and 2 were made (using Tables I and II) by first plotting W/V *vs.* maximum muzzle velocity for bullets of like sectional density. These plots were then used as cross plots to arrive at the generalized form shown in figs. 1 and 2. Tables I and II also show a column of velocity differences between the plots of figs. 1 and 2 and the actual test velocity, as well as the velocity difference in percentages of the muzzle velocity. Note that all of the loads are within less than 5%, plus or minus, of the velocity shown on the plots. This is of particular interest to the ballistic minded rifleman, since it proves that 95 to 100% of muzzle velocity in a rifle is due to two factors shown in figs. 1 and 2, namely, sectional density and maximum powder charge to barrel-case volume ratio.

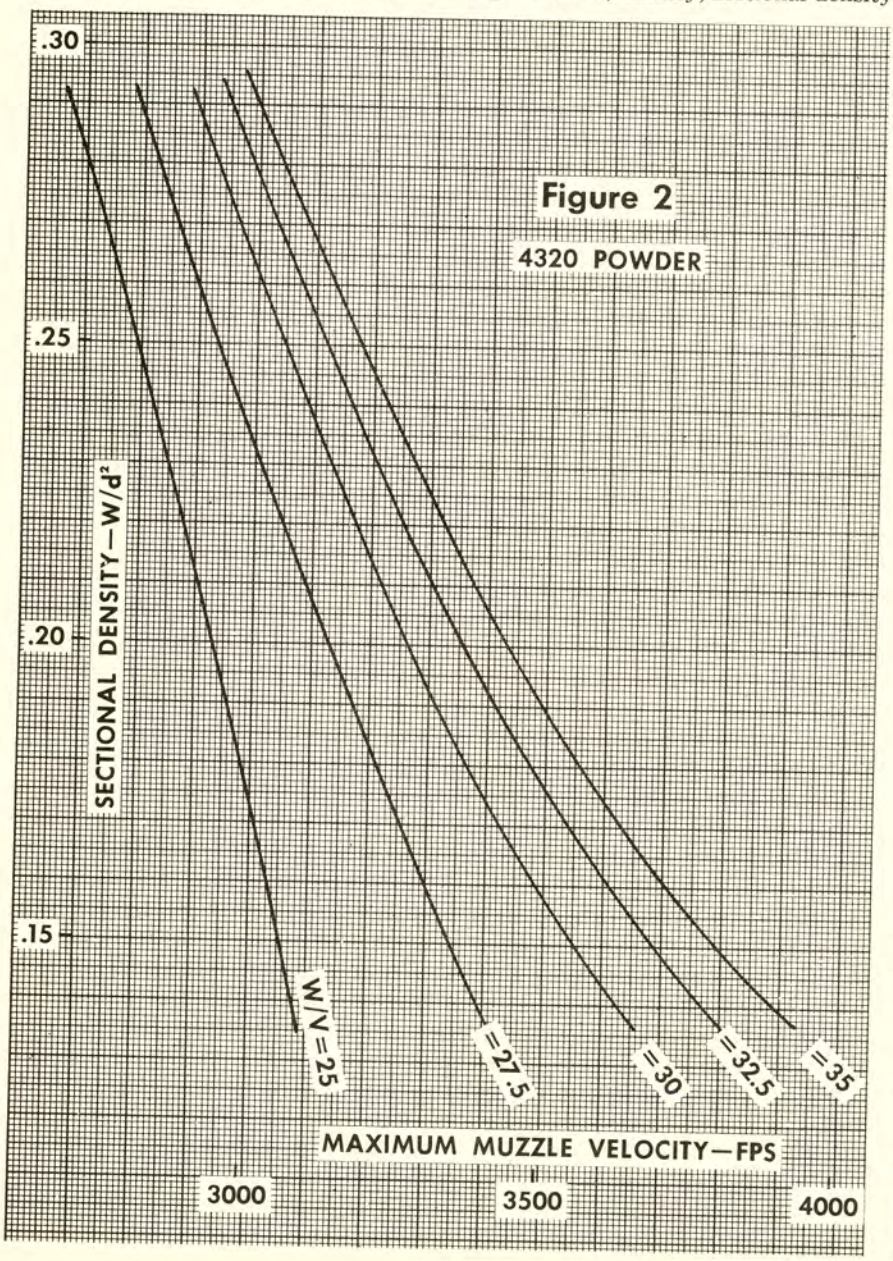


Figure 2

4320 POWDER

To recap, muzzle velocity is simply a matter of expansion space for the burning powder gas, with sectional density controlling the rate at which that expansion space is provided.

