



Instruction Manual

244BT

Pneudraulic Installation Tool

Patent Pending



Table of Contents

Declaration of Conformity	2
Safety Instructions	3
Description	4
Specifications	4
Principle of Operation	5
Preparation for Use	5
Operating Instructions	6
Measuring Tool Stroke	7
Maintenance	7
Disassembly Procedure	8-9
Assembly Procedure	10-11
Fill and Bleed Procedure	12
Tool Components Drawings	13-15
Troubleshooting	16
Kits and Accessories	16



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December 17, 2021

HK1113



**HOWMET
AEROSPACE**

Declaration of Conformity

Manufacturer:

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

Description of Machinery:

Models 24#, 25#, and 2047 family of hydraulic 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)

**UK
CA
CE**



Declared dual number noise emission values in accordance with ISO 4871

A weighted sound power level, LWA: **91** dB (reference 1 pW) Uncertainty, KWA: 3 dB

A weighted emission sound pressure level at the work station, LpA: **80** 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:	.63 m/s ²
Uncertainty, K:	.72 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 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.



Description



CAUTION: Using a pressure regulator not intended for a specific fastener can result in damage of equipment and fasteners and improper and unsafe installation of fasteners.

- 06 BT (3/16") Grade 2
- 08 BT (1/4") 6061 Aluminum
- 08 BT (1/4") Grade 2
- 08 BT (1/4") 430 SS
- 10 BT (5/16") 6061 Aluminum

The 244BT is a lightweight pneudraulic installation tool intended for pulling the fasteners listed below in conjunction with the applicable nose assembly and pressure regulator. 244BT models are sold with the specific pressure regulator required for the fastener to be installed.

A table in Figure 16 outlines the tool-regulator, fastener, and nose assembly combinations necessary for application.

Tool Specifications

POWER SOURCE: 90 psi shop air

MAX OPERATING TEMP: 125°F (51.7°C)

MAX FLOW RATE: 6.3 scfm (178 l/m)

MAX AIR PRESSURE: 100 psi (6.9 bar)

MIN PULL CAPACITY:

2350 lbf (10.5 kN) @ 90 psi

MIN STROKE: 1.032 inches (2.62 cm)

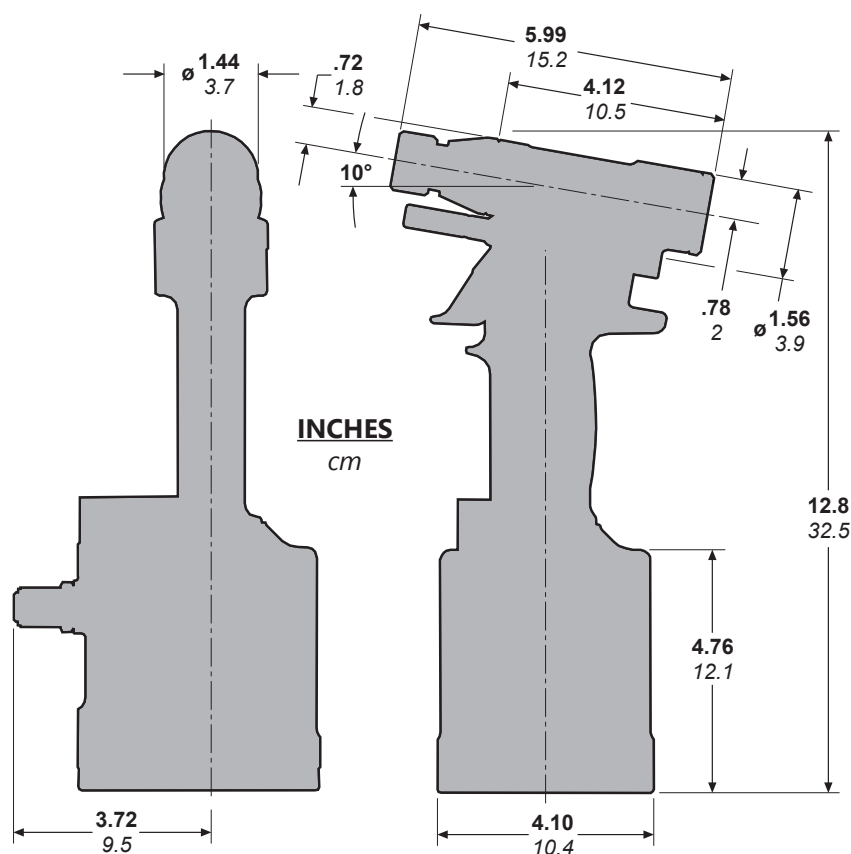
SPEED/CYCLES: 30 per minute

WEIGHT: 6.31 lbs (2.86 kg)

POWER SOURCE: 90-100 psi shop air

HYDRAULIC FLUID: Hydraulic fluid shall meet DEXRON III, DEXRON VI, MERCON, Allison C-4 or equivalent 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.



Tool	Nominal psi +/- 2	Nominal Tool Stroke Capacity	Minimum Stroke
244BT-43	43	1150 lbs.	.943 in.
244BT-68	68	1810 lbs.	.943 in.
244BT-85	85	2270 lbs.	.943 in.
244BT-97	97	2580 lbs.	.943 in.

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

DEXRON is a registered trademark of General Motors Corporation.

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.

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.

Teflon is a registered trademark of E. I. du Pont de Nemours and Company.

Threadmate is a registered trademark of Parker Intangibles LLC.

TRUARC is a trademark of TRUARC Co. LLC.

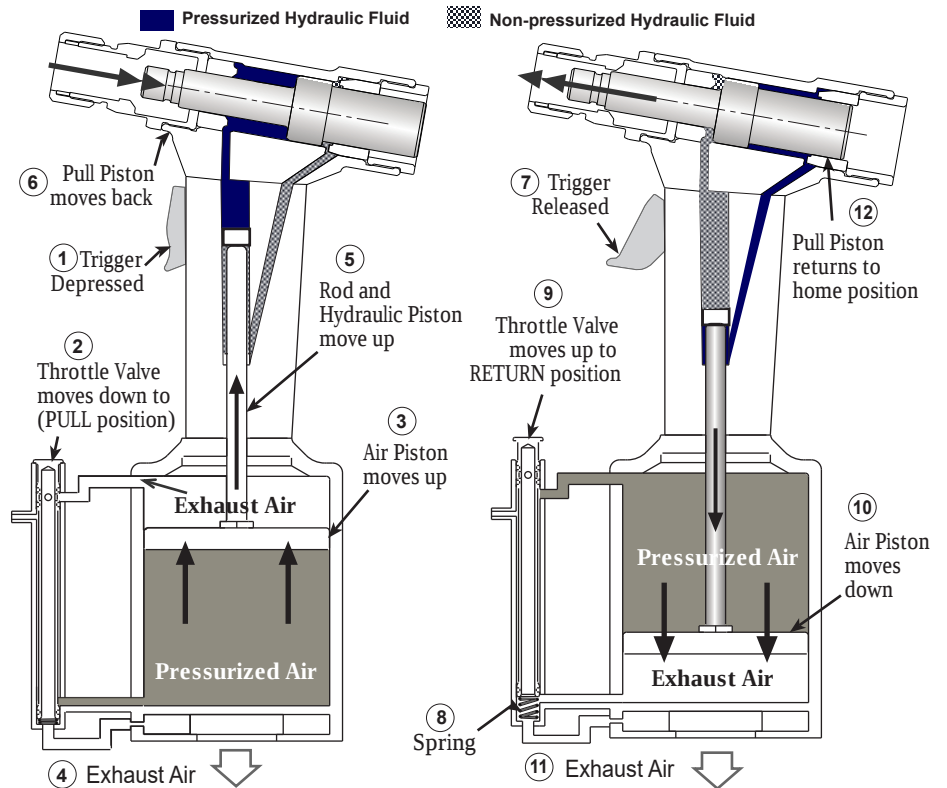
Vibra-Tite is a registered trademark of ND Industries, Inc. USA.



