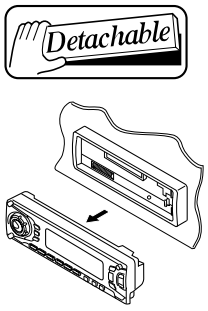
JVC

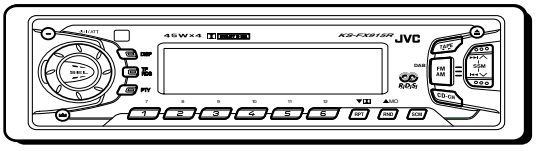
SERVICE MANUAL

CASSETTE RECEIVER

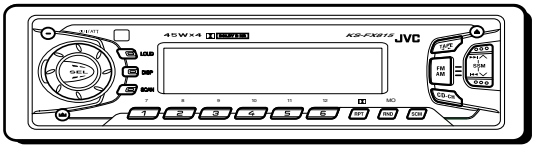
KS-FX915R/KS-FX815



KS-FX915R



KS-FX815



Area Suffix

EE ---- Russian Federation

Difference point	RDS	Dimmer	Beep	LCD	Remocon
KS-FX915R	O	O	O	Color	O
KS-FX815	X	X	X	Nega	X

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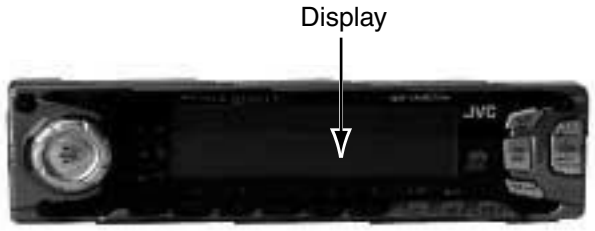
No.49613
Feb. 2001

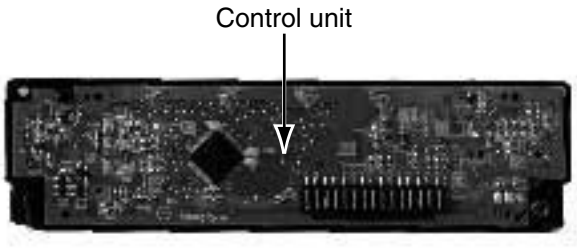
Safety precaution

⚠ ***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 preforming repair of this system.**

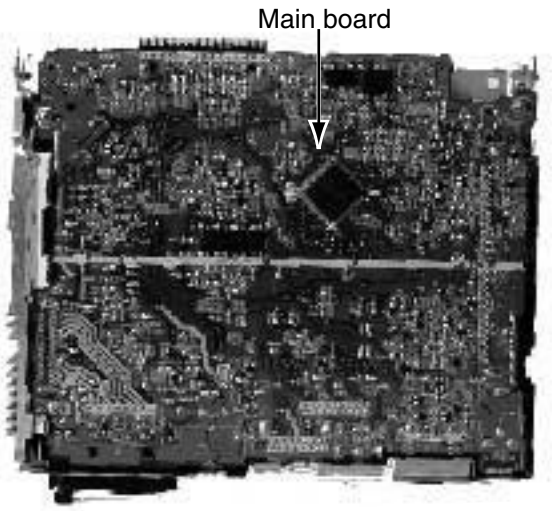
Location of main parts

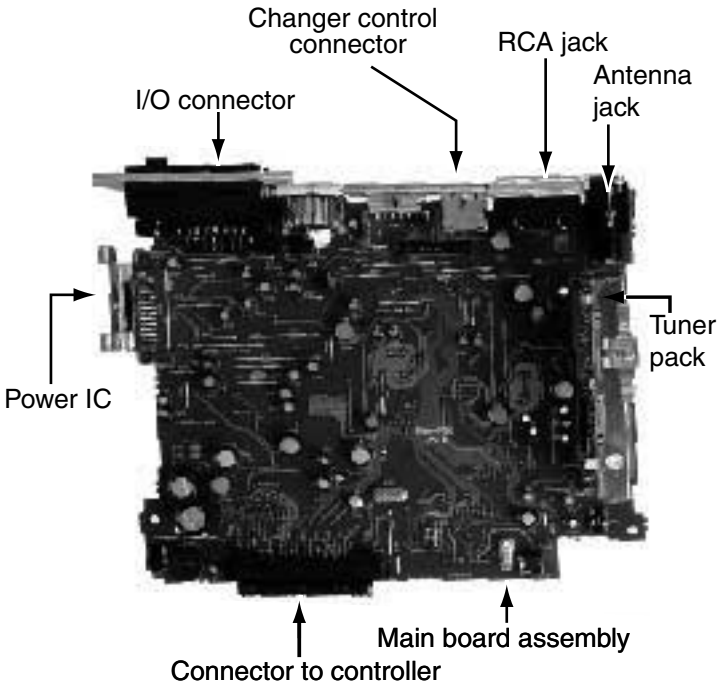
■ Control unit



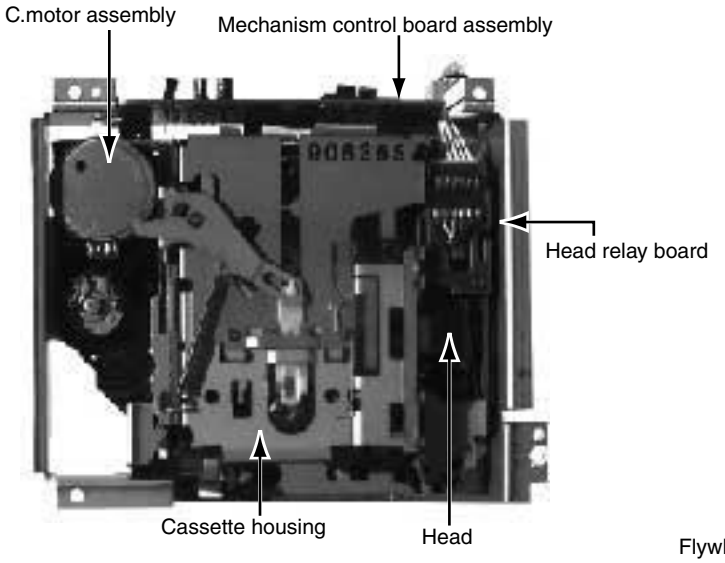


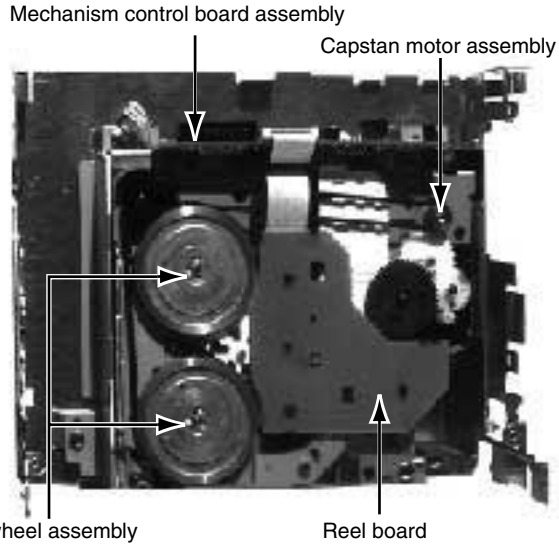
■ Main unit





■ Cassette mechanism





Disassembly method

■ Removing the front chassis (See Fig.1)

1. Remove two screws **A** and insert a screwdriver to the joints **a** on the side of the front chassis and two joints **b** on the right side, then detach the front chassis toward the front side.

