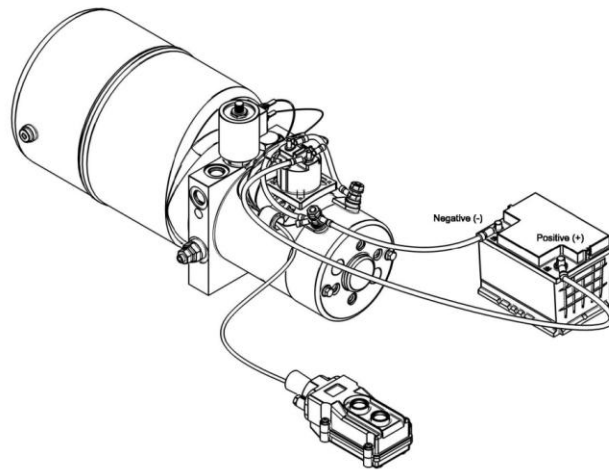




OPERATION AND TROUBLESHOOTING GUIDE 12 & 24 volt DC power units



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IMPORTANT

Thank you for purchasing this brand new Eagle Hydraulic Components® power pack !

Before you start using your new power pack, please ensure that you read carefully and understand these owner's instruction and make sure that you always operate this equipment in a safe manner. For any technical problems or questions, please consult a qualified hydraulic technician or call your nearest Eagle Hydraulic Components® distributor.

WARRANTY

All power packs from Eagle Hydraulic are warranted free from defect parts, workmanship and assembly for a period of one (1) year from the date of manufacture.

Power units are supplied with a model number and serial number at fabrication. When calling, please have those information in hand. Those information will help us to answer your issues.

Power units without model numbers and/or serial numbers will NOT be covered under warranty. Any disassembly of a power unit that is still under warranty will automatically VOID that warranty.

If you need any assistance, contact Eagle Hydraulic.

Eagle Hydraulic stands behind their products. All our hydraulics power packs are tested and verified prior to shipping. Therefore, any signs of improper application will void warranty.

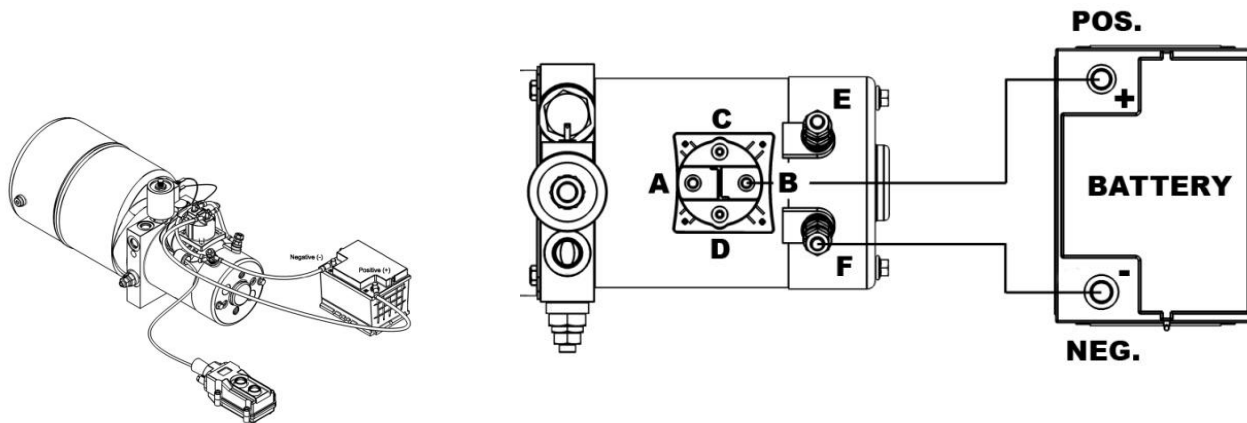
Examples of improper applications are :

- Low voltage – A not adequate power source can damage electrical components
- High amp draw – bad grounds or excessive amperage can burn up electrical components such as start solenoids, coils, motors and/or hand controls
- Oil quality – contaminated oil or not compatible oil can damage pumping system, valves and your actuator. Verification of what type of oil used and verification of oil quality is the responsibility of the end user. Eagle Hydraulic recommends :
 - **Dexron III, filtered to 20 microns or better**
- Environment – If your power pack is not carefully protected, or if the environment you are working in is salty, acidic, very cold, very hot, etc... All these aspect of your working environment will affect the performance of your Eagle Hydraulic power pack.

OPERATION AND MAINTENANCE

ELECTRICAL WIRING

Every power pack from Eagle Hydraulic is fitted with a solenoid starter assembly that is mounted to the DC motor. Independent battery leads must be connected to the connection terminals of the DC motor. See drawing below :



Connect the positive side of the battery to the positive side of the electrical solenoid (B), mounted on the electrical motor, and connect the Negative to the terminal (F) on the motor.

