



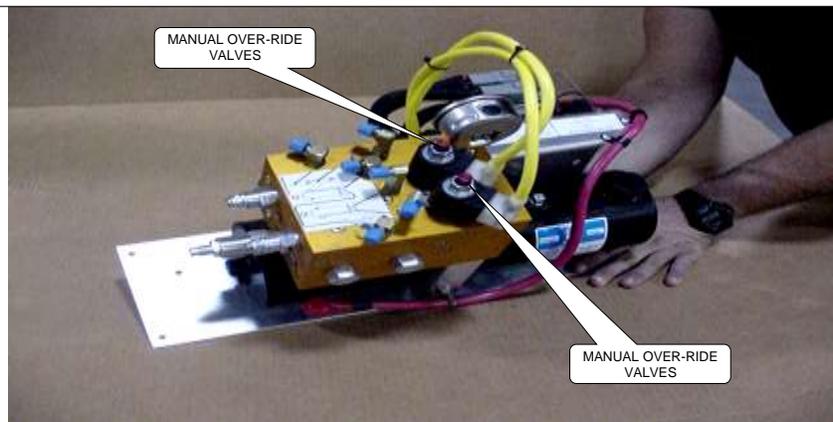
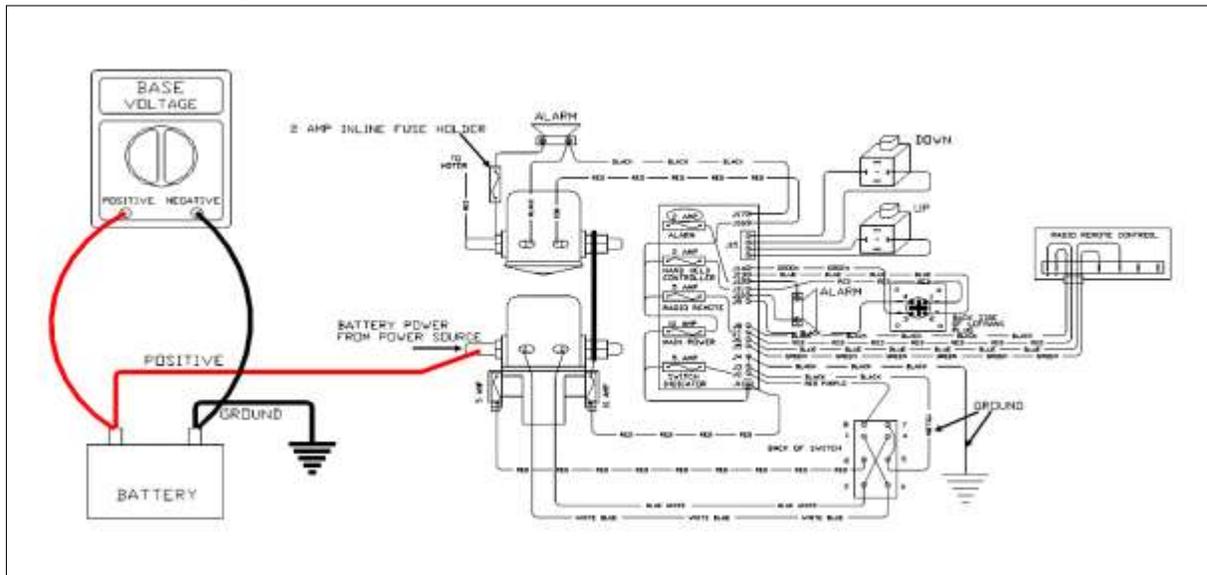
**ELECTRICAL REPAIR MANUAL
FOR THE HYDRAULIC SWIM PLATFORM**

This testing / diagnostic booklet can help repair the electrical systems on your GHS lift

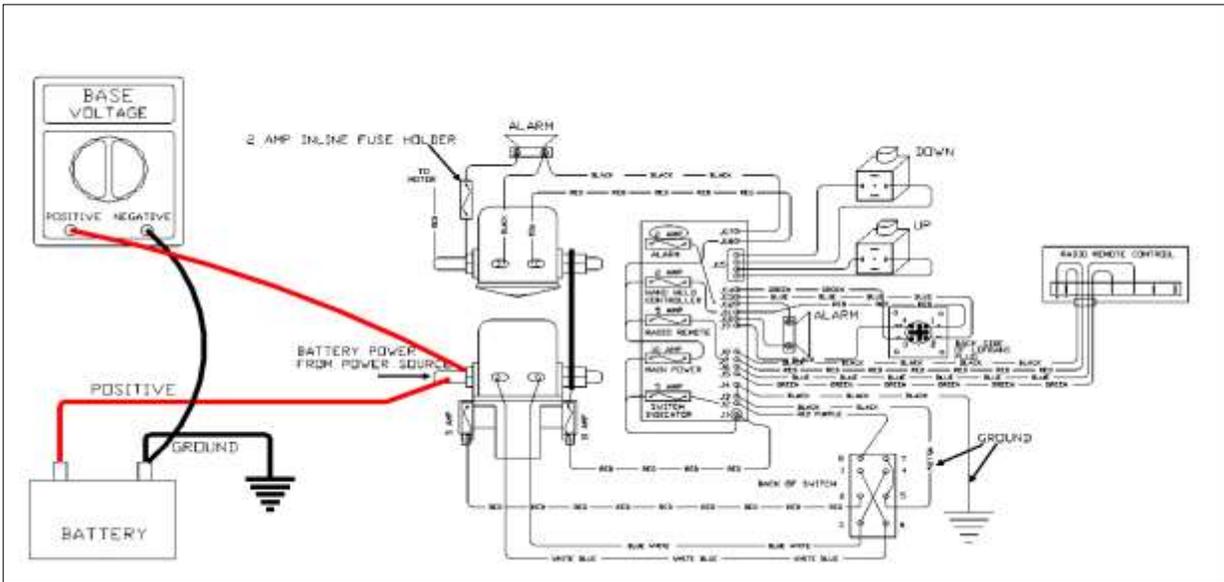
****Before making any repairs to the electrical system, properly diagnose the system first.**

- 1 Batteries **must** be fully charged. This controller is voltage sensitive and will **not** work properly with low voltage.
- 2 Make sure all connections are **clean and tight** and all the fuses are good.
- 3 Check battery voltage at the battery, to determine base voltage. This will help determine any loose or corroded connections causing voltage or amp drops.
- 4 Once you established the base voltage, you can properly test the system. Minimum - 10 Volts on a 12 Volt system & 22 Volts on a 24 Volt system. If minimum voltage is not met the controller will not work properly.
Ensure the manual over-ride valves on the solenoid valves are closed. Push in and turn clockwise to close. Red knurled knobs are located on-top of the valves in the manifold.

