HOWMET AEROSPACE

5304, 6304, 7304, 8304, 9304 series

Hydraulic Installation Tools
Instruction Manual

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HUCK IS FOREVER

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

November 8, 2023
HK457

HOWMET AEROSPACE

EC Declaration of Conformity

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

Description of Machinery:
Models 5304, 6304, 7304, 8304, 9304 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)
- British Standard related to hand held, non-electric power tools (ISO 11148-1:2011)

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

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

Signature:

Full Name: Nicholas Gougoutris

Position: Engineering Manager

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

Date: 11/01/23 November 1, 2023

CE

HUCK

UKCA Declaration of Conformity

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- Supply of Machinery (Safety) Regulations 2008

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

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UKCA

HUCK

Declared dual number noise emission values in accordance with ISO 4871			
A weighted sound power level, LWA: **79** dB (reference 1 pW) Uncertainty, KWA: 3 dB			
A weighted emission sound pressure level at the work station, LpA: **67** dB (reference 20 µPa) Uncertainty, KpA: 3 dB			
C-weighted peak emission sound pressure level, LpC, peak: **99** dB (reference 20 µPa) Uncertainty, KpC: 3 dB			
Values determined according to noise test code ISO 15744, using as basic standards ISO 3744 and ISO 11203. The sum of a measured noise emission value and its associated uncertainty represents an upper boundary of the range of values which is likely to occur in measurements.			
Declared vibration emission values in accordance with EN 12096			
Measured Vibrations emission value, a:	**.46** m/s^2	Uncertainty, K:	**.18** 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 before using equipment.
- Eye protection is required while using this equipment.
- Hearing protection is required while using this equipment.

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

WARNINGS: Must be understood to avoid severe personal injury.

CAUTIONS: Show conditions that will damage equipment or structure.

I. GENERAL SAFETY RULES:

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

II. PROJECTILE HAZARDS:

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

III. OPERATING HAZARDS:

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

IV. REPETITIVE MOTION HAZARDS:

1. When using assembly power tool, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.
2. The operator should adopt a comfortable posture, maintain 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 no electrical cables, gas pipes, etc. 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 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. HYDRAULIC TOOL SAFETY INSTRUCTIONS:

WARNINGS: Do not exceed maximum pull or return settings on tool.
Be sure all hose connections are tight. All tool hoses must be connected.

1. Carry out a daily check for damaged or worn hoses or hydraulic connections and replace if necessary.
2. Wipe all couplers clean before connecting. Failure to do so can result in damage to the quick couplers and cause overheating.
3. Ensure that couplings are clean and correctly engaged before operation.
4. Use only clean oil and filling equipment.
5. Power units require a free flow of air for cooling purposes and should therefore be positioned in a well ventilated area free from hazardous fumes.
6. Do not inspect or clean the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.
7. Be sure all hose connections are tight.
8. Wipe all couplers clean before connecting. Failure to do so can result in damage to the quick couplers and cause overheating.

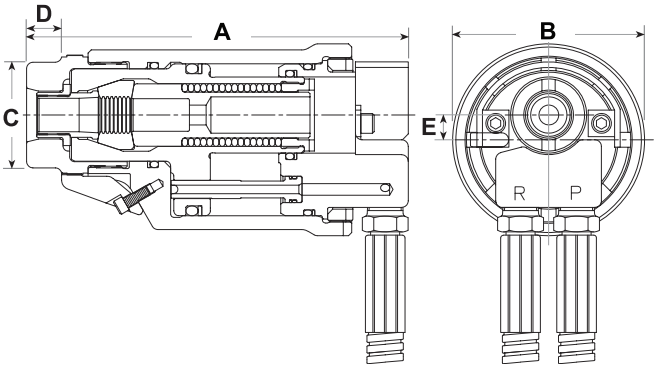
Specifications

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

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's an ester based fluid such as Quintolubric HFD or equivalent. Water based fluid shall NOT be used as serious damage to equipment will occur.

DESCRIPTION	DETAIL	
POWER SOURCE	Huck Powerig® Hydraulic Power Source	
MAX AIR PRESSURE	90 psi	6.2 bar
MAX OPERATING TEMPERATURE	125 ° F	51.7 ° C
SERVICE LIFE	250,000 cycles	
MAX FLOW RATE	2 gpm	7.5 l/m

DESCRIPTION	DETAIL	
MAX PULL PRESSURE		
5304 ONLY	5400 psi	372 bar
ALL OTHER MODELS	8400 psi	579 bar
MAX RETURN PRESSURE		
5304 ONLY	2700 psi	186 bar
ALL OTHER MODELS	3200 psi	220 bar



TOOL	FASTENER SIZE			STROKE	
5304	-16	½ in.	12.7 mm.	.94 in.	2.4 mm.
6304	-20	⅝ in.	15.9 mm.	1.28 in.	3.2 mm.
6304BOM					
7304	-24	¾ in.	19.1 mm.		
8304	-28	⅞ in.	22.2 mm.	1.53 in.	3.9 mm.
9304	-32	1 in.	25.4 mm.		
9304-36	-36	1⅛ in.	28.6 mm.		

TOOL	CAPACITY		A		B		C		D		E		WEIGHT	
	lbs	kN	inches	cm.	inches	cm.	inches	cm.	inches	cm.	inches	cm.	lbs	kg
5304	24,650	109.6	4.85	12.1	4	10.2	2	5.1	.74	1.9	.468	1.2	14.5	6.6
6304	33,534	149.2	7.22	18.3	3.63	9.2	2	5.1	.663	1.7	.468	1.2	16.0	7.3
6304BOM			7.09	18					.533	1.3				
7304	42,497	189	7.58	19.3	4.07	10.3	2.25	5.7	.908	2.3	.530	1.3	17.0	7.7
8304	61,043	271.5	8.09	20.5	4.82	12.2	2.75	6.98	1.00	2.5	.593	1.5	26.3	11.9
9304	82,885	386.7	8.37	21.2	5.47	13.9	3.25	8.2	.998	2.5	.656	1.7	34.0	15.4
9304-36			8.58	21.8			3.38	8.6	1.21	3.1				

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.*
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 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

When tool hoses and control cord are connected to the POWERIG, PULL and RETURN strokes of the tool are controlled by a switch.

