

# RL550C Reloading System Assembly and User Instructions

Dillon Precision, Inc.

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## DILLON PRECISION DISCLAIMER, EXPLANATION OF SAFETY WARNINGS, DILLON CONTACT INFORMATION

### DISCLAIMER

The material in this manual is for informational purposes only. The products it describes are subject to change without prior notice. Dillon Precision Inc. makes no representations or warranties with respect to this manual.

Dillon Precision Inc. shall not be liable for any damages, losses, costs or expenses, direct, indirect or incidental, consequential or special, arising out of, or related to the use of or the inability to use the products described herein. Read this manual before using this product. Failure to follow the instructions and safety precautions in this manual can result in serious injury or death. Keep this manual in a safe location for future reference.

### EXPLANATION OF SAFETY WARNINGS

#### DANGER!

Danger! indicates a hazard with a high level of risk that if not avoided, will result in death or serious injury.

#### WARNING!

Warning! indicates a hazard with a medium level of risk that if not avoided, could result in death or serious injury.

#### CAUTION!

Caution! indicates a hazard with a low level of risk that if not avoided, could result in minor or moderate injury.

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### Document Revisions

Date	Version Number	Document Changes
4-29-2021	0	Initial release updated manual
7-12-2021	1	Added PEWS-Rod kit pn20302
10-5-2021	2	Correct large rifle primer OD
11-1-2022	3	Correct Pagination For Word 365 and Spelling 7.62x54 Russian
12-23-2022	4	Added XL powder Die to .458 SOCOM
2-27-2023	5	Corrected PN 14281 and 14382 for Large and Small Primer Assy. Page 68
3-23-2023	6	Corrected Locator pin number to #7 for .338 Lapua on page 38
4-6-2023	7	Corrected Conversion Kit PN for 348 Win. To 20217 & contents Page 38

## **MANDATORY SAFETY PRECAUTIONS—MUST BE READ**

### **1. THE BASIC RISK OF RELOADING, AND OVERALL RL550C DESIGN USAGE SAFETY:**

- 1. DANGER!** *The reloading of ammunition and the handling of reloading components used in the reloading process is inherently dangerous. Accidents and mistakes in re-loading can and do occur, sometimes with disastrous results resulting in, but not limited to loss of hearing, vision, limbs or life. These accidents can occur with the novice and experienced reloader.*
- 2. Dillon Precision Inc. has designed the RL550C with user safety in mind, doing everything Dillon Precision Inc. knows to make the use of the RL550C as safe as possible.**

### **2. MANDATORY RL550C USER SAFETY MINIMUM REQUIREMENTS:**

- 1. Dillon Precision Inc. cannot guarantee the complete safety of the reloader/user of the RL550C.** To minimize the user's risk, use common sense when reloading and follow these basic safety rules at a minimum.
- 2. KNOWLEDGE:** Study and learn the basics, processes and specifications used in the reloading of ammunition from reputable sources and publications by prominent bullet and powder manufacturers such as Sierra, Hornady, Speer, Western Powders and Alliant Powders; including reloading manuals such as the Lyman Reloading Manual and the Western Powder Reloading Guide.
- 3. EYE AND EAR PROTECTION:** Never operate the RL550C without eye and ear protection.
- 4. PAY ATTENTION:** Give your full attention to the reloading process. Do not watch television, the internet or converse with anyone while loading. It is a full-time operation.
- 5. INTERRUPTIONS:** If you are interrupted in any manner, always inspect the cases at every station and know exactly what has been done to ensure that proper process steps have or have not been completed.
- 6. SMOKING/IMPAIRMENT:** Do not smoke or allow anyone to smoke in the reloading area. Do not allow open flames. Do not load if you have been drinking alcohol or are impaired in any way.
- 7. SAFETY:** Do not remove any safety device(s) from the reloader or modify the reloader in any way. Keep components and ammunition out of the reach of children.
- 8. LEAD--CAUTION!** *Almost all bullets have a lead component, which may or may not be exposed. Be sure to have proper ventilation while handling the lead component (bullet) or when shooting. Lead causes birth defects, reproductive harm and cancer. Wash your hands thoroughly after handling lead components or shooting.*
- 9. POWDERS--DANGER!** *There are many kinds of powders (propellants) used in the reloading process and are in general specified as rifle, pistol or shotgun powders. Powder selection is specific to the bullet caliber, weight and type of bullet being reloaded. There is no way to overstate the care and selection of a powder to be used in the reloading process. Again, refer to established bullet and powder manufacturers. Using the wrong powder or amount of powder or mixing powders can result in serious injury or death. Never mix powders. Always store the powder in its original container. Never have more than one type of powder in the reloading area at one time—preferably store powders in a separate room. Observe all maximum load warnings.*
- 10. PRIMERS—DANGER!** *Primers contain a small amount of a shock-sensitive chemical that explodes when struck by a firing pin or hammer or accidentally crushed. Never force primers. If they get stuck in the operation of the loader, carefully disassemble the reloader 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 circumstance, insert any type of rod into these tubes to attempt to push out stuck primers—PRIMERS CAN “CHAIN DETONATE.” If a primer(s) gets stuck in the magazine or pickup tubes flood the tube with penetrating oil/WD-40, throw it away and call Dillon for a free replacement. Never attempt to deprime a cartridge case with a live primer. Depriming a live primer is one of the most dangerous things you can do in reloading and can cause serious injury or death. Never attempt to further seat primers on a loaded cartridge. Use only the primer for the specific application for which you are loading.*
- 11. BLACK POWDER--DANGER!** *Do not use black powder or black powder substitutes in any Dillon Powder Measure. Doing so can result in severe injury or death.*
- 12. LOAD AND LOADED LENGTH—WARNING!** *Use only recommended load specifications from manuals and information supplied by established, known component manufacturers. Avoid maximum loads listed in loading manuals. Be extremely careful to avoid a double charge. Dillon has no control over the components and specifications used when reloading with the Dillon equipment. No responsibility is implied or assumed for results obtained through the use of or inability to use any such components or reloading specifications.*
- 13. QUALITY CHECKS--***At a minimum, perform periodic quality checks every 50-100 reloads-ESPECIALLY the powder charge.*
- 14. PROPERLY LABEL RELOADED AMMUNITION:** *Overall Length, bullet manufacturer, type and weight-- primer manufacturer and type--powder manufacturer, type and powder charge and date loaded.*
- 15. RELOADING AREA--***The reloading area should be well-lit, dry and comfortable without breezes.*
- 16. BE PATIENT and OBSERVANT—***Users should have no trouble achieving published loading rates that are conservative. Be smooth and steady. The reloading process is not a process to hurry--- If something does not LOOK RIGHT, SOUND RIGHT, OR FEEL RIGHT —STOP, LOOK and THINK! If the problem is not obvious—CALL Dillon Technical Support (800) 223-4570 or visit the troubleshooting section at [www.dillonprecision.com](http://www.dillonprecision.com).*



### 3. RL550C LIMITED LIFETIME WARRANTY

Dillon Precision Inc. warrants the RL550C for the life of the system against defects in material and workmanship. Dillon Precision Inc. will either repair or replace any part(s) that prove defective. Dillon Precision Inc. will provide repaired or replacement parts at Dillon's choice on an exchange basis. This limited warranty does not cover any damage to the product that results from improper installation, accident, abuse, misuse, natural disaster, abnormal mechanical or environmental conditions, or any unauthorized disassembly, repair or modification. This limited warranty shall not apply if: (i) the product was not used in accordance with any accompanying instructions, (ii) the product was not used for its intended function or (iii) the addition of any non-authorized equipment.

### 4. RL550C SHIPPING CONTENTS

4.1. Remove the following items from the top protective foam layer of the shipping box:



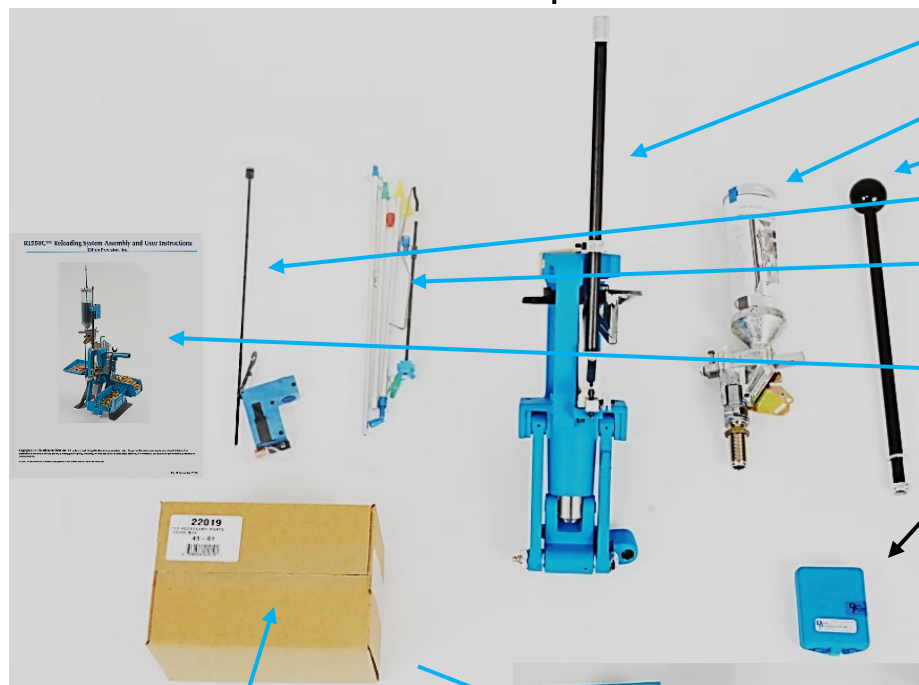
- Primer Early Warning System, Follower Rod and Battery
- RL550C System Manual
- RL550C Tube Pack—Large or Small
- Operating Handle

4.2. Remove the following items from the second layer of protective foam



- RL550C Accessory Box
- RL550C
- Powder Measure

### 4.3. Overall contents of RL550C Shipment



RL550C Accessory Box

1. RL550C with Toolhead, Toolhead Retaining Pins and Primer System
2. Powder Measure with Powder Die
3. Operating Handle assembly with washer and lock nut
4. Bag containing Primer Early Warning System and Primer Follower Rod
5. Tube Pack accessory parts bag—Primer Pickup and Magazine Tubes, Failsafe Rod, Primer Operating Rod and Spare Tips
6. RL550C Assembly and User Instructions
7. RL550C Caliber Conversion Box—this needs to be ordered separately—It contains the Caliber specific Shellplate, Powder Funnel and Locator Pins—See Section 9.1 for listing of conversions
8. Accessory box contents:

- a. Completed Cartridge Bin
- b. Cartridge Chute/Bin Bracket
- c. Spent Primer Cup
- d. Large Powder Bar Assembly
- e. Index Sprocket and Shellplate Bolt
- f. Index Ball and Spring
- g. 3 Spare Die Lock Rings
- h. Set of Standard Hex Wrenches

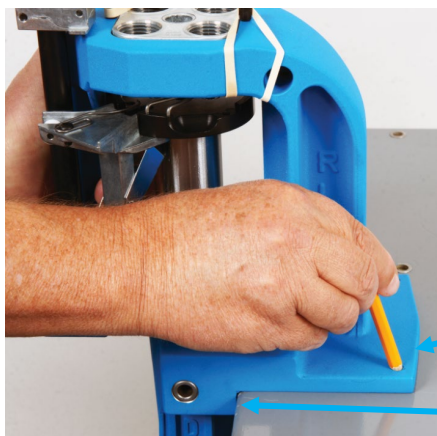
## 5. RL550C ASSEMBLY GUIDE

5.1. Select a clear area on your reloading bench for mounting the RL550C. **Be certain your bench is strong enough to support the weight and the force required to operate the RL550C.** If possible, attach your bench to the wall. Remove the RL550C System from the packaging and place it on your selected area. You will need 7/16" wrenches, a drill motor and a 9/32" drill bit.

5.2. Mounting the RL550C directly to a bench (*not using a Dillon Strong Mount*)

5.2.1 Bring the machine to the forward edge of your bench as shown below. The RL550C requires  $\frac{3}{4}$ " clearance under the front edge of the bench for the Operating Handle and RL550C Crank in the down position.

5.2.2 Mark the four mounting holes using the machine as a template or use the Template on page 73 at the back of this manual. Remove the machine and drill four 9/32" holes through the bench. Bolt the RL550C securely to your bench with  $\frac{1}{4}$ " Grade 5 hardware or use the available Dillon Mounting Hardware Kit PN14355. Use small-diameter washers on the top and large-diameter washers on the bottom, especially if using a wooden bench.

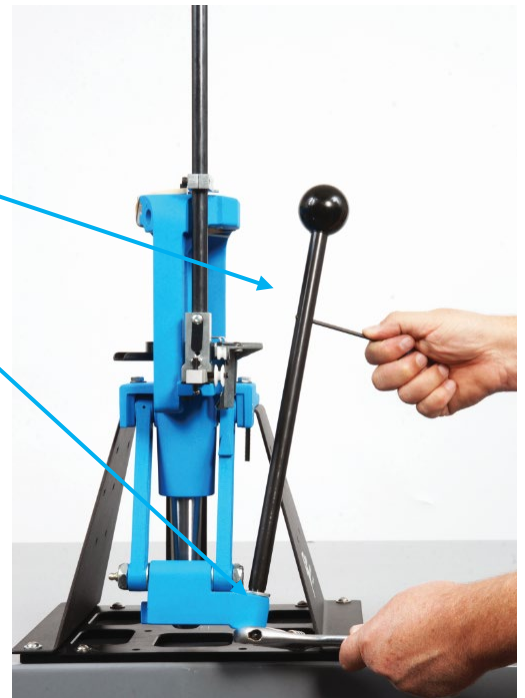


Mount the RL550C with Base Lip tight against the bench making sure there is clearance below for the Crank and Operating Handle if mounting RL550C base directly to the bench

- 5.2.3 Insert the Operating Handle through the hole in the Crank and securely fasten with the provided self-locking 7/8" Nut while holding the Handle from moving using a 5/32" Allen wrench through the hole in the Handle.



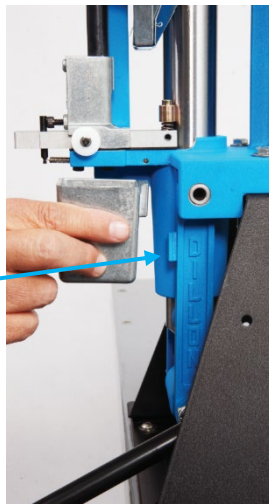
Tighten 7/8" nut with a wrench while holding the Handle from rotating with a 5/32" Allen wrench



Insert Handle in hole in Crank and thread Locknut on the Handle

- 5.2.4 Slide the Spent Primer Cup down onto the wedge-shaped mounting tab on the right Link Arm.

Mounting tab on Link Arm

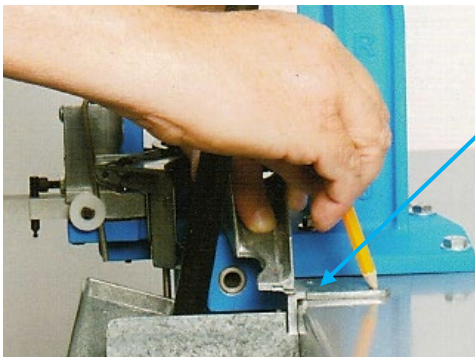


- 5.2.5 Mount the included ejected Cartridge Bin Bracket to your bench if you are NOT using the Dillon Strong Mount. Allow about 1/8" clearance between the Platform and the Ejected Cartridge Chute Bin Bracket. Fasten the Bracket to the bench with two self-threading screws or bolts and nuts as shown below. The Cartridge Collection Bin slides onto the bracket to catch completed cartridges.

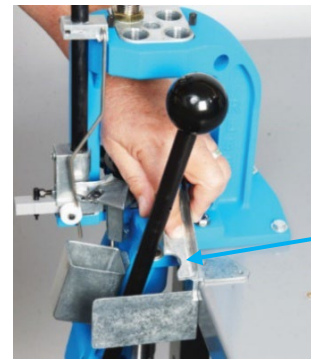


Included Standard Ejected-Cartridge/Chute/Bin Bracket





Standard Chute/Bin Bracket can be mounted as shown



Align cut out for Operating Handle clearance when Handle is pushed fully back

**5.2.6** The preferred operating method of the RL550C is standing up. This provides the force needed to seat primers properly. A recommended option is to install the RL550C using the Dillon Strong Mount PN22051 below. Installation instructions are included with the Strong Mount. The Dillon Strong Mount improves the stability of the system by distributing the loading forces over a larger area of the bench and provides mounting locations for optional bins and trays.



**Step 1** Install a Machine Mounting Bracket on the left side of the RL550B/AT500 Frame using two short bolts, two washers and two lock nuts as shown in Figure 2.

**Step 2** Install the remaining Machine Mounting Bracket on the right side of the RL550B/AT500 Frame, using two short bolts, two washers and two lock nuts, as shown in Figure 3.

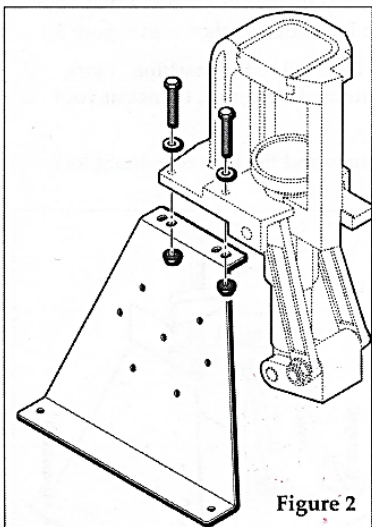


Figure 2

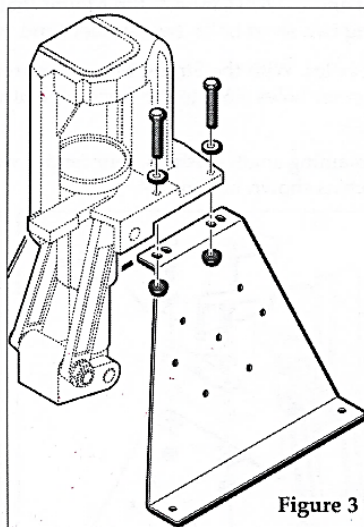


Figure 3

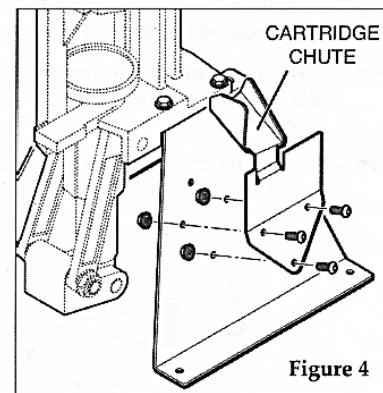


Figure 4

**Step 3** Use the three cap screws and three lock nuts install the ejected cartridge chute as shown in Figure 4.

**Step 4** With the Strong Mount securely fastened to the machine, mark the locations to drill four 5/16" diameter holes through your loading bench, close to the front edge, to mount your reloader.

**Step 5** Use the four long bolts, the four remaining small washers, four fender washers and the four remaining lock nuts to bolt the machine to the bench as shown in Figure 5.

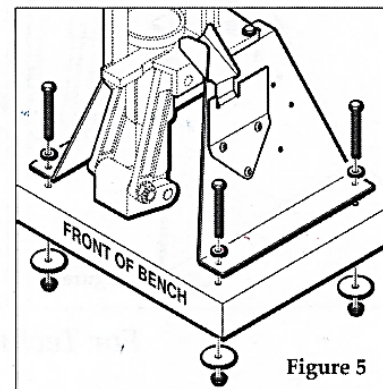


Figure 5

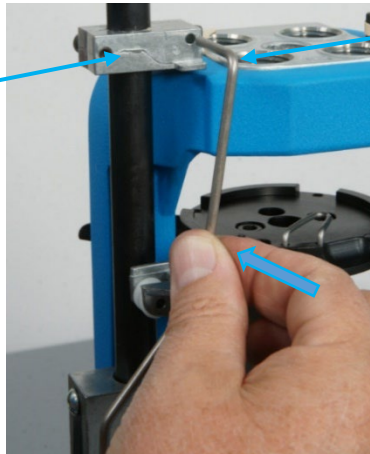
- 5.2.7** Slide the Cartridge Bin onto the Chute/Bin Bracket of the Strong Mount with the Operating Handle pushed fully to the back, to the priming position allowing clearance between the Handle and Bin.

Clearance  
required  
between  
Handle and  
Bin



- 5.2.8** Cycle the Operating Handle down and up slowly. Verify the Handle and Crank completely clear the bench and that there is no contact with the Chute Bin Mount Standard bracket.
- 5.2.9** The Standard Operating Handle has a black ball knob. A Roller Handle PN17950 is an option.
- 5.2.10** Install the Primer System Operating Rod in the Operating Rod Bracket as shown below by lightly greasing the short-bent end and then inserting it in the hole. Note—the installed height of the Operating Rod Bracket is factory set.

The location  
of the  
Operating  
Rod Bracket is  
Factory Set—  
do not change



Lightly grease top bent  
leg of the Operating Rod  
and install it in Operating  
Rod Bracket

- 5.2.11** Hold the Operating Handle halfway down. Pull the spring-loaded Primer Slide out and position the Operating Rod so that it is aligned with the upper Small White Roller and the lower Large White Roller as shown below. Cycle the Operating Handle down and back up. The Slide should move back and forth smoothly.



Align  
Primer  
Slide  
Operating  
Rod in both  
White  
Rollers as  
shown





- 5.3. Locate the Shellplate Bolt, the Index Ball and Spring, the Brass Tipped Shellplate Locking Set Screw and the Index Sprocket from the Accessory Box. Also, find the Shellplate from the available Dillon Caliber Conversion Kit that should have been ordered separately.

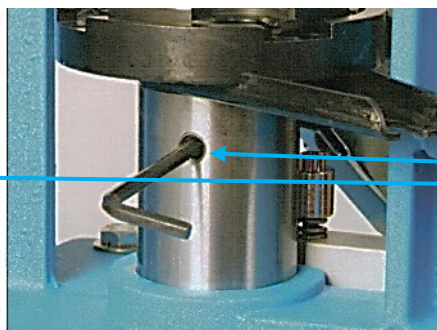
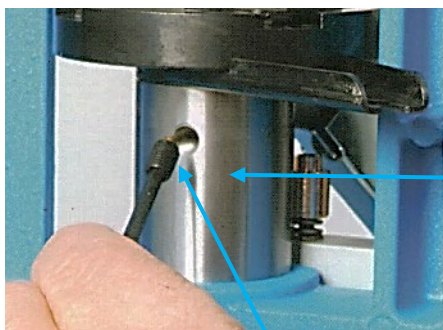


Shellplate Bolt, Index Ball and Spring, Brass Tipped Shellplate Locking Set Screw and Index Sprocket—shipped in the Accessory Box



Available RL550C Conversion Kit—needs to be ordered separately

- 5.4. On the left side of the RL550C Mainshaft, just below the Platform is a threaded hole with the Brass Tipped Socket Head Set Screw, it locks the Shellplate Bolt in place. Lower the Operating Handle and verify the Set Screw is backed up so that it does not interfere with the installation of the Shellplate Bolt.



Shellplate Bolt Locking Socket Head Set Screw



Brass Tipped Socket Head Set Screw

- 5.5. Carefully install the Index Ball Spring and Index Ball in the hole in the Platform as shown, being careful not to drop the Spring or the Ball in the Shellplate Bolt Hole. Place the Shellplate on the Platform, number side up. The Shellplate is in the available RL550C Caliber Conversion Kit.



Index Spring



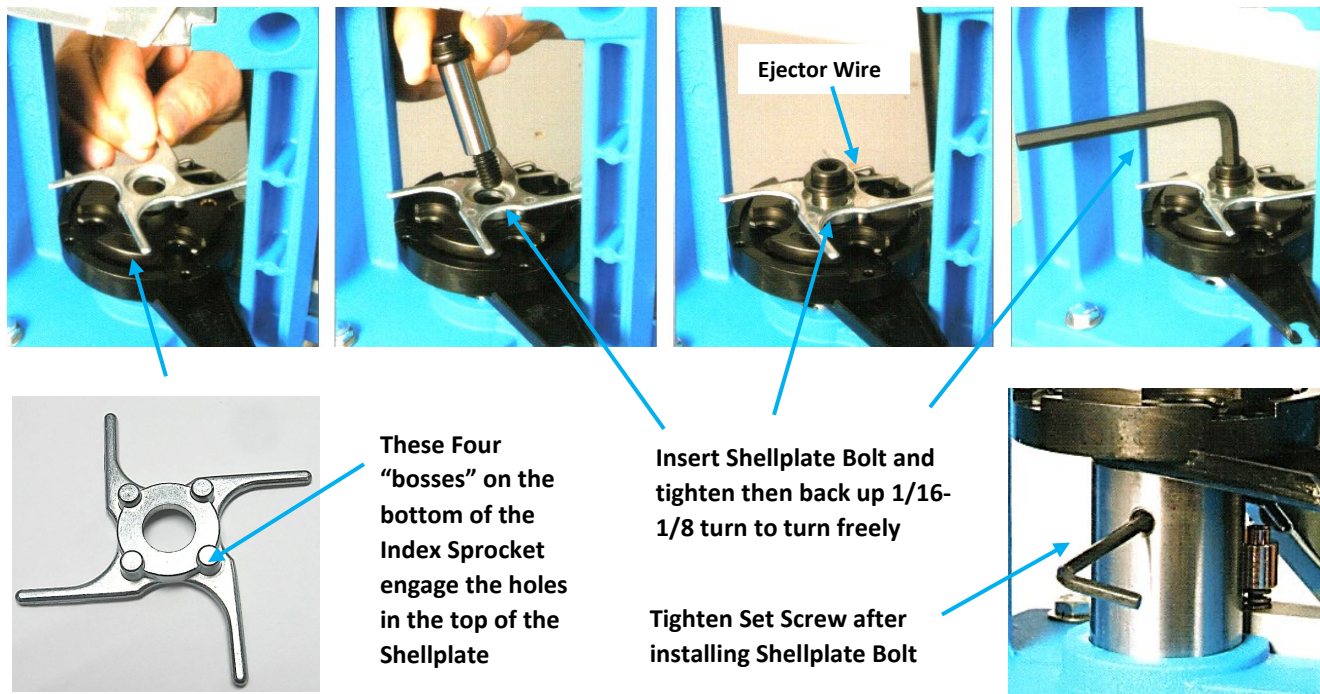
Index Ball placed on Spring—be careful not to drop the Ball in the Shellplate Bolt Hole



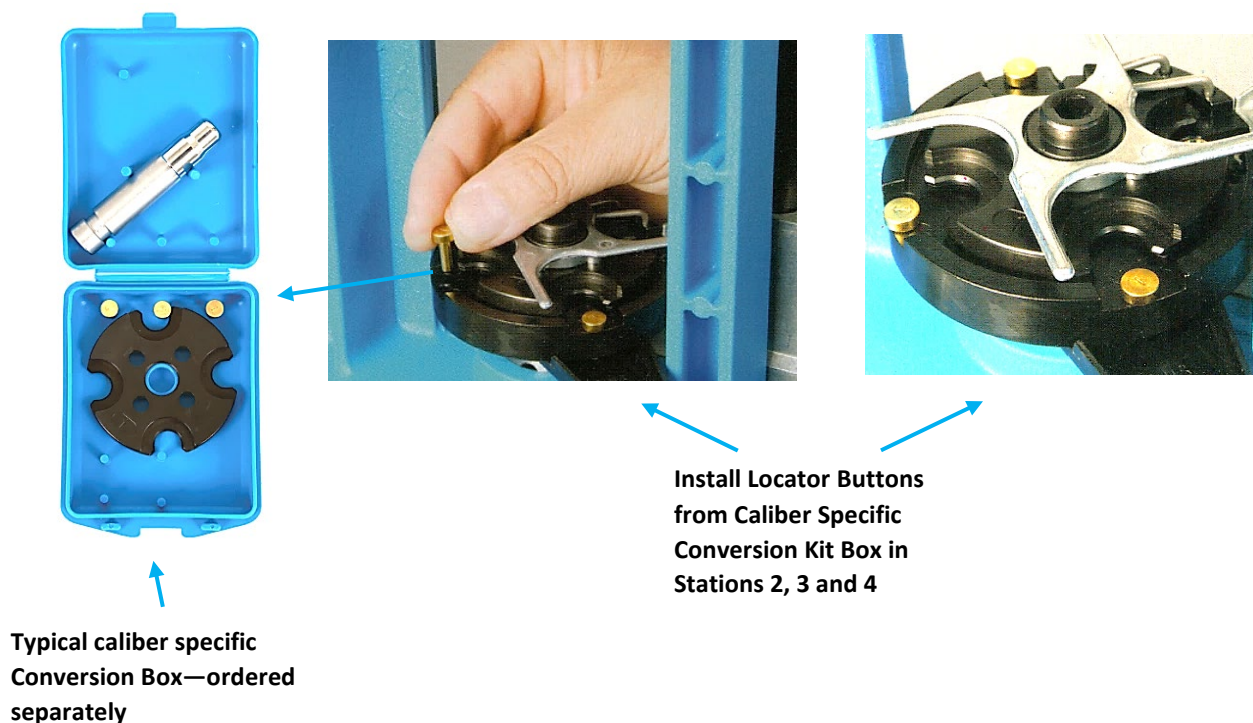
Shellplate—number up



- 5.6. Place Index Sprocket with the four-round bosses on the bottom in the mating holes in the top of the Shellplate. Insert the Shellplate Bolt carefully down through the Index Sprocket and Shellplate and thread the Bolt down into the Mainshaft. Snug the Shellplate Bolt down against the Shellplate and back it up 1/16 to 1/8 of a turn. Verify that the Shellplate turns freely and there is minimal clearance between the Shellplate and Platform—adjust as necessary. Also, make sure none of the Four Index Sprocket Arms drag on the Ejector Wire. Note—the Ejector wire can be adjusted up or down. Tighten the Shellplate Bolt Brass Tipped Locking Set Screw. Not tightening the Locking Set screw will allow the Shellplate to rotate the Shellplate Bolt and stop the Shellplate from turning during normal operation.

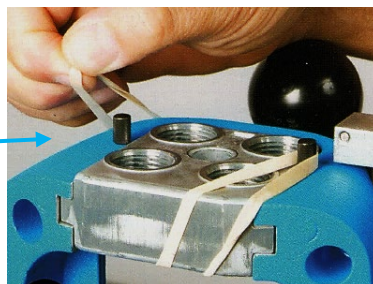


- 5.7. The RL550C uses caliber-specific numbered Brass Locator Buttons as shown below. The Locator Buttons retain the cartridge cases in the Shellplate during rotation. They are easily taken out to remove cases from the Shellplate for checking reloading parameters. The Buttons are in the available caliber-specific Conversion Box. Place them as shown in Stations 2, 3 and 4.



- 5.8. The RL550C ships with the Toolhead and Retaining Pins secured with a rubber band. Remove the rubber band in preparation for installing the Automatic Powder System.

Remove rubber band

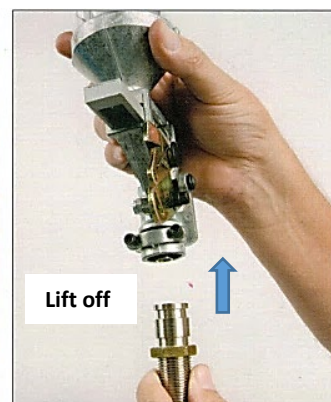
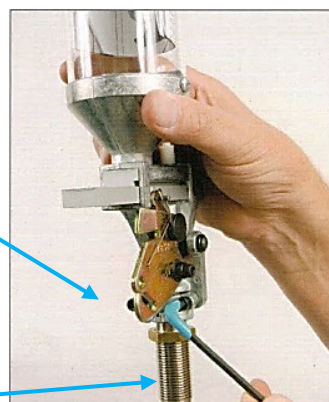


5.9. Install the Powder Measure as follows

- 5.9.1 Remove the Powder Die from the Powder Measure Body by loosening the two Clamping Socket Head Screws with a 5/32" Allen wrench. Locate the caliber-specific numbered Powder Funnel in the Caliber Conversion Box. Drop the Powder Funnel with the "grooved-end" up into the Powder Die. Note the difference between Rifle and Pistol Powder Funnels below.



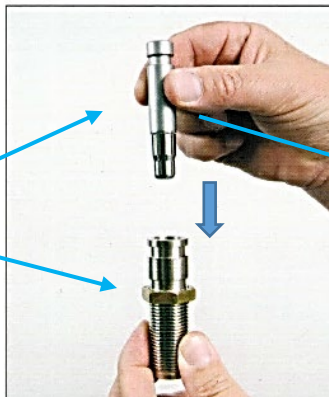
Loosen the two Powder Measure Clamp Screws with an Allen Wrench



Lift off

Powder Die with Lock Ring

Place Powder Funnel in Powder Die



RL550C Typical Rifle Conversion Kit

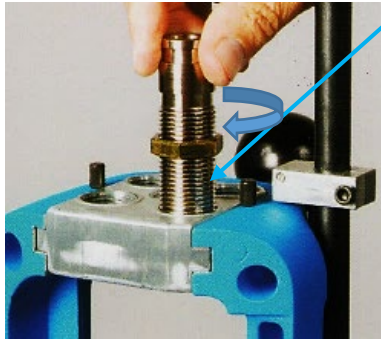


Rifle caliber specific Powder Funnel

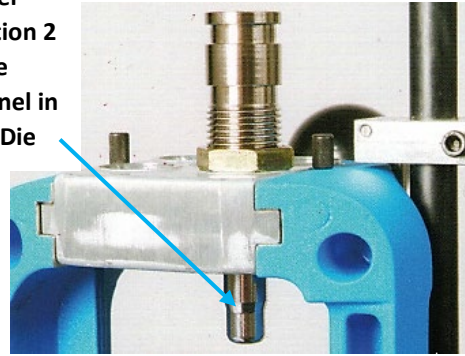
Pistol caliber specific Powder Funnel



- 5.9.2 Screw the Powder Die with the Powder Funnel into Station 2. Stop when the Die is flush with the bottom of the Toolhead, and tighten the Lock Ring finger tight for now. The Powder Funnel should move freely up and down in the Powder Die.