All of the other "factors"—notably case shape, case-length-to-diameter ratio, shoulder angles, venturi shoulders, and all that jazz—are hokum!

The tables and data are based on maximum recommended loads. Lighter (squib) loads will result in incomplete burning, in alteration of values.

On the other hand, those powders designed for lighter loading will, if fully loaded for their best combustion levels, show the same results.

The importance of such a "find" begins to take on even greater meaning when one considers that such a plot enables the prediction of the muzzle velocity of any pet combination of case, caliber and load, based on chronograph accuracy, by simply knowing the following:

1. Caliber
2. Bullet weight
3. Total barrel-case volume (cu. in.)
4. Max. safe weight of powder charge (grs.)
5. Type of powder

Safety Warning

Any powder charges selected as a result of using these plots *must be started out* at no greater than 90% of the powder weight indicated by the plot. Let this cardinal rule apply to *any* initial loads selected as a result of the plots in figs. 1 and 2, or to similar plots developed by the reader for other powders. Please bear in mind that all velocities read from figs. 1 and 2 are maximum safe velocities, *and should not be exceeded.*

Powder Notes

Interesting differences may be noted between the slow and fast burning powders shown in figs. 1 and 2.

1. Fast burning powder requires lower W/V (less powder weight) to get the same velocity than does slow burning powder.

2. Very light (low sectional density) bullets with slow burning powder reach a point of lowest weight where further velocity is suddenly *un*attainable. Ultra light bullets and slow powder appear to result in very high bullet acceleration and short "barrel time," the bullet leaving the muzzle before the charge completely burns. (See fig. 1.) Still lighter bullets may result in *reduced* velocity due to the further decrease in "barrel time" and incomplete burning of the powder. In short, the acceleration rate of the bullet is greater than the burning rate of the powder.

3. For load, case and caliber combinations giving the greatest values of W/V for both slow and fast burning powders, it appears that higher maximum velocities are attainable with slower burning powder.

Handloader's Trade Directory

A

Acc-U-Ream, Box 2371, Van Nuys, Calif.
Accuracy Bullet Co., 40 Willard St., San Francisco 18, Calif.
Acme Industries, 625 W. Lawrence St., Appleton, Wisc.
Adamson, Guns, Troy, N.Y.
Alcan Company, Inc., Alton, Ill.
Alpha-Molykote Corp., 65 Harvard Ave., Stamford, Conn.
Anchor Metal Co., 966 Meeker Ave., Brooklyn 22, N.Y.
Avtron, 10409 Meech, Cleveland 5, Ohio

B

B-Square Eng. Co., Box 11281, Forth Worth, Texas
Bahler Die Shop, 1500 Thompson Rd., Coos Bay, Ore.
Barnes, Fred N., 318 Rosevale, Grand Junction, Colo.
Belding & Mull, 100 N. 4th St., Philipsburg, Pa.
Belmont Products, Jerome, Idaho
Biehler & Astels, 1597 Ridge Rd. W., Rochester, N.Y.
Bonanza Sports, Inc., Rt. 4, Fairbault, Minn.
Bullet Pouch, Box 4285, Long Beach 4, Calif.

C

Campbell, Russell, 216 Bobbies Lane, San Antonio 1, Texas
Cascade Cartridge, Inc., Box 282, Lewiston, Idaho
C-H Die Co., Box 3284, Terminal Annex, Los Angeles 54, Calif.
Cladaloy Bullet Co., Box 643, No. Hollywood, Calif.
Consolidated Armslube, Box 1238, Alamagordo, N.M.
C.R. Specialty Co., 1409 Walnut St., Kansas City, Mo.

