Instruction Manual

129437
Directional Valve Kit

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Safety Instructions

GLOSSARY OF TERMS AND SYMBOLS:

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

Notes: are reminders of required procedures.

**Bold, Italic type, and underline:** emphasize a specific instruction.

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

**CAUTIONS:** Show conditions that will damage equipment or structure.

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

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

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

Continued on next page...
**IV. REPETITIVE MOTION HAZARDS:**
1. When using assembly power tool, the operator can experience discomfort in the hands, arms, shoulders, neck or other parts of the body.
2. When using tool, the operator should adopt a comfortable posture while maintaining a secure footing and avoid awkward or off balanced postures.
3. The operator should change posture during extended tasks to help avoid discomfort and fatigue.
4. If the operator experiences symptoms such as persistent or recurring discomfort, pain, throbbing, aching, tingling, numbness, burning sensations or stiffness, these warnings should not be ignored. The operator should tell the employer and consult a qualified health professional.

**V. ACCESSORIES HAZARDS:**
1. Disconnect tool from energy supply before changing inserted tool or accessory.
2. Use only sizes and types of accessories and consumables that are recommended. Do not use other types or sizes of accessories or consumables.

**VI. WORKPLACE HAZARDS:**
1. Be aware of slippery surfaces caused by use of the tool and of trip hazards caused by the air line or hydraulic hose.
2. Proceed with caution while in unfamiliar surroundings; there could be hidden hazards such as electricity or other utility lines.
3. The assembly power tool is not intended for use in potentially explosive environments.
4. Tool is not insulated against contact with electrical power.
5. Ensure there are no electrical cables, gas pipes, etc., which can cause a hazard if damaged by use of the tool.

**VII. NOISE HAZARDS:**
1. Exposure to high noise levels can cause permanent, disabling hearing loss and other problems such as tinnitus, therefore risk assessment and the implementation of proper controls is essential.
2. Appropriate controls to reduce the risk may include actions such as damping materials to prevent workpiece from ‘ringing’.
3. Use hearing protection in accordance with employer’s instructions and as required by occupational health and safety regulations.
4. Operate and maintain tool as recommended in the instruction handbook to prevent an unnecessary increase in the noise level.
5. Select, maintain and replace the consumable / inserted tool as recommended to prevent an unnecessary increase in noise.
6. If the power tool has a silencer, always ensure that it is in place and in good working order when the tool is being operated.

**VIII. VIBRATION HAZARDS:**
1. Exposure to vibration can cause disabling damage to the nerves and blood supply to the hands and arms.
2. Wear warm clothing when working in cold conditions and keep hands warm and dry.
3. If numbness, tingling, pain or whitening of the skin in the fingers or hands, stop using the tool, tell your employer and consult a physician.

**X. HYDRAULIC TOOL SAFETY INSTRUCTIONS:**
1. Carry out a daily check for damaged or worn hoses or hydraulic connections and replace if necessary.
2. Wipe all couplers clean before connecting. Failure to do so can result in damage to the quick couplers and cause overheating.
3. Ensure that couplings are clean and correctly engaged before operation.
4. Use only clean oil and filling equipment.
5. Power units require a free flow of air for cooling purposes and should therefore be positioned in a well ventilated area free from hazardous fumes.
6. Do not inspect or clean the tool while the hydraulic power source is connected. Accidental engagement of the tool can cause serious injury.
7. Be sure all hose connections are tight.
8. Wipe all couplers clean before connecting. Failure to do so can result in damage to the quick couplers and cause overheating.
The 129437 Directional Valve Kit contains all of the seals, spools, poppets and cartridge seats required to rebuild the 103596 directional valve used on 913 series and 940 series HUCK Powerig® Hydraulic Power Sources. **NOTE:** Spools and poppets with O-rings and Back-up Rings installed are tested as sets with seat cartridges - do not interchange. Do not remove spools and poppets from seat cartridges prior to assembly into valve body.

