SERVICE MANUAL

IN-DASH REWIND CASSTTE CAR STEREO WITH AM/FM/MPX RADIO

(12 VOLT D.C. NEGATIVE EARTH)

MODEL CM-610

ALPINE ELECTRONICS CO., LTD.

CONTENTS

	Page
1. SPECIFICATIONS	2
2. FRONT VIEW	2
3. PARTS DESCRIPTION	3
4. ALIGNMENT PROCEDURES	4 — 7
5. SCHEMATIC DIAGRAM	8
6. PRINTED CIRCUIT BOARD DIAGRAM	9 — 10
7. EXPLODED VIEW	11 — 12
8. TROUBLE SHOOTING	13
9. PARTS LIST	14 — 17

1. SPECIFICATIONS

1. Tape Player:

Playback system:	4-track, 2-channel stereo
Tape speed:	4.75 cm/sec +4%, −1%
Wow & Flutter:	0.35% WRMS. max.
Frequency response:	125 — 6.3 KHz/ ±6 dB

2. AM Receiver:

Tuning range:	525 — 1620 kHz
Sensitivity:	26 dB/20 μV
Image rejection:	50 dB
IF Frequency:	455 kHz

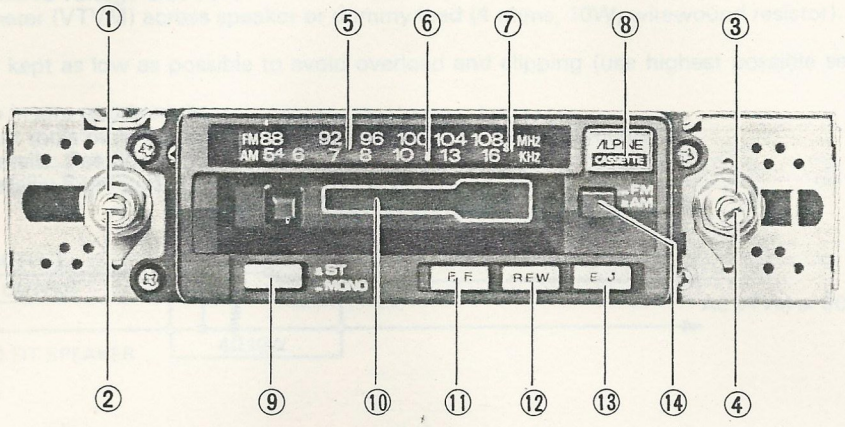
3. FM Reciever:

Tuning range:	87 — 108 MHz
IF Frequency:	10.7 MHz
Sensitivity:	18 dB/8.0 μV
Image rejection:	40 dB
MPX Indicator Sensitivity:	26 dB/20 μV

4. General & Audio amp.:

Semi-conductor:	5 TRs. 4 DIODEs. 5 ICs.
Power requirement:	11.0—16.0 V DC
Load impedance:	4 ohms.
Dimensions:	Depth 148(mm), Width 176(mm), Height 48(mm)
Output power:	3.5 watts/ch.
Frequency response:	125 Hz — 6.3 kHz/ ±6 dB

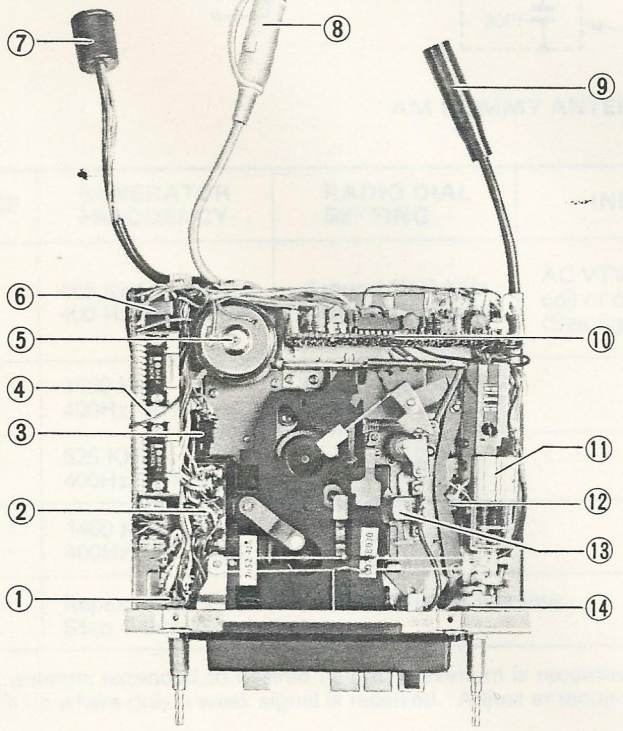
2. FRONT VIEW



1. Tone Control
2. Volume Control
3. Balance Control
4. Tuning Control
5. Dial Scale
6. Dial Pointer
7. Stereo Indicator
8. Tape Run Indicator
9. Stereo/Mono Selector Switch
10. Cassette Slot
11. Fast Forward Button
12. Rewind Button
13. Eject Button
14. FM/AM Selector Switch

Figure 1

3. PARTS DESCRIPTION



1. Volume and Tone Control (VR301, VR302)
2. Terminal Panel
3. Micro Switch (S303)
4. Pre. Main Amp. Panel Assembly
5. Motor (E2)
6. Choke Filter (E3)
7. Output Wire Assembly (J3)
8. Din Connector Assembly (J2)
9. Antenna Receptacle (J1)
10. Radio Panel Assembly
11. Tuner Unit (E4)
12. Antenna Trimmer (TC101)
13. Head (E1)
14. Tuning and Balance Control (VR303)

Figure 2

4. ALIGNMENT PROCEDURES

Before alignment is attempted, the unit should be thoroughly checked to ensure the circuitry is fault free.

NOTES:

1. Check for specified source voltage-DC. 14V.
2. Connect an AC voltmeter (VTVM) across speaker or dummy load (4 ohms, 10W, wirewound resistor). See figure 3.
3. Signal input must be kept as low as possible to avoid overload and clipping (use highest possible sensitivity of output indicator).
4. Repeat adjustment to insure good results.
5. Non-metallic alignment tools must be used (especially necessary for FM alignment)
6. Alignment location details: See figure 13, 15, 16.
7. Test point location details: See figure 13, 14, 16.

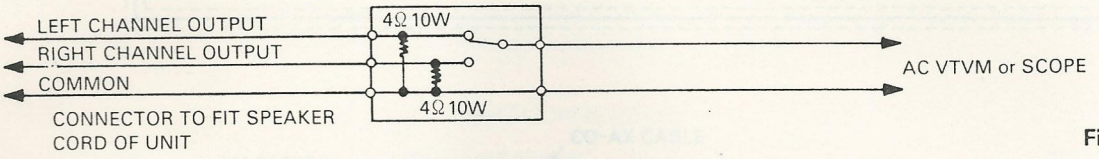


Figure 3

4-1 AM IF & RF ALIGNMENT USING AM SIGNAL GENERATOR

Press the AM/FM change switch to set the radio for AM reception.
AM signal generator should be connected to dummy antenna, which inturn should be plugged into antenna terminal. (See figure 4 and figure 5)
Set volume control and tone to high.

