RADIO CORPORATION PTY. LTD.
DIVISION OF ELECTRONIC INDUSTRIES LTD.
126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

BULLETIN : JML-1
File: Receivers
Battery
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TECHNICAL BULLETIN

MODEL "JML"

PORTABLE RECORD PLAYER

4 TRANSISTOR AUDIO AMPLIFIER AND A 4 SPEED
SINGLE RECORD PLAYER (16⅔, 33⅓, 45 and 78 R.P.M.)

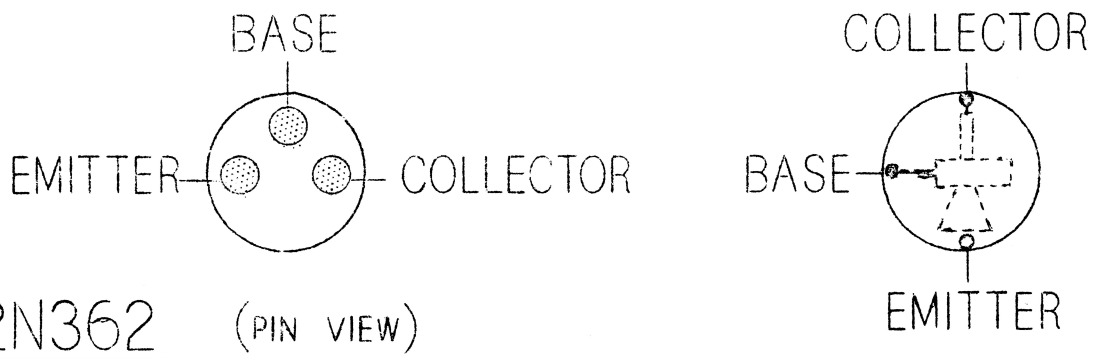
THIS BULLETIN CONTAINS:

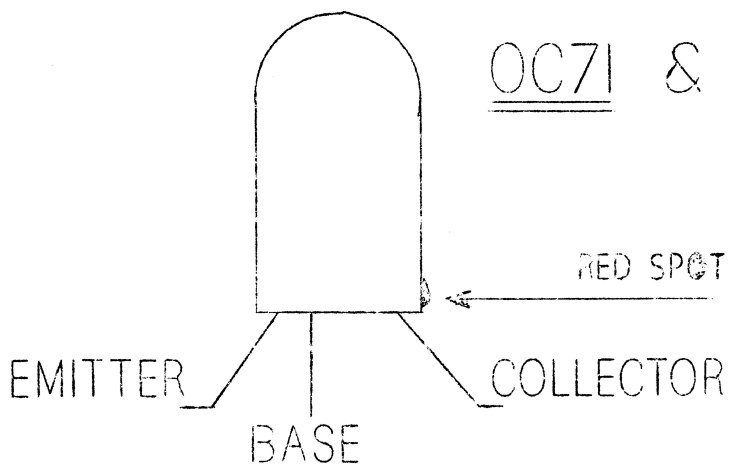
TYPE TS2 TRANSISTOR USED IN PLACE OF TYPE 2N362 TRANSISTOR IN PRE-AMP. STAGE

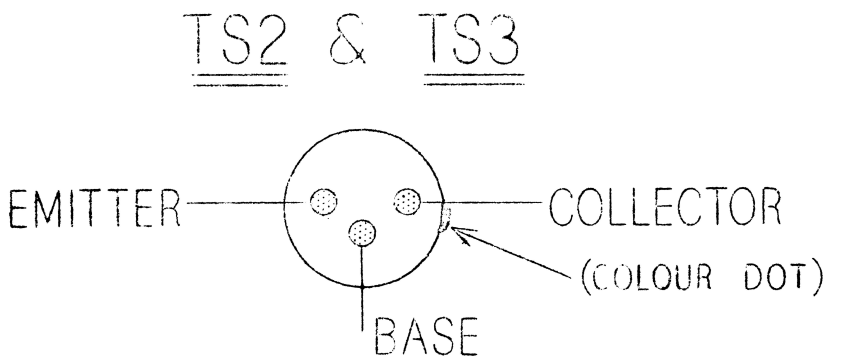
TYPE TS3 TRANSISTOR USED IN PLACE OF TYPE 2N362 TRANSISTOR IN DRIVER STAGE

When the TS2 transistor is used in the pre-amp stage and the TS3 transistor in the driver stage circuit No. 22 a 1.5K ohm resistor is changed to a 6.8K Ohm 10% ½W carbon resistor resistor Part No. R6822

