meaden

New Generation Tooling & Operations Manual

meaden
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Table of Contents

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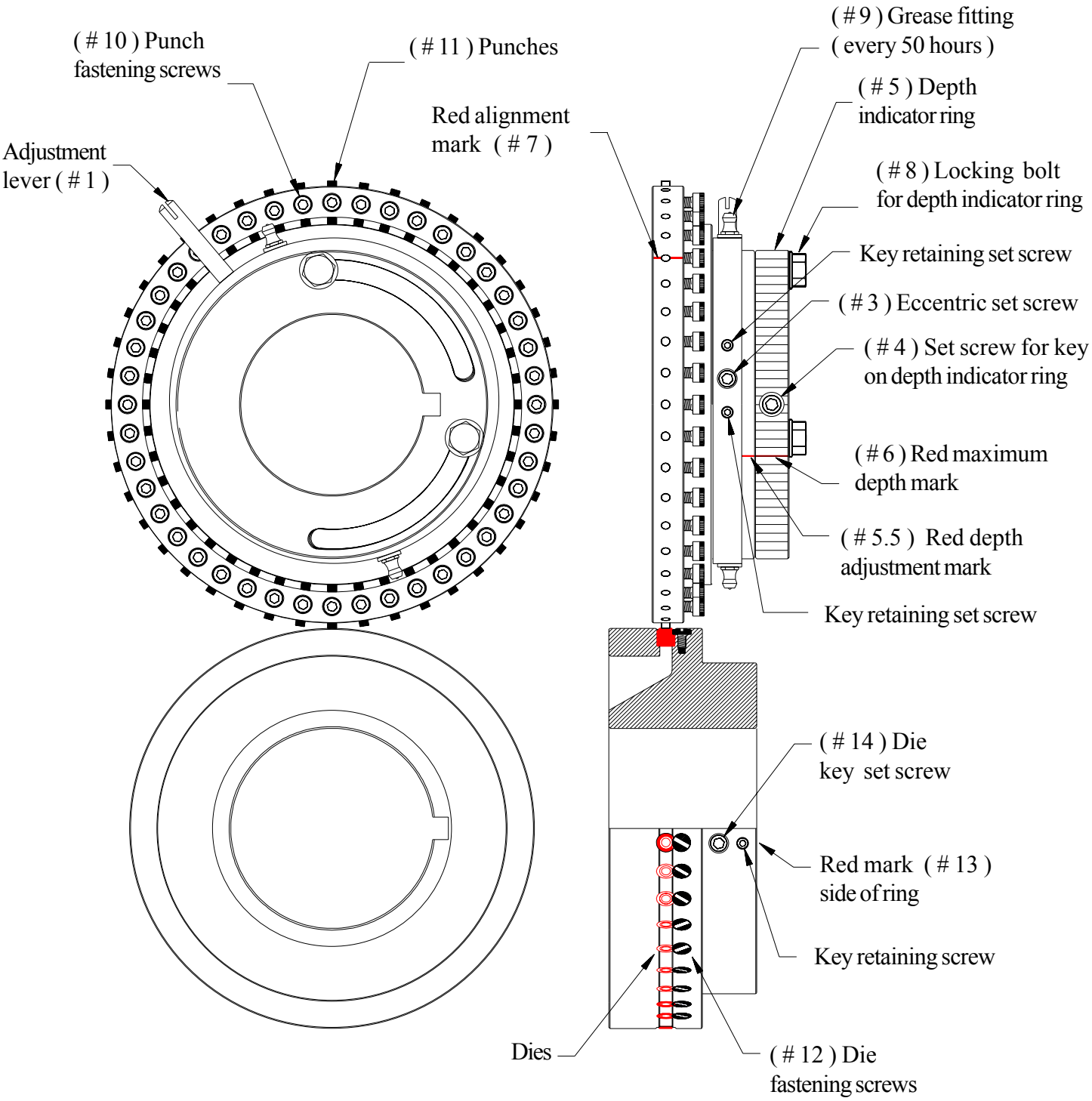
INTRODUCTION

This Manual demonstrates the proper techniques for using New Generation Tools. Each of the component parts is labeled and numbered on the diagrams provided.

Please make sure that all press operators read this Manual and understand each of the procedures thoroughly. Failure to follow each step will lead to poor punch and die life and damage to the rings.

We advise you to keep a copy of this Manual with each press that is equipped with New Generation Tools. Please refer to it if you are unsure of any procedure.


(# 10) Punch fastening screws
(# 11) Punches
Red alignment mark (# 7)
Adjustment lever (# 1)
(# 9) Grease fitting (every 50 hours)
(# 5) Depth indicator ring
(# 8) Locking bolt for depth indicator ring
Key retaining set screw
(# 3) Eccentric set screw
(# 4) Set screw for key on depth indicator ring
(# 6) Red maximum depth mark
(# 5.5) Red depth adjustment mark
Key retaining set screw
(# 14) Die key set screw
Red mark (# 13) side of ring
Key retaining screw
Dies
(# 12) Die fastening screws

I. ENGAGEMENT OF THE RINGS

1. Before making any adjustments on the rings make sure both shafts are free of any paper dust and are lightly lubricated with L.P.S.II.

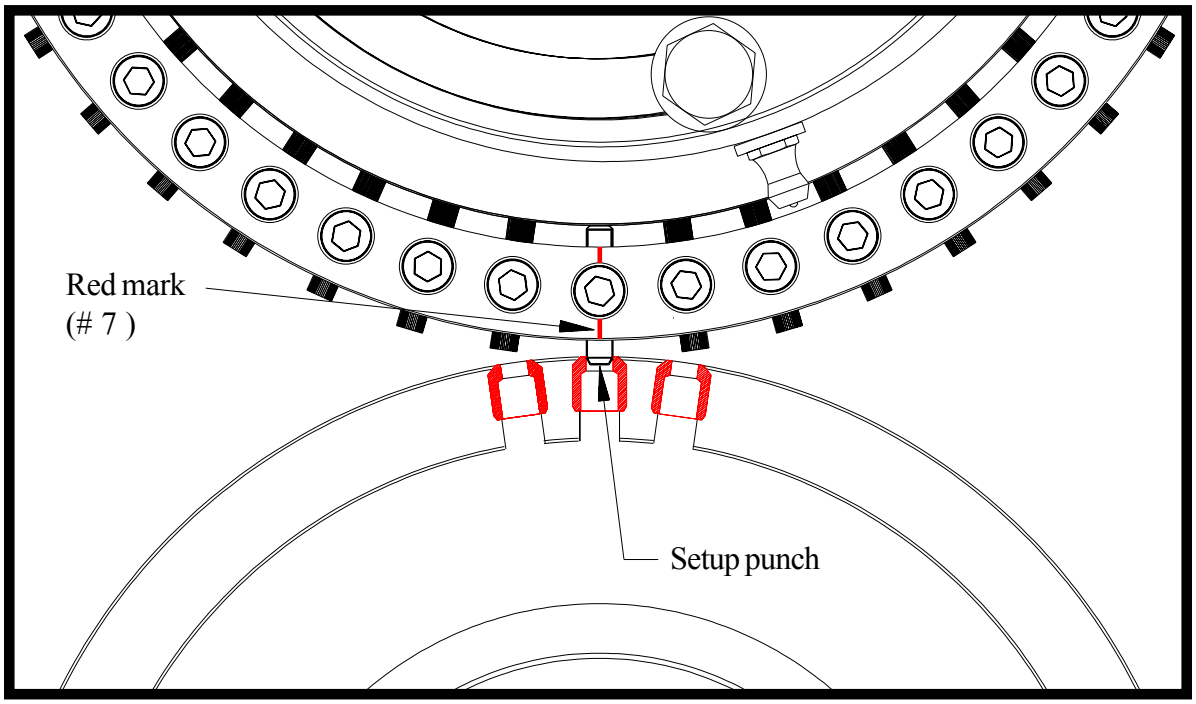
2. Rotate the die shaft until the red mark (#13) on the side of die ring is in the upright position.

