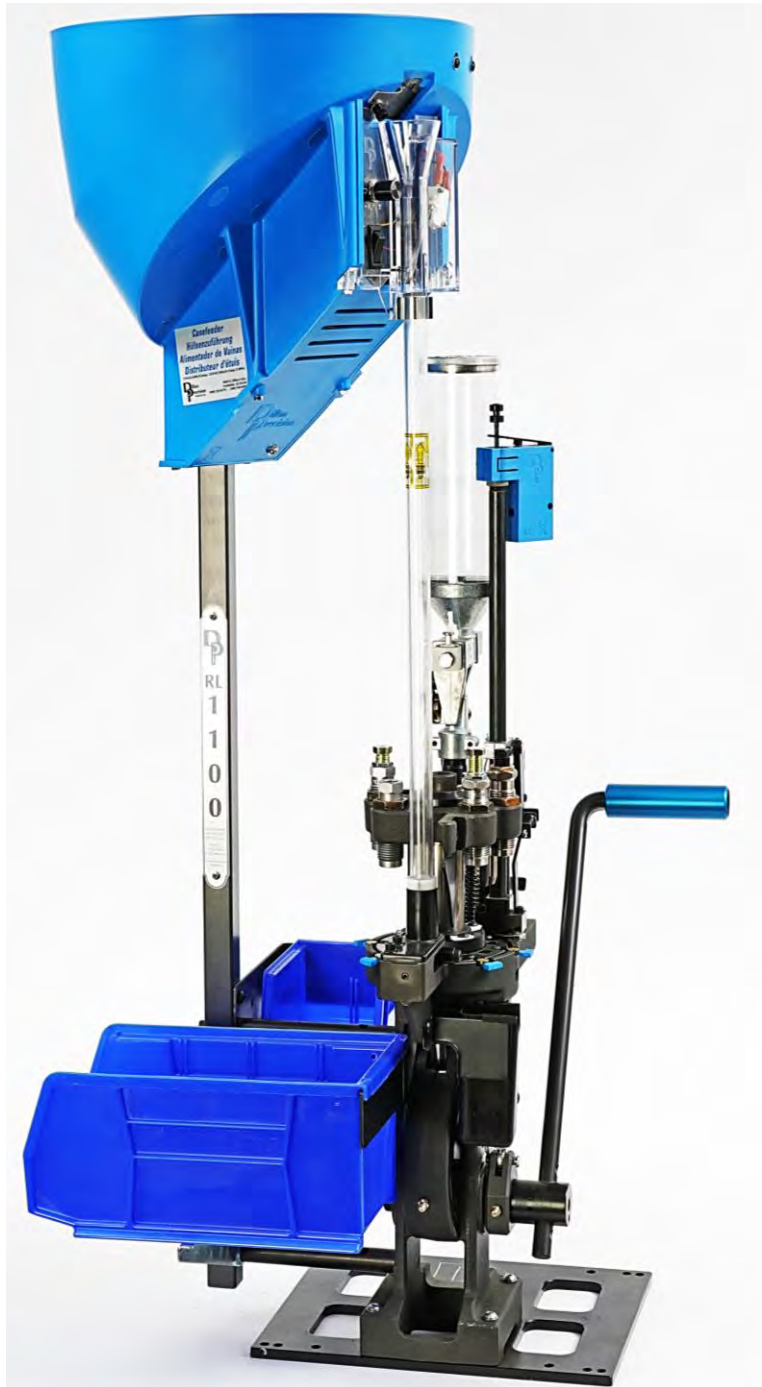


# RL1100™ Reloading System Assembly and User Instructions

Dillon Precision, Inc.

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Rev. 1 December 2019

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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 which, if not avoided, will result in death or serious injury

#### WARNING!

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

#### CAUTION!

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

### Dillon Contact Information

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800-223-4570

### Document Revisions

Date	Version Number	Document Changes
11-1--2019	0	INITIAL RELEASE
12-18-19	1	CORRECTIONS

# MANDATORY SAFETY PRECAUTIONS—MUST BE READ

1. **The Basic Risk of Reloading, and Overall RL1100 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 RL1100 with user safety in mind, doing everything Dillon Precision Inc. knows to make the use of the RL1100 as safe as possible.*
2. **Mandatory RL1100 User Safety Minimum Requirements:**
  1. *Dillon Precision Inc. cannot guarantee the complete safety of the reloader/user of the RL1100. In order 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 the 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 RL1100 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 different 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 primers get 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 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 PATIENCE 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. RL1100 LIMITED WARRANTY

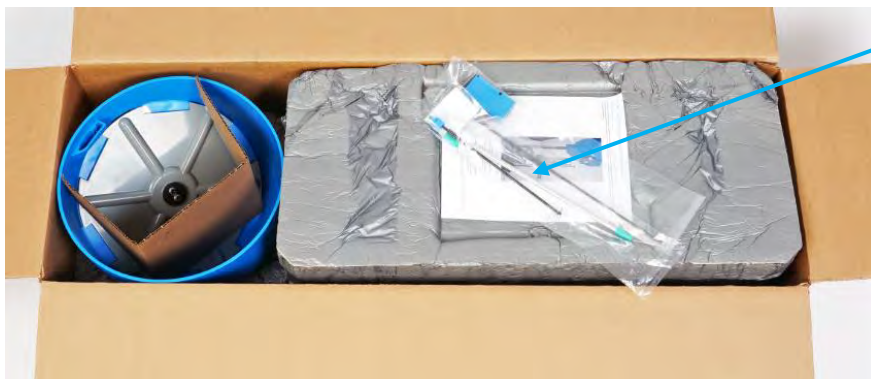
Dillon Precision warrants the RL1100 for two years from the date of shipment against defects in material and workmanship with the exception of the following which Dillon Precision Inc. warrants against defects in material and workmanship for one year from date of shipment:

- Dies and Die Parts,
- Shellplate,
- Casefeed Assembly, Casefeed Parts and Motor,
- Swage Rod and Backup Swage Rods,
- Index Pawl

Dillon Precision Inc. will either repair or replace any part(s) that prove defective. Repaired or replacement products/parts at Dillon's choice will be provided by Dillon Precision Inc. 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, insufficient or excessive electrical supply, 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) a motor is used to cycle the RL1100, (iv) the addition of any non-authorized equipment, or (v) is used in a commercial manufacturing operation. A part(s) replaced under warranty does not restart the warranty period.

### 4. RL1100 SHIPPING CONTENTS:

4.1 Remove the following items from the top protective foam layer of the RL1100 shipping box.



Accessory Plastic Bag with:

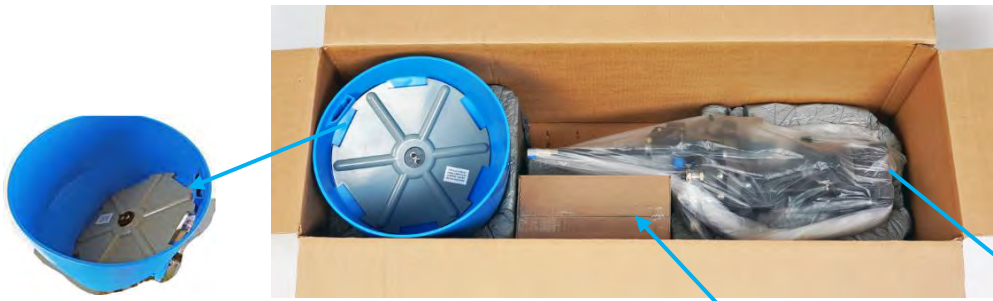
- Primer Early Warning System
- Primer Early Warning Follower Rod
- RL1100 Manual
- Primer Pickup Tube

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



- Die Storage Box--Dies installed on RL1100 Note: (Six Alignment Buttons and Tabs inside)
- Operating Handle
- Casefeed Mounting Post
- Casefeed Tube
- Dillon Powder Measure

**4.3 Remove the Casefeed Bowl with Casefeed Plate, RL1100 Accessory Box and the RL1100.**



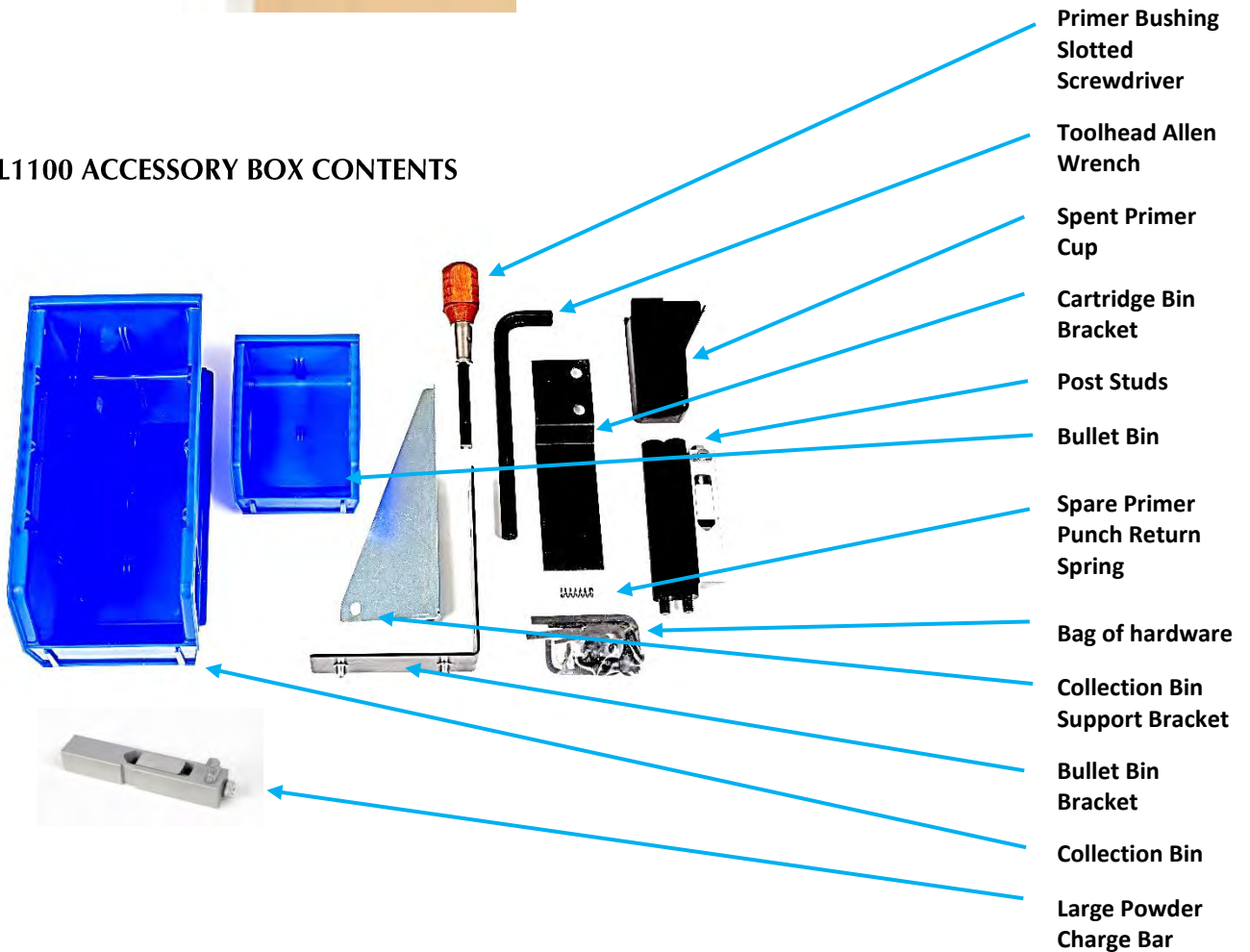
**RL1100 Accessory Box**



**4.4 Remove the Variable speed Casefeed Power Supply Box:**



**4.5 RL1100 ACCESSORY BOX CONTENTS**



**Primer Bushing  
Slotted  
Screwdriver**

**Toolhead Allen  
Wrench**

**Spent Primer  
Cup**

**Cartridge Bin  
Bracket**

**Post Studs**

**Bullet Bin**

**Spare Primer  
Punch Return  
Spring**

**Bag of hardware**

**Collection Bin  
Support Bracket**

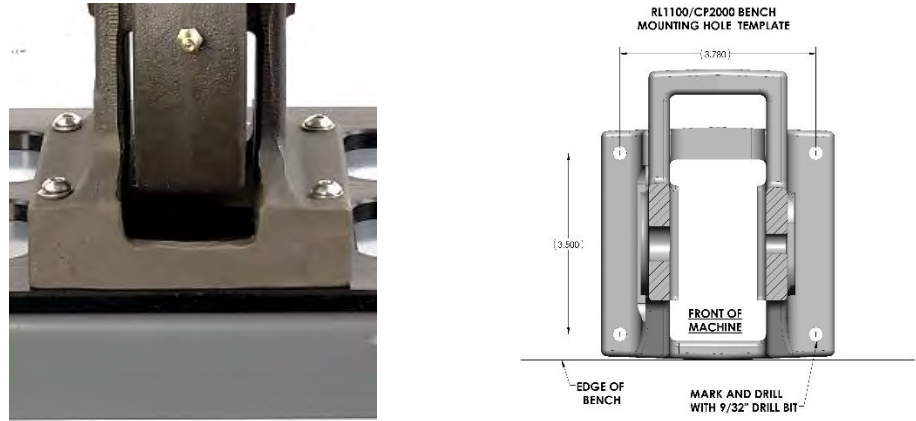
**Bullet Bin  
Bracket**

**Collection Bin**

**Large Powder  
Charge Bar**

## 5 RL1100 ASSEMBLY GUIDE

- 5.1 Mounting the RL1100--Select a clear area on your reloading bench. Be certain your bench is strong enough to support the weight and the force required to operate the RL1100. If possible, attach your bench to the wall. Remove the RL1100 Reloader from the packaging and place it on your selected area.
- 5.2 Bring the RL1100 to the forward edge of your bench. Allow clearance for the Operating Handle in the down position. Mark the four mounting holes using the RL1100 as a template or use the Mounting Hole Template on page 87 of this manual. Remove the RL1100 and drill four 9/32" holes through the bench. Replace the RL1100 and bolt it securely to your bench with 1/4" grade 5 hardware.

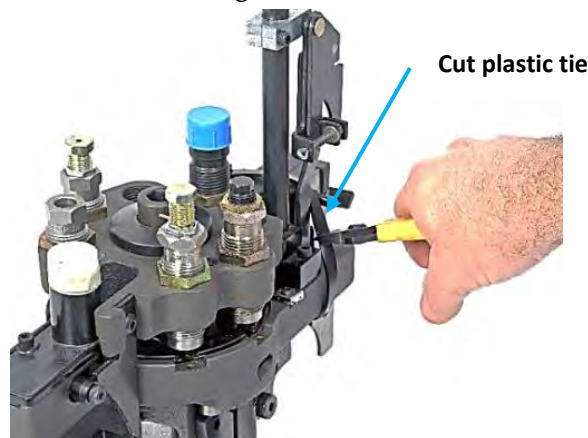


- 5.3 Install the Operating Handle to the right as pictured below. There are three different positions for mounting the Operating Handle. Choose the one that feels best--the longer the Operating Handle the less force required for sizing. Secure the Operating Handle in place with the Operating Handle Set Screw provided.

Secure Handle  
with Set Screw

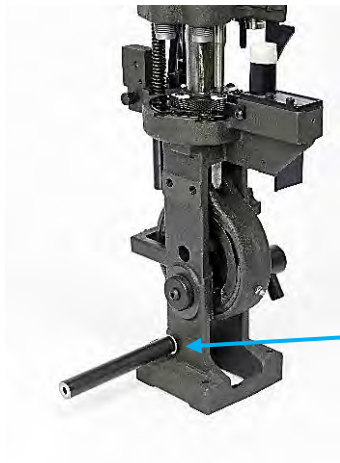


- 5.4 The Toolhead is held down to the Main Frame for shipping by a plastic tie. The Toolhead is spring-loaded upwards. Remove the tie while holding the Handle so it doesn't "spring up."

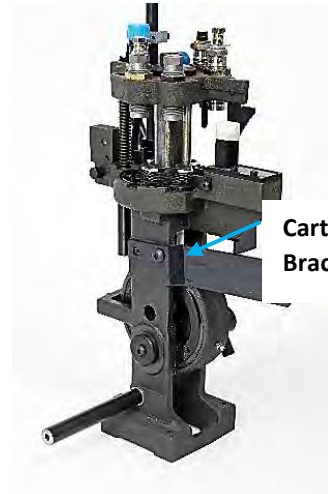


- 5.5 Verify that the Operating Handle is moving freely up and down. Inspect for shipping damage if the Operating Handle is not moving freely.

**5.6 Screw Lower Post Stud and a 5/16" Washer to Lower Mounting Hole in Frame. Screw Cartridge Bin Bracket to RL1100 Frame with 3/8" Bin Bracket Mounting Screw Refer to "Exploded Assembly Drawings" in Section 12 or page 10.**



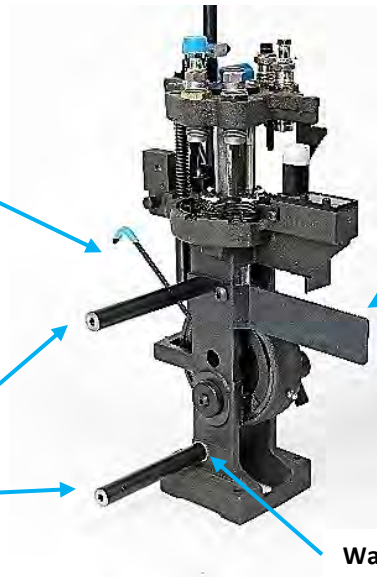
Post Stud and Washer



Cartridge Bin Bracket

**5.7 Screw Upper Post Stud through Bin Bracket into RL1100 Frame. Screw Lower Post Stud with a 5/16" Washer to Lower Mounting hole in Frame.**

Use an Allen wrench in through hole in Post Studs to tighten Stud

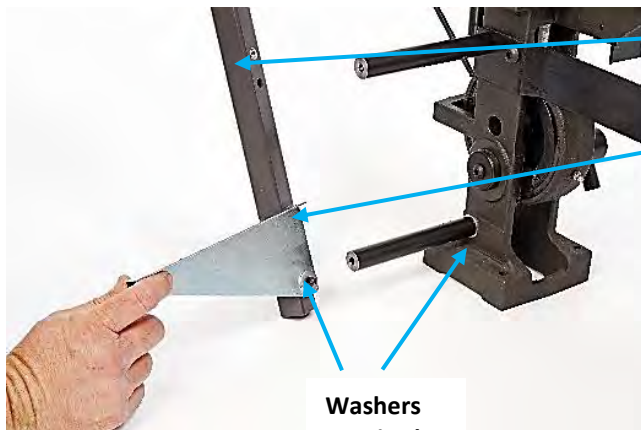


Cartridge Bin Bracket

Post Studs

Washer

**5.8 Screw the 1050 Bin Support Bracket and the Casefeed Mounting Post together with the first 5/16" Socket Head Screw.**



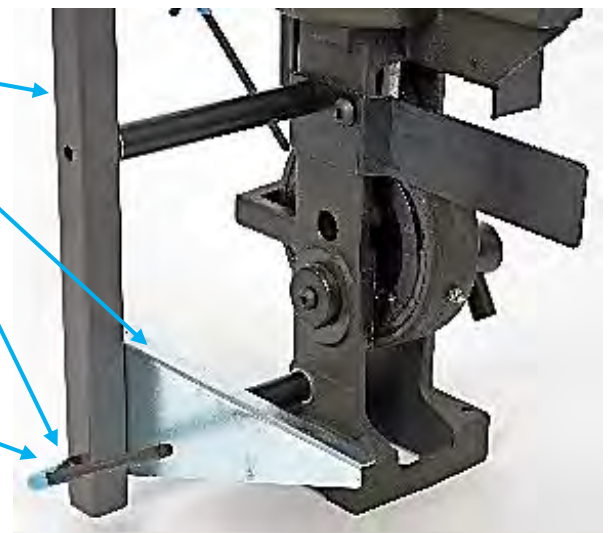
Washers required here

Casefeed Mounting Post

Bin Support Bracket

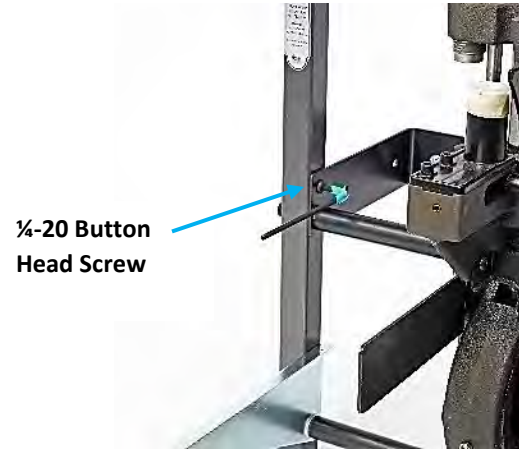
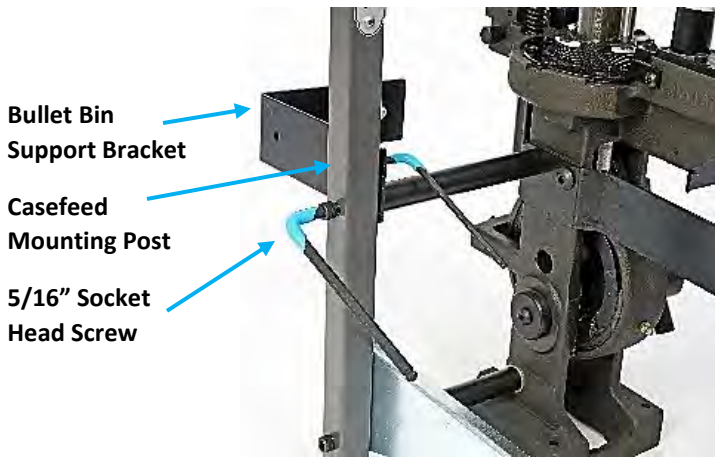
5/16" Socket Head Screw

Provided Cord clamp can be installed here

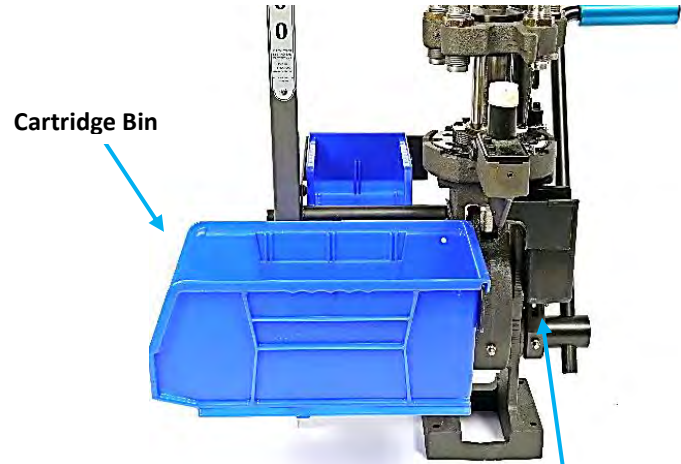
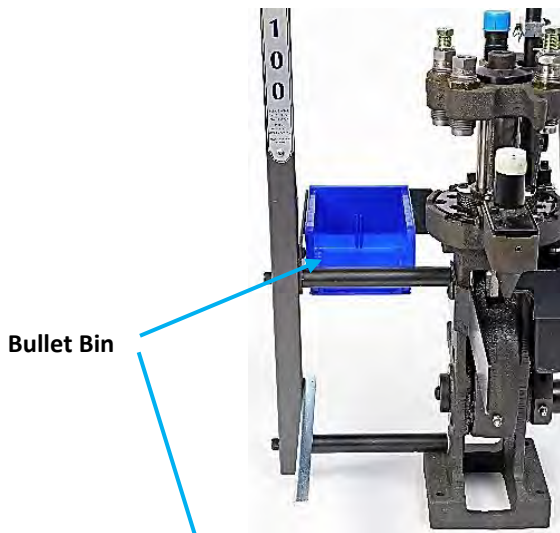




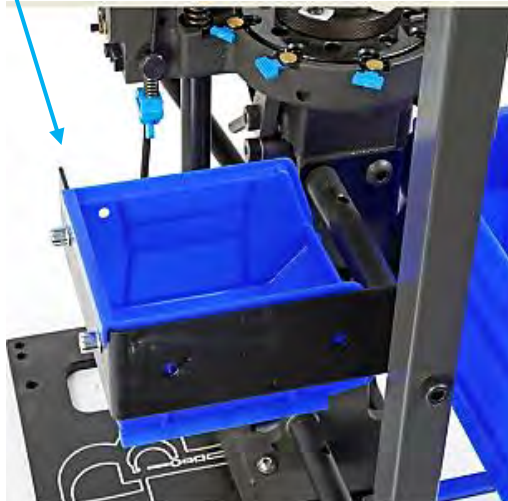
**5.9 Screw Casefeed Mounting Post and the Bullet Bin Bracket to the Upper Post Stud using second 5/16" Socket Head Screw and the 1/4-20 Button Head Screw. Tighten all Screws.**



**5.10 Install Bullet Bin, Cartridge Bin and Spent Primer Cup as shown.**

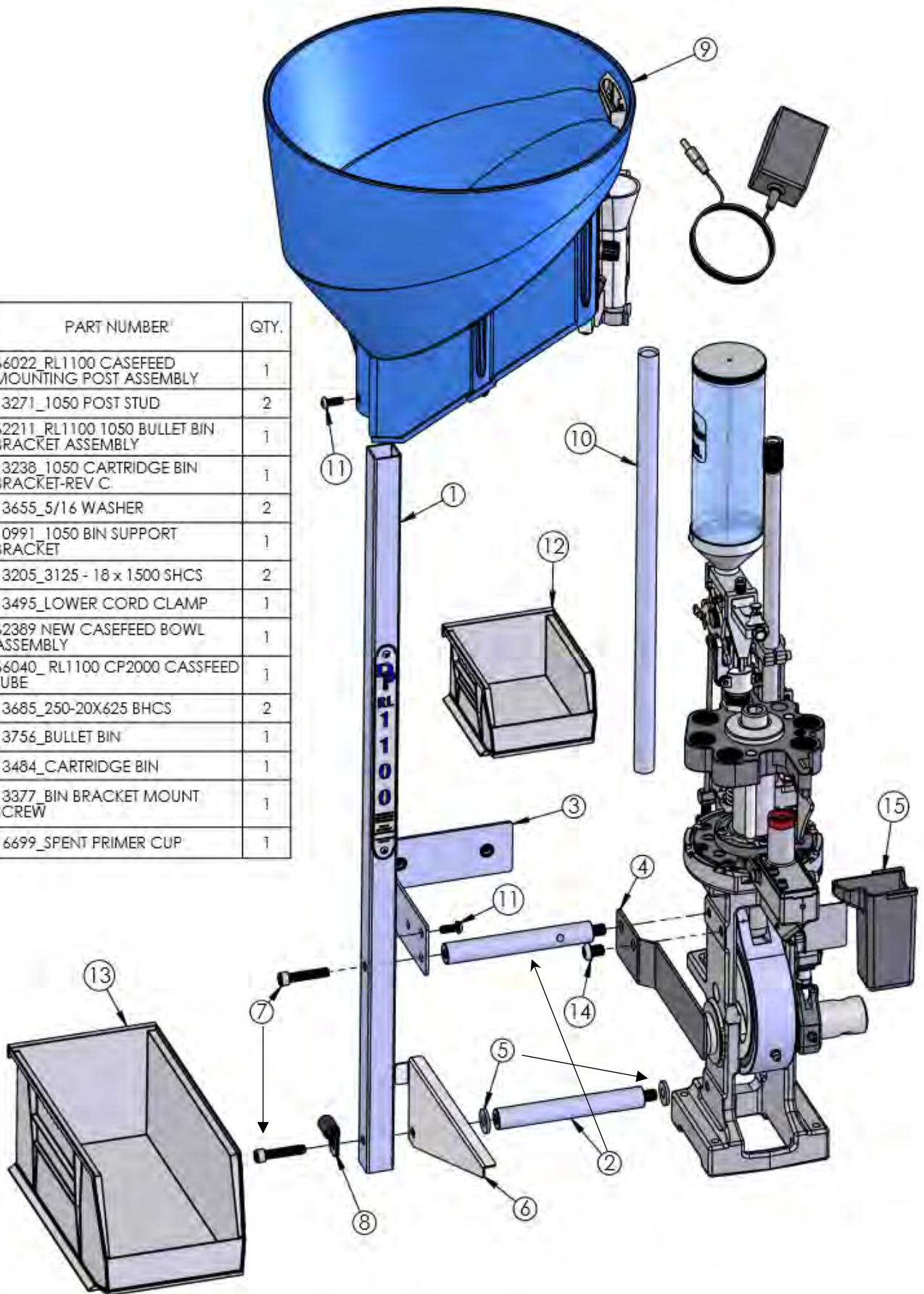


Spent Primer Cup—Slides onto Bracket



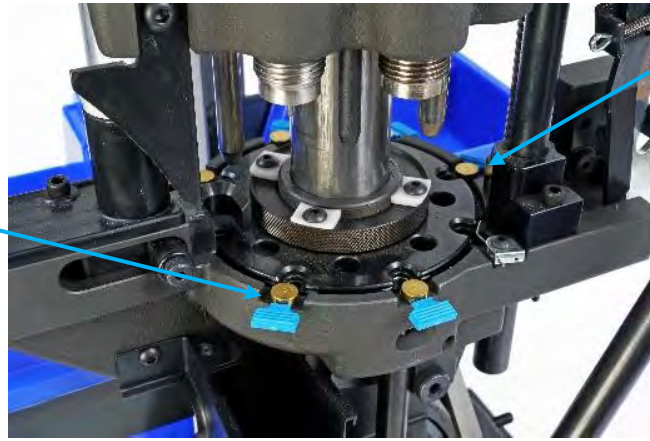
### 5.11 Reference Assembly Diagram

ITEM NO.	PART NUMBER*	QTY.
1	66022_RL1100 CASEFEED MOUNTING POST ASSEMBLY	1
2	13271_1050 POST STUD	2
3	62211_RL1100 1050 BULLET BIN BRACKET ASSEMBLY	1
4	13238_1050 CARTRIDGE BIN BRACKET-REV C	1
5	13655_5/16 WASHER	2
6	10991_1050 BIN SUPPORT BRACKET	1
7	13205_3125 - 18 x 1500 SHCS	2
8	13495_LOWER CORD CLAMP	1
9	62389_NEW CASEFEED BOWL ASSEMBLY	1
10	66040_RL1100 CP2000 CASSFEED TUBE	1
11	13685_250-20X625 BHCS	2
12	13756_BULLET BIN	1
13	13484_CARTRIDGE BIN	1
14	13377_BIN BRACKET MOUNT SCREW	1
15	16699_SPENT PRIMER CUP	1



**5.12 Install the Six Brass Locator Buttons and Tabs around the Shellplate.**

Six Buttons  
with Tabs



Small Blue Tab  
goes here—  
Station 5

**5.13 Install the 1/4-20 Screw into the side of the Casefeed Bowl. Slide the Casefeed Bowl over the Casefeed Mounting Post Assembly and gently tighten the 1/4-20 Screw securing the Casefeed Bowl to the Casefeed Mounting Post Assembly.**



Install 1/4-20 Screw



Tighten 1/4-20 Screw



**5.14 Place the Casefeed Tube into the Casefeed Adapter then snap the Casefeed Tube into the Spring Clamp on the bottom of the Casefeed Funnel. The inside chamfered end of the Casefeed Tube must be installed up with the Dillon decal lettering facing up.**



**Casefeed Tube—insert into Casefeed Adapter and snap into top Casefeed Funnel Spring Clamp**

**5.15 The new Variable Speed Casefeeder utilizes a Universal Power Supply that works on 110-240V AC 50/60 Hz and comes with several Wall Socket Adaptors. Choose the Adaptor for the utility power in your area. Install the Adaptor into the Power Supply, by inserting the side with the raised edge opposite the sliding latch and press into the pocket until the latch locks in place (120V AC Adaptor pictured).**

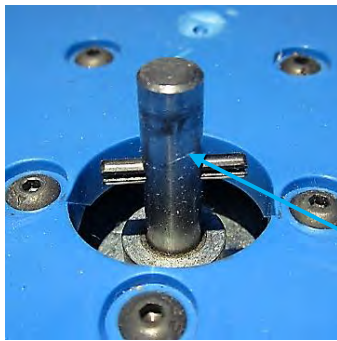


**5.16 Connect the Power Supply Cord into the Casefeeder by pushing the small Barrel Plug Adaptor into the Socket on the bottom face of the Casefeeder. Now plug in the Power Supply into an AC wall socket.**



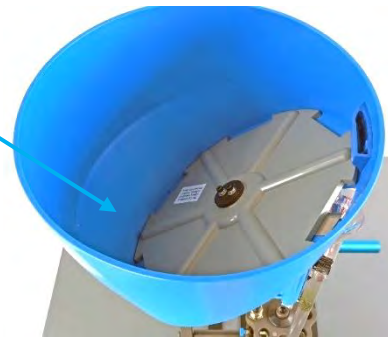
**Plug Adapter into Socket**

**5.17 Place Casefeed Plate into Casefeed Bowl and rotate back and forth to engage Casefeed Plate Drive "Tee."**



Casefeed Plate engages Plate Drive "Tee"—sits flush on bottom of Bowl

Casefeed Plate Drive "Tee"

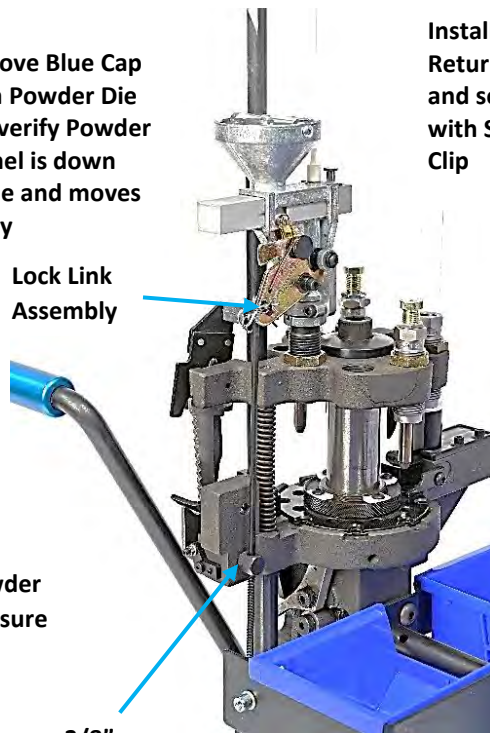


**5.18 Installing The Powder Measure**

**5.18.1** Remove the Blue Cap from the top of the Powder Die. Verify the Rifle Powder Funnel or the Pistol Powder Activator is inside the Powder Die. Place the Powder Measure on the Powder Die and lightly clamp the Powder Measure to the Powder Funnel with the two Powder Measure Clamp Screws. Install the Powder Measure Return Rod through the 3/8" Eyebolt mounted on the left rear of the Main Frame. Attach the Rod to the Powder Measure through the slot and hole in the Powder Measure Lock Link Assembly and secure with the Spring Clip. Install the Spring and Wing Nut on the Rod and screw the Wing Nut up leaving a .030" gap between coils with the Operating Handle all the way up. Lightly tighten the two Powder Measure Clamp Screws.



Remove Blue Cap from Powder Die and verify Powder Funnel is down inside and moves freely

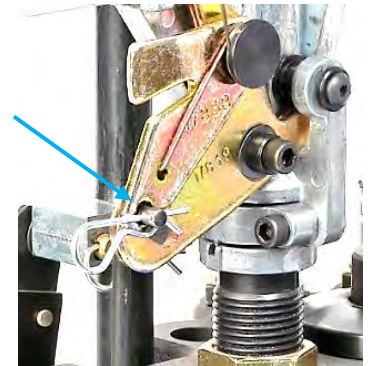


Lock Link Assembly

3/8" Eyebolt

Powder Measure

Install Return Rod and secure with Spring Clip

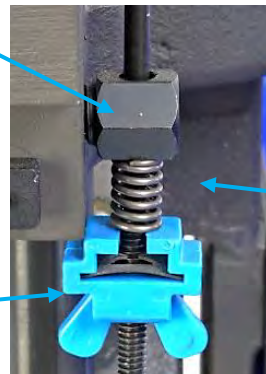


Place Powder Measure on the Powder Die and Lightly tighten both Powder Measure Clamp Screws



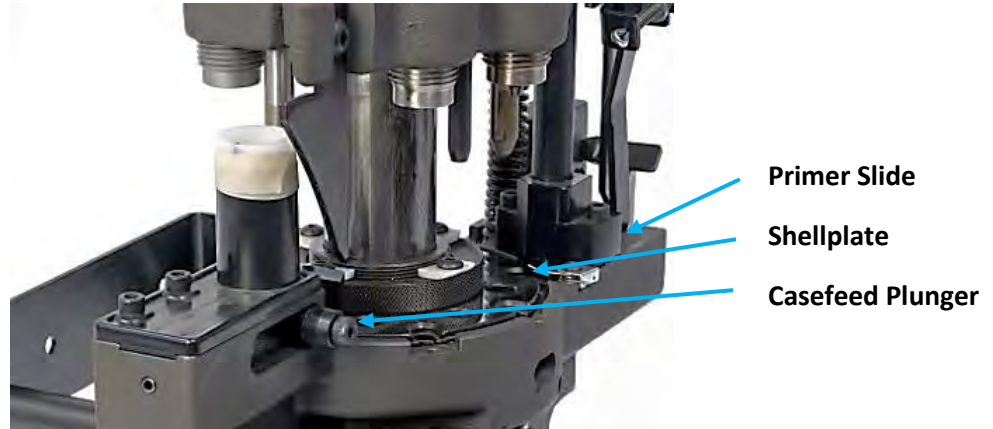
Powder Die

Wing Nut



Adjust Wing Nut on the Return Rod to leave .030" gap between Spring coils with the Operating Handle at the top of its travel with the Spring compressed

5.19 Your assembly is complete. Gently pull the Operating Handle towards you and make a full stroke all the way down and up again. The Shellplate should index counter-clockwise and the Primer Slide should move forward and back. The Casefeed Plunger should travel forward to the Shellplate and back.



5.20 Activate the Casefeed Motor Switch. The Casefeed Plate should turn smoothly within the Casefeed Bowl. Tie-wrap the Casefeed Cord to the Casefeed Mounting Post Assembly.

