

ELECTRONIC INDUSTRIES LTD.

CAR RADIO DIVISION

126-130 GRANT STREET, SOUTH MELBOURNE, S.C.4.

Bulletin: HJL-1

File : RECEIVERS

AUTO

Date: 3-10-58.

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SERVICE BULLETIN

AIRCHIEF MODEL HJL

12 VOLT SUPERHETERODYNE CAR RADIO RECEIVER

FOR OPERATION FROM: 12 Volt Accumulator
Negative connected to chassis.

WARNING MODEL 'HJL' RECEIVER MAY BE INSTALLED ONLY IN A CAR WHICH HAS THE NEGATIVE TERMINAL OF THE CAR BATTERY CONNECTED TO THE CAR CHASSIS.

BATTERY CONNECTION OF INCORRECT POLARITY WILL DAMAGE THE RECEIVER. i.e. Installation in a car which has the positive terminal of the battery connected to the car chassis.

BATTERY CONSUMPTION: 13 volts DC input - 1.4 amps,
(includes 16 volt .2 amp.
dial lamp.)

TUNING RANGE: 530 - 1610 Kilocycles
566.3 - 186.3 Metres.

INTERMEDIATE FREQUENCY: 455 Kc/s.

THIS BULLETIN CONTAINS:

1. Alignment procedure.
2. Electrical and mechanical parts list.
3. Transistor collector current adjustment.
4. Transistor receiver servicing precautions.
5. Valve and transistor placement diagram.
6. Connections for transformers.

ALIGNMENT INSTRUCTIONS.EQUIPMENT:

Signal Generator:
 Output Meter :
 Mica Capacitor : 0.01MF Part No.
 PCl45 for I.F.T.
 alignment.
 Dummy Antenna : 65 MMF Part No.
 M486.
 Alignment Tools :
 (a) Chisel point type Part No.
 M195 for trim. cond.
 adjustment.
 (b) Hexagonal rod type Part No.
 418/81 for I.F.T. iron core
 adjustment.
 (c) Tuning unit iron core adj.
 tool. Part No.M471.
 IF. Attenuator - Part No.
 M447.

ALIGNMENT CONDITIONS

Supply Voltage; 13 volts DC.
 Volume Control: max. volume (fully
 clockwise)
 Output Level : 50 Milliwatts
 (25 Milliwatts
 output meter read-
 ing with speaker
 voice coil in
 circuit.)
 Output Meter :
 Impedance : 4 Ohms.
 Tone Control : treble position
 (fully
 clockwise)
 IF. Frequency : 455 Kc/s.

IF. TRANSFORMER ALIGNMENT

Remove the ten screws fastening metal can to the receiver.

IMPORTANT: It will be found that maximum output peaks will be obtained at two positions of the IF. trans. adjustable cores, the correct setting is the one in which the cores are furthest apart.

NOTE: The final peaking of the cores nearest the top of the IF. trans formers should be carried out last. This is necessary so that the upper cores will not be disturbed when withdrawing the hexagonal tip alignment tool.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions.
1.	To control grid of 6DR8 IF. valve (pin 2)	455 Kc/s.	0.01 MF Mica cond. in series with generator.	Peak 2nd IF. trans. pri and sec. iron cores for max. output.
2.	To control grid of 6DS8 converter valve (pin 2)	455 Kc/s.	0.01MF Mica cond. in series with generator	Turn tuning control until perm. tuner iron cores are out of the coil windings. Peak 1st IF. trans. pri. and sec. iron cores for max. output. Do not repeak 2nd IF. trans. iron cores.

BROADCAST ALIGNMENT

When iron cores and tuning coil assy is in original factory sealed condition.

- | | | | | |
|----|----------------------------|------------|--|---|
| 1. | Antenna lead-
in socket | 1615 Kc/s. | Part No. M486
65 MMF in
series with
generator | Turn tuning control to
the high freq. end of
travel (iron cores full
out) Adjust osc., trimmer
cond. for max. output. |
| 2. | Antenna lead-
in socket | 525 Kc/s. | Part No. M486
65 MMF in
series with
generator | Turn tuning control to
low freq. end of travel
(iron cores fully in.)
Adjust osc. shunt coil
inductance trim, (iron
core) for max. output. |

NOTE: If the iron core of the osc. shunt coil is adjusted more than one half turn, repeat operation No.1.

3. Connect IF. attenuator (part No. M447) to the control grid of 6DR8 IF, valve pin No.2.
4. Antenna lead-
in socket 1200 Kc/s. Part No. M486
65 MMF in
series with
generator Tune the receiver to the
generator frequency.
Adjust the R.F. and ant-
enna trimmer for max.
output.

SETTING OF THE DIAL POINTER.

Disconnect the IF. attenuator.

Disconnect the generator cable from the dummy antenna then connect 20 ft of ordinary wire to the dummy antenna terminal.

Accurately tune the receiver to a station marked on the dial near 800 Kc/s.

Slip pointer carriage assy. along guide rail until the centre of the pointer coincides with the centre of the tuned station call sign. Check dial logging and if necessary readjust pointer.

PROCEDURE FOR SETTING PERMEABILITY TUNING UNIT IRON CORES.

After replacement of tuning coils assy and / or iron cores.

1. Before fitting the tuning unit into the receiver turn the tuning control spindle until the perm tuner is against the high freq. end of travel stop. Adjust the iron cores so that distance between the extreme end of the formers protruding through the rubber grommet and the iron core in the former is 1.365".
2. Fit and wire the tuning unit into the receiver.
3. Place the dial reading and the barrel nuts on to the front of the receiver.
4. Turn the tuning spindle in a clockwise direction until the perm. tuner unit is against the high freq. end of travel stop.

5. Slide the pointer carriage assy. along guide rail until the centre of the pointer coincides with the centre of the end of travel spot on the dial reading at the high frequency end.

