

# JVC

## SERVICE MANUAL

### CD PORTABLE SYSTEM

# PC-W222BK B/C/E/EN/J/U/VX



#### Area Suffix

B .....	U.K.
C .....	Canada
E .....	Continental Europe
EN .....	North Europe
J .....	U.S.A.
U .....	Other Area
VX .....	East Europe

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## ■ Safety Precautions

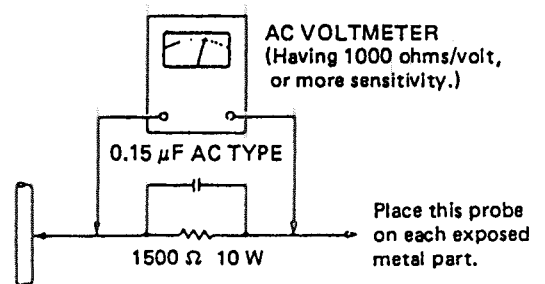
1. The design this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacture's warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety – related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of service manual. Electrical components having such features are identified by shading and (  $\triangle$  ) on the schematic diagram and by (  $\triangle$  ) on the parts list in the service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of service manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps , tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after reassembling.
5. Leakage current check (Electrical shock hazard testing)

After re – assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock. Do not use a line isolation transformer during this check.

- Plug the AC line cord directly into the AC outlet. using a "Leakage current tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC(r.m.s.)

- Alternate check method

Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500 ohms 10W resistor paralleled by a 0.15  $\mu$  F AC type capacitor between an exposed metal part and a known good earth ground. Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC(r.m.s.). This corresponds to 0.5mA AC(r.m.s.).



## ◆ Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.





## ◆ Important Management Points Regarding Safety (Items Demanding Special Safety Precautions)

1. Securely fix the power transformer while confirming its marking specified in the following.

Suffix	Marking	Description
J	4814519T	UL approved No.
C	FMT48P2-12B	
B	FMT48P2-12BBS	
E/EN/U/VX	FMT48P2 – 12B	

2. Power cord : Make sure of the following markings and inspect exterior scratch and damage.

	Power Cord	Attachment Plug & Connect Plug	
J	SPT-1	KP-10W	KS-15W
C	SPT-1		
B	BASEC BS6500		
E/EN/VX	<VDE>	SE-1	SE-4
U	<VDE>	SZ-4W	SZ-10

5. Confirm , ,  and  mark on F999, F998 and F997 and they are tightly retained by fuse holder.

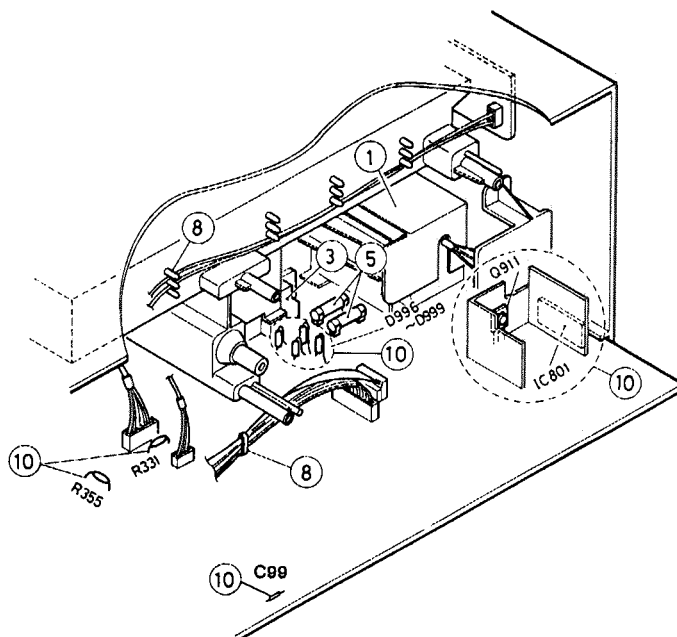
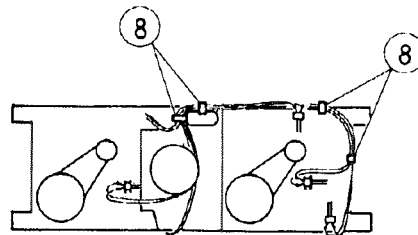
Version	Ref. No.	Indication	Specified
E/EN/VX	F997	T1.6A	1.6A 250V
E/EN/VX	F998	T2A	2A 250V
U/J	F998	T2A	2A 250V
U/J	F999	300mA	300mA 250V

3. Wires and so forth must be securely clamped or fixed as illustrated on the six points to keep them from power active parts, mobil parts, heating units and sharp-edged parts.

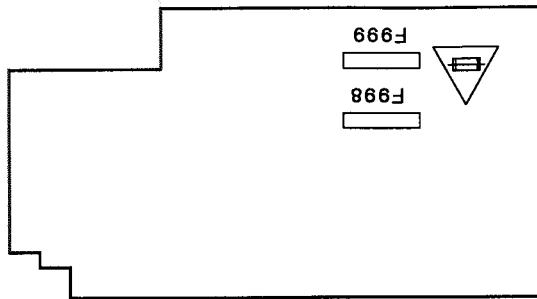
9. Since the following parts are heat generating ones, they must not contact with electrolytic capacitors, wires, etc. D996, D997, D998, D999, IC801, R331, R335, and C99.

3. Confirm the AC socket marking:

Version	Marking
J	HSC1504
B/E/EN/VX	HSC1466
U	HSC1004



## Safety Caution

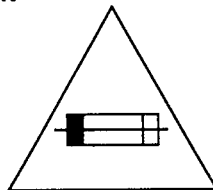


**MAIN P.C.BOARD**

### ■ J Version only

#### Full Fusereplacement Marking

Graphic symbol mark



Should be read as follows :

#### FUSE CAUTION

**F999 : FOR CONTINUED PROTECTION  
AGAINST RISK OF FIRE, REPLACE  
ONLY WITH SAME TYPE 300mA, 250V  
FUSE.**

**F998 : FOR CONTINUED PROTECTION  
AGAINST RISK OF FIRE, REPLACE  
ONLY WITH SAME TYPE 2A, 250V  
FUSE.**

# Instructions(Extraction)

## Specifications

### Radio section

Frequency ranges	: FM	88 - 108 MHz (B/C/E/EN/J/U)	Power sources	: AC 240V, 50/60Hz (PC-W222B)
		65 - 108MHz (VX)		AC 110 - 127V/AC 220 - 240V,
	SW	6 - 18 MHz (A/C/J/U)		50/60 Hz (PC-W222U)
	LW	150 - 280MHz (B/E/EN/VX)		AC120V,60Hz(PC - W222C)
	AM	540 - 1600 kHz		AC110 - 120V/AC220 - 240V,
		(B/E/EN/U/VX)		50/60Hz(PC - W222J)
		540 - 1700kHz (C/J)		AC230V,50/60Hz

Antennas : Telescopic antenna for FM  
Ferrite core antenna for AM & SW

### Tape deck section

Track system	: 4-track 2-channel stereo	Power consumption	: 20 W (with Power ON)
Frequency response	: 63 Hz - 12,500 Hz (with normal tape)	Dimensions	: 2.6 W (with Power STANDBY)
Wow & flutter	: 0.2% (WRMS)	Weight	: Approx. 5.9 kg with batteries
Fast wind time	: Approx. 120 sec (C-60 cassette)		: Approx. 5.1 kg without batteries

### General

Power output	: 16 W (8 W + 8 W) at 3 $\Omega$ (Max.) 45 W (22.5 W + 22.5 W) at 3 $\Omega$ (Peak music power)	<b>Speaker Section (each unit)</b>
Output terminals	: Speaker x 2 (matching impedance 3 $\Omega$ - 8 $\Omega$ ) : PHONES x 1 (Output level: 0 - 12 mW/32 $\Omega$ , Matching impedance: 16 $\Omega$ - 1 k $\Omega$ )	Speakers : 10 cm (3-15/16") x 1

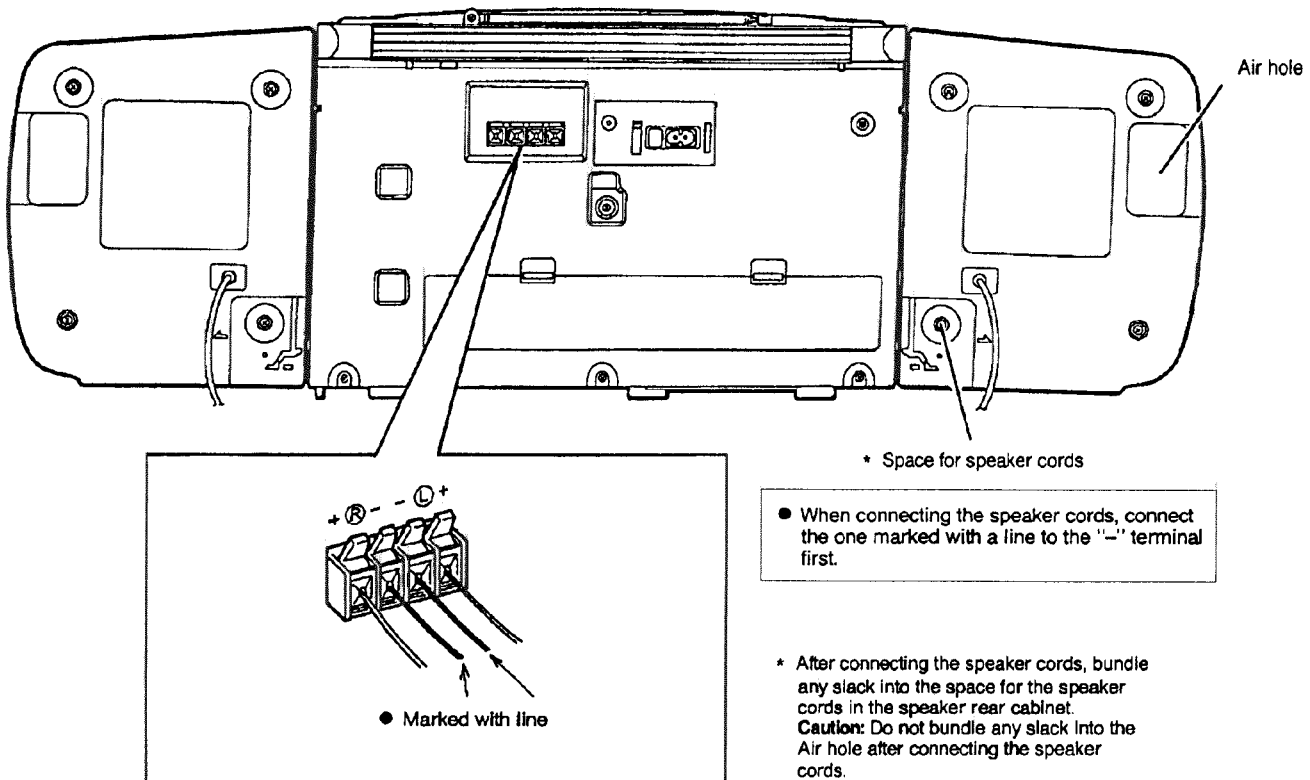
### Speaker Section (each unit)

Speakers	: 10 cm (3-15/16") x 1
Impedance	: 3 $\Omega$
Dimensions	: 170 (W) x 213 (H) x 168 (D) mm
Weight	: Approx. 1.1 kg (2.5 lbs)

Design and specifications are subject to change without notice.

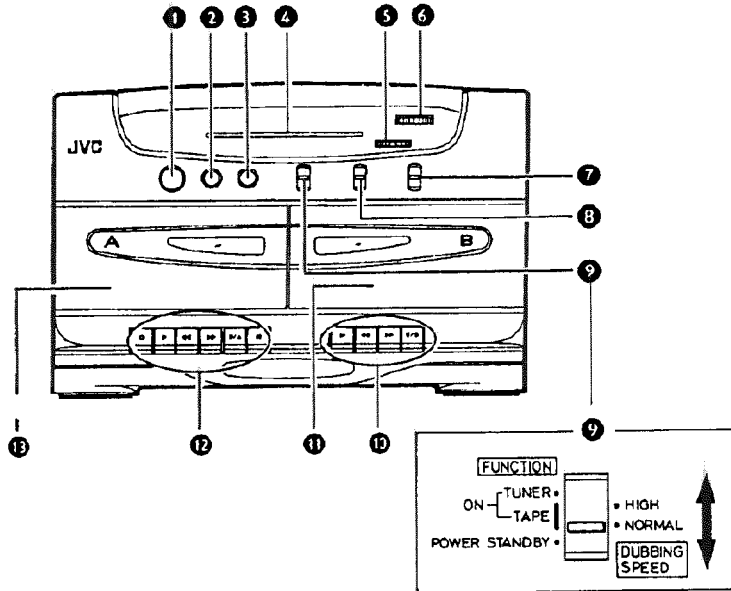
## Connections

- Do not switch the power on until all the connections are completed.

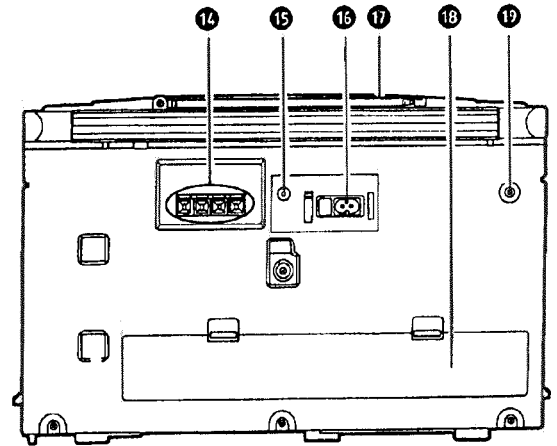


## ■ Name of parts and their functions

### ● Front panel



### ● Rear panel

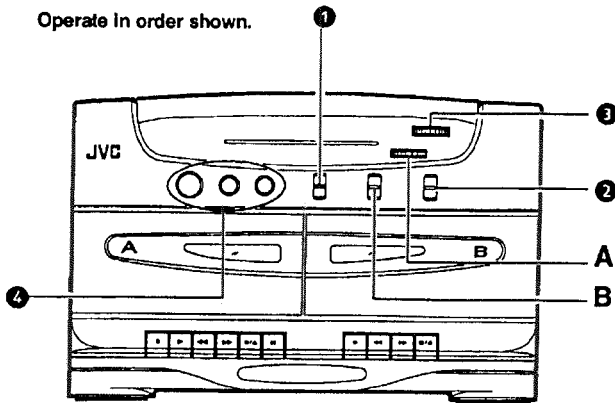


- ① **VOLUME control**
- ② **BASS control**
- ③ **TREBLE control**
- ④ **Dial scale**
- ⑤ **FINE TUNING knob**
- ⑥ **TUNING knob**
- ⑦ **BAND switch (FM/SW/AM)**
- ⑧ **TAPE (FOR PLAYBACK)/FM MODE/BEAT CUT switch**  
**TAPE (FOR PLAYBACK) switch:**  
 Set this switch according to the type of tape to be used.  
**NORM:**  
 Set to this position to listen to a normal (type I) tape.  
**METAL/CrO<sub>2</sub>: (playback only)**  
 Set to this position to listen to a metal (type IV) or chrome (type II) tape.  
**FM MODE switch:**  
**STEREO:** Set to this position when receiving FM stereo broadcasts.  
**MONO:** Set to this position when FM stereo reception is obscured by noise.  
**BEAT CUT switch:**  
 When recording an AM or SW broadcast, beats may be produced which are not heard when listening to the broadcast. In such case, set this so that the beats are eliminated. Normally set this switch to "1 NORM".
- ⑨ **FUNCTION switch**  
**TUNER**  
 Set to this position when listening to or recording from the radio.  
**TAPE/DUBBING SPEED**    ■ **HIGH**  
                                   ■ **NORMAL**  
 Set to HIGH when dubbing at high-speed.  
 Set to NORMAL when listening to a cassette or when dubbing at normal speed.  
**POWER STANDBY**  
 Set to this position when turning off the power.

- ⑩ **Cassette operation buttons (Deck B)**  
**▶ PLAY:**  
 Press to play the tape.  
**◀◀ REW:**  
 Press to rewind the tape rapidly.  
**▶▶ FF:**  
 Press to wind the tape forward rapidly.  
**■ /▲ STOP/EJECT:**  
 Press to stop the tape. Pressing this button when the tape is stopped opens the cassette holder.
- ⑪ **Cassette holder (Deck B)**
- ⑫ **Cassette operation buttons (Deck A)**  
**○ REC:**  
 Press this button with the ▶ PLAY button to start recording.  
**▶ PLAY:**  
 Press to play the tape.  
**◀◀ REW:**  
 Press to rewind the tape rapidly.  
**▶▶ FF:**  
 Press to wind the tape forward rapidly.  
**■ /▲ STOP/EJECT:**  
 Press to stop the tape. Pressing this button when the tape is stopped opens the cassette holder.  
**■ PAUSE:**  
 Press to stop the tape momentarily. Press again to release the pause mode.
- ⑬ **Cassette holder (Deck A)**
- ⑭ **SPEAKER terminals**  
 Connect the provided speakers to these terminals.
- ⑮ **DC IN 12 V jack ( ) : E/U Version only**
- ⑯ **VOLTAGE SELECTOR/AC IN (AC Input) jack PC-W222J/U AC IN (AC Input) jack**
- ⑰ **Telescopic antenna**
- ⑱ **Battery compartment cover**
- ⑲ **Headphones jack (PHONES) (3.5 mm dia. stereo mini)**  
 Connect headphones (impedance 16 Ω - 1 kΩ) to this jack. The speakers are automatically switched off when headphones are connected.

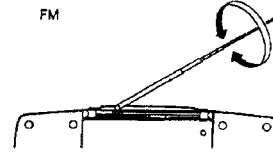
## Radio reception

Operate in order shown.

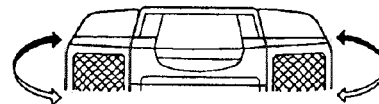


- 1 Set to TUNER.
  - 2 Select the band.
  - 3 Tune in the desired station.
  - 4 Adjust.
- A. FINE TUNING knob for SW reception.  
B. FM MODE switch

Using the antennas



AM & SW (C/J/U Version)  
MW&LW (B/E/EN/VX Version)

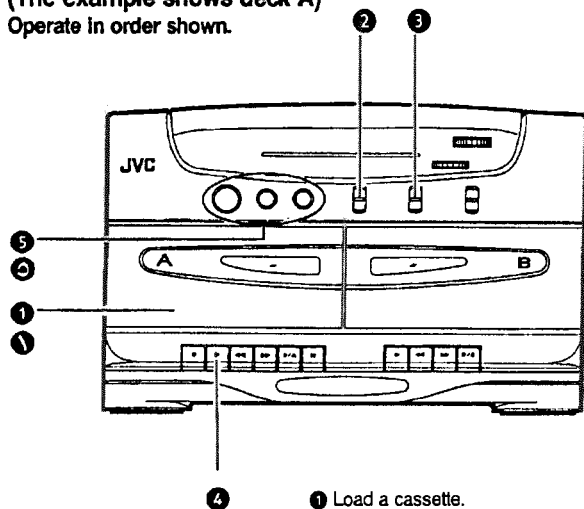


**Note:**

The built-in ferrite core antenna can pick up interference tones from television receivers in the neighbourhood and thereby disturb AM and SW reception.

