

**TASI SIGNAL CONVERTER TESTS**  
**USING TASI SIGNAL CONVERTER SELECTOR**  
**CIRCUIT**  
**SD-56529-01**

**1. GENERAL**

**1.01** This section describes methods of making tests of the TASI signal converter circuit per SD-56518-01. It also describes a method of testing the TASI signal converter selector circuit per SD-56529-01.

*Caution: Adjustments and measurements specified in this section should not be attempted during periods of power supply irregularities. Observe that springs of wire-spring relays are not crossed and that the covers and cards do not interfere with their proper operation. The 303-type relays shall be maintained in an upright position not less than 1 minute before beginning any tests.*

**1.02** The tests covered are:

- A. Signal Converter Selection:** This test checks that the correct transfer relays are operated for each converter selected.
- B. Selector Circuit Lockout:** This test checks that while a test is in progress, the selector circuit cannot be restored to idle.
- C. Signal Converter Busy:** This test checks that under any conditions a busy converter can be removed from service.
- D. Substitute Converter Busy:** This test checks that under any conditions an idle converter can be removed from service while the substitute converter is being tested.
- E. Signal Level of Amplifier R1:** This test checks the correct output level of amplifier R1.
- F. Signal Level of Amplifier R:** This test checks for the correct level of amplifier R.

**G. Signal Loss of J4 Band Elimination Filter:** This test checks for the correct loss with the J4 band elimination filter inserted.

**H. Signal Loss of J6 Band Elimination Filter:** This test checks for the correct loss with the J6 band elimination filter inserted.

**I. 2600-Cycle Loss of R4 and R6 Band Elimination Filters:** This test checks for the correct loss through R4 and R6 with a 2600-cycle signal applied.

**J. 2400-Cycle Loss of R4 and R6 Band Elimination Filters:** This test checks for the correct loss through R4 and R6 with a 2400-cycle signal applied.

**K. Transmitted Tone Power:** This test checks for the correct output level using the 2400- and 2600-cycle tone supplies.

**L. A Timing Cycle:** This test checks the operation of Timer A.

**M. B Timing Cycle:** This test checks the operation of Timer B.

**N. C Timing Cycle:** This test checks the operation of Timer C.

**O. E Timing Cycle:** This test checks the operation of Timer E.

**P. F Timing Cycle:** This test checks the operation of Timer F.

**Q. G Timing Cycle:** This test checks the operation of Timer G.

**R. D Timing Cycle:** This test checks the operation of Timer D.

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**S. Converter Functional Test:** This test checks for the correct operation of the entire converter on a monitoring basis.

- 1.03** Always make the tests in the order specified in this section.
- 1.04** The transmission measuring set is referred to in this section as TMS.
- 1.05** The timing test set is referred to in this section as TTS.
- 1.06** Tests A through D are to be performed at the J68865C test bay. Tests E through S are to be performed at the J68865A converter bay.
- 1.07 Lettered Steps:** A letter a, b, c, etc, added to a step number in Part 3 or 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 paragraphs indicated by the number in parentheses.
- 2.02** 21A TMS or equivalent.
- 2.03** J24753A TTS or equivalent.
- 2.04** Stopwatch, KS-3008.
- 2.05** Screwdriver, R-8210 (for adjustments).
- 2.06** Testing cord, P3N cord, 6 feet long, equipped with a 310 and a 241 plug (3P17B cord).
- 2.07** Testing cord, W3M cord, 6 feet long, equipped with a 310 plug, and 360A, 360B, and 360C tools (3W4A cord).
- 2.08** Patching cord, P3K cord, 6 feet long, equipped with two 310 plugs (3P15A cord).
- 2.09** Blocking and insulating tools, as required. Use tools and apply as covered in Section 069-020-801.

