Service
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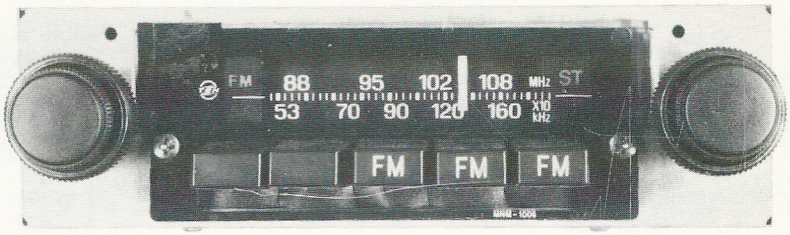


Service Manual

Produced for the Ford Motor Company of Australia Ltd.
For fitment to Ford Laser
Ford Part No. ABA14 66 870 AA

12 V

SPECIFICATIONS

TUNING RANGE	AM 515 to 1620kHz FM 88 to 108 MHz
INTERMEDIATE FREQUENCY	AM 455kHz FM 10.7MHz
POWER OUTPUT	3.5 watts (approx.)
SPEAKER IMPEDANCE	4 ohms
POWER SUPPLY	12 volts NEGATIVE TO EARTH
CURRENT	0.8 amps (At 0.5 watts output)
SEMICONDUCTORS	6 IC's 6 Transistors 2 F.E.T.'s 5 DIODES

Capacitors		
CV1	Trimmer. Ant. 50pF	4802 125 57063
CV2	Trimmer. AM. RF. 50pF	4802 125 57043
CV3	Trimmer. AM. OSC. 50pF	4802 125 57038
Resistors		
RV2-1	10k + 10k + Switch	4802 102 27065
Semiconductors		
IC1	I.C. M51173P	4802 209 87519
IC2	I.C. NC8042	4802 209 87142
IC3	I.C. MH1255	4802 209 87264
IC4	I.C. HA1199	4802 209 87122
IC5	I.C. HA1377	4802 209 80732
D1	Diode HZ 9A	5322 130 30669
Q.2.3.4.5.	2 SC 828 — QR	4822 130 44257
QI.7	2SC710C Use BF494	4822 130 44195
D2.3.	Diode 1S1885	4802 130 37036
Coils and Transformers		
T1	Transformer FM. IF. 10.7MHz	4802 158 17307
T2	Transformer AM. Osc.	4802 156 27097
T4.5.	Transformer AM. IF.	4802 153 17165
T6.7.	Transformer AM. IF.	4802 153 17166
CF1	Filter. Ceramic. FM. IF.	4802 242 70247
L1.2.	Choke 6.2mH	4802 158 17103
L.3	Choke 6.2mH	4802 158 17198
L4	Choke 4.7mH	4802 158 17104
L5	Choke Filter 2.4mH	4802 158 17199
L6	Choke Filter 0.74mH	4802 158 17077
L7	Choke Filter 2.6mH	4802 158 17308

Tuner Components		
—	Button. AM	4802 411 67099
—	Button FM	4802 411 67101
RV1	Shaft Tuning and Balance	
—	Front End Unit. F.M.	4802 404 27087
S1	Switch. Slide	4802 277 37042
Miscellaneous Mechanical		
4	Pointer	4802 450 87161
5	Dialplate	4802 331 37039
19	P.C. Board. Vol.	4802 466 17162
38	Knob. Vol. Tune.	4802 412 27013
39	Knob. Bal. Tone	4802 413 97226
Miscellaneous Electrical		
J1	Receptacle. Antenna	4802 267 17011
J2	Lead Assy. 5P	4802 321 17047
J3	Lead Assy. 2P	4802 321 17048
J4	Lead Assy. 6P	4802 321 17049
J5	Lead Assy. 10P	4802 321 17051
J6	Lead Assy. 3P	4802 321 17052
P7.8	Connector 5P	4802 321 17053
F1	Fuse. 3A	4802 253 27005
PL182	Lamp. FM. ST.	4802 134 47142
PL3	Lamp. AM.	4802 134 47132
PL4	Lamp Dial	4802 134 47102

