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Instruction Manual

940HS1

Powerig® Hydraulic Power Source

June 9, 2018
HK1176

Makers of Huck®, Marson®, Recoil®
Brand Fasteners, Tools & Accessories

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.


WARNINGS: Must be understood to avoid severe personal injury.


CAUTIONS: show conditions that will damage equipment and or structure.

Notes: are reminders of required procedures.
***Bold, Italic type and underlining*:** emphasizes a specific instruction.

1. A 30-minute 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. Repairman and Operator must read manual prior to using equipment. Warning and Caution stickers/labels supplied with equipment must be understood before connecting equipment to any primary power supply. As applicable, each of the sections in this manual have specific safety and other information.
4. Read MSDS Specifications before servicing the tool. MSDS Specifications are available from the product manufacturer or your Huck representative.
5. When repairing or operating Huck installation equipment, always wear approved eye protection. Where applicable, refer to ANSI Z87.1 - 2003.
6. Disconnect primary power source before performing maintenance on Huck equipment or changing Nose Assembly.
7. Tools and hoses should be inspected for leaks at the beginning of each shift/day. If any equipment shows signs of damage, wear, or leakage, do not connect it to the primary power supply.
8. Mounting hardware should be checked at the beginning of each shift/day.
9. Make sure proper power source is used at all times.
10. Release tool trigger if power supply is interrupted.
11. Tools are not to be used in an explosive environment unless specifically designed to do so.
12. Never remove any safety guards or pintail deflectors.
13. Where applicable, ensure deflector or pintail collector is installed and operating prior to use.
14. Never install a fastener in free air. Personal injury from fastener ejecting may occur.
15. Where applicable, always clear spent pintail out of nose assembly before installing the next fastener.
16. There is possibility of forcible ejection of pintails or spent mandrels from front of tool.
17. If there is a pinch point between trigger and work piece, use remote trigger. (Remote triggers are available for all tooling.)
18. Unsuitable postures may not allow counteracting of normal expected movement of tool.
19. 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 in preventing an accident which may cause severe personal injury.
20. Never place hands between nose assembly and work piece. Keep hands clear from front of tool.
21. There is a risk of crushing if tool is cycled without Nose Assembly installed.
22. Tools with ejector rods should never be cycled with out nose assembly installed.
23. When two piece lock bolts are being used always make sure the collar orientation is correct. See fastener data sheet of correct positioning.
24. Tool is only to be used as stated in this manual. Any other use is prohibited.
25. There is a risk of whipping compressed air hose if tool is pneudraulic or pneumatic.
26. Release the trigger in case of failure of air supply or hydraulic supply.
27. Use only fluids or lubricants recommended.
28. Disposal instruction: Disassemble and recycle steel, aluminum and plastic parts, and drain and dispose of hydraulic fluid in accordance with local lawful and safe practices.
29. If tool is fixed to a suspension device, ensure that the device is secure prior to operating the tool.

Description

Model **940HS1** Powerig® hydraulic power source is a portable, electrically-operated unit designed to operate all Huck hydraulic installation equipment, including Huck-Spin® tools. It operates on 115 volt AC, 50-60 Hz, one-phase electrical power. The power cord is type 10/3 SJTO a NEMA L5-30 plug. The motor is rated at 115V. 50/60 Hz, 25A.

The electrical enclosure contains a motor contactor, a transformer, a relay, a circuit breaker, and a Programmable Logic Controller (PLC). The installation equipment is connected to the Powerig at the control panel. The side panel may be removed with a screwdriver to access the pressure switches.

Hydraulic pressure is developed by a two-stage, gear-piston pump driven by a 1-1/8 horsepower universal electric motor. Pressurized fluid is directed by a four-way directional valve to either the PULL port or the RETURN port of the installation equipment.

The high pressure relief valve controls PULL pressure (maximum pressure of the unit) and is adjustable by the operator. An internal relief valve is pre-set at the factory to protect the operator and the equipment. The internal relief is not adjustable by the operator.

A set of three pressure switches controls RETURN, SWAGE, and SNUB pressures on Huck-Spin tools. The RETURN pressure switch turns off the Powerig at the end of an installation cycle.

Pressures are adjustable to match Huck equipment being used. See applicable tool instruction manual for pressure settings for other Huck installation equipment.

Hydraulic fluid is stored in the reservoir which also serves as the base. Remove the filler cap/dipstick to the check fluid level and to add fluid. Hydraulic quick disconnect couplers are included for connecting hoses from installation equipment.

Specifications

UNIT	WIDTH	LENGTH	HEIGHT	WEIGHT (WITHOUT HYDRAULIC FLUID)
940HS & 940-220HS	16.1 in. (*409.0 mm*)	15.0 in. (*381.0 mm*)	21.2 in. (*538.0 mm*)	84.0 lbs. (*38.0 kg*)

ELECTRICAL SYSTEM: 115VAC (25A), 50/60Hz, single-phase
CONTROL SYSTEM: PLC operated, 24 volts
MOTOR: 12,000 RPM, 1-1/8 HP, 25 amps. nominal
PUMP: 2-stage, gear-piston type, 70cu. in/min. @ 5000 PSI (*1.1472 litres/min @ 344.75 BAR*) output pressure; output pressure adjustable to 10,000 PSI (*689.5 BAR*)
PRESSURE SETTINGS AS SHIPPED:

- Snub: 1150–1350 PSI (*79.29–93.08 BAR*)
- Swage: 4100–4300 PSI (*282.7–296.49 BAR*)
- Return: 2200–2400 PSI (*151.69–165.48 BAR*)
- Pull: 4500–4700 PSI (*310.28–324.07 BAR*)

RESERVOIR CAPACITY: 2.6 gallons (*9.8 litres*)
MIN. OPERATING TEMP. (ambient): 0° F (*-18° C*)
MAX. OPERATING TEMP.: 150° F (*65° C*)
HYDRAULIC FLUID: Hydraulic fluid shall meet DEXRON® III, DEXRON VI, MERCON®, Allison C-4 or equivalent Automatic Transmission Fluid (**ATF**) specifications. Fire-resistant fluid may be used if it is an ester-based fluid such as Quintolubric® HFD or equivalent. Water-based fluid shall NOT be used as serious damage to equipment will occur.

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

DEXRON *is a registered trademark of General Motors Corporation.*

Loctite *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.*

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 E. I. du Pont de Nemours and Company.*

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.*

Preparation for Use

SERVICE

Foreign material in the hydraulic unit will result in poor performance and down time for repair. To avoid this:

1. Clean around the filler cap before removing it.
2. Use a clean funnel with a filter.
3. Keep quick-disconnect couplers off the floor.
4. Wipe off quick-disconnect couplers before connecting them.

BEFORE USE

The Powerig is shipped without hydraulic fluid. Fill the reservoir with hydraulic fluid—approximately 2.6 gallons (*9.8 litres*)—until the fluid level is between the grooves of the dipstick.
Install a quick-disconnect nipple that is compatible with your shop air supply in the 1/4 female NPT fitting on the control panel.

