

# SERVICE MANUAL

QUARTZ PLL SYNTHESIZER  
CASSETTE RECEIVER

## SANSUI RX-222



### • SPECIFICATIONS

#### Audio section

Maximum output power	7 watts per channel into 4 ohms
Rated output power	3.5 watts per channel into 4 ohms (1 kHz, 1% total harmonic distortion)
Load impedance	4 ohms
Total harmonic distortion	less than 0.1% at 2 watts
Signal to noise ratio (A network)	80 dB
Frequency response	20 Hz to 20,000 Hz $\pm$ 3 dB
Controls	
BASS/TREBLE	$\pm$ 10 dB at 100 Hz/10 kHz

#### Tape section

Track format	4-track/2-channel system
Tape speed	4.8 cm/sec.
Play back head	Hard permalloy, 4-track
Wow/flutter	0.12% max. (WRMS)
Frequency response	
Normal (LH) tape	40 to 14,000 Hz $\pm$ 3 dB
Signal-to-noise ratio (with metal tape, A network)	Better than 50 dB

#### Tuner section

(FM)	
Tuning range	87.9 to 107.9 MHz
Usable sensitivity	
Mono IHF	15.2 dBf (1.6 $\mu$ V/75 ohms)
50 dB quieting sensitivity	
Stereo	18.4 dBf
Signal to noise ratio (at 65 dBf)	
Stereo/mono	65 dB/70 dB
(AM)	
Tuning range	530 to 1,620 KHz
Usable sensitivity	30 dB/ $\mu$ V (75 ohms at 1,000 KHz)

#### General

Power requirements	DC 12.0V/Rated: 14.4V (Usable: 10.8-15.6V) negative ground
Current consumption	2A maximum
Dimensions (W x H x D)	
Chassis size	179 x 50 x 130 mm (7-1/16" x 2" x 5-1/8")
Nosepiece	105 x 42 x 35 mm (4-3/16" x 1-11/16" x 1-7/16")
Front trim panel	190 x 60 mm (7-1/2" x 2-3/8")
Weight	1.3 kg (2.9 lbs) net

\*Design and specifications subject to changes without notice for improvements.

*Sansui*

SANSUI ELECTRIC CO., LTD.

## CAUTION

### 1. Do Not Use Endless Tapes

If an endless tape is used with this unit, the tape will not be wound up properly inside the cassette shell and, as a result, it will not be possible to use it again.

Also, this unit cannot eject a tape which has been inserted with its reverse side facing up.

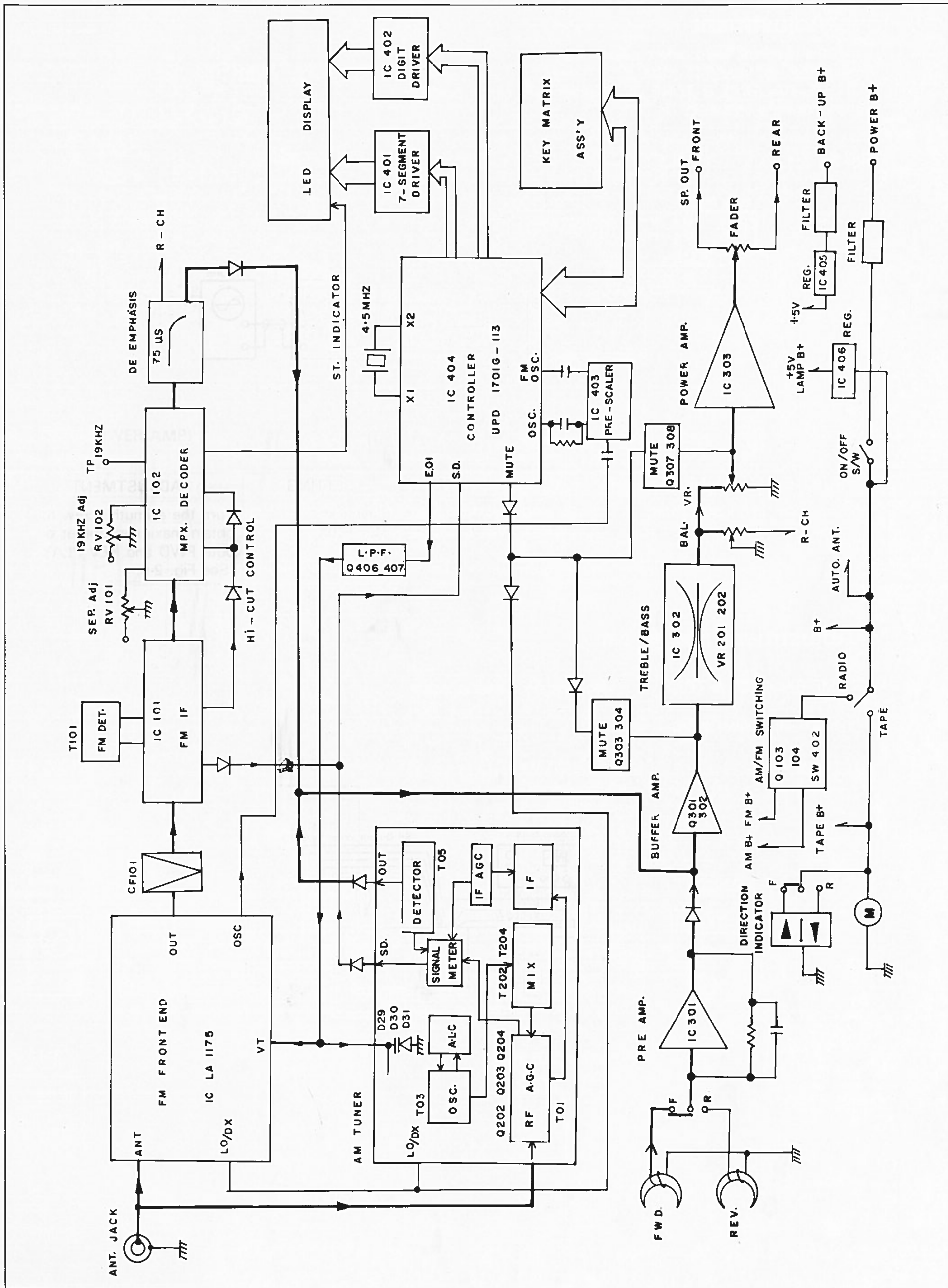
(At this case, refer to How to hook out the endless tapes.)

2. Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on June 1987.
3. Abbreviations in this service manual are as follows.

#### Abbreviations List

R.	:	Carbon Resistor
C.C.	:	Ceramic Capacitor
T.C.	:	Trimmer Capacitor
E.C.	:	Electrolytic Capacitor
P.C.	:	Polystyrene Capacitor
V.R.	:	Variable Resistor (Rotary Volume)
R.V.	:	Resistor Variable (Semi-Fixed Resistor)
SW.	:	Switch
JW.	:	Jumper Wire

# 1. BLOCK DIAGRAM

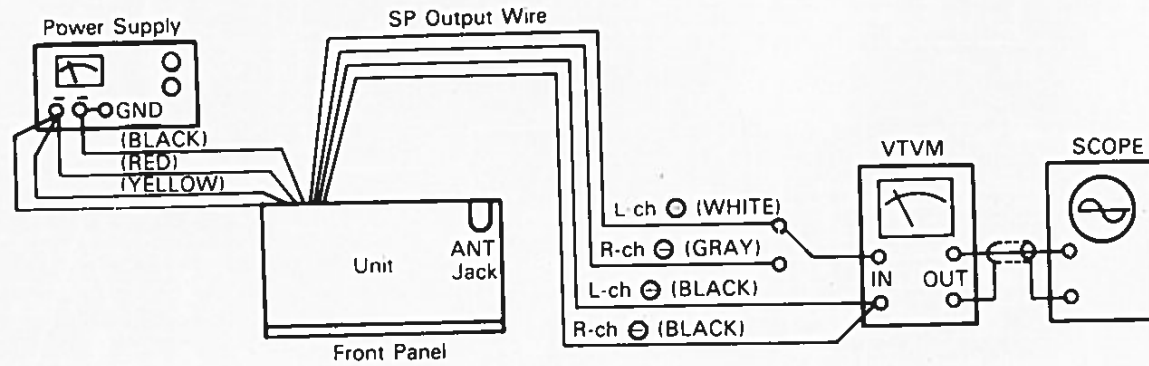


## 2. ADJUSTMENT

### 2-1. Tape Adjustment

- Note:**
1. Clean the playback head before adjustment.
  2. Prepare the test tape SCT-F10K.
  3. VOLUME, BALANCE & TONE . . . . . Mechanically center position
  4. Connections are shown in Fig. 2-1.

Fig. 2-1

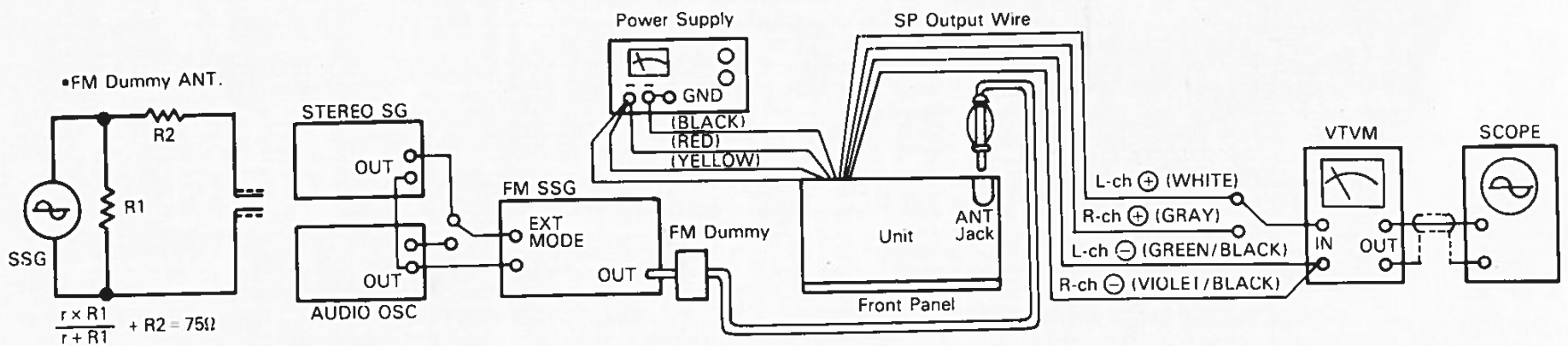


STEP	SUBJECT	INPUT SIGNAL	MEASURE OUTPUT	SETTING	ADJUSTMENT
1.	Head azimuth adjustment	SCT-F10K	L or R-ch SP Output Wire VTVM & Scope	Playback SCT-F10K.	Turn the azimuth screw to obtain maximum output on both FWD and REV PLAY. (See Fig. 2-5)

### 2-2. FM Adjustment (See Fig. 2-7)

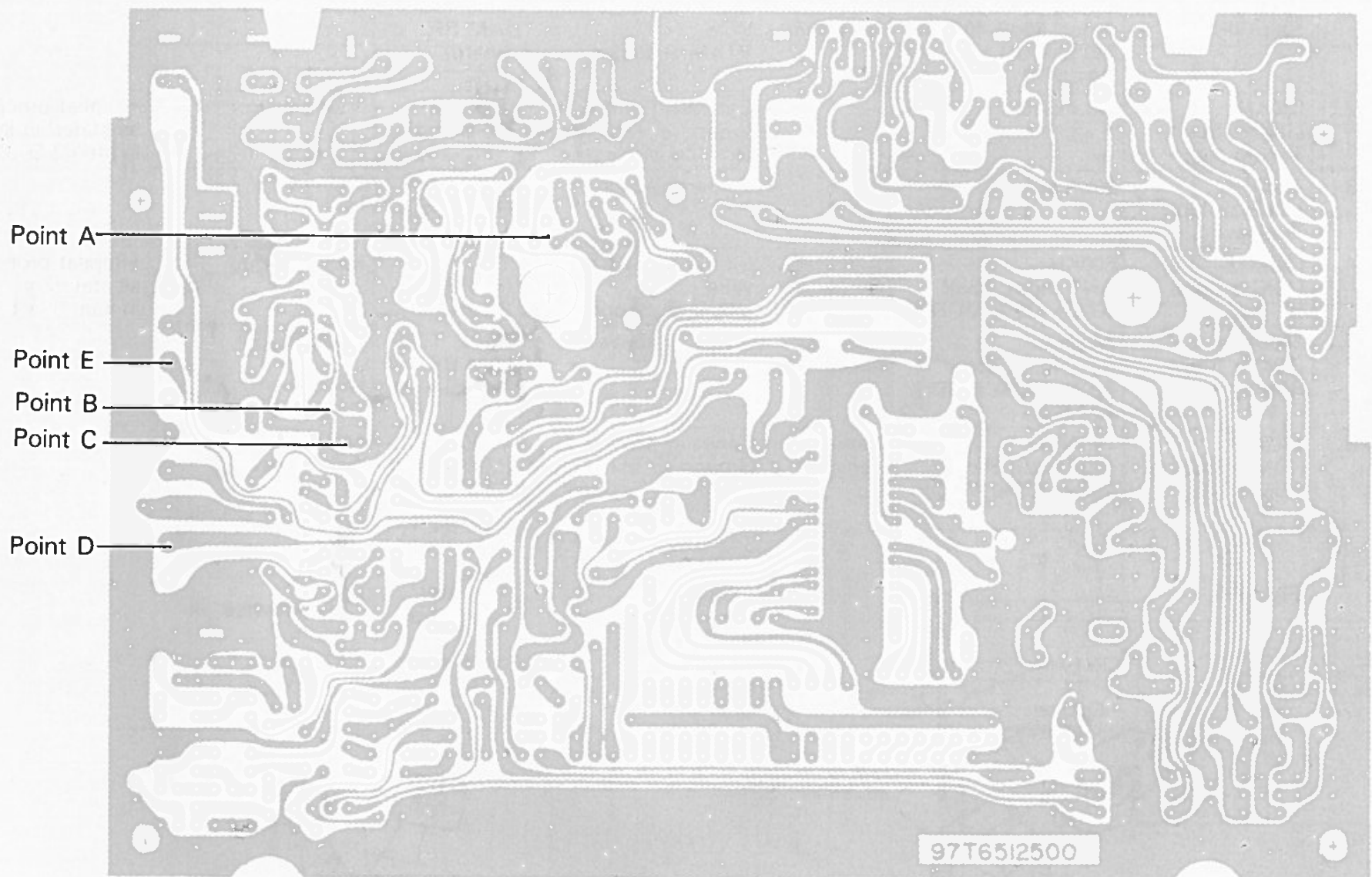
- Note:**
1. BAND . . . . . FM
  2. VOLUME BALANCE & TONE . . . . . Mechanically center position
  3. MO/ST . . . . . ST
  4. Connection are shown in Fig. 2-2.

