ECLIPSE RADIO PTY. LTD.

(A DIVISION OF ELECTRONIC INDUSTRIES LTD.)

11-21 STURT STREET, SOUTH MELBOURNE

TECHNICAL BULLETIN

BULLETIN : BJP-1. **File : Receivers A.C.** **Date : 8/8/50.**

SUBJECT

"MODEL BJP"
5 TUBE DUAL WAVE SUPERHETERODYNE
RADIO PHONOGRAPH WITH AUTOMATIC
RECORD CHANGING UNIT

For Operation from:

200-250 Volt 50 cycle A.C. Mains

This Bulletin contains:

1. Technical Specifications
2. General Description
3. Transport
4. Operating Instructions
5. Mains Voltage adjustment and 40 cycle operation
6. Alignment Procedure
7. Voltage Table
8. Circuit Diagram
9. Component Parts List
10. Coil & I.F. Transformer Connections

TECHNICAL SPECIFICATIONS-MODEL "BJP"

Tube Complement: Type 6J8G Converter
„ 6U7G I.F. Amplifier
„ 6B6G Diode Detector AVC 1st Audio
„ 6V6GT Power Output Amplifier
„ 5Y3GT Full Wave Rectifier

Intermediate Frequency: 455 Kc/s.

Tuning Range: Broadcast - 535-1,640 Kilocycles, 560 - 182.9 Metres
Shortwave – 5.8-18.5 Megacycles, 50 – 16 Metres

Calibration: Straight Line Frequency

Power Consumption: Radio Operation:- 55 Watts (approx.)
Gramo Operation:– 75 Watts (approx.)

GENERAL DESCRIPTION

The Model "BJP" is a 5 tube dual wave Superheterodyne Radio–Phonograph receiver, designed for operation from the 200 – 250 volt 50 cycle A.C. mains and when suitable adjustments are made (see Page 6) from the 200 - 260 volt 40 cycle A.C. mains.

The receiver is housed in a walnut cabinet of the type which reveals the dial only when the receiver drawer is pulled forward. The control knobs are used to open and close the drawer and are therefore situated on the front and may be adjusted while the drawer closed.

The record changing unit is situated below the receiver drawer, and is revealed when the front panel is pulled forward.

Continuously variable tone control is oblained by use of selective inverse feedback wich is applied to a tapping on the volume control, producing also tone compensation at low listening levels. Rotation of the tone control in an anti-clockwise direction produces bass lift, and in a clockwise direction, bass cut. The centre wide-range position is used for normal listening under good conditions.

Further explanation of the circuit other than is given by the list of tube functions and the circuit diagram itself seems unnecessary since usual good practice is followed throughout.

TRANSPORT

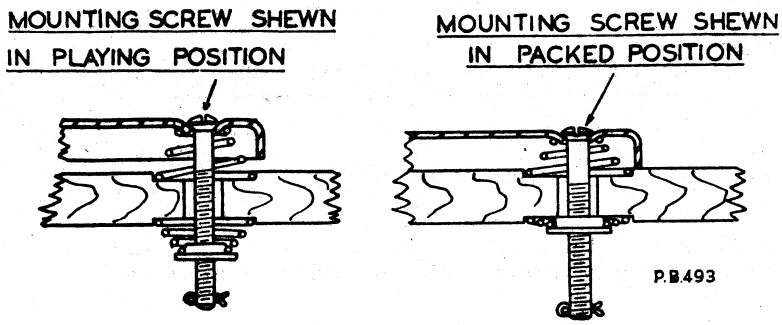
During transport from the factory the drawer is locked by two wood screws inserted from the rear of the cabinet near the top and in the centre. Another wood screw inserted from the rear of the cabinet and located about the centre back of the cabinet, holds the record changer sliding compartment in position.

The above screws should always be re–inserted and screwed tightly when the unit is being transported.

