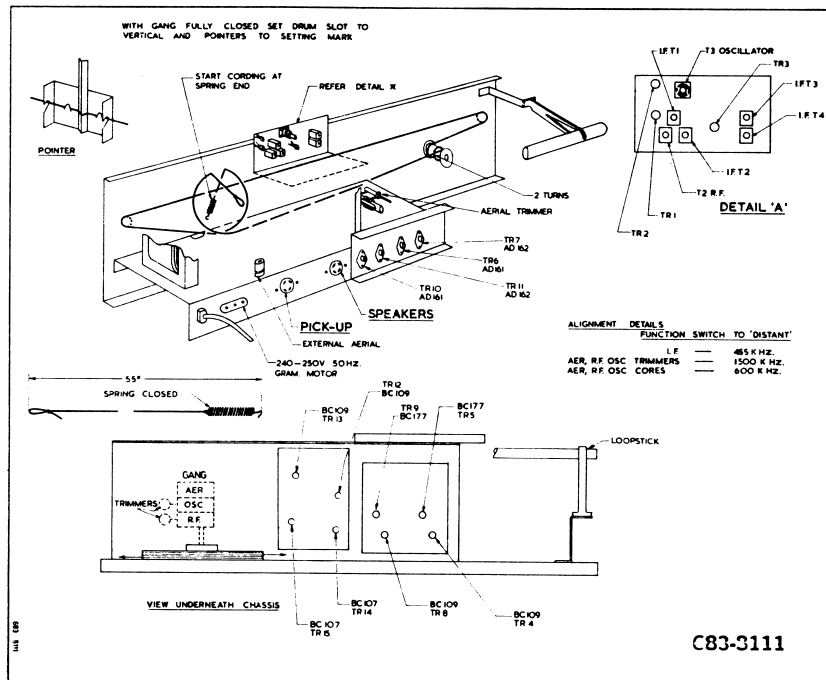


PRE-AMPLIFIER — VIEW FROM COPPER SIDE



C83-3111

With the function switch to "Gram" the supply rail (under no-signal conditions) will be approximately 14.5 volts. The voltage at the junction R31/32 (Vm) will be 6.0 volts approximately.

The amplifiers will continue to operate, but at reduced power and with non-symmetrical clipping of the output stage. If the amplifiers do not operate, do not restore the full supply rail voltage until the fault has been rectified.

ALIGNMENT TABLE

Set Function Switch to "Distant" for all Alignments

ORDER OF OPERATIONS	CONNECT GENERATOR TO	TUNE GENERATOR TO	TUNE RECEIVER TO	ADJUST FOR MAXIMUM OUTPUT
I.F.	1	RF Section of gang	455 kHz.	L.F. Limit
	2	"	"	"
	3	"	"	"
	4	"	"	"
	Repeat steps 1 - 4 until maximum output is obtained *			
R.F.	5	—	—	L.F. Limit
	6	Aerial input**	600 kHz.	Top markers at 600 kHz.
	7	"	1500 kHz.	Top markers at 1500 kHz.
	8	Aerial input	1500 kHz.	Top markers at 1500 kHz.
	9	"	1500 kHz.	Top markers at 1500 kHz.
	10	"	600 kHz.	Top markers at 600 kHz.
	11	"	600 kHz.	Top markers at 600 kHz.
Repeat steps 8 - 11				

*These transformers are a very high Q miniature type. It should be appreciated then, that the amount of travel for the tuning core to cover its tuning range, is much less than in normal I.F. transformers. Tuning the I.F. thus becomes more critical, and the following hint will prove useful.

- The tuning tool used should be a small plastic screwdriver whose tip fits cleanly into the tuning core.
- When tuning the core, do not use any downward pressure, as the thread in the former has enough resilience to detune the I.F. when the pressure is removed.
- The thread in the former may be damaged if the core is wound in and forced against the printed board. This should never happen, as only a light torque is necessary to turn the tuning core.

Note: I.F. alignment should only be necessary when I.F. coils or tuning condensers are

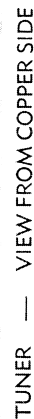
replaced, or where misalignment is obvious. A reduction in sensitivity at the L.F. end of the dial is normal when switching to "local" due to the reactive loading in the aerial and R.F. circuits.

**Use a resistor of 4.7K ohms in series with the generator for accurate alignment.

***Rock the tuning control back and forth through the signal and allow for maximum of 1 pointer width error between the white line and 600 kHz. generator frequency for maximum output.

****These coils have been pre-aligned in production and under normal conditions no adjustment is necessary. To find if these coils are aligned, place a piece of ferrite and then a piece of brass near the loopstick and at the end of the R.F. coil. If the coils are properly aligned, the receiver's output will drop. If the output increases at any stage in this check, re-alignment of these coils is necessary.

