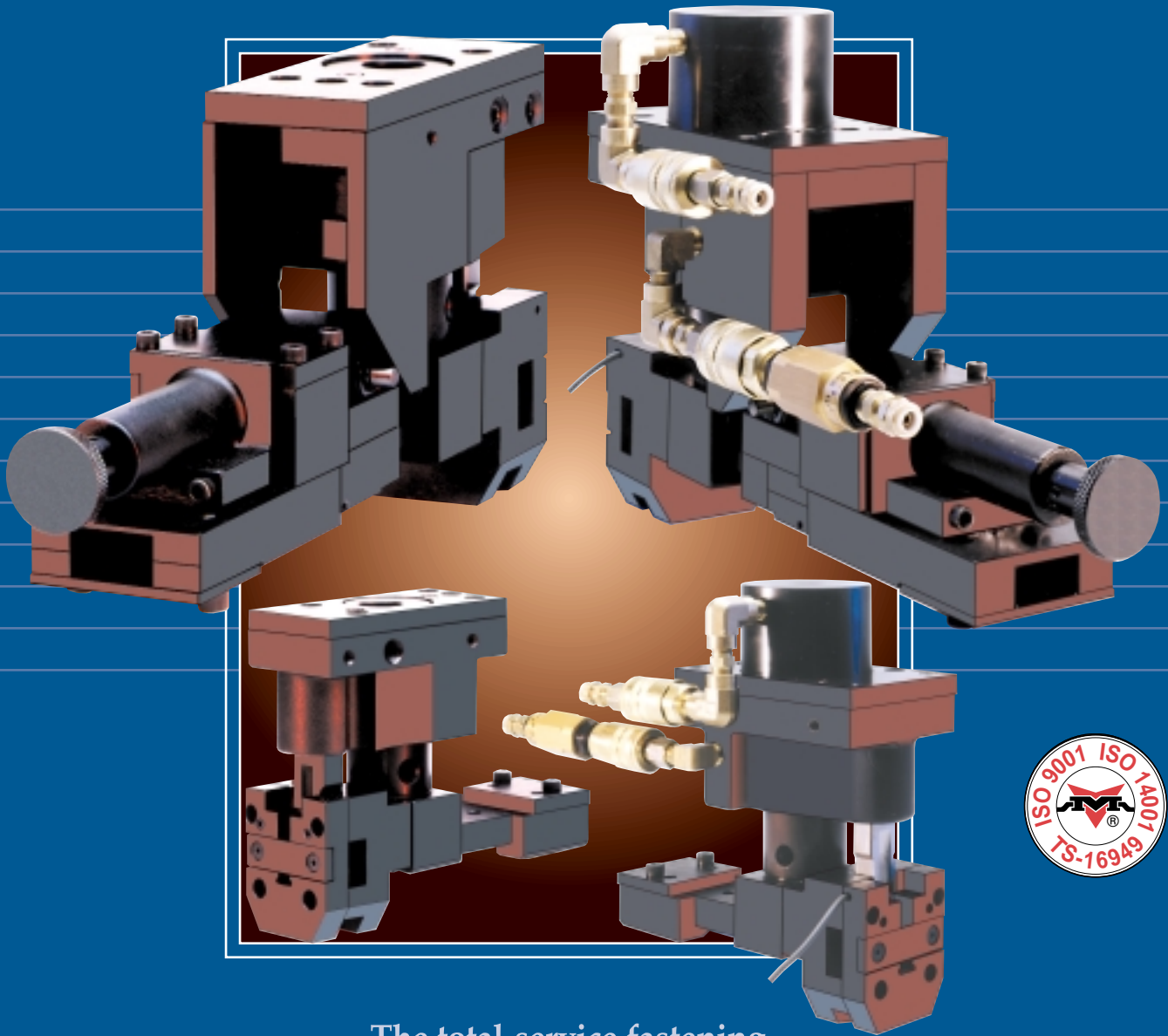


# MULTIPIERCE®/MULTIMATIC™ BENCH MANUAL

## REEL-FEED® AND BULK HEADS



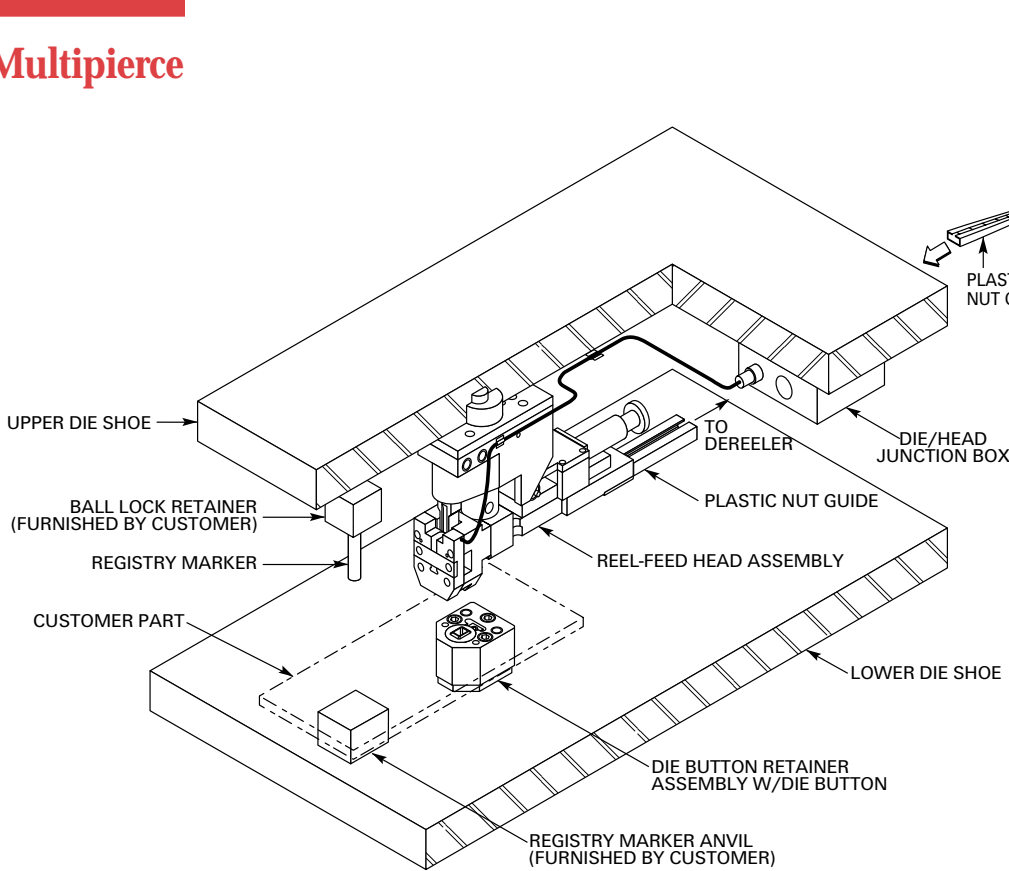
The total-service fastening  
systems company.



MULTIFASTER®

# Reel-Feed® Installation System

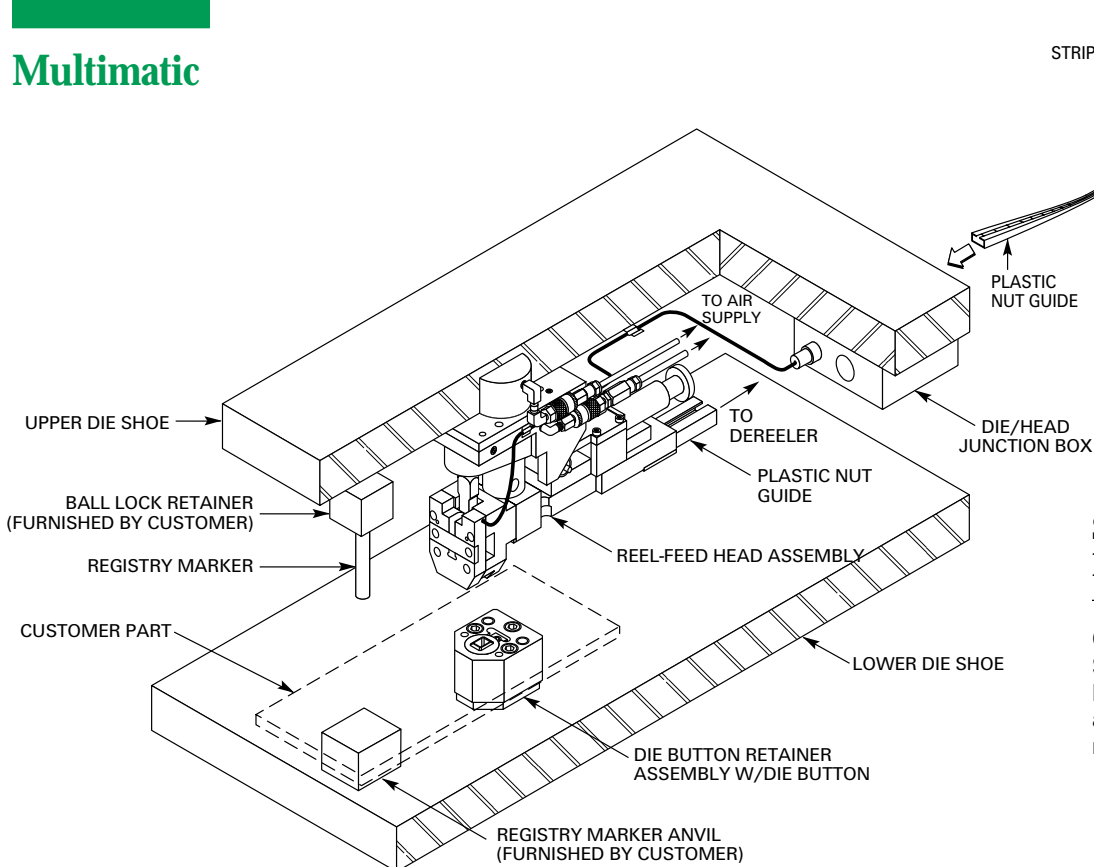
## Multipierce



### STRIP PIERCE NUT FEEDING SYSTEM

Our Strip Pierce Nut Feeding System, for use with all Reel-Feed installation tools, is available in single or multiple modules.

## Multimatic



### STRIP PIERCE NUT FEEDING SYSTEM

Our Strip Pierce Nut Feeding System, for use with all Reel-Feed installation tools, is available in single or multiple modules.

# Tooling Requirements

NOTE: Order all Pierce Nut tooling from FabriSteel Products, Inc.

## MULTIPIERCE AND MULTIMATIC REEL-FEED OR BULK HEAD ASSEMBLY

HSNCM-XX-XXX-XXX

### IDENTIFICATION SUFFIX

050 indicates standard Head  
Larger number indicates amount of extension\*  
Letters indicate special or altered unit  
\*Standard extensions are 50, 150, and 225.

### COMPONENT NUMBER

PNPT00 indicates standard Head with probing  
CT00 indicates standard Head reverse nut control  
T00 indicates standard Head  
Note: T-Bar Standard on all Heads

### NUT NUMBER

Number indicates the assembly used for that nut size.

