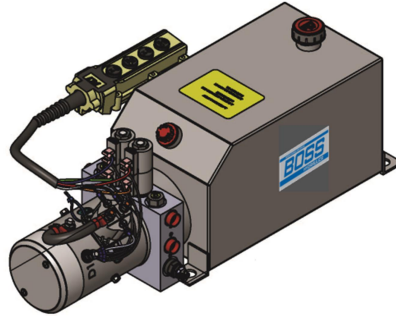





## 12 & 24 volt DC Compact Hydraulic Power Units



Thank you for your purchase of a Boss Hydraulics DC Power Unit. Before installing and using the power unit please ensure that you carefully read and understand these owner's instructions and always operate the power unit in a safe manner.

### Safety

Read and follow all safety instructions,  warnings,  cautions and  important information provided in this manual before using the equipment. They are for the safety of those operating the equipment and their work colleagues. The aim is to prevent personal injury or damage to property when using this equipment.

This equipment should only be used by operators who have been trained in the safe use of hydraulic equipment.

#### Warning:

**Always** wear the correct personal protective equipment when operating hydraulic equipment.

#### Warning:

**Always** keep your hands and feet clear of the work activity during operation of hydraulic equipment to avoid personal injury.

#### Warning:

**Never** handle pressurised hydraulic hoses. Escaping oil under pressure can penetrate the skin causing serious injury. Contact a doctor immediately if oil is injected under the skin.

#### Warning:

**Never** operate the system above the maximum rated output pressure.

#### Warning:

**Never** connect to the system components, fittings, couplers, hoses, and valves etc, that are **not** rated to the full system operating pressure.

#### Warning:

**Always** immediately replace worn or damaged parts with genuine Boss Hydraulics parts. Non genuine parts can result in failure causing personal injury or property damage.

## 12 & 24 volt DC Compact Hydraulic Power Units

**Caution:**

Keep hydraulic equipment away from sources of heat and flames. Heat will soften seals, hoses and packing which results in hydraulic fluid leaks. For optimum performance equipment should not be exposed to temperatures of 65° C (150° F) or higher.

**Caution:**

Never clean DC hydraulic power units with high pressure water pressure washers (water blasters) they can introduce water into the hydraulic and electrical systems which can damage the equipment.

**Caution:**

Never connect unretracted cylinders to a hydraulic pump, when they retract they can pressurise the reservoir and cause it to overflow.

**Important:**

After unpacking the equipment it should be inspected by a qualified person to ensure there is no shipping damage or missing parts. Do not remove the plastic port plugs until the fittings are ready to install.

**Important:**

Hydraulic equipment should only be serviced, adjusted, repaired, installed and tested by qualified hydraulic technicians.

**Important:**

Electrical connections and wiring should be done by a qualified Auto Electrician.

**Important:**

Only Boss Hydraulics approved accessories and components should be used with Boss Hydraulic equipment.