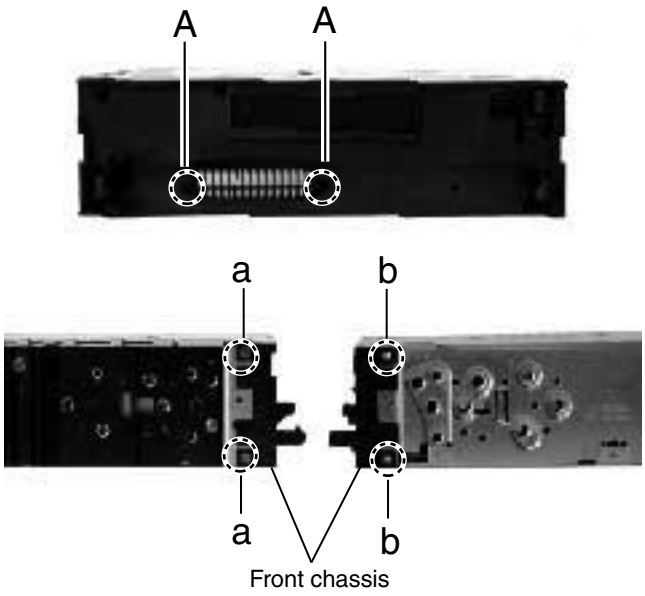


Fig.1

■ Removing the heat sink (See Fig.2)

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

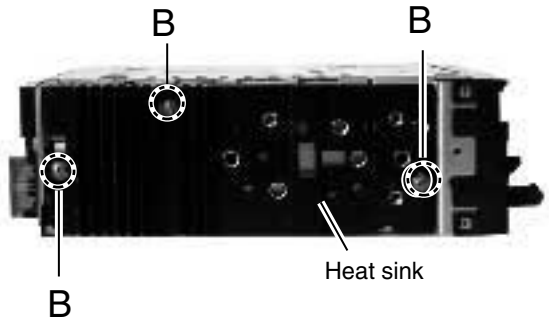


Fig.2

■ Removing the bottom cover (See Fig.3)

1. Turn the body upside down.

2. Insert a screwdriver to the two joints c and two joints d on both sides of the body and the joint e on the back of the body, then detach the bottom cover from the body.

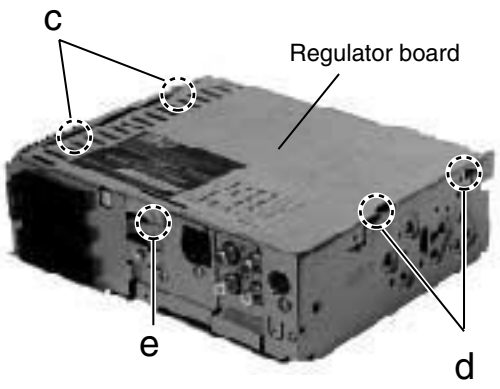


Fig. 3

■ Removing the main amplifier board assembly

(See Fig.4 and 5)

1. Remove the front chassis.
2. Remove the bottom cover.
3. Remove the two screws **C** attaching the main amplifier board assembly on the bottom of the body.
4. Remove the three screws **D** attaching the main amplifier board assembly on the back of the body.
5. Disconnect connector CP401 on the main amplifier board assembly from the cassette mechanism assembly.

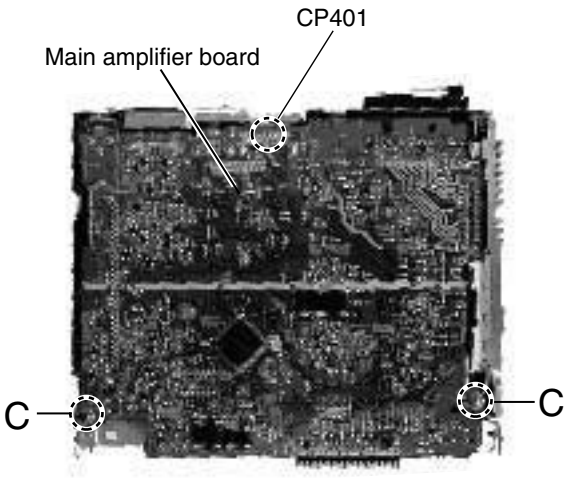


Fig.4

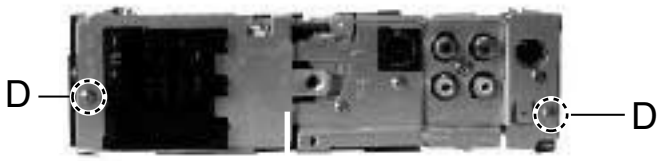


Fig. 5

■ Removing the Cassette mechanism assembly

(See Fig.6)

1. Remove the front chassis.
2. Remove the bottom cover.
3. Remove the main amplifier board assembly.
4. Remove the four screws **E** attaching the Cassette mechanism assembly from the top cover.

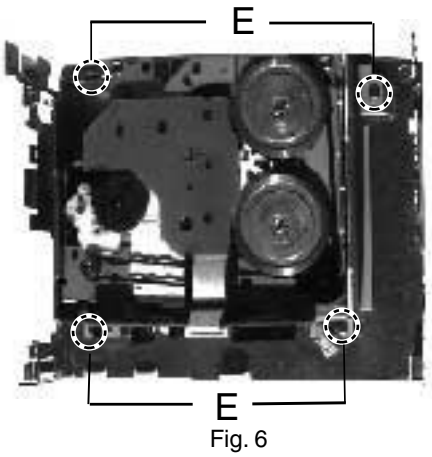


Fig. 6

■ Removing the control switch board

(See Fig.7 and 8)

1. Remove the front chassis.
2. Remove the four screws **F** attaching the rear cover on the back of the front panel unit.
3. Remove the control switch board from the front panel unit.

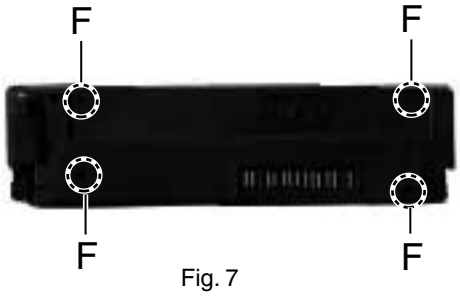


Fig. 7

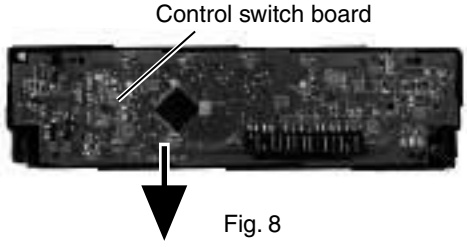


Fig. 8

<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.