Principle of Operation

PULL: When the trigger is depressed (1), the throttle valve moves to down position (2), and pressurized air is directed to the bottom of the air piston, causing the piston to move upward (3). The air above the piston is exhausted and directed through the center of the throttle valve and out the bottom of the tool (4). As the air piston moves upward, the attached rod and hydraulic piston and are forced up (5), and a column of pressurized fluid is forced into the head, which moves the hydraulic pull piston back (6). The attached nose assembly moves with the hydraulic pull piston to begin fastener installation.

RETURN: When fastener installation is completed, the trigger is released (7). Air pressure, with the assistance of a spring (8), causes the throttle valve to return to its up position (9). Pressurized air is redirected to the top of the air piston, causing it to move downward (10). The air from below the piston is exhausted through bottom of tool (11). As the rod and air piston move downward, hydraulic pressure is reversed and the hydraulic pull piston is returned forward (12). The return pressure relief valve protects the tool against pressure spikes. The reservoir replenishes the hydraulic system as needed.



Preparation for Use

This tool is shipped with an attached regulator and a 1/4" inside diameter air hose (Huck p/n 115436), with a plastic plug in the air inlet connector. An air supply capable of 6.3 CFM at a pressure greater than 10 psi greater than the installed regulator set point (Figure 16) must be available. Air supply should be equipped with a filter-regulator-lubricator unit.



WARNINGS:

Read full manual before using tool.

Inspect tool for damage or wear before each use. Do not operate if damaged or worn, as severe personal injury may occur.

A half-hour training session with qualified personnel is recommended before using Huck equipment.

When operating Huck installation equipment, always wear approved eye protection.

Be sure there is adequate clearance for the operator's hands before proceeding.



CAUTIONS:

Do not let disconnected hoses and couplers contact a dirty floor. Keep harmful material out of hydraulic fluid. Dirt in hydraulic fluid causes valve failure in Tool and in Powerig Hydraulic Unit.

Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. (Threadmate™ is available from Huck in a 4oz. tube as part number 508517.)

1. Remove plastic shipping plug from air hose and put in a few drops of Automatic Transmission Fluid, DEXRON III, or equivalent.
2. Screw quick disconnect fitting into Air Inlet Connector.
3. Set air pressure on regulator to 10 psi above the attached regulator set point.
4. Attach air hose to air power source.
5. Cycle tool a few times by depressing and releasing trigger.
6. Disconnect air hose from tool.
7. Remove Retaining Nut and Stop.
8. Select proper Nose Assembly for fastener to be installed.
9. Attach Nose Assembly.
10. Connect air hose to tool and install fastener(s) in test plate of proper thickness with proper size holes. Inspect fastener(s).

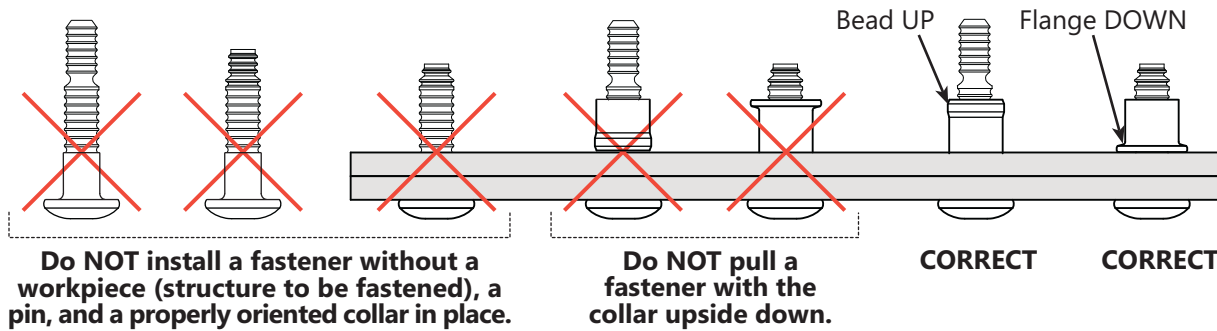
NOTE:

Air quick disconnect fittings and air hoses are not available from Huck International, Inc.



Operating Instructions

FOR SAFE OPERATION, THIS SECTION MUST BE READ AND UNDERSTOOD.



WARNINGS:

To avoid severe personal injury, *wear approved eye and ear protection.*

Be sure of adequate clearance for operator's hands before proceeding with fastener installation.

Do NOT attempt to install a pin without placing the fastener and collar in the work piece (structure to be fastened).

Do NOT attempt to install a pin without a properly oriented collar in place.

The collar flange must be against work piece.

If these safety measures are not followed, the fastener could eject with great velocity and cause severe personal injury.



CAUTIONS: Remove excess gap from between the sheets. This permits enough pintail to emerge from collar for ALL jaw teeth to engage with pintail. If ALL teeth do not engage properly, jaws will be damaged.

Note: In certain situations, it may be permissible to use a BobTail tool and fastener without a collar to remove sheet gap prior to full installation with a collar. Consult qualified Huck engineering personnel before attempting this operation.

GENERAL PRECAUTIONS:

- Operators should receive training from qualified personnel.
- Do not bend tool to free if stuck.
- Tool should only be used to install fasteners.
- Never use as a jack/spreader or hammer.

- Place collar over fastener. See WARNINGS. If collar has only one tapered end, that end should face the tool.
- Hold fastener in hole. Push tool onto fastener protruding from collar.
- Move hands away from fastener and structure. Keep hands away from front of tool during operation. Tool anvil advances forward.
- Hold tool at right angle (90 degrees) to workpiece. Press and hold trigger down until collar is swaged.
- Release trigger. Tool returns to starting position.
- Tool is ready for next installation cycle.

BobTail® FASTENER INSTALLATION:

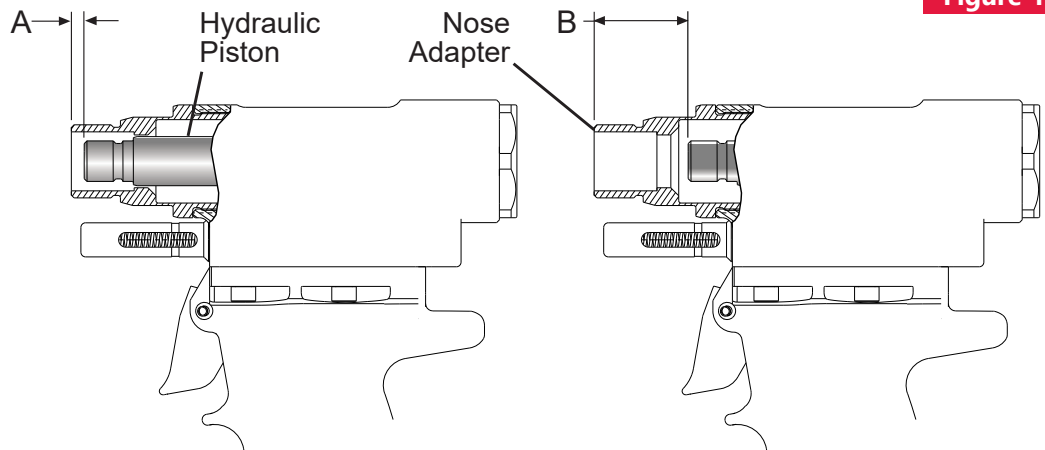
Place fastener in workpiece and place collar over fastener. See WARNING. (If Collar has only one tapered end, that end MUST face the tool; not the workpiece.) Hold fastener and push nose assembly onto fastener pintail protruding through collar until nose anvil touches collar. Depress trigger and hold until collar is swaged. Release trigger. Tool will go into its return stroke. Tool/nose are ready for next installation cycle.

- Length of tool increases during fastener installation. Allow adequate tool and anvil clearance before installing fasteners.
- Check fastener for correct grip. Place fastener in workpiece hole.



Measuring Tool Stroke

1. Measure distance "A" from face of Hydraulic Piston to face of Nose Adapter. This distance should approximately equal .173 inches.
2. Cycle tool and hold piston back by keeping the trigger pressed. Measure distance "B" as above.
3. $\text{STROKE} = B - A$
(B minus A)

**Figure 1**

Maintenance

**CAUTIONS:**

Consult MSDS before servicing tool.