Fig. 2-2



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	IF Coil Adj.	98MHz ANT Input 18 dBf (12.8 dB), 1 kHz (100% MOD.), FM SSG	ANT Jack & Ground		IFT Coil Front-end	Max. Adjust. Above and Bellow	
2.	Discriminator Coil Adj. In case of using Dist meter	98MHz ANT Input 65 dBf (59.8 dB), No. MOD., FM SSG.	Same as above	Between Point 13 pin and 16 pin (Across the R106) (FM IF, MAIN Board) DC Volt Meter	T101 (FM IF, MAIN Board)	DC 0V ± 30mV	<ul style="list-style-type: none"> <li>Between point 13 pin and 16 pin of IC 101.</li> <li>ADJ T101 until the indication of VTVM becomes 0V.</li> </ul>
3.	Separation Adj.	98MHz ANT Input 65dBf (59.8dB), FM SSG. Pilot 19KHz (10% MOD.), L MOD 1KHz + Pilot (100% MOD.) STEREO SG.	Same is above	L-ch SP Output Wire VTVM & Scope	—	Read this indication on VTVM	<ul style="list-style-type: none"> <li>Adjust RV-1 to have maximum separation of L/R after setting frequency to 19KHz with adjusting RV-2</li> <li>19KHz check point is point A</li> </ul>
				R-ch SP Output Wire VTVM & Scope	RV-1 (20K) RV-2 (10K) (FM IF, main Board)	Confirm L-CH-R-CH	

Fig. 2-3 Pattern Side of Main Board



■ Technical Hint for FM Adjustment

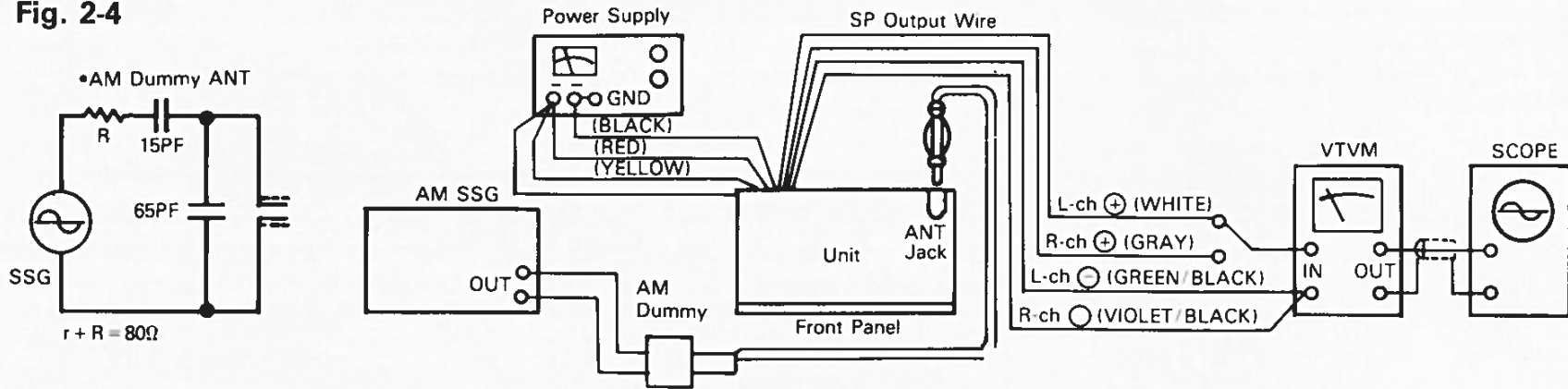
- The impedance of FM antenna terminal is 75Ω. Therefore, connect coaxial cable (3C-2V etc.) between FM SG and antenna terminal when wiring.
- There are two kind in indication of FM SG output attenuator.
  1. Attenuator with marking of 75Ω open... open indication type.
  2. Attenuator with marking of 75Ω load or close... load or close indication type.
- FM SG output level in this FM adjustment are described as open indication type. The right table shows relations among FM SG attenuator indication (dB), available power ratio (dBf) and antenna terminal voltage (dB/μV) in each indication type.

	FM SG Attenuator Indication	Available Power Ratio	Antenna Terminal Voltage
Open indication type	0 dB 60 dB	5.2 dBf 65.2 dBf	6 dB/μV 66 dB/μV
Load or close indication type	0 dB 54 dB	11.2 dBf 65.2 dBf	12 dB/μV 66 dB/μV

### 2-3. AM Check and Adjustment (See Fig. 2-6, 2-7)

- Note:** 1. BAND..... AM  
 2. VOLUME, BALANCE & TONE .. Mechanically center position  
 3. Connections are shown in Fig. 2-4.

Fig. 2-4



STEP	SUBJECT	FEED SIGNAL		MEASURE OUTPUT	ADJUST	ADJUST FOR	REMARKS
		FROM	TO				
1.	1000KHz (10KHz Step) IF Adj.	1000KHz, ANT Input, 30dB 400Hz (30% MOD.), AM SSG	ANT Jack & Ground	L or R-ch SP Output Wire VTVM & Scope	T04, T05 (AM RF Board)	Max. Output	
2.	530KHz (10KHz Step) Tuning Adj.	No Input	—	Between Point E & Ground of Main Board DC Volt Meter	T03 (AM RF Board)	1.2V ± 0.1V	•Repeat procedures as stated in subject in step 2 & 3.
3.	1620KHz (10KHz Step) Tuning Adj.	No Input	—	Same as above	TC03 (AM RF Board)	7.0V ± 0.1V	
4.	600KHz (10KHz Step) RF Adj.	600KHz ANT Input, 35dB 400Hz (30% MOD.),	ANT Jack & Ground	L or R-ch SP Output Wire VTVM & Scope	T01, T02, (AM RF Board)	Max. Output	•Repeat procedures as stated in subject in step 4 & 5.
5.	1400KHz (10KHz Step) RF Adj.	1400KHz ANT Input 35dB 400Hz (30% MOD.), AM SSG	Same as above	Same as above	TC01, TC02 (AM RF Board)	Max. Output	
6.	1000KHz (10KHz Step) 4.5MHz Adj.	1000KHz ANT input 35dB 400Hz (30% MOD.)	Same as above	Between point D & Ground of Main Board Frequency counter	TC401 (Main Board)	1450KHz Adj. to have 1450KHz at Frequency counter.	

Fig. 2-5

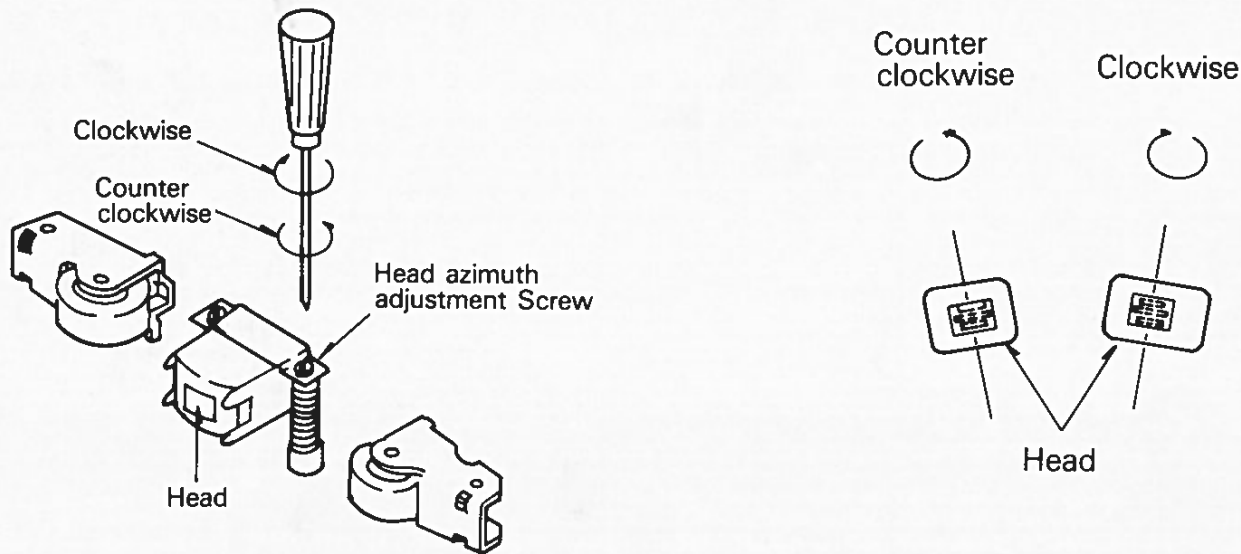


Fig. 2-6 AM Board

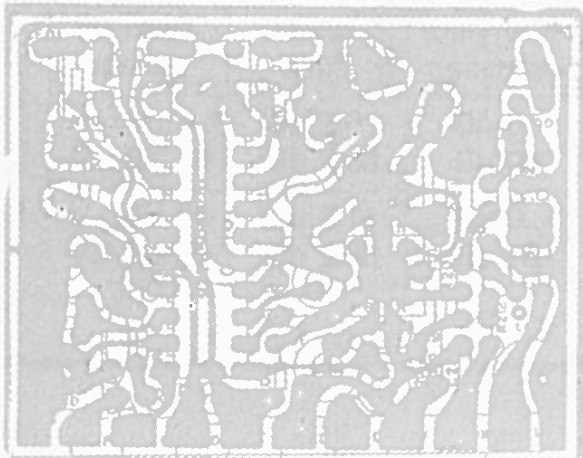
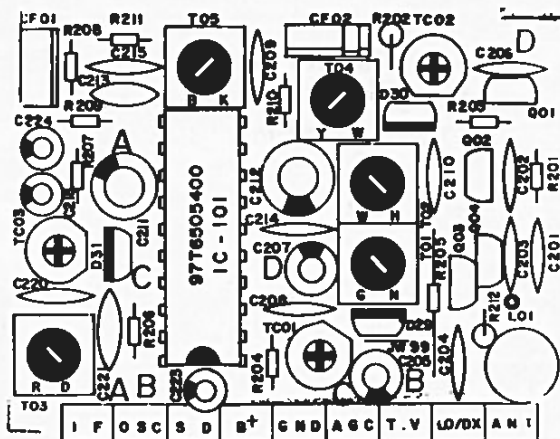
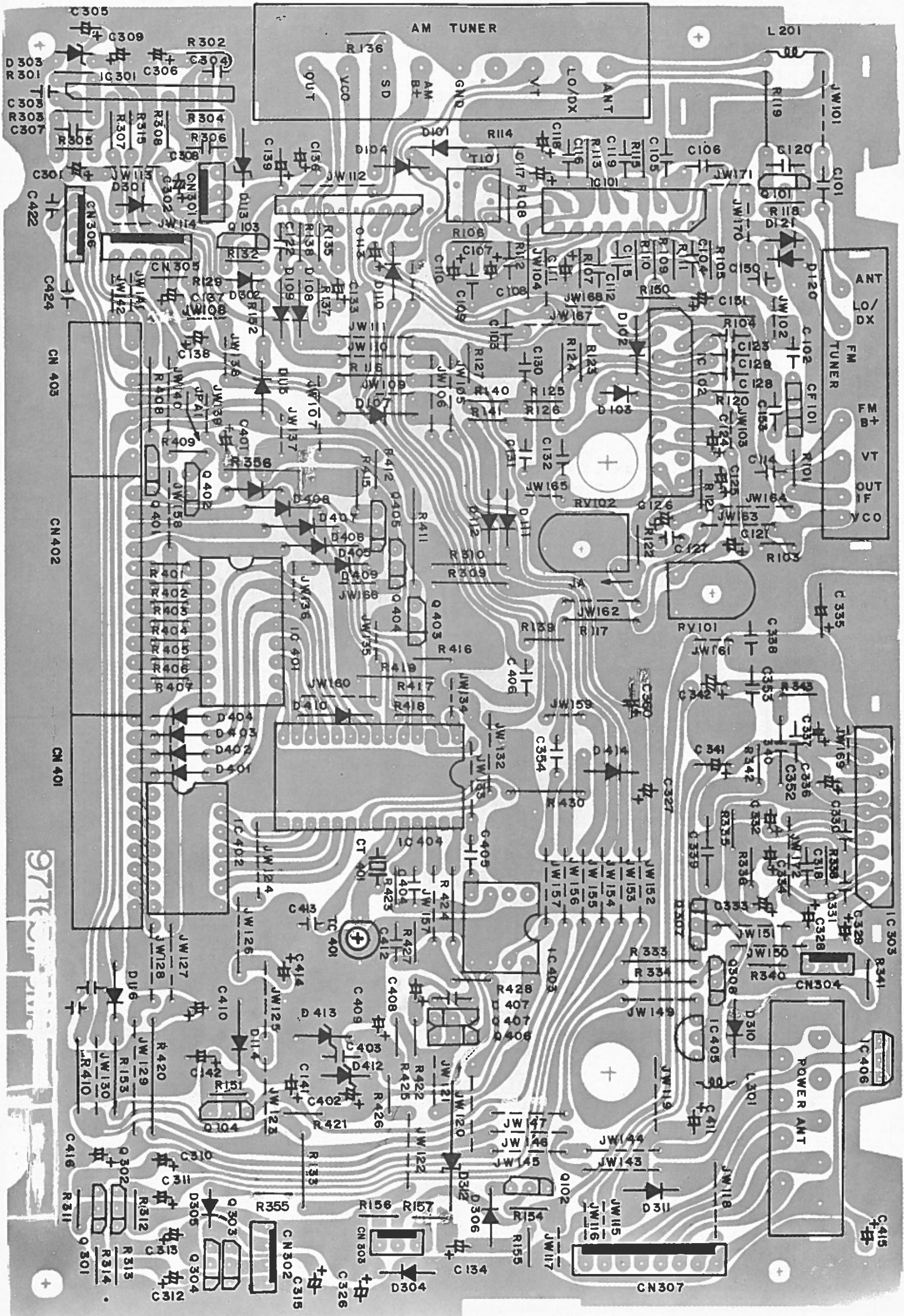