Indicates Metric Mounting

### HEAD TYPE - Multipierce

- HSNC - Multipierce Reel-Feed Hi-Stress & HI Series Nuts
- HSS - Multipierce Bulk-Feed Hi-Stress & HI Series Nuts
- MPNC - Multipierce Reel-Feed Universal Pierce Nuts
- MPS - Multipierce Bulk-Feed Universal Pierce Nuts
- HSNS - Multipierce Reel-Feed HS32 and HI 120
- MPNS - Multipierce Reel-Feed UP99

### HEAD TYPE - Multimatic

- MMNC - Multimatic Reel-Feed
- MMS - Multimatic Bulk-Feed

## ELECTRICAL PROXIMITY PROBE REQUIREMENTS

- 109185-PC Sensing panel (one per 8 Heads)
- MSE-84 Head and Die Wiring Kit (one per 8 Heads)

## DIE BUTTONS

MBX/HSX-XX-XXX-R

### SUFFIX

R indicates standard Button  
RX indicates key flat rotated 90°  
W indicates water seal

### NOMINAL PANEL METAL THICKNESS

### NUT NUMBER

NO SUFFIX indicates standard  
"R" indicates corner stake feature  
"B" indicates standard Die Button

NO SUFFIX indicates standard  
"R" indicates corner stake feature  
"E" indicates emboss feature

## DIE BUTTON RETAINER

HSRBAM-100/125/150

Indicates outside diameter of Die Button  
(100 = 1.0", 125 = 1.25", 150 = 1.50")

Indicates Metric

### RETAINER TYPE

HSRBA indicates Hi-Stress Pierce Nut Die Button Retainer Assy.  
MPRA indicates Universal Pierce Nut Die Button Retainer Assy.

## REGISTRY MARKER - Heavy Duty

MSM-26-30 Use for all nut sizes

## NUT DEREELERS

PN-10377-SP-XX

Nut Number

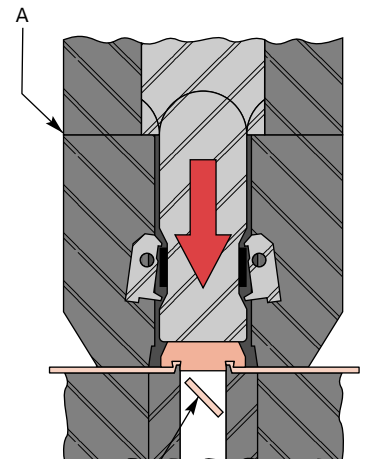
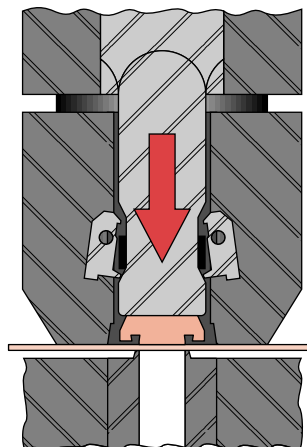
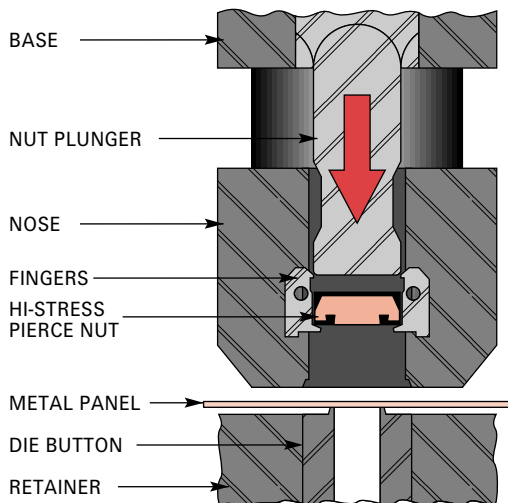
# UP, HS and HI Nut Installation. As easy as...

**1** The Pierce Nut is automatically placed in position in the Installation Tool (Head) until the metal panel is in position with the die button underneath.

**2** As the die closes, the nut plunger pushes the nut through the metal panel. The pilot area of the nut serves as the punch – virtually a new punch with every cycle of the press.

**3** The die button forms the metal panel to lock the nut in place. The die-stamped blank (slug), cut by the pilot of the nut, drops through the die button as scrap.

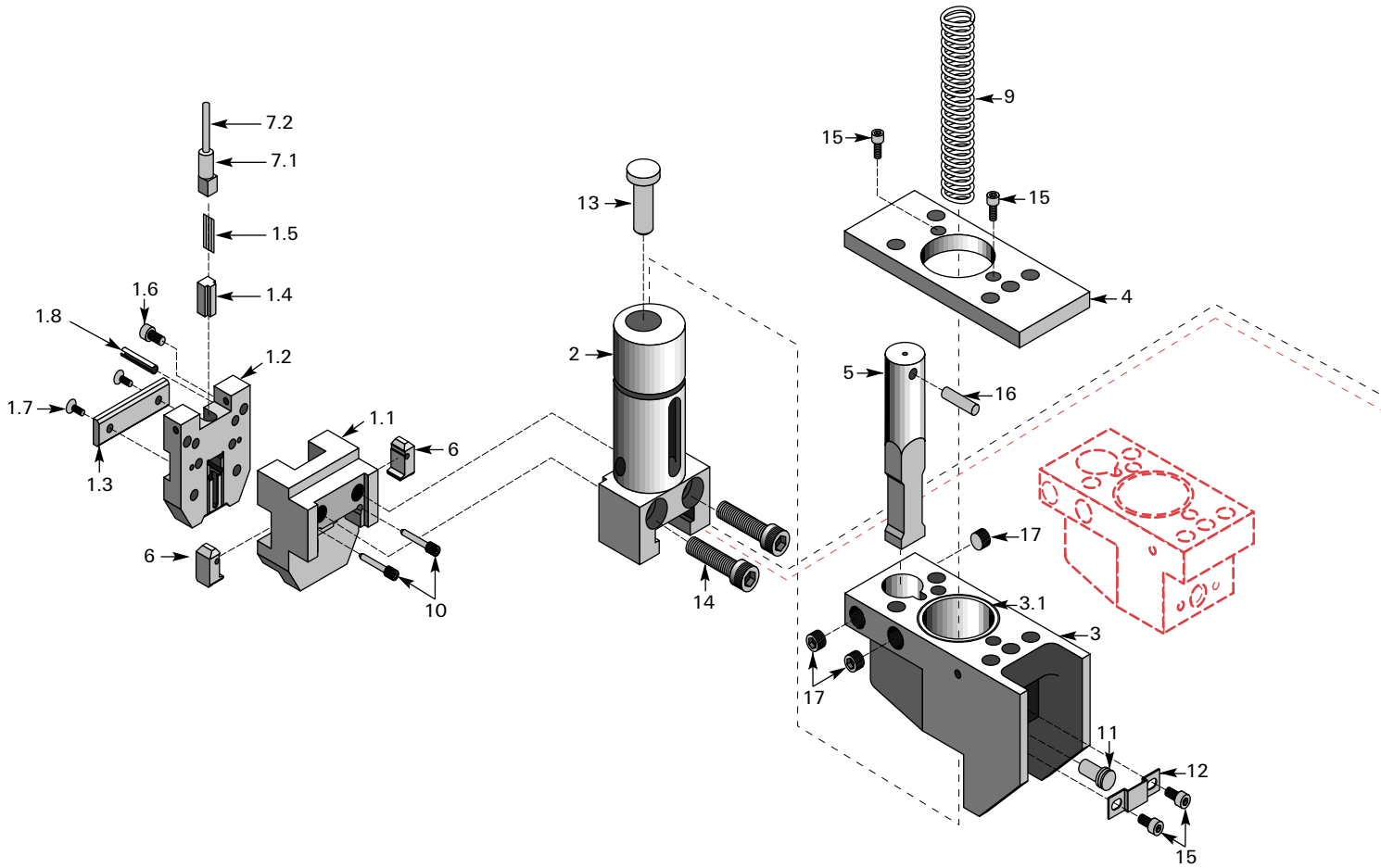
Note: With HI/HS Pierce Nut installation, the Head is designed as a bottoming Head. This means that the nose and base go solid when installing nut properly (see "A").



SLUG

# Multipierce Head Assembly

## REEL-FEED OR BULK-FEED SYSTEM



### NOSE SUB-ASSEMBLY

| DETAIL #  | DESCRIPTION                                     | PART #                 | # REQ'D          |
|---|---|------------------------|------------------|
| <b>1</b>  | <b>Nose Assembly</b>                            | <b>HS/MP-XX-01-XXX</b> | <b>See Below</b> |
| 1.1   | Nose Body                                       | See Spare Parts List   | 1                |
| 1.2   | Nose Plate                                      | See Spare Parts List   | 1                |
| 1.3   | Plate-Retainer Proximity Probe                  | 107955                 | 1                |
| 1.4*  | T-Bar Nut Guide                                 | MS-143-XXX             | 1                |
| 1.5*  | Urethane Spring                                 | 00-250-XXX             | 1                |
| 1.6   | Nose Plate Screw<br>(# 10-32 x 1/2" SHCS)       | MS-115                 | 4                |
| 1.7   | Proximity Plate Retainer Screw<br>(# 10-32 FHS) | MS-137                 | 2                |
| 1.8   | Roll Pin (3/16" Ø x 3/4")                       | 500269                 | 2                |
| * Earlier models may still use the following items in place of 1.4 and 1.5 Assembly Numbers (not pictured): |   |                        |                  |
| 1.9   | Nut Control Ball Spring                         | MS-9                   | 3                |
| 1.10  | Ball Spring Ring                                | MS-10                  | 3                |
| 1.11  | Nut Control Ball (.25Ø)                         | MS-11                  | 3                |
| 6   | Nut Holder Finger                               | HS/MP-XX-06            | 2                |
| 7   | Proximity Probe Assembly                        | MSE-7PNP-CA            | 1                |
| 7.1   | Probe   | MSE-7PNP-C             | 1                |
| 7.2   | Cable   | 502353                 | 1                |
| 10  | Nut Holder Finger Pin                           | MS-2                   | 2                |

For Multipierce Reel-Feed Head component part identification or ordering, refer to the above exploded view and corresponding parts list, with ordering information instructions.

### BASE SUB-ASSEMBLY

| DETAIL # | DESCRIPTION   | PART #                    | # REQ'D          |
|----------|---|---------------------------|------------------|
| <b>2</b> | <b>Shank Assembly</b>                                 | <b>MP-COM-02-XXX</b>      | <b>See Below</b> |
| <b>3</b> | <b>Base Assembly</b>                                  | <b>MPS/MPNSM-COM-AB03</b> |                  |
| 3.1      | Sleeve Bearing  | MS-144                    | 1                |
| 4        | Back-Up Plate   | MPS/MPNSM-COM-04          | 1                |
| 5        | Nut Plunger   | MP-XX-05-XXX              | 1                |
| 9        | Main Compression Spring                               | MS-1-XXX                  | 1                |
| 11       | Shank Stop Pin  | MS-3                      | 1                |
| 12       | Shank Stop Pin Plate                                  | MS-4N                     | 1                |
| 13       | Chute Attaching Block Lock Pin                        | MS-5                      | 1                |
| 14       | Nose/Shank Assy. Screw (3/8 x 24<br>NF x 1-1/2" SHCS) | MS-14                     | 2                |
| 15       | Shank Stop Pin Plate Screw<br>(# 10-32 x 3/8" SHCS)   | MS-16                     | 2                |
| 15       | Back-Up Plate Screw<br>(# 10-32 x 3/8" SHCS)          | MS-16                     | 2                |
| 16       | Nut Plunger Stop Pin (1/4" Ø x 1")                    | MS-19                     | 1                |
| 17       | NPT Plug (1/8")                                       | MS-20                     | 3                |

Red indicates Bulk Part Numbers.