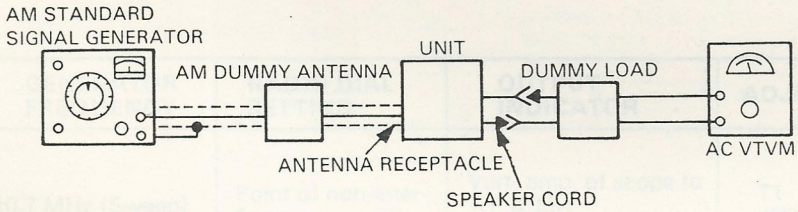
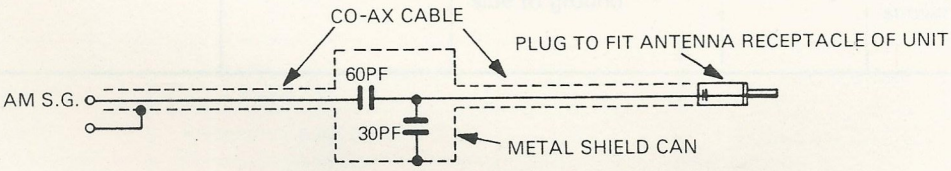


Figure 4



AM DUMMY ANTENNA

Figure 5

STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	455 KHz 400 Hz, 30% mod.	Around 1000 KHz of non-interference	AC VTVM across voice coil or dummy load (See figure 3)	CFT1 IFT2	Adjust for maximum
2	1650 KHz 400Hz, 30% mod.	High frequency end stop	"	TC103	"
3	525 KHz 400Hz, 30% mod.	Tune to signal	"	T101	"
4	1400 KHz 400Hz, 30% mod.	Tune to signal	"	TC101 TC102	"
5	Repeat steps 2, 3 and 4 until no further increase. Step 4 should be last step.				

With antenna extended to desired height (maximum is recommended), tune into a station between 1200KHz and 1400 KHz where only a weak signal is received. Adjust antenna trimmer (TC101) until maximum output is received.

4-2 FM IF ALIGNMENT USING FM SWEEP GENERATOR

Depress the AM/FM change switch to set the radio for FM reception. High side of sweep generator through 0.01 mfd capacitor to T.P. 1, low side to ground. (figure 6, 7)
Set volume control to minimum and tone to high.

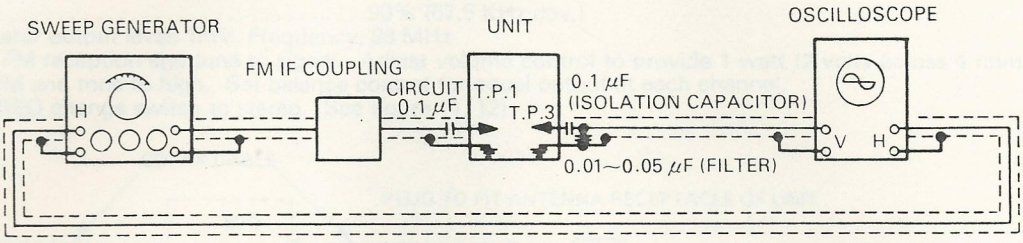
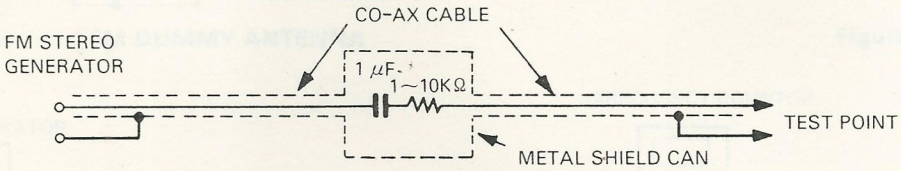


Figure 6

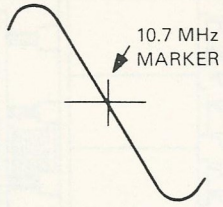


FM IF COUPLING CIRCUIT

Figure 7

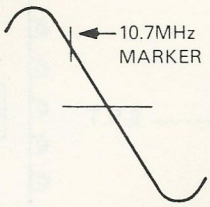
STEP	GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT INDICATOR	ADJUST	REMARKS
1	10.7 MHz (Sweep)	Point of non-interference	Vert, amp. of scope to T.P.3, low side to ground	T1 IFT1	Adjust IFT1 & T1 to obtain symmetry of response similar to figure 8.

NOTE:
1. FM SWEEP GENERATOR is suitable for FM IF alignment, because Ceramic Filters are used in the IF circuit. Five kinds of Ceramic Filters are used and they are different in their center frequencies as shown below. RED: 10.7 MHz, BLUE: 10.67 MHz, ORANGE: 10.73 MHz, BLACK: 10.64 MHz, WHITE: 10.76 MHz
2. If the Ceramic Filters EXCEPT RED are used, 10.7 MHz maker will not appear at the center of "S" curve. (See figure 9, 10)
3. The colour of Ceramic Filters will vary from unit to unit, manufactured in different production runs, but dotted Filters of the same colour should be used when replacement is made.
4. Take care that contact is not made with the static coupling between output lead of sweep generator and input lead of scope. The leads should be kept as short as possible and carefully shielded.



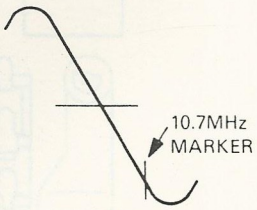
(RED)

Figure 8



(WHITE ORANGE)

Figure 9

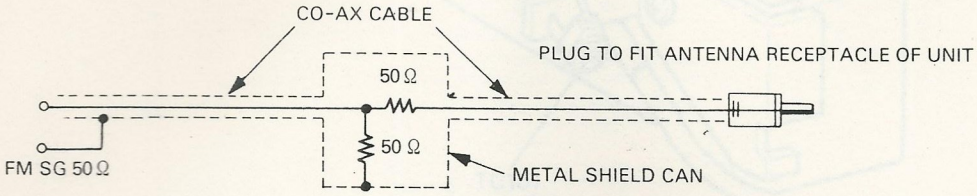


(BLACK or BLUE)

Figure 10

4-3 MULTIPLEX ALIGNMENT USING FM SIGNAL GENERATOR MODULATED BY FM STEREO SIGNAL GENERATOR

FM signal generator should be modulated by FM STEREO signal generator at modulation level.
19 KHz ..... 10% (7.5 KHz dev.)
400 Hz ..... 90% (67.5 KHz dev.)
FM Signal Generator output level: 1mV. Frequency, 98 MHz
Set the radio for FM reception and tune to signal. Adjust volume control to provide 1 watt (2 volts across 4 ohms load) on AC VTVM and tone to high. Set balance control for equal output at each channel.
Set MONO/STEREO change switch to stereo. (See figure 11, 12)