D-E

Division Lead Co., 7742 W. 61st Pl., Summit, Ill.
Dom Enterprises, Inc., 3985 1st Ave., Sacramento 17, Calif.
DuPont, 2444 Nemours, Wilmington 98, Dela.
English, W. H., 4411 S. W. 100th, Seattle 6, Wash.
Excel, Inc., 9375 Chestnut St., Franklin Park, Ill.

F-G

Federal Cartridge Co., 2700 Foshay Tower, Minneapolis, Minn.
Fisher, Robert E., 4845 Attleboro St., Jacksonville 5, Fla.
Fitz, Box 49702, Los Angeles 49, Calif.
Forster-Appelt Mfg. Co., 82 E. Lanark Ave., Lanark, Ill.
Forty Five Ranch Enterprises, Box 862, Miami, Okla.
Full Ed'z Creel Co., 717 W. 9th St., Cheyenne, Wyo.
Gardner, E. L., Box 1682, Rockford, Ill.
Goerg Ent., 3009 S. Laurel, Port Angeles, Wash.
Gunsmith, The, Box 324, Bedford, Va.

H

H&H Paint Supply, Box 488, Sangerties, N. Y.
Hemsted, Frank A., Box 171, Culver City, Calif.
Hensley & Gibbs, 2692 "E" St., San Diego 2, Calif.
Hercules Powder Co., Wilmington, Dela.
Herkner, E. C. Co., Box 5007, Boise, Idaho
Herter's, Waseca, Minn.
Hodgdon, B. E. Co., Merriam, Kan.
Hollywood Gun Shop, 6116 Hollywood Blvd., Hollywood 28, Calif.
Hornady Mfg. Co., Box 906, Grand Island, Neb.
Hufnail, D. B., Town Line Road., Rutland, Vt.
Hulme Firearm Service, Box 83, Millbrae, Calif.

I-J-K

Industrial Products Co. (IPCO), Box 74, Rockland, Mass.
Kuharsky Bros., Inc., 2425 W. 12th St., Erie, Pa.

L

Lachmiller Eng Co., 6445 San Fernando Rd., Glendale, Calif.
L. L. F. Die Shop, 1281 Highway 99 N., Eugene, Ore.
Lakeville Arms, Inc., Lakeville, Conn.
Lehigh Chem. Co., Box 5197, Chestertown, Md.
Ljutic Industries, Sutcliff Star Rte., Reno, Nev.
Lyman Gun Sight Co., Middlefield, Conn.

M

Malter Arms Co., 225 W. 34th St., N. Y. 1, N. Y.
Marble Arms Co., Gladstone, Mich.
Markell, Inc., 2347 35th Ave., San Francisco 16, Calif.
Maryland Research Co., 968 Radcliff Rd., Towson 4, Md.
Mayville Eng. Co., Inc., Mayville, Wisc.
McKillen & Heyer, Inc., 3871 N. Kirtland Rd., Willoughby, O.
Merit Gun Sight Co., 6144 Manadnock Way, Oakland, Calif.
Morts Multi Machine Co., Box 43, Alpena, Mich.

N

National Lead Co., 111 Broadway, New York 6, N. Y.
N-K Products Co., 3132 Unruh Ave., Philadelphia 49, Pa.
Nonte-Taylor, Rt. 3, Fite Dr., Decatur, Ill.
Norma-Precision, South Lansing, N. Y.
Northridge Bullet Co., 19025 Parthenia St., Northridge, Calif.
Nosler Partition Bullet Co., Box 671, Bend, Ore.

O-P

Ohaus Scale Corp., 1050 Commerce Ave., Union, N. J.
Oregon Industries, 535 S. E. 12th St., Portland 14, Ore.
Pacific Gun Sight Co., Box 4495, Lincoln 4, Nebraska
Perfection Die Co., 1614 Choctaw, El Reno, Okla.
Phelps Engineering Co., 487 Main St., East Orange, N. J.
Pomeroy, Robert, 45 Wyoming Ave., Waterbury 6, Conn.
Potter Engineering Co., 1410 Santa Anna Dr., Dunedin, Fla.

