JVC

SERVICE MANUAL

AV SELECTOR

JX-S555 (J)

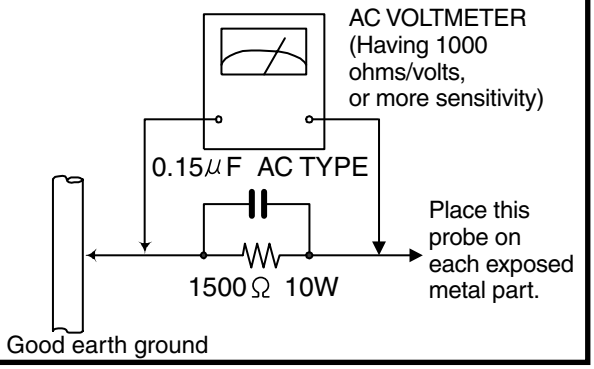
Contents

Design and specifications are subject to change without notice.

No.70251
Mar. 2001

Safety Precautions

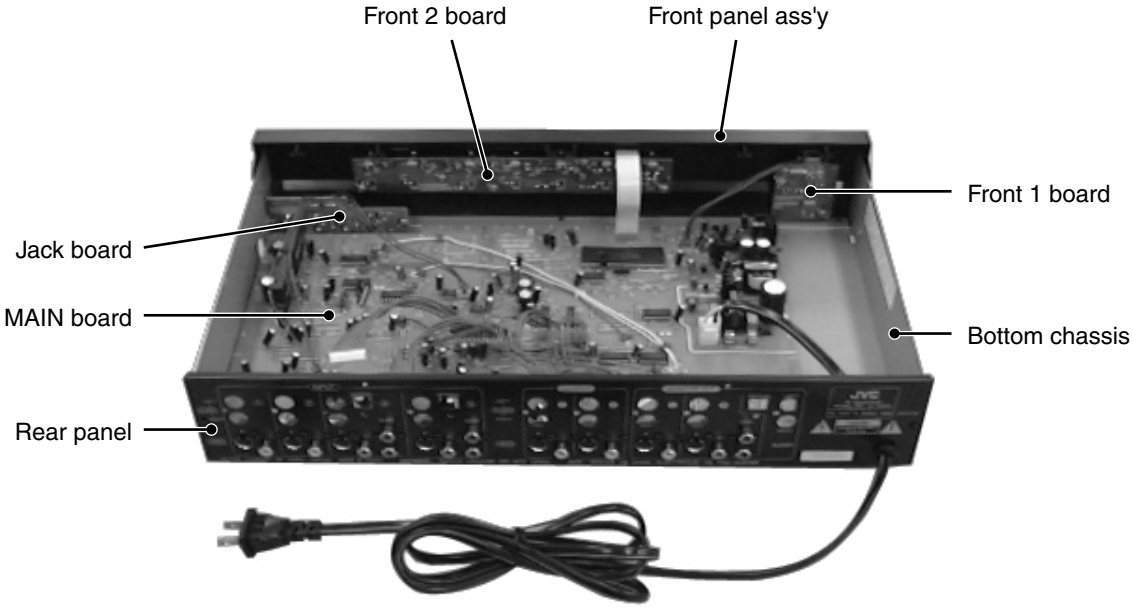
1. This design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Services should be performed by qualified personnel only.
2. Alterations of the design or circuitry of the product should not be made. Any design alterations of the product should not be made. Any design alterations or additions will void the manufacturer`s warranty and will further relieve the manufacture of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement parts shown in the Parts List of Service Manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.
5. Leakage currnet check (Electrical shock hazard testing)
   After re-assembling the product, always perform an isolation check on the exposed metal parts of the product (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.
   Do not use a line isolation transformer during this check.
   - Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal parts of the cabinet , particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5mA AC (r.m.s.)
   - Alternate check method
     Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having, 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1,500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground.
     Measure the AC voltage across the resistor with the AC voltmeter.
     Move the resistor connection to eachexposed metal part, particularly any exposed metal part having a return path to the chassis, and meausre the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. voltage measured Any must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



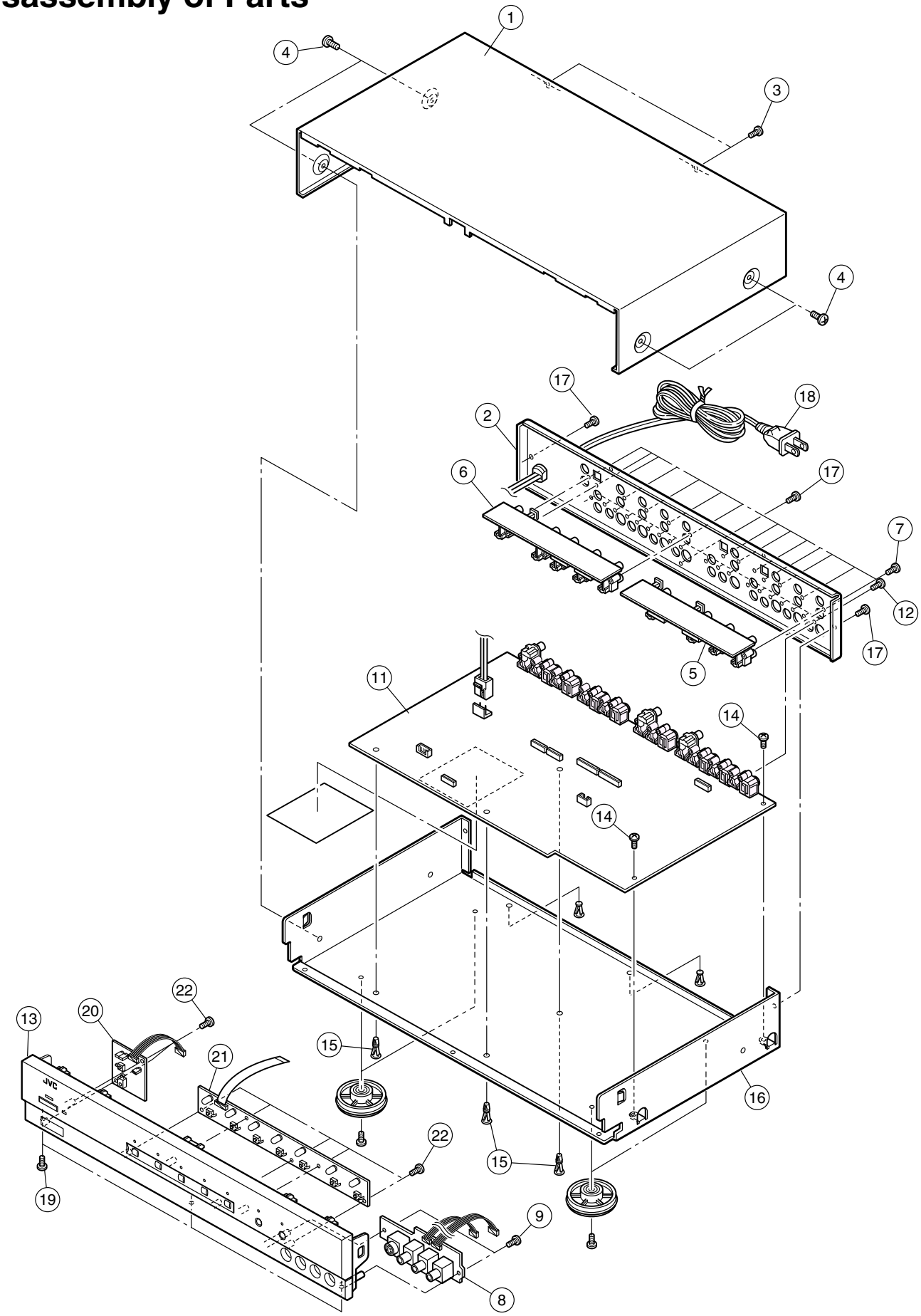
Warning

1. This equipment has been designed and manufactured to meet international safety standards.
2. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
3. Repairs must be made in accordance with the relevant safety standards.
4. It is essential that safety critical components are replaced by approved parts.
5. If mains voltage selector is provided, check setting for local voltage.