A different type socket part No. A109/849 is required for type TS2 and type TS3 transistors.







MODEL "JML"
PORTABLE RECORD PLAYER

FOR OPERATION FROM:

Amplifier Unit - one 9 volt battery

Record Player Unit - one 9 volt battery

A separate battery is used for each section making a total of two 9 volt batteries per complete unit.

CURRENT CONSUMPTION:

Amplifier Unit: 15 mA (no signal)

Record player Motor: 50 mA.

TEST PROCEDURE.

EQUIPMENT:	TEST CONDITIONS:	
Audio Signal Generator;	Supply voltage:	9 volts DC.
	Volume control:	max. volume (fully clockwise)
Output Meter:	Output Level :	50 Milliwatts (26 Milliwatts output meter reading with speaker voice coil in circuit.)
	Output Meter Impedance :	4 Ohms. (output meter connected across trans. sec.)
	Tone Control :	treble position (fully clockwise)

AUDIO AMPLIFIER GAIN TEST

1. The amplifier chassis or the batteries do not have to be removed from the cabinet.

2. Open lid of cabinet by pressing two lid release buttons one located on each side of the cabinet.

3. Unscrew and remove two screws one located near edge of cabinet between control knobs. The other located near edge of cabinet close to speaker grille.

4. Close lid and turn cabinet completely over, then open base lid section of cabinet.

5. Disconnect player motor lead battery plug from its 9 volt battery.

6. Disconnect the pick-up lead from volume control

7. Connect audio signal generator active lead to the volume control lug from which pick-up lead was removed.

8. Inject a 0.1 volt 1000 C.P.S. signal.

9. Switch amplifier "ON"

   Unclip pick-up arm from its rest pillar. Lift pick-up arm just sufficient to clear rest pillar then move pick-up arm outward until the player / amplifier unit ON/OFF switch is felt to operate.

10. At 0.1 volts input with the volume control full on the amplifier unit output MUST exceed 26 milliwatts with the voice coil in circuit

11. Current consumption at 0.1 volt signal input must not exceed 70 mA

12. Current consumption at no signal input. 15 mA.

Circuit No.	Description	Tol±	Rating	Part No.
1.	.047 MF Paper condenser	20%	200V DCW	E4733
2.	.01 MF Paper condenser	20%	100V DCW	D1033
3.	.015 MF Paper condenser	20%	100V DCW	D1533
4.	12 MF Electrolytic condenser	-10%+100%	12VW	C313
5.	100 MF Electrolytic condenser	-10%+100%	12VW	C284
6.	50 MF Electrolytic condenser	-10%+250%	3VW	C307
7.	12 MF Electrolytic condenser	-10%+100%	12VW	C313
8.	50 MF Electrolytic condenser	-10%+250%	3VW	C307
9.	100 MF Electrolytic condenser	-10%+100%	12VW	C284
10.	.47 MF paper condenser	20%	100V DCW	D4743
11.				
12.				
13.				
14.	1 Megohm potentiometer tapped at 400K ohm,vol. control			R295
15.	47,000 ohm carbon resistor	10%	½ watt	R4732
16.	220,000 ohm carbon resistor	10%	½ watt	R2242
17.	100,000 ohm potentiometer - tone control			R296
18.	10,000 ohm carbon resistor	10%	½ watt	R1032
19.	12,000 ohm carbon resistor	10%	½ watt	R1232
20.	100,000 ohm carbon resistor	10%	½ watt	R1042
21.	680 ohm carbon resistor	10%	½ watt	R6812
22.	1500 ohm carbon resistor	10%	½ watt	R1522
23.	4700 ohm carbon resistor	10%	½ watt	R4722
24.	22,000 ohm carbon resistor	10%	½ watt	R2232
25.				
26.				