## Cassette playback

(The example shows deck A)  
Operate in order shown.



- 1 Load a cassette.
- 2 Set to TAPE.
- 3 Set the TAPE switch as required.
- 4 Press to start playback.
- 5 Adjust

• Playback in deck B

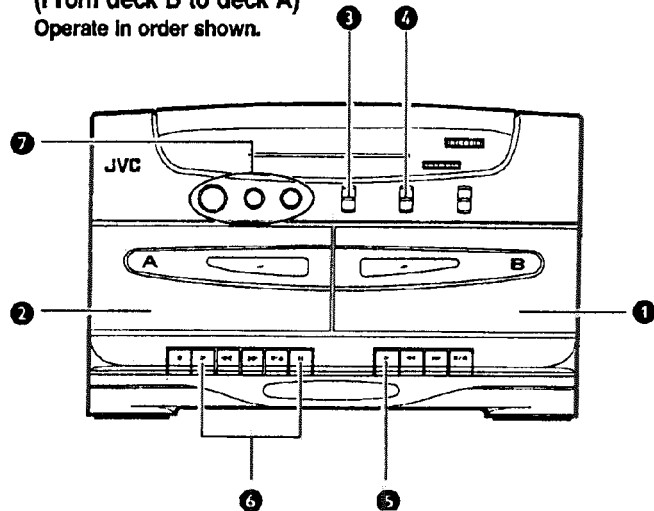
The previous procedures 1 through 4 also apply to deck B when a cassette is loaded in deck B. When decks A and B are simultaneously set to the play mode, only the playback sound of the deck B is heard.

**Notes:**

1. When the power is turned off while the tape is running, cassette operation buttons which are depressed do not return to the original positions. Press the /▲ STOP/EJECT button to stop the tape running before turning off the power.
2. Avoid operating the FF or REW button on the deck during playback of the other deck.

## Relay playback

(From deck B to deck A)  
Operate in order shown.



- 1 Load a cassette.
- 2 Load a cassette.
- 3 Set to TAPE.
- 4 Set the TAPE switch as required.
- 5 Press the PLAY button of deck B.
- 6 Set deck A to the play-pause mode.
- 7 Adjust.

\* When deck B stops, deck A's pause mode will be released and it will start playback. When deck A stops automatically, relay playback will be released.

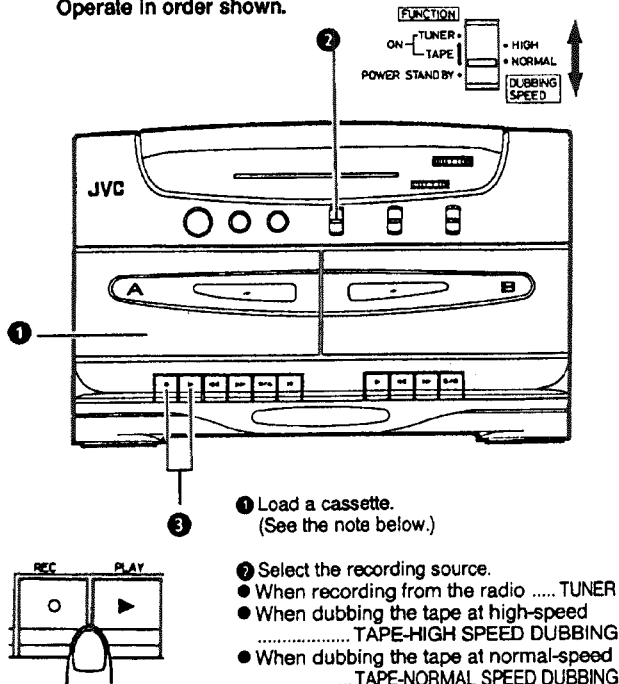
**Note:**

Use the same type of tapes in decks A and B.

## Recording

- In recording, the ALC circuit automatically optimizes the recording level and adjustment of the recording level is unnecessary.

Operate in order shown.



- Load a cassette. (See the note below.)
- Select the recording source.
  - When recording from the radio ..... TUNER
  - When dubbing the tape at high-speed ..... TAPE-HIGH SPEED DUBBING
  - When dubbing the tape at normal-speed ..... TAPE-NORMAL SPEED DUBBING
- Press the **REC** and **PLAY** buttons simultaneously.

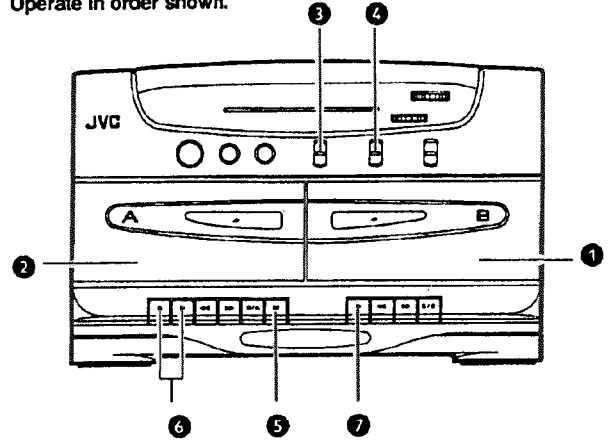
### Notes:

- The recording characteristics of this unit are those of normal tape. Normal tape has different characteristics from CrO<sub>2</sub> and metal tapes.
- Avoid operating the FF or REW buttons on deck B during recording.

## Dubbing(Synchro start dubbing)

Normal and high-speed dubbing can be done from deck B to deck A.

Operate in order shown.



- Load a pre-recorded cassette.
- Load a cassette.
- Set to NORMAL or HIGH.
- Set to correspond to the type of tape in deck B.
- Press the **PAUSE** button.
- Press the **REC** and **PLAY** buttons simultaneously. (Record-pause mode)
- Press the **PLAY** button. (Synchronized dubbing will start.)

### Notes:

- Television receivers placed close to this unit may cause interference on the recorded signal when this unit is used in the high-speed dubbing mode. If this happens, either turn off the television receiver or use the normal-speed dubbing mode.
- With deck A in the record-pause mode, the **PAUSE** button is released when deck B enters the stop mode.
- Avoid switching the FUNCTION switch during dubbing.

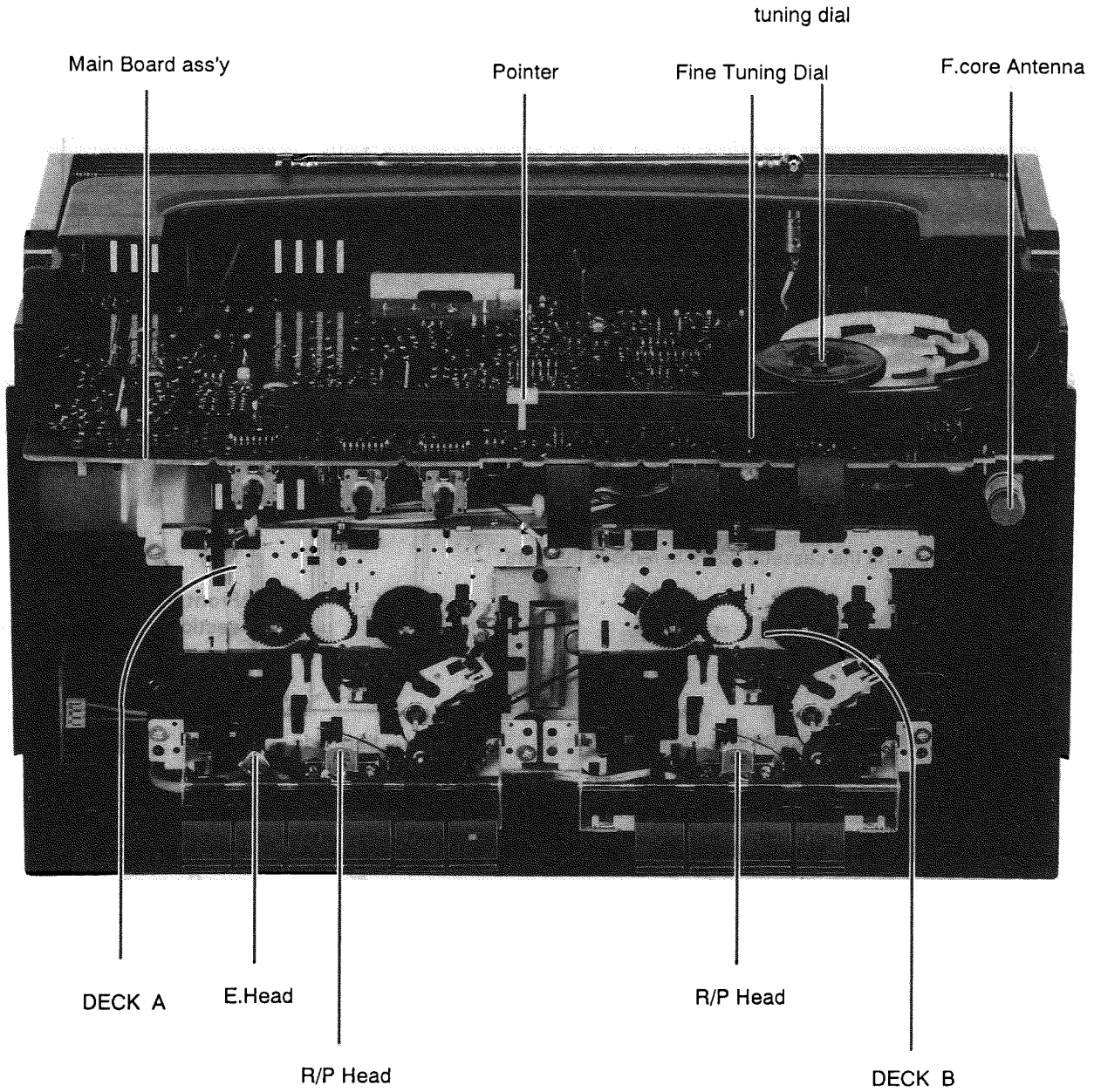
It may be unlawful to record or playback copyrighted material without the consent of the copyright owner.

### Full auto-stop mechanism (both decks A and B)

When the tape reaches either end during the recording/playback and fast forward or rewinding mode, the tape stops automatically.



# 1 Location of Main Parts



## 2 Removal of Main Parts

### ■ Cabinet section

#### ◆ Front cabinet (See Fig. 2 – 1, Fig. 2 – 2)

1. Remove six screws ① retaining the front cabinet from the back side.

2. Remove two screws ② retaining the cabinet from the both sides of the front cabinet.

3. Pull out the knobs of VOLUME and BASS/TRE control.

#### ★ How to remove knob:

Apply adhesive tape to the knob and them together with to remove the knob.

4. Push the operation(EJECT) buttons of the cassette deck A and B while opening the cassette doors to remove the front cabinet.

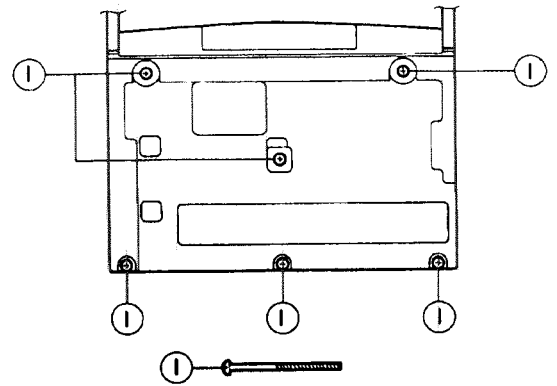


Fig. 2 – 1

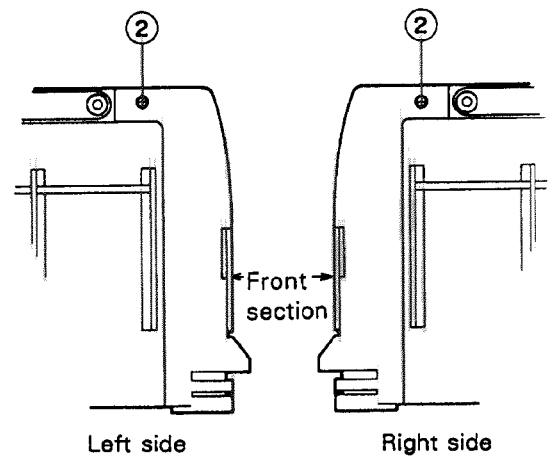


Fig. 2 – 2

#### ◆ Cassette mechanism assembly (See Fig. 2 – 3, Fig. 2 – 4)

1. Remove six screws ④ retaining the mechanism assembly.

2. Slightly lift the mechanism assembly upward and disconnect the following wire connections.

- Head wire connector CN302(Mechanism A)
- Head wire connector CN301(Mechanism B)
- Leaf switch wire connector CN371
- Motor wire connector CN372

Note: In this condition, fuse can be replaced.

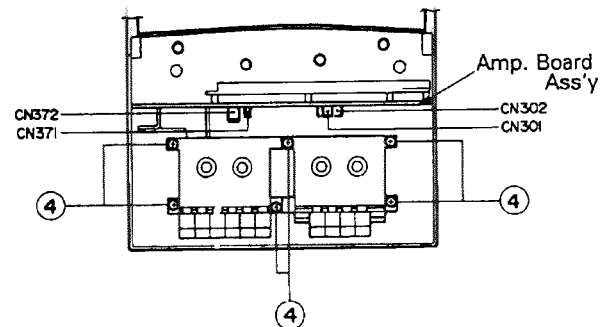


Fig. 2 – 3

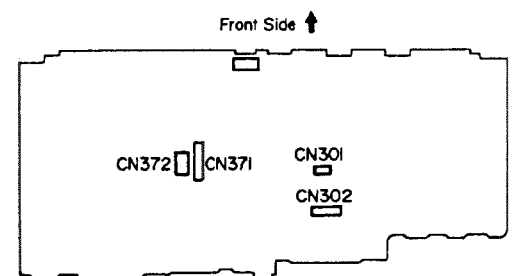


Fig. 2 – 4

#### ◆ Main board assembly (See Fig. 2 – 5)

1. Remove one screw ⑤ retaining the AC jack bracket.
2. Remove two screws ⑥ retaining power transformer.
3. Remove one screw ⑦ retaining the mechanism holder.
4. Disconnect wire connector TP1 from the main board.
5. Lock the speaker terminals, then, draw the main board assembly outward.

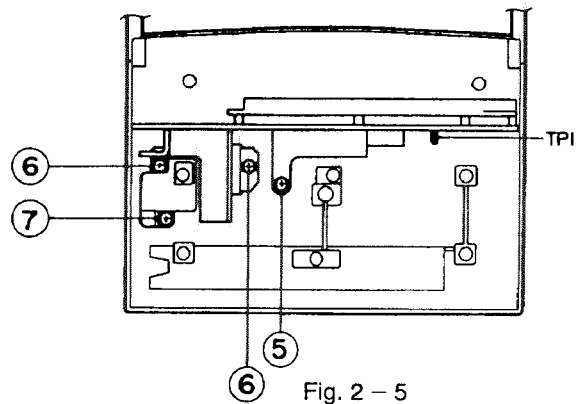


Fig. 2 – 5

#### ◆ Cassette door (See Fig. 2 – 6)

1. Remove the door spring.
2. Insert a screw driver between the door arm and the cabinet to bend the arm in the direction of the arrow while removing the right and left door arm.

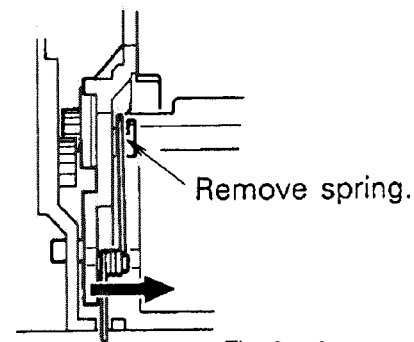


Fig. 2 – 6

#### ◆ Reassembly of the tuner section (See Fig. 2 – 7)

1. Turn the tuning knob fully counterclockwise.
2. Set the "0 Δ" mark of the dial drum to face that of the chassis.
3. Align the center of the pointer in the line between the center of the "0 Δ" mark and the hole.
4. In the condition satisfying the above step 2 and step 3, fit the tuning knob again.

Align the center of the pointer in the line between "0" and the hole's center.

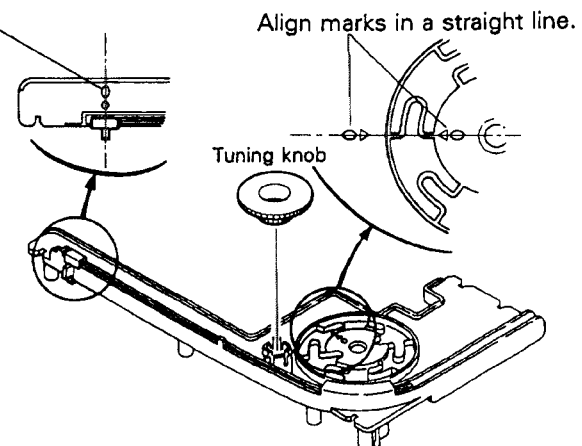


Fig. 2 – 7

#### • Installation procedure:

1. Turn the tuning control fully counterclockwise.
2. Set the "0Δ" mark of the dial drum to face that of the chassis.  
(Shaft of the variable capacitor and the drum become engaged with each other.)
3. Align the center of the pointer in the line between the "0" mark and the center of the hole.
4. In the condition of the steps 2 and 3, fit the tuning knob.

■ Mechanism Section

◆ Motor bracket(recording/playback) (See Fig. 2 – 8)

1. Remove the three screws ①.
2. Remove the chassis and M.bracket from the button side.  
(The synchro arm can be removed from the pause lock. Return the pause lock after it is removed from the proper position).