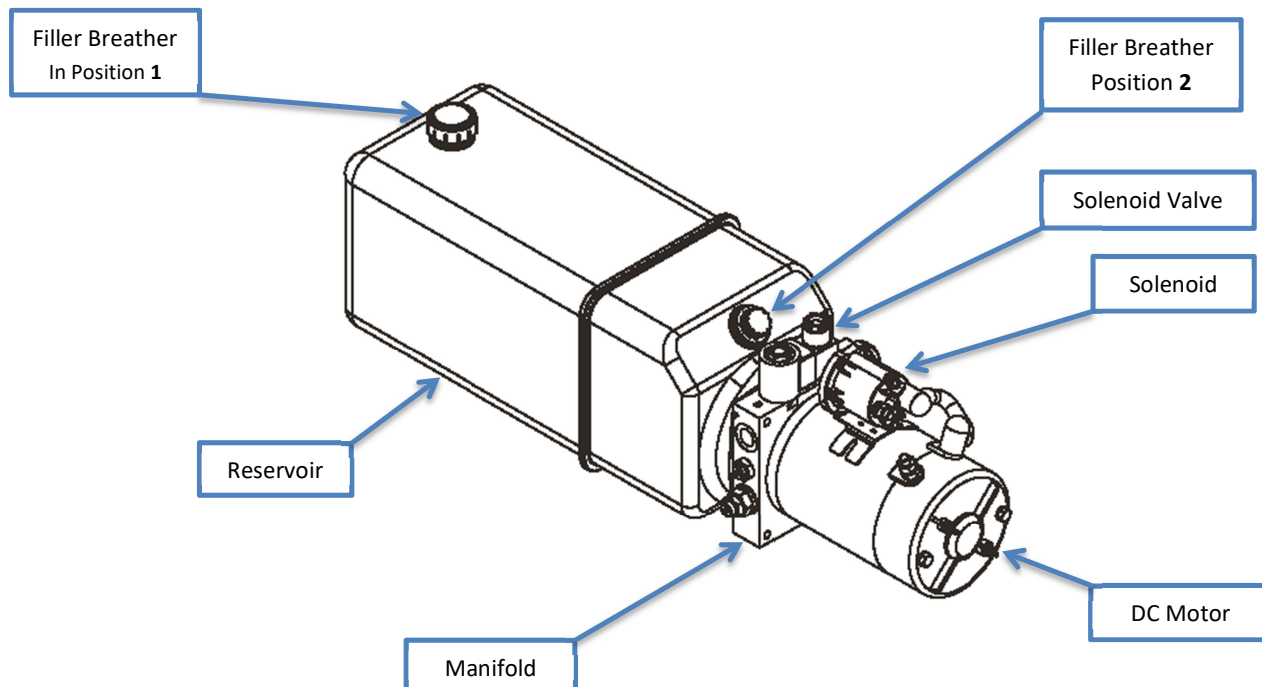
### **Warranty**

Boss Hydraulics warrants its product free from defects in material, workmanship, and design for a period of two years from the date of Manufacture on DC Power Units. Under no circumstances is there any warranty of fitness for a particular use and Boss Hydraulics cannot and does not accept responsibilities of any type or any of its products that have been subjected to improper installation, improper application, negligence, tampering or abuse. All repairs must be authorized by the factory to reduce the risk of voiding the warranty. Boss Hydraulics liability warranty shall extend only to replacement or correction, f.o.b. Boss Hydraulics. We make no other warranties, expressed or implied, and are not responsible for any consequential damages resulting from use by any buyer or user, our liability being limited to the value of product sold, or obligated to repair or replace a defective part.

**For warranty information or warranty request please contact Customer Service.**

Power units without model number & serial number will not be covered under warranty, when calling please have model number and serial number of the power unit.

## 12 & 24 volt DC Compact Hydraulic Power Units



### Installation

- The diagrams above show the main components of your Boss Hydraulic power unit.
- The power unit will be designed to mount Horizontally, Vertically or can have a Dual Horizontal & Vertical mount. The part number of the Power Unit will indicate the mounting options.
  1. Horizontal mount power units should be mounted on a level surface using the mounting holes on the bottom of the manifold. The filler breather can be placed in position 1 or position 2.
  2. Vertical mount power units, the motor **must** be mounted above the reservoir using the manifold mounting holes and supporting the reservoir. The filler breather can only be fitted to position 2.
- When connecting hoses, fittings or couplers to the threaded ports on the power unit for o'ring seal parallel thread fittings no sealant is required. For those requiring a hydraulic thread sealant, it should be applied to the male thread being careful not to allow it into the hydraulic system. If using thread tape the first thread or 2 should be left completely free of tape so it does not end up in the hydraulic system and cause a failure, 1 or 2 layers of tape is sufficient to provide a seal. Threads should be tightened firmly 88-100Nm (65-75ft-lbs), overtightening can split manifold.
- The electrical connections to the power unit should be installed by a qualified auto electrician as incorrect cable selections and connection can cause damage to the electrical components of the power unit.
- If you have requested the relief valve to be set at a certain pressure but the "tamper proof" ball **not** to be fitted, then inside your power pack box will be a small ball bearing. This is to be inserted by placing in the relief valve screw hole and gentle tap with hammer once you have completed the commissioning of the power pack to prevent unauthorised changing of the relief valve