When the switch is depressed, a solenoid operated valve in the POWERIG directs pressurized hydraulic fluid through the PULL hose to the front side of the piston and allows fluid on the RETURN side to flow back to the tank.

The piston/collet moves rearward causing follower O-Rings and spring to impart a forward motion to the follower. If the tool is in position on a fastener pin and collar, this forward motion causes the jaws to clamp onto the pintail of the fastener. The installation cycle has begun.

Clamping pressure is applied to the sheets.

The anvil is forced forward, swaging the collar into locking grooves of the fastener.

When the anvil hits the sheet, continued pull causes the pintail to break off.

When the piston reaches the end of the pull stroke, it uncovers flats on the rear end of the unloading valve. These flats were designed to provide a passage for hydraulic fluid from the PULL side to the RETURN side of the piston "unloading" or "dumping" the pressurized fluid back to the tank.

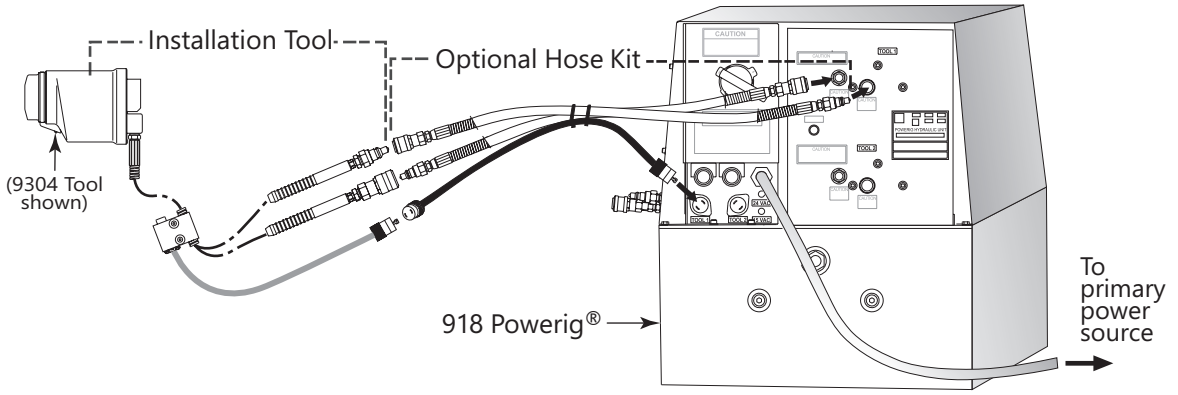
When installation is completed, trigger is released. Hydraulic pressure is directed to RETURN side of piston. It moves forward, and the nose assembly, with tool, is pushed off the installed fastener.

continued...

Principle of Operation continued...

WARNING: Huck recommends that only Huck Powerig Hydraulic Units be used as a power source for Huck installation equipment. Hydraulic power units that deliver high pressure for both PULL and RETURN, and that are not equipped with relief valves are specifically not recommended and may be dangerous.

General arrangement of Fastening System Components



Description

Huck models 5304, 6304, 7304, 8304, and 9304 Hydraulic Installation Tools are used to install C50L and M50L HUCKBOLT® Fasteners. Each tool model has the same eccentric configuration to install fasteners in limited clearance applications. The five tool models vary in size and pull capacity. Each model has a built-in nose assembly designed to install a specific size fastener. These tools are designed to be powered by Huck Powerig® Hydraulic Units 918, 918-5, 940, and 956. Powerig Hydraulic Units are preset at the factory to provide 5400-5700 psi PULL pressure and 2200-2400 psi RETURN pressure, and must be reset per specific tool instructions.

Spare Parts and Accessories

These components are available independently. Service Parts Kits include all perishable seals, O-rings, and Back-up rings. A spare Service Parts Kit should be kept on hand at all times. The Piston Assembly contains the Piston, Release, Ejector, O-Ring and Back-up Ring. The Cylinder Head Assembly contains internal O-Rings and Back-up Rings. Huck also recommends having the following Accessories available when preparing, using, and performing maintenance on this tool.

TOOL	SERVICE PARTS KIT	RELEASE & EJECTOR TOOL	RELEASE & EJECTOR KIT	CYLINDER HEAD ASSEMBLY	PISTON ASSEMBLY	HANDLE ASSEMBLY
5304	5304KIT	124751	120836	110786	110785	N/A
6304	6304KIT	124751	122317	110901	110610	112584-4
6304BOM	6304KIT	124751	124827	110901	110609-1	112584-4
7304	7304KIT	124751	122297	110902	110612	112584-3
8304	8304KIT	124751	121242	110903	110614	112584-5
9304	9304KIT	124751-1	122322	110904	110616	112584-2
9304-36	9304KIT	124751-1	122684	110904	122698	112584-2

6304 tool shown with Optional Handle Assembly

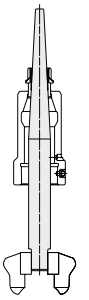
Gauge, Pressure Setting, CE
T-124833CE

DESCRIPTION	PART #
Gauge, Pressure Setting, CE	T-124833CE
Slic-Tite® TEFLON® Stick	503237
LOCTITE® 243	508567
LOCTITE®	503657
LUBRIPLATE® 130-AA	502723

continued...

Spare Parts and Accessories continued...

Release and Ejector Tool: This assembly tool is for disassembling and assembling -20 (⅝) and -24 (¾) release and ejector assemblies in 99-5000 series nose assemblies. The locking taper locks into the taper of the release, preventing the release from turning while the ejector is unscrewed, using an open end wrench.



To Use:

1. Lock assembly tool in vise as shown.
2. Place collet assembly over taper Using a soft mallet (or hammer), tap assembly firmly onto taper to ensure that tapers are locked together.
3. Using an open end wrench on ejector flats, unscrew ejector from release.
4. Lift collet off release. With soft mallet tap release from assembly tool.
5. Assemble in reverse order.

