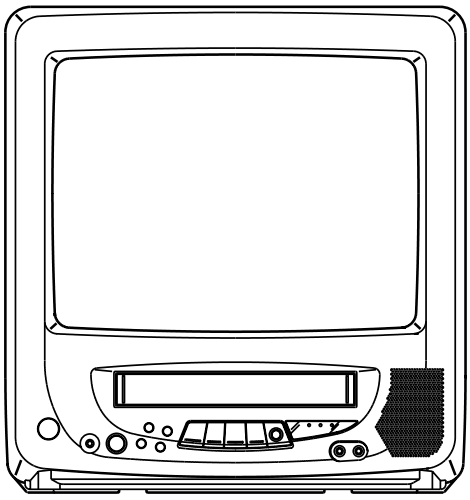
Memorex®

MVT2135B SERIES D

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER



VHS

ORIGINAL
MFR'S VERSION A

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1].**
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in youCr SERVICE MANUAL.

CONTENTS

SERVICING NOTICES ON CHECKING A1-1
HOW TO ORDER PARTS A1-1
CONTENTS A2-1
GENERAL SPECIFICATIONS ..... A3-1~A3-4
DISASSEMBLY INSTRUCTIONS
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS B1-1
2. REMOVAL OF DECK PARTS ..... B2-1~B2-5
3. REMOVAL OF ANODE CAP B3-1
4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC B4-1, B4-2
KEY TO ABBREVIATIONS C1-1, C1-2
SERVICE MODE LIST C2-1
PREVENTIVE CHECKS AND SERVICE INTERVALS C3-1, C3-2
WHEN REPLACING EEPROM (MEMORY) IC C4-1
SERVICING FIXTURES AND TOOLS C5-1
PREPARATION FOR SERVICING C5-1
MECHANICAL ADJUSTMENTS ..... D1-1~D1-4
ELECTRICAL ADJUSTMENTS ..... D2-1~D2-5
BLOCK DIAGRAMS
TV E-1, E-2
Y/C/AUDIO/CCD/HEAD AMP/IN/OUT E-3, E-4
MICON/OPERATION E-5, E-6
PRINTED CIRCUIT BOARDS
OPERATION F-1, F-2
SYSCON/CRT ..... F-3~F-6
SCHEMATIC DIAGRAMS
Y/C/AUDIO/CCD/HEAD AMP G-1, G-2
MICON G-3, G-4
IN/OUT G-5, G-6
CHROMA/IF G-7, G-8
SOUND AMP G-9, G-10
POWER G-11, G-12
DEFLECTION G-13, G-14
CRT G-15, G-16
OPERATION G-17, G-18
INTERCONNECTION DIAGRAM G-19, G-20
WAVEFORMS H-1, H-2
MECHANICAL EXPLODED VIEWS I-1, I-2
CHASSIS EXPLODED VIEWS I-3, I-4
MECHANICAL REPLACEMENT PARTS LIST J1-1
CHASSIS REPLACEMENT PARTS LIST J2-1
ELECTRICAL REPLACEMENT PARTS LIST J3-1, J3-2

GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size		13 inch / 335.4 mmV
			CRT Type		Normal
			Deflection		90 degree
			Magnetic Field BV/BH		+0.45G / +0.18G
		Color System			NTSC
		Speaker			1Speaker
			Position		Front
			Size		1.5 x 2.5 Inch
			Impedance		8 ohm
		Sound Output	MAX		1.5 W
			10%(Typical)		1.0 W
G-2	VCR System	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			No
		NTSC PB			-
		Deck	DECK		OVD-7
			Loading System		Front
			Motor		3
		Heads	Video Head		2Head
			FM Audio Head		No
			Audio /Control		Mono /Yes
			Erase(Full Track Erase)		Yes
		Tape Speed	Rec PAL		-
			Rec NTSC		SP/SLP
			Play PAL		-
			Play NTSC		SP/LP/SLP
		Fast Forward / Rewind Time (Approx.)			FF:4'50"/REW:2'30"
				with Cassette	T-120
		Forward/Reverse Picture Search	NTSC or PAL-M		SP/LP/SLP=3x,5x/7x,9x/9x,15x
		Frame Advance			-
		Slow Speed			-
G-3	Tuning System	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		US(w/CATV)
			Tuning System		F-Synth
			Input Impedance		VHF/UHF 75 ohm
			CH Coverage		2~69, 4A,A-5~A-1, A~I, J~W,W+1~W+84
		Intermediate Frequency	Picture(FP)		45.75 MHz
			Sound(FS)		41.25 MHz
			FP-FS		4.5 MHz
		Preset CH			No
		Stereo/Dual TV Sound			No
		Tuner Sound Muting			Yes
G-4	Signal	Video Signal	Input Level		1 V p-p/75 ohm
			Output Level		-
			S/N Ratio (Weighted)		50dB
			Horizontal Resolution at SP Mode		220Lines
		Audio Signal	Input Level		-8dBm/50Kohm
			Output Level		-
			S/N Ratio at SP (Weighted)		38dB
			Harmonic Distortion at SP (1KHz)	Typical	1.5 %
			Frequency Response	at SP	100Hz - 10kHz
				at LP	100Hz - 6kHz
				at SLP	100Hz - 4kHz
		Hi-Fi Audio Signal	Dynamic Range : More than		- dB
			Wow And Flutter : Less than		- %Wrms
			Channel Separation : More than		- dB
			Harmonic Distortion : Less than		- %
G-5	Power	Power Source	AC		120V,60Hz
			DC		-
		Power Consumption		at AC	65 W at 120V 60Hz
				at DC	-
			Stand by (at AC)		5 W at 120V 60Hz
			Per Year		-
		Protector	Power Fuse		Yes
			Dew Sensor		No
G-6	Regulation		Safety		UL
			Radiation		FCC
			X-Radiation		DHHS
G-7	Temperature		Operation		+5°C ~ +40°C
			Storage		-20°C ~ +60°C
G-8	Operating Humidity				Less then 80% RH
G-9	On Screen	Menu			Yes

GENERAL SPECIFICATIONS

	Display	Menu	Type	Charactor		
		Timer Rec Set		Yes		
		Channel Setup		Yes		
			TV/CATV	Yes		
			Auto CH Memory	Yes		
			Add/ Delete	Yes		
			Guide CH Set		No	
		TV Setup		Yes		
			V-chip Set	Yes		
			On/Off Timer Set	Yes		
			Picture	Yes		
			Audio		No	
			Sap On/Off		No	
		Auto Repeat On/Off		Yes		
		System Setup		Yes		
			Clock Set	Yes		
			Language	Yes		
			Auto Clock On/Off	Yes		
			Standard Time	Yes		
			Daylight Saving Time	Yes		
		Commercial Advance			No	
			Marking On/Off		No	
			Blueback On/Off		No	
			Playback Auto/Manual		No	
			Unmarked Tape		No	
		Movie Advance			No	
			Go To Movie		No	
			Go To Preview		No	
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry			No	
		Clock / Date		Yes		
		CH/AV		Yes		
		Tape Counter(Linear Counter)		Yes		
		Tape Speed		Yes		
		Sleep Time		Yes		
		Stereo/Audio Output			No	
			Bilingal		No	
			SAP		No	
		Control Level	Volume	Yes		
			Bright / Contrast / Sharpness / Color	Yes		
			Tint	Yes		
			Bass/Treble/Balance		No	
			Manual Tracking	Yes		
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)		Yes		
		Auto Tracking/Manual Tracking		Yes		
		Caption / Text		Yes		
		Index			No	
		Muting		Yes		
		Hi-Fi			No	
		Repeat		Yes		
		Zero Return			No	
		DEW			No	
G-10	**OSD Language**			English French Spanish		
			OSD Language Setting	English		
G-11	**Clock,Timer and Timer Back-up**	Calendar		1990/1/1 ~ 2081/12/31		
		Timer Events		8 Program/ 1 Month		
		One Touch Recording Max Time		5 Hours		
		OTPB Valid Time			No	
		Sleep Timer	Max Time	120	Min	
			Step	10	Min	
		On/Off Timer	Program(On Timer / Off Timer)	1	Program	
		Auto Shut Off	No Signal	15	Min	
			No Operation	-		
		Timer Back-up (at Power Off Mode)		5	Sec	
G-12	**Remote Control**	Unit		RC-CG		
		Glow in Dark Remocon		Yes		
		Power Source	Voltage(D.C)	3V		
			UM size x pcs	UM-4 x 2 pcs		
		Total Keys		41	Keys	
		Keys	Power	Yes		
			1	Yes		
			2	Yes		
			3	Yes		
			4	Yes		
			5	Yes		
			6	Yes		
			7	Yes		
			8	Yes		

GENERAL SPECIFICATIONS

		9	Yes	
		0	Yes	
		CH Up	Yes	
		CH Down	Yes	
		Volume Up	Yes	
		Volume Down	Yes	
		Input Select	Yes	
		Play	Yes	
		F.Fwd	Yes	
		Rew	Yes	
		Pause/Still	Yes	
		Stop	Yes	
		Rec/OTR	Yes	
		Eject	Yes	
		Counter Reset	Yes	
		Speed	Yes	
		Timer Rec	Yes	
		TV Monitor	Yes	
		Quick View	Yes	
		Program	Yes	
		Slow		No
		Auto Tracking	Yes	
		Set/Tracking+	Yes	
		Set/Tracking -	Yes	
		Menu	Yes	
		Enter	Yes	
		Cancel	Yes	
		Call	Yes	
		TV/Caption/Text	Yes	
		Sleep Timer	Yes	
		Muting	Yes	
		Zero Return	Yes	
		CM Skip	Yes	
		Audio Select		No
G-13	**Features**	Auto Head Cleaning	Yes	
		Auto Tracking	Yes	
		HQ (VHS Standard High Quality)	Yes	
		Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes	
		VIDEO PLUS+(SHOWVIEW,G-CODE)		No
		Auto Clock	Yes	
		Forward / Reverse Picture Search	Yes	
		Reverse Slow		No
		One Touch Playback		No
		Auto CH Memory	Yes	
		Closed Caption	Yes	
		TV Auto Shut off Function	Yes	
		End Call		No
		Index Search		No
		SQPB		No
		CATV	Yes	
		CM Skip(30sec x 6 Times)	Yes	
		Comb Filter		No
		TV Monitor	Yes	
		Program Extend		No
		Choke Coil		No
		Energy Star	Yes	
		Protect of FBT Leak Curcuit		No
		Dirty Head		No
		V-chip USA V-chip	Yes	
		CANADA V-chip		No
		Zero Return	Yes	
		CM Advance		No
		Movie Advance		No
G-14	**Accessories**	Owner's Manual Language	English/Spanish	
		w/Guarantee Card		No
		Remote Control Unit	Yes	
		Battery		No
		UM size x pcs	-	
		Rod Antenna	Yes	
		Poles	2 pole	
		Terminal	F type	
		w/300 ohm to 75 ohm Antenna Adapter	Yes	
		Loop Antenna		No
		Terminal	-	
		U/V Mixer		No
		300 ohm to 75 ohm Antenna Adapter		No

GENERAL SPECIFICATIONS

		Antenna Change Plug			No
		DC Car Cord (Center+)			No
		AC Plug Adapter			No
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Guarantee Card		Yes	
		Registration Card			No
		ESP Card			No
		Warning Sheet			No
		Dew/AHC Caution Sheet			No
		Quick Set-up Sheet			No
		Circuit Diagram			No
		Service Facility List			No
		Important Safeguard			No
		Informatin Sheet			No
G-15	**Interface**	Switch	Power	Yes	
			Play	Yes	
			Pause/Still		No
			System Select		No
			One Touch Playback		No
			Channel Up	Yes	
			Channel Down	Yes	
			F.FWD/Cue	Yes	
			Eject/Stop	Yes	
			Main Power SW		No
			Volume Up	Yes	
			Volume Down	Yes	
			Rew/Rev	Yes	
			Rec/OTR	Yes	
			Input Select		No
		Indicator	Power		No
			Rec/OTR	Red	
			T-Rec	Red	
			On Timer		No
			CS		No
		Key Light up	Rec/OTR		No
			One Touch Playback		No
			Play		No
		Terminals	Front Video Input	RCA x 1	
			Audio Input	RCA x 1	
			Other Terminal	Head Phone(Stereo & Mono, 3.5mm)	
			Rear Video Input		No
			Audio Input		No
			Video Output		No
			Audio Output		No
			Euro Scart		No
			Diversity		No
			Ext Speaker	W Im	No
			DC Jack 12V(Center +)		No
			VHF/UHF Antenna Input	F Type	
			AC Inlet		No
G-16	**Set Size**		Approx. W x D x H (mm)	362 x 370.5 x 382	
G-17	**Weight**		Net (Approx.)	11.0	(24.3 lbs)
			Gross (Approx.)	12.5	(27.6 lbs)
G-18	**Carton**	Master Carton			No
			Content	-	
			Material	-	
			Dimensions W x D x H(mm)	-	
			Description of Origin	-	
		Gift Box		Yes	
			Material	Double/White	
			Dimensions W x D x H(mm)	423 x 447 x 443	
			Design	As per Buyer's	
			Description of Origin	Yes	
		Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces	
			Height (cm)	62	
		Container Stuffing(40' container)		700	Sets
G-19	**Cabinet Material**		Cabinet Front	PS	94V0/DECABROM
			Cabinet Rear	PS	94V0/DECABROM

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the screw ②.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.

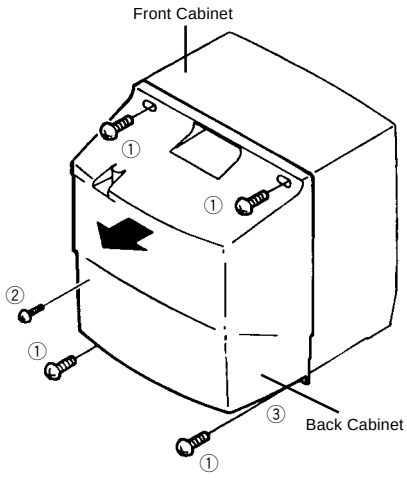


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap. (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors: (CP801 and CP851).
3. Remove the CRT PCB in the direction of arrow.

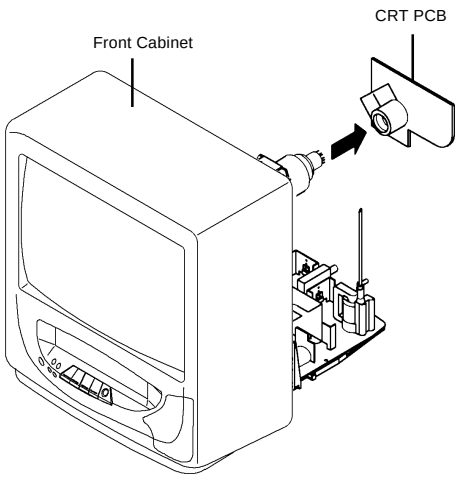


Fig. 1-2

1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors: (CP757, CP353, CP401 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

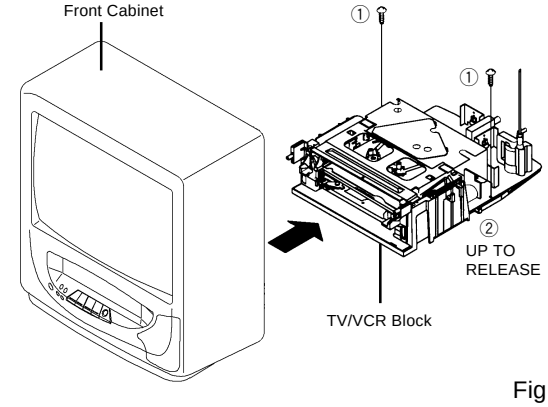


Fig. 1-3

1-4: DECK CHASSIS AND SYSCON PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the screw ③.
4. Remove the 3 screws ④.
5. Disconnect the following connectors: (CP1004, CP1005, CP1006, CP4001, CP4002 and CP4003).
6. Remove the Deck Chassis and Deck Shield Plate in the direction of arrow (A).
7. Remove the screw ⑤.
8. Remove the Syscon PCB in the direction of arrow (B).

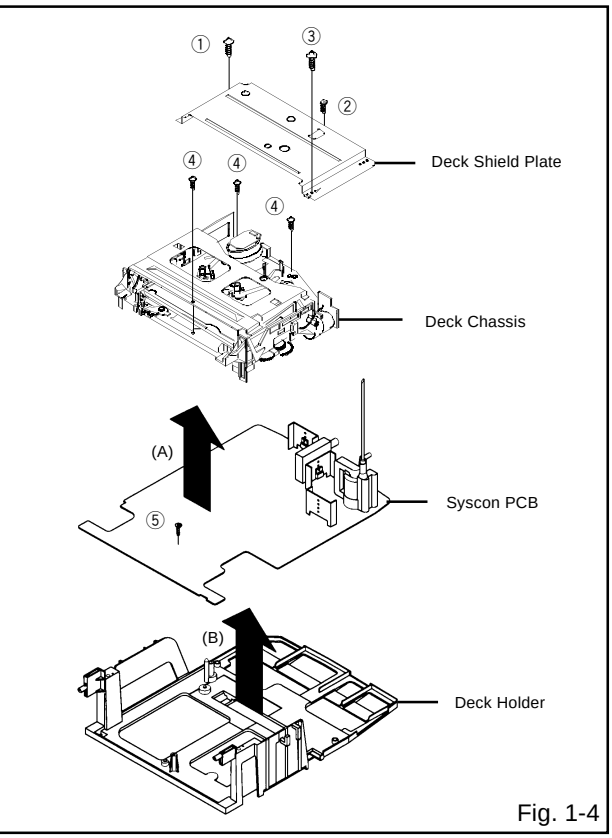


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

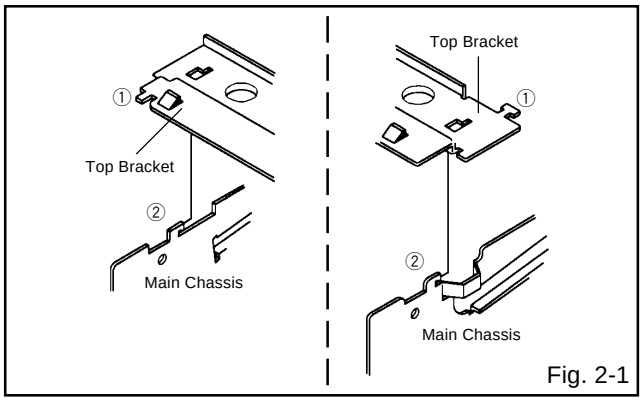


Fig. 2-1

2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

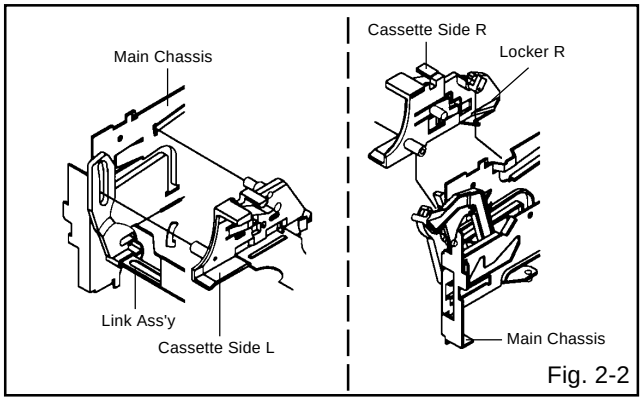


Fig. 2-2

2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.

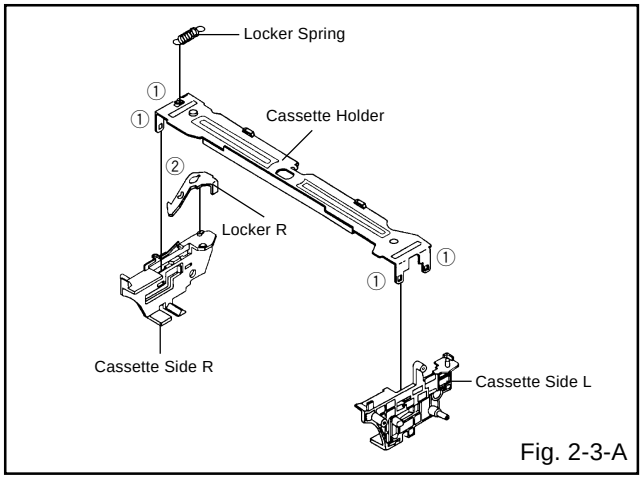


Fig. 2-3-A

NOTE

1. In case of the Locker R installation, check if the two positions of Fig.2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.

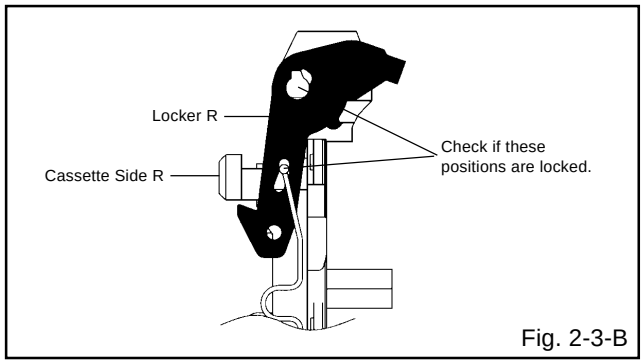


Fig. 2-3-B

2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

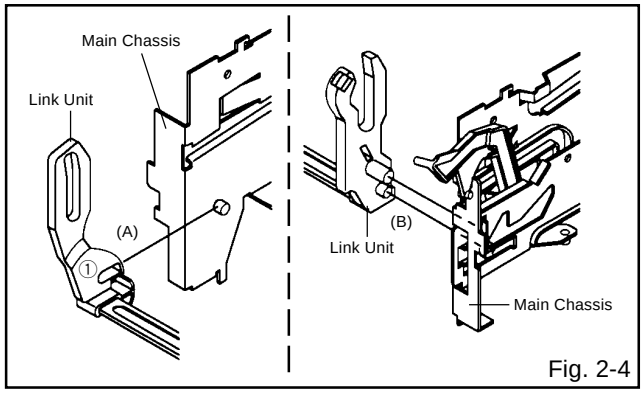


Fig. 2-4

2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

1. Remove the Link Lever.
2. Remove the Flap Lever.

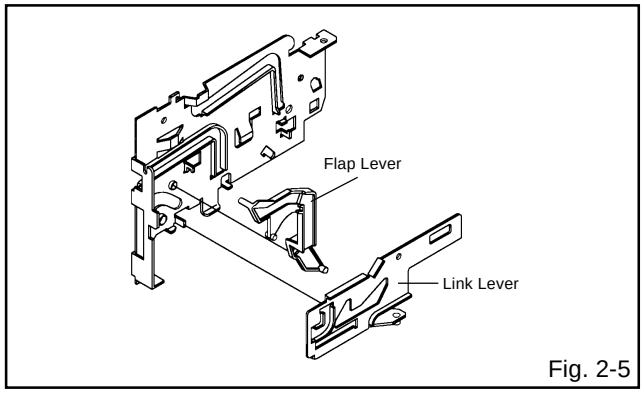


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

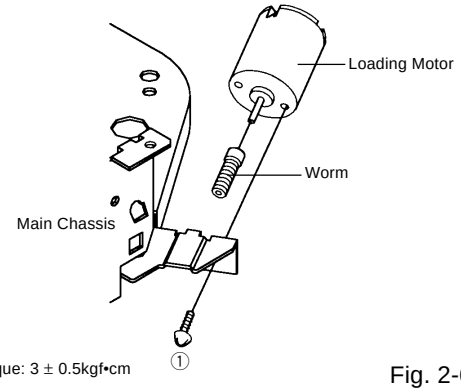


Fig. 2-6-A

NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.

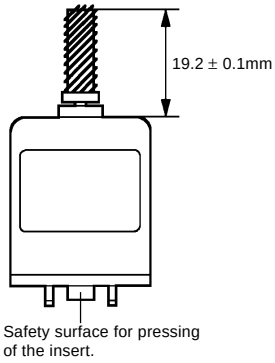


Fig. 2-6-B

2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

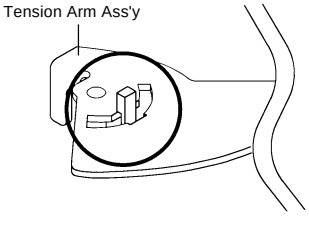


Fig. 2-7-A

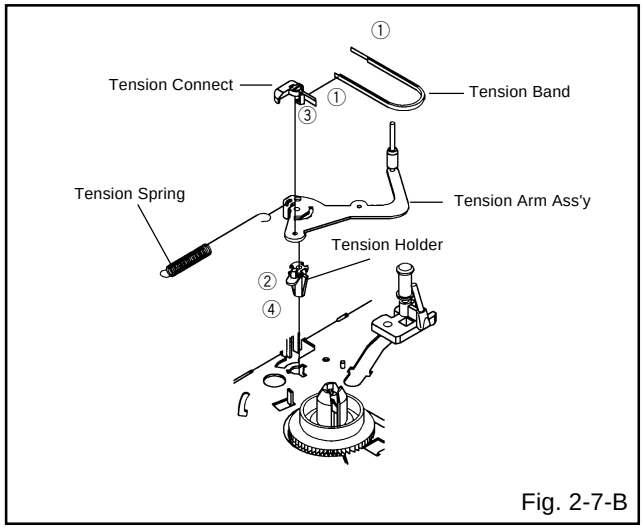


Fig. 2-7-B

NOTE

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-7-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.

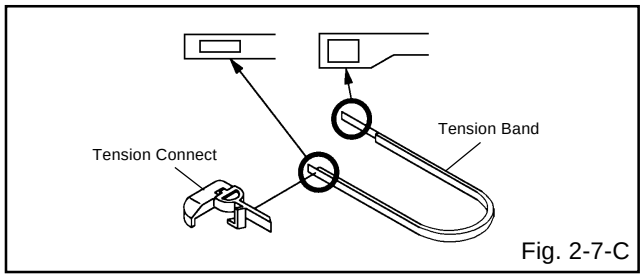


Fig. 2-7-C

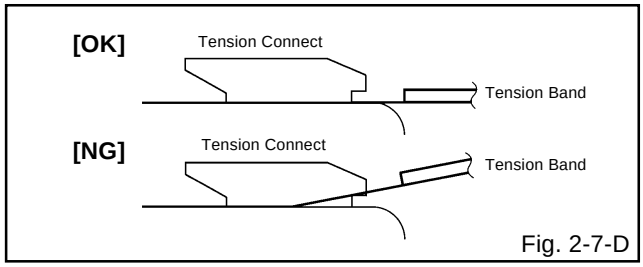


Fig. 2-7-D

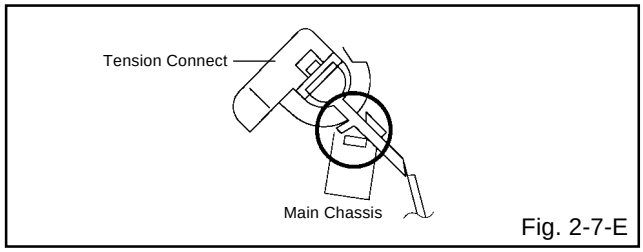


Fig. 2-7-E

DISASSEMBLY INSTRUCTIONS

2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

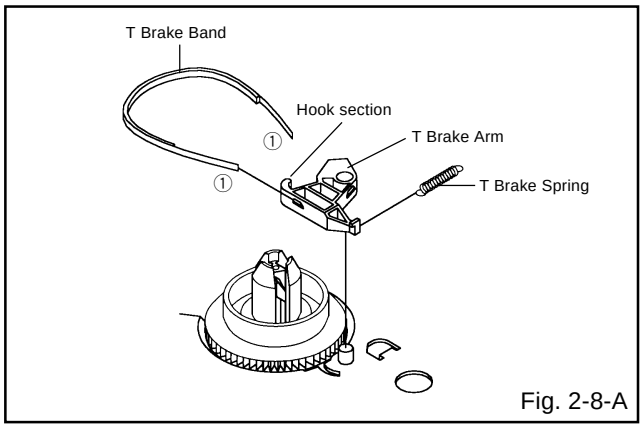


Fig. 2-8-A

NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

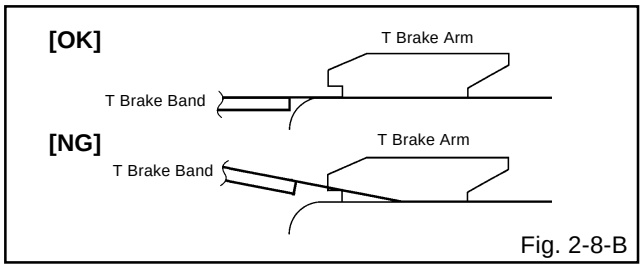


Fig. 2-8-B

2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-9-A)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (MG-33). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

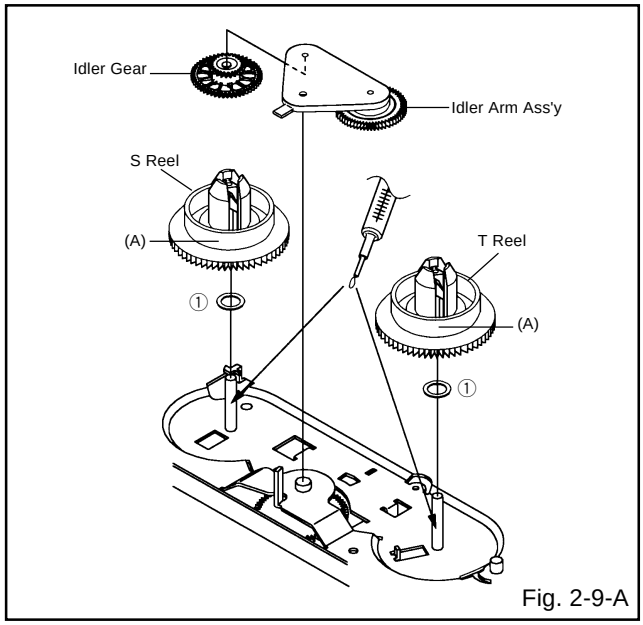


Fig. 2-9-A

NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-9-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C.

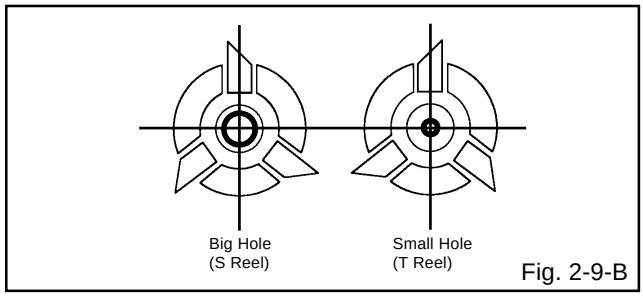


Fig. 2-9-B

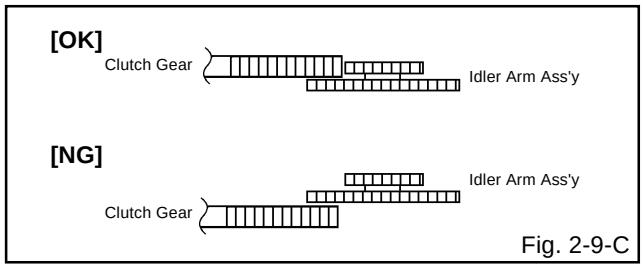


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.

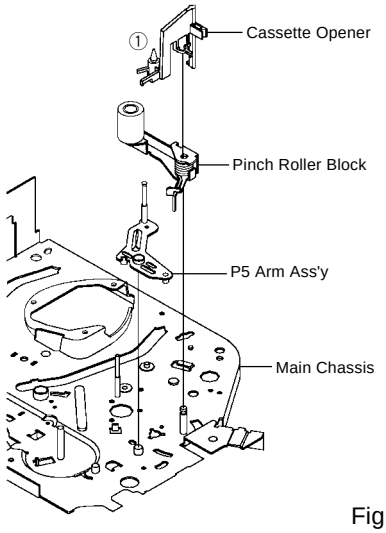


Fig. 2-10-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

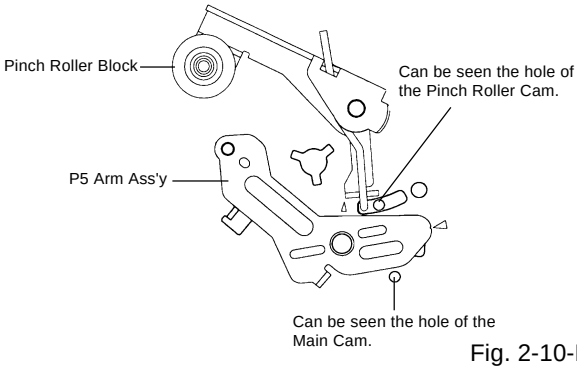


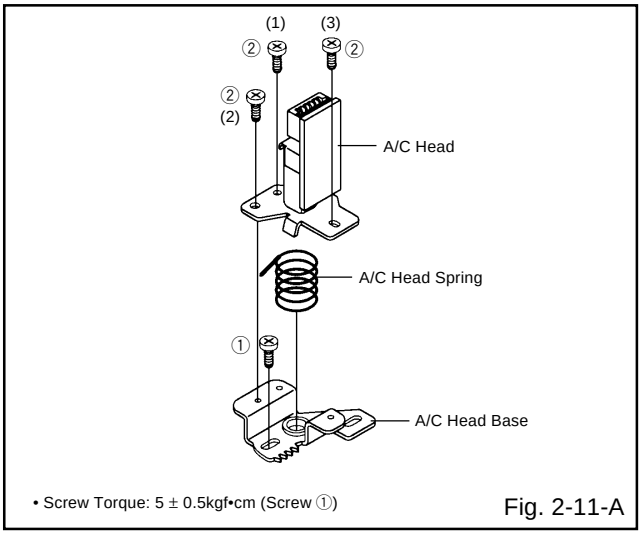
Fig. 2-10-B

2-11: A/C HEAD (Refer to Fig. 2-11-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque: 5 ± 0.5kgf•cm (Screw ①)

Fig. 2-11-A

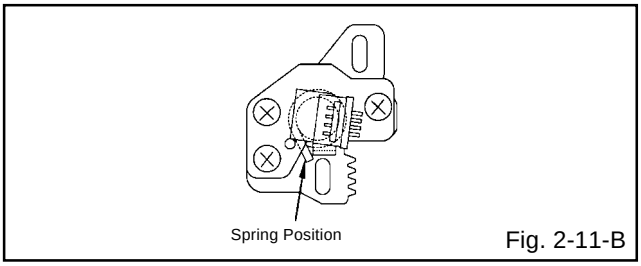
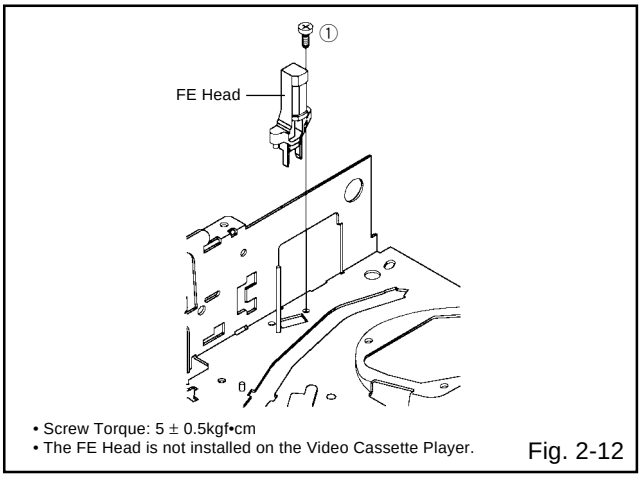


Fig. 2-11-B

2-12: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-12)

1. Remove the screw ①.
2. Remove the FE Head.



• Screw Torque: 5 ± 0.5kgf•cm
• The FE Head is not installed on the Video Cassette Player.

Fig. 2-12

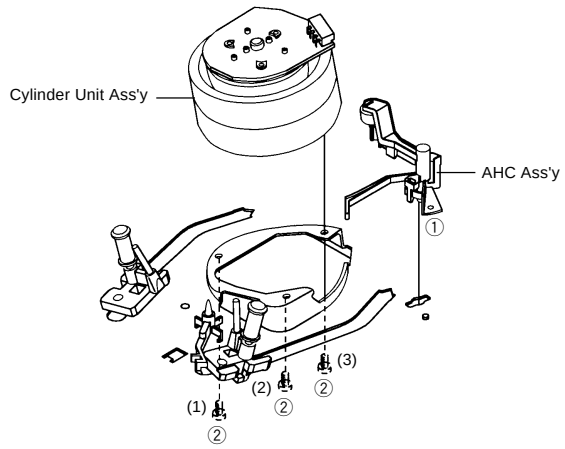
DISASSEMBLY INSTRUCTIONS

2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: (CD2001)
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

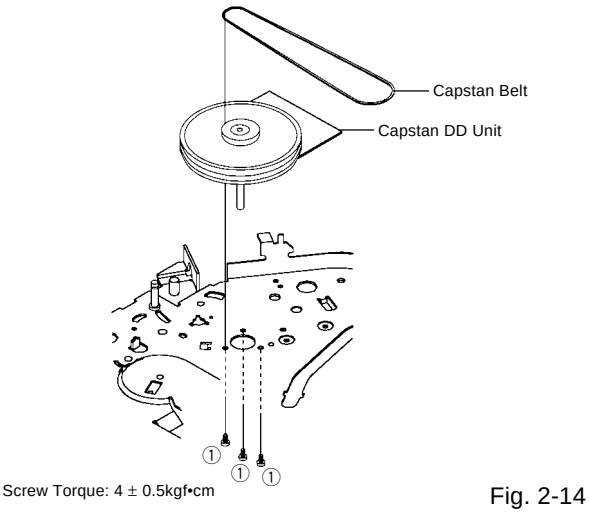


• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.



• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-14

2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

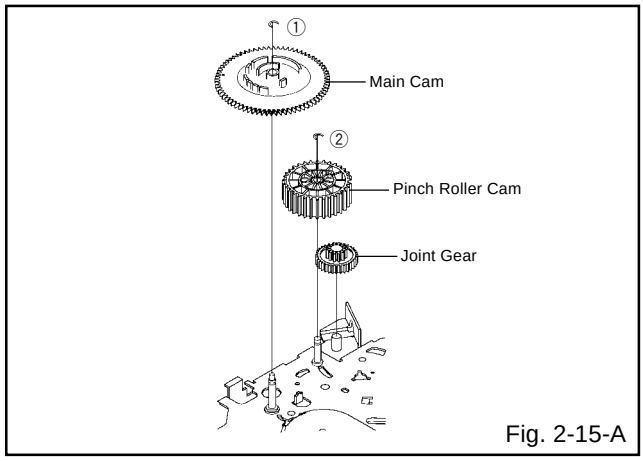


Fig. 2-15-A

NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. **(Refer to Fig. 2-15-B)**

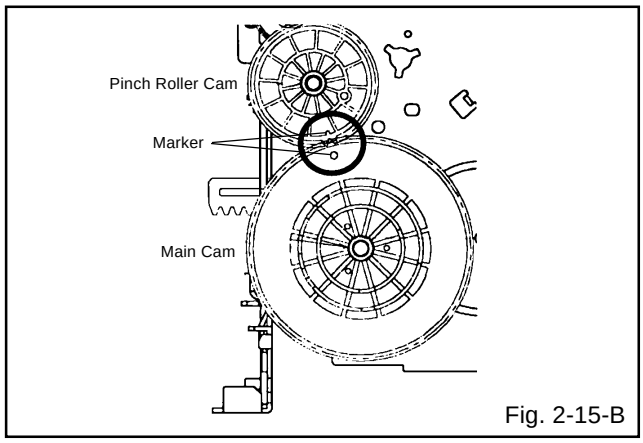


Fig. 2-15-B

2-16: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-16-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Ass'y and Loading Arm T Ass'y.

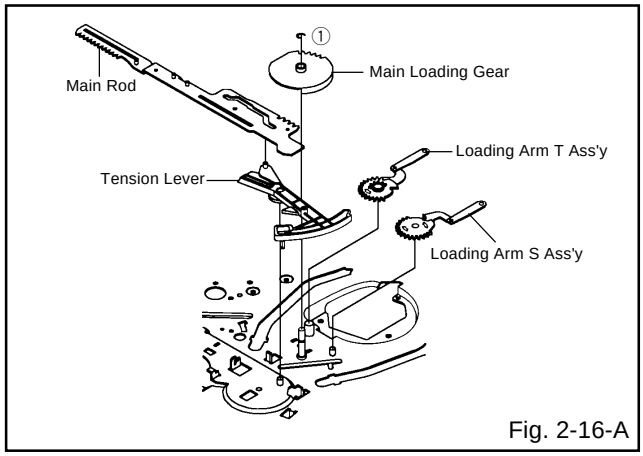


Fig. 2-16-A

DISASSEMBLY INSTRUCTIONS

NOTE

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-16-B)**

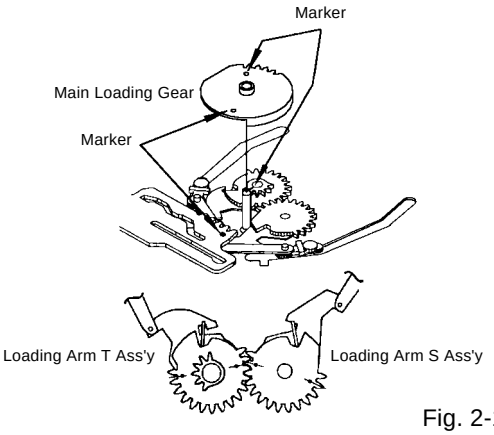


Fig. 2-16-B

2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.

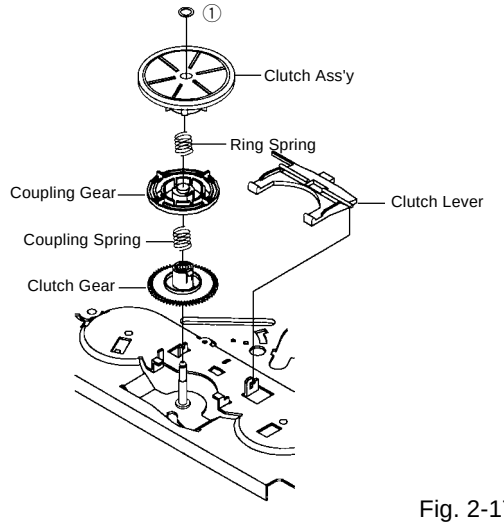


Fig. 2-17-A

NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. **(Refer to Fig. 2-17-B)**

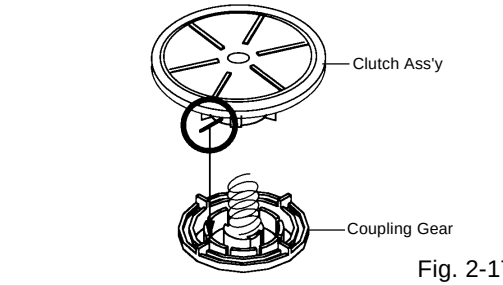


Fig. 2-17-B

2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S Unit and Inclined Base T Unit.

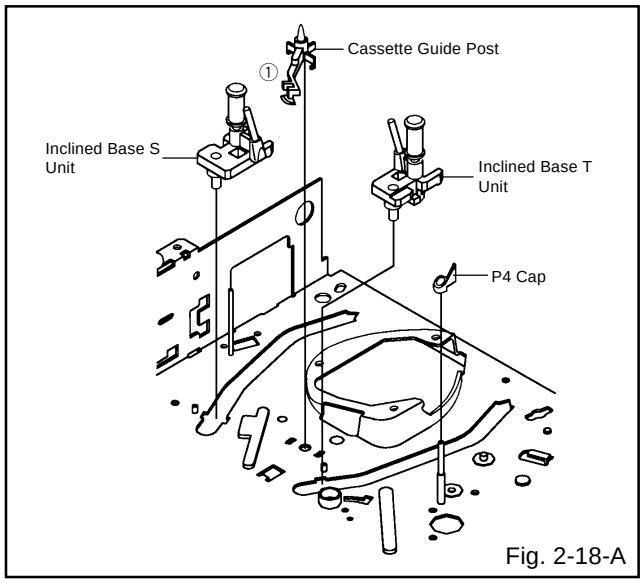


Fig. 2-18-A

NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.

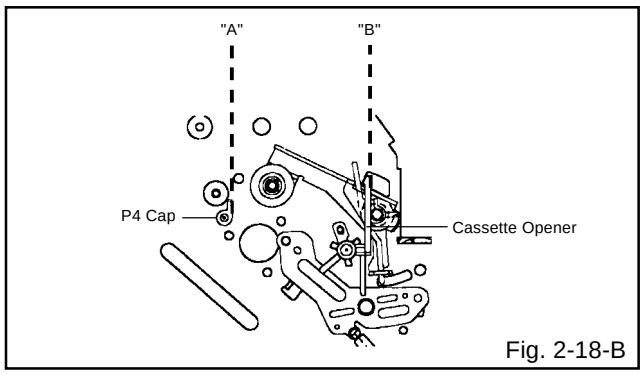


Fig. 2-18-B

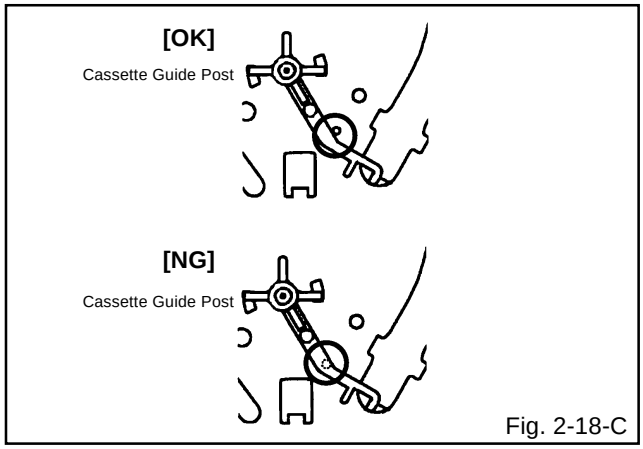


Fig. 2-18-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

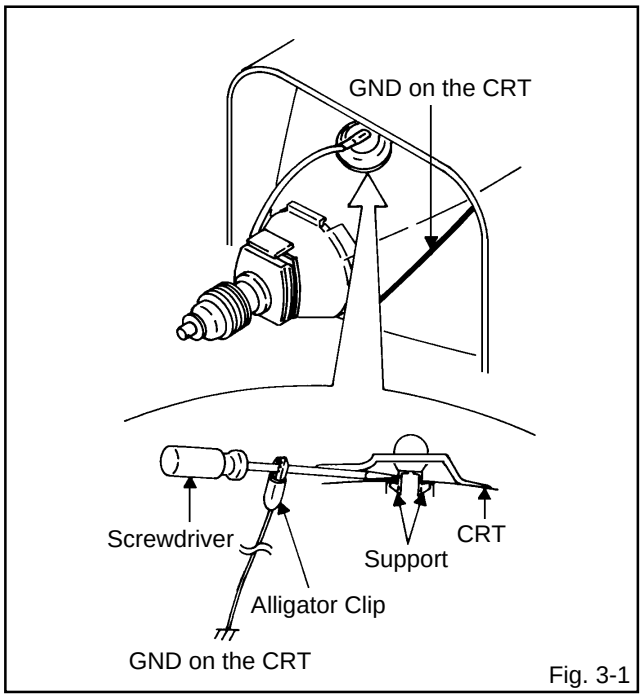


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

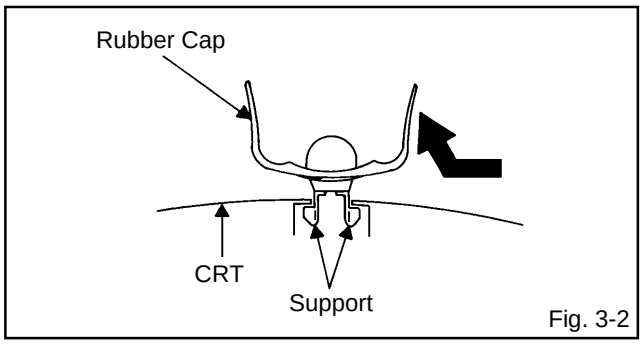


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

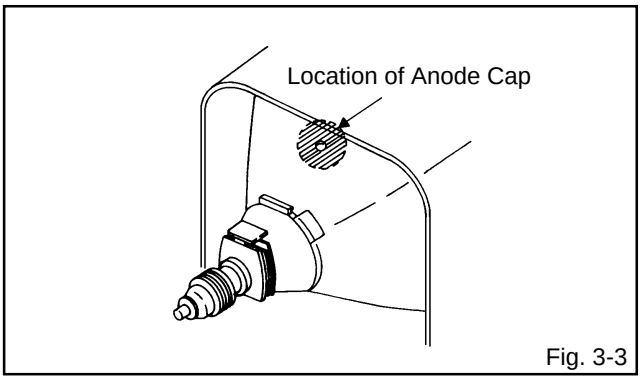


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

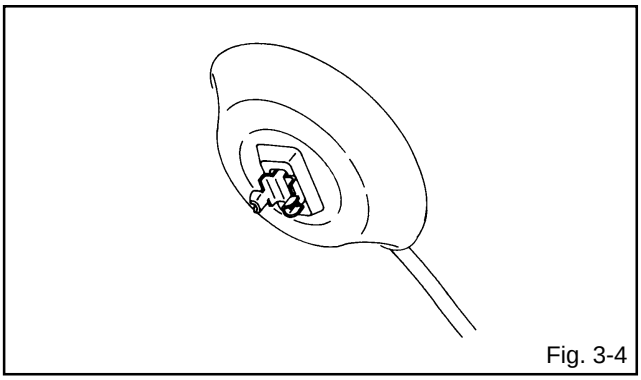


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5.**

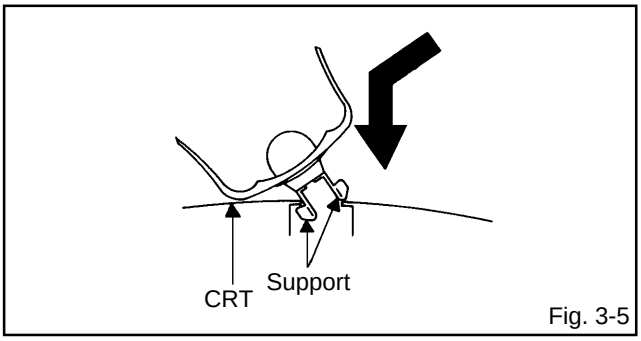


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 4-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

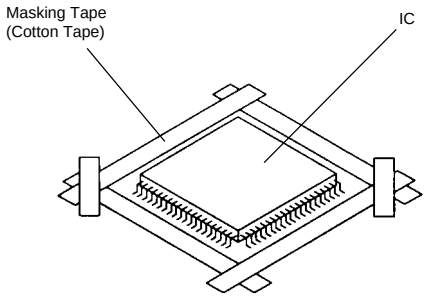


Fig. 4-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 4-2.)**

   NOTE

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

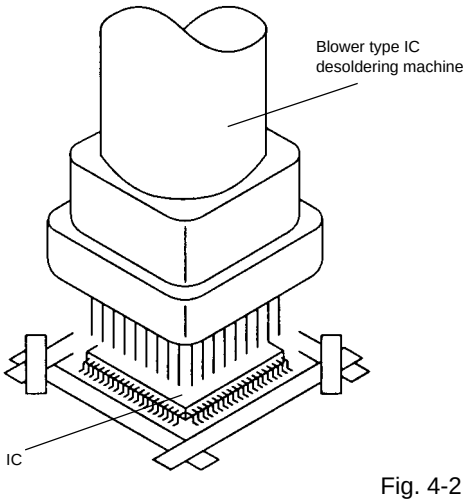


Fig. 4-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 4-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

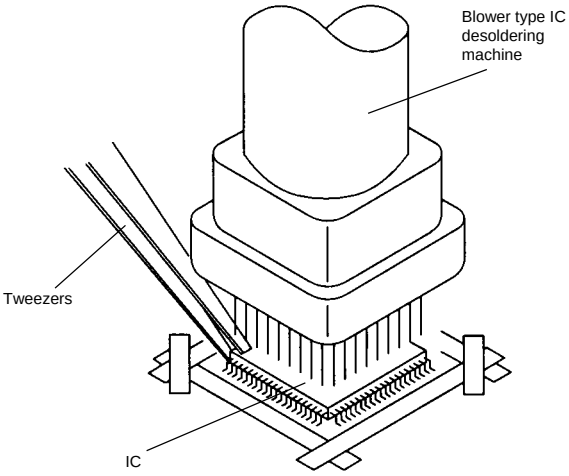


Fig. 4-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 4-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

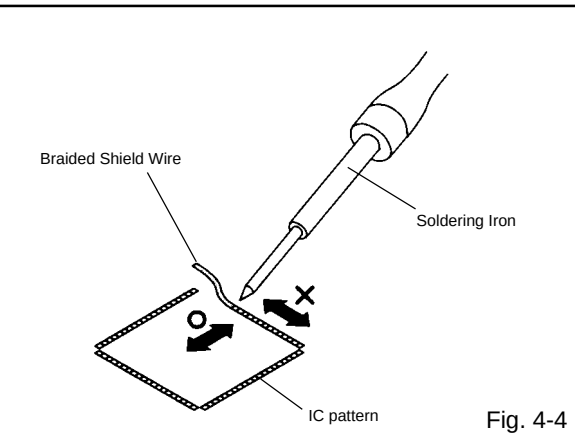


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 4-5.)**

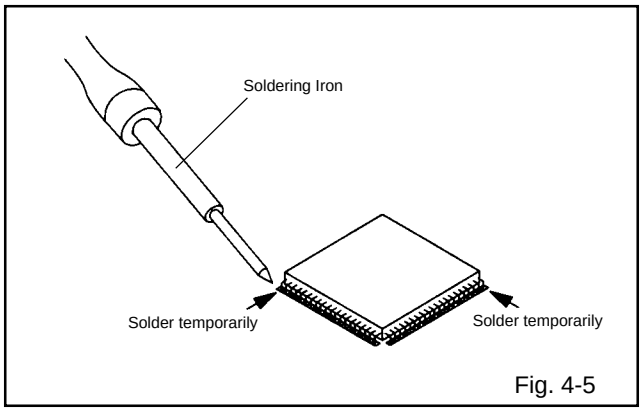


Fig. 4-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**

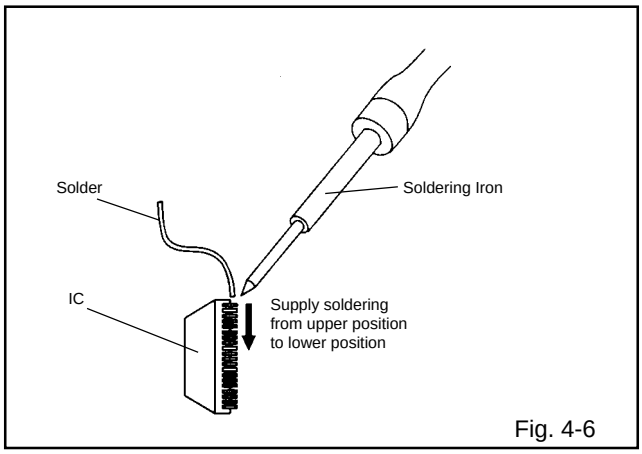


Fig. 4-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

   NOTE

   Do not absorb the solder to excess.