FM DUMMY ANTENNA

Figure 11

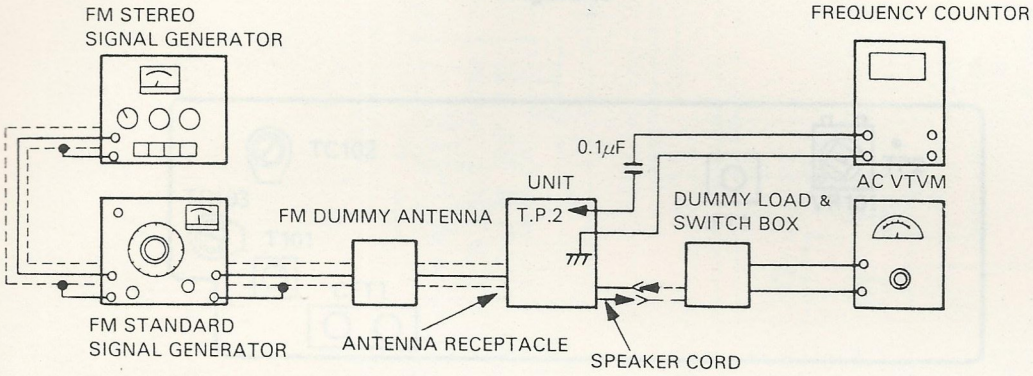


Figure 12

STEP	MODULATION FREQUENCY	OUTPUT INDICATOR	ADJUST	REMARKS
1	No signal	Frequency counter to T.P.2.	VR101	Adjust for 19 KHz
2	19 KHz (pilot signal)			Check that STEREO INDICATOR LAMP glows.

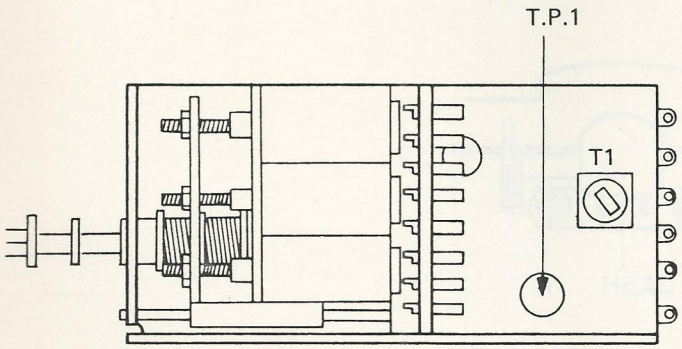


Figure 13

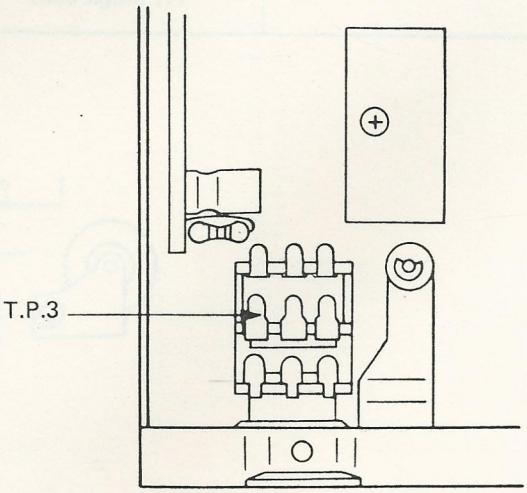


Figure 14

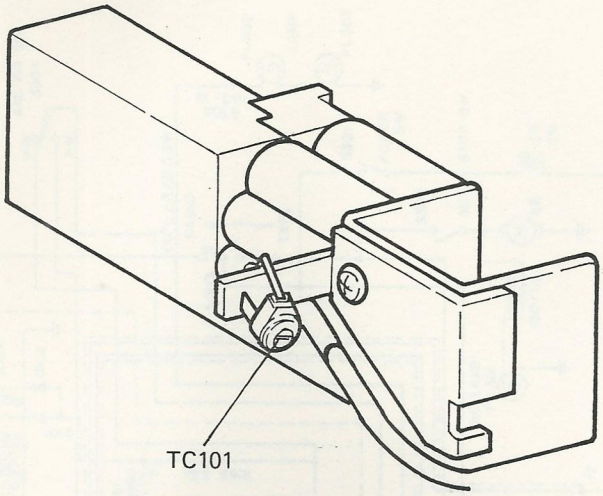
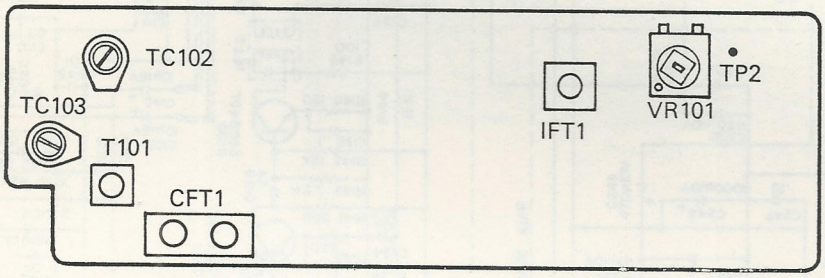


Figure 15



RADIO PANEL (TOP VIEW)

Figure 16

4-4 HEAD AZIMUTH ALIGNMENT

TEST TAPE	OUTPUT	ADJUST	REMARKS
AZIMUTH TEST TAPE (6.3 K)	AC VTVM across 4 ohms load	A (See figure 17)	Max.

