

**Installation**  
**12 vdc, Double-Double Unit**  
**(Dual, Independent Power UP / Power DOWN Circuits)**

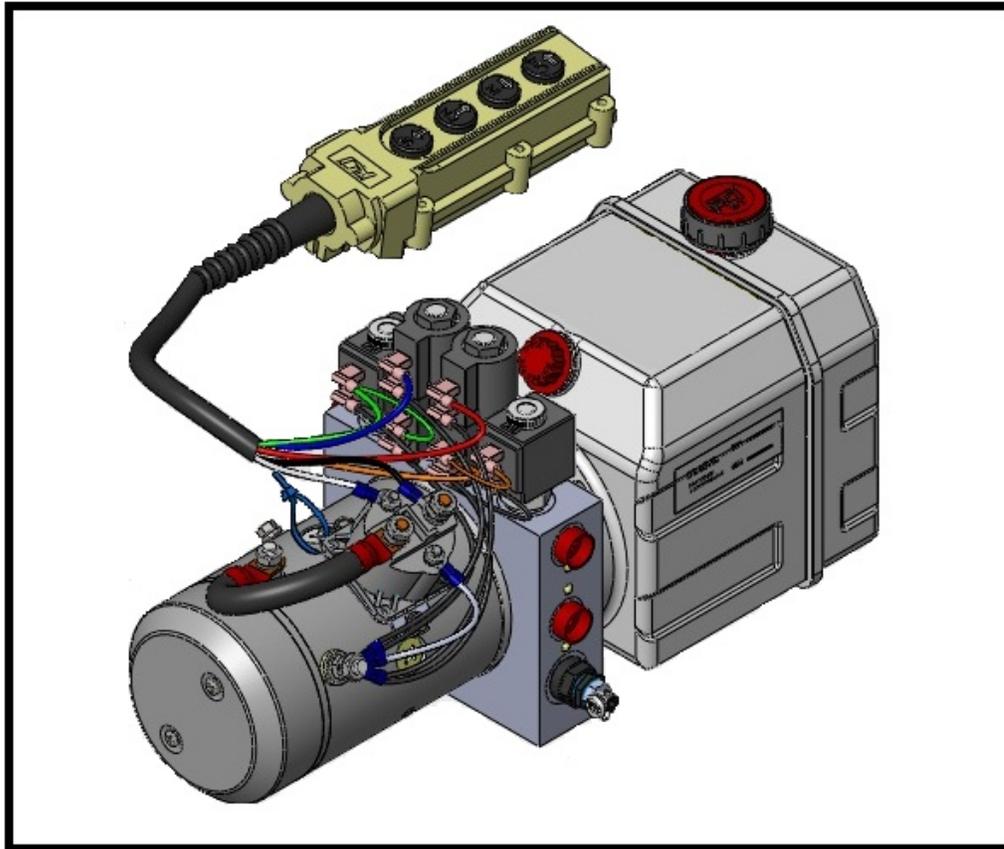


Diagram A-1

1. **Disconnect** the **Positive** battery cable from the battery.
2. Install 9/16-18 SAE ORB, SAE #6, hydraulic fittings into ports "A", "B", "A1 and "B1". Torque fittings to 18 lb-ft.
3. Mount the Power Unit using two, 3/8-16 UNC mounting bolts (*diagram A-2*)
4. Remove the Filler/Breather Cap and fill the reservoir with hydraulic oil (*see fluid recommendations*). Replace the filler/breather cap.
5. Connect Hydraulic Lines to the two cylinders.
  - a. Check the torque specifications for the hose fittings.
  - b. Connect the Base end of the first Cylinder to the port "**A**" (**UP**) (Top location).
  - c. Connect the Rod end of the first Cylinder to port "**B**" (**DOWN**) (Bottom location).
  - d. Connect the Base end of the second Cylinder to the port "**A1**" (**OUT**) (Top location).
  - e. Connect the Rod end of the second Cylinder to port "**B1**" (**IN**) (Bottom location).
6. Connect the battery **Ground** cable to the **Ground** terminal of the DC Motor (*diagram A-3*)
7. Connect the **Positive** cable from the battery to the start solenoid (*diagram A-3*).  
 (See Battery Cable Gauge table for proper gauge for your length of cables.)

