

Lyman®

Instructions

Lyman Die Sets and Individual Dies



For Use with the Following Dies and Die Sets:

2-Die and 3-Die Rifle & Pistol Sets
Premium Carbide 4-Die Set
Multi-Expand Powder Charge Die
Ram Prime Die
Universal Decapping Die
Tungsten Carbide Resize Die
Neck Size Die
Neck Expanding "M" Die
Taper Crimp Die

Customer Service

If you have any questions regarding any information in this brochure or any of Lyman's wide range of products, or if you wish to order Lyman's full-line catalog (which is ready in January of each year), please call Lyman Customer Service at 1-800-22-LYMAN, except in AK, CT, HI, and foreign, who may call (860) 632-2020. You can reach customer service between the hours of 9:00 a.m. and 3:30 p.m. Monday through Friday, Eastern Time.

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Lyman Ram Prime Die

This die is designed for sensitive one-at-a-time primer seating on top of a press. The Lyman Ram Prime Die works with all 7/8" x 14 threaded presses. It includes large and small primer punches.

Screw your Ram Prime Die into your press as shown in the illustration. Remove your shellholder from the ram and install the primer punch pusher into the ram of your press. Make sure the Ram Prime Die has the proper shellholder installed for the cases you are reloading. The shellholder should be facing you.

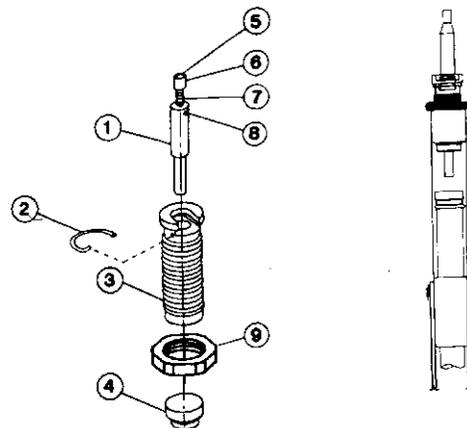
Adjust your die either upwards or downwards with the following suggested method. Insert a case with a fired primer fully into the shellholder. Move the ram to the top of its stroke and adjust the die until the primer cup just begins to engage the bottom of the case. Now, slowly rotate the die until the primer punch engages flat to the base of the case. Tighten the lock ring set screw.

Inset a primer into the primer cup. Make sure you use the proper size priming cup. Make sure the primer is the proper size for your case and the anvil of the primer is facing up in the primer cup. Make sure your case is in position in the shellholder. Slowly bring the ram up and insert the primer into the case. Make sure the primer is seated .002" – .006" beyond the base of the case head. Some minor further adjustment upwards or downwards on the die may be necessary until the primer is seated satisfactorily. Due to the mechanical advantage of the press, it is possible to overseat or crush primers during seating. Insufficient or excessive primer depth seating can greatly reduce primer sensitivity and could result in misfires. You must exercise care until you learn the proper "feel" of your press. Remote priming is a popular option with many reloaders.

Caution: Always use extreme care when handling primers. Never stand or work directly over your press when performing the primer seating operation. Never force primers into pocket. Always read and understand the manufacturer's cautions before handling or using primers. Always wear safety glasses or goggles when seating primers.

Lyman Ram Prime Die (cont'd)

Ram Prime Die



Key	Description	Part No.
1	Priming Punch Holder	7990385
2	Shellholder Clip	7726109
3	Ram Prime Die Body	7990383
4	Primer Punch Pusher	7990384
5	Small Flat Priming Punch	7992924
	Large Flat Priming Punch	7992922
6	Small Sleeve	7992919
	Large Sleeve	7992918
7	Compression Spring	7992920
8	Set Screw	7994422
9	Hex Lock Nut Assembly	7990119

Lyman Powder Charge/Expanding Die System

Instructions for Multi-Expand/Powder Charge Die and Premium Carbide Four-Die Set

The Lyman Multi-Expand Powder Charge System uses special hollow expander plugs which simultaneously expand case mouths and allow powder charges to be dropped from your attached powder measure. This die system condenses two separate loading tasks into one simple step.

Premium 4-Die Sets include a Multi-Expand Powder Charge Die for the neck expander in your choice of caliber only. If you need other plugs for other calibers, contact Lyman Customer Service at 1-800-22-LYMAN for information (see Customer Service section of this brochure).