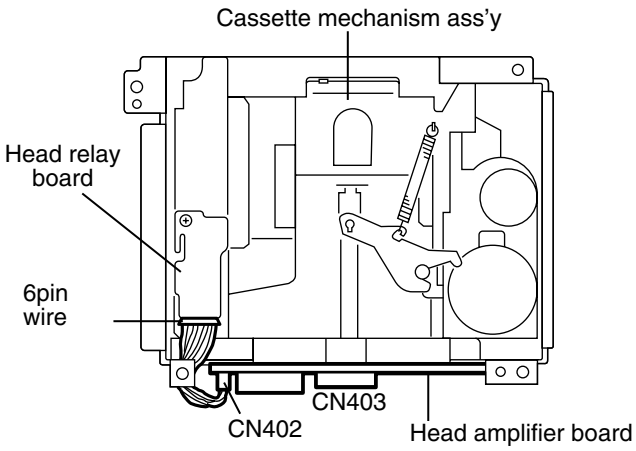


Fig.1

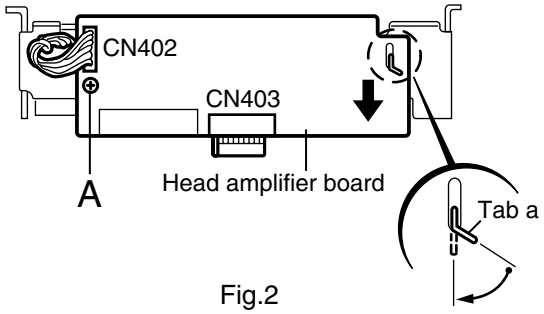


Fig.2

■ 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.

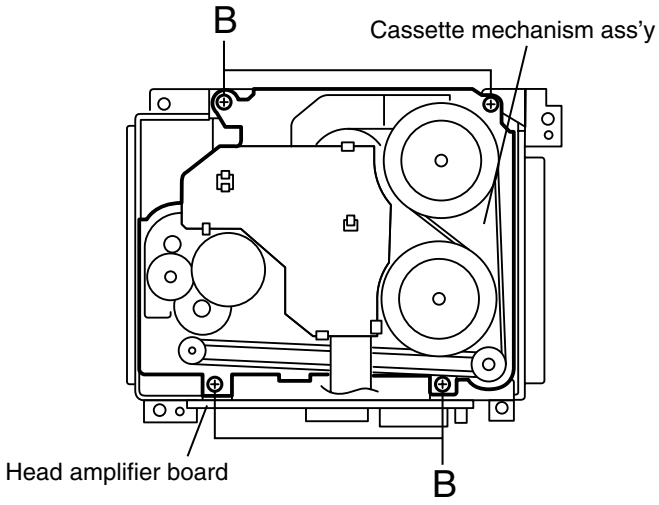


Fig.3

■ 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**.

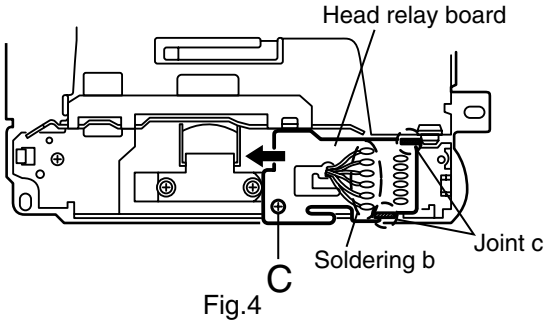


Fig.4

■ 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.

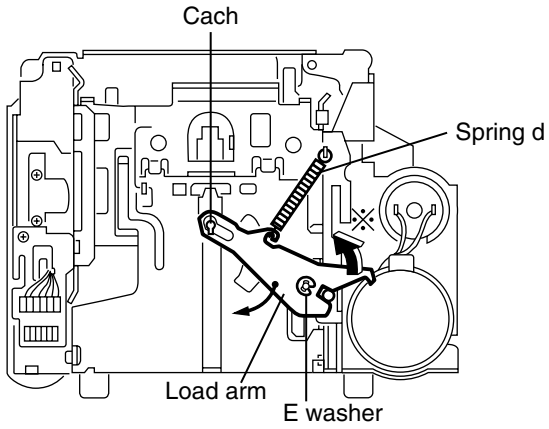


Fig.5

■ 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**.

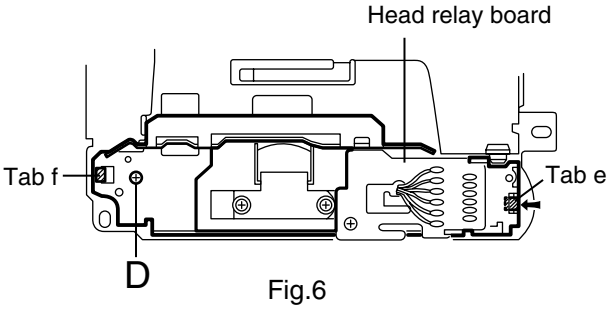


Fig.6

■ 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.

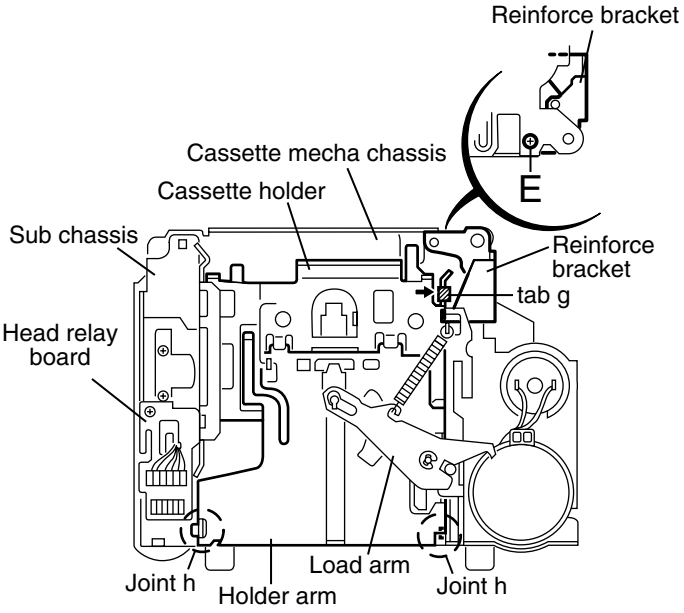


Fig.7

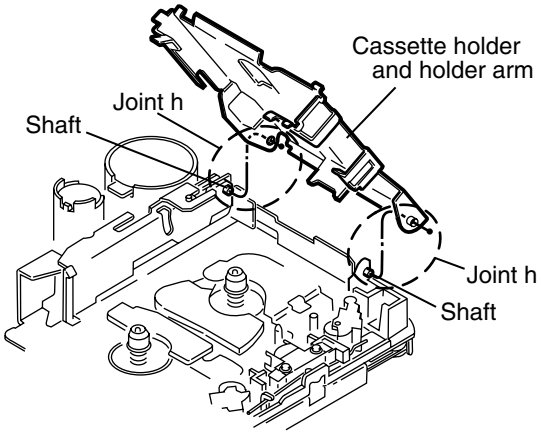


Fig.8

■ Removing the play head (See Fig.9)

・ Prior to performing the following procedure, remove the head relay board and the sub chassis.

