<table>
<thead>
<tr>
<th>Part No.</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>112899</td>
<td>1</td>
<td>Reservoir Assembly</td>
</tr>
<tr>
<td>113213 **</td>
<td>1</td>
<td>Service Kit</td>
</tr>
<tr>
<td>113014</td>
<td>1</td>
<td>Cover Assembly</td>
</tr>
<tr>
<td>121614 *</td>
<td>1</td>
<td>Conversion Kit Package</td>
</tr>
</tbody>
</table>

* Contains all parts (tee fitting; tubing etc.) required for conversion of an early unit to 1988 configuration.

** Contains all seals and replacement parts for repair of all units.

Basic Model 942 POWERIG® Hydraulic Unit
CONTENTS

Retrofit Kits 942-88 & 121614 - Update No. 318
942-88 Retrofit Kit Parts List
Description
Specifications
Principle of Operation
Preparation for Use
Good Practices
First Time Use
Regular Use
Operation and Use
Maintenance
  Good Service Practices
  Sealants, Lubricants, Service Kits etc.
Preventive Maintenance
Troubleshooting
Disassembly with Illustrations
Assembly
  Hydraulic Coupler Set, 110440
Priming and Bleeding
Checking and Adjusting Output Pressures
Specifications for Standard Parts
Service Kit, 113213
An important notice:

Operator must read and understand any WARNING and Caution stickers/labels supplied with equipment before connecting equipment to any primary power supply - as applicable, the following sections each have specific safety, and other, information:

- WARNINGS and CAUTIONS
- DESCRIPTION
- SPECIFICATIONS
- PRINCIPLE OF OPERATION
- PREPARATION FOR USE
- PREVENTIVE MAINTENANCE
- OPERATION AND TOOL HANDLING

As applicable, the disassembly and assembly sections contain specific overhaul and safety procedures.

Only persons who have read and understood all applicable manuals or received training approved by Huck International, Inc. will be able to use Huck equipment with personal safety and efficiency.

If you require additional information, contact your local Huck representative or the nearest office listed on the back cover.

SAFETY GLOSSARY

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.

*Italic type and underlining strengthens a specific instruction.*

WARNINGS

*When operating Huck installation: equipment always wear approved eye protection.*

Whenever within the working environment, wear approved eye protection, with side shields, to protect from anything that breaks on the fastening system including: Erupting fluid lines, flying fastener particles or any other dirt/debris that could cause eye injury. Where applicable, refer to ANSI Z87.1 - 1989.

Disconnect primary power source before doing maintenance on Huck equipment.

- For electrically operated POWERIG® Hydraulic Units, unplug the power cord from the socket. If there is no plug, turn off the power at the disconnect switch. Follow lockout/tagout procedures in force by your employer.
- For equipment powered by compressed air, disconnect the air hose before doing any maintenance.
- For hydraulic tools, or other hydraulic equipment, disconnect the hydraulic hoses from the hydraulic unit before doing any maintenance.

If any equipment shows signs of damage or leakage, **DO NOT** connect it to the primary power supply (either electrical or compressed air) - and do not continue to use equipment that develops erratic symptoms. If equipment is damaged, or there are other serious discrepancies, affected equipment may rupture violently - parts may strike the operator, and/or other personnel, and cause severe personal injury. Ensure that **ALL** air and/or hydraulic hose and/or electrical plugs/connectors are correctly connected before switching on power supply to equipment. If incorrectly connected, the tool may respond erratically and cause severe personal injury.
Subject: Model 942 Powerig® Hydraulic Unit

RELEASE RETROFIT KITS.

942-88 Complete Retrofit Kit
121614 Partial Retrofit Kit

The Model 942 POWERIG® Hydraulic Unit Has been updated to improve reliability effective with production in 1988. The changes include:

* Hardened inlet check valves are pressed in to improve durability and eliminate leakage.

* External shut off pressure adjustment means with extended adjustment range.

* Directional valve clearance tolerance was changed to minimize leakage potential.

* Air logic valve 0-ring squeeze was increased to provide a better seal. Back up ring was added to small piston 0-ring for improved dynamic sealing and to prevent 0-ring extrusion.

* Bore finish on air logic valve was improved to prevent 0-ring wear.

* Rubber ball in air logic block was changed to a harder 90 durometer urethane to prevent permanent set and increase life.

* Jamb nut was added to reservoir vent assembly to eliminate loosening and leakage.
* Physical gaskets were added between cover and module blocks to improve sealing.

* "T" fitting was added to motor feed lines to facilitate equal air flow to both motors.

* Heat treatment of ball stop plug was changed to prevent heads from breaking.

The parts that are required to bring a Model 942 POWERIG® Hydraulic Unit up to current specifications are available from Huck Manufacturing Company in a Retrokit P/N 121614.

