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 switching off the power.

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

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.

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 22 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 meters of low resistance.

DISMANTLING

Remove the power plug from the mains supply socket. Raise the lids at each end of the cabinet. Place a piece of felt or similar material on top of the cabinet; [redacted] unscrew the two top chassis fixing screws, one at each end of the escutcheon. Loosen the two bottom screws, withdraw the chassis, and place it on the felt. The chassis is freed by removing the aerial, pickup, power and speaker cables.

ALIGNMENT PROCEDURE

In any case where a component replacement has been made in either the tuned 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 one of the speakers. 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:

(a) The tuning tool should be a small plastic screwdriver with a tip which fits cleanly into the tuning core.

(b) 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.

(c) The thread in the former may be damaged if the core is wound in and forced against the circuit board. A light torque should be all that is normally required to turn the core.

IF ALIGNMENT

(1) Set the signal generator to 455 Kc/s, with 30% modulation at 400 c/s. Turn the receiver volume control fully clockwise and set the tuning control to the LF end of the band.

(2) Detune the cores of T5 and T6. Inject a signal from the generator, via a 0.1 uF capacitor, into the base of TR3. Adjust the core of T7 for maximum reading on the output meter.

(3) Detune the cores of T3 and T4. Inject a signal into the base of TR2. Adjust the cores of T5 and T6 for maximum reading on the output meter.

(4) Inject a signal into the base of TR1. Adjust the cores of T3 and T4 for maximum reading on the output meter.

(5) Check all cores to ensure that they are accurately adjusted for optimum performance.

RF ALIGNMENT

(1) With controls set as for IF alignment, connect signal generator output via a standard dummy aerial, to the aerial lead and chassis of the receiver.

(2) Check that, when the gang capacitor is fully enmeshed, the pointers coincide with the setting lines, at the left of the dial scales. If necessary, the pointers must be adjusted at the point where the drive cords are attached to the carrier.

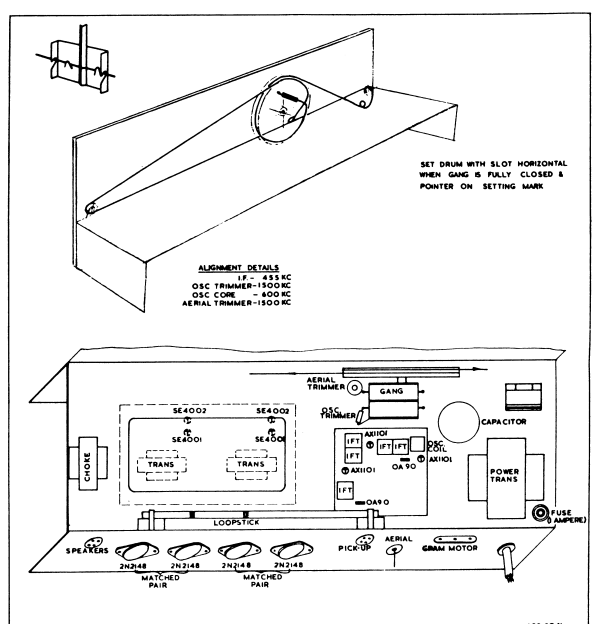
(3) Set signal generator to 600 Kc/s.

(4) Turn tuning control until the pointer is exactly over the 600 Kc/s calibration mark. Adjust the core in T2 for maximum reading on the output meter.