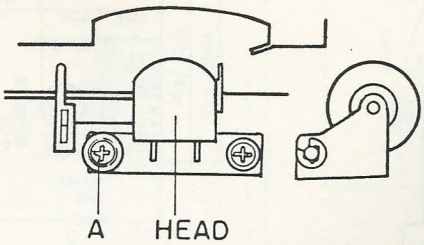
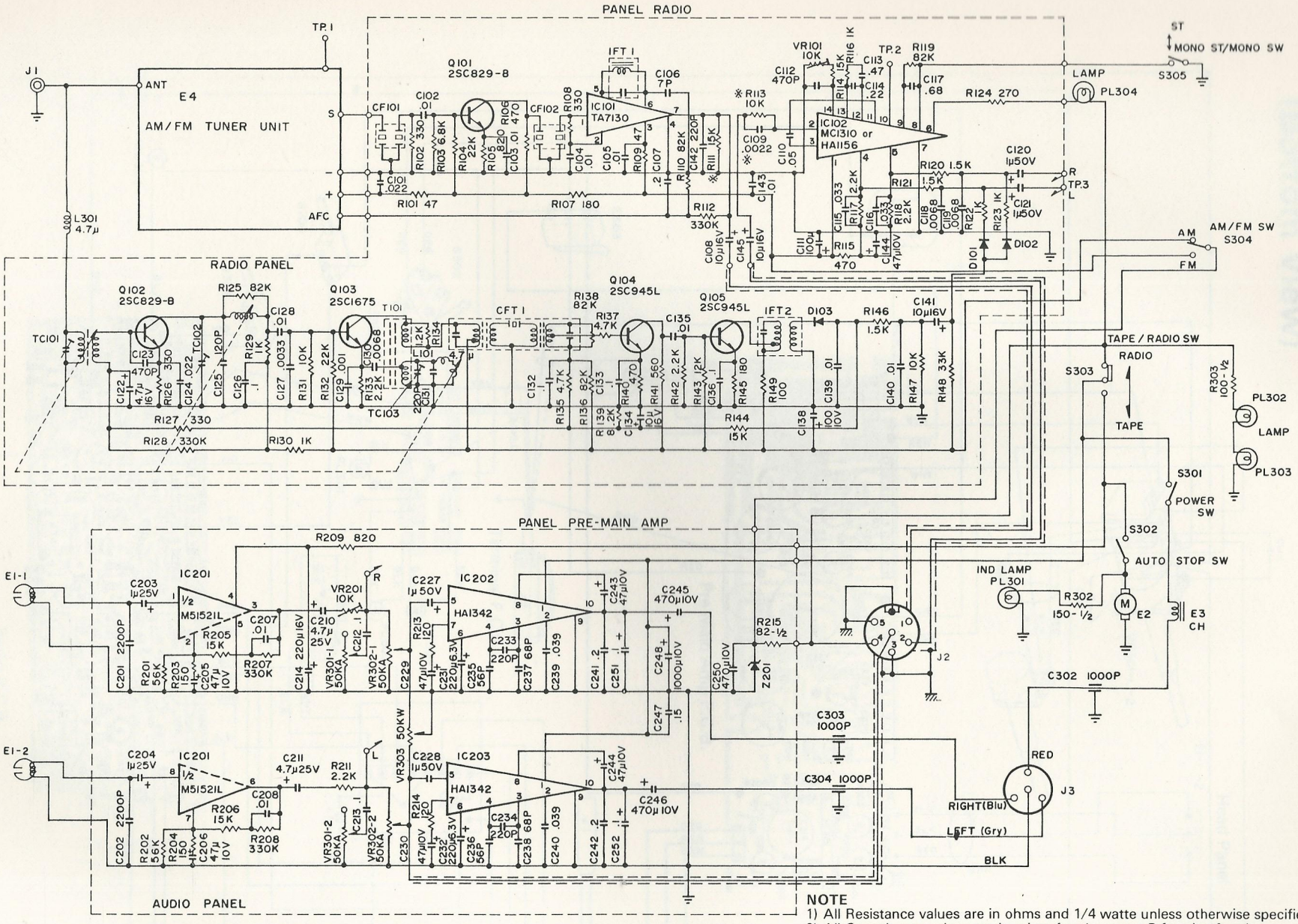


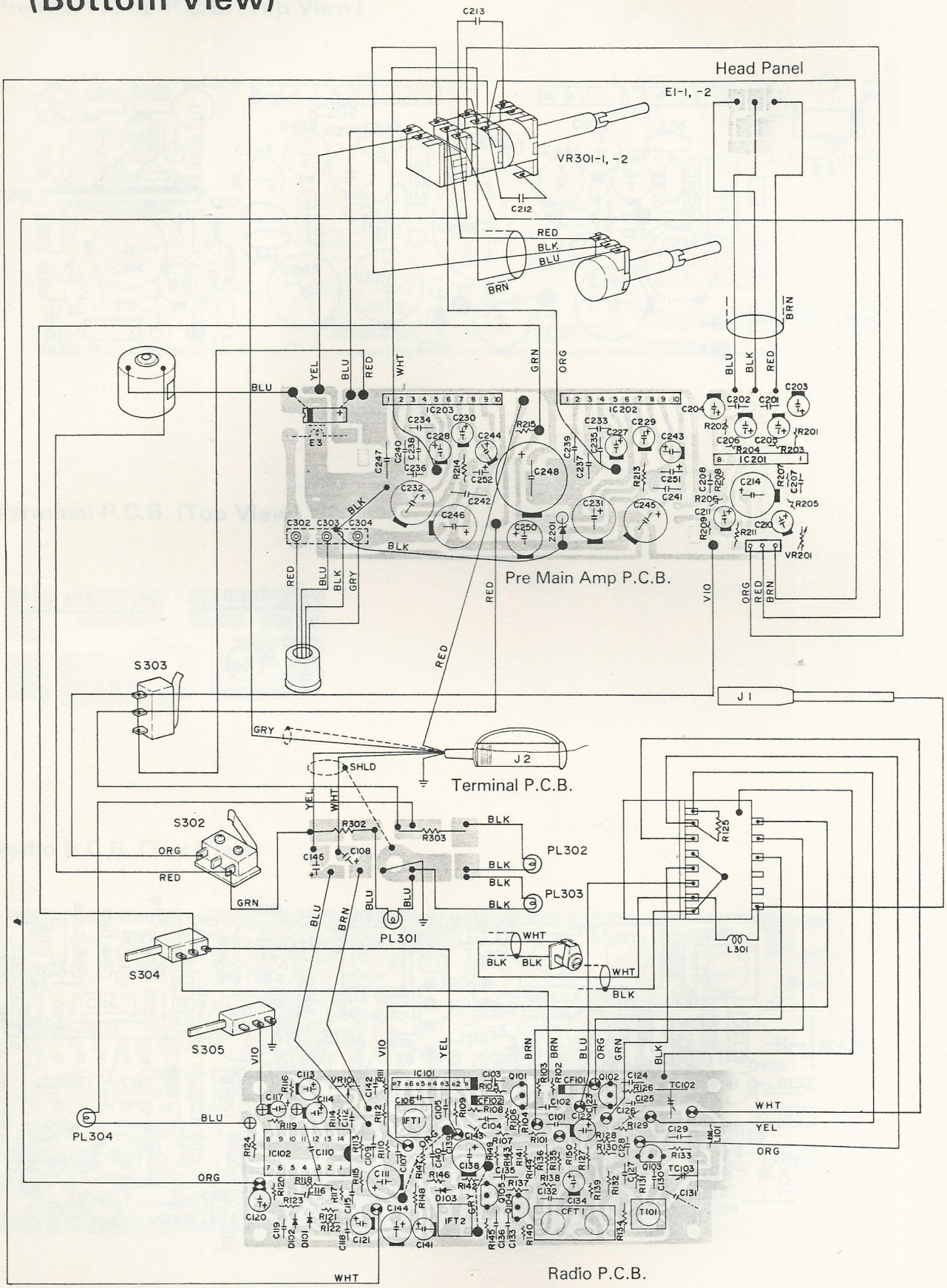
Figure 17

5. SCHEMATIC DIAGRAM



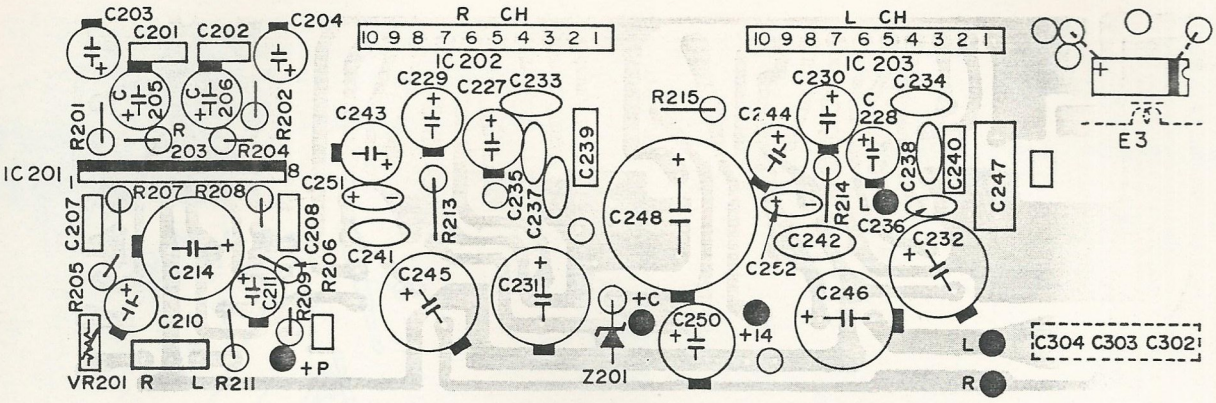
NOTE
1) All Resistance values are in ohms and 1/4 watte unless otherwise specified.
2) All Capacitance values are in micro farads except P for pico farads.
3) The value may be changed in production process for improvement.

