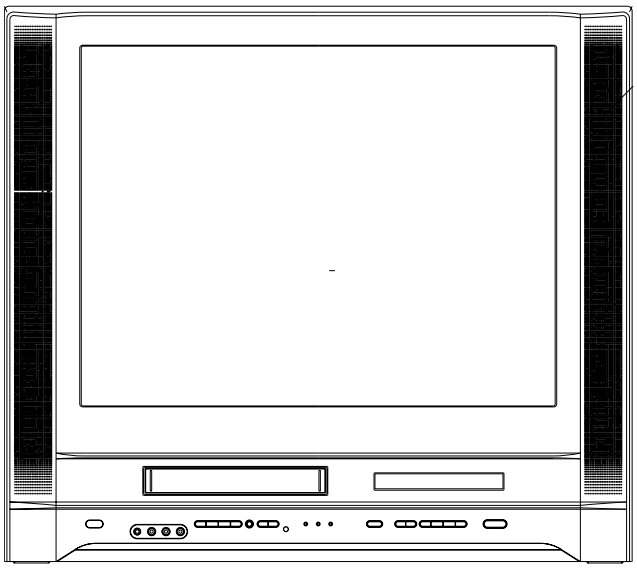
Memorex

CLASS 1
LASER PRODUCT

MVDT2402

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER/ DVD VIDEO PLAYER



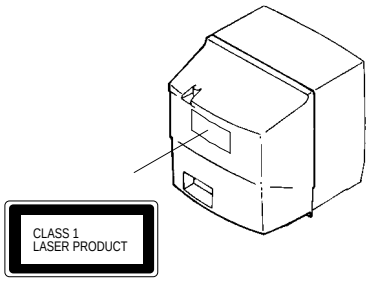
VHS

ORIGINAL
MFR'S VERSION A

IMPORTANT WARNING

CAUTION:
DVD PLAYER IS A CLASS 1 LASER PRODUCT. HOWEVER THIS PLAYER USES A VISIBLE LASER BEAM WHICH COULD CAUSE HAZARDOUS RADIATION EXPOSURE IF DIRECTED. BE SURE TO OPERATE THE PLAYER CORRECTLY AS INSTRUCTED.

THE FOLLOWING CAUTION LABEL IS LOCATED ON THE REAR PANEL OF THE PLAYER.



(Printed on the Rear Panel)

WHEN THIS PLAYER IS PLUGGED TO THE WALL OUTLET, DO NOT PLACE YOUR EYES CLOSE TO THE OPENING OF THE DISC TRAY AND OTHER OPENINGS TO LOOK INTO THE INSIDE OF THIS PLAYER.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

DO NOT OPEN COVERS AND DO NOT REPAIR YOURSELF. REFER SERVICING TO QUALIFIED PERSONNEL.

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.

WHEN REPLACING DVD DECK

[When the removal of the DVD Deck]

Before removing Pick Up PCB and DVD PCB connector, make the short circuit on the position as shown **Fig. 1** using a soldering. If you remove the DVD Deck with no soldering, the Laser may be damaged.

[When the installation of the DVD Deck]

Remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

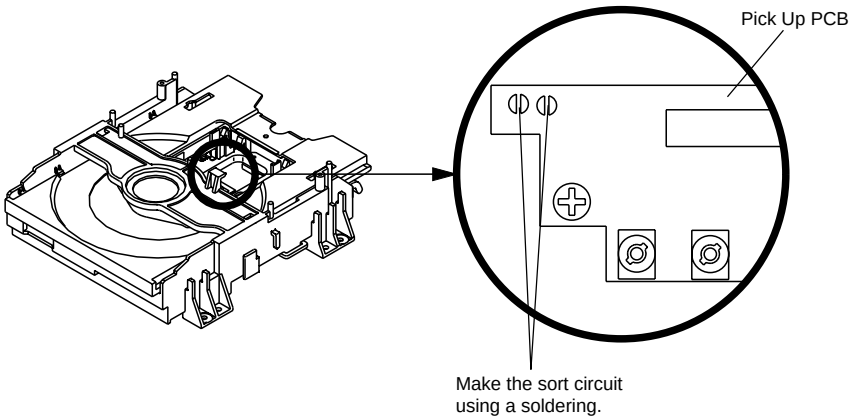


Fig. 1

TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the TV/DVD/VCR block from the main unit and the **Fig. 1** below can be seen. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Remove one screw of the Loading Motor from the insert hole for screw driver and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape. **(Refer to Fig. 2)**
4. Rotate the Clutch Ass'y either of the directions to wind the Video Tape in the Cassette Case.
5. Repeat the above step 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch on the tape.