Keep dirt and other material out of hydraulic system.

Separated parts must be kept away from dirty work surfaces.

Always replace seals, wipers, and back-up rings when tool is disassembled for any reason.

Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. (Threadmate™ is available from Huck in a 4oz. tube as part number 508517.)

Dirt/debris in hydraulic fluid causes Dump Valve failure in Tool and in Powerig Hydraulic Unit's valves.

NOTES: See SPECIFICATIONS for fluid type. Dispose of fluid in accordance with local environmental regulations. Recycle steel, aluminum, and plastic parts in accordance with local lawful and safe practices.

GENERAL

1. The efficiency and life of any tool depends upon proper maintenance. Regular inspection and correction of minor problems will keep tool operating efficiently and prevent downtime. The tool should be serviced by personnel who are thoroughly familiar with how it operates.
2. A clean, well lit area should be available for servicing the tool. Special care must be taken to prevent contamination of pneumatic and hydraulic systems.
3. Proper hand tools, both standard and special, must be available.
4. 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. Disassembly and assembly procedures outlined in this manual should be followed.
5. Service Parts Kit 244BTKIT includes consumable parts and should be available at all times. Other components, as experience dictates, should also be available.

DAILY

1. If a Filter-Regulator-Lubricator unit is not being used, uncouple air disconnects and put a few drops of Automatic Transmission Fluid 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 two to three 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. Check oil level in tool reservoir, replenish if necessary.

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.



Disassembly



WARNING: Be sure air hose is disconnected from tool before cleaning, or performing maintenance. Severe personal injury may occur if air hose is not disconnected.

NOTE: The following procedure is for complete disassembly of tool. Disassemble only those components necessary to replace damaged O-rings, Quad-Rings, Back-up Rings, and worn or damaged components. Always use soft jaw vice to avoid damage to tool.

1. Disconnect air hose from tool.
2. Remove nose assembly.
3. Insert Fill Tool through reservoir housing, screw into Reservoir Plunger, and swivel to LOCK position (Fig. 2).
4. Unscrew Cap Screws with 5/32 hex key. Carefully lift Cylinder Head straight up from Handle, and remove PULL and RETURN Gland Assemblies. (Fig. 2).
5. Unscrew Relief Valve Plug from front of Head, and remove its accompanying components (Fig. 2). A small magnet is helpful.
6. Unscrew Bleed Plug. Hold over waste oil container and release fill tool slowly.
7. Unscrew Housing and Spacer from Cylinder Head. Remove Springs. Slide Reservoir Plunger from head. Remove Quad-Ring using a pick.
8. Unscrew Check Valve Plug from side of Head and disassemble it (Fig. 2).
9. Using a 1-7/16 open end wrench, Unscrew End Cap from Head.
10. (Fig. 3) Thread Piston Assembly Tool onto piston. Tap or press piston assembly out of head through the rear of the tool. This will also remove the rear gland assembly.
11. Remove Nose Adapter from front of Head; then from the rear of the Head, gently push front gland assembly out the front.
12. If Seat (74) is damaged, contact your Huck representative. If Seat Assembly (80) is damaged, removed it by using Seat Removal Tool 126136, which is optionally available.
NOTE: Seats must be replaced - NOT reused.
13. With small punch and hammer, drive Roll Pin from Trigger and Handle. Remove Dowel Pin. Remove ball cable end from Throttle Arm. Pull Cable Assembly out of Handle. (Fig. 4)
14. Remove Pivot Screw and Lever Guard from Throttle Arm. Remove Throttle Arm. Pull Throttle Valve out of cylinder. Remove Spring (Fig. 3).
15. Remove Bleed Plug from Handle (Fig. 3).
16. Hold tool inverted in vice. Unscrew three Button Head Screws with 1/8 hex key (Fig. 3).
17. Remove Bottom Plate, Gasket, and Muffler. (Fig. 4)
18. Remove Retaining Ring. (Fig. 4)
19. Install Screws into Cylinder Head. Carefully pry under screws to remove cylinder head.

Figure 2

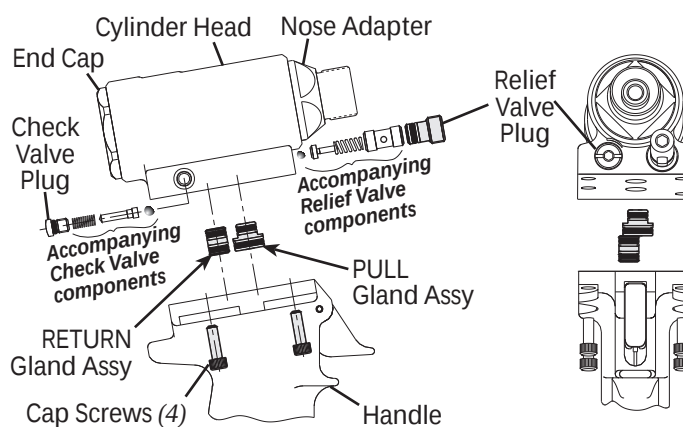
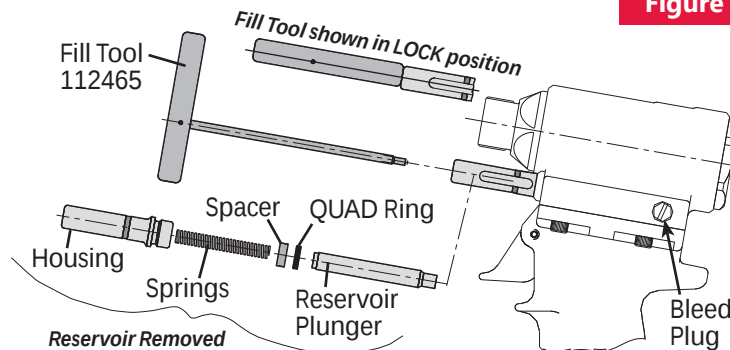
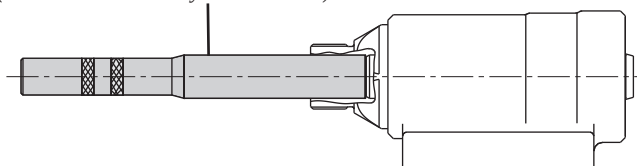