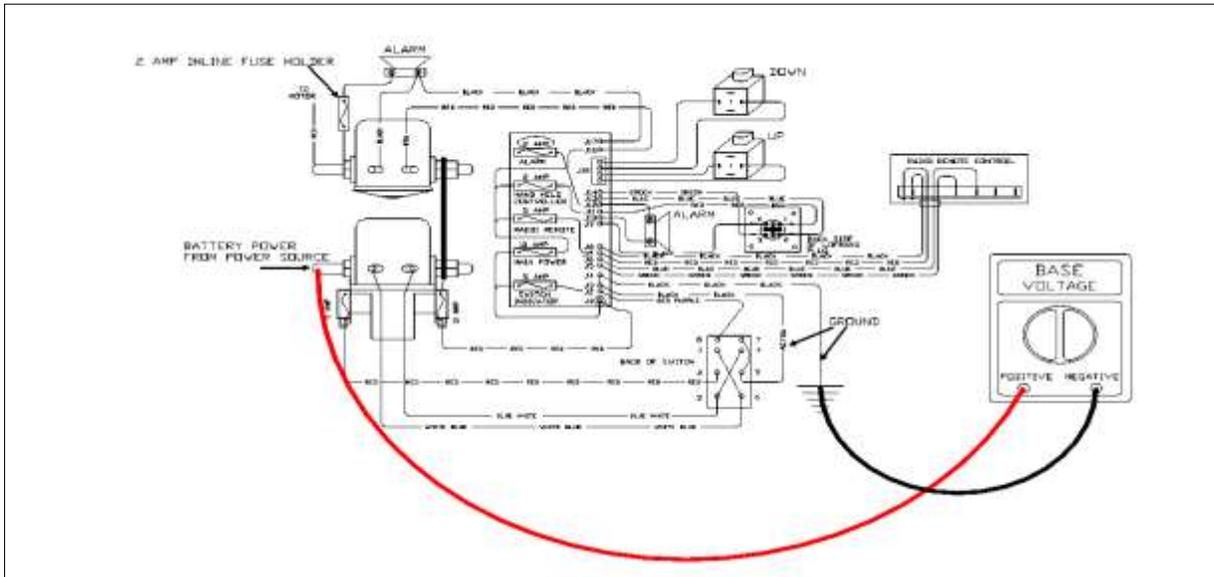
Shown below- **The latching solenoid tests are the same for the both the solid state controller and the control box.**



- 5 Check voltage at latching solenoid battery terminal. The voltage should be the same as the base voltage. Shown below



- 6 Check voltage at pump main ground terminal. Voltage should be the same as base voltage. Shown below



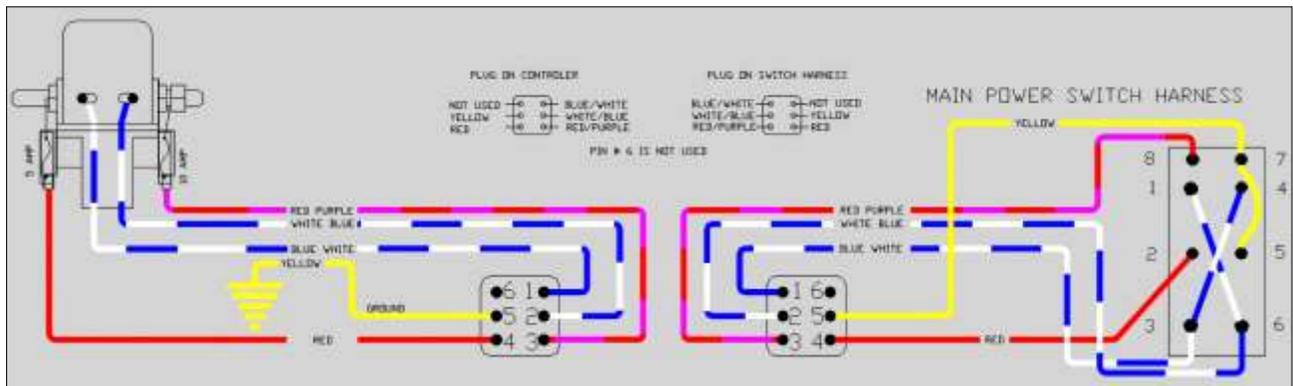
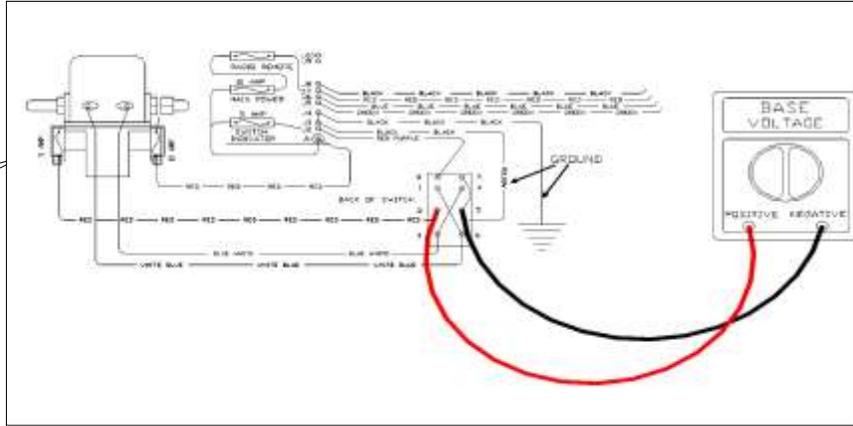
- 7 **Testing power switch operation.** Test terminal 5 for ground and terminal 2 for power. The fuse for this switch is in the latching solenoid under the battery terminal.
When turning the latching solenoid ON, Power is sent from terminal 2, on the back of the switch, to terminal 1. While the ground, from terminal 5 is sent to terminal 4.

This momentary power is sent to the latching solenoid coil, which internally switches the solenoid ON. Sending power to the J1 terminal on the PC board from the fuse on the latching solenoid under the load lug. Power is sent OUT of the J2 terminal, back to the switch terminal No. 8 the ground wire is connected from terminal 5 and jumped to terminal 7. This is what turns the light on in the power switch and sends power to the PC board and the motor run solenoid from the latching solenoid.

Turning the latching solenoid OFF. Power from terminal 2 on the back of the switch is sent to terminal 3, and ground from terminal 5 is sent to terminal 6.

This reverses the polarity at the latching solenoid coil, causing the solenoid to turn OFF. Disconnecting the power flow to the PC board and motor run solenoid. Shown below.

