HOWMET AEROSPACE

202 series
Pneudraulic Installation Tools
Instruction Manual

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Makers of Howmet ®, Marson®, Recoil®
Brand Fasteners, Tools & Accessories

May 5, 2023
HK938

HOWMET AEROSPACE

EC Declaration of Conformity

Manufacturer:
Huck International, LLC, Industrial Products Group,
1 Corporate Drive, Kingston, NY, 12401, USA

Description of Machinery:
Models 202, 202#, ERT9 & ERT9# family of pneudraulic installation tools and specials based on their design (e.g. PR####).

Relevant provisions complied with:
- Council Directive related to Machinery (2006/42/EC)
- British Standard related to hand held, non-electric power tools (ISO 11148-1:2011)

Representatives:
EU: Lutz Baumann
Hildesheim Operations
Fairchild Fasteners Europe - VSD GmbH
Steven 3
31135 Hildesheim
Germany

Authorized Signature/date:
I, the undersigned, do hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Signature: _____

Full Name: Nicholas Gougoutris

Position: Engineering Manager

Location: Huck International, LLC d/b/a
Howmet Fastening Systems
Kingston, New York, USA

Date: 2/7/23 February 7, 2023

UKCA Declaration of Conformity

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Huck International, LLC, Industrial Products Group,
1 Corporate Drive, Kingston, NY, 12401, USA

Description of Machinery:
Models 202, 202#, ERT9 & ERT9# family of pneudraulic installation tools and specials based on their design (e.g. PR####).

Relevant provisions complied with:
- British Standard related to hand held, non-electric power tools (ISO 11148-1:2011)
- Supply of Machinery (Safety) Regulations 2008

Representatives:
UK: Paul Carson
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Unit C
Stafford Park 7
Telford, Shropshire
England TF3 3BQ, United Kingdom

Authorized Signature/date:
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Declared dual number noise emission values in accordance with ISO 4871			
A weighted sound power level, LWA: **81** dB (reference 1 pW) Uncertainty, KWA: 3 dB			
A weighted emission sound pressure level at the work station, LpA: **70** dB (reference 20 µPa) Uncertainty, KpA: 3 dB			
C-weighted peak emission sound pressure level, LpC, peak: **115** dB (reference 20 µPa) Uncertainty, KpC: 3 dB			
Values determined according to noise test code ISO 15744, using as basic standards ISO 3744 and ISO 11203. The sum of a measured noise emission value and its associated uncertainty represents an upper boundary of the range of values which is likely to occur in measurements.			
Declared vibration emission values in accordance with EN 12096			
Measured Vibrations emission value, a:	**.57** m/s^2	Uncertainty, K:	**.28** m/s^2
Values measured and determined according to ISO 28662-1, ISO 5349-2, and EN 1033			

Test data to support the above information is on file at: Howmet Fastening Systems, Kingston Operations, Kingston, NY, USA.

Safety Instructions

GLOSSARY OF TERMS AND SYMBOLS:

UK CA CE -Product complies with requirements set forth by the relevant UK and European directives.

 - Read manual prior to using this equipment.

 - Eye protection is required while using this equipment.

 - Hearing protection is required while using this equipment.

Notes: are reminders of required procedures. ***Bold, Italic type, and underline:*** emphasize a specific instruction.

WARNINGS: Must be understood to avoid severe personal injury.

CAUTIONS: Show conditions that will damage equipment or structure.

I. GENERAL SAFETY RULES:

1. A half hour long hands-on training session with qualified personnel is recommended before using Howmet equipment.
2. Howmet equipment must be maintained in a safe working condition at all times. Tools and hoses should be inspected at the beginning of each shift/day for damage or wear. Any repair should be done by a qualified repairman trained on Howmet procedures.
3. For multiple hazards, read and understand the safety instructions before installing, operating, repairing, maintaining, changing accessories on, or working near the assembly power tool. Failure to do so can result in serious bodily injury.
4. Only qualified and trained operators should install, adjust or use the assembly power tool.
5. Do not modify this assembly power tool. This can reduce effectiveness of safety measures and increase operator risk.
6. Do not discard safety instructions; give them to the operator.
7. Do not use assembly power tool if it has been damaged.
8. Tools shall be inspected periodically to verify all ratings and markings required, and listed in the manual, are legibly marked on the tool. The employer/operator shall contact the manufacturer to obtain replacement marking labels when necessary. Refer to assembly drawing and parts list for replacement.
9. Tool is only to be used as stated in this manual. Any other use is prohibited.
10. Read MSDS Specifications before servicing the tool. MSDS specifications are available from the product manufacturer or your Howmet representative.
11. Only genuine Howmet parts shall be used for replacements or spares. Use of any other parts can result in tooling damage or personal injury.
12. Never remove any safety guards or pintail deflectors.
13. Never install a fastener in free air. Personal injury from fastener ejecting may occur.
14. Where applicable, always clear spent pintail out of nose assembly before installing the next fastener.
15. Check clearance between trigger and work piece to ensure there is no pinch point when tool is activated. Remote triggers are available for hydraulic tooling if pinch point is unavoidable.
16. Do not abuse tool by dropping or using it as a hammer. Never use hydraulic or air lines as a handle or to bend or pry the tool. Reasonable care of installation tools by operators is an important factor in maintaining tool efficiency, eliminating downtime, and preventing an accident which may cause severe personal injury.
17. Never place hands between nose assembly and work piece. Keep hands clear from front of tool.
18. Tools with ejector rods should never be cycled with out nose assembly installed.
19. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet for correct positioning.

II. PROJECTILE HAZARDS:

1. Risk of whipping compressed air hose if tool is pneudraulic or pneumatic.
2. Disconnect the assembly power tool from energy source when changing inserted tools or accessories.
3. Be aware that failure of the workpiece, accessories, or the inserted tool itself can generate high velocity projectiles.
4. Always wear impact resistant eye protection during tool operation. The grade of protection required should be assessed for each use.
5. The risk of others should also be assessed at this time.
6. Ensure that the workpiece is securely fixed.
7. Check that the means of protection from ejection of fastener or pintail is in place and operative.
8. There is possibility of forcible ejection of pintails or spent mandrels from front of tool.

III. OPERATING HAZARDS:

1. Use of tool can expose the operator's hands to hazards including: crushing, impacts, cuts, abrasions and heat. Wear suitable gloves to protect hands.
2. Operators and maintenance personnel shall be physically able to handle the bulk, weight and power of the tool.
3. Hold the tool correctly and be ready to counteract normal or sudden movements with both hands available.
4. Maintain a balanced body position and secure footing.
5. Release trigger or stop start device in case of interruption of energy supply.
6. Use only fluids and lubricants recommended by the manufacturer.
7. Avoid unsuitable postures, as it is likely for these not to allow counteracting of normal or unexpected tool movement.
8. If the assembly power tool is fixed to a suspension device, make sure that fixation is secure.
9. Beware of the risk of crushing or pinching if nose equipment is not fitted.

IV. REPETITIVE MOTION HAZARDS:

1. When using assembly power tool, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.
2. When using tool, the operator should adopt a comfortable posture while maintaining a secure footing and avoid awkward or off balanced postures.
3. The operator should change posture during extended tasks to help avoid discomfort and fatigue.
4. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warnings should not be ignored. The operator should tell the employer and consult a qualified health professional.

V. ACCESSORIES HAZARDS:

1. Disconnect tool from energy supply before changing inserted tool or accessory.
2. Use only sizes and types of accessories and consumables that are recommended. Do not use other types or sizes of accessories or consumables.

VI. WORKPLACE HAZARDS:

1. Be aware of slippery surfaces caused by use of the tool and of trip hazards caused by the air line or hydraulic hose.
2. Proceed with caution while in unfamiliar surroundings; there could be hidden hazards such as electricity or other utility lines.
3. The assembly power tool is not intended for use in potentially explosive environments.
4. Tool is not insulated against contact with electrical power.
5. Ensure there are no electrical cables, gas pipes, etc., which can cause a hazard if damaged by use of the tool.

VII. NOISE HAZARDS:

1. Exposure to high noise levels can cause permanent, disabling hearing loss and other problems such as tinnitus, therefore risk assessment and the implementation of proper controls is essential.
2. Appropriate controls to reduce the risk may include actions such as damping materials to prevent workpiece from 'ringing'.
3. Use hearing protection in accordance with employer's instructions and as required by occupational health and safety regulations.
4. Operate and maintain tool as recommended in the instruction handbook to prevent an unnecessary increase in the noise level.
5. Select, maintain and replace the consumable / inserted tool as recommended to prevent an unnecessary increase in noise.
6. If the power tool has a silencer, always ensure that it is in place and in good working order when the tool is being operated.

VIII. VIBRATION HAZARDS:

1. Exposure to vibration can cause disabling damage to the nerves and blood supply to the hands and arms.
2. Wear warm clothing when working in cold conditions and keep hands warm and dry.
3. If numbness, tingling, pain or whitening of the skin in the fingers or hands, stop using the tool, tell your employer and consult a physician.
4. Support the weight of the tool in a stand, tensioner or balancer in order to have a lighter grip on the tool.

IX. PNEUMATIC / PNEUDRAULIC TOOL SAFETY INSTRUCTIONS:

1. Air under pressure can cause severe injury.
2. Always shut off air supply, drain hose of air pressure and disconnect tool from air supply when not in use, before changing accessories or when making repairs.
3. Never direct air at yourself or anyone else.
4. Whipping hoses can cause severe injury, always check for damaged or loose hoses and fittings.
5. Cold air should be directed away from hands.
6. Whenever universal twist couplings (claw couplings) are used, lock pins shall be installed and whip-check safety cables shall be used to safeguard against possible hose to hose or hose to tool connection failure.
7. Do not exceed maximum air pressure stated on tool.
8. Never carry an air tool by the hose.

