

STS-2 Manual Level Adjustment for a Centering Problem

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Excerpted from PASSCAL Field Note STS-2 Seismometers by B. Busby

Do the manual level adjustment for an STS2 only if you cannot get the STS2 mass position voltages below about 2.5 Volts simply by retrying mass recenters in the usual way.

For a 'manual' STS2 center, you will attempt to 'relevel' the sensor in such a way that all three elements U, V, and W will have low enough mass position voltages so you can get meaningful data. You are going to force the STS2 into 1-second mode while you move a leg ever-so-slightly, all the while watching your voltmeter's response.

1. Match Connector Pinout to Element.

On the host box MONITOR port connector (see Figure 1) socket T, U, and V (from center to rim) correspond to elements U, W, and V (University of West Virginia). Note that socket V is element V but socket U is element W. Usually, each leveling foot of a PASSCAL STS-2 sensor is marked for the element mounted directly above it, however it is ALWAYS the case that if the STS-2 is oriented correctly, the leveling foot which is element **U** is oriented to the west. Then, clockwise around the base is element **V** (to the north-east) and element **W** (to the south-east).

2. Monitor the Voltages for Each Element.

Insert a jumper between sockets S and R on the monitor port connector of the host box (it is the connector not plugged with the sensor-to-DAS cable) You may use a bus wire or a large paper clip, anything that will allow you to make a connection between the S and R sockets. If you hear a relay click, the jumper is successful; now the STS-2 is in 1-sec mode and you will be able to see the results of your adjustments immediately. Check the voltages of each element through a voltmeter with the ground lead connected to socket F (ground) and the element under test corresponding socket on the port connector (as described in Step 1 – see Figure 1).

3. Adjust Leveling Feet.

If one element is much less centered than the others, leave the voltmeter leads in the correct positions of the monitor connector for that element, find the STS2 foot that corresponds to that element and get ready to adjust it while watching the voltmeter. A leveling foot turned clockwise will cause the mass position voltage of the related element to move towards a negative voltage, i.e. from +12 volts to +4 volts or from +4 volts to -4 volts. A very small turn will produce several volts difference in mass position.

4. Check All Element Voltages.

After adjusting one leveling foot, the other elements will also respond to the new position. Only when ALL the elements are centered (within +/-2.5 volts) are the velocity outputs valid. Now remove the jumper from sockets S and R. You should hear a relay click again. That means the sensor is back to its proper 120-sec mode.

HOST BOX

FIGURE 1

