"TOUCH-TONE"® OSCILLATORS USED IN AUTOMATIC MONITOR, REGISTER, AND SENDER TEST CIRCUIT SD-25680-01 ADJUSTMENT NO. 5 CROSSBAR OFFICES

1. GENERAL

1.01 This section describes a method of adjusting the frequency and gain of the TOUCH-TONE oscillators used in the automatic monitor, register, and sender test circuit SD-25680-01. These adjustments compensate for the normal variation and aging of the various components making up the oscillator circuitry.

1.02 This section is reissued to change apparatus referenced in 2.02. Revision arrows are used to emphasize the more significant changes. This reissue does not affect the Equipment Test Lists.

1.03 Before proceeding with the frequency adjustments, determine whether option IW or IX applies for Table B.

2. APPARATUS

2.01 Automatic monitor, register, and sender test circuit, SD-25680-01.

2.02 Hewlett-Packard ▶5318A or◀ equivalent electronic counter capable of measuring the frequencies as shown in Tables A and B.

2.03 P2CT cable consisting of a 4 foot shielded cable, one 310 plug, and one KS-13737 plug.

2.04 Voltohmyst (RCA WV-98C, or equivalent).

2.05 2W17A cable consisting of a W2W cord, 6 feet long, one 310 plug, one 360B tool, and one 360C tool.

2.06 Two KS-6278 connecting clips (used with 2W17A cable to provide connections to voltohmyst).

2.07 3-inch C screwdriver for adjusting KS-16752 L5 potentiometers.

2.08 R-3322 Xcelite screwdriver (for adjusting LA, LB, and LC transformers manufactured prior to 1967).

2.09 KS-19355 L3 or L4 adjusting tool (for adjusting LA, LB, and LC transformers manufactured subsequent to 1967).

3. PREPARATION

TOUCH-TONE Oscillator Adjustments

3.01 ***Frequency:*** Connect the power cord of the counter to source of 110 volts ac. Operate the power switch to ON. Allow at least 5 minutes for the equipment to warm up.

3.02 ***Voltage Level:*** Connect the power cord of the voltohmyst to a source of 110 volts ac. Operate the power switch to ON, selector switch to AC, and multiplier switch to 1.5V. Allow at least 5 minutes for the meter to warm up.

3.03 Before attempting the following adjustments, check that all keys and switches on the automatic monitor, register, and sender test circuit are in the OFF or normal position.

4. METHOD

Adjustment for Low, High, and 2000 Frequencies

4.01 Connect P2CT cable between the counter and VL jack on automatic monitor, register, and sender test circuit.

4.02 Using the key and switch settings of Table A, adjust slugs of transformers LA, LB, and LC to obtain the frequencies specified. The screwdriver or adjusting tool specified in 2.08 or 2.09 shall be used to make the adjustments.

> ***Note 1:*** Follow manufacturer's instructions for frequency measurement with the counter.
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> ***Note 2:*** Should aging of the components prevent proper adjustment by the above means, one of the following trimmer capacitors (51, 100, 150, 200, 240, 300, 360, 430, or 510 UUF) may be added as required to obtain the desired frequency. Increasing size of trimmer capacitor tends to bring maximum and minimum frequency generated by the transformer closer together.

Check of Maximum and Minimum Frequency Variations

4.03 With P2CT cable connected between counter and VL jack, operate keys and switches as required in Table B. The frequencies must fall within the limits specified; if not, readjust the affected transformer until all limits are met.

4.04 Remove P2CT cable from VL jack and counter, place power switch on counter to OFF, and remove power plug from 110-volt ac power source.

4.05 Restore all keys and switches on automatic monitor, register, and sender test set.

Voltage Level Adjustment

4.06 Connect the 2W17A cable to VL jack on the automatic monitor, register, and sender test circuit. Using the two KS-6278 connecting clips (attached to 360B tool and 360C tool of 2W17A cable), connect one of the clips to the ground lead of the voltohmyst and connect the other clip to the probe.

4.07 Operate the keys and switches as required in Table C. Adjust potentiometers PA, PB, and PC to the levels specified, using the 3-inch C screwdriver.

4.08 Remove the 2W17A cable from the VL jack and disconnect it from the voltohmyst. Remove the voltohmyst power cord from the 110-volt ac power source.

4.09 Restore all keys and switches on automatic monitor, register, and sender test circuit.

TABLE A

AUTOMATIC MONITOR, REGISTER, AND SENDER TEST CIRCUIT					COUNTER
ADJUST TRANSFORMER	ADD TRIMMER CAPACITOR	OPERATE KEYS	SWITCH SETTING		FREQUENCY CPS
			FCB	FCA	
LB	B04 (See 4.02)	ADJ LFA		1	697
LA	A04 (See 4.02)	ADJ HFA		1	1209
LC		ADJ	3FS	OFF	2000

TABLE B

AUTOMATIC MONITOR, REGISTER, AND SENDER TEST CIRCUIT					COUNTER	
ADJUST TRANSFORMER	ADD TRIMMER CAPACITOR	OPERATE KEYS	SWITCH SETTING FCB	SWITCH SETTING FCA	OPTION IW OUTPUT FREQUENCY (CPS)	OPTION IX OUTPUT FREQUENCY (CPS)
LB (As Required)	B04 (See 4.02)	ADJ LFA	MNF	1	683.8-685.2	685.8-687.2
				2	755.3-756.9	757.7-759.2
				3	835.8-837.5	838.4-840.1
				4	923.1-925.0	925.9-927.8
			MXF	1	708.8-710.2	706.8-708.2
				2	783.1-784.7	780.8-782.3
				3	866.5-868.2	863.9-865.6
				4	957.0-958.9	954.2-956.1
LA (As Required)	A04 (See 4.02)	ADJ HFA	MNF	1	1186.0-1188.4	1189.7-1192.1
				2	1310.6-1313.3	1314.6-1317.3
				3	1448.9-1451.9	1453.4-1456.4
				4	1602.0-1605.2	1606.8-1610.2
			MXF	1	1229.6-1232.0	1225.9-1228.3
				2	1358.7-1361.4	1354.7-1357.4
				3	1502.1-1505.1	1497.6-1500.6
				4	1660.8-1664.0	1655.8-1659.2
LC		ADJ	3FX	OFF	1900.0-2100.0	1900.0-2100.0

TABLE C

AUTOMATIC MONITOR, REGISTER, AND SENDER TEST CIRCUIT			VOLTOHMYST	
OPERATE KEYS	SWITCH SETTING FCA	SWITCH SETTING FCB	ADJUST POTENTIOMETER	OUTPUT AC VOLTS
ADJ, HFA, HLV	2	OFF	PA	1.34
ADJ, LFA, HLV	2	OFF	PB	1.34
ADJ, HLV	OFF	3FS	PC	1.5