If the unit you have is a very early model it can be completely rebuilt using Retrokit P/N 942-88. This kit contains all of the components included in P/N 121614 plus a new design reservoir and cover assembly. Early Model 942 Units had some reservoir leakage problems which have been solved with the new reservoir and cover.
DESCRIPTION

General

The Huck Model 942 POWERIG® Hydraulic Unit is a portable, air powered and air actuated hydraulic power source designed to operate Huck Hydraulic Installation Equipment. The 942 requires 90 - 100 psi air pressure and up to 20 CFM air consumption at continuous operation.

Specifications

Width 10.0 inches 254.0 mm
Length 12.5 inches 318.0 mm
Height 16.5 inches 419.0 mm
Weight (W/O fluid) 21.0 lbs. 9.5 kg
Reservoir Capacity 1.56 quarts 0.0015 m³

Power Source: 90 - 100 psi compressed air (620 - 690 kPa)

Air Consumption (continuous operation):
20 CFM @ 5400 psi (0.009 m³/s @ 37200 kPa)

Remote Control: Air piloted 4-way valve actuated by trigger in the tool

Motor: Twin air motors

Pump: 2-independant, rapid advance and swage
40 cu. in./min. @ 5400 psi (.00065 m³/s @ 37200 kPa)

Output pressure: Maximum
- PULL 8400 psi (57900 kPa)
  RETURN 3500 psi (24100 kPa)

Shipped with
- PULL 5400 - 5700 psi (37200 - 39300 kPa)
  RETURN 2200 - 2400 psi (15200 - 16500 kPa)

Operating Temperature:
Ambient Min. 0° F (-18° C)
Hydraulic Fluid Max. 150° F (65° C)

Hydraulic Fluid: Automatic Transmission Fluid (DEXRON II, or equivalent, SUS 185 @ 100° F and SUS 50 @ 210° F)
PRINCIPLE OF OPERATION

To help with your understanding of the unit, please refer to various detailed illustrations throughout the manual. As you familiarize yourself with the principle of its operation, the trouble shooting, adjustments and repairs will become clearer. Also, by referring back to this section as repairs are undertaken you may be able to more quickly isolate a malfunction.

Hydraulic pressure is developed by two air motors and pumps. Pumps operate independently which results in rapid tool piston movement. Hydraulic pressure supplied by unit is used by tool/nose assembly to swage collar and break pintail. An air piloted 4-way control valve directs pressurized fluid to either PULL PRESSURE port or RETURN PRESSURE port. Depressing an air trigger in tool opens air supply to unit's air motors which starts installation cycle. When collar is swaged and pintail breaks, trigger is released. The unit's RETURN PRESSURE causes tool to push off swaged collar. At this point, as hydraulic pressure reaches a predetermined level, air supply is automatically shut off and unit stops.

PULL PRESSURE RELIEF VALVE is adjustable up to 8400 psi while RETURN PRESSURE RELIEF VALVE is adjustable up to 3500 psi. An internal relief valve, which is factory set, is designed to protect unit.

Air motors, pumps, valves, filler cap/dipstick and vent are mounted on a plate which serves as a cover for the reservoir. The unit's cover, with carrying handle, is easily removed while servicing the unit.

Quick disconnect hydraulic couplings and an air control socket are included to attach tool's hydraulic hoses and air control quick disconnect. Air inlet port is 1/4-18 female pipe threads to accept user's air hose fitting.
**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.

**Good Practices**

**CAUTION**
Do not let disconnected hoses and couplers contact a dirty floor. Dirt in hydraulic fluid causes valve failure.

To minimize contaminating fluid, follow these procedures:

1. Clean area around filler cap before removing it.

2. Use a clean funnel that has a filter.

3. Do not let hose fittings or couplings lie, or drag around, on a dirty floor.

4. Wipe off couplings before connecting them.

5. Periodically drain and clean reservoir and fill with clean fluid.

**First Time Use**

1. Remove POWERIG® Hydraulic Unit cover and filler cap-dipstick. Fill reservoir with hydraulic fluid, approximately 1.56 quarts, until fluid level is between grooves of filler cap/dipstick. It may be necessary to prime and bleed hydraulic system -- see *PRIMING AND BLEEDING*.

Note
Hydraulic fluid is not shipped with the hydraulic unit and is not available from Huck -- see *SPECIFICATIONS*. A malfunction may occur if the viscosity of the hydraulic fluid is not within the range specified.

