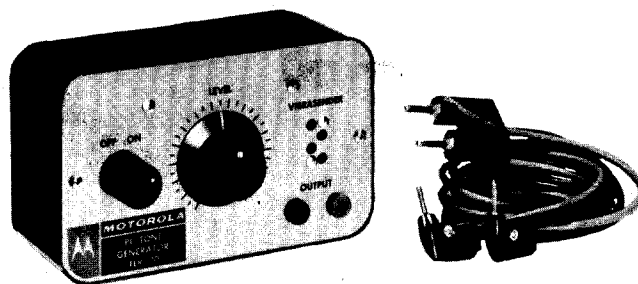


"PRIVATE-LINE" TONE GENERATOR

MODEL TEK-20

AEPPD-6675-O(MC6979)



1. DESCRIPTION

The Motorola Model TEK-20 "Private-Line" Tone Generator is used for testing and troubleshooting receiver "Private-Line" squelch circuits. This tone generator is battery powered. A test cable is provided for connecting the tone generator to the EXT MOD terminals of the Motorola Model T1034A or T1034B FM Signal Generator. By modulating the FM signal generator in this manner, approximately 3 to 4 kc deviation can be obtained. This is adequate deviation for any receiver tests that may be required. The performance of a "Private-Line" receiver may be completely checked by using the TEK-20 with the FM signal generator. The tone output of the TEK-20 may be applied directly into the tone circuits of the receiver and a stage by stage check made to isolate any trouble existing there. Squelch sensitivity of the receiver is checked with a "Private-Line" tone modulated signal. An output LEVEL control is provided to adjust the tone output level when applying it directly to the receiver.

This tone generator requires a TU217 "Vibrasender" Resonant Reed having the same frequency as the "Vibrasponder" resonant reed in the receiver to be tested. The "Vibrasender" resonant reed plugs into a socket on the front panel of the tone generator. Two test lead kits for use with the TEK-20 are available on separate order. These are the Motorola Model TEKA-18 Test Lead Kit which is terminated with two "Minigator" clips and the Motorola Model TEKA-19 Test Lead Kit which is terminated with one "Minigator" clip and a test prod.

2. OPERATION

a. Modulating the T1034A or T1034B FM Signal Generator with the TEK-20

- (1) Connect the 2-pin plug on the test cable to the EXT MOD and GND terminals on the FM signal generator. The pin connected to the BLACK lead plugs into the GND terminal.
- (2) Connect the two plugs on the other end of the test cable to the OUTPUT connectors on the tone generator (BLACK plug to BLACK connector; RED plug to RED connector).
- (3) Set the LEVEL control on the tone oscillator to the maximum clockwise position.
- (4) Set the modulation selector switch on the FM signal generator to the EXT position.
- (5) Plug a TU217 "Vibrasender" Resonant Reed of the proper frequency into the socket on the panel of the tone generator.
- (6) Set the ON-OFF switch of the tone generator to ON.
- (7) Set the FM signal generator for the proper carrier frequency output in accordance with its associated instruction manual. Use the modulation level control on the FM signal generator to set the required amount of deviation. The amount of deviation may be read on the modulation meter of the FM signal generator.

**THIS MANUAL HAS BEEN
DISCONTINUED**

b. Applying the Output of the TEK-20 Directly to Tone Circuits

(1) Connect a pair of test leads to the OUTPUT terminals of the tone generator.

(2) Plug a TU217 "Vibrasender" Resonant Reed of the proper frequency into the socket on the panel of the tone generator.

(3) Set the tone generator ON-OFF switch to the ON position and connect the test leads to the desired point in the tone circuits.

