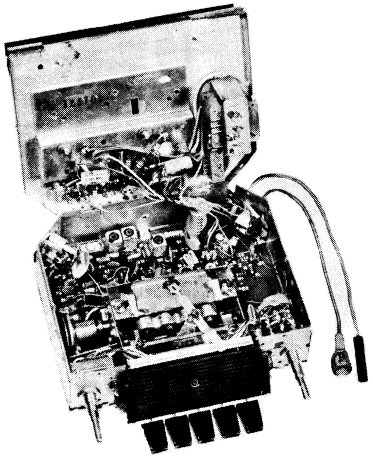
MODEL PN - C27J

PUSH BUTTON TUNED 13 TRANSISTOR 12 VOLT CAR RADIO RECEIVER FITTED WITH SUPPLY OUTLET FOR OPERATION OF SOLENOID ACTUATED AERIAL

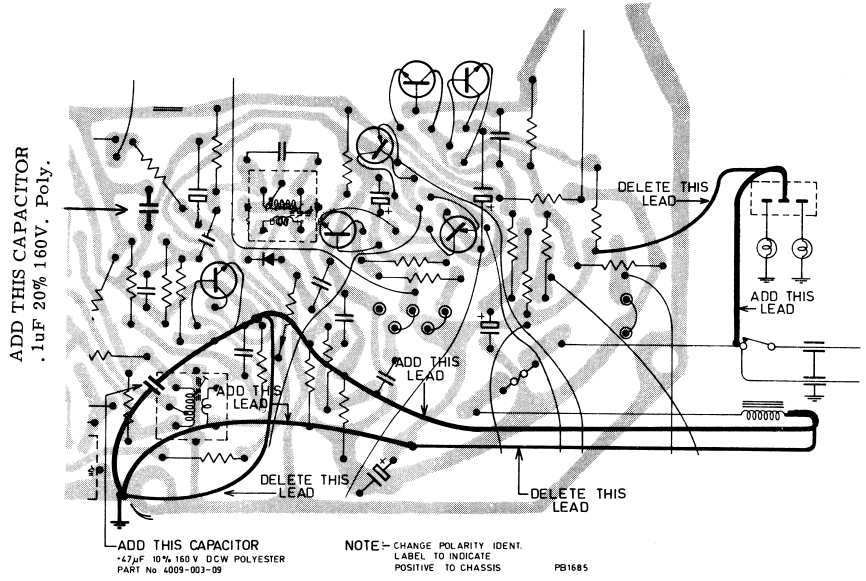
WARNING: BATTERY CONNECTION OF INCORRECT POLARITY WILL DAMAGE THE RECEIVER. BATTERY LEAD OF THESE RECEIVERS MUST BE CONNECTED TO POSITIVE TERMINAL OF SUPPLY. CONNECT NEGATIVE SUPPLY LEAD TO RECEIVER CHASSIS.