Preparation for Use

WARNINGS: Read full manual before using tool.

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.

Correct PULL and RETURN pressures are required for operator's safety and for Installation Tool's function. Gage part no. T-124883CE Is available for checking pressures. See Tool Specifications and Gage Instruction Manual. Failure to verify pressures may result in severe personal injury.

Be sure to connect Tool's hydraulic hoses to Powerig® Hydraulic Unit before connecting Tool's switch control cord to unit. If not connected in this order, severe personal Injury may occur.

NOTE: Where a part number (P/N) is given, Huck sells that part.

Rub Parker Threadmate® thread compound, or equivalent, on pipe plug threads and quick connect fitting.

1. Use Huck Powerig® Hydraulic Unit, or equivalent, that has been prepared for operation per instruction manual. Check both PULL and RETURN pressures and, if required, adjust to pressures given in Specifications section of this manual.

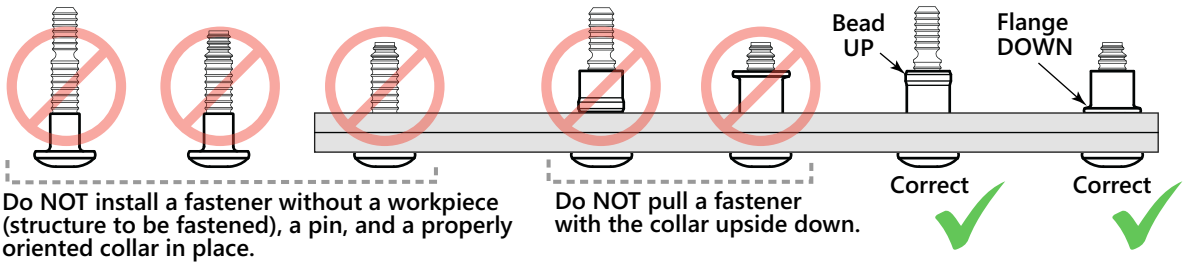
CAUTIONS: Do not let disconnected hoses and couplers contact a dirty floor. Keep harmful material out of hydraulic fluid. Dirt in hydraulic fluid causes valve failure In Tool and In Powerig® Hydraulic Unit.

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

2. First, turn hydraulic unit to OFF. Then disconnect power supply from hydraulic unit. Disconnect trigger control system from hydraulic unit.
3. Connect PULL pressure hose, with coupler nipple, into port "P" of tool. Use only with HUCK supplied hoses rated at 10,000 psi or greater. Check trigger assembly for apparent damage or wear. If required, adjust position of trigger assembly on return pressure hose. Connect trigger control system to hydraulic unit.
4. Connect hydraulic unit to power supply (air or electric). Turn hydraulic unit to ON. Depress trigger a few times to cycle tool and to circulate hydraulic fluid. Observe action of Tool and check for leaks.
5. Disconnect tool from power supply.

Operating Instructions

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



Do NOT install a fastener without a workpiece (structure to be fastened), a pin, and a properly oriented collar in place.

Do NOT pull a fastener with the collar upside down.

CAUTIONS: 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.

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.

continued...

Operating Instructions continued...

WARNING: Do not pull on a pin without placing fastener/collar in a workpiece, and also, collar chamfer MUST be out toward tool. These conditions cause pin to eject with great velocity and force when the pintail breaks off or teeth/ grooves strip. This may cause severe personal injury.

HUCKBOLT® Fastener installation:

1. Check work and remove excessive gap. (Gap is space between sheets. Gap is excessive if not enough pintail sticks through collar for the tool jaws to grab onto.)
2. Place pin in workpiece and place collar over pin. See WARNING. (If Collar has only one tapered end, that end MUST be out toward tool; not next to sheet.)
3. Hold pin and push nose assembly onto pin protruding through collar until nose anvil touches collar. Tool must be held at right angles to work.

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.

4. Move hands away from pin and structure. Keep hands away from front of tool during operation. Tool anvil advances forward.
5. Holding tool at right angle (90 degrees) to work, depress trigger and hold until collar is swaged and pintail breaks.
6. Release trigger. Tool will go into its return stroke. Tool/nose are ready for next installation cycle. If pintail does not break off, operate switch to re-cycle tool until pintail breaks and nose assembly is ejected from installed fastener.
7. After fastener installation, point nose of tool down to allow broken-off pintail to drop out.
8. Tool is ready for next installation cycle.

Maintenance

CAUTIONS: Consult MSDS before servicing tool.

Keep dirt and other material out of hydraulic system.

Separated parts most be kept away from dirty work surfaces.

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

Always check tool assembly drawing for the proper direction of the flats on the Dump Valve.

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

SYSTEM INSPECTION

1. A clean, well-lit area should be available for servicing the tool.
2. Inspect tool daily. Check hoses, fittings and disconnects for leaks or damage.
3. Special care must be given to prevent contamination of pneumatic and hydraulic systems.
4. Proper hand tools and soft materials to protect tools must be available. Use only standard hand tools, brass drift and wood block. Vise with soft jaws should be available. Unsuitable hand tools will cause installation tool damage.
5. Apply continuous strong pressure to disassemble a component. An arbor press provides steady pressure to press a component into or out of an assembly.
6. Never continue to force a component if it "hangs-up" due to misalignment. Reverse the procedure to correct misalignment and start over.

CAUTION: Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. (Slic-Tite is available in stick form as Huck P/N 503237.)

7. Assemble Release and Ejector Kit with Loctite* adhesive sealant. (part no. 503657).
8. All parts must be handled carefully and examined for damage and/or wear.
9. Components should be disassembled and assembled in a straight line without bending, cocking or undue force.
10. Disassembly and assembly procedures outlined in this manual should be followed. If Huck recommended procedures are not followed, the tool may be damaged.
11. See **Specifications** for fluid type. Dispose of fluid in accordance with local environmental regulations.
12. Recycle steel, aluminum, and plastic parts in accordance with local lawful and safe practices.

STANDARD SEALANTS, LUBRICANTS

Rub Slic-Tite® with PTFE thread compound, or equivalent, on pipe plug threads and quick connect fitting.