FUSE FOR THE MAIN POWER SWITCH

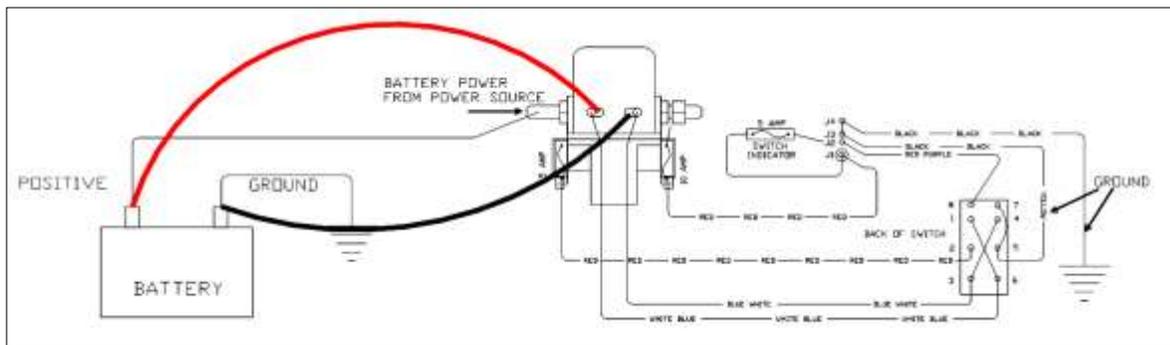


8 Turning the latching solenoid on without the use of switch.

Use 2 jumper wires to test the solenoid. Connect the jumper wires to the solenoid actuator terminals. Connect the ground wire to a known good ground. **Momentarily** touch the positive wire to a known good power source. This Latching solenoid does not need constant power to stay activated, If Power is left on Damage to the solenoid will occur.

WARNING DO NOT LEAVE THE POSITIVE WIRE HOOKED UP- DAMAGE TO SOLENOID WILL OCCUR!

Note- The diagram below shows the continuity **to turn the solenoid on.**



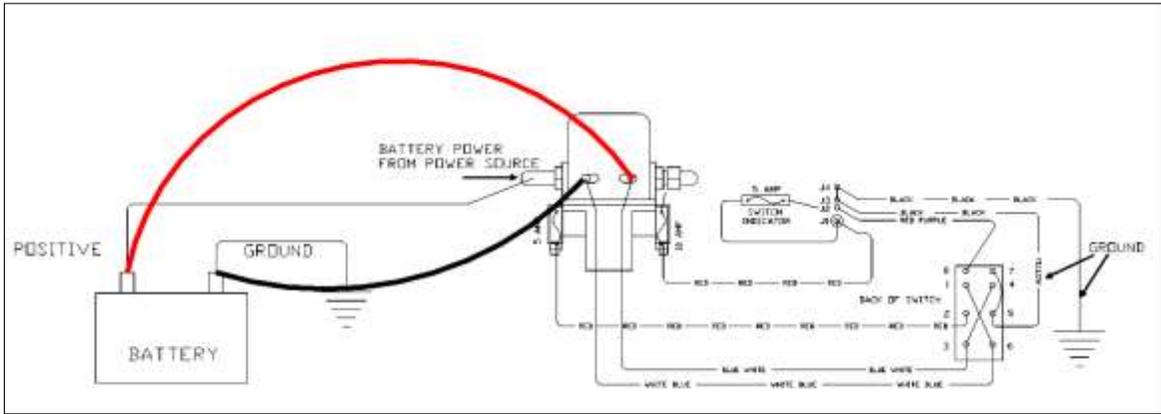
9 Turning the latching solenoid off without the use of switch.

Use 2 jumper wires to test the solenoid. Connect the jumper wires to the solenoid actuator terminals. Connect the ground wire to a known good ground. Continued next page

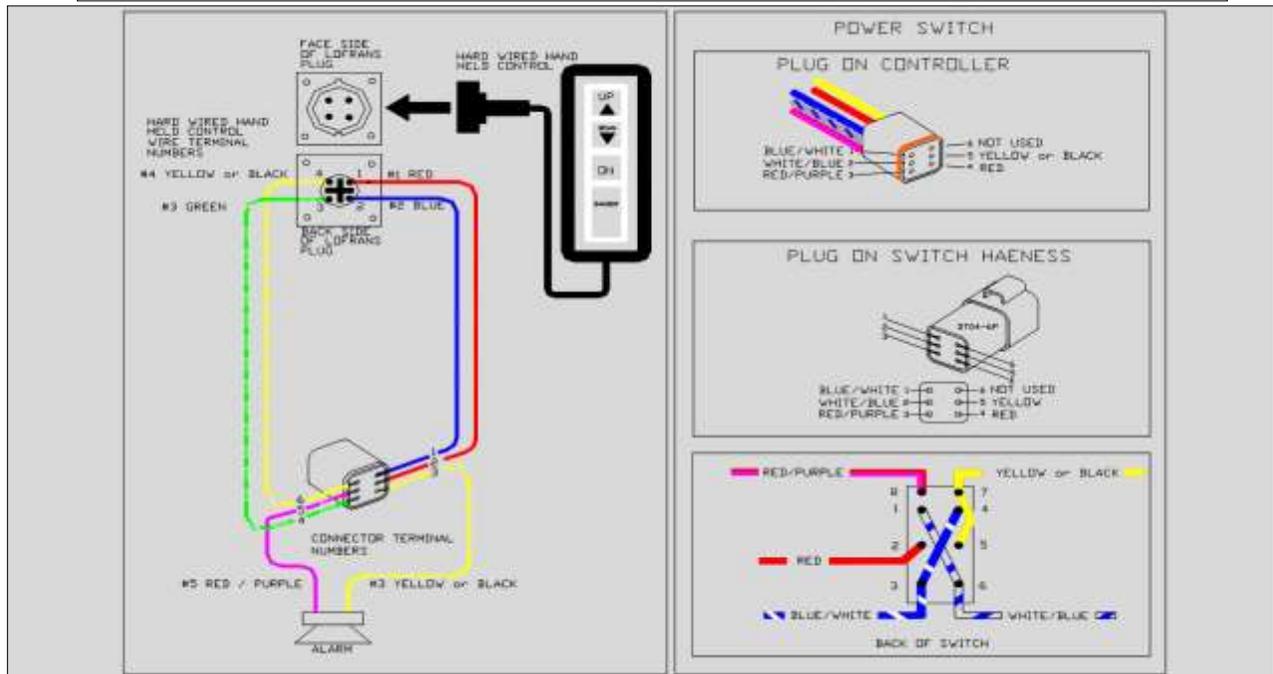
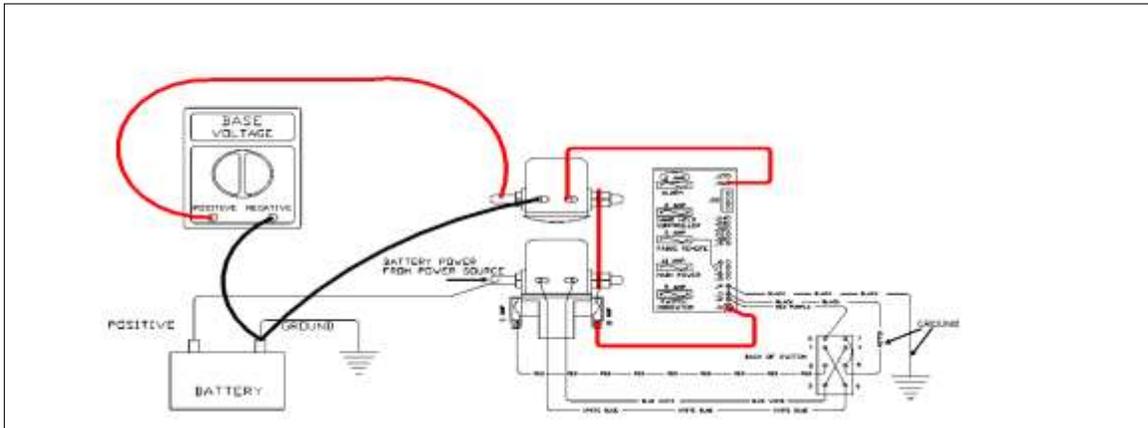
Momentarily touch the positive wire to a known good power source.

