TMC SPECIFICATION				NO. S 881
REV: 0A				
COMPILED: A D	CHECKED: C. Buddles	APPD: [signature]		SHEET 1 OF 9
TITLE:			4/22/65	

Typed by mtp 11/10/64

TEST PROCEDURE

for

TTC-1

TITLE: TEST PROCEDURE FOR TTC-1

typed by vab 4/21/65

A. EQUIPMENT REQUIRED

1. One Simpson 260 VOM.
2. One TTC-1 test supply or equivalent.
3. PAL-350 linear amplifier.
4. HP-606 generator.
5. HP-410B VTVM.
6. 50 ohm 100 Watt Resistine Load.

B. PRELIMINARY

1. Check all mechanical connections to see that they are all tight.
2. Check all solder connections:
   a. Take special note that all the coil taps are soldered well.
   b. Also take special note that all the Ledex connections are soldered well.
3. Check for any possible shorts in wiring:
   a. Take special note that none of the coil taps are shorting to the shield plate.
   b. Also be sure no turns are shorted on the coil.
   c. Very carefully check to see that all the Ledex terminals are not shorting to any of the mounting brackets.
   d. Carefully check to see that none of the variable capacitor rotor plates are shorting.
4. Check diode polarities.
5. Check resistor values.
6. Check fixed capacitor values.
7. CAUTION: DO NOT ATTEMPT TO TURN THE LEDEX MANUALLY IN THE CW DIRECTION.
8. Check to see that the Ledex will turn freely in the CCW direction, as viewed from the outside of the unit, and that the shaft is not binding on the panel.
   a. If binding occurs, the Ledex can be moved slightly by loosening the four Ledex screws.

C. TESTING

1. Set the Simpson 260 on the RXI scale, short the leads and zero it.
2. Connect the (-) Simpson lead to the ground terminal on the sid of the chassis.
3. Connect the (+) lead to the reflected voltage jack on the front panel. The meter should read infinite ohms.

C. TESTING - Cont'd

4. Now connect the (+) lead to the ground jack on the front panel. The meter should read approx. 300 ohms.

5. Connect the (+) lead to the forward voltage jack on the front panel. The meter should again read infinte ohms.

6. Place the chennel selection knob on the front panel to any of the channel 1 positions with no coil jumpers in place.

7. Connect the (-) meter lead to the center pin of the BNC input jack on the side of the chassis.

8. Connect the (+) meter lead to ground. The meter should read infinite ohms.

9. Connect the (+) meter lead to the primary #1 terminal. The meter should read "0" ohms.

10. Set the channel selection knob on the front panel to any of the chennel 2 positions.

11. Connect the (+) meter lead to ground. The meter should read infinite ohms.

12. With the (-) meter lead still on the RF input jack, put the (+) meter lead on the primary #2 terminal. The meter should read "0" ohms.

