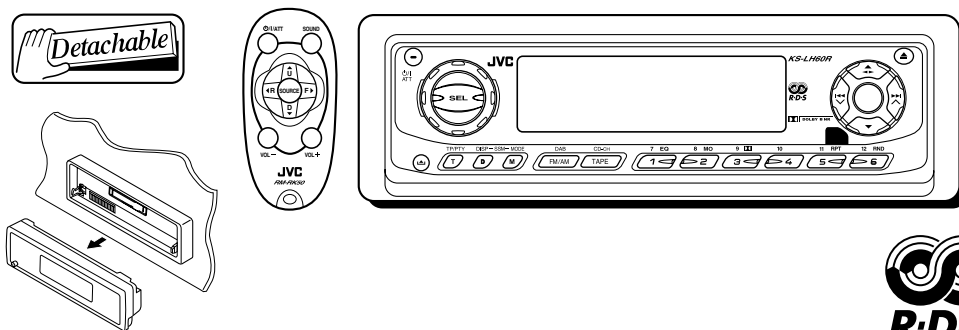


# JVC

## SERVICE MANUAL

### CASSETTE RECEIVER

## KS-LH60R



#### Area Suffix

E ----- Continental Europe

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## SPECIFICATION

AUDIO AMPLIFIER SECTION	Maximum Power Output:	Front	50 W per channel
		Rear	50 W per channel
	Continuous Power Output (RMS):	Front	19 W per channel into 4 $\Omega$ 40 Hz to 20 000 Hz at no more than 0.8% total harmonic distortion.
		Rear	19 W per channel into 4 $\Omega$ 40 Hz to 20 000 Hz at no more than 0.8% total harmonic distortion.
	Load Impedance		4 $\Omega$ (4 $\Omega$ to 8 $\Omega$ allowance)
	Tone Control Range	Bass	$\pm$ 10 dB at 100 Hz
		Treble	$\pm$ 10 dB at 10 kHz
	Frequency Response		40 Hz to 20 000 Hz
	Signal-to-Noise Ratio		70 Db
	Line-Out Level/Impedance		2.0 V/20 k $\Omega$ load (250 nWb/m)
Output Impedance		1 k $\Omega$	
TUNER SECTION	Frequency Range	FM	87.5 MHz to 108.0 MHz
		AM	(MW) 522 kHz to 1 620 kHz (LW) 144 kHz to 279 kHz
	[FM Tuner]	Usable Sensitivity	11.3 dBf (1.0 $\Omega$ V/75 $\Omega$ )
	50 dB Quieting Sensitivity		16.3 dBf (1.8 $\Omega$ V/75 $\Omega$ )
	Alternate Channel Selectivity (400 kHz)		65 dB
	Frequency Response		40 Hz to 15 000 Hz
	Stereo Separation		30 dB
	Capture Ratio		1.5 dB
	[MW Tuner]	Sensitivity	20 $\mu$ V
		Selectivity	35 dB
[LW Tuner]	Sensitivity	50 $\mu$ V	
CASSETTE DECK SECTION	Wow & Flutter		0.11% (WRMS)
	Fast-Wind Time		100 sec. (C-60)
	Frequency Response (Dolby B NR OFF)		30 Hz to 16 000 Hz (Normal tape)
	Signal-to-Noise Ratio		56 dB (Normal tape)
	(Dolby B NR ON)		65 dB
	(Dolby B NR OFF)		56 dB
	Stereo Separation		40 dB
GENERAL	Power Requirement	Operating Voltage	DC 14.4 V (11 V to 16 V allowance)
		Grounding System	
	Allowable Operating Temperature		0°C to +40°C
	Dimensions (W $\times$ H $\times$ D):	Installation Size (approx.)	182 mm $\times$ 52 mm $\times$ 150 mm
		Panel Size (approx.)	188 mm $\times$ 58 mm $\times$ 12 mm
Mass (approx.)		1.5 kg (excluding accessories)	

Design and specifications are subject to change without notice.

# SECTION 1 PRECAUTION

## 1.1 Safety Precautions



**CAUTION** Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

**SECTION 2**  
**SPECIFIC SERVICE INSTRUCTIONS**

This service manual does not describe SPECIFIC SERVICE INSTRUCTIONS.

## SECTION 3 DISASSEMBLY

### 3.1 Main body

#### 3.1.1 Removing the front panel assembly (See Fig.1)

- (1) Press the release button and remove the front panel assembly.

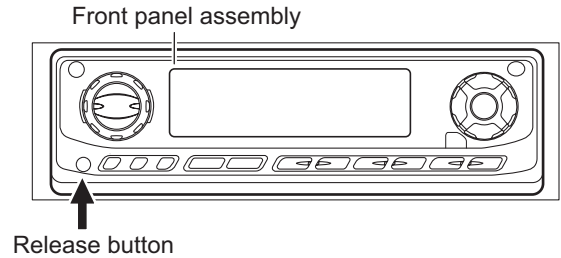


Fig.1

#### 3.1.2 Removing the bottom cover (See Fig.2)

- Prior to performing the following procedures, remove the front panel assembly.
  - (1) Turn the main body upside down.
  - (2) Insert a screwdriver under the joints to release the two joints **a** on the left side, two joints **b** on the right side and joint **c** on the back side of the main body, then remove the bottom cover from the main body.

#### CAUTION:

When releasing the joints using a screwdriver, do not damage the main board.

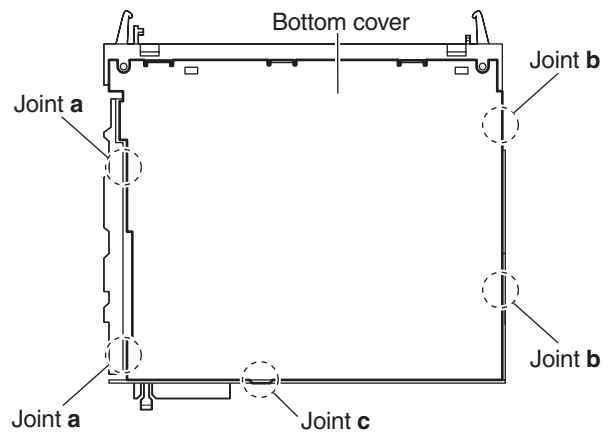


Fig.2

#### 3.1.3 Removing the front chassis assembly (See Figs.3 and 4)

- Prior to performing the following procedures, remove the front panel assembly and bottom cover.
  - (1) Remove the two screws **A** on the both sides of the main body. (See Fig.3.)
  - (2) Remove the two screws **B** on the front side of the main body. (See Fig.4.)
  - (3) Release the two joints **d** and two joints **e** on the both sides of the main body, then remove the front chassis assembly toward the front. (See Fig.3.)

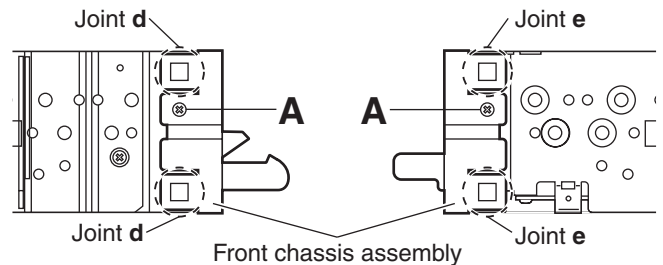


Fig.3

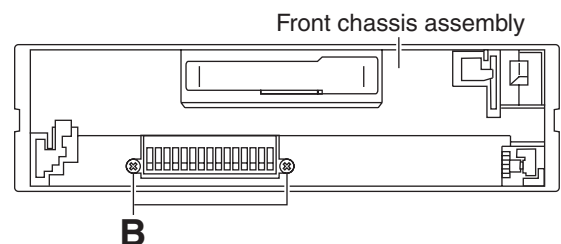


Fig.4

### 3.1.4 Removing the heat sink (See Fig.5)

- Prior to performing the following procedure, remove the front panel assembly.
  - (1) Remove the two screws **C** and screw **D** attaching the heat sink on the left side of the main body, and remove the heat sink.

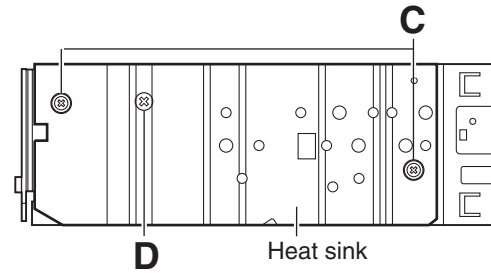


Fig.5

### 3.1.5 Removing the rear panel (See Fig.6)

- Prior to performing the following procedure, remove the front panel assembly and bottom cover.
  - (1) Remove the two screws **E**, one screws **F** and three screws **G** attaching the rear panel on the back side of the main body.

#### Reference:

During reassembly, before fixing the rear bracket onto the main body, insert the STEERING cable into the slot.

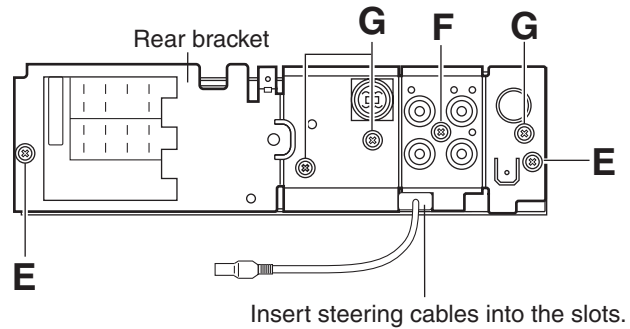


Fig.6

### 3.1.6 Removing the main board (See Fig.7)

- Prior to performing the following procedures, remove the front panel assembly, bottom cover, front chassis assembly, heat sink and rear panel.
  - (1) Remove the two screws **H** attaching the main board on the top chassis.
  - (2) Disconnect the connector CP401 on the main board from the cassette mechanism assembly.

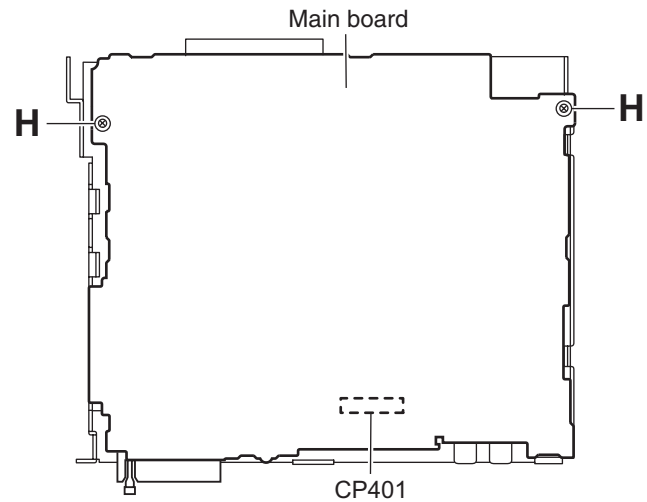


Fig.7

### 3.1.7 Removing the cassette mechanism assembly (See Fig.8)

- Prior to performing the following procedures, remove the front panel assembly, bottom cover, front chassis assembly, heat sink, rear panel and main board.
  - (1) Disconnect the wire from the connector CN402 on the mecha board.
  - (2) Disconnect the card wire from the connector CN403 on the mecha board.
  - (3) Remove the four screws **J** attaching the cassette mechanism assembly to the top chassis, take out the cassette mechanism assembly.

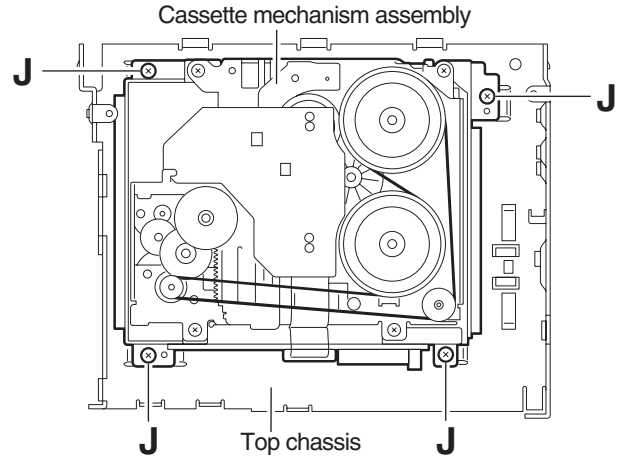


Fig.8

### 3.1.8 Removing the mecha board (See Fig.9)

- Prior to performing the following procedures, remove the front panel assembly, bottom cover, front chassis assembly, heat sink, rear panel and main board.
  - (1) Disconnect the wire from the connector CN402 on the mecha board.
  - (2) Disconnect the card wire from the connector CN403 on the mecha board.
  - (3) Remove the screw **K** attaching the mecha board.
  - (4) Bend the hook **f** in the direction of the arrow 1 and move the mecha board in the direction of the arrow 2.
  - (5) Remove the mecha board from the mecha bracket (L) of the top chassis.

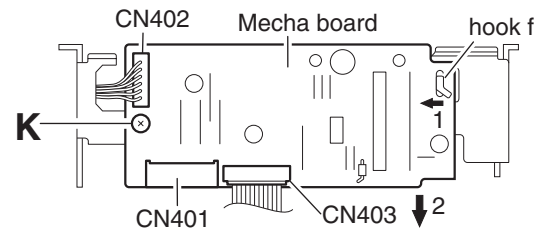


Fig.9

### 3.1.9 Removing the front board (See Figs.10 to 12)

- Prior to performing the following procedures, remove the front panel assembly.

- (1) Remove the four screws **L** attaching the rear cover on the back side of the front panel assembly. (See Fig.10.)
- (2) Release the nine joints **g**, the front panel assembly and rear cover become separate. (See Fig.11.)
- (3) Remove the front board from the front panel assembly. (See Fig.12.)

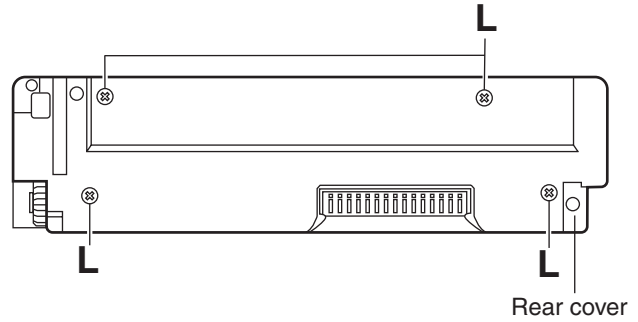


Fig.10

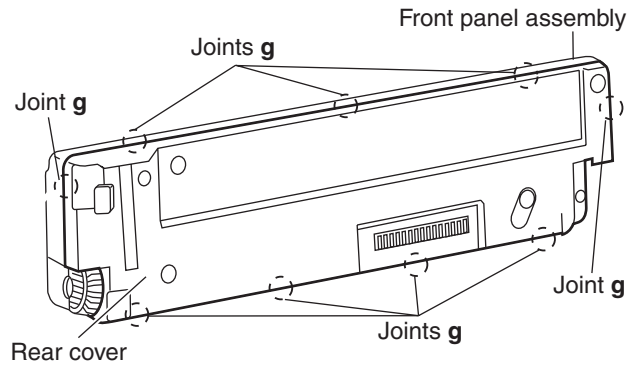


Fig.11

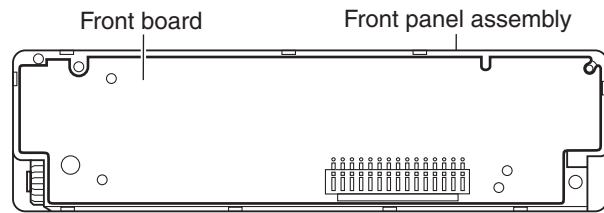


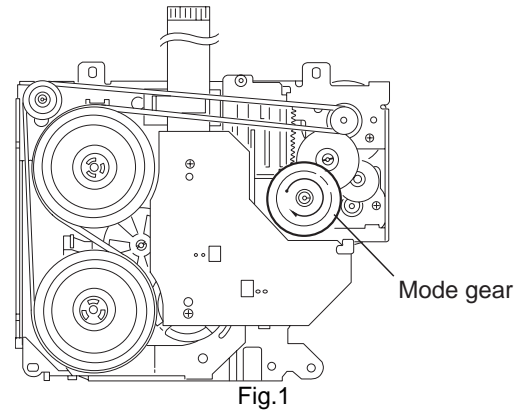
Fig.12



### 3.2 Cassette mechanism assembly

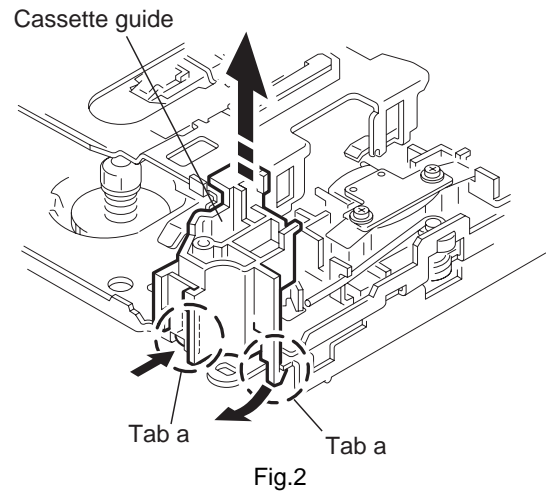
#### REFERENCE:

Prior to performing the following procedures, turn the mode gear on the bottom of the body until the respective part comes to the EJECT position (Refer to Fig.1).



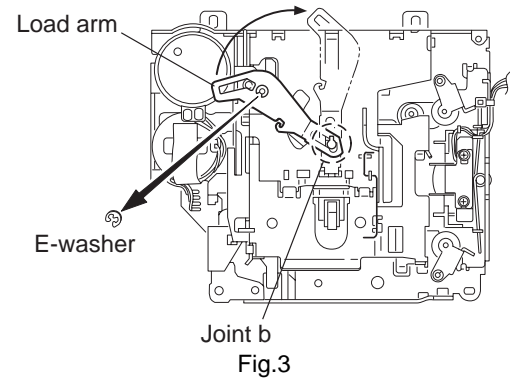
#### 3.2.1 Removing the cassette guide (See Fig.2)

- (1) Turn the mode gear to set to RVS play or subsequent mode.
- (2) Remove the cassette guide from the main chassis while releasing each two joint tabs **a** in the direction of the arrow.



#### 3.2.2 Removing the load arm (See Fig.3)

- (1) Remove the E-washer attaching the load arm.
- (2) Move the load arm in the direction of the arrow and release the joint **b** on the cassette catch.



### 3.2.3 Removing the cassette hanger assembly / cassette holder (See Fig.4 to 7)

- (1) Check the mode is set to EJECT. Push down the front part of the cassette holder and move in the direction of the arrow to release the joint **c**.
- (2) Move the rear part of the cassette hanger assembly in the direction of the arrow to release it from the two joint bosses **d**.
- (3) Release the holder stabilizer spring from the hooks **e** and **f**, then pull out from the cassette hanger assembly.
- (4) Bring up the rear side of the cassette hanger assembly to release the joint **g** and **h**.
- (5) Pull out the cassette catch from the cassette hanger assembly.