EXPLODED VIEW

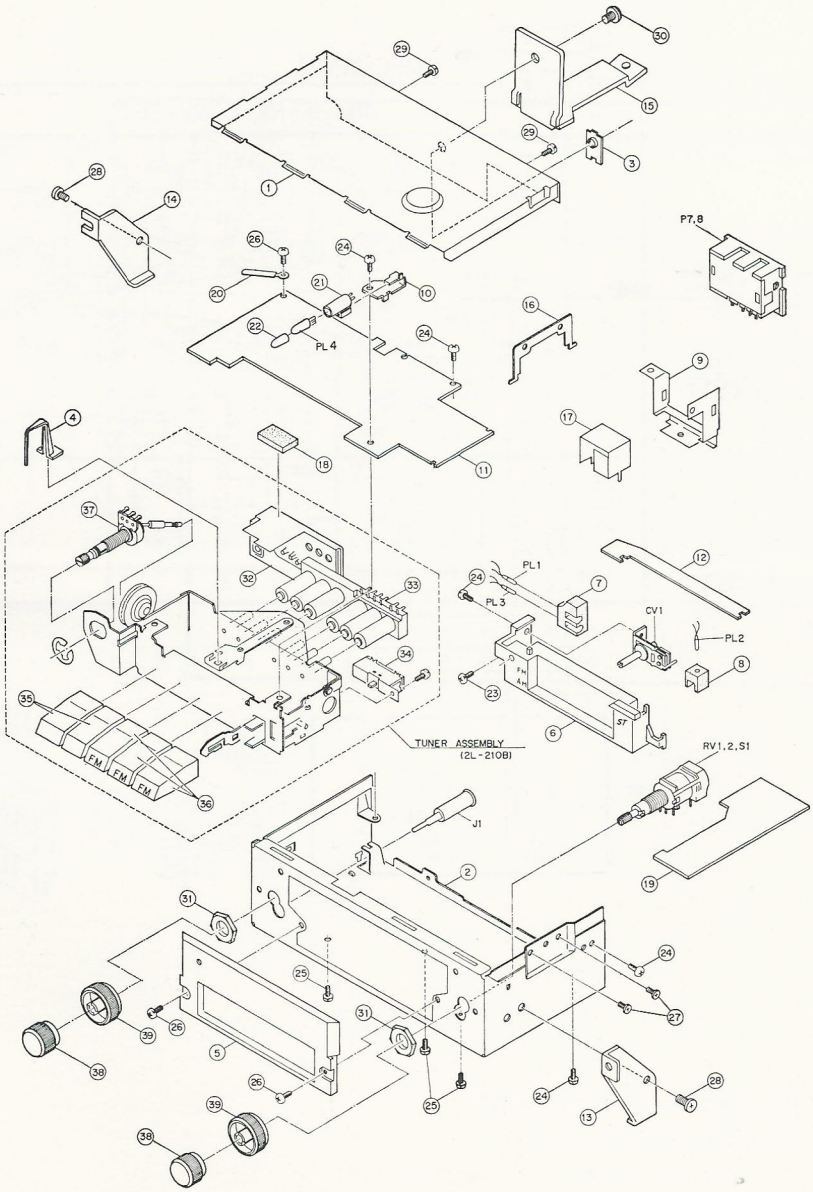


Fig. 9

AM ALIGNMENT

〔1〕 IF Alignment

(1) Preparations for alignment

a. Connections

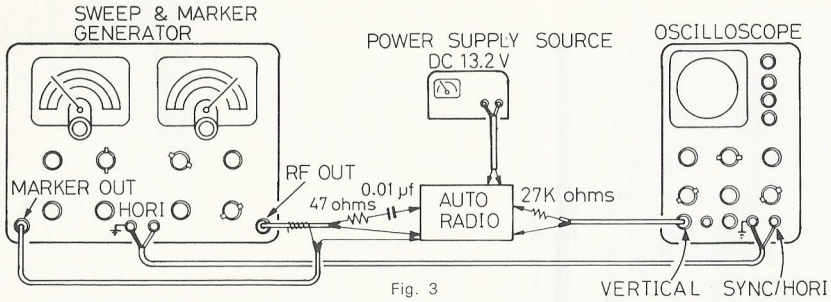


Fig. 3

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Connect TP 1 in Fig. 8 (A) through 0.01 μF capacitor & 47 ohm	Connect TP 2 in Fig. 8 (A) through 27k-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