Smear LUBRIPLATE® 13OAA (Huck P/N 502723), or equivalent lubricant, on O-Rings and mating surfaces to aid assembly and to prevent damage to O-Rings.

continued...

Maintenance continued...

PREVENTIVE MAINTENANCE

The operating efficiency of a tool is directly related to the performance of the entire system. Regular inspection and immediate correction of minor problems will keep a tool operating efficiently, and prevent downtime. A schedule of preventive maintenance of the tool, nose assembly, hoses, trigger and control cord, and Powerig® Hydraulic Power Source will ensure proper tool operation and extend its life.

- Inspect tool daily for damage or wear.
- Verify that hoses, fittings, and trigger connections are secure.
- Inspect hydraulic hoses for signs of leaks or damage. Replace if required.
- Inspect tool, hoses, and Powerig® Hydraulic Unit during operation to detect abnormal heating, leaks, or vibration.
- Tool should be checked for leaks before each use.

POWERIG® HYDRAULIC UNIT MAINTENANCE

Maintenance and repair instructions are in applicable Powerig® Hydraulic Unit Instruction Manual.

TOOL/NOSE MAINTENANCE AND PRECAUTIONS

Whenever disassembled, and also at regular intervals (depending on severity and length of use), replace all O-rings and back-up rings. Spare Parts Kits should be kept on hand. Inspect cylinder bore, piston and rod/extension, and unloading valve for scored surfaces, excessive wear or damage. Replace parts as necessary. Clean all parts in mineral spirits or isopropyl alcohol only. **Do not let jaws come in contact with other solvents under any circumstances.** Also, do not let jaws soak. Dry the jaws immediately after cleaning. Dry other parts before assembling. Use a sharp pointed "pick" to remove embedded particles from the pull grooves of the jaws.

Disassembly

WARNING: Be sure to disconnect Tool's control trigger system from Powerig® Hydraulic Unit before disconnecting Tool's hydraulic hoses from unit. If not disconnected in this order before any maintenance or cleaning is done, severe personal injury may occur.

The following procedure is for disassembly of Tool. Remove only those parts necessary. Check and replace damaged/worn components. Always replace O-rings, wipers, and back-up rings of disassembled sub-assemblies.

NOTES:

a. Always work on a clean surface.

b. Use relatively soft materials, such as brass, aluminum, or wood to protect tool when applying pressure.

c. Apply a continuous, strong pressure rather than sharp blows to disassemble or assemble a component. An arbor press provides steady pressure to press a component in or out.

d. Never continue to force a component if it "hangs-up" due to misalignment. Instead, reverse the procedure to correct misalignment and start over.

e. Assemble release and ejector with Loctite adhesive/sealant, HUCK part no. 503657. Loctite is included in release and ejector kits.

f. Lubricate O-Rings and coat hose fitting threads per instructions in **Maintenance** section of this manual.

g. Standard hand tools such as wrenches, drifts, hex keys, etc., are required. Some standard tools are available from HUCK. Please contact your HUCK representative.

For component identification, please refer to individual **Components Drawings** in this manual.

1. Disconnect Tool's electric trigger control cord, then uncouple Hydraulic Hoses.
2. Remove Socket Head Cap Screw that attaches Anvil Retainer to Cylinder. Unscrew Anvil.
3. Unscrew Coupler Nipple and Coupler Body, and drain hoses into a clean container.
4. Push rearward on Piston Assembly until hydraulic fluid is drained into container.
5. Remove Screws, Washers, and Nuts from Clamp. Separate Clamp from Switch and Control Cord Assembly and Hydraulic Hoses.
6. Remove both hoses from head assembly.
7. Remove Socket Head Cap Screws and Shield. Turn tool until Key falls out of locking slots. Remove Locking Ring with a spanner wrench.
8. Push rearward on Piston Assembly until head assembly and piston assembly slides out of Cylinder.
9. Remove Pressure Tube Assembly from Piston or Head.
10. Remove Retainer and O-Ring Assembly from piston with a spanner wrench.
11. Slide Follower Assembly, O-Rings, and Jaws from piston/collet.
12. If necessary, disassemble Release and Ejector by unscrewing by hand or with pliers.
13. If necessary, loosen two Screws on Cord Grip. Loosen Cup Point Setscrew. Pull Switch from Housing, and remove Strain Relief. Disassemble Electrical Connector to replace Connector or to re-wire.

Assembly

Clean all tool components with mineral spirits, or equivalent, and inspect for wear or damage. Replace as required. **Always replace all seals on/ in disassembled components.** Use O-rings and back-up rings supplied in **Service Parts Kit.** Smear LUBRIPLATE 130AA, or equivalent, on O-rings, back-up rings and mating components for ease of assembly. Assemble Tool taking care not to damage either O-rings or back-up rings.

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

CAUTION: Do not use TEFLON® tape on pipe threads. Pipe threads may cause tape to shred resulting in tool malfunction. (Slic-Tite is available in stick form as Huck P/N 503237.)

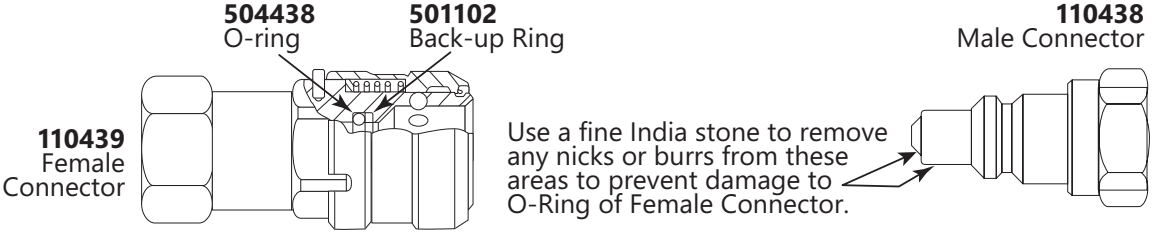
WARNING: Tool must be fully assembled with all components included.