R

RCBS Gun & Die Shop, Box 729, Oroville, Calif.
REDCO, Box 15523, Salt Lake City, Utah
Redding-Hunter, Box 524, Cortland, N. Y.
Remington Arms Co., Bridgeport 2, Conn.
Rochester Lead Works, 300 Exchange St., Rochester 8, N. Y.
Rozzelle Ent., Inc., 23 Sandy Circle, Denver 22, Colo.

S

Santa Anita Eng. Co., 3270 E. Foothill Blvd., Pasadena, Calif.
Santa Fe, 386 W. Green St., Pasadena, Calif.
Scientific Lubricants, 3469 N. Clark, Chicago 13, Ill.
Shoffstalls Model Shop, Davis Rd., West Falls, N. Y.
Shooters Accessory Supply, Box 205, North Bend, Ore.
Shooters Service, Inc., Clinton Corners, N. Y.
Sierra Bullets, Inc., 600 W. Whittier Blvd., Whittier, Calif.
Silver States, Box 343, Castle Rock, Colo.
Southwest Products, Inc., Rt. 4, Box 90, San Antonio, Tex.
Sovereign Instruments Co., Box 5355, Dallas, Tex.
Speer Products Co., Box 244, Lewiston, Idaho
Sportshell Co., 635 N. Pennsylvania St., Indianapolis 4, Ind.
Star Machine Works, 418 Tenth Ave., San Diego, Calif.
Sterling Precision Products, Box 281, Birmingham, Mich.
Stout Enterprises, 7241 Atoll Ave., N. Hollywood, Calif.

T-U-V

Three V Products, 3007 N. Rochester St., Arlington 13, Va.
Ultra Products, 1941 Wilmette Ave., Wilmette, Ill.
United Sports & Mfg. Co., 1263 Third Ave., New Kensington, Pa.
Valley Automatic Machine Co., Vestal Parkway E., Vestal, N. Y.
Val-Scott, 225 Saratoga Ave., Santa Clara, Calif.
Vickerman, W. S. Mfg. Co., Rt. 1, Box 84-A, Moses Lake, Wash.

W-X-Y-Z

Ward Sporting Goods, 405 Court St., Clay Center, Kan.
Wheatherby's, Inc., 2781 Firestone Blvd., South Gate, Calif.
Webster Scale Co., Box 718, Sebring, Fla.
Wells, R. F., Inc., Howard Lake, Minn.
Whit's Shooting Stuff, 2121 Stampede Ave., Cody, Wyo.
Wilkins & Schultz Inc., Box 51, Barrington, Ill.
Williams Gun Sight Co., Davison, Mich.
Wilson, L. E., Box 636, Cashmere, Wash.
Winchester-Western Div., Olin, New Haven 4, Conn.
Zenith Ent., Rt. 1, Box 275, Del Mar, Calif.

Custom Ammunition Makers

Some of the firms below offer custom loads for pistol, rifle and shotgun, while others may load only one type or the other. Write to them for their list or state your needs.

Andy's Gun Shop, Burke, N. Y.
Blackhawk, 6121 N. 2nd St., Rockford, Ill.
Campbell, Russell, 216 Bobbies Lane, San Antonio, Texas
Cartridge Corner, 317 Pells St., Paxton, Ill.
D & E Engineering, Winchester Bay, Ore.
Drumm's Handloads, 410 Belden Ave., San Antonio 14, Texas
Ellwood Epps, Clinton, Ontario, Canada
Frye, Joe F., Box 2202, Memphis 2, Tenn.
Hufnail, D. B., Town Line Rd., Rutland, Vt.
JGR GUNsport Ltd., 2362 Kingston Rd., Toronto 13, Ont., Can.
Mansfield, Paul, New Boston, N. H.
Merlo Custom Reload Service, Box 964, Great Falls, Mont.
Moody, Bob, 1016 N. Warren, Helena, Mont.
Peggar Custom Loads, Box 928, Auburn, Ala.
Pomeroy, Robert, 45 Wyoming Ave., Waterbury 6, Conn.
Reloading Service, 324 N. Prospect, Washington, N. J.
Shooters Service, Inc., Clinton Corners, N. Y.
Wagner's Gun Room, 284 E. Main St., Ashland, Ohio

INDEX

* See manufacturers' insert sheets.