3. Set the die ring to the proper distance and lock down the key set screw (#14).

4. Line up the punch ring directly over the die ring and rotate the punch crown until the red mark (#7) faces up.

5. Then exchange the punch next to the red mark (#7) with a special centering punch with the tapered side facing up.

6. Rotate the punch crown until the red mark (#7) is directly over the red mark (#13) on the die ring.

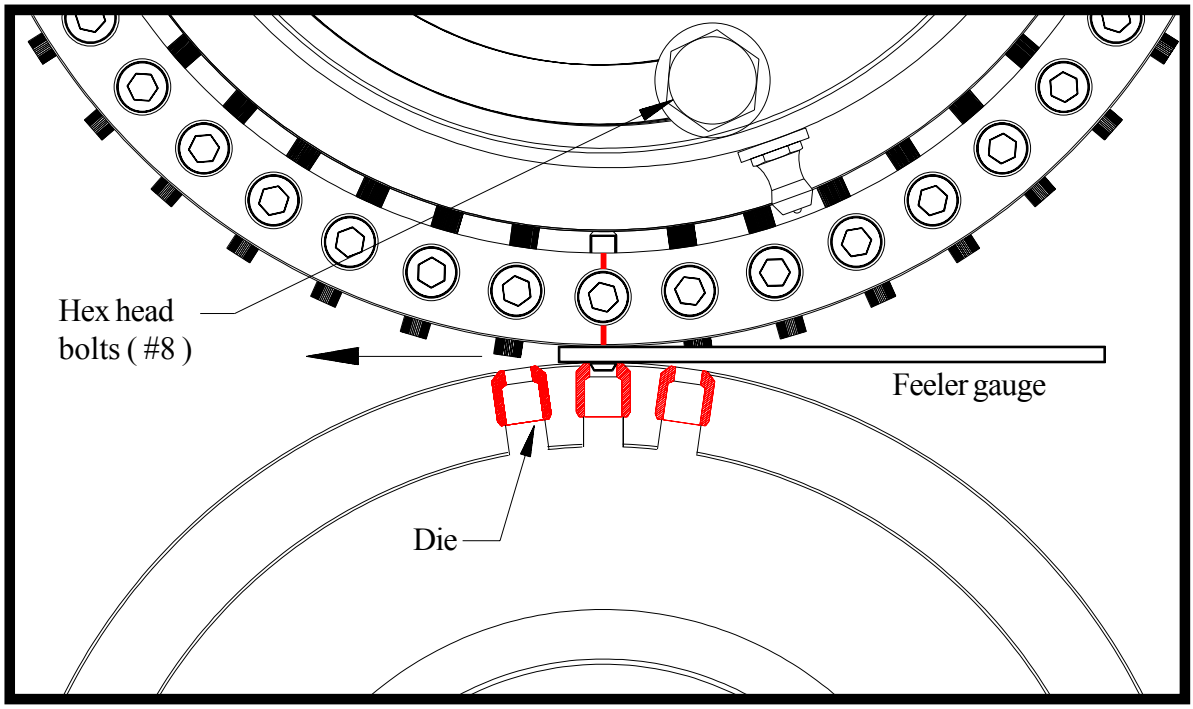


7. While holding the punch crown with one hand, carefully lower the special centering punch into the die by using the eccentric lever, rotating it in the opposite direction of the web as far as it will go. Then move the lever up until the depth adjustment mark (#5.5) lines up with the mark on the BTR Ring that indicates .020 max. pen etration depth (#6).

8. While holding the punch crown tighten the two hex head bolts (#8) on the BTR Ring. (Do not overtighten the hex bolts)

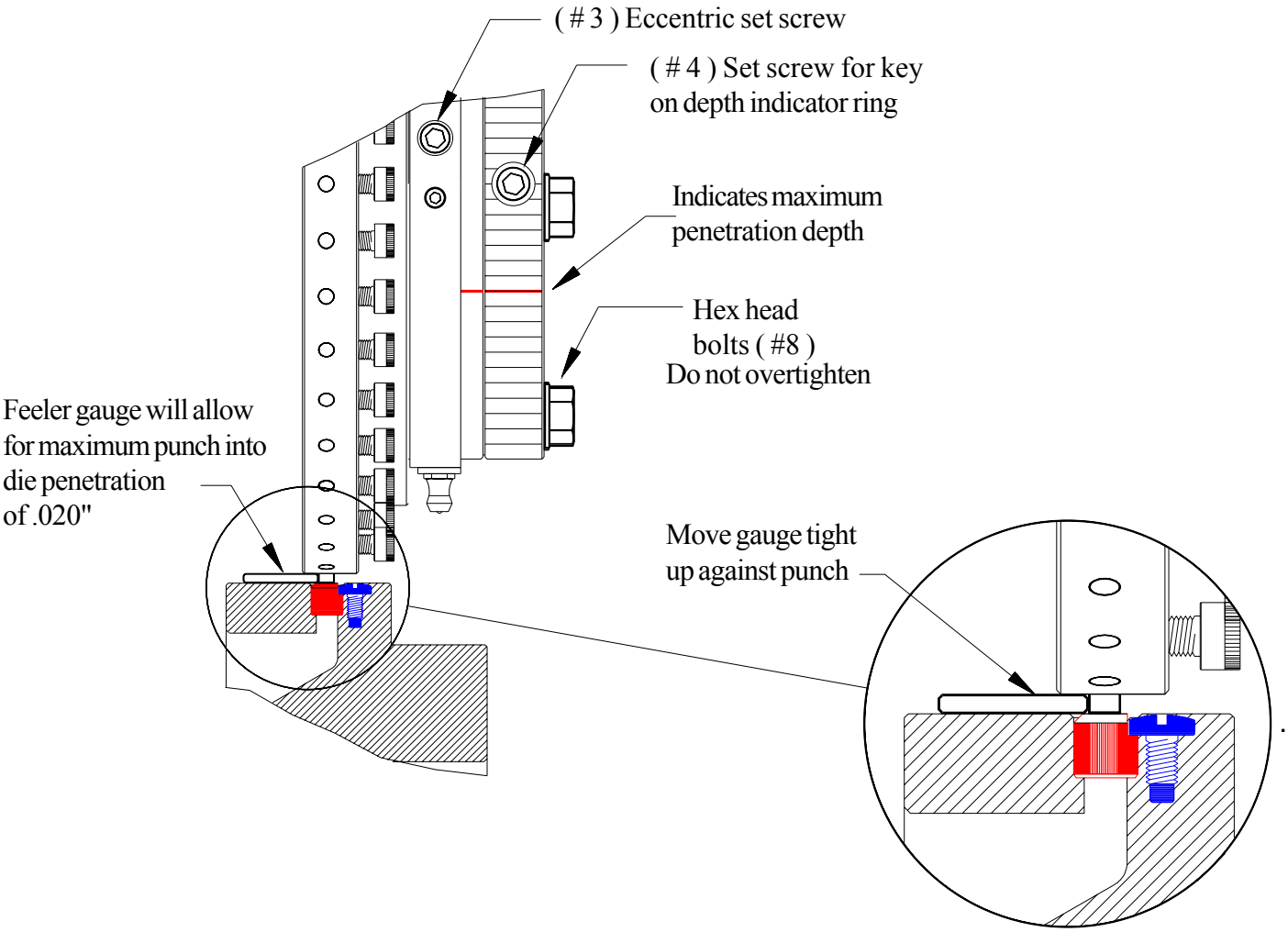
9. Then rotate the rings until the red mark (#7) on the punch ring is once again on top.

10. Remove the special centering punch and insert the standard punch (#11) with the flat side facing the fixing screw. Hold down the punch with your thumb while slightly tightening the fixing screw (#10). To ensure proper seating of the punch, carefully tap the punch with the small brass hammer supplied in your tool kit. Once again place your thumb on the punch while firmly tightening the fixing screw to assure no movement of the punch (use the torque wrench which is set at 70 inch lbs.).



11. Now the rings are inched approximately 5 revolutions and on the final revolution, tighten the eccentric set screw (#3) while the rings are still rotating. This enables the punches and dies to center themselves.

12. Finally, tighten the key set screw (#4) on the BTR Ring.



II. DISENGAGEMENT OF THE RINGS

An interesting feature of New Generation Tools is the ability to disengage the punches from the dies through a simple four step process.

If a job calls for a set of rings to not be used, you must disengage them. Failure to do so will result in rapid wear of the punches and dies. Also, if run without paper for an extended period of time, the rings themselves will be damaged.