27.	1500 ohm carbon resistor	10%	½ watt	R1522
28.	10 ohm wire wound resistor	10%	½ watt	PR553
29.	100 ohm wire wound resistor	10%	½ watt	PR262
30.	2,200 ohm carbon resistor	10%	½ watt	R2222
31.	82 ohm wire wound resistor	10%	½ watt	R157
32.	130 ohm disc type NEG.TEMP.coefficient resistor	10%	1 watt	R167
33.	4.7 ohm wire wound resistor	5%	½ watt	R194
34.	470 ohm carbon resistor	10%	½ watt	R4712
35.				
36.				
37.	Single record player (4 speed) Collaro type 9 volt DC operation Studio "O" turnover type crystal cartridge			M474
	Motor 9 volt			A600/1511
	Pulley - four speed (drive pulley)			719/1511
	Turntable assy. - includes rubber mat.			A518/1511
	Rubber mat on turntable			20/1511
	Crystal cartridge - Studio "O" includes needles			A134/524
	Crystal cartridge - Studio "O" less needles			512/524
	L.P. needle - red spot			520/524
	STD. needle - green spot			521/524
	Pick-up arm complete with all fittings cartridge and needles			A258/1511-1
	Pick-up arm moulded section only			226/1511
38.	Choke - spark filter			L130
39.	Transformer - driver - push-pull type DR1			T183
40.	ON-OFF switch - part of "Collaro" record player			A607/1511
41.	9 volt battery - (2) Eveready type 276			M470
42.	Transformer - speaker - type No. TR9 156 ohms CT. to 3.5 ohms impedance			T194
43.	Speaker - 5" dia. permag. type 5C cone No. F87			K196
44.	.01 MF Paper condenser	10%	100V DCW	D1033
45.	Choke - spark filter			L130
	Knob - volume control			355/81-181
	Knob - tone control			355/81-211
	Circlip - control knobs - (2)			22/755
	Bracket - "L" shaped, output transistors heat sink			28/845
	Curved metal clip, output transistors heat sink			26/845
	Terminal strip - 2 lug, type 1E			A592/30C
	Terminal strip - 8 lug type E6E			A588/30C
	Terminal strip - 8 lug type 2E1E1			A593/30C
	Terminal strip - 3 lug type 1E1			A591/30C
	Plug (2) two pin, battery leads			482/30C
	Socket (2) type 2N270 transistors			A108/849
	Clip (2) transistor socket A108/849			581/250
	Socket (2) type 2N362 transistors			A101/849
	Socket (2) alternative transistor types OC71, OC75, TS2 and TS3			A109/849

CABINET STYLING

TOP LID ASSY. includes "ASTOR playgram" plaque and rubber snubs.

LAWN GREEN	A105/854-1
CHERRY RED	A105/854-2
GREY	A105/854-3
BLOSSOM PINK	A105/854-4
OLD ROSE	A105/854-8

BASE LID ASSY. includes "ASTOR playgram" plaque, left side fastening bracket, right side fastening bracket, transistor and battery placement diagrams.

