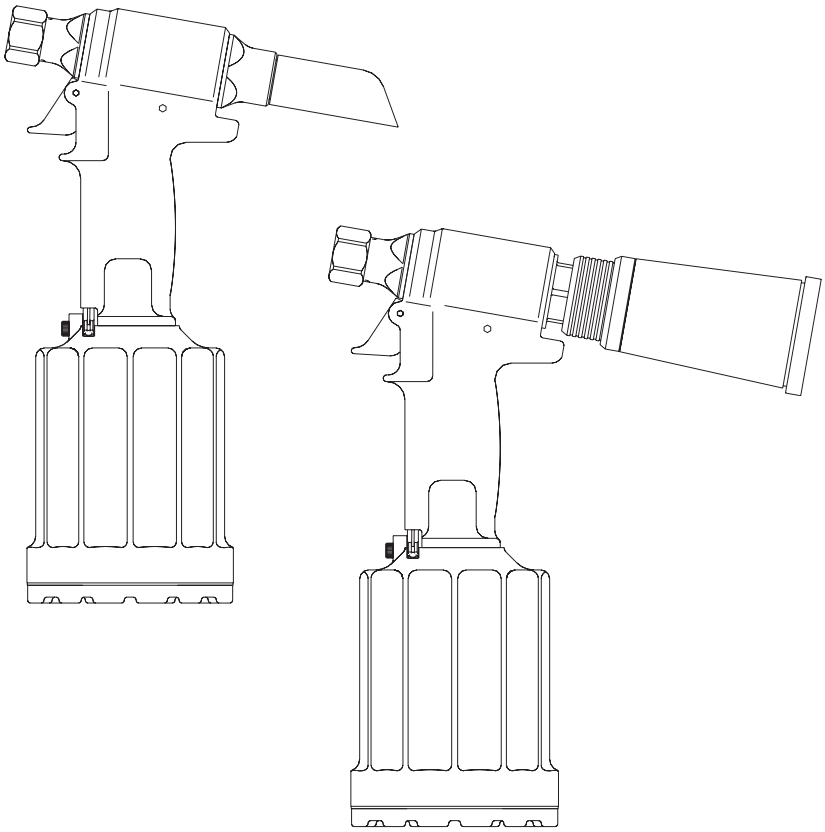
HOWMET AEROSPACE

Instruction Manual

2024 SERIES

Pneudraulic Installation Tool

Patent Pending



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HUCK®

HUCK IS FOREVER.™

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

February 10, 2021
HK1077

HOWMET AEROSPACE

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 pneudraulic installation tools and specials based on their design (e.g. PR####).

Relevant provisions complied with:
Council Directive related to Machinery (2006/42/EC)
Supply of Machinery (Safety) Regulations 2008
British Standard related to hand held, non-electric power tools (ISO 11148-2:2011)

Representatives:
UK: Paul Carson, Huck International, Ltd. Unit C Stafford Park 7, Telford Shropshire TF3 3BQ, England, United Kingdom
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: 11/02/2021 (November 2, 2021)

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 3744. 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:

-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 Huck equipment.
2. Huck 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 Huck 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 Huck representative.
11. Only genuine Huck 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 wHWMings 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.

2024 series Pneudraulic Installation Tool (HK1077)

Specifications

Stroke: 0.850 in (*2.16 cm*)

Weight: 5.5 lbs (*2.5 kg*)

MAX Air PRESSURE: 90 psi (*6.2 bar*)

Max Flow Rate: 8.5 scfm (*241 l/min*)

Power Source: 90 psi (*6.2 bar*) maximum shop air

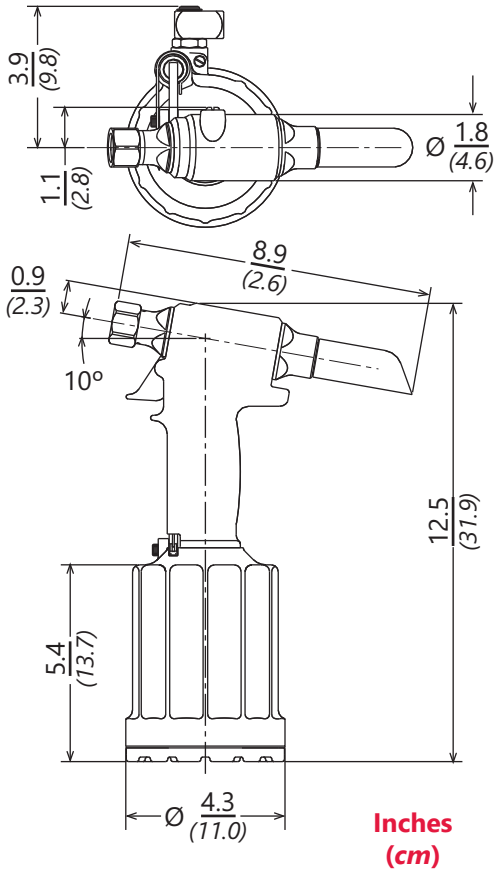
Max Operating Temp: 125° F (*51.7° C*)

Pull Capacity: 3993 lbs @ 90 psi (*17.76 kN @ 6.2 bar*)
3549 lbs @ 80 psi (*15.79 kN @ 5.5 bar*)

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

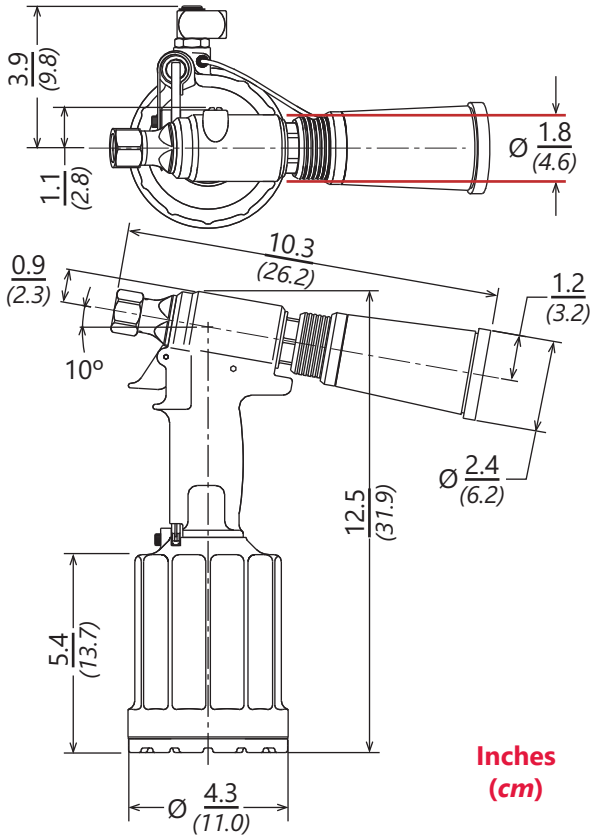
Hydraulic Fluid: Hydraulic fluid shall meet DEXRON® III, DEXRON VI, MERCON®, Allison C-4 or equivalent Automatic Transmission Fluid (**ATF**) specifications. Fire-resistant fluid may be used if it is an ester-based fluid such as Quintolubric® HFD or equivalent. Water-based fluid shall NOT be used as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

Models 2024 & 2024L



Inches (*cm*)

Models 2024V & 2024LV



Inches (*cm*)

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 Corporation, U.S.A.*
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.*