Three serews placed aronnd the top side edge of the record changer metal base plate are screwed up tight to hold the changer in its mounted position when the unit is being transported--refer diagram.

When operating the changer, the above three screws are to be loosened off as follows:--

> Place a stack of eight 12 in. records on the record spindle and loosen off the three screws so that there is approx. ¼ in. clearance between the changer base plate bottom edge and the top of the motor board on which the changer is mounted. This is to allow the record changer unit to "float" on its spring suspension to eliminate acoustic feedback.



OPERATING INSTRUCTIONS (Radio)

Radio Phonograph & Wave Change Switch:

Position 1. Fully Anti-clockwise: Broadcast Band.

Position 2. Centre: Shortwave Band.

Position 3. Clockwise: Phonograph Operation.

Tone Control:

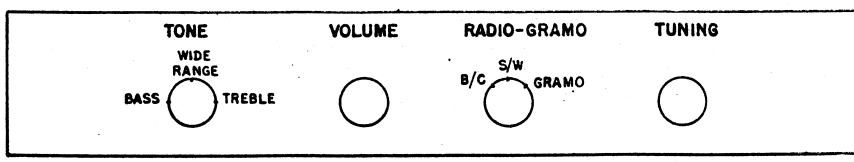
Adjustment of this control gives the operator a choice of response from bass to treble, with wide range response at 50% rotation of the tone control knob from either the bass or treble end.

Volume Control/Switch:

This control combines the functions of switching the receiver on or off and of varying the level of volume. Rotation in a clockwise direction switches the receiver on and increases the volume.

Operating Instructions:

Connect mains cord to power point, switch on, and allow a few moments for the valves to heat up. Turn volume control about halfway to the right. Tune in the station desired to a position where the background noise is at a minimum, re-adjust volume and tone controls to suit. It is important that the station be accurately tuned, otherwise the tone will be impaired.



RECORD CHANGER OPERATING INSTRUCTIONS

Turn gramo–radio switch to gramo position.

Controls: The volume and tone controls function on gramo operation in exactly the same manner as on radio operation.

1. NEEDLE: Securely fix a needle in the pick–up head by means of the clamping screw. The needle may be of the permanent "sapphire" point type, but in any case should be of a type which will play at least eight records without need of replacement. When a needle has been used once, slight flats develop on the needle point, therefore do not alter its position until replacing. The pick–up is muted in its rest position so that you cannot tell if the amplifier is "live" by touching the needle point with your finger. This overcomes unpleasant noises when changing a needle and "plop" when the needle first contacts the record.

   To avoid damage to the changer mechanism, DO NOT restrain the movement of the pick-p by hand when the pick–up is being moved by the automatic mechanism.

2. LOADING RECORDS ON SPINDLE: The record changer will play either eight 10 in. or eight 12 in. Australian records, not intermixed. Set the small selector knob on the right–hand side escutcheon plate to the 10 in. or 12 in. position, according to the size of the records it is desired to play.

   Records are loaded by swinging over the record balancing arm to its extreme right–hand position and placing the required number up to a maximum of eight on the spindle. The record balancing arm should then be moved over to its position touching the spindle over the records, as illustrated.

3. TO START: Lift the pick-up slightly off its rest pillar and move it in an outward direction, and then release. This causes the turntable to revolve and the record dropping cycle to commence.

4. TO REJECT any record whilst playing, push the left-hand knob on the escutcheon plate up to the "REJECT" position until a click is heard. The record will be immediately rejected and the next one released from the stack.

5. TO STOP the changer, move the left-hand knob on the escutcheon plate to the position marked "STOP". It must be emphasized that when the machine is stopped, the pick-up will remain on the record and it should always be lifted from the record and placed on its rest pillar.
Should the changer be switched off when the pick-up is being moved by the automatic mechanism, do not touch the pick-up, switch the changer on again and wait till the pick-up lowers on to the record, then switch off and move the pick-up to its rest pillar.