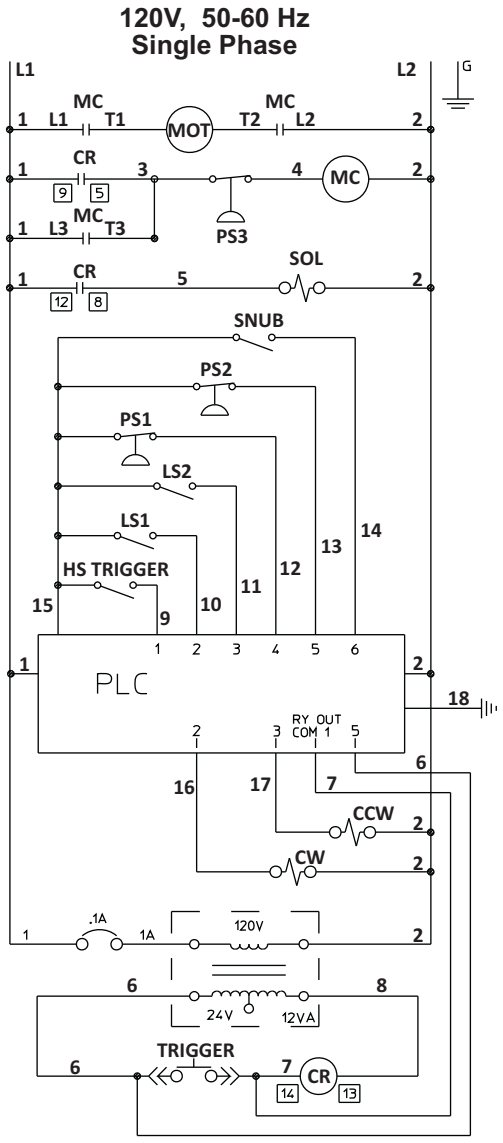
Principle of Operation

See Figure 1.

NON-HUCK-SPIN® TOOLS

Pressure switch (PS) contacts are usually closed. Increasing the pressure opens the contacts. When the tool trigger is pressed, 24volts AC is applied between relay terminals CR13 and CR14, activating the relay coil and closing two sets of contacts: CR9–CR5 and CR12–CR8. Closing set CR9–CR5 starts the motor; closing set CR12–CR8 activates the solenoid coil of the pilot valve. The pilot valve shifts the directional valve spools. Pressurized fluid is directed to the PULL port of the tool. When the tool trigger is released, the relay contacts open. The solenoid coil is de-activated and the spring return of the pilot valve shifts the directional valve spools. Pressurized fluid is directed to the RETURN port of the tool. The motor contactor is held closed until the pre-set RETURN pressure is reached and pressure switch three (PS3) contacts open. The motor turns off, the pressure drops, and PS3 returns to the closed position.

Figure 1 Electrical Schematic



HUCK-SPIN® TOOLS

Signals from the Huck-Spin tool (trigger, LS1, LS2) and from pressure switches 1 and 2 (PS1 & PS2) are processed by the Programmable Logic Controller (PLC) to control operation of the Powerig and tool. Output 5 of the PLC takes the place of the tool trigger in the circuit described in the preceding section. Outputs 2 & 3 control the air valve which, in turn, controls the rotation of the tool's air motor. The Powerig allows one of three fastener installation cycles: **swage**, **snub-only**, and **automatic-snub**. The swage cycle is used for standard operation. Snub-only allows fasteners to be "snubbed-up" to remove gap in fastened parts. (Fasteners installed in this cycle are not permanently swaged and can be removed with hand tools.) Automatic snub occurs during a swage cycle when gap in fastened parts prevents proper thread engagement. Fasteners are snubbed, then permanently swaged.

Swage Installation Cycle (Panel Switch set to "Swage")

The tool trigger is pressed. The air motor spins the thimble clockwise (looking toward the fastener from the tool). The thimble is the threaded part in the nose assembly that engages the fastener. The thimble engages the fastener threads. LS2 closes when the fastener is engaged enough to allow swaging. Hydraulic fluid is directed to the PULL port of the tool. The tool pulls the fastener, swaging the collar. PS2 senses when the fastener is fully swaged. Hydraulic fluid is sent to the RETURN port of the tool. The swaged collar is ejected from the anvil (the nose assembly cavity that swages the collar). The thimble spins counter-clockwise allowing the tool to come off the fastener.

Snub-only Installation Cycle (Panel Switch set to "Snub")

The tool trigger is pressed. The air motor spins the thimble clockwise. The thimble partially engages the fastener threads. LS1 closes when the fastener is engaged enough to allow snubbing. Hydraulic fluid is directed to the PULL port of the tool. The tool pulls the fastener, removing any gap. PS1 senses when the fastener is snubbed. Hydraulic fluid is sent to the RETURN port of the tool. The partially swaged collar is ejected from the anvil and the thimble spins counterclockwise allowing the tool to come off the fastener.

Automatic-snub Installation Cycle (Panel Switch set to "Swage")

The tool trigger is pressed. The air motor spins the thimble clockwise. The thimble partially engages the fastener threads. Gaps in the fastened parts prevent full engagement. LS1 closes when the fastener is engaged enough to allow snubbing. LS2 remains open. A timer in the PLC expires. Hydraulic fluid is directed to the PULL port of the tool. The tool pulls the fastener, removing the gap. PS1 senses when the fastener is snubbed. Hydraulic fluid is sent to the RETURN port of the tool. The partially swaged collar is ejected from the anvil. The thimble spins on further, engaging enough thread to allow a full swage. LS2 closes. Hydraulic fluid is directed to the PULL port of the tool. The remainder of the installation cycle is the same as for the normal cycle.

Checking and Adjusting Pressures

TABLE 1
Pressure Settings for Huck-Spin® Tools

Huck-Spin Fastener Size	Huck-Spin Tool	Pressure (PSI)			
		PULL	RETURN	SNUB	SWAGE
M12	HS37	3750–3950	2200–2400	925–1125	3400–3600
1/2		3850–4050		950–1150	3500–3700
M14		4500–4700		1150–1350	4100–4300
1/2	HS52	2600–2800	2200–2400	650–850	2350–2550
M14		3100–3300		750–950	2800–3000
M16 & 5/8		4500–4700		1150–1350	4100–4300
3/4		5600–5800		1450–1650	5100–5300
M20		7250–7450		1885–2085	6600–6800
1		8100–8300		2300–2500	7900–8100

NOTES

- SWAGE pressures can be adjusted to compensate for collar hardness and lubricity. Set the PULL pressure to approximately 110% of the SWAGE pressure. However, ***DO NOT EXCEED THE MAXIMUM PRESSURE RATING OF THE INSTALLATION EQUIPMENT***.
- For ***non-Huck-Spin*** tools, set the PULL and RETURN pressures in accordance with the tool's manual. SNUB and SWAGE pressure settings do not affect operation of non-Huck-Spin tools.

