

L2988 Rev. C 02/11



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1.0 IMPORTANT RECEIVING INSTRUCTIONS

Visually inspect all components for shipping damage. Shipping damage is not covered by warranty. If shipping damage is found, notify carrier at once. The carrier is responsible for all repair and replacement costs resulting from damage in shipment.

2.0 SAFETY

2.1 General Hydraulic Safety Precautions


  Read all instructions, warnings and cautions carefully. Follow all safety precautions to avoid personal injury or property damage during system operation. Enerpac cannot be responsible for damage or injury resulting from unsafe product use, lack of maintenance or incorrect product and/or system operation. Contact Enerpac when in doubt as to the safety precautions and operations. If you have never been trained on high-pressure hydraulic safety, consult your distribution or service center for a free Enerpac Hydraulic safety course.


Failure to comply with the following cautions and warnings could cause equipment damage and personal injury.


A CAUTION is used to indicate correct operating or maintenance procedures and practices to prevent damage to, or destruction of equipment or other property.

A WARNING indicates a potential danger that requires correct procedures or practices to avoid personal injury.


A DANGER is only used when your action or lack of action may cause serious injury or even death.


 **WARNING:** Wear proper personal protective gear when operating hydraulic equipment.


 **Never** set the relief valve (pumps equipped with user-adjustable relief valve only) to a higher pressure than the maximum rated pressure of the pump. Higher settings may result in equipment damage and/or personal injury.

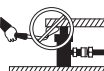
 **WARNING:** The system operating pressure must not exceed the pressure rating of the lowest rated component in the system. Install pressure gauges in the system to monitor operating pressure. It is your window to what is happening in the system.





 **CAUTION:** Avoid damaging hydraulic hose. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.


 **Do not** drop heavy objects on hose. A sharp impact may cause internal damage to hose wire strands. Applying pressure to a damaged hose may cause it to rupture.


 **IMPORTANT:** Do not lift hydraulic equipment by the hoses or swivel couplers. Use the carrying handle or other means of safe transport.

 **CAUTION:** Keep hydraulic equipment away from flames and heat. Excessive heat will soften packings and seals, resulting in fluid leaks. Heat also weakens hose materials and packings. For optimum performance do not expose equipment to temperatures of 65°C [150°F] or higher. Protect hoses and cylinders from weld spatter.

 **DANGER:** Do not handle pressurized hoses. Escaping oil under pressure can penetrate the skin, causing serious injury. If oil is injected under the skin, see a doctor immediately.

 **IMPORTANT:** Hydraulic equipment must only be serviced by a qualified hydraulic technician. For repair service, contact the Authorized ENERPAC Service Center in your area. To protect your warranty, use only ENERPAC oil.

 **WARNING:** Immediately replace worn or damaged parts with genuine ENERPAC parts. Standard grade parts will break causing personal injury and property damage. ENERPAC parts are designed to fit properly and withstand high loads.

 **WARNING:** Do not use electric pumps in an explosive atmosphere. Adhere to all local and national electrical codes. A qualified electrician must do installation and modification.



WARNING: Keep hands clear of moving parts and pressurized hoses.



WARNING: These pumps have internal factory adjusted relief valves, which must not be repaired or adjusted except by an Authorized Enerpac Service Center.



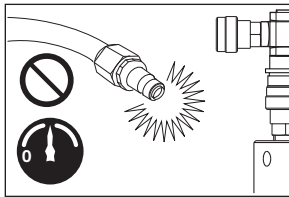
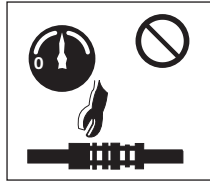
WARNING: To prevent damage to pump electric motor, check specifications. Use of incorrect power source will damage the motor.

2.2 Safety Precautions - Model ZUTP-1500 Pump



DANGER: Failure to observe the following precautions may result in serious personal injury or death!

- Always wear eye protection, gloves and boots when operating the pump.
- High pressure hydraulic equipment can be very dangerous if misused. Keep away from oil leakages at high pressure. Liquid escaping from highly pressurized equipment has sufficient power to penetrate the skin, which can cause blood poisoning. In the case of such an accident, seek IMMEDIATE medical attention.
- Never attempt to disconnect a hydraulic coupler while it is under pressure.
- Never attempt to repair leaks while the system is pressurized. Be sure system pressure gauge indicates zero (0) psi/bar before making any repairs.
- Never pressurize the back of a disconnected male coupler. Serious personal injury could result if the coupler fails while under pressure.
- Use caution when pressurizing a system. Pressure can rise faster than anticipated. Continuously monitor the pressure gauge during pressurization. Be prepared to stop pressurization immediately at any time.
- Before operation, ensure that quick-disconnect couplings are properly connected by physically pulling on them.