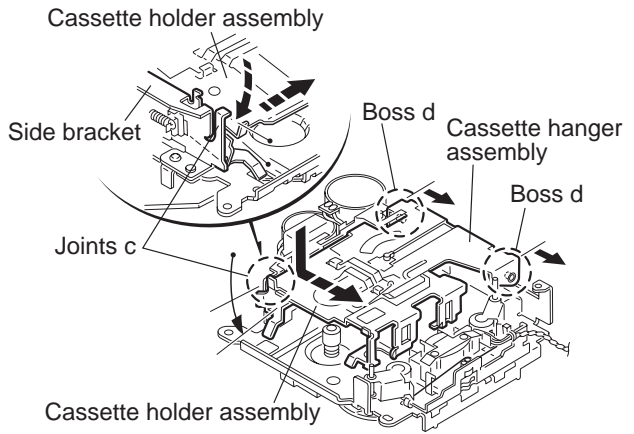


Fig.4

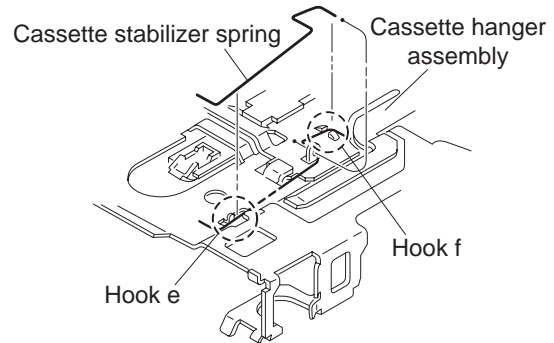


Fig.5

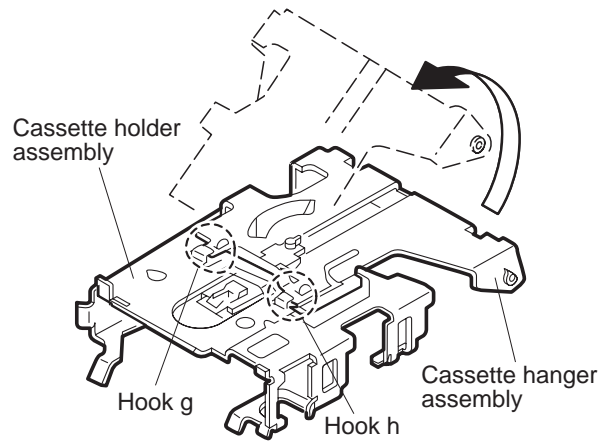


Fig.6

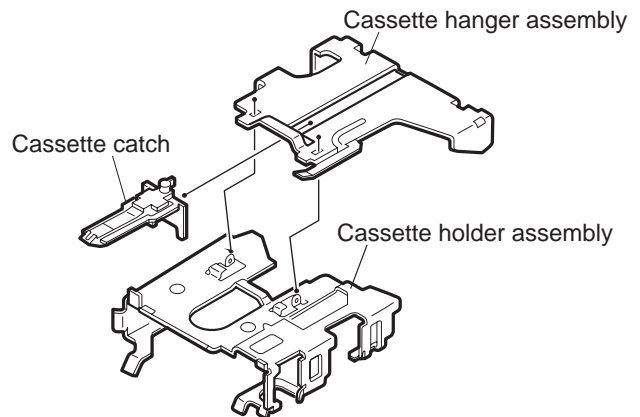


Fig.7

### 3.2.4 Removing the side bracket assembly (See Fig.8 to 10)

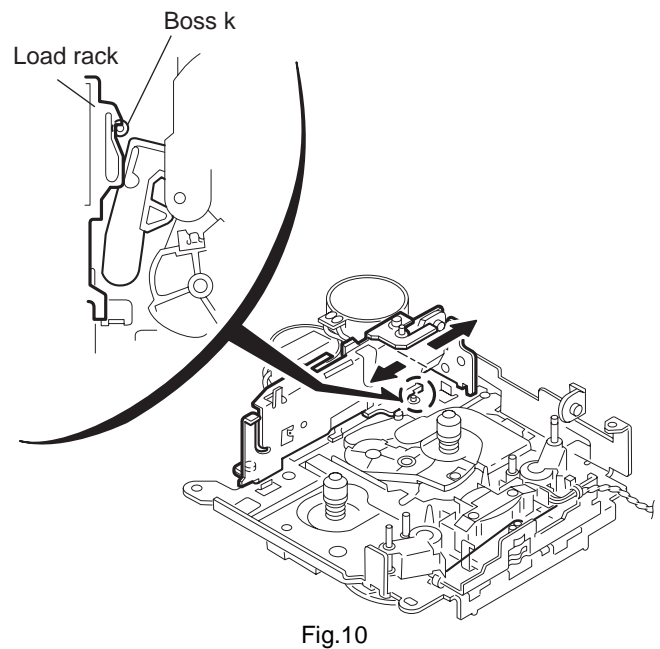
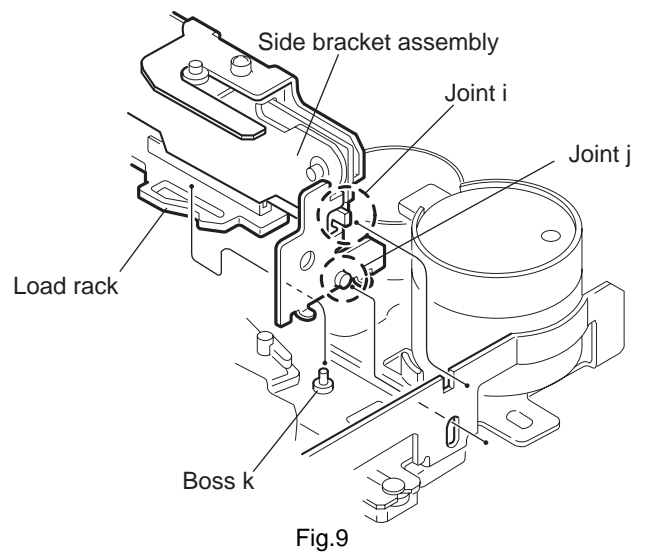
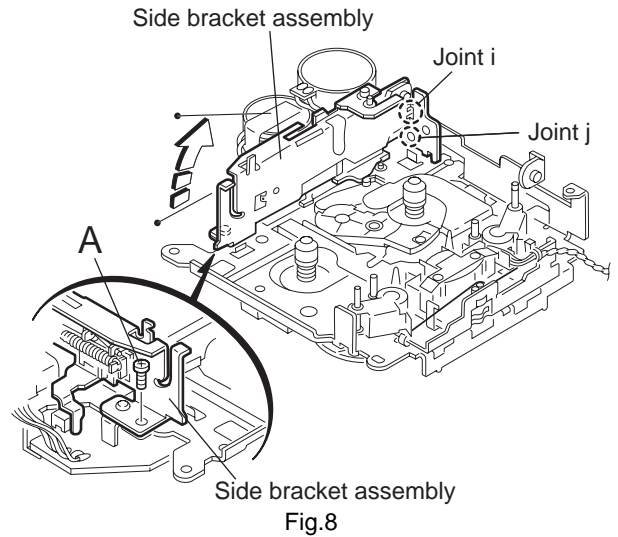
- (1) Remove the screw **A** attaching the side bracket assembly.
- (2) Detach the front side of the side bracket assembly upward and pull out forward to release the joint **i** and **j** in the rear.

**CAUTION:**

When reassembling, make sure that the boss **k** of the main chassis is set in the notch of the load rack under the side bracket assembly. Do not reattach the load rack on the boss **k**.

**CAUTION:**

After reattaching the side bracket assembly, confirm operation.



**3.2.5 Removing the pinch arm (F) assembly  
(See Fig.11 and 12)**

- (1) Remove the polywasher and pull out the pinch arm (F) assembly.
- (2) Remove the compulsion spring.

**3.2.6 Removing the pinch arm (R) assembly  
(See Fig.11 and 12)**

- (1) Remove the polywasher and pull out the pinch arm (R) assembly.

**3.2.7 Removing the slide chassis assembly  
(See Fig.13 and 14)**

**REFERENCE:**

- It is not necessary to remove the head and the tape guide.
- (1) Move the slide chassis assembly in the direction of the arrow to release the two joints I and remove from the main chassis.
  - (2) Remove the rack link.

**CAUTION:**

When reassembling, first reattach the rack link, and next fit the boss m and hook n of the slide chassis assembly to the hole of the main chassis, and engage the two joints I.

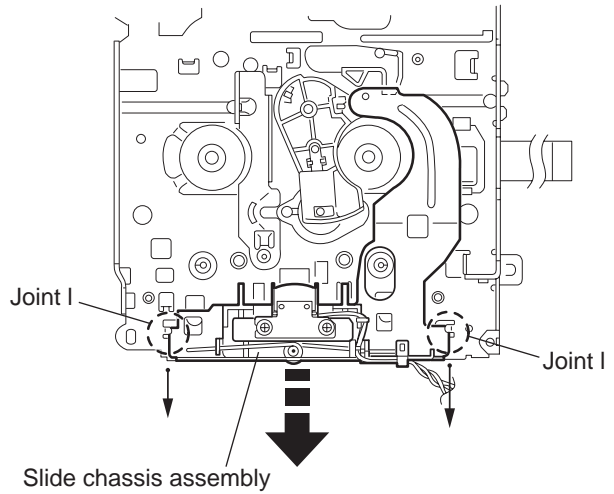


Fig.13

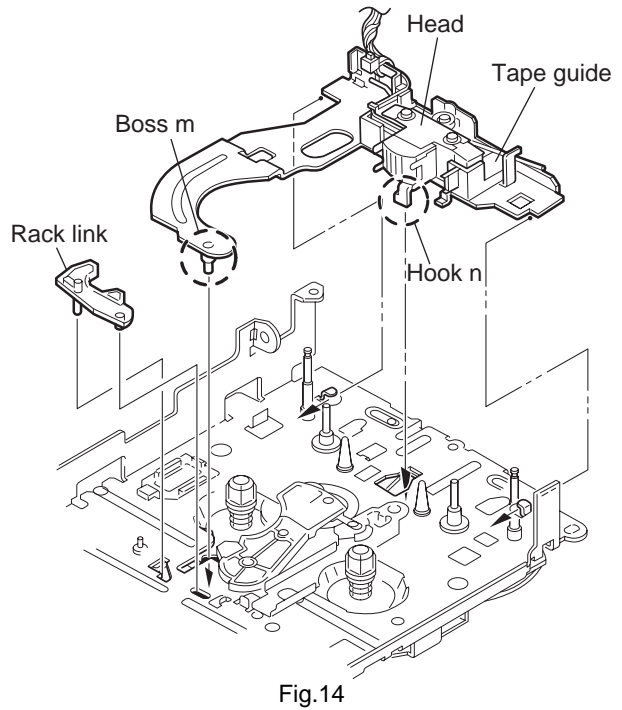
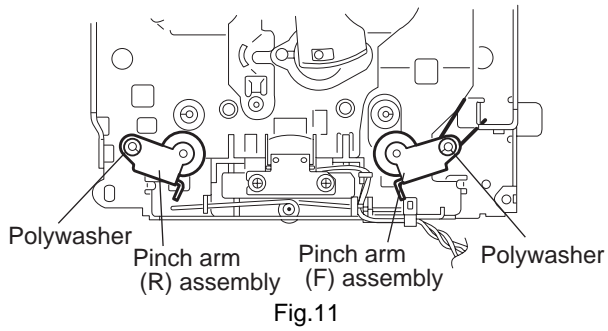


Fig.14

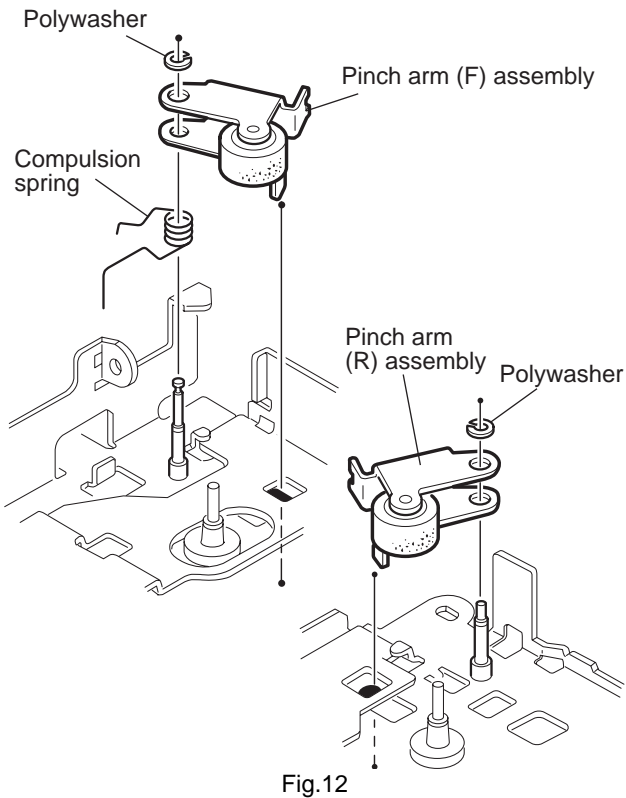


Fig.12

### 3.2.8 Removing the head / tape guide (See Fig.16 and 17)

#### REFERENCE:

It is not necessary to remove the slide chassis assembly.

- (1) Remove the band attaching the wire to the head.
- (2) Remove the two screws **B**, the head and the head support spring.
- (3) Remove the pinch arm spring from the tape guide.
- (4) Remove the tape guide and the pinch spring arm.

#### CAUTION:

When reattaching the pinch arm spring, set both end of it to the pinch spring arm (remarked **o**).

#### CAUTION:

When reattaching the head, set the wires into the groove of the tape guide (Fig.16).

### 3.2.9 Removing the flywheel assembly (F) & (R) (See Fig.18 and 19)

#### REFERENCE:

It is not necessary to remove the slide chassis assembly.

- (1) Remove the belt at the bottom.
- (2) Remove the two polywashers on the upper side.
- (3) Pull out each flywheel assembly downward.

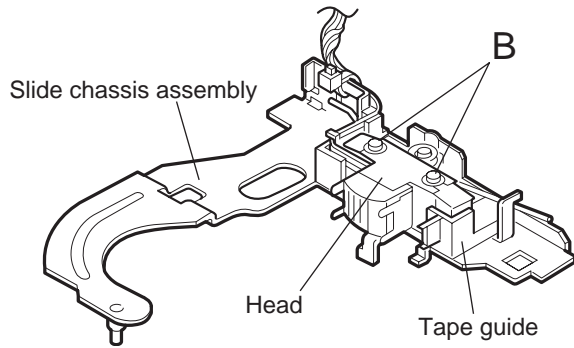


Fig.15

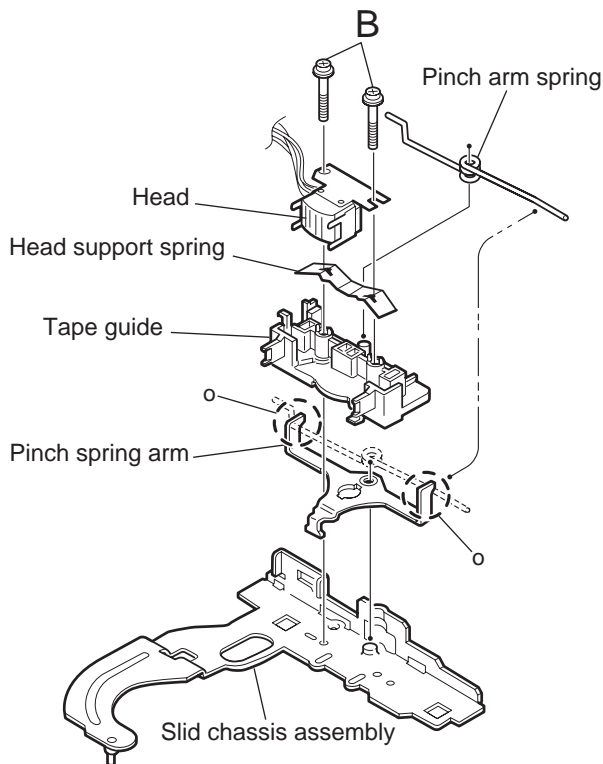


Fig.16

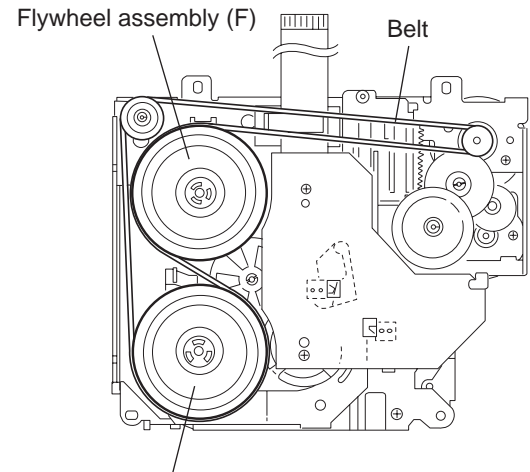


Fig.17

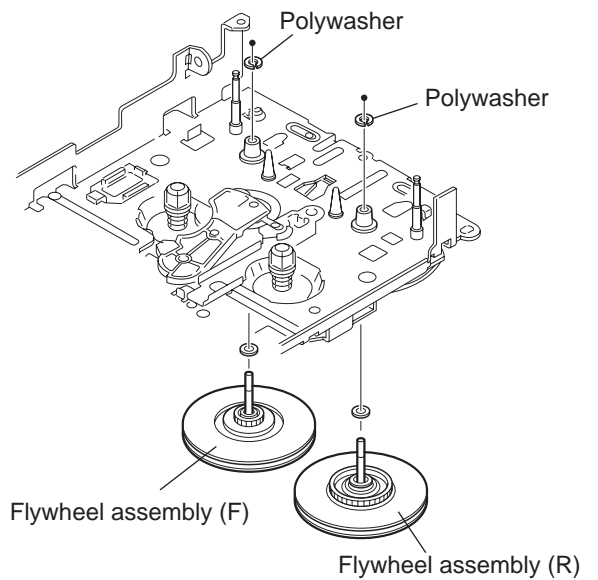


Fig.18

**3.2.10 Disassembling the flywheel assembly (F)**  
**(See Fig.19 and 20)**

- (1) Push and turn counterclockwise the spring holder (F) to release the three joints p on the bottom of the flywheel.
- (2) The spring holder (F), the TU spring and the friction gear play come off.
- (3) Remove the polywasher and felt.

**3.2.11 Disassembling the flywheel assembly (R)**  
**(See Fig.19 and 20)**

- (1) Push and turn clockwise the spring holder (R) to release the three joints q on the bottom of the flywheel.
- (2) The spring holder (R), the FF spring and the friction gear FF come off.
- (3) Remove the polywasher and the felt.

**3.2.12 Removing the reel board**  
**(See Fig.21 and 22)**

- (1) Remove the two screws C attaching the reel board.
- (2) Move the reel board in the direction of the arrow to release the joint r.
- (3) Unsolder the wires if necessary.

**CAUTION:**

When reattaching, confirm operation of the MODE switch and the ST-BY switch. The mode position between EJECT and ST-BY is optimum for reattaching. Connect the card wire extending from the reel board to the FFC pad before reattaching the reel board.

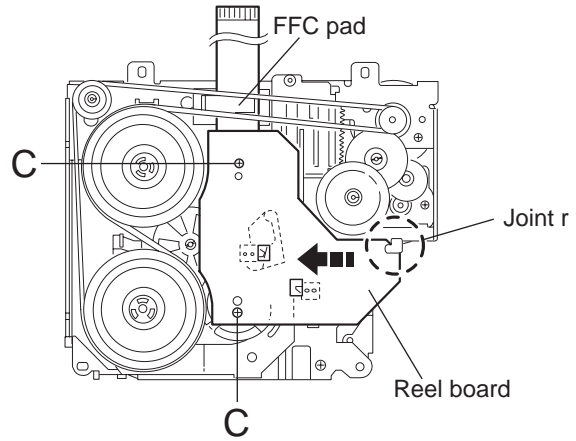


Fig.21

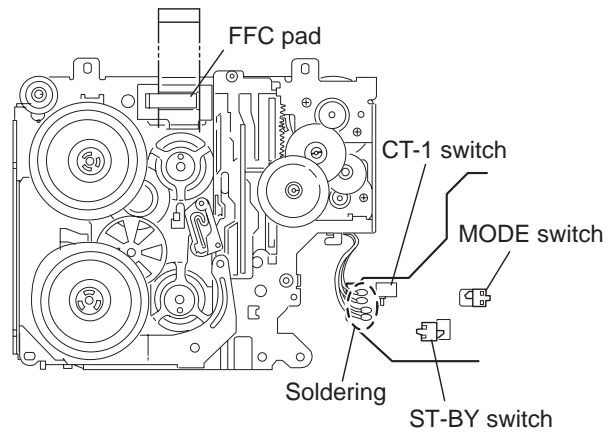


Fig.22

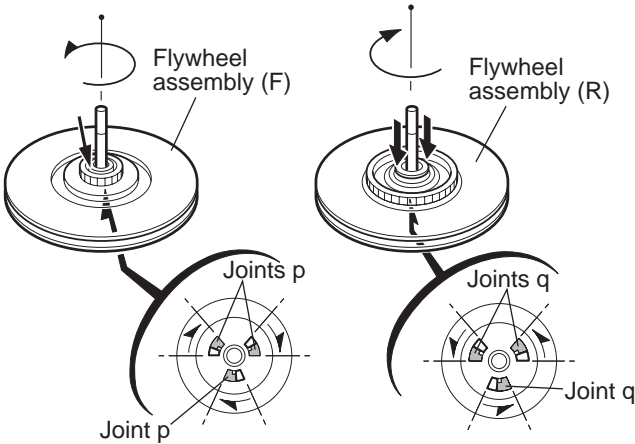


Fig.19

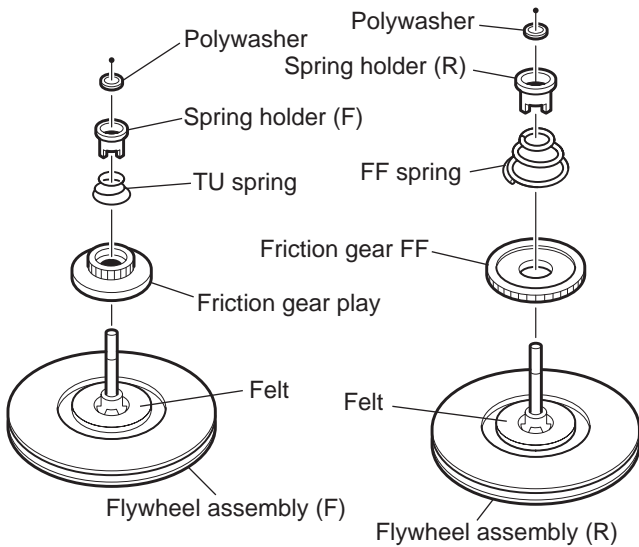


Fig.20

### 3.2.13 Removing the gear base arm / gear base link assembly (See Fig.23 to 25)

- (1) Move the gear base arm in the direction of the arrow.
- (2) Insert a slotted screwdriver to the gear base spring under the gear base arm, and release the gear base arm upward from the boss on the gear base assembly.
- (3) Remove the gear base arm from the main chassis while releasing the two joints **s**.
- (4) Move the gear base link assembly in the direction of the arrow to release the two joints **t**.

#### REFERENCE:

When reattaching the gear base arm, make sure that the boss on the gear base assembly is inside the gear base spring.

### 3.2.14 Removing the FFC pad (See Fig.25 and 27)

- (1) Push each joint hook **u** of the FFC pad and remove toward the bottom.

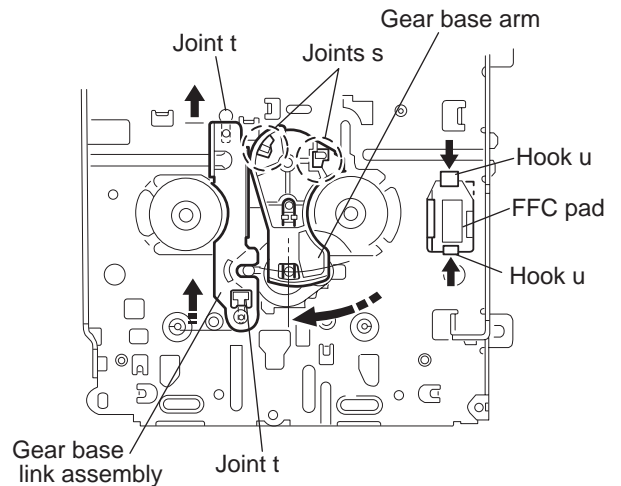


Fig.23

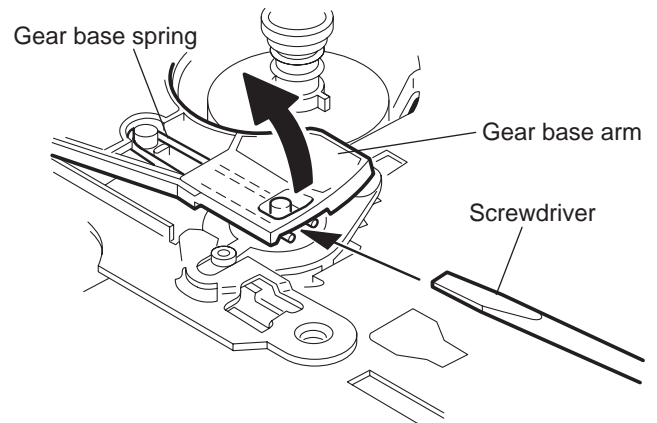


Fig.24

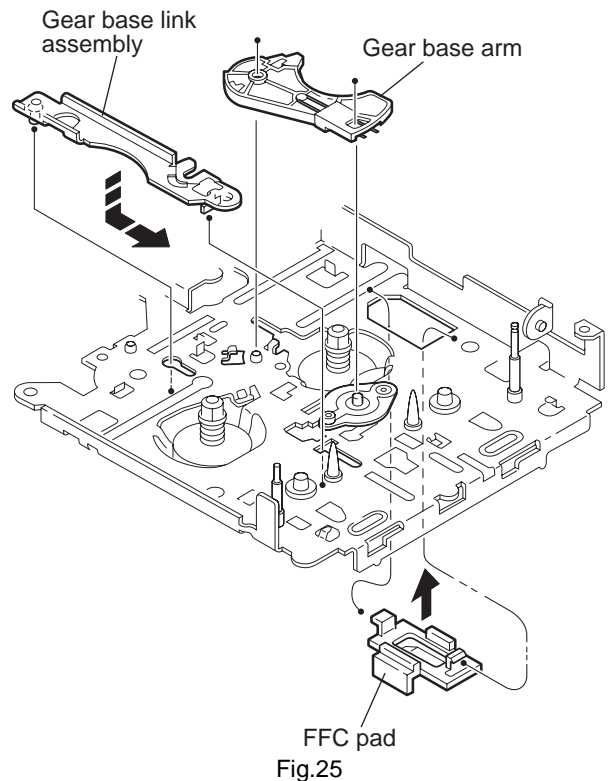


Fig.25

**3.2.15 Removing the mode gear**  
(See Fig.26 and 29)

- (1) Remove the polywasher on the bottom and pull out the mode gear.

