

1600- OR 2000-CYCLE SINGLE FREQUENCY SIGNALING SYSTEM

SUPPLY CIRCUIT SD-56239-01

TROUBLE CLEARING PROCEDURES

1. GENERAL

1.01 This section describes a method of clearing troubles which may be encountered in the 1600 or 2000 cycle supply circuits for small installations SD-56239-01 (J68602CK).

1.02 Indication of trouble will be obtained, either from the alarm provided by the supply circuit itself, or else by trouble reports on the signaling circuits connected to the supply circuit.

1.03 Trouble clearing procedures are given for:

- (A) Trouble Causing an Alarm
- (B) Trouble without Alarm

2. METHOD

(A) Trouble Causing an Alarm

2.01 When an alarm sounds, and the ALM (red) lamp on the supply equipment lights, attempt first to restore service to the load normally supplied by the defective supply circuit, as outlined in 2.02. Then follow the trouble tracing and clearing procedure of 2.03 and 2.04.

2.02 If another oscillator of the same frequency is available (which is the case for small installations of 3 or 4 signaling circuits), restore the service by patching the OSC TST jack of the second oscillator to the LOAD jack of the defective oscillator.

2.03 Measure the output power of the defective oscillator per Section 179-206-501 covering testing of the supply circuit. Proceed as in 2.04 and 2.06 if no output is present. Otherwise proceed as in 2.05 and 2.06.

2.04 The following troubles may cause the circuit to have no output. Follow the accompanying procedure for locating and clearing the trouble.

- (1) Blown Fuses: Inspect the fuses associated with the

circuit and, if any are found blown, clear the cause and replace the blown fuse.

(2) Defective Vacuum Tube: Remove the tube and replace it with one known to be good. If no output is obtained after the replacement tube warms up, remove it and reinsert the original tube in its socket.

(3) Defective Wiring or Apparatus:

Measure the d.c. voltage between the vacuum tube socket terminals and ground, using an M9B meter or equivalent. Approximate values are as follows.

	24 Volt Supply		48 Volt Supply	
Term.	M9B Scale	D.C. Volts	M9B Scale	D.C Volt
2	30V	-22	150V	-46
3	30V	-24	30V	-24
4	15V	-4	15V	-4
5	150V	+119	150V	+119
6	150V	+96	150V	+96

After making the voltage measurements, remove power from the oscillator and make the resistance measurements necessary to check the remaining apparatus not involved in the voltage tests. Inspect wiring for shorts or opens.

2.05 The following troubles may cause an alarm, with the oscillator still delivering output, possibly even within limits:

(1) Blown Fuse: Inspect the fuse associated with the alarm features and, if found blown, clear the cause and replace the fuse.

(2) Defective Vacuum Tube: Remove the tube and replace with one known to be good. If, after the replacement tube warms up the alarm is not silenced and the ALM lamp is not

extinguished, remove the replacement tube and reinsert the original tube in its socket.

(3) Defective Wiring or Apparatus:
Proceed as in 2.04 (3).

2.06 When the trouble has been cleared and the output is within limits, the alarm is silenced and the ALM lamp is extinguished. In case a patch was made to another oscillator remove the patch, first from the LOAD jack, and then from the OSC TST jack of the second oscillator, thus restoring normal service.

(B) Trouble without Alarm

2.07 In this case trouble reports received on signaling circuits connected to a supply circuit indicate that the latter may be in trouble.

2.08 Measure the output of the defective oscillator per Section 179-206-501 covering testing of the supply circuit. Proceed as in 2.09 if the measured output is within limits. Otherwise proceed as in 2.10 and 2.11.

2.09 If the output is within limits, determine if there is an open between the output of the oscillator and the tone supply resistances.

2.10 If the output is outside limits, insert a No. 327A plug in the LOAD jack associated with the oscillator, observing the effect on the output. If the output is brought back within limits, there may be a short or a ground in the wiring between the LOAD jack and the tone supply resistances. Locate and clear the trouble. Check that the trouble is actually cleared by removing the plug from the LOAD jack and observing that the output remains unchanged and within limits. The circuit is now back in service.

2.11 If, after the insertion of the plug in the LOAD jack the output

remains outside limits, attempt to restore the service as outlined in 2.02. The following troubles may result in the oscillator not meeting the output requirements. Follow the accompanying procedure for locating and clearing the trouble.

(1) Incorrect Operating Voltages Applied to Vacuum Tubes:

Measure the d.c. voltages as in 2.04 (3).

(2) Vacuum Tube with Poor Activity:

Replace the vacuum tube with one known to be good. If the output is still outside limits after the replacement tube warms up, remove the latter and reinsert the original tube.

(3) Tuning Circuit Trouble: Troubles affecting retard coil A, Varistor A, the tuning condensers F1 to F9, or associated strapping will affect not only the frequency but the amplitude of the output. Check the frequency, and readjust if necessary, per Section 179-206-501. When using the beat frequency method, a small difference of frequency will be heard as "beats" while a large difference will cause two different tones to be heard. For purpose of clearing trouble, small differences heard as beats, or small deviations from the required frequency reading may be disregarded. However, before the oscillator is returned to service make sure that the requirements of Section 179-206-501 are met.

2.12 If a patch has been made to another supply, restore to normal operation removing the patch first from the LOAD jack of the oscillator and then from the OSC TST jack of the second oscillator.