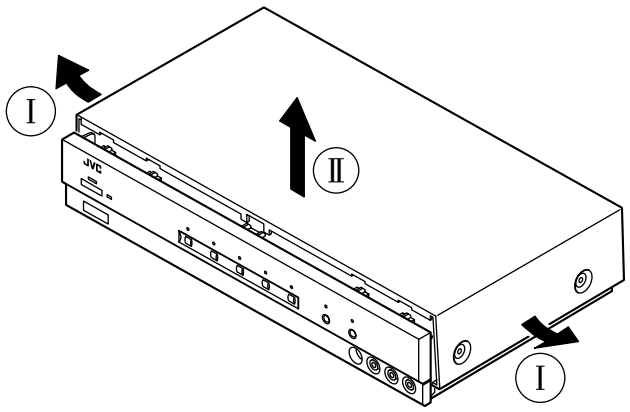
Main Parts Locations



Disassembly of Parts



Note : For the positions of the connectors, see the connection diagram (page 6).



■ Removing the top cover ①

1. Remove the two screws ③ retaining the top cover ① from the rear panel ② , then remove the four screws ④ retaining the top cover from the side panels.
2. Slightly open out the bottoms of the side skirts Ⓘ of the top cover ① as shown in the figure, then pull the top cover straight upward Ⓘ. Do not remove the top cover by pulling it up in an oblique direction.

■ Removing the Audio 1 Board ⑤ and Audio 2 Board ⑥

1. Remove the top cover ① .
2. From the rear panel ② , remove the six screws ⑦ retaining the Audio 1 board ⑤ and the six screws ⑦ retaining the Audio 2 board ⑥ .
3. Gently remove the Audio 1 board ⑤ and then unplug the connectors CN809 and CN810 from it.
4. Gently remove the Audio 2 board ⑥ and then unplug the connectors CN807 and CN808 from it.

■ Removing the Main Board ⑪

1. Remove the top cover ① , then the Audio 1 board ⑤ and finally the Audio 2 board ⑥ .
2. From the rear panel ② , remove the nineteen screws ⑫ retaining the Main board ⑪ .
3. Unplug the connectors CN1, CN3, CN804 and CN811 (and the wire from the Front Panel Assembly ⑬)on the Main board ⑪ .
4. Unplug the connector CN901 (in the power supply circuit) on the Main board ⑪ .
5. Remove the two clamping screws ⑭ on the Main board ⑪ .
6. Disengage the three claws of the locking card spacer ⑮ on the Main board ⑪ , then remove the Main board by lifting it in an oblique direction.

■ Removing the Rear Panel ②

1. Remove the top cover ① .
2. Unplug the connector CN901 (in the power supply circuit) on the Main board ⑪ .
3. Remove the twelve screws ⑦ retaining the Audio 1 board ⑤ and the Audio 2 board ⑥ , then remove the nineteen screws ⑫ retaining the Main board ⑪ .
4. Remove the three screws ⑰ retaining the bottom chassis ⑯ and the rear panel ② .
5. Gently remove the rear panel ② .
   (Take care of the AC power cord ⑱ connected to the rear panel ② .)

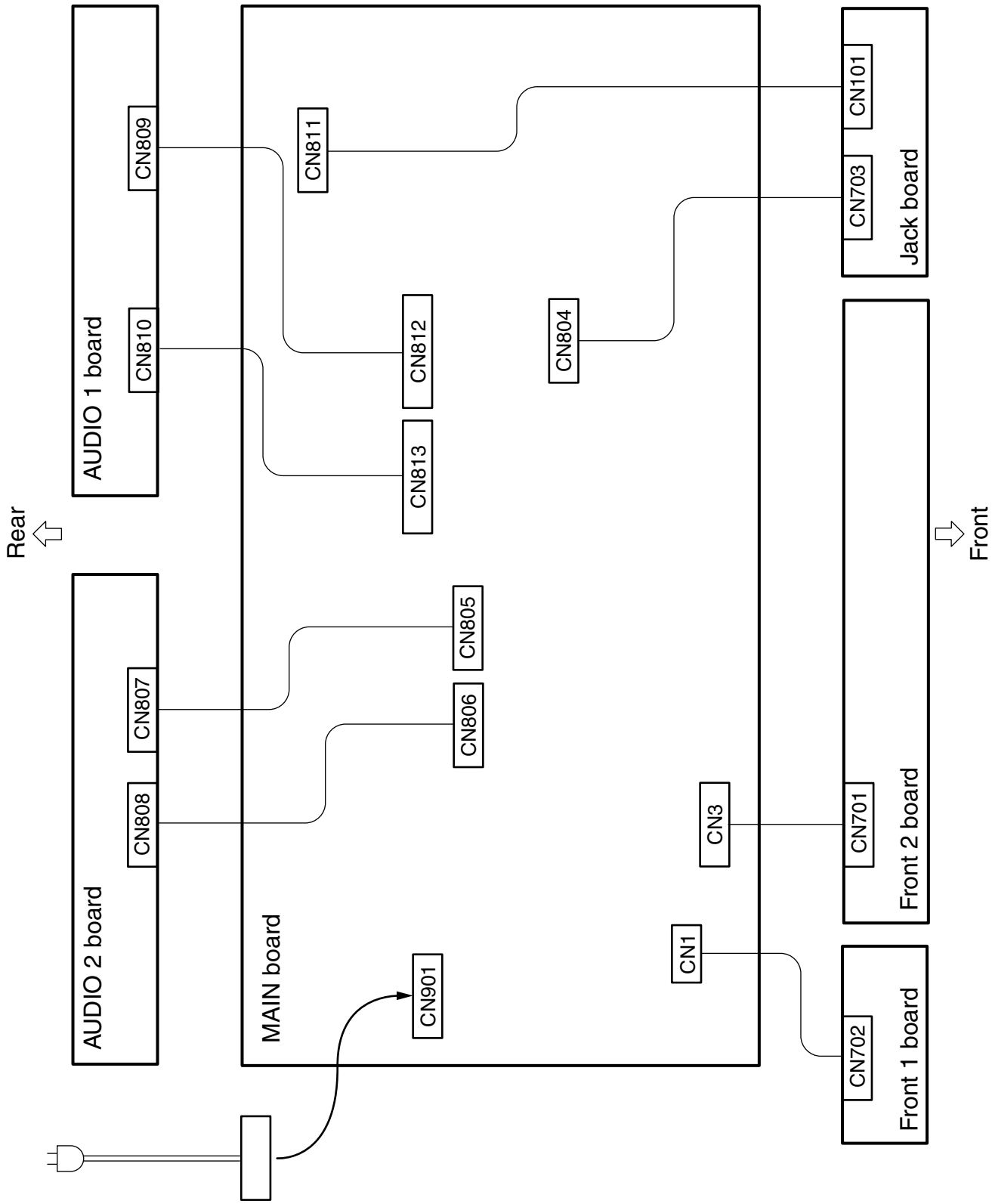
■ Removing the Front Panel Assembly ⑬

1. Remove the top cover ① .
2. Remove the three retaining screws ⑲ from the bottom of the Front Panel Assembly ⑬ .
3. Disengage the fittings between the side panels of the Front Panel Assembly ⑬ with the bottom chassis ⑯ , then gently pull out the Front Panel Assembly ⑬ from the bottom chassis ⑯ toward the front.
4. Unplug the connectors CN1, CN3, CN804 and CN811 from the Main board ⑪ .
5. Remove the Front Panel Assembly ⑬ .