Principle of Operation

Figure 1a

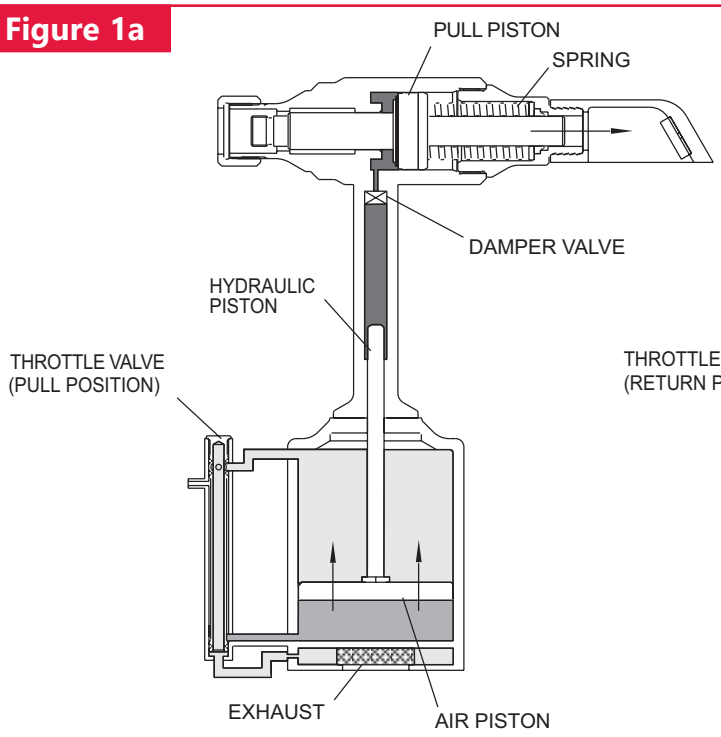
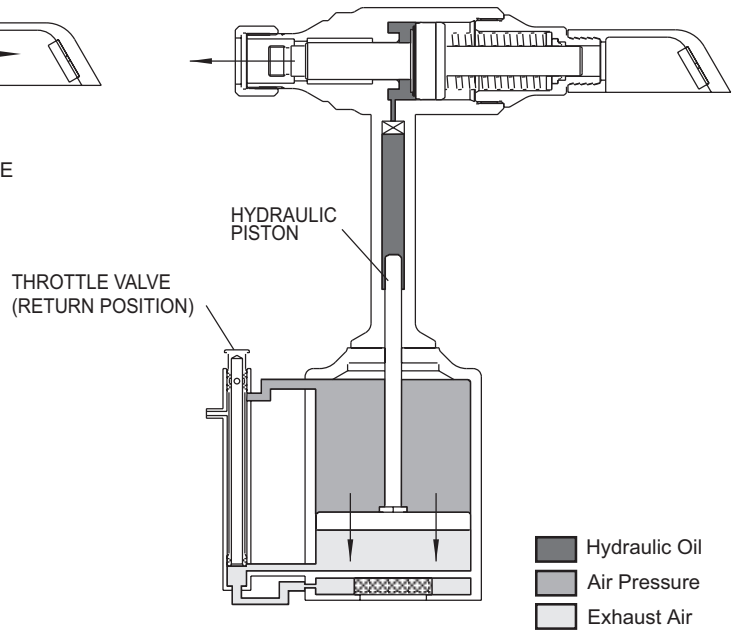


Figure 1b



PULL STROKE

When tool is connected to the air supply, the air pressure holds the throttle valve in the up (RETURN) position; air pressure is directed to the top of the air piston, keeping it down. 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 (see 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 (through the muffler).

As the hydraulic piston rod moves upward, a column of pressurized fluid is forced into head, which moves the pull piston rearward. The attached nose assembly 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 re-directed to the top of the air piston (see above), causing it and the hydraulic piston rod to move downward.

The air from below the piston is exhausted through the bottom of the tool. The piston and hydraulic piston rod move downward, hydraulic pressure is reversed, and the pull piston is returned forward. The damper valve impedes oil flow at pinbreak helping prevent “Tool Kick”.

Preparation for Use

WARNINGS:
As applicable, do not use without deflectors or pintail bottles.

If deflectors are removed or damaged, separated pintails may eject forcibly from rear of tool. Unshielded eyes, especially, may be permanently injured. Other severe injuries can be caused by flying pintails. If there is any chance of a projectile-like ejection, always point rear of tool in a safe direction, or be sure there is some structure that will stop ejecting pintails.

To avoid pinch points, be sure there is adequate clearance for tool and operator's hands before proceeding. Tool moving toward structure may crush hands or fingers between tool and structure if clearance is limited.

CAUTION: Do not use TEFLON® tape on pipe threads. Tape can shred and break free into fluid lines, resulting in malfunctions. Threadmate® is available in a 4oz. tube from Huck (P/N 508517).

The **2024** series of tools ship with a plug in the air inlet connector. The connector has 1/4"-18 female pipe threads to accept the air-hose fitting. Huck recommends quick-disconnect fittings and a 1/4" inside-diameter air hose. The air supply should have a filter-regulator-lubricator unit and access to 90 psi (*6.2 bar*), capable of a flow rate of 8.5 CFM (*241 l/m*). **NOTE**: ***Quick-disconnect fittings and air hoses are not available for purchase from Huck International, Inc. Huck includes an air hose (P/N 115436) to facilitate immediate tool use.***

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.
3. Set the air pressure on the regulator to 90 psi (*6.2 bar*), and connect the air hose to the air inlet connector and the tool.
4. Press and release the trigger a few times to cycle the tool.
5. Disconnect the air hose from the tool, and remove the retaining nut. Select the proper nose assembly for the fastener being installed.
6. Screw the collet assembly (including the lock collar and shim if applicable) onto the spindle and tighten with a wrench.
7. 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.
8. 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 the fasteners do not pass inspection, consult the **Troubleshooting** section to investigate possible causes.

NOTE: On older nose assemblies with lock collars, use Loctite® 243™ on collet threads, because the 2024 pull piston does not have staking holes. Refer to the nose assembly drawings that shipped with nose assemblies.

Operating Instructions

Read all of these instructions in order to ensure the safe operation of this equipment.

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

Pulling a pin (fastener) 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 properly attached and directed away from all personnel. Replace damaged pintail deflectors.

Wear approved eye and hearing protection.

Ensure adequate clearance for operator's hands before installing fasteners.

Be sure that the pintail deflector is properly attached to the tool and directed away from all personnel.

Do not pull on a pin without placing a fastener in a workpiece. Make sure that the collar chamfer is out, towards the tool. Pins eject with great velocity when pintails break off or teeth/grooves strip, which could cause serious injury.

CAUTION:
Make sure the tool is properly re-assembled before use.

To avoid structural and tool damage, be sure there is sufficient clearance for the nose assembly at full stroke.

Remove excess gap from between the sheets to permit proper fastener installation and prevent jaw damage. ALL jaw teeth must engage the pintail to avoid damaging the teeth.

This section details installing MAGNA-GRIP® and Huck Blind Fasteners. Review all CAUTIONs and WHWMINGs prior to installing these fasteners. If the tool malfunctions, consult the **Troubleshooting** section before attempting any repairs. **NOTE**: ***Reasonable care of tools by operators is an important factor in maintaining efficiency and reducing downtime.***

To install a MAGNA-GRIP Fastener:

1. Place a pin in the workpiece and place the collar over the pin.
   NOTE: ***If the collar has one tapered end, that end must be out toward tool; not next to the sheet.***
2. Hold the pin in the hole and push the nose assembly onto the pin protruding through the collar until the nose anvil touches the collar.
3. Press and hold the trigger until the collar is swaged and the pintail breaks.
4. Release the trigger; the tool will perform its RETURN stroke.

The pressure is re-directed; the piston moves forward; and the tool is pushed off the fastener and ready for the next installation cycle.

