Instruction Manual

EPS4 series
Ebbert Power Source

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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.

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.
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 pneumatic 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.
This manual contains operating and service procedures for the Power Source models EPS4 series. Pay close attention to ALL recommended service procedures in this manual. Specific instructions for each tool are given under that tool model number heading. While they may appear to be similar, each tool contains parts that are not used on other models, and removal and replacement methods may vary.

**SPECIFICATIONS EPS4**

**WEIGHT:** 66.00 lbs (29.93 kg)

**HYDRAULIC PRESSURE OUTPUT**
- @ 90 psi (6.20 BAR): 4,410 PSI (304.07 BAR)
- @ 80 psi (5.51 BAR): 3,920 PSI (270.28 BAR)

**AIR CONSUMPTION:** 0.5 CF per cycle

**PLANT AIR SUPPLY:** 80 / 90 PSI (5.51 / 6.20 BAR) non-oiled

**INCOMING AIR LINE DIMENSION:** 1/2" (12.70 mm) I.D. minimum

**HYDRAULIC FLUID:** HYDREX™ AW 68

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**Model EPS4**

Dimensions are expressed in inches.
**PRINCIPLE OF OPERATION**

Incoming non-oiled plant air is regulated at 80 PSI* (5.51 BAR) through the Air Filter/Regulator to the Four-way Valve, and through the air supply fitting on the manifold.

When a triggering air signal is introduced at the pilot input on the manifold, the Four-way Valve is shifted, directing air pressure through the Blue Air Line into the Power Booster.

As the Power Booster air/hydraulic pistons advance, hydraulic fluid is forced to the hydraulic fitting on the manifold. With 80 PSI* of incoming air pressure, the hydraulic output pressure will be approximately 3,920 PSI (270.28 BAR)*.

When the triggering signal is released, the Four-way Valve shifts to its normal position, allowing the air pressure to return the air/hydraulic pistons to the full back position.

* When using the single-port unit, EPS4, increase the air pressure to 90 PSI (6.20 BAR), which will yield approximately 4,410 PSI (304.07 BAR) hydraulic pressure.

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**MAINTENANCE PROCEDURES**

See Figures 2, 2A, and 2B.

Huck recommends conducting periodic inspections on the Air Filter/Regulator and the Oil Cup Reservoirs. Check the Air Filter/Regulator bowl for liquid contaminants, and drain it when checking. This will aid in maintaining peak performance for the Vacuum Generator and the Four-way Valve. (Figure 2A)

Periodically check the Hydraulic Fluid Reservoir sight bowl to ensure the fluid level is at 1”. Under typical operating conditions, this should remain constant. If the level decreases, check hydraulic components for leaks.

The power unit is shipped with HYDREX™ AW 68 Hydraulic Fluid. Before using an equivalent brand, check the MSDS for like specifications.
## Parts List

(Figures 2, 2A, 2B, and 2c)

<table>
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<tr>
<th>Item</th>
<th>Part No.</th>
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<th>EPS4MP-4 Qty.</th>
<th>EPS4MP-7 Qty.</th>
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**ASSEMBLY DRAWING**

**FIGURE 2A**

**DETAIL F**

**300499 FOUR-WAY VALVE ASSEMBLY**
**Figure 2c**

**Detail H**

300510 dash MANIFOLD ASSEMBLY
**POWER BOOSTER SERVICE**

See Figures 2 & 3.

**WARNING: Disconnect all power from the Power Unit prior to disassembly.**

The power booster is easy to troubleshoot. Attach the Hydraulic Pressure Gauge Assembly (P/N 300456) to the hydraulic nipple where the hydraulic line attaches to the power unit. Press and hold the rivet tool trigger, and monitor the gauge reading. At 80 PSI* (5.51 BAR) air pressure, hydraulic pressure should stabilize at 3,920 PSI (270.28 BAR). If it doesn’t, it indicates possible seal wear and rebuilding is required. The arrow “P” (Figure 3, Detail C) points to an escape port in the power unit cylinder base. If hydraulic fluid is leaking out of this port, one of the hydraulic seals is leaking fluid. Escaping air indicates a defective air seal.

*When using the single-port unit, EPS4, increase the air pressure to 90 PSI (6.20 BAR), which will yield approximately 4,410 PSI (304.07 BAR) hydraulic pressure.

**Removing the Power Booster:** Disconnect the blue air hose and the green air hose. Loosen, but do not remove, hydraulic fluid line (Figure 2); this will prevent fluid spilling. Remove the two nuts and washers (Figure 3, Items 19, 20, & 21) that attach the power booster assembly to the power unit enclosure, then place a rag under the hydraulic fitting and finish removing hydraulic line.

**Disassembly:** (Figure 3) Remove the five hex head bolts, and separate the end castings from the fiberglass air cylinder. Inspect the air piston and hydraulic piston for surface irregularities; also inspect the walls of the air cylinder. Remove the piston guide and seal housing by using the Seal Housing Remover (P/N 300455), and tapping out with a hammer until they can be pushed from the cylinder base.

**Replacing Seals:** When replacing seals, be sure they are positioned as shown in Figure 3, Detail C. Wipe all seals with a lightweight seal lubricant.