Oper. No.	Generator Connection	Generator Frequency	Dummy Antenna	Instructions.
6.	Antenna lead-in socket	1615 Kc/s.	Part No.M486 65MMF in series with generator.	Perm tuner against high freq. end of travel stop. Adjust osc., aer. and RF. trimmer cond. for max. output.
7.				Turn the tuning spindle in an anti-clockwise direction until the centre of the pointer coincides with the centre of the 1200 Kc/s. spot on the dial reading.
8.				Carefully remove the barrel nuts and dial.
9.	Antenna lead-in socket	1200 Kc/s.	Part No.M486 65MMF in series with generator.	Connect IF. attenuator (part No.M447) to the control grid of 6DR8 IF. valve pin No.2. and chassis. With the tuning unit set in position detailed in Para.7. adjust the osc. aer. and RF. iron cores for max. output.
10.				Turn tuning control to the low freq. end of travel (iron cores fully in.) Tune the signal generator to approx. 525 Kc/s. The low freq. tuning limit should be between 520 and 530 Kc/s. If the receiver is outside these limits adjust osc. shunt coil as follows:.
11.	Antenna lead-in socket	525 Kc/s.	Part No.M486 65MMF in series with generator.	Turn tuning control to the low freq. end of travel (iron cores fully in) Adjust osc. shunt coil inductance (iron core) for max. output.

NOTE: If the iron core of the Osc. shunt coil is adjusted more than one half turn, repeat operation 6, 7, 8, 9, and 10.

Align dial pointer as detailed on page.3.

Circuit No.	Description	Tol. [†]	Rating	Part No.
1	5-60 MMF Trimmer condenser			C296
2	95 MMF Tubular ceramicon condenser	5%	500V DCW	C310
3	200 MMF Disc ceramicon condenser	-0%+50%	500V DCW	C256
4	.047 MF Paper condenser	20%	100V DCW	D4733
5	.04 MF Metallised paper condenser	20%	200V DCW	C142
6				
7	.47 MF Paper condenser	20%	100V DCW	D4743

Circuit No.	Description	Tol [±]	Rating	Part No.
8	120 MMF Tubular ceramic condenser	10%	500V DCW	C153
9	1.5-15 MMF Trimmer condenser			PC927
10	47 MMF Tubular ceramic condenser	10%	500V DCW	C180
11	200 MMF Disc ceramic condenser	-0%+50%	500V DCW	C256
12	200 MMF Disc ceramic condenser	-0%+50%	500V DCW	C256
13	1000 MMF Ceramic disc button condenser	500 MMF	500V DCW	C108
14	56 MMF Disc ceramic condenser	10%	500V DCW	C152
15	.047 MF Paper condenser	20%	100V DCW	D4733
16	3-30 MMF Wire wound trimmer condenser			PC663
17	15 MMF Disc ceramic condenser	1 MMF	500V DCW	C225
18	250 MF Electrolytic condenser	-10%+100%	16V DCW	C309
19	250 MF Electrolytic condenser	-10%+100%	16V DCW	C309
20				
21	.01 MF Paper condenser	20%	100V DCW	D1033
22	.0047 MF Paper condenser	20%	400V DCW	F4723
23	2000 MF Electrolytic condenser	-10%+100%	2.5V DCW	C305
24	.0047 MF Paper condenser	20%	400V DCW	F4723
25	2 MF Electrolytic condenser	-10%+100%	12V DCW	C306
26	.001 MF Paper condenser	20%	200V DCW	WF1023
27	.003 MF Disc ceramic condenser	GMV	500V DCW	C146
28				
29				
30	100 MF Electrolytic condenser	-10%+250%	3V DCW	C308
31	250 MF Electrolytic condenser	-10%+100%	16V DCW	C309
32				
33	150,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1542
34	1 Megohm carbon resistor	10%	$\frac{1}{2}$ W	R1052
35				
36				
37				
38	1200 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1222
39	3300 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3322
40	4.7 Megohm carbon resistor	10%	$\frac{1}{2}$ W	R4752
41	220 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R2212
42	100,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1042
43	15 Megohm carbon resistor	10%	$\frac{1}{2}$ W	R1562
44	47,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R4732
45	3.3 Megohm carbon resistor	10%	$\frac{1}{2}$ W	R3352
46	2.2 Megohm carbon resistor	10%	$\frac{1}{2}$ W	R2252
47	68 Ohm wire wound resistor	10%	$\frac{1}{2}$ W	PR997
48	330,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3342
49	680,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R6842
50	Volume control and tone control concentric shaft potentiometers			
	FRONT SECTION - 2 Megohm			
	REAR SECTION - 2 Megohm tapped at 800K ohms			
	S.P.S.T. push-pull type switch attached			R204
51	1.8 Ohm wire wound resistor	5%	1W	R211
52	1 ohm wire wound rheostat (transistor bias adjustment)	20%		R196
53	120,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1242

54	3,300 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3322
55	10 Megohm carbon resistor	10%	$\frac{1}{2}$ W	R1062
56	5,600 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R5622
57	1.5 Ohm wire wound copper resistor			
	- refer page 8	5%	$\frac{1}{2}$ W	R228
58	3,900 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R3922
59	22,000 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R2232
60	1,500 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1522
61	150 Ohm carbon resistor	10%	$\frac{1}{2}$ W	R1512
62				
63				
64				
65	Choke - 6.8 mh	10%		L348
66	No.1. IF. transformer 455 Kc/s			L339
67	No.2. IF. transformer 455 Kc/s			L340
68	Permeability tuner unit complete single start drive spindle			L355
	Permeability tuner unit part No. L355 has been superceded by			
	Permeability tuner unit part No. L356 which has a three start			
	drive and is identifiable by the two nylon stop plates.			
	consists of			
	Antenna coil - less iron core and sleeve			L351
	Iron core			52/249
	Iron sleeve			56/249
	RF. coil - less iron core and sleeve			L351
	Iron core			52/249
	Iron sleeve			56/249
	Oscillator coil - less iron core and sleeve			L352
	Iron core			52/249
	Iron sleeve			51/249
69	Oscillator shunt coil			L337
70	Filter choke			T190
71	Driver transformer - 10,000: 40 Ohm impedance type DR18			T197
72	Speaker input transformer - 25:3.5 Ohm impedance type TR14			T188
73	Speaker - 6" X 9" oval permag type 6 - 9L cone No.F69			K209
74	Fuse - 5 AMP			PM894
75	SP.ST switch - part of vol control circuit No.50.			
76	Indicator lamp - 16V Min Bay base G 3 $\frac{1}{2}$ bulb			M440
77	Diode filter - consists of 47K Ohm resistor and two 100 MMF condensers.			PA624
78	4 pin socket(speaker)			580/250
79	4 pin plug - on speaker leads			583/250
	Twin conductor shielded - speaker lead			WM320
	Insulator bush (2) power transistor			8/396
	Lead washer - power transistor			11/396
	Valve socket (2) 7 pin			A104/58
	Valve socket (2) 9 pin			579/250
	Transistor socket			A101/849
	Clip - transistor socket			581/250
	Spring clip (2) IF. trans mt.			510/250
	Contact clip (2) power transistor connection			33/58
	Cable clip - antenna lead-in cable			423/250
	Cable clip (2) fuse holder and battery lead			422/250
	Clip - dial lamp power feed lead			85/292

