INSTRUCTION MANUAL

MODEL 5304
HYDRAULIC INSTALLATION TOOL
EU Declaration of Conformity

Manufacturer:
Huck International, Inc., Installation Systems Division, 1 Corporate Drive, Kingston, NY, 12401, USA

Description of Machinery:
Model number 5304 fastener installation tool

Relevant provisions complied with:

European Representative:
Rob Pattenden, Huck International, Ltd. Unit C Stafford Park 7, Telford Shropshire TF3 3BQ, England, United Kingdom

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: Henk Rosier
Position: Director, Engineering and Quality Control, Installation Systems Division
Place: Kingston, New York, USA
Date: January, 2003
SAFETY

This instruction manual must be read with particular attention to the following safety guidelines, by any person servicing or operating this tool.

1. Safety Glossary

   - Product complies with requirements set forth by the relevant European directives.
   - Read manual prior to using equipment.
   - Eye protection required while using this equipment.
   - Hearing protection required while using this equipment.

   **WARNING** - Must be understood to avoid severe personal injury.

   **CAUTION** - show conditions that will damage equipment and or structure.

   **Notes** - are reminders of required procedures.

   **Bold, Italic type and underlining** - emphasizes a specific instruction.

2. Huck equipment must be maintained in a safe working condition at all times and inspected on a regular basis for damage or wear. Any repair should be done by a qualified repairman trained on Huck procedures.

3. Repairman and Operator must read manual prior to using equipment and understand any Warning and Caution stickers/labels supplied with equipment before connecting equipment to any primary power supply. As applicable, each of the sections in this manual have specific safety and other information.

4. See MSDS Specifications before servicing the tool. MSDS Specifications are available from your Huck representative or on-line at www.huck.com. Click on Installation Systems Division.

5. When repairing or operating Huck installation equipment, always wear approved eye protection. Where applicable, refer to ANSI Z87.1 - 1989

6. Disconnect primary power source before doing maintenance on Huck equipment.

7. If any equipment shows signs of damage, wear, or leakage, do not connect it to the primary power supply.

8. Make sure proper power source is used at all times.

9. Never remove any safety guards or pintail deflector.

10. Never install a fastener in free air. Personal injury from fastener ejecting may occur.

11. When using an offset nose always clear spent pintail out of nose assembly before installing the next fastener.

12. If there is a pinch point between trigger and work piece use remote trigger. (Remote triggers are available for all tooling).

13. Do not abuse tool by dropping or using it as a hammer. Never use hydraulic or air lines as a handle. Reasonable care of installation tools by operators is an important factor in maintaining tool efficiency, eliminating downtime, and in preventing an accident which may cause severe personal injury.

14. Never place hands between nose assembly and work piece.

15. Tools with ejector rods should never be cycled with out nose assembly installed.

16. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet of correct positioning.
Huck Model 5304 Hydraulic Installation Tool (H.I.T.) is designed to install C50L-16 (1/2 inch) HUCKBOLT® Fasteners. This tool is designed to operate on 4500 - 4750psi (31026 - 32750 kPa) PULL pressure and 2000 - 2200psi (13790 - 15169 kPa) RETURN pressure as supplied by Huck Hydraulic POWERIG® Models 918, 918-5, 913H and 940, or equivalent.

Seals and hoses used in the 5304 H.I.T. are compatible with phosphate ester fire resistant hydraulic fluids.

Table 1 - SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length (overall)</td>
<td>4.75 in. (121 mm)</td>
</tr>
<tr>
<td>Width (maximum)</td>
<td>4.00 in. (102 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>14.5 lbs. (6.6 kg)</td>
</tr>
<tr>
<td>Stroke</td>
<td>.94 in. (24 mm)</td>
</tr>
<tr>
<td>Power Source</td>
<td>Huck Hydraulic POWERIGS®</td>
</tr>
<tr>
<td>PULL Pressure</td>
<td>4500 - 4750psi (31026 - 32750 kPa)</td>
</tr>
<tr>
<td>RETURN Pressure</td>
<td>2000 - 2200psi (13790 - 15169 kPa)</td>
</tr>
</tbody>
</table>
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DESCRIPTION

GENERAL

Huck Model 5304 Hydraulic Installation Tool (H.I.T.) is designed to install C50L-16 (1/2 inch) HUCKBOLT® Fasteners. This tool is designed to operate on 4500 - 4750psi (31026 - 32750 kPa) PULL pressure and 2000 - 2200psi (13790 - 15169 kPa) RETURN pressure as supplied by Huck Hydraulic POWERIG® Models 918, 918-5, 913H and 940, or equivalent.