2. Screw in filler/cap dipstick hand-tight, then back off one-half turn.

3. The hydraulic unit is shipped from factory with PULL PRESSURE set at 5400-5700 psi and RETURN PRESSURE set at 2200-2400 psi. These pressures are proper for operating most Huck hydraulic installation tools -- some tools require different pressures. Refer to tool instruction manual for hydraulic operating pressures. Adjustments must be made using Gauge Set-up No. T-10206. See *CHECKING AND ADJUSTING OUTPUT PRESSURES* for instructions to use T-10206.

4. Connect installation tool hoses and air tubing to unit with quick disconnect couplings.

Note
Hose from port marked PULL PRESSURE must connect to tool port marked P. Hose from port marked RETURN PRESSURE must connect to tool port marked R.

5. Use air supply equipped with filter-regulator- lubricator unit and set regulator to 90 - 100 psi. Connect air to unit -- see *SPECIFICATIONS*.

(Continued on page 4.)
First Time Use (cont.)

6. Depress tool trigger and hold it depressed for two or three minutes to circulate hydraulic fluid, fill the hoses and remove air from hydraulic system. See PRIMING AND BLEEDING if a more thorough procedure is necessary.

7. Check reservoir fluid level.

8. Attach appropriate nose assembly to tool per NOSE ASSEMBLY DATA SHEET and tool's instruction manual.

9. Replace cover.

Regular Use

Before each use:

1. Check hydraulic fluid level and add fluid as required.

2. Inspect hydraulic hoses and replace damaged hoses.

3. Check entire system for leaks and repair as required.

4. Check air supply regulator and reset, if necessary, to 90 - 100 psi.

5. Be sure the unit's PULL PRESSURE and RETURN PRESSURE are properly set for the installation tool being used.

OPERATION AND USE

Operation and use of the 942 is controlled by an air trigger in the tool or by an auxiliary air trigger as per instructions in applicable tool manual.

MAINTENANCE

CAUTION
Keep dirt and other harmful material out of hydraulic system -- this includes tool, hoses, couplers and POWERIG® Hydraulic Unit. Parts must be kept away from unclean work surfaces. Dirt in hydraulic system causes valve failure in the hydraulic unit.

Individual parts must be handled carefully and examined for damage or wear. Replace parts where required. Always replace O-rings and back-up rings when unit is disassembled for any reason -- see Service Kit, 113213.

Good Service Practices

The efficiency and life of installation equipment depends upon good service practices and proper maintenance. Using the manual will help give a clear understanding of the unit and basic maintenance procedures -- please read this page completely before proceeding with maintenance and repair. Use proper hand tools in a clean and well-lighted area. Only standard hand tools are required in most cases; where a special tool is required, the description and part number are given.

While clamping parts in a vise, and when parts require force, use suitable soft materials to cushion impact. For example -- using brass drifts, wood block and vise with soft jaws greatly reduces possibility of damaging tool. Remove components in a straight line without bending, cocking or undue force -- reassemble tool with the same care.

Consult manual's TROUBLESHOOTING if a malfunction occurs and then see appropriate section of DISASSEMBLY; ASSEMBLY; Assembly and/or Components (illustration).
Sealants, Lubricants, Hydraulic Fluid and Service Kits

Rub SLIC-TITE TEFLOM (in stick- 503237) thread compound, or equivalent, all around ALL pipe threads to prevent leaks and for ease of assembly. **CAUTION: do not use TEFLOM tape on pipe threads.** Particles of shredded tape cause hydraulic unit valve failure.

Smear LUBRIPLATE 130AA (in tube-502723), or equivalent, on O-rings and mating surfaces to prevent damaging O-rings on rough or sharp surfaces -- for ease of assembly.

Each Service Kit, 113213, contains perishable parts for unit. As foreseeable use may indicate, keep extra kits (O-rings, back-up rings, other standard items) and hydraulic unit parts in stock. When stock is depleted, you can get kit items from any regular retailer of these items. See kit parts list for O-ring size (AS568- number); material; durometer -- for kit parts lists and related information see **NOTES AND SPECIFICATIONS FOR STANDARD PARTS.**

Preventive Maintenance

An effective preventive maintenance program includes frequent inspections and correction of minor troubles:

1. Keep air pressure at 90 - 100 psi.
2. Keep moisture traps and filters clean.
3. Keep lubricator filled and adjusted.
4. Inspect hydraulic hoses and replace if damaged.
5. Inspect air hose air control tubing and replace if damaged.
6. Inspect hydraulic and air fittings to be sure they are tight.
7. Inspect hydraulic fluid. If contaminated, drain and clean reservoir -- replace hydraulic fluid.

TROUBLESHOOTING

Always check out the simplest possible cause of a malfunction first. For example, air pressure and/or flow may be too low, air trigger on tool may be damaged, etc. Eliminate each probable cause of trouble until problem is located. Use TROUBLESHOOTING in INSTALLATION TOOL MANUAL and the following to aid in locating the trouble.

