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Tech Note: Troubleshooting the Stringpot System

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FAQ: I cannot record any depth, how do I determine what is wrong?

Measuring the 5VDC output at the back of FC/FI instruments

With digital voltmeter set to Voltage DC, measure between pins 1 and 4 which are positioned at 12:00 and 9:00 (the pins directly above and to the left of the center pin) on both the FC and FI instruments. This should read 5VDC. This measurement can also be made with the stringpot cord connected to the instrument. With the stringpot cable connected to the FC or FI instrument, measure for 5VDC on the stringpot end of stringpot cable between pins A-B. If you had 5VDC at the back of the instrument but not out the cable you likely have an issue with the cable – check for continuity of the wires.

FC4000/FC5000

- Make the following measurements:
 - Confirm 5VDC output at the back of the FC
 - Continuity of the stringpot cable (see below)
 - Resistances in the stringpot (see below)

FI6000

- Power-up the FI6000 – This is what to expect.
 - When stringpot power light is on (green) there is 5VDC output at back of FI.
 - With the stringpot power light on (green), fully extend the stringpot cable. In the last 40-50% of the extension the stringpot signal light should become increasing bright green.
 - If the stringpot signal light is on (green), the system is connected and communicating.
 - If stringpot power light is off, the 5VDC output is not present at the back of the instrument.
 - If the FI does not have 5VDC at the back of instrument check inside the box for a loose connector or wires just below the power box. **CAUTION: Turn the power off and unplug the instrument prior to working inside the box.** If no loose connectors or wires can be found and 5VDC cannot be restored to the back of the instrument it needs to come back to Geoprobe for repair.

- When the stringpot power light is on (green) but stringpot signal light stays black when extended
 - Check to make sure that there is 5VDC at the back of the FI –stringpot cable connection.
 - If 5VDC is present the problem is in the cable or stringpot.
 - Check for continuity of the stringpot data cable (see below)
 - Check the resistances in the stringpot (see below). Damage can occur internally to the stringpot if the string has been broken or accidentally snapped back into the stringpot housing.
 - If the FI does not have 5VDC at the back of instrument, check inside the field computer or field instrument for a loose connector or wires just below the power box. **Caution: Turn the power off and unplug the instrument prior to working inside the box.** If no loose connectors or wires can be found and 5VDC cannot be restored to the back of the instrument it needs to come back to Geoprobe for repair.

- Checking for a short in the cable/stringpot system on the FI6000: The stringpot power display light is on with the stringpot cable and stringpot disconnected from the field instrument. Watch for this power light to go out as follows:
 - First, connect the stringpot cable to the FI6000, observe stringpot power light.
 - Next, connect the stringpot cable to the stringpot, observe stringpot power light.
 - If the stringpot power light goes out (turns black) there is a short in whichever component made the power light go out (stringpot cable or the stringpot).

Testing continuity of the Stringpot Cable:

These resistance values should be relatively low ohms, usually less than 10 ohms. Move/Bend cables to check for loose connections and retest on the stringpot cable.

Stringpot side	FC/FI side
B	- 1
C	- 2
A	- 4

Testing the Stringpot:

Reading resistance on the stringpot pins:

A-B will read 1000ohms (1.0Kohms) and will not change when the string is extended.

A-C will read 1000ohms (1.0Kohms) and will drop to about 43 ohms when the string is fully extended.

B-C will read 43ohms and rise to 1000ohms when the string is fully spooled into the stringpot.

Pin orientation on the Stringpot:

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  I
  A
F  B
E  C
  D

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Pin orientation on the Stringpot cable:

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  I
  A
  B  F
  C  E
  D

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