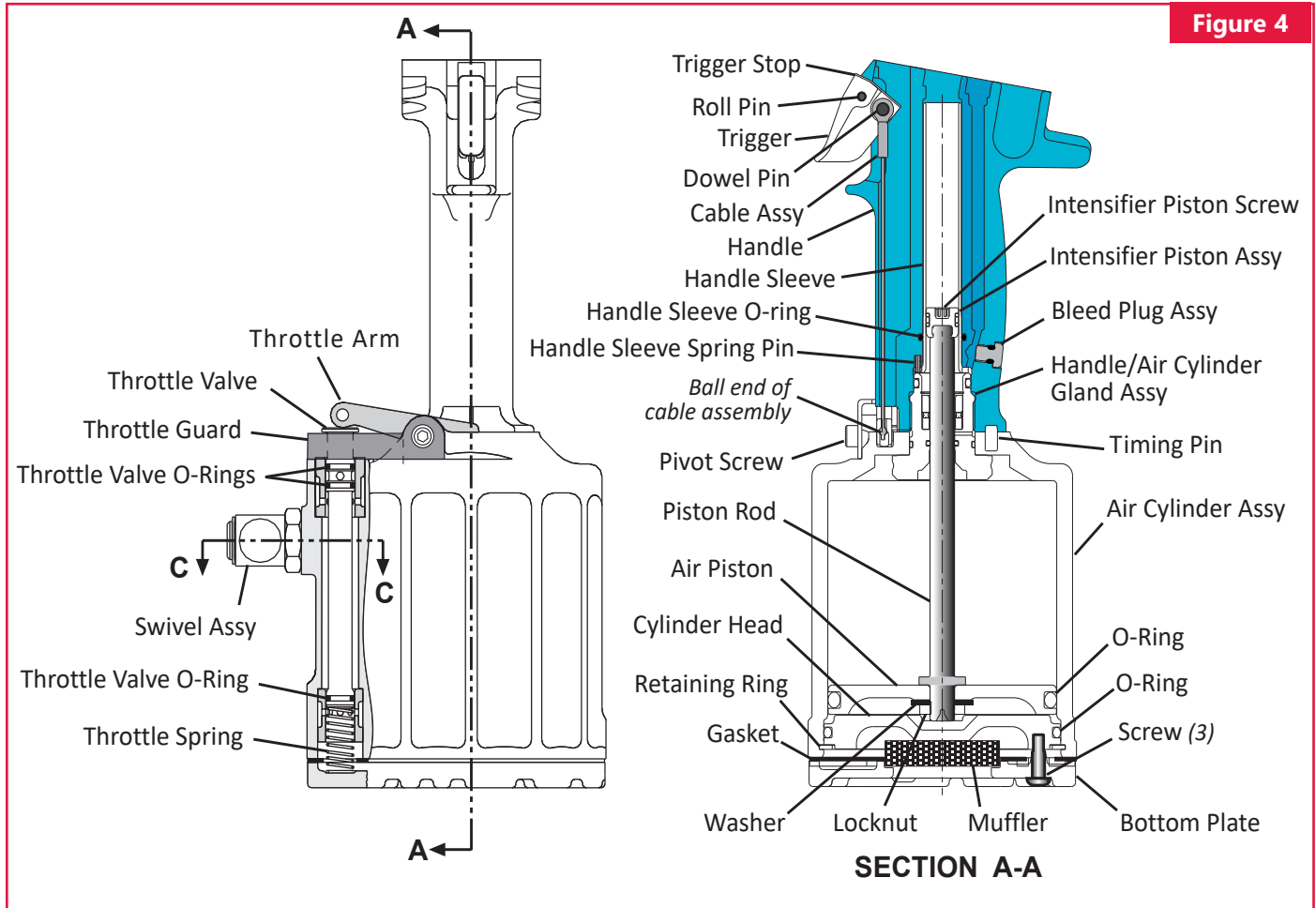
Figure 3

123111-2 Piston Assembly Tool
(shown attached to Hydraulic Piston)



Disassembly continued

Figure 4



20. Push Air Piston all the way down in Air Cylinder. Lay tool on its side. Hold Locknut with a 9/16 socket and extension, and with 7/64 hex key, remove Intensifier Piston Screw.
21. Grip Locknut under Air Piston with pliers and pull Air Piston and Piston Rod assembly from Handle and Air Cylinder Assembly.
22. Turn Handle and Air Cylinder Assembly upside down and secure in a vise.
23. With a 1-3/8 socket and extension, remove Handle/Air Cylinder Gland Assembly. The Handle and Air Cylinder will now separate.
24. Push Intensifier Piston Assembly out of Handle. Push out from top to bottom.

25. To service handle sleeve and handle, use a blunt-tipped punch to gently tap sleeve from top of handle through the bottom. Inspect sleeve for damage or wear, and replace if necessary. Service O-ring inside handle bore. (Fig. 15)



CAUTION: A plastic or wooden drift must be used to avoid damaging the handle bore.

26. Remove Swivel Assembly from Air Cylinder. Swivel Assembly may be disassembled to replace seals if necessary. (Fig. 13)
27. To remove Polyseal from Handle/Air Cylinder Gland Assembly, remove Retaining Ring and Spacer. (Fig. 13)



CAUTION: DO NOT scratch piston rod or cylinder during removal.



Assembly



WARNINGS:

Do not omit any seals during servicing, leaks will result and personal injury may occur.

Tool must be fully assembled with all components included.



CAUTION: Do NOT scratch piston rod.

Clean components with mineral spirits or similar solvent; inspect for wear/damage and replace as necessary. Replace all seals of disassembled components. Use O-Rings, Quad-Rings and Back-up Rings in Service Parts Kit **244BTKIT**. Lubricate O-Rings, Quad-Rings, Back-up Rings, and mating parts with LUBRIPLATE 130AA or PARKER-O-LUBE to ease assembly. Assemble tool without damaging seals.

1. Install internal handle O-ring. Holding handle inverted in a vice, Install internal timing pin. Align small slot in sleeve with timing pin in handle and press in until seated. (Fig. 5)

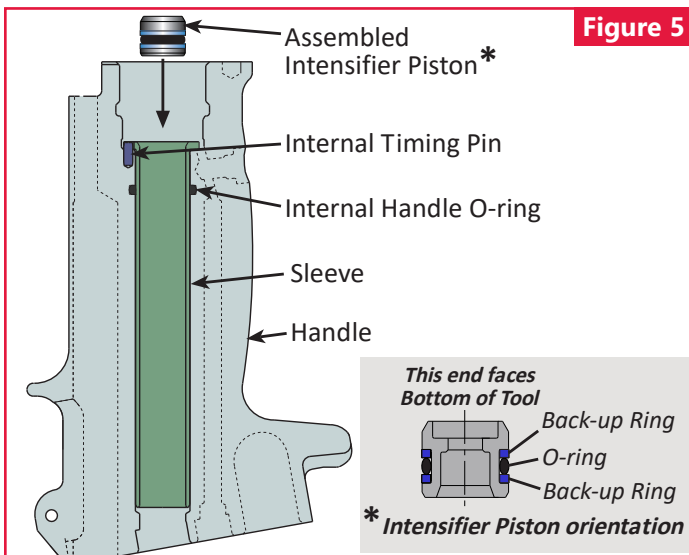


Figure 5

2. With handle still inverted in a vice, install Intensifier Piston, with O-ring and Back-up rings in place into handle. (Fig. 5) **NOTE: The Intensifier piston must be pressed in from bottom of handle to avoid damaging seals. Make sure that intensifier piston is correctly oriented prior to installation, as shown.**

3. Position Air Cylinder onto Handle with the Handle/Cylinder Timing Pin positioned in matching hole.
4. Assemble 130353 Handle/Air Cylinder Gland Assembly (shown in Figure 13). Apply anti-seize compound to threads, and screw the assembly into handle using a 1-3/8 socket wrench. Torque to 36-66 ft. lbs.

5. Push Piston Rod end through Air Piston, and secure in place with Washer and Locknut. Torque Locknut to 28-32 ft. lbs. using 9/16 socket and 9/16 wrench (Fig 6).

6. Apply Loctite® 243™ to threads of Piston Rod, and insert assembled Air Piston and Rod into Air Cylinder and Gland Assembly until it reaches the Intensifier Piston. Using a 9/16 socket and 3/16 Allen wrench, tighten the end of the Piston Rod into the Intensifier Piston.