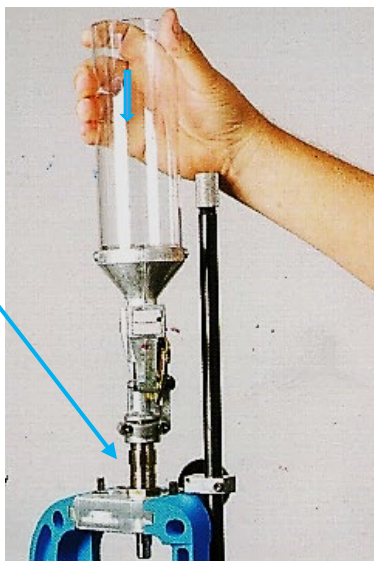


Thread Powder Die into Station 2 and drop the Powder Funnel in the Powder Die

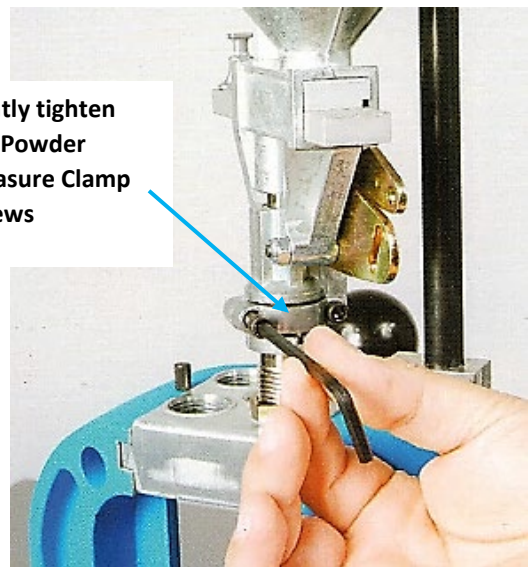


- 5.9.3 Slide the Powder Measure down over the Powder Die and lightly tighten the two clamp screws.

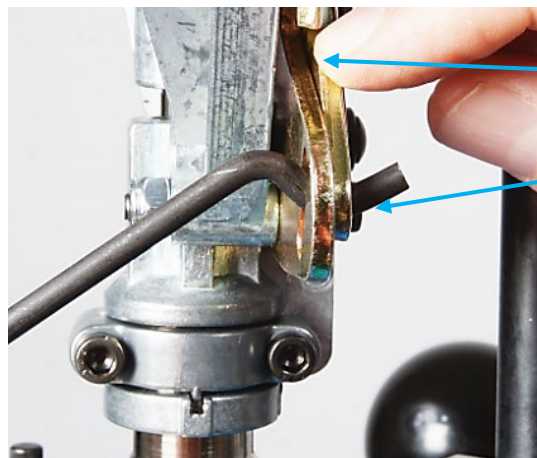
Place Powder Measure on Powder die



Lightly tighten the Powder Measure Clamp Screws



- 5.9.4 Install the bent end of the Powder Measure Failsafe Rod through the slot and hole in the Lock-Link Assembly oriented as shown below.



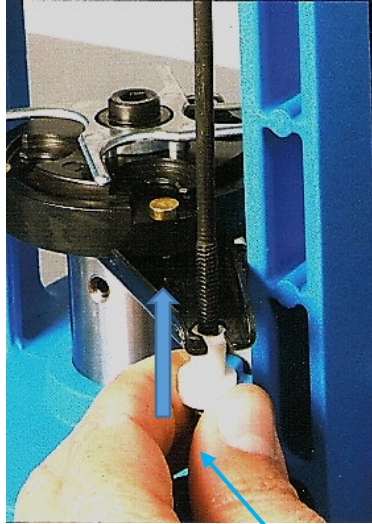
Lock-link Assembly

Install upper end of the Failsafe Rod in the Lock Link Assembly

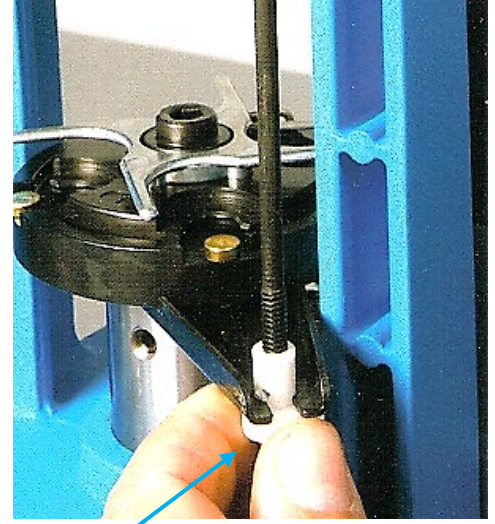
- Rotate the Powder Measure, aligning the Failsafe Rod vertically with the Failsafe Rod Bracket as shown below. Gently snap the white Failsafe Rod Bushing into the Failsafe Rod Bracket from the bottom up.



Align Failsafe Rod vertically with Failsafe Rod Bracket

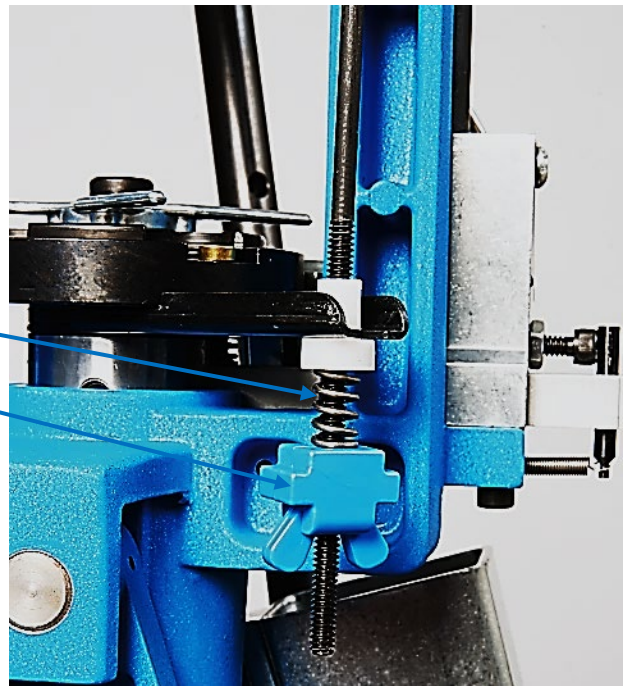


Push Failsafe Rod Bushing up into the Failsafe Rod Bracket



- Cycle the Operating Handle down and up fully to the back, compressing the Failsafe Rod Spring. Adjust the blue Wing Nut up leaving .030" of clearance (two credit card thicknesses) between coils when fully compressed. Re-adjustment may be necessary after setting the case mouth bell for pistol cases and the Powder Funnel to case contact on rifle cases described later.

Tighten the Blue Wingnut with the Operating Handle down and the Spring compressed—leave a .030" gap between the coils-- (thickness of two credit cards).

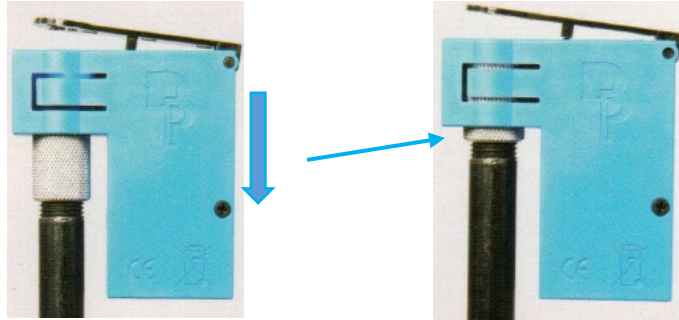


5.10. Note: The RL550C ships with a Small Primer System installed. Large Primer Components also are included with the RL550C for loading cartridges requiring large primers. Refer to Section 9.3 on Primer Conversion Procedures and perform the primer size conversion now if required.

## 5.11. Install the Primer Early Warning System

- 5.11.1 The Primer Early Warning System (EWS) is activated by the Primer Follower Rod and emits a “beeping” sound when the Primer Magazine is down to the last three or four primers. The height of the Follower Rod sticking out of the EWS indicates how many primers are left.
- 5.11.2 Install the Primer Early Warning System by pushing it down over the Primer Magazine Shield Knurled Cap until it stops. **WARNING! Do not put primers in the Magazine Tube until you have read this entire manual.**

Push the EWS down over the Knurled Nut



- 5.11.3 You can store the plastic Primer Follower Rod in the Magazine Tube when there are no primers in the tube by putting the Lever over the top of the Follower Rod to stop the alarm from sounding.



The Follower Rod goes in here—and activates the EWS



Store Rod as shown to disable audio alert

- 5.12. Gently cycle the Operating Handle down and up again and push the Handle fully to the back to the priming position. The Primer Slide should move smoothly forward. The Primer Punch should be smoothly projected up through the hole in the Platform into the Shellplate. Your assembly is complete.

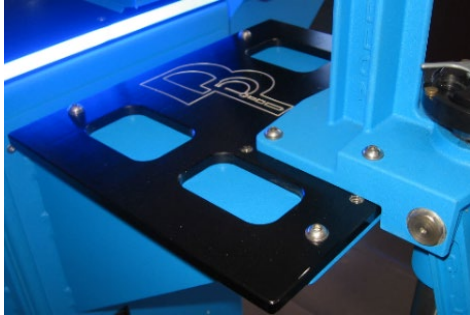


## 6 OPTIONAL EQUIPMENT FOR THE RL550C:

- Dillon Strong Mount Brackets: PN22051



- Dillon RL550C Billet Mounting Plate Kit PN62005



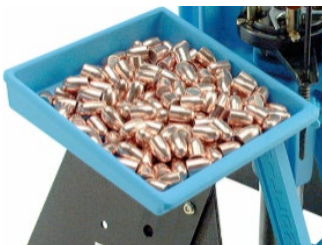
- Low Powder Warning Sensor PN16306



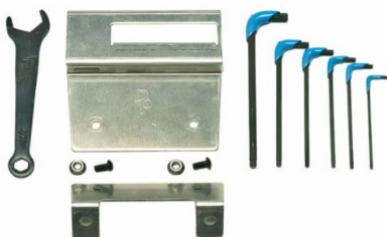
- Roller Handle PN17950



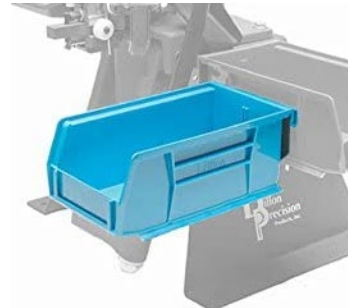
- Bullet Tray PN22214



- Tool holder with Wrenches PN11541



- Cartridge Case Bin and Bracket: PN11185



- RL550C Maintenance Kit PN97016



- RL550C Toolhead Stand PN22055



- RL550C Toolhead PN13909 and Powder Die PN20064



- RL550C/750 Upgrade Kit PN35002: Strong Mount, Bullet Tray and Roller Handle ("Package Deal")



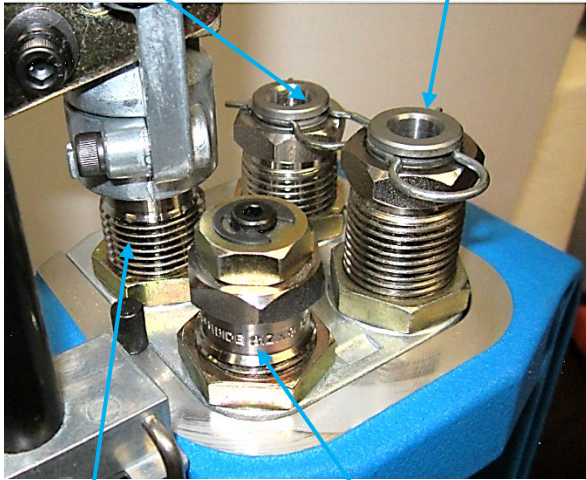


## 7 THE DILLON RL550C FIVE RELOADING STATIONS AND CONFIGURATION

- STATION 1--INSERT CASE INTO SHELLPLATE, DEPRIME, SIZE CASE, FEED AND SEAT PRIMER
- STATION 2--BELL CASE MOUTH (PISTOL CASE) DISPENSE POWDER
- STATION 3--PLACE AND SEAT BULLET
- STATION 4--CRIMP BULLET/EJECT COMPLETED CARTRIDGE

Toolhead Station 3

Toolhead Station 4



Shellplate Station 3

Shellplate Station 4

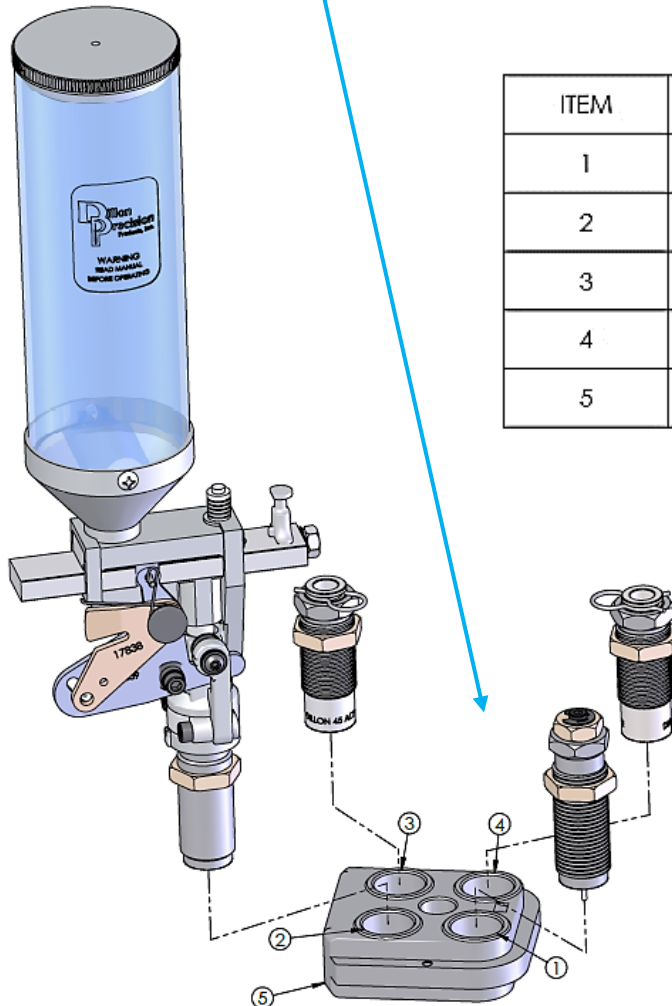


Toolhead Station 2

Toolhead Station 1

Shellplate Station 2

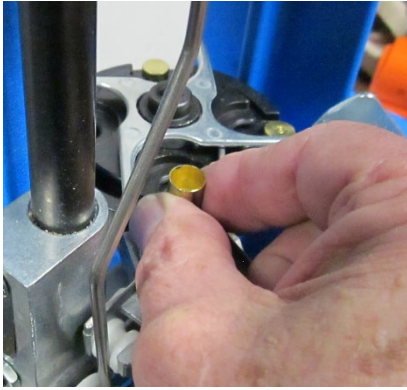
Shellplate Station 1



ITEM	DESCRIPTION
1	POSITION 1: SIZE, DECAP, PRIME
2	POSITION 2: POWDER MEASURE
3	POSITION 3: BULLET SEATING
4	POSITION 4: BULLET CRIMPING
5	RL-550 TOOLHEAD

### 7.1 Station 1—Insert Case Manually, De-prime, Size and Prime Case

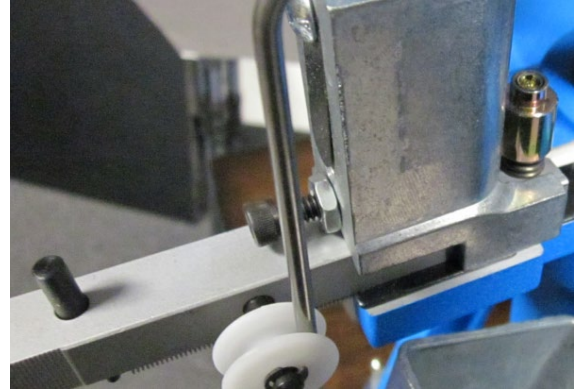
- Cases are De-primed and Sized on the downstroke of the Operating Handle.  
Cases are primed on the full “push-stroke” of the Operating Handle from the neutral “at-rest” position,



Station 1-Case manually inserted into Shellplate



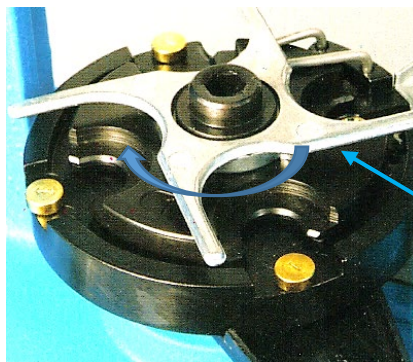
Station 1-Case entering Depriming/Sizing Die



Station 1- Primer Picked up from Primer Magazine by Primer Slide on Full Downstroke of the Handle and Seated on full “push-stroke” of Operating Handle

#### Station 1

- The Index Sprocket indexes the Shellplate and Cases manually from station-to-station.



Index Sprocket

### 7.2 Station 2--Bell (flare) Case Mouths and Dispense Powder

- The pistol case (not the rifle case) mouth is belled (flared) and powder is dispensed into the case on the downstroke of the Operating Handle in Station 2.



Note Flaring feature of Pistol Powder Funnel

Case being pushed over the nose of the Power Funnel as it enters the Powder Die

#### Station 2

### 7.3 Station 3--Seat the bullet

- The bullet is placed by hand on the case and seated on the downstroke of the Operating Handle in Station 3.

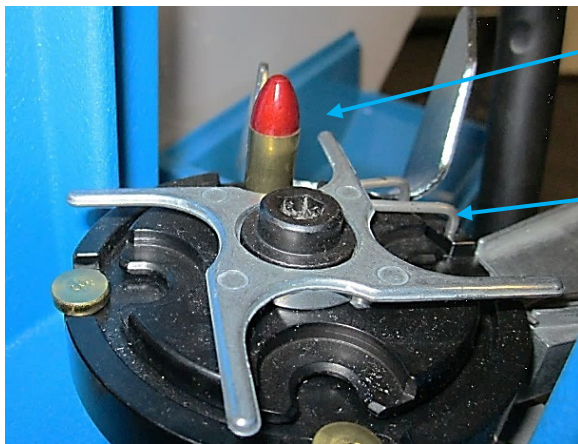


Station 3--Bullet  
Placement and Seating

Station 3

### 7.4 Station 4--Crimp the bullet and eject the completed cartridge

- The bullet is crimped on the downstroke of the Operating Handle in Station 4 and manually ejected by rotating the Index Sprocket, completing the reloading cycle.

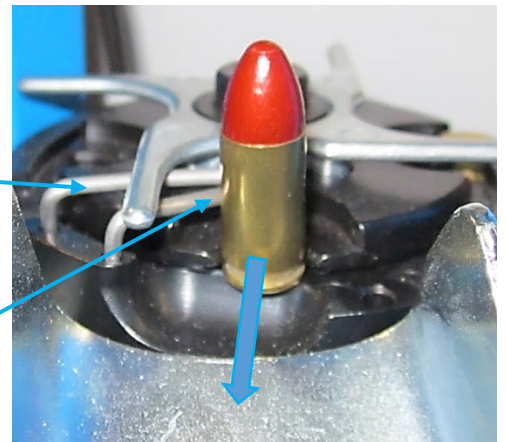


Station 4

Crimping Bullet

Ejector Wire

Completed  
cartridge ejected  
into Cartridge Bin  
by the Index  
Sprocket manually  
pushing the  
cartridge into the  
Ejector Wire



Station 4 (Eject)



**8 SETUP PROCEDURES FOR RL550C—*WARNING! DUE TO VARIATIONS IN COMPONENTS, CHECK ALL STATIONS FOR PROPER ADJUSTMENTS FOR THE CARTRIDGE BEING LOADED ANY TIME YOU CHANGE ANY COMPONENTS. YOU MUST READ THE FOLLOWING INSTRUCTIONS. IF THERE IS SOMETHING YOU DO NOT UNDERSTAND, CALL (800) 223-4570 FOR TECHNICAL ASSISTANCE.***

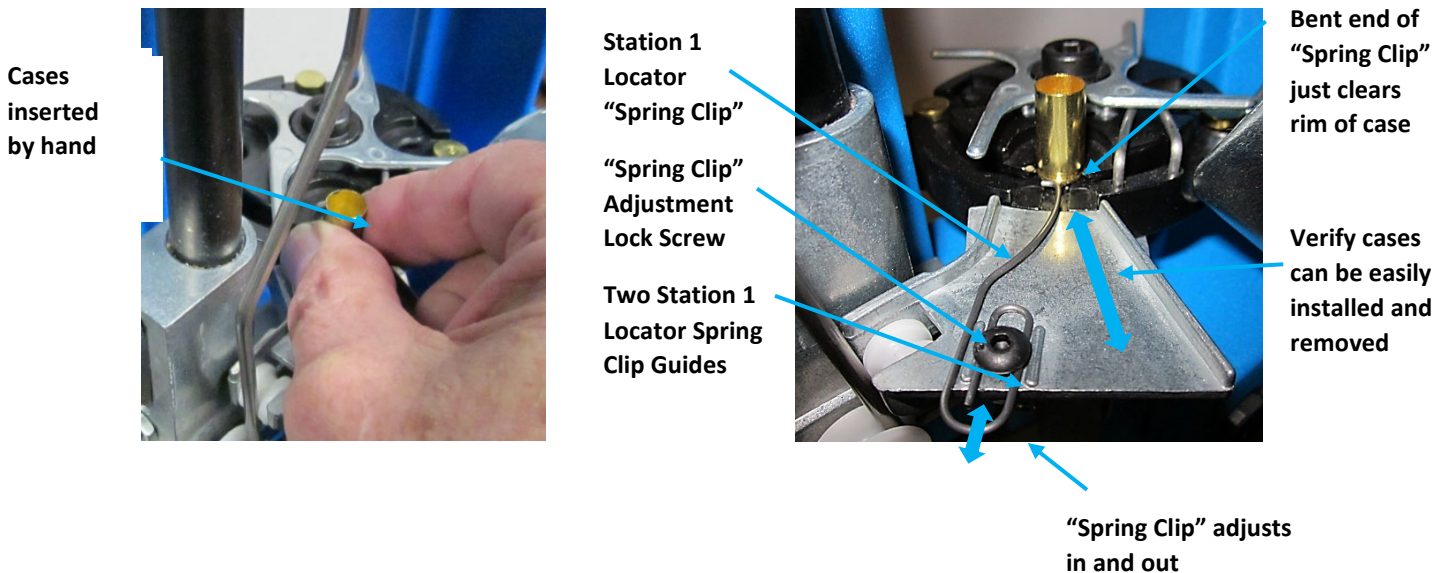
**8.1 Station 1—Spring Clip Locator Adjustment**

8.1.1 Cases are inserted by hand into the Shellplate in Station 1. Station 1 incorporates an adjustable Station 1 Locator “Spring Clip” to hold the case in position. Adjustment is required for different case diameters. To adjust the Locator:

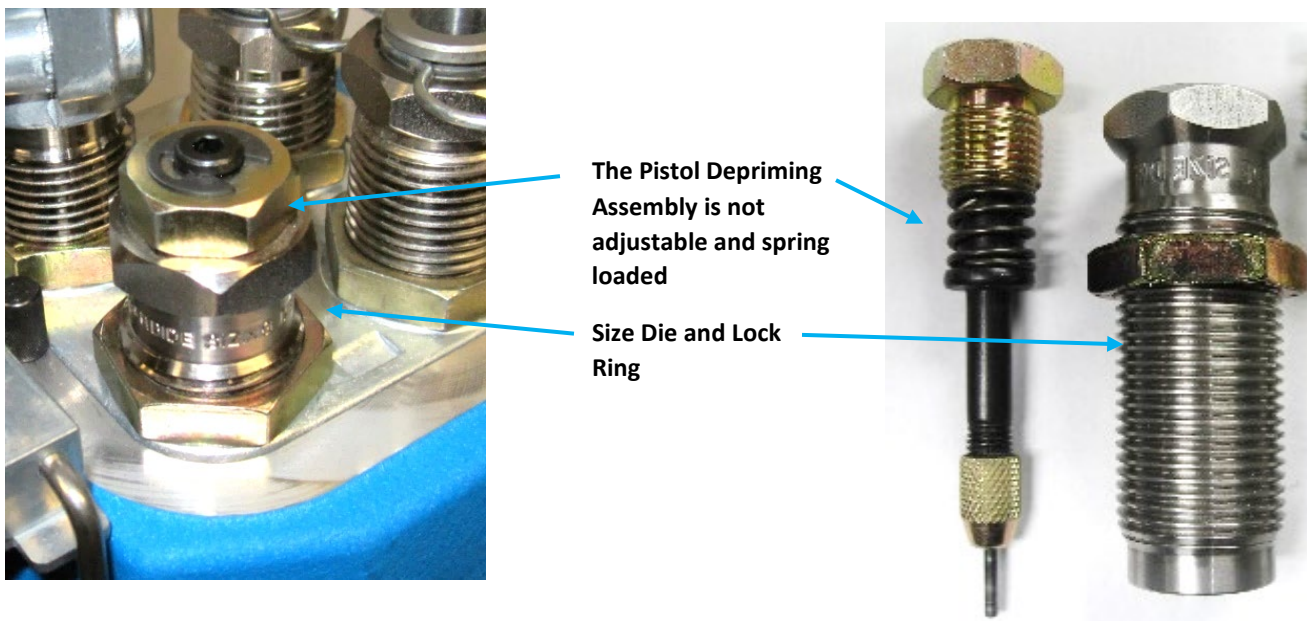
- Place a case in the Shellplate in Station 1.
- Loosen the Adjustment Screw with an Allen wrench.  
Slide the bent end of the Locator 1 “Spring Clip” in until it just touches the rim of the brass case. Back the “Spring Clip” up so that the end just clears the case rim by .015”-.020”.



- Tighten the Adjustment Screw making sure that the back part (“loops”) of the “Spring Clip” is retained in the Locator Guides.
- Verify that a case can be easily inserted into the Shellplate and removed without binding on the bent end. If not, adjust the “Spring Clip” to have a little more clearance.



**8.2 Station 1a—Pistol Depprime and Size Components Are Shown Below:**

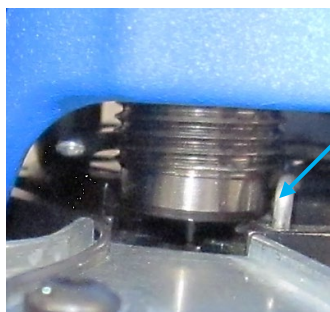


**8.2.1 Pistol Size Die Adjustment only—(For Bottleneck-Rifle Cartridges--Refer to Section 8.2.2 below and Section 15.3 on headspace definition.**

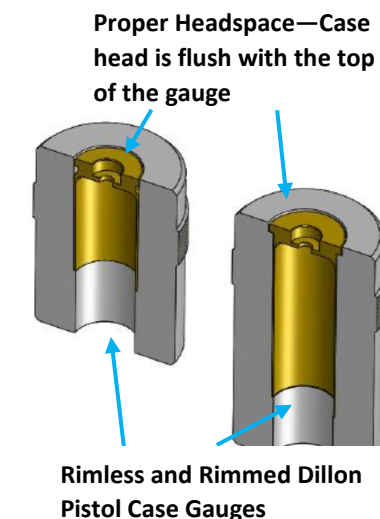
- Cycle the Handle all the way down. Screw the Pistol Size Die (Clockwise) down until it just touches the Shellplate and back the Die up 1/16 of a turn or less. Note--Some Dies may require “full contact i.e. slight cam-over” with the Shellplate.
- Tighten the Die Lock Ring with a 1" Dillon Bench Wrench using a 7/8" wrench to hold the Die Body with the sized case in the Die.
- Note--the Pistol Depriming Assembly is not adjustable. It is spring-loaded to assist in removing used primers from the tip of the Depriming Pin during the Depriming step with a “snap-action.”
- It is a good idea to check the sized pistol case in a Dillon Pistol Case Gauge--see below. The sized case should drop freely in and out of the Pistol Case Gauge. This Case Gauge can be used to gauge the completed reload as a final quality check.



Pistol Depriming Assembly—non-adjustable



Size Die just touching to a 1/16 of a turn up from touching the Shellplate



Pistol Sizing/Depriming Assembly

**8.2.2 Rifle Size Die Adjustment—(For Bottleneck Cartridges)**

- Refer to Section 15.3 on headspace definition)
- Note: The Rifle Size Die and the integral Deprime Assemblies require separate adjustments.

Adjustable Rifle Depriming Assembly with Expander Ball and Replaceable Depriming Tip



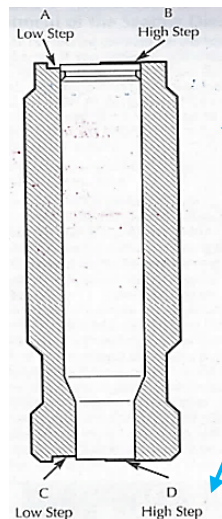
Rifle Size Die Body and Case— “sectioned”

- Lower the Operating Handle.
- Thread the Sizing Die down through Station 1 in the Toolhead until it just touches the Shellplate and back it up two turns. Tighten the Die Lock Ring finger tight.
- Loosen the Rifle Depriming Assembly Locknut and raise the Depriming Assembly 3 turns.



Thread Sizing Die  
Assembly down to touch  
the Shellplate and back  
it up 2 turns and tighten  
the Lock Ring finger tight

- Raise the Handle and insert a lubricated case into Station 1.
- Cycle the Handle all the way down.
- Raise the Handle and remove the case. The case is now initially sized. Verify the case is correctly sized and the headspace (Refer to Section 15.3 on headspace definition) is correct using a Dillon Head Space Gauge. (Using a Headspace Gauge for bottleneck cartridges is an absolute must.) Insert the sized case into the Gauge. The top of the Gauge verifies that the headspace is correct and the bottom of the Gauge verifies the case length is correct--see below. If the headspace is above the maximum, screw the Die down 1/8 of a turn (about .009") and resize the case again. Repeat until the case head is below the upper step. (See below) If the case head is below the lower step, back the Die up and check another case. Use a 7/8" wrench to hold the Die body and tighten the Die lock ring with a 1" Dillon Bench Wrench with the sized case in place.
- Note--Some Dies may require "full contact/slight cam-over" with the Shellplate.
- Note: Die Locking Procedure--Always "final tighten" any Die-Body i.e. Size, Seat and Crimp Die Body Lock Rings with the appropriately processed case fully inside the Die with the Handle down. This always promotes a better alignment of the Die and Shellplate.



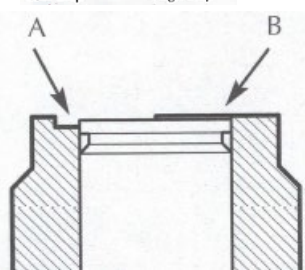
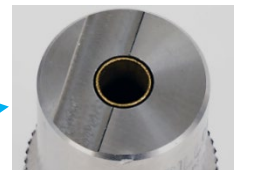
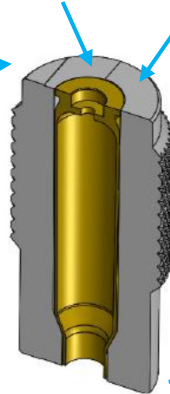
Top of the gauge

Checks the headspace-High step B is the maximum and the low step A is the minimum

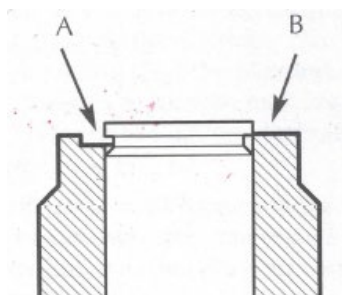
Bottom of the gauge

Checks the overall case length C (Low step) is the minimum length and D (High step) is the maximum length

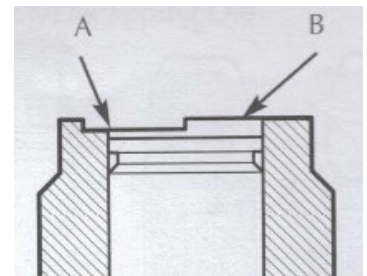
Low step A High step B



Proper Headspace—Case head is at or just below the high step (B) and above the low step (A)



Improper Headspace—Case head is above the top step (B)--adjust size die down CW--Cycle this case through the Size Die Station again



Improper Headspace—Case head is below the low step (A)--adjust size die up CCW--run another case through the Size Die Station



### 8.2.3 De-prime Assembly Adjustment--Bottleneck Cartridges—Adjust this after the Size Die has been set.

- Screw the Deprime Assembly down while partially cycling the Handle up and down until the shoulder of the Depriming Pin just contacts the flash hole inside the case--see below. Raise the Deprime Bolt  $1\frac{1}{2}$  turns from contact. Note--If the Size Die is adjusted more than  $\frac{1}{2}$  a turn, re-adjust the height of the Depriming Pin.

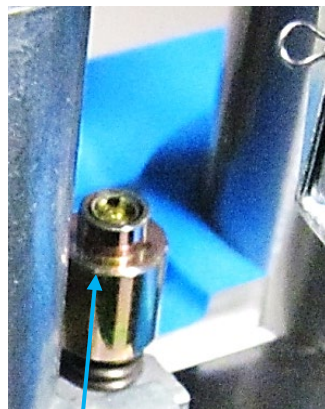
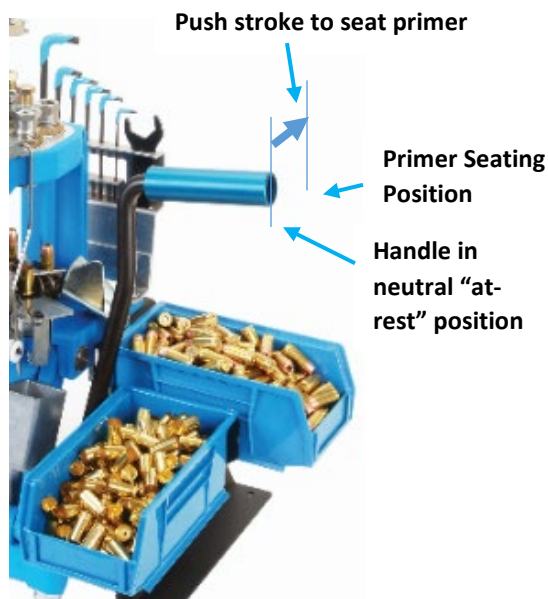
Screw depriming Bolt down until the Depriming Pin just touches the top of the flash hole on the inside of the case, then back it up  $1\frac{1}{2}$  turns--tighten the Locknut



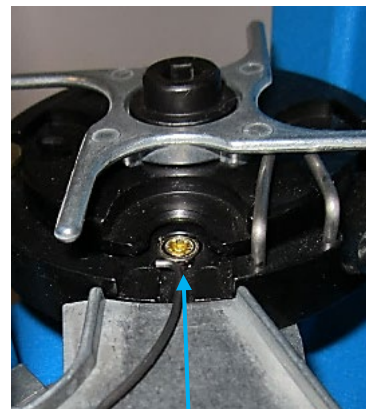
Depriming Assembly with Bolt/Locknut/Spring Clip

- **DANGER! Never attempt to de-prime live primers or re-seat primers in a loaded cartridge, an explosion may occur.**

### 8.3 Station 1b—Primer Feeding and Seating Adjustment--Primers are also automatically fed and seated in this station. Note--Primers are seated with the full push stroke of the Operating Handle. Refer to Section 16.4 on Primer Basics.



