

RL 550B

Instruction Manual

Version 7.8



RL 550B Parts List

Part #	Description	Part #	Description
13149	Manual	* 13930	Locator Buttons (3)
13409	Crank	13939	Body Collar Clamp
13573	Machine Box	13940	Body Collar - Part
13583	Link Arm, Left	13943	Powder Bar Bolt
13644	Powder Bar Spacer	13951	Powder Bar Post, Small
13650	Spent Primer Cup	13957	Magazine Shield Cap
13673	Primer Magazine, Red, Large	13958	Powder Bar Bolt Washer
13691	Powder Measure Tube	13961	Slide Pickup Adjustment Screw
13700	Link Arm Pin	13964	Retain Spring Screw
13704	Handle Washer	13966	Shellplate Platform Bolt
13707	Follower Rod	13967	Primer Seating Punch, Large
13719	Cartridge Spring Retainer Screw	13979	Primer Retain Pin Spring
13720	Index Sprocket	13996	Primer Punch Set Screw
13734	Parts Box	13997	Index Ball Spring
13747	Link Arm, Right w/Hook	13998	Spent Primer Catcher Pin
13757	Primer Seating Punch, Small	13999	Primer Pickup Tip, Yellow, Small
13765	Roller	14001	Roller Pin
13775	Main Shaft	14003	Flexible Orifice, Red, Large
13781	Shellplate Platform	14008	Toolhead Pin
13789	1/4-2/8 Set Screw	14010	Primer Pickup Tip, Green, Large
13793	Roller	14013	Roller Bracket Screw
13794	Shellplate Bolt	14014	Primer Housing Screw
13795	Machine Cover	14015	Primer Track Bearing
13799	Stripper Wing Nut	14023	8-32x3/4 BH Screw
13801	Tinnerman Nut Insert	14024	Flexible Orifice, Blue, Small
13803	Ejected Cartridge Chute Bracket	14025	Primer Slide Return Spring Retainer
13824	Primer Seating Cup, Large	14033	Spring
13825	Primer Seating Cup, Small	14037	Clamp/Bracket Screw
13830	Main Shaft Pivot Pin	14040	Retaining Clip
13834	Solid Link Arm Pin, Left	14051	Primer Retaining Pin
13839	Cartridge Collection Bin	14067	Die Lock Ring
13841	Nylock Nut	14202	Powder Measure Tube Screw
13845	Collar Sleeve	14280	Roller Bracket Shell Platform
13848	Bellcrank Bushing	14281	Primer Slide Assembly, Large
13850	Operating Handle Knob	14282	Primer Slide Assembly, Small
13857	Battery Cover	17085	Dispensing Tip, Large
13864	Switch Lever	17086	Dispensing Tip, Small
13869	Operating Rod	18086	Shoulder Washer
13871	Bellcrank Cube	20048	Spare Parts Kit
13879	Primer Magazine, Blue, Small	20059	Primer Pickup Tube, Yellow, Small
13881	Hollow Link Arm Pin, Right	20060	Primer Pickup Tube, Green, Large
13882	Powder Measure Lid	20062	Powder Bar Assembly, Small
13885	Return Bracket	20063	Powder Bar Assembly, Large
13887	Operating Rod Bracket	20064	Powder Die
13889	Primer Slide Roller	* 20093	Shellplate
13890	Spring Washer	20094	Frame
13891	Index Ball	20263	Primer Feed Body w/ Shield
13893	Powder Bar Post, Large	20302	Primer Early Warning System
13898	Primer Slide Stop Nut	20303	Powder Measure Failsafe Kit
13899	Spent Primer Catcher Chute	20339	Bellcrank
13904	Bellcrank Bolt, New Style	20636	Operating Handle Assembly
13909	Toolhead	20782	Powder Measure System
13917	Roller Clip	21275	Connector Body Collar
13919	Slide Roller Post	22038	Crank Assembly
13920	Primer Slide	22273	Powder Body w/ Drop Tube
13921	Powder Bar Spacer Plug	97000	Rod
13923	Brass Tip Set Screw		
13924	Slide Post		
13925	Ejector Wire		
13926	Cartridge Spring		
13928	Primer Slide Return Spring		

* Indicates caliber specific parts. See the caliber conversion chart for the correct part number for the caliber you are loading for.

Some items listed are not shown in schematic illustration.

RL 550B Automatic Powder System

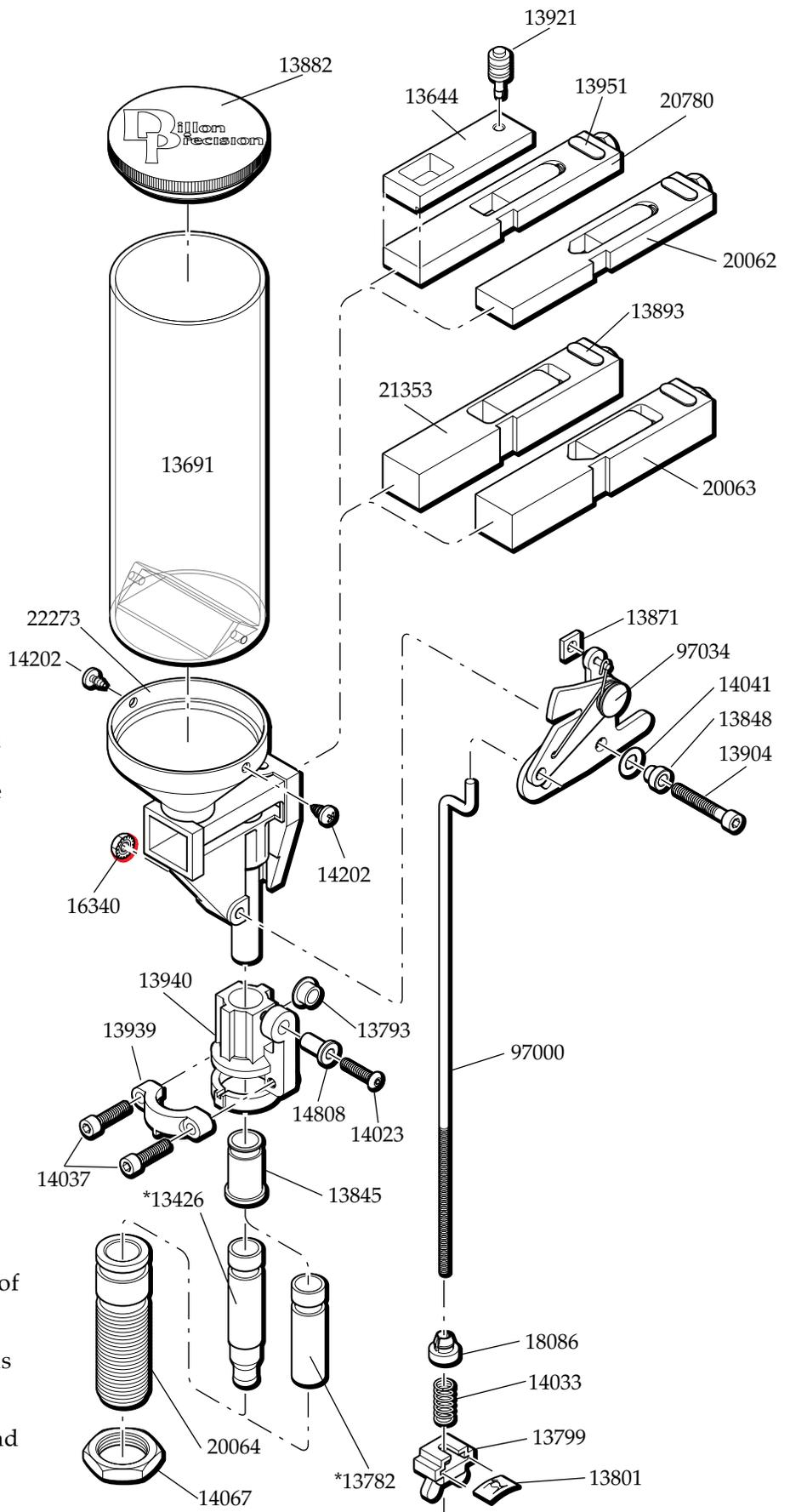
- 13426 * Powder Funnel, .45 cal Pistol
- 13644 Powder Bar Spacer
- 13691 Powder Measure Tube Only
- 13782 * Powder Funnel, .22 cal Rifle
- 13793 Roller
- 13845 Collar Sleeve
- 13848 Bellcrank Bushing
- 13871 Bellcrank Cube
- 13882 Powder Measure Lid
- 13893 Powder Bar Post, Large
- 13904 Bellcrank Screw
- 13921 Plastic Plug
- 13939 Body Collar Clamp
- 13940 Body Collar - Part
- 13943 Powder Bar Bolt
- 13951 Powder Bar Post, Small
- 13958 Powder Bar Bolt Washer
(not pictured)
- 14023 8-32x3/4 BH Screw
- 14037 Clamp/Bracket Screw
- 14041 Bowed Washer
- 14067 Die Lock Ring
- 14202 Powder Measure Tube Screws
- 14808 Collar Roller Bushing
- 16340 10-32 Nylon Lock Nut
- 20062 Powder Bar Assembly, Small
- 20063 Powder Bar Assembly, Large
- 20064 Powder Die
- 20780 Powder Bar Assembly, Extra Small
- 21275 Connector Body Collar - Complete
- 21353 Powder Bar Assembly, Extra Large
- 22273 Powder Measure, Part
- 97034 Slotted Bellcrank
- 20303 Powder Measure Failsafe Kit**
- 13799 Stripper Wing Nut
- 13801 Tinnerman Nut Insert
- 13885 Return Bracket
(not pictured- see the main schematic to identify part)
- 14033 Rod Spring
- 18086 Shoulder Washer
- 97000 Failsafe Rod

NOTE: * Indicates caliber specific parts – see the caliber conversion chart for the correct part number for the caliber you are loading for.

