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

Note
Please read this manual before servicing or using tool. Comply with WARNINGS and CAUTIONS to prevent personal injury or damage to tool.

If you need more information, please contact your Huck representative or nearest Huck office listed on back cover.

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Description

Huck Model 2702 and A2702 Hydraulic Installation Tools are designed to install a wide range of Huck Blind Fasteners and HUCKBOLT® Fasteners. This mini-tool is lightweight and compact which particularly adapts it to installation of fasteners in limited clearance areas.

Huck Hydraulic Installation Tools (H.I.T.) are designed to be powered by Huck POWERIG® Hydraulic Units. This tool is designed to operate on a maximum of 8,400 psi (57,900 kPa) PULL and 2,800 psi (19,300 kPa) RETURN pressures as supplied by a Huck POWERIG Hydraulic Unit.

Model A2702 has air trigger for POWERIG Hydraulic Unit Model 942 and Model 970-3. Model 970-3 may be used when lower PULL and RETURN pressures are sufficient.

Model 2702 has electric switch for POWERIG Hydraulic Unit Models 917, 917-5, 940, 941 and 950.

A nose assembly is required for each fastener type and size. Nose assemblies must be ordered separately. See Selection Chart.

Except for the nose assembly, each tool is complete with 12 ft. hydraulic hoses and couplings, air trigger and tubing (A2702) or electric switch and cord (2702).

Each tool is basically a cylinder and piston assembly. An unloading valve, designed to relieve the hydraulic pressure at end of PULL stroke, is positioned by the piston. The end of the piston rod is threaded and a retaining nut and stop are included for attaching nose assemblies.

Specifications (1)

Table 1

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Length</td>
<td>9.03 in.</td>
<td>230 mm</td>
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<tr>
<td>Width</td>
<td>1.38 in.</td>
<td>36 mm</td>
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<tr>
<td>Height</td>
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<td>157 mm</td>
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<tr>
<td>Weight</td>
<td>3.00 lbs.</td>
<td>1.4 kg</td>
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<tr>
<td>PULL Pressure</td>
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<td>57,900 kPa</td>
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<tr>
<td>RETURN Pressure</td>
<td>2,800 psi</td>
<td>19,300 kPa</td>
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</table>

(1) Lengths and weights do not include nose assemblies.
Power Source: Huck POWERIG Hydraulic Unit.
Fasteners Installed: See Selection Chart Included.
Hydraulic Fluid: Automatic transmission fluid, Dexron II, or equivalent.
Seals are compatible with phosphate ester hydraulic fluids.
Principle of Operation

When hydraulic hoses and air tubing are connected to POWERIG Hydraulic Unit, an air or electric trigger controls PULL and RETURN strokes of tool. Trigger is depressed and hydraulic pressure is directed to PULL side of piston. Fastener installation begins.

When fastener installation is completed,trigger is released. Hydraulic pressure is directed to RETURN side of piston, moving piston forward. Nose assembly, with tool, is pushed off installed fastener.

At end of PULL stroke, piston uncovers flat of unloading valve. When flat is uncovered, pressure is unloaded by allowing fluid to flow back to POWERIG Hydraulic Unit.

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

WARNING
Huck recommends that only Huck POWERIG Hydraulic Units 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.

WARNING
Proper PULL and RETURN pressures are important for proper function of Installation Tools. Severe personal injury or damage to equipment may occur without correct pressures. Gauge Set-up, P/N T-10280, is available for checking these pressures using instructions furnished with T-10280 and in applicable POWERIG Hydraulic Unit instruction manuals. See Specifications.

Preparation for Use
(See Good Services Practices)
Rub SLIC-TITE Teflon thread compound, or equivalent, on pipe threads to aid assembly and sealing. Do not use Teflon tape on pipe threads. Pipe threads may cause tape to shred resulting in tool and hydraulic unit valves to malfunction. (Slic-tite is available in stick form as part number 503237, from Huck Manufacturing Co.)