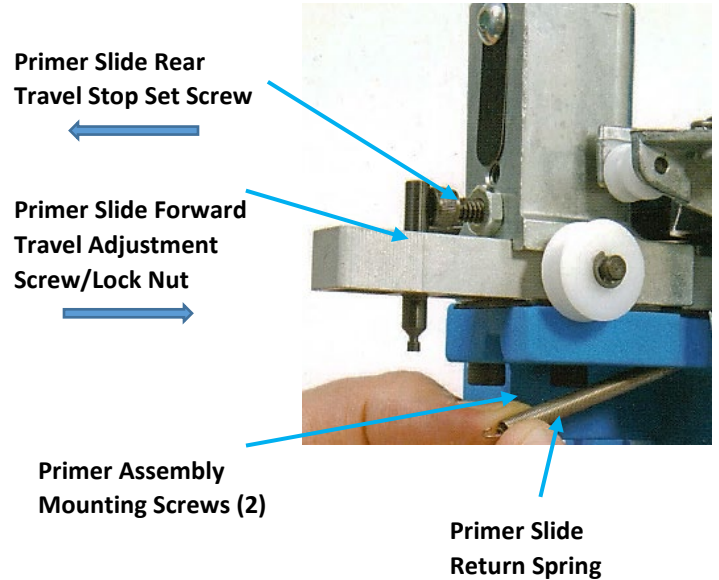
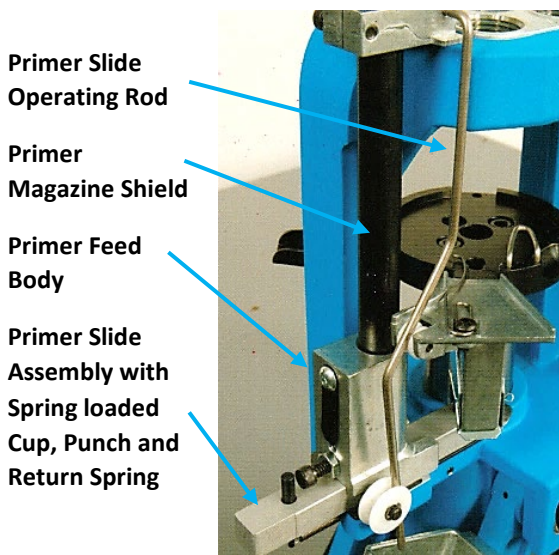
Primer in Primer Cup



Primer ready to be seated

#### 8.3.1 Primer Magazine Feeding and Seating Components

- The RL550C incorporates an Automatic Linear Primer Feed System utilizing standard Dillon Primer Magazines and a Primer Shield along with a Large and Small Primer Slide.
- The Black Plastic Primer Follower Rod is the Primer Early Warning System/Low Primer Alarm Actuator and remaining primers indicator.
- The RL550C comes from Dillon, set up for small primers. Large primer Conversion Parts are also included and are in the "Tube Pack" --See shipping contents.



### 8.3.2 The Operation of The Automatic Primer System—read section 16 on Primers

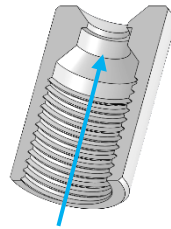
- Primers are seated by pushing the Operating Handle fully to the rear, from the Operating Handle's "neutral position" at the top of the Operating Handle's stroke.
- **CAUTION! The "feel method" in the seating primers is a critical learning method for the reloading process.**
  - *Primers will not be seated properly if the Handle is not pushed firmly and fully to the rear from the Handle at rest position.*
  - *If the primer takes too much force to be seated and the Handle cannot be cycled completely to the rear—STOP and inspect the case. The primer pocket may be damaged or it could have a crimped (military) primer pocket or a ring from a fired primer may be left in the primer cup, or the Primer Cup may not be properly aligned with the Shellplate/Platform.*
  - *Low resistance to seating a primer can indicate an enlarged primer pocket that may not retain the primer. Discard this case.*
- Verify that the system feeds primers as follows:
  - Remove the plastic Follower Rod from the Primer Magazine Tube.
  - Verify the Magazine Tube Size is correct--The Magazine Tube with a Blue Tip is for small primers and the Magazine Tube with a Red Tip is for large primers.



- Install the Magazine Tube in the Magazine Shield. The tab on the plastic Magazine Tip, red or blue, must be gently aligned with the slot down in the Primer Feed Body Housing and then slid down about a 1/4" more. Now tighten the knurled Cap just snug. *Note—these tips can be damaged.*



Magazine Tip Alignment Tab



Magazine Cap fits over end of Magazine Tube



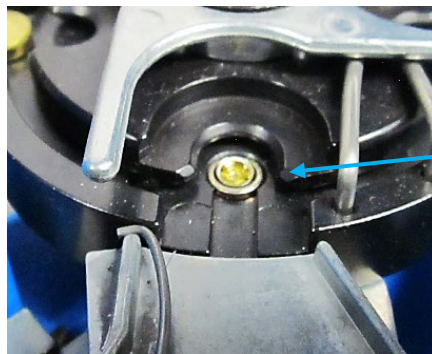
Lightly tighten knurled Magazine Cap

- With the Operating Handle up in its neutral position, manually take one primer that you will be using and drop it anvil side up in the hole in the Magazine Cap as shown below:



Drop one primer in Magazine Shield/Cap

- Cycle the Handle smoothly down and back up and push the Handle fully to the rear to the primer eating position.
- The primer should present itself in Station 1 on top of the Primer Punch as shown below—repeat this step 3 times—if successful proceed to the next step, if not proceed to Primer Drop Alignment Section 10.2.



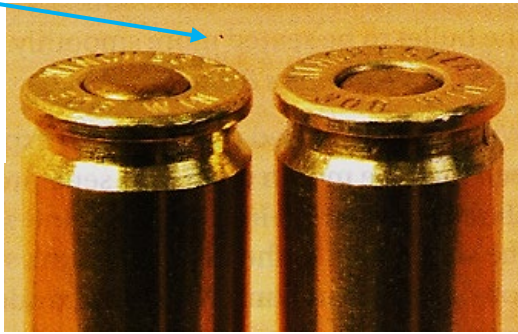
Correct presentation of primer—Single primer drop test

### 8.3.3 Verify Primer Seating Depth

- Put a de-primed case in Station 1 and a primer in the Primer Magazine. Cycle the Operating Handle down and push the Operating Handle firmly to the rear (push-stroke) seating the primer. Remove the case and verify the primer is seated flush or slightly below flush. Primer seating depth is an important parameter to control when reloading and can be a safety issue. The ideal seating depth is .002" to .006" (.008" Max) below the case head. **WARNING! "High" or protruding primers can lead to slam fires in semi-autos or firing out of battery and can stop a revolver's cylinder from rotating.** Seating the primer too deep can damage the primer and cause misfires and or inconsistent ignition. Refer to Section 16.4. on Primer Basics and Safety.

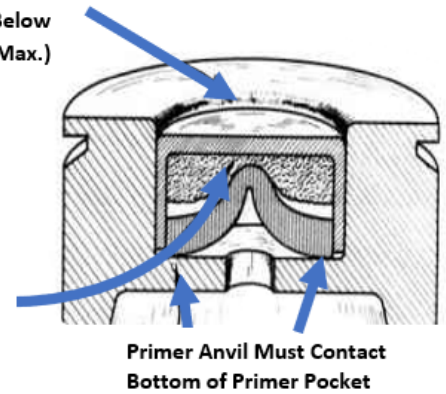
Primer on right is seated properly--the one the left is high

Courtesy of Western Powders



Primer Seated .002" to .006" Below Flush Recommended (.008" Max.)

Primer Anvil Initially Compressing Primer Compound



Primer Anvil Must Contact Bottom of Primer Pocket

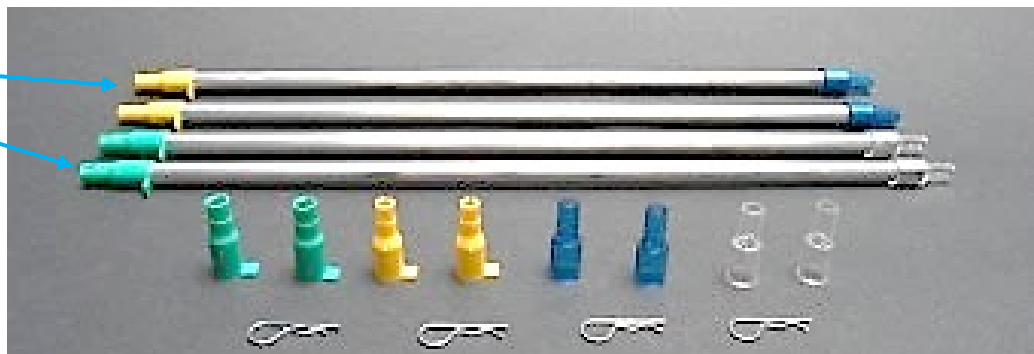
#### 8.3.4 Filling The Primer Magazine--Dillon offers two choices for filling the Primer Magazine:

- Manually with an optional Dillon Primer Flip Tray and Dillon Primer Pickup Tubes. Pickup Tubes are included with the RL550C.
- The Primer Pick-Up Tubes have different colored tips to identify size as follows:
- 

Primer Pickup Size	Pickup Tip Color	Dispense Tip Color
Small	Yellow	Blue
Large	Green	Clear

Small Pickup Tube

Large Pickup Tube

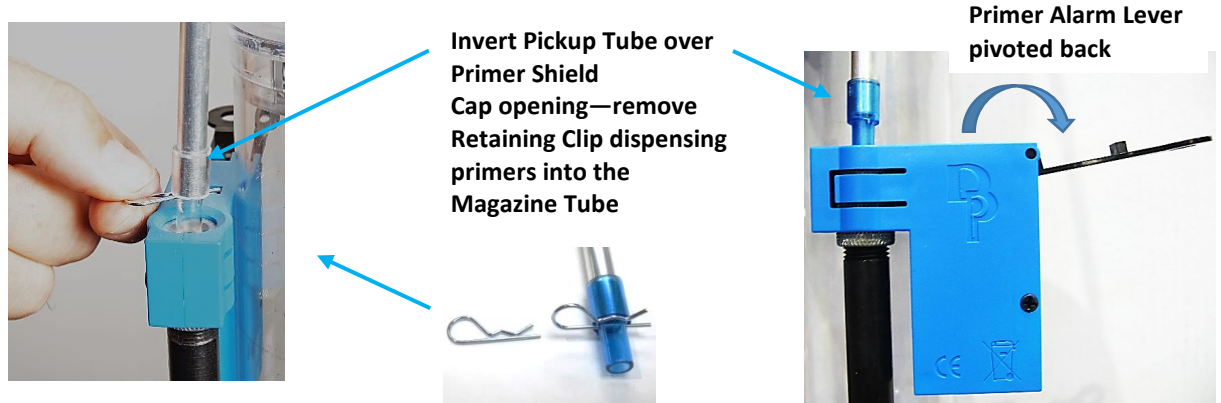


- **WARNING! Put on safety glasses!**
- Place primers on the half of the Flip Tray with the ribs. Oscillate the tray and primers around until all the primers are flat. Pickup all the primers that are shiny side up by placing the Plastic Pickup Tip over the shiny side up primers in the Primer Flip Tray and gently pressing down. Put the other half of the Flip Tray on the ribbed half with the primers that are anvil side up. Hold the two halves together and turn them over. Remove the top half of the tray and pick up the remaining primers.

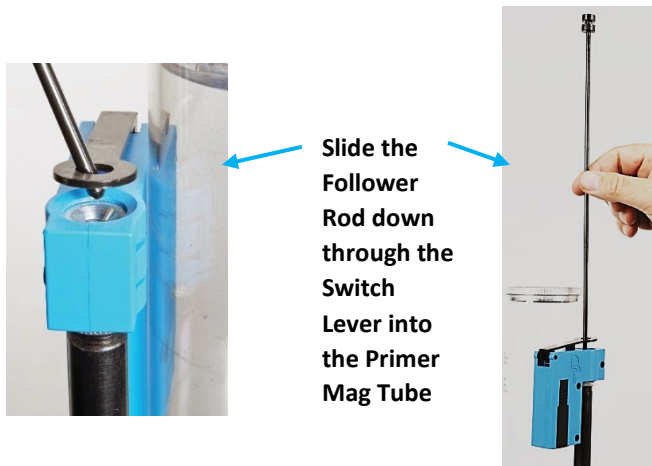




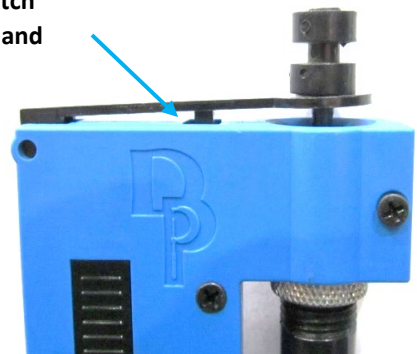
- Pivot the Primer Alarm Lever away from the Early Warning System Housing and invert the Pickup Tube over the Primer Shield Cap. Pull the Retaining Clip and allow the primers to drop into the Magazine—verify no primers remain in the Pickup Tube.



- Pivot the Switch Lever back. Gently slide the Follower Rod down through the Switch Lever and into the Primer Magazine Tube.
- The Black Plastic Follower Rod will activate the Primer Early Warning Alarm when there are approximately three to four remaining primers and gives a visual indication of the remaining primers.



Primer Alarm switch activated by Rod and Lever



- The second method of filling the Primer Magazine is to use the Dillon RF100 Automatic Primer Filler that automatically loads primers in a Primer Filler/Tube Housing—see below:



#### Dillon RF 100 Automatic Primer Filler

Dillon's RF 100 Automatic Primer Filler™ eliminates the task of manually filling primer pick up tubes. Pour your primers from their box into the top of the RF100. Press the blue button. In about two minutes the primers are in the primer tube inside a protective metal housing. The RF100 comes in either a small or large primer version. Size conversion kits are also available.

RF100 Voltages	Small Primer Part No.	Large Primer Part No.
120 VAC	97111	97077
220 VAC	97113	97112

## 8.4 Station 2--Powder Measure Setup (Case Mouth Belling/Flaring and Powder Dispensing)

8.4.1 The Dillon Powder Measure System included with the RL550C is a Volumetric Powder System that is activated only when a case is present. There are different size Powder Bars for different cartridges. Each Powder Bar has a screw adjustable volume to control the amount of powder dispensed. The amount of powder that can be dispensed for each available bar is shown below.



Station 2

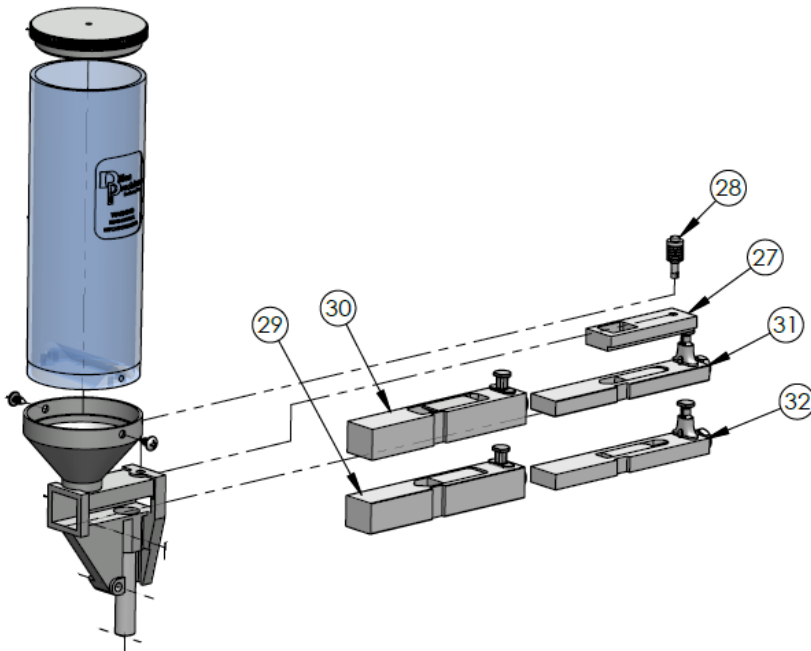


Adjustable Volumetric Powder Cavity

Large Bar Shown

Powder Volume Adjusting Screw

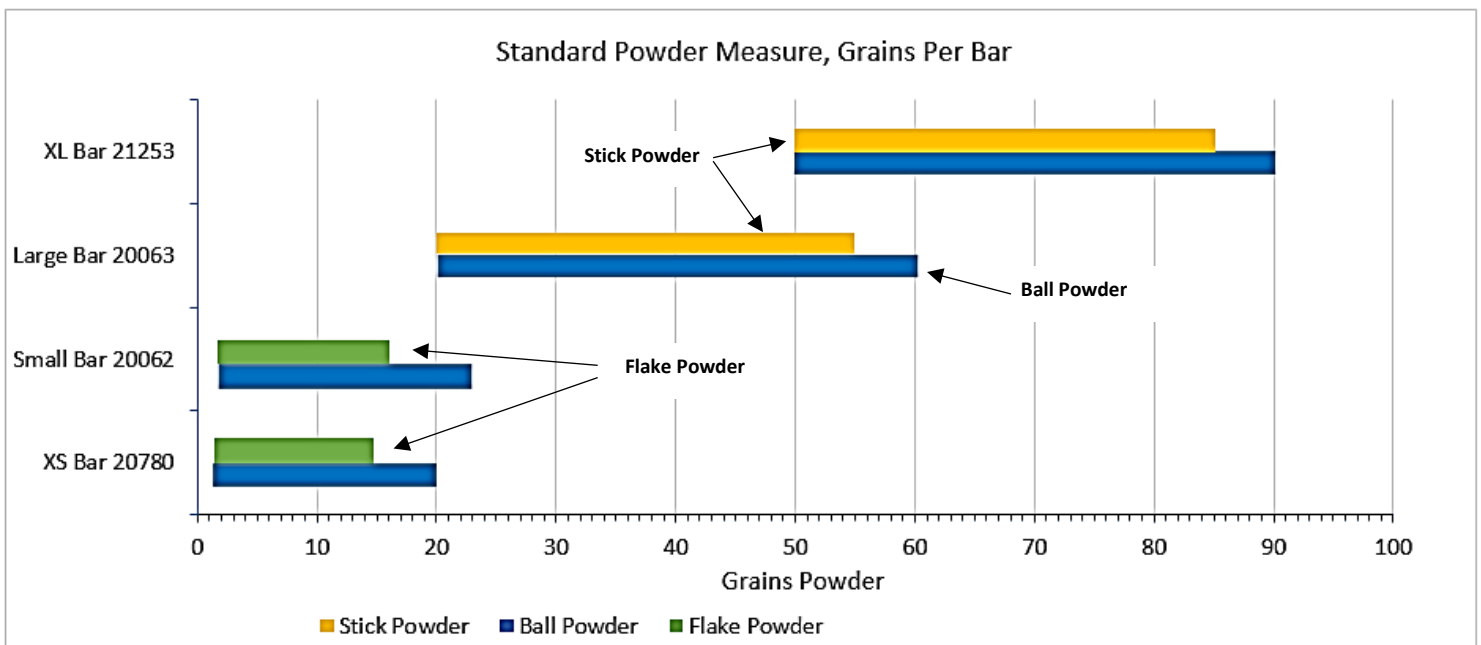
8.4.2 The RL550C is shipped with a Small Bar installed in the Powder Measure and a Large Powder Bar is shipped separately. The Dillon Powder Measure uses Powder Bars that are specific to the range of powder dispensed as shown on the next page.



27	13644_POWDER BAR SPACER
28	13921_POWDER BAR SPACER PLUG
29	20063-LARGE POWDER BAR ASSEM
30	21353_EXTRA LARGE POWDER BAR ASSEM
31	20062_SMALL POWDER BAR ASSEM
32	20780_EXTRA SMALL POWDER BAR ASSEM

8.4.3 Note: The Powder Measure is only activated by a cartridge case pushing up on the Powder Funnel—this is a safety feature!

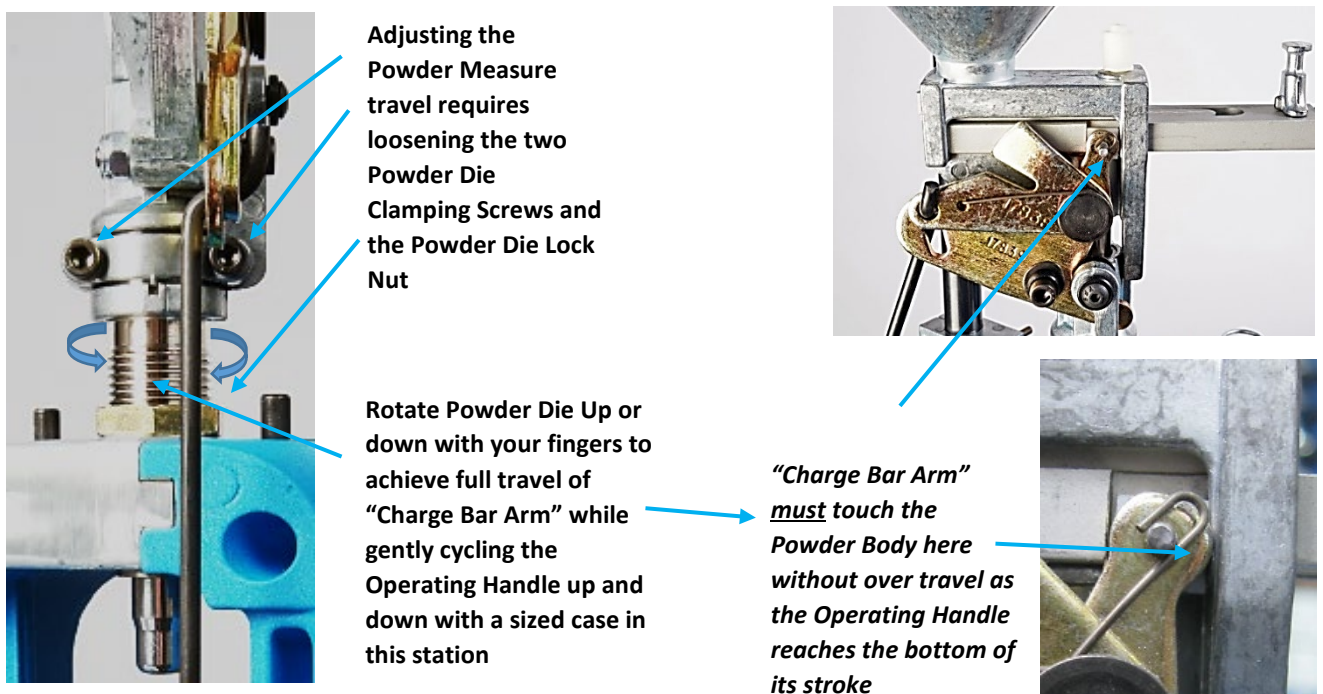




**8.4.4** There are 3 adjustments required for the Automatic Powder Measure system for pistol and rifle cartridges:

- 1--Full horizontal travel of the Powder Bar--The Powder Charge Bar must be adjusted to achieve full horizontal travel. Failure to do so will result in inconsistent powder charges.
- 2--Case mouth bellling for pistol cartridges and full travel without overtravel for rifle cartridges.
- 3--Powder charge weight in grains for rifle and pistol cartridges.

**8.4.5** Place an empty sized case in Station 2 with no powder in the Powder Measure. Loosen the 7/8-14 Powder Die locknut and the two-socket head Powder Measure clamping screws (see below). Cycle the Operating Handle down. Proper adjustment is achieved with the Powder Bar reaching the end of its travel at the same time the Operating Handle reaches the bottom of its stroke, as indicated by the Charge Bar Arm just touching the Powder Body as shown below. If the Charge Bar Arm has not traveled its full distance or tries to overtravel, raise the Operating Handle slightly while threading the 7/8-14 Powder Die up or down with your fingers while holding the Powder Measure from rotating. Lightly tighten the Die Lock Ring and the two Powder Die clamping screws—further adjustment is required for case bellling and powder funnel height and is discussed below.



#### 8.4.6 Pistol Cases--belling (flaring) the case mouth

- Note: The Pistol Powder Funnel performs three processes—1-activating the powder measure (with a case), 2-funneling powder into the case and 3-belling the case mouth.



Flaring Taper of  
Pistol Powder  
Funnel

- The desired amount of bell/flare is just enough to allow the bullet to sit on the case's mouth without falling off or over and enough belling to keep the case from shaving bullet material, especially with lead bullets. On handgun cartridges, a sized belled (flared) case mouth diameter should measure approximately .010" larger than an unflared case mouth. *This is different from adjusting the Powder Die for a bottlenecked case, which is discussed below.*



Just enough Belling to allow  
the bullet to sit in the case  
mouth without falling over  
and not shaving bullet  
material

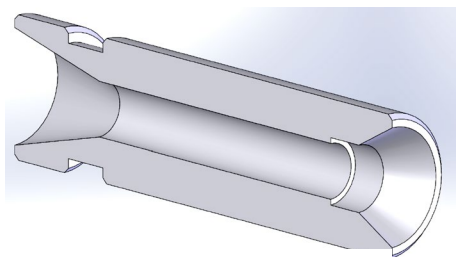


Measuring Belling

- Take the empty pistol case from the previous step and place it in Station 2. Cycle the Operating Handle down and back up. Remove and inspect the case for proper belling. Thread the Powder Die up or down a small amount (~1/8 turn at a time) with your fingers while keeping the Powder Measure from rotating. Place the case back in Station 2 and repeat the test until the proper amount of belling is attained as shown below. *(Over flaring can be corrected by gently resizing the case back in the Size Die.)*



8.4.7 Rifle Cases--again, full Powder Bar Travel is required as previously discussed. Place an empty sized, properly trimmed and expanded case in Station 2, with no powder in the Powder Measure. (It is highly recommended to always chamfer and deburr a rifle case neck to assist in seating the bullet and dropping powder.) Note--the Rifle caliber-specific Powder Funnel fits over the outside of the case neck. Loosen the 7/8-14 Powder Die Locknut and the two-socket head clamping screws. Cycle the Operating Handle down and raise the Operating Handle just enough to disengage the case from the Powder Funnel while threading the 7/8-14 powder Die up or down with your fingers to achieve full travel of the Charge Bar Arm. The proper adjustment is the Powder Bar reaching the end of its travel at the same time the Operating Handle reaches the bottom of its travel as the Powder funnel just barely touches the case neck—a little clearance is acceptable. Tighten the locknut and the two Powder Die clamping screws. Excessive contact between the Rifle Powder Funnel and the neck of the case can buckle the case and/or damage the Powder Measure.



Cross section of Dillon Rifle Powder Funnel



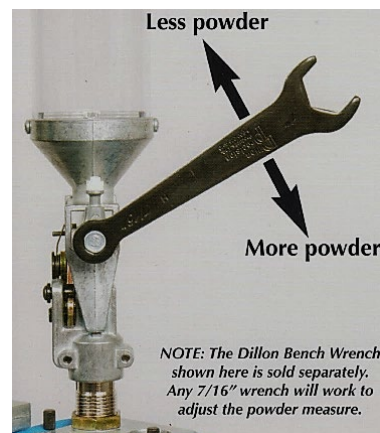
Rifle case neck fits up inside Caliber Specific Powder Funnel to Activate Powder Measure

#### 8.4.8 Powder Charge Weight Adjustment

- A scale that weighs in grains is required for this step. A Digital Electronic Scale is available from Dillon--PN10483.



- Select a powder that is specific to the bullet caliber, weight and type of bullet being reloaded. Refer to established bullet and powder manufacturers for reloading data such as Sierra, Hornady or Alliant Powders or reloading manuals such as the Hodgdon or Lyman Reloading Manuals.
- Verify that the proper Powder Bar is installed in the Powder Measure.
- Select the powder charge weight in grains from the appropriate established reloading document and write it down.
- **WARNING! Put on safety glasses!**
- Remove the Powder Measure Hopper Lid and fill the Hopper with the prescribed powder and replace the Hopper Lid. Label the Hopper with tape or a "sticky note" as to what powder is in the Hopper.
- **DANGER! Never have more than one powder in the loading area!**
- Place a primed case in station 2 and cycle the Handle fully down. Remove the case and dump the powder in the pan on the scale. Adjust the powder bar adjusting bolt as required--Clockwise to increase the amount and Counter Clockwise to decrease the amount using a 7/16" wrench—see below. Measure the powder dispensed 5-10 times or until the dispensed amount is stable.



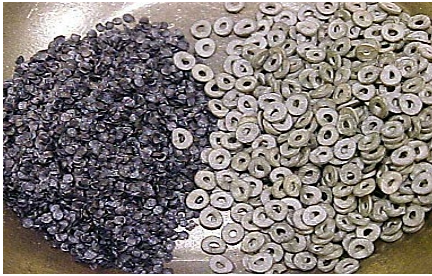


- **Note:** Stick powders are more difficult to dispense and require more care and time to drop into the case than ball powders.

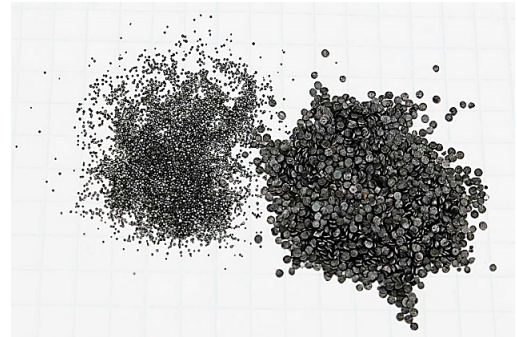
**DANGER! WARNING!**

- **POWDER BURN RATES ARE SIGNIFICANTLY DIFFERENT BETWEEN POWDERS FOR RIFLES AND PISTOLS.**
- **USING THE WRONG POWDER (PISTOL POWDER) IN A RIFLE (FOR EXAMPLE) OR AMOUNT OF POWDER OR MIXING POWDERS CAN RESULT IN SERIOUS INJURY OR DEATH.**
- **ALWAYS STORE POWDER IN ITS ORIGINAL CONTAINER.**
- **NEVER MIX POWDERS.**
- **NEVER HAVE MORE THAN ONE TYPE OF POWDER IN THE RELOADING AREA AT ONE TIME.**
- **OBSERVE ALL MAXIMUM LOAD WARNINGS. (MAXIMUM LOADS MAY NOT BE SAFE IN YOUR FIREARM.)**
- **NEVER LEAVE POWDER IN THE POWDER MEASURE.**

- **Typical Powder Shapes:**



Flake and perforated disk



Ball and flattened ball powders



Extruded Powders—Hollow or Solid Sticks

### 8.5 Station 3--Bullet Seating Setup Cartridge Overall Length (COAL)

- The Seating Die pushes the bullet into the case. How far the bullet is pushed into the case will determine the cartridge's overall length--COAL. Most loading manuals provide the COAL based on SAAMI (Sporting Arms and Ammunition Manufacturers' Institute) standards. The cartridge overall length specified in the reloading manuals for a cartridge is usually the minimum length for that bullet/powder charge combination.

#### 8.5.1 The maximum cartridge overall length depends on the following factors:

- The bullet must be seated deep enough into the case to provide enough "hold/grip" on the bullet.
- The bullet should not contact the rifling/lands in the barrel when the cartridge is chambered in general reloading practice. **WARNING! --seating bullets into the lands can cause an overpressure condition! Note: There are competitive precision shooters/reloaders that load bullets touching the lands under carefully controlled conditions.**
- The cartridge must fit the firearm's magazine (if it has one).
- The bullet may have a cannelure(s) or a crimping groove that may be used to determine the proper COAL.

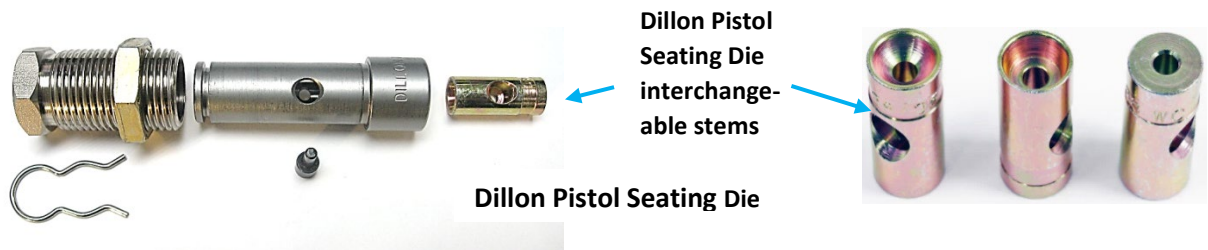


Pistol and Rifle Cannelures

- **WARNING! Avoid loading shorter than the minimum length. This will seat the bullet deeper into the case. This decreases the case volume and increases the pressure, which could lead to an overpressure condition especially in pistol cartridges due to their smaller internal volume.**

**8.5.2 Installation and Adjustment of the Pistol Seating Die--**Determine the overall length required in your reloading manual-- write it down. Again, loading manuals provide the COAL based on SAAMI (Sporting Arms and Ammunition Manufacturers' Institute) standards. The cartridge overall length specified in the reloading manuals for a cartridge is usually the minimum length for that bullet/powder charge combination.

- The Dillon Pistol Seating Die has a removable double-ended Seating Stem. One end is for flat-nose bullets and the other is for round-nose bullets. There is another Stem for "wadcutter" bullets for 38/357 only.
- Select the Seating Stem that matches the nose of the bullet being seated. Assemble the Seating Die as shown below. This design allows for quick cleaning of these items without losing the adjustment.