1. Pumps will not start.
   a. Air pressure too low -- must be 90 psi minimum.
   b. Clamps on air motor bodies adjusted too tightly -- must be able to turn bodies by hand.
   c. Tool trigger damaged or worn -- see applicable tool manual.
   d. Air control orifice screw out of adjustment. See **ADJUSTING AIR TRIGGER PROCEDURE**.
   e. Bend or kink in air control tubing.
   f. Air filters in air motor clogged -- clean or replace.

2. Pumps start but will not build pressure.
   a. Low hydraulic fluid level in reservoir.
   b. External PULL PRESSURE relief not adjusted. See **CHECKING AND ADJUSTING OUTPUT PRESSURES**.
   c. Leaks in couplings, fittings, etc.
   d. Unit not primed -- see **PRIMING AND BLEEDING**.
3. Pumps build pressure but not high enough.
   a. External PULL PRESSURE relief valve not adjusted properly.
   b. Low air pressure - - must be 90 psi minimum.
   c. Hoses connected to wrong hydraulic ports.

4. Pumps build pressure too slowly.
   a. System not primed and bled properly - - see PRIMING AND BLEEDING.
   b. Low air flow - - must be 20 CFM.
   c. Air hose from air supply to air inlet too small - - should be 3/8 in. min.
   d. Hydraulic fluid being pumped over external relief valve - - set relief valve 500 psi (3450 kPa) over required pressure.

5. Tool piston and nose assembly moves back but will not return.
   a. Seals or washer in tool trigger damaged or worn - - see applicable tool manual.
   b. Air control orifice screw not adjusted properly. See ADJUSTING AIR TRIGGER PROCEDURE.
   c. Adjust RETURN PRESSURE relief valve. See CHECKING AND ADJUSTING OUTPUT Pressures.

6. Tool piston and nose assembly returns but pump will not shut off.
   a. External PULL PRESSURE relief valve set below shut-off pressure.
   b. Hydraulic fluid viscosity too low - - see SPECIFICATIONS for proper viscosity.
   c. Hydraulic pumps not primed. See PRIMING AND BLEEDING.

7. Tool piston and nose assembly starts to return but unit shuts off prematurely.
   a. Adjust RETURN PRESSURE relief valve.
   b. Worn or defective rubber ball in air block.
   c. Worn or defective steel ball in air block.

8. Tool and nose assembly malfunctions.
   a. Installation tool and nose assembly not attached and adjusted properly - - see applicable tool manual and NOSE ASSEMBLY DATA SHEET.
   b. Damaged hydraulic couplings.

9. Air escapes into hydraulic fluid reservoir causing a bubbling sound.
   a. defective O-ring seals on direction valve spool.
   b. Defective plastic tubing between end covers of directional valve covers.
DISASSEMBLY

The following procedure is for complete disassembly. Disassemble only sub-assemblies necessary to replace damaged components. Always replace seals and back-up rings whenever anything having these items is disassembled.

WARNING
Remove installation tool hoses, air control tube and air supply from POWERIG® Hydraulic Unit before starting any maintenance. Severe personal injury may occur if air hose is not disconnected from hydraulic unit.

1. To remove air bodies:
   a. Disconnect air supply - - see WARNING above.
   b. Remove retaining rings from air swivels. Pull swivels out of air body cap assembly. Remove air connectors from T-fitting at air block and remove air hose.

   WARNING
When loosening air-body clamps hold air-body down to prevent air-body from springing free. Personal injury may occur if air-body is not held.

   c. Loosen air-body clamps - - see WARNING directly above.
   d. Remove air-body from adapter block.
   e. Remove both springs, spring washers and hydraulic pistons. Remove air piston.
   f. Remove air filter.

2. To remove hydraulic piston seals:
   a. Remove packing nut and bearing.

   CAUTION: Be careful not to nick or gouge inside of air adapter block.

   b. Using seal pick or similar tool, remove U-cup seal.

3. To remove inlet check ball/spring:
   a. Remove hydraulic pressure line from base of main adapter block.
   b. Remove four cap screws that hold adapter plate to air adapter block.
   c. Lift adapter block from main block to expose inlet ball and spring. Remove ball and spring.

   CAUTION: Do not attempt to refinish (touch-up) seats. Defective seats are removed as shown.

   d. Inspect seat for damage, corrosion and/or contamination.
   e. Remove suction line assemblies and hydraulic lines, located in reservoir, from both adapter blocks.

4. To remove outlet check ball/spring:

   CAUTION: See CAUTION on P. 7G.

   a. Loosen ball stop plug - - remove plug and O-ring from front of main adapter block.