**3.2.16 Removing the mode switch actuator**  
(See Fig.26, 27 and 29)

- (1) Pull out the mode switch actuator at the bottom.

**REFERENCE:**

When reattaching the mode switch actuator to the main chassis, make sure to set on the shaft and insert **v** into the slot **w**.

**3.2.17 Removing the direction link / direction plate**  
(See Fig.27 to 29)

- (1) Remove the polywasher attaching the direction link.
- (2) Bring up the direction link to release the three joints **x**, **y** and **z** at a time.
- (3) Move the direction plate in the direction of the arrow to release the two joints **a**'.

**REFERENCE:**

When reattaching the direction plate, engage the two joints **a**' and move in the direction of the arrow (Refer to Fig.28).

**REFERENCE:**

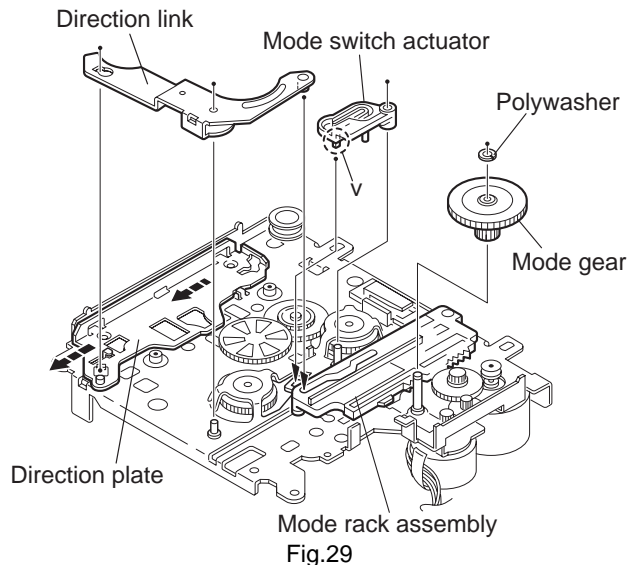
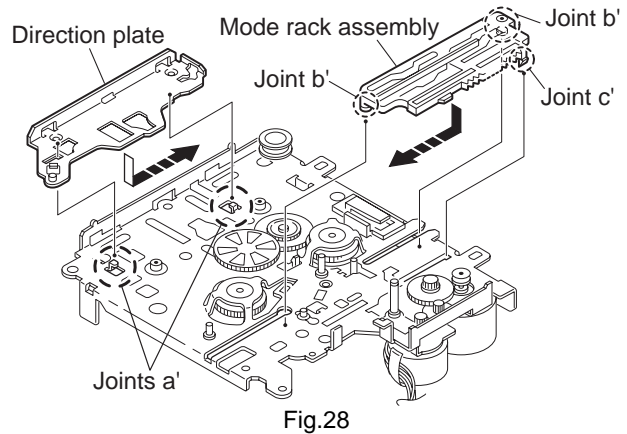
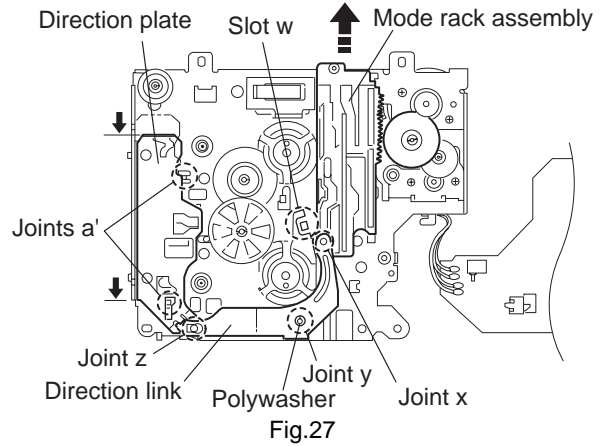
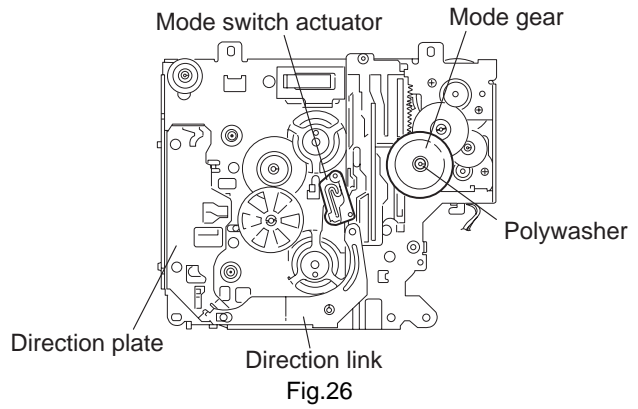
When reattaching the direction link, move the direction plate in the direction of the arrow and engage the three joint **x**, **y** and **z** at a time (Refer to Fig.29).

**3.2.18 Removing the mode rack assembly**  
(See Fig.27 and 28)

- (1) Move the mode rack assembly in the direction of the arrow to release the two joints **b**' and the joint **c**'.

**REFERENCE:**

When reattaching, set the two **b**' on the bottom of the mode rack assembly into the slots of the main chassis and move in the direction of the arrow (See Fig.28).





**3.2.19 Removing the gear base assembly / take up gear / reflector gear  
(See Fig.30 to 32)**

- (1) Push in the pin **d'** of the gear base assembly on the upper side of the body and move the reflector gear toward the bottom, then pull out.
- (2) Remove the polywasher on the bottom and pull out the take up gear.
- (3) Move the gear base assembly in the direction of the arrow to release it from the two slots **e'** of the main chassis.

**REFERENCE:**

The parts are damaged when removed. Please replace with new ones.

**3.2.20 Removing the reel driver / reel spindle  
(See Fig.32)**

- (1) Draw out the reel driver from the shaft on the main chassis and remove the reel driver spring and the reel spindle respectively.

**CAUTION:**

The reel driver is damaged when removed. Please replace with a new one.

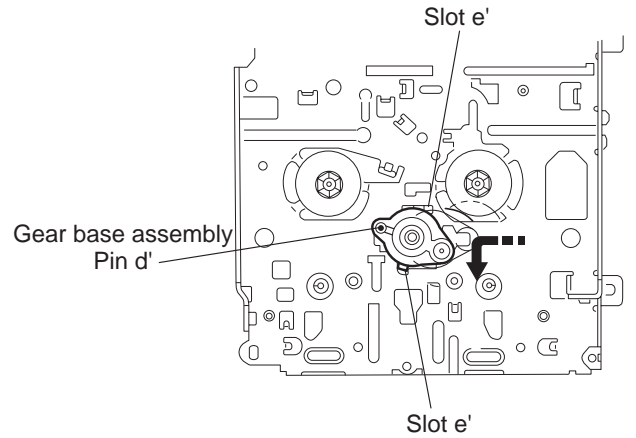


Fig.30

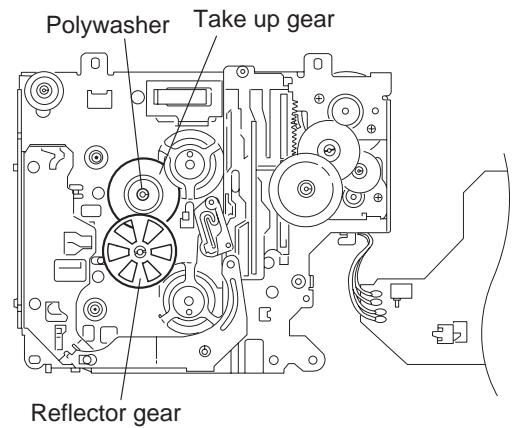


Fig.31

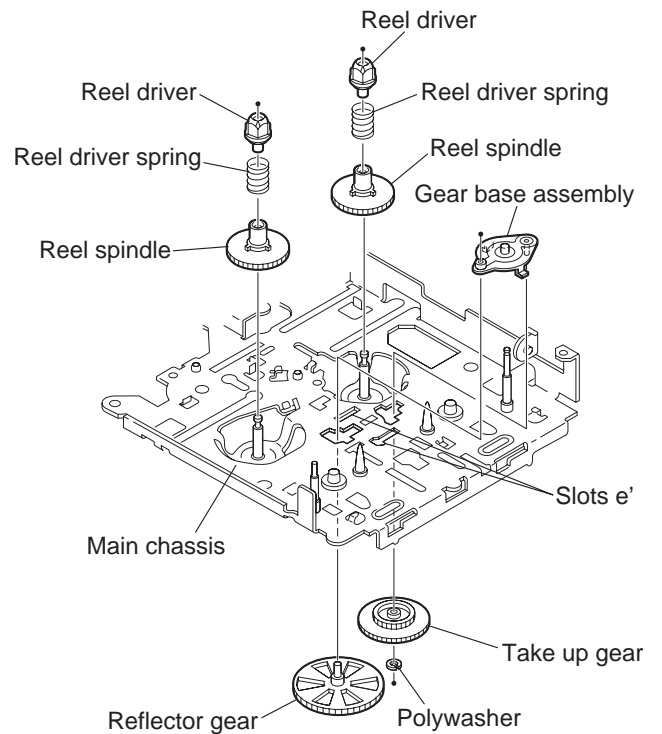


Fig.32

**3.2.21 Removing the side bracket assembly  
(See Fig.33 to 37)**

- (1) Remove the eject cam plate spring.
- (2) Push the joint f' through the slot to remove the load rack downward.
- (3) Move the eject cam limiter in the direction of the arrow to release it from the boss g' of the side bracket assembly and from the two joints h'.
- (4) Move the eject cam plate in the direction of the arrow to release the joint i'.

**CAUTION:**

When reassembling, confirm operation of each part before reattaching the eject cam plate spring.

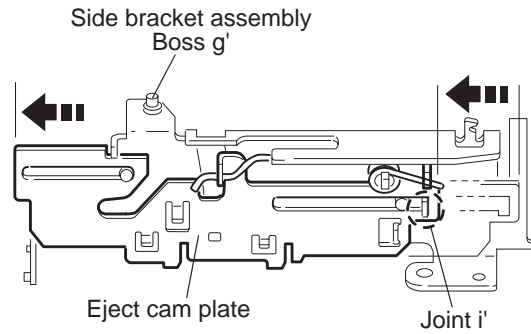


Fig.36

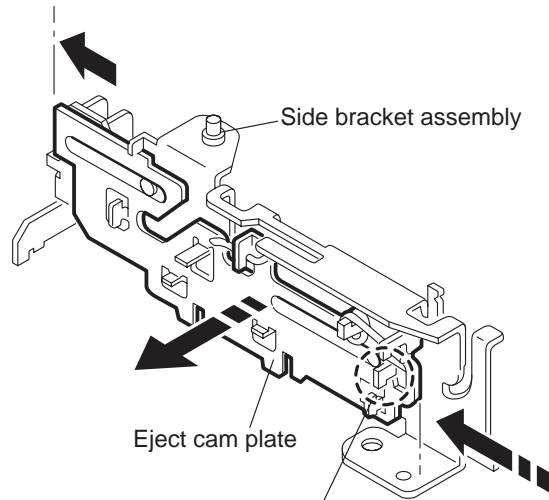


Fig.37

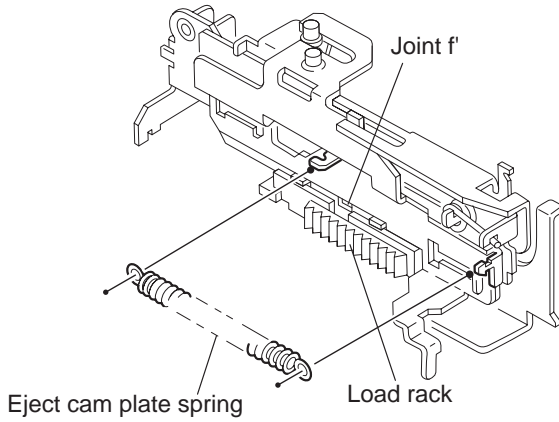


Fig.33

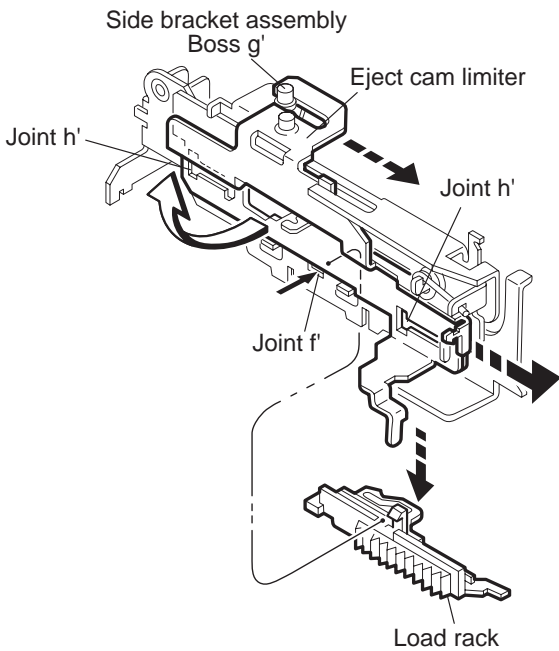


Fig.34

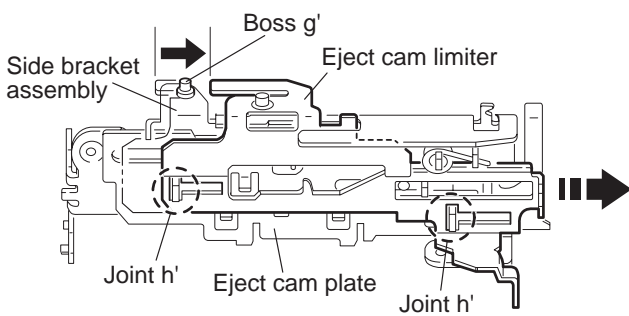


Fig.35

**3.2.22 Removing the main motor assembly / sub motor assembly**  
**(See Fig.38 to 40)**

- (1) Remove the belt at the bottom.
- (2) Remove the polywasher and pull out the mode gear.
- (3) Pull out the reduction gear **(B)**.
- (4) Remove the polywasher and pull out the reduction gear **(A)**.
- (5) Remove the two screws attaching the main motor assembly.
- (6) Remove the two screws **E** attaching the sub motor assembly.
- (7) Unsolder the wires on the reel board if necessary.

**CAUTION:**

When reassembling, adjust the length of the wires extending from the sub motor assembly by attaching them to the side of the sub motor assembly with the wires extending from the main motor assembly using a spacer.

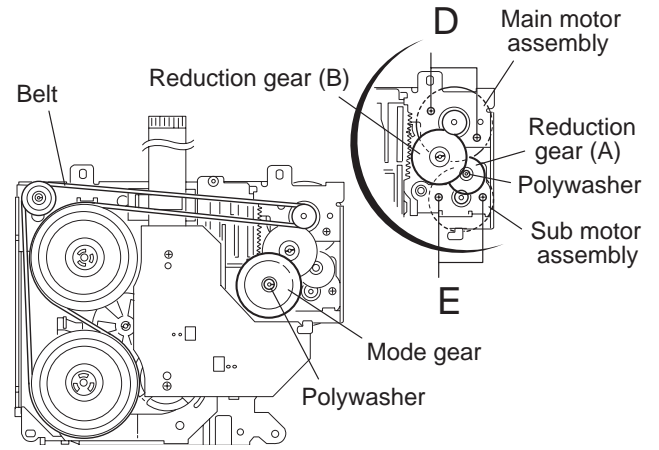


Fig.38

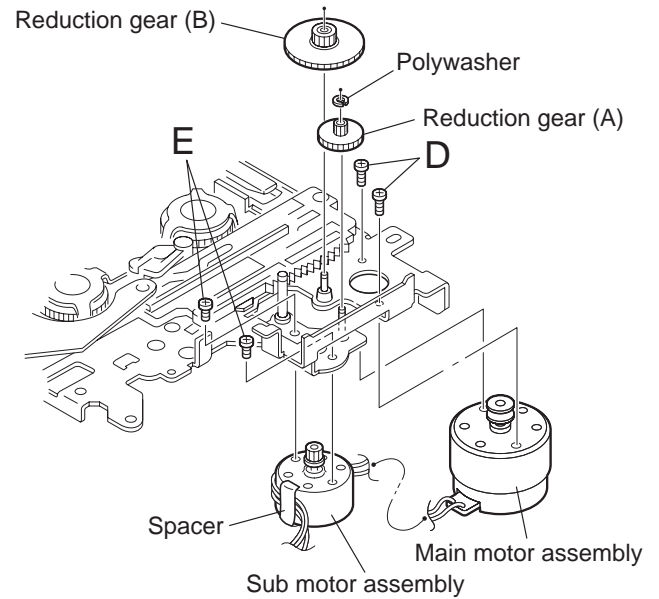


Fig.39

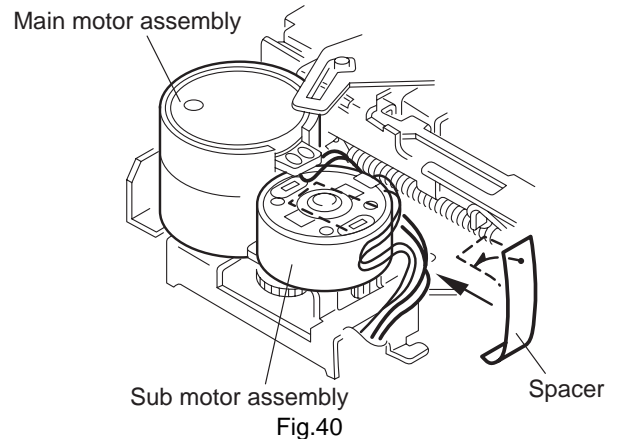


Fig.40

# SECTION 4 ADJUSTMENT

## 4.1 Adjustment method

### ■ Test instruments required for adjustment

- (1) Digital oscilloscope (100MHz)
- (2) Frequency counter meter
- (3) Electric voltmeter
- (4) Wow & flutter meter
- (5) Test tapes
  - VT724.....For DOLBY level measurement
  - VT739.....For playback frequency measurement
  - VT712.....For wow flutter & tape speed measurement
  - VT703.....For head azimuth measurement
- (6) Torque gauge.....Cassette type for CTG-N

### ■ Standard volume position

Balance and Bass, Treble volume, Fader : Center (Indication "0")  
Loudness, Dolby NR, Sound, Cruise : Off

Volume position is about 2V at speaker output with following conditions, Playback the test tape VT721.

AM mode	999kHz/62dB, INT/400Hz, 30% modulation signal on receiving.
FM mono mode	97.9MHz/66dB, INT/400Hz, 22.5kHz deviation pilot off mono
FM stereo mode	1kHz, 67.5kHz dev. pilot 7.5kHz dev.
Output level	0dB (1 $\mu$ V,50 $\Omega$ /open terminal)

### ■ Measuring conditions (Amplifier section)

- Power supply voltage..... DC14.4V (11V to 16V allowance)
- Load impedance..... 4 $\Omega$  (4 $\Omega$  to 8 $\Omega$  allowance)
- Line out level/Impedance.....1.0V/20k load (250 nWb/m)

### ■ Information for using a car audio service jig

- (1) We're advancing efforts to make our extension cords common for all car audio products.  
Please use this type of extension cord as follows.
- (2) As a U-shape type top cover is employed, this type of extension cord is needed to check operation of the mechanism assembly after disassembly.
- (3) Extension cord : EXTKSRT002-18P ( 18 pin extension cord ) For connection between mechanism assembly and main board.
- (4) Check for mechanism driving section such as motor ,etc.