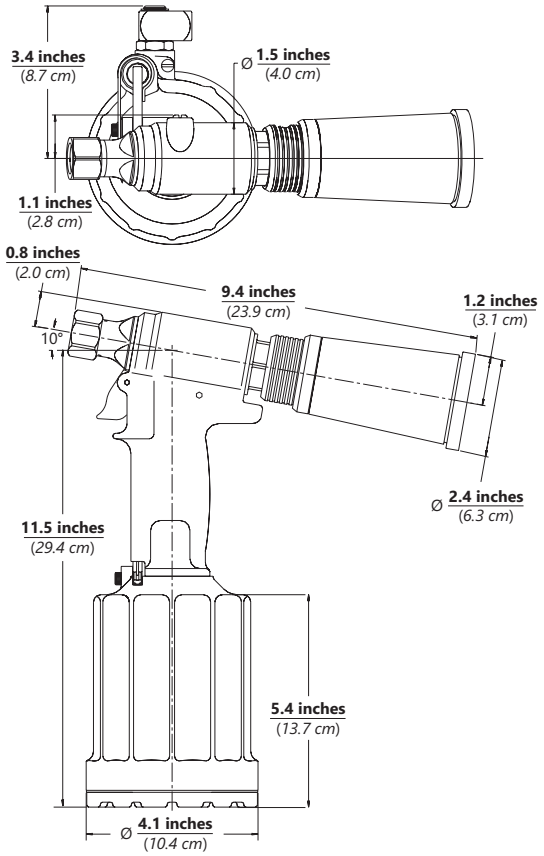
Specifications

Hydraulic fluid: Hydraulic fluid shall meet DEXRON III, DEXRON VI, MERCON, Allison C-4 or equivalent Automatic Transmission Fluid (**ATF**) specifications. Fire resistant fluid may be used if it's an ester based fluid such as Quintolubric® HFD or equivalent. Water based fluid shall NOT be used as serious damage to equipment will occur.

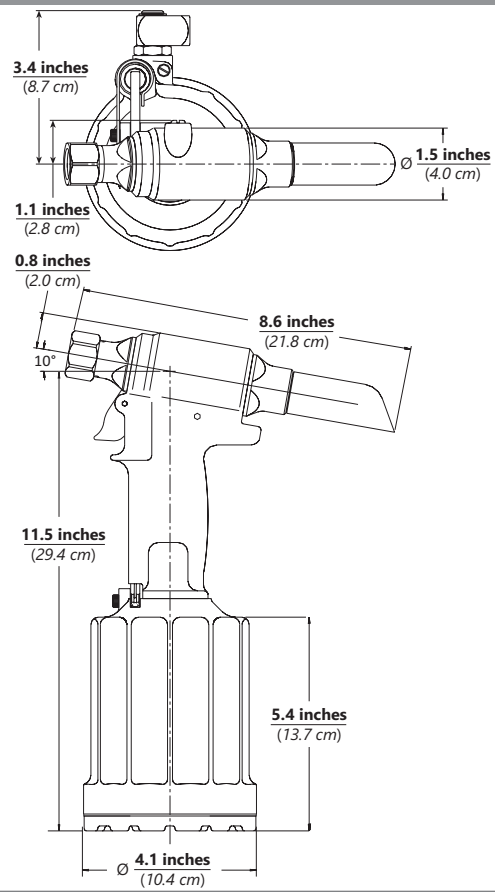
DESCRIPTION		DETAIL	
POWER SOURCE		90 PSI Shop Air	
MAX OPERATING TEMP		125 ° F	52 ° C
PULL CAPACITY		3,889 lbf @ 90 psi	17.3 kN @ 6.2 bar
SPEED/CYCLES		20 per minute	
MAX AIR PRESSURE		90 psi	6.2 bar
MAX FLOW RATE		8.5 scfm	241 l/m
WEIGHT	202 & 202L	5.1 lbs	2.31 kg
	202B, 202V, & 202LV	5.4 lbs	2.45 kg
STROKE		0.75 inches	1.90 cm

Hose Kits: Use only genuine Howmet Hose Kits rated @ 10,000 psi (689.5 bar) working pressure.

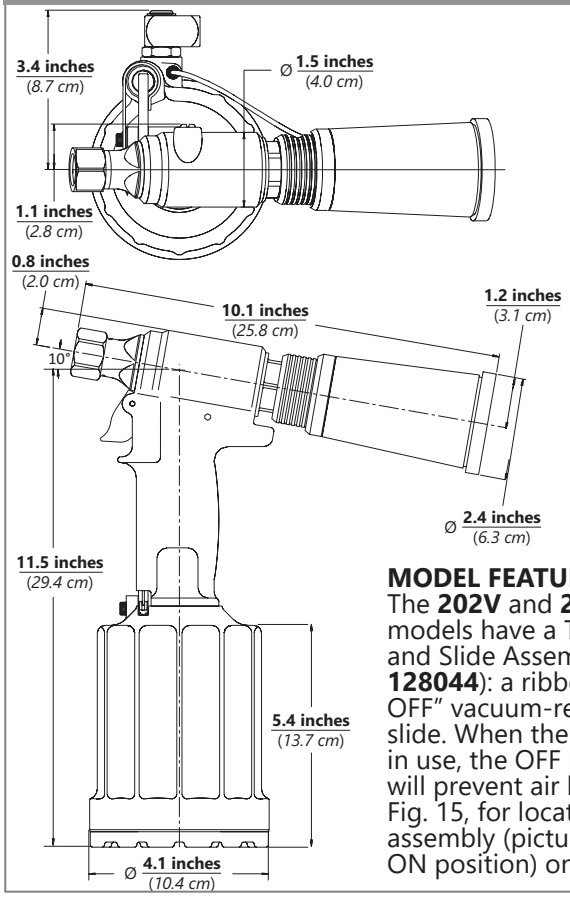
Model 202B



Models 202 & 202L



Models 202V & 202LV



MODEL FEATURE
The **202V** and **202LV** models have a Tubing and Slide Assembly (P/N **128044**): a ribbed "ON/OFF" vacuum-regulating slide. When the tool is not in use, the OFF position will prevent air loss. See Fig. 15, for location of the assembly (pictured in the ON position) on the tool.

Spare Parts and Accessories

For CE conformity, only CE compatible equipment should be used with these tools. Installation tools and nose assemblies are the only CE components unless otherwise noted. Controls and other hardware shown in the manual are for domestic use only. These components are available independently. Service Parts Kits include all perishable seals, O-rings, and Back-up rings. A spare Service Parts Kit should be kept on hand at all times.

DESCRIPTION	PART #
Polyseal Insertion Tool	121694-202
202, 202B, 202L Service Parts Kit	202KIT
202V, 202LV Service Parts Kit	202VKIT
202, 202B, 202V Assembly Tool Kits *(contains 202, 202B & 202V spacer and piston assembly tool)*	123110-2
202, 202B, 202V Stall Nut	124090
202L, 202LV Assembly Tool Kits *(contains 202L and 202LV spacer and piston assembly tool)*	123110-8
Pintail Collection Bag (202, 202L)	125652

DESCRIPTION	PART #
Piston Stop	125949
Cap Screw	508552
Retaining Ring Pliers	502866
202, 202B, 202V Spacer	123112-2
202L, 202LV Spacer	123112-3
202L, 202LV Stall Nut	125340
⅛" Hex Key (use with Screw, 504127)	592294

DESCRIPTION	PART #
LOCTITE® 243	508567
LUBRIPLATE® 130-AA	502723
Fill Bottle Assembly	120337
202, 202B, 202V Piston Assembly Tool	123111-2
202L, 202LV Piston Assembly Tool	123111-4
5/16" Hex Key (use with Pivot Screw, 125118)	502295

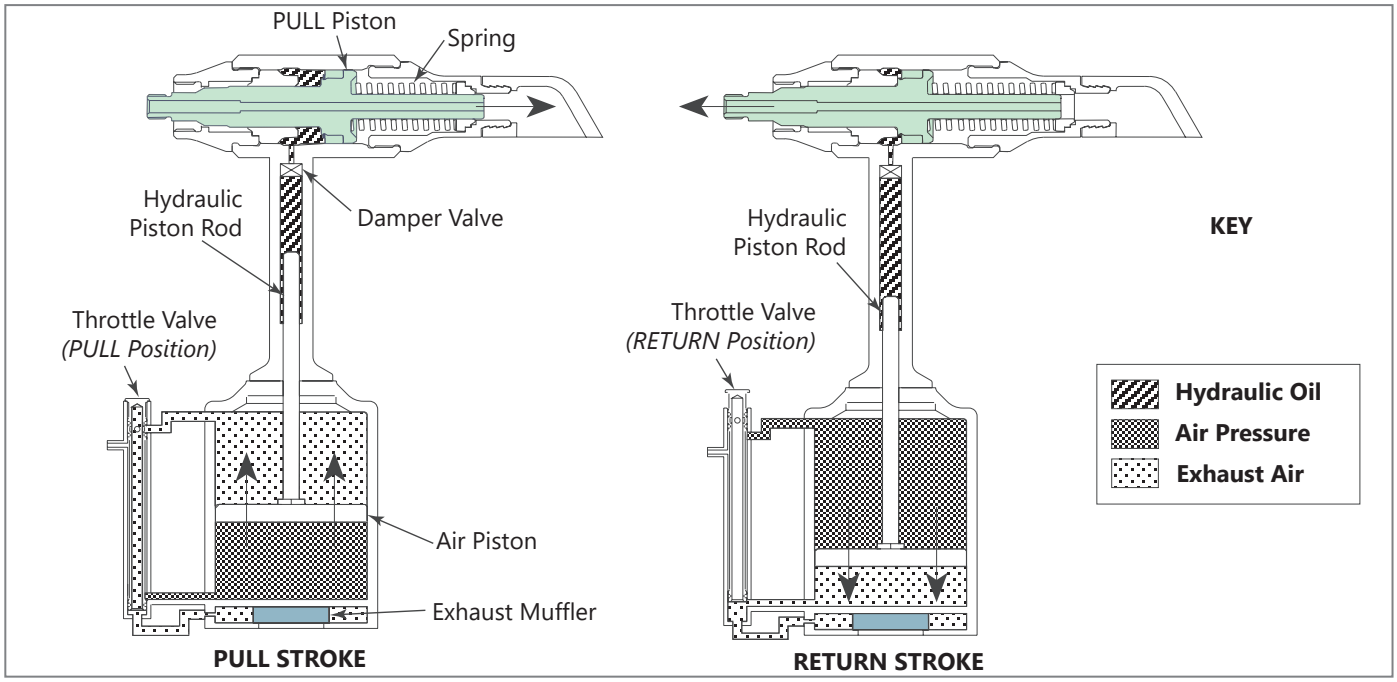
202 TO 202V CONVERSION KIT (for converting 202 to 202V) **- PART # 124173**