WARNING DO NOT LEAVE THE POSITIVE WIRE HOOKED UP- DAMAGE TO SOLENOID WILL OCCUR!

Note - The diagram below shows the continuity **to turn the solenoid off.**

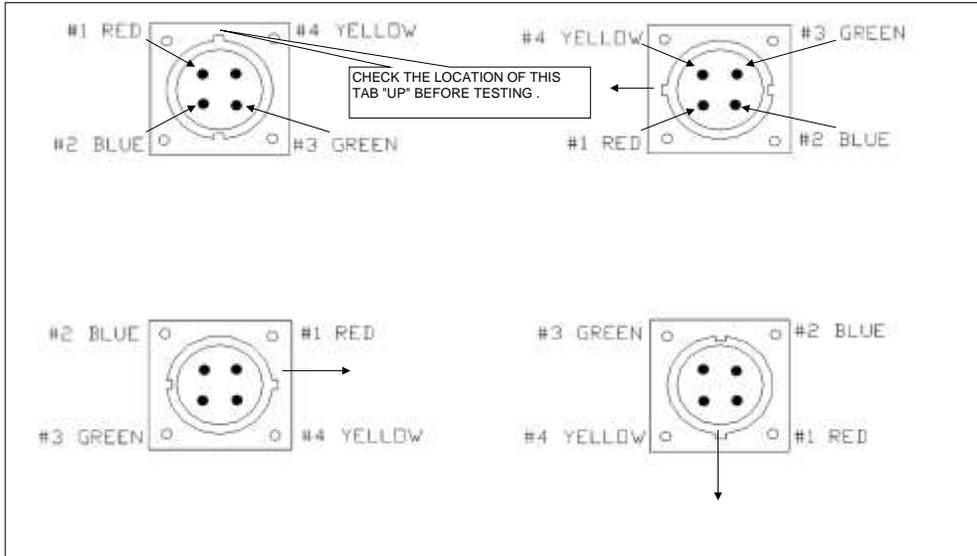


10 Testing the motor run solenoid. With the latching solenoid turned on, please note power is now present at the line lug and at the solenoid terminal. Use a jumper wire from a known good ground. Connect it to the actuator terminal that has the Black wire hooked to it. The solenoid should be activated and power at the load lug. If the solenoid does not activate or no power is present at the load lug then replace motor run solenoid. (see below)

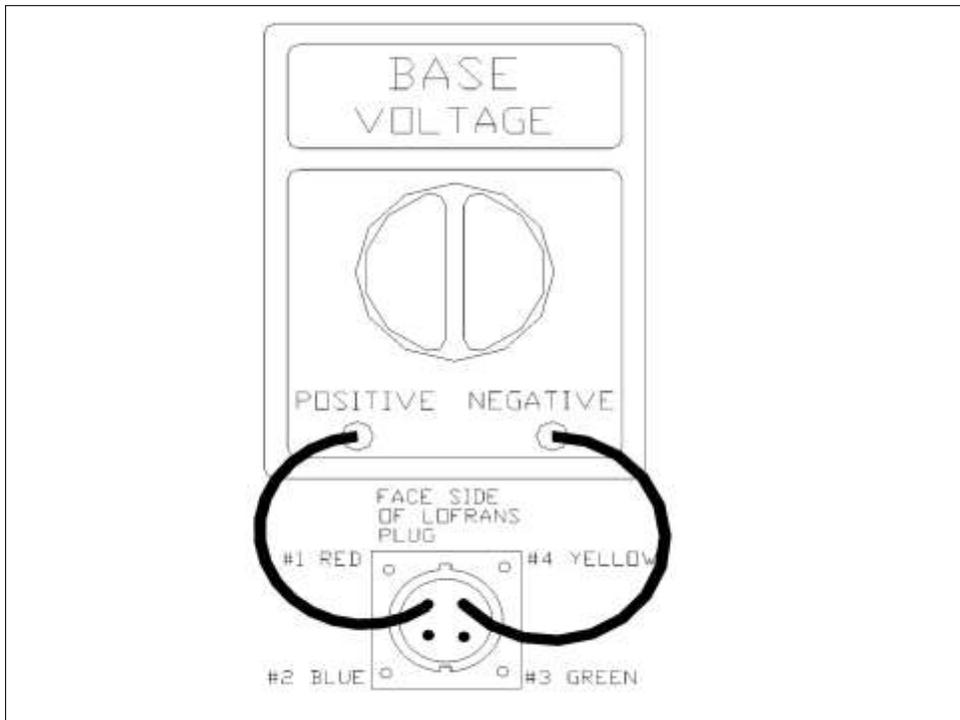


11 Testing the hard wired hand held controller.

Check the fuse and plugs first. Looking into the receptacle, use a volt meter or test light to see if voltage is present. There are 4 terminal holes. **Look for the tab on the receptacle, All tests are done with this tab facing up**. The top left is the power and the top right is the ground.



You should have base voltage across these two terminals. **If not**, move your ground lead on your tester to a known good ground and re-test. If you now have a voltage reading, repair the ground wire in the harness to this receptacle. **If there is no voltage reading**, move your tester ground lead back to the top right terminal and move your tester positive lead to a known good power source. If there is a voltage reading repair the positive wire to this receptacle.