### ■ Disassembly method

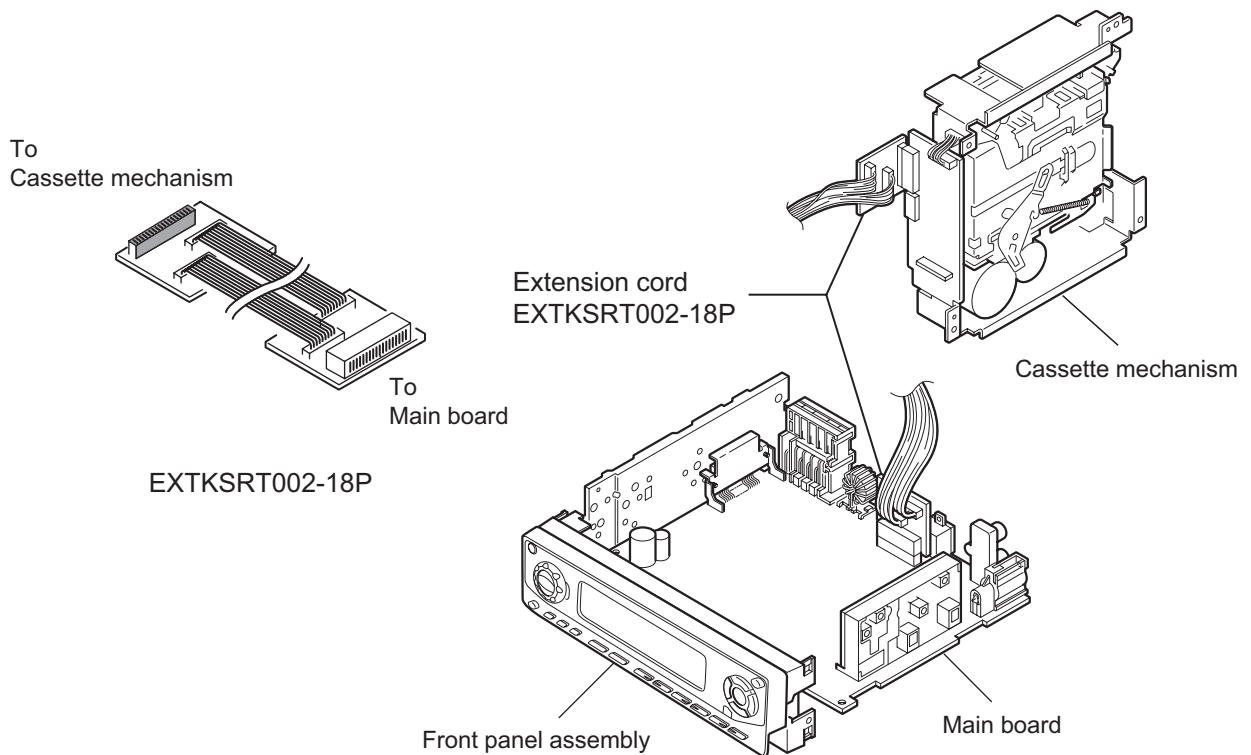
- (1) Remove the front panel assembly.
- (2) Remove the bottom cover.
- (3) Remove the front chassis.
- (4) Remove the heat sink.
- (5) Remove the rear panel
- (6) Remove the main board.
- (7) Reattach the heat sink with the two screws B. (Refer to Disassembly method.)
- (8) Reattach the rear panel with the screw E. (Refer to Disassembly method.)
- (9) Reattach the front panel assembly.
- (10) Confirm that current is being carried by connecting an extension cord jig.

### NOTE:

Available to connect to the [CJ601](#) connector when installing the front panel.

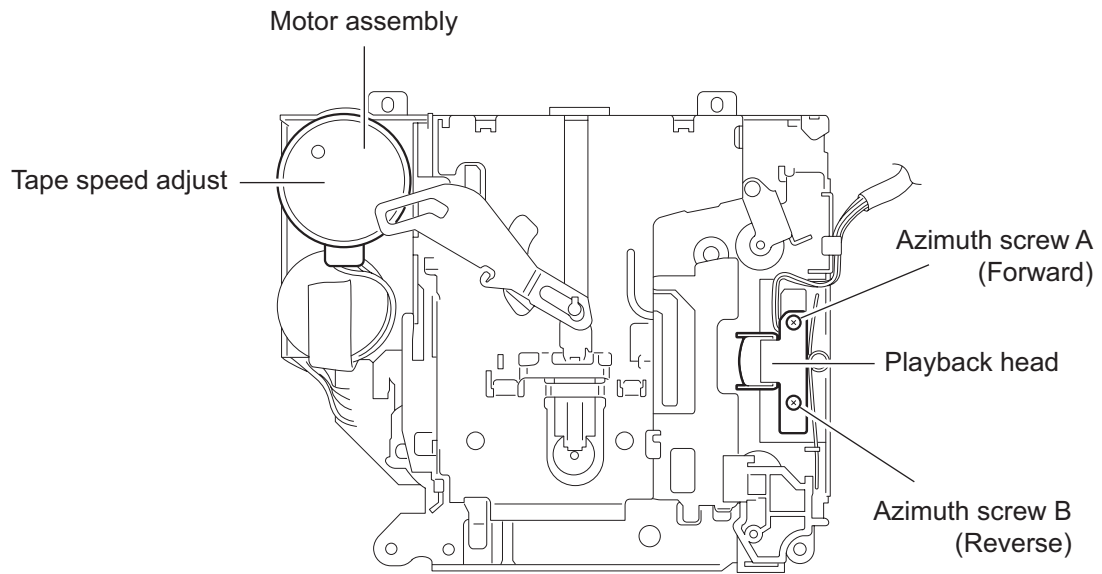
### CAUTION :

**Be sure to attach the heat sink and rear panel on the power amplifier IC and regulator IC of a main board when supplying the power.If voltage is applied without attaching those parts, the power amplifier IC and regulator IC will be destroyed by heat.**

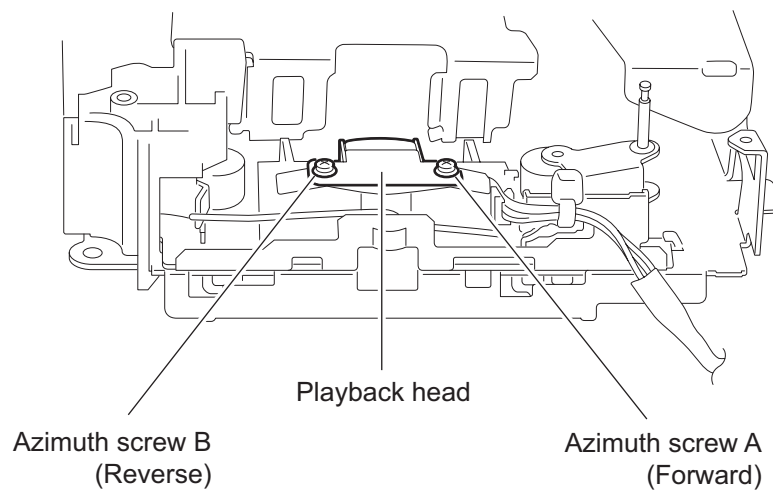



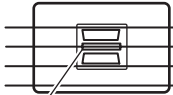
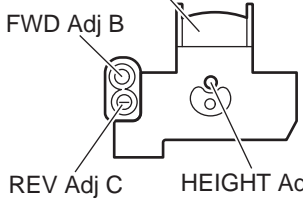
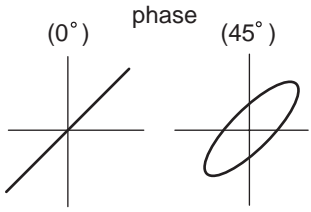
■ Arrangement of adjusting & test points

Cassette mechanism  
(Surface)



Head section view



Item	Conditions	Adjustment and Confirmation methods	S.Values	Adjust
1. Head azimuth adjustment	Test tape: SCC-1659 VT703 (10kHz)	<p>◆<b>Head height adjustment</b></p> <p>Adjust the azimuth directly. When you adjust the height using a mirror tape, remove the cassette housing from the mechanism chassis. After installing the cassette housing, perform the azimuth adjustment.</p> <p>(1) Load the SCC-1659 mirror tape. Adjust with height adjustment screw A and azimuth adjustment screw B so that line A of the mirror tape runs in the center between Lch and Rch in the reverse play mode.</p> <p>(2) After switching from REV to FWD then to REV, check that the head position set in procedure 1 is not changed. (If the position has shifted, adjust again and check.)</p> <p>(3) Adjust with azimuth adjustment screw B so that line B of the mirror tape runs in the center between Lch and Rch in the forward play mode.</p>	 <p>A line</p> <p>Head shield</p> <p>The head is at low position during.</p>  <p>B line</p> <p>Head shield</p> <p>The head is at High position during REV.</p>	
	Test tape: VT724 (1kHz) VT703 (10kHz) VT721 (315Hz)	<p>◆<b>Head azimuth adjustment</b></p> <p>(1) Load VT724 (1kHz) and play it back in the reverse play mode. Set the Rch output level to max.</p> <p>(2) Load VT703 (10kHz) and play it back in the forward play mode. Adjust the Rch and Lch output levels to max, with azimuth adjustment screw B. In this case, the phase difference should be within 45°.</p> <p>(3) Engage the reverse mode and adjust the output level to max, with azimuth adjustment screw C. (The phase difference should be 45° or more.)</p> <p>(4) When switching between forward and reverse modes, the difference between channels should be within 3dB. (Between FWD L and R, REV L and R.)</p> <p>(5) When VT721 (315Hz) is played back, the level difference between channels should be within 1.5dB.</p>	<p>Output level: Maximum</p>  <p>PBHead</p> <p>FWD Adj B</p> <p>REV Adj C</p> <p>HEIGHT Adj A</p> <p>phase</p>  <p>(0°)</p> <p>(45°)</p>	
2. Tape speed and wow flutter confirmation	Test tape: VT712 (3kHz)	<p>(1) Check to see if the reading of the F, counter / wow flutter meter is within 3015Hz to 3045Hz (FWD/REV), and less than 0.35% (JIS RMS).</p> <p>(2) In case of out of specification, adjust the motor with a built-in volume resistor.</p>	Tape speed: 3015Hz to 3045Hz Wow flutter: less than 0.35%	Built-in volume resistor
3. Play back frequency response confirmation	Test tape: VT724 (1kHz) VT739 (63Hz / 1kHz / 10kHz)	<p>(1) Play test tape VT724, and set the volume position at 2V.</p> <p>(2) Play test tape VT739 and confirm. 1kHz / 10kHz: -1 ±3dB, 1kHz / 63Hz: 0 ±3dB,</p> <p>(3) When 10kHz is out of specification, it will be necessary to read adjust the azimuth.</p>	Speaker out 1kHz / 63Hz: 0 ±3dB 1kHz / 10kHz: -1 ±3dB	

The tuner section is of an adjustment-free design. In case the tuner is in trouble, replace the tuner pack.

## **SECTION 5 TROUBLE SHOOTING**

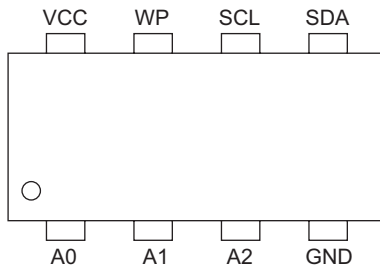
This service manual does not describe TROUBLE SHOOTING.



## SECTION 6 DESCRIPTION OF MAJOR ICs

### 6.1 BR24L16F-W-X (IC771) : EEPROM

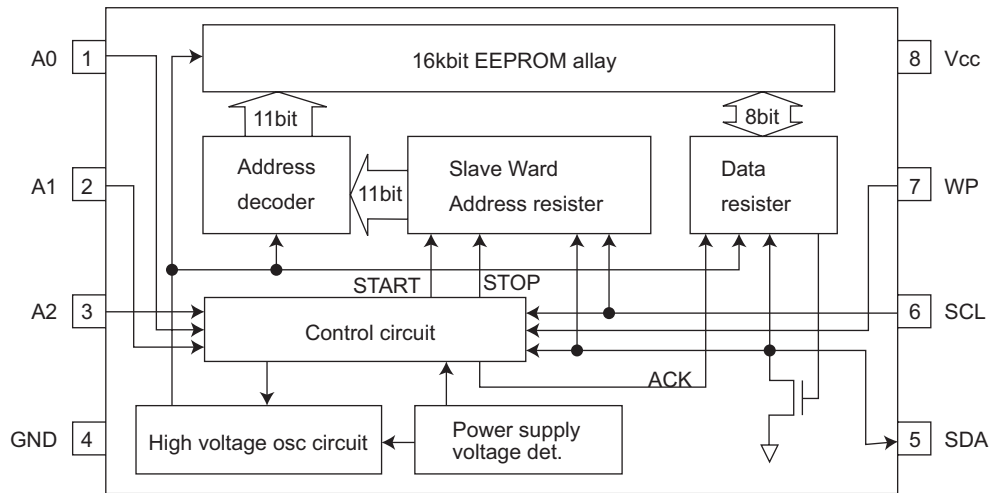
• Pin layout



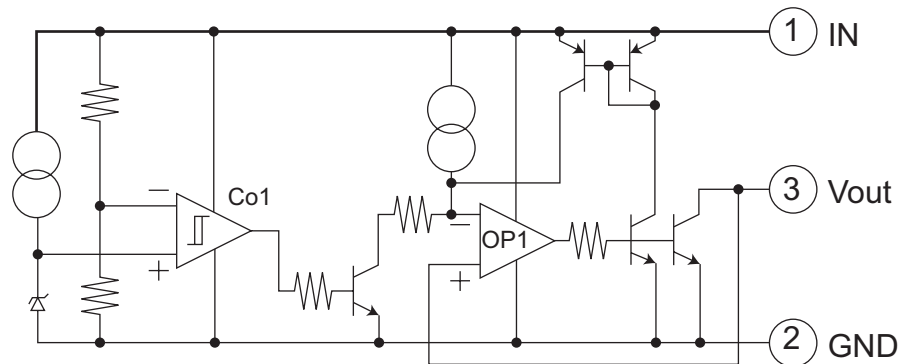
• Pin function

Symbol	I/O	Function
VCC	-	Power supply.
GND	-	GND
A0,A1,A2	I	No use connect to GND.
SCL	I	Serial clock input.
SDA	I/O	Serial data I/O of slave and ward address.
WP	I	Write protect terminal.

• Block diagram

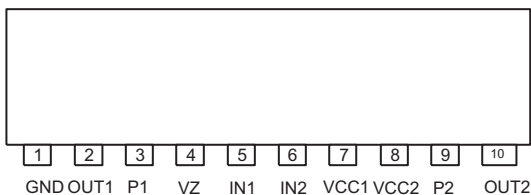


### 6.2 IC-PST600M/G-W (IC702) : System reset



### 6.3 LB1641 (IC402) : DC Motor driver

• Pin layout

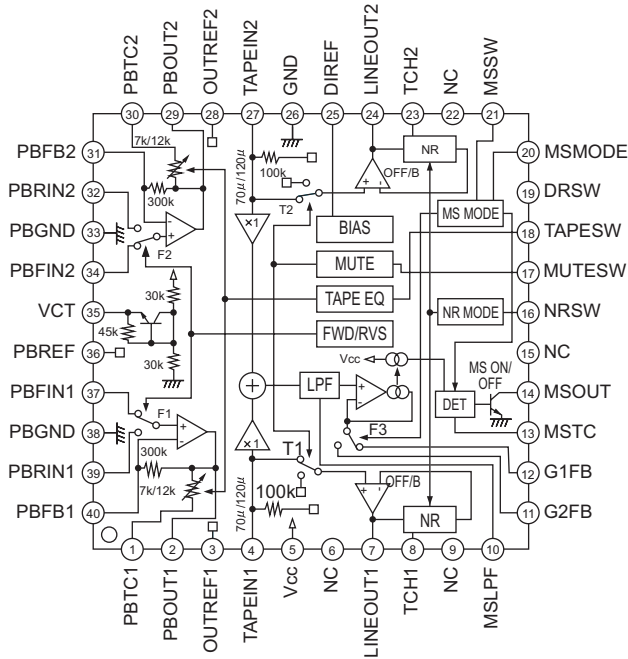


• Truth table

Input		Output		Mode
IN1	IN2	OUT1	OUT2	
0	0	0	0	Brake
1	0	1	0	CLOCKWISE
0	1	0	1	COUNTER-CLOCKWISE
1	1	0	0	Brake

#### 6.4 CXA2560Q (IC401) : Dolby B type noise reduction system with play back equalizer amp.

- Pin layout & block diagram



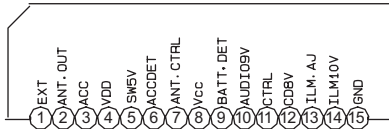
- Pin function

Pin No.	Symbol	I/O	Function
1	PBTC1	-	Playback equalizer amplifier capacitance
2	PBOUT1	O	Playback equalizer amplifier output
3	OUTREF1	O	Output reference
4	TAPEIN1	I	TAPE input
5	Vcc	-	Power supply
6	NC	-	
7	LINEOUT1	O	Line output
8	TCH1	-	Time constant for the HLS
9	NC	-	
10	MSLPF	-	Cut-off frequency adjustment of the music sensor LPF
11	G2FB	-	Music signal interval detection
12	G1FB	-	Music signal interval detection
13	MSTC	-	Time constant for detecting music signal interval
14	MSOUT	O	Music sensor out
15	NC	-	No use
16	NRSW	I	Dolby NR control
17	MUTESW	I	Mute function control
18	TAPESW	I	Playback equalizer amplifier control
19	DRSW	I	Head select control
20	MSMODE	I	Music sensor mode control
21	MSSW	I	Music sensor control
22	NC	-	
23	TCH2	-	Time constant for the HLS
24	LINEOUT2	O	Line output

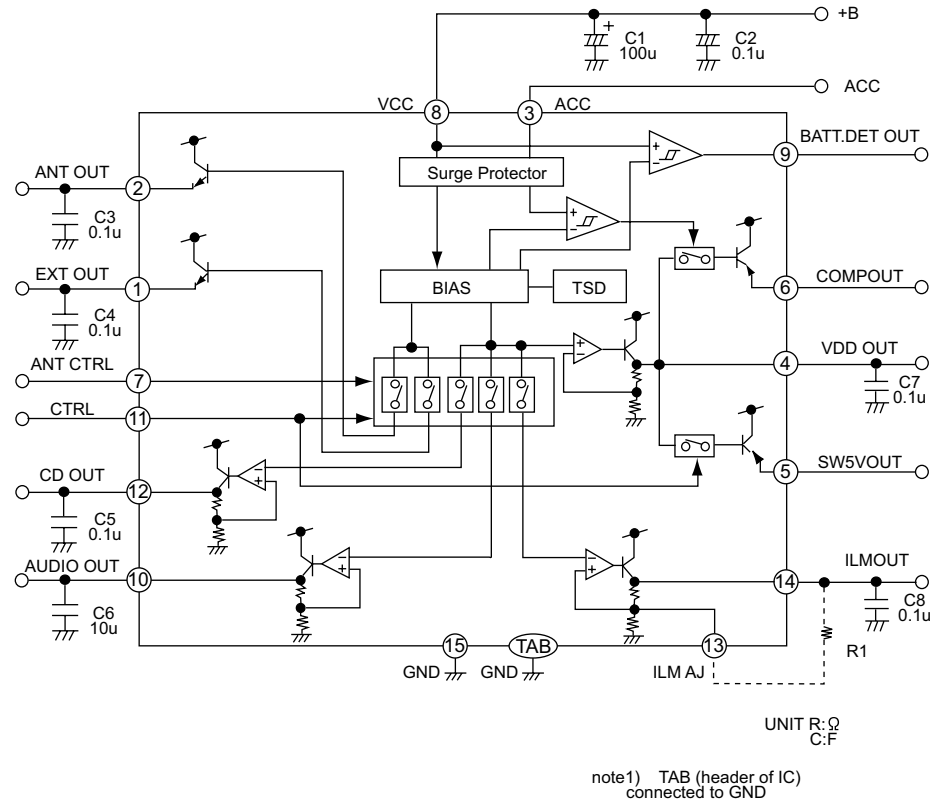
Pin No.	Symbol	I/O	Function
25	DIREF	-	Resistance for setting the reference
26	GND	-	Ground
27	TAPEIN2	I	TAPE input
28	OUTREF2	O	Output reference
29	PBOUT2	O	Playback equalizer amplifier output
30	PBTC2	-	Playback equalizer amplifier capacitance
31	PBFB2	I	Playback equalizer amplifier feedback
32	PBRIN2	I	Playback equalizer amplifier input
33	PBGND	-	Playback equalizer amplifier ground
34	PBFIN2	I	Playback equalizer amplifier input
35	VCT	O	Center
36	PBREF	O	Playback equalizer amplifier reference
37	PBFIN1	I	Playback equalizer amplifier input
38	PBGND	-	Playback equalizer amplifier ground
39	PBRIN1	I	Playback equalizer amplifier input
40	PBFB1	I	Playback equalizer amplifier feedback

## 6.5 HA13164A (IC901) : Regulator

- Terminal layout



- Block diagram

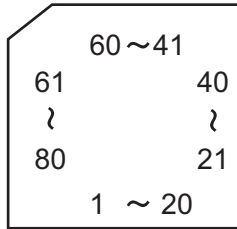


- Pin function

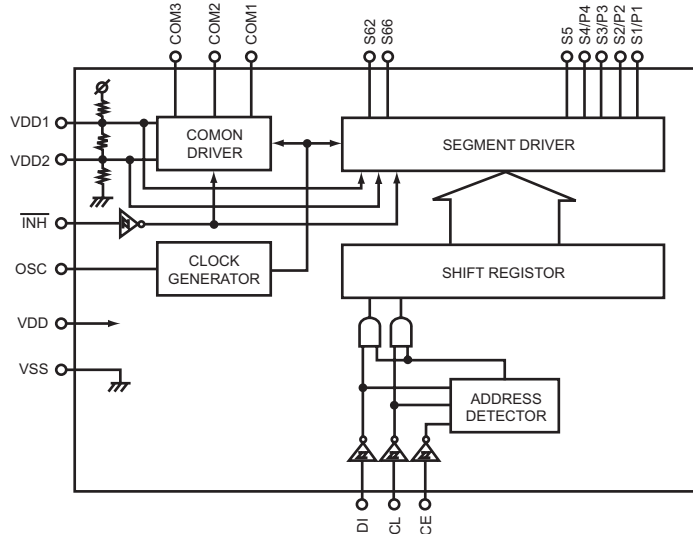
Pin No.	Symbol	Function
1	EXTOUT	Output voltage is VCC-1 V when M or H level applied to CTRL pin.
2	ANTOUT	Output voltage is VCC-1 V when M or H level to CTRL pin and H level to ANT-CTRL.
3	ACCIN	Connected to ACC.
4	VDDOUT	Regular 5.7V.
5	SW5VOUT	Output voltage is 5V when M or H level applied to CTRL pin.
6	COMPOUT	Output for ACC detector.
7	ANT CTRL	L:ANT output OFF H:ANT output ON
8	VCC	Connected to VCC.
9	BATT DET	Low battery detect.
10	AUDIO OUT	Output voltage is 9V when M or H level applied to CTRL pin.
11	CTRL	L:BIAS OFF M:BIAS ON H:CD ON
12	CD OUT	Output voltage is 8V when H level applied to CTRL pin.
13	ILM AJ	Adjustment pin for ILM output voltage.
14	ILM OUT	Output voltage is 10V when M or H level applied to CTRL pin.
15	GND	Connected to GND.