Fig. 2-7 AM IF, RF Board

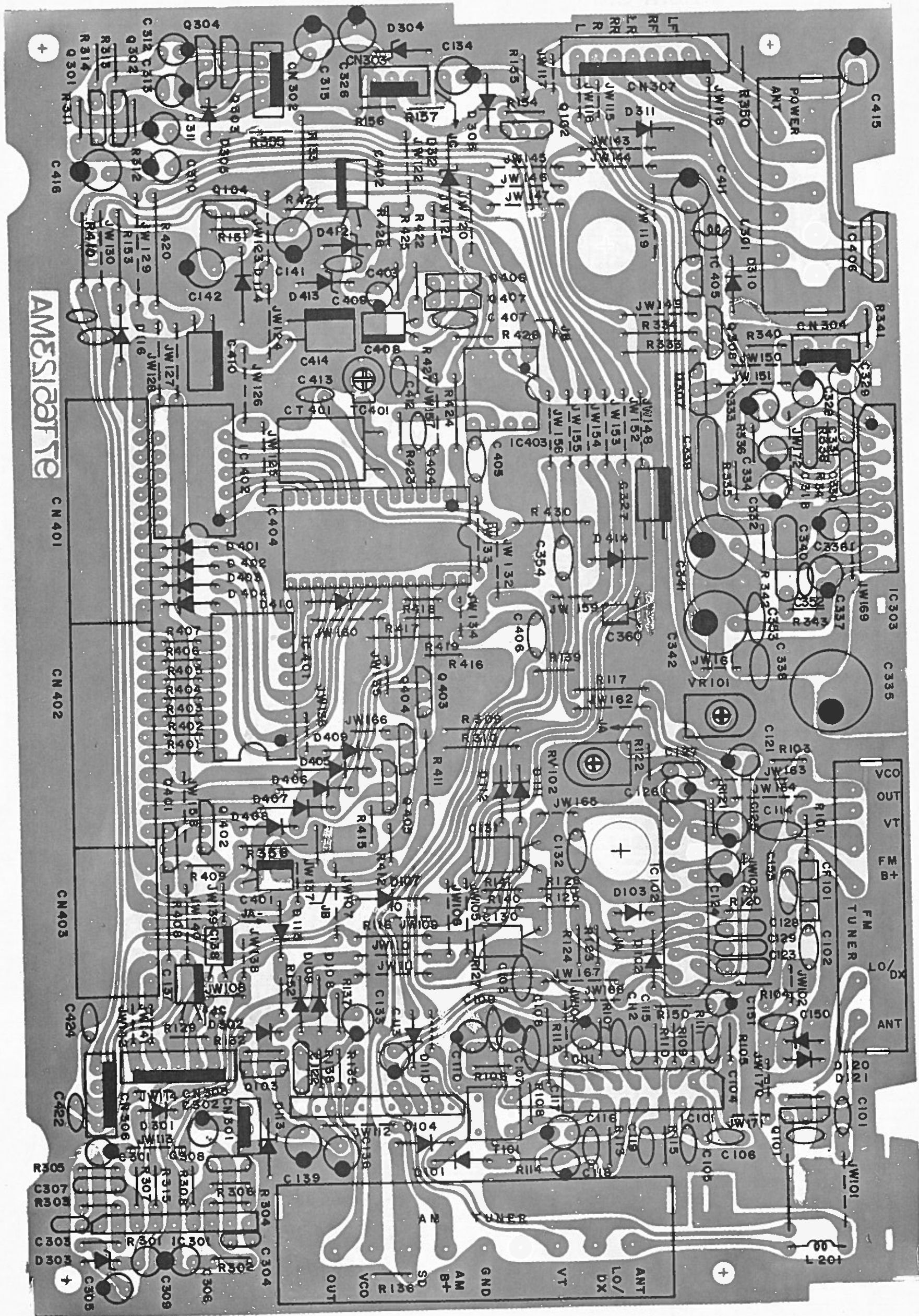


### 3. PARTS LOCATION ON BOARD

#### 3-1. Main Board (Pattern Side)



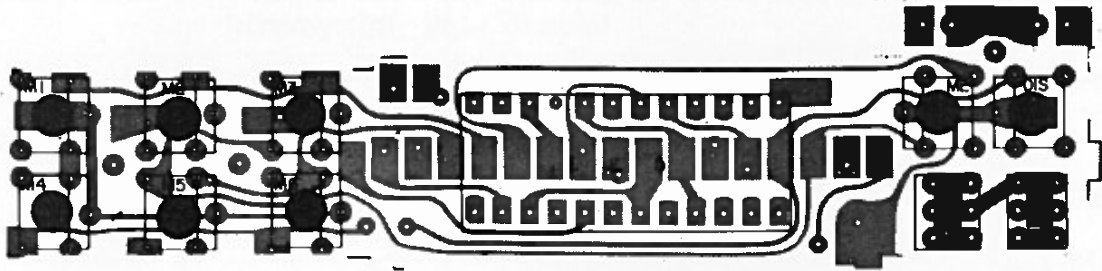
3-2. Main Board (Parts Side)