CHERRY RED	A110/854-2
CHARCOAL	A110/854-4

TOP LID SECTION-moulded, less assy. components

GREY	576/81-2
BLOSSOM PINK	576/81-3
LAWN GREEN	576/81-6
CHERRY RED	576/81-7
OLD ROSE	576/81-8

BASE LID SECTION-moulded less assy. components

CHERRY RED	578/81-2
CHARCOAL	578/81-4

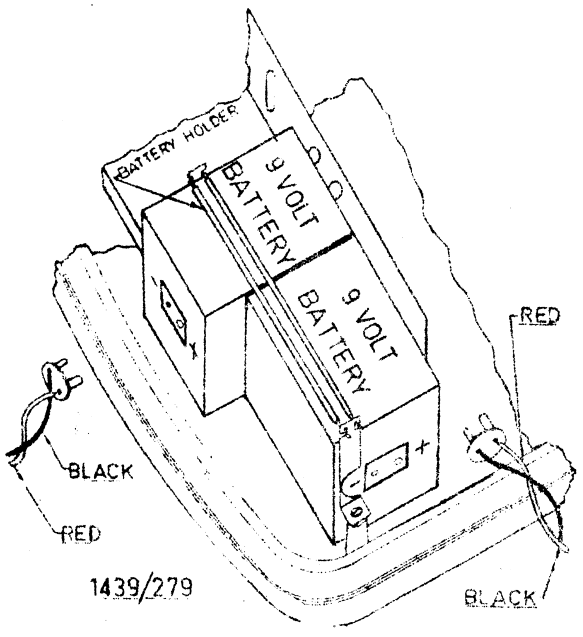
CABINET ASSEMBLY COMPONENTS

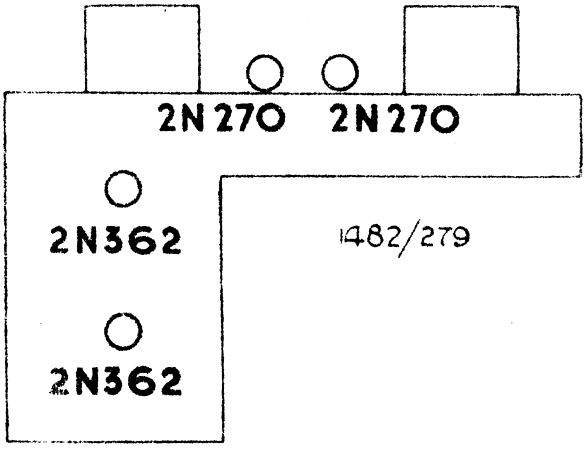
Plaque "ASTOR playgram" (2) top and base lid assy.	589/81
Rubber Snub (2) top lid assy.	468/250
Fastening Bracket - short, left side, base lid section	17/854
Fastening Bracket - long, right side, base lid section	5/854-2
Screw (2) $\frac{1}{2}$" x No. 6. bdr.hd. self-tapping, fastening brackets	35/560-12

CABINET HARDWARE

Handle - gold finish	15/854
Handle Spacer (2) gold finish	14/854
Wedge (2) plastic, handle mt.	630/81
Screw (2) gold finish, handle mt. $\frac{1}{2}$" x 3/16" Whit. oval csk. Phillip hd.	153/560
Extension Nut (2) handle mt. 3/16" Whit.	16/854
Washer (2) $\frac{1}{4}$" ext. shakeproof, handle mt.	2/562-7
Hinge (2) gold finish	A101/854
Brace Plate (2) gold finish, hinge mt. rear wall of cab. top and base lid sections.	3/854
Brace Plate - cad. plate, hinge mt. underside of plastic mount plate	4/854
Screw (8) gold finish, hinge to cab. lid sections mt. $\frac{1}{2}$" x $\frac{1}{8}$" Whit. hex. hd.	62/755-6
Screw (8) gold finish, hinge to plastic mount plate 7/16" x $\frac{1}{8}$" Whit. hex. hd.	62/755-4
Washer (16) gold finish, hex. hd. screws hinge mt.	20/57-5
Domed Nut (4) hinge to top lid mt. $\frac{1}{8}$" Whit.	84/30A-4