**ADDITIONAL NOTES**

- When reassembling the air cylinder and end castings, torque all bolts to the specifications noted in Figure 3.
- After replacing the power booster on the power unit, attach the air supply to the power unit. This will ensure that the air piston is in the full back position for bleeding air from the system; see **AIR BLEEDING THE POWER UNIT** for air bleeding instructions.

**WARNING:** Disconnect all power from the Power Unit prior to disassembly.
### Power Booster Assembly Drawing & Parts List

#### Figure 3

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<tr>
<th>Item</th>
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<th>Description</th>
<th>Qty.</th>
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*Note proper orientation of seals.*

Remove hole plugs prior to installation.

Torque to 12-15 ft/lbs. Stagger while tightening.
AIR BLEEDING THE POWER UNIT

**WARNING:** Be sure to disconnect your power tool's air hose from the power unit when air bleeding or filling the unit with hydraulic fluid. This will prevent accidental actuation of the power circuit which could cause pressurization and damage to the Bleed Pump.

**NOTE:** Do not run reservoir empty!

**BLEEDING THE PULL STROKE POWER BOOSTER**

**P/N 300404**

1. *Turn off the air supply.* Connect the bleed pump (P/N 300509) to the male hydraulic fitting on the manifold.
2. Pump the bleed pump until there are no more air bubbles in the reservoir.

**WARNING:** Remove the bleed pump from the manifold before turning the air supply back on. Otherwise, the bleed pump will be pressurized and can cause damage to the bleed pump or injury to personnel.

**AIR BLEEDING THE POWER UNIT AND RIVET TOOL TOGETHER**

**PULL STROKE**

1. Remove the red and green air lines that connect the tool to the power unit *from the power unit end (where they connect to the manifold).*
2. Connect the bleed pump and bleed port hose to the PORT bleed screw of the tool. (Figure 4)
3. Pump the bleed pump until there are no more air bubbles in the reservoir.
4. Remove the bleed pump from the tool and replace the bleed screw.

---

**Figure 4**

Tool's PORT Bleed Screw *(general location)*
TROUBLESHOOTING

Always check the simplest possible cause (such as a loose or disconnected trigger line) 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. Use this troubleshooting information to aid in locating and correcting trouble.

1. **Slow tool cycle.**
   a. Check air pressure and hydraulic pressure. Reference operational schematic at front of manual.
   b. Incoming air line must be 1/2" (12.70 mm) ID minimum.

2. **Tool will not pull fastener.**
   a. Air may be in the hydraulic system, which would require bleeding (see Air Bleeding The Power Unit).
      
      **NOTE:** Air entrapment is identifiable by sound. As the tool trigger is actuated, the normal “thud” produced by the Power Unit is replaced by a metallic “clack.”

   **WARNING:** Do not actuate the trigger until the bleed screw of the tool is in place.

KITS & ACCESSORIES

The hydraulic and vacuum test gauges are essential items for maintaining your rivet equipment at peak operating efficiency. All instruments are equipped with quick connects for on-line testing.

- **Vacuum Test Gauge (P/N 300457):** Remove vacuum line from vacuum generator. Install vacuum gauge. Indication should be 15 inches (38.10 cm) minimum. If lower, vacuum generator assembly should be removed, cleaned, and reassembled using no lubricant.

- **Hydraulic Pressure Test Gauge (P/N 300456):** Disconnect the Pull Stroke hydraulic line from the power unit and install the gauge. Press and hold the trigger to actuate the tool. The pressure gauge should indicate 3900–4000 PSI (268.90–275.80 BAR). This is an excellent method of isolating a tool or power unit problem.

- **Tube Cutter (P/N 507889):** Provides clean, true end cuts for any flexible line on the rivet station.

  **NOTE:** Chamfer the vacuum hose ID slightly after cutting.

- **Seal Housing Removal Tool (P/N 300455):** Contains graduations for easy seal housing removal from the cylinder base of the power booster. Using this tool saves time and greatly reduces damage to the cylinder base and the seal housing.

- **Cylinder Wrench (P/N 300459):** Provides a convenient method of holding Rivet Tools for disassembly and repair when a vise is not available, such as on the plant floor where the rivet tools are being used. The wrench holds firmly on the cylinder of the rivet tool and has a cushioned handle/grip for comfort and safety.

- **Filler / Bleed Pump (P/N 300509):** A valuable tool for maintaining Ebbert Power Units. With it, you can fill the hydraulic fluid reservoir and purge the power booster of air. This can be accomplished in much less time than manually filling the reservoir or gravity bleeding the system.

- **Rivet Tool Bleed Port Hose (P/N 300458):** When used with the Bleed Pump (P/N 300509), this tool makes bleeding or filling any of the Rivet Tools a simple procedure. Merely remove the Bleed Screw (P/N 507660), attach the Bleed Port Hose, and pump until bubbles no longer appear in the Hydraulic Reservoir.

   **CAUTION:** Do NOT trigger the tool while the hose is attached. Doing so could damage the Bleed Pump.
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Complete repair facilities are maintained by Huck International, Inc. Please contact one of the offices listed below.

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

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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.
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