Lyman Powder Charge/Expanding Die System (cont'd)

The top of the die body is threaded 7/8" x 14 to accept Lyman's #55 Powder Measure or Accumeasure. Other measures using a 7/8" x 14 thread will also work.



PART DESCRIPTION	PART NO.	EXPANDING DROP PLUG	PART NO.	CALIBERS USED WITH
Powder Charge Die Body	7998211	#32P	7998215*	32 S&W Long, 32 H&R (use with .313" - .314" bullets)
Set Screw	7991308	#32AP	7998216	32 S&W Long, 32 H&R, 32 Auto (use with .311" - .312" bullets)
Short Drop Stem	7998212	#38P	7998217	38 Spec., 357 Mag., 357 Max.
Long Drop Stem	7998213	#38AP/9mm	7998219	380 Auto, 9mm Luger, 38 Super Auto
Universal Drop Tube	7998214	#9MAP	7998218*	9mm Makarov
Locknut Assembly	7990119	#40AP/10mm	7998208	40 S&W, 10mm Auto
3/32" Hex Wrench	2998880	#41MP	7998220	41 Mag., 41 Action Express
—	—	#44MP	7998221	44 Spec., 44 Mag.
—	—	#45AP	7998222	45 Auto, 45 Colt, 45 Win. Mag.

* These plugs are not included in this set. For information on the availability of these and other plugs, call 1-800-22-LYMAN.

Note: The 357 Mag., 357 Max., 41 Mag., 44 Mag., 44 Spec., 45 Colt, and 45 Win. Mag. use the short drop stem. All other listed calibers use the long drop stem.

Lyman Powder Charge/Expanding Die System (cont'd)

The Multi-Expand Powder Charge Die Set includes the die body and seven different caliberized expanding powder drop plugs for 32, 9mm, 38/357, 10mm/40, 41, 44 and 45 Auto cartridges, and one universal (non-expanding) powder drop tube for charging rifle cases from 222 to 45 calibers. It also comes with two drop stems for long and short cases. It is the perfect accessory for most standard powder measurers.

Your Multi-Expand Powder Charge Die expands and flares case mouths to facilitate bullet seating. Cast bullet reloaders should use this die to prevent "shaving" of bullet metal during the seating operation. Your Expanding Die plugs are clearly marked on the outside flat diameter as to each size caliber.

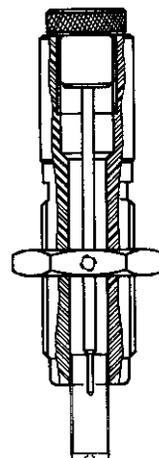
The illustration on the next page shows a cutaway view of the Multi-Expand Powder Charge Die with a cartridge case in position. The die is identified by a stamping on the major outside diameter that reads "MULT EXP PDR CHG". The expanding die plug is identified on the outside diameter with the cartridge size designation. Select the appropriate expanding plug for your cartridge cases. Thread the expanding plug tightly to the stem. Make sure the set screw is backed out so that the drop tube passes freely. Insert the drop stem and expanding plug assembly into the bottom of the die body. The expanding plug will be on the bottom. Tighten the set screw in the die body to secure the drop stem.

Using the Multi-Expand Powder Charge Die: Thread the entire die into your press or press turret. Raise and lower the press handle while turning down the die a little at a time until the case mouth is flared sufficiently so that your bullet easily enters the flared mouth without shaving lead or jacket material. Tighten the lock nut. Thread your powder measure into the top of the die until secure. You may want to readjust the die at this time to facilitate ease of dumping powder from your measure. You are now ready to expand the case and charge the powder. It is important to raise the case until it is at the extreme upstroke of the press. Then release the gunpowder from the powder measure.

Universal Decapping Die

This is the ideal die for decapping primers prior to case cleaning. It works on all calibers 22 through 45 except 378 and 460 Weatherby. It has a solid one-piece construction of hardened steel, and is perfect for military crimped primers.

Thread the Universal Decapping Die into the press so that the bottom of the Die lightly contacts the shellholder when the ram is at the top of its stroke. Tighten the lock ring. Decap the cases only after making sure the one-piece decapping rod assembly is firmly tightened into the die body. See the illustration below.



