INSTRUCTION MANUAL

MODEL 6304, 7304, 8304 & 9304

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 **(6304 Only)** 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.

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

   **CAUTIONS** - 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 you 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.
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.

NOTICE
This manual applies to Huck Models 6304, 7304, 8304 and 9304 Hydraulic Installation Tools with serial numbers 0401 and above, and Modified Models.

Please read this manual carefully. If you need assistance, please contact your Huck representative or the nearest Huck office listed on the back cover.
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DESCRIPTION

GENERAL

Huck Models 6304, 7304, 8304, and 9304 Hydraulic Installation Tools (H.I.T.) are used to install CS5L and M50L HUCKBOLT® Fasteners. Each tool model has the same eccentric configuration to install fasteners in limited clearance applications. The four tool models vary in size and pull capacity. Each model has a built-in nose assembly designed to install a specific size fastener.

Tools are designed to be powered by POWERIG® Hydraulic Unit models 908, 910, 911 and 917, or equivalent. POWERIG Hydraulic Units are preset at factory to provide 5400-5700 psi PULL pressure, and 2200-2400 psi RETURN pressure. They must be reset per applicable instruction manual to provide 8000-8400 psi PULL pressure and 2800-3200 psi RETURN pressure.

Three modifications, or dash number models are available, and identified by the basic model number and fastener size suffix. These are Models 6304-16 (1/2), 8304-24 (3/4), and 9304-28 (7/8 and 22 mm). They may be used with the same Powerigs as the basic models with pull pressure at 8000-8400 psi, or adjusted to 6000-6400 psi pull pressure. See page 18 for Specifications and Parts List for Modified Models.

Tool seals and hoses are compatible with phosphate ester hydraulic fluid.

CAPACITY    NOMINAL
(8400 PSI)   STROKE

<table>
<thead>
<tr>
<th>MODEL NO.</th>
<th>FASTENER SIZE</th>
<th>LENGTH</th>
<th>HEIGHT</th>
<th>WIDTH</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>6304</td>
<td>5/8 in. 16 mm</td>
<td>7.25 in. 184 mm</td>
<td>3.62 in. 92 mm</td>
<td>3.62 in. 92 mm</td>
<td>16.0 lbs. 7.3 kg</td>
</tr>
<tr>
<td>7304</td>
<td>3/4 in. 194 mm</td>
<td>7.62 in. 194 mm</td>
<td>4.12 in. 105 mm</td>
<td>4.12 in. 105 mm</td>
<td>17.0 lbs. 7.7 kg</td>
</tr>
<tr>
<td>8304</td>
<td>7/8 in. 22 mm 205 mm</td>
<td>8.09 in. 205 mm</td>
<td>4.88 in. 124 mm</td>
<td>4.88 in. 124 mm</td>
<td>26.3 lbs. 11.9 kg</td>
</tr>
<tr>
<td>9304</td>
<td>1 in. 213 mm</td>
<td>8.37 in. 213 mm</td>
<td>5.50 in. 140 mm</td>
<td>5.50 in. 140 mm</td>
<td>34.0 lbs. 15.4 kg</td>
</tr>
</tbody>
</table>

Table 1 - SPECIFICATIONS FOR BASIC MODELS

Power Source ............................................. Huck POWERIG Hydraulic Unit
PULL Pressure .................................................. 8000 - 8400 psi
RETURN Pressure ............................................... 2800 - 3200 psi

Form 457—Rev. 5/79
Each tool is complete with built-in nose assembly, hoses, couplers, and auxiliary switch and control cord ready to be attached to the POWERIG® Hydraulic Unit hoses.

Figure 1 is a sectional view, and Figure 3 is an exploded view of 6304, 7304, 8304, and 9304 Tools.

Tools are basically a cylinder and piston assembly with built-in nose assembly. Piston assembly includes piston and piston rod. Piston rod has all the features of a nose assembly collet. Anvil fits over piston/collet and screws into cylinder. Pressure tube/unloading valve relieves pressure at both ends of stroke, and provides passage for high pressure hydraulic fluid from PULL to RETURN on PULL stroke, and from RETURN to PULL on RETURN stroke.