Checking and Adjusting Output Pressures
POWERIG Hydraulic Unit pressures must be checked and adjusted at first time start-up, after overhauling the unit and when troubleshooting. Pressure Checking Gauge Set-up No. T-10280 is available for this purpose. Huck recommends that this gauge set-up be available to personnel servicing any Huck POWERIG® Hydraulic Unit. See T-10280 instructions for proper hydraulic pressure checking procedures for each model POWERIG Hydraulic Unit. Follow instructions in applicable POWERIG Hydraulic Unit instruction manual for adjusting PULL and RETURN pressures. Set PULL pressure at 8,400 psi (57,900 kPa) and RETURN pressure at 2,800 psi (19,300 kPa) for Model 2702 and A2702 installation tools.

Power Source Connections
1. See Checking and Adjusting Output Pressures. Check both PULL and RETURN pressures, and adjust as necessary.
2. Disconnect power source from POWERIG Hydraulic Unit.
3. Connect tool hoses to hydraulic unit hoses. Be sure that hoses run from port P to hydraulic unit port PULL pressure and from port R to hydraulic unit port RETURN pressure.
4. Connect switch cord to POWERIG Hydraulic Unit cord.
5. Turn hydraulic unit to ON. Hold tool switch depressed for 30 seconds. Depress and release switch a few times to observe action of tool. Check for fluid leaks. Turn hydraulic unit to OFF. Disconnect hydraulic unit from power source.
6. Select proper nose assembly from Selection Chart for fastener to be installed. Attach nose assembly to tool per applicable Nose Assembly Data Sheet.
Operating Instructions

Blind Fastener Installation
Remove excessive gap between sheets to permit correct fastener installation. The fastener may be placed in work hole or in end of nose assembly. In either case, tool and nose assembly must be held against work and at right angles to it. Depress trigger. Hold trigger depressed until fastener is installed and pintail breaks. Release trigger and tool will go into its return stroke. The tool and nose assembly is ready for the next installation cycle.

HUCKBOLT Fastener Installation
Remove excessive gap between sheets to allow enough pintail to protrude through collar for nose assembly jaws to grab onto. Place pin in work hole and place collar over pin. (If collar has only one tapered end, that end should be out towards tool.) Hold pin and push nose assembly onto pin protruding through collar until nose assembly anvil touches collar. Depress trigger. Hold trigger depressed until collar is swaged and pintail breaks. Release trigger and tool will go into its return stroke.

WARNING
Do not pull on pin without collar, as pin will eject forcibly when pintail breaks off and severe personal injury may result.

If deflectors are removed or damaged, broken pintails may eject forcibly from rear of tool and severe personal injury may result.

Be sure there is adequate clearance for tool and operator’s hands before proceeding as severe personal injury may result without clearance.

CAUTION
Do not abuse tool by dropping it, using it as a hammer, or otherwise causing unnecessary wear and tear. Reasonable care of Installation tools by operators is an important factor in maintaining tool efficiency and in reducing downtime.

Maintenance

Good Service Practices
The efficiency and life of any tool depends upon proper maintenance and good service practices. Tool should be serviced by personnel who are thoroughly familiar with it and how it operates.

A clean, well-lighted area should be available for servicing the tool. Special care must be taken to prevent contamination of pneumatic and hydraulic systems. Proper hand tools and soft materials to protect tools must be available. Only standard hand tools, brass drift and wood block are required. Vise with soft jaws should be available. See Table 2 for tools available from Huck Manufacturing Co.

Always replace O-rings and Back-up Rings when tool is disassembled for any reason. All parts must be handled carefully and examined for damage and/or wear. Components should be disassembled and assembled in a straight line without bending, cocking or undue force. Disassembly and assembly procedures outlined in this manual should be followed.

Rub SLIC-TITE TEFON thread compound, or equivalent, on pipe threads to aid assembly and sealing. Do not use Teflon tape on pipe threads. Pipe threads may cause tape to shred resulting in tool and hydraulic unit valves to malfunction. (Slic-tite is available in stick form as P/N 503237, from Huck Manufacturing Co.)

Smear LUBRIPLATE 130AA, or equivalent lubricant on O-rings and mating surfaces to aid assembly and to prevent damage to O-rings. (Lubriplate 130AA is available, in a tube, as P/N 502723, from Huck Manufacturing Company.)

Service Parts Kit, P/N 113384, includes perishable parts and should be available at all times. Other components, as experience dictates, should also be available.