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</table>
Each tool is complete with hoses, couplers, and switch and control cord assembly ready to be attached to the POWERIG hoses and control cord.

Figure 1 is a sectional view, Figure 2 is a dimensional view, Figure 3 is a release and ejector assembly view, and Figure 4 is an exploded view.

The tool is basically a cylinder and piston assembly with an integral nose assembly. The piston assembly combines the collet assembly of the nose assembly with the piston. The anvil, attached separately, completes the integral nose assembly. An unloading valve, designed to relieve the hydraulic pressure at both ends of the stroke, is positioned by the piston.
PRINCIPLE OF OPERATION

Refer to Figure 1

When tool hoses and control cord are connected to POWERIG® hoses and control cord, PULL and RETURN strokes of tool are controlled by switch attached to RETURN hose. When switch is depressed, a solenoid operated valve in the POWERIG directs pressurized hydraulic fluid thru PULL hoses to front side of piston, and allows fluid on RETURN side to flow back to tank. The collet/piston assembly moves rearward causing spring and O-rings to push follower and jaws forward into collet. If tool is in position on fastener pin and collar, jaws will clamp onto pintail of fastener, and installation cycle begins. Sheets are clamped together. Anvil is forced toward sheet, and swages collar into grooves of fastener. When anvil hits sheet, continued pull causes pintail to break off. When collet/piston reaches end of PULL stroke, flats are uncovered at rear end of unloading valve. Flats are designed to provide a passage for hydraulic fluid from PULL side to RETURN side of piston, "unloading" or "dumping" pressurized fluid back to tank.

When switch is released, POWERIG valve's solenoid is de-energized, and valve directs pressurized fluid to RETURN side of piston. Fluid on PULL side is allowed to flow back to tank. Fluid pressure causes collet/piston assembly to move forward, and collar ejector pushes anvil off swaged (installed) fastener. Jaw release contacts jaws, causing them to open and release the broken-off pintail. The tool is pointed down, allowing the broken-off pintail to drop out the front.

When the piston reaches the end of its RETURN stroke, pressure is built up causing the POWERIG idler valve (except on Model 912 and 940) to go to idling pressure. Idling pressure keeps the tool piston and nose assembly collet, jaws, etc. in the forward position ready for the next installation cycle. A flat on the front end of the unloading valve provides a passage for fluid from RETURN side of piston to PULL side of piston and back to tank.

WARNING

HUCK RECOMMENDS THAT ONLY HUCK HYDRAULIC POWERIGS BE USED AS THE POWER SOURCE FOR HUCK INSTALLATION EQUIPMENT. HYDRAULIC POWER UNITS THAT DELIVER HIGH PRESSURE FOR BOTH PULL AND RETURN, AND ARE NOT EQUIPPED WITH RELIEF VALVES, ARE SPECIFICALLY NOT RECOMMENDED AND MAY BE DANGEROUS.
Figure 2 - CLEARANCE DIMENSIONS

.47 in. = 12 mm
.68 in. = 17 mm
.74 in. = 19 mm
.92 in. = 23 mm
1.00 in. = 25 mm
1.42 in. = 36 mm
1.44 in. = 37 mm
1.53 in. = 39 mm
1.63 in. = 41 mm
2.00 in. = 51 mm
2.40 in. = 61 mm
3.70 in. = 94 mm
4.00 in. = 102 mm
4.75 in. = 121 mm
5.38 in. = 137 mm
PREPARATION FOR USE

CAUTION

KEEP DIRT AND OTHER FOREIGN MATTER OUT OF THE HYDRAULIC SYSTEMS OF THE TOOLS, HOSES, COUPLERS AND POWERIG. DO NOT LET HOSE FITTINGS AND COUPLERS CONTACT A DIRTY FLOOR OR UNECLEAN WORKING SURFACE. FOREIGN MATTER IN HYDRAULIC FLUID WILL CAUSE THE TOOL AND POWERIG VALVES TO MALFUNCTION.