**TABLE A**

APPARATUS	TESTS																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
TMS (2.02)	-	-	-	-	1	1	1	1	1	1	1	-	-	-	-	-	-	-	-
TTS (2.03)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	-
Stopwatch (2.04)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Screwdriver (2.05)	-	-	-	-	1	1	-	-	-	-	-	-	-	-	1	1	1	-	1
Cord (2.06)	-	-	-	-	2	2	2	2	2	2	1	-	-	-	-	-	-	-	-
Cord (2.07)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	-
Cord (2.08)	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	-
Tool (2.09)	-	√	√	-	-	-	√	√	-	-	√	√	√	√	√	√	√	√	-

√ As required

**3. PREPARATION**

STEP	ACTION	VERIFICATION
<b>Tests E Through R</b>		
1	Request access to selector circuit from 17D testboard.	
2	At test bay — Operate TP switch in selector circuit.	
3	Connect J68865D portable test box to MON connector of converter to be tested.	
4	In test set — Operate POH key.	
5	Dial number of converter to be tested using D2 dial.	At test bay, associated TR, TR1, TR2 relays operated. T, U readout lamps indicate correct number dialed.

**4. METHOD**

STEP	ACTION	VERIFICATION
<b>A. Signal Converter Selection</b>		
1	Operate TFR key.	
2	Operate OH key.	TIO lamp lighted.
3	Dial converter number with D1 dial.  <i>Note:</i> Converter selection utilizes standard number format with the exception of numbers 1 through 9 and 100. To select converters between 1 and 9, a zero must be dialed prior to the converter number. The dialing code for converter number 100 is 00.	Associated TR, TR1, TR2 relays operated.* T, U readout lamps give correct number dialed.  * If converter is busy, relays will not operate.
4	Release OH key.	TIO lamp extinguished. TR, TR1, TR2 relays released. T, U readout lamps extinguished.
5	Repeat Steps 2 through 4 for all numbers corresponding to converters.	
6	Release TFR key.	
<b>B. Selector Circuit Lockout</b>		
1	Operate TFR key.	
2	Operate OH key.	TIO lamp lighted.
3	Dial converter number with D1 dial.  <i>Note:</i> Converter selection utilizes standard number format with the exception of numbers 1 through 9 and 100. To select converters between 1 and 9, a zero must be dialed prior to the converter number. The dialing code for converter number 100 is 00.	Associated TR, TR1, TR2 relays operated.* T, U readout lamps give correct number dialed.  * If converter is busy, relays will not operate.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
4	Block operated TB relay.	
5	Release OH key.	TR, TR1, TR2 relays remain operated. T, U readout lamps remain lighted. TIO lamp extinguished.
6	Operate SB key.	TR, TR1, TR2 relays remain operated. T, U readout lamps remain lighted.
7	Operate TP switch.	TR, TR1, TR2 relays remain operated. T, U readout lamps remain lighted.
8	Release SB key.	
9	Release TP switch.	
10	Remove blocking tool from TB relay.	TR, TR1, TR2 relays released. T, U readout lamps extinguished.
11	Release TFR key.	

**C. Signal Converter Busy**

1	Block operated TB relay.	
2	Operate TFR key.	
3	Operate OH key.	TIO lamp lighted.
4	Dial converter number with D1 dial. <i>Note:</i> Converter selection utilizes standard number format with the exception of numbers 1 through 9 and 100. To select converters between 1 and 9, a zero must be dialed prior to the converter number. The dialing code for converter number 100 is 00.	TR, TR1, TR2 relays do not operate. T, U readout lamps operated. C readout lamp gives CONV BUSY indication.
5	Release OH key.	T, U readout lamps extinguished.
6	Remove blocking tool from TB relay.	C readout lamp extinguished.
7	Release TFR key.	

**D. Substitute Converter Busy**

1	Operate SB key.	SB, SB1, SB2 relays operated. C readout lamp gives SUB CONV BUSY indication.
2	Operate TFR key.	
3	Operate OH key.	TIO lamp lighted.
4	Dial converter number with D1 dial. <i>Note:</i> Converter selection utilizes standard number format with the exception of numbers 1 through 9 and 100. To select converters between 1 and 9, a zero must be dialed prior to the converter number. The dialing code for converter number 100 is 00.	TR, TR1, TR2 relays do not operate. T, U readout lamps do not light.