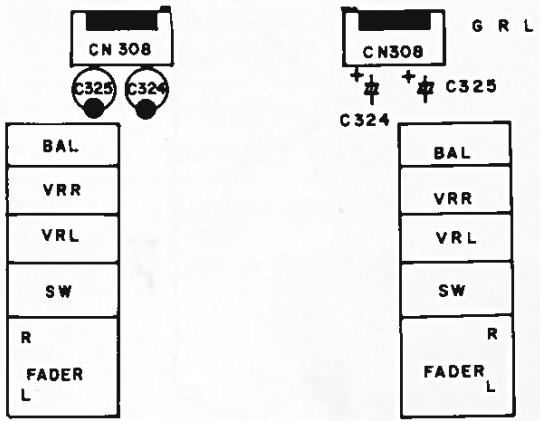
**3-3. Front P.C.B Board**

PATTERN SIDE



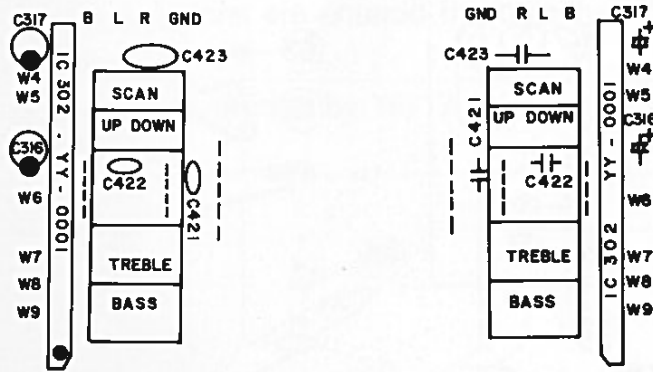
**3-4. Main VR P.C.B Board**

(A) PARTS SIDE (B) PATTERN SIDE



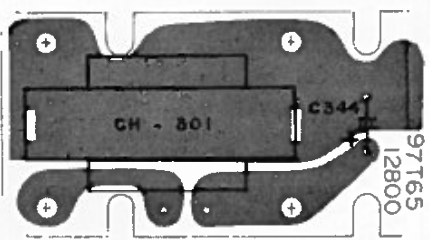
**3-5. TRE/BASS VR P.C.B.**

(A) PARTS SIDE (B) PATTERN SIDE



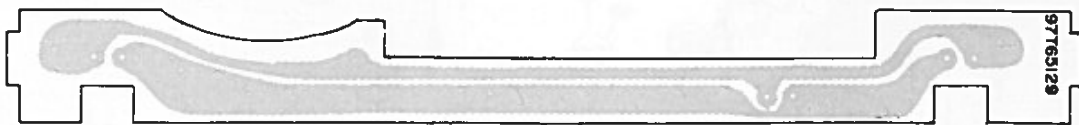
**3-6. Filter Box P.C.B Board**

PATTERN SIDE

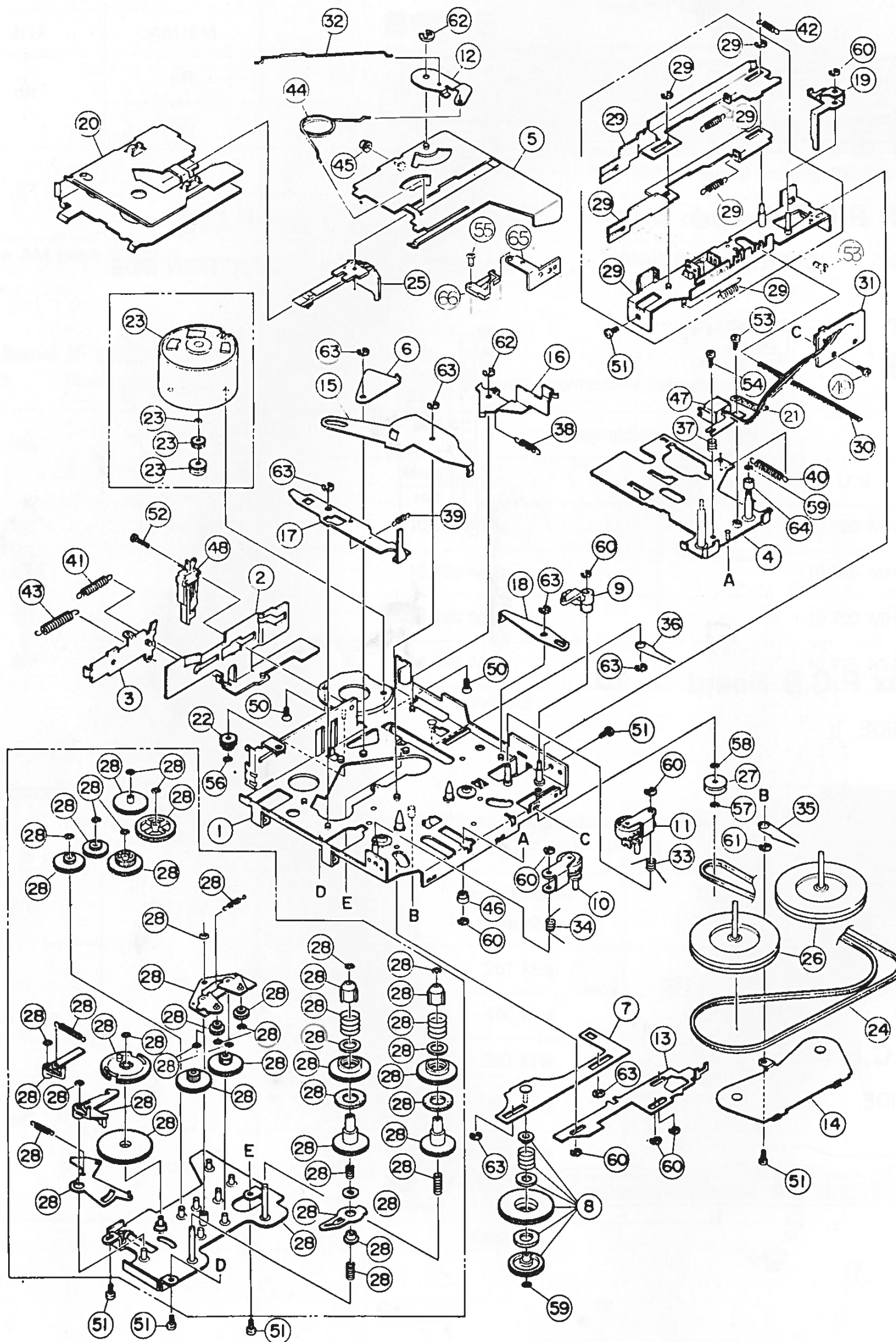


**3-7. Lamp P.C.B Board**

PATTERN SIDE



# 4. EXPLODED VIEW & PARTS LIST OF CASSETTE DECK MECHANISM

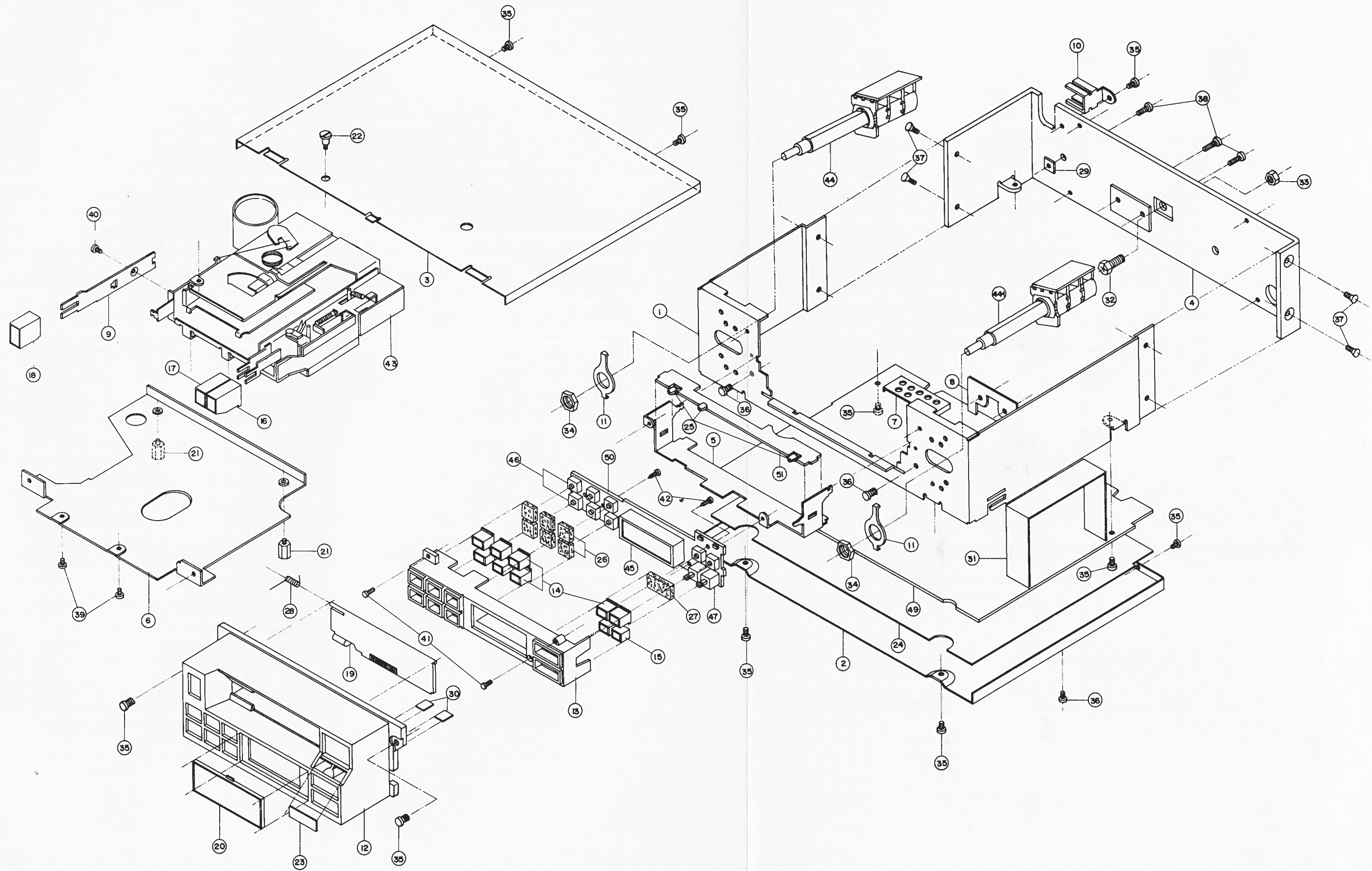


## PARTS LIST (DECK MECHANISM)

PART NO.	STOCK NO.	Q'TY	DESCRIPTION
1	TA000002	1	CHASSIS ASS'Y
2	TA000003	1	EJECT LEVEL ASS'Y
3	TA000004	1	EJECT SUB LEVER ASS'Y
4	TA000005	1	HEAD BASE ASS'Y
5	TA000006	1	CONTAINER HOLDER ASS'Y
6	TA000007	1	HEAD BASE ASS'Y
7	TA000008	1	FR GEAR PLATE ASS'Y
8	TA000009	1	FR GEAR ASS'Y
9	TA000010	1	FR GEAR ARM ASS'Y
10	TA000011	1	PINCH ROLLER ASS'Y (R)
11	TA000012	1	PINCH ROLLER ASS'Y (F)
12	TA000013	1	EJECT SLOT PLATE
13	TA000014	1	REVERSE PLATE
14	TA000015	1	FLY WHEEL PLATE
15	TA000016	1	PR CHANGE PLATE
16	TA000017	1	CONTAINER LOCK LEVER
17	TA000018	1	CH CHANGE PLATE
18	TA000019	1	FR CHANGE PLATE
19	TA000020	1	FR LOCK PLATE
20	TA000021	1	CONTAINER
21		1	CONTAINING LEAP
22	TA000022	1	REDUCTION GEAR (A)
23	TA000023	1	MOTOR PULLEY ASS'Y
24	TA000024	1	BELT
25	TA000025	1	SLOT PLATE
26	TA000026	2	FLY WHEEL
27	TA000027	1	PULLEY ASS'Y
28	TA000028	1	GEAR BLOCK ASS'Y
29	TA000029	1	LEVER BLOCK ASS'Y
30		1	VINYL TIE
31	TA000030	1	P.C.B.
32	TA000031	1	EJECT ROD
33	TA000032	1	P. ROLLER SPRING (F)

PART NO.	STOCK NO.	Q'TY	DESCRIPTION
34	TA000033	1	P. ROLLER SPRING (R)
35	TA000034	1	REVERSE SPRING
36	TA000035	1	FR NETURAL SPRING
37	TA000036	1	AZIMUTH SPRING
38	TA000037	1	CONTAINER LOCK SPRING
39	TA000038	1	CH CHANGE PLATE SPRING
40	TA000039	1	HEAD BASE SPRING
41	TA000040	1	EJECT LEVER SPRING
42	TA000041	1	FR LOCK PLATE SPRING
43	TA000042	1	EJ SUB LEVER SPRING
44	TA000043	1	SLOT SPRING
45	TA000044	1	CONTAINER COLLAR
46	TA000045	1	HB GUIDE COLLAR
47	TA000046	1	HEAD
48	TA000047	1	SCHELTON SW.
49		1	SCREW SEMS A
50		2	SMF 2.6×4
51		6	SMB 2.3×3
52		1	SMB 2×8
53		2	SMB 2×3 (FINE THREAD)
54		1	SMB 2×5
55		1	3P 1.7×5
56		1	POLY WASHER 1.2×4×0.5 CUT
57		1	POLY WASHER 1.2×3×0.25
58		1	POLY WASHER 1.6×3.2×0.25
59		2	POLY WASHER 1.6×3×0.25 CUT
60		8	E PING φ1.5
61		1	E RING φ3
62		2	E RING TE-9
63		7	E RING φ2
64	TA000048	1	PR SPRING SHAFT COLLAR
65	TA000049	1	SWITCH BASE
66	TA000050	1	LEAF SWITCH

### 5. EXPLODED VIEW & PARTS LIST OF UNIT



## PARTS LIST (SET)

PART NO.	STOCK NO.	DESCRIPTION
1	TA000051	CHASSIS, FRONT
2	TA000052	COVER, BOTTOM
3	TA000053	COVER, TOP
4	TA000054	HEAT, SINK
5	TA000055	BRACKET, SWITCH
6	TA000056	BRACKET, DECK
7	TA000057	BRACKET, CAPACITOR
8	TA000058	BRACKET, IC
9	TA000059	LEVER, EJECT
10	TA000060	STOPPER, CORD
11	TA000061	WASHER VR, FIX
12	TA000062	NOSE, FRONT
13	TA000063	REFLECTION, KNOB
14	TA000064	KNOB, PUSH (A) (1,2,3,4,5,6 ME. DIS)
15	TA000065	KNOB, PUSH (B) (MO.FM/AM)
16	TA000066	KNOB, PUSH (FF)
17	TA000067	KNOB, PUSH (REW)
18	TA000068	KNOB, PUSH (EJ)
19	TA000069	DOOR, CASSETTE
20	TA000070	WINDOW, DISPLAY
21	TA000071	STUD, DECK (A)
22	TA000072	STUD, DECK (B)
23	TA000073	PLATE, DIRECTION
24	TA000074	PLATE, INSULATION
25	TA000075	CAP. LAMP
26	TA000076	CUSHION, KNOB (A)

PART NO.	STOCK NO.	DESCRIPTION
27	TA000077	CUSHION, KNOB (B)
28	TA000078	SPRING, DOOR
29	TA000079	NUT, SQUARE
30	TA000080	LABEL, NOSE
31	TA000081	PLATE, SHIELD
32	TA000082	BOLT, HEX M5 × 12
33	TA000083	NUT, HEX M5
34	TA000084	NUT, HEX 3/8"
35	TA000085	TAPTITE SCREW M3 × 6
36	TA000086	SCREW, M3 × 4
37	TA000087	SCREW, M3 × 6
38	TA000088	SCREW, M3 × 8
39	TA000089	SCREW, M2.6 × 4
40	TA000090	SCREW, M2.6 × 3
41	TA000091	SCREW, M2 × 6
42	TA000092	TAPPING SCREW M2 × 5
43	TA000093	DECK MECHANISM
44	TA000094	VOLUME ROTARY (FADER)
45	TA000095	LED, DISPLAY
46	TA000096	SWITCH, TACT
47	TA000098	PCB, MAIN
49	TA000098	PCB, MAIN
50	TA000099	PCB, FRONT
51	TA000100	PCB, LAMP
52	TA000101	VOLUME ROTARY (BASS/TREBLE)

## 6. PARTS LIST OF BOARD

### 6-1. MAIN BOARD (STOCK NO. 97TCO13500)

PART NO.	STOCK NO.	DESCRIPTION
	TA000102	FM FRONTEND PACK
<b>TRANSISTOR</b>		
Q102	TA000103	KTC-3199Y
Q103	TA000104	KTC2236A-Y
Q104	TA000104	KTC2236A-Y
Q301	TA000103	KTC-3199Y
Q302	TA000103	KTC-3199Y
Q303	TA000103	KTC-3199Y
Q304	TA000103	KTC-3199Y
Q307	TA000103	KTC-3199Y
Q308	TA000103	KTC-3199Y
Q401	TA000103	KTC-3199Y
Q402	TA000103	KTC-3199Y
Q403	TA000103	KTC-3199Y
Q404	TA000103	KTC-3199Y
Q405	TA000105	KTA-1267AY
Q406	TA000103	KTC-3199-Y
Q407	TA000103	KTC-3199Y
<b>DIODE</b>		
D101	TA000106	1N4148
D102	TA000106	1N4148
D103	TA000106	1N4148
D104	TA000106	1N4148
D107	TA000106	1N4148
D108	TA000106	1N4148
D109	TA000106	1N4148
D110	TA000106	1N4148
D111	TA000106	1N4148
D112	TA000106	1N4148
D113	TA000107	BZX83C9V1
D114	TA000107	BZX83C9V1
D115	TA000106	1N4148
D116	TA000106	1N4148
D120	TA000106	1N4148
D121	TA000106	1N4148
D301	TA000106	1N4148
D302	TA000106	1N4148
D303	TA000108	BZX83-C10V
D304	TA000108	BZX83-C10V
D305	TA000106	1N4148
D306	TA000106	1N4148
D310	TA000109	1N4001
D311	TA000109	1N4001