7. Push Cylinder Head, with O-ring in place, squarely into Air Cylinder. Install Retaining Ring. (Fig. 6)

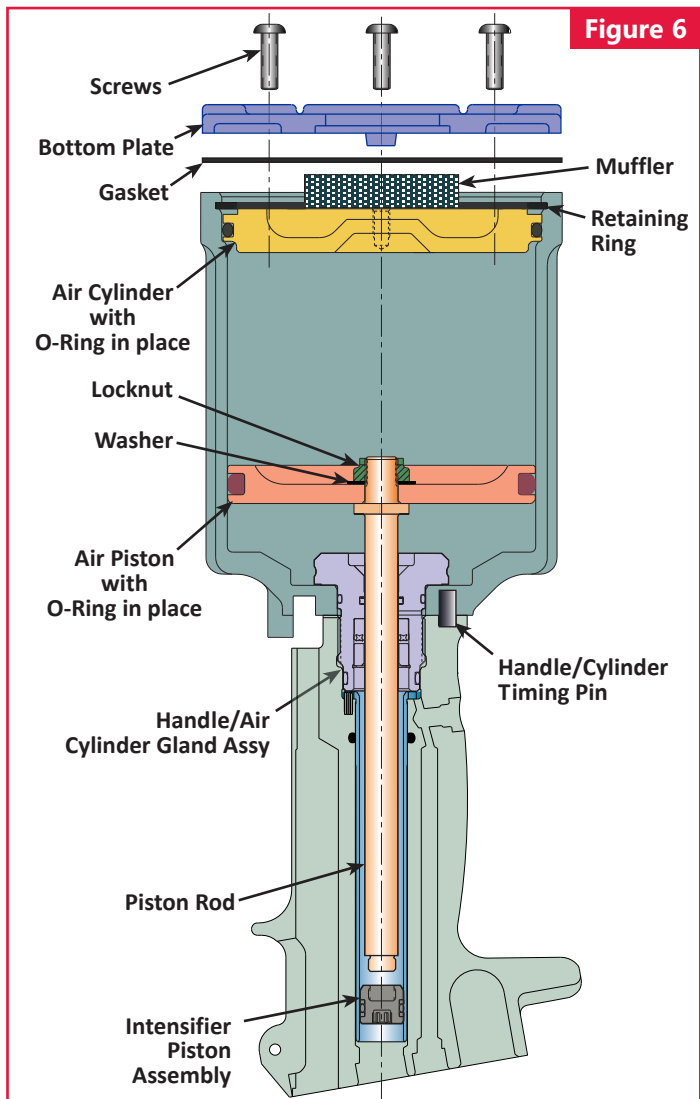


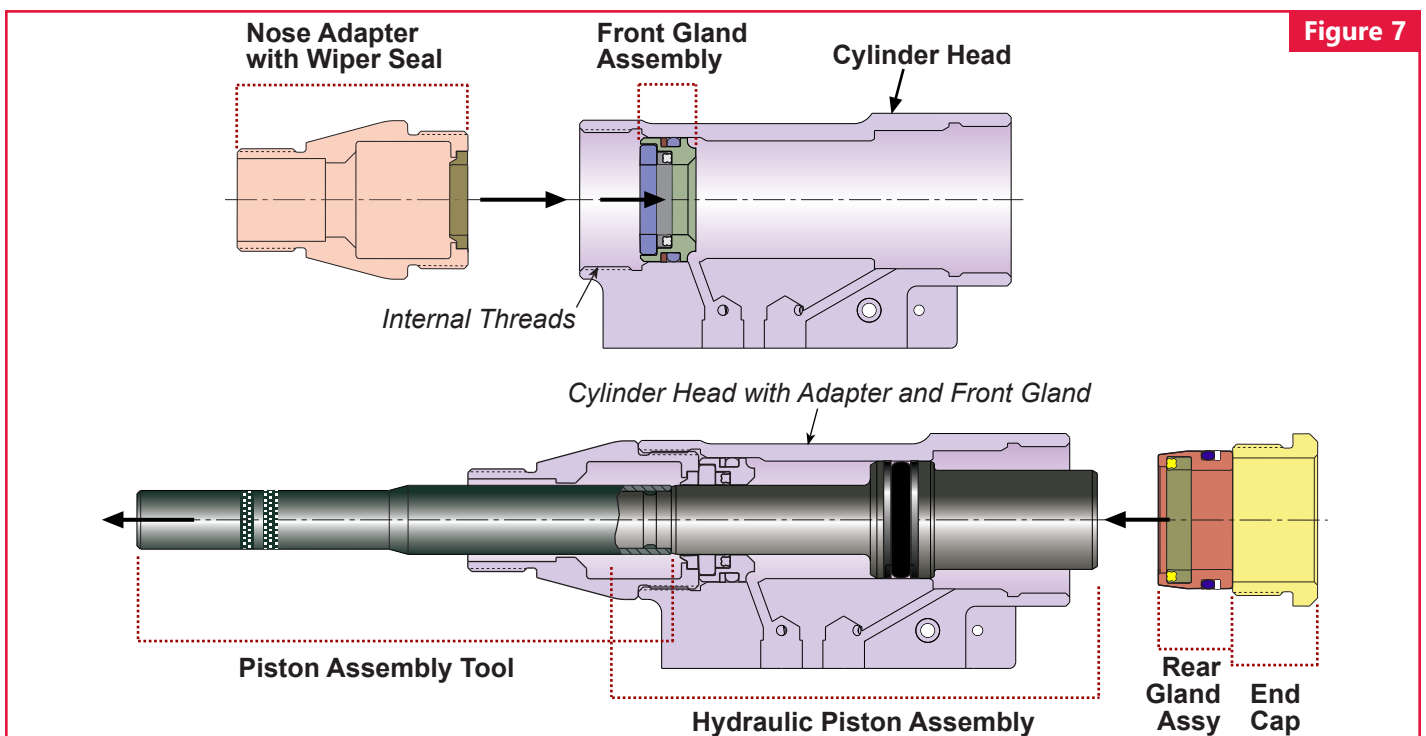
Figure 6

8. Hold Handle upside down in vise. Position Muffler on center of Cylinder Head. Place Gasket on Air Cylinder. Place Bottom Plate on top of Gasket and secure with 3 Screws using 1/8 hex key. (Fig. 4)
9. Turn tool upright. Drop Spring into Throttle Valve hole in Air Cylinder. Push Throttle Valve, with O-Rings in place, into Cylinder. (Fig. 4)

continued on next page

Assembly continued

10. Assemble Trigger and Cable Assembly with Dowel Pin, slide cable into handle; then align trigger and handle holes, and install Roll Pin with a hammer and punch.
11. Slide Throttle Arm onto ball end of Throttle Cable. Swing arm until other end fits over Throttle Valve. Place Lever Guard over Throttle Arm and install Pivot Screw through Throttle Arm. Tighten with 5/32 hex key.
12. Install Swivel Assembly on Air Cylinder.
13. If Air Hose was removed, reinstall in swivel assembly.
14. If Seat Assembly is being replaced, push seat and seal assembly in using a soft drift. Take care not to damage ball seat surface. (Fig. 14)
15. Assemble Front Gland with Gland Cap, O-ring, Back-up Ring, and Polyseal **oriented as shown in Figure 7**, and gently slide entire assembly in through the front of the cylinder until it passes the internal threads.
16. Lubricate and insert Front Gland Wiper Seal **oriented as shown in Figure 7**, into the groove of the Nose Adapter.
17. Apply Loctite® 243™ to threads of Nose Adapter and install it on cylinder head. This will complete the pressing in of the Front Gland Assembly. Torque the Nose Adapter to 36-66 ft. lbs. (Loctite® 243™ is sold by Huck as part number 508567.)
18. Assemble Hydraulic Piston with new seals, lubricated with LUBRIPLATE. (Fig. 13)
19. Thread Piston Assembly Tool onto Hydraulic Piston, then gently insert them from the rear of the tool until the Hydraulic Piston is seated against the Front Gland Assembly. Remove Piston Assembly Tool.
20. Lubricate and place seals on Rear Gland **oriented as shown in Figure 7**, and push completed assembly into cylinder until seated.
21. Treat End Cap threads with Loctite® 243™ and screw into cylinder head. Torque end cap to 36-66 ft. lbs.
22. (Figure 14) Reservoir assembly: Install Quad-Ring and Spacer. Slide Reservoir Plunger into channel. Install two Springs. Apply Loctite® 243™ to threads of Reservoir Housing (Figure 14), and, holding springs in place, screw Reservoir Housing into head and torque to 12-15 ft./lbs.
23. Install Bleed Plug/O-Ring Assembly into Handle (Fig. 12)
24. Install PULL and RETURN Gland Assemblies in handle (Fig. 12), and push cylinder head down over glands.
25. Place tool in a vise, head down, and install 4 Cap Screws to secure cylinder head assembly to handle assembly. Torque screws to 170 inch pounds.
26. Tool is now assembled except for relief and check valves. See **FILL AND BLEED** procedure for replacement of valve components.