Table 2. Standard Tools Available from Huck

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Used On</th>
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<tbody>
<tr>
<td>502655</td>
<td>Hex Key, 9/64 across flats</td>
<td>20</td>
</tr>
<tr>
<td>502294</td>
<td>Hex Key, 1/8 across flats</td>
<td>21</td>
</tr>
</tbody>
</table>
**Preventive Maintenance**

**Note**
Refer to the applicable section for Assembly or Disassembly. For supplementary information refer to Troubleshooting Chart and Parts List.

**System Inspection**
Operating efficiency of the installation tool is directly related to the performance of the complete system, including tool with nose assembly, hydraulic hoses, trigger and control cord, and POWERIG Hydraulic Unit. Therefore an effective preventive maintenance program includes scheduled inspections of the system to detect and correct minor troubles.

1. Inspect tool and nose assembly for external damage.
2. Verify that hydraulic hose fittings and couplings, and electrical connections are secure.
3. Inspect hydraulic hoses for signs of damage. Replace hoses if damaged.
4. Inspect tool, hoses, and POWERIG Hydraulic Unit during operation to detect abnormal heating, leaks or vibration.

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

**Tool Maintenance**
At regular intervals, depending upon use, replace all O-rings and Back-up Rings in tool. Service parts kits and hoses should be kept on hand. (See Spare Parts and Service Parts Kit and Notes.) Inspect cylinder bore, piston and piston rod, and unloading valve for scored surfaces, excessive wear or damage, and replace as necessary. Always replace O-rings and Back-up Rings when the tool is disassembled for any reason.

**Nose Assembly Maintenance**
Frequent cleaning of the nose assembly is recommended. Nose assemblies with UNITIZED™ jaws must be disassembled and cleaned in mineral spirits or isopropyl alcohol. Do not let UNITIZED jaws (urethane) soak in solvent. Do not use solvents that cause urethane to swell. Use a sharp pointed "pick" to remove particles packed in pull grooves of jaws. Dry components immediately after cleaning.

In nose assemblies without UNITIZED jaws, dip nose assembly in mineral spirits, isopropyl alcohol, or other suitable solvent, to clean jaws and wash away metal chips and dirt. If more thorough cleaning or maintenance is necessary, disassemble nose assembly. Use sharp "pick" to remove particles packed in jaw grooves. Reassemble per instructions on applicable Nose Assembly Data Sheet.

**Disassembly**
Refer to Figures 1, 2, 3 and 4
For component identification, refer to Figure 2.
Exploded View and Table 3, Parts List.
Numbers in parenthesis ( ) are reference numbers shown in Figure 3.

**WARNING**
Be sure electric control cord or air hose is disconnected from POWERIG Hydraulic Unit before removing tool for cleaning, or for replacing worn or damaged components.
Severe personal injury may occur if electric control cord is not disconnected.

The following procedure is for complete disassembly. Disassemble only components necessary to check and replace damaged O-rings, Back-up Rings or components.

1. 2702: Uncouple tool hydraulic hoses and disconnect Electrical Connector (26).
   A2702: Uncouple tool hydraulic hoses (34) from 942, or remove from adapter unions on 970-3. Disconnect Air Quick Connect (33) from 942. Unscrew nut of air fitting, P/N 503902, and remove nut, sleeve and Air Tubing (32) from 970-3—see **Note 8**.

2. Unscrew Retaining Nut (1) and slide nut and Stop (2) off anvil of nose assembly. Retaining Nut Stop (3) is removed if used.

3. Remove Coupling Nipple (36) and Coupling Body (37). Drain Hydraulic Hoses in container.

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

5. Remove Button Head Cap Screws (21) holding Handle Assembly (19) to cylinder. Use 1/8 hex key.

6. Remove both Socket Head Cap Screws (20) from handle halves. Use 9/64 hex key.

7. Separate handle halves.
   2702: Lift out Switch Assembly, Strain Relief Grommet (24) and Control Cord Assembly.
   A2702: Lift out Air Trigger Housing Assembly (27), Strain Relief Grommet (24) and Air Tubing (32).

8. 2702: If Switch (23) must be replaced, cut wires close to Butt-Splicer (22a) on grommet side. Unscrew Socket Set Screw (22e) from Push Button (22d)—use 1/16 hex key. Pull push button from switch. Unscrew Switch (23) from Switch Housing (22c). Pull O-ring (22b) from groove of housing.
   A2702: Pull air tubing off air trigger housing and out of grommet.
9. **2702:** Disassemble Electrical Connector (26) to replace connector, or to rewire.