■ Removing the Front 1 Board ⑳ , Front 2 Board ㉑ and Jack Board ⑧

1. Remove the top cover ① and the Front Panel Assembly ⑬ .
2. Remove the two screws ㉒ retaining the Front 1 board ⑳ , five screws ㉒ retaining the Front 2 board ㉑ and the two screws ⑨ retaining the Jack board ⑧ .
3. Remove the Front 1 board ⑳ , the Front 2 board ㉑ and the Jack board ⑧ .

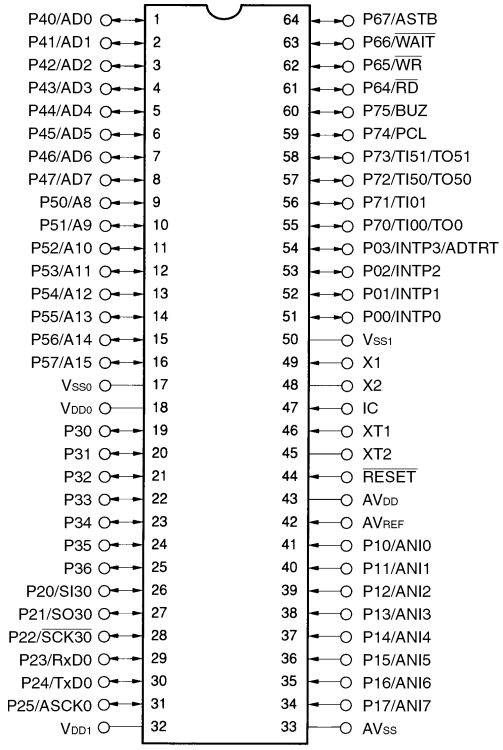
Connection Diagram



Circuit Description

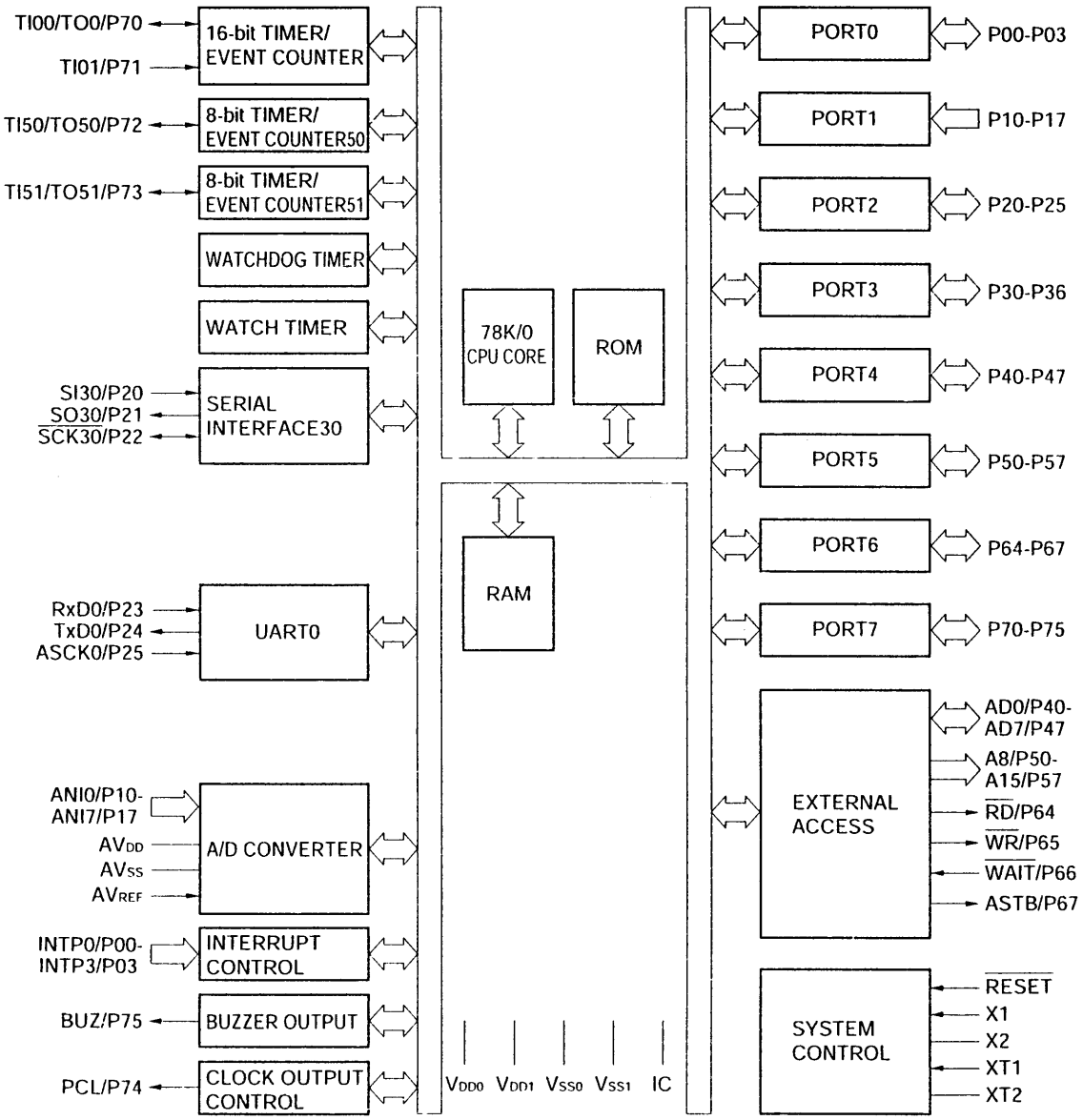
1. IC2 (µPD780021ACWW01)

The µPD780021ACWW01 is a 64-pin, 8-bit single-chip microcomputer with an 8K-byte ROM and 512-byte RAM.



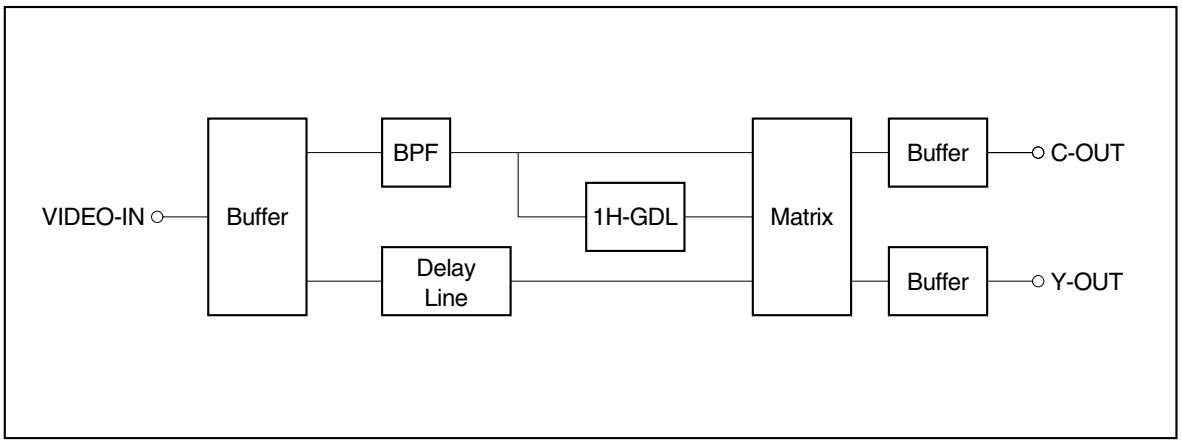
Pin Name	Pin No.	I/O	Function
P40/AD0	1	I/O	Key scan inputs.
P41/AD1	2	I/O	
P42/AD2	3	I/O	
P43/AD3	4	I/O	Key scan outputs.
P44/AD4	5	I/O	
P45/AD5	6	I/O	
P46/AD6	7	I/O	Scan signal outputs for LED lighting.
P47/AD7	8	I/O	
P50/A8	9	I/O	Dubbing lock ON/OFF. H = ON. L = OFF.
P51/A9	10	I/O	Scan signal outputs for LED lighting.
P52/A10	11	I/O	
P53/A11	12	I/O	
P54/A12	13	I/O	CH1 INHIBIT ON/OFF. H = ON. L = OFF.
P55/A13	14	I/O	Not used.
P56/A14	15	I/O	Not used.
P57/A15	16	I/O	Not used.
V_{SS0}	17	—	Port grounding potential.
V_{DD0}	18	I	Port positive potential.
P30	19	I/O	CH2 INHIBIT ON/OFF. H = ON. L = OFF.
P31	20	I/O	CH3 INHIBIT ON/OFF. H = ON. L = OFF.