POWER SOURCE CONNECTIONS

Coat hose fitting threads with a non-hardening Teflon thread compound such as Slic-tite. (Slic-tite is manufactured by the Markal Co., and is available from Huck in stick form as part number 503237.) DO NOT use Teflon tape on hose fitting threads.

1. Screw PULL pressure hose, with coupler nipple into port "P". Screw RETURN pressure hose, with coupler body, into port "R".

2. Use a Huck POWERIG, or equivalent, that has been prepared for operation per applicable Instruction Manual. Check both PULL and RETURN pressures, and adjust as necessary.

3. Turn POWERIG to "OFF" and couple tool hoses to POWERIG hoses. Be sure that the hoses run from tool port "P" to POWERIG port "PULL PRESSURE" and from tool port "R" to POWERIG port "RETURN PRESSURE".

4. Connect switch cord to POWERIG cord.

5. Turn POWERIG to "ON". Depress and release switch a few times to circulate hydraulic fluid. Observe action of tool. Check for fluid leaks.

WARNING

Proper PULL and RETURN pressures are important for proper function of the Installation Tool, and for operator’s safety. GAUGE SET-UP, P/N T-10280, is available for checking these pressures using instructions furnished with T-10280 and in applicable POWERIG Instruction Manuals.
OPERATING INSTRUCTIONS

CAUTION

REASONABLE CARE OF INSTALLATION TOOLS BY OPERATORS IS AN IMPORTANT FACTOR IN MAINTAINING TOOL EFFICIENCY AND IN REDUCING REPAIR DOWNTIME. DO NOT ABUSE THE TOOL BY DROPPING IT, USING IT AS A HAMMER OR OTHERWISE CAUSING UNNECESSARY WEAR AND TEAR. BE SURE THERE IS ADEQUATE CLEARANCE FOR THE TOOL AND OPERATOR'S HANDS BEFORE PROCEEDING. DO NOT CONNECT TOOL HOSES TO EACH OTHER AND USE AS A HANDLE FOR CARRYING.

To install HUCKBOLT® Fastener:

1. Check work and remove excessive gap. (Gap is the space between sheets. Gap is excessive if not enough pintail sticks thru the collar for the jaws to grab onto).

2. Put HUCKBOLT pin into hole.

3. Slide HUCKBOLT collar over pin. (The beveled end of the collar must be towards the tool.)

4. Push tool onto pin until anvil stops against collar. Tool must be held at right angles (90°) to the work.

5. Depress tool switch to start fastener installation cycle.

6. When forward motion of anvil stops and pintail breaks off, release switch. Tool will go into its RETURN stroke, push off installed fastener and release pintail.

7. The tool is ready for next fastener installation cycle.

WARNING

DO NOT PULL ON PIN WITHOUT A COLLAR. IF A PIN IS PULLED WITHOUT COLLAR, THE PIN WILL EJECT FORCIBLY WHEN THE PINTAIL BREAKS OFF.
MAINTENANCE

PREVENTIVE MAINTENANCE

NOTE

Refer to the applicable section for assembly or disassembly. For supplementary information refer to Troubleshooting Chart and Parts List.

POWERIG Maintenance

Maintenance instructions and repair procedures are in the applicable POWERIG Instruction Manual.

System Inspection

Operating efficiency of the installation tool is directly related to performance of the complete system, including the tool, hydraulic hoses, switch and control cord, and POWERIG. Therefore, an effective preventive maintenance program includes scheduled inspections of the system to detect and correct minor troubles.

1. Inspect tool for external damage.

2. Verify that hydraulic hose fittings and couplings, and electrical connections are secure.

3. Inspect hydraulic hose for signs of damage or aging. Replace hose at six-month to one-year intervals, depending on use.