- Screw the Seating Die down in Station 3 until the bottom of the Die is flush with the bottom of the Toolhead. At this point, the Die will not be down far enough to begin seating the bullet. Place a belled case into Station 3. Place a bullet on the belled case mouth and lower the Handle. Then, raise the Handle. Remove the Cartridge and use a dial caliper to measure the overall length of the cartridge (COAL). If the bullet is not seated deep enough, screw the Seating Die down 1/2 turn at a time. As a guide, one full turn moves the Die about .070", about the thickness of a nickel. Replace the cartridge in Station 3 and repeat these steps until the correct overall length is achieved. (A quick method for pre-setting the Die is to place a previously loaded "good" cartridge in the seating station and adjust the Die down until it touches the bullet.) Tighten the Die Lock ring with a 1" Dillon Bench Wrench while holding the Die with a 7/8" end wrench with the Platform up (Handle Down) and a cartridge in the Die.



Measuring Pistol COAL

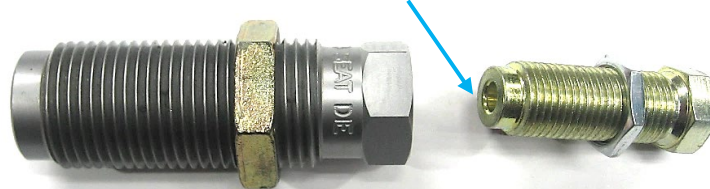
**8.5.3 Installation and Adjustment of the Bottleneck (Rifle) Seating Die with Adjustable Seating Stem—**

- Check the overall length required in your reloading manual. Again, loading manuals provide the COAL based on SAAMI (Sporting Arms and Ammunition Manufacturers' Institute) standards. The cartridge overall length specified in the reloading manuals for a cartridge is usually the minimum length for that bullet/powder charge combination.
- It is a good idea to chamfer the inside of the neck on a bottleneck/rifle cartridge before the bullet seating step. This helps the bullet get started into the case and minimizes damage/scratching of expensive precision bullets. Chamfering is easily accomplished with a chamfer tool such as the Wilson Deburring Tool available from Dillon—PN16038. This tool can deburr the inside as well as the outside neck of the case.
- The Dillon Rifle Seating Die has an adjustable seating stem.

Wilson ID/OD Deburring Tool PN16038



Bullet contacts edge of Seating Stem during Seating



- **Setting up the Rifle Seat Die:** Place a sized case in Station 3 (the case can be primed and charged). Cycle the Operating Handle down. Screw the Rifle Seat Die down until it touches the case and back the 7/8-14 Threaded Die Body up two turns. Lock the Die Lock ring in place with a 1" Dillon Bench Wrench while holding the die with a 7/8" end wrench. Loosen the 5/8" Seating Stem Lock Nut and back the center 9/16" Adjustable Seating Stem up 3 turns. Place a bullet in the case's mouth and lower the Handle. Carefully screw the 9/16" Seating Stem down until it contacts the bullet. Raise the Handle, remove and measure the COAL of the cartridge with a dial or digital caliper. If

the bullet is not seated deep enough, screw the 9/16" Seating Stem down 1/8 of a turn at a time. As a guide, one full turn moves the Seating Stem  $\sim .050"$ . A  $\frac{1}{4}$  of a turn is about  $.012"$ . Repeat these steps until the COAL is correct. Tighten the Seating Stem 5/8" lock nut while holding the 9/16" stem from rotating with end wrenches with a cartridge in the Die with the Handle down. (A quick method for pre-setting the Die is to place a previously loaded "good" cartridge in Station 3 and adjust the Die down until just touches the case and adjust the Seating Stem down until it just touches the bullet.) Again, check the COAL and adjust as necessary.



Measuring Rifle COAL

## 8.6 Station 4--Bullet Crimping

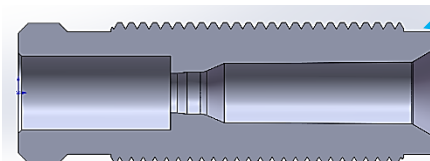
8.6.1 Crimping is the final operation in the reloading process in Station 4. Crimping removes the belling of the case mouth from the previous neck expanding or belling step. Crimping provides added friction for "holding" the bullet by the case. Dillon recommends the crimp operation be separate from the seating operation and provides independent crimp dies in the Dillon 3 Die sets.

### 8.6.2 Dillon Pistol Crimp Die with removable Crimp Insert:



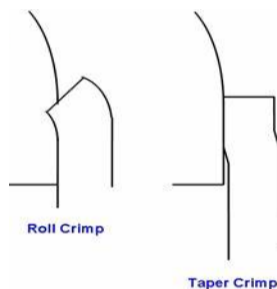
Cross section of Pistol Crimp Insert

### 8.6.3 Dillon Rifle Crimp Die:



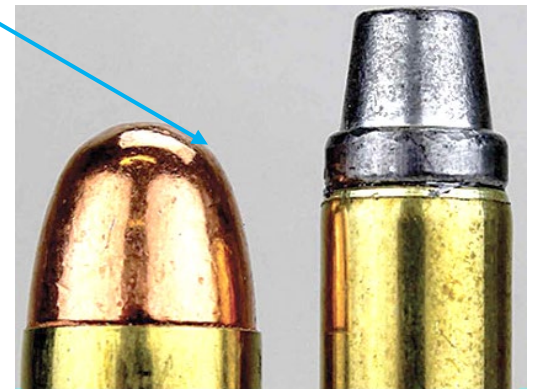
Cross section of Rifle Crimp Die

8.6.4 There are two types of crimping--the roll crimp and the taper crimp. In general, taper crimping is used for semi-autos with rimless cartridges and roll crimping for revolvers with rimmed cartridges. Excessive crimping can "buckle" the cartridge case as shown below.

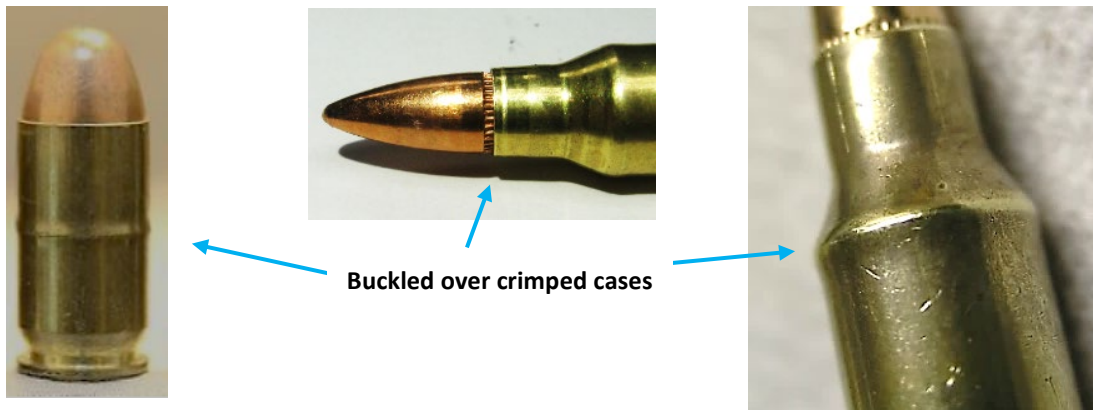


Roll Crimp

Taper Crimp

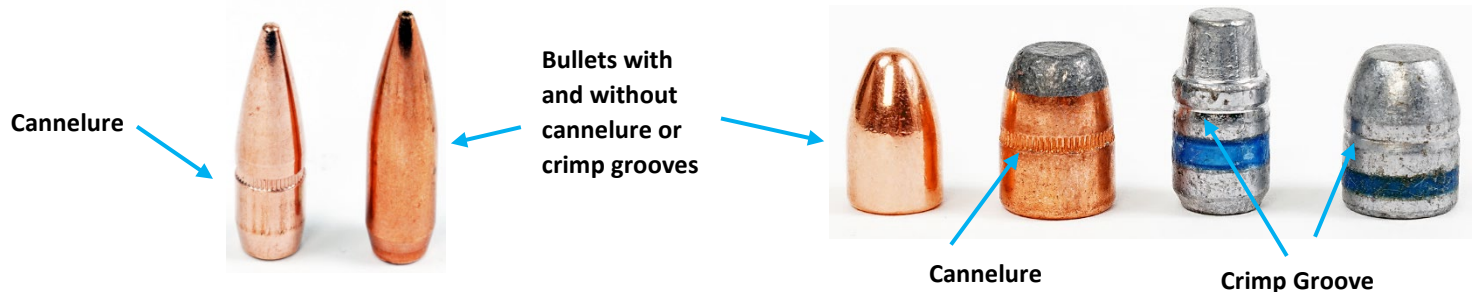






#### 8.6.5 Roll Crimping

- In roll crimping the edge of the case mouth is rolled inward into the bullet, leaving a slight radius at the top of the case mouth. Cast lead bullets or jacketed bullets may also have a crimp groove or a cannelure that accepts the roll crimp. If there is no groove or cannelure, take care not to over-crimp the bullet. Over crimping can damage the bullet and reduce the "hold" on the bullet due to the bullet being deformed and the brass case springing back away from the deformed bullet. Crimping a bullet without a crimp groove should only reduce the diameter of the brass case mouth/outer diameter .001-.003" maximum. A reduction of case mouth diameter greater than .003" may cause bullet deformation and a loose bullet. It is not necessary to use the cannelure if your COAL is not compatible with the location of the cannelure.



- Roll crimping a revolver bullet provides the extra hold between the bullet and the case to prevent the bullet from being "pulled" out of the case during recoil. This can cause the revolver's cylinder to lock up after a few shots if a bullet is "pulled" far enough out of the case to contact the frame.

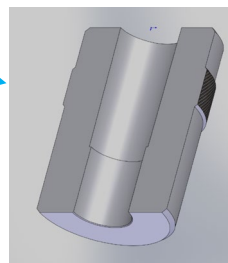
#### 8.6.6 Taper Crimping Pistol Cartridges

- A taper crimp flattens out the belling of the straight wall semi-auto pistol case from the previous step. Rimless straight-walled or tapered cases such as the 9mm, .40 S&W and .45 ACP cartridges' headspace on the case mouth and roll crimping would shorten the cartridge case causing improper head spacing in the chamber. Taper crimping is also used on bullets without a cannelure or a crimp groove.
- The gradual taper in the top of the taper Crimp Die should only reduce the diameter of the top edge of the case mouth .001-.003".

#### 8.6.7 Verifying Proper Crimp with a Dillon Case Gauge

- Pistol cartridge caliber-specific case gauges are available from Dillon and replicates the SAAMI chamber specification. Gauges provide a quick check of the cartridge's crimp, diameter and case length. If the reload fits in the case gauge, it most likely fits in the gun's chamber.

Cross Section  
Pistol Case Gauge



Dillon Pistol  
Case Gauge



- Rifle Crimping--Rifle bottleneck cases, in general, are not crimped unless the bullet has a cannelure and the COAL corresponds with that position as below. Taper crimp the case mouth only enough to straighten out any bellling. An autoloading rifle cartridge might require a crimp (no more than .001"-.002") if the neck tension on the bullet is inadequate to hold the bullet in place during the auto-loading cycle of semiautomatic firearms.

Taper Crimp of  
Rifle Cartridge  
with Cannelure



#### 8.6.8 Adjustment of the Bottleneck Crimp Die

- Screw the Crimp Die into Station 4. Screw it down until it is flush with the bottom of the Toolhead as a starting point.
- Place a cartridge with a properly seated bullet into Station 4.
- Lower the Handle and continue to screw the Die Down until it touches the cartridge.
- Raise the Handle slightly, screw the Die down 1/8 of a turn or less and lower the Handle.
- Raise the Handle and inspect the cartridge. If the bellling of the case mouth is still present, or more crimp is needed, give the Die a 1/8 turn down or less and try again. Continue making small adjustments until the desired amount of crimp is achieved—again, the crimp should reduce the case mouth diameter to no more than .001-.002".

Crimp—reduce  
diameter no  
more than  
.001-.002"



Excessive crimp may show  
up as a tapered "bright  
ring" at the top edge of the  
case neck

- Once the adjustment is complete, place the case back into Station 4 and lower the Handle. Tighten the Crimp Die lock ring using a 1" Dillon Bench Wrench and a 7/8" end wrench to hold the Die body with a cartridge in the Die with the Handle down.
- Once all the reloading stations are in use, recheck all the process parameters from each station to verify nothing has changed due to the "full operating load" on every station.

## 9 CONVERSION LIST PART NUMBERS AND PROCEDURES

### 9.1 Dillon has conversion kits for various calibers as noted in the table below:

Conversion	Caliber Rifle	Shellplate	Powder Funnel	Buttons	Misc Parts
20203	.17 Remington	3 (13684)	O (12921)	3 (14060)	
20307	.204 Ruger	3 (13684)	204 Rifle (20322)	3 (14060)	
20151	.218 Bee	O (12013)	A (13426)	3 (14060)	
20180	.22 Hornet/219 Zipper / 22 Savage	7 (12501)	A (13426)	4 (14047)	
20150	.22 Hornet	E (12957)	A (13426)	8 (14048)	
20182	.22 PPC	A (13211)	A (13426)	2 (14062)	
20165	.22 Remington Jet	2 (13751)	A (13426)	2 (14062)	
20154	.220 Swift	L (12703)	L (10831)	1 (13930)	
20128	.223 Remington/.221 Rem. Fireball/222 Rem. Mag	3 (13684)	A (13426)	3 (14060)	
20676	.223 WSSM	B (13347)	223 Short Mag Rifle (18417)	6 (15755)	XL Powder Die (21253)
62430	.224 Valkrie	5(13743)	A (13426)	2(14062)	
20235	.224 Weatherby	A (13211)	A (13426)	2 (14062)	
20154	.225 Winchester	L (12703)	L (10831)	1 (13930)	
20276	6mm BR	1 (13692)	6PPC Rifle (13085)	1 (13930)	
20265	6mm PPC	A (13211)	6PPC Rifle (13085)	2 (14062)	
20252	6MMTCU	3 (13684)	6PPC(13085)	3 (14060)	
20192	.243 Winchester, 6mm Remm.240 Weatherby Mag	1 (13692)	I (13305)	1 (13930)	
20316	.243 WSSM	B (13347)	243 Short Mag (11156)	6 (15755)	XL Powder Die (21253)
20233	.25 Remington	R (13497)	K (13216)	2 (14062)	
20315	.25 WSSM	B (13347)	25 Short Mag (11157)	6 (15755)	XL Powder Die (21253)
20147	.250 Savage, 25-06, 257 Roberts	1 (13692)	K (13216)	1 (13930)	
20176	.25-20 Winchester	O (12013)	R 25 Handgun" (13243)"	3 (14060)	
20197	.25-35 Winchester	7 (12501)	K (13216)	4 (14047)	
20215	.256 Win. Mag	2(13751)	R(13243)	2 (14062)	
20147	.257 Roberts,.257 Ackely Imp.	1 (13692)	K (13216)	1 (13930)	
20199	.257 Weatherby Mag.	B (13347)	K (13216)	4 (14047)	
20207	.260 Rem	1 (13692)	Y (12870)	1 (13930)	
20208	6.5x52 Carcano	M (13230)	Y (12870)	2 (14062)	
20209	6.5 Arisaka	L (12703)	Y (12870)	1 (13930)	
20208	6.5x52 Carcano	M (13230)	Y (12870)	2 (14062)	
62246	6.5 Creemore	1 (13692)	K (13216)	1 (13930)	
20894	6.5 Grendel	A (13211)	#6.5 Grendel (18947)	2 (14062)	
20208	6.5x54 Mannlicher-Schonauer	M (13230)	Y (12870)	2 (14062)	
20207	6.5x55 Mauser, 260 Remington	1 (13692)	Y (12870)	1 (13930)	
20210	.264 Winchester Mag, 6.5 Rem	B (13347)	Y (12870)	4 (14047)	
20323	6.8 SPC	R (13497)	N (13014)	2 (14062)	
20142	.270 Win / 7x57 / 284 Win	1 (13692)	J (13456)	1 (13930)	
20122	.270WSM/7mm WSM, 7mm RSUM	B (13347)	7mm Short Mag (18416)	6 (15755)	XL Powder Die (21253), Magnum Rifle Powder Bar (21353)
20223	7-30 Waters	7 (12501)	N (13014)	4 (14047)	
20216	7mm Benchrest	1 (13692)	N (13014)	1 (13930)	
20142	7mm Brenneke	2 (13692)	J (13456)	1 (13930)	
20628	7mm Dakota	N (10004)	J (13456)	4 (14047)	
20142	7mm Express	1 (13692)	J (13456)	1 (13930)	
20223	7mm International Rim	7 (12501)	N (13014)	4 (14047)	
20230	7mm Merrill	L (12703)	N (13014)	1 (13930)	
20140	7mm Rem Mag / 7mm STW/Weatherby Mag.	B (13347)	J (13456)	4 (14047)	Magnum Rifle Powder Bar (21353)
20682	7mm Remington Ultra Mag	B (13347)	7mm Ultra (15019)	6 (15755)	Belted Magnum Powder System (97126)
20141	7mm TCU	3 (13684)	Y (12870)	3 (14060)	
20142	7x64	1 (13692)	J (13456)	1 (13930)	
20268	7x57R / 7x65R	N (10004)	J (13456)	4 (14047)	
62254	.30 AR	L (12703)	AK (13015)	1 (13930)	
20131	.30 Carbine - M1	8 (13135)	C (13564)	8 (14048)	
20214	.30 Herret	7 (12501)	AK (13015)	4 (14047)	
20230	.30 Merrill	L (12703)	N (13014)	4 (14047)	
20270	.30R Blaser	C (13334)	B (13587)	1 (13930)	
20184	.30 Remington / 32 Remington	R (13497)	B (13587)	2 (14062)	
20243	.300 Remington SA Ultra Mag	B (13347)	Short 300 Mag (18415)	6 (15755)	Belted Magnum Powder System (97126)
20239	.300 Remington Ultra Mag/.300 Dakota	B (13347)	30 Cal Long Mag (15013)	7 (13436)	Belted Magnum Powder System (97126)
20190	.300 Savage	1 (13692)	AK (13015)	1 (13930)	
20236	.300 Blackout/Whisper	3 (13684)	AK (13015)	3 (14060)	
20188	.300 Winchester Magnum, 300 H&H	B (13347)	B (13587)	4 (14047)	Magnum Rifle Powder Bar (21353)
20243	.300 WSM, 300 RSUM	B (13347)	Short 300 Mag (18415)	6 (15755)	XL Powder Die (21253), Magnum Rifle Powder Bar (21353)
20183	.303 British	4 (13610)	B (13587)	4 (14047)	
20237	.307 Winchester	3 (13684)	AK (13015)	3 (14060)	
20139	.30-30 Winchester/.32 Winchester Special	7 (12501)	B (13587)	4 (14047)	
20249	.30-378 / 300 Dakota	G (13313)	30 Cal Long Mag (15013)	7 (13436)	Belted Magnum Powder System (97126)
20185	.30-40 Krag	P (13134)	B (13587)	4 (14047)	
20213	7.62x39mm	A (13211)	AK (13015)	2 (14062)	
20130	.308 Winchester/7.62x51 Nato/.30-06	1 (13692)	B (13587)	1 (13930)	
62250	.308 Marlin Express	1 (13692)	AK (13015)	2 (13930)	



Conversion	Caliber Rifle	Shellplate	Powder Funnel	Buttons	Misc Parts
20188	.308 Norma Magnum	B (13347)	B (13587)	4 (14047)	
20130	7.62x53 Mauser	1 (13692)	B (13587)	1 (13930)	
20346	7.62x54 Russian	G (13313)	B (13587)	7 (13436)	
20130	7.7 Ariska	O (12013)	B (13587)	1 (13930)	
20177	.32-20 Winchester	O (12013)	S (12845)	3 (14060)	
20139	.32-40 Winchester	7 (12501)	B (13587)	4 (14047)	
20184	.32 Remington	R (13497)	B (13587)	2 (13930)	
20201	8x57mm Mauser	1 (13692)	M (12963)	1 (13930)	
20271	8x57 JRS	N (10004)	M (12963)	4 (14047)	
20272	8x68mm S	P (13134)	M (12963)	4 (14047)	
20155	8mm Remington Magnum	B (13347)	M (12963)	4 (14047)	Magnum Rifle Powder Bar (21353)
20891	325 WSM	B (13347)	325 WSM (18948)	6 (15755)	XL Powder Die (21253), Magnum Rifle Powder Bar (21353)
20202	.33 Winchester	G (13313)	Q (13406)	7 (13436)	
20257	.338 Lapua	338 (62244)	338 Mag Rifle (15012)	7 (13436)	Belted Magnum Powder System (97126)
62251	.338 Marlin Express	B (13347)	P (13187)	4 (14047)	
20156	.338 Win Mag, / 340 Weatherby	B (13347)	Q (13406)	4 (14047)	Magnum Rifle Powder Bar (21353)
20258	.338 Remington Ultra Mag./ .330 Dakota	B (13347)	338 Mag Rifle (15012)	7 (13436)	Belted Magnum Powder System (97126)
20156	.340 Weatherby Magnum	B (13347)	Q (13406)	4 (14047)	Magnum Rifle Powder Bar (21353)
20217	.348 Winchester	T (12808)	P (13187)	7 (13436)	
20166	.35 Remington	M (13230)	P (13187)	2 (14062)	
20168	.35 Winchester	P (13134)	P (13187)	4 (14047)	
20170	.35 Whelen / 358 Winchester	1 (13692)	P (13187)	1 (13930)	
20167	.350 Remington Magnum/ 358 Norma Magnum	B (13347)	P (13187)	4 (14047)	Magnum Rifle Powder Bar (21353)
20238	.356 Winchester	L (12703)	P (13187)	1 (13930)	
20172	.357 Herret	7 (12501)	D (13599)	4 (14047)	
20167	.358 Norma Magnum	B (13347)	P (13187)	4 (14047)	Magnum Rifle Powder Bar (21353)
20273	9.3x62mm	1 (13692)	R 375 Rifle (13531)	1 (13930)	
20274	9.3x64mm / 9.3x74R	P (13134)	R 375 Rifle (13531)	4 (14047)	
20226	.375 Winchester / .38-55 Winchester	7 (12501)	V (13344)	5 (14047)	Magnum Rifle Powder Bar (21353)
20204	375 H&H, 375 Weatherby	B (13347)	R 375 Rifle (13531)	4 (14047)	Magnum Rifle Powder Bar (21353)
20226	.375 Super Magnum	P (13134)	R 375 Rifle (13531)	5 (14047)	Magnum Rifle Powder Bar (21353)
20261	.375 RUM, 375 Dakota	B (13347)	378 Rifle (15010)	7 (13436)	Belted Magnum Powder System (97126)
20204	.375 Weatherby Magnum	B (13347)	R 375 Rifle (13531)	4 (14047)	Belted Magnum Powder System (97126)
20260	.376 Steyr	P (13134)	R 375 (13531)	4 (14047)	Belted Magnum Powder System (97126)
21665	378 Weatherby Magnum	G (13313)	378 Rifle (15010)	7 (13436)	Belted Magnum Powder System (97126)
20178	.38-40 Winchester	N (10004)	W 913600	4 (14047)	
20226	.38-55 Winchester, / 375 Winchester	7 (12501)	V (13344)	4 (14047)	
20264	.40-65 Winchester	G (13313)	40 Cal Rifle (11151)	7 (13436)	
20771	.416 Remington Magnum	6 (13347)	RM (13415)	4 (14047)	Belted Magnum Powder System (97126)
20262	.416 Rigby, / .404 Jeffries	G (13313)	416 Rifle (10222)	7 (13436)	Belted Magnum Powder System (97126)
20262	416 Weatherby	G (13313)	416 Rifle (10222)	7 (13436)	Belted Magnum Powder System (97126)
20164	444 Marlin	N (10004)	X (12920)	4 (14047)	
20143	.45-70 Government	G (13313)	T (13407)	7 (13436)	
62248	.450 Bushmaster	1 (13692)	460 S&W (18949)	1 (13930)	
CALL	.450 Dakota				
20161	.450 Marlin	B (13347)	T (13407)	4 (14047)	Magnum Rifle Powder Bar (21353)
62154	.458 SOCOM	1 (13692)	458 SOCOM (21440)	1 (13930)	XL Powder Die (21253)
20161	.458 Winchester Magnum	B (13347)	T (13407)	4 (14047)	Magnum Rifle Powder Bar (21353)
21664	.460 Weatherby Magnum	G (13313)	460 Rifle (15009)	7 (13436)	Belted Magnum Powder System (97126)
20467	.50 Beowulf	A (13211)	50 (14465)	2 (14062)	XL Powder Die (21253)
Conversion	Caliber Pistol	Shellplate	Powder Funnel	Buttons	Misc Parts
20175	30 Luger / 30 Mauser, 7.62x25mm Tokarev	5 (13743)	C (13564)	3 (14060)	
20160	32 ACP / 32 Short Colt	J (13136)	S (12845)	8 (14048)	
20146	32 S&W Long, 32 H&R Mag. / .327 Federal	D (13092)	S (12845)	3 (14060)	SW (13171) Wad Cutter Powder Funnel
20278	38 AMU	O (12013)	D (13599)	3 (14060)	
20132	38 Special / 357 Magnum	2 (13751)	D (13599)	2 (14062)	
20132	380 ACP	3 (13684)	F (13806)	3 (14060)	
20178	38-40 Winchester	N (10004)	W (13600)	4 (14047)	
21656	9x18 Makarov	5 (13743)	9 (14980)	3 (14060)	
20127	9mm / 38 Super/Super Comp/9x23	5 (13743)	F (13806)	3 (14060)	
21526	357 Sig/ 9x25 Dillon	5 (13743)	F (13806)	2 (14062)	
20179	40 S&W / 10mm	5 (13743)	W (13600)	2 (14062)	
20129	400 Cor-Bon / 40 Super	1 (13692)	W (13600)	1 (13930)	
20277	41 Action Express	5 (13743)	H (13240)	3 (14060)	
20135	41 Magnum	6 (13120)	H (13240)	1 (13930)	
20136	44 Magnum / 44 Special/ .44 Colt/.44 Russian	4 (13610)	G (13427)	4 (14047)	
20206	44-40 Winchester	N (10004)	W (13600)	4 (14047)	
20126	45 ACP/GAP	1 (13692)	E (13782)	1 (13930)	
20158	45 Auto Rim	H (13010)	E (13782)	4 (14047)	
20221	45 Winchester Magnum	L (12703)	E (13782)	1 (13930)	
20137	454 Casull / 45 Colt	C (13334)	E (13782)	4 (14047)	
20888	460 S&W	C (13334)	460 S&W (18949)	4 (14047)	
20116	475 Linebaugh, 480 Ruger	G (13313)	475/480 Ruger (10723)	7 (13436)	XL Powder Die (21253)
21428	50 Action Express	50 (13147)	50 (14465)	4 (14047)	XL Powder Die (21253)
20121	500 Smith & Wesson	B (13347)	50 (14465)	6 (15755)	XL Powder Die (21253)

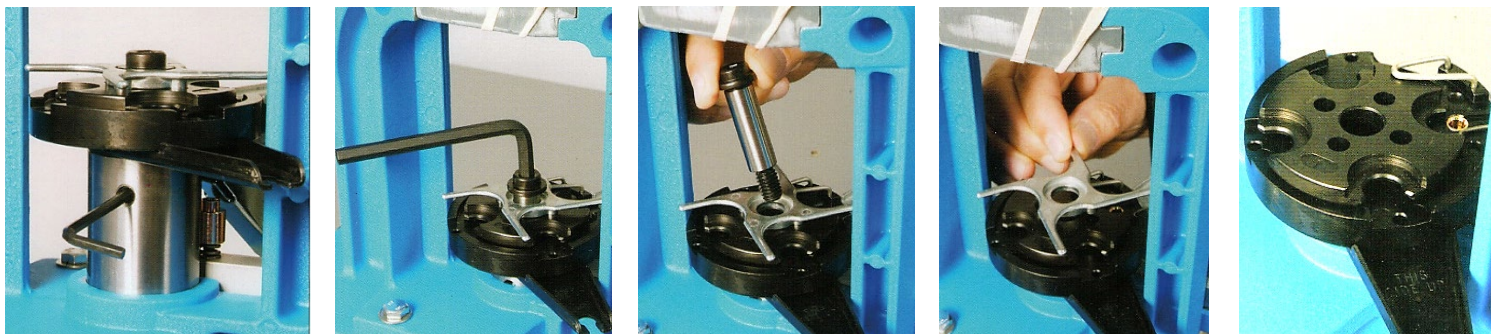
## 9.2 Caliber Conversion Procedure

### 9.2.1 Contents of an RL550C Dillon Caliber Conversion:



### 9.2.2 Shellplate Conversion

- Replace the Shellplate by first, loosening the Shellplate Bolt Locking Brass Tipped Set Screw. Remove Shellplate Bolt and Index Sprocket. Check Index Ball and Spring for debris and clean them. Install the replacement Shellplate. Tighten the Shellplate Bolt down snugly and back it up ~1/8 of a turn to allow Shellplate to rotate without dragging with minimal up and down clearance. Retighten Shellplate Bolt Locking Brass Tipped Set Screw. Reinstall the Ejector Wire if removed. **Not tightening the Brass Tipped Locking Set screw will allow the Shellplate to rotate/tighten the Shellplate Bolt and stop the Shellplate from indexing. Make sure the Ejector Wire is not dragging on the Shellplate or any of the 4-legs on the Index Sprocket. If it is dragging on the Shellplate adjust the Ejector Wire up. If it is dragging on the Legs of the Index Sprocket verify that none of the 4-legs are bent; if so straighten the legs gently or adjust the Ejector Wire down while still allowing for clearance between the Wire and the Shellplate.**



Loosen Brass Tipped Locking Set Screw with an Allen wrench

Loosen Shellplate Bolt with an Allen wrench and Remove Bolt and Index Sprocket

Replace Shellplate and reinstall Index Sprocket, Shellplate Bolt and retighten Set Screw

### 9.3 Primer Size Conversion

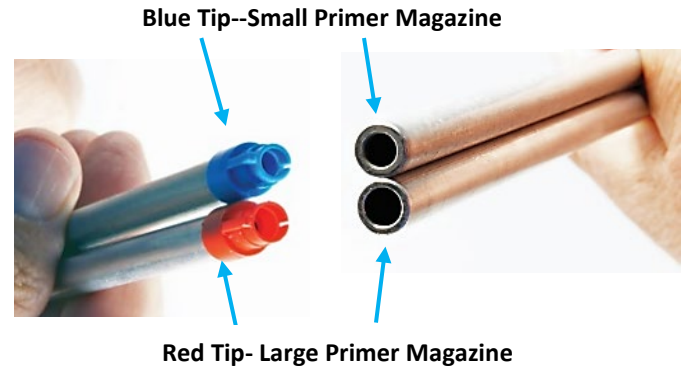
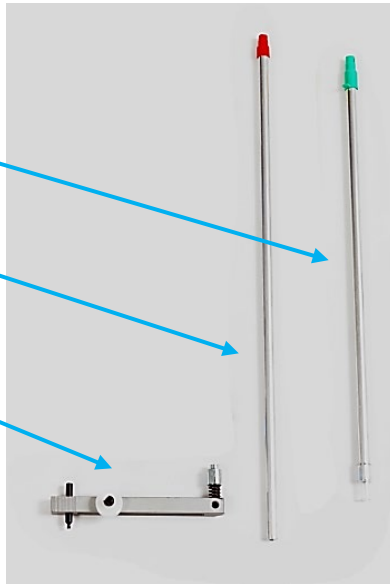
9.3.1 The RL550C comes configured for Small primers. The Large Primer Components are shipped separately.

9.3.2 The Magazine Tube Assembly uses color-coded plastic Primer Magazine Feed Tips. The Large Primer Magazine Tip is red and Small Primer Magazine Tip is blue. The Small and Large Aluminum Magazine Tubes have different inside diameters. A conversion Kit for the large primer system is included in the original shipment "Tube Pack."

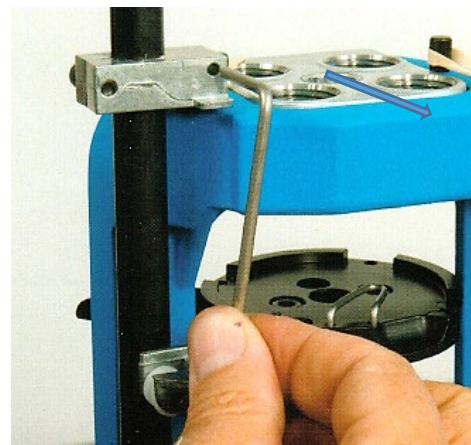
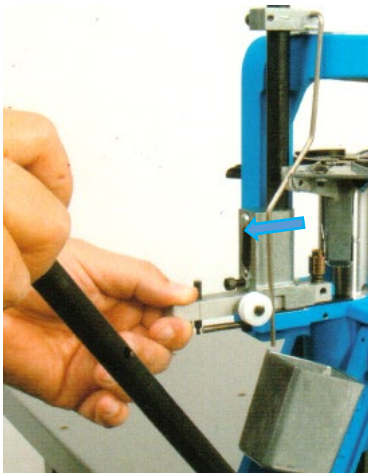
9.3.3 The Primer Size Conversion Kit included with the RL550C is shown below:

#### Primer Size conversion Kit

- Large Primer Pickup Tube—Green Tip
- Large Primer Magazine Tube/Orifice Tip—Red tip
- Large Primer Slide (Silver Cup)

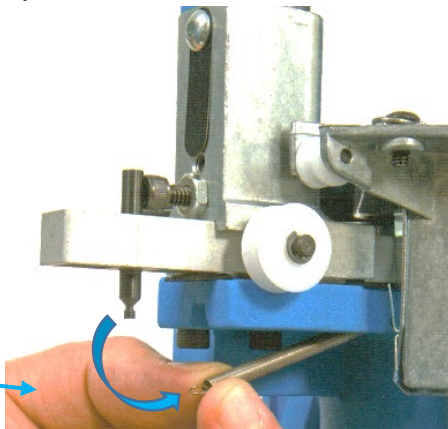


9.3.4 To change the Primer Size, remove the Operating Rod by lowering the Operating Handle partway down, pull back on the spring return Primer Slide, disengage and remove the Operating Rod.

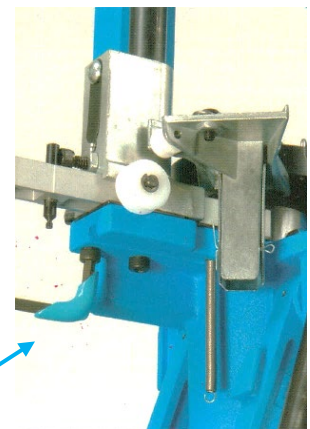


9.3.5 Unhook the Primer Slide Return Spring from the Prime Slide. Remove the two Primer Housing attachment Socket Head Screws with a 5/32" Allen wrench.