## 6.6 LC75873NW (IC601):LCD Driver

- Pin layout



- Block diagram

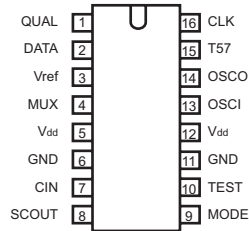


- Pin function

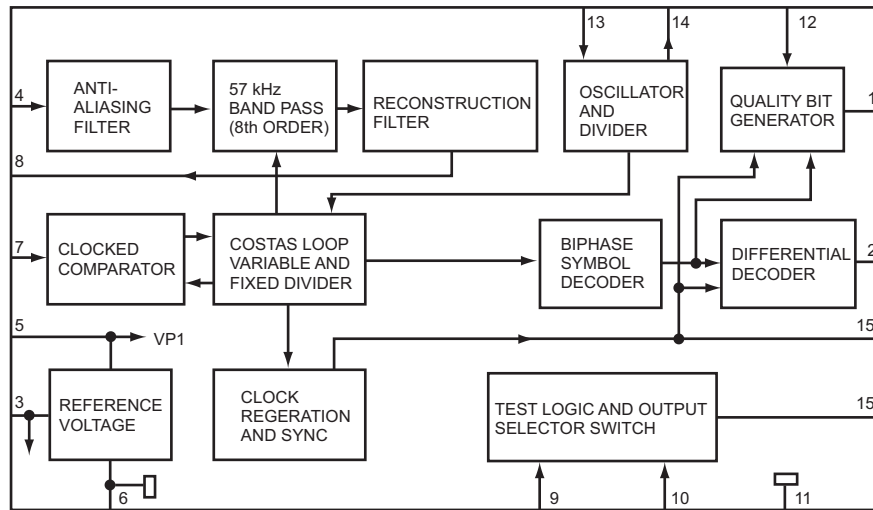
Pin No.	Pin name	I/O	Description
79,80 1,2,3 to 66	S1/P1 to S4/P4 S5 to S68	O	Segment outputs for displaying the display data transferred by serial data input. The S1/P1 to S4/P4 pins can be used as generalpurpose output ports under serial data control.
67 78 69	COM1 COM2 COM3	O	Common driver outputs. The frame frequency $f_0$ is given by : $f_0 = (FOSC/384)Hz.$
74	OSC	I/O	Oscillator connection An oscillator circuit is formed by connecting an external resistor and capacitor to this pin.
76 77 78	CE CL DI	I	Serial data transfer inputs. Connected to the controller. CE:Chip enable CL:Synchronization clock DI:Transfer data
75	$\overline{INH}$	I	Display off control input <ul style="list-style-type: none"> <li><math>\overline{INH} = "L"(VSS) \text{ ---Display forced off}</math>  <math>S1/P1 \text{ to } S4/P4 = "L"</math>                      (These pins are forcibly set to the segment output port function and held at the low level.)  <math>S5 \text{ to } S68 = "L"</math>  <math>COM1 \text{ to } COM3 = "L"</math></li> <li><math>\overline{INH} = "H"(HDD) \text{ ---Display on}</math>                      However, serial data transfer is possible when the display is forced off by this pin.</li> </ul>
71	VDD1	I	Used for applying the LCD drive 2/3 bias voltage externally. Must be connected to VDD2 when a 1/2 bias drive scheme is used.
72	VDD2	I	Used for applying the LCD drive 1/3 bias voltage externally. Must be connected to VDD1 when a 1/2 bias drive scheme is used.
70	VDD	-	Power supply connection. Provide a voltage of between 3.0 and 6.0V.
73	VSS	-	Power supply connection. Connect to ground.

## 6.7 SAA6579T-X (IC71):RDS detector

- Pin layout



- Block diagram

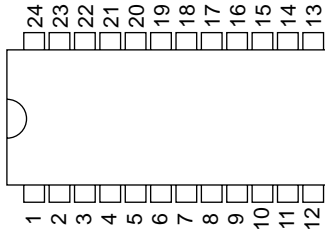


- Pin function

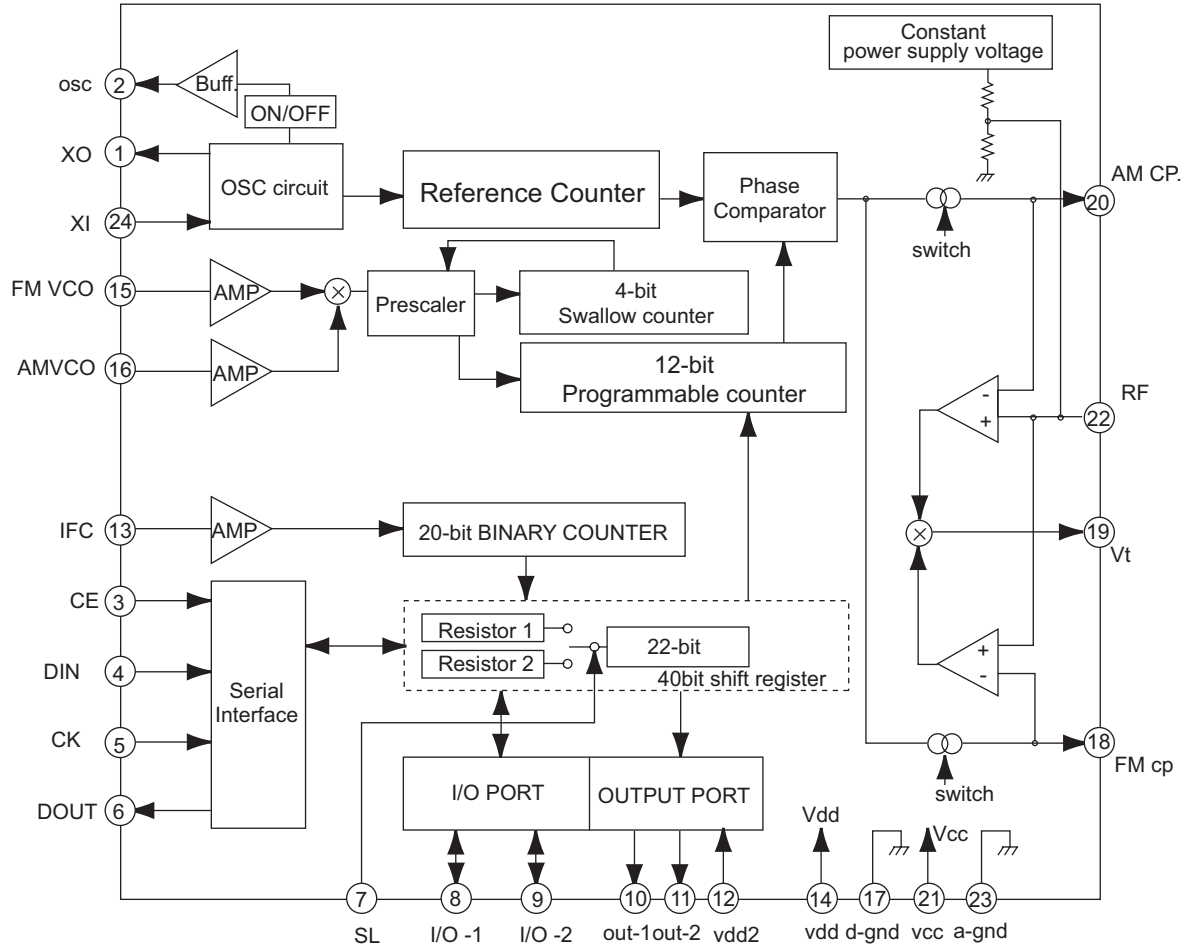
Pin No.	Symbol	Description
1	QUAL	Quality indication output
2	DATA	RDS data output
3	Vref	Reference voltage output (0.5VDDA)
4	MUX	Multiolex signal input
5	Vdd	+5V supply voltage for analog part
6	GND	Ground for analog part (0V)
7	CIN	Sub carrier input to comparator
8	SCOUT	Sub carrier output of reconstruction filter
9	MODE	Oscillator mode / test control input
10	TEST	Test enable input
11	GND	Ground for digital part (0V)
12	Vdd	+5V supply voltage for digital part
13	OSCI	Oscillator input
14	OSCO	Oscillator output
15	T57	57 kHz clock signal output
16	CLK	RDS clock output

## 6.8 TB2118F-X (IC31) : PLL

### • Terminal Layout



### • Block diagram



### • Pin Function

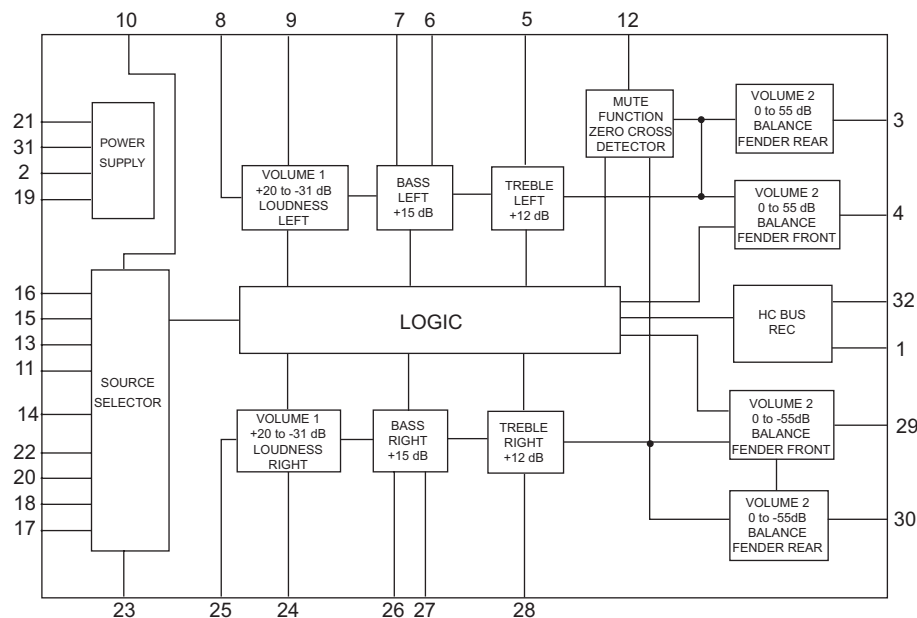
Pin No.	Symbol	I/O	Function	Pin No.	Symbol	I/O	Function
1	XOUT	O	Crystal oscillator pin	13	IFC	I	IF signal input
2	OSC	-	Non connect	14	VDD	-	Power pins for digital block
3	CE	I	Chip enable input	15	FMIN	I	FM band local signal input
4	DI	I	Serial data input	16	AMIN	I	AM band local signal input
5	CK	I	Clock input	17	DGND	-	Connect to GND (for digital circuit)
6	DOUT	O	Serial data output	18	FMCP	O	Charge pump output for FM
7	SR	O	Register control pin	19	Vt	-	Tuning voltage biased to 2.5V.
8	I/O1	I/O	I/O ports	20	AMCP	O	Charge pump output for AM
9	I/O2	I/O	I/O ports	21	VCC	-	Power pins for analog block
10	OUT1	-	Non connect	22	RF	I	Ripple filter connecting pin
11	OUT2	-	Non connect	23	AGND	-	Connect to GND (for analog circuit)
12	VDD2	-	Single power supply for REF. frequency block	24	XIN	I	Crystal oscillator pin

## 6.9 TEA6320T-X (IC161) : E.volume

- Pin layout

SDA	1	32	SCL
GND	2	31	VCC
OUTLR	3	30	OUTRR
OUTLF	4	29	OUTRF
TL	5	28	TR
B2L	6	27	B2R
B1L	7	26	B1R
IVL	8	25	IVR
ILL	9	24	ILR
QSL	10	23	QSR
IDL	11	22	IDR
MUTE	12	21	Vref
ICL	13	20	ICR
IMD	14	19	CAP
IBL	15	18	IBR
IAL	16	17	IAR
			CD-CH
			TAPE
			TUNER

- Block diagram



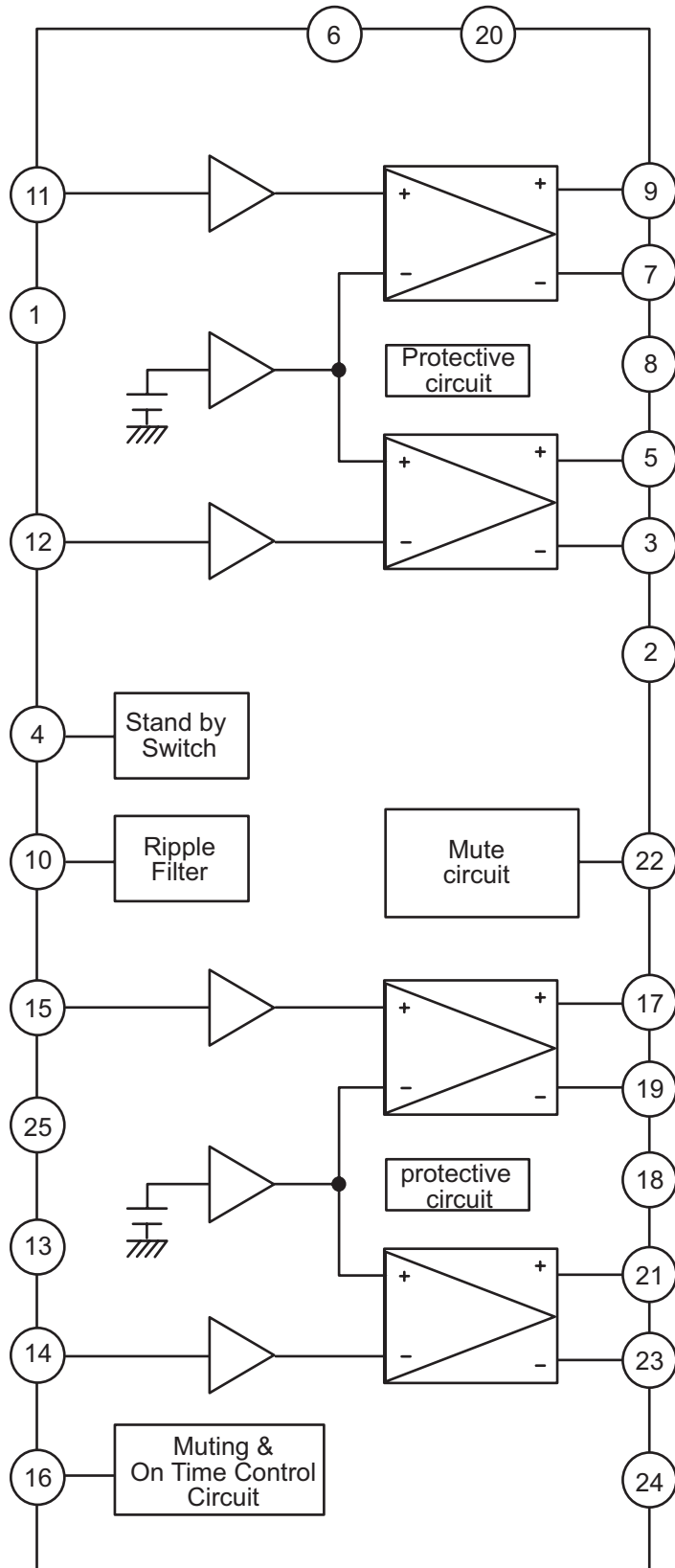
- Pin functions

Pin No.	Symbol	I/O	Functions
1	SDA	I/O	Serial data input/output.
2	GND	-	Ground.
3	OUTLR	O	output left rear.
4	OUTLF	O	output left front.
5	TL	I	Treble control capacitor left channel or input from an external equalizer.
6	B2L	-	Bass control capacitor left channel or output to an external equalizer.
7	B1L	-	Bass control capacitor left channel.
8	IVL	I	Input volume 1. left control part.
9	ILL	I	Input loudness. left control part.
10	QSL	O	Output source selector. left channel.
11	IDL	-	Not used
12	MUTE	-	Not used
13	ICL	I	Input C left source.
14	IMO	-	Not used
15	IBL	I	Input B left source.
16	IAL	I	Input A left source.

Pin No.	Symbol	I/O	Functions
17	IAR	I	Input A right source.
18	IBR	I	Input B right source.
19	CAP	-	Electronic filtering for supply.
20	ICR	I	Input C right source.
21	Vref	-	Reference voltage (0.5Vcc)
22	IDR	-	Not used
23	QSR	O	Output source selector right channel.
24	ILR	I	Input loudness right channel.
25	IVR	I	Input volume 1. right control part.
26	B1R	-	Bass control capacitor right channel
27	B2R	O	Bass control capacitor right channel or output to an external equalizer.
28	TR	I	Treble control capacitor right channel or input from an external equalizer.
29	OUTRF	O	Output right front.
30	OUTRR	O	Output right rear.
31	Vcc	-	Supply voltage.
32	SCL	I	Serial clock input.

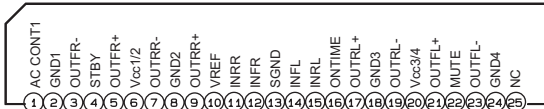
### 6.10 LA47505 (IC301) : Power amp.

- Terminal layout





- Terminal layout

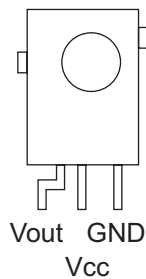


- Pin function

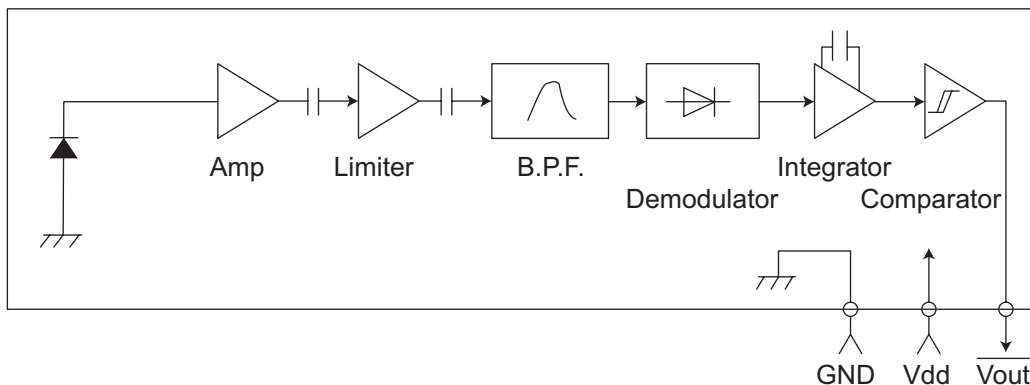
Pin No.	Symbol	Function
1	AC CONT1	Header of IC
2	GND1	Power GND
3	OUTFR-	Output(-) for front Rch
4	STBY	Stand by input
5	OUTFR+	Output (+) for front Rch
6	Vcc1/2	Power input
7	OUTRR-	Output (-) for rear Rch
8	GND2	Power GND
9	OUTRR+	Output (+) for rear Rch
10	VREF	Ripple filter
11	INRR	Rear Rch input
12	INFR	Front Rch input
13	SGND	Signal GND
14	INFL	Front Lch input
15	INRL	Rear Lch input
16	ONTIME	Power on time control
17	OUTRL+	Output (+) for rear Lch
18	GND3	Power GND
19	OUTRL-	Output (-) for rear Lch
20	Vcc3/4	Power input
21	OUTFL+	Output (+) for front
22	MUTE	Muting control input
23	OUTFL-	Output (-) for front
24	GND4	Power GND
25	NC	No connection

### 6.11 GP1UM261XK (IC602) : Receiver

- Pin layout

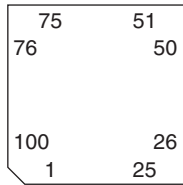


- Block diagram



## 6.12 UPD784215AGC208 (IC701) : CPU

- Pin layout



- Pin function

Pin No	Symbol	I/O	Function
1	TAPE IN	I	Cassette tape inside signal H:Inside L:Outside
2	STAND BY	I	Stand-by position detection signal input H>Loading L:Eject side
3 to 8	NC	-	Not use
9	VDD	-	Micon power supply
10	X2		
11	X1		
12	VSS	-	GND
13	XT2		
14	XT1		
15	RESET	I	System reset
16	Steering	I	Steering remocon input
17	BUS-INT	I	J-BUS INT
18	PS2	I	Power save2 H means STOP mode
19	NC	-	Not use
20	RDS-SCK	I	RDS clock input
21	RDS DA	I	RDS data input
22	REMOCON	I	Remocon input
23	AVDD	-	A/D converter power supply
24	AVREF0	-	A/D reference voltage
25	VOL1	I	Volume encoder pulse input 1
26	VOL2	I	Volume encoder pulse input 2
27	KEY0	I	Key input 0
28	KEY1	I	Key input 1
29	KEY2	I	Key input 2
30	LEVEL	I	Level meter input
31	NC	I	S.Quality level input
32	SM	I	S.METER input
33	AVSS	-	GND
34,35	NC	-	Not use
36	AVREF		
37	BUS-SI	I	J-BUS data input
38	BUS-SO	O	J-BUS data output
39	BUS-SCK	I/O	J-BUS clock input/output
40	BUS-I/O	O	J-BUS-I/O selection output:H:ÅEinput:L
41	LCD-DA	O	Data output for LCD driver
42	LCD-SCK	O	CLK output for LCD driver
43	LCD-CE	O	CE for LCD driver
44	BUZZER	O	BEEP signal output
45	E2PROM-DI	I	I2C data input
46	E2PROM-DA	I/O	E.VOL I2C data input/output
47	E2PROM-CLK	O	E.VOL I2C clock output
48	OPEN	I	DOOR OPEN SW
49,50	NC	-	Not use

Pin No	Symbol	I/O	Function
51,52	NC	-	Not use
53	SD/ST	I	Station detector or stereo indicator input ; H means a station is there. L means the program is stereo.
54	NC	-	Not use
55	MONO	O	Monaural selection output ; H means monaural
56 to 60	NC	-	Not use
61	DETACH	I	Detach detect input ; H means detaching
62	AFCK	O	AF check output
63	SEEK/STOP	O	Auto seek and stop selecting output ; H means seeking L means receiving.
64	IFC CONT	O	IFC control output
65	FM/AM	O	FM AM band selecting output ; H = FM L= AM
66	PLL-CE	O	CE output for PLL IC
67	PLL-DO	O	Data output for PLL IC
68	PLL-CLK	O	Clock output for PLL IC
69	PLL-DI	I	Data input from PLL IC
70	TEL-MUTING	I	Telephone muting detection input ; Active level can be selected H or L in PSM
71	NC	-	Not use
72	VSS	-	GND
73	DIMMER IN	I	Dimmer detector input L=dimmer on
74	PS1	I	Power save1 L= ACC off
75	POWER	O	POWER ON/OFF control output H=power on
76	NC	-	Not use
77	MUTING	O	Muting output L=muting on
78 to 80	NC	-	Not use
81	VDD	-	Micon power supply
82	NC	-	Not use
83	VOL-DA	O	Data output for e-vol IC
84	VOL-CLK	O	Clock output for e-vol IC
85 to 89	NC	-	Not use
90	STAGE1	I	Feature selection
91	MOTOR	O	Main motor control H:Motor drive
92	FF/REW	O	Audio level control for MS H:Play mode L:FF/REW mode
93	HEAD SEL(F/R)	O	Audio signal selector for head amp H:REV L:FWD
94	TEST		For rewriting flash memory
95	DOLBY	O	Dolby ON/OFF control H:Dolby on
96	MS IN	I	MS signal input L:no music
97	REEL	I	Reel pulse signal input (Pulse signal)
98	SUBMO-	O	Sub motor control. Eject direction
99	SUBMO+	O	Sub motor control. Loading direction
100	MODE	I	Mecha position detection signal



