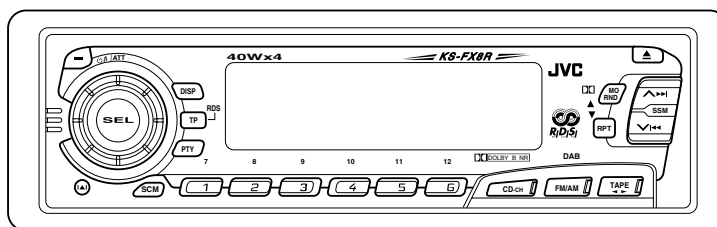
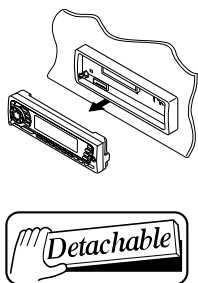


# JVC

## SERVICE MANUAL

### CASSETTE RECEIVER

## KS-FX8R




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

### Contents

Safety precaution .....	1-2
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## Safety precaution

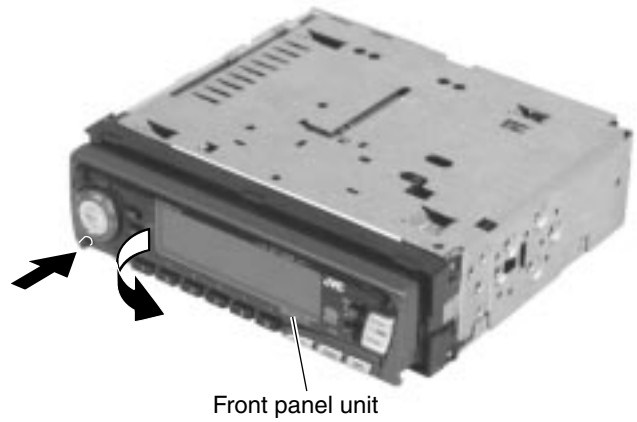
 **CAUTION** Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

## Disassembly method

### ■ Removing the front panel unit

(See Fig.1)

1. Press the release switch and remove the front panel unit in the direction of the arrow.

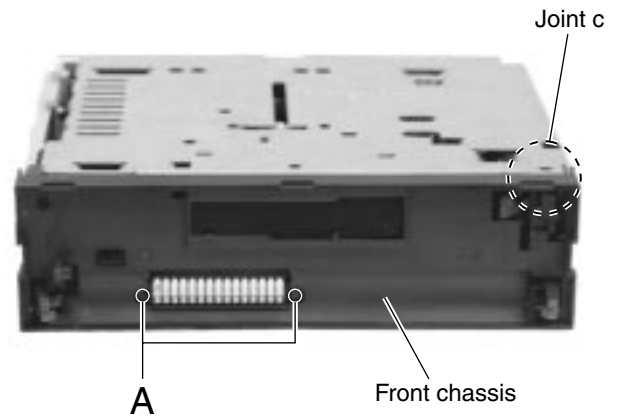


Front panel unit

Fig.1

### ■ Removing the front chassis (See Fig.2~3)

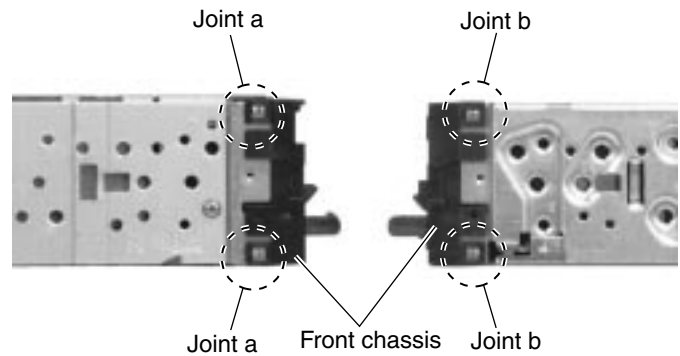
1. Remove the two screws **A** attaching the front chassis.
2. Insert a screwdriver to the two joints **a** on the left side of the front chassis, two joints **b** on the right side and one joint **c** from upside, then detach the front chassis toward the front side.



A

Fig.2

Front chassis



Joint a

Fig. 3

Joint b

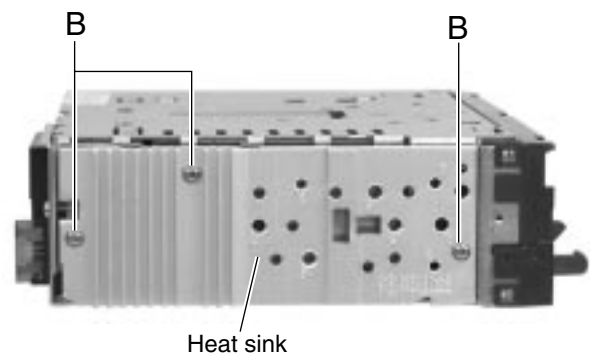
Joint a

Front chassis

Joint b

### ■ Removing the heat sink (See Fig.4)

1. Remove the three screws **B** attaching the heat sink on the left side of the body, and remove the heat sink.



Heat sink

Fig. 4

### ■ Removing the bottom cover (See Fig.5)

- Prior to performing the following procedure, remove the front chassis and the heat sink.

1. Turn the body upside down.
2. Insert a screwdriver to the two joints **d** and two joints **e** on both sides of the body and the joint **f** on the back of the body, then detach the bottom cover from the body.

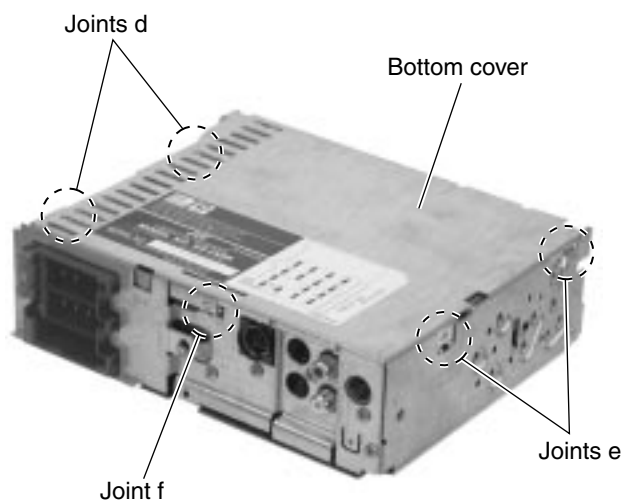


Fig. 5

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

- Prior to performing the following procedure, remove the front chassis, the heat sink and bottom cover.

1. Remove the five screws **C** attaching the rear panel and one screw **D** attaching the pine jack on the back of the body.

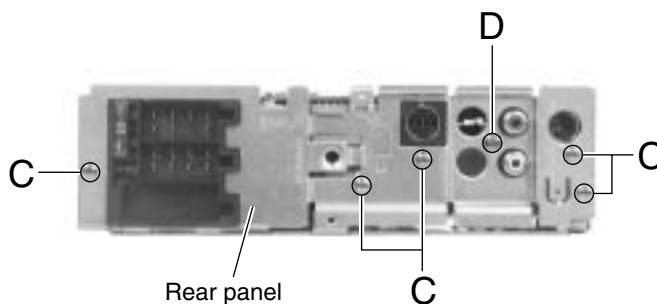


Fig. 6

### ■ Removing the main amplifier board assembly (See Fig.7)

- Prior to performing the following procedure, remove the front chassis, the heat sink, bottom cover and the rear panel.

1. Remove the two screws **E** attaching the main amplifier board assembly on the top cover.
2. Disconnect connector CP401 on the main amplifier board assembly from the cassette mechanism assembly.