WARNING: The maximum PULL pressure is 8400 PSI. Refer to specific tool instruction manual for PULL and RETURN pressures.

If recommended pressures are not applied, violent equipment failure could result, leading to severe personal injury and tool damage.

CHECKING PRESSURES

Use Huck pressure gauge (P/N **T-124833CE**) to check the PULL and RETURN pressures: before each use, before troubleshooting, and after overhauling.

- Use the pressure gauge ONLY as directed in its instruction manual.
- See each tool's instruction manual for the recommended pressures that are specific to that tool.

ADJUSTING THE PULL PRESSURE

Use Huck pressure gauge **T-124833CE**—ONLY as directed in its manual—to aid in adjusting the PULL pressure as recommended in each tool-specific instruction manual and TABLE 1.

1. Loosen the jam nut of the high pressure relief valve.

WARNING: If the recommended maximum pressure is exceeded, violent failure of fastening system may occur. Severe personal injury and damage to the tool (such as premature wear) may result.

2. Turn the adjusting screw:
   - *clockwise* to increase the pressure
   - *counterclockwise* to decrease the pressure.
3. Tighten the jam nut.
4. Use Huck pressure gauge **T-124833CE** to check the PULL pressure.
5. Disconnect the electrical power to reset the PLC memory.

ADJUSTING THE RETURN PRESSURE

Use Huck pressure gauge **T-124833CE**—ONLY as directed in its manual—to aid in adjusting the RETURN pressure as recommended in each tool-specific instruction manual and TABLE 1.

1. Remove the side panel with a screwdriver to access the pressure switches.
2. Loosen the jam nut on pressure switch 3 (lower switch).

continued...

Checking and Adjusting Pressures (continued)

ADJUSTING RETURN PRESSURE (continued)

3. Turn the adjusting screw:
   - *clockwise* to increase the pressure
   - *counterclockwise* to decrease the pressure.
4. Tighten the jam nut on pressure switch 3.
5. Use Huck pressure gauge **T-124833CE** to check the RETURN pressure. (Follow the instructions in the appropriate section of this manual.)
6. Re-attach the side panel.
7. Disconnect the electrical power to reset the PLC memory.

ADJUSTING SNUB AND SWAGE PRESSURES

Swage pressure is the maximum PULL pressure for Huck-Spin® tools. Do not exceed the pressure rating of the tool. See each tool's instruction manual for its recommended pressure settings.

WARNING: If the recommended maximum pressure is exceeded, violent failure of the fastening system may occur. Severe personal injury and damage to the tool (such as premature wear) may result.

WARNING: Do NOT insert anything into the electrical enclosure; electrical shock can cause sever injury.

1. Open the electrical enclosure.
2. Remove the side panel with a screwdriver to access the pressure switches.
3. Loosen the jam nut on pressure switch 2 (the middle switch).
4. Turn the adjusting screw on pressure switch 2:
   - *clockwise* to increase SWAGE pressure
   - *counterclockwise* to decrease SWAGE pressure.
5. Tighten the jam nut on pressure switch 2.
6. Check SWAGE pressure following instructions in the appropriate section of this manual.
7. Loosen the jam nut on pressure switch 1 (the upper switch).
8. Turn the adjusting screw on pressure switch 1:
   - *clockwise* to increase SNUB pressure
   - *counterclockwise* to decrease SNUB pressure.
9. Tighten the jam nut on pressure switch 1.
10. Check the SNUB pressure following the instructions in the appropriate section of this manual.
11. Replace the side panel.
12. Disconnect the electrical power to reset the PLC memory.

Operating Instructions

BEFORE EACH USE OF THE POWERIG® HYDRAULIC UNIT

1. Check the hydraulic fluid level in the reservoir; add fluid as necessary.
2. Inspect hoses for damage and wear. If a hose has wear that has removed more than the surface texture, do NOT use; replace.
3. Check the entire system for leaks; repair as necessary.
4. Check electrical cord and extension for abrasion; replace as necessary.

OPERATING HUCK-SPIN® TOOLS

1. Plug the power cord into a grounded wall outlet.
2. Check pressures; adjust as necessary. See **Checking and Adjusting Pressures** in this manual. WARNINGS must be understood before checking pressures.
3. Connect a Huck-Spin tool to the Powerig hydraulic power source using a hose kit.

Be sure that:

- The hose from the PULL PRESSURE on the control panel runs to the port stamped with "P" on the tool.
- The hose from RETURN PRESSURE on the control panel runs to the port stamped with "R" on the tool.

WARNING: Do NOT use an auxiliary trigger to operate Huck-Spin tools.

- Plug the control cable from the tool into the 8-pin socket on the control panel.
- The two-prong socket is not used with Huck-Spin tools.
- Push the two air lines from the tool into the air fittings on the control panel. If the air motor rotates in the wrong direction, swap the air hoses in the air fittings.
- To remove the air lines from the Powerig, push the collar on the air fitting while pulling on the air line.
- Connect an air supply hose to the nipple on the control panel; use 90–100 PSI (*6.2–6.9 BAR*) air pressure.
- Set the snub switch on the control panel to either **Snub** or **Swage**.
  - Use Swage for normal operation.
  - Use Snub for "snubbing up" fasteners to remove any gap in fastened parts without swaging the collar. Snubbed fasteners can be removed with hand tools.
- Attach a nose assembly to the tool.

Fasteners can now be installed. Follow the instructions in the tool manual.

OPERATING OTHER TOOLS

1. Plug the power cord into a 115 volt, 30 amp grounded wall outlet.
2. Check pressures; adjust as necessary. See **Checking and Adjusting Pressures** in this manual. WARNINGS must be understood before checking pressures.
3. Connect a Huck hydraulic tool to the Powerig hydraulic power source using a hose kit.

Be sure that:

- The hose from the PULL PRESSURE on the control panel runs to the port stamped with "P" on the tool.
- The hose from RETURN PRESSURE on the control panel runs to the port stamped with "R" on the tool.
- Plug the control cable from the tool into the two-prong socket on the Powerig control panel.
- The two air fittings on the Powerig control panel are not used.
- The snub switch on the control panel has no effect on the operation of installation equipment other than Huck-Spin tools.
- Only Huck-Spin tools require an air suppiy.
- The 8-pin connector on the control panel is used with Huck-Spin tools only.
- Press the tool trigger switch and let the Powerig operate for a few minutes to circulate fluid and remove air from the system.
- Attach a nose assembly to the tool.

Fasteners can now be installed. Follow the instructions in the tool manual.