Fuse and lead wire assy.	PA627
consists of	
Fuse 5 Amp.	PM894
Fuse holder-long section	11/245
Fuse holder-short bayonet section	14/245
Fuse insulator - cardboard tubing	15/245
Socket - receiver power connector	151/245
Eyelet and bush assy (3) moulded bakelite - inside fuse holder and receiver power socket.	17/245
Spring - fuse holder and receiver power socket.	89/30C-2
Plug terminal dial illum. lead.	23/386
Spade lug (2) lead connections to terminals of car	59/292
Feed lead - brown, 34" long, 14/.012 copper wire	WM248-1
Feed lead - grey, 27" long 9/.012 copper wire	WM247-8
Double connector socket - dial illum. lead plugs.	24/386-2
Eyelet and bush - receiver battery lead plug	17/245
Receiver battery lead - red, 14/.012 copper wire	WM248-2
Antenna lead-in socket	585/250
Plug - on end of antenna lead-in cable.	584/250
Terminal strip - 7 lug, type E4E1	A608/30C
Terminal strip - 8 lug, flat type mounted on top of driver transformer.	A625/30C
Terminal strip - 16 lug, flat type	A586/30C-1
Terminal strip - 2 lug, type E1	A599/30C
Suppressor - 12,500 ohm screw-in type	PR314
.5 MF Metal clad, bypass condenser - ignition coil battery terminal	PC545-12
.5 MF Metal clad, by-pass condenser - generator armature terminal by-pass	PC545
Knob - antenna matching on side of receiver case	341/81
Tuning knob assy.	A176/392-3
Volume control knob assy	A175/392-3
Tone control knob	349/81-3
Clip - tone knob	22/755
Insert (2) front of tuning and vol. control knobs.	2/358-2
Bush - tuning spindle	972/495
Spacer nut (2) tuning and vol. control bush	7/347-5
Washer (2) $\frac{5}{8}$ " ext. shakeproof - " " "	1/562-15
Extension spacer bush (2) " " "	60/387
Dial background assy. complete	A171/387
includes	
Dial lamp (2) 16V min. bay. base. G3 $\frac{1}{2}$ bulb LUGON type 163-11	M440
Socket body (2)	88/245
Eyelet and washer (2) lamp socket	62/245
Leatheroid washer (2) lamp socket	511/30C
Spring (2) lamp socket	55/245
Lamp shield (2)	80/387-2
Plug terminal (2) dial lamp leads	23/386
Receiver "ON" indicator bezel - red	3/386-2
Transparent light carrier - at rear of red bezel	68/387
Dial reading - Australian stations	16/395
Dial reading - numerals 16-55, export vehicles only	19/395
Dial pointer	457/81
Dial pointer holder	A187/387

Dial cord - 30 ins.	34/754
Spring - dial cord	11/306
Rail and cord stud assy. - dial pointer runner	A106/396
Escutcheon - black, moulded, includes badge	456/81
Badge - Airchief motif.	57/387
Jewel bezel - escutcheon	A110/396
Chrome bezel - front of escutcheon	66/374-2
Name strip - "AIRCHIEF" chrome bezel	561/250
Chrome washer (2) barrel nut	19/304
Barrel nut (2) escutcheon	17/304-5
Spacer nut (2) long hex. front mt. bracket to car	13/387
Front mount bracket assy.	A163/387
Screw (2) self-tapping, $\frac{3}{8}$ " x No.6. bdr.hd. front mt bracket to receiver.	35/560-6
Washer (2) flat steel $\frac{3}{8}$ " X 3/16" " " " " " "	1/30C-3
Speednuts (2) No.6. captive " " " " " "	476/250
Rear mount bracket	62/387
Screw - $\frac{5}{8}$ " X 3/16" Whit.Hex Hd. - rear bracket to receiver	48/560-47
Washer - shakeproof $\frac{1}{4}$ " int. rear bracket to car	3/562-5
Washer - flat steel .975" X .260" " " " " "	215/30C
Nut - $\frac{1}{4}$ " Whit. Hex. " " " " "	3/478-10
Screw - $1\frac{1}{4}$ " x $\frac{1}{4}$ " Whit. " " " " "	48/560-4
Organdie bag - speaker dust cover	482/250
Water splash shield	79/387

OUTPUT TRANSISTOR COLLECTOR CURRENT ADJUSTMENT

1. Disconnect the plug on end of speaker leads from the four pin socket of the receiver.
2. Insert the leads from a 0-1AMP D.C. meter into the socket pins normally bridged together when the speaker plug is inserted.
3. Connect the receiver battery lead to a 13 volt D.C. supply.
4. Switch the receiver "ON" turn the volume control fully anti-clockwise min. volume.
5. Allow a minimum of one minute and a maximum of ten minutes for thermal stabilization after initial switching on.
6. Within the time specified in para.5 carefully adjust the bias rheostat so that the transistor collector current is .510 amps. If the receiver has been operating more than ten minutes and it is required to adjust the bias rheostat, switch the receiver off and allow it to cool before adjusting.

NOTE: 1. If the copper positive temperature coefficient resistor (P.T.C.) Circuit No.57 or components mounted near the P.T.C.resistor have been replaced a short cooling period must be allowed after soldering before adjusting the bias rheostat.

NOTE: 2 After a long period of operation it will be noticed that the collector current will decrease slightly, this is normal and is due to the action of the P.T.C. resistor, therefore no attempt should be made to readjust the bias rheostat.