13. Set the channel selector to any of the channel 3 positions.

14. Connect the (+) meter lead to ground. The meter should read infinite ohms.

15. Connect the (+) meter lead to the primary #3 terminal. The meter should read "0" ohms.

16. Set the channel selector to any of the channel 4 positions.

17. Connect the (+) meter lead to ground. The meter should read infinite ohms.

18. Connect the (+) meter lead to the primary #4 terminal. The meter should read "0" ohms.

19. Now connect the (-) meter lead to the RF output clip mounted on the standoff under the chassis.

20. Place the channel selector in any of the channel 1 positions.

C. TESTING - Cont'd

21. Connect the (+) meter lead to ground. The meter should read infinite ohms.

22. Connect the (+) meter lead to the stator of C7. The meter should read "0" ohms.

23. Place the channel selector in any of the channel 2 positions.

24. Connect the (+) meter lead to ground. The meter should read infinite ohms.

25. Connect the (+) meter lead to the stator of C8. The meter should read "0" ohms.

26. Place the channel selector in any of the channel 3 positions.

27. Connect the (+) meter lead to ground. The meter should read infinite ohms.

28. Connect the (+) meter lead to the stator of C9. The meter should read "0" ohms.

29. Place the channel selector in any of the channel 4 positions.

30. Connect the (+) meter lead to ground. The meter should read infinite ohms.

31. Connect the (+) meter lead to the stator of C10. The meter should read "0" ohms.

32. Connect the (-) meter lead to the terminal 3 end of C11 on SW1A front.

33. Place the channel selector in any of the channel 1 positions.

34. Connect the (+) meter lead to ground. The meter should read infinite ohms.

35. Connect the (+) meter lead to the secondary #1 terminal. The meter should read "0" ohms.

36. Place the chennel selector in any of the channel 2 positions.

37. Connect the (+) meter lead to ground. The meter should read infinite ohms.

38. Connect the (+) mete lead to the secondary #2 terminal. The meter should read "0" ohms.

39. Place the chennel selector in any of the channel 3 positions.

C. TESTING - Cont'd

40. Connect the (+) meter lead to ground. The meter should read infinite ohms.

41. Connect the (+) meter lead to the secondary #3 terminal. The meter should read "0" ohms.

42. Place the channel selector in any of the channel 4 positions.

43. Connect the (+) meter lead to ground. The meter should read infinite ohms.

44. Connect the (+) meter lead to the secondary #4 terminal. The meter should read "0" ohms.

45. Connect the (+) meter lead to terminal 2 of SW1-B.

46. Connect the (-) meter lead to ground. The meter should read 110 ohms.

47. Place the channel selection switch in any of the channel 1 positions.

48. Connect the (-) meter lead to terminal A of the power input jack on the side of the chassis. The meter should read infinite ohms.

49. Connect the (-) meter lead to terminals B, C, and D. They should all read "0" ohms.

50. Place the channel selector in any of the channel 2 positions.

51. Connect the (-) meter lead to terminal B of the power input jack. The meter should read infinite ohms.

52. Connect the (-) meter lead to terminals A, C and D. They should all read "0" ohms.

53. Place the channel selector in any of the channel 3 positions.

54. Connect the (-) meter lead to terminal C of the power input jack. The meter should read infinite ohms.

55. Connect the (-) meter lead to terminals A, B and D. They all should read "0" ohms.

56. Place the channel selector in any of the channel 4 positions.

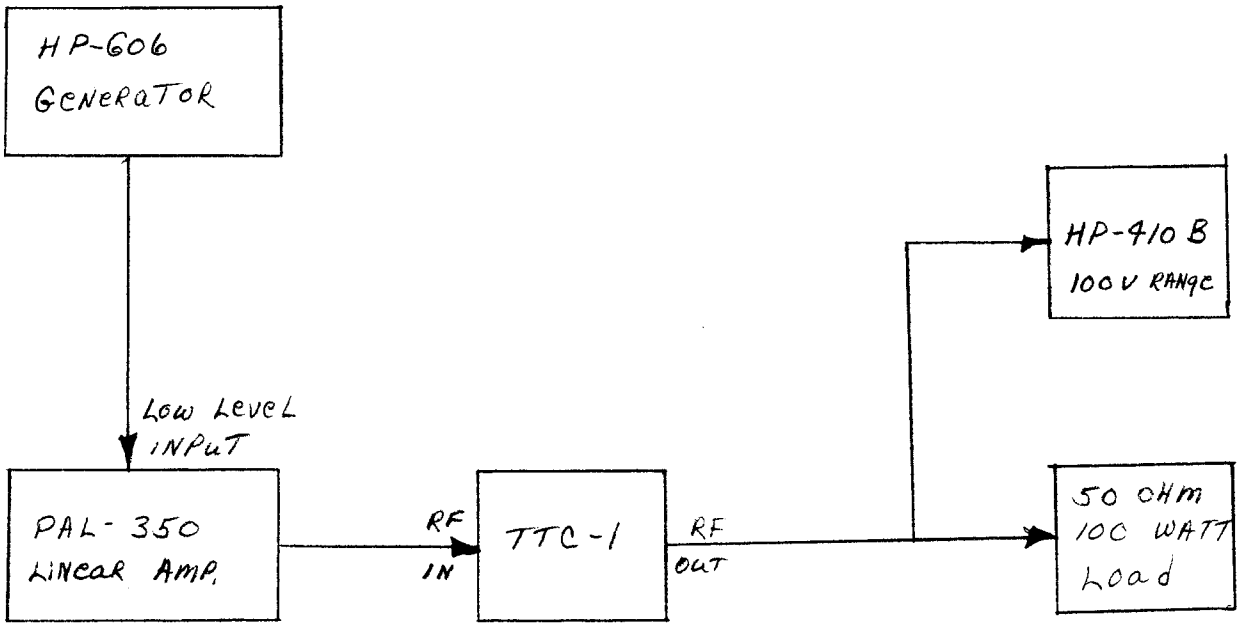
57. Connect the (-) meter lead to terminal D of the power input jack. The meter should read infinite ohms.