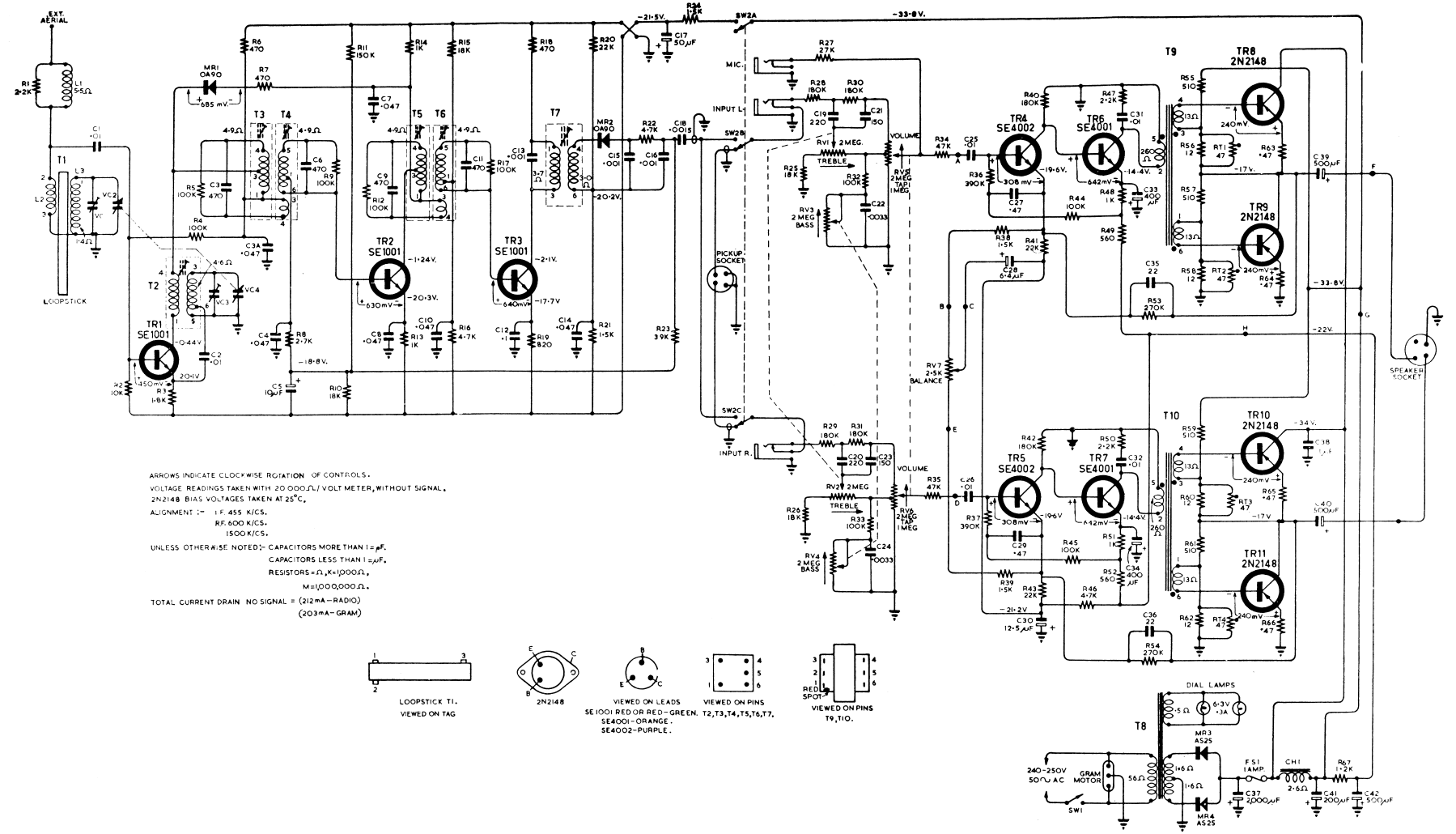
(5) Set signal generator to 1500 Kc/s.

(6) Turn tuning control until the pointer is exactly over the 1500 Kc/s calibration mark. Adjust VC4 and VC2 for maximum reading on the output meter.

(7) Repeat operations (3) to (6) for optimum alignment.



H.M.V. T1


EXT. AERIAL
LOOPSTICK
TR1 SE1001
TR2 SE1001
TR3 SE1001
TR4 SE4002
TR5 SE4002
TR6 SE4001
TR7 SE4001
TR8 2N2148
TR9 2N2148
TR10 2N2148
TR11 2N2148
MR1 OA90
MR2 OA90
MR3 AS25
MR4 AS25
MIC.
INPUT L.
INPUT R.
PICKUP SOCKET
SPEAKER SOCKET
VOLUME
TREBLE
BASS
BALANCE
DIAL LAMPS
GRAM MOTOR
240-250V 50~ AC
FS1 1 AMP.
SW1
-33·8V.
-22V.
-21·5V.
-20·2V.
-18·8V.
ARROWS INDICATE CLOCKWISE ROTATION OF CONTROLS.
VOLTAGE READINGS TAKEN WITH 20,000Ω/VOLT METER, WITHOUT SIGNAL.
2N2148 BIAS VOLTAGES TAKEN AT 25°C.
ALIGNMENT :- I.F. 455 K/CS.
RF. 600 K/CS.
1500 K/CS.
UNLESS OTHERWISE NOTED:- CAPACITORS MORE THAN 1 = μF.
CAPACITORS LESS THAN 1 = μμF.
RESISTORS = Ω, K = 1,000Ω,
M = 1,000,000Ω.
TOTAL CURRENT DRAIN NO SIGNAL = (212mA—RADIO)
(203mA—GRAM)
LOOPSTICK T1. VIEWED ON TAG
2N2148
VIEWED ON LEADS SE1001 RED OR RED-GREEN. SE4001-ORANGE. SE4002-PURPLE.
VIEWED ON PINS T2,T3,T4,T5,T6,T7.
VIEWED ON PINS T9,T10.