1. Introduction and Safety

All Lyman Die Sets are coated with preservative oil before they leave the factory. This preservative should be removed from the interiors of the various dies before they are used. We recommend spray-type degreaser. After use, the dies may be re-oiled inside and out before being put away. Like other fine precision tools, your Lyman dies are not plated with any substance. A film of rust may appear at some time. This film should be wiped off and, as long as the die interiors stay rust-free, no harm is done.

Install the proper shellholder on your press ram before proceeding with any die installations.

Some basic safety precautions should be followed while reloading. This is by no means an exhaustive list of precautions.

Safety Precautions

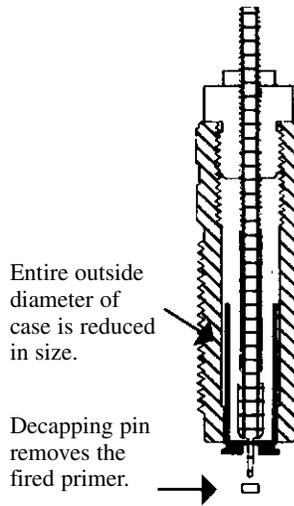
- Use extreme caution when handling powder.
- Keep powder in a *safe, secure, dry, locked* area that is not subject to heat extremes.
- Always wear safety glasses or goggles when using your reloading equipment.
- Keep distractions such as televisions, children, and pets away from your work area. You must be able to give full, undivided attention to the reloading task.
- Keep all potential sources of ignition away from the work area and, of course, never smoke near the work area.
- Keep all flammable components, such as primers and powders, away from the work area.

2. Resizing and Decapping

(Two-Die Sets, Three-Die Sets, Four-Die Sets; Tungsten-Carbide Die and Neck Size Die)

Figure 1 shows cutaway views of resizing dies with cartridge cases in position. This die can be identified by the "SIZE" (or "NECK SIZE" for the Neck Size Die) stamped between the knurled top and threaded shank of the die. Note how this die actually performs several operations at the same time.

Straight-Wall Cases



Bottleneck Cases

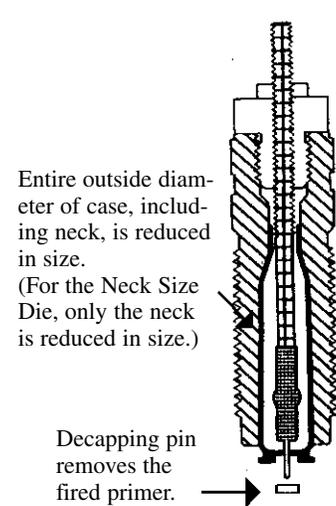


Figure 1

The entire cartridge case enters these dies, flush to the shellholders.

Resizing and Decapping (con't)

Adjusting the standard resizing/decapping die (full-length or neck size): Make certain the expanding button is tight on the decapping spindle rod and the decapping pin does not protrude more than 1/8" below the bottom of the die. Loosen the set screw in the die lock ring and back it off to give you room to screw the die into the press.

Lower the press handle until the shellholder is at its highest point. Turn the die into the press until its bottom edge makes firm contact with the shellholder. Exception: tungsten-carbide size dies (refer to as "T/C dies" from here on) for straight-wall pistol cases require a different setup. See special instructions below.

The "SIZE" die is now adjusted for either full-length or neck-resizing and decapping. Screw down the lock ring and tighten the set screw.

Adjusting the T/C die: With the shellholder at its highest point, turn your T/C die into the press until the dies' bottom edge is just the thickness of a matchbook cover away from the shellholder. Tighten the die lock ring and the set screw. Your T/C die is ready to use.

Do not turn your T/C die to contact the top of the shellholder! Carbide is extremely hard material which shatters easily if forced against a hard surface, such as the shellholder.

Adjusting the decapping Rod Assembly: rods and pins will last longer if the decapping rod assembly is carefully centered in the die mouth and securely tightened before use. Check the rod and pin frequently since they sometimes loosen under the strain of reloading operations.

Note: Pistol dies feature solid decapping rod made from hardened heat treated tool steel.