1. Remove the two screws **F** attaching the play head (The spring under the play head comes off at the same time).

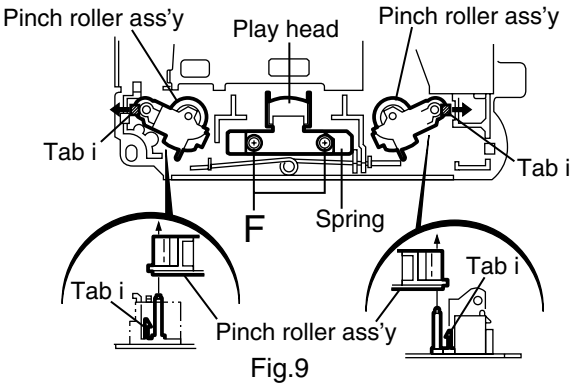


Fig.9

■ Removing the pinch roller ass'y (See Fig.9)

・ Prior to performing the following procedure, remove the head relay board and the sub chassis.

1. Push each tab **i** in the direction of the arrow and pull out the pinch rollers on both sides.

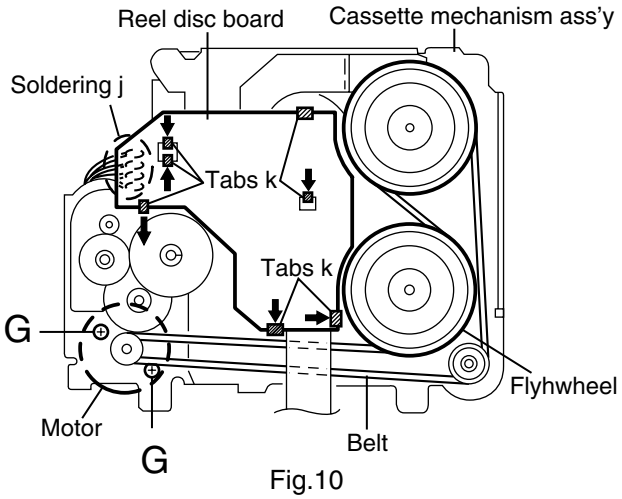


Fig.10

■ Removing the reel disc board (See Fig.10)

1. Unsolder the soldering **j** on the reel disc board.

2. Push the seven tabs **k** on the bottom of the cassette mechanism assembly in the direction of the arrow.

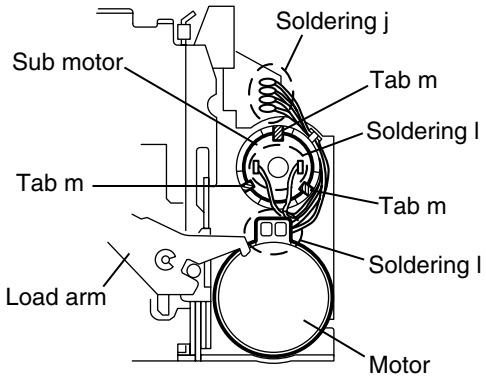


Fig.11

■ Removing the motor and the sub motor (See Fig.10 and 11)

1. Unsolder the two soldering **l** of the motor and the sub motor.

2. Release the sub motor from the three tabs **m**. Push the sub motor upward and pull out it.

3. Remove the belt on the bottom of the cassette mechanism assembly and remove the two screws **G** attaching the motor.

ATTENTION: The motors can be detached before removing the load arm.

■ 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.

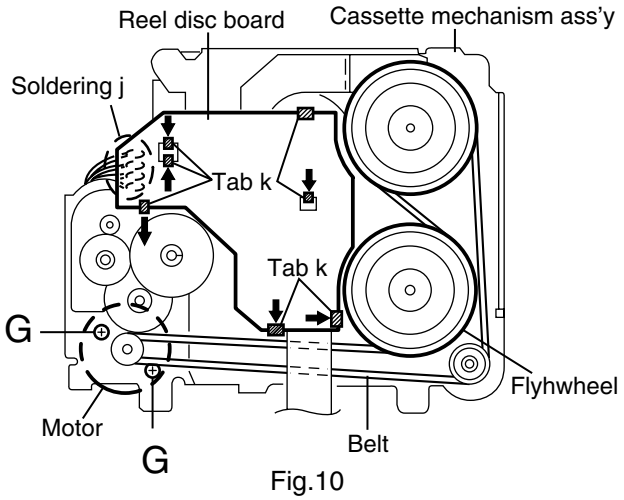


Fig.10

■ 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.

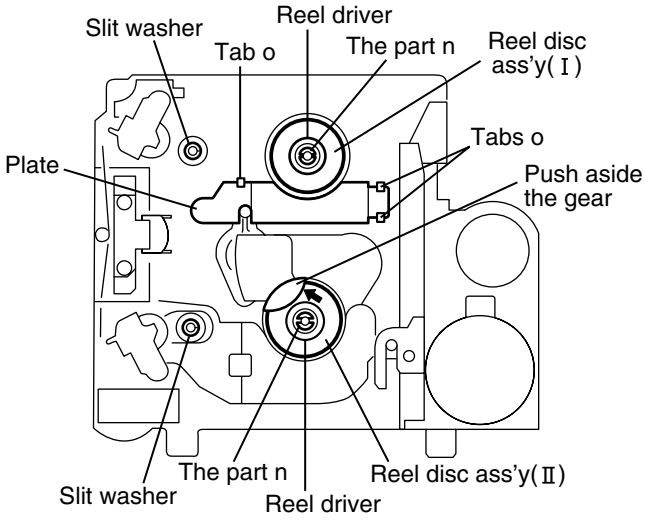


Fig.12

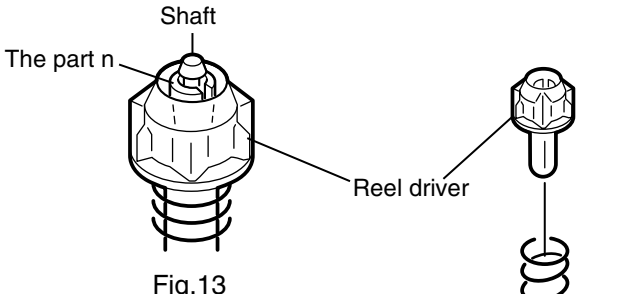


Fig.13

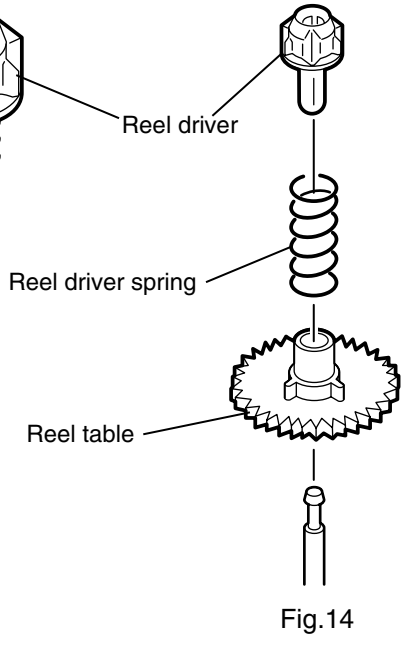


Fig.14

■ 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.