The lift will not go down

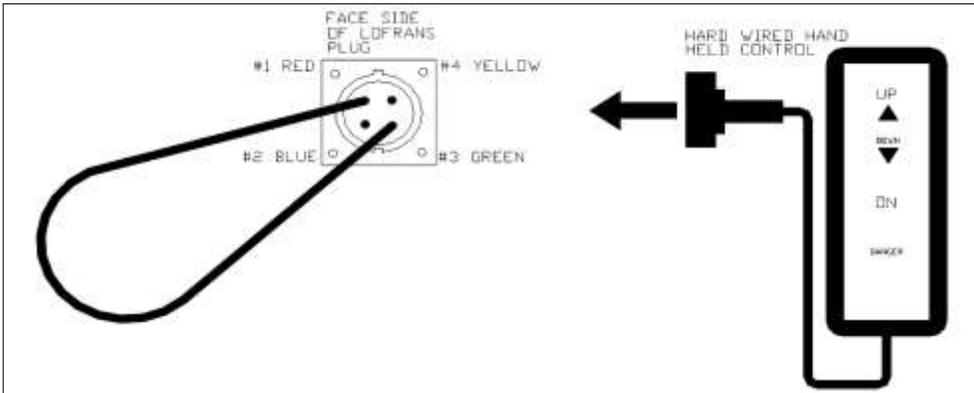
12 There is voltage across the top 2 terminals but the hand held controller doesn't work.

Use a jumper wire and jump the red wire in pin #1 (top left) to the green wire in pin #3 (lower right). After 5 seconds the alarm should sound, remove the jumper wire from pin #1 and stick it right back in. The lift should start going down. Doing this is just like pressing the down button on the controller, waiting for the alarm to sound, releasing the button and pressing it again.

If the lift now works, repair or replace the hand held controller.

If the lift doesn't work, repair the green wire in the harness and retest.

If all connections are clean and tight, there are no cut wires, Go to step 14A



The lift will not go up

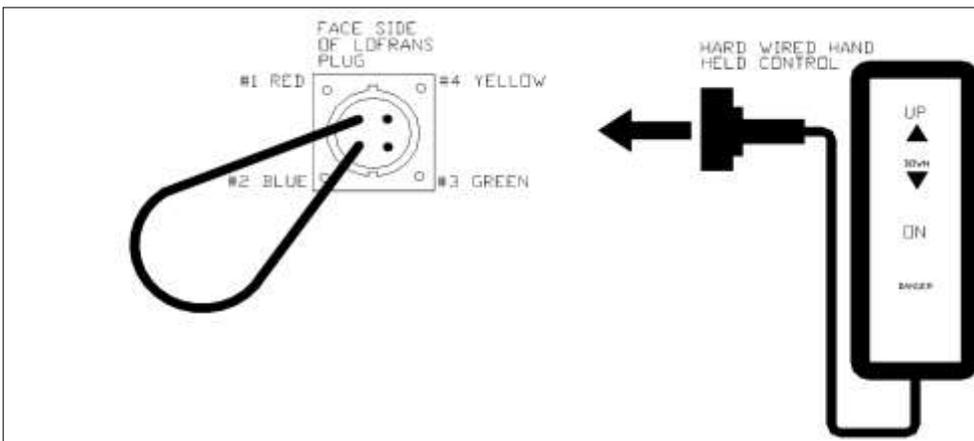
13 There is voltage across the top 2 terminals but the hand held controller doesn't work.

Use a jumper wire and jump the red wire in pin #1 (top left) to the blue wire in pin #2 (lower left). After 5 seconds the alarm should sound, remove the jumper wire from pin #1 and stick it right back in. The lift should start going up. Doing this is just like pressing the down button on the controller, waiting for the alarm to sound, releasing the button and pressing it again.

If the lift now works, repair or replace the hand held controller.

If the lift doesn't work, repair the blue wire in the harness.

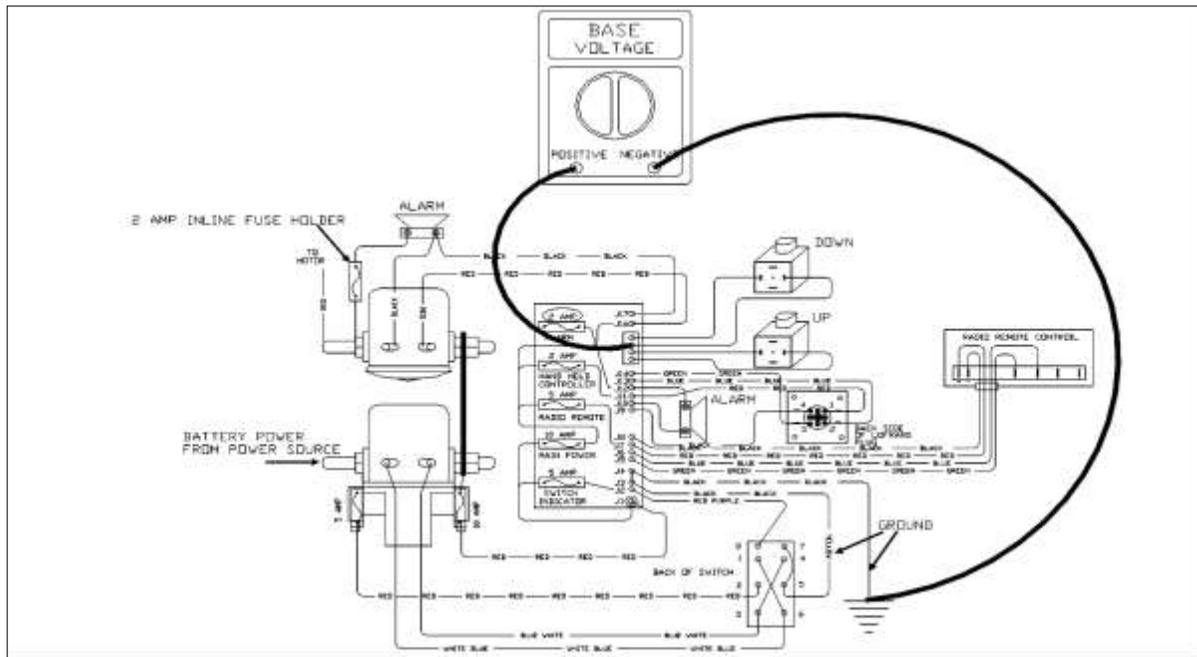
If all connections are clean and tight, there are no cut wires, Go to step 14B



TESTING THE DOWN CIRCUIT

On pumps equipped with the solid-state control board

14A With a **known good** hard wired hand held controller connected to the receptacle and a volt meter hooked up to a known good ground, place the positive lead to the second terminal down from the top of the blue terminal strip on the PC board where the UP and DOWN solenoid harnesses hook up. Use the hand held controller to put the lift down. Is voltage present at this terminal? If **yes**, and everything tested to be good to this point, replace the solid state controller. If there is **no** voltage, move your positive test lead to the J14 terminal on the PC board. Where the green wire connects to the PC board just under the blue terminal strip. Use the hand held controller to put the lift down. Is voltage present at this terminal? If **yes**, and everything tested to be good to this point, replace the solid state controller. If there is no voltage, go back and recheck the connections in the harness for the hand held controller. See Diagram Top of Page 7