Washer (4) $\frac{1}{8}$" int. shakeproof, domed nut	1/562-3
Hex. Nut (12) $\frac{1}{8}$" Whit. hinge mt.	3/478-2
Washer (12) $\frac{1}{8}$" ext. shakeproof, hex. nut	2/562-1
Hinge Cover Strip - plastic, rear top edge of plastic mount plate	651/81
Stop Ring (2) limits lid opening, rear of cabinet	9/854
Press Button Lock Assy - right side of cabinet	A103/854-1
Press Button Lock Assy - left side of cabinet	A103/854-2
Screw (4) lock assy to cab, $\frac{1}{4}$" x No. 8 self tapping	40/560-48
Washer (4) 5/32" int. shakeproof, lock assy. screws	2/562-3
Screw (2) gold finish, fastens base lid section to plastic mount plate. 1-5/16" x 3/16" Whit, oval csk. hd.	243/415
Screw (4) speaker mt. $\frac{3}{8}$" x No.6 bdr, hd.	40/560-8
Screw (3) amplifier chassis mt. $\frac{3}{8}$" x No.6 bdr. hd.	35/560-6
Screw (3) 1-$\frac{1}{2}$" x 2BA oval csk. hd. record player suspension	15/1511
Compression Spring (3) " " "	467/250
Spacer (3) " " "	7/845
Nut (3) 2BA " " "	3/478-2
Rest Pillar - pick-up arm	727/1511
Retaining Spring - rest pillar	307/1511
Holding Clip - battery fastening	667/250
Plastic Mount Plate Assy. on which motor unit and amplifier chassis is mounted	A111/854
consists of	
Astor Transistor Motif	695/250
Escutcheon - transistor motif	590/81
Plastic Insert - base side, adjacent to handle	587/81
Plastic Mount plate	577/81-2





1. TO REMOVE AND REFIT BATTERIES FROM CABINET.

A. Open lid of cabinet by pressing two lid release buttons one located on each side of the cabinet.

B. Place pick-up arm on rest pillar and secure it to rest pillar with wire spring clip attached to rest pillar.

C. Unscrew and remove two screws one located near edge of cabinet between control knobs. The other located near edge of cabinet close to speaker grille.

D. Close lid and turn cabinet completely over, then open base lid section of cabinet.

E. Unfasten the holding clip and remove the batteries.

F. Refitting of the batteries is the reverse procedure to removing them.

2. TO REMOVE TURNTABLE FROM RECORD PLAYER UNIT.

A. Remove the batteries as detailed in para. 1.

B. The base end of the turntable spindle fits into a three point mount die-cast housing. On the side of this housing is a leaf spring the free end of which fits into a groove in the turntable centre boss. This prevents the turntable sliding off the spindle when the unit is inverted.

C. To release the turntable to allow it to slide off the spindle insert a screwdriver between the housing and the spring then lever the spring slightly outward.

D. When the spring has been disengaged from the turntable open the top lid and remove turntable from interior of cabinet.

3. TO REMOVE THE RECORD PLAYER UNIT FROM THE CABINET.

A. The player unit is mounted with spring suspension at three positions.

B. To remove the player unit from the cabinet it is first necessary to remove the turntable from its spindle asdetailed in para. 2.

4. CHASSIS SERIAL NUMBER

The chassis serial number is stamped into the metal chassis near the rear of the plastic mount plate. The serial number may be viewed through a slot in the plastic mount plate after the record player turntable has been removed from its spindle.

Instructions for removing the turntable are detailed in para. 2.

RECORD PLAYER OPERATING INSTRUCTIONS..

NEEDLE PICK-UP HEAD

Two, long life needles are incorporated in the pick-up head, and if treated carefully should give long service and faithful reproduction. The needles are brought into playing position by turning a small knob on the end of the pick-up head. When turning the knob do not move the needles from their adjusted position by pressing your fingers under the pick-up head. The knob should always be turned when the pick up is on its rest pillar.

Before playing 78 R.P.M. standard recordings, turn knob on end of pick -up arm fully to the right so that it indicates "N" coloured green

Before playing 16 2/3, 33 1/3 45 R.P.M. long playing micro-groove recordings, turn the knob fully to the left so that it indicates "L" coloured red.

Inferior performance and excessive record wear will result if the record is played with the wrong needle.

TO START MOTOR

Release clip from around pick-up, lift pick-up slightly, then move it sharply to the right and hold it there for a moment. This action switches on the audio amplifier and the turntable motor and causes the turntable to revolve.

