Film-Tech

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Dolby Laboratories Inc

Field Bulletin 190

Potential Power Supply Connector Failure In DA10 And Earlier DA20 Units

- ☐ Modification Urgent
- ☐ Modification Recommended
- ☐ Modification Required on Early Units
- ☒ Modification if Problem is Present

Some Model DA10 and DA20 Digital Film Sound Processors have experienced problems with poor electrical contact at the connectors carrying DC power from the power supply to the unit back plane. Later production used a different type of female power connector designed to avoid this problem.

Symptom

System held in reset, with a random fixed or repetetive random cycling pattern of LED's illuminated.

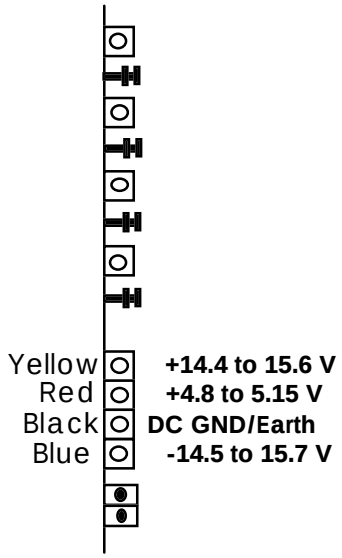
How To Verify a Connector Failure Problem

DA20

Remove the DA20 front panel. Using a digital voltmeter, measure the voltages at the colored power test points on the front edge of the Cat. No. 670 card located at the far left:

Refer to the graph (figure 3) to check if the voltages are correct and lie within the shaded area shown.

If the voltages measured at the **Red** test point (5V) and the **Yellow** test point (+15V) lie outside the area shown on the graph, the connector resistance is very likely to be high and the contacts must be replaced or repaired as shown below. Note that the 5V connector is where this problem usually occurs. The increased resistance causes the 5V output to fall but may leave the +15V output unaffected.



Cat. No. 670 card

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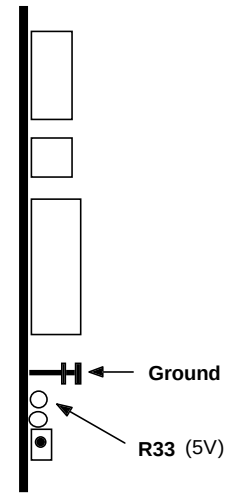
DA10

On the DA10, the +5V is readily accessible for measurement. Look at the Cat. No. 609B board (located near the middle of the unit and containing the alphanumeric display and reset switch). Just above the switch is a diode and above it is resistor R33. The end of R33 nearest the front edge of the card is a convenient point to measure the +5v supply voltage. See Figure 2.

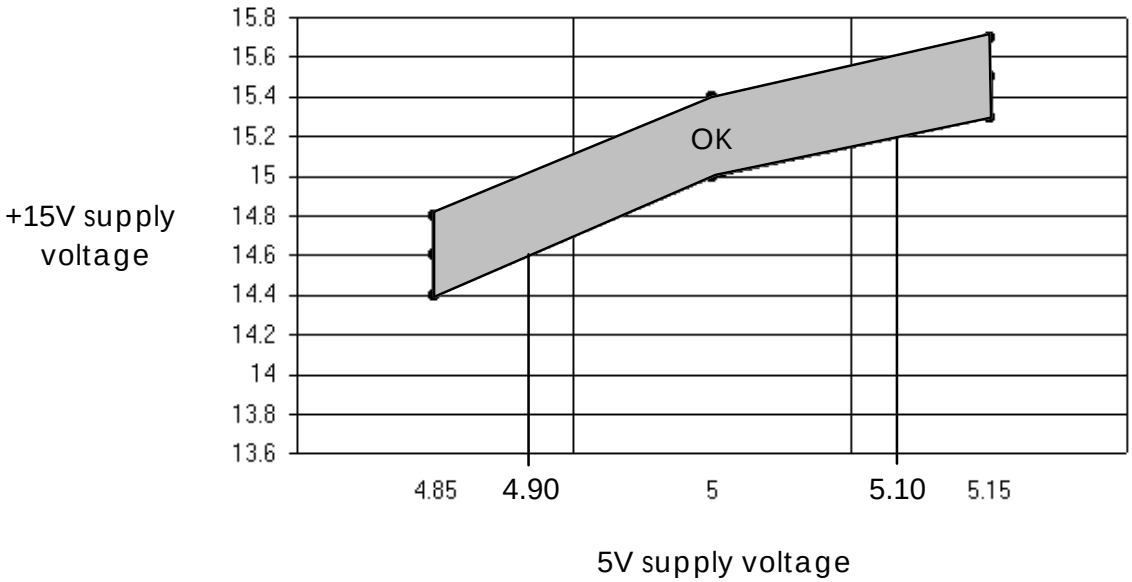


Cat. No. 609B
Fig 2

The +15V supply voltage can be measured at pin 16 of either of the reader input female D-type connectors J1 and J2 at the rear of the unit. The -15V supply voltage can be accessed on pin 19 of the same connectors.