6. TO UNLOAD RECORDS after they have been played, place the pick-up on its rest pillar, move the record balancing arm to its extreme right-hand position and lift the record stack straight up and off the spindle.

7. TO REPEAT: If desired, one record may be repeated any number of times automatically by leaving the record balancing arm in its extreme right-hand position over the pick-up rest pillar. The record is placed on the turntable by tilting it downwards when passing it over the spindle step. The changer is then operated in the normal way.

RECORDS: Do not use badly warped records or records with imperfect and badly worn centre holes: they may not drop and the pick-up would lower on to the turntable felt; also, badly warped records will give trouble by slipping during playing.

Care should be taken when storing records to prevent contact with dirt and dust, which sets up abrasive action and causes rapid wear. Always brush records with a soft brush or lint-free cloth before using.

NOTE:-Service instructions for the record changing unit will be found in Bulletins MR-2 and MR-3. Transport and operating instructions herein, deal with the Collaro RC500 Record Changing Unit. Some units may be fitted with Garrard RC70A Record Changer, in which case reference may be made to Bulletin MR-1.

SUBJECT: Instructions for Removing Receiver from Cabinet–Model BJP.

1. Disconnect the receiver from the mains.

2. Open the phonograph compartment, and withdraw from their respective sockets on the chassis, the speaker and pick–up plugs. Disconnect the receiver mains cable at the junction block on the left–hand inner cabinet wall.

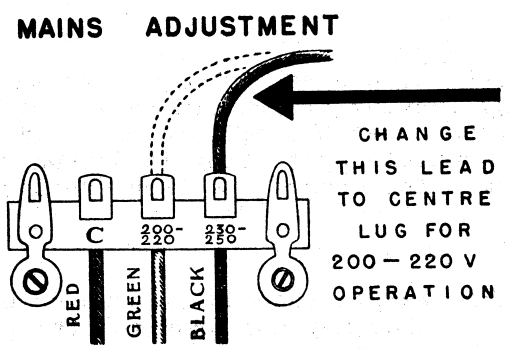
3. Locate the two wooden blocks, one on each of the rails upon which the drawer slides, and rotate them backward until the drawer will slide forward past them. The drawer, with the receiver attached, may then be withdrawn through the front of the cabinet.
Refitting is carried out in the reverse manner.

Mains voltage, adjustment for 200–220V. Operation:

Receivers are shipped from the factory adjusted for operation from the 200–220 volt mains. To adjust the receiver for voltages below 220V proceed as follows–

Disconnect the receiver from the mains.

Remove the chassis from the cabinet in accordance with the above instructions and locate the mains junction ship. Unsolder the lead which is connected to the 230–250 volt lug and resolder it to the 200–220 volt lug as shown in the diagram below.



Adjustments for 40 cycle operation:

All receivers shipped to Western Australia are adjusted at the factory for operation from the 40 cycle 260 volt A.C. Mains. If it is desired to modify a receiver which is adjusted for 50 cycle operation, so that it can be used in Western Australia, the following changes are to be made–

1. Replace the power transformer PT807 with 40 cycle 260V power transformer, Part No. PT809.

2. Garrard, Type RC.70A. Record Changing Unit:
Replace the existing brass pulley on the motor driving spindle to pulley, Eclipse Part No. 75/524.

Collaro, Type RC500 Record Changing Unit:

Replace the existing brass pulley on the motor driving spindle to pulley, Eclipse Part No. 70/524.

ALIGNMENT PROCEDURE—Model BJP

Equipment:— Signal Generator.

Output Meter.
Alignment Tool. M195 and PM581.
Mica Capacitor: .01MFD. (I.F.T. Alignment).
Dummy Antenna: 200MMFD. Mica Capacitor.
Dummy Antenna: 400 ohm Non-Inductive Resistor.

Alignment Conditions:—

Load Impedance 5,000 Ohms.
Output Level 50 Milliwatts.
Volume Control Full on (clockwise).
Tone Control Treble Tone Position.