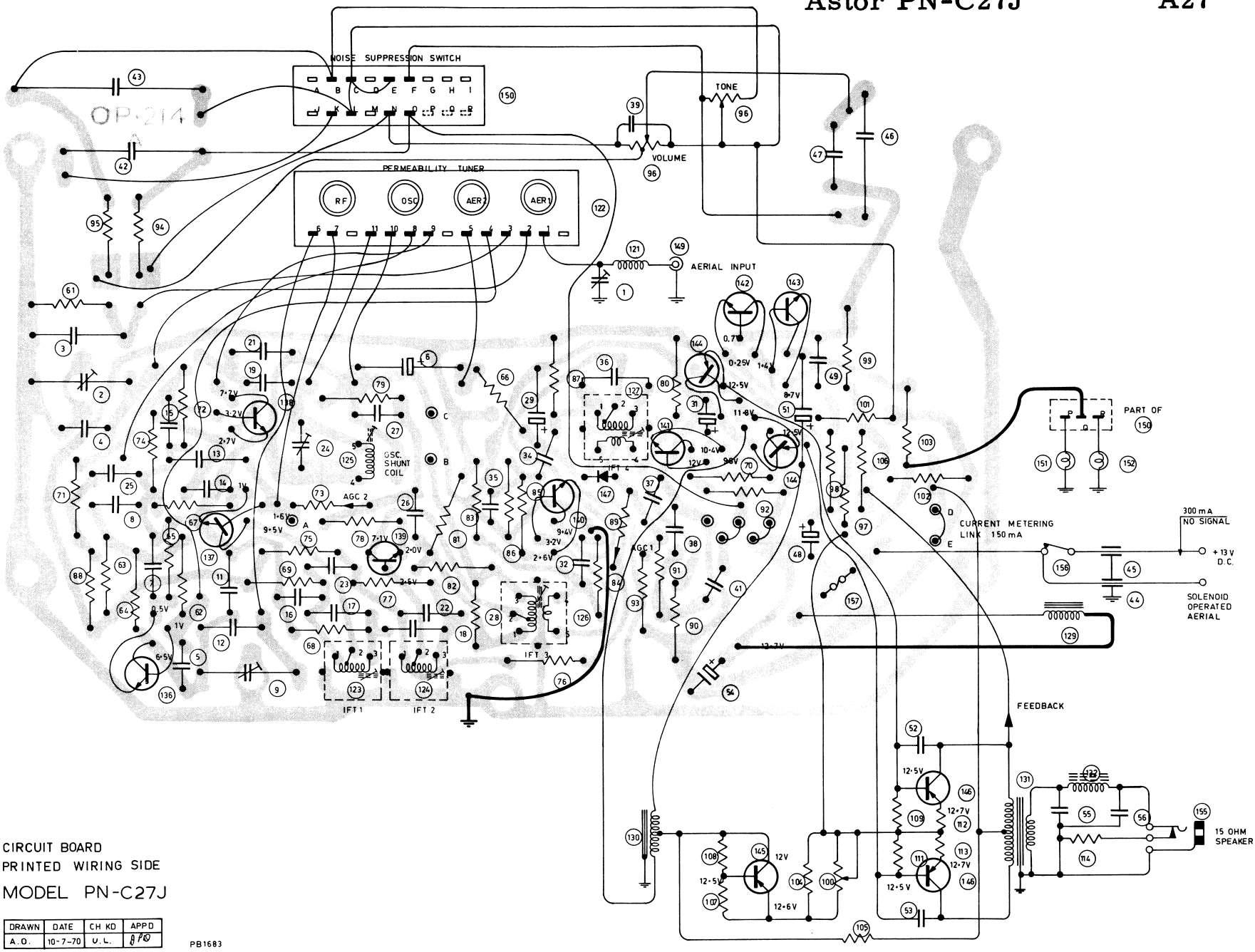


Tuning Range :	525-1630 KHz approx.
Intermediate Frequency :	455 KHz
Supply Voltage :	13.0 Volts D.C.
Current Consumption :	300 milli Amps
Power Output :	8 Watts
Speaker Impedance :	15 ohms

PROCEDURE FOR CHANGING POLARITY OF BATTERY CONNECTION

These receivers are manufactured for 'Negative to Chassis' operation. To change the polarity to 'Positive to Chassis' condition the following procedure must be performed.