1. Apply Vibratite to Jaw Release and assemble to Piston and collar Ejector.
2. Hold piston with large opening facing up, and place three jaw segments into piston, one at a time, so that the taper of jaws match the cone angle of the piston.
3. Push O-Rings onto Follower. Drop assembled components into piston against jaws.
4. Push Retainer Assembly over Follower, and screw it into Piston. Tighten Retainer with a spanner wrench until Retainer shoulder is tight against piston extension.
5. Align eccentric front extension of Piston with eccentric hole in front of Cylinder, and push Piston into Cylinder.
6. Slide Pressure Tube Assembly through hole in Piston.
7. Place Locking Ring over rear of Head Assembly. Hold head and ring together. The tube pocket in the head must be aligned with the tube in the piston while pushing the head int the Cylinder. When Locking Ring stops head, alternately push in head and turn in locking ring.
8. Tighten Locking Ring, then back it out 1/8 turn or less until slot in head and slot in ring are aligned. Hold tool pointing down, and place Key into slots. Place Shield on head and tighten both Socket Head Cap Screws.
9. Screw Anvil into Cylinder.
10. Assemble Anvil Retainer and screw into Cylinder.
11. Screw Coupler Nipple and Coupler Body (male and female connectors) onto hydraulic hoses. Screw hose with nipple into port "P" of head. Screw other hose into head.
12. Assemble Electrical Control Cord to disassembled plug of electrical connector assembly. Assemble electrical connector plug.
13. Replace and tighten Cord Grip in Housing.
14. Assemble Switch. Push cord through cord grip and housing. Attach cord to switch with two screws.
15. Slide switch with cord attached into housing. Tighten screw against switch. Tighten two screws in cord grip to hold in housing.
16. Place two halves of clamp over "R" hose. Align clamp holes and loosely attach screw, washer, and nut. Push assembled switch and housing into clamp, hold it centered, and tighten screws.
17. Connect hoses and cord to Powerig® hoses and control cord. Cycle tool a few times. Observe action of tool, and check for leaks.

Sticker Standards

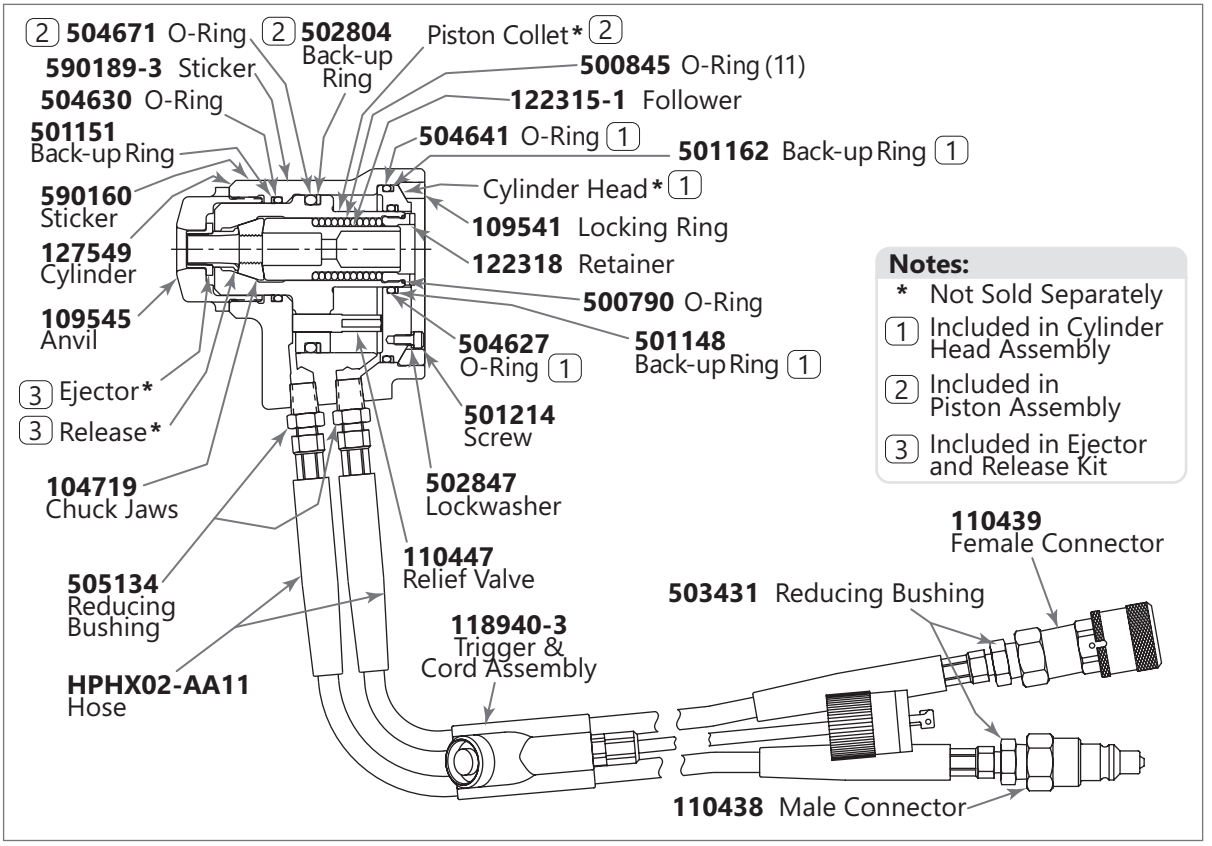
HUCK pneudraulic tools come labeled with stickers which contain safety and pressure settings information. Stickers must remain on the tool and readable. If a sticker becomes damaged or worn, or if it has been removed from the tool, it must be ordered and placed in the location shown. See Component Drawings for Sticker Locations.