To install a Huck Blind Fastener:

1. Place a fastener in the workpiece or in the end of the nose assembly.
   NOTE: ***The tool or nose assembly must be held against, and at a right angle (90°) to, the workpiece.***
2. Press and hold the trigger until the fastener is installed and the pintail breaks.
3. Release the trigger; the tool will perform its RETURN stroke.

The pressure is re-directed; the piston moves forward; and the tool is pushed off the fastener and ready for the next installation cycle.

For complete safety information, see page 4.

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

- Service the tool in a clean, well-lighted area. Take special care to prevent contamination of pneumatic and hydraulic systems.
- Have available all necessary hand tools (standard and special), a brass drift and wood block, and a soft-jaw vise. See **Kits & Accessories**.

CAUTION: Replace all seals, wipers, and rings when the tool is disassembled for any reason, and at regular intervals, depending on severity and duration of use.

- Carefully handle all parts. Before reassembly, examine them for damage and wear.
- Disassemble and assemble tool components in a straight line. Do NOT bend, cock, twist, or apply undue force.
- Have the appropriate **Spare Parts Service Kit** (**2024KIT** or **2024LVKIT**) available when servicing the tool; it includes important perishable parts. Other components, as experience dictates, should also be available. See **Kits & Accessories**.
- Apply Loctite® 243 Threadlocker (Huck P/N **508567**) to gland threads. Apply Loctite® 271-05 (Huck P/N **503657**) to nuts and locknut (P/N **505420**); torque to 25–30 ft.-lbs.
- Smear LUBRIPLATE® 130-AA (Huck P/N **502723**) or SUPER-O-LUBE® (Huck P/N **505476**) on rings and mating parts to ease assembly.
- Apply Threadmate® (Huck P/N **508517**) to pipe threads and quick-disconnect fittings.

CAUTION: Do not use TEFLON® tape on pipe threads. Tape can shred and break free into fluid lines, resulting in malfunctions. Threadmate® is available in a 4oz. tube from Huck (P/N 508517).

For supplementary information, see **Troubleshooting**, and the **Disassembly** and **Assembly** procedures in this manual.

DAILY

- Huck recommends using a filter-regulator-lubricator unit. If one is not being used, uncouple the air disconnects and add a few drops of hydraulic fluid or a light-weight oil to the air inlet of the tool.

  NOTE: ***If the tool is in continuous use, add a few drops of fluid every 2–3 hours.***
- Before connecting an air hose to the tool, clear the air lines of dirt and water.
- Check all hoses and couplings for damage and air leaks; tighten or replace if necessary.
- Check the tool and nose assembly for damage and air or hydraulic leaks; tighten, repair, or replace if necessary.
- Inspect the tool, hoses, and POWERIG during operation to detect abnormal heating, leaks, or vibration.
- Clean nose assemblies in mineral spirits to clear jaws and rinse metal chips and dirt. For a more thorough cleaning, disassemble the nose assembly. Use a pointed "pick" to remove imbedded particles from the pull grooves of the jaws.

  Clean all parts of any assembly with UNITIZED™ Jaws in mineral spirits or isopropyl alcohol only; do not let jaws come in contact with other solvents. Do not let jaws soak; dry them *immediately* after cleaning. Huck recommends drying other parts before re-assembling.

WEEKLY

- Disassemble, clean, and re-assemble nose assembly in accordance with applicable instructions.
- Check the tool and all connecting parts for damage and fluid/air leaks; tighten or replace if necessary.

CAUTION: Damaged jaw teeth, or debris packed between teeth, will result in fastener not being installed or being improperly installed.

Disassembly

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 the tool. 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 2–5, 10, and 14.

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

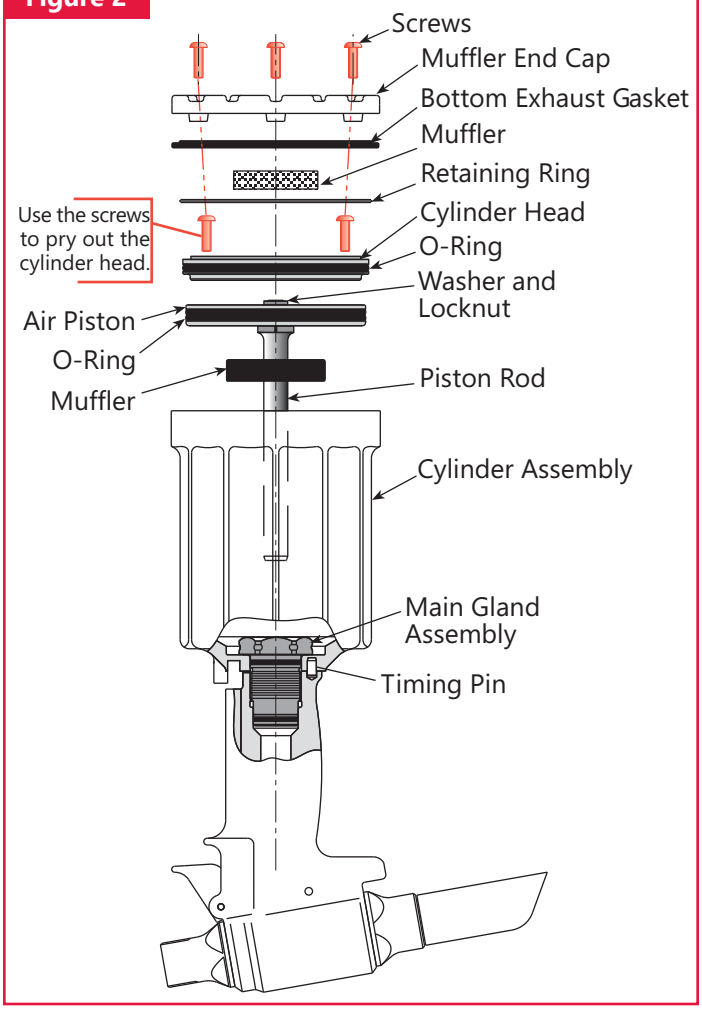
1. Disconnect the tool from the air source.
2. Unscrew the retaining nut and remove the nose assembly. (Follow the instructions on the *Nose Assembly Data Sheet*.)
3. Unscrew the bleed plug from top of the head/handle. Turn over the tool (Figures 10 & 14) and drain the fluid into a container. (The tool can be cycled to clear more completely.) Discard the fluid.
4. Models **2024** & **2024L**: Pull the pintail deflector off the end cap.

   Models **2024V** & **2024LV**: See **Pintail Bottle/ Vacuum System Disassembly** and Figures 5, 6, & 10.
5. Remove throttle arm pivot screw and lever guard, and lift out throttle arm. Disconnect the ball end of the cable assembly from it.
6. Secure the tool upside-down in a soft-jaw vise; use a 1/8" hex key to remove button-head screws from the muffler end cap. (Figure 2) Remove end cap and gasket, and remove muffler from the end cap, and spring from the throttle valve. (Figure 14)
7. Tap down the cylinder head with a soft mallet (to take pressure off the ring), and remove the retaining ring. (Figure 2)
8. Screw the button-head screws into cylinder head; (Figure 2) carefully pry on screws to remove head.

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

   Remove the O-ring.
9. Pull on locknut with vise-grips to remove the air piston from cylinder. Remove the piston Quad-ring.
10. Remove bumper from the gland assembly. Unscrew the gland assembly with a 1-3/8" 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. Lift cylinder assembly from the head/handle. (Figure 2)
12. Turn over the tool and drain the fluid into a container; discard the fluid.

Figure 2



13. Remove throttle valve from air cylinder, and remove the O-rings. (Figure 14)

HEAD/HANDLE

This procedure is applicable to models **2024** and **2024L**. For component identification, see Figures 3, 4, and 14.

