

# Grout Pump Automatic & Manual Troubleshooting

## 50-500 Gas Wiring Diagram

Turn engine off and relieve hydraulic pressure and grout pressure before troubleshooting.

### Note:

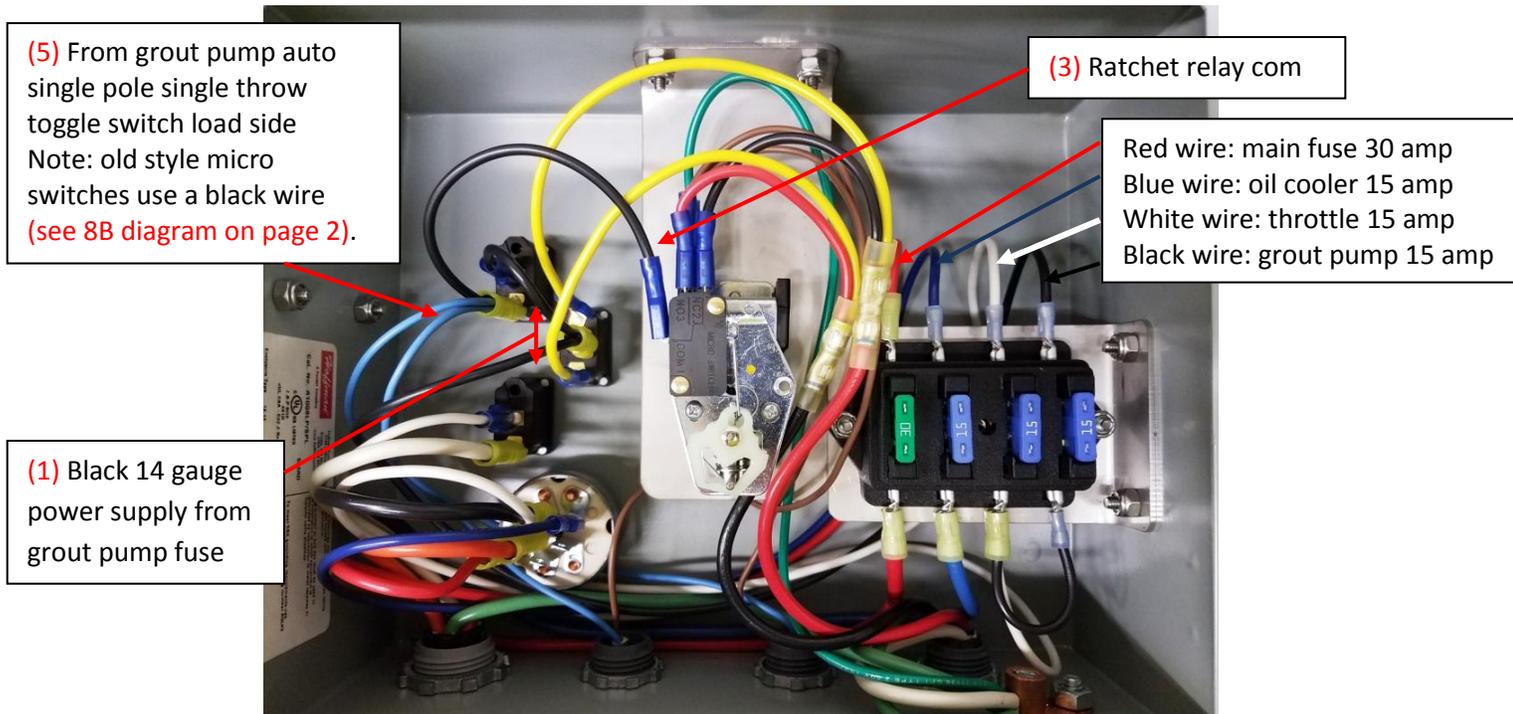
Typically there is a wiring diagram on the gray Geo-Loop electric box inside the cover. If not we can e-mail you a copy to help troubleshoot your problem.

These are wires pertaining to operation of grout pump manual and auto switches.

First let's talk through the circuit that typically will fix the problem, if the grout pump electric troubleshooting guide will not fix the problem.

Starting with 12 volt DC from the grout pump fuse, black 14 gauge wire power supply to both toggle switches. (1) Grout pump manual switch has jumper wire from center terminal over to grout pump auto switch (either terminal).

Grout pump auto toggle switch (black wire, load side of switch) powers the common terminal on the ratchet relay (3) located in the gray Geo-Loop electric box and two blue wires (5) going to the micro switches on the grout cylinders.