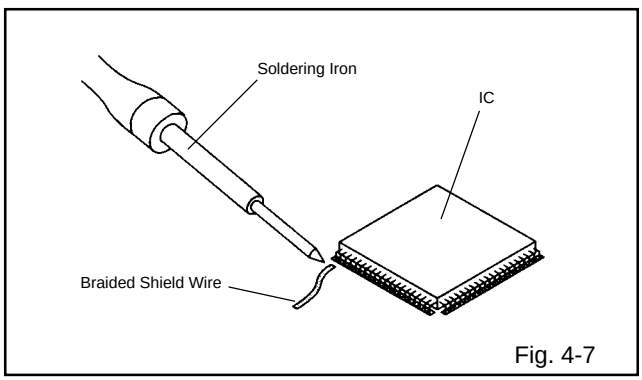


Fig. 4-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 4-8.)**

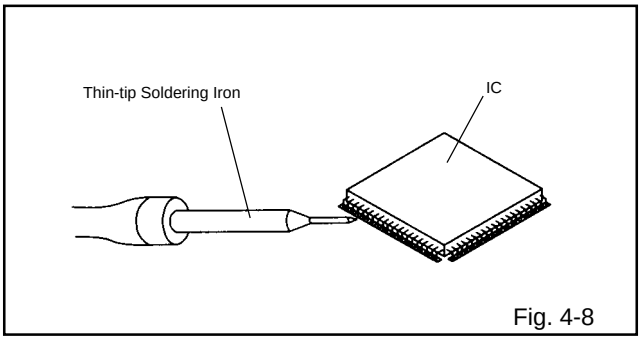


Fig. 4-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	**A/C**	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	**BGP**	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	**C**	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	**DATA (SY-CE)**	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	**E**	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	**F**	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	**GEN**	:	Generator
	GND	:	Ground
H	**H.P.F**	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	**IC**	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	**KIL**	:	Killer
L	**L**	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	**M**	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	**NC**	:	Non Connection
	NR	:	Noise Reduction
O	**OSC**	:	Oscillator
	OPE	:	Operation
P	**PB**	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	**R**	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	**S. CLK**	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

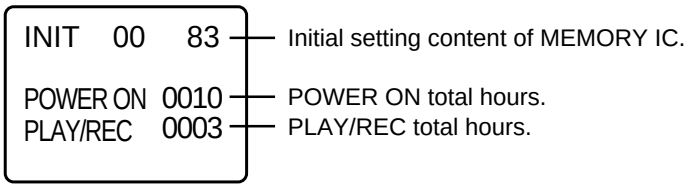
■ : Clean
● : Replace

CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

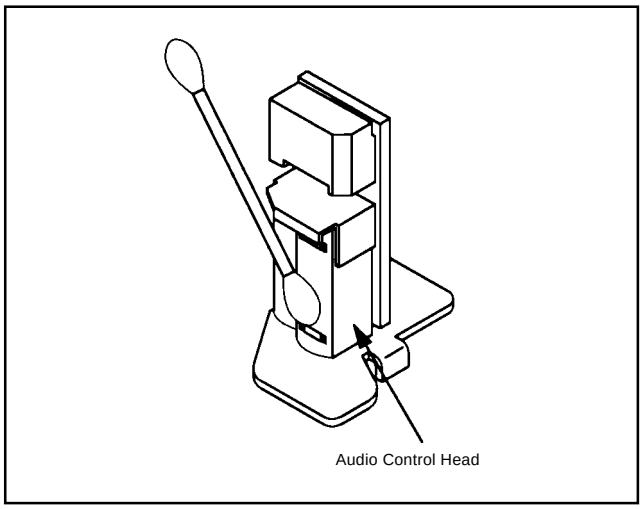
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

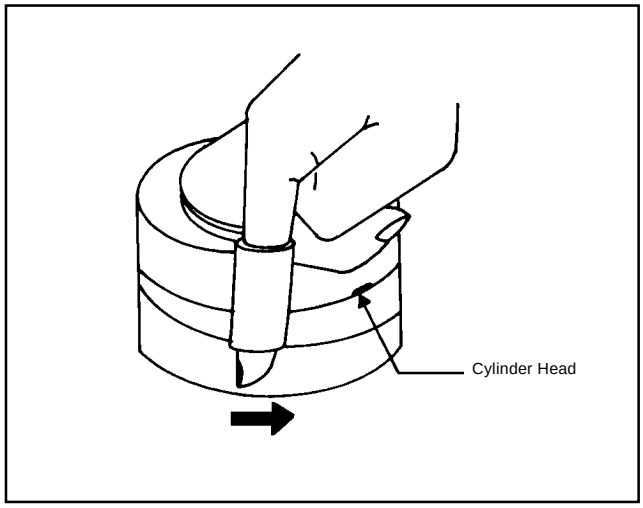
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	0A	62	63	43	14	34	09	51	38	30	66	00	40	00	10
10	B2	9A	92	93	00	00	00	15	08	00	A9	0F	94	3E	06	04
20	06	29	01	17	10	60	32	3A	DA	D7	10	15	20	25	26	27
30	28	29	2A	2C	2E	30	32	34	36	38	3A	3C	3E	40	41	42
40	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52
50	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62
60	63	64	66	69	6D	74	79	7C	7E	7F	---	---	---	---	---	---

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

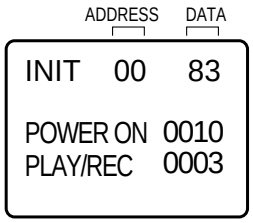
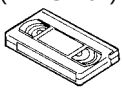
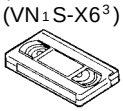
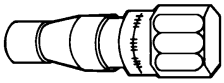
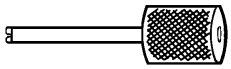
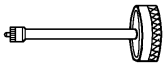
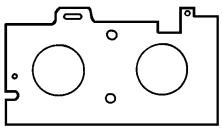
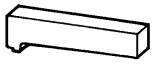
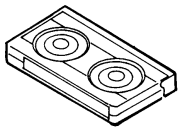
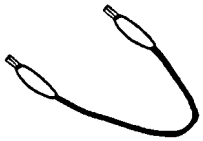
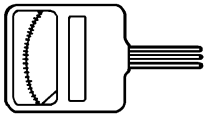


Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 heads model) VHS Alignment Tape JG001 (VN_2S-$LI6^3$) JG001A (VN_2S-$CO1^3$) JG001Q (VN_2S-$LI6^3H$) JG001T (VN_2S-$X6^3$) 	**(For 4 heads model)** VHS Alignment Tape JG001B (VN_1S-$LI6^3$) JG001I (VN_1S-$CO1^3$) JG001P (VN_1S-$LI6^3H$) JG001S (VN_1S-$X6^3$) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001	APJG001000	VHS Alignment Tape **(For 2 heads model)**	Monoscope, 6KHz
JG001A	APJG001A00	VHS Alignment Tape **(For 2 heads model)**	Color Bar, 1KHz
JG001Q	APJG001Q00	VHS Alignment Tape **(For 2 heads model)**	Hi-Fi Audio
JG001T	APJG001T00	VHS Alignment Tape **(For 2 heads model)**	X Value Adjustment
JG001B	APJG001B00	VHS Alignment Tape **(For 4 heads model)**	Monoscope, 6KHz
JG001I	APJG001I00	VHS Alignment Tape **(For 4 heads model)**	Color Bar, 1KHz
JG001P	APJG001P00	VHS Alignment Tape **(For 4 heads model)**	Hi-Fi Audio
JG001S	APJG001S00	VHS Alignment Tape **(For 4 heads model)**	X Value Adjustment
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP757 and CP353, then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
   If necessary, connect CP353. (Front A/V Jack Input Terminal)
3. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (Refer to MAJOR COMPONENTS LOCATION GUIDE)
4. The EOT, BOT and Reel Sensor do not work at this moment.
   At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. **(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)** In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig **(JG024A)** and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

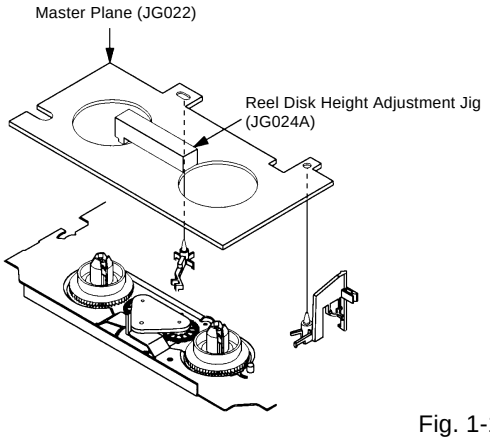


Fig. 1-1-A

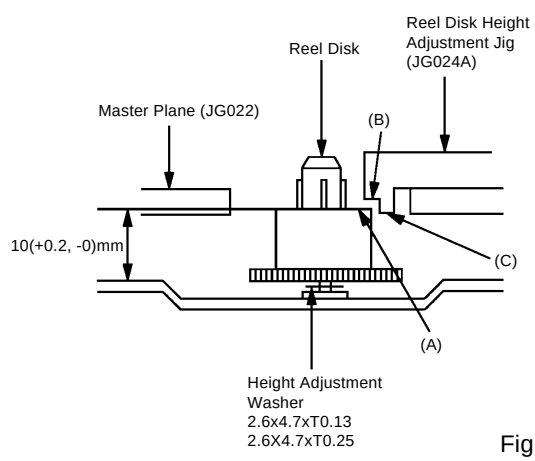


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting parts for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

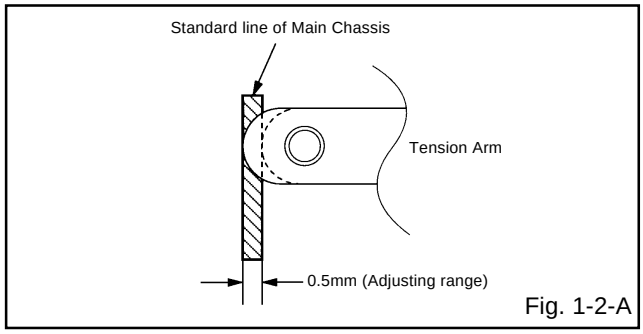


Fig. 1-2-A

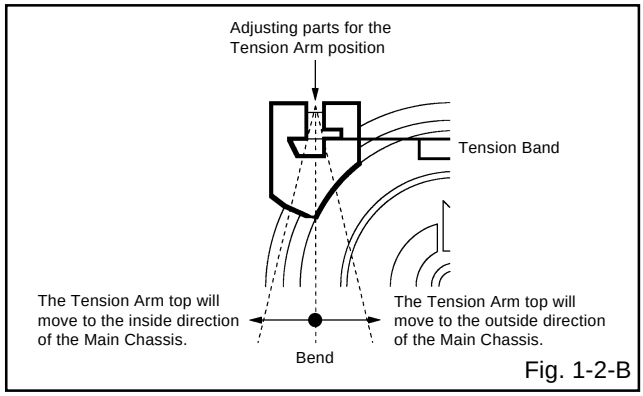


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(JG100A)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(JG100A)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

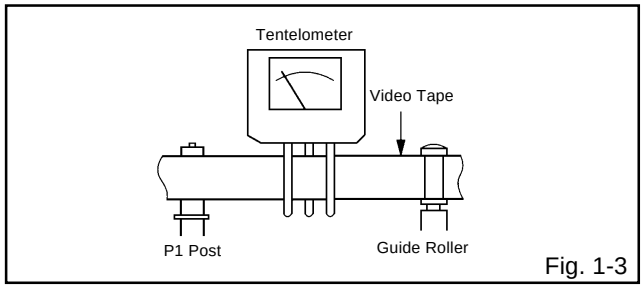


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4-B)**
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

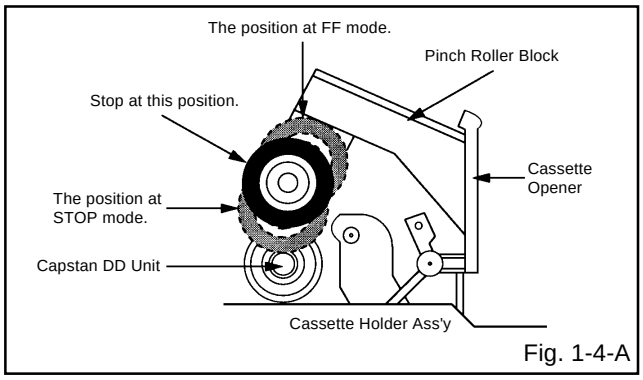


Fig. 1-4-A

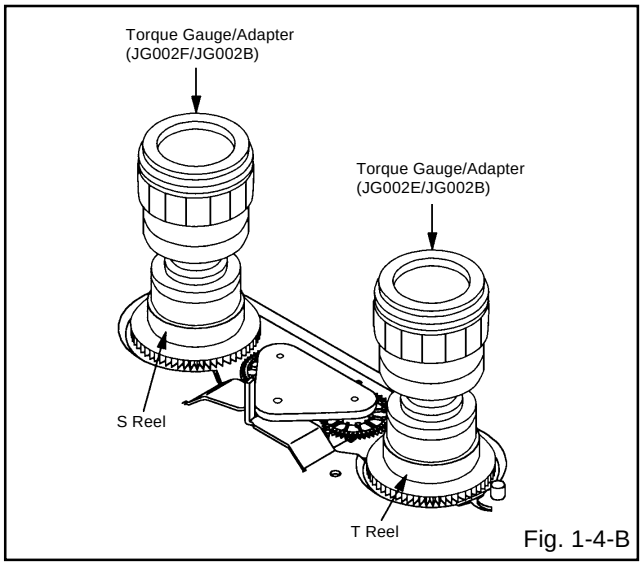


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(JG001 or JG001B)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to item 2-2)**

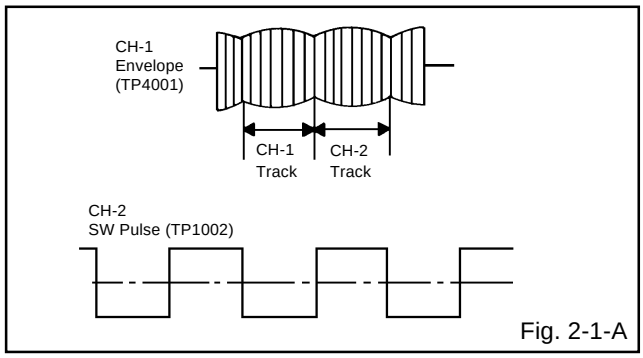


Fig. 2-1-A

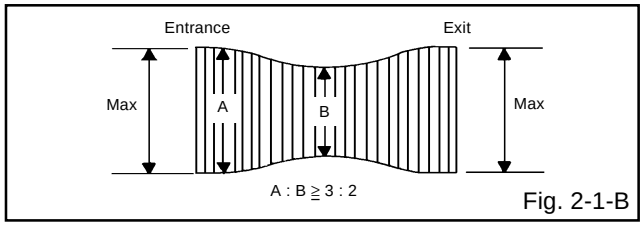


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape **(JG001 or JG001B)** . **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

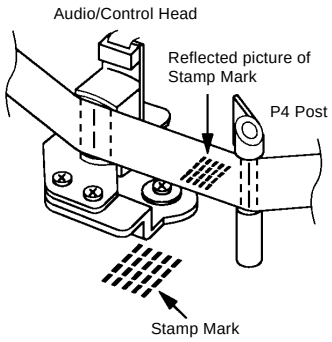


Fig. 2-2-A

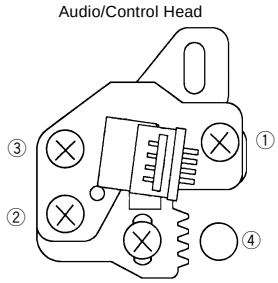


Fig. 2-2-B

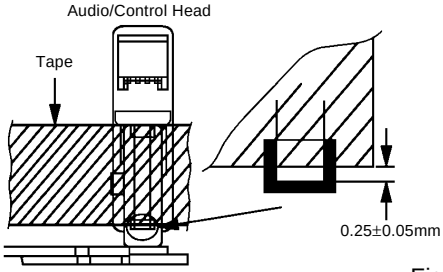


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(JG001S or JG001T)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

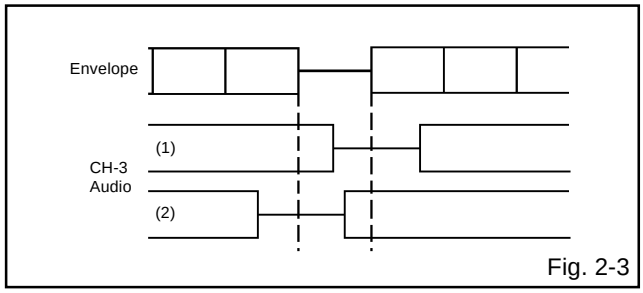


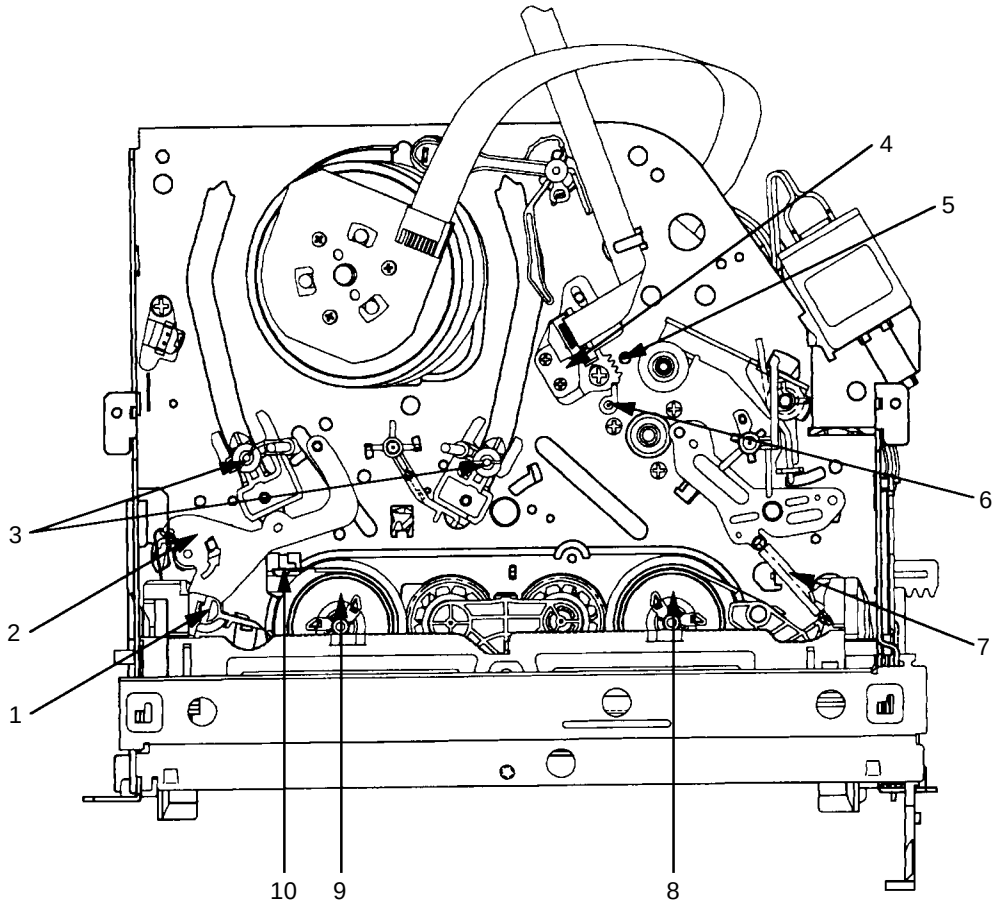
Fig. 2-3

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP1002** and CH-2 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape **(JG001P or JG001Q)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver **(JG153)** to ④ of **Fig. 2-2-B**. Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Connect
2. Tension Arm
3. Guide Roller
4. Audio/Control Head
5. X value adjustment driver hole
6. P4 Post
7. T Brake Spring
8. T Reel
9. S Reel
10. Adjusting parts for the Tension Arm position

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease (YG6260M).
  Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

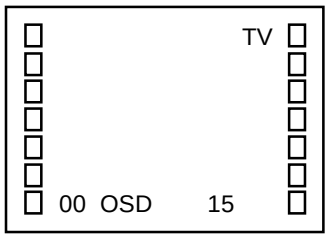


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF AGC DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R CUT OFF	23	TEST STEREO
11	G CUT OFF	24	X-RAY TEST
12	B CUT OFF		

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **pin 4 of CP1003**.
2. Playback the alignment tape. **(JG001A)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

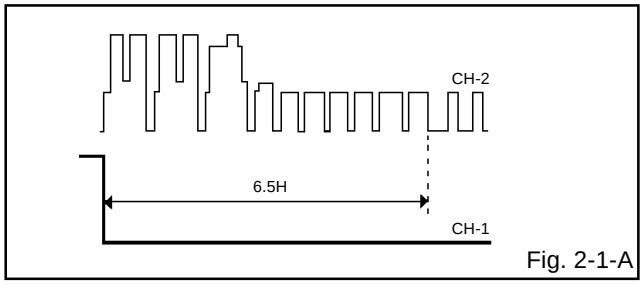


Fig. 2-1-A

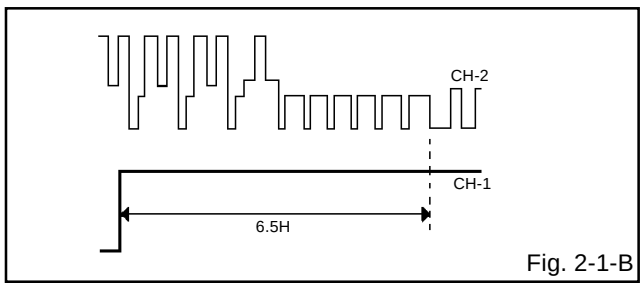


Fig. 2-1-B

2-2: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the VHF HIGH.
3. Disconnect the Antenna while receiving the VHF HIGH and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approxi. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
8. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.
9. After the 2.5V adjustment, countdown the VIF VCO step No. by 1 step with the VOL. DOWN button.

ELECTRICAL ADJUSTMENTS

2-3: RF AGC DELAY

1. Receive the VHF HIGH (63dB).
2. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF AGC DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.9V ± 0.15V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to the **TP601**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is 135 ± 0.5V.

2-5: CUT OFF

1. Adjust the unit to the following settings.
   R CUT OFF=128, G CUT OFF=128, B CUT OFF=128, BRIGHTNESS=128, CONTRAST=100
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "B DRIVE", "G CUT OFF" or "B CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, B DRIVE, G CUT OFF or B CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-7: FOCUS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

2-9: VERTICAL SHIFT

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
4. Press the VOL. UP/DOWN button on the remote control until the horizontal line becomes fit to the notch of the shadow mask.

2-10: VERTICAL SIZE

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
5. Receive a broadcast and check if the picture is normal.

2-11: SUB BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-11: SUB CONTRAST MANUAL

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
4. Press the VOL. UP/DOWN button on the remote control until the contrast STEP No. becomes "100".
   Receive the color bar pattern. (Audio Video Input)
5. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

ELECTRICAL ADJUSTMENTS

2-13: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP801**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. **(Refer to Fig. 2-2)**
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

Fig. 2-2

2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP803**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(15)** on the remote control to select "COLOR".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110% of the white level. **(Refer to Fig. 2-3)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

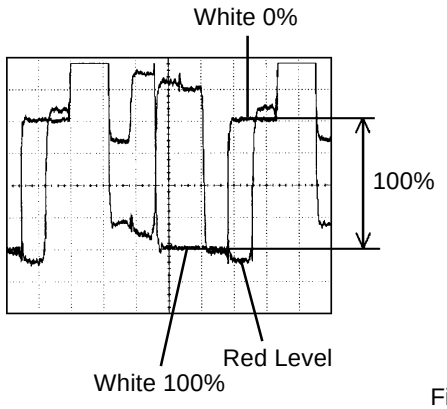


Fig. 2-3

2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-4)**

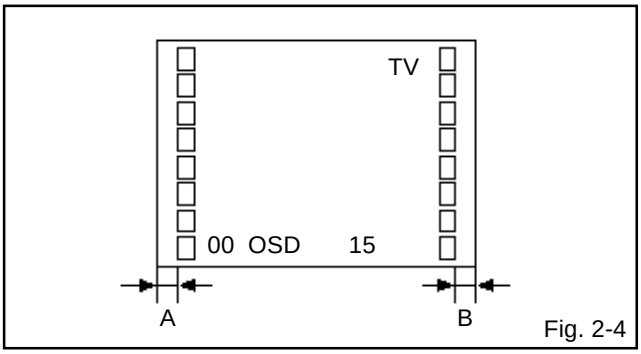


Fig. 2-4

2-16: SUB SHARPNESS

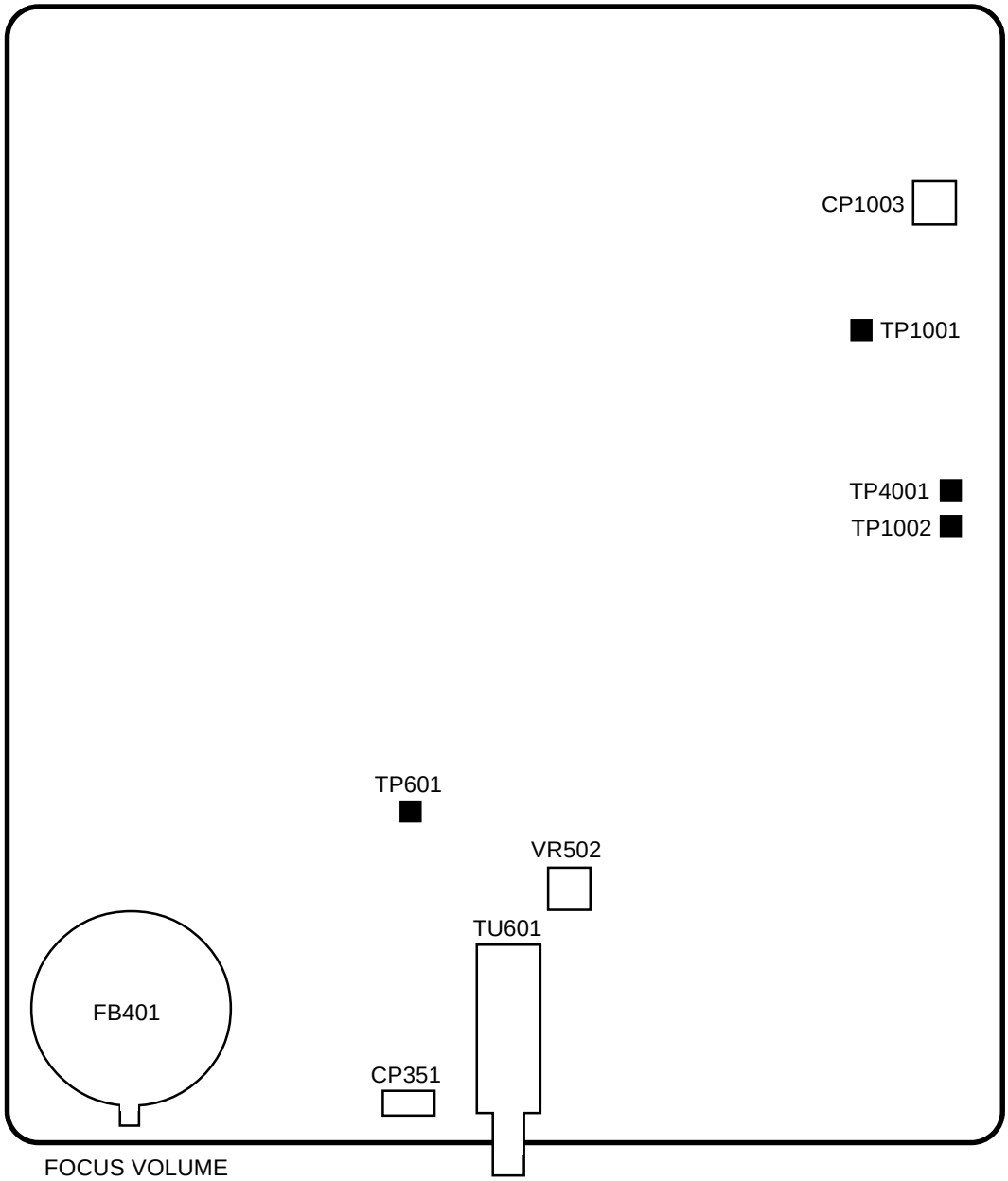
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "SHARPNESS".
2. Check if the step No. of SHARPNESS is "40".
3. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1, 2.

2-17: H VCO

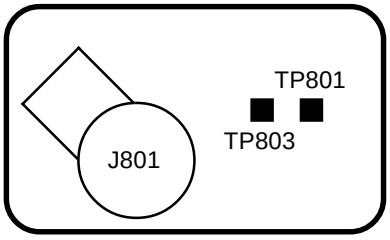
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(04)** on the remote control to select "H VCO".
2. Check if the step No. of H VCO is "4".

ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



SYSCON PCB



CRT PCB

ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

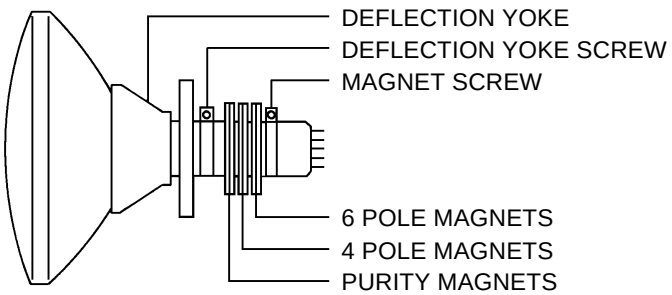


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

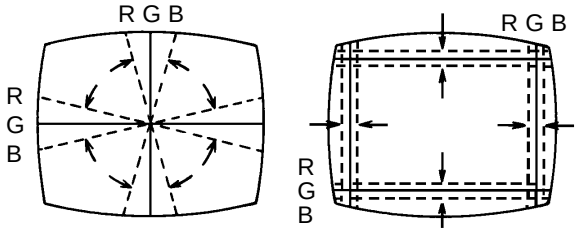
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

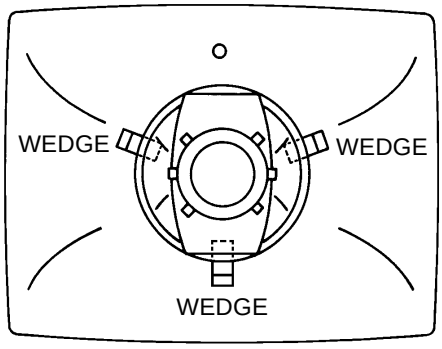
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 4-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 4-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

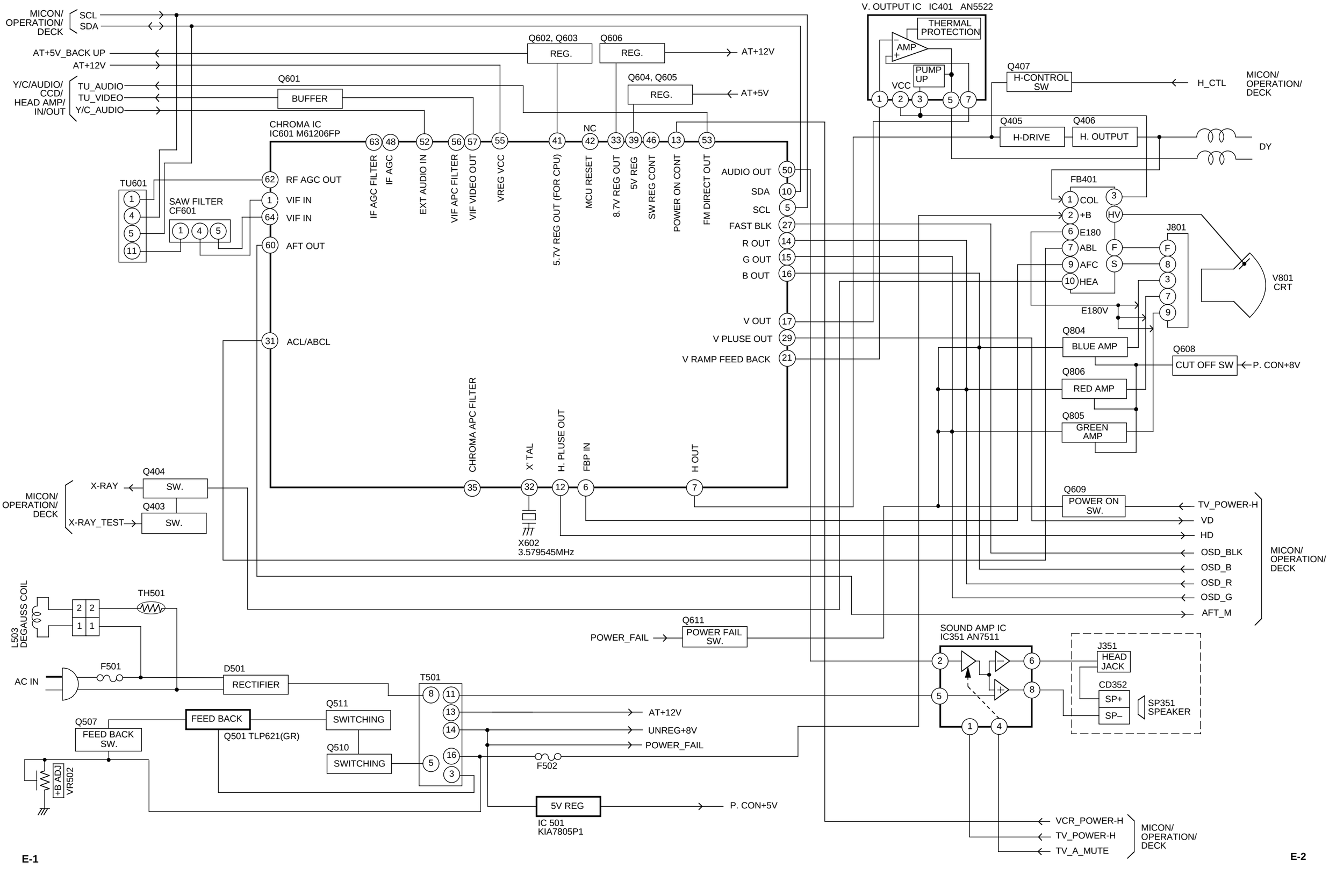
Fig. 4-2-a



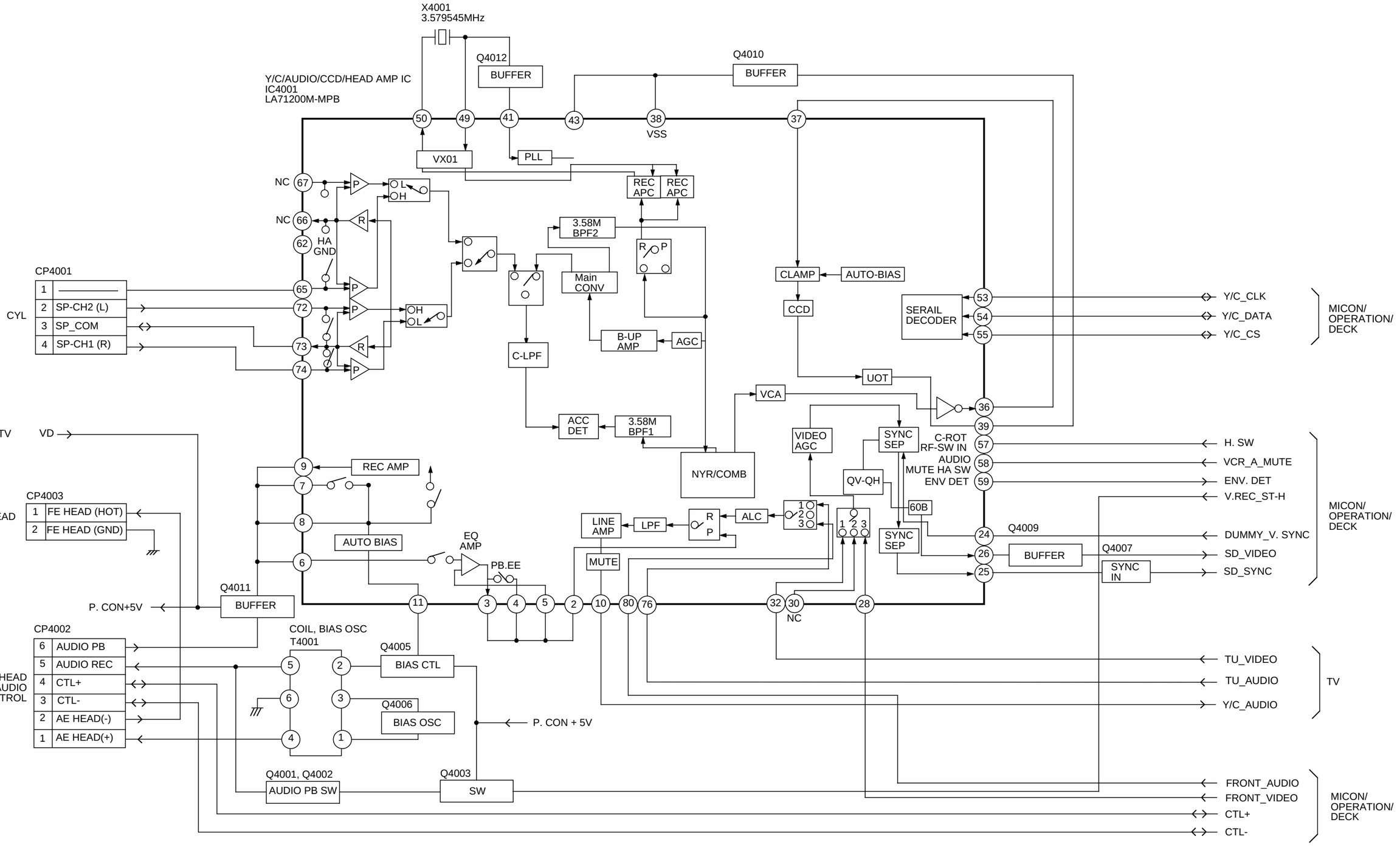
WEDGE POSITION

Fig. 4-2-b

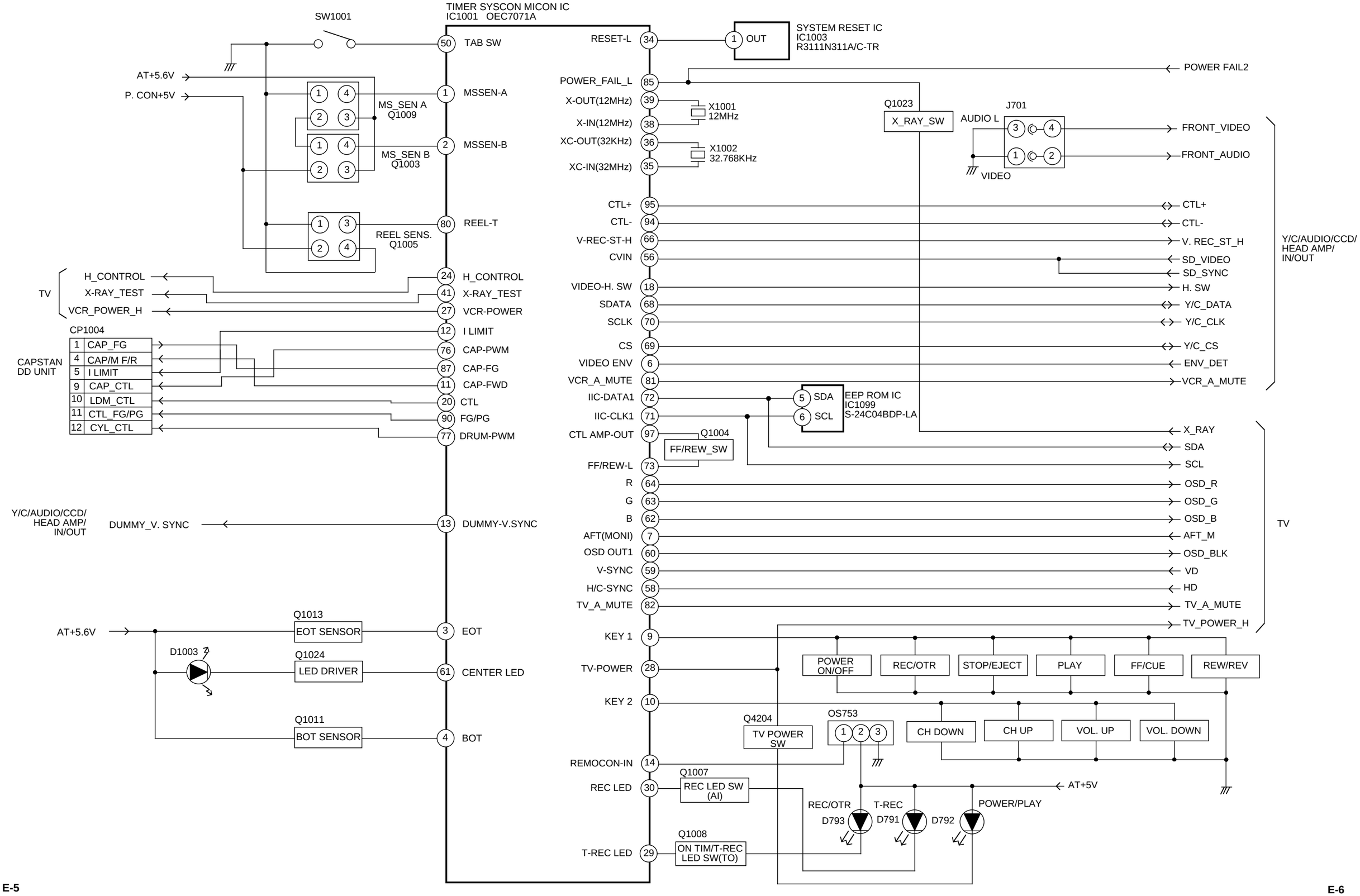
TV BLOCK DIAGRAM



Y/C/AUDIO/CCD/HEAD AMP/IN/OUT BLOCK DIAGRAM

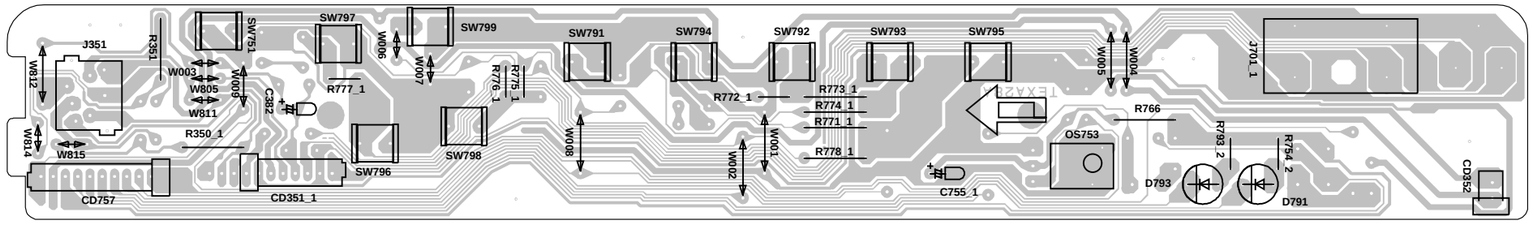


MICON/OPERATION/DECK BLOCK DIAGRAM

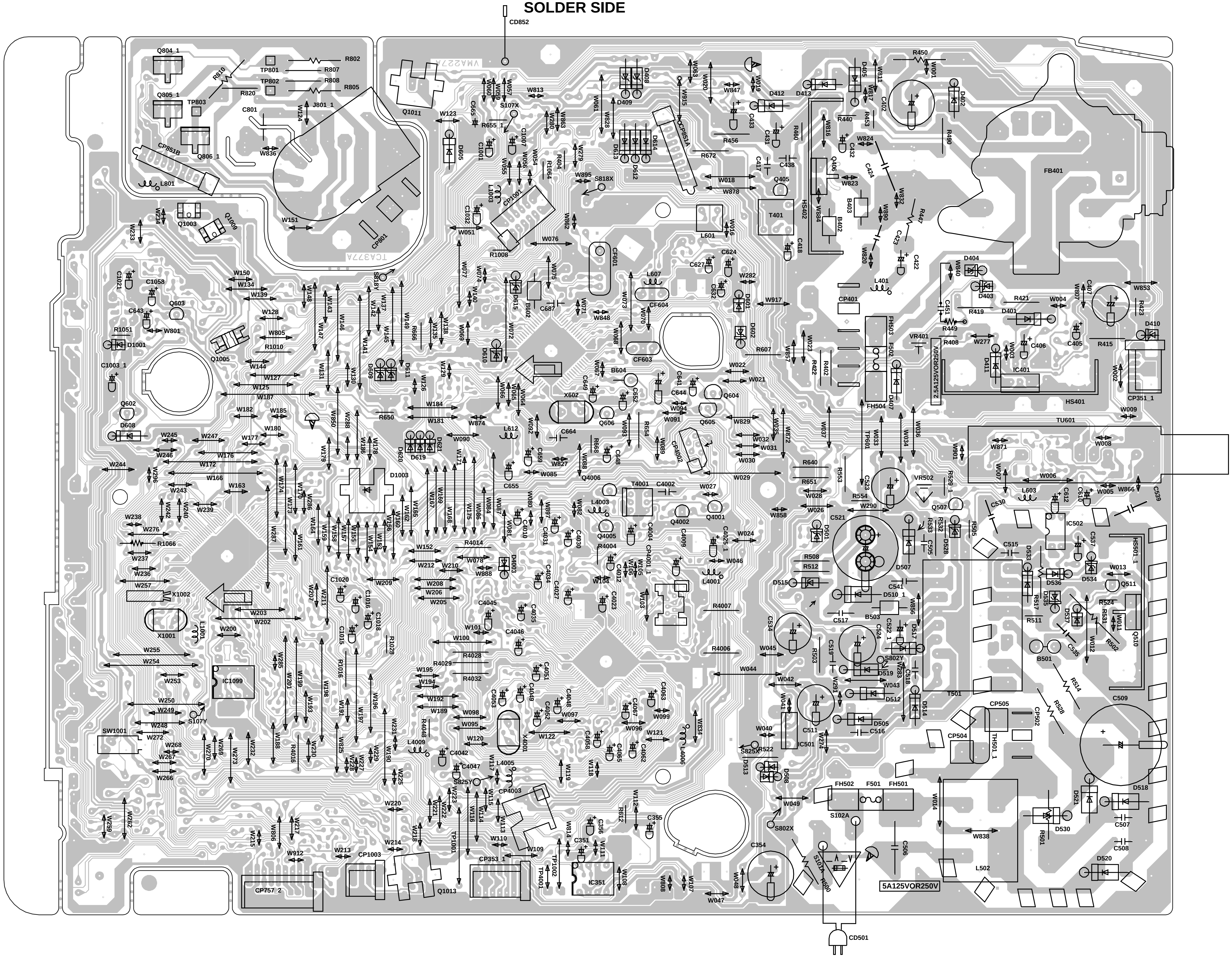


PRINTED CIRCUIT BOARDS

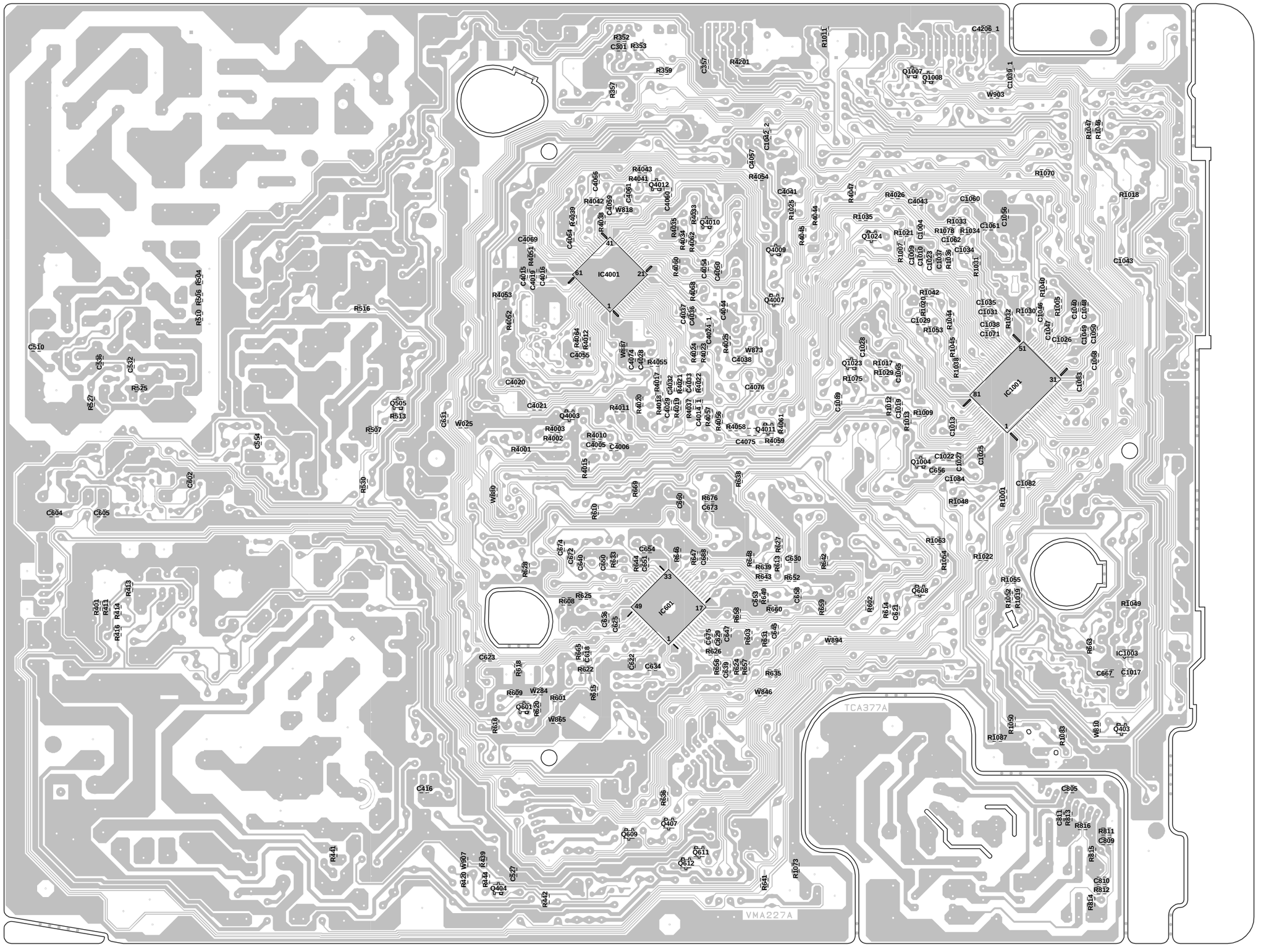
OPERATION
SOLDER SIDE



PRINTED CIRCUIT BOARDS
SYSCON/CRT (INSERTED PARTS)
SOLDER SIDE

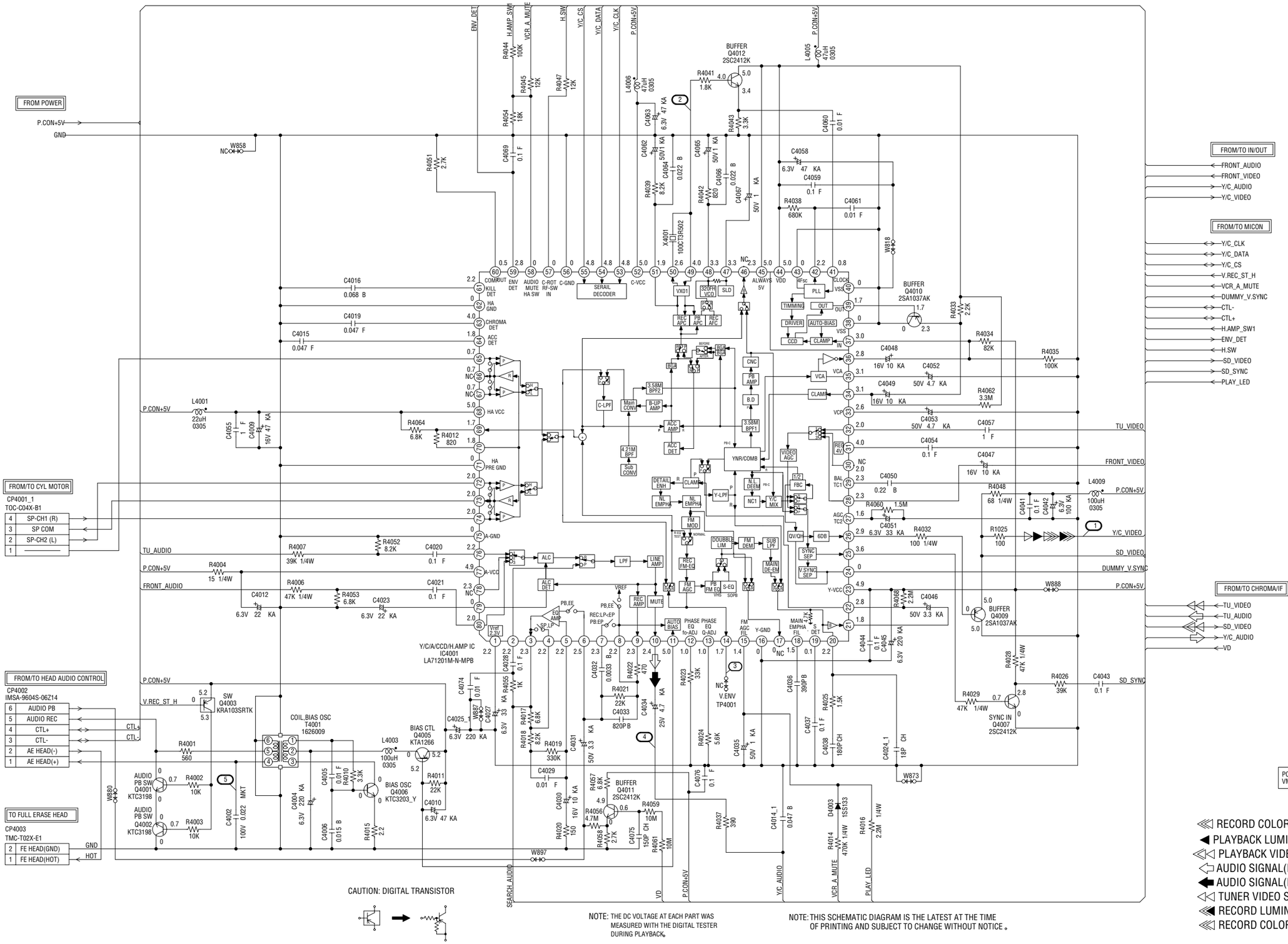


PRINTED CIRCUIT BOARDS
SYSCON/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