STEP	ACTION	VERIFICATION
5	Release OH key.	
6	Release SB key.	SB, SB1, SB2 relays released. C readout lamp extinguished.
7	Release TFR key.	

#### E. Signal Level of Amplifier R1

6	Calibrate TMS in accordance with Section 103-221-101.	
7	Set DET INPUT switch to white 0 position.	
8	Set FREQ MULT switch to X100.	
9	Set FREQ vernier to 10.	
10	Set OSC OUTPUT switch and vernier to white 0 positions.	
11	Connect DET IN jack of TMS to CONVR RCV OUT jack of signal converter using 3P17B cord.	
12	Connect OSC OUT jack of TMS to CONVR RCV IN jack of signal converter using 3P17B cord.	TMS reads $0 \pm 0$ dbm. See Step 13a.
13a	If requirement of Step 12 is not met — Adjust gain of R1 amplifier until TMS reads 0 dbm.	
14	Remove 3P17B cord from CONVR RCV OUT jack.	
15b	If no other tests are to be made — Remove all cords from signal converter.	
16b	Release POH key in portable test box.	
17b	Release TP switch in test bay.	
18b	Disconnect MON connector of portable test set from MON connector of signal converter.	

#### F. Signal Level of Amplifier R

6	Connect 3P17B cord to AMPL OUT jack.	TMS reads $-6 \pm .1$ dbm. See Step 7a.
7a	If requirement of Step 6 is not met — Adjust gain of R amplifier until TMS reads $-6$ dbm.	
8	Remove 3P17B cord from AMPL OUT jack.	
9b	If no other tests are to be made — Remove all cords from signal converter.	
10b	Release POH key in portable test box.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
11b	Release TP switch in test bay.	
12b	Disconnect MON connector of portable test set from MON connector of signal converter.	
<b>G. Signal Loss of J4 Band Elimination Filter</b>		
6	Block operated J4 relay.	
7	Set FREQ MULT switch of TMS to X1000.	
8	Set FREQ vernier to 2.4.	
9	Set DET INPUT switch to -20.	
10	Connect 3P17B cord to CONVR RCV OUT jack of signal converter.	TMS reads less power than -25 dbm.
11	Remove 3P17B cord from CONVR RCV OUT jack.	
12	Remove blocking tool from J4 relay.	
13a	If no other tests are to be made — Remove all cords from signal converter.	
14a	Release POH key in portable test box.	
15a	Release TP switch in test bay.	
16a	Disconnect MON connector of portable test set from MON connector of signal converter.	

**H. Signal Loss of J6 Band Elimination Filter**

6	Block operated J6 relay.	
7	Set FREQ vernier of TMS to 2.6.	
8	Connect 3P17B cord to CONVR RCV OUT jack of signal converter.	TMS reads less power than -25 dbm.
9	Remove 3P17B cord from CONVR RCV OUT jack.	
10	Remove blocking tool from J6 relay.	
11a	If no other tests are to be made — Remove all cords from signal converter.	
12a	Release POH key in portable test box.	
13a	Release TP switch at test bay.	
14a	Disconnect MON connector of portable test box from MON connector of signal converter.	

STEP	ACTION	VERIFICATION
<b>I. 2600-Cycle Loss of R4 and R6 Band Elimination Filters</b>		
6	Set DET INPUT switch of TMS to -30.	
7	Connect 3P17B cord to 2400 NET OUT jack.	TMS reads less power than -34 dbm.
8	Remove 3P17B cord from 2400 NET OUT jack.	
9	Set DET INPUT switch of TMS to -10.	
10	Connect 3P17B cord to 2600 NET OUT jack.	TMS reads more power than -11.8 dbm.
11	Remove 3P17B cord from 2600 NET OUT jack.	
12a	If no other tests are to be made — Remove all cords from signal converter.	
13a	Release POH key in portable test box.	
14a	Release TP switch in test bay.	
15a	Disconnect MON connector of portable test box from MON connector of signal converter.	

