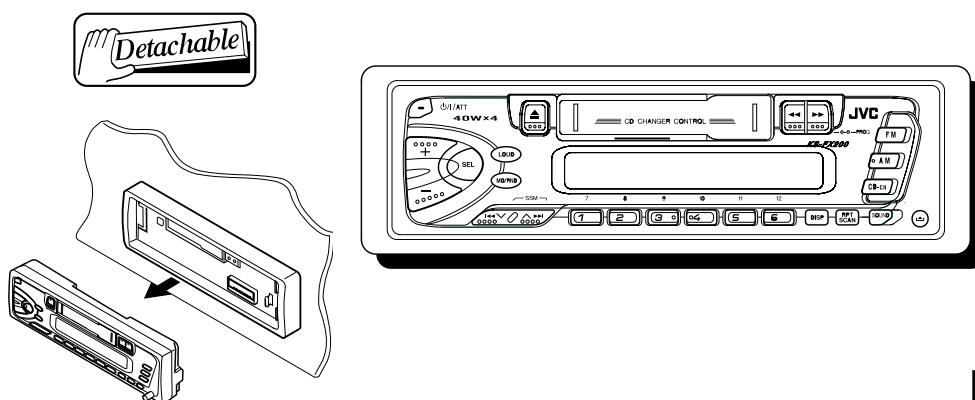


JVC

SERVICE MANUAL

CASSETTE RECEIVER

KS-FX200




Area Suffix

J ----- Northern America

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

■ Detaching the Front Panel Unit

(See Fig.1)

Push the Release button in the direction of arrow to detach the front panel unit.



Fig. 1

■ Removing the Front Chassis

(See Fig. 2 and 3)

Disengage the four tabs (a) in the right and left sides of unit and pull the front chassis forward to remove it.

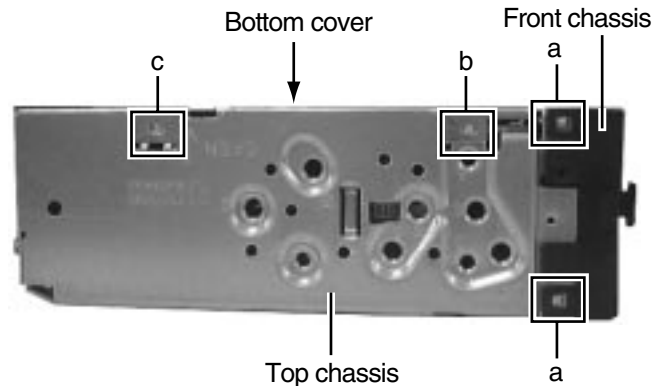


Fig. 2

■ Removing the Bottom Cover

(See Fig. 2 to 4)

1. Removing the front chassis.
2. Turn the unit up side down.
3. Insert the four engagements (b, c, d, e) to the screwdriver .
4. Turn the screwdriver and remove the bottom cover.

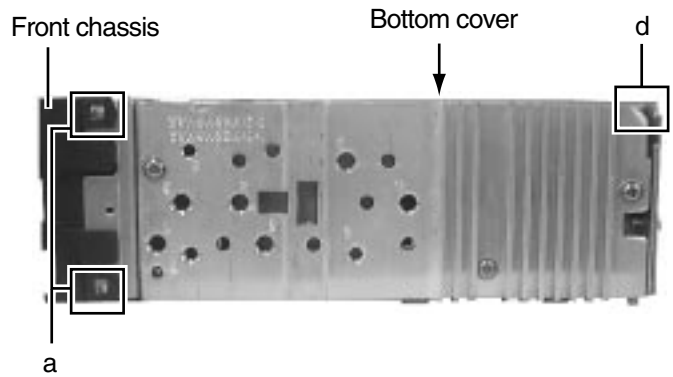


Fig. 3

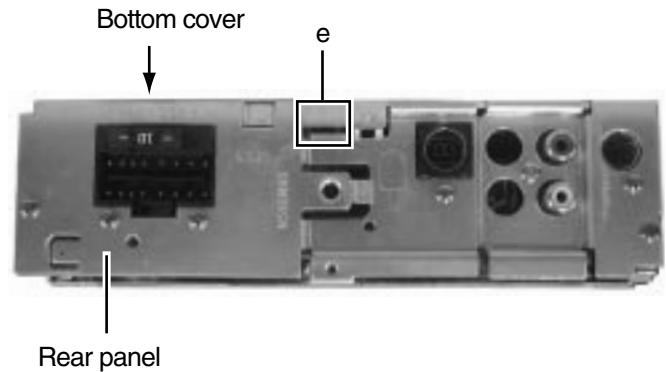


Fig. 4

■ **Removing the Heat Sink (See Fig. 5)**

1. Removing the front chassis.
2. Removing the bottom cover.
3. Remove the three screws (1 and 1') retaining the heat sink.

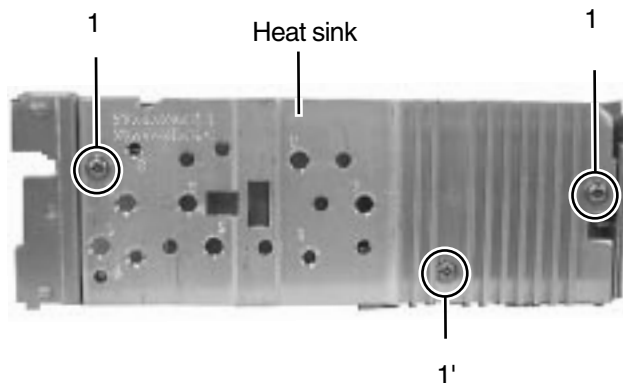


Fig. 5

■ **Removing the Main Board Assembly**

(See Fig. 5 to 7)

1. Removing the front chassis.
2. Removing the bottom cover.
3. Removing the heat sink.
 (Attach the heat sink with a screw (1') on operating checks.)
4. Remove the two screws (2) retaining the main board assembly.
5. Remove the six screws (3) and one screw (3') retaining the rear panel.
6. Separate the main board assembly and cassette mechanism assembly.
7. Take out the main board assembly.

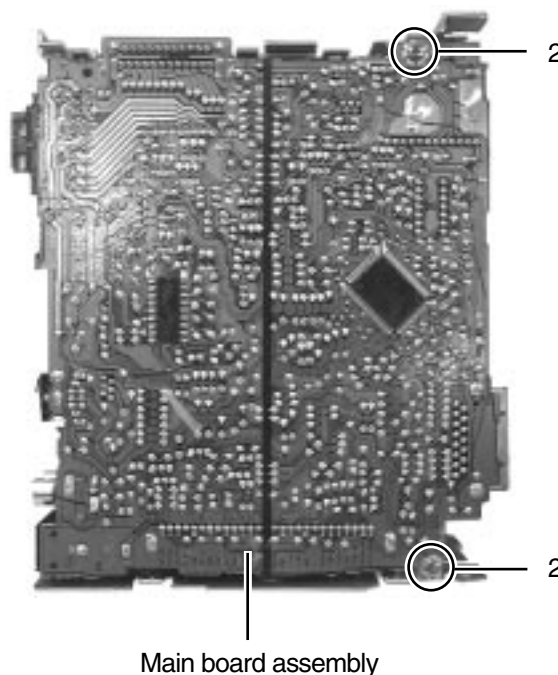


Fig. 6

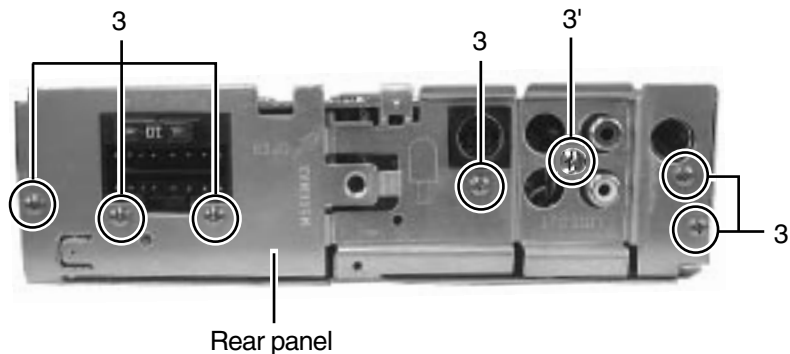


Fig. 7

■Removing the Cassette Mechanism assembly

(See Fig. 8)

1. Removing the front chassis.
2. Removing the bottom cover.
3. Removing the heat sink.
4. Removing the main board assembly.
5. Remove the four screws (4) retaining the cassette mechanism.
6. Separate the top chassis and cassette mechanism.