Remove Spring and  
let hang down



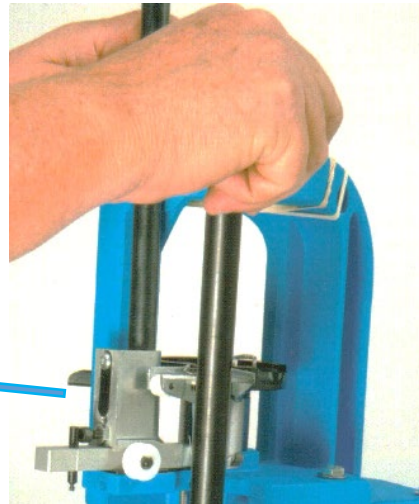
Remove the two  
Primer Housing  
attachment screws



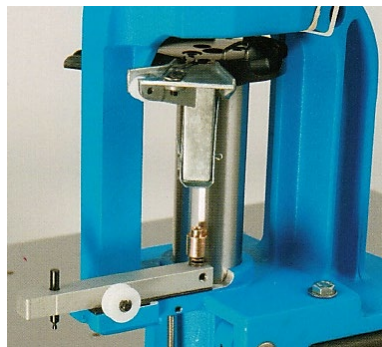


9.3.6 Lower the Operating Handle down partially while holding onto the Primer Housing Assembly. Remove the Primer Housing Assembly and the Follower Rod and “pour out” any primers left in the Magazine Tube. **WARNING! --any primers left in the Magazine Tube will fall out inside the Magazine Shield when you pull the Primer Magazine tube out.**

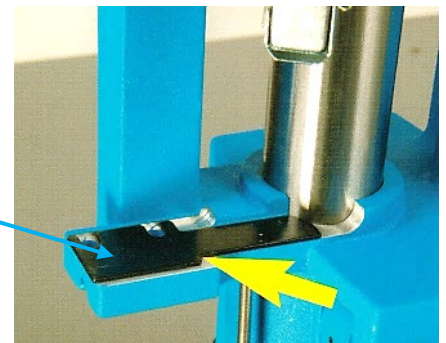
Remove Primer  
Assembly and set  
aside



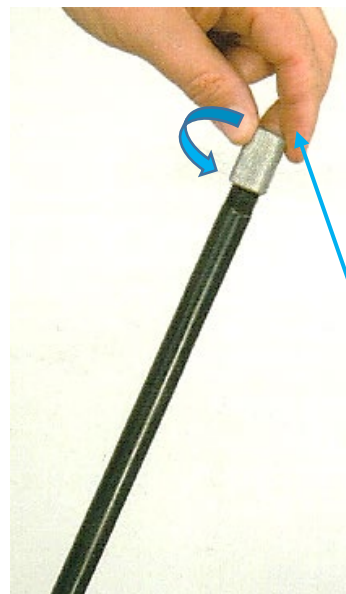
9.3.7 Lower the Operating Handle all the way down. Remove the Primer Side and store it in a safe place. Note the position of the Primer Track Bearing (yellow arrow). Remove, clean and replace the Track bearing including the area under the bearing. This is a critical area to keep clean. USE NO LUBRICANT.



Remove and  
clean Primer  
Track Bearing



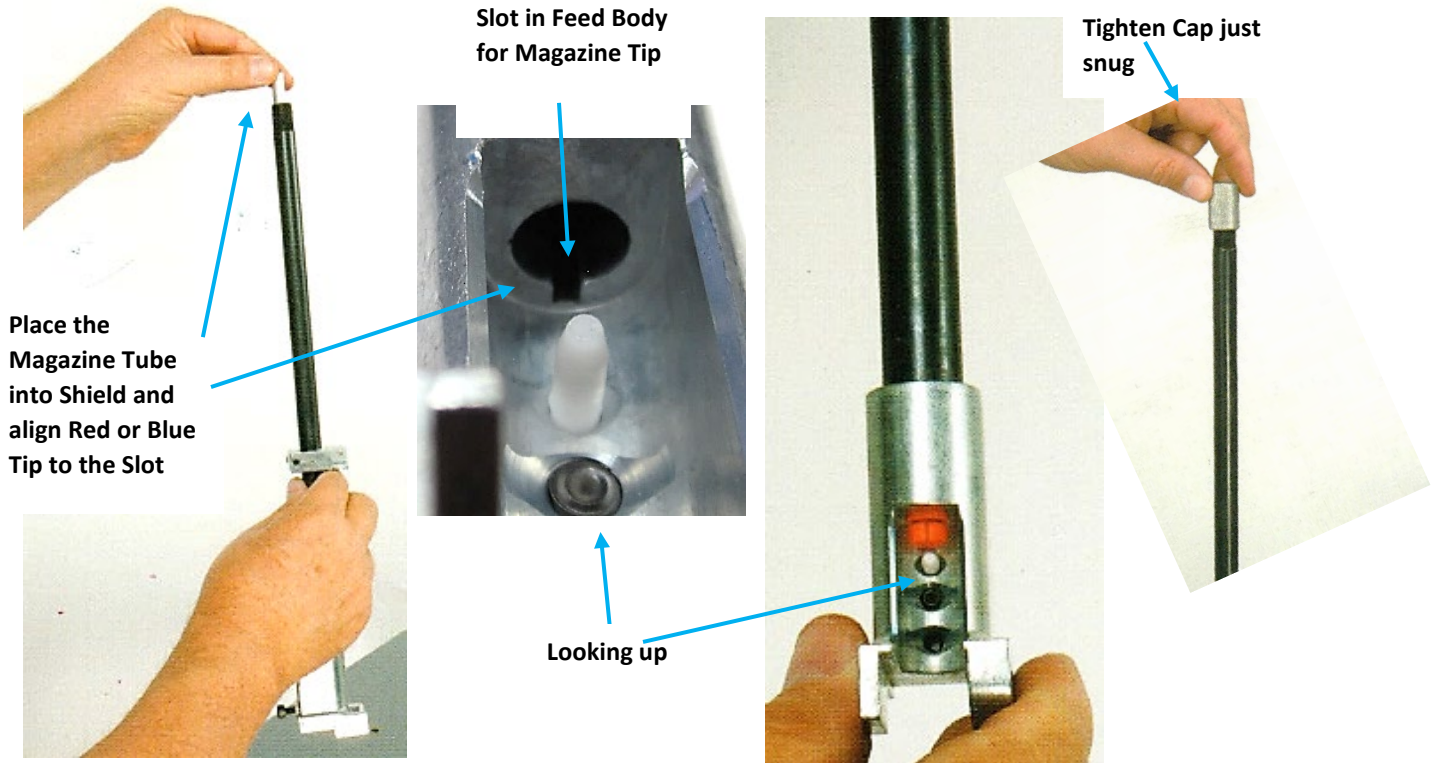
9.3.8 Remove the knurled Primer Shield Cap from the Primer Magazine Assembly and carefully pull the Magazine Tube straight up out of the Magazine Shield.



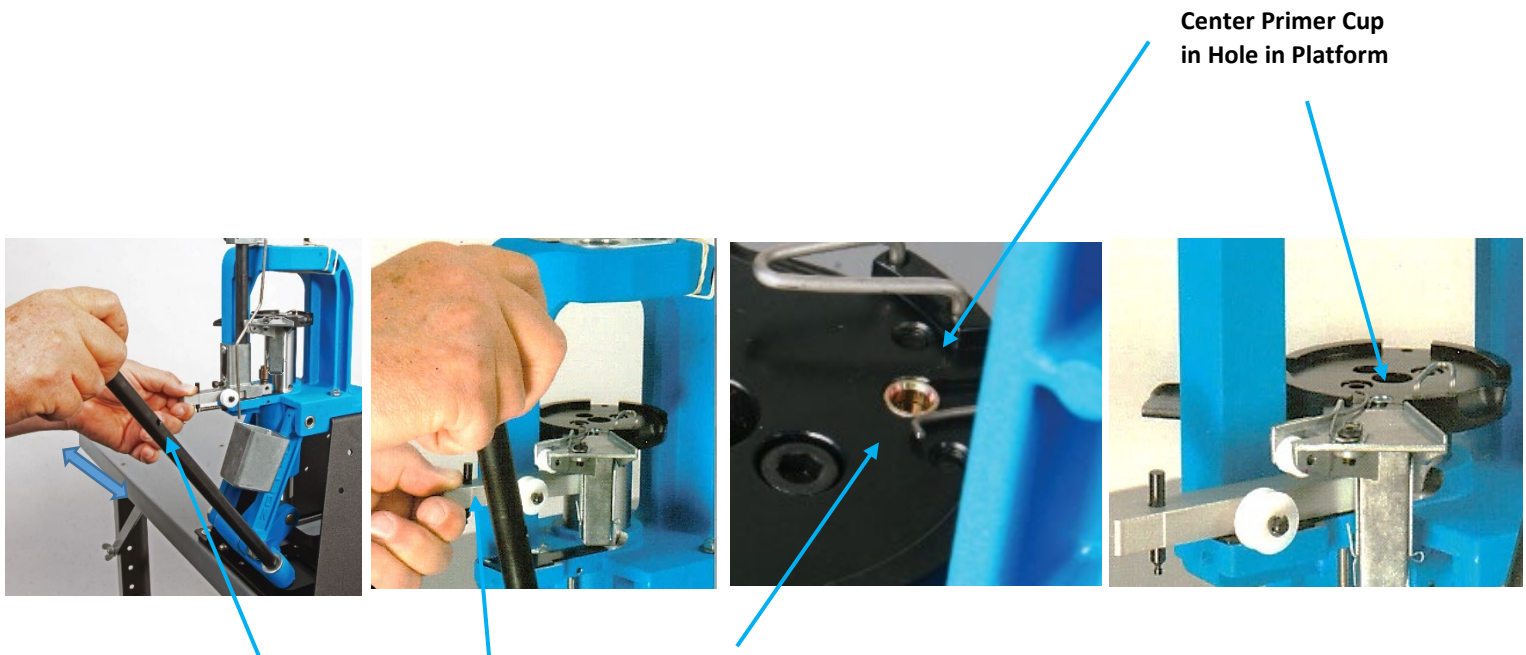
Remove Shield  
Cap and pull  
Magazine tube  
out



**9.3.9** Insert the alternate Magazine Tube Assembly into the Magazine Shield and gently rotate the Magazine Tube until the tab on the Plastic Tip engages the slot in the Feed Body allowing the Magazine Tube to drop into place. Replace the Primer Shield Cap, making sure the Magazine Tube goes into the bore inside the Cap. Tighten the Cap just snug.



**9.3.10** Retrieve the alternate Primer Slide Assembly from the original shipment. Cycle the Operating Handle partially down raising the Platform and place the Primer Seating Slide on the Track Bearing and align the Seating Punch Cup Assembly up into the Priming/Depriming hole in the bottom of Station #1 in the Platform—in the hole in the platform. Slowly raise the Handle up to its rest position which lowers the Platform while “wiggling” the slide back and forth to center the Primer Cup in the Hole in the Platform.





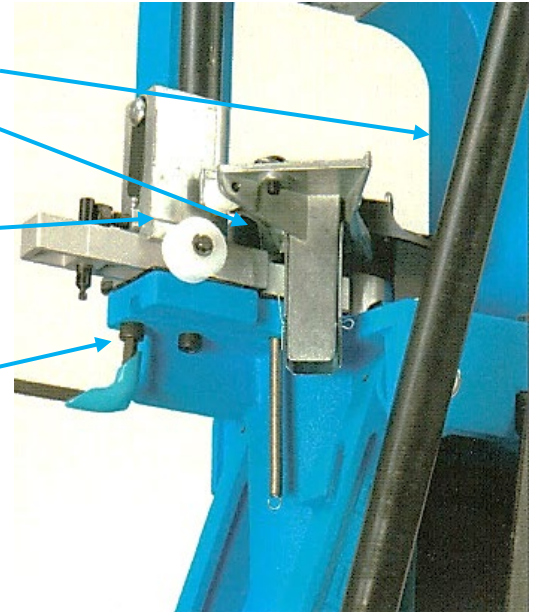
**9.3.11** Lower the Primer Feed body Assembly into place and loosely fasten it in its position with the two screws previously removed. Do not tighten these screws yet. Gently cycle the Operating Handle to the priming position, while centering the Priming Cup in the Platform. Hold the Handle fully back, fully compressing the Primer Punch Spring. Wiggle the Primer Slide and Feed body around within the clearance in the mounting holes to make sure there is no binding of the Priming Cup (Gold or Silver) in the Platform/Shellplate by partially cycling the Handle up and down. Gently tighten the two Mounting Screws no more than 1/8 of a turn past finger tight with a 7/32" Allen Wrench with the Operating Handle again held firmly fully back. Overtightening these screws may damage the Primer Feed Body and/or bind the Primer Slide.

Lower the Feed Body Assembly over Primer Slide Assembly

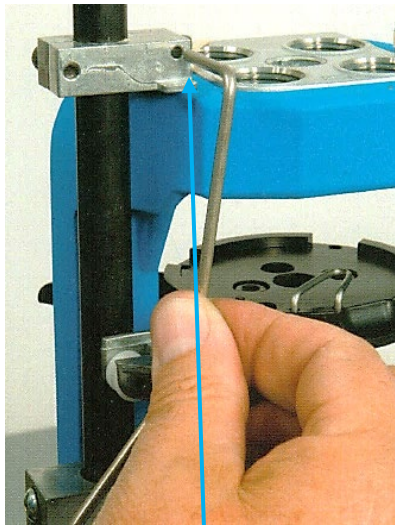


Push Handle fully to the rear while centering the Primer Cup in the Platform and aligning the Feed Body on the two screws

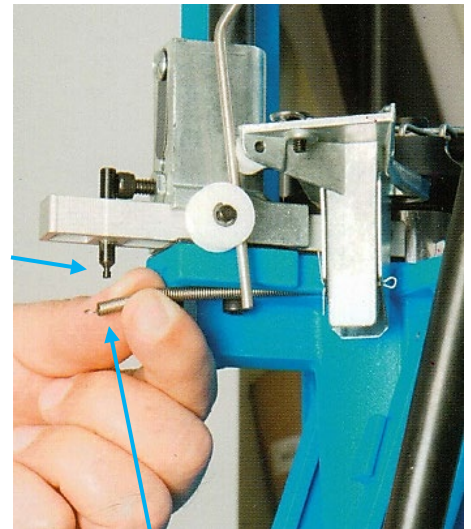
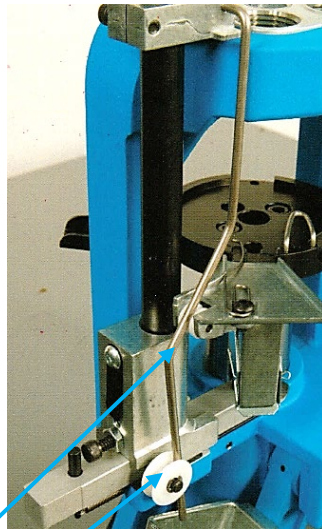
Tighten the screws no more than 1/8 turn past finger tight—***overtightening will damage the Feed Body***



**9.3.12** Replace the Operating Rod in the Operating Rod Bracket and position it between the Two White Rollers and reconnect the Primer Slide Return Spring.



Re-install the Operating Rod into the Rod Bracket and between the two White Rollers



Re-connect the Primer Slide Return Spring

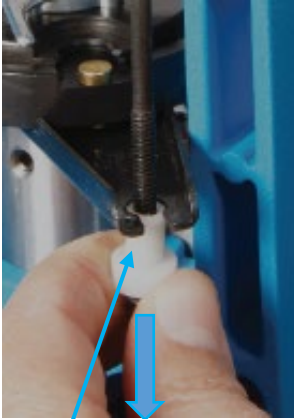
**9.3.13** Perform a single primer feed test as previously described in Section 8 to verify the correct operation of the Primer Feed Assembly.



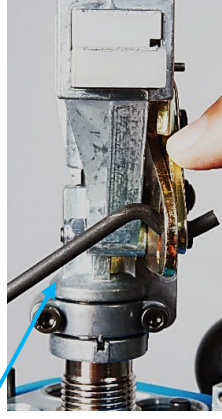
NUM	DESCR
1	13990_PO
2	14067_DIE
3	PISTOL STYLE P
4	RIFLE STYLE PO
5	13940_BODYC
6	13845_BODY C
7	13793_BODY C
8	14808_BODY C
9	14023_8-3
10	13939_BODY C
11	14037_10-2
12	13780_POWDER
13	13691_HO
14	14202_8x375 HO
15	13822_POWD
16	13871_BELL

44

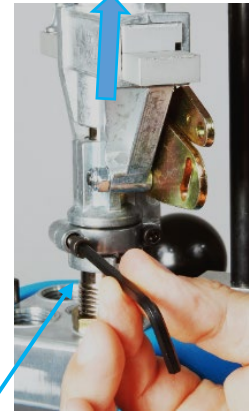
**9.4.1 First, disengage the Failsafe Rod bushing (24) from the Bracket of the RL550C and remove the Failsafe Rod (22) from the Failsafe Lock-link assembly (17). Remove the Powder Measure by loosening the two Clamp Screws (10 & 11) and slide the Powder Measure up and off the Powder Die (1). Dump the powder out of the Hopper Tube into its original container, cycling the Powder measure right side up and down to remove all powder.**



**Pull Failsafe Bushing down out of Bracket**



**Slide Failsafe Rod out of Lock-Link Assembly**

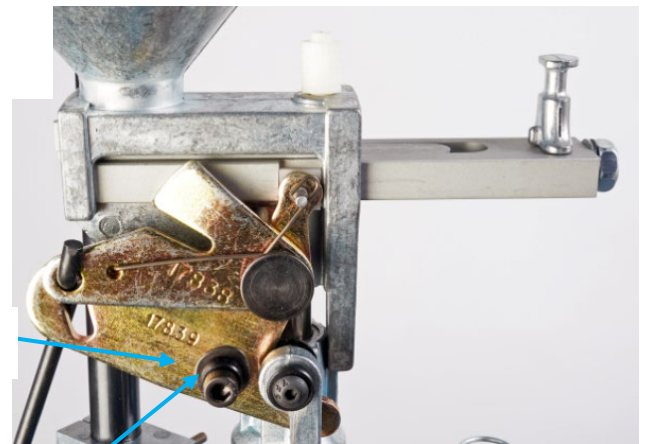


**Loosen the two Powder Measure Clamp Screws and slide the Powder Measure up and off the Powder Die**

**9.4.2 Loosen the Pivot Screw (20) and Self-Locking Locknut (21) just enough to disengage the Drive Pin from the White Plastic Bell Crank "Cube" (16) from the Powder Bar slot.**



**Powder Bar Drive Slot  
Bell Crank White" Cube"  
Drive Pin  
Bell Crank**



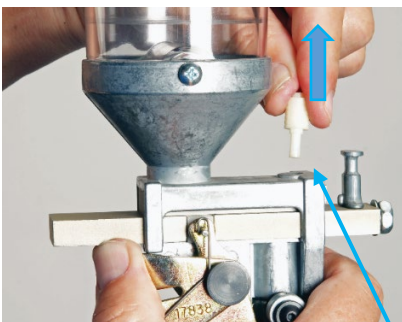
**Pivot Screw**



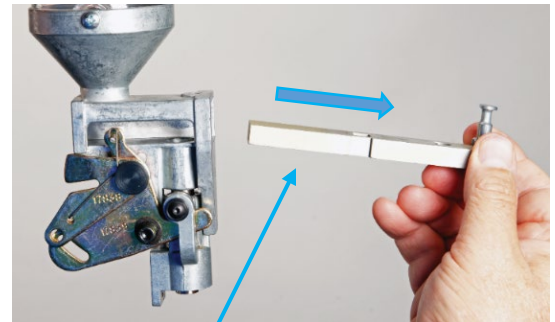
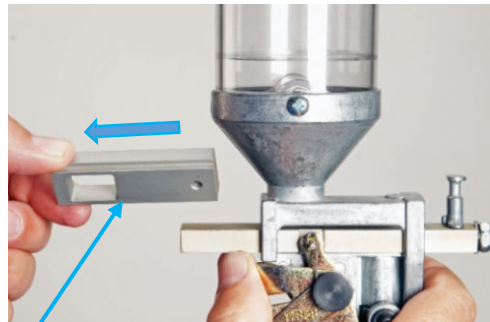
**Self-locking Locknut on Pivot Screw**

**Loosen the Pivot Screw and Self-Locking Locknut on the back using a 7/16" wrench and a 5/32" Allen wrench**

**9.4.3 To replace the Small or Extra Small Powder Bar, remove the Spacer Bar Retainer Plug (Store) and slide the Spacer Bar and Powder Bar and Spacer out of the Powder Measure.**

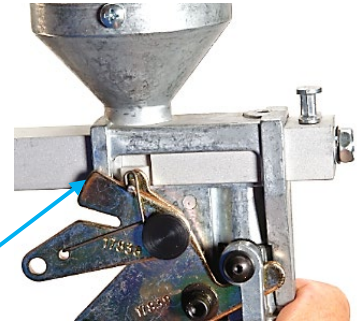
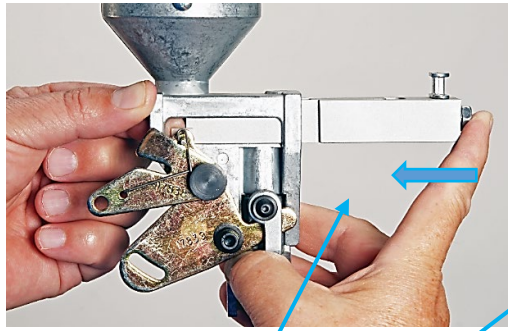


**Remove the Retainer Plug and Slide the Powder Bar Spacer out**



**Slide the Powder Bar out of the Powder Measure by disengaging the White "Cube" from the Locklink Assembly**

**9.4.4 Slide the replacement Powder Bar into the Powder Body by pushing out on the Drive Pin and White Cube to engage them into the drive slot in the Powder Bar.**



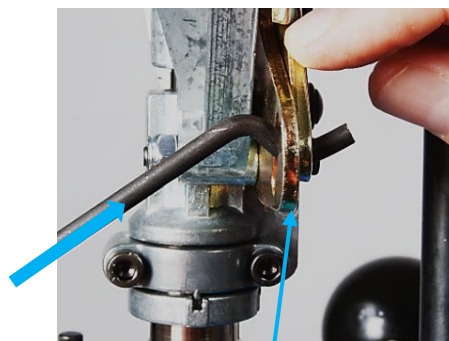
**Push out on the Drive Pin and "Cube" while pushing the Powder Bar into the Powder Measure to engage the Powder Bar Drive Slot**

**9.4.5 Re-tighten the Pivot Screw and the Self-locking Nut on the back to take up the side-to-side clearance and still allow the Powder Bar and Lock-link Assembly to freely slide back-and-forth.**

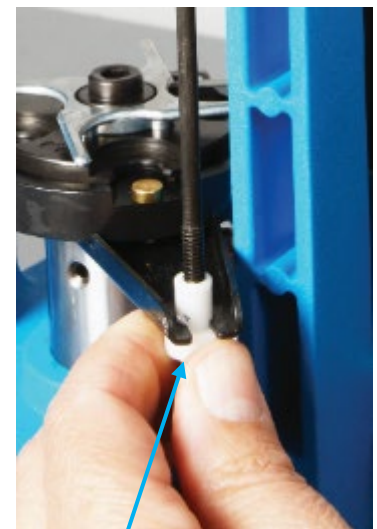


**Retighten Self-Locking Nut/Pivot Screw just enough to remove any "play" and still allow free movement of the Powder Bar and Lock Link Assembly**

**9.4.6 Slide the Powder Measure down over the Powder Die verifying that the Powder Funnel is still inside the die and tighten the two Clamp Screws. Slide the top of the Failsafe Rod through the hole and slot in the Lock-link assembly and snap the white Failsafe Bushing back into the Failsafe Rod Bracket on RL550C.**



**Slide the top of the Failsafe Rod into the Hole and Slot in the Powder Measure Lock-link Assembly**



**Re-insert the Failsafe Rod Bushing into Failsafe Rod Bracket**

**Gently slide the Powder Measure down over the Powder Die and tighten the Two Clamp Screws**



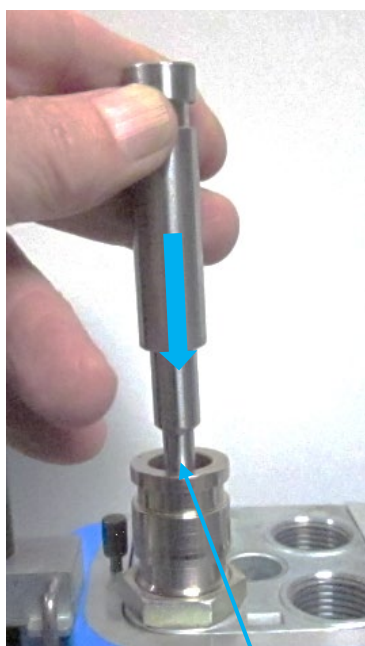
## 10 ADJUSTMENTS AND REPLACEMENT PROCEDURES

**10.1.1 Platform/Shellplate/Toolhead Alignment Procedure--**If the Platform is removed a precision alignment is required to align the Platform to the Toolhead.

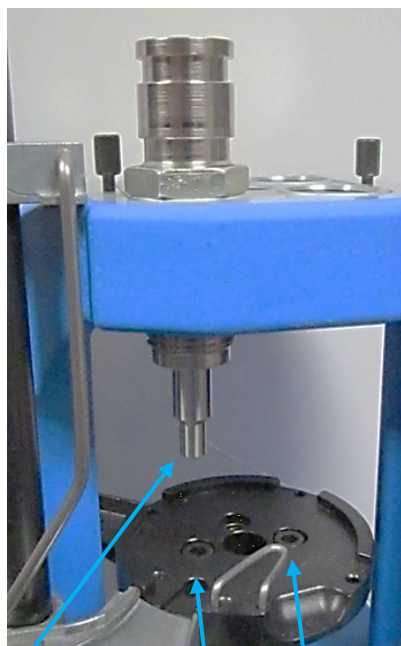
- First obtain a Dillon Alignment Fixture PN13713, a Toolhead and a Powder Die.
- Follow the instructions included with the Alignment Fixture.



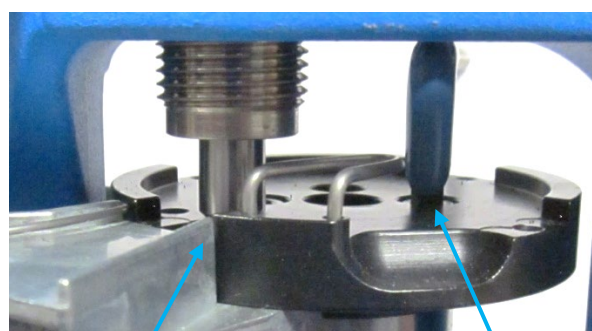
- With the Two Platform Mounting Screws loosely tightened, install a bare RL550C Toolhead in the RL550C.
- Thread the Powder Die down leaving room for the Allen Wrench to fit in the Platform Mounting Screws.
- Place the Alignment Fixture in the Powder Die. Lower the Operating Handle raising the Platform while moving the Platform side-to-side so that the end of the Alignment Fixture fits easily into the Priming Hole in the Platform. Tighten the two Platform mounting screws.



Alignment Fixture in Powder Die

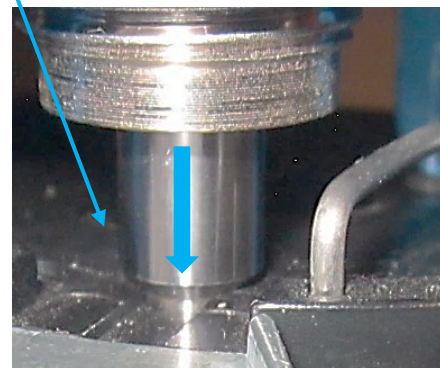


Two Platform Mounting Screws



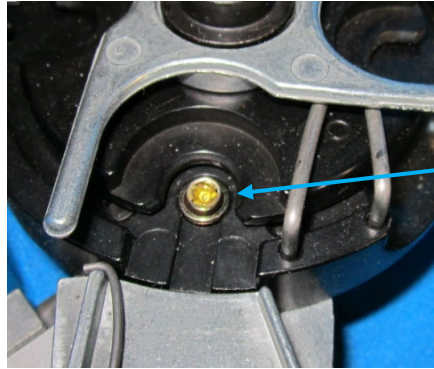
Alignment Tool fits freely in Platform Priming Hole

Tighten Two Mounting Screws with an Allen Wrench



- Tighten both Platform Mounting Screws securely.
- Verify that the Alignment Fixture fits into the priming hole freely by partially cycling the Operating Handle up and down.
- Install the Shellplate and again make sure the Alignment Fixture fits freely in the priming hole in the Platform and Shellplate.
- Cycle the Handle and make sure that Priming Cup goes up in the Platform hole and that the Primer hole is concentric with the hole in the Shellplate as shown below:

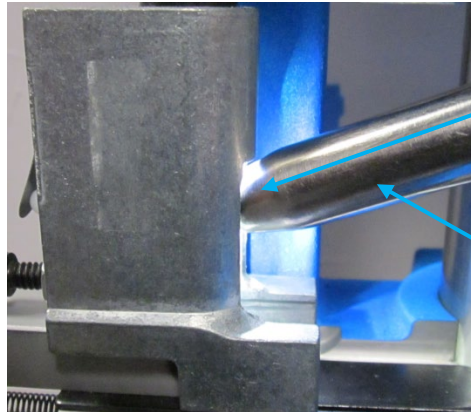
- If the Primer Cup is not centered in the Platform and Shellplate hole--Realign the Primer Slide.



Primer Cup must enter and be centered in the Hole in Platform and Shellplate without dragging

## 10.2 Adjusting The Primer Drop Alignment

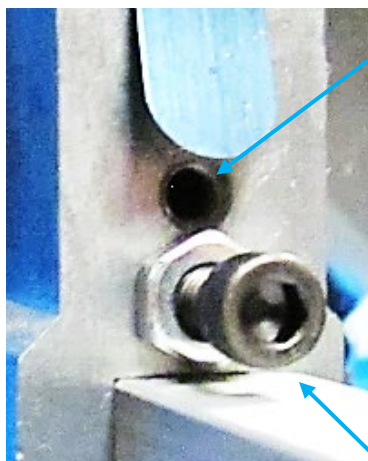
10.2.1 Make sure there are no primers in the Magazine Tube and the Operating Handle is up. Remove the Magazine tube. Shine a small flashlight in the opening as shown below and look down the Shield Tube and verify the Primer Hole in the Primer Slide is centered directly under the opening in the Primer Feed body as shown below. If not, adjust the Primer Slide Stop on the back of the RL550C in or out no more than 1/8 of a turn at a time, to fine-tune the position of the Primer Slide. See the graphical depiction below. Reinstall the Primer Magazine.



Shine Flashlight here and look down Primer Shield Tube

Flashlight

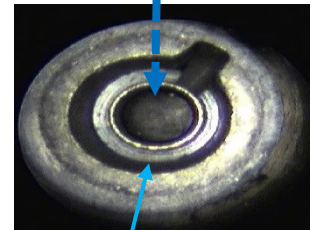
**WARNING! -Wear Safety Glasses**



Primer Drop -Cup Position Set Screw -adjust in/out to align Cup to Magazine

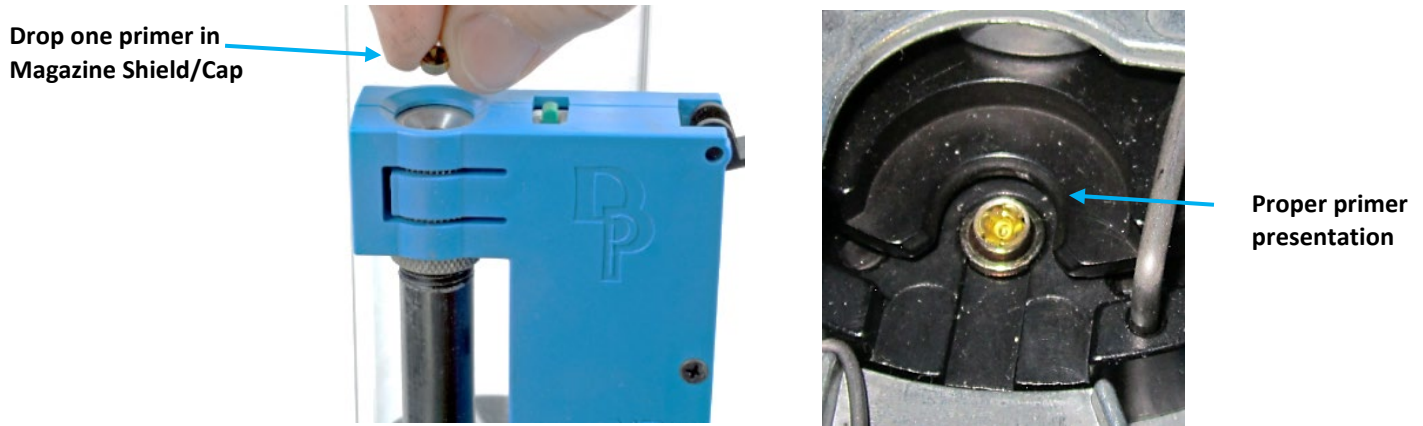


Primer Slide forward travel adjustment Screw and Locknut



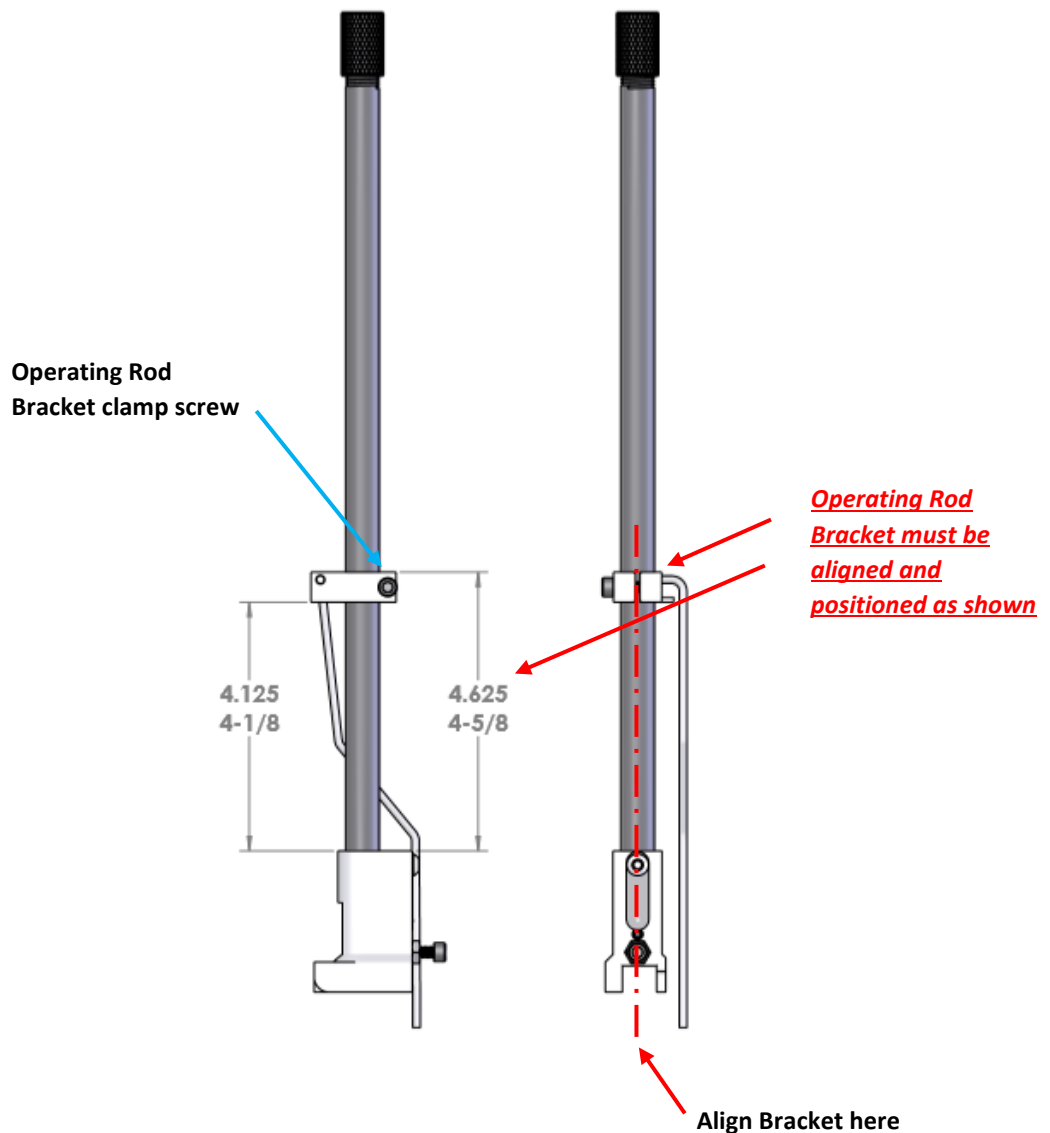
View down inside Primer Shield Tube—Cup centered in hole in Primer Feed Body

10.2.2 Drop one primer in the Primer Magazine. Cycle the Operating Handle to the Priming Position. Verify the primer is now sitting on top of the Primer Punch as shown below.