PART NO.	STOCK NO.	DESCRIPTION
D312	TA000107	BZX83C9V1
D401	TA000106	1N4148
D402	TA000106	1N4148
D403	TA000106	1N4148
D404	TA000106	1N4148
D405	TA000106	1N4148
D406	TA000106	1N4148
D407	TA000106	1N4148
D408	TA000106	1N4148
D410	TA000106	1N4148
D412	TA000110	BZX83C5V1
D413	TA000110	BZX83-C10V
D414	TA000106	1N4148
IC101	TA000111	KIA 7404P
IC102	TA000112	LA-3370
IC301	TA000113	KIA7325P
IC303	TA000114	KIA7299
IC401	TA000115	DBL1021
IC402	TA000116	UPA53C
IC403	TA000117	UPB553AC
IC404	TA000118	UPD1701CT-113
IC405	TA000119	KIA78L05
IC406	TA000120	KIA78M05
<b>RESISTER</b>		
RV101	TA000121	FF-083H-20KB
RV102	TA000122	FF-083H-10KB
R101	RD-AZ101JK	1/6 100 OHM
R103	RD-AZ330JK	1/6 33 OHM
R104	RD-AZ100JK	1/6 10 OHM
R105	RD-AZ331JK	1/6 330 OHM
R106	RD-AZ223JK	1/6 22K OHM
R107	RD-AZ333JK	1/6 33K OHM
R108	RD-AZ182JK	1/6 1.8K OHM
R109	RD-AZ682JK	1/6 6.8K OHM
R110	RD-AZ473JK	1/6 47K OHM J
R111	RD-AZ393JK	1/6 39K OHM
R112	RD-4Z100JK	1/4 10 OHM
R113	RD-AZ103JK	1/6 10K OHM
R114	RD-AZ473JK	1/6 47K OHM
R115	RD-AZ152JK	1/6 1.5K OHM
R116	RD-4Z272JK	1/4 2.7K OHM
R117	RD-4Z223JK	1/4 22K OHM

PART NO.	STOCK NO.	DESCRIPTION
R120	RD-AZ562JK	1/6 5.6K OHM
R121	RD-AZ102JK	1/6 1K OHM
R122	RD-AZ123JK	1/6 12K OHM
R123	RD-AZ332JK	1/6 3.3K OHM
R124	RD-AZ332JK	1/6 3.3K OHM
R125	RD-AZ682JK	1/6 6.8K OHM
R126	RD-AZ682JK	1/6 6.8K OHM
R129	RD-AZ101JK	1/6 100 OHM
R132	RD-AZ821JK	1/6 820 OHM
R133	RD-4Z100JK	1/4 10 OHM
R135	RD-AZ682JK	1/6 6.8K OHM
R136	RD-AZ103JK	1/6 10K OHM
R137	RD-AZ273JK	1/6 27K OHM
R138	RD-AZ393JK	1/6 39K OHM
R139	RD-AZ223JK	1/6 22K OHM
R140	RD-AZ123JK	1/6 12K OHM
R141	RD-AZ123JK	1/6 12K OHM
R150	RD-AZ822JK	1/6 8.2K OHM
R151	RD-AZ821JK	1/6 820 OHM
R152	RD-AZ680JK	1/6 68 OHM
R153	RD-4Z100JK	1/4 10 OHM
R154	RD-AZ223JK	1/6 22K OHM
R155	RD-AZ103JK	1/6 10K OHM
R156	RD-AZ331JK	1/6 330 OHM
R157	RD-AZ331JK	1/6 330 OHM
R301	RD-AZ101JK	1/6 100 OHM
R302	RD-AZ101JK	1/6 100 OHM
R303	RD-AZ123JK	1/6 12K OHM
R304	RD-AZ123JK	1/6 12K OHM
R305	RD-AZ334JK	1/6 330K OHM
R306	RD-AZ334JK	1/6 330K OHM
R307	RD-AZ122JK	1/6 1.2K OHM
R308	RD-AZ122JK	1/6 1.2K OHM
R309	RD-AZ393JK	1/6 39K OHM
R310	RD-4Z393JK	1/4 39K OHM
R311	RD-AZ474JK	1/6 470K OHM
R312	RD-AZ474JK	1/6 470K OHM
R313	RD-AZ681JK	1/6 680 OHM
R314	RD-AZ681JK	1/6 680 OHM
R315	RD-AZ331JK	1/6 330 OHM
R332	RD-AZ562JK	1/6 5.6K OHM
R333	RD-4Z332JK	1/4 3.3K OHM

PART NO.	STOCK NO.	DESCRIPTION
R334	RD-4Z332JK	1/4 3.3K OHM J
R335	RD-AZ101JK	1/6 100 OHM J
R336	RD-AZ101JK	1/6 100 OHM J
R338	RD-AZ222JK	1/6 2.2K OHM J
R340	RD-AZ104JK	1/6 100 OHM J
R341	RD-AZ104JK	1/6 100K OHM J
R342	RD-AZ229JK	1/6 2.2 OHM J
R343	RD-AZ229JK	1/6 2.2 OHM J
R350	RD-4B102J-	1/4 1K OHM J
R401	RD-AZ820JK	1/6 82 OHM J
R402	RD-AZ820JK	1/6 82 OHM J
R403	RD-AZ820JK	1/6 82 OHM J
R404	RD-AZ820JK	1/6 82 OHM J
R405	RD-AZ820JK	1/6 82 OHM J
R406	RD-AZ820JK	1/6 82 OHM J
R407	RD-AZ820JK	1/6 82 OHM J
R408	RD-4Z104JK	1/4 100 OHM J
R409	RD-AZ104JK	1/6 100K OHM J
R410	RD-4Z153JK	1/4 15K OHM J
R411	RD-4Z104JK	1/4 100K OHM J
R412	RD-AZ104JK	1/6 100K OHM J
R415	RD-AZ104JK	1/6 100K OHM J
R416	RD-AZ223JK	1/6 22K OHM J
R417	RD-AZ223JK	1/6 22K OHM J
R418	RD-AZ223JK	1/6 22K OHM J
R419	RD-4Z223JK	1/4 22K OHM J
R420	RS-2Y121J-	1/2 120 OHM J
R421	RD-AZ471JK	1/6 470 OHM J
R422	RD-AZ222JK	1/6 2.2K OHM J
R423	RD-AZ224JK	1/6 220K OHM J
R424	RD-4Z123JK	1/4 12K OHM J
R425	RD-AZ103JK	1/6 10K OHM J
R426	RD-AZ331JK	1/6 330 OHM J
R427	RD-AZ104JK	1/6 100K OHM J
R428	RD-AZ104JK	1/6 100K OHM J
<b>CONDENSER</b>		
C101	CYSL1H680K	SL 50V 68pF K
C102	CCYF1H223Z	HIKF 50V 0.022uF Z
C103	CCYB1H221K	HIKB 50V 220pF K
C104	CCYF1H223Z	HIKF 50V 0.022uF Z
C105	CCYF1H223Z	HIKF 50V 0.022uF Z
C106	CCYF1H223Z	HIKF 50V 0.022uF Z

PART NO.	STOCK NO.	DESCRIPTION
C107	CEYF1H229A	50V 2.2uF RSM=4×7
C108	CCYF1H223Z	HIKF 50V 0.022uF Z
C109	CCYF1H223Z	HIKF 50V 0.022uF Z
C110	CEYF1C100A	16V 10uF RSM 4×7
C111	CEYF1H339A	50V 3.3uF RSM 4×7
C112	CCYF1H223Z	HIKF 50V 0.022uF Z
C113	CEYF1V479A	35V 4.7uF SSM 4×7
C114	CCYB1H103K	HIKB 50V 0.01uF K
C115	CCYF1H223Z	HIKF 50V 0.022uF Z
C116	CCYF1H223Z	HIKF 50V 0.022uF Z
C117	CEYF1C100A	16V 10uF RSM 4×7
C118	CEYF1H109A	50V 1uF RSM 4×7
C119	CYSL1H330J	SL 50V 33pF J
C121	CEYF1C100A	16V 10uF RSM 4×7
C122	CMYM1H223K	50V 0.022uF K
C123	CMYM1H103K	50V 0.01uF K
C124	CEYF1H109A	50V 1uF RSM 4×7
C125	CEYF1H109A	50V 1uF RSM 4×7
C126	CEYF1H339A	50V 3.3uF RSM 4×7
C127	CMYM1H102K	50V 1000pF K
C128	CMYM1H682J	50V 6800pF J
C129	CMYM1H682J	50V 6800pF J
C130	CMYM1H472J	50V 4700pF J
C131	CMYM1H472J	50V 4700pF J
C132	CCYB1H103K	HIKB 50V 0.01uF K
C133	CEYF1H108A	50V 0.1uF RSM 4×7
C134	CEYF1C470A	16V 47uF RSM 5×11
C136	CEYF1A101A	10V 100uF RSM 5×11
C137	CEYF1H109A	50V 1uF RSM 4×7
C138	CEYF1C100A	16V 10uF RSM 4×7
C139	CEYF1A221A	10V 220uF RSM 8×8.5
C141	CEYF1A101A	10V 100uF RSM 5×11
C142	CEYF1A331A	10V 330uF RSM 8×11.5
C150	CCYB1H102K	HIKB 50V 0.001uF K
C151	CEYF1H109A	50V 1uF RSM 4×7
C153	CCYF1H223Z	HIKF 50V 0.022uF Z
C301	CEYF1V479A	35V 4.7uF SSM 4×7
C302	CEYF1V479A	35V 4.7uF SSM 4×7
C303	CMYM1H102K	50V 0.001uF K
C304	CMYM1H102K	50V 0.001uF K
C305	CEYF1A220A	10V 22uF 5×7
C306	CEYF1A220A	10V 22uF 5×7

PART NO.	STOCK NO.	DESCRIPTION
C307	CMYM1H103K	50V 0.01uF K
C308	CMYM1H103K	50V 0.01uF K
C309	CEYF1A470A	10V 47uF RSM 6.3×7
C310	CEYF1V479A	35V 4.7uF SSM 4×7
C311	CEYF1V479A	35V 4.7uF SSM 4×7
C312	CEYF1V479A	35V 4.7uF RSM 4×7
C313	CEYF1V479A	35V 4.7uF RSM 4×7
C315	CEYF1A330A	10V 33uF 5×7
C318	CMYM1H473K	50V 0.047uF K
C326	CEYF1A101A	10V 100uF RSM 5×11
C327	CEYF1A101A	10V 100uF RSM 5×11
C328	CEYF1A109A	50V 1uF RSM 4×7
C330	CMYM1H102K	50V 1000pF K
C331	CMYM1H102K	50V 1000pF K
C332	CEYF1A470A	10V 47uF RSM 6.3×7
C333	CEYF1A470A	10V 47uF RSM 6.3×7
C334	CEYF1A470A	10V 47uF RSM 6.3×7
C335	CEYF1C222A	16V 2200uF RSM 16×20
C336	CEYF1A101A	10V 100uF RSM 5×11
C337	CEYF1A101A	10V 100uF RSM 5×11
C339	CMYM1H224K	50V 0.22uF K
C340	CMYM1H224K	50V 0.22uF K
C341	CEYF1A102A	10V 1000uF 10×20
C342	CEYF1A102A	10V 1000uF 10×20
C345	CFYF1H102P	50V 1000pF GMV
C346	CFYF1H102P	50V 1000pF GMV
C347	CFYF1H102P	50V 1000pF GMV
C348	CFYF1H102P	50V 1000pF GMV
C349	CFYF1H102P	50V 1000pF GMV
C350	CFYF1H102P	50V 1000pF GMV
C351	CFYF1H102P	50V 1000pF GMV
C401	CEYF1H228A	50V 0.22uF RSM 4×7
C402	CEYF1A101A	10V 100uF RSM 5×11
C403	CCYF1H223Z	HIKF 50V 0.022uF Z
C404	CCYB1H221K	HIKB 50V 220pF K
C405	CCYB1H103K	HIKB 50V 0.01uF K
C406	CCYB1H103K	HIKB 50V 0.01uF K
C407	CCYF1H103K	HIKB 50V 0.01uF K
C408	CEYF1H109A	50V 1uF 5×11
C409	CEYF1A470A	10V 47uF RSM 5×11
C410	CEYF1C101A	16V 100uF 6.3×11
C411	CEYF1C101A	16V 100uF 6.3×11



PART NO.	STOCK NO.	DESCRIPTION
C412	CCYF1H223Z	HIKF 50V 0.022uF Z
C413	CYSL1H220J	SL 50V 22pF J
C414	CEYF1A101A	10V 100uF RSM 5x11
C415	CEYF1C101A	16V 100uF 6.3x11
C416	CEYF1A101A	10V 100uF RSM 5x11
C422	CCYF1H102Z	HIKF 50V 0.001uF Z
C424	CCYF1H223Z	HIKF 50V 0.022uF Z
C425	CCYF1H102Z	HIKF 50V 0.001uF Z
<b>FILTER, CRYSTAL, COIL, TRIMMER, IFT FM</b>		
CF101	TA000123	SFE107 MS2-A
CT401	TA000124	4.5 MHz
L201	TA000125	LAL 03NA4R7K
L301	TA000126	3.3uH K
TC401	TA000127	TZ03R 200NR
T101	TA000128	S-108-113 PC7A 7x8 Q=100
<b>CONNECTOR, JUMPER, LEAD WIRE</b>		
CN004	TA000129	4P #20 KV 0.5MM
CN005	TA000130	6P #22 KV 0.3MM
JW101	W581GY1005	AWG22 1/0.65 SN10
JW102, 103	W581GY5095	AWG22 1/0.65 SN 5
JW104	W581GY7595	AWG22 1/0.65 SN 7.5
JW105-107	W581GY1005	AWG22 1/0.65 SN 10
JW108, 109	W581GY5095	AWG22 1/0.65 SN 5
JW110-112	W581GY1005	AWG22 1/0.65 SN 10
JW113	W581GY7595	AWG22 1/0.65 SN 7.5
JW114-117	W581GY5095	AWG22 1/0.65 SN 5
JW118-120	W581GY1005	AWG22 1/0.65 SN 10
JW121	W581GY5095	AWG22 1/0.65 SN 5
JW122-128	W581GY1005	AWG22 1/0.65 SN 10
JW129	W581GY1505	AWG22 1/0.65 SN 15
JW130-133	W581GY1005	AWG22 1/0.65 SN 10
JW134-139	W581GY5095	AWG22 1/0.65 SN 5
JW140	W581GY1005	AWG22 1/0.65 SN 10
JW141-142	W581GY5095	AWG22 1/0.65 SN 5
JW143-158	W581GY1005	AWG22 1/0.65 SN 10
JW159	W581GY5095	AWG22 1/0.65 SN 5
JW160	W581GY1005	AWG22 1/0.65 SN 10
JW161	W581GY5095	AWG22 1/0.64 SN 5
JW162-164	W581GY1005	AWG22 1/0.65 SN 10
JW165-166	W581GY5095	AWG22 1/0.65 SN 5
JW167	W581GY1005	AWG22 1/0.65 SN 10
JW168-171	W581GY5095	AWG22 1/0.65 SN 5