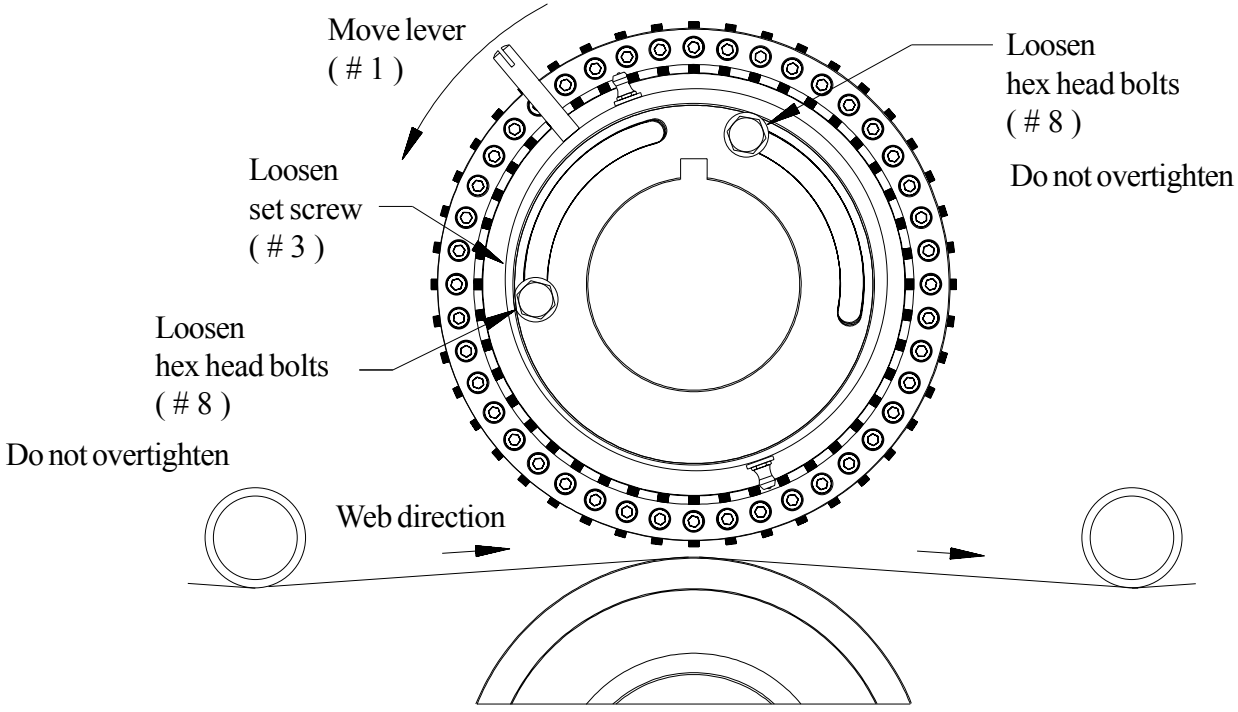
THE FOUR STEP PROCESS IS AS FOLLOWS:

1. Loosen the two hex head bolts on the Punch Ring (#8).

2. Loosen the eccentric set screw on the Punch Ring (#3).

3. Move the eccentric lever (#1) in the direction of the web until it bottoms out against the bolts.

4. Tighten the hex head bolts (#8) and the eccentric set screw (#3) to ensure that the ring does not re-engage itself. Make sure the ring turns freely.



III. LATERAL ADJUSTMENT OF RINGS

There are two methods of laterally adjusting New Generation Tools. They can be moved while engaged or disengaged.

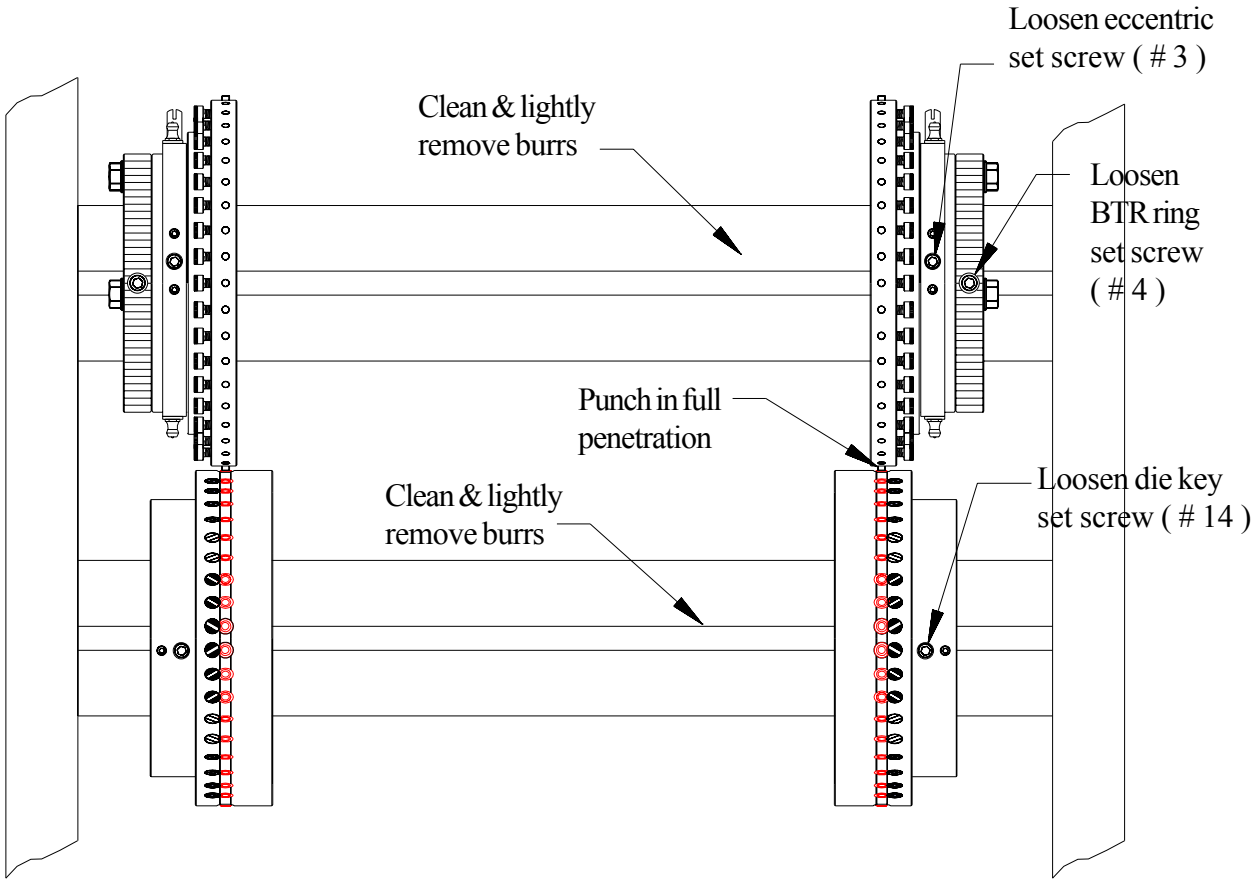
1. Before making any lateral adjustments of the rings clean the shafts, remove any burrs, and lightly oil them.