- Allow only trained and experienced personnel to operate the pump. Be especially careful to avoid accidental pump start-up.
- Never leave the pump pressurized and unattended. Always depressurize before leaving the system unattended.
- Never exceed the safe working pressure for the hydraulic hoses, tools or pump.
- The Model ZUTP-1500 pump is designed to operate at a maximum working pressure of 21,750 psi [1500 bar]. Do not exceed this pressure setting.

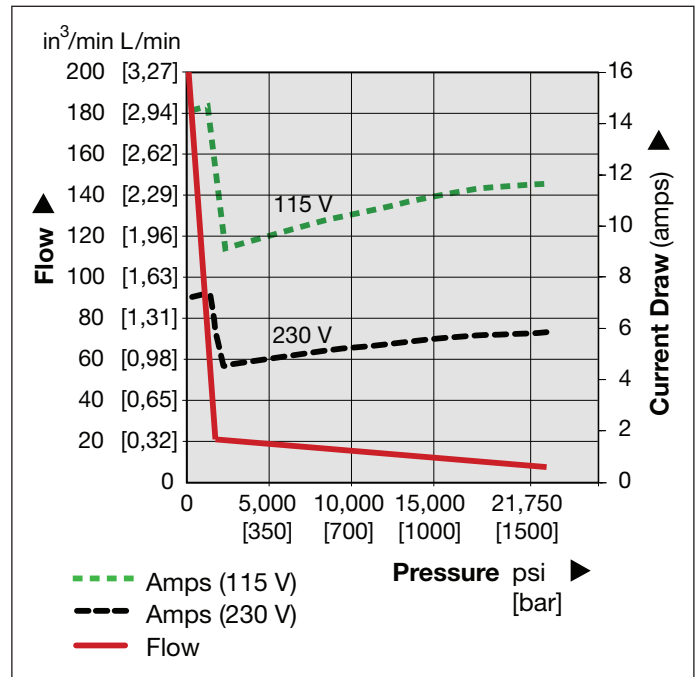


WARNING: Do not operate the pump at pressure settings above 21,750 psi [1500 bar]. Hydraulic components could rupture or burst. Serious personal injury and property damage may result!

3.0 SPECIFICATIONS

(See technical data charts at bottom of page)

3.1 Flow, Pressure and Current Draw (typical)



Note: Actual flow, pressure and current draw will vary, depending on power supply, application, pump condition and other factors.

Technical Data – Model ZUTP-1500

Temperature Range	Oil Viscosity Range	Hydraulic Oil Type (recommended)	Seal Materials	Max. Hydraulic Working Pressure	Electric Current Draw
-20°F to +140°F [-29°C to +50°C]	150 -165 S.U.S. [15 - 25 C.S.T.]	Enerpac HF	Buna, Viton & Polyurethane	21,750 psi [1500 bar]	(Refer to graph in Section 3.1)

Motor Size		Output Flow Rate				Motor Electrical Specifications	Sound Level	Reservoir Oil Capacity		Weight With Oil	
hp	kW	0 psi [0 bar]	10,000 psi [700 bar]	15,000 psi [1000 bar]	21,750 psi [1500 bar]	Volts-Ph-Hz	dBa	gallons	liters	lbs	kg
1.7	1.25	180 in³/min [2,94 L/min]	15 in³/min [0,24 L/min]	12 in³/min [0,19 L/min]	8 in³/min [0,13 L/min]	115-1-50/60 230-1-50/60	89	1	3,8	65	29,4

4.0 INSTALLATION

Install or position the pump to ensure that air flow around the motor and pump is unobstructed. Keep the motor clean to ensure maximum cooling during operation.

4.1 Air Breather (See Figure 1)

A shipping plug (A) is installed in the breather port on the top of the reservoir. Before using the pump, replace the shipping plug (A) with the air breather (B) and adapter fitting (C).