6. PRINTED CIRCUIT BOARD AND WIRING DIAGRAM (Bottom View)

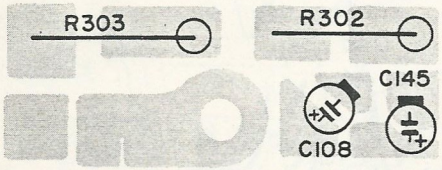


PRINTED CIRCUIT BOARD DIAGRAM (Top View)

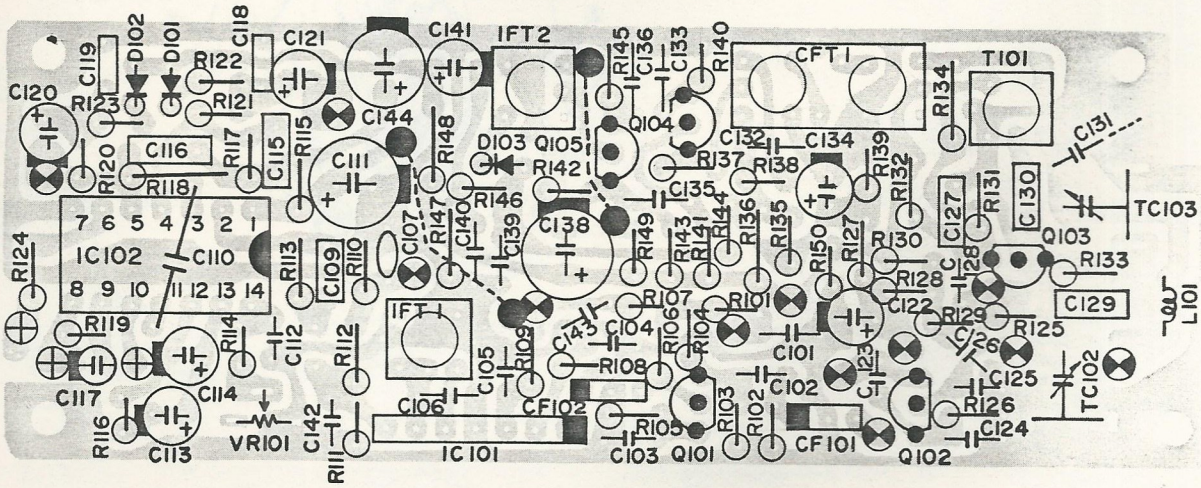
Pre Main Amp P.C.B. (Top View)



Terminal P.C.B. (Top View)



Radio P.C.B. (Top View)



8. TROUBLE SHOOTING

Service procedures common to high-grade solid state device apply to this instrument. In general, a successful approach includes the following steps:

1. Operate instrument with a test, or quality tape, to indicate precise performance.
2. Determine if malfunction is electrical.
3. Determine if malfunction is restricted to AM/FM Tuner unit, Radio Panel block, Pre Main Amp Panel block.
4. Measure transistor voltages.
5. Isolate defective stage and replace defective components.

SERVICE HINTS

1. Blown Fuse
   (1) Shorted power wire
   (2) Wrong voltage or polarity of battery.

2. Two Programs Heard at the Same time (Cross talk)
   (1) Improperly recorded cassette tape.
   (2) Tape head set too high or too low.

3. Motor Inoperative
   (1) Check lead wires from motor.
   (2) Open armature in motor.

4. Excessive Wow and Flutter
   (1) Defective cassette tape.
   (2) Defective motor.

5. Tape Indicator Lamp Does Not Light
   (1) Lamp terminal lead wire disconnected.
   (2) Lamp burned out.
   (3) Defective micro switch (S302)

6. Low Sound in Both Channels
   (1) Dirty tape head.
   (2) Poor tape contact with the tape head.
   (3) Tape head magnetized.
   (4) Low recording level on cassette tape.

7. No sound
   (1) Cassette tape not inserted all the way.
   (2) Check fuse.
   (3) Open power source lead wire.
   (4) Open ground.
   (5) Defective tape head.
   (6) Defective IC (IC101, IC102)

8. No sound in One or Both Channels.
   (1) Check for foreign material in the cassette tape.
   (2) Defective cassette tape.
   (3) Balance control set maximum left to right.
   (4) Open or shorted speaker lead wires.
   (5) Open or shorted tape head or head lead wire.

9. No FM Reception in One or Both Channels.
   (1) FM tuner dead or improperly adjusted.
   (2) Disconnected or shorted FM tuner.
   (3) Defective FM/AM switch (S304).

10. FM Stereo Indicator Does Not Turn ON.
    (1) Stereo indicator lamp burned out.
    (2) Disconnected or shorted lamp connection.
    (3) Defective Mono/Stereo switch (S305).
    (4) Defective IC (IC101, IC102)

11. Abnormal Oscillation
    (1) Tuner improperly adjusted.
    (2) IF transformer improperly adjusted.

12. Poor Sensitivity
    (1) Tuner improperly adjusted.
    (2) IF Transformer improperly adjusted.

STANDARD MAINTENANCE

Whenever a unit is brought in for service or repair, there are a few things you should automatically take care of. Always check for dust and dirt and check for adequate lubrication.
The tape head and tape handling surfaces should be cleaned thoroughly to assure proper tape handling and optimum frequency response.

Use a cotton swab dipped in head cleaner or denatured alcohol to clean the face of the head and all tape handling surfaces. Wipe dry with a lint-free cloth.

Do not use magnetized tools near the tape head, since they can magnetize the head. After long periods of use, the head will retain a small amount of residual magnetism. A magnetized head will result in increased noise and loss of high-frequency response. Use a tape head demagnetizer, and follow the instructions supplied with it.