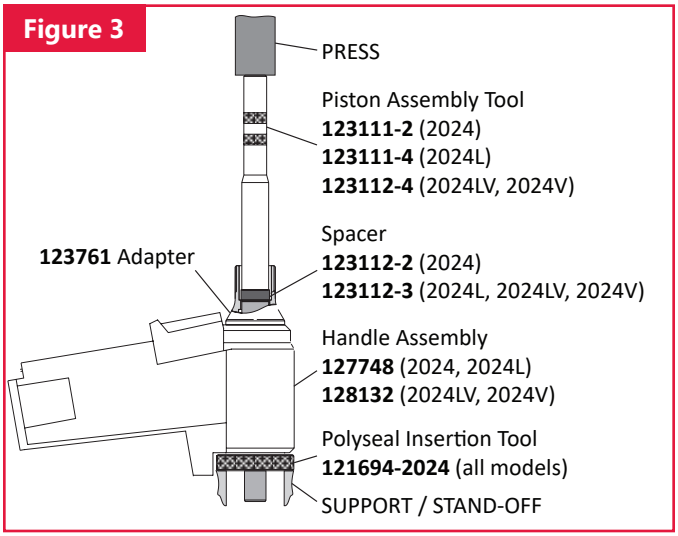
For models **2024V** and **2024LV**, see **Pintail Bottle/ Vacuum System Disassembly**.

1. Unscrew end cap; remove spring, spacer, and wiper seal. (Figure 3)
2. Thread the Polyseal Insertion Tool into the rear of the head/handle. **NOTE**: ***See Figure 3 for tool-specific part numbers.***

Disassembly (continued)

3. Slide the spacer onto the piston. Thread the Piston Assembly Tool onto the piston. (Figure 3)

4. **Figure 3**



Push the piston and front gland assemblies out the back of the head/handle; allow clearance, with stand-off, as the piston leaves the tool. (Figures *4 & 7*)

5. Un-thread 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. (Figures *4 & 7*)

6. Remove the Piston Assembly Tool from the piston, and remove the Polyseal Insertion Tool from the rear of the head/handle.

7. Remove retaining ring, washer, and Polyseal from the piston.

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

8. Unscrew the adapter. (Figure 14) Inspect all seals and parts.

9. If trigger cable assembly is damaged, remove it by driving out pin with a punch. Remove dowel pin to disconnect the cable from the the trigger.

PINTAIL BOTTLE/VACUUM SYSTEM DISASSEMBLY

This procedure is applicable to models **2024V** and **2024LV** only; it should be used in conjunction with the previous sections, **General** and **Head/Handle**. For component identification, see Figures 5, 6, and 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 the tubing connector. (Figure 15)

3. Remove the adapter and the Tubing & Slide Assembly. Then remove the end cap and spring. (Figure 6)

4. Remove the spacer and O-ring from the spring side of the end cap. Remove retaining ring, wiper housing, wiper seal, washer, and O-ring from the bottle side of the end cap.

5. Remove O-rings from inside the adapter and Tubing and Slide Assembly. (Figure 15)

Figure 4

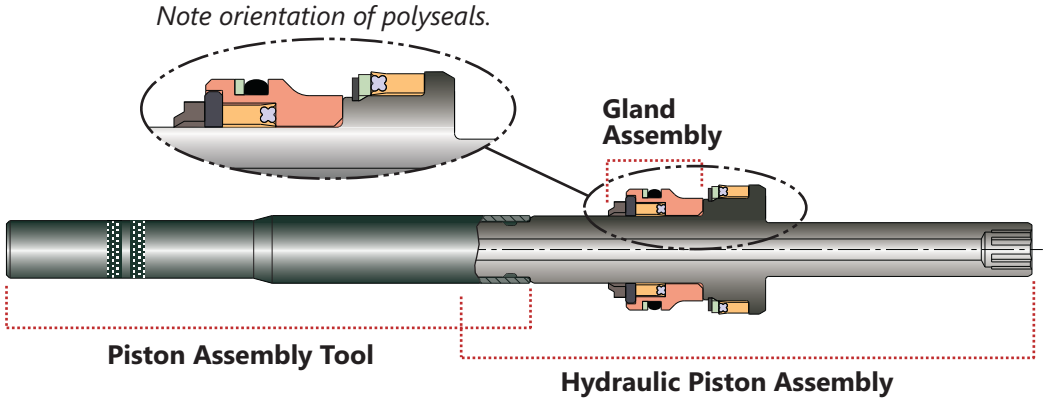


Figure 5

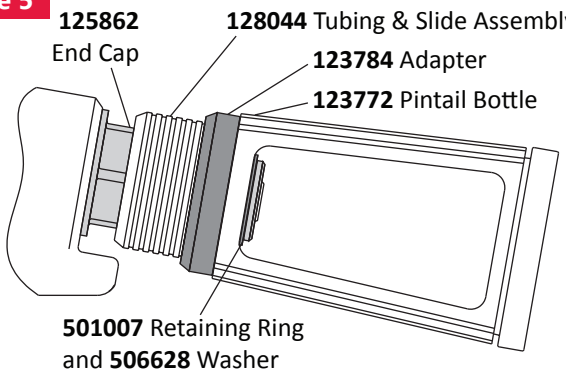
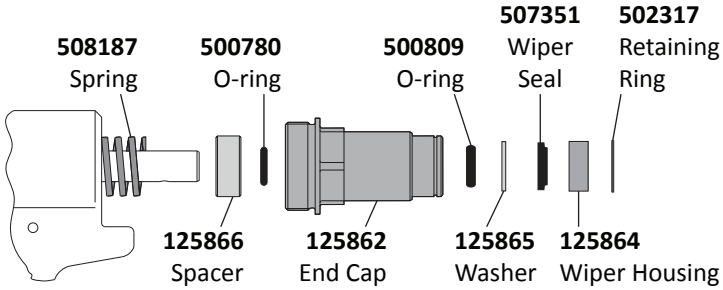


Figure 6



Assembly

HEAD/HANDLE

This procedure is for the assembly of the head/handle of models **2024** & **2024L**. For component identification, see Figures 7, 8, 14, and 15.

For models **2024V** and **2024LV**, see **Pintail Bottle/ Vacuum System Assembly**.

Prior to re-assembling the tool:

- Clean components with mineral spirits or a similar solvent. Inspect for wear/damage and replace as necessary.

CAUTION: Always replace all seals, wipers and rings of disassembled components; these parts wear out over time. Replacement minimizes problems.

- Use the O-rings, Quad-rings, and Back-up rings from Huck Service Parts Kits (P/N **2024KIT** or **2024VKIT**).

  When assembling the tool, take care not to damage O-rings, Quad-rings, Back-up rings.

  Smear LUBRIPLATE® 130-AA (Huck P/N **502723**) or SUPER-O-LUBE® (Huck P/N **505476**) on rings and mating parts to ease assembly.