**A2702:** Unscrew Air Trigger Body (30) from Trigger Housing (27). Pull O-ring (29) off Air Trigger Stem (31). Remove stem from trigger body. Pull O-ring (28) off Trigger Body.

10. Cut cable ties.

11. Unscrew both Hydraulic Hoses (34) from cylinder. Unscrew both Reducing Bushings (35) from hoses. **Model 970-3:** Unscrew both adapter unions, P/N 502947—see Note 8.

12. Remove Hose Clamp (17) and Deflector (18) from Cylinder Back Cap (16). Unscrew cap from cylinder.

13. Push Piston (7) and Unloading Valve (10) out of cylinder. Slide valve from piston.

14. Use a small diameter, dull pointed rod to remove O-rings and Back-up Rings from all components.

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**Assembly**

Refer to Figures 1, 2, 3 and 4.

Clean components in mineral spirits, or other solvent compatible with O-ring seals. Clean out O-ring grooves and inspect parts for wear or damage. Replace as necessary. **Replace all seals on/in disassembled components.** Use O-rings and Back-up Rings supplied in Service Parts Kit, P/N 113384,—see Notes. Smear Lubriplate 130AA or Parker-O-Lube on O-rings, Back-up Rings and mating components to facilitate assembly. Assembly tool taking care not to damage O-rings or Back-up Rings. Specifications for standard components are in **Table 4. Parts List and Notes.**

1. Push Piston (7) into Cylinder (4).

2. Push Unloading Valve (10) into hole through Piston (7). **BE SURE UNLOADING VALVE IS ASSEMBLED WITH FLAT TO REAR AS SHOWN.**

3. Push Cylinder Cap (16) over piston extension and screw into cylinder. Tighten with wrench to 250 ft. lbs. (339 N.m.).

4. Loosen Hose Clamp (17) and push over Deflector (18). Push assembled deflector and clamp over cylinder cap—tighten clamp.

5. Screw both Hydraulic Hoses (34) into cylinder—use thread compound.

6. Attach handle half to cylinder with Button Head Cap Screw (21). Use 1/8 hex key.

7. **2702:** Assemble Electrical Control Cord (25) to Male Connector (26).

**A2702:** Push O-ring (28) over threads of Air Trigger Body (30). Push Air Trigger Stem (31) through trigger body. Push O-ring (29) into first (end) groove of stem. Screw assembled air trigger body into Trigger Housing (27).

8. **2702:** Remove .30” of insulation from Switch (23) wires and Control Cord (25). Push Strain Relief Grommet (24) over control cord. Push a bare wire into end of butt-splicer—stake butt-splicer to wire with Sta-Kon pliers. Repeat with other wires. Push O-ring (22b) onto switch housing (22c) groove. Screw Switch (23) into housing—tighten securely. Slide Push Button (22d) over switch. Align threaded hole in push button with hole in switch housing. Screw Socket Set Screw (22e) into push button—tighten with 1/16 hex key.

**A2702:** Push Air Tubing (32) through Strain Relief (24). Push air tubing over air trigger housing assembly.

9. **2702:** Place assembled switch, control cord and grommet into handle recesses. Bend hydraulic hoses until they fit into slots in bottom of handle.

**A2702:** Place assembled air trigger, air tubing and grommet into handle recesses. Bend hydraulic hoses until they fit into slots in bottom of handle.

10. Press other handle half tightly against first half. Screw in both Socket Head Cap Screws (20) until tight—use 9/64 hex key. Loosen screws one turn. Screw remaining Button Head Cap Screw (21) into cylinder—tighten both button head cap screws. Tighten both socket head cap screws.

11. **2702 and A2702/942:** Screw Reducing Bushings (35) into Coupling Nipple (36) and Body (37). Screw assembled nipple and bushing onto hose assembled in port P of tool. Screw body with bushing onto other hose. **A2702/970-3:** Use adapter unions, P/N 502947, to assemble hoses to subplate of 970-3—see Note 8. Hose from port P of tool must be assembled to port P of 970-3.