**J. 2400-Cycle Loss of R4 and R6 Band Elimination Filters**

6	Set FREQ vernier of TMS to 2.4.	
7	Set DET INPUT switch of TMS to -30.	
8	Connect 3P17B cord to 2600 NET OUT jack.	TMS reads less power than -34 dbm.
9	Remove 3P17B cord from 2600 NET OUT jack.	
10	Set DET INPUT switch of TMS to -10.	
11	Connect 3P17B cord to 2400 NET OUT jack.	TMS reads more power than -11.8 dbm.
12	Remove 3P17B cord from 2400 NET OUT jack.	
13	Remove 3P17B cord from CONVR RCV IN jack.	
14a	If no other tests are to be made — Remove all cords from signal converter.	
15a	Release POH key in portable test box.	
16a	Release TP switch in test bay.	
17a	Disconnect MON connector of portable test box from MON connector of signal converter.	

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STEP	ACTION	VERIFICATION
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**K. Transmitted Tone Power**

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|-----|--|----------------------------|
| 6   | Block nonoperated M6 relay.  |                            |
| 7   | Set DET INPUT switch of TMS to -20.  |                            |
| 8   | Connect DET IN jack of TMS to CONVR XMT OUT jack of signal converter using 3P17B cord. |                            |
| 9   | Block operated M4, C0 relays.  | TMS reads $-25 \pm 1$ dbm. |
| 10  | Remove blocking tools from M4, M6 relays.  |                            |
| 11  | Block nonoperated M4 relay.  |                            |
| 12  | Block operated M6 relay.   | TMS reads $-25 \pm 1$ dbm. |
| 13  | Remove blocking tools from M4, M6, C0 relays.  |                            |
| 14  | Remove 3P17B cord from CONVR XMT OUT jack.   |                            |
| 15a | If no other tests are to be made —<br>Remove all cords from signal converter.          |                            |
| 16a | Release POH key in portable test box.  |                            |
| 17a | Release TP switch in test bay.   |                            |
| 18a | Disconnect MON connector of portable test box from MON connector of signal converter.  |                            |

**L. A Timing Cycle**

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|----|--|--|
| 6  | Connect -48V jack of TTS to -48V jack of portable test box J68865D using 3P15A cord.                             |  |
| 7  | Set all keys on TTS to normal.   |  |
| 8  | Connect 310 plug of 3W4A cord to TST1 jack of TTS.   |  |
| 9  | Connect free end of cord as follows: black lead to -48V, red lead to 8 of M1 relay, white lead to U of T1 relay. |  |
| 10 | Block nonoperated T1 relay.  |  |
| 11 | Block operated M1 relay.   |  |
| 12 | Operate REC key of TTS to START-OC, STOP-GRD.  |  |
| 13 | Operate MIL-SEC key of TTS to 0-500 position.  |  |
| 14 | Operate SEND key to BK position.   |  |

STEP	ACTION	VERIFICATION
15	Operate BAT key of TTS to BAT ON position, wait 10 seconds for TTS to stabilize.	
16	Calibrate TTS in accordance with appropriate practice. (See Section 100-130-501 for J24753A TTS).	
17	Operate TST key of TTS to OPR position.	TTS reads 130 to 190 milliseconds.
18	Return all keys on TTS to normal.	
19	Remove black lead from -48V, red and white leads from M1, T1 relays.	
20	Remove blocking tools from M1, T1 relays.	
21a	If no other tests are to be made — Remove all cords from signal converter.	
22a	Release POH key in portable test box.	
23a	Release TP switch in test bay.	
24a	Disconnect MON connector of portable test box from MON connector of signal converter.	