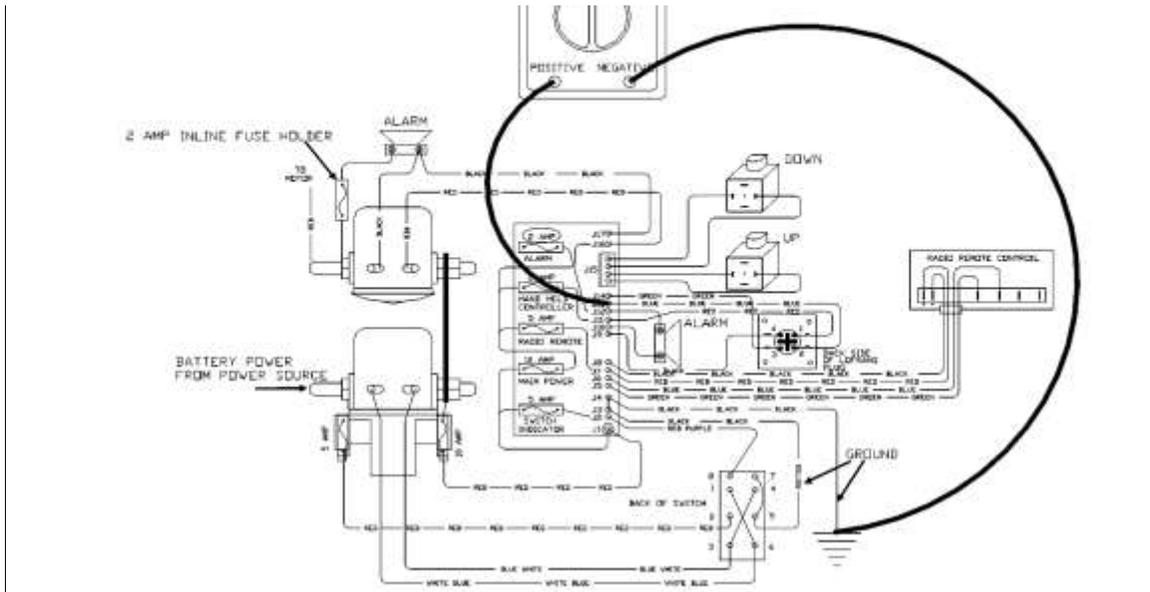
P/C board terminal numbers and description

| | | | | |
|----------------------|-------|---------------|-------|---------------------------------------|
| 3 AMP | J17 G | BLACK | BLACK | ALARM AND SOLENOID GROUND |
| ALARM | J16 G | RED | RED | ALARM POWER |
| 3 AMP | J15 | DOWN SOLENOID | | GROUND |
| HAND HELD CONTROLLER | | UP SOLENOID | | POSITIVE |
| 3 AMP | | | | GROUND |
| RADIO REMOTE | J14 G | GREEN | GREEN | HARD WIRED HAND HELD CONTROL / DOWN |
| 10 AMP | J13 G | BLUE | BLUE | HARD WIRED HAND HELD CONTROL / UP |
| | J12 G | RED PURPLE | | ALARM / POWER |
| MAIN POWER | J11 G | RED | RED | HARD WIRED HAND HELD CONTROL / POWER |
| | J10 G | BLACK | BLACK | ALARM / GROUND |
| 3 AMP | J9 G | BLACK | BLACK | HARD WIRED HAND HELD CONTROL / GROUND |
| | J8 G | BLACK | BLACK | RADIO REMOTE / GROUND |
| SWITCH INDICATOR | J7 G | RED | RED | RADIO REMOTE / POWER |
| | J6 G | BLUE | BLUE | RADIO REMOTE / UP |
| | J5 G | GREEN | GREEN | RADIO REMOTE / DOWN |
| | J4 G | BLACK | BLACK | GROUND |
| | J3 G | BLACK | BLACK | GROUND |
| | J2 G | RED PURPLE | | POWER TO THE SWITCH LIGHT |
| | J1 G | RED | RED | POWER TO THE PC BOARD |

TESTING THE UP CIRCUIT

14B With a **known good** hard wired hand held controller connected to the receptacle and a volt meter hooked up to a known good ground, place the positive lead to the bottom terminal of the blue terminal strip on the PC board where the UP and DOWN solenoid harnesses hook up. Use the hand held controller to put the lift up. Is voltage present at this terminal? If **yes**, and everything tested to be good to this point, replace the solid state controller. If there is **No** voltage, move your positive test lead to the J13 terminal on the PC board, Where the blue wire connects to the PC board just under the blue terminal strip. Use the hand held controller to put the lift up. Is voltage present at this terminal? If **yes**, and everything tested to be good to this point, replace the solid state controller. If there is **no** voltage, go back and recheck the connections in the harness for the hand held controller. See diagram top of Page 8





TESTING THE DOWN CIRCUIT

On pumps equipped with the Imtra or Lewmar Control Box

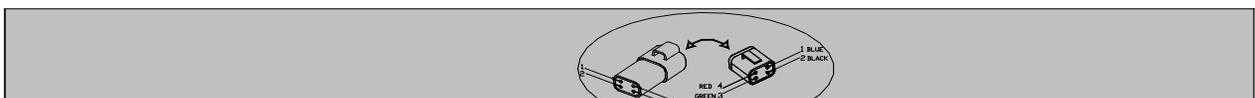
Check all fuses first and replace any bad ones.