WARNING

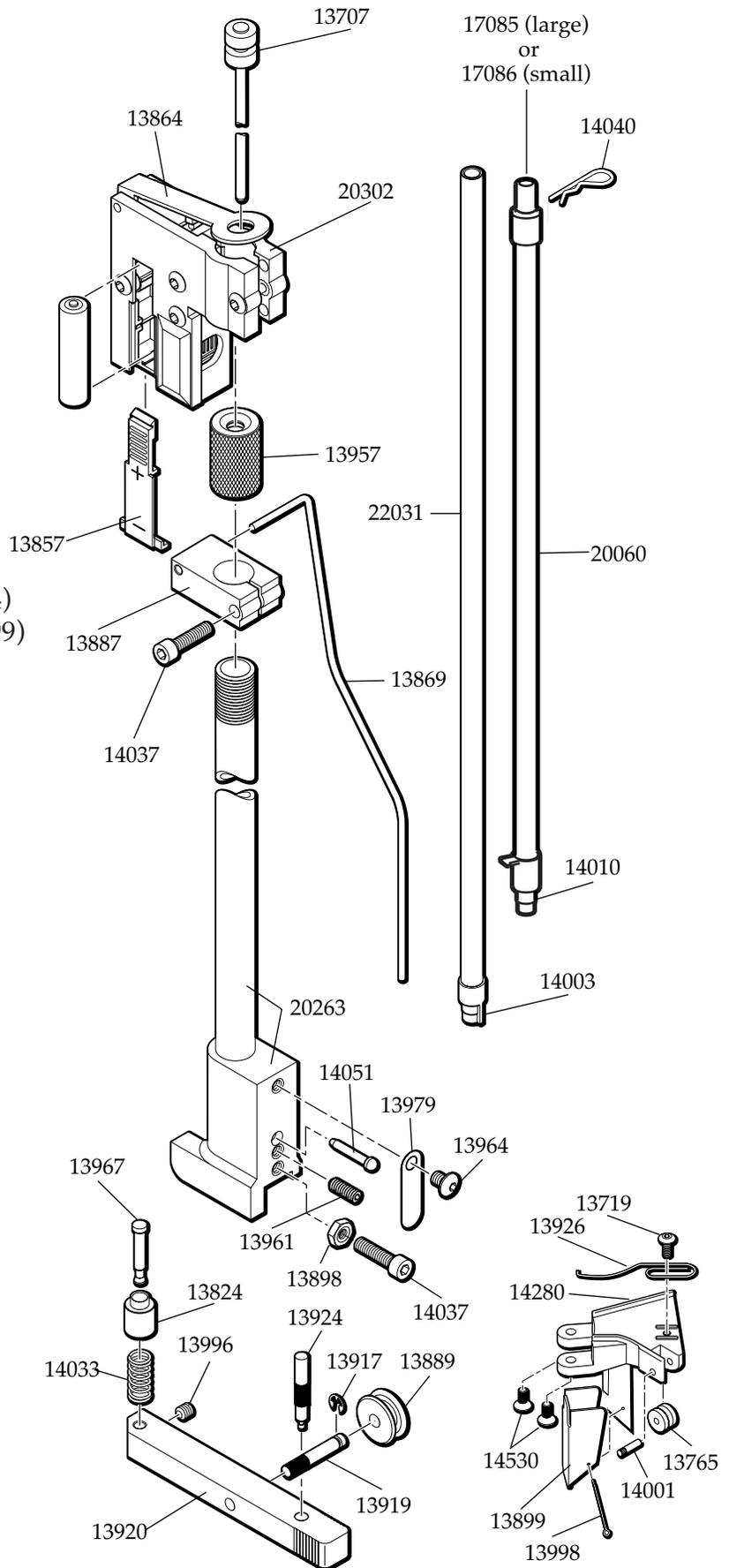
This powder measure drops a full charge of powder each time the operating handle is cycled. If, for any reason, you believe that more than a single measure of powder was dropped or you think that you may have cycled the handle more than once on a single case, you need to empty the case and start over.

A double charged case can result in bodily injury or a damaged firearm.



RL 550B Automatic Primer System

- 13757 Primer Seating Punch, Small
- 13824 Primer Seating Cup, Large
- 13825 Primer Seating Cup, Small
- 13869 Operating Rod
- 13887 Operating Rod Bracket
- 13889 Large Roller
- 13898 Primer Slide Stop Nut
- 13917 Roller Clip
- 13919 Roller Pin
- 13920 Primer Slide
- 13924 Primer Slide Return Spring Post
- 13957 Primer Shield Cap
- 13961 Slide Pickup Adjustment Screw
- 13964 Primer Feed Stop Spring Screw
- 13967 Primer Seating Punch, Large
- 13979 Primer Feed Stop Spring
- 13996 Primer Punch Set Screw
- 14003 Flexible Orifice Large (small 14024)
- 14010 Pickup Tube Tip Large (small 13999)
- 14033 Primer Seating Cup Spring
- 14037 Clamp/Bracket Screw
- 14040 Retaining Clip
- 14051 Primer Feed Stop Pin
- 17085 Dispensing Tip, Large
- 17086 Dispensing Tip, Small
- 20263 Primer Housing and Shield
- 22028 Primer Pickup Tube, Small
- 22029 Primer Pickup Tube, Large
- 22030 Primer Magazine, Small
- 22031 Primer Magazine, Large
- 20302 Primer Early Warning System**
- 13707 Follower Rod
- 13857 Battery Cover
- 13864 Switch Lever
- 14280 Roller Bracket Assembly**
- 13719 Cartridge Spring Retaining Screw
- 13765 Roller
- 13899 Spent Primer Catcher Chute
- 13926 Cartridge Spring
- 13998 Spent Primer Catcher Pin
- 14001 Roller Pin
- 14530 Roller Bracket Screw(s)
- Complete Primer Slide Assemblies**
- 14281 Primer Slide Assembly, Large
- 14282 Primer Slide Assembly, Small



Introduction

First of all, the Dillon RL 550B is a remarkably simple machine—a little care and thought while setting up will save you time and give you thousands of trouble free rounds.

Suggested Minimum Equipment:

- 1) Loading Manual
- 2) Powder Scale
- 3) Safety Glasses
- 4) Primer Flip Tray *
- 5) Dial Caliper * (* Indicates items that are not absolutely essential, but are pretty darned handy!)

Mounting the RL 550B to your bench.

Place your RL 550B on the edge of sturdy bench or table. Give yourself about 12 inches of work space on each side of the machine to allow room for components.



Fig. 1 - Using the machine as a template, mark and drill four 1/4 inch holes allowing 12 inches on each side for your work area.

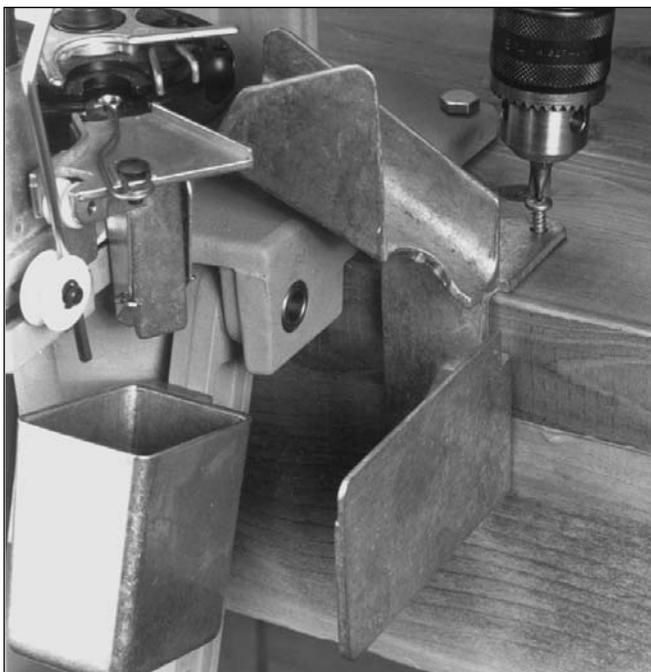


Fig. 2 - This photograph shows the correct mounting position of the cartridge collection bin bracket in relation to the machine.

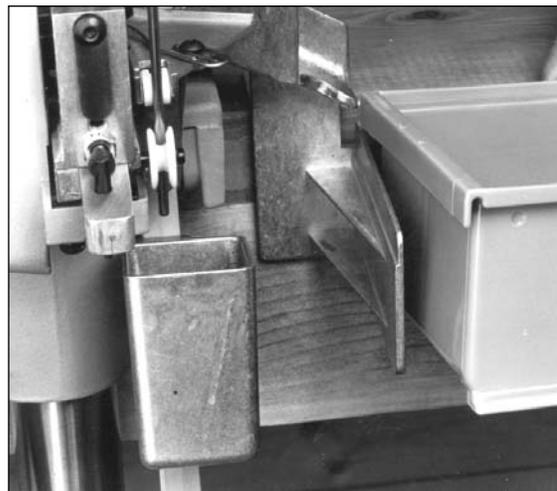


Fig. 3 - The cartridge collection bin (#13839) simply slides onto the bracket and will be in the proper position.