**Warning: Once Inserted It Is Difficult To Remove**

## 12 & 24 volt DC Compact Hydraulic Power Units



### Warning:

Power units are supplied **without oil** and the reservoir needs to be filled before commissioning.

**Hydraulic Oil Specification :PREMIUM Hydraulic Oil ISO 32-46 Grade**, to ensure optimum performance. Oil temperature should not exceed 65° C during operation.

### FILTRATION

For maximum pump and system component life, the system should be protected from contamination at a level not exceeding 125 particles greater than 10 microns per millilitre of fluid(SAE Class 4 / ISO 16/13).

- With the power unit level the reservoir should be filled to 25mm (1") below the filler breather opening, for plastic tanks the oil level is easily visible through the side of the tank. The pump can now be connected to a cylinder ensuring all couplings are fully engaged. For the first operation the cylinder should be positioned below the level of the oil in the pump.

### Commissioning

- All Boss Hydraulic power units are tested in the factory and the relief valve is set there will be a sticker on the power unit which will have the model of the power unit and the relief valve setting.
- **Priming** the pump, on start up the power unit should be pulsed on/off 3 or 4 times to ensure the pump is primed.
- **Bleeding** the system, it will be necessary to bleed the system this should be done at the highest point. Operate the system through 3 or 4 cycles to ensure all the air has been removed.
- While bleeding the system the fluid level in the tank should be checked regularly and once the bleeding/ commissioning process is completed all cylinders should be fully retracted and the oil level in the reservoir topped up to 25mm (1") below the filler breather opening.

### Maintenance

Boss Hydraulic DC power units are design to give a long trouble free service life with just a few service activities.

- The fluid level in the reservoir should be checked regularly, as most DC packs are located on vehicles checking the reservoir level should be a part of the vehicles routine fluid checks.
- The hydraulic fluid in the power unit and the system should be replaced every 3000 operating hours or once a year, whichever comes first. The filler breather should also be changes at this time and the suction strainer should be replaced or cleaned. Since the reservoir will need to be removed to replace or clean the suction strainer it should also be thoroughly cleaned as well. The reservoir magnet should be inspected for metal particles which will give a good indication of the health of the hydraulic system.
- The regular service should include blowing down the DC motor to remove any accumulated dust and grime.
- Servicing should be carried out by a qualified hydraulic technician.

**12 & 24 volt DC Compact Hydraulic Power Units**  
**Troubleshooting Guide**

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
<b>Motor Does Not Start</b>	Bad/Incorrect Electrical Connection	➤ Check Electrical Connections
	Low Battery	➤ Check Battery Condition
	Start Solenoid Faulty	➤ Check/Replace Start Solenoid
	Motor Faulty	➤ Check/Replace Motor
<b>System Runs but Cylinders Movement Jerky</b>	Air in the system	➤ Bleed System
	Bad Electrical Connection	➤ Check Electrical Connections
<b>Motor Runs But Cylinders Do Not Move</b>	Low Oil Level	➤ Check Reservoir oil Level
	Pump Cavitation	➤ Check Pump Prime
	Valve Fault	➤ Check Operation of System Valves
	Drive Coupling/Pump Failure	➤ Check Drive Coupling/Pump
<b>Cylinders Move But Do Not Fully Extend</b>	Low Oil Level	➤ Check Oil Level
	Blocked/ Misaligned Suction Filter	➤ Check Suction Filter
	Bad Electrical Connection	➤ Check Electrical Connections
	Pack Not Level	➤ Check the Power Unit is Level.
<b>Motor Will Not Turn OFF</b>	Faulty Start Solenoid	➤ Replace Start Solenoid
<b>Cylinders Will Not Retract</b>	Valve Fault	➤ Check Operation of System Valves