Dial Pointer Setting: Set the centre of the dial pointer on the end of travel mark on the dial calibration near 550 Kc/s. Condenser gang plates fully meshed.

Alignment:— Intermediate Frequency 455 Kc/s.

Operation	Generator Connection	Frequency	Dummy Antenna	Instructions
		TURN WAVE CHANGE SWITCH TO BROADCOAST POSITION		
1.	To control grid of 6U7G.	455 Mc/s.	.01MFD. mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 2nd IF. trans. primary and secondary.
2.	To control grid of 6J8G tube	455 Kc/s.	.01MFD. mica capacitor in series with generator.	Leave grid cap on tube. Gang plates full out. Peak 1st IF. trans. primary and secondary.
3.	To antenna terminal.	600 Kc/s.	200MMFD. mica capacitor in series with generator.	Turn gang and dial pointer to 600 Kc/s. Peak B/C. oscl. coil inductance trimmer (iron core) for max. output. Rock the cond. gang to and fro through the signal while adjusting.
4.	To antenna terminal	1400 Kc/s.	200MFD. mica capacitor in series with generator.	Turn gang and dial pointer to 1400 Kc/s. Adjust B/C. oscl. coil trimmer for logging and peak B/C. antenna trans. trimmer for max. output.
5.	Repeat operations Nos. 3 and 4.			
		TURN WAVE CHANGE SWITCH TO SHORT WAVE POSITION		

Operation	Generator Connection	Frequency	Dummy Antenna	Instructions
6.	To antenna terminal	16 Mc/s.	400 Ohm non-inductive resistor in series with generator.	Turn dial pointer and gang to 16 Mc/s. Adjust S/wave oscl. trimmer for logging and peak S/wave antenna trans. trimmer.
7.	To antenna terminal	7 Mc/s.	400 Ohm non-inductive resistor in series with generator.	Turn gang and dial pointer to 7 Mc/s. and check tracking.

SUBJECT–Voltage Table–Model BJP

Equipment:–

DC Volt Meter; 1,000 Ohm/volt meter with 0–10, 0–250 and 0–500 volt scales.