58. Connect the (-) meter lead to terminals A, B and C. They should all read "0" ohms.

C. TESTING - Cont'd

WARNING: IN THE FOLLOWING TESTS RF VOLTAGES WILL BE PRESENT ON THE COUPLER. AS THE COUPLER MAY BE OPERATED OUT OF THE CASE EXTREME CARE SHOULD BE TAKEN.

59. Connect the PAL-350, TTC-1, generator, and meters as shown in the block diagram below.



60. Connect the Simpson 260 to the TTC-1 with the ground lead to the ground jack and the hot lead to the Reflected jack. Set the meter to the lowest DC voltage scale.

61. Set the HP-606 for zero output and a frequency of 2.0 MC with no modulation. Also set up the PAL-350 driver and PA bandswitches for 2.0 MC and the PA loading at "0".

62. Connect jumpers from the TTC-1 primary #1 tap to the coil tap #4 and secondary #1 tap to coil tap #10 and set the TTC-1 in any of the Ch1 positions. (The TTC-1 channel switch will remain in the Ch1 position for the rest of the tests.

63. After letting the PAL-350 filiments warm up a few minutes incr ase the signal generator output to approximately .2V and peak the driver tuning for maximum with the PAL-350 multimeter in the 0-50V driver position. (This should be done with the H. V. off) Return the generator output to zero.

64. Turn on the High voltage and a static plate current of about 160ma should be seen on the PAL-350 PA plate current meter. If not refer to the PAL-350 manual.

65. Increase the generator output just enough to get a slight incr ase in the PAL-350 plate current. Adjust the PAL-350 PA tuning for a dip in plate current.

WARNING: AT NO TIME IN ANY PART OF THE TEST SHOULD THE VOLTAGE ACROSS THE 50 OMHS LOAD AS READ ON THE HP-410B BE LET TO EXCEED 50V.

66. You now should also see a reading on the Simpson. If not increase the HP-606 output slightly but only enough to obtain a reading.

67. Adjust the TTC-1 Channel 1 capacitor for minimum reading on the Simpson. A sharp kick in the meter reading may be encountered as you pass through the dip but this is normal. Note the reading.

68. Remove the hot Simpson meter lead from the reflected jack and put it in the forwarded jack and note the reading.

69. Using the formula below calculate the VSWR.

$$VSWR = \frac{VFOR+VREF}{VFOR-VREF}$$

70. Th VSWR should be less than 3.0 : 1.0. Do not proceed until this is obtain d.

71. Increase the generator output until the HP-410B across the load reads 50V. In some cases the PAL-350 loading may have to be increased.
WARNING: DO NOT EXCEED 50V.

72. Listen and watch for any arching or breakingdown. If there is none return the generator output to zero and repeat steps 59-72 using the information in table 1.

NOTE: THE PURPOSE OF THIS TEST IS TO CHECK EACH COUPLER COIL TOP FOR VOLTAGE BREAKDOWN AND TO SEE THAT IT TUNES. THE COIL TABLE IN THE TTC-1 CASE CAN NOT BE USED IN THE TESTING.

TABLE 1

	TTC-1	
FREQUENCY	PRIMARY TAP	SECONDARY TAP
2.0 mc	4	10
2.0 mc	8	11
2.0 mc	11	12
6.0 mc	1	7
12.0 mc	3	9
20.0 mc	6	5

73. Check Ledex remote operation with appropriate test jig.

D. CHECK SHEET:

			( )	COMMENTS
1.	Visual inspection		___	_____
2.	Continuity check (steps 1-58)		___	_____
		VSWR	BREAKDOWN	
3.	2.0 mc	_____	_____	
	2.0 mc	_____	_____	
	2.0 mc	_____	_____	
	6.0 mc	_____	_____	
	12.0 mc	_____	_____	
	20.0 mc	_____	_____	

REVISION SHEET

THE TECHNICAL MATERIEL CORP.
MAMARONECK NEW YORK

S-881 Ø
LIST NO.

DATE	REV.	SHEET	EMN #	DESCRIPTION	APP.
4/22/65		1 of 9		O=ORIGINAL RELEASE FOR PRODUCTION.	
5/19/65	A	3,5,8	14105	Revised shts 3,5,8, as per EMN.	16