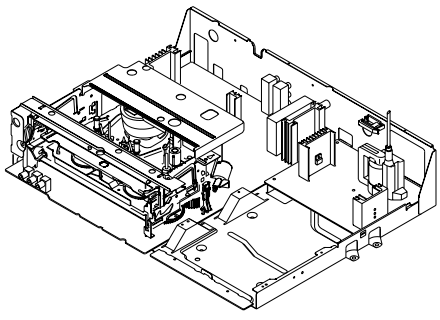


Fig. 1

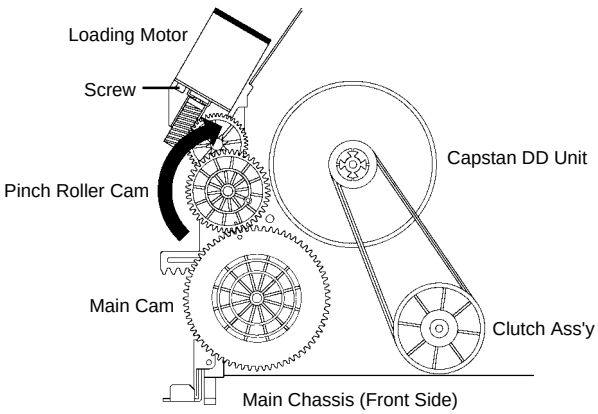


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and AV PCB/DVD Block. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Rotate the Main Gear in the direction of the arrow by hand. **(Refer to Fig. 1)**
3. Draw the Tray.

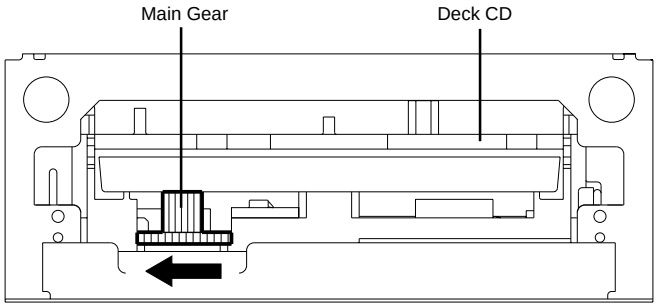


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the 'STOP' key on the front panel.
3. Simultaneously press and hold the '7' key on the remote control unit.
4. Hold both keys for more than 3 seconds.
5. The On Screen Display message 'PASSWORD CLEAR' will appear.
6. The 4 digit password has now been cleared.

NB: The above procedure will reset ALL of the player's settings to the default factory state.

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GENERAL SPECIFICATIONS

G-1	TV System	CRT		CRT Size / Visual Size	24 inch / 600mmV
				CRT Type	Flat
				Deflection	101 degree
				Magnetic Field BV/BH	+ 0.45 G / 0.18 G
		Color System			NTSC
		Speaker			2 Speaker
				Position	Front
				Size	1.8 x 3.9 Inch
				Impedance	8 ohm
		Sound Output		MAX	1.5W + 1.5W
				10%(Typical)	1.5W + 1.5W
G-2	VCR System	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			Yes
		NTSC PB			-
		Deck		DECK	OVD-7
				Loading System	Front
				Motor	3
		Heads	Video Head		4 Heads
			FM Audio Head		2 Heads
			Audio /Control		Mono /Yes
			Erase(Full Track Erase)		Yes
		Tape Speed	Rec	PAL	-
				NTSC	SP/SLP(EP)
			Play	PAL	-
				NTSC	SP/SLP(EP)
		Fast Forward / Rewind Time (Approx.) at 25oC			FF:1'48"/REW:1'48"
				with Cassette	T-120
		Forward/Reverse Picture Search		NTSC or PAL-M	SP/SLP(EP)=3x,5x / 9x,15x
		Frame Advance			Yes
		Slow Speed			1/10
G-3	DVD System	Color System			NTSC
		Disc			DVD, CD-DA, CD-R/RW
					DVD-R/RW (Video Format Only)
		Disc Diameter			120 mm , 80 mm
		Deck		Disc Loading System	Front Loading
				Motor	3 Motors
		Pick up			1-Lens 2-Beams System
		Playback time(Max)	DVD 1-L	DVD 1-Layer	135min (4.7GB)
				DVD 2-Layer	245min (8.5GB)
				CD	74min
				Video CD	-
		Search speed		Fwd	4 step
				Actual	2-45 times (DVD)
					4-40 times (CD)
				Rev	4 step
				Actual	2-45 times (DVD)
					4-40 times (CD)
		Slow speed			Fwd 1/7 - 1/2 times
				Actual	--
					Rev --
				Actual	--
G-4	Tuning System	Broadcasting System			US System M
		Tuner and Receive CH		System	1 Tuner
				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)	45.75MHz
				Sound(FS)	41.25MHz
				FP-FS	4.5MHz
		Preset CH			No
		Stereo/Dual TV Sound			US-Stereo
		Tuner Sound Muting			Yes
G-5	Signal	Video Signal		Input Level	1 V p-p/75 ohm
				Output Level	1 V p-p/75 ohm
				S/N Ratio (Weighted) at DVD Mode	65dB
				S/N Ratio (Weighted) at VCR Mode	50dB
				Horizontal Resolution at DVD Mode	400 Lines
				Horizontal Resolution at VCR(SP)Mode	220 Lines
		RGB Signal		Output Level	-
		Audio Signal		Input Level	-8.0dBm/50k ohm
			VCR	Output Level(0dB=0.775Vrms)	-8.0dBm/1k ohm