To re-assemble the tool:

1. If removed, position cable assembly in trigger slot and slide dowel pin through the holes in trigger-and-cable assembly. Position the assembled trigger in the handle and drive pin through the holes in the handle and trigger. (Figure 14)
2. Screw nose adapter into head; tighten.
3. Thread the Polyseal Insertion Tool (P/N **121694-2024**) into the head. (Figure 8)
4. Assemble piston, Polyseal, and retaining ring. (*Note the orientation of the Polyseal in Figures 4 & 7.*)
5. Assemble front gland, O-ring, Back-up ring, Polyseal, and gland cap. (*Note the orientation of the Polyseal in Figures 4 & 7.*)
6. Thread the Piston Assembly Tool (*see P/Ns in figures*) 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)
8. Remove the Piston Assembly Tool and the Polyseal Insertion Tool.
9. Install rear wiper seal into end cap. (Figure 14)
10. Slide spacer and spring into end cap, and then thread the end cap assembly into the rear of the head. (Figure 15)

Figure 7

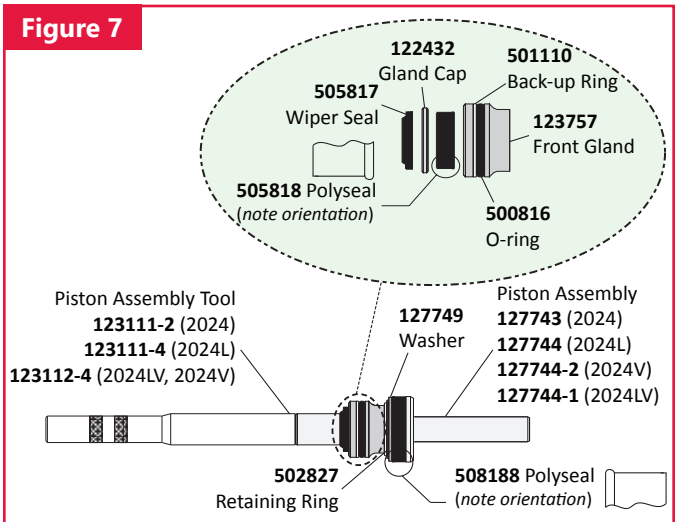
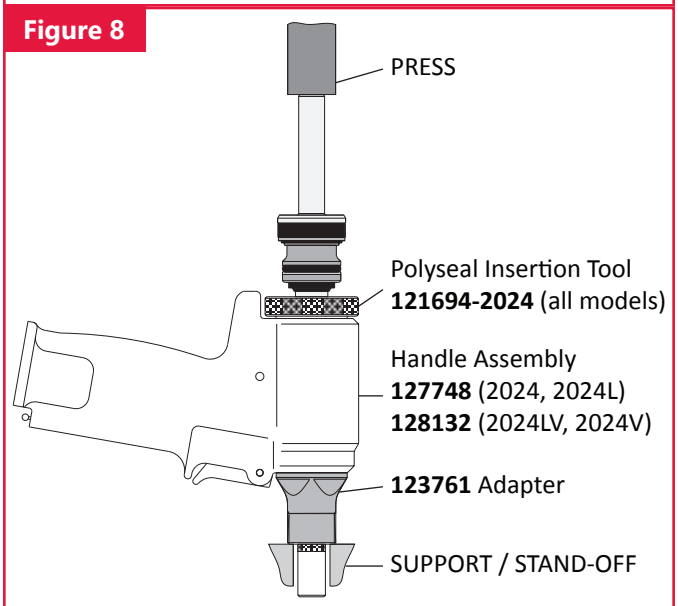


Figure 8



NOTE: *Models **2024V** and **2024LV**, see **Pintail Bottle/ Vacuum System Assembly** and Figures 5, 6, and 10.*

Assembly (continued)

GENERAL

For component identification, see Figures 2, 7, and 13.

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

1. Secure head/handle upside-down in a soft-jaw vise. (Figure 2) Place the inverted cylinder assembly on the base of the handle. (The timing pin maintains orientation.)
2. Assemble Main Gland Assembly with new seals. (*Note the orientation of the Polyseal in Figure 14.*) Apply Loctite® 243™ to the threads of the gland. Screw the gland assembly into the handle/head. Use a 1-3/8" socket wrench to tighten and torque to 36–66 ft.-lbs.
3. Push bumper firmly over the gland.

   NOTE: ***The side of the bumper with two slots must face the bottom of the tool.***
4. Install O-ring onto air piston.
5. Clean the piston rod threads and apply Loctite® 243™. Press the assembled air piston/rod into the cylinder just enough to allow installation of the cylinder head.
6. Install O-ring on the 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. (Figure 2) Position gasket on the cylinder. (*Note the orientation of the Polyseal in Figure 7.*)
8. Carefully position bottom plate on the cylinder.

   NOTE: ***Make sure 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 1/8" hex key. (Figure 2)
10. Install O-rings on throttle valve. (Figure 14)
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 **2024** & **2024L**: Push pintail deflector onto end cap.

    Models **2024V** & **2024LV**: see **Pintail Bottle/Vacuum System Assembly** and Figures 5, 6, and 10.

The tool is now assembled and must be filled with hydraulic fluid prior to use. See the **Fill and Bleed** section. **NOTE:** ***Install the bleed plug and O-ring assembly after that process.***

PINTAIL BOTTLE/VACUUM SYSTEM ASSEMBLY

This procedure is applicable to models **2024V** and **2024LV** only; it should be used in conjunction with the previous sections, **General** and **Head/Handle**. For component identification, see Figures 5, 6, and 15.

1. Assemble adapter and Tubing & 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 tool 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 & Slide Assembly and O-rings; slide the complete assembly onto end cap, and push the tube into connector. (Figure 15)
5. Position adapter and pintail bottle on end cap. (Figures 5 & 15)
6. Reach through the window of the pintail bottle and install the washer and retaining ring as shown in Figure 5.

Fill and Bleed

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

REQUIRED EQUIPMENT

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

WARNINGS: 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 Assy (P/N **120337**, supplied with tool)
- Large flat-blade screwdriver
- Stall Nut (P/N **124090** or **125340**, optional)
- Nose assembly
- Fasteners (optional)

PREPARATION

- Install air regulator in the ai
  to 20–40 psi (*1.4–2.8 bar*).
- Add an approved hydraulic
  fill bottle.

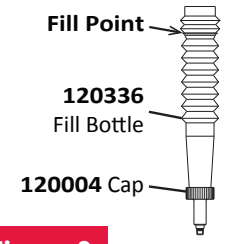


Figure 9

To bleed and fill the tool:

1. Lay the tool on its side wi
   and remove bleed plug fr
2. Connect the tool to shop
   air-line. 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)

CAUTION: All fluid must be purged 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.

3. Screw the fill bottle into the fill port. (Figure 11)
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) Air bubbles will accumulate at top of the bottle.

WARNINGS: 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 (55) is removed, the fill bottle must be in place before cycling the tool.

5. 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).
6. 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.
7. Connect the air-line to the tool and measure the stroke as described in **MEASURING TOOL STROKE**.

   If the stroke is less than the length specified in **SPECIFICATIONS**, remove the bleed plug and add fluid. Re-insert the bleed plug and re-measure the stroke.
8. Increase the air pressure to the the maximum listed in **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. If necessary, remove the plug and add fluid. Re-insert the plug, and cycle and measure again. Repeat this process until the stroke meets the recommended minimal length.