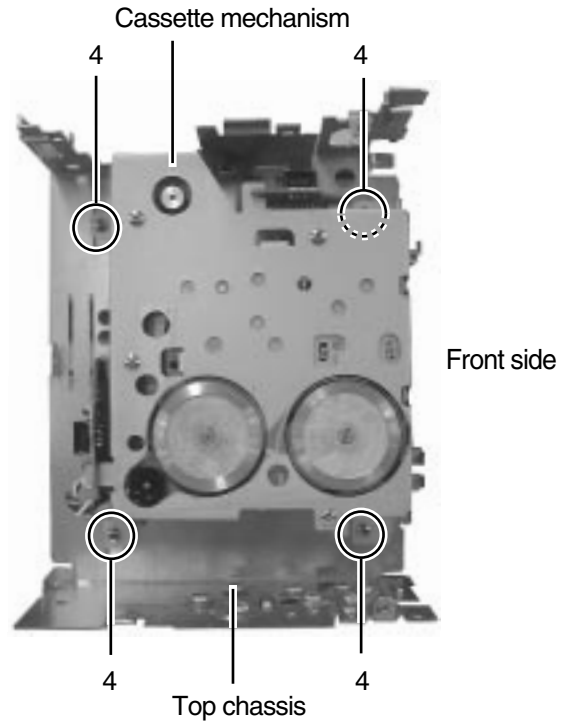


Fig. 8

■Removing the Operation Switch board

(See Fig. 9 to 11)

1. Detaching the front panel unit.
2. Turn the front panel back side down.
3. Remove the four screws (5) retaining the front cover.
4. Open the front cover gradually by disengaging the three engagements (g) while pushing the top of the front cover in the arrow "A" direction, then disengage the three engagements (h) on the both sides.
5. Place the front panel unit front side down.
6. Disengage the three engagements (i) on the bottom to separate the front cover from the front panel.

(Be careful not to lose the button springs.)

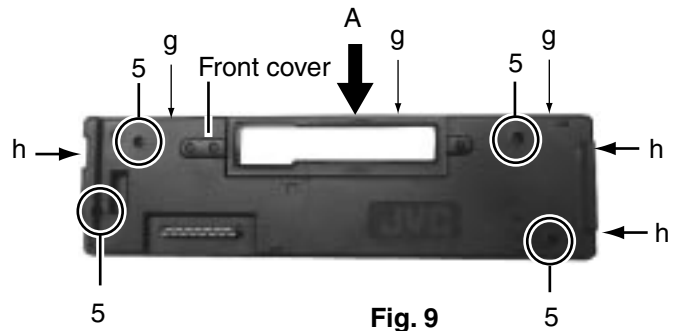


Fig. 9

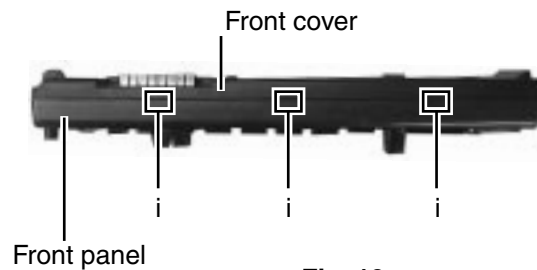


Fig. 10

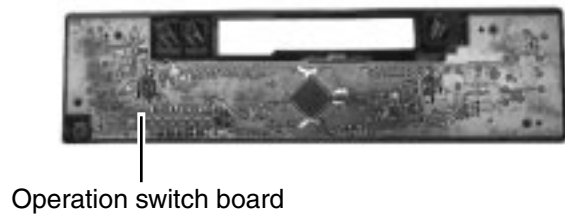


Fig. 11

■ Removing the Head Amplifier Board

(See Fig. 12)

1. Removing the front chassis.
2. Removing the bottom cover.
3. Removing the heat sink.
4. Removing the main board assembly.
5. Removing the cassette mechanism.
6. Remove the screw (6) retaining the head amplifier board.
7. Shift the two inter rocking sections (j) securing the head amplifier board in the direction shown by the arrow "B" to remove the printed circuit board.
8. From the connector CJ901 on the head amplifier board from connector wire out going to the head relay board.

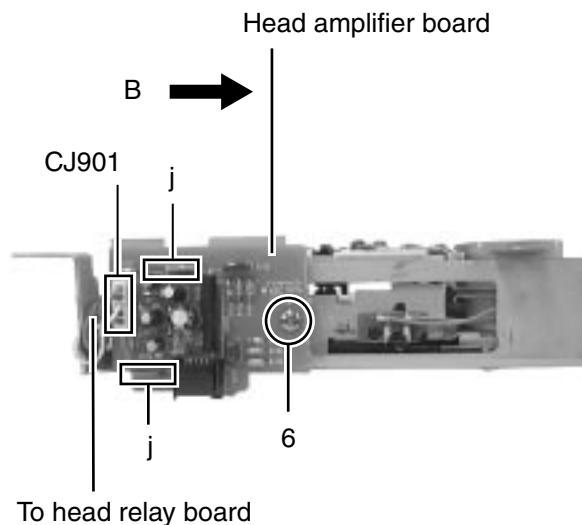


Fig. 12

■ Removing the Chassis Assembly

(See Fig. 13 and 14)

1. Removing the front chassis.
2. Removing the bottom cover.
3. Removing the heat sink.
4. Removing the main board assembly.
5. Removing the cassette mechanism.
6. Removing the head amplifier board.
7. Turn the left side to cassette mechanism.
8. Remove the screw (7) retaining the relay board.
9. Shift the one inter rocking sections (k) securing the relay board in the direction shown by the arrow "C" to remove the printed circuit board.
10. Turn the back side down, remove the four screws (8) retaining the chassis assembly.