2. Make sure one punch is fully penetrated into a die. (use the red marks to be sure of full penetration)

3. Loosen the die key set screw (#14).

4. Loosen the eccentric set screw on the Punch Ring (#3).

5. Loosen the key set screw on the BTR Ring (#4). Do not loosen the two hex head bolts.



6. By placing one hand on each ring, slide the rings to the desired location (move by hand only).

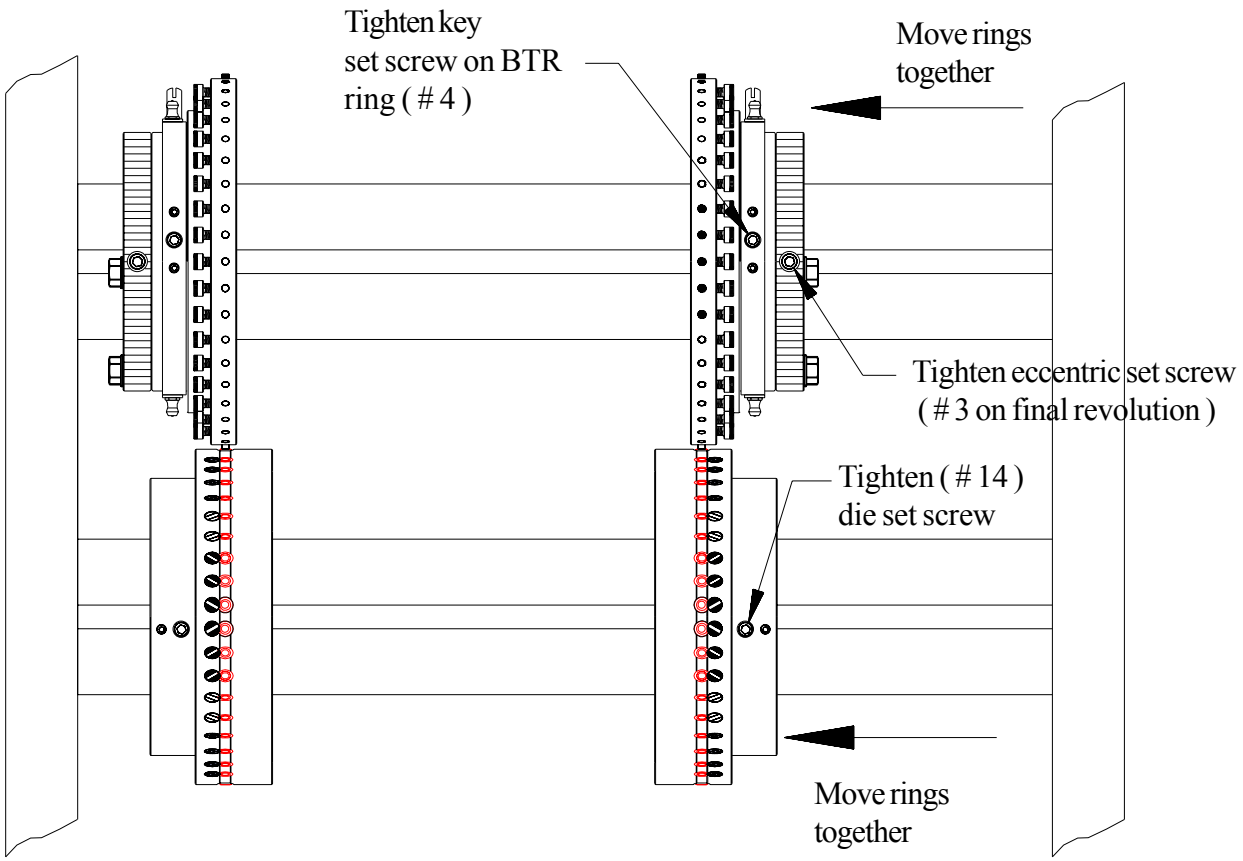
7. Tighten the die set screw (#14).

8. Now inch the press around approximately 5 revolutions. On the final revolution tighten the eccentric set screw on the Punch Ring (#3) while the ring is still rotating. This, again, enables the punches and dies to center themselves.

9. Finally, tighten the key set screw on the BTR Ring (#4).

   If the rings cannot be moved while engaged, they must be disengaged. Never hit the rings while they are engaged!! After disengaging the rings, move them to the desired location and re-engage them.

NOTE: **Never use any hammer on the rings !**



IV. CHANGING PUNCHES & DIES

If you begin to experience unsatisfactory punching quality on one punch or a set of punches, it is time to make a change. Do not try to increase penetration depth as a " QUICK FIX " method. The .020" depth penetration is the maximum allowable. Increasing this depth may improve short term punching quality, but will cause serious problems elsewhere.

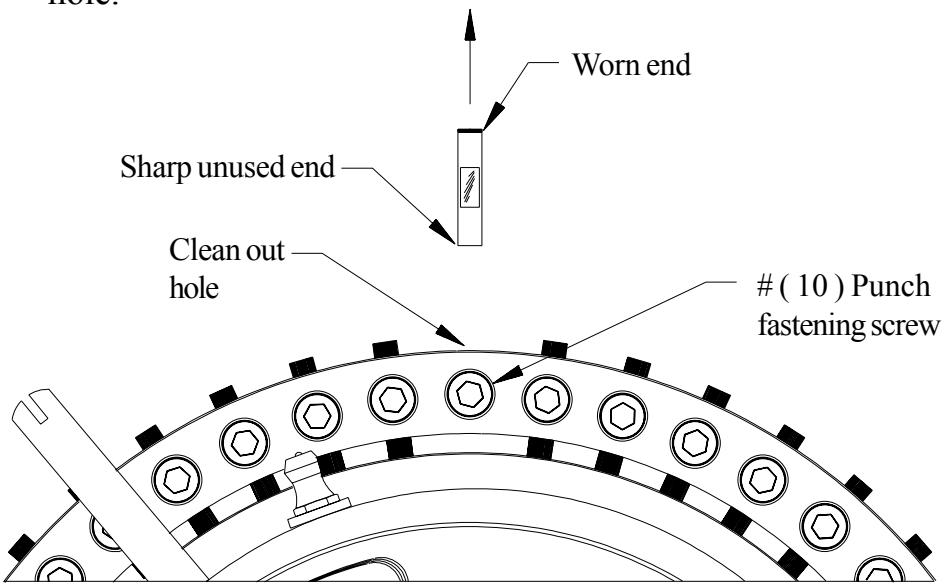
When dealing with a punching problem, the first step is to change (or reverse) the punch or punches in question. New Generation punches are reversible for use on both sides. If this does not solve your problem you should then try changing the dies also.

NOTE: While both sides of a punch may be used on the same die, you should not use two different punches on the same die. We recommend that when a new punch is used the die should be changed. Also, whenever punches and dies are changed you should also change fastening screws.

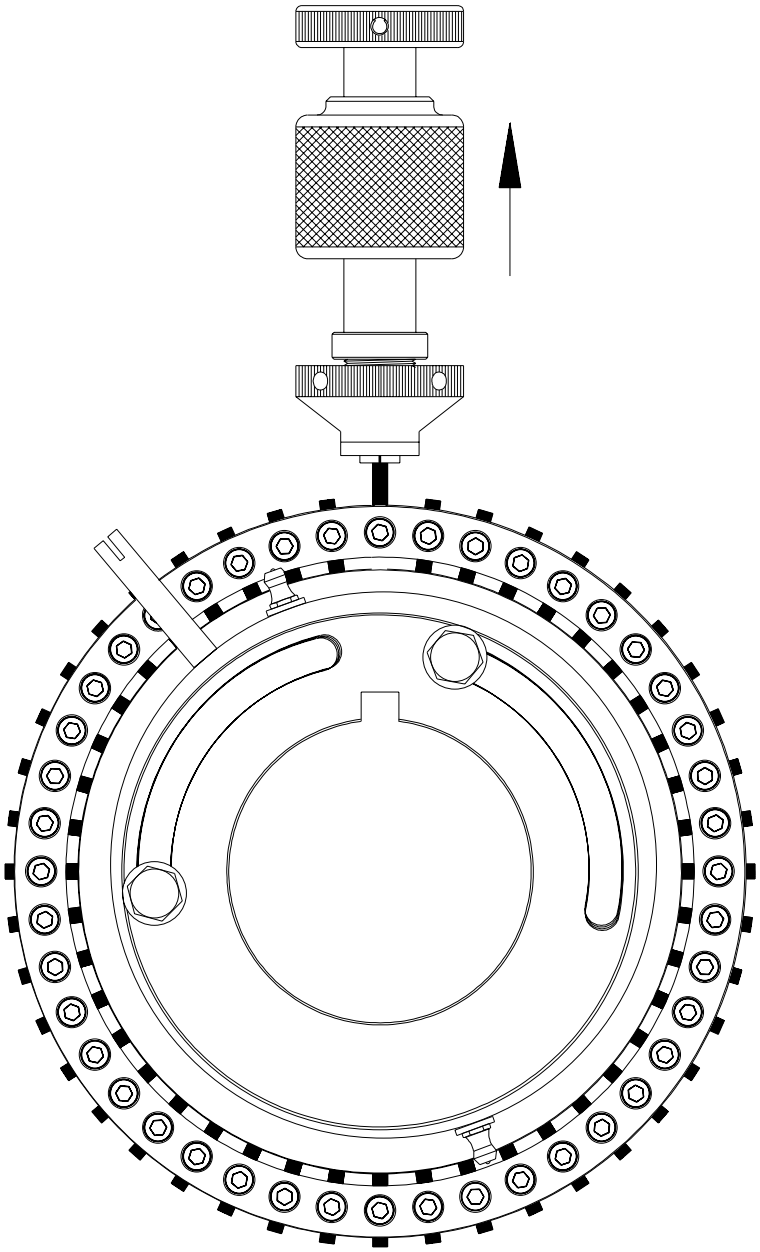
A. The Process For Changing Punches Is As Follows:

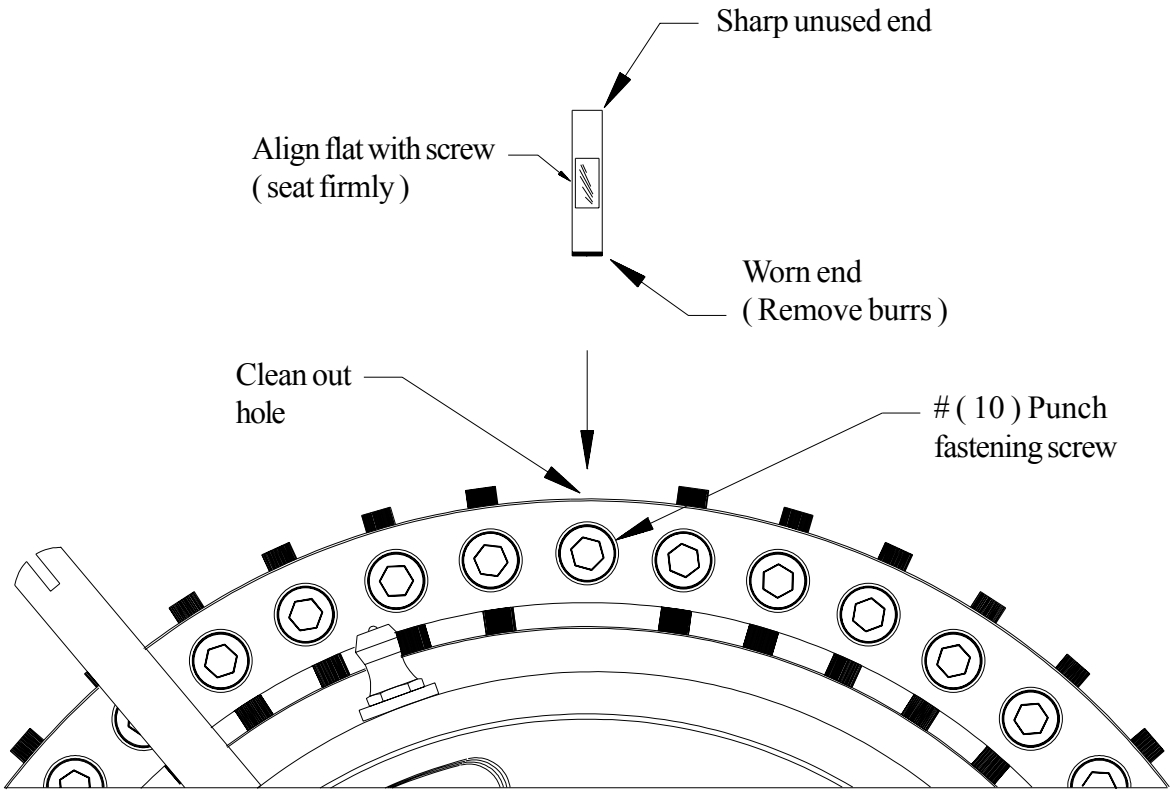
1. Loosen the punch fastening screw (#10) and remove the punch, using the punch and die puller if necessary.

2. Clean the hole with compressed air so that no foreign objects remain in the hole.



Using the punch puller





3. If reversing a punch, you must remove any burrs on the used end. This is done by lightly stoning the end without reducing the normal length of the punch.

4. Insert the punch with the flat side facing the fixing screw.

5. Next hold the punch down with your thumb while slightly tightening the fixing screw (#10) on the diagram.

6. To ensure proper setting of the punch, carefully tap the punch with the small brass hammer supplied in your tool kit.

7. Then once again place your thumb on the punch firmly tightening the fixing screw to assure no movement of the punch during operation. (We recom mend use of a Torque wrench which should be set at 70 inch lbs.).

B. The Process For Changing Dies Is As Follows:

1. Remove the die fixing screw.

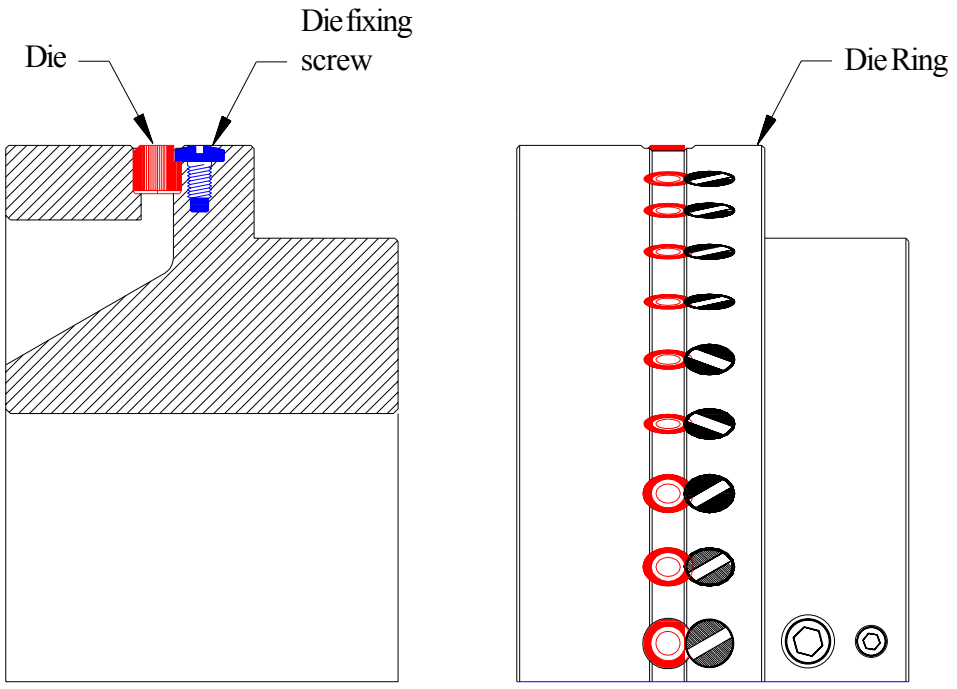
2. Remove the die. (Use Meaden die puller if necessary)

3. Using compressed air, remove any debris from the holes and lubricate with L.P.S. lubricant.

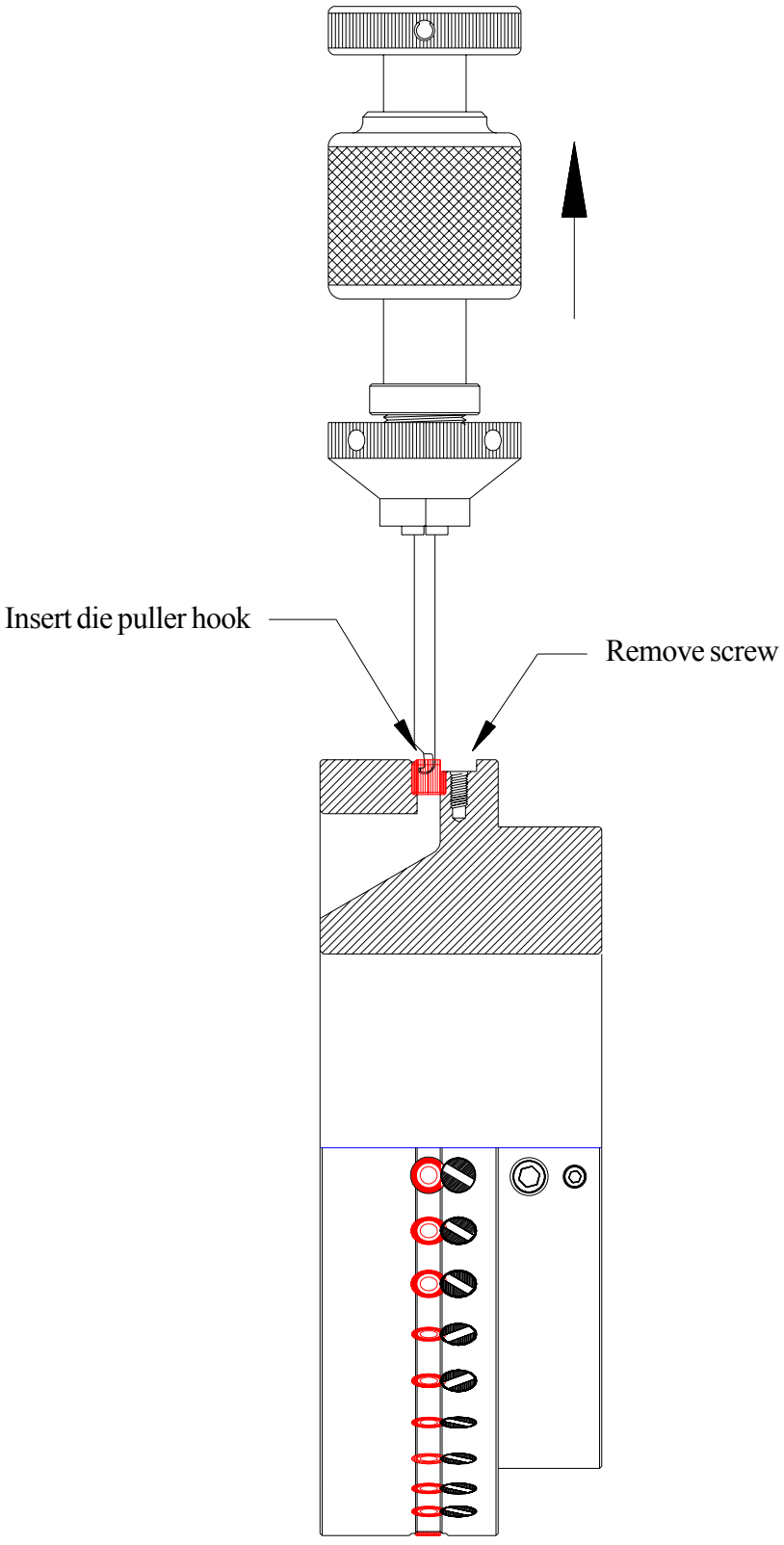
4. Insert the new die in the hole and tap it with the small brass hammer to ensure it is seated at the bottom of the hole.