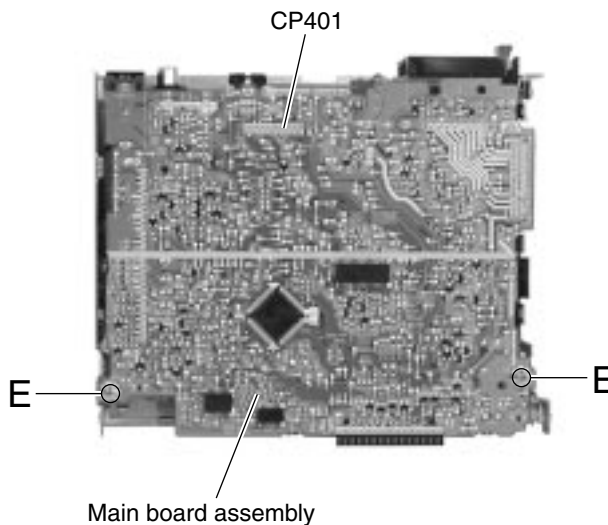


Fig. 7

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

- Prior to performing the following procedure, remove the front chassis, the heat sink, bottom cover and the main amplifier board assembly.
1. Remove the four screws **F** attaching the cassette mechanism assembly from the top cover.

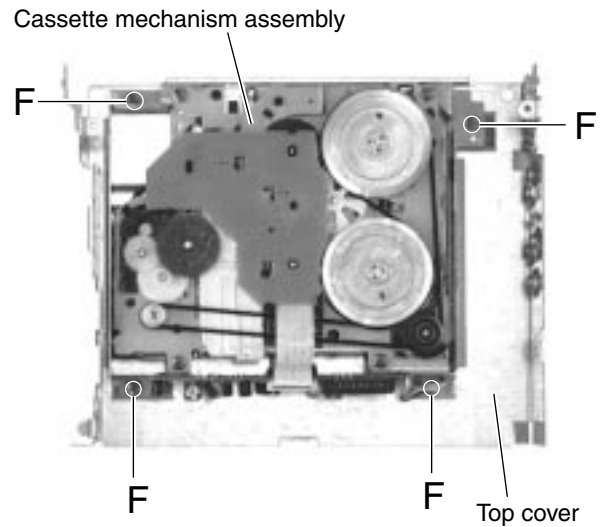


Fig. 8

### ■ Removing the (LCD & key) control switch board (See Fig.9 and 10 )

1. Remove the front panel unit from the main body.
2. Remove the five screws **G** attaching the rear cover on the back of the front panel unit.
3. Remove the control switch board from the front panel unit.

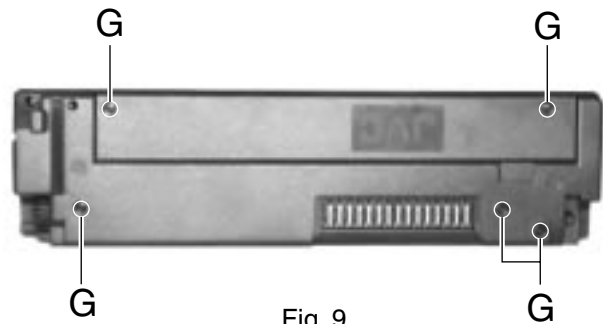


Fig. 9

LCD &amp; Key control board

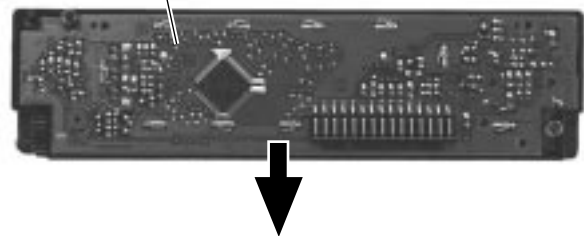


Fig. 10

**<Removal of the cassette mechanism>**

**■ Removing the head amplifier board.  
(See Fig.1 and 2)**

1. For the 6pin wire extending from connector CN402 on the head amplifier board, disconnect it from the head relay board.
2. Disconnect the card wire from connector CN403 on the head amplifier board.
3. Remove the screw **A** attaching the head amplifier board.
4. Move the tab **a** as shown in Fig.2 and remove the head amplifier board while moving it in the direction of the arrow.

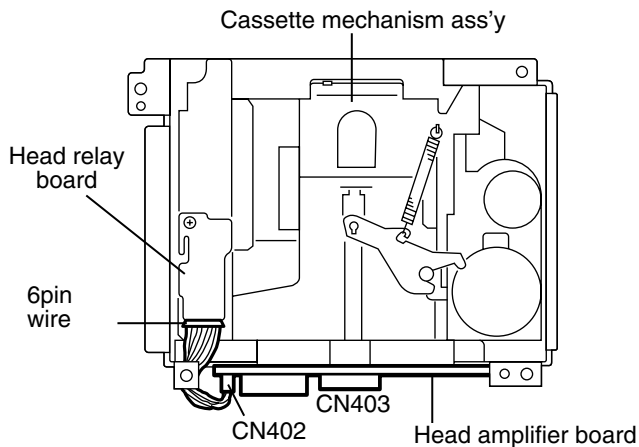


Fig.1

**■ Removing the cassette mechanism assembly (See Fig.1 to 3)**

1. Disconnect the 6pin wire from connector CN402 and the card wire from CN403 on the head amplifier board (Refer to Fig.1 and 2).
2. Remove the four screws **B** on the bottom of the cassette mechanism.

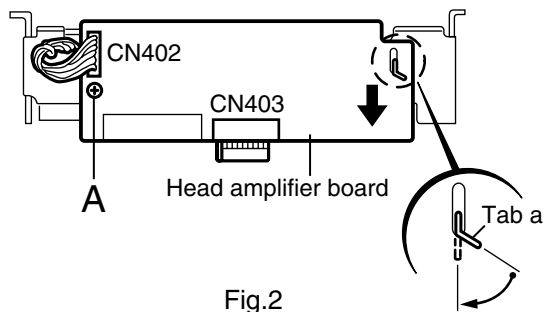


Fig.2

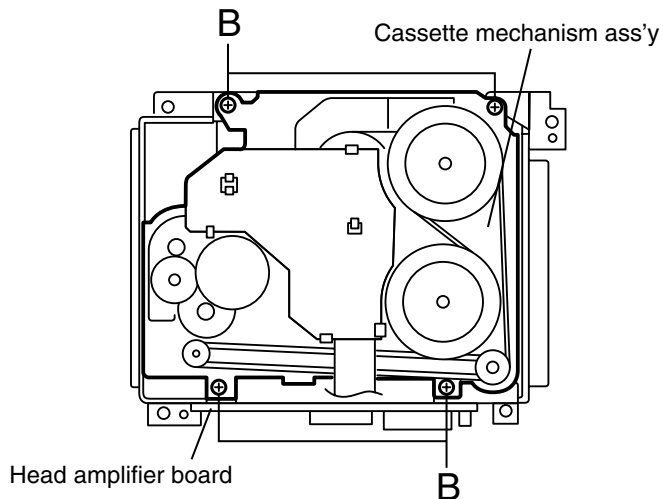


Fig.3

## ■ Removing the head relay board

(See Fig.4)

1. Unsolder the soldering **b** on the head relay board.
2. Remove the screw **C** attaching the head relay board.
3. Remove the head relay board in the direction of the arrow while releasing the two joints **c**.

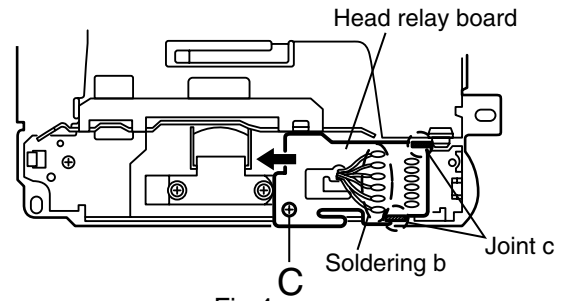


Fig.4

## ■ Removing the load arm (See Fig.5)

1. Remove the **E** washer attaching the load arm using a pincette or something like that and remove the spring **d**.
2. Move the part of the load arm marked ※ upwards to release it from the axis of rotation. Then rotate the load arm in the direction of the arrow to remove it from the cach.