b. Power supply : 13.2 VDC

c. Switch : Band selector for AM

d. Controls : Volume for minimum

Tone for high

(2) Alignments (Refer to Fig. 8 (A) for ADJUSTMENT POINTS.)

STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINTS	PROCEDURE
1	IF	455 kHz	Near 1,000 kHz no signal exists	T 4 to T 7	Get maximum IF curve and best symmetry on both sides.
2	Repeat STEP 1 until no further gain in output can be obtained.				

〔2〕 Tracking Alignment

(1) Preparations for alignment

a. Connections

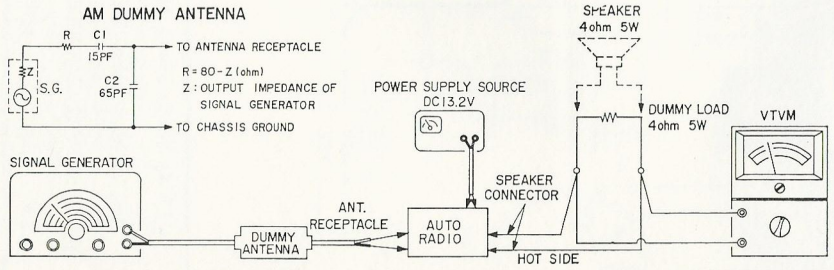
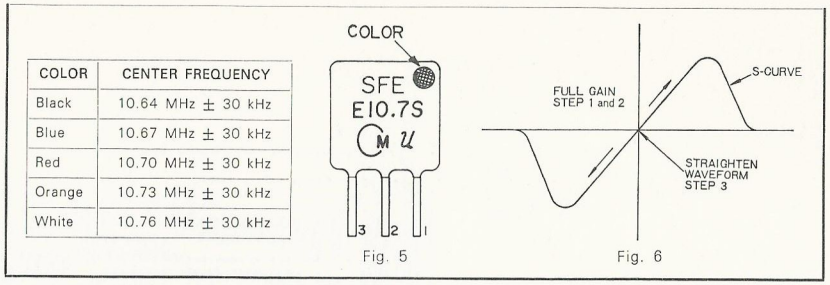


Fig. 4



COLOR	CENTER FREQUENCY
Black	10.64 MHz ± 30 kHz
Blue	10.67 MHz ± 30 kHz
Red	10.70 MHz ± 30 kHz
Orange	10.73 MHz ± 30 kHz
White	10.76 MHz ± 30 kHz

Fig. 5 Fig. 6

(3) Points to watch in replacing ceramic filter

In the FM circuit there are two ceramic filters. It is important that both filters have the same color (i.e the same center frequency).

a. Readjustment is not necessary if a defective ceramic filter is replaced with one of the same color.

b. Both filters should be changed to the same color if one of them must be replaced with a different colored filter. Readjustment will be necessary because of the changed center frequency.

〔2〕 Tuning alignment (Refer to Fig. 8 (C) for ADJUSTMENT POINTS.)

