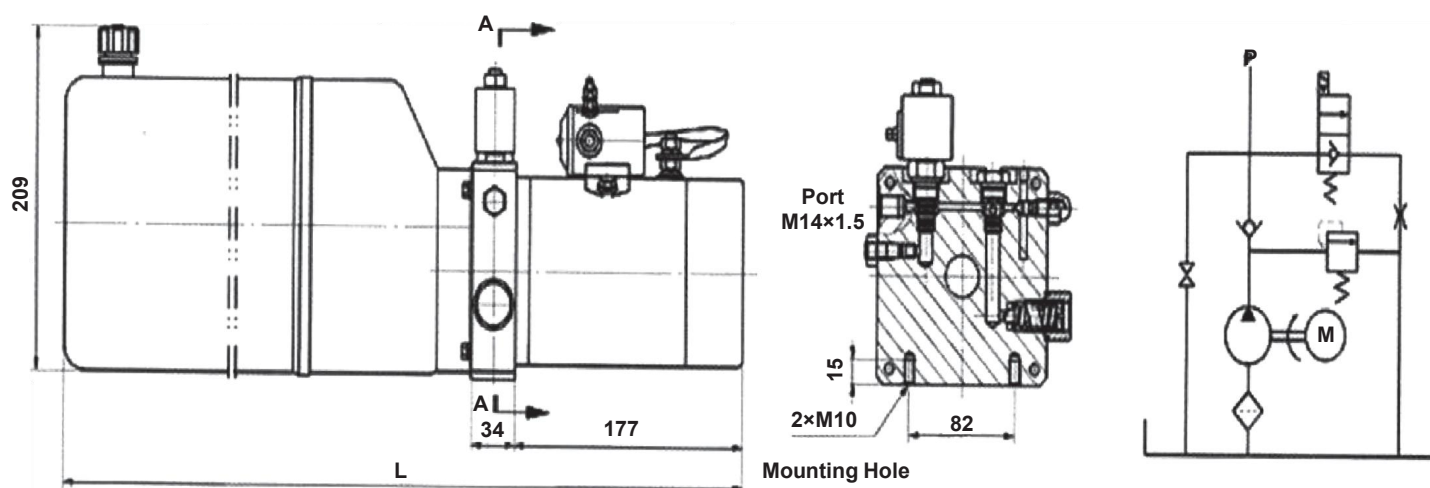


# Single-Acting Hydraulic Power Unit

## User Manual



Read this manual completely before use and keep for future reference

## SAFETY INFORMATION

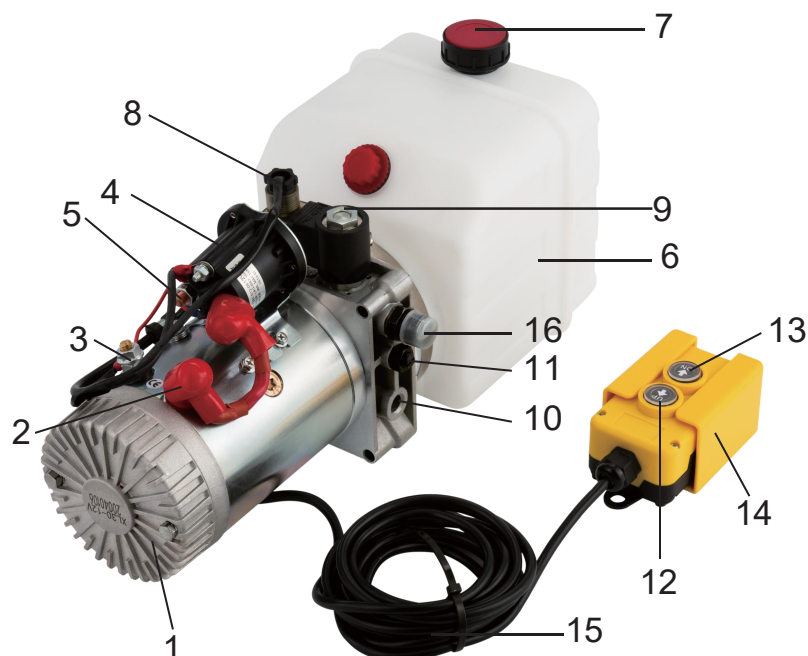


### WARNING

- **DO NOT** operate in an enclosed area as you risk carbon monoxide poisoning from the engine exhaust.
- **DO NOT** search for leaks with your hands or other body parts. Pressurized fluid can penetrate the skin causing serious injury or death. If the fluid penetrates the skin, seek medical attention immediately.
- **DO NOT** remove the hydraulic reservoir cap while the power unit is running.
- Wear proper eye protection when searching for a high-pressure hydraulic leak.
- Ensure the pressure does not exceed the maximum pressure given in the specifications.
- Operate in a well-lit, clean, and safe environment free of distractions.
- Wear appropriate protective equipment when operating or near the running power unit: goggles that provide front and side protection for eyes, protective gloves appropriate for the work material, steel-toed boots to prevent injury from falling objects, and hearing protection gear for the noise level.
- Make sure all components are maintained in good condition. **DO NOT** operate if any parts of the power unit are damaged or malfunctioning. Replace any damaged or malfunctioning components.
- Always check the electrical connections are snug before use.
- **DO NOT** leave the equipment unattended while it is powered on.
- **DO NOT** operate when tired or under the influence of medication, drugs, or alcohol.
- **DO NOT** let children or untrained adults operate the power unit.
- Keep bystanders at a safe distance when the power unit is in operation.
- **DO NOT** modify the equipment in any way. Unauthorized modification may be dangerous, impair function, and reduce the service life of the equipment.
- Keep the interior of the reservoir, hydraulic cylinder, and oil pipelines clean to avoid damage to the control valve.