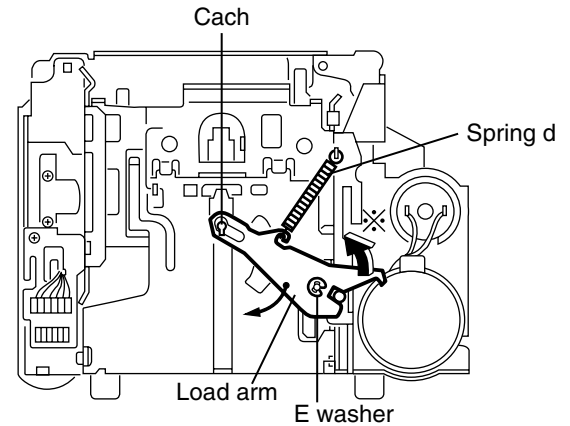


Fig.5

## ■ Removing the sub chassis (See Fig.6)

- Prior to performing the following procedure, remove the head relay board.

1. Remove the screw **D** attaching the sub chassis.
2. Push the tab **e** in the direction of the arrow to detach the one side of the sub chassis. Then release the sub chassis from the tab **f**.

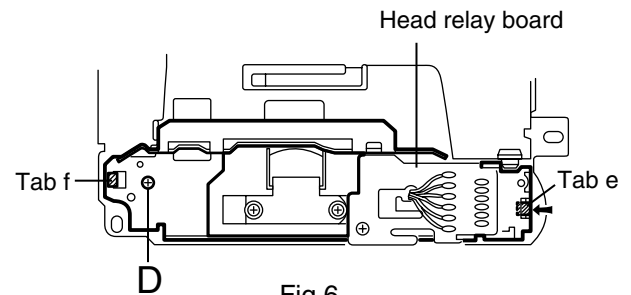


Fig.6

## ■ Removing the cassette holder and the holder arm in the eject mode

(See Fig.7 and 8)

- Prior to performing the following procedure, remove the head relay board, the load arm and the sub chassis.

1. Remove the screw **E** attaching the reinforce bracket.
2. Remove the reinforce bracket.
3. Push the tab **g** fixing the cassette holder in the direction of the arrow and open the cassette holder and the holder arm upward until they stop at an angle of 45 degrees. Move the two joints **h** to the side and remove the cassette holder and the holder arm from the shaft.

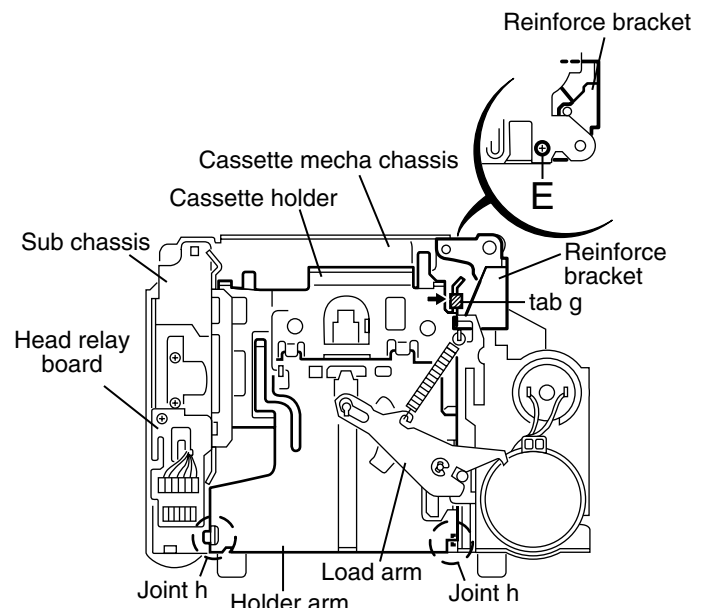


Fig.7

**■ Removing the flywheel**

(See Fig.10 and 12)

1. Prior to performing the following procedure, remove the head relay board, the load arm, the sub chassis, the cassette holder, the holder arm and the reel disc board.
2. Remove the belt on the bottom of the cassette mechanism ass'y.
3. Remove the slit washer attaching the flywheel on the upper side of the cassette mechanism ass'y and pull out the flywheel downward. Then remove another flywheel in the same way.

ATTENTION: When reassembling, make sure to use a new slit washer.

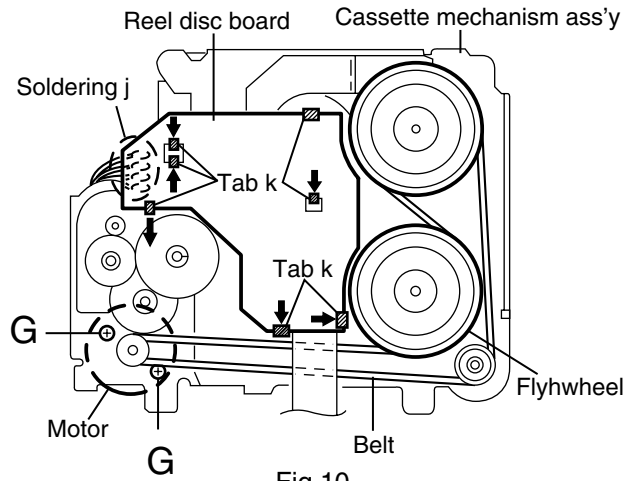


Fig.10

**■ Removing the reel disc ass'y ( I )**

(See Fig.12 to 14)

- Prior to performing the following procedure, remove the head relay board, the load arm, the sub chassis, the cassette holder and the holder arm.
1. Disengage the part n inside of the reel driver which engages with the shaft, using a pincette or something like that. Then remove the reel driver from the shaft.
  2. Remove the reel driver spring and the reel table.

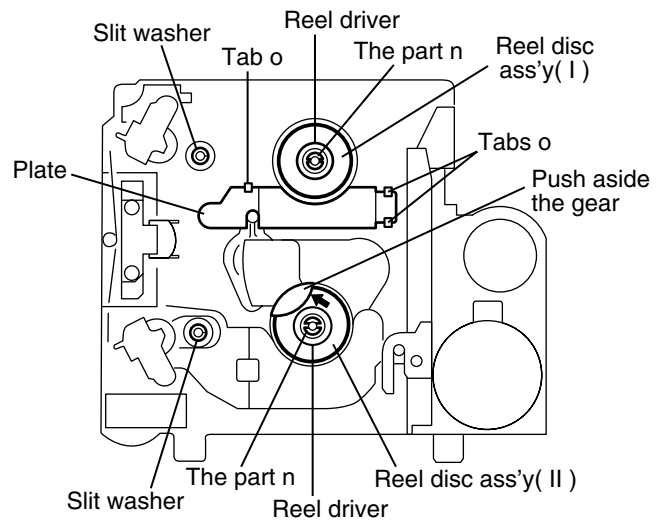


Fig.12

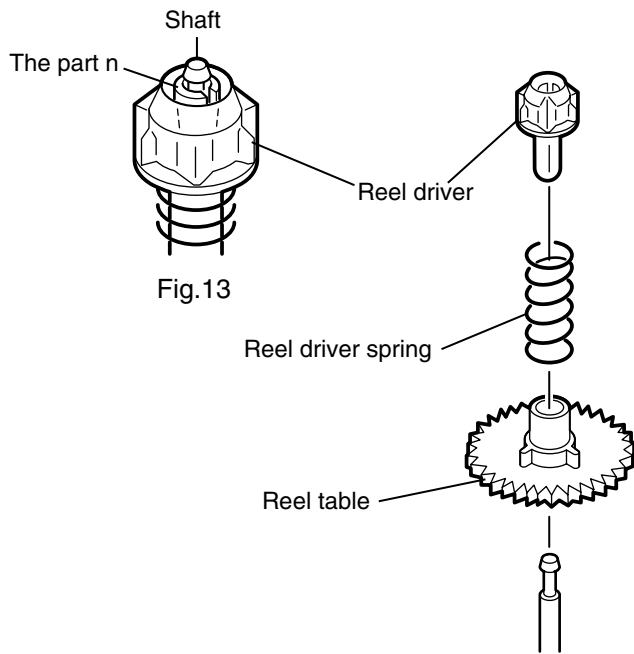


Fig.13

Fig.14



■ **Removing the reel disc ass'y( II )**  
**(See Fig.12 to 15)**

ATTENTION: Prior to performing the following procedure, remove the reel disc ( I ).