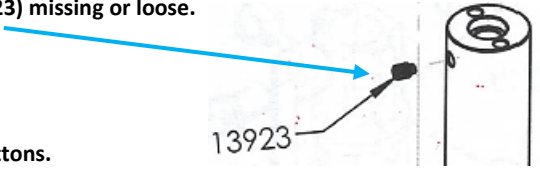
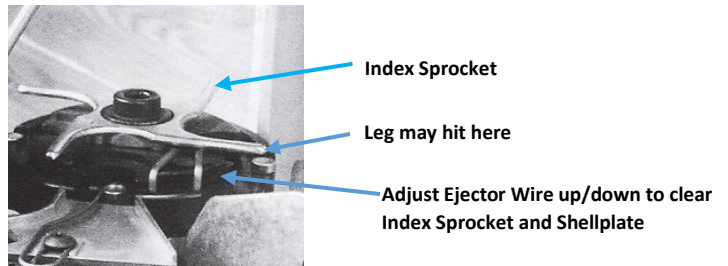
### 10.3 Operating Rod Bracket Position Specification

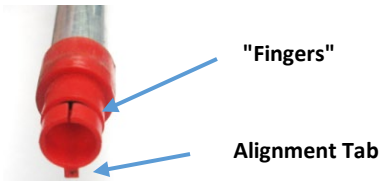
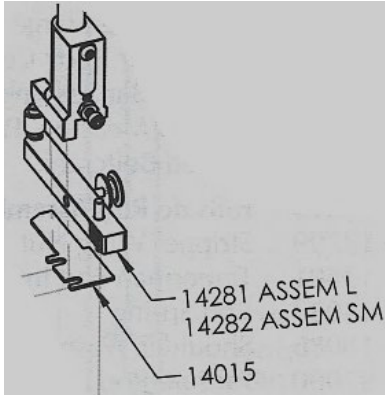
10.3.1 The Operating Rod Bracket for the RL550C must be positioned at the height as shown below. The Bracket must also be aligned rotationally with the base as shown. Deviation from this dimension and alignment may cause primer feeding issues. *The position is set at Dillon and should not require adjustment.*

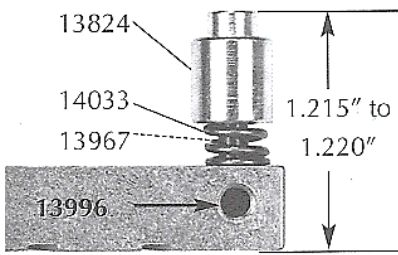
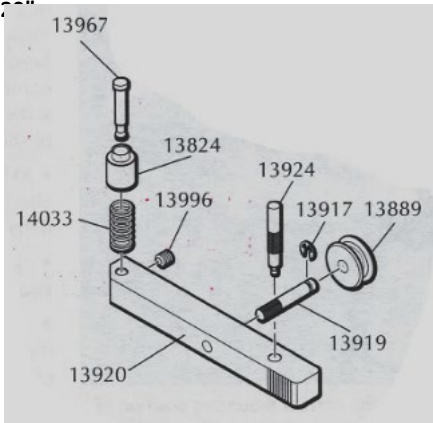
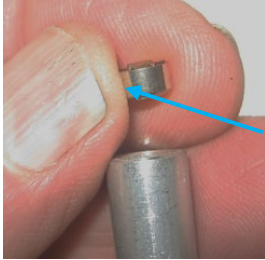
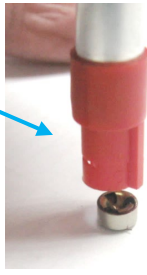





## 11 TROUBLESHOOTING GUIDE RL550C

No.	Category	Issue	Corrective Action
1	Cleanliness	The reloading process is inherently "dirty" because of residue from used primers, leftover corn cobb from tumbling, spilled powder and metal shavings from trimming on the system. The general reloading process of sizing and seating bullets and primers also generates metal particles. Live primer residue along with leftover Case Lube are other contaminants that need to be cleaned up.	<ol style="list-style-type: none"> <li>1.Compressed air or a "can of air" and a 1" paintbrush are the reloader's "best friends." At the end of a reloading session, blow out the Primer Slide and Shellplate areas. A small paintbrush can be used for cleaning spilled powder which should be cleaned up immediately.</li> <li>2.Periodically clean out the Size, Seat and Crimp Dies with alcohol and swabs. They will get "goeey" over time.</li> </ol>
		Brass residue can also build up on the end of Pistol Powder Funnels in the flaring process.	<ol style="list-style-type: none"> <li>1.Polishing the end of the Powder Funnel may be necessary if the Funnel starts sticking inside pistol cases.</li> </ol>
2	Indexing	Difficult Indexing	<ol style="list-style-type: none"> <li>1.Shellplate Bolt adjusted too tight. —Loosen up no more than 1/8 of a turn.</li> <li>2.Shellplate Bolt tightens when Shellplate Turns. —Shellplate Bolt Locking Brass Tipped Set Screw (13923) missing or loose.</li> </ol>  <ol style="list-style-type: none"> <li>3.Wrong size Locator Buttons.</li> <li>4.Sticky gunk or debris under the Shellplate. --Remove the Shellplate and clean it with alcohol or acetone.</li> <li>5.One or more of the Index Sprocket "Legs" is bent down rubbing on the Ejector Wire. --Adjust "Legs" back flat.</li> </ol>  <ol style="list-style-type: none"> <li>6.Make sure the Ejector wire is not dragging on the Shellplate. --Adjust the Ejector Wire height to clear Shellplate and Ejector Wire.</li> </ol>
		Shellplate over-traveling or "jumping backward" after indexing	<ol style="list-style-type: none"> <li>1.Index Ball and Spring stuck down with gunk or debris or missing. --Remove the Shellplate and clean the top of the Platform and Index Ball, Spring and Spring/Ball Pocket and replace.</li> </ol>
		Handle movement difficult	<ol style="list-style-type: none"> <li>1.Powder or other debris can cause jamming of moving parts.</li> <li>2.Link Arm and/or Pins are worn or galled. —Clean and Relube.</li> <li>3.Main Shaft is sticky or dirty. --Clean and lubricate with 30 wt. oil. Do not use spray lubes like WD-40.</li> <li>4.Priming System is not aligned with the Platform/Shellplate. —Realign.</li> </ol>
3	Depriming	Bending or breaking Depriming Pins	<ol style="list-style-type: none"> <li>1.Berdan case.</li> <li>2.Smaller case inside the larger case.</li> <li>3.Debris in case.</li> </ol>
4	Sizing	Scratched Cases	<ol style="list-style-type: none"> <li>1.Brass residue will build up in the Size Die (even carbide) over extended periods, especially if the brass cases are not cleaned well. This very hard brass residue will leave vertical scratches on the case. Remove any hardened brass buildup in the size die with Red 3M Scotch Brite wrapped around a wood mandrel. Chuck the mandrel in a drill motor and run it gently back and forth inside the size die to remove hardened brass buildup. Sweets 7.62 Solvent can be used to remove brass residue. Clean up any Sweets residue.</li> <li>2.Dirty Brass.</li> <li>3.Burrs on new Brass.—Tumble before use.</li> </ol>

		Dent in the shoulder of the case or neck	1. Too much Case Lube—clean Size Die and cases and re-lube with less lube.
		Case stuck or sticking in Size Die	1. Insufficient Lube on the case. 2. Overpressure or "blown-out" case—out of spec/oversize. 3. Alcohol from Dillon Case Lube is not given time to evaporate.
5	Priming	Primers not feeding properly.	1. Stuck Primer in the tube. Discard Tube. 2. Damaged magazine tip or tube. Replace the Tip or discard the Tube. 3. Debris preventing Primer Slide from traveling far enough into the Primer Feed body. Remove and clean the Slide and Feed Body, or clear it with compressed air. 4. Primer Cup on Primer Slide not aligning properly with the magazine tip.
		Primers may stick on the end of the Depriming Pin and be "pulled back up" into the primer pocket	1. In the case of issues with depriming rifle cases, place a de-primed case in Station one with the Operating Handle in its down position. Adjust the rifle Depriming Bolt down until it stops on the inside of the cartridge flash hole and then back the Depriming Bolt up 1 and ½ turns and lock it in place. 2. Polish the end tip of the Depriming Pin, so the taper is gone. This gives a wider tip, and the primer is less likely to get jammed onto it. Also, you can polish the end of the tip of the pin so it is less likely to get stuck in the primer anvil. 3. In the case of pistol depriming issues—make sure there are no "burrs" on the end of the Depriming Pin. Polish if necessary and make sure that the Spring-Loaded Depriming Assembly is intact, especially the "E" clip on top of the Depriming Bolt Assembly.
		The Priming Cup is not picking up primers reliably under the Primer Magazine in the Primer Feed Assembly.  Primers are being caught in Dispensing Tip	1. Remove the Primer Magazine from the Magazine Shield. Caution! Any primers left in the Primer Magazine will fall out. Push a small cloth patch, 3/8" x 3/8", wet with alcohol, through the Magazine Tube several times to clean the interior. Verify the Dispensing Tip (Red or Blue) is not damaged--Replace if visibly damaged.   2. To replace the tip, remove the old tip and gently place the new tip on the aluminum Magazine tube. Make sure it is the correct size/color for the primers used—Blue for small primers and Red for large primers. Put the Magazine Tube in the Magazine Shield Tube and orient the tip in the mating slot inside the primer feed body. Screw the magazine Cap on and use this to push the magazine tip on the rest of the way—do not over-tighten.
		Primer Slide is not moving smoothly back and forth	1. The Primer Track Bearing (14015) is dirty or worn. Clean the Track Bearing, both sides, and the Primer Slide with Alcohol and reinstall using no lube! If worn call Dillon for a New Slide or Track Bearing.   2. The Primer Operating Rod Bracket is not installed at the proper height or is not properly aligned with the base. Reposition as shown in 10.3.1.
		Primer Slide Punch, Cup and or Spring are Dirty or have come apart	1. Disassemble Punch (13967), Cup (13824), and spring (14033) by loosening Set Screw (13996), clean with alcohol, and dry. 2. Re-assemble by fully compressing the Punch, Cup and Spring until they stop moving and firmly re-tightening the Set Screw (13996)—This requires some

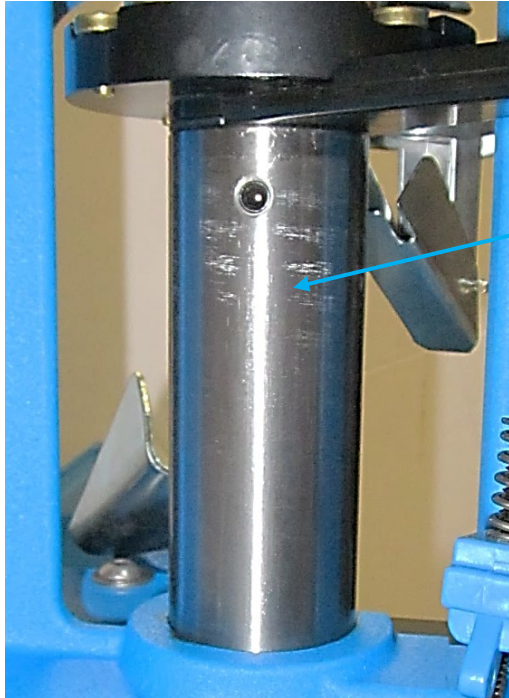
			<p>force—do not damage the top of the cup when doing this. The installed height should be as shown below-- 1.215-1.220"</p>  
		Primer is not "Dropping" through Magazine	<p>1. Perform a single primer drop test with the Magazine Tube out of the system. Hold the Mag Tube vertically with the tip resting on a flat surface. Drop one primer into the top of the tube, shiny side down. Gently pick up the tube. The Primer should be sitting on the flat surface. If not, check the tip for damage and or burrs on the semicircular "fingers." If no damage and the primer is caught in the "fingers", gently and very lightly open the two "fingers." Try the test again. If still unsuccessful, replace the Tip and perform the test until successful.</p>  <p>Drop primer into top of Mag Tube Held vertically on a flat surface--Primer should fall freely through tip on to flat surface</p> <p>TIP "Fingers"</p> 
		Crushed primers	<ol style="list-style-type: none"> <li>1. Dirt or debris in Shellplate pockets. Remove with a pick or similar tool.</li> <li>2. Crimped primer military brass. Military primer pockets must be chamfered or swaged before priming.</li> <li>3. Ringed primer. A ring of the primer cup remains in the primer pocket after being de-primed.</li> <li>4. Primer Punch is not assembled properly in the Primer Slide.</li> <li>5. Wrong size/type primer for that caliber.</li> </ol> <p>Abrupt or jerky movement of the Operating Handle. Cycle the machine using a smooth motion. Slow down during the primer-seating step; be ready to stop if it is not seating smoothly or there is "high" primer seating resistance.</p>
		A stuck primer in Pickup or Magazine Tube	<ol style="list-style-type: none"> <li>1. Throw the tube away—Call Dillon for a new one!</li> </ol>
		High Primers—Primers are not seated flush or below flush with the bottom of the case.	<ol style="list-style-type: none"> <li>1. Shellplate loose. To adjust, loosen the brass-tipped setscrew, turn the Shellplate bolt down until it is snug, then back off 1/8 of a turn. Tighten the Set Screw.</li> <li>2. Insufficient force/rearward travel of the Operating Handle during the Primer seating cycle.</li> <li>3. The Primer Punch is not assembled properly in the Primer Slide.</li> </ol> <p>RL550C is not fastened firmly to the reloading bench.</p>
		Unusual indentation in face of the seated primer	<ol style="list-style-type: none"> <li>1. There are powder granules on the top of the Primer Punch Face or in the Primer Cup imprinting into the Primer—clean off/blow out spilled powder granules.</li> </ol>  <p>Crushed powder granule leaves imprint in primer</p>
6	Case Flaring -Belling	Erratic flaring (too much or too little).	<ol style="list-style-type: none"> <li>1. Variation in case length. Measure cases, trim or discard cases out of spec.</li> <li>2. Handle not moving all the way down on each cycle.</li> <li>3. Wrong Powder Funnel for that caliber.</li> <li>4. Improper Powder Die adjustment.</li> <li>5. The Powder Measure is loose on the Powder Die.</li> </ol>



7	Powder Funnel sticking in case.	Brass residue can also build up on the end of Pistol Powder Funnels in the flaring process.	1. Polish the end removing any brass buildup and lightly lube with Case Lube.
8	Powder Measure	Inconsistent Powder Charges	1. Be sure that the Failsafe Return Rod Blue Wing Nut is tight enough to fully retract the Powder Bar. With the Handle fully down, tighten the Blue Wing Nut until a business card just slips between the coils of the spring. Adjust Powder Die height for full Powder Bar travel. 2. Powder not settled in Hopper. --Cycle more powder charges until stable. 3. Wrong size Powder Bar.--Replace Powder Bar. 4. Powder Measure loose on Powder Die. --Tighten Clamping Screws. 5. Slow down cycling, especially with "Stick Powders." 6. Small Powder Bar Spacer Plug missing. —Replace it.
		Powder bar not moving smoothly	1. Dirty or gummy--Clean with isopropyl alcohol or acetone. Do not lubricate. Do not use sandpaper, file or anything abrasive. 2. Powder bar, Small Bar Spacer or Measure Body galled from wear. Return to Dillon for repair or replacement. 3. Failsafe Rod Assembly missing or disconnected. 4. Very fine-grained spherical powder like Win 296, H110 and some Accurate Arms powder can get between the powder bar, spacer and/or the powder measure body and bind movement. 5. Powder Bar Adjustment Bolt adjusted fully open against the stop. This can bind the Powder Bar insert causing the Powder Bar to drag.
10	Bullet Seating	The case neck is crumpling when the bullet is seated	1. On straight wall and tapered cases, flare the case mouth to at least .010" larger, and up to .020" larger than a sized, unflared case. If loading flat-base bullets into bottleneck cases, use a case mouth-chamfering tool to bevel the inside of the case mouth to ease bullet seating.
		Bullet falling through case mouth or cartridge neck	1. The case was not sized. 2. The bullet diameter is incorrect. Check the bullet.
11	Bullet Crimping	The case has bulged or the case will not fit the Case Gauge	1. Raise the Crimp Die reducing the amount of crimp.

**12 CLEANING AND LUBRICATING THE RL550C**--Operating circumstances will dictate the frequency of required lubrication. Clean and lube the RL550 every 10,000 cycles of operation. Use a high-grade, conventional wheel bearing grease --do not use oil except as indicated below. The lubricants to be used are chassis lube such as Schaeffer High-Performance Grease NLGI#229 High Moly Content (or equivalent) and Supreme 7000 Synthetic Plus 30W Motor Oil or equivalent.

**12.1 Lightly Oil Mainshaft every 5000 Cycles—**



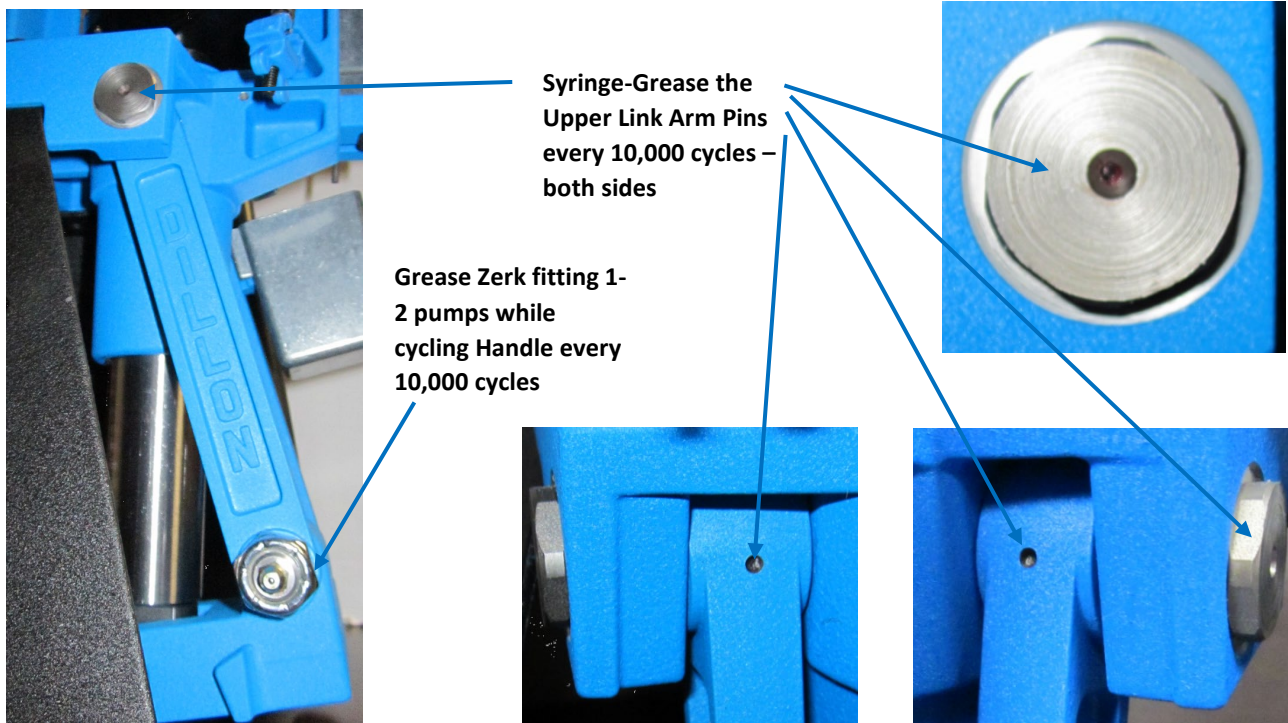
Use only 30 weight motor oil. DO NOT use a penetrating lubricant such as WD-40, Breakfree, etc. Wipe off excess

**12.2 Dillon offers an RL550C Series Machine Maintenance Kit (PN 97016) that helps maintain the RL550C. It includes:**

- RL550C Series Spare Parts Kit
- Compressed Air
- Pipe Cleaners
- Lubricating Grease Syringe
- Nylon Brush

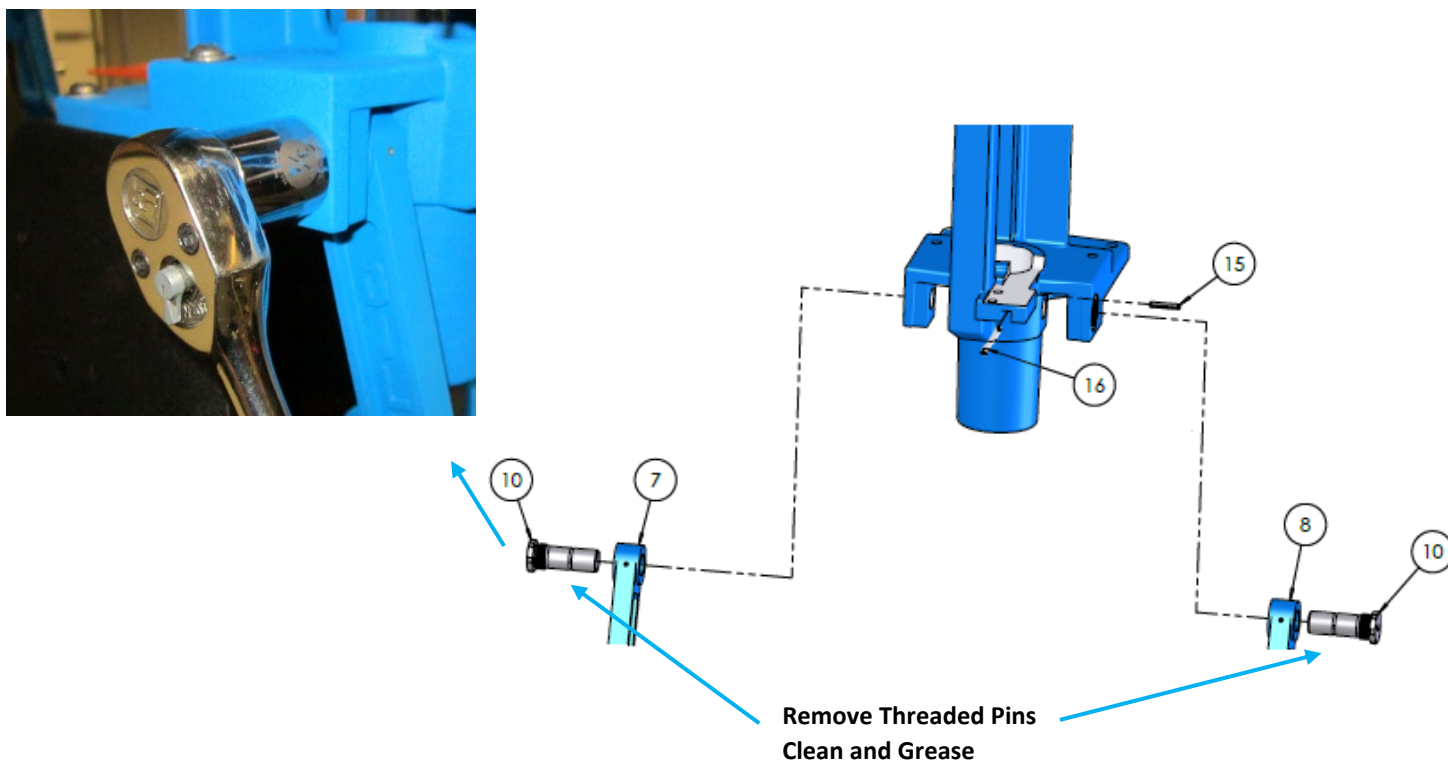


### 12.3 Grease Link Arm Zerk Fittings and the 4 Syringe Grease ports every 10,000 Cycles



### 12.4 Remove, Clean and Lubricate the Upper Pivot Link arm Pins every 50,000 cycles.

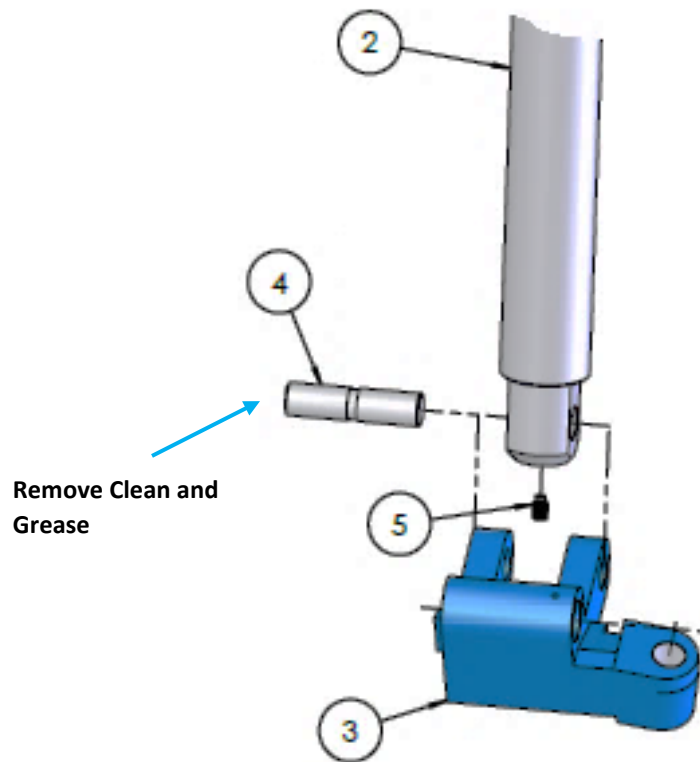
- Remove, clean and lubricate the two Threaded Upper Link pins (10). Use a  $\frac{3}{4}$ " Socket or  $\frac{3}{4}$ " box end wrench to remove and replace the Threaded Upper Link Arm Pins.





### 12.5 Remove, Clean and apply grease to the lower Main Shaft Pivot Pin ④ every 50,000 cycles.

- Loosen the Pivot Pin retaining Set Screw ⑤ with an Allen Wrench. Slide the Pivot Pin ④ out of the Mainshaft ② and Crankshaft ③. Clean, apply grease, and replace. **WARNING--the Mainshaft is heavy and could fall on your foot when the Pivot Pin is removed.**



### 12.6 General Cleanliness

- The reloading process is inherently "dirty" because of residue from used primers, leftover corn cobb from tumbling, spilled powder and metal shavings from case trimming on the system. The reloading process of sizing, seating bullets and primers can generate metal particles. Live primer residue along with leftover Case Lube are other contaminants that need to be cleaned up regularly. Carefully blow the system out frequently and remove any debris. Do not spray solvents on the system.

### 13 USING THE RL550C TO TRIM BRASS

13.1 The RL500C can be configured for “prepping” bottleneck brass using the Dillon Rapid Trim 1500 Case Trimmer and associated Dillon Trim Dies. This capability also provides an effective means for forming 300 Blackout brass in “one pass.” The Case Preparation procedure is as follows:

- Clean brass
- Lubricate Brass with Dillon Case Lube
- Inset a case in Station 1
- Cycle the Handle to deprime and pre-size the case—Recommend not using an expander ball for better runout results.
- Pre-size the brass case with no expander ball to ~90% utilizing the Dillon Rifle headspace gauge—this means the case should stick up ~.020” above the top of the case gauge.
- Station 2— Open
- Stations 3 –Final headspace/size and trim cases to proper length here utilizing Dillon Trim Motor and the Dillon Size Trim Die shown below in Station 3. This two-step sizing operation provides a more repeatable and precisely sized case minimizing the “spring-back” of the brass. Note--the Size and Trim Die is caliber specific and only for bottleneck cases.
- Station 4 –Empty/Eject
- Swage Primer pockets offline in a Dillon Super Swage if required.

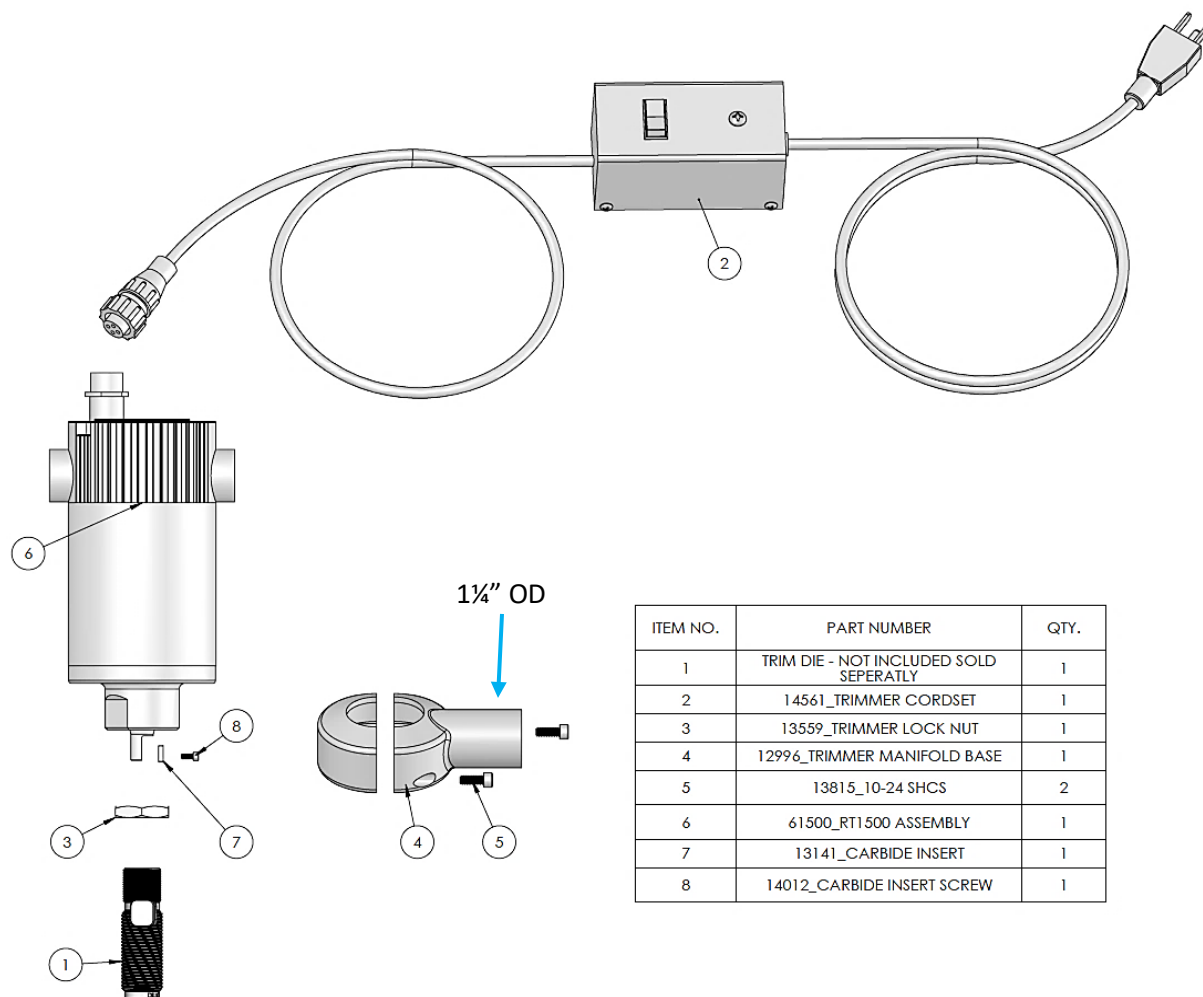


Dillon Rapid Trim 1500 Case Trim Motor, Size/Trim Die and included Exhaust Manifold



Carbide cutter/insert with 3 cutting edges

### 13.2 Available Dillon Rapid Trim™ Assembly and Dillon Size Trim Dies:



### 13.3 Available Dillon Trim Dies and Special Toolheads

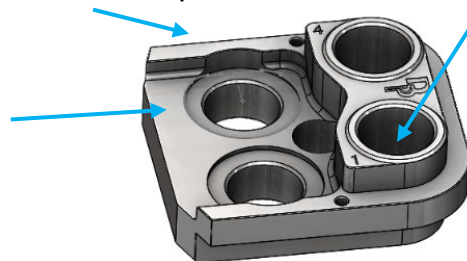
PART NO.	DILLON TRIM DIE
21028	.204 Ruger
21363	.222 Rem.
20107	.223 Rem.
19797	.223 Rem. Carbide
21364	220 Swift
20110	.22-250 Rem.
20109	.243 Win.
62290	6.5 Creedmoor
21495	6.5x55mm

PART NO.	DILLON TRIM DIE
21029	.300 WSM
20111	.30-30 Win.
21765	.303 British
20106	.308 Win.
62126	.308 Win. Carbide
62140	.300 BLK Carbide*
62238	6.8 SPC*
62237	7.62 x 39*
62231	RL550C Short Trim Die Toolhead

62164	RT1500 Trimmer Assembly
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\* Requires Short Trim Die Toolhead 62231—for making Blackout from .223 in “one-pass.”