NOTE: 3 The transistor bias rheostat should be readjusted if the output transistor (CTP1138) is replaced.

1.5 OHM RESISTOR CIRCUIT No.57.

Circuit No.57 is a special 1.5 Ohm wire wound resistor which has a positive temperature coefficient.

The use of a substitute resistor as a replacement part may result in damage to the power output transistor type CTP1138.

PRECAUTIONS WHEN TESTING TRANSISTOR RECEIVERS

- A. A transistor is extremely sensitive to heat. When replacing a defective component and there is danger of heat being transferred to the driver transistor, remove it from the socket before proceeding. Soldered connections must not be made directly to the short wires of the driver transistor or to the pins of the power transistor. The contact clips should be removed from the transistor pins before soldered connections are made.
- B. A continuity meter must not be applied to the receiver wiring with the transistors in circuit. Remove the driver transistor from its socket and remove the contact clips from the power output transistor.
- C. A transistor must not be checked for continuity with an ohmmeter as the applied voltage and resultant excess current flow may result in permanent damage to the transistor. A voltmeter of at least 20,000 Ohms/Volt or a high impedance vacuum tube type is a safe means of measuring circuit voltages.
- D. A screwdriver or similar instrument must not be used to short components together or to the metal chassis. The use of this method of checking for the existence of voltage or signal clicks may result in permanent damage to the transistors and/or components.
- E. A safety link is incorporated in the speaker plug to prevent the receiver being operated without the speaker connected. The receiver must not be operated at high power unless the secondary of the output transformer is loaded with either a speaker voice coil or a power output meter.
- F. The black anodized finish base plate of the receiver is used as a heat sink to dissipate the heat generated by the power transistor. The metal mount face of the power transistor and the lead washer are insulated from the metal of the base plate by the anodized finish.

REPLACEMENT OF POWER TRANSISTOR.

A. When replacing a power transistor it is important that the mating surfaces of the washers and the heat sink are not damaged or scraped in any way.

NOTE: The electrical connection to the power transistor collector is made through one of the insulated screws which fasten the transistor to the heat sink.

Determine the mount lug of the transistor which corresponds with the solder lug which provides the electrical connection then clean off the paint from the metal around the hole in the mount lug.

Before fitting the washers and transistor remove all dust, grit, or metal particles from the components then apply a thin film of silicone compound No.5 (part No. WX 187) on to both sides of the heat sink.

Insert the mount screws through the holes in the transistor, lead washer and heat sink. Place an insulating bush on to each of the screws before fitting the washers, lug and nuts. Securely tighten the nuts then unsolder the leads from the solder lug. Check insulation between Collector solder lug and metal of the heat sink. 30,000 Ohm is the minimum permissible reading on an ordinary ohmmeter.

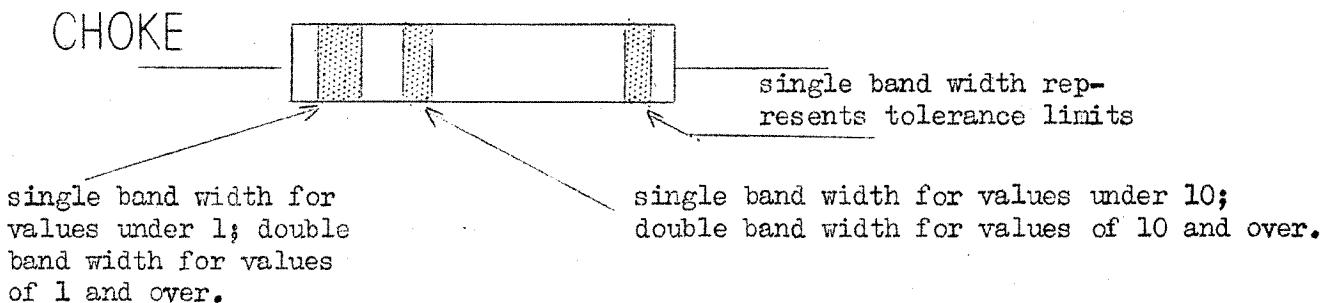
INSULATED TYPE CHOKE

Circuit No.65 spark filter choke Part No.L348 is a new type insulated choke. The new choke is in appearance similar to a 1 watt moulded type resistor. The external difference between the choke and resistor is the positioning of the colour bands on the moulded case.

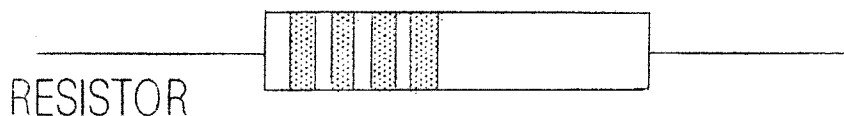
The colour bands of a resistor are grouped together at one end of the case where as the choke colour bands (representing the inductance value) are located at one end, with the inductance tolerance colour band at the extreme opposite end.

Diagrams of the choke and resistor are shown below with the position of the identification colour bands.

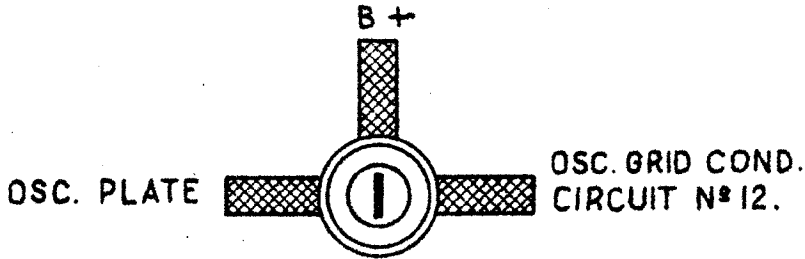
COLOUR CODING. Insulated Chokes are readily identified by the distinctive mottled green colour of their housings. A two band RETMA colour system indicates the values in microhenrys. A third single band at the extreme end of the unit indicates the tolerance. The wide band identifies the whole number (digit to the left of decimal point), and a narrow band indicates the decimal number (digit to the right of the decimal point). The standard RETMA colours are assigned to each figure.



Example; 0 - .91 mH - two single bands
 1.0 - 9.1 mH - double - single
 10 - 91 mH - double - double

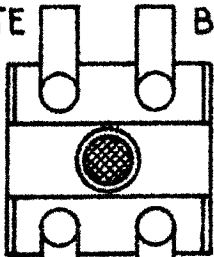


OSC. SHUNT COIL.



