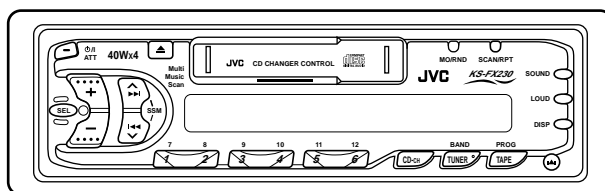
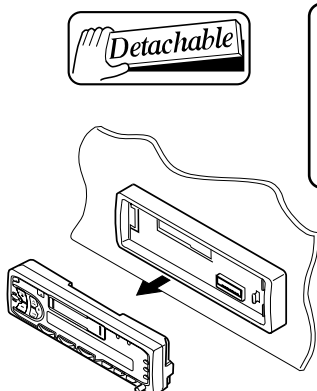


JVC

SERVICE MANUAL

CASSETTE RECEIVER

KS-FX230



Area Suffix

UF China

Contents

Safety precaution	1-2	Adjustment method	1-9
Disassembly method	1-3	Description of major ICs	1-12

Safety precaution

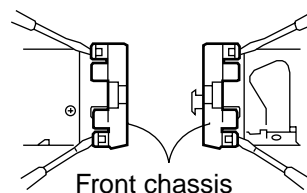


CAUTION Burrs formed during molding may be left over on some parts of the chassis. Therefore, pay attention to such burrs in the case of performing repair of this system.

Disassembly method

■ Removing the front chassis (see Fig.1)

1. Disengage the four tabs in the right and left side of unit and pull the front chassis forward to remove it.

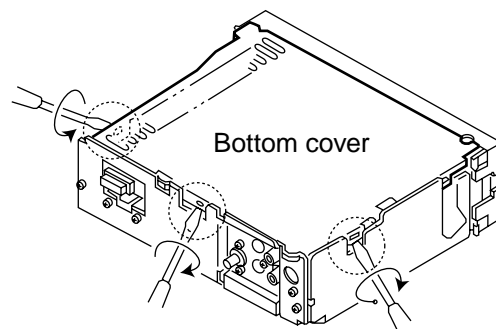


Front chassis

Fig. 1

■ Removing the bottom cover and heat sink (see Fig.2,3)

1. Remove one screw **A** retaining the IC to the heat sink.
2. Remove two screws **B** to remove the heat sink.
3. Turn the upside down, the insert and turn the screwdriver to remove the bottom cover and protect sheet.

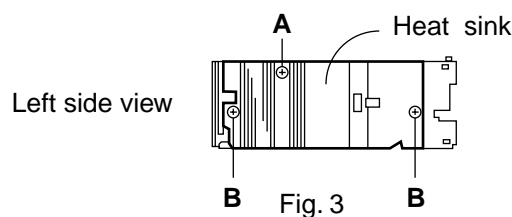


Bottom cover

Fig. 2

■ Removing the main board (see Fig.4)

1. Remove two screws **C** retaining the rear panel to the chassis.
2. Remove two screws **D** retaining the main board.
3. Lift up the main board to remove it. At this time, remove the connector CP702 connecting the main board and mechanism assembly.



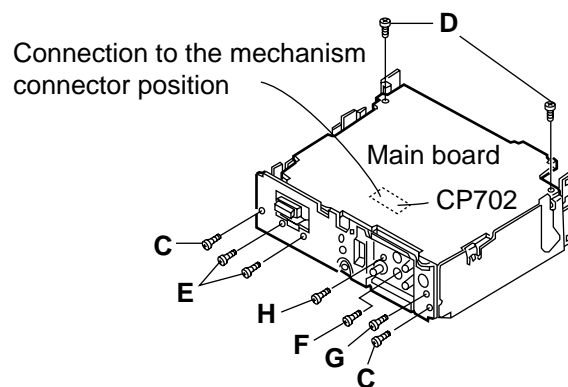
Left side view

Fig. 3

■ Removing the rear panel (see Fig.4)

1. Remove six screws retaining the jacks or the like.
2. Remove two screws **E** to the 16-pin jack.
3. Remove one screw **F** to remove the line-out jack.
4. Remove one screw **G** to remove the antenna jack.

Remove one screw **H** to remove the changer controller jack.

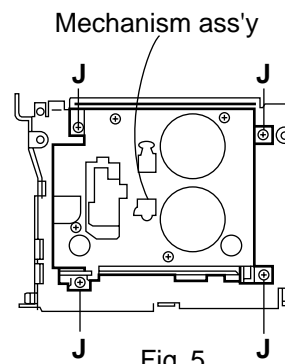


Connection to the mechanism connector position

Fig. 4

■ Removing the mechanism ass'y (see Fig.5)

1. Remove four mechanism mounting screws **I** retaining the mechanism assembly.
2. Remove four screws **J** retaining the cover.
3. Remove one screw which is the fixation of top cover and the substrate.



Mechanism ass'y

Fig. 5

■ Removing the front panel unit (see Fig.6)

1. Remove four screws **K** retaining the rear cover.

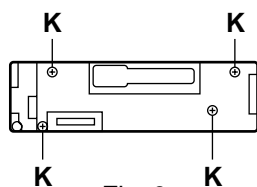


Fig. 6

<< Cassette mechanism section >>

■ Removing the head relay board (see Fig.1)

1. Desolder the lead wires of the loading motor at the 2 positions shown (Red and Black).
2. Desolder the lead wire of the head at the 3 positions shown (RED, Yellow and Black).
3. Remove the three screws **A** securing the head relay board.
4. Shift the interlocking section **a** securing the head relay board in the direction shown by the arrow to remove the board.

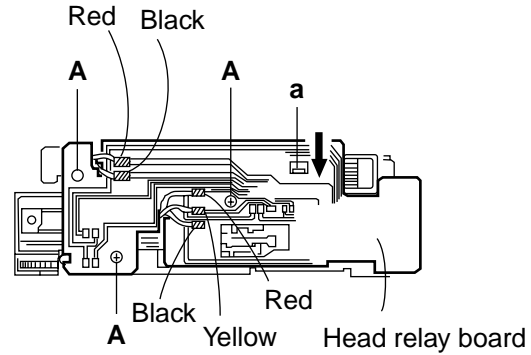


Fig. 1

■ Removing the load arm ass'y (see Fig.2)

1. Using tweezers, detach the mylar washer 1 securing the load arm ass'y and pull out the load arm ass'y.

NOTE : When reassembling, be sure to use a new mylar washer.

2. Shift the load arm ass'y counter clockwise.
3. Remove the load arm ass'y from the catch.

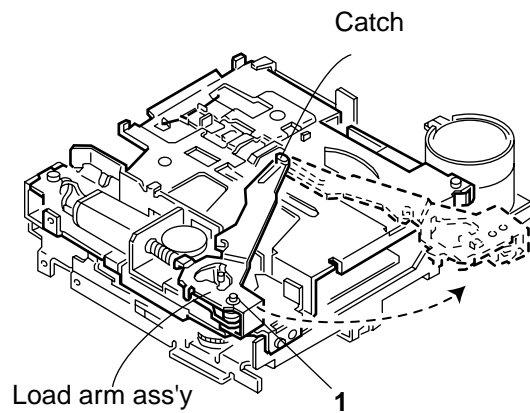


Fig. 2

■ Removing the cassette holder and arm ass'y (see Fig.3)

1. Remove the head relay board.
2. Remove the load arm ass'y.
3. Apply DC 6V to the lead wire of the loading motor ass'y and turn the load gear ass'y to the position shown in Fig. 3.
4. Remove the screw **B** securing the cassette holder and holder arm ass'y.
5. Shift the cassette holder and holder arm ass'y in the direction shown by the arrow and remove them from the interlocking section **b** of the sub chassis ass'y.