Lubrication: Unless you are using a T/C size die, you must apply a thin film of case lubricant to the neck and body of each cartridge case before inserting it into the "SIZE" die. Excessive lubricant traps air in the die and dents the cartridge case. Dipping the case mouth into powdered graphite or motor mica lubes the insides of the case necks, reduces friction on the expanding button, and helps reduce case stretching. The T/C die does not require any kind of lubrication on the cartridge cases processed through it.

3. Neck-Expanding

(Three-Die Sets, Neck-Expanding "M" Die—See other side for Multi-Expand/Powder Charge Die; Used in Four-Die Sets)

The Lyman Neck-Expanding "M" die expands and flares case mouths to facilitate bullet seating. It is included in all three-die sets and may be purchased separately for most cartridges. Cast bullet reloaders should use this die to prevent "shaving" of bullet metal during the seating operation.

Figure 2 shows cutaway views of Neck-Expand dies with cartridge cases in position. This die is identified by the "NECK EXPAND" stamped between the knurled top and threaded shank of the die body. Note the two-step expanding plug in the die. The first step of this plug expands the neck to slightly under bullet diameter while the second step expands the first 1/16" of the neck to slightly over bullet diameter. This allows cast bullets to enter the case without shaving lead.

Adjusting the Neck-Expanding "M" Die: Remove the expanding plug stem from the die body. Loosen the set screw and die lock ring and back off the die lock ring for sufficient room to screw the die body into the press. Lower the press handle until the shellholder is at its highest point, then screw the die into the press until the die's bottom edge made light contact with the shellholder. The die body is now adjusted. Turn down the lock ring and tighten its set screw.

Your expanding plug must now be adjusted to the proper depth. Start the expanding plug stem into the die body. Place an empty, sized cartridge case in the shellholder and lower the press handle until the shellholder is again at its highest point. Turn in the expander plug stem until you feel the expander plug contact the case mouth. This means the first (and narrower) stage of the plug is entering the case mouth.

Lift and lower the press handle slightly while continuing to adjust the expanding plug stem until it flares the case mouth. The case mouth should be flared enough to allow your bullet to easily enter the mouth without shaving lead or jacket material. With the Neck-Expanding Die adjusted, secure the expander plug lock nut.

Neck-Expanding (con't)

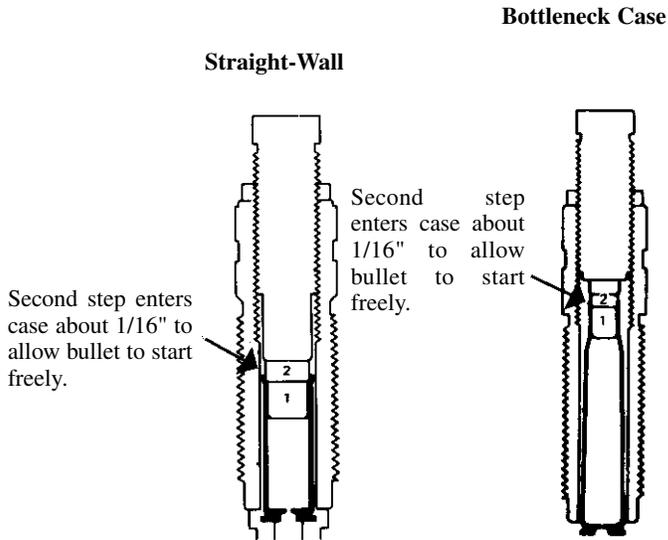


Figure 2

The entire cartridge case enters these dies, flush to the shellholders.

4. Bullet Seating

(Two-Die Sets, Three-Die Sets, and Four-Die Sets)

Figure 3 shows cutaway views of Bullet Seating Dies. This die can be identified by the "SEAT" stamped between the knurled top and threaded shank of the die. Note that the cartridge does not entirely enter this die. Lyman seating dies incorporate a built-in roll-crimping shoulder which may, or may not, be used depending upon the reloader's preference. The cartridge case in the illustration is shown in the non-crimp position. Do not roll-crimp rimless auto-loading cartridges such as 45 ACP, 9mm Luger, and 380 ACP. These cartridges headspace on the case mouth and should be taper-crimped.