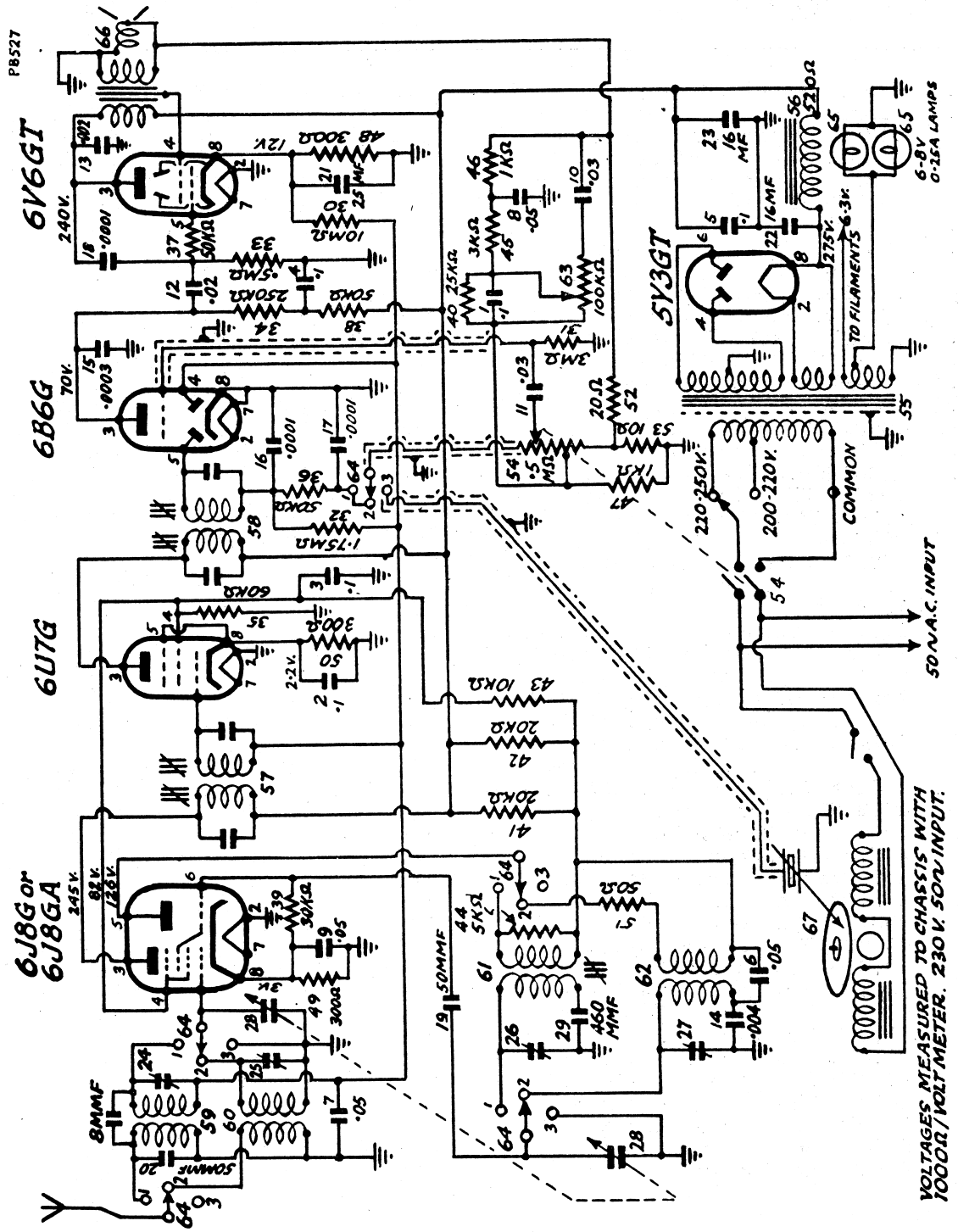
AC Volt Meter: 0–10, 0–250 and 0–500 volt scales.

Conditions of Test:–

230 volts 50 cycles AC. input to 220–250 volt primary tap. Set tuned to 1,000 Kc/s., volume control full on, no signal. Heater voltages measured across heater contacts of tube sockets. All other voltages measured from tube socket contacts to chassis.

Tube	Heater	Plate	Screen	Cathode	Oscl. Plate.
6J8GA	6.3V.	245V.	82V.	3.0V.	126V.
6U7G	6.3V.	245V.	82V.	2.2V.	
6B6G	6.3V.	70V.			
6V6GT	6.3V.	240V.	245V.	12V.	
5Y3GT	5V.	275/275V.	RMS. The initial surge voltage across the first electrolytic (circuit No. 32.) is 370 volts dropping to normal operating value of 275 volts. DC. voltage drop across filter choke is 30 volts.		

Subject-Circuit Diagram Model BJP.