MICON SCHEMATIC DIAGRAM (SYSCON PCB)

FROM POWER
POWER_FAIL2
P.CON+5V
GND
MOTOR+12V
GND

FROM/TO DECK
CP1001 (CP101)
TMC-J12P-B2
1 CAP_FG
2 CAP_VCO
3 VCC
4 CAP_M/F/R
5 I_LIMIT
6 GND[M]
7 GND
8 LD/CY_VCO
9 CAP_CTL
10 LDM_CTL
11 CYL_FG/PG
12 CYL_CTL

FROM/TO DECK
CD852
CH01408A

BOT SENSOR Q1011 ST-304L
EOT SENSOR Q1013 ST-304L
LED DRIVER Q1024 KRC103SRTK
D1003 LNA2702L010R
MXS01380MPP0
SW1001
S825V
S818Y
TAB_SW

X_RAY
X_RAY_SW Q1023 2SC2412K
W810
W805
W894
L1003 22uH ELC0607
C1001 16V 47 YK
C1007 25V 47 YK
C1032 16V 220 YK
C1089 0.1 F
R1075 4.7K
R1010 3.3K 1/4W

TIMER SYSCON MICON IC
IC1001
OEC7071A

VCR_A_MUTE
TV_A_MUTE
IIC_OFF
CAP_FG
CAP_CTL
LDM_CTL
CYL_DRIVE
CENTLED
CTL-
CTL+
FF/REW_SW Q1004 KRC103SRTK
H.SW
H.AMP_SW1
CAP_M/F/R
R1001 3.3K
R1008 1K 1/4W
R1064 1K 1/4W
R1012 10K
R1070 100
C1013 0.0039 B
C1084 0.0047 B
C1022 0.1 F
C1025 0.0022 B
C1042_2 1 F
C1043 0.01 B
R1016 270 1/4W
R1018 47K
R1011 150K
R1073 180K

REEL_T
REEL_S
CAP_CTL
CYL_DRIVE
SDA
SCL
Y/C_CLK
Y/C_CS
Y/C_DATA
V.REC_ST_H
OSD_R
OSD_G
OSD_B
CENTILED
OSD_BLK
SD_SYNC
C1065 0.1 F
C1028 0.1 F
C1029 0.0068 B
C1061 100P CH
C1060 100P CH
C1071 100P CH
C1004 100P CH
C1056 0.1 F
C1034 0.1 F
C1035 220P CH
C1031 0.001 B
C1009 220P CH
C1010 220P CH
C1023 220P CH
C1037 390P CH
C1038 680P CH
C1062 1 B
C1026 0.01 F
R1028 22K 1/4W
R1029 4.7K
R1042 220
R1044 5.6K
R1045 5.6K
R1038 220
R1053 220
R1017 39K
R1020 22K
R1063 4.7K
R1007 22
R1021 10
R1035 10
R1036 4.7K
R1031 1K
R1033 1K
R1078 390K
R1034 1M
R1066 4.7K
R1055 4.7K
R1022 4.7K
R1054 4.7K
R1030 4.7K
R1046 4.7K
R1047 4.7K
R1019 47K
R1052 390
R1049 4.7K
R1051 18K 1/4W
C1058 100 YK 6.3V
C1039_1 0.1 F
C1082 0.01 F
C1083 0.0022 B
C1068 0.0022 B
C1017 0.1 F
C1021 33 YK 25V
C1003_1 220 YK 6.3V
D1001 1SS133
SERVICE TP1001 NC
R1032 10K
H.SW TP1002 NC

SERVICE
NUB
(AV1)
(AV2)
TAB_SW
SD_SYNC
PLAY_LED
RESET
X-RAY_TEST
TV_POWER_H
VCR_POWER_H
C1046 20P CH
C1047 18P CH
C1040 18P CH
C1048 18P CH
C1049 22P CH
C1050 20P CH
L1001 2.2uH
R1005 2.7K
R1040 33K
X1001 100CT01207
X1002 100DA32R01

MS_SEN A Q1009 RPI-352Q01R
MS_SEN B Q1003 RPI-352Q01R
REEL SENSOR Q1005 RPI-301
R1083 33K
R1050 100
R1087 33K
SYSTEM RESET IC IC1003 R3111N311A/C

IC1001 PIN MAP
1 MSSEN-A
2 MSSEN-B
3 EOT
4 BOT
5 HI-FI-ENV
6 VIDEO-ENV
7 AFT(MONI)
8 AFT(REC)
9 KEY 1
10 KEY 2
11 CAP-PWD
12 CAP-LIMIT
13 DUMMY-V.SYNC
14 REMOCON-IN
15 COLOR ROTARY
16 HEAD.AMP SW
17 ENV-CMP-IN
18 VIDEO-H.SW
19 HI-FI-H.SW
20 LDM CTL
21 NC
22 DEGAUSS_H
23 NC
24 H_CONTROL
25 PROTECT
26 EXT-MUTE
27 VCR-POWER
28 TV-POWER
29 T-REC LED
30 REC LED
31 NC
32 NC
33 PLAY LED
34 RESET-L
35 XC_IN(32KHz)
36 XC_OUT(32KHz)
37 VCC
38 X-IN(12MHz)
39 X-OUT(12MHz)
40 VSS
41 X-RAY_TEST
42 NC
43 CLKSEL
44 OSC-IN2
45 OSC-OUT2
46 NUB
47 (AV1)
48 (AV2)
49 OSD-VSS
50 TAB SW
51 SERVICE
52 SD-IN(MONI)
53 OSD-VCC
54 HLF
55 VHOLD
56 CVIN
57 NUA
58 H/C-SYNC
59 V-SYNC
60 OSD OUT1
61 CENTER LED
62 B
63 G
64 R
65 NC
66 V.REC START H
67 NC
68 SDATA
69 CS
70 SCLK
71 IIC-CLK1
72 IIC-DATA1
73 FF/REW-L
74 JUST CLOCK
75 VOLUME
76 CAP-PWM
77 DRUM-PWM
78 CAP PULL
79 REEL-S
80 REEL-T
81 VCR_A_MUTE
82 TV_A_MUTE
83 (EXT MUTE)
84 NC
85 NC
86 POWER_FAIL_L
87 IIC OFF
88 CAP-FG
89 AMP-VSS
90 NC
91 DRUM FG/PG
92 AMP-VREFOUT
93 AMP-VREFIN
94 C
95 CTL-
96 CTL+
97 AMP C
98 CTL AMP-OUT
98 AMP-VCC
99 ANALOG VCC
100 DEW

FROM/TO Y/C/AUDIO/HEAD.AMP
Y/C_CLK
Y/C_DATA
Y/C_CS
H.SW
SD_VIDEO
ENV_DET
VCR_A_MUTE
CTL+
CTL-
DUMMY_V.SYNC
V.REC_ST_H
H.AMP_SW1
SD_SYNC
PLAY_LED

FROM/TO CHROMA/IF
POWER_OFF_H
HD
VD
AFT_M
SCL
SDA
OSD_R
OSD_G
OSD_B
OSD_BLK
AT+5V_BACKUP
AT+5V
VCR_POWER_H
TV_POWER_H
PROTECT

FROM/TO IN/OUT
IIC_OFF
REC_LED
T-REC_LED
KEY_A
KEY_B
REMOCON_IN
SCL
SDA

EEP ROM IC IC1009 S-24C04BDP-LA
SDA SCL TEST VCC VSS A2 A1 A0

TO SOUND AMP
TV_POWER_H
TV_A_MUTE

FROM/TO DEFLECTION
X_RAY
X-RAY_TEST
H_CTL

PCB010
VMA227

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

CAUTION: DIGITAL TRANSISTOR

TUNER VIDEO SIGNAL
DEFLECTION SIGNAL
CAPSTAN AFC SIGNAL
CYLINDER AFC SIGNAL
CYLINDER APC SIGNAL

IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)

TEST POINT
CP351_1
173974-6
B.OUT
INT-MONI
IIC OFF
SDA
SCL
GND

TEST POINT
CP1003
173974-4
Y/C_AUDIO
AT+5V
GND
Y/C_VIDEO

FROM/TO OPERATION
(CD757) CP757_2
1-173979-0
KEY_B
REC_LED
T-REC_LED
KEY_A
AT+5V
GND
REMOCON_IN
NC NC NC

C4206_1
0.0022 B

FROM/TO OPERATION
(CD351) CP353_1
173979-7
GND
SP_OUT
SOUND_OUT
SOUND_GND
FRONT_AUDIO_IN
GND
FRONT_VIDEO_IN

W906
W902

FROM/TO SOUND AMP
SOUND_GND
SOUND+
SP_OUT

FROM CHROMA/IF
AT+5V
INT-MONI
B.OUT

FROM/TO MICON
IIC_OFF
SDA
SCL
T-REC_LED
REC_LED

3.6
REC LED SW(AI)
Q1007
KRC102SRTK

W903
(AI)

3.6
ON TIM/T-REC LED SW(TO)
Q1008
KRC102SRTK

W912
(AI)

W866

FROM POWER
GND

R4201
1/4W
75

KEY_B
KEY_A
REMOCON_IN

FROM/TO Y/C/AUDIO/HEAD.AMP
Y/C_AUDIO
Y/C_VIDEO

FRONT_AUDIO
FRONT_VIDEO

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

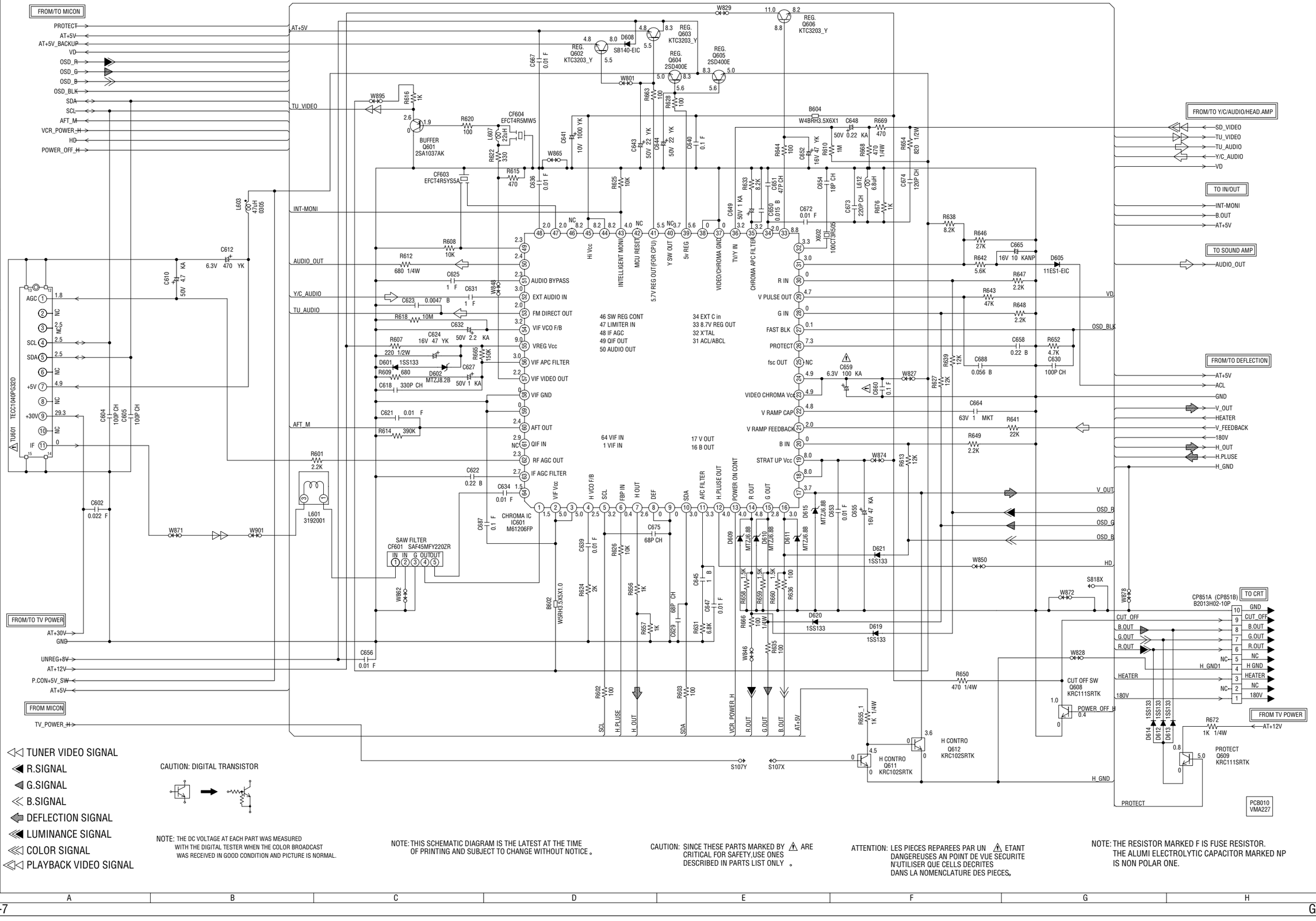
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

≪ B.SIGNAL
≪ TUNER VIDEO SIGNAL
⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)

PCB010
VMA227

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

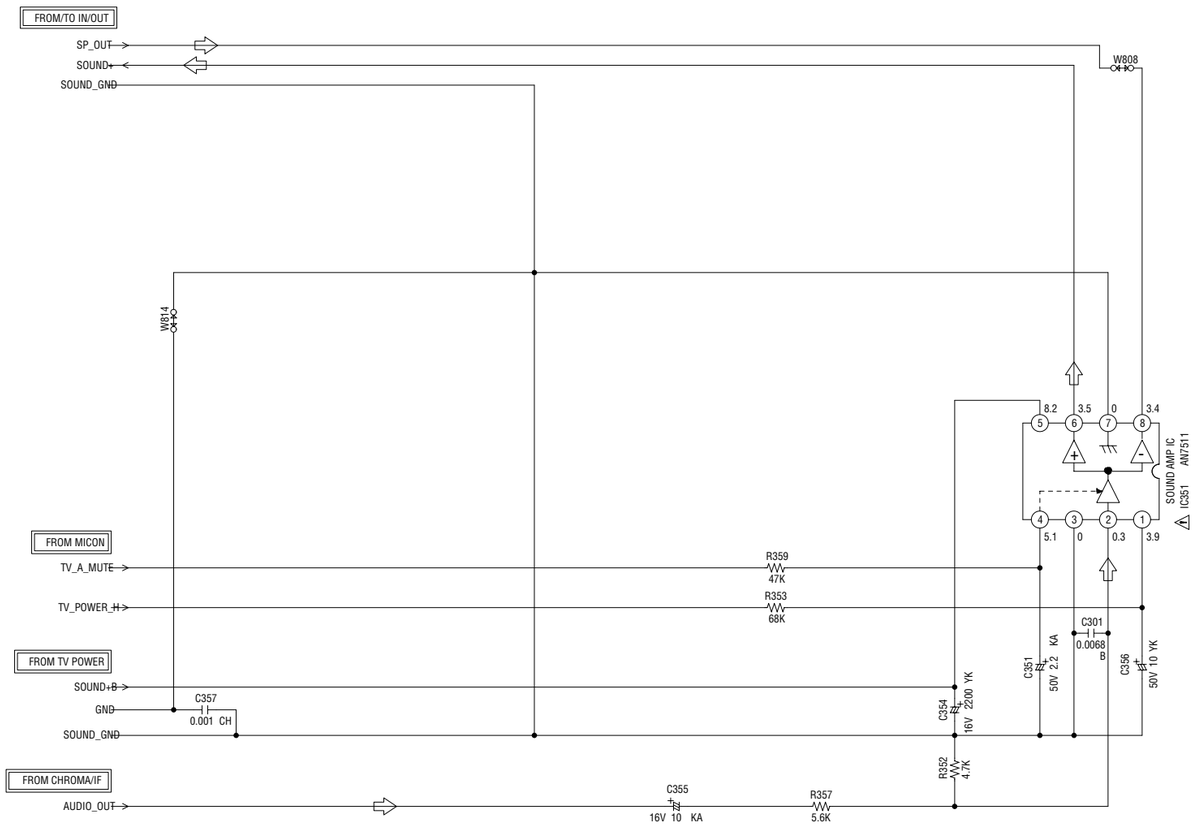
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



PCB010
VMA227

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

⇦ AUDIO SIGNAL(REC)

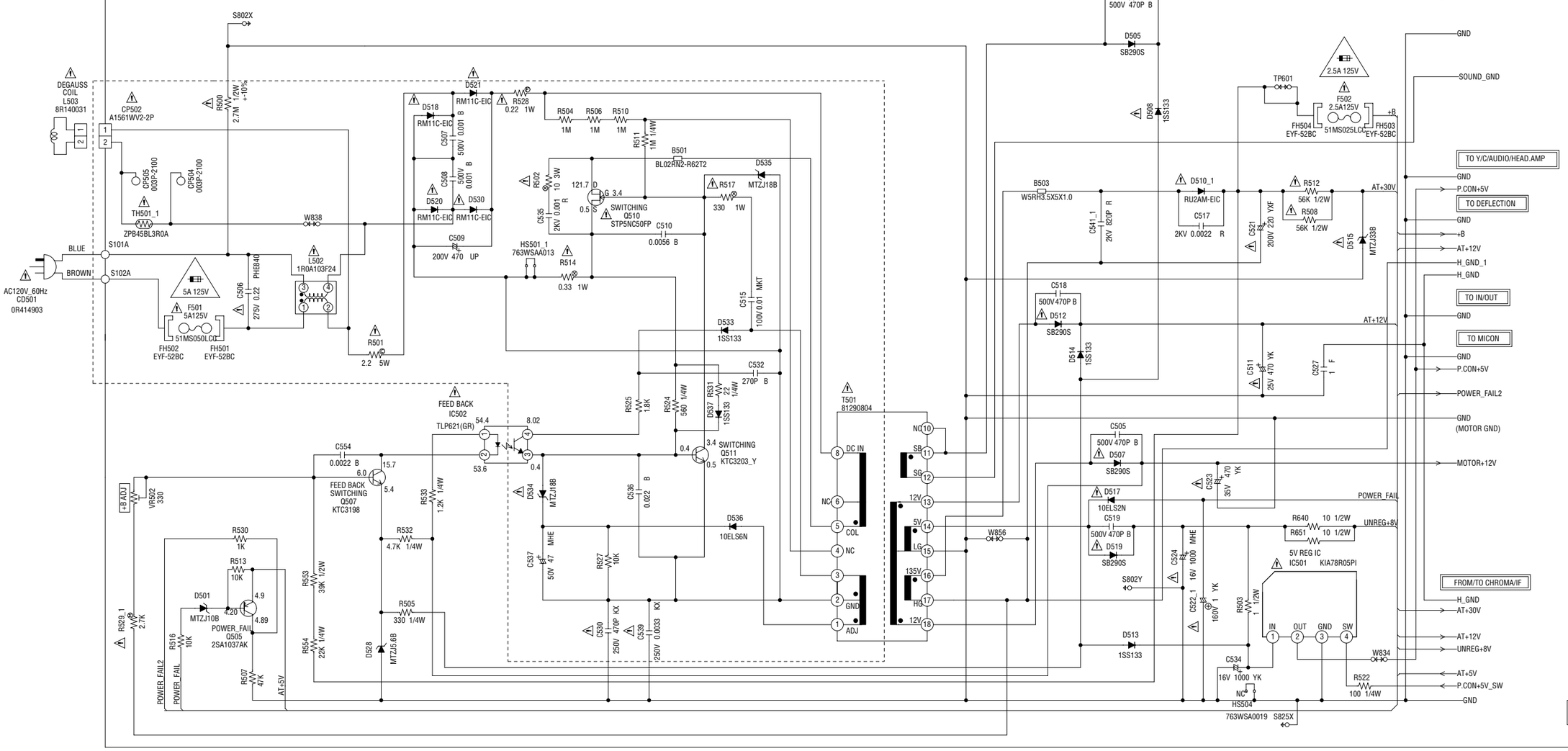
POWER SCHEMATIC DIAGRAM

(SYSCON PCB)

5A 125V　2.5A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V (F501) AND 2.5A 125V (F502)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V (F501) ET 2.5A 125V (F502)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

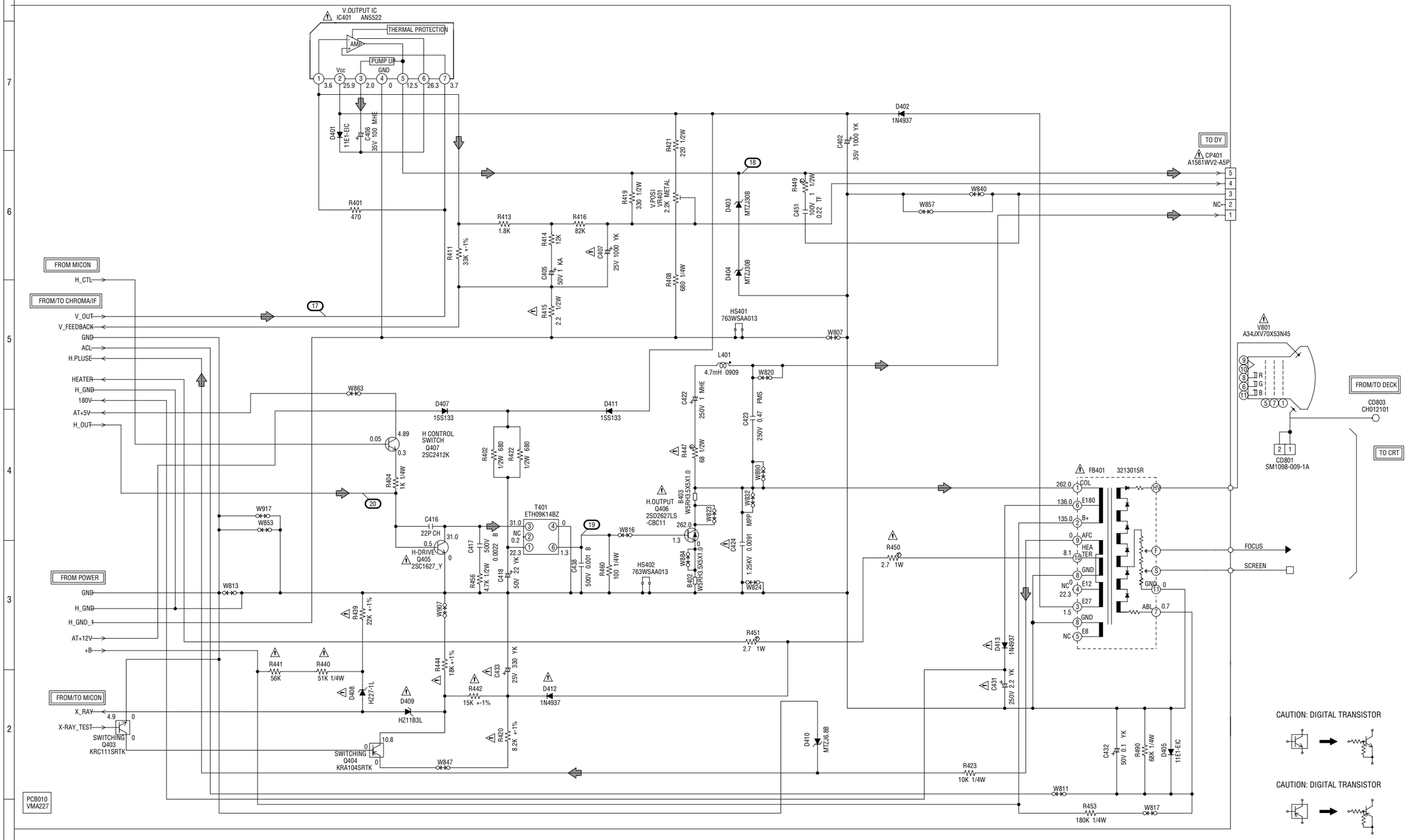
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

DEFLECTION SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

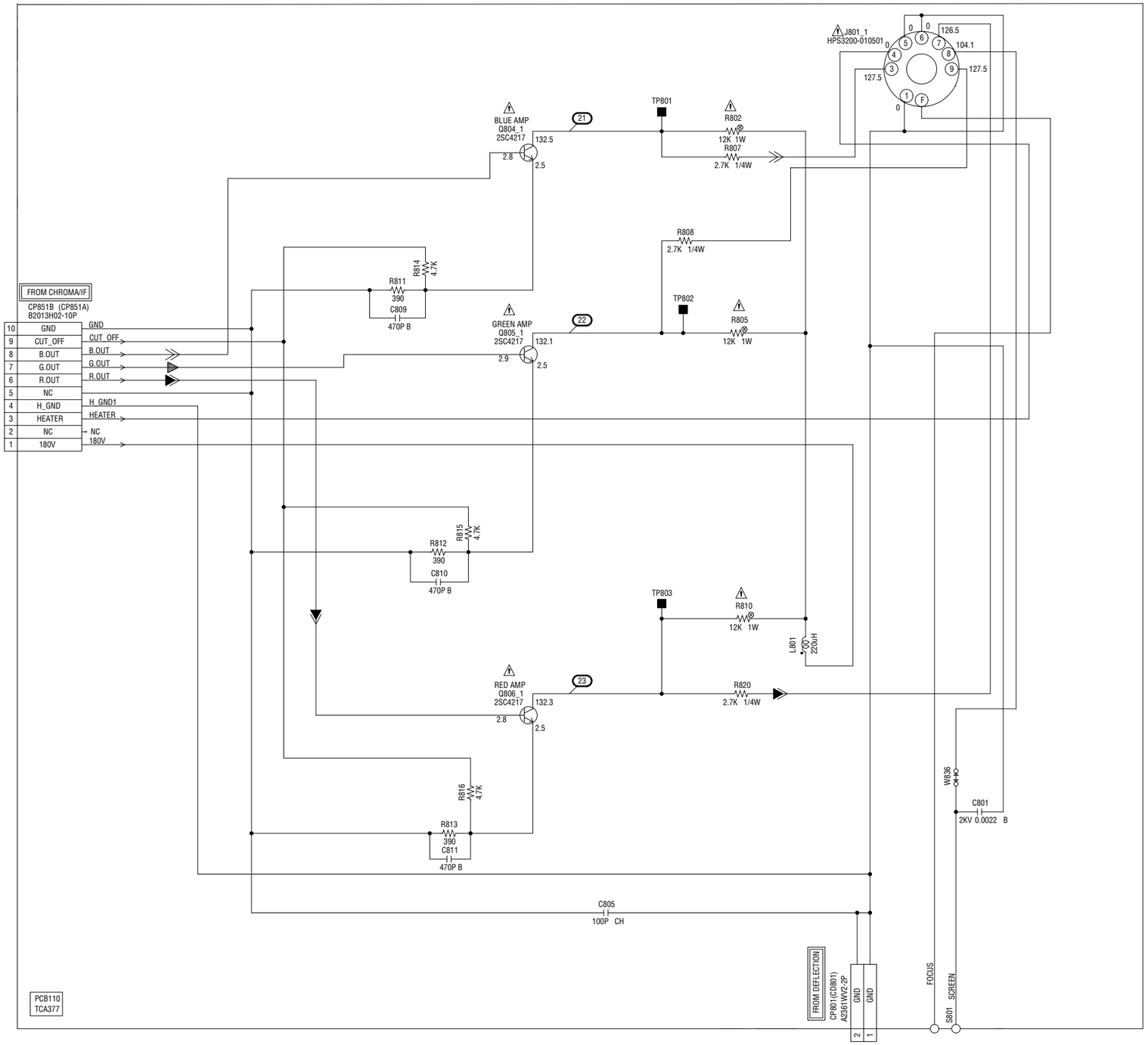
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CRT SCHEMATIC DIAGRAM

(CRT PCB)



R.SIGNAL

G.SIGNAL

B.SIGNAL

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

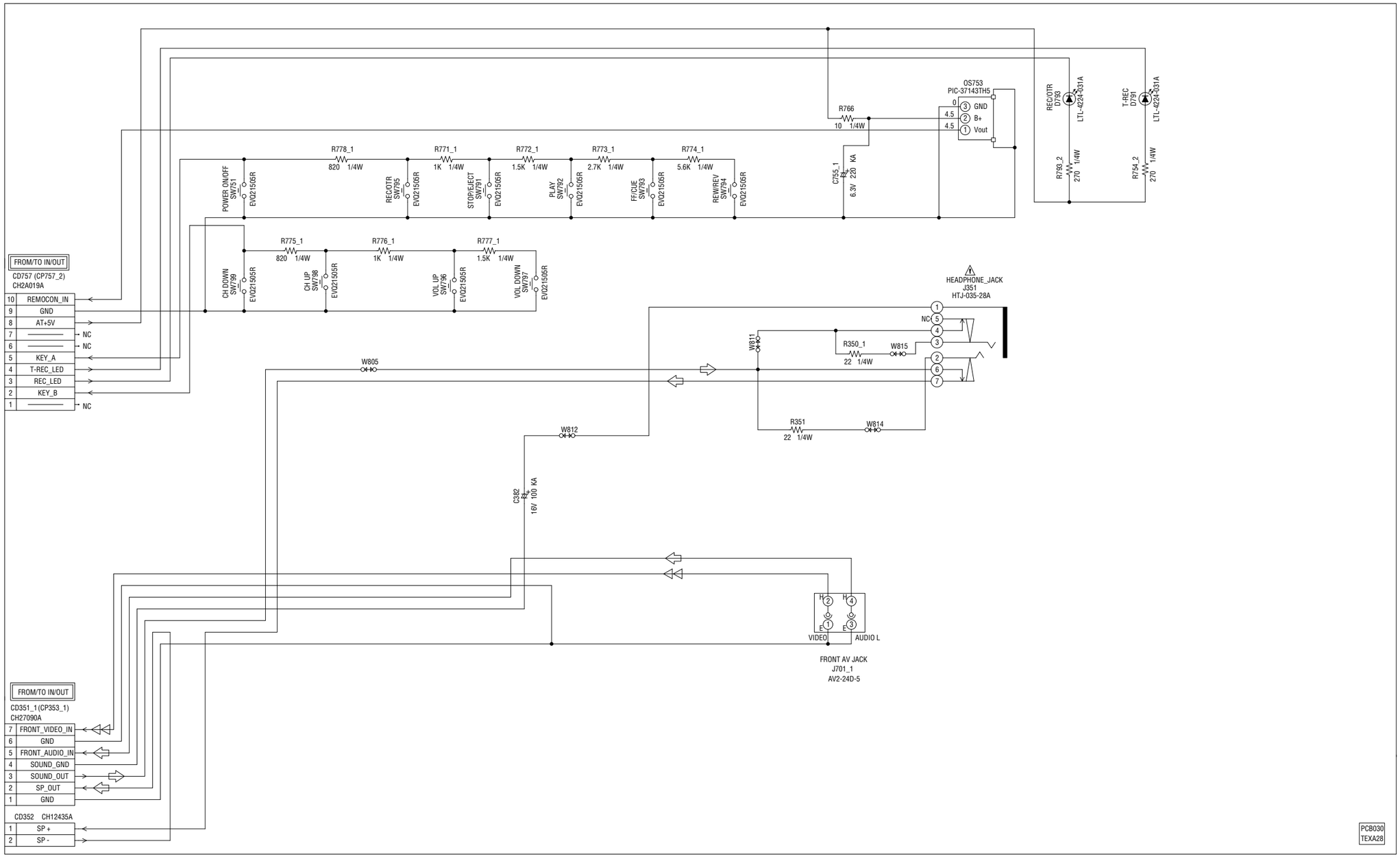
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

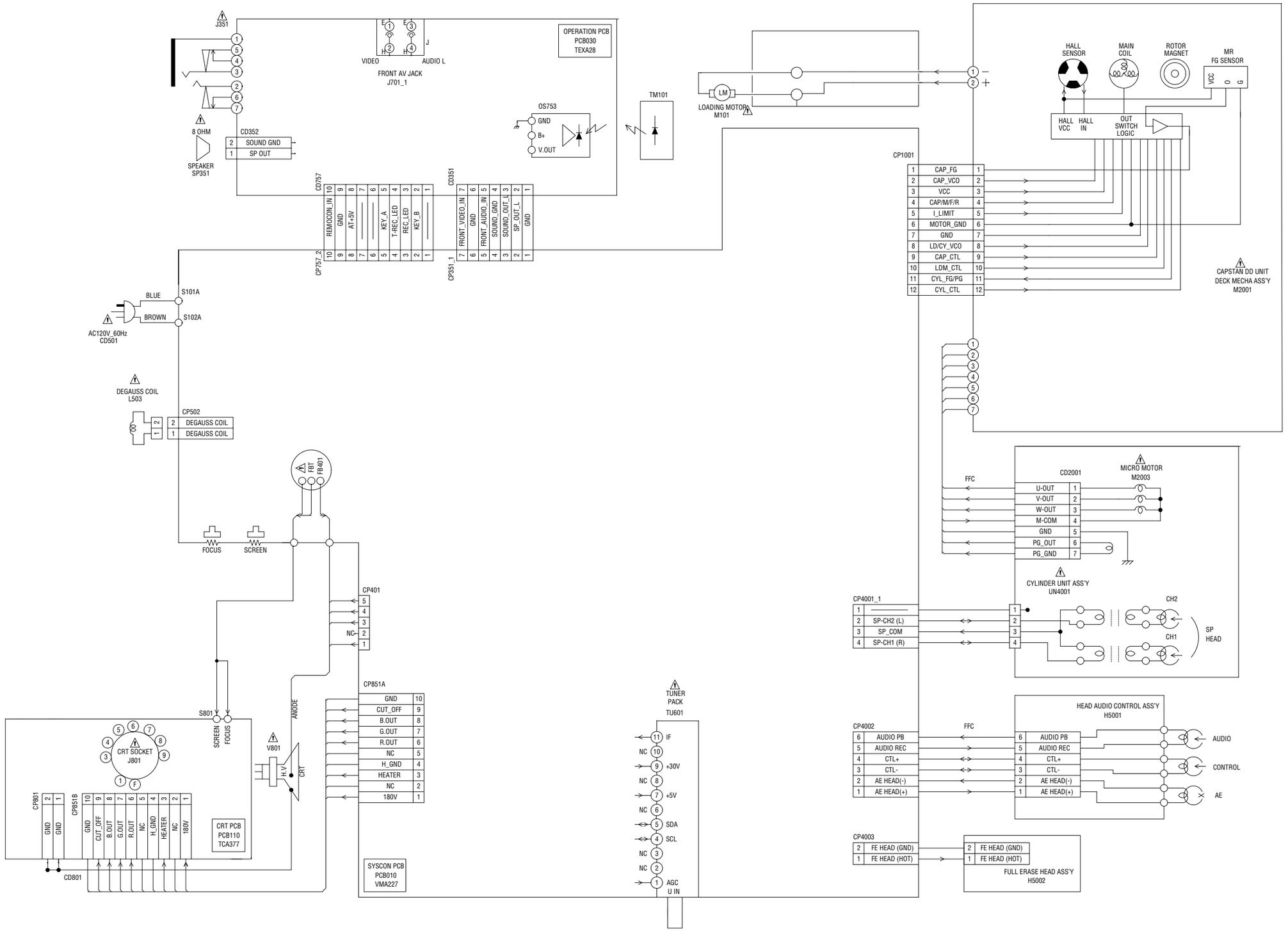
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

◁◁ TUNER VIDEO SIGNAL

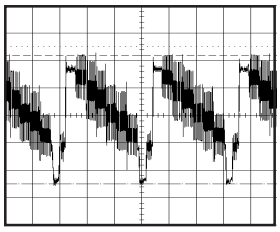
◁ AUDIO SIGNAL(REC)

INTERCONNECTION DIAGRAM

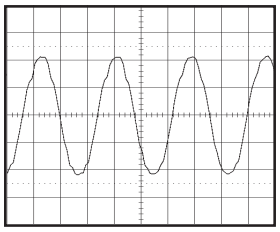


WAVEFORMS

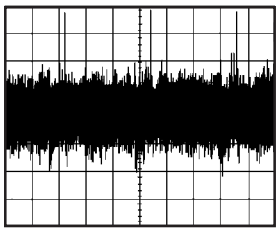
Y/C/AUDIO/CCD/HEAD AMP



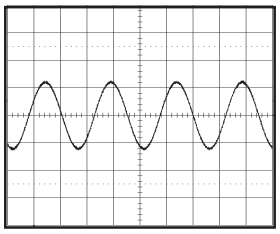
① PB
0.5V 20µs/div



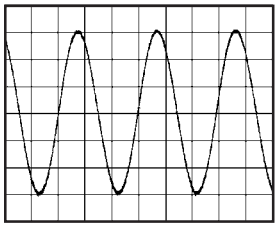
② POWER ON
100mV 0.1µs/div



③ PB
10mV 20us/div

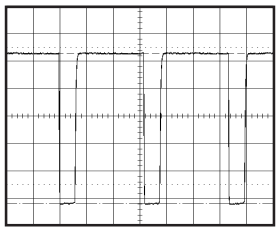


④ PB
0.5V 1ms/div

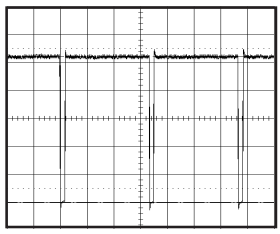


⑤ REC
10.0V 5us/div

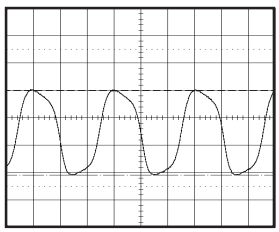
MICON



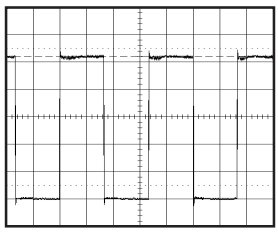
⑥ POWER ON
1.0V 20µs/div



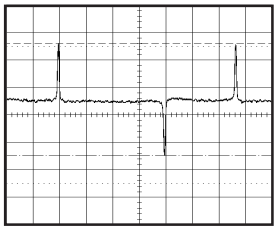
⑦ POWER ON
0.5V 10ms/div



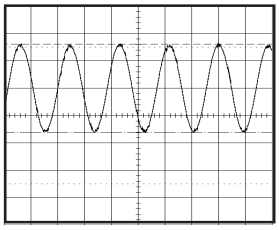
⑧ POWER ON
1.0V 10µs/div



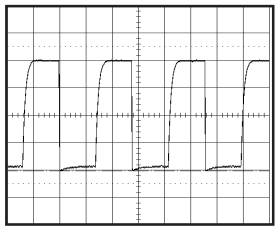
⑨ PB
1.0V 10ms/div



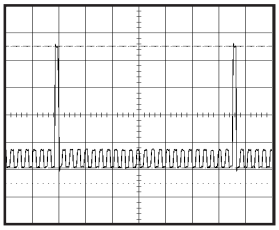
⑩ PB
1.0V 5ms/div



⑪ PB
0.5V 0.5ms/div

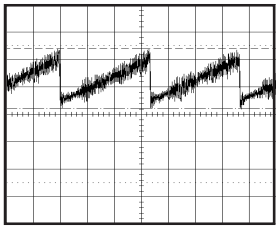


⑫ PB
1.0V 0.5ms/div

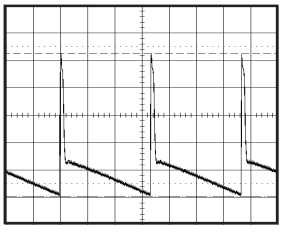


⑬ PB
1.0V 5ms/div

DEFLECTION



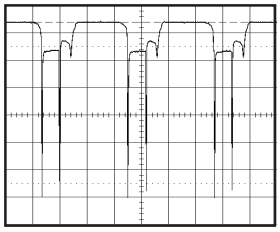
⑰ 0.5V 5ms/div



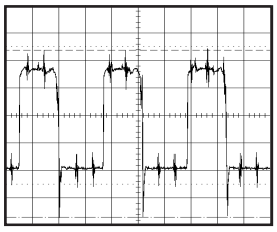
⑱ 10.0V 5ms/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

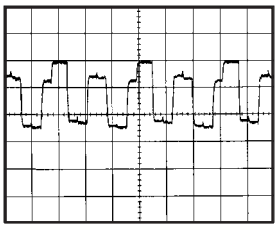


⑲ 2.0V 20µs/div

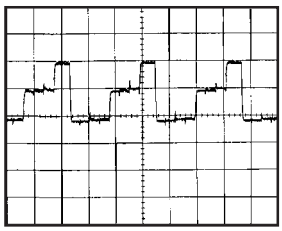


⑳ 200mV 20µs/div

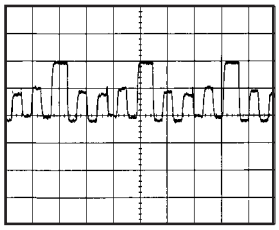
CRT



㉑ 50.0V 20µs/div



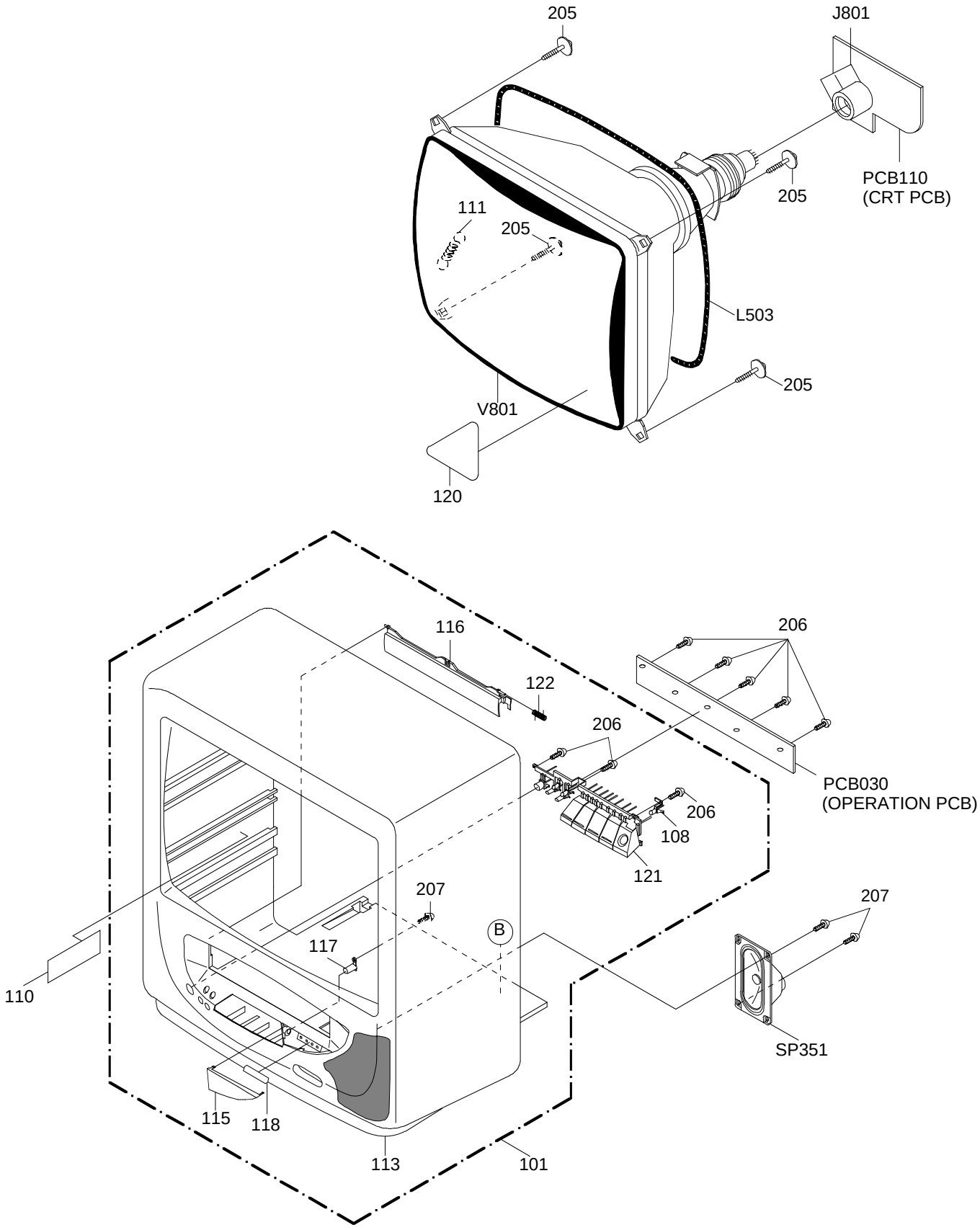
㉒ 50.0V 20µs/div



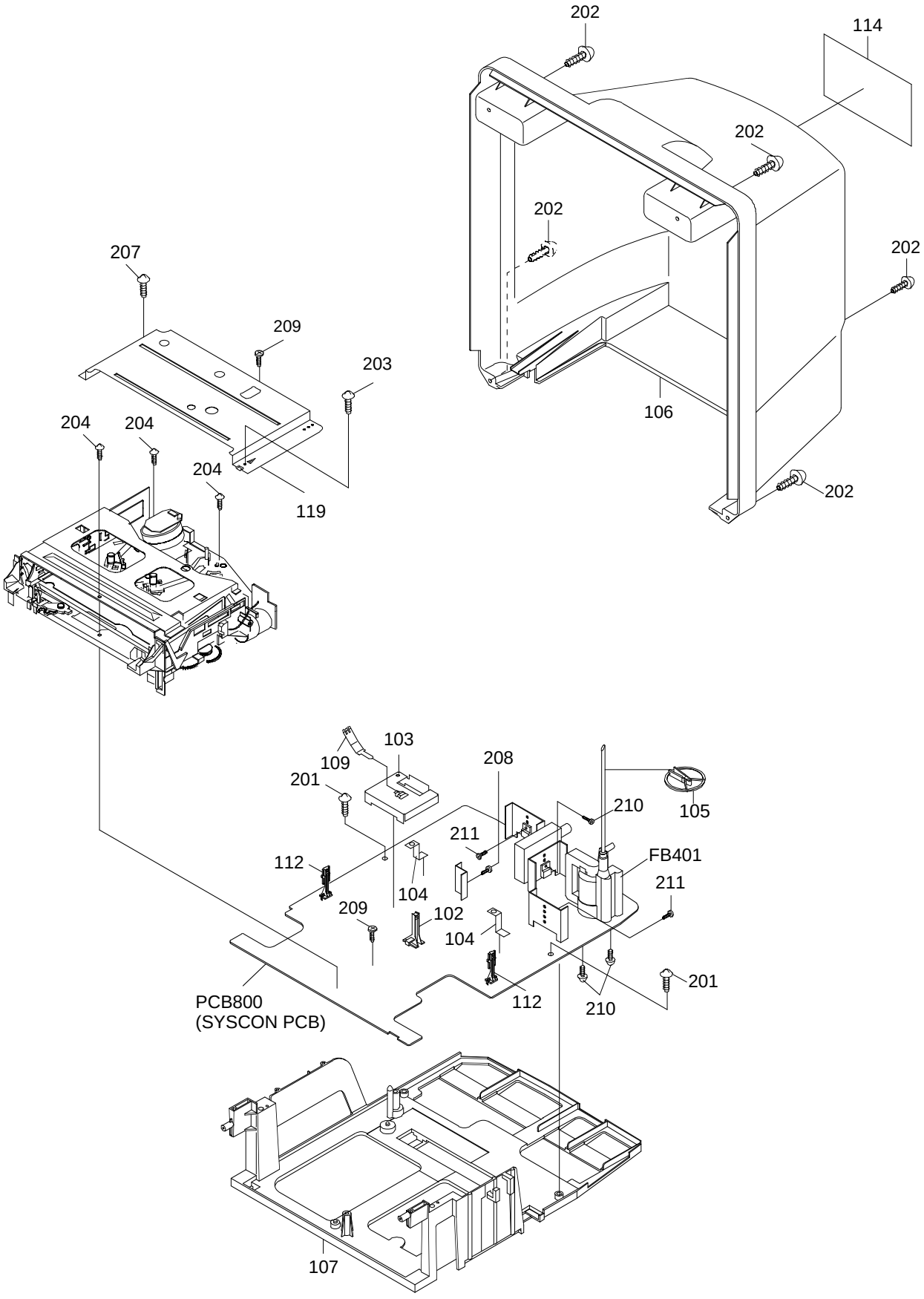
㉓ 50.0V 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