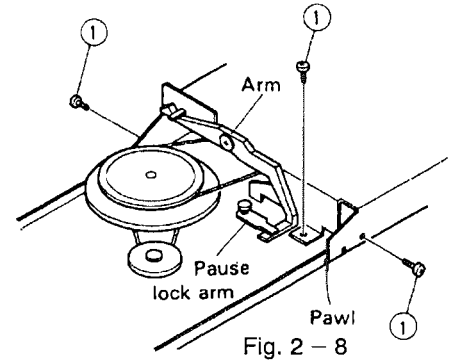


Fig. 2 – 8

◆ Head section (See Fig. 2 – 9)

1. Remove the record/playback head's mounting screw ① and loosen screw ②.
2. Remove the erase head arm stopper tab ③.

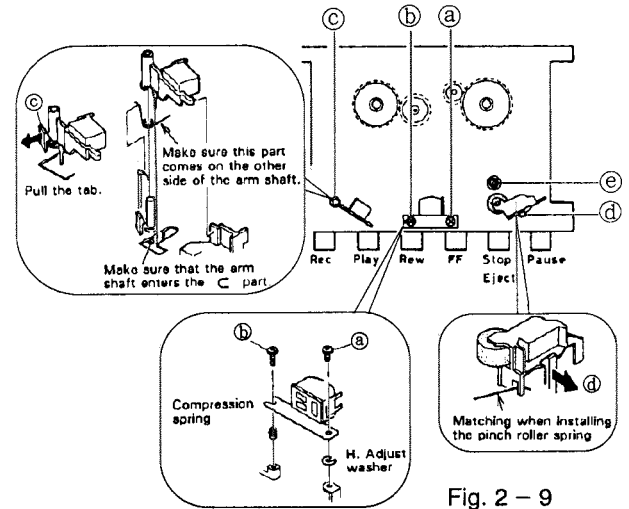


Fig. 2 – 9

◆ Pinch roller (See Fig. 2 – 9)

1. Remove the pinch roller arm stopper tab ④.

◆ Flywheel ass'y (See Fig. 2 – 9, Fig. 2 – 11)

1. Remove the C washer ⑤ securing the capstan shaft.
2. Pull out the flywheel ass'y.

◆ Removal of the button ass'y from the mechanical chassis.

- a. Leaf switch (See Fig.2 – 10)
  - press the switch's lock panel and raise from the left to remove.
- b. Gear(Below the flywheel ) (See Fig. 2 – 11~Fig.2 – 13)
  - Remove the C washer ⑥ securing the gear.
  - For reassembly, insert the Sensing Lever arm stand into the ⑦ section.
- c. Lock arm (See Fig. 2 – 11)
  - Press the arm stopper from window ⑧, and pull to remove.
- d. Chassis remove (See Fig. 2 – 11, Fig 2 – 12)
  - 1) Remove the three springs ⑨, ⑩ and ⑪.
  - 2) Remove the two screws ⑫.
  - 3) Remove the two screws ⑬ securing the capstan metal.
  - 4) Gently remove the button ass'y from the chassis.

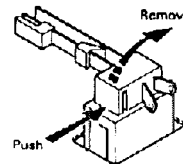


Fig.2 – 10

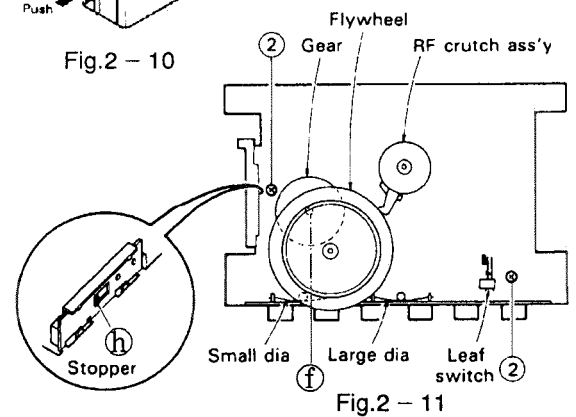


Fig.2 – 11

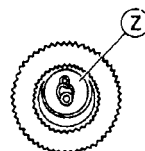


Fig. 2 – 13

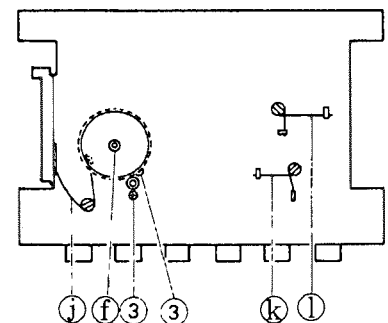


Fig.2 – 12

### 3 Main Adjustment

#### ■ Measuring condition (Cassette amplifier section)

- Power supply voltage  
AC120V 60Hz ..... C/J Version  
AC240V 50/60Hz ..... B Version  
AC230V 50/60Hz ..... E/EN/VX Version  
AC110~127/220~240V 50/60Hz ..... U Version  
DC Voltage ..... 12V
- Reference output  
speaker ..... 0dBs(0.775V)3 Ω
- Reference input  
Test point(CNTP1) ..... – 30dBs  
(REC / PB characteristics check input – 50dBs)
- Switches setting position  
FUNCTION Switch ..... TAPE  
MODE Switch ..... STEREO  
TAPE SELECT Switch ..... NORMAL  
DUBBING SPEED ..... NORMAL
- Volume setting position  
BASS/TREBLE ..... Center  
MAIN Volume ..... for 0dB output level

#### ■ Tuner section

- Power supply DC voltage ..... DC 7V  
(AT this time, connect 47 Ω in series when applying 7V to tuner unit))
- Reference output  
speaker output ..... 50mW(0.39V)/3 Ω
- Feed signal(SSG setting position )  
AM Modulation Frequency ..... 400Hz 30% Modulation  
FM Modulation Frequency ..... 400Hz 22.5kHz Deviation
- Switch setting position  
FUNCTION Switch ..... TUNER  
MODE Switch ..... STEREO
- Volume setting position  
BASS/TREBLE ..... Center

#### ● Measuring tape to be used

- VTT712 ..... Tape speed/Wow&Flutter
- VTT724 ..... Playback level
- VTT703 ..... Head Azimuth
- VTT736 ..... frequency Response

#### ■ Main board Alignment Position

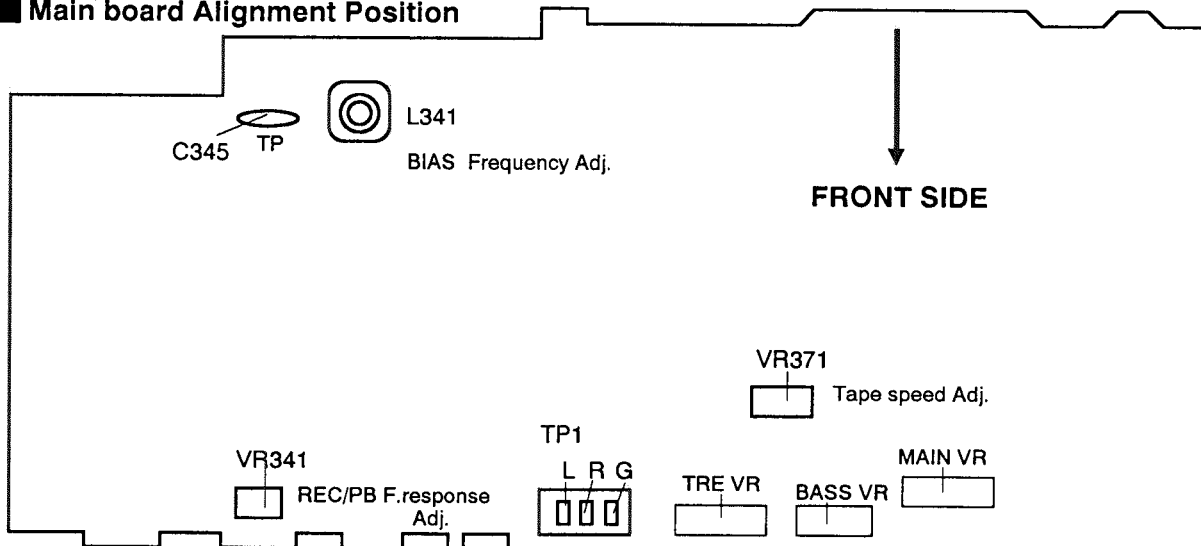
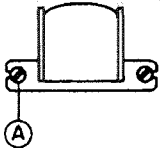


Fig. 3 – 1

■ Mechanism/Amplifier Section

Item	Conditions	Adjustment and Confirmation	Standard Value	Adjusting
Head azimuth adjustment	Test tape : VTT703	For both of mechanism A and B, adjust ④ setscrews to maximize output level and to minimize phase difference between R and L channels. After adjustments, apply screw sealant to lock setscrews. If fine adjustment is needed after reassembly, do it by inserting a screwdriver through the adjusting hole between the door and button.	PB level : Maximum out Phase difference: minimum out 	Mechanism A (REC/PB) : Left setscrew  Mechanism B (PB) : Left setscrew
Tape speed adjustment	Test tape : VTT712	Play the test tape VTT712 on the mechanism A and adjust VR 371 so that frequency counter reads $3010 \pm 10\text{Hz}$ . Set the DUBBING switch to HIGH speed, and playback the test tape on the mechanism B and record it on the mechanism A while confirming tape speed of 5200 to 5800Hz.	Normal speed : $3010 \pm 10\text{Hz}$ High speed : 5200 to 5800Hz	VR371 Mechanism A Adjust nearly with tape end.
Wow & flutter check	Test tape : VTT712	Must be within 0.38%(LIS Unweighted)	0.38% less than	
Playback output level check	Test tape : VTT724	Playback VTT724 test tape while confirming that speaker output is 2.7V or more as the volume is set to maximum.	Speaker out : 2.7V more than	
Playback frequency response check	Test tape : VTT736 Bass/tre : center	Confirm respective frequencies as compared with 1kHz, 8kHz : $0 \pm 3\text{dB}$ . 125Hz signal : $+2 \pm 3\text{dB}$ .		
Recording bias frequency adjustment	BEAT CUT switch position : 1 Output point : C345	First confirm nothing wrong, then adjust as follows. Set the BEAT CUT switch (S301) to the position 1 and adjust L341 so that oscillation frequency is $67.5\text{kHz} \pm 2\text{kHz}$ at the terminal of C345. (For this adjustment, connect 1M $\Omega$ resistor in series.)	$67.5\text{kHz} \pm 2\text{kHz}$	L341
Recording /playback output level check	Input : TP1 *1	Supply 1kHz -3dB signal to TP1 input while confirming that REC/PB output level is $0 \pm 3\text{dB}$ compared with monitor level.	$0 \pm 3\text{dB}$	
Recording frequency response adjustment	Input : TP1 *1	deck A Input reference signals to TP1 and adjust VR341 so that REC/PB output level is as follows compared with 1kHz level. (Reference input level : 50dB) 8kHz signal : $0 \pm 3\text{dB}$ , 125Hz signal : $+1 \pm 3\text{dB}$ .	8kHz : $0 \pm 3\text{dB}$	VR341

\*1 NOTE : When Input at TP1 B Mechanism playback mode for reference input level make sure with voltmeter at test points.

Alignment Position (Tuner section)

C/J/U Version

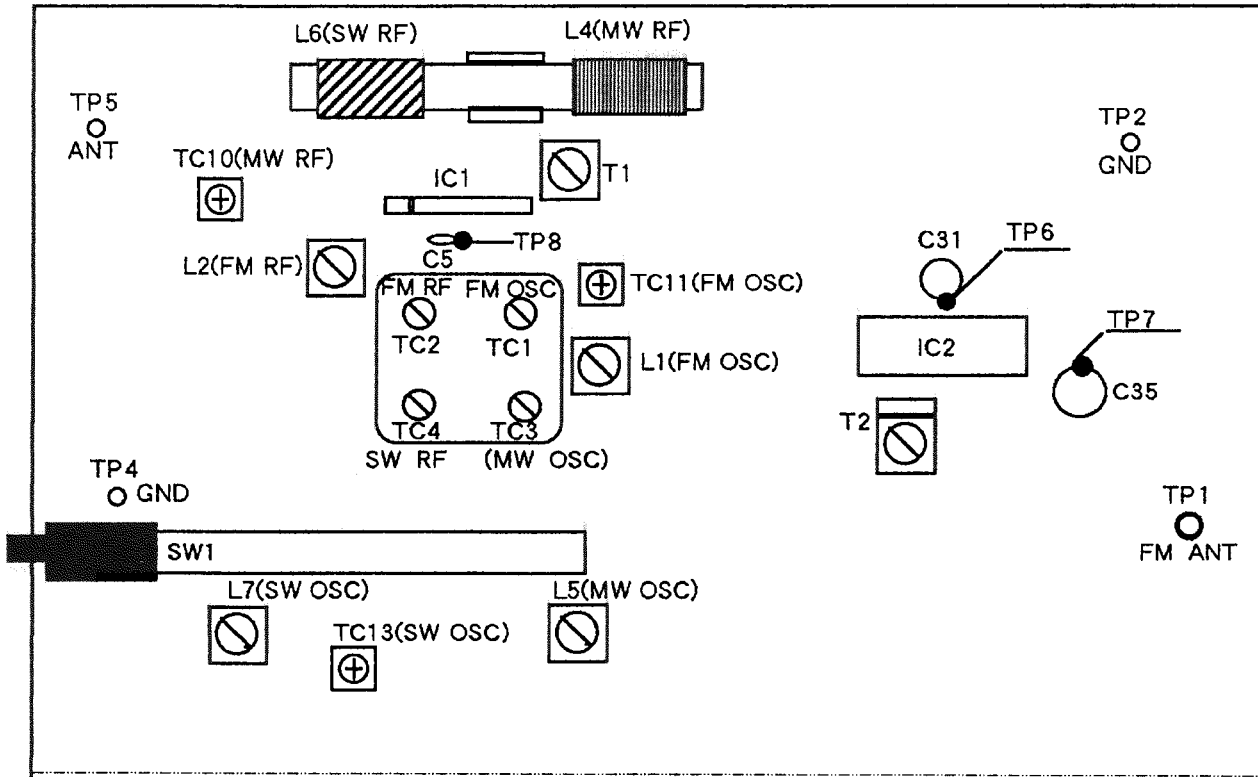


Fig. 3 - 2

B/E/EN/VX Version

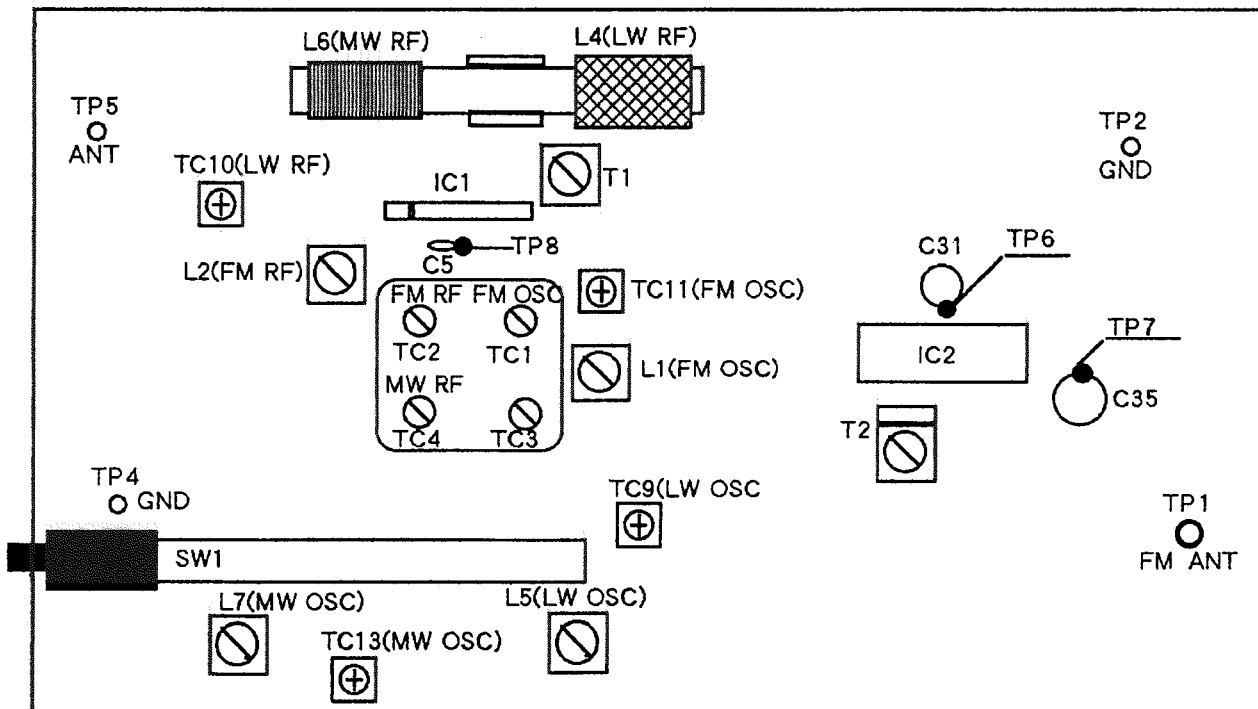


Fig. 3 - 3

## ■ AM Tracking

Connecting of sweeper and the receiver.

Tuner input : Standard loop antenna

Tuner output : Speaker out terminal

Step	BAND SELECT	TUNER INPUT	SSG FREQUENCY	VARIABLE CAPACITOR	ALIGNING POSITION	
1	LW (E, B, VX)	Standard Loop ANT	145 kHz	MAX. CAPACITY	L 5	
2			290 kHz	MIN. CAPACITY	TC 9	
3			Repeat the step 1 and 2.			
4			145 kHz	Receive 145 kHz	L 4	
5			290 kHz	Receive 290 KHz	TC 10	
6			Repeat the step 4 and 5, adjust no further improvement.			
7	MW (E, B, VX)	Standard Loop ANT	520 kHz	MAX. CAPACITY	L 7	
8			1650 kHz	MIN. CAPACITY	TC 13	
9			Repeat the step 7 and 8.			
10			600 kHz	Receive 600 kHz	L 6	
11			1400 kHz	Receive 1400 kHz	TC 4	
12			Repeat the step 10 and 11, adjust no further improvement.			
13	MW (J)	Standard Loop ANT	520 kHz	MAX. CAPACITY	L 5	
14			1750 kHz	MIN. CAPACITY	TC 3	
15			Repeat the step 13 and 14.			
16			800 kHz	Receive 800 kHz	L 4	
17			1500 kHz	Receive 1500 kHz	TC 10	
18			Repeat the step 18 and 17, adjust no further improvement.			
19	MW (U)	Standard Loop ANT	520 kHz	MAX. CAPACITY	L 5	
20			1650 kHz	MIN. CAPACITY	TC 3	
21			Repeat the step 19 and 20.			
22			600 kHz	Receive 800 kHz	L 4	
23			1400 kHz	Receive 1400 kHz	TC 10	
24			Repeat the step 22 and 23, adjust no further improvement.			
25	SW (J, U)	Standard Loop ANT	5.8 MHz	MAX. CAPACITY	L 7	
26			18.8 MHz	MIN. CAPACITY	TC 13	
27			Repeat the step 25 and 26.			
28			6.0 MHz	Receive 6.0 MHz	L 6	
29			18.0 MHz	Receive 18.0 MHz	TC 4	
30			Repeat the step 28 and 29, adjust no further improvement.			