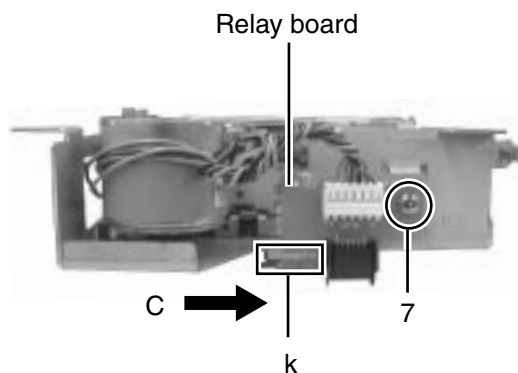


Fig. 13

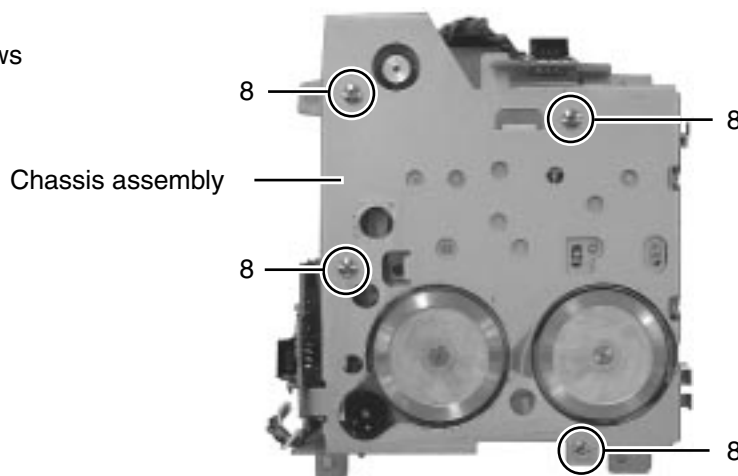


Fig. 14

<Cassette mechanism assembly>

- Prior to performing the following procedures, remove the head amplifier board, the relay board and the mechanism bracket.

■ Removing the direction switch board (See Fig.1)

1. Unsolder the three wires **a** on the direction switch board.
2. Remove the one screw **A** attaching the direction switch board.

■ Removing the FF / REW lever assembly (See Fig.1)

1. Remove the screw **B** attaching the FF / REW lever assembly on the back of the cassette mechanism assembly.
2. Remove the screw **C** on the upper side of the FF / REW lever assembly.
3. Lift and pull forward the FF / REW lever assembly to disengage the joints **b**, **c**, **d** and **e**.

■ Reattaching the FF / REW lever assembly (See Fig.1)

1. Reattach the FF / REW lever assembly to the joint **c** on the back of the chassis.
2. Reattach the pinch-roller shaft **e**, the change lever **d** and the return link **e** to the chassis.

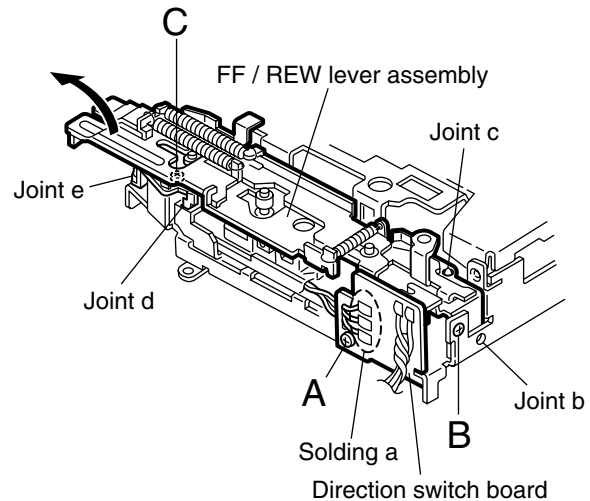


Fig.1

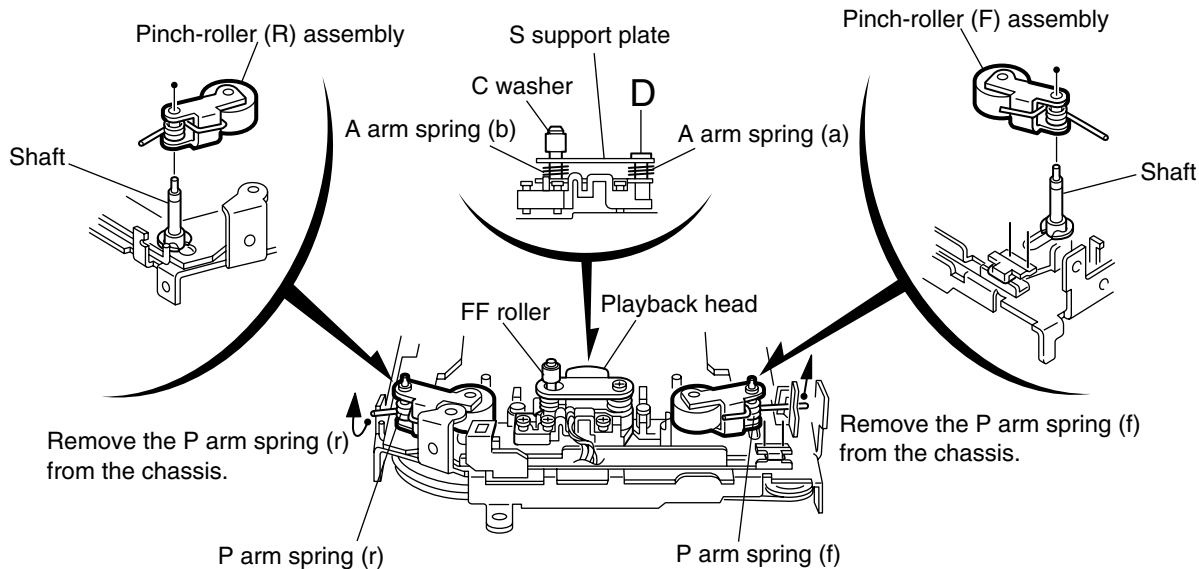


Fig.2

■ Removing the playback head (See Fig.2)

• Prior to performing the following procedure, remove the direction switch board and the FF / REW lever assembly.

1. Remove the screw **D** attaching the playback head.
2. Remove the **C** washer and pull out the FF roller.
3. Remove the **S** support plate, the **A** arm spring (a) and (b), the playback head.

ATTENTION: The **A** arm spring (a) differs from the **A** arm spring (b).

■ Removing the pinch-roller (R) and (F) assembly (See Fig.2)

• Prior to performing the following procedure, remove the direction switch board and the FF / REW lever assembly.

1. Remove the **P** arm spring (f) in the pinch-roller (F) assembly from the chassis.
2. Remove the **P** arm spring (r) in the pinch-roller (R) assembly from the chassis.
3. Draw out the pinch roller (F) and (R) assembly from the shaft.

ATTENTION: The **P** arm spring (f) differs from the **P** arm spring (r).

ATTENTION: The pinch roller (F) assembly differs from the pinch roller (R) assembly.

■ Removing the cassette hanger / cassette holder (See Fig.3)

· Prior to performing the following procedure, remove the FF / REW lever assembly.

1. From the rear of the unit, bend the two tabs **f** outwards and disengage the two joints **g** in the direction of the arrow.
2. Push the eject lever and remove the cassette holder from the playback head. Disengage the two joints **h** of the cassette hanger / cassette holder and the eject lever in the direction of the arrow.
3. Lift the cassette hanger / cassette holder and disengage the joint **i** of the return link and the eject lever.

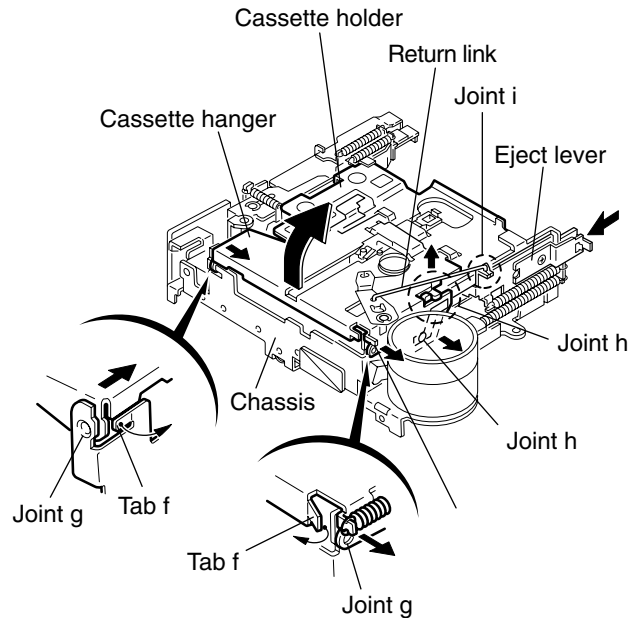


Fig.3

■ Removing the reel disc assembly (See Fig.4)

· Prior to performing the following procedure, remove the FF / REW lever assembly and the cassette hanger / cassette holder.