5. Finally, tighten the die fixing screw securely!

NOTE: Special fixing screws are required when using 3/16 dies.



Using the die puller



V. RECOMMENDATIONS TO PREVENT FAST WEAR

1. Never run the rings without paper in the press. Only inch the press during set-up.
2. Never use a steel hammer on the rings.
3. Never peen over punches.
4. Never use a file on the punches.
5. If 3/16" punches and dies are used they must be located at least 6 holes before or after the red mark (#6).
6. Always make sure that the punches are seated properly.
7. Ball bearings in the rings should be greased once every 48 running hours.
8. Only Shell Alvani R2 Grease should be used in the rings.
9. Never change the penetration of the rings from the initial settings.
10. When engaging double row tools, you need only to use one special centering punch.
11. If any maintenance is to be done on the die shaft all the rings should be disengaged before working on it.
12. If a situation arises that you believe your penetration has changed (example: severe wrap up) you should check your depth with the proper feeler gauge corresponding to the size of your rings.
13. After the break in period all the fixing screws on the punches should be checked for tightness.
14. Before running any production check all adjustment screws, bolts and levers to make sure they are secure.
15. Use only Schober punches and dies in the rings.

VI. POSSIBLE PROBLEMS

1. Punches pulling out of penetration during operation. This will occur if the punches are not tightened enough.

2. Chipping of Punches & Dies

   A. If punch penetration into the die exceeds more than .020.
   B. If punches and dies are not seated properly.
   C. If punches and dies are not tightened well enough.
   D. When the bores on the punch and die rings are worn out and are no longer concentric to each other.
   E. If a severe wrap up occurs.
   F. When the press has excess backlash on the die shaft.
   G. When a bearing has been damaged in a punch crown.
   H. If a bearing goes bad in the die shaft.

3. Pulling Out Stuck & Broken Dies

   A. Remove die fixing screw.
   B. Use Meaden die puller and remove the die.
   C. Use compressed air to remove any pieces of a broken die left in the bore.
   D. Spray with L.P.S. lubricant before inserting a new die.
   E. If the die hole has been damaged try to hand ream the bore with a special reamer that can be purchased from Meaden.

   *** Do not try to ream the die holes without first contacting the meaden service department for special instructions and the correct tools !**

VII. WEB BREAK DETECTORS

It is essential that any press running with New Generation Tools is equipped with Web Break Detectors that are wired to the E stop. The detectors should be set within 12 inches before and after the rings.

VIII. USE OF SIDE ADJUSTMENT ON PRESS

If your press is equipped with a side adjustment, we strongly advise having it disabled. New Generation Tools can be moved sideways very quickly. This removes the need for side adjustment in all cases.

If you feel you must keep your side adjustment, you should use a Dial Indicator to verify that both shafts move **within .0008"** of each other. If this is not the case you must disable the side adjustment!.

IX. BAGGY WEB/UNEVEN REGISTRATION

1. Symptoms

   A. Line hole punch registration is uneven across the web.
   B. Line hole registration is difficult to control, holes on one side of web (either gear or operator side) move laterally out of register.

2. Causes

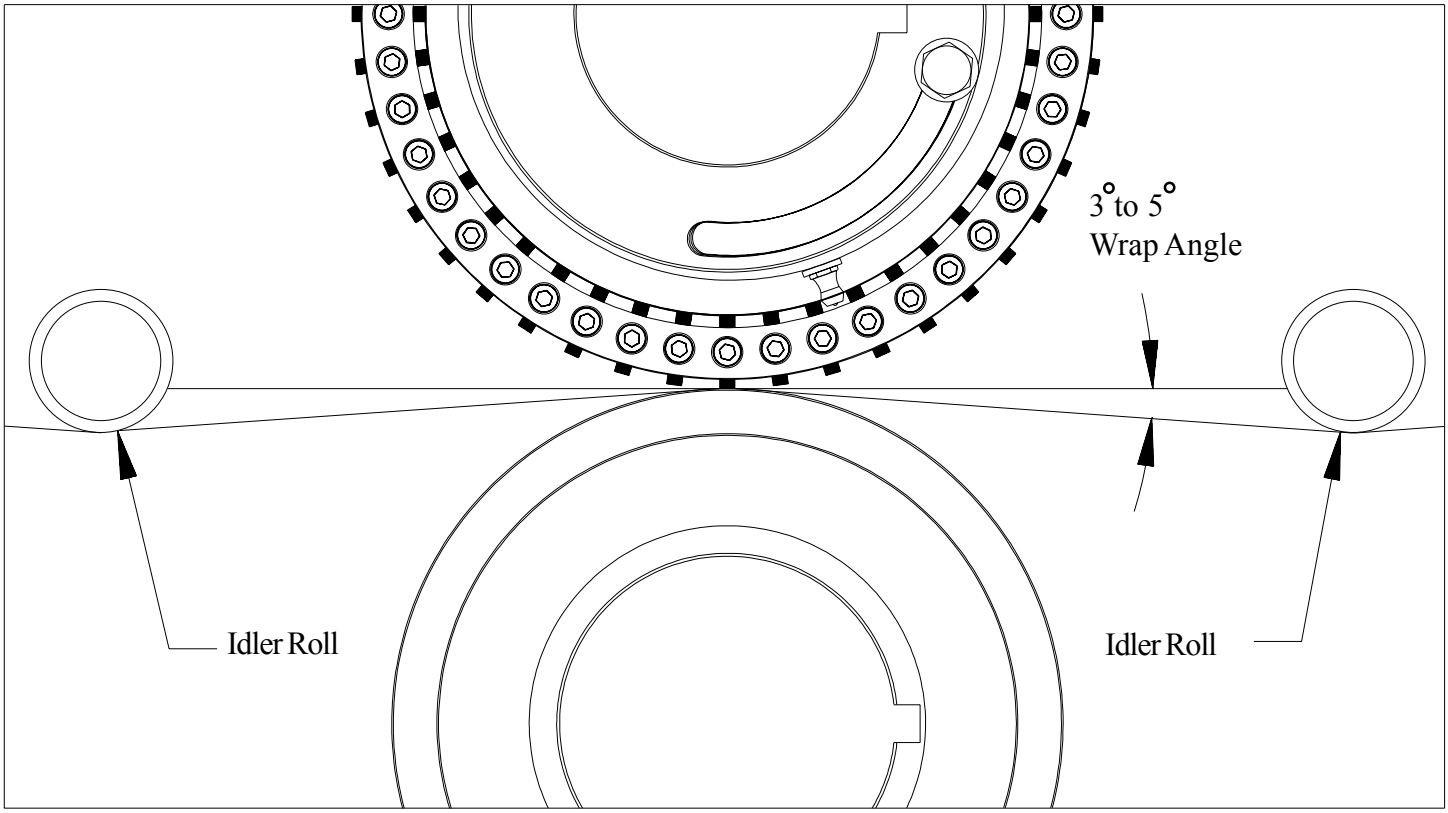
   A. Slit width of the paper roll is uneven.
   B. Moisture has effected the paper, humid weather accentuates condition.
   C. Improper support of the web at line hole punching station causes drooping of paper.
   D. Incorrect entry angle of web into line hole station. Excessive length of un supported web from idler rollers to line hole tools.
   E. To confirm that registration problem is caused by baggy web, flip the roll and punch opposite side. If the punch problem changes sides, the problem is the web.
   F. Web guide malfunction.