**Trouble Shooting Quick Reference Guide**

Possible Cause	Not Building Pressure	Motor Not Running	Cylinder Won't Extend	Cylinder Won't Retract	Won't Hold Load	Excessive Heat From Unit	Aeration of Hydraulic Fluid	Reservoir Overflows	Cylinder Extends With Unit Not Operating	Struggles to Lift Load	Load Bounces When Cylinder Retracts	Start Solenoid Just Clicks-Motor Not Engaging	Won't Lift Load (DC Motor Under Load)	Won't Lift Load (DC Motor Not Under Load)	Won't Lower	Start Solenoid Stays On	Cylinder won't Retract Motor Under Load
Low Battery Voltage		o	o	o		o		o		o		o					
Poor Ground Condition		o	o	o		o		o		o		o					
Check Hand Control												o			o		o
Debris in Load Holding Valve					o												
Thermal Pressure Lock			o														o
Coil Not Energizing			o	o								o			o		o
Bad Seals in Cylinder	o										o						o
Loose Inlet				o			o	o			o						o
Packing on Cylinder Rod Worn Out			o		o				o		o					o	o
Hoses Connected Backwards											o						
Pump Not Priming	o		o														
Clogged Orifice				o												o	o
Rust In Motor		o															
Bad Diode				o													o
Check For Additional Valving On or Connected to Cylinder					o												
Directional Valve Not Shifting Properly			o	o						o						o	o
Bad Start Solenoid												o			o	o	
Dirty Contacts in Hand Control			o	o								o	o				

Quick Reference Guide covers the most common problems.  
(if we have missed a step please let us know)

To select an adequate wire gauge, determine the amp draw (amperage) that the wire circuit will carry. Then measure the distance that the wire will travel (length) including the length of the return to ground (the ground wire running to the chassis or back to a ground block or battery). Using these two numbers, Amps and length, locate the nearest gauge value in the chart below

Amps @ 13.8 Volts	LENGTH OF WIRE American Wire Gauge (AWG)						
	0-4 ft.	4-7 ft.	7-10 ft.	10-13 ft.	13-16 ft.	16-19 ft.	19-22 ft.
0-10	16-ga.	16-ga.	14-ga.	14-ga.	12-ga.	10-ga.	10-ga.
10-15	14-ga.	14-ga.	14-ga.	12-ga.	10-ga.	8-ga.	8-ga.
15-20	12-ga.	12-ga.	12-ga.	12-ga.	10-ga.	8-ga.	8-ga.
20-35	12-ga.	10-ga.	10-ga.	10-ga.	10-ga.	8-ga.	8-ga.
35-50	10-ga.	10-ga.	10-ga.	8-ga.	8-ga.	8-ga.	6 or 4-ga.
50-65	10-ga.	10-ga.	8-ga.	8-ga.	6 or 4-ga.	6 or 4-ga.	4-ga.
65-85	10-ga.	8-ga.	8-ga.	6 or 4-ga.	6 or 4-ga.	4-ga.	4-ga.
85-105	8-ga.	8-ga.	6 or 4-ga.	4-ga.	4-ga.	4-ga.	4-ga.
105-125	8-ga.	8-ga.	6 or 4-ga.	4-ga.	4-ga.	4-ga.	2-ga.
125-150	8-ga.	6 or 4-ga.	4-ga.	4-ga.	2-ga.	2-ga.	2-ga.
150-200	6 or 4-ga.	4-ga.	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.
200-250	4-ga.	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.	1/0-ga.
250-300	4-ga.	2-ga.	2-ga.	1/0-ga.	1/0-ga.	1/0-ga.	2/0-ga.