DESCRIPTION	PART #
Tubing and Slide Assembly	128044
Vacuum Attach Adapter	123784
Pintail Collection Bottle	130692

DESCRIPTION	PART #
End Cap Assembly	124246
Retaining Ring Ext	501007
Straight Connector	506675

DESCRIPTION	PART #
Flat Washer	506628
Piston Assembly	123774-1

Principle of Operation



PULL STROKE: When the trigger is pressed, the throttle valve moves down to the PULL position, and pressurized air is directed to the bottom of the air piston, causing it to move upward (as shown above). The air above the air piston is exhausted and directed through the center of the throttle valve and out the bottom of the tool.
As the hydraulic piston rod moves upward, a column of fluid is forced into the tool head, which moves the pull piston rearward. The attached nose assembly (not shown) moves with the pull piston to start fastener installation.

RETURN STROKE: When fastener installation is completed, the trigger is released. Air pressure, with the assistance of a spring, sends the throttle valve to the up (RETURN) position. Pressurized air is redirected to the top of the air piston (see above), causing the air piston and hydraulic rod to move downward.
The air from below the piston is exhausted through the bottom of the tool, and the spring forces the pull piston forward. The damper valve restricts oil flow at pin break to prevent tool kick.

Description

The 202 models are lightweight, high-speed production tools. The pulling action of the pull piston is provided by a pneumatic-hydraulic (pneudraulic) intensifier system that is powered by 90 psi (6.2 bar) air pressure. The air inlet is equipped with a connector with ¼" – 18 female pipe threads to accept your air hose or quick-connect fitting.

Model Feature
The 202V model has a Slide & Tube Assembly – a ribbed "On/Off" vacuum-regulating slider that enhances the tool capabilities by:

- Expelling broken pintails into the pintail collector,
- and holding fasteners firmly in the nose assembly, with the tool in any position.

When the tool is not in use, the OFF position (slider forward) will prevent air loss. See Figure 15 for the location of this assembly (pictured in the ON position) on the tool.

Preparation for Use

The 202 series of tools ship with a plug in the air inlet connector. The connector has ¼-18 female pipe threads to accept the air hose fitting. Howmet recommends quick-disconnect fittings and a ¼" inside-diameter air hose. The air supply should be equipped with a filter-regulator-lubricator unit, and access to a 90 psi (6.2 bar) air supply capable of 8.5 scfm (241 l/m).

NOTE: Air quick-disconnect fittings and air hoses are not available from Howmet Aerospace, Inc.

1. Remove the shipping plug from air inlet connector and add a few drops of an approved hydraulic fluid.
2. Screw the quick-disconnect fitting into the air inlet connector.

CAUTION: Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. Parker Threadmate™ is recommended.

3. Set the air pressure on the regulator to 90 psi, and connect the air hose to the tool. Press and release the trigger a few times to cycle the tool.
4. Disconnect the air hose from the tool, and remove the retaining nut. Select the proper nose assembly for the fastener being installed.
5. Screw the collet assembly (including the lock collar and shim if applicable) onto the spindle and tighten with a wrench.
6. Slide the anvil over the collet assembly and into the counterbore. Slide the retaining nut over the anvil, and screw the nut onto the head.
7. Connect the air hose to the tool and install fasteners in a test plate of proper thickness with proper size holes. Inspect the fasteners.

   If fasteners do not pass inspection, see Troubleshooting to investigate possible causes.

NOTE: On older nose assemblies with lock collars, use Loctite® 243™ on collet threads, because the 202 pull piston does not have staking holes. Refer to the nose assembly drawings that shipped with nose assemblies.

Trade Names

Where the following trade names are used in this manual, please note:

DEXRON *is a registered trademark of General Motors Corporation.*
GLYD Ring *is a registered trademark of Trelleborg Sealing Solutions Germany GmbH*
Loctite *is a registered trademark of Henkel IP & Holding GmbH*
LUBRIPLATE *is a registered trademark of Fiske Brothers Refining Co.*
MERCON *is a registered trademark of Ford Motor Corp.*
MOLYKOTE *is a registered trademark of Dow Corning Corporation*
Never-Seez *is a registered trademark of Bostik, Inc.*
Quintolubric *is a registered trademark of Quaker Chemical Corp.*
Slic-tite *is a registered trademark of LA-CO Industries, Inc.*
Spirolox *is a registered trademark of Smalley Steel Ring Company*
Teflon *is a registered trademark of Chemours Company FC.*
Threadmate *is a registered trademark of Parker Intangibles LLC.*
TRUARC *is a trademark of TRUARC Co. LLC.*
Vibra-Tite *is a registered trademark of ND Industries, Inc. USA.*

Operating Instructions

CAUTIONS: Remove excess gap from between sheets so that enough of the pintail protrudes from the collar that all of the jaw teeth can grip the pintail grooves. Jaws that are not fully gripping pintail grooves will be stripped or broken.

Blind Fastener Installation:

The fastener can be placed in either the work hole or the end of the nose assembly. For both methods, the tool and nose assembly must be held against the work and at a right angle (90°) to it. Press and hold the trigger until the fastener is installed and the pintail breaks. Release the trigger.

WARNINGS: Inspect tools for damage and wear before using. Do not use if damaged or worn; serious personal injury may occur.

Pulling a pin without a collar, or with collar chamfer against workpiece, may result in the pin becoming a high-speed projectile when the pin grooves are stripped or the pintail breaks off. Serious personal injury may occur to anyone in the pin's "flight path." This includes pins that ricochet.

Broken pintails eject from the deflector with speed and force. To reduce the risk of serious personal injury, be sure the pintail deflector is directed away from all personnel. Always use pintail bottles with models 202B and 202V. Replace damaged pintail deflectors and bottles.

MAGNA-GRIP® Fastener Installation:

Place the pin in the work-hole and place the collar over the pin. See WARNINGS. (If the collar has only one tapered end, that end **must** be out toward tool.) Hold the pin in the hole. Push the nose assembly onto the pin protruding from the collar until the anvil touches the collar. Press and hold the trigger until the collar is swaged and the pintail breaks. Release the trigger.

Maintenance

GENERAL

The operating efficiency of your tool is directly related to the performance of the entire system. Regular inspection and the immediate correction of minor problems will keep the tool operating efficiently, and prevent downtime. A schedule of "preventive" maintenance of the tool, nose assembly, hoses, trigger and control cord, and POWERIG will ensure your tool's proper operation and extend its life.

NOTE: Howmet tools should be serviced only by personnel who are thoroughly familiar with its operation.

1. Service tool in a clean, well-lit area to prevent contamination of pneumatic and hydraulic systems.
2. Proper hand tools, both standard and special, must be available.
3. All parts must be handled carefully and examined for damage or wear. Always replace seals when tool is disassembled for any reason. Components should be disassembled and assembled in a straight line without bending, cocking, or undue force.
4. Have the appropriate Service Parts Kit (202KIT or 202VKIT) available when servicing the tool; it includes important consumable parts. Other components, as experience dictates, should also be available. See Spare Parts and Accessories.

DAILY

1. If a Filter-Regulator-Lubricator unit is not being used, uncouple air disconnects and put a few drops of ATF or light oil into the air inlet of the tool. If the tool is in continuous use, put a few drops of oil in every 2 to 3 hours.
2. Bleed the air line to clear it of accumulated dirt or water before connecting air hose to the tool.
3. Check all hoses and couplings for damage or air leaks, tighten or replace if necessary.
4. Check the tool for damage or air/hydraulic leaks, tighten or replace if necessary.
5. Check the nose assembly for tightness or damage, tighten or replace if necessary.
6. Periodically, check the tool stroke. If the stroke is short, add fluid. For more information, see Measuring Tool Stroke.

WEEKLY

1. Disassemble and clean nose assemblies and reassemble.
2. Check the tool and all connecting parts for damage or oil/air leaks, tighten or replace if necessary.

Tool Disassembly Procedure

WARNING: Disconnect the air hose from the tool before performing any maintenance. Serious personal injury could result if the air hose is connected.

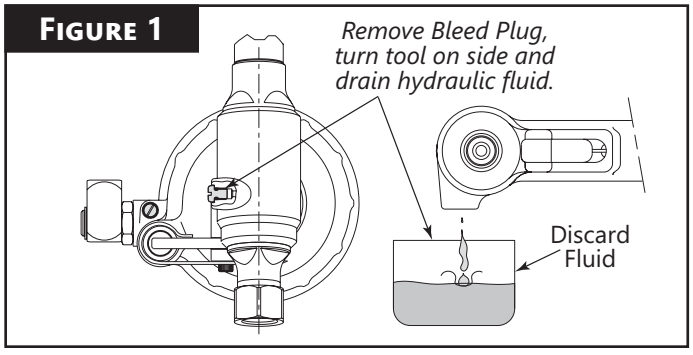
GENERAL

This procedure is for the complete disassembly of **all 202** series of tools. Disassemble only those components necessary to replace damaged O-rings, Quad-rings, Back-up rings, and worn or damaged components. For component identification, see Figures 1, 2, 5, & 14.