1. Release the plate from the three tabs **o**.
2. Push aside the gear over the reel table using a pincette or something like that.
3. Remove the reel disc ass'y ( II ) as with the reel disc ass'y ( I ).

ATTENTION: Do not break the front panel tab fitted to the metal cover.

Push aside the gear and reattach the reel disc Ass'y( I ).

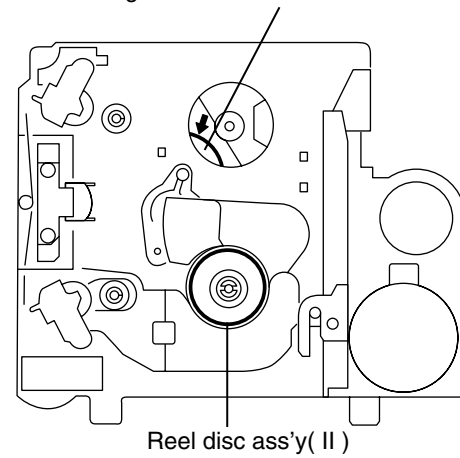


Fig.15

# 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  
(mechanism adjustment)

## ■ Measuring conditions(Amplifier section)

- Power supply voltage ..... DC14.4V (10.5 - 16V)
- Load impedance ..... 4 Ω (2Speakers connection)
- Line out ..... 20k Ω

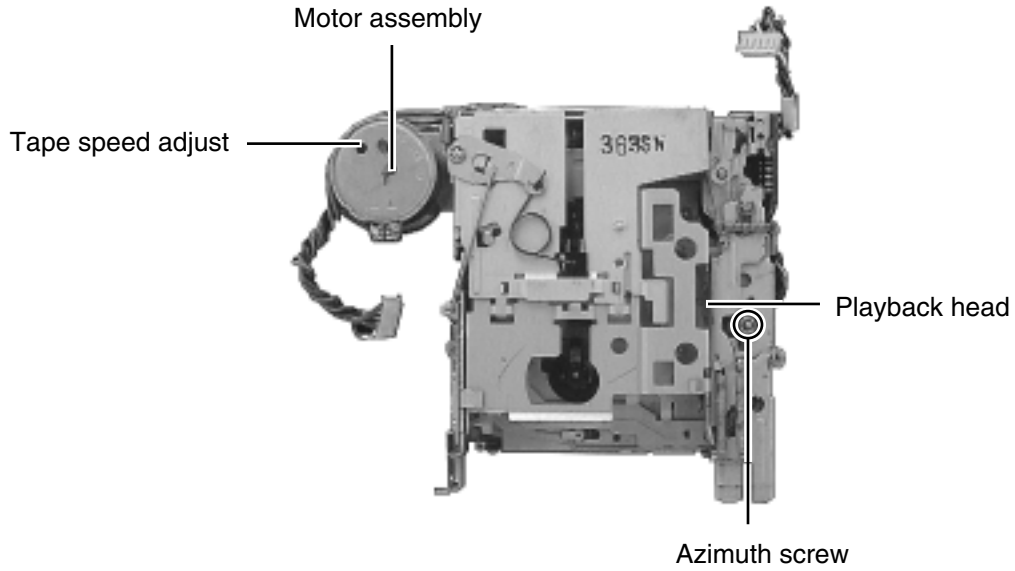
## ■ Standard volume position

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.

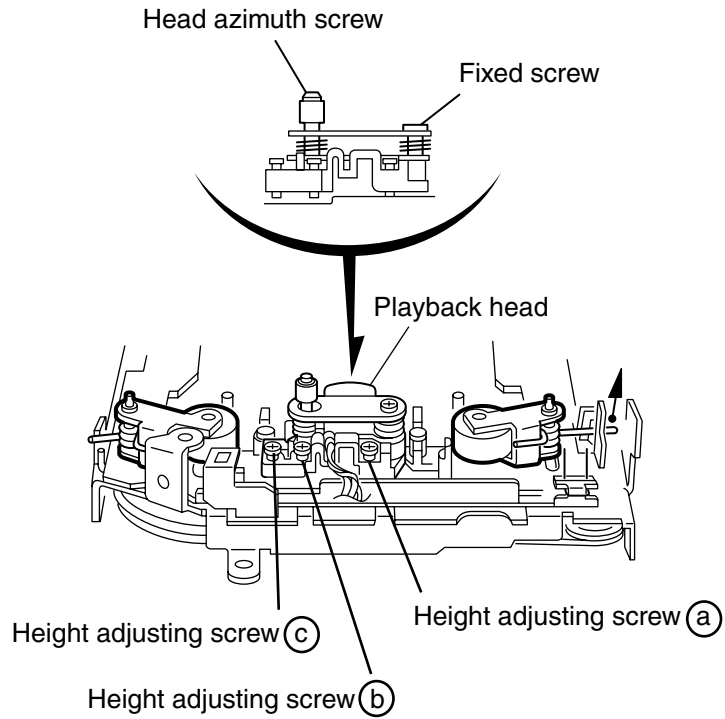
- AM mode            999kHz/62dB,INT/400Hz,30%  
                         modulation signal on recieving.
- FM mono mode    97.9MHz/66dB,INT/400Hz,22.5kHz  
                         deviation pilot off mono
- FM stereo mode   1kHz,67.5kHz dev. pilot7.5kHz dev.
- Output level      0dB(1 μV,50 Ω /open terminal)

### ■Arrangement of adjusting & test points

Cassette mechanism  
(Surface)



Head section view



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

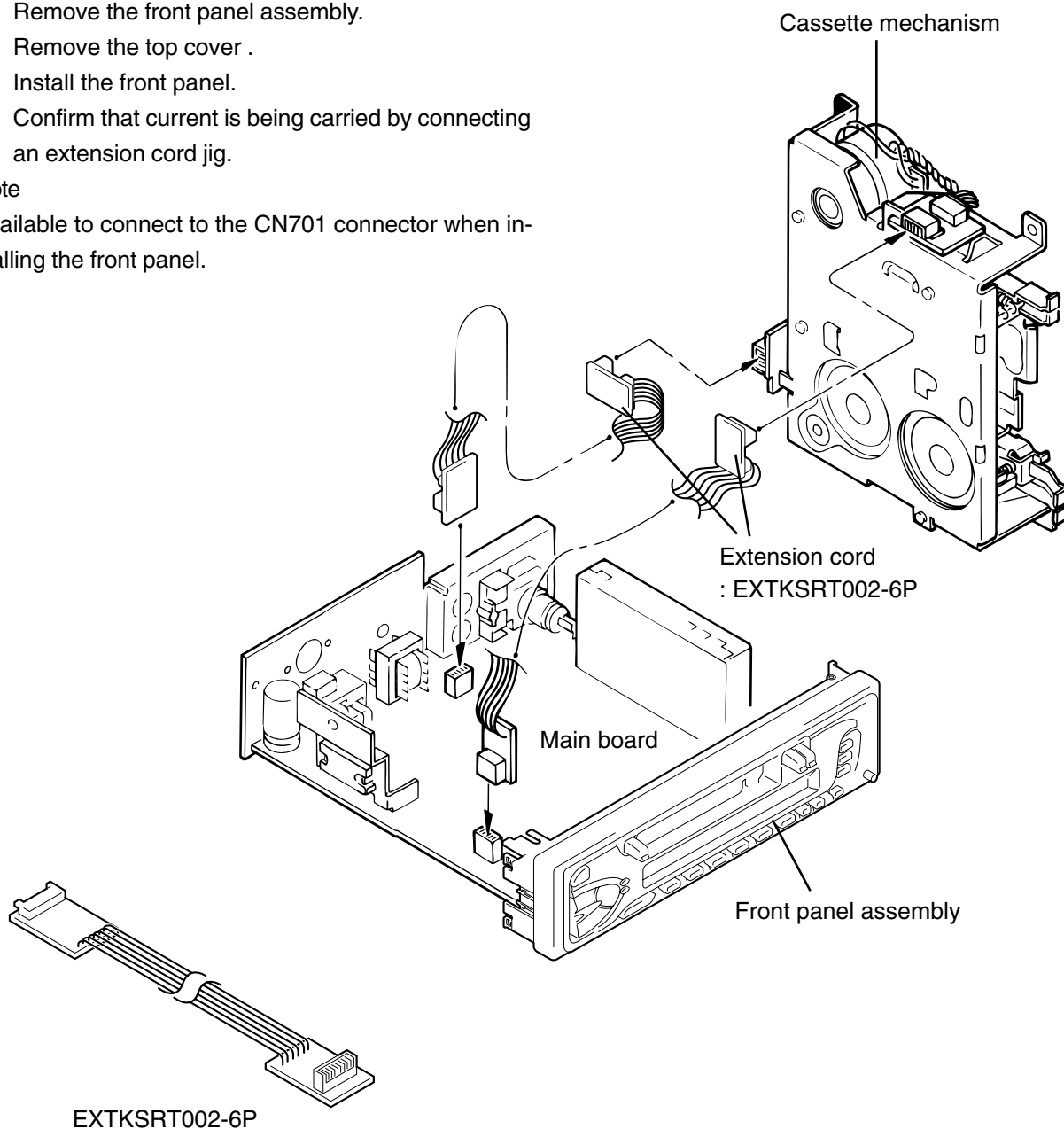
1. For 1995 and 1996 , we're advancing efforts to make our extension cords common for all car audio products. Please use this type of extension cord as follows.
2. As a U-shape type top cover is employed, this type of extension cord is needed to check operation of the mechanism assembly after disassembly.
3. Extension cord : EXTKSRT002-6P ( 6 pin extension cord ) For connection between mechanism assembly and main board assembly.  
Check for mechanism driving section such as motor ,etc..