4. Inspect tool, hose, and POWERIG during operation to detect abnormal heating, leaks, or vibration.

Tool Maintenance

At regular intervals, depending upon use, replace all O-rings and back-up rings in the tool. Spare Parts Kits, 110833, should be kept on hand. (See Table 4 and SPARE PARTS AND SPARE PARTS KIT). Inspect cylinder bore, collet/piston exterior, and unloading valve for scored surfaces, excessive wear or damage, and replace as necessary. Daily cleaning of the collet/piston internal parts is recommended. This can usually be accomplished by dipping tool anvil in mineral spirits, or other suitable solvent, to clean jaws and wash away metal chips and dirt. If more thorough cleaning is necessary, remove jaws, follower, spring, etc. per DISASSEMBLY steps 8 and 9 without completely disassembling tool. Use a sharp pointed pick to remove embedded particles from pull grooves of jaws. Reassemble per ASSEMBLY steps 4, 5 and 6.
TROUBLESHOOTING

Always check out the simplest possible cause of a malfunction first. For example, a switch turned off or a power cord not connected. Then proceed logically, eliminating each possible cause until the defective circuit or part is located. Where possible, substitute known good parts for suspected bad parts. Use Troubleshooting Chart as an aid in locating trouble and correcting it.

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>PROBABLE CAUSE</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Tool fails to operate.</td>
<td>Inoperative POWERIG.</td>
<td>Check power source to POWERIG. See applicable POWERIG instruction manual.</td>
</tr>
<tr>
<td></td>
<td>Loose or disconnected control cord.</td>
<td>Check and tighten securely.</td>
</tr>
<tr>
<td></td>
<td>Defective switch assembly.</td>
<td>Replace switch assembly.</td>
</tr>
<tr>
<td></td>
<td>Loose or faulty hydraulic hose couplings.</td>
<td>Check and tighten securely or replace faulty couplings.</td>
</tr>
<tr>
<td>B. Tool operates in reverse;</td>
<td>Reversed hydraulic hose connections between</td>
<td>Check and correct hose connections.</td>
</tr>
<tr>
<td>stops in back position.</td>
<td>POWERIG and Tool.</td>
<td></td>
</tr>
<tr>
<td>C. Tool leaks hydraulic oil.</td>
<td>Depending on where leak occurs, defective or</td>
<td>Check and replace O-rings and back-up rings, or tighten hydraulic hose.</td>
</tr>
<tr>
<td></td>
<td>worn O-rings, loose hydraulic hose connection at</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tool.</td>
<td></td>
</tr>
<tr>
<td>D. Hydraulic oil overheats.</td>
<td>POWERIG not operating properly. Pump motor</td>
<td>See applicable POWERIG instruction manual.</td>
</tr>
<tr>
<td></td>
<td>rotation reversed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Restriction in hydraulic line.</td>
<td>Check and tighten couplings and replace if necessary.</td>
</tr>
<tr>
<td>TROUBLE</td>
<td>PROBABLE CAUSE</td>
<td>CORRECTIVE ACTION</td>
</tr>
<tr>
<td>---------</td>
<td>---------------</td>
<td>------------------</td>
</tr>
<tr>
<td>E. Tool operates erratically and fails to install fastener properly.</td>
<td>Low or erratic hydraulic pressure supply.</td>
<td>See POWERIG instruction manual.</td>
</tr>
<tr>
<td></td>
<td>Defective or excessively worn piston O-ring in Tool.</td>
<td>Replace O-ring and back-up rings.</td>
</tr>
<tr>
<td></td>
<td>Excessive wear or scoring of sliding surfaces of tool parts.</td>
<td>Check and replace defective parts.</td>
</tr>
<tr>
<td>F. Pull grooves on fastener pintail stripped during pull stroke.</td>
<td>Operator not sliding Tool completely onto fastener pintail.</td>
<td>Instruct operator in proper installation methods.</td>
</tr>
<tr>
<td></td>
<td>Incorrect fastener length.</td>
<td>Use correct length fastener.</td>
</tr>
<tr>
<td></td>
<td>Worn or damaged jaw segments.</td>
<td>Check and replace jaw set.</td>
</tr>
<tr>
<td></td>
<td>Metal chips accumulated in pull grooves of jaw segments.</td>
<td>Clean jaw segments.</td>
</tr>
<tr>
<td></td>
<td>Excessive sheet gap.</td>
<td>Eliminate excessive gap.</td>
</tr>
<tr>
<td>G. Collar of HUCKBOLT Fastener not completely swaged.</td>
<td>Improper Tool operation.</td>
<td>See Trouble E.</td>
</tr>
<tr>
<td></td>
<td>Scored anvil in Tool.</td>
<td>Check and replace anvil.</td>
</tr>
<tr>
<td>TROUBLE</td>
<td>PROBABLE CAUSE</td>
<td>CORRECTIVE ACTION</td>
</tr>
<tr>
<td>---------</td>
<td>----------------</td>
<td>------------------</td>
</tr>
<tr>
<td>H. Tool &quot;hangs-up&quot; on swaged collar of HUCK-BOLT Fastener.</td>
<td>Improper tool operation.</td>
<td>See Trouble E.</td>
</tr>
<tr>
<td>I. Pintail of fastener fails to break.</td>
<td>Pull grooves on fastener stripped.</td>
<td>See troubles E and F.</td>
</tr>
<tr>
<td>J. Jaw segments do not maintain proper position in collet.</td>
<td>Improper operation of jaw follower.</td>
<td>Check and replace spring and/or O-rings. Clean all parts before reassembling.</td>
</tr>
<tr>
<td>K. Operator cannot slide Tool anvil completely onto fastener pintail.</td>
<td>Broken pintail in Tool.</td>
<td>Point Tool down to allow pintail to fall out.</td>
</tr>
<tr>
<td>L. Hydraulic couplers leak oil.</td>
<td>Defective or worn O-ring in coupler body.</td>
<td>See Figure 5 for removing and replacing O-ring and back-up ring.</td>
</tr>
</tbody>
</table>
DISASSEMBLY AND ASSEMBLY

