

SECTION 5 SERVICE

5.1 GENERAL

This section provides calibration, troubleshooting, and removal and replacement instructions for the Model C100 Incubator.

5.2 CALIBRATION PROCEDURES

5.2.1 GENERAL

This paragraph provides calibration procedures for the Control Unit of the Model C100 Incubator and tests for the Incubator.

Unless otherwise indicated, all calibration procedures are performed under the following conditions:

1. The Control Unit is removed from the Incubator and the cover is removed.
2. The Control Unit is connected to a primary source of the correct voltage and frequency.

5.2.2 TEST EQUIPMENT PROVIDED

The test equipment listed below is required for calibration of the C100 Control Unit and performing Oxygen Concentration tests. Equivalent test equipment may be substituted.

- Probe Simulator, Part No. 68 900 80
- Logic Probe - capable of ± 12 Vdc
- Variable Transformer, General Radio Model WSM T3AW
- Digital VOM, Fluke Model 8000A
- Oxygen Analyzer, Sybron/Taylor Model QA580
- Flowmeter, Victor - Model 1099-0025
- Leakage Tester, Bo-Tek 501

5.2.3 PCB 2

TEST SETUP.

1. Connect the Simulator to the PATIENT PROBE and AUXILIARY PROBE jacks on the Side Panel of the Control Unit. Connect the ac line cord through a variac and turn on the unit. Set the variac to 120 ± 2 Vac.

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2. On the Control Unit, set the AIR and SKIN Set Point switches to 36.0°C . Set the CONTROL MODE switch to AIR.
3. On the Simulator, set the MODE switch to AIR and the TEMP switch to 36°C . Refer to Figure 5.1 for location of test points and adjustments.

PROCEDURE.

1. Refer to Figure 5.1 and connect the DVM between TP20 (+) and TP22 on PCB 2.
2. Adjust R35 on PCB 2 for a reading of -350 ± 50 mV on the DVM.
3. On the Simulator, set the MODE to SKIN. Connect the DVM between TP13 (+) and TP22.
4. Adjust R50 for a reading of -350 ± 50 mV on the DVM.
5. Turn off the POWER switch on the Controller. Connect the logic probe between +12 Vdc and ground. Monitor TP15 with the logic probe.
6. Turn the unit on. Set the variac to 95 ± 2 Vac. On PCB 2 turn R100 fully counterclockwise. The light on the logic probe should flash on and off every four seconds.
7. Slowly turn R100 clockwise until the light momentarily goes out approximately every four seconds. If the light stays on constantly, back off (counterclockwise) R100 slightly.
8. Set the variac to 120 ± 2 Vac. The light should go off for approximately 2 seconds and come on for approximately four seconds.
9. Turn off the POWER. Remove the logic probe.

5.2.4 PCB 1

TEST SETUP.

1. Remove the CONTROL MODE knob. Remove the five screws which hold PCB 1 and PCB 2 to the Front Panel. Set PCB 1 and PCB 2 vertical behind the brackets located behind the SILENCE/RESET and POWER switches.
2. Connect the Simulator to the PATIENT PROBE and AUXILIARY PROBE jacks on the Side Panel. Set the Simulator to 36°C . Set the Control Unit and Simulator to SKIN mode. Refer to Figure 5.2 for location of test points and adjustments.