1. Remove the C washer and pull out reel disc assembly.

ATTENTION: Replace with a new C washer when reattaching.

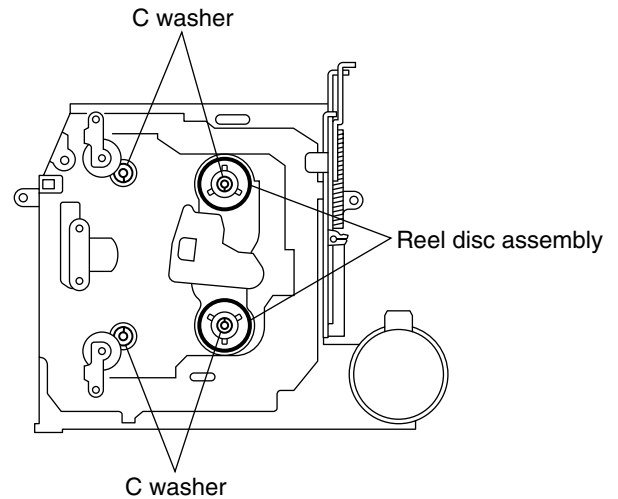


Fig.4

■ Removing the motor assembly (See Fig.5)

1. Unsolder the two wires **j** on the motor assembly.

ATTENTION: To replace the sub-belt, remove the main belt and the sub-belt from the motor pulley. Then remove the three screws **E** and one screw **F**. Replace with a new sub-belt while lifting the reel base assembly slightly.

2. Turn over the cassette mechanism assembly and remove the main belt and the sub-belt from the motor pulley.

ATTENTION: The main belt can now be removed.

3. Remove the two screws **G** attaching the motor assembly.

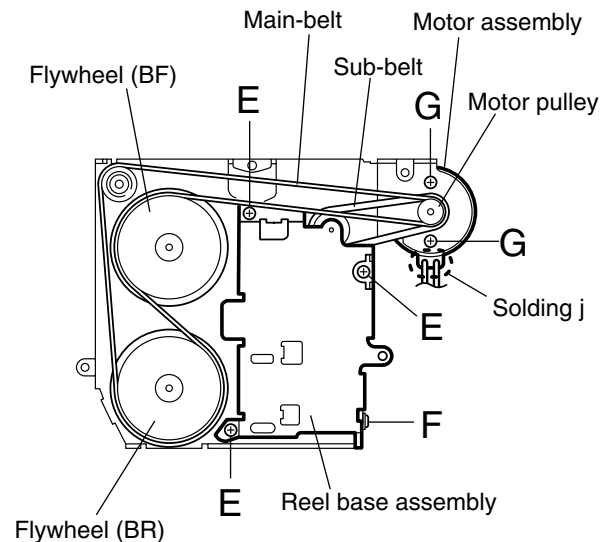


Fig.5

■ **Removing the Flywheel (BF) and (BR) assembly (See Fig.4 and 5)**

• Prior to performing the following procedure, remove the cassette hanger / cassette holder.

1. From the upper side of the cassette mechanism assembly, remove the C washer from each shaft of the flywheel (BF) and (BR).
2. Turn over the cassette mechanism assembly and remove the main belt. Pull out the flywheel (BF) and (BR) downward respectively.

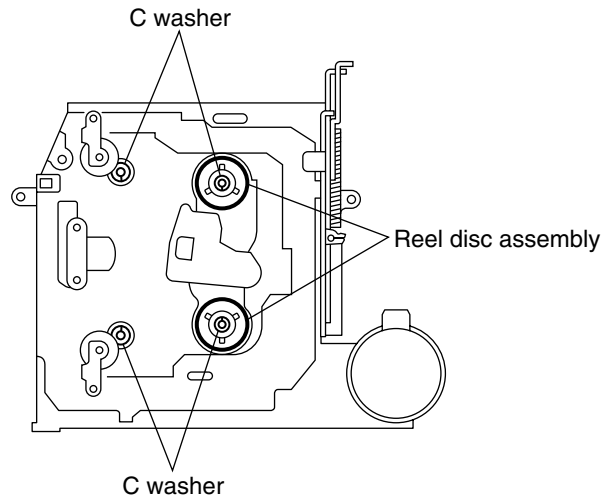


Fig.4

■ **Removing the reel base assembly (See Fig.5 and 6)**

1. Raise the part k of the reel base assembly slightly and remove the selector link (B) on the front side of the cassette mechanism assembly by turning it as shown in Fig.10.
2. Remove the three screws E and the one screw F on the underside of the cassette mechanism assembly.

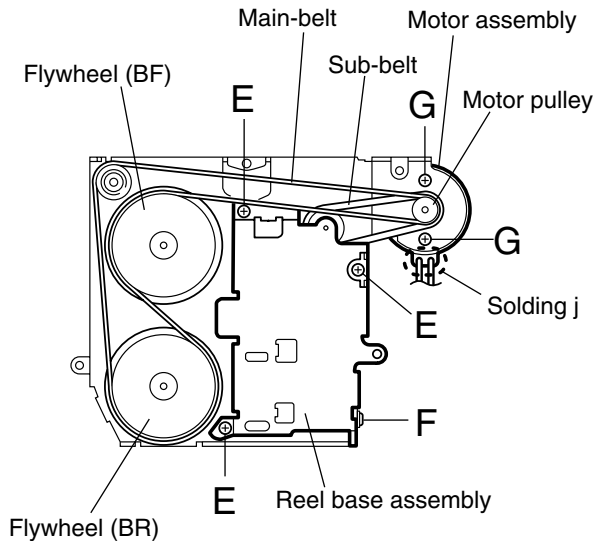


Fig.5

ATTENTION: The reel base assembly is not repairable. Handle with care.

Inside of the reel base assembly

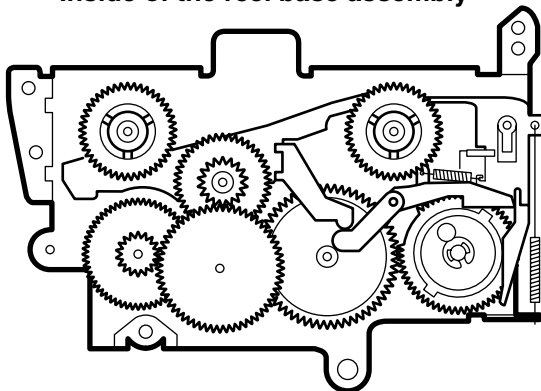


Fig.7

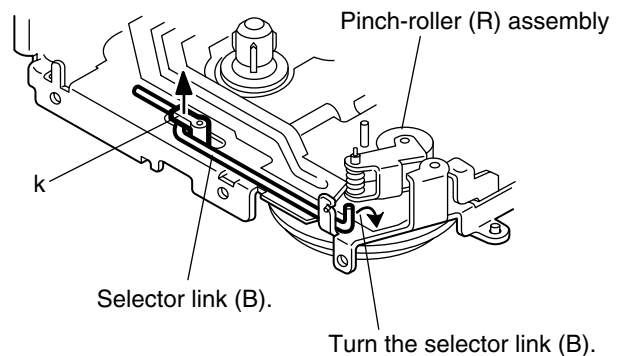


Fig.6

■ Removing the mute switch board

(See Fig.8)

1. Unsolder the two wires **I** on the mute switch board on the back of the cassette mechanism assembly.
2. Remove the screw **H** attaching the mute switch board.