RECORD SPEED

When the turntable has commenced to revolve smartly move the speed selector knob so that the playing speed of the record 16,33,45, or 78 is indicated by the knob. If a 16 2/3, 33/1/3 or 45 R.P.M. recording is played at 78 R.P.M., excessive record wear will result.

TO PLAY

Make sure the knob on the pick-up arm indicates the correct needle then gently place the pick-up on the record so that the needle engages the first groove of the record track near the outside edge.

The volume may be adjusted by the knob marked "VOLUME" turning the knob in clockwise direction increases the volume.

The tone may be adjusted by the knob marked "TONE". Turning the knob in a clockwise direction, increases the treble.

TO STOP

When the record has completed playing the automatic switch will operate and switch off the audio amplifier and turntable motor. It is then only necessary to lift the pick-up and place it on its rest pillar.

If for any reason such as a record without a run off groove, the automatic stop-switch does not operate, lift the pick-up off the record and move it sharply toward the centre of the record. This action will switch off the motor and amplifier and should also be adopted when it is required to change a record before it has finished playing.

ADJUSTMENTS BEFORE TRANSPORTING THE PLAYER

A. The spring clip must be clipped around the pick-up arm to prevent the arm from swaying to and fro.

B. Turn knob on end of pick-up head to its centre position.

C. Close the lid, this will secure the turntable so that it will not be damaged during transportation.

CLEANING AGENT FOR PLASTIC CABINET

Do not polish the cabinet with an abrasive material or motor car polish as permanemt damage may result to the finish of the toughened polystyrene material of which the cabinet is made.

To restore the cabinet lustre, wipe the cabinet with a soft cloth dampened with water and lightly polish with neutral wax.

STORAGE WHEN OUT OF USE

It is not advisable to leave an exhausted battery in the record player. If the record player is stored away or not required for long periods, even partly used batteries should be removed and stored in a dry cool place.

This is a precautionary measure against the swelling and corroding action of worn out batteries, which applies to all battery operated devices, such as torches etc.