   CAUTION: Hardened outlet seats are pressed into main adapter block. Do NOT attempt to refinish (touch-up) or remove seats.

   b. Remove spring and ball. Inspect seat for damage, corrosion and/or contamination.
SECTION A-A

TOP VIEW AND TWO PARTIAL VIEWS
COMPONENTS IN RESERVOIR NOT SHOWN

125277
PISTON & SEAL ASSY

125354
INLET FILTER

TORQUE TO 33-37 IN-LBS
DO NOT OVER TIGHTEN

ASSEMBLE NARROW LEG AS SHOWN
PACKING NUT AND ADAPTER

INLET CHECK BALL AND SEAT
REMAPPING INLET SEATS

CAUTION: To prevent ball from falling into crossover tube, tilt block.

202120 BALL (2)
113097 SPRING (2)
113110 BALL STOP SCREW (2)
121634 O-RING (2)

OUTLET CHECK VALVE (2 VALVES)
5. To remove air pilot piston:
   a. Remove 1/16 NPT pipe plug from rear of pilot block.
   b. Remove retaining ring from front of pilot block.
   c. Using appropriate size rod/drift, push pistons out of pilot block from rear - - catch pistons in clean rag.

   NOTE: For pre 1988 models, there is an improved piston, O-ring and back-up ring assembly to replace old piston and O-ring assembly. This and other items can be obtained in Retrokit 942-88 - - see listed modifications elsewhere in manual.

6. To remove air pilot block:
   a. Remove air line fitting and plastic air line to the air-bodies.
   b. Remove the four socket head cap screws located on top of air pilot block.
   c. Lift block straight up while watching for the two balls located between pilot block and main adapter block - - a black rubber ball and a steel ball.

   NOTE: Replace black rubber ball. New hard rubber ball is included in both conversion kit and service kit - - replacement springs and balls are in service kit.
   d. Inspect springs for distortion/damage; steel ball for wear/corrosion; seats for wear or damage. Repair or replace as needed.

7. To remove externally adjustable PULL PRESSURE relief valve:
   a. Unscrew jam nut; back out adjustment screw.
   b. Unscrew adapter. Remove spring and poppet cone from main block. Remove piston, spring, ball cap and ball from adapter.
   c. Unscrew poppet seat and remove.
   d. Inspect all parts; repair or replace as needed.

8. To remove RETURN PRESSURE (shut-off) relief valve:
   a. Unscrew adjuster screw from relief valve.
   b. Unscrew adapter from main block. Remove copper gasket.
   c. remove piston, spring, ball cap and ball.

   NOTE: If your 942 does not incorporate these parts, you should update with the conversion kit package.
   d. Inspect all parts; repair or replace as needed.

9. To remove air trigger orifice spindle:
   a. Unscrew orifice spindle.
EXTERNALLY ADJUSTABLE
PULL PRESSURE RELIEF VALVE
10. To remove directional valve:
   a. Remove reservoir cover and gasket.

   **CAUTION:** do not remove internal relief valve except to replace it with a factory set valve. **DO NOT ATTEMPT TO ADJUST THIS VALVE.**

   b. Loosen elbows and remove tube.

   c. Unscrew four socket head cap screws; remove directional valve assembly; remove four socket head screws from valve assembly.

   d. Remove both end caps and deflector from valve body; remove spool.

   **WARNING:** Cover end cap with a clean rag; use reduced shop air pressure against piston to remove end cap. **PISTON MAY EJECT FORCIBLY FROM CAP.**

   e. Use compressed air for piston removal from end cap.

   f. Remove suction (inlet) tubes.

11. To remove both main adapter block and secondary adapter block:

   a. Remove eight socket head cap screws from under side of reservoir cover.

   b. Remove main block and secondary block.

12. To remove cover, casters and miscellaneous other items.

   a. From the cover, remove hardware and handle. Disassemble casters.

   b. Remove:
      Air control quick-disconnect; hydraulic coupling nipple and coupling body; two pipe nipples; air vent; filler cap/dipstick.
DIRECTIONAL VALVE (2 VIEWS)
SECTIONAL OF DIRECTIONAL VALVE

500106 SOC HD CAP SCREW (4)
500814 O-RING
113128 SPOOL
113126 PISTON
503964 O-RING (3)
113756 DEFLECTOR
500809 O-RING

RESERVOIR COVER (REF)
113014 COVER ASSEMBLY INCLUDES:
112898 COVER (1)
116732 HANDLE ASSEMBLY (1)
116913 PLATE (1)
116733 CATCH (2)
500167 WASHER (4)

110439 HYD COUPLER BODY
504057 PIPE NIPPLE

110438 HYD COUPLER NIPPLE
504057 PIPE NIPPLE

113020 QUICK DISCONNECT - AIR CONTROL

112899 HYDRAULIC RESERVOIR ASSEMBLY INCLUDES:
113849 SLEEVE (4)
125399 CASTER KIT (4)
117750 RESERVOIR (1)
112776 GASKET (1)
113072 STRIKER (2)
114940 STRAP KIT (1)
500171 FLAT WASHER (8)
ASSEMBLY

Before starting assembly, clean all parts with clean mineral spirits — do not let seals to be used contact solvents. Parts are then air dried — do not wipe dry with a shop cloth. See GOOD SERVICE PRACTICES in this manual. During assembly, follow lubrication instructions.

