

2400- OR 2600-HERTZ SUPPLY CIRCUIT (SD-98092-01)

2000-HERTZ SUPPLY CIRCUIT (SD-98081-01)

LOAD TRANSFER CIRCUIT (SD-98091-01)

IN-SERVICE TESTS

1. GENERAL

1.01 This section describes a method for making tests of the 2400- or 2600-hertz oscillator supply circuit (J98613AL), 2400- or 2600-hertz combined supply and load transfer circuit (J98613BW), 2000-hertz oscillator supply circuit (J98613AJ), 2000-hertz combined supply and load transfer circuit (J98613BU), and load transfer circuit (J98613W).

1.02 This section is reissued to modify Test C to reflect new level requirements and to expand the test procedures. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

1.03 The tests covered are as follows:

A. **Oscillator Output Level:** This test checks the oscillator output level.

B. **Manual Transfer of Load:** This test checks the control of transfer relays from the OSC OUT jacks or TR keys.

C. **2400- or 2600-Hertz Automatic Transfer of Load:** This test checks the control of transfer relays from the oscillator alarm circuit using a specified reduced value of output level.

D. **2000-Hertz Automatic Transfer of Load:** This test checks the control of the transfer relays from the oscillator alarm circuit using a specified reduced value of output level.

E. **Double Failure:** This test checks the operation of major alarm and associated lamps.

F. **Load Trouble Alarm:** This test checks the control of the major alarm and LOAD lamp from the LOAD jacks.

G. **2400- or 2600-Hertz Output Frequency:** This test checks the frequency of the oscillator.

H. **2000-Hertz Output Frequency:** This test checks the frequency of the oscillator.

1.04 Since calls in progress may be affected by momentary interruption of the supply that occurs during transfer, tests involving transfer should be made during periods of light traffic.

Note: Do not make Test E if any of the red, green, or white lamps associated with the supply circuit are lighted. Although Test E causes the major alarm to sound, it does not affect service to any greater degree than does manual transfer test.

1.05 **Lettered Steps:** A letter *a*, *b*, *c*, etc, added to a step number in Part 4 of this section, indicates an action which may or may not be required depending on local conditions. The condition under which a lettered step or a series of lettered steps should be made is given in the ACTION column, and all steps governed by the same condition are designated by the same letter within a test. Where a condition does not apply, all steps designated by that letter should be omitted.

2. APPARATUS

2.01 The apparatus required for each test is shown in Table A. The details of each item are covered in the paragraph indicated by the number in parentheses.

2.02 The 13A or the J94021A (21A) transmission measuring set (TMS).

TABLE A

APPARATUS	TESTS							
	A	B	C	D	E	F	G	H
TMS (2.02)	1	-	1	1	-	-	-	-
Cord (2.03)	1	-	1	1	-	-	-	-
Cord (2.04)	-	-	-	-	-	1	-	-
Cord (2.05)	-	-	-	-	-	-	1	1
Screwdriver (for pot. and freq adjustments)	1	-	1	1	-	-	-	-
72A Frequency Meter, or equivalent frequency counter (2.06)	-	-	-	-	-	-	1	1
258 Dummy Plug	-	1	-	-	2	-	-	-
Thermometer (2.07)	-	-	-	-	-	-	1	-

2.03 Testing cord for 13A TMS, W2DL cord, 6 feet long, equipped with one 310 plug and two 35 cord tips (2W42A cord); patching cord for 21A TMS, P3N cord, 6 feet long, equipped with one 310 plug and one 241A plug (3P17B cord).

2.04 Patching cord, P3E cord, 6 feet long, equipped with two 310 plugs (3P7A cord).
Always start test with ODD oscillator.

STEP

ACTION

A. Oscillator Output Level

- 1 Connect TMS to OSC TST jack of ODD (EVEN) oscillator, using 2W42A or 3P17B cord.
- 2a If requirement of Step 1 is not met—
Adjust OSC LEV potentiometer until TMS reads readjust value in Table B.
- 3 Repeat Steps 1 and 2a for EVEN oscillator.
- 4 Disconnect TMS from OSC TST jack.

2.05 Patching cord, P3N cord, 6 feet long, equipped with one 310 plug and one 241A plug (3P17B cord).

2.06 If a frequency counter is used in testing the 2400- or 2600-hertz supply circuit equipped with option G (center tap grounding strap on output transformer), its input *must* be balanced with respect to ground.

2.06 KS-5499 thermometer with an accuracy of $\pm 2^\circ$ F and a range from 20 through 120° F is required only for 2400- or 2600-hertz supply circuits containing B option (screw-down frequency adjust capacitors).

3. PREPARATION

3.01 The TMS must be known to be correctly calibrated.

3.02 The 72A frequency meter (or frequency counter) must be known to be correctly calibrated.

3.03 When required, temperature measurements shall be made at a point within 6 inches of the 2400- or 2600-hertz supply circuit chassis.

4. METHOD

Note: When performing tests on ODD or EVEN oscillators, use associated ODD or EVEN jacks, keys, potentiometers, and lamps.

VERIFICATION

TMS reads test value in Table B.