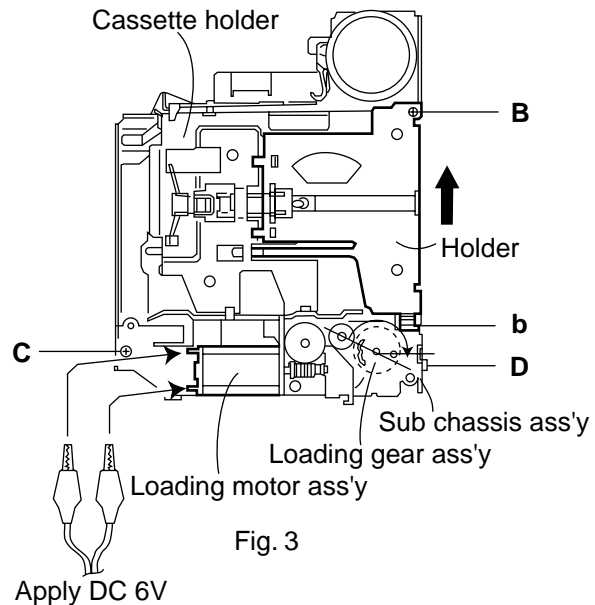


Fig. 3

■ Removing the sub chassis ass'y (see Fig.4)

1. Remove the head relay board.
2. Remove the load arm ass'y.
3. Remove the cassette holder and holder arm ass'y.
4. Remove the two screw **C** and **D** securing the sub chassis ass'y.

NOTE : When removing the sub chassis ass'y, the mode gear may become detached. In this case, set it back to the original position.

■ Removing the play head (see Fig.4)

1. Remove the head relay board.
2. Remove the load arm ass'y.
3. Remove the cassette holder and holder arm ass'y.
4. Remove the sub chassis ass'y.
5. Disengage the spring holding the play head down.
6. Remove the two screws **E** securing the play head.

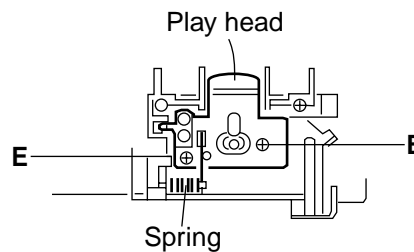


Fig.4

■ Removing the pinch roller ass'y (see Fig.5,6)

1. Remove the head relay board.
2. Remove the load arm ass'y.
3. Remove the cassette holder and holder arm ass'y.
4. Remove the sub chassis ass'y.
5. Detach the mylar washers **c** at the two positions securing the right and left pinch roller ass'y.

NOTE : When reassembling, be sure to use new mylar washers. Also, make sure that grease is not adhering to the pinch rollers.

6. Pull out the pinch rollers.

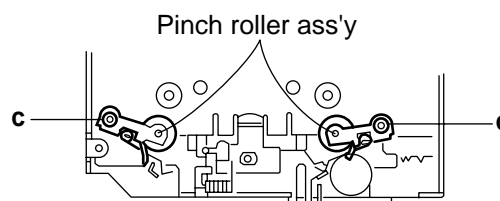


Fig.5

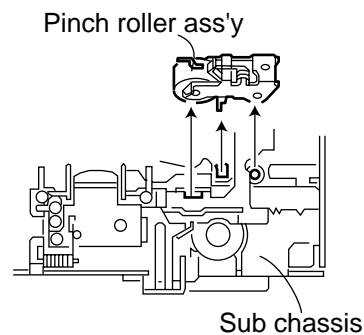


Fig.6

■ Removing the reel disk ass'y (see Fig.7)

1. Remove the head relay board.
2. Remove the load arm ass'y.
3. Remove the cassette holder and holder arm ass'y.
4. Remove the sub chassis ass'y.
5. Detach the mylar washer **d** from the tip by first pressing down the reel feather to expose it.

NOTE : When reassembling, be sure to use a new mylar washer

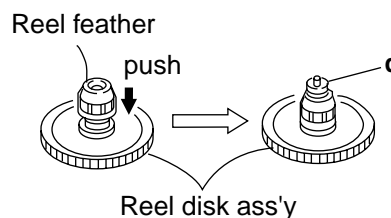


Fig.7

■ Removing the head plate (see Fig. 8,9)

1. Remove the head amp PCB.
2. Remove the load arm ass'y.
3. Remove the cassette holder and holder arm ass'y.
4. Remove the sub chassis ass'y.
5. Remove the right and left pinch roller ass'y.
6. From the rear of the head plate, detach the mylar washer **e** and the washer pressing the forward/reverse plate down. (see Fig. 8)
7. Remove the screw **F** fixing the metal detection lever and removal spring as shown in Fig. 8.
8. Remove the head plate.
9. Pull out the mode gear. (see Fig. 9)

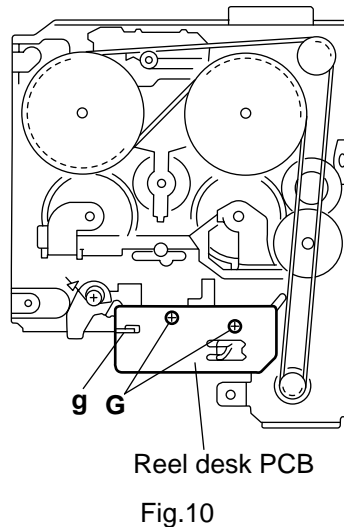
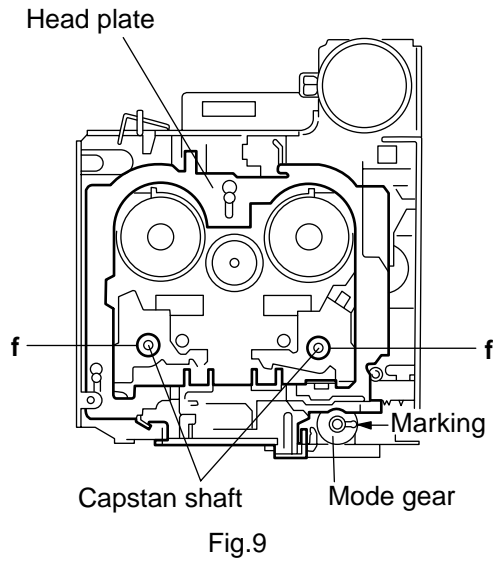
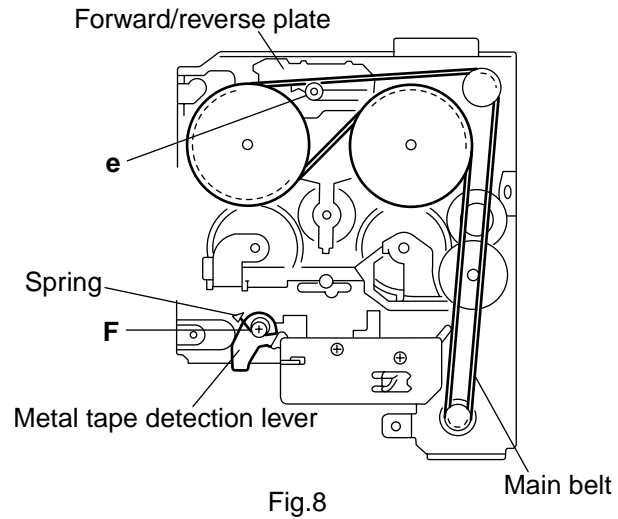
NOTE : When installing the mode gear, set it to the arrow mark.