PART NO.	STOCK NO.	DESCRIPTION
JW172	W581GY1005	AWG22 1/0.65 SN 10
JW173-302	W581GY5095	AWG22 1/0.65 SN 5
JW303	W581GY1005	AWG22 1/0.65 SN 10
<b>JACK ANT</b>		
J0000	TA000131	PCB TYPE
<b>WIRE LEAD</b>		
W01	W147BL9007	AWG28 7/0.125 BL 10-90-10
W03	W147RD1817	AWG28 7/0.125 RD 10-180-10
W13	WP-UBK2813	AWG20 21/0.18 BK 3-280-3

**6-2 AM BOARD (97TC011101)**

PART NO.	STOCK NO.	DESCRIPTION
<b>CERAMIC FILTER</b>		
CF001	TA000132	BFU450C4N
CF002	TA000133	AMC FM2-450BL
<b>TRANSISTOR, FET (FILED EFFECT TR.)</b>		
Q001	TA000103	KTC-3199Y
Q002	TA000134	2SK117BL
Q003	TA000135	KTC380TM-O
Q004	TA000103	KTC-3199Y
<b>RESISTER</b>		
R201	RD-AY470J-	1/6 47 OHM J
R202	RD-AY472J-	1/6 4.7K OHM J
R203	RD-AY104J-	1/6 100K OHM J
R204	RD-AY101J-	1/6 100 OHM J
R205	RD-AY104J-	1/6 100K OHM J
R206	RD-AY104J-	1/6 100K OHM J
R207	RD-AY103J-	1/6 10K OHM J
R208	RD-AY820J-	1/6 82 OHM J
R209	RD-AY103J-	1/6 10K OHM J
R210	RD-AY680J-	1/6 68 OHM J
R211	RD-AY101J-	1/6 100 OHM J
R212	RD-AY472J-	1/6 4.7K OHM J
<b>CONDENSER</b>		
C201	CCYF1H223Z	HIKF 50V 0.022uF Z
C202	CCYF1H223Z	HIKF 50V 0.022uF Z
C203	CCYF1H222Z	HIKF 50V 2200pF Z
C204	CCYF1H223Z	HIKF 50V 0.022uF Z
C205	CEYE1A220A	10V 22uF 5x11
C206	CCYF1H223Z	HIKF 50V 0.022uF Z
C207	CEYE1H109A	50V 1uF 5x11

PART NO.	STOCK NO.	DESCRIPTION
C208	CCYF1H223Z	HIKF 50V 0.022uF Z
C209	CCYF1H223Z	HIKF 50V 0.022uF Z
C210	CCYF1H223Z	HIKF 50V 0.022uF Z
C211	CEYE1A470A	10V 47uF 5x11
C212	CEYE1A470A	10V 47uF 5x11
C213	CCYF1H103Z	HIKF 50V 0.01uF Z
C214	CCYF1H223Z	HIKF 50V 0.022uF Z
C215	CCYF1H223Z	HIKF 50V 0.022uF Z
C218	CEYE1A470A	10V 47uF 5x11
C220	CCYF1H223Z	HIKF 50V 0.022uF Z
C221	CYUJ1H391J	UJ 50V 390pF J
C222	CYUJ1H330J	UJ 50V 33pF J
C223	CEYE1H478A	50V 0.47uF 5x11
C224	CEYE1H339A	50V 3.3uF 5x11
<b>DIODE</b>		
D029	TA000136	KV 1235Z
D030	TA000136	KV 1235Z
D031	TA000136	KV 1235Z
<b>TRIMMER, IFT, COIL</b>		
TC001	TA000137	TZ03R200FR
TC002	TA000137	TZ03R200FR
TC003	TA000137	TZ03R200FR
T004	TA000138	7x7 YW 455KHz Q=120
T005	TA000139	7x7 BK 455KHz Q=70
T001	TA000140	7x7 GN 244uH Q=80
T002	TA000141	7x7 WH 244uH Q=80
T003	TA000142	7x7 RD 118uH Q=80
<b>CONNECTOR, JUMPER, WIRE LEAD</b>		
CN080	97T6201300	FAU0640-20-09
JW990	W581GY5097	AWG22 1/0.65 SN 10-5-10
W00A	WP-3YW6007	AWG24 1/0.52 YW 10-60-10
W00B	W143OR6007	AWG24 1/0.52 OR 10-60-10
W00C	W143BL6007	AWG24 1/0.52 BL 10-60-10
W00D	W143P7007	AWG24 1/0.52 PK 10-70-10
W001	W147WH1213	AWG28 7/0.125 WH 3-120-3

**6-3. TONE VOLUME BOARD  
(STOCK NO. 97TC0135VR)**

PART NO.	STOCK NO.	DESCRIPTION
IC302	TA000143	YY-0001
<b>CONDENSER</b>		
C316	CEYF1V479A	35V 4.7uF SSM 4x7

PART NO.	STOCK NO.	DESCRIPTION
C317	CEYF1V479A	35V 4.7uF SSM 4x7
C421	CCYF1H102Z	HIKF 50V 0.001uF Z
C422	CCYF1H102Z	HIKF 50V 0.001uF Z
C423	CCYF1H223Z	HIKF 50V 0.022uF Z
<b>ROTARY VOLUME</b>		
SWTRE	5V1503530B	K12EALA-5N4311 50KBx4
<b>WIRE LEAD</b>		
W04	W144VT600T	AWG26 7/0.16 VT 3-60-10
W05	W144WH600T	AWG26 7/0.16 WH 3-60-10
W06	W144OR600T	AWG26 7/0.16 OR 3-60-10
W07	W144BL600T	AWG26 7/0.16 BL 3-60-10
W08	W144GN600T	AWG26 7/0.16 GN 3-60-10
W09	W144GY600T	AWG26 7/0.16 GY 3-60-10
<b>CONNECTOR</b>		
CN301	TA000144	4P 300/300-3 2547 W/WAFER
CN306	TA000145	4P #26 7/0.16 80-3 W/WAFER

**6-4 MAIN VOLUME BOARD  
(STOCK NO. 97TC0135VR)**

PART NO.	STOCK NO.	DESCRIPTION
<b>CONDENSER</b>		
C324	CEYF1H109A	50V 1uF RSM 4x7
C325	CEYF1H109A	50V 1uF RSM 4x7
<b>ROTARY VOLUME</b>		
SW FAD	TA00094	K12Z10-5N1211 50KAx2, 80x2
<b>CONNECTOR</b>		
CN304	TA000146	2547 7/0.1 GY 5-130-5
CN307	TA000147	8P #26 7/0.16 130-3
CN308	TA000148	#2547 GY 300-3 W/WAFER

**6-5. FILTER BOARD  
(STOCK NO. 97TC084900)**

PART NO.	STOCK NO.	DESCRIPTION
<b>CHOKE COIL</b>		
CH301	TA000149	E1-24MM 1uH
<b>CONNECTOR</b>		
CN001	TA000150	4P W/FILT BOX 1A F/HOLD
CN002	TA000151	6P KV 0.3MM 180-15
CN003	TA000152	1P PWR W/FUSE HOLDER 3A
<b>CONDENSER</b>		
C334	CEYF1C470A	10V 47uF 6.3x7

**6-6. DECK BOARD  
(STOCK NO. 97TM009700)**

PART NO.	STOCK NO.	DESCRIPTION
R337	RD-4Y479J-	1/4 4.7 OHM J
C343	CEYF1C471A	16V 470uF 10x16
<b>CONNECTOR</b>		
CN301	TA000153	3P 2547 GY 80-3 W/WAFER
CN303	TA000154	3P #26 7/0.16 80-3
CN305	TA000155	5P #26 2P-80-3 SP-90-3
<b>LEAD WIRE</b>		
W10	W149RD1013	AWG30 7/0.1 RD-3-100-3
W11	W149RD1013	AWG30 7/0.1 RD 3-100-3
W12	W14ZBK1113	AWG22 17/0.16 BK 3-110-3

**6-7. FRONT BOARD  
(STOCK NO. 97TC0135FR)**

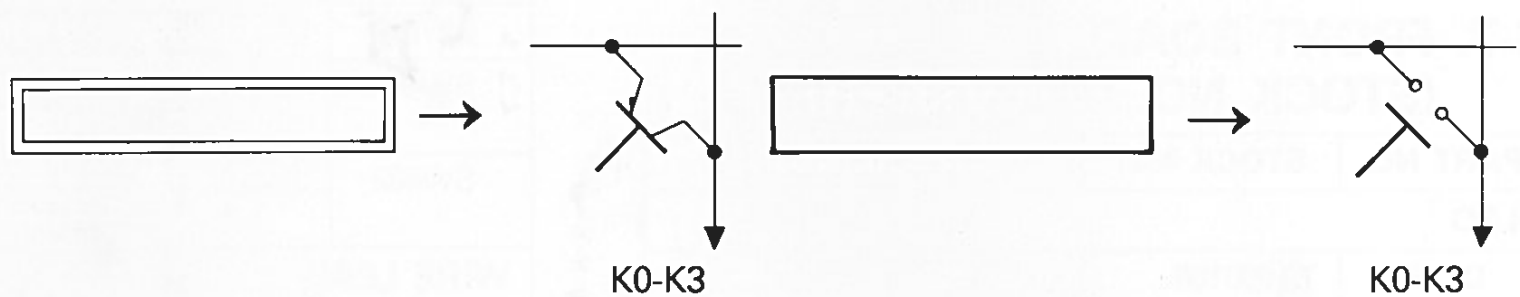
PART NO.	STOCK NO.	DESCRIPTION
<b>LED</b>		
D415	TA000156	LTL-709L
D416	TA000157	LTL-709L

PART NO.	STOCK NO.	DESCRIPTION
<b>LED DISPLAY</b>		
LD401	TA000158	LTC-3710YC-F4
<b>LAMP</b>		
PL401	TA000159	5V 60mA 3.2φ
PL402	TA000159	5V 60mA 3.2φ
PL403	TA000159	5V 60mA 3.2φ
<b>SWITCH</b>		
SWDIS	5S40101123	KHH15902 1C-1P
SWME	5S40101123	KHH15902 1C-1P
SWM1	5S40101123	KHH15902 1C-1P
SWM2	5S40101123	KHH15902 1C-1P
SWM3	5S40101123	KHH15902 1C-1P
SWM4	5S40101123	KHH15902 1C-1P
SWM5	5S40101123	KHH15902 1C-1P
SWM6	5S40101123	KHH15902 1C-1P
SW401	5S40202168	SPH-221AS 2C-2P SELF-LOCK
SW402	5S40202168	SPH-221AS 2C-2P SELF-LOCK
<b>WIRE LEAD</b>		
W15	W144BK5003	AWG 26 7/0.16 BK 3-60-3

## 7. FUNCTION OF IC (UPD170ICT-113)

• Key Matrix Table

Pin No.		22	23	24	25
Symbol		K3	K2	K1	K0
15	G	IF0	IF1		IF2
16	F	P	ROT	B1/B2	
17	E	A	B	DIM	AM/FM
18	D	MA	HA	OAD	DIS
19	C	SCAN	SEEK	M5	M6
20	B	M1	M2	M3	M4
21	A	M11	MA	ME	LOCK



### 1. Band Selector

When (AM/FM) key is depressed, the reception band changes in sequence as shown below for each depression or for each request:  
AM – FM

### 2. Scan Tuning

- A) SEEK            A momentary depression causes automatic up search which is terminated by activation of SD terminal (active high).
- B) SCAN           A momentary depression causes automatic station-to-station search.

### 3. Manual Tuning

- A) MU, MD        A momentary depression will tune to next channel, and continuous depression more than 0.5 second allows traversing up or down the entire band until the key is released.

### 4. Preset Memory

- A) ME             The tuning information is stored into the internal RAM by depressing ME key and then the desired memory key (M1 to M6) within 5 seconds from the time ME key was initially depressed. If any other key is depressed in this period, the ME function is cancelled.
- B) M1 to M6     Six favorite stations can be recalled from internal RAM for each band. When it is switched from one band to the other, it will tune to "last-tuned-to station" on that band. Each time a station is changed, the controller provides a signal to mute the radio.