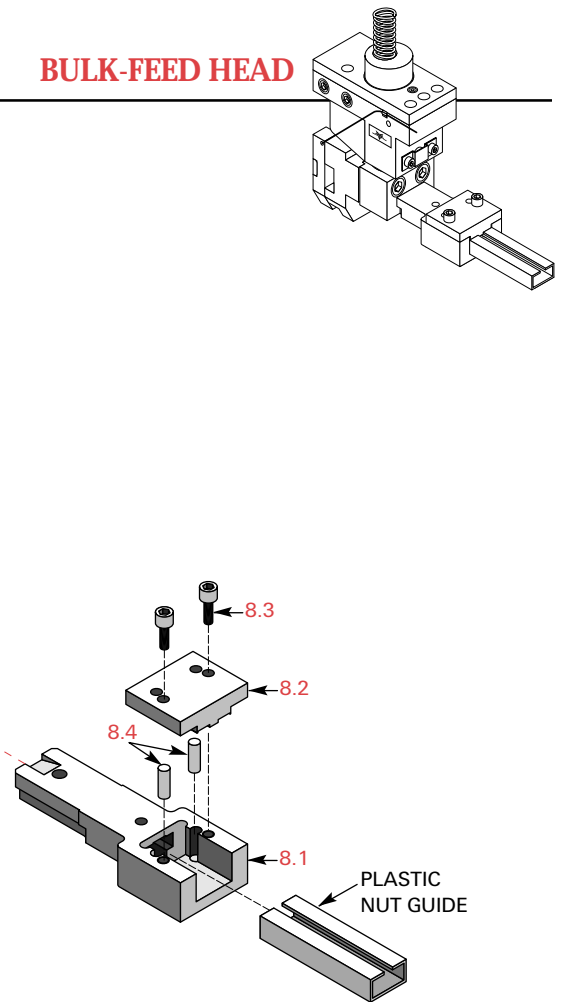
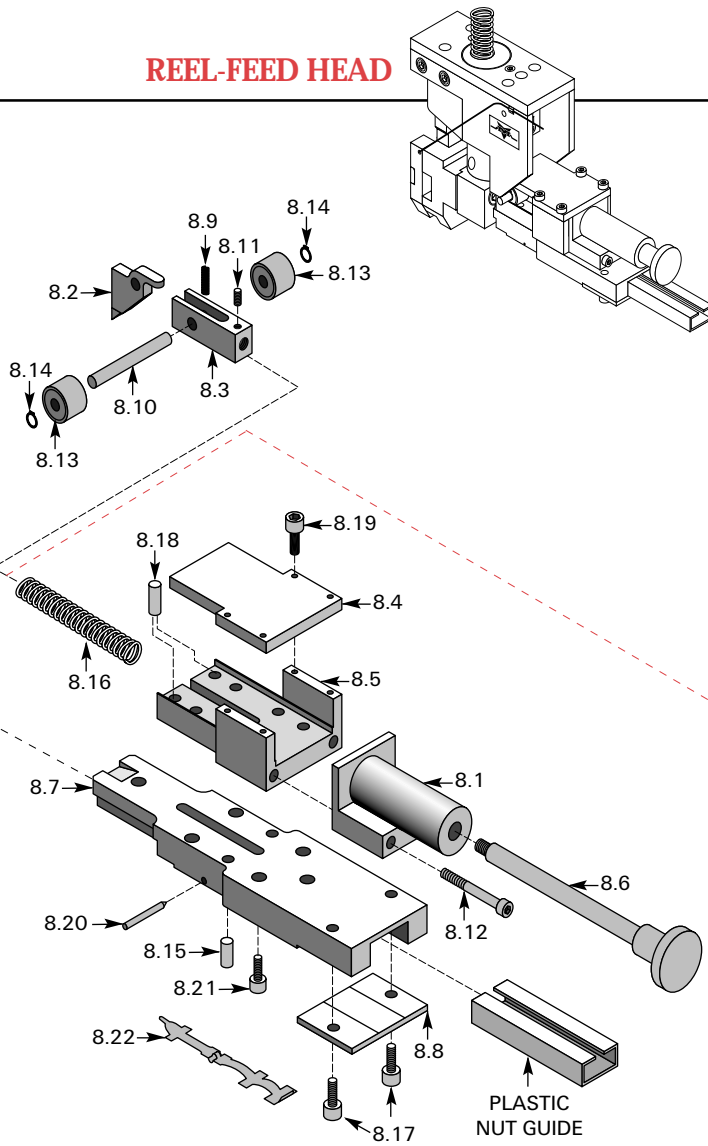
### ORDERING INFORMATION:

When ordering, specify:

- Pierce Nut number
- Length of Head extension (if any)
- Alteration (if any)

## REEL-FEED HEAD

## BULK-FEED HEAD



### REEL-FEED ADAPTER SUB-ASSEMBLY

### BULK-FEED CHUTE ATTACHING SUB-ASSEMBLY

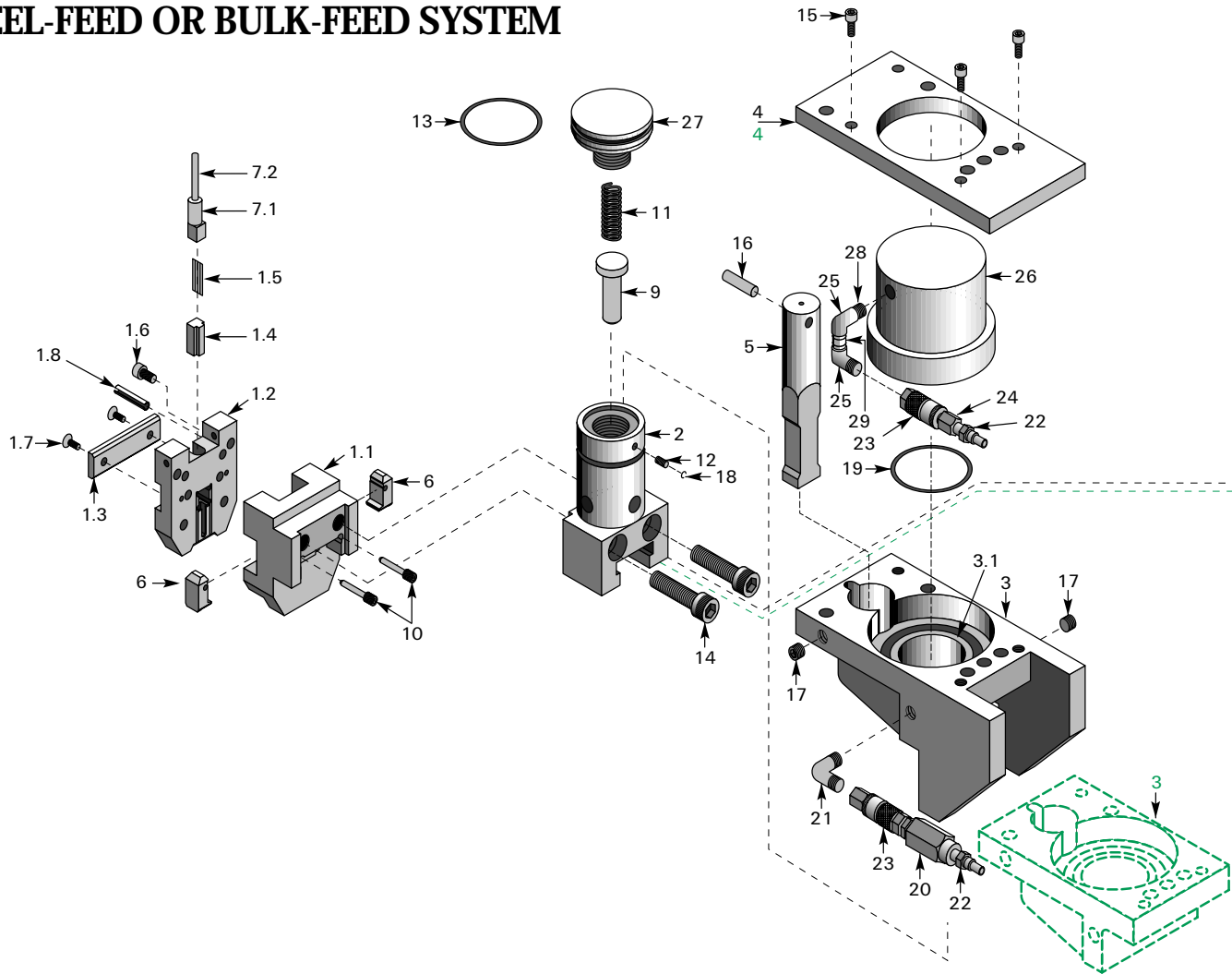
| DETAIL # | DESCRIPTION  | PART #               | # REQ'D          |
|----------|--|----------------------|------------------|
| <b>8</b> | <b>Mechanical Reel-Feed Assy.</b>                  | <b>MP/HSNC-XX-29</b> | <b>See Below</b> |
| 8.1      | Spring Cap   | MPN-COM-30           | 1                |
| 8.2      | Feed Pawl  | MPNC/HS-XX-31        | 1                |
| 8.3      | Clevis   | MPN-COM-32           | 1                |
| 8.4      | Housing Cover                                      | MPN-COM-33           | 1                |
| 8.5      | Guide Housing                                      | MPN-COM-34           | 1                |
| 8.6      | Spring Guide Rod & Knob                            | MPN-COM-35           | 1                |
| 8.7      | Feed Block   | MPNC/HSNC-XX-36      | 1                |
| 8.8      | Feed Block Cover                                   | MPN-XX-37            | 1                |
| 8.9      | Feed Pawl Spring (1/4 O.D. x 9/16")                | CS-3                 | 1                |
| 8.10     | Clevis Dowel (1/4 O.D. x 2-1/4" long)              | CS-4                 | 1                |
| 8.11     | Clevis Set Screw (#10-32 x 5/16")                  | CS-10                | 1                |
| 8.12     | Spring Cap Screws (#10-32 x 1-3/4" SHCS)           | CS-11                | 2                |
| 8.13     | Roller Bearing                                     | CS-12                | 2                |
| 8.14     | Retaining Ring                                     | CS-13                | 2                |
| 8.15     | Guide Housing Dowel (1/4 O.D. x 3/4" long)         | CS-15                | 2                |
| 8.16*    | Feed Spring (11/16 O.D. x 7/16 I.D. x 4-1/2" long) | MS-1                 | 1                |
| 8.17     | Feed Block Cover Screw                             | MS-17                | 2                |
| 8.18     | Guide Housing Stop                                 | MS-19                | 2                |
| 8.19     | Guide Housing Cover Screws (#10-32 x 5/8" SHCS)    | MS-24                | 4                |
| 8.20     | Restrictor Pin                                     | MS-103               | 1                |
| 8.21     | Feed Block Screws (1/4-20 x 5/8" SHCS)             | MS-129               | 4                |
| 8.22     | Restrictor   | 00-209               | 1                |

| DETAIL # | DESCRIPTION  | PART #               | # REQ'D          |
|----------|--|----------------------|------------------|
| <b>8</b> | <b>Chute Attaching Assembly</b>                      | <b>MP/HS-XX-SN23</b> | <b>See Below</b> |
| 8.1      | Chute Attaching Block                                | MP/HS-XX-N10         | 1                |
| 8.2      | Chute Attaching Block Cover Plate                    | MP/HS-XX-SN11        | 1                |
| 8.3      | Lower Chute Cover Plate Screw (1/4-20NC x 5/8" SHCS) | MS-17                | 2                |
| 8.4      | Dowel Pin (1/4" dia. x 1/2")                         | MS-33                | 2                |