Hydraulic Couplings



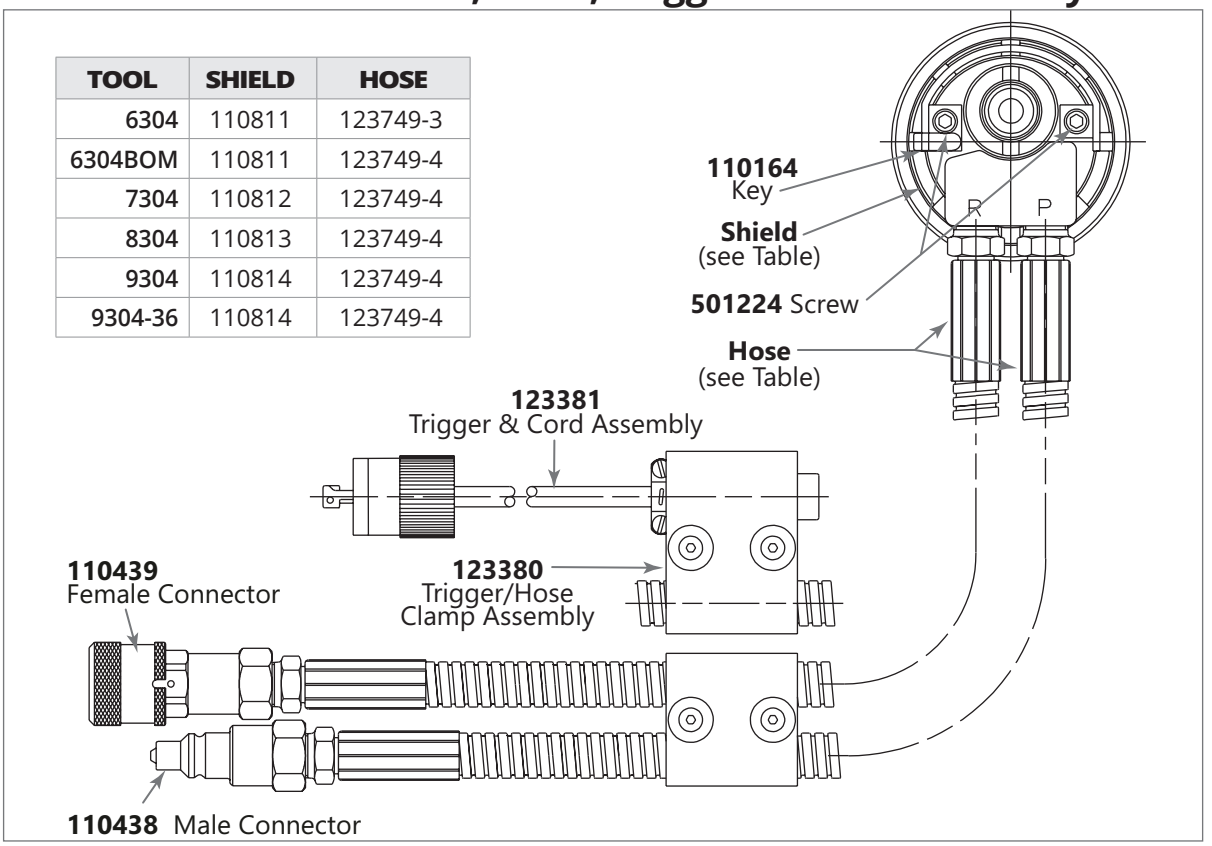
Component Drawings

5304 Tool



6304, 6304BOM, 7304, 8304, 9304, 9304-36 Tool
Front View of Tool, Hose, Trigger & Cord Assembly

TOOL	SHIELD	HOSE
6304	110811	123749-3
6304BOM	110811	123749-4
7304	110812	123749-4
8304	110813	123749-4
9304	110814	123749-4
9304-36	110814	123749-4

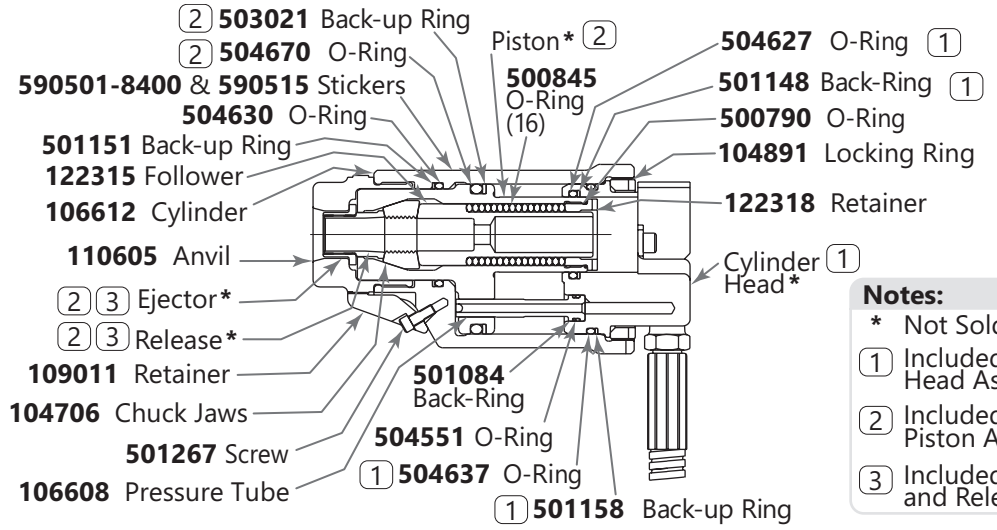


* Part not sold separately. Only sold as part of Upper Assembly: Piston (Collet) Assembly,Cylinder Head Assembly or Release and Ejector Kit. See **Spare Parts & Accessories** for details.

continued...