### ■ Disassembly method

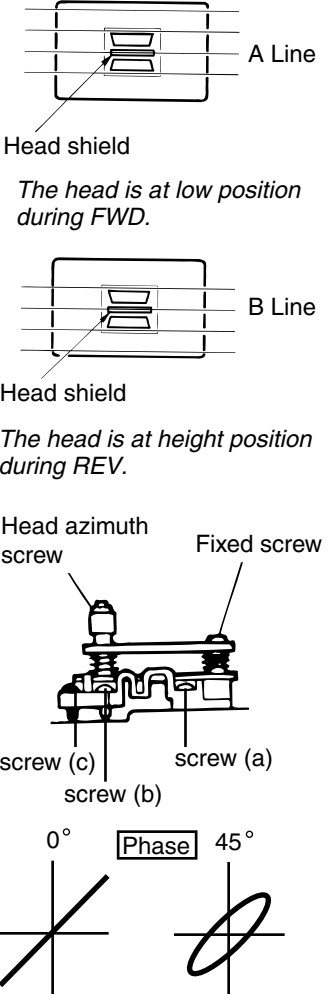
1. Remove the bottom cover.
2. Remove the front panel assembly.
3. Remove the top cover .
4. Install the front panel.
5. Confirm that current is being carried by connecting an extension cord jig.

**Note**

Available to connect to the CN701 connector when installing the front panel.



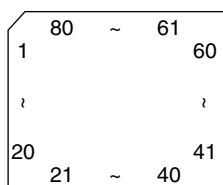
■ Mechanism adjustment section

Item	Adjusting & Confirmation Methods	Adjust	Std. Value
<p>1.Head azimuth</p>	<p>"Head Height Adjustment"                      Note                      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> <ol style="list-style-type: none"> <li>load the mirror tape ( SCC-1659 ). Adjust with height adjustmentscrew (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.</li> <li>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.</li> <li>Adjust the azimuth screw (b) so that line "B" of the mirror tape runs in the center between Lch and Rch in the forward play mode.</li> </ol> <p>"Head Azimuth Adjustment"                      1.Load the test tape ( VT724: 1kHz ) and play it back in the reverse play mode. set the Rch output level to maximum.                      2.Load the test tape ( VT703: 10kHz ) and play it back in the forward play mode. Adjust the Rch and Lch output levels to maximum, with azimuth adjustment screw (b).                      In this case, the phase difference should be within 45° .                      3.Engage the reverse mode and adjust the output level to maximum, with azimuth adjustment screw (c).                      *The phase difference should be 45_Kor more.                      4.When switching between forward and reverse modes, the difference between channels should be within 3dB.                      *Between FWD Lch and Rch, REV Lch and Rch.                      5.When the test tape ( VT721 : 315Hz ) is played back, the level difference between channels should be within 1.5dB.</p>	 <p>Head shield  <i>The head is at low position during FWD.</i></p> <p>Head shield  <i>The head is at height position during REV.</i></p> <p>Head azimuth screw                      Fixed screw                      screw (c)                      screw (a)                      screw (b)</p> <p>0° Phase 45°</p>	
<p>2. Tape Speed and Wow &amp; Flutter</p>	<ol style="list-style-type: none"> <li>Check to see if the reading of the frequency counter &amp; Wow flutter meter is within 2940-3090 Hz( FWD/REV ), and less than 0.35% ( JIS RMS ).</li> <li>In case of out of specification, adjust the motor with a built-in volume resistor.</li> </ol>	<p>Built-in volume resistor</p>	<p>Tape Speed                      2940-3090Hz                      Wow&amp;Flutter                      Less than 0.35%                      (JIS RMS)</p>
<p>3. Playback Frequency response</p>	<ol style="list-style-type: none"> <li>Play the test tape ( VT724 : 1kHz ) back and set the volume position at 2V.</li> <li>Play the test tape ( VT739 )back and confirm 0 ± 3dB at 1kHz/ 8kHz and -4+2dB at 1kHz/125Hz.</li> <li>When 8kHz is out of specification, it will be necessary to read adjust the azimuth.</li> </ol>		<p>Speaker out                      1kHz/8kHz : 0dB_}3dB,                      125Hz/1kHz : -4dB+2dB,</p>

## Description of major ICs

### ■ UPD178018AGC-551 (IC701) : Main system control CPU

#### 1. Pin layout



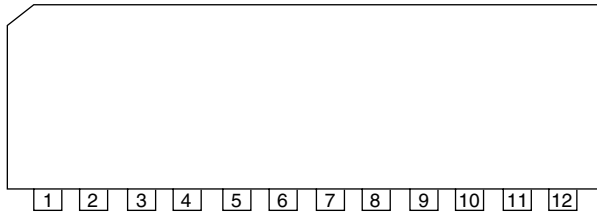
#### 2. Pin function

Pin No.	Port Name	I/O	Descriptions
1	KEY 0	I	Key input 0
2	KEY 1	I	Key input 1
3	KEY 2	I	Key input 2
4	LEVEL	I	Level meter input
5	SM	I	S.meter level input
6	SQ	I	S.Quality level input
7	LCDCE	O	CE output to LCD driver
8	LCDDA	O	Data output to LCD driver
9	LCDSCK	O	Clock output to LCD driver
10	BUSI/O	I	I/O selector output for J-BUS, H : OUT, L: INPUT
11	UNLOCK	-	Non connect
12	BUSSI	I	J-BUS Data input
13	BUSO	O	J-BUS Data output
14	BUSSCK	I/O	J-BUS Clock in/output
15	NC	-	Non connect
16	NC	-	Non connect
17	NC	-	Non connect
18	NC	-	Non connect
19	NC	-	Non connect
20	NC	-	Non connect
21	GNDPORT	-	Port GND
22	VDDPORT	-	Port Vdd
23	AM	O	Non connect
24	AFCK	O	AF check output, L: AF check
25	MONO	O	Monaural on /off selecting output, H:mono on
26	FM	O	FM/AM switching output L : FM H : AM
27	SEEK/STP	O	Auto seek /stop selecting output, H: Seek, L:Stop
28	NC	I	Pulse signal input port for Cruise control
29	IFC	I	FM/AM midle frequency counter input
30	VDDPLL	-	PLL Vdd
31	FMOSC	I	FM/AM limited generator frequency input
32	AMOSC	-	None connect
33	GNDPLL	-	PLL GND
34	AMEO	O	AM error out output
35	FMEO	O	FM error out output
36	IC	-	GND
37	SD/ST	I	Station detector, Stereo signal input, H:Find Station, L:Stereo
38	STAGE0	I	Pull up
39	NC	-	Non connect
40	F/R	O	Main motor output