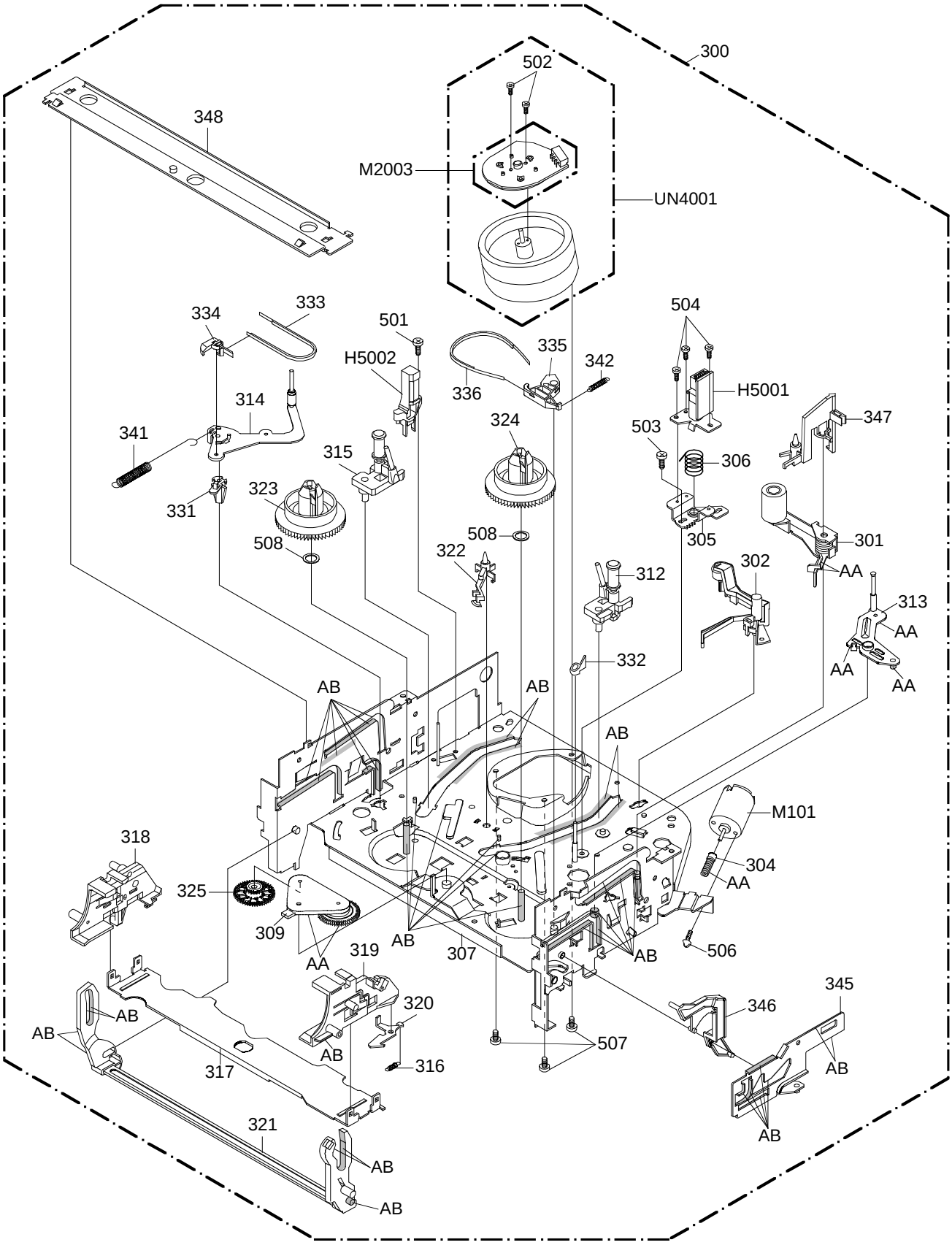
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



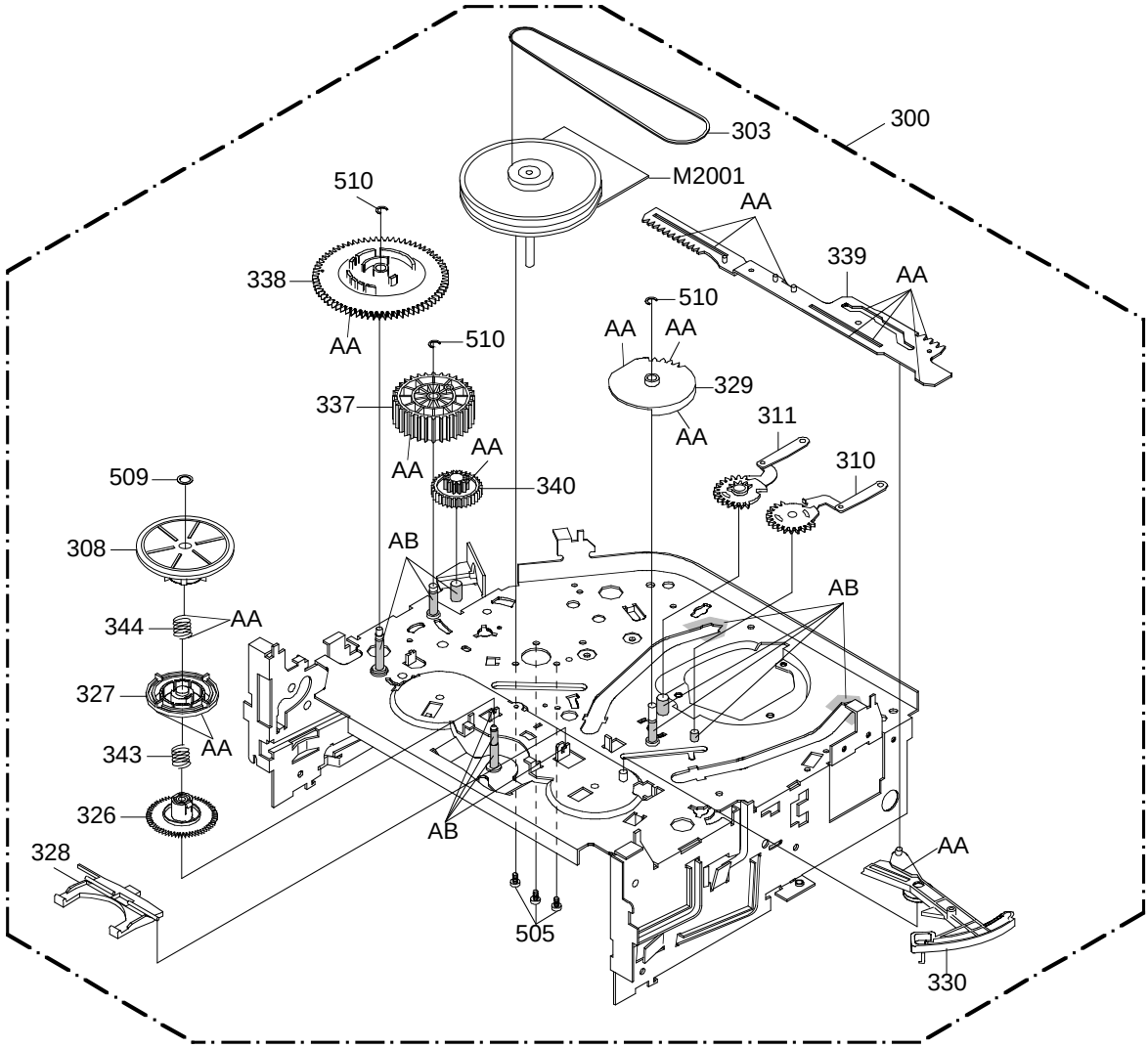
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

NOTE: Applying positions AA and AB for the grease are displayed for this section.
Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB

NOTE: Applying positions AA and AB for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A5A304C720	CABINET,FRONT ASS'Y		
102	85OP700037	HOLDER,LED		
103	752WSA0230	SHIELD,CASE HEAD AMP		
104	753WSA0118	PLATE,EARTH-SYSCON		
105	899HV3T000	HOLDER,ANODE WIRE		
106	702WPA0832	CABINET,BACK		
107	761WPA0225	HOLDER,DECK		
108	735WPAA267	BUTTON,REC		
109	753WUAA006	SPRING,EARTH HEAD AMP		
110	726000A023	SHEET,CRT SERVICEMAN		
111	741WUA0019	SPRING,EARTH		
112	85OP700038	HOLDER,END SENSOR		
113	701WPJB487	CABINET,FRONT		
114	722A08A095	SHEET,RATING		
115	711WPA0114	PLATE,FRONT		
116	712WPJB238	FLAP		
117	713WPA0075	GUIDE,REMOCON		
118	7230006830	SHEET,LED		
119	752WSAA040	PLATE,DECK SHIELD		
120	723000A824	FILM,DECORATION		
121	735WPJA514	BUTTON,FRAME		
122	743WKA0032	SPRING,FLAP (COMBO)		
201	8117540B04	SCREW,TAPPING (B0)	TRUSS	4x20
202	8117540A64	SCREW,TAPPING (B0)	TRUSS	4x16
203	8107630604	SCREW,TAP TITE (S)	BRAZIER	3x6
204	8110630A24	SCREW,TAP TITE (P)	BRAZIER	3x12
205	8121J50B54	SCREW,TAPPING (B0)	GW20	5x28
206	8110630A04	SCREW,TAP TITE (P)	BRAZIER	3x10
207	8110630804	SCREW,TAP TITE (P)	BRAZIER	3x8
208	8109I30804	SCREW,TAP TITE (B)	WH7	3x8
209	8110330804	SCREW,TAP TITE (P)	FLAT	3x8
210	8109630802	SCREW,TAP TITE (B)	BRAZIER	3x8
211	8109I30A04	SCREW,TAP TITE (B)	WH7	3x10
---	JA5K0200	POLYBAG		
---	J5A30401	INSTRUCTION BOOK		
---	J5780102	WARRANTY SHEET		
---	791WHAA016	LAMIFILM BAG		
---	A5A304A975	INSTRUCTION BOOK KIT		
---	792WHA0271	PACKAGE,TOP		
---	792WHA0272	PACKAGE,BOTTOM		
---	793WCDB088	GIFT BOX		

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
300	A5A305A420K	DECK ASS'Y	A5A305A420K	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
				502	810A123504	SEMS A	M2.3x5.0
301	85OA400227	PINCH ROLLER BLOCK		503	8107226404	SCREW,TAP TITE(S) BIND	2.6x4
302	85OA500026	AHC ASS'Y		504	8102120604	SCREW,PAN	M2x6
303	85OP200290	BELT,CAPSTAN (S)		505	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
304	85OP600581	WORM		506	810A130404	SCREW/WASHER(A)	M3x4
305	85OP500083	BASE,AC HEAD		507	810A126504	SCREW/WASHER(A)	M2.6x5
306	85OP800324	SPRING,AC HEAD		508	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
307	85OA000459	MAIN CHASSIS ASS'Y		509	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
308	85OA200089	CLUTCH ASS'Y					
309	85OA200090	ARM IDLER ASS'Y		510	83ETW30000	E-RING	3.0
310	85OA300065	LOADING ARM S UNIT		CD1501	122H071603	CORD JUMPER	SMCD-7X151
311	85OA300066	LOADING ARM T UNIT		CD1502	122Y021902	CORD JUMPER	2Y021902
312	85OA400223	INCLINED BASE T UINT 3S		H5001	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
313	85OA400226	P5 ARM ASS'Y		H5002	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
314	85OA400233	TENSION ARM ASS'Y (WT)		⚠ M101	1596P98001	MOTOR (LOADING)	MXN13FB12K3
315	85OA400231	INCLINED BASE S UNIT		⚠ M2001	1510S98036	CAPSTAN DD UNIT	F2QVB08
316	85OP800358	SPRING,LOCKER		⚠ M2003	1589S11014	MICRO MOTOR	I2OAL03
317	85OP900736	CASS,HOLDER		⚠ UN4001	A5A305A500	CYLINDER UNIT ASS'Y	A5A305A500
318	85OP900748	CASS,SIDE L					
319	85OP900749	CASS,SIDE R					
320	85OP900739	LOCKER,R					
321	85OA900228	LINK UNIT					
322	85OP000496	POST,CASS GUIDE					
323	85OP200291	REEL,S (S)					
324	85OP200292	REEL,T (S)					
325	85OP200308	GEAR,IDLER					
326	85OP200311	GEAR,CLUTCH					
327	85OP200312	GEAR,COUPLING					
328	85OP200313	LEVER,CLUTCH					
329	85OP300194	GEAR,MAIN LOADING					
330	85OP400490	LEVER,TENSION					
331	85OP400492	HOLDER,TENSION					
332	85OP400520	CAP.P4					
333	85OP400532	BAND,TENSION					
334	85OP400533	CONNECT,TENSION					
335	85OP600573	ARM,BRAKE T					
336	85OP600574	BAND,BRAKE T					
337	85OP600577	CAM,PINCH ROLLER					
338	85OP600578	CAM,MAIN					
339	85OP600579	ROD,MAIN					
340	85OP600582	GEAR,JOINT					
341	85OP800322	SPRING,TENSION					
342	85OP800350	SPRING,BRAKE T					
343	85OP800355	SPRING,COUPLING					
344	85OP800356	SPRING,RING					
345	85OP900743	LEVER,LINK					
346	85OP900744	LEVER,FLAP					
347	85OP900745	CASS,OPENER					
348	85OP900746	BRACKET,TOP 3V					

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
RESISTORS			
⚠ R415	R002T22R2J	RC	2.2 OHM 1/2W
⚠ R420	R801R7822F	RC	8.2K OHM 1/10W
⚠ R439	R801R7223F	RC	22K OHM 1/10W
⚠ R442	R801R7153F	RC	15K OHM 1/10W
⚠ R444	R801R7183F	RC	18K OHM 1/10W
⚠ R447	R65582680J	R,FUSE	68 OHM 1/2W
R449	R63502010J	R,FUSE	1 OHM 1/2W or
	R655U2010J	R,FUSE	1 OHM 1/2W
⚠ R450	R655812R7J	R,FUSE	2.7 OHM 1W
R451	R655812R7J	R,FUSE	2.7 OHM 1W
⚠ R500	R0G3K2275K	RC	2.7M OHM 1/2W
⚠ R501	R5Y2CD2R2J	R,CEMENT	2.2 OHM 5W
⚠ R502	R3X28B100J	R,METAL OXIDE	10 OHM 3W
⚠ R510	R903N8105J	RC	1M OHM 1/8W
⚠ R512	R002T2563J	RC	56K OHM 1/2W
R514	R3X181R33J	R,METAL OXIDE	0.33 OHM 1W
⚠ R517	R3X181331J	R,METAL OXIDE	330 OHM 1W
⚠ R528	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R802	R3X181123J	R,METAL OXIDE	12K OHM 1W
⚠ R805	R3X181123J	R,METAL OXIDE	12K OHM 1W
⚠ R810	R3X181123J	R,METAL OXIDE	12K OHM 1W
CAPACITORS			
C354	E02L02222M	CE	2200 UF 16V
⚠ C402	E02L04102M	CE	1000 UF 35V
⚠ C407	E02L03102M	CE	1000 UF 25V
C423	P4J7F3474J	CMPP	0.47 UF 250V PMS
⚠ C424	P4N8FJ912H	CMPP	0.0091UF 1.25KV
⚠ C431	E02LTD2R2M	CE	2.2 UF 250V
⚠ C433	E02LT3331M	CE	330 UF 25V
C451	P61101224J	CMPL	0.22 UF 100V TF or
	P611T1224J	CMPL	0.22 UF 100V TF
⚠ C506	P2472B224M	CMP	0.22UF 275V PHE840
⚠ C507	C0JTB0513K	CC	0.001 UF 500V B
C509	E51CGC471M	CE	470 UF 200V
⚠ C511	E02LT3471M	CE	470 UF 25V
C517	C03L0R7H3K	CC	0.0022UF 2KV R
⚠ C521	E62NFC221M	CE	220 UF 200V
⚠ C530	CB3930MQ2K	CC	470 PF 250V
C535	C03L0R713K	CC	0.001 UF 2KV R
⚠ C539	CB3930ML3M	CC	0.0033UF 250V
C541	C03L0R7W2K	CC	820 PF 2KV R
C801	C0PWB07H3K	CC	0.0022UF 2KV B
DIODES			
D401	D2WT011E10	DIODE SILICON	11E1-EIC
⚠ D402	D2WXN49370	DIODE SILICON	1N4937
D403	D97U03001B	DIODE,ZENER	MTZJ30B T-77 or
	D97U03301C	DIODE,ZENER	MTZJ33C T-77
D404	D97U03001B	DIODE,ZENER	MTZJ30B T-77 or
	D97U03301C	DIODE,ZENER	MTZJ33C T-77
D405	D2WT011E10	DIODE SILICON	11E1-EIC
D407	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D408	D94TA27011	DIODE ZENER	HZ27-1L TD
⚠ D409	D94TA11B13	DIODE ZENER	HZ11B3L TD
D410	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D411	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D412	D2WXN49370	DIODE SILICON	1N4937
⚠ D413	D2WXN49370	DIODE SILICON	1N4937
⚠ D501	D97U01001B	DIODE,ZENER	MTZJ10B T-77
⚠ D505	D2WXB290S0	DIODE SILICON	SB290S
D507	D2WXB290S0	DIODE SILICON	SB290S
D508	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC
⚠ D512	D2WXB290S0	DIODE SILICON	SB290S
D513	D1VT001330	DIODE,SILICON	1SS133T-77
D514	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D515	D97U03301B	DIODE,ZENER	MTZJ33B T-77 or
	D97X03301B	DIODE,ZENER	MTZJ-33B-T72
⚠ D517	D28TELS2N2	DIODE RECTIFER	10ELS2N-TA1B2
D518	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D519	D2WXB290S0	DIODE SILICON	SB290S
D520	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D521	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D530	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D533	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D534	D97U01801B	DIODE,ZENER	MTZJ18B T-77
⚠ D535	D97U01801B	DIODE,ZENER	MTZJ18B T-77

REF. NO.	PART NO.	DESCRIPTION	
DIODES			
D536	D28TELS6N6	DIODE RECTIFER	10ELS6N-TA1B2
D537	D1VT001330	DIODE,SILICON	1SS133T-77
D601	D1VT001330	DIODE,SILICON	1SS133T-77
D602	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
D605	D2WT11ES10	DIODE SILICON	11ES1-EIC
D608	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D609	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D610	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D611	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D612	D1VT001330	DIODE,SILICON	1SS133T-77
D613	D1VT001330	DIODE,SILICON	1SS133T-77
D614	D1VT001330	DIODE,SILICON	1SS133T-77
D615	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D619	D1VT001330	DIODE,SILICON	1SS133T-77
D620	D1VT001330	DIODE,SILICON	1SS133T-77
D621	D1VT001330	DIODE,SILICON	1SS133T-77
D791	0021E2Q150	LED	LTL-4224-031A
D793	0021E2Q150	LED	LTL-4224-031A
D1001	D1VT001330	DIODE,SILICON	1SS133T-77
D1003	0010100320	INFRARED LED	LNA2702L010R
D4003	D1VT001330	DIODE,SILICON	1SS133T-77
ICS			
⚠ IC351	I01DP75110	IC	AN7511
⚠ IC401	I01TD55220	IC	AN5522
IC501	I1KA98R050	IC	KIA78R05PI
⚠ IC502	0002500450	PHOTO COUPLER	TLP621(GR)
IC601	I06FC61206	IC	M61206FP
IC1001	I56F57071A	IC	OEC7071A
⚠ IC1003	IC7J0311A0	IC	R3111N311A/C-TR
IC1099	A5A304C015	IC	S-24C04BDP-LA
IC4001	I03F301MN0	IC	LA71201M-N-MPB
TRANSISTORS			
Q403	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
Q404	TPAAD05003	COMPOUND TRANSISTOR	KRA104SRTK
⚠ Q405	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
⚠ Q406	TD30026270	TRANSISTOR SILICON	2SD2627LS-CBC11
Q407	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q505	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q507	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠ Q510	TJXG5NC500	FET	STP5NC50FP
⚠ Q511	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q601	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q602	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q604	TDWT00400E	TRANSISTOR SILICON	2SD400E
Q605	TDWT00400E	TRANSISTOR SILICON	2SD400E
Q606	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q608	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
Q609	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
Q611	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q612	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
⚠ Q804	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q805	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q806	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q1003	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1004	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
⚠ Q1005	0002700590	PHOTO COUPLER	RPI-301
Q1007	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q1008	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q1009	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1011	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1013	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1023	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1024	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q4001	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4002	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q4005	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q4006	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q4007	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4009	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4010	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4011	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4012	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
COILS &TRANSFORMERS			
L401	021679472K	COIL	4.7 MH
⚠ L502	029T000092	COIL,LINE FILTER	1R0A103F24

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		COILS &TRANSFORMERS	
⚠ L503	028R140031	COIL,DEGAUSS	8R140031
L601	0331920018	COIL	3192001
L603	02167F470J	COIL	47 UH
L607	021LA6220K	COIL	22 UH
L612	021LA66R8K	COIL	6.8 UH
L801	021673221K	COIL	220 UH
L1001	021LA62R2K	COIL	2.2 UH
L1003	02167H220K	COIL	22 UH
L4001	02167F220J	COIL	22 UH
L4003	02167F101J	COIL	100 UH
L4005	02167F470J	COIL	47 UH
L4006	02167F470J	COIL	47 UH
L4009	02167F101J	COIL	100 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
⚠ T501	0481290804	TRANSFORMER,SWITCHING	81290804
T4001	031626009R	COIL,BIAS OSC	1626009
		JACKS	
⚠ J351	060G131014	RCA JACK	HTJ-035-28A
J701	060Q401075	RCA JACK	AV2-24D-5
⚠ J801	066X120014	SOCKET,CRT	HPS3200-010501
		SWITCHES	
SW751	0504101T34	SWITCH,TACT	EVQ21505R
SW791	0504101T34	SWITCH,TACT	EVQ21505R
SW792	0504101T34	SWITCH,TACT	EVQ21505R
SW793	0504101T34	SWITCH,TACT	EVQ21505R
SW794	0504101T34	SWITCH,TACT	EVQ21505R
SW795	0504101T34	SWITCH,TACT	EVQ21505R
SW796	0504101T34	SWITCH,TACT	EVQ21505R
SW797	0504101T34	SWITCH,TACT	EVQ21505R
SW798	0504101T34	SWITCH,TACT	EVQ21505R
SW799	0504101T34	SWITCH,TACT	EVQ21505R
SW1001	0508A11002	SWITCH(LEAF)	MXS01380MPP0
		VARIABLE RESISTORS	
VR401	V1263H3BT7	VOLUME,SEMI FIXED	RH0683CJ3R
VR502	V1163L2BTC	VOLUME,SEMI FIXED	EVNCYAA03BY2
		P.C.BOARD ASSEMBLIES	
PCB010	A5A304C010	PCB ASS'Y	VMA227A
PCB030	A5A304C030	PCB ASS'Y	TEXA28A
PCB110	A5A304C110	PCB ASS'Y	TCA377A
		MISCELLANEOUS	
ANT001	125C108027	ANTENNA ROD	T4-216BNK-BK
B402	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B403	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B501	024A8407C3	CORE,BEADS	BL02RN2-R62T2
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B602	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B604	024HT03564	CORE,BEADS	W4BRH3.5X6X1
CD351	06CH27090A	CORD CONNECTOR	CH27090A
CD352	06CH12435A	CORD CONNECTOR	CH12435A
⚠ CD501	120R414903	CORD AC BUSH	0R414903
CD757	06CH2A019A	CORD CONNECTOR	CH2A019A
CD801	06CU82039A	CORD CONNECTOR	SM1098-009-1A
CD803	06CH012101	CORD CONNECTOR	CH012101
CD851	WHL6032038	FLAT CABLE	AWG26 10C BLACK 320MM
CD852	06CH01408A	CORD EIS CONNECTOR	CH01408A
CF601	1022T45R72	FILTER,SAW	SAF45MFY220ZR
CF603	1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A
CF604	1011T4R517	FILTER,CERAMIC	EFCT4R5MW5
CP351	0694260139	CONNECTOR PCB SIDE	173979-6
CP353	0694270139	CONNECTOR PCB SIDE	173979-7
⚠ CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
⚠ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP504	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP505	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP757	06942A0139	CONNECTOR PCB SIDE	1-173979-0
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CD4001	122L061501	CORD JUMPER	2L061501
CP1001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP1003	0694240139	CONNECTOR PCB SIDE	173979-4
CP4001	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1
CP4002	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP4003	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1
CP851A	067U010049	WIRE HOLDER	B2013H02-10P
CP851B	067U010049	WIRE HOLDER	B2013H02-10P
CUS012	800WFAA008	CUSHION C	
⚠ F501	081PC05004	FUSE	51MS050LCC
⚠ F502	081PC2R504	FUSE	51MS025LCC

REF. NO.	PART NO.	DESCRIPTION		
		MISCELLANEOUS		
⚠ FB401	043213015R	TRANSFORMER,FLYBACK	3213015R	
FH501	06710T0006	HOLDER,FUSE	EYF-52BC	
FH502	06710T0006	HOLDER,FUSE	EYF-52BC	
FH503	06710T0006	HOLDER,FUSE	EYF-52BC	
FH504	06710T0006	HOLDER,FUSE	EYF-52BC	
OS753	077Q037002	REMOTE RECEIVER	PIC-37143TH5	
⚠ SP351	070W535002	SPEAKER	NF-16D27W	
⚠ TH501	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A	
TM101	076R0CG010	TRANSMITTER	R25-1195	or
	076N0CG010	TRANSMITTER	RC-CG010	
⚠ TU601	0145K00055	TUNER,VHF-UHF	TECC1040PG32D	
⚠ V801	098Y1404B9	CRT W/DY	A34JXV70X53N45	
X602	100CT3R505	CRYSTAL HC-49/C	3.579545MHz	
X1001	100CT01207	CRYSTAL HC-49/U-S	12MHz	
X1002	100DA32R01	CRYSTAL DT-26	32.768KHz	
X4001	100CT3R502	CRYSTAL HC-49/U	3.579545MHz	

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

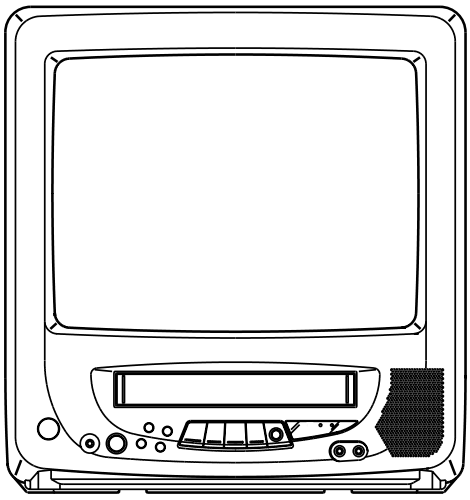
SPEC.NO.	M5A3-04C
O/R NO.	K1X5006

Memorex®

MVT2135B Series E

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER



VHS

ORIGINAL
MFR'S VERSION C

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1].**
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

CONTENTS

SERVICING NOTICES ON CHECKING A1-1
HOW TO ORDER PARTS A1-1
CONTENTS A2-1
GENERAL SPECIFICATIONS ..... A3-1~A3-4
DISASSEMBLY INSTRUCTIONS
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS B1-1
2. REMOVAL OF DECK PARTS ..... B2-1~B2-6
3. REMOVAL OF ANODE CAP B3-1
4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC B4-1, B4-2
KEY TO ABBREVIATIONS C1-1, C1-2
SERVICE MODE LIST C2-1
PREVENTIVE CHECKS AND SERVICE INTERVALS C3-1, C3-2
WHEN REPLACING EEPROM (MEMORY) IC C4-1
SERVICING FIXTURES AND TOOLS D1-1
PREPARATION FOR SERVICING D1-1
MECHANICAL ADJUSTMENTS ..... D2-1~D2-4
ELECTRICAL ADJUSTMENTS ..... D3-1~D3-5
BLOCK DIAGRAMS
TV E-1, E-2
Y/C/AUDIO/CCD/HEAD AMP E-3, E-4
MICON/OPERATION/IN/OUT E-5, E-6
PRINTED CIRCUIT BOARDS
OPERATION F-1, F-2
SYSCON/CRT ..... F-3~F-6
SCHEMATIC DIAGRAMS
Y/C/AUDIO/CCD/HEAD AMP G-1, G-2
MICON G-3, G-4
IN/OUT G-5, G-6
CHROMA/IF G-7, G-8
SOUND AMP G-9, G-10
POWER G-11, G-12
DEFLECTION G-13, G-14
CRT G-15, G-16
OPERATION G-17, G-18
INTERCONNECTION DIAGRAM G-19, G-20
WAVEFORMS H-1, H-2
MECHANICAL EXPLODED VIEWS I1-1, I1-2
CHASSIS EXPLODED VIEWS I2-1, I2-2
MECHANICAL REPLACEMENT PARTS LIST J1-1
CHASSIS REPLACEMENT PARTS LIST J2-1
ELECTRICAL REPLACEMENT PARTS LIST J3-1, J3-2

GENERAL SPECIFICATIONS

G-1	**TV System**	CRT		CRT Size / Visual Size	13 inch / 335.4 mmV
				CRT Type	Normal
				Deflection	90 degree
				Magnetic Field BV/BH	+0.45G / +0.18G
		Color System			NTSC
		Speaker			1Speaker
				Position	Front
				Size	1.5 x 2.5 Inch
				Impedance	8 ohm
		Sound Output		MAX	1.5 W
				10%(Typical)	1.0 W
G-2	**VCR System**	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			No
		NTSC PB			-
		Deck		DECK	OVD-7
				Loading System	Front
				Motor	3
		Heads	Video Head		2Head
			FM Audio Head		No
			Audio /Control		Mono /Yes
			Erase(Full Track Erase)		Yes
		Tape Speed	Rec	PAL	-
				NTSC	SP/SLP
			Play	PAL	-
				NTSC	SP/LP/SLP
		Fast Forward / Rewind Time (Approx.)			FF:4'50"/REW:2'30"
				with Cassette	T-120
		Forward/Reverse Picture Search		NTSC or PAL-M	SP/LP/SLP=3x,5x/7x,9x/9x,15x
		Frame Advance			-
		Slow Speed			-
G-3	**Tuning System**	Broadcasting System			US System M
		Tuner and Receive CH		System	1Tuner
				Destination	US(w/CATV)
				Tuning System	F-Synth
				Input Impedance	VHF/UHF 75 ohm
				CH Coverage	2~69, 4A,A-5~A-1, A~I, J~W,W+1~W+84
		Intermediate Frequency		Picture(FP)	45.75 MHz
				Sound(FS)	41.25 MHz
				FP-FS	4.5 MHz
		Preset CH			No
		Stereo/Dual TV Sound			No
		Tuner Sound Muting			Yes
G-4	**Signal**	Video Signal		Input Level	1 V p-p/75 ohm
				Output Level	-
				S/N Ratio (Weighted)	50dB
				Horizontal Resolution at SP Mode	220Lines
		Audio Signal		Input Level	-8dBm/50Kohm
				Output Level	-
				S/N Ratio at SP (Weighted)	38dB
				Harmonic Distortion at SP (1KHz) Typical	1.5 %
				Frequency Response at SP	100Hz - 10kHz
				at LP	100Hz - 6kHz
				at SLP	100Hz - 4kHz
		Hi-Fi Audio Signal		Dynamic Range : More than	- dB
				Wow And Flutter : Less than	- %Wrms
				Channel Separation : More than	- dB
				Harmonic Distortion : Less than	- %
G-5	**Power**	Power Source		AC	120V,60Hz
				DC	-
		Power Consumption		at AC	65 W at 120V 60Hz
				at DC	-
				Stand by (at AC)	5 W at 120V 60Hz
				Per Year	-
		Protector		Power Fuse	Yes
				Dew Sensor	No
G-6	**Regulation**			Safety	UL
				Radiation	FCC
				X-Radiation	DHHS
G-7	**Temperature**			Operation	+5°C ~ +40°C
				Storage	-20°C ~ +60°C
G-8	**Operating Humidity**				Less then 80% RH
G-9	**On Screen Display**	Menu			Yes
			Menu	Type	Charactor

GENERAL SPECIFICATIONS

			Timer Rec Set		Yes	
			Channel Setup		Yes	
				TV/CATV	Yes	
				Auto CH Memory	Yes	
				Add/ Delete	Yes	
				Guide CH Set		No
			TV Setup		Yes	
				V-chip Set	Yes	
				On/Off Timer Set	Yes	
				Picture	Yes	
				Audio		No
				Sap On/Off		No
			Auto Repeat On/Off		Yes	
			System Setup		Yes	
				Clock Set	Yes	
				Language	Yes	
				Auto Clock On/Off	Yes	
				Standard Time	Yes	
				Daylight Saving Time	Yes	
			Commercial Advance			No
				Marking On/Off		No
				Blueback On/Off		No
				Playback Auto/Manual		No
				Unmarked Tape		No
			Movie Advance			No
				Go To Movie		No
				Go To Preview		No
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry				No
		Clock / Date			Yes	
		CH/AV			Yes	
		Tape Counter(Linear Counter)			Yes	
		Tape Speed			Yes	
		Sleep Time			Yes	
		Stereo/Audio Output				No
				Bilingal		No
				SAP		No
		Control Level	Volume		Yes	
			Bright / Contrast / Sharpness / Color		Yes	
			Tint		Yes	
			Bass/Treble/Balance			No
			Manual Tracking		Yes	
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)			Yes	
		Auto Tracking/Manual Tracking			Yes	
		Caption / Text			Yes	
		Index				No
		Muting			Yes	
		Hi-Fi				No
		Repeat			Yes	
		Zero Return				No
		DEW				No
G-10	**OSD Language**				English French Spanish	
			OSD Language Setting		English	
G-11	**Clock,Timer and Timer Back-up**	Calendar			1990/1/1 ~ 2081/12/31	
		Timer Events			8 Program/ 1 Month	
		One Touch Recording Max Time			5 Hours	
		OTPB Valid Time				No
		Sleep Timer	Max Time		120	Min
			Step		10	Min
		On/Off Timer	Program(On Timer / Off Timer)		1	Program
		Auto Shut Off	No Signal		15	Min
			No Operation		-	
		Timer Back-up (at Power Off Mode)			5	Sec
G-12	**Remote Control**	Unit			RC-CG	
		Glow in Dark Remocon			Yes	
		Power Source	Voltage(D.C)		3V	
			UM size x pcs		UM-4 x 2 pcs	
		Total Keys			41	Keys
		Keys	Power		Yes	
			1		Yes	
			2		Yes	
			3		Yes	
			4		Yes	
			5		Yes	
			6		Yes	
			7		Yes	
			8		Yes	
			9		Yes	

GENERAL SPECIFICATIONS

			0	Yes
			CH Up	Yes
			CH Down	Yes
			Volume Up	Yes
			Volume Down	Yes
			Input Select	Yes
			Play	Yes
			F.Fwd	Yes
			Rew	Yes
			Pause/Still	Yes
			Stop	Yes
			Rec/OTR	Yes
			Eject	Yes
			Counter Reset	Yes
			Speed	Yes
			Timer Rec	Yes
			TV Monitor	Yes
			Quick View	Yes
			Program	Yes
			Slow	No
			Auto Tracking	Yes
			Set/Tracking+	Yes
			Set/Tracking -	Yes
			Menu	Yes
			Enter	Yes
			Cancel	Yes
			Call	Yes
			TV/Caption/Text	Yes
			Sleep Timer	Yes
			Muting	Yes
			Zero Return	Yes
			CM Skip	Yes
			Audio Select	No
G-13	**Features**	Auto Head Cleaning		Yes
		Auto Tracking		Yes
		HQ (VHS Standard High Quality)		Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject		Yes
		VIDEO PLUS+(SHOWVIEW,G-CODE)		No
		Auto Clock		Yes
		Forward / Reverse Picture Search		Yes
		Reverse Slow		No
		One Touch Playback		No
		Auto CH Memory		Yes
		Closed Caption		Yes
		TV Auto Shut off Function		Yes
		End Call		No
		Index Search		No
		SQPB		No
		CATV		Yes
		CM Skip(30sec x 6 Times)		Yes
		Comb Filter		No
		TV Monitor		Yes
		Program Extend		No
		Choke Coil		No
		Energy Star		Yes
		Protect of FBT Leak Curcuit		No
		Dirty Head		No
		V-chip USA V-chip		Yes
		CANADA V-chip		No
		Zero Return		Yes
		CM Advance		No
		Movie Advance		No
G-14	**Accessories**	Owner's Manual	Language	English/Spanish
			w/Guarantee Card	No
		Remote Control Unit		Yes
		Battery		No
			UM size x pcs	-
		Rod Antenna		Yes
			Poles	1 pole
			Terminal	F type
			w/300 ohm to 75 ohm Antenna Adapter	No
		Loop Antenna		No
			Terminal	-
		U/V Mixer		No
		300 ohm to 75 ohm Antenna Adapter		No
		Antenna Change Plug		No

GENERAL SPECIFICATIONS

		DC Car Cord (Center+)			No
		AC Plug Adapter			No
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Guarantee Card		Yes	
		Registration Card			No
		ESP Card			No
		Warning Sheet			No
		Dew/AHC Caution Sheet			No
		Quick Set-up Sheet			No
		Circuit Diagram			No
		Service Facility List			No
		Important Safeguard			No
		Informatin Sheet			No
G-15	**Interface**	Switch	Power	Yes	
			Play	Yes	
			Pause/Still		No
			System Select		No
			One Touch Playback		No
			Channel Up	Yes	
			Channel Down	Yes	
			F.FWD/Cue	Yes	
			Eject/Stop	Yes	
			Main Power SW		No
			Volume Up	Yes	
			Volume Down	Yes	
			Rew/Rev	Yes	
			Rec/OTR	Yes	
			Input Select		No
		Indicator	Power		No
			Rec/OTR	Red	
			T-Rec	Red	
			On Timer		No
			CS		No
		Key Light up	Rec/OTR		No
			One Touch Playback		No
			Play		No
		Terminals	Front Video Input	RCA x 1	
			Audio Input	RCA x 1	
			Other Terminal	Head Phone(Stereo & Mono, 3.5mm)	
			Rear Video Input		No
			Audio Input		No
			Video Output		No
			Audio Output		No
			Euro Scart		No
			Diversity		No
			Ext Speaker	W	No
			DC Jack 12V(Center +)		No
			VHF/UHF Antenna Input	F Type	
			AC Inlet		No
G-16	**Set Size**		Approx. W x D x H (mm)	362 x 370.5 x 382	
G-17	**Weight**		Net (Approx.)	11.0	(24.3 lbs)
			Gross (Approx.)	12.5	(27.6 lbs)
G-18	**Carton**	Master Carton			No
			Content	-	
			Material	-	
			Dimensions W x D x H(mm)	-	
			Description of Origin	-	
		Gift Box		Yes	
			Material	Double/White	
			Dimensions W x D x H(mm)	423 x 447 x 443	
			Design	As per Buyer's	
			Description of Origin	Yes	
		Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces	
			Height (cm)	62	
		Container Stuffing(40' container)		700	Sets
G-19	**Cabinet Material**		Cabinet Front	PS	94V0/DECABROM
			Cabinet Rear	PS	94V0/DECABROM

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 5 screws ①.
2. Remove the AC cord from the AC cord hook ③.
3. Remove the Back Cabinet in the direction of arrow.

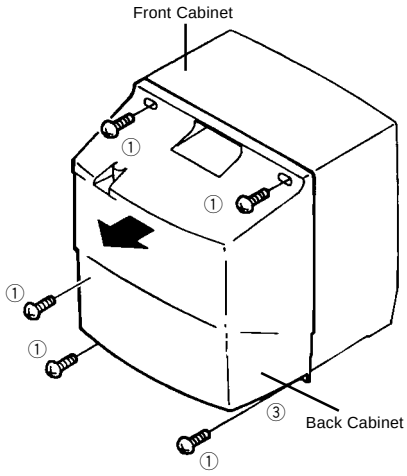


Fig. 1-1

1-2: CRT PCB (Refer to Fig. 1-2)

CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap. (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors: (CP801 and CP851B).
3. Remove the CRT PCB in the direction of arrow.

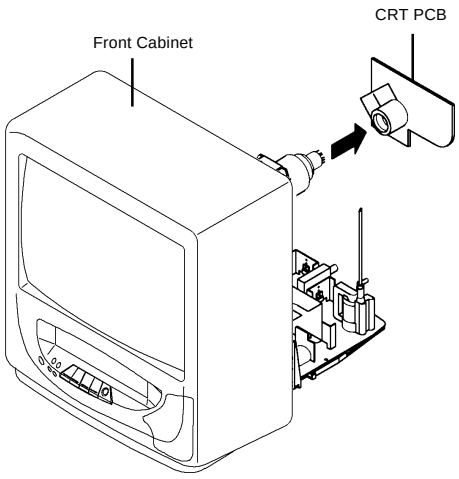


Fig. 1-2

1-3: TV/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors: (CP757, CP351, CP401 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

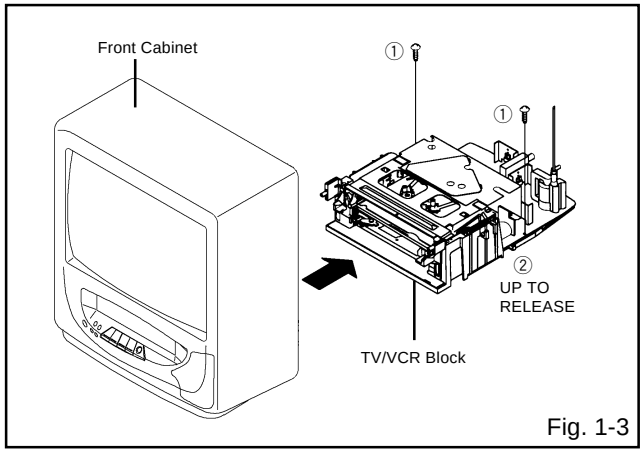


Fig. 1-3

1-4: DECK CHASSIS AND SYSCON PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the screw ②.
3. Remove the screw ③.
4. Remove the Deck Shield Plate in direction of arrow (A).
5. Remove the screw ④.
6. Remove the Cover Light Plate in direction of arrow (C).
7. Remove the 3 screws ⑤.
8. Disconnect the following connectors: CP1001, CP4001, CP4002 and CP4003).
9. Remove the Deck Chassis in the direction of arrow (B).
10. Remove the screw ⑥.
11. Remove the Syscon PCB in the direction of arrow (C).

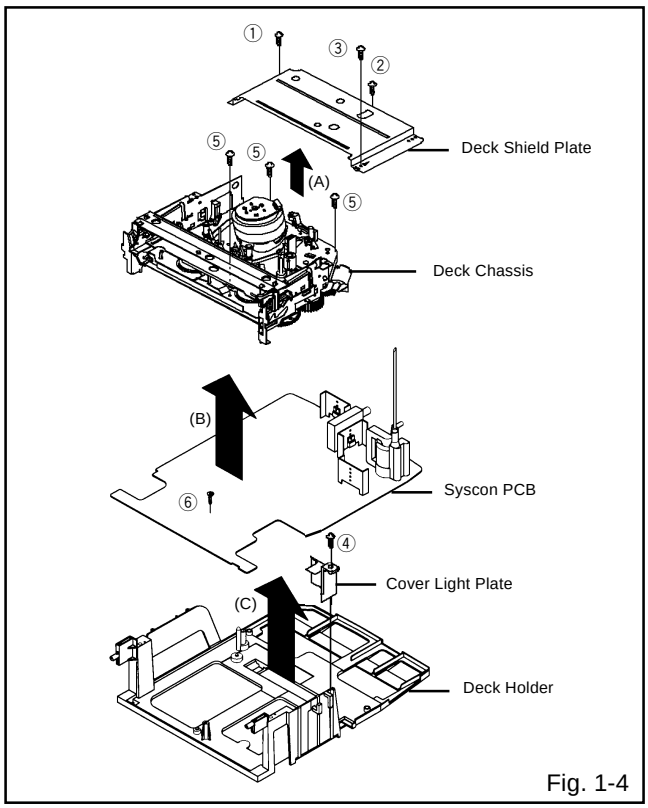


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

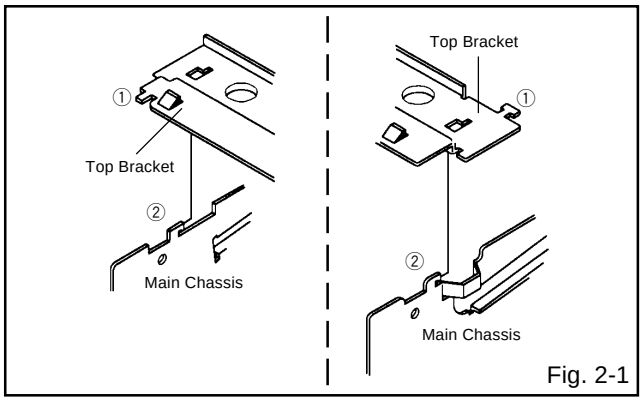


Fig. 2-1

2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

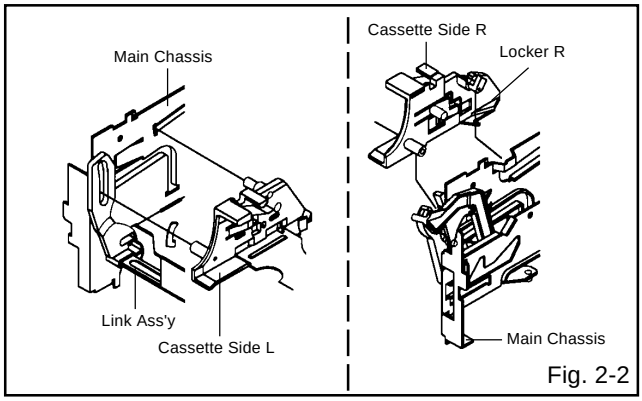


Fig. 2-2

2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.

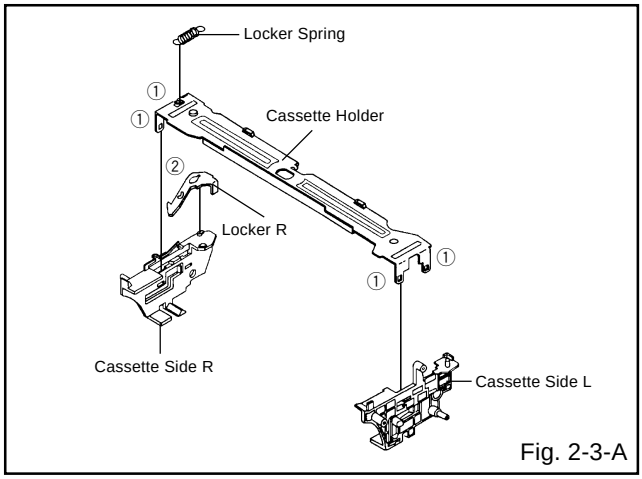


Fig. 2-3-A

NOTE

1. In case of the Locker R installation, check if the two positions of Fig.2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.