#### M. B Timing Cycle

6	Connect free end of 3W4A cord as follows: black lead to -48 volts, red lead to 6 of M4A relay, white lead to 7B of M4A relay.	
7	Block operated M4A relay.	
8	Operate REC key of TTS to START-OC, STOP-GRD.	
9	Operate MIL-SEC key of TTS to 0-5000 position.	
10	Operate SEND key to BK position.	
11	Operate BAT key of TTS to BAT ON position, wait 10 seconds.	
12	Calibrate 0-5000 scale of TTS in accordance with appropriate practice.	
13	Operate TST key of TTS to OPR position.	TTS reads 740 to 970 milliseconds.
14	Return all keys on TTS to normal.	
15	Remove black lead from -48V, red and white leads from M4A relay.	
16	Remove blocking tool from M4A relay.	
17a	If no other tests are to be made — Remove all cords from signal converter.	

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
18a	Release POH key in portable test box.	
19a	Release TP switch in test bay.	
20a	Disconnect MON connector of portable test box from MON connector of signal converter.	

**N. C Timing Cycle**

6	Connect free end of 3W4A cord as follows: black lead to -48 volts, red lead to 6B of SA1 relay, white lead to 2 of ON relay.	
7	Block operated SA1, TE1 relays.	
8	Block nonoperated ON relay.	
9	Operate REC key of TTS to START-OC, STOP -48.	
10	Operate MIL-SEC key of TTS to 0-5000 position.	
11	Operate SEND key to BK position.	
12	Operate BAT key of TTS to BAT ON position, wait 10 seconds for TTS to stabilize.	
13	Operate TST key of TTS to OPR position.	TTS reads 1000 to 2000 milliseconds. See Step 14a.
14a	If requirement of Step 13 is not met — Release TST key of TTS.	
15a	Adjust C potentiometer.	
16a	Operate TST key.	
17a	Repeat Steps 14a through 16a until TTS reads 1000-2000 milliseconds.	
18	Return all keys of TTS to normal.	
19	Remove black lead from -48 volts, red lead from SA1 relay, white lead from ON relay.	
20	Remove blocking tools from SA1, TE1, ON relays.	
21b	If no other tests are to be made — Remove all cords from signal converter.	
22b	Release POH key in portable test box.	
23b	Release TP switch in test bay.	
24b	Disconnect MON connector of portable test box from MON connector of signal converter.	

STEP	ACTION	VERIFICATION
<b>O. E Timing Cycle</b>		
6	Connect free end of 3W4A cord as follows: black lead to ground, red lead to PIN A of P14, white lead to U of E6 relay.	
7	Block nonoperated E6, SD1 relays.	
8	Block operated RG relay in 2600-cycle E3B unit.	
9	Operate REC key of TTS to START-OC, STOP-GRD.	
10	Operate MIL-SEC key of TTS to 0-100 position.	
11	Operate SEND key to BK position.	
12	Operate BAT key of TTS to BAT ON position, wait 10 seconds for TTS to stabilize.	
13	Calibrate TTS in accordance with appropriate practice.	
14	Operate TST key of TTS to OPR position.	TTS reads 28 to 52 milliseconds. See Step 15a.
15a	If requirement of Step 14 is not met — Release TST key of TTS.	
16a	Adjust E potentiometer.	
17a	Operate TST key.	
18a	Repeat Steps 15a through 17a until TTS reads 28 to 52 milliseconds.	
19	Return all keys of TTS to normal.	
20	Remove blocking tool from SD1 relay.	
21	Block operated SD1 relay.	
22	Operate REC key of TTS to START-OC, STOP-GRD.	
23	Operate MIL-SEC key of TTS to 0-500 position.	
24	Operate SEND key to BK position.	
25	Operate BAT key of TTS to BAT ON position, wait 10 seconds.	
26	Calibrate 0-500 scale of TTS in accordance with appropriate practice.	
27	Operate TST key of TTS to OPR position.	TST reads 95 to 157 milliseconds. See Step 28b.