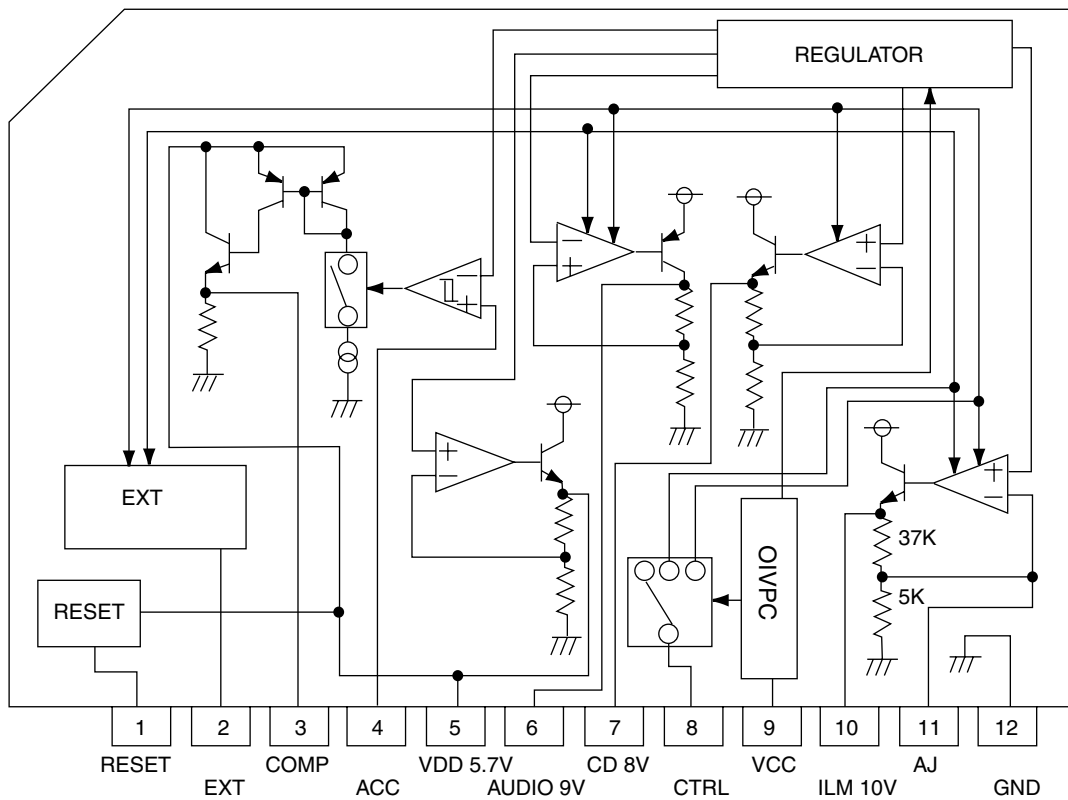
Pin No.	Port Name	I/O	Descriptions
41	NC	-	Non connect
42	NC	-	Non connect
43	TELMUTE	O	Telephone mute signal detection input
44	TAPEIN	I	TAPE input
45	I2CCLK	O	I2C information clock output
46	I2CDAO	O	I2C information data output
47	I2CDAI	I	I2C information clock input
48	NC	-	Non connect
49	NC	-	Non connect
50	NC	-	Non connect
51	NC	-	Non connect
52	NC	-	Non connect
53	NC	-	Non connect
54	NC	-	Non connect
55	TAPE	-	Non connect
56	TUNER	-	Non connect
57	CD	-	Non connect
58	NC	-	Non connect
59	NC	-	Non connect
60	MUTE	O	Mute output
61	POWER	O	Power ON /OFF switching output , H : power on
62	NC	-	Non connect
63	NC	-	Non connect
64	NC	-	Non connect
65	NC	-	Non connect
66	NC	-	Non connect
67	ON	I	CPU power supply
68	STOP	O	STOP signal output terminal
69	RDSCK	I	Clock input for RDS
70	RDSDA	I	RDS data input
71	REMOCON	I	Remocom input
72	DETACH	I	Detach signal input H : Power save
73	BUSINT	I	Cut-in input for J-BUS signal
74	REGCPU	-	Regulator for CPU power supply, Connect the GND with 0.1 $\mu$ F.
75	GND	-	Ground
76	X2	-	Connecting the crystal oscillator for system clock
77	X1	I	Connecting the crystal oscillator for system clock
78	REGOSC	-	Regulator for oscillator circuit. Connect the GND with 0.1 $\mu$ F.
79	VDD	-	Vdd
80	RESET	-	Pull up

■ BA4905-V3 (IC901) : Regulator

1.Pin layout



2.Block diagram





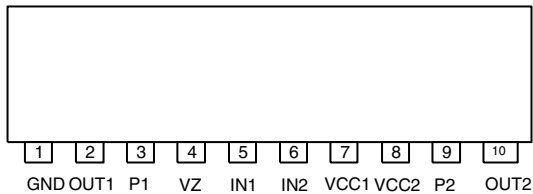
## 3.Pin function

BA4905-V3

1	RESET	If VDD voltage becomes 4V or less, RESET output becomes low level.
2	EXT output	This outout voltage is approximately 0.5V lower than VCC, and max output current is 300mA.
2	COMP output	A voltage supply for ACC block this outout voltage is approximately 0.7V lower than VDD'S. The max output current is 100mA.
4	ACC	Control of the COMP output by inputting voltage.
5	VDD output	This output voltage is 5.7V, and max output current is 100mA. This voltage supply is for microcomputer. Whenever block up voltage supply is connected. the output keeps on running.
6	AUDIO output	This output voltage is 9.0V, and max output current is 500mA. This voltage supply for AUDIO.
7	CD output	This output voltage is 8.0V, and max output current is 1A. This voltage supply for CD.
8	CTRL	Output selector of CD, AUDIO,ILM and EXT.
9	VCC	To be connected with the BACK UP of car.
10	ILM output	This output voltage is 10V, and max output current is 500mA. Output voltage is adjustable.
11	AJ	Putting a resistance between ILM and AJ or between AJ and GND makes ILM output voltage adjustable.
12	GND	Ground.