12. **A2702/942:** Assemble Air Quick Disconnect (33) to other end of tubing. **A2702/970-3:** Screw body of air fitting, P/N 503902, into subplate of 970-3—see Note 8. Assemble Air Tubing (32) to body using nut and sleeve connector.
13. 2702: Connect hose couplings and control cord to POWERIG Hydraulic Unit. Connect hydraulic unit to electrical power source. Cycle tool a few times, check for leaks and observe action of tool. Disconnect tool electrical cord.

A2702/942: Connect hose couplings and air quick disconnect. Connect POWERIG Hydraulic Unit to air supply. Cycle tool a few times, check for leaks and observe action of tool. Disconnect tool air supply.


15. Slide required pintail tube into piston—see Selection Chart.

16. Attach nose assembly to tool following applicable Nose Assembly Data Sheet—see Note 6.—use either Stop (2) or (3) as specified and slide Retaining Nut (1) over nose assembly and tighten (hand-tight).

Troubleshooting

Always check out simplest possible cause of malfunction first. For example, switch turned off or 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 and correcting malfunction.

1. Tool fails to operate when trigger is depressed.
   a. Inoperative POWERIG Hydraulic Unit. See applicable Instruction Manual.
   b. 2702: Loose or disconnected control cord.
   c. A2702: Loose air tubing connections.
   d. Damaged trigger assembly.
   e. Loose or faulty hydraulic hose couplings.
   f. Unloading valve not installed in tool.

2. Tool operates in reverse.
   a. Reversed hydraulic hose connections between hydraulic unit and tool.

3. Tool leaks hydraulic fluid.
   a. Defective or worn O-rings at the front of the cylinder or at the gland assembly. Loose hydraulic hose connection at tool.

4. Hydraulic couplers leak fluid.
   a. Damaged or worn O-ring in coupler body. See Figure 4.

5. Pull grooves on fastener pintail stripped during pullstroke.
   a. Operator not sliding jaws completely onto fastener pintail.
   b. Incorrect fastener length.
   c. Worn or damaged jaw segments.
   d. Metal particles accumulated in pull grooves of jaw segments.
   e. Excessive sheet gap.
   f. Nose assembly not properly attached—see Nose Assembly Data Sheet.

6. Collar of HUCKBOLT® Fastener not completely swaged.
   a. Improper tool operation. See 12.
   b. Scored anvil in nose assembly.

7. Shear collar on Huck blind fastener not properly installed.
   a. Improper tool operation. See 12.
   b. Worn or damaged driving anvil in nose assembly.

8. Tool "hangs-up" on swaged collar of HUCKBOLT Fastener.
   a. Improper tool operation. See 12.
   b. RETURN pressure too low.
   c. Nose assembly not properly attached—see Nose Assembly Data Sheet.

9. Pintail of fastener fails to break.
   a. Improper tool operation. See 12.
   b. Pull grooves on fastener stripped. See 5.
   c. Worn piston and/or unloading valve.
   d. Hydraulic pressure too low.
   e. Damaged O-ring on piston.

10. Operator cannot slide nose assembly (completely) onto fastener pintail.
    a. Broken pintails jammed in tool. Install pintail tube if broken pintails will pass thru.

11. Hydraulic fluid overheat.
    a. Hydraulic unit not operating properly. See applicable POWERIG Hydraulic Unit Instruction Manual.
    b. Unloading valve installed backwards.

12. Tool operates erratically and fails to install fastener properly.
    a. Low or erratic hydraulic pressure supply—air in system. See applicable POWERIG Instruction Manual.
    b. Damaged or excessively worn piston O-ring in tool.
    c. Unloading valve installed backwards.
    d. Excessive wear or scoring of sliding surfaces of tool parts.
    e. Excessive wear of unloading valve.

Spare Parts and Service Parts Kit

The quantity of spare parts that should be kept on hand varies with the 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. Parts included in Service Parts Kit, P/N 113384, are shown in Table 3.
### Parts List