Hydraulic hoses are connected to cylinder head. Auxiliary switch and control cord assembly is clamped to hose.

Figure 1 - SECTIONAL VIEW
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 a switch. When the switch is depressed, a solenoid operated valve in the POWERIG directs pressurized hydraulic fluid through PULL hose to the front side of piston, and allows fluid on RETURN side to flow back to tank. The piston/collet moves rearward causing follower O-rings and spring to impart a forward motion to the follower. If tool is in position on a fastener pin and collar, this forward motion causes the jaws to clamp onto pintail of fastener and installation cycle commences. Clamping pressure is applied to sheets. The anvil is forced forward, swaging the collar into locking grooves of fastener. When anvil hits the sheet, continued pull causes pintail to break off. When piston reaches end of its PULL stroke, it uncovers flats on the rear end of unloading valve. These flats were designed to provide a passage for hydraulic fluid from PULL side to RETURN side of piston, “unloading” or “dumping” the pressurized fluid back to tank. When switch is released, the solenoid is de-energized and the valve directs pressurized fluid to rear side of piston and allows fluid on PULL side to flow back to tank. This causes piston/collet to move forward and pushes tool off the swaged (installed) fastener. Jaw release contact jaws, causing them to open and release the broken-off pintail. The pintail drops out the front of the tool. When piston reaches the end of its RETURN stroke, pressure is built up causing POWERIG® idler valve (except on Models 910 and 911 to go to idling pressure). Idling pressure keeps the piston/collet, jaws, etc. in the forward position ready for next installation cycle.

A flat on front end of unloading valve was designed to provide a passage for hydraulic 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.
POWER SOURCE CONNECTIONS

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 unclean working surface. Foreign matter in hydraulic fluid will cause tool and POWERIG valves to malfunction.

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" of cylinder head. Screw RETURN pressure hose, with coupler body, into port "R" of cylinder head.

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 hoses run from head port "P" to POWERIG port "PULL PRESSURE", and from head port "R" to POWERIG port "RETURN PRESSURE".

4. Attach switch and control cord assembly to "RETURN PRESSURE" hose, and close to cylinder head. Connect auxiliary switch cord to POWERIG cord.

5. Turn POWERIG to "ON", and 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 Installation Tool, and for operator's safety. GAUGE SET-UP, P/N T-10206, is available for checking these pressures using instructions furnished with T-10206 and in applicable POWERIG Instruction Manuals. See Table 1 - SPECIFICATIONS.
OPERATING INSTRUCTIONS

CAUTION

Reasonable care of installation tools by operator is an important factor in maintaining tool efficiency and in reducing repair down-time. 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.

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

5. Depress auxiliary switch to start installation cycle.

6. When forward motion of tool's anvil stops and pintail breaks off, release switch. If pintail does not break off, operate switch to recycle tool until pintail breaks, and nose assembly is ejected from installed fastener.

7. The tool is now ready for the next installation cycle.

To install HUCKBOLT® Fastener:

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

2. Put HUCKBOLT pin in hole.

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

WARNING

After fastener installation, tool must be pointed down to allow broken-off pintail to drop out.

WARNING

Do not pull on a pin without a collar. If a pin is pulled without a collar, the pin will eject forcibly when the pintail breaks off.
NOTE

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

POWERIG Maintenance

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

System Inspection

Operating efficiency of the tool is directly related to performance of the complete system including 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 if damaged.