**JVC**

VICTOR COMPANY OF JAPAN, LIMITED

AV & MULTIMEDIA COMPANY MOBILE ENTERTAINMENT CATEGORY 10-1,1chome,Ohwatari-machi,Maebashi-city,371-8543,Japan

(No.49855)



Printed in Japan  
WPC

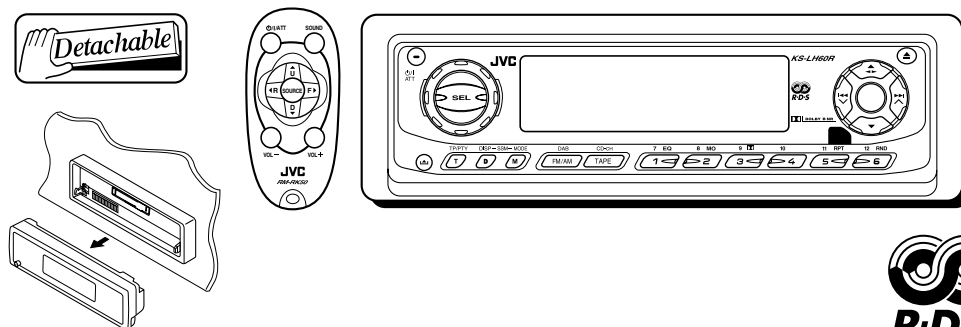
# JVC

# SCHEMATIC DIAGRAMS

## CASSETTE RECEIVER

# KS-LH60R

CD-ROM No.SML200306




**Area Suffix**  
E ..... Continental Europe

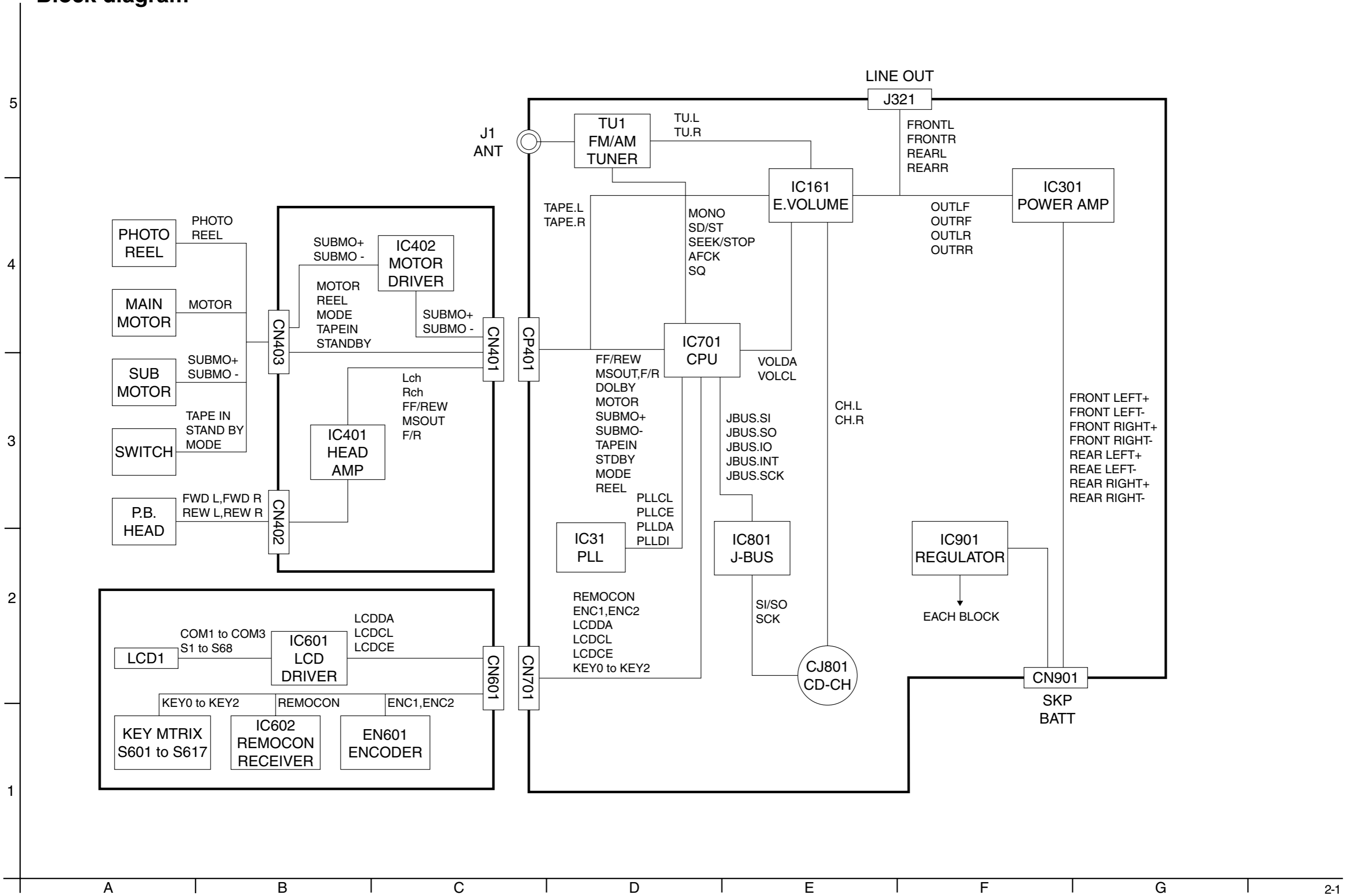
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Block diagram .....	2-1
Standard schematic diagrams .....	2-2
Printed circuit boards .....	2-5 to 7

## Safety precaution

 **CAUTION** Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

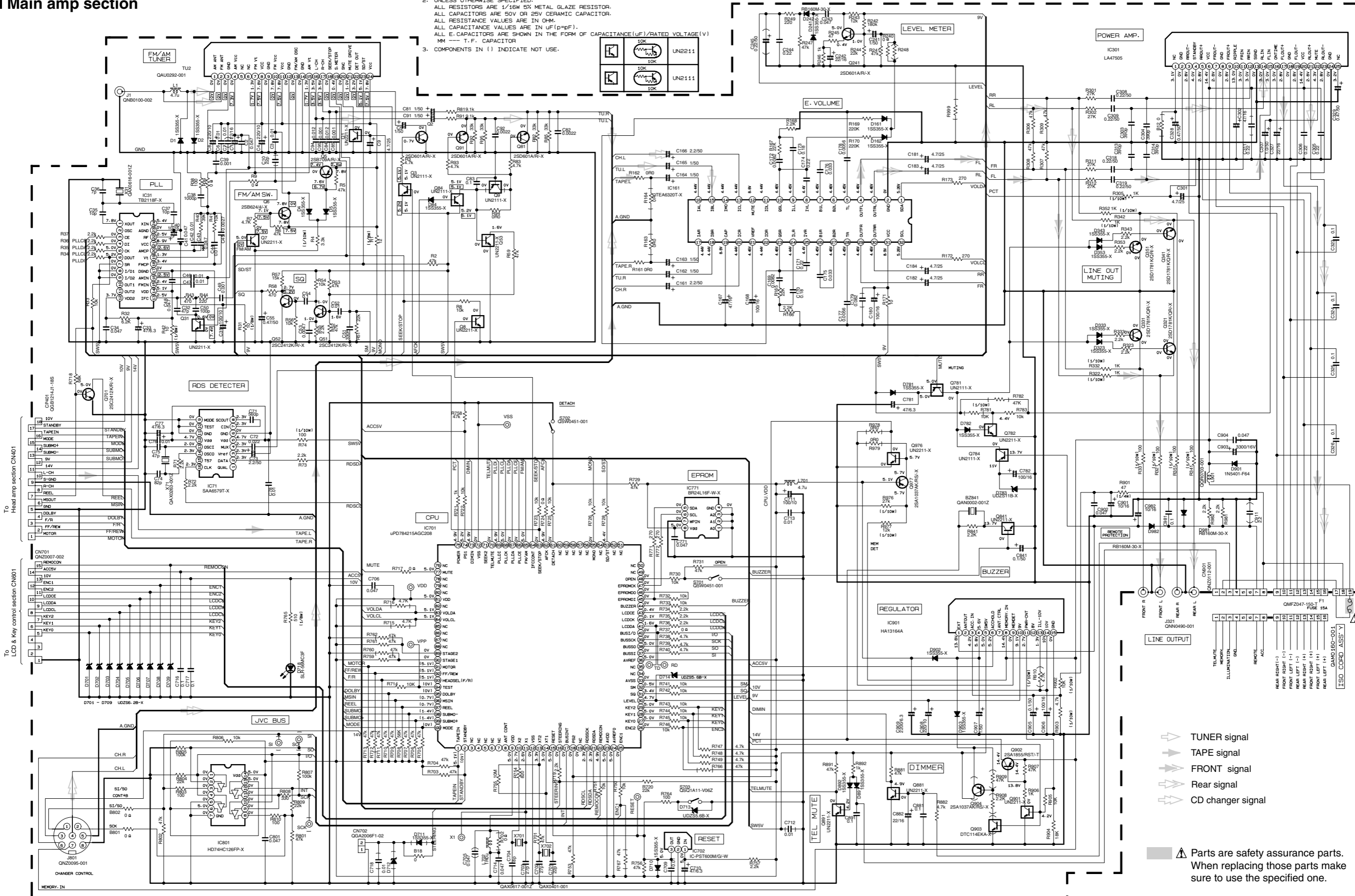
Block diagram



# Standard schematic diagrams

## Main amp section

- NOTES
- VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL CONDITION---FM MODE. □ AM MODE. ( ) CASSETTE MODE.
  - UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE 1/16W 5% METAL GLAZE RESISTOR. ALL CAPACITORS ARE 50V OR 25V CERAMIC CAPACITOR. ALL RESISTANCE VALUES ARE IN OHM. ALL CAPACITANCE VALUES ARE IN UF(PF). ALL E. CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(UF)/RATED VOLTAGE(V) MM --- T. F. CAPACITOR
  - COMPONENTS IN ( ) INDICATE NOT USE.



- TUNER signal
  - TAPE signal
  - FRONT signal
  - Rear signal
  - CD changer signal
- Parts are safety assurance parts. When replacing those parts make sure to use the specified one.



■ LCD & Key control section

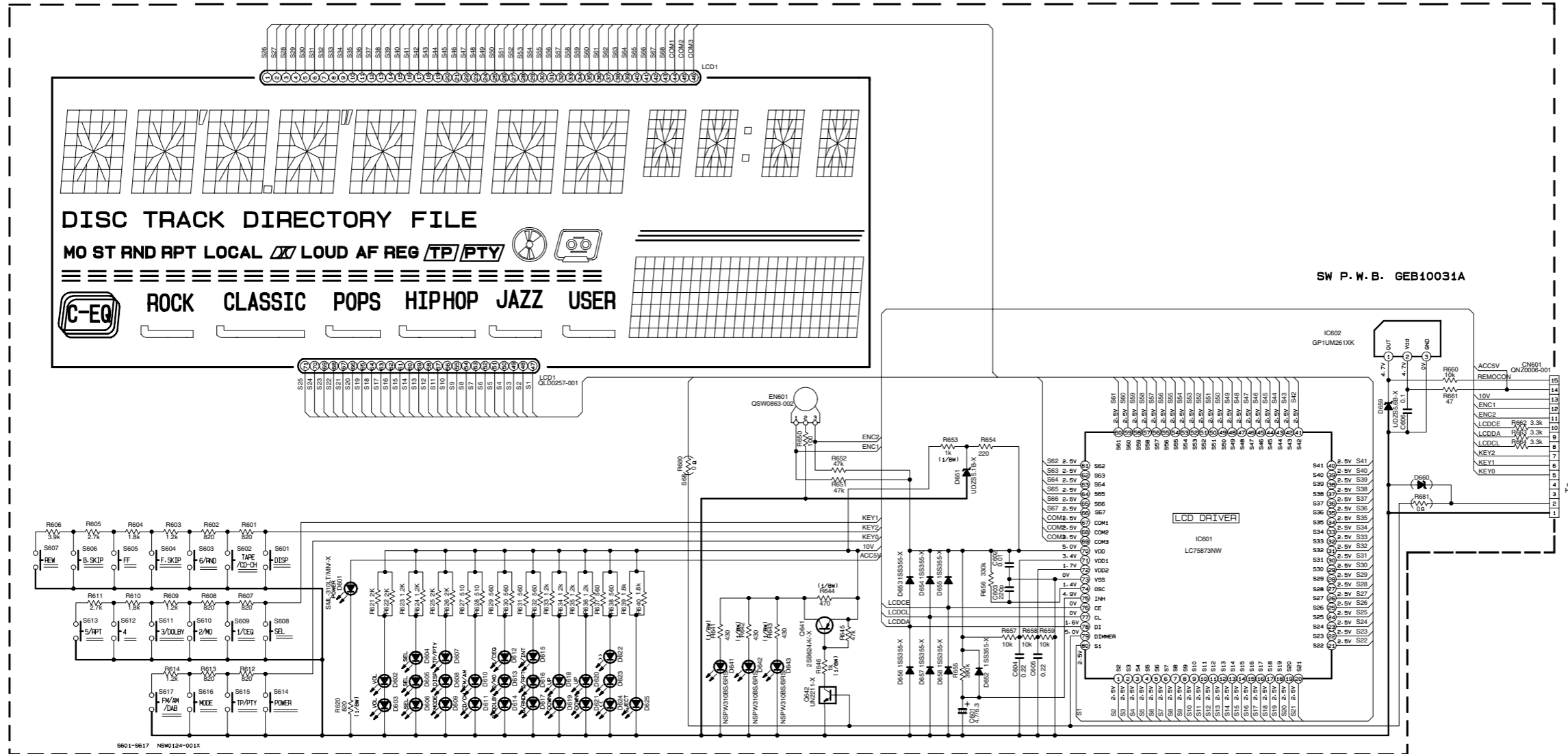
5

4

3

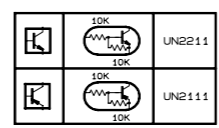
2

1



D602-D609	SM-310VT/JK/-X
D610-D611	CL-190MB-X-X
D612-D625	SM-310VT/JK/-X

- NOTES
1. VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL.
  2. UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE 1/16W ±5% METAL GLAZE RESISTOR. ALL CAPACITORS ARE 50V OR 25V CERAMIC CAPACITOR. ALL RESISTANCE VALUES ARE IN OHM. ALL CAPACITANCE VALUES ARE IN uF (p=pF). ALL E. CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(uF)/RATED VOLTAGE(V).
  3. COMPONENTS IN ( ) INDICATE NOT USE.



A

B

C

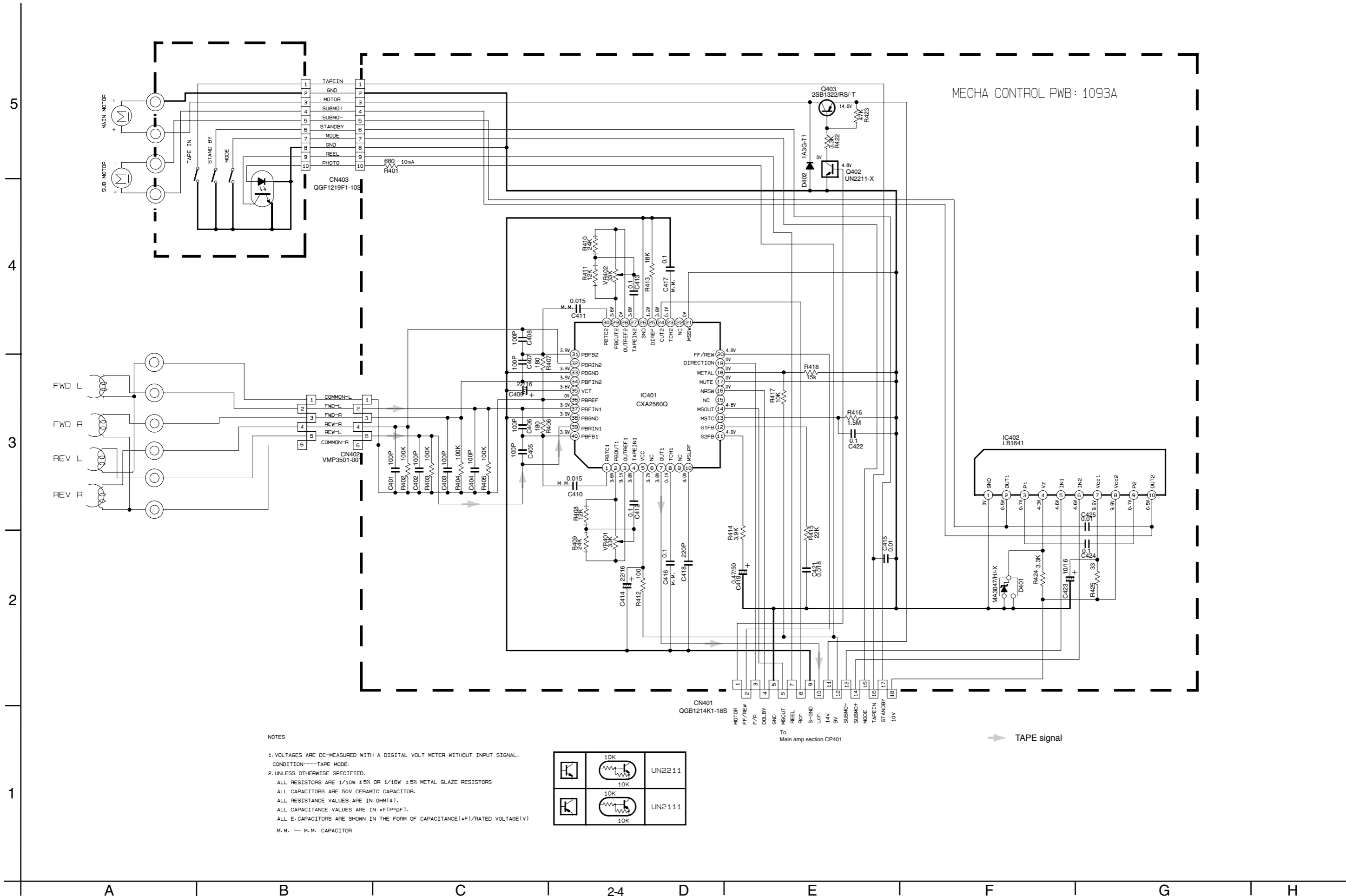
D

E

F

G

Head amp section



NOTES

- VOLTAGES ARE DC-MEASURED WITH A DIGITAL VOLT METER WITHOUT INPUT SIGNAL. CONDITION----TAPE MODE.
- UNLESS OTHERWISE SPECIFIED. ALL RESISTORS ARE 1/10W ±5% OR 1/16W ±5% METAL GLAZE RESISTORS. ALL CAPACITORS ARE 50V CERAMIC CAPACITOR. ALL RESISTANCE VALUES ARE IN OHM(Ω). ALL CAPACITANCE VALUES ARE IN \*F(P=pF). ALL E. CAPACITORS ARE SHOWN IN THE FORM OF CAPACITANCE(\*F)/RATED VOLTAGE(V). M.M. -- M.M. CAPACITOR