### 5. Clock set controls

- A) HA, MA        These keys are used for hours and minutes setting. (See note)
  - B) OAD            A momentary depression will reset minutes and seconds.
- Note                MU and MD keys can be used to set minutes and hours, keeping depressing ME key when time is displayed.

Switching over the display between radio and clock.

- A, B, P RCAL     Display mode switches A, B initial switch P and control key RCAL control the display mode as follows.  
A) A: ON, B: OFF, P: OFF  
Clock display is prior to frequency. A momentary depression of RCAL key causes alternative display change. When time is displayed, a depression of RCAL or one of the frequency handling key recalls frequency information on the display for 5 seconds. After that, the display turns back to clock automatically.

## EXPLANATION OF INPUT AND OUTPUT TERMINALS

EO1 to EO2	These three-state outputs are used (via active filters) to supply analog voltages to the tuner varicap for controlling the local oscillators.
CE	This input is used to designate the stand-by mode to the chip. It is low to designate the stand-by mode. (display: off, PLL: disable)
PSC	This output is used to control the division ratio of the FM two-modulus prescaler ( $\mu$ PB553AC).
X1, X2	These inputs are for connection to a 4.5MHz crystal.
SD	This input is used to control the automatic station searching operation. It is high to indicate the presence of a station.
MUTE	This output line is high to mute the radio in the case of station change, band change, and so on.
D1 to D5	These outputs are used as digit drives for the display. (Active high)
VDD	This is a 4.5 to 5.5 volt supply for the chip.
a to g	These outputs are used as segment drivers for the display. They are also used as vertical drive for the control key and mode switch matrix. (Active high)
K0 to K3	These inputs are from seven by four matrix. Various functions are entered through the matrix. See Fig. 2 for the matrix assignments.
FM	This is the FM band local oscillator input. The frequency is divided by 16/17 using a two-modulus prescaler ( $\mu$ PB553AC).
GND	System ground.
AM	This is the AM band local oscillator input.

**\*Selection of the radio band**

J/U This switch is for selection of the district.  
 AM/FM This switch is for selection of the radio band.

Band Switch		Selected Band	
J/U	AM/FM		
off	off	FM U.S.	87.9 to 107.9 MHz, channel spacing 200 kHz
	on	AM U.S.	530 to 1,620 kHz, channel spacing 10 kHz *3
on	off	FM Japan	76.1 to 89.9 MHz, channel spacing 100 kHz
	on	AM Japan	531 to 1,602 kHz, channel spacing 9 kHz

\*3: See AM band IF offset

Table 2

**\*FM band IF offset**

IF0, IF1 These switches program the chip to accept 4 different intermediate frequencies.

IF0	IF1	Intermediate Frequency	
		Japan	U.S.
on	off	10.750 MHz	10.650 MHz
on	on	10.725 MHz	10.675 MHz
off	off	10.700 MHz	10.700 MHz
off	on	10.675 MHz	10.725 MHz

Table 3

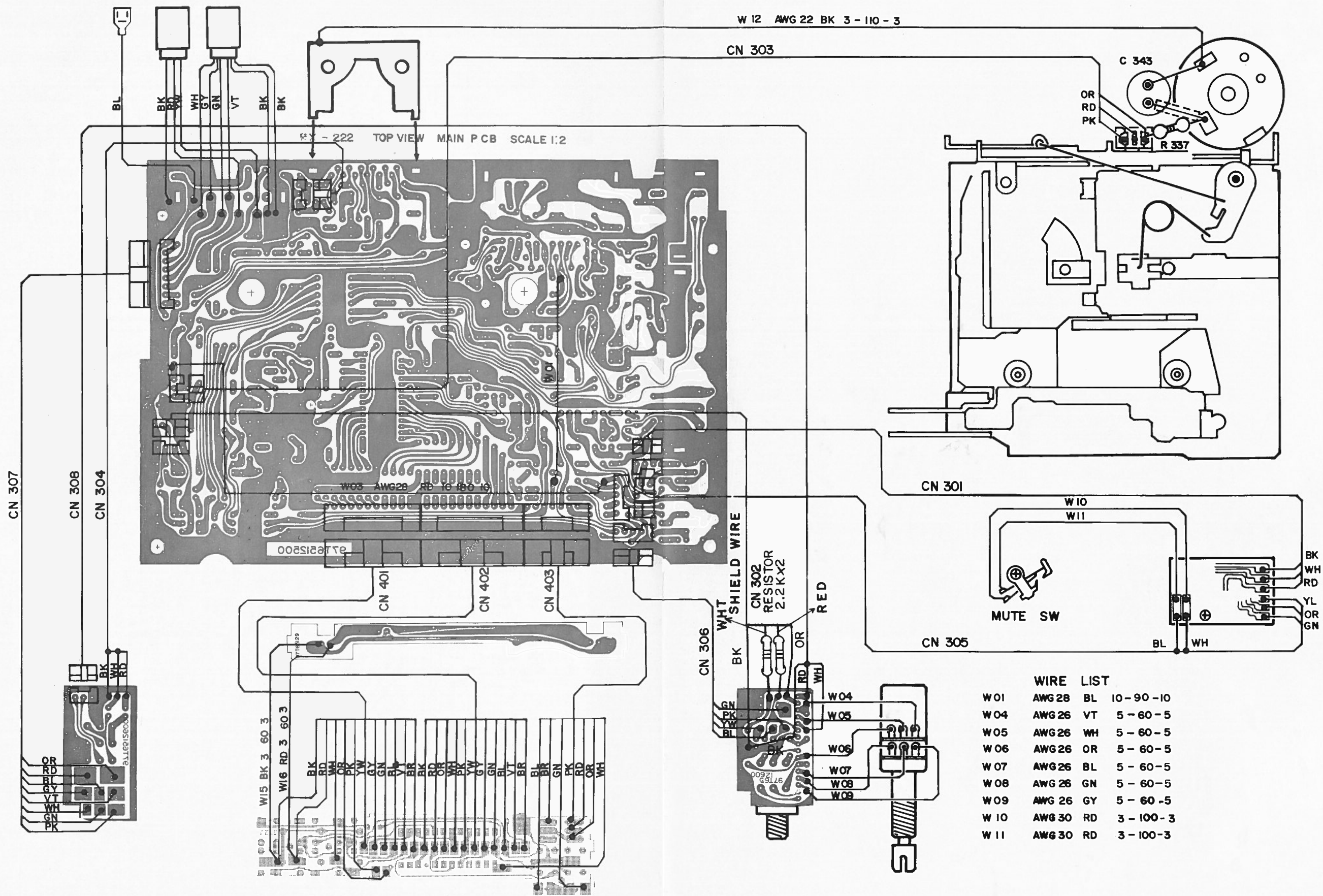
**\*AM band IF offset**

IF2 This switch programs the chip to accept 2 different intermediate frequencies.  
 B1/B2 This switch is for selection of the receiving band and channel spacing of AM radio for U.S. band.

J/U	B1/B2	IF2	Intermediate Frequency	Receiving Frequency	Channel Spacing	
on	X	on	261 kHz	531 to 1,602 kHz	9 kHz	
		off	450 kHz			
off	on	on	261 kHz	531 to 1,602 kHz	9 kHz	
		off	450 kHz			
	off	off	on	260 kHz	530 to 1,620 kHz	10 kHz
			off	450 kHz		

Table 4

### 8. OVERALL WIRING DIAGRAM

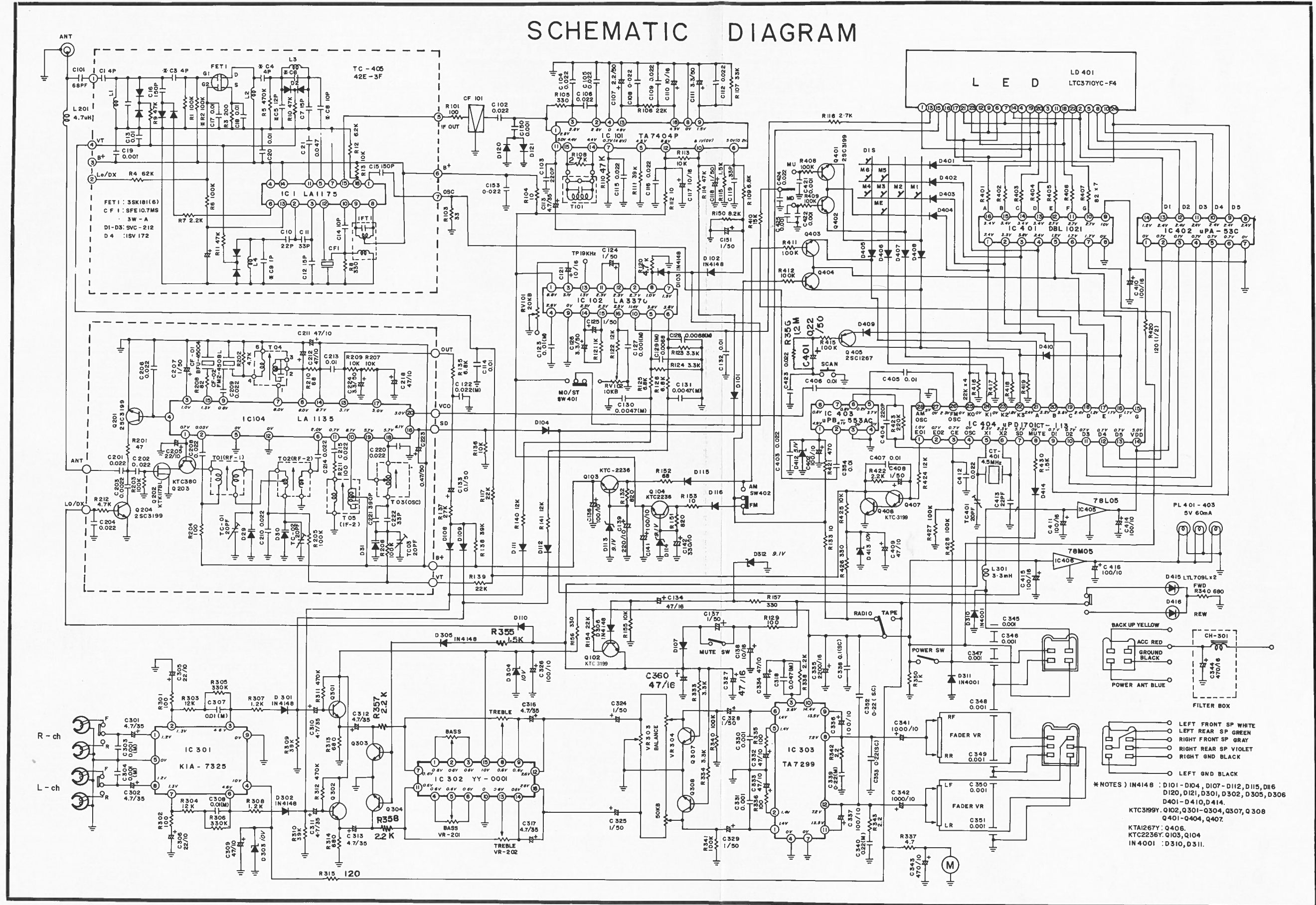


**WIRE LIST**

W01	AWG 28	BL	10-90-10
W04	AWG 26	VT	5-60-5
W05	AWG 26	WH	5-60-5
W06	AWG 26	OR	5-60-5
W07	AWG 26	BL	5-60-5
W08	AWG 26	GN	5-60-5
W09	AWG 26	GY	5-60-5
W10	AWG 30	RD	3-100-3
W11	AWG 30	RD	3-100-3

9. SCHEMATIC DIAGRAM

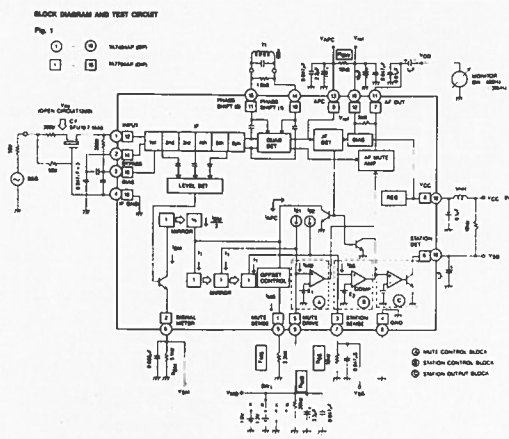
SCHEMATIC DIAGRAM



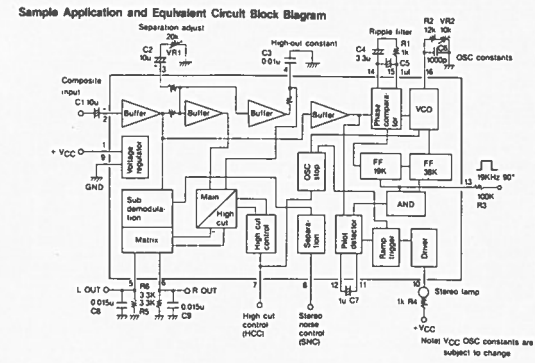
- LEFT FRONT SP WHITE
  - LEFT REAR SP GREEN
  - RIGHT FRONT SP GRAY
  - RIGHT REAR SP VIOLET
  - RIGHT GND BLACK
  - LEFT GND BLACK
- \*NOTES) IN4148 : D101-D104, D107-D112, D115, D116  
 D120, D121, D301, D302, D305, D306  
 D401-D410, D414  
 KTC3199Y: Q102, Q301-Q304, Q307, Q308  
 Q401-Q404, Q407  
 KTA1267Y: Q406  
 KTC2236Y: Q103, Q104  
 1N4001 : D310, D311.