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 should be kept on hand. (See Table 6 and SPARE PARTS AND SPARE PARTS KITS). Inspect cylinder bore, piston/collet exterior, and pressure tube for scored surfaces or excessive wear and damage, and replace as necessary. Frequent cleaning of the piston/collet 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 or maintenance is necessary remove Retainer (24) with spanner wrench. Jaws, follower, etc. are removed by turning tool. If spanner wrench is not available, follow DISASSEMBLY steps 1, 3, 4, 7, 8, and 10, and use proper fitting tool in slots of retainer. Use a sharp pointed pick to remove embedded particles from pull grooves of jaws. Reassemble per appropriate ASSEMBLY steps.
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 2 - TROUBLESHOOTING CHART

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>PROBABLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Tool fails to operate.</td>
<td>1. Inoperative POWERIG®. See applicable POWERIG Instruction Manual.</td>
</tr>
<tr>
<td></td>
<td>2. Loose or disconnected control cord.</td>
</tr>
<tr>
<td></td>
<td>3. Defective switch assembly.</td>
</tr>
<tr>
<td></td>
<td>4. Loose or faulty hydraulic hose couplings.</td>
</tr>
<tr>
<td>B. Tool operates in reverse; stops in back position.</td>
<td>1. Reversed hydraulic hose connections between POWERIG and tool.</td>
</tr>
<tr>
<td>C. Tool leaks hydraulic oil.</td>
<td>1. Depending on where leak occurs, defective or worn O-rings, loose hydraulic hose connection at tool.</td>
</tr>
<tr>
<td>D. Hydraulic couplers leak oil.</td>
<td>1. Defective or worn O-ring in coupler body. See Figure 4.</td>
</tr>
<tr>
<td>E. Hydraulic oil overheats.</td>
<td>1. POWERIG not operating properly.</td>
</tr>
<tr>
<td></td>
<td>2. Hydraulic couplers not completely tightened.</td>
</tr>
<tr>
<td></td>
<td>3. Restriction in hydraulic line.</td>
</tr>
<tr>
<td>TROUBLE</td>
<td>PROBABLE CAUSE</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>F. Tool operates erratically and fails to install fastener properly.</td>
<td>1. Low or erratic hydraulic pressure supply.</td>
</tr>
<tr>
<td></td>
<td>2. Defective or excessively worn piston O-ring in tool.</td>
</tr>
<tr>
<td></td>
<td>3. Excessive wear or scoring of sliding surfaces of tool parts.</td>
</tr>
<tr>
<td></td>
<td>4. Solenoid pin too short—worn or peened over.</td>
</tr>
<tr>
<td></td>
<td>5. Excessive wear on outside diameter of pressure tube.</td>
</tr>
<tr>
<td>G. Operator cannot slide tool anvil completely onto fastener pintail.</td>
<td>1. Broken off pintail not removed from tool.</td>
</tr>
<tr>
<td>H. Pull grooves on fastener pintail stripped during pull stroke.</td>
<td>1. Broken pintail not removed from tool.</td>
</tr>
<tr>
<td></td>
<td>2. Operator not sliding anvil completely onto fastener pintail.</td>
</tr>
<tr>
<td></td>
<td>3. Incorrect fastener length.</td>
</tr>
<tr>
<td></td>
<td>4. Worn or damaged jaw segments.</td>
</tr>
<tr>
<td></td>
<td>5. Metal particles accumulated in pull grooves of jaw segments.</td>
</tr>
<tr>
<td></td>
<td>7. Excessive sheet gap.</td>
</tr>
<tr>
<td>I. Collar of HUCKBOLT® Fastener not completely swaged.</td>
<td>1. Improper tool operation. See Trouble F.</td>
</tr>
<tr>
<td></td>
<td>2. Scored tool anvil.</td>
</tr>
<tr>
<td>J. Tool “hangs-up” on swaged collar of HUCKBOLT Fastener.</td>
<td>1. Improper tool operation. See Trouble F.</td>
</tr>
<tr>
<td></td>
<td>2. Return pressure too low.</td>
</tr>
<tr>
<td>K. Pintail of fastener fails to break.</td>
<td>1. Improper tool operation. See Trouble F.</td>
</tr>
<tr>
<td></td>
<td>2. Pull grooves on fastener stripped. See Trouble H.</td>
</tr>
<tr>
<td>L. Jaw segments do not maintain proper position in collet.</td>
<td>1. Incorrect amount of follower O-rings, or weak or broken spring. Clean before reassembling.</td>
</tr>
</tbody>
</table>
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 component 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 Kits.) Follow instructions on Loctite card for cleaning parts and applying Loctite.

(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 Teflon tape on hose fitting threads.