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<b>STEP</b>	<b>ACTION</b>	<b>VERIFICATION</b>
28b	If requirement of Step 27 is not met — Release TST key of TTS.	
29b	Adjust E potentiometer.	
30b	Operate TST key.	TTS reads 95 to 157 milliseconds.
31b	Repeat Steps 28b through 30b until TTS reads 95 to 157 milliseconds.	See Step 32c.
32c	If adjustment in Step 31b is required — Repeat Steps 6 through 27.	
33	Return all keys on TTS to normal.	
34	Remove black lead from ground, red lead from PIN A of P14, white lead from U of E6 relay.	
35	Remove blocking tools from E6, SD1 relays.	
36	Remove blocking tool from RG relay in 2600-cycle E3B unit.	
37d	If no other tests are to be made — Remove all cords from signal converter.	
38d	Release POH key in portable test box.	
39d	Release TP switch in test bay.	
40d	Disconnect MON connector of portable test box from MON connector of signal con- verter.	

**P. F Timing Cycle**

6	Connect free end of 3W4A cord as follows: black lead to ground, red lead to PIN A of P16, white lead to U of E4 relay.	
7	Block nonoperated SD1, E4 relays.	
8	Block operated RG relay in 2400-cycle E3B unit.	
9	Operate REC key of TTS to START-OC, STOP-GRD.	
10	Operate MIL-SEC key of TTS to 0-100 position.	
11	Operate SEND key to BK position.	
12	Operate BAT key of TTS to BAT ON posi- tion, wait 10 seconds for TTS to stabilize.	
13	Calibrate 0-100 scale of TTS in accordance with appropriate practice.	
14	Operate TST key of TTS to OPR position.	TTS reads 28 to 52 milliseconds. See Step 15a.

STEP	ACTION	VERIFICATION
15a	If requirement of Step 14 is not met — Release TST key of TTS.	
16a	Adjust F potentiometer.	
17a	Operate TST key.	
18a	Repeat Steps 15a through 17a until TTS reads 28 to 52 milliseconds.	
19	Return all keys of TTS to normal.	
20	Remove blocking tool from SD1 relay.	
21	Block operated SD1 relay.	
22	Operate REC key of TTS to START-OC, STOP-GRD.	
23	Operate MIL-SEC key of TTS to 0-500 po- sition.	
24	Operate SEND key to BK position.	
25	Operate BAT key to BAT ON position, wait 10 seconds.	
26	Calibrate 0-500 scale of TTS in accordance with appropriate practice.	
27	Operate TST key of TTS to OPR position.	TTS reads 95 to 157 milliseconds. See Step 28b.
28b	If requirement of Step 27 is not met — Release TST key of TTS.	
29b	Adjust F potentiometer.	
30b	Operate TST key.	
31b	Repeat Steps 28b through 30b until TTS reads 95 to 157 milliseconds.	See Step 32c.
32c	If adjustment in Step 31b is required — Repeat Steps 6 through 27.	
33	Return all keys on TTS to normal.	
34	Remove black lead from ground, red lead from PIN A of P16, white lead from U of E6 relay.	
35	Remove blocking tools from E4, SD1 re- lays.	
36	Remove blocking tool from RG relay in 2400-cycle E3B unit.	
37d	If no other tests are to be made — Remove all cords from signal converter.	
38d	Release POH key in portable test box.	
39d	Release TP switch in test bay.	