**Table 3. Models 2702 and A2702 Specifications**

<table>
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<tr>
<th>Ref. No.</th>
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<td>103090</td>
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<td>Nut-Retraining</td>
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<td>110452</td>
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<td>Stop-Retraining Nut</td>
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<td>Deflector</td>
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<td>Handle Assem. (incl. 20)</td>
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<td>Screw-Soc. Hd. Cap—#38-32 x 3/4 long</td>
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<td>21</td>
<td>502476</td>
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<td>Screw-But. Hd. Cap—#10-24 x 3/8 long</td>
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<td>Trigger Switch Assem.—not shown (incl. 22a, 22b, 22c, 22d, 22e)</td>
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<td>Butt Splicer—Penn Union # HVB-4068 #16-14 size</td>
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<td>115777</td>
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<td>Housing-Trigger Switch</td>
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<td>22d</td>
<td>115778</td>
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<td>Push Button</td>
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<td>Grommet—Strain Relief</td>
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<td>25</td>
<td>112536</td>
<td></td>
<td></td>
<td>Control Cord Assem. (incl. 26)</td>
</tr>
<tr>
<td>26</td>
<td>110686</td>
<td></td>
<td></td>
<td>Connector—Male</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>112535</td>
<td>1</td>
<td>Air Trigger Housing Assem. (incl. 27a, 28, 29, &amp; 31)</td>
</tr>
<tr>
<td>27a</td>
<td>112553</td>
<td></td>
<td>1</td>
<td>Air Trigger Assem. (incl. 28, 29 &amp; 30)</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>500077</td>
<td>1</td>
<td>O-ring—AS 568-011</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>500073</td>
<td>1</td>
<td>O-ring—AS 568-007</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td>1</td>
<td>Body-Air Trigger</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td>112555</td>
<td>1</td>
<td>Stem-Air Trigger</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td>112143</td>
<td>1</td>
<td>Tubing-Air—1/4 OD x .180 ID x 13 Ft.</td>
</tr>
<tr>
<td>33</td>
<td></td>
<td>113021</td>
<td>1</td>
<td>Disconnect-Male—I-E#294-PM-04</td>
</tr>
<tr>
<td>34</td>
<td>112533</td>
<td>112533</td>
<td>2</td>
<td>Hose-Hydraulic—1/8 x 1/4 x 12 Ft.</td>
</tr>
<tr>
<td>35</td>
<td>502298</td>
<td>503912</td>
<td>2</td>
<td>Reducing Bushing—3/8M to 1/4F</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td>110490</td>
<td>1</td>
<td>Nipple (Male—see Fig. 4)</td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>504436</td>
<td>1</td>
<td>Body (Female—see Fig. 4)</td>
</tr>
<tr>
<td>37a</td>
<td></td>
<td>504438</td>
<td>1</td>
<td>O-ring—AS 568-111</td>
</tr>
<tr>
<td>37b</td>
<td></td>
<td>501102</td>
<td>1</td>
<td>Back-up Ring—S-1248-111</td>
</tr>
</tbody>
</table>

### Notes

**Specifications for Tables**

1. All part numbers shown are available from Huck for replacements and spare parts.
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).
4. Material for O-rings is VITON-90 Durometer (Parker Seal Co. compound V709-90 or equivalent).
5. Back-up Rings are W.S. Shamban, Series S-11248, Single Turn TEFLON or equivalent.
6. Use P/N 103087 Stop for non-rotatable nose assemblies.
7. Use coupler nipple (male) on, “Pull Pressure” hose assembled in port “P”.
   Use coupler body (female) on “Return Pressure” hose assembled in port “R”.
8. P/N 502947 and P/N 503902 are used with Model 970-3 POWERIG Hydraulic Unit and must be purchased separately.

### Table 4. Service Parts Kit P/N 113384

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Part No.</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>501104</td>
<td>1</td>
<td>Back-up Ring</td>
</tr>
<tr>
<td>6</td>
<td>504583</td>
<td>3</td>
<td>O-ring</td>
</tr>
<tr>
<td>8</td>
<td>501138</td>
<td>3</td>
<td>Back-up Ring</td>
</tr>
<tr>
<td>9</td>
<td>504617</td>
<td>3</td>
<td>O-ring</td>
</tr>
<tr>
<td>12</td>
<td>504439</td>
<td>1</td>
<td>O-ring</td>
</tr>
<tr>
<td>13</td>
<td>501103</td>
<td>1</td>
<td>Back-up Ring</td>
</tr>
<tr>
<td>22b</td>
<td>500780</td>
<td>1</td>
<td>O-ring</td>
</tr>
<tr>
<td>28</td>
<td>500777</td>
<td>1</td>
<td>O-ring</td>
</tr>
<tr>
<td>29</td>
<td>500773</td>
<td>1</td>
<td>O-ring</td>
</tr>
<tr>
<td>37a</td>
<td>504438</td>
<td>1</td>
<td>O-ring</td>
</tr>
<tr>
<td>37b</td>
<td>501102</td>
<td>1</td>
<td>Back-up Ring</td>
</tr>
</tbody>
</table>