## 6 THE RL1100 EIGHT RELOADING STATIONS AND CONFIGURATION

STATION 1--INSERT CASE INTO SHELLPLATE

STATION 2--SIZE-DEPRIME CASE

STATION 3--SWAGE PRIMER POCKET/EXPAND NECK

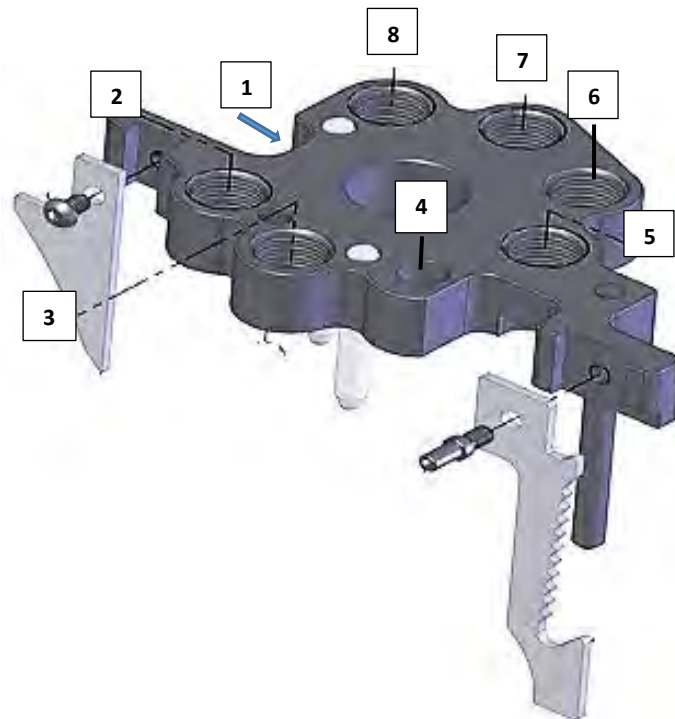
STATION 4--FEED AND SEAT PRIMER

STATION 5--DISPENSE POWDER, BELL PISTOL CASE MOUTH

STATION 6--EMPTY—OPTIONAL POWDER CHECK OR BULLET FEEDER

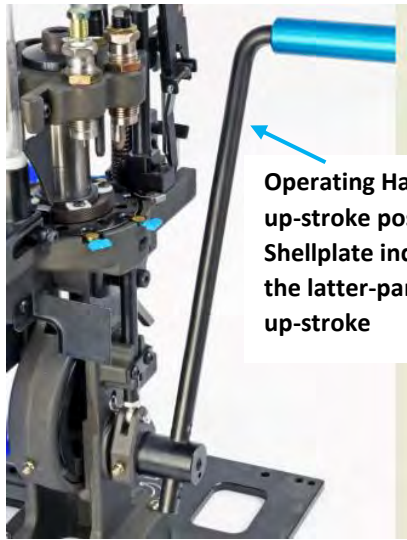
STATION 7--PLACE AND SEAT BULLET

STATION 8--CRIMP BULLET/EJECT COMPLETED RELOAD

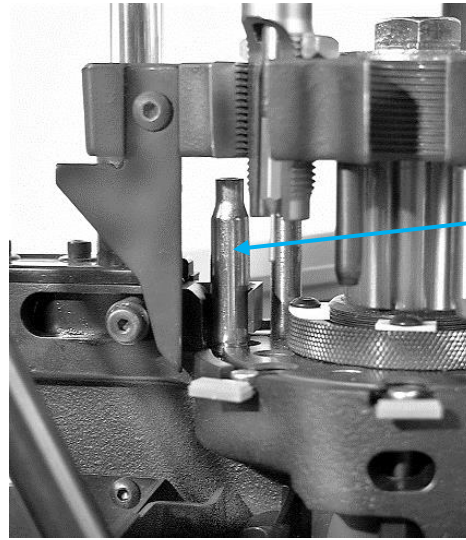


### 6.1 Station 1--Pickup Case and Insert into Shellplate

- On the down-stroke of the Operating Handle, the Casefeed Plunger picks up a case from the Casefeed Tube.
- On the up-stroke, the case is moved forward by the Casefeed Plunger and inserted into the Shellplate and the Shellplate indexes counterclockwise on the latter-part of the up-stroke.



Operating Handle at up-stroke position— Shellplate indexes on the latter-part of the up-stroke

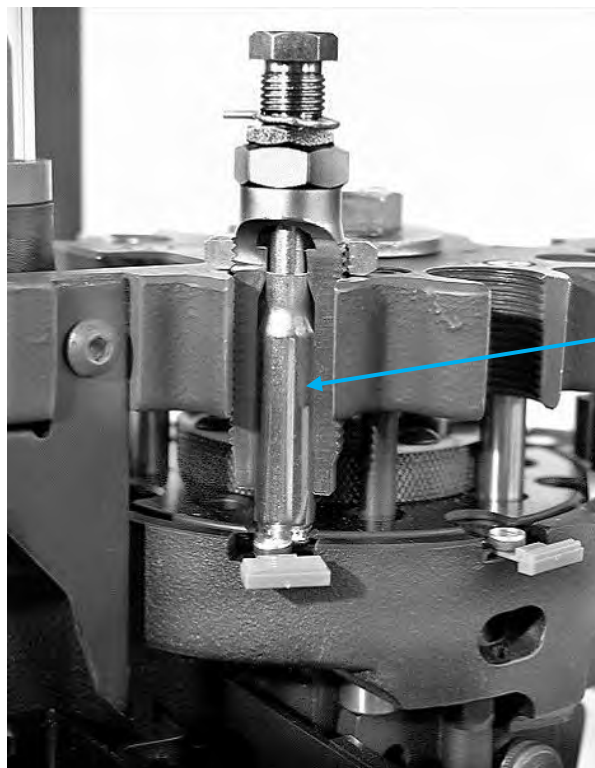


Case picked up and inserted into Shellplate by Casefeed Plunger on the first part of the up-stroke

Station 1

### 6.2 Station 2--De-prime and Size

- On the down-stroke of the Operating Handle, the case is de-primed and sized.
- On the up-stroke, cases are indexed to the Station 3.

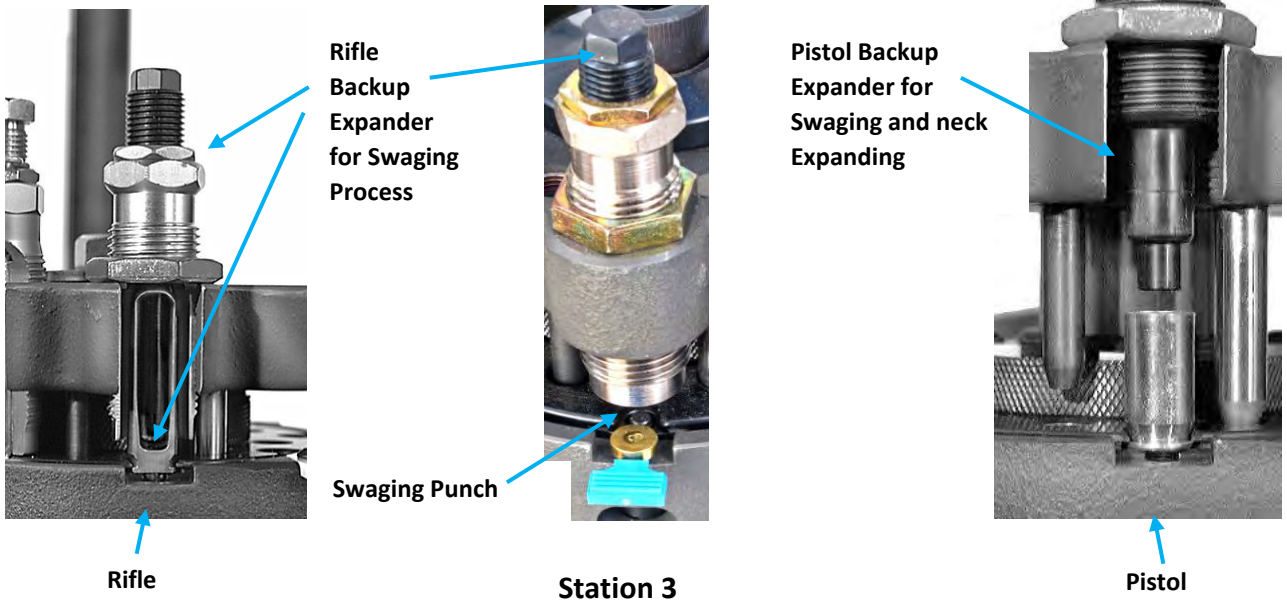


Case Deprimed and Sized

Station 2

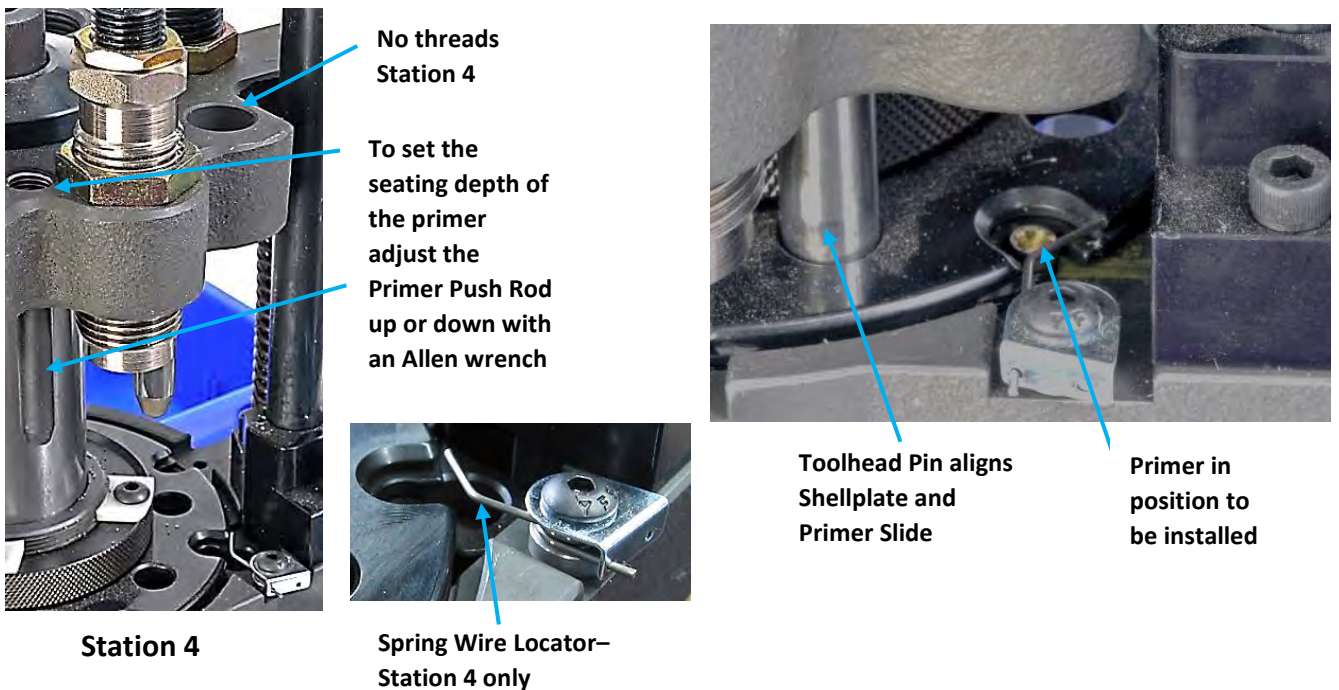
### 6.3 Station 3--Swage Primer Pocket and Expand Case Mouth

- On the down-stroke, the case mouth is expanded. The Back-Up Expander "Rod" inside the case simultaneously touches/supports the case base as the primer pocket is swaged (military crimp removed). Note the difference between the Rifle and Pistol components.



### 6.4 Station 4--Priming (No threads in Toolhead Station #4)

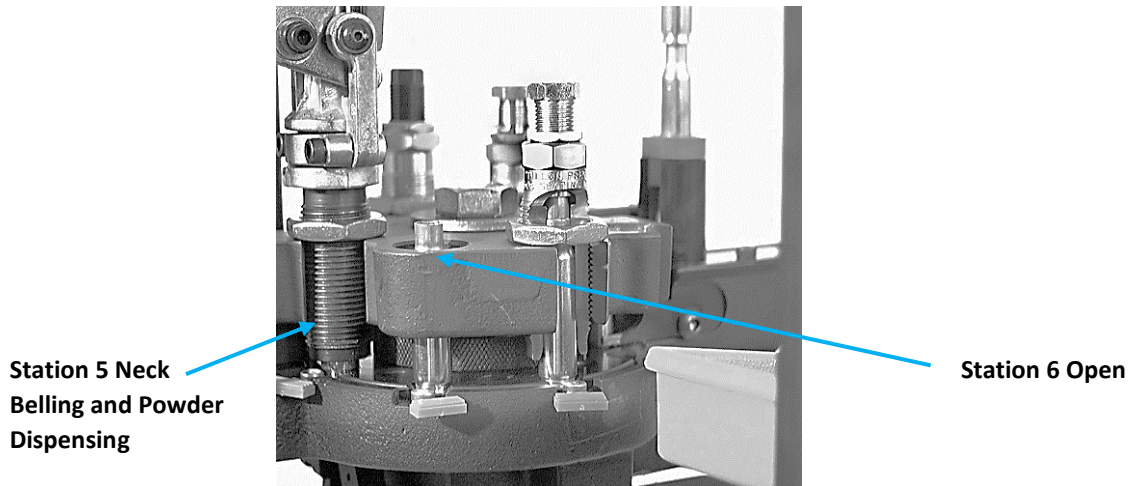
- The up-stroke indexes cases to Station 4 as the Primer Slide moves to the rear and picks up a new primer from the Primer Magazine.
- In the first part of the down-stroke, the primer slide transfers the primer to the priming station.
- During the last part of the down-stroke, the primer is seated in the case.
- Note: Seating depth is precisely adjustable as is primer pickup with the Primer Slide Adjustable Stop. Primer to Shellplate priming positioning is fixed and designed for perfect alignment every time by the Toolhead Alignment Pin that aligns the Shellplate and Primer Slide on the down-stroke. The Spring-Loaded Wire Retainer keeps the case more carefully aligned in the Shellplate and provides for easy case removal and installation.





### 6.5 Station 5--Bell The Case Mouth And Dispense Powder

- On the down-stroke, the case mouth is belled (pistol only) and powder dispensed. The Powder Measure is only activated and powder dispensed when a case is in Station 5.



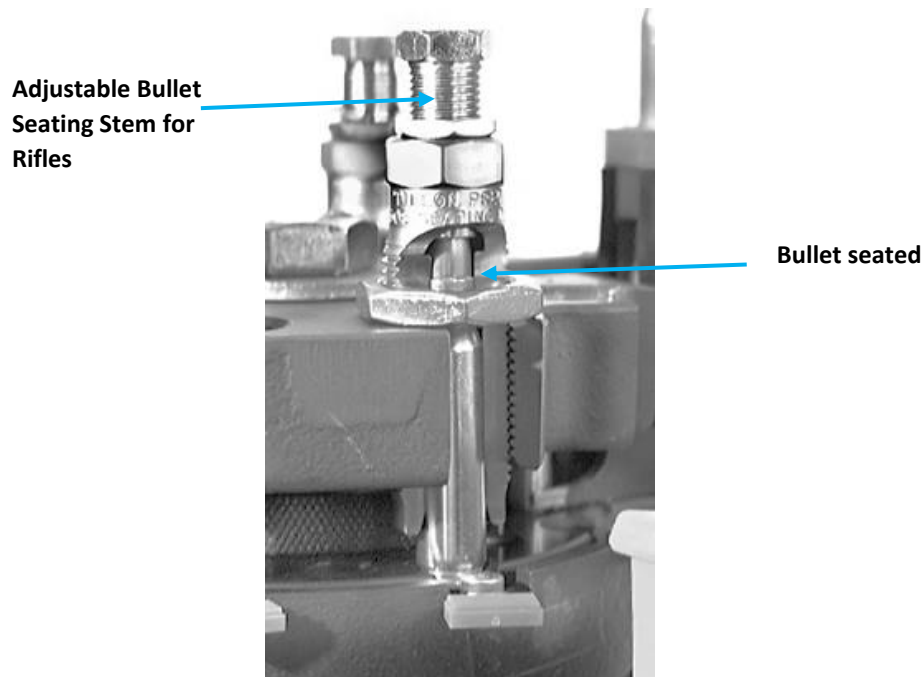
Station 5 and Station 6

### 6.6 Station 6--Open

- Station 6 is open on the RL1100 for the optional usage of either the Dillon Powder Check or a Bullet Feeder.

### 6.7 Station 7--Seat Bullet

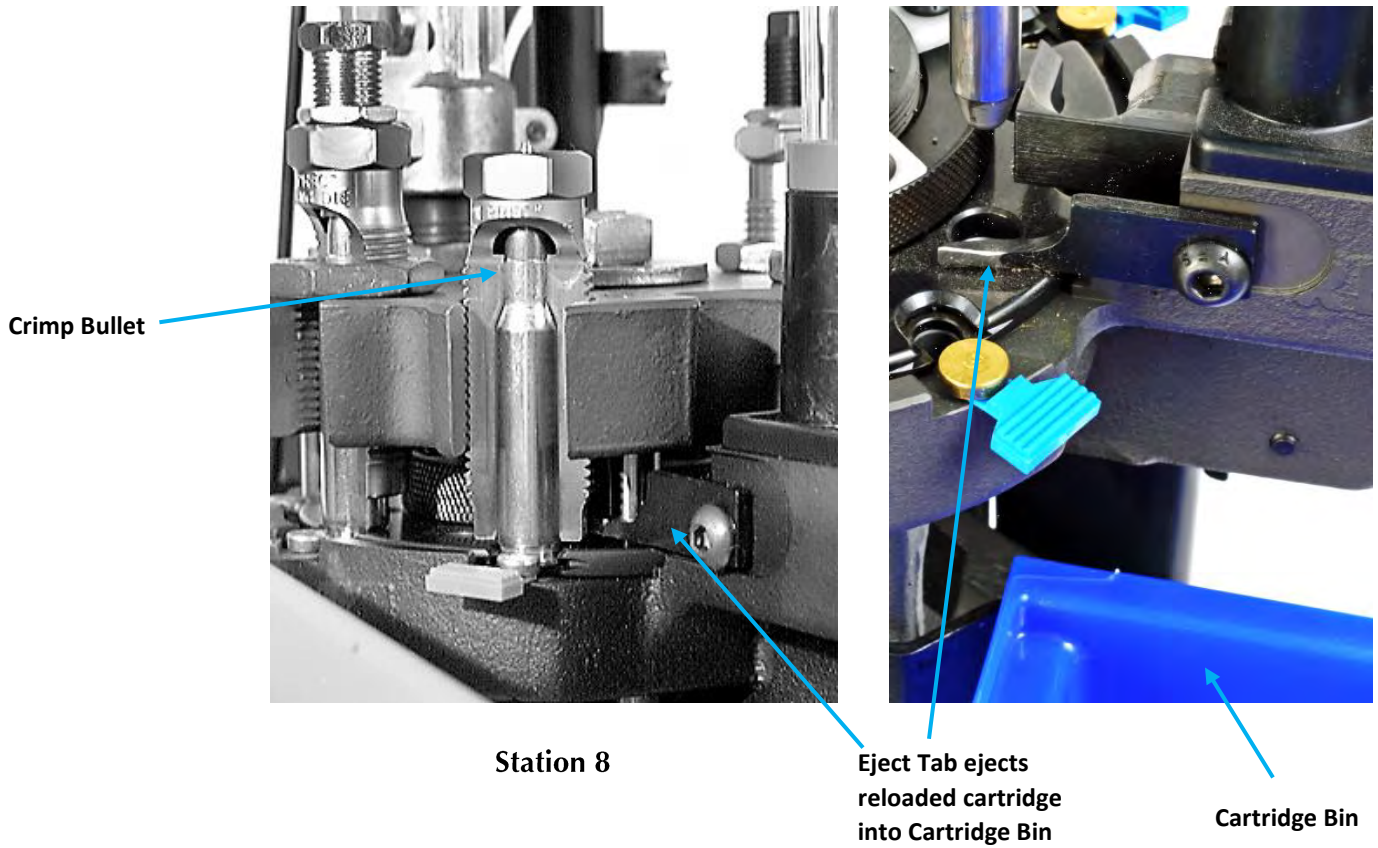
- A bullet is placed "by-hand" into the case in Station 7 with the Handle up.
- On the down-stroke, the bullet is seated.



Station 7

### 6.8 Station 8--Crimp Bullet

- The bullet is crimped on the down-stroke.
- The cartridge is ejected on the up-stroke by the Eject Tab into the Cartridge Bin.

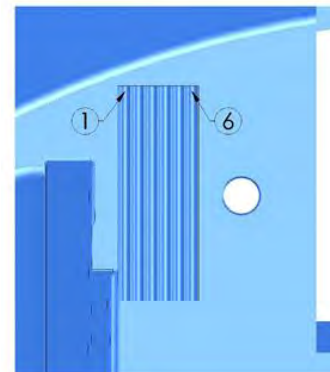


**7 SETUP PROCEDURES FOR RL1100—WARNING! DUE TO VARIATIONS IN COMPONENTS, CHECK ALL STATIONS FOR PROPER ADJUSTMENTS FOR THE CARTRIDGE BEING LOADED. IT IS ESSENTIAL THAT YOU READ THESE INSTRUCTIONS. IF THERE IS SOMETHING YOU DO NOT UNDERSTAND, CALL (800) 223-4570 FOR TECHNICAL ASSISTANCE. THE DIES IN THE RL1100 HAVE BEEN ADJUSTED AT THE FACTORY. ADJUSTMENTS MAY BE REQUIRED DUE TO DIFFERENCES IN BULLETS AND BRASS USED.**

**7.1 Casefeeder Adjustment**

**Casefeed Plate Selection, Casefeed Window Cuff Position and Case Deflector Block Adjustment Chart**

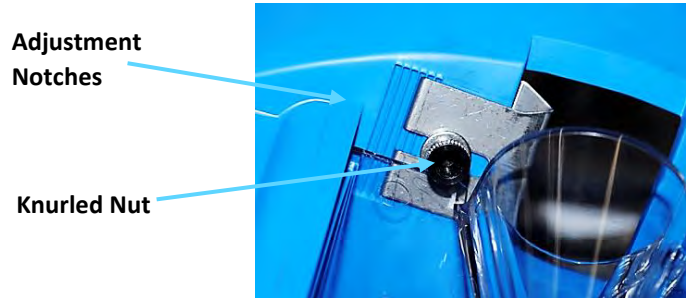
The chart below outlines the recommended Casefeed Plate and starting positions for the Casefeed Window opening position and Case Deflector Block position. Adjustment to the window position and Case Deflector may be necessary dependent upon the variation of your setup. The illustration at right shows the Casefeed Window opening positions from 1 to 6 as listed below. Start with the Variable Speed Control Knob at its mid position and adjust up or down to match the RL1100 cycle rate.



CALIBER	CASEFEED PLATE	WINDOW POSITION	DEFLECTOR POSITION	CALIBER	CASEFEED PLATE	WINDOW POSITION	DEFLECTOR POSITION	CALIBER	CASEFEED PLATE	WINDOW POSITION	DEFLECTOR POSITION
.30 Luger, .30 Mauser	SMALL PISTOL	#3	DOWN	.22 Remington Jet	LARGE PISTOL	#3	DOWN	7.62x54	LARGE RIFLE	#1	UP
.32 ACP, 7.65MM	SMALL PISTOL	#3	DOWN	.218 Bee	LARGE PISTOL	#3	DOWN	.30 AR	LARGE RIFLE	#6	DOWN
.32 Short Colt	SMALL PISTOL	#3	DOWN	.220 Swift	LARGE RIFLE	#3	DOWN	.30M1 Carbine	SMALL RIFLE	#6	DOWN
.32 S&W	SMALL PISTOL	#3	DOWN	.222 Remington Magnum	SMALL RIFLE	#3	DOWN	.300 Blackout	SMALL RIFLE	#6	DOWN
.32 H&R Magnum	SMALL PISTOL	#3	DOWN	.22-250	LARGE RIFLE	#3	DOWN	.300 Wby./Win. Mag.	MAGNUM RIFLE	#1	UP
.327 Federal Magnum	SMALL PISTOL	#3	DOWN	.25-20 Winchester	SMALL PISTOL	#3	DOWN	.300 WSM/RSaum	MAGNUM RIFLE	#3	UP
7mm TCU	SMALL PISTOL	#3	DOWN	.223 Win./5.56x45mm	SMALL RIFLE	#3	DOWN	.300 Rem. Ultra Mag.	MAGNUM RIFLE	#1	UP
9mm, 9x21, .38 Super	SMALL PISTOL	#3	DOWN	.223 WSSM	LARGE RIFLE	#3	DOWN	.300H&H/.308 Norma Mag.	MAGNUM RIFLE	#1	UP
9x18 Makarov	SMALL PISTOL	#3	DOWN	.224 Wby. Mag.	SMALL RIFLE	#3	DOWN	.32-20 Winchester	SMALL PISTOL	#3	DOWN
9x25 Dillon	SMALL PISTOL	#3	DOWN	.243 Win./6mm Rem.	LARGE RIFLE	#3	DOWN	.303 British	LARGE RIFLE	#1	UP
.380 ACP	SMALL PISTOL	#3	DOWN	.243 WSSM	LARGE RIFLE	#4	DOWN	.30-30 Winchester	LARGE RIFLE	#1	UP
.38 Super Comp	SMALL PISTOL	#3	DOWN	.25-06, .257 Roberts	LARGE RIFLE	#3	DOWN	.308 Marlin Express	LARGE RIFLE	#1	UP
.38 Special,	LARGE PISTOL	#3	DOWN	.25 WSSM	LARGE RIFLE	#4	DOWN	.308 Win.	LARGE RIFLE	#1	UP
.357 Magnum	LARGE PISTOL*	#3	DOWN	.256 Win. Mag.	LARGE PISTOL	#3	DOWN	.30-06	LARGE RIFLE	#1	UP
.357 SIG	LARGE PISTOL	#3	DOWN	.257 Ack. Imp.	LARGE RIFLE	#3	DOWN	.30 T/C	LARGE RIFLE	#1	UP
10mm	LARGE PISTOL	#3	DOWN	.257 Wby. Mag.	LARGE RIFLE	#3	DOWN	.325 WSM	MAGNUM RIFLE	#4	UP
.40 S&W	LARGE PISTOL	#3	DOWN	6.5 Creedmoor	LARGE RIFLE	#5	DOWN	.338 Win., .340 Wby.	MAGNUM RIFLE	#1	UP
.41 Mag.	LARGE PISTOL	#3	DOWN	6.5 Grendel	SMALL RIFLE	#6	DOWN	.338 Rem. Ultra Mag.	MAGNUM RIFLE	#1	UP
.44 Special, .44 Magnum	LARGE PISTOL	#3	DOWN	6.5 Rem. Mag.	LARGE RIFLE	#3	DOWN	.350 Rem. Mag.	LARGE RIFLE	#1	UP
.45 ACP	LARGE PISTOL	#3	DOWN	6.5x55	LARGE RIFLE	#3	DOWN	8x57 Mauser	LARGE RIFLE	#1	UP
.45 GAP	LARGE PISTOL	#3	DOWN	.264 Win. Mag.	LARGE RIFLE	#3	DOWN	.375 H&H Mag.	MAGNUM RIFLE	#1	UP
.45 Auto Rim	LARGE PISTOL	#3	DOWN	6.8mm SPC	SMALL RIFLE	#6	DOWN	.375 Rem. Ultra Mag.	MAGNUM RIFLE	#1	UP
.45 Colt/S&W, .454 Casull	LARGE PISTOL	#3	DOWN	7mm TCU	SMALL RIFLE	#3	DOWN	.38-40 Win.	LARGE PISTOL	#3	DOWN
.45 Win. Mag.	LARGE PISTOL	#3	DOWN	.270 Winchester	LARGE RIFLE	#1	UP	.444 Marlin	LARGE RIFLE	#1	DOWN
.460 S&W	LARGE PISTOL	#3	DOWN	.270 Wby. Mag.	LARGE RIFLE	#1	UP	.44-40 Win.	LARGE PISTOL	#3	DOWN
.475 Linebaugh, .480 Ruger	LARGE PISTOL	#3	DOWN	7mm Dakoa	MAGNUM RIFLE	#1	UP	.458 Bushmaster	LARGE RIFLE	#6	DOWN
.500 S&W Magnum	LARGE RIFLE	#6	DOWN	7mm Rem./Wby. Mag.	MAGNUM RIFLE	#1	UP	.458 SOCOM	LARGE RIFLE	#6	DOWN
.50 AE	LARGE PISTOL	#3	DOWN	7mm. Ult. Mag.	MAGNUM RIFLE	#1	UP	.458 Win. Mag.	MAGNUM RIFLE	#1	UP
.17 Remington	SMALL RIFLE	#3	DOWN	7mm Rem. SAUM	MAGNUM RIFLE	#1	UP	.45-70 Government	MAGNUM RIFLE	#1	DOWN
.204 Ruger	SMALL RIFLE	#3	DOWN	7MMSTW	MAGNUM RIFLE	#1	UP				
.221 Remington Fireball	SMALL RIFLE	#3	DOWN	7mm WSM, .270 WSM	MAGNUM RIFLE	#1	UP				
.22 Hornet	SMALL PISTOL	#3	DOWN	7.62x39	LARGE RIFLE	#6	DOWN				

ITEMS WITH "\*" REQUIRE THE SPACER WASHER (PART# 13703) BETWEEN THE CLUTCH AND PLATE

**7.1.1 Casefeed Port Cuff--**The Casefeed Window Cuff is adjustable. This allows for faster and more reliable Casefeeding of longer and shorter rifle cases. The window has six positions; the third position from the left is the standard opening width of the previous unit. This adjustment should work for all pistol and most standard rifle cartridges. The window adjusted to the full left position (fully open) allows for faster Casefeeding of larger rifle calibers. The window adjusted to the full right position allows for Casefeeding of shorter bottleneck rifle cases (i.e. 300AAC Blackout, 7.62x39) utilizing standard rifle Casefeed Plates. Adjust the Cuff by loosening the black knurled nut, which incorporates a 3/16" socket hex. Slide the Cuff into the desired position, making sure that the small leg is locked into the adjustment notch. Retighten the nut to no more than 10-12 in.-lbs. to lock the Cuff in position.



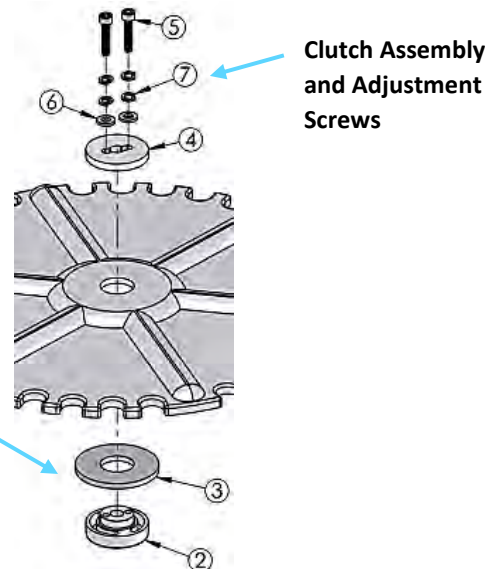
**7.1.2 Case Deflector--**The Casefeed utilizes an adjustable Case Deflector Block. The Deflector has two positions for operation, fully lowered for pistol and fully raised for rifle cartridges. The block can be adjusted by loosening the two #8 Screws with a 3/32" hex wrench, slide the Block to the desired position based on pistol or rifle cartridges. Lock the Block in position by tightening the two Screw to no more than 5-7 in.-lbs.



**7.1.3 Casefeed Plate Spacer Washer--**Some calibers require a spacer under the Casefeed plate. Refer to the caliber conversion chart Section 7.1. Installation of this added washer raises the plate for longer pistol cases. To install the Washer, remove the Casefeed Plate from the Casefeeder. Disassemble the Casefeed Plate Clutch by removing the two Clutch Screws. Be careful to keep the Washers together on the Screws during disassembly. Install the Spacer Washer between the Lower Clutch and the Casefeed Plate and reassemble the Clutch. Adjust the Clutch tension as follows in section 7.1.5 below.



Spacer Washer (3) goes on the underside of Casefeed Plate



7.1.4 **Clutch Adjustment/Bowl Capacity**--The Clutch comes factory set. If you are experiencing a problem with feeding or have added the Optional Spacer Washer, use the following steps to adjust the Clutch. Fill the Casefeed Bowl no more than half-full of brass. A fully loaded Casefeeder will not function reliably. The two Socket-Head Screws (5 above) are the "clutch" adjustment screws. They should be just tight enough for the Clutch to drive the Casefeed Plate under a normal load of brass. Note! --With the Casefeeder half full of brass, you should be able to cause the Clutch to slip using moderate finger pressure on the Casefeed Plate, without stalling the Motor. Alternately tighten or loosen the two Clutch Screws (5) evenly, observing the effect on the holding power of the Clutch. The correct setting will cause the Plate to stall before the Motor stalls, yet not slip when the Casefeed Bowl is no more than half-full of brass.

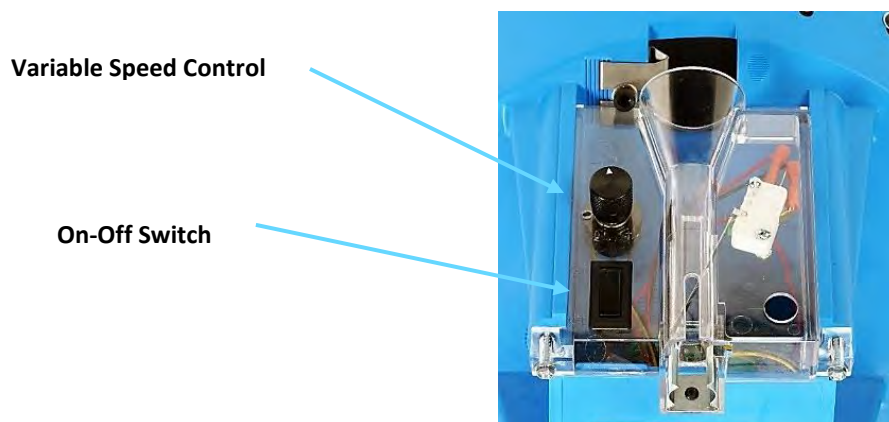
7.1.5 **Casefeed Power Supply Setup**--The new Variable Speed Casefeeder utilizes a Universal Power Supply that works on 115-240V AC 50/60 Hz and comes with several Wall Socket Adaptors. Choose the Adaptor for the utility power in your area (Fig. 1). Install the Adaptor into the Power Supply, by inserting the side with the raised edge opposite the sliding latch and press into the pocket until the latch locks in place (120V AC Adaptor pictured).



7.1.6 **Connect the Power Supply Power Cord into the Casefeeder** by pushing the small Barrel Plug Adaptor into the Socket on the bottom face of the Casefeeder. Now plug in the Power Supply.

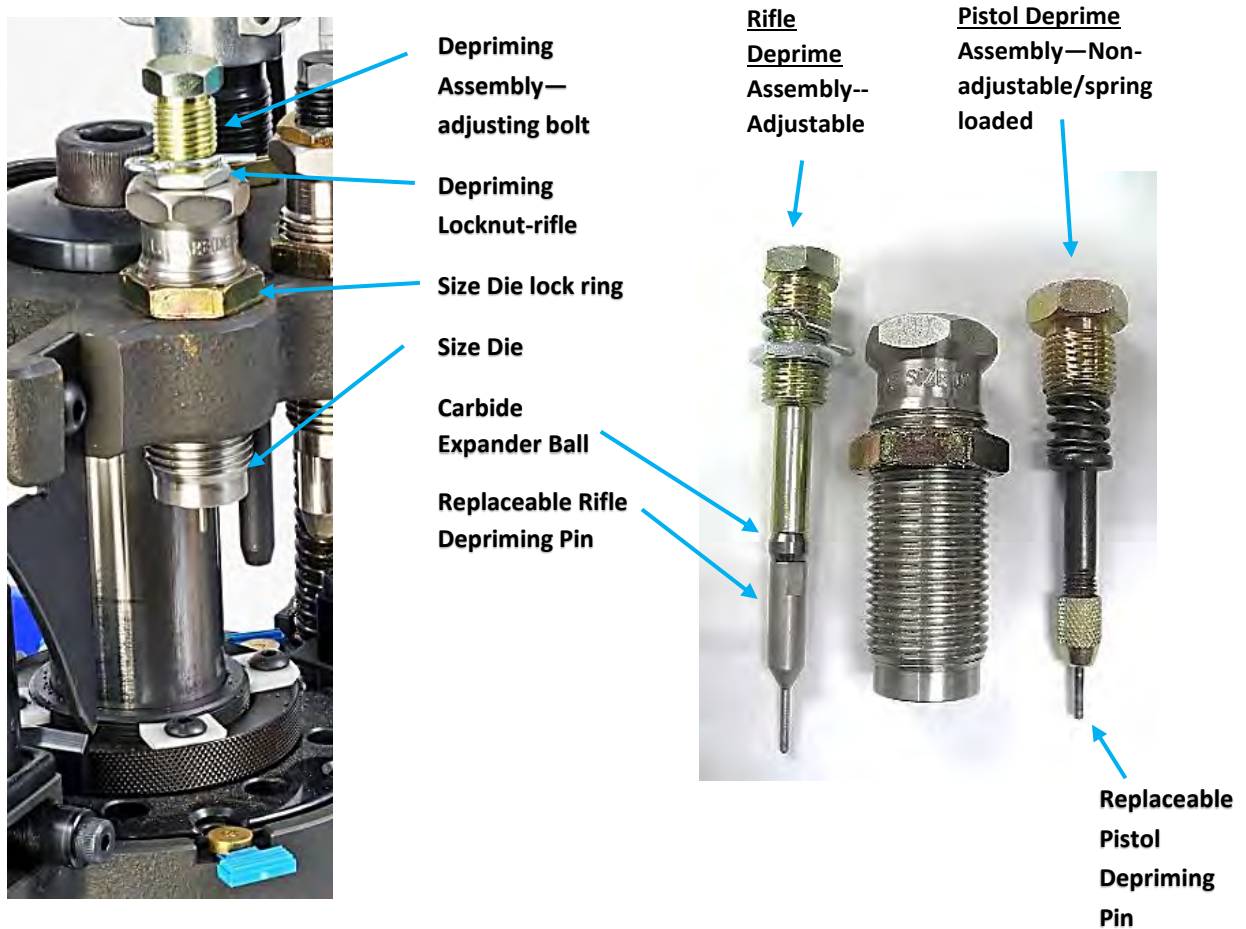


7.1.7 **The Casefeeder's speed is adjustable up To 8 RPM.** Rotating the Dial fully counter-clockwise will set the Motor at the lowest speed and rotating clockwise will set the Motor at its full speed. Start with the Dial in the middle of its rotation (about 4 rpm). Turn the Power Switch to the on position. Fine-tune the Motor speed for more or less rpm to optimize case feeding.



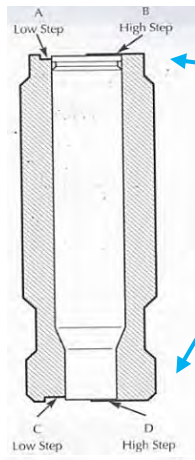
## 7.2 STATION 2-- DEPRIMING AND SIZING--Cases are deprimed and sized in this station.