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STEP	ACTION	VERIFICATION
40d	Disconnect MON connector of portable test box from MON connector of signal converter.	
<b>Q. G Timing Cycle</b>		
6	Connect free end of 3W4A cord as follows: black lead to -48 volts, red lead to 6 of BS3 relay, white lead to U of T11 relay.	
7	Block operated BS3 relay.	
8	Block nonoperated BS2, T11 relays.	
9	Operate REC key of TTS to START-OC, STOP-GRD.	
10	Operate MIL-SEC key of TTS to 0-500 position.	
11	Operate SEND key to BK position.	
12	Operate BAT key of TTS to BAT ON position, wait 10 seconds for TTS to stabilize:	
13	Operate TST key of TTS to OPR position.	TTS reads 190 to 290 milliseconds.
14	Restore all keys on TTS to normal.	
15	Remove blocking tool from BS2 relay.	
16	Block operated BS2 relay.	
17	Operate REC key of TTS to START-OC, STOP-GRD.	
18	Operate MIL-SEC key of TTS to 0-5000 position.	
19	Operate SEND key to BK position.	
20	Operate BAT key of TTS to BAT ON position, wait 10 seconds.	
21	Calibrate 0-5000 scale of TTS in accordance with appropriate practice.	
22	Operate TST key of TTS to OPR position.	TTS reads 950 to 1600 milliseconds.
23	Return all keys on TTS to normal.	
24	Remove black lead from -48 volts, red and white leads from BS3, T11 relays.	
25	Remove blocking tools from BS3, T11, BS2 relays.	
26	Remove 310 plug of 3W4A cord from TST1 jack of TTS.	
27	Remove 310 plug of 3P15A cord from portable test box.	

STEP	ACTION	VERIFICATION
28	Remove 310 plug of 3P15A cord from TTS.	
29a	If no other tests are to be made — Remove all cords from signal converter.	
30a	Release POH key in portable test box.	
31a	Release TP switch in test bay.	
32a	Disconnect MON connector of portable test box from MON connector of signal converter.	

#### R. D Timing Cycle

6	Block nonoperated TE2 relay.	
7	Block operated S2 relay; start stopwatch.	T7B relay operated 9 to 15 seconds after S2 relay operated. See Step 8a.
8a	If requirement of Step 7 is not met — Remove blocking tool from S2 relay.	
9a	Adjust D1 potentiometer.	
10a	Repeat Step 7 until stopwatch reads 9 to 15 seconds.	
11	Remove blocking tools from TE2, S2 relays.	
12	Block operated TE2 relay.	
13	Block operated S2 relay; start stopwatch.	T7B relay operated 15 to 21 seconds after S2 relay operated. See Step 14b.
14b	If requirement of Step 13 is not met — Remove blocking tool from S2 relay.	
15b	Adjust D2 potentiometer.	
16b	Repeat Step 13 until stopwatch reads 15 to 21 seconds.	
17	Remove blocking tools from TE2, S2 relays.	
18	Release POH key in portable test box.	
19	Release TP switch in test bay.	
20	Disconnect MON connector of portable test box from MON connector of signal converter.	

#### S. Converter Functional Test

1	Connect MON connector of portable test box to MON connector of converter to be checked.
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**Note:** The call progression for an originating converter is shown in Table B.

TABLE B

FUNCTION	LAMPS ILLUMINATED																			
XMT CONN SIG	M	BS1	OE1	M4																
RCV ST DIAL	M	BS1	OE1	M4		CT			E6	SD										
* RMV CONN SIG	M	BS1	OE1			CT			E6	SD										
END OF ST DIAL	M	BS1	OE1			CT				SD	SD2									
RCV BSY FL	M	BS1	OE1			CT				SD	SD2	EB								
XMT DISC		BS1	OE1	M4	M6	CT				SD	SD2	EB								
* RCV DISC ACK		BS1	OE1	M4	M6	CT	J4	E4	E6	SD	SD2	EB								
RMV DISC		BS1	OE1			CT	J4	E4	E6	SD	SD2	EB								
END OF DISC ACK		BS1				CT														BS3
IDLE																				
RCV OFF HOOK	M	BS1	OE1			CT	J4	E4		SD	SD2	OFF								
TLK COND	M	BS1	OE1			CT				SD	SD2	OFF								
**XMT RERING	M	BS1	OE1		M6	CT				SD	SD2	OFF								T3
		BS1	OE1			CT				SD	SD2	OFF								
***RCV SW HOOK FL	M	BS1	OE1			CT			E6	SD	SD2		ON							
	M	BS1	OE1			CT				SD	SD2		ON							
	M	BS1	OE1			CT	J4	E4		SD	SD2	OFF								
	M	BS1	OE1			CT				SD	SD2	OFF								
XMT DISC		BS1	OE1	M4	M6	CT				SD	SD2									
RCV DISC ACK		BS1	OE1	M4	M6	CT	J4	E4	E6	SD	SD2									
RMV DISC		BS1	OE1			CT	J4	E4	E6	SD	SD2									
END OF DISC ACK		BS1				CT														BS3
IDLE																				