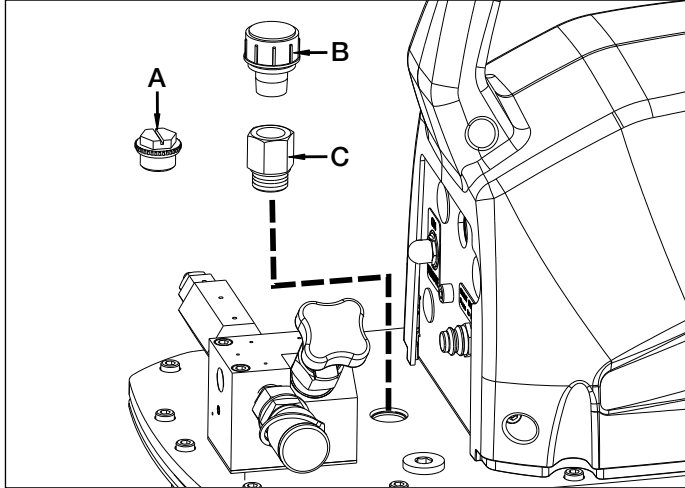


Figure 1, Air Breather

4.2 Oil Level (See Figures 2 and 3)

Check the pump oil level prior to start-up. The reservoir is full when the oil level is as shown in Figure 2. If necessary, remove the oil fill plug from the cover plate as shown in Figure 3 and add oil as required.

IMPORTANT: Add oil only when all system components are fully retracted, or the system will contain more oil than the reservoir can hold. Reservoir capacity is approximately 1 gallon [3,8 liters].

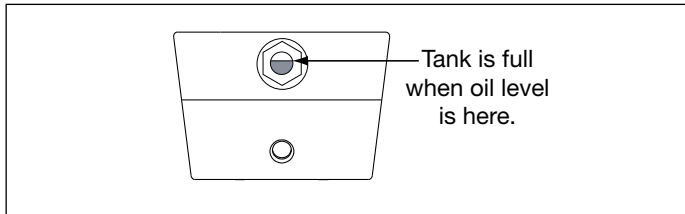


Figure 2, Oil Level Sight Glass

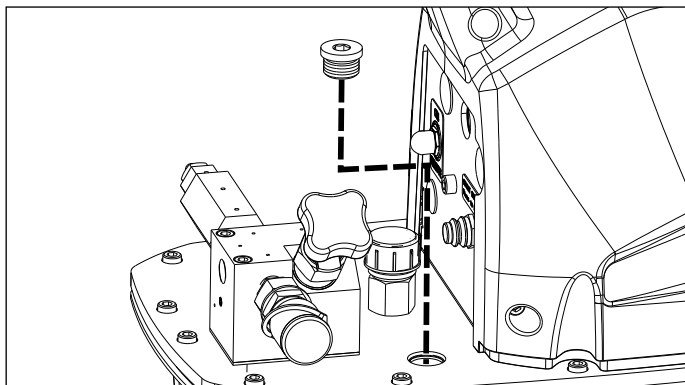


Figure 3, Oil Fill Plug

4.3 Electrical Connections



WARNING: The pump is factory equipped with the common electrical plug for a given voltage. Altering the plug type should only be done by a qualified electrician, adhering to all applicable local and national codes.

- The disconnect and line circuit protection is to be provided by customer. Line circuit protection is to be 115 percent of motor full load current at maximum pressure of application.
- For additional information, refer to power rating on pump name plate. Also refer to graph in Section 3.1.

4.4 Hydraulic Connections

- A female quick-disconnect fitting (Enerpac Model BR150) is installed at the pump oil outlet. This fitting is rated at 21,750 psi [1500 bar].
- Enerpac recommends the use of Enerpac HT 1500 Series thermoplastic hoses with the Model ZUTP-1500 pump. These hoses are rated at 21,750 psi [1500 bar]. Refer to Enerpac instruction sheet L2733 for use, safety and maintenance information.



WARNING: The Model ZUTP-1500 pump must be operated only with hoses and fittings rated to operate at 21,750 psi [1500 bar] working pressure. Hydraulic hoses and fittings of a lower pressure rating will rupture or burst. Serious personal injury could result!

- Before connecting hose to pump oil outlet, check that pump pressure gauge indicates zero (0) psi/bar. If any pressure is indicated, fully open the pressure release valve to relieve pressure. See Section 5.1.