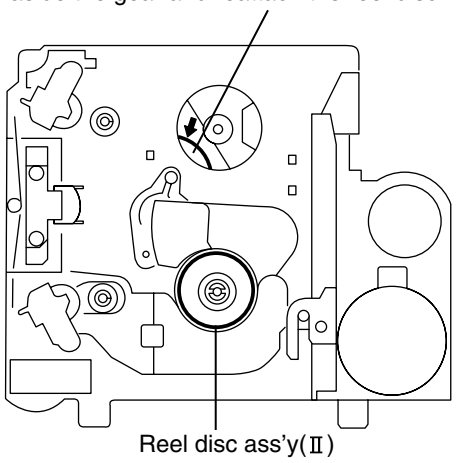


Fig.15

Adjustment method

■ Test Instruments reqired for adjustment

1.Digital osclloscope(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 -------- 4Ω(2Speakers connection)
Line out ---------- 20kΩ

■ 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. pilot7.5kHz dev.

Output level 0dB(1μV,50Ω/open terminal).

■ Tuner section

BAND STEP

FM : 100kHz (Seek), 50kHz (Manual)

AM : 9kHz step

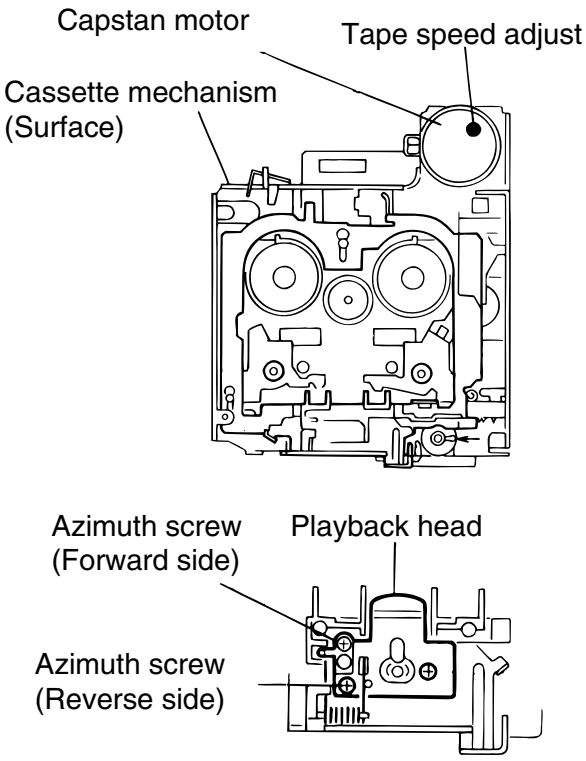
Preset Memory Initialization

Band	Preset Memory					
	M1	M2	M3	M4	M5	M6
FM(MHz)	87.5	89.9	97.9	105.9	108.0	87.5
AM(kHz)	153	216	603	999	1404	1620

DUMMY LOAD

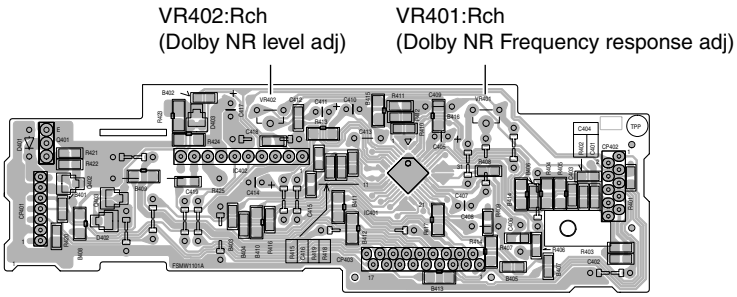
Exclusive dummy load should be used for AM and FM dummy load,there is a loss of 6dB between SSG output and antenna input. The loss of 6dB need not be considered since direct reading of figures are applied in this working standard.

■ Arrangement of Adjusting
Cassette Mechanism Section



■ Arrangment of adjusting

Head amplifier board section (Reverse side)



■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 assembly.
   Check for mechanism driving section such as motor ,etc..

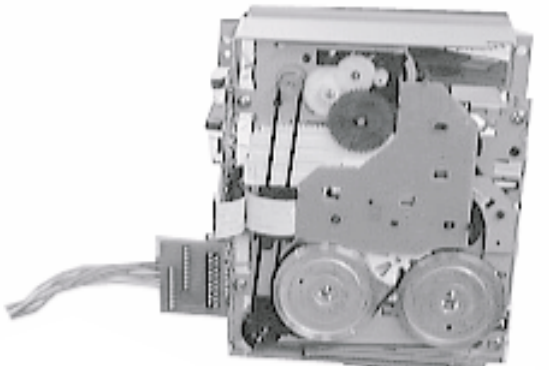
■Disassembly method

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.

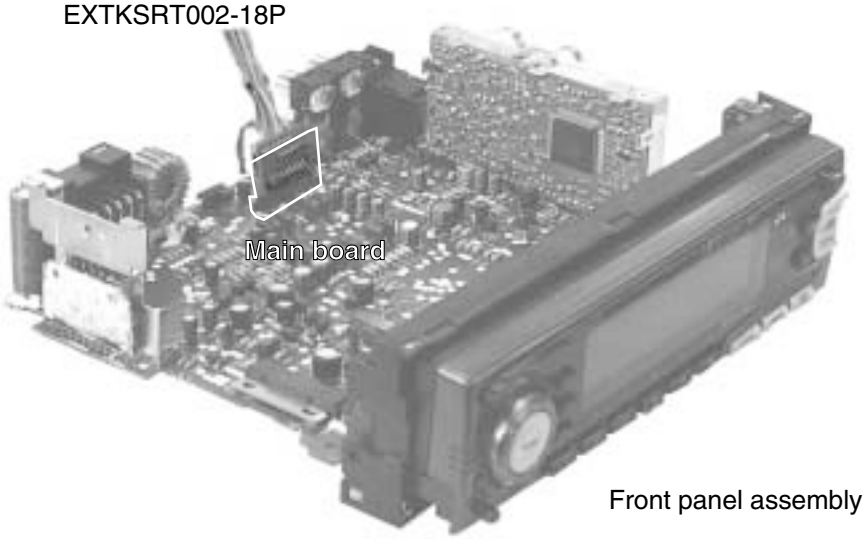
Note

Available to connect to the CP701 connector when installing the front panel.

Cassette mechanism

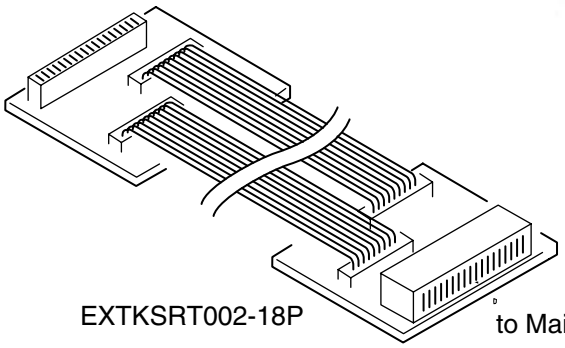


Extension cord
EXTKSRT002-18P



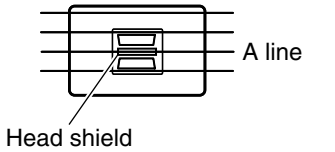
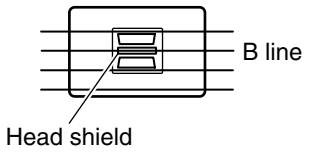
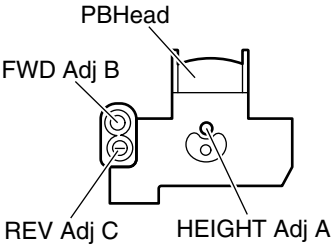
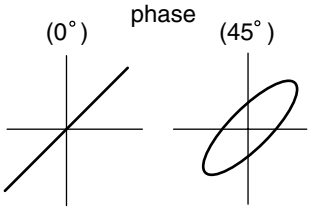
Front panel assembly