(1) Preparations for Alignment

a. Connections

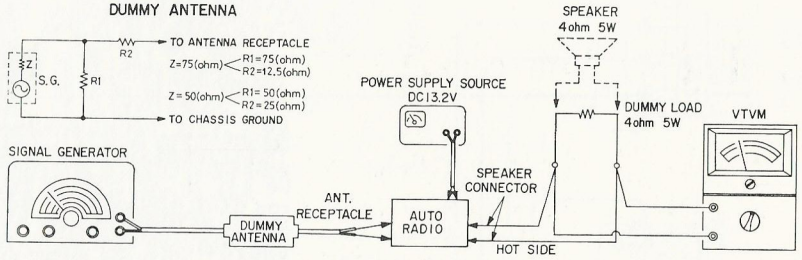


Fig. 7

b. Power supply : 13.2 VDC

c. Switch : Band selector for FM

d. Controls : Volume for maximum

Tone for high

(2) Alignment (Refer to Fig. 8 (C) for ADJUSTMENT POINTS)

STEP	PURPOSE	GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINTS	PROCEDURE
1	Tuning range	87 MHz (400 Hz, 30%, FM modulated)	Low-end stop	CV 6	Adjust for maximum meter indication.
2		109 MHz (400 Hz, 30%, FM modulated)	High-end stop		109 MHz must be received.
3	Tracking	98 MHz (400 Hz, 30%, FM) modulated	Just tune in SG frequency	CV 5	Adjust for maximum meter indication.
4				CV 4	
5	Be sure to confirm lower frequency of FM band is not received below 87 MHz. Readjust CV3 as described STEP 1, if necessary.				

b. Power supply : 13.2 VDC

c. Switch : Band selector for MW

d. Controls : Volume for maximum

Tone for high

(2) Alignment (Refer to Fig. 8 (A) for ADJUSTMENT POINTS.)

STEP	PURPOSE	GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINTS	PROCEDURE
1	Tuning range	1,635 kHz (400 Hz, 30%, AM modulated)	High-end stop	CV 3	Adjust for maximum meter indication.
2		505 kHz (400 Hz, 30%, AM modulated)	Low-end stop	T 2	
3	Repeat STEP 1 and 2 until no further gain in output can be obtained.				
4	Tracking	1,400 kHz (400 Hz, 30%, AM modulatee)	Just tune in SG frequency	CV 1	Adjust for maximum meter indication.
5				CV 2	

NOTE: Always readjust antenna trimmer CV 1 when radio or antenna is reinstalled, tuning in a weak station around 1,400 kHz and get maximum volume. (Refer to Fig. 8 (B))

FM ALIGNMENT

〔1〕 IF Alignment

(1) Preparations for alignment

a. Connections (Refer to Fig. 3)

SWEEP GENERATOR OUTPUT	OSCILLOSCOPE VERTICAL INPUT	OSCILLOSCOPE HORIZONTAL INPUT
Connect TP 3 in Fig. 8 (A) through 0.01 μF capacitor & 47 ohm resistor	Connect TP 4 in Fig. 8 (A) through 27k-ohm resistor	Connect with HORIZONTAL terminal of sweep generator

b. Power supply : 13.2 VDC

c. Switch : Band selector for FM

d. Controls : Volume for minimum

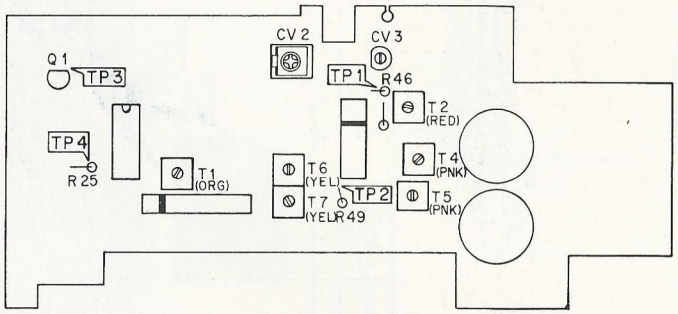
Tone for high

(2) Alignment (Refer to Fig. 8 (A)・(C) for ADJUSTMENT POINTS.)