Using the machine itself as a template, mark and drill four one-quarter inch holes in your bench and bolt your RL 550B securely to it, **Fig. 1**. Next, mount the cartridge collection bin bracket (#13803) onto your bench, **Fig. 2**, allowing approximately one-eighth inch clearance between the platform (#13781) and the ejected cartridge chute. Using two screws or bolts, secure the bracket to your bench. The cartridge collection bin (#13839) simply slides on the bracket, **Fig. 3**, and will be in the proper position to catch ejected loaded rounds. Bolt the operating handle in place as shown in the schematic.

Safety Points to Know Before you Begin

Reloading ammunition involves the use of highly explosive primers and powder. Handling these materials is inherently dangerous. You should recognize this danger and take certain minimum precautions to lessen your exposure to injury.

Never operate the machine without ear and eye protection on. Call our customer service department at (800) 223-4570 for information on the wide variety of shooting/safety glasses and hearing protection that Dillon has to offer.

- **PAY ATTENTION:** Load only when you can give your complete attention to the loading process. Don't watch television or try to carry on a conversation and load at the same time. Watch the automatic systems operate and make sure they are functioning properly. If you are interrupted or must leave and come back to your loading, always inspect the cases at every station to insure that the proper operations have been accomplished.
- **SMOKING:** Do not smoke while reloading or allow anyone else to smoke in your reloading area. Do not allow open flames in reloading area.
- **SAFETY DEVICES:** Do not remove any safety devices from your machine or modify your machine in any way.
- **LEAD WARNING:** Be sure to have proper ventilation while handling lead components or when shooting lead bullets. Lead is known to cause birth defects, other reproductive harm and cancer. Wash your hands thoroughly after handling anything made of lead.

- **LOADS AND LENGTHS:** Avoid maximum loads and pressures at all times. Use only recommended loads from manuals and information supplied by reliable component manufacturers and suppliers. Since Dillon Precision has no control over the components which may be used on their equipment, no responsibility is implied or assumed for results obtained through the use of any such components.

Seat bullets as close to maximum cartridge length as possible. Under some conditions, seating bullets excessively deep can raise pressures to unsafe levels. Refer to a reliable loading manual for overall length (OAL).

- **QUALITY CHECKS:** Every 50-100 rounds, perform periodic quality control checks on the ammunition being produced. Check the amount of powder being dropped and primer supply.
- **RELOADING AREA:** Keep your components safely stored. Clear your work area of loose powder, primers and other flammables before loading.
- **COMPONENTS:** Never have more than one type of powder in your reloading area at a time. The risk of a mix-up is too great. Keep powder containers closed.

Be sure to inspect brass prior to reloading for flaws, cracks, splits or defects. Throw these cases away.

Keep components and ammunition out of reach of children.

- **BLACK POWDER:** Do not use black powder or black powder substitutes in any Dillon powder measure. Loading black powder cartridges requires specialized loading equipment and techniques. Failure to do so can result in severe injury or death.

- **PRIMERS:** Never force primers. If they get stuck in the operation of the machine, disassemble it and gently remove the obstruction.

Never attempt to clear primers that are stuck in either the primer pickup tube or the primer magazine tube. Never, under any circumstances, insert any type of rod to attempt to force stuck primers out of these tubes. Trying to force primers out of the tube will cause the primers to explode causing serious injury or even death.

If primers get stuck in a primer magazine or pickup tube flood the tube with a penetrating oil (WD-40), throw the tube in the garbage and call us for a free replacement.

Never attempt to deprime live primers – eventually one will go off. When it does it will detonate the others in the spent primer cup. Depriming live primers is the single most dangerous thing you can do in reloading and can cause grave injury or death.

- **LOADED AMMUNITION:** Properly label all of your loaded ammunition (Date, Type of Bullet, Primer, Powder, Powder Charge, etc.).

- **BE PATIENT:** Our loading equipment is conservatively rated and you should have no trouble achieving the published rates with a smooth, steady hand. If something doesn't seem right, stop, look and listen. If the problem or the solution isn't obvious, call us. The reloading bench is no place to get into a hurry.

We have done everything we know how to make your

machine as safe as possible. We cannot, however, guarantee your complete safety. To minimize your risk, use common sense when reloading and follow these basic rules.

- **REMEMBER:** If your machine does not perform to your expectations, or if you are having technical difficulties, give us a call.

TO BEGIN LOADING

Now that everything is bolted down and you understand the safety precautions, you can proceed.



Fig. 4 - This photo shows a complete caliber conversion; the powder funnel, shellplate and locator buttons.

First, decide what caliber you want to reload and take the shellplate (*#20079) from the caliber conversion box, **Fig. 4**. Now, in your parts box, find a bag containing; index ball (#13891), shellplate bolt (#13794), index ball spring (#13997), set screw (#13923), and index sprocket (#13720).



Fig. 5 - This photo shows the index ball spring and index ball being placed in the platform.

Insert the index ball spring (#13781) in the platform as shown in **Fig. 5**. Next set the index ball on top of the index ball spring. Now place the shellplate (number up) over the index ball spring and index ball, **Fig. 6**.



Fig. 6 - Showing the shellplate in its proper position: under the ejector wire with the shellplate number up.

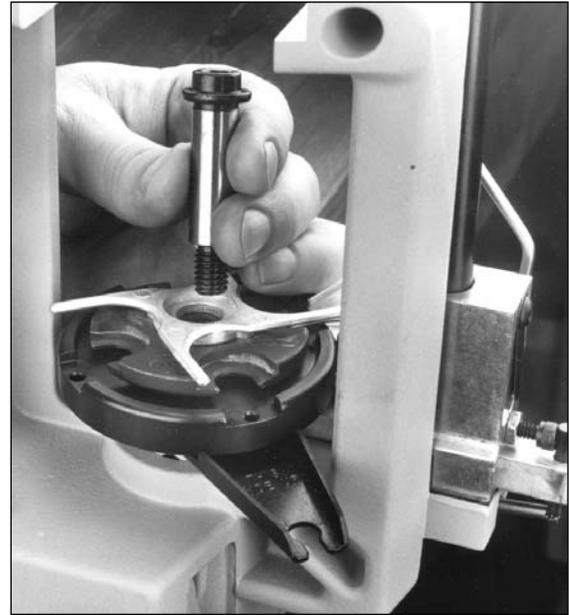


Fig. 8 - Inserting the shellplate bolt, first through the index sprocket then the shellplate.

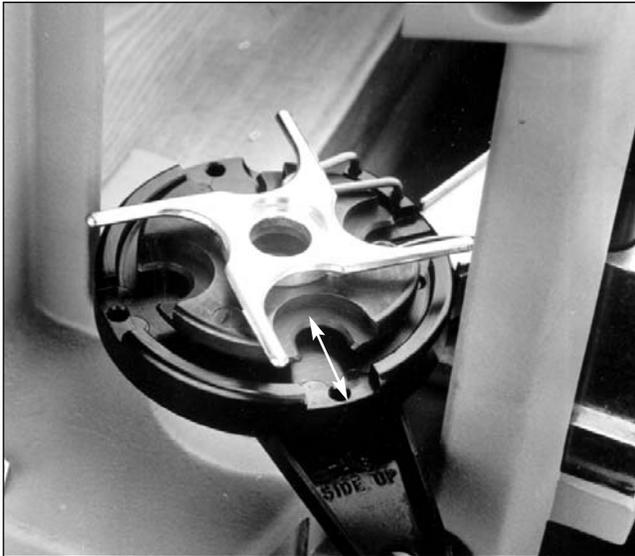


Fig. 7 - This photo shows the index star in its proper position: the locating tabs centered in the shellplate.

Place the index sprocket on top of the shellplate (making sure the locator posts go into the corresponding holes in the shellplate, see **Fig. 7**).

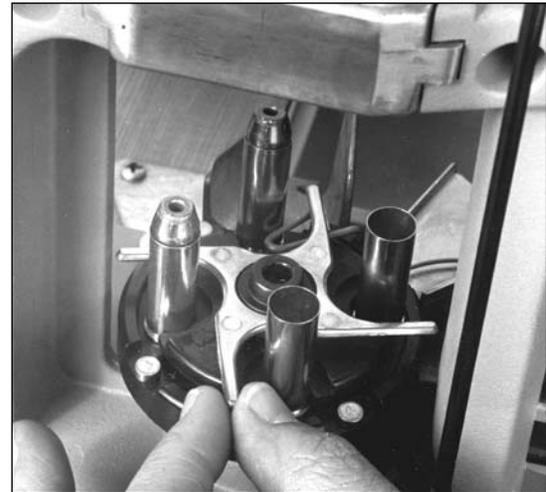


Fig. 9 - This photo shows the proper method of indexing the shellplate and the proper installation of the locator buttons.

Next, insert the shellplate bolt through the sprocket and plate and into the center hole of the platform, **Fig. 8**. Tighten with the supplied Allen wrench to the point where you are unable to turn the sprocket by hand. Now, back off the bolt slightly, allowing you to push the sprocket easily with your thumb, **Fig. 9**. There should be no looseness or slop at this point and when you rotate the plate, you should be able to feel and hear the index ball “click” into place under the shellplate.

