
Magnum Mobile Light Generator Training

MLG 8-15-20-25

SECTION V

TROUBLESHOOTING – MLG 25

- **How to reset the “time to service”**
 - **Step 1.** Press the “Page Select” button
 - **Step 2.** Select *>Password* and press “Enter”
 - **Step 3.** Select *>Enter Password* and press “Enter”
 - **Step 4.** Arrow up until the password value is *111* and press “Enter” once.
 - **Step 5.** Press the “Page Select” button
 - **Step 6.** Select *>Engine protect* and press “Enter”
 - **Step 7.** Select *>Next Serv Time* and press “Enter”
 - **Step 8.** Arrow up until the value reads 250 and press “Enter”
 - **Step 9.** Press the “Page Select” button twice

- **Control will not light up**
 - **Step 1.** Verify that the toggle switch is in the Start/Run position. If so, proceed to step 2.
 - **Step 2.** Make sure the engine start battery is connected. If the battery is disconnected, connect the battery cables to the engine starting battery, RED to POSITIVE and BLACK to NEGATIVE. If the battery is connected, proceed to step 3.
 - **Step 3.** Ensure that the battery connections are tight and clean. Inspect the connections to the engine start battery. Tighten and/or clean the connections. If the battery connections are clean and tight, proceed to step 4.
 - **Step 4.** Check for sufficient engine starting battery voltage. Battery voltage must be at or above 12.6 volts DC for proper starting. If battery voltage is below 12.6 volts DC, charge or replace the starting battery. If battery voltage is at or above 12.6 volt DC, proceed to step 5.
 - **Step 5.** Be sure that if this unit has a battery disconnect switch/lockout, that it is closed. If so, proceed to step 6.
 - **Step 6.** Check to see that we have sufficient battery voltage on the number ten position red wire on the main jumper block. If so, proceed to step 7.
 - **Step 7.** Be sure that the 15 amp fuse located on the main jumper block (MJB) is good. Located between the 9 and 8 positions on the MJB. If so, proceed to step 8.



- **Step 8.** Check that we have battery voltage at the + female spade pin on the control. If we do not, check the wiring back to the main jumper block for breaks, cuts or chaffing. Replace as needed. Proceed to step 9.
 - **Step 9.** Be sure that the black wire coming from the control board from the “-“ is properly attached to the ground terminal block (GTB). If all connections and wires are good, replace the control.
- **Engine will not crank**
 - **Step 1.** Verify that the toggle switch is in the Start/Run position. If so, proceed to step 2.
 - **Step 2.** Check for sufficient engine starting voltage. Battery voltage must be at or above 12.6 volts DC for proper starting. If battery voltage is below 12.6 volts DC, charge or replace the engine battery. If battery voltage is at or above 12.6 volts, proceed to step 2.
 - **Step 3.** Check for battery voltage at the red wire, B+ post, on the starter. If we do not have voltage, check connections and wire continuity. If we do have battery voltage, proceed to step 4.
 - **Step 4.** Check for voltage on the large red post on the starter solenoid. If not, check all of the connections and check the wire to this point for continuity. If bad, replace or repair, then go to step 5.
 - **Step 5.** On the large studs on the starter relay, the closest to the battery should have constant battery DC voltage. When the unit is starting, DC battery voltage should go through the solenoid and be on the opposite side large stud, if not, replace the starter solenoid.
 - **Engine will crank but will not start**
 - **Step 1.** Check to make sure that the emergency stop is not activated. If it is, reset by pulling the knob out and start over.
 - **Step 2.** Verify that there is sufficient fuel in the fuel tank. If not, add fuel. If you have a sufficient supply of fuel, proceed to step 3.
 - **Step 3.** Check to see when the last maintenance service was preformed. Was the filter changed? Do you have any obstructions in the fuel lines? Are they tight and not leaking air? If satisfied, proceed to step 4.
 - **Step 4.** Be sure that we have 12.6 volts DC to ensure correct cranking volts, if it is not, charge or replace battery. Check all the battery connections for cleanliness and tightness. If okay, proceed to step 5.
 - **Step 5.** Check to see that we are getting the proper voltage from the magnetic pick up (mpu). You need to get at least 2 volts AC from the mpu to the controller. If voltage is adequate, procedure to step 6. You can either check @ the plug near the mpu, or at the #8 (*black wire*) & #7 (*grey wire*) positions on the 8 pin plug at the controller. If we do not have proper voltage, we need to reset the mpu. To set the mpu, turn it all the way in until



it touches the flywheel teeth, back it out approximately three-quarters of a turn and secure the lock nut, making sure it does not turn in, in doing so. Be certain that the mpu does not land between the teeth of the flywheel while making this adjustment. Examine the mpu when it is out, to make sure there is no debris or grime on the end. Replace if damaged. After resetting the mpu, you may need to make fine adjustments to it to ensure 2 VAC is present while cranking.

- **Step 6.** For testing purposes only—pull the red wires from the N/C contactor on the emergency stop, and tie them together. If the unit starts, replace the emergency stop assembly. If not, proceed to step 7.
- **Step 7.** Check for voltage on the white (*pull*) wire to ground on the fuel solenoid when we are cranking. Once the engine is running, there should be power on the red (*hold*) wire to ground. If there is not, check all of the wires for continuity and that the connections are good and tight. If they are good, replace the fuel solenoid.