Pin Name	Pin No.	I/O	Function
P32	21	I/O	I^2C path Data signal.
P33	22	I/O	I^2C path Clock signal
P34	23	I/O	Not used.
P35	24	I/O	Not used.
P36	25	I/O	Not used.
P20/SI30	26	I/O	Not used.
P21/SO30	27	I/O	Not used.
P22/$\overline{SCK30}$	28	I/O	Not used.
P23/RxD0	29	I/O	Not used.
P24/TxD0	30	I/O	Not used.
P25/ASCK0	31	I/O	Not used.
V_{DD1}	32	I	Positive potential (except for the port).
AVss	33	—	AD converter grounding potential.
P17/AN17	34	I	Not used.
P16/AN16	35	I	Not used.
P15/AN15	36	I	Not used.
P14/AN14	37	I	Not used.
P13/AN13	38	I	Not used.
P12/AN12	39	I	Not used.
P11/AN11	40	I	CH5 S1/S2 signal input.
P10/AN10	41	I	Not used.
AV_{REF}	42	I	A/D converter reference voltage input.
AV_{DD}	43	I	Analog power supply for A/D converter
$\overline{RESET}$	44	I	System reset input.
XT2	45	—	Sub-system clock oscillation.
XT1	46	I	
IC	47	—	Internally connected. To be connected to VSS0 or VSS1.
X2	48	—	X'tal oscillator connection terminals for Main system clock oscillation.
X1	49	I	
V_{SS1}	50	I	Grounding potential (except for the port).
P00/INTP0	51	I/O	CH3 D4 plug insertion detection.
P01/INTP1	52	I/O	CH4 D4 plug insertion detection.
P02/INTP2	53	I/O	CH5 D4 plug insertion detection.
P03/INTP3/ADTRT	54	I/O	Not used.
P70/T100/TO0	55	I/O	Remote control light signal input.
P71/TI01	56	I/O	Component video switching signal output.
P72/TI50/TO50	57	I/O	Component video switching signal output.
P73/TI51/TO51	58	I/O	Main unit ON/OFF. H = OFF. L = ON.
P74/PCL	59	I/O	S1/S2 signal inputs.
P75/BUZ	60	I/O	
P64/$\overline{RD}$	61	I/O	Component video switching signal output.
P65/$\overline{WR}$	62	I/O	CH5 monitor signal output.
P66/$\overline{WAIT}$	63	I/O	Main unit ON/OFF. H = OFF. L = ON.
P67/ASTB	64	I/O	Power switch detection.



2. M101, M102 (J46729-002)

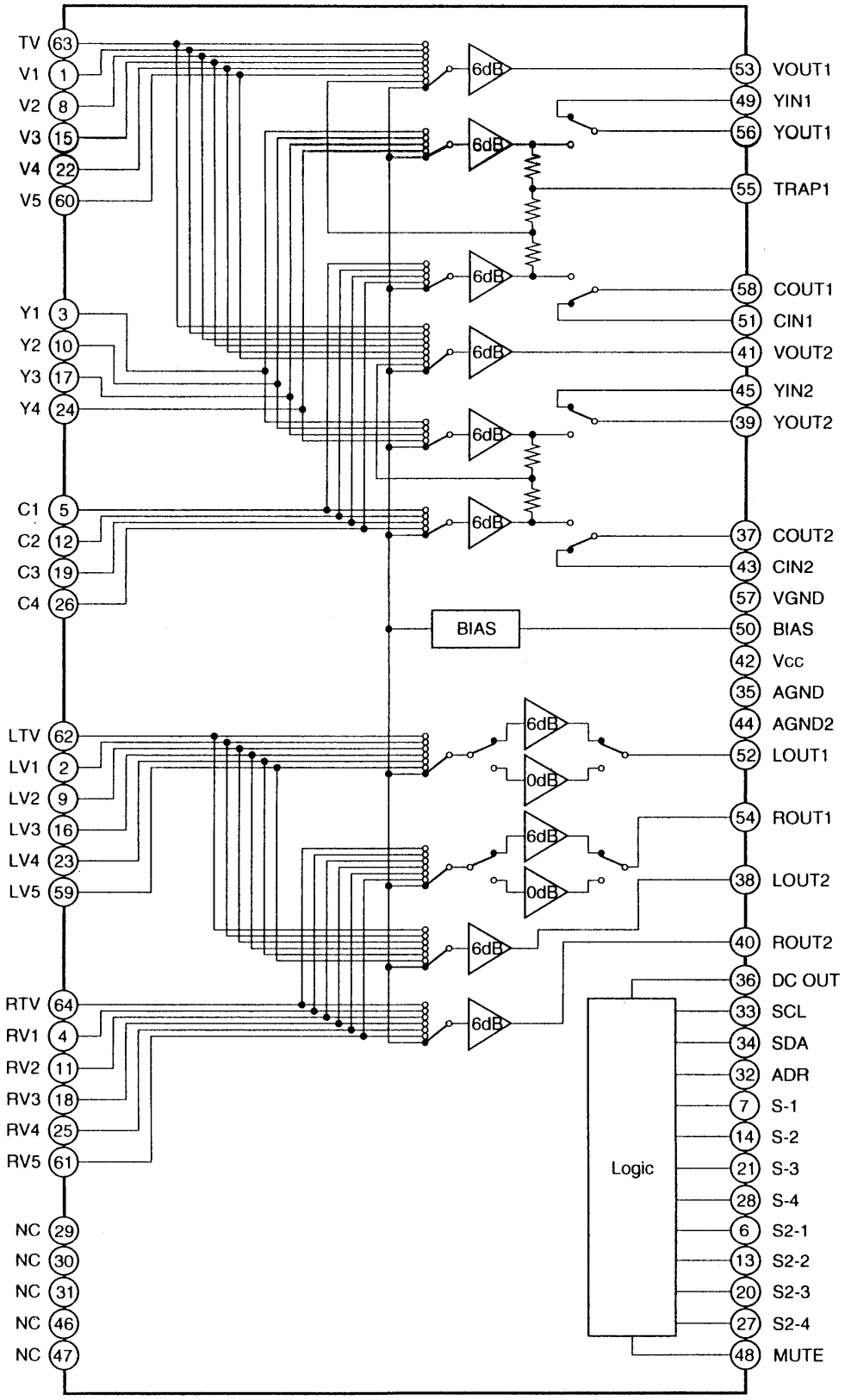
• Comb filter module



3. IC101 (CXA2079Q)

The CXA2079Q is an AV switcher IC with 5 video inputs, 2 video outputs, 5 stereo audio inputs and 2 stereo audio outputs, featuring the I²C bus compatibility for TV. Among the 5 video inputs, 4 inputs are compatible with the S2 and S-Video standards.

The outputs (each audio output uses a pair of lines for the L and R channels) can be selected independently by the control through the I²C bus. However, the second video and audio outputs are always based on the same video and audio input system.