■ Removing the flywheel ass'y (see Fig. 9)

1. Remove the head relay PCB.
2. Remove the load arm ass'y.
3. Remove the cassette holder and holder arm ass'y.
4. Remove the sub chassis ass'y.
5. Remove the head plate.
6. Disengage the main belt from the flywheel ass'y. (see Fig. 8)
7. Remove E washers **f** at the two positions which secure the capstan shaft away from the surface. (see Fig. 9)
8. Pull out the flywheel ass'y from the rear.

■ Removing the reel disk PCB (see Fig. 10)

1. Remove the head relay PCB.
2. Remove the load arm ass'y.
3. Remove the cassette holder and holder arm ass'y.
4. Remove the sub chassis ass'y.
5. Straighten the curved tab **g** securing the reel disk PCB. (see Fig. 10)
6. Remove the two screws **G** fixing the reel disc PCB.
7. Remove the reel disk PCB.



■ Removing the loading motor ass'y (see Fig. 11)

1. Remove the head relay ass'y.
2. Remove the load arm ass'y.
3. Remove the Mylar washer **h** fixing the worm gear.
(see Fig.11)

NOTE : When reassembling, be sure to use a new mylar washer.

4. Remove the screw **H** fixing the loading motor ass'y.
(see Fig.11)
5. Remove the two screws **I** fixing the loading motor ass'y. (see Fig 11)

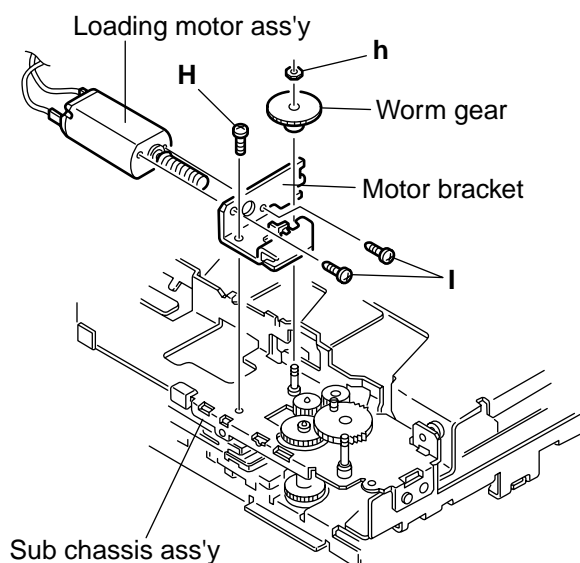


Fig.11

■ (Procedures for reassembling)

1. Insert the mode gear into the sub chassis ass'y.
2. Install the sub chassis ass'y and secure it with the two screws **C** and **D** as shown in Fig.12.

NOTE : The set arm ass'y and the mode gear should be positioned as shown in Fig.12.

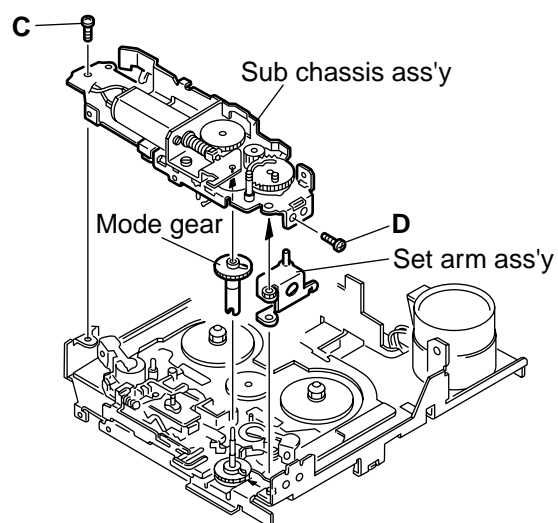


Fig.12

3. Attach the cassette holder as shown in Fig.13. In this case, first pass the tab of the section **i** through the mechanism **j**, then attach the cassette holder in the direction shown by the arrow.

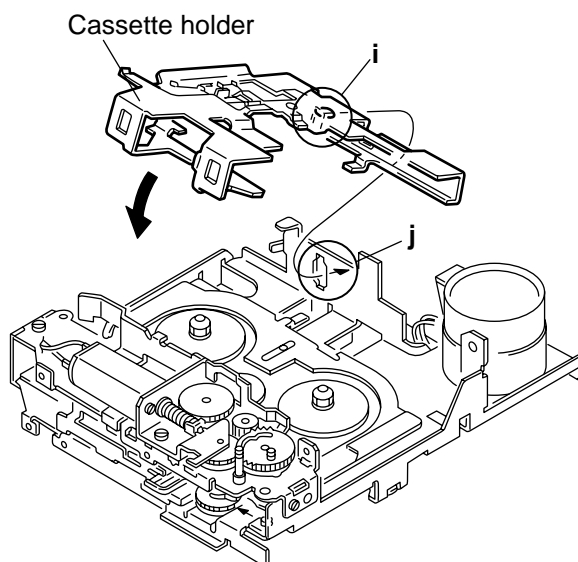


Fig.13

4. Set the catch to the holder arm ass'y as shown in Fig.14.
5. While attaching the holder arm ass'y to the cassette holder, insert the shaft of the holder arm ass'y into the interlocking section **k** of the sub chassis ass'y as shown in Fig.15.
6. Install the spring attached to the folder arm ass'y shaft over the set arm ass'y as shown in Fig.16.
7. After the holder arm ass'y is installed, secure it with the screw **B**. (see Fig.15)