STEP	ACTION	VERIFICATION
	turn TR RST potentiometer <i>very</i> slightly clockwise.	
13b	Turn OSC LEV potentiometer <i>very</i> slowly counterclockwise until OSC lamp (red) is lighted.	
14b	Repeat Steps 11a through 13b until requirement of Step 11a is met.	
15c	If no further adjustment of the TR RST potentiometer is required— Turn OSC LEV potentiometer very slowly counterclockwise until OSC lamp (red) is lighted.	TMS reads as follows:

—16 TL OFFICE		—13 TL OFFICE	
WITH G OPTION	WITHOUT G OPTION	WITH G OPTION	WITHOUT G OPTION
dB		dB	
-11.1 ± 0.2	-11.6 ± 0.2	-8.1 ± 0.2	-8.6 ± 0.2

- 16a If requirement of Step 15c is not met—
Turn TR OPR potentiometer as follows:
If TMS reads lower than required power, turn TR OPR potentiometer *very* slightly counterclockwise.
If TMS reads higher than the required power, turn TR OPR potentiometer *very* slightly clockwise.
- 17a Turn OSC LEV potentiometer *very* slowly clockwise until OSC lamp is extinguished.
- 18a Repeat Steps 15c through 17a until requirement of Step 15c is met.
- 19c If no further adjustment of the TR OPR potentiometer is required—
Repeat Steps 1 through 6.
- 20 Repeat Steps 1 through 19c for EVEN oscillator.
- 21 Disconnect TMS from OSC TST jack.

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STEP	ACTION	VERIFICATION
D. 2000-Hertz Automatic Transfer of Load		
1	Connect TMS to OSC TST jack of ODD (EVEN) oscillator, using 2W42A or 3P17B cord.	TMS reads between +0.5 and +1.5 dB.
2	Turn OSC LEV potentiometer <i>very</i> slowly counterclockwise until TMS reads -1 dB.	OSC lamp (red) is lighted. Minor alarm is sounded.
3a	If requirements of Step 2 are not met— Perform Step 5 and then continue with Step 7a.	
4	Momentarily depress ACO key.	GD lamp (white) is lighted. Minor alarm is silenced.
5	Turn OSC LEV potentiometer until TMS reads +1 dB.	
6	Momentarily depress TR RST key.	OSC lamp (red) is extinguished. GD lamp (white) is extinguished.
7a	If requirements of Step 2 are not met— Adjust TR OPR and TR RST potentiometers fully clockwise.	OSC lamp (red) remains extinguished.
8a	Turn OSC LEV potentiometer until TMS reads -1 dB.	OSC lamp (red) remains extinguished.
9a	Turn TR RST potentiometer <i>very</i> slowly counterclockwise.	OSC lamp (red) is lighted. Minor alarm is sounded.
10b	If requirement of Step 9a is not met and the TR RST potentiometer has been turned fully counterclockwise— Turn TR OPR potentiometer <i>very</i> slowly counterclockwise.	OSC lamp (red) is lighted. Minor alarm is sounded.
11a	Turn OSC LEV potentiometer clockwise until TMS reads +1 dB.	
12a	Momentarily depress TR RST key.	OSC lamp (red) is extinguished. Minor alarm is silenced.
13a	Repeat Steps 1 through 6.	
14	Repeat Steps 1 through 13a for EVEN oscillator.	
15	Disconnect TMS from OSC TST jack.	
E. Double Failure		
1	Insert dummy plug into TR CUR jack of ODD oscillator.	ODD OSC lamp (red) is lighted. Minor alarm is sounded.

STEP	ACTION	VERIFICATION
2	Momentarily depress ACO key.	GD lamp (white) is lighted. Minor alarm is silenced.
3	Insert dummy plug into TR CUR jack of EVEN oscillator.	EVEN OSC lamp (red) is lighted. LOAD lamp (green) is lighted. GD lamp (white) is extinguished. Major alarm is sounded.
4	Remove dummy plug from TR CUR jack of EVEN oscillator; momentarily depress TR RST key.	EVEN OSC lamp (red) is extinguished. LOAD lamp (green) is extinguished. Major alarm is silenced. Minor alarm is sounded.
5	Momentarily depress ACO key.	GD lamp (white) is lighted. Minor alarm is silenced.
6	Remove dummy plug from TR CUR jack of ODD oscillator; momentarily depress TR RST key.	ODD OSC lamp (red) is extinguished. GD lamp (white) is extinguished.

F. Load Trouble Alarm

1	Patch OSC TST jack of ODD (EVEN) oscillator to ODD (EVEN) LOAD jack, inserting plug into OSC TST jack first, using 3P7A cord.	LOAD lamp (green) is lighted. Major alarm is sounded.
2	Remove patch from OSC TST jack to LOAD jack, removing plug from LOAD jack first.	LOAD lamp (green) is extinguished. Major alarm is silenced.
3	Repeat Steps 1 and 2 for EVEN oscillator.	

G. 2400- or 2600-Hertz Output Frequency

Note: Do not attempt test with an unbalanced frequency counter if the 2400- or 2600-hertz supply circuit is equipped with option G.

1	Patch BRDG IN jack of 72A frequency meter to OSC TST jack of ODD (EVEN) oscillator, using 3P17B cord.	
2	Set 72A frequency meter to indicate 2400 or 2600 Hz.	If options <i>F</i> and <i>Y</i> or <i>V</i> are furnished, 72A frequency meter indicates 2400 or 2600 Hz ± 5 Hz. If option <i>B</i> is furnished, 72A frequency meter indication is within ± 3 Hz of the value in Table C.
3a	If requirement of Step 2 is not met— Transfer oscillator by operating TR key (per Test B) and refer to SD-98092-01 for method of adjusting.	