### Parts List

<table>
<thead>
<tr>
<th>Part Number</th>
<th>QTY</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>500774</td>
<td>12</td>
<td>O-Ring (-008)</td>
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<tr>
<td>500781</td>
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<td>O-Ring (-015)</td>
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<td>131149</td>
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<td>Spool</td>
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<tr>
<td>501082</td>
<td>4</td>
<td>Back-up Ring (-010)</td>
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<td>500776</td>
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<td>O-Ring (-010)</td>
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<td>Back-up Ring (-016)</td>
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<td>131148</td>
<td>4</td>
<td>Cartridge</td>
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<tr>
<td>500778</td>
<td>5</td>
<td>O-Ring (-012)</td>
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<tr>
<td>501084</td>
<td>4</td>
<td>Back-up Ring (-012)</td>
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**THE FOLLOWING COMPONENTS ARE NOT INCLUDED IN THIS KIT, BUT ARE AVAILABLE FOR PURCHASE SEPARATELY**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tr>
<td>131153</td>
<td>End Cap</td>
</tr>
<tr>
<td>500066</td>
<td>Cap Screw 10-24 X 1.25</td>
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<tr>
<td>112625</td>
<td>Port Plate</td>
</tr>
<tr>
<td>500063</td>
<td>Cap Screw 10-24 X .75</td>
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<tr>
<td>131152</td>
<td>Piston</td>
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<tr>
<td>508789</td>
<td>Spring</td>
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<tr>
<td>508791</td>
<td>Flat Washer</td>
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<tr>
<td>508790</td>
<td>Plug .25 NPTF</td>
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<tr>
<td>131151</td>
<td>Bushing</td>
</tr>
<tr>
<td>131155</td>
<td>Valve Body</td>
</tr>
<tr>
<td>103599</td>
<td>Manifold</td>
</tr>
<tr>
<td>500076</td>
<td>Cap Screw .25-20 X 1.75</td>
</tr>
</tbody>
</table>

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

- **DEXRON** is a registered trademark of General Motors Corporation.
- **GLYD Ring** is a registered trademark of Trelleborg Sealing Solutions Germany GmbH
- **Locitite** is a registered trademark of Henkel Corporation, U.S.A.
- **LUBRIPLATE** is a registered trademark of Fiske Brothers Refining Co.
- **MERCON** is a registered trademark of Ford Motor Corp.
- **MOLYKOTE** is a registered trademark of Dow Corning Corporation
- **Never-Seez** is a registered trademark of Bostik, Inc.
- **Quintolubric** is a registered trademark of Quaker Chemical Corp.
- **Slic-tite** is a registered trademark of LA-CO Industries, Inc.
- **Spirolox** is a registered trademark of Smalley Steel Ring Company
- **Teflon** is a registered trademark of Chemours Company FC
- **Threadmate** is a registered trademark of Parker Intangibles LLC.
- **TRUARC** is a trademark of TRUARC Co. LLC.
- **Vibra-Tite** is a registered trademark of ND Industries, Inc. USA.
NOTE:
1. Items listed with (ref) are not included in the kit, but are available for purchase separately. See parts list on previous page.
2. Spools and poppets with O-rings and Back-up Rings installed are tested as sets with seat cartridges. Do not interchange. Do not remove spools and poppets from seat cartridges prior to assembly into valve body.
3. Be sure to install poppets from cartridge seat/poppet assemblies on side of valve body with 508790 plug as shown, and cartridge seat/spool assemblies are installed on opposite side, as shown.
Disassembly

**WARNINGS:**
Be sure Powerig® hydraulic unit is unplugged (940 & 940S units) or the spark plug wire is disconnected (913H & 913F units) prior to servicing the 103596 directional valves.

Follow all national and local rules and regulations related to lock out/tag out/verify procedures to ensure that there is no possibility of electric or hydraulic power being restored during maintenance.

**NOTE:** Spools and poppets with O-rings and Back-up Rings installed are tested as sets with seat cartridges - do not interchange. Do not remove spools and poppets from seat cartridges prior to assembly into valve body.

1. Remove cover to pilot valve junction box, then remove the screws holding the pilot valve (not shown) to the directional valve. Note that the O-rings for the pilot valve are not included with the 129437 kit. Tie the pilot valve out of the way, covering the bottom surface to protect from damage or contamination. Do not hang pilot valve by the wires.

2. On a 913F Powerig® hydraulic power unit, remove the tube connecting the 130861 kick-down relief valve to the filter. On a 913H unit, remove the tube connecting it to the cover plate.

3. Remove the two 500076 socket head cap screws that hold the 103599 pull & return manifold. Carefully slide the manifold off of the 131151 bushings, then remove the bushings from the valve body. On a 940 series unit, tie the manifold/pressure switch assembly out of the way. Do not hang by the wires.

4. Remove the four cap screws holding the directional valve to the cover plate. The directional valve may now be moved to a suitable clean work bench. Be sure to protect the valve mounting surfaces protected from damage and contamination.

5. Remove the four 500063 socket head cap screws holding the 131154 port plate, and remove the port plate from the 131155 valve body.

6. Remove the eight 500066 socket head cap screws holding the two 131153 end caps from the valve body. Slide the end caps off of the spools or poppets, taking care to keep track of the 508789 compression springs and 508791 washers. Remove the four 131152 pistons from the end caps.

7. Remove the four seat cartridges from the valve body with the spools or poppets still in place. These assemblies may be discarded, as they will be replaced with new assemblies from the kit. (Do not discard the compression springs or washers.)