## ■ FM Tracking

Connecting of sweeper and the receiver

Tuner input : Positive side to TP8, Negative side to TP7

Tuner output : Speaker out terminal

Step	BAND SELECT	TUNER INPUT	SSG FREQUENCY	VARIABLE CAPACITOR	ALIGNING POSITION
1	FM (E, B, J)	Unbalanced 75Ω  TP1 (TP) Positive  TP2 Negative (GND)	87.5 MHz	MAX. CAPACITY	L 1
2			109.0 MHz	MIN. CAPACITY	TC 1, 11
3			Repeat the step 1 and 2.		
4			90.0 MHz	Receive 90.0 MHz	L 2
5			106.0 MHz	Receive 106.0 MHz	TC 2
6			Repeat the step 4 and 5, adjust no further improvement.		
7	FM (U)		87.5 MHz ±100 kHz	MAX. CAPACITY	L 1
8			108.3 MHz ±50 kHz	MIN. CAPACITY	TC 1, 11
9			Repeat the step 7 and 8.		
10			90.0 MHz	Receive 90.0 MHz	L 2
11			106.0 MHz	Receive 106.0 MHz	TC 2
12			Repeat the step 10 and 11, adjust no further improvement.		
13	FM (VX)		64.0 MHz	MAX. CAPACITY	L 1
14			109.0 MHz	MIN. CAPACITY	TC 1, 11
15			Repeat the step 13 and 14.		
16			66.0 MHz	Receive 66.0 MHz	L 2
17			106.0 MHz	Receive 106.0 MHz	TC 2
18			Repeat the step 16 and 17, adjust no further improvement.		

# 4 Wiring Connections

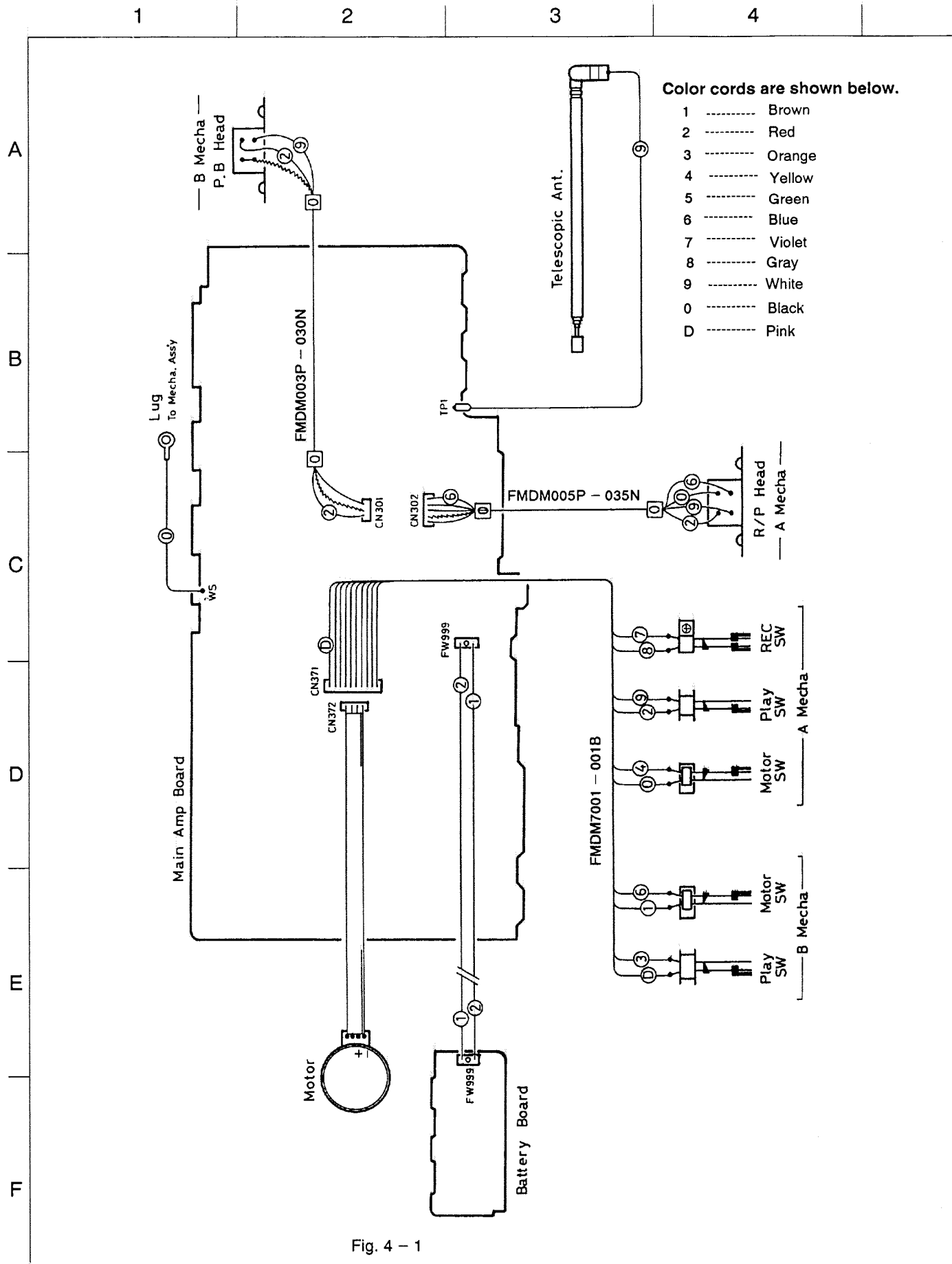


Fig. 4 - 1



# 5 Block diagram

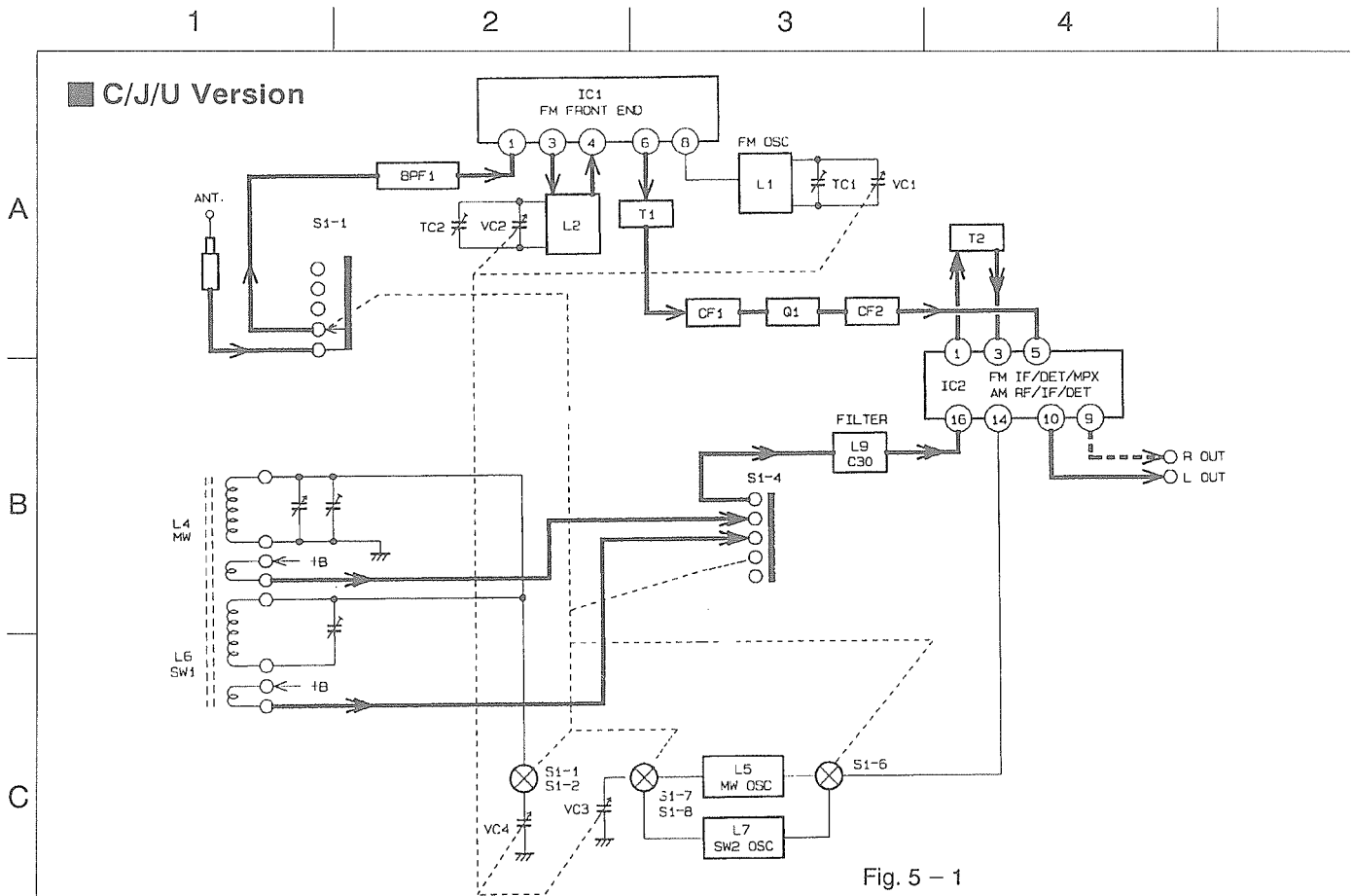


Fig. 5 - 1

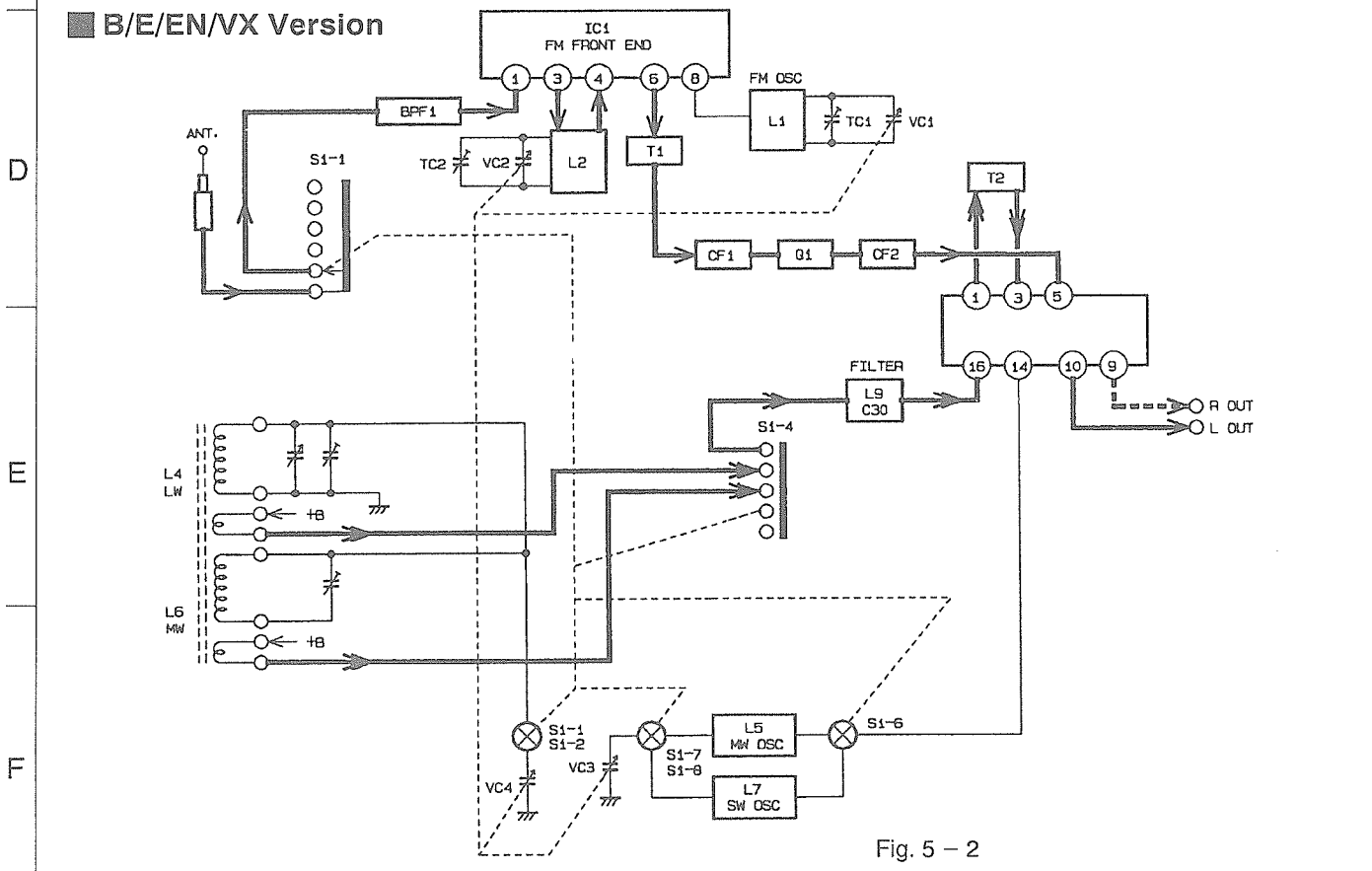


Fig. 5 - 2

1

2

3

4

■ All Version (Amplifire section)