CAUTION: Always use a soft-jaw vise to avoid damaging the tool.

1. Disconnect the tool from the air source.
2. Unscrew retaining nut; remove nose assembly.

Figure 1



3. Unscrew the bleed plug from top of the handle/head. Turn over the tool and drain the fluid into a container. (Figure 1) Discard the fluid.
4. Models **202** & **202L**: Pull pintail deflector off the end cap. (Figure 2)

   Models **202B**: Reach in the window of pintail bottle and remove the retaining ring and washer; then remove the pintail bottle and adapter. (Figure 5)

   Models **202V** & **202LV**: See Pintail Bottle/Vacuum System Disassembly.
5. Remove throttle arm pivot screw and lever guard. Lift out throttle arm, and disconnect ball end of cable assembly from it.
6. Secure the tool in a vise, upside-down. (Figure 2) Remove button-head screws with a ⅛" hex key. Remove end cap and gasket, and remove muffler from the end cap. Remove spring from the throttle valve. (Figure 14)
7. Tap down cylinder head with a soft mallet (to take pressure off the ring), and remove retaining ring. (Figure 2)
8. Screw button head screws back into the cylinder head, and carefully pry on the screws to remove the head. Remove O-ring.

continued...

Tool Disassembly Procedure continued ...

9. Pull on lock nut with vise-grips to remove the air piston from cylinder. Remove Quad-ring.

CAUTION: Take care to not scratch the piston rod or cylinder when removing.

10. Remove bumper from gland assembly. Unscrew gland assembly with a 1-⅜" socket wrench and extension.
11. Remove retaining ring from gland, and then pull out spacer and Polyseal. (Figure 2) Remove O-rings, Quad-ring, and Back-up ring.
12. Lift cylinder from handle/head. (Figure 2)
13. Turn over the tool and drain the fluid into a container; discard the fluid.
14. Remove throttle valve from air cylinder, and remove O-rings. (Figure 2)

HEAD/HANDLE

This procedure applies to models **202**, **202B**, **202L**. For component identification, see Figures 3, 4, & 14a.

NOTE: For 202V & 202LV, also see Pintail Bottle/Vacuum System Disassembly.

1. Unscrew end cap; remove spring, spacer, and wiper seal. (Figure 3)
2. Thread the Polyseal Insertion Tool into the rear of the handle/head. (Figure 3)
3. Slide spacer onto the piston.
4. Thread the Piston Assembly Tool onto the piston.
5. Push the piston and front gland assemblies out the back of the handle/head. Allow clearance, with stand-off, as the piston leaves the tool. (Figure 4)
6. Unscrew the Piston Assembly Tool and remove Spacer from the piston. Re-thread the Piston Assembly Tool onto the piston, then slide the front gland assembly off the piston. (Figure 4)
7. Remove the Piston Assembly Tool from piston, and remove the Polyseal Insertion Tool from the rear of the head/handle.
8. Remove retaining ring , washer, and Polyseal from the piston.

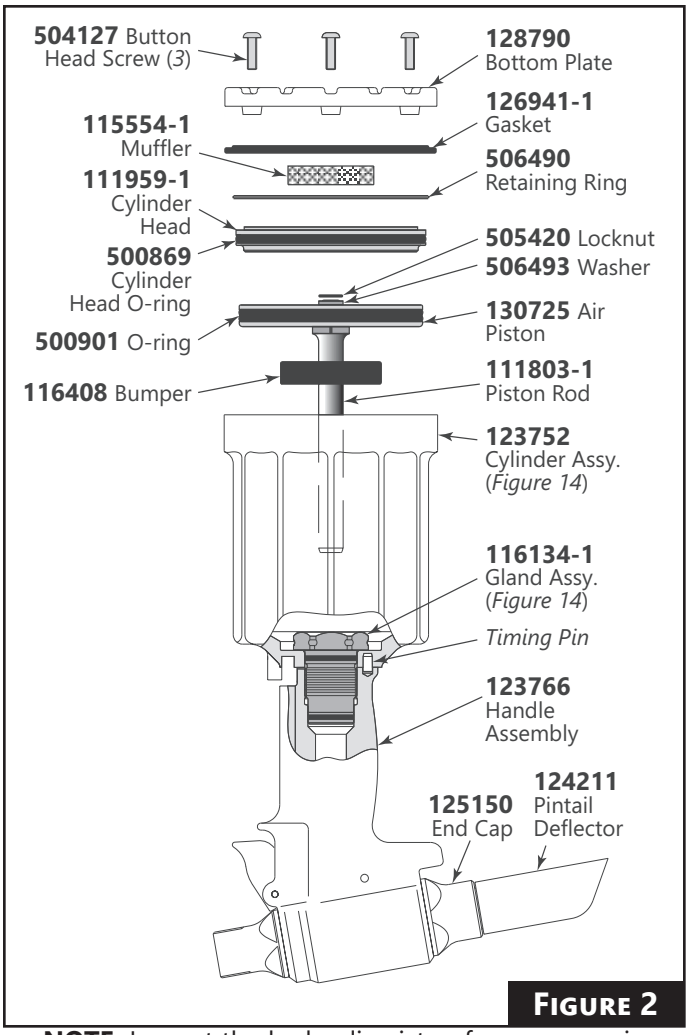


Figure 2

NOTE: Inspect the hydraulic piston for wear, scoring, and damage; replace if necessary.

9. Unscrew adapter. (Figure 14a) Inspect all seals and parts.
10. If trigger cable assembly is damaged, remove it by driving out pin with a punch. Remove dowel pin to disconnect the cable from the trigger.

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Figure 3

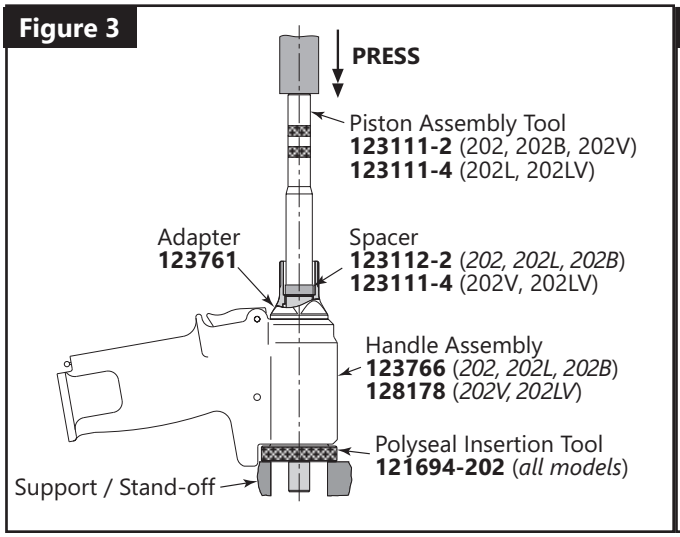
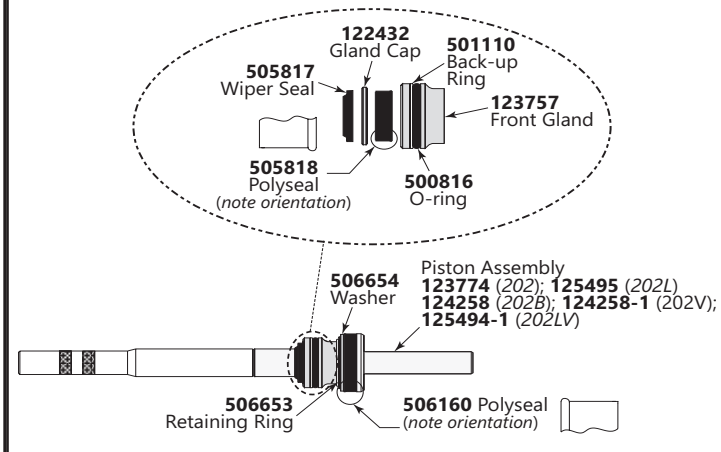


Figure 4



Tool Disassembly Procedure continued ...

PINTAIL BOTTLE/VACUUM SYSTEM DISASSEMBLY

This procedure is applicable to models **202V** and **202LV** only; it should be used in conjunction with the previous sections, **General** and **Head/Handle**. For component identification, see Figures 5, 6, & 15.

1. Reach through the window of pintail bottle and remove retaining ring and washer. (Figure 5)
2. Remove pintail bottle, and then disconnect the tube from Plug & Gasket Assembly. (Figure 15)
3. Remove adapter and Tubing and Slide Assembly.
4. Remove end cap and spring. (Figure 6)
5. Remove spacer and O-ring from the spring side of the end cap.
6. Remove retaining ring, tube, wiper seal, washer, and O-ring from the bottle side of the end cap.
7. Remove O-rings from inside the adapter and Tubing and Slide Assembly. (Figure 15)

Figure 5

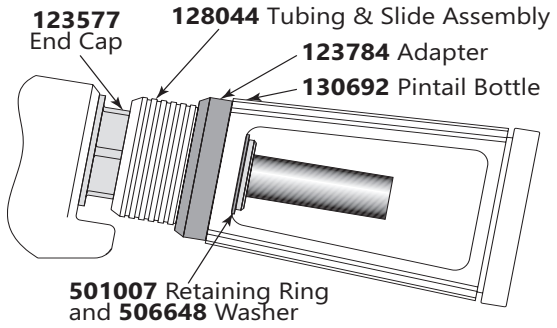
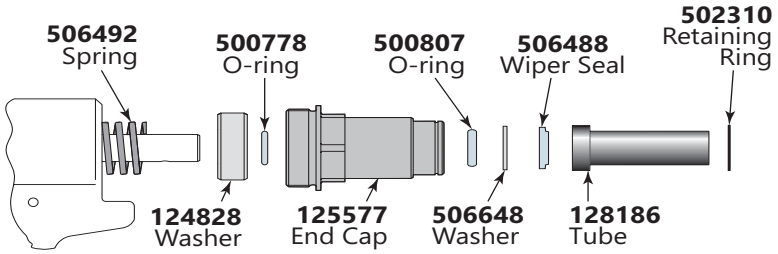


Figure 6



Assembly Instructions

HEAD/HANDLE

This procedure is for the assembly of the head/handle of models **202**, **202B**, **202L**. For component identification, see Figures 7, 8, & 14a.