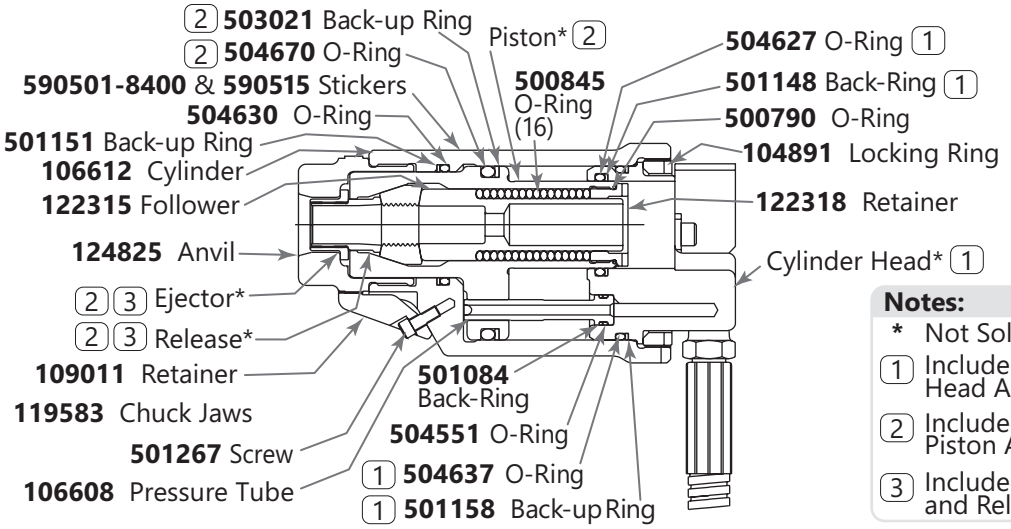
Component Drawings continued...

6304 Tool



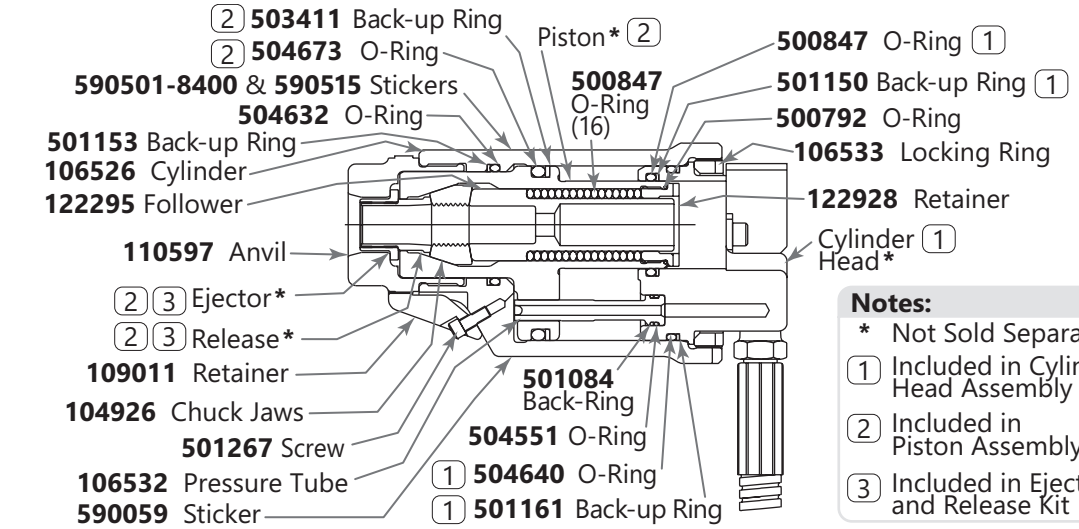
Notes:
- * Not Sold Separately
- (1) Included in Cylinder Head Assembly
- (2) Included in Piston Assembly
- (3) Included in Ejector and Release Kit

6304BOM Tool



Notes:
- * Not Sold Separately
- (1) Included in Cylinder Head Assembly
- (2) Included in Piston Assembly
- (3) Included in Ejector and Release Kit

7304 Tool



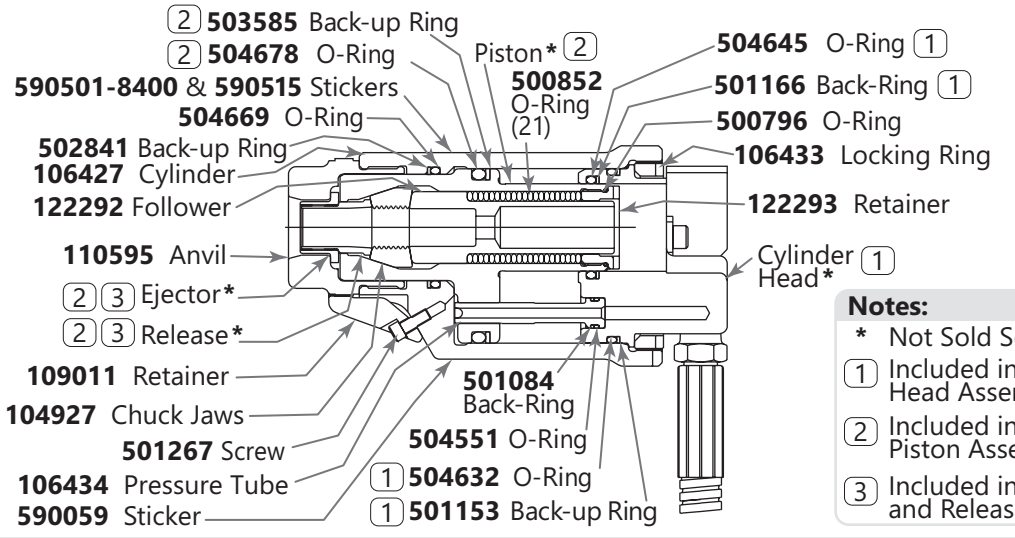
Notes:
- * Not Sold Separately
- (1) Included in Cylinder Head Assembly
- (2) Included in Piston Assembly
- (3) Included in Ejector and Release Kit

* Part not sold separately. Only sold as part of Upper Assembly: Piston Assembly, Cylinder Head Assembly or Release and Ejector Kit. See **Spare Parts & Accessories** for details.

continued...

Component Drawings continued...