9. PARTS LIST

9-1 ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
		Capacitors
C101	21C45322G32	Fixed Ceramic 0.022 μF
C102	21C45322G31	Fixed Ceramic 0.01 μF
C103	21C45322G31	Fixed Ceramic 0.01 μF
C104	21C45322G31	Fixed Ceramic 0.01 μF
C105	21C45322G31	Fixed Ceramic 0.01 μF
C106	21C45322G07	Fixed Ceramic 7 PF
C107	23S41059P03	Tantalum 0.22 μF 50V
C108	23D44333G08	Electrolytic 10 μF 16V
C109	8C44833J05 or	Mylar 0.0022 μF
	8C44833J01	Mylar 0.001 μF
C110	21B41870J01 or	Fixed Ceramic 0.05 μF
	8C40277P19	Ceramic 0.047 μF
C111	23D44333G30-005	Electrolytic 100 μF 10V
C112	8C42195G07	Fixed Ceramic 470 PF
C113	23C42909J02	Electrolytic 0.47 μF 50V
C114	23C42909J01	Electrolytic 0.22 μF 50V
C115	8C44833J19	Mylar 0.033 μF
C116	8C44833J19	Mylar 0.033 μF
C117	23S41059P06	Tantalum 0.68 μF 50V
C118	8C44833J11	Mylar 0.0068 μF
C119	8C44833J11	Mylar 0.0068 μF
C120	23D44333G01-052	Electrolytic 1 μF 50V
C121	23D44333G01-052	Electrolytic 1 μF 50V
C122	23D44333G05	Electrolytic 4.7 μF 25V
C123	21C45322G27	Fixed Ceramic 470 PF
C124	21C45322G32	Fixed Ceramic 0.022 μF
C125	8C42195G13	Fixed Ceramic 120 PF
C126	21B41870J02	Fixed Ceramic 0.1 μF
C127	8C44833J07	Mylar 0.0033 μF
C128	8C44833J13	Mylar 0.01 μF
C129	8C448333J01	Mylar 0.001 μF
C130	8C44833J11	Mylar 0.0068 μF
C131	21C41701J51	Ceramic 220 PF-RH
C132	21B41870J02	Fixed Ceramic 0.1 μF
C133	21B41870J02	Fixed Ceramic 0.1 μF
C134	23D44333G08	Electrolytic 10 μF 16V
C135	21C45322G31	Fixed Ceramic 0.01 μF
C136	21B41870J02	Fixed Ceramic 0.1 μF
C138	23D44333G30-005	Electrolytic 100 μF 10V
C139	8C44833J13	Mylar 0.01 μF
C140	8C44833J13	Mylar 0.01 μF
C141	23D44333G08	Electrolytic 10 μF 16V
C142	21C45322G25	Fixed Ceramic 220 PF
C143	21C45322G31	Fixed Ceramic 0.01 μF
C144	23D44333G24	Electrolytic 47 μF 16V
C145	23D44333G08	Electrolytic 10 μF 16V
C201	8C44833J05	Mylar 0.0022 μF
C202	8C44833J05	Mylar 0.0022 μF
C203	23S41059P07	Tantalum 1 μF 25V
C204	23S41059P07	Tantalum 1 μF 25V
C205	23D44333G24	Electrolytic 47 μF 10V
C206	23D44333G24	Electrolytic 47 μF 10V
C207	8C448333J13	Mylar 0.01 μF
C208	8C448333J13	Mylar 0.01 μF
C210	23D44333G05	Electrolytic 4.7 μF 25V
C211	23D44333G05	Electrolytic 4.7 μF 25V
C212	21S41059P01	Tantalum 0.1 μF
C213	21S41059P01	Tantalum 0.1 μF
C214	23D44333G37	Electrolytic 220 μF 16V
C227	23D44333G01-005	Electrolytic 1 μF 50V
C228	23D44333G01-005	Electrolytic 1 μF 50V
C229	23D44333G24	Electrolytic 47 μF 10V
C230	23D44333G24	Electrolytic 47 μF 10V
C231	23D44333G35	Electrolytic 220 μF 6.3V
C232	23D44333G35	Electrolytic 220 μF 6.3V
C233	21C45322G25	Fixed Ceramic 220 PF 50V
C234	21C45322G25	Fixed Ceramic 220 PF 50V
C235	21C45322G19	Fixed Ceramic 56 PF 50V
C236	21C45322G19	Fixed Ceramic 56 PF 50V
C237	21C45322G20	Fixed Ceramic 68 PF 50V
C238	21C45322G20	Fixed Ceramic 68 PF 50V
C239	8C44833J20	Mylar 0.039 μF
C240	8C44833J20	Mylar 0.039 μF
C241	24B41870J03	Fixed Ceramic 0.2 μF
C242	24B41870J03	Fixed Ceramic 0.2 μF
C243	23D44333G24	Electrolytic 47 μF 10V
C244	23D44333G24	Electrolytic 47 μF 10V
C245	23D44333G48	Electrolytic 470 μF 10V
C246	23D44333G48	Electrolytic 470 μF 10V
C247	8C44833J27	Mylar 0.15 μF
C248	23C42170G22	Electrolytic 1000 μF 16V
C249		
C250	23D44333G48	Electrolytic 470 μF 10V
C251	23S41059P07	Tantalum 1 μF 25V
C252	23S41059P07	Tantalum 1 μF 25V
C302	21B41880J06	Through 1000 PF
C303	21B41880J06	Through 1000 PF
C304	21B41880J06	Through 1000 PF
TC101	20C43248J01	Variable
TC102	20C43248J01	Variable (AM)
TC103	20C43248J01	Variable (AM)
		Diodes and Filters
D101	48S134816	Diode 1S1555
D102	48S134816	Diode 1S1555
D103	48S41768G01	Diode 1N60
Z201	48S42098J22	Zener Diode
CF101	91B41273J01	Ceramic Filter Black (10.7 MHz)
	or 91B41273J01	Ceramic Filter Blue
	or 91B41273J03	Ceramic Filter Red
	or 91B41273J04	Ceramic Filter Orange
	or 91B41273J05	Ceramic Filter White
CF102	91B41273J01	Ceramic Filter Black (10.7 MHz)
	or 91B41273J02	Ceramic Filter Blue
	or 91B41273J03	Ceramic Filter Red
	or 91B41273J04	Ceramic Filter Orange
	or 91B41273J05	Ceramic Filter White
E3	25C40894G01	Choke Filter
		ICs
IC101	51S44789J02	IC TA7130
IC102	51S40464P01	IC HA1156
IC201	51S42211P01	IC M51521L
IC202	51S44837J03	IC HA1342
IC203	51S44837J03	IC HA1342