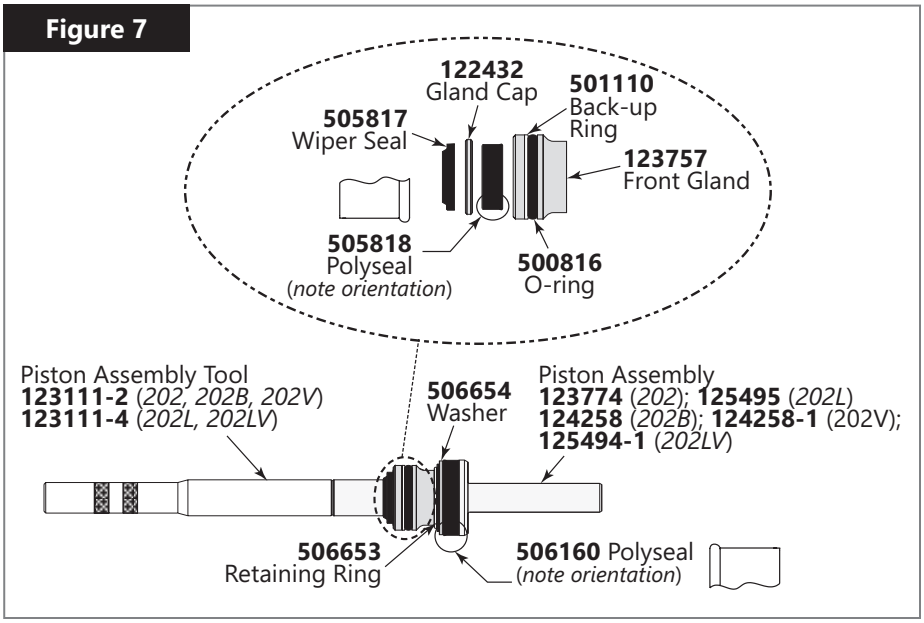
TO RE-ASSEMBLE THE TOOL:

1. If removed, position cable assembly in trigger slot and slide dowel pin through the holes in the trigger and the cable assembly. Position the assembled trigger in the handle and drive pin through the holes in the handle and trigger. (Figure 14a)
2. Screw nose adapter into head and tighten.

PRIOR TO RE-ASSEMBLING THE TOOL:

- Clean components with mineral spirits or a similar solvent. Inspect for wear/damage and replace as necessary.
- Replace all seals of disassembled components.
- Use the O-rings, Quad-rings, and Back-up rings from Howmet Service Parts Kits (P/N **202KIT** or **202VKIT**).
- When assembling the tool, take care not to damage O-rings, Quad-rings, Back-up rings.
- Smear LUBRIPLATE® 130-AA (Howmet P/N **502723**) or SUPER-O-LUBE® on rings and mating parts to ease assembly.

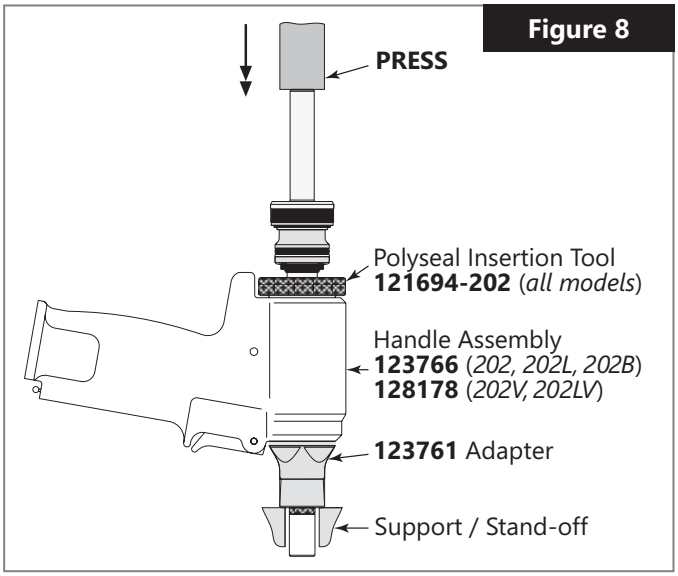
Figure 7



Assembly Instructions continued ...

3. Thread the Polyseal Insertion Tool (P/N 121694-202) into the head.
4. Assemble piston, Polyseal, and retaining ring. (Note the orientation of the Polyseal in Figure 7.)
5. Assemble front gland, O-ring, Back-up ring, Polyseal, and gland cap. (Note the orientation of the Polyseal in the upper part of Figure 7.)
6. Thread the Piston Assembly Tool onto piston. Slide the complete gland assembly and wiper seal onto piston.
7. Use a press to gently install the assembled components through the rear of the tool. (Figure 8)

Figure 8



8. Remove the Piston Assembly Tool and Polyseal Insertion Tool.
9. Install rear wiper seal into the end cap. (Figure 14a)
10. Slide spacer and spring into end cap, and then thread end cap assembly into rear of head.

NOTE: For **202V** and **202LV**, also see Pintail Bottle/ Vacuum System Assembly.

GENERAL

This procedure is applicable to **all 202** series tools. For component identification, see Figures 2, 7, 14, & 15.

1. Secure head/handle upside-down in a soft-jaw vise. (Figure 2) Place inverted cylinder assembly on the base of the handle. (The timing pin maintains orientation.)
2. Assemble Main Gland Assembly (Figure 14) with new seals. (Note the orientation of the Polyseal.) Apply Anti-Seize Compound (P/N 508183) to the threads of the gland assembly. Screw the gland assembly into the head/handle and torque it to 36-66 ft.-lbs. using a 1-⅜" socket wrench.
3. Push bumper firmly over gland.

   NOTE: The side of the bumper with two slots must face the bottom of the tool.
4. Install Quad-ring onto the air piston.
5. Lubricate the piston rod. Press the assembled air piston/rod into the cylinder just enough to allow installation of the cylinder head.
6. Assemble O-ring onto cylinder head and then push the cylinder head squarely into the cylinder, taking care not to damage O-ring. Install the retaining ring; align the screw holes with the muffler end cap.
7. Position muffler in center of cylinder head. Position gasket on the cylinder. (Figure 2) Note the direction of the lip in Figure 7.
8. Carefully position bottom plate on the cylinder.

   NOTE: Make sure that the muffler is properly positioned in the recess of the bottom plate. (Figures 2 & 14)
9. Secure the bottom plate with three button-head screws using a ⅛" hex key. (Figure 2)
10. Assemble O-rings on throttle valve. (Figure 14 Section C-C)
11. Place the tool upright on a level surface. Drop spring into the throttle valve bore in cylinder, and push the throttle valve into the cylinder.
12. Place the ball end of throttle cable into the end of throttle arm, then slide the throttle arm into the slot on the cylinder. (Figure 14)
13. Snap lever guard in place, and install pivot screw in the cylinder to retain throttle arm.
14. Models 202 & 202L: Push pintail deflector onto the end cap. (Figure 14)

    Model 202B: Position adapter and pintail bottle on the end cap. Reach in the window of the pintail bottle and install the retaining ring and washer. (Figures 14 & 15)

    NOTE: For 202V & 202LV, also see Pintail Bottle/ Vacuum System Assembly.

The tool is now assembled and must be filled with hydraulic fluid prior to use. See Fill and Bleed.

PINTAIL BOTTLE/VACUUM SYSTEM ASSEMBLY

This procedure is applicable to models 202V and 202LV only; it should be used in conjunction with the previous sections, General and Head/Handle. For component identification, see Figures 5, 6, & 15.

1. Assemble adapter and Tube and Slide Assembly and new O-rings.
2. From the bottle side of end cap, install O-ring, washer, wiper seal, wiper housing, and retaining ring as shown in Figure 6.
3. From the spring side of the end cap, install O-ring, spacer, and spring. (Figure 6) Screw the entire assembly into the head; tighten.
4. Assemble the Tubing and Slide Assembly and O-rings; slide the complete assembly onto the end cap, and push the tube into the connector. (Figure 15)
5. Position adapter and pintail bottle on end cap. (Figures 5 & 15)
6. Reach through the window of pintail bottle, and install washer and retaining ring as shown in Figure 5.

Fill and Bleed

This section documents the "bleed-&-fill" procedure. For component identification, see Figures 9, 10, & 11.

REQUIRED EQUIPMENT

- DEXRON® III or equivalent ATF (See Specifications for more information.)

WARNING: Avoid contact with hydraulic fluid. Hydraulic fluid must be disposed of in accordance with local regulations. See MSDS for hydraulic fluid shipped with tool.

- Shop air-line with 90 psi (6.2 bar) max.
- Air regulator
- Fill Bottle Assembly (P/N 120337, supplied with tool)
- Large flat-blade screwdriver
- Stall Nut (P/N 124090 or 125340, optional)
- Nose assembly
- Fasteners (optional)

CAUTION: Purge all fluid from the tool before refilling. The tool stroke will be diminished if the fluid is aerated.

For optimal performance, refill with a fluid that is recommended in Specifications.

PREPARATION:

- Install air regulator in the air-line and set the pressure to 20–40 psi (1.4–2.8 bar).
- Add an approved hydraulic fluid to the fill point of the fill bottle.