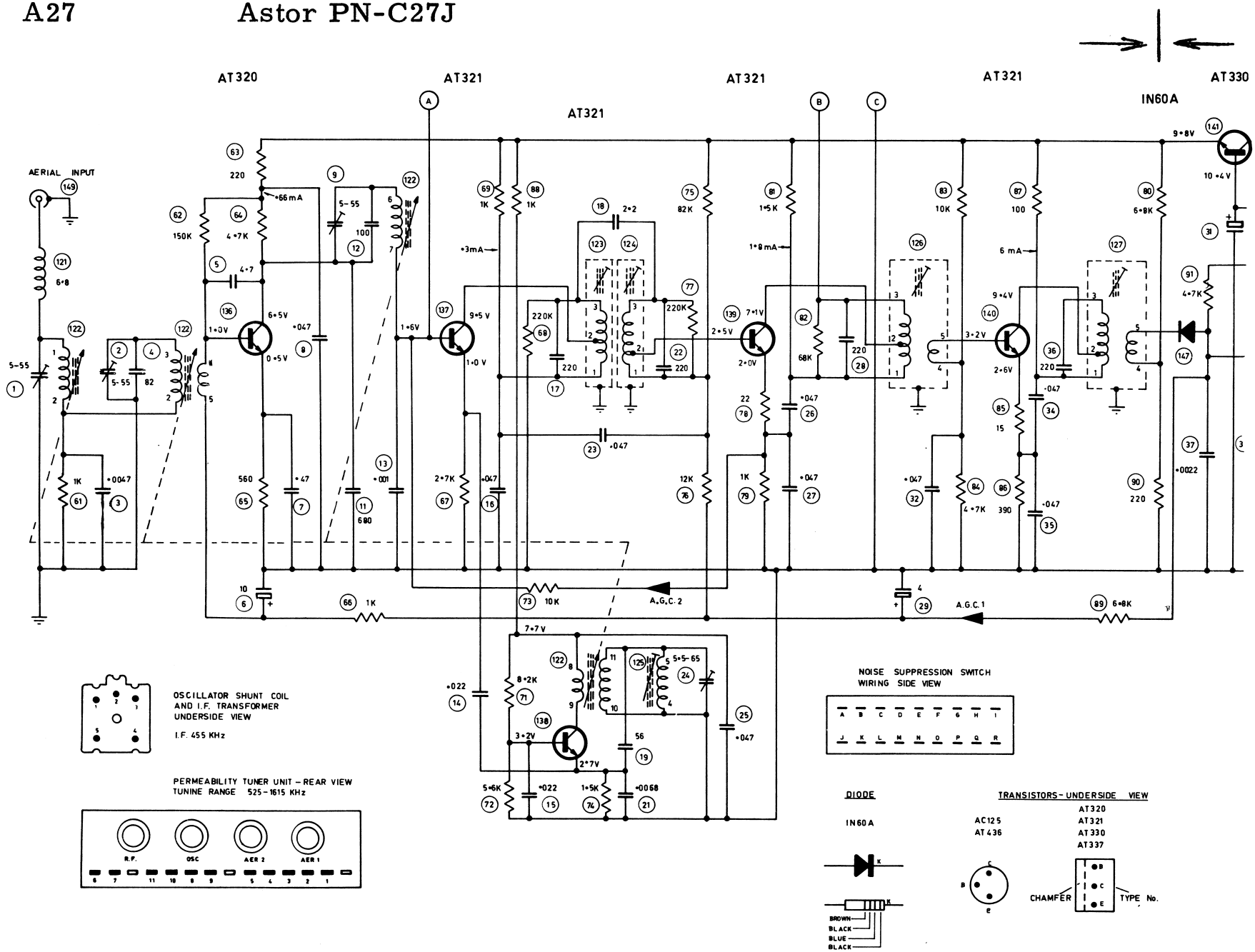
CIRCUIT BOARD
PRINTED WIRING SIDE

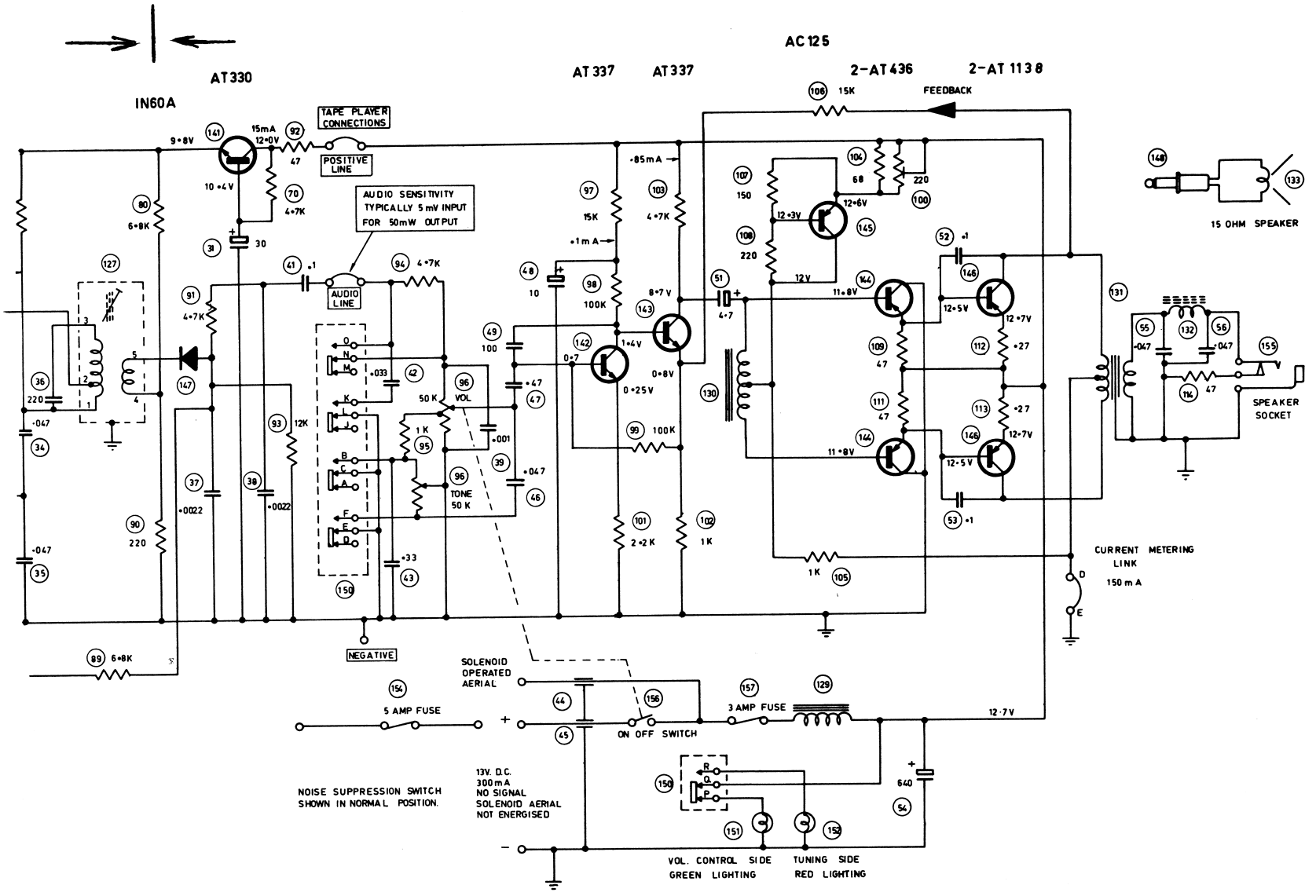
MODEL PN-C27J

DRAWN	DATE	CH KD	APPD
A.O.	10-7-70	V.L.	

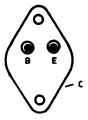
PB1683

A27 Astor PN-C27J





AT1138



(B) DENOTES TEST PIN

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

NUMBERS ASSIGNED TO TERMINALS OF COILS AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT BE FOUND ON THE UNIT.

IMPORTANT – REFER TO SERVICE DATA C27J-1 FOR INSTRUCTIONS BEFORE ADJUSTING COLLECTOR CURRENT OF AT1138 TRANSISTOR

MODEL PN-C27J

PUSHBUTTON TUNING
13 TRANSISTOR
NEGATIVE TO CHASSIS
CAR RADIO RECEIVER

DRAWN	DATE	CH'KD	APP'D
A.O.	17-6-70	M.L.	

PB 1680

A27 Astor PN-C27J

ALIGNMENT PROCEDURE

EQUIPMENT

Signal Generator - modulated 400 Hz
Output Meter - 15 Ohms Impedance
Generator Series Capacitor - .1uF Part No. 4009-008-20 for I.F. alignment
I.F. Attenuator - Part No. 4121-014-01
Dummy Aerial - 65 pF Part No. 4121-009-01
Alignment Tools:

(a) Flat Metal Blade Type; Part No. 4121-001-01 for I.F.T. and Osc. shunt coil adjustment.