8304 Tool



Notes:

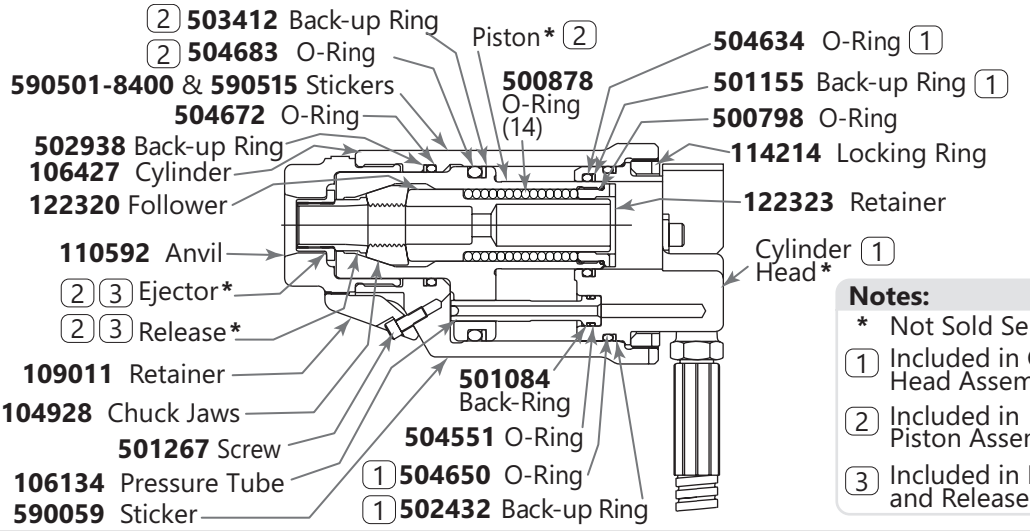
* Not Sold Separately

1 Included in Cylinder Head Assembly

2 Included in Piston Assembly

3 Included in Ejector and Release Kit

9304 Tool



Notes:

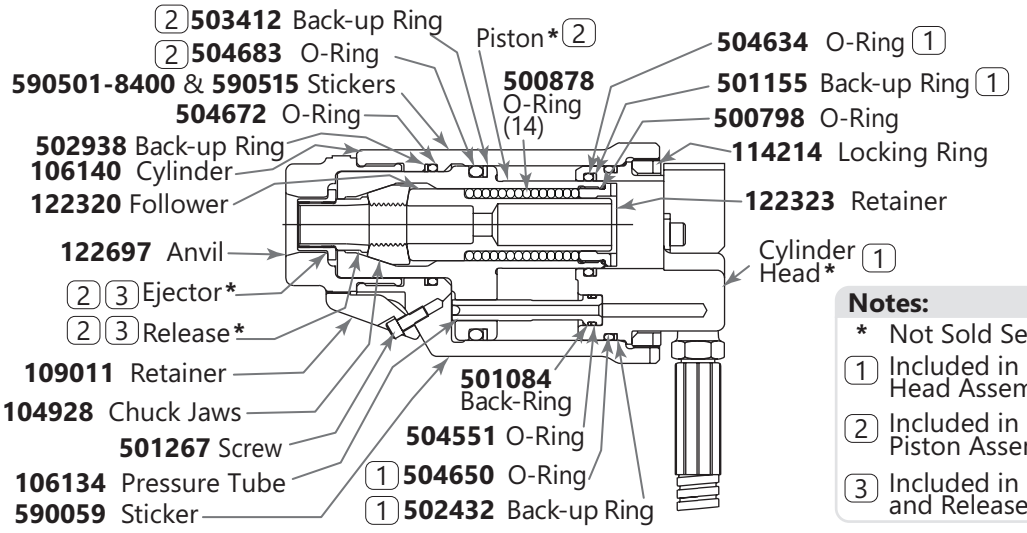
* Not Sold Separately

1 Included in Cylinder Head Assembly

2 Included in Piston Assembly

3 Included in Ejector and Release Kit

9304-36 Tool



Notes:

* Not Sold Separately

1 Included in Cylinder Head Assembly

2 Included in Piston Assembly

3 Included in Ejector and Release Kit

* Part not sold separately. Only sold as part of Upper Assembly: Piston Assembly, Cylinder Head Assembly or Release and Ejector Kit. See **Spare Parts & Accessories** for details.

continued...

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. Inoperative Powerig® Hydraulic Unit. See applicable instruction manual.
   b. Loose air or electric connections.
   c. Damaged trigger assembly.
   d. Loose or faulty hydraulic hose couplings.
   e. Pressure Tube not installed in Tool.
2. Tool leaks hydraulic fluid.
   a. Defective Tool O-rings or loose hose connections at Tool.
3. Hydraulic couplers leak fluid.
   a. Damaged or worn O-rings in coupler body. See Coupler 110440.
4. Hydraulic fluid overheats.
   a. Hydraulic unit not operating properly.
   b. Pressure Tube installed incorrectly.
   c. Powerig® Hydraulic Unit not operating properly; see unit's manual.
   d. Restriction in hydraulic line.
5. Tool operates erratically and fails to install fastener properly.
   a. Low or erratic hydraulic pressure; air in system.
   b. Damaged or worn piston/anvil O-ring in Tool.
   c. Pressure Tube installed incorrectly.
   d. Excessive wear on sliding surfaces of Tool parts.
   e. Excessive wear of unloading valve in Tool.
6. Collar of Huckbolt® fastener not completely swaged.
   a. Improper Tool operation. See Troubleshooting item #5.
   b. Scored anvil.
7. Tool "hangs-up" on swaged collar of HUCKBOLT Fastener.
   a. Improper Tool operation. See Troubleshooting item #5.
   b. RETURN pressure too low.
8. Pintail of fastener fails to break.
   a. Improper Tool operation. See Troubleshooting item #5.
   b. Pull grooves on fastener stripped. See Troubleshooting item #10.
   c. PULL pressure too low.
   d. Worn Pressure Tube.
9. Jaw segments do not maintain proper position in piston.
   a. Incorrect amount of follower O-rings. Clean before reassembling.
10. Pull grooves on fastener pintail stripped during PULL stroke.
    a. Broken pintail not removed from tool.
    b. Anvil was not slid completely onto fastener pintail.
    c. Incorrect fastener length.
    d. Worn or damaged jaw segments.
    e. Metal particles accumulated in pull grooves of jaw segments.
    f. Jaw release binding.
    g. Excessive sheet gap.
11. Tool operates in reverse.
    a. Reversed hydraulic hose connections between Powerig® and tool.
12. Anvil will not slide completely over fastener pintail.
    a. Broken pintail not removed from tool.
    b. Incorrect fastener length.

Notes

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

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

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