

Troubleshooting Guide for Medallion II Series Instruments

Definitions

Reset: When key is first switched on, pointers return to low and vibrate.

MDC: Marine Data Concentrator

Note: When measuring the resistance and voltage between pins, do so delicately or the pins may be damaged (See Figures 4, 5).

All Instruments Are Dead

1. Make sure that all wires of the Five Pin Instrument Connectors are in the correct location. See Table below.

Table 1 **5 Pin Instrument Connectors**

| Pin | G | H | J | K | L |
|---------------|------|--------|-------|-------------|-------------|
| Wire (Color)* | Blue | Yellow | Black | Red / White | Cavity Plug |
| DC Voltage | 12 | 3-6 | Gnd. | 7 ± .5 | N/A |

* Colors are not standard.

2. If the Instruments reset but do not work, unplug one Instrument at a time to search for a defective Instrument. When a defective Instrument is unplugged, all other Instruments will start to work immediately.
3. Turn the ignition key on and use a voltmeter to measure the DC voltage between pins J (black wire) and K (red wire) of the 5-pin MDC connector. There should be 7 volts DC.
4. If there is no voltage check for 7 volts DC between pins 2 and 3 of the MDC (See Figure 3). If the meter now shows 7 volts DC, the wire harness is defective.
5. Disconnect the 18-pin connector from the MDC. Turn the key on, and proceed to check the DC voltage between pins 2C (black wire) and 1A (red wire). It should read 12 volts. Now check the DC voltage between pins 2C and 1B (purple wire) for 12 volts. If the voltage is correct at these locations, the computer is defective.

No Lights in One Instrument

1. Exchange 5 pin Instrument connectors between the unlit Instrument and a lit Instrument. If the Instrument now lights up, the wire harness is defective. If the Instrument still does not light up, the Instrument is defective.

2” Instruments work erratically after engine start.

Gauges could act erratically when the battery power located on 1A of the 18-pin connector is low. This is caused by several problems.

1. Battery charge is low
2. Battery is bad and drops low when cranking
3. Battery connection on pin 1A is bad or intermittent connection
4. Battery connection for 1A is the same circuit that the Starter is on.

Recommended fix

1. Check battery for proper charge
2. Change location of battery source to a direct battery feed
3. When possible wait 5 seconds before re-cranking engine.

If those measures do not cure the erratic gauges replace unit with 6607-20009-01 rev G

No Lights in Any Instruments

1. Check the wiring to the light switch.
2. Check the wiring of the 5 pin Instrument connectors against Table 1 above. If any of the connectors do not match up with the table, the wire harness is defective.
3. If the wiring is correct, use a volt meter to measure the DC voltage between pins G (blue wire) and J (black wire) of the 5 pin Instrument connectors. The meter should read 12 volts.

Single Instrument Resets But Does Not Work

Oil Pressure

1. Exchange 5 pin connectors between the Oil Pressure Instrument and a working Instrument. If the Oil Pressure Instrument starts to work, the wire harness is defective.
2. If the Oil Pressure Instrument still does not work, check to make sure that the oil pressure sensors wire (light blue) is in cavity 1D of the 18-pin MDC connector. If the wire is in the wrong cavity or is missing, the wire harness is defective.
3. If the wiring is correct ground the blue wire (1D). The Oil Pressure Instrument should read full scale.
4. With the engine off remove the 18-pin connector from the MDC. Use an ohmmeter to measure the resistance between pins 2C (black wire) and 1D (light blue wire). The resistance should be 240 ohms. Turn the engine on; the resistance should drop below 240 ohms. If the reading never goes above 10 ohms or below 240 ohms the oil sender or the sender wiring is defective. If

the resistance readings are correct the Oil Pressure Instrument should be replaced.