GENERAL

During disassembly and assembly, take the following precautions to avoid damaging tool or components:

(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 components in or out.

(d) Never continue to force a component if it "hangs-up" due to misalignment. Reverse the procedure to correct misalignment and start over.

(e) Assemble release and ejector with Loctite Adhesive/Sealant. (Loctite™ is manufactured by Loctite Corporation, and is available from Huck in a tube as part number 503657. Loctite is also part of Release and Ejector Kit, part number 120836 for 5304 H.I.T.

(f) Smear Lubriplate™ 130AA, or equivalent, on O-rings and mating surfaces to aid assembly and prevent damage to O-rings. (Lubriplate is manufactured by Fiske Brothers Refining Co. and is available in most localities. A handy tube of Lubriplate 130AA is available from Huck as part number 502723).

(g) Coat hose fitting threads with a non-hardening Teflon™ thread compound such as Slic-tite.™ (Slic-tite is manufactured by the Markal Co., and is available from Huck in stick form as part number 503237.) DO NOT USE TEFILON TAPE ON HOSE FITTING THREADS.

SPARE PARTS AND SERVICE KIT

The quantity of spare parts kept on hand varies with experience of your own maintenance needs. Service kit(s), 5304KIT, should be kept on hand as well. See tool Figure 4, Table 4 and Table 5 for kit contents and where used - - seals should be replaced on tool whenever any sub-assembly(s) is disassembled.

DISASSEMBLY AND ASSEMBLY TOOLS

Standard hand tools such as wrenches, drifts, copper or lead hammers, screw drivers, socket screw hexagonal keys, long forceps (tweezers), etc. which can be purchased at most local supply firms are required. If possible, an arbor press and vise with soft jaws should be available. Standard tools available from Huck are shown in Table 3.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Used on</th>
</tr>
</thead>
<tbody>
<tr>
<td>502295</td>
<td>Hex Key, 5/32 across flats</td>
<td>3-1</td>
</tr>
<tr>
<td>502443</td>
<td>Hex Key, 1/16 across flats</td>
<td>3-37</td>
</tr>
</tbody>
</table>
Release and ejector must be pressed together. Use a hand operated arbor press and steel bar as illustrated or a vise and bar.

Figure 3 - RELEASE AND EJECTOR ASSEMBLY
For component identification, refer to Figure 4, Exploded View and Table 4, Parts List. Numbers in parenthesis ( ) are reference numbers shown in Figure 4.