Ref. No.	Part No.	Description
	Resistors	
R101	6S41801P16	Fixed Carbon 470 ohm-1/4W
R102	6S41801P26	Fixed Carbon 330 ohm-1/4W
R103	6S41801P42	Fixed Carbon 6.8 k ohm-1/4W
R104	6S41801P48	Fixed Carbon 22 k ohm-1/4W
R105	6S41801P31	Fixed Carbon 820 ohm-1/4W
R106	6S41801P28	Fixed Carbon 470 ohm-1/4W
R107	6S41801P23	Fixed Carbon 180 ohm-1/4W
R108	6S41801P26	Fixed Carbon 330 ohm-1/4W
R109	6S41801P16	Fixed Carbon 47 ohm-1/4W
R110	6S41801P55	Fixed Carbon 82 k ohm-1/4W
R111	6S41801P43	Fixed Carbon 8.2 k ohm-1/4W
R112	6S41801P62	Fixed Carbon 330 k ohm-1/4W
R113	6S41801P44 or	Fixed Carbon 10 k ohm-1/4W
	6S41801P40	Fixed Carbon 4.7 k ohm-1/4W
R114	6S41801P46	Fixed Carbon 15 k ohm-1/4W
R115	6S41801P28	Fixed Carbon 470 ohm-1/4W
R116	6S41801P32	Fixed Carbon 1 k ohm-1/4W
R117	6S41801P36	Fixed Carbon 2.2 k ohm-1/4W
R118	6S41801P36	Fixed Carbon 2.2 k ohm-1/4W
R119	6S41801P55	Fixed Carbon 82 k ohm-1/4W
R120	6S41801P34	Fixed Carbon 1.5 k ohm-1/4W
R121	6S41801P34	Fixed Carbon 1.5 k ohm-1/4W
R122	6S41801P32	Fixed Carbon 1 k ohm-1/4W
R123	6S41801P32	Fixed Carbon 1 k ohm-1/4W
R124	6S41801P25	Fixed Carbon 270 ohm-1/4W
R125	6S41801P55	Fixed Carbon 82 k ohm-1/4W
R126	6S41801P26	Fixed Carbon 330 ohm-1/4W
R127	6S41801P26	Fixed Carbon 330 ohm-1/4W
R128	6S41801P62	Fixed Carbon 330 k ohm-1/4W
R129	6S41801P32	Fixed Carbon 1 k ohm-1/4W
R130	6S41801P32	Fixed Carbon 1 k ohm-1/4W
R131	6S41801P44	Fixed Carbon 10 k ohm-1/4W
R132	6S41801P48	Fixed Carbon 22 k ohm-1/4W
R133	6S41801P36	Fixed Carbon 2.2 k ohm-1/4W
R134	6S41801P33	Fixed Carbon 1.2 k ohm-1/4W
R135	6S41801P40	Fixed Carbon 4.7 k ohm-1/4W
R136	6S41801P55	Fixed Carbon 82 k ohm-1/4W
R137	6S41801P40	Fixed Carbon 4.7 k ohm-1/4W
R138	6S41801P55	Fixed Carbon 82 k ohm-1/4W
R139	6S41801P55	Fixed Carbon 82 k ohm-1/4W
R140	6S41801P28	Fixed Carbon 470 ohm-1/4W
R141	6S41801P29	Fixed Carbon 560 ohm-1/4W
R142	6S41801P36	Fixed Carbon 2.2 k ohm-1/4W
R143	6S41801P45	Fixed Carbon 12 k ohm-1/4W
R144	6S41801P46	Fixed Carbon 15 k ohm-1/4W
R145	6S41801P23	Fixed Carbon 180 ohm-1/4W
R146	6S41801P34	Fixed Carbon 1.5 k ohm-1/4W
R147	6S41801P44	Fixed Carbon 10 k ohm-1/4W
R148	6S41801P50	Fixed Carbon 33 k ohm-1/4W
R149	6S41801P20	Fixed Carbon 100 ohm-1/4W
R201	6S41801P53	Fixed Carbon 56 k ohm-1/4W
R202	6S41801P53	Fixed Carbon 56 k ohm-1/4W
R203	6S41801P22	Fixed Carbon 150 ohm-1/4W
R204	6S41801P22	Fixed Carbon 150 ohm-1/4W
R205	6S41801P46	Fixed Carbon 15 k ohm-1/4W
R206	6S41801P46	Fixed Carbon 15 k ohm-1/4W
R207	6S41801P62	Fixed Carbon 330 k ohm-1/4W
R208	6S41801P62	Fixed Carbon 330 k ohm-1/4W
R209	6S41801P31	Fixed Carbon 820 ohm-1/4W
R210		
R211	6S41801P36	Fixed Carbon 2.2 k ohm-1/4W
R212		
R213	6S41801P21	Fixed Carbon 120 ohm-1/4W
R214	6S41801P21	Fixed Carbon 120 ohm-1/4W
R215	6D44744G19	Fixed Carbon 82 ohm-1/2W

Ref. No.	Part No.	Description
R302	6B43205J07	Metal 150 ohm-1/2W
R303	6D40801G39	Fixed Carbon 100 ohm-1/2W
VR101	18C42061J04	Variable
VR201	18B42472P04	Variable 10 k ohm
	Coils	
CFT1	24C44577J01	CFT Coil, AM
IFT1	24B44795J01	IFT Coil, FM
IFT2	24B44575J01	IFT Coil, AM
L101	24B44179J01	Coil, (4.7 H)
L301	24C43247J01	RF Choke Coil
T101	24C42189G04	OSC Coil, AM
	Transistors and Lamps	
PL301	65C45037G23	Pilot Lamp
PL302	65C45037G20	Pilot Lamp
PL303	65C45037G20	Pilot Lamp
PL304	65C45037G21	Pilot Lamp
Q101	48S41815J02	Transistor 2SC829-B
Q102	48S41815J02	Transistor 2SC829-B
Q103	48S44580J01	Transistor 2SC1675-P
	or 48S44580J02	Transistor 2SC1675
Q104	48S44572J02	Transistor 2SC945
Q105	48S44572J02	Transistor 2SC945
	Miscellaneous Parts	
E1-1	88C42275P01	Head, HF422501
E1-2	88C42275P01	Head, HF422501
E2	59C42154P01	DC, Motor
E4	77C41131P01	Tuner Unit
J1	9B41133P01	Antenna
J2	IC40681P03	Din Connector Assembly
J3	30B41202P01	Output Wire Assembly
S301	18B41132P01	Volume
S302	40C42625P02	Microphone Switch
S303	40C40349J02	Microphone Switch
S304	40C42865J01	Push Switch.
S305	40C41099P01	Push Switch
VR301	18B41132P01	Volume
VR302	18B41132P01	Volume
VR303	18B41136P01	Tuning Shaft and Volume.