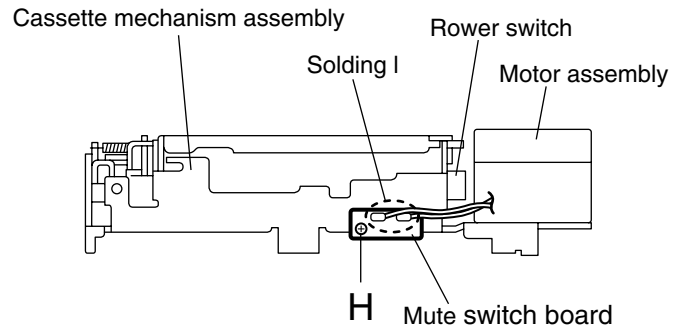


Fig.8

■ Removing the power switch (See Fig.9)

- Prior to performing the following procedure, remove the motor assembly.
1. Unsolder the two wires **m** on the power switch on the side of the cassette mechanism assembly.
 2. Remove the screw **I** attaching the power switch.

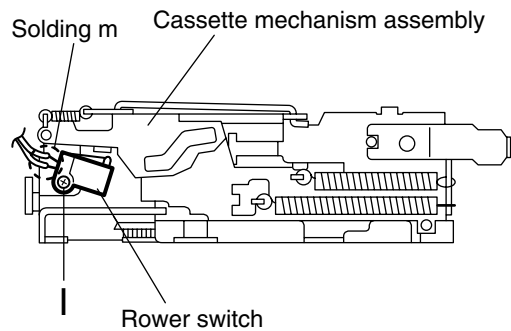


Fig.9

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)

■ 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 1,000kHz/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. pilot7.5kHz dev.
- Output level 0dB(1μV,50 Ω /open terminal)

■ Measuring conditions(Amplifier section)

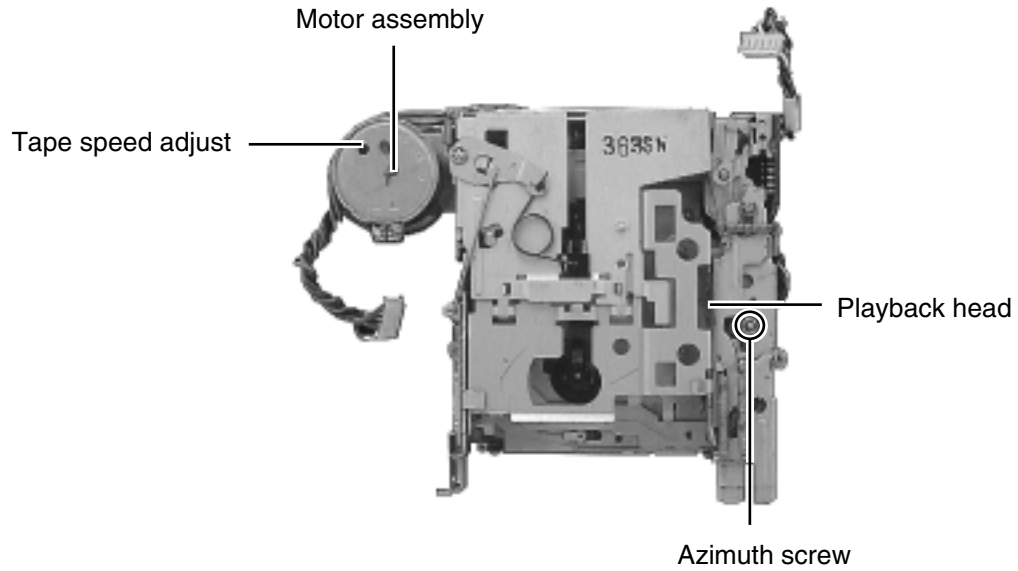
- Power supply voltage DC14.4V (10.5 - 16V)
- Load impedance 4 Ω (2Speakers connection)
- Line out..... 20k Ω

■ Frequency Band

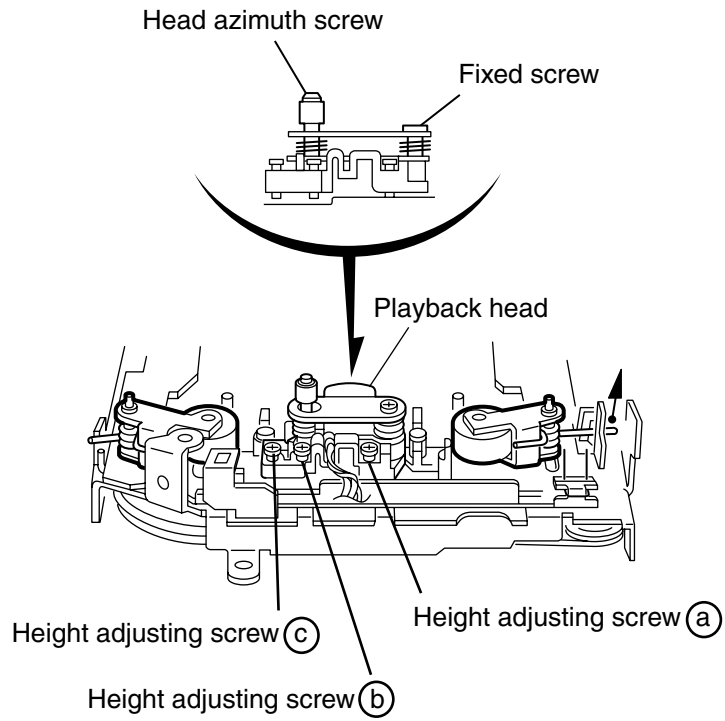
MODEL		KS-FX200	
Band	FM	87.5-107.9MHz	200KHz step
	AM	530-1710KHz	10KHz step

■Arrangement of Adjusting & Test points

Cassette mechanism
(Surface)