** Note: For VDO senders, readings will be approximately 10 ohms when engine is off and will increase resistance as the oil pressure increases.*

Temperature Instrument

1. Exchange 5 pin Instrument connectors between the Temperature Instrument and a working Instrument. If the Temperature Instrument starts to work, the wire harness is defective.
2. If the Instrument still does not work, check to make sure that the temperature sensor wire (tan) is in cavity 1C of the 18-pin MDC connector. If it is in a different cavity or is missing, the wire harness is defective.
3. If the wiring is correct ground the tan wire (1C). The Temperature Instrument should read full scale.
4. With the engine off, remove the 18-pin connector from the MDC. Use an ohmmeter to measure the resistance between pins 2C (black wire) and 1C (tan wire). When the engine is cool the resistance should be between 1000-300 ohms. When the engine is warm the resistance should drop below 200 ohms. If the readings are correct, replace the Instrument.

Fuel Instrument

1. Exchange 5 pin Instrument connectors between the Fuel Instrument and a working Instrument. If the Fuel Instrument starts to work, the wire harness is defective.
2. If the Fuel Instrument still does not work, check to make sure that the fuel level sensor wire (pink) is in cavity 1E of the 18-pin MDC connector. If it is in a different cavity, or is missing, the wire harness is defective.
3. If the wiring is correct ground the pink wire (1E). After a short delay the Fuel Instrument should read full scale.
4. With the engine off, remove the 18-pin connector from the MDC. Use an ohmmeter to measure the resistance between pins 2C (black wire) and 1E (pink wire). When the tank is empty the resistance should be 240 ohms, while a full tank should measure approximately 33 ohms. If the reading is open, the sensor or sensor wiring is defective. If the resistance readings are correct replace the Instrument.

Tachometer

1. Exchange 5 pin Instrument connectors between the Tachometer and a working Instrument. If the Tachometer starts to work, the wire harness is defective.
2. If the Tachometer still does not work, check to make sure that there is a gray wire in cavity 2D of the 18-pin MDC connector. If it is in a different cavity or is missing, the wire harness is defective.
3. If the wiring is correct, check for continuity between the gray wire in cavity 2D of the 18-pin MDC connector and the gray wire coming out of the engine. If there is no continuity then the wiring is incorrect.

Speedometer

1. Exchange 5 pin Instrument connectors between the Speedometer and a working Instrument. If the Speedometer starts to work, the wire harness is defective.
2. If the Instrument still does not work, check the pressure lines for blockage.
3. *(Ski Boat Applications)* Swap pressure lines between Primary and Secondary speedometers to see if the problem follows the pressure lines. If it does the line is blocked. If the problem stays at the same speedometer the computer may be plugged or the speedometer is defective.
4. *(Ski Boat Applications)* Make sure you have one primary speed and one secondary speed. (See Part Number)

Table 2 Instrument Resistance Values

| | Instrument Position | Resistance (Ω) | Measure Pins (18 Pin Connector) | |
|-------------------------|----------------------------|---|--|----|
| Oil Pressure | Engine Off | 240 or 10** | 2C | 1D |
| | Engine On | 240>33 or 10>180** | 2C | 1D |
| Temperature | Engine Cool | 1000-300 | 2C | 1C |
| | Engine Warm | should drop below 200 | 2C | 1C |
| Fuel | Empty Tank | 240 | 2C | 1E |
| | Full Tank | 33 | 2C | 1E |
| Rudder Angle* | Low End | 10** | 2C | 2A |
| | High End | 180** | 2C | 2A |
| Trans Pressure** | Pressure = 0 psi | 10** | 2C | 2B |
| | Engine Running | 10>180** | 2C | 2B |
| Auxiliary Volt | Engine On | 8-32 | 2C | 2E |
| Trim Angle*** | Merc Range | 0-168 | 2C | 1F |
| | OMC Range | 90-0 | 2C | 1F |
| | Yamaha Range | 400-100 | 2C | 1F |

* Low end can either be the far right position or the far left position as long as the high end corresponds to the opposite position of the low end.