5.0 OPERATION

5.1 Pressure Release Valve (See Figure 4)

Valve Positions:

1. CLOSED - Flow directed to pump hydraulic outlet port. Pressure builds when pump motor is turned on. Pump holds pressure when motor is turned off.
2. OPEN - Pressure released to pump hydraulic reservoir. Pressure will not build when motor is turned on.

IMPORTANT: Close the pressure release valve using hand force only. Overtightening and/or use of tools may result in damage to the valve and/or valve seat.

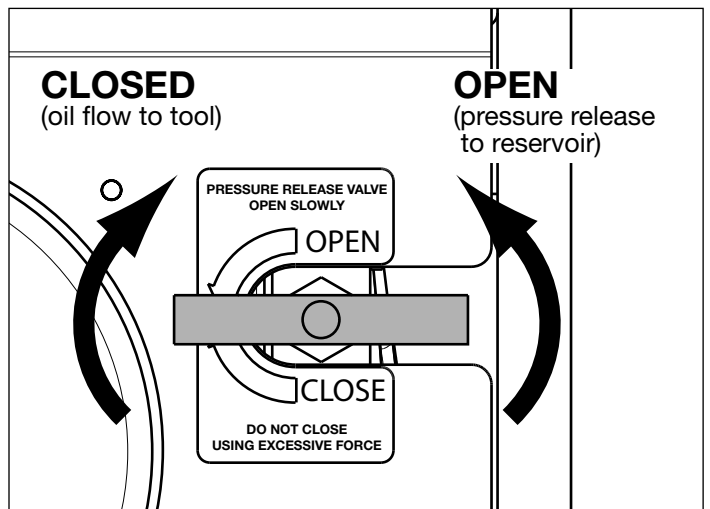


Figure 4, Pressure Release Valve

5.2 Pendant and Motor Jog Buttons (See Figures 5 and 6)

The pump motor can be controlled either by the pendant button or by the motor jog button (located on the pump front panel).

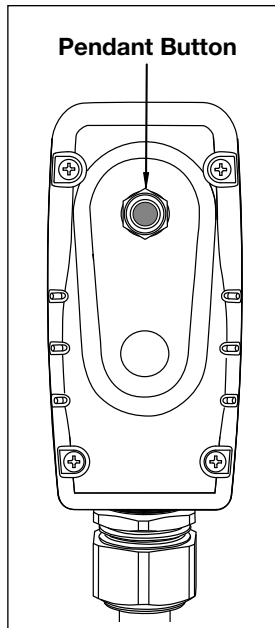


Figure 5, Pendant

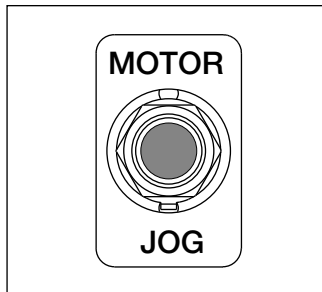


Figure 6, Motor Jog Button

Operation is the same for both buttons:

Button pressed:

Motor starts. System pressure builds and tool is actuated for as long as button is held down.

Button released:

Motor stops. Check valve holds pressure until pressure release valve is opened.

Note: Pressure release valve (see Figure 4) must be fully closed to allow pressure to build while motor is running.

5.3 Adjusting the Relief Valve Setting (See Figure 7)

1. Remove hose (if connected) from the quick disconnect coupler at the oil outlet port.
2. Fully close the pressure release valve. See Figure 4.
3. Loosen the relief valve locknut to allow pressure adjustment. See Figure 7.
4. Turn the relief valve knob several turns counter-clockwise, so that the relief valve is set lower than the desired setting.

Notes:

- When adjusting relief valve setting, always start at a low pressure and slowly increase the pressure to the desired setting.
 - If desired, the motor jog button can be used in place of the pendant button during the following steps.
5. Check that pump is connected to electrical power.
 6. Press and hold the pendant button. See Figure 5. The pump motor will start and pressure will begin building immediately.
 7. While continuing to press and hold the pendant button, slowly turn the relief valve knob clockwise (as required) until the desired pressure reading is shown on the pump pressure gauge.



WARNING: Pump maximum working pressure is 21,750 psi [1500 bar]. Do not set the relief valve pressure above 21,750 psi [1500 bar].