TP13 R100 TP20

R50

TP22 TP15

R35

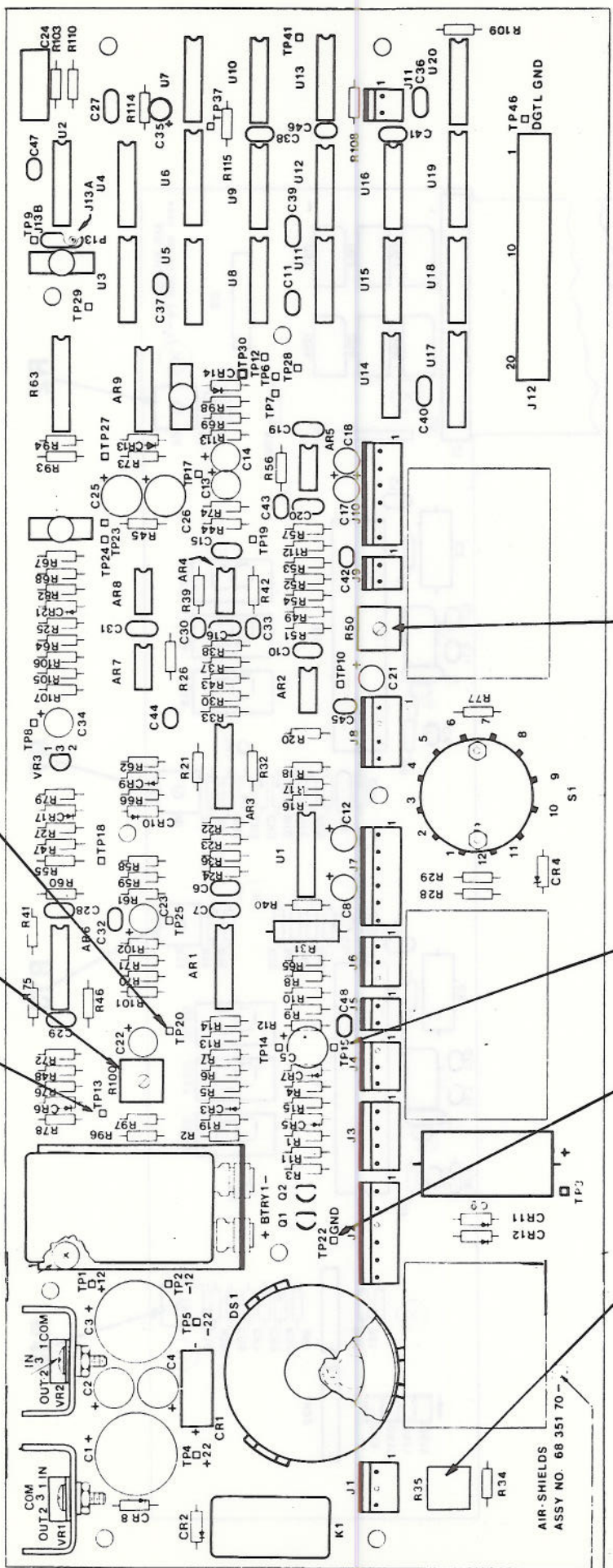


FIGURE 5.1 PCB 2, LOCATION OF TEST POINTS AND ADJUSTMENTS

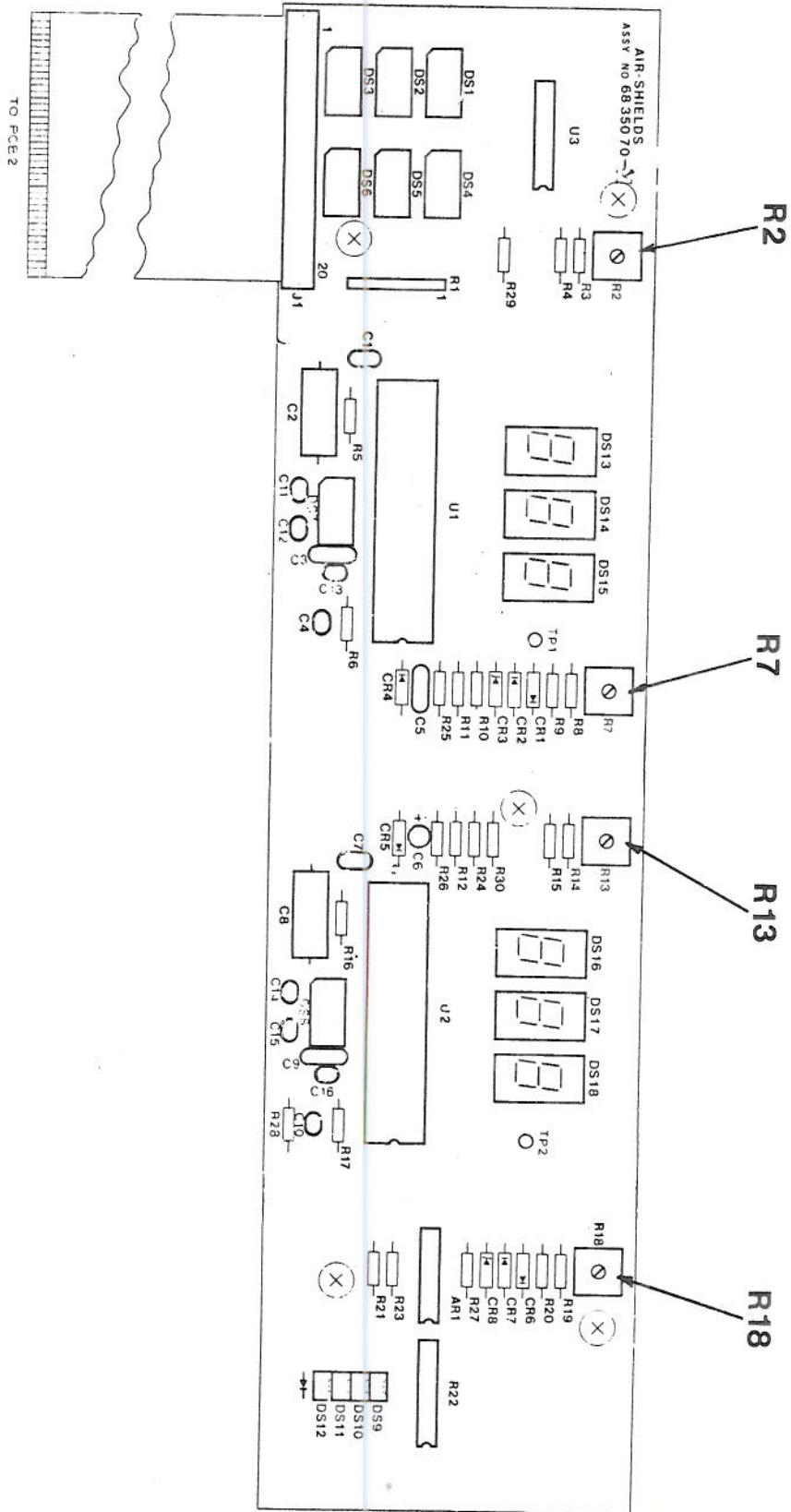


FIGURE 5.2 PCB 1, LOCATION OF TEST POINTS AND ADJUSTMENTS

PROCEDURE.

1. On PCB 1, adjust R7 until the left display (SKIN) reads $36.0 \pm 0.1^{\circ}\text{C}$.
2. Set the Simulator to 20°C . Adjust R2 on PCB 1 until the left display (SKIN) reads $20.0 \pm 0.1^{\circ}\text{C}$.
3. Repeat steps 1 and 2 to ensure proper settings. Readjust if necessary.
4. Set the Simulator to AIR mode and 36.0°C .
5. On PCB 1 adjust R18 until the right display (AIR) reads $36 \pm 0.1^{\circ}\text{C}$.
6. Set the Simulator to 20°C . On PCB 1 adjust R13 until the right display (AIR) reads $20 \pm 0.1^{\circ}\text{C}$.
7. Repeat steps 5 and 6 to ensure proper settings. Readjust if necessary.
8. Reassemble the Control Unit and disconnect the Simulator.

5.2.5 LEAKAGE TESTS

TEST SETUP.

1. Connect the Control Unit to a primary power source through an ungrounded adapter plug, so that the unit is ungrounded. Turn the POWER switch ON.
2. The leakage test standards provided in the procedure below assume leakage through a resistance of 1000 ohms. If the Leakage Tester being used does not provide this resistance, the test set-up must be adjusted to provide it.

PROCEDURE.

1. Use the Leakage Tester to measure between the chassis of the unit under test and a known ground such as the ground connection of a wall receptacle. The leakage must not exceed 50 microamps.
2. Reverse the plug and repeat step 1.
3. Perform steps 1 and 2 with the Control Unit POWER switch OFF.