Select the proper cable size to connect the battery to your Eagle Hydraulic power unit from the chart below. Improper cable size might create problems if it is too small for the load the unit takes or if cables are too long. Take good care in selecting the proper cable size if unit is further than 25 feet from the battery. Eagle Hydraulic recommends that the ground cable size to be equivalent or larger than the battery "hotside" cable.

60-70 ft	#1	#00			
50-60 ft	#2	#0	#0		
40-50 ft	#2	#1	#0	#00	
30-40 ft	#4	#1	#0	#00	#00
20-30 ft	#4	#2	#1	#0	#00
10-20 ft	#4	#2	#1	#0	#00
0-10 ft	#4	#2	#1	#0	#00
	0-100 amp	100-150 amp	150-200 amp	200-250 amp	250-300 amp

**N.B. If in doubt, always consult with a qualified automotive electrician for correct connection of DC electrical devices
 Low voltage could cause damage to the DC motor. DC motors should not be run for extended periods
 (Consult technical data for duty cycles)**

HYDRAULIC CONNECTION

After you have correctly connected your power pack to a suitable power supply, you must fill the unit's reservoir with suitable hydraulic oil.

Eagle Hydraulic recommends: **Dexron III, filtered to 20 microns or better**

After the reservoir is filled, you must start the pumping system and bleed out all the air for a smooth system operation. Bleeding of the system must be made by cracking the line to the highest point up from ground. Briefly operate the power pack until all air is expelled from the supply line and a clear stream of oil flows out.

Once a continuous stream of fluid is visible, without evidence of air, the supply line should be tightened and the power pack should be switched off.

If you have multiple actuators, it is recommended to bleed each and every one of them. Once they all have been bled of air, they should be fully retracted and the level of oil in the reservoir should be checked and topped of if necessary.

MAINTENANCE

All Eagle Hydraulic power packs are designed to give a long, trouble free service life with just a few maintenance check at regular intervals.

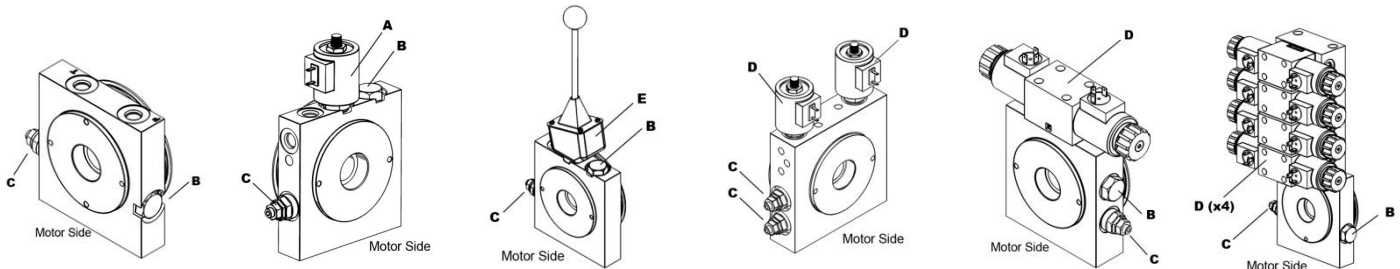
- **Oil Levels**

The level of oil inside the reservoir should be verified every day, and topped up if necessary. If you see a change in the need to add oil to the system, there may be a system problem where oil is leaking from the hydraulic circuit. Check each adaptor, seals and hose to identify the source of the leak and rectify.

- **Filtration of the system**

Each system comes equipped with a filtered filler breather to help prevent all contaminants from the outside to be brought back inside the hydraulic oil reservoir. Over time, the breather can become clogged and it should be replaced regularly. Also, a suction strainer is mounted to the intake side of the hydraulic pump, and is located inside the reservoir. The suction filter should be replaced as part of a regular maintenance routine.

WE OFFER UP TO 20 DIFFERENT OPTIONS, BELOW ARE OUR MOST POPULAR VERSIONS



OPTION 1	OPTION 2	OPTION 3	OPTION 11	OPTION 12	OPTION 12+
Pressure and Tank ports, relief and check valve only	Single acting with 2way/2position cartridge valve	Single acting with Manual directional valve	Double acting with cartridge directional valve, load holding valve and B port relief	Double acting, with external D03 modular valve	Double acting, with multiple external D03 modular valves (Shown here w/4)

SYMPTOMS AND SOLUTIONS, EASY TROUBLESHOOTING GUIDE

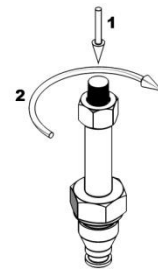
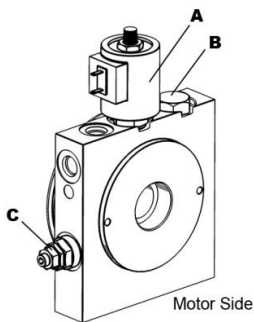
Please use this guide to easily troubleshoot your Eagle Hydraulic power pack. It is recommended to go through each step of verification, as this guide has been created in a logical manner, so if followed from top to bottom, you should go through all possible symptoms and should be able to debug your system.