Fill and Bleed Procedure

EQUIPMENT REQUIRED:

- Shop airline with 90-100 psi max. Air regulator
- Fill Bottle 120337 (supplied with tool).
- Fill Tool Assy 112465
- Large flat blade screwdriver
- Stall Nut 124090
- Nose assembly
- Fasteners (Optional)

PREPARATION:

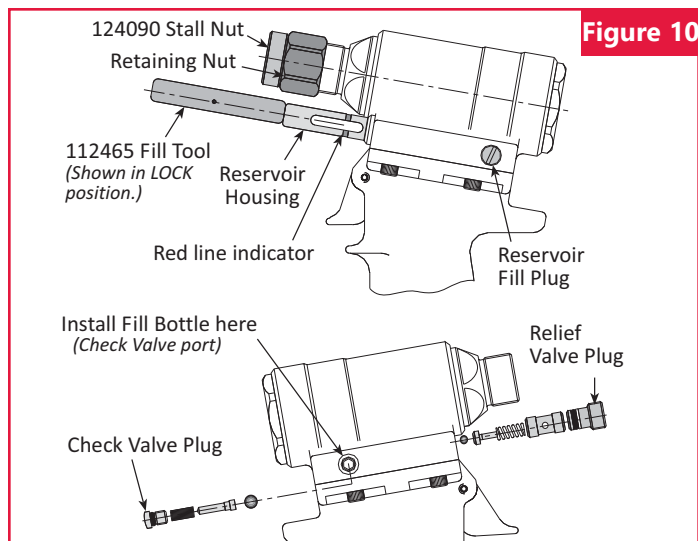
1. Remove preset regulator and install an adjustable air regulator in airline and set pressure to 20-40 psi.



WARNING: Air pressure **MUST** be set to 20 to 40 psi to prevent possible injury from high pressure spray. If Check Valve Plug is removed, Fill Bottle must be in place before cycling tool.

2. Fill bottle almost full of DEXRON III - ATF (automatic transmission fluid). **NOTE: Refill tool only when red line on plunger drops below the red line on the reservoir housing or when tool is rebuilt.**

STEP 1: Screw Fill Tool into Reservoir Plunger, pull Plunger into Reservoir Housing and lock Fill Tool in full forward position by tilting handle (long side touching tool) and locking in place. (Figures 10 & 14)



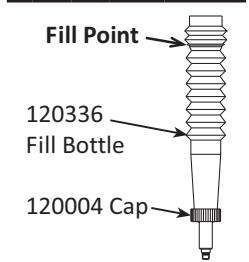
STEP 2: Remove Relief and Check Valve Plugs, Guides, Springs and Balls from ports in head. Reinstall Plug and Sleeve in head in Relief Valve port (front of tool).

STEP 3: Screw retaining nut onto Head Assembly. Screw Stall Nut onto Hydraulic Piston and tighten to ensure full thread engagement. Back off Retaining Nut until it engages Stall Nut. Check Hydraulic Piston location. **Piston must be all the way forward and locked with Stall Nut and Retaining Nut.**

STEP 4: Attach the tool air source momentarily to seat Air Piston at bottom of Air Cylinder, then disconnect tool.

Figure 9

120337 Fill Bottle Assy



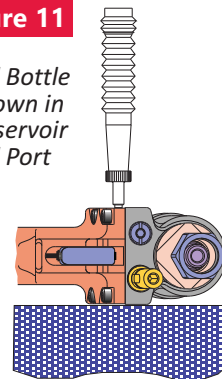
With reservoir fill port facing up, lay tool on its side.

STEP 5: Install Fill Bottle in Reservoir Fill port. (Figure 11)

STEP 6: Connect tool to shop air 20-40 psi. Cycle tool 20-30 times, watch for air bubbles escaping from the tool into bottle. (Tool may be rocked to free trapped air.) Do not allow the air to re-enter the tool. When cycling tool, always hold bottle up as shown in Figure 10 to prevent drawing in air from empty part of bottle.

Figure 11

Fill Bottle shown in Reservoir Fill Port



WARNING: Avoid contact with hydraulic fluid. Hydraulic fluid must be disposed of in accordance with Federal, State and Local Regulations.

STEP 7: When air bubbles no longer appear in bottle, remove Fill Bottle and replace the Reservoir Fill Plug **while tool is lying on its side.**

STEP 8: Install the Check Valve Ball, Guide and Spring. Replace the Check Valve Plug.

STEP 9: Turn tool so front of head faces you. Prior to removing Relief Valve Plug, using a 3/32 Allen wrench, back out setscrew inside of the plug approximately 1/2 turn counterclockwise. This ensures that the Piston will remain in full-forward position. Remove the Relief Valve Plug, install Ball, Guide, Sleeve and Spring, and replace the plug.

STEP 10: Unlock Fill Tool and check Reservoir red line. Cycle the tool the with Stall Nut attached and Retaining Nut locked in the full-forward position ("Dead Stall"). Reservoir should not drop below the red line on the Reservoir housing.

STEP 11: Re-lock the fill tool. Lay tool on its side and remove Reservoir Fill Plug. Top off Reservoir by placing a few drops of oil in hole and waiting for air bubbles to escape. Push a pin or scribe into hole to check for trapped air bubbles. Replace Plug.



WARNING: Failure to re-lock Fill Tool will result in oil being ejected from the head under pressure during the topping off of the Reservoir. Severe personal injury may result.

STEP 12: Unlock the Fill Tool and cycle tool as in step 10. Reservoir may drop slightly. If so, repeat step 11 until, when the Fill Tool handle is touched, it has no pressure against it and it drops out of the lock position, and the Reservoir Plunger does not drop when tool is cycled.

NOTE: This usually requires 3 to 4 times topping off.

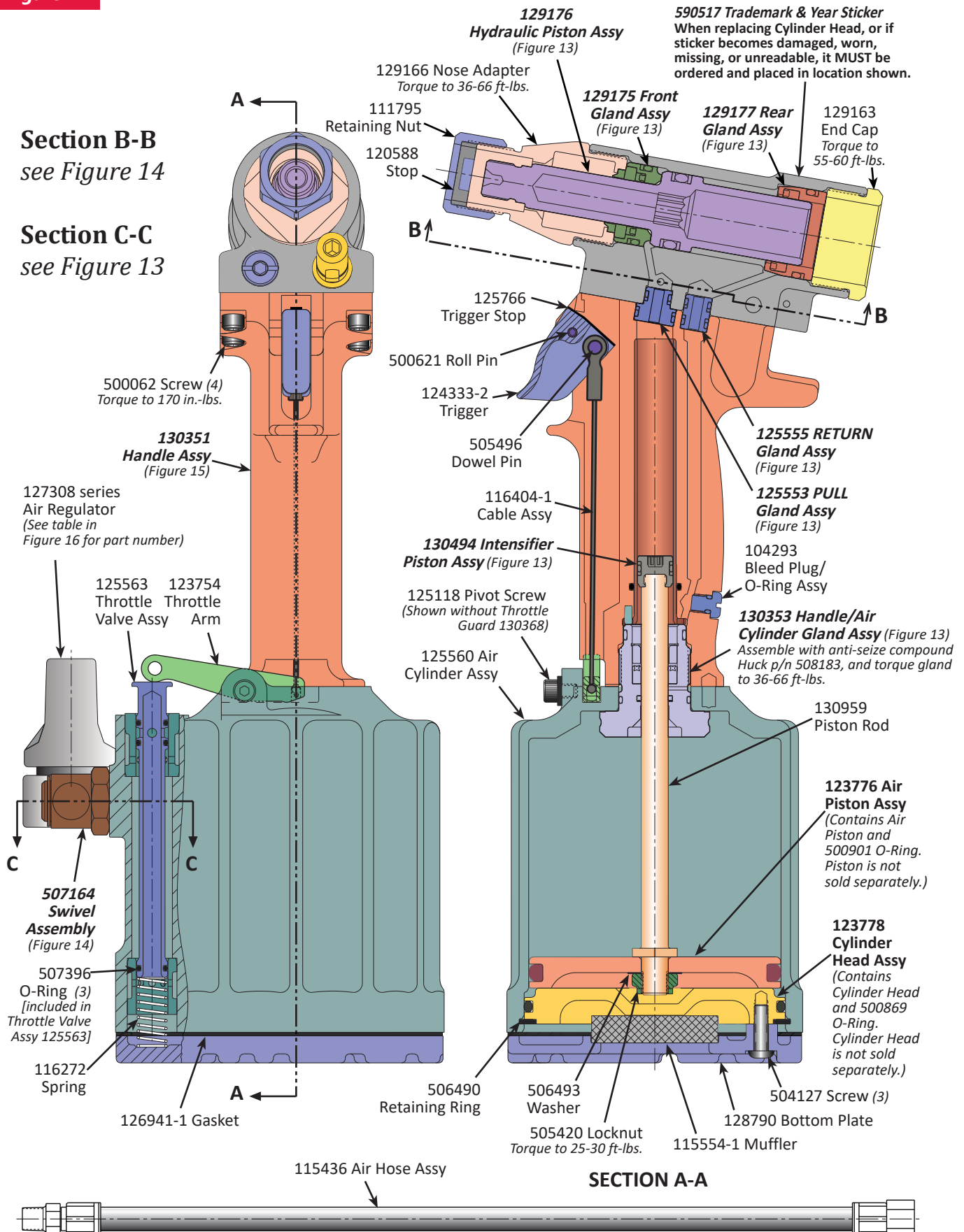
STEP 13: Remove Fill Tool and Stall Nut. Install a nose assembly and pull several fasteners to test function.