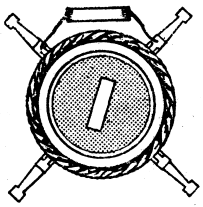
SUBJECT-Component Parts List-Model BJP

Circuit No.	Part Name	Tol±	Rating	Part No.
1.	.1MFD. Paper Condenser	20%	200V.DCW.	PC218
2.	.1MFD. Paper Condenser	20%	200V.DCW.	PC218
3.	.1MFD. Paper Condenser	20%	400V.DCW.	PC103
4.	.1MFD. Paper Condenser	20%	400V.DCW.	PC103
5.	.1MFD. Paper Condenser	20%	400V.DCW.	PC103
6.	.05MFD. Paper Condenser	20%	200V.DCW.	PC102
7.	.05MFD. Paper Condenser	20%	200V.DCW.	PC102
8.	.05MFD. Paper Condenser	20%	200V.DCW.	PC102
9.	.05MFD. Paper Condenser	20%	200V.DCW.	PC102
10.	.03MFD. Paper Condenser	20%	200V.DCW.	PC303
11.	.03MFD. Paper Condenser	20%	200V.DCW.	PC303
12.	.02MFD. Paper Condenser	20%	400V.DCW.	PC111
13.	.002MFD. Paper Condenser	20%	600V.DCW.	PC112
14.	.004MFD. Mica Condenser	5%	1000VT.	PC299
15.	.0003MFD. Mica Condenser	10%	1000VT.	PC568
16.	.0001MFD. Mica Condenser	10%	1000VT.	PC571
17.	.0001MFD. Mica Condenser	10%	1000VT.	PC571
18.	.0001MFD. Mica Condenser	10%	1000VT.	PC571
19.	.00005MFD. Mica Condenser	10%	1000VT.	PC572
20.	.00005MFD. Mica Condenser	10%	1000VT.	PC572
21.	25MFD.	20%	40VP.	PC760
22.	16MFD. Combination Electrolytic Condenser	20%	525VP.	
23.	16MFD.	20%	525VP.	
24.	Trimmer Condenser (B/Cast) Ant Trans.)			
25.	Trimmer Condenser (S/wave) Ant Trans.) Trimmer Ass.			PC658
26.	Trimmer Cond., Wire Wound (B/cast. Osc. Trans.)		0-30MMFD.	PC663
27.	Trimmer Cond., Wire Wound (S/wave. Osc. Trans.		0-30MFD.	PC663
28.	2 Gang Variable Condenser with gears.			PC752
29.	460MMFD. Mica Condenser	2½%	1000VT.	PC728
30.	10 Megohm Carbon Resistor	10%	1 watt	PR236
31.	3 Megohm Carbon Resistor	10%	½ Watt	PR282
32.	1.75 Megohm Carbon Resistor	10%	½ watt	PR248
33.	500,000 Ohm Carbon Resistor	10%	½ Watt	PR245
34.	250,000 Ohm Carbon Resistor	10%	1 Watt	PR496
35.	60,000 Ohm Carbon Resistor	10%	1 Watt	PR415
36.	50,000 Ohm Carbon Resistor	10%	½ watt	PR160
37.	50,000 Ohm Carbon Resistor	10%	½ watt	PR160
38.	50,000 Ohm Carbon Resistor	10%	1 watt	PR115
39.	30,000 Ohm Carbon Resistor	10%	½ watt	PR151
40.	25,000 Ohm Carbon Resistor	10%	½ watt	PR155
41.	20,000 Ohm Carbon Resistor	10%	1 watt	PR171
42.	20,000 Ohm Carbon Resistor	10%	1 watt	PR171
43.	10,000 Ohm Carbon Resistor	10%	1 watt	PR325
44.	5,000 Ohm Carbon Resistor	10%	½ watt	PR250
45.	3,000 Ohm Carbon Resistor	10%	½ watt	PR185