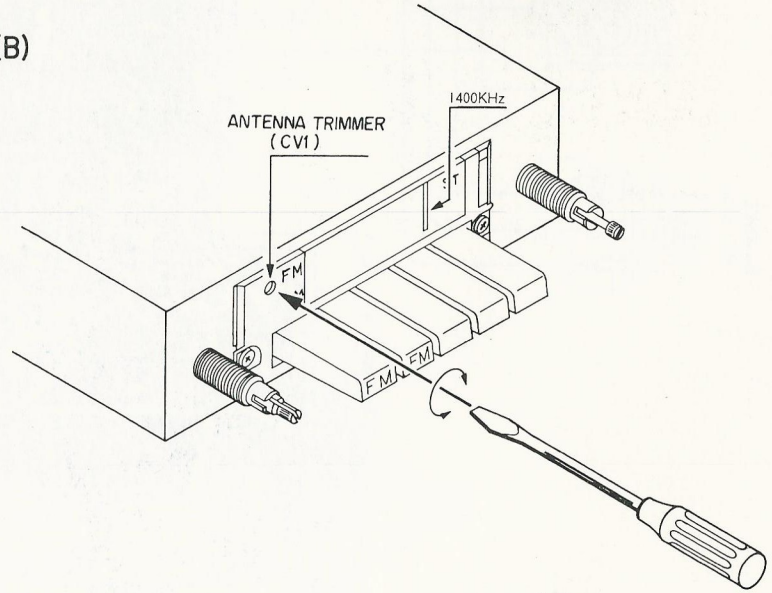
STEP	PURPOSE	SWEEP GENERATOR FREQUENCY	SET TUNER TO	ADJUSTMENT POINTS	PROCEDURE
1	IF circuit	Center frequency varies according to the color of the ceramic filter (Refer to chart given below)	Near 98 MHz no signal exists	T 8	S-curve adjust for full gain and length of at linears. (See Fig. 6)
2					
3	Detector circuit			T 1	Keep S-curve straight at the center, and adjust waveform for best symmetry of S-curve against the axis as much as possible. (See Fig. 6)
4	Repeat STEP 1 to 3 until no further gain output can be obtained.				

ADJUSTMENT POINTS

(A)



(B)



(C)