Tool Components Drawings

Figure 12

Section B-B
see Figure 14

Section C-C
see Figure 13

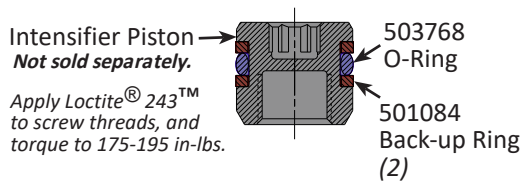




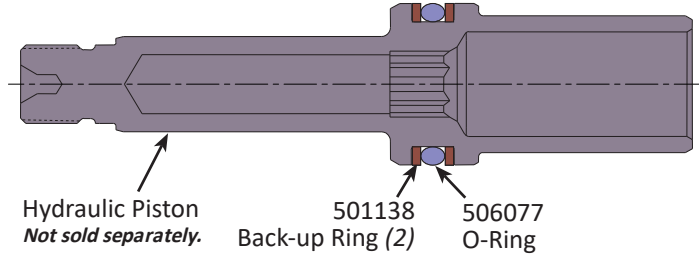
Tool Components Drawings

Figure 13

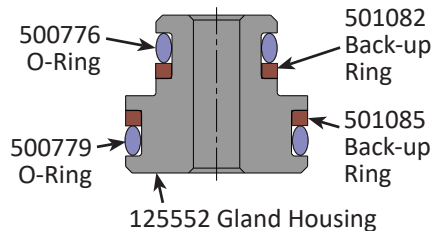
130494 Intensifier Piston Assembly



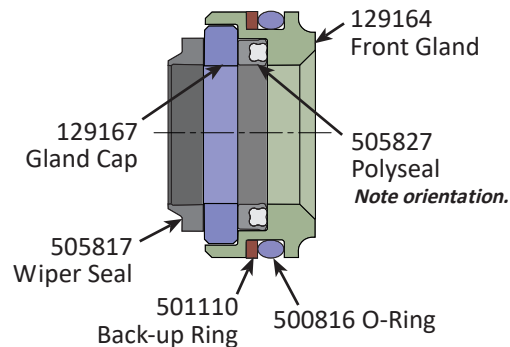
129176 Hydraulic Piston Assembly



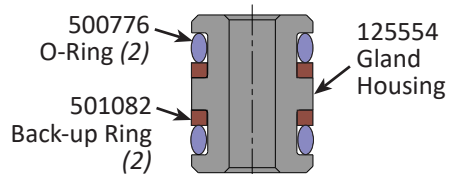
125553 PULL Gland Assembly



129175 Front Gland Assembly

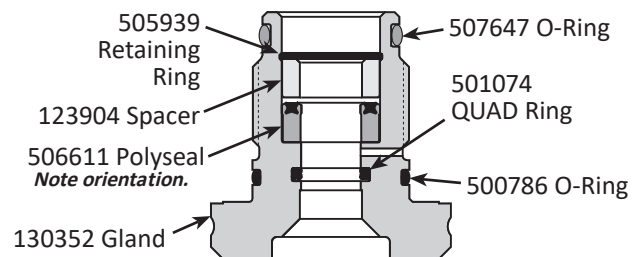


125555 RETURN Gland Assembly

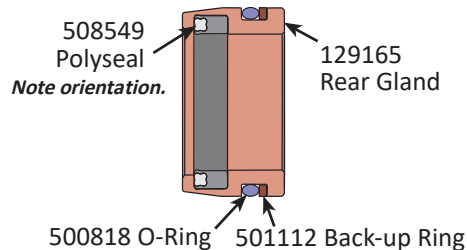


130353 Handle/Air Cylinder Gland Assembly

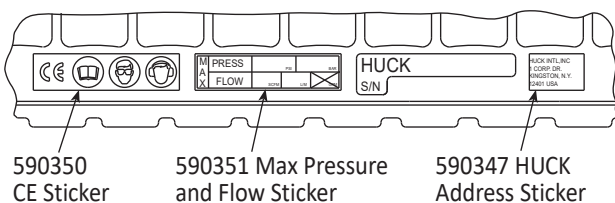
Apply Anti-seize compound to screw threads, and torque to 36-66 ft-lbs.



129177 Rear Gland Assembly

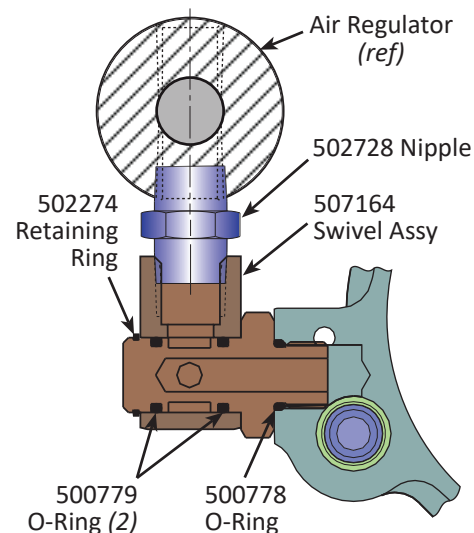


Detail of Sticker Locations on Bottom of Air Cylinder



*** When replacing Air Cylinder Assembly, or if Stickers become damaged, worn, missing, or unreadable, Stickers MUST be ordered and placed in the locations shown.**