### 7.2.1 Size And Depriming Components Are Shown Below:



### 7.2.2 Size Die Adjustment-Bottleneck Cartridges:

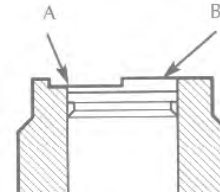
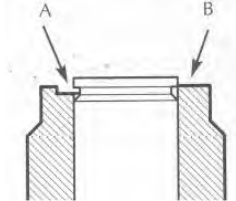
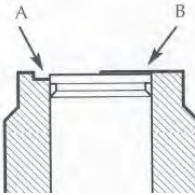
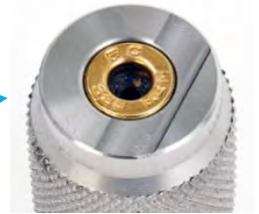
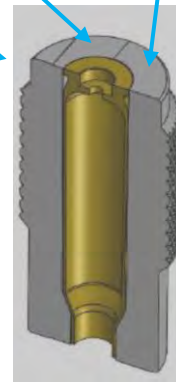
- Die Adjustment Note: Always final tighten any Die-Body Locking Ring i.e. Size, Swage, Powder, Seat and Crimp Die Body Lock Rings with the appropriately processed case fully inside the Die with Handle all the way down. This promotes better alignment and adjustment of the Die and Shellplate.
- Lower the Operating Handle and the Toolhead all the way down.
- Screw the Sizing Die into Station 2 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 up 3 turns.
- Raise the Handle up.
- Insert a lubricated case into Station 2 with the Locator Button and Blue tab removed.
- Cycle the Handle all the way down.
- Raise the Handle and remove the case. The case is sized initially.
- Verify the case is properly sized and the headspace is correct by using a Dillon Head Space Gauge. Always use a Headspace Gauge for bottleneck cartridges!
- 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 length. See the next page.
- If the headspace is above the maximum (High Step B--see next page), 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 (High Step B). If the case head is below the Low Step A--(see next page), back the Die up and check another case.
- With the sized case fully inside the die, use a 7/8" wrench to hold the Die Body and tighten the Die Lock Ring with a 1" Dillon Bench Wrench.



**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)

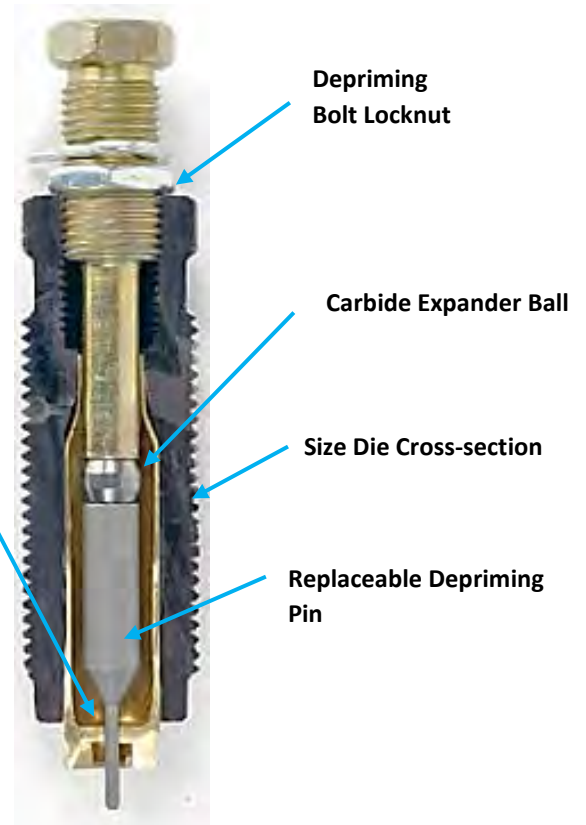
**Improper Headspace**—Case head is above the top step (B) – adjust size die down (clockwise) –Cycle this case through the size station

**Improper Headspace**—Case head is below the low step (A) – adjust size die up (counter clockwise) and run another case through the size station

### 7.2.3 Bottleneck Cartridge Deprime Assembly Adjustment:

- Put a deprimed case in this station, 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 with the Handle all the way down. See below. Raise the Deprime Bolt up 1½ turns from contact and the Deprime Bolt Locknut.

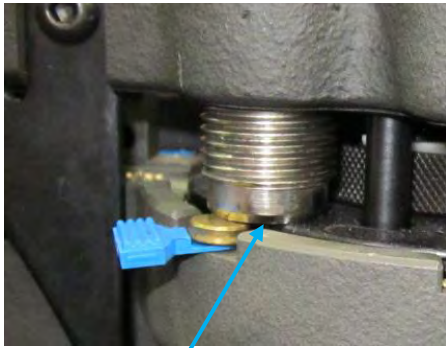
Screw Depriming pin down until the shoulder just touches the top of flash hole then backup 1 ½ turns



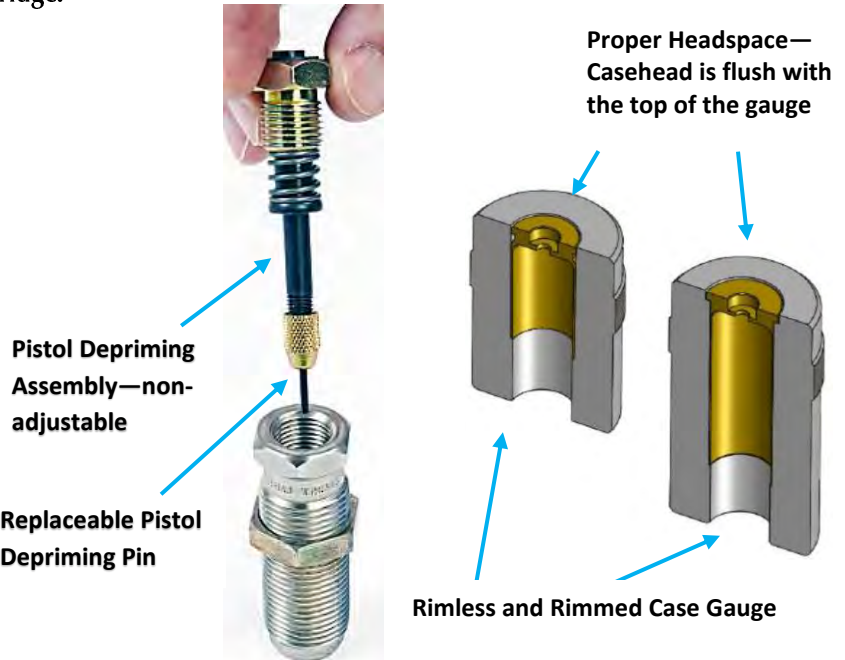
- DANGER! Never attempt to deprime a live primer, an explosion may result.**

7.2.4 Size Die Adjustment-Pistol Cartridges:

- Cycle the Toolhead/Handle all the way down. Screw the Pistol Size Die (Clockwise) down until it just touches the Shellplate, back the Die up 1/16 of a turn or less.
- Tighten the Die Lock Ring with a 1" Dillon Bench Wrench using 7/8" wrench to hold the Die Body with a sized case fully in the Size Die with Handle all the way down.
- 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.
- 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 also be used to gauge the completed cartridge.



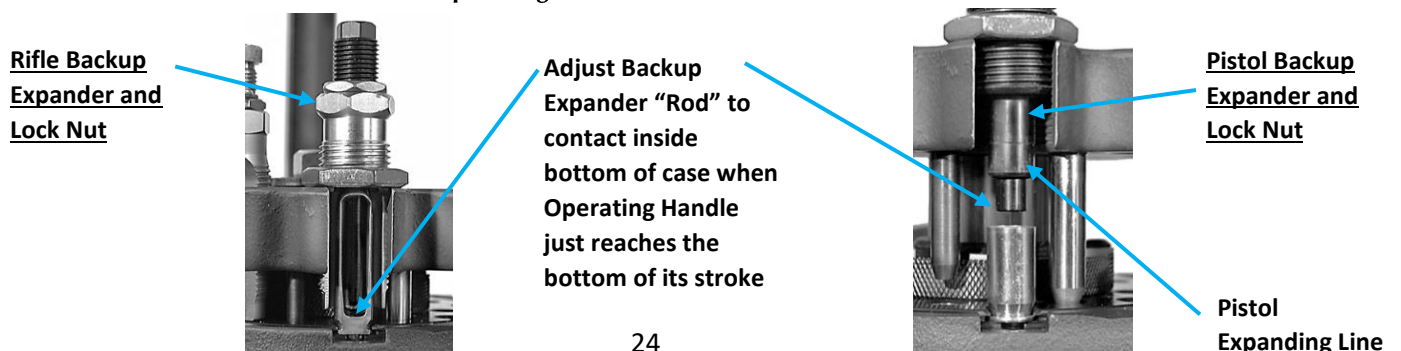
Size Die just touching Shellplate to 1/16 of a turn up from touching the Shellplate



7.3 STATION 3--PRIMER POCKET SWAGING AND CASE NECK EXPANDING--This station is unique and performs multiple parallel functions related to crimped primer pockets in "military" or other crimped primer pocket brass as well as expanding the case mouths. Note--The crimped primer case can be deprimed, but unless the crimp on the primer pocket is removed a new primer cannot be installed!

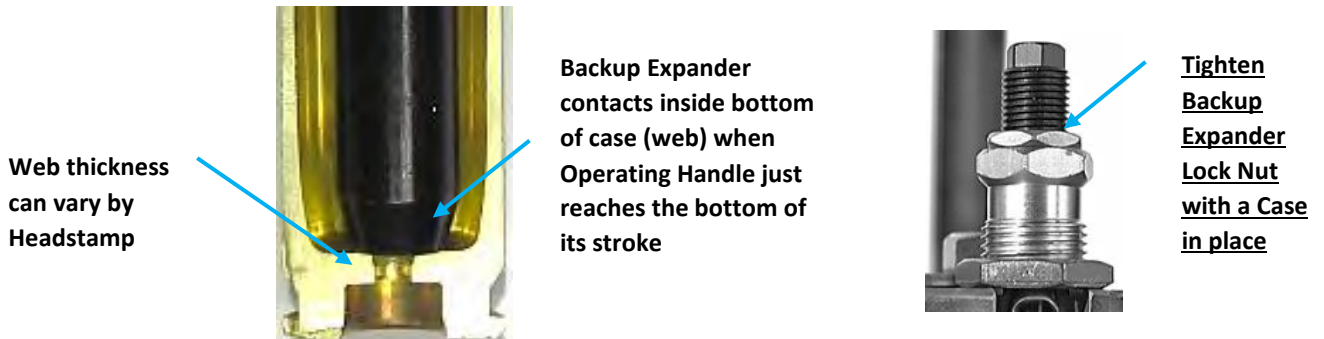
7.3.1 In the case of pistol brass, the case is supported from the inside by the Backup Expander and the case mouth is expanded not belled. Simultaneously, the Adjustable Swage Rod is pushed into the primer pocket from below to swage the crimped primer pocket on calibers such as the .45 ACP, .38 Special, 9mm, etc. Non-crimped brass is not affected. When the pistol Backup Expander is properly adjusted the pistol case mouth will go past the expanding line and the "Rod" will contact the bottom of the case as the Operating Handle reaches the bottom of its stroke. Raise the Handle up and down slightly while adjusting the Backup Expander down until slight resistance is felt in the Operating Handle in its fully down position.

7.3.2 In the case of rifle brass, the case is supported from the inside and the case mouth is expanded by the Rifle Backup Expander inside the case. The adjustable Swage Rod is pushed into the primer pocket from the bottom and swages the crimped primer pocket as the Backup Expander "Rod" just touches the inside of the case as the Operating Handle reaches the bottom of its stroke.

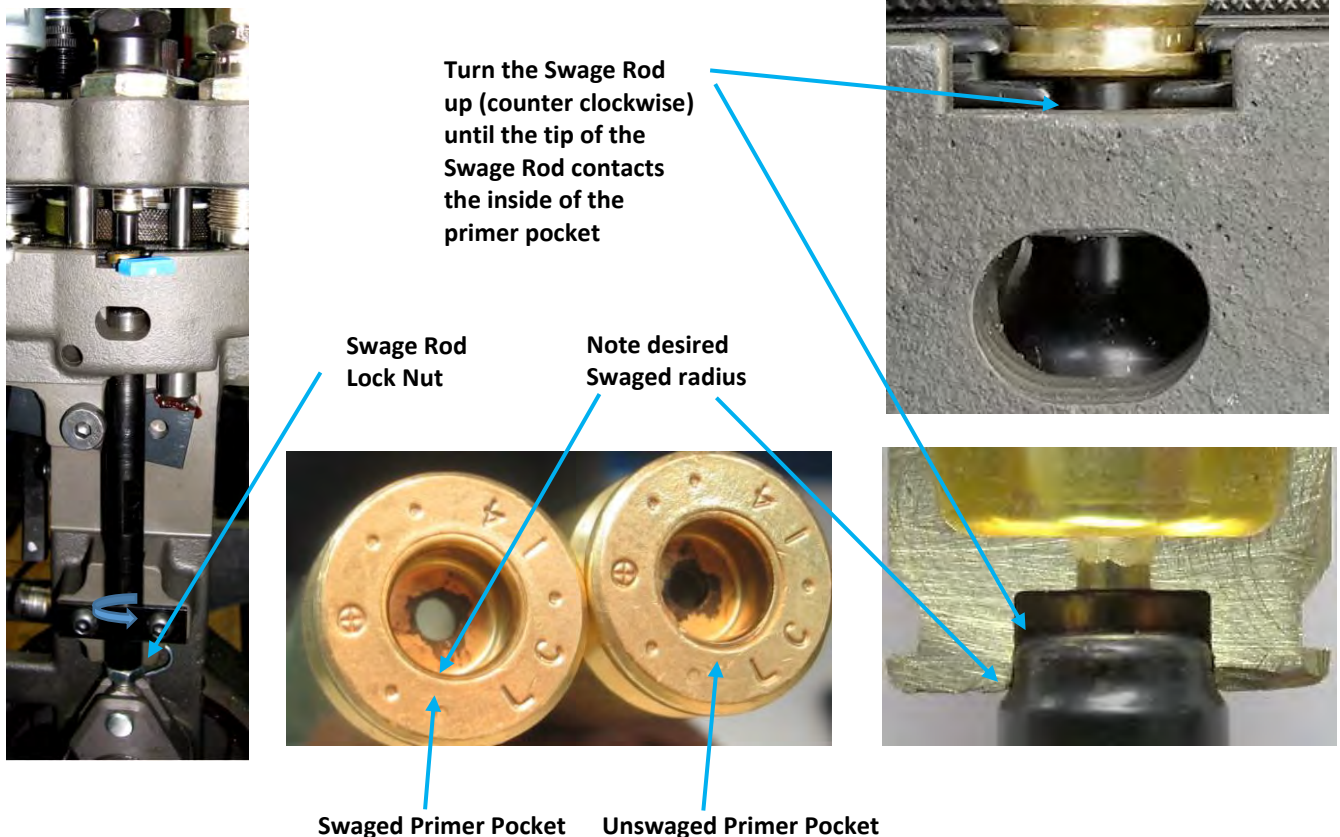




7.3.3 Adjust the Rifle Backup Expander by inserting the previously sized and deprimed case in Station 3. Partially cycle the Operating Handle up and down at the bottom of its stroke while adjusting the Backup Expander down until the Backup Expander "Rod" just contacts the inside web of the case as the Operating Handle simultaneously reaches the bottom of its stroke. Partially cycle the Handle up and down while adjusting the Backup Expander down until there is slight resistance in the Operating Handle. The Operating Handle should have some slight pressure/resistance "cam-over" once the Backup Expander is properly set. Tighten the Backup Expander Lock Nut with the case in place and the Handle all the way down.



7.3.4 Adjusting the Swage Rod using the same sized and deprimed case as above again in station 3. Cycle the Operating Handle to the bottom of its stroke. Adjust the Swage Rod (counter-clockwise) up until the Swage Rod Tip contacts the Primer Pocket. Raise the Handle up just enough to be able to turn the Swage Rod up 1/8 of a turn. Cycle the Handle all the way down. Raise the Handle, remove the case and look at the primer pocket. If it looks like the picture below with a radius on the edge, tighten the Swage Rod Lock Nut. If not, put the case back in the Swage Station and keep cycling the Operating Handle while turning the Swage Rod up until the desired radius on the primer pocket edge is achieved. Place this case back in the Station and cycle the Handle down and Tighten the Expander Lock Nut with the case in place to help maintain the alignment and adjustment. Note--cases with different headstamps i.e. brass manufacturers may have a different web thickness and may require different adjustments of the Expander and Swager Rod. It is best to sort the brass by headstamp/manufacturer to get consistent swaging. Note--there are pistol cases such as the .380, .32ACP, 9mm, .38 Special, .40 S&W and .45 ACP that have crimped primers.

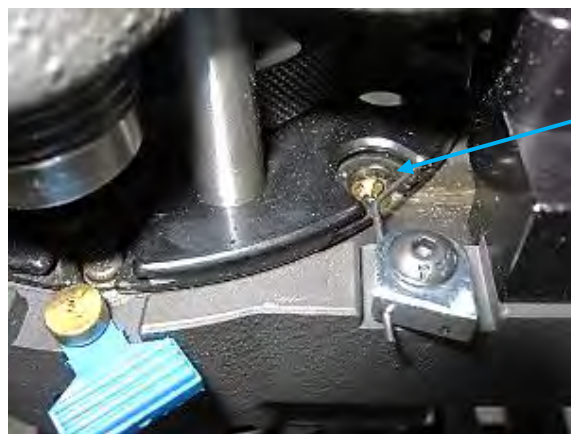


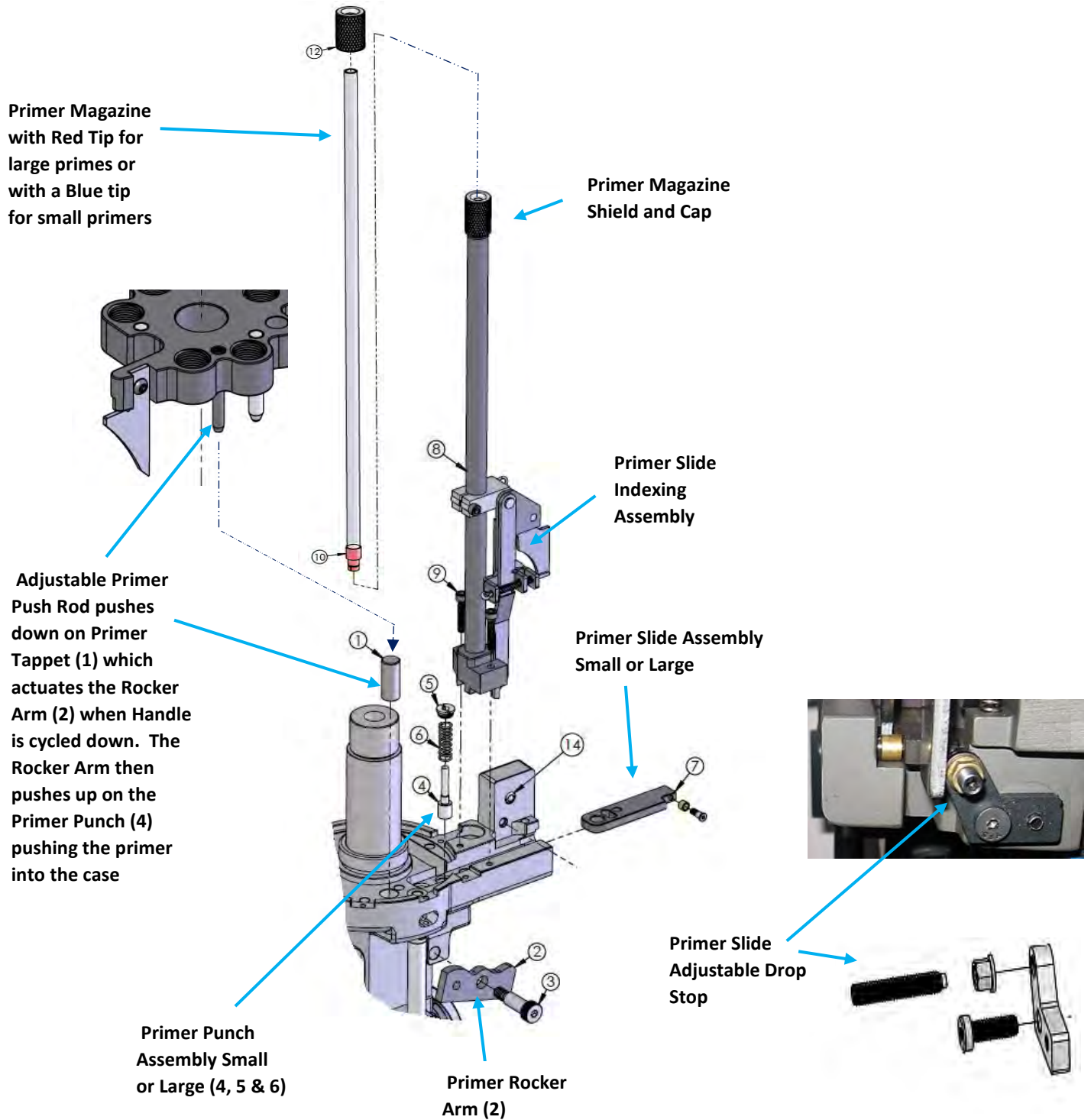
### 7.3.5 Swaging Components



### 7.4 STATION 4--PRIMER FEEDING AND SEATING--Primers are automatically picked up and seated in this station:

- 7.4.1 Primers “drops” into the Primer Pocket in the Primer Slide in the full up-stroke of the Handle.
- 7.4.2 Primers are transferred forward by the Primer Slide to the priming position in Station 4 on the first part of the down-stroke of the Handle.
- 7.4.3 Primers are seated in the last part of the down-stroke of the Handle. **WARNING! Do not continue to operate the Handle if resistance is felt during the operating stroke up or down. Stop, investigate and correct the cause.**





#### 7.4.5 VERIFYING THE OPERATION OF THE AUTOMATIC PRIMER SYSTEM:

- The RL1100 is set up for the primer size used on the caliber ordered—Small or Large Rifle, Small or Large Pistol.
- It is essential to verify that the system feeds primers as follows:
  - Remove the plastic Follower Rod.
  - Verify the Magazine Tube is correct--The Magazine Tube with a Blue Tip for small primers and the Magazine Tube with a Red Tip for large primers. Note—the inside diameter of the Magazine Tube is different for small and large primers.



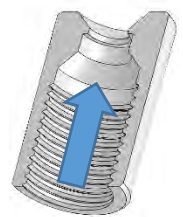
- Install the Magazine Tube in the Magazine Shield carefully aligning the Tab on the Red or Blue Tip with the slot down inside the Primer Feed Body Assembly. Tighten the knurled Magazine Cap just enough



Primer Magazine Tip Alignment Tab

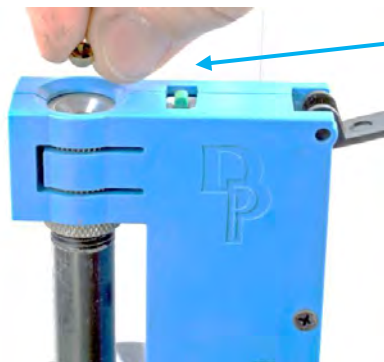


Tighten knurled Magazine Cap



Magazine Cap fits over top of Magazine Tube

- With the Operating Handle all the way up, take one primer that you will be using and drop it anvil side up (“shiny side” down) in the hole in the Magazine Cap as shown below:



Drop one primer in Magazine shield/Cap

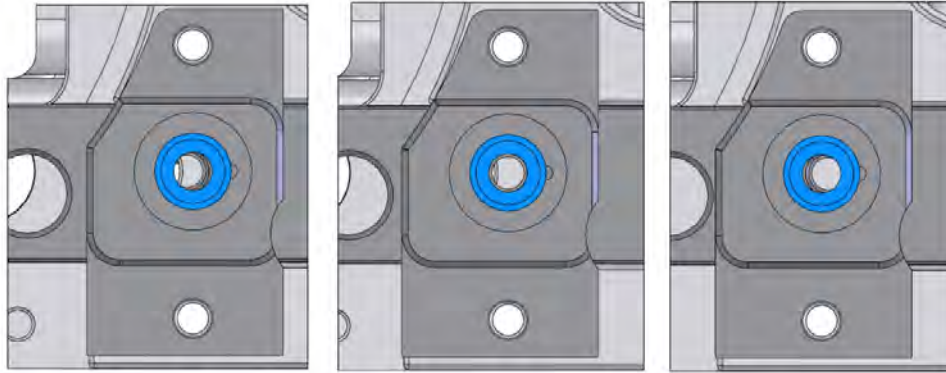
- Cycle the Handle smoothly all the way down.
- The primer should present itself in the Priming Station on top of the Primer Punch—repeat this step 3 times—if successful proceed to the next step, if not proceed to Primer Drop Alignment Section 7.4.6 on the next page.



Correct presentation of primer—single primer drop test

**7.4.6 ADJUSTING THE PRIMER DROP ALIGNMENT— Caution! --Wear Safety Glasses**

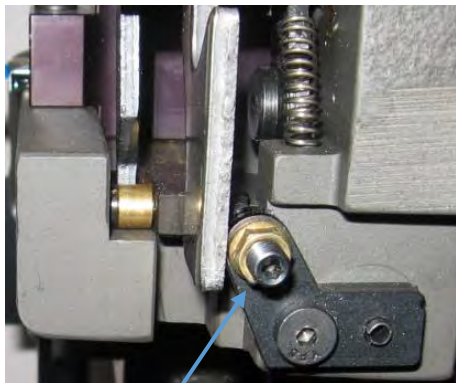
- Make sure there are no primers in the Magazine Tube and the Operating Handle is all the way up. Shine a small flashlight in the opening as shown below and look down the Shield Tube. Verify the Primer Hole in the Primer Slide is centered directly under the opening in the Primer Magazine Tube as shown below. If not, adjust the Primer Slide Stop on the back of the RL1100 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.
- Drop one primer in the Primer Magazine. Cycle the Operating Handle down and verify the primer is now sitting on top of the Primer Punch as shown below. A small amount of over travel to the rear for primer pickup is acceptable.



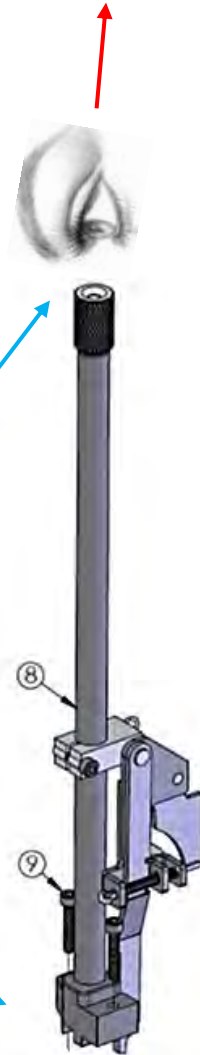
**INCORRECT ALIGNMENT—PRIMER SLIDE NOT TRAVELING FAR ENOUGH TO THE REAR—Adjust Stop Screw out.**

**CORRECT ALIGNMENT OF PRIMER SLIDE UNDER THE MAGAZINE**

**INCORRECT ALIGNMENT—PRIMER SLIDE TRAVELING TOO FAR TO THE REAR—Adjust Stop Screw in.**

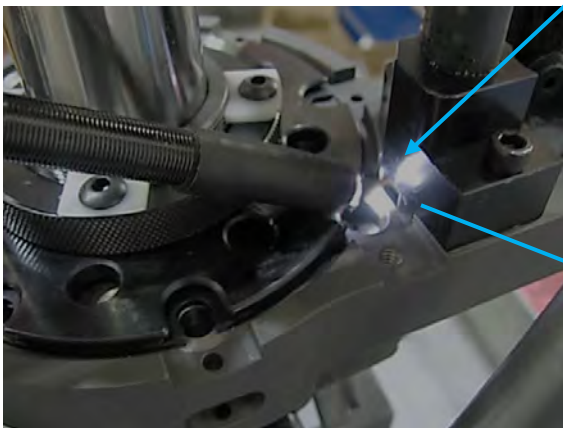


**Adjustable Primer Slide Rear Travel Alignment Stop Set Screw with a 1/8" Allen Wrench and the Lock Nut with a 1/4" End Wrench—Move in 1/8 turn increments**



**Warning!-- Use Safety Glasses**

**Shine small flashlight in gap between primer Magazine Body and Primer Slide and look down the Magazine Tube to verify alignment**



### 7.4.7 VERIFY PRIMER SEATING DEPTH

- Put a deprimed and swaged case in Station 4 with the Spring Wire Retainer. Cycle the Operating Handle down and back up. Remove the case and verify that the primer is seated flush or slightly below flush. **Caution! --Primer seating depth is an important parameter to control when reloading and can be a safety issue.** The recommended 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 the cylinder from rotating in revolvers.** Seating the primer too deep can cause damage to the primer causing misfires and or inconsistent ignition. Refer to Section 15.4 on Primer Basics.
- If the primer is too high or too low, adjust the Primer Adjusting Push Rod up or down with a 5/32 Allen Wrench as shown below. Adjust the Primer Push Rod 1/4 turn max at a time using 1/8 of a turn at a time for fine-tuning until the primer seating depth is correct.

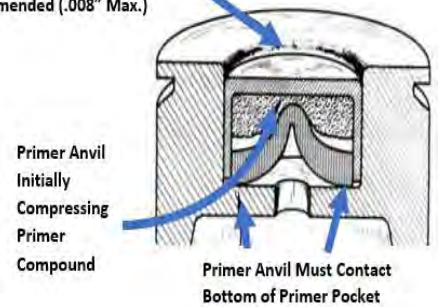
Primer on right is seated properly while on the one on the left is high

Courtesy of Western Powders

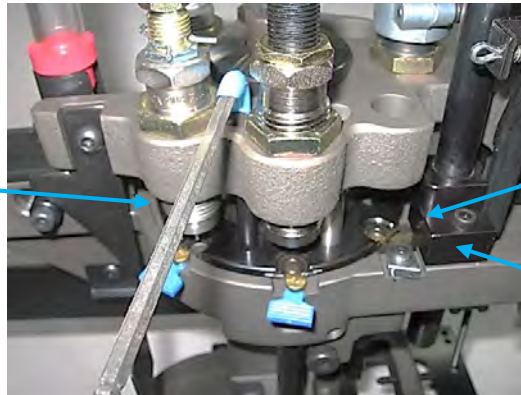


Primer Seated .002" to .006" Below Flush Recommended (.008" Max.)

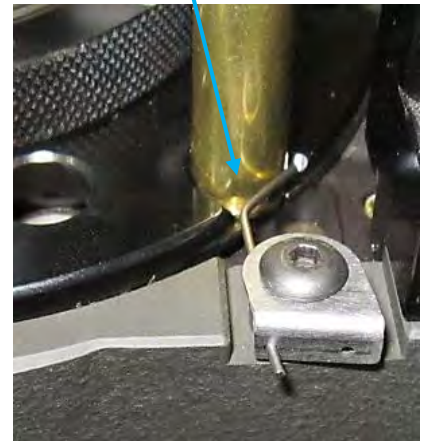
Courtesy of CCI



Primer height adjustment— Allen wrench shown inserted in adjustable Primer Push Rod in Toolhead



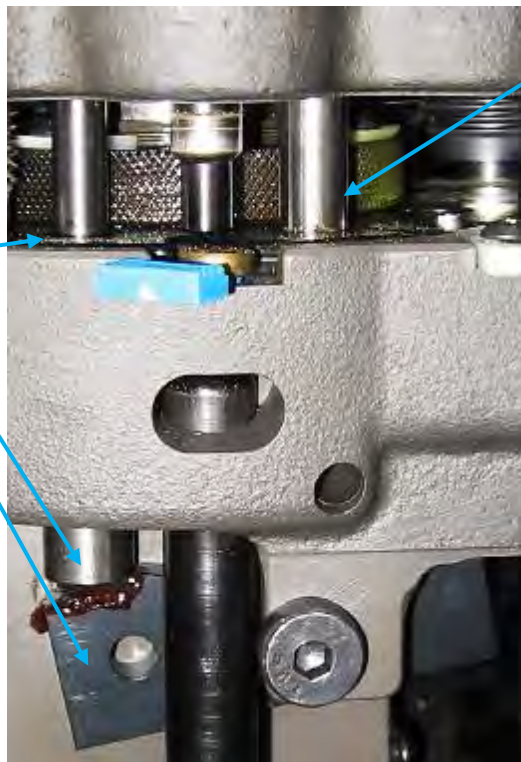
Spring loaded case retainer— Primer Station 4 only



Adjustable Push Rod for primer height adjustment

Primer Tappet

Primer Rocker Arm



#### 7.4.8 FILLING THE PRIMER MAGAZINE--DILLON OFFERS TWO CHOICES FOR FILLING THE PRIMER MAGAZINE:

- Manually as below with a Dillon Primer Flip Tray and Dillon Primer Pickup Tubes or the Dillon RF 100 Automatic Primer Filler also shown below:
- The Primer Pick-Up Tubes have different colored tips. They have been color-coded to help identify the size more easily. The color code is as follows:

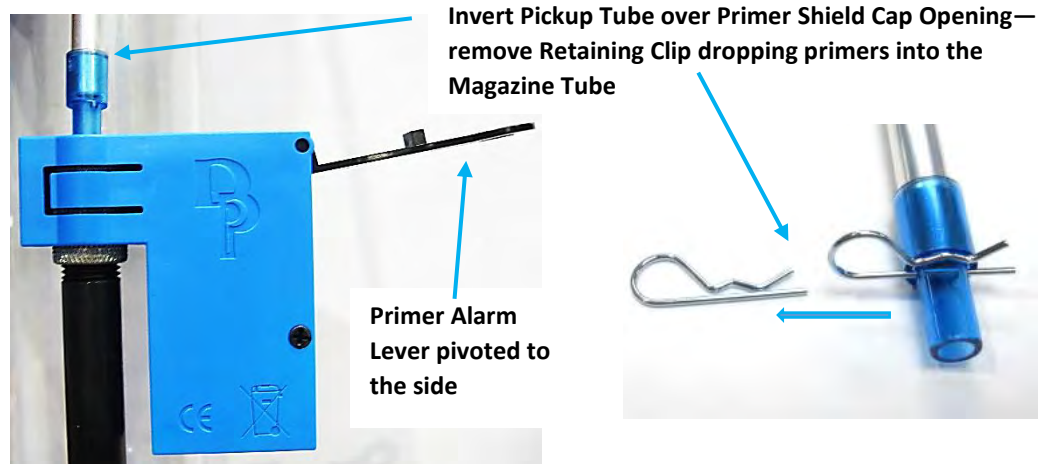
Primer Pickup Size	Pickup Tip Color	Dispense Tip Color
Small	Yellow	Blue
Large	Green	Clear



- Place primers (100 or less) on the half of the Flip Tray with the ribs. Oscillate the tray and primers around until all the primers are flat. Pick up all the primers that are shiny side up by placing the Plastic Yellow or Green Pickup Tip over the shiny side up primers in the Primer Flip Tray and gently pressing down. Put the other half 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.
- Refer to the instructions that come with the Dillon Primer Flip Tray.



- Pivot the Primer Alarm Lever away from the Early Warning System Housing and invert the Pick-Up Tube over the Primer Shield Cap. Pull the Retaining Clip allowing the primers to drop into the Magazine. Verify no primers are left 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 remaining primers.
- 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 filling primer pick up tubes. Carefully pour your primers (100 each) from their box into the top of the RF100, press the blue button. In about two minutes, the primers will be inside the primer tube, which is inside a protective metal housing. The RF100 comes in either a small or large primer version. Size

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

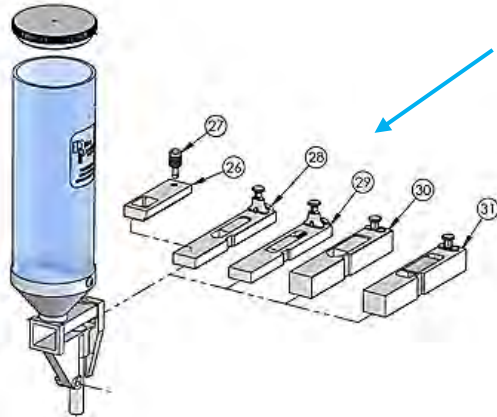
## 7.5 STATION 5--POWDER DISPENSING AND CASE BELLING

7.5.1 The Dillon Powder Measure System is a Volumetric Powder System “activated” by a cartridge case in Station 5. There are pistol and rifle caliber Powder Bars. Each Powder Bar has a screw adjustable cavity to control the volume of powder dispensed.