LUG VIEW OF COIL

PLATE B +

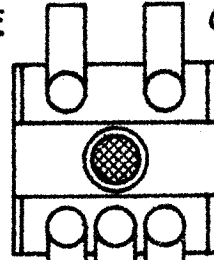


GRID RETURN
JUNCTION OF
CIRCUIT N° 15 & 45.

RED SPOT ON LUG
GRID

1ST. I.F. TRANS.

DIODE DIODE RETURN JUNCTION
OF CIRCUIT N°
77 & 46.



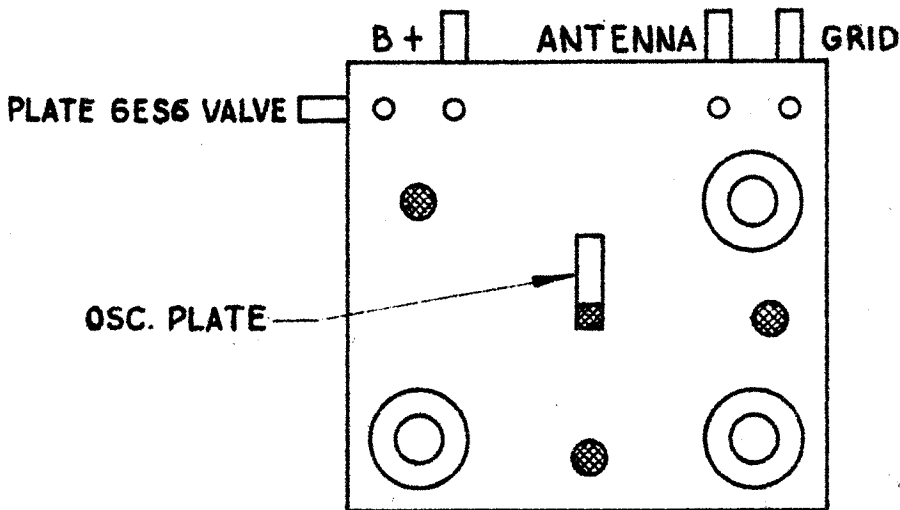
B +

RED SPOT ON LUG
NO CONNECTION

PLATE →

2ND. I.F. TRANS.