---

**See Fig 4**
Hydraulic Quick-Disconnect Couplings

O-rings (37a) and Back-up Rings (37b) must be replaced if leakage occurs when hydraulic couplings are connected. Use a pick with a long point, of approximately .060 diameter, to lift out O-ring and Back-up Ring. O-ring and Back-up Ring are in Service Parts Kit, P/N 113384.

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

![Figure 4. Hydraulic Coupling Assembly](image)

Stroke Limiter and Unloading Valve

The installation tool as shipped provides a long stroke, which can be shortened to increase the speed of fastener installation. A stroke limiter and unloading valve are accessories that shorten the stroke to approximately 7/16 inch. THESE PARTS MUST BE ORDERED SEPARATELY.

To decrease tool stroke:

![Figure 2. Stroke Limiter and Unloading Valve](image)

Selection Chart

Table 5. Models 2702 and A2702

<table>
<thead>
<tr>
<th>Fastener</th>
<th>Dia.</th>
<th>Nose Assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td>MG-R, MG-B</td>
<td>3/16</td>
<td>99-1274, 99-1275</td>
</tr>
<tr>
<td>MAGNA-GRIP®</td>
<td>1/4</td>
<td>99-1288, 99-1289</td>
</tr>
<tr>
<td>MGDR</td>
<td>1/4</td>
<td>99-1274, 99-1275</td>
</tr>
<tr>
<td>MAGNA-GRIP DAISY®</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C6L-R, C6L-C,</td>
<td>3/16</td>
<td>99-999</td>
</tr>
<tr>
<td>C6L-F, C6L-U,</td>
<td>1/4</td>
<td>99-1000</td>
</tr>
<tr>
<td>R3540-R, R3545-R</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSR</td>
<td>1/4</td>
<td>99-96</td>
</tr>
<tr>
<td>MS90353S, MS90354S</td>
<td>5/32</td>
<td>99-680 (1)</td>
</tr>
<tr>
<td>MS90353U, MS90354U,</td>
<td>3/16</td>
<td>99-681 (1)</td>
</tr>
<tr>
<td>MS21141S, MS21140S,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS21141U, MS21140U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSBP-T, OSB100-T,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OSBP-EU, OSB100-EU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAS1919S, NAS1921S,</td>
<td>1/8</td>
<td>99-1022 (3), 99-1054 (3)</td>
</tr>
<tr>
<td>OSMLSP, OSM100</td>
<td>5/32</td>
<td>99-1023 (4) (1), 99-1055 (1)</td>
</tr>
<tr>
<td>Material Codes</td>
<td>3/16</td>
<td>99-1024 (4) (1), 99-1056 (1)</td>
</tr>
<tr>
<td>B - C - M</td>
<td>1/4</td>
<td>99-1313 (4)</td>
</tr>
<tr>
<td>UNIMATICS® (2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BOM™-R</td>
<td>3/16</td>
<td>99-994</td>
</tr>
<tr>
<td>MGLP-R</td>
<td>3/16</td>
<td>99-1453</td>
</tr>
<tr>
<td>MGLP-B</td>
<td>1/4</td>
<td>99-1453</td>
</tr>
<tr>
<td>MAGNA-LGK™</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS</td>
<td>1/8</td>
<td>7966 (3)</td>
</tr>
<tr>
<td>9SP</td>
<td>5/32</td>
<td>79664 (1)</td>
</tr>
<tr>
<td>PT</td>
<td>3/16</td>
<td>79665 (1)</td>
</tr>
<tr>
<td></td>
<td>1/4</td>
<td>79626</td>
</tr>
</tbody>
</table>

(1) Pintail Tube 100534 required
(2) Installs all grips available
(3) Pintail Tubes 100534 and 109584 are required
(4) These nose assemblies for Aluminum (8) material fasteners only
Figure 5. Outline Dimensions
Warranties

Warranty
THE NINETY DAY WARRANTY HEREIN EXPRESSED SHALL BE THE EXCLUSIVE WARRANTY ON ITEMS MANUFACTURED BY SELLER AND SHALL BE IN THE PLACE AND STEAD OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Seller shall not be liable for any loss or damage resulting from delays or non-fulfillment or orders owing to strikes, fires, accidents, transportation companies or for any reason or reasons beyond the control of seller or its suppliers.