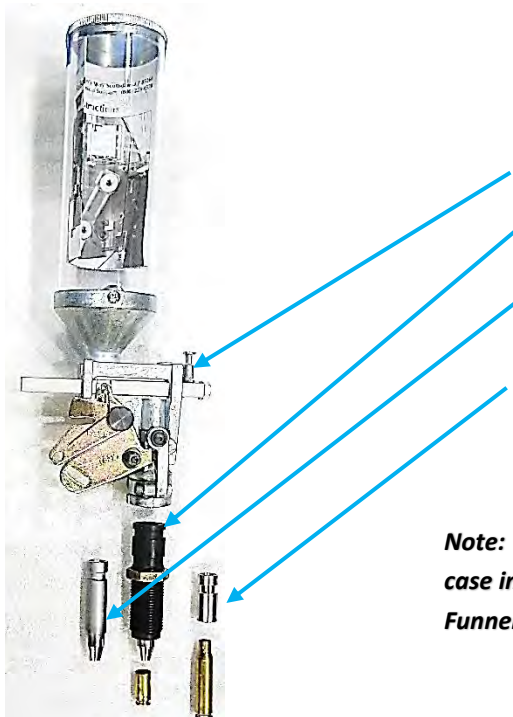
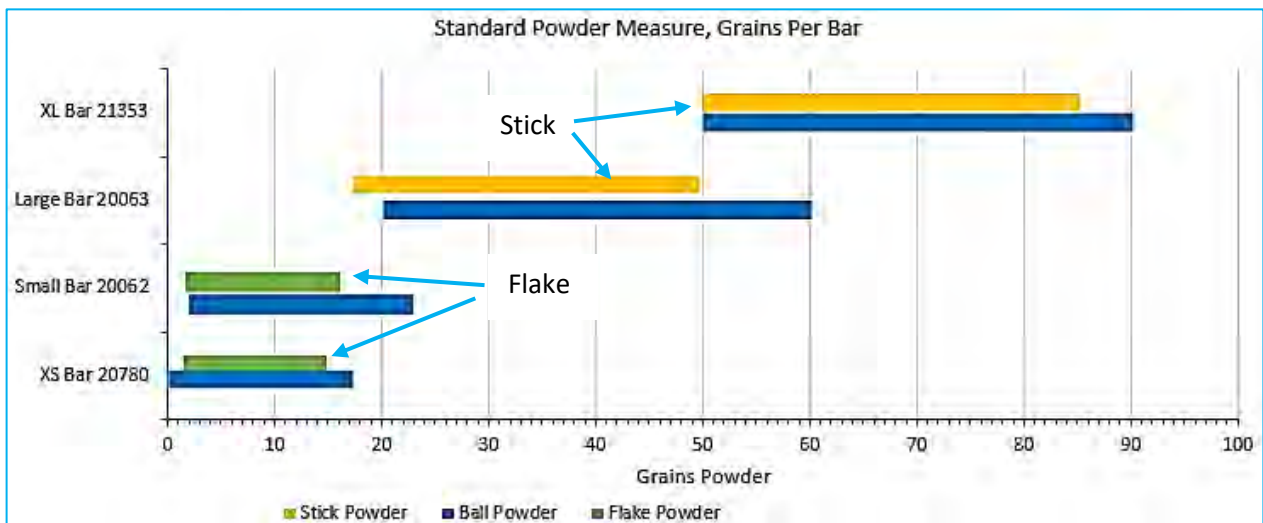
7.5.2 The Dillon Powder Measure uses Charge Bars that are specific to the range of powder being dispensed as shown in the table below. The RL1100 is shipped with a Small Powder Charge Bar installed in the Powder Measure. A Large Charge Bar is also included. The available Charge Bars are shown below:



26	13644_POWDER BAR SPACER
27	13921_POWDER BAR SPACER PLUG
28	20062_SMALL POWDER BAR ASSEMBLY
29	20780_EX-SMALL POWDER BAR ASSEMBLY
30	20063_LARGE POWDER BAR ASSEMBLY
31	21353_MAGNUM POWDER BAR ASSEMBLY

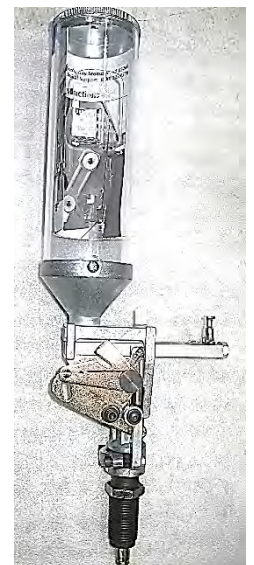


26 29 28 30 31

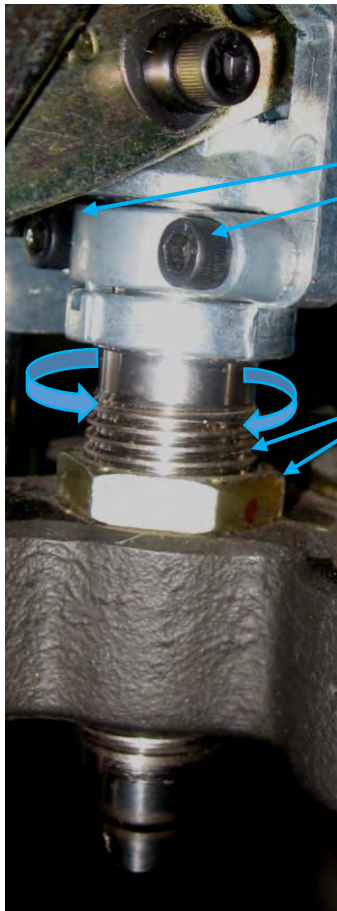


- Small Charge Bar with spacer
- RL1100 Specific Black Powder Die
- Universal Pistol Activator/Powder Funnel
- Rifle Funnel—Caliber Specific

**Note: The Powder Measure is ONLY activated by a cartridge case in Station 5 pushing up on the caliber specific Powder Funnel for rifles or the Universal Powder Activator for pistols**

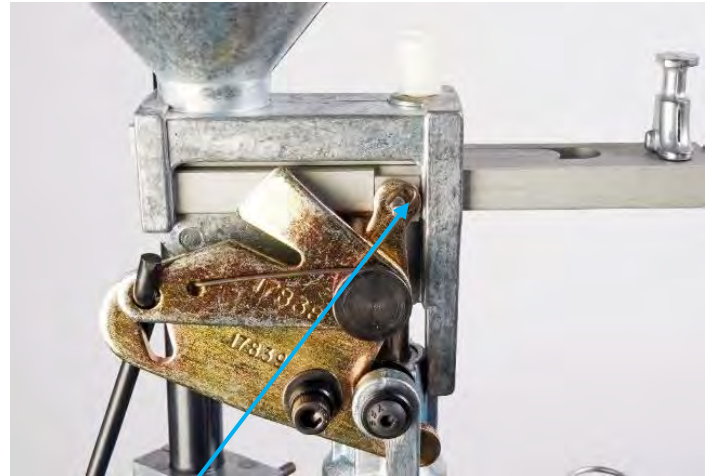


7.5.3 Place an empty sized and expanded case in Powder Station 5 with no powder in the Powder Measure. Loosen the 7/8-14 Powder Die locknut and the two socket head Powder Measure clamping screws (see below). Cycle the Operating Handle fully down. The proper adjustment occurs with the Powder Bar reaching 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 over-travels, raise the Operating Handle slightly while you are threading the 7/8-14 Powder Die up/down with your fingers while holding the Powder Measure from rotating until proper travel is achieved. Lightly tighten the locknut and the two Powder Die Clamping Screws. Further adjustment is required as described in section 7.5.4 and 7.5.5 below.



Adjusting the Powder Measure travel requires loosening the two Powder Measure Clamping Screws and the Powder Die Lock Ring

Loosen Lock Ring and rotate Powder Die Up or down with fingers to achieve full travel of "Charge Bar Arm" as the Operating Handle reaches the bottom or full travel its stroke



"Charge Bar Arm" must touch the Powder Body here without over travel as the Operating Handle reaches the bottom of its stroke



7.5.4 PISTOL CASES—Belling (flaring) the case mouth. With the empty case in place from the previous step, adjust the Powder Die down (clockwise) gradually a small amount (~1/8 turn) at a time with the Operating Handle up. Cycle the Operating Handle down and raise the Handle to remove the case from the Powder Funnel to check the amount of belling. Remove and inspect the case each time, until the belling is correct as shown below. Once the desired amount of belling is achieved, tighten the Powder Die Lock Ring and the two Powder Measure Clamp Screws with a case in Station 5 and the Handle down. Note--The RL1100 uses a Universal Powder Activator, not a Pistol Powder Funnel. The difference between the Universal Pistol Powder Activator and a standard Dillon Pistol Powder Funnel is shown below. If using a bullet feeder, use the bullet feeder Powder Funnel.

The desired amount of bell/flare is just enough to allow the bullet to sit on the case mouth without falling off/over and to keep the case from shaving bullet material, especially with lead bullets. On handgun cartridges, a sized belled (flared) pistol case should measure approximately .010" larger than a sized case mouth. This is not the same as adjusting the Powder Die for a bottleneck case which is discussed below.



Measuring Belling



No Belling

Good Belling

Excessive Belling



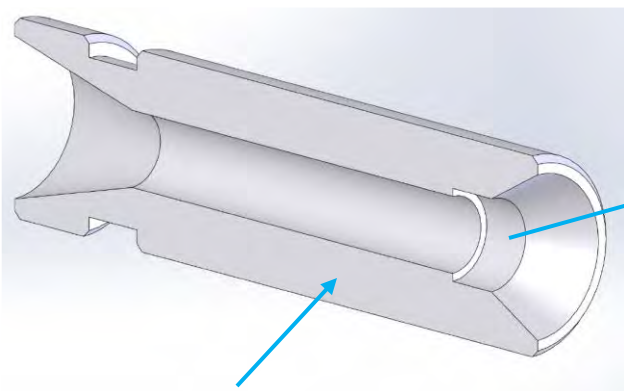
Note difference between a standard Dillon Pistol Powder Funnel and the Universal Pistol Powder Activator

Pistol Powder Activator/Case Mouth Belling Depiction

Pistol Powder Funnel

RL1100 Pistol Powder Activator

**7.5.5 RIFLE CASES--Full Powder Bar travel is again a requirement. Place an empty sized, properly trimmed and expanded case in Station 5 with no powder in the Powder Measure. It is highly recommended to always chamfer and deburr a rifle case neck to assist seating of the bullet and dropping powder. Note below, the 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 locking bolts. Cycle the Operating Handle down and raise the Operating Handle just enough to disengage the case from the Powder Funnel while you are threading the 7/8-14 powder Die up/down with your fingers; while holding the Powder Measure from rotating 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. Excessive contact between the Powder Funnel and the neck of the cartridge case can buckle the case. Tighten the Lock Ring and the two Powder Die clamping screws.**



Cross section of Rifle Powder Funnel



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

### 7.5.6 Powder Charge Weight Adjustment

- A scale that weighs in grains is required for this step. Two types of scales are available from Dillon-- a Balance Beam Scale--(Dillon PN 13480) and a Digital Electronic Scale--(Dillon PN 10483).



- 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, Western Powders or Alliant Powders and reloading manuals such as the Lyman or Western Powders Reloading Manual.
- Verify that the proper Powder Bar is in the Powder Measure as described above.
- Select the powder charge—weight in grains again, from the appropriate established reloading document and write it down.
- 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. Label what primers are in the Primer Magazine.
- Place a primed case in Station 5 and cycle the Handle fully down and back up. Remove the case and dump the powder back in the Hopper. Repeat this 3-4 times before measuring the first powder charge. Remove the case and the dump powder on the scale. Adjust the powder bar bolt as required--Clockwise to increase the amount of powder and Counter Clockwise to decrease the amount. Adjust the Powder Measure Bolt using the available Dillon Bench Wrench or a 7/16" wrench. Repeat this at least 3-4 times after each adjustment or until the dispensed amount of powder is stable.



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

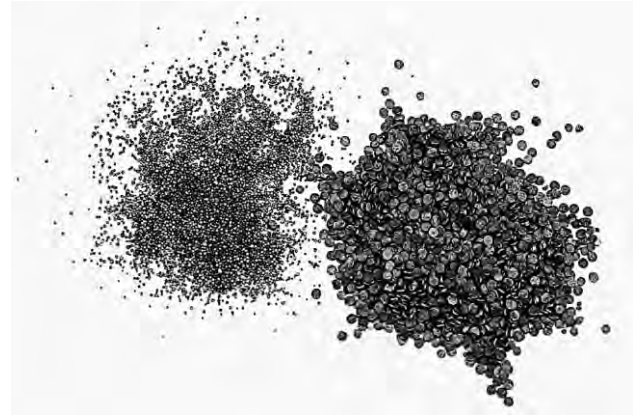
**DANGER! WARNING!**

- **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 A TIME.**
- **OBSERVE ALL MAXIMUM LOAD WARNINGS. (MAXIMUM LOADS MAY NOT BE SAFE IN YOUR FIREARM.)**
- **NEVER LEAVE POWDER IN THE POWDER MEASURE.**

**7.5.7 Typical Powder Shapes:**



**Flake and perforated disk**



**Ball and flattened ball powders**



**Extruded Powders—"Rods or Tubes"**

7.6 STATION 6--OPTIONAL DILLON POWDER CHECK—(PN 21044)--Dillon offers an optional Powder Check/Alarm system (see below) that checks/alarms if there is not an established powder level in the case, or if there is no powder in the case. *This is not a precise measurement but a “rough check.”* See instructions provided with the Dillon Powder Check Assembly for setup and installation.



## 7.7 STATION 7--BULLET SEATING

7.7.1 The seating Die pushes the bullet into the case. How far the bullet is pushed into the case will determine the cartridge overall length--COAL/OAL. The maximum cartridge overall length (COAL) depends on the following factors:

- The bullet must be seated deep enough into the case to provide sufficient "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!**
- The cartridge must fit the firearm's magazine (if it has one).
- The bullet may have a cannelure(s) or crimp groove that may be used to determine the proper COAL.

Pistol and Rifle Cannelures



- Loading manuals specify the cartridge overall length (COAL) for that specific bullet/case combination usually based on the SAAMI (Sporting ARMS and Ammunition Manufacturers' Institute) standards. **WARNING! Loading shorter than the minimum length will seat the bullet deeper into the case. This effectively decreases the case volume and increases the pressure, which could lead to an overpressure condition, especially in pistol cartridges.**

7.7.2 Installation and Adjustment of the Pistol Seating Die—Determine the overall length required in your reloading manual—write it down.

- The Dillon Pistol Seating Die has a removable double-ended Seating Stem. One end is for flat nose bullets and the other for round nose bullets. There is another for “wadcutter” bullets.
- Select the Seating Stem that matches the nose of the bullet. Assemble the Seating Die as shown below:



Dillon Pistol Seating Die

Dillon Pistol Seating Die Interchangeable Stems

- Screw the Seating Die down until the bottom of the Die is flush with the bottom of the Toolhead. Note: this is a starting position for the Seat Die. Place a case (with a belled case mouth) into Station 7. Place a bullet on the belled case mouth and lower the Operating Handle. Raise the Operating Handle just enough to remove the cartridge to check COAL. Use a dial caliper to measure the overall length of the cartridge. 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 the Station 7 and repeat these steps until the correct COAL is achieved. (A method for pre-setting the Die is to place a previously loaded "good" cartridge in the seating station and adjust the Die down until just 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 cartridge in place.



Pistol COAL

7.7.3 Adjustment of the Bottleneck (Rifle) Seating Die with Adjustable Seating Stem:

- Check the overall length required in your reloading manual—write it down. It is a good idea to chamfer the inside of the neck on a bottleneck/rifle cartridge prior to the bullet-seating step. This helps the bullet get started into the case and minimizes damage/scratching of expensive precision bullets. This is easily accomplished with a chamfer tool such as the Wilson Deburring Tool available from Dillon—PN 16038. This tool can deburr the inside and outside of the case neck—(can also be used for removing crimped primer pocket.)



Wilson ID/OD Deburring Tool

- The Dillon Rifle Seating Die has an adjustable seating stem.

Bullet Seating Contact Edge in Adjustable Seating Stem



- Set up the Rifle Seat Die by placing a sized and neck expanded case in Station 7 (case can be primed and charged). Lower the Toolhead/Operating Handle all the way down. Screw the Rifle Seat Die down until it touches the case and back the 7/8-14 Threaded Die Body up two

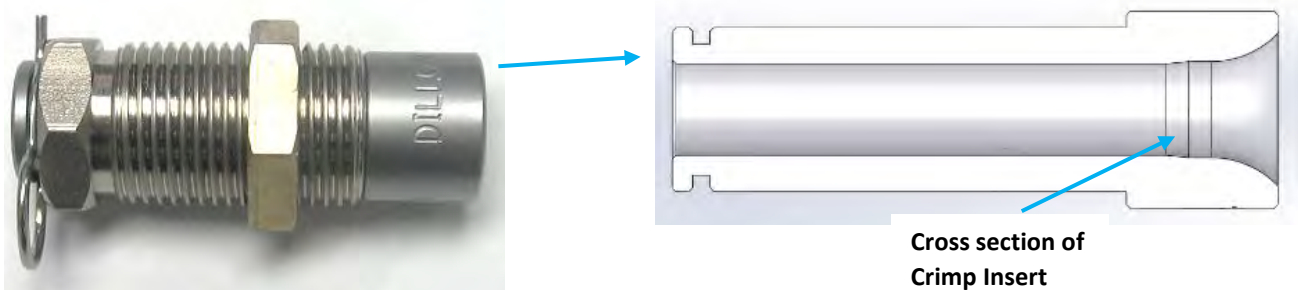
turns. Lock the Die Lock ring in place with a 1" Dillon Bench Wrench while holding the die with a 7/8" End Wrench. Loosen the 5/8" Seating Stem Lock Nut and back the center 9/16" Adjustable Seating Stem up 3 turns. Place a bullet in the case mouth and lower the Operating Handle. Carefully screw the 9/16" Seating Stem down until it contacts the bullet. Raise the Handle to remove and inspect the COAL of the cartridge. Use a dial caliper to measure the COAL of the cartridge. If the bullet is not seated deep enough, screw the 9/16" Seating Stem down 1/8 turn at a time. As a guide, one full turn moves the Seating Stem ~ .050". A 1/4 of a turn is about .012". Again, cycle the cartridge in Station 7 and inspect the COAL. Repeat these steps until the correct COAL is achieved. Now tighten the Seating Stem 5/8" lock nut while holding the 9/16" stem from rotating with end wrenches. (A quick method for pre-setting the Die is to place a previously loaded "good" cartridge in Station 7 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.



Rifle COAL

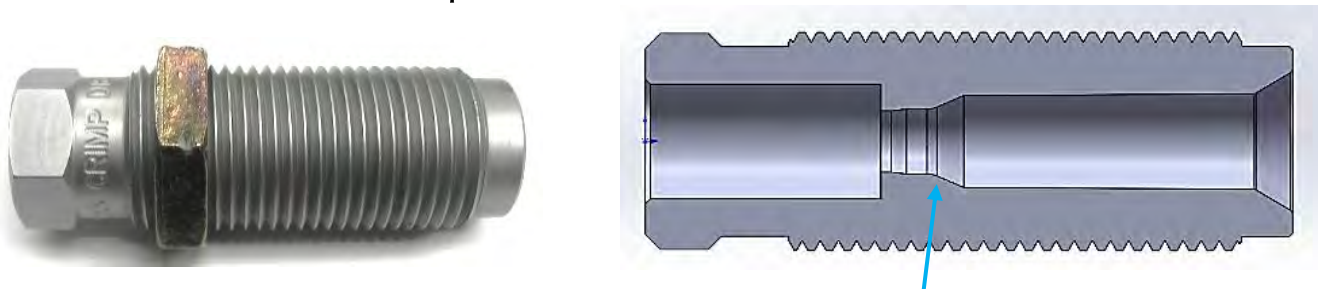
**7.8 STATION 8--BULLET CRIMPING**—Crimping is the final operation in the reloading process. Crimping removes the belling of the case mouth from the previous neck expanding or belling step and provides added friction or "holding" of the bullet by the brass case. Dillon recommends the crimp operation be separate from the seating operation and provides independent crimp Dies in the Dillon 3 Die sets.

**7.8.1 Dillon Pistol Crimp Die with removable Crimp Insert:**



Cross section of Crimp Insert

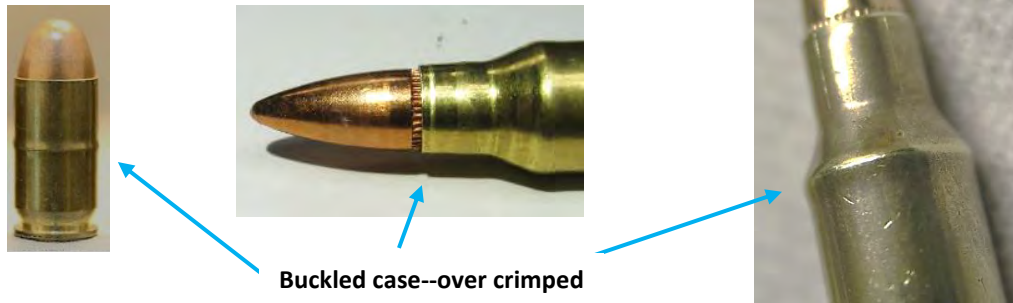
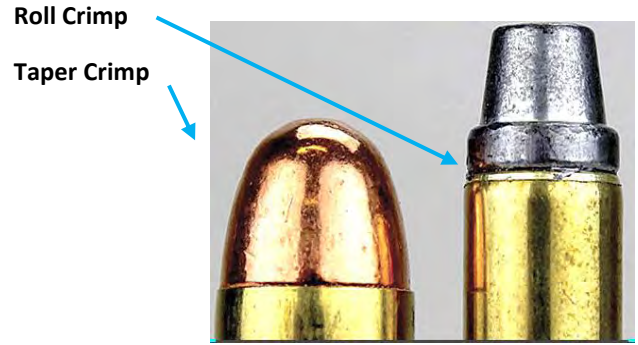
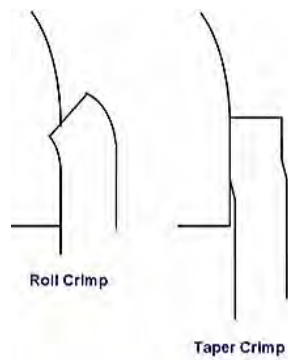
**7.8.2 Dillon Rifle Crimp Die:**



Cross section of Crimp Die



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



Courtesy of Western Powders

7.8.4 Roll Crimping--In roll crimping (or Accu-crimp for the Dillon Revolver Crimp Die), 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 or may not have a crimp groove or a cannelure that accepts the roll crimp. If there is no groove or cannelure, do not 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. *Note-- it is not necessary to use the cannelure if your COAL is not compatible with the location of the cannelure.*

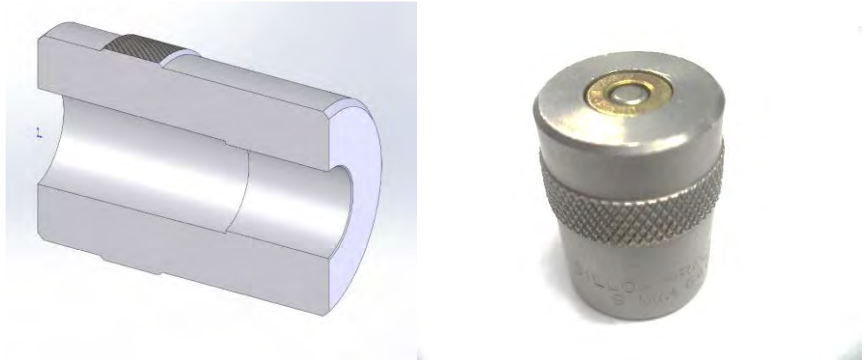
Bullets with and without cannelure or crimp grooves



- 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.

7.8.5 Taper Crimping of straight wall pistol cases simply flattens out the 'belling'. The gradual taper at the top of the taper Crimp Die slightly reduces the diameter of the top portion of the case/case mouth. A Dillon Taper Crimp Die is used for rimless straight-walled or tapered cases such as the 9mm, .40 S&W, .45 ACP. These styles of cartridges headspace on the case mouth. Roll crimping here would effectively shorten the cartridge case causing improper head spacing in the chamber. Taper crimping can be used on bullets with or without a cannelure or a crimp groove. Again, crimping should only reduce the diameter of the case mouth .001"-003".

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



Dillon Pistol Case Gauge

- 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 only enough to straighten out any belling from the previous steps. An autoloading rifle cartridge might require more crimping if the neck tension on the bullet is inadequate to hold the bullet in place during the auto-loading cycle.



Taper Crimp of Rifle Cartridge with Cannelure

#### 7.8.6 Adjustment of the Crimp Die

- Screw the Crimp Die into Station 8. 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 8 (Crimp Station).
- Lower the Operating Handle and continue to screw the Die Down until it touches the cartridge.
- Raise the Operating Handle slightly and screw the Die down 1/8 of a turn or less, lower the Operating Handle.
- Raise the Operating Handle halfway and inspect the cartridge. If the belling of the case mouth is still present, or the desired amount of crimp is not enough, give the Die a 1/8 turn down or less and try again. Continue making small adjustments until the desired amount of crimp is enough--No more than .001-.002" less than the case mouth outside diameter.



Measuring Crimp

- Once the adjustment is complete, place the case back into Station 8 and lower the Operating Handle. Tighten the Crimp Die lock ring using a 1" Dillon Bench Wrench and a 7/8" end wrench to hold the Die body.
- *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 the system!*

## 8 CONVERSION LIST AND PROCEDURES

### 8.1 DILLON HAS CONVERSION KITS FOR VARIOUS CALIBERS AS NOTED THE TABLE BELOW

8.1.1 The following are typical Rifle and Pistol Caliber Conversions. The available Caliber Conversion list is shown below in section 8.1.2.



Rifle Conversion



Pistol Conversion

8.1.2 The following items are required to convert to a different caliber—a separate 1100/1050 Toolhead is recommended—

P/N	Caliber	Casefeed Adapter	Casefeed Plunger	Expander	Shellplate	Pins-6ea	Powder funnel/activator	Note
20633	.32ACP	White (13810)	Small, 380 ACP (12964)	S / 32cal (12780)	J (11113)	8 (14048)	S (12845)	1
20634	.32 S&W Long/32HR Mag	White, Slotted (12641)	Small (13306)	S / 32cal (12780)	D (12107)	3 (14060)	S (12845)	1,2
20483	.380ACP	White (13810)	Small, 380 ACP (12964)	380ACP (13285)	3 (12441)	3 (14060)	1050 Powder activator, pistol (13005)	1,3
20482	9mm	Green (13878)	Small (13306)	F / 9mm (12833)	5 (12938)	3 (14060)	1050 Powder activator, pistol (13005)	1
21525	9x25mm Dillon	Red (13872)	Medium (13098)	F / 9mm (12833)	W (12940)	2 (14062)	1050 Powder activator, pistol (13005)	1
20484	.38 SUPER	Green (13878)	Small (13306)	F / 9mm (12833)	5 (12938)	3 (14060)	1050 Powder activator, pistol (13005)	1
21057	.38 SUPER COMP	Green (13878)	Small (13306)	F / 9mm (12833)	3 (12441)	3 (14060)	1050 Powder activator, pistol (13005)	1
20477	.38 SPECIAL/.357 MAG	Orange (13802)	Medium (13098)	D / 38/357 (13137)	2 (12704)	2 (14062)	1050 Powder activator, pistol (13005)	1
20068	.357 SIG	Green (13878)	Medium (13098)	F / 9mm (12833)	W (12940)	2 (14062)	1050 Powder activator, pistol (13005)	1
21160	.38-40 WIN	Yellow (13654)	Large (13073)		N (16153)	4 (14047)	W (13600)	1
20545	.40 S&W	Green (13878)	Medium (13098)	W / 10mm (12912)	W (12940)	2 (14062)	1050 Powder activator, pistol (13005)	1
20788	10mm	Red (13872)	Medium (13098)	W / 10mm (12912)	W (12940)	2 (14062)	1050 Powder activator, pistol (13005)	1
20478	.41 MAG	Yellow (13654)	Large (13073)	H / 41cal (12882)	6 (11856)	1 (13930)	1050 Powder activator, pistol (13005)	1
20479	.44 SPECIAL/.44 MAG	Yellow (13654)	Large (13073)	G / 44cal (12628)	4 (12600)	4 (14047)	1050 Powder activator, pistol (13005)	1
21161	.44-40 WIN	Yellow (13654)	Large (13073)		N (16153)	4 (14047)	4 (13474)	1
21010	.45 GAP	45 GAP (13842)	Medium (13098)	45 GAP (11118)	1 (12999)	1 (13930)	1050 Powder activator, pistol (13005)	1
20480	.45 ACP	Red (13872)	Large (13073)	E / 45cal (12749)	2 (12999)	2 (13930)	1051 Powder activator, pistol (13005)	1
20481	.45 COLT	Yellow (13654)	Large (13073)	E / 45cal (12749)	C (11235)	4 (14047)	1050 Powder activator, pistol (13005)	1
20833	.475 LINEBAUGH/.44 RUGER	475/480 (11089)	Extra Large (13072)		N (16153)	6 (15755)	475/480 Ruger (10723)	1,4
20834	.500 S&W MAG	500 S&W (11090)	Extra Large (13072)		500 S&W (11036)	7 (13436)	50 (14465)	1,5
20485	.223 REM	White, long (pinned) (12146)	Small (13306)	223 (13332)	3 (12441)	3 (14060)	A (13426)	1,6
20485	.223 REM CARBIDE	White, long (pinned) (12146)	Small (13306)	223 (13332)	3 (12441)	3 (14060)	A (13426)	1,6
21055	.22-250	308 Win (11005)	Medium (13098)	22-250 (12071)	1 (12999)	1 (13930)	A (13426)	1,6
21054	.243 WIN/6MM REM	308 Win (11005)	Medium (13098)	243 (12070)		1 (13930)	I (13305)	1,6
62403	6.5 CREEDMORE	309 Win (11005)	Medium (13098)	6.5 CMOR (62405)	1 (12999)	2 (13930)	K (13216)	1,6
20896	6.5 GRENDDEL	7.62x39mm (12943)	Medium (13098)		A (11925)	2 (14062)	6.5 Grendel (18947)	1,7
20468	6.8 SPC	7.62x39mm (12943)	Medium (13098)	6.8 SPC (62125)	A (11925)	3 (14062)	N (13014)	1
20626	.30 CARBINE	White, Slotted (12641)	Small (13306)	C / 30cal (12748)	8 (12655)	8 (14048)	C (13564)	1,6
20631	7.62X39	7.62x39mm (12943)	Medium (13098)	7.62x39 (13348)	A (11925)	2 (14062)	AK (13015)	1,7
62374	.300 AAC BLACKOUT	White, Slotted (12641)	Small (13306)	300 AAC (62372)	3 (12441)	3 (14062)	AK (13015)	1
21052	.30-30 WIN	308 Win (11005)	Large (13073)	30-30 (12068)	7 (12075)	4 (14047)	B (13587)	1,6
20466	.300 WSM	300 WSM (11459)	Extra Large (13072)	308 / 30-30 (12074)	B (18497)	7 (13436)	Short 300 Mag (18415)	1,8
21051	.303 BRITISH	Yellow (13654)	Large (13073)	7.62x39 (13348)	N (16153)	4 (14047)	B (13587)	1,6
21049	.308 WIN	308 Win (11005)	Medium (13098)	308 / 30-30 (12074)	1 (12999)	1 (13930)	B (13587)	1,6
21049	.308 CARBIDE	309 Win (11005)	Medium (13098)	308 / 30-30 (12074)	2 (12999)	2 (13930)	B (13587)	1
21056	.45-70 GOVERNMENT	45-70 (11007)	Extra Large (13072)	30-06 (12073)	G (12705)	7 (13436)	T (13407)	1,9
Note	Includes/Requires:							
1	1 ea (17384) 5 ea (13569 ) Tabs							
2	1050 Adapter 38 Super Comp (22301)							
3	1050 Swage Back-up Rod-Large (13017), Swage Die (12184), 9/16 x 18 Lock Nut (13483), 1/4 x 28 Jam Nut (13419)							
4	1050 Magnum CF Tube- Red (20534), CF Funnel Assembly-Large (22174), 1050(?) Large Powder Die (13443), Casefeed plate-Large Rifle (21075)							
5	1050 Magnum CF Tube-Red (20534), CF Funnel Assembly-Large (22174), Large Powder Die (13443), Casefeed plate-Large Rifle (21075)							
6	Swage Die (12184), 9/16 x 18 Lock Nut (13483)							
7	Casefeeder Spacer 41, 44, 45LC (13703)							
8	Swage Die (12184), 9/16 x 18 Lock Nut (13483), XL Powder Die (21253), 1050 Casefeeder Body-Magnum (11458)							
9	Swage Die (12184), 9/16 x 18 Lock Nut (13483), 1050 Magnum CF Tube, Red (20534)							

## 8.2 CASEFEED CONVERSION

### 8.2.1 REPLACE THE CASEFEED PLATE

- Remove and replace the Casefeed Plate inside the Casefeed Bowl if required.
- Adjust the Casefeeder as specified in the Casefeed Setup Section 7.1.



### 8.2.2 REMOVE/REPLACE CASEFEED TUBE

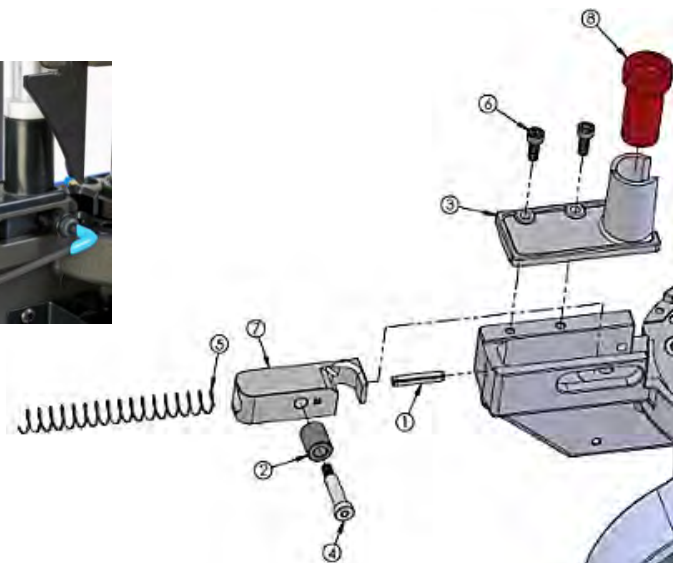
- Remove Casefeed Tube from the upper Spring Clamp and the Casefeed Adapter



Remove from  
Spring Clamp

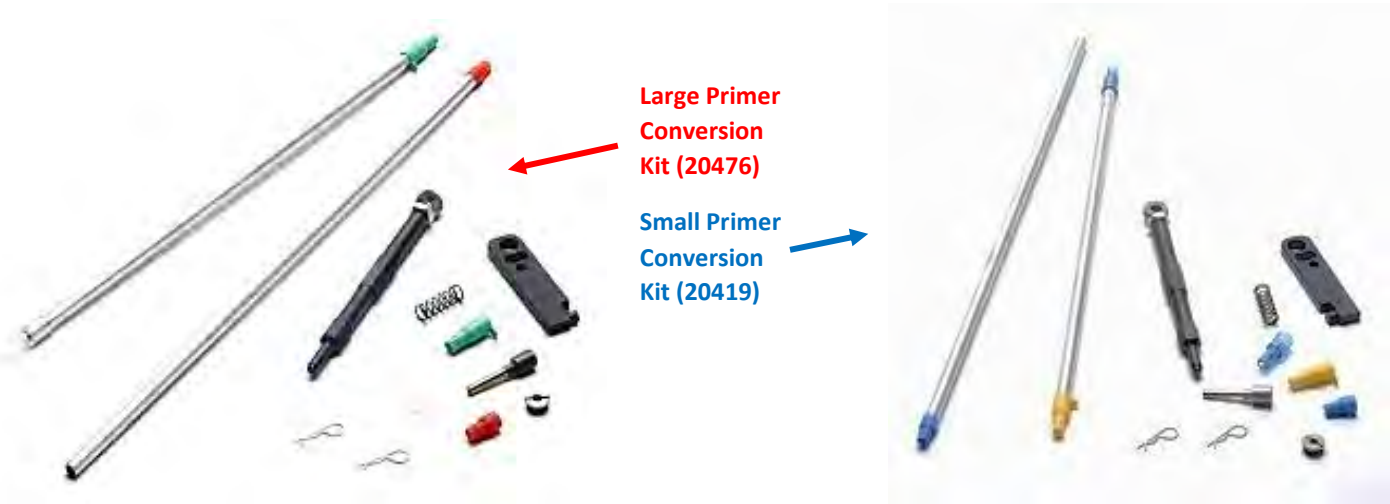
### 8.2.3 CHANGE OUT THE CASEFEED PLUNGER

- Remove the two Screws (6) and Roller/Shoulder Bolt (4 & 2)
- Remove the Casefeed Plunger Cover (3), the Casefeed Plunger (7) and Spring (5).
- Install a new Casefeed Plunger and colored Casefeed Adapter (8) while holding the Spring in position as the Cover (3) is re-attached by the two screws (6).
- Lightly grease and reinstall and the Roller/Shoulder Bolt (4 & 2).

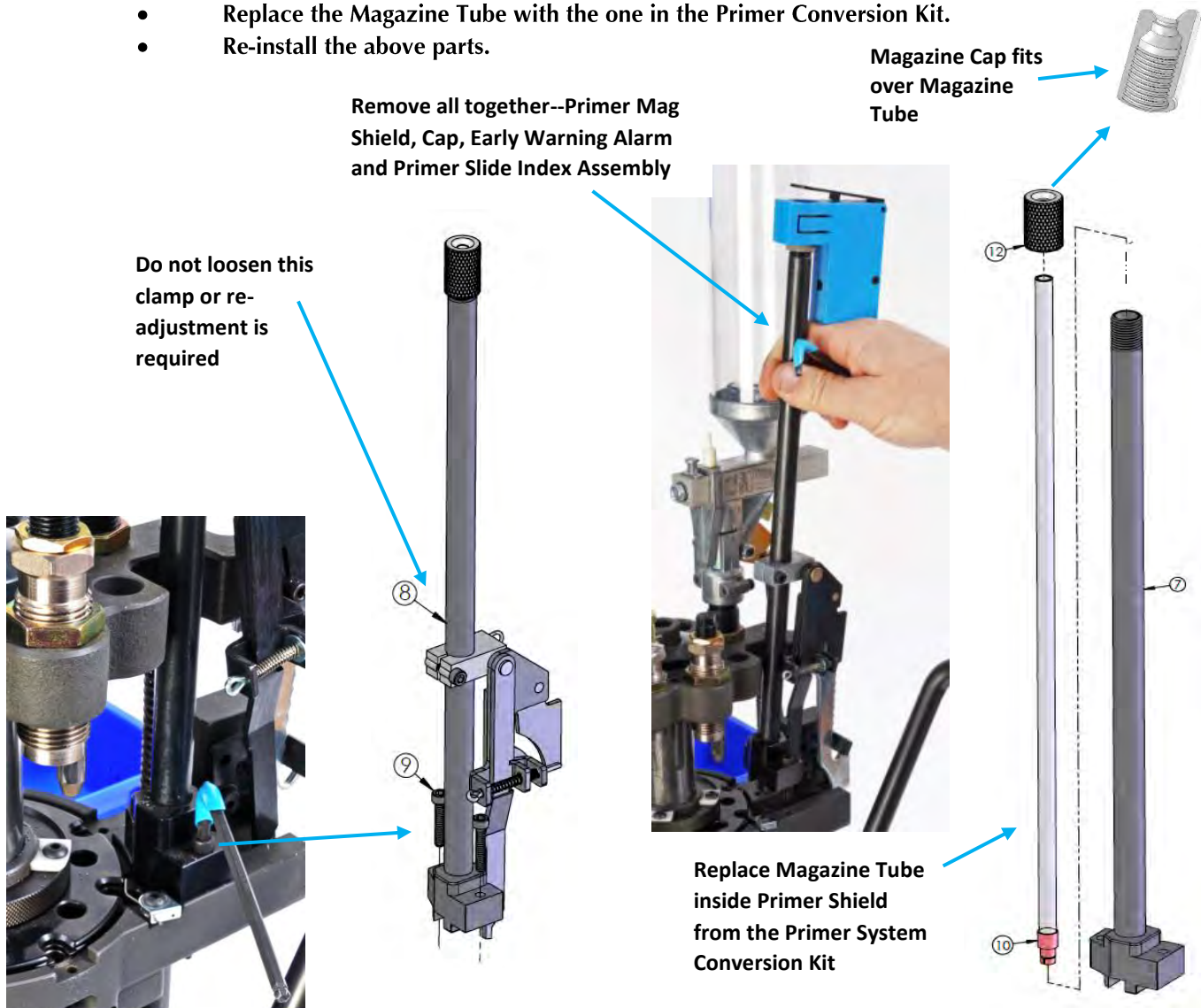


### 8.3 PRIMER SIZE CONVERSION

- The RL1100 ships with one size Primer System installed—Changing primer size requires a Primer System Conversion from Dillon--either the Large Primer System Conversion 20476 or Small Primer System Conversion 20419.