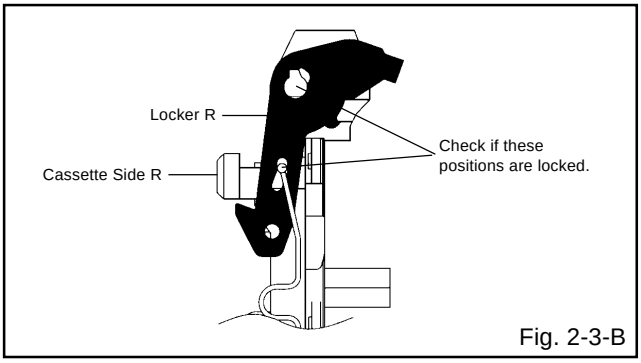


Fig. 2-3-B

2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

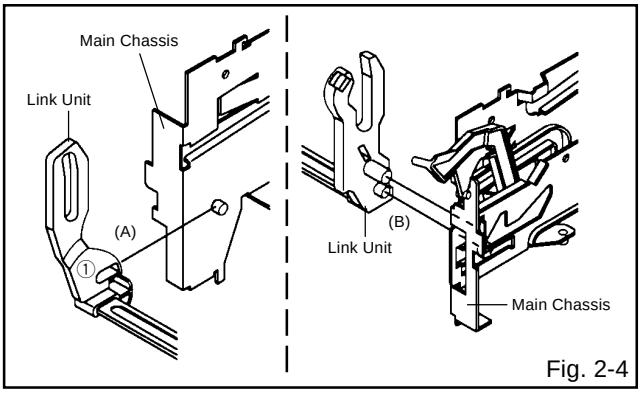


Fig. 2-4

2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.

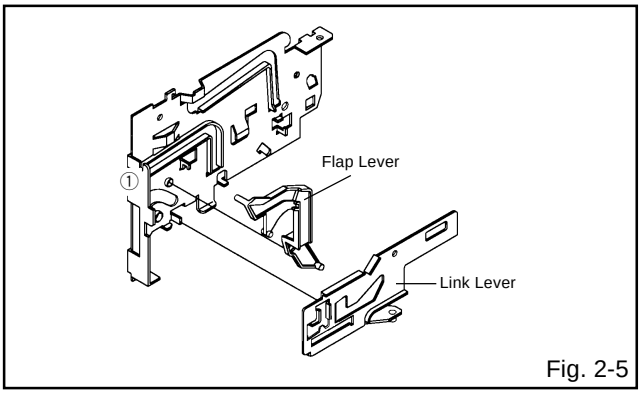


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

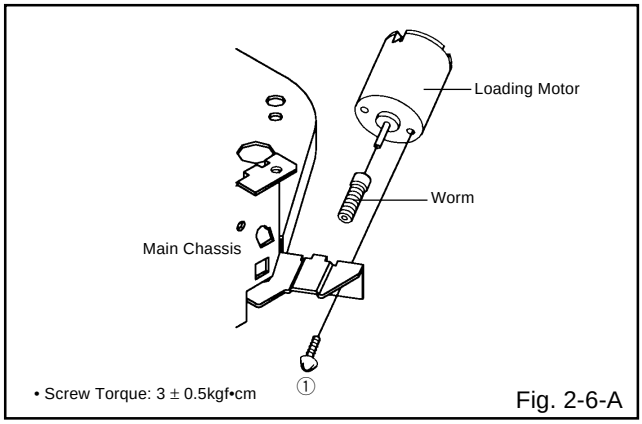


Fig. 2-6-A

NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-6-C.

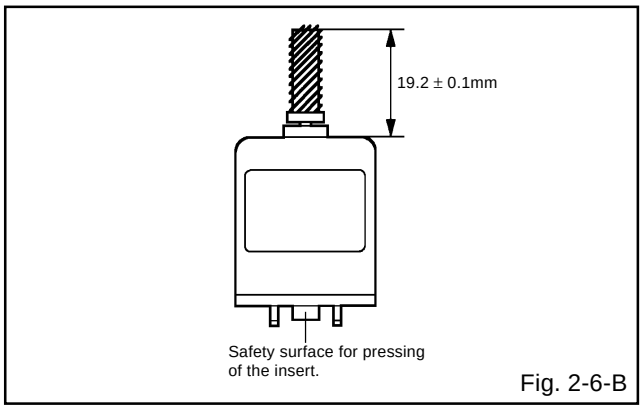


Fig. 2-6-B

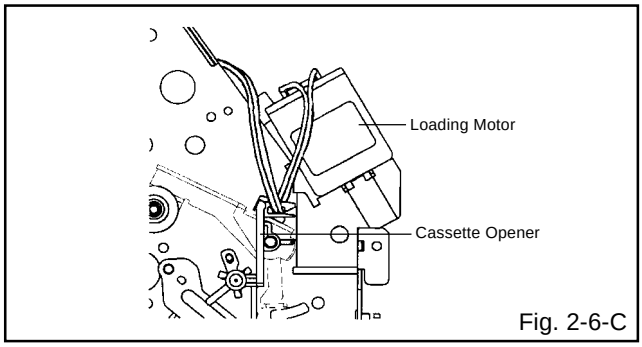


Fig. 2-6-C

2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

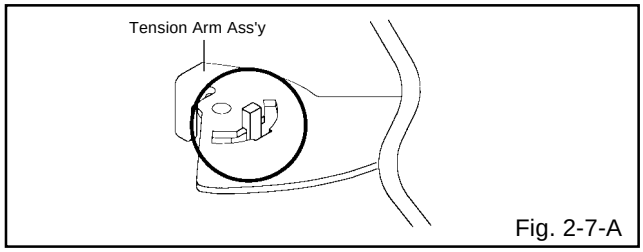


Fig. 2-7-A

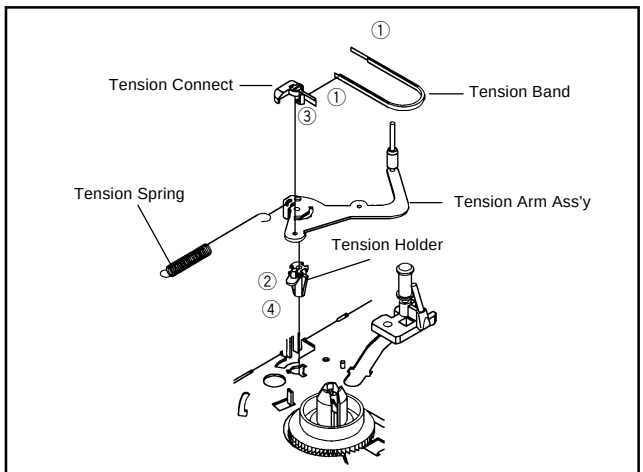


Fig. 2-7-B

NOTE

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-7-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.

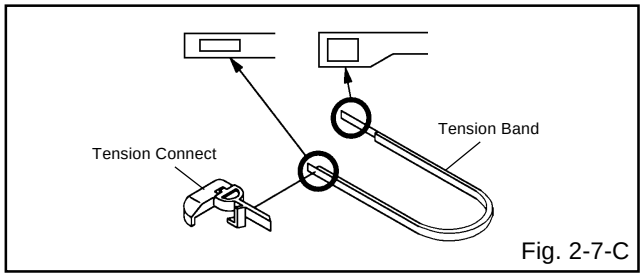


Fig. 2-7-C

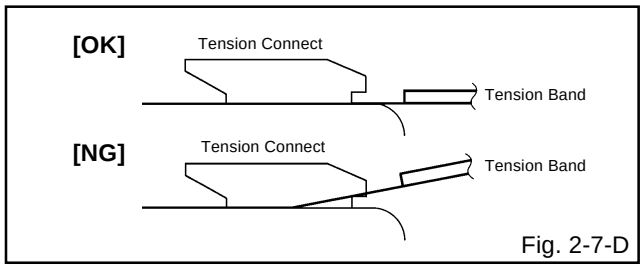


Fig. 2-7-D

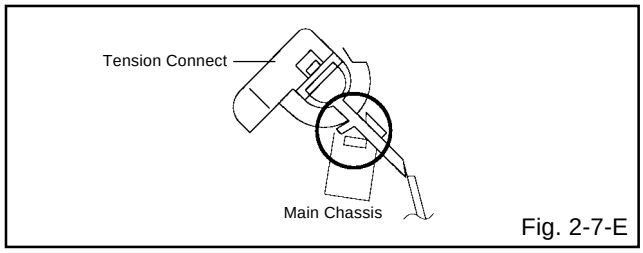


Fig. 2-7-E

DISASSEMBLY INSTRUCTIONS

2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

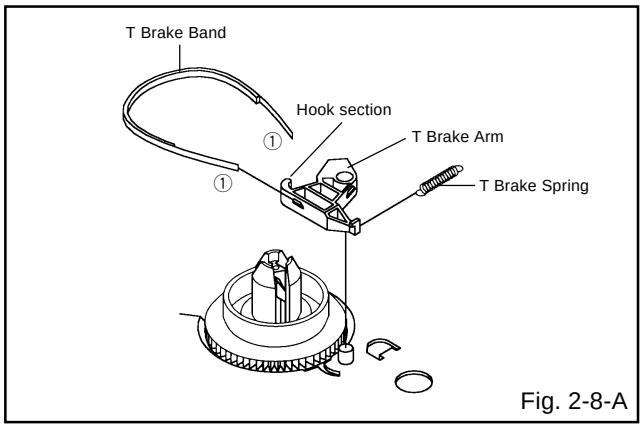


Fig. 2-8-A

NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

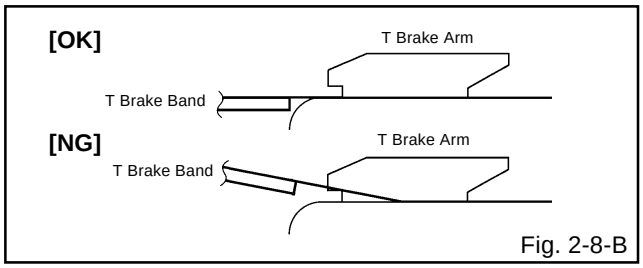


Fig. 2-8-B

2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-9-A)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it (FG-84M). (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

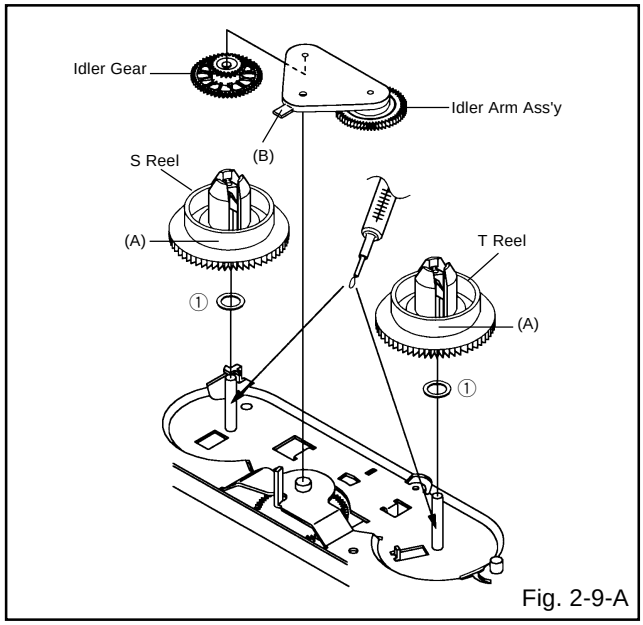


Fig. 2-9-A

NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-9-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C. And also set it so that the section "B" of Fig. 2-9-A is placed under the Main Chassis tab.

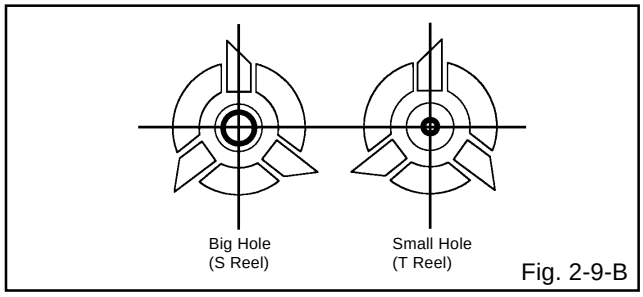


Fig. 2-9-B

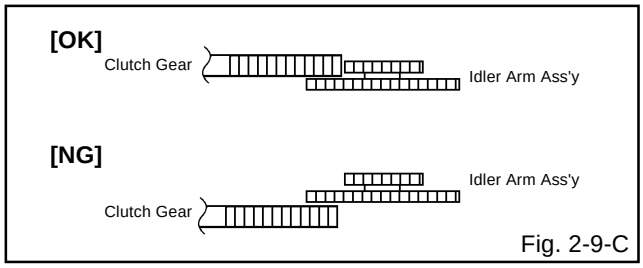


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.

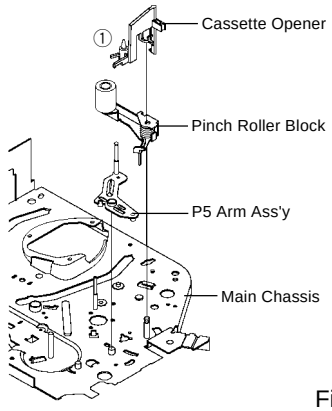


Fig. 2-10-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

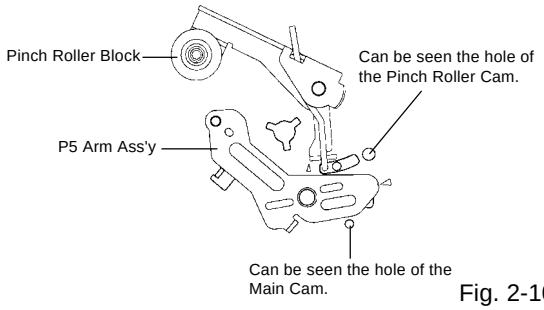


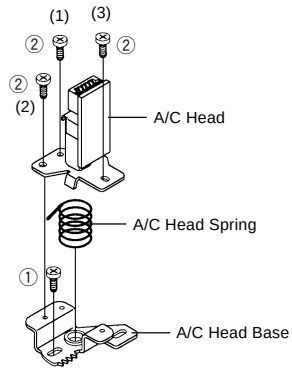
Fig. 2-10-B

2-11: A/C HEAD (Refer to Fig. 2-11-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).



• Screw Torque: 5 ± 0.5kgf•cm (Screw ①)

Fig. 2-11-A

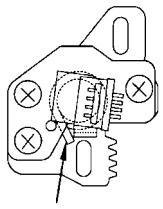
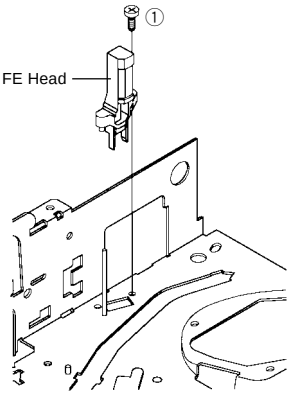


Fig. 2-11-B

2-12: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-12)

1. Remove the screw ①.
2. Remove the FE Head.



• Screw Torque: 5 ± 0.5kgf•cm
• The FE Head is not installed on the Video Cassette Player.

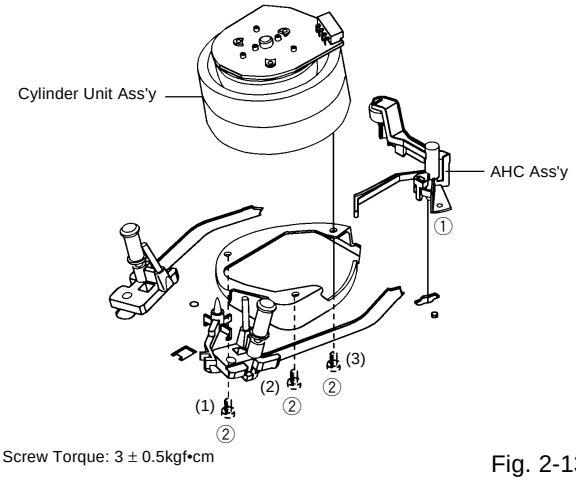
Fig. 2-12

2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: (CD2001)
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

NOTE

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14-A)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.

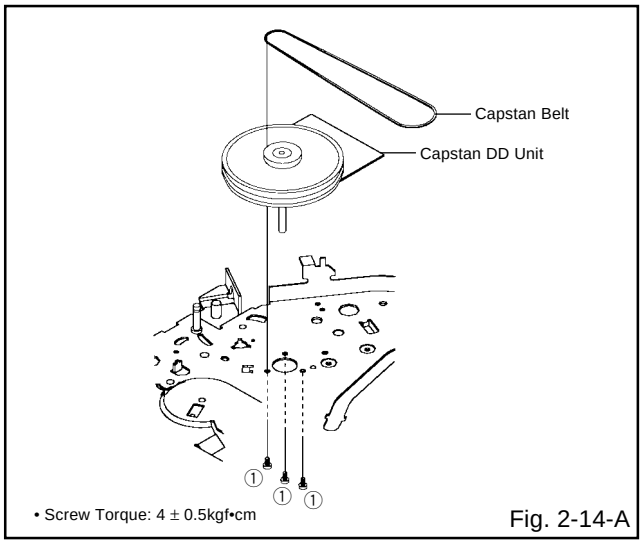


Fig. 2-14-A

NOTE

1. In case of the Capstan DD Unit installation, apply the silicon bond (TSE3843-W) on the position Fig. 2-14-B correctly. (If no silicon bond applied, abnormal noise will be heard on the deck operation.) **(Refer to Fig. 2-14-B, C)**

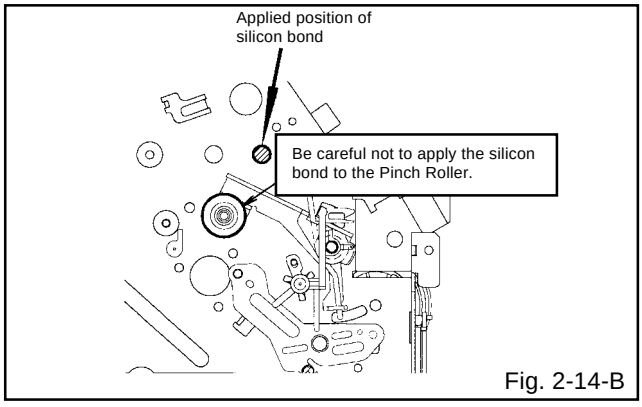


Fig. 2-14-B

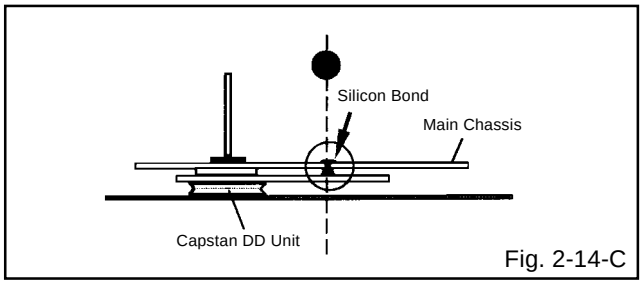


Fig. 2-14-C

2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

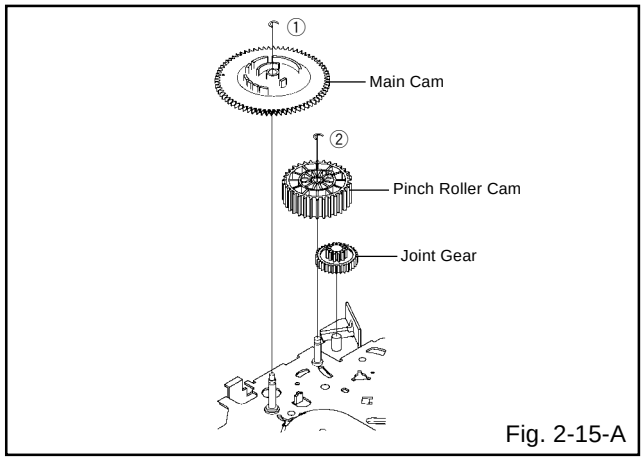


Fig. 2-15-A

NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. **(Refer to Fig. 2-15-B)**

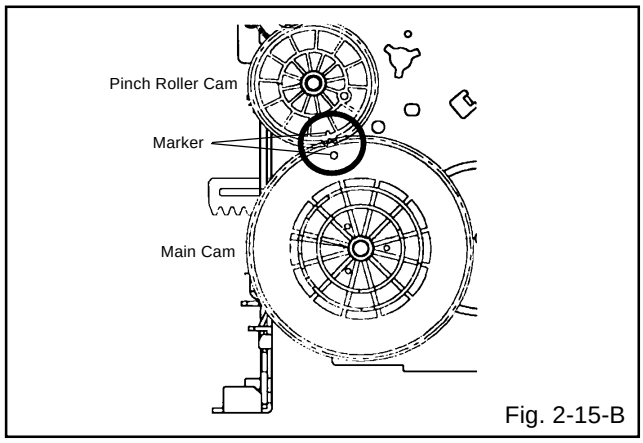


Fig. 2-15-B

2-16: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-16-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Ass'y and Loading Arm T Ass'y.

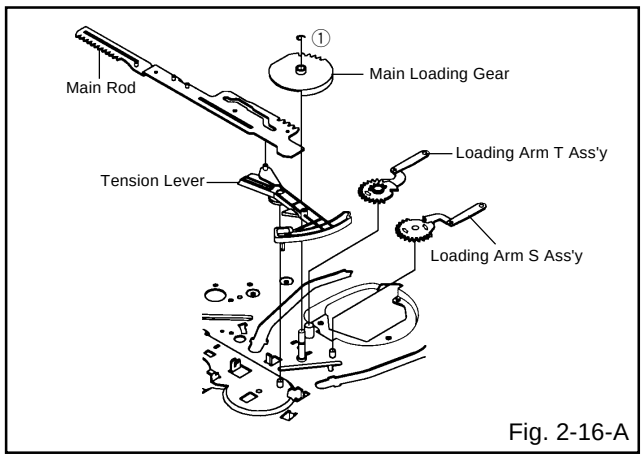


Fig. 2-16-A

DISASSEMBLY INSTRUCTIONS

NOTE

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-16-B)**

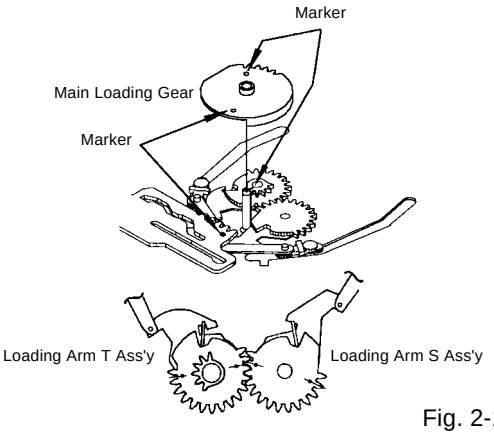


Fig. 2-16-B

2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-17-A)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.

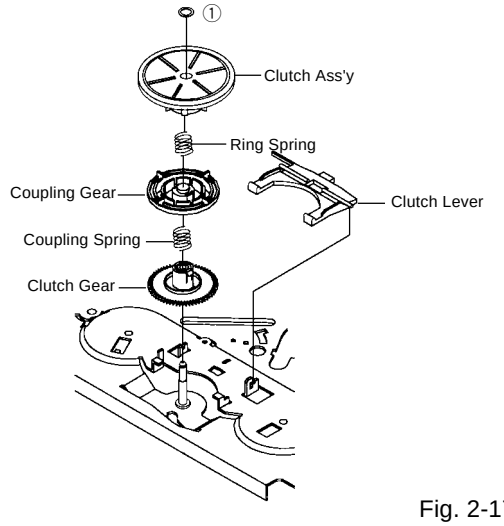


Fig. 2-17-A

NOTE

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. **(Refer to Fig. 2-17-B)**

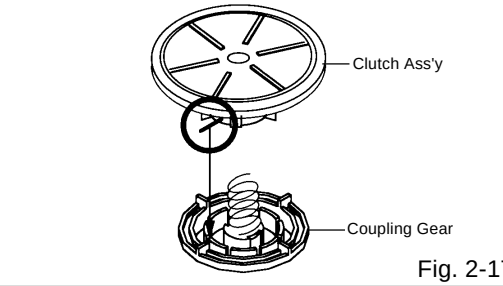


Fig. 2-17-B

2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S Unit and Inclined Base T Unit.

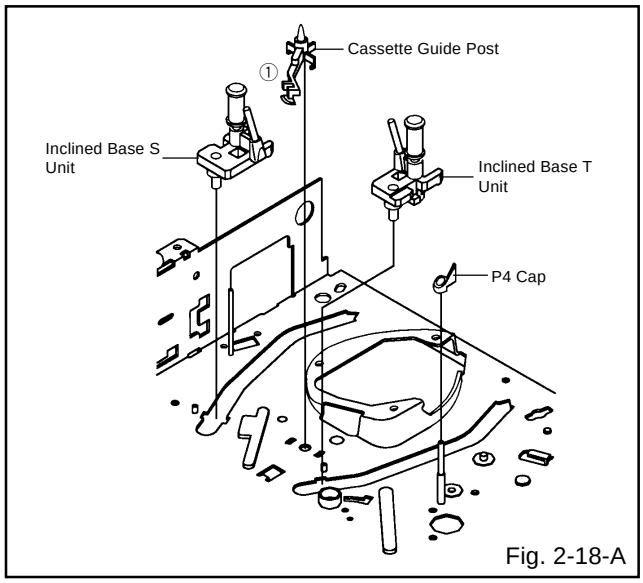


Fig. 2-18-A

NOTE

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.

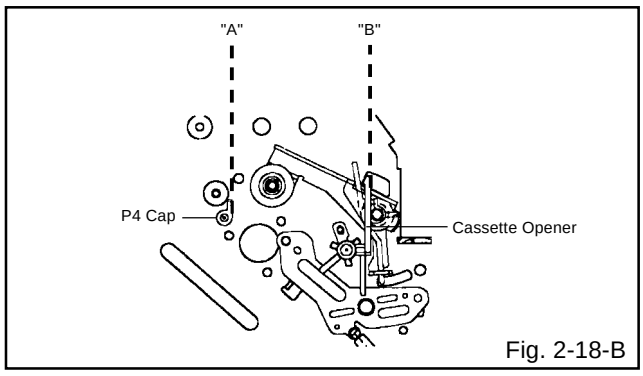


Fig. 2-18-B

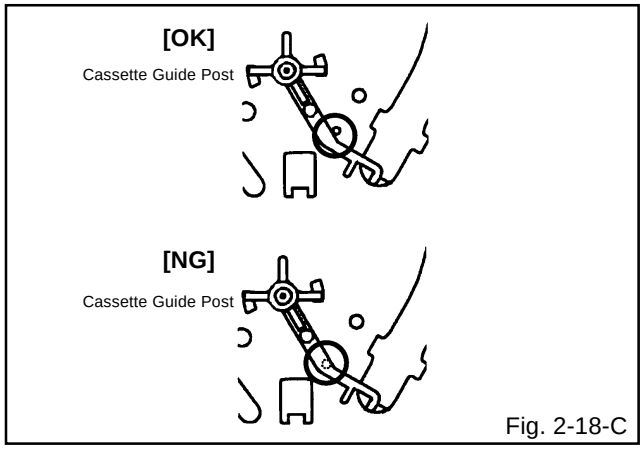


Fig. 2-18-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

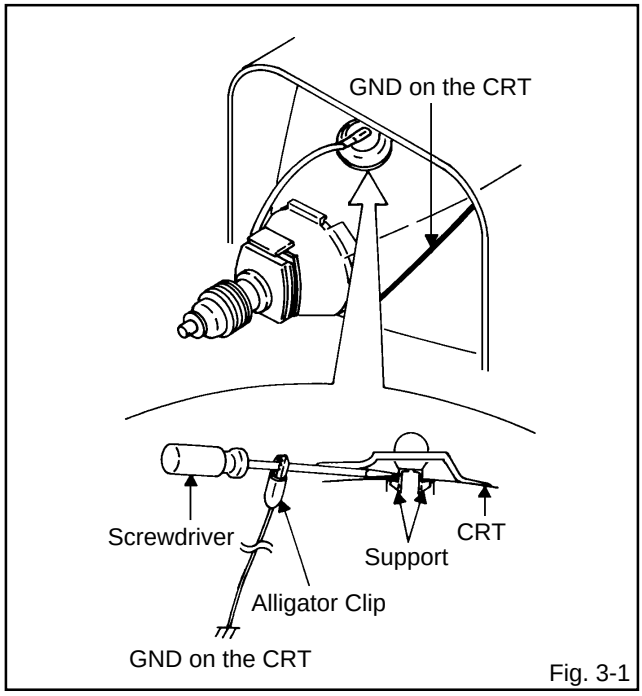


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

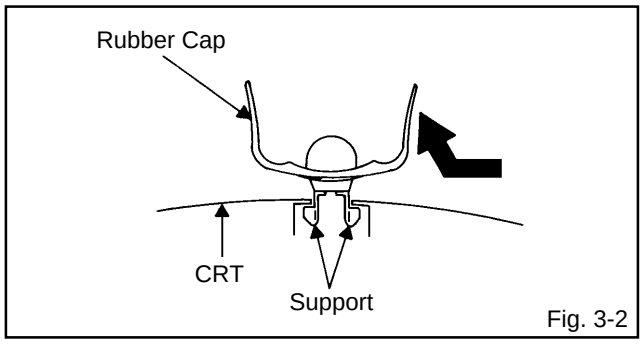


Fig. 3-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 3-3.)**

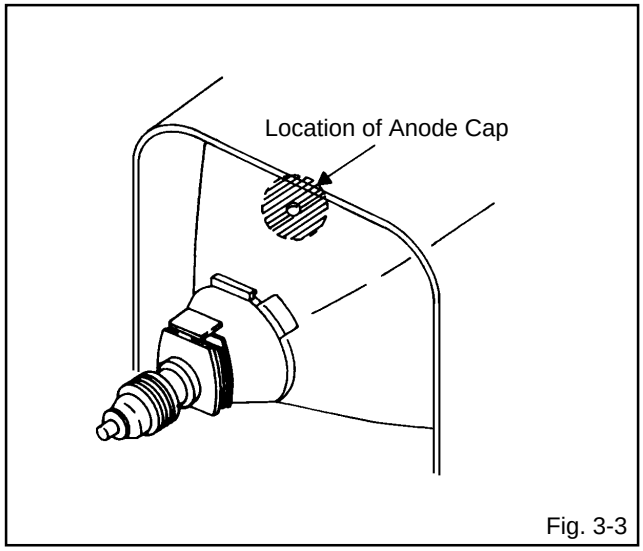


Fig. 3-3

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 3-4.)**

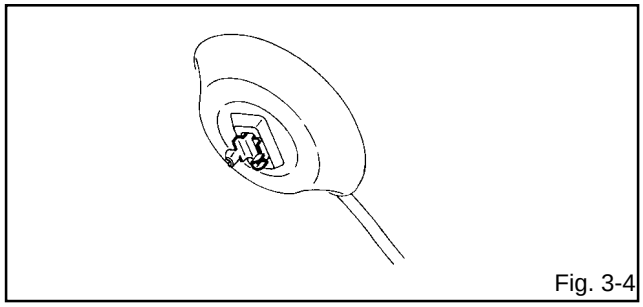


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5**.

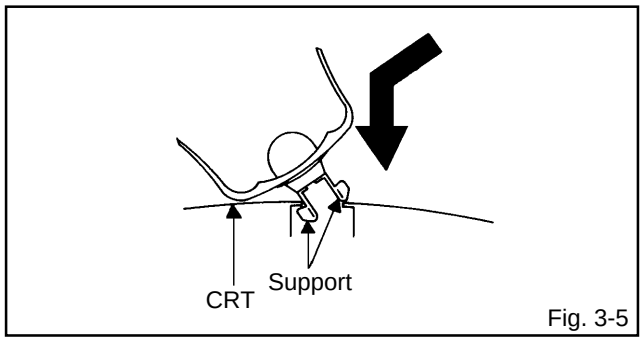


Fig. 3-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 4-1.)**

   NOTE

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

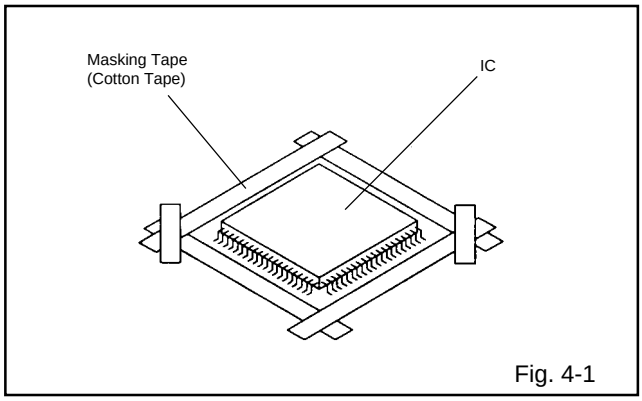


Fig. 4-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 4-2.)**

   NOTE

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

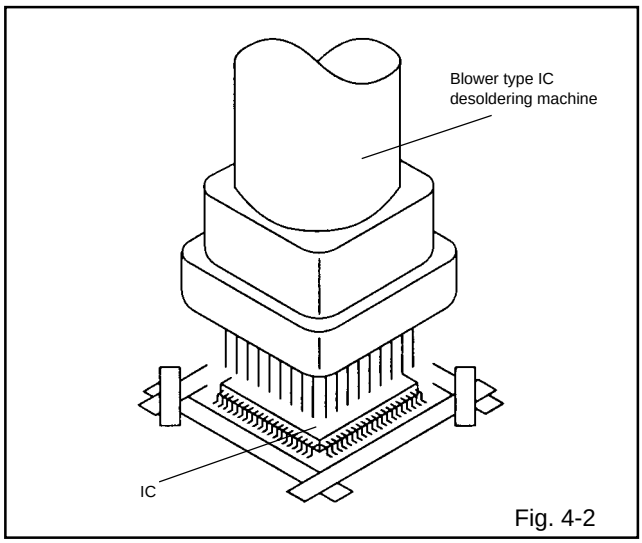


Fig. 4-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 4-3.)**

   NOTE

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

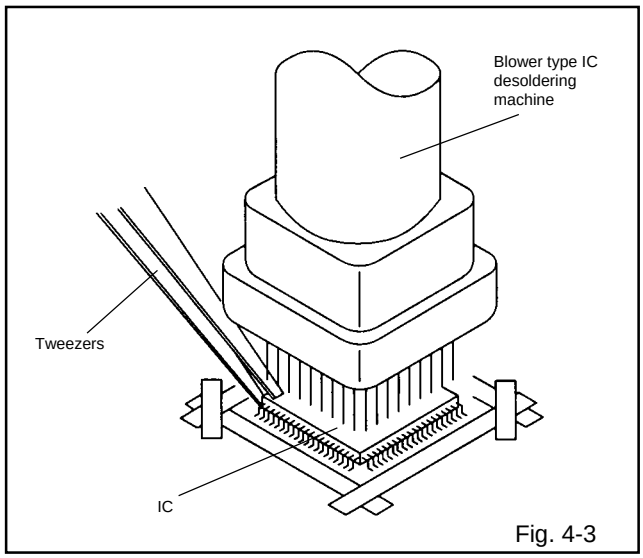


Fig. 4-3

4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 4-4.)**

   NOTE

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

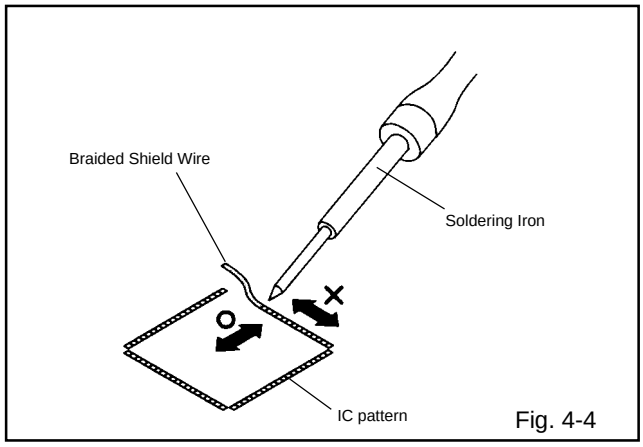


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 4-5.)**

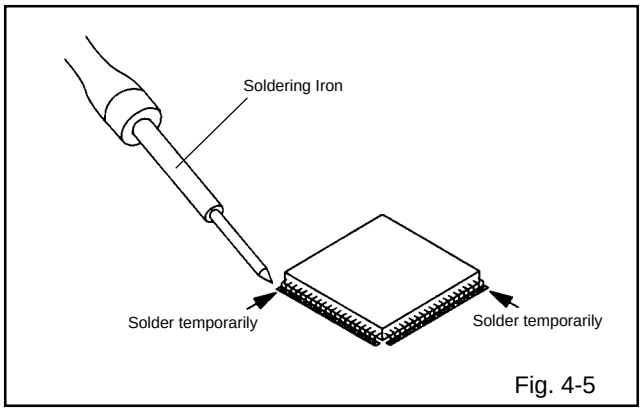


Fig. 4-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**

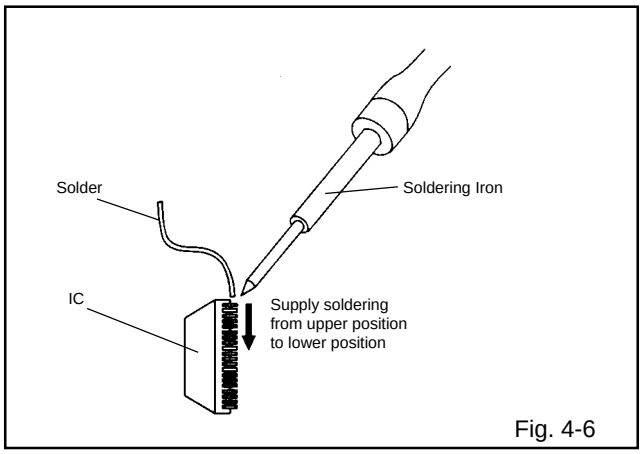


Fig. 4-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

   NOTE

   Do not absorb the solder to excess.

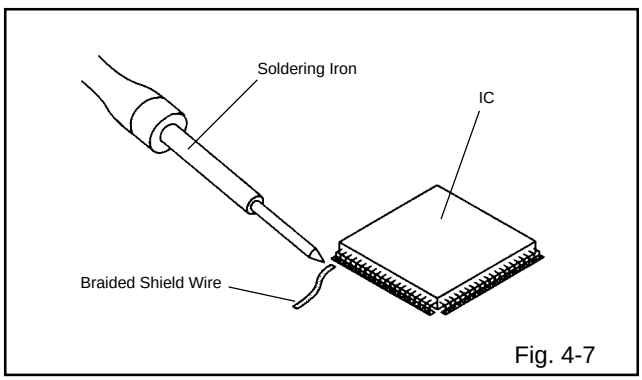


Fig. 4-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 4-8.)**

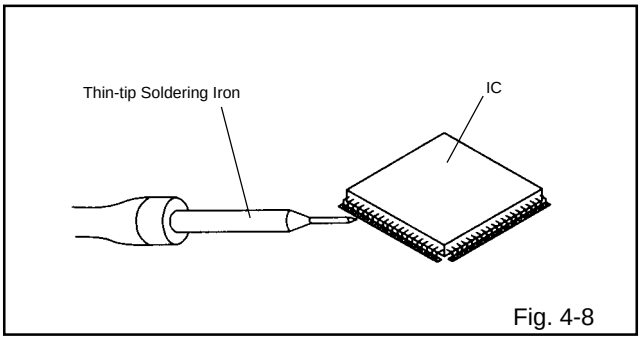


Fig. 4-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   NOTE

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, be always sure to replace the IC in this case.

KEY TO ABBREVIATIONS

A	**A/C**	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	**BGP**	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	**C**	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	**DATA (SY-CE)**	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	**E**	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	**F**	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	**GEN**	:	Generator
	GND	:	Ground
H	**H.P.F**	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	**IC**	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	**KIL**	:	Killer
L	**L**	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	**M**	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	**NC**	:	Non Connection
	NR	:	Noise Reduction
O	**OSC**	:	Oscillator
	OPE	:	Operation
P	**PB**	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	PCB	:	Printed Circuit Board
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
R	**R**	:	Right
	REC	:	Recording
	REC-C	:	Recording-Chrominance
	REC-Y	:	Recording-Luminance
	REEL BRK	:	Reel Brake
	REEL S	:	Reel Sensor
	REF	:	Reference
	REG	:	Regulated, Regulator
	REW	:	Rewind
	REV, RVS	:	Reverse
	RF	:	Radio Frequency
	RMC	:	Remote Control
	RY	:	Relay
S	**S. CLK**	:	Serial Clock
	S. COM	:	Sensor Common
	S. DATA	:	Serial Data
	SEG	:	Segment
	SEL	:	Select, Selector
	SENS	:	Sensor
	SER	:	Search Mode
	SI	:	Serial Input
	SIF	:	Sound Intermediate Frequency
	SO	:	Serial Output
	SOL	:	Solenoid
	SP	:	Standard Play
	STB	:	Serial Strobe
	SW	:	Switch

KEY TO ABBREVIATIONS

S	**SYNC**	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	**TR**	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	**UNREG**	:	Unregulated
V	**V**	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	**X'TAL**	:	Crystal
Y	**Y/C**	:	Luminance/Chrominance

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The BOT, EOT and the Reel sensor do not work and the deck can be operated without a cassette tape. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.
Parts replacing time does not mean the life span for individual parts.
Also, long term storage or misuse may cause transformation and aging of rubber parts.
The following list means standard hours, so the checking hours depends on the conditions.

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

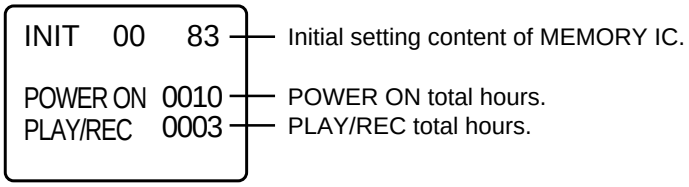
■ : Clean
● : Check it and if necessary, replace it.

CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

NOTE: If you set a factory initialization, the total hours is reset to "0".
The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

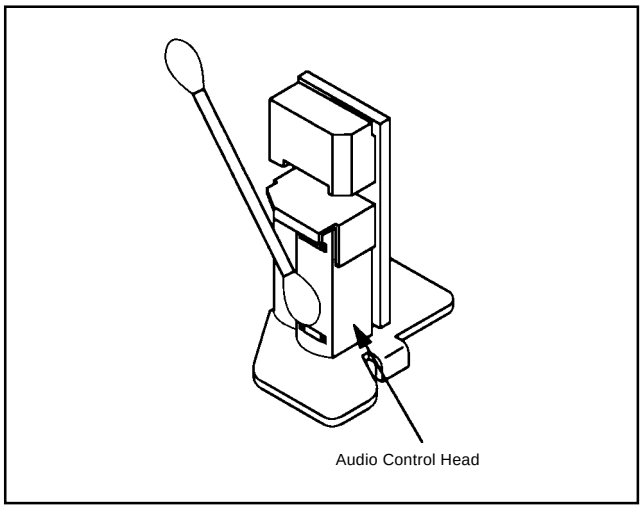
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

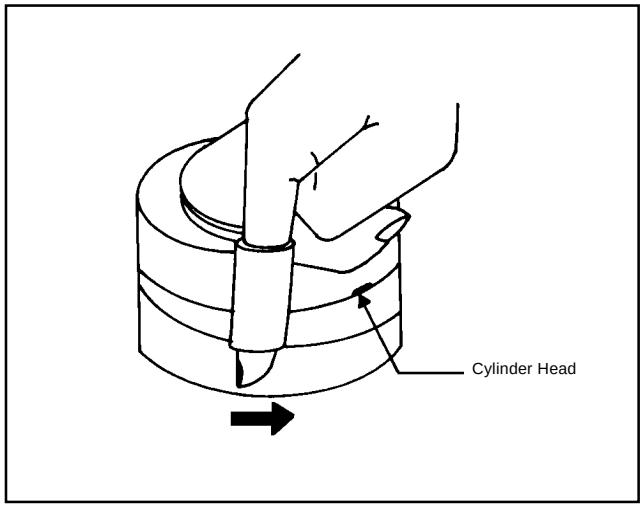
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	88	0A	62	63	43	14	34	09	51	38	30	66	00	40	00	10
10	B2	9A	92	93	00	00	00	15	08	00	A9	0F	94	3E	06	04
20	06	29	01	17	10	60	32	3A	DA	D7	10	15	20	25	26	27
30	28	29	2A	2C	2E	30	32	34	36	38	3A	3C	3E	40	41	42
40	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52
50	53	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62
60	63	64	66	69	6D	74	79	7C	7E	7F	---	---	---	---	---	---

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously. ADDRESS and DATA should appear as FIG 1.

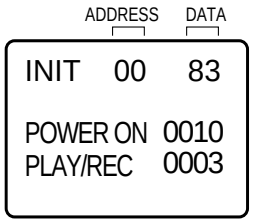
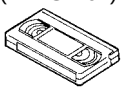
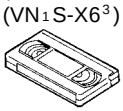
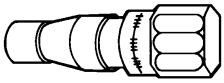
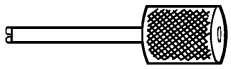
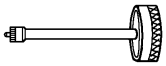
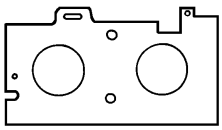
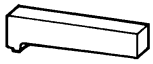
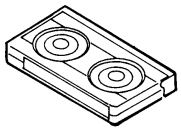
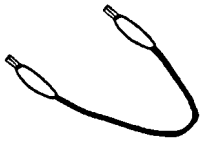
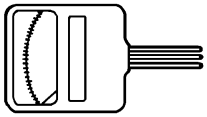


Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 heads model) VHS Alignment Tape JG001 (VN_2S-$LI6^3$) JG001A (VN_2S-$CO1^3$) JG001Q (VN_2S-$LI6^3H$) JG001T (VN_2S-$X6^3$) 	**(For 4 heads model)** VHS Alignment Tape JG001B (VN_1S-$LI6^3$) JG001I (VN_1S-$CO1^3$) JG001P (VN_1S-$LI6^3H$) JG001S (VN_1S-$X6^3$) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001	APJG001000	VHS Alignment Tape **(For 2 heads model)**	Monoscope, 6KHz
JG001A	APJG001A00	VHS Alignment Tape **(For 2 heads model)**	Color Bar, 1KHz
JG001Q	APJG001Q00	VHS Alignment Tape **(For 2 heads model)**	Hi-Fi Audio
JG001T	APJG001T00	VHS Alignment Tape **(For 2 heads model)**	X Value Adjustment
JG001B	APJG001B00	VHS Alignment Tape **(For 4 heads model)**	Monoscope, 6KHz
JG001I	APJG001I00	VHS Alignment Tape **(For 4 heads model)**	Color Bar, 1KHz
JG001P	APJG001P00	VHS Alignment Tape **(For 4 heads model)**	Hi-Fi Audio
JG001S	APJG001S00	VHS Alignment Tape **(For 4 heads model)**	X Value Adjustment
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP757 and CP351, then remove the TV/VCR Block from the set.
2. Remove the Operation PCB from the set, then connect it with the Syscon PCB.
   If necessary, connect CP351. (Front A/V Jack Input Terminal)
3. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (The BOT, EOT and the Reel Sensor do not work and the deck can be operated without a cassette tape.)
4. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
   Turn on the power and re-check the cable before checking the trouble points.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig **(JG024A)** and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

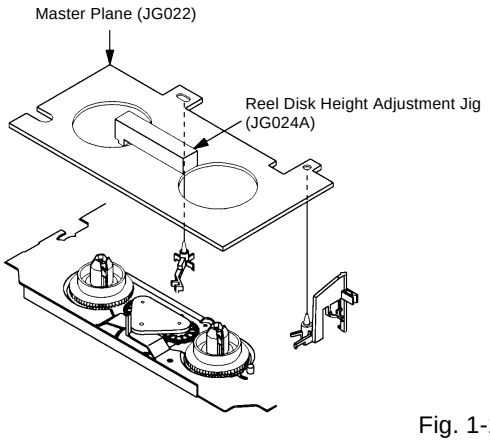


Fig. 1-1-A

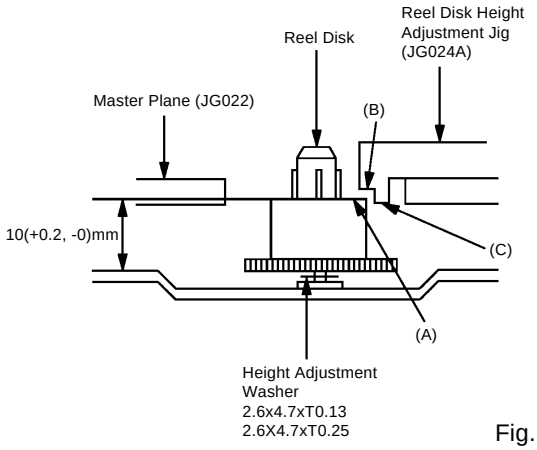


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

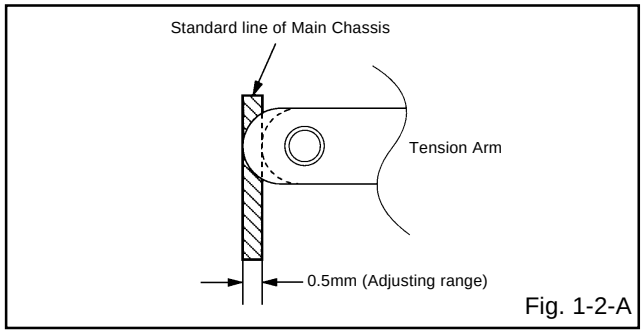


Fig. 1-2-A

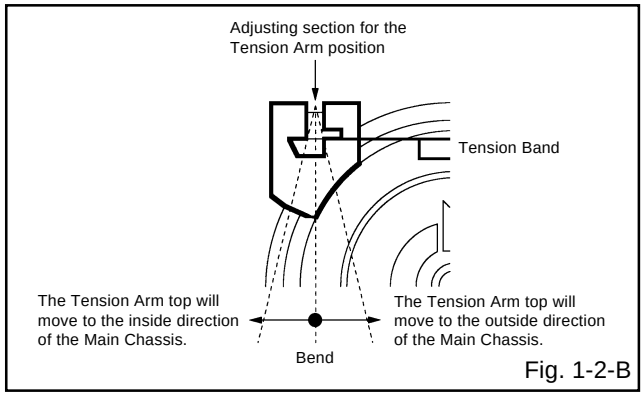


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(JG100A)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(JG100A)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

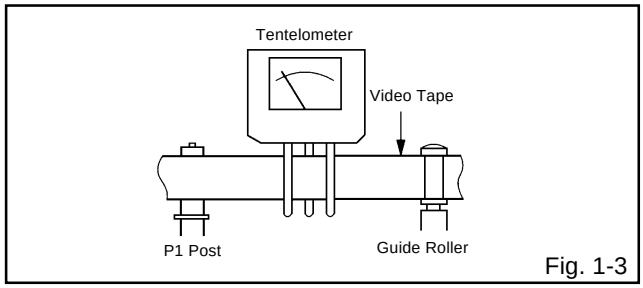


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4-B)**
2. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

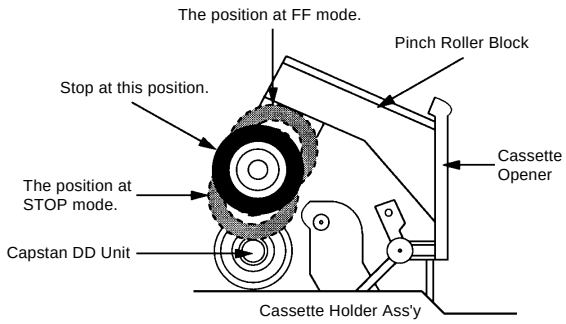


Fig. 1-4-A

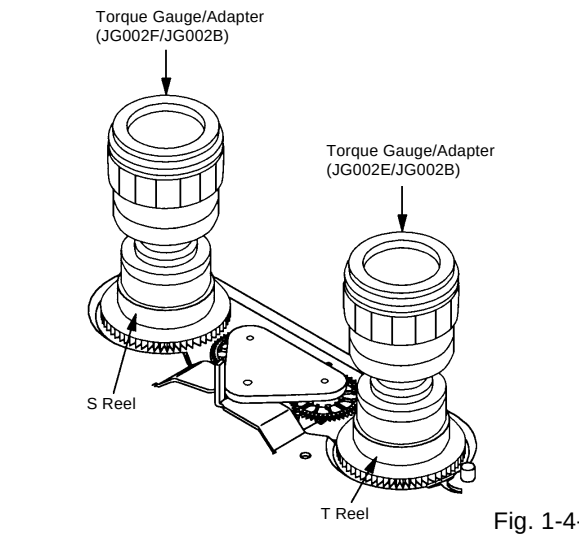


Fig. 1-4-B

NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(JG001 or JG001B)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP4001 (Envelope)** and CH-2 to **TP1002 (SW Pulse)**.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

After adjustment, confirm and adjust A/C head. **(Refer to item 2-2)**

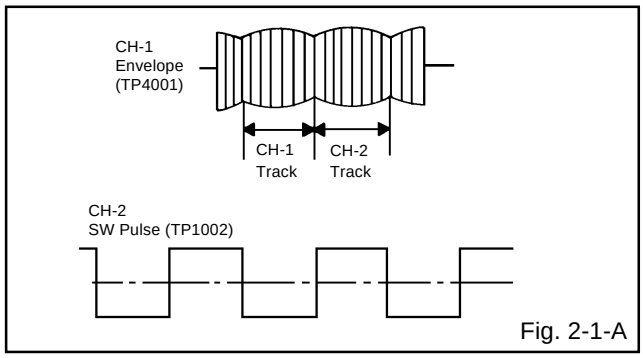


Fig. 2-1-A

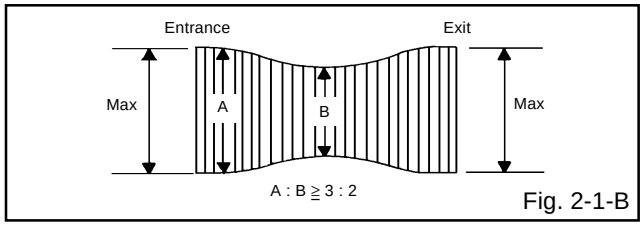


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape **(JG001 or JG001B)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

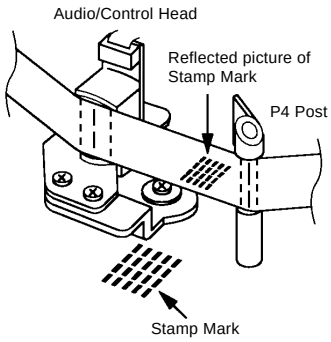


Fig. 2-2-A

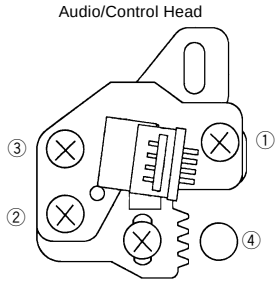


Fig. 2-2-B

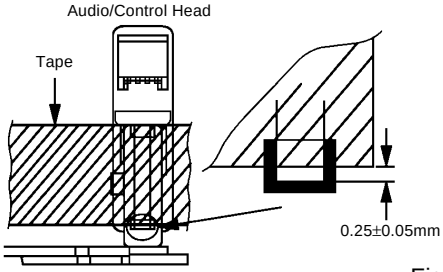


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(JG001S or JG001T)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

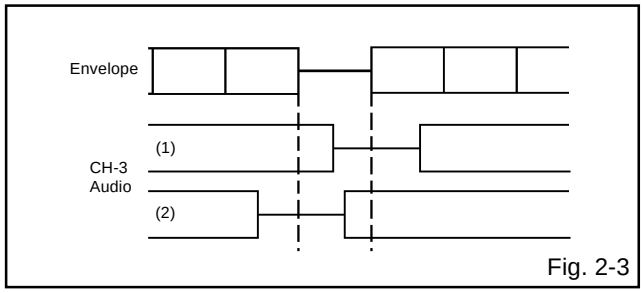


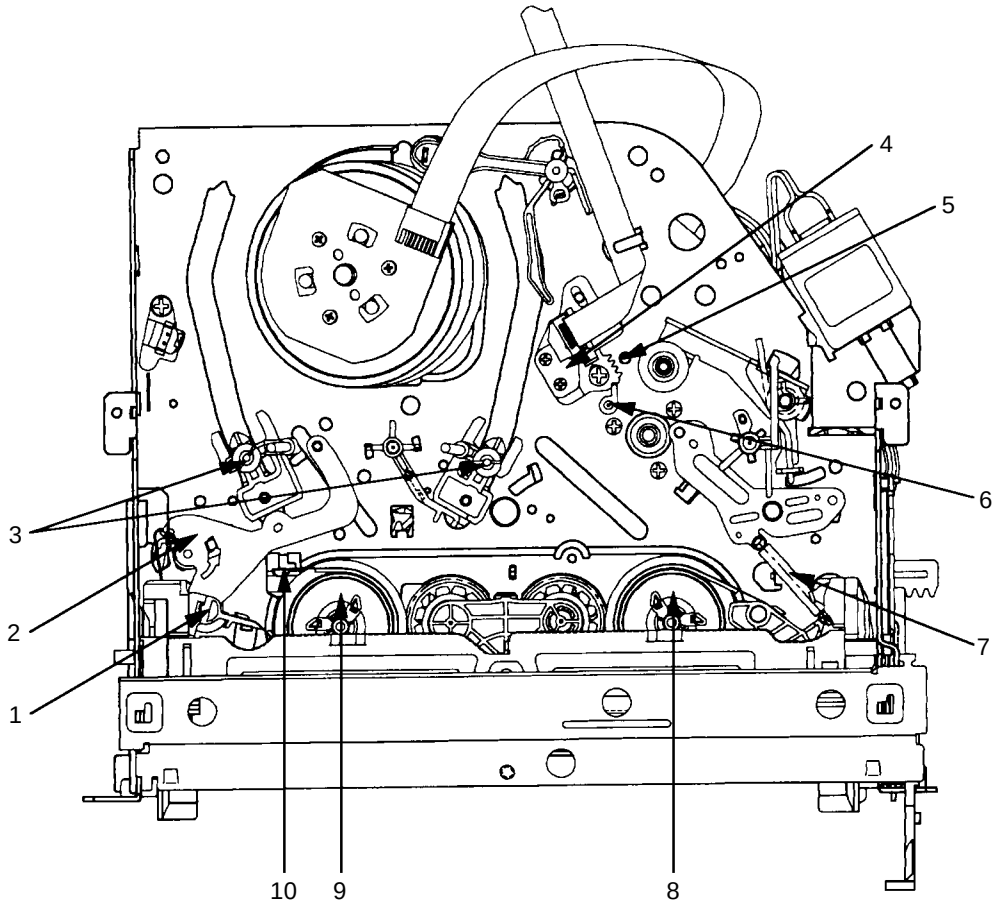
Fig. 2-3

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP1002** and CH-2 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape **(JG001P or JG001Q)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver **(JG153)** to ④ of **Fig. 2-2-B**. Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Connect
2. Tension Arm
3. Guide Roller
4. Audio/Control Head
5. X value adjustment driver hole
6. P4 Post
7. T Brake Spring
8. T Reel
9. S Reel
10. Adjusting section for the Tension Arm position

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
  Inferior silicon grease can damage IC's and transistors.
- When replacing IC's and transistors, use only specified silicon grease (YG6260M).
  Remove all old silicon before applying new silicon.