3. Solutions

   A. Repair the web guide.
   B. Entry of web to line hole punching station must be on a 3° to 5° incline. Reposition idler rollers to achieve this.
   C. Wrap idler rolls with adhesive backed tape to control web slippage (contact Meaden for supplier details).
   D. Mount height adjustable support bracket on sidewalls to allow for raising or lowering of idler roll to desired position.
   E. Replace the roll of paper.

4. Conclusion

   A. If the web is properly supported at the correct angle of inclination when entering the line hole tools, the uneven situation should disappear.



Proper wrap over the die ring

DISMOUNTING OF BALL BEARINGS

1. Remove the BTR Ring.

2. Place the ring on two (2) steel spacers so that the eccentric bushing can be freely turned. These steel spacers have to be set high enough so that the eccentric bushing can be pressed through the punch holder.

3. The eccentric bushing is pressed out of the punch holder by means of an arbor press using a sleeve which has a somewhat smaller outside diameter than the eccentric bearing itself.

4. Now the punch holder is turned over and the snap ring in the punch holder is removed by means of snap ring pliers.

5. Next the punch holder is turned over and placed on the steel spacers. The single row or double row ball bearing is now pressed out of the punch holder by means of a sleeve which is placed accurately on the inner ring of the ball bearing.

XI. MOUNTING OF BALL BEARINGS

1. Carefully clean all parts of the rings and lubricate with L.P.S.II.

2. Place the punch crown flat on an arbor press.

3. Press the ball bearing into the punch crown, using the sleeve, until it bottoms out.

4. Re-position the snap ring again with the snap ring pliers. (If the bearing is bottomed the snap ring will fit snugly.)

5. The eccentric bushing is placed with its back on the press and the punch crown is pressed down until it bottoms out.

6. Replace the BTR Ring.

7. Before running the tools lubricate the bearings by means of the grease fitting.

XII. MAINTENANCE AND TRAINING

For any piece of precision machinery to perform as expected proper training for the operators must be provided. Also it is very important that correct maintenance practices must be followed.

Meaden provides hands on training for the operators and maintenance personel on a new installation. This is provide by our certified Technical Representitve that does the installation. All operators and maintenance personel that will be working with the tooling should be included in this original training program. Meaden also offers training sessions for review and for new employees on a as needed basis.

The Schober New Gereration Tooling will provide many years of excellent service if it is kept clean and lubricated. Many of the problems that are encountered with this system can be atributed to poor maintenance practices or ignorance of the proper procedures for use of the Tooling. The correct practices and their frequency will be covered in the Training session.

Included in the back of this book is a training and maintenance check off sheets that can be used to help keep personel trained and to verify your maintenance.

Conclusion

We have tried to make this Manual as comprehensive as possible. If you encounter a situation that is not covered in the Manual please call us rather than implementing a procedure that you are unsure of.

We stock a complete line of spare parts and tools for use with New Generation Rings. Please call for details.

TRAINING CHECK LIST

It is recommended that the video be reviewed every 3 months by the operators for reinforcement of the proper procedures. In addition, any new people added to either shift should be required to attend the training on a periodic basis.

1. Review the video.

2. Discussion of video with qualified person.

3. Hands on training with qualified person.

Operator Name _____

Shift _____

Training Date _____ Signed Operator _____ Supervisor _____

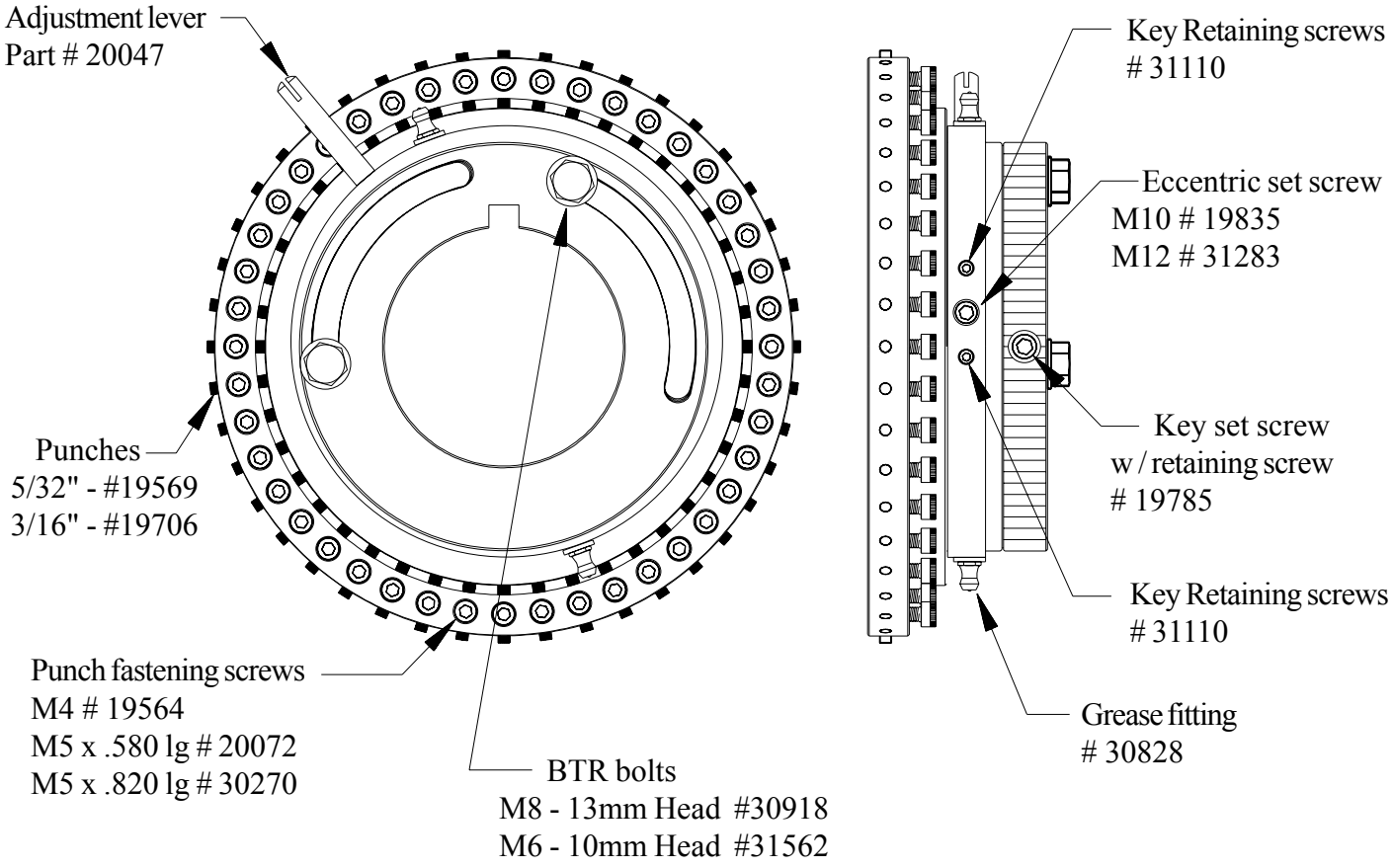
Video review date _____ Operator Initials _____