8. Using a small diameter, dull-pointed rod, remove and discard all O-rings and back-up rings on the bushings, pistons, end caps and valve body. (As noted before, do not discard the O-rings for the pilot valve.)
**ASSEMBLY PREPARATION**

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. Replace as necessary.
d) Smear Lubriplate 130AA on O-rings and mating surfaces to prevent damage to O-rings and aid assembly.

**NOTE:** Spools and poppets with O-rings and Back-up Rings installed are tested as sets with seat cartridges. Do not interchange. Do not remove spools and poppets from seat cartridges prior to assembly into valve body.

**ASSEMBLY PROCEDURE**

1. Install new seat cartridge/poppet assemblies from kit into valve body, being sure to install on the side of the valve body with the 508790 plug as shown in the drawing.

2. Install new seat cartridge/spool assemblies from kit into the valve body, on the opposite side of the valve body as the plug.

3. Install the washers and compression springs onto the spools and poppets.

4. Install 500781 O-rings onto the pistons, then install the piston/O-ring assemblies into the end caps.

5. Install 500774 O-rings into the end caps, then install the piston/end cap/O-ring assemblies over the compression springs. Install the 500066 cap screws to hold the end caps in place ensuring that all O-rings are still in place.

6. Install 500778 O-rings and 501084 back-up rings on 131151 bushings. Be sure that relative positions of O-rings and back-up rings are as shown in assembly drawing. Install bushing/O-ring/back-up ring assemblies into valve body.

7. Install 500774 O-rings in 131154 port plate. Install the 500063 cap screws to hold the port plate in place ensuring that all O-rings are still in place.

8. Install 500778 O-ring in 131155 valve body, then mount directional valve to cover plate making sure that O-ring is in place. Install cap screws to hold valve in place.

9. Install pilot valve making sure O-rings are still in place. Tighten screws, then carefully fit wiring back into junction box. Install junction box cover and tighten screws to hold in place.

10. Slide the 103599 pull & return manifold over the bushings. Install the 500076 cap screws to hold manifold in place.

11. On a 913F or 913H unit, reinstall the tube connecting the 103599 kick-down relief valve to the filter/cover plate.

**Testing Procedure**

1. Follow any required lock out/tag out/verify procedures for return of equipment after service.

2. Loosen the locknut on the external relief valve, and turn the valve several turns counter-clockwise to reduce the pull pressure.

3. Connect T-124833CE T-Gauge to quick disconnects and open the needle valve. On a 940 series Powerig® hydraulic power unit, plug the unit in. On a 913F or 913H unit, start the motor. Connect the electrical plug from a tool or optional auxiliary trigger (Huck part number 113056) to the unit.

4. Press and hold the trigger. On 940 series units, the motor will start, and on all units, hydraulic fluid will be directed to the PULL pressure port of the unit. Let the unit run for a minute with the T-gauge needle valve open while inspecting for leaks to clear the air out of the unit. Close the T-Gauge needle valve, and gradually turn the external relief valve clockwise to increase the pull pressure to the required pressure for the tools being used while inspecting for leaks.

5. Open the T-Gauge needle valve, and release the trigger. Hydraulic fluid is now directed to the RETURN pressure port of the unit. Gradually close the needle valve while checking for leaks. Read the maximum pressure on the T-gauge just before the unit turns off (940 series units), or the kick-down relief valve kicks down (913 series units). To adjust return pressure, refer to the pressure adjustment section of your unit’s instruction manual.

6. If leaks are discovered or unit fails to build pressure, follow required lock out/tag out/verify procedures and verify that O-rings and seals are installed correctly as required.
Limited Warranties

**Limited Lifetime Warranty on BobTail® Tools:**

Huck International, Inc. warrants to the original purchaser that its BobTail® installation tools manufactured after 12/1/2016 shall be free from defects in materials and workmanship for its *useful lifetime*. This warranty does not cover special order / non-standard products, or part failure due to normal wear, tool abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

**Two Year Limited Warranty on Installation Tools:**

Huck International, Inc. warrants that its installation tools and Powerig® hydraulic power sources manufactured after December 1, 2016 shall be free from defects in materials and workmanship for a period of two years from date of purchase by the end user. This warranty does not cover special order / non-standard products, or part failure due to normal wear, tool abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

**90 Day Limited Warranty on Nose Assemblies and Accessories:**

Huck International, Inc. warrants that its nose assemblies and accessories shall be free from defects in materials and workmanship for a period of 90 days from date of purchase by the end user. This warranty does not cover special clearance noses, or special order / non-standard product, or part failure due to normal wear, abuse or misapplication, or user non-compliance with the service requirements and conditions detailed in the product literature.