The two most common situations, you can easily fix :

Q : "I have an Option 2 block on my unit and I am not able to build pressure..."

A : "The 2 way valve poppet has been twisted open"

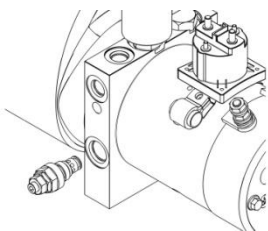
How to fix : Push down on the valve poppet, turn clockwise until it blocks, and release. The valve is now closed and should operate properly.



Q : "I hear the pump turning but it does not build pressure"

A : "The pump is not able to prime itself"

How to fix : Remove the relief valve (C) from the block, jog the unit for a second or two, until the pump builds pressure, replace the valve in the port, retorque (22Nm/16 Ft.Pounds) the valve, restart the unit.



SYMPTOM OR PROBLEM	VERIFICATION TO DO
Motor not running	<ul style="list-style-type: none"> • Check for power connection to DC motor • Check power to start solenoid
Start solenoid just clicks, motor not turning	<ul style="list-style-type: none"> • Check for loose wire from start solenoid to DC motor • Make sure you have the right gauge of wire from your battery to the unit • Check for cracked housing on start solenoid, if so, replace start solenoid • If an older unit, check for rust buildup inside DC motor

<p>Motor runs, but unit will not build hydraulic pressure</p>	<ul style="list-style-type: none"> • Solenoid valve manual override is open Some of our units (Option 2) are equipped with a two position valve with a mechanical manual override (Item A). With stem of valve pointing up, push down and turn clockwise until stem won't turn, and let go. Valve is now closed. Retry unit. • Gear pump might not be priming. Remove relief valve (Item C), operate pump for a few seconds until fluid comes out of port, replace relief valve (torque to 22Nm) and retry unit
<p>Power pack won't lift load</p>	<ul style="list-style-type: none"> • Check fluid level If there is not enough oil in the unit, you will not be able to operate the actuator • Gear pump might not be priming. Remove relief valve (Item C), operate pump for a few seconds until fluid comes out of port, replace relief valve (torque to 22Nm) and retry unit • Air being introduced in system If air is being introduced in the system, the gear pump might have some priming problems. Listen for distinctive cavitation sound from pump and verify all hydraulic hoses and fittings for proper sealing
<p>Cylinder won't hold in place (drift down)</p>	<ul style="list-style-type: none"> • Check valve on unit might leak Remove check valve (Item B), wash with brake cleaner or varsol, air blow to clean out any debris, replace check valve (torque to 22Nm) and retry unit
<p>Cylinder won't retract</p>	<ul style="list-style-type: none"> • If unit is an Option 2 The poppet on the two way solenoid valve might have jammed in place. Replace valve (torque to 22Nm) and retry unit • If unit is an Option 3 If your unit has a manual activation valve, on the return port there is an orifice to prevent cylinder to come down too quickly. Orifice might have some debris. Contact Eagle Hydraulic • If unit is an Option 12 or 24 Verify that the the solenoid operated directional valve has the correct current going to them. Operate actuator back and forth, and make sure it works in both directions. If only one direction is working, replace directional valve
<p>Electrical motor will not stop running</p>	<ul style="list-style-type: none"> • Start solenoid stays on Low battery or poor ground connection has caused the start solenoid to weld on. Replace start solenoid and check battery and ground
<p>Excessive heat from unit</p>	<ul style="list-style-type: none"> • Low battery or poor ground A bad electrical ground or poor battery performance will cause motor to generate more heat. Verify battery and ground for good performance • Relief valve remains open If the relief valve has been misadjusted or a debris has stuck in it, this will generate a lot of heat in the oil. Remove relief valve (Item C), wash with brake cleaner or varsol, air blow to clean out any debris, replace check valve (torque to 22Nm) and adjust to system relief

	<p>pressure (see sticker on unit for setting)</p> <ul style="list-style-type: none">• Excessive heat from electrical motor A bad electrical ground or poor battery performance will cause motor to generate more heat. Verify battery and ground for good performance. If these two points have been verified and motor still generates heat, do not overrun the motor. Consult Eagle Hydraulic
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If you have verified all information in the symptoms and solutions troubleshooting guide, and still have a situation with your power pack, please consult with Eagle Hydraulic technical department for advice and support.

All unit returns must be authorized by Eagle Hydraulic Components and must be accompanied by a RGA number. Please contact our customer service at 1-877-382-2850 for additional information.



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