to Cassette mechanism



EXTKSRT002-18P

to Main board

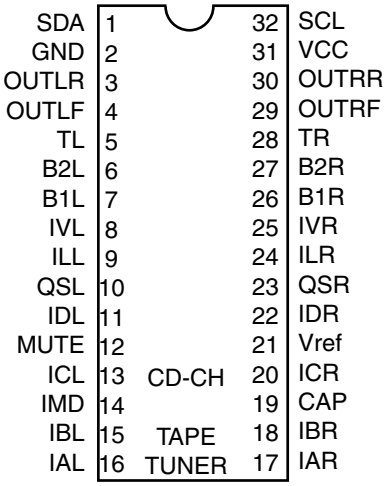
Item	Conditions	Adjustment and Confirmation methods	S.Values	Adjust
1. Head azimuth adjustment	Test tape: SCC-1659 VT703(10kHz)	◆ Head height adjustment ※ Adjust the azimuth directly. When you adjust the height using a mirror tape, remove the cassette housing from the mechanism chassis. After installing the cassette housing, perform the azimuth adjustment. 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. 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 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. ◆ Head azimuth adjustment 1. Load VTT724 (VT724) (1kHz) and play it back in the reverse play mode. Set the Rch output level to max. 2. Load VTT703 (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°. 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.) 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.) 5. When VTT721 (VT721) (315Hz) is played back, the level difference between channels should be within 1.5dB.	 The head is at low position during.  The head is at High position during REV. Output level: Maximum  	
2. Tape speed and wow flutter confirmation	Test tape: VTT712 (3kHz)	1. Check to see if the reading of the F, counter / wow flutter meter is within 3015～3045(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.	Tape speed: 3015 ～3045Hz Wow flutter: less than 0.35%	Built-in volume resistor
3. Play back frequency response confiramation	Test tape: VTT724 (1kHz) VTT739 (63Hz / 1kHz / 10kHz)	1. Play test tape VTT724, and set the volume position at 2V. 2. Play test tape VTT739 and confirm. 1kHz / 10kHz: -1 ± 3dB, 1kHz / 63Hz: 0 ± 3dB, 3. When 10kHz is out of specification, it will be necessary to read adjust the azimuth.	Speaker out 1kHz / 63Hz : 0± 3db 1kHz / 10kHz : -1± 3db	

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

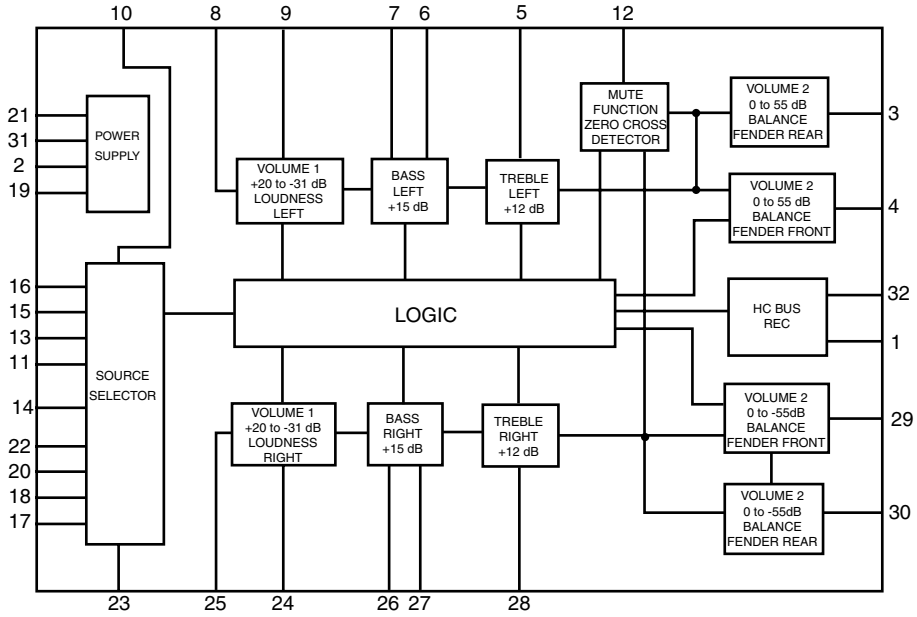
Descrption of major ICs

■ TEA6320T-X (IC161) : E.volume

1.Pin layout



2.Block diagram

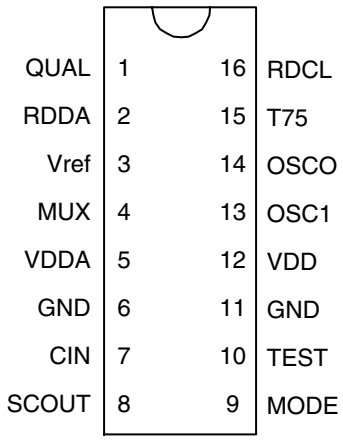


3.Pin functions

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.