DISASSEMBLY AND ASSEMBLY TOOLS

Standard hand tools such as wrenches, drifts, copper or lead hammers, screwdrivers, socket screw hexagon keys, long forceps (tweezers), and 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 3 - STANDARD TOOLS AVAILABLE FROM HUCK AND THEIR USE

<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>502296</td>
<td>Hex Key, 3/16 across flats</td>
<td>3-33</td>
</tr>
<tr>
<td>502443</td>
<td>Hex Key, 1/16 across flats</td>
<td>3-43</td>
</tr>
</tbody>
</table>
DISASSEMBLY

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

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

WARNING

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

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

2. Remove Socket Head Cap Screw (1) that attaches Anvil Retainer (2) to Cylinder (6). Unscrew Anvil (3).

3. Unscrew Coupler Nipple (35) and Coupler Body (36), and drain hoses into a clean container.

4. Push rearward on Piston Assembly (7) until hydraulic fluid is drained into container.

5. Remove Screws (38), Washers (39) and Nuts (40) from Clamp (37). Separate clamp from Switch and Control Cord Assembly, and Hydraulic Hoses (34).

6. Remove both hoses from Head Assembly (30).

7. Remove Socket Head Cap Screws (33) and Shield (32). Turn tool until Key (29) falls out of locking slots. Remove Locking Ring (31) with spanner wrench.

8. Push rearward on Piston Assembly (7) until head assembly and piston assembly slides out of cylinder.

9. Remove Pressure Tube Assembly (13) from piston or head.

10. Remove Retainer and O-ring Assembly (24) from piston with spanner wrench.

11. Slide Follower Assembly (16), O-rings (19) and Jaws (12) from piston/collct.
13. Normally, Ejector (8) and Release (9) cannot be disassembled by unscrewing. Hold in tool maker’s vise to keep assembly from rolling while cutting at a point between flange of ejector and end of collet. Use a hack saw, band saw or abrasive cutting wheel for this operation. See Figure 2.

14. Loosen two screws on Cord Grip (44). Loosen Cup Point Set Screw (43). Pull Switch (41) from Housing (42).

15. Loosen two screws at rear of switch to remove switch from Electrical Cord (45). Remove two #6-32 socket set screws to disassemble switch for cleaning. Remove cord grip from housing.

16. Disassemble Electrical Connector (46) to replace connector, or to rewire.

**Figure 2 - REMOVING RELEASE AND EJECTOR FROM PISTON/COLLET**

**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, Figure 3 and Figure 4. Specifications for O-rings, back-up rings and other standard components are given in Table 5 and NOTES.

(e) Smear Lubriplate™ 130AA on O-rings and mating surfaces to prevent damage to O-rings, and to aid assembly.
1. Apply Loctite™ Adhesive/Sealant to Jaw Release (9), and assemble to piston/collet (7) and Collar Ejector (8). Follow instructions on Loctite card for cleaning parts and applying Loctite. See DISASSEMBLY, step 13, to remove ejector and release.

2. 

3. Hold piston/collet with large opening up. Place three segments of Jaws (12), into collet one at a time, so that taper of jaws match cone angle of collet.

4. Push O-rings (19), onto follower. Drop assembled components into piston against jaws.

5. Push Retainer Assembly (24) over follower, and screw it into piston. Tighten retainer with a spanner wrench until retainer shoulder is tight against piston extension.

6. Align eccentric front extension of piston with eccentric hole in front of cylinder, and push piston/collet into Cylinder (6).

7. Slide Pressure Tube Assembly (13) thru hole in piston/collet.

8. Place Locking Ring (31) over rear of Head Assembly (30). Hold head and ring together. The tube pocket in head must be aligned with tube in piston while pushing head into cylinder. When ring stops head, turn in ring. Alternately push in head and turn in ring.

9. Tighten locking ring. Back ring out 1/8 turn or less until slot in head and slot in ring are aligned. Hold tool pointing down. Place Key (29) into slots. Place Shield (32) on head, and tighten both socket Head Cap Screws (33).