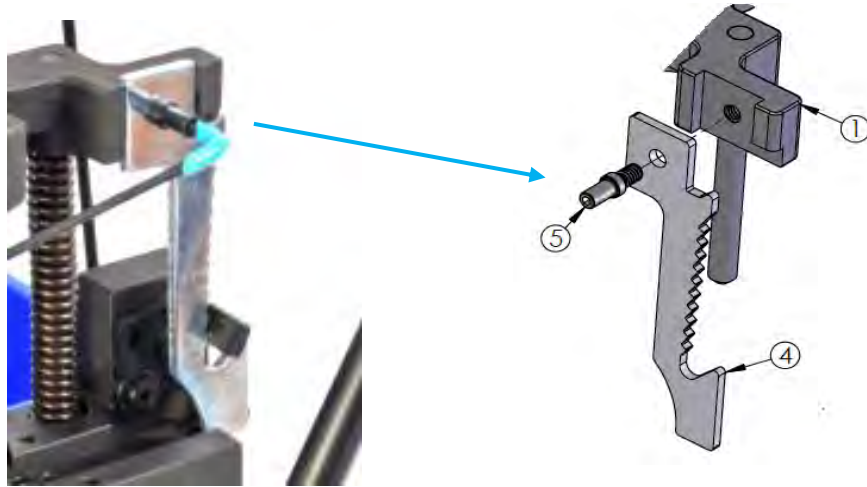


- Remove the 2 Primer Shield-Body Screws (9) from the frame
- Remove Magazine Shield with Cap, Primer Slide Index Assembly and Primer Early Warning Alarm and dump out any primers left in the Magazine Tube. **WARNING!**--any primers left in the Magazine Tube will fall out when the Magazine Tube is removed.
- Replace the Magazine Tube with the one in the Primer Conversion Kit.
- Re-install the above parts.

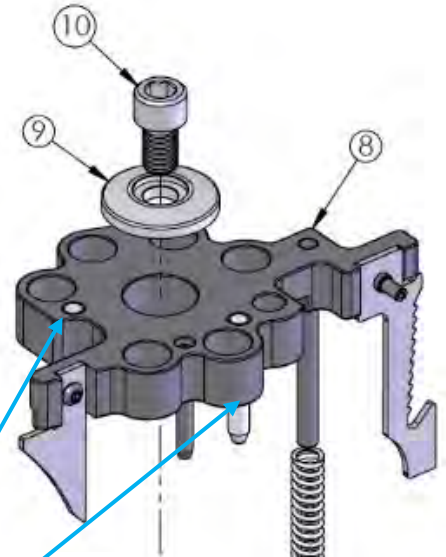
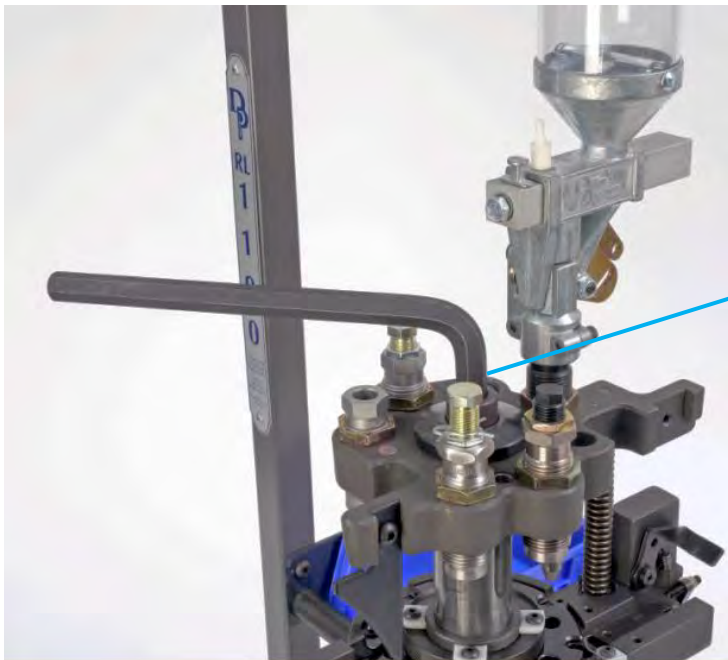


## 8.4 TOOLHEAD REMOVAL AND REPLACEMENT

- Remove Primer Cam Guide bolt (5) and Toolhead Ratchet (4).

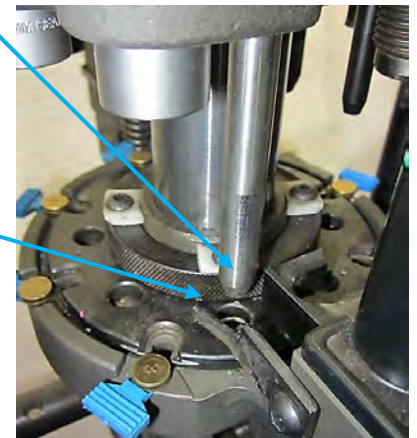


- Place the Operating Handle in the full up position. **Warning! The Toolhead is spring-loaded up.** Remove Toolhead Bolt and Washer (10) and (9) and carefully slide the Toolhead up and off the Main Shaft.
- Re-install and lightly tightening the Toolhead Bolt (10) against the Toolhead (8). Cycle the Operating Handle and Toolhead down. Torque the Toolhead Bolt (10) to 20-25 ft-lbs with the Toolhead/Operating Handle all the way down. Cycle the Handle up and down verifying that the Alignment Pins do not bind in the Shellplate or Frame holes. Eliminate any binding/excessive contact of the Alignment Pins by loosening and re-tightening the Toolhead Bolt.



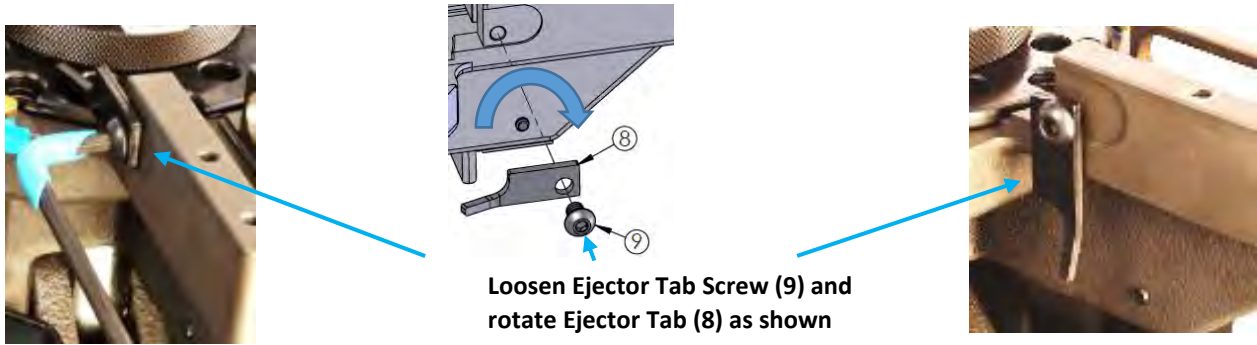
Alignment Pin

Alignment Pin must align with the hole in Shellplate and the hole in the Frame without binding

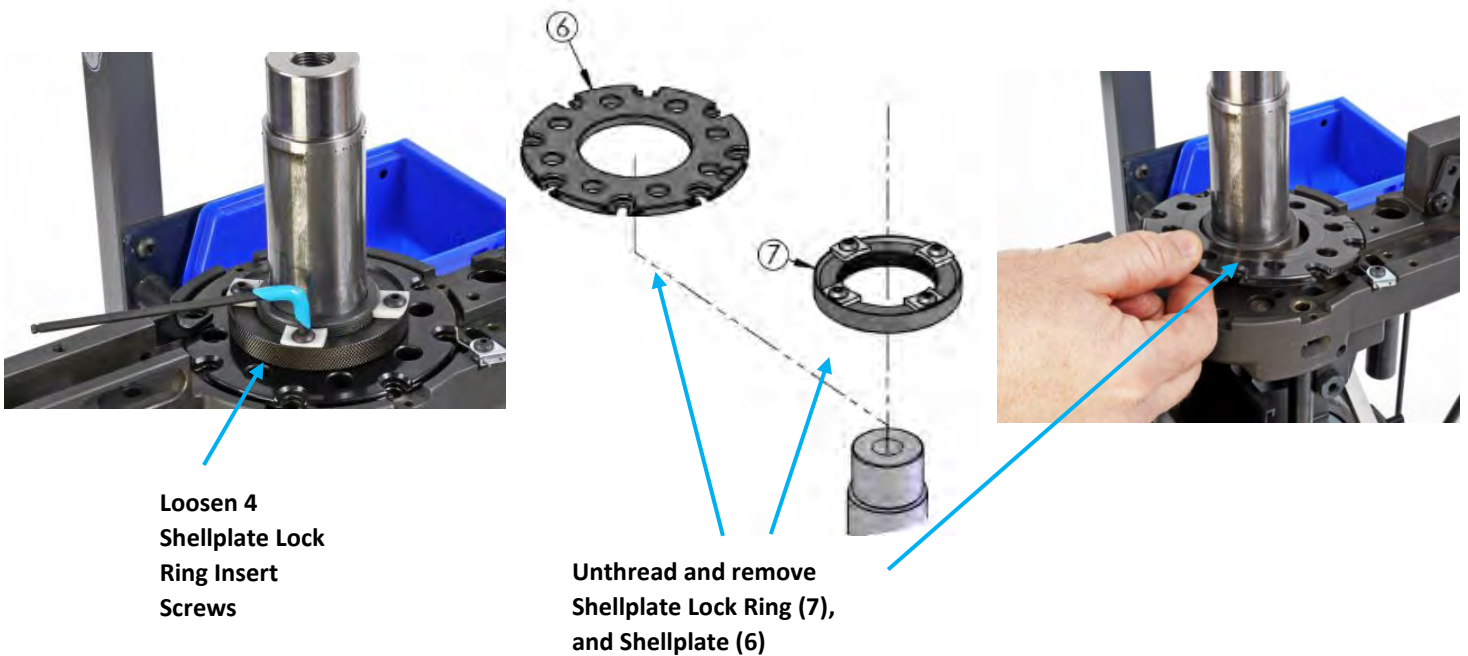


## 8.5 SHELLPLATE CONVERSION

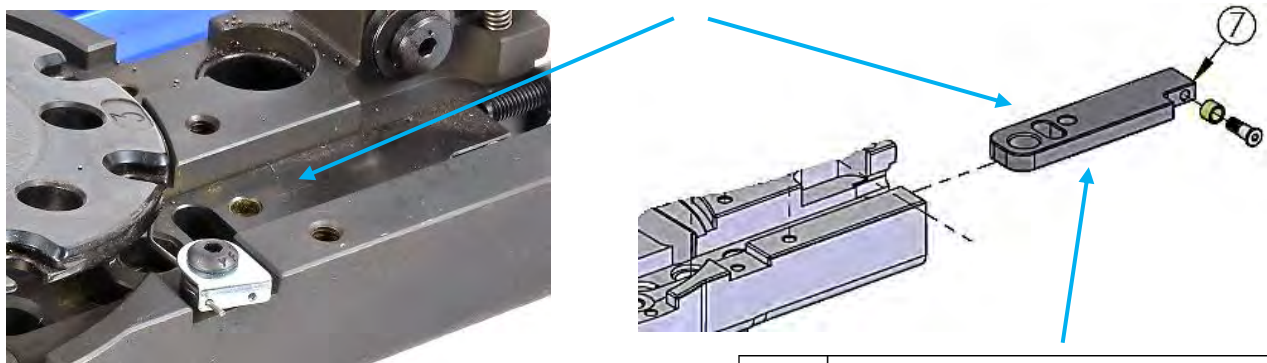
- Loosen Ejector Tab Screw and rotate the Tab out of the way for removing the Shellplate. When reinstalling the Ejector Tab, position it to clear the Shellplate by approximately 1/16".



- Replace the Shellplate by loosening the 4 Lock Ring Insert Screws. Unthreading the Shellplate Lock Ring and remove. Check the Index Ball and Spring for debris and clean. Replace the Shellplate. Re-tighten Shellplate Lock Ring down finger tight against the Shellplate and backup the Lock Ring up 1/8 turn. The Shellplate should rotate without dragging with "no" up and down clearance. Re-tighten the 4 Shellplate Lock Ring insert screws.



- After the Shellplate is removed, lift out and remove Primer Slide.



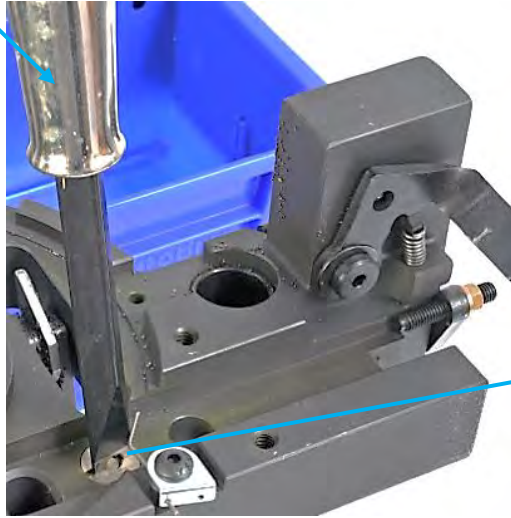
7	20318_LARGE PRIMER SLIDE ASSEMBLY	1
7A	20317_SMALL PRIMER SLIDE ASSEMBLY	



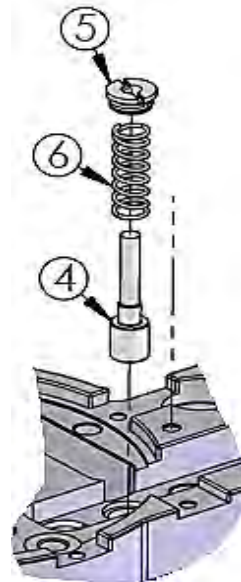
## 8.6 PRIMER PUNCH CONVERSION

- Remove and Replace Primer Punch (4) and Primer Punch Bushing (5) if changing primer size, using the special slotted tip Screw Driver provided with the RL1100.
- The Primer Punch and the Primer Bushing are small and large primer size-specific and must be replaced together. Reinstall the appropriate Small or Large Primer Slide. Check the primer seating height--see section 7.4.7. Do not use any oil or grease on these parts and keep this area clean from debris.

Use provided  
Special Slotted Tip  
Screw Driver to  
remove/replace  
Bushing

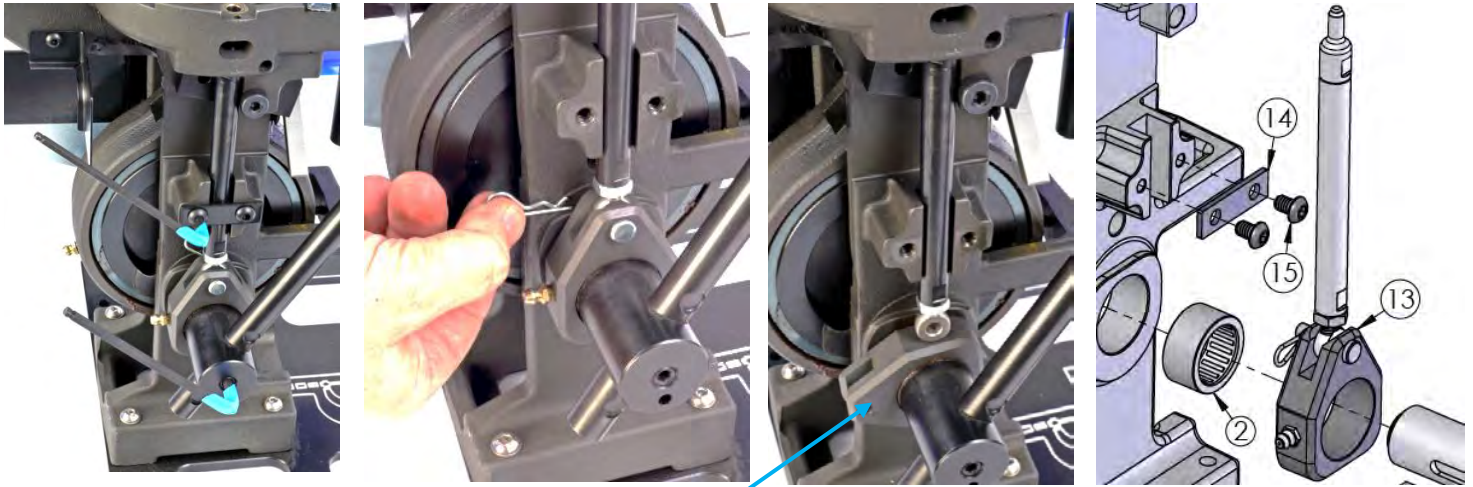


4	12849_1050 PRIMER PUNCH LARGE
4A	13307_1050 PRIMER PUNCH SMALL
5	13130_PRIMER PUNCH BUSHING LARGE
5A	13222_PRIMER PUNCH BUSHING SMALL
6	13858_PRIMER PUNCH SPRING

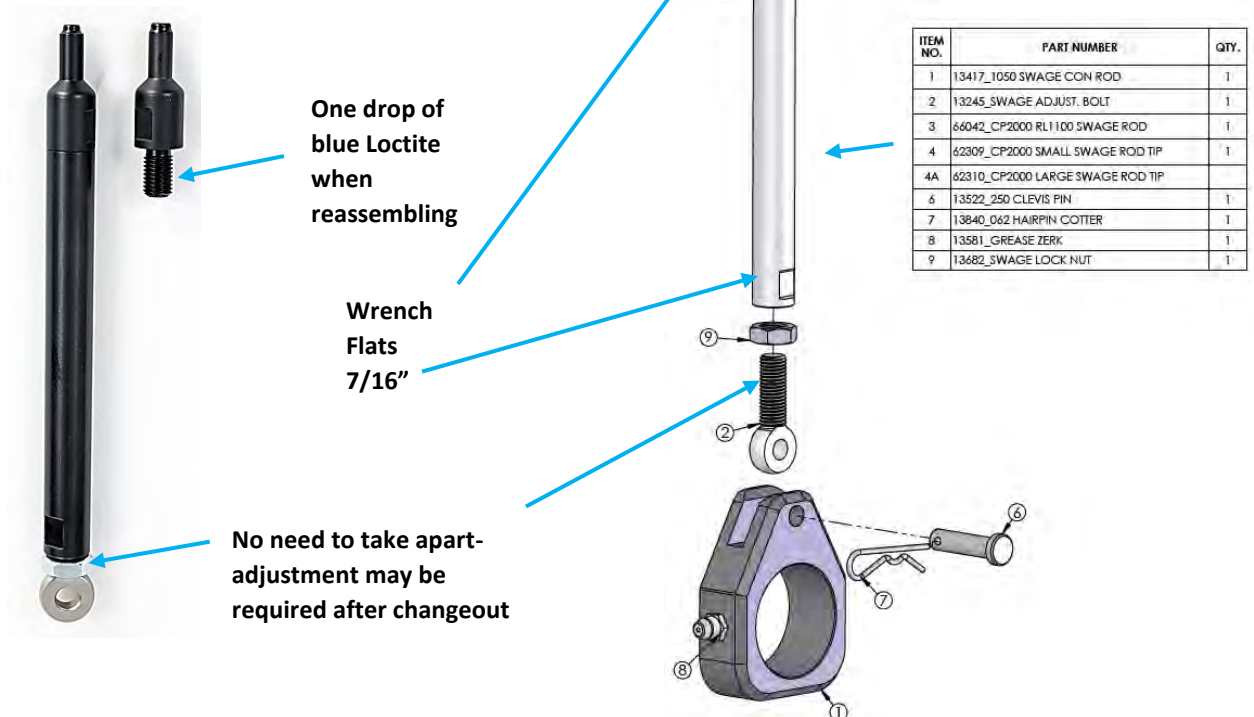


## 8.7 SWAGE ROD SIZE CONVERSION

- Remove both 1/4" Screws that hold the Swager cover Plates over the Swage Rod.
- Remove Spring Clip from Clevis Pin and remove Clevis Pin.
- Rotate Swage Con Rod sideways and remove Swage Assembly.
- Replace Swage Rod Tip (4 or 4a) using 7/16" end wrenches on the wrench flats on the Swage Rod and the Tip. A small drop of Blue Loctite on the Tip thread is recommended when re-assembling.



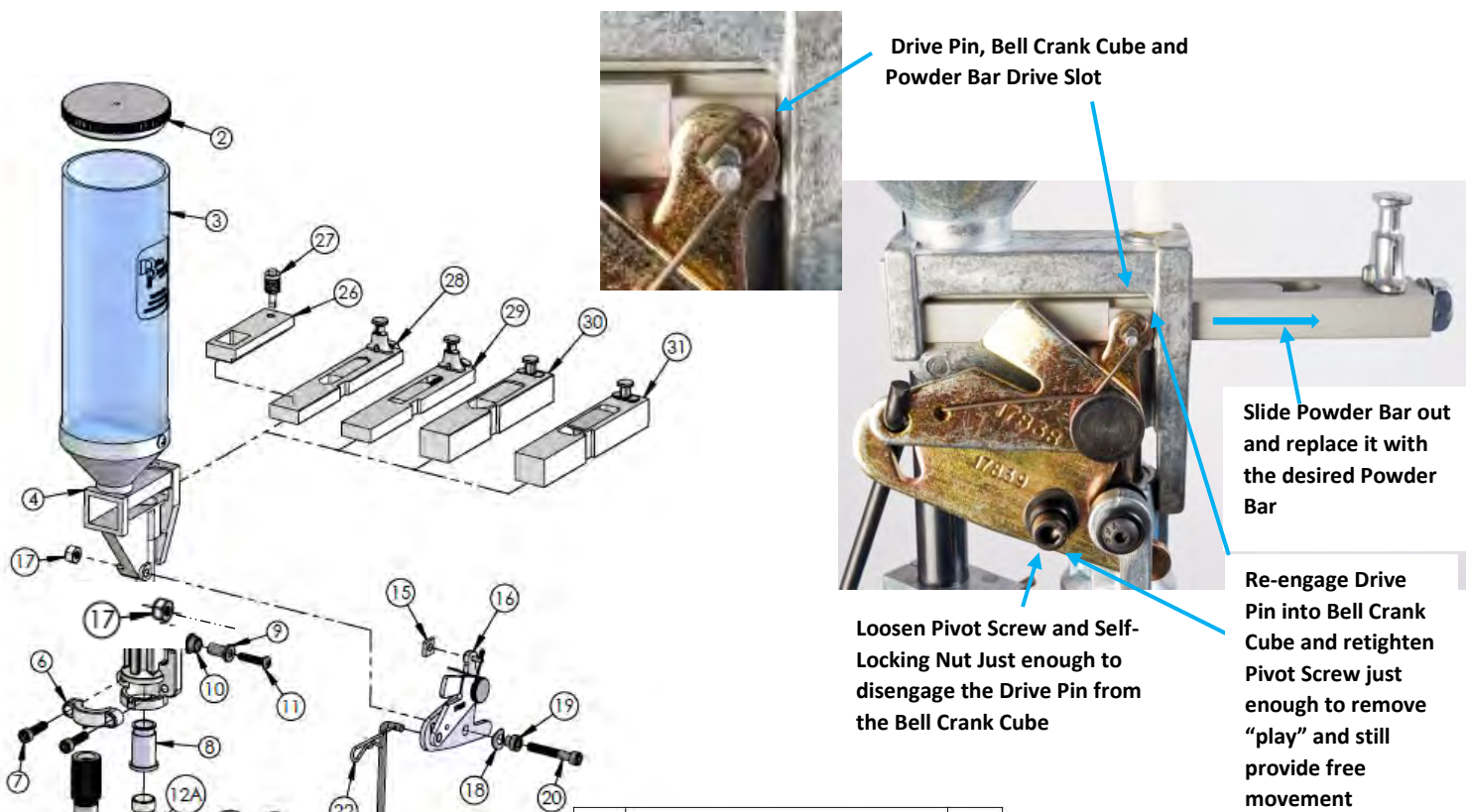
Rotate  
Connecting  
Rod  
sideways



- Reassemble RL1100 performing the above procedure in reverse order
  - Lightly lubricate the Main Shaft with 30wt motor oil
  - Lightly grease the bottom surface of the Shellplate Lock Ring
  - Lightly grease the Casefeed Cam Slot and Roller
  - Verify setup as described in the setup section of this manual

**8.8 POWDER MEASURE CONVERSION—CAUTION!—make sure there is no powder in the powder measure.**

- Loosen pivot screw and locknut (20) and (17) just enough to disengage toggle drive pin tab on (16) from white plastic Bell Crank Cube (15) from powder bar slot.
- Slide-out powder bar (and Spacer (26) and Spacer Plug (27) if used) and replace with desired Powder Bar item (28, 29, 30 or 31).
- Reengaged White Cube (15) with Powder Bar Slot and Toggle Drive Pin item (16) and retighten (20) pivot screw and (17) lock nut—do not over tighten! Make sure powder bar slides freely.

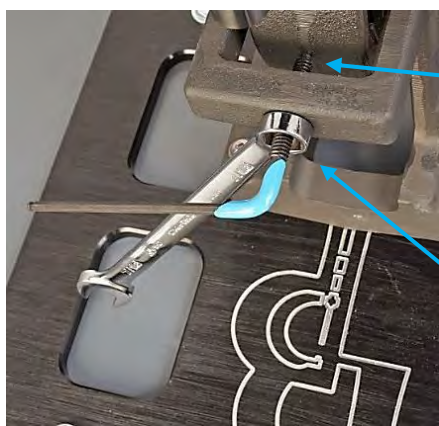
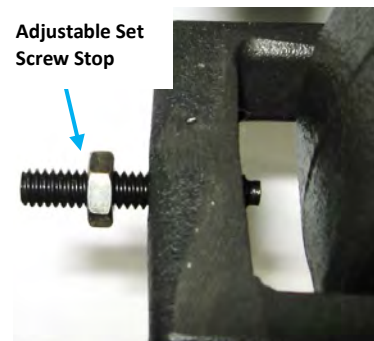


ITEM NO.	PART NUMBER	QTY.
1	22221_POWDER MEASURE RL1100 1050 COMPLETE	
2	13882_POWDER MEASURE HOPPER LID	1
3	13691_HOPPER TUBE	1
4	22273_POWDER BODY W/ DROP TUBE	1
5	13940_BODY COLLAR HOUSING	1
6	13939_BODY COLLAR CLAMP	1
7	14037_10-24x750 SHCS	2
8	13845_BODY COLLAR SLEEVE	1
9	14808_COLLAR ROLLER BUSHING	1
10	13793_PM BODY COLLAR ROLLER	1
11	14023_8-32x750 BHCS	1
12	RIFLE POWDER FUNNEL - SEE CONVERSION CHART FOR APPLICABLE SIZE	
12A	13005_PISTOL POWDER ACTIVATOR	
13	13464_1050 POWDER DIE	1
14	14067_DIE LOCK RING	1
15	13871_BELL CRANK CUBE	1
16	11234_LOCK LINK ASSEMBLY	1
17	10-32 LOCKNUT ZINC	1
18	14041_250 BOWED WASHER	1
19	13848_BELLCRANK BUSHING	1
20	10-32x1250 SHCS	1
21	13960_POWDER BAR RETURN ROD	1
22	13840_062 HAIRPIN COTTER	1
23	13089_1050 ROD BOLT	1
24	14033_PRIMER CUP SPRING	1
25	66021_FAILSAFE NUT ASSEMBLY	1
25A	13801_TINNERMAN NUT	
25B	13799_FAILSAFE NUT	
26	13644_POWDER BAR SPACER	1
27	13921_POWDER BAR SPACER PLUG	1
28	20062_SMALL POWDER BAR ASSEMBLY	1
29	20780_EX-SMALL POWDER BAR ASSEMBLY	1
30	20063_LARGE POWDER BAR ASSEMBLY	1
31	21353_MAGNUM POWDER BAR ASSEMBLY	1

## 9 ADJUSTMENT PROCEDURE

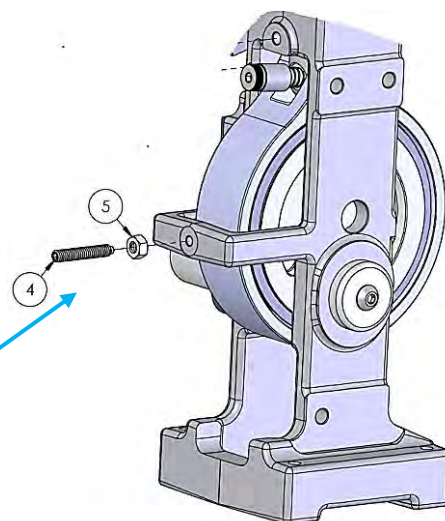
**9.1 DILLON ECCENTRIC DRIVE™/STOP**—the upper travel limit for Dillon Eccentric Drive has been factory set and should not require adjustment. This adjustment also controls the indexing of the Shell Plate. If necessary adjust the travel limit screw as follows:

- Loosen the 7/16 Hex Lock Nut counter clockwise (5) from the back of the Frame. Turn item (4) the Travel Stop Set Screw out at least 2 full turns counter clockwise.
- Raise the Operating Handle to its upper travel limit.
- Gently push back on the Handle and adjust the Set Screw clockwise until it contacts the Eccentric Drive Housing.
- Turn the Set Screw in one more turn clockwise and tighten the 7/16 lock nut.
- Verify the Shellplate indexes properly by lightly holding pressure on the Shellplate with your thumb while cycling the Operating Handle fully up and down. **Caution! Avoid being pinched!**
- If the Shellplate under indexes, back off the stop ¼ of a turn counter clockwise at a time until indexing is correct.



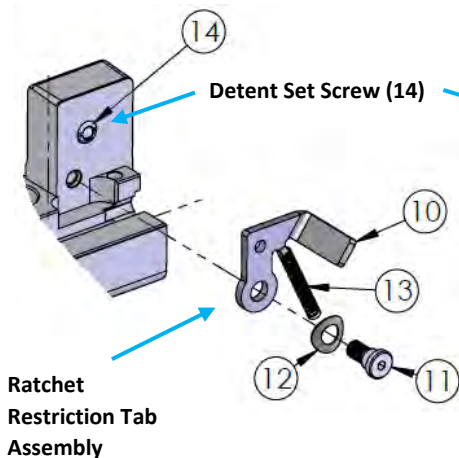
Adjust the Set Screw Stop against the Housing here with the Operating Handle all the way up

Adjusting Set Screw Stop Position and Lock Nut

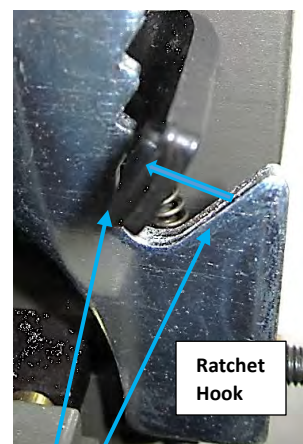
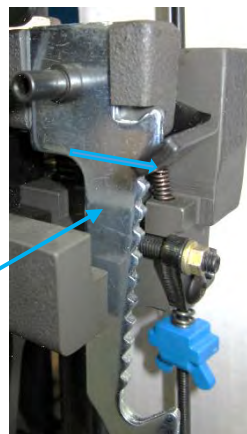


**9.2 THE RATCHET RESTRICTION TAB ASSEMBLY** (Items 10 to 14 and the Ratchet minimize the possibility of “Short Cycling” the Operating Handle. The adjustment is factory set. If adjustment is required, adjust as follows:

- Verify that the Restriction Tab Assembly (Items 10 to 14) is assembled correctly and the screw (11) is tight.
- Gently screw the Detent Set Screw (14) in clockwise, until it stops against the flat surface on the Restriction Tab (10). Back the Detent Set Screw up (counter-clockwise) one turn.
- Cycle the Operating Handle all the way down. The Restriction Tab will “click-ratchet” until the Handle reaches the bottom of its stroke, at which point the Restriction Tab will be disengaged by the Ratchet from the Ratchet teeth allowing the Handle to return freely to the top of its stroke. At the top of the stroke, the hook on the bottom of the Ratchet resets the Tab to the “ratcheting” position ready for the next downstroke of the Handle.
- Adjust the Detent Set Screw (with flat blade screwdriver) in and out ¼ of a turn at a time until the Ratchet/Restriction Tab works as described above.


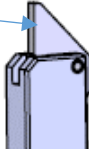


Ratchet disengaging Restriction Tab at the bottom of the stroke

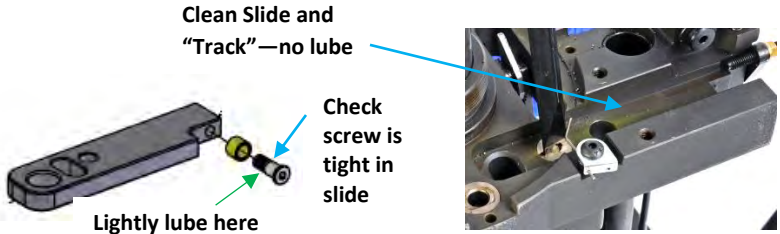
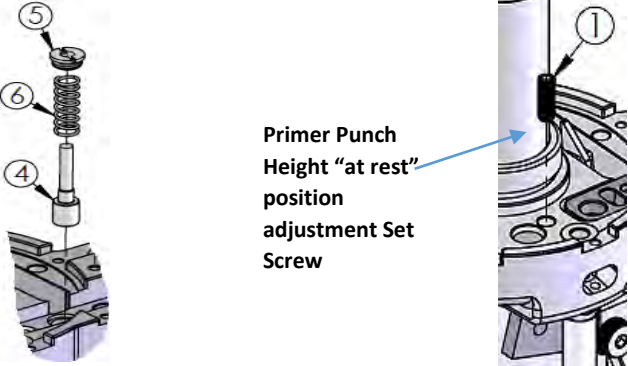
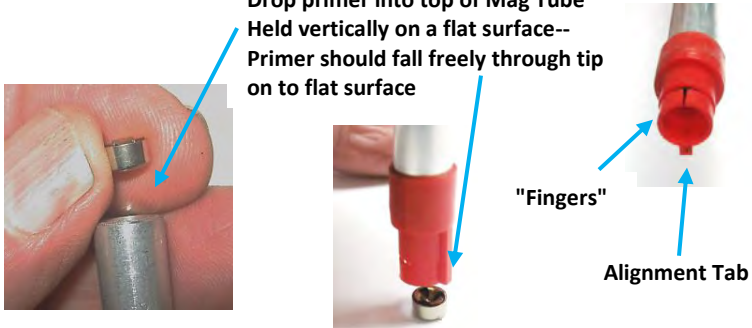


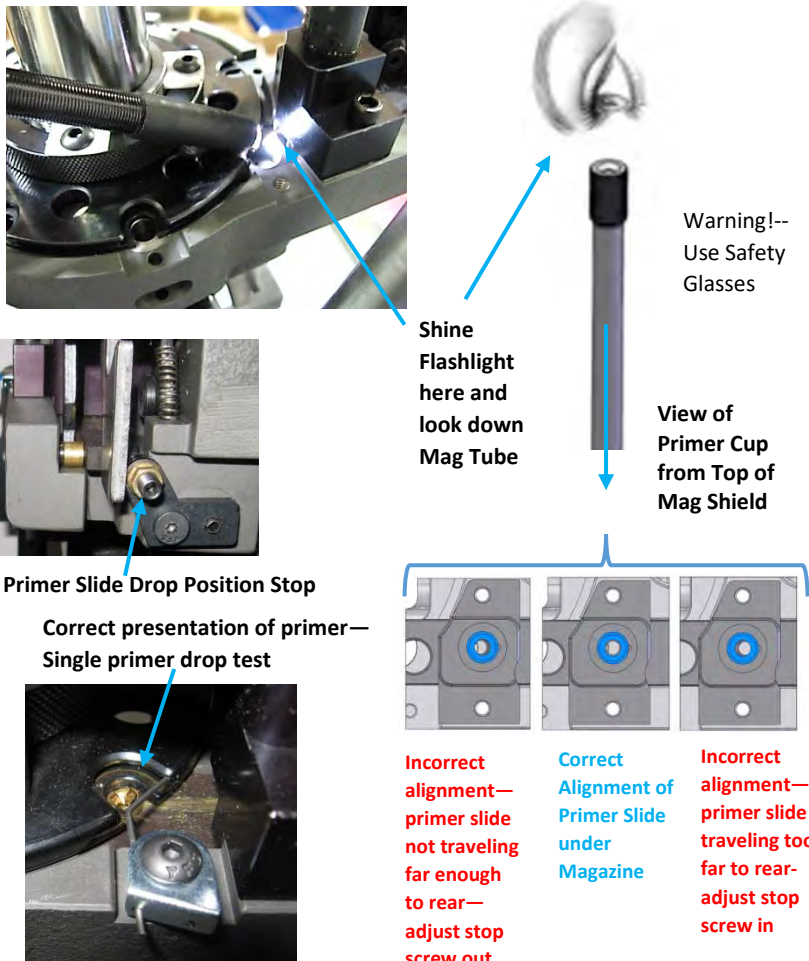

Ratchet Hook re-engaging Restriction tab at the top of the stroke

# 10 TROUBLESHOOTING GUIDE

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 removed.	<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 loading session, blow out the Toolhead and Shellplate areas.</li> <li>2. Periodically clean out the Size and Size/Trim Die with alcohol and swabs. They will get "gooey" over time.</li> </ol>
		Brass residue can also build upon the end of Pistol Powder Activator or Funnel in the flaring process causing them to stick in the case.	<ol style="list-style-type: none"> <li>1. Polishing the end of the Pistol Powder Activator or Funnel may also be necessary if the Funnel starts sticking inside pistol case necks.</li> <li>2. New brass or "pin" cleaned brass may also cause the Funnel to stick in the mouths of the cases.</li> </ol>
2.	Casefeed Issues	9mm cases may flip sideways in the Clear Casefeed Funnel	<ol style="list-style-type: none"> <li>1. Adjust the Casefeed Window as described in the Casefeed Setup Section 7.1</li> <li>2. Lower the speed of the Casefeed Motor</li> </ol>
		Cases are having trouble being inserted into the Shellplate. Cases won't enter the slot in the Shellplate	<ol style="list-style-type: none"> <li>1. Tighten/minimize the clearance between the Shellplate, the Shellplate Lock Ring and the Frame. Test by pushing down on the edge of the Shellplate. If there is excessive clearance (feels springy), tighten the Shellplate Lock Ring and secure the Lock ring Insert Screws.</li> <li>2. Verify there are no corn cobb particles in the Shellplate Pockets or under Shellplate from cleaning the cases.</li> <li>3. Verify the correct Casefeed Adapter and Casefeed Plunger are being used</li> <li>4. Slow down the cycle rate.</li> <li>5. Damaged Shellplate. --Replace</li> <li>6. Dirty, wrong, worn or damaged Casefeed Plunger. --Clean and or replace.</li> <li>7. Check that the Shellplate is not over or under indexing. —Adjust Stop</li> <li>8. Wrong Shellplate.</li> </ol>
		Casefeeder is on but Casefeed Plate doesn't rotate	<ol style="list-style-type: none"> <li>1. Brass may be caught under the Casefeed Plate, in the Casefeed window or Casefeed Deflector.</li> <li>2. The Casefeed Bowl is over full.</li> <li>3. The Casefeed Plate is not fully seated on the Drive Motor Shaft.</li> <li>4. A bad Microswitch or Microswitch Lever caught on the inside of the Tube.</li> <li>5. The Clutch is slipping. --Adjust clutch per Casefeeder Instructions.</li> </ol>
		Cases are falling upside down.	<ol style="list-style-type: none"> <li>1. Using the wrong Casefeed Plate for that caliber.</li> <li>2. Window Port Cuff is open too wide. See Casefeeder instructions.</li> <li>3. The Casefeed is too full.</li> <li>4. RL1100 not secured properly or bench not stable.</li> </ol>
		Cases are hanging up on the Microswitch Lever	<ol style="list-style-type: none"> <li>1. Check the angle of the switch lever and adjust as needed by gently bending it.</li> </ol>
		The case doesn't drop into Casefeed Plunger	<ol style="list-style-type: none"> <li>1. Wrong Casefeed Plunger or Casefeed Adapter</li> <li>2. Cases jammed in Casefeed Tube/Funnel.</li> <li>3. Tumbling media in Casefeed Tube.</li> <li>4. Case upside down, wrong caliber case mixed in.</li> <li>5. Casefeed Assembly is not adjusted properly.</li> </ol>
		Shellplate Indexing is "off"	<ol style="list-style-type: none"> <li>1. Clean and lubricate the Index Lever, Roller and Bolt. Readjust as specified in Section 9.1</li> <li>2. Check Index Pawl Tip for excessive wear. —Replace.</li> </ol> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>