Head section view



■ Information for using a Car Audio Service Jig

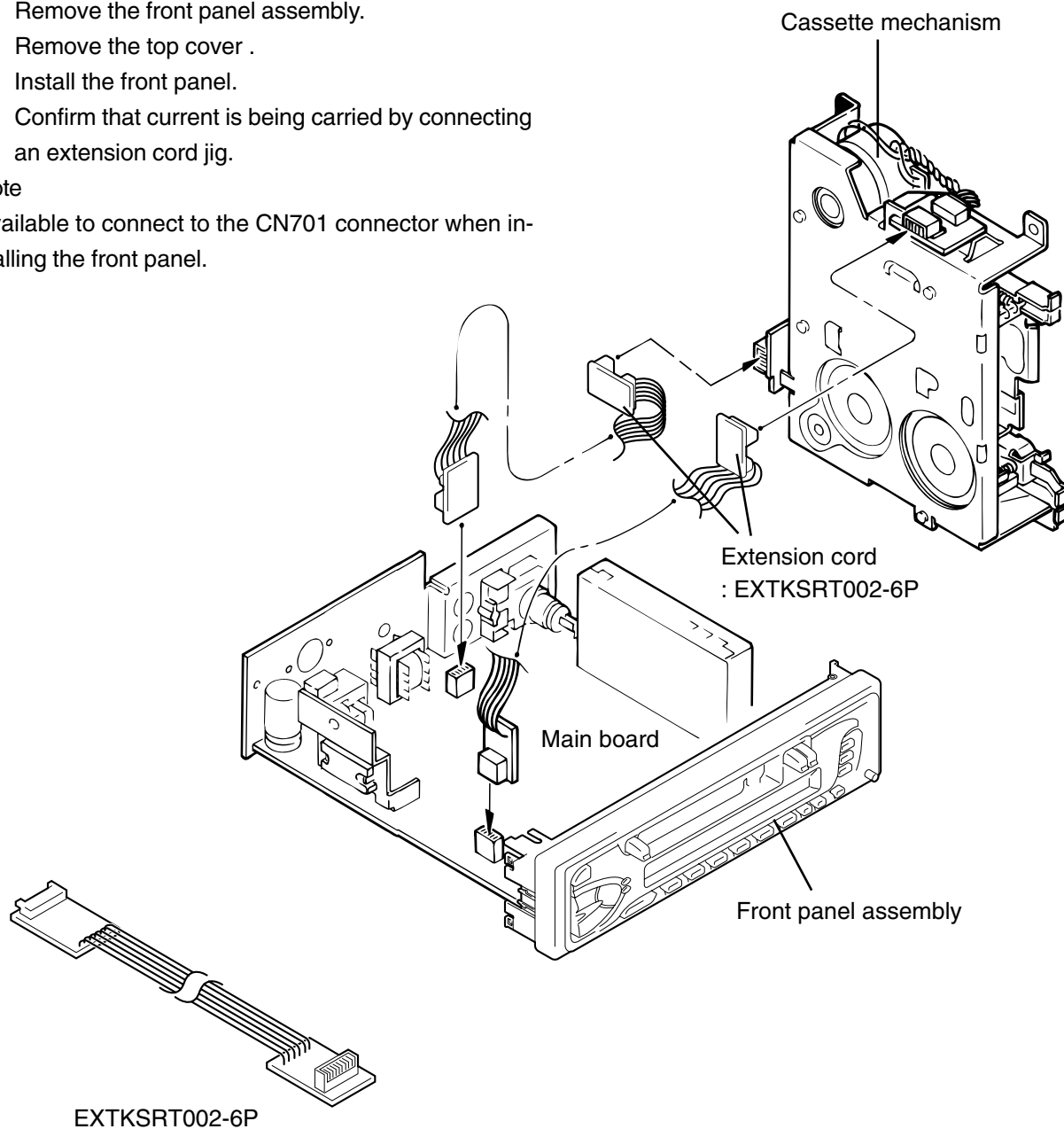
1. For 1995 and 1996 , we're advancing efforts to make our extension cords common for all car audio products. Please use this type of extension cord as follows.
2. As a U-shape type top cover is employed, this type of extension cord is needed to check operation of the mechanism assembly after disassembly.
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

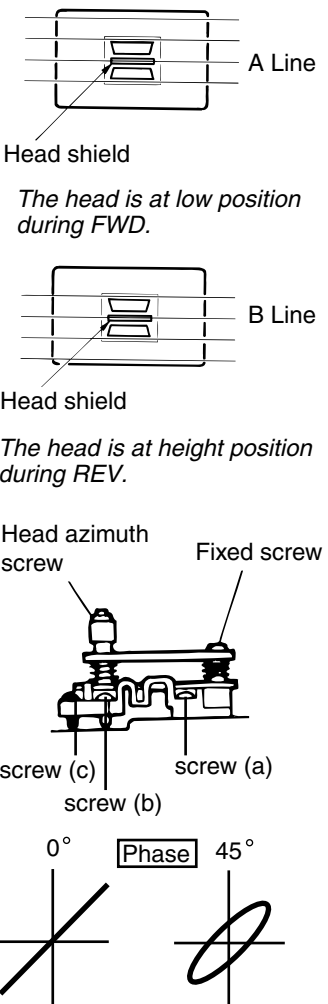
1. Remove the bottom cover.
2. Remove the front panel assembly.
3. Remove the top cover .
4. Install the front panel.
5. Confirm that current is being carried by connecting an extension cord jig.

Note

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



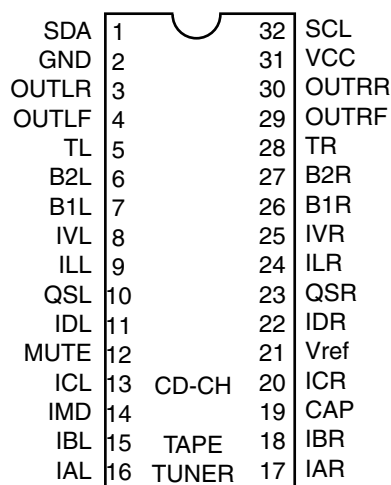
■ Mechanism Adjustment Section

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"> 1.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. 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. 3.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. <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 & Flutter</p>	<ol style="list-style-type: none"> 1. Check to see if the reading of the frequency counter & Wow flutter meter is within 2940-3090 Hz(FWD/REV), and less than 0.35% (JIS RMS). 2. In case of out of specification, adjust the motor with a built-in volume resistor. 	<p>Built-in volume resistor</p>	<p>Tape Speed 2940-3090Hz Wow&Flutter Less than 0.35% (JIS RMS)</p>
<p>3. Playback Frequency response</p>	<ol style="list-style-type: none"> 1. Play the test tape (VT724 : 1kHz) back and set the volume position at 2V. 2. Play the test tape (VT739)back and confirm 0 ± 3dB at 1kHz/ 8kHz and -4+2dB at 1kHz/125Hz. 3. When 8kHz is out of specification, it will be necessary to read adjust the azimuth. 		<p>Speaker out 1kHz/8kHz : 0dB }3dB, 125Hz/1kHz : -4dB+2dB,</p>