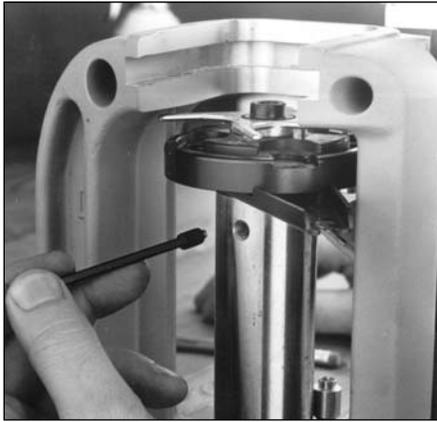


Fig. 10 - Insert the brass tipped set screw (#13923) and tighten securely.

Take the brass tipped set screw (#13923) insert and tighten securely in the tapped hole beneath the platform on the left side of the main shaft, **Fig. 10**. This will keep the shellplate from tightening as you use the machine. This screw must be loosened when changing calibers, something that is often forgotten as it's out of sight.

In your caliber conversion box, you will find three brass locator buttons. These simply drop into the three remaining holes in the platform, **Fig. 9**. These "buttons" hold the cases securely in place while you are reloading, but by removing them, allow you to take out a troublesome case, should that occur in your reloading process.

What Primer Size?

Your RL 550B has been shipped to you with the primer system installed and correctly adjusted to feed large primers. If the caliber you have selected to start with requires small primers, you must change to the small primer slide bar.

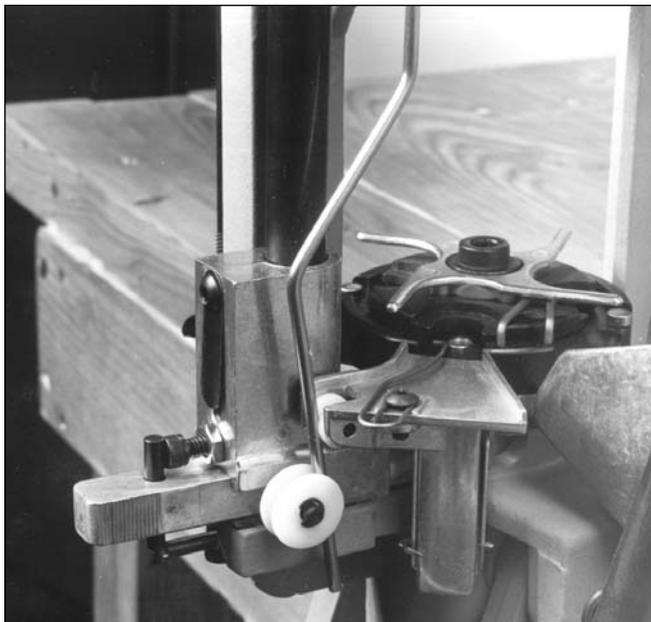
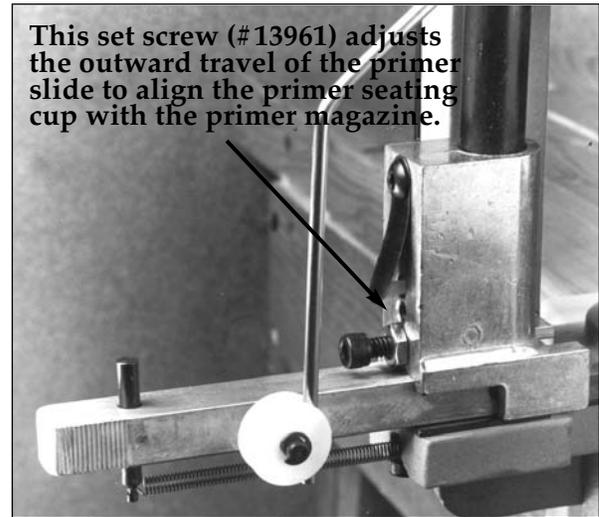


Fig. 11 - This is the proper alignment of the operating rod and the position of the primer slide fully forward with the primer seating cup in the lowered platform.



This set screw (#13961) adjusts the outward travel of the primer slide to align the primer seating cup with the primer magazine.

Fig. 12 - The operating rod has moved the primer slide into the primer feed body where it will automatically pick up a primer.

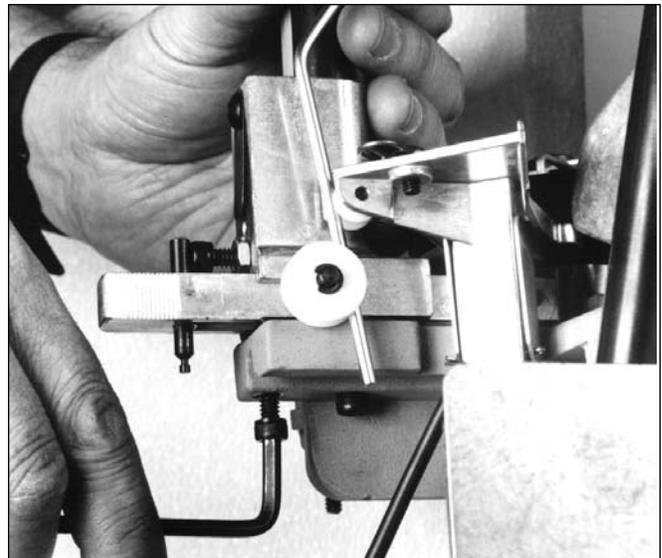


Fig. 13 - Removing the primer feed body to change primer slides. Caution do not over tighten these bolts (#14014).

Observe carefully how the factory-adjusted bar fits, **Fig. 11**. Raise and lower the platform and notice the alignment of the primer seating cup (*#13824) as it enters the platform. This adjustment is made by turning the cap screw (#14037) on the primer feed body, **Fig. 12**. Now remove the two screws from beneath the frame under the primer feed body, **Fig. 13**. Unhook the spring and remove the primer slide. To replace, reverse this procedure.

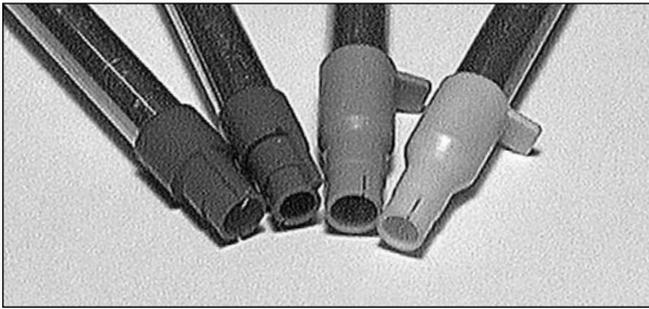


Fig. 14 - The machine comes with two primer pickup tubes (#20060 Lg, #20059 Sm) and two primer magazine tubes (#22031 Lg, #22030 Sm). Each has a large and small. They are color coded for easier identification. See page 13 for color coding information. The large ones should be used together and the small ones should be used together. You will notice that the primer magazine tips have an indexing ridge to assist in their placement in the primer feed system.

The operating rod (#13869) must be installed between the two white rollers before the operation of the primer slide. Refer to **Fig. 12** for the proper placement of the rod. Unscrew the knurled cap (#13957) and remove the large primer magazine and replace with the small primer magazine tube, **Fig. 14**; the plastic tip should look like the one you just took out. Replace the knurled cap.

Wait until you've finished assembly before actually placing primers in the magazine.

You will notice that the primer magazine tube tips are different colors and have an indexing ridge on the tip. The magazine tips and the primer pick-up tube tips are color coded to help identify their size, see page 13 for more information. The indexing ridge is to help you place the magazine in its proper position in the primer feed body.

The Toolhead

Your new RL 550B has been shipped to you with one removable toolhead. Additional toolheads are available from the factory.



Fig. 15 - A complete, removable toolhead with all of the dies adjusted. Toolhead stand is optional.

The advantage of this system is simple, once your

dies have been adjusted just the way you want them, they can stay that way. Plus, changing to another caliber becomes a simple matter of pulling two pins and sliding the toolhead out, **Fig. 15**.

Choose Your Dies

Your RL 550B will perform well with any manufacturer's standard 7/8 x 14 die. However, for ease of use in your RL 550B, the dies should have a radius on the lead-in portion of the die; that is to say a taper or funnel effect to assist the entrance of the case into the die. This is especially recommended on the sizing die.

We also recommend the use of separate bullet seating and crimp dies for pistol cases. Simultaneous seating and taper crimping of semi-auto cases is not recommended. Why?

Two reasons. First, in a combination seating and crimping die, we have two forces that are opposed to one another. That is, forcing the bullet into the case while trying to simultaneously crimp it in place.

A better idea is to seat the bullet in one die and then crimp it in place in another. With semi-auto cases (9mm & .45 ACP) you must use a separate taper crimp die to get reliable ammunition and function from your semi-automatic pistol. This type of crimp is necessary to maintain the square shoulder effect where the brass edge of the case meets the bullet. It is on this tiny shoulder that the functioning of your semi-auto pistol depends. If this shoulder is rounded or roll-crimped, the cartridge may enter too far into your pistol's chamber and jams will result. On revolver ammunition, where the cartridge headspaces on the rim of the case, this type of crimp is not as important, but once again, by using a separate crimp die, you will obtain better and more uniform bullet seating.

Carbide Dies?

All Dillon pistol resizing dies are manufactured with a carbide insert. Carbide is one of the world's hardest materials and will last the average reloader a lifetime. It also takes a high polish and being more dense is smoother than a steel die. Besides its longevity, it has another advantage. All steel dies require lubrication of your brass before resizing, but with a carbide pistol resizing die this is not absolutely necessary. Lubrication will make sizing easier, but with a carbide pistol die, it is not required.