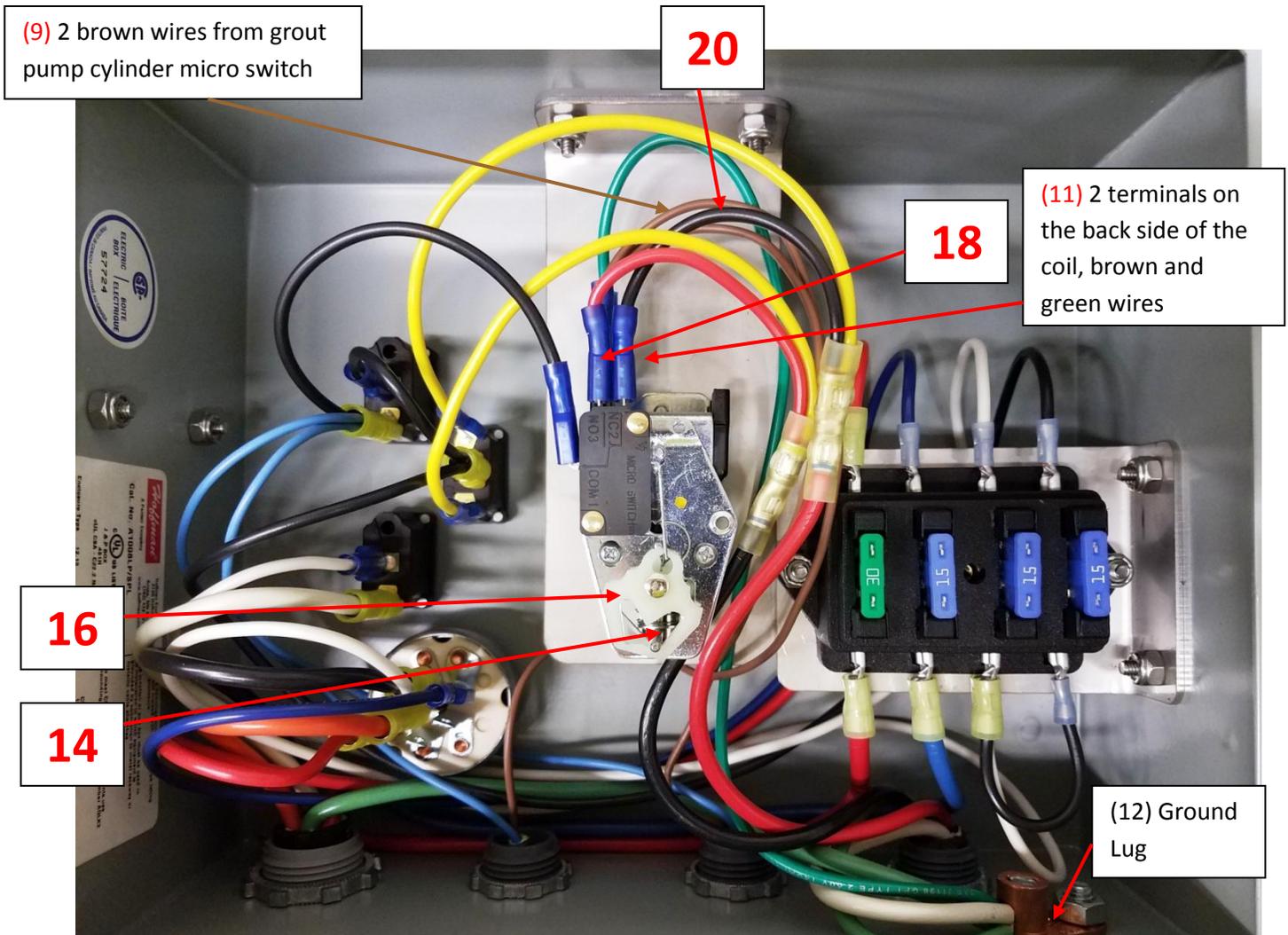


New style micro switch with weather resistant plug, blue and brown wire (see picture below).



Old style micro switch, black and white wire (see picture below). Use N.O. 1 com and N.O. 3 terminals only.





(9) The two brown wires returning from the micro switch (white on older models, pre 2011) go to power the coil (11) on the ratchet relay. The green wire on the ratchet relay coil goes to the ground (12). These two terminals are not polarity sensitive.

(8) The micro switch on the grout cylinder (page 2) is a momentary contact, normally open, switch that sends power to the coil on the ratchet relay when in contact with the grout piston. This pulls the plunger (14) up inside of the coil and moves the white plastic rocker (16) to one side or the other causing power to be sent to either the black wire N.C. 2 terminal (20) or the red wire N.O. 3 (18) terminal and out of electric box through 14-2 cable down to either coil attached to hydraulic solenoid valve (32).