\* Sequence only for certain busy conditions or a wrong address information.

**Note 1:** Reception of audible busy tone is not registered by lamps. Therefore, XMT DISC, etc, will follow directly.

\*\* Transmitted only when operator at terminating end is called.

\*\*\* Received only when operator is requested by terminating end.

**Note 2:** The call progression for a terminating converter is shown in Table C.

TABLE C

FUNCTION		LAMPS ILLUMINATED												
	RCV CONN SIG	BS1		J4	E4	TE1								
	XMT ST DIAL	M BS1	M6	J4	E4	TE1	SD							
		BS1	M6	J4	E4	TE1	SD							
	END OF CONN SIG	BS1	M6			TE1	SD	CSE						
	RMV ST DIAL	BS1				TE1	SD	CSE	SD2					
	XMT FL SIG	M BS1	M4			TE1	SD	CSE	SD2	OFF		T3*		
		BS1	M6			TE1	SD	CSE	SD2		ON	T3*		
		M BS1	M4			TE1	SD	CSE	SD2	TA	ON	T3*		
		BS1	M6			TE1	SD	CSE	SD2		ON	T3*		
**	RCV DISC	M BS1	M4	J4	E4	E6	TE1	SD	CSE	SD2	TA	ON	T3*	
	OR	BS1	M6	J4	E4	E6	TE1	SD	CSE	SD2				
	XMT DISC ACK	BS1	M4	M6	J4	E4	E6	TE1	SD	CSE	SD2			
	END OF DISC	BS1	M4	M6			TE1	SD	CSE	SD2				
	RMV DISC ACK	BS1												BS3
	IDLE													
	XMT OFF HOOK	M BS1	M4			TE1	SD	CSE	SD2	OFF		T3		
	TLK COND	M BS1				TE1	SD	CSE	SD2	OFF		T3		
***	RCV RERING	M BS1			E6	TE1	SD	CSE	SD2	OFF		T3		
		M BS1				TE1	SD	CSE	SD2	OFF		T3		
****	XMT SW HOOK FL	BS1	M6			TE1	SD	CSE	SD2		ON	T3*		
		M BS1	M4			TE1	SD	CSE	SD2	OFF		T3*		
	RCV DISC	M BS1		J4	E4	E6	TE1	SD	CSE	SD2				
	XMT DISC ACK	BS1	M4	M6	J4	E4	E6	TE1	SD	CSE	SD2			
	END OF DISC	BS1	M4	M6			TE1	SD	CSE	SD2				
	RMV DISC ACK	BS1												BS3
	IDLE													

\* T3 may or may not flash, depending on the rate of flashing.

\*\* Sequence only for certain busy conditions or wrong address information.

**Note:** Transmission of audible busy tone is not registered by lamps. Therefore RVC DISC, etc, will follow directly.

\*\*\* Received only when operator at terminating end is called.

\*\*\*\* Transmitted only when operator is requested by terminating end.

**SECTION 179-123-501**

**STEP**

**ACTION**

**VERIFICATION**

2 Remove MON connector of portable test box from MON connector of converter.