However, when using carbide rifle dies, your cases must always be lubricated.

The advantage of carbide rifle dies is their long life and scratch resistant qualities. If you are a commercial reloader, you may want to consider them.

Setting your Pistol Dies

If you're setting up rifle dies, use the separate instruction booklet supplied with the dies.

Before you begin, make sure that the toolhead is secured by the toolhead pins (#14008).

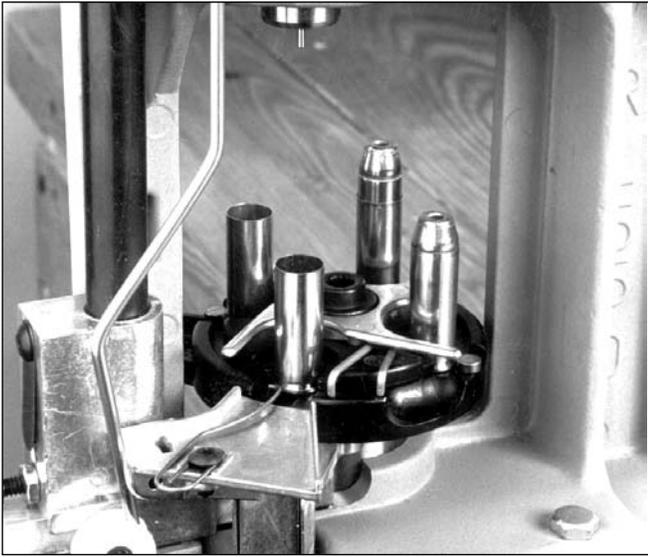


Fig. 16 - A fully loaded shellplate, directly below the proper dies. Clockwise from Station One, the cartridge at this station is resized, deprimed and reprimed. Notice the cartridge retaining spring holding the case in place. Station Two bells the case mouth (pistol only) and dispenses the powder. Station Three seats the bullet. Station Four crimps the bullet.

Station One

In the first station, **Fig. 16**, brass is resized, deprimed, and then reprimed.

Using the die lock rings provided, screw the sizing die into the toolhead. Raise the platform and screw the die down until it touches the shellplate. Then back it off one-half turn. Lower the platform and insert an empty case into Station One and cycle the operating handle. Now check it for sizing and depriming.

If it looks good, raise the platform so the case is in the die, tighten the lock ring on the die and tighten the decapping stem. This will keep everything centered.

A note of caution, never attempt to deprime a live primer. An explosion may result.

Station Two

In the second station, the powder is dropped and the mouth of the case is belled. This is where the Automatic Powder System is installed.

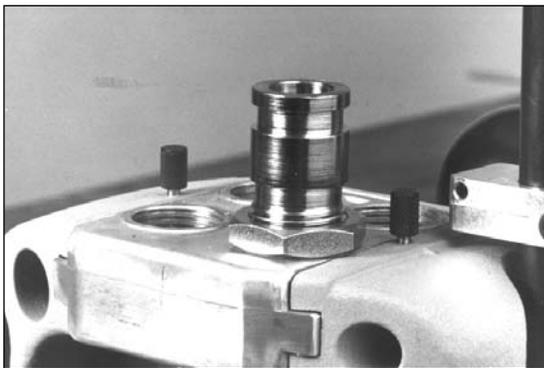


Fig. 17 - This photo shows the powder die in its correct position (Station Two) in the toolhead. The powder die may be higher or lower depending on the caliber it is being adjusted for.



Fig. 18 - Drop the powder funnel into the powder die tapered end first. The funnel should move freely in the die.

First, screw the powder die (#20064) into the toolhead, **Fig. 17**. Now insert the pistol powder funnel (*#13782) or a rifle powder funnel (*#13426) with the tapered end down, **Fig. 18**. The funnel should move freely in the die.

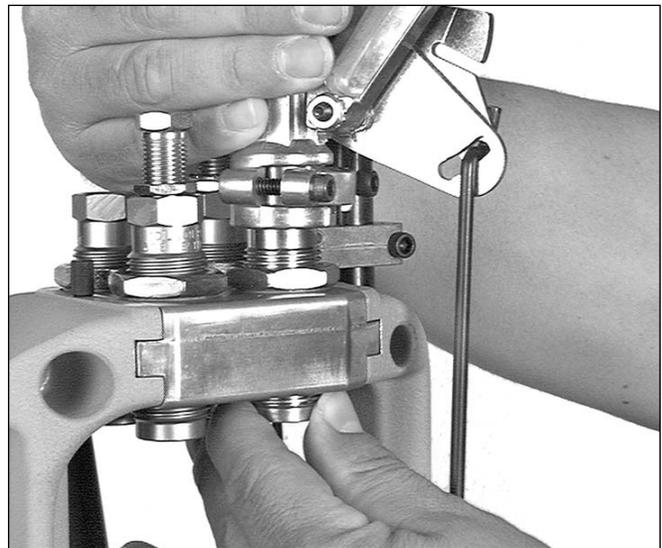


Fig. 19 - The powder die can be easily adjusted by turning the die beneath the toolhead while holding the powder measure securely from above.

Set the powder measure assembly onto the powder die, **Fig. 19**. The powder measure clamp (#13939) should fit loosely around the die, tighten the screws just a little. This will enable you make adjustments to the die easily, **Fig. 19**.

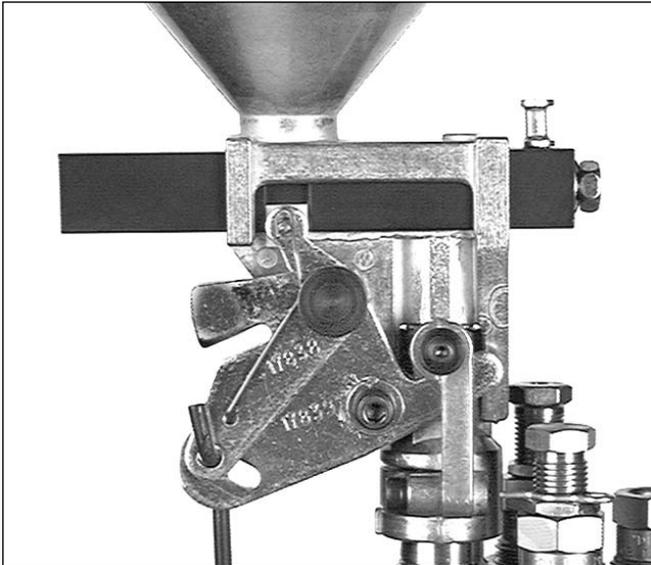


Fig. 20 - This photo shows the large powder bar in its closed position. (Primer system removed for clarity.)

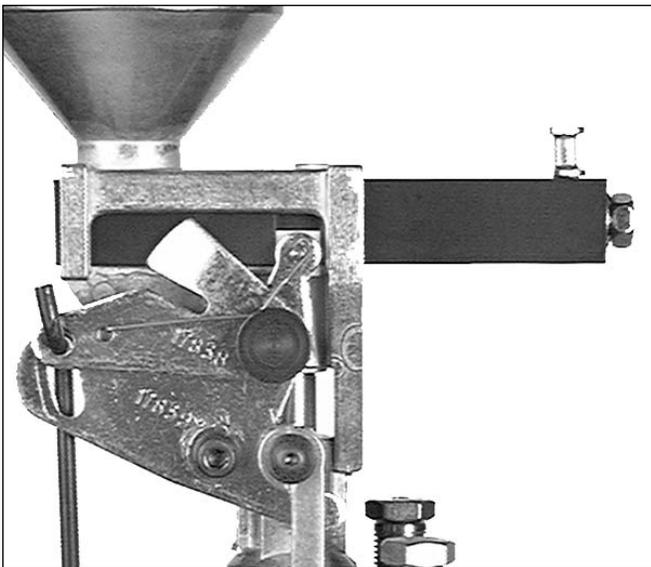


Fig. 21 - This photo shows the large powder bar in its fully open position. (Primer system removed for clarity.)

On rifle cases, the die should be adjusted so that the powder funnel will contact the mouth of the case and then fully actuate the powder bar, **Fig. 20 & 21**. These adjustments are accomplished with a case in the shellplate and alternately raising and lowering the operating handle, while adjusting the powder die, **Fig. 19**. When properly adjusted, the powder bar will be moved to its full rearward position by the case, **Fig. 20 & 21**. When you have determined that your adjustments are correct, tighten the lock ring and the locking collar.

Next, attach the powder measure fail safe rod assembly to the bellcrank (#17839). Using your thumb and index finger of your right hand, move the lock-link down to align the hole with the slot on the Powder Measure bellcrank (#17839). Then insert the rod (#97000) through the two holes, **Fig. 20**. Next, lower the operating handle (#20636). Insert the powder

measure rod into the slot in the return bracket (#13885) press the shoulder washer into the slot from the bottom. Move the operating handle to the priming position, press the operating handle firmly forward. Tighten the blue wingnut (#13799) until the top of the spring (#14033) just touches the underside of the return bracket (#13885). We'll come back to filling the measure with powder and adjusting the bar. The purpose of the powder measure failsafe rod (#97000) is to return the powder bar to its closed position.

Station Three

In this station the bullet is seated to its proper depth. You need to refer to a loading manual for overall length of the completed round.

Put a case into the shellplate at Station Three. Raise the platform up and screw the die down until it just touches the shellplate and back it out two turns. Now, back your seating stem out.