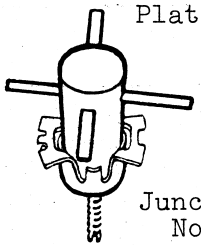
SUBJECT-Component Parts List:-Model BJP

Circuit No.	Part Name	Tol±	Rating	Part No.
46.	1,000 Ohm Carbon Resistor	10%	½ watt	PR252
47.	1,000 Ohm Carbon Resistor	10%	½ watt	PR252
48.	300 Ohm Wire Wound Resistor	10%	1 watt	PR122
49.	300 Ohm Wire Wound Resistor	10%	½ watt	PR258
50.	300 Ohm Carbon Resistor	10%	½ watt	PR258
51.	50 Ohm Wire Wound Resistor	10%	½ watt	PR280
52.	20 Ohm Wire Wound Resistor	10%	½ watt	PR231
53.	10 Ohm Wire Wound Resistor	10%	½ watt	PR553
54.	.5 Megohm Volume Control with DP.ST. Switch	20%		PR662
55.	(Power Transformer (200-250 Volt (50 cycle Mains)			PT807
	(Power Transformer (200-260 Volt (40 cycle Mains)			PT809
56.	Filter Choke 14H-60MA.			PT806
57.	1st IF. Transformer			PT869
58.	2nd IF. Transformer			PT869
59.	Antenna Transformer (B/cast)			PT905
60.	Antenna Transformer (S/wave)			PT463
61.	Oscillator Transformer (B/cast)			PT860
62.	Oscillator Transformer (S/wave)			PT464
63.	Tone Control			PR663
64.	Wave Change/Phonograph Switch			S156
65.	Dial Lamp. Screw Base. T3½ Bulb. 6.3V. 0.25A			PM678
66.	Speaker. 12 inch. Permag. 5,000 Ohm Transf.			K136
67.	Phonograph Unit			
	Type 6J8G or 6J8GA Tube			
	Type 6U7G Tube			
	Type 6B6G Tube			
	Type 6V6GT Tube			
	Type 5Y3GT Tube			
	Tube Sockets (5)			PM532
	Tube Shields (3)			PM217
	Speaker Socket			262/250
	Speaker Plug			261/250
	Terminals-A & E			PM306
	Grommet. Cond. Mount.			64/30A
	Valve Shield Earth Contact			22/30C
	Tuning Cable			11/609-29
	Dial Cord 6ft.			7/282
	Knob & Shaft (3)			186/81-2
	Knob & Shaft (1)			186/81-1
	Link-Control Shaft			8/627
	Dial Reading			4/757-1
	Dial Lamp Assy. (1)			A128/30C
	Dial Lamp Assy. (3)			A103/633
	Main Junction Block			249/250
	Light Button			27/688
	Spring-Dial Cord			27/87
	Escutcheon Pin-Dial Lamp			94/250
	Grommet-Dial Lamps			40/30C
	Instruction Booklet			194/278

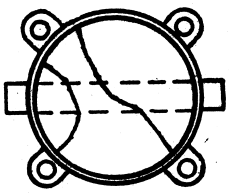
SUBJECT Coil and IF. TRANSFORMER CONNECTIONS-Model "BJP".



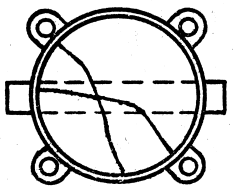
ANT. TRANS. BROADCAST



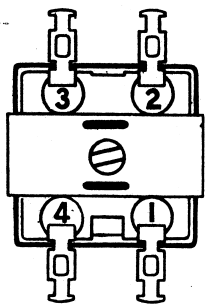
OSCL. COIL BROADCAST



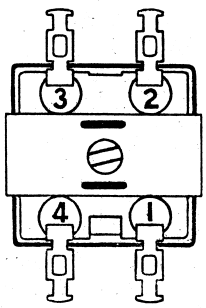
ANT. TRANS. SHORT WAVE



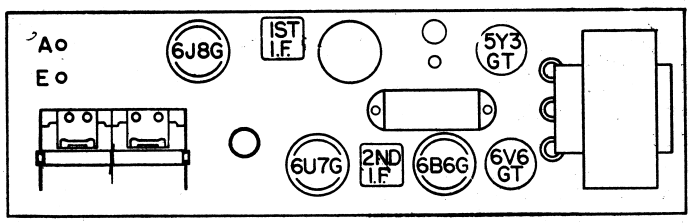
OSCL. COIL SHORT WAVE



1st I.F. TRANS.



2nd I.F. TRANS.



VALVE PLACEMENT DIAGRAM. 484/279