GENERAL SPECIFICATIONS

			DVD	Output Level(-20dBFs 0dBFs=2.0Vrms)	-12.0dBm/1k ohm
				Digital Output Level	0.5 V p-p/75 ohm(DVD)
				S/N Ratio at DVD (Weighted)	90 dB
				S/N Ratio at VCR (SP)(CCIR Filter:ON)	38 dB
				Harmonic Distortion at DVD Mode	0.06% (1kHz)
				Harmonic Distortion at VCR(SP) Mode	1.5% (1kHz) Typical
				Frequency Response :	
				DVD Mode at DVD	4Hz - 22kHz
				at Video CD	-
				at SVCD	-
				at CD	4Hz - 20kHz
				VCR Mode at SP	100Hz - 10kHz
				at LP	-
				at SLP	100Hz - 4kHz
		Hi-Fi Audio Signal		Dynamic Range : More than	90 dB
				Frequency Response :	20Hz - 20kHz
				Wow And Flutter : Less than	0.01 %Wrms
				Channel Separation : More than	60 dB
				Harmonic Distortion : Less than	1.0 %
G-6	**Power**	Power Source		AC	120V,60Hz
				DC	-
		Power Consumption		at AC	135 W at 120 V 60 Hz
				at DC	-
				Stand by (at AC)	4 W at 120 V 60 Hz
				Per Year	-
		Protector		Power Fuse	Yes
				Safety Circuit	Yes
				IC Protector(Micro Fuse)	No
				Dew Sensor	No
G-7	**Regulation**			Safety	UL
				Radiation	FCC
				X-Radiation	DHHS
				Laser	DHHS
G-8	**Temperature**			Operation	+5°C ~ +40°C
				Storage	-20°C ~ +60°C
G-9	**Operating Humidity**				Less than 80% RH
G-10	**On Screen Display (TV/VCR)**		Menu		Yes
			Menu	Type	Icon
			System Setup		Yes
				Clock Set	Yes
				On/Off Timer Set	Yes
				Auto Clock On/Off	Yes
				Standard Time	Yes
				Daylight Saving Time	Yes
			TV Setup		Yes
				Language	Yes
				Picture	Yes
				Audio	Yes
				Picture Preference	Yes
			Channel Setup		Yes
				TV/CATV	Yes
				Auto CH Memory	Yes
				Add/ Delete	Yes
			V-chip Setup		Yes
			Tape Setup		Yes
				Timer Rec Set	Yes
				Auto Repeat On/Off	Yes
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry			No
		Clock / Date			Yes
		TV/VCR			Yes
		DVD			Yes
		CH/AV(LINE)			Yes
		Tape Counter(Linear Counter)			Yes
		Tape Speed			Yes
		Sleep Time			Yes
		Stereo/Audio Output			Yes
				Bilingual	No
				SAP	Yes
		Control Level	Volume		Yes
			Brightness/Contrast/Sharpness/Color		Yes
			Tint		Yes
			Bass/Treble/Balance		Yes
			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