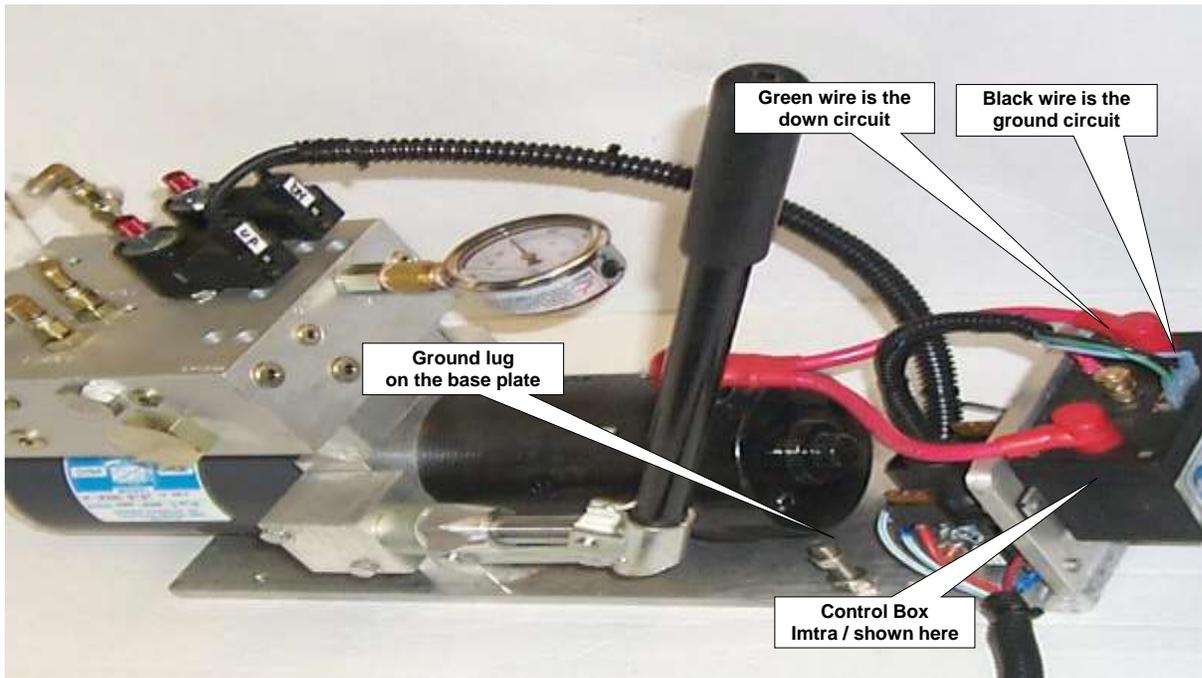
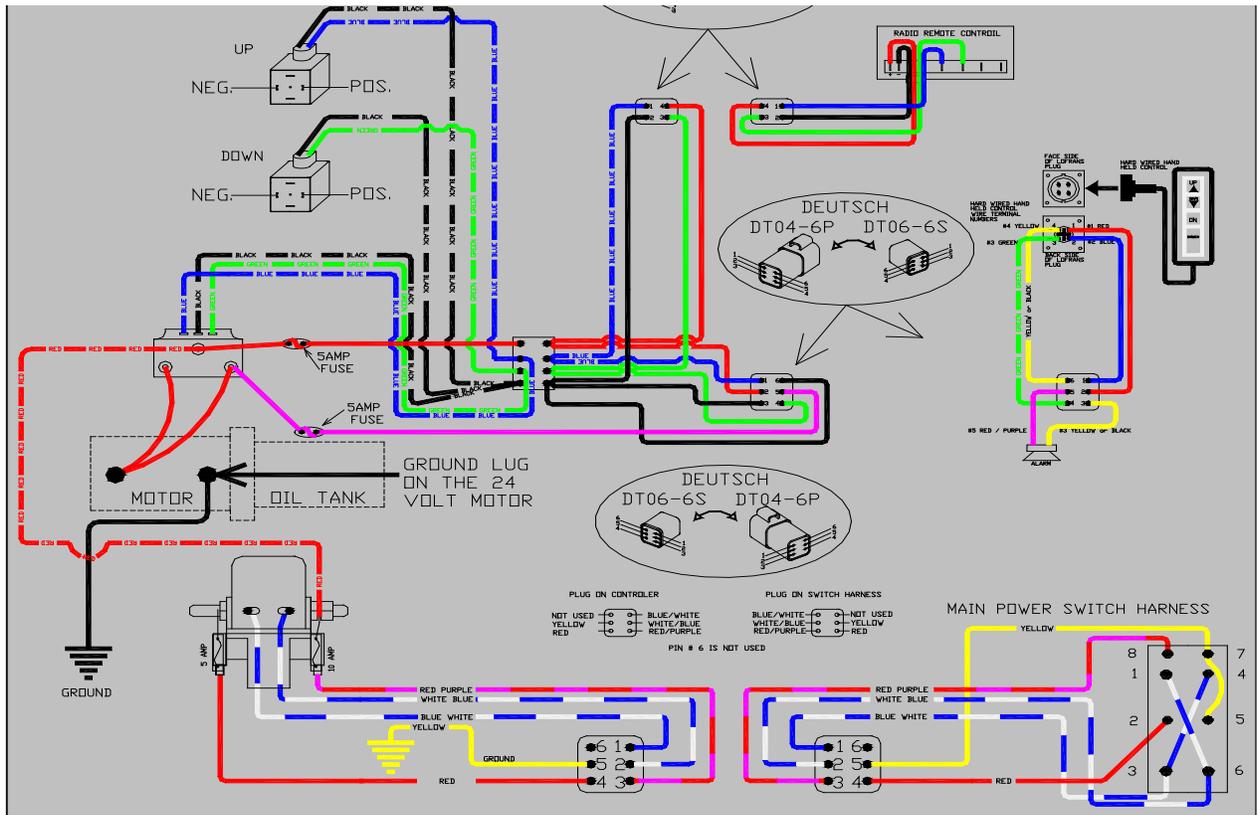
Do not start here with out performing tests in step 11

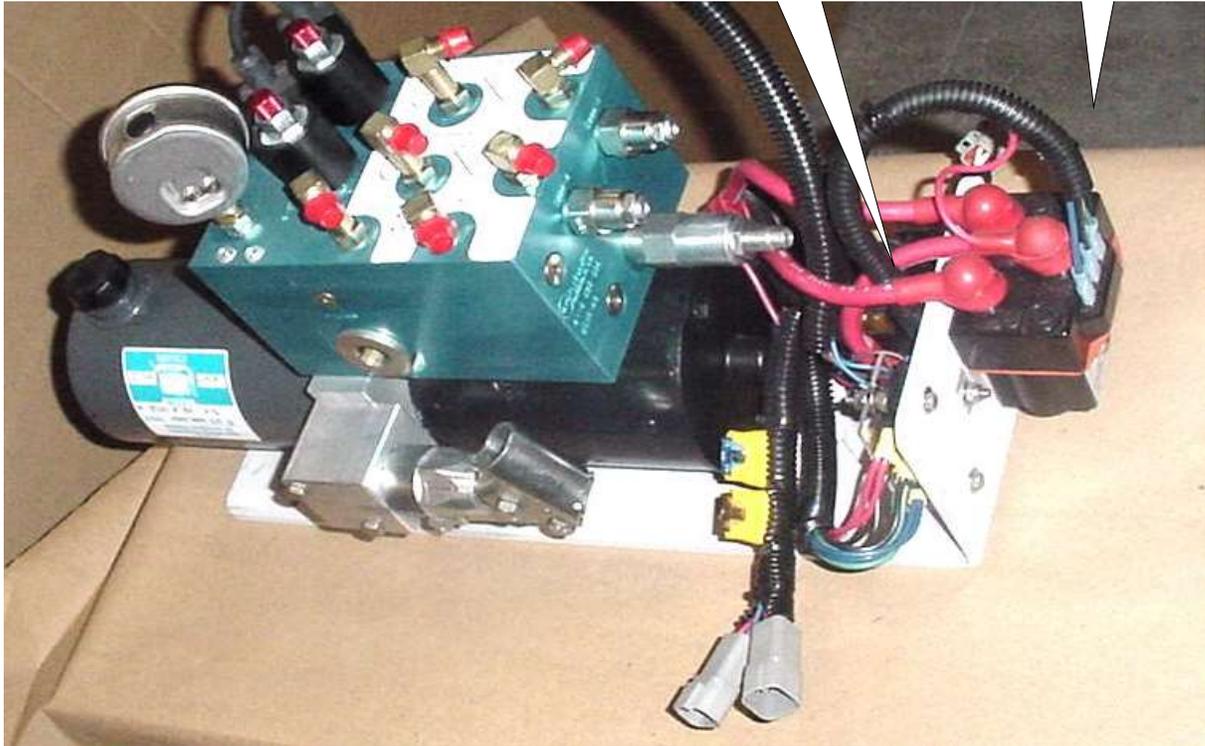
- 15a With a **known good** hard wired hand held controller connected to the receptacle and a volt meter hooked up to a known good ground, place the positive lead to the terminal on the control box where the green wire is attached. Use the hand held controller to put the lift down. Is voltage present at this terminal?
If there is no voltage, move your positive test lead to the terminal strip where the green wires are attached. Check to make certain the terminals are clean and tight. Try running the lift down.
If there is no voltage, clean and or repair any loose or corroded terminals in the hard wired control harness at the receptacle connections and at the pump end of the harness and retest. The lift should now work properly.
If there is voltage at this terminal check the ground by moving the ground lead on your voltmeter to the center terminal on the control box and the positive lead to a known good power source, try running the lift down.
If you are not showing voltage during this test, clean and or repair the terminals at the terminal strip and at the ground lug on the pump base plate. (shown below)