Charles Ray Heckman

1925-1961

ONE OF THE world's leading makers of reloading equipment was killed, along with his entire family, in a tragic automobile accident on Sunday, the 27th of August, 1961.

Charles R. Heckman, founder and president of the well-known C-H Die Company, was born in El Paso, Texas on May 11th, 1925, moving to Montebello, California, with his parents about 1937. He attended high school in Montebello and built his first loading press as a shop project during this time.

Upon graduation, he entered the University of California at Los Angeles, taking a pre-medical course but, like so many other young men of about that age, the war forced him to suspend his education. He accepted a commission in the US Naval Reserve on the 26th of April, 1945, serving at sea aboard a Destroyer Escort, the *USS Douglas L. Howard* (DE-138) as Assistant Communications Officer as well as performing the other usual duties of a junior officer aboard such a ship. Later promoted to Lieutenant, Junior Grade, he served at various duties in recruit training in the Los Angeles area. At the time of his death, he still held the rank of Lieutenant, JG., in the Naval Reserve.

Upon his release from active duty, he decided to follow a career built around his hobby of handloading rather than continuing with his medical education. Through hard work and intensive effort, he developed the C-H Die Company from a "shoestring" operation to one of the largest producers of reloading equipment in the world. The company name, of course, was derived from his initials and, through fortunate coincidence, his two loading presses for metallic cartridges were aptly termed the C-type and the H-type. He also designed and produced an original and efficient loader for shotshells, becoming one of the very few manufacturers to offer equipment for rifle, pistol and shotgun reloading.

The most recent major development to come from his prolific drawing-board was the C-H "Swag-O-Matic" press for cold-forming bullets from sections of lead wire and copper half-jackets. This was by no means a new idea, but Heckman's machine made the operation sufficiently simple, reliable and economical to increase its popularity enormously.

It's a sad subject for speculation, trying to imagine what further developments Heckman might have produced for the handloading public, had he been spared to live out a normal lifetime. It was almost as though he sensed, somehow, that time was short, for he accomplished more in his 36 years than most men manage to in their traditional three-score and ten.

He met and married Scottish-born Evelyn Hawkes in Ensenada, Mexico, in 1954. They had three children: Marie Annette, aged six; Andrew William, five, and Linda Susan, three and a half.

At the time of the accident, the Heckman family was returning to their home in West Covina, California. Charlie had, in fact, visited the editorial offices of THE GUN DIGEST some five or six days before the accident.

The Heckmans' auto, traveling west on US 80, about 18 miles west of Yuma, Arizona, apparently encountered some changes in the traffic lanes due to road construction; they collided with an east-bound auto driven by age 76 Mrs. Flora Van Orden of La Mesa, California. Alone in her car, she was killed instantly, as were the Heckmans.

Charles Heckman's contributions to handloading were numerous, varied and valuable. The excellence of his equipment, reasonably priced, has been a big factor in the growing popularity of handloading over the past several years. His effectively planned advertising and merchandising program helped to nudge many a would-be handloader into "taking the plunge." The familiar crimson presses of C-H are clamped and bolted to thousands of benches throughout the world, and the number of reloads they've made and will produce runs unguessably into the billions.