The following procedure is for complete disassembly. **Disassemble only components necessary to check and replace damaged O-ring, back-up ring, or components.**

**WARNING**

Be sure POWERIG is turned OFF before removing tool for cleaning, or for replacing worn or damaged components.

**DISASSEMBLY**

1. Uncouple tool hydraulic hoses, and disconnect electrical control cord.

2. Remove Socket Head Cap Screw (1) that locks Anvil (2) to Cylinder (3). Remove anvil.

3. Remove Coupler Nipple (29) and Coupler Body (30). Drain Hoses (28) into a clean container.

4. Push rearward on Piston Assembly (6) until hydraulic fluid is drained into container.

5. Remove Socket Head Cap Screw (1) and Lock Washer (41) that holds Locking Ring (26) in cylinder. Remove locking ring with spanner wrench.

6. Push rearward on Piston (6) until Cylinder Cap (21) and piston slides out of cylinder.

7. Remove Unloading Valve (27) from piston.

8. Remove Retainer Assembly (19) from piston with spanner wrench.

9. Slide Follower Assembly (12), O-rings (15) and Jaws (11) from collet/piston.

10. Use a small diameter, dull-pointed rod to remove O-rings and back-up rings from all components.

11. 

12. To remove Ejector (9) and Release (10), hold in tool maker’s vise to keep assembly from rolling while cutting at point between flange of ejector and end of collet. Use a hack saw, band saw or abrasive cutting wheel for this operation. See Figure 3.

13. Remove Screws (32), Washers (33) and Nuts (34) from Clamp (31). Separate clamp from Switch and Control Cord Assembly, and Hydraulic Hose (28).

14. Remove both hoses from cylinder.

15. Loosen two screws on Cord Grip (38). Loosen Cup Point Set Screw (37). Pull Switch (35) from Housing (36).

16. Loosen two screws at rear of switch to remove switch from Electrical Cord (39). Remove two #6-32 socket set screws to disassemble switch for cleaning. Remove Cord Grip (38) from housing.

17. Disassemble electrical connector to replace connector, or to rewire.
ASSEMBLY

Before assembling tool:

(a) Clean components in mineral spirits, or other solvent compatible with O-ring seals.

(b) Clean out O-ring grooves.

(c) Inspect components for scoring, excessive wear or damage.

(d) Replace O-rings and back-up rings. Be sure that relative positions of O-rings and back-up rings are as shown in Figure 1 and Figure 4. Specifications for O-rings, back-up rings and other standard components are given in Table 4 and NOTES.

(e) Smear Lubriplate 130AA on O-rings and mating surfaces to prevent damage to O-rings and to aid assembly.

1. Replace all O-rings and back-up rings as shown in Figure 1 and Figure 4.

2. If Collar Ejector (9) and Jaw Release (10) require replacement, apply Loctite™ Adhesive/Sealant to release, and assemble to Collet/piston (6) as shown in Figure 3. Follow instructions on Loctite card for cleaning parts and applying Loctite. (Ejector and release were assembled with Loctite and cannot normally be disassembled. To remove ejector and release, saw thru release at a point between flange of ejector and end of collet. A hack saw, band saw or abrasive cutting wheel is used for this operation. Use tool maker’s vise to hold release and ejector while sawing.)

3. Hold collet/piston with large opening up. Place three segments of Jaws (11), in collet one at a time, so that tapers of jaws match cone angle.

4. Push O-rings (15) onto follower. Drop assembled components with follower into piston against jaws.

5. Push Retainer Assembly (19) over follower, and screw it into piston. Tighten retainer with a spanner wrench until retainer shoulder is tight against piston extension.

6. Screw Anvil (2) into Cylinder (3). Turn anvil out until closest notch is aligned with threaded hole of cylinder. Lock anvil into position in cylinder with Socket Head Cap Screw (1).

7. Align eccentric front extension of piston with eccentric hole in front of cylinder, and push piston into cylinder.

8. Slide Unloading Valve (27) thru hole in piston. BE SURE UNLOADING VALVE IS ASSEMBLED WITH FOUR FLATS TO THE REAR AS SHOWN.
10. Align hole in Cylinder Cap Assembly (21) with rear extension of piston. Push cap over extension and into cylinder.

