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His Master's Voices

The New

H·M·V

"Companion"



MODEL 5602



5602

HIS MASTER'S VOICE (N.Z.) LTD.

WELLINGTON.

Service - Sheet.

"Companion" MODEL 5602.

Transistorised Record Player

This player is designed to play 45 R.P.M. Records only and is operated by an Ever-Ready No.509 or similar 6 volt dry battery located in the speaker compartment.

The gramophone unit is a Garrard Model BA1 with Garrard GC.6 crystal pick-up. A suitable replacement stylus is the GE.2/1 sapphire.

The speaker is a Rola 6" x 4" PM Dynamic.

The 5 volts required for the gramophone motor is taken from the 6 volt battery through R14, a 25 ohm potentiometer. This enables speed corrections to be made when the battery voltage falls. Normal current drawn by the motor is 95 mA. The amplifier uses two grounded emitter Telefunken OC.602 transistors followed by a matched pair of (Telefunken) special OC.604 transistors in Class B push-pull.

It must be emphasised that transistors suffer damage when exposed to heat, and great care must be used, particularly when using a soldering iron. When using the iron for removal or replacement of transistors, wires should be held as near to the end as possible with a pair of long nosed pliers in order to dissipate the heat. As the transistor is a current operated device initial checks will be made with the milliammeter. Total current of the amplifier is 8-10 mA. under no signal conditions, 70-90 mA. at full volume. Should these values be exceeded check for short circuits. If this leads to suspicion of faulty transistors the following tests may be carried out:-

1. First OC.602 - unsolder junction of R6 and C1 from chassis. Connect positive probe of meter to chassis, negative probe to junction of R6 and C1. The emitter current may now be measured and this should be 0.37 to 0.43 mA.
2. Second OC.602 - repeat as in (1) at junction of R11 and C4. Reading should be 1.3 to 1.6 mA.
3. OC.604 - unsolder emitter connection to chassis using care that heat from iron does not damage transistor. Measure current from chassis to each emitter in turn. This should read 0.8 to 1.2 mA. under no signal conditions, 30 to 40 mA. at full volume. Do not alter R15, the 5000 ohm biasing resistor, which has been preset in our factory.

Should either of these transistors prove defective the two must be replaced with a matched pair. After replacement the following procedure should be followed:-

Unsolder the link connecting R15 to the junction of R13 and the transformer centre tap. Insert milliammeter and adjust R15 for a reading of 2.5 mA. Check total current of amplifier.

Rh smooth
current

22

$$\text{Birefringence} = 2m/\lambda$$

GT&IR

Hand-drawn circuit diagram for a common-emitter amplifier. The circuit includes a 2.2kV bias voltage, a 3.107k resistor, a 3.471k resistor, a 407k feedback resistor, a 1.51k resistor, a 33k collector load, and a 1.1k ground connection. The output is labeled T110AF with a 0.5w load and a 0.3v drop.

①
②

Bell R/G

LT wave form

ATC TSI ~~drum~~

$$\begin{aligned} \text{pri} &= 200\pi \\ \text{sec} &= 15.0-15\pi \end{aligned}$$

Worth 1V 400 n o
- 2V east -

6710aR

191

6-446d

R H wan ton

Ratio of visible
biasing 0.672

4 (8-214)

4080

48.216

2K

303K
67023

10

60

Ω

2215

21

HMV 5602

PARTS LIST

<u>Part No.</u>	<u>Description</u>
TR.1222	Output Trans. ZL.26
YT.1223	Driver Trans. LEL.1100
TR.656	OC.602 Transistor
TR.655	OC.604 (Special Cabinet)
KN.1314	Record Player Garrard BA1
Type 509	Knobs
SP.308	Batteries: Ever Ready Type 509
	Speaker 4 x 6F

RESISTORS

R1/5	1300-G7	100K Ohm	$\frac{1}{2}$ W
R2	P0.252	$\frac{1}{2}$ Meg Ohm Log Pot	$\frac{1}{2}$ W
R3/4/10	1300-E4	15K Ohm	$\frac{1}{2}$ W
R6	1300-C4	1K Ohm	$\frac{1}{2}$ W
R7	1300-P2	6.8K Ohm	$\frac{1}{2}$ W
R8/9	1300-F8	47K Ohm	$\frac{1}{2}$ W
R11	1300-B3	500 Ohm	$\frac{1}{2}$ W
R12	1300-M	150 Ohm	$\frac{1}{2}$ W
R13	1300-O8	47 Ohm	$\frac{1}{2}$ W
R14	P0-1220	25 Ohm Wire Pot	W/S
R15	P0-1219	5K Ohm Wire Pot	

CONDENSERS

C1/3/4	1500-L9	25 Mfd. Electro	25WV
C2	1500-B5	.01 Mfd	
C5	1500-S3	100 Mfd.	Electro

Issued by
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