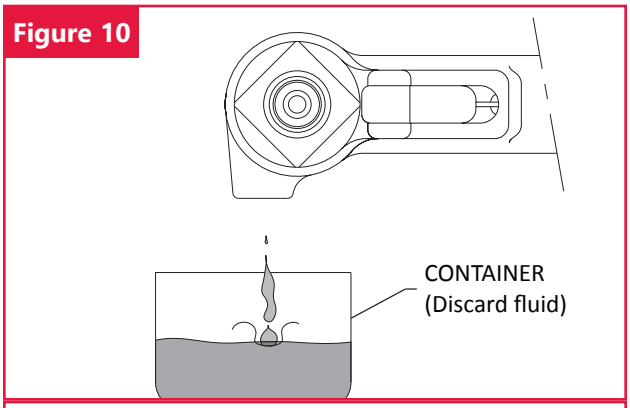


Figure 10

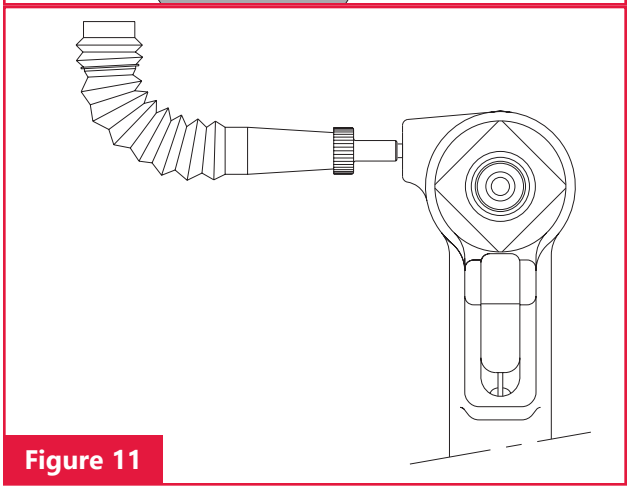
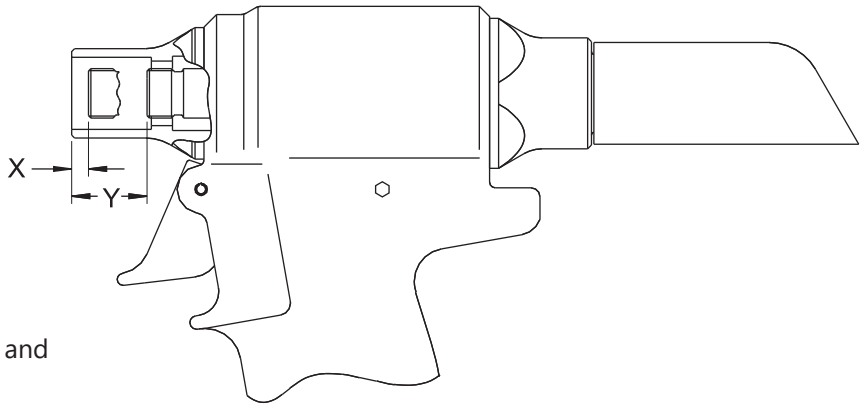


Figure 11

Measuring Tool Stroke

NOTE: ***Remove the Nose Assembly from the tool for both of the following procedures.***

Figure 12



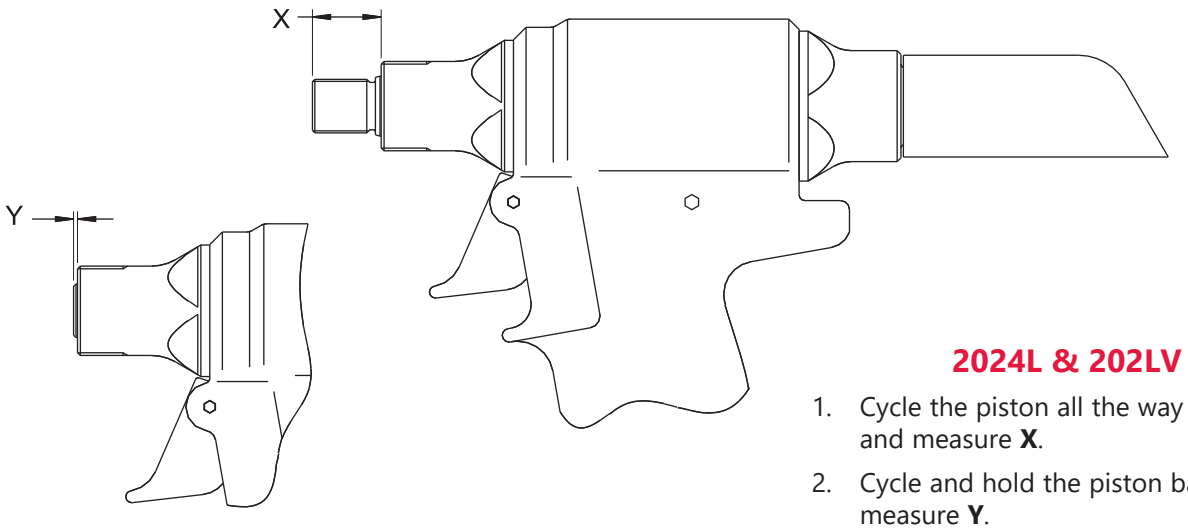
2024 & 2024V

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

Stroke = Y-X

If the stroke is less than 0.850 in (2.16 cm), follow the steps at the end of the **Fill and Bleed** *procedure.*

Figure 13



2024L & 202LV

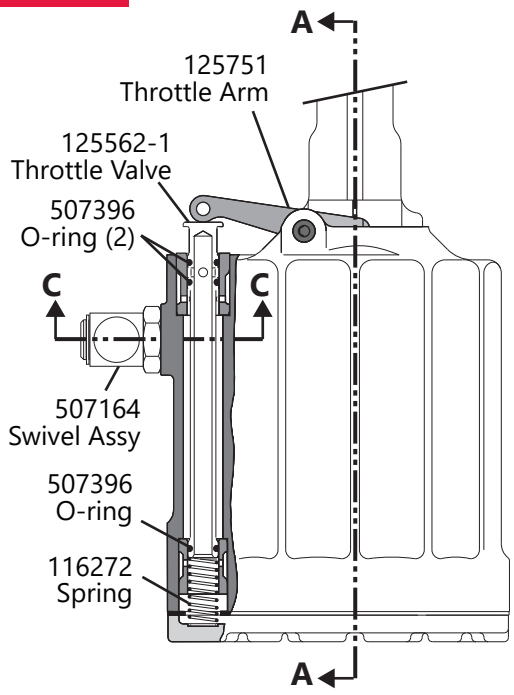
1. Cycle the piston all the way forward and measure **X**.
2. Cycle and hold the piston back and measure **Y**.

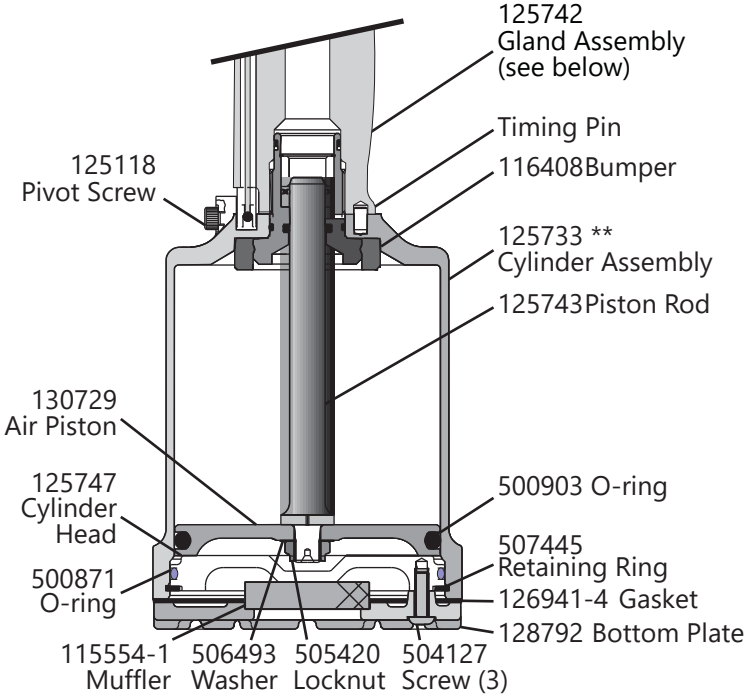
Stroke = X-Y

If the stroke is less than 0.850 in (2.16 cm), follow the steps at the end of the **Fill and Bleed** *procedure.*