A

B

C

D

E

F

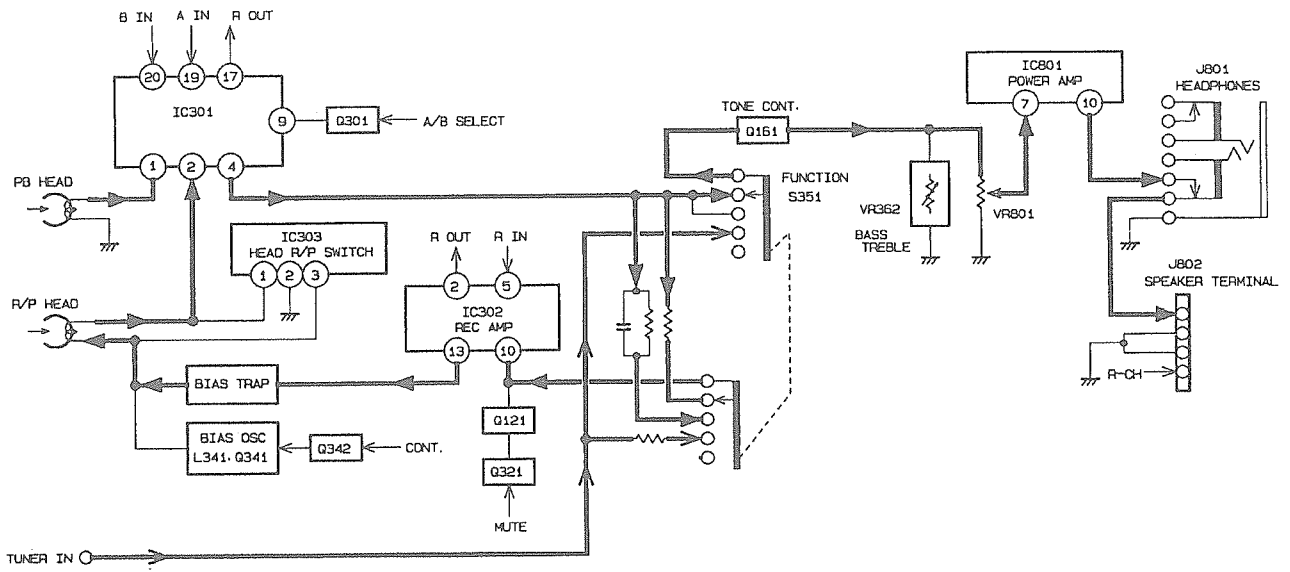


Fig. 5 - 3

# 6 Standard Schematic Diagram ■ Tuner Circuit

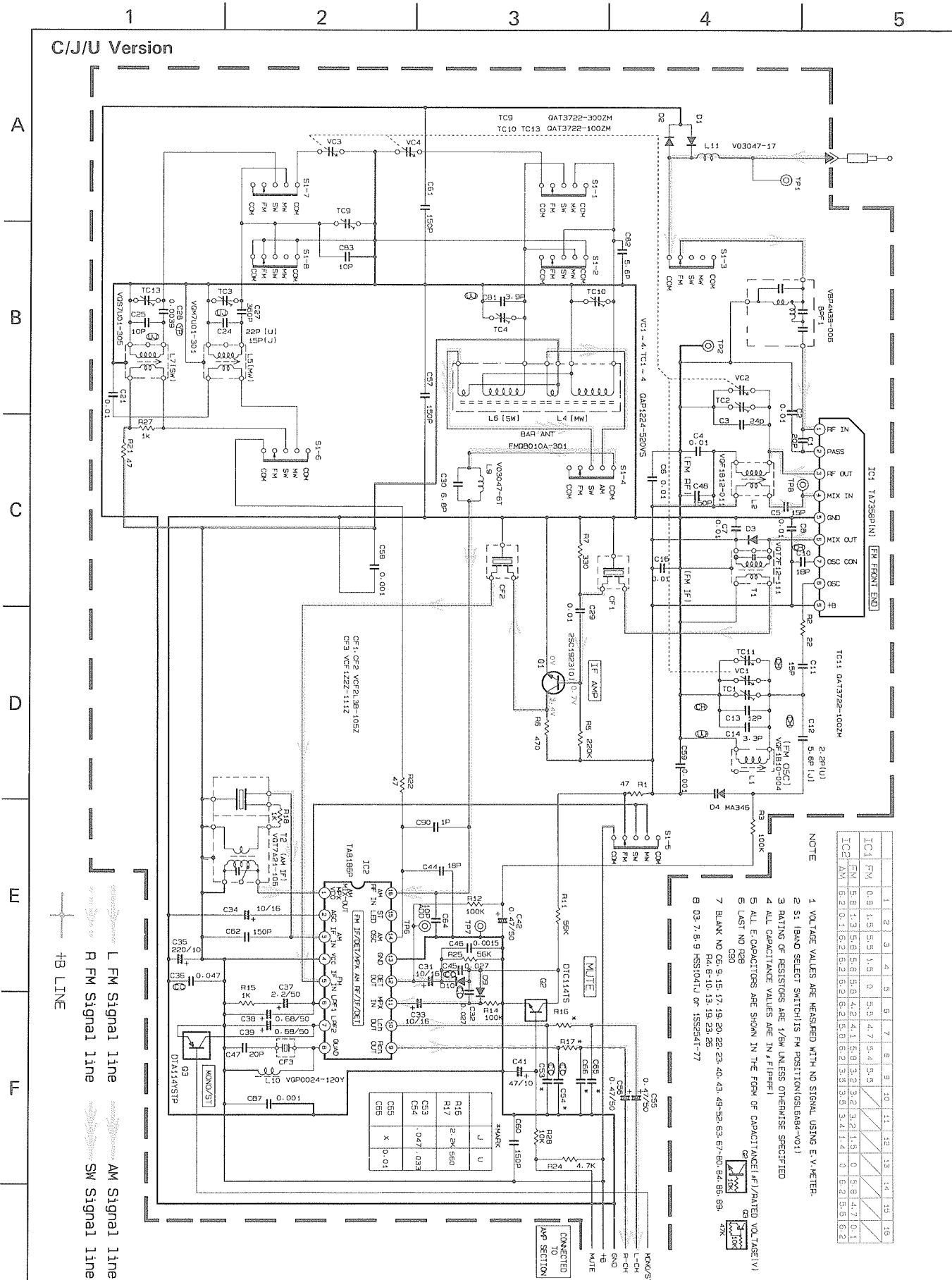
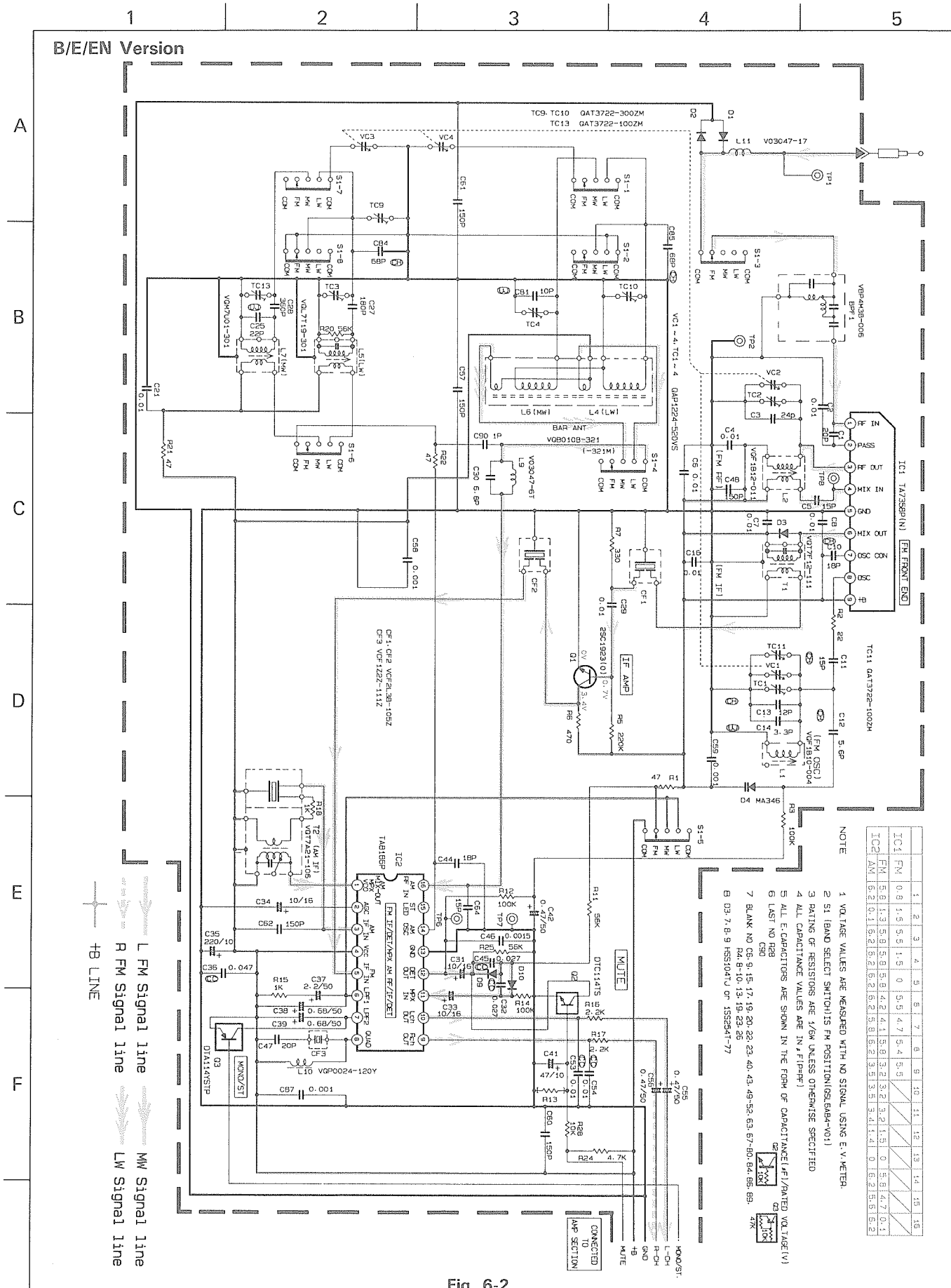


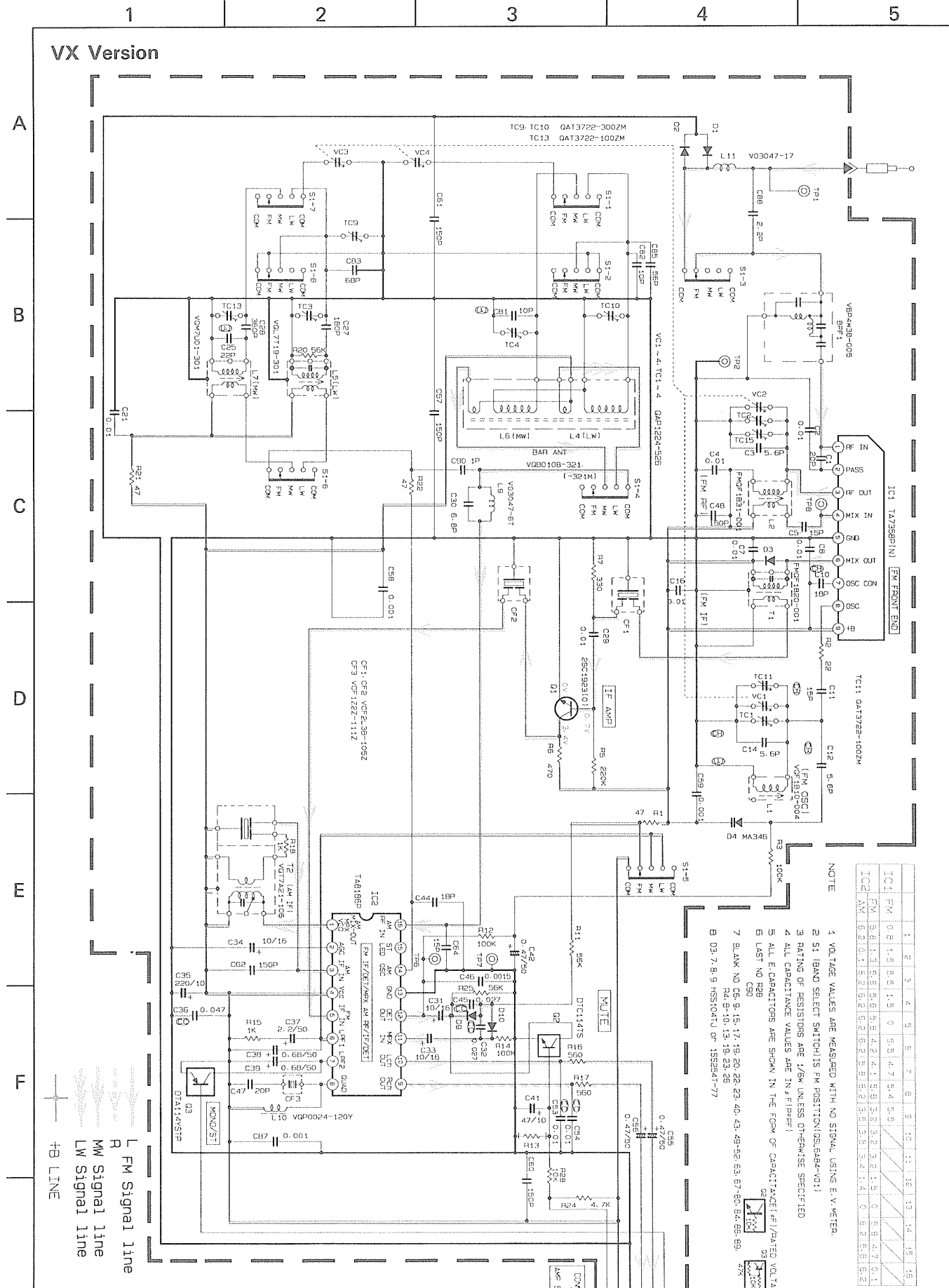
Fig. 6-1



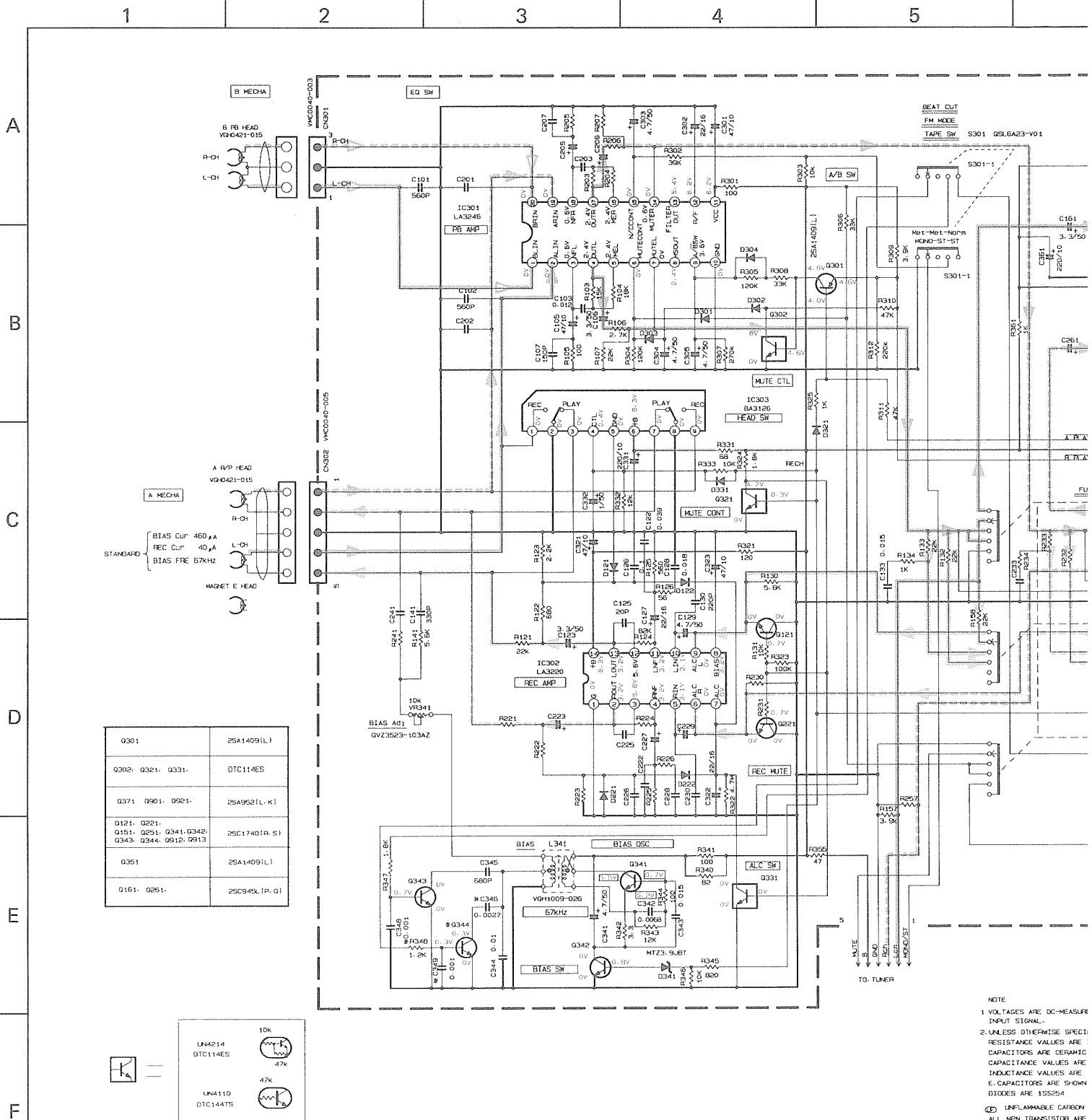




Tuner Circuit



# Amplifier Circuit

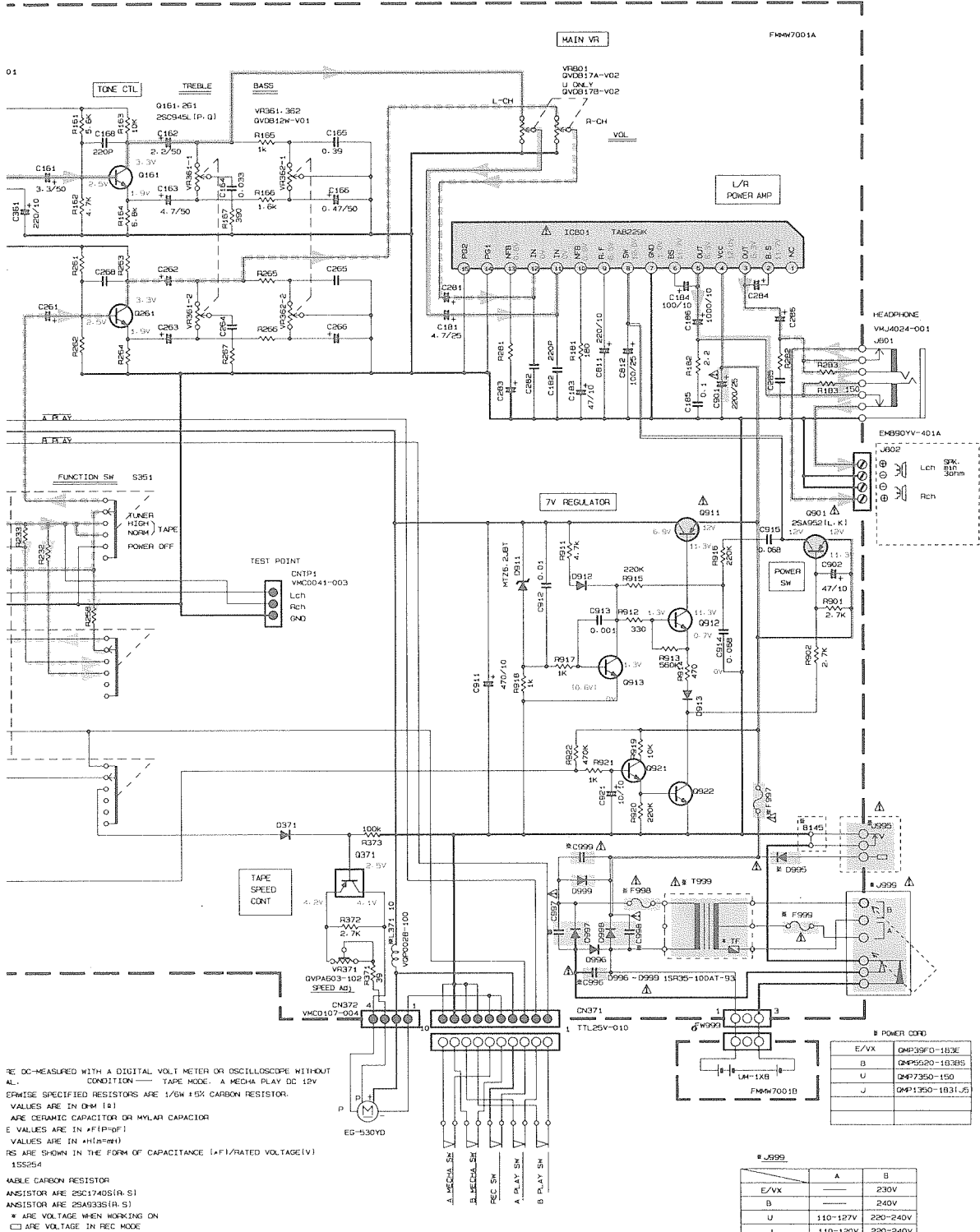


NOTE  
 1. VOLTAGES ARE DC-MEASURED INPUT SIGNAL.  
 2. UNLESS OTHERWISE SPECIFIED: RESISTANCE VALUES ARE IN OHMS; CAPACITORS ARE CERAMIC; CAPACITANCE VALUES ARE IN PICO-FARADS; INDUCTANCE VALUES ARE IN MICROHENRIES; CAPACITORS ARE SHOWN WITH DIODES ARE 1SS254  
 (U) UNFLAMMABLE CARBON  
 ALL NPN TRANSISTORS ARE 100% TESTED  
 ALL PNP TRANSISTORS ARE 100% TESTED  
 VALUE WITH \* ARE VOLTA VALUE WITH □ ARE VOLTY

\*MARK REF. NO PARTS

	T999	F999	F998	F997	D995	J999	J995	B145	C996-C999
E	FMT94BP2-12B	---	GF51E2-2R0J1 T2.0A	GF51E2-1R6J1 T1.6A	1N5401M	GMCO263-004	GM431B-V01	---	0.022
B	FMT94BP2-12B55	---	GF51E2-2R0J1 T2.0A	BLUS	---	GMCO263-004B5	---	○	0.022
VX/V	FMT94BP2-12B	---	GF51E2-2R0J1 T2.0A	BLUS	---	GMCO263-004	---	○	0.022
U	FMT94BP2-12B	GMF51E2-R315J1 T3156A	GF51E2-2R0J1 T2.0A	BLUS	1N5401M	GMCO362-002	GM431B-V01	○	0.022
J	FMT94BP2-12A	GMF51E2-R30J1 300mA/250V	GF51E2-2R0J1 T2.0A/250	BLUS	---	GMCO371-V01	---	○	0.022