Adjustments

■ Instruments required for adjustments

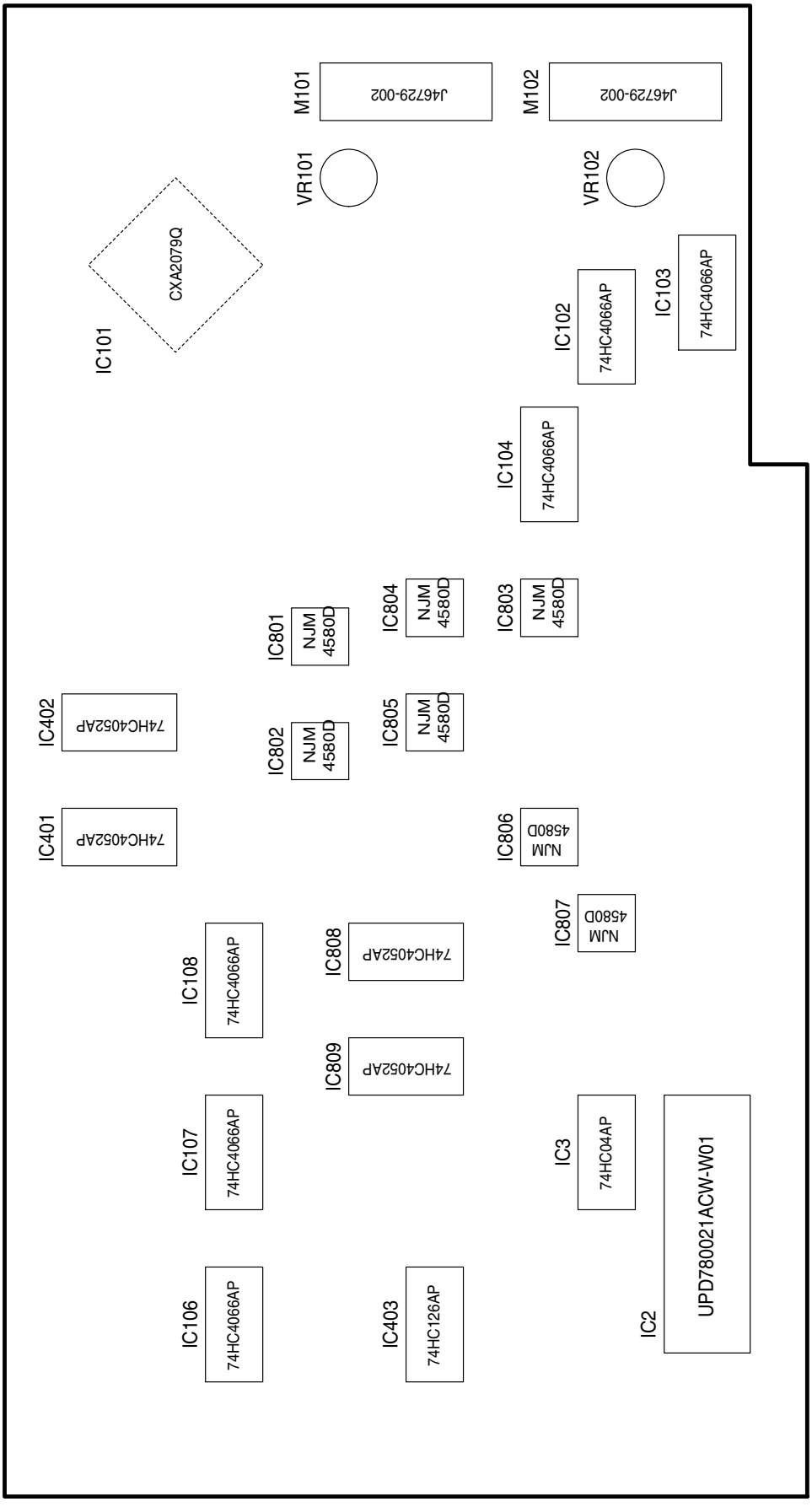
1. Oscilloscope
2. TV signal generator (NTSC)

	Test Point	Adjustment Point	Name	Condition	Condition
1	2CH C output	VR101	C output level	Apply color bar signal to 1CH video input (V).	Adjust VR101 so that the C output level at 2CH is 0.642 ± 0.02 Vp-p.
2	MONITOR OUT C output	VR102	C output level	Apply color bar signal to 1CH video input (V).	Adjust VR102 so that the C output level at MONITOR OUT is 0.642 ± 0.02 Vp-p.

■ Connection

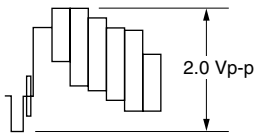
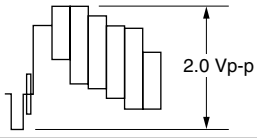
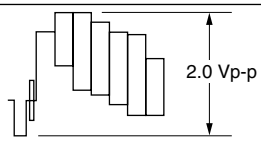
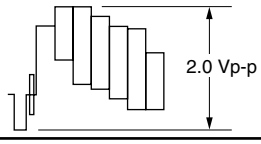
Position of ICs and Adjustment Points

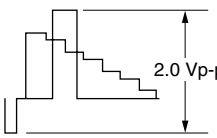
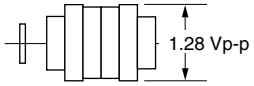
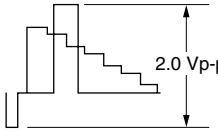
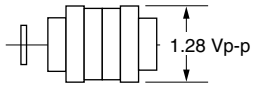
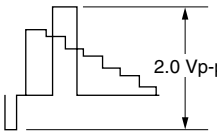
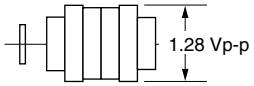
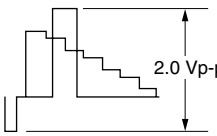
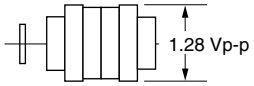
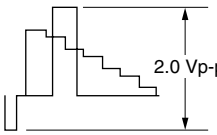
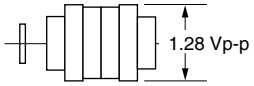
■ MAIN board

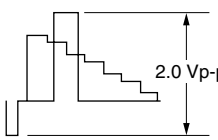
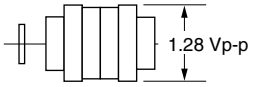
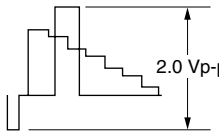
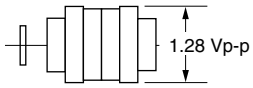
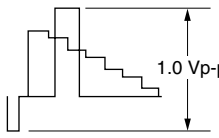
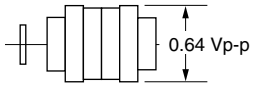
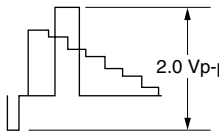
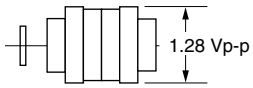
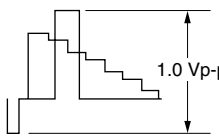
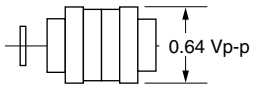


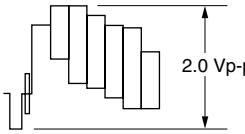
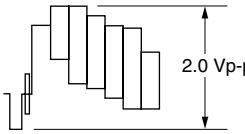
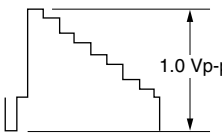
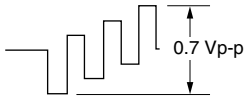
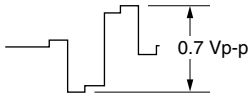
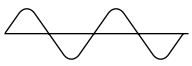
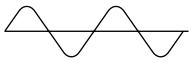
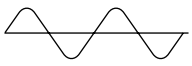
Servicing Guidelines

1. Reference input signals
   Video signals
   V → Full-field color bar (white 100%), 1.0 Vp-p
   Y → 1.0 Vp-p (with sync)
   C → Burst level 0.286 Vp-p, chroma only
   Audio signal
   1 kHz, -10 dBV sine wave
2. YES → Normal
   NO → The normal voltage and waveform are not output.