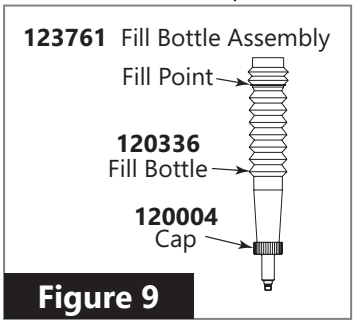


Figure 9

TO BLEED AND FILL THE TOOL:

1. Lay the tool on its side with the fill port facing up and remove bleed plug from the fill port.
2. Connect the tool to the shop air. If fluid is present, hold the tool over a suitable container with fill port facing into container. Cycle the tool several times to drain old fluid, air, and foam. (Figure 10)

WARNING: Air pressure must be set at 20–40 psi (1.4–2.8 bar) to prevent possible injury from high-pressure spray.

If bleed plug is removed, the fill bottle must be in place before cycling the tool.

3. Screw the fill bottle into the fill port.
4. Stand the tool upright on a bench. Trigger the tool slowly (20–30 cycles), and bend the fill bottle at a right-angle (90°) to the tool. (Figure 11)

   When air bubbles stop accumulating at top of the bottle, stop cycling the tool. When the trigger is released, the pull piston returns to the idle position (full-forward).

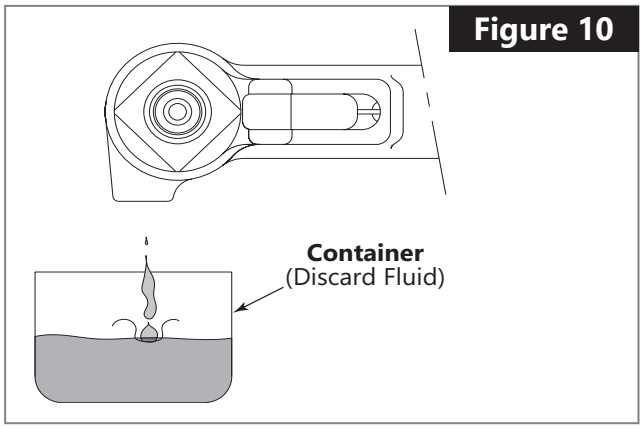


Figure 10

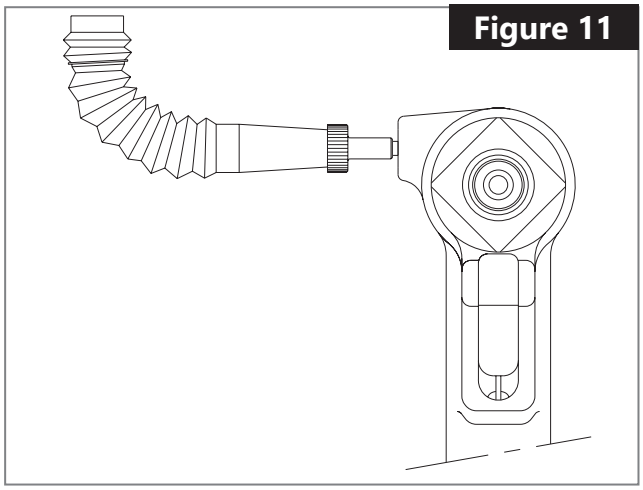


Figure 11

5. Disconnect the tool from the air-line. Lay the tool on its side and remove the fill bottle. Top off the fluid in the fill port, and install and tighten the bleed plug.
6. Connect the air-line to the tool and measure the stroke as described in Measuring Tool Stroke. If the stroke is less than specified, remove the bleed plug and add fluid. Re-insert the bleed plug and recheck the stroke.
7. Increase the air pressure to specifications. Install two fasteners to check the function and installation in a single stroke, or cycle the tool with a stall nut fully threaded onto the piston to load up the tool. Measure the stroke again. Remove the plug and add fluid. Re-insert the plug and cycle and measure again. Repeat this process until the stroke meets the recommended specification.

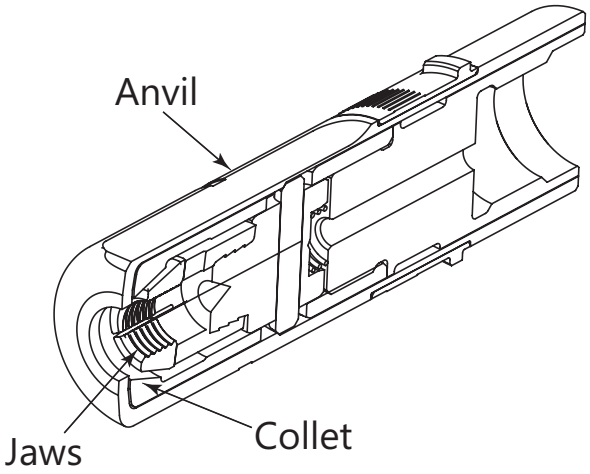
Nose Assembly/Disassembly

NOSE ASSEMBLY INSTRUCTIONS

1. Thread collet/spindle extension onto piston and tighten with a wrench.
2. Slide Anvil over collet/spindle extension until it bottoms.
3. Slide retaining nut (and rotatable stop. if applicable) over anvil and thread onto tool. Tighten retaining nut with a wrench.

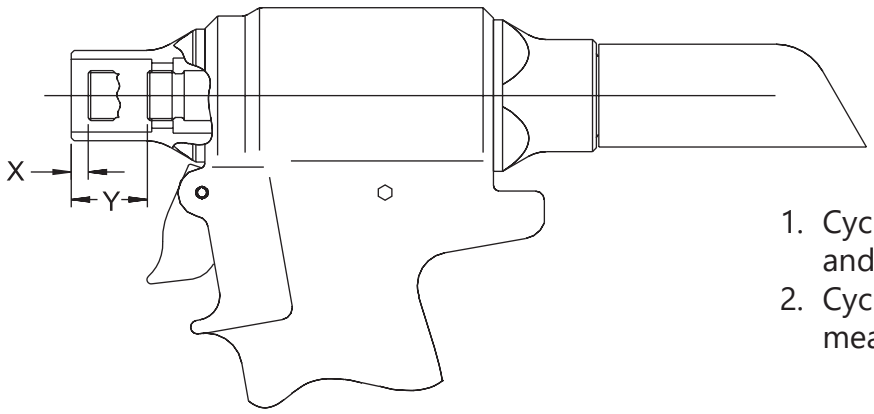
NOSE DISASSEMBLY INSTRUCTIONS

1. Loosen retaining nut with a wrench. Unthread retaining nut and slide it off the anvil.
2. Remove the anvil from collet/spindle.
3. Unthread collet/spindle extension and remove from piston.