11. Install and tighten Locking Ring (26). Back ring out 1/8 turn or less until Socket Head Cap Screw (1) with Lock Washer (41) can be installed in cap and a matching locking ring groove.

12. Attach Coupler Nipple (29) and Coupler Body (30) to Hydraulic Hoses (28). Attach hose with nipple to port “P” of cylinder.

13. Assemble Electrical Control Cord (39) to plug of electrical Connector Assembly (40).

14. Replace and tighten Cord Grip (38) in Housing (36).

15. Push cord thru Cord Grip (38) and housing. Attach cord to rear of Switch (35) with two screws.

16. Slide switch with cord attached into housing. Tighten Screw (37) against switch. Tighten two screws in cord grip to hold cord in housing.

17. Place two halves of Clamp (31) over “R” hose. Align clamp holes, and loosely attach Screw (32), Washer (33), and Nut (34). Push Switch (35) into clamp and hold it centered as screws are tightened.

18. Connect tool hoses to POWERIG hoses and cycle tool a few times. Observe action of tool and check for leaks.

Notes - PARTS LIST

1. All part numbers shown are available from Huck for replacements.

2. Part numbers in the 500000 series are standard parts which generally can be purchased locally.

3. O-ring sizes are specified as AS 568 dash numbers. (AS 568 is an AEROSPACE SIZE STANDARD FOR O-RINGS and formerly was known as ARP.)

4. Material for O-rings is VITON (Parker Seal Co. compound V747-75 or equivalent) 75 durometer, except P/N 500845, which is Buna N, 70 durometer.

5. Back-up rings are W. S. Shamban & Co. series S-11248, single turn TEFLOM (MS-28774) or equivalent. The dash numbers correspond to the O-ring AS 568 dash numbers.
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<td>Anvil-Integral</td>
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<td>Release &amp; Ejector Kit (includes 9 &amp; 10)</td>
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Figure 5 - HYDRAULIC COUPLING ASSEMBLY

O-ring, P/N 504438, and back-up ring, P/N 501102, must be replaced if leakage occurs when hydraulic couplers are connected. Use a pick with a long point, of approximately .060 diameter, to lift out O-ring and back-up ring.

Use a fine India stone to remove any nicks or burrs from diameter A and leading edge, to prevent damage to O-ring.

NOTES

P/N 504438 is a 75 durometer VITON, or equivalent, O-ring, size AS 568-111.

P/N 501102 is a teflon back-up ring, W.S. Shamban S-11248-111, or equivalent.
Figure 6 - Hoses and Trigger Assembly

Hose/trigger Clamp Assembly, 123380, includes:
- Hose/trigger clamp base
- Hose/trigger clamp cap
- Flat washer, for #10 screw - - 506351 (4)
- Butt hd cap screw - 10-24 x 1.5 - - 506357 (2)
- Butt hd cap screw - 10-24 x 1 - - 502481 (2)

Trigger/cord sembly, 123381, includes (except where noted):
- Switch - - 103944
- Connector assembly (M & F) - - 110835 (not included)
  - Male connector - 24V3NP - - 110686 (as shown)
  - Female connector - 24V3NC - - 110687 (not included)
- Housing assembly - - 108597
- Soc cup set screw - 6-32 x .19 - - 501900
- Cord grip - - 504083

NOTE:
Indentions are parts of previous sub-assembly
Parts with part numbers can be purchased
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<td>INSTRUCTION MANUAL</td>
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**LIMITED WARRANTIES**

**Tooling Warranty:** Huck warrants that tooling and other items (excluding fasteners, and hereinafter referred as "other items") manufactured by Huck shall be free from defects in workmanship and materials for a period of ninety (90) days from the date of original purchase.

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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.

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Telephone (905) 564-4825 FAX (905) 564-1963

**Outside USA and Canada**
Contact your nearest Huck International Office, see back cover.

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 Tools Kits and Nose Assemblies. Please contact your Huck Representative or the nearest Huck office listed on the back cover for the ATSC in your area.
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