(b) Chisel Point Type: Part No. 4121-005-01, for trimmer capacitor adjustment.

(c) Tuning Unit Iron Core Adjustor: Part No. 4121-008-01

(d) Alignment Gauge: Part No. 4121-022-02 for tuner 1000 KHz position.

CONDITIONS

Remove screws and hinge top lid upward.
Volume control - maximum, clockwise.
Tone Control - maximum, clockwise.
Noise Suppression Switch - "OFF" clockwise
Output Meter Connection - Socket, adjacent to battery lead entry.
Output Level - 50 Milliwatts, speaker disconnected.
Supply voltage - 12.0V DC.
Supply Connection - Connect positive supply lead to receiver lead. Connect negative supply lead to receiver chassis.

INTERMEDIATE FREQUENCY TRANSFORMER ALIGNMENT

Turn tuning control until cores of tuner unit are out of coil windings. Insert .1uF capacitor in series with generator "hot" lead.

Oper. No.	Generator Connection	Generator Frequency	Instructions
1	To test pin "A" (base of Mixer stage) and return lead to test pin "C" (negative line)	455 KHz	Adjust iron core of 4th IF trans. for maximum output.
2	As oper. 1	455 KHz	Adjust iron core of 3rd IF trans. for maximum output.
3	As oper. 1	455 KHz	Adjust iron core of 2nd IF trans. for maximum output.
4	As oper. 1	455 KHz	Adjust iron core of 1st IF trans. for maximum output.
5	Repeat operations No. 3 and 4 until maximum output is obtained.		

BROADCAST ALIGNMENT

If the receiver logging is satisfactory the signal circuits may be aligned as detailed.

1	Connect IF. attenuator to test pins "B" and "C" (resistor to pin "C")		
2	Aerial Lead-in Socket -65 pF dummy in series	1000 KHz	Tune receiver to generator frequency. Adjust RF and both aerial trimmer capacitors for maximum output.

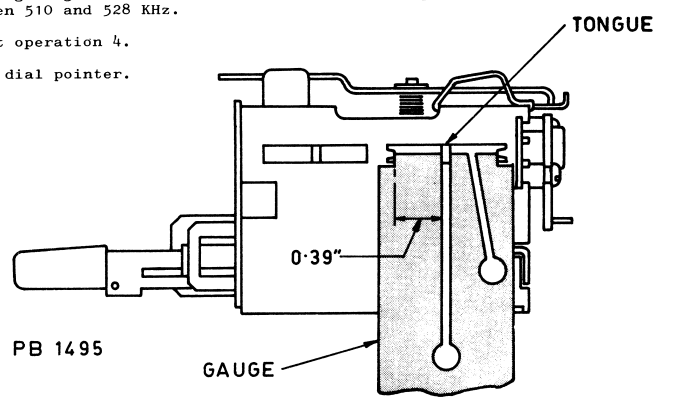
AERIAL TRIMMER ADJUSTMENT

IMPORTANT
When the receiver has been installed in the vehicle and the aerial connected the aerial trimmer must be readjusted. Raise the aerial to half extended height. Adjust knob on passenger side of receiver for maximum output on a weak station near 1000 KHz (approx. centre of dial) NOTE: If a fully retractable aerial is fitted pull the large outer rod upward against stop in aerial base.

BROADCAST ALIGNMENT

When iron cores or tuning unit coil assy. have been replaced or if station logging is outside limits.

