TMC SPECIFICATION	NO. S1371
REV:	
COMPILED:	CHECKED: APPD: SHEET F
TITLE:	

ANTENNA TUNING SYSTEM

TEST PROCEDURE FOR ATU-1KC & REMOTE RCP-6

EQUIPMENT NEEDED

Hewlett-Packard Model (4815A) RF vector inpedance meter or equivalent.
Hewlett-Packard power supply Model 6202 or equivalent
35 foot Antenna simulator
Simpson 260 multi-meter

POWER REQUIREMENTS

The ATU-1K requires +24VDC to operate the ledex motor for remote channel selection. The external +24VDC must be applied to the appropriate pins on remote jack J2 with Hewlett-Packard supply. When the ATU-1K is used with the remote unit AX5227 the 24VDC will be supplied by the remote through J2 to the ledex stepping motor. Refer to table 1-1.

MECHANICAL INSPECTION

Make sure the correct value capacitor are installed. Refer to Table 1-2. The ATU-1K should be installed so that the distance between the antenna tuner output terminal and the Antenna does not exceed 2 feet. (35 ft. Antenna)

ELECTRICAL INSPECTION

Use Simpson ohm meter to check ledex circuit, make sure +24VDC is not shorted to ground. Electrical connection of the ATU-1K is made by means of the connectors located on the front and rear of the unit. When the ATU is shipped as part of a TMC system, interconnection between ATU-1K and the remote AX5227 are made through the multi-pin and RF connector jacks on the AX5227.

PROCEDURE

1. Connect the ATU-1K as shown in figure 1-2. Insure that the tuner is connected to the antenna simulator and the antenna lead is no more than 2 feet in length.

2. Remove outer top cover of the ATU-1K Tuner to expose the internal components.

3. Select the channel to be adjusted. Channel selections are made by applying +24VDC to the appropriate pin on remote jack J102 or by indexing the channel selector switch on the AX5226 control unit.

4. Set the appropriate channel adjust capacitor to mid-position. (C101-C108).

5. To determine the tap selection of loading coil L101, observe the test equipment and move the shorting clip on the coil L101 until vactor inpedance meter indicates minimum reactance between $\pm$ 30 degrees and 50 $\pm$ 10 ohms impedance.

TABLE 1-1

+24VDC to the following pins on J2:	
CHANNEL 1	PIN B
CHANNEL 2	PIN C
CHANNEL 3	PIN D
CHANNEL 4	PIN E
CHANNEL 5	PIN F
CHANNEL 6	PIN G
CHANNEL 7	PIN H
CHANNEL 8	PIN I

TABLE 1-2 SHUNT CAPACITOR/LOADING COIL VALUES

FREQ MHz	CA VALUE	TAP
2.0	100	26
3.0	100	13
4.0	100	7
5.0	300	3 3/4
6.0	400	3 3/4
7.0	200	6
8.0	100	6
9.0	0	5
10.0	0	4 1/4
11.0	0	3 1/4
12.0	0	2 1/4
13.0	0	1 1/4
14.0	0	1 1/2
15.0	0	2 3/4
16.0	0	2 3/4
17.0	0	2 3/4
18.0	0	2 3/4
19.0	0	2 3/4
20.0	0	1 3/4
21.0	0	1 3/4
22.0	0	1 3/4
23.0	0	1 3/4
24.0	0	1
25.0	0	1
26.0	0	1

PROCEDURE (CONT'D)

6. Add shunt capacitor in parallel with the variable channel adjust capacitor wherever necessary according to specified frequencies. Refer to Table 1-2.

7. Observe test equipment and adjust the appropriate variable capacitor (C101-C108) as necessary to further minimize the reactance.

8. Repeat steps 5 through 8 as often as necessary to obtain minimum reactance on all frequency specified.

* ± 30 degrees, +50 ohm ±10 ohms inpedance as read on vector inpedance meter.

ATU-1K CONTROL UNIT

SYMBOL	FUNCTION	PART NUMBER
S101	Selection of channel in tuner unit	SW296-1
S102	Selection of LOCAL/REMOTE operation NOTE: Place in LOCAL position for stand-alone operation.	ST22N
S103	AC Power Switch	ST22K

As the pushbutton S101 is depressed, the ATU-1K stepping motor advances one position and a voltage is returned to the control unit via one of eight readback lines. The presense of this voltage causes indicator lamps on the front panel to fire corresponding to the actual channel selected. The AC power lamp is activated when S103 is placed in the AC ON position.