	10K		UN2211
	10K		UN2111

→ TAPE signal

5  
4  
3  
2  
1

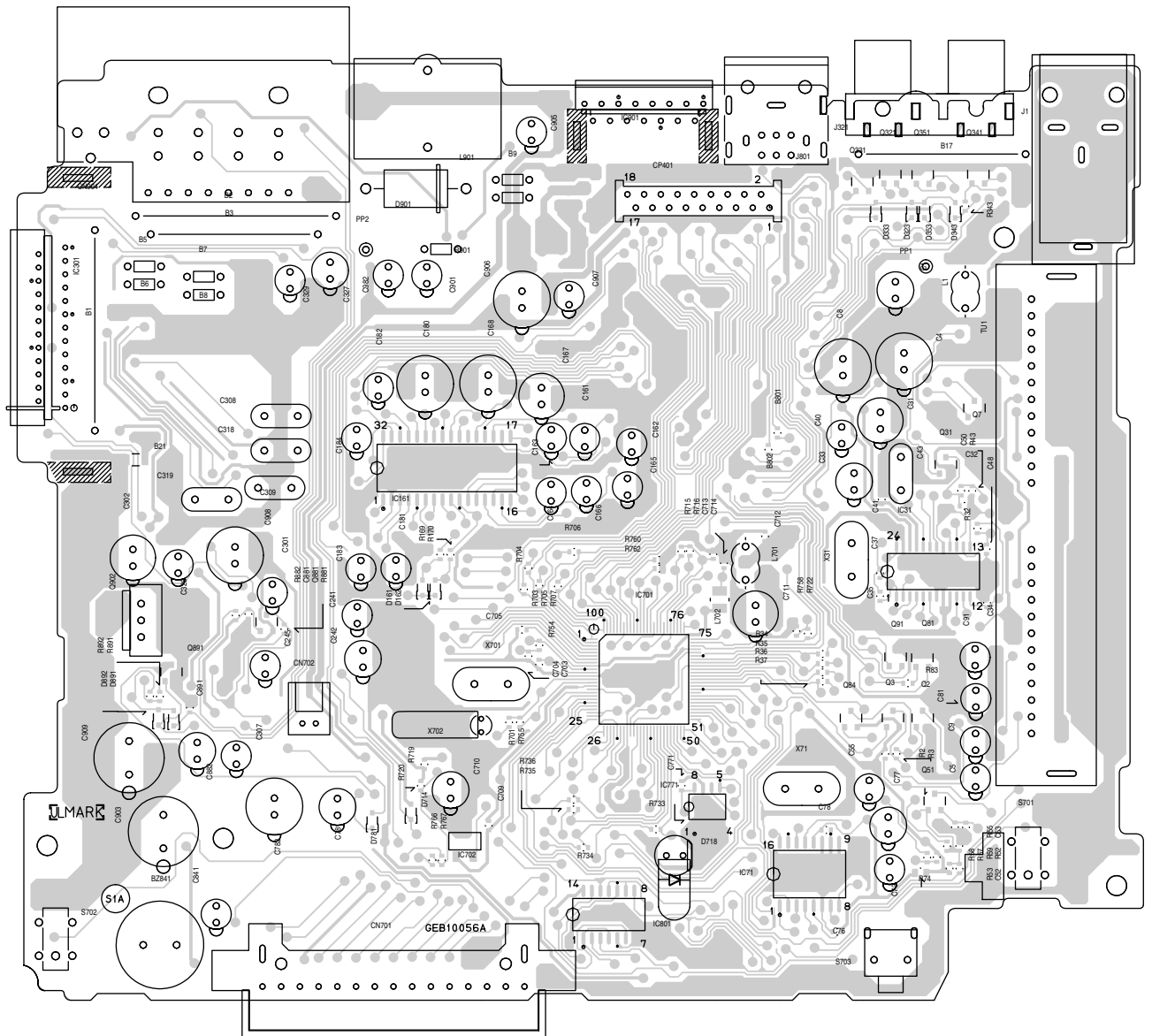
A B C 24 D E F G H

# Printed circuit boards

## ■ Main board

Forward side

5  
4  
3  
2  
1



A

B

C

■ Main board

Reverse side

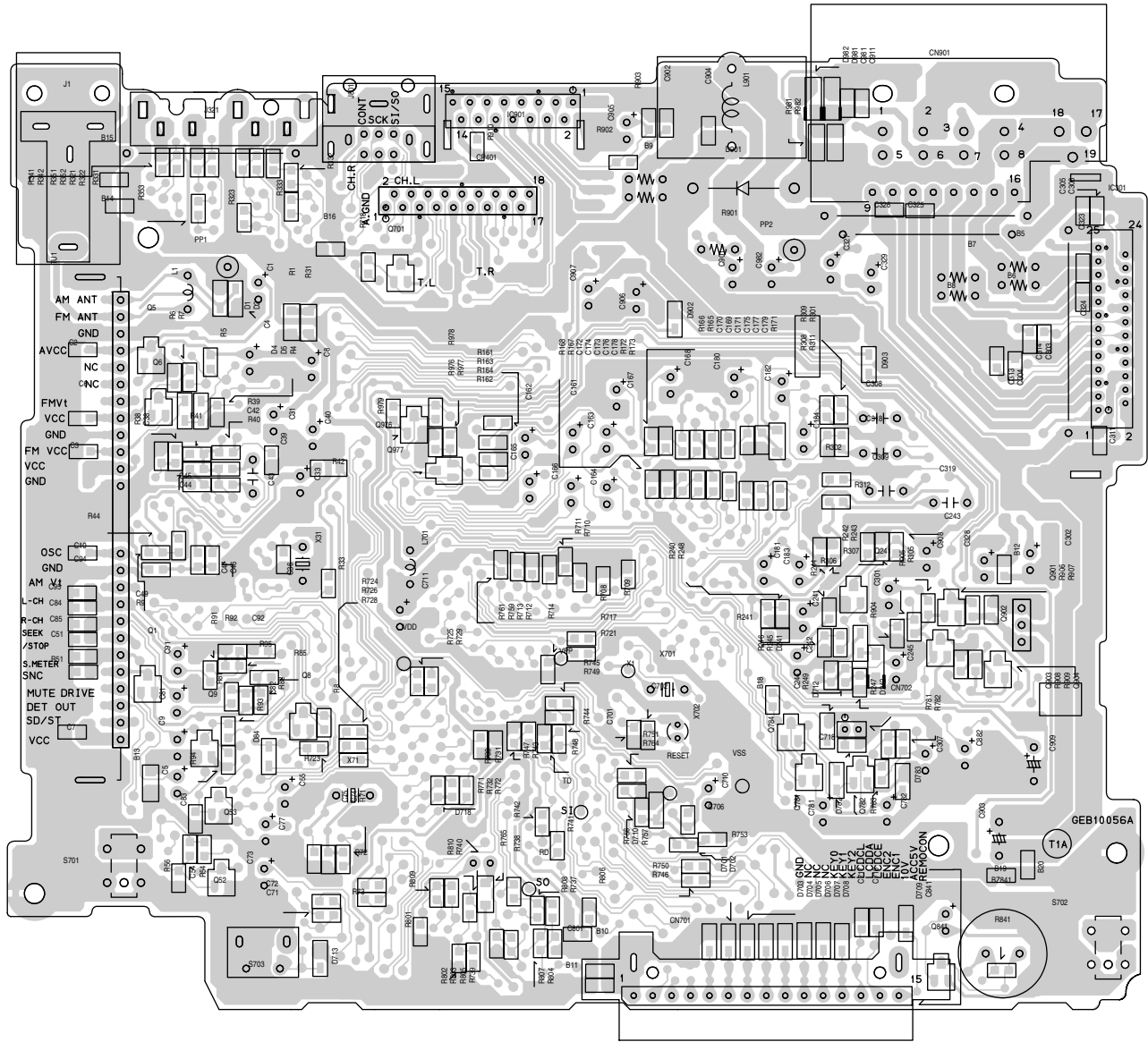
5

4

3

2

1



A

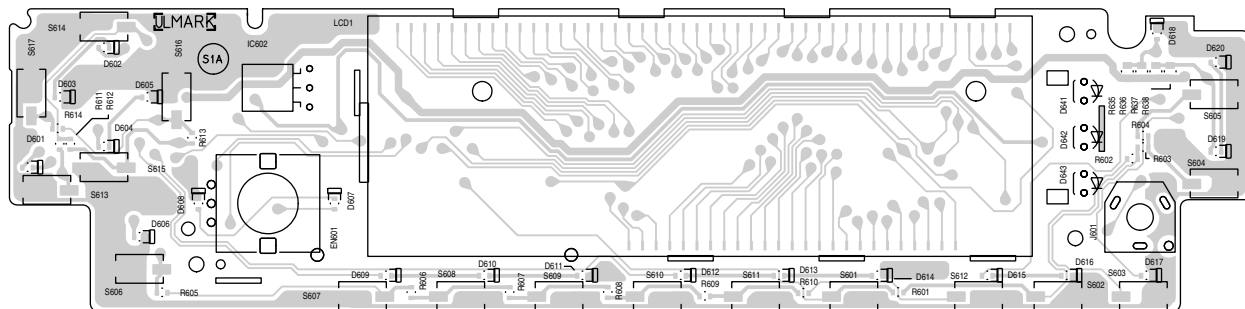
B

C

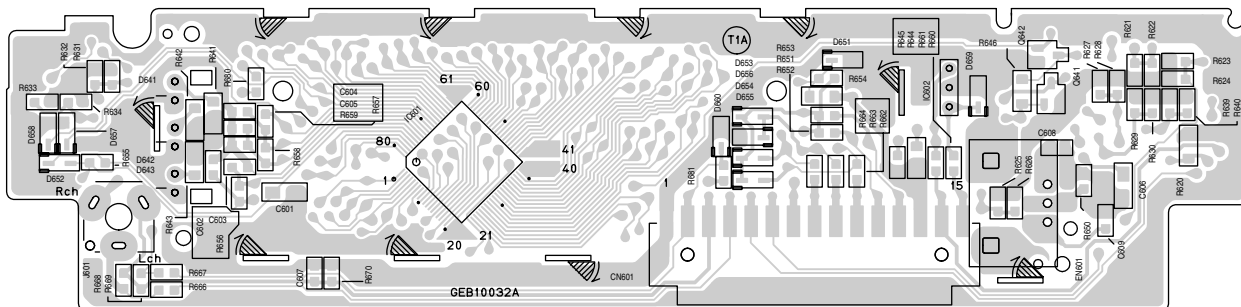
D

■ Front board

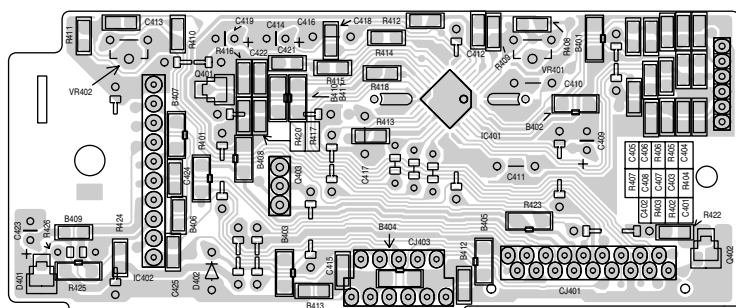
Forward side



Reverse side



■ Mecha board



5

4

3

2

1

A

B

C

KS-LH60R

**JVC**

VICTOR COMPANY OF JAPAN, LIMITED

AV & MULTIMEDIA COMPANY 10-1, 1Chome, Ohwatari-machi, Maebashi-city, 371-8543, Japan

(No.49855SCH)



Printed in Japan  
2003/06

# PARTS LIST

[ KS-LH60R ]

\* All printed circuit boards and its assemblies are not available as service parts.

Area suffix

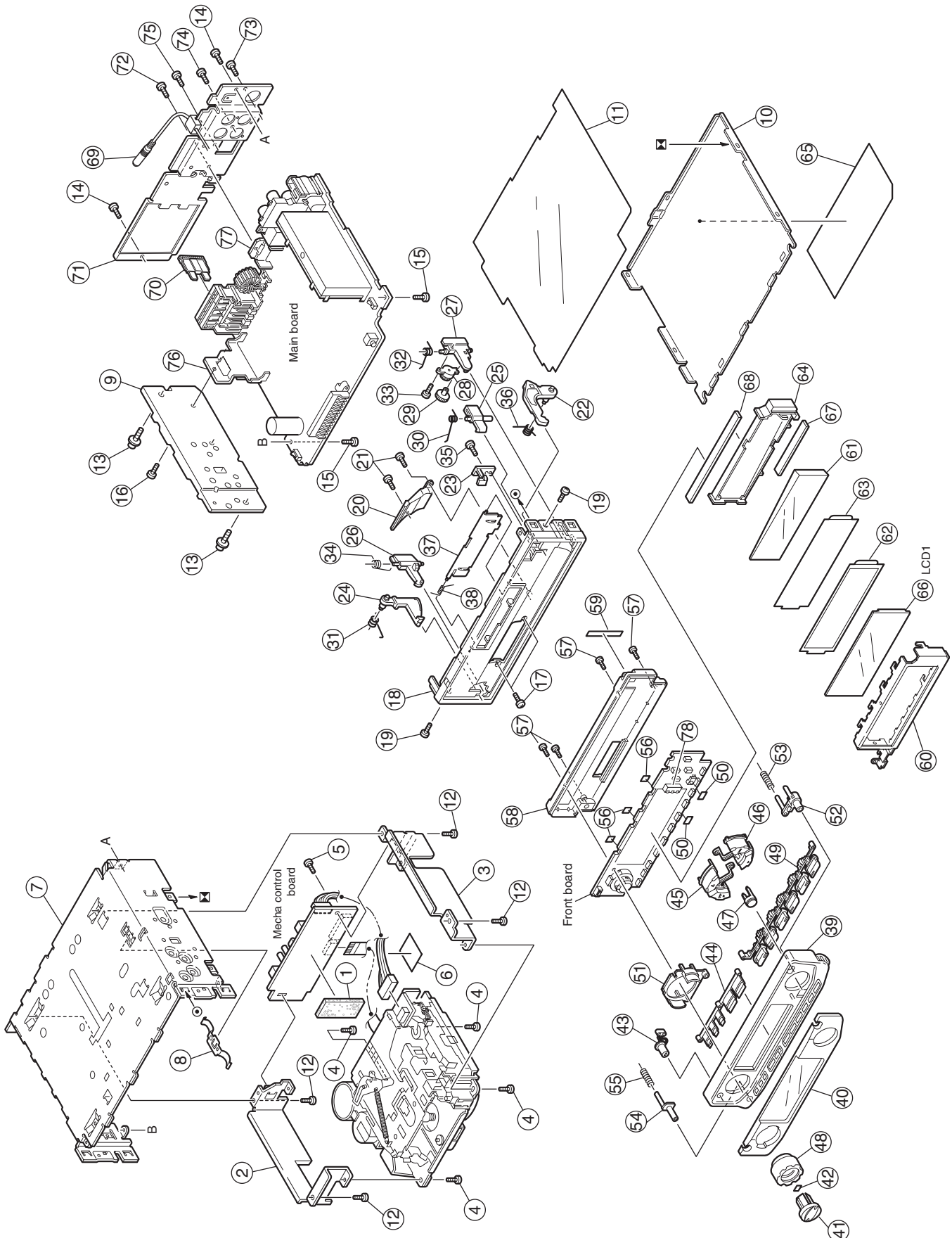
E----- Continental Europe

## - Contents -

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Cassette mechanism assembly and parts list (Block No.MP) .....	3- 4
Electrical parts list (Block No.01~03) .....	3- 8
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# Exploded view of general assembly and parts list

Block No. M 1 M M





# General assembly

## Block No. [M][1][M][M]

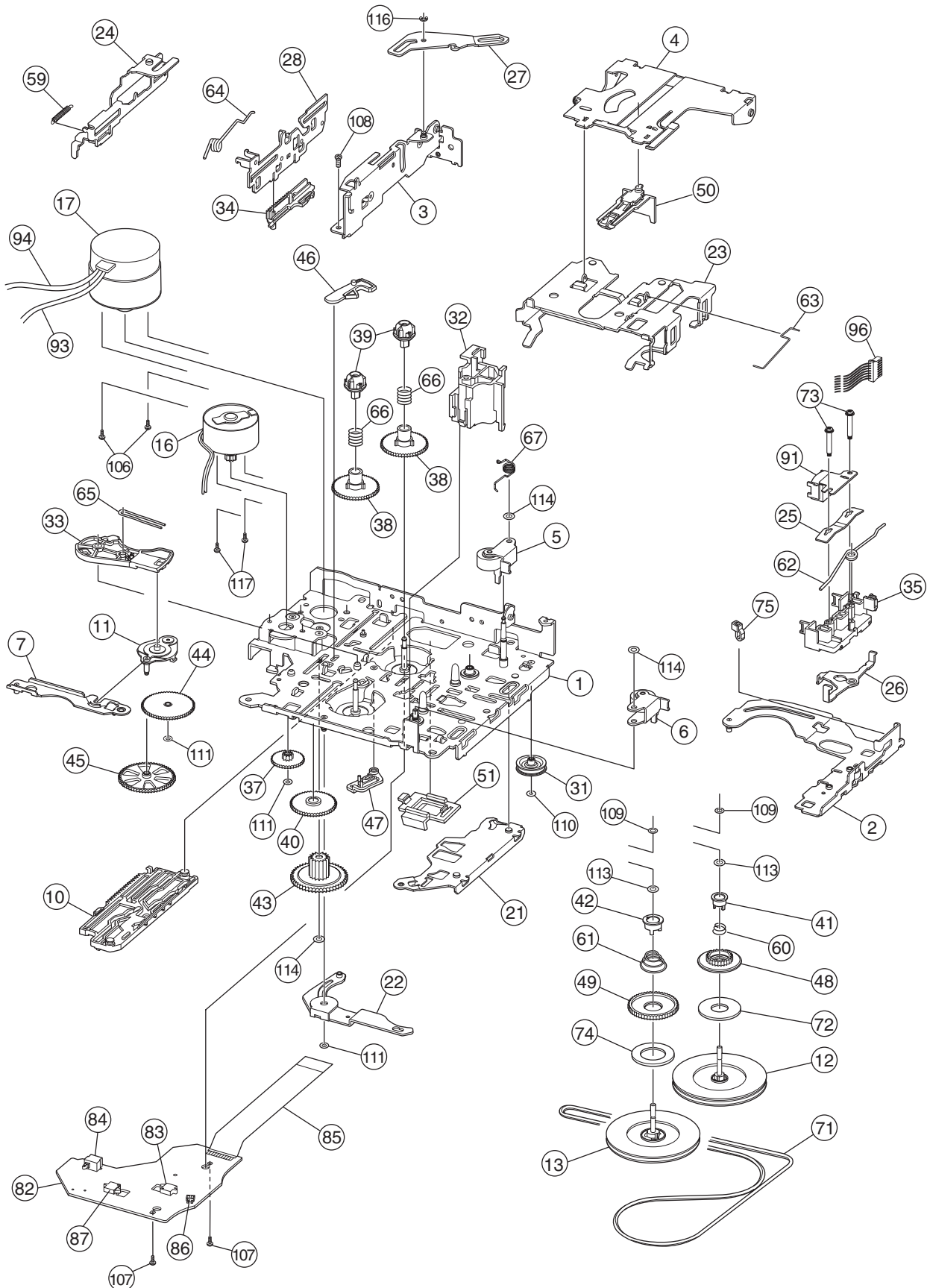
△ Symbol No.	Part No.	Part Name	Description	Local
1	FSYH4036-050	SPECER		
2	GE20136-001A	MECHA BKT(L)		
3	FSKL2002-002	MECHA BKT(R)		
4	QYSDST2606Z	SCREW	2.6mm x 6mm(x4)	
5	QYSDST2606Z	SCREW	2.6mm x 6mm	
6	LV40847-002A	SPECER		
7	GE10043-011A	TOP CHASIS		
8	GE40135-001A	EARTH PLATE		
9	GE30938-003A	SIDE PANEL		
10	GE30393-001A	BOTTOM COVER		
11	FSMA3005-001	INSULATOR		
12	QYSDST2604Z	SCREW	2.6mm x 4mm(x4)	
13	FSKZ4005-001	SCREW	(x2)	
14	QYSDST2604Z	SCREW	2.6mm x 4mm(x2)	
15	QYSDST2606Z	SCREW	2.6mm x 6mm(x2)	
16	QYSDST2610Z	SCREW	2.6mm x 10mm	
17	QYSDSF2006M	SCREW	2mm x 6mm(x2)	
18	GE10064-002A	FRONT CHASSIS		
19	QYSDST2004M	MINI SCREW	2mm x 4mm(x2)	
20	VJK3707-001	LIGHT LENS		
21	QYSPSGU1745N	MINI SCREW	1.7mm x 4.5mm(x2)	
22	GE30378-002A	OPEN LEVER		
23	FSKS3015-001	LOCK LEVER(O.L)		
24	VKS3798-002	RELEASE LEVER		
25	GE30379-001A	LOCK LEVER(TOP)		
26	VKS3794-003	LOCK LEVER(L)		
27	VKS3795-002	LOCK LEVER(R)		
28	VKS5563-001	GEAR		
29	VKZ4786-002	OIL DAMPER		
30	FSKW4012-001	T.SPRING		
31	GE40144-003A	T.SPRING		
32	VKW5262-001	T.SPRING		
33	QYSDSF2006M	SCREW	2mm x 6mm	
34	VKW5263-002	T.SPRING		
35	VKZ4777-001	MINI SCREW		
36	GE40164-001A	T.SPRING		
37	FSJC3014-001	CASS LID		
38	VKW4947-002	DOOR SPRING		
39	GE10044-017A	FRONT PANEL		
40	GE30855-004A	FINDER ASSY		
41	GE30840-002A	SEL BTN		
42	FSYH4036-032	SHEET		
43	GE30537-001A	POWER BUTTON		
44	GE20124-002A	D.FUNC BUTTON		
45	GE30581-006A	NAV UP BTN		
46	GE30582-001A	NAV DN BTN		
47	GE40148-002A	NAV CAP		
48	GE40132-001A	VOL KNOB		
49	GE20129-001A	PRESET BUTTON		
50	FSYH4036-069	SHEET	(x2)	
51	GE30387-003A	RIM LENS		
52	GE30538-003A	EJECT BUTTON		
53	VKW3001-330	COMP.SPRING		
54	GE30547-001A	DETACH BUTTON		
55	VKW3001-330	COMP.SPRING		
56	FSYH4036-081	SPECER	(x3)	
57	VKZ4777-001	MINI SCREW	(x4)	
58	GE10045-001A	REAR COVER		
59	FSYH4036-035	SHEET		
60	GE30389-001A	LCD CASE		
61	FSJK3028-001	LCD LENS		
62	GE40146-001A	LIGHTING SHEET		
63	FSYH4061-002	LIGHTING SHEET		
64	FSKS3013-001	LENS CASE		
65	GE30705-001A	NAME PLATE		
66	QLD0257-001	LCD1		
67	QNZ0450-001	LCD CONNECTOR		
68	QNZ0449-001	LCD CONNECTOR		
69	QAM0464-001	STEERING REMOTE		
△ 70	QMFZ047-150-T	FUSE	15A	
71	GE30912-001A	REAR BRACKET		
72	QYSDST2606Z	SCREW	2.6mm x 6mm	
73	QYSDST2606Z	SCREW	2.6mm x 6mm	

△ Symbol No.	Part No.	Part Name	Description	Local
74	QYSDSF2606Z	SCREW	2.6mm x 6mm	
75	QYSDST2606Z	SCREW	2.6mm x 6mm	
76	GE40172-002A	IC BRACKET		
77	GE40124-001A	REG BRACKET		
78	FSKS3017-002	LED HOLDER		