\* For HS32, UP99 and HI 120 heads use MS-1-25

# Multimatic Head Assembly

## REEL-FEED OR BULK-FEED SYSTEM



### NOSE SUB-ASSEMBLY

| DETAIL # | DESCRIPTION                                    | PART #               | # REQ'D   |
|----------|--|----------------------|-----------|
| 1        | Nose Assembly                                  | HS/MP-XX-01-XXX      | See Below |
| 1.1      | Nose Body                                      | See Spare Parts List | 1         |
| 1.2      | Nose Plate                                     | See Spare Parts List | 1         |
| 1.3      | Plate-Retainer Proximity Probe                 | 107955               | 1         |
| 1.4*     | T-Bar Nut Guide                                | MS-143-XXX           | 1         |
| 1.5*     | Urethane Spring                                | 00-250-XXX           | 1         |
| 1.6      | Nose Plate Screw<br>(#10-32 x 1/2" SHCS)       | MS-115               | 4         |
| 1.7      | Proximity Plate Retainer Screw<br>(#10-32 FHS) | MS-137               | 2         |
| 1.8      | Roll Pin (3/16" Ø x 3/4")                      | 500269               | 2         |

\* Earlier models may still use the following items in place of 1.4 and 1.5 Assembly Numbers (not pictured):

|      |                          |             |   |
|------|--------------------------|-------------|---|
| 1.9  | Nut Control Ball Spring  | MS-9        | 3 |
| 1.10 | Ball Spring Ring         | MS-10       | 3 |
| 1.11 | Nut Control Ball (.25Ø)  | MS-11       | 3 |
| 6    | Nut Holder Finger        | HS/MP-XX-06 | 2 |
| 7    | Proximity Probe Assembly | MSE-7PNP-CA | 1 |
| 7.1  | Probe                    | MSE-7PNP-C  | 1 |
| 7.2  | Cable                    | 502353      | 1 |
| 10   | Nut Holder Finger Pin    | MS-2        | 2 |

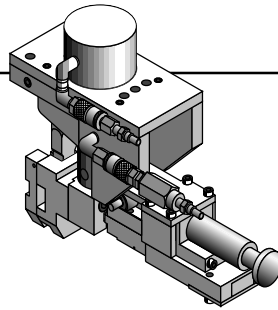
Green indicates Bulk Part Numbers.

For Multimatic Reel-Feed Head component part identification or ordering, refer to the above exploded view and corresponding parts list, with ordering information instructions.

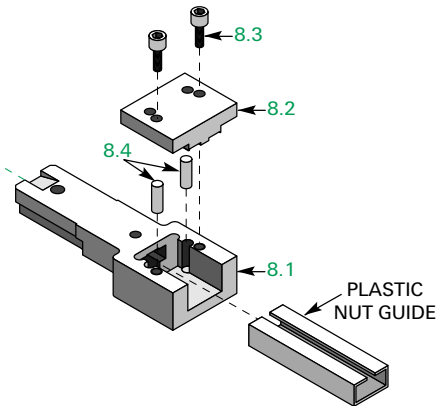
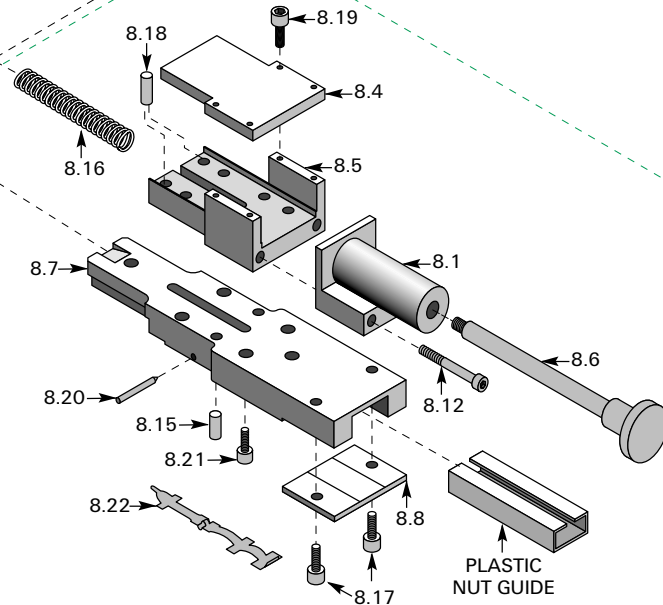
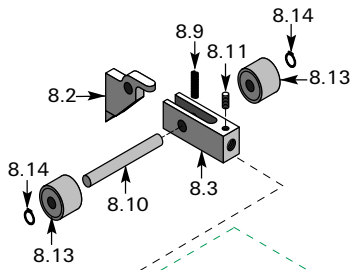
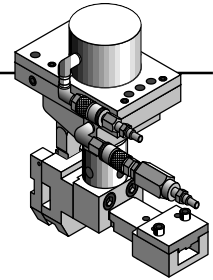
### BASE SUB-ASSEMBLY

| DETAIL # | DESCRIPTION  | PART #                          | # REQ'D |
|----------|--|---------------------------------|---------|
| 2        | Shank  | MM/MMM-COM-02-XXX               | 1       |
| 3        | Base   | MMNCM-COM-AB03<br>MMSM-COM-AB03 | 1       |
| 3.1      | Sleeve Bearing   | MS-159                          | 1       |
| 4        | Back-Up Plate  | MMNS-COM-04<br>MMS-COM-04       | 1       |
| 5        | Nut Plunger  | MM-XX-05-XXX                    | 1       |
| 9        | Chute Attaching Block Lock Pin                         | MS-5-MM                         | 1       |
| 11       | Lock Pin Spring  | MS-60-XXX                       | 1       |
| 12       | Piston Head Retaining Screw                            | MS-83                           | 1       |
| 13       | "O" Ring   | MS-88                           | 1       |
| 14       | Nose-Shank Assy. Screw<br>(3/8" x 24NF x 1-1/2" SHCS)  | MS-14                           | 2       |
| 15       | Back-Up Plate/Base Assy. Screw<br>(#10-32 x 3/8" SHCS) | MS-16                           | 4       |
| 16       | Nut Plunger Stop Pin (1/4" x 1" Dowel)                 | MS-19                           | 3       |
| 17       | NPT Plug (1/8")  | MS-20                           | 1       |
| 18       | Snap Ring (retaining screw)                            | MS-10                           | 1       |
| 19       | "O" Ring   | MS-58                           | 1       |
| 20       | Flow Control Valve                                     | MS-41                           | 1       |
| 21       | Elbow - 90° (1/8")                                     | MS-44                           | 1       |
| 22       | Tube Fitting (1/8")                                    | 500649                          | 2       |
| 23       | Quick Disconnect Coupler (optional)                    | MS-178                          | 2       |
| 24       | Quick Disconnect Nipple (optional)                     | MS-179                          | 2       |
| 25       | NPT Female Elbow (1/8" x 1/8")                         | MS-180                          | 2       |
| 26       | Cylinder Cap   | MM-COM-26-XXX                   | 1       |
| 27       | Piston Head  | MM-COM-27                       | 1       |
| 28       | NPT Close Nipple (1/8")                                | MS-181                          | 1       |
| 29       | NPT Pipe Nipple (1/8" x 1/8")                          | MS-182                          | 1       |

## REEL-FEED HEAD



## BULK-FEED HEAD



### REEL-FEED ADAPTER SUB-ASSEMBLY

| DETAIL # | DESCRIPTION   | PART #               | # REQ'D          |
|----------|---|----------------------|------------------|
| <b>8</b> | <b>Mechanical Reel-Feed Assy.</b>                     | <b>MP/HSNC-XX-29</b> | <b>See Below</b> |
| 8.1      | Spring Cap  | MPN-COM-30           | 1                |
| 8.2      | Feed Pawl   | MPNC/HS-XX-31        | 1                |
| 8.3      | Clevis  | MPN-COM-32           | 1                |
| 8.4      | Housing Cover   | MPN-COM-33           | 1                |
| 8.5      | Guide Housing   | MPN-COM-34           | 1                |
| 8.6      | Spring Guide Rod & Knob                               | MPN-COM-35           | 1                |
| 8.7      | Feed Block  | MPNC/HSNC-XX-36      | 1                |
| 8.8      | Feed Block Cover                                      | MPN-XX-37            | 1                |
| 8.9      | Feed Pawl Spring (1/4 O.D. x 9/16")                   | CS-3                 | 1                |
| 8.10     | Clevis Dowel (1/4 O.D. x 2-1/4" long)                 | CS-4                 | 1                |
| 8.11     | Clevis Set Screw (# 10-32 x 5/16")                    | CS-10                | 1                |
| 8.12     | Spring Cap Screws<br>(# 10-32 x 1-3/4" SHCS)          | CS-11                | 2                |
| 8.13     | Roller Bearing  | CS-12                | 2                |
| 8.14     | Retaining Ring  | CS-13                | 2                |
| 8.15     | Guide Housing Dowel<br>(1/4 O.D. x 3/4" long)         | CS-15                | 2                |
| 8.16*    | Feed Spring (11/16 O.D. x<br>7/16 I.D. x 4-1/2" long) | MS-1                 | 1                |
| 8.17     | Feed Block Cover Screw                                | MS-17                | 2                |
| 8.18     | Guide Housing Stop                                    | MS-19                | 2                |
| 8.19     | Guide Housing Cover Screws<br>(# 10-32 x 5/8" SHCS)   | MS-24                | 4                |
| 8.20     | Restrictor Pin  | MS-103               | 1                |
| 8.21     | Feed Block Screws<br>(1/4-20 x 5/8" SHCS)             | MS-129               | 4                |
| 8.22     | Restrictor  | 00-209               | 1                |

\* For HS32, UP99 and HI 120 heads use MS-1-25

### BULK-FEED CHUTE ATTACHING SUB-ASSEMBLY

| DETAIL # | DESCRIPTION   | PART #               | # REQ'D          |
|----------|---|----------------------|------------------|
| <b>8</b> | <b>Chute Attaching Assembly</b>                         | <b>MP/HS-XX-SN23</b> | <b>See Below</b> |
| 8.1      | Chute Attaching Block                                   | MP/HS-XX-N10         | 1                |
| 8.2      | Chute Attaching Block Cover Plate                       | MP/HS-XX-SN11        | 1                |
| 8.3      | Lower Chute Cover Plate Screw<br>(1/4-20NC x 5/8" SHCS) | MS-17                | 2                |
| 8.4      | Dowel Pin (1/4" dia. x 1/2")                            | MS-33                | 2                |

Green indicates Bulk Part Numbers.