All warranty claims must be submitted to the seller in writing, within 90 days from date of shipment, and no returns will be accepted without written permission.

Other provisions hereof notwithstanding, seller shall not be liable for any loss of business profits or any incidental or consequential damages incurred by Buyer or any third person in connection with the items or use thereof, however caused.

Tool Warranty
Seller expressly disclaims any warranty express or implied, as to the condition, design, operation, merchantability or fitness for use of any tool, or part(s) thereof not manufactured by seller. The only warranties made with respect to such tool or part(s) thereof are those made by the manufacturer thereof and seller agrees to cooperate with buyer in enforcing such warranties when such action is necessary. Seller agrees to repair or replace F.O.B. seller's plant, any tool or part(s) thereof manufactured by it and proved to be defective due to faulty workmanship or material.

Warranty on "Other Items"
With regard to items other than FASTENERS and TOOLS ("OTHER ITEMS"), seller expressly disclaims any warranty, express or implied, as to the condition, design, operation, merchantability or fitness for use of any "OTHER ITEMS", or part(s) thereof not manufactured by seller. The only warranties made with respect to such "OTHER ITEMS" or part(s) thereof are those made by the manufacturer thereof and seller agrees to cooperate with buyer in enforcing such warranties when such action is necessary.

Seller agrees to repair or replace F.O.B. seller's plant, any "OTHER ITEMS" or part(s) thereof manufactured by it and proved to be defective due to faulty workmanship or material.

Huck Installation Equipment

Huck Manufacturing Company reserves the right to make changes in specifications and design and to discontinue models without notice.

Huck Installation Equipment should be serviced by trained servicemen only.

Always give the Serial No. of the equipment when corresponding or ordering service parts.

Complete repair facilities are maintained by Huck Manufacturing Company. Please contact one of the offices listed below.

Eastern
85 Grand St., Kingston, New York 12401-0250
Tel: 914-331-7300 Telex: 92-6486

Western
900 Watsoncenter Rd., Carson, California 90745
Tel: 213-830-8200 Telex: 68-6299

Canada
326 Humber College Blvd., Rexdale, Ontario M9W 5P4, Canada
Tel: 416-675-3400 Telex: 06-989105

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) 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 office listed on the back cover for the ATSC in your area.
Huck Acceptance is World-Wide

Huck Manufacturing Company maintains company offices throughout the United States and Canada with subsidiary offices in many foreign countries. Sales engineers and systems specialists are located in your area to offer the assistance you require in solving your fastener problems.

**United States**

Installation Equipment
Customer Service
Kingston, New York
Huck Manufacturing Co.,
P.O. Box 1250
Kingston, NY 12401-0250
Telephone 914-331-7300
Telex 92-6486

Industrial Fastener Sales
Office and Customer Service
Waco, Texas
Huck Manufacturing Co.,
P.O. Box 8117
Waco, TX 76714-8117
Telephone 817-776-2000
Telex 73-0985

Aerospace Fastener Sales
Office and Customer Service
Los Angeles, California
Huck Manufacturing Co.,
P.O. Box 5268
Carson, CA 90749
Telephone 213-830-8200
Telex 68-6299

Sales Office
Fort Worth, Texas
Huck Manufacturing Co.,
100 N. University Drive
Suite 250
Fort Worth, TX 76107
Telephone 817-335-3465
Telex 75-8246

Manufacturing Plants
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Kingston, New York
Waco, Texas
Toronto, Canada

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Telex 06-989105

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R3H 0M7, Canada
Telephone 204-633-6219

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Telex 868 848

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Republic of South Africa

Australia
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Div. of Federal-Mogul
World Trade (Pty.) Ltd.
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Clayton, Victoria 3168,
Australia

United Kingdom
Huck United Kingdom Ltd.
Halesfield, 19
Telford, Shropshire,
England
Telephone 0952-588668

Huck is represented world-wide by trained distributors in most industrialized countries. Please contact one of these offices for the name and address of your local distributor.