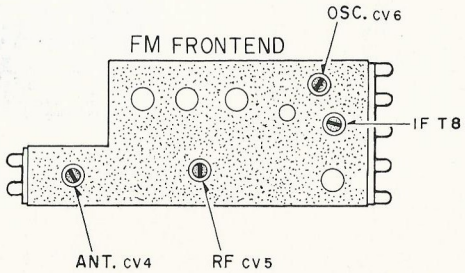


Fig. 8

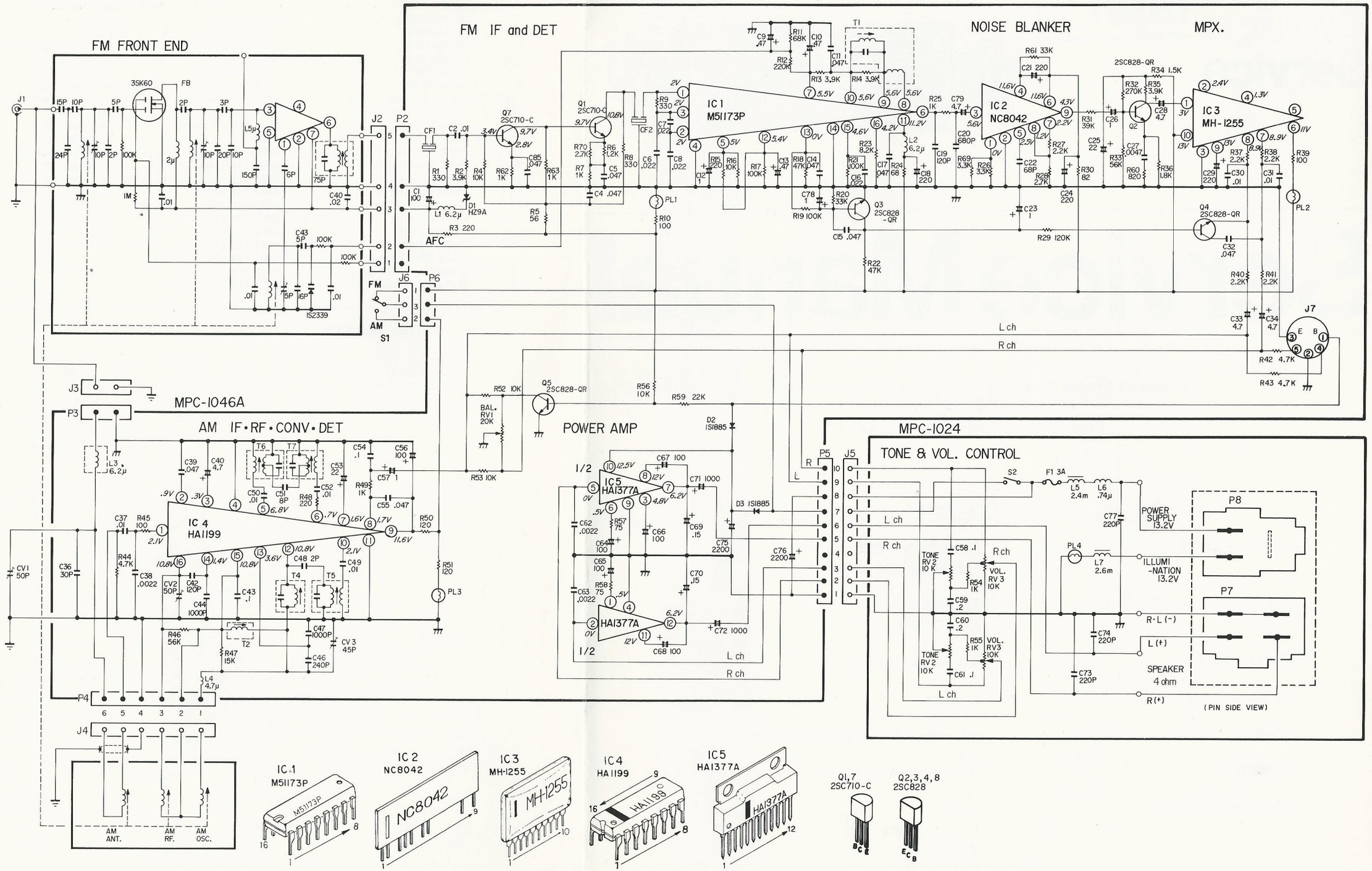

FM FRONT END
FM IF and DET
NOISE BLANKER
MPX.
MPC-1046A
AM IF•RF•CONV•DET
POWER AMP
MPC-1024
TONE & VOL. CONTROL
IC 1 M5I173P
IC 2 NC8042
IC 3 MH-1255
IC 4 HA1199
IC 5 HA1377A
3SK60
2SC710-C
2SC828-QR
L ch
R ch
AFC
FM
AM
S1
POWER SUPPLY 13.2V
ILLUMI -NATION 13.2V
SPEAKER 4 ohm
R·L (-)
L (+)
R (+)
(PIN SIDE VIEW)
AM ANT.
AM RF.
AM OSC.
Q1,7 2SC710-C
Q2,3,4,8 2SC828