Symptom	Check Points		Normal Voltage/Waveform	Check Results and Failures
1. Power cannot be turned ON.	①	C903: Across +/- leads	Approx. 164 V DC	NO → Check power cord and C901. If the fuse is blown, check Q901, T901, D901 and their surroundings. YES → Go to check ② .
	②	D906: Cathode D907: Anode	+9.5 V DC –9.8 V DC	NO → NO R Check voltage at IC902 and surroundings.PC901 and IC902 may be defective. YES → Go to check ③ .
	③	Q904: Emitter, Q905: Emitter, Q906: Emitter, IC904: Pin 2	–6 V DC +6 V DC +5 V DC +9 V DC	NO → IC901, IC903, IC904 or Q904 to Q906 defective. YES → Check CN1,. CN3 and wires.
2. Display LED lighting failure.	④	CN3: Pins 3 to 7	0 or +5 V DC	NO → IC2 defective. YES → Q701 to Q706 or wire is defective.
3. Switch operation failure.	⑤	CN3: Pins 8 to 14	0 or +5 V DC	NO → IC2 defective. YES → CN701, tack switch or wire defective.
4. S/V switching failure	⑥	IC101: Pins 7, 14, 21 and 28	0 V when S-Video plug is inserted. +5 V when S-Video plug is not inserted.	NO → PJ107 to PJ110 defective. YES → Check IC101 and the surroundings.
5. Remote control malfunction	⑦	IC2: Pin 55	+ 5 V DC at remote control code (See TM.)	NO → IC701, CN1, CN702 or wire defective. YES → IC2 defective.
6. The composite video inputs at CH1 and CH2 are not displayed.	⑧	Q129: Emitter		NO → Go to check ⑨ . YES → Check IC106, output buffer and their surroundings.
	⑨	Q107: emitter		NO → Check IC101 and surroundings. YES → Check IC103 and their surroundings.
7. The composite video inputs at CH1 and CH2 are not output at the Monitor output.	⑩	Q135: Emitter		NO → Go to check ⑪ . YES → Check Q152, Q161, Q170 and their surroundings.
	⑪	Q115: Emitter		NO → Check IC101 and surroundings. YES → Check IC103 and their surroundings.

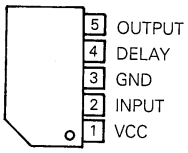
Symptom	Check Points		Normal Voltage/Waveform	Check Results and Failures
8. The S-Video inputs at CH1 to CH4 are not displayed.	⑫	(Y) Q131: Emitter (C) Q133: Emitter	(Y)  (C)  	NO → Go to check ⑬ . YES→ Check IC107, IC108, output buffer and their surroundings.
	⑬	(Y) Q108: Emitter (C) Q109: Emitter	(Y)  (C)  	NO → Check IC101 and surroundings. YES→ Check IC102, IC104 and their surroundings.
9. The S-Video inputs at CH1 to CH4 are not output at the Monitor output.	⑭	(Y) Q137: Emitter (C) Q139: Emitter	(Y)  (C)  	NO → Go to check ⑮ . YES → Check output buffer and surroundings.
	⑮	(Y) Q110: Emitter (C) Q111: Emitter	(Y)  (C)  	NO → Check IC101 and surroundings. YES→ Check IC102, IC104 and their surroundings.
10. The S-Video input at CH5 is not displayed.	⑯	(Y) Q104: Emitter (C) Q102: Emitter	(Y)  (C)  	NO → Check Q101 to Q104, Q119, Q120 and their surroundings. YES→ Go to check ⑫ .

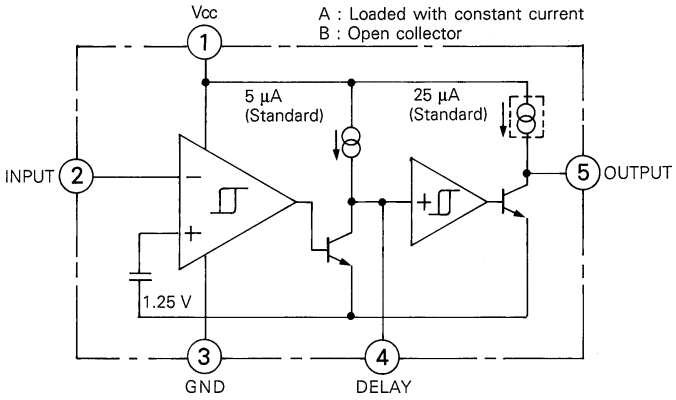
Symptom	Check Points		Normal Voltage/Waveform	Check Results and Failures
11. The S-Video input at CH5 is not output at the Monitor output.	⑰	(Y) Q104: Emitter (C) Q102: Emitter	(Y)  (C) 	NO → Check Q101 to Q104, Q119, Q120 and their surroundings. YES → Go to check ⑭ .
12. Malfunction in Y/C separation.	⑱	(Y) Q114: Emitter (C) Q113: Emitter	(Y)  (C) 	NO → Go to check ⑲ . YES → Check IC101 and surroundings.
	⑲	(Y) M101: Pin 5 (C) M101: Pin 3	(Y)  (C) 	NO → M101 defective. YES → Check Q112 to Q114, Q173, Q174 and their surroundings.
13. Malfunction in Y/C separation for monitor output.	⑳	(Y) Q118: Emitter (C) Q117: Emitter	(Y)  (C) 	NO → Go to check ㉑ . YES → Check IC101 and surroundings.
	㉑	(Y) M102: Pin 5 (C) M102: Pin 3	(Y)  (C) 	NO → M101 defective. YES → Check Q116, Q117, Q175, Q176 and their surroundings.

Symptom	Check Points	Normal Voltage/Waveform	Check Results and Failures
14. Malfunction in Y/C mixing of CH1 to CH4 inputs.	㉒ Q107: Emitter (Monitor output: Q115 emitter)		NO → Check IC101 and surroundings. YES → Check IC103 and their surroundings.
15. Malfunction in Y/C mixing of CH5 input.	㉓ Q122: Emitter		NO → Check Q105, Q106, Q121, Q122 and their surroundings. YES → Check IC103 and their surroundings.
16. Component video signal is not output.	㉔ (Y) Q401: Emitter (Pb) Q402: Emitter (Pr) Q403: Emitter	(Y)  (Cb)  (Cr) 	NO → Check IC401, IC402 and their surroundings. YES → Check 6 dB amp (Q404 to Q409, Q413 to Q415), output buffer and their surroundings.
17. Audio signals are not output.	㉕ (L) IC806: Pins 6 & 7 (R) IC806: Pins 1 & 2		NO → Go to check ㉖ . YES → Check IC808, IC809 and their surroundings.
	㉖ (L) IC801 to IC805: Pins 7 (R) IC801 to IC805: Pins 1		NO → Check IC801 to IC805 and their surroundings. YES → Check IC101 and surroundings.
18. Audio signals are not output at the Monitor.	㉗ (L) IC807 pins 6 & 7 (R) IC807 pins 1 & 2		NO → Check IC807 and surroundings. YES → Check CN806 and wire.