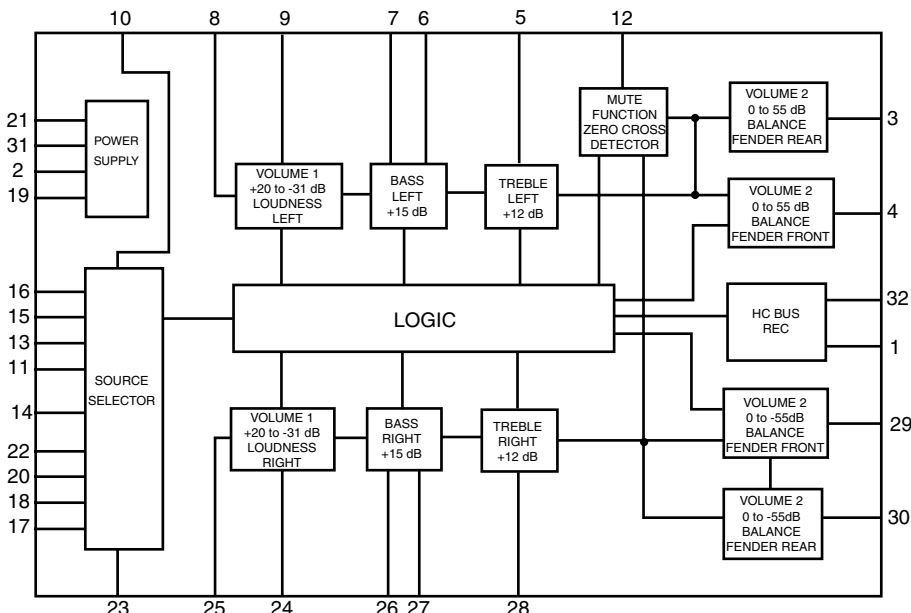
Description of major ICs

TEA6320T-X (IC931) : E.volume

1.Pin layout



2.Block diagram

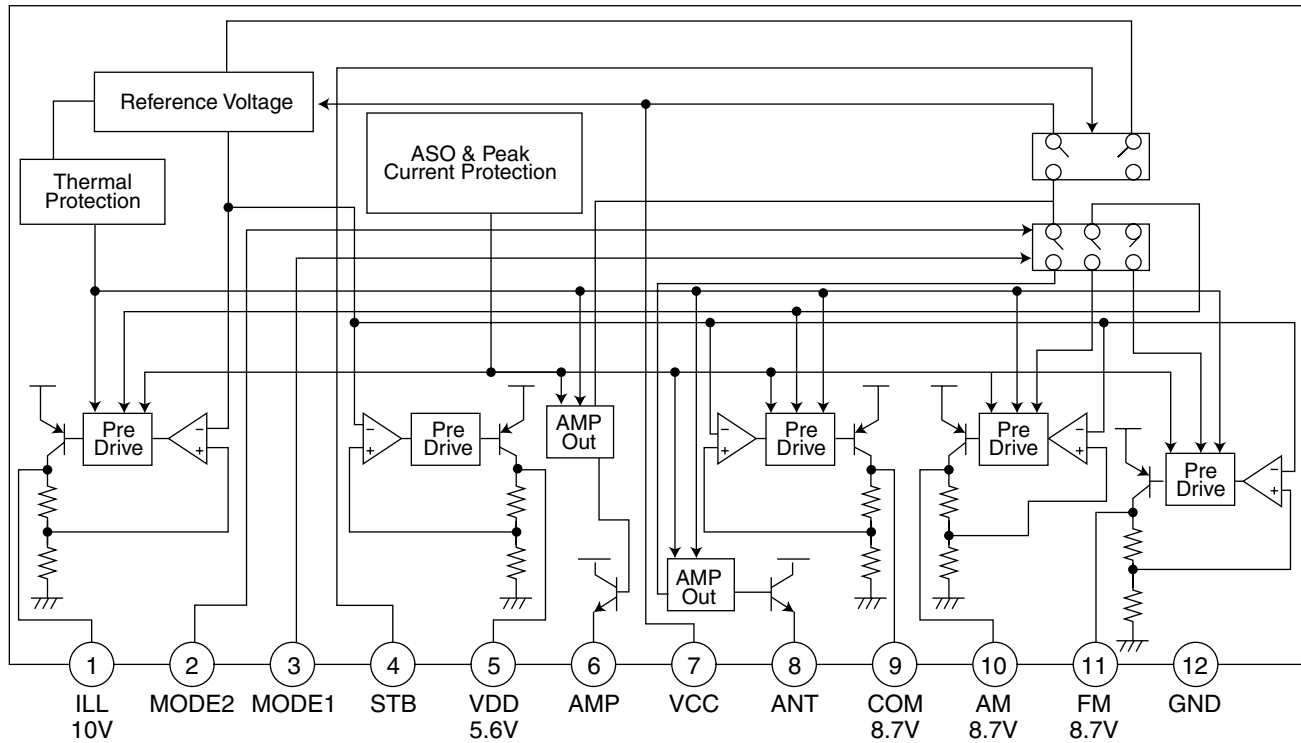


3.Pin functions

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.

■ AN80T05LF (IC781) : Regulator

1. Terminal layout & Block diagram

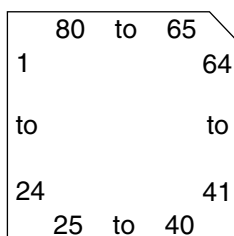


2. Pin function

Pin No.	Symbol	Function
1	ILL	10V power supply for illumination.
2	MODE2	When 5V is input, becomes AM. and the antenna output is turned on.
3	MODE1	When 5V is input, becomes AM. and the output of FM is switched.
4	STB	When 5V is input, outputs to ILL, COM, and AMP. It is 0V usually.
5	VDD	5.6V power supply.
6	AMP	Power supply supply to remote amplifier
7	VCC	Back up. connects with ACC with it.
8	ANT	Power supply supply to auto antenna.
9	COM	8.7V power supply.
10	AM	The power supply of 8.7V to AM.
11	FM	The power supply of 8.7V to FM.
12	GND	Ground