8. Holding the bottom nut with a wrench, torque the battery connections to 3 lb-ft.
9. Reconnect the Positive battery cable to the battery.
10. **FIRST CYLINDER (UP/DOWN):** Extend the first cylinder by pressing the UP button. Keep an eye on the oil level in the reservoir. With the cylinder fully extended, the oil level should not go below ½ full.
11. After the cylinder is fully extended, press the DOWN button to fully retract the cylinder.
12. Extend and retract the first cylinder a few times until all the air is removed from the hydraulic oil.
13. **SECOND CYLINDER (IN/OUT):** Extend the second cylinder by pressing the OUT button. Keep an eye on the oil level in the reservoir. With the cylinder fully extended, the oil level should not go below ½ full.
14. After the second cylinder is fully extended, press the IN button to fully retract the cylinder.
15. Extend and retract the second cylinder a few times until all the air is removed from the hydraulic oil.
16. After both cylinders are primed and fully retracted, recheck the level of the oil in the reservoir.

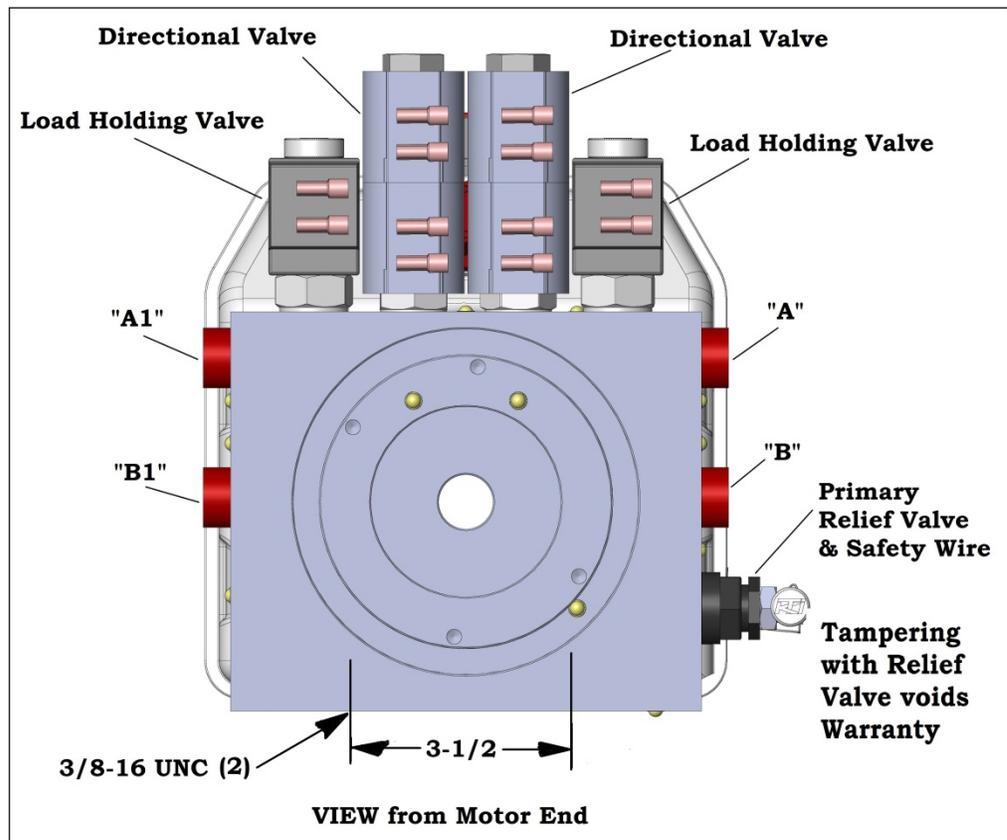