Within the six months prior to his death, he was one of the originators of the newly-organized National Shooting Sports Foundation. He loved shooting and reloading with a passionate and single-minded devotion which is difficult to convey in words. To illustrate, you may be sure that if Heckman had been writing this he would have noted that people regard firearms as dangerous devices. He would have gone on to admit that firearms *are* dangerous, but he would have stressed, *"if improperly handled."* But then he would have undoubtedly pointed out that automobiles are potentially much more dangerous than any firearm that can legally be owned by a private individual. He would have observed that it is almost completely impossible for any conceivable accident with a firearm to instantly wipe out an entire family of five. He would have been the first to point out the bitter irony in the fact that a man could work with guns and around guns for years with a perfect safety record, only to be obliterated in an instant by one of the gleaming gadgets which have become so completely accepted as a part of our modern civilization.

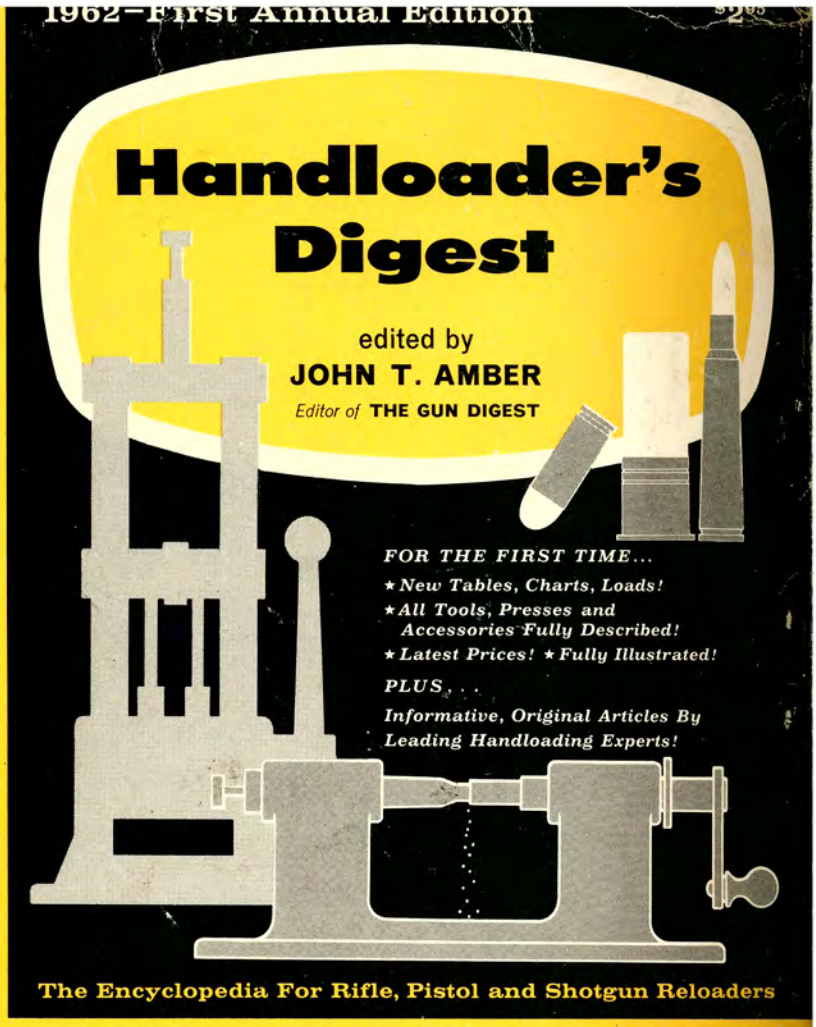
The C-H Die Company, incorporated shortly before Heckman's death, continues in business and is currently under the direction of Charles Heckman's father.

As shooters and handloaders, we deeply regret the loss of Heckman's dynamic services and friendly presence. However, as human beings, it is with infinitely greater sorrow that we mourn the tragic ending of six good lives. It is a sad thing.

Dean A. Grennell

The World's Most Complete Book On Handloading

Covering ALL tools, dies, accessories for metallic cartridges, shotshells, bullet casting, bullet swaging, etc.



PLUS

Components, Reloading Benches, Books and Manuals, Chronographs.

PLUS

Case Dimension Chart

Case lengths, cartridge lengths, groove diameters, twist. Vital information for every handloader.

Bullet Energy Table

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