1. To install both pump bodies (main adapter block and small block):

   a. To prevent leakage from reservoir: Use mineral spirits or isopropyl alcohol — clean reservoir cover and both block mounting surfaces. Apply General Electric RTV silicon rubber adhesive sealant in a 1/16 bead on mounting surfaces.

   b. Through underside of reservoir cover, install eight socket head cap screws that hold blocks — tighten to 120 in. lbs.

2. To install directional valve:

   a. Push small piston to bottom of end cap.

   b. Install end cap with two socket head cap screws — tighten to 56 in. lbs.

   c. Push large piston into end cap. Push spool into body with metering notches on spool closest to large piston. Assemble end cap to body with two socket head cap screws — tighten to 56 in. lbs.

   d. Place three O-rings, 503964, two O-rings, 500776, in pockets of pump body. Attach directional valve assembly to main block with four socket head screws — tighten to 56 in. lbs.

   e. Assemble:

      Tube to elbows; two inlet tubes; screens and retaining rings; oil tube to connectors.

   3. Install cover to reservoir:

   CAUTION: Be sure reservoir is clean.

   a. Place gasket on reservoir, and then, place cover on reservoir.

   b. Attach strikers with two socket head cap screws and hex nuts; assemble remaining socket head cap screws, flat washers and hex nuts.

4. To install RETURN PRESSURE (shut-off) relief valve:

   a. Turn unit so hole in end of pump body is up. Drop ball, guide and spring into hole — check spring.


5. To install externally adjustable PULL PRESSURE relief valve:

   a. Screw poppet seat into main adapter block — tighten until snug.

   b. Push piston into adapter block/adjustment screw/jam nut assembly smear lubricant on O-ring.

   c. Slide poppet into poppet seat; push spring over poppet stem.

   d. Making sure spring is properly aligned on piston, install assembled adapter into main block — tighten until snug.

   e. Do not tighten jam nut until after PULL PRESSURE is adjusted and checked.

NOTE: To adjust RETURN PRESSURE relief valve, see CHECKING AND ADJUSTING OUTPUT PRESSURES.

NOTE: To adjust PULL PRESSURE relief valve, see CHECKING AND ADJUSTING OUTPUT PRESSURE.
6. To install air pilot valve block onto main block:
   a. Check to see that all five O-rings are correctly located as shown.
   b. Place long spring into cavity in main block. Set black rubber ball, with a
dab of LUBRIPLATE, on top of spring.
   c. Use dabs of LUBRIPLATE to hold parts in position. Place ball into pilot
block as shown. Small diameter of spring is against ball.
   d. Turn pilot block to upright position. carefully align pilot block over main
block.

NOTE: Be sure seat for rubber ball (located in pilot block) is directly over
rubber ball and guide pins are aligned with holes -- edges of both blocks are
flush with each other. This insures correct alignment of ball seats; oil/air
passages.

   e. Install and tighten four socket head cap screws to 15 ft. lbs.
   f. Push piston, 113103 , into block -- tapered end first. Push piston, 113105 ,
with hole facing out, against previous piston.
   g. Insert piston, 121625 , into piston, 113095 , -- small end goes in first.
Push assembled pistons into block.
   h. Install retaining ring (TRU-ARC pliers, 0100). Screw in pipe plug at
rear of block.

7. To install outlet check valve:
   a. Insert ball into main body.
   b. Slide spring over ball stop screw -- use a small dab of LUBRIPLATE to
hold it.
   c. Using a new copper gasket, install and tighten ball stop screw to 25 ft. lbs.

8. To install air body adapter blocks:
   a. If necessary, push new retaining ring into counter on adapter.
   b. Place ball on seat in main block and small block.
   c. Put a dab of LUBRIPLATE into the counterbore in the bottom of adapter.
   d. Install four socket head cap screws to hold adapters. Tighten to 15 ft. lbs.