GENERAL SPECIFICATIONS

		Index			Yes	
		Mute			Yes	
		Hi-Fi			Yes	
		Repeat			Yes	
		Zero Return			Yes	
		DEW			No	
G-11	On Screen Display (DVD)	Menu (DVD)			Yes	
			Menu Type		Character	
			Language		Yes	
				Menu	Yes	
				Subtitle	Yes	
				Audio	Yes	
			Picture		Yes	
				TV Screen Size(4:3)	Yes	
				OSD Display On/Off	Yes	
				JPEG Interval	Yes	
				Select Files	Yes	
			Sound		Yes	
				DRC (Dynamic Range Control)	Yes	
				dts Decode	No	
				Output(5.1ch/ 2ch)	No	
				Surround On/Off	No	
				Center On/Off	No	
				Sub Woofer On/Off	No	
			Parental		Yes	
				Password Lock/ Un Lock	Yes	
				Rating Level	Yes	
			Other		Yes	
				OSD Language(Set up Language)	Yes	
				Output(RGB/Composite)	No	
			Open		Yes	
			Close		Yes	
			No disc		Yes	
			Reading		Yes	
			Play		Yes	
			Still/Pause		Yes	
			Stop		Yes	
			Prohibit Mark		Yes	
			Step		Yes	
			Skip(>>|)		Yes	
			Skip(|<<)		Yes	
			Random		Yes (CD, MP3, WMA, JPEG)	
			Repeat		Yes	
			Slow+ ##		Yes	
			Slow- ##		No	
			Search+ ##		Yes	
			Search- ##		Yes	
			Jump		Yes	
			Resume		Yes	
			Title No.		Yes	
			Chapter No.		Yes	
			Track No.		Yes	
			Time		Yes	
			Sub Title No.		Yes	
			Angle No.		Yes	
			Vocal On/Off		Yes	
			Audio No.		Yes	
			Audio Stereo L/R		No	
			Zoom		Yes	
			Marker No.		No	
			Program Play Back		Yes (CD, MP3, WMA, JPEG)	
			Surround On/Off		No	
			Screen Saver		No	
			MP3, WMA, JPEG	Folder Name	Yes	
				File Name	Yes	
				File No	Yes	
				Time	Yes (MP3, WMA Only)	
				Track No	Yes	
G-12	OSD Language		TV/VCR		English French Spanish	
			DVD		English French Spanish	
G-13	Clock,Timer and Timer Back-up	Calendar			1990/1/1 ~ 2081/12/31	
		Timer Events			8 Program/ 1 Month	
		One Touch Recording Max Time			6 Hours	
		OTPB Valid Time			-	
		Sleep Timer		Max Time	120	Min
				Step	10	Min
		On/Off Timer		Program(On Timer / Off Timer)	1	Program

GENERAL SPECIFICATIONS

		Auto Shut Off	No Signal	15	Min
			No Operation	-	Min
		Timer Back-up (at Power Off Mode)		5	Sec
G-14	Remote Control Unit	Unit		RC-HH	
		Glow in Dark Remocon			No
		Format		NEC	
		Custom Code		71-8E	
		Power Source	Voltage(D.C)	3V	
			UM size x pcs	UM-4 x 2 pcs	
		Total Keys		52	
		Keys	TV/VCR	Yes	
			DVD	Yes	
			Power	Yes	
			1	Yes	
			2	Yes	
			3	Yes	
			4	Yes	
			5	Yes	
			6	Yes	
			7	Yes	
			8	Yes	
			9	Yes	
			0	Yes	
			Channel-	Yes	
			Channel+	Yes	
			Volume-	Yes	
			Volume+	Yes	
			Display (Call)	Yes	
			Sleep	Yes	
			Audio Select	Yes	
			Mute	Yes	
			Index- / Skip-	Yes	
			Index+ / Skip+	Yes	
			T-REC	Yes	
			Rec/OTR	Yes	
			Slow+	Yes	
			Play	Yes	
			Stop	Yes	
			Rew / Search-	Yes	
			F. Fwd / Search+	Yes	
			Pause / Still	Yes	
			CM Skip	Yes	
			Speed / Return	Yes	
			Counter Reset / Angle	Yes	
			Zero Return / Subtitle	Yes	
			Input Select / Zoom	Yes	
			Menu /Set Up	Yes	
			Program / Repeat A-B	Yes	
			ATR / Top Menu	Yes	
			Tracking+ / DVD Menu	Yes	
			Tracking- / Play Mode	Yes	
			Cancel	Yes	
			3D Surround		No
			Cursor Up	Yes	
			Cursor Down	Yes	
			Cursor Left	Yes	
			Cursor Right	Yes	
			Enter	Yes	
			Eject	Yes	
			Open/Close	Yes	
			TV Monitor	Yes	
			Closed Caption	Yes	
			Quick View / Jump	Yes	
			CATV		No
			Position		No
			Wide		No
G-15	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	
		Auto CH Memory		Yes	
		Surround		Yes	
		Stable Sound		Yes	
		Closed Caption		Yes	