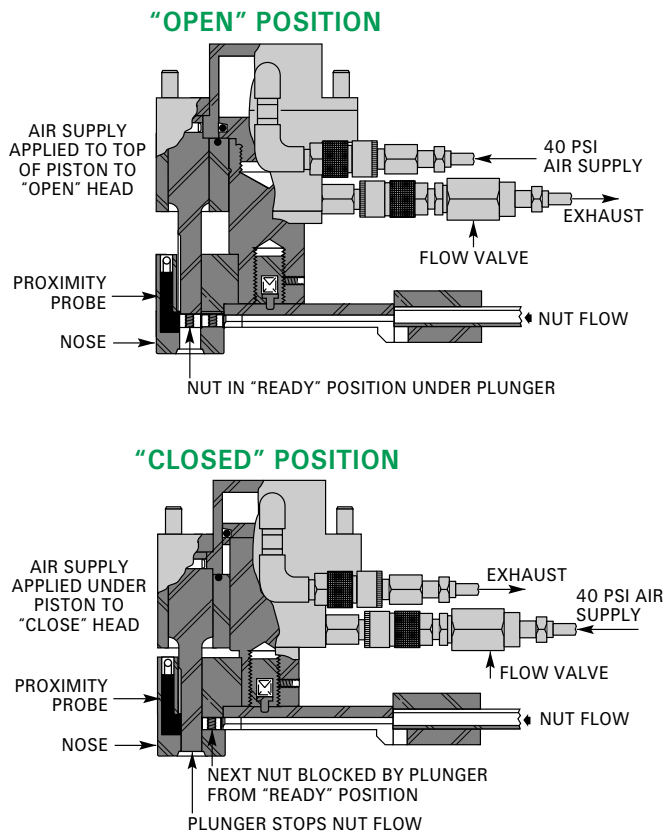
#### ORDERING INFORMATION:

When ordering, specify:

- Pierce Nut number
- Length of Head extension (if any)
- Alteration (if any)

# Operating Sequence

## For Multimatic Heads



### SYNCHROMATIC PRESS LINES, TRANSFER DIES AND PROGRESSIVE DIES

Multimatic Heads remain closed (retracted) until a panel presence is sensed, energizing the four-way solenoid valve. The valve transfers the air supply from the lower to the upper manifold, opening (extending) the Heads and allowing a nut to flow into the "ready" position under the plunger.

As the press cycles the Pierce Nuts are installed and at 190 degrees (10 degrees into the upstroke), the rotary cam limit switch closes and energizes the solenoid valve reversing the air supply from the upper to the lower manifold. From the lower manifold the air supply is distributed to the underside of the pistons in the Multimatic Heads and air is exhausted from the top of the pistons, closing the Heads.

The Heads remain closed until the part presence sensor again signals the presence of a panel. With Heads closed, the flow of Pierce Nuts is blocked by the plungers. If a panel fails to enter the die, the press cycles with Heads locked in the closed position preventing nuts from being deposited in the die on the next press stroke.

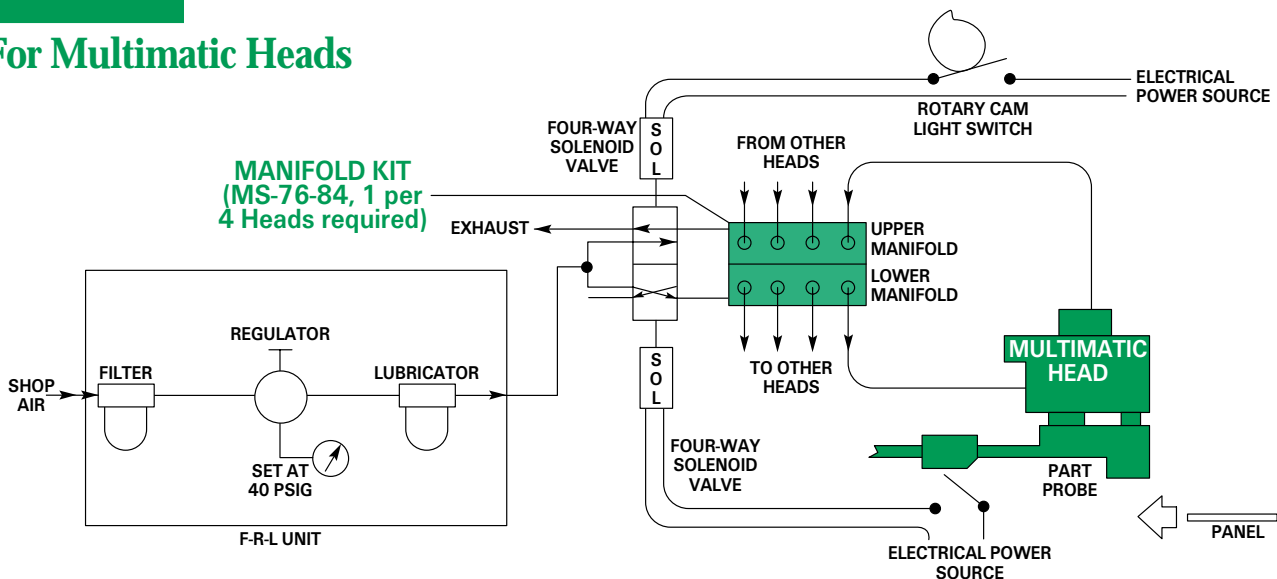
An adjustable flow valve meters the air escapement from under the piston to reduce the impact of the piston head on its base. It is preset for the best opening speed but may be adjusted to allow a faster or slower Head opening.

### NUT DIES

The operation of the Multimatic Head in a nut die is similar except that the press will not cycle in the run position until a panel is in position.

# System Schematic

## For Multimatic Heads

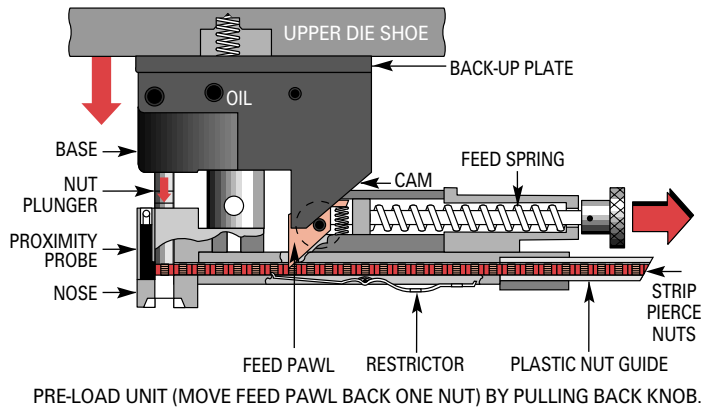


NOTE: Parts shown in green are available through FabriSteel Products, Inc.; other parts are provided by customer.

# Troubleshooting

## Multipierce

During die tryout of the Multipierce Installation Head (and during normal operation) certain conditions may occur which may be easily corrected.



### NO NUT IS DEPOSITED IN PANEL

#### Bulk & Reel-Feed Heads

- No nuts in Head (check nut supply or obstruction in feed system).
- Head improperly assembled (check for proper assembly).
- Head failing to open fully (see condition/solution, below).
- Improper shut height setting (check ram setting).

#### Bulk-Feed Head

- Obstruction in chuting or chute attaching block (shut off nut flow and clear blockage).
- Nut jammed in Head (remove chute attaching block and clear jammed nut from Head).

#### Reel-Feed Head

- Nut strip not engaged with anti-backup restrictor (check for damaged restrictor).
- Damaged feed mechanism (repair or replace).
- Nut strip not loaded all the way into head (push strip fully into Head).

### PARTIAL NUT DEPOSITED IN PANEL

#### Bulk-Feed Head

- Broken or damaged proximity probe (remove and inspect probe, replace if necessary).
- Obstruction in chuting or chute attaching block (shut off nut flow and clear blockage).
- Nut jammed in head (remove chute attaching block and clear jammed nut from Head).

#### Reel-Feed Head

- Damaged feed mechanism (remove Reel-Feed Adapter and repair).
- Nut reel not rotating freely (check for flat spot on nut reel).
- Nuts not engaged by restrictor.

### HEAD FAILS TO OPEN FULLY

#### Bulk & Reel-Feed Heads

- Shank spring broken (remove and replace).
- Severely galled shank (remove Head assembly, inspect shank, replace if necessary).

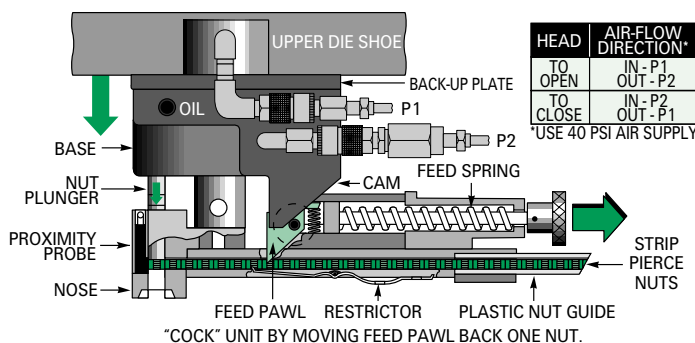
### HEAD FAILS TO CLOSE IN DIE

#### Bulk & Reel-Feed Heads

- Improper shut-height setting (check ram setting).
- Check for obstruction in shank clearance hole in die shoe.

## Multimatic

During die tryout of the Multimatic Installation Head (and during normal operation) certain conditions may occur which may be easily corrected.



### NO NUT IS DEPOSITED IN PANEL

#### Bulk & Reel-Feed Heads

- No nuts in Head (check nut supply or obstruction in feed system).
- Head improperly assembled (check for proper assembly).
- Head failing to open fully (see condition/solution, below).
- Improper shut height setting (check ram setting).

#### Bulk-Feed Head

- Obstruction in chuting or chute attaching block (shut off nut flow and clear blockage).
- Nut jammed in Head (remove chute attaching block and clear jammed nut from Head).

#### Reel-Feed Head

- Nut strip not engaged with anti-backup restrictor (check for damaged restrictor).
- Damaged feed mechanism (repair or replace).
- Nut strip not loaded all the way into head (push strip fully into Head).

### PARTIAL NUT DEPOSITED IN PANEL

#### Bulk-Feed Head

- Broken or damaged proximity probe (remove and inspect probe, replace if necessary).
- Obstruction in chuting or chute attaching block (shut off nut flow and clear blockage).
- Nut jammed in head (remove chute attaching block and clear jammed nut from Head).

#### Reel-Feed Head

- Damaged feed mechanism (remove Reel-Feed Adapter and repair).
- Nut reel not rotating freely (check for flat spot on nut reel).
- Nuts not engaged by restrictor.

### HEAD FAILS TO OPEN OR FULLY OPEN

#### Bulk & Reel-Feed Heads

- Check air lines.
- Part panel not sensed.
- Faulty solenoid.
- Piston catching on cylinder.
- Severely galled shank (remove Head assembly, inspect shank, replace if necessary).

### HEAD FAILS TO CLOSE IN DIE

#### Bulk & Reel-Feed Heads

- Improper shut-height setting (check ram setting).
- Check for obstruction in shank clearance hole in die shoe.

# Assembly/Disassembly

## Multipierce

The Multipierce Installation Heads may be easily repaired using the following procedures. Most repairs and part replacements can be made without removing the Head from the die or fixture, keeping 'downtime' to a minimum.