Assembly Drawing 940HS1

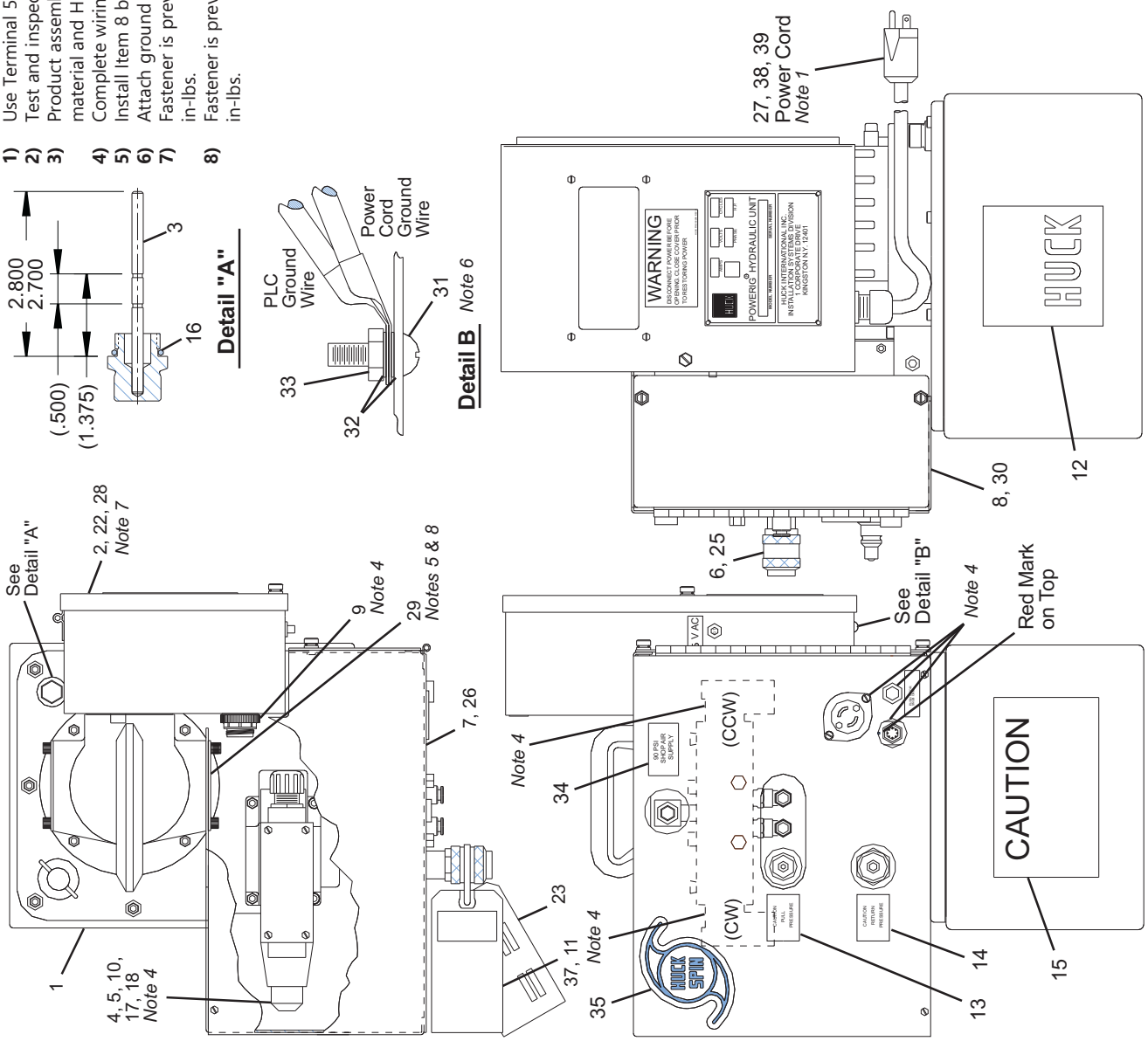
Figure 2

NOTES

1) Use Terminal 505704 on power cord wires L1, L2, & G.
2) Test and inspect to Huck Specification 42-513.
3) Product assembled and tested according to applicable drawings. Bill of material and Huck Specification meets National Electrical Code, 1993.
4) Complete wiring according to wiring diagram 124468.
5) Install Item 8 between motor and brush cover as shown.
6) Attach ground wires as shown.
7) Fastener is prevailing torque type. Do not re-use fastener. Torque to 90 in-lbs.
8) Fastener is prevailing torque type. Do not re-use fastener. Torque to 106 in-lbs.