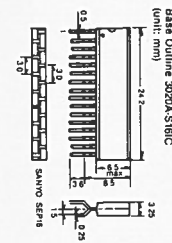
• 7404P (FM IF)



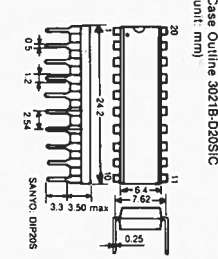
• LA 3370 (FM MPX)



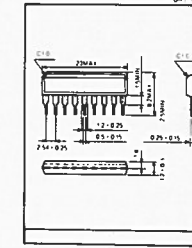
• LA 3370



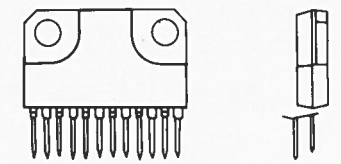
• LA 1135



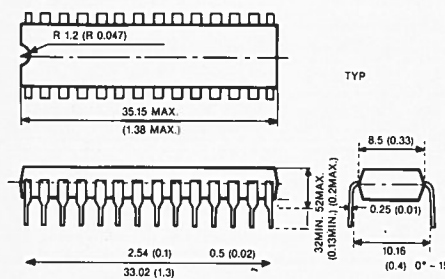
• KIA 7325P



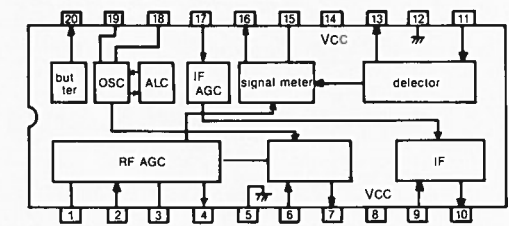
• TA 7299



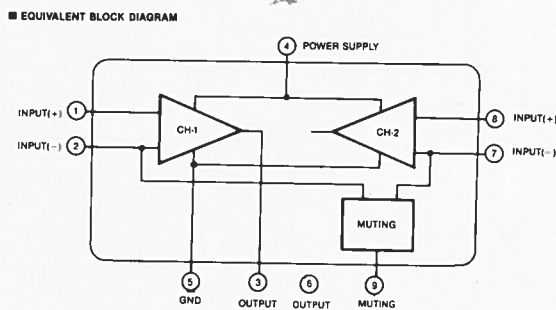
• μPD (701CT-113)



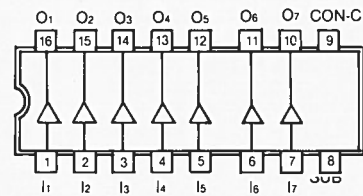
• LA 1135 (AM TUNER)



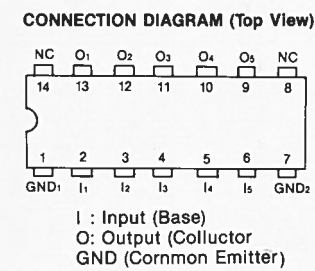
• KIA 7325 (POWER AMP)



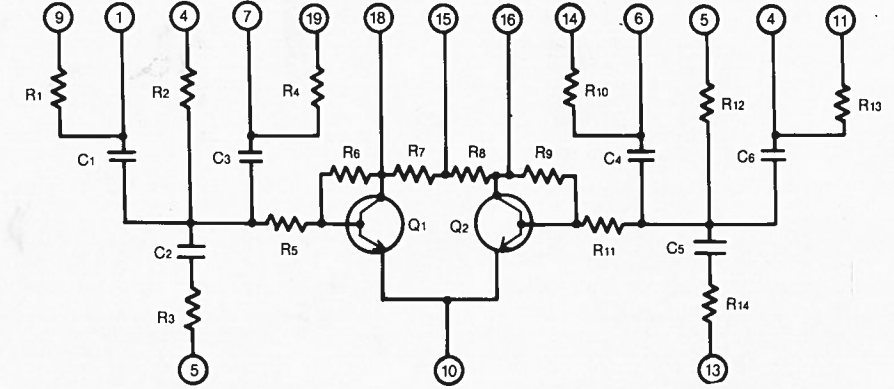
• DBL 1021 (SEG DRIVE)



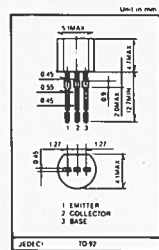
• UPA-53C



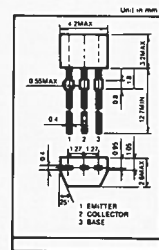
• YY-001 (TONE CONTROL)



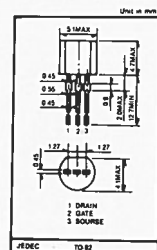
• KTC 380TM



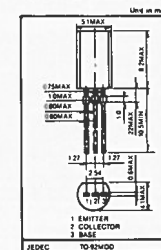
• KTC-3199



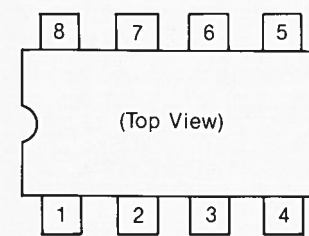
• KTK 117BL



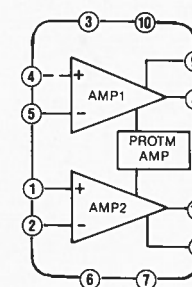
• KTC 2236A



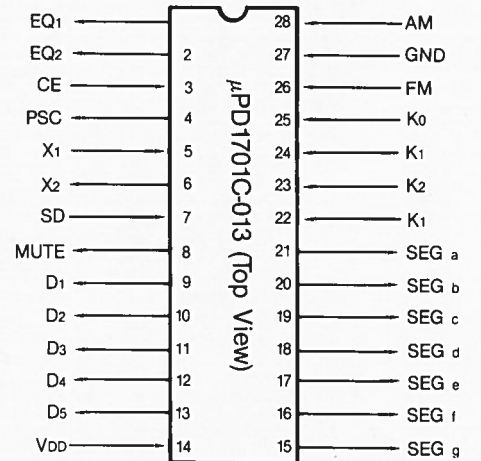
• UPB-553AC



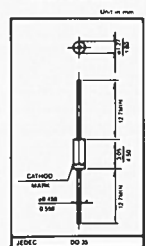
• TA 7299 (POWER AMP)



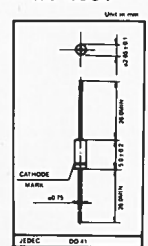
• μPD 1701CT-113 (CONTROL PLL)



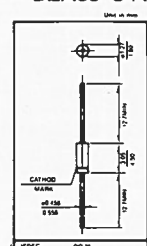
• IN 4148



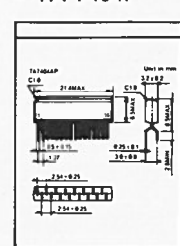
• IN 4061



• BZX83 C4V7-C10



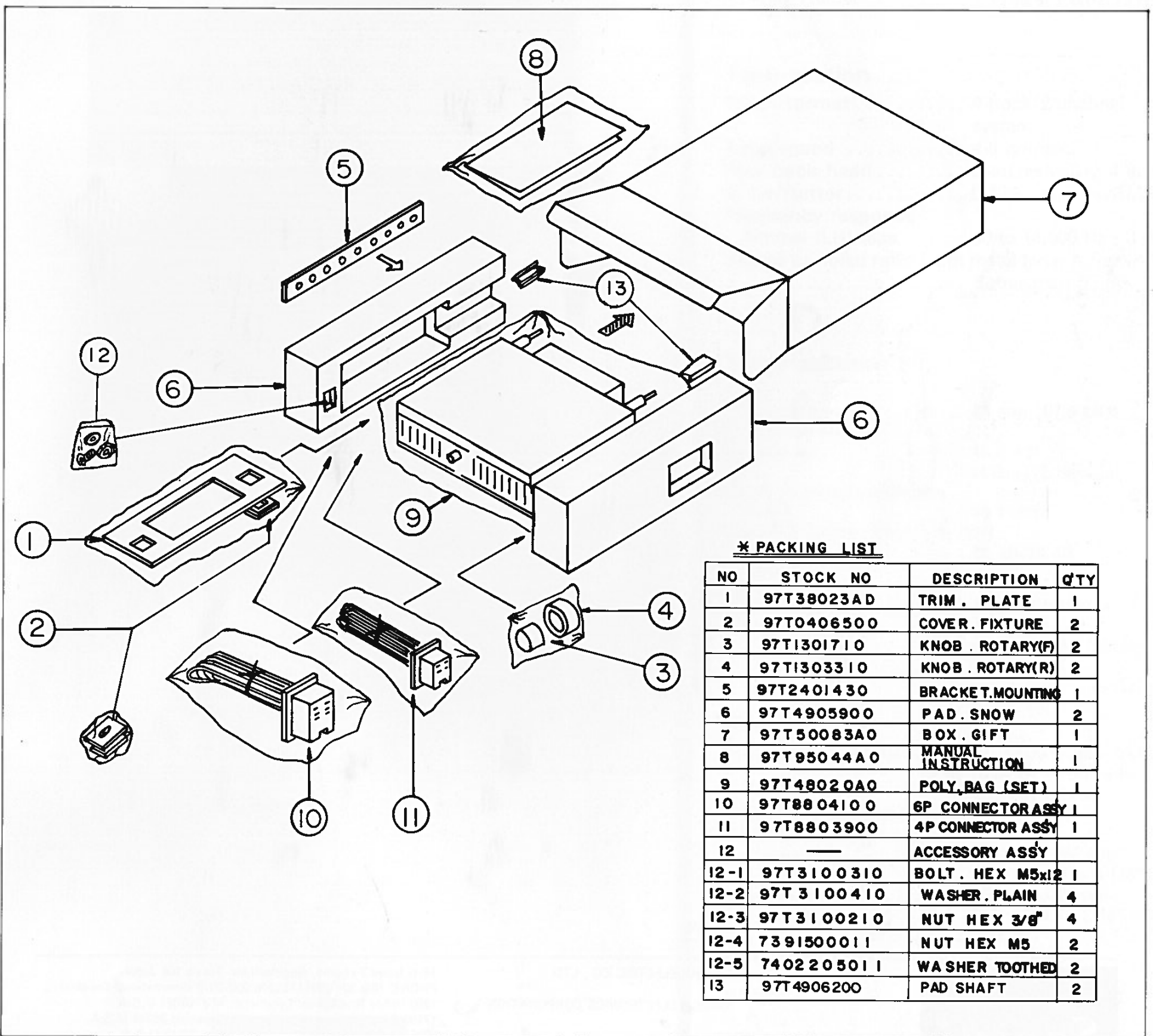
• TA 7404P



# 10. PACKING LIST

NO.	STOCK NO.	DESCRIPTION	Q'TY
1	TA000160	TRIM. PLATE	1
2	TA000161	COVER. FIXTURE	2
3	TA000162	KNOB. ROTARY (F)	2
4	TA000163	KNOB. ROTARY (R)	2
5	TA000164	BRACKET. MOUNTING	1
6	TA000165	PAD. SNOW	2
7	TA000166	BOX. GIFT	1
8	TA000167	MANUAL INSTRUCTION	1
9	TA000168	POLY. BAG (SET)	1

NO.	STOCK NO.	DESCRIPTION	Q'TY
10	TA000169	6P CONNECTOR ASS'Y	1
11	TA000169	4P CONNECTOR ASS'Y	1
12	TA000169	ACCESSORY ASS'Y	1
12-1	TA000169	BOLT, HEX M5×12	1
12-2	TA000169	WASHER, PLAIN	4
12-3	TA000169	NUT HEX 3/8"	4
12-4	TA000169	NUT HEX M5	2
12-5	TA000169	WASHER TOOTHED	2



\* PACKING LIST

NO	STOCK NO	DESCRIPTION	Q'TY
1	97T38023AD	TRIM. PLATE	1
2	97T0406500	COVER. FIXTURE	2
3	97T1301710	KNOB. ROTARY(F)	2
4	97T1303310	KNOB. ROTARY(R)	2
5	97T2401430	BRACKET.MOUNTING	1
6	97T4905900	PAD. SNOW	2
7	97T50083A0	BOX. GIFT	1
8	97T95044A0	MANUAL INSTRUCTION	1
9	97T48020A0	POLY. BAG (SET)	1
10	97T8804100	6P CONNECTOR ASSY	1
11	97T8803900	4P CONNECTOR ASSY	1
12	—	ACCESSORY ASSY	
12-1	97T3100310	BOLT. HEX M5x12	1
12-2	97T3100410	WASHER. PLAIN	4
12-3	97T3100210	NUT HEX 3/8"	4
12-4	7391500011	NUT HEX M5	2
12-5	7402205011	WASHER TOOTHED	2
13	97T4906200	PAD SHAFT	2