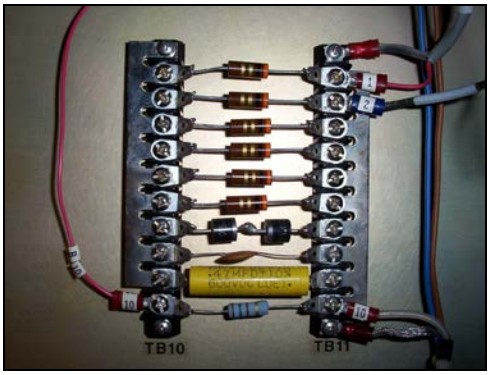
Technical Service Bulletin 030610
Calibration of IOX / DCX Body Current Meter

In the ideal case, the body current meter indicates the current due to electrons from the beam striking the body of the IOT. Because the body current shunt measures any current that is pulled up from ground on the HV+ return leg (i.e. any HV- current missing at the collector return lead), it also registers any leakage currents occurring in the high voltage compartment and beam supply. In some cases short circuits in the beam supply or high voltage compartment will cause strong body current indications.

The body current measuring system is similar to ground fault interrupt (GFCI) outlet, with the hot lead being the HV- line, the neutral being the HV+ line, and the interrupt sense coil being the body current measuring shunt.

Procedure 030610: Calibration of IOX / DCX Body Current Meter	
Applicability	All IOX and DCX transmitters, except those with IOTs with grounded collectors.
Prerequisites	None.
Equipment Required	Multimeter.
Comments	Body current measurement is permanently disabled for tubes with grounded collectors.

1. Press **HPA START MODE** button on HPA control panel to extinguish high voltage.
2. Allow high voltage to fall completely to zero.
3. Gain access to high voltage compartment via key interlock system.
4. Discharge all high voltage circuits with grounding hook.
5. Locate terminal strip TB11 on the upper, left wall of the high voltage compartment.
6. Carefully inspect five parallel 3 ohm resistors that form the body current shunt (R1 - R6) for any signs of damage or missing components. This procedure assumes a 0.5 ohm body shunt resistance. This procedure will not be valid if any of these resistors are damaged or missing.



Close-up view of body current shunt (TB10 and TB11)

7. Place multimeter on floor just outside of high voltage compartment. Select DC volts measurement function.
8. Route multimeter leads inside high voltage compartment and connect to measure voltage on TB11 relative to ground (i.e. red lead on TB11, black lead on ground). Mechanically support leads such that they will remain in place once the high voltage compartment door is closed.
9. Close high voltage compartment door and return key interlock system to original position.
10. Access body current calibration menu by issuing following commands via HPA control panel: **Information Access > System Operations > HPA Maintenance > Password = 55555 > Meter Calibrations > Focus, Beam, Body > Body Current.**
11. Body current meter automatically deflects with a test voltage once body current calibration menu is accessed.
12. Note presence of 50mV - 80mV test voltage appearing at TB11 as read from multimeter.
13. Multiply multimeter reading by two to obtain body current reading. e.g. 70mV x 2 = 140mA body current.
14. Use **Up** and **Down** menu options to adjust displayed meter readings until correct value is obtained. Press **Save** to save calibration and return to previous menu.
15. Select **Previous Screen** option five times to return to top-level **Information Access** menu.
16. Remove multimeter leads and restore equipment to original condition.
17. Procedure complete.

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