10. Screw Anvil (3) into Cylinder (6).

11. Assemble Anvil Retainer (2) and Screw (1) to cylinder.

12. Screw Coupler Nipple (35) and Coupler Body (36) onto Hydraulic Hoses (34). Screw hose with nipple into port "P" of head. Screw other hose into head.


14. Replace and tighten Cord Grip (44) in Housing (42).
15. Assemble Switch (41). Push cord thru cord grip and housing. Attach cord to rear of switch with two screws.

16. Slide switch with cord attached into housing. Tighten Screw (43) against switch. Tighten two screws in cord grip to hold cord in housing.

17. Place two halves of Clamp (37) over "R" hose. Align clamp holes, and loosely attach Screw (38), Washer (39), and Nut (40). Push assembled switch and housing into clamp and hold it centered as screws are tightened.


Notes - PARTS LIST

(1) All part numbers shown are available for replacements and spare parts.

(2) Part numbers in the 500000 series are standard items purchasable at most local supply firms. See Table 5 for specifications of standard components.
<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
<th>REF. NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
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<td>1</td>
<td>501267</td>
<td>Screw-Soc. Hd. Cap—#10-32 X 1/2</td>
<td>24</td>
<td>122319</td>
<td>Retainer &amp; O-ring Assem. (incl. 23)</td>
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<tr>
<td>2</td>
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<td>Retainer - Anvil</td>
<td>25</td>
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<td>3</td>
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<td>4</td>
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<tr>
<td>6</td>
<td>107822</td>
<td>Cylinder Assem. (Incl. 4 &amp; 5)</td>
<td>29</td>
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<td>Key</td>
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<td>7</td>
<td>110610</td>
<td>Piston Assem. (Incl. 8 thru 11)</td>
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<td>Head Assem. (Incl. 25, 26, 27 &amp; 28)</td>
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<td>8</td>
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<td>Release &amp; Ejector Kit (Incl. 8 &amp; 9)</td>
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<td>Ejector - Collar</td>
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<td>Body (Female - see Fig. 4)</td>
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<td>Switch &amp; Cord Assem. (Incl. 37 thru 46)</td>
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<td>Clamp</td>
</tr>
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<td>Connector Assem. (Incl. male &amp; female)</td>
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</table>

For latest part nos., see next page.
### Diagram Notes:

- **Assembly Follower and O-Rings Per Huck Spec 42-491**

2. **Service Kit**: 8090 is available for this tool.

3. **Capacity**: 3534 lbs at 8400 psi; stroke 1250 normal.

4. **Release and Ejector Kit**: 124827 consists of release 124826 and ejector 124219.

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**Other Parts Noted:**

- 500645 O-RING
- 50021 BACK UP RING
- 504630 O-RING
- 50151 BACK UP RING
- 122395 FOLLOWER
- 119583 CHUCK JAWS
- 124825 ANVIL
- 124219 EJECTOR
- 124826 RELEASE
- 109010 RETAINER
- 501267 SOCKET HEAD CAP SCREW
- 105012 CYLINDER
- 105012 CYLINDER
- 104891 LOCKING RING
- 104891 LOCKING RING
- 110501 CYLINDER HEAD ASSEMBLY
- 110164 KEY
- 123380 TRIGGER/CLAMP ASSEMBLY
- 123380 TRIGGER/CLAMP ASSEMBLY
- 123749 HOSE (2)
- 123749 HOSE (2)
- 501224 SOCKET HEAD CAP SCREW (2)

---

**Model Details:**

**Model**: 6304BOM

**HIT**: 20 BOM

**Revision**: A

**Date**: 09/21/95

---

**Company Information:**

**Huck International Inc. I.S.D.**

**Address**: 80 Grand Street, P.O. Box 2720

**Kingston, New York, 12401**

**Model**: 6304BOM

**Date**: 09-21-95

**Scale**: None

---

**Parts:**

- 110439 FEMALE CONNECTOR
- 110430 MALE CONNECTOR
Table 5 - SPECIFICATIONS FOR STANDARD COMPONENTS

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<th>PART NO.</th>
<th>REF. NO.</th>
<th>DASH NO.</th>
<th>PART NO.</th>
<th>REF. NO.</th>
<th>DASH NO.</th>
<th>PART NO.</th>
<th>REF. NO.</th>
<th>DASH NO.</th>
<th>PART NO.</th>
<th>REF. NO.</th>
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</tbody>
</table>

Notes - SPECIFICATIONS

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

(2) Back-up rings are W. S. Shamban & Co. series S-1248, single turn TEFLOX (MS-28774) or equivalent.
The dash numbers correspond to the O-ring AS 568 dash numbers.