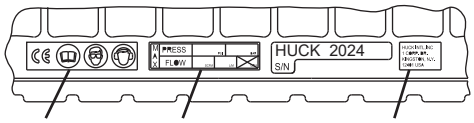
Tool Base (all models)

Figure 14





SECTION A-A

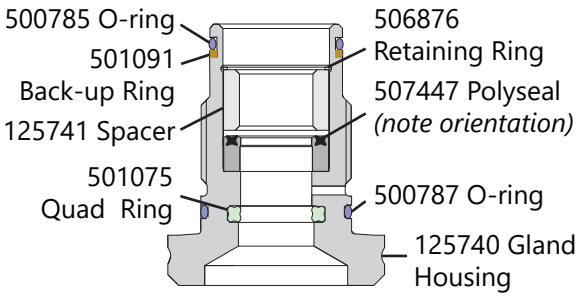


590350
CE Sticker

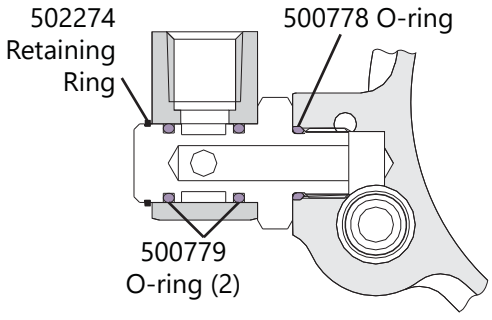
590351
Max. Pressure
and Flow Sticker

590347
HUCK Address
Sticker

NOTE:
These stickers are at the base of Cylinder Assembly 125733. They must be purchased and placed as shown if they become damaged, lost, or unreadable, or if the Cylinder Assembly is replaced.



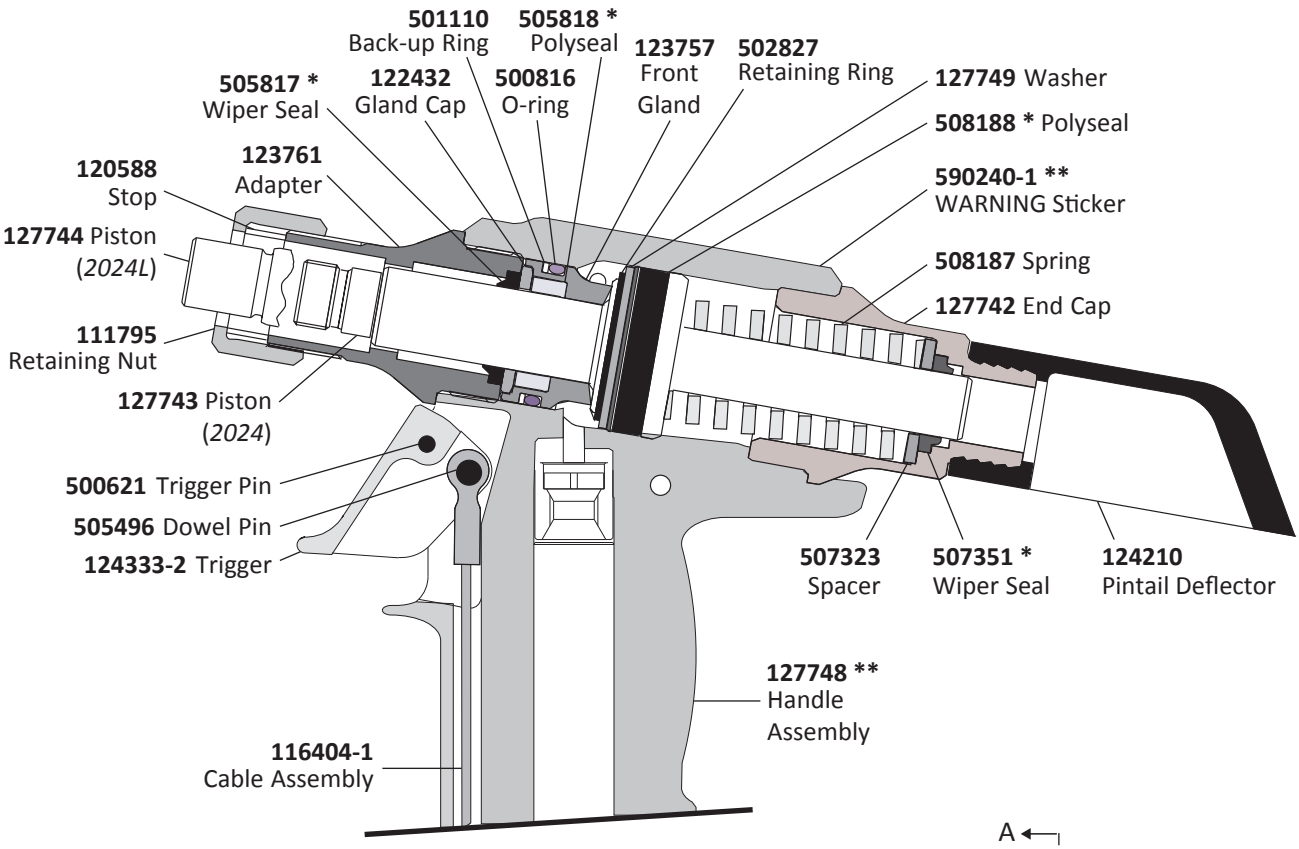
125742 Main Gland Assembly
Tighten and torque to 36–66 ft.-lbs.



507167 Swivel Assembly
SECTION C-C

Head/Handle 2024 & 2024L

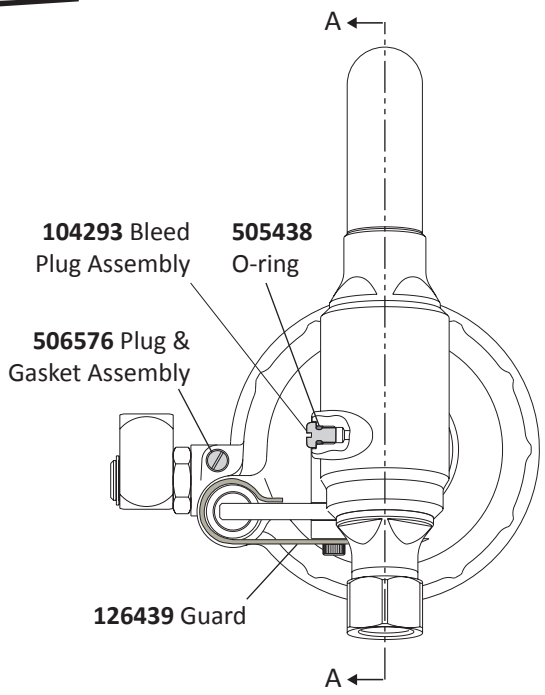
Figure 14a



SECTION A-A

* Note orientation of Wipers and Polyseals.