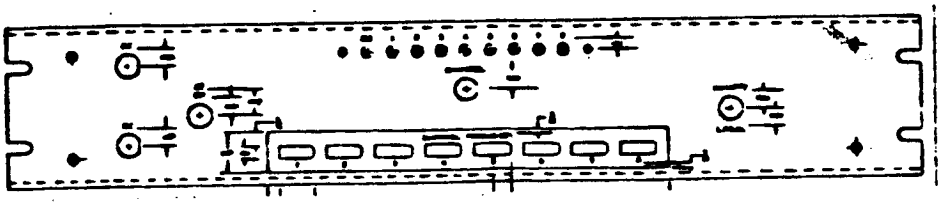

FIGURE 1-1 SELECTOR CONTROL UNIT

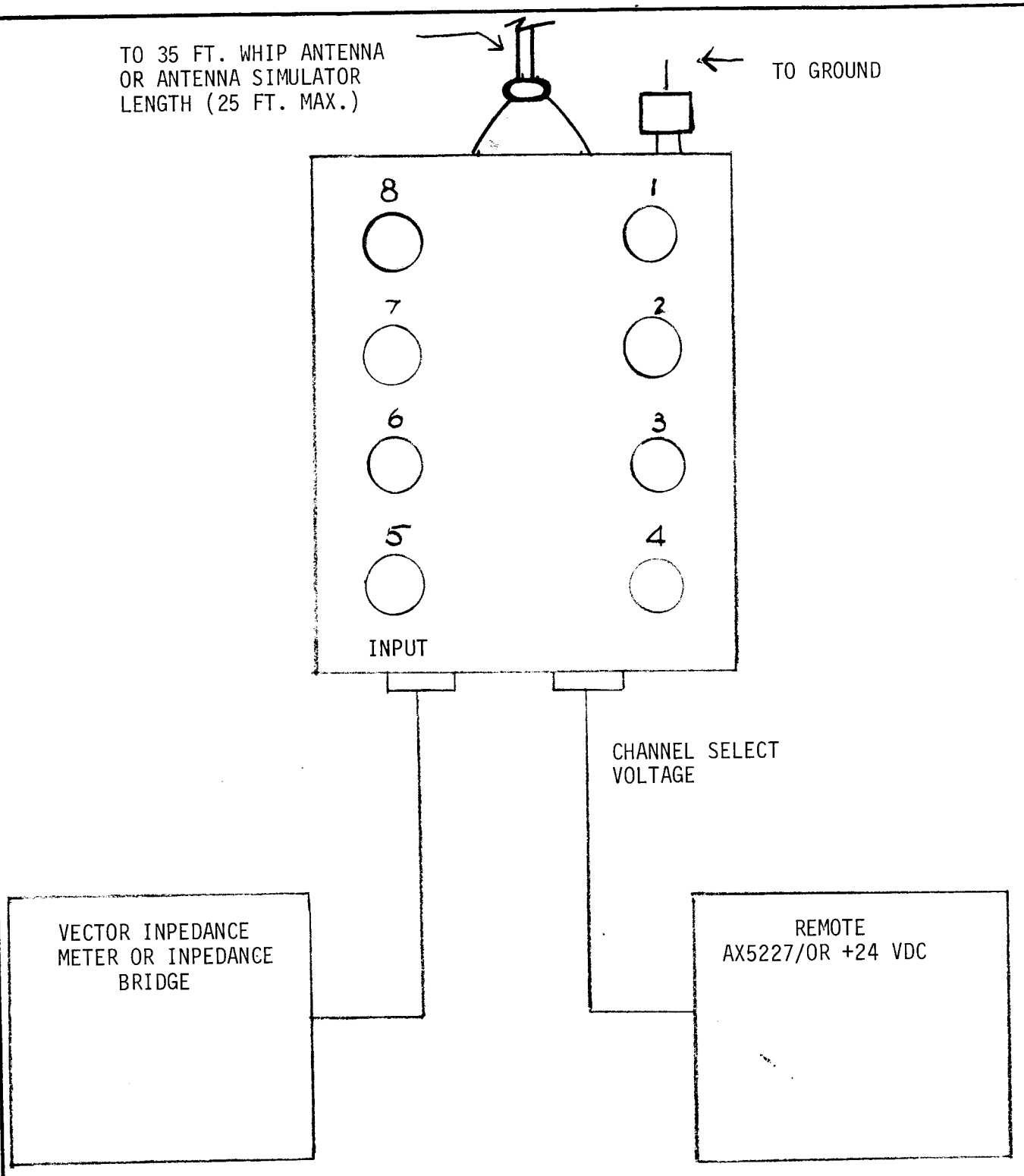
TO 35 FT. WHIP ANTENNA
OR ANTENNA SIMULATOR
LENGTH (25 FT. MAX.)
TO GROUND
8
1
7
2
6
3
5
4
INPUT
CHANNEL SELECT
VOLTAGE
VECTOR INPEDANCE
METER OR INPEDANCE
BRIDGE
REMOTE
AX5227/OR +24 VDC

FIGURE 1-2

MANUFACTURING NO. _____

SERIAL NO. _____

1a. - MECHANICAL _____ OK

b. - WIRING _____ OK

c. - LEDEX _____ OK

d. - REMOTE _____ OK

	FREQUENCY	OHMS	DEGREES
CH-1	_____	_____	_____
CH-2	_____	_____	_____
CH-3	_____	_____	_____
CH-4	_____	_____	_____
CH-5	_____	_____	_____
CH-6	_____	_____	_____
CH-7	_____	_____	_____
CH-8	_____	_____	_____

DATE _____

TESTER _____

MANUFACTURING NO. _____

SERIAL NO. _____

1a. - MECHANICAL _____OK

b. - WIRING _____OK

c. - LEDEX _____OK

d. - REMOTE _____OK

	FREQUENCY	OHMS	DEGREES
CH-1	_____	_____	_____
CH-2	_____	_____	_____
CH-3	_____	_____	_____
CH-4	_____	_____	_____
CH-5	_____	_____	_____
CH-6	_____	_____	_____
CH-7	_____	_____	_____
CH-8	_____	_____	_____

DATE _____

TESTER _____

MANUFACTURING NO. _____

SERIAL NO. _____

1a. - MECHANICAL _____ OK

b. - WIRING _____ OK

c. - LEDEX _____ OK

d. - REMOTE _____ OK

	FREQUENCY	OHMS	DEGREES
CH-1	_____	_____	_____
CH-2	_____	_____	_____
CH-3	_____	_____	_____
CH-4	_____	_____	_____
CH-5	_____	_____	_____
CH-6	_____	_____	_____
CH-7	_____	_____	_____
CH-8	_____	_____	_____

DATE _____

TESTER _____