Measuring Tool Stroke

Figure 12

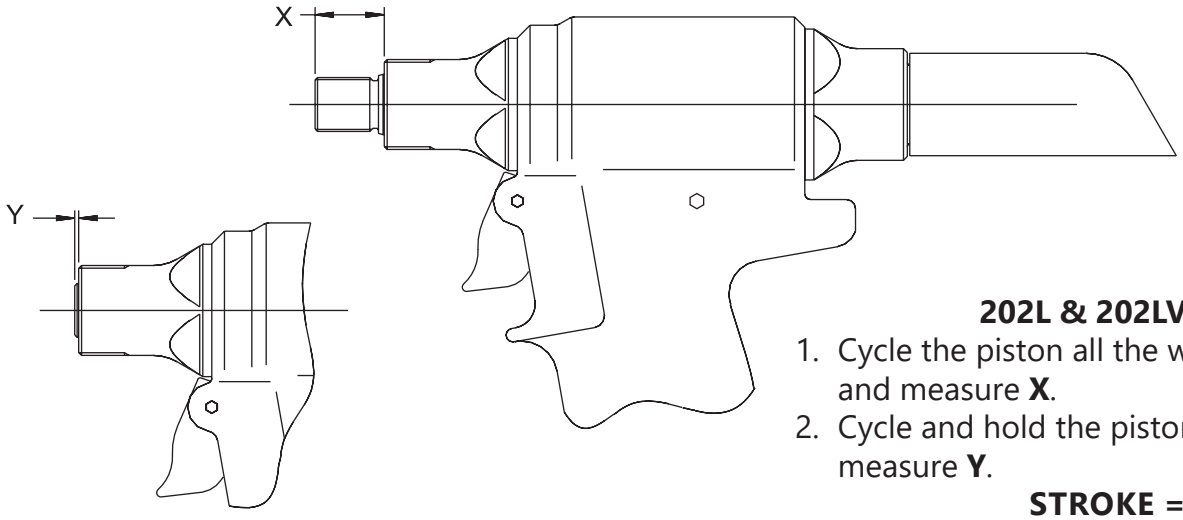


202, 202B, 202V

1. Cycle the piston all the way forward and measure **X**.
2. Cycle and hold the piston back and measure **Y**.

STROKE = Y-X

Figure 13



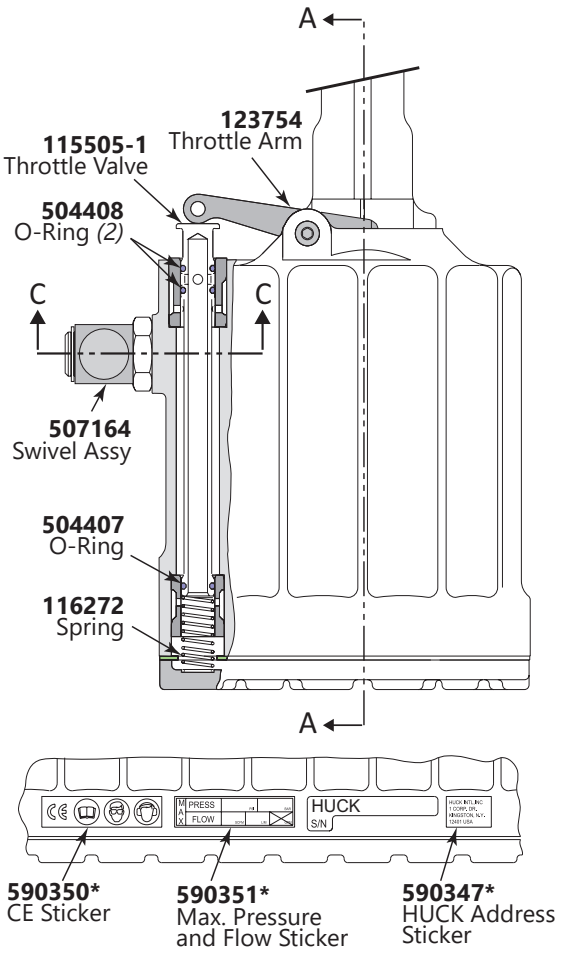
202L & 202LV

1. Cycle the piston all the way forward and measure **X**.
2. Cycle and hold the piston back and measure **Y**.

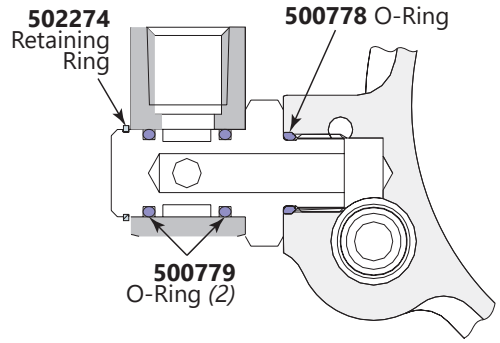
STROKE = X-Y

Tool Base (all models)

Figure 14

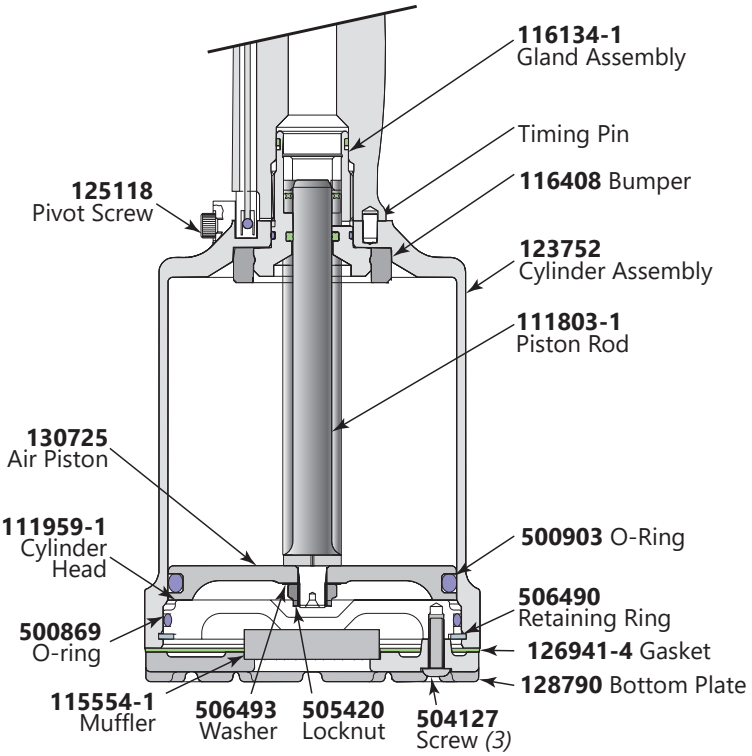


**** These stickers are at the base of Cylinder Assembly 123752; they MUST be purchased and placed as shown, if they become damaged, lost, or unreadable, or if the Cylinder Assembly is replaced.***

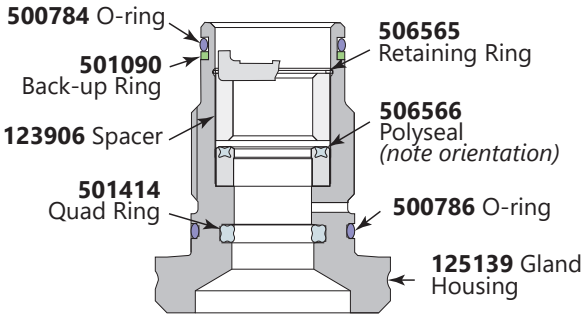


507164 SWIVEL ASSEMBLY

SECTION C-C



SECTION A-A

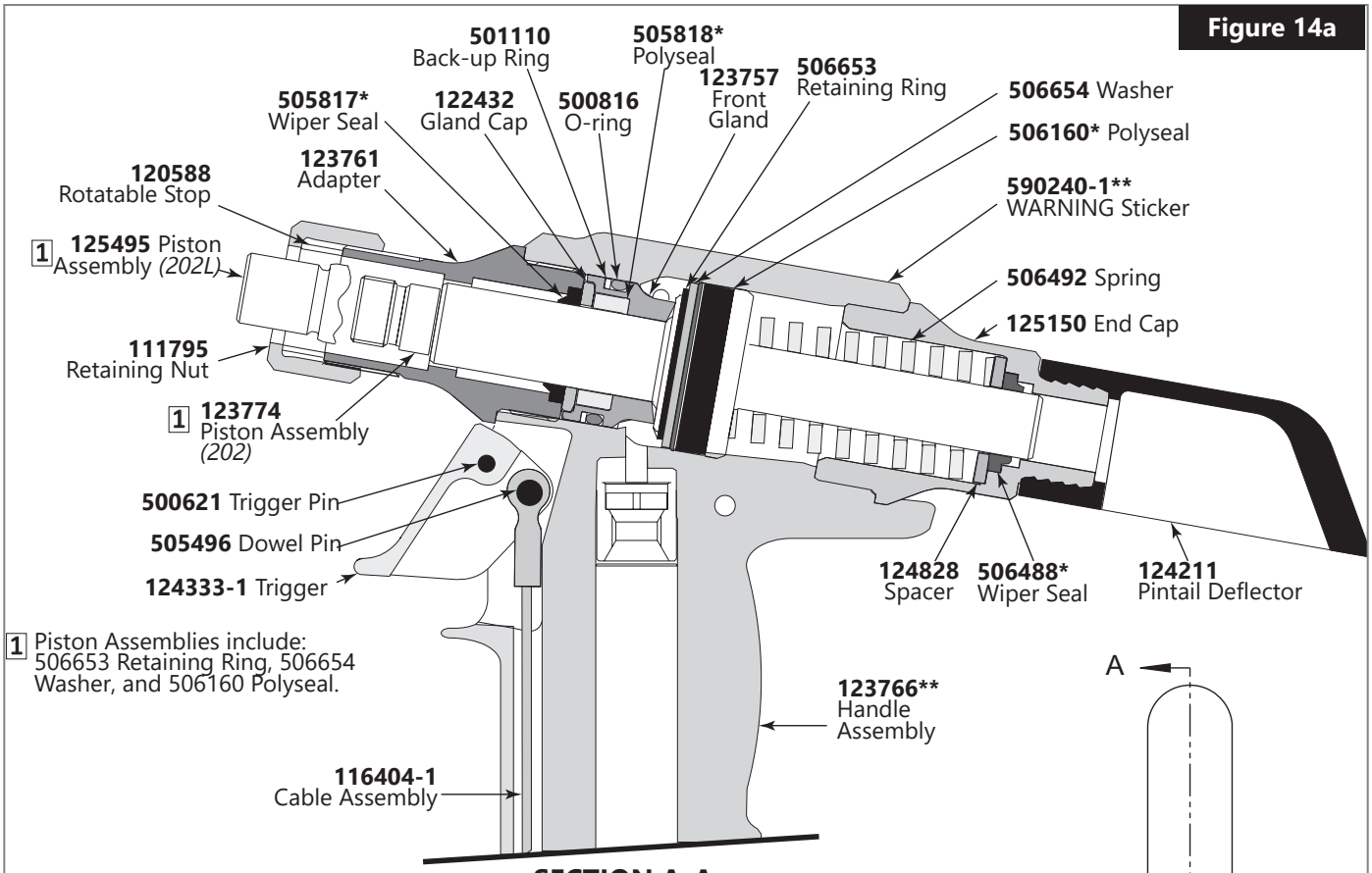


116134-1 Main Gland Assembly

Apply anti-seize compound to threads and torque to 36-66 ft.-lbs.

Tool Head 202 & 202L

Figure 14a

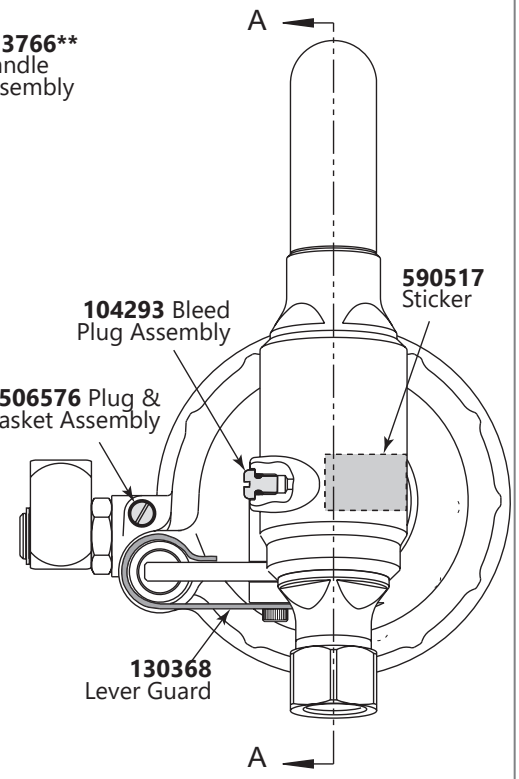


1 Piston Assemblies include: 506653 Retaining Ring, 506654 Washer, and 506160 Polyseal.

SECTION A-A

Shown is the construction of the 202 and 202L. See Figure 15 for 202B,202L, and 202LV construction.