- **No Generator Output**

- **Step 1.** If you have no voltage reading on the control display, verify that the lug box door is closed and latched tightly and that the main circuit breaker is reset and in the on (I) position. If not, secure the lug box door and reset the main circuit breaker and proceed to step 2.
- **Step 2.** Open the control panel and make sure that the 4 pin plug is secure in J5 location on the control display board. Pin #1 (brown), #2 (yellow), #3 (orange) and #4 (white). Be sure that these wires and the wires and the ones from the controller to the main circuit breaker are not pinched, broken or chaffed. If so, replace as necessary, then proceed to step 3.
- **Step 3.** Check to see that the fuse on the voltage regulator is good. If it is blown, replace and proceed to step 4.
- **Step 4.** Remove the brown wire from the #4 position and the #3 position on the voltage regulator. Take an AC reading between the two brown wires with the unit running. Then read each wire to ground. There needs to be at least 10 volts AC between the two brown wires and the sum of the individual wires to ground, equal 10 volts AC. If we get the 10 volts AC between the two brown wires, and the sum of each to ground equals 10 volts, then proceed to step 5. If there is less than 10 volts AC between the two brown wires, the generator field will need to be flashed. *To flash the field, see the Marathon generator supplied with the generator.* If you do not have voltage on the #3 brown wire, check the lug door box switch. Open the front panel to the lug box and make sure the switch is operating properly. Check for continuity, replace any bad wires or the switch if necessary. If there is no voltage on the brown #4 wire, trace it back to the T7 and T9 positions on the #1 terminal



block. Make sure that the wire is secure and not pinched or broken. Replace if necessary.

- **Step 5.** Plug the brown wire back in to the #3 & #4 positions on the voltage regulator. Remove the F+ and F- wires (*could be black and black or red and black*) With the unit running, check for DC voltage between the F+ and F- positions on the voltage regulator. There should be battery voltage. If we do, proceed to step 6. If not, replace the voltage regulator.
- **Step 6.** Check the continuity between the F+ and F- wires that go to the generator windings, then check the continuity with each between ground. There should be continuity between each, but not to ground. If there is continuity between each other, proceed to step 7. If there is no continuity between the two wires, or there is continuity between the individual wires to ground, check all of the connections are secure and that the wire are not broken. If no broken wires are found, and connections are secure, it is a possibility that the generator has a short in the windings inside the generator. In this instance, contact your local Marathon Dealer.
- **Step 7.** Plug the F+ and F- wires back on to the voltage regulator. We need to disconnect the brown wire again and check for residual voltages on each line, and line to line, at the top of the main circuit breaker. This will need to be done in each voltage selection on the selector switch. Measure on each line to neutral or ground, and then line to line.

****Be sure that the brown wires are removed from the voltage regulator.****

Be absolutely sure to shut the unit down before changing positions on the voltage selector switch or it will cause damage to the selector switch or possibly the generator.

	208/120	240/120	480/277
L1-N			
L2-N			
L3-N			
L1-L2			
L1-L3			
L2-L3			

You are looking for the lines to be balanced to neutral and line to line to be balanced to each other. *An example of good residuals are:*

	208/120	240/120	480/277
L1-N	25.8	26	50.1
L2-N	25.8	0	50.1
L3-N	25.8	26	50.1
L1-L2	44.8	23.6	98.5



L1-L3	44.6	52.1	98.6
L2-L3	44.6	23.8	98.5

The residuals may vary, but they need to be balanced. *An example of bad residuals are:*

	208/120	240/120	480/277
L1-N	25.8	26	50.1
L2-N	25.8	0	5.9
L3-N	25.8	26	24.3
L1-L2	44.8	23.6	47.8
L1-L3	44.6	52.1	65.6
L2-L3	44.6	23.8	32.2

In line 480/277, the lines are unbalanced. This could be caused by a loose connection or wire in the selector switch, or a faulty selector switch. Possibly caused by turning the switch with the unit running.

- **No power from the receptacles**

- **Step 1.** Verify that there is correct power coming from the generator. Refer to section “**If there is no power at the generator**” in this guide,. If there is correct generator power, proceed to step 2.
- **Step 2.** Be sure that all of the circuit breakers (gfi’s twistlock and main) or on and in the “I” position. If not, put into the “I” position and proceed to step 3.
- **Step 3.** Open up the receptacle panel and with the unit running, use a volt meter to take voltage readings on the breakers. *See below, these are in AC:*

voltage selection	277/480	120/208	120/240
GFI readings	139	120	120
twist locks	139/240	120/208	120/240

If there is the correct voltage at the breaker in the proper setting, proceed to step 4, if not, check the wire conditions and connections going from the breakers to the T7 and T9 terminals on terminal block 1. Also verify that the wire on the breakers are good and replace any bad wires as necessary.

Step 4. With the voltmeter, check the voltage coming out of the breaker(s) at the receptacles. If there is not the proper voltages at the back of the receptacles (see the chart above in step 3) and you do not have it going into the breaker, check all contacts and wires. If all of the contacts are good, replace the breaker. If there is power to the receptacle(s), but not coming out of the receptacle, replace the receptacle(s).