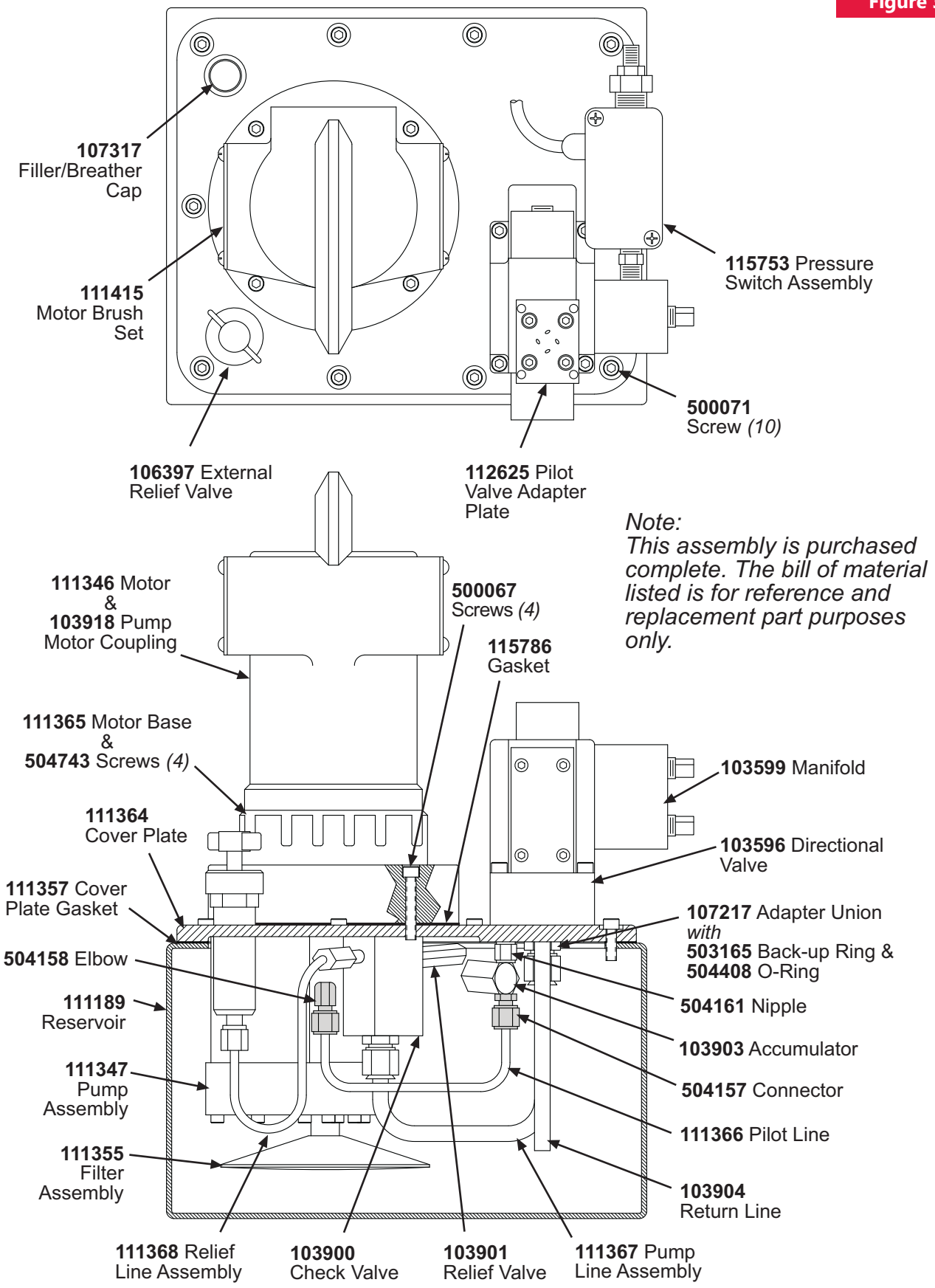
Item	Part No.	Description	Qty
1	111345	Pump, Motor & Valve Assembly	1
2	124467-1	Electrical Enclosure Assembly	1
3	107316	Dipstick	1
4	111351	Pilot Valve	1
5	506360	Strain Relief	1
6	124473	Manifold Assembly	1
7	124475	Control Panel Assembly	1
8	124484	Base Panel	1
9	124735	Wiring Assembly	1
10	500063	Socket Hd Cap Scr 10-24X3/4	4
11	590056	Notice Tag	1
12	590067	Huck Decal	2
13	590132	Pull Pressure Sticker	1
14	590133	Return Pressure Sticker	1
15	590181	Caution Sticker	1
16	500811	O-ring	1
17	502366	Locknut 1/2	2
18	505142	Bullet Plug	2
22	501214	Socket Hd Scr 10-24X3/8 ***(Note 7)***	3
23	590328	Pressure Settings Tag	1
24	124468-1	Wiring Diagram ***(Note 4)***	1
25	500076	Socket Hd Cap Scr 1/4-20X1 3/4	2
26	507262	Truss Screw 6-32X1/4	5
27	505704	Ring Terminal ***(Note 1)***	3
28	123432	Motor Gasket	1
29	501214	Socket Hd Scr 10-24X3/8 ***(Note 8)***	2
30	500073	Socket Hd Cap Screw 1/4-20X1	3
31	502778	Machine Screw 10-24X5/8	1
32	500553	Lock Washer, ext. teeth, #10	2
33	500214	Hex Nut 10-24	1
34	590346	Air Supply Sticker	1
35	590295	HuckSpin Sticker	1
37	504239	Nylon Cable Tie	1
38	508267	Power Cord	1
39	508266	Strain Relief	1

Also included in this assembly, but not shown, are: Carton 590271, Carton Insert 590292, and Instruction Manuals HK959 and HK943 (this instruction manual).



111345 Pump, Motor, Valve Assembly

Figure 3



Note:
This assembly is purchased complete. The bill of material listed is for reference and replacement part purposes only.

124475 Control Panel Assembly

Figure 4

REV	DESCRIPTION	DATE
E	PART NUMBER 130688 WAS 507260 DELETED NOTE 1	06-09-14

ITEM	QTY	DESCRIPTION	PART NO
8	8	SCR RD H MACH #6-32 X 1/4	500398
7	51	NUT SELFLOCK 1/4-20	500559
6	1	SCR HEX HD 1/4-20 X 1 3/4	500008
5	1	PUSHBUTTON ASM, 16MM, MNT, GRN	130688
4	A	STICKER, SNUB-SWAGE	590327
3	A	BASE FEMALE	110685
2	B	AIR VALVE ASSEMBLY	124474
1	D	PANEL, CONTROL	124485

(E)

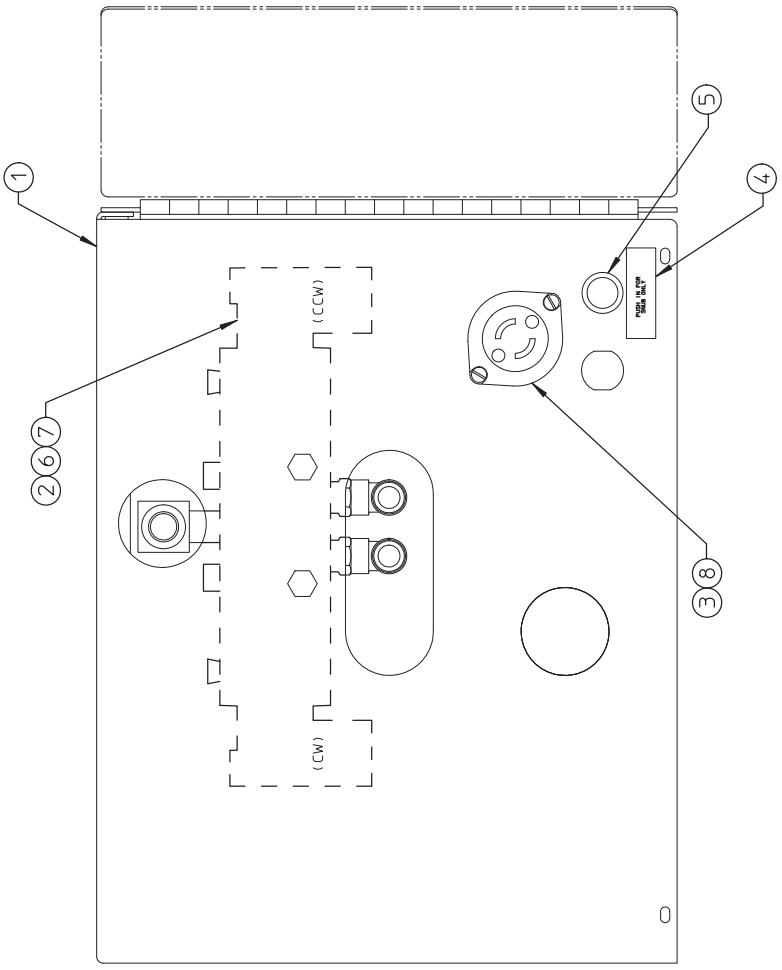
HUCK INTERNATIONAL, INC., I.S.D.
85 GRAND STREET, P.O. BOX 2270
KINGSTON, NEW YORK 12401