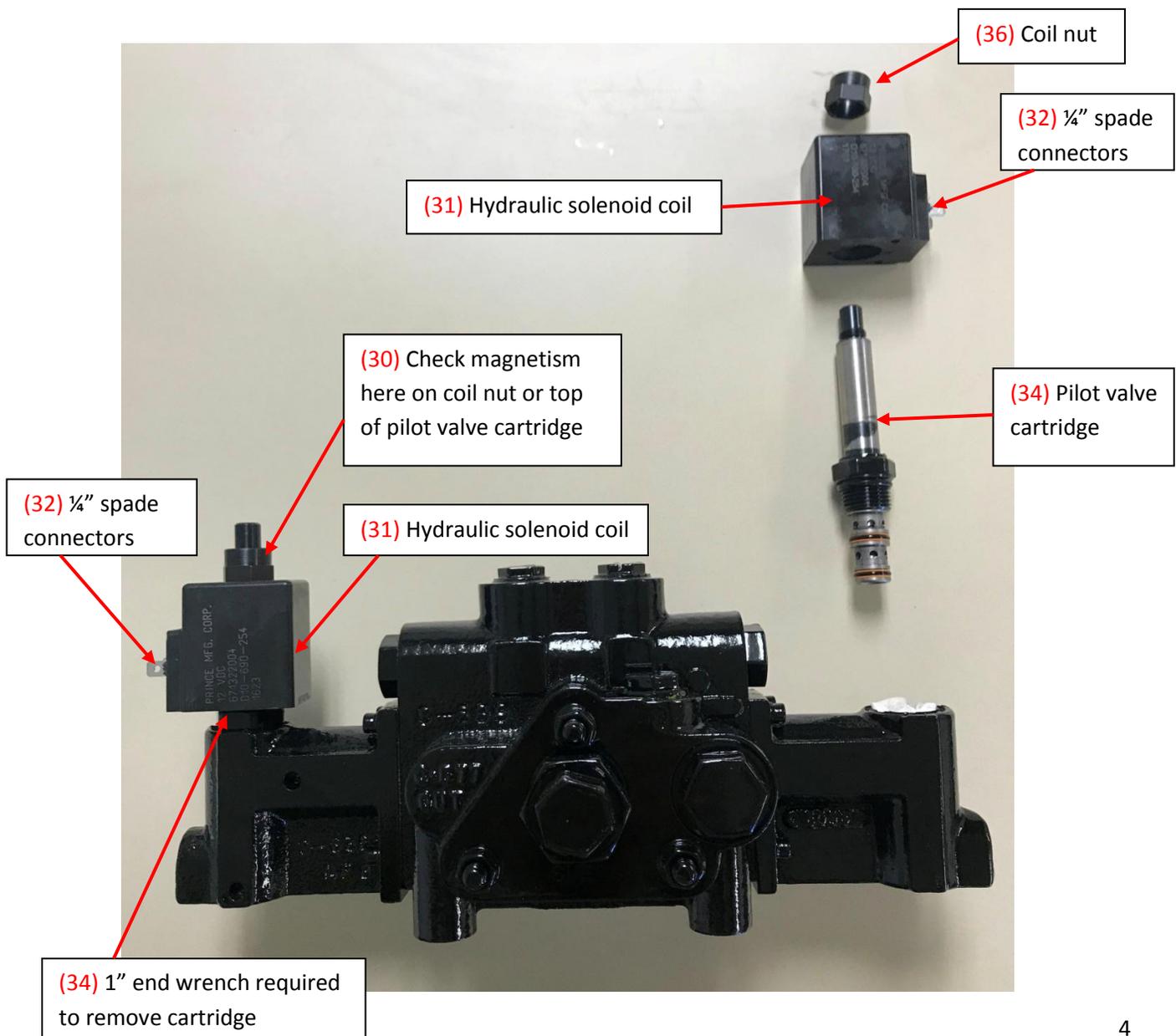
Please note that the ratchet relay coil plunger must fully extend back down with the help of the spring on each cycle. If the plunger does not retract, one of the two micro switches on the grout cylinder may be stuck in the on (or closed) position not allowing pump to reverse direction or dirt-dust contamination will cause it to stick also. The box cover must be in place to prevent electrical component damage.

If the grout pump micro switches and ratchet relay all tests good, then test the two coils on the hydraulic solenoid valve (32).

With grout pump auto switch turned off, engine off and all hydraulic and grout pressure relieved.

Using a steel object such as a screw driver, hold above the coil to check for magnetism (30). Each of the two coil nuts will become magnetized one at a time by moving the grout pump manual switch back and forth.

If one of the coils fail to magnetize check the 2, ¼" spade connectors on the coil (32), clean and use a corrosion protector on connections. Test with a volt meter to be sure you have a minimum of 12 volt DC power or using an OHM meter, check the continuity through the coil.



If you have a full 12 volt DC power to coil and a good ground on white and green wires in gray electric box copper ground lug, and it does not magnetize, replace coil. If the coils test good and magnetize one at a time, by moving grout pump manual 3 position switch up or down, then move on to the last step that very seldom ever fails.

The pilot valve in the hydraulic solenoid valve may be bad if the pump sticks to one side and will not move. **Shut off engine and relieve all pressure on hydraulic system, grout pump and grout line.** Take a  $\frac{3}{4}$ " end wrench and remove the coil nut (36). Then using a 1" box end wrench remove the pilot valves (34) on both ends of the solenoid valve and swap end to end. Replace the coils, cleaning the shaft properly and apply never seize or grease. Do not over tighten the nut that holds the coil in place, 60 in lbs. or 5 ft. lbs. torque.

If the grout pump piston now travels to the opposite end and sticks we now have diagnosed a bad pilot valve. Replace as needed.