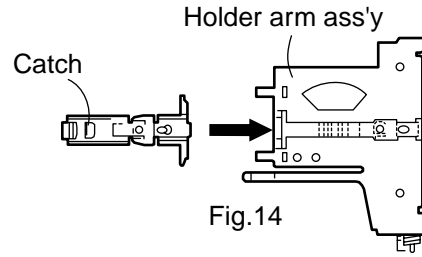


Fig.14

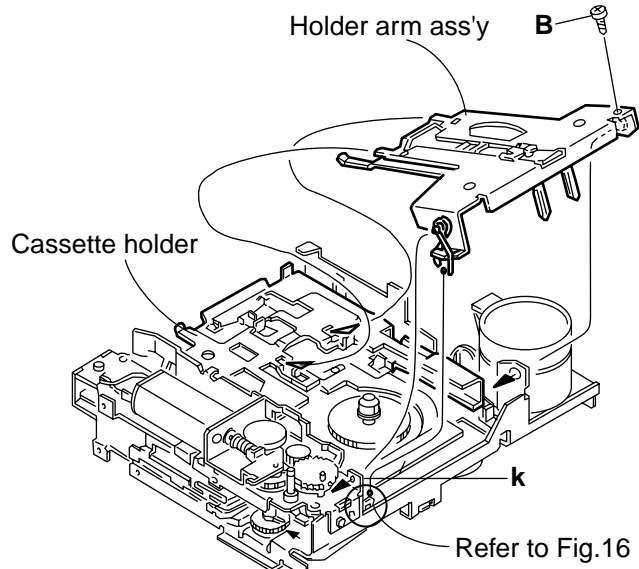


Fig.15

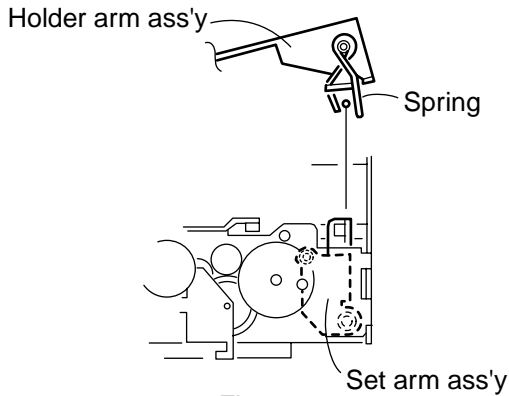


Fig.16

8. After the installation, apply DC 6V to the lead wires of the loading motor ass'y to locate the load gear ass'y as shown in Fig.17.
9. Install the load arm ass'y.
10. Install the head relay PCB.

NOTE : Install it so that the slide switch lever of the head relay PCB is set in the PCB stay hook of the sub chassis ass'y. (see Fig.18)

11. Solder the loading motor and head lead wires to the head relay PCB, respectively. (see Fig.19)

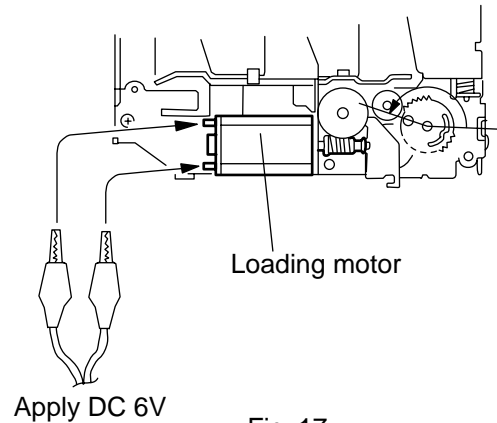


Fig.17

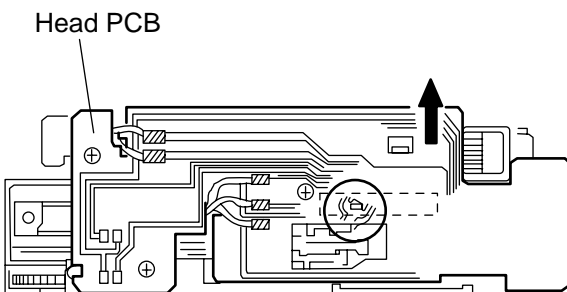


Fig.19

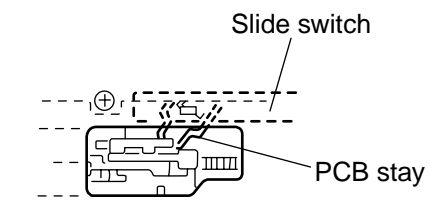


Fig.18

Adjustment method

■ Equipment and measuring instruments used for adujstment

- Electronic voltmeter
- Audio frequency osillator
(range ; 50~20kHz and outp ut 0 dB with impedance of 660Ω)
- Attenuator (impedance;600Ω)
- Frequency counter
- AM Standard signal generator
- FM Standard signal generator
- Wow flutter mater
- Torqu testing cassette gauge
- CTG – N (mechanical adjusting)
- TW – 2111A (FWD play)
- TW – 2121A (REV play)
- Standard tape
- VT712 or VTT712 (tape speed,wow & flutter adj.)
- VT724 or VTT724 (reference level)
- VT738 or VTT736 (playback frequency response)
- VT721 or VTT721 (output level)
- VT703 or VTT703 (azimuth) (10kHz part only)

■ Preset Memory Initialization

For ver.U

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)	531	603	999	1404	1602	531

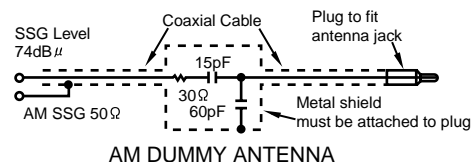
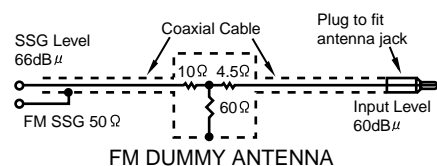
■ Condition for measurement

- Power Spupply..... DC14.4V
(Reduced voltage ; 10.5V)
- Load 4Ω
(4-speakers connection)
- BASS / TRE,FADER Indication 0
- Main volume Position with an output level of 2V during VT721 playback

■ Tuner section

- FM ; 400Hz,22.5kHz deviation (MONO)
- FM STEREO ; 1kHz,6.5kHz deviation,
pilotsignal 7.5kHz,66dBμV
- AM ; 400Hz,30% modulation,74dBμV
- Output impedznce ; 50Ω

■ Dummy antenna



Manual Tuning Up/Down Frequency

- FM: 50kHz
- AM: 9kHz

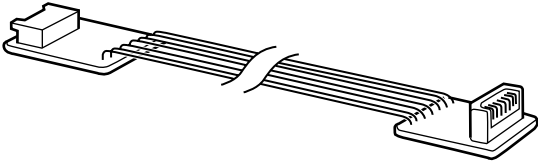
< **Information for using a Car Stereo service jig (for adjustment and checking)** >

■ For 1995 and 1996, we're advancing efforts to make our extension cords common for all Car Stereo products. Please use this type of extension cord as follows.

■ 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.