■ LC72362N-9920 (IC701) : System control

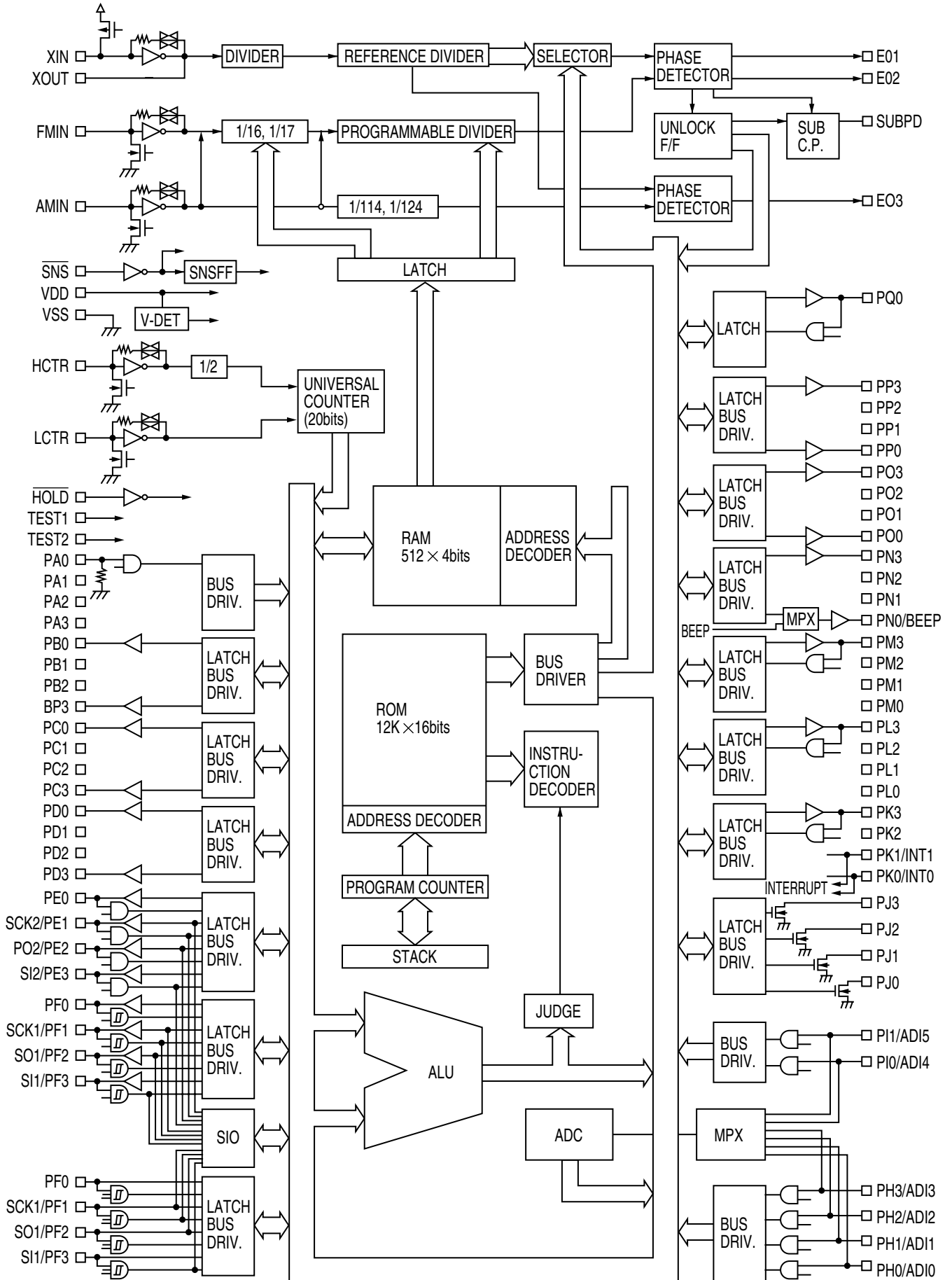
1. Pin layout



2. Pin function

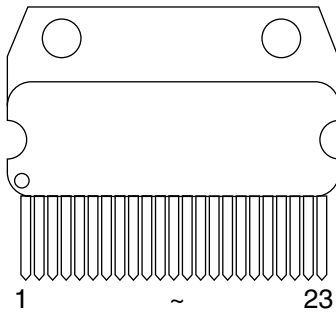
Pin No.	Symbol	I/O	Function
1	XIN	I	4.5MHz crystal oscillator connections
2	TEST2		LSI test pin.
3	PG3/SI0		
4	PG2/SO0		
5	PG1/SCK0		
6	PG0		
7	PF3/SI1		
8	PF2/SO1		
9	PF1/SCK1	I/O	General-purpose input/output and serial input/output shared ports.
10	PF0		
11	PE3/SI2		
12	PE2/SO2		
13	PE1/SCK2		
14	PE0		
15~18	PD3~PD0	O	Output only port.
19~22	PC3~PC0	O	Key source signal output only ports.
23~26	PB3~PB0		
27~30	PA3~PA0	I	Key return signal input only port, of which threshold voltage is designed to be low.
31	V DD	O	Power supply connections.
32	PQ0	O	General-purpose input/output port.
33~36	PP3~PP0	O	Output only port.
37~40	PO3~PO0		
41~43	PN3~PN1	O	General-purpose output port/BEEP tone shared output pins.
44	PN0/BEEP		
45~48	PM3~PM0	I/O	General-purpose input/output ports.
49~52	PL3~PL0		
53,54	PK3, PK2	I/O	General-purpose input-output/external interrupt shared port.
55,56	PK1/INT1, PK0/INT0		
57~60	PJ3/DAC3~PJ0/DAC0	O	General-purpose output port/DAC shared output pins.
61,62	PI1/ADI5, PI0/ADI4	I	General-purpose output port/ADC shared input pins.
63~66	PH3/ADI3~PH0/ADI0		
67	HOLD	I	PLL control, CLOCK STOP mode control pin.
68	SNS	I	Voltage sense/general-purpose input pin shared port.
69	LCTR	I	Universal counter (frequency, cycle measurement)/general-purpose input shared input port.
70	HCTR	I	Universal counter/general-purpose input shared input port.
71	EO3	O	2nd PLL charge pump output pin.
72	SUBPD	O	Sub-charge pump output pin.
73	V DD	O	Power supply connections.
74	AMIN	I	AM VCO (local oscillator) input pin.
75	FMIN	I	FM VCO (local oscillator) input pin.
76	V SS	O	Power supply connections.
77,78	EO2,EO1	O	Main charge pump output pins.
79	TEST1		LSI test pin.
80	XOUT	O	4.5MHz crystal oscillator connections

3. Block diagram

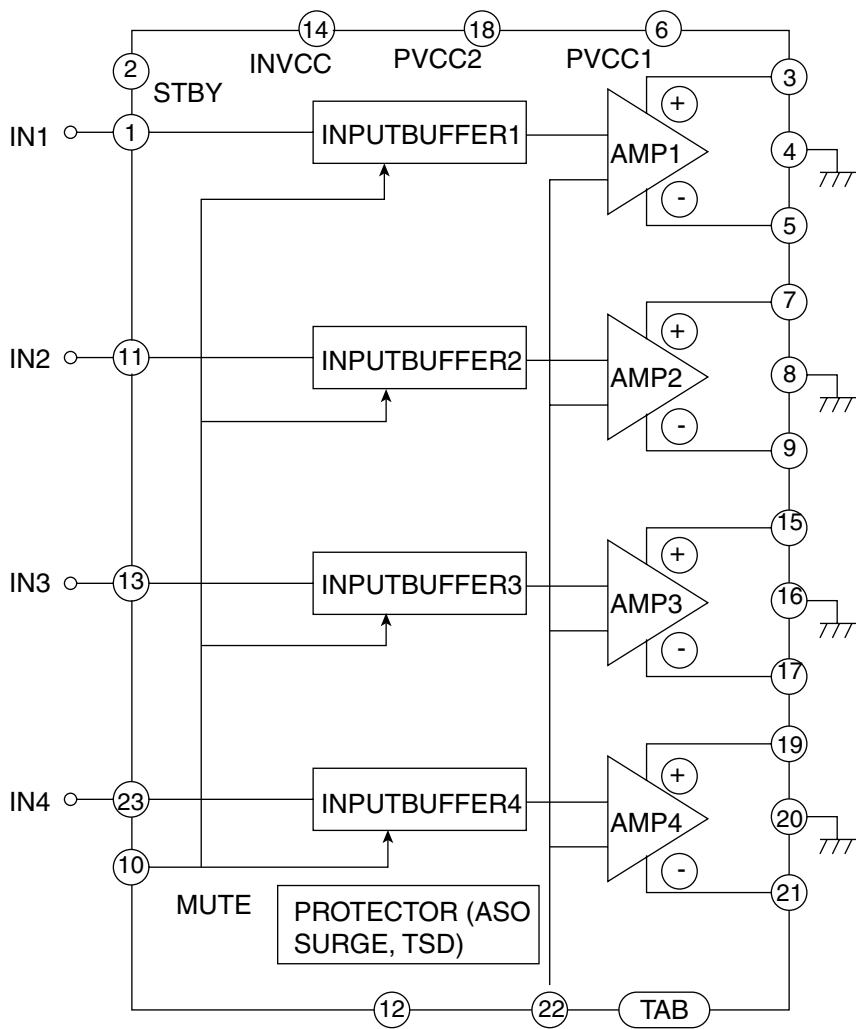


■ HA13158A (IC981) : Power amp

1. Pin layout

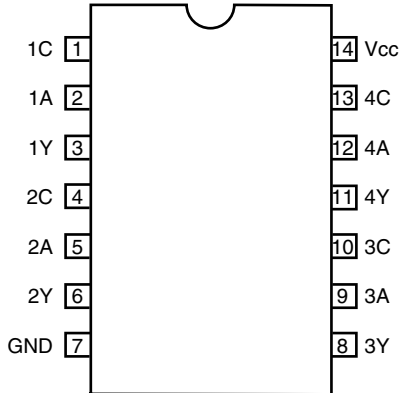


2. Block diagram



■ HD74HC126P(IC751) :CD CHANGER

1.Terminal layout



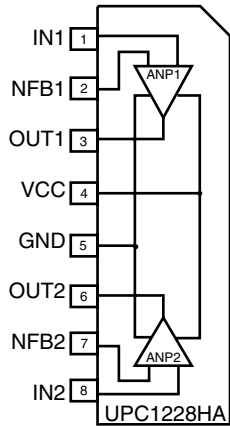
2.Pin function

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

Note)

- H : High level
- L : Low level
- X : "H" or "L"
- Z : Off state of three state output(High impedance)

■ UPC1228HA(IC901):Head amp





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