8. Release the pendant button. The pump motor will stop.

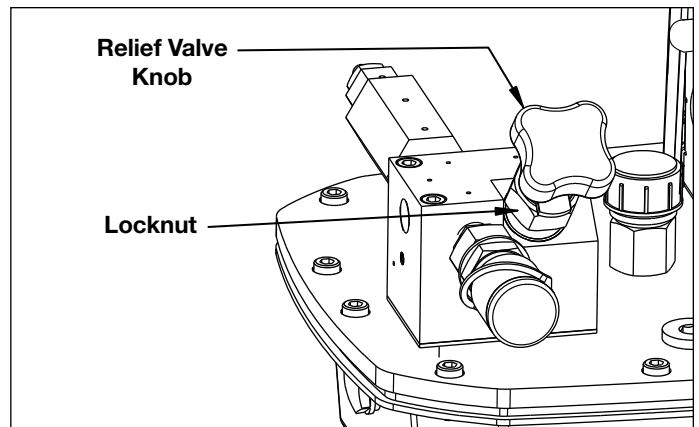


Figure 7, Relief Valve

Notes:

- Rotating the relief valve knob counter-clockwise will NOT reduce or relieve existing system pressure.
 - If pressure is adjusted too high, relieve pressure by opening the pressure release valve (see Figure 4) until the pump pressure gauge indicates zero (0) psi/bar. Then, fully close the pressure release valve and repeat steps 6 through 8.
9. After verifying that setting is correct, tighten the relief valve locknut (hand tight only - do not overtighten) to lock the setting. See Figure 7.
 10. Slowly open the pressure release valve to relieve pressure in the oil outlet line. See Figure 4. Verify that pump pressure gauge indicates zero (0) psi/bar.

5.4 Pressurizing the System

1. Adjust the relief valve setting. Refer to Section 5.3.
2. Connect hydraulic hose(s) and tool(s). Refer to Section 4.4.
3. Close the pressure release valve. See Figure 4.
4. Check that pump is connected to electrical power.



CAUTION: Before pressurizing the system, read and understand all instructions and safety precautions applicable to the hydraulic tool(s) being used. Follow safe work practices in accordance with all applicable laws, regulations and industry standards.



CAUTION: Continuously monitor the pump pressure gauge while pump is running. Pressures can rise faster than anticipated.

5. Press and hold the pendant button. See Figure 5. The pump motor will start and pressure will begin building immediately.
6. When the desired reading is shown on the pump pressure gauge, release the pendant button. The pump motor will stop.

Note: Time required to pressurize the hydraulic circuit will vary, depending on the number and type of tools connected, hydraulic hose lengths and other factors.

5.5 Depressurizing the System

1. Slowly open the pressure release valve to relieve system pressure. See Figure 4.
2. Verify that the pump pressure gauge indicates zero (0) psi/bar.

5.6 Circuit Breaker (See Figure 8)

The pump circuit breaker is located on the pump front panel, beside the pump jog button.

In the event of an electrical overload, the pump circuit breaker will trip. After investigating and correcting the source of the overload, push the circuit breaker button to reset.

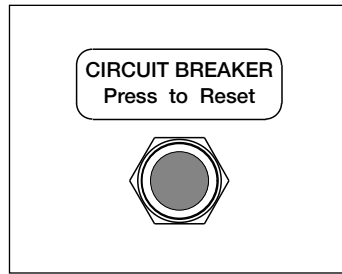


Figure 8, Circuit Breaker



WARNING: To avoid injury and equipment damage, do not continue pressurizing hydraulic tools after they reach maximum travel or maximum operating pressure.

6.0 MAINTENANCE

Frequently inspect all system components for leaks or damage. Repair or replace damaged components. Electrical components, such as the power cord, may only be repaired or replaced by a qualified electrician, adhering to all applicable local and national codes.



WARNING: Disconnect pump from electrical power before performing any maintenance or repairs. Be sure all hydraulic pressure is completely relieved (0 psi/bar).

6.1 Check Oil Level

Check the pump oil level prior to start-up. If oil level is low, remove the oil fill plug from the cover plate and add oil as needed. See figures 2 and 3. Always be sure that hydraulic tools are fully retracted before adding oil to the reservoir.

6.2 Change Oil and Clean Reservoir

Enerpac HF oil is a crisp blue color. Frequently check oil condition for contamination by comparing pump oil to new Enerpac oil. As a general rule, completely drain and clean the reservoir every 250 hours, or more frequently if used in dirty environments.

