

## CIRCUIT DIAGRAM — JH CHASSIS

## SERVICE NOTES

Transistors can be permanently damaged by excessive external heat, or by heat generated within the circuit by excessive current flow. When servicing this equipment, the following precautions should be observed:

Supply polarity should never be reversed. Never remove or replace a transistor or circuit component without first disconnecting the battery.

When soldering transistor leads, use a small iron. Solder as rapidly as possible, keeping the iron well clear of the transistor body.

The use of a 240-volt soldering iron should be avoided, as leakage and capacitance effects can destroy a transistor. To avoid this problem, a low voltage iron with a step-down transformer should be used.

To unsolder multi-terminal components (IF transformers, etc.), it is best to apply heat simultaneously to all terminals, using a special iron tip. If a normal iron tip is used, apply the iron to each soldered joint in turn, and brush away the solder with a stiff brush.

Disconnect transistors before making circuit checks with an ohm meter. Failure to do so will give misleading results and the transistors may be damaged by excessive conduction, caused by the ohm meter battery. Check polarity of the ohm meter leads; electrolytic capacitors may be damaged if the ohm meter battery voltage is applied in reverse polarity.

When taking voltage measurements, avoid accidental short-circuits by the voltmeter probes.

The output transistors are operated in a complementary symmetry configuration. Care must be taken not to connect the emitters of these transistors to earth. The voltage at the emitters should be approximately 8 volts. Note, also, that one side of the speaker is connected directly to the +15 volt line, and not to earth.

Fault finding can be carried out in the usual manner, keeping in mind that a transistor failure is unlikely.

When using a signal generator, a DC blocking capacitor should be used in the live lead to prevent disturbance of the transistor DC circuits.

Before connecting the generator, adjust its attenuator for minimum output. Signal generators designed for vacuum tube circuits can often deliver more signal than a transistor can safely handle.

The output must be correctly loaded with 47 ohms during these tests. If the output load is reduced below the correct value, the maximum dissipation of the output transistors will be exceeded at high output levels. When making output measurements, an output meter having a resistance of at least 250 ohms may be connected across the speaker voice coil. Do not use a meter of lower resistance.

## DISMANTLING

If removal of the printed circuit board is necessary, first remove the back by slackening the captive rear retaining screw.

Withdraw the tuning knob from the spindle.

Remove the three slotted nuts and one self-tapping screw which hold the printed board to the cabinet. Remove the inverted "U" bracket and the printed circuit board may now be lifted away. If necessary, the speaker leads may be extended to give greater freedom of movement.

## ALIGNMENT PROCEDURE

In any case where a component replacement has been made in either IF or RF circuits of the receiver, all circuits should be realigned. IF alignment should always precede RF alignment. An output meter is connected across the voice coil of the speaker. In carrying out the following operations, it is important that the input to the receiver from the signal generator should be kept low and progressively reduced as the circuits are brought into line, in order that overloading shall be avoided.

Note:

- The tuning tool should be a small plastic screwdriver with a tip which fits cleanly into the tuning core.
- When tuning the core, do not use any downward pressure, as the threaded former has enough resilience to detune the circuit, after the pressure is relieved.
- The thread in the former may be damaged if the core is found in and forced against the circuit board. A light torque should be all that is normally required to turn the core.

## IF ALIGNMENT

- Set the signal generator to 455 kHz, with 30% modulation at 400 Hz. Turn the receiver volume con-

trol fully clockwise and set the tuning control to the LF end of the band.

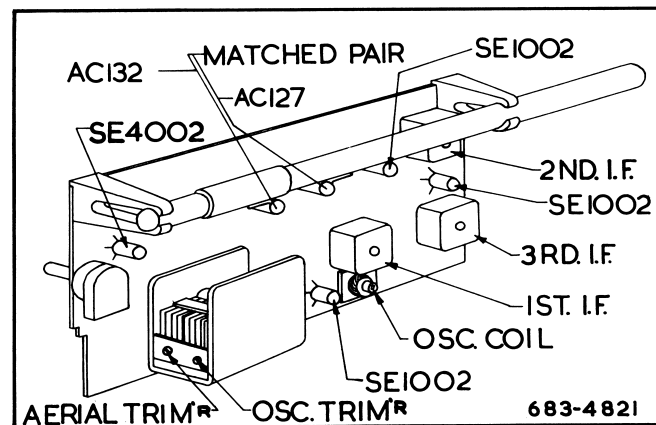
- Inject a signal into the aerial section of the gang. Adjust the cores of T5, T4 and T3 for maximum reading on the output meter.