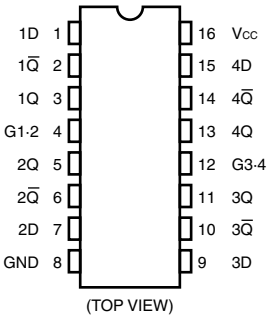
Block View Inside IC

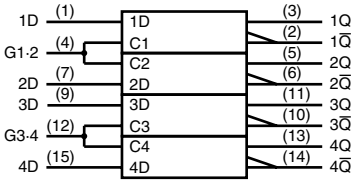
■ IC1 M51957AL [MITSUBISHI]





■ IC4 HD74HC375FP [HITACHI]



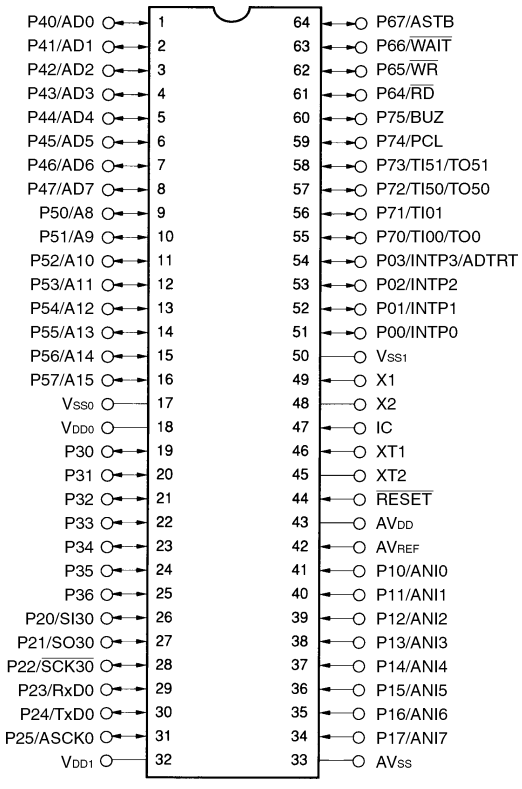


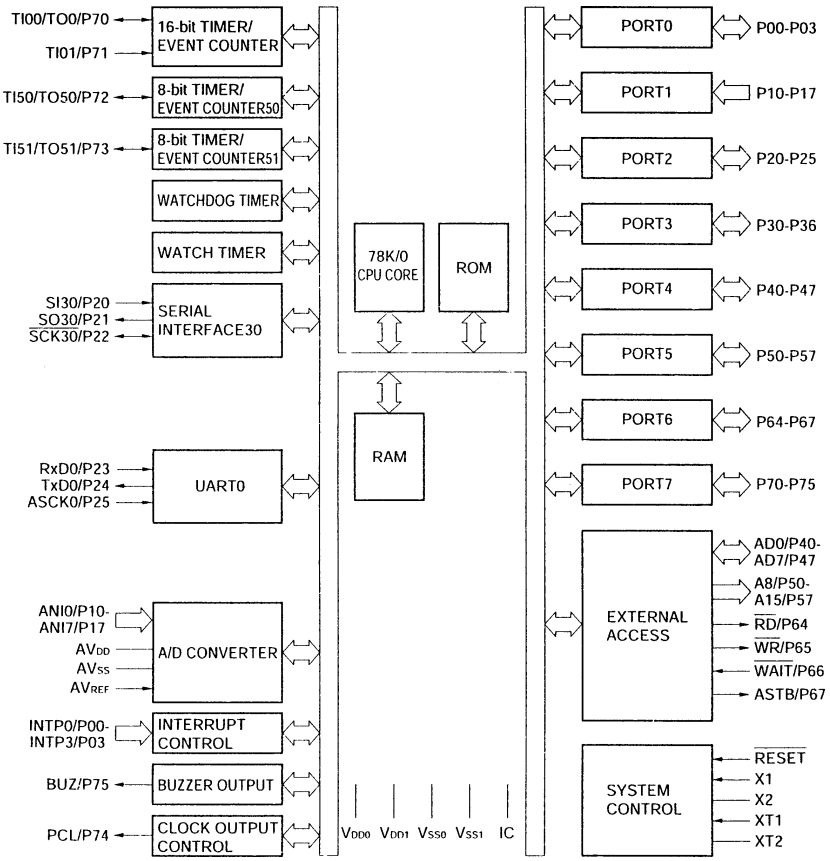
TRUE TABLE

INPUTS		OUTPUTS		FUNCTION
D	G	Q	$\overline{Q}$	
L	H	L	H	—
H	H	H	H	—
X	L	Qn	$\overline{Q}$n	LATCH

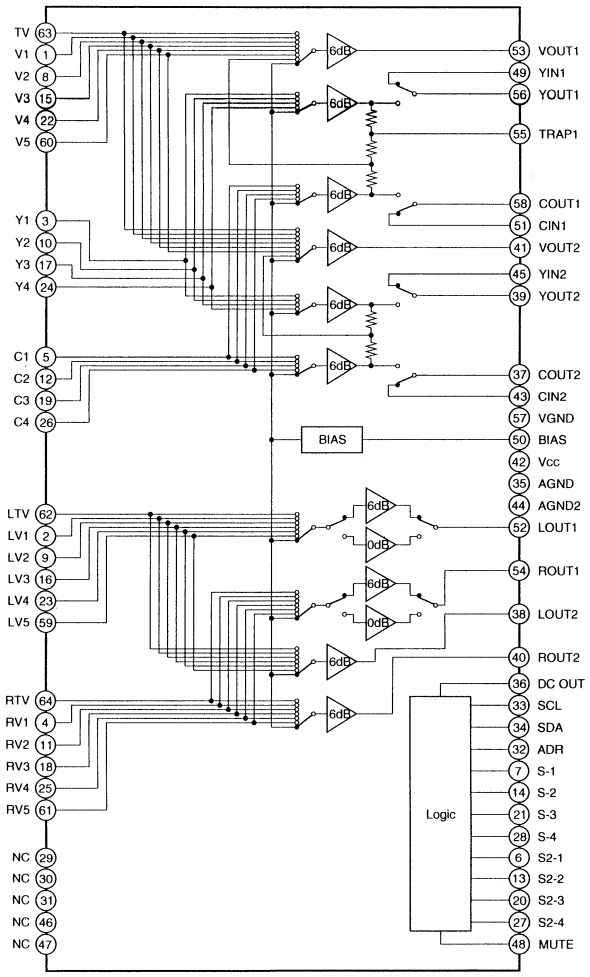
X: Don't care

■ IC2 uPD780021ACWW01

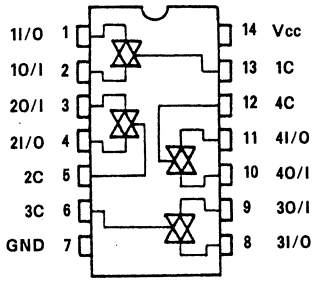




■ IC101 CXA2079Q



■ IC102-108 TC74HC4066AP [TOSHIBA]

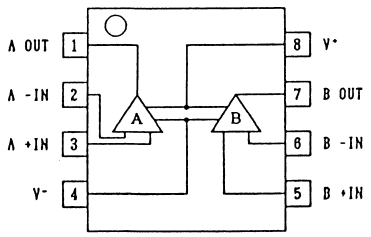


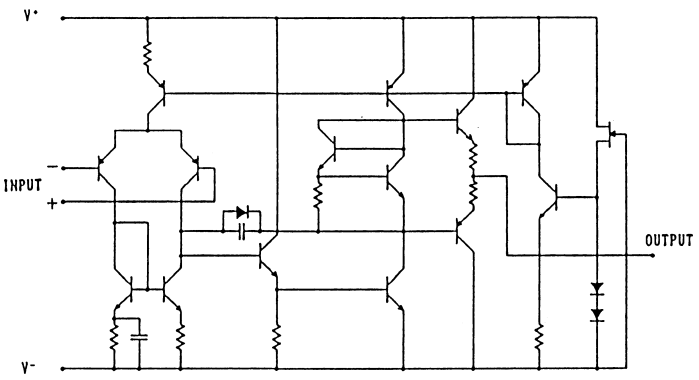
(TOP VIEW)

TRUE Table

CONTROL	SWITCH FUNCTION
H	ON
L	OFF

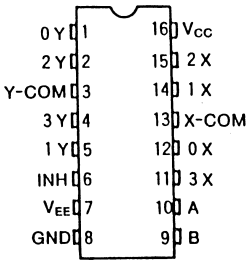
■ IC801-807 NJM4580D [JRC]





■ IC401-402, 808-809 TC74HC4052AP [TOSHIBA]