■ Extension cords

EXT- KSRT002 18P (18 pin extension cord)



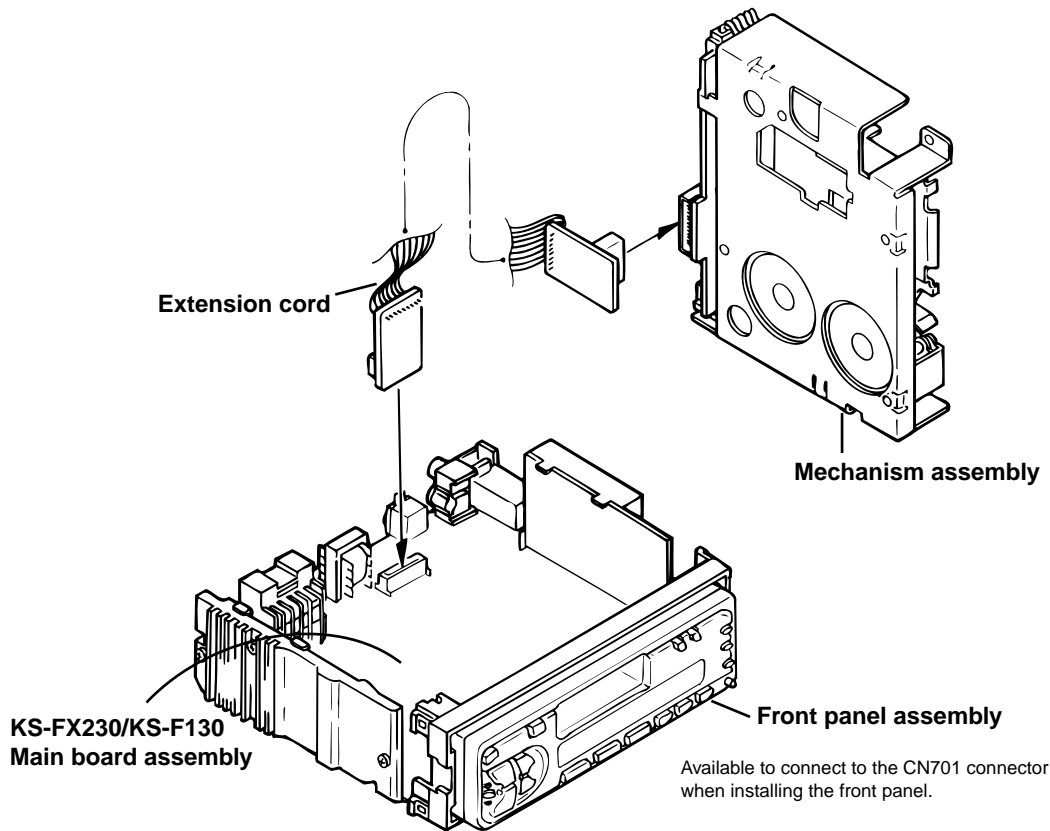
For connection between mechanism assembly and main PCB assembly.

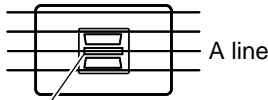
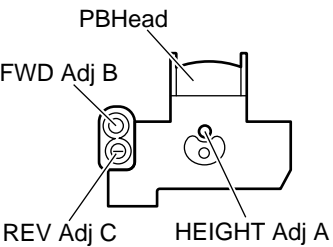
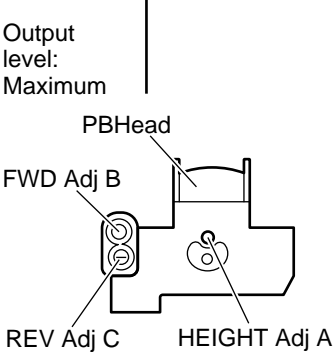
Check for mechanism-driving section such as motor, etc.

■ Disassembly method (Refer to method to remove main parts)

1. Remove the bottom cover.
2. Remove the front panel assembly.
3. Remove the top cover. (Remove the screws at each side of heat sink and rear panel.)
4. Install the front panel (whose assembly was removed in step 2) to the main unit.
5. Confirm that current is being carried by connecting an extension cord jig.

■ Connection diagram



Item	Conditions	Adjustment and Confirmation methods	S.Values	Adjust
1. Head azimuth adjustment	Test tape: SCC-1659 VT703(10kHz)	<p>◆ Head height adjustment</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> <ol style="list-style-type: none"> 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. <p>◆ Head azimuth adjustment</p> <ol style="list-style-type: none"> 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. 	 <p>Head shield The head is at low position during.</p> <p>Head shield The head is at High position during REV.</p> <p>Output level: Maximum</p>  <p>REV Adj C HEIGHT Adj A</p> <p>phase</p>  <p>(0°) (45°)</p>	
2. Tape speed and wow flutter confirmation	Test tape: VTT712 (3kHz)	<ol style="list-style-type: none"> 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. Playback frequency response confirmation	Test tape: VTT724 (1kHz) VTT739 (63Hz / 1kHz / 10kHz)	<ol style="list-style-type: none"> 1. Play test tape VTT724, and set the volume position at 2V. 2. Play test tape VTT739 and confirm. 1kHz / 10kHz: $-1 \pm 3\text{dB}$, 1kHz / 63Hz: $0 \pm 3\text{dB}$, 3. When 10kHz is out of specification, it will be necessary to read adjust the azimuth. 	Speaker out 1kHz / 63Hz : $0 \pm 3\text{dB}$ 1kHz / 10kHz : $-1 \pm 3\text{dB}$	

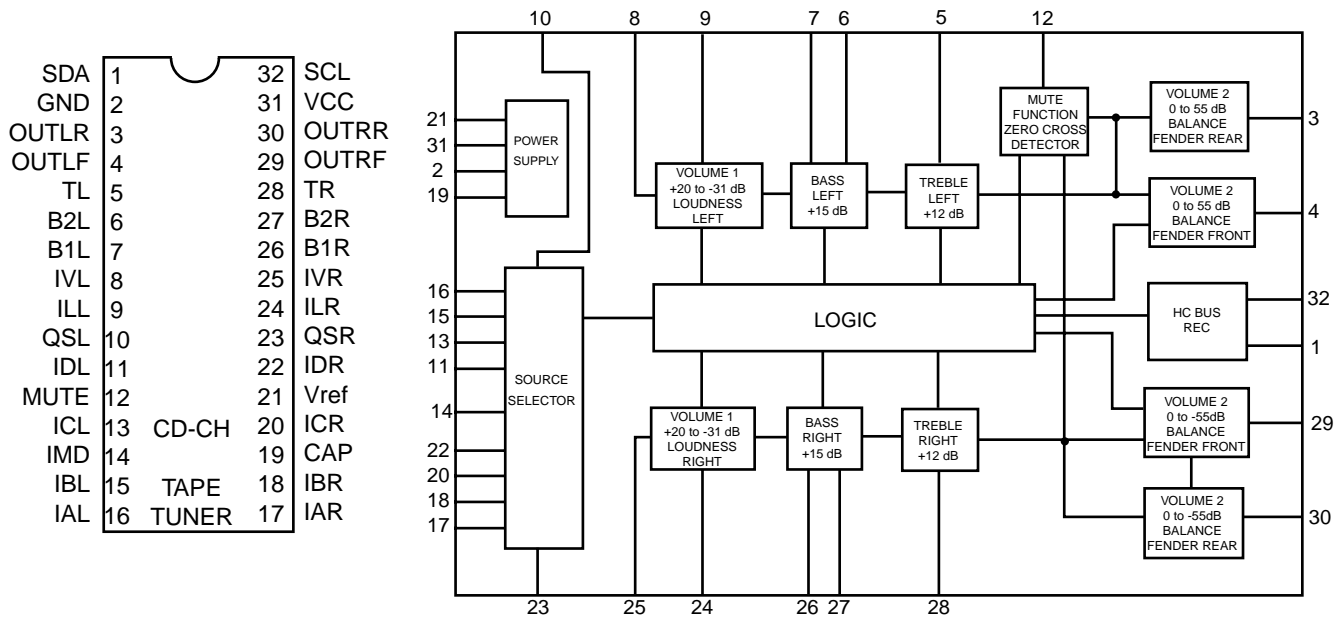
The tuner section is of an adjustment-free design. In case the tuner is in trouble, replace the tuner pack.