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control simultaneously to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

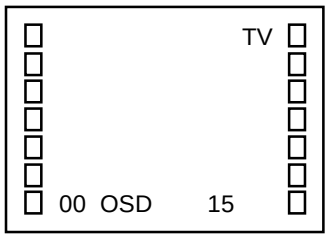


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	13	BRIGHTNESS
01	CUT OFF	14	CONTRAST
02	RF AGC DELAY	15	COLOR
03	VIF VCO	16	TINT
04	H VCO	17	SHARPNESS
05	H PHASE	18	FM LEVEL
06	V SIZE	19	LEVEL
07	V SHIFT	20	SEPARATION 1
08	R DRIVE	21	SEPARATION 2
09	B DRIVE	22	TEST MONO
10	R CUT OFF	23	TEST STEREO
11	G CUT OFF	24	X-RAY TEST
12	B CUT OFF		

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **pin 4 of CP1003**.
2. Playback the alignment tape. **(JG001A)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control simultaneously until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control simultaneously and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H.
   (Refer to Fig. 2-1-A, B)
7. Press the Tracking Auto button.

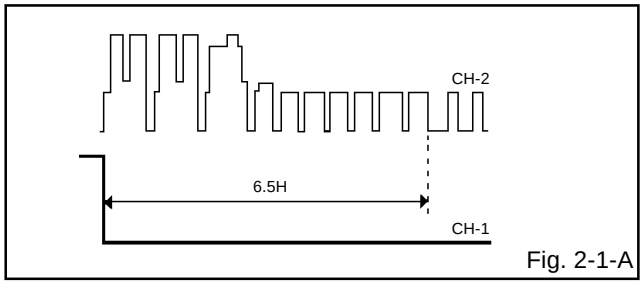


Fig. 2-1-A

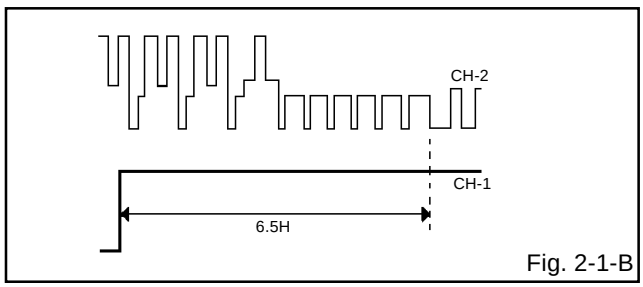


Fig. 2-1-B

2-2: VCO FREERUN

1. Place the set with Aging Test for more than 10 minutes.
2. Receive the VHF HIGH.
3. Disconnect the Antenna while receiving the VHF HIGH and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approxi. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
7. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "VIF VCO".
8. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.5V.
9. After the 2.5V adjustment, countdown the VIF VCO step No. by 1 step with the VOL. DOWN button.

ELECTRICAL ADJUSTMENTS

2-3: RF AGC DELAY

1. Receive the VHF HIGH (63dB).
2. Connect the digital voltmeter between the **pin 5 of CP351** and the **pin 1 (GND) of CP351**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "RF AGC DELAY".
4. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.9V ± 0.05V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to the **TP601**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is 135 ± 0.5V.

2-5: CUT OFF

1. Adjust the unit to the following settings.
   R CUT OFF=128, G CUT OFF=128, B CUT OFF=128, BRIGHTNESS=128, CONTRAST=100
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(10)** on the remote control to select "R CUT OFF".
5. Using the VOL. UP/DOWN button on the remote control, adjust the R CUT OFF.
6. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "B DRIVE", "G CUT OFF" or "B CUT OFF".
7. Using the VOL. UP/DOWN button on the remote control, adjust the R DRIVE, B DRIVE, G CUT OFF or B CUT OFF.
8. Perform the above adjustments 6 and 7 until the white color is looked like a white.

2-7: FOCUS

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-8: HORIZONTAL PHASE

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(05)** on the remote control to select "H PHASE".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.

2-9: VERTICAL SHIFT

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V SHIFT".
4. Check if the step No. V. SHIFT is "3".
5. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask.

2-10: VERTICAL SIZE

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-11: SUB BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "BRIGHTNESS".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

ELECTRICAL ADJUSTMENTS

2-12: SUB CONTRAST MANUAL

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(14)** on the remote control to select "CONTRAST".
4. Press the VOL. UP/DOWN button on the remote control until the contrast STEP No. becomes "100".
5. Receive the color bar pattern. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-13: SUB TINT

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP801**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. **(Refer to Fig. 2-2)**
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

Fig. 2-2

2-14: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the oscilloscope to **TP803**.
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(15)** on the remote control to select "COLOR".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110 ± 10% of the white level. **(Refer to Fig. 2-3)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

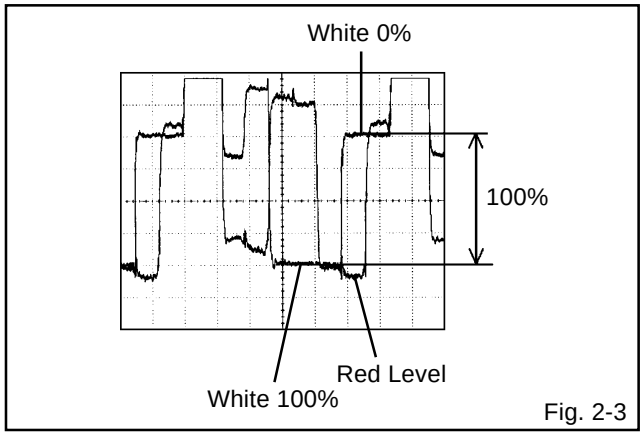


Fig. 2-3

2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-4)**

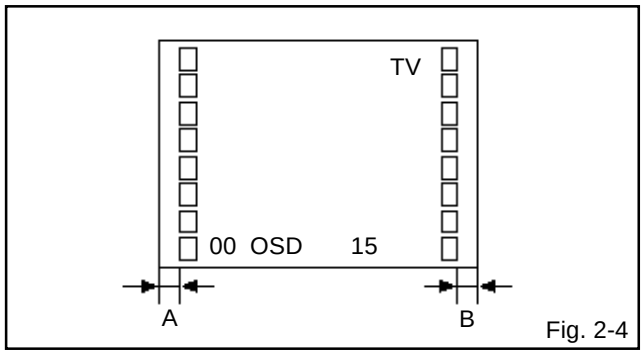


Fig. 2-4

2-16: SUB SHARPNESS

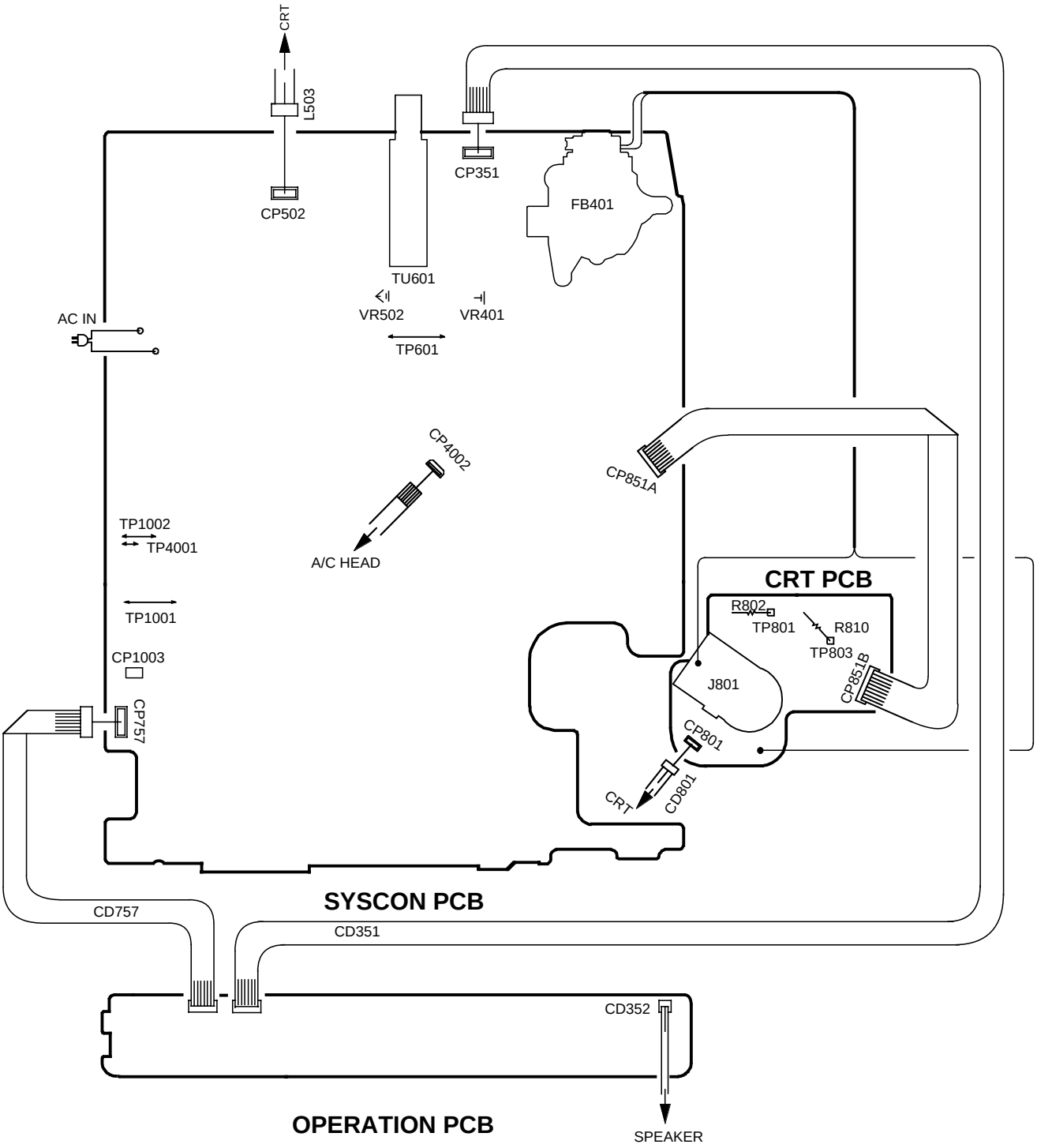
1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "SHARPNESS".
2. Check if the step No. of SHARPNESS is "40".
3. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1, 2.

2-17: H VCO

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(04)** on the remote control to select "H VCO".
2. Check if the step No. of H VCO is "4".

ELECTRICAL ADJUSTMENTS

3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 4-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

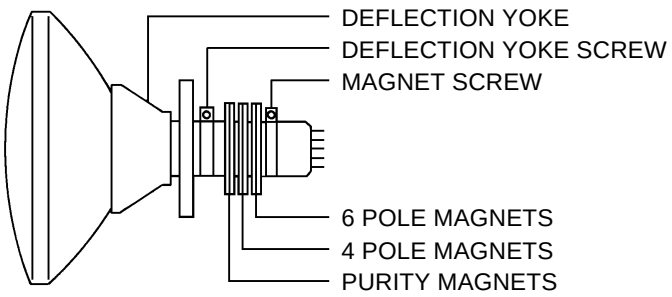


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

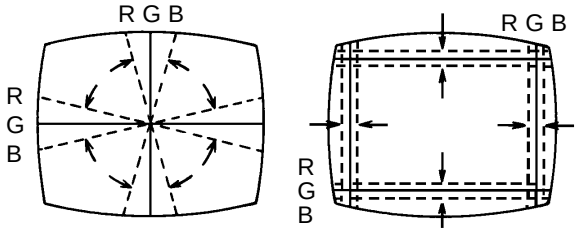
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

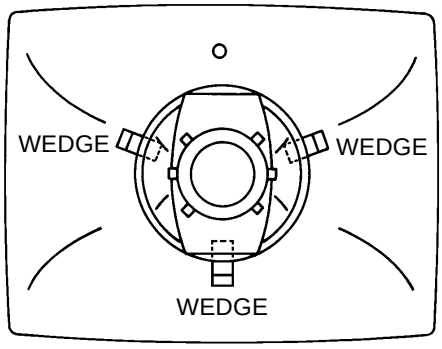
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 4-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 4-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

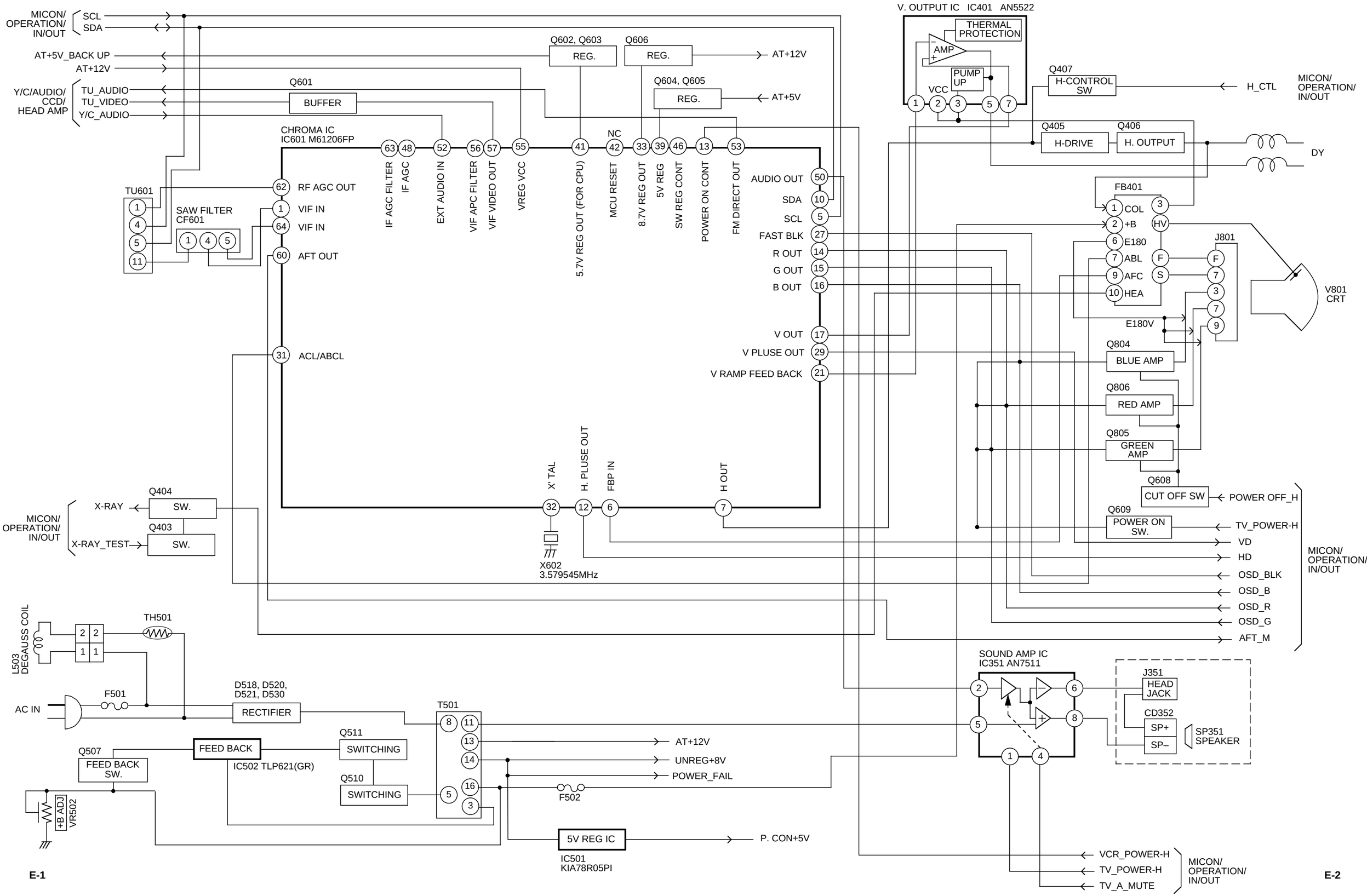
Fig. 4-2-a



WEDGE POSITION

Fig. 4-2-b

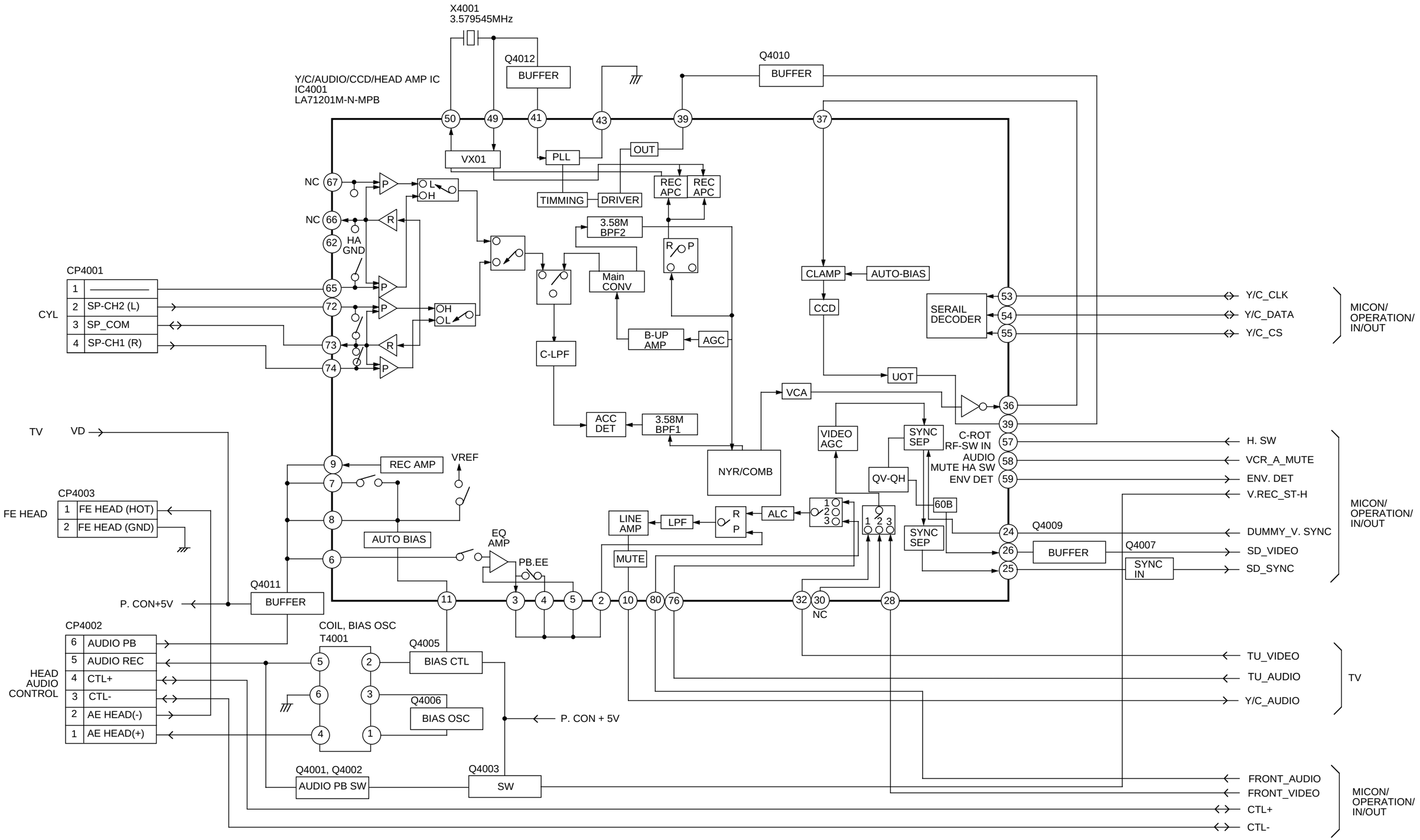
TV BLOCK DIAGRAM



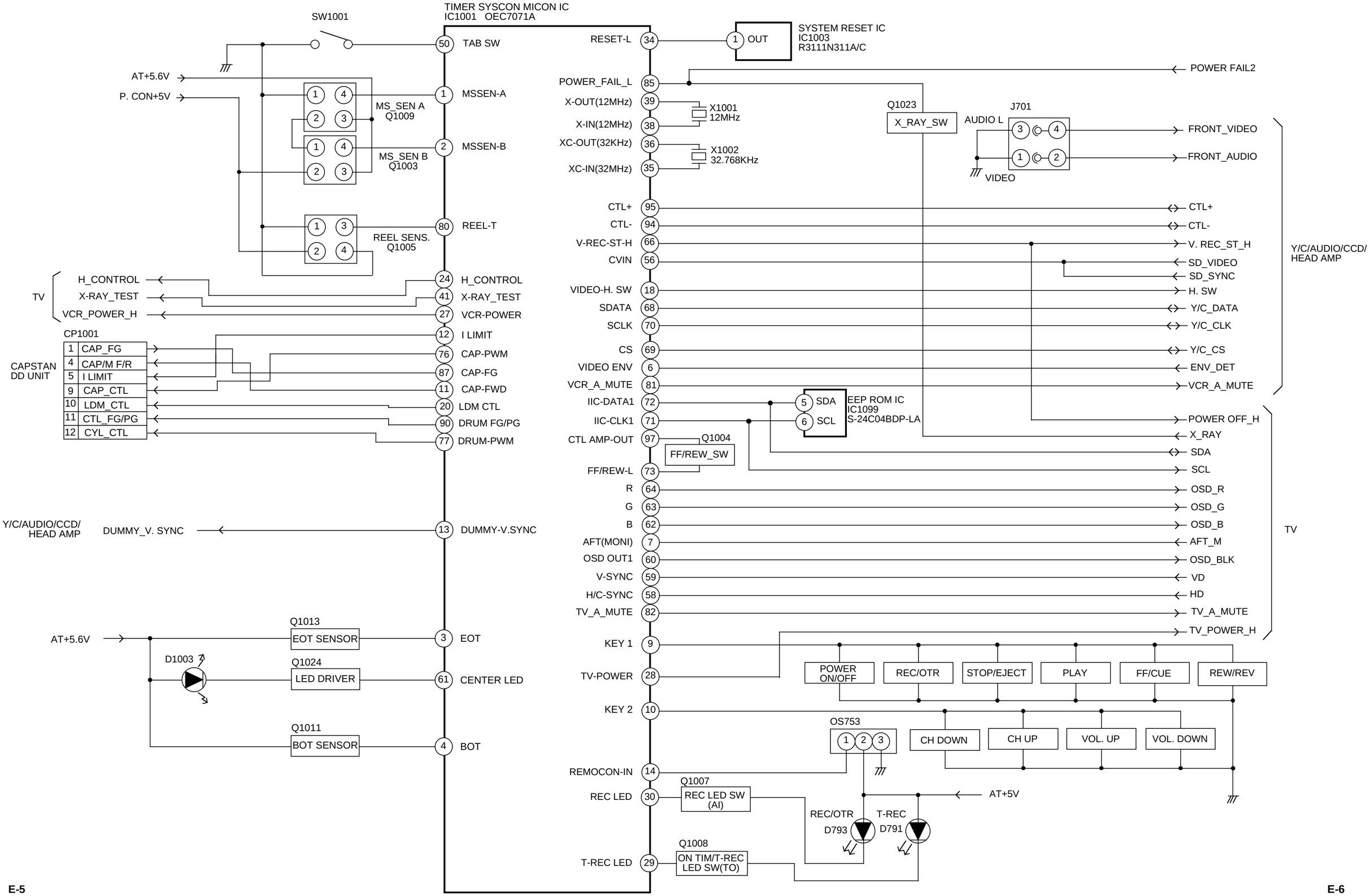
E-1

E-2

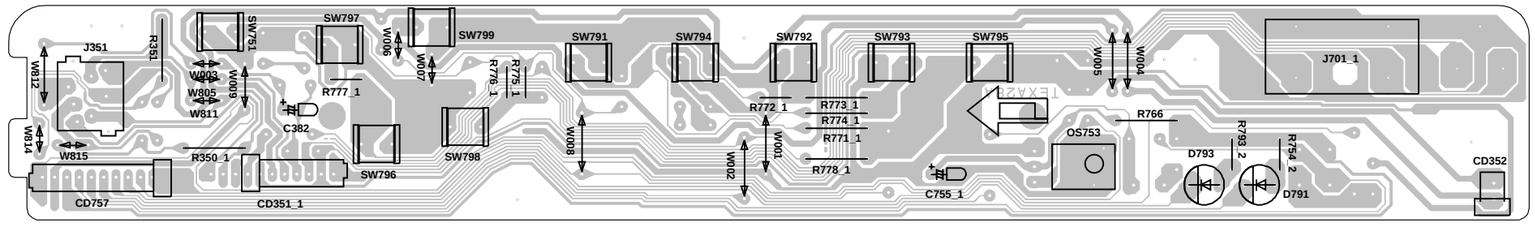
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



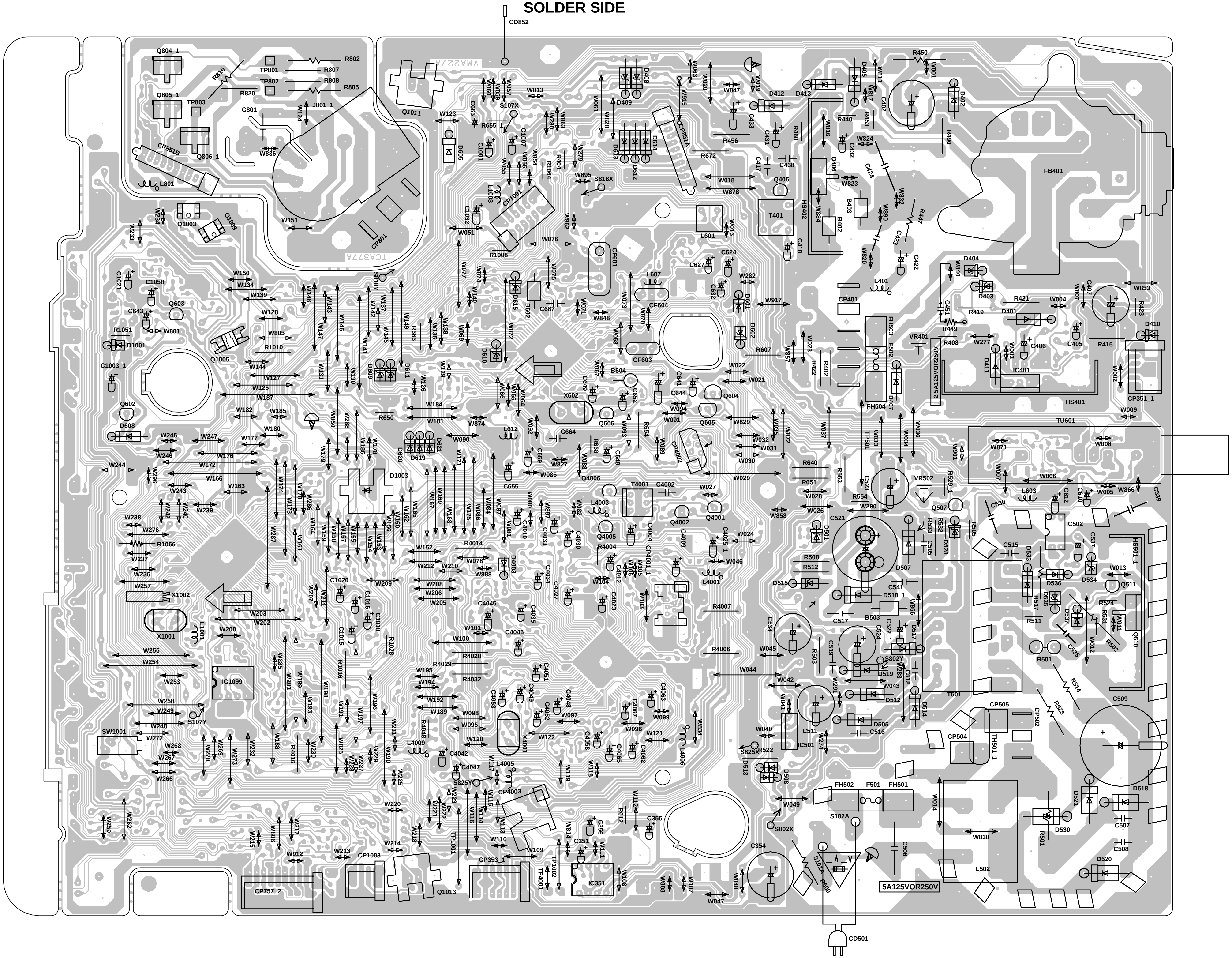
MICON/OPERATION/IN/OUT BLOCK DIAGRAM



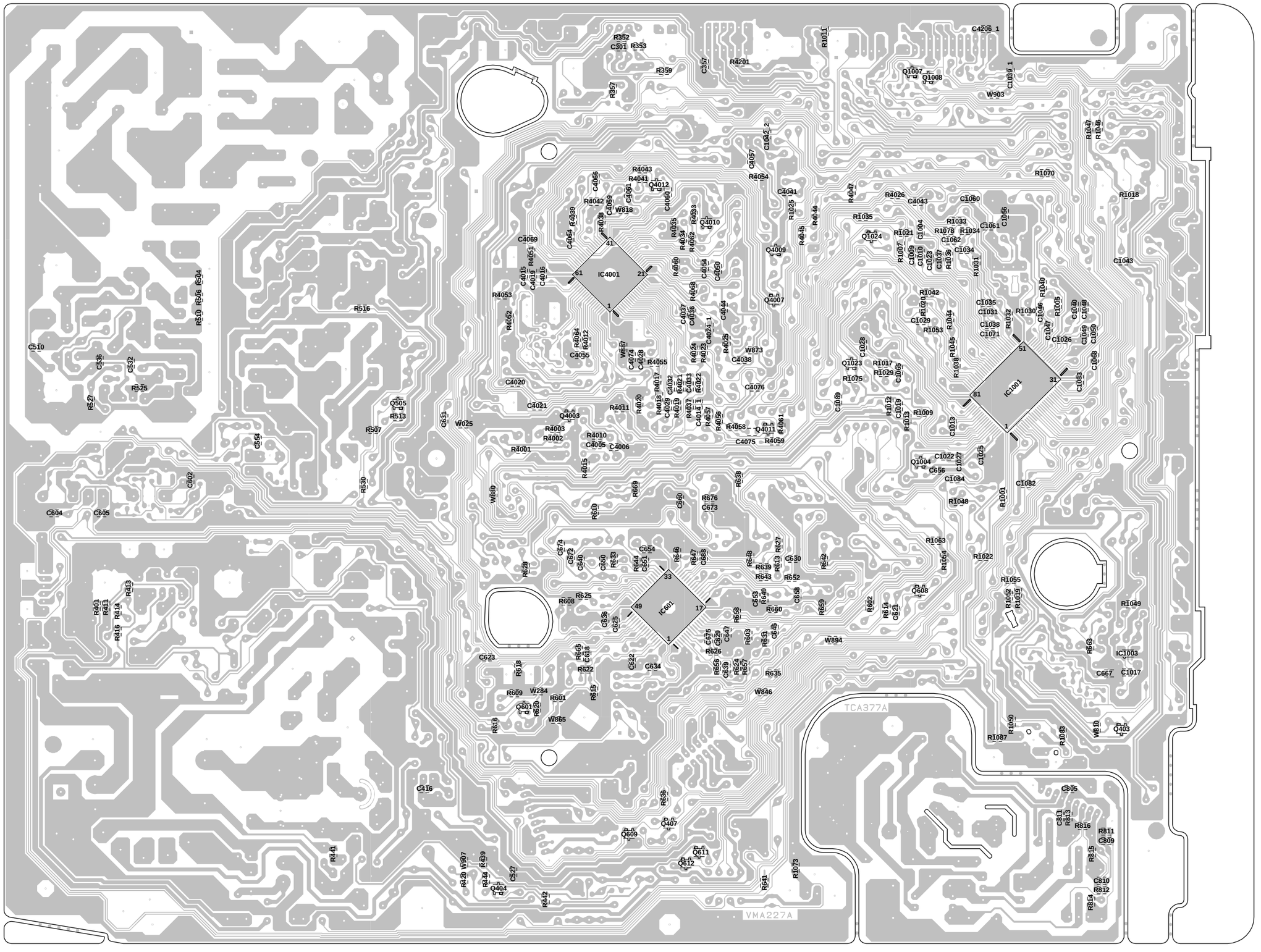
PRINTED CIRCUIT BOARDS
OPERATION
SOLDER SIDE



PRINTED CIRCUIT BOARDS
SYSCON/CRT (INSERTED PARTS)
SOLDER SIDE

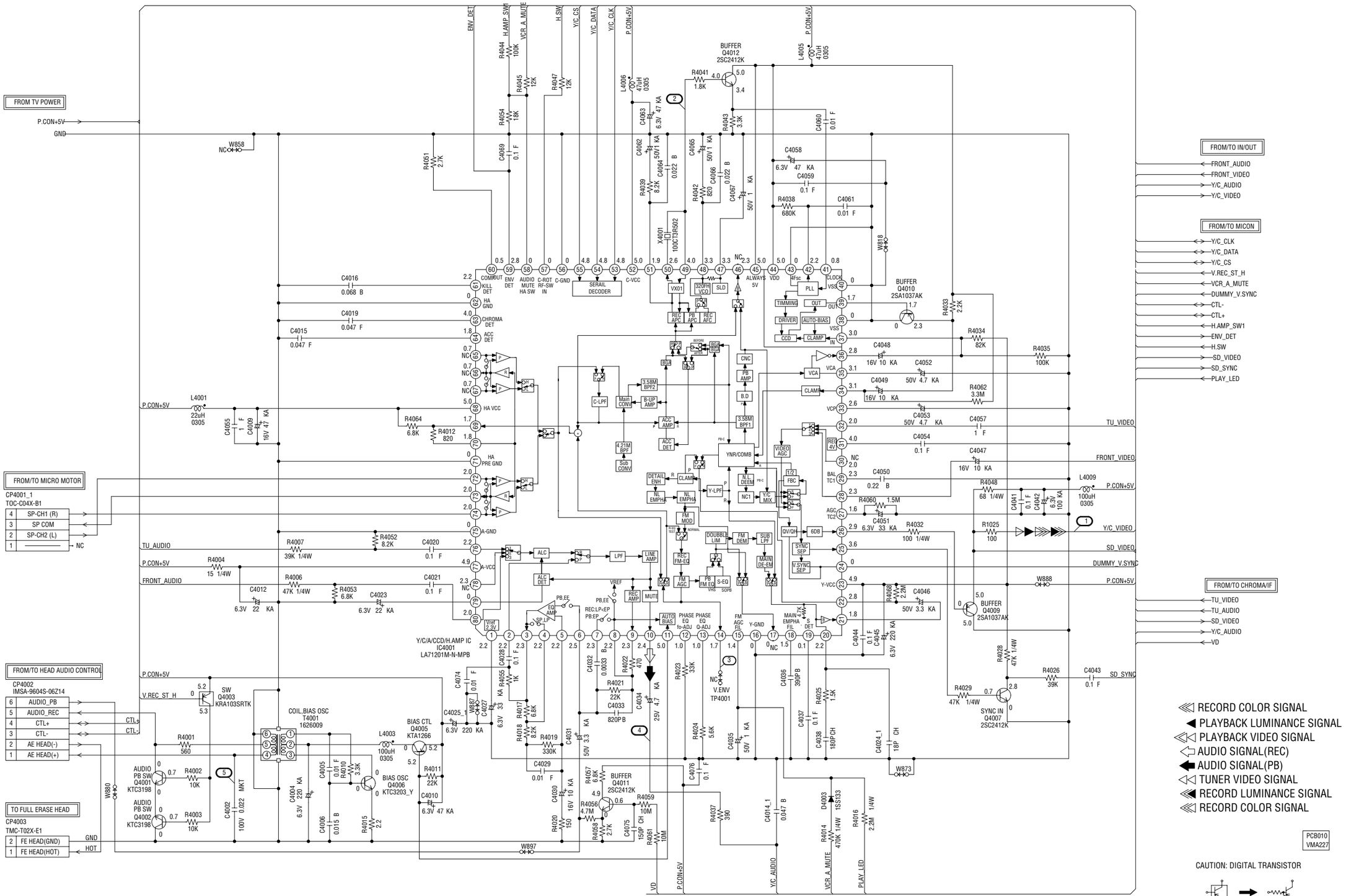


PRINTED CIRCUIT BOARDS
SYSCON/CRT (CHIP MOUNTED PARTS)
SOLDER SIDE



Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

MICON SCHEMATIC DIAGRAM (SYSCON PCB)

FROM TV POWER
POWER_FAIL2
P.CON+5V
GND
MOTOR+12V
GND

FROM/TO DECK
CP1001 (CP101)
TMC-J12P-B2
1 CAP_FG
2 CAP_VCO
3 VCC
4 CAP_M/F/R
5 I_LIMIT
6 GND[M]
7 GND
8 LD/CY_VCO
9 CAP_CTL
10 LDM_CTL
11 CYL_FG/PG
12 CYL_CTL

FROM/TO DECK
CD852
CH01408A

BOT SENSOR Q1011 ST-304L
EOT SENSOR Q1013 ST-304L
LED DRIVER Q1024 KRC103SRTK
D1003 LNA2702L010R
MXS01380MPP0 SW1001

TIMER SYSCON MICON IC IC1001 OEC7071A

FROM/TO Y/C/AUDIO/HEAD AMP
Y/C_CLK
Y/C_DATA
Y/C_CS
H.SW
SD_VIDEO
ENV_DET
VCR_A_MUTE
CTL+
CTL-
DUMMY_V.SYNC
V.REC_ST_H
H.AMP_SW1
SD_SYNC
PLAY_LED

FROM/TO CHROMA/IF
POWER_OFF_H
HD
VD
AFT_M
SCL
SDA
OSD_R
OSD_G
OSD_B
OSD_BLK
AT+5V_BACKUP
AT+5V
VCR_POWER_H
TV_POWER_H
PROTECT

FROM/TO IN/OUT
IIC_OFF
REC_LED
T-REC_LED
KEY_A
KEY_B
REMOCON_IN
SCL
SDA

TO SOUND AMP
TV_POWER_H
TV_A_MUTE

FROM/TO DEFLECTION
X_RAY
X-RAY_TEST
H_CTL
AT+5V

EEP ROM IC IC1009 S-24C04BDP-LA

SYSTEM RESET IC IC1003 R3111N311A/C

MS_SEN A Q1009 RPI-352Q01R
MS_SEN B Q1003 RPI-352Q01R
REEL SENS Q1005 RPI-303

81 VCR_A_MUTE
82 TV_A_MUTE
83 (EXT MUTE)
98 AMP-VCC
99 ANALOG VCC
100 DEW
50 TAB SW
49 OSD-VSS
48 (AV2)
33 PLAY LED
32 RENT_H
31 ON-TIMER LED

PCB010
VMA227

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

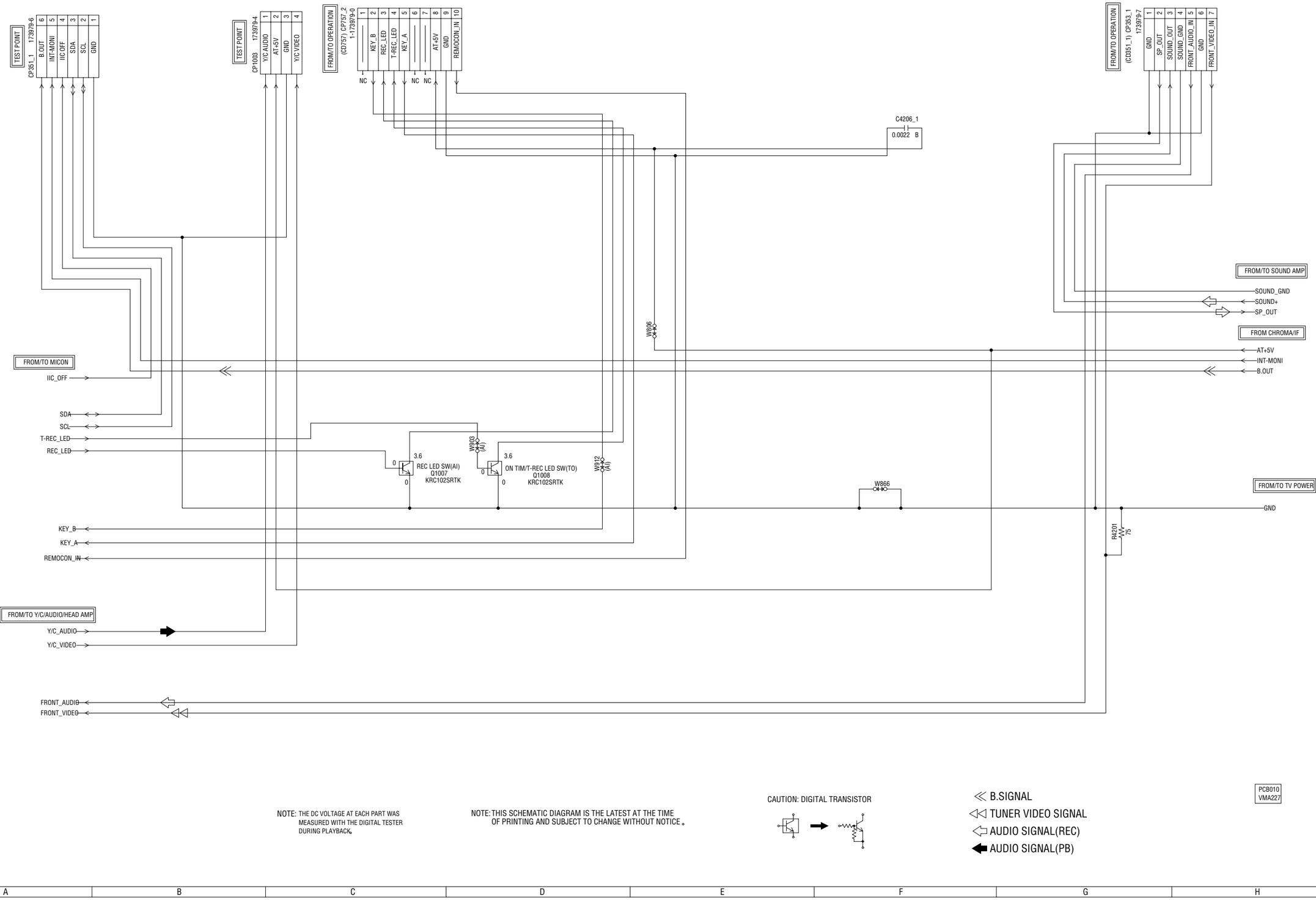
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