3.	Indexing	Erratic /Incomplete Indexing	<ol style="list-style-type: none"> <li>1.Shellplate Lock Ring adjusted too tight. —Loosen up no more than 1/8 of a turn.</li> <li>2.Shellplate Lock Ring loosens when Shellplate Turns. —Shellplate Lock ring Insert Screws need be tightened.</li> <li>3.Wrong size Locator Buttons.</li> <li>4.Index Pawl bent, worn, or Pawl Spring missing or broken—Replace.</li> <li>5.Index Ball and or Ball Index Spring is missing, broken or dirty. --Clean and or replace.</li> <li>6.Sticky material/debris under the Shellplate. --Remove the Shellplate, clean with alcohol or acetone.</li> <li>7.Damaged or worn Shellplate.</li> </ol>
		Shellplate over-traveling or “jumping backward” after indexing	<ol style="list-style-type: none"> <li>1.Index Ball and/or Spring is stuck down with gunk or debris. --Remove Shellplate and clean top of Frame and Index Ball, spring and Shellplate.</li> <li>2.Not taking a full stroke on the Operating Handle.</li> <li>3.Index Pawl is worn or Index Stop needs adjusting</li> <li>4.Index Pawl Return Spring damaged or missing.</li> </ol>
		Shellplate over/under indexes	<ol style="list-style-type: none"> <li>1.Adjust the Dillon Eccentric Drive™ Stop position locking Set Screw Stop on the back of the Frame. The upper travel limit for the Drive has been factory set and should not require adjustment. This adjustment also controls the indexing of the Shellplate. If necessary adjust the travel limit screw as described in section 9.1</li> </ol>
		Crushing cases in Station 1	<ol style="list-style-type: none"> <li>1.Incomplete case insertion. Make a full stroke of the Operating Handle up and down on every cycle of the Handle.</li> <li>2.Cycling Operating Handle too rapidly.</li> <li>3. Casefeed Plunger, cam or roller dirty or damaged causing the case to be inserted “short.”. Clean or replace.</li> </ol>
4.	Depriming Failure “Primer Pull Back” Station 2	Primers may stick on the end of the Depriming Pin and are pulled back up into the primer pocket. The Swage Rod then crushes the primer.	<ol style="list-style-type: none"> <li>1.With rifle cases, place a deprimed case in station 2 with the Operating Handle down. 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.</li> <li>2.Depriming pin tip is damaged or bent—Replace.</li> <li>3.Polish the tip of the Depriming pin so the taper is gone. This gives a wider tip and the primer’s anvil is less likely to get jammed onto it.</li> <li>4.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.</li> </ol>
		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—rocks.</li> <li>4.Cycling Handle to fast—Case is still wiggling and hitting the De-priming Pin.</li> </ol>
5.	Sizing	Crushing cases Station 2	<ol style="list-style-type: none"> <li>1.Incomplete case indexing/insertion. Move the Operating Handle to a full rearward position on every stroke.</li> <li>2.Cycling Operating Handle too rapidly.</li> <li>3.Inadequate Radius on bottom of Size Die—Use Dillon Dies</li> </ol>
		Dents in the case during sizing	<ol style="list-style-type: none"> <li>1.Excessive Case lubrication during the resizing process can hydraulically form dents in the case. Disassemble and clean out the Size Die with a swab. Use enough lube on the cases to ensure they easily enter the sizing die. If the case is resistant to going into the Die, stop and re-lube. Without adequate lubricant, the case will stick in the Die and Shellplate can rip the rim off the case.</li> <li>2.Dents can also be caused by debris inside the Die.</li> </ol>
		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 also be used. Be sure thoroughly rinse and dry die after using the Sweets.</li> <li>2.Dirty brass cases. —Re-clean cases.</li> <li>3.New Brass has burrs. Tumble in corn Cobb.</li> </ol>
		Case stuck in Size Die	<ol style="list-style-type: none"> <li>1.Remove die—remove the stuck case—Relube cases with Dillon Case Lube.</li> <li>2.Use the stuck case removal feature in the Dillon Rifle Size Die. Some stuck cases may require the usage of a Redding “Stuck Case Remover” available from Dillon PN12186.</li> </ol>

6.	Priming	Primer slide is not moving easily back and forth	<p>1.The Primer Slide and or the Primer Slide "Track" in the Frame is dirty. Clean the Primer Slide and "Track" with Alcohol and replace using no lube except as shown. Also, check that Roller and Screw are clean and the Screw is tight.</p> 
		Primer Punch, Bushing, and or Spring are not moving up and down smoothly	<p>1.Disassemble Bushing (5), Punch (4), and Spring (6) by removing Bushing with provided special Slotted Screw Driver. Clean with alcohol and dry. 2.Re-assemble by compressing the Punch, Cup and Spring and re-tighten the Bushing (5)—The installed height of the Punch should be flush with the slide Track and must not drag on the Primer Slide. Adjust the height of the Punch (4) by adjusting the Rocker Set Screw (1) up or down—it is under the Shellplate.</p> 
		Primer is not "Dropping" through Magazine	<p>1.Clean any primer residue/buildup inside the Magazine Tube with a pipe cleaner. 2.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 there is 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> 
7,	Priming	Crushed primers	<p>1. Crimped primer military brass. Military or crimped primer pockets must be chamfered or swaged before priming. 2. Ringed primer. A ring of the primer cup is left on the sides of the primer pocket after the case has been de-primed. 3.Wrong size/type primer for that caliber. 4.Abrupt or jerky movement of the Operating Handle. Cycle the RL1100 using a smooth motion.</p>
		A stuck primer in the Magazine or the Pickup Tube	1.Spray WD-40 into the tube and throw it away—Call Dillon for a new one!
		Primers not being picked up by the Primer Slide	1.Make sure there are no primers in the Magazine Tube and the Operating Handle is all the way up. 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 Magazine Tube as

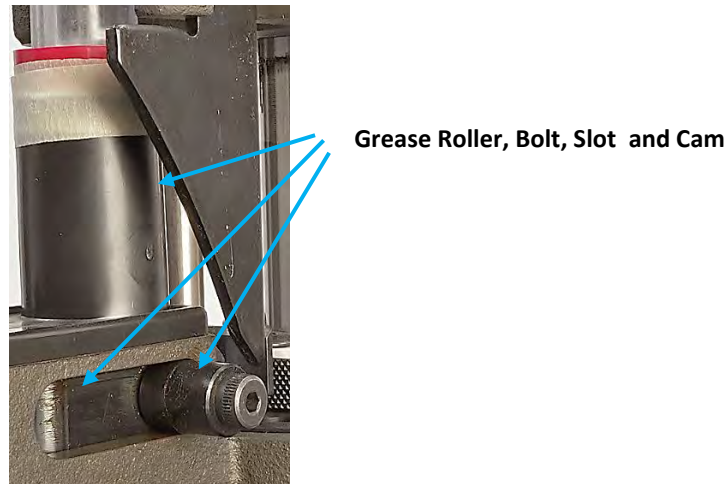
			<p>shown below. If not, adjust the Primer Slide Stop on the back of the RL1100 in or out no more than 1/8 of a turn at a time to fine-tune the position of the Primer Slide. See the graphical depiction below. A small amount of over travel to the rear for primer pickup is acceptable.</p> <p>2. Drop one primer in the Primer Magazine. Cycle the Operating Handle down and verify the primer is now sitting on top of the Primer Punch as shown below.</p>  <p>Primer Slide Drop Position Stop</p> <p>Correct presentation of primer— Single primer drop test</p>
		High Primers—Primers are not being seated flush with the bottom of the case.	<ol style="list-style-type: none"> <li>1.Shellplate loose. To adjust, loosen the Lock Ring Insert Screws and, turn the Shellplate Lock Ring down until it is snug, then back off 1/8 of a turn. Tighten the Lock Ring Insert Screws.</li> <li>2.Insufficient force or downward travel of the Operating Handle during the Primer seating cycle.</li> <li>3.Adjust Primer Seating Depth Push Rod.</li> </ol>
		Unusual indentation in face of seated primer	<ol style="list-style-type: none"> <li>1.There are powder granules on the top of the Primer Punch Face imprinting into the Primer—clean off/blow out spilled powder granules.</li> </ol>  <p>Crushed powder granule imprinted into primer</p>
8.	Improper Swaging and Neck Expanding in Station 3	Case mouth hits the edge of the Expander/Backup Rod damaging the case in Station 3	<ol style="list-style-type: none"> <li>1.Slow down the cycling speed and smoothly operate the Handle. Check that the Shellplate is not over or under indexing. Re-align Rod with Case by loosening the Universal Die and/or the Expander Lock Nut. Put a case in Station 3 and cycle the Handle down. Tighten the Lock ring and the Expander Lock Nut.</li> </ol>
		Swage Rod sticking in the Primer Pocket	<ol style="list-style-type: none"> <li>1.Re-adjust the Swage Rod—See Section 7.3.4 for adjustment procedure</li> </ol>
		Over Swaging	<ol style="list-style-type: none"> <li>1.Re-adjust the Swage Rod—See Section 7.3.4 for adjustment procedure</li> </ol>
9.	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.Operating Handle not moving all the way down on each cycle.</li> <li>3.Improper Powder Die adjustment.</li> <li>4. Powder Measure loose on Powder Die.</li> </ol>



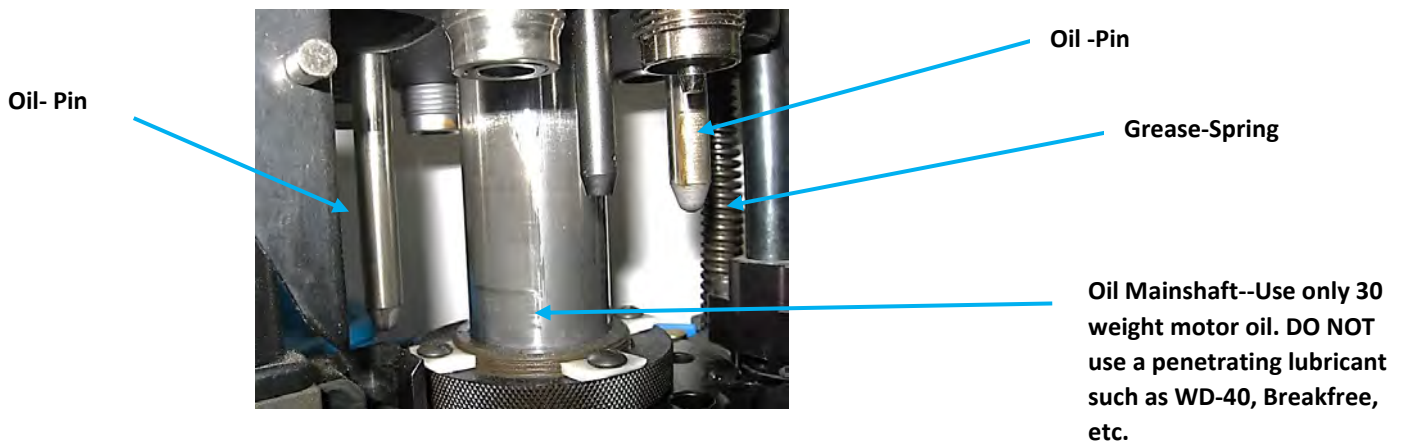
		Brass residue can also buildup on the end of Pistol Powder Funnels in the flaring process.	1.Polish the end removing any brass buildup and lightly lube with Case Lube.
10.	Powder Measure	Inconsistent Powder Charges	<ol style="list-style-type: none"> <li>1.Be sure that the Failsafe Return Rod Blue Wing Nut is adjusted correctly and is fully retracting the Powder Bar. Cycle the Operating Handle fully down, tighten the Wing Nut until a business card (~.030") just slips between the coils of the Spring. Be sure the Powder Die height is adjusted to provide full Powder Bar travel.</li> <li>2.Powder not settled in Hopper. --Cycle more powder charges until stable.</li> <li>3.Wrong size Powder Bar for requirements. -Replace Powder Bar.</li> <li>4.Powder Measure loose on Powder Die. --Tighten Clamping Screws.</li> <li>5.Slow down cycling, especially with "Stick Powders."</li> <li>6.Small Powder Bar Spacer Plug missing. —Replace it.</li> <li>7.Foreign contaminants in Powder Measure. —Empty, check and clean.</li> </ol>
		Powder bar not moving smoothly	<ol style="list-style-type: none"> <li>1.Dirty or gummy--Clean with isopropyl alcohol or acetone. Do not lubricate. Do not use sandpaper, file or anything abrasive.</li> <li>2.Powder Bar, Small Bar Spacer or Measure Body galled from wear. Return to Dillon for repair or replacement.</li> <li>3.Failsafe Rod assembly missing or disconnected.</li> <li>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.</li> <li>5.Powder Bar Adjustment Bolt adjusted fully open against the stop. This can bind the Powder Bar insert causing the Powder Bar to drag.</li> </ol>
11.	Powder Check (PCK)	Powder Sticks to end of Powder Check Rod	1.Wipe off the end of the Powder Check Rod with a paper towel to remove any grease, "crud" from the tip.
		The blue arm that the PCK drive Rod pushes on has gradually deformed upward, and no longer pushes the buzzer housing up.	1.The Powder Check Die is up too high, so the drive Rod is not pushing far enough on the arm. Lower the Die another thread to two, and contact Dillon for a replacement housing.
12.	Bullet Seating	The case neck is crumpling when the bullet is seated	1.On the 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 easing bullet seating.
		Bullet falling through case mouth or cartridge neck	<ol style="list-style-type: none"> <li>1.The case was not sized.</li> <li>2.The bullet diameter is incorrect. Check bullet.</li> </ol>
13.	Bullet Crimping	The case is bulging or case will not fit the Case Gauge	1.Raise the Crimp Die reducing the amount of crimp.

**11 CLEANING AND LUBRICATING THE RL1100--**Operating circumstances will dictate the required frequency of lubrication. RL1100 lubricating points should be cleaned and lubed after every 10,000 rounds 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.

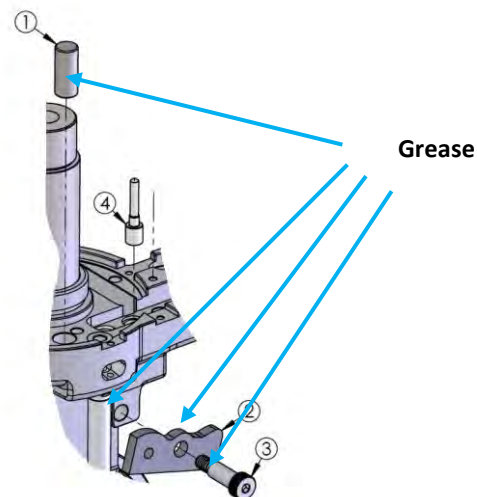
**11.1 Lightly Grease Casefeed Plunger Roller, Bolt and Cam**



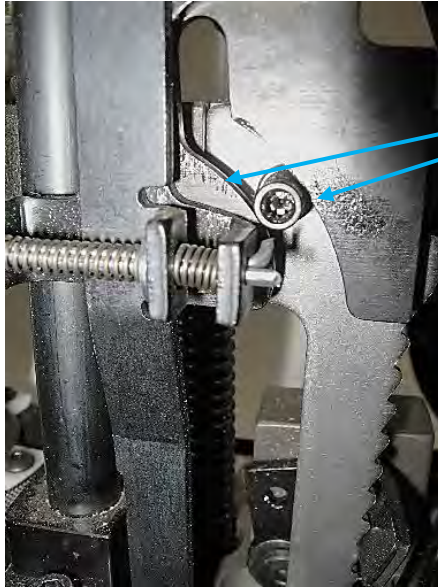
**11.2 Lightly Grease Alignment Pins located under the Toolhead and Lightly Oil Mainshaft**



**11.3 Lightly Grease Tappet (1), Rocker Arm Cam Surfaces (2) and Bolt Hole and Rocker Arm Pivot Bolt (3).**

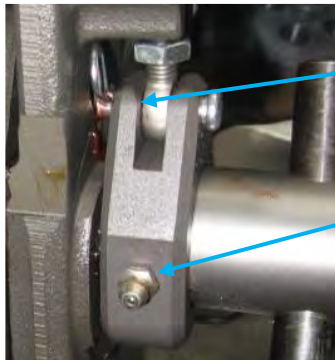


11.4 Lightly Grease Primer Slide Cam Guide Bolt and the Cam slot every 5000 cycles.



Grease  
Slot and  
Bolt

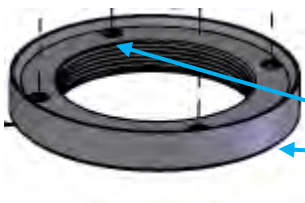
11.5 Lightly Grease Swage Connecting Rod and Clevis Pin contact areas. Grease Swager Zerk Fitting—  
one pump



Grease

Zerk fitting-Grease  
1-2 pumps and cycle  
Handle every 10,000  
cycles —wipe off  
excess

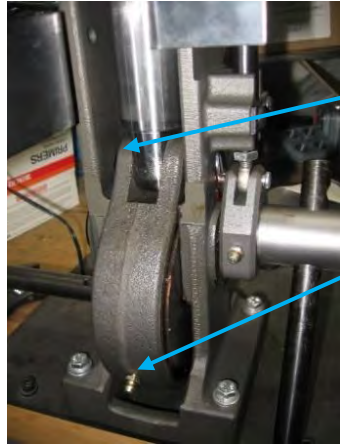
11.6 Every 10000 cycles or during a Shellplate change out, lightly Grease Shellplate Lock Ring bottom  
surface to Shellplate interface and Shellplate bore to Frame.



Lightly Grease  
bottom surface  
and threads



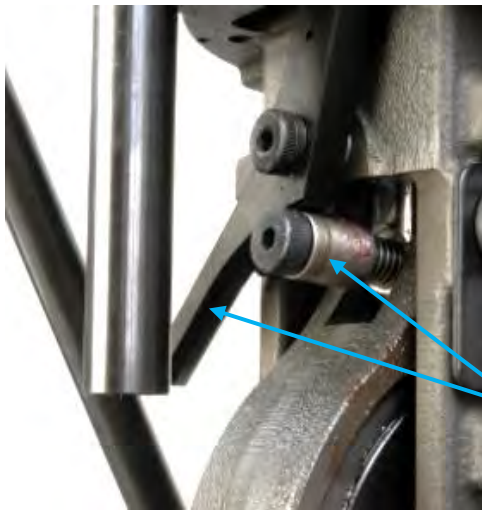
- 11.7 **Grease Crank Assembly and Swager Zerk Fittings**  
 With the handle in the up position, grease the Eccentric Drive Zerk slowly as you lower the handle—one to two pumps.



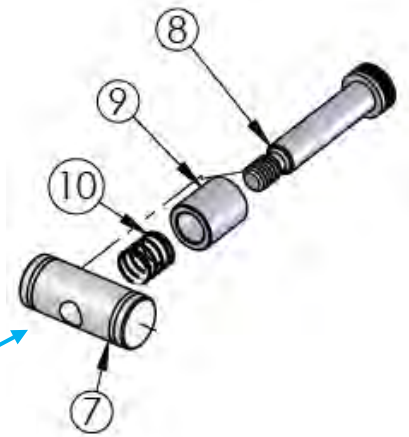
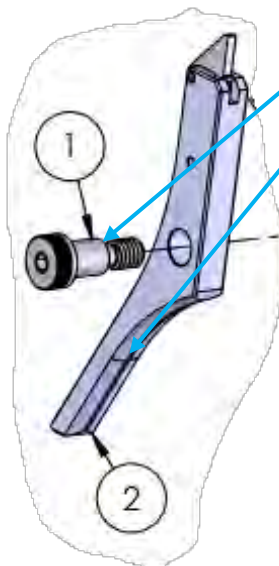
Syringe grease the ports on both ears

Zerk fitting- pump 1-2  
 times while cycling  
 Handle—wipe off excess

- 11.8 **Lightly Grease the Indexing Lever Cam surface and Index Lever Shoulder Bolt.** Lightly grease the Lever Cam surface where it comes into contact with the Index Roller (9). The Index Roller (9) and Bolt (8) also require periodic lubrication. (Every 10,000 cycles)



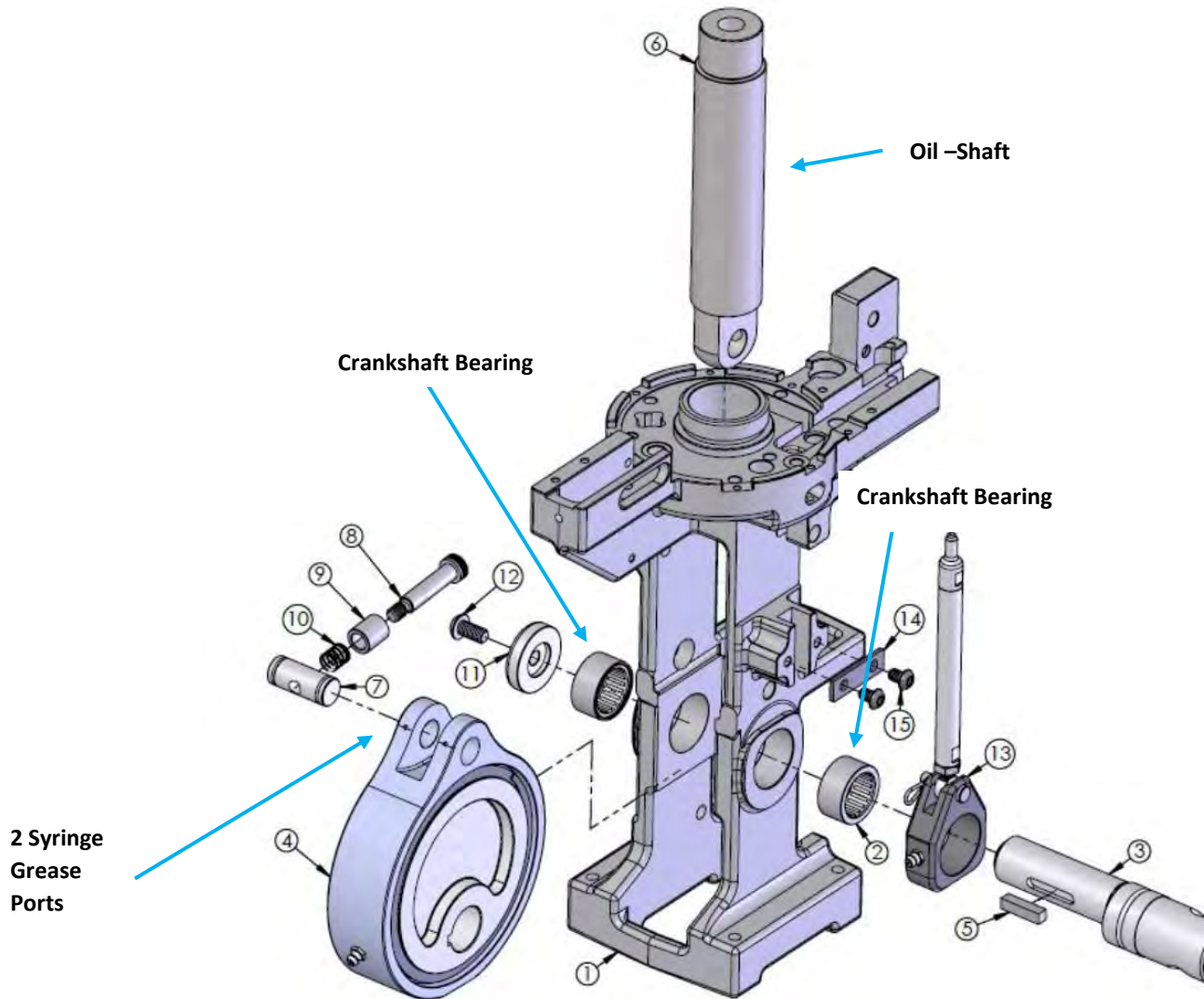
Grease bolt, roller and index  
 lever contact surface



Remove, clean and grease  
 Roller (9), Bolt (8) and Pin (7)  
 and reassemble

**11.9 Clean and lubricate both left and right Crankshaft Bearings every 100,000 cycles**

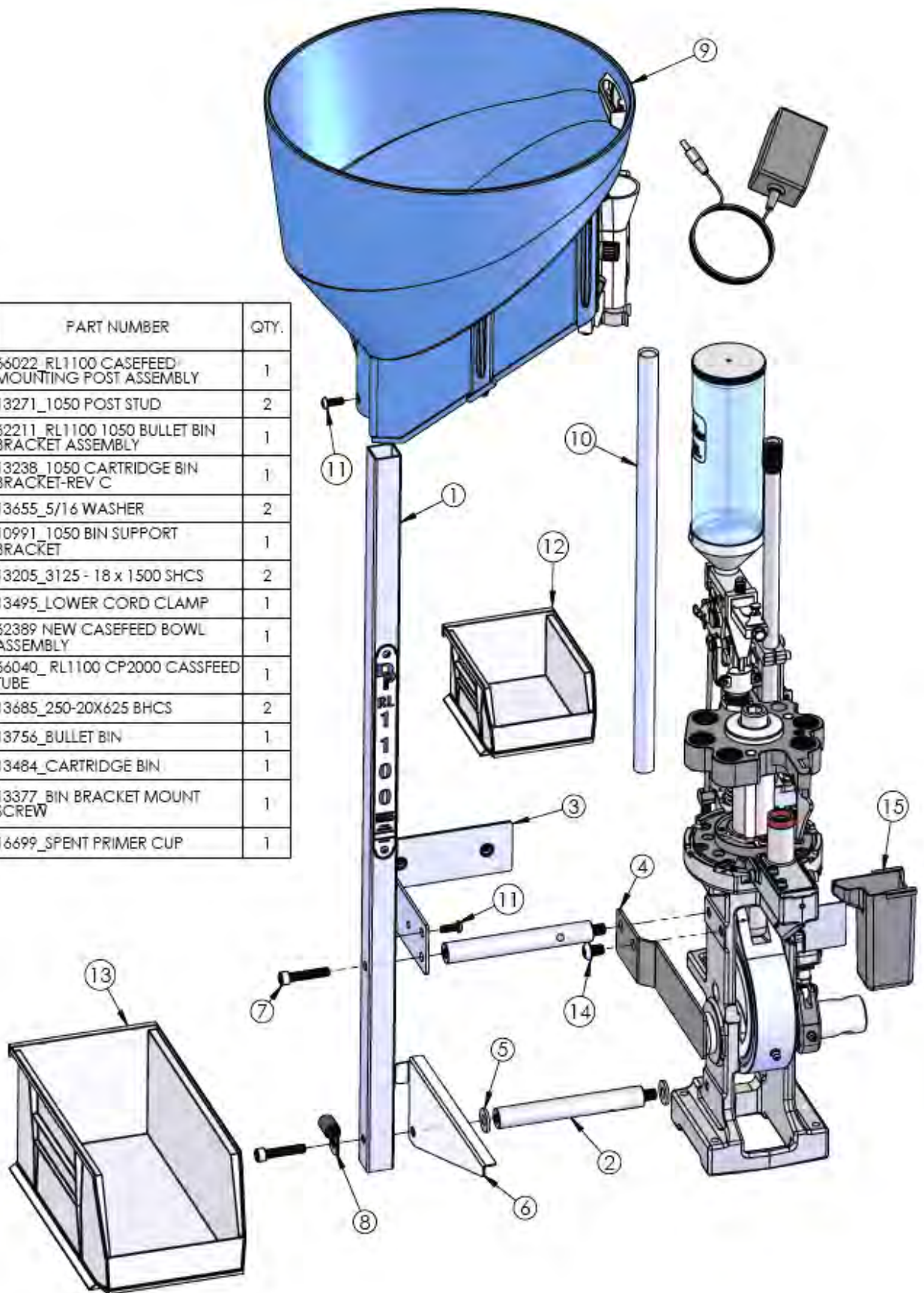
- 11.9.1 First remove the Swage Rod Assembly/Swage Connecting Rod item (13), and Operating Handle.
- 11.9.2 On the left side of the RL1100, remove the Bearing Screw item (12) and Carrier Cap item (11) and the Left Side Bearing item (2).
- 11.9.3 Gently drive the Crankshaft item (3) out of the Frame left to right.
- 11.9.4 Remove Right Side Bearing item (2).
- 11.9.5 Clean and Grease both Roller Bearings item (2).
- 11.9.6 Replace Bearings, Crankshaft, Swage Assembly and Operating Handle.
- 11.9.7 Grease Swager Assembly and Eccentric Assembly Zerk fittings as previously described.
- 11.9.8 Pull up and remove the Main Shaft item (6)—solvent clean. Lubricate Shaft with 30 wt. motor oil--- Do Not use WD 40 or Break-Free, etc.



## 12 RL1100 SUB-ASSEMBLIES AND PARTS IDENTIFIERS

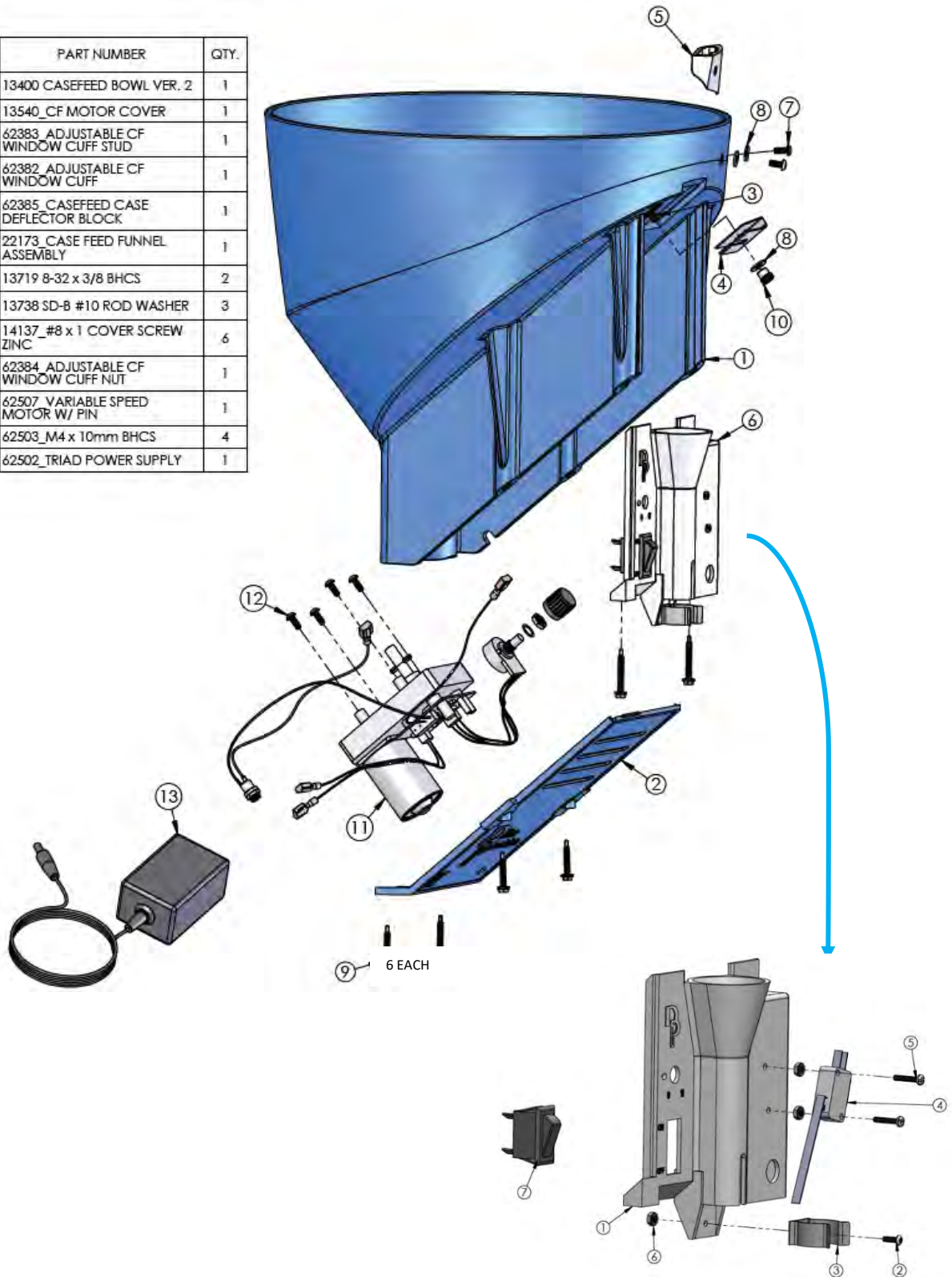
### 12.1 Casefeed Bowl, Plate and Clutch Assembly and Mounting Assembly

ITEM NO.	PART NUMBER	QTY.
1	66022_RL1100 CASEFEED MOUNTING POST ASSEMBLY	1
2	13271_1050 POST STUD	2
3	62211_RL1100 1050 BULLET BIN BRACKET ASSEMBLY	1
4	13238_1050 CARTRIDGE BIN BRACKET-REV C	1
5	13655_5/16 WASHER	2
6	10991_1050 BIN SUPPORT BRACKET	1
7	13205_3125 - 18 x 1500 SHCS	2
8	13495_LOWER CORD CLAMP	1
9	62389_NEW CASEFEED BOWL ASSEMBLY	1
10	66040_RL1100 CP2000 CASSFEED TUBE	1
11	13685_250-20X625 BHCS	2
12	13756_BULLET BIN	1
13	13484_CARTRIDGE BIN	1
14	13377_BIN BRACKET MOUNT SCREW	1
15	16699_SPENT PRIMER CUP	1



## 12.2 Casefeed Bowl, Controls and Feed Funnel--Parts Identifier

ITEM NO.	PART NUMBER	QTY.
1	13400 CASEFEED BOWL VER. 2	1
2	13540_CF MOTOR COVER	1
3	62383_ADJUSTABLE CF WINDOW CUFF STUD	1
4	62382_ADJUSTABLE CF WINDOW CUFF	1
5	62385_CASEFEED CASE DEFLECTOR BLOCK	1
6	22173_CASE FEED FUNNEL ASSEMBLY	1
7	13719_8-32 x 3/8 BHCS	2
8	13738_SD-B #10 ROD WASHER	3
9	14137_#8 x 1 COVER SCREW ZINC	6
10	62384_ADJUSTABLE CF WINDOW CUFF NUT	1
11	62507_VARIABLE SPEED MOTOR W/ PIN	1
12	62503_M4 x 10mm BHCS	4
13	62502_TRIAD POWER SUPPLY	1

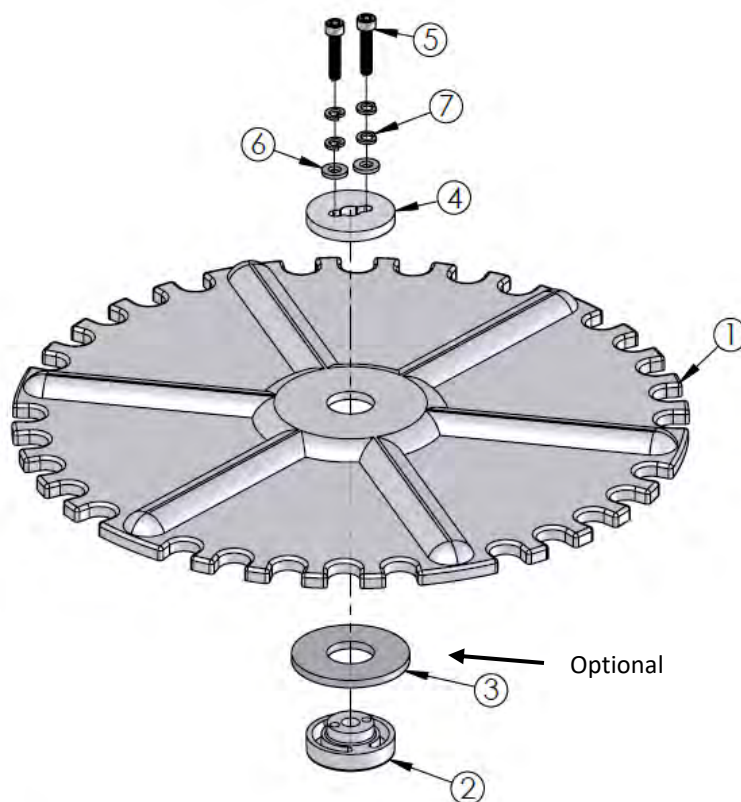


ITEM NO.	PART NUMBER	QTY.
1	11423_NEW CASE FEED FUNNEL V2	1
2	18918_550CF 4-40 x 3/8 BHCS	1
3	13859_CF TUBE CLIP	1
4	13779_MICRO SWITCH	1
5	13954_4-40 x 5/8 PAN HEAD SCREW	2
6	14038_4-40 KEPSNUT	3
7	62505_ON-OFF ROCKER SWITCH C1500ARBB	1