## RF ALIGNMENT

- Set the controls as for IF alignment. A coil comprising 3 turns of 16-gauge DCC wire about 12" in diameter should be connected across the output terminals of the generator. The coil is placed concentric with the rod aerial and distant not less than one foot from it.
- Check that, when the gang capacitor is fully enmeshed, the points coincide with the setting lines. If

necessary, the pointers may be adjusted by releasing the screw on the coupling of the gang. After adjustment, the screw should be tightened.

- Set signal generator to 600 kHz.
- Turn tuning control until the pointer is exactly over the 600 kHz calibration mark. Adjust the core in T2 for maximum reading on the output meter.
- Set signal generator to 1500 kHz.
- Turn tuning control until the pointer is exactly over the 1500 kHz calibration mark. Adjust VC3 and VC1 for maximum reading on the output meter.
- Repeat operations (3) to (6) for optimum alignment.



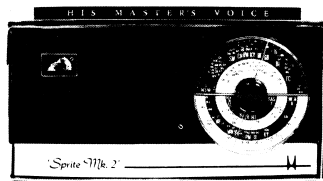
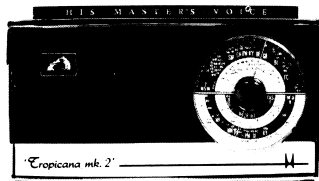
NOTE: The transistor SE1002 (adjacent to the volume control) has been changed to SE4002.

## SERVICE MANUAL

PORTABLE RADIO

MODELS JH-1H  
JH-1R

"HIS MASTER'S VOICE"

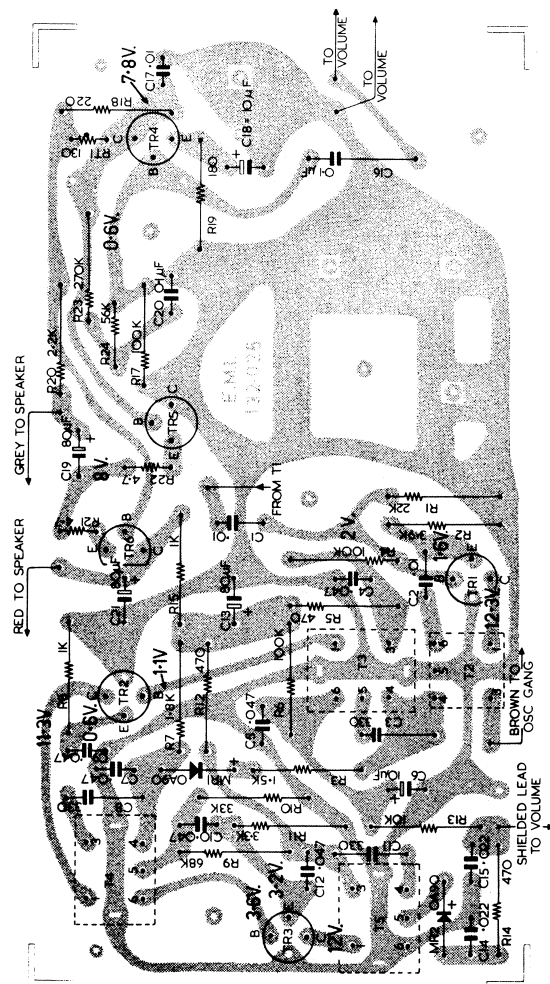
JH-1H  
"Sprite Mk. 2"JH-1R  
"Tropicana Mk. 2"

## SPECIFICATION

BATTERY:  
Eveready Type 2510.BATTERY CONSUMPTION:  
No Signal ..... 9 mA  
400 mW Audio Output .... 45 mAFREQUENCY RANGE:  
525 kHz to 1750 kHz.INTERMEDIATE FREQUENCY:  
455 kHz.

## SEMI-CONDUCTORS:

SE1002 ....	(Silicon NPN) Frequency Changer	
SE1002 ....	(Silicon NPN) First I.F. Amplifier	
SE1002 ....	(Silicon NPN) Second I.F. Amplifier	
SE4002 ....	(Silicon NPN) Audio Amplifier	
AC132 ....	(Germanium PNP) Audio Output	(Matched Pair).
AC127 ....	(Germanium NPN) Audio Output	
OA90 ....	(Germanium Diode) Auxiliary AGC	
OA90 ....	(Germanium Diode) Detector and AGC.	

OUTPUT LOAD IMPEDANCE  
47 ohms at 400 Hz.

COMPONENT LAYOUT (LOOKING ON COPPER SIDE)