Place a bullet on the case and operate the handle. Using a dial caliper or case gage, check for overall length. Keep screwing the seating stem down in small increments until the correct overall length is achieved. Once you are satisfied with the overall length, tighten the lock ring.

Station Four

The crimping operation is performed at this station.

Insert the crimp die and place an empty case in Station Four. Raise the platform and screw the crimping die down until it touches the rim of the case. Now lower the platform and screw the die down an additional one-quarter of a turn. Place a round in Station Four with a seated bullet and cycle the operating handle.

You will need to refer to a loading manual to get proper crimp dimensions for the caliber you are loading. A dial caliper is required to take accurate measurements from your crimped round.

If more crimp is needed, screw the crimp die down in small increments until you get the desired crimp, now tighten the lock ring.

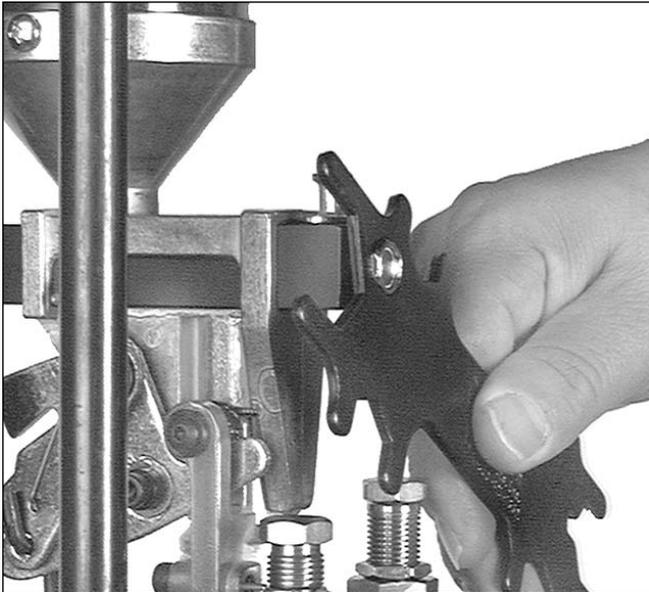


Fig. 22 - Turning the bolt counter-clockwise reduces your powder charge, clockwise increases the charge.

Adjusting the Powder Charge

You will notice an adjusting bolt on the back of the powder bar, Fig. 22.. Turning the bolt counter-clockwise reduces your powder charge, clockwise increases the charge. Your machine comes with two powder bars – one large and one small.

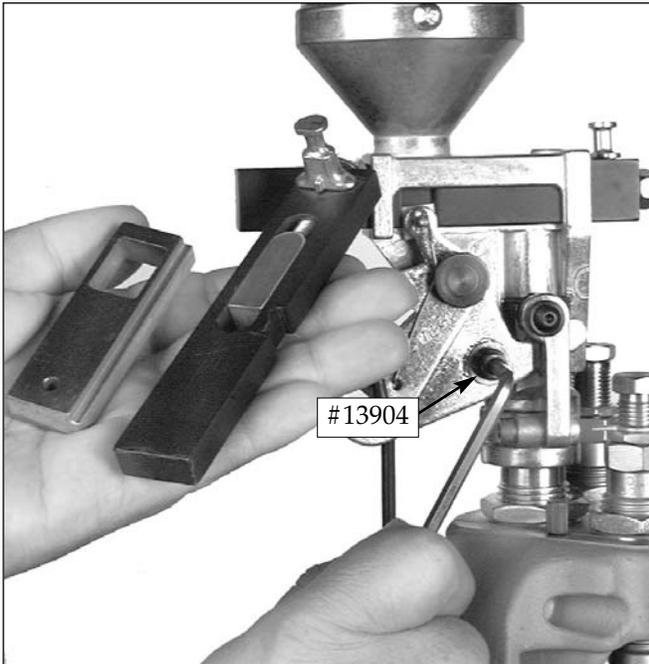


Fig. 23 - After emptying the powder measure, loosen the bellcrank screw (# 13904) sufficiently to allow you to remove the powder bar. Insert the new powder bar and reverse this procedure.

Rule of thumb: Use the large bar whenever possible. These bars are easily changed, Fig. 23. Use a reloading manual to determine how much powder you need for a particular load and an accurate powder scale to determine the weight. A high quality

precision powder scale is available from Dillon. You should now fill the powder measure with your chosen powder. Place an empty case under the measure and operate the machine's handle. Then, by trial and error adjustments, determine the correct weight of your powder charge. You are now ready to fill the primer magazine.

Primer Early Warning System Installation

(See item #20302 on page five for assistance.)

Remove the follower rod (#13707) from the assembly bag and set it aside. Install the battery and the battery cover (#13857) in the system's main body. Slide the Early Warning System assembly down over the knurled cap on your primer magazine (#13957) and lightly tighten the clamp screw.

Primer Magazine

You will notice that the primer magazines and primer pick-up tubes have different colored tips. They have been color coded to help you identify size more easily.

The color code is as follows:

Blue	Small Primer Magazine Orifice
Red	Large Primer Magazine Orifice
Yellow	Small Primer Pick-up Tube
Green	Large Primer Pick-up Tube

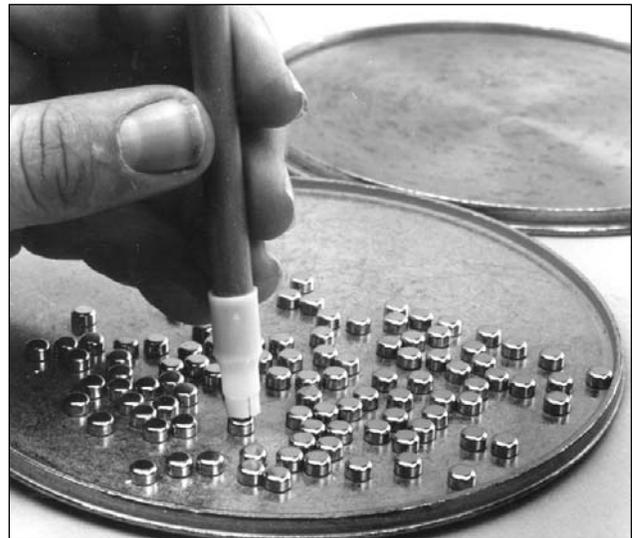


Fig. 24 - Use of the primer pickup tube and the Dillon Primer flip tray.

Select the proper size pick-up tube and fill it by placing the plastic expandable tip over loose primers and pressing down. The shiny sides of the primers need to be facing up, Fig. 24.

This is most easily accomplished by using a primer flip tray, which will arrange them all for you, Fig. 24. A quality cast metal flip tray is available from Dillon and is a better choice than the smaller plastic trays which are difficult to use and have a tendency to warp.



Fig. 25 - Drop the primers into the primer magazine.

Once you've filled the pick-up tube, make sure the little retaining clip is in place at the top of the tube. Pivot the switch lever (#13864) away from the Early Warning System housing. Invert the pick-up tube over the knurled cap (#13957) of the primer magazine, **Fig. 25**. You will notice the cap has a bevel to help you funnel the primers in. Hold the tube in place, pull the retaining clip and allow the primers to drop into the magazine. Pivot the switch lever back over the Early Warning System housing. Gently slide the follower rod down into the primer magazine tube until the follower rod touches the primers.

When you are nearly out of primers (about three left) the follower rod (#13707) will activate the buzzer.

A word of caution: primers are easily detonated, sometimes by a remarkably light blow. Treat them as if they are as fragile as eggs. Never force them.

At Last

If you've followed instructions, you are now ready to load.

Many reloaders develop their own style when using the RL 550B. But, let me explain the most efficient method. Try it and later, if you want to make changes in your technique, go ahead.

Place your bullets in a box to the left of the RL 550B and the empty cases in a box to the right. A few extra cartridge collection bins (#13839) are ideal for this.

You will notice an adjustable retaining spring at Station One. This spring should be adjusted to almost contact the case when it's placed in the shellplate.

Now, with your right hand, place a case in Station One and smoothly pull the operating handle. This resizes and decaps this case, at the same time your primer slide should be automatically carried back to

the primer magazine, where it will pick up a primer. Now, raise the handle smoothly. The primer slide (#13920) will come forward with a primer and place it under the deprimed case. If you are using the handle gently, you will feel the primer contact the primer pocket. Press forward firmly until the handle stops. Your primer will now be seated.

Advance the case to the second Station by pressing on the index sprocket (#13720) with your left thumb. Place another empty case into Station One and pull the operating handle. Station One will repeat as before. Station number two will bell the case mouth and dispense the powder. Again, raise the handle, index with your thumb and place a bullet on the powder charged case at Station Three with your left hand, **Fig. 7**. With your right hand, install a new case at Station One and pull the handle. Stations one and two will repeat as before.

Station Three will seat the bullet. Index with your left thumb and put in a bullet. Put an empty case into Station One with your right and operate the handle. Stations one, two and three will repeat: Station Four will have crimped the bullet. Index again and your first completed round will tumble into the cartridge collection bin. Now just add a bullet and a case. Each time you operate the handle you'll get a loaded round. Works good, right? If not, go back over the procedure.

If it's not right you need to do some...

Trouble Shooting

Use 30 weight motor oil on the main shaft and bearing grease on the pivot pins. Do not use spray type penetrating lube such as WD40 or Break Free as you run the risk of contaminating powder and primers.

Problem One. Primers are not seated deeply enough.