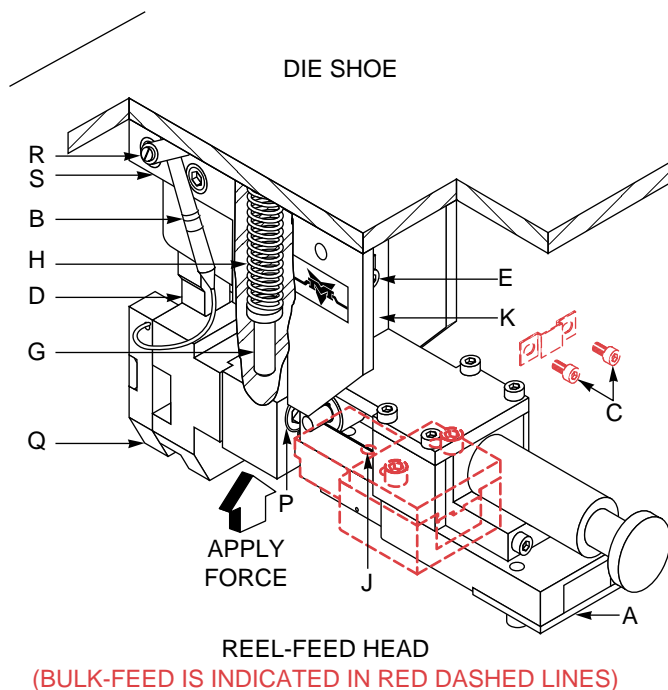
### CHUTE ATTACHING BLOCK

*Removing/Installing Chute Attaching Block or Reel-Feed Adaptor*  
REMOVAL:

- For bulk nuts, block nut flow at hole (J) in chute attaching block (A) by inserting pin. For Strip Pierce nuts, remove nut strip from Reel-Feed Adaptor.
- Insert cam key into any of three holes (K) in the shank. Rotate the cam key to pry up lock pin (G) and pull chute attaching block or Reel-Feed Adaptor from Head.

INSTALLATION:

- Insert chute attaching block or Reel-Feed Adaptor (A). Make certain lock pin engages when chute attaching block or Reel-Feed Adaptor is inserted.
- For bulk nuts, remove device used to block nut flow from hole (J) in chute attaching block. For Strip Pierce nuts, insert nut strip into Reel-Feed Adaptor.



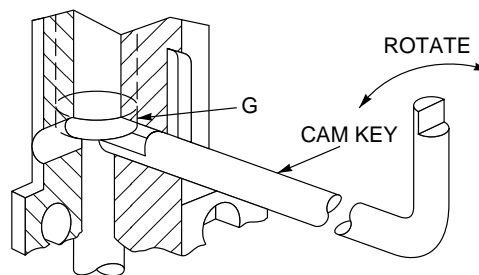
### NOSE AND SHANK ASSEMBLIES

*Removing or Installing Nose and Shank Assemblies*  
REMOVAL:

- Remove chute attaching block or Reel-Feed Adaptor (A).
- Disconnect plug (B).
- Remove screws (C) and disengage pin plate from shank stop pin.
- Use a pry bar and apply force on shank to relieve spring pressure on shank stop pin (E) and remove pin. Slowly release spring pressure.
- Chute attaching block lock pin (G) and shank spring (H) will come out with the shank.

INSTALLATION:

- Insert chute attaching block or Reel-Feed Adaptor lock pin (G) in shank with pin through the bottom of the shank, then insert shank spring (H) on top of lock pin.
- For bulk nuts only, position shank (K) and nose (Q) in Head and install set screw (F).
- Use a pry bar and apply force to shank to compress shank spring and install shank stop pin (E) so that pin enters slot in shank.
- Engage stop pin plate with shank stop pin and tighten plate screw (C).
- Connect plug (B).
- Install chute attaching block or Reel-Feed Adaptor (A), as previously described.



### HEAD ASSEMBLY

*Removing or Installing Head Assembly*  
REMOVAL:

- Remove chute attaching block or Reel-feed Adaptor (A).
- Disconnect plug (B).
- Remove screws (C) and disengage pin plate from shank stop pin.
- Use a pry bar and apply force on shank to relieve spring pressure on shank stop pin (E) and remove pin. Slowly release spring pressure.
- Remove plug clamp and screw (R) from base.
- Remove socket head screws (S). Tap base with a soft hammer and pry loose from the die shoe dowel pins.

INSTALLATION:

- Position base assembly on dowel pins in die shoe and install socket head screws (S).
- Attach plug to base with clamp and screw (R).
- Use a pry bar and apply force to shank to compress shank spring and install shank stop pin (E) so that pin enters slot in shank.
- Engage stop pin plate with shank stop pin and tighten plate screw (C).
- Connect plug (B).
- Install chute attaching block or Reel-Feed Adaptor (A).

### NOSE ASSEMBLY

*Removing or Installing Nose Assembly*

REMOVAL:

- Remove chute attaching block or Reel-Feed Adaptor (A).
- Disconnect plug (B).
- Support nose (Q) and remove two shank screws (P).
- Slide nose assembly down off plunger (D).

INSTALLATION:

- Position nose assembly on plunger and install two shank screws (P). Note: fingers must be aligned to allow plunger to pass through nose.
- Plug in electrical nut stop pin lead wire (B).
- Install chute attaching block or Reel-Feed Adapter (A).

# Multimatic

The Multimatic Installation Heads may be easily repaired using the following procedures. Most repairs and part replacements can be made without removing the entire Head from the die, keeping press 'downtime' to a minimum.

## CHUTE ATTACHING BLOCK

*Removing/Installing Chute Attaching Block or Reel-Feed Adaptor*

### REMOVAL:

- For bulk nuts, block nut flow at hole (J) in chute attaching block (A) by inserting pin or other suitable device. For Strip Pierce nuts, remove nut strip from Reel-Feed Adaptor.
- Insert cam key or other suitable device into any of three holes (K) in the shank. Rotate the cam key to pry up lock pin (G) and pull chute attaching block or Reel-Feed Adaptor from Head.

### INSTALLATION:

- Insert chute attaching block or Reel-Feed Adaptor (A). Make certain lock pin engages when chute attaching block or Reel-Feed Adaptor is inserted.
- For bulk nuts, remove device used to block nut flow from hole (J) in chute attaching block. For Strip Pierce nuts, insert nut strip into Reel-Feed Adaptor, then "cock" (preload) the feed pawl.

## NOSE ASSEMBLY

*Removing or Installing Nose Assembly*

### REMOVAL:

- Remove chute attaching block or Reel-Feed Adaptor (A).
- Disconnect lead wire (B) if present.
- Support nose (Q) and remove two shank screws (P).
- Slide nose assembly down off plunger (D).

### INSTALLATION:

- Position nose assembly on plunger and install two shank screws (P). (Note: Fingers must be aligned to allow plunger to pass through nose.
- Connect lead wire (B).
- Install chute attaching block or Reel-Feed Adaptor (A).

## HEAD ASSEMBLY

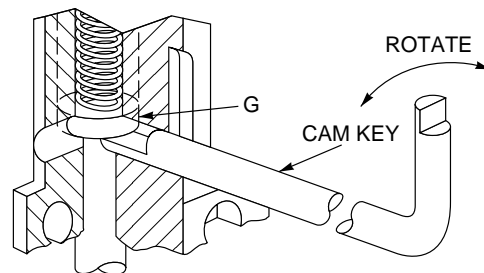
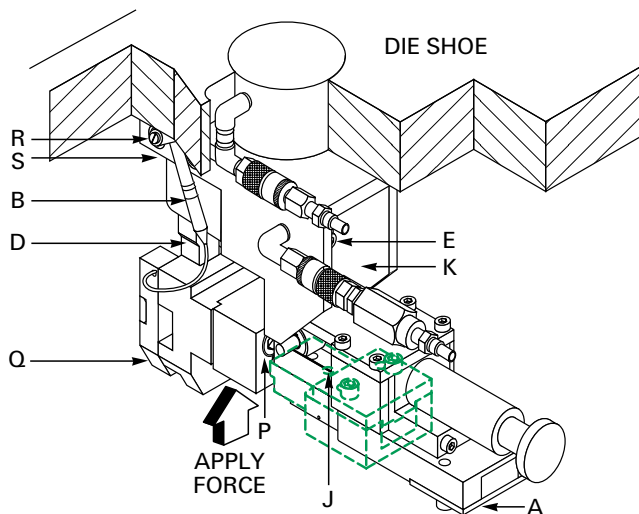
*Removing or Installing Head Assembly*

### REMOVAL:

- Remove chute attaching block or Reel-feed Adaptor (A).
- Turn off air supply to head assembly and disconnect air lines.
- Disconnect lead wire (B) if present.
- Remove clamp and screw (R) from base.
- Remove socket head screws (S). Tap base with a soft hammer and pry loose from the die shoe dowel pins.

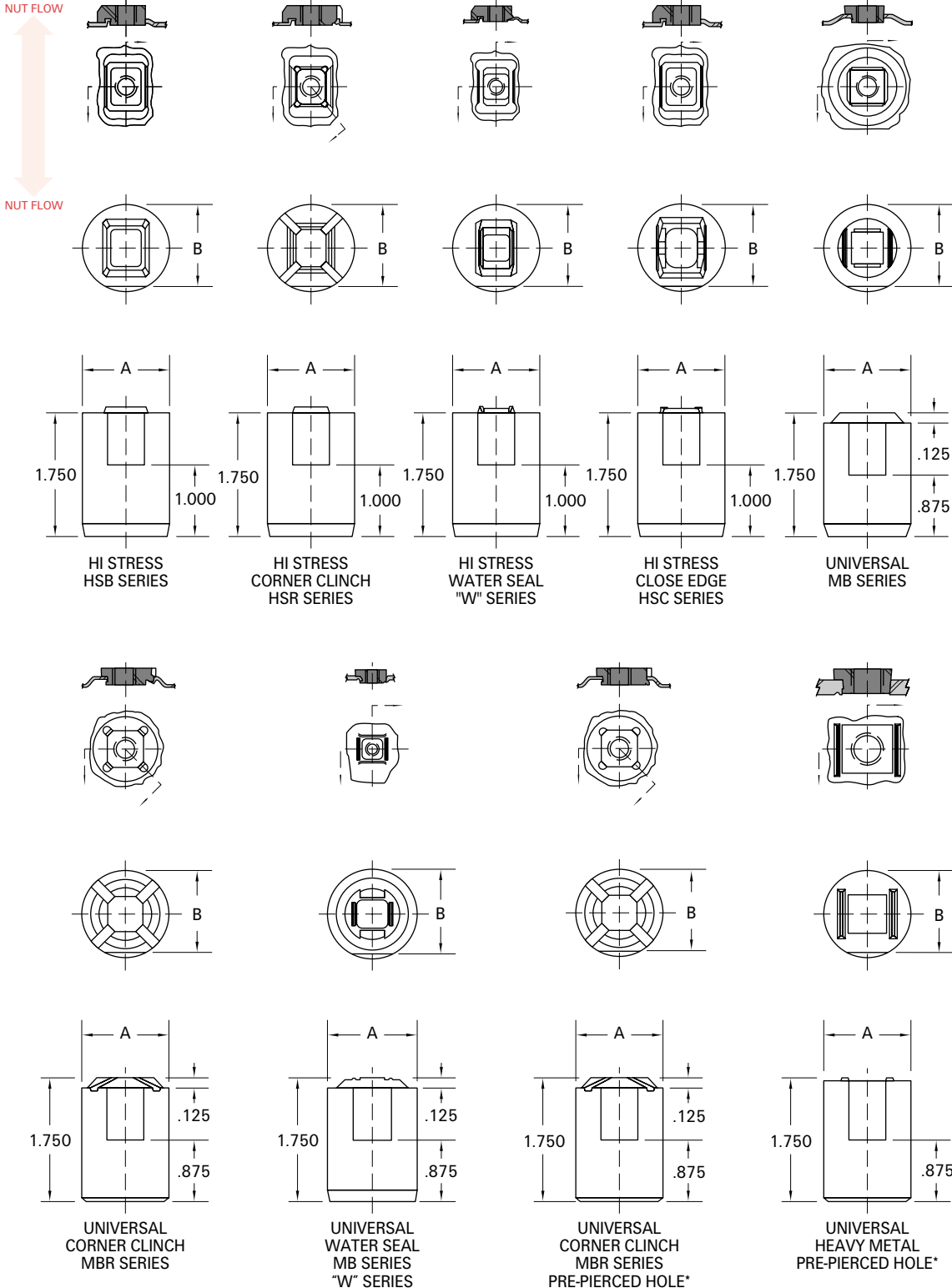
### INSTALLATION:

- Position base assembly on dowel pins in die shoe and install socket head screws (S).
- Attach plug to base with screw and clamp (R).
- Connect lead wire (B).
- Connect air lines and turn on air supply.
- Install chute attaching block or Reel-Feed Adaptor (A).