CAUTION: DIGITAL TRANSISTOR

TUNER VIDEO SIGNAL
DEFLECTION SIGNAL
CAPSTAN AFC SIGNAL
CYLINDER AFC SIGNAL
CYLINDER APC SIGNAL

IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

≪ B.SIGNAL

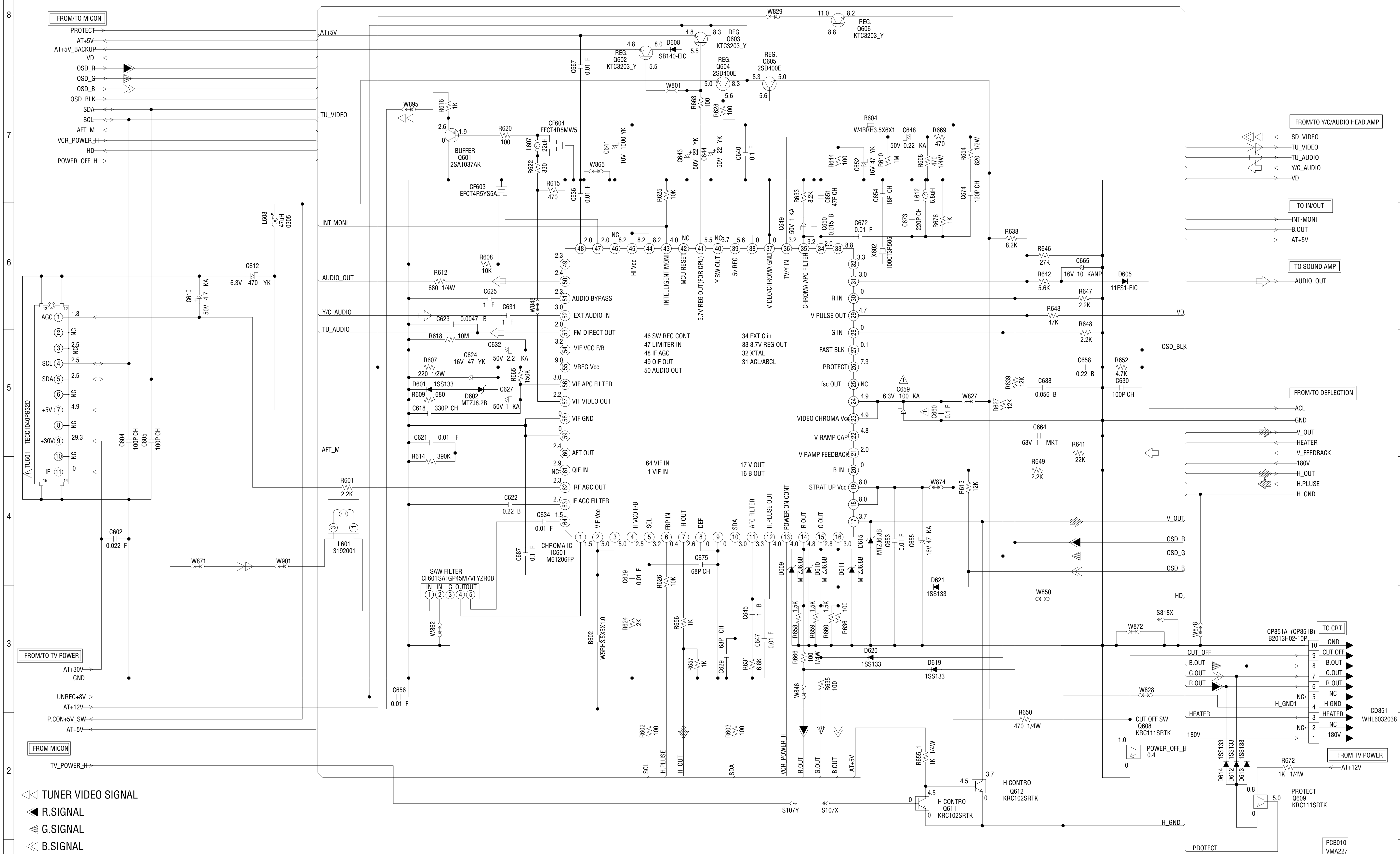
◁◁ TUNER VIDEO SIGNAL

⇦ AUDIO SIGNAL(REC)

⬅ AUDIO SIGNAL(PB)

PCB010
VMA227

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



TUNER VIDEO SIGNAL
R.SIGNAL
G.SIGNAL
B.SIGNAL
DEFLECTION SIGNAL
LUMINANCE SIGNAL
COLOR SIGNAL
PLAYBACK VIDEO SIGNAL

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

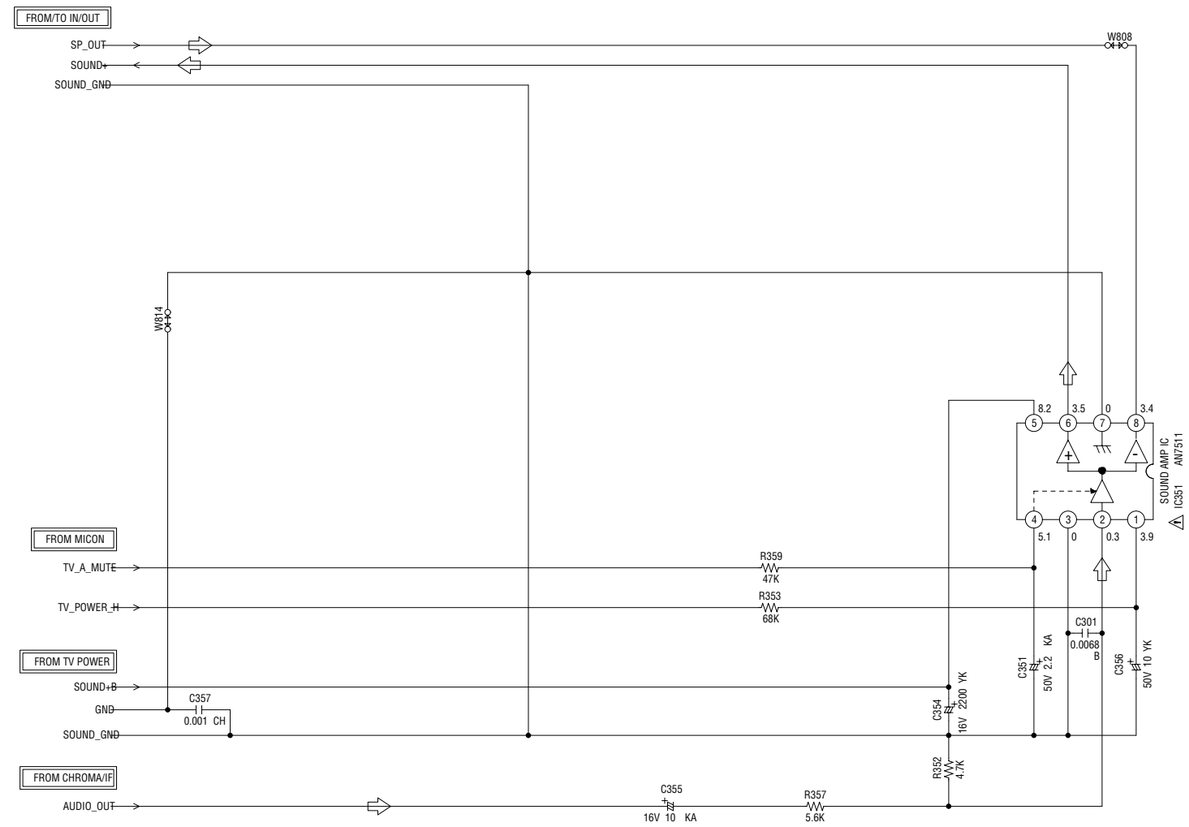
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

SOUND AMP SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

⇦ AUDIO SIGNAL(REC)

PCB010
VMA227

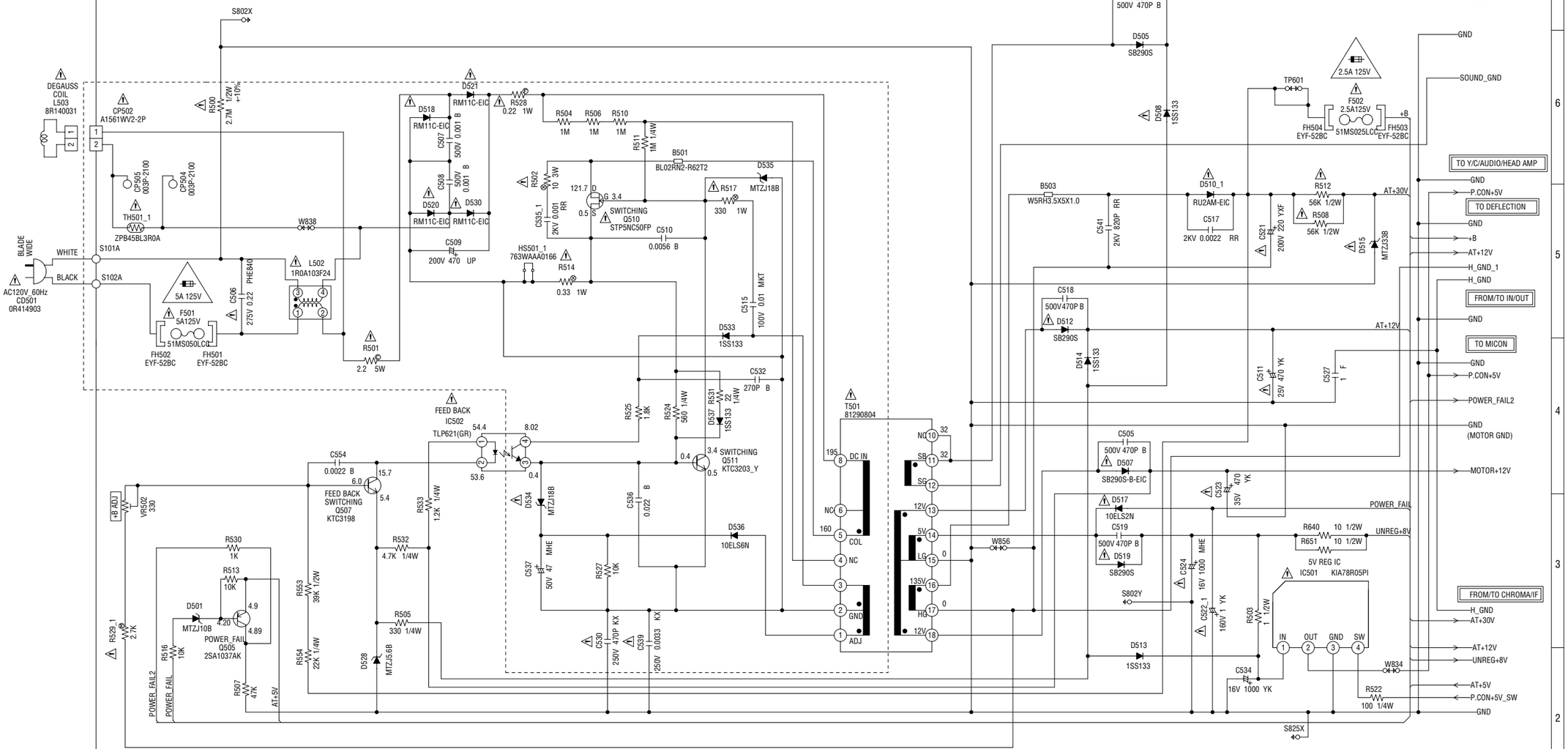
POWER SCHEMATIC DIAGRAM

(SYSCON PCB)

5A 125V　2.5A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V (F501) AND 2.5A 125V (F502)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V (F501) ET 2.5A 125V (F502)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

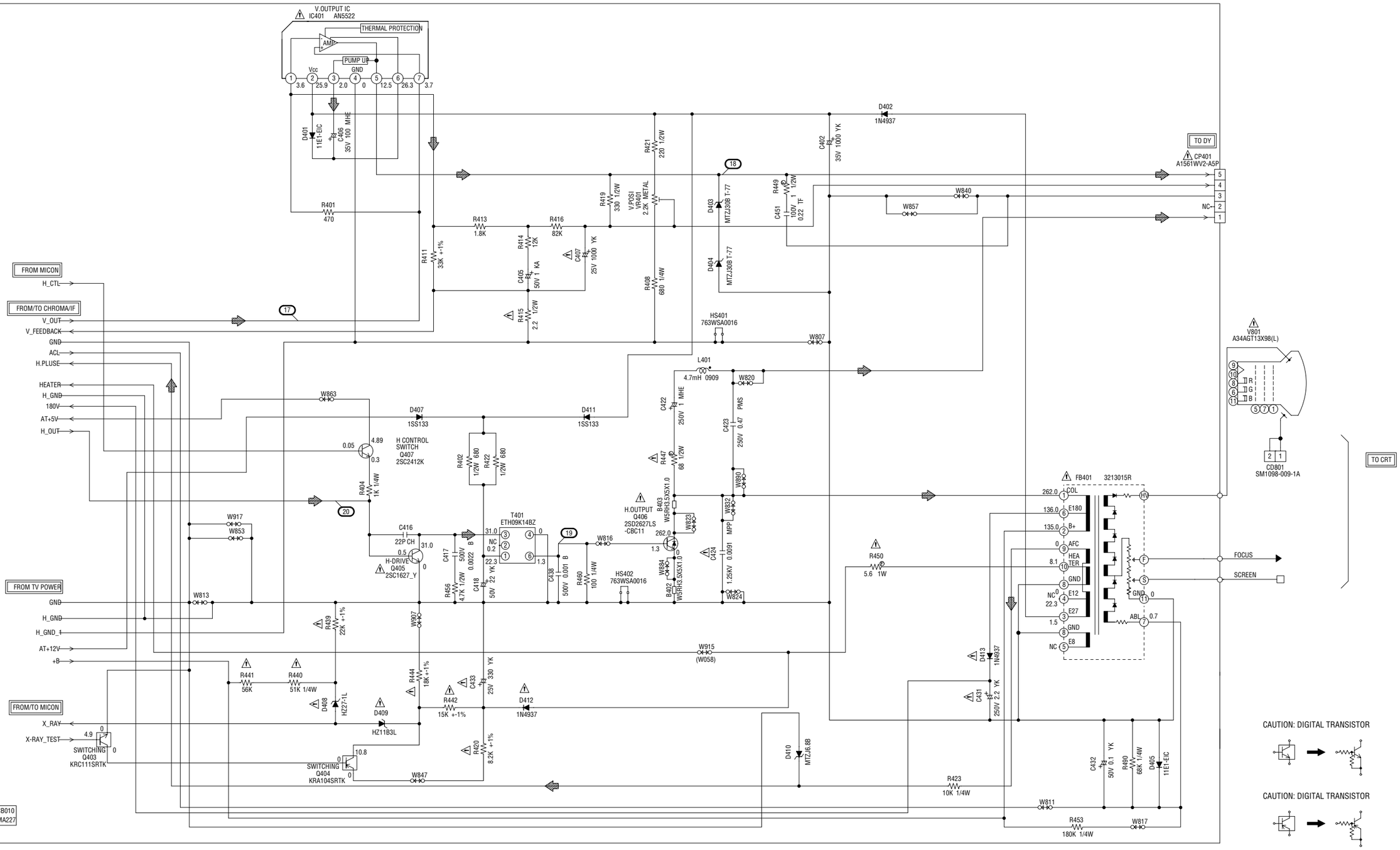
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

DEFLECTION SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

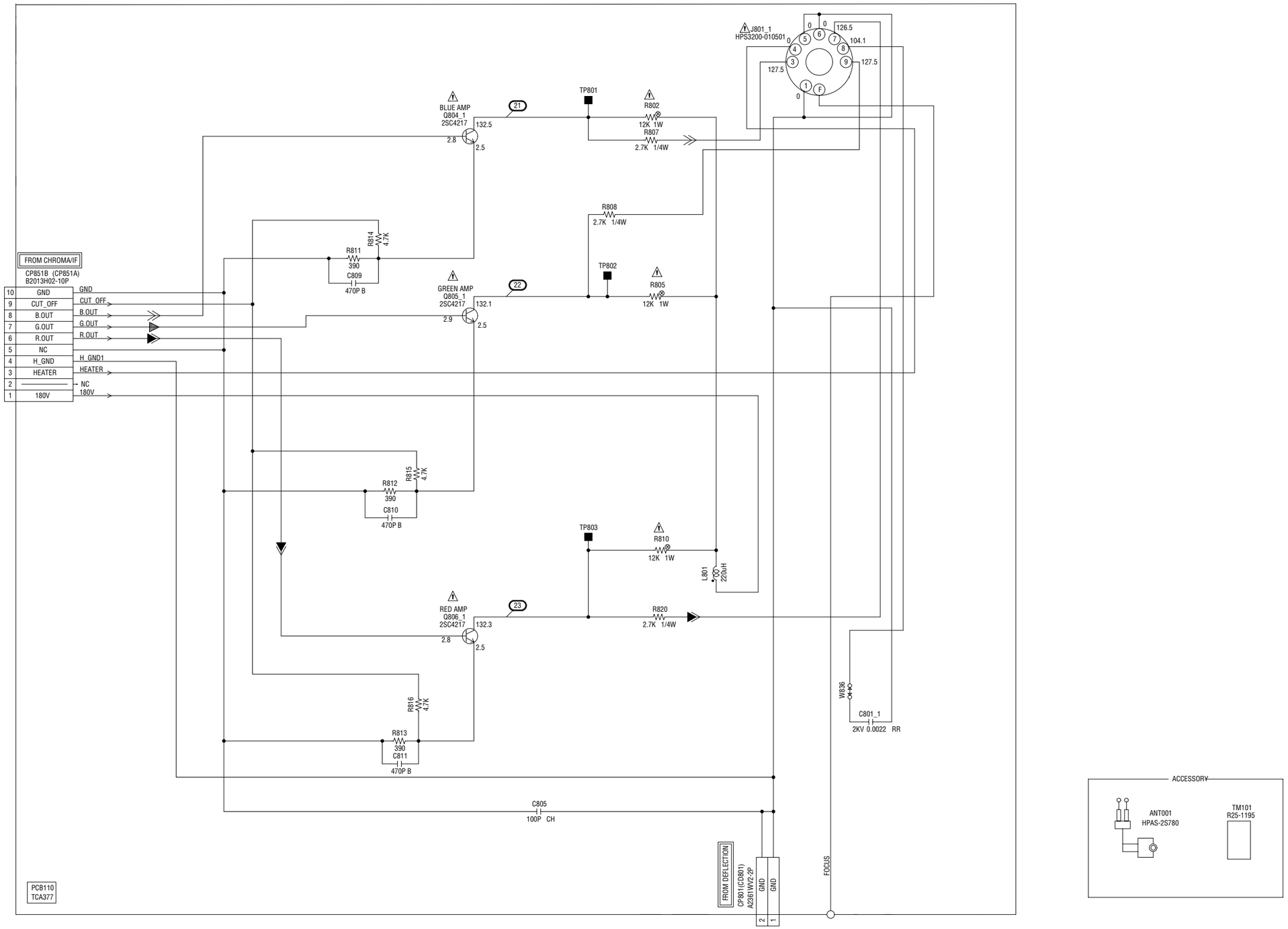
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CRT SCHEMATIC DIAGRAM

(CRT PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

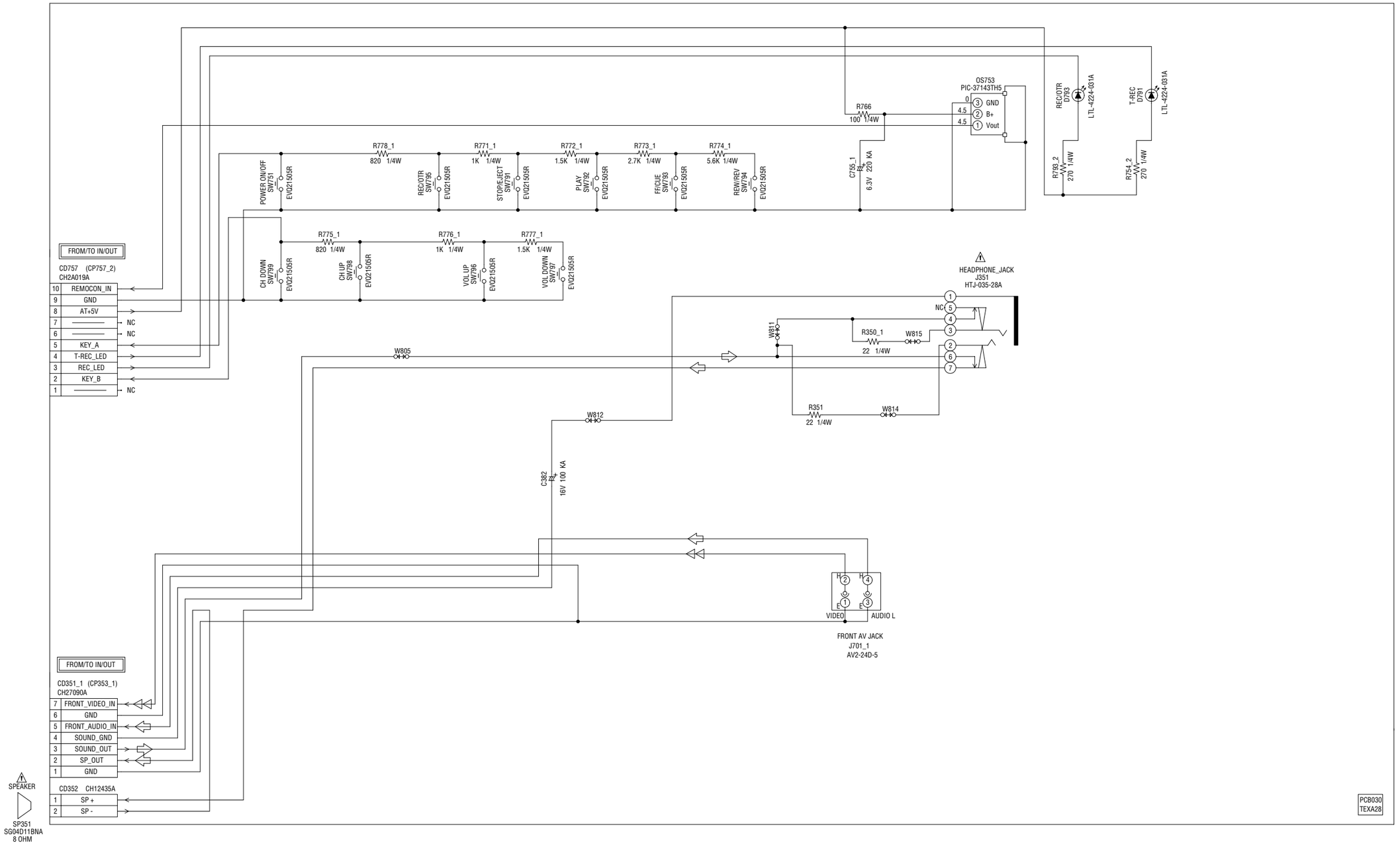
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

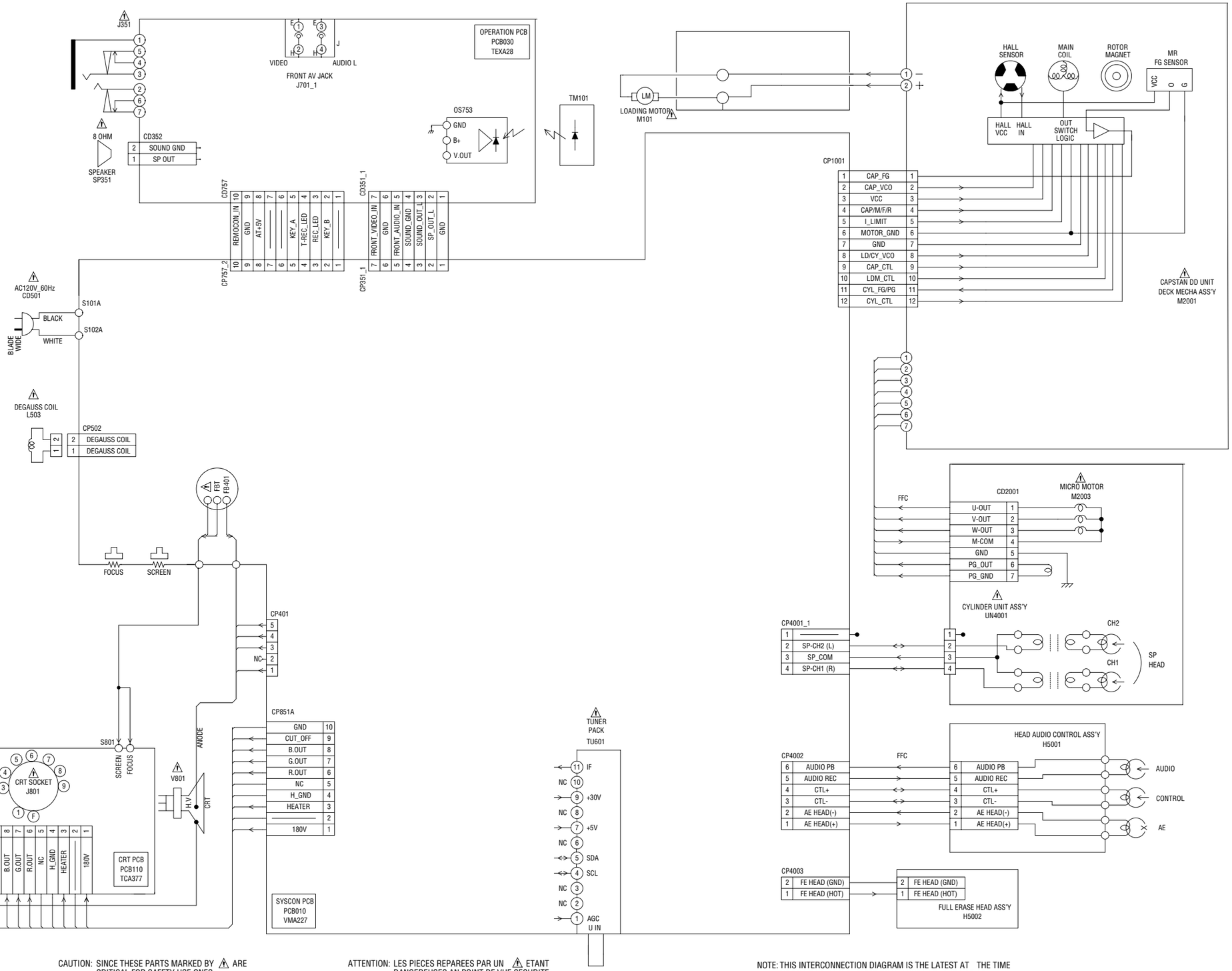
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

◁◁ TUNER VIDEO SIGNAL

◁ AUDIO SIGNAL(REC)

INTERCONNECTION DIAGRAM



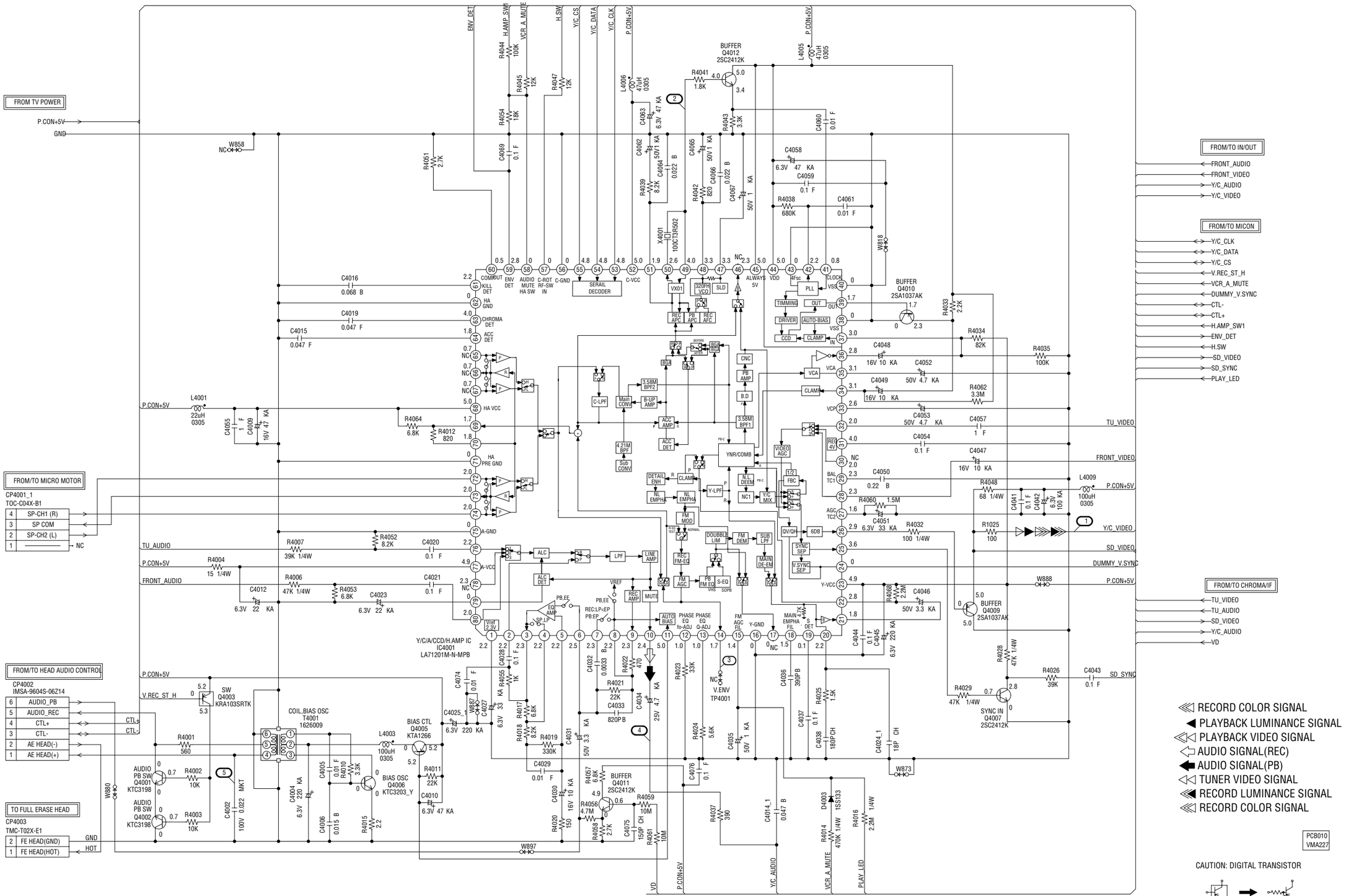
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

MICON SCHEMATIC DIAGRAM (SYSCON PCB)

FROM TV POWER
POWER_FAIL2
P.CON+5V
GND
MOTOR+12V
GND

FROM/TO DECK
CP1001 (CP101)
TMC-J12P-B2
1 CAP_FG
2 CAP_VCO
3 VCC
4 CAP_M/F/R
5 I_LIMIT
6 GND[M]
7 GND
8 LD/CY_VCO
9 CAP_CTL
10 LDM_CTL
11 CYL_FG/PG
12 CYL_CTL

FROM/TO DECK
CD852
CH01408A

BOT SENSOR Q1011 ST-304L
EOT SENSOR Q1013 ST-304L
LED DRIVER Q1024 KRC103SRTK
D1003 LNA2702L010R
MXS01380MPP0 SW1001

TIMER SYSCON MICON IC IC1001 OEC7071A

FROM/TO Y/C/AUDIO/HEAD AMP
Y/C_CLK
Y/C_DATA
Y/C_CS
H.SW
SD_VIDEO
ENV_DET
VCR_A_MUTE
CTL+
CTL-
DUMMY_V.SYNC
V.REC_ST_H
H.AMP_SW1
SD_SYNC
PLAY_LED

FROM/TO CHROMA/IF
POWER_OFF_H
HD
VD
AFT_M
SCL
SDA
OSD_R
OSD_G
OSD_B
OSD_BLK
AT+5V_BACKUP
AT+5V
VCR_POWER_H
TV_POWER_H
PROTECT

FROM/TO IN/OUT
IIC_OFF
REC_LED
T-REC_LED
KEY_A
KEY_B
REMOCON_IN
SCL
SDA

TO SOUND AMP
TV_POWER_H
TV_A_MUTE

FROM/TO DEFLECTION
X_RAY
X-RAY_TEST
H_CTL
AT+5V

EEP ROM IC IC1009 S-24C04BDP-LA

SYSTEM RESET IC IC1003 R3111N311A/C

MS_SEN A Q1009 RPI-352Q01R
MS_SEN B Q1003 RPI-352Q01R
REEL SENS Q1005 RPI-303

81 VCR_A_MUTE
82 TV_A_MUTE
83 (EXT MUTE)
98 AMP-VCC
99 ANALOG VCC
100 DEW
50 TAB SW
49 OSD-VSS
48 (AV2)
33 PLAY LED
32 RENT_H
31 ON-TIMER LED

PCB010
VMA227

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

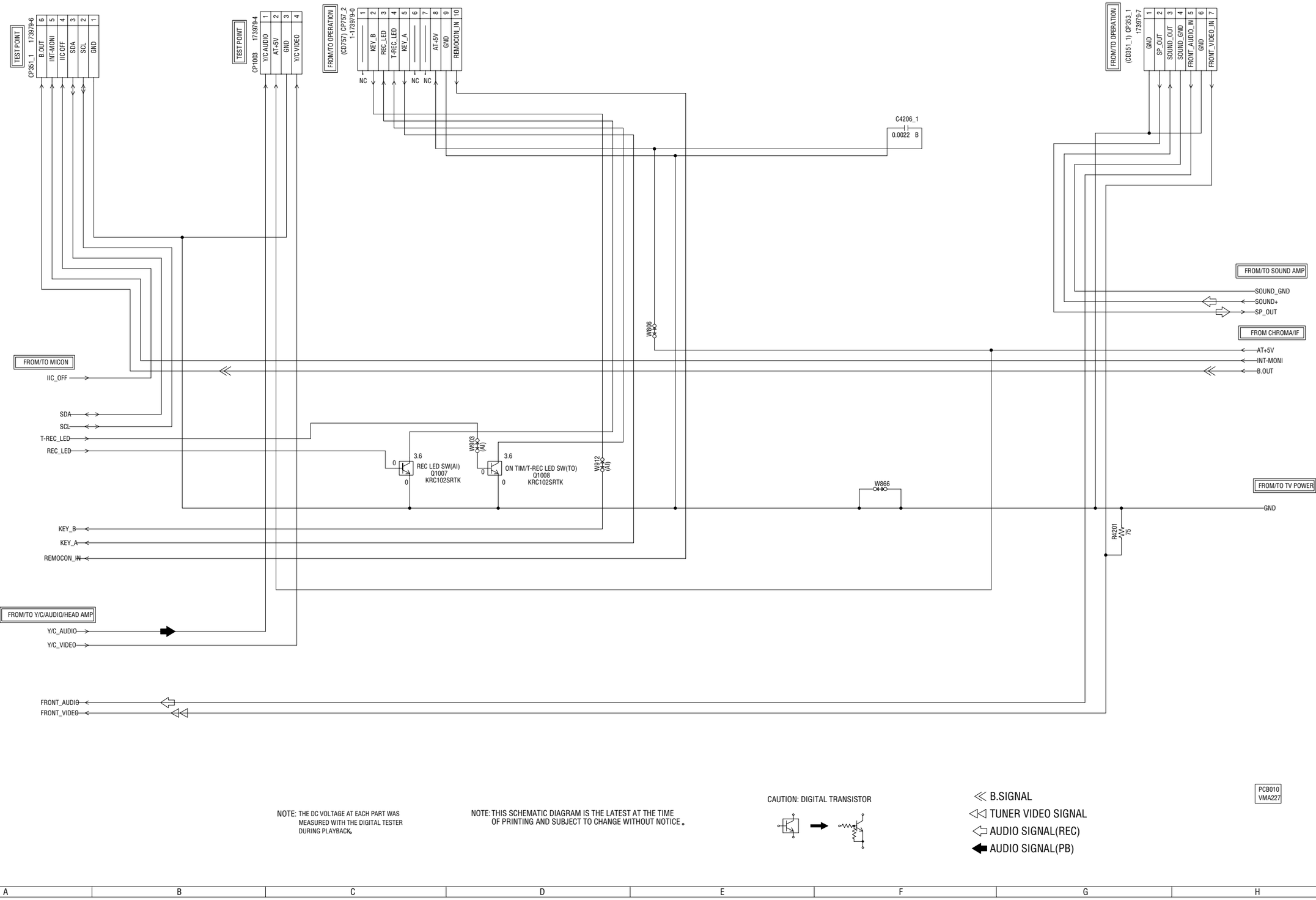
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

CAUTION: DIGITAL TRANSISTOR

TUNER VIDEO SIGNAL
DEFLECTION SIGNAL
CAPSTAN AFC SIGNAL
CYLINDER AFC SIGNAL
CYLINDER APC SIGNAL

IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

≪ B.SIGNAL

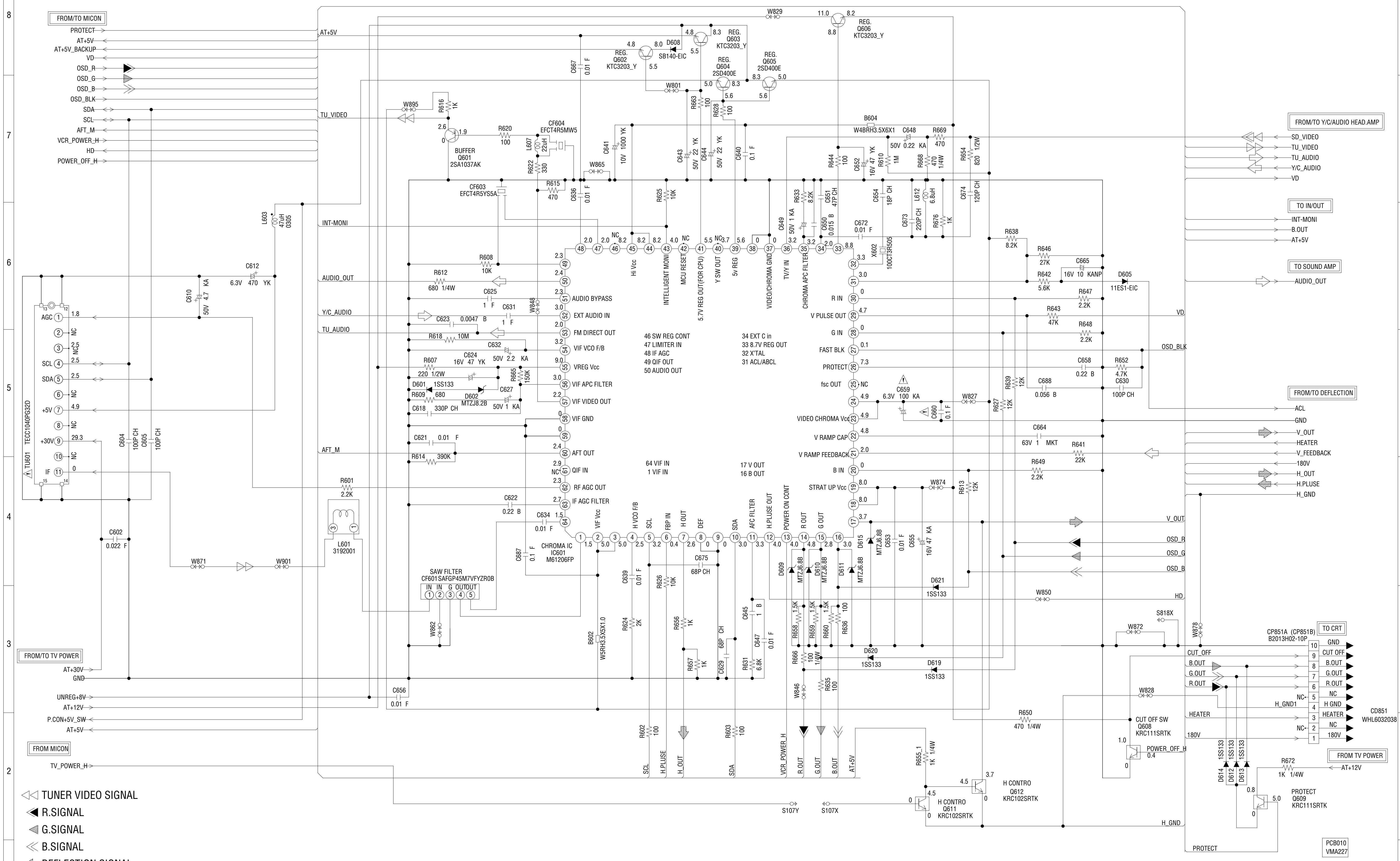
◁◁ TUNER VIDEO SIGNAL

⇦ AUDIO SIGNAL(REC)

⬅ AUDIO SIGNAL(PB)

PCB010
VMA227

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



◁◁ TUNER VIDEO SIGNAL
◀ R.SIGNAL
G.SIGNAL
≪ B.SIGNAL
DEFLECTION SIGNAL
LUMINANCE SIGNAL
COLOR SIGNAL
PLAYBACK VIDEO SIGNAL

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

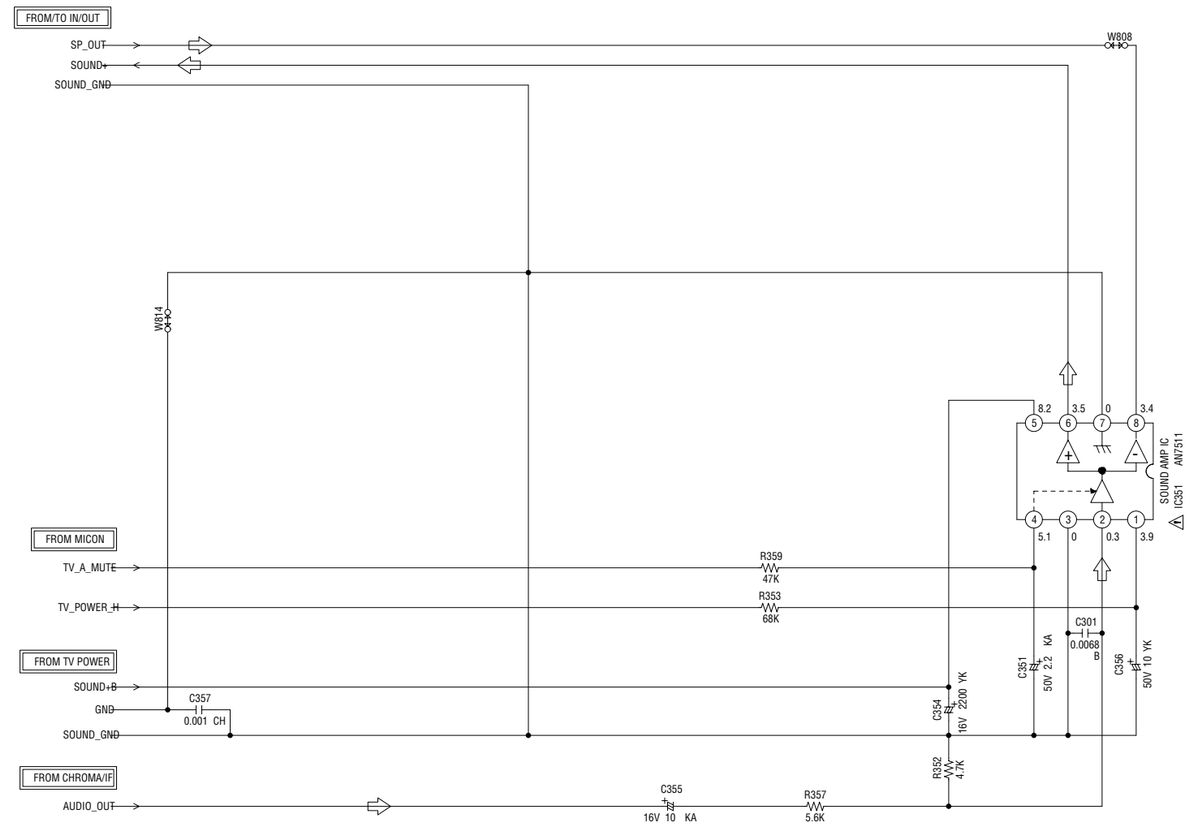
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

SOUND AMP SCHEMATIC DIAGRAM
(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

⇦ AUDIO SIGNAL(REC)

PCB010
VMA227

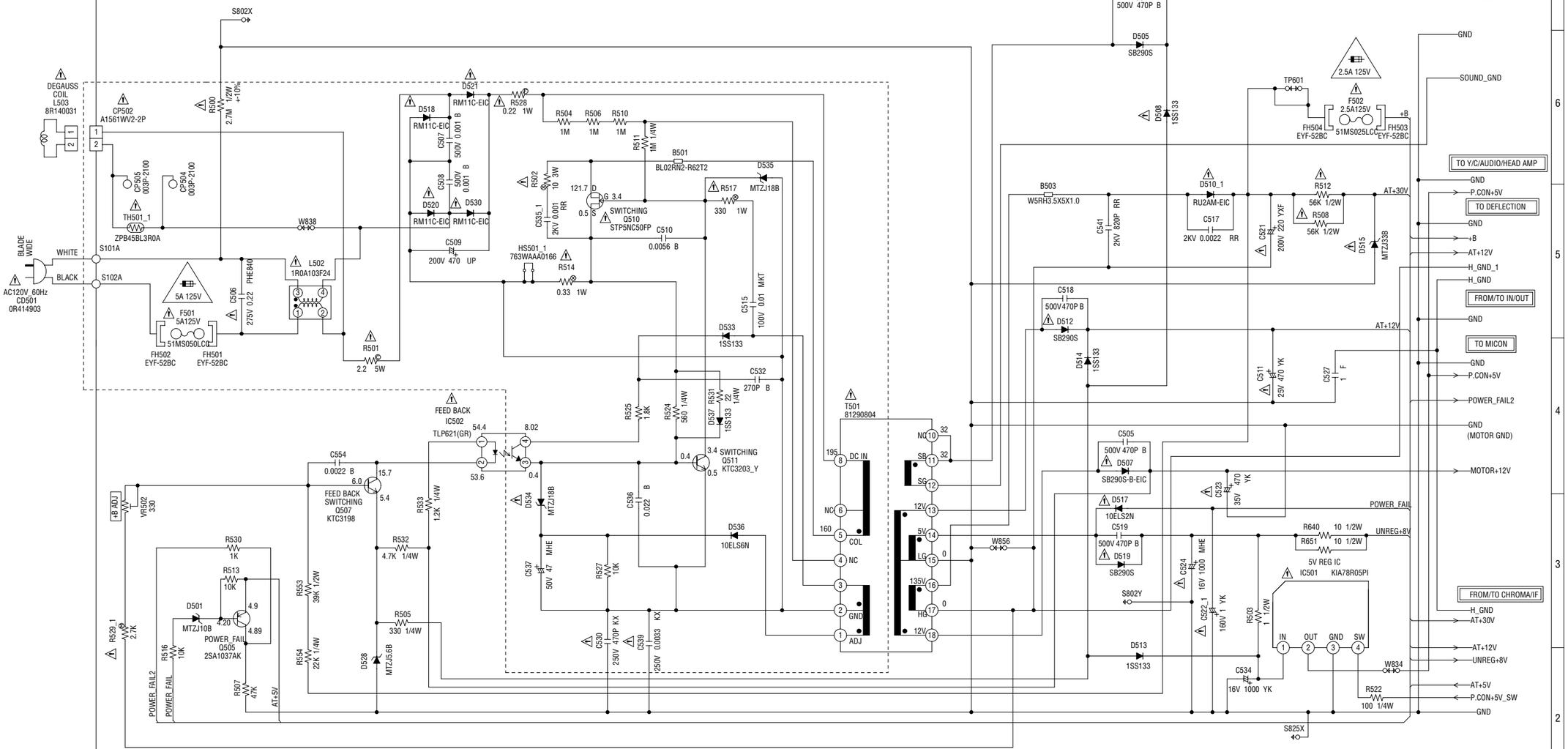
POWER SCHEMATIC DIAGRAM

(SYSCON PCB)

5A 125V　2.5A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 5A 125V (F501) AND 2.5A 125V (F502)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 5A 125V (F501) ET 2.5A 125V (F502)



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

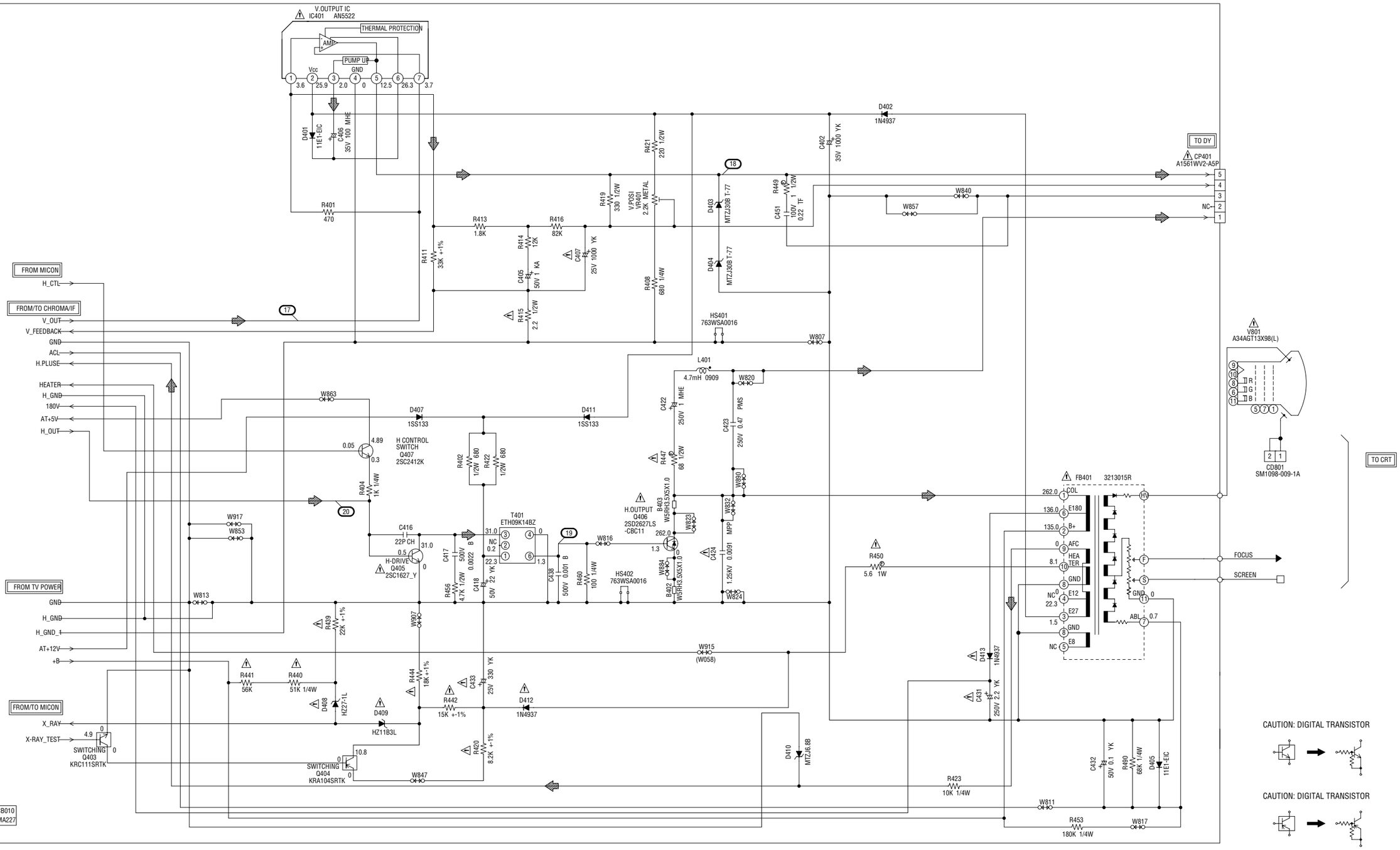
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