PERMEABILITY TUNER UNIT

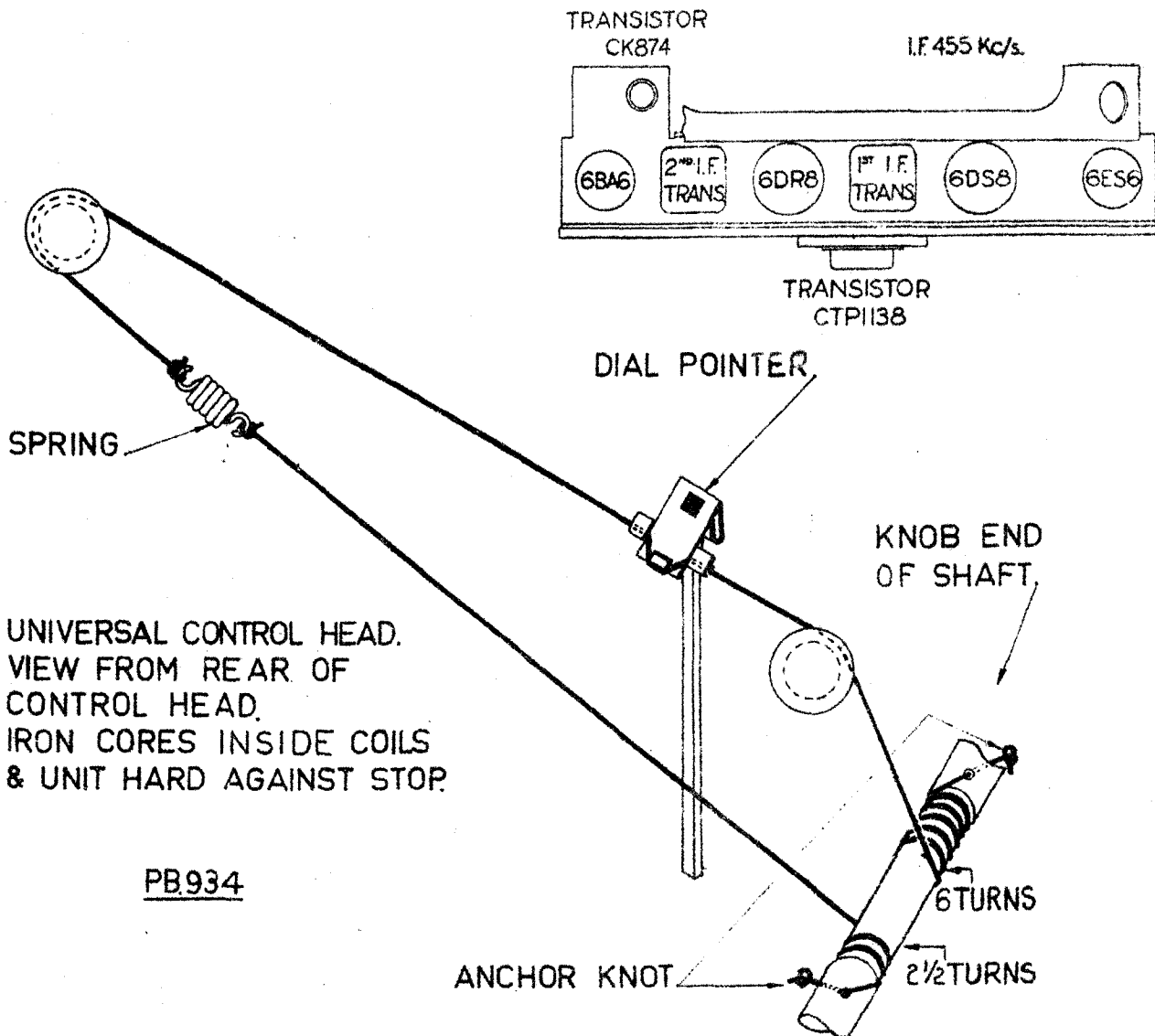


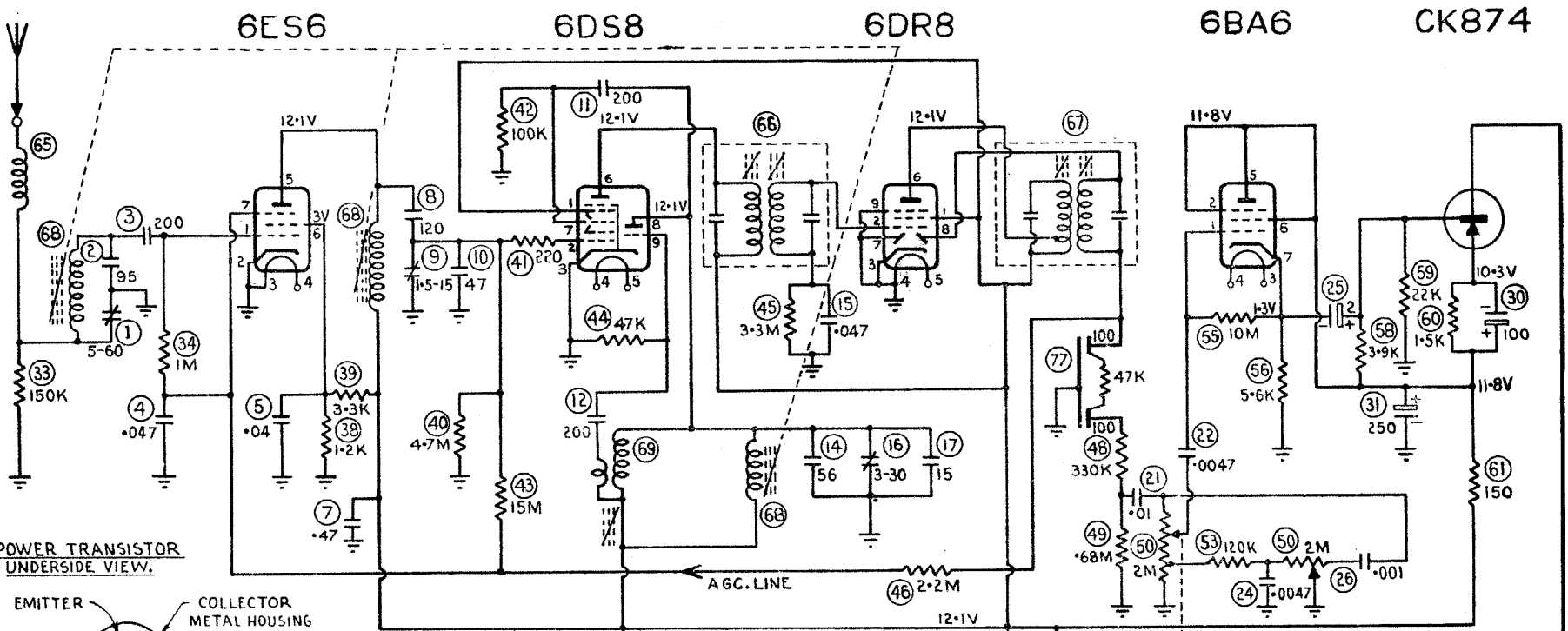
DRIVER TRANSFORMER CONNECTIONS.

Primary, blue lead - CHASSIS
 " red lead - EMITTER CK874
 Secondary green lead - BASE CTP1138
 " black lead - JUNCTION OF CIRCUIT No. 51 and 23.

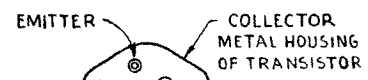
OUTPUT TRANSFORMER CONNECTIONS.

Green sleeving, finish of winding - COLLECTOR CTP1138
 Yellow sleeving, tap. - SPEAKER VOICE COIL
 Black sleeving, start of winding - CHASSIS

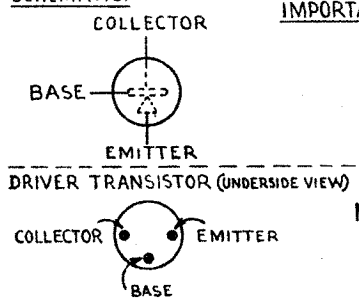




**POWER TRANSISTOR
UNDERSIDE VIEW.**



SCHEMATIC.



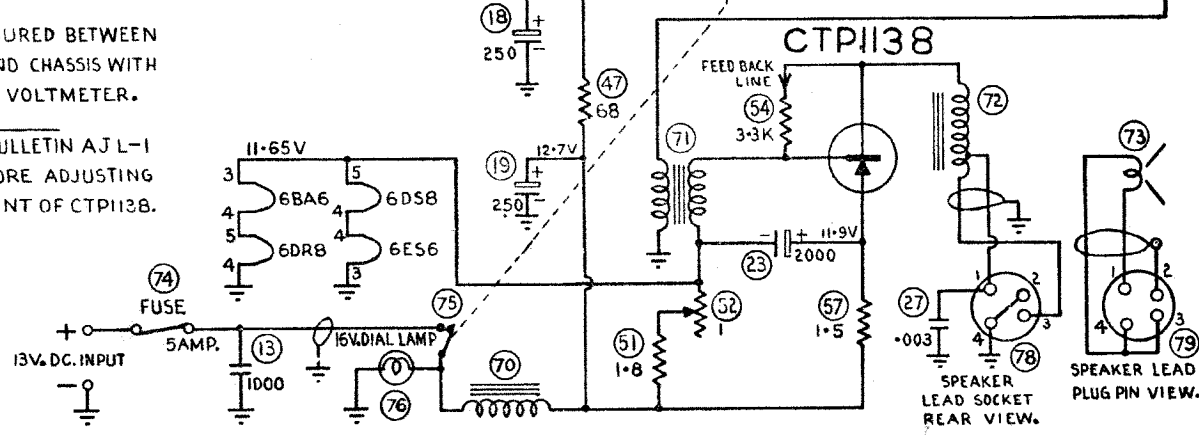
ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND CHASSIS WITH A DC. VACUUM TUBE VOLTMETER. NO INPUT SIGNAL.

