

TESTING YOUR HYTORC PUMP

1. VISUAL INSPECTION

Prior to operating your HYTORC pump, a visual inspection should be done. The visual inspection should include looking for:

1. Cracked, bent, or damaged couplers
2. Gauge is properly connected
3. Power cord is free of cuts, nicks, and damage
4. Remote assembly is free of cuts, nicks, and damage
5. The three monitoring system tri-color LED's (located on the electrical box) are green
6. The reservoir is filled with oil

2. CONFIRM PROPER PUMP OPERATION

Our Vector pumps are designed with a 3-stage pumping unit. To confirm the pump is operating correctly, check the following:

1. The three monitoring system tri-color LED's (located on the electrical box) are green
2. The pump shifts at the first shift point (70 BAR / 1015 PSI) are in the **ADVANCE** position
3. The pump shifts at the second shift point (295 BAR / 4278 PSI) in the **ADVANCE** position
4. The pump builds 10,000 PSI / 700 BAR in the **ADVANCE** position
5. The pump builds 1500 PSI / 103 BAR in the **RETRACT** position

3. LED MONITORING SYSTEM

The LED Monitoring System is designed to prevent damage to the pump due to over voltage, under voltage, and temperature. All three tri-color indicator LED's should be green.

1. UNDER VOLTAGE LED:

GREEN - Voltage is above 95 VAC = Good

YELLOW - Voltage is between 80 VAC and 95 VAC = Warning low voltage

RED - Voltage is below 80 VAC = Motor will not operate

- Check power source
- Extension cord gauge and/or length are inadequate

2. OVER VOLTAGE LED:

GREEN - Voltage below 128 VAC = Good

ALL THREE LED'S WILL FLASH RED - Voltage above 128VAC.

- Check power source

3. TEMPERATURE TOO LOW / TOO HIGH LED:

OIL TEMPERATURE

GREEN - 32°F (0°C) to 194°F (90°C) = Good

YELLOW - Below 32°F (0°C) or above 194°F (90°C) to 212°F (100°C) = Solenoid will not activate

- If oil temperature is below 32°F (0°C). Operate pump. Once oil temperature exceeds 32°F (0°C). The temperature LED will turn green and the solenoid will operate.
- If oil temperature is between 194°F (90°C) and 212°F (100°C). Turn pump off. Allow the pump to cool down until the temperature LED turns green.

RED - Above 212°F (100°C) = Motor will not operate.

- Turn pump off. Allow the pump to cool down, until the temperature LED turns green.
- Faulty temperature sensor.

4. MOTOR TEMPERATURE

GREEN - Stator coil temperature below 356°F (180°C) = Good

RED - Stator coil temperature above 356°F (180°C) = Motor will not operate.

- Turn pump off. Allow the pump to cool down, until the temperature LED turns green.
- The two yellow motor leads are properly connected to circuit board terminal bridge X2
- Thermal cut off switch. Test continuity across the two yellow motor leads. The switch is N.C. If open, replace the stator.
- Damaged Stator
- Damaged circuit board

4. NO POWER APPLIED TO THE PUMP WHEN PLUGGING IT INTO A POWER SOURCE

1. Test voltage AC at circuit board terminals PW1 and PW2. If zero VAC at PW1 and PW2
 - If there is power at the source. Replace the power cord.
 - Confirm switch jumper plug is installed in circuit board terminal PP2

5. ALL THREE MONITORING SYSTEM LED'S ARE GREEN, BUT THE MOTOR WILL NOT OPERATE

1. Test continuity at fuse F1. If damaged replace.
2. Remote control
 - Make sure remote plug is properly connected to circuit board terminal PP1.
 - Test continuity at the remote ADVANCE switch (green button), and remote cord. Replace if damaged.
3. Test starting / operating capacitors. If bad replace.
4. Faulty circuit board
5. Faulty motor

6. PUMP WILL NOT TURN OFF

1. Remote control
 - Make sure remote plug is properly connected to circuit board terminal PP1.
 - Test continuity at remote STOP switch (red button) and remote cord. Replace if damaged.
2. Faulty circuit board

7. SOLENOID DOES NOT OPERATE

1. Test continuity at fuse F2. If damaged replace.
2. Test voltage at circuit board terminal bridge PP3 terminal 1 and 3. If there is no voltage. Replace circuit board.
3. Test voltage at solenoid plug terminal 1 and 2. If there is no voltage. Replace solenoid cable assembly.
4. Damage solenoid valve assembly

8. PUMP DOES NOT BUILD PRESSURE

1. No Oil in the reservoir
2. Gauge is not properly connected
3. Motor is spinning counterclockwise
4. If motor spins counterclockwise reverse the blue and white (green) motor leads
5. First stage pump shaft key is sheared / damaged
6. Damaged first stage pump assembly

9. PUMP DOES NOT BUILD 10,000 PSI IN THE ADVANCE POSITION

1. Make sure the pump shifts at both shift points
2. Loose oil lines and / or fittings
3. Faulty pressure regulator (torque valve)
4. Faulty solenoid valve assembly
5. Worn high pressure relief valve (max pressure valve)
6. Damaged piston pump seals
7. Damaged / worn piston pumps
8. First stage pump assembly issue

9. PUMP DOES NOT SHIFT AT THE FIRST SHIFT POINT (70 BAR / 1015 PSI).

1. Replace low cut off valve and adjust it to 70 BAR

9. PUMP DOES NOT SHIFT AT THE SECOND SHIFT POINT (295 BAR / 4278 PSI)

1. Replace middle cut off valve and adjust it to 295 BAR

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