DEFLECTION SCHEMATIC DIAGRAM

(SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

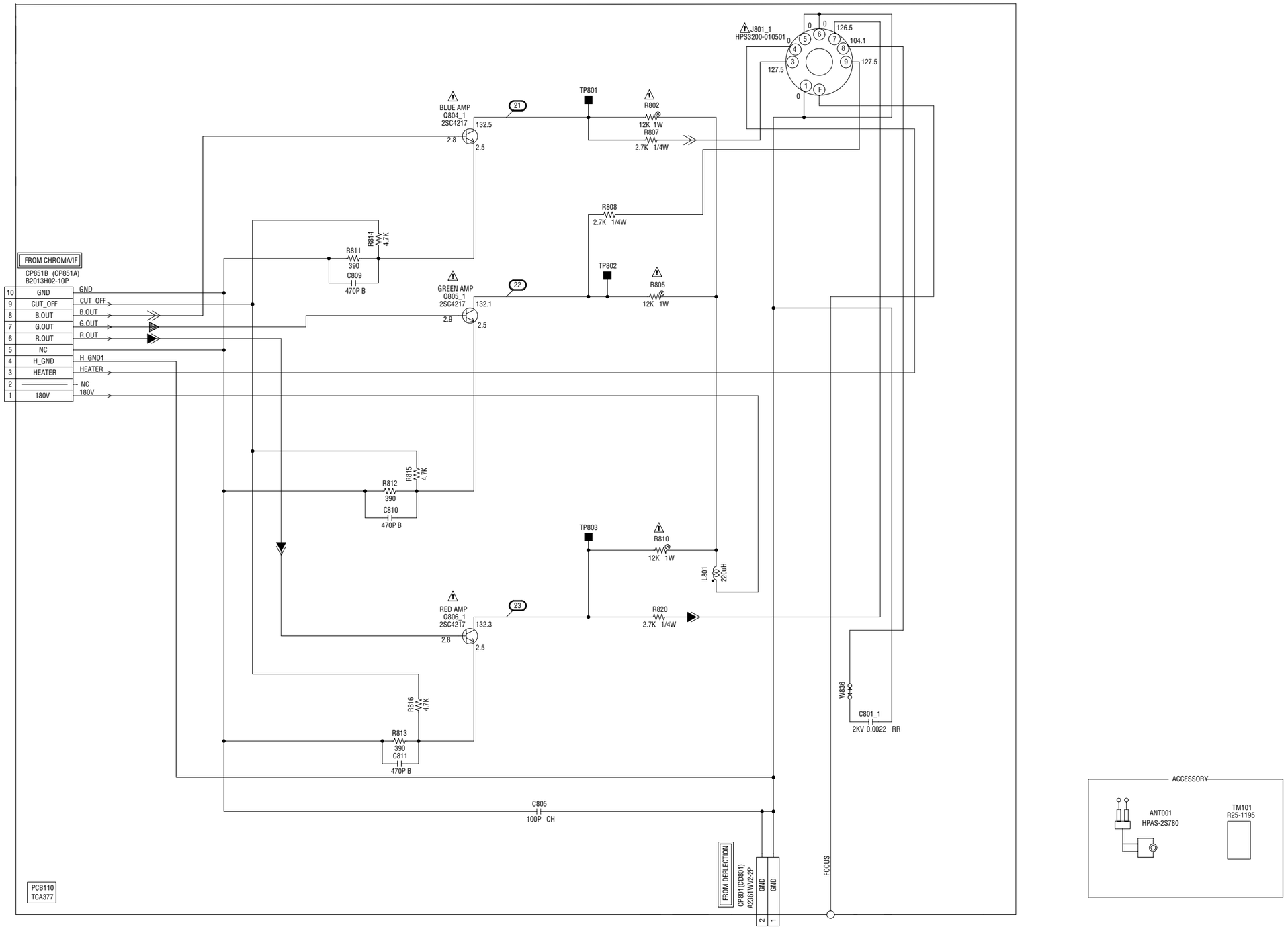
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

CRT SCHEMATIC DIAGRAM

(CRT PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

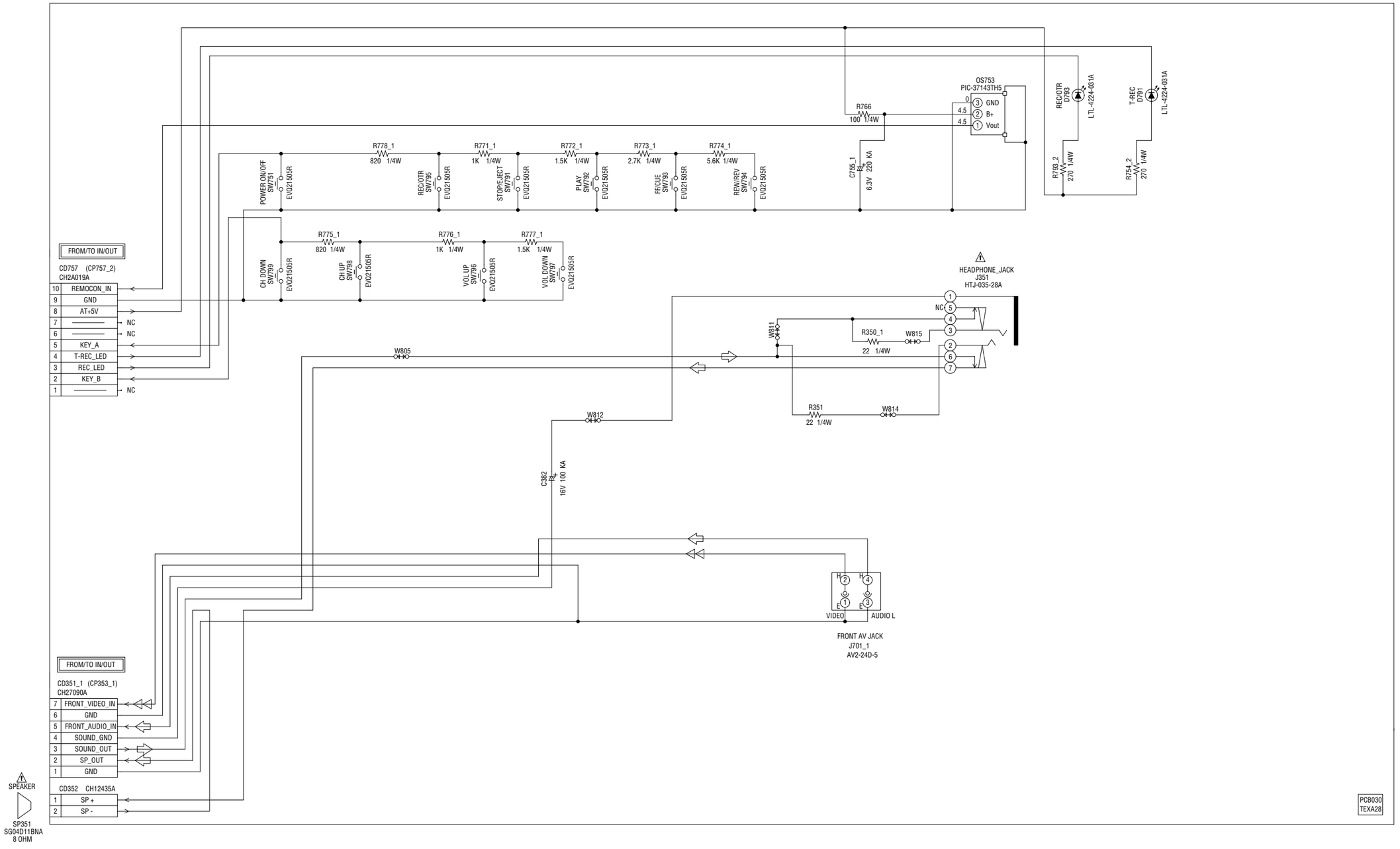
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

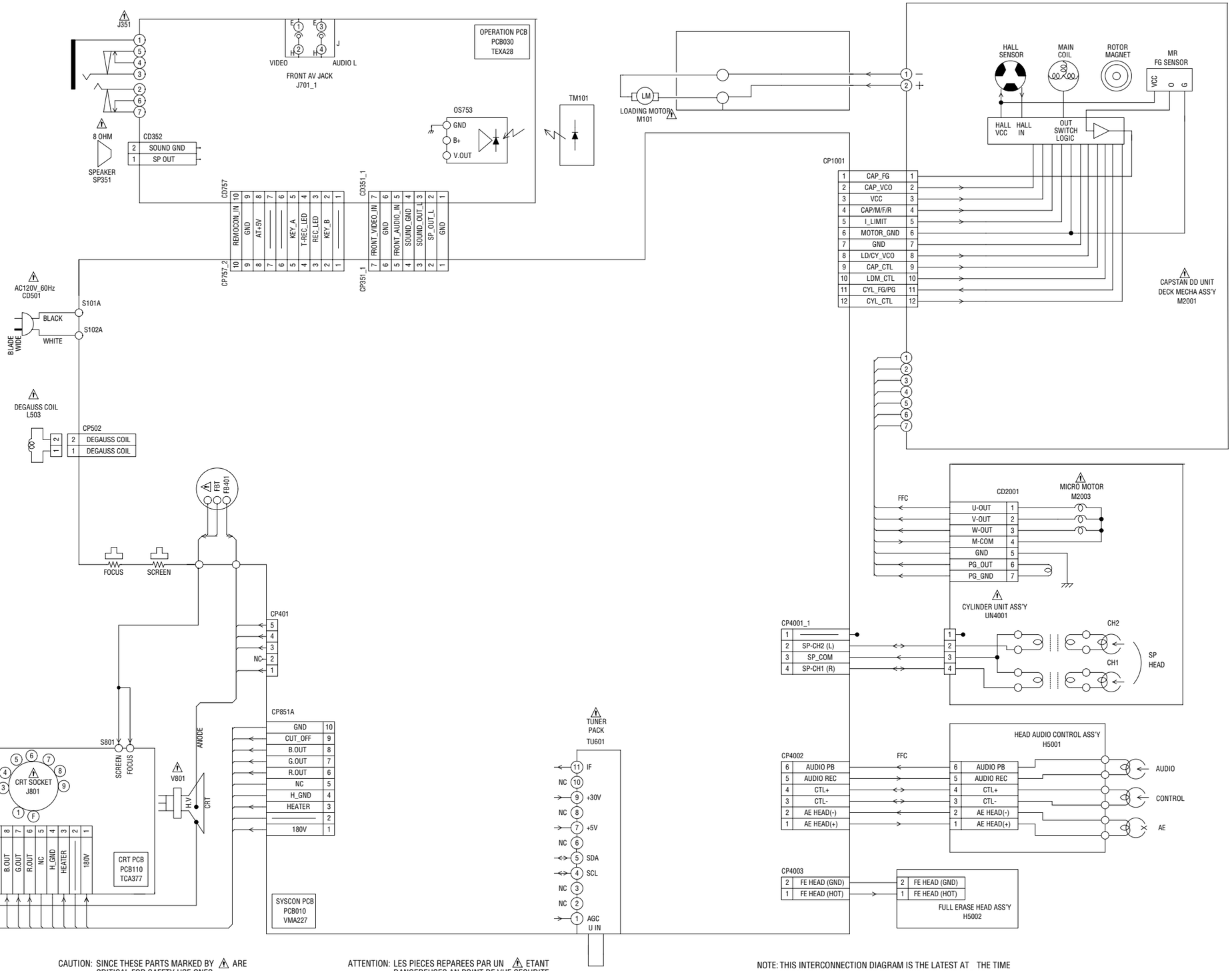
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

◁◁ TUNER VIDEO SIGNAL

◁ AUDIO SIGNAL(REC)

INTERCONNECTION DIAGRAM



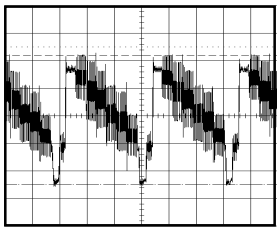
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

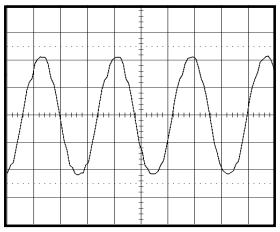
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

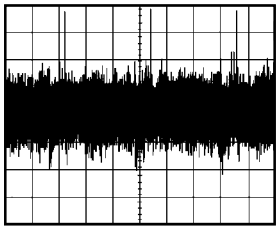
Y/C/AUDIO/CCD/HEAD AMP



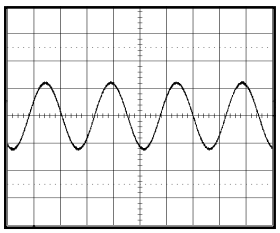
① PB
0.5V 20µs/div



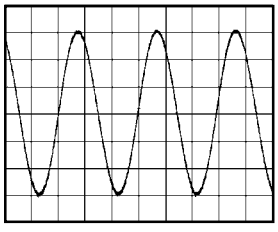
② POWER ON
100mV 0.1µs/div



③ PB
10mV 20us/div

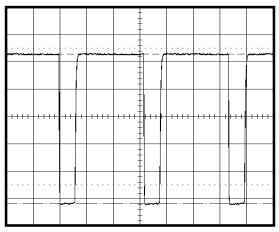


④ PB
0.5V 1ms/div

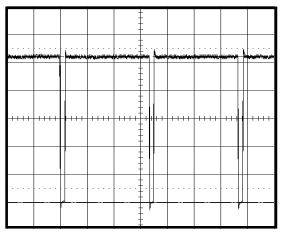


⑤ REC
10.0V 5us/div

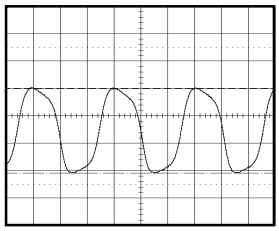
MICON



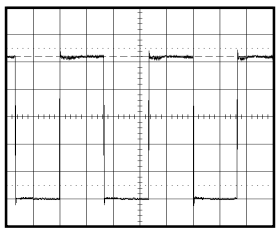
⑥ POWER ON
1.0V 20µs/div



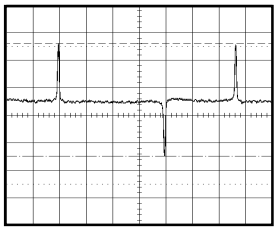
⑦ POWER ON
0.5V 10ms/div



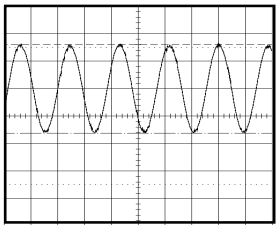
⑧ POWER ON
1.0V 10µs/div



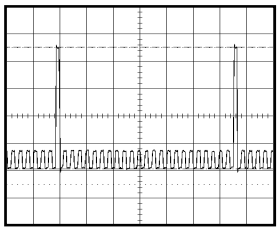
⑨ PB
1.0V 10ms/div



⑩ PB
1.0V 5ms/div

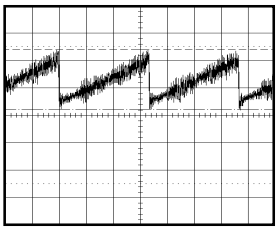


⑪ PB
0.5V 0.5ms/div

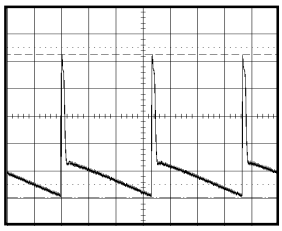


⑬ PB
1.0V 5ms/div

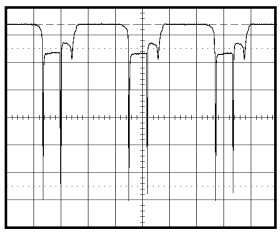
DEFLECTION



⑰ 0.5V 5ms/div



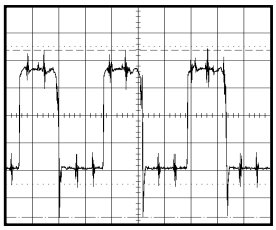
⑱ 10.0V 5ms/div



⑲ 2.0V 20µs/div

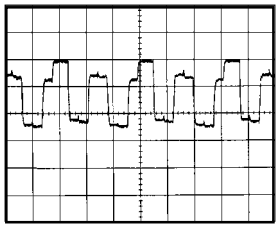
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

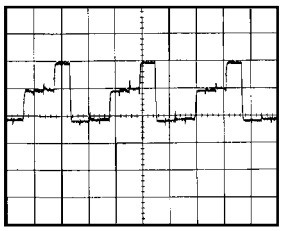


(20) 200mV 20µs/div

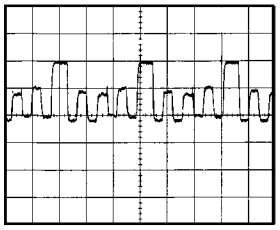
CRT



(21) 50.0V 20µs/div



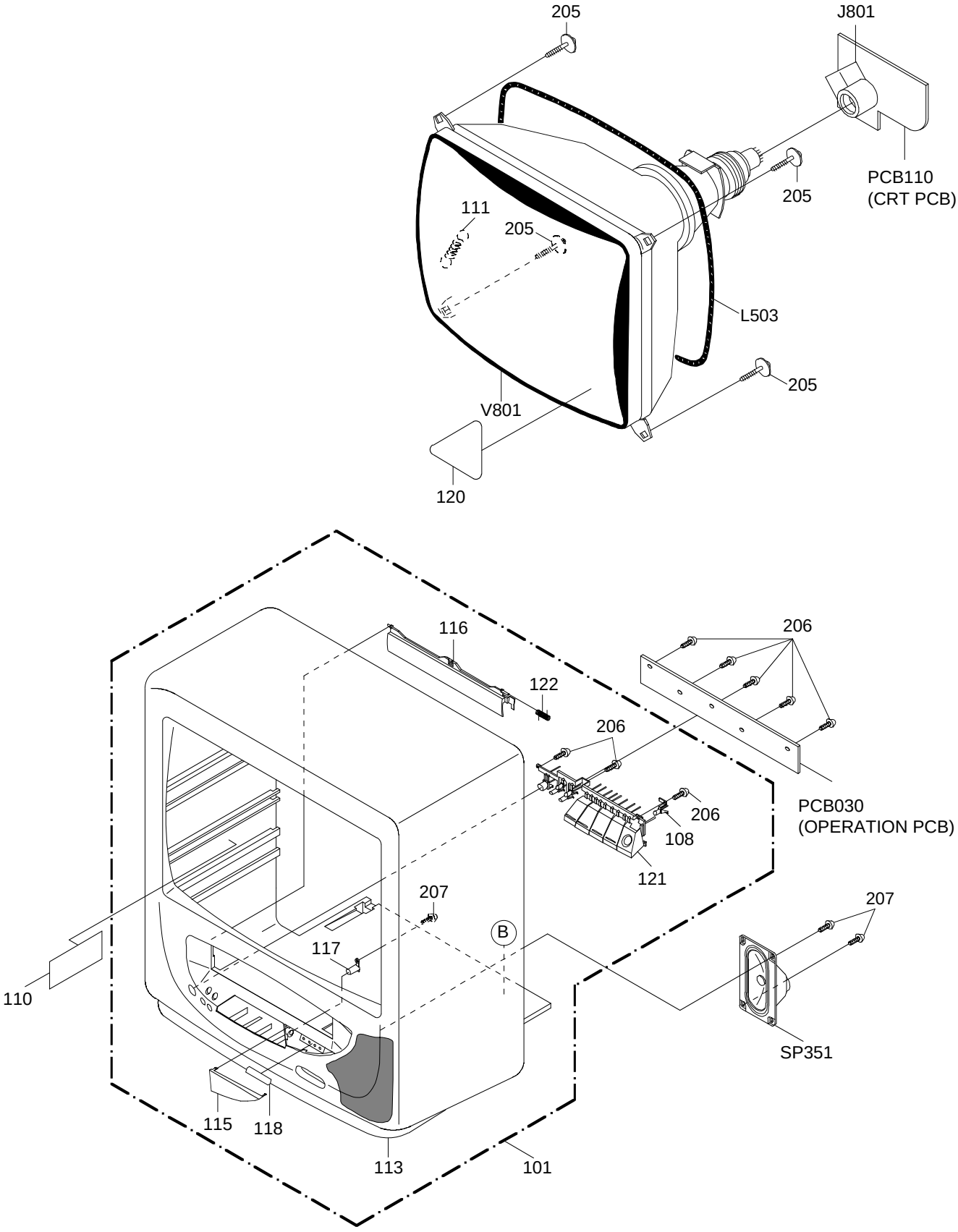
(22) 50.0V 20µs/div



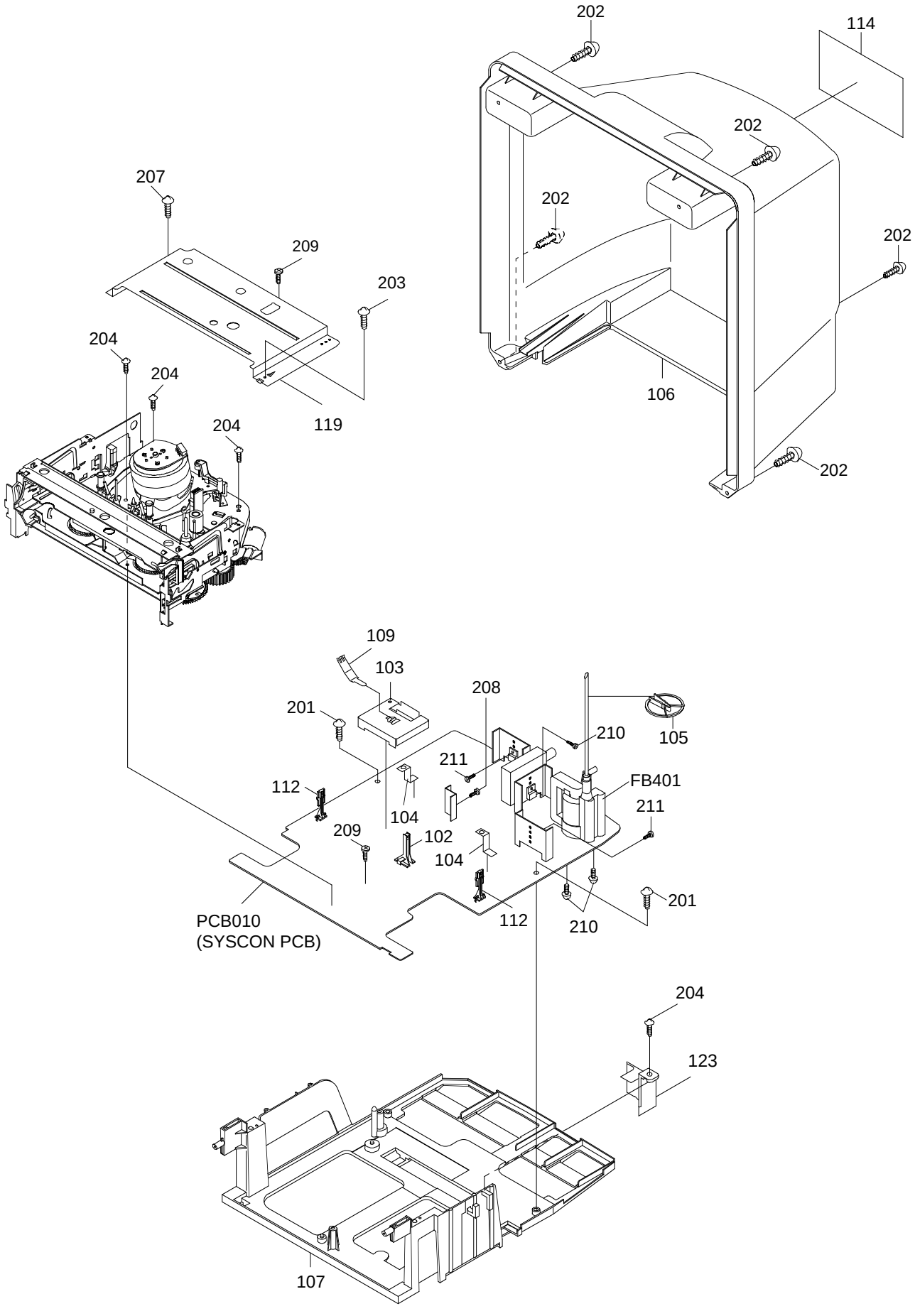
(23) 50.0V 20µs/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

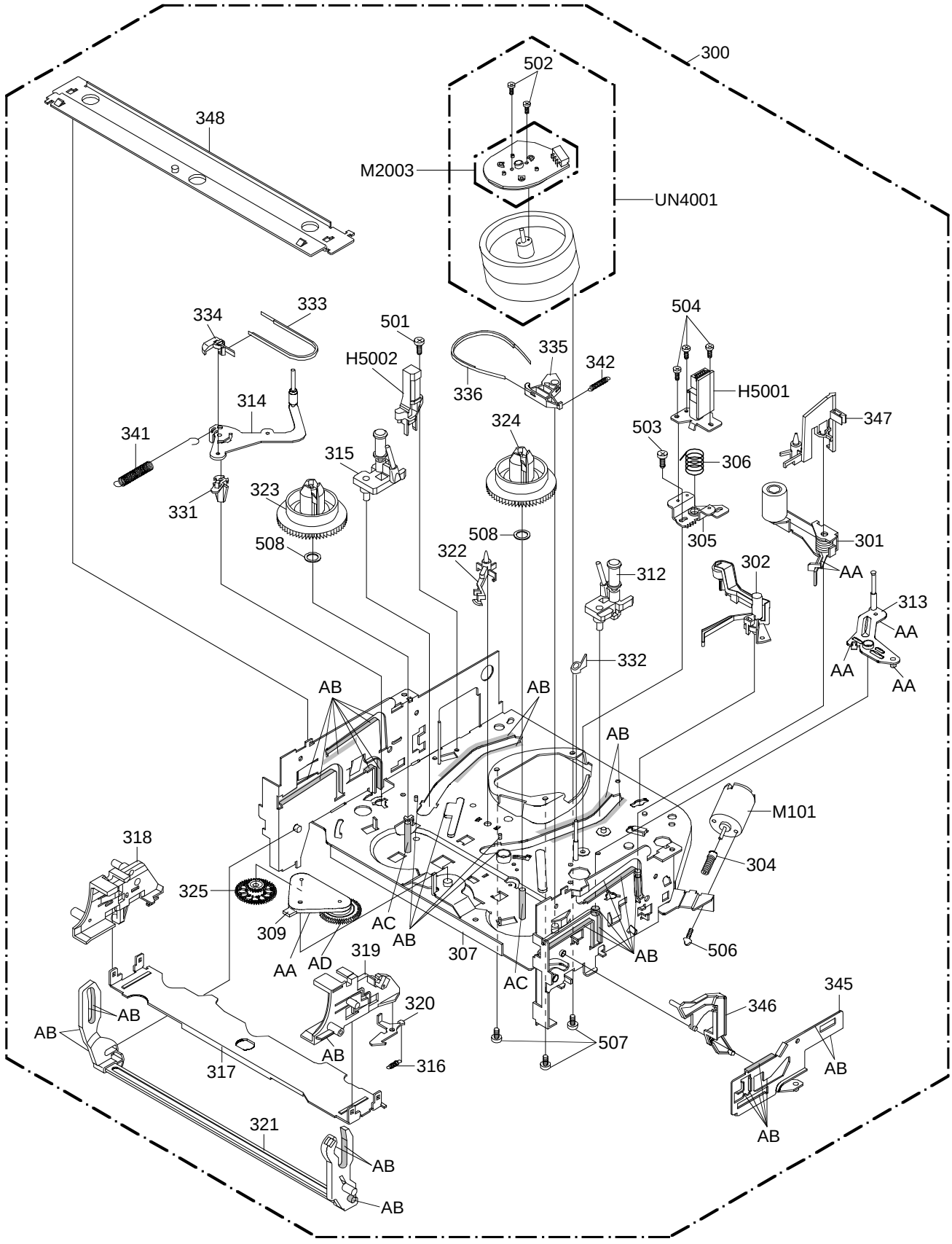
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



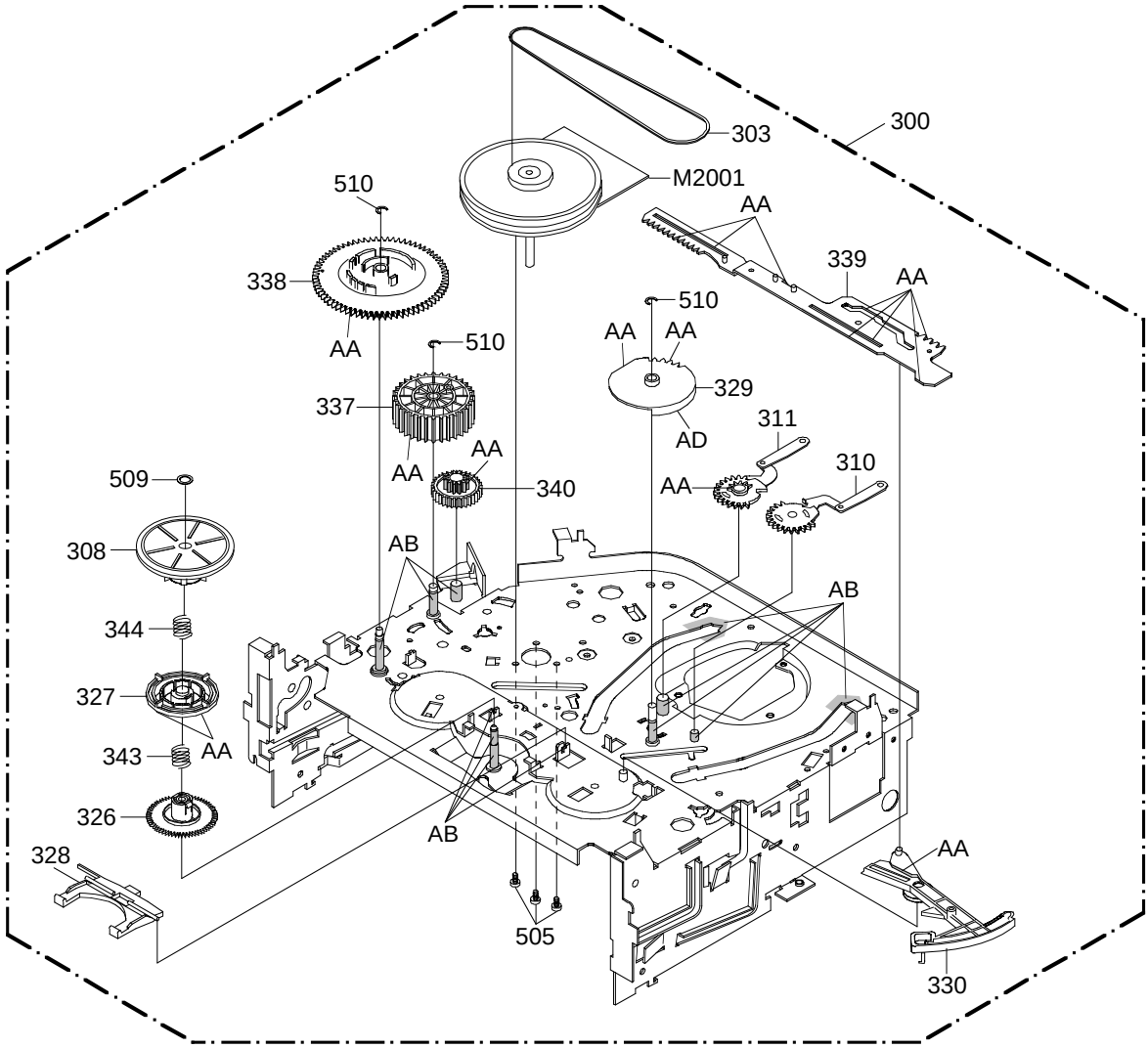
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

NOTE: Applying positions AA, AB, AC and AD for the grease are displayed for this section.
Check if the correct grease is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

NOTE: Applying positions AA, AB, AC and AD for the grease are displayed for this section.
Check if the correct grease is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A5A325A720	CABINET,FRONT ASS'Y		
102	85OP700037	HOLDER,LED		
103	752WSA0230	SHIELD,CASE HEAD AMP		
104	753WSA0118	PLATE,EARTH-SYSCON		
105	899HV3T000	HOLDER,ANODE WIRE		
106	702WPA0832	CABINET,BACK		
107	761WPA0225	HOLDER,DECK		
108	735WPAA267	BUTTON,REC		
109	753WUAA006	SPRING,EARTH HEAD AMP		
110	7260000324	SHEET,CRT SERVICEMAN		
111	741WUA0019	SPRING,EARTH		
112	85OP700038	HOLDER,END SENSOR		
113	701WPJB487	CABINET,FRONT		
114	722A08A109	SHEET,RATING		
115	711WPA0114	PLATE,FRONT		
116	712WPJB238	FLAT,FLAP		
117	713WPA0075	GUIDE,REMOCON		
118	7230006830	SHEET,LED		
119	752WSAA040	PLATE,DECK SHIELD		
120	723000A824	FILM,DECORATION		
121	735WPJA514	BUTTON,FRAME		
122	743WKA0032	SPRING,FLAP(COMBO)		
123	755WPA0026	PLATE,COVER LIGHT		
201	8117540B04	SCREW,TAPPING(B0)	TRUSS	4x20
202	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
203	8107630604	SCREW,TAP TITE(S)	BRAZIER	3x6
204	8110630A24	SCREW,TAP TITE(P)	BRAZIER	3x12
205	8121F50B84	SCREW,TAPPING(BO)	FAI20 FLAT	5x28
206	8110630A04	SCREW,TAP TITE(P)	BRAZIER	3x10
207	8110630804	SCREW,TAP TITE(P)	BRAZIER	3x8
208	8109I30804	SCREW,TAP TITE(B)	WH7	3x8
209	8110330804	SCREW,TAP TITE(P)	FLAT	3x8
210	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
211	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10
---	J5780102	WARRANTY SHEET		
---	J5A30401	INSTRUCTION BOOK		
---	JA5K0200	POLYBAG,INSTRUCTION		
---	791WHAA016	LAMIFILM BAG		
---	A5A304A975	INSTRUCTION BOOK KIT		
---	792WHA0271	PACKAGE,TOP		
---	792WHA0272	PACKAGE,BOTTOM		
---	793WCDB198	GIFT BOX		

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
300	A5A305A420K	DECK ASSY	A5A305A420K	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
				502	810A123504	SEMS A	M2.3x5.0
301	85OA400234	PINCH ROLLER BLOCK		503	8107226404	SCREW,TAP TITE(S) BIND	2.6x4
302	85OA500026	AHC ASS'Y		504	8102120604	SCREW,PAN	M2x6
303	85OP200290	BELT,CAPSTAN (S)		505	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
304	85OP600581	WORM		506	810A130404	SCREW/WASHER(A)	M3x4
305	85OP500083	BASE,AC HEAD		507	810A126504	SCREW/WASHER(A)	M2.6x5
306	85OP800324	SPRING,AC HEAD		508	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
307	85OA000459	MAIN CHASSIS ASS'Y		509	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
308	85OA200089	CLUTCH ASS'Y					
309	85OA200090	ARM IDLER ASS'Y		510	83ETW30000	E-RING	3
310	85OA300065	LOADING ARM S UNIT		CD1501	122H071603	CORD JUMPER	SMCD-7X151
311	85OA300066	LOADING ARM T UNIT		CD1502	122Y021902	CORD JUMPER	2Y021902
312	85OA400223	INCLINED BASE T UINT 3S		H5001	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
313	85OA400232	P5 ARM ASS'Y 2		H5002	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
314	85OA400233	TENSION ARM ASS'Y (WT)		⚠ M101	1596P98001	MOTOR (LOADING)	MXN13FB12K3
315	85OA400231	INCLINED BASE S UNIT		⚠ M2001	1510S98036	CAPSTAN DD UNIT	F2QVB08
316	85OP800358	SPRING,LOCKER		⚠ M2003	1589S11014	MICRO MOTOR	I2OAL03
317	85OP900736	CASS,HOLDER		⚠ UN4001	A5A305A500	CYLINDER UNIT ASS'Y	A5A305A500
318	85OP900748	CASS,SIDE L					
319	85OP900749	CASS,SIDE R					
320	85OP900739	LOCKER,R					
321	85OA900228	LINK UNIT					
322	85OP000496	POST,CASS GUIDE					
323	85OP200291	REEL,S (S)					
324	85OP200292	REEL,T (S)					
325	85OP200308	GEAR,IDLER					
326	85OP200311	GEAR,CLUTCH					
327	85OP200312	GEAR,COUPLING					
328	85OP200313	LEVER,CLUTCH					
329	85OP300194	GEAR,MAIN LOADING					
330	85OP400490	LEVER,TENSION					
331	85OP400492	HOLDER,TENSION					
332	85OP400520	CAP.P4					
333	85OP400532	BAND,TENSION					
334	85OP400533	CONNECT,TENSION					
335	85OP600573	ARM,BRAKE T					
336	85OP600574	BAND,BRAKE T					
337	85OP600577	CAM,PINCH ROLLER					
338	85OP600578	CAM,MAIN					
339	85OP600579	ROD,MAIN					
340	85OP600582	GEAR,JOINT					
341	85OP800322	SPRING,TENSION					
342	85OP800350	SPRING,BRAKE T					
343	85OP800355	SPRING,COUPLING					
344	85OP800356	SPRING,RING					
345	85OP900750	LEVER,LINK 2					
346	85OP900744	LEVER,FLAP					
347	85OP900745	CASS,OPENER					
348	85OP900746	BRACKET,TOP 3V					

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		RESISTORS		
⚠ R415	R002T22R2J	RC	2.2 OHM 1/2W	
⚠ R420	R801R7822F	RC	8.2K OHM 1/10W	
⚠ R439	R801R7223F	RC	22K OHM 1/10W	
⚠ R442	R801R7153F	RC	15K OHM 1/10W	
⚠ R444	R801R7183F	RC	18K OHM 1/10W	
⚠ R447	R65582680J	R,FUSE	68 OHM 1/2W	
R449	R63502010J	R,FUSE	1 OHM 1/2W	or
	R655U2010J	R,FUSE	1 OHM 1/2W	
⚠ R450	R655815R6J	R,FUSE	5.6 OHM 1W	
⚠ R500	R0G3K2275K	RC	2.7M OHM 1/2W	
⚠ R501	R5Y2CD2R2J	R,CEMENT	2.2 OHM 5W	
⚠ R502	R3X28B100J	R,METAL OXIDE	10 OHM 3W	
⚠ R510	R903N8105J	RC	1M OHM 1/8W	
⚠ R512	R002T2563J	RC	56K OHM 1/2W	
R514	R3X181R33J	R,METAL OXIDE	0.33 OHM 1W	
⚠ R517	R3X181331J	R,METAL OXIDE	330 OHM 1W	
⚠ R528	R63581R22J	R,FUSE	0.22 OHM 1W	
⚠ R802	R3X181123J	R,METAL OXIDE	12K OHM 1W	
⚠ R805	R3X181123J	R,METAL OXIDE	12K OHM 1W	
⚠ R810	R3X181123J	R,METAL OXIDE	12K OHM 1W	
		CAPACITORS		
C354	E02L02222M	CE	2200 UF 16V	
⚠ C402	E02L04102M	CE	1000 UF 35V	
⚠ C407	E02L03102M	CE	1000 UF 25V	
C423	P4J7F3474J	CMPP	0.47 UF 250V PMS	
⚠ C424	P4N8FJ912H	CMPP	0.0091UF 1.25KV	
⚠ C431	E02LTD2R2M	CE	2.2 UF 250V	
⚠ C433	E02LT3331M	CE	330 UF 25V	
C451	P61101224J	CMPL	0.22 UF 100V TF	or
	P611T1224J	CMPL	0.22 UF 100V TF	
⚠ C506	P2472B224M	CMP	0.22UF 275V PHE840	
⚠ C507	C0JTB0513K	CC	0.001 UF 500V B	
C509	E51CGC471M	CE	470 UF 200V	
⚠ C511	E02LT3471M	CE	470 UF 25V	
C517	C0PLRR7H3K	CC	0.0022 UF 2KV RR	
⚠ C521	E62NFC221M	CE	220 UF 200V	
⚠ C530	CB3930MQ2K	CC	470 PF 250V	
C535	C0PLRR713K	CC	0.001 UF 2KV RR	
⚠ C539	CB3930ML3M	CC	0.0033UF 250V	
C541	C0PLRR7W2K	CC	820 PF 2KV RR	
C801	C0PLRR7H3K	CC	0.0022 UF 2KV RR	
		DIODES		
D401	D2WT011E10	DIODE SILICON	11E1-EIC	
⚠ D402	D2WXN49370	DIODE SILICON	1N4937	
D403	D97U03001B	DIODE,ZENER	MTZJ30B T-77	or
	D97U03301C	DIODE,ZENER	MTZJ33C T-77	
D404	D97U03001B	DIODE,ZENER	MTZJ30B T-77	or
	D97U03301C	DIODE,ZENER	MTZJ33C T-77	
D405	D2WT011E10	DIODE SILICON	11E1-EIC	
D407	D1VT001330	DIODE,SILICON	1SS133T-77	
⚠ D408	D94TA27011	DIODE ZENER	HZ27-1L TD	
⚠ D409	D94TA11B13	DIODE ZENER	HZ11B3L TD	
D410	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77	
D411	D1VT001330	DIODE,SILICON	1SS133T-77	
⚠ D412	D2WXN49370	DIODE,SILICON	1N4937	
⚠ D413	D2WXN49370	DIODE,SILICON	1N4937	
⚠ D501	D97U01001B	DIODE,ZENER	MTZJ10B T-77	
⚠ D505	D2WXB290S0	DIODE SILICON	SB290S	
D507	D2W0B290S0	DIODE SILICON	SB290S-B-EIC	or
	D2WXB290S0	DIODE SILICON	SB290S	
D508	D1VT001330	DIODE SILICON	1SS133T-77	
⚠ D510	D2WXRU2AM0	DIODE SILICON	RU2AM-EIC	
⚠ D512	D2WXB290S0	DIODE SILICON	SB290S	
D513	D1VT001330	DIODE SILICON	1SS133T-77	
D514	D1VT001330	DIODE,SILICON	1SS133T-77	
⚠ D515	D97U03301B	DIODE,ZENER	MTZJ33B T-77	
⚠ D517	D28TELS2N2	DIODE RECTIFER	10ELS2N-TA1B2	
D518	D2WTRM11C0	DIODE SILICON	RM11C-EIC	
⚠ D519	D2WXB290S0	DIODE SILICON	SB290S	
D520	D2WTRM11C0	DIODE SILICON	RM11C-EIC	
D521	D2WTRM11C0	DIODE SILICON	RM11C-EIC	
D528	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77	
D530	D2WTRM11C0	DIODE SILICON	RM11C-EIC	
D533	D1VT001330	DIODE SILICON	1SS133T-77	
⚠ D534	D97U01801B	DIODE,ZENER	MTZJ18B T-77	
⚠ D535	D97U01801B	DIODE,ZENER	MTZJ18B T-77	
D536	D28TELS6N6	DIODE RECTIFER	10ELS6N-TA1B2	

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
D537	D1VT001330	DIODE,SILICON	1SS133T-77
D601	D1VT001330	DIODE,SILICON	1SS133T-77
D602	D97U08R21B	DIODE,ZENER	MTZJ8.2B T-77
D605	D2WT11ES10	DIODE SILICON	11ES1-EIC
D608	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D609	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D610	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D611	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D612	D1VT001330	DIODE,SILICON	1SS133T-77
D613	D1VT001330	DIODE,SILICON	1SS133T-77
D614	D1VT001330	DIODE,SILICON	1SS133T-77
D615	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D619	D1VT001330	DIODE,SILICON	1SS133T-77
D620	D1VT001330	DIODE,SILICON	1SS133T-77
D621	D1VT001330	DIODE,SILICON	1SS133T-77
D791	0021E2Q150	LED	LTL-4224-031A
D793	0021E2Q150	LED	LTL-4224-031A
D1001	D1VT001330	DIODE,SILICON	1SS133T-77
D1003	0010100320	INFRARED LED	LNA2702L010R
D4003	D1VT001330	DIODE,SILICON	1SS133T-77
		ICS	
⚠ IC351	I01DP75110	IC	AN7511
⚠ IC401	I01TD55220	IC	AN5522
IC501	I1KA98R050	IC	KIA78R05PI
⚠ IC502	0002500450	PHOTO COUPLER	TLP621(GR)
IC601	I06FC61206	IC	M61206FP
IC1001	I56F57071A	IC	OEC7071A
⚠ IC1003	IC7J0311A0	IC	R3111N311A/C-TR
IC1099	A5A325A015	IC	S-24C04BDP-LA
IC4001	I03F301MN0	IC	LA71201M-N-MPB
		TRANSISTORS	
Q403	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
Q404	TPAAD05003	COMPOUND TRANSISTOR	KRA104SRTK
⚠ Q405	TC5T01627Y	TRANSISTOR SILICON	2SC1627_Y(TPE2)
⚠ Q406	TD30026270	TRANSISTOR SILICON	2SD2627LS-CBC11
Q407	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q505	T6YJ1037K0	TRANSISTOR SILICON	2SA1037AKT146
Q507	TCATC31980	TRANSISTOR SILICON	KTC3198-AT(Y,GR)
⚠ Q510	TJXG5NC500	FET	STP5NC50FP
⚠ Q511	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q601	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q602	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q603	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q604	TDWT00400E	TRANSISTOR SILICON	2SD400E
Q605	TDWT00400E	TRANSISTOR SILICON	2SD400E
Q606	TCAT032034	TRANSISTOR SILICON	KTC3203_Y-AT
Q608	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
Q609	TNAAJ05003	COMPOUND TRANSISTOR	KRC111SRTK
Q611	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q612	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
⚠ Q804	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q805	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q806	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q1003	0002700680	PHOTO COUPLER	RPI-352C40N or
	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1004	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
⚠ Q1005	0002700690	PHOTO COUPLER	RPI-303
Q1007	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q1008	TNAAB05003	COMPOUND TRANSISTOR	KRC102SRTK
Q1009	0002700680	PHOTO COUPLER	RPI-352C40N or
	0002700530	PHOTO COUPLER	RPI-352Q01R
Q1011	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1013	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1023	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1024	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q4001	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4002	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q4003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q4005	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q4006	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q4007	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4009	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4010	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4011	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4012	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
		COILS &TRANSFORMERS	
L401	021679472K	COIL	4.7 MH

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		COILS &TRANSFORMERS	
⚠ L502	029T000092	COIL,LINE FILTER	1R0A103F24
⚠ L503	028R140031	COIL,DEGAUSS	8R140031
L601	0331920018	COIL	3192001
L603	02167F470J	COIL	47 UH
L607	021LA6220K	COIL	22 UH
L612	021LA66R8K	COIL	6.8 UH
L801	021673221K	COIL	220 UH
L1001	021LA62R2K	COIL	2.2 UH
L1003	02167H220K	COIL	22 UH
L4001	02167F220J	COIL	22 UH
L4003	02167F101J	COIL	100 UH
L4005	02167F470J	COIL	47 UH
L4006	02167F470J	COIL	47 UH
L4009	02167F101J	COIL	100 UH
T401	045009003J	TRANS,HORIZONTAL DRIVE	ETH09K14BZ
⚠ T501	0481290804	TRANSFORMER,SWITCHING	81290804
T4001	031626009R	COIL,BIAS OSC	1626009
		JACKS	
⚠ J351	060G131014	RCA JACK	HTJ-035-28A
J701	060Q401075	RCA JACK	AV2-24D-5
⚠ J801	066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501
		SWITCHES	
SW751	0504101T34	SWITCH,TACT	EVQ21505R
SW791	0504101T34	SWITCH,TACT	EVQ21505R
SW792	0504101T34	SWITCH,TACT	EVQ21505R
SW793	0504101T34	SWITCH,TACT	EVQ21505R
SW794	0504101T34	SWITCH,TACT	EVQ21505R
SW795	0504101T34	SWITCH,TACT	EVQ21505R
SW796	0504101T34	SWITCH,TACT	EVQ21505R
SW797	0504101T34	SWITCH,TACT	EVQ21505R
SW798	0504101T34	SWITCH,TACT	EVQ21505R
SW799	0504101T34	SWITCH,TACT	EVQ21505R
SW1001	0508A11002	SWITCH(LEAF)	MXS01380MPP0
		VARIABLE RESISTORS	
VR401	V1263H3BT7	VOLUME,SEMI FIXED	RH0683CJ3R
VR502	V1163L2BTC	VOLUME,SEMI FIXED	EVNCYAA03BY2
		P.C.BOARD ASSEMBLIES	
PCB010	A5A325A010	PCB ASS'Y	VMA227A
PCB030	A5A303C030	PCB ASS'Y	TEXA28A
PCB110	A5A325A110	PCB ASS'Y	TCA377A
		MISCELLANEOUS	
ANT001	125C108030	ANTENNA,ROD	HPAS-2S780
B402	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B403	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B501	024A8407C3	CORE,BEADS	BL02RN2-R62T2
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B602	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B604	024HT03564	CORE,BEADS	W4BRH3.5X6X1
CD351	06CH27090A	CORD CONNECTOR	CH27090A
CD352	06CH12435A	CORD CONNECTOR	CH12435A
⚠ CD501	120R414903	CORD AC BUSH	0R414903
CD757	06CH2A019A	CORD CONNECTOR	CH2A019A
CD801	06CU82039A	CORD CONNECTOR	SM1098-009-1A
CD803	06CH012101	CORD CONNECTOR	CH012101
CD851	WHL6032038	FLAT CABLE	AWG26 10C BLACK 320MM
CD852	06CH01408A	CORD EIS CONNECTOR	CH01408A
CF601	1022045R72	FILTER,SAW	SAFGP45M7VFYZR0B or
	1022T45R72	FILTER,SAW	SAF45MFY220ZR
CF603	1011T4R504	FILTER,CERAMIC	EFCT4R5YS5A
CF604	1011T4R517	FILTER,CERAMIC	EFCT4R5MW5
CP351	0694260139	CONNECTOR PCB SIDE	173979-6
CP353	0694270139	CONNECTOR PCB SIDE	173979-7
⚠ CP401	069S450089	CONNECTOR PCB SIDE	A1561WV2-A5P
⚠ CP502	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP504	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP505	069W01001A	CONNECTOR PCB SIDE	003P-2100
CP757	06942A0139	CONNECTOR PCB SIDE	1-173979-0
CP801	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CD4001	122L061501	CORD JUMPER	2L061501
CP1001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP1003	0694240139	CONNECTOR PCB SIDE	173979-4
CP4001	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1
CP4002	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP4003	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1
CP851A	067U010049	WIRE HOLDER	B2013H02-10P
CP851B	067U010049	WIRE HOLDER	B2013H02-10P
CUS012	800WFAA008	CUSHION C	

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
⚠ F501	081PC05004	FUSE	51MS050LCC
⚠ F502	081PC2R504	FUSE	51MS025LCC
⚠ FB401	043213015R	TRANSFORMER,FLYBACK	3213015R
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
FH503	06710T0006	HOLDER,FUSE	EYF-52BC
FH504	06710T0006	HOLDER,FUSE	EYF-52BC
OS753	077Q037002	REMOTE RECEIVER	PIC-37143TH5
⚠ SP351	070C533019	SPEAKER	SG04D11BNA
⚠ TH501	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
TM101	076R0CG010	TRANSMITTER	R25-1195
⚠ TU601	0145K00055	TUNER,VHF-UHF	TECC1040PG32D
⚠ V801	098Q1404B2	CRT W/DY	A34AGT13X98(L)
X602	100CT3R505	CRYSTAL	HC-49/C
X1001	100CT01207	CRYSTAL	HC-49/U-S
X1002	100DA32R01	CRYSTAL	DT-26
X4001	100CT3R502	CRYSTAL	HC-49/U

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

SPEC.NO.	M5A3-25A
O/R NO.	K215009

Memorex®

MVT2135B Series E

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER

REVISION 1
MFR'S VERSION B

VHS

MFR'S VERSION	CRT
B	A34JXV70X53N45
C	A34AGT13X98(L)

Please file this revision with the original version.

Change of CRT

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	MFR'S VERSION C		MFR'S VERSION B	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
⚠ V801	098Q1404B2	CRT W/DY A34AGT13X98(L)	098Y1404B9	CRT W/DY A34JXV70X53N45
IC4001	I03F301MN0	IC LA71201M-N-MPB	I03F3205M0	IC LA71205M-MPB
CP351	0694260139	CONNECTOR PCB SIDE 173979-6	069E260659	CONNECTOR PCB SIDE 00_8283_0611_00_000
PCB110	A5A325A010	SYSCON PCB ASS'Y (VERSION C) VMA227A	A5A325C010	SYSCON PCB ASS'Y (VERSION B) VMA227A

SYSCON PCB's are not interchangeable.

SPEC.NO.	M5A3-25C
O/R NO.	K235054