IMPORTANT: REFER TO SERVICE BULLETIN AJ L-1 INSTRUCTIONS BEFORE ADJUSTING COLLECTOR CURRENT OF CTP113B.

IF-455 Kc/s

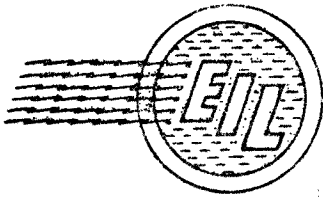
NEGATIVE TO CHASSIS

PB 931



SPEAKER LEAD SOCKET REAR VIEW.

SPEAKER LEAD PLUG PIN VIEW.



ELECTRONIC INDUSTRIES LTD.

CAR RADIO DIVISION
126-130 GRANT STREET, SOUTH MELBOURNE, S.C. 4

Bulletin HJL-2
File: RECEIVERS
AUTO
Date: 18.2. 59
Page: 1.

SERVICE BULLETIN

CONVERTER VALVE TYPE 6DS8
CHANGED
TO A TYPE 12AD6 VALVE
AUDIO AMP. VALVE TYPE 6BA6
CHANGED
TO A TYPE 12BA6 VALVE

Modifications made to the Model "HJL" circuit components when the valve types are changed are detailed below.

A new circuit diagram showing the positions of the new components and the valve heater wiring modifications etc. is attached to this bulletin.

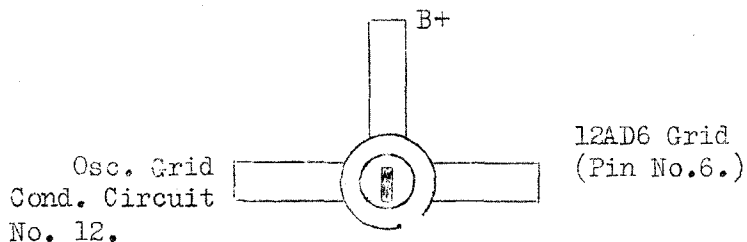
- Circuit No. 11 A 200M μ F Disc ceramicon condenser is deleted from the circuit.
- Circuit No. 40 A 4.7 Megohm resistor is deleted
- Circuit No. 42 A 100,000 Ohm resistor is deleted
- Circuit No. 43 A 15 Megohm $\frac{1}{2}$ W resistor changed to a 1 Megohm carbon resistor tol \pm 10% $\frac{1}{2}$ W part No. R1052
- Circuit No. 44 A 47,000 Ohm resistor changed to a 33,000 Ohm carbon resistor tol \pm 10% $\frac{1}{2}$ W part No. R3332
- Circuit No. 51 A 1.8 Ohm wire wound resistor changed to a 1.5 Ohm wire wound resistor tol \pm 10% 1W part No. R282

Converter valve socket (9 pin) part No. 579/250 Changed to 7 pin socket (9 pin spacing) part No. 683/250. No change is made to the audio amplifier valve socket.

Socket pin connections for the new type valves are shown on the new circuit diagram.

Connections for the oscillator shunt coil (circuit No. 69) when using the type 12AD6 valve are as shown on page 2.

LUG VIEW OF OSC. SHUNT COIL



DRIVER TRANSISTOR TYPE CK874
CHANGED TO
TRANSISTOR TYPE TS3-Z

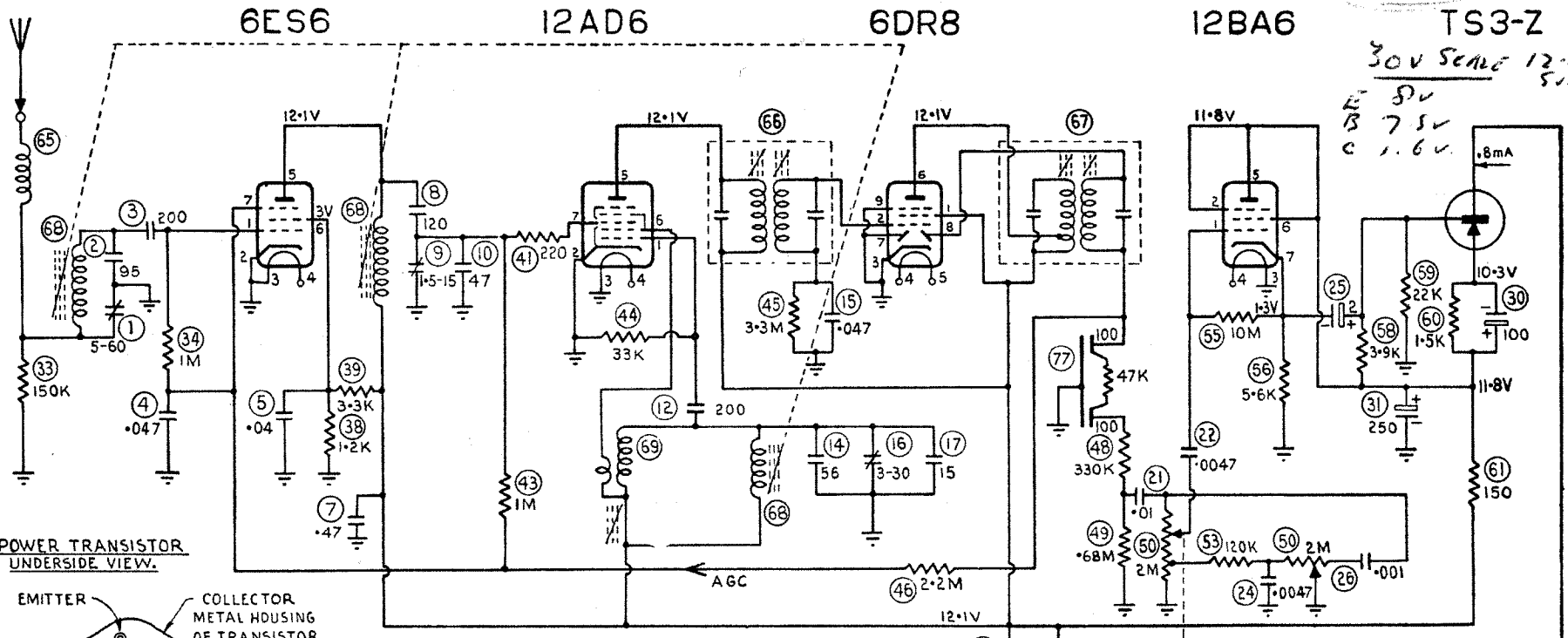
A type TS3-Z transistor is being used in place of the transistor type CK874

No circuit components are required to be changed when using the type TS3-Z transistor.