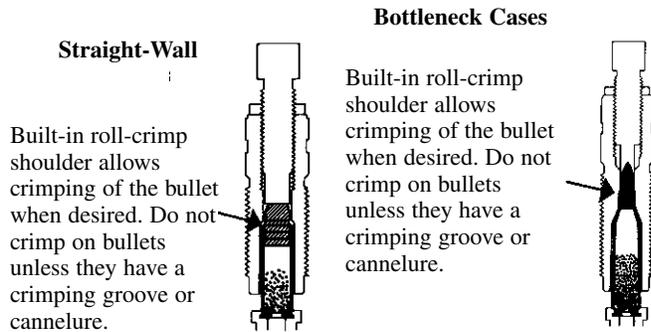


Figure 3

The entire cartridge case does not enter these dies.

Adjusting the Seating Die: Back off several turns on the die lock ring and start the die into your press. Place an empty, sized cartridge in the shellholder and lower the press handle until the shellholder is at its highest point. Turn the die down until you "feel" the mouth of the case touch the crimp shoulder in the die. When you feel the case mouth touch, back off the die very slightly and tighten down the die lock ring. Your case is now adjusted for seating without crimping, as shown in the illustration.

Bullet Seating (con't)

Bullet Seating: Your bullet must now be seated to the proper depth. Back off the bullet seating screw about 1/2". Place a cartridge case into the shellholder and a bullet into the mouth of the case. Lower your press handle, until the shellholder is again at its highest point, and turn down the die's seating screw until it contacts the bullet. Raise and lower the press handle while turning down the bullet seating screw a little at a time until the bullet is seated to the desired depth. If you do not wish to crimp, your die is fully adjusted at this point and you should tighten the die lock ring and set screw. Read on if you wish to crimp.

5. Crimping

(Two-Die Sets, Three-die Sets, Four-Die Sets, and Taper-Crimp Dies)

A. Roll-Crimping: Make certain your bullet is seated exactly to the bullet's cannelure or crimping groove. Back off 1/4 turn on the bullet seating screw. Screw the seating die body down 3/4 turn or until a satisfactory crimp is obtained. Tighten the die lock ring and set screw once you are satisfied with the degree of crimp.

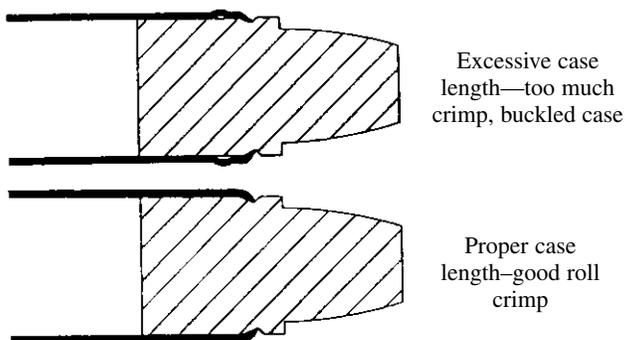


Figure 4
Roll-crimping

Crimping (con't)

B. Taper Crimping: This operation requires a special Taper Crimp die which is used to reduce case neck diameter by .001" to .002". This increases case mouth tension, improves feeding, and provides proper headspace on rimless cartridges which headspace on the case mouth. With the completed, but uncrimped, cartridge in the shellholder, the bullet seated to proper depth, and the ram in the full "up" position, screw the Taper Crimp Die down until it contacts the case mouth. Lower the press ram and turn down the die about 1/2 turn. Measure the case mouth diameter and continue adjusting the die by turning it down until the taper crimping operation results in a neck diameter .001" to .002" less than obtained in the standard seat/roll-crimp die. When the crimp is satisfactory, secure the die lock ring and its set screw.

Caution: A reduction of case mouth diameter greater than .003" may cause bullet deformation and often results in a loose bullet.

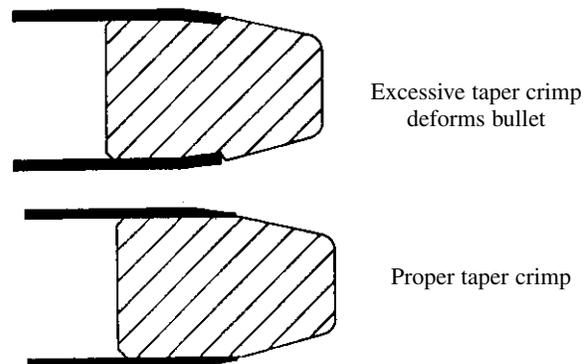


Figure 5
Taper Crimping