9. To install hydraulic seals:
   a. Smear LUBRIPLATE on U-cup. Install with seal lips pointing down.
Be sure lips of seal do not fold back on themselves.
   b. Push bronze bearing in with chamfer on inside diameter pointing up.
   c. Install packing nut. Tighten to 25 ft. lbs.
10. To install air-bodies:

   a. Place inlet air filter, 125354, filter into top of air-body - - see p. 7C.

   b. Assemble spring, hydraulic piston and washer as shown.

   c. Coat inside of air-body with LUBRIPLATE. Carefully push piston into air-body as shown.

   d. Place assembled air-body over spring/piston; press down and move assembly around slightly until piston enters bearing - - bottom lip of air-body is tight against adapter block.

   e. Install clamp, making sure clamp channel straddles lips of air-body and adapter block. Tighten clamp until air-body no longer rotates on the block. Back off clamp screw one full turn or until air-body can be rotated on adapter block.

   CAUTION
   Do not overtighten air-body clamps.

   f. Attach tube to air swivel.
   NOTE: Be sure that inlet air filter, 125354, is in position.
   Install assembled tube and swivel into top of air-body. Install spring clip to hold swivel to body.

11. To install air trigger orifice spindle:

   a. Screw orifice spindle into main block - - do not tighten. This spindle must be adjusted when preparing unit for use - - see ADJUSTING AIR PRESSURE PROCEDURE.

12. To assemble cover, casters and miscellaneous other items:

   a. Attach hardware to cover; attach handle to cover. Assemble casters.

   b. Replace:
   Air control quick-disconnect; two pipe nipples; hydraulic coupling nipple and coupling body; air vent; filler cap/dipstick.

   NOTE: Check position of coupling nipple and coupling body.
Hydraulic Quick-disconnect 
Couplings

O-ring, 504438, and back-up ring, 501102, 
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 
Kit, 113213.

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

Priming and Bleeding

Proper priming and bleeding (removing air 
from system) of the entire hydraulic system, 
including POWERIG® Hydraulic Unit, 
hoses and installation tool, is necessary for 
efficient operation. The following steps will 
insure that the system will be primed and 
bled.

1. Remove air supply from hydraulic unit.

2. Check hydraulic fluid level in reservoir. 
   proper level is between the grooves 
   of the dipstick (filler cap/dipstick). Add 
   fluid as necessary.

3. Leave installation tool hydraulic hoses 
   and air control tubing connected to the 
   hydraulic unit (or connect as indicated in 
   FIRST TIME USE).

4. Connect air supply to hydraulic unit.

5. Press tool trigger and hold it depressed 
one minute. Release trigger.

NOTE: If unit fails to start, see TO 
ADJUST AIR TRIGGER.

6. Repeat step 5, four or five times. Hoses 
   and tool should be filled with hydraulic 
   fluid and air in the system forced back to 
   reservoir and out of the vent and filler

7. Check hydraulic fluid level, especially if 
   new and was not previously filled. 
system is primed and bled and is 
ready for checking and adjusting output 
pressures.

Checking and Adjusting Output 
Pressures

POWERIG Hydraulic Unit output pressures 
should be checked and adjusted as required 
by the installation tool to be used, at first 
time start-up, after overhauling the unit and 
when troubleshooting. Pressure Checking 
Gauges T-10280 (earlier model) or 
T-124833, from Huck, should be on hand 
to personnel servicing the 942.

Checking Procedure

After the unit has been properly primed and 
bled see applicable INSTRUCTION 
MANUAL for setting hydraulic pressures. 
The manual gives specific instructions 
which must be followed for safety and to 
avoid damage to hydraulic unit.

To adjust PULL PRESSURE:

1. Loosen locknut of PULL PRESSURE 
   relief valve located at rear of unit 
opposite the PULL PRESSURE and 
RETURN PRESSURE ports.

2. Turn adjusting screw IN to increase 
PULL PRESSURE. Back OUT adjusting 
screw to reduce PULL PRESSURE.

3. After PULL PRESSURE has been 
   adjusted, tighten locknut. Recheck PULL 
PRESSURE.

NOTE: PULL PRESSURE must exceed 
RETURN PRESSURE for proper 
operation of hydraulic unit.
To Adjust RETURN PRESSURE:

1. Remove screw and gasket. Use 1/8 hex key to adjust hollow lock screw. Turn in screw to increase RETURN PRESSURE. Back out screw to reduce RETURN PRESSURE. Reassemble screw and gasket. Recheck RETURN PRESSURE.

WARNING: Screw and gasket must be reassembled to check RETURN PRESSURE adjustment. Oil may eject forcibly from RETURN PRESSURE relief valve when actuating hydraulic unit without screw and gasket in place -- severe personal injury may result.