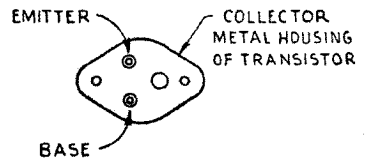
A different type socket part No. A109/849 is required.

Connections and a diagram of the type TS3-Z transistor are shown on the circuit diagram attached to this bulletin.

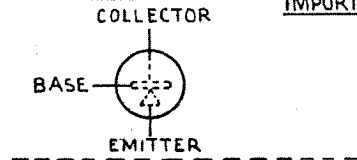
2142175
 30V SCALE 12.5V
 5.2A
 E 5V
 B 7.5V
 C 1.6V



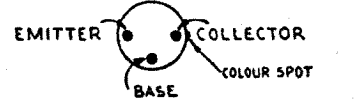
POWER TRANSISTOR
 UNDERSIDE VIEW.



SCHEMATIC.



DRIVER TRANSISTOR (UNDERSIDE VIEW)



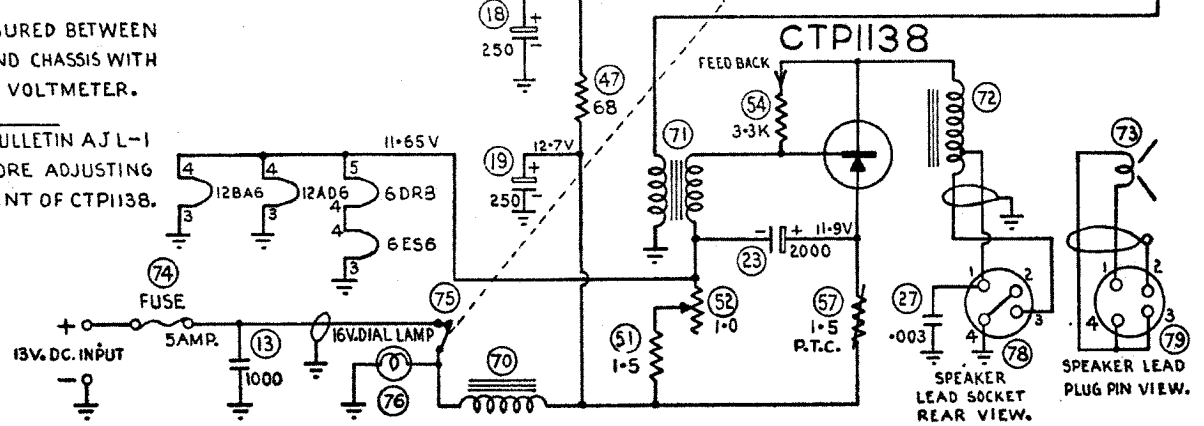
ALL VOLTAGES MEASURED BETWEEN
 POINTS INDICATED AND CHASSIS WITH
 A DC. VACUUM TUBE VOLT-METER.
 NO INPUT SIGNAL.

IMPORTANT:- REFER TO SERVICE BULLETIN AJL-1
 INSTRUCTIONS BEFORE ADJUSTING
 COLLECTOR CURRENT OF CTP1138.

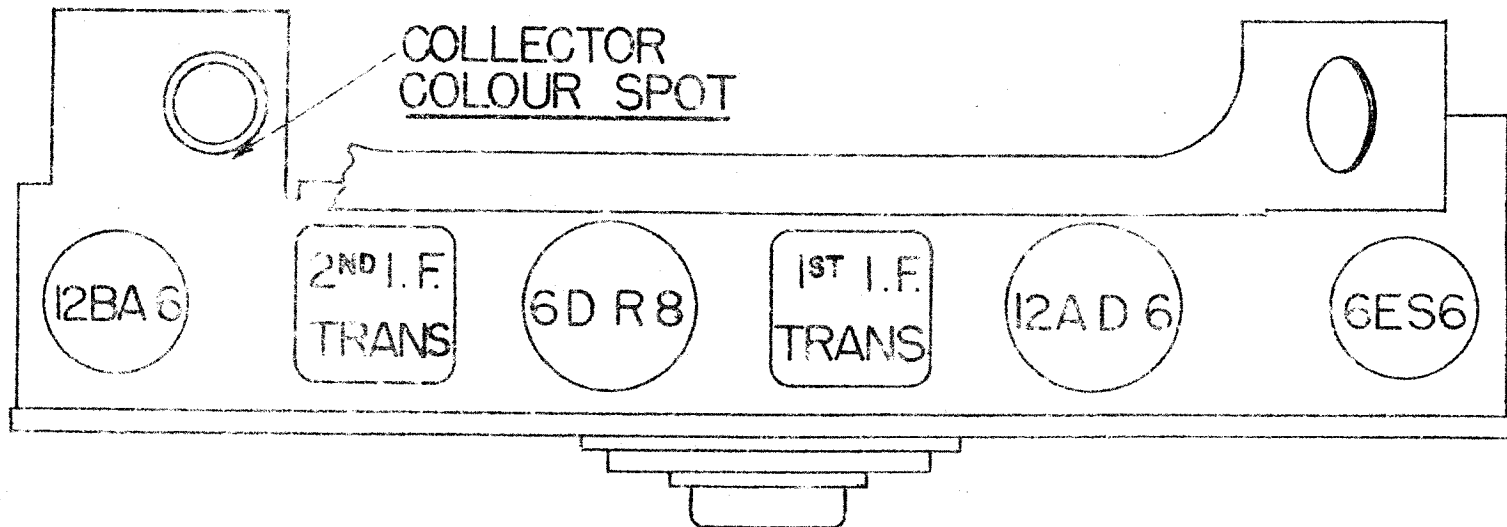
IF-455 Kc/s

NEGATIVE TO CHASSIS

PB977



TRANSISTOR TS3-Z



TRANSISTOR CTP 1138