### 12.3 Casefeed Plate and Clutch Assembly—Parts Identifier

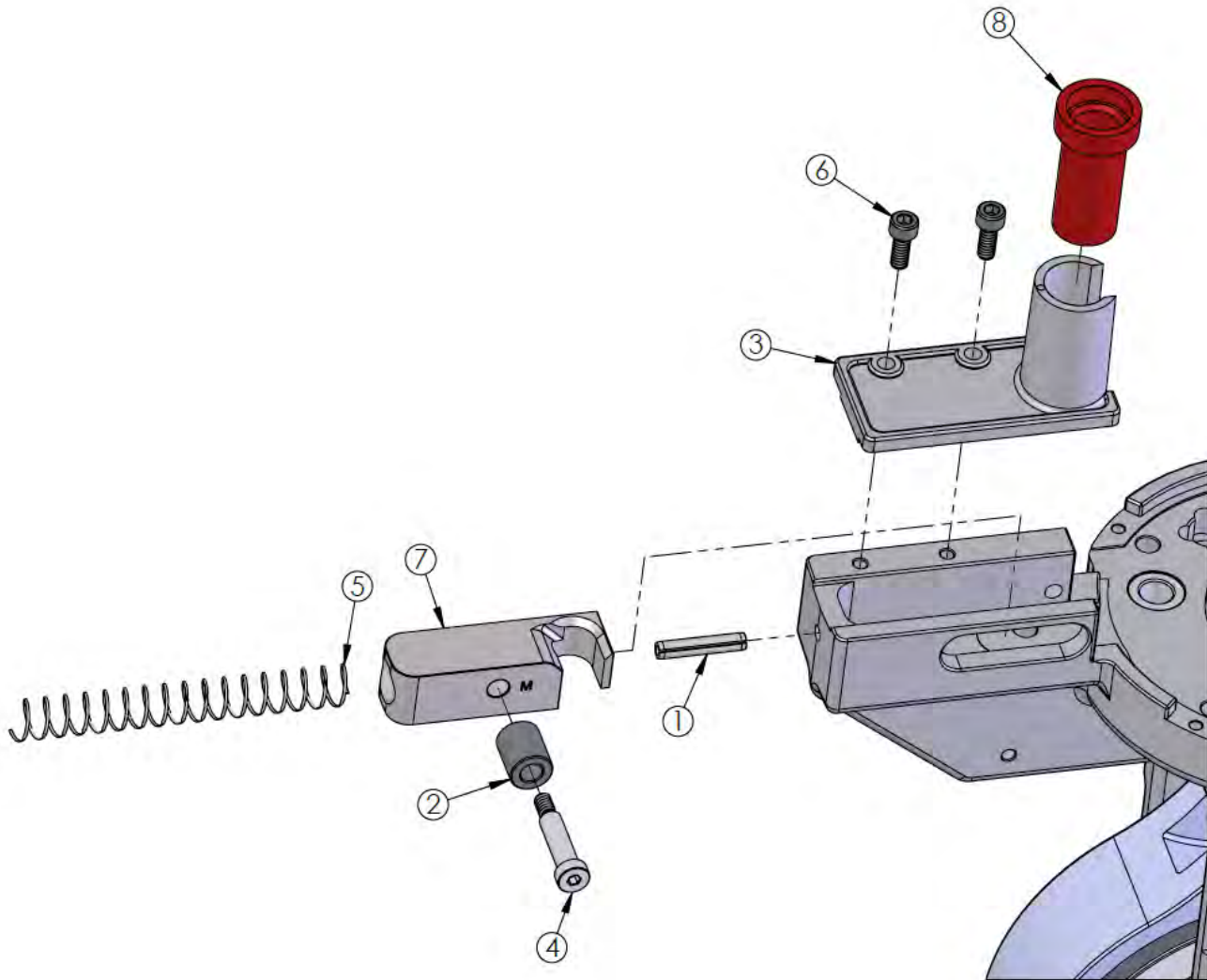
ITEM NO.	PART NUMBER	QTY.
1	13402_LARGE PISTOL CASEFEED PLATE	1
1A	13465_SMALL PISTOL CASEFEED PLATE	
1B	13533_SMALL RIFLE CASEFEED PLATE	
1C	13290_LARGE RIFLE CASEFEED PLATE	
2	13736_CF LOWER CLUTCH	1
3	13703_CF SPACER	1
4	13632_CLUTCH DISC UPPER	1
5	18866_1032 x 875 SHCS CLUTCH SCREW	2
6	13738_SD-B #10 ROD WASHER	2
7	13813_CLUTCH SPRING WASHER	4

DESCRIPTION	
21072_LARGE PISTOL CASEFEED PLATE ASSEMBLY	SEE CONVERSION CHART FOR APPLICABLE SIZE
21073_SMALL PISTOL CASEFEED PLATE ASSEMBLY	
21074_SMALL RIFLE CASEFEED PLATE ASSEMBLY	
21075_LARGE RIFLE CASEFEED PLATE ASSEMBLY	



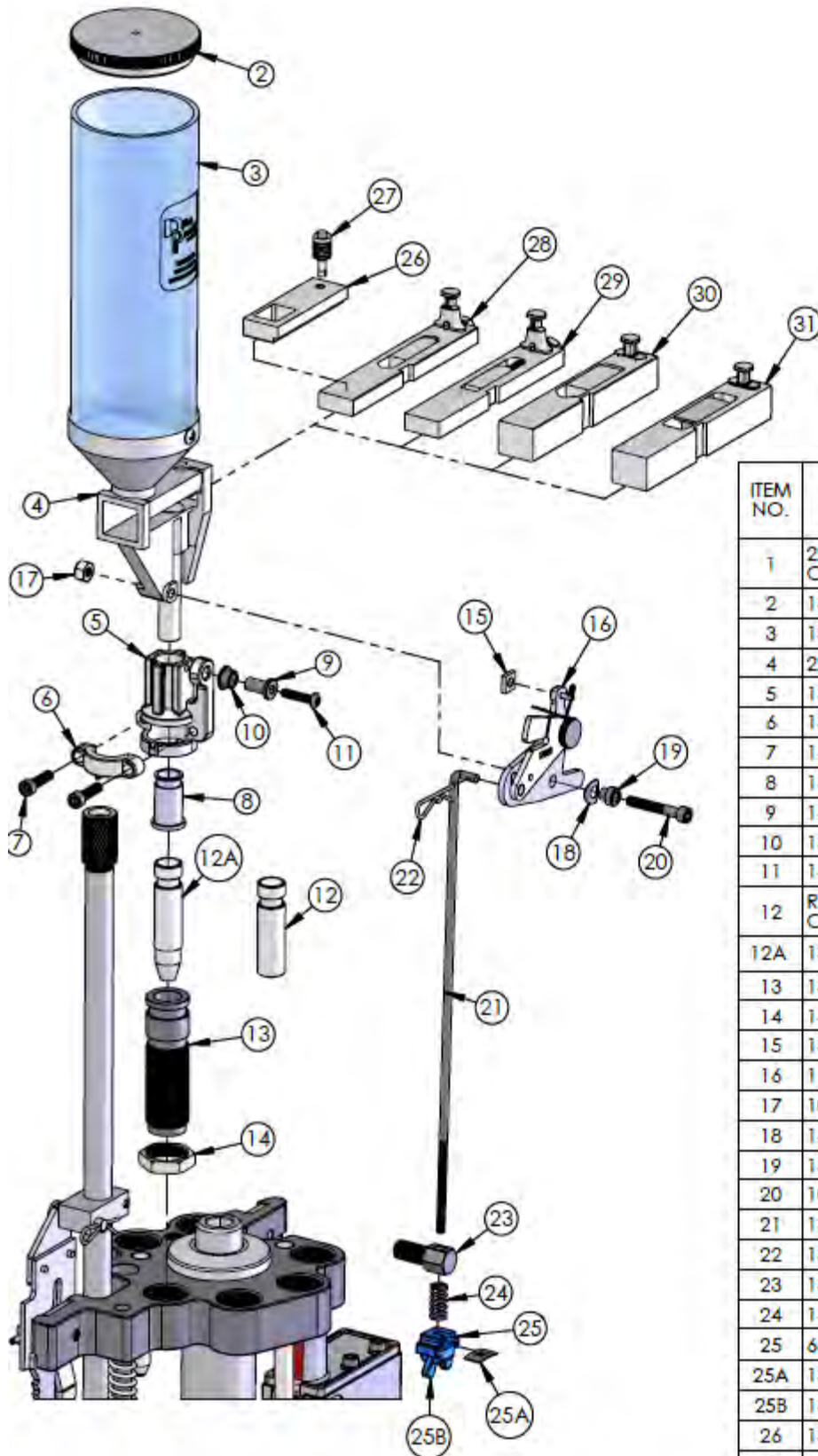


## 12.4 Case Insert Assembly



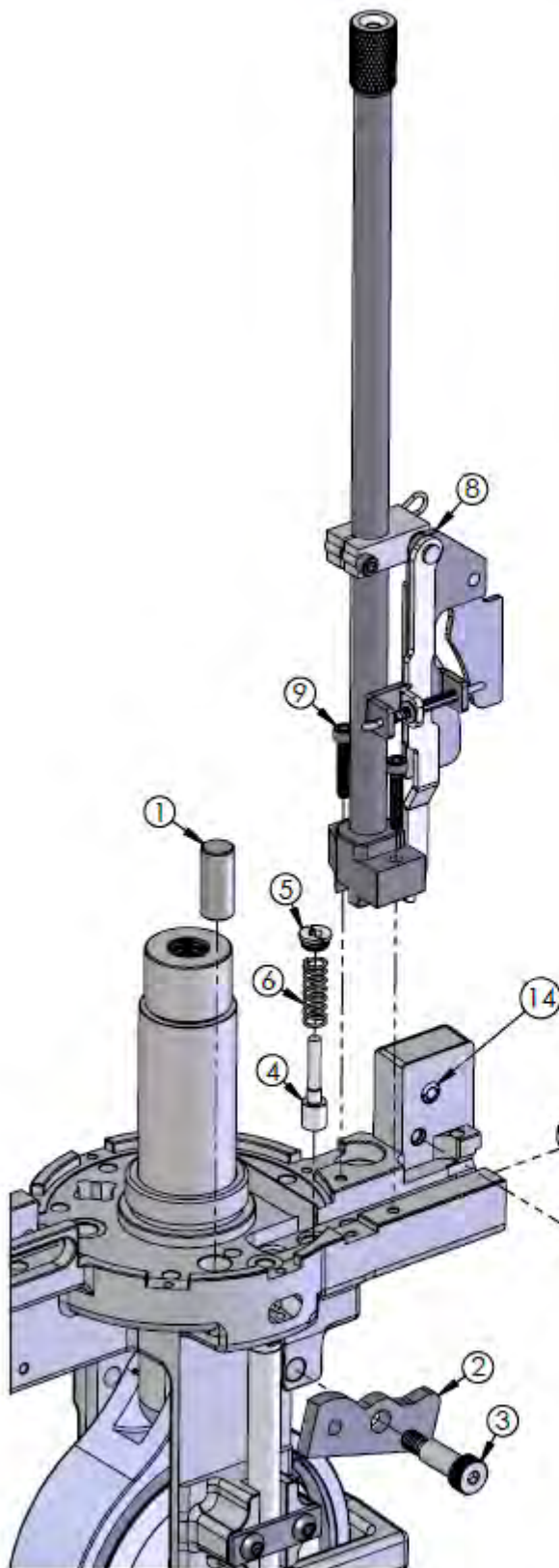
ITEM NO.	PART NUMBER	QTY.
1	13972_316 ROLL PIN	1
2	13498_PLUNGER ROLLER	1
3	11006_1050S CASEFEED HOUSING	1
4	62212_250 x 875 SHOULDER BOLT	1
5	13567_CASE INSERT PLUNGER SPRING	1
6	13815_10-24x500 SHCS	2
7	CASEFEED PLUNGER - SEE CONVERSION CHART FOR APPLICABLE SIZE.	1
8	CASEFEED ADAPTOR - SEE CONVERSION FOR APPLICABLE SIZE.	1

## 12.5 Powder Measure Assembly—Complete RL1100 Powder Measure—(PN 20421)



ITEM NO.	PART NUMBER	QTY.
1	22221_POWDER MEASURE RL1100 1050 COMPLETE	
2	13882_POWDER MEASURE HOPPER LID	1
3	13691_HOPPER TUBE	1
4	22273_POWDER BODY W/ DROP TUBE	1
5	13940_BODY COLLAR HOUSING	1
6	13939_BODY COLLAR CLAMP	1
7	14037_10-24x750 SHCS	2
8	13845_BODY COLLAR SLEEVE	1
9	14808_COLLAR ROLLER BUSHING	1
10	13793_PM BODY COLLAR ROLLER	1
11	14023_8-32x750 BHCS	1
12	RIFLE POWDER FUNNEL - SEE CONVERSION CHART FOR APPLICABLE SIZE	
12A	13005_PISTOL POWDER ACTIVATOR	
13	13464_1050 POWDER DIE	1
14	14067_DIE LOCK RING	1
15	13871_BELL CRANK CUBE	1
16	11234_LOCK LINK ASSEMBLY	1
17	10-32 LOCKNUT ZINC	1
18	14041_250 BOWED WASHER	1
19	13848_BELLCRANK BUSHING	1
20	10-32x1250 SHCS	1
21	13960_POWDER BAR RETURN ROD	1
22	13840_062 HAIRPIN COTTER	1
23	13089_1050 ROD BOLT	1
24	14033_PRIMER CUP SPRING	1
25	66021_FAILSAFE NUT ASSEMBLY	1
25A	13801_TINNERMAN NUT	
25B	13799_FAILSAFE NUT	
26	13644_POWDER BAR SPACER	1
27	13921_POWDER BAR SPACER PLUG	1
28	20062_SMALL POWDER BAR ASSEMBLY	1
29	20780_EX-SMALL POWDER BAR ASSEMBLY	1
30	20063_LARGE POWDER BAR ASSEMBLY	1
31	21353_MAGNUM POWDER BAR ASSEMBLY	1

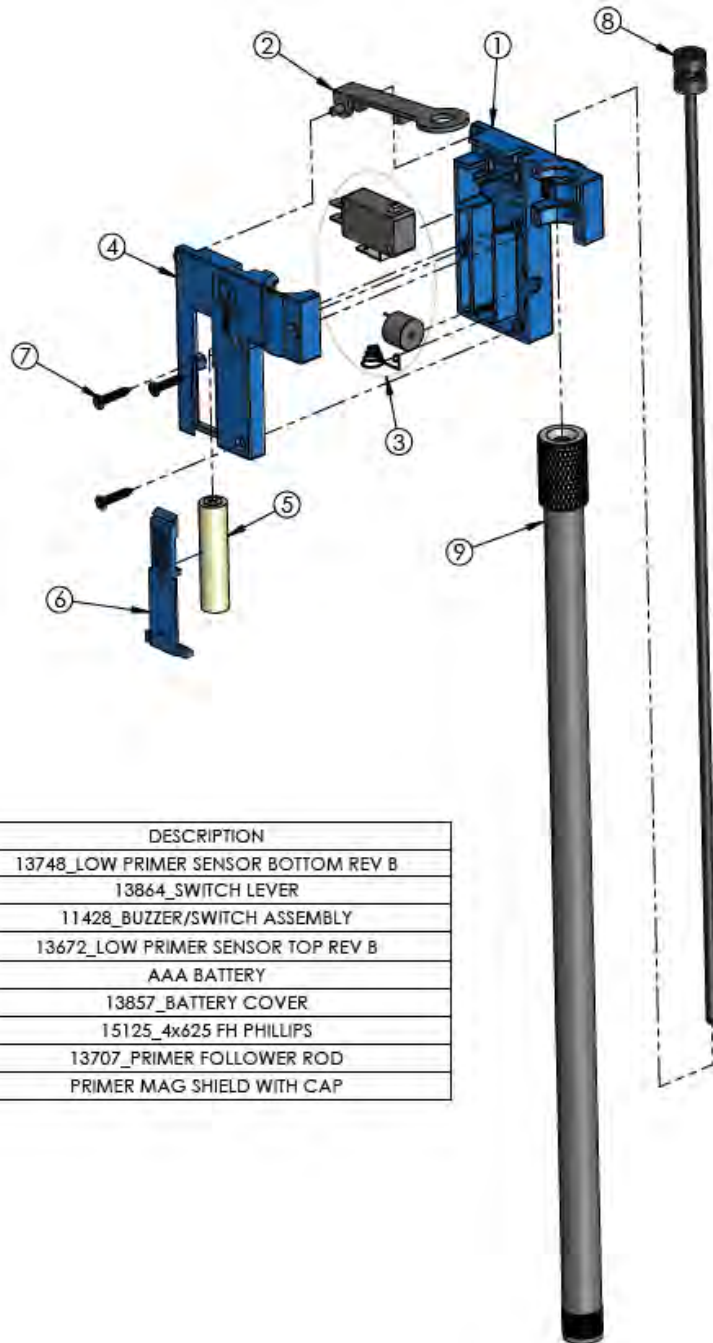
## 12.6 Primer System Rocker and Mounting Assembly



ITEM NO.	PART NUMBER	QTY.
1	12995_1050 PRIMER TAPPET	1
2	13058_1050 ROCKER ARM	1
3	13296_PRIMER SYSTEM ROCKER BOLT	1
4	12849_1050 PRIMER PUNCH LARGE	1
4A	13307_1050 PRIMER PUNCH SMALL	
5	13130_PRIMER PUNCH BUSHING LARGE	1
5A	13222_PRIMER PUNCH BUSHING SMALL	
6	13858_PRIMER PUNCH SPRING	1
7	20318_LARGE PRIMER SLIDE ASSEMBLY	1
7A	20317_SMALL PRIMER SLIDE ASSEMBLY	
8	66050_RL1100 S1050 PRIMER ASSEMBLY	1
9	13363_10-24x1 1050 MAGAZINE SHCS	2
10	13376_RATCHET RESTRICTION TAB	1
11	13328_SD SHELLPLATE BOLT	1
12	13945_312 BOWED WASHER	1
13	13936_TAB ARM SPRING	1
14	12019_1050 NEW DETENT SET SCREW	1

ITEM NO.	PART NUMBER	QTY.
15	13105_1050 LARGE PRIMER SLIDE VER. 2	1
15A	13237_1050 SMALL PRIMER SLIDE VER. 2	
16	62214_1050 PRIMER SLIDE ROLLER	1
17	62213_1050 PRIMER SLIDE ROLLER PIN	1

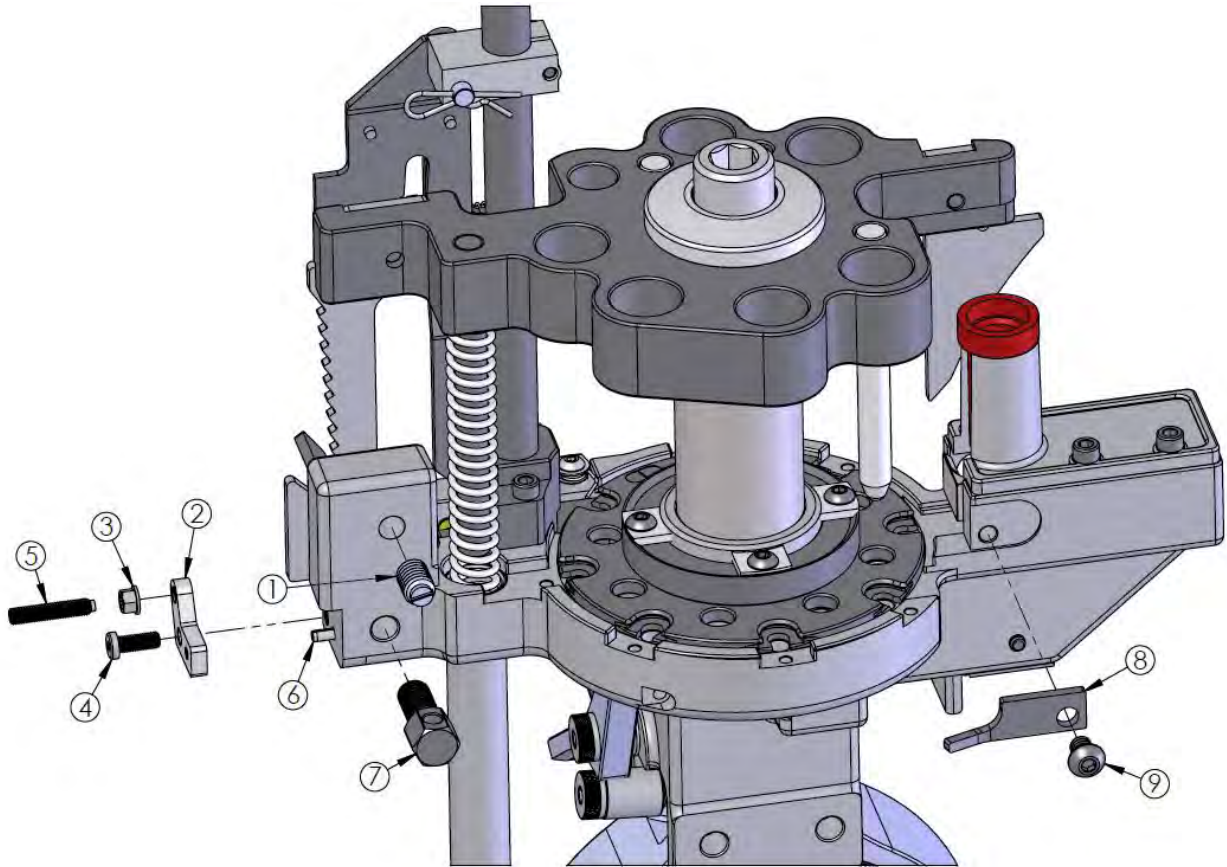
## 12.7 Primer Early Warning System Assembly (PN 14797--PEWS Alone)



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

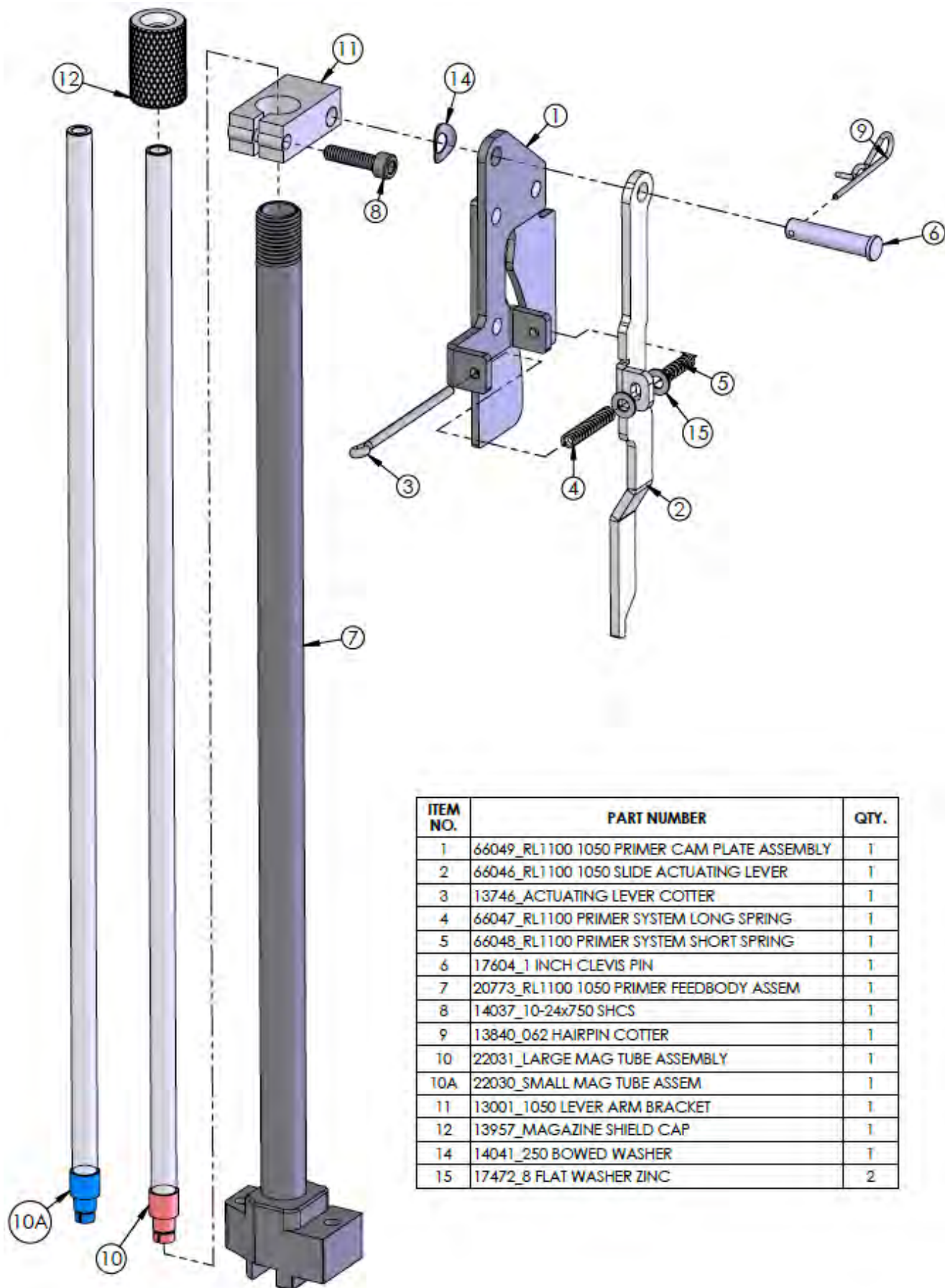
## 12.8 Primer Slide Adjustable Stop and Case Eject Assemblies

**Note:** The RL1100 incorporates an Adjustable Primer Slide Stop. This provides a precise adjustment for positioning the Primer Slide ‘Cup’ directly under Primer Magazine Feed Orifice. See Section 7.4.6 for adjustment procedures.



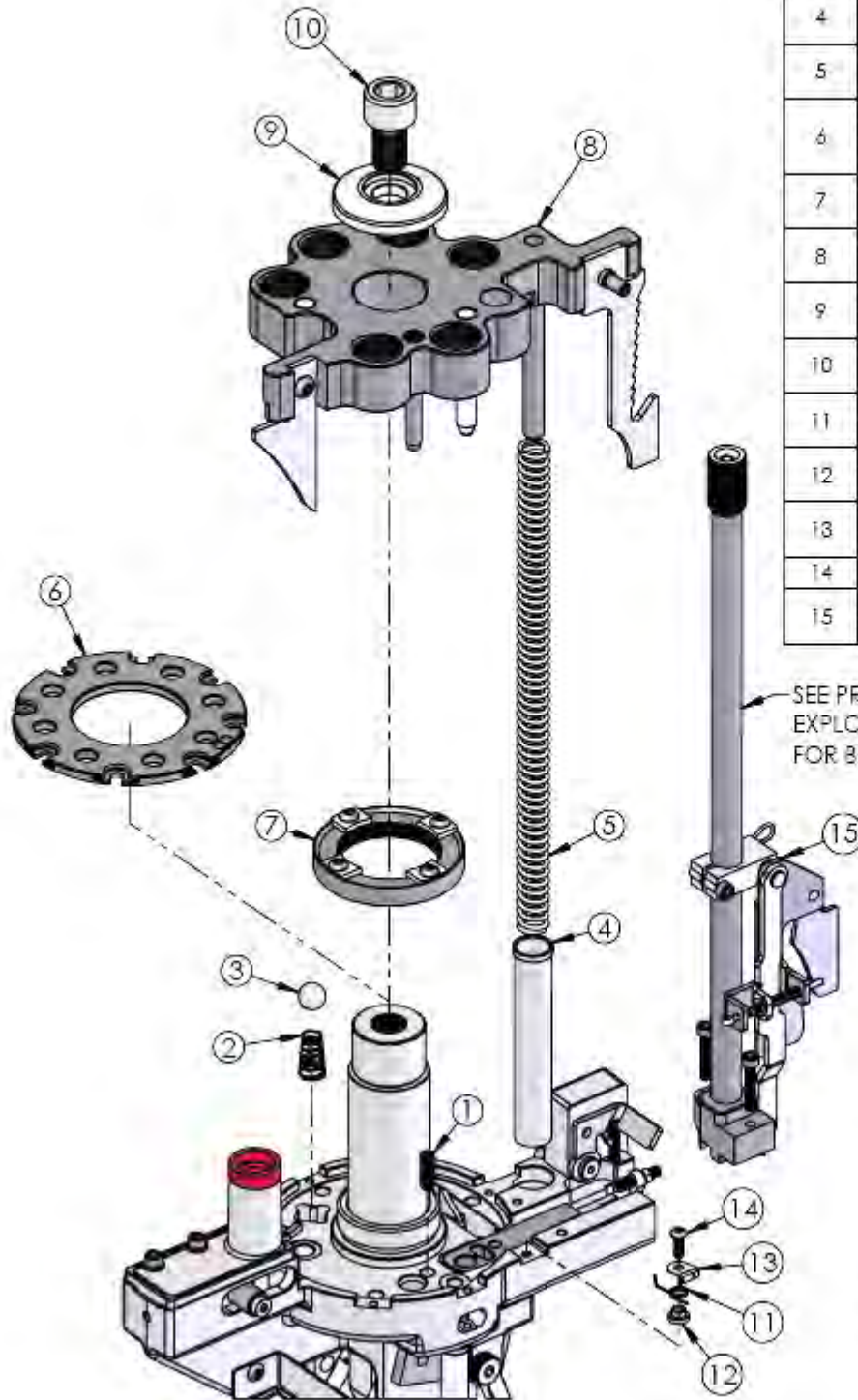
ITEM NO.	PART NUMBER	QTY.
1	12019_1050 NEW DETENT SET SCREW	1
2	66006_RL1100 PRIMER SLIDE STOP	1
3	17897_MS21042-3 10-32 LOCK NUT	1
4	66009_10-32 x 500 ALLOW LOW HEAD CAP SCREW	1
5	66008_10-32 x 100 ALLOY EXT TIP SET SCREW	1
6	66007_125 x 500 ROLL PIN	1
7	13089_1050 ROD BOLT	1
8	13189_1050 EJECTOR TAB	1
9	13896_250-20 BHCS	1

## 12.9 Primer Upper Assembly



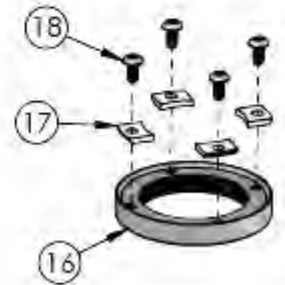
ITEM NO.	PART NUMBER	QTY.
1	66049_RL1100 1050 PRIMER CAM PLATE ASSEMBLY	1
2	66046_RL1100 1050 SLIDE ACTUATING LEVER	1
3	13746_ACTUATING LEVER COTTER	1
4	66047_RL1100 PRIMER SYSTEM LONG SPRING	1
5	66048_RL1100 PRIMER SYSTEM SHORT SPRING	1
6	17604_1 INCH CLEVIS PIN	1
7	20773_RL1100 1050 PRIMER FEEDBODY ASSEM	1
8	14037_10-24x750 SHCS	1
9	13840_062 HAIRPIN COTTER	1
10	22031_LARGE MAG TUBE ASSEMBLY	1
10A	22030_SMALL MAG TUBE ASSEM	1
11	13001_1050 LEVER ARM BRACKET	1
12	13957_MAGAZINE SHIELD CAP	1
14	14041_250 BOWED WASHER	1
15	17472_8 FLAT WASHER ZINC	2

## 12.10 Toolhead and Shellplate Assembly



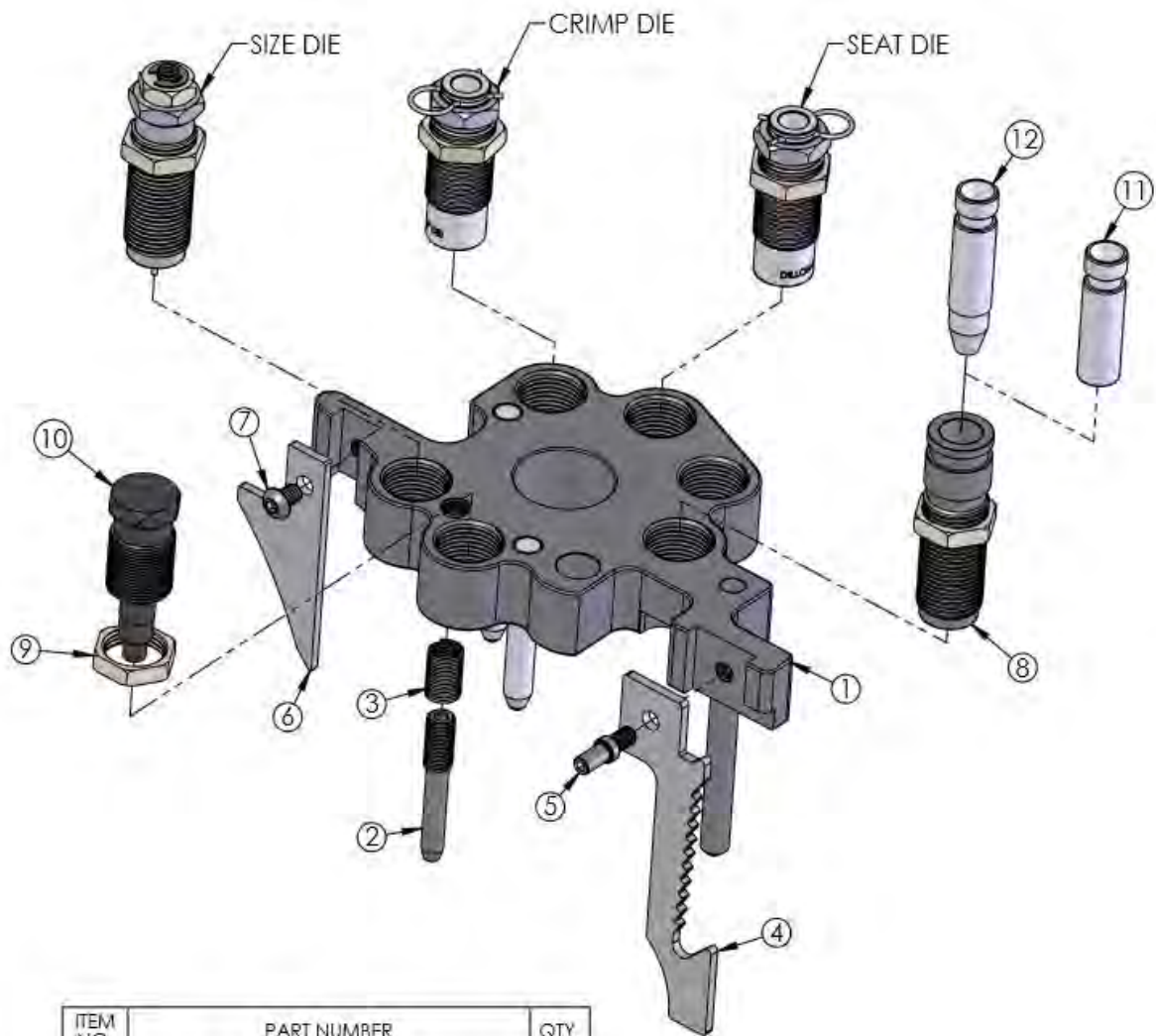
ITEM NO.	PART NUMBER	QTY.
1	13226_250-28x750 SET ROCKER ARM	1
2	13525_1050 INDEX BALL SPRING	1
3	13508_1050 INDEX BALL	1
4	11335_1050 SPRING BUSHING VER. 2B	1
5	62308_CP2000 TOOLHEAD SPRING	1
6	SHELLPLATE-SEE CONVERSION CHART FOR APPLICABLE SIZE	1
7	20311_1050 RL CP LOCKRING ASSEMBLY	1
8	20420_1050 RL1100 TOOLHEAD ASSEMBLY	1
9	62353_CP2000-RL1100 TOOL HEAD WASHER	1
10	62354_CP RL1100 TOOLHEAD BOLT	1
11	RL1100 PRIMER STATION LOCATOR SPRING	1
12	66014_RL1100 PRIMER STATION LOCATOR BUSHING	1
13	62333_XL750 RL1100 PRIME STATION LOCATOR TAB	1
14	14026_8-32x500 BHCS	1
15	66050_RL1100 PRIMER ARM CAM ASSEMBLY	1

SEE PRIMER SYSTEM EXPLODED VIEW FOR BREAK DOWN



ITEM NO.	PART NUMBER	QTY.
16	13425_SHELLPLATE LOCK RING	1
17	13561_LOCK RING INSERT	4
18	13895_10-24 x 375 BHCS	4

## 12.11 Toolhead Assembly

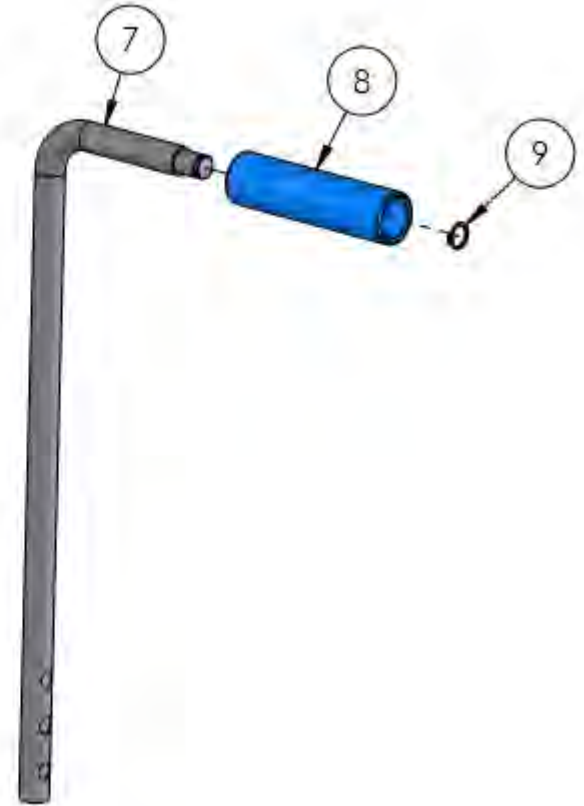


ITEM NO.	PART NUMBER	QTY.
1	66024_RL1100 TOOLHEAD	1
2	12819_1050 PRIMER PUSH ROD	1
3	13482_375-24 HELICOIL MS21209F620	1
4	66010_RL1100 TOOLHEAD RATCHET	1
5	12486_CAM GUIDE BOLT	1
6	13161_CASEFEED CAM VER 2	1
7	13896_250-20 BHCS	1
8	13464_1050 POWDER DIE	1
9	14067_DIE LOCK RING	1
10	EXPANDER/BACK-UP SWAGE ROD - SEE CONVERSION CHART FOR APPLICABLE SIZE	1
11	RIFLE POWDER FUNNEL - SEE CONVERSION CHART FOR APPLICABLE SIZE	1
12	13005_PISTOL POWDER ACTIVATOR	1