*Useful lifetime* is defined as the period over which the product is expected to last physically, up to the point when replacement is required due to either normal in-service wear, or as part of a complete overhaul. Determination is made on a case-by-case basis upon return of parts to Huck International, Inc. for evaluation.

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

HUCK makes no warranty with respect to the tooling, part(s), or other items manufactured by third parties. HUCK expressly disclaims any warranty expressed or implied, as to the condition, design, operation, merchantability, or fitness for use of any tool, part(s), or other items thereof not manufactured by HUCK. HUCK shall not be liable for any loss or damage, directly or indirectly, arising from the use of such tooling, part(s), or other items or breach of warranty or for any claim for incidental or consequential damages.

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

**Huck Installation Equipment:**

Huck International, Inc. reserves the right to make changes in specifications and design and to discontinue models without notice.

Huck Installation Equipment should be serviced by trained service technicians only.

Always give the serial number of the equipment when corresponding or ordering service parts.

Complete repair facilities are maintained by Huck International, Inc. Please contact one of the offices listed below.

**Eastern**

One Corporate Drive Kingston, New York 12401-0250
Telephone (845) 331-7300 FAX (845) 334-7333

**Outside USA and Canada**

Contact your nearest Huck International location (see reverse).

In addition to the above repair facilities, there are Authorized Tool Service Centers (ATSC’s) located throughout the United States. These service centers offer repair services, spare parts, Service Parts Kits, Service Tool Kits and Nose Assemblies. Please contact your Huck Representative or the nearest Huck International location (see reverse) for the ATSC in your area.
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Arconic Fastening Systems Tooling Support Locations

INDUSTRIAL NORTH AMERICA

Kingston Operations
1 Corporate Drive
Kingston, NY 12401
Tel: +1-800-278-4825
Fax: +1-845-334-7333
afs.sales.kingston@arconic.com

Tracy Operations
1925 North MacArthur Drive
Tracy, CA 95376
Tel: +1-800-826-2884
Fax: +1-800-573-2645
afs.sales.idg@arconic.com

Waco Operations
PO Box 8117
8001 Imperial Drive
Waco, TX 76714-8117
Tel: +1-800-388-4825
Fax: +1-800-798-4825
afs.sales.waco@arconic.com

INDUSTRIAL GLOBAL

Kolkata Operations
Unit No. 28, 2nd Floor,
55/1, Chowringhee Road,
Kolkata 700071, West Bengal, India
Tel: +91-33-40699170
Tel: +91-33-40699180
Fax +91-33-40699184

Melbourne Operations
1508 Centre Road
Clayton, Victoria
Australia 3168
Tel: +613-8545-3333
Fax: +613-8545-3390
afs.sales@arconic.com

São Paulo Operations
Rodovia Anhanguera, s/n, KM 17
Parque São Domingos - Complexo
Anhanguera - Galpão 1 Seção III
(Módulo III) Box 11
CEP 05112-000 São Paulo – SP Brazil
Tel: +55-11-3583-7061

Melbourne Operations
1508 Centre Road
Clayton, Victoria
Australia 3168
Tel: +613-8545-3333
Fax: +613-8545-3390
afs.sales@arconic.com

Tokyo Operations (Japan and Korea)
1013 Hibiya U-1 Bldg.
Uchisaiwai-cho 1-1-7
Chiyoda-ku, Tokyo
100-0011 Japan
Tel: +81-3-3539-6594
Fax: +81-3-3539-6585

Telford Operations
Unit C, Stafford Park 7
Telford, Shropshire
England TF3 3BQ
Tel: +44-(0)-1952-290011
Fax: +44-(0)-1952-207701
thisales@arconic.com

AEROSPACE NORTH AMERICA

Kingston Operations
1 Corporate Drive
Kingston, NY 12401
Tel: +1-800-278-4825
Fax: +1-845-334-7333
afs.sales.kingston@arconic.com

Simi Valley Operations
3990A Heritage Oak Court
Simi Valley, CA 93063
Tel: +1-805-527-3600
Fax: +1-805-527-0900
www.afs-simivalley.com

AEROSPACE GLOBAL

Cergy Operations
15 Rue du Petit Albi
F-95611 Cergy Pontoise
France
Tel: +33-1-34-33-98-00
Fax: +33-1-34-33-97-77

Hong Kong Operations
27th Floor, 88 Hing Fat Street
Causeway Bay
Hong Kong, China
Tel: +852-2864-2012

© 2018 Huck International, Inc.
Arconic Fastening Systems
Kingston Operations
1 Corporate Drive, Kingston, NY 12401
Tel: 800-431-3091 • Fax: 845-334-7333
www.afshuck.net/us

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