(3) Material for O-rings:

a. Ref. nos. 5, 11, 15, 25 and 27 are VITON,
   (Parker Seal Co. compound V709-90 or equivalent) 90 durometer.

b. Ref. no 48 is VITON, (Parker Seal Co. compound V747-75 or equivalent) 75 durometer.

c. Material for ref. nos. 19 and 23 is Nitrile or Buna N, 70 durometer.

SPARE PARTS AND SPARE PARTS KITS

The quantity of spare parts that should be kept on hand varies with application and number of tools in service. Spare parts kits containing perishable parts such as O-rings, back-up rings, etc., should be kept on hand at all times.

Spare Parts Kits are P/N 108342 (6304), P/N 108343 (7304), P/N 108344 (8304), and P/N 108345 (9304). Spare Parts Kits include O-rings and back-up rings shown in Table 6 - SPARE PARTS KITS.

Table 6 - SPARE PARTS KITS

<table>
<thead>
<tr>
<th>TOOL</th>
<th>6304</th>
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<th>8304</th>
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</table>
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:
Indetions are parts of previous sub-assembly
Parts with part numbers can be purchased
Figure 4 - 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, approximately .060 diameter, to lift out O-ring and back-up ring. O-ring, P/N 504438, and Back-up Ring, P/N 501102, are in Spare Parts Kits.

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

FASTENER INSPECTION

INSPECTING INSTALLED FASTENER

After the C50L HUCKBOLT® Fastener has been installed, visually inspect for pin position and swage. To mechanically inspect, pin position and swage gages are available. See Table 7.

Table 7 - HUCK GAGE PART NUMBERS

<table>
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<tr>
<th>NOMINAL SIZE OF FASTENER</th>
<th>PART NUMBER OF HUCK GAGE</th>
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<td>HG95-16</td>
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<td>5/8 inch (1)</td>
<td>HG95-20-1</td>
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<td>5/8 inch (2)</td>
<td>HG95-20-2</td>
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<td>3/4 inch</td>
<td>HG95-24</td>
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<td>7/8 inch</td>
<td>HG95-28</td>
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<td>1 inch</td>
<td>HG95-32</td>
</tr>
<tr>
<td>1 1/8 inch</td>
<td>HG95-36</td>
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(1) Carbon steel only.
(2) Aluminum and stainless steel only.
MODIFIED MODELS

Table 8 - SPECIFICATIONS FOR MODIFIED MODELS

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<th>MODEL NO.</th>
<th>FASTENER SIZE</th>
<th>LENGTH</th>
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<th>WIDTH</th>
<th>WEIGHT</th>
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<td>7.12 in.</td>
<td>3.62 in.</td>
<td>3.62 in.</td>
<td>16.0 lbs.</td>
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<tr>
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<td>181 mm</td>
<td>92 mm</td>
<td>92 mm</td>
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<tr>
<td>8304-24</td>
<td>3/4 in.</td>
<td>8.06 in.</td>
<td>4.88 in.</td>
<td>4.88 in.</td>
<td>26.3 lbs.</td>
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<tr>
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<td></td>
<td>205 mm</td>
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<td>124 mm</td>
<td>11.9 kg</td>
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<td>7/8 in.</td>
<td>8.27 in.</td>
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<td>22 mm</td>
<td>210 mm</td>
<td>140 mm</td>
<td>140 mm</td>
<td>15.4 kg</td>
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</table>

(2) 9304-36 is 8.70 (221 mm) length. Other dimensions are same as 9304.