Note: The following procedure requires that you remove the pump from the reservoir. Work on a clean bench and dispose of used oil in accordance with all applicable laws and regulations.

1. Disconnect pump from electrical power.
2. Remove the drain plug and drain all oil from the reservoir. Clean and reinstall the drain plug.
3. Unscrew the 13 bolts holding the cover plate to the reservoir and lift the pump unit out of the reservoir. Be careful not to damage the oil intake filter screen.
4. Thoroughly clean the reservoir with a suitable cleaning agent.
5. Remove the oil intake filter screen for cleaning. (Do not pull on the screen or the bottom of the intake to avoid possible damage.) Clean the screen with solvent and a soft brush. Reinstall.
6. Reassemble the pump and reservoir, installing a new reservoir gasket.
7. Disassemble the hydraulic return line filter. Clean and reinstall (or replace) the filter element. Refer to Section 6.3 for additional information.
8. Fill the reservoir with clean Enerpac HF hydraulic oil. The reservoir is full when oil level is as shown in Figure 2.

6.3 Hydraulic Return Line Filter (See Figure 9)

Remove and inspect the hydraulic return line filter element at every oil change. The element can be cleaned and reused if it is in good condition. However, a new element should be installed if the old element is damaged or has been cleaned more than three times.

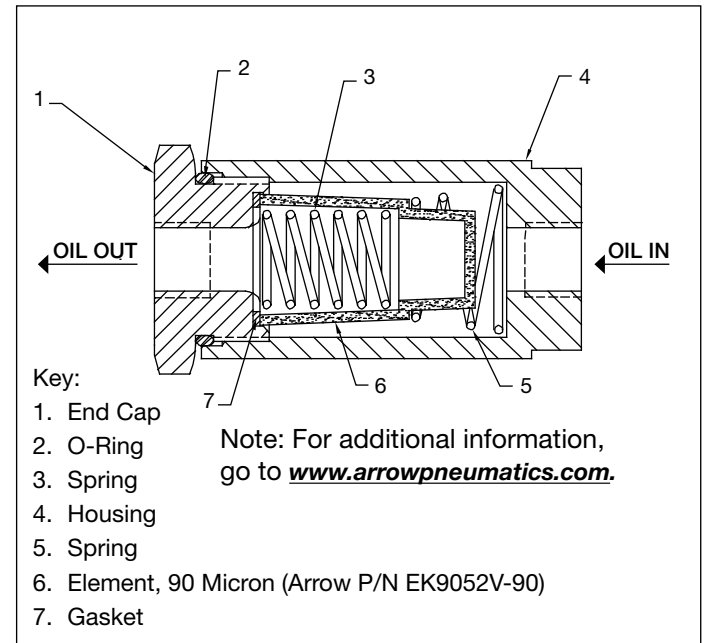


Figure 9, Hydraulic Return Line Filter

6.4 Motor Brush Replacement (See Figure 10)

To prevent motor damage, the pump motor brushes incorporate an automatic motor stop when one of the brush carbons wears to a length of 0.25" [6 mm]. Inspect both brushes.

1. Disconnect pump from electrical power.



DANGER: To avoid possible electrocution, pump must be completely disconnected from electrical power before brush servicing is attempted.

2. Remove both brush caps (A) by deflecting the brush cap latch (B) and gently prying outward. See Figure 10.
3. Remove motor brushes by turning black cap counter-clockwise.
4. Replace both brushes and reverse procedure to reassemble.