H.M.V. T5-47-47A

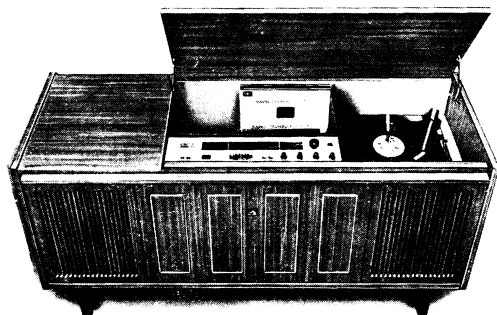


15-TRANSISTOR STEREOPHONIC RADIOGRAMS

Models T5-47 & T5-47A



"HIS MASTER'S VOICE"



SPECIFICATIONS

POWER SUPPLY:
240-250 volts, A.C., 50 Hz.

CONSUMPTION:
Radio—9 watts (no signal)
Radio—35 watts (8 watts/channel)
Gram—44 watts (8 watts/channel)

TUNER FREQUENCY RANGE:
525 - 1,650 kHz.

POWER OUTPUT:
8 watts r.m.s. per channel in 8 ohms.

LOUDSPEAKERS:
2 x 12", 8 ohms V.C.I. MSP 12TAC8
2 x 4", 15 ohms V.C.I. MSP 4MBC 15 HF

RECORD CHANGER:
T5-47: Dual 1010F, 4-speed automatic
T5-47A: Dual 1210F, 4-speed automatic

PICKUP:
Sonotone Type 9TA Ceramic (Cartridge Type PC-23).

STYLUS:

Sonotone Type HV7D.
Diamond Stereo and Microgroove, 0.7 mil tip.
Sapphire, 78 r.p.m., 2.5 mils.

ADDITIONAL FACILITIES:

Jack—Input, Left Channel
Jack—Input, Right Channel
Jack—Output—Left Channel
Jack—Output—Right Channel
Extension loudspeaker terminals at back of cabinet
Mono Stereo mode switch.

SEMI-CONDUCTORS:

1 x BF185 Silicon—R.F. Amplifier
1 x BF184 Silicon—Converter
1 x BF184 Silicon—I.F. Amplifier
2 x BC109 Silicon—Pre-Amplifier Equalizers
2 x BC107 Silicon—High Pass Filters
2 x BC109 Silicon—A.F. Amplifiers
2 x BC177 Silicon—A.F. Driver Amplifiers
2 x AD161 / AD162—Push-Push Audio Output
(2 matched pairs)
1 x OA90 Germanium Diode—Radio Detector
1 x OA90 Germanium Diode—A.G.C.
2 x OA610 Silicon Diode—Power Rectifiers

The following information is included as a guide for the fitting of a magnetic pickup and auxiliary equipment.

AUDIO FREQUENCY RESPONSE:

Main Amplifier—50 Hz. - 20,000 Hz.
P.U. Pre-Amplifier—Active 24 dB/octave rumble filter, 50 Hz. roll off.

SENSITIVITY:

For 8 watts/channel r.m.s.
Main Amplifier Input Jacks — 130 mV
Ceramic or Crystal P.U. Input—130 mV (via 470 pF source).
Magnetic P.U. Input—2.2 mV.

PRE-AMPLIFIER OVERLOAD:

Ceramic or Crystal—5V (R.M.S.) at 1 kHz.
Magnetic—100 mV (R.M.S.).

RECOMMENDED MAGNETIC CARTRIDGE:

Shure M44-7 or M44-MB using N447 "conical" stylus or N44-E elliptical stylus.

DIMENSIONS:

Height 29 1/2"
Width 55 1/2"
Depth 17"

WEIGHT:

Unpacked 95 lbs.
Packed 136 lbs.

DISMANTLING

To Remove Chassis:

Remove power plug from mains supply socket.

Raise lid and place a piece of felt or similar material on top of cabinet.

Remove two gold screws in front wall of record storage compartment and one in side wall of mechanism well.

Lift right-hand end of chassis and move approximately 1/4" to the right.

Withdraw chassis and place it on the felt.

The chassis is freed by removing the aerial, pickup, power and speaker cables.

To Remove Mechanism:

Remove pickup lead plug from socket on rear of chassis.

Release power lead plug from socket on rear of chassis.

Ensure pickup arm is clipped to armrest.

Lift and tilt the two transit screws and withdraw mechanism by lifting it upwards.

To Gain Access to Speakers:

Remove wood screws from underneath cabinet retaining front decorative panel.

Swing panel out to clear retaining cleat and withdraw it downwards.

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. 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 the multi-terminal components (IF transformers, etc.), it is best to apply heat simultaneously to all terminals, using a special iron tip. If a normal 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.

When taking voltage measurements, avoid

accidental short-circuits by the voltmeter probes.

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 8 ohms during the tests. If the output load is reduced below the correct value, maximum dissipation of the output transistors will be exceeded at medium and high output levels.

IMPORTANT

It is desirable that, when any repairs are done to the audio amplifiers, the supply rail be reduced to half the nominal voltage to enable a quick check on performance to be made without the possibility of damage occurring due to faulty components, etc.

This is best done by inserting a series resistor of 500 ohms between the rectifier diodes and the supply rail before the electrolytic filter capacitor.