# Die Buttons

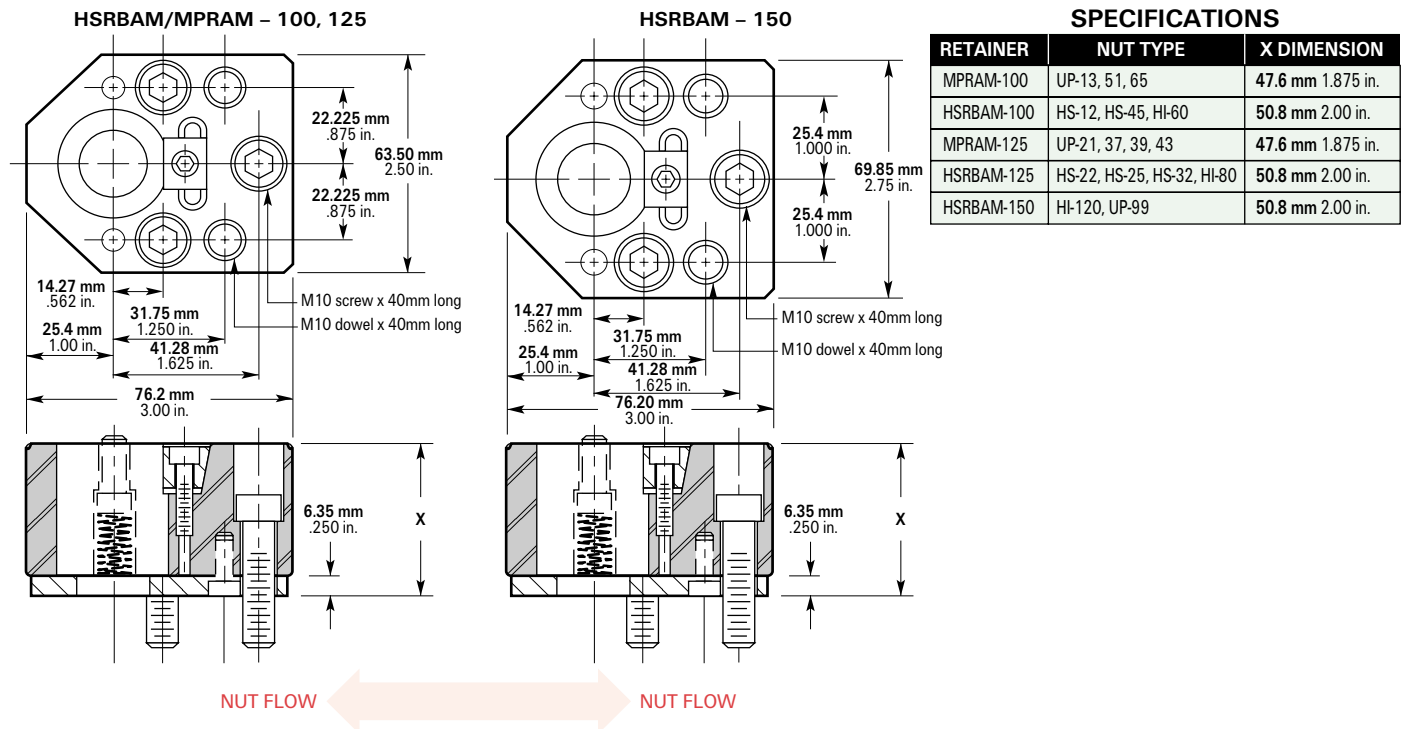
The Die Button, held firmly in the die by the Retainer, forms the part material into and around the Pierce Nut and undercuts and/or clinches the nut corners to secure it in position. Additional die buttons, other than those shown below, are available for special applications. Consult your representative for details.



| PIERCE NUT NO. | A                    | B                     |
|----------------|----------------------|-----------------------|
| HI-60          | 25.4 mm<br>1.00 in.  | 23.80 mm<br>.937 in.  |
| HI-80          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| HI-120         | 38.10 mm<br>1.50 in. | 36.49 mm<br>1.437 in. |
| HS-12          | 25.4 mm<br>1.00 in.  | 23.80 mm<br>.937 in.  |
| HS-22          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| HS-25          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| HS-32          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| UP-13          | 25.4 mm<br>1.00 in.  | 23.80 mm<br>.937 in.  |
| UP-21          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| UP-33          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| UP-37          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| UP-39          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| UP-51          | 25.4 mm<br>1.00 in.  | 23.80 mm<br>.937 in.  |
| UP-65          | 25.4 mm<br>1.00 in.  | 23.80 mm<br>.937 in.  |
| UP-79          | 31.75 mm<br>1.25 in. | 30.15 mm<br>1.187 in. |
| UP-99          | 38.10 mm<br>1.50 in. | 36.49 mm<br>1.437 in. |

**NOTE:** Refer to page 3 for Part Number Development. \* See Pierce Nut Specifications Sheet for hole sizes.

# Die Button Retainers



## Set-Up and Alignment Procedures

Please contact Multifastener for specific CAD data on the Multipierce or Multimatic Head assemblies and the specific CAD data on the Die Button Retainers. CAD data provided will give you screw and dowel locations for mounting both the Head Assemblies and Die Button Retainers. Alignment buttons are available for Direct Layout or Die Layout method of alignment. The alignment button can also be used to verify proper alignment of the tooling in the die.

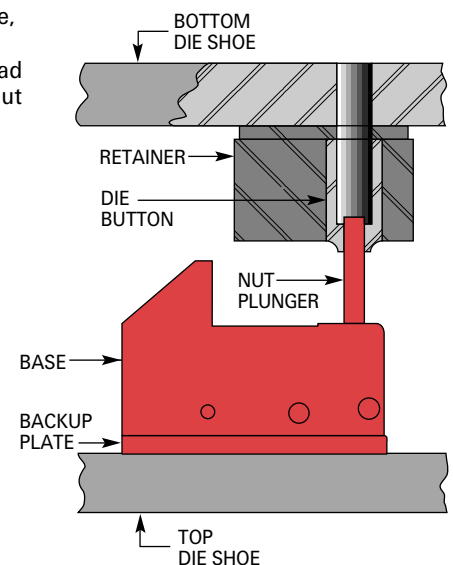
### DIRECT LAYOUT METHOD

- Install die button retainer by direct layout or with template.
- Insert alignment die button in retainer.
- Invert die set (so die button retainer is on top).
- Set base, back-up plate, and plunger in head position.
- Lower die shoe (with retainer) so plunger enters die button.
- **Plunger and die button must be equivalent sizes.**
- Transfer base mounting holes to die (with punch).
- Repeat steps above for all Heads in die.
- Drill and tap mounting holes for screws.
- Loosely mount base and back-up plate in each Head location.
- Replace mating die shoe.
- Lower die shoe (with retainer) so plunger enters die button.
- Tighten base mounting screws.
- Repeat steps above for each Head in die.
- Remove mating die shoe; transfer dowel holes. Drill as required for reaming.
- Ream for press fit for dowel pins.
- Locate and machine clearance holes for shank and spring.
- Install Head in each Head location. Follow plant die tryout procedures; follow Multifastener ram setting procedures in this manual.

### DIE LAYOUT METHOD

- Install die button retainer by direct layout or with template.
- Insert alignment die button in retainer.

- Loosely mount base, back-up plate, and plunger in each Head location by die layout procedure.
- Lower die shoe with retainer so plunger properly enters die button.
- Tighten base mounting screws.
- Repeat steps above for each Head in die.
- Remove mating die shoe; transfer dowel holes. Drill as required for reaming.
- Ream for press fit for dowel pins.
- Locate and machine clearance holes for shank and spring.
- Install Head in each Head location. Follow plant die tryout procedures; follow ram setting procedures in this manual.



# “Good” and “Not Good” Registry Marker

The Multifastener Registry Marker is designed to provide immediate visual determination of proper or improper ram setting by indicating if a press hit is not hard enough, too hard or just right.

## FUNCTION

- The Registry Marker has a raised circle with the letters “N” and “G” located within, raised to different levels (see Fig. 2).
- At the bottom of the die stroke, if a circle and a “G” are stamped in your metal panel, the die is set properly (see Fig. 1).
- If a circle and “NG” appears, the hit is too hard (see Fig. 1).
- If no mark appears, the hit is too light (see Fig. 1).

## LOCATION IN THE DIE

The Registry Marker is mounted in the same die shoe as the Installation Head and is positioned over the part panel that is to receive the Pierce Nut (see Fig. 3).

## SETTING

The shut height Registry Marker is available in one standard length: 76.07mm (2.995”). Other lengths can be provided on a special order basis.

## MOUNTING IN THE DIE

The Registry Marker incorporates a Heavy-duty ball lock feature to facilitate mounting in the die.

## ADDITIONAL INFORMATION

Inch Registry Markers are available. Heavy-duty ball lock Registry Markers also available: Inch - MS-26-30-H, Metric - MSM - 26 - 30 - HD.

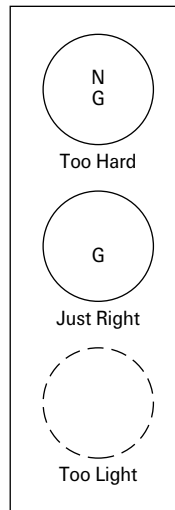


FIGURE 1.

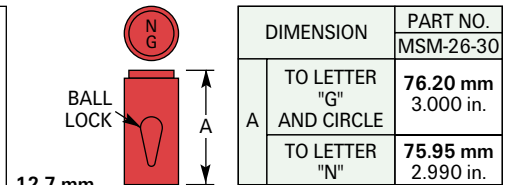


FIGURE 2.

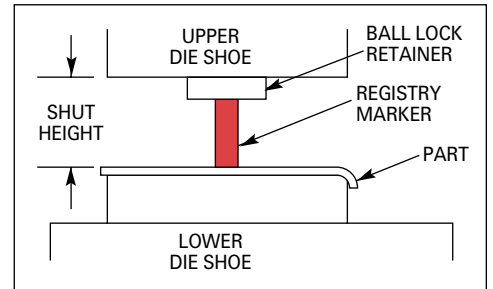


FIGURE 3.

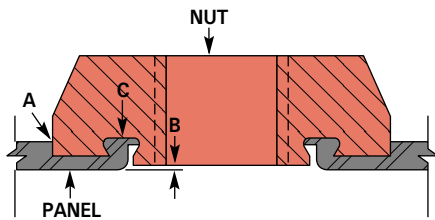
# Visual Inspection of the Nut Installation

Proper ram setting can be achieved and continuously checked by visually inspecting the Pierce Nut as installed, using the following guide.