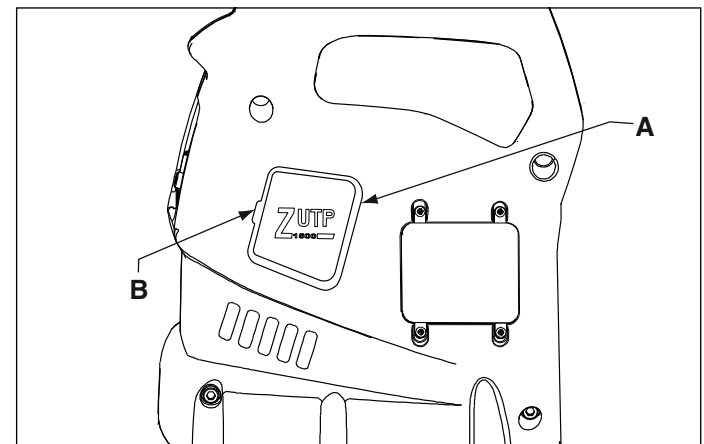


Figure 10, Brush Cap Removal

A. Brush Cap

B. Brush Cap Latch

7.0 TROUBLESHOOTING

Only qualified hydraulic technicians should service the pump or system components. A system failure is not necessarily the result of a pump malfunction. To determine the cause of the problem, the complete system must be considered in any diagnostic procedure. The following troubleshooting chart is intended to be used only as an aid in determining if a problem exists. For repair service, contact your Enerpac Authorized Service Center.

Troubleshooting Guide		
Problem	Possible Cause	Action
Pump will not start.	No power.	Connect power.
	Pump circuit breaker tripped.	Push pump circuit breaker button to reset.
	Low voltage.	Turn off other electric loads. Use heavier gauge extension cord.
	Motor brushes worn to end of life.	Replace brushes per Section 6.4.
	Pump element jammed.	See authorized service center.
	Pendant damage.	Repair pendant. See authorized service center.
Motor stops under load.	Low voltage.	Turn off other electric loads. Use heavier gauge extension cord.
Pump fails to build pressure or builds less than full pressure.	Low oil level in reservoir.	Add oil per Section 4.2.
	Relief valve setting too low.	Adjust per Section 5.3.
	External system leak.	Inspect and repair or replace.
	Pump pressure release valve open or not fully closed.	Close pressure release valve.
	Pump hydraulic intake screen dirty.	Clean or replace hydraulic intake screen. Change hydraulic oil. See Section 6.2.
	Internal leak in pump pressure release valve.	See authorized service center.
Pump builds full pressure, but tool does not move.	Internal leak in system component.	See authorized service center.
	Load greater than tool capacity at full pressure.	Reduce load or add tool capacity.
Low oil flow.	Flow to tool blocked.	Check hydraulic couplers for full engagement. Check hose for blockage or kinks.
	Pump hydraulic intake screen dirty.	Clean or replace hydraulic intake screen. Change hydraulic oil. See Section 6.2.
Tool drifts back on its own.	External system leak.	Inspect all hydraulic connections and replace or repair.
	Pump check valve malfunctioning.	See authorized service center.
	Internal leak in a system component.	See authorized service center.
Tool will not return when pressure is relieved.	Tool is not spring return.	Manually retract tool as required.
	Flow restricted or blocked.	Check hydraulic couplers for full engagement. Check hose for blockage or kinks.
	Pump hydraulic return filter dirty.	Clean or replace hydraulic return filter element.
	Pressure release valve malfunction.	See authorized service center.
	Return spring broken. (tools equipped with return spring only)	See authorized service center.
Pump runs hot.	Flow restricted.	Check hydraulic couplers for full engagement. Check hose for blockage or kinks.

NOTES:

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Enerpac Worldwide Locations

◆ e-mail: info@enerpac.com

◆ internet: www.enerpac.com

Australia and New Zealand

Actuant Australia Ltd.
Block V Unit 3
Regents Park Estate
391 Park Road
Regents Park NSW 2143
(P.O. Box 261) Australia
T +61 297 438 988
F +61 297 438 648
sales-au@enerpac.com

Brazil

Power Packer do Brasil Ltda.
Rua dos Inocentes, 587
04764-050 - Sao Paulo (SP)
T +55 11 5687 2211
F +55 11 5686 5583
Toll Free: 0800 891 5770
vendasbrasil@enerpac.com

Canada

Actuant Canada Corporation
6615 Ordan Drive, Unit 14-15
Mississauga, Ontario L5T 1X2
T +1 905 564 5749
F +1 905 564 0305
Toll Free:
T +1 800 268 4987
F +1 800 461 2456
customer.service@actuant.com

China (Taicang)

Actuant (China) Industries Co. Ltd.
No. 6 Nanjing Road,
Taicang Economic Dep Zone
Jiangsu, China
T +86 0512 5328 7500
F +86 0512 5335 9690
sales-cn@enerpac.com

China (Beijing)

Actuant (China) Industries Co. Ltd.
709B Diyang Building
Xin No. 2, Dong San Huan North Rd.
Beijing City, 100028 China
T +86 10 845 36166
F +86 10 845 36220
sales-cn@enerpac.com