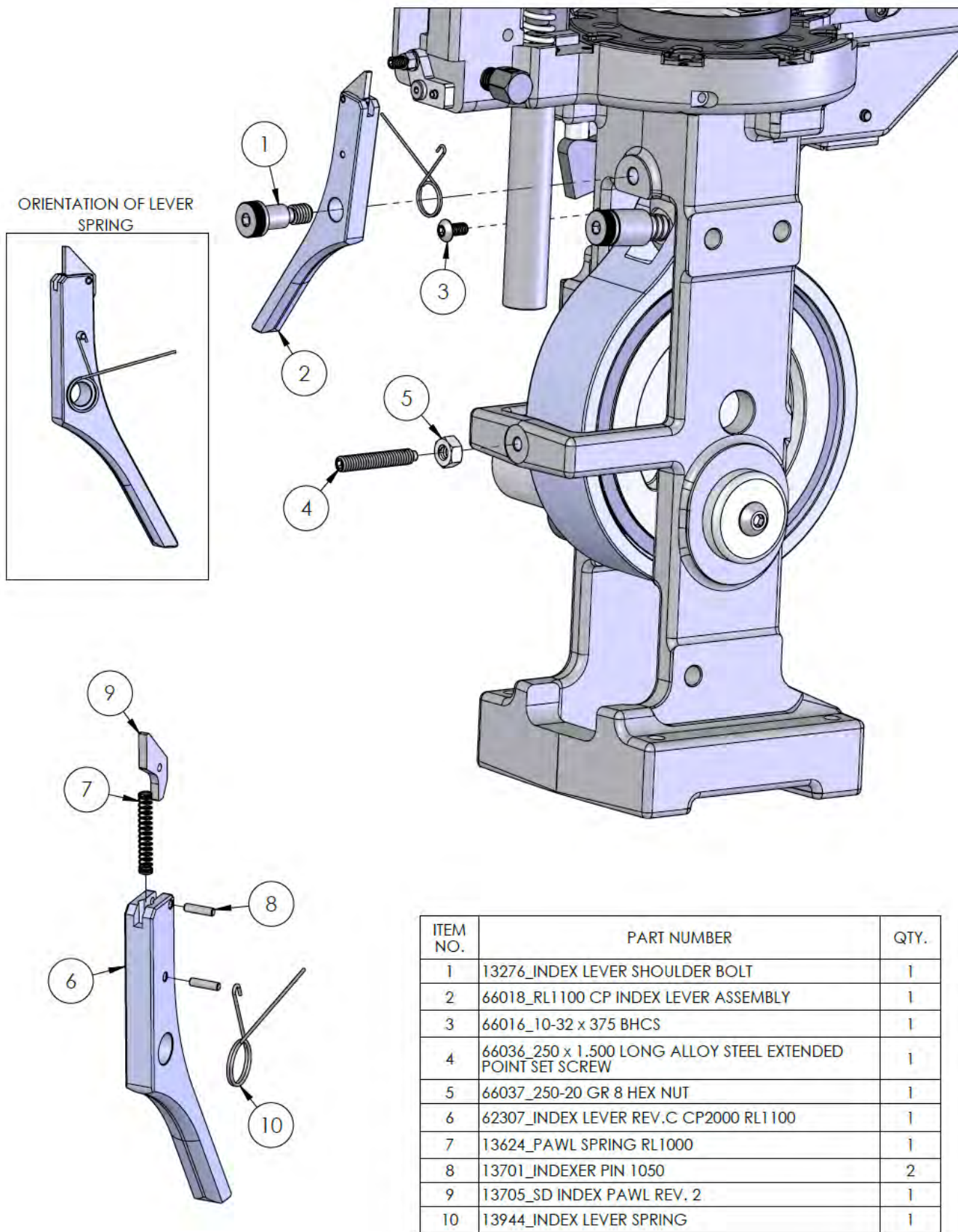


## 12.12 Operating Handle Assembly—(PN 17071)

ITEM NO.	PART NUMBER	QTY.
7	12727_1050 ROLLER HANDLE	1
8	17070_HANDLE ROLLER	1
9	17069_500 SNAP RING	1



### 12.13 Shellplate Index Assembly



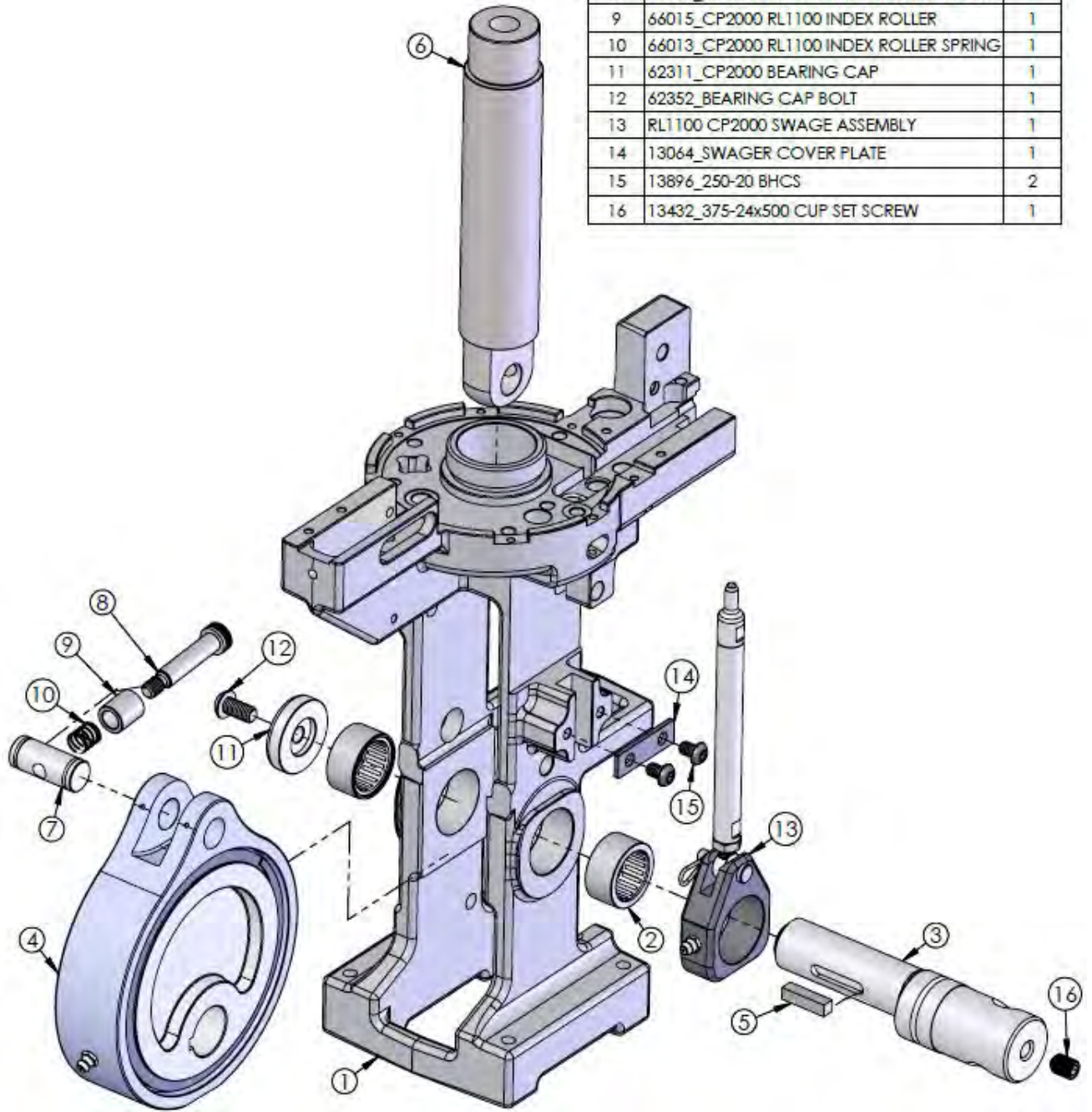
### 12.14 Primer Pocket Swage Assembly (Station 3)



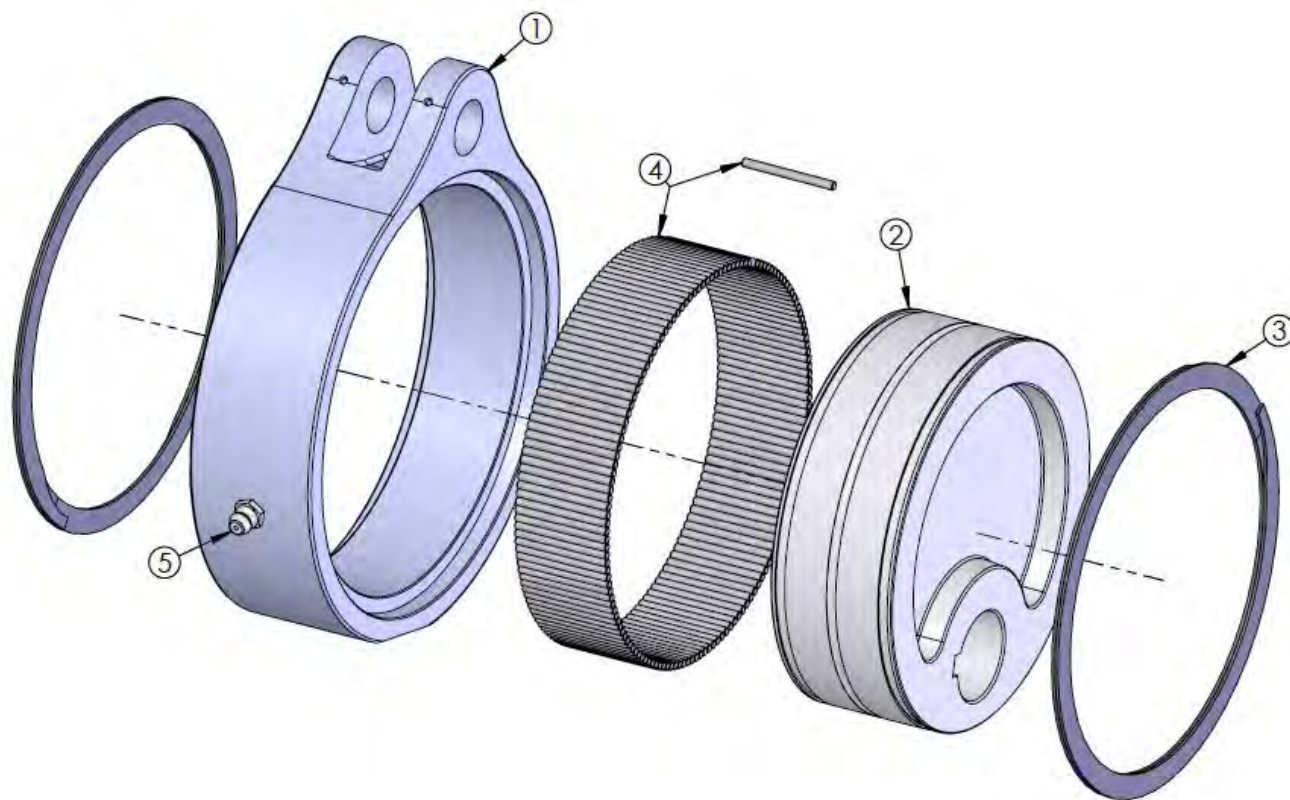
ITEM NO.	PART NUMBER	QTY.
1	13417_1050 SWAGE CON ROD	1
2	13245_SWAGE ADJUST. BOLT	1
3	66042_CP2000 RL1100 SWAGE ROD	1
4	62309_CP2000 SMALL SWAGE ROD TIP	1
4A	62310_CP2000 LARGE SWAGE ROD TIP	
6	13522_250 CLEVIS PIN	1
7	13840_062 HAIRPIN COTTER	1
8	13581_GREASE ZERK	1
9	13682_SWAGE LOCK NUT	1

### 12.15 Lower Assembly--Dillon Eccentric Drive™

ITEM NO.	PART NUMBER	QTY.
1	66001_RL1100 FRAME - MACHINING	1
2	11008_CRANK BEARING	2
3	66005_RL1100 CRANK SHAFT	1
4	CP2000 RL1100 LOWER BEARING ASSEMBLY	1
5	13475_250x1000 JOURNAL KEY	1
6	62306_CP2000 MAINSHAFT	1
7	13258_RL1050 MAINSHAFT PIVOT PIN	1
8	13086_CP2000 RL1100 INDEX ROLLER BOLT	1
9	66015_CP2000 RL1100 INDEX ROLLER	1
10	66013_CP2000 RL1100 INDEX ROLLER SPRING	1
11	62311_CP2000 BEARING CAP	1
12	62352_BEARING CAP BOLT	1
13	RL1100 CP2000 SWAGE ASSEMBLY	1
14	13064_SWAGER COVER PLATE	1
15	13896_250-20 BHCS	2
16	13432_375-24x500 CUP SET SCREW	1

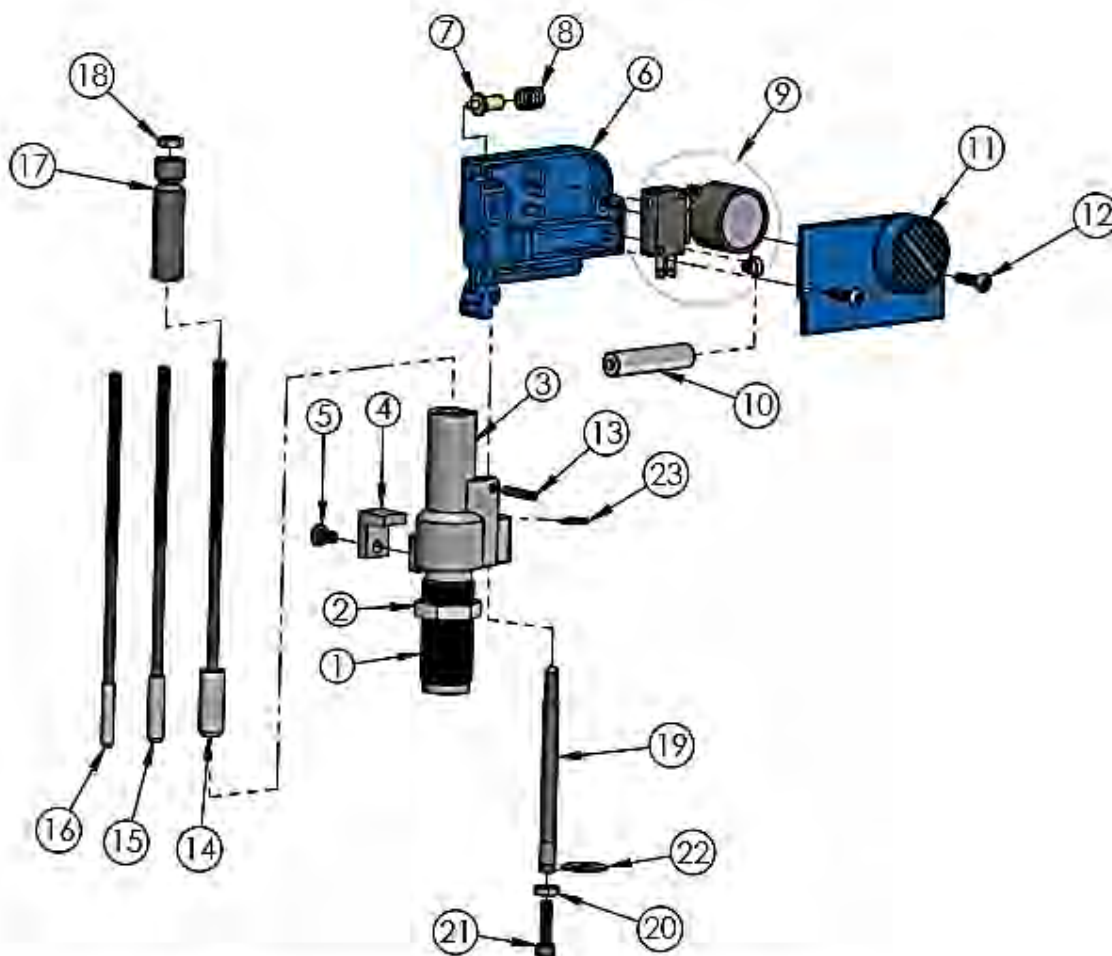


## 12.16 Lower Bearing Assembly--Parts Identifier



ITEM NO.	PART NUMBER	QTY.
1	62304_CP2000 CONNECTING ROD PM	1
2	62303_CP2000 CRANK JOURNAL PM	1
3	62313_CP2000 BEARING RETAINING RING	2
4	62312_CP2000 BEARING DOWEL PIN	148
5	13581_GREASE ZERK	1

## 12.17 Powder Check Assembly (Optional—Complete Assembly PN21044)



NUMBER	DESCRIPTION
1	13990_POWDER DIE
2	14067_DIE LOCK RING
3	10552_PCK BODY COLLAR
4	13986_SD POWDER DIE CLAMP
5	13895_10-24x375 BHCS
6	13583_PCK BUZZER HOUSING MOD B
7	13602_PCK CONTACT PIN
8	13956_PCK CONTACT PIN SPRING
9	11426_BUZZER/SWITCH ASSEMBLY
10	AAA BATTERY
11	13537_PCK BUZZER COVER
12	13983_8-32x625 BHCS
13	14025_125x750 SPRING PIN
14	21374_PCK ROD ASSEM 44-45 CAL
15	21373_PCK ROD ASSEM 30-41 CAL
16	21372_PCK ROD ASSEM 22-29 CAL
17	12685_PCK ROD SLEEVE
18	13898_10-24 HEX NUT
19	13603_PCK PUSH ROD
20	13898_10-24 HEX NUT
21	14037_10-24x750 SHCS
22	14157_10 FENDER WASHER, FOR USE ON 1050
23	13837_DECAP RETAINING E-CLIP

## 12.18 RL1100 Quick Change Toolhead (Optional PN 21393)



Includes:

- Toolhead
- Powder Measure
- Dies can be ordered separately—Dillon Carbide Dies Recommended

## 12.19 Toolhead Stand for RL1100 (Optional PN 62200)



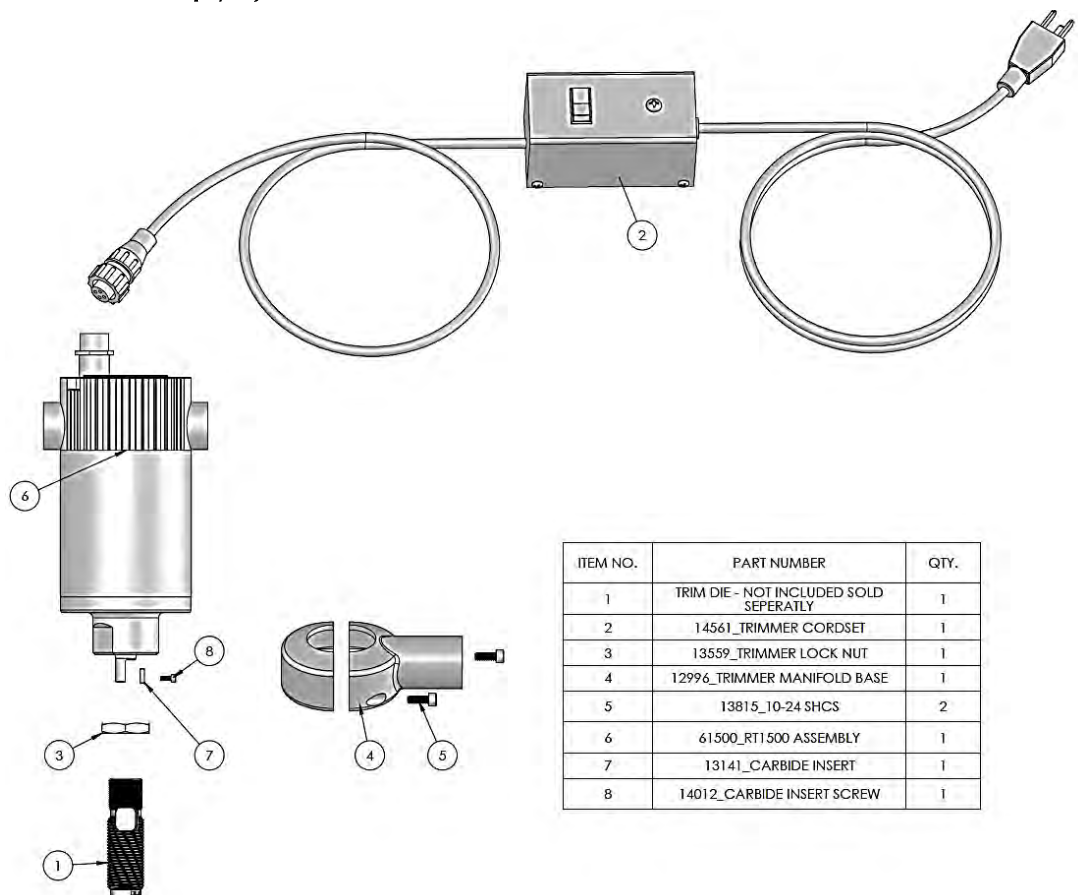
## 12.20 Bullet Tray PN 22215 and Tool holder PN 62202 (Optional)



## 13 USING THE RL1100 FOR CASE PREPARATION FOR RIFLE CASES

13.1 Setup procedures for feeding, sizing and swaging are the same as the above RL1100 descriptions with the exception of the setup of the Size Die in station 2 and the Case Trimmer Size Die in Station 6. Remove primers, powder, Seat and Crimp Die. The case preparation procedure is as follows:

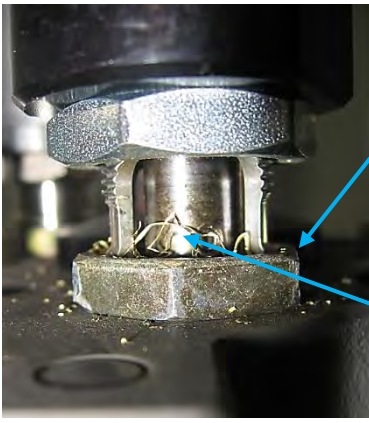
- Clean brass
- Lubricate Brass with Dillon Case Lube
- Note: the Primer system and Powder system can be disabled or removed for this operation
- Place Brass in Dillon RL1100 Casefeeder and turn on Casefeed motor
- Cycle the handle to insert a case into the Shellplate—Station 1
- Station 2 Deprime and Pre-size the brass case without the 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. Final size in the Size Trim Die Station 6. This provides a more precise sizing operation minimizing "spring-back" of the brass.
- Swage primer pocket—Station 3—Setup the Swager and Backup Expander Rod as described.
- Stations 4 –Skip—no primers
- Station 5—Skip--no powder
- Station 6--Final headspace/size and trim cases to proper length here utilizing Dillon Trim Motor and Dillon Size Trim Die shown below: Note the Size and Trim Die is caliber specific and only for bottleneck cases.
- Station 7—Empty
- Station 8 –Empty/eject



### 13.2 Setting up the Size Trim Die

13.2.1 Install the Dillon Size and Trim Die in Station 5 or 6 by threading the 7/8-14 die (1) into the Toolhead with the Operating Handle down. Continue to thread the Size Trim Die down until the Die touches the Shellplate. Back the Die up (CCW) one full turn and lightly snug The Die Lock Ring down against the top or bottom of the Toolhead—Lock Nut location depends on the caliber and length of the Trim Die to maximize the window openings in the Trim Die for the most effective removal of the trimmed brass chips through the Exhaust Collar.





Install Die Lock Ring on the top or the bottom of the Shellplate to maximize the opening in the Trim Die Body for chip removal

Typical case trim chips— Note the chip removal opening is somewhat restricted—move the Size Lock Nut on the bottom of the Toolhead as shown to the right



- 13.2.2 Cycle a lubricated case through the Trim Size Die and adjust as necessary up or down to get the proper headspace using a Headspace Case Gauge.
- 13.2.3 Carefully thread the Dillon Rapid Trim™ Motor onto the Trim Die with the Carbide Cutter installed. Place a sized case with the proper headspace in the Size Trim Die with the Operating Handle all the way down; thread the Rapid Trim Motor/Cutter assembly down until the Cutter touches the neck. Turn on the Rapid Trim Motor. Remove the case and check the overall length. Adjust the Motor Cutter Assembly in small increments up or down as needed for proper overall case length. Tighten the Trim Locknut firmly against the Dillon Rapid Trim™ Motor. Do not allow the Cutter to contact the interior of the Size Trim Die at any time. Doing so will damage the Die and Carbide Trim Cutter. The Carbide Cutter is sharp and brittle and can be damaged if dropped. Note: There are three cutting edges on the Cutter. If one is damaged the Cutter can be rotated to a fresh edge.



Carbide cutter/insert with 3 edges

- 13.2.4 Cycle the Operating Handle down. Remove the case and check the overall case length (case gauge or calipers) and the headspace in a Dillon Case gauge. Continue adjusting the Trim Die down until the case has the correct headspace as previously described. Note adjusting the Trim Die up or down also causes the trim length to lengthened or shortened. Adjust the trim length after the headspace is correct.
- 13.2.5 Tighten the Die Locknut on the Trim Die and the upper lock nut (item 3 above) that locks the Trimmer in place. Install the exhaust Trimmer Manifold (item 4 above) around the Size Trim Die and the lower portion of the Trim Motor with the two screws provided.
- 13.2.6 Connect the exhaust port to an appropriate exhaust source such as a shop vacuum and turn it on.
- 13.2.7 Frequently inspect the shop vac line and trimmer manifold for brass chips and clean out as necessary.

Two-piece Exhaust Manifold with two fasteners

Exhaust Manifold -- Connect to shop vacuum



## 14 RELOADING BASICS

### 14.1 Clean Brass Is Required Before Reloading

14.1.1 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  
PN13804



Dillon  
PN20439

### 14.2 Lubricating Brass

14.2.1 Pistol Brass—lightly lubricated pistol brass 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.

14.2.2 Rifle Brass—all bottleneck cases even when using carbide Dies.

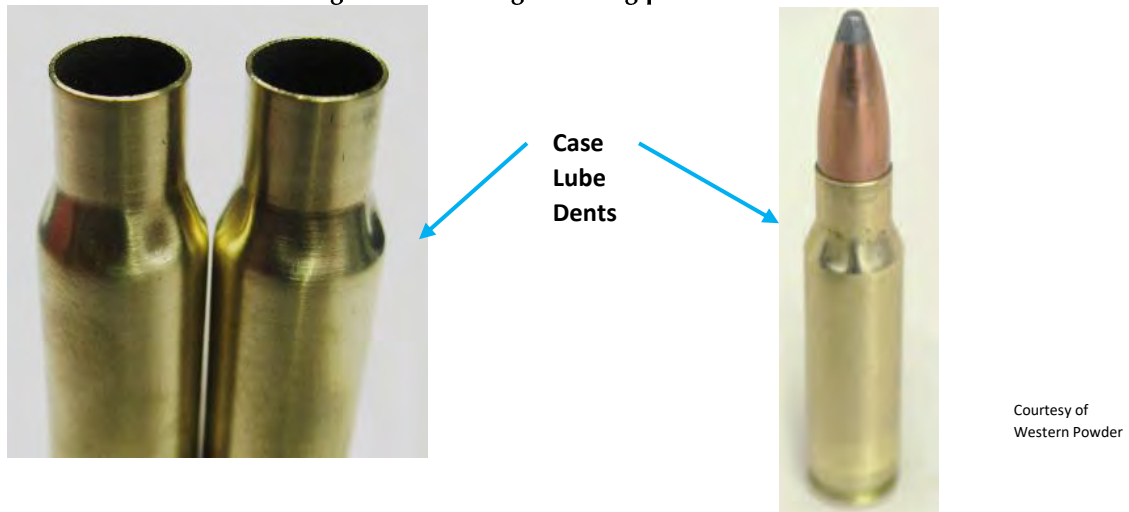
14.2.3 Lubricate your clean cases by laying the brass flat on their sides in a shallow box or "cookie tray." Pump three to four sprays on the cases and shake the box so the cases tumble and roll. Repeat this process one more time making sure that the lubricant distributed over the cases. Let the cases dry for about 3-4 minutes before placing them in the Casefeeder Bowl.



Dillon  
PN13733



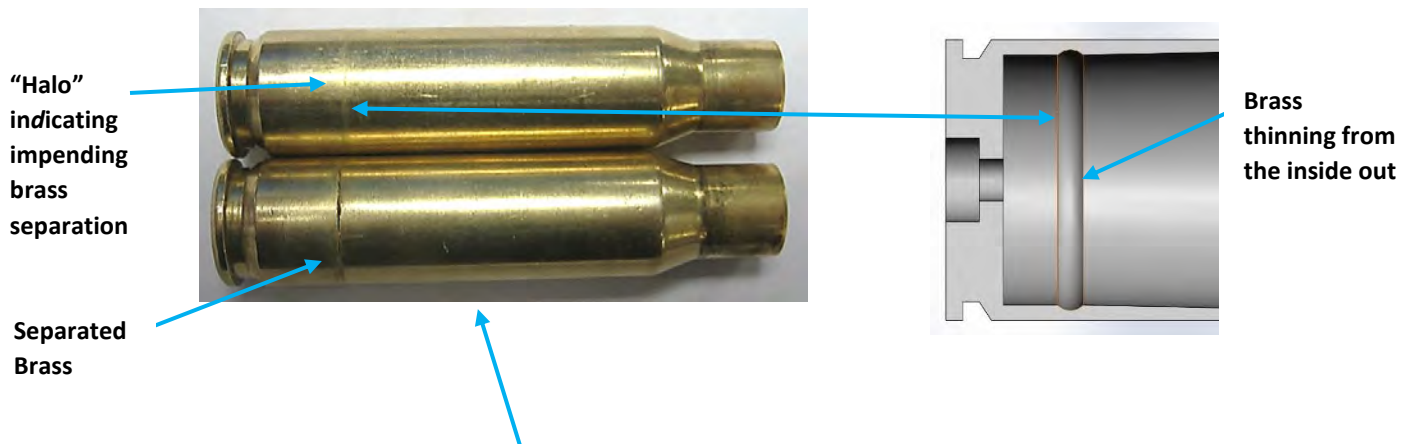
14.2.4 Over lubricating, the brass can cause hydraulically formed “lube dents” during the resizing process. This can be caused by not waiting for the alcohol in the Case Lube to dry before sizing. If this occurs, clean out the Size Die. Use enough lube to ensure the case will easily enter the resizing 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.



### 14.3 Head Space and Case Sizing Basics

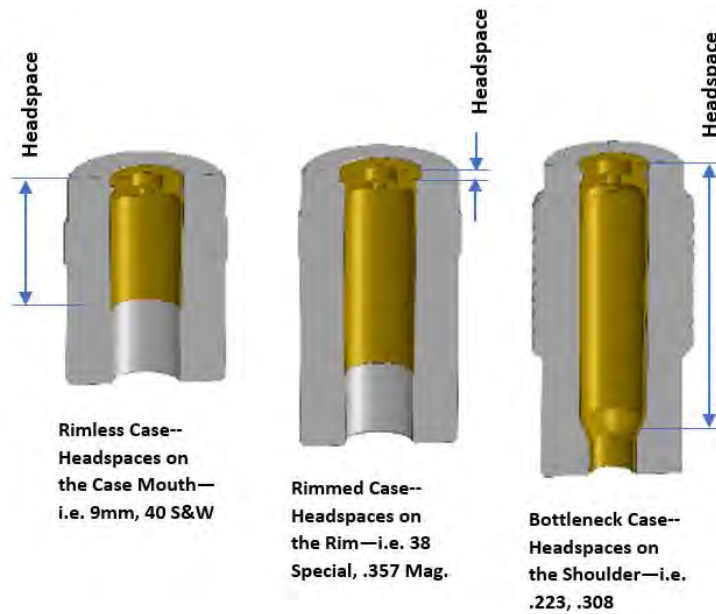
14.3.1 Headspace is an important reloading parameter. Cartridge headspace is the distance from the case head to the part of the case on which the cartridge stops moving forward in the chamber. Chamber headspace is the distance from the breech face to the part of the chamber that stops the case from moving forward. Headspace in its common usage (actually 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.

14.3.2 An example of stretched/failing brass is shown below. The brass “flows” towards the neck during the firing process and causes the case wall to get thinner in a “groove” on the inside 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.



- When a straight wall cartridge is fired, the case expands in diameter to take up all of the available space in the chamber and seals in the propellant gases. In a bottleneck case, the sides, neck and shoulder expand and the case stretches to again take up all of the available space in the chamber, also acting as a gas seal. The cartridge case then “springs back” so the case can be extracted from the chamber, but the case does not return all the way back to its original unfired dimensions. This is why the case has to 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. There are neck size only dies for reloading for one firearm. 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 headspace of your brass as well as a high/low limit step at the case mouth to determine proper trim length—again, it is not a chamber gauge! Chamber gauges are available from EGWguns.com. See below.



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

Typical EGW Multi “Round” Chamber Checker

## 14.4 Primer Basics

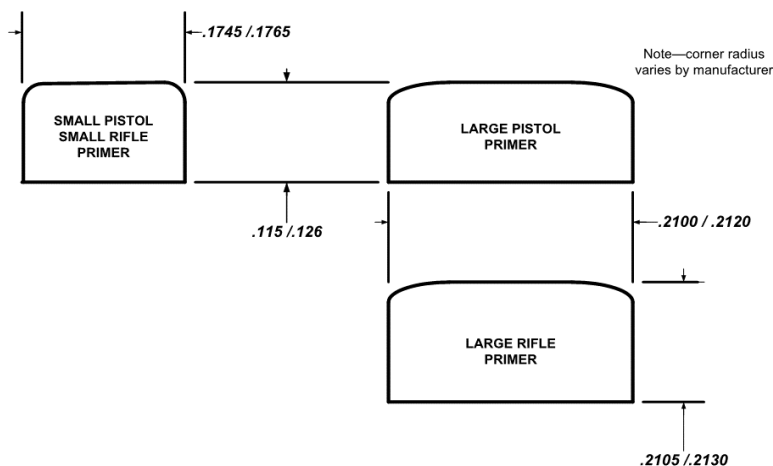
- DANGER!** Primers contain a small amount of a shock-sensitive chemical that explodes when struck by a firing pin or hammer which then sets off the powder/propellant. The primer provides an initial pressure to assist the propellant to reach a self-sustaining burn. It is also part of the propellant gas sealing system. Primer elements are shown below. Primers must be installed/seated to a recommended .002" to .006" (.008" Max.) below flush in order 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 heats. If primers get 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 in an attempt 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 one of the most dangerous things you can do in reloading 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 primer are what is 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.

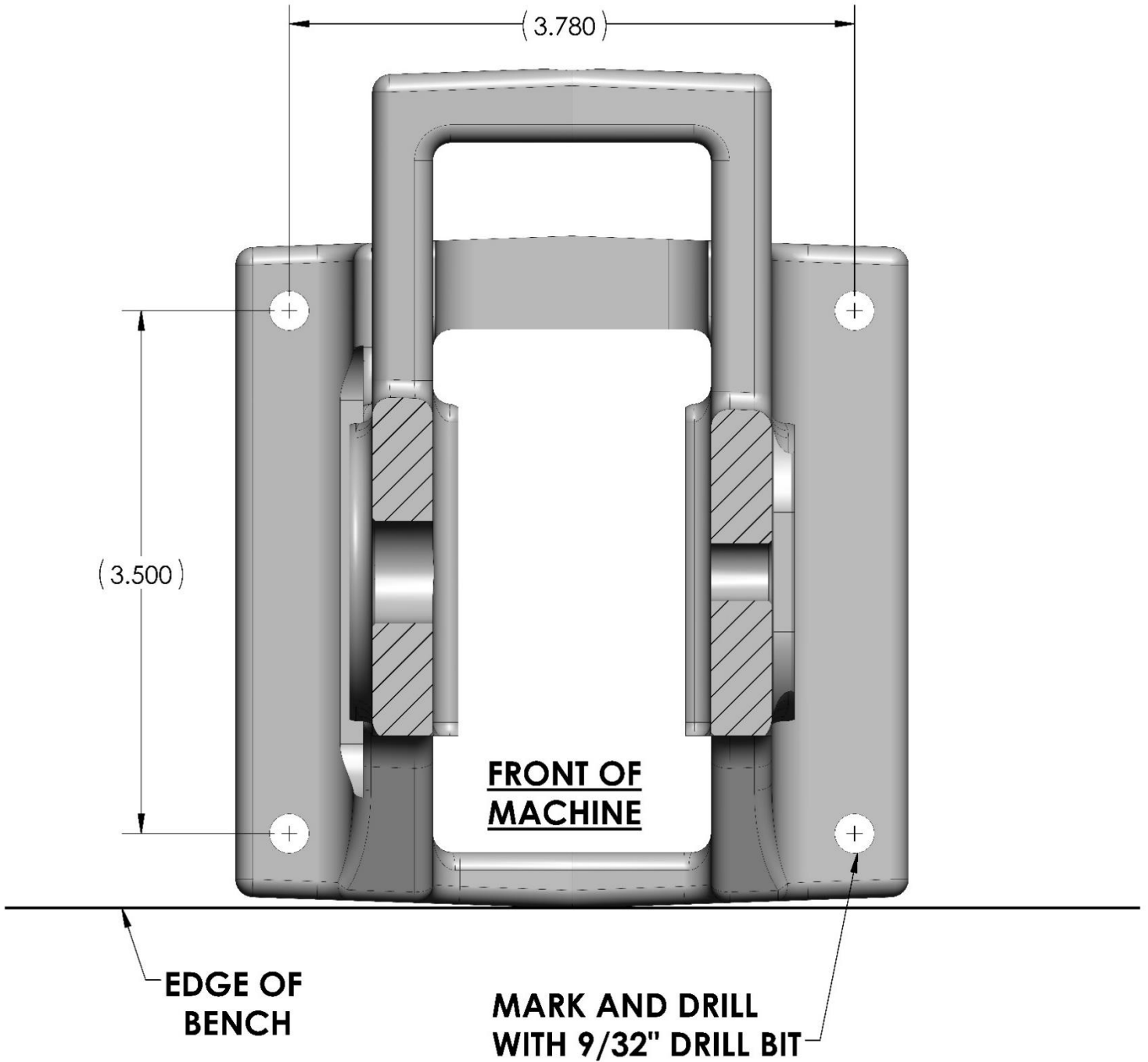


- There are four sizes of primers for Boxer Centerfire Cartridges:
  - Small Pistol
  - Large Pistol
  - Small Rifle
  - Large Rifle
  - There are also magnum, bench rest and military primer varieties.
  - WARNING!** Reloading manuals specifically define the primer used for the cartridge and the bullet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





**RL1100/CP2000 BENCH  
MOUNTING HOLE TEMPLATE**



**Dillon Precision Inc.**  
**8009 E. Dillon's Way**  
**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)**