TC74HC4052A



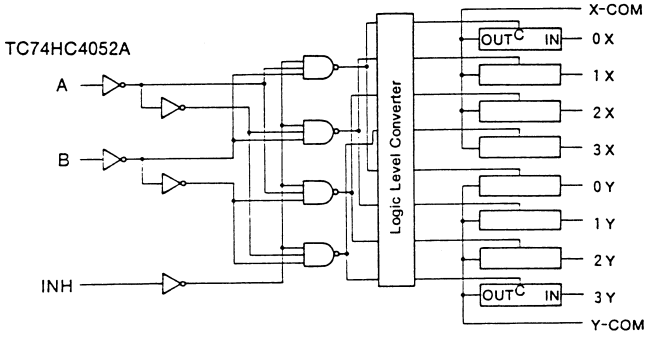
(TOP VIEW)

TRUE Table

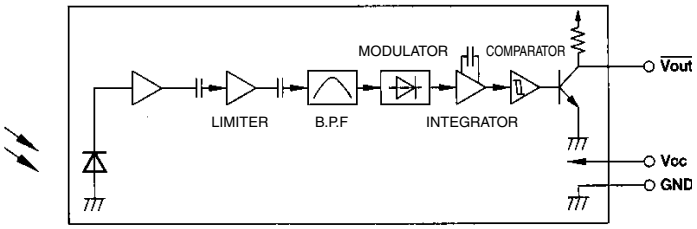
CONTROL INPUTS			"ON" CHANNEL
INHIBIT	B	A	HC4052A
L	L	L	0X, 0Y
L	L	H	1X, 1Y
L	H	L	2X, 2Y
L	H	H	3X, 3Y
H	X	X	NONE

X : DON'T CARE

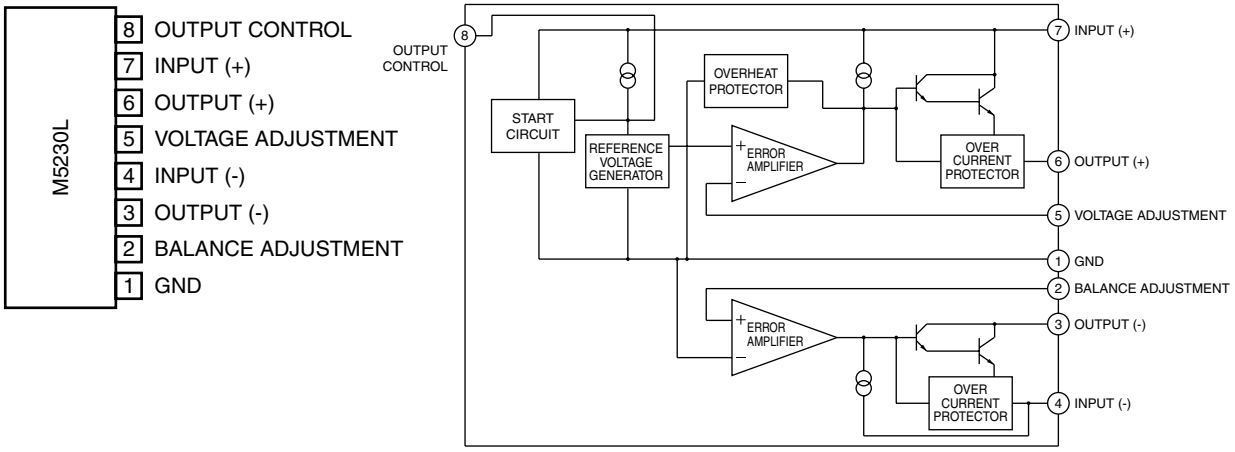
TC74HC4052A



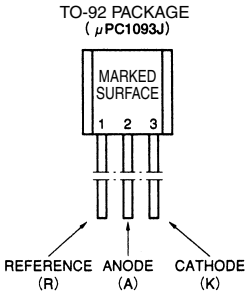
■ IC701 GP1U261R [SHARP]

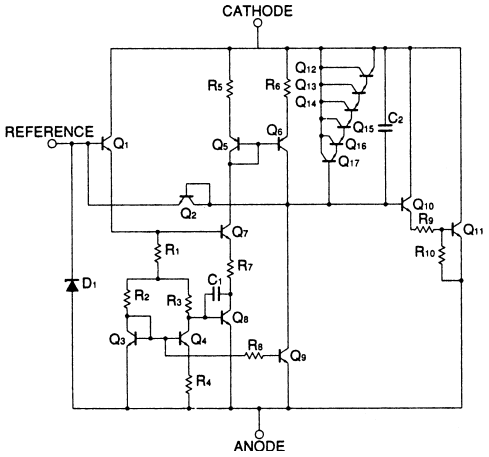


■ IC901 M5230L [MITSUBISHI]

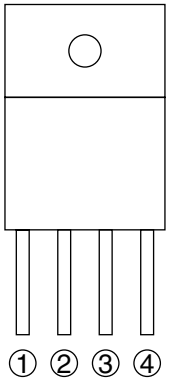


■ IC902-903 uPC1093J [NEC]

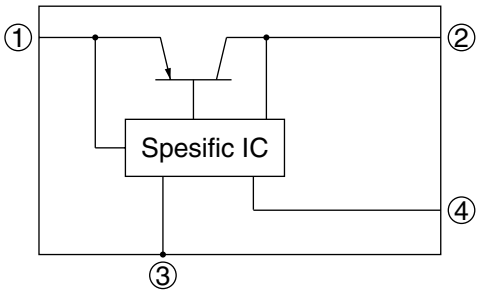




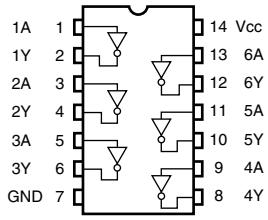
■ IC904 PQ09RD08 [SHARP]



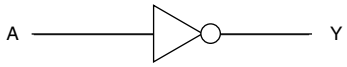
① DC input (Vin)
② DC output (Vout)
③ GND
④ ON/OFF control terminal (Vc)



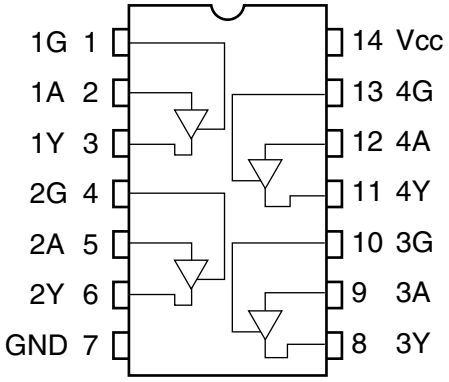
■ IC3 TC74HC04AP [TOSHIBA]



(TOP VIEW)

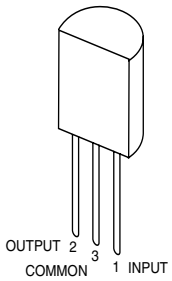


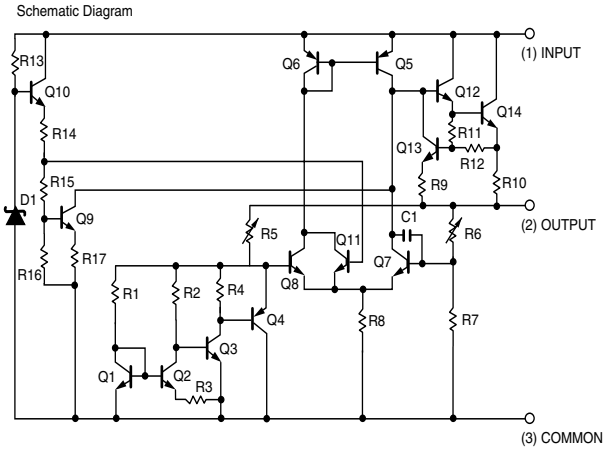
■ IC403 TC74HC126AP [TOSHIBA]



(TOP VIEW)

■ IC404 TA78L005AP [TOSHIBA]





TA78L005AP → 5V
TA78L012AP → 12V

INPUTS		OUTPUTS
G	A	Y
L	X	Z
H	L	L
H	H	H

X : Don't Care
Z : High Impedance

JVC

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