## HI STRESS NUTS

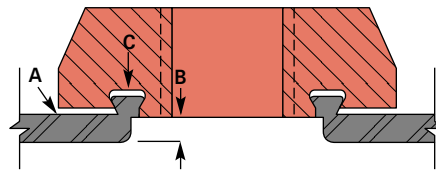
### CASE 1: TOO HEAVY

- At (A), metal is deformed by nut.
- At (B), nut pilot is too near flush with lower surface of metal.
- At (C), metal has been excessively thinned.



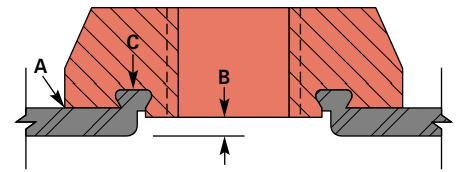
### CASE 2: TOO LIGHT

- At (A), nut shoulder not flush against metal; nut is loose.
- At (B), nut pilot too far from surface of metal.
- At (C), metal not formed to fill undercuts of nut.



### CASE 3: PROPER RAM SETTING

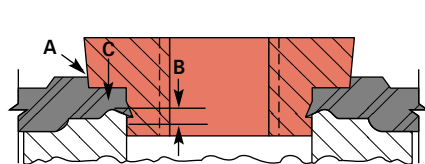
- At (A), nut shoulder tight against metal.
- At (B), proper nut pilot height.
- At (C), metal has properly filled nut undercuts.



## UNIVERSAL PIERCE NUTS

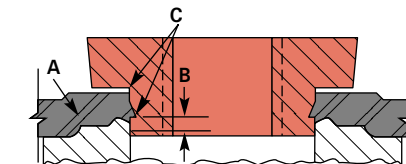
### CASE 1: TOO HEAVY

- At (A), metal shows secondary extrusion.
- At (B), die button ledge is above nut pilot shoulder.
- At (C), metal is overcompressed.



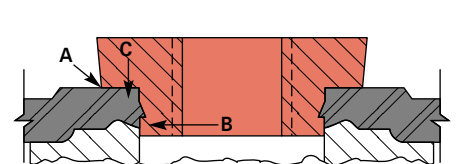
### CASE 2: TOO LIGHT

- At (A), metal not indented; nut moves vertically.
- At (B), die button ledge is below nut pilot shoulder.
- At (C), metal does not flow into nut undercut; nut is loose.



### CASE 3: PROPER RAM SETTING

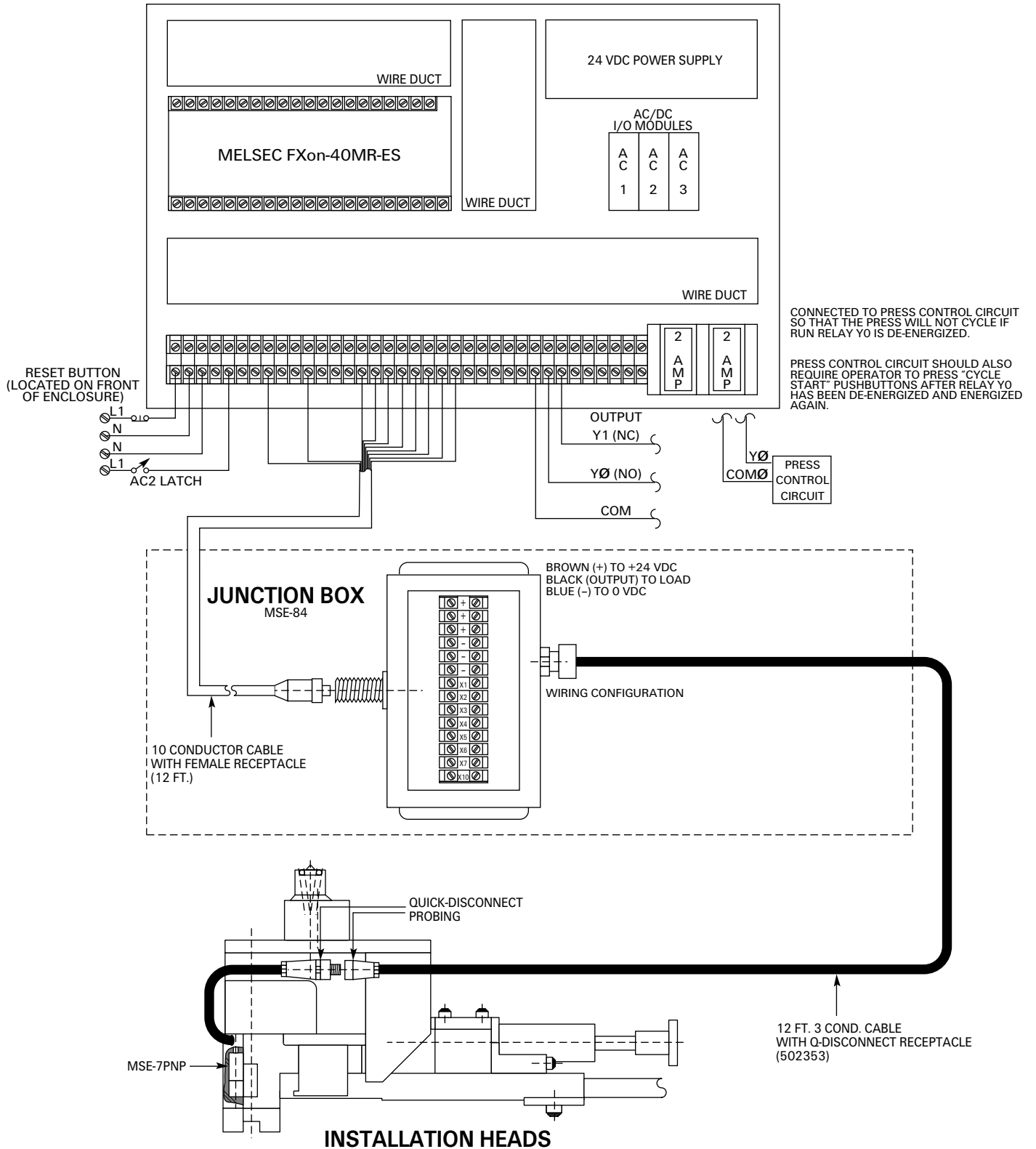
- At (A), nut and panel are flush, tight (to within .005" max.).
- At (B), die button ledge is level with nut pilot shoulder.
- At (C), metal properly flowed into nut undercut.



# Electrical Set-Up

## NUT DETECTION PANEL

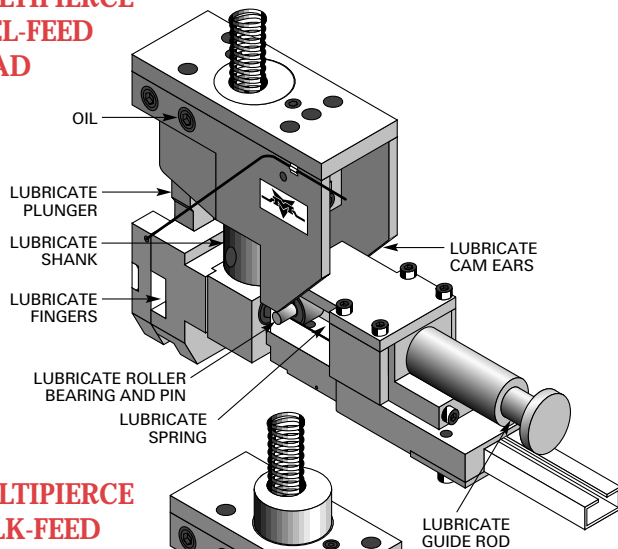
109185-PC



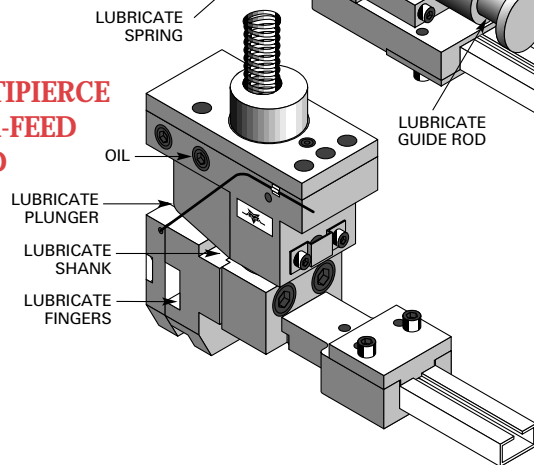
# Maintenance Procedures

Careful maintenance of Multiplier or Multimatic Installation Heads means longer product life and hours of trouble-free operation. For proper maintenance, perform the procedures as outlined below at the specified intervals.

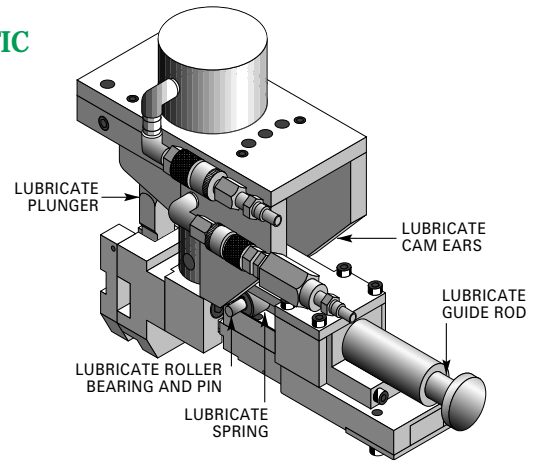
## MULTIPLIER REEL-FEED HEAD



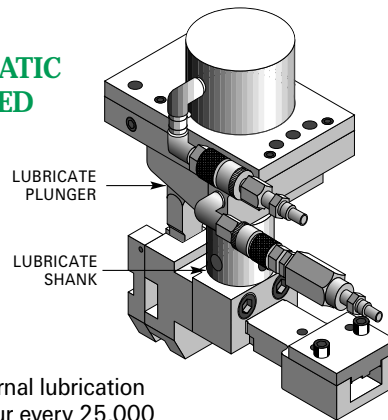
## MULTIPLIER BULK-FEED HEAD



## MULTIMATIC REEL-FEED HEAD



## MULTIMATIC BULK-FEED HEAD



NOTE: External lubrication should occur every 25,000 cycles.

# Maintenance Schedule

Head Assemblies do not require continuous lubrication. However, careful maintenance means longer product life and hours of trouble-free operation. It is recommended that a thorough cleaning and lubrication be completed between 80,000 and 90,000 cycles.

The head should be removed from the fixture and disassembled, as outlined in "Assembly/Disassembly." Clean all grease and metal particles from parts. Coat parts with a lithium soap base grease Molykote BRZ-5 or equivalent and reassemble the head. The lubricant is available from the following sources.

**FabriSteel Products, Inc.**  
22100 Trolley Industrial Drive  
Taylor, Michigan 48180

**Dow Corning Corporation**  
South Saginaw Road  
Midland, Michigan 48641  
Catalog #8500-26

FabriSteel Formed Products  
A Whitesell Company



22100 TROLLEY INDUSTRIAL DRIVE TAYLOR, MI 48180-1872  
PHONE: (313) 299-8500 FAX: (313) 299-7966  
WEBSITE: www.fabristeel.com



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