** VDO sender only.

*** Resistance range varies depending on the engine package.

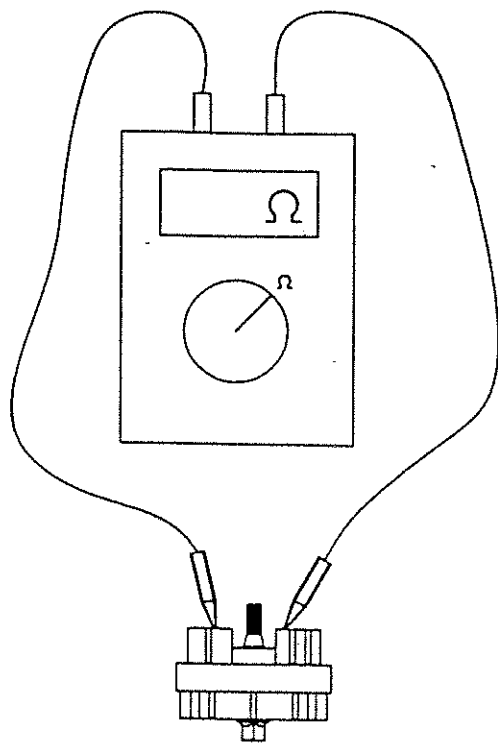


FIGURE 4: MEASURING RESISTANCE

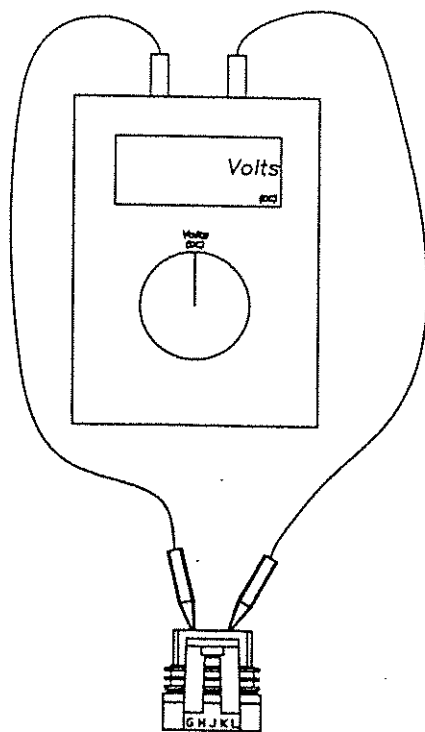


FIGURE 5: MEASURING VOLTAGE

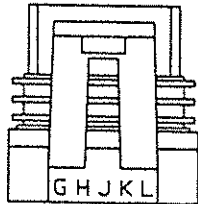


FIGURE 1: 5 PIN CONNECTOR

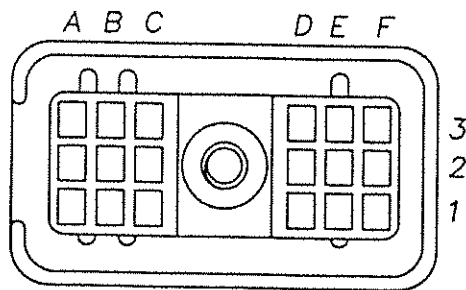


FIGURE 2: 18 PIN CONNECTOR

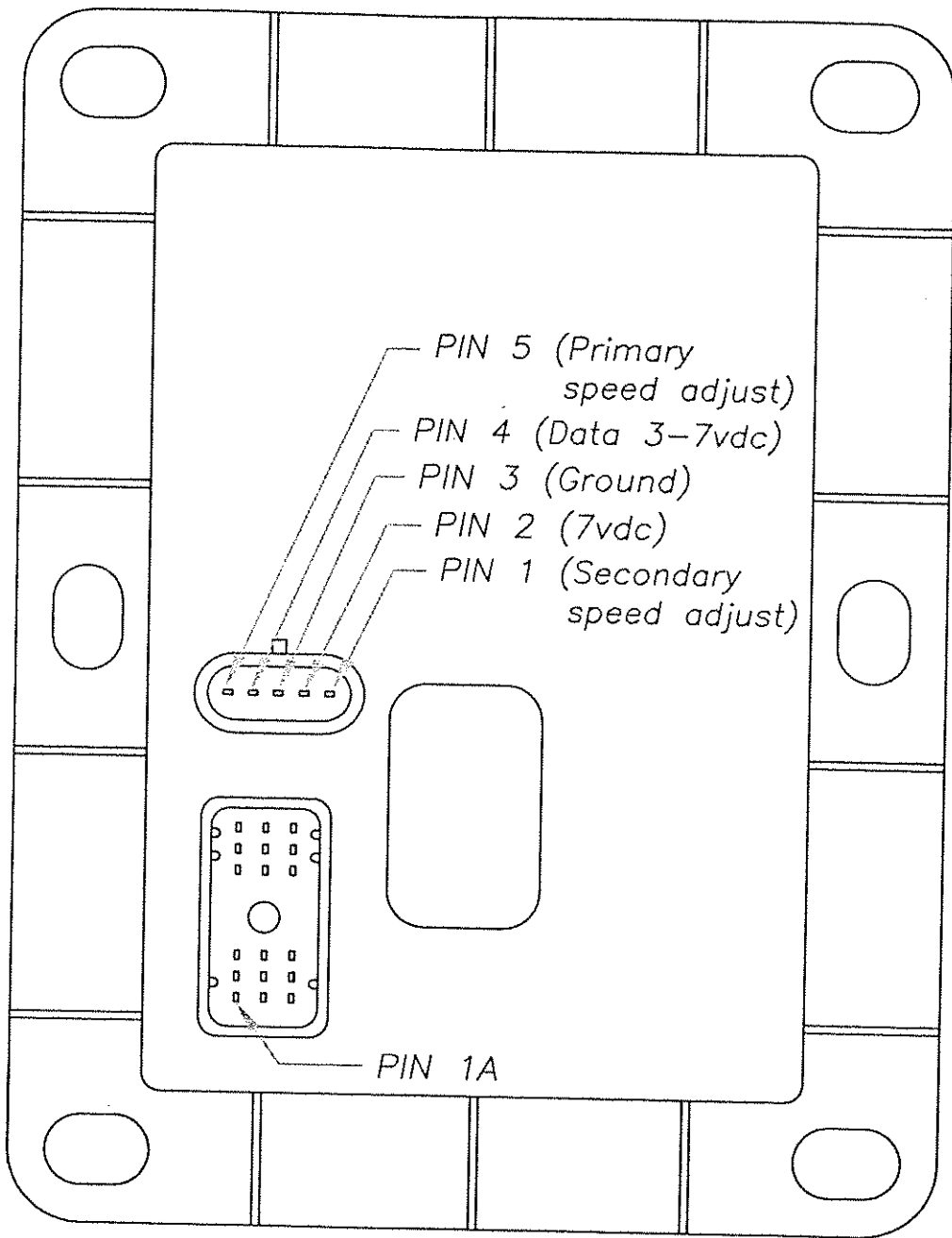


FIGURE 3: MDC

OUTBOARD WIRING SCHEMATIC

| 18 PIN CONNECTOR | |
|------------------|--------|
| 1A | RED |
| 1B | PURPLE |
| 1C | TAN |
| 1D | BLUE |
| 1E | PINK |
| 1F | TRIM |
| 2A | --- |
| 2B | --- |
| 2C | BLACK |
| 2D | GRAY |
| 2E | --- |
| 2F | --- |
| 3A | --- |
| 3B | --- |
| 3C | --- |
| 3D | --- |
| 3E | --- |
| 3F | --- |

| 5-PIN CONNECTOR | |
|-----------------|--------|
| G | YELLOW |
| H | BLACK |
| J | RED |
| K | --- |
| L | --- |

| WIRE | DESCRIPTION |
|-------|--------------|
| BROWN | TRIM |
| TAN | TEMPERATURE |
| BLUE | OIL PRESSURE |