Fig. 6-3



RE DC-MEASURED WITH A DIGITAL VOLT METER OR OSCILLOSCOPE WITHOUT AL. CONDITION — TAPE MODE. A MECHA PLAY DC 12V  
 OTHERWISE SPECIFIED RESISTORS ARE 1/6W 1% CARBON RESISTOR.  
 VALUES ARE IN OHM (Ω)  
 ARE CERAMIC CAPACITOR OR MYLAR CAPACITOR  
 E VALUES ARE IN #FIP(=F)  
 VALUES ARE IN #H(=H)  
 NS ARE SHOWN IN THE FORM OF CAPACITANCE (nF/RATED VOLTAGE(V))  
 155254  
 TABLE CARBON RESISTOR  
 ANSISTOR ARE 25C1740S(R, S)  
 ANSISTOR ARE 25A933S(R, S)  
 \* ARE VOLTAGE WHEN WORKING ON  
 □ ARE VOLTAGE IN REC MODE

POWER CONN	
E/VX	QMP3390-183E
B	QMP5520-1839S
U	QMP7350-150
J	QMP1350-1831J5

J999		
	A	B
E/VX	230V	
B	240V	
U	110-127V	220-240V
J	110-120V	220-240V

C999	L371	C346	Q344	R348	C349	TF
22	○	○	○	○	○	○
22	○	○	○	○	○	○
22	○	○	○	○	○	○
22	BUS	—	—	—	—	○
22	BUS	—	—	—	—	○

- L Rec. Signal line
- R DECK A Playback signal line
- L Radio signal
- R DECK B Playback signal line
- L Radio signal
- R Radio signal







● Main Board Parts List

BLOCK NO. 01111111

REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
C 060	QCB81HK-151Y	C.CAPACITOR	150PF 10% 50V	
C 061	QCB81HK-151Y	C.CAPACITOR	150PF 10% 50V	
C 062	QCB81HK-151Y	C.CAPACITOR	150PF 10% 50V	
C 064	QCSB1HU-150Y	C.CAPACITOR	15PF 5% 50V	B,E,EN,VX
C 064	QCS11HJ-100	C.CAPACITOR	10PF 5% 50V	J,U
C 065	QCVB1CN-103Y	C.CAPACITOR	.01MF	U,B,E,EN,VX
C 066	QCVB1CN-103Y	C.CAPACITOR	.01MF	U,B,E,EN,VX
C 081	QCSB1HU-100Y	C.CAPACITOR	10PF 5% 50V	B,E,EN,VX
C 081	QCSB1HK-3R9	C.CAPACITOR	3.9PF 10% 50V	J,U
C 082	QCSB1HK-5R6Y	C.CAPACITOR	5.6PF 10% 50V	
C 084	QCT25CH-680ZA	C.CAPACITOR	68PF 50V	B,E,EN,VX
C 085	QCSB1HU-560Y	C.CAPACITOR	56PF 5% 50V	B,E,EN,VX
C 087	QCB81HK-102Y	C.CAPACITOR	1000PF 10% 50V	
C 088	QCSB1HK-2R2Y	C.CAPACITOR	2.2PF 20% 50V	VX
C 090	QCSB1HM-1R0Y	C.CAPACITOR	1.0PF 20% 50V	
C 099	QCS11HJ-151	C.CAPACITOR	150PF 5% 50V	
C 101	QCB81HK-561Y	C.CAPACITOR	560PF 10% 50V	
C 102	QCB81HK-561Y	C.CAPACITOR	560PF 10% 50V	
C 103	QFLC1HJ-123ZM	M.CAPA I.M	.012MF 5% 50V	
C 105	QETC1AM-476Z	E.CAPACITOR	47MF 20% 10V	
C 106	QETC1HM-335Z	E.CAPACITOR	3.3MF 20% 50V	
C 107	QCB81HK-151Y	C.CAPACITOR	150PF 10% 50V	
C 122	QCC31EM-393ZV	C.CAPACITOR	.039MF 20% 25V	
C 123	QETC1HM-335Z	E.CAPACITOR	3.3MF 20% 50V	
C 125	QCSB1HU-200Y	C.CAPACITOR	20PF 5% 50V	
C 126	QCC11EM-104V	E.CAPACITOR	.10MF 20% 25V	
C 127	QETC1CN-226ZN	E.CAPACITOR	22MF 20% 16V	
C 128	QCC31EM-183ZV	C.CAPACITOR	.018MF 20% 25V	
C 129	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 130	QCB81HK-221Y	C.CAPACITOR	220PF 10% 50V	
C 133	QFLC1HJ-153ZM	M.CAPACITOR	.015MF 5% 50V	
C 141	QCB81HK-331Y	C.CAPACITOR	330PF 10% 50V	
C 161	QETC1HM-335Z	E.CAPACITOR	3.3MF 20% 50V	
C 162	QETC1HM-225ZN	E.CAPACITOR	2.2MF 20% 50V	
C 163	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 164	QCC31EM-333Z	C.CAPACITOR	.033MF 20% 25V	
C 165	QFV81HJ-394	TF.CAPACITOR	.39MF 5% 50V	
C 166	QETC1HM-474Z	E.CAPACITOR	.47MF 20% 50V	
C 168	QCB81HK-221Y	C.CAPACITOR	220PF 10% 50V	
C 181	QETC1EM-475ZM	E.CAPACITOR	4.7MF 20% 25V	
C 182	QCB81HK-221Y	C.CAPACITOR	220PF 10% 50V	
C 183	QETC1AM-476Z	E.CAPACITOR	47MF 20% 10V	
C 184	QETC1AM-107Z	E.CAPACITOR	100MF 20% 10V	
C 185	QCC11EM-104V	C.CAPACITOR	.10MF 20% 25V	
C 186	QETC1AM-108ZN	E.CAPACITOR	1000MF 20% 10V	
C 201	QCB81HK-561Y	C.CAPACITOR	560PF 10% 50V	
C 202	QCB81HK-561Y	C.CAPACITOR	560PF 10% 50V	
C 203	QFLC1HJ-123ZM	M.CAPA I.M	.012MF 5% 50V	
C 205	QETC1AM-476Z	E.CAPACITOR	47MF 20% 10V	
C 206	QETC1HM-335Z	E.CAPACITOR	3.3MF 20% 50V	
C 207	QCB81HK-151Y	C.CAPACITOR	150PF 10% 50V	
C 222	QCC31EM-393ZV	C.CAPACITOR	.039MF 20% 25V	
C 223	QETC1HM-335Z	E.CAPACITOR	3.3MF 20% 50V	
C 225	QCSB1HU-200Y	C.CAPACITOR	20PF 5% 50V	
C 226	QCC11EM-104V	C.CAPACITOR	.10MF 20% 25V	

BLOCK NO. 01111111

REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
BPF 1	VBP4W3B-005	BANDPASS FILTER		VX
BPF 1	VBP4W3B-005	BANDPASS FILTER		J,U,B,E,EN
C 001	QCSB1HJ-200Y	C.CAPACITOR	20PF 5% 50V	
C 002	QCVB1CN-103Y	C.CAPACITOR	.010MF 30% 16V	
C 003	QCS11HJ-240	C.CAPACITOR	24PF 5% 50V	
C 004	QCVB1CN-103Y	C.CAPACITOR	.010MF 30% 16V	
C 005	QCSB1HJ-150Y	C.CAPACITOR	15PF 5% 50V	
C 007	QCVB1CN-103Y	C.CAPACITOR	.010MF 30% 16V	
C 008	QCVB1CN-103Y	C.CAPACITOR	.010MF 30% 16V	
C 010	QCT30CH-180Y	C.CAPACITOR	18PF 5% 50V	
C 011	QCT30CH-150Y	C.CAPACITOR	15PF 5% 50V	
C 012	QCT30CH-2R2Y	C.CAPACITOR	2.2PF 5% 50V	U
C 012	QCT30CH-5R6Y	C.CAPACITOR	5.6PF 5% 50V	J
C 013	QCT30CH-120Y	C.CAPACITOR	12PF 5% 50V	J,U,B,E,EN
C 014	QCT30UJ-5R6Y	CER.CAPACITOR-S	5.6PF 5% 50V	VX
C 014	QCT30UJ-3R3Y	C.CAPACITOR	3.3PF 5% 50V	J,U,B,E,EN
C 016	QCVB1CN-103Y	C.CAPACITOR	.010MF 30% 16V	
C 021	QCVB1CN-103Y	C.CAPACITOR	.010MF 30% 16V	
C 024	QCT30UJ-220Y	CER.CAPACITOR	22PF 5% 50V	U
C 024	QCT30UJ-150Y	C.CAPACITOR	15PF 5% 50V	J
C 025	QCT30UJ-220Y	CER.CAPACITOR	22PF 5% 50V	B,E,EN,VX
C 025	QCT30UJ-100Y	C.CAPACITOR	10PF 5% 50V	J,U
C 030	QCSB1HK-6R8Y	C.CAPACITOR	180PF 2% 50V	B,E,EN,VX
C 027	QCT25CH-181Z	C.CAPACITOR	360PF 5% 50V	J,U
C 027	QCS31HJ-361Z	C.CAPACITOR	360PF 5% 50V	B,E,EN,VX
C 028	QCS31HJ-361Z	CER.CAPACITOR-S	360PF 5% 50V	
C 028	QCT30UJ-392Z	C.CAPACITOR	3900PF 10% 50V	J,U
C 029	QCVB1CN-103Y	C.CAPACITOR	.010MF 30% 16V	
C 030	QCSB1HK-6R8Y	C.CAPACITOR	6.8PF 10% 50V	
C 031	QETC1CM-106Z	E.CAPACITOR	10MF 20% 16V	
C 032	QCC31EM-273ZV	C.CAPACITOR	.027MF 20% 25V	
C 032	QCC31EM-563ZV	C.CAPACITOR	.056MF 20% 25V	
C 033	QETC1CM-106Z	E.CAPACITOR	10MF 20% 16V	
C 034	QETC1CM-106Z	E.CAPACITOR	10MF 20% 16V	
C 035	QETC1AM-227Z	E.CAPACITOR	220MF 20% 10V	
C 036	QCC11EM-473V	C.CAPACITOR	.047MF 20% 25V	
C 037	QETC1HM-225ZN	E.CAPACITOR	2.2MF 20% 50V	
C 038	QETC1HM-684ZM	E.CAPACITOR	.68MF 20% 50V	
C 039	QETC1HM-684ZM	E.CAPACITOR	.68MF 20% 50V	
C 041	QETC1AM-476Z	E.CAPACITOR	47MF 20% 10V	
C 042	QETC1HM-474Z	E.CAPACITOR	.47MF 20% 50V	
C 044	QCT30CH-180Y	C.CAPACITOR	18PF 5% 50V	
C 045	QCC31EM-273ZV	C.CAPACITOR	.027MF 20% 25V	U,B,E,EN,VX
C 045	QCC31EM-563ZV	C.CAPACITOR	.056MF 20% 25V	J
C 046	QCVB1CN-152Y	C.CAPACITOR	1500PF 20% 16V	
C 047	QCSB1HJ-200Y	C.CAPACITOR	20PF 5% 50V	
C 048	QCB81HK-151Y	C.CAPACITOR	150PF 10% 50V	
C 053	QCC31EM-333Z	C.CAPACITOR	.033MF 20% 25V	B,E,EN,VX
C 053	QCC31EM-473ZV	C.CAPACITOR	.047MF 20% 25V	J,U
C 054	QCC31EM-333Z	C.CAPACITOR	.033MF 20% 25V	B
C 054	QCC11EM-473V	C.CAPACITOR	.047MF 20% 25V	J,U
C 055	QETC1HM-474Z	E.CAPACITOR	.47MF 20% 50V	
C 056	QETC1HM-474Z	E.CAPACITOR	.47MF 20% 50V	
C 057	QCB81HK-151Y	C.CAPACITOR	150PF 10% 50V	
C 058	QCB81HK-102Y	C.CAPACITOR	1000PF 10% 50V	
C 059	QCB81HK-102Y	C.CAPACITOR	1000PF 10% 50V	

BLOCK NO. 01111111

REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
A	CN302	VMC0040-005		
	CN371	VMC0040-010		
	CN372	VMC0107-004	MAIN TO AB MECH MAIN TO MOTOR	
	D 001	1SS133	SI DIODE	
	D 002	1SS133	SI DIODE	
	D 003	1SS133	SI DIODE	
	D 004	MA346	VC DIODE	
	D 009	1SS133	SI DIODE	
	D 010	1SS133	SI DIODE	
	D 121	1SS133	SI DIODE	
	D 122	1SS133	SI DIODE	
	D 221	1SS133	SI DIODE	
	D 222	1SS133	SI DIODE	
	D 301	1SS133	SI DIODE	
	D 302	1SS133	SI DIODE	
	D 303	1SS133	SI DIODE	
	D 304	1SS133	SI DIODE	
	D 321	1SS133	SI DIODE	
	D 323	1SS133	SI DIODE	
	D 341	MTZ.9JB	ZENER DIODE	
	D 371	1SS133	SI DIODE	
	D 911	MTZ6.20T-77	ZENER DIODE	
	D 912	1SS133	SI DIODE	
	D 913	1SS133	SI DIODE	
	D 993	1N5401M	SI DIODE	U,EN
	D 996	1SR35-100	SI DIODE	
	D 997	1SR35-100	SI DIODE	
	D 998	1SR35-100	SI DIODE	
	D 999	1SR35-100	SI DIODE	
	F 997	GMF51E2-1R6J1	FUSE	EN,E,VX
	F 998	GMF51E2-2R0J1	FUSE	U,B,E,EN,VX
	F 999	GMF51N2-2R0J1	FUSE	J
	IC 01	TA7358P(N)	IC	J,U
	IC 02	TA8186P	IC	
	IC301	LA3246	IC	
	IC302	LA3220	IC	
	IC303	BA3126N	IC	
	IC801	TA8229K	IC	
	J 801	VMJ4024-001	JACK	
	J 802	EMB90YV-401A	SPK. TERMINAL	
	J 995	GMA431B-V01	DC JACK	U,EN
	J 999	QMC0263-004	AC SOCKET	E,EN,VX
	J 999	QMC0263-004BS	AC SOCKET	B
	J 999	QMC0362-002	AC SOCKET	U
	J 999	QMCB371-V01	AC SOCKET	J
	L 001	FMQF1B20-001	OSC COIL	VX
	L 001	VMF1B10-004	OSC COIL	J,U,E,EN
	L 002	FMQF1B31-001	RF COIL	VX
	L 002	VMF1B12-011	RF COIL	J,U,E,EN
	L 004	VMB010B-321	F CORE ANTENNA	B,E,EN,VX
	L 004	FMQB010A-301	F CORE ANTENNA	J,U
	L 005	VMQ7119-301	OSC.COIL (MW)	B,E,EN,VX
	L 005	VMQ7U01-301	OSC.COIL (AM)	J,U
	L 007	VMQ7U01-301	OSC.COIL	B

BLOCK NO. 01111111

REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
C 227	QETC1CM-226ZN	E.CAPACITOR	22MF 20% 16V	
C 228	QCC31EM-183ZV	E.CAPACITOR	.018MF 20% 25V	
C 229	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 230	QCB1HK-221Y	C.CAPACITOR	220PF 10% 50V	
C 233	QFLC1HJ-153ZM	M.CAPACITOR	.015MF 5% 50V	
C 241	QCB1HK-331Y	C.CAPACITOR	330PF 10% 50V	
C 261	QETC1HM-335Z	E.CAPACITOR	3.3MF 20% 50V	
C 262	QETC1HM-225ZN	E.CAPACITOR	2.2MF 20% 50V	
C 263	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 264	QCC31EM-333Z	C.CAPACITOR	.033MF 20% 25V	
C 265	QFV81HJ-394	TF.CAPACITOR	.39MF 5% 50V	
C 266	QETC1HM-474Z	E.CAPACITOR	.47MF 20% 50V	
C 268	QCB1HK-221Y	C.CAPACITOR	220PF 10% 50V	
C 281	QETC1EM-475ZM	E.CAPACITOR	4.7MF 20% 25V	
C 282	QCB1HK-221Y	C.CAPACITOR	220PF 10% 50V	
C 283	QETC1AM-476Z	E.CAPACITOR	47NF 20% 10V	
C 284	QETC1AM-107Z	E.CAPACITOR	100NF 20% 10V	
C 285	QCC11EM-104V	C.CAPACITOR	.10MF 20% 25V	
C 286	QETC1AM-108ZN	E.CAPACITOR	1000MF 20% 10V	
C 301	QETC1AM-476Z	E.CAPACITOR	47NF 20% 10V	
C 302	QETC1CM-226ZN	E.CAPACITOR	22NF 20% 16V	
C 303	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 304	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 305	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 321	QETC1AM-476Z	E.CAPACITOR	47NF 20% 10V	
C 322	QETC1CM-226ZN	E.CAPACITOR	22NF 20% 16V	
C 323	QETC1AM-476Z	E.CAPACITOR	47NF 20% 10V	
C 331	QETC1AM-227Z	E.CAPACITOR	220NF 20% 10V	
C 332	QETC1HM-105Z	E.CAPACITOR	1.0MF 20% 50V	
C 341	QETC1HM-475Z	E.CAPACITOR	4.7MF 20% 50V	
C 342	QCY31HK-682Z	C.CAPACITOR	6800PF 10% 50V	
C 343	QFLC1HJ-153ZM	M.CAPACITOR	.015MF 5% 50V	
C 344	QFLC1HJ-103ZM	M.CAPACITOR	.010MF 5% 50V	
C 345	QCY41HK-681	C.CAPACITOR	680PF 10% 50V	
C 348	QCB1HK-102Y	C.CAPACITOR	1000PF 10% 50V	
C 361	QETC1AM-227Z	E.CAPACITOR	220NF 20% 10V	
C 811	QETC1AM-227Z	E.CAPACITOR	220NF 20% 10V	
C 812	QETC1EM-107Z	E.CAPACITOR	100NF 20% 25V	
C 901	QETB1EM-228	E.CAPACITOR	2200MF 20% 25V	
C 902	QETC1AM-227Z	E.CAPACITOR	220NF 20% 10V	
C 911	QETC1AM-477ZN	E.CAPACITOR	470NF 20% 10V	
C 912	QCVB1CM-103Y	C.CAPACITOR	.010MF 20% 16V	
C 913	QCB1HK-102Y	C.CAPACITOR	1000PF 10% 50V	
C 914	QCC31EM-683Z	C.CAPACITOR	.068MF 20% 25V	
C 915	QCC31EM-683Z	C.CAPACITOR	.068MF 20% 25V	
C 921	QETC1AM-226ZN	E.CAPACITOR	22MF 20% 10V	
C 995	QCF31HP-233Z	C.CAPACITOR	.022MF +100%-0X	
C 997	QCF31HP-223Z	C.CAPACITOR	.022MF +100%-0X	
C 998	QCF31HP-223Z	C.CAPACITOR	.022MF +100%-0X	
C 999	QCF31HP-223Z	C.CAPACITOR	.022MF +100%-0X	
CF 01	VCF2L3B-105	C.FILTER		
CF 02	VCF2L3B-105	C.FILTER		
CF 03	VCF172Z-111Z	C.FILTER		
CNP1	VMC0041-003	CONNECTOR	TEST POINT	
CN301	VMC0040-003	CONNECTOR		





REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
L 007	VQ57U01-305	OSC COIL	SW OSC	J
L 009	V03047-6	COIL	FM DET	
L 010	VQ0024-120Y	INDUCTOR		
L 011	V03047-17	INDUCTOR		
L 341	VQH1009-026	OSC COIL (BIRS)		
Q 001	2SC1923(C)	TRANSISTOR	FM IF AMP.	J,U,C
Q 001	2SC2668(C)	TRANSISTOR		B,E,EN,VK
Q 002	DTC114TS	TRANSISTOR	MUTE	
Q 003	DTA114YS	TRANSISTOR	MONO ST	
Q 121	2SC1740S(R,S)	TRANSISTOR		
Q 161	2SC945L(P,Q)	TRANSISTOR		
Q 221	2SC1740S(R,S)	TRANSISTOR		
Q 261	2SC945L(P,Q)	TRANSISTOR		
Q 301	2SA1409(L)-T	TRANSISTOR		
Q 302	DTC114ES	DEGI TRANSISTOR		
Q 321	DTC114ES	DEGI TRANSISTOR	REC MUTE CONT	
Q 331	DTC114ES	DEGI TRANSISTOR	ALC SWITCH	
Q 341	2SC1740S(R,S)	TRANSISTOR		
Q 342	2SC1740S(R,S)	TRANSISTOR		
Q 343	2SC1740S(R,S)	TRANSISTOR		
Q 371	2SA952(L,K)	TRANSISTOR	POWER SW	
Q 901	2SA952(L,K)	TRANSISTOR	AMP MOTOR REG	
Q 911	2SB772(Q,P)	TRANSISTOR		
Q 912	2SC1740S(R,S)	TRANSISTOR		
Q 913	2SC1740S(R,S)	TRANSISTOR		
R 001	QRD161J-470	C.RESISTOR	47 5% 1/6W	
R 002	QRD161J-220	C.RESISTOR	22 5% 1/6W	
R 003	QRD161J-104	C.RESISTOR	100K 5% 1/6W	
R 005	QRD161J-224	C.RESISTOR	220K 5% 1/6W	
R 006	QRD161J-471Y	C.RESISTOR	470 5% 1/6W	
R 007	QRD161J-331	C.RESISTOR	330 5% 1/6W	
R 011	QRD161J-563	C.RESISTOR	56K 5% 1/6W	
R 012	QRD161J-104	C.RESISTOR	100K 5% 1/6W	
R 014	QRD161J-104	C.RESISTOR	100K 5% 1/6W	
R 015	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 016	QRD161J-561	C.RESISTOR	560 5% 1/6W	U,B,E,EN,VK
R 017	QRD161J-222	C.RESISTOR	2.2K 5% 1/6W	J
R 017	QRD161J-561	C.RESISTOR	560 5% 1/6W	U,B,E,EN,VK
R 017	QRD161J-222	C.RESISTOR	2.2K 5% 1/6W	J
R 018	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 021	QRD161J-470	C.RESISTOR	47 5% 1/6W	
R 022	QRD161J-470	C.RESISTOR	47 5% 1/6W	
R 024	QRD161J-472Y	C.RESISTOR	4.7K 5% 1/6W	
R 025	QRD161J-563	C.RESISTOR	56K 5% 1/6W	
R 027	QRD161J-563	C.RESISTOR	56K 5% 1/6W	
R 027	QRD161J-402	C.RESISTOR	1.0K 5% 1/6W	B,E,EN,VK
R 028	QRD161J-103	C.RESISTOR	10K 5% 1/6W	J,U
R 103	QRD161J-153	C.RESISTOR	15K 5% 1/6W	
R 104	QRD161J-183	C.RESISTOR	18K 5% 1/6W	
R 105	QRD161J-101	C.RESISTOR	100 5% 1/6W	
R 106	QRD161J-272	C.RESISTOR	2.7K 5% 1/6W	
R 107	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 121	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 122	QRD161J-681	C.RESISTOR	680 5% 1/6W	
R 123	QRD161J-222	C.RESISTOR	2.2K 5% 1/6W	

REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
R 124	QRD161J-823	C.RESISTOR	82K 5% 1/6W	
R 125	QRD161J-561	C.RESISTOR	560 5% 1/6W	
R 126	QRD161J-560	C.RESISTOR	56 5% 1/6W	
R 130	QRD167J-562	C.RESISTOR	5.6K 5% 1/6W	
R 131	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 132	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 133	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 134	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 141	QRD161J-272	C.RESISTOR	2.7K 5% 1/6W	
R 157	QRD161J-392	C.RESISTOR	3.9K 5% 1/6W	
R 158	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 161	QRD167J-562	C.RESISTOR	5.6K 5% 1/6W	
R 162	QRD161J-472Y	C.RESISTOR	4.7K 5% 1/6W	
R 163	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 164	QRD161J-682Y	C.RESISTOR	6.8K 5% 1/6W	
R 165	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 166	QRD161J-162	C.RESISTOR	1.6K 5% 1/6W	
R 167	QRD161J-391Y	C.RESISTOR	390 5% 1/6W	
R 181	QRD161J-181	C.RESISTOR	180 5% 1/6W	
R 182	QRD161J-2R2	C.RESISTOR	2.2 5% 1/6W	
R 183	QRD161J-151Y	C.RESISTOR	150 5% 1/6W	
R 203	QRD161J-153	C.RESISTOR	15K 5% 1/6W	
R 204	QRD161J-183	C.RESISTOR	18K 5% 1/6W	
R 205	QRD161J-101	C.RESISTOR	100 5% 1/6W	
R 206	QRD161J-272	C.RESISTOR	2.7K 5% 1/6W	
R 207	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 221	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 222	QRD161J-681	C.RESISTOR	680 5% 1/6W	
R 224	QRD161J-222	C.RESISTOR	2.2K 5% 1/6W	
R 224	QRD161J-823	C.RESISTOR	82K 5% 1/6W	
R 225	QRD161J-561	C.RESISTOR	560 5% 1/6W	
R 226	QRD161J-560	C.RESISTOR	56 5% 1/6W	
R 230	QRD167J-562	C.RESISTOR	5.6K 5% 1/6W	
R 231	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 232	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 233	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 234	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 241	QRD161J-272	C.RESISTOR	2.7K 5% 1/6W	
R 257	QRD161J-392	C.RESISTOR	3.9K 5% 1/6W	
R 258	QRD161J-223	C.RESISTOR	22K 5% 1/6W	
R 261	QRD167J-562	C.RESISTOR	5.6K 5% 1/6W	
R 262	QRD161J-472Y	C.RESISTOR	4.7K 5% 1/6W	
R 263	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 264	QRD161J-682Y	C.RESISTOR	6.8K 5% 1/6W	
R 265	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 266	QRD161J-162	C.RESISTOR	1.6K 5% 1/6W	
R 267	QRD161J-391Y	C.RESISTOR	390 5% 1/6W	
R 281	QRD161J-181	C.RESISTOR	180 5% 1/6W	
R 282	QRD161J-2R2	C.RESISTOR	2.2 5% 1/6W	
R 283	QRD161J-151Y	C.RESISTOR	150 5% 1/6W	
R 301	QRD161J-101	C.RESISTOR	100 5% 1/6W	
R 302	QRD161J-393	C.RESISTOR	39K 5% 1/6W	
R 303	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 304	QRD161J-124	C.RESISTOR	120K 5% 1/6W	
R 305	QRD161J-124	C.RESISTOR	120K 5% 1/6W	

BLOCK NO. 01

A REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
TC 15	QAT3722-100M	TRIM.CAPACITOR		VX
VC 01	QAP1224-526	V CAPACITOR	VC01-04,TC01-04	VX
VC 01	QAP1224-520VS	V CAPACITOR	VC01-04,TC01-04	J,U,E,B,EN
VR341	QVPA603-103M	SEMI-V.RESISTOR	BIAS ADJST	
VR361	QVDB12M-V01	V RESISTOR(C.C)	TREBLE	
VR362	QVDB12M-V01	V RESISTOR(C.C)	BASS	
VR371	QVPA603-102	V.RESISTOR	MAIN VOL	
VR801	QVDB17A-V02	V.RESISTOR(A)		

BLOCK NO. 01

A REF.	PARTS NO.	PARTS NAME	REMARKS	SUFFIX
R 306	QRD161J-333	C.RESISTOR	33K 5% 1/6W	
R 307	QRD161J-274	C.RESISTOR	270K 5% 1/6W	
R 308	QRD161J-333	C.RESISTOR	33K 5% 1/6W	
R 309	QRD161J-392	C.RESISTOR	3.9K 5% 1/6W	
R 310	QRD161J-473	C.RESISTOR	47K 5% 1/6W	
R 311	QRD161J-473	C.RESISTOR	47K 5% 1/6W	
R 312	QRD161J-224	C.RESISTOR	220K 5% 1/6W	
R 321	QRD167J-121	C.RESISTOR	120 5% 1/6W	
R 322	QRD161J-475	C.RESISTOR	4.7M 5% 1/6W	
R 323	QRD161J-104	C.RESISTOR	100K 5% 1/6W	
R 324	QRD161J-182	C.RESISTOR	1.8K 5% 1/6W	
R 325	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 331	QRD161J-680	C.RESISTOR	68 5% 1/6W	
R 332	QRD161J-123V	C.RESISTOR	12K 5% 1/6W	
R 333	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 340	QRD161J-820	C.RESISTOR	82 5% 1/6W	
R 341	QRD161J-101	C.RESISTOR	100 5% 1/6W	
R 342	QRD161J-3R3	C.RESISTOR	3.3 5% 1/6W	
R 343	QRD161J-123V	C.RESISTOR	12K 5% 1/6W	
R 344	QRD161J-101	C.RESISTOR	100 5% 1/6W	
R 345	QRD161J-821	C.RESISTOR	820 5% 1/6W	
R 346	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 347	QRD161J-182	C.RESISTOR	1.8K 5% 1/6W	
R 355	QRD161J-470	C.RESISTOR	47 5% 1/6W	
R 361	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 371	QRD161J-390	C.RESISTOR	39 5% 1/6W	
R 372	QRD161J-272	C.RESISTOR	2.7K 5% 1/6W	
R 373	QRD161J-104	C.RESISTOR	100K 5% 1/6W	
R 901	QRD161J-272	C.RESISTOR	2.7K 5% 1/6W	
R 902	QRD161J-272	C.RESISTOR	2.7K 5% 1/6W	
R 911	QRD161J-472V	C.RESISTOR	4.7K 5% 1/6W	
R 912	QRD161J-331	C.RESISTOR	330 5% 1/6W	
R 913	QRD161J-564	C.RESISTOR	560K 5% 1/6W	
R 914	QRD161J-471V	C.RESISTOR	470 5% 1/6W	
R 915	QRD161J-224	C.RESISTOR	220K 5% 1/6W	
R 916	QRD161J-224	C.RESISTOR	220K 5% 1/6W	
R 917	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 918	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 919	QRD161J-103	C.RESISTOR	10K 5% 1/6W	
R 920	QRD161J-224	C.RESISTOR	220K 5% 1/6W	
R 921	QRD161J-102	C.RESISTOR	1.0K 5% 1/6W	
R 922	QRD161J-474	C.RESISTOR	470K 5% 1/6W	
S 001	QSL6A83-V01	LEVER SWITCH	BAND	
S 301	QSL6A23-V01	LEVER SWITCH	FOR FUNCTION SW	
S 351	QSL6A64-V01	LEVER SWITCH		
T 001	VQT7F12-111	IFT COIL	FM IF	
T 002	VQT7A21-106	IFT	AM IF	
A T 999	FMP48P2-12A	POWER TRANS		J
A T 999	FMP48P2-12B	POWER TRANS		U,E,EN,VX
A T 999	FMP48P2-12BBS	POWER TRANS		B
TC 09	QAT3722-300ZM	TRIM.CAPACITOR		B,E,EN,VX
TC 10	QAT3722-300ZM	TRIM.CAPACITOR		B,E,EN,VX
TC 10	QAT3722-100M	TRIM.CAPACITOR		J,U
TC 11	QAT3722-100M	TRIM.CAPACITOR		
TC 13	QAT3722-100M	TRIM.CAPACITOR		



# Parts List

BLOCK No. **M 1 M M**

5	6	7	8	9
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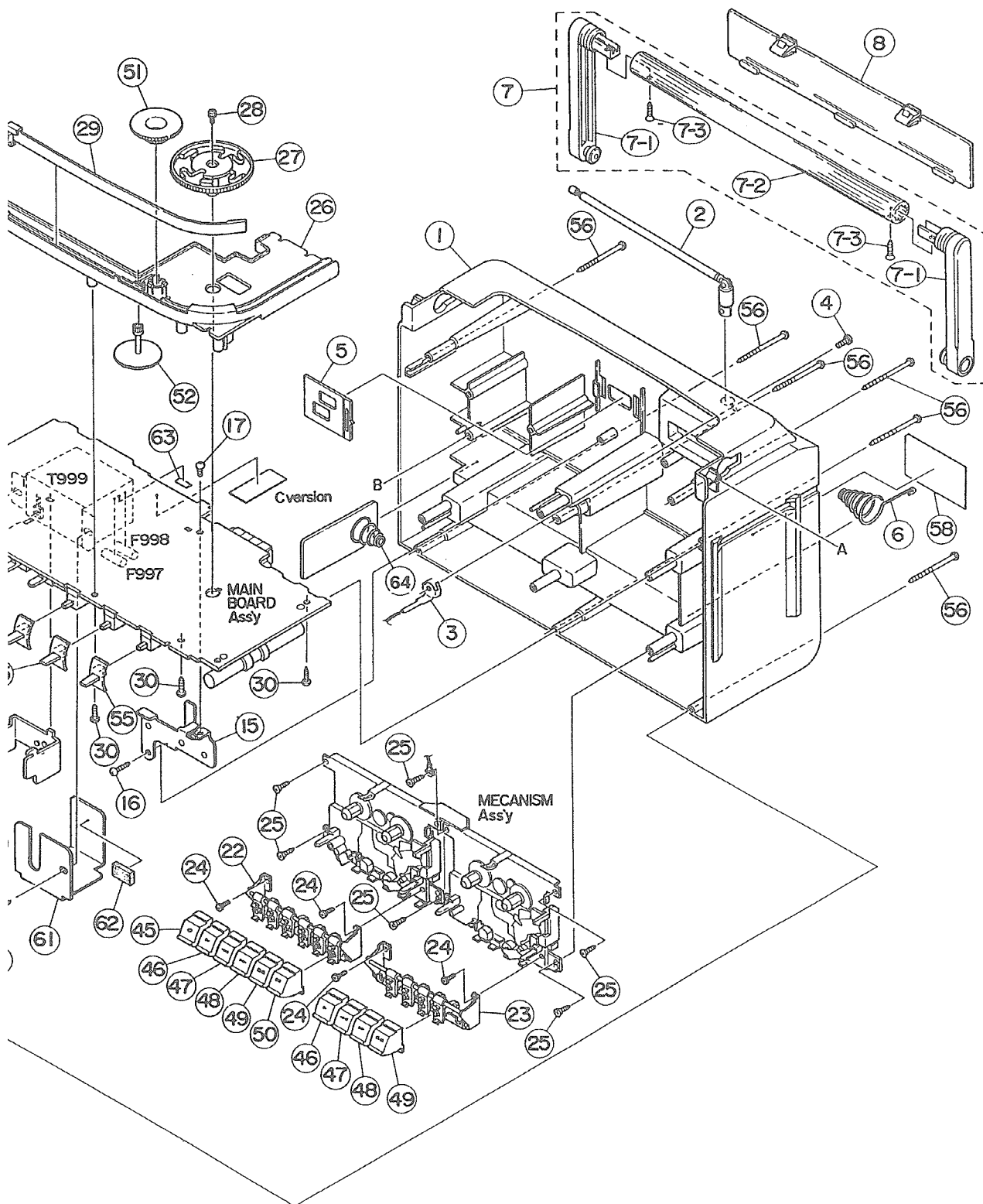