# Cassette mechanism assembly and parts list

CDS-802JE3

Block No. M P M M



# Cassette mechanism

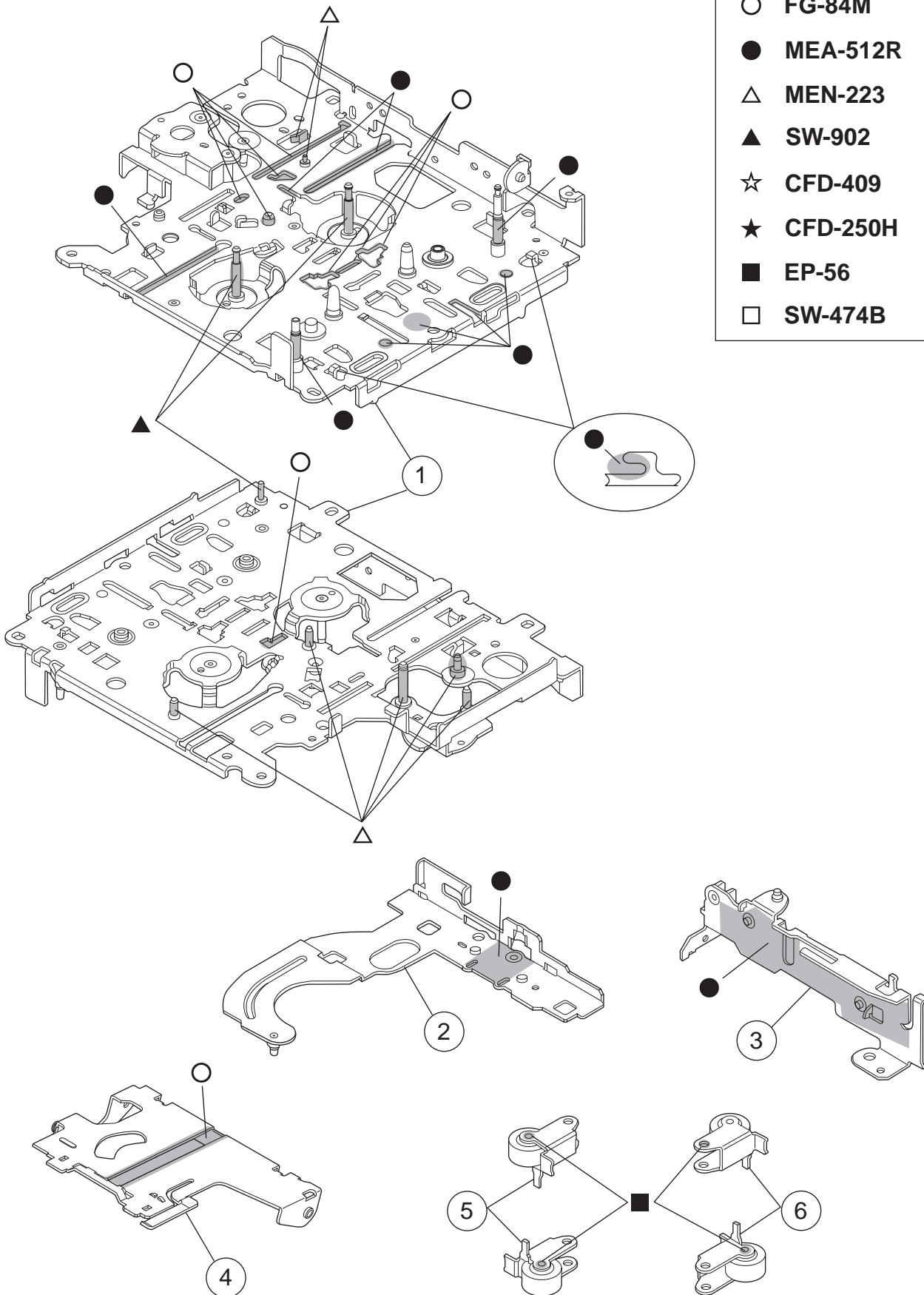
Block No. [M][P][M][M]

Symbol No.	Part No.	Part Name	Description	Local
1	X-0802-1009S	MAIN CHASSIS AS		
2	X-0802-1002S	SLIDE CHASSIS A		
3	X-0802-1003S	SIDE BKT ASSY		
4	X-0802-1004S	CASSETTE HANGER		
5	X-0802-1005S	PINCH ARM F ASS		
6	X-0802-1006S	PINCH ARM R ASS		
7	X-0802-1007S	GEARBASE LINK A		
10	X-0802-2001S	MODE RACK ASSY		
11	X-0802-2002S	GEAR BASE ASSY		
12	1-0802-6001S	FLYWHEEL ASSY F		
13	1-0802-6002S	FLYWHEEL ASSY R		
16	X-0802-7002S	SUB MOTOR ASSY		
17	X-0802-7004S	MAIN MOTOR ASSY		
21	1-0802-1002S	DIRECTION PLATE		
22	1-0802-1005S	DIRECTION LINK		
23	1-0802-1006S	CASSETTE HOLDER		
24	1-0802-1011S	EJECT CAM LIMIT		
25	1-0802-1012S	HEAD SUPT SPG		
26	1-0802-1013S	PINCH SPG ARM		
27	1-0802-1014S	LOAD ARM		
28	1-0802-1015S	EJECT CAM PLATE		
31	1-0101-2056S	IDLE PULLEY(A1)		
32	1-0802-2001S	CASSETTE GUIDE		
33	1-0802-2004S	GEAR BASE ARM		
34	1-0802-2006S	LOAD RACK		
35	1-0802-2007S	TAPE GUIDE		
37	1-0802-2009S	REDUCTION GEARA		
38	1-0802-2010S	REEL SPINDLE	(x2)	
39	1-0802-2011S	REEL DRIVER	(x2)	
40	1-0802-2012S	REDUCTION GEARB		
41	1-0802-2013S	SPG HOLDER F		
42	1-0802-2014S	SPG HOLDER R		
43	1-0802-2015S	MODE GEAR		
44	1-0802-2016S	TAKE UP GEAR		
45	1-0802-2017S	REFLECTOR GEAR		
46	1-0802-2018S	RACK LINK		
47	1-0802-2019S	MODE SW ACTUATR		
48	1-0802-2020S	FRICITION GEARPL		
49	1-0802-2021S	FRICITION GEARFF		
50	1-0802-2022S	CASSETTE CATCH		
51	1-0802-2026S	FFC PAD		
59	1-0802-4001S	EJECT CAM PL SP		
60	1-0802-4002S	TU SPG		
61	1-0802-4003S	FF SPG		
62	1-0802-4004S	PINCH ARM SPG		
63	1-0802-4005S	HOLDER STAB SPG		
64	1-0802-4006S	HOLDER CUSH SPG		
65	1-0802-4007S	GEAR BASE SPG		
66	1-0802-4008S	REEL DRIVER SPG	(x2)	
67	1-0802-4013S	COMPULSION SPG		
71	1-0802-5001S	BELT		
72	1-0802-5002S	FELT 7.5*18.5*1		
73	1-0802-5003S	AZIMUTH SCREW	(x2)	
74	1-0802-5004S	FELT 11*18.5*1		
75	1-0050-5023S	WTRE CLAMPER		
82	1-0802-7001S	REEL PCB DL		
83	1-0802-7010S	SW(MATSUCHITA ESE22)		
84	1-0802-7003S	SW(MICMPU11750)		
85	1-0802-7016S	FLAT CABLE 10P		
86	1-0801-7024S	PHOTO SENSOR		
87	1-0802-7009S	SW(MICMPU12370)		
91	1-0802-7007S	HEAD(MITSUMI P-5344)		
93	1-0801-7009-0S	M.MOTOR WIRE B		
94	1-0801-7009-1S	M.MOTOR WIRE R		
96	1-0802-7017S	JOINT WIRE ASSY		
106	2-1032-0025-C2S	SCREW	(x2)	
107	2-13S2-0025-P2S	+PLAIN SCR M2	(x2)	
108	2-1112-6035-C2S	+PLAIN SCR M2.6		
109	2-1816-0032-E8S	MYLAR WASHER(S)	(x2)	
110	2-1812-0032-D2S	PSW-S 1.2		
111	1-0036-5024S	PSW(REEL)	(x3)	
113	2-1821-0040-D1S	POLY WASHER	(x2)	

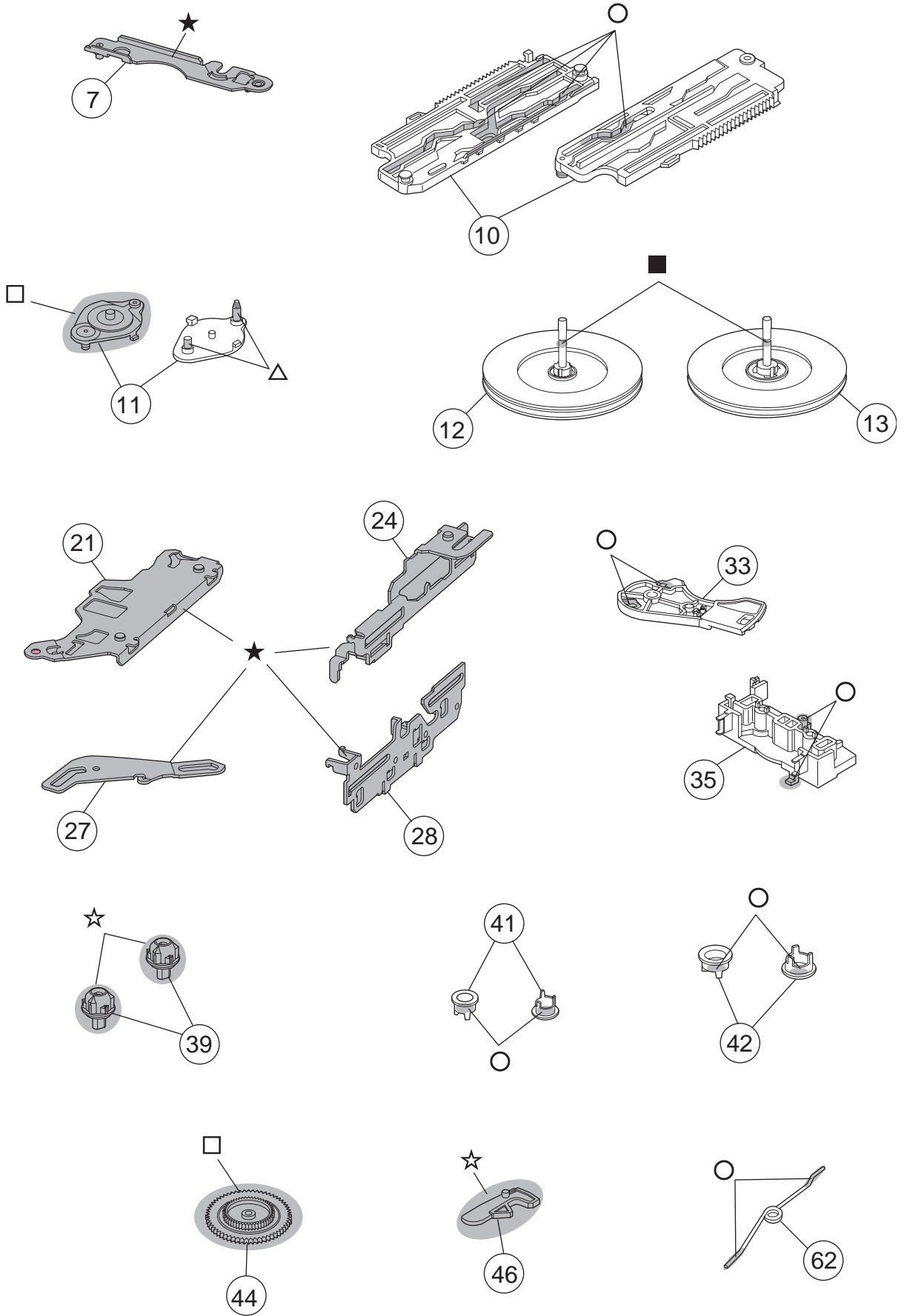
Symbol No.	Part No.	Part Name	Description	Local
114	2-1821-0040-D2S	PSW-S 2.1	(x3)	
116	2-1711-5040-16S	E RING		
117	2-1031-7030-C2S	SCREW	(x2)	

# Grease point 1/2

- FG-84M
- MEA-512R
- △ MEN-223
- ▲ SW-902
- ☆ CFD-409
- ★ CFD-250H
- EP-56
- SW-474B



# Grease point 2/2











△ Symbol No.	Part No.	Part Name	Description	Local	△ Symbol No.	Part No.	Part Name	Description	Local
R418	NRSA63J-153X	MG RESISTOR	15kΩ 1/16W J		R606	NRSA63J-392X	MG RESISTOR	3.9kΩ 1/16W J	
R422	NRSA02J-332X	MG RESISTOR	3.3kΩ 1/10W J		R607	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
R423	NRS181J-473X	MG RESISTOR	47kΩ 1/8W J		R608	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
R424	NRSA02J-332X	MG RESISTOR	3.3kΩ 1/10W J		R609	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R425	NRS181J-330X	MG RESISTOR	33Ω 1/8W J		R610	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
VR401	QVP0009-333Z	TRIM RESISTOR	33kΩ		R611	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
VR402	QVP0009-333Z	TRIM RESISTOR	33kΩ		R612	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
					R613	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
CN401	QGB1214K1-18S	CONNECTOR	B-B (1-18)		R614	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
CN402	QGA2001C1-06	CONNECTOR	W-B (1-6)		R620	NRS181J-821X	MG RESISTOR	820Ω 1/8W J	
CN403	QGF1219F1-10S	CONNECTOR	FFC/FPC (1-10)		R621	NRSA02J-202X	MG RESISTOR	2kΩ 1/10W J	
OT1	FSMW1093-101XSS	PW BOARD			R622	NRSA02J-202X	MG RESISTOR	2kΩ 1/10W J	

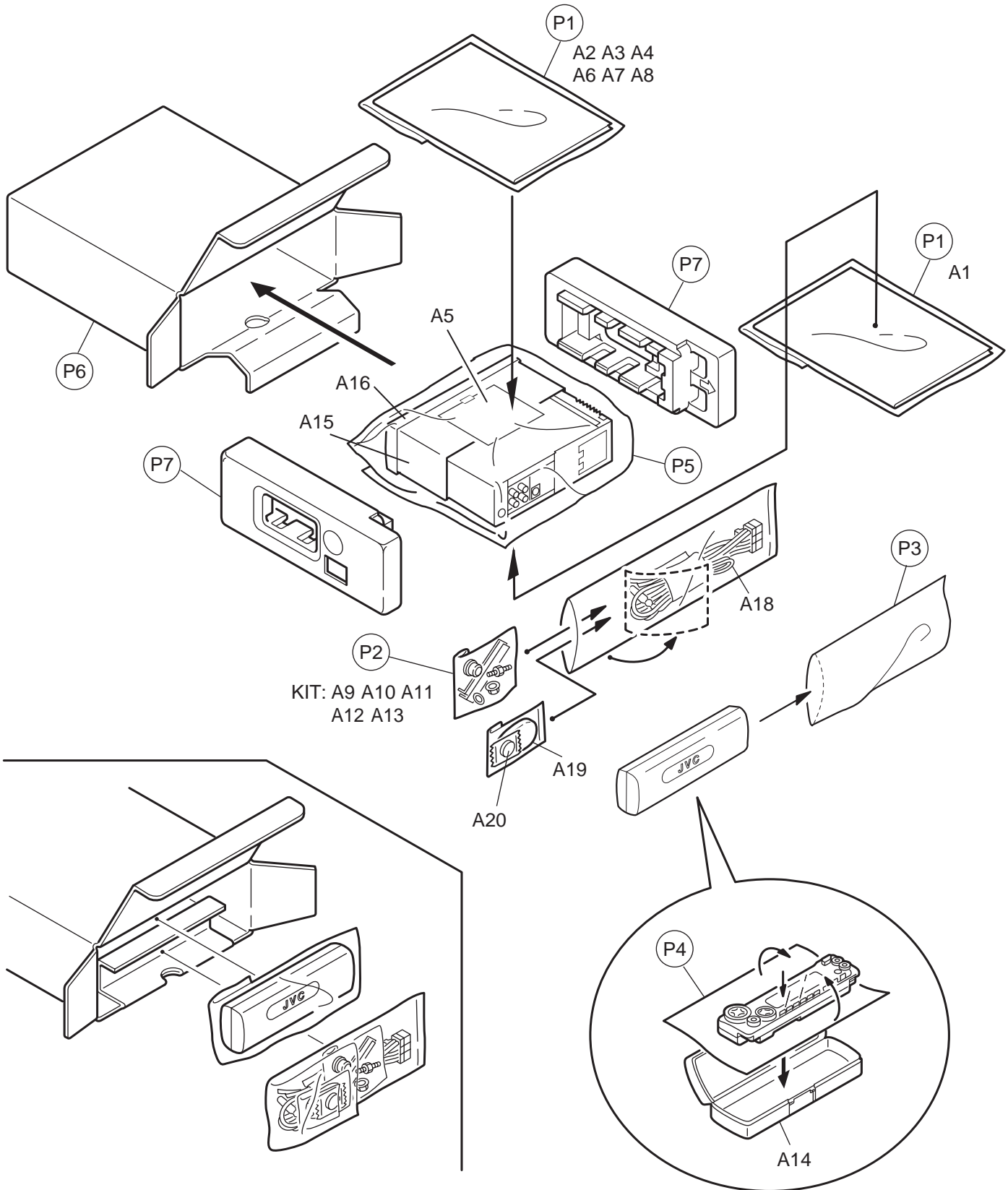
## Front board

Block No. [0][3][0][0]

△ Symbol No.	Part No.	Part Name	Description	Local
IC601	LC75873NW	IC	LCD Driver	
IC602	GP1UM261XK	IR DETECT UNIT	Receiver	
Q641	2SB624/4-X	TRANSISTOR		
Q642	UN2211-X	TRANSISTOR		
D601	SML-310LT/MN/-X	LED		
D602	SML-310VT/JK/-X	LED		
D603	SML-310VT/JK/-X	LED		
D604	SML-310VT/JK/-X	LED		
D605	SML-310VT/JK/-X	LED		
D606	SML-310VT/JK/-X	LED		
D607	SML-310VT/JK/-X	LED		
D608	SML-310VT/JK/-X	LED		
D609	SML-310VT/JK/-X	LED		
D610	CL-190UB-X-X	BLUE LED		
D611	CL-190UB-X-X	BLUE LED		
D612	SML-310VT/JK/-X	LED		
D613	SML-310VT/JK/-X	LED		
D614	SML-310VT/JK/-X	LED		
D615	SML-310VT/JK/-X	LED		
D616	SML-310VT/JK/-X	LED		
D617	SML-310VT/JK/-X	LED		
D618	SML-310VT/JK/-X	LED		
D619	SML-310VT/JK/-X	LED		
D620	SML-310VT/JK/-X	LED		
D621	SML-310VT/JK/-X	LED		
D622	SML-310VT/JK/-X	LED		
D623	SML-310VT/JK/-X	LED		
D624	SML-310VT/JK/-X	LED		
D625	SML-310VT/JK/-X	LED		
D641	NSPW310BS/BRS/	LED		
D642	NSPW310BS/BRS/	LED		
D643	NSPW310BS/BRS/	LED		
D651	UDZS5.1B-X	Z DIODE		
D652	1SS355-X	SI DIODE		
D653	1SS355-X	SI DIODE		
D654	1SS355-X	SI DIODE		
D655	1SS355-X	SI DIODE		
D656	1SS355-X	SI DIODE		
D657	1SS355-X	SI DIODE		
D658	1SS355-X	SI DIODE		
D659	UDZS5.6B-X	Z DIODE	1.5kΩ 1/10W J	
C601	NBE20JM-475X	TA E CAPACITOR	4.7uF 6.3V M	
C602	NCB31HK-103X	C CAPACITOR	0.01uF 50V K	
C603	NDC31HJ-221X	C CAPACITOR	220pF 50V J	
C604	NCB31AK-224X	C CAPACITOR	0.22uF 10V K	
C605	NCB31AK-224X	C CAPACITOR	0.22uF 10V K	
C606	NCB31EK-104X	C CAPACITOR	0.1uF 25V K	
R601	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
R602	NRSA63J-821X	MG RESISTOR	820Ω 1/16W J	
R603	NRSA63J-122X	MG RESISTOR	1.2kΩ 1/16W J	
R604	NRSA63J-182X	MG RESISTOR	1.8kΩ 1/16W J	
R605	NRSA63J-272X	MG RESISTOR	2.7kΩ 1/16W J	
CN601	QNZ0006-001	CAR CONNECTOR		
EN601	QSW0863-002	ROTARY ENCODER		
S601	NSW0124-001X	TACT SW		
S602	NSW0124-001X	TACT SW		
S603	NSW0124-001X	TACT SW		
S604	NSW0124-001X	TACT SW		
S605	NSW0124-001X	TACT SW		
S606	NSW0124-001X	TACT SW		
S607	NSW0124-001X	TACT SW		
S608	NSW0124-001X	TACT SW		
S609	NSW0124-001X	TACT SW		
S610	NSW0124-001X	TACT SW		
S611	NSW0124-001X	TACT SW		
S612	NSW0124-001X	TACT SW		
S613	NSW0124-001X	TACT SW		
S614	NSW0124-001X	TACT SW		
S615	NSW0124-001X	TACT SW		
S616	NSW0124-001X	TACT SW		
S617	NSW0124-001X	TACT SW		

# Packing materials and accessories parts list

Block No. **M 3 M M**



## Packing and accessories

Block No. [M][3][M][M]

△ Symbol No.	Part No.	Part Name	Description	Local
A 1	GET0127-001A	INST BOOK	ENG,GER,FRE,DU T	
A 2	GET0127-002A	INST BOOK	RUS,SPA,ITA,POL	
A 3	GET0127-003A	INSTALL MANUAL	ENG,GER,FRE,DU T	
A 4	GET0127-004A	INSTALL MANUAL	RUS,SPA,ITA,POL	
A 5	LV40978-001A	CAUTION SHEET		
A 6	BT-54013-6	WARRANTY CARD		
A 7	VND3050-002	IDENTITY CARD		
A 8	VND3046-001	SERIAL TICKET		
A 9	VKZ4027-202	PLUG NUT		
A 10	VKH4871-001SS	MOUNT BOLT		
A 11	VKZ4328-001	LOCK NUT		
A 12	WNS5000Z	WASHER		
A 13	GE40130-001A	HOOK	(x2)	
A 14	FSJB3001-30C	HARD CASE		
A 15	GE20137-003A	MOUNTING SLEEVE		
A 16	GE20149-007A	TRIM PLATE		
A 18	QAM0176-002	POWER CORD		
A 19	RM-RK50	REMOCON UNIT		
A 20	-----	BATTERY		
KIT	KSFX480K-SCREW1	SCREW PARTS KIT	A9 to A13	
P 1	FSPG4002-001	POLY BAG	(x2)	
P 2	QPA00801205	POLY BAG	8cm x 12cm	
P 3	QPA01003003	POLY BAG	10cm x 30cm	
P 4	FSYH4036-068	SHEET		
P 5	QPC03004315P	POLY BAG	30cm x 43cm	
P 6	GE30706-001A	CARTON		
P 7	GE10070-001A	EPS CUSHION		