Video review date _____ Operator Initials _____

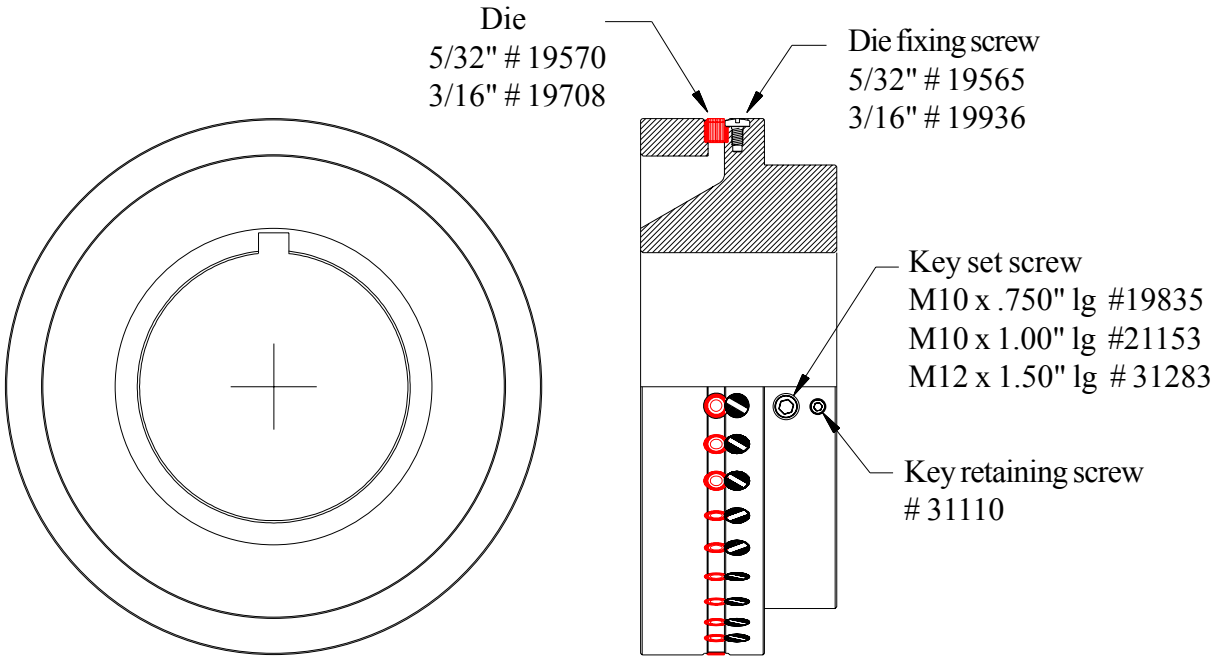
Video review date _____ Operator Initials _____

Video review date _____ Operator Initials _____

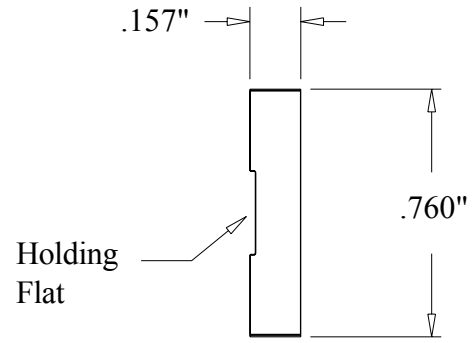
Single Row BTR Punch Ring

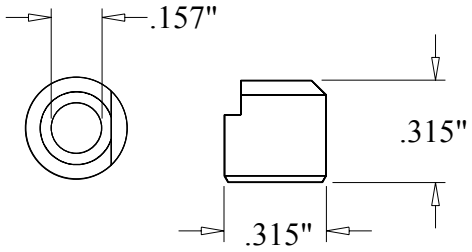


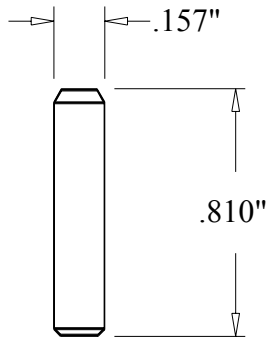
Single Row Die Ring



Punches & Dies for New Generation Tooling



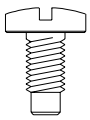




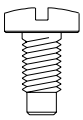
Set up punch
19701

Part Number	Hole Size	Diameter	Length	Notes
New Generation Punches				
19452	.157"	.157"	.760"	HSS Punch
19569	.157"	.157"	.760"	Long Life Punch
19297	.157"	.157"	.760"	Carbide Punch
19701	.157"	.157"	.810"	Setup Punch
19706	.188"	.157"	.760"	Long Life Punch
30281	.188"	.157"	.810"	Setup Punch
New Generation Dies				
19295	.157"	.315"	.315"	HSS Die
19570	.157"	.315"	.315"	Long Life Die
19296	.157"	.315"	.315"	Carbide Die
19708	.188"	.315"	.315"	Long Life Die

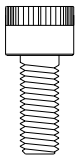
Spare Parts for New Generation Tooling



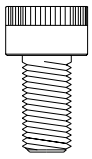
5/32" Line Hole
Die Screw
19565



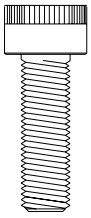
3/16" Line Hole
Die Screw
19936



5/32" Line Hole
Punch Screw
19564



5/32" Line Hole
Punch Screw
20072

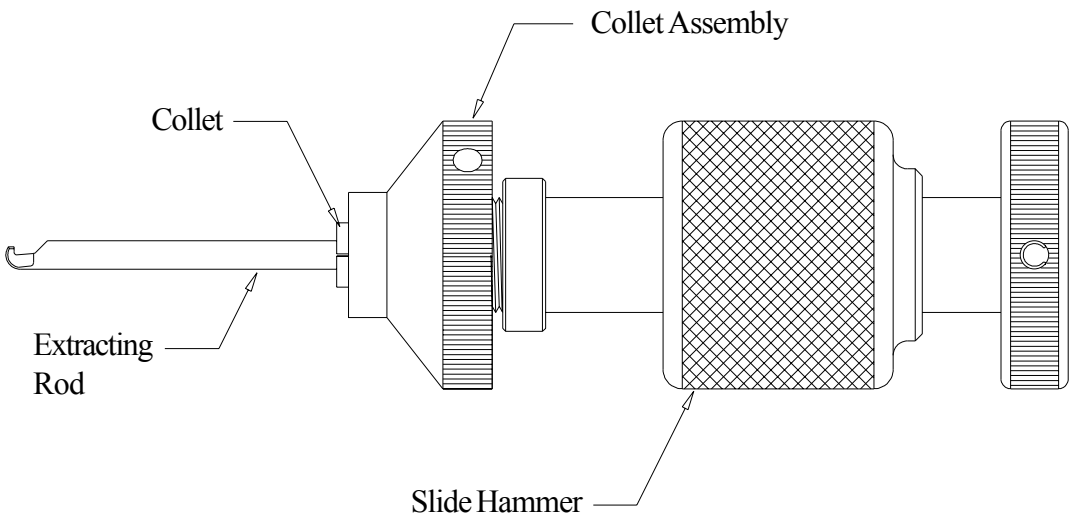


* 5/32" Line Hole
Punch Screw
30270

Part Number	Head	Thread	Length	Notes
19565	Slot	M4	.430"	5/32" die screw
19936	Slot	M4	.430"	3/16" die screw
19564	3.0 mm	M4	.545"	punch screw
20072	4.0 mm	M5	.580"	punch screw
30270	4.0 mm	M5	.820"	punch screw

**Only for 33", 34" and 36" Single row punch rings

Punch & Die Puller



Part Number	Description
30952	Complete Assembly for 5/32" size punch & die
30953	Complete Assembly for 3/16" size punch & die
20582	Complete Puller with only 5/32" punch collet
30954	Complete Puller with only 3/16" punch collet
20588	Spare collet for 5/32" punches
30526	Spare collet for 3/16" punches
21119	Collet for 5/ 32" die extracting rod
30707	Collet for 3/16" die extracting rod
21115	Extracting rod for 5/32" dies
21118	Extracting rod for 3/16" dies

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New Generation Standard Tool Kit

Part Number	Description	Qty.	Price
19618	Complete New Generation Tool Kit		
	** denotes included in tool kit		
** 32253	warning label	1	
** 20072	M5 Line hole punch screws	50	
** 19565	M4 Line hole die screws	50	
** 20046	Torque wrench for NG Tooling w/bit	1	
31484	4 mm Insert bit - Torque Wrench		
31879	5/32" Insert bit for torque wrench		
** 19701	Setup punches for NG Tooling	2	
** 30826	Grease Gun	1	
** 30692	Grease cartridge	1	
** 30828	Grease Fittings	2	
** 30822	Brass hammer	1	
** 30823	13 mm combination wrench	1	
30919	10 mm combination wrench (17" Cir)		
** 30824	Screwdriver	1	
** 30124	2.5 mm Hex Allen key	1	
** 30829	3.0 mm Hex Allen key	1	
** 30459	4.0 mm Hex Allen key	1	
** 30831	5.0 mm Hex Allen key	1	
** 30832	6.0 mm Hex Allen key	1	
** 30827	Plastic Case	1	
** 13980	Complete Meaden Die Puller	1	
** 16755	Spare 5/32" Jaw for NG Tooling	1	
30503	4mm Punch hole reamer		
30504	8mm Die hole reamer		
31280	feeler gage for 17" rings		
32622	feeler gage for 18" rings		
32624	feeler gage for 21" rings		
19832	feeler gage for 22" rings		
19833	feeler gage for 24" rings		
30924	feeler gage for 25.5" rings		
31568	feeler gage for 28" rings		
31569	feeler gage for 33" rings		
32623	feeler gage for 34" rings		
31570	feeler gage for 36" rings		

NOTES