Refer to the Figure 3 below to check if the voltages lie within the shaded area. If the voltages measured at the R33 (5V) and pin 16 of J1 or J2 (+15V) lie outside the shaded area shown on the graph, then the connector resistance is very likely to be high and the contacts must be replaced or repaired as described on the following pages.

Fig 3: Checking the supply voltages



Recommended Repair

See the figures located at the end of this bulletin for reference.

DA20

1. Remove the power supply assembly from the DA20 rear panel then remove the 6 screws which attach the power supply cover to the power supply board (two screws are located on the side of the cover).

2. Carefully install a new DC Power Cable Assembly, **Dolby part number 83268** which contains new, different female contacts. Any male connector pins that show signs of heating (discolored nylon connector body near either red or black wires) should be carefully cleaned with a gentle abrasive before reassembling.

3. **NOTE: Hazardous voltages are exposed on the power supply module circuit board. Use extreme caution and do not carry out the following adjustment unless you are qualified to do so. The adjustment must be carried out with the DA20 powered up.**

   With a digital voltmeter connected to the Red test point shown on page 1, set the 5V DC voltage to 5.0V to 5.05 V by adjusting pot P1 located next to the DC output connector. Verify that the +15V and -15V supply voltages are now also correct.

4. Switch off power and re-assemble the power supply to the unit. **NOTE: Hazardous voltages are exposed on the power supply circuit board even with the power removed. This is stored as charge on the main power supply capacitors. Use extreme caution when re-assembling, or wait a minimum of 10 minutes after mains power is removed to allow time for the capacitors to discharge.**

5. Having re-assembled the unit, verify again that the power supply voltages are still correct at the test points. If they are not, pot P1 may have been disturbed during re-assembly. The supply must be disassembled and adjusted again.

Emergency Repair

The wires in the existing cable can be soldered to the male connector pins. This makes power supply replacement more difficult but will eliminate any contact resistance problems. Be very sure that no wire or stray strand of wire can short to an adjacent pin or to the chassis. The table on page 6 will serve as a reminder of the wiring scheme to those choosing to solder wires directly to the pins. The pin locations are not marked on the connector bodies but are printed on both the DA20 or DA10 back plane and on the power supply circuit board. See page 6. Before re-assembly, follow instructions 3-5 above.

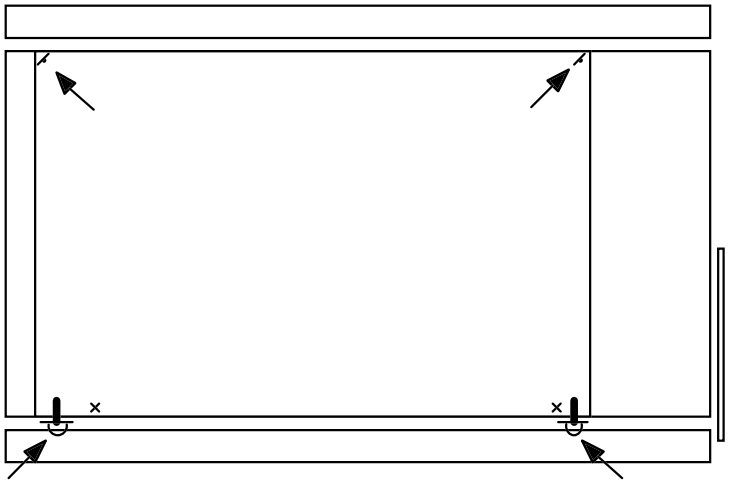
DA10

The connectors must be removed from the two DC power cables and each cable wire must be soldered to the male connector pins on the backplane and on the power supply. Since the DA10 uses a screw-terminal strip in the DC power distribution, future replacement of the power supply, if necessary, is unaffected by soldering these wires.

1. Remove the DA10 from the equipment rack and place it on a flat surface.

2. Remove the power supply assembly by removing the four screws mounting it to the DA10 rear panel. **NOTE: Hazardous voltages are exposed on the power supply circuit board even with the power removed. This is stored as charge on the main power supply capacitors. Use extreme caution when re-assembling, or wait a minimum of 10 minutes after mains power is removed to allow time for the capacitors to discharge.**

3. Remove the power supply module from its housing by removing the two mounting screws through the circuit board plus the two screws on the side of the housing which attach the heat sink.