## ■ LB1641 (IC402) : DC motor driver

## 1. Pin layout

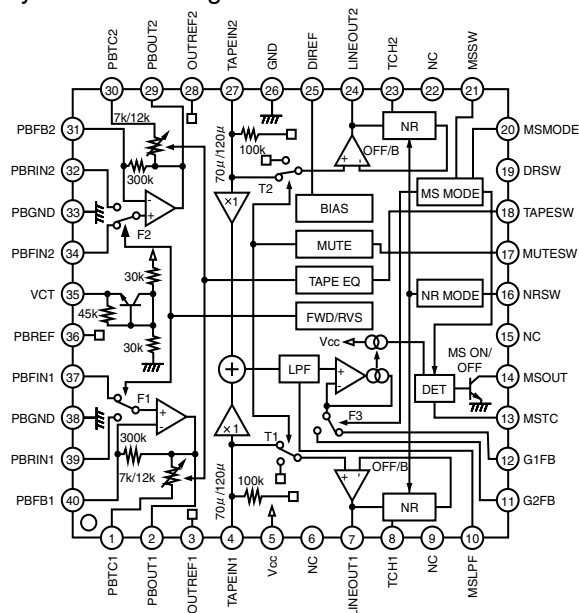


## 2. Pin function

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

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

### 1. Pin layout & block diagram



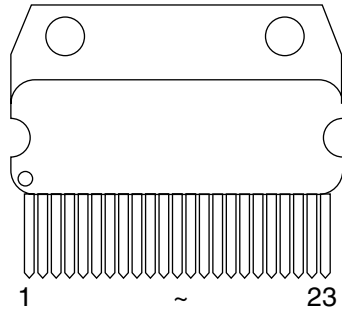
### 2. Pin function

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

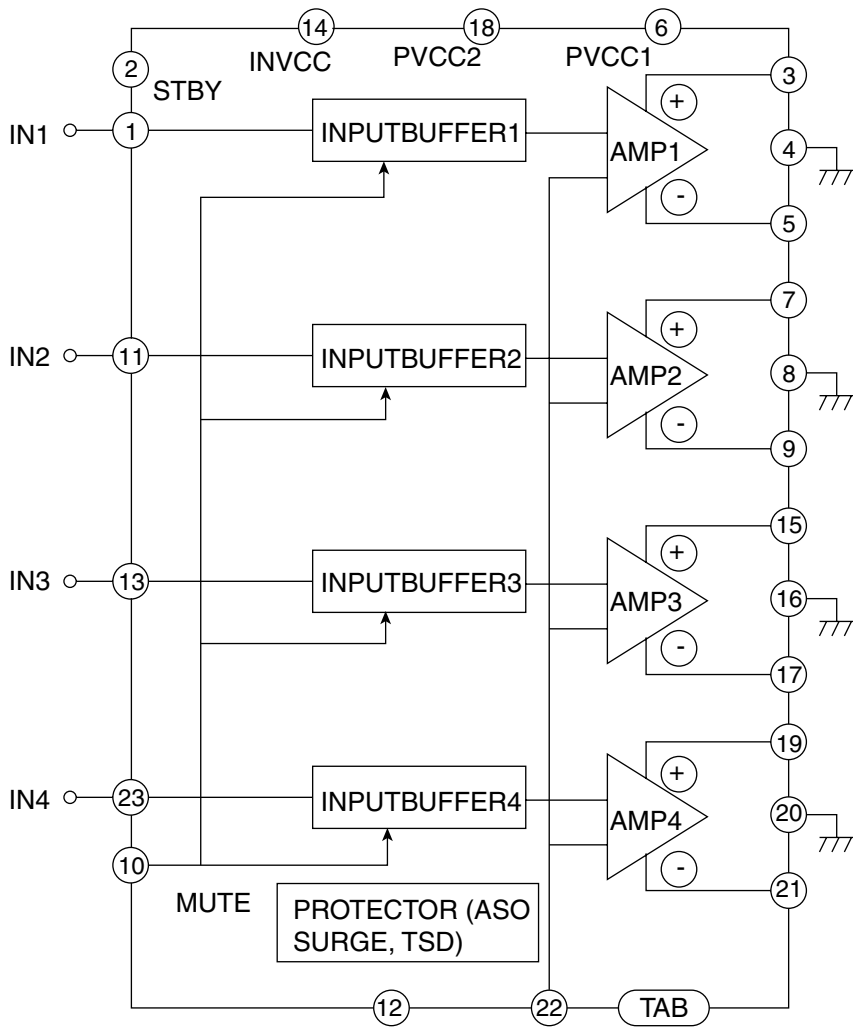
Pin No.	Symbol	I/O	Function
25	DIREF	-	Resistance for setting the reference
26	GND	-	Ground
27	TAPEIN2	I	TAPE input
28	OUTREF2	O	Output reference
29	PBOUT2	O	Playback equalizer amplifier output
30	PBTC2	-	Playback equalizer amplifier capacitance
31	PFBF2	I	Playback equalizer amplifier feedback
32	PBRIN2	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

■ HA13158A (IC301) : Power amp

1. Pin layout

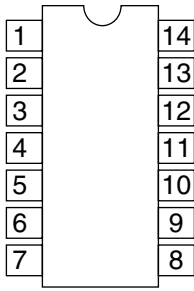


2. Block diagram



■ HD74HC126FP-X (IC801) : Buffer

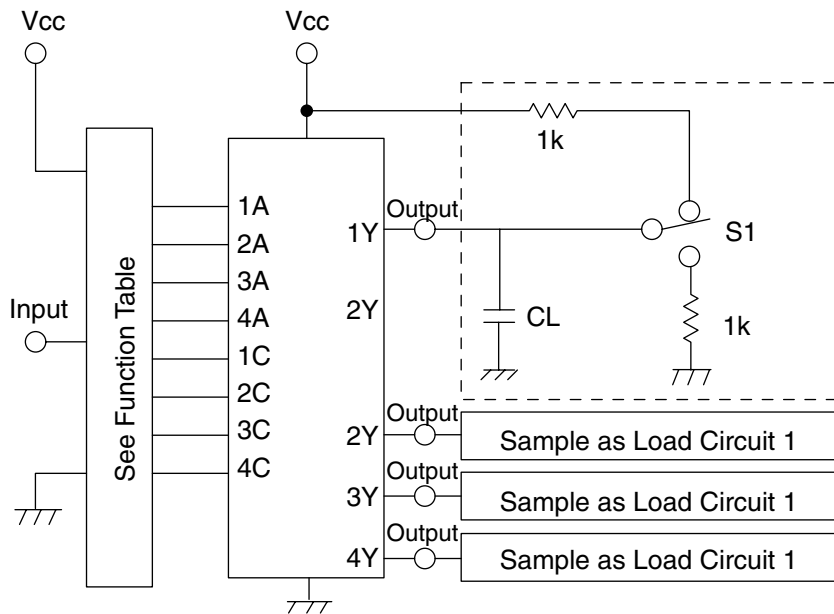
1.Pin layout



2.Pin function

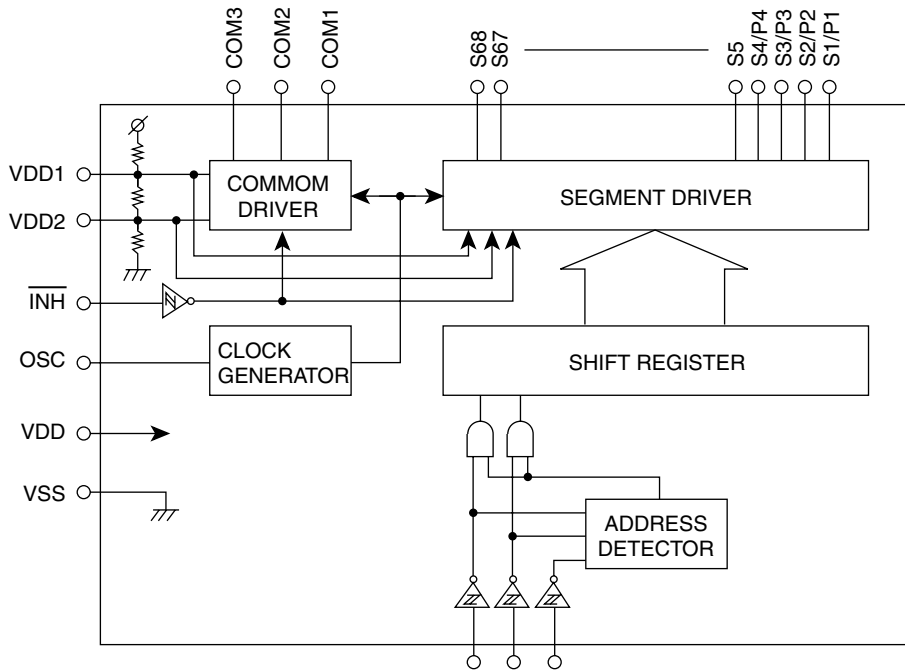
Input		Outout
C	A	Y
L	X	Z
H	L	H
H	H	L

3.Block diagram



## ■ LC75873NW (IC601) : LCD driver

### 1. Block Diagram

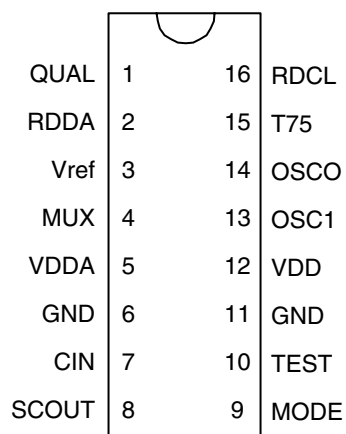


### 2. Pin Functions

Pin No.	Symbol	I/O	Description
1~66	S3~S68	O	Segment Output.
67~69	COM1~3	O	Common Driver Output.
70	VDD	-	Power Supply Connection.
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 in 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 in used.
73	VSS	-	Power supply connection.
74	OSC	I/O	Oscillator connection. An oscillator circuit is formed by connecting an external resistor and capacitor to this pin.
75	INH	I	Display off control input.
76	$\overline{\text{CE}}$	I	Chip enable input.
77	CLOCK	I	Synchronization clock input.
78	DI	I	Serial data input.
79	DIMMER	O	DIMMER Control signal output.
80	NC	-	Non connect.