Form, size and trim the .300 BLK Case in Station 3



Deprime-Station 1



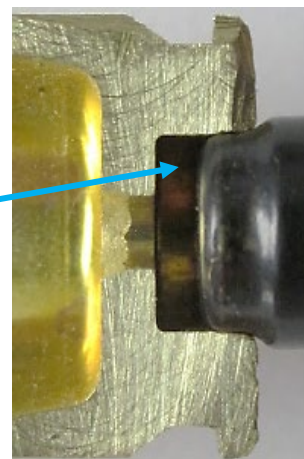
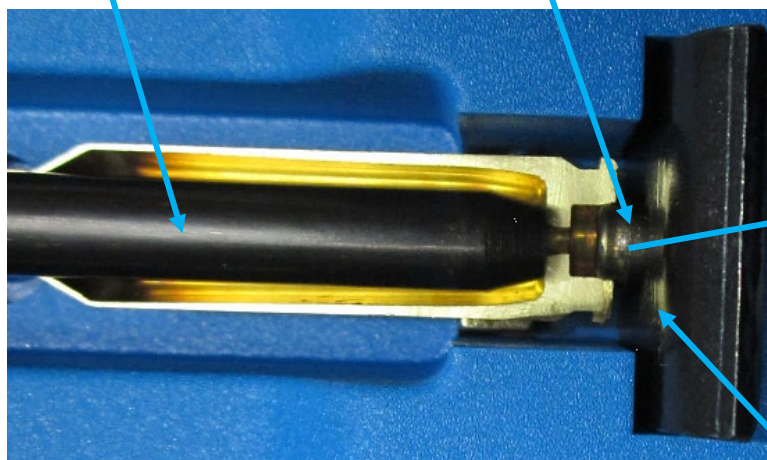
## 14 DILLON SUPER SWAGE 600 PN 20995

- 14.1 The edge of the crimped small and large primer pockets in "Military" and other cases must be removed before reloading. The crimped primer can be removed but a replacement primer cannot be installed and could be crushed/exploded if attempted.
- 14.2 The available Dillon Super Swage 600 is an ideal companion to the RL550C for performing this operation after having deprimed and sized the crimped primer case in the RL550C.

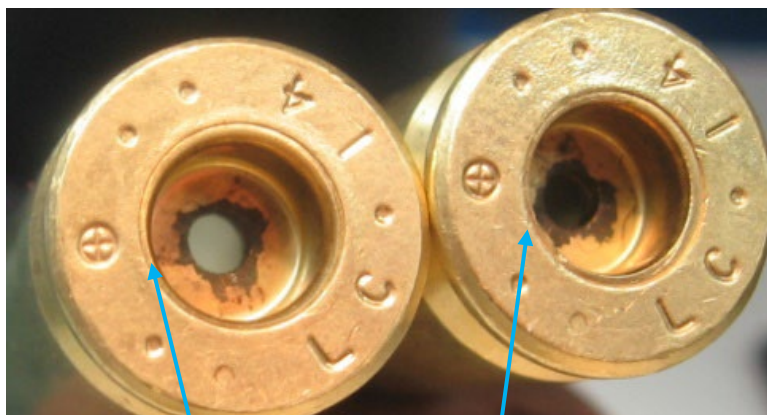


Exchangeable Small and Large  
Adjustable Backup Rod

Exchangeable Small and Large  
Crimped Primer Pocket Swager



Swaging Tip swaging  
primer pocket

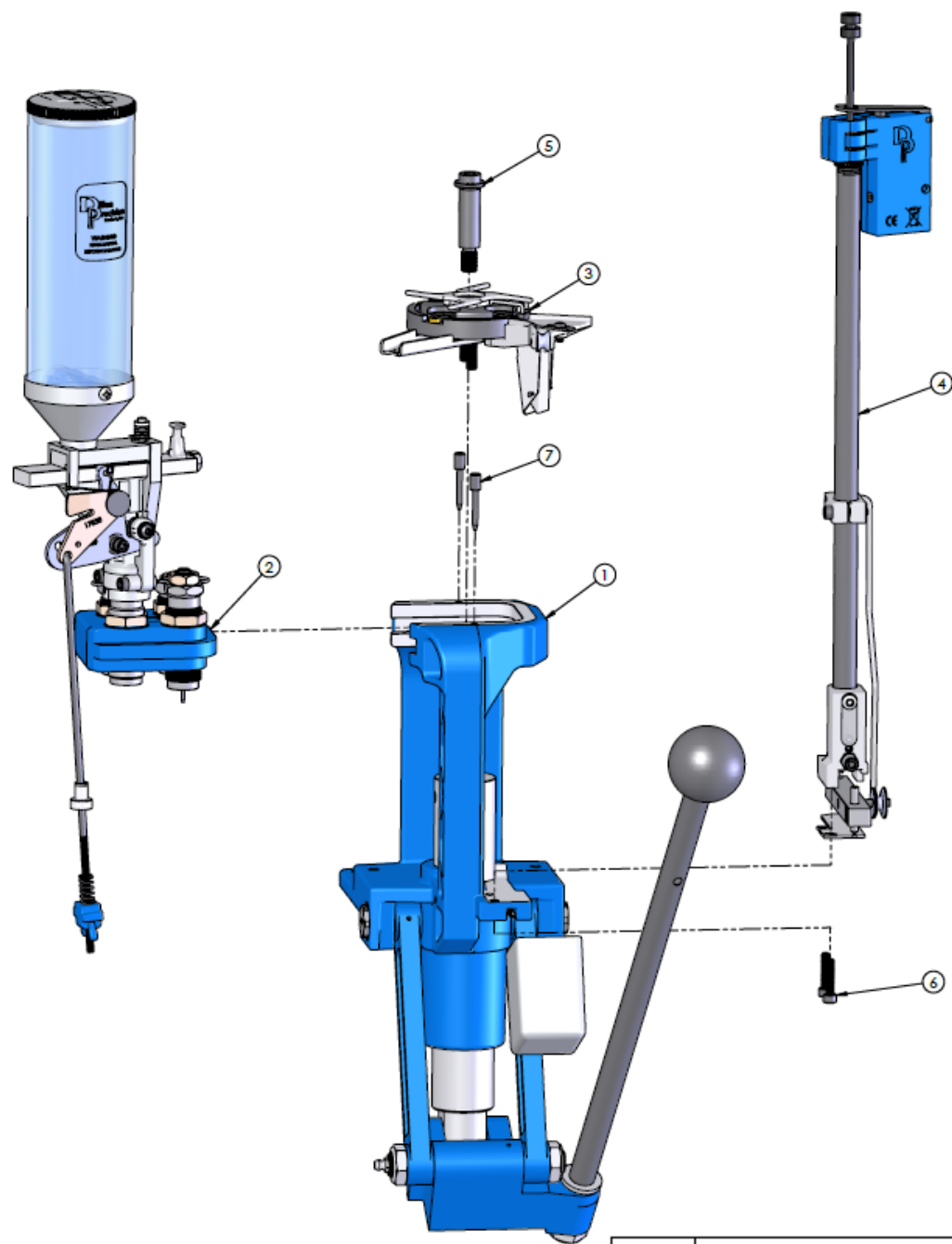


Swaged Primer Pocket

Crimped Primer Pocket —edge rolled over

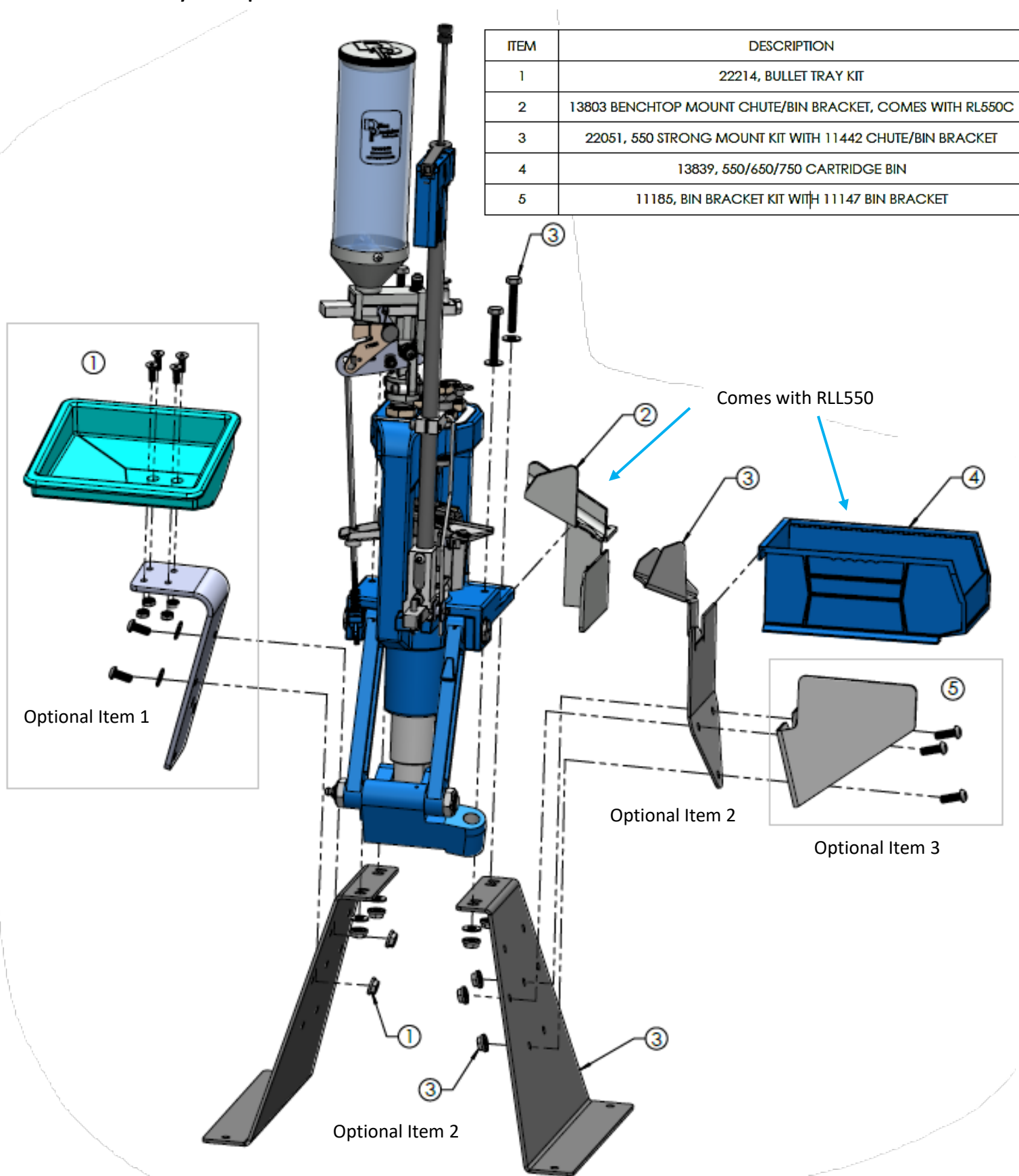
15 RL550C EXPLODED VIEWS AND PARTS IDENTIFIER

15.1 Basic Assembly (Exploded View 1)



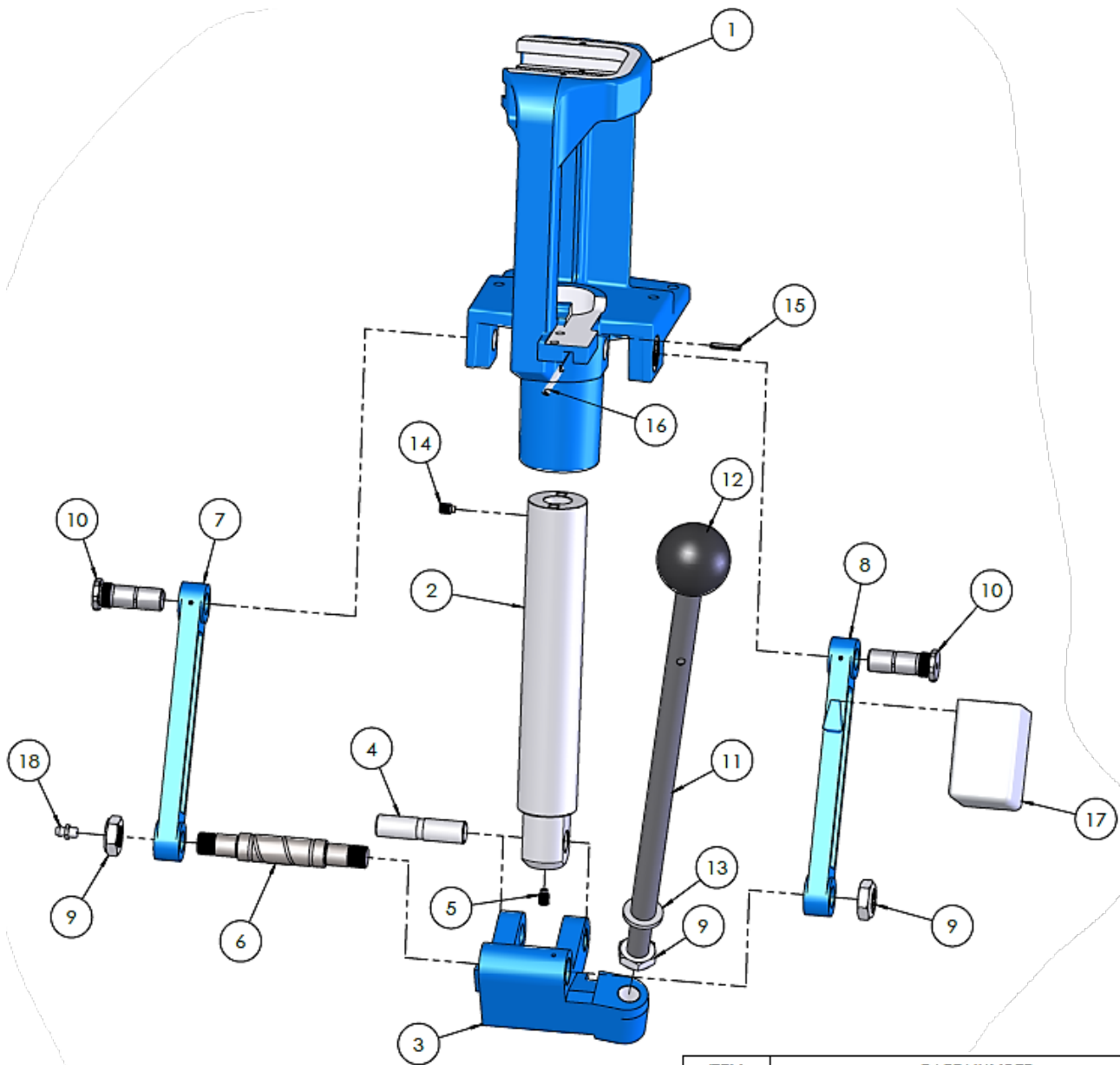
ITEM	DESCRIPTION
1	RL-550 FRAME AND LOWER ASSEMBLY, EXPLODED VIEW 2
2	RL-550 TOOLHEAD WITH DIES AND MEASURE, EXPLODED VIEW 3
3	RL-550 PLATFORM AND COMPONENTS, EXPLODED VIEW 4
4	RL-550 PRIMER FEED SYSTEM AND COMPONENTS, EXPLODED VIEW 5
5	13794_550 SHELLPLATE BOLT
6	14014_10-24x875 SHCS
7	14008_TOOLHEAD PIN

## 15.2 Assembly with Optional Available Items



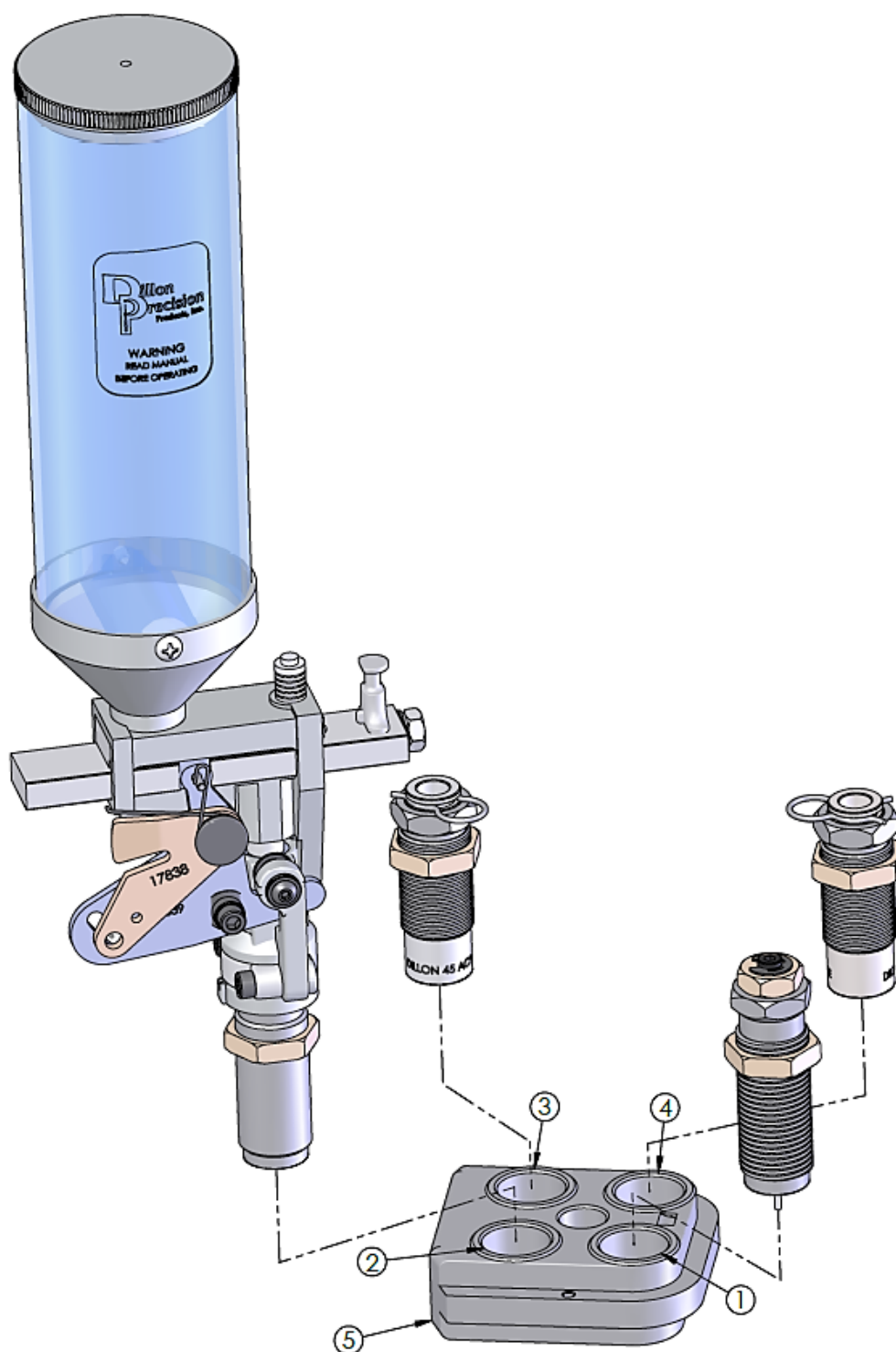


### 15.3 Frame and Lower Assembly (Exploded View 2)



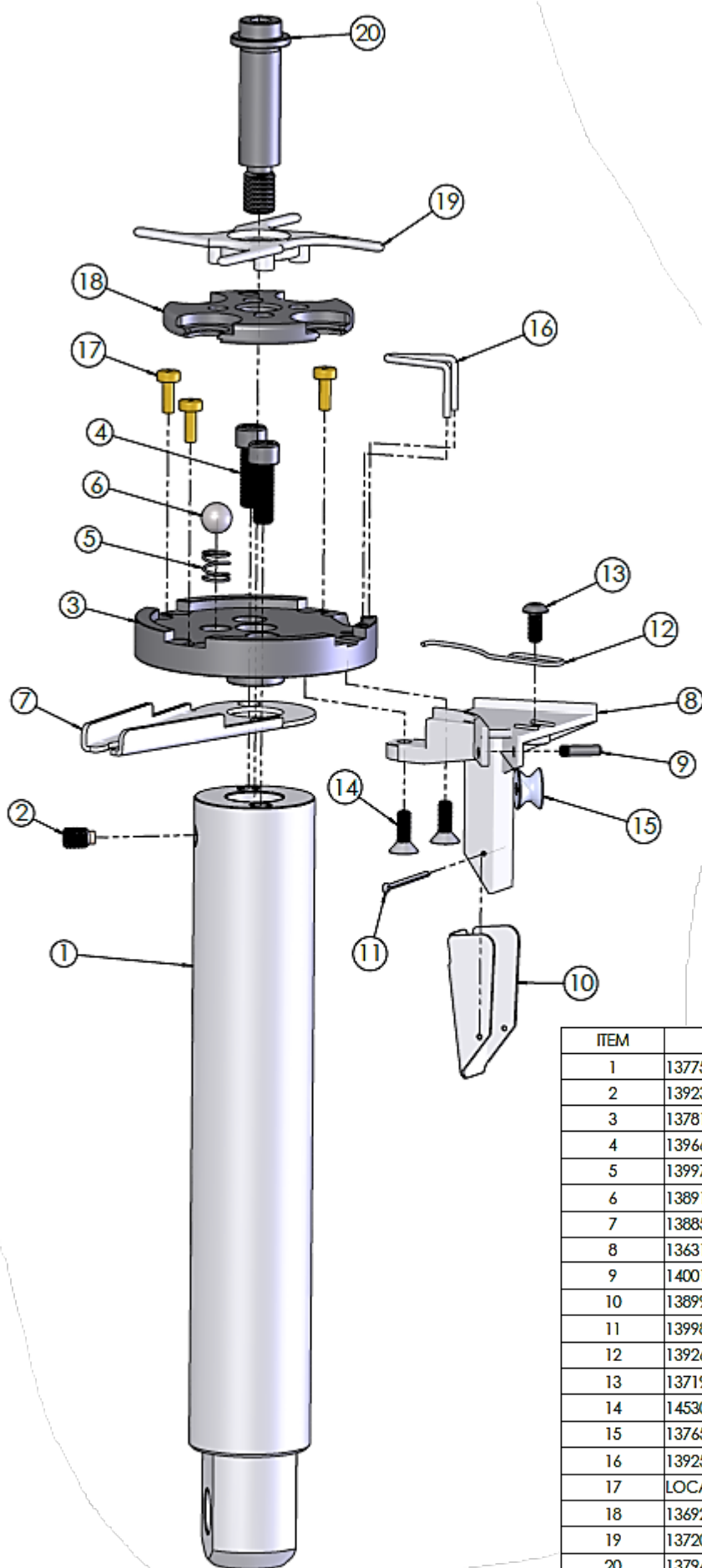
ITEM	PART NUMBER	QTY.
1	13709_550B FRAME MACHINING THREADED PIN	1
2	13775_550 MAIN SHAFT	1
3	13409_RL550 CRANK	1
4	13830_MAIN SHAFT PIVOT PIN	1
5	13789_250-28x375 DOG PT SET	1
6	13700_LINK ARM SHOULDER PIN 2	1
7	13583_550 LEFT LINK ARM	1
8	13747_550 RIGHT LINK ARM	1
9	13841_562-18 NYLOCK JAM NUT	3
10	62286_RL550B THREADED LINK ARM PIN	2
11	13855_OPERATING HANDLE	1
12	13850_HANDLE BALL	1
13	13704_HANDLE WASHER	1
14	13923_250-28x440 BRASS DOG PT SET	1
15	14025_125x750 SPRING PIN	1
16	13928_PRIMER SLIDE RETURN SPRING	1
17	13650_SPENT PRIMER CUP	1
18	13581_GREASE ZERK	1

## 15.4 Toolhead Assembly (Exploded View 3)



ITEM	DESCRIPTION
1	POSITION 1: SIZE, DECAP, PRIME
2	POSITION 2: POWDER MEASURE
3	POSITION 3: BULLET SEATING
4	POSITION 4: BULLET CRIMPING
5	RL-550 TOOLHEAD

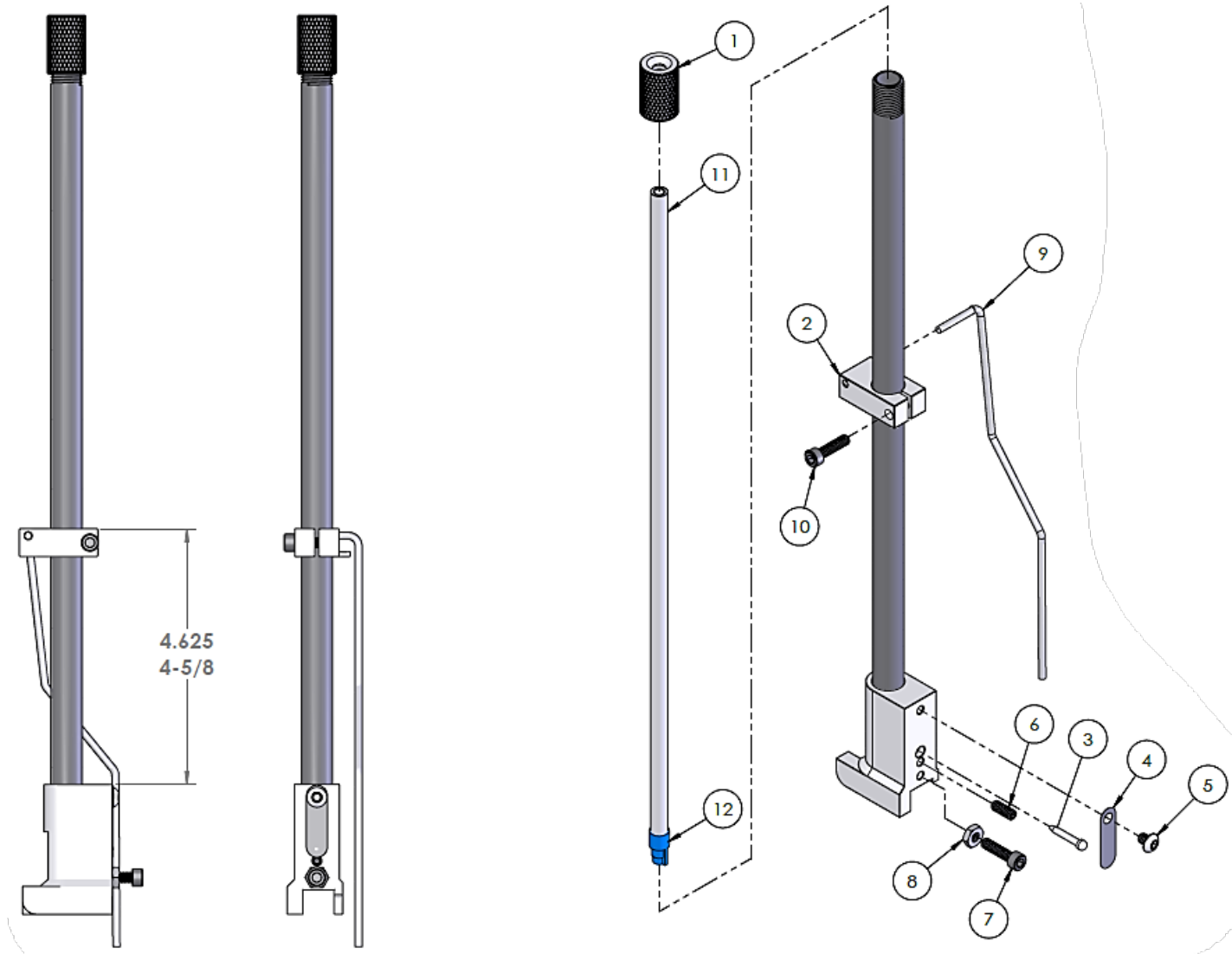
## 15.5 Platform and Components (Exploded View 4)



ITEM	PART NUMBER	QTY.
1	13775_550 MAIN SHAFT	1
2	13923_250-28x440 BRASS DOG PT SET	1
3	13781_550 PLATFORM	1
4	13966_250-28x750 SHCS	2
5	13997_INDEX BALL SPRING	1
6	13891_375 INDEX BALL	1
7	13885_RETURN BRACKET	1
8	13631_550 ROLLER BRACKET REVISED	1
9	14001_PLATFORM ROLLER PIN	1
10	13899_SPENT PRIMER CHUTE	1
11	13998_062x1 SS COTTER	1
12	13926_STATION 1 LOCATOR	1
13	13719_8-32x375 BHCS	1
14	14530_8-32x500 FHS	2
15	13765_SMALL ROLLER RL550-XL750	1
16	13925_550 EJECTOR WIRE	1
17	LOCATOR BUTTON #1 *	3
18	13692_550 SHELLPLATE #1 *	1
19	13720_550 INDEX SPROCKET	1
20	13794_550 SHELLPLATE BOLT	1

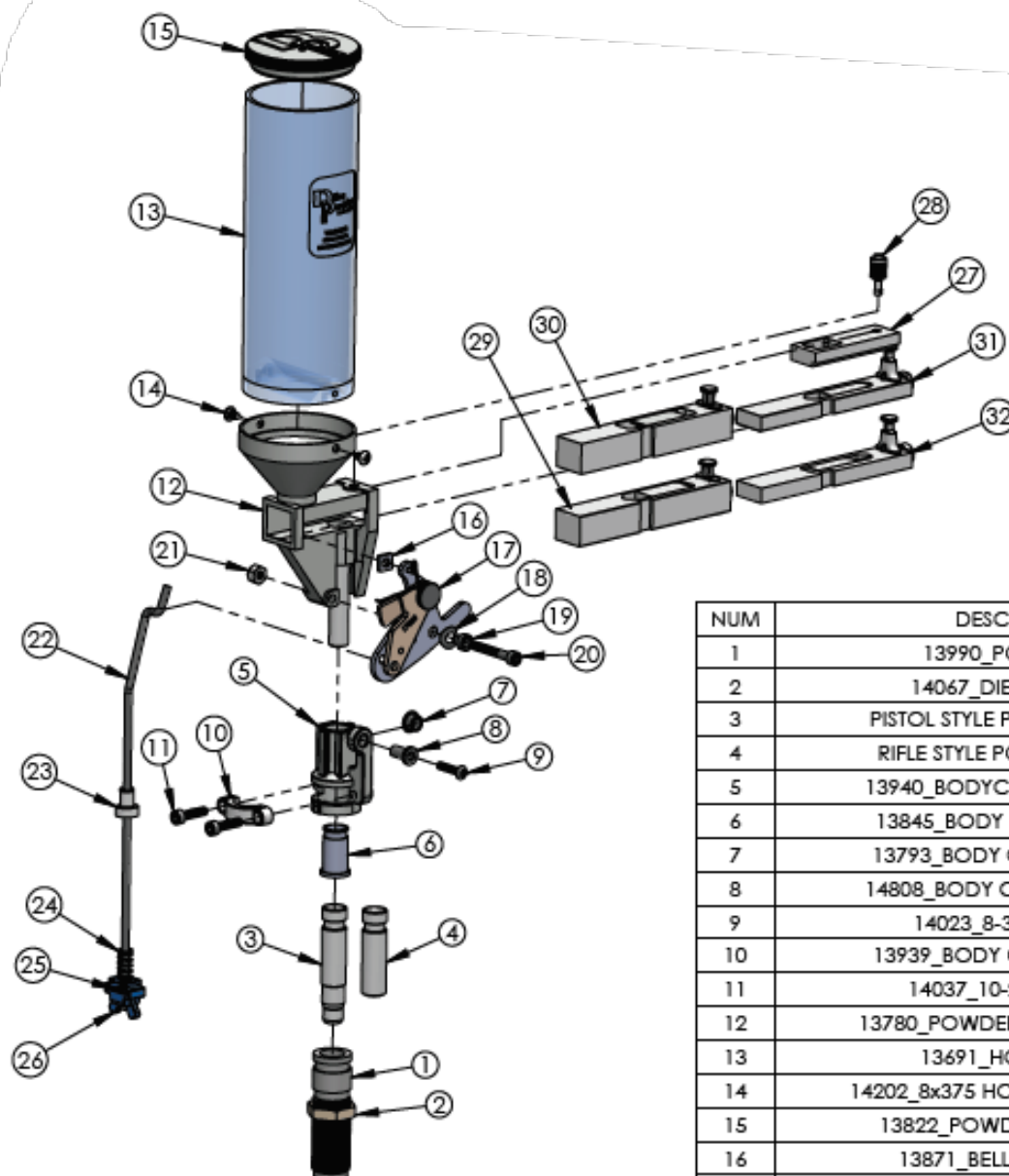


## 15.6 Primer Feed Assembly--(PN 20263 no Operating Rod) (Exploded View 5)



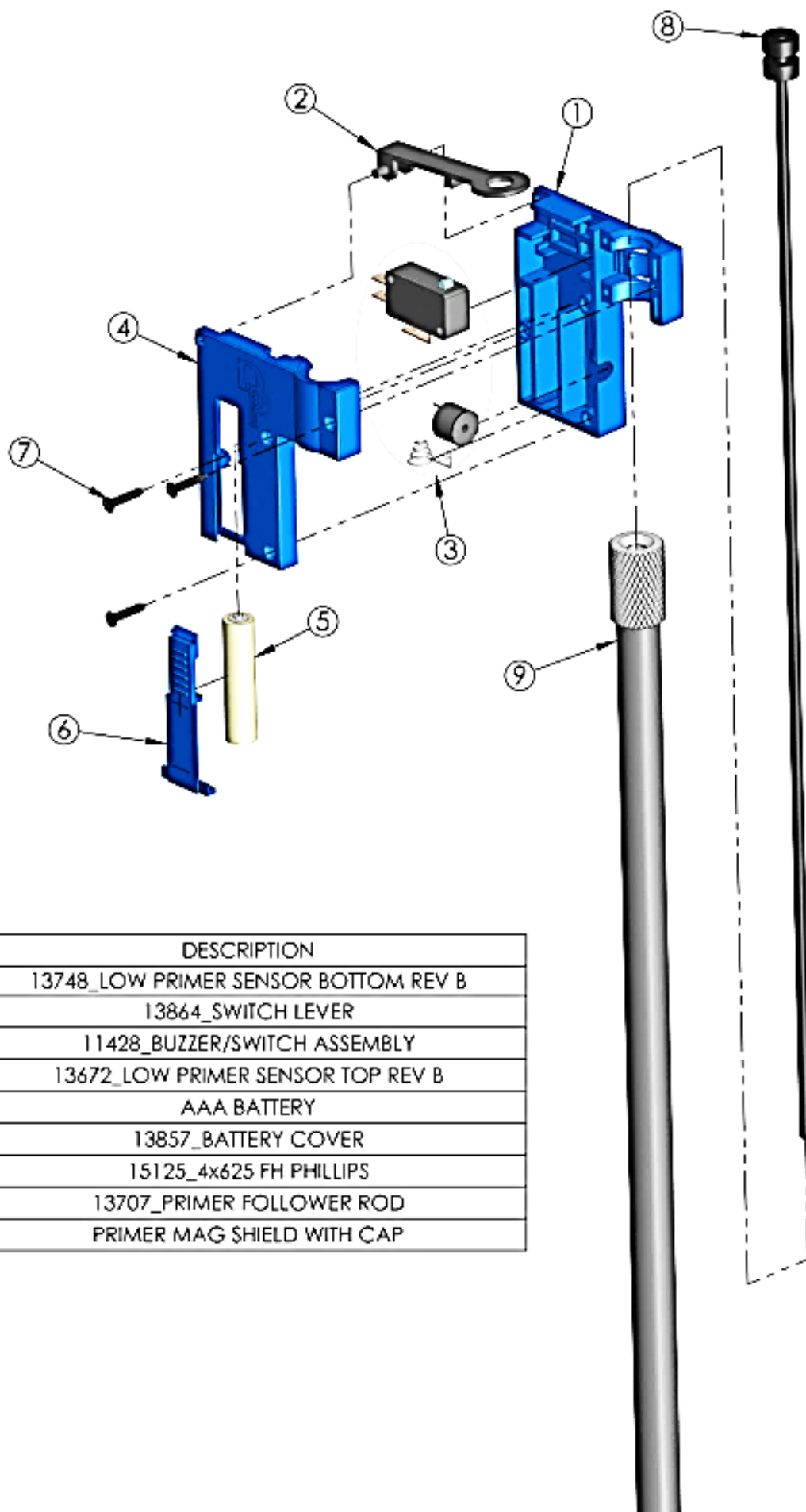
ITEM	PART	QTY.
1	13957_PRIMER SHIELD CAP	1
2	13887_OPERATING ROD BRACKET	1
3	14051_PRIMER FEED STOP PIN	1
4	13979_550 PRIMER FEED STOP SPRING	1
5	13964_10-24x250 BHCS ZINC	1
6	13961_10-24x500 SET SCREW	1
7	14037_10-24x750 SHCS	1
8	13898_10-24 HEX NUT	1
9	13869_550 OP ROD	1
10	14014_10-24x875 SHCS	1
11	16373_SMALL MAG TUBE(CHAMFER)	1
12	14024_SMALL MAGAZINE TIP	1