Oper. No.	Generator Connection	Generator Frequency	Instructions
1	Connect IF attenuator to test pins "B" and "C" (resistor to pin "C")		
2	Turn perm. tuner against high frequency end of travel stop. Set all iron cores so that no less than 1/8" of shaft protrudes out through front panel of receiver.		
3	To aerial Lead-in Socket 65 pF dummy aerial in series	1625 KHz	Adjust Osc. RF and both aerial trimmer capacitors for maximum output.
4	PUSH BUTTON RECEIVER: Partly push in one of the push button knobs to release clutch before inserting gauge.		
	In the side of tuning unit, opposite end to tuning spindle there are two slots; place the notched blade of gauge into the slot nearest rear of tuner. The 0.39" section of gauge is to be against the projection at front edge of slot. Spring fingers of gauge are to be at rear of tongue. Refer diagram.		
NOTE:	Do not strain or tilt core carriage.		
	As oper. 3	1000 KHz	With tuner set in position detailed, adjust Osc., RF and both Aerial iron cores for maximum output.
5	As Oper. 3	600 KHz	Rock tuning control through signal, adjust Osc. shunt coil for maximum output.
6	Turn tuning control to low frequency end of travel (iron cores full in.) Tune signal generator to receiver. The low frequency tuning limit should be between 510 and 528 KHz.		
7	Repeat operation 4.		
8	Align dial pointer.		

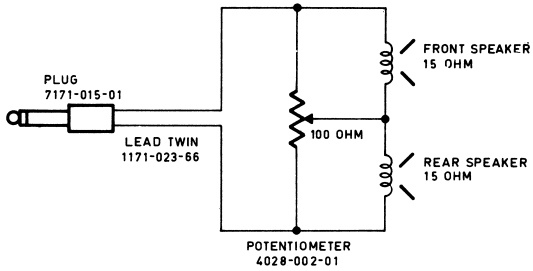


SETTING OF DIAL POINTER

Disconnect the IF attenuator.
Disconnect the generator cable from dummy aerial then connect 20 ft., of aerial wire to the dummy aerial terminal.
Accurately tune the receiver to a station marked on the dial near 1000 KHz.
Using a screwdriver, adjust by bending the pointer carriage arm so that the pointer coincides with the centre of the tuned station call sign.

Check dial logging and if necessary readjust pointer carriage arm.

CONNECTION OF A FADER CONTROL FOR USE WITH FRONT AND REAR SPEAKERS



OPERATION OF OUTPUT TRANSISTORS AS MATCHED PAIRS

The type AT1138 transistors are operated in matching pairs, replacements MUST be made accordingly and NOT as single units.

Matched pairs as used in this receiver are identified by a colour dot or stripe or a letter stamped on to the top of the transistor body. Various batch colours or letters are in use. Transistors which have different batch idents. must not be operated together. A matched pair of AT1138 transistors are supplied as:- 2-AT1138 P/No.4128-004-02.

REPLACEMENT OF OUTPUT TRANSISTORS

When refitting or replacing transistors check that the mount positions and faces are clean and free from dust, grit or metal particles.

NOTE: A power transistor replacement hardware package, Part No. 7001-104-01, containing screws, nuts, washers, bushes and mica gaskets is available from Spare Parts Division.

Fit the insulating bushes to the screw holes then fit mica gasket and transistor. Fasten each transistor with 3/8" x 1/8" Whit.screws, lugs, shakeproof washers and 1/8" Whit. nuts. Securely tighten.

OPERATION OF DRIVER TRANSISTORS AS MATCHED PAIRS

The type AT436 transistors are operated in matched pairs, replacements MUST be made accordingly and NOT as single units.

Matched pairs as used in this receiver are identified by a batch number printed on the side of transistor housing. Transistors with different numbers must not be operated together.

A matched pair of AT436 transistors are supplied as :- 2-AT436, Part No. 4128-167-01.

MEASUREMENT AND ADJUSTMENT OF OUTPUT TRANSISTORS COLLECTOR CURRENT

EQUIPMENT — Current Meter: 0-1 Amp D.C. terminated with a lead and clip assy.

Supply Source: 13.0V DC.

CONDITIONS — Connect supply leads, negative lead to receiver chassis. Connect speaker to receiver socket adjacent to battery lead entry. Disconnect lead 'D' from pin 'E'. Connect current meter to lead 'D' and pin 'E'. Current meter positive terminal to lead 'D'. No signal applied to aerial socket.

1. Switch receiver "ON" and allow to stabilize for at least five minutes.

2. Adjust the bias potentiometer (Circuit No. 100) to obtain a reading of 150mA.

NOTE: No further adjustment of the bias should be necessary unless the output or driver transistors or associated componentry are replaced.