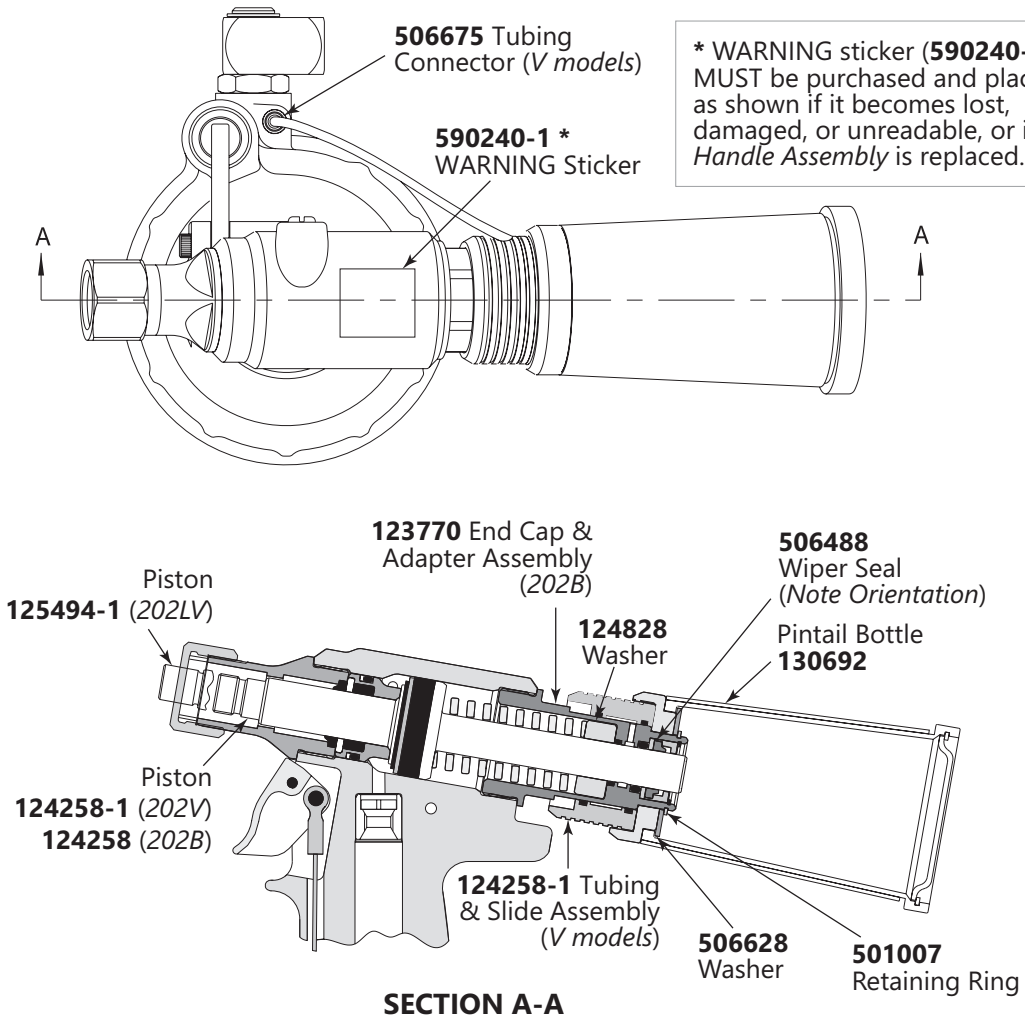
*Note orientation of Wiper Seals and Polyseals.
** WARNING sticker (590240-1) MUST be purchased and placed as shown when it becomes damaged, lost, or unreadable, or if Handle Assembly (123766) is replaced.



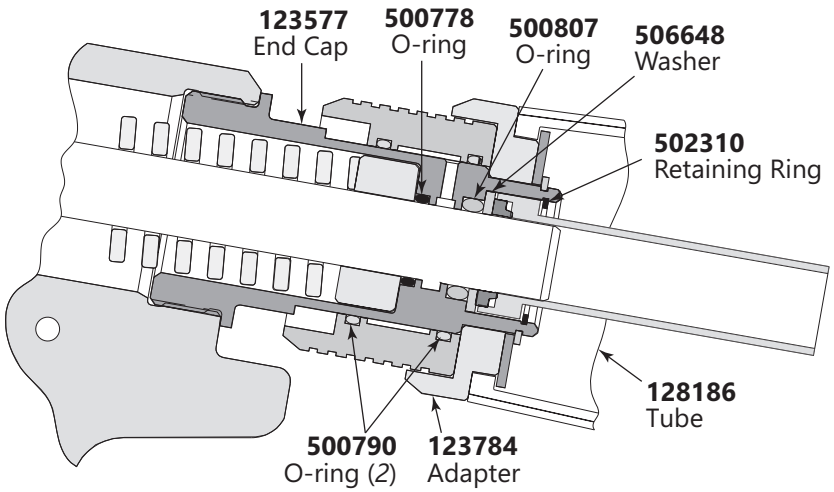
TOOL HEAD 202 & 202L
Top View

Tool Head 202B, 202V, & 202LV

Figure 15



SECTION A-A



PARTIAL SECTION A-A

Vacuum Units 202V and 202LV

Troubleshooting

Always check the simplest possible cause (such as a loose or disconnected trigger line) of a malfunction first. Then proceed logically, eliminating other possible causes until the cause is discovered. Where possible, substitute known good parts for suspected defective parts. Use this Troubleshooting information to aid in locating and correcting trouble.

1. Tool fails to operate when trigger is pressed.
   a. Air line not connected.
   b. Worn or damaged throttle valve O-rings.
   c. Broken throttle valve cable.

2. Tool does not complete fastener installation and break pintail.
   a. Air pressure too low.
   b. Worn or damaged air piston Quad-ring.
   c. Tool is low on hydraulic fluid. See the Fill and Bleed section.
   d. Air in hydraulic system. See Fill and Bleed.

3. Pintail stripped and/or swaged collar not ejected.
   a. Check for broken or worn jaws in nose assembly. See Nose Assembly Data Sheet.
   b. Check for worn anvil. See Nose Assembly Data Sheet.

4. Hydraulic fluid exhausts with air or leaks at base of handle.
   a. Worn or damaged gland assembly. Inspect Polyseal, O-rings, Quad-ring, and Back-up ring. Replace if necessary.

5. Hydraulic fluid leaks at rear of pull piston.
   a. Worn or damaged piston Polyseal. Replace if necessary.

6. Hydraulic fluid leaks at front of pull piston.
   a. Worn or damaged front gland. Inspect Polyseal, O-Ring, and Back-up ring. Replace if necessary.

7. Pull piston will not return.
   a. Throttle valve stuck; lubricate O-rings.
   b. Throttle arm, cable, or trigger binding.

8. Air leaks at air cylinder head.
   a. Worn or damaged O-ring. Replace if necessary.

Limited Warranties

Limited Lifetime Warranty on BobTail® Tools:

Huck International, Inc. warrants to the original purchaser that its BobTail® installation tools manufactured after 12/1/2016 shall be free from defects in materials and workmanship for its ***useful lifetime***. This warranty does not cover special order / non-standard products, or part failure due to normal wear, tool abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

Two Year Limited Warranty on Installation Tools:

Huck International, Inc. warrants that its installation tools and Powerig® hydraulic power sources manufactured after December 1, 2016 shall be free from defects in materials and workmanship for a period of two years from date of purchase by the end user. This warranty does not cover special order / non-standard products, or part failure due to normal wear, tool abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

90 Day Limited Warranty on Nose Assemblies and Accessories:

Huck International, Inc. warrants that its nose assemblies and accessories shall be free from defects in materials and workmanship for a period of 90 days from date of purchase by the end user. This warranty does not cover special clearance noses, or special order / non-standard product, or part failure due to normal wear, abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

Useful lifetime is defined as the period over which the product is expected to last physically, up to the point when replacement is required due to either normal in-service wear, or as part of a complete overhaul. Determination is made on a case-by case basis upon return of parts to Huck International, Inc. for evaluation.

Tooling, Part(s) and Other Items not manufactured by Huck:

HUCK makes no warranty with respect to the tooling, part(s), or other items manufactured by third parties. HUCK expressly disclaims any warranty expressed or implied, as to the condition, design, operation, merchantability, or fitness for use of any tool, part(s), or other items thereof not manufactured by HUCK. HUCK shall not be liable for any loss or damage, directly or indirectly, arising from the use of such tooling, part(s), or other items or breach of warranty or for any claim for incidental or consequential damages.

Huck shall not be liable for any loss or damage resulting from delays or non-fulfillment of orders owing to strikes, fires, accidents, transportation companies or for any reason or reasons beyond the control of the Huck or its suppliers.

Huck Installation Equipment:

Huck International, Inc. reserves the right to make changes in specifications and design and to discontinue models without notice.

Huck Installation Equipment should be serviced by trained service technicians only.

Always give the serial number of the equipment when corresponding or ordering service parts.

Complete repair facilities are maintained by Huck International, Inc. Please contact one of the offices listed below.

Eastern
One Corporate Drive Kingston, New York 12401-0250
Telephone (845) 331-7300 FAX (845) 334-7333

Outside USA and Canada
Contact your nearest Huck International location (see reverse).

In addition to the above repair facilities, there are Authorized Tool Service Centers (ATSC's) located throughout the United States. These service centers offer repair services, spare parts, Service Parts Kits, Service Tool Kits and Nose Assemblies. Please contact your Huck Representative or the nearest Huck International location (see reverse) for the ATSC in your area.

HOWMET AEROSPACE

Howmet Inc. (NYSE: HWM) creates breakthrough products that shape industries. Working in close partnership with our customers, we solve complex engineering challenges to transform the way we fly, drive, build and power.

Through the ingenuity of our people and cutting-edge advanced manufacturing, we deliver these products at a quality and efficiency that ensures customer success and shareholder value.

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