**Air Compressor Troubleshooting**

**Champion 800-682-9868**

**Champion 888-739-2141**

**HARDWARE**

* Check Low Oil Pressure Switch and verify Oil Levels, verify it is receiving 110v.
* Check tank is empty of water and electronic tank drain is functioning, verify it is receiving 110v.
* Verify pressure switch is operational and functioning, verify it is receiving 110v.

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| Symptoms | Possible Cause(s)  | Corrective Action  |
| **Symptons** | **Possible Causes** | **Corrective Action** |
| Motor will not start.  | 1. Main switch and fuses open. 2. Starter magnetic coils open. 3. Thermal overload tripped. 4. Defective pressure switch-contacts will not close 5. Low voltage.  | 1. Check all fuses and switches. Check for loose or faulty wires. 2. Check overload relay in starter. Reset starter. 3. Reset starter. If starter trips repeatedly, have electrical system inspected by an electrician. 4. Repair or replace pressure switch. **Warning –** Relieve tank pressure before servicing. 5. Check with voltmeter. Be sure voltage corresponds to unit specifications.  |
| Starter trips repeatedly.  | 1. Improperly adjusted pressure switch. 2. Faulty check valve. 3. Incorrect fuse size or magnetic starter coil. 4. Low voltage. 5. Defective motor.  | 1. Adjust or replace. **Warning –** Relieve tank pressure before servicing. 2. Clean or replace **Warning –** Relieve tank pressure before servicing. 3. Be sure that fuses and coils are properly rated. 4. Check with voltmeter. Be sure voltage corresponds to unit specifications. 5. Replace motor.  |
| Tank pressure builds up slowly.  | 1. Air leaks. 2. Dirty air filter. 3. Defective compressor valves  | 6. Tighten fittings. 7. Clean or replace. 8. Install new valves.  |
| Tank pressure builds up quickly.  | 1. Excessive water in tank.  | 1. Drain tank.  |
| Discharge pressure relief valve pops off while compressor is running.  | 1. Wrong pressure switch setting. 2. Defective ASME relief valve.  | 1. Adjust to correct setting. 2. Replace valve. **Warning** – Relieve tank pressure before servicing.  |
| Compressor will not unload (Units with head unloaders)  | 1. Wrong pilot valve setting. 2. Defective pilot valve. 3. Lack of air to pilot valve.  | 1. Adjust to correct setting. 2. Replace pilot valve. 3. Open ball valve to pilot valve.  |
| Excessive belt wear.  | 1. Pulley out of alignment. 2. Belts too tight or too loose.  | 1. Realign motor pulley. 2. Adjust belt tension.  |
| Compressor runs hot.  | 1. Improper flywheel rotation 2. Defective compressor valves. 3. Dirty air filter. 4. Dirty cylinder and/or intercooler.  | 1. Check for correct rotation. (Counter clockwise when viewed from drive side.) 2. Install new valve plate assembly. 3. Clean or replace. 4. Clean cylinder fins and/or intercooler.  |
| Interstage pressure relief valve pops off. | 1. Defective compressor valves. 2. Improper valve installation. | 1. Install new valves. 2. Verify proper valve placement. |
| Air escapes from centrifugal unloader when unit is running | 1. Centrifugal unloader release valve dirty or detective. | 1. Clean or replace valve |
| Excessive oil consumption. | 1. Dirty air filter. 2. Wrong oil viscosity. 3. Oil leaks. 4. Worn piston rings. 5. Scored cylinder | 1. Clean or replace. 2. Refill with proper viscosity oil. 3. Tighten bolts. Replace gaskets. 4. Replace rings. 5. Replace cylinder |
| Air escapes from centrifugal unloader when unit is stopped. | 1. Check valve stuck in open position. | 1. Replace check valve. Warning – Relieve tank pressure |
| System does not alternate (Duplex units only) | 1. Starter tripped. 2. Loose wiring in alternator. 3. Defective alternator. 4. Defective motor. | 1. Reset starter. If starter trips repeatedly, have electrical system inspected by an electrician. 2. Check and tighten all wiring connections. 3. Replace alternator. 4. Replace motor. |

**ELECTRICAL TIPS**

**How to Test Your Spindle Motor for Short to Ground**

1. Set your multimeter to Ohms.
2. Start by completely disconnecting the spindle motor from all power sources.
3. Check each wire, including T1, T2, T3 and the ground wire. If the reading is infinite, your motor should be fine. If you get a zero reading or any continuity reading, you have either a motor problem or a cable problem.
4. Assuming you did not get an infinite reading, disconnect the motor from the cable and test each separately. While testing, make sure the leads on each end are not touching other leads or anything else. This should allow you to isolate your problem.

**How to Test Your Spindle Motor for Open or Short in Windings**

1. Set your multimeter to Ohms.
2. Test T1 to T2, T2 to T3, and T1 to T3. Each time, you should get a reading of around .8 Ohms, although anything from .3 to 2 is acceptable. If you get a reading of 0, you have a short between phases. If your reading is infinite or significantly over 2 Ohms, you probably have an open.
3. If your spindle motor fails the test, you may want to make sure the problem is not with the connector, which may have coolant on it that’s interfering with your results. If you dry and retest, you may get a better result.
4. Check your inserts. If the motor inserts have burn marks, this may be causing your short and you should replace them. You should also check for wear where the cable moves through tracking.

**Checking Your Air Compressor Pressure Switch**

You can easily test your own air compressor pressure switch with an ohmmeter and a separate air source. Proper testing can save you a lot of time and headaches on air compressor switch repair:

* Start the testing process by unplugging your air compressor.
* Next, unscrew and remove the housing from your unit.
* Disconnect the sets of wires running between your pressure switch and the terminal block. These wires are typically blue or brown.
* Be sure to leave the black-and-white wires connected. These power the switch and can be difficult to replace or may cause problems later if you disconnect them.
* Locate the valve and apply air to your pressure switch. Be sure to use a source that delivers more air pressure than the switch’s current setting. If you’re not using enough pressure, the switch won’t engage.
* After air is applied to the switch, place the leads of your ohmmeter on each of the loose wires.
* If the ohmmeter reads “0,” then the switch is closed due to the pressure and your switch is in proper working order.
* Your ohmmeter may read open, “OL” or infinity, which means there may be an issue.
* Adjust the pressure switch’s set point by turning the set-point screw counter-clockwise. Apply pressure as you do this and look for the loop to close and the ohmmeter to read “0.”
* If your meter reading remains open even when the screw is completely disengaged, the switch needs to be replaced.

Pressure Switch ADJUSTMENT PROCEDURES

1. Remove the pressure switch cover.

2. Set the cut-in pressure with the range adjustment nut. Turn the nut

clockwise (in) to increase the pressure or counter-clockwise (out) to

decrease the pressure.

NOTE: One full turn changes the setting approximately 2

PSIG.

3. Set the cut-out pressure with the differential adjustment. Turn the

differential adjustment nut clockwise (in) to increase the pressure or

counter-clockwise (out) to decrease the pressure.

NOTE: One full turn changes the setting approximately 2

PSIG.

4. Replace the cover, reconnect the power supply and start the unit.

5. Note the pressure gauge reading at which the unit