Power Source .............................................. Huck POWERIG Hydraulic Unit
PULL Pressure ........................................... 6000-6400 psi 41400-44100 kPa
RETURN Pressure ........................................... 2800-3200 psi 19300-22100 kPa

Table 9 - PARTS LIST FOR MODIFIED MODELS (1)

<table>
<thead>
<tr>
<th>REF. NO.</th>
<th>PART NUMBER</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6304-16</td>
<td>8304-24</td>
<td>9304-28</td>
</tr>
<tr>
<td>3</td>
<td>111149</td>
<td>110454</td>
</tr>
<tr>
<td>7</td>
<td>111202</td>
<td>110709</td>
</tr>
<tr>
<td></td>
<td>110183</td>
<td>110189</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>110092</td>
<td>110103</td>
</tr>
</tbody>
</table>

(1) This listing is for Part Numbers that are different from the corresponding Basic Tool.
An assembly tool is available for disassembling and assembling -20 (5/8) and -24 (3/4) release and ejector assemblies in the 99-5000 series. The tool is also used with 582/682, 6304 through 8304, and 7142/8142 tools. The assembly tool's locking taper locks into the release's taper. This prevents the release from turning while the ejector is unscrewed -- use an open end wrench.

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.
SERVICE NOTES:
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.

Warranty on "non standard or custom manufactured products": With regard to non-standard products or custom manufactured products to customer's specifications, Huck warrants for a period of ninety (90) days from the date of purchase that such products shall meet Buyer's specifications, be free of defects in workmanship and materials. Such warranty shall not be effective with respect to non-standard or custom products manufactured using buyer-supplied molds, material, tooling and fixtures that are not in good condition or repair and suitable for their intended purpose.

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Huck's sole liability and Buyer's exclusive remedy for any breach of warranty shall be limited, at Huck's option, to replacement or repair, at FOB Huck's plant, of Huck manufactured tooling, other items, nonstandard or custom products found to be defective in specifications, workmanship and materials not otherwise the direct or indirect cause of Buyer supplied molds, material, tooling or fixtures. Buyer shall give Huck written notice of claims for defects within the ninety (90) day warranty period for tooling, other items, nonstandard or custom products described above and Huck shall inspect products for which such claim is made.

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

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The only warranties made with respect to such tool, part(s) or other items thereof are those made by the manufacturer thereof and Huck agrees to cooperate with Buyer in enforcing such warranties when such action is necessary.

Huck shall not be liable for any loss or damage resulting from delays or nonfulfillment 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

Canada
6150 Kennedy Road Unit 10, Mississauga, Ontario, L5T2J4, Canada.
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 of the nearest Huck office listed on the back cover for the ATSC in your area.
A Global Organization

Alcoa Fastening Systems (AFS) maintains company offices throughout the United States and Canada, with subsidiary offices in many other countries. Authorized AFS distributors are also located in many of the world’s industrial and aerospace centers, where they provide a ready source of AFS fasteners, installation tools, tool parts, and application assistance.

Alcoa Fastening Systems world-wide locations:

**Americas**

Alcoa Fastening Systems
Aerospace Products
Tucson Operations
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Tucson, AZ 85714
800-234-4825
520-747-9898
FAX: 520-748-2142

Alcoa Fastening Systems
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Carson Operations
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900 Watson Center Rd.
Carson, CA 90749
800-421-1459
310-830-8200
FAX: 310-830-1436

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Waco Operations
PO Box 8117
8001 Imperial Drive
Waco, TX 76714-8117
800-388-4825
254-776-2000
FAX: 254-751-5259

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Commercial Products
Kingston Operations
1 Corporate Drive
Kingston, NY 12401
800-431-3091
845-331-7300
FAX: 845-334-7333
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Commercial Products
Tacubaya Mexico, Lima 79-402
Tacubaya Mexico, D.F.
C.P. 11850
FAX: 525-515-1776
TELEX: 173530 LUKSME

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Commercial Products
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14 Viewtech Place
Rowville, Victoria
Australia 3178
03-764-5500
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FAX: 03-764-5510

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