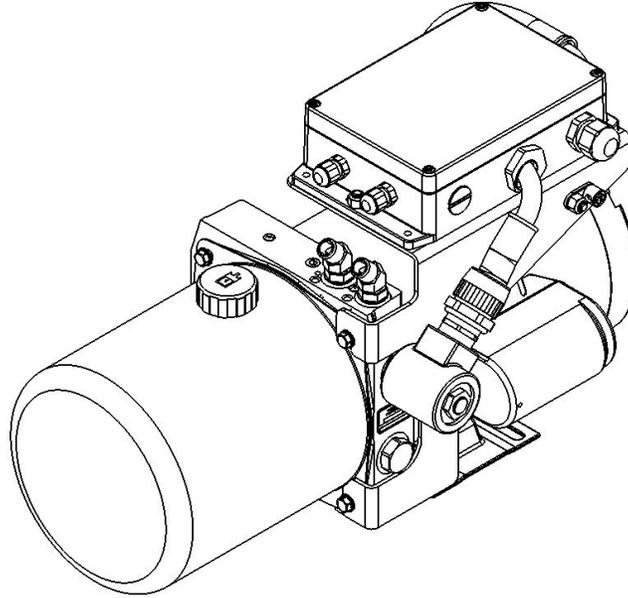


Hydraulic Pump Installation Instructions



Tools and Supplies Needed for Hydraulic Installation:

- ISO 46 hydraulic fluid or its equivalent. If not available, Dextron III may be used.
- Amount of fluid needed depends on length of hose run. Tank requires approximately 3 quarts of oil.
- In addition you will need approximately 1 pint of fluid for each additional 10 feet of hose run.
- Crescent wrenches or 7/8" open-end wrench.
- **Air to blow out hydro lines.**
- #3 Flat head screwdriver.
- Funnel with filter screen. The filter screen should be approx. 60 micron. Funnel end should be no larger in diameter than the oil fill opening.
- Shop-Vac to suck string through the hydraulic chase.

Electrical Instructions

1. Electrical wiring to the power pack must have a breaker disconnect. For U.S. installations, the breaker needs to be a 20 amp 220V GFCI. For European installations, the breaker needs to be a 20 amp 230V breaker. The breaker disconnect is not provided.
2. The power pack should be at least 6 inches away from all structures.

Installation Instructions

3. Pull hydraulic lines into the chase taking care to keep lines clean. **A small amount of dirt will cause the unit to not operate properly.** This is the most critical part of the install. **It is imperative that the hoses be kept clean.** If the run is long or with bends, use a lubricant. Electrician's lubricant for pulling wires, automatic transmission fluid or hydraulic fluid works well. For additional information on pulling hoses see *Addendum A* on the last page of these instructions.
4. The hoses will be shipped from the factory with the fittings already crimped onto the ends of the hose and cut to match the length of the hose that was ordered. **You will not need to cut the hoses in the field.**

5. **The power pack must be installed in a location that is above grade and it must also be covered so it is protected from the elements.** A plastic motor end housing, which is commonly used for deck mount systems, will be provided with each hydraulic system so it can be used to cover the power pack. The power pack should not be mounted below grade in the cover housing or similar location. Mount power pack base to floor using #12 hex head screws and plastic anchors provided. **Make sure power pack is level.** If not, insert shims under the base plate until power pack is level. Unit **must** be mounted level for the system to operate correctly.

6. Connect electrical per wiring diagram enclosed with system. Bond both mechanism and power pack. (See picture at right for the bonding lug placement on the power pack)

7. Remove cap from the one of the hose fitting on the power pack. Attach a hose, leaving the other cap in place.

8. Go to cover mechanism and attach both hoses to the hydraulic motor.

9. Fill the reservoir (approximately 3 quarts) with hydraulic fluid. Use ISO46 hydraulic oil (or its equivalent). If not available, Dextron III may be used. **Do not mix weights, brands or types of oil. Do not over fill the tank.**

10. Leave the fill cap off until completely finished filling the lines. Note: it takes approximately 1 pint of fluid for every 10 feet of hydraulic hose.

11. Insert loose hose into a bucket.

12. **Run unit to clear impurities.**

13. Run unit until all air is cleared from the lines and clear fluid comes out of the hose and no air bubbles are present. Keep refilling the tank as necessary. Do not let the fluid get too low as the pump will start sucking air and put air into the lines.