■ SAA6579T-X(IC71):RDS detector

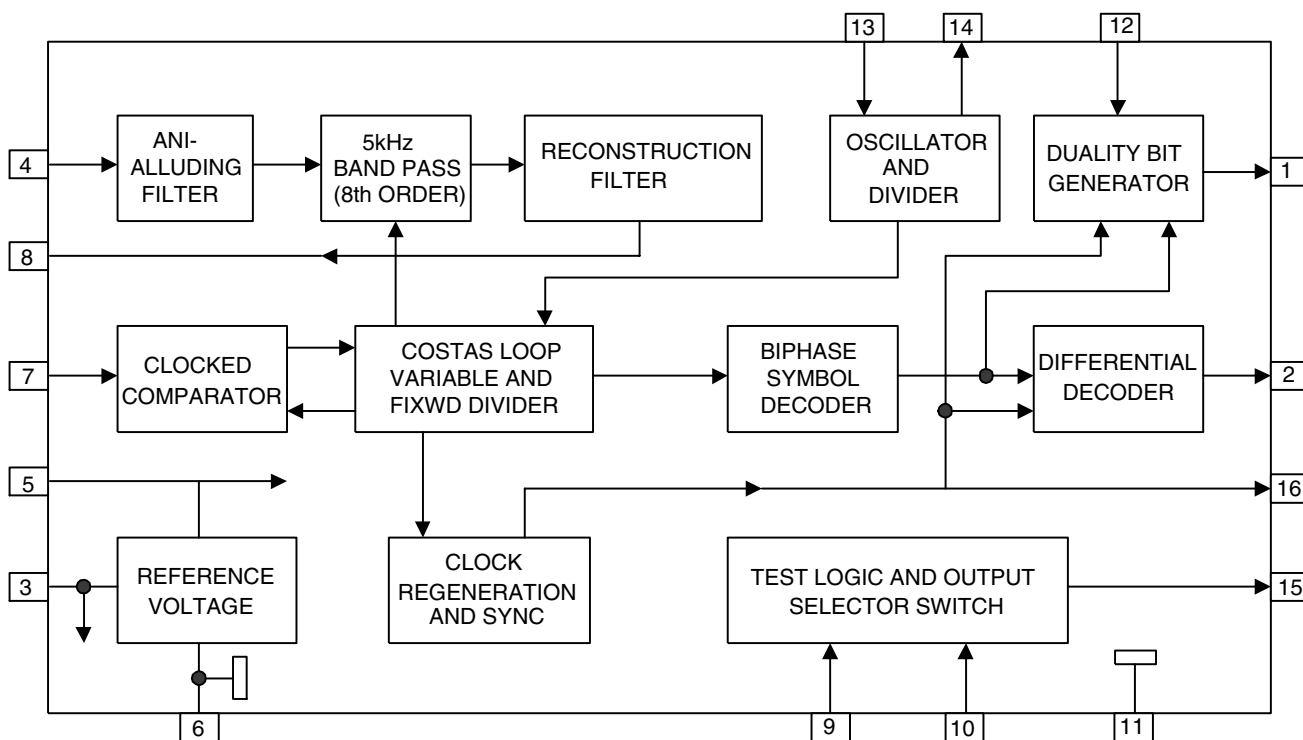
1.Terminal Layout



2.Pin Function

Pin No.	Symbol	I/O	Function
1	QUAL	-	Non connect
2	RDDA	O	RDS data output
3	Vref	O	Reference voltage output
4	MUX	I	Multiplex signal input
5	VDDA	-	+5V Supply voltage for analog
6	GND	-	Ground for analog part (0V)
7	CIN	I	Sub carrier output of reconstruction filter
8	SCOUT	O	Ground for digital part (0V)
9	MODE	-	Ground for digital part (0V)
10	TEST	-	Ground for digital part (0V)
11	GND	-	Ground for digital part (0V)
12	VDD	-	+5V supply voltage for digital part
13	OSC1	I	Oscillator input
14	OSC0	O	Oscillator output
15	T75	-	Non connect
16	RDCL	O	RDS clock output

3.Block Diagram

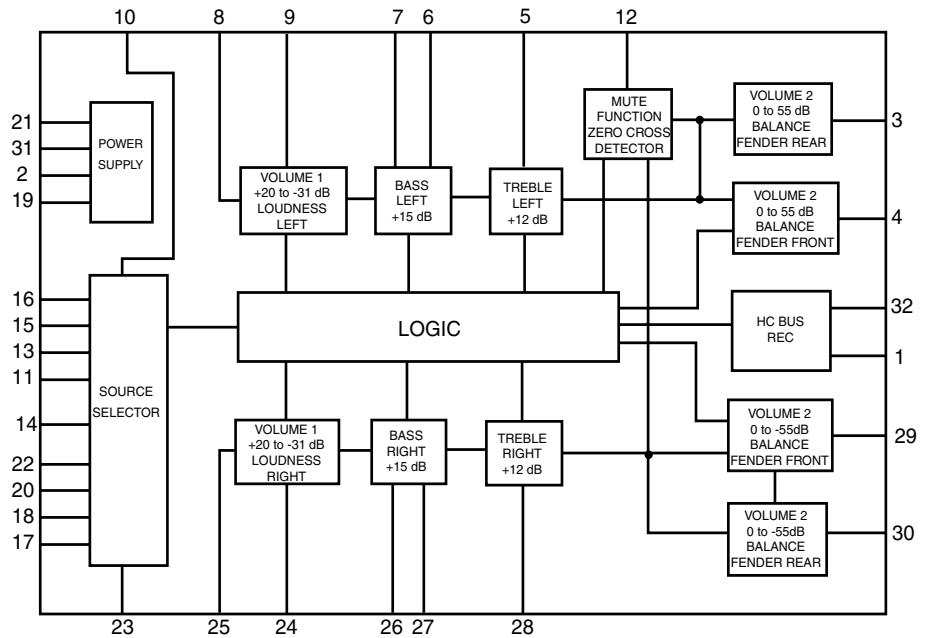


**TEA6320T-X (IC161) : E.volume**

1.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

2.Block diagram



3.Pin functions

Pin No.	Symbol	I/O	Functions	Pin No.	Symbol	I/O	Functions
1	SDA	I/O	Serial data input/output.	17	IAR	I	Input A right source.
2	GND	-	Ground.	18	IBR	I	Input B right source.
3	OUTLR	O	output left rear.	19	CAP	-	Electronic filtering for supply.
4	OUTLF	O	output left front.	20	ICR	I	Input C right source.
5	TL	I	Treble control capacitor left channel or input from an external equalizer.	21	Vref	-	Reference voltage (0.5Vcc)
6	B2L	-	Bass control capacitor left channel or output to an external equalizer.	22	IDR	-	Not used
7	B1L	-	Bass control capacitor left channel.	23	QSR	O	Output source selector right channel.
8	IVL	I	Input volume 1. left control part.	24	ILR	I	Input loudness right channel.
9	ILL	I	Input loudness. left control part.	25	IVR	I	Input volume 1. right control part.
10	QSL	O	Output source selector. left channel.	26	B1R	-	Bass control capacitor right channel
11	IDL	-	Not used	27	B2R	O	Bass control capacitor right channel or output to an external equalizer.
12	MUTE	-	Not used	28	TR	I	Treble control capacitor right channel or input from an external equalizer.
13	ICL	I	Input C left source.	29	OUTRF	O	Output right front.
14	IMO	-	Not used	30	OUTRR	O	Output right rear.
15	IBL	I	Input B left source.	31	Vcc	-	Supply voltage.
16	IAL	I	Input A left source.	32	SCL	I	Serial clock input.

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