Diagram A-2

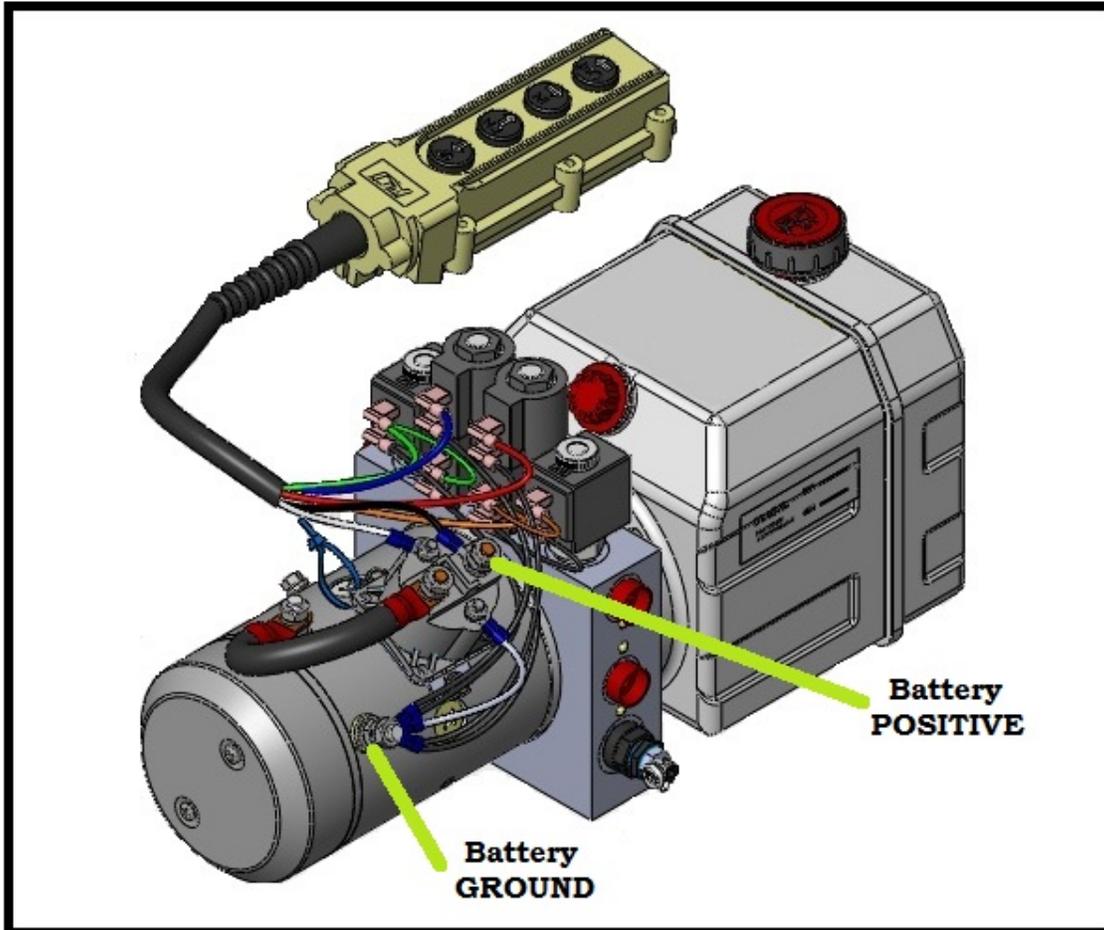


Diagram A-3

## Fluid Recommendations

KTI recommends using a premium hydraulic oil to ensure optimum performance and system life. Select oil that has anti-wear properties, rust and oxidation inhibitors, foam inhibitors and good stability. Examples of premium grade hydraulic oils: Chevron Rando HDZ, Mobil DTE 10, DTE 20 series, AMSOIL, and Shell Tellus.

Automotive Transmission Oils are acceptable under normal conditions.

Aviation Oils such as Valvoline ROYCO series or Mobil Aero HF or HFA may be used in **prolonged, extreme cold** environments.

Do Not Use Biodegradable Hydraulic Fluid. Do Not Mix Oils.

### Ambient Temperature Range

### ISO Viscosity Grade

- 20°F to + 32°F  
 (- 29°C to + 0°C)

15

+ 14°F to + 120°F  
 (- 10°C to + 49°C)

22, 32, ATF

## Battery Cables

Low voltage will cause the motor to run at higher amps and may cause damage to other electrical components. To minimize voltage drop, increase the gauge size of the battery cables as the length of the positive and ground cables increase.