14. Attach bottom hose. Recheck fluid level.

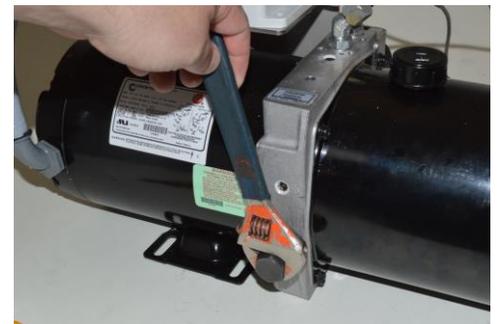
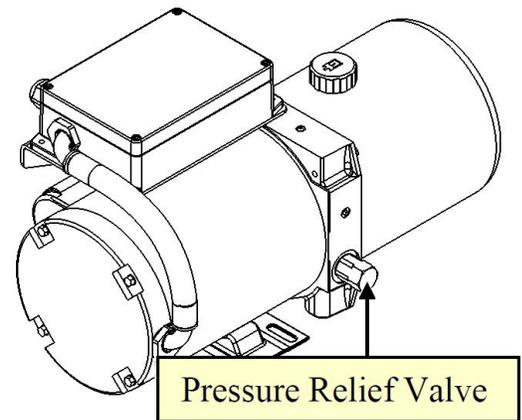
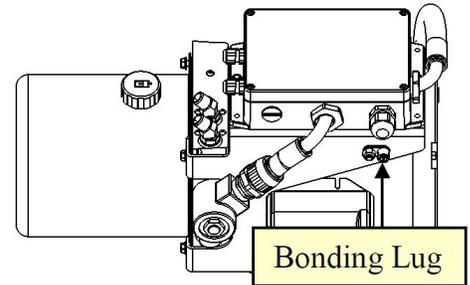
15. Run cover out over the pool. If cover does not move, adjust the bypass valves as shown below **Note:** Because it is difficult to trace the hoses, if the key switch does not indicate the correct direction, reverse the two directional wires on the key switch terminals.

ADJUSTING BYPASS

The Latham 1601 Hydraulic unit has one bypass valve adjustment. The bypass valve is located on the side of the power pack. The bypass valve is covered with a cap that will need to be removed prior to adjusting the valve. Use a 7/8" wrench to remove this cap. It must be adjusted as shown to the right.

The bypass valve is preset at the factory to 600 pounds pressure. In most cases this will be enough to operate the cover system; however the pressure must be set for each individual pool.

1. Use a 7/8" wrench to loosen the cap on the top bypass.
2. Use the #3 flat head screwdriver to turn the pressure relief screw counter clockwise until cover stalls. Then, in small increments turn pressure relief screw clockwise until cover runs smoothly.
3. Tighten pressure relief screw 1/2 turn more and tighten cap.



FINALIZING INSTALLATION

Use a permanent marker, and mark on the control box the type of fluid that was used in the power pack. This is necessary, as types of fluid should not be mixed.

Servicing the Power Pack

It is recommended that the power pack be inspected at the following intervals:

- Installation
- 1 week after installation
- 4 weeks after installation
- Thereafter, every three months

It is important to maintain the correct fluid level in the tank.

Changing the hydraulic fluid

It is important that the fluid be replaced every 12 – 24 months. This will help remove any contamination from the power pack. If the fluid takes on a dark color, foul smell, milky/cloudy appearance, the fluid will need to be replaced sooner.

Troubleshooting

If the power pack has no power or reduced power:

- Check hydraulic fluid level. It should be $\frac{3}{4}$ to 1 inch below the fill opening.
- Check to make sure that if fluid has been added, it was the same type and brand. Mixed types of fluid can cause the system to not operate correctly.
- Check for contamination in the bypass valve.
 - Remove the cap and turn bypass screw counter clockwise to loosen. Do not completely remove the bypass screw or fluid will come out of screw hole. Make sure screw is at least 3 full turn in the threaded hole.
 - Run power pack for 30 seconds.
 - Readjust bypass screw and retighten cap.
- Check the voltage. If the voltage drops more than 5% while the system is running, the system is underpowered. Have a licensed electrician check the wiring.

If the power pack is only working in one direction:

- Check the wiring in the control box for any loose wires.
- Check the wiring to the key switch.
- Check to make sure the solenoid is wired correctly.
- It's possible the solenoid coil will need replacing, to check remove the coil by removing the $\frac{3}{4}$ inch nut that is holding the coil on to the valve assembly. Once the coil is removed place a plastic handle screwdriver in the coil and run the hydraulic system in both directions, the screwdriver should become magnetized in one direction.

ADDENDUM "A" PULLING HYDRAULIC LINES

1. Use kite string or if the run is long, a very strong nylon thread.
2. Wad up a small plastic shopping bag and tie the string/thread around it. The size of the bag depends on the size of the chase for the hydraulic hose. It must not be too tight, yet it must be large enough to be sucked through the chase by the Shop-Vac. It may be necessary to experiment to find out what works best in your situation. A Styrofoam ball about $\frac{1}{2}$ the size of the chase also works well.
3. Place the bag/ball in the end of the chase and tape over the pipe so that it is mostly closed. This will allow the vacuum to generate more suction.
4. Suck string and bag/ball through chase with the Shop-Vac. Duct tape around vacuum hose and chase.
5. Attach rope to the string and pull it through the chase.
6. Duct tape the ends of the hoses, then duct tape the rope to the hydraulic lines as shown below. Putting knots in the rope help keep it from pulling out. It also helps to stagger the hoses as shown. It may be necessary to lube the end with electrician's lubricant for pulling wires, automatic transmission fluid or hydraulic fluid.



Side View

Top View