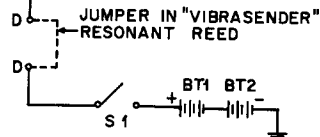
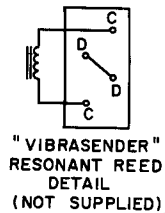
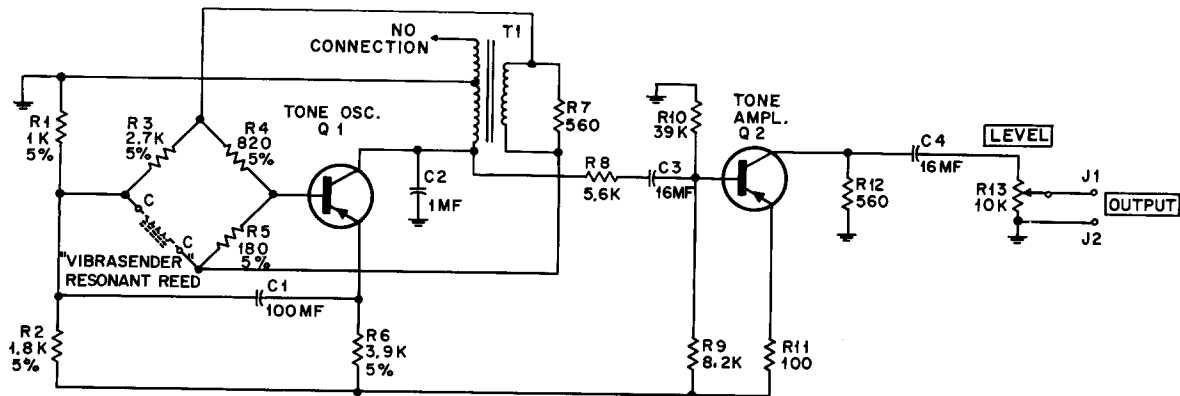
(4) Set the LEVEL control of the tone generator to the desired output voltage level.

3. BATTERY REPLACEMENT

To replace batteries, remove the two screws on the rear cover and the cover. Batteries are mounted in clips on the rear cover. Observe polarity when inserting new batteries.

WARNING

Do not destroy mercury batteries in a fire. They may explode and cause injury.



NOTE:
ALL RESISTORS ARE IN OHMS, ±10%, 1/4W
UNLESS OTHERWISE SPECIFIED.

DIAGRAM NO. 63B81102A45

PARTS LIST for Diagram 63B81102A45-O

REFERENCE SYMBOL	MOTOROLA PART No.	DESCRIPTION
BT1 BT2	60B863919	BATTERY, dry: mercury; 6.75 v same as BT1
C1	23K864366	CAPACITOR, fixed: 100 uf ±10%; 10 v
C2	8K863306	1 uf ±10%; 200 v
C3	23C82601A10	16 uf +33-10%; 10 v
C4		same as C3
Q1	48A124319	TRANSISTOR: P-N-P
Q2	48A124339	P-N-P
R1	6K129805	RESISTOR, fixed: ±10%; 1/4 w; unless otherwise stated 1K ±5%
R2	6K129820	1.8K ±5%
R3	6K129707	2.7K ±5%
R4	6K129818	820 ±5%
R5	6K129431	180 ±5%
R6	6K129819	3.9K ±5%
R7	6K129620	560
R8	6K129433	5.6K
R9	6K128686	8.2K
R10	6K128903	39K
R11	6K129753	100
R12	6K129620	560
R13	18K805241	variable: 10K ±30%
S1	40B844495	SWITCH, rotary: spst
T1	25B861182	TRANSFORMER, AF: pri: d-c res 1000 ohms ±10%; center tapped; sec: d-c res 120 ohms ±10%
NON-REFERENCED ITEMS		
	15B82277C01	HOUSING
	64B82278C07	PANEL, back
	64C82279C03	PANEL, front
	3S8158	SCREW, tapping: No. 4 Phillips binder head; 4 req'd; for front and back panels
	9A833982	POST, binding: BLK; includes mounting hardware
	9K833983	POST, binding: RED; includes mounting hardware
	36A863918	KNOB, control: skirted
	36A855027	KNOB, control
	42B82836C01	HOLDER, battery: includes insulator

TEK-20 "Private-Line" Tone Generator
Schematic Diagram
Motorola No. 63B81102A45-O
8/21/61-UM