- A. Shellplate too loose.
- B. Shellplate upside down. You should be able to see a stamped shellplate number facing up.
- C. The crimp in the primer pockets of military brass will cause this problem. Crimps can be easily removed by use of a Dillon Primer Pocket Swage.

Problem Two. Erratic powder bar operation:

- A. Turn the powder die (#20064) clockwise in one-eighth turn increments. This will insure complete powder bar activation.
- B. Extruded pencil type powders will not flow smoothly through smaller sized powder funnels because of their length. Another problem with extruded powders is getting them into small necked cases. Many times these powders will "bridge" across the case mouth and cause spillage and erratic charges. There is no fast way of dispensing these powders and if you insist on using them in small mouthed cases it is best to weigh every charge by hand. Modern ball type powders will do for most reloading situations. These powders will do everything the pencil powders

will do, but without this problem. Warning: Do not use I.M.R. pencil lead type powder in cases smaller than .30 caliber.

Problem 3. Primer jams or misfeeds.

A. Primer misfeeds can be caused by misadjustment of the set screw (#13961) in the primer feed block, **Fig. 12**.

B. The most common cause of primer misfeeds or jams is the primer punch not seated fully into the primer slide. This will cause the primer seating cup to strike the flexible orifice on the bottom of the primer magazine tube.

Warning: If the primers are jammed and will not feed from the bottom of the primer magazine, Do Not Attempt to force the primers or the primer slide. An explosion resulting in injury may occur.

C. Another common problem is that the primer slide fails to return fully forward with the new primer. Periodically wipe the primer slide with rubbing alcohol. This removes the spent primer residue that causes the slide to drag.

Problem 4. Crushing cases:

A. If your dies do not have a radiused lead-in you must guide the cases into the die. The best solution is to replace the offending dies with dies having the proper radius.

B. Always tighten your die lock rings with a case in the die. This will assure you of proper alignment between the die and the shellplate. Adjust your depriming stem in the same manner and it will always be on center.

REMEMBER

Be sure to use the necessary precautions when loading lead bullets or when casting lead bullets. Exposure to lead can cause cancer, birth defects, and reproductive problems. Be sure to wash your hands thoroughly after handling lead. When firing lead bullets, be sure that you have adequate ventilation. Keep any lead items out of reach of children.

Press forward firmly on the handle once it is at the aft position to seat your primers fully.

Watch the powder bar function to make sure you're getting powder.

Set the bullet straight on the case at Station Three so that it enters the die correctly.

Watch your supply of powder, you'll be using it faster than you think you are.

Take your time and learn the machine and its function. The RL 550B will deliver hundreds of trouble free rounds in short order, just relax and take your time in the beginning.

Keep it clean – primer residue, spilled powder and just plain dirt can jam your machine.

Clean your powder bar about every 500 rounds.

Some powders build up and will eventually stick the powder bar. Paint thinner, acetone or lacquer thinner works well to remove any build up.

NOTICE

This machine is designed specifically to be a manually operated handloading machine. Any attempts to automate this product will void any and all warranties offered by the company. We specifically warn against converting this product to automated or motorized operation.

All Dillon machines are warranted for life from defects in material or workmanship, plus a one year 100% warranty against normal wear. All electrical/electronic components in Dillon equipment are covered by a one year warranty.

RL 450 & RL 550B Caliber Conversion Chart

Kits include shellplate, locator buttons and flow thru powder funnel.

<i>Handgun Calibers</i>	Conversion Kit	Powder Funnel	Shellplate	Locator Button	<i>Rifle Calibers cont...</i>	Conversion Kit	Powder Funnel	Shellplate	Locator Button
.30 Luger	#20175	C - #13564	5 - #13743	3	.30-40 Krag	#20185	B - #13587	P - #13134	4
.30 Mauser	#20174	C - #13564	5 - #13743	3	.307 Win.	#20237	B - #13587	L - #12703	1
.32 ACP - 7.65mm	#20160	S - #12845	8 - #13135	8	.308 - 7.62 Nato	#20130	B - #13587	1 - #13692	1
.32 S&W Long	#20146	S - #12845	D - #13092	3	.308 Norma Mag.	#20188	B - #13587	B - #13347	4
.32 Short Colt	#20160	S - #12845	8 - #13135	8	.30 Herret	#20214	AK - #13015	7 - #12501	4
.380 ACP	#20133	F - #13806	3 - #13684	3	.30 Merrill	#20231	AK - #13015	L - #12703	1
9x18	#21656	9 - #14980	5 - #13743	3	.30 Rem. -32 Rem.	#20184	B - #13587	R - #13497	2
9mm Luger	#20127	F - #13806	5 - #13743	3	.32-20 Win.	#20177	S - #12845	O - #12013	3
9x25 Dillon/.357 Sig.	#21526	F - #13806	5 - #13743	2	.32-40 Win.	#20139	B - #13587	7 - #12501	4
.38 S&W	#20159	F - #13806	U - #12944	2	.32 H&R Mag.	#20146	S - #12845	D - #13092	3
.38 AMU	#20278	F - #13806	O - #12013	3	.32 Win. Sp.	#20139	B - #13587	7 - #12501	4
.38 Super	#20127	F - #13806	5 - #13743	3	.33 Win.	#20202	Q - #13406	G - #13313	7
.38 Sp.-.357 Mag./Max.	#20132	D - #13599	2 - #13751	2	.338 Win. Mag.	#20156	Q - #13406	B - #13347	4
10mm/.40 S&W	#20179	W - #13600	5 - #13743	2	.340 Wby. Mag.	#20156	Q - #13406	B - #13347	4
.41 AE	#20277	AE - #13180	5 - #13743	3	.348 Win.	#20217	P - #13187	T - #12808	7
.41 Mag.	#20135	H - #13240	6 - #13120	1	.350 Rem. Mag.	#20167	P - #13187	B - #13347	4
.44 Sp. - Mag.	#20136	G - #13427	4 - #13610	4	.356 Win.	#20238	P - #13187	L - #12703	1
.45 ACP	#20126	E - #13782	1 - #13692	1	.357 Herrett	#20172	D - #13599	7 - #12501	4
.45 Auto Rim	#20158	E - #13782	H - #13010	4	.358 Win.	#20170	P - #13187	1 - #13692	1
.45 Colt	#20137	E - #13782	C - #13334	4	.358 Norma Mag.	#20167	P - #13187	B - #13347	4
.45 Win. Mag.	#20221	E - #13782	L - #12703	1	.35 Rem.	#20166	P - #13187	M - #13230	2
.454 Casull	#20137	E - #13782	C - #13334	4	.35 Whelen	#20170	P - #13187	1 - #13692	1
.50 AE	#21428	50AE - #14465	50 - #13147	4	.35 Win.	#20168	P - #13187	P - #13134	4
<i>Rifle Calibers</i>					.375 H&H/Wby Mag.	#20204	544R - #13531	B - #13347	4
.17 Rem.	#20203	O - #12921	3 - #13684	3	.375 Super Mag.	#20226	543V - #13344	7 - #12501	4
.218 Bee	#20151	A - #13426	O - #12013	3	.378 Wby. Mag.	#21665	544378 - #15010	G - #13313	7
.219 Zipper/Donaldson	#20180	A - #13426	7 - #12501	4	.38-40 Win.	#20178	W - #13600	N - #10004	4
.220 Swift	#20154	A - #13426	L - #12703	1	.38-55 Win. Ballard	#20226	543V - #13344	7 - #12501	4
.221 Rem. Fire Ball	#20128	A - #13426	3 - #13684	3	.444 Marlin	#20164	543X - #12920	N - #10004	4
.222 Rem. - Rem. Mag.	#20128	A - #13426	3 - #13684	3	.44-40 Win.	#20206	G - #13427	N - #10004	4
.22-250	#20145	A - #13426	1 - #13692	1	.45-70 Gov't	#20143	543T - #13407	G - #13313	7
.223 - 5.56 mm	#20128	A - #13426	3 - #13684	3	.416 Rem. Mag.	#20771	544RM - #13415	B - #13347	4
.224 Wby. Mag.	#20235	A - #13426	A - #13211	2	.455 Webley	#20137	E - #13782	C - #13334	4
.225 Win.	#20181	A - #13426	L - #12703	1	.458 Win. Mag.	#20161	543T - #13407	B - #13347	4
.22 Hornet - K Hornet	#20150	A - #13426	E - #12957	8	.460 Wby. Mag.	#21664	544460 - #15009	G - #13313	7
.22 Rem. Jet	#20165	A - #13426	2 - #13751	2	6.5-06	#20207	Y - #12870	1 - #13692	1
.22 Savage Hi Power	#20180	A - #13426	7 - #12501	4	6.5 x 52 Carcano	#20208	Y - #12870	M - #13230	2
.240 Wby. Mag.	#20192	I - #13305	1 - #13692	1	6.5 mm x 54 Mann-Scho	#20208	Y - #12870	M - #13230	2
.243 Win.	#20192	I - #13305	1 - #13692	1	6.5 x 55 Swed Mauser	#20207	Y - #12870	1 - #13692	1
.250 Savage-.250/3000	#20147	K - #13216	1 - #13692	1	6.5 Japanese Arisaka	#20209	Y - #12870	L - #12703	1
.25-06	#20147	K - #13216	1 - #13692	1	6.5mm Rem. Mag.	#20210	Y - #12870	B - #13347	4
.25-20 Win.	#20176	543R - #13243	O - #12013	3	6mm Rem. -.244	#20192	I - #13305	1 - #13692	1
.25-35 Win.	#20197	K - #13216	7 - #12501	4	7mm-08 Rem.	#20142	J - #13456	1 - #13692	1
.256 Win. Mag.	#20215	543R - #13243	2 - #13751	2	7.62 x 39 Russian	#20213	AK - #13015	A - #13211	2
.257 Ack. Imp	#20147	K - #13216	1 - #13692	1	7.62 x 54 Russian	#20346	B - #13587	G - #13313	7
.257 Roberts	#20147	K - #13216	1 - #13692	1	7x 57 Mauser	#20142	J - #13456	1 - #13692	1
.257 Wby. Mag.	#20199	K - #13216	B - #13347	4	7 x 64 Brenneke	#20142	J - #13456	1 - #13692	1
.25 Rem.	#20233	K - #13216	R - #13497	2	7.7 Japanese Arisaka	#20130	B - #13587	1 - #13692	1
.264 Win. Mag.	#20210	Y - #12870	B - #13347	4	7mm BR	#20216	N - #13014	1 - #13692	1
.270 Wby. Mag.	#20196	J - #13456	B - #13347	4	7mm Ex - 280 Rem.	#20142	J - #13456	1 - #13692	1
.270 Win.	#20142	J - #13456	1 - #13692	1	7mm Rem. Mag.	#20140	J - #13456	B - #13347	4
.284 Win.	#20142	J - #13456	1 - #13692	1	7mm Merrill	#20230	N - #13014	L - #12703	1
.30 M1 Carbine	#20131	C - #13564	8 - #13135	8	7mm Int'l Rimmed	#20223	N - #13014	7 - #12501	4
.300 Win. Mag.	#20188	B - #13587	B - #13347	4	7mm TCU	#20141	N - #13014	3 - #13684	3
.30-06	#20138	B - #13587	1 - #13692	1	7mm Wby. Mag.	#20196	J - #13456	B - #13347	4
.300 H&H Mag.	#20188	B - #13587	B - #13347	4	7-30 Waters	#20223	J - #13456	7 - #12501	4
.300 Savage	#20190	B - #13587	1 - #13692	1	7.5 x 55 Swiss	#20130	B - #13587	1 - #13692	1
.300 Wby. Mag.	#20188	B - #13587	B - #13347	4	7.65 Bel-Arg	#20130	B - #13587	1 - #13692	1
.303 British	#20183	B - #13587	4 - #13610	4	8mm Mauser	#20201	M - #12963	1 - #13692	1
.30-30 Win.	#20139	B - #13587	7 - #12501	4	8mm Rem. Mag.	#20155	M - #12963	B - #13347	4
.30-338 Win. Mag.	#20188	B - #13587	B - #13347	4					