■ SAA6579T-X(IC71):RDS Detector

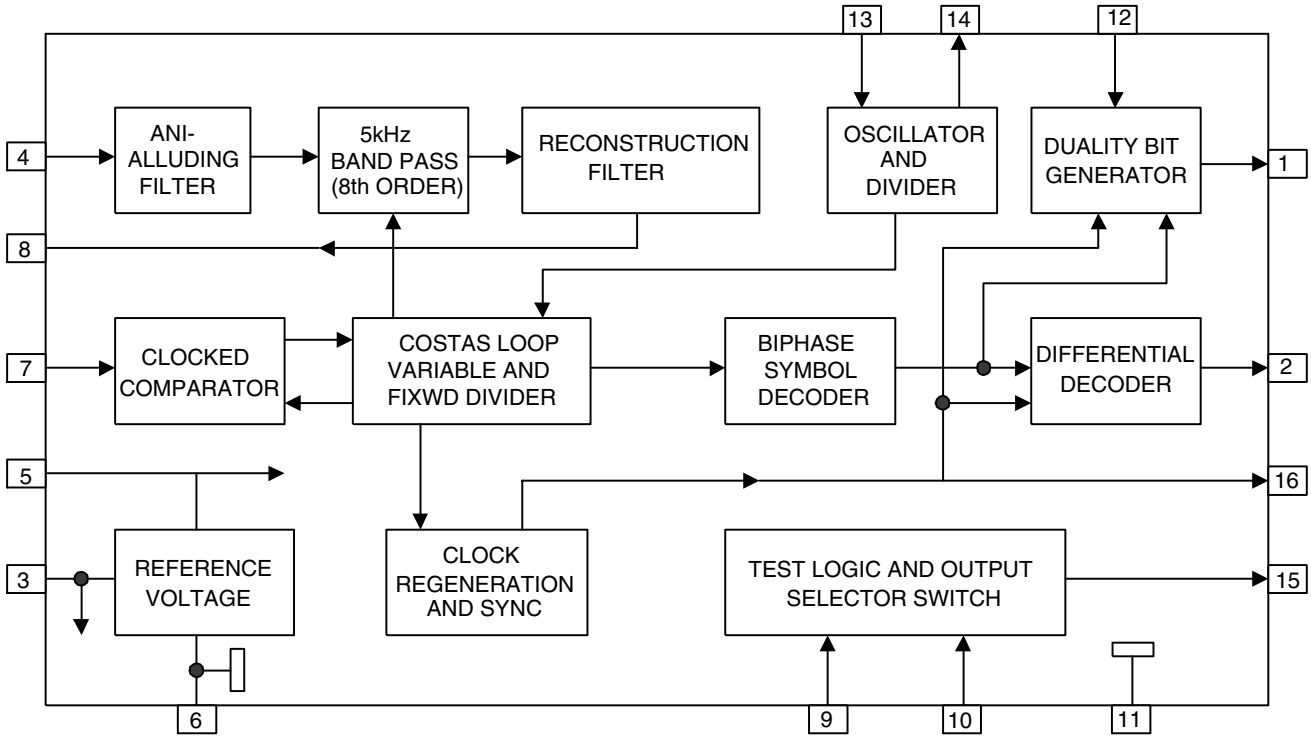
1.Terminal Layout



2.Pin Function

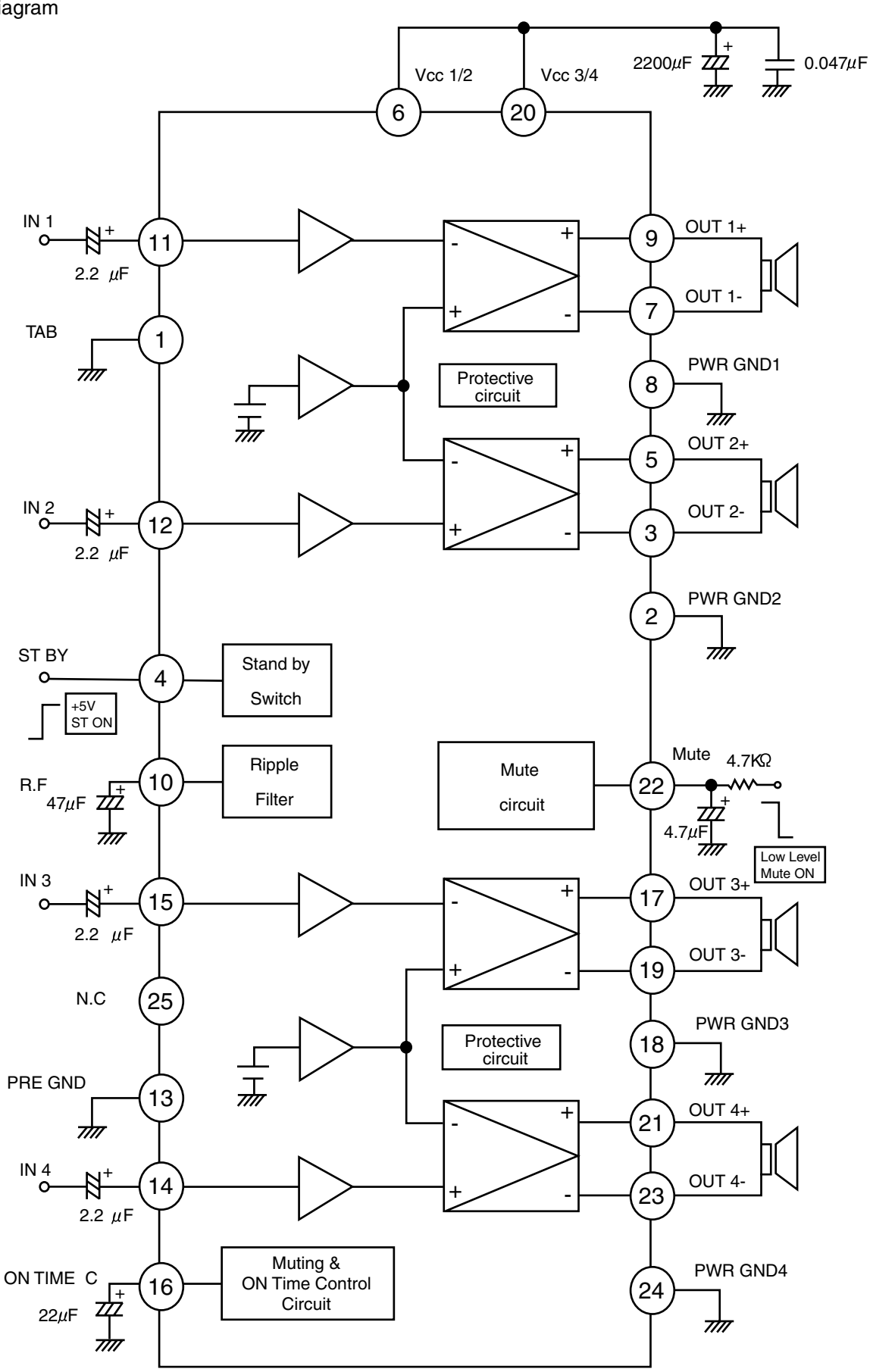
Pin No.	Symbol	I/O	Function
1	QUAL	-	Non connect
2	RDDA	O	RDS data output
3	Vref	O	Reference voltage output
4	MUX	I	Multiplex signal input
5	VDDA	-	+5V Supply voltage for analog
6	GND	-	Ground for analog part (0V)
7	CIN	I	Sub carrier output of reconstruction filter
8	SCOUT	O	Ground for digital part (0V)
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

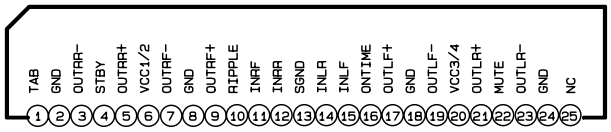


■ LA4743K(IC301):Power AMP

1.Block diagram



2.Terminal layout

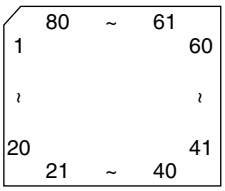


3.Pin function

Pin No.	Symbol	Function
1	TAB	Header of IC
2	GND	Power GND
3	OUTRR-	Outpur(-) for front Rch
4	STBY	Stand by input
5	OUTRR+	Output (+) for front Rch
6	VCC1/2	Power input
7	OUTRF-	Output (-) for rear Rch
8	GND	Power GND
9	OUTRF+	Output (+) for rear Rch
10	RIPPLE	Ripple filter
11	INRF	Rear Rch input
12	INRR	Front Rch input
13	SGND	Signal GND
14	INLR	Front Lch input
15	INLF	Rear Lch input
16	ONTIME	Power on time control
17	OUTLF+	Output (+) for rear Lch
18	GND	Power GND
19	OUTLF-	Output (-) for rear Lch
20	VCC3/4	Power input
21	OUTLR+	Output (+) for front
22	MUTE	Muting control input
23	OUTLR-	Output (-) for front
24	GND	Power GND
25	NC	Non connection

■ UPD178018AGC-586 (IC701) : Main system control CPU
■ UPD178018AGC-604 (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	OPEN	I	Door open detect input
12	BUSSI	I	J-BUS Data input
13	BUSSO	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	INLOCK	-	Non connect
20	NC	-	Non connect
21	GNDPORT	-	Port GND
22	VDDPORT	-	Port Vdd
23	NC	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/AM	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	NC	-	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	MOTOR	O	Main motor output