France, Switzerland, North Africa and French speaking African countries

ENERPAC
Une division d'ACTUANT France
S.A.S.
ZA de Courtaboeuf
32, avenue de la Baltique
91140 VILLEBON /YVETTE
France
T +33 1 60 13 68 68
F +33 1 69 20 37 50
sales-fr@enerpac.com

Germany and Austria

ENERPAC GmbH
P.O. Box 300113
D-40401 Düsseldorf
Willstätterstrasse 13
D-40549 Düsseldorf, Germany
T +49 211 471 490
F +49 211 471 49 28
sales-de@enerpac.com

India

ENERPAC Hydraulics Pvt. Ltd.
No. 1A, Peenya Industrial Area
IInd Phase, Bangalore, 560 058, India
T +91 80 40 792 777
F +91 80 40 792 792
sales-in@enerpac.com

Italy

ENERPAC S.p.A.
Via Canova 4
20094 Corsico (Milano)
T +39 02 4861 111
F +39 02 4860 1288
sales-it@enerpac.com

Japan

Applied Power Japan LTD KK
Besshocho 85-7
Kita-ku, Saitama-shi 331-0821, Japan
T +81 48 662 4911
F +81 48 662 4955
sales-jp@enerpac.com

Middle East, Egypt and Libya

ENERPAC Middle East FZE
Office 423, LOB 15
P.O. Box 18004, Jebel Ali, Dubai
United Arab Emirates
T +971 (0)4 8872686
F +971 (0)4 8872687
sales-ua@enerpac.com

Russia

Rep. office Enerpac
Russian Federation
Admiral Makarova Street 8
125212 Moscow, Russia
T +7 495 98090 91
F +7 495 98090 92
sales-ru@enerpac.com

Singapore

Actuant Asia Pte Ltd.
83 Joo Koon Circle
Singapore 629109
T +65 68 63 0611
F +65 64 84 5669
Toll Free: +1800 363 7722
sales-sg@enerpac.com

South Korea

Actuant Korea Ltd.
3Ba 717, Shihwa Industrial Complex
Jungwang-Dong, Shihung-Shi,
Kyunggi-Do
Republic of Korea 429-450
T +82 31 434 4506
F +82 31 434 4507
sales-kr@enerpac.com

Spain and Portugal

ENERPAC SPAIN, S.L.
Avda. Los Frailes, 40 – Nave C & D
Pol. Ind. Los Frailes
28814 Daganza de Arriba
(Madrid) Spain
T +34 91 884 86 06
F +34 91 884 86 11
sales-es@enerpac.com

Sweden, Denmark, Norway, Finland and Iceland

Enerpac Scandinavia AB
Fabriksgatan 7
412 50 Gothenburg
Sweden
T +46 (0) 31 799 0281
F +46 (0) 31 799 0010
scandinavianinquiries@enerpac.com

The Netherlands, Belgium, Luxembourg, Central and Eastern Europe, Baltic States, Greece, Turkey and CIS countries

ENERPAC B.V.
Galvanistraat 115
6716 AE Ede
P.O. Box 8097
6710 AB Ede
The Netherlands
T +31 318 535 800
F +31 318 535 848
sales-nl@enerpac.com

Enerpac Integrated Solutions B.V.
Opaalstraat 44
7554 TS Hengelo
P.O. Box 421
7550 AK Hengelo
The Netherlands
T +31 74 242 20 45
F +31 74 243 03 38
integratedsolutions@enerpac.com

South Africa and other English speaking African countries

ENERPAC B.V.
Galvanistraat 115
6716 AE Ede
P.O. Box 8097
6710 AB Ede
The Netherlands
T +31 318 535 911
F +31 318 525 613
sales-za@enerpac.com

United Kingdom and Ireland

ENERPAC Ltd.,
Bentley Road South
Darlaston, West Midlands
WS10 8LQ
England
T +44 (0)121 50 50 787
F +44 (0)121 50 50 799
sales-uk@enerpac.com

USA, Latin America and Caribbean

ENERPAC
P.O. Box 3241
6100 N. Baker Road
Milwaukee
WI 53209 USA
T +1 262 781 6600
F +1 262 783 9562
User inquiries:
+1 800 433 2766
Distributor inquiries/orders:
+1 800 558 0530
sales-us@enerpac.com

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