Cat. No. 677 Disassembly

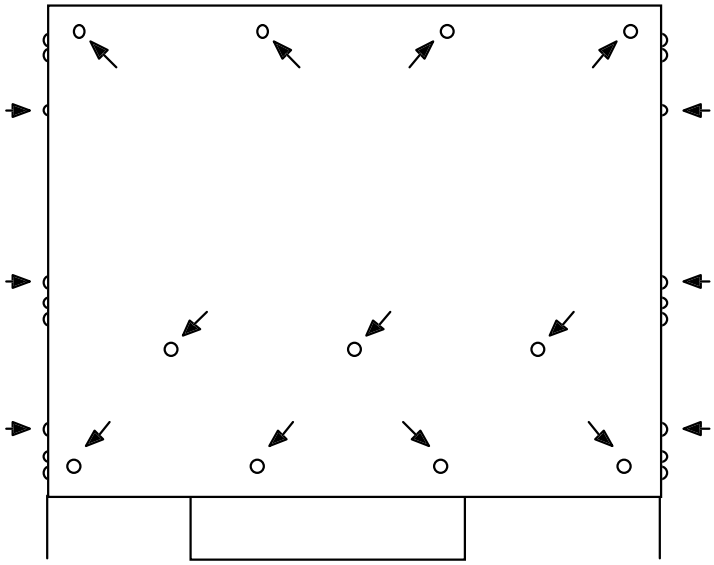
4. The plastic DC output connector is now accessible. Unplug the connector from the power supply and cut each wire as close to the connector body as possible.

5. Strip each wire and slide heat-shrink tubing over each wire.

6. Solder each wire to its respective power supply connector pin. Be very sure that no wire or stray strand of wire can short to an adjacent pin or to the chassis. See the figure on page 6.

7. Re-assemble the power supply into its housing. Do not re-attach to the rear panel at this point.

8. The DA10 bottom panel must be removed in order to gain access to the DC power connector located on the backplane. Remove all 11 screws on the bottom of the unit. Also remove the three screws along each side attaching the bottom cover.



9. Pull the panel away from the frame.

10. The plastic power connector is at the bottom center of the backplane and now readily accessible.

11. Unplug the connector from the backplane and cut each wire as close to the connector body as possible.

12. Strip each wire and slide heat-shrink tubing over each wire.

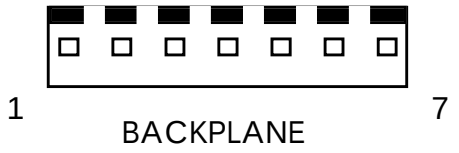
13. Solder each wire to its respective backplane connector pin. Be very sure that no wire or stray strand of wire can short to an adjacent pin or to the chassis.

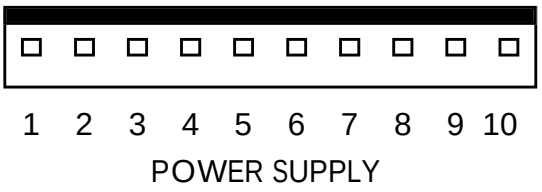
14. Re-attach the bottom panel to the DA10. Make sure no cables are trapped and pinched as you do this.

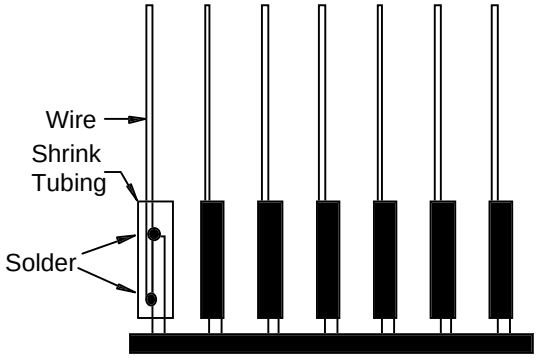
15. Before re-assembling, the power supply assembly to the rear panel, re-check the +5V, +15V and -15V supply voltages. **NOTE: Hazardous voltages are exposed on the power supply module circuit board. Use extreme caution and do not carry out these measurements or adjustment unless you are qualified to do so. The adjustment must be carried out with power applied to the DA10.** If necessary carefully adjust the small blue potentiometer inside the Cat. No. 677 power supply unit close to the output connector so that you measure 5.00V to 5.05V at R33 on the Cat. No. 609B as described earlier.

16. Re-assemble the power supply assembly to the DA10 rear panel.

CONNECTOR PIN NUMBERS:







DA20 Power Supply Pin No.	Wire Color	Function	Backplane pin No.
1	Blue	-15V	7
2			
3	Green	AUDIO GND	3
4	Orange	+15v	6
5		No Connection	
6		No Connection	
7	Black	DIGITAL GND	5
8	Black	DIGITAL GND	4
9	Red	+5V	2
10	Red	+5V	1

DA10 Power Supply Pin No.	Wire Color	Function	Backplane pin No.
1	Blue	-15V	7
2	Green	AUDIO GND (Connected to green wire below)	
3	Green	AUDIO GND	3
4	Orange	+15v	6
5		No Connection	
6		No Connection	
7	Black	DIGITAL GND	5
8	Black	DIGITAL GND	4
9	Red	+5V	2
10	Red	+5V	1