RL 450 & RL 550B Caliber Cross Reference Chart

Shellplate 1 Locator Button 1		Shellplate 6 Locator Button 1		Shellplate E Locator Button 8	
	Powder Funnel	.41 Mag.	H - #13240	.22 Hornet - K Hornet	A - #13426
.22-250	A - #13426	Shellplate 7 Locator Button 4		Shellplate G Locator Button 7	
.30-06	B - #13587		Powder Funnel		Powder Funnel
.300 Savage	AK - #13015	.375 Super Mag.	543V - #13344	.45-70 Gov't	543T - #13407
.308 - 7.62 Nato	B - #13587	.38-55 Win. Ballard	543V - #13344	.378 Wby. Mag.	544378 - #15010
7.7 Japanese Arisaka	B - #13587	.219 Zipper	A - #13426	7.62 x 54 Russian	B - #13587
7.5 x 55 Swiss	B - #13587	.219 Donaldson	A - #13426	.33 Win.	Q - #13406
7.65 Bel-Arg	B - #13587	.22 Savage Hi Power	A - #13426	.460 Wby. Mag.	544460 - #15009
.45 ACP	E - #13782	.30 Herret	AK - #13015	Shellplate H Locator Button 4	
.240 Wby. Mag.	I - #13305	.30-30 Win.	B - #13587	.45 Auto Rim	E - #13782
.243 Win.	I - #13305	.32-40 Win.	B - #13587	Shellplate L Locator Button 1	
6mm Rem.-.244	I - #13305	.32 Win. Sp.	B - #13587	.220 Swift	A - #13426
.270 Win.	J - #13456	.357 Herrett	D - #13599	.225 Win.	A - #13426
.284 Win.	J - #13456	7-30 Waters	N - #13014	.30 Merrill	AK - #13015
7mm-08 Rem.	J - #13456	.25-35 Win.	K - #13216	.307 Win.	B - #13587
7x 57 Mauser	J - #13456	7mm Int'l Rimmed	N - #13014	.45 Win. Mag.	E - #13782
7 x 64 Brenneke	J - #13456	Shellplate 8 Locator Button 8		7mm Merrill	N - #13014
7mm Ex - 280 Rem.	J - #13456	.30 M1 Carbine	C - #13564	.356 Win.	P - #13187
.250 Savage-.250/3000	K - #13216	.32 ACP - 7.65mm	S - #12845	6.5 Japanese Arisaka	Y - #12870
.25-06	K - #13216	.32 Short Colt	S - #12845	Shellplate M Locator Button 2	
.257 Ack. Imp	K - #13216	Shellplate 50 Locator Button 4		.35 Rem.	P - #13187
.257 Roberts	K - #13216	.50 AE	50AE - #14465	6.5 x 52 Carcano	Y - #12870
8mm Mauser	M - #12963	Shellplate A Locator Button 2		6.5 mm x 54 Mann-Scho	Y - #12870
7mm BR	N - #13014	.224 Wby. Mag.	A - #13426	Shellplate N Locator Button 4	
7mm Int'l	N - #13014	7.62 x 39 Russian	AK - #13015	.444 Marlin	543X - #12920
.358 Win.	P - #13187	Shellplate B Locator Button 4		.44-40 Win.	G - #13427
.35 Whelen	P - #13187	.458 Win. Mag.	543T - #13407	.38-40 Win.	W - #13600
6.5-06	Y - #12870	.375 H&H	544R - #13531	Shellplate O Locator Button 3	
6.5 x 55 Swed Mauser	Y - #12870	.375 Wby Mag.	544R - #13531	.25-20 Win.	543R - #13243
Shellplate 2 Locator Button 2		.416 Rem. Mag.	544RM - #13415	.218 Bee	A - #13426
.256 Win. Mag.	543R - #13243	.300 Win. Mag.	B - #13587	.38 AMU	F - #13806
.22 Rem. Jet	A - #13426	.300 H&H Mag.	B - #13587	.32-20 Win.	S - #12845
.38 Sp.-.357 Mag./Max.	D - #13599	.300 Wby. Mag.	B - #13587	Shellplate P Locator Button 4	
Shellplate 3 Locator Button 3		.30-338 Win. Mag.	B - #13587	.30-40 Krag	B - #13587
.221 Rem. Fire Ball	A - #13426	.308 Norma Mag.	B - #13587	.35 Win.	P - #13187
.222 Rem. - Rem. Mag.	A - #13426	.270 Wby. Mag.	J - #13456	Shellplate R Locator Button 2	
.223 - 5.56 mm	A - #13426	7mm Rem. Mag.	J - #13456	.30 Rem. -32 Rem.	B - #13587
.380 ACP	F - #13806	7mm Wby. Mag.	J - #13456	.25 Rem.	K - #13216
7mm TCU	N - #13014	.257 Wby. Mag.	K - #13216	Shellplate T Locator Button 7	
.17 Rem.	O - #12921	8mm Rem. Mag.	M - #12963	.348 Win.	P - #13187
Shellplate 4 Locator Button 4		.350 Rem. Mag.	P - #13187	Shellplate U Locator Button 2	
.303 British	B - #13587	.358 Norma Mag.	P - #13187	.38 S&W	F - #13806
.44 Sp. - Mag.	G - #13427	.338 Win. Mag.	Q - #13406		
Shellplate 5 Locator Button 2		.340 Wby. Mag.	Q - #13406		
9x25 Dillon/ .357 Sig.	F - #13806	.264 Win. Mag.	Y - #12870		
10mm / .40 S&W	W - #13600	6.5mm Rem. Mag.	Y - #12870		
Shellplate 5 Locator Button 3		Shellplate C Locator Button 4			
9x18	9 - #14980	.45 Colt	E - #13782		
.41 AE	AE - #13180	.454 Casull	E - #13782		
.30 Luger	C - #13564	.455 Webley	E - #13782		
.30 Mauser	C - #13564	Shellplate D Locator Button 3			
9mm Luger	F - #13806	.32 S&W Long	S - #12845		
.38 Super	F - #13806	.32 H&R Mag.	S - #12845		

On the cover...

The RL 550B is pictured with optional accessories:

Strong Mount	#22051
Aluminum Roller Handle	#17950
Low Powder Sensor	#16306
Bullet Tray	#22214

Other accessories available for the RL 550B include:

Video Instruction Manual	#14621
Machine Cover	#13795
Maintenance Kit & Spare Parts Kit	#97016

The **Blue Press**, Dillon's monthly catalog, has a complete listing of accessories available for all machines.

Dillon Precision Products, Inc.

8009 E. Dillon's Way
Scottsdale, AZ 85260
(480) 948-8009
FAX (480) 998-2786

Web Site: www.dillonprecision.com
E-mail: dillon@dillonprecision.com

Technical Support & Customer Service
(800) 223-4570