Cable Length	Wire Gauge	Nominal OD (in.)
1 to 2 feet	4 gauge	0.43
3 to 4 feet	2 gauge	0.49
5 to 7 feet	1 gauge	0.56
8 to 9 feet	1/0 gauge	0.61
10 to 12 feet	2/0 gauge	0.66
13 to 15 feet	3/0 gauge	0.72
16 to 19 feet	4/0 gauge	0.78

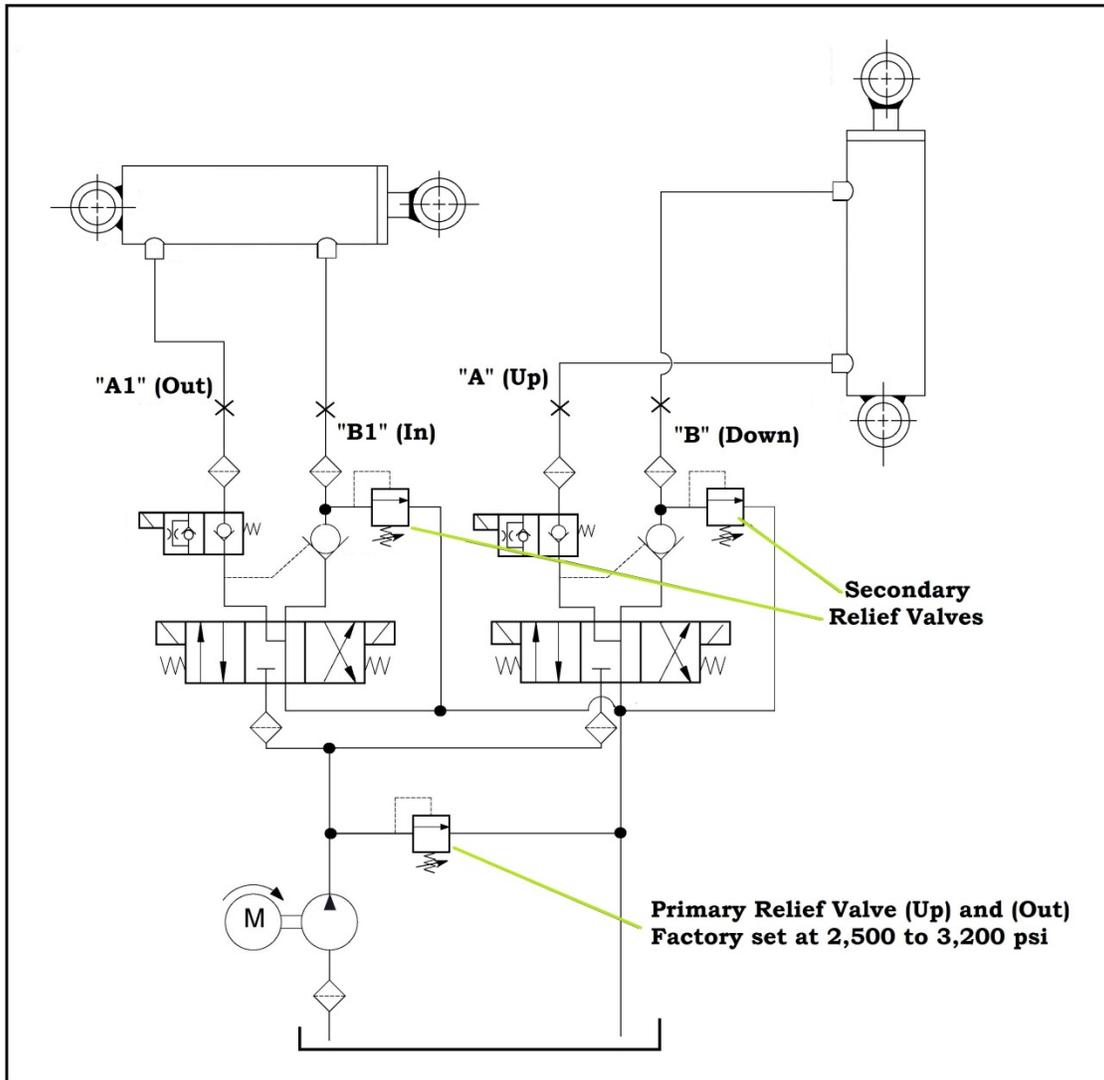


Diagram A-4

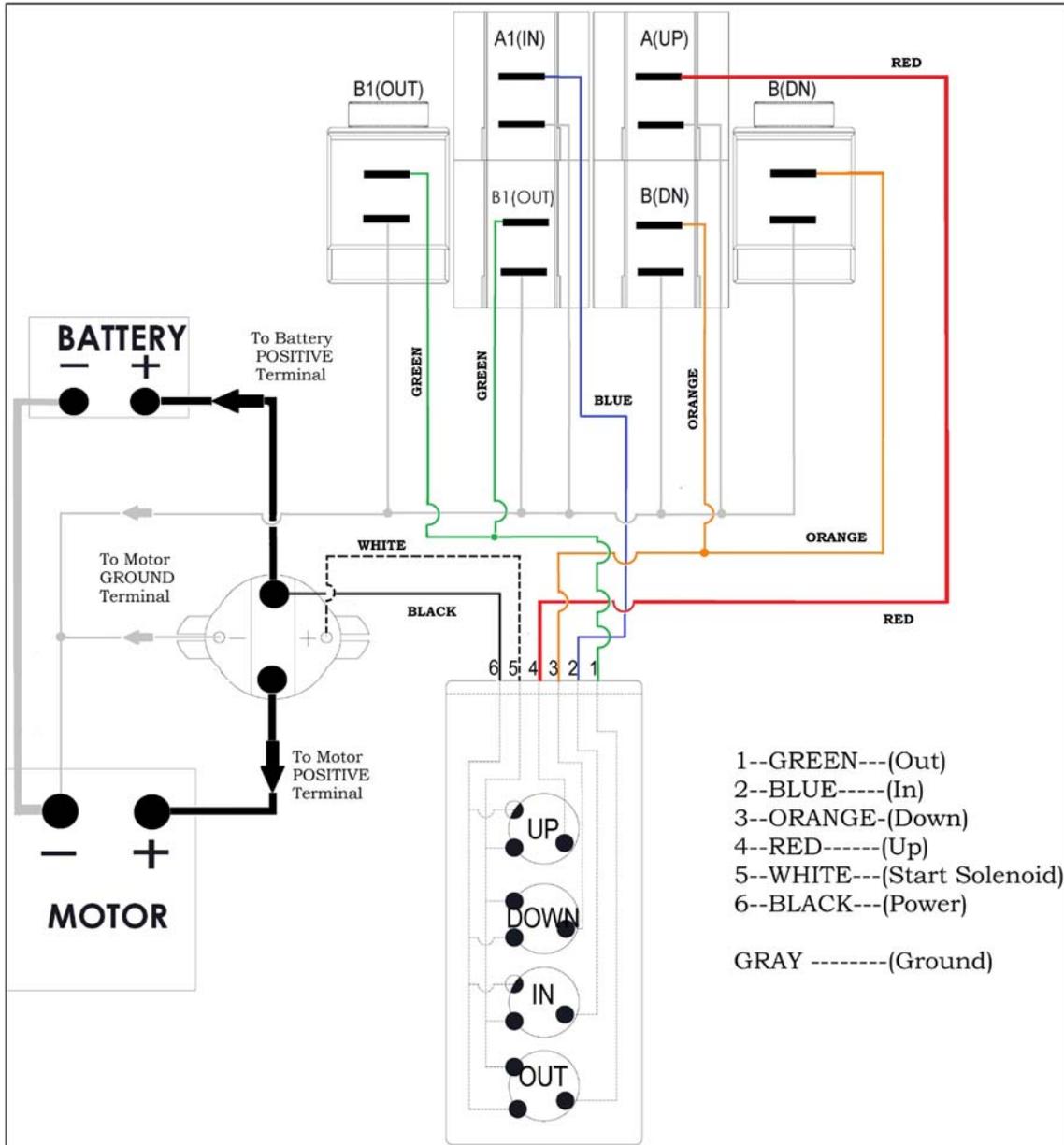


Diagram A-5