TYPE OC71 TRANSISTORS USED IN PLACE OF TYPE 2N362 TRANSISTORS IN PRE-AMP AND DRIVER STAGES

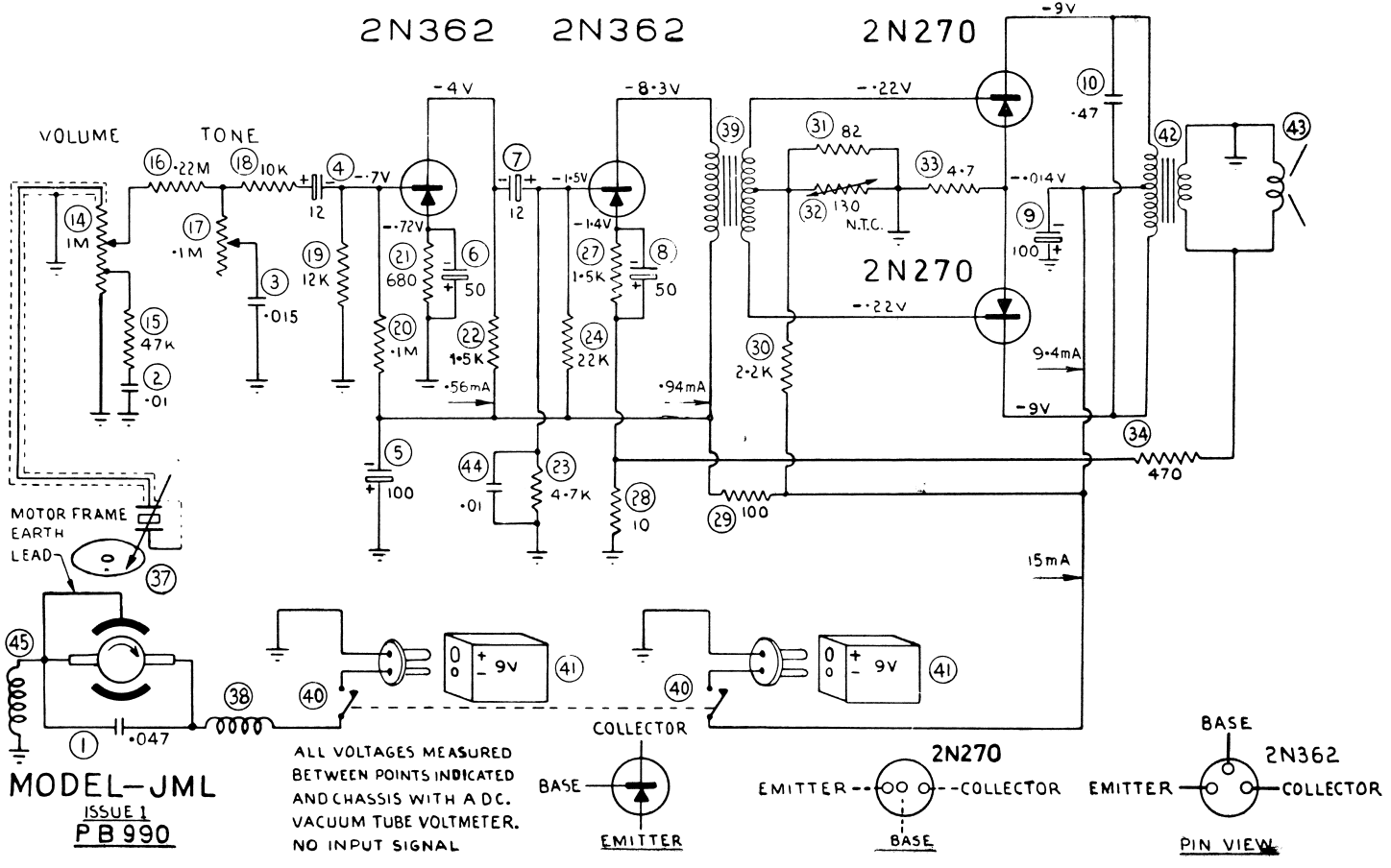
When OC71 transistors are used circuit No. 22 a 1.5K ohm resistor is changed to a 6.8K ohm 10% ½W carbon resistor part No. R6822

A different type transistor socket part No. A109/849 is required.

TYPE OC71 TRANSISTOR USED IN PLACE OF TYPE 2N362 TRANSISTOR IN PRE-AMP STAGE AND TYPE OC75 TRANSISTOR USED IN PLACE OF TYPE 2N362 TRANSISTOR IN DRIVER STAGE

When OC71 and OC75 transistors are used circuit No. 22 a 1.5K ohm resistor is changed to a 6.8K ohm 10% ½W carbon resistor part No. R6822.

A different type transistor socket part No. A109/849 is required.


2N362
2N362
2N270
-9V
-4V
-8·3V
-·22V
VOLUME
TONE
16 ·22M
18 10K
4 -·7V
7
-1·5V
39
31 82
10 ·47
42
43
14 1M
17 ·1M
3 ·015
12
12
19 12K
-·72V
21 680
6 50
-1·4V
27 1·5K
8 50
32 130 N.T.C.
33 4·7
-·014V
9 100
2N270
-·22V
15 47K
2 ·01
20 ·1M
22 1·5K
·56mA
24 22K
·94mA
30 2·2K
9·4mA
-9V
34 470
5 100
44 ·01
23 4·7K
28 10
29 100
15mA
MOTOR FRAME EARTH LEAD
37
45
38
40
9V
41
40
9V
41
1 ·047
MODEL-JML
ISSUE 1
PB 990
ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND CHASSIS WITH A D.C. VACUUM TUBE VOLTMETER. NO INPUT SIGNAL
COLLECTOR
BASE
EMITTER
2N270
EMITTER
COLLECTOR
BASE
BASE
2N362
EMITTER
COLLECTOR
PIN VIEW