Description of major ICs

TEA6320T-X (IC931) : E.volume

1.Pin layout

2.Block diagram

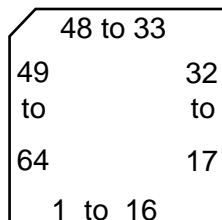


3.Pin functions

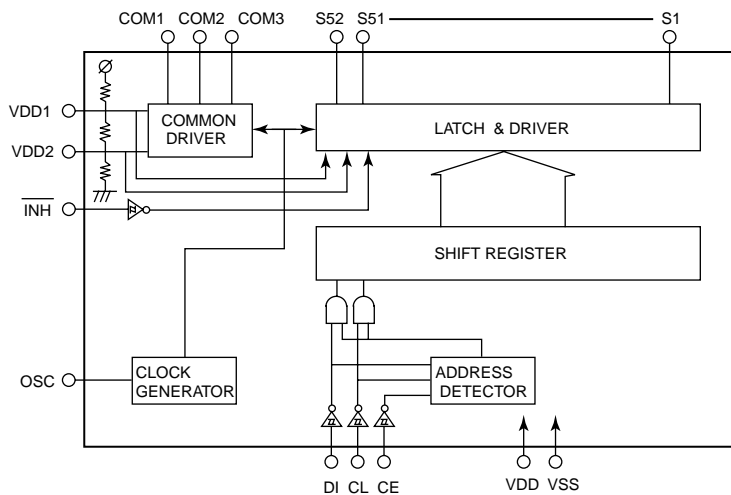
Pin No.	Symbol	I/O	Functions	Pin No.	Symbol	I/O	Functions
1	SDA	I/O	Serial data input/output.	17	IAR	I	Input A right source.
2	GND	-	Ground.	18	IBR	I	Input B right source.
3	OUTLR	O	output left rear.	19	CAP	-	Electronic filtering for supply.
4	OUTLF	O	output left front.	20	ICR	I	Input C right source.
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.

■ LC75823E(IC651):LCD driver

1.Pin layout



2.Block diagram

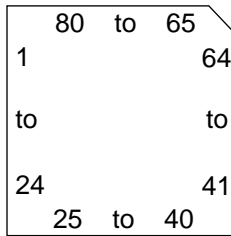


3.Pin function

PIN No.	Symbol	I/O	Functions
1 to 9		-	NOT USED
10 to 52	S10 to S52	O	Segment outputs that display data transferred from serial data.
53 to 55	COM1 to COM3	O	The frame frequency (fo) for the common driver output is (fosc/384)Hz.
56	VDD	-	Power supply
57	/INH	I	Forcibly terns off the display. regardless of internal data. Serial data can be input. whether this pin is high or low
58		-	NOT USED
59		-	
60	VSS	-	To GND
61	OSC	I	Oscillator connection (for the common segment alternating waveform)
62	CE	I	Serial data transfer pins.connected to a microprocessor. <div style="display: inline-block; vertical-align: middle; margin-left: 20px;"> <div style="display: inline-block; vertical-align: middle;"> } </div> <div style="display: inline-block; vertical-align: middle; margin-left: 5px;"> CE : Chip enable CL : Sync.clock DI : Transfer data </div> </div>
63	CL	I	
64	DI	I	