SECTION C-C





Tool Components Drawings

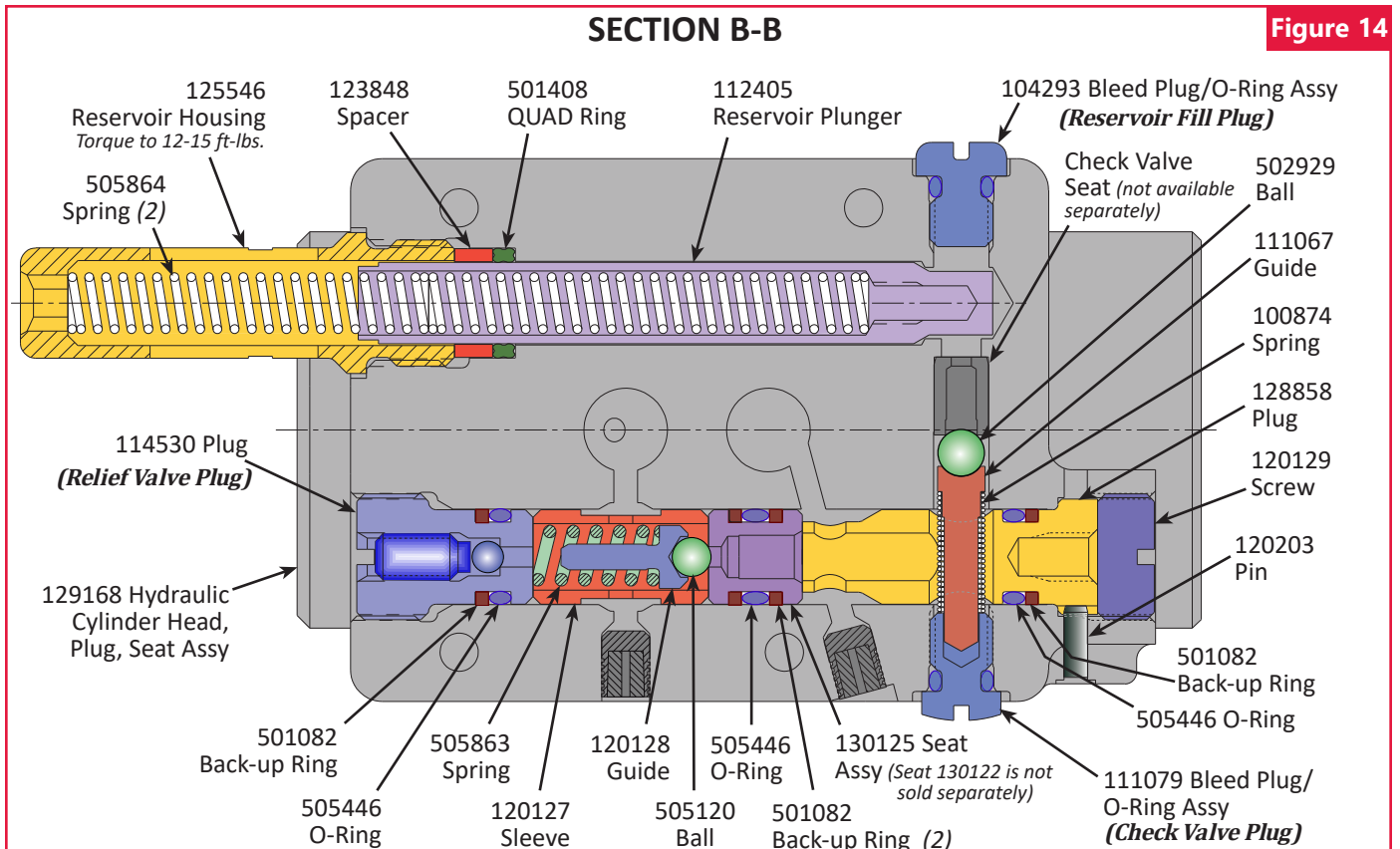


Figure 15 130351 Handle Assembly

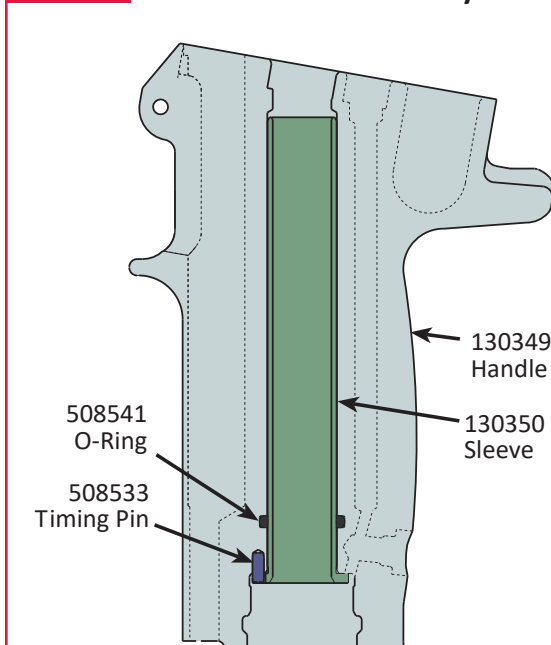


Figure 16



127308 Pressure Regulator
See Table below to determine which regulator to use based on application.



CAUTION: Using a pressure regulator not intended for a specific fastener can result in damage of equipment and fasteners and improper and unsafe installation of fasteners.

NOTE: Base model 244BT comes with the 85psi regulator only.

Fastener Size and Collar Material	Tool (244BT-##), Regulator (127308-##), and Nose Assembly (99-79##) combination			
	244BT-43 includes 127308-7 43psi Regulator	244BT-68 includes 127308-11 68psi Regulator	244BT includes 127308-17 85psi Regulator	244BT-97 includes 127308-15 97psi Regulator
-06 BT (3/16") Grade 2	99-7931	-	-	-
-08 BT (1/4") 6061 Aluminum	99-7932	-	-	-
-08 BT (1/4") Grade 2	-	-	-	99-7932
-08 BT (1/4") 430 SS	-	-	99-7932	-
-10 BT (5/16") 6061 Aluminum	-	99-7933	-	-



Troubleshooting

Always check out the simplest possible cause of a malfunction first. For example, an air hose not connected; then proceed logically, eliminating each possible cause until the cause is located. Where possible, substitute known good parts for suspected bad parts. Use these steps as an aid in locating and correcting malfunction.

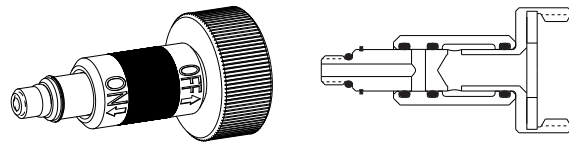
Note: "Piston Drift" is when the air piston is in the down position, but the hydraulic pull piston is not in the full forward position. This causes an out of sequence condition.

- 1 Tool fails to operate when trigger is depressed:**
 - a) Air line not connected
 - b) Throttle Valve O-rings worn or damaged
 - c) Throttle valve Cable Assembly is broken
- 2 Fastener installation incomplete:**
 - a) Air pressure is too low.
 - b) Air Piston QUAD ring is worn or damaged.
 - c) Reservoir is empty or low; see **FILL AND BLEED** section.
 - d) Air in hydraulic system; see **FILL AND BLEED** section.
 - e) Reservoir springs are worn or damaged.
 - f) Check for piston drift.
- 3 Pintail stripped and/or swaged collar not ejected:**
 - a) Check for broken or worn jaws in nose assembly.
 - b) Check for loose retaining nut.
 - c) Check for piston drift.
- 4 Tool has piston drift:**
 - a) Loose collet is crashing into the front of the anvil, which causes the relief valve to open and allows the piston to drift. Tighten the collet and see **FILL AND BLEED** section.
 - b) Worn or damaged return pressure relief valve in tool. Inspect seat assembly, O-ring, back-up rings, steel ball, and valve spring, and replace if necessary.
 - c) Worn or damaged piston assembly. Inspect O-rings and back-up rings, and replace if necessary.
- 5 Hydraulic fluid exhausts with air or leaks at handle base:**
 - a) Worn or damaged gland assembly. Inspect polyseal, O-rings, and QUAD ring, and replace if necessary.
- 6. Hydraulic fluid leaks at rear of pull piston:**
 - a) Worn or damaged rear gland. Inspect polyseal and O-ring, and replace if necessary.
- 7. Air leaks at air cylinder head:**
 - a) Worn or damaged O-ring. Replace if necessary.
- 8. Hydraulic fluid leaks at front of pull piston:**
 - a) Worn or damaged front gland. Inspect polyseal, O-ring, and back-up ring, and replace if necessary.
- 9. Pull piston will not return:**
 - a) Throttle valve is stuck. Lubricate O-rings.
 - b) Throttle arm, cable assembly or trigger binding.

Accessories

Fill and Bleed Bottle (Fig.8)	- 120337
Fill Tool Assy for reservoir (Fig.8)	- 112465
Stall Nut (Fig.8)	- 124090
Piston Assembly Tool	- 123111-2
Service Tool Kit <i>Includes:</i>	- 120352-244
Fill and Bleed Bottle (Fig.8)	- 120337
Fill Tool for reservoir (Fig.8)	- 112465
Stall Nut (Fig.8)	- 124090

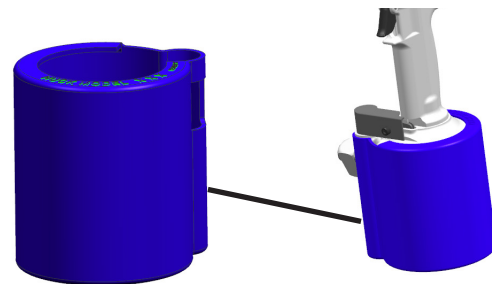
Optional Bleed Bottle Cap Assy 130857 Leak-proof)



Seat Removal Tool 126136



Air Cylinder Boot 129458





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 Powerigs® manufactured after 12/1/2016 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.

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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.

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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.



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