## 15.7 Powder Measure Assembly



NUM	DESCRIPTION
1	13990_POWDER DIE
2	14067_DIE LOCK RING
3	PISTOL STYLE POWDER FUNNEL
4	RIFLE STYLE POWDER FUNNEL
5	13940_BODYCOLLAR HOUSING
6	13845_BODY COLLAR SLEEVE
7	13793_BODY COLLAR ROLLER
8	14808_BODY COLLAR BUSHING
9	14023_8-32x750 BHCS
10	13939_BODY COLLAR CLAMP
11	14037_10-24x750 SHCS
12	13780_POWDER MEASURE BODY
13	13691_HOPPER TUBE
14	14202_8x375 HOPPER TUBE SCREW
15	13822_POWDER HOPPER LID
16	13871_BELLCRANK CUBE
17	11234_LOCK LINK ASSEM
18	14041_250 BOWED WASHER
19	13848_BELLCRANK BUSHING
20	13904_10-32x1250 SHCS
21	16340_10-32 LOCKNUT ZINC
22	13629_FAILSAFE RETURN ROD (650/750) 97000_FAILSAFE RETURN ROD (550)
23	18086_FAILSAFE ROD BUSHING
24	14033_PRIMER CUP SPRING
25	13801_TINNERMAN NUT
26	13799_FAILSAFE WINGNUT
27	13644_POWDER BAR SPACER
28	13921_POWDER BAR SPACER PLUG
29	20063-LARGE POWDER BAR ASSEM
30	21353_EXTRA LARGE POWDER BAR ASSEM
31	20062_SMALL POWDER BAR ASSEM
32	20780_EXTRA SMALL POWDER BAR ASSEM

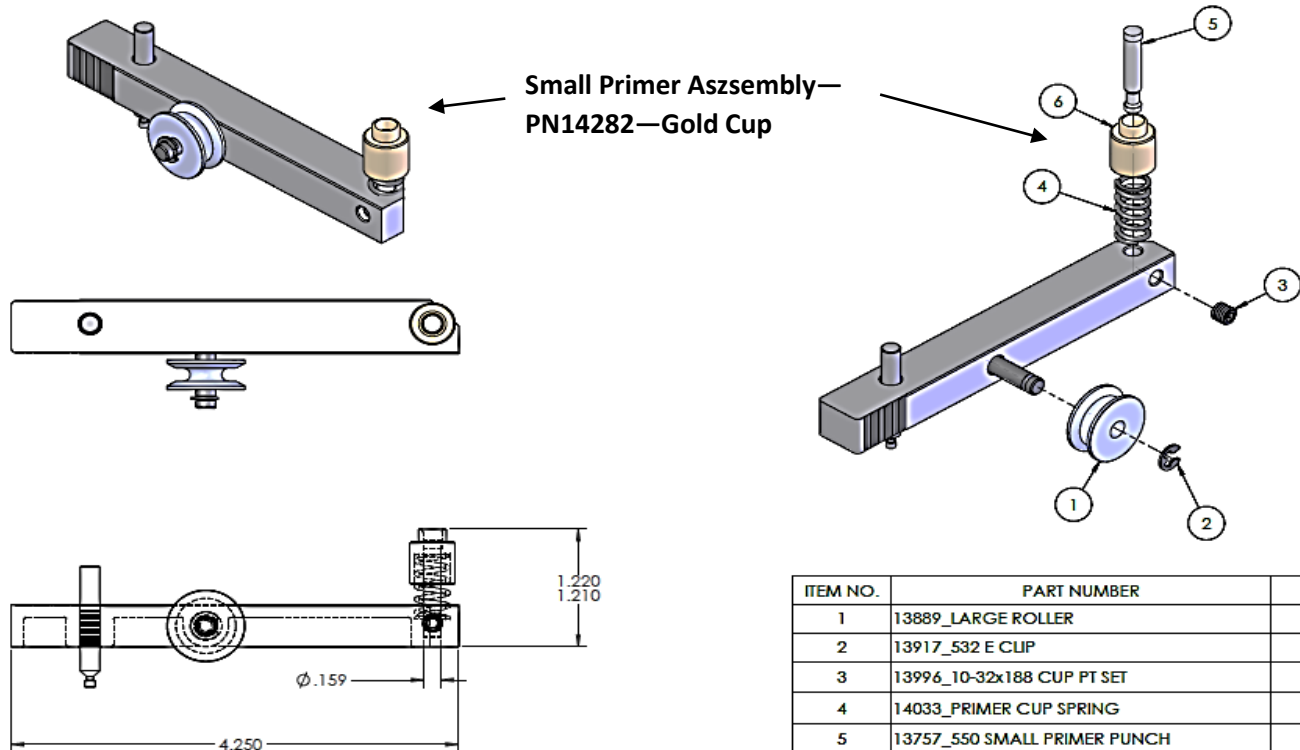
## 15.8 Primer Early Warning System ( PN20302-Rod and PEWS Kit) (PN14497 PEWS Alone)



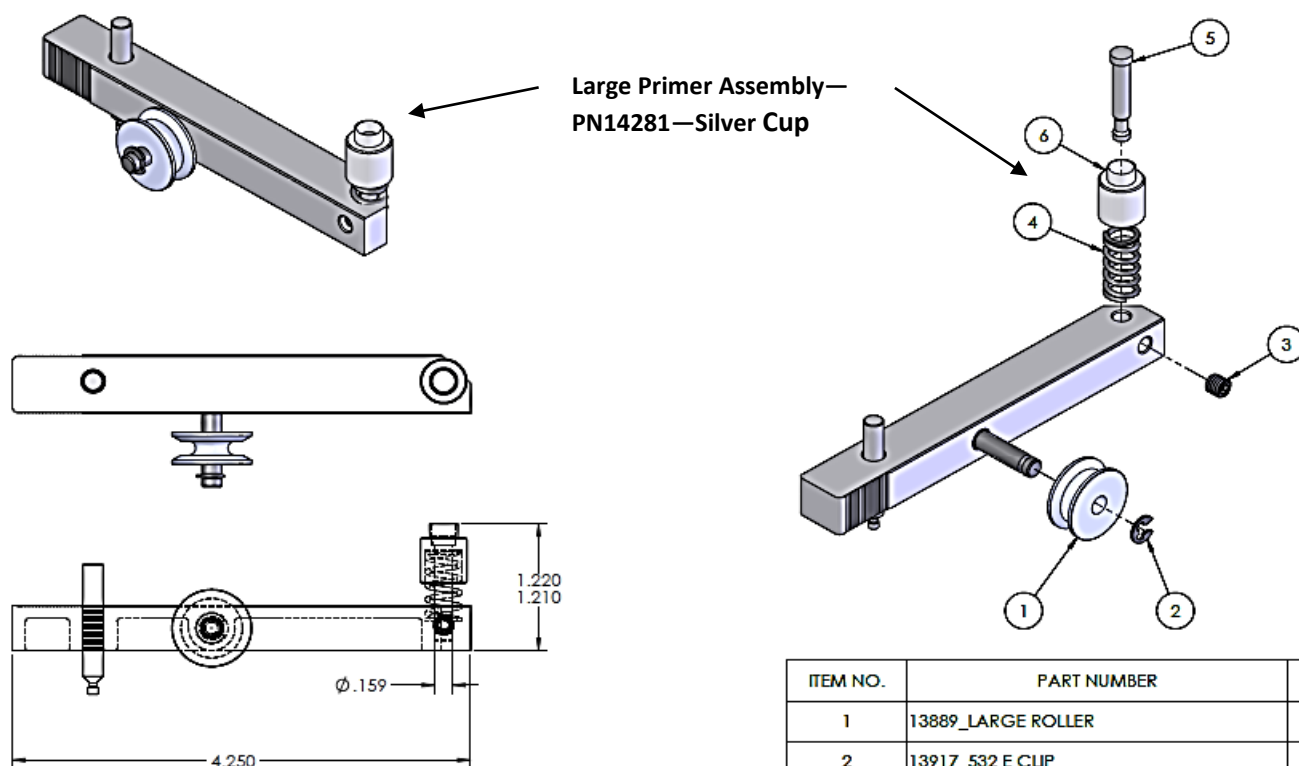
NUMBER	DESCRIPTION
1	13748_LOW PRIMER SENSOR BOTTOM REV B
2	13864_SWITCH LEVER
3	11428_BUZZER/SWITCH ASSEMBLY
4	13672_LOW PRIMER SENSOR TOP REV B
5	AAA BATTERY
6	13857_BATTERY COVER
7	15125_4x625 FH PHILLIPS
8	13707_PRIMER FOLLOWER ROD
9	PRIMER MAG SHIELD WITH CAP



## 15.9 Primer Slide Assembly—Small and Large—Complete Assemblies—PN14281(L) PN14282 (S)



ITEM NO.	PART NUMBER	QTY.
1	13889_LARGE ROLLER	1
2	13917_532 E CLIP	1
3	13996_10-32x188 CUP PT SET	1
4	14033_PRIMER CUP SPRING	1
5	13757_550 SMALL PRIMER PUNCH	1
6	13825_550 SMALL PRIMER CUP	1



ITEM NO.	PART NUMBER	QTY.
1	13889_LARGE ROLLER	1
2	13917_532 E CLIP	1
3	13996_10-32x188 CUP PT SET	1
4	14033_PRIMER CUP SPRING	1
5	13967_550 LARGE PRIMER PUNCH	1
6	13824_550 LARGE PRIMER CUP	1

## 16 RELOADING BASICS

### 16.1 Clean Brass Is Required Before Reloading

- There are many methods for cleaning fired brass, but the tried and true method is tumbling brass in a Dillon Vibratory Tumbler with ground corncob or walnut shell media with 2-3 “caps-full” of Dillon Case Polish. Putting a “clothes dryer sheet” in with the media helps control dust.



Dillon Case Polish  
PN13804



Dillon Tumbler PN20439

### 16.2 Lubricating Brass is Required

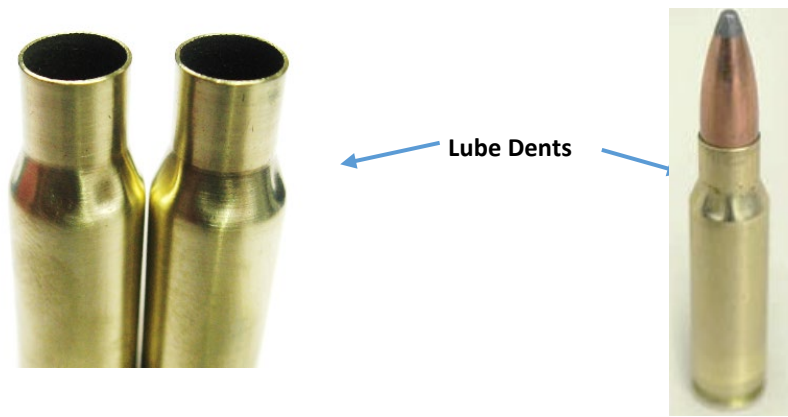
- Pistol Brass—pistol brass should be lightly lubricated before sizing even if you are using a carbide size die. The most effective lubricant for cases is lanolin/isopropyl alcohol-based, as in the Dillon Case Lube.
- Rifle Brass—all bottleneck cases must be lubricated even when using carbide dies.
- Lubricate your clean cases by laying the brass flat on their sides in a shallow box or “cookie tray.” Pump three or four sprays on the cases and shake the box so the cases tumble and roll. Repeat this process one more time making sure that the lubricant is distributed over the cases. Let the cases dry for about 3-4 minutes before using them.



Dillon Case Lube  
PN13733

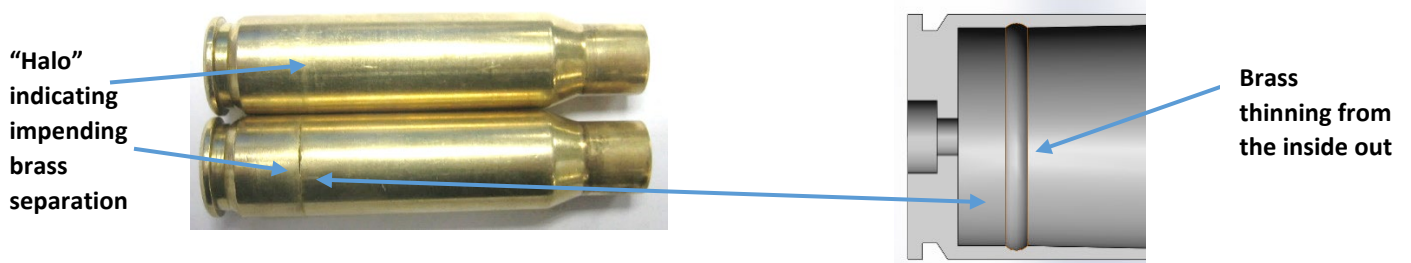


- Overlubricating the brass can cause hydraulically formed “lube dents” during the resizing process. This can also be caused by not waiting for the alcohol in the Case Lube to dry before sizing. If this occurs, clean out the Size Die. Use enough lube to ensure the case will easily enter the resizing Die. If the case is resistant to going in, stop and re-lube. Without adequate lubricant, the case will stick in the Die and the Shellplate will “rip” the rim off the case when you try to remove it from the Die. The “lube dents” will straighten out during the firing process.



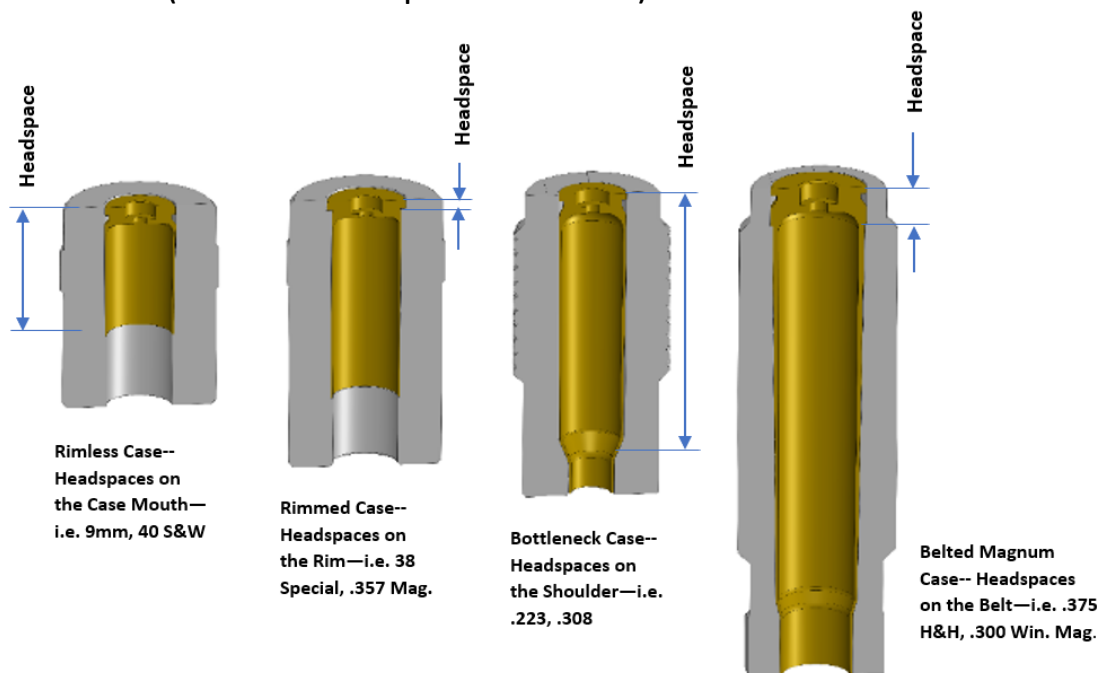
### 16.3 Head Space—Case Sizing

- Headspace is an important reloading parameter. Cartridge headspace is the distance from the case head to the part of the case on which the cartridge stops moving forward in the chamber. Chamber headspace is the distance from the breech face to the part of the chamber that stops the case from moving forward. Headspace in its common usage (head clearance) is the difference between the chamber headspace length and the cartridge headspace length or the amount of clearance front to back the cartridge has in the chamber. If the cartridge headspace length is too long for the chamber, the bolt/slide will not close and the firearm will not go into battery. If the cartridge headspace length is too short for the chamber (too much front-to-back clearance), the primer may not go off, you may get poor accuracy, stretched brass, short brass life, flattened primers or case head separation.
- An example of stretched/failing brass is shown below. The brass “flows” towards the neck during the firing process and can cause the case wall to get thinner in a “groove” on the inside culminating in a “halo” or crack on the outside of the case as shown below:

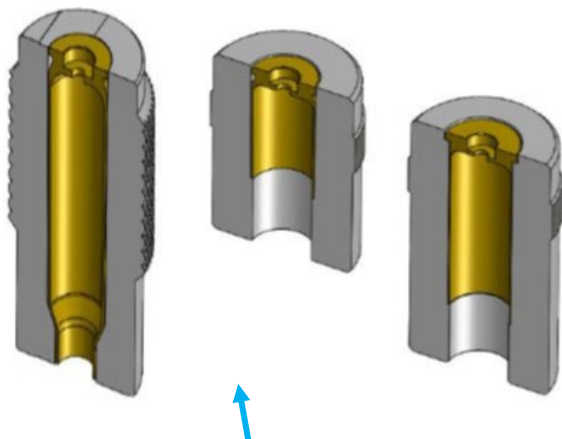


Examples of “stretched brass” --impending case separation

- Cartridge types head space differently. Rimless auto pistol cases headspace on the mouth of the case. Rimmed cases headspace on the rim. Bottleneck rimless cases headspace on a mid-point on the shoulder. Belted magnum cases headspace on the belt (some will also headspace on the shoulder).



- When a straight wall cartridge is fired, the case expands in diameter to take up all the available space in the chamber and seals in the propellant gases. When a bottleneck case is fired, the sides, neck and shoulder expand and the case stretches to take up all the available space in the chamber, again acting as a gas seal. After being fired the cartridge case “springs back” so the case can be extracted from the chamber. The case does not return to its original unfired dimensions. Therefore, the case must be sized. Sizing of the straight-walled rimmed or rimless case “squeezes” the case back to its original diameter so that it will fit in any firearm and hold a bullet. A bullet will fall through the mouth/neck of an un-sized case. In full-length sizing of the bottleneck cartridge, the case body is “squeezed” back to its original dimension, the case shoulder may also be pushed back, and the neck is reduced in diameter so that it will hold a bullet. Full-length sizing in general, allows the reloaded cartridge to be fired in any firearm of the appropriate caliber. Setting up the Sizing Die for a bottleneck case requires a higher level of precision than for straight-walled cases. Threading your Sizing Die down to the Shell Plate WILL NOT properly size bottleneck cartridges! It is imperative to have a Head Space Case Gauge for the cartridge you are reloading. A case gauge is roughly a “chamber” in a piece of steel with a high/low limit step at the base to check the headspace of your brass as well as a high/low limit step at the case mouth to determine the proper trim length—again, it is not a chamber gauge! Chamber gauges are sold by Dillon from EGWguns.com. See below.



Cross Section Typical Dillon Rifle, Rimless and Rimmed Pistol Headspace/Case Gauges



Typical EGW “Multi-Round” Chamber Checker

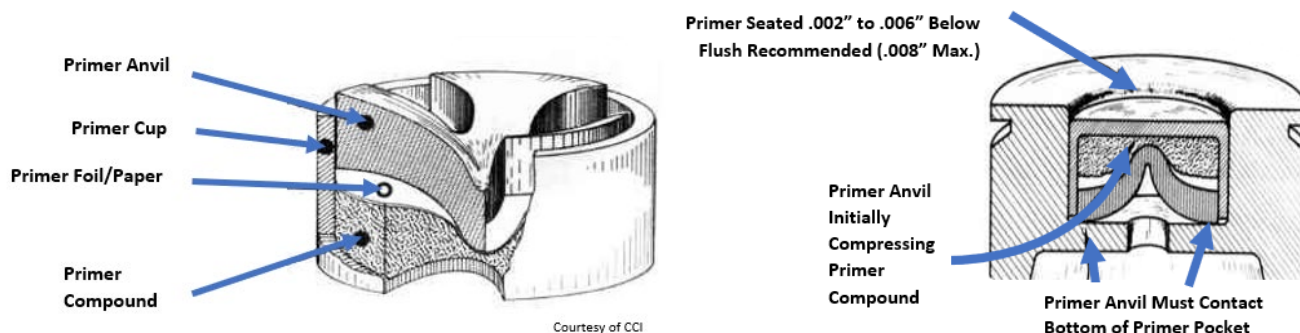
- Available Case Cages from Dillon (Note-- other calibers are available from Wilson in Dillon’s Blue Press.)

Caliber	P/N
.233 Remington	13254
.308 Winchester	12867
.30-06 Springfield	12679
.380 ACP	15160
9mm Parabellum	15161
.38 Super	15158
.38 Special	15159
.357 Magnum	15163
.40 S&W	15164
10mm	15162
.44 Magnum	15165
.45 ACP	15166
.45 Colt	15167
.45 GAP	12672

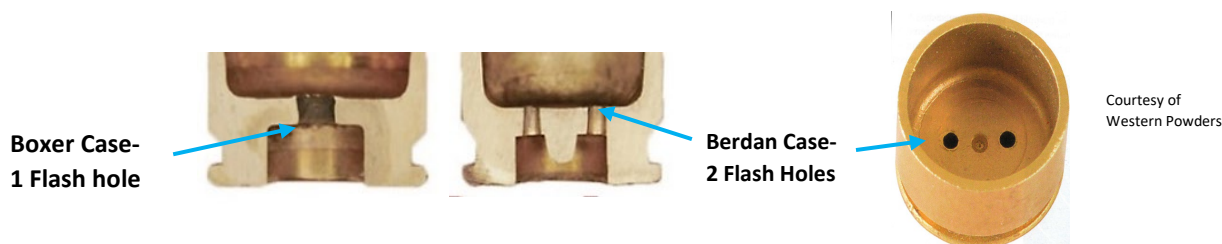


## 16.4 Primer Basics and Safety

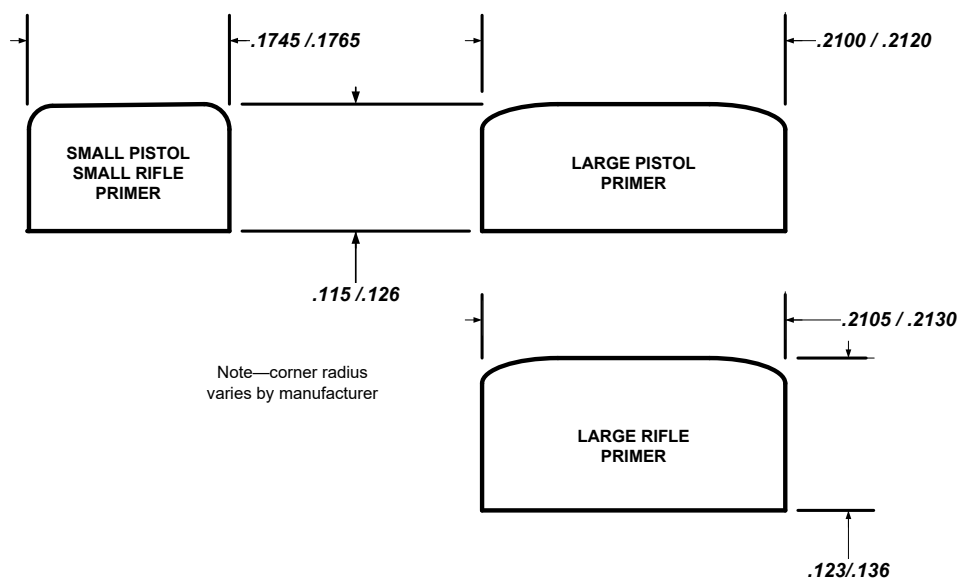
- DANGER!** Primers contain a small amount of a shock-sensitive chemical that explodes when struck by a firing pin or hammer which then sets off the powder/propellant and provides an initial pressure to assist the propellant to reach a self-sustaining burn. It is also part of the propellant gas sealing system. Primer elements are shown below. Primers must be installed/seated to a recommended .002" to .006" (.008" Max.) below flush so that the Anvil contacts the bottom of the primer pocket to provide reliable ignition.



- DANGER!** Primers can also detonate if accidentally crushed. Never force primers or subject them to excessive heat. If primers become stuck in the operation of the reloader, carefully disassemble the reloader 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 circumstance, insert any type of Rod into these tubes to push out stuck primers—PRIMERS CAN "CHAIN DETONATE." If a primer(s) is stuck in the magazine or pickup tubes flood the tube with penetrating oil/WD40, throw it away, and call Dillon for a free replacement. Never attempt to deprime a cartridge case with a live primer. Depriming a live primer is dangerous and can cause serious injury or death.
- CAUTION**—Primers can leave a residue of primer "dust" behind especially if using a vibratory auto primer loader. An accumulation of dust is a fire and an explosion hazard. Keep the loading area and equipment free of any accumulated primer "dust." Use alcohol and paper towels to remove this residue.
- WARNING!** —Using the right primer is a very important issue in the reloading process. Use the primer recommended in your reloading manual for that specific load.
- There are two basic types of cartridge cases and associated primers--Boxer and Berdan. The Boxer brass cartridge case and Boxer primers are what are reloadable and discussed here. **WARNING!** --Do not use Berdan cases. Berdan cases will destroy the depriming pin. Boxer primers will not seat properly in a Berdan primer pocket.



- There are four sizes of primers for Boxer Centerfire Cartridges:
  - Small Pistol
  - Large Pistol
  - Small Rifle
  - Large Rifle
  - There are also magnum, bench rest and military primers with the same dimensions.
  - WARNING!** Reloading manuals specifically define the primer used for the cartridge and the bullet being reloaded! Primers can dramatically affect the pressure, velocity and accuracy of the reloaded cartridge.
  - SAAMI Standard Dimensions for Primers:



- Examples of Primer Packaging:



## 16.5 Documentation

- It is important to keep records of the important parameters that were used in reloading the cartridge in a record book and labeling the cartridge storage container. A quantity of 100 "stick-on" labels with loading parameters is available from Dillon PN10446—see below. Recording additional data such as the Date and the Powder Lot number is also recommended.

Caliber _____	Case _____
Bullet Type _____	Bullet Weight _____
Powder Type _____	Powder Weight _____
Primer Type _____	
Seating Depth _____	Velocity (fps) _____
Rifle _____	Pistol _____
Comments _____	

**Dillon Precision**  
Products, Inc.

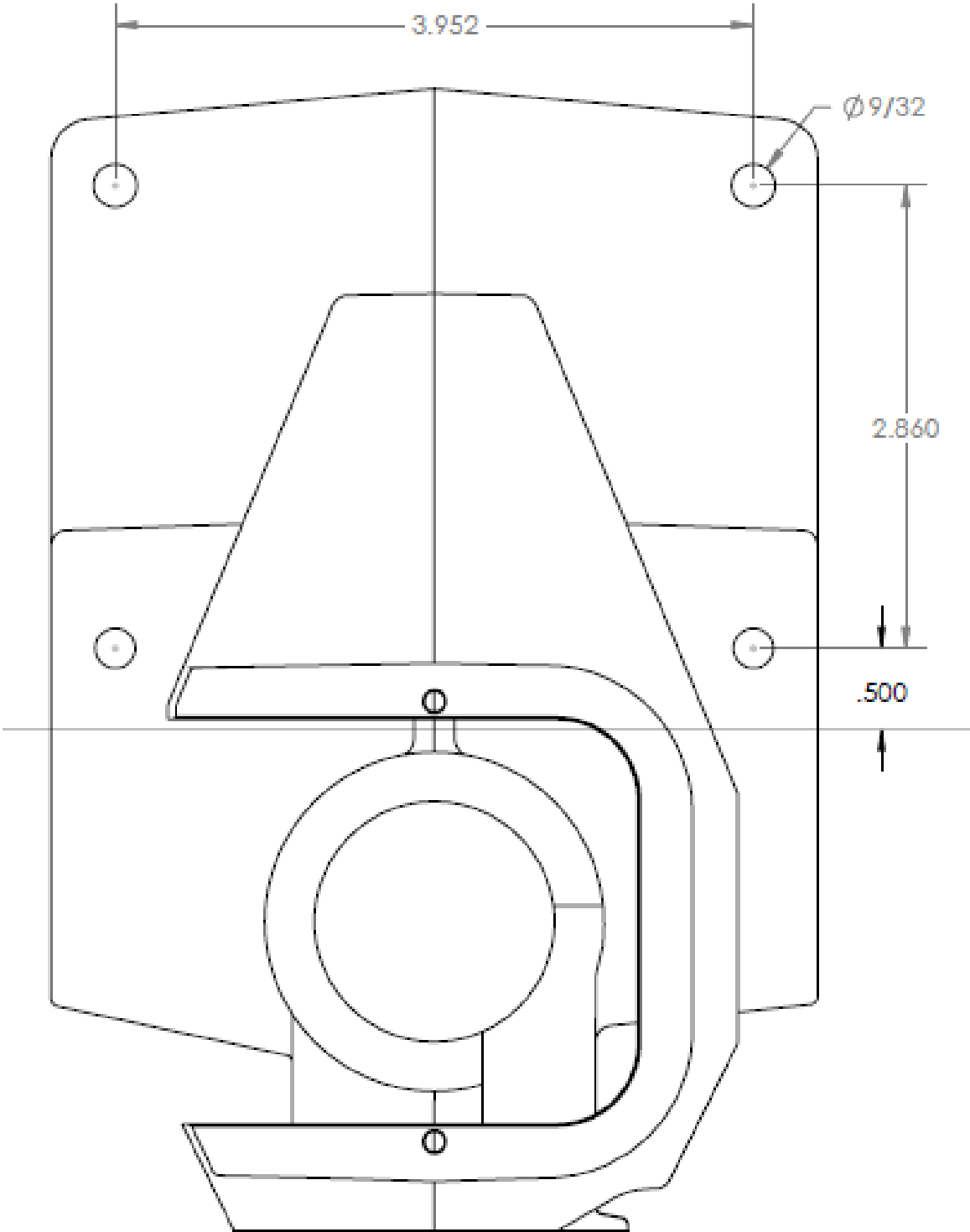
← Dillon Reloading  
Stick On Label

17 NOTES: \_\_\_\_\_

Lined area for notes, consisting of multiple horizontal lines.

[illegible]





**Dillon Precision Inc.**  
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**Scottsdale, AZ 85260**  
**480-948-8009 1-800-223-4570**  
**FAX 480-998-2786**  
**Website: [www.dillonprecision.com](http://www.dillonprecision.com)**  
**E-mail: [dillon@dillonprecision.com](mailto:dillon@dillonprecision.com)**