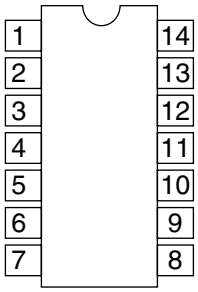
■ UPD178018AGC-551 (IC701) : Main system control CPU

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

Pin No.	Port Name	I/O	Descriptions
41	FF/REW	I	Output for input signal level switching for MS L : FF,REW H : PLAY
42	F/R	O	FWD,REV running direction switch signal input
43	DOLBY	O	Dolby on "H" output
44	MSIN	I	MS input
45	I2CCLK	O	I2C information clock output
46	I2CDAO	O	I2C information data output
47	I2CDAI	I	I2C information clock input
48	REEL	O	Switch for detecting tape end position
49	SUBMO1	I	Sub motor clock direction input
50	SUBMO2	O	Sub motor clock opposite detection drive output
51	MODE	O	Mechanism mode position detection input
52	TAPEIN	O	Cassette in detection input H : cassette in L : cassette out
53	STANDBY	I	Standby position detection input H : eject side L : operation side
54	NC	-	Non connect
55	NC	-	Non connect
56	NC	-	Non connect
57	NC	-	Non connect
58	NC	-	Non connect
59	BEEP	O	Touch tone output
60	MUTE	O	Mute output , L : mute on
61	PCNT	O	Power ON /OFF switching output , H : power on
62	TELMUTE	I	Telephone mute signal detection input
63	DIMIN	I	Dimmer signal detection input L : dimmer
64	DIMOUT	O	Dimmer control output , Dimmer off L output
65	ENC1	I	Rotary volume signal 1 input Power save : L
66	ENC2	I	Rotary volume signal 2 input
67	ACCDET	I	Power save 1 Working togethe ACC Power save : L
68	POWER	O	Power save 2, Working together Back up by H input, stop mode
69	RDSSCK	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	J-BUSINT	I	Cut-in input for J-BUS signal
74	REGCPU	-	Regulator for CPU power supply, Connect the GND with0.1 μ 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 μF.
79	VDD	-	Vdd
80	RESET	-	Pull up

■ HD74HC126FP-X (IC801) : Buffer

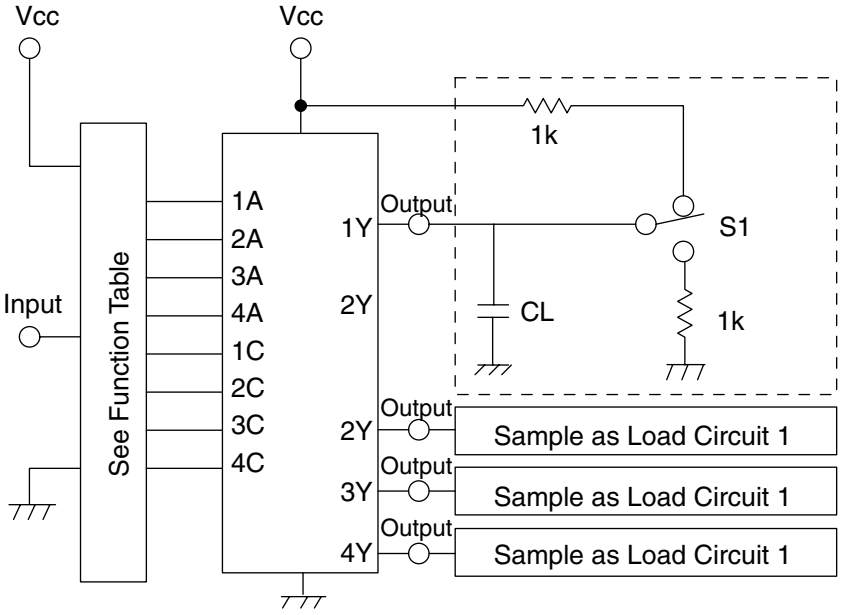
1.Terminal layout



3.Pin function

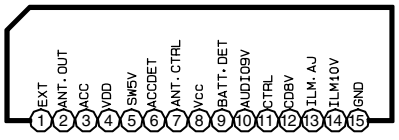
Input		Outout
C	A	Y
L	X	Z
H	L	H
H	H	L

2.Block diagram

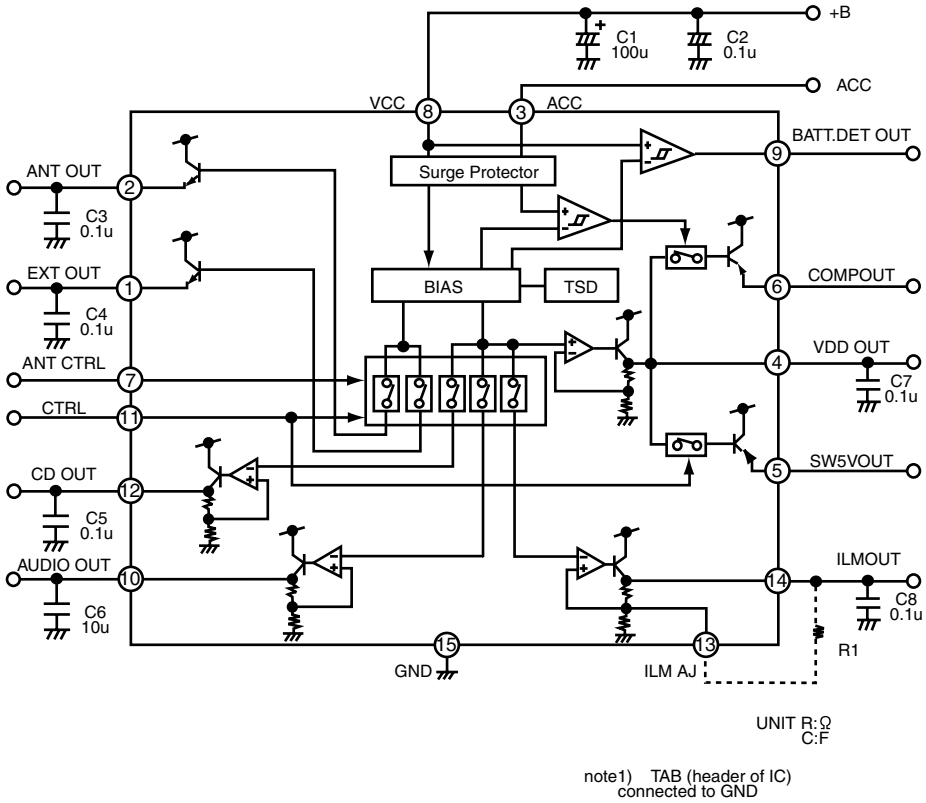


■ HA13164(IC901):REGULATOR

1.Terminal layout



2.Block diagram



3.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 applies 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 applies to CTRL pin.
15	GND	Connected to GND.

JVC

VICTOR COMPANY OF JAPAN, LIMITED
MOBILE ELECTRONICS DIVISION
PERSONAL & MOBILE NETWORK BUSINESS UNIT. 10-1,1Chome,Ohwatari-machi,Maebashi-city,Japan

200102(V)

(No.49613)