CONTROL PANEL ASSEMBLY
940HS

DET:PRS | CK: | DATE: 7-18-95 | SCALE:1:2

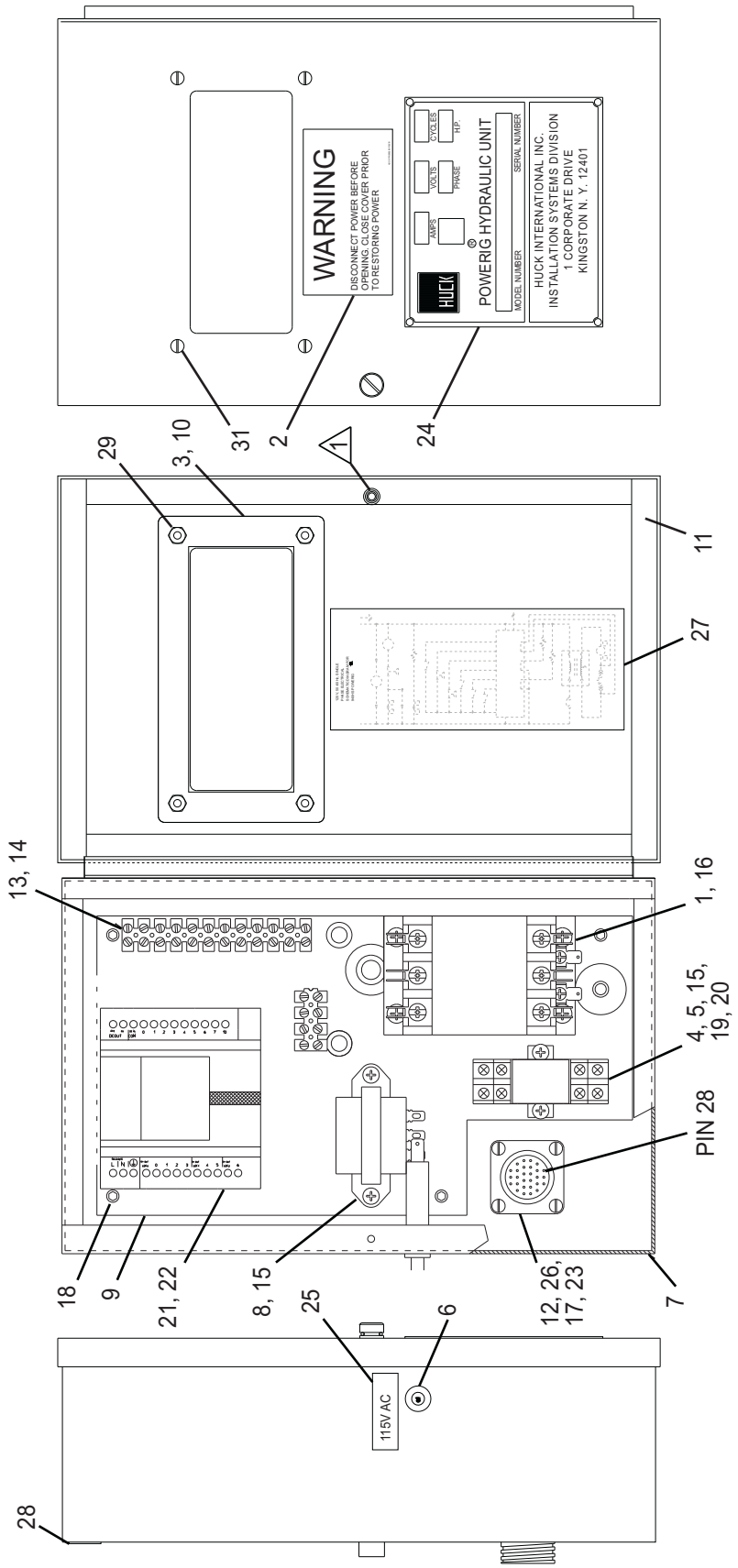
FOC.
FAC.

B 124475



124467-1 Electrical Enclosure Assembly

Figure 5



Item	Part No.	Description	Qty
1	506362	Contactor	1
2	590299	Warning Sticker (Disconnect Pwr)	2
3	124628	Window	1
4	506365	Relay Socket	1
5	506366	Relay	1
6	506363	Circuit Breaker .1 AMP	1
7	124477	Electrical Enclosure	1
8	507293	Transformer	1
9	124466	Enclosure Panel	1
10	124629	Winsow Gasket	1
11	506368	Enclosure Gasket	2.25'
12	507042	28-PIN Bulkhead Connector	1
13	121487	Terminal Block 12 PLCS	1
14	505412	Machine Screw 02-56 X .69	2
15	500261	Pan Hd Screw 8-32 X .38	3
16	500730	Machine Screw 10-32 X .38	4
17	507049	Cable Clamp	1
18	506033	Socket Hd Cap Screw 10-32X.25	4
19	506393	Hold Down Spring, Relay	1
20	500262	Pan Hd Screw 8-32 X .50	1
21	128458	PLC, Programmed	1
22	500049	Socket Hd Cap Scr 6-32 X .50	4
23	507044	Plug, 28-PIN Std Numbering	1
24	590012	Nameplate	1
25	590131	Sticker, 115 VAC	1
26	500398	Machine Screw 6-32 X .25	4
27	590326	Sticker, Electrical Schematic	1
28	590119	Sticker, Class 2 Circuit 30V	1
29	500212	Hex Nut 6-32	4
30	124482	Wire Harness	1
31	500402	Machine Screw 6-32 X .50	4
32	128460	Terminal Block, 4 Spaces	1
33	124468-1	Wiring Diagram / Schematic	1

NOTES

1) Punch Gasket .17-.35 Dia. in way of PEM Fastener.

2) Wire according to Wiring Diagram 124468.

124468-1 Wiring Diagram (1/2)

Figure 6a

NOTES:

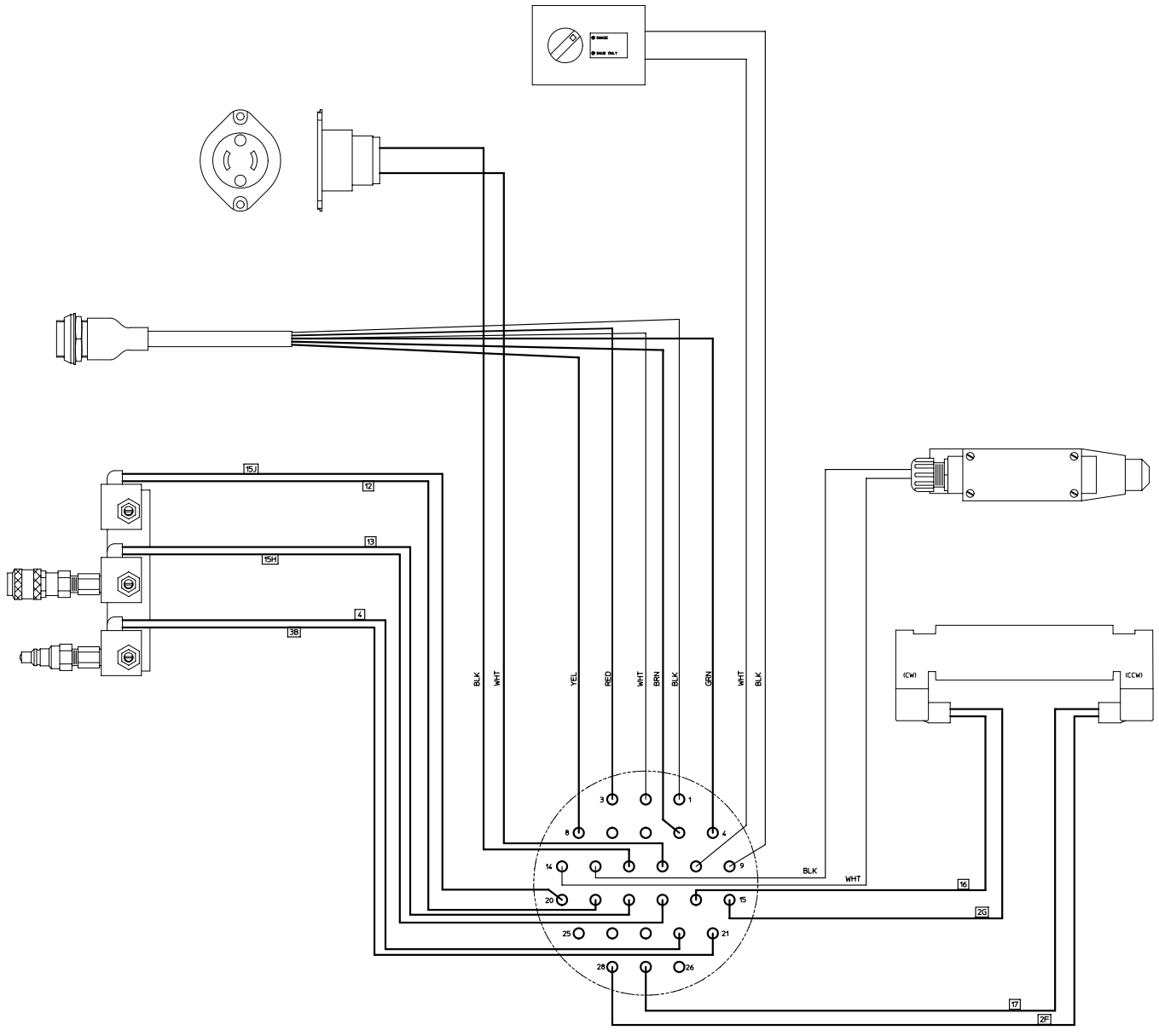
1 WIRE LABEL CODE: XX-XXX

RED = RED	YEL = YELLOW
WHT = WHITE	GRN = GREEN OR GREEN/YELLOW
BLU = BLUE	BRN = BROWN
BLK = BLACK	

INDICATES ALPHANUMERIC LABEL TO APPEAR AT BOTH ENDS OF CONDUCTOR.

2 WIRE COLOR CODE FOR POWER CORD:

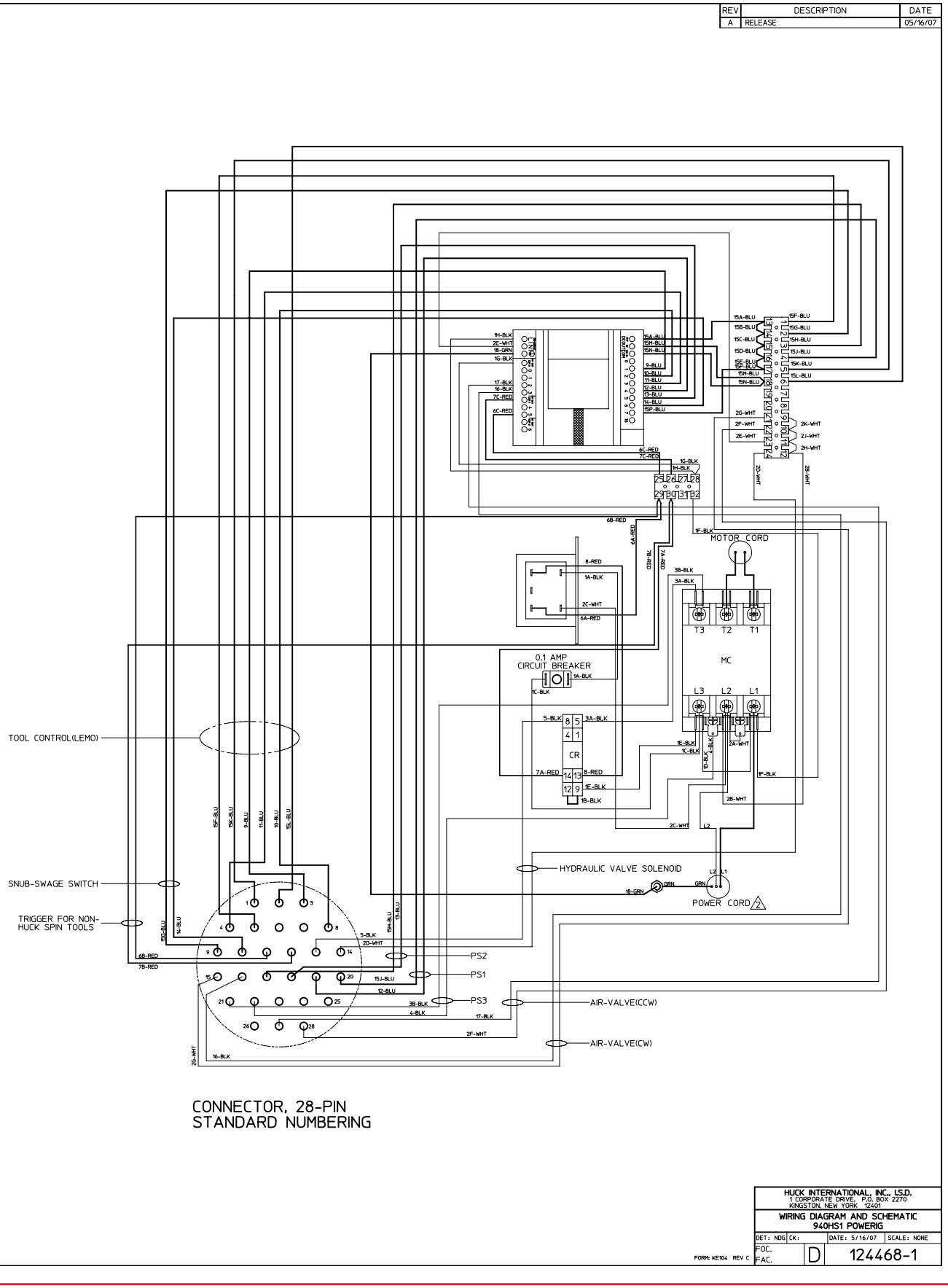
L1 = LIGHT BLUE OR BLACK
L2 = BROWN OR WHITE
GRN = GREEN/YELLOW OR GREEN



CONNECTOR, 28-PIN
REVERSED NUMBERING

124468-1 Wiring Diagram (2/2)

Figure 6b



Maintenance

PARTS LIST

See the **Assembly Drawings** section (pages 10-13) for part numbers.