Fig. 8 - 1



## ● Enclosure Component Parts List

BLOCK NO. M1MM

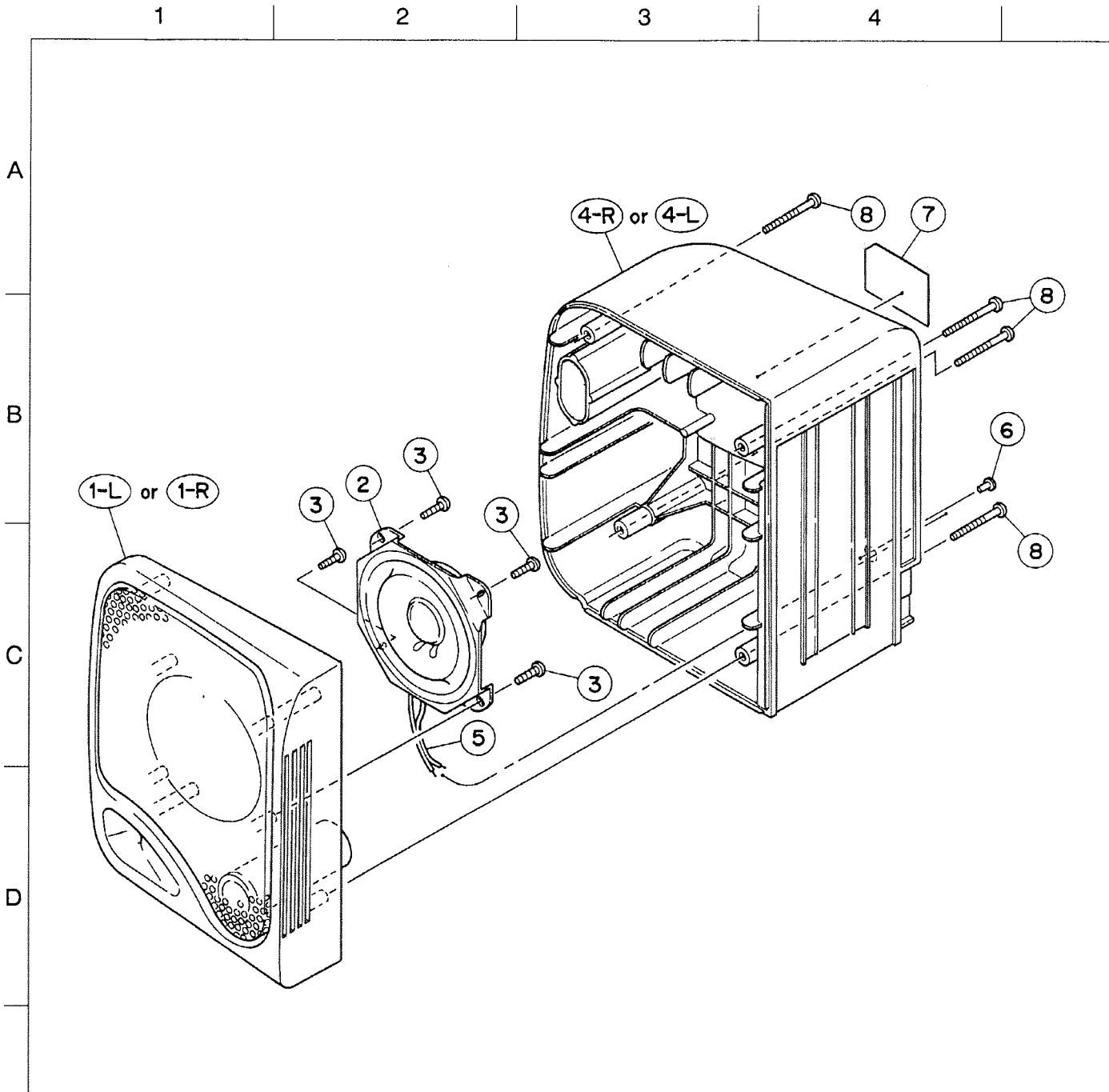
REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
A	ZCPRW222E-FB	FRONT CABINET		1	E,B,EN	
	ZCPRW222J-FB	FRONT CABINET		1	J,C	
	ZCPRW222U-FB	FRONT CABINET		2	U	
	ZCPRW222VX-FB	FRONT CABINET		1	VX	
B	ZCPRW222K-CBKA	CASSETTE DOOR A	SERVICE PARTS	1		
C	ZCPRW222K-CBKB	CASSETTE DOOR B	SERVICE PARTS	1		
1	VJG1103-011UL	REAR CAB		1	J	
	VJG1103-003	REAR CABINET		1	U	
	VJG1103-004	REAR CABINET		1	B	
	VJG1103-002	REAR CABINET		1	E,EN	
A	VJA3006-00E	T.ANTENNA		1		
3	VYH5012-004	TERMINAL LUG	T.ANTENNA	1		
4	SDSP3012N	SCREW	T.ANTENNA+REAR	1		
5	VKS5418-001	AC SLIDER	REAR CABINET	1	J	
	VKS5418-002	AC SLIDER	REAR CABINET	1	U	
6	VYH5657-001	BATTERY SPRING		1		
7	PCW222K-HANDLE	HANDLE		1		
7-1	VJH3044-102	HANDLE HOLDER		2		
7-2	VJH4093-112MM	HANDLE PIPE		1		
7-3	SHSF3012N	SCREW	HANDL	2		
8	VJC2016-023SS	BATT COVER		1		
A	VYH3729-002	HEAT SINK		1		
13	DPSP3008Z	SCREW	P.TRANS+H.SINK	1		
14	SBSF3008Z	TAP.SCREW	POW IC+H.SINK	1		
15	VKL7242-002	AC BRACKET		1		
16	SBSF3012Z	TAP.SCREW	AC BKT+REAR CAB	1		
17	SBST3006Z	TAP.SCREW	AC BKT + AMP PW	1		
19	VKS3593-001	MECHA HOLDER	-----	1		
20	SBSF3012Z	TAP.SCREW	M HOLDER+R CABI	1		
21	GBSF3020Z	SCREW	P.TRANS+REAR CA	2		
22	1821313012T	BUTTON FRAME AS	DECK A	1		
23	1821313072T	BUTTON FRAME AS	DECK B	1		
24	99991402T	MINI SCREW	B.FRAME ASS'Y	4		
25	SSSF3012Z	TAP SCREW	MECHA+REAR CABI	6		
26	VYH1221-001	TUNER CHASSIS		1		
27	VKS3592-001	DIAL DRUM		1		
28	LPSP2606Z	SCREW	DIAL DRUM+V.CAP	1		
29	VJN4142-001	POINTER		1		
30	SBSF3012Z	TAP.SCREW	T.CHASSIS + PWB	4		
31	VJG1104-011UL	FRONT CABINET		1	J,C	
	VJG1104-003	FRONT CABINET		1	U	
	VJG1103-002	REAR CABINET		1	B,E,EN,VX	
32	VJK3590-001	DIAL LENS		1	B,E,EN	
	VJK3590-002	DIAL LENS		1	J	
	VJK3590-003	DIAL LENS		1	U	
	VJK3590-004	DIAL LENS		1	VX	
33	VJD3940-001	CONTROLE PLATE		1		
34	VJT2302-003	CASS DOOR (A)	DECK A	1		
35	VJT4198-001	CASSETTE LENS(A)	DECK A	1		
36	VKY4180-001	CASSETTE SPRING		2		
38	VYH5601-001	GEAR		1		
39	VKW5025-003	DOOR SPRING		1		
40	VJT2302-004	CASSETTE DOOR (	DECK B	1		
41	VJT4198-002	CASSETTE LENS(B	DECK B	1		
42	VKY4180-001	CASSETTE SPRING		2		





### Speaker Box Section

Block No. **M 2 M M**



### Speaker Box Parts List

BLOCK NO. **M 2 M M**

REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
1-L	VJC2471-00A	FRPNT CABINET L	LEFT	1		
1-R	VJC2472-00A	FRONT CABINET R	RIGHT	1		
2	VGS1001-014	SPEAKER UNIT	SP101	1		
3	SBSF3010Z	TAP.SCREW	FOR SPEAKER	4		
4-L	VJG1108-001	REAR CABINET L	LEFT	1		
4-R	VJG1110-001	REAR CABINET R	RIGHT	1		
5	VMP0040-002T	SPEAKER CORD		1		
6	VJD5373-001SS	STOPPER	SPEAKER CORD	1		
7	FMYN7001-001B	NAME PLATE		1		
8	SBSF3035Z	TAP.SCREW	FOR CABINET	4		

# 9 Exploded View of Mechanism Component Parts and Parts List

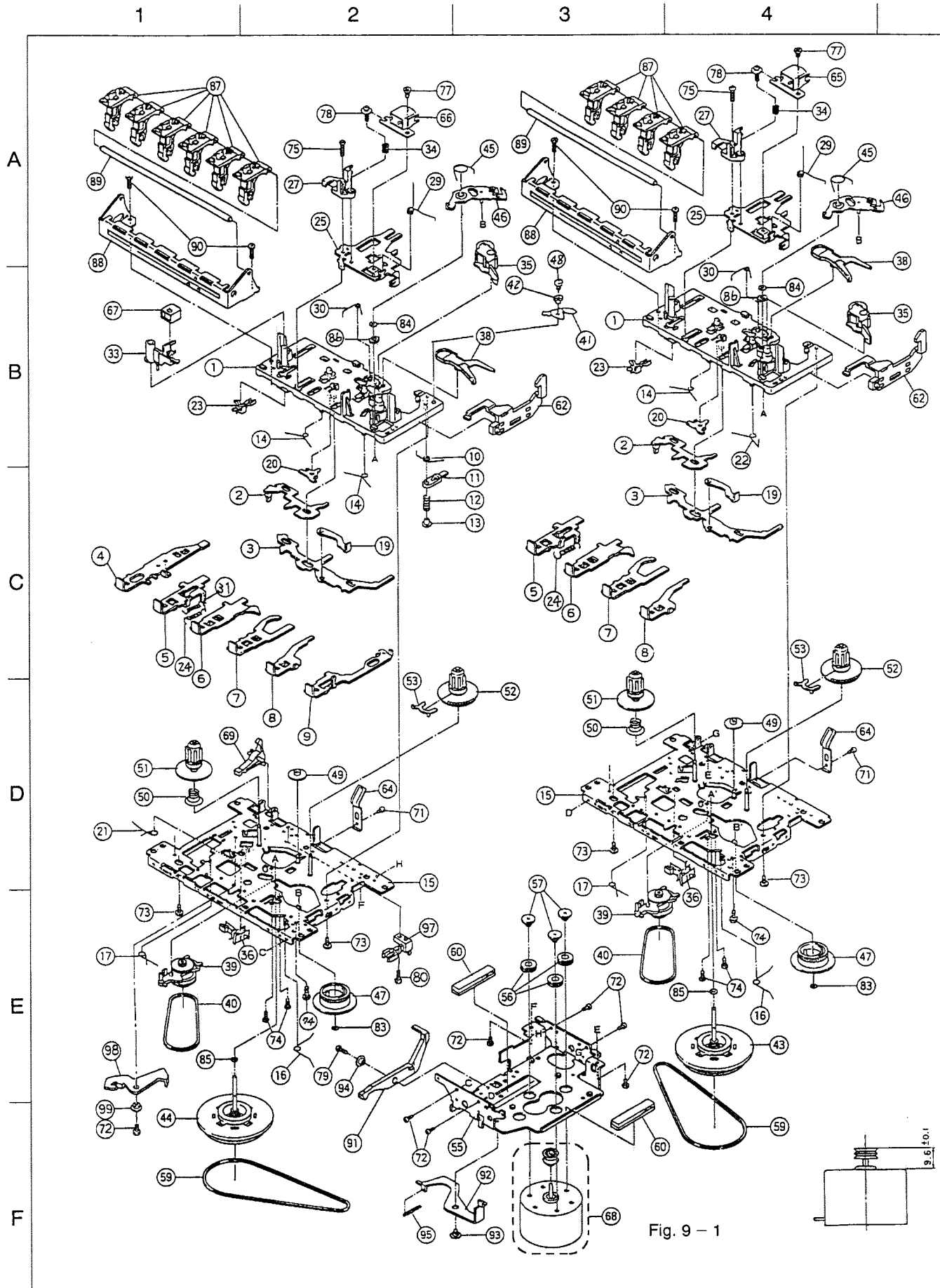


Fig. 9 - 1

## ● Mechanism Component Parts List

BLOCK NO. 

△	REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
	1	192114301ZT	BASE ASS'Y		2		
	2	19211409T	SWITCH ACTUATOR		2		
	3	19211408T	LOCK CAM		2		
	4	19211422T	BUTTON LEVER	REC DECK A	1		
	5	19211484T	BUTTON LEVER	PLAY	2		
	6	19211424T	BUTTON LEVER	REW	2		
	7	19211425T	BUTTON LEVER	FF	2		
	8	19211426T	BUTTON LEVER	STOP	2		
	9	19211461T	BUTTON LEVER	PAUSE DECK A	1		
	10	19211413T	P CONT. SPRING		1		
	11	19211455T	PAUSE LEVER (E)		1		
	12	19211412T	SPRING	PAUSE	1		
	13	19211411T	PAUSE STOPPER		1		
	14	19211414T	TORSION SPRING	BUTTON LEVER	3		
	15	192101501ZT	CHASSIS ASS'Y		2		
	16	19211416T	TORSION SPRING	E ACTUATER	2		
	17	19211417T	TORSION SPRING	PS LEVER	2		
	19	182101159T	E.KICK LEVER		2		
	20	19211420T	STOPPER	PINCH ROLLER	1		
	21	19211421T	TORSION SPRING	REC BUTTON	1		
	22	19211433T	TORSION SPRING	SPRING C	1		
	23	MSW-1541T	LEAF SWITCH	MSW-1541T	2		
	24	18210150T	SPRING	PLAY BUTTON	2		
	25	19210311T	HEAD PANEL		2		
	27	19210304AT	HEAD BASE		2		
	29	19210309T	PANEL P SPRING		2		
	30	19211418AT	SPRING	M CONTROL	2		
	31	18211311T	TENSION SPRING	E SLIDE LEVER	1		
	33	19210305T	MAGNET HEAD ARM		1		
	34	18210307T	AZIMUTH SPRING		2		
	35	192104309T	P.ROLL.ARM ASSY		2		
	36	640101161T	LEAF SWITCH	MSW-17820MVDD	2		
	38	19212604TT	SENSING LEVER		2		
	39	192107304T	RF CLUTCH ASS'Y		2		
	40	18210711T	RF.BELT		2		
	41	19211434T	P.ROLLER ARM		1		
	42	19211437T	P ARM COLLAR		1		
	43	192109304ZT	FLYWHEEL ASS'Y		1		
	44	192109303ZT	FLYWHEEL ASS'Y		1		
	45	19212605T	TORSION SPRING		2		
	46	192126502ZT	GEAR PLATE ASSY		2		
	47	19212602T	CAM GEAR		2		
	48	99992041T	SPECIAL SCREW	M2 X 3	1		
	49	18211070T	F.FORWARD GEAR		2		
	50	18211099T	BACK TENSION SP		2		
	51	192105304T	S. REEL ASS'Y		2		
	52	192105303T	T. REEL ASS'Y		2		
	53	19210506T	SENSOR		2		
	55	19211211T	MOTOR BRACKET		1		
	56	18211266T	MOTOR RUBBER		3		
	57	18511418T	COLLAR SCREW	FOR MOTOR	3		
	59	19210923T	MAIN BELT		2		
	60	19211212T	MAT		2		
	62	19211302T	EJ. SLIDE LEVER		2		



# 10 Packing Illustration and Parts List

BLOCK No. **M4MM**

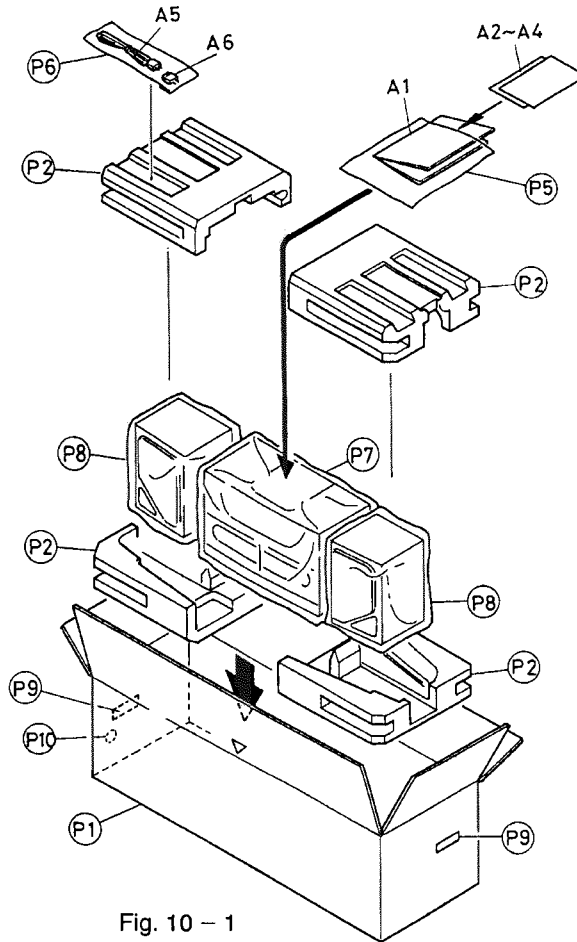
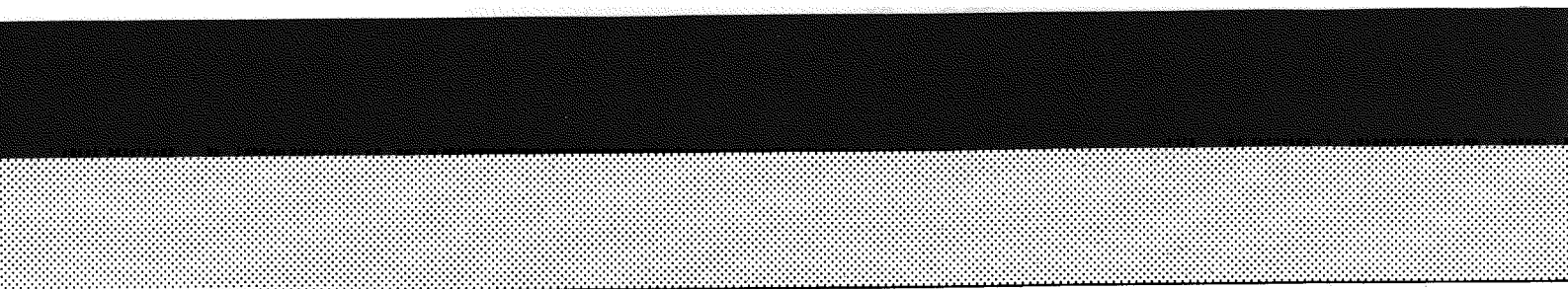


Fig. 10 - 1

## ● Packing Parts List

BLOCK NO. **M4MM**

REF.	PARTS NO.	PARTS NAME	REMARKS	QTY	SUFFIX	CLR
A 1	FMUN7001-611M	INSTRUCTIONS		1	J,C	
	FMUN7001-251M	INSTRUCTIONS		1	B	
	FMUN7001-261M	INSTRUCTIONS		1	E,EN	
	FMUN7001-271M	INSTRUCTIONS		1	EN	
	FMUN7001-921M	INSTRUCTIONS		1		
A 2	FMUN7001-911M	INSTRUCTIONS		1		
	BT-20047F	WARRANTY CARD	(PX EES)	1	J	
	BT20060	WARRANTY CARD		1	B	
A 3	BT-20066A	WARRANTY CARD		1	B	
	BT-20137	SERVICE INFOR		1	J	
A 4	BT-20044G	SAFETY SHEET		1	J	
	E43486-340B	SAFETY SHEET		1	B	
A 5	QMP1350-183	POWER CORD		1	J	
	QMP5520-183BS	POWER CORD		1	B	
	QMP39F0-183E	POWER CORD		1	E,EN	
A 6	QMP7530-183	POWER CORD		1		
	V04062-001	CONTI PLUG	AC CORD ADAPTER	1	U	
	FMPC7001-002	CARTON		1		
	FMPH1002-001	CUSHION(UP-L&R)	EXPANSION RATIO	1		
	VPE3005-007	POLY BAG	FOR INSTRUCTION	1		
P 6	E300196-032	POLY BAG	FOR POWER CORD	1	J,E,EN,U,VX	
	E300196-031B	POLY BAG	FOR SET	1		
P 8	VPE3020-018	POLY BAG	FOR SPEAKER	2		
P 9	CL0020-001	COMPUTER LABEL		2	J,C	
	CL0020-001	COMPUTER LABEL		1	B,E,EN,VX	
P 10	QZLA001-011	GREEN MARK LABE		1	E,EN	



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