? EXPLODED VIEW PARTS LIST

f. No.	Part No.	Description
		General
1	27D41120P01	Base Chassis
2	9B41133P01	Antenna Receptacle
3	3S40011G58	Screw Machine (M2.6 × 0.45 × 3)
4	30B41202P01	Output Wire Assembly
5	42B41424G14	Cord Clamp
6	3S40018G02	Tapping Screw (M3 × 8)
7	27D41943P01	Front Chassis
8	49A43494J01	Pulley
9	4C42091G05	"C" Washer
10	15B41115P01	Dust Cover
11	41A41805P01	Dust Cover Spring
12	47A41268P01	Dust Cover Shaft
13	4A43243P01	Dog Washer
14	4S40070G10	Flat Washer
15	2S40000G20	Nut
16	3S40012G22	Tapping Screw (M2.6 × 6)
17	3S44205G01	Tapping Tite Screw (M3 × 6)
18	64C41108P01	Back Scale Indicator
19	61A41122P01	Lens
20	64B41232P01	Back Scale Indicator
21	7B41116P01	Main Amp. Bracket
22	3S40011G26	Machine Screw (M3 × 0.5 × 8)
23	9C42796P02	Base Connector
24	29A41370P01	Check Pin
25	45A40430P01	Orudam Arm (A)
26	3S44205G12	Tapping Tite Screw (M3 × 4)
27	30A43803G01-600	Dial Cord
28	41A43445J02	Dial Spring
29	7B41121P01	Antenna Bracket
30	49A43494J01	Pulley
31	26A41899P03	Foil Reflector
32	15D42552P01	Nose Piece
33	34B42553P01	Dial Scale
34		
35	26A41899P04	Foil Reflector
36	45A40431P01	Orudam Arm (B)
37	52A43005P01	Pointer
38		
39	15D41114P01	Top Cover
40	15B41124P02	Plate Cover
41	14A42199P01	Fiber Insulator
42	36B42555P01	Knob (B)
43	36B42555P02	Knob (B)
44	36B42555P03	Knob (B)
45	36B42554P01	Knob (A)
46	3S40011G88	Machine Screw (M3 × 0.5 × 5 Phl Flt SH Znc)
47	29C41045P02	Wrap Around Lug
48	15A41806P01	Felt Cover
49	33B42251P01	Cover Name
50	84A41429P01	Terminal Panel
51	7A41266P01	Terminal Bracket
52	36B42556P01	Knob, C
53	4S40070G13	Flat Washer
54	43A42858P01	Bush Rubber
55	43A42883P01	Knob Spacer
60	1U42500P89	Mechanical Cassette Deck
61	1V43200P72	Pre. Main Amp. Assembly
62	1V43300P66	Radio Panel Assembly

Ref. No.	Part No.	Description
		(Kit Installation)
101	8B41874J01	Generator Cap
102	4S40072G12	Tooth Lock Washer (M5)
103	4S40070G08	Flat Washer (Blk, Znc)
104	3S40012G39	Tapping Screw (M5)
105	4S40070G10	Flat Washer
106	2S40000G24	Hexagon Nut (M9 × 0.75)
107	3A43315G03	Machine Screw (M5 × 0.8 × 20)
108	2S40000G13	Hexagon Nut (M5 × 0.8)
109	65A40348G01	Fuse (5A)
110	56B40230G09	Polyethylene Sack
		(Knob)
111	1B42279P01	Control Knob Assembly
112	36B42880P01	Control Knob (A)
113	56B40230G11	Polyethylene Sack
		(Packing)
114	1B42338P02	Face Plate Assembly
115	1C44659J04	Wire Socket Assembly
116	15B41124P01	Cover Plate
117	42B40994G05	Receiver Mounting Strap
118	47A40456P01	Driver Rod
119	56B40230G22	Polyethylene Sack
120	56C41130P01	Packing Tray
121	56C41128P04	Packing Carton (Individual)
122	56C41720P05	Packing Carton (Master)
123	56C41720P02	Packing Pad
		(Pamphlet)
124	68P42438P01	Owner's Manual
125	56B40230G12	Polyethylene Sack

Ref. No.	Part No.	Description
	Tape Machanism	
201	1B43651J01	Drive Reel Assembly
202	1C43665J01	Idler Assembly
203	1B43678J01	Clutch Assembly
204	1B44257J01	F.F. Arm Assembly
205	1B44259J01	Reel Drive Bracket Assembly
206	1A44260J01	Support Bracket "C" Assembly
207	1A44261J01	Support Bracket "C" Assembly
208	1B44262J01	Braker Lever Assembly
209	1C44263J02	Head Plate Assembly
210	1C44264J02	Cassette Plate Assembly
211	1B44265J01	Eject Arm Assembly
212	1A44267J01	Eject Lever Assembly
213	1B44269J02	Pinch Roller Assembly
214	1D44286J02	Chassis Assembly
215	3S40011G73	Machine Screw
216	3S40011G81	Machine Screw (M2 × 0.4)
217	3S40011G82	Machine Screw
218	3S40011G87	Machine Screw (M2 × 8)
219	3C40014G18	Machine Screw (M2.6)
220	3S40019G01	Machine Screw
221	2S40019G05	Machine Screw
222	2S40019G17	Machine Screw (M2.3 × 10)
223	3S40019G20	Machine Screw
224	3S44205G07	Tapping Screw (M2.6)
225	4S40070G01	Washer, (3.3 × 6 × 0.5)
226	4S40075G01	Washer
227	4S40075G06	Washer
228	4S40075G09	Washer
229	4S40075G12	Washer
230	4S40075G13	Washer
231	4C42091G04	Washer "C"
232	4C42091G05	Washer "C"
233	4C42091G06	Washer "C"
234	4C42091G11	Washer "C"
235	4A44253J01	F.W.D. Washer
236	7C43679J01	Lifter Arm Bracket
237	7B43680J01	Motor Bracket
238	7A43681J01	Cassette Stop Bracket
239	7B44207J02	Flywheel Bracket
240	7A44274J01	Switch Bracket
241	14C40273J02	Switch Insulator
242	15B43662J01	Housing
243	36A43655J01	Sensor Knob
244	40C40349J02	Microphone Switch
245	40C41099P01	Push Switch
246	41B41183P01	Head Plate Spring
247	41A43692J01	Cassette Holder Spring
248	41A44276J01	Pinch Roller Spring
249	41A44277J01	Drive Reel Spring
250	41A44279J01	F.F. Arm Spring
251	41A44282J01	Idler Spring
252	41C44283J01	Bottom Lever Spring
253	41C44283J02	Bottom Lever Spring
254	41C44283J03	Clutch Spring
255	41C44283J04	Head Plate Spring
256	41C44283J05	Head Plate Spring
257	41C44283J06	Brake Arm Spring
258	41C44283J08	Arm Spring Bracket
259	41C44283J09	Spring
260	41A44284J01	Head Spring
261	42B44255J01	Drive Belt
262	43A41182P01	Steel Ball
263	43A43657J01	Capstan Spacer
264	43A44234J01	Rewind Lever Bushing
265	43A44235J01	Head Plate Bushing
266	43A44380J01	Motor Spacer

Ref. No.	Part No.	Description
267	43A44610J01	Holder Spacer
268	45A43656J01	Slide Cassette
269	45C43668J01	Brake Arm
270	45C43668J02	Brake Arm
271	45B43683J01	Rewind Lever Button
272	45B43685J01	F.F. Arm Lever
273	45B43686J01	Eject Lever Arm
274	45A43687J01	Forward Lever
275	45A43688J01	Rewind Lever
276	45A43694J01	Drive Reel Arm
277	45B43695J01	Switch Lever
278	45B43697J01	F.F. Button
279	45B44202J01	Eject Lever Button
280	45B44205J01	Eject Cam Lever
281	47A44232J01	Drive Reel Shaft
282	49A43659J01	F.F. Idler
283	49C43667J01	Flywheel
284	49A44254J01	Motor Pulley
285	54B42124G02	Label
286	59C42154P01	DC Motor
287	75B42016P01	Rubber Cushion
288	84A42263P01	Head Panel
289	88C42275P01	HF422501 Head
290	43A44238J01	Eject Roller Bushing
291	4S40070G05	Washer, (3.3 × 8 × 0.5)
292	1V43400P72	Cassette Arm Assembly