TESTING THE UP CIRCUIT

- 15b With a **known good** hard wired hand held controller connected to the receptacle and a volt meter hooked up to a known good ground, place the positive lead to the terminal on the control box where the blue wire is attached. Use the hand held controller to put the lift up. Is voltage present at this terminal?
If there is no voltage, move your positive test lead to the terminal strip where the blue wires are attached. Check to make certain the terminals are clean and tight. Try running the lift up.
If there is no voltage, clean and or repair any loose or corroded terminals in the hard wired control harness at the receptacle connections and at the pump end of the harness and retest. The lift should now work properly.
If there is voltage at this terminal check the ground by moving the ground lead on your voltmeter to the center terminal on the control box and the positive lead to a known good power source, try running the lift up.
If you are not showing voltage during this test, clean and or repair the terminals at the terminal strip and at the ground lug on the pump base plate. (see diagrams page 9)







16 If your radio is not working, check the batteries in the transmitters first.

If the LED light on the transmitter is dim or not lighting, use a small screw driver and place the tip into the key ring opening and twist. The transmitter will pop open to access the battery. Install a new battery and test the operation of the transmitter.

OPTIONAL RADIO REMOTE CONTROL

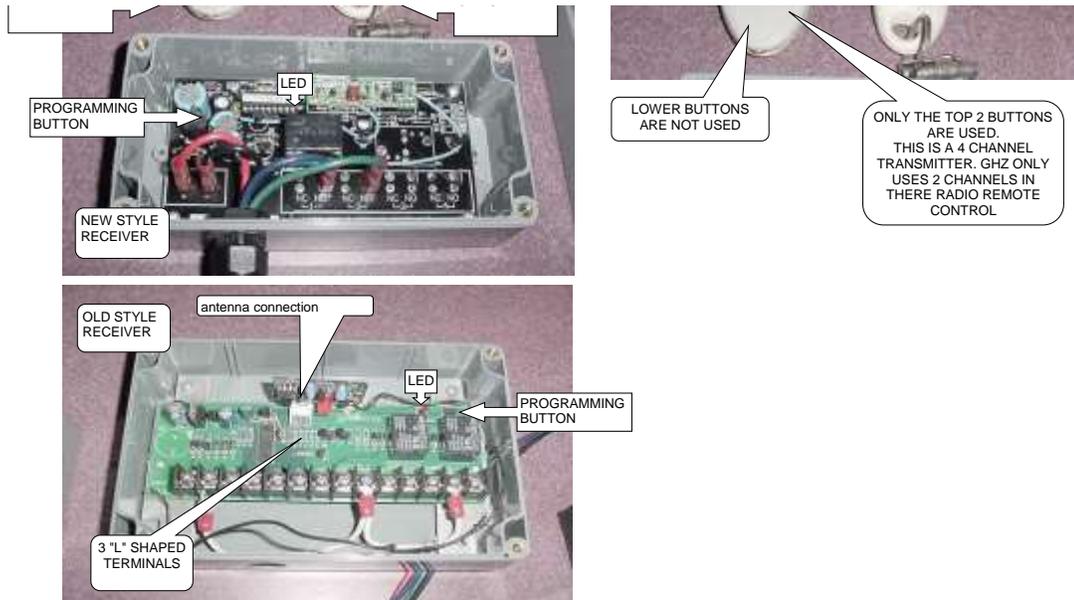
1. **General Hydraulic Solutions uses an optional 2-channel radio remote for wireless operation of the lift platform. The system consists of a receiver unit, and two 2-button transmitter units. The remote is FCC approved. These transmitters are water resistant and good for a range of 60-100 feet. These transmitters should provide years of trouble free service, however, if the transmitters are lost or damaged new ones may be purchased through General Hydraulic Solutions.**

2. **IMPORTANT: In order to program up to 4 Transmitters to one Lift you must first "CLEAR" the memory.**

1. Locate the program switch as shown below
2. Press and hold the program switch for 10 seconds (the LED will go out).
3. The unit is now clear
4. REMOTE PROGRAMMING (programming must be completed within 10 seconds)
 - a. Push the program switch till LED lights solid, then release.
 - b. Push button one on remote transmitter until LED goes out, then release
 - c. Push button one again the LED should flash slowly, then release
 - d. Your remote is now programmed. Repeat for each transmitter.

Note: If the new remote does not work, make sure that the indicator LED on the remote is flashing and that the batteries are good. Repeat A,B,C,& D





17

Locate the radio remote control receiver, shown above. It is a gray plastic box mounted at the rear of the boat. Remove the cover and locate the red LED. With a known good, programmed transmitter, press the up or down button. The red LED should light up. Hold the button down for 5 seconds, the alarm should sound. Release the button and press it again. The lift should work. If the light blinks when the button is pressed and the lift doesn't work, the transmitter needs programming. Go to page 11 (under General information tab)

If the light comes on and the lift doesn't work, check the terminals on the wiring harness, at the receiver and at the pump. Make necessary repairs and retest.

If the light doesn't come on and there is power and ground in the red and black wires, and the transmitters are good, Check the antenna connection. (Shown above). There are 3 small "L" shaped terminals, check the plug is fully engaged.

If everything tests properly replace the radio receiver.