WIRING

See Figure 1 (Electrical Schematic) and the two-part wiring diagram on pages 14 and 15.

PREVENTIVE MAINTENANCE

An effective preventive maintenance program includes scheduled inspections to detect and correct minor troubles. Perform the following steps monthly during normal use:

- Inspect hydraulic and electrical fittings to be sure they are secure.
- Inspect hoses for signs of damage. Replace hoses if abrasion is deeper than the surface texture.
- Rotate hoses end-for-end to equalize wear and fatigue.
- Inspect during operation to detect any abnormal heating, vibration, or leakage.
- Inspect hydraulic fluid. If contamination (particles, water, sludge, etc.) is detected, clean the reservoir and replace the fluid.
- Clean exterior surfaces.
- Check the supply voltage. Do not operate the Powerig® if the line voltage is more than 5 percent above or below 115 Volts.

SPARE PARTS

The quantity of spare parts that should be kept on hand varies with the application and number of the Powerig units in service. For directional valve and pilot valve maintenance, Seal Kit **124100**, should be kept on hand at all times. This kit contains O-rings and back-up rings required to service one directional valve and one pilot valve. Other parts that should be available to the service technician are: Pump to Motor Coupling, Relay, Transformer, Pilot Valve, and Motor Brushes.

DIRECTIONAL VALVE OVERHAUL

If minor overhaul of the directional valve (cleaning and replacing O-rings and back-up rings) is necessary, Seal Kit **124100**, is available. If a major overhaul is necessary, return the directional valve to the nearest repair facility listed on the inside of the back cover.

Clean components in mineral spirits. Smear LUBRIPLATE® 130-AA (Huck P/N **502723**), or equivalent, on O-rings and mating surfaces to aid assembly and prevent damage to O-rings. LUBRIPLATE is available in most localities.

INTERNAL ADJUSTMENT OF PRESSURE SWITCH

1. Remove the top cover of the switch.
2. Loosen the two screws in the bottom of the switch housing.
3. Place a 0.20-inch-thick shim between the spring retainer and the platen.
4. Loosen the set screw on the spring retainer until it contacts the shim.
5. Lock the spring retainer in place with the set screw.
6. Slide the switch mounting bracket toward the switch button until it contacts the platen surface.
7. Secure with the two screws located in the middle of the bottom cover.
8. Connect a volt/ohm meter to the electrical cord.
9. Tighten the switch adjustment screw against the switch mounting bracket until the switch button contacts the platen and actuates. The volt/ohm meter will react when the button actuates. A click can be heard.
10. Continue tightening the switch adjustment screw 1/8 of a turn after the switch button actuates.
11. Replace the top cover of the switch.

REPLACING PUMP TO MOTOR COUPLING

The pump to motor coupling can be replaced by removing the four socket cap screws holding the motor housing to the cover plate and lifting the motor to one side. Lift out the original coupling with needle-nose pliers. Drop in the new coupling, align the slots, and reassemble motor to cover plate.

PUMP OVERHAUL

If the pump requires an overhaul, return it (or the complete unit) to the nearest repair facility listed on the inside of the hack cover.

Troubleshooting

Always check the simplest possible cause (such as a blown fuse, tripped circuit breaker, defective switch or control cord) of a malfunction first. Then proceed logically, eliminating other possible causes until the cause is discovered. Where possible, substitute known good parts for suspected defective parts. A qualified electrician should examine the electrical system. Use this section as an aid in locating trouble and correcting it. Use this Troubleshooting information to aid in locating and correcting trouble.

1. ***Motor fails when tool switch is pressed.***
   a) Loose or defective control cord or connectors.
   b) Power source not properly fused.
   c) Defective tool switch.
   d) Loose wire(s).
   e) Defective relay.
   f) Incorrect power source.
   g) Defective motor contactor.
   h) Defective transformer.
2. ***Motor runs, but tool will not reciprocate.***
   a) Hoses not properly coupled.
   b) Hydraulic fluid viscosity not proper or level is low.
   c) Defective pilot valve solenoid or coil.
   d) Unloading valve missing in tool.
   e) Bind in tool or nose assembly.
   f) Defective directional valve.
   g) Pump to motor coupling damaged.
3. ***Pintail of fastener fails to break off.***
   a) PULL pressure set too low.
   b) Worn or defective hose couplers.
   c) Hydraulic fluid viscosity not proper or level is low.
   d) Hydraulic fluid overheated.
   e) Worn or defective directional valve.
   f) Internal relief valve set too low or defective.
   g) Worn or defective pump.
4. ***Tool will not return when switch is released, or will not push nose assembly off swaged fastener.***
   a) RETURN pressure set too low.
   b) Hoses not properly coupled.
   c) Worn or defective solenoid.
   d) Worn or defective pilot valve.
5. ***Motor fails to shut-off when installation cycle is completed.***
   a) RETURN pressure switch set too high.
   b) Hydraulic fluid viscosity not proper or level is low.
   c) Hydraulic fluid overheated.
   d) Defective limit switch in pressure switch assembly.
6. ***Pump making noise throughout entire cycle.***
   a) Pump is cavitating; fluid level too low or fluid viscosity too heavy.
   b) Strainer is dirty and clogged.
7. ***Tool operation slow; entire cycle does occur.***
   a) Pump is cavitating; fluid level too low or fluid viscosity too heavy.
   b) Strainer is dirty and clogged.
   c) Worn or defective directional valve.
   d) Worn or damaged pump.
   e) Worn or defective hydraulic couplers.

Kits & Accessories

KITS

Hose and Control Cord Kits
Kits are available with hoses of various lengths (12' to 52'). Contact your Huck representative.

Directional Valve Seal Kit - 124100
Includes seals necessary to service Directional Valve P/N 103596

ACCESSORIES

Auxiliary Switch and Control Cord - 113056
An auxiliary switch for checking and adjusting pressures, and troubleshooting

Pressure Gauge - T-124833CE
Recommended for checking and adjusting pressures, and troubleshooting

Rig Transport Dolly - 116685
Heavy-duty steel dolly for easy movement of rig throughout the work area

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 12/1/2016 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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Through the ingenuity of our people and cutting-edge advanced manufacturing, we deliver these products at a quality and efficiency that ensures customer success and shareholder value.

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FAX: 845-334-7333

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520-519-7400

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