■ LC72362N-9388 (IC701) : System control

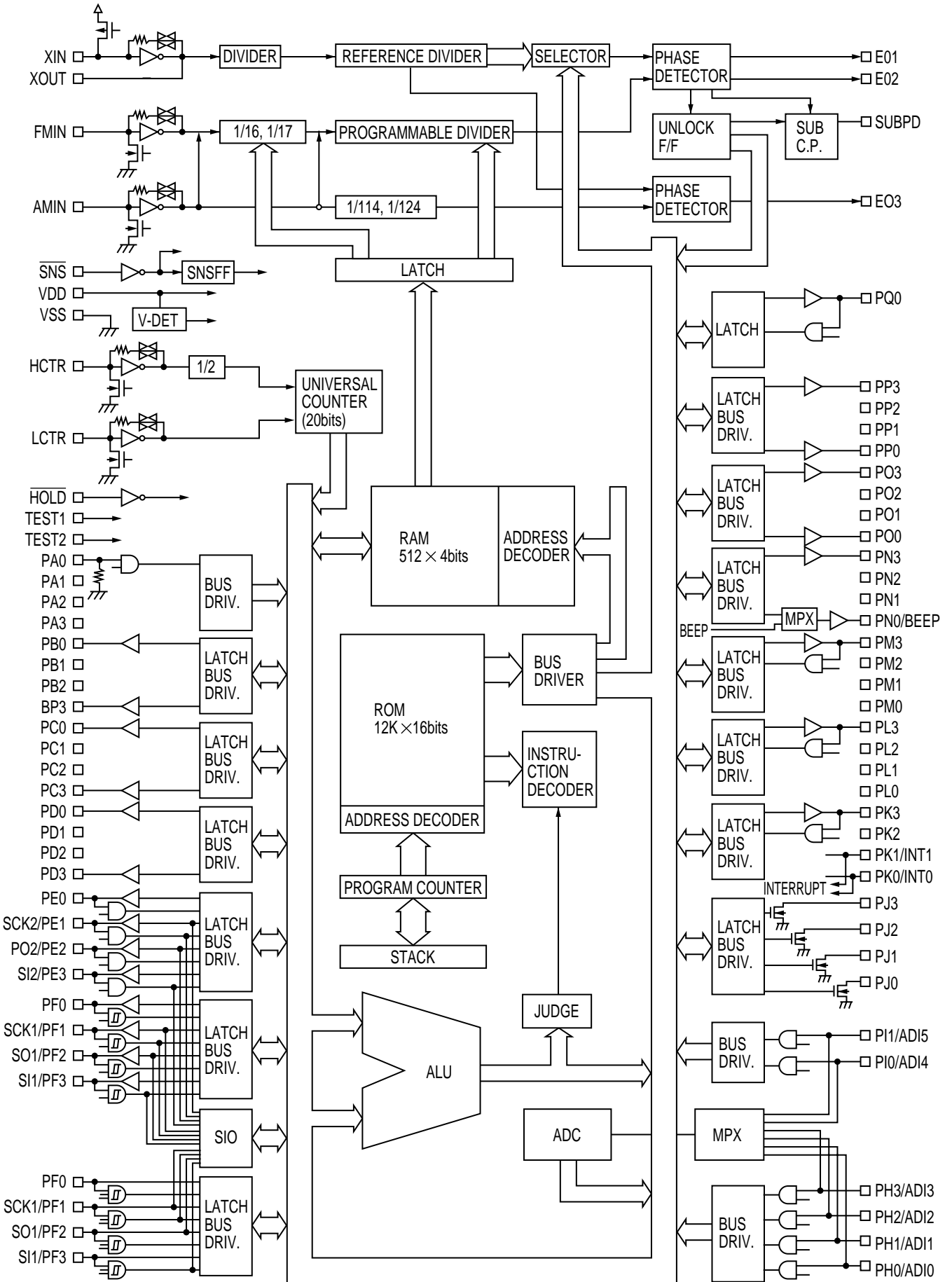
1. Pin layout



2. Pin function

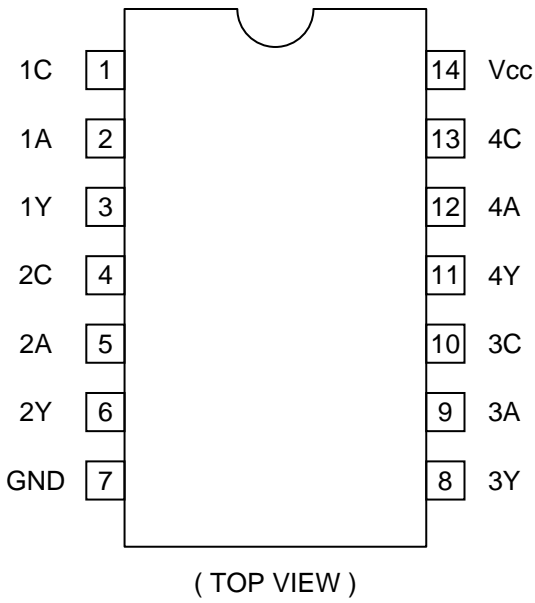
Pin No.	Symbol	I/O	Function
1	XIN	I	4.5MHz crystal oscillator connections
2	TEST2		LSI test pin.
3	PG3/SI0		
4	PG2/SO0		
5	PG1/SCK0		
6	PG0		
7	PF3/SI1		
8	PF2/SO1		
9	PF1/SCK1	I/O	General-purpose input/output and serial input/output shared ports.
10	PF0		
11	PE3/SI2		
12	PE2/SO2		
13	PE1/SCK2		
14	PE0		
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