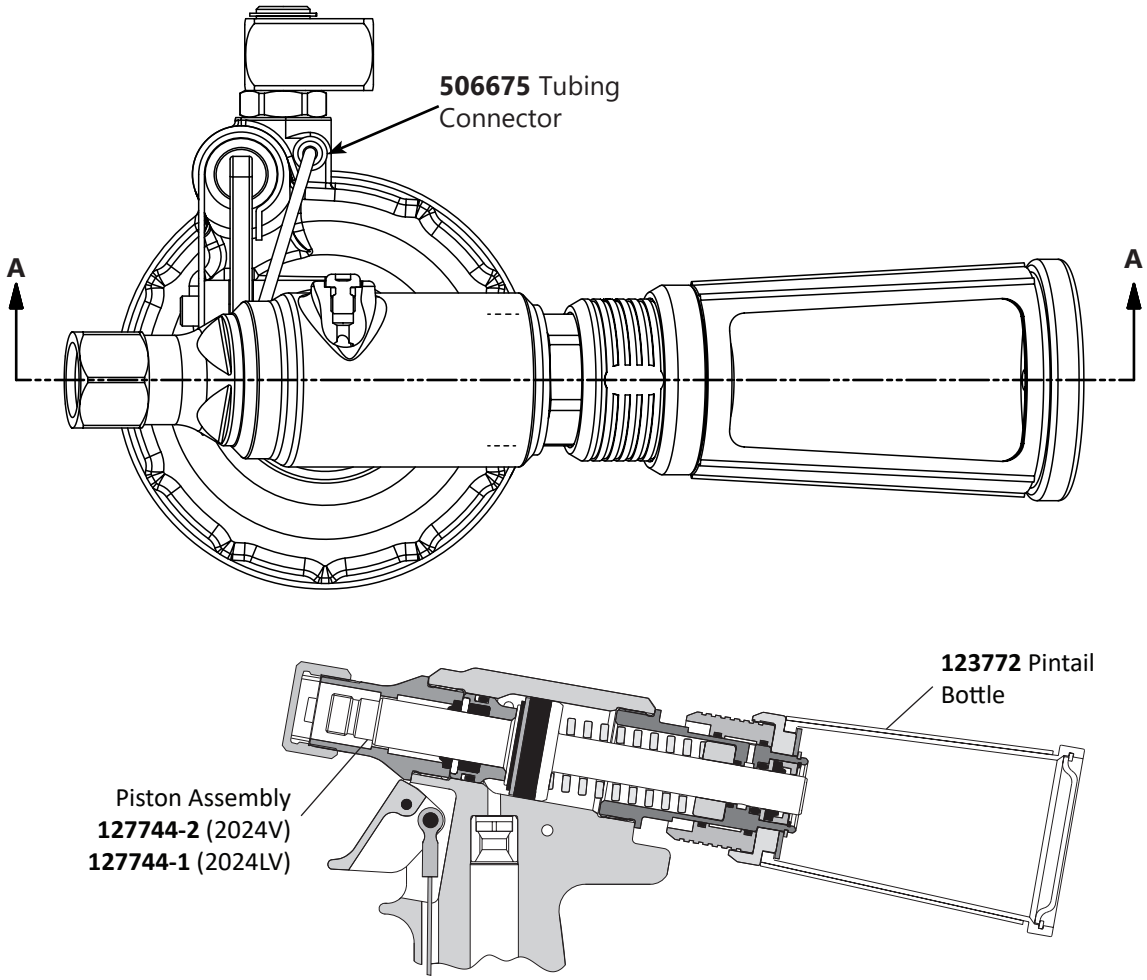
** WARNING sticker (**590240-1**) MUST be purchased and placed as shown when it becomes damaged, lost, or unreadable, or if *Handle Assembly* (**127748**) is replaced.



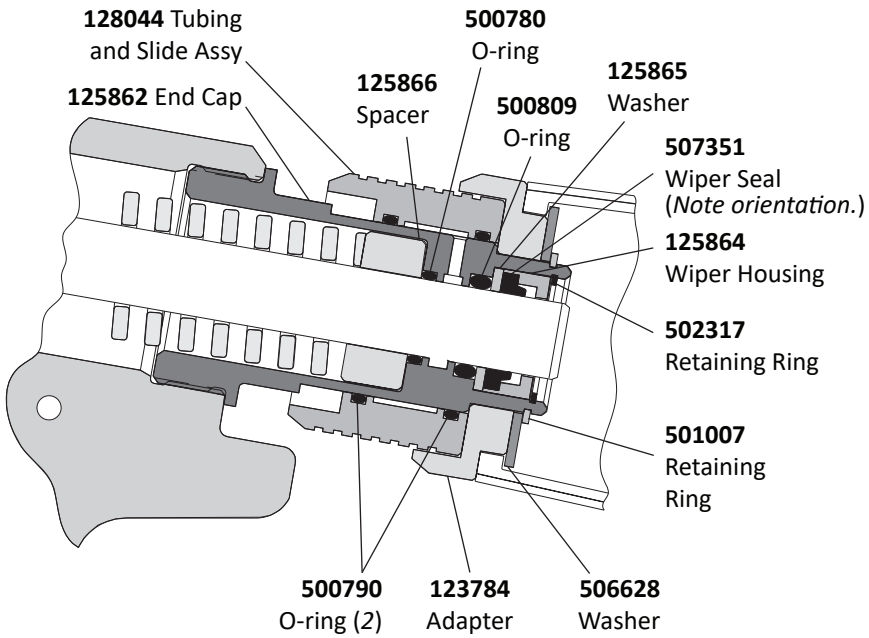
TOOL HEAD **2024** & **2024L**
Top View

Head 2024V & 2024LV

Figure 15



PARTIAL SECTION A-A



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 or air pressure too low.
   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 the *Nose Assembly Data Sheet*.
   b Check for worn anvil. See the appropriate *Nose Assembly Data Sheet*.
4. ***Hydraulic fluid exhausts with air or leaks at base of handle.***
   a. Worn or damaged gland assembly. Inspect Polyseal and all rings. Replace if necessary.
5. ***Hydraulic fluid leaks at rear of pull piston.***
   a. Worn or damaged hydraulic piston Polyseal. Inspect Polyseal. Replace if necessary.
6. ***Hydraulic fluid leaks at front of pull piston.***
   a. Worn or damaged part in front gland. Inspect Polyseal and rings. 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.

Kits & Accessories

Huck has created tool-specific **Spare Parts Service Kits** that contain various perishable parts. The types and quantities of spare parts that should be available vary with the application and tools in use. Have the appropriate kit accessible when using this tool and when performing maintenance on it. Huck **Assembly Tool Kits** have product-specific tools that should be used when disassembling and assembling the tool.

Huck recommends having the following **Accessories** available when preparing, using, and performing maintenance on this tool.

KITS

Service Kits - **2024KIT** (2024 & 2024L)
- **2024LVKIT** (2024LV & 2024V)

Conversion Kit (convert **2024L** to **2024LV**) - **126190**
- *Tubing and Slide Assembly* - *124245*
- *Pintail Collection Bottle* - *123772*
- *End Cap Assembly* - *125863*
- *Piston Assembly* - *125738-3*

Assembly Tool Kit - **123110-17 ***

* The Model **2024L** Kit P/N is 123110-**18**.

- *Polyseal Insertion Tool* - *121694-2024*
- *Piston Assembly Tool* - *123111-2* (2024)
  - *123111-4* (2024L)
  - *123112-4* (2024LV, 2024V)
- *Spacer* - *123112-2* (2024)
  - *123112-3* (2024V, L, & LV)

ACCESSORIES

Stall Nut
- 2024 & 2024V - **124090**
- 2024L & 2024LV - **125340**

Fill Bottle Assy (Fig. 9) - **120337**

Damper Valve Removal Tool - **123769**

STANDARD TOOLS AVAILABLE FROM HUCK

- 1/8" hex key (P/N **502294**), use on button-head screw (P/N **504127**)

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

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.

ISO 9001-2015
CERTIFIED MANAGEMENT SYSTEM
ISO 14001-2015

Howmet Fastening Systems
Kingston Operations

HUCK®

Huck provides technical assistance regarding the use and application of Huck fasteners and tooling. **NOTICE:** The information contained in this publication is only for general guidance with regard to properties of the products shown and/or the means for selecting such products, and is not intended to create any warranty, express, implied, or statutory; all warranties are contained only in Huck's written quotations, acknowledgments, and/or purchase orders. It is recommended that the user secure specific, up-to-date data and information regarding each application and/or use of such products.

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