Fig. 1

WIRING ON PC BOARDS

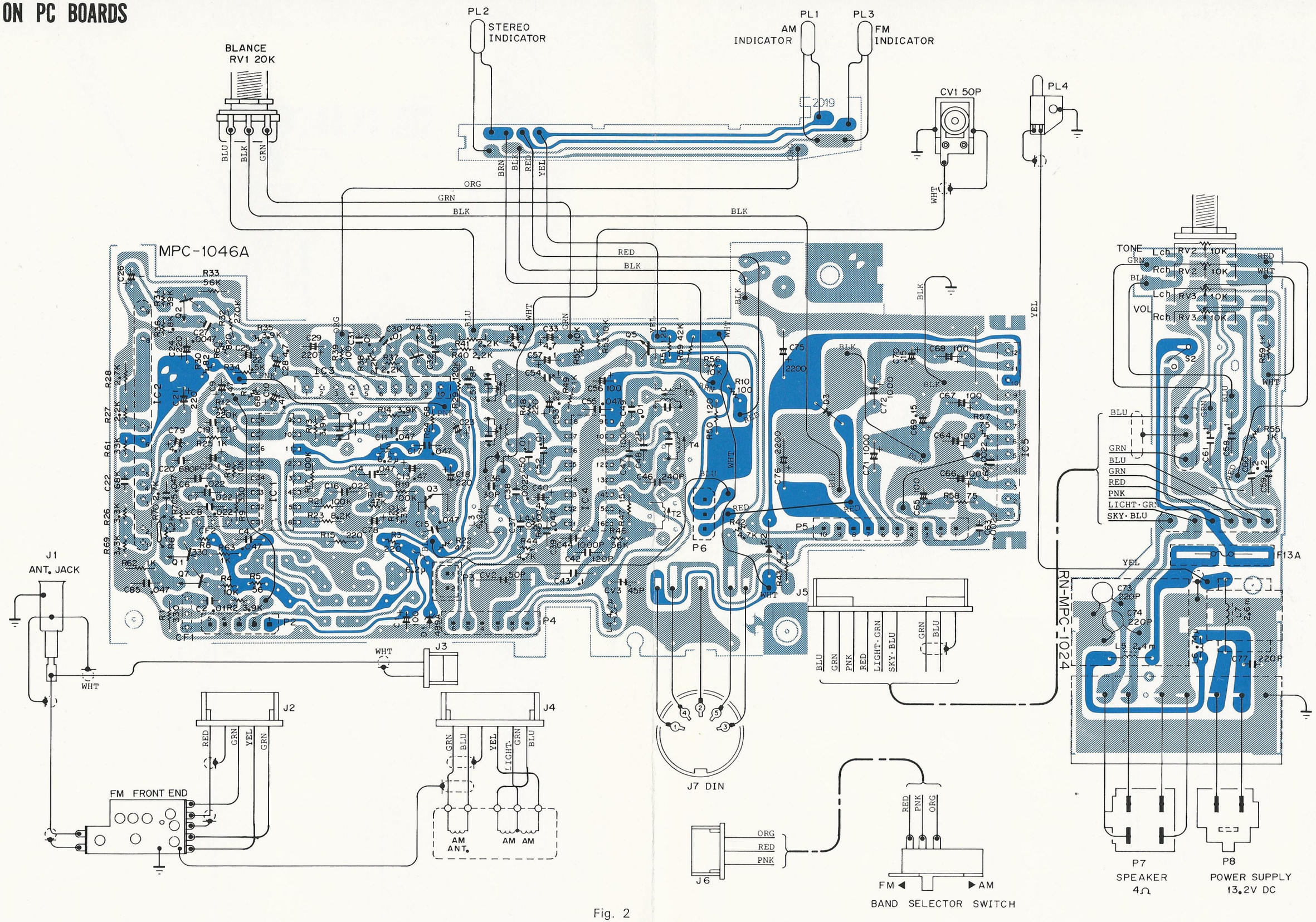


Fig. 2

IC No. \ Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 1	2V	2V	2V	0V	5V	5.6V	5.5V	5.6V	5.6V	5.6V	11.2V	5.4V	0V	0V	4.6V	4.2V
IC 2	0V	0V	5.6V	11.6V	2.5V	11.6V	2.2V	1.2V	4.3V							
IC 3	3V	—	0V	—	—	11V	8.9V	8.9V	13V	13V						
IC 4	2.1V	.3V	.3V	0V	6.8V	.7V	1.6V	1.7V	11.6V	2.1V	0V	10.8V	3.6V	1.4V	10.8V	10.8V
IC 5	.5V	0V	4.8V	0V	0V	6.2V	12V	0V	0V	12.5V	12V	6.2V				

	Q 1	Q 2	Q 3	Q 4	Q 5	Q 7
E	9V	1.3V	0V	10.5V	0V	2.8V
C	10.8V	9.2V	12.5V	10.5V	0V	2.7V
B	9.7V	2V	0V	11V	7V	3.4V