HD74HC126P (IC751) : Changer control

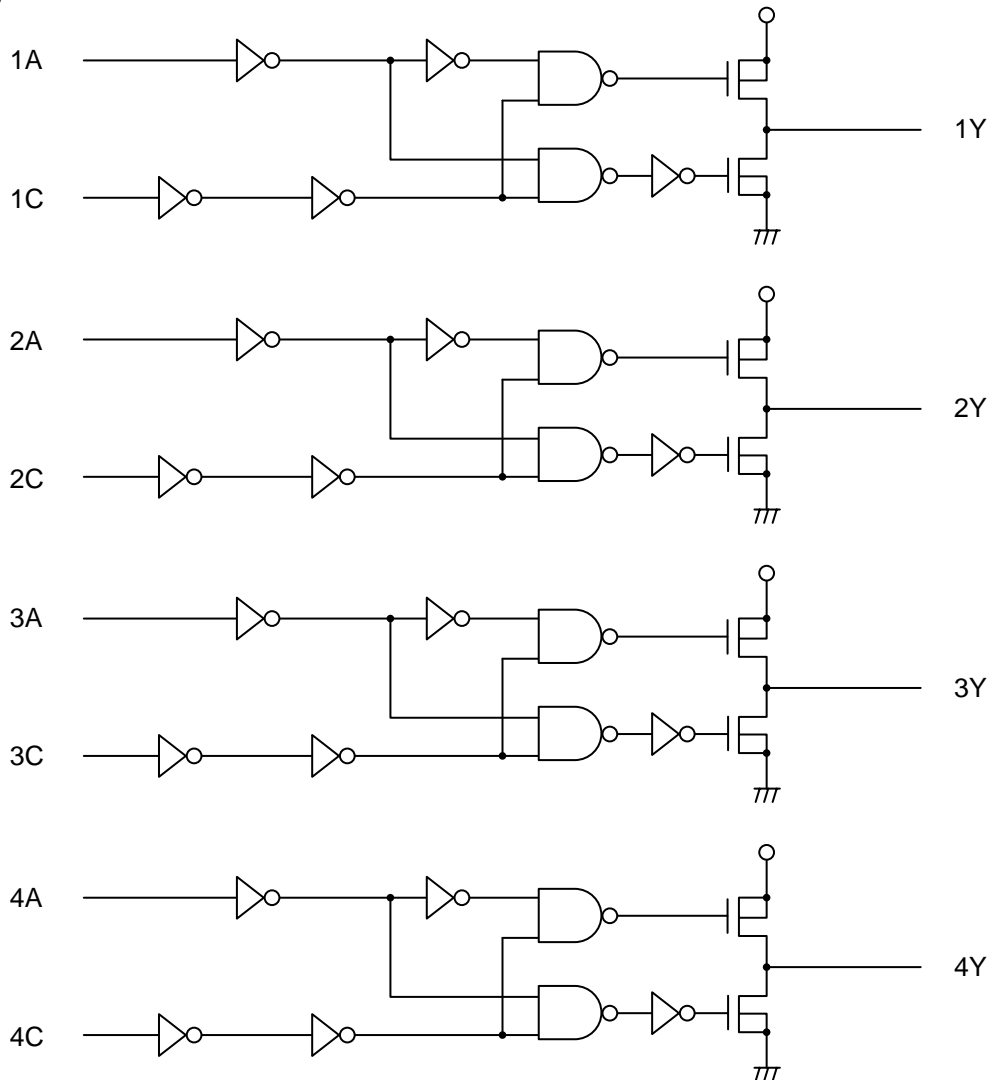
1. Pin arrangement



2. Pin function

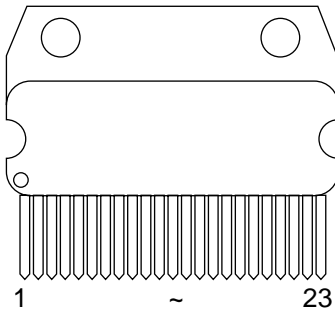
Input		Output
C	A	Y
L	X	Z
H	L	L
H	H	H

3. Block diagram

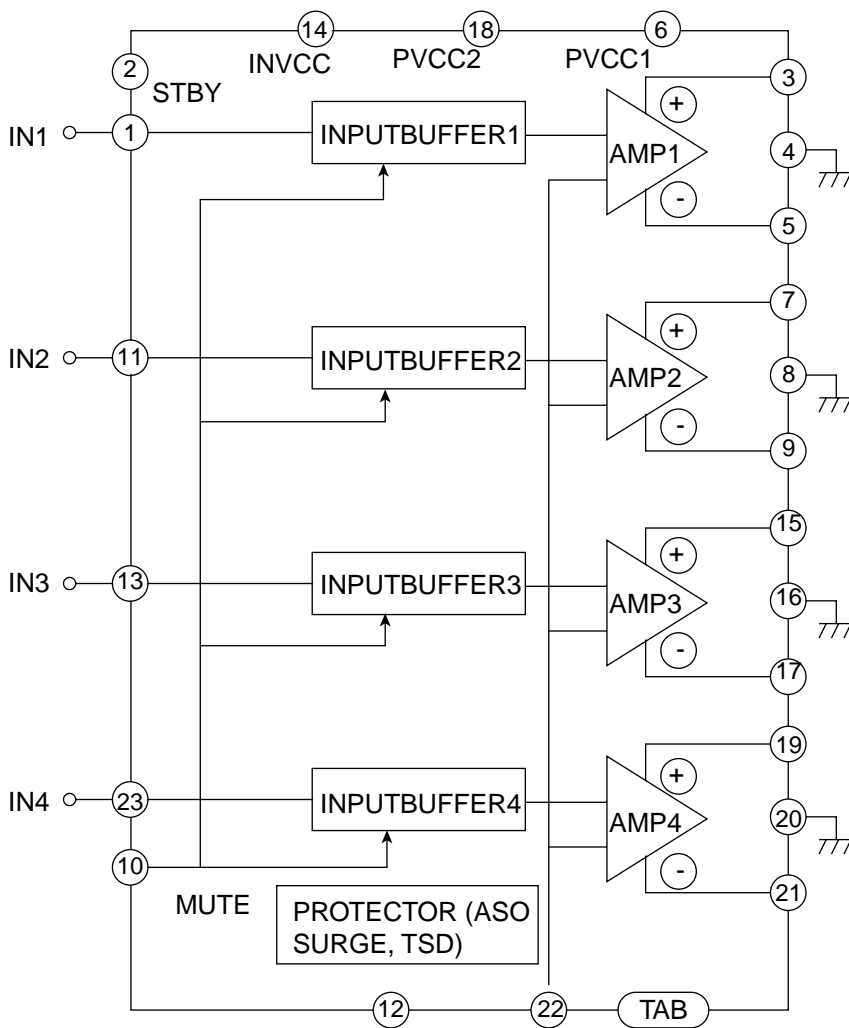


■ HA13158A (IC981) : Power amp

1. Pin layout

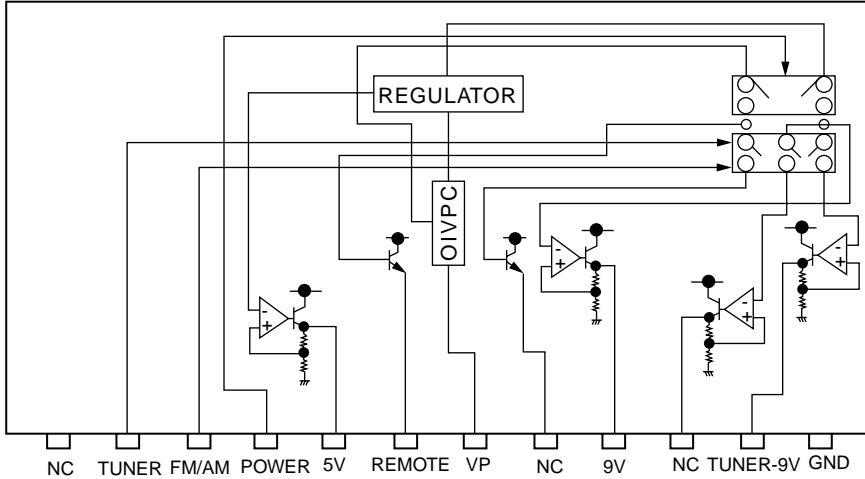


2. Block diagram



■ BA3918-V1 (IC781) : Regulator

1. Block diagram

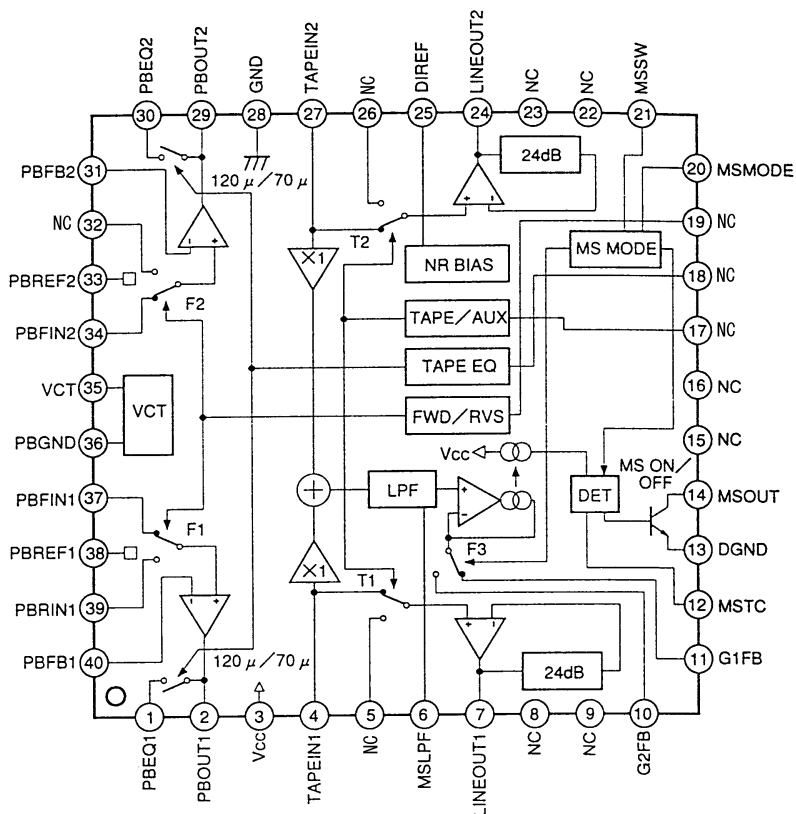


2. Pin functions

Pin No.	Symbol	I/O	Functions
1	NC	-	Not used
2	TUNER	O	Output selector of AM and ANT.
3	FM/AM	O	Output selector for AM or FM or both outputs is off.
4	POWER	O	Output selector of COM and AMP. Only VDD output is on at STAND BY.
5	5V	-	Output level is 5.6v. Output current is 100mA(min). It is voltage supply for micro computer. Whenever Vcc terminal is connected, output always keep running
6	REMOTE	-	Voltage which is about 1V lower than Vcc unit voltage. Output current is 500mA(min). Voltage supply for Remote Amp.
7	VP	O	To be continued to BACK UP and ACC of car.
8	NC	-	Not used
9	9V	-	Output level is 8.7V. Output current is 150mA(min). It can be used for system common power supply ; tone control, volume control, balance control, equalize amplifier.
10	NC	-	Not used
11	TUNER-9V	-	Output level is 8.7V. Output current is 250mA(min). Voltage supply for FM Radio Tuner.
12	GND	-	To GND

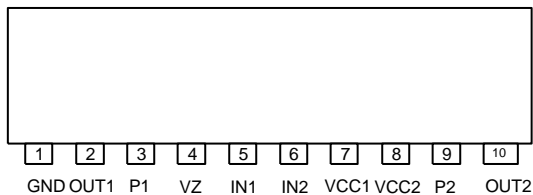
■ CXA2509AQ(IC901):Cassette mecha controler

1. Block diagram and pin configuration



■ LB1641 (IC501) : DC motor driver

1. Pin layout



2. Pin functions

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

<<MEMO>>



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