## PARTS DIAGRAM

1. Electric Motor
2. Anode (Pos. Pole)
3. Cathode (Neg. Pole)
4. Relay
5. Relay (Pos. Pole)
6. Reservoir
7. Reservoir Cap
8. Electromagnetic Coil
9. Solenoid Valve
10. Overflow Valve
11. Throttle Valve
12. Up Button
13. Down Button
14. Pendant Control
15. Control Cord
16. Oil Outlet



## SPECIFICATIONS

Max. Relief Pressure	3200 psi (22 MPa)
Rotational Speed	2850 rpm
Rated Power	3 hp (2.2 KW)
Input Power	12V DC
Reservoir Size	4¼ qt. (1 gal. or 4 L) 6⅓ qt. (1½ gal. or 6 L) 8½ qt. (2 gal. or 8 L)
Max. Displacement	1.1 cc
Max. Flow Rate	0.83 gpm (3.1 L/min.)
Port Size	M6

## INSTALLATION & OPERATION

1. Make sure the electrical supply is compatible and the motor housing is well grounded.
2. The motor's junction box should be watertight and moisture-proof.
3. Ensure your hydraulic hoses have an inner diameter no less than 0.55 in. (14 mm).
4. The positive pole of the power supply should be connected to the positive pole of the relay while the negative pole of the power supply should be connected to the negative pole of the electronic motor. The power supply wire must be copper wire 3.1–3.8 sq. in. (20–25 cm<sup>2</sup>) in cross section.
5. Make sure all the fittings and connections are properly connected and tightened before operating the equipment.
6. Select a standard or premium quality, mineral-based hydraulic oil suitable for the temperature range the power unit will be operating in.
7. Oil should be passed through a filter with gaps no larger than 25 µm before use.
8. The optimum system operating temperature for the hydraulic oil is 120°F (49°C) and should not exceed 180°F (82°C).
9. Fill the reservoir to between ½ and 1 in. (5–30 mm) below its top. Use hydraulic oil with 5–15W (ISO VG 22–46) viscosity. High viscosity oil is better for high temperature environments and lower viscosity oil for low temperatures.
10. Ensure the power supply is connected correctly and then install the oil pipelines.
11. Press the UP button to turn on the motor. The motor should power the oil pump to generate pressure and cause oil to be discharged. Release the UP button and the motor should cease operation. Looking from the rear of the motor, the motor should turn counterclockwise. If it does not, cease operation and contact customer service.
12. At the end for the hydraulic cylinder's travel, press the DOWN button to allow the oil to return and the hydraulic cylinder to return to its original place. As this is a single acting pump, the motor will do no work during this action.
13. The first time operating the power unit, let it run under zero load for 5 minutes to cycle the actuators in order to remove any entrained air in the system.

## MAINTENANCE

1. Inspect the equipment components periodically. Replace any damaged, worn, or malfunctioning components.
2. The reservoir, actuators, and pipeline should be kept clean to prevent the introduction of foreign material into the system.
3. The reservoir should be adequately filled with oil during use. Refill as necessary to avoid the pump sucking in air.
4. The hydraulic oil should be replaced after working for 100 hours when first installed. Subsequently, it should be replaced every 1500 working hours or one year, whichever comes first.

## TROUBLESHOOTING

If no oil rises or the oil provides insufficient pressure:

- If pressing the UP button does not start the motor:
  - Check if the battery is low.
  - If the battery is good, then check if the connections are correct and snug without unwanted grounding.
  - You may connect the motor directly to both ends of the power supply to check if there is something wrong with the motor. In this case, the positive end of the power supply should be connected with the positive end of the motor while the negative end of the power supply should be connected to the negative end of the motor.
  - If there is still no reaction, change the battery. There might also be a damaged relay or a badly connected control box. If all of three are fine, replace the motor.
- If the motor works properly, but no oil is discharged or the oil provides insufficient pressure:
  - Check if the indicator light of the electromagnetic coil is lit or not.
    - If the light is lit, check if the circuit is properly connected. When the hydraulic cylinder is going upward, the indicator light of the electromagnetic oil must be lit and there should be electricity in the coil.
    - If the light is off while the motor runs normally, but there is no oil discharge or insufficient pressure, take off the electromagnetic coil and clean its core with diesel or regular gasoline. Once cleaned put it back on to do the test again. You may need to change the electromagnetic solenoid valve.
- If you have tried all the above, but the problem still persists, there might be a choked pipeline or a problematic hydraulic cylinder. Inspect and fix or replace if necessary.
- Alternatively, the amount of pressure for your job maybe exceed 3200 psi, in which case a larger hydraulic pump is required.