To Adjust Air Trigger:

1. Connect hydraulic unit to 90 - 100 psi air supply.

2. Connect tool hydraulic hoses and air control tubing to hydraulic unit. See FIRST TIME USE.

3. Hold tool trigger depressed and slowly turn spindle IN until hydraulic unit starts. Release trigger.

4. Tool piston must return to forward position and hydraulic unit must shut off. If tool piston stops in rear position and hydraulic unit shuts off, back spindle OUT 1/6 turn. Depress trigger to start hydraulic unit and then release -- check piston and unit as at beginning of 4. Repeat procedure until piston returns to forward position and unit shuts off -- see NOTE below.

NOTE: If tool piston returns to forward position and hydraulic unit continues to run, RETURN PRESSURE must be lowered -- start over at beginning of TO ADJUST RETURN PRESSURE.
Specifications for Standard Parts

1. All part numbers shown in this manual are available from Huck. The 500000 series part numbers are standard parts which can generally be purchased locally.

2. O-ring sizes are specified AS568 dash numbers (AS568 is an Aerospace Size Standard for O-rings and formerly was known as ARP). Service Kit, 113213, has specific material and durometer just after the identifying AS568-dash numbers.

3. Back-up rings are W. S. Shamban & Co. series S-11248, single turn TEFLON (MS-28774), or equivalent. The dash numbers correspond to the O-ring dash numbers.

Service Kit, 113213

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1. All part numbers shown in this manual are available from Huck. The 500000 series part numbers are standard parts which can generally be purchased locally.

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Service Kit, 113213

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To Adjust RETURN PRESSURE:

1. Remove screw and gasket. Use 1/8 hex key to adjust hollow lock screw. Turn in screw to increase RETURN PRESSURE. Back out screw to reduce RETURN PRESSURE. Reassemble screw and gasket. Recheck RETURN PRESSURE.

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1. Connect hydraulic unit to 90 - 100 psi air supply.

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NOTE: If tool piston returns to forward position and hydraulic unit continues to run, RETURN PRESSURE must be lowered - start over at beginning of TO ADJUST RETURN PRESSURE.
**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 nonfulfillment of orders owing to strikes, fires, accidents, transportation companies or for any reason or reasons beyond the control of the Seller or its suppliers.

All warranty claims must be submitted to the Seller in writing within 90 days from the 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 expressed 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 Seller 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, expressed 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.

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**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 (914) 331-7300  FAX (914) 334-7333

**Canada**

326 Humber College Boulevard, Rexdale, Ontario M9W 5P4, Canada.
Telephone (416) 675-3400  FAX (416) 675-5917

Outside USA and Canada

Contact your nearest Huck International Office, see back cover.

In addition to the above repair facilities, there are Authorized Tool Service Centers (ATSC's) located throughout the United States. These service centers offer repair services, spare parts, Service Parts Kits, Service Tools Kits and Nose Assemblies. Please contact your Huck Representative or the nearest Huck office listed on the back cover for the ATSC in your area.
Huck Acceptance is Worldwide

Huck International, Inc. maintains company offices throughout the United States and Canada with subsidiary offices in many foreign countries. Sales engineers and systems specialists located in your area can help you in solving your fastener problems.

Huck International, Inc. worldwide locations:

America

Huck International, Inc.  
Installation Systems  
World Headquarters  
3724 East Columbia  
Tucson, AZ 85714  
(800) 234-4825  
(602) 747-9898  
FAX (602) 748-2142

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900 Watsoncenter Road  
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(800) 421-1459  
(310) 830-8200  
FAX (310) 830-1436

Huck International, Inc.  
Aerospace Fastener Division, Lakewood Operation  
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Lakewood, CA 90712  
(800) 344-6566  
(310) 421-3711  
FAX (310) 425-3242

Huck International, Ltd.  
6150 Kennedy Road, Unit 10  
Mississauga, Ontario  
L5T214, Canada  
(905) 584-1825  
FAX (905) 564-1963

Huck International, Inc.  
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Tacubaya, Mexico, D.F.  
C.P. 11850  
FAX (525) 515-1776  
TELEX:  
1173530 LUKSME

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FAX (602) 748-2142

Huck International, Inc.  
Industrial Fastener Division  
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(817) 776-2000  
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Toll Free: 008-335-030  
FAX 03-764-5510

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Yodogwa-Gobankan 11F  
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Toyosaki  
Kita-Ku, Osaka 531 Japan  
06-372-1193  
FAX 06-372-9346  
TELEX 63632

Huck International Singapore PTE, Ltd.  
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Singapore 0719  
65-298-2791  
FAX 65-298-2792

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FAX 0952-290459

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37520 Osterode Am Harz  
Germany  
05522-505-300  
FAX 05522-505-300

Huck S.A.,  
Clos D'Asseville  
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95450 Us Par Vigny  
France  
34-66-07-00  
FAX 34-66-07-00