GENERAL SPECIFICATIONS

		TV Auto Shut off Function		Yes	
		End Call			No
		Index Search		Yes	
		SQPB			No
		CATV		Yes	
		CM Skip(30sec x 6 Times)		Yes	
		Comb Filter (2Lines)		Yes	
		VM Circuit			No
		TV Monitor		Yes	
		Program Extend			No
		Choke Coil			No
		Energy Star		Yes	
		Protect of FBT Leak Circuit		Yes	
		Zero Return		Yes	
		Power On Memory			No
		Dirty Head			No
		V-chip USA V-chip		Yes	
		CANADA V-chip			No
		Parental Lock	(DVD Only)	Yes	
		Auto Stop	(Pause, and Resume Stop after 5min.)	Yes	
		Video CD Playback			No
		SVCD Playback			No
			Overlay Graphics And Text		No
			Command List		No
			Entry Point Jump		No
		MP3 Playback		Yes	
		WMA Playback		Yes	
		JPEG Playback		Yes	
		Digital Out	(Dolby Digital)	Yes	
			(MPEG)	Yes	
			(PCM)	Yes	
			(DTS)	Yes	
		Down Mix Out	(Dolby Digital)	Yes	
			(DTS)		No
		TruSurround			No
		Screen Saver			No
		Picture Preference		Yes	
		Auto Setup			No
		Audio DAC		192kHz / 24bit	
		Copy (Disc to Tape)			No
G-16	**Accessories**	Owner's Manual	Language	English / French	
			w/Guarantee Card	Yes	
		Remote Control Unit		Yes	
		Battery			No
			UM size x pcs	-	
			OEM Brand	-	
		Rod Antenna			No
			Poles	-	
			Terminal	-	
		Loop Antenna			No
			Terminal	-	
		U/V Mixer			No
		300 ohm to 75 ohm Antenna Adapter			No
		Antenna Change Plug			No
		DC Car Cord (Center+)			No
		AC Plug Adapter			No
		AC Cord			No
		AV Cord (2Pin-1Pin)			No
		Guarantee Card			No
		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
		Warranty Sheet			No
G-17	**Interface**	Switch Front	Power (Tact)	Yes	
			Channel Up	Yes	
			Channel Down	Yes	
			Volume Up	Yes	
			Volume Down	Yes	
			Play (VCR)	Yes	
			Stop / Eject (VCR)	Yes	
			F.FWD/Cue (VCR)	Yes	
			Rew/Rev (VCR)	Yes	

GENERAL SPECIFICATIONS

			REC/OTR (VCR)	Yes	
			Play (DVD)	Yes	
			Stop (DVD)	Yes	
			Skip+ /Search+ (DVD)	Yes	
			Skip- /Search- (DVD)	Yes	
			Open/Close (DVD)	Yes	
			Input Select	No	
			Main Power SW	No	
		Indicator	Power	Yes(Red)	
			REC/OTR	Yes(Red)	
			T-REC	Yes(Red)	
			TV/VCR	No	
			DVD	No	
		Terminals	Front	Video Input	RCA x 1
				Audio Input	RCA x 2(Stereo)
				Other Terminal	HeadPhone (Stereo & Mono, 3.5mm)
			Rear	Video Input	RCA x 1
				Audio Input	RCA x 2(Stereo)
				Video Output	RCA x1
				Audio Output	RCA x 2(Stereo)
				Digital Audio Output	Coaxial (DVD Only)
				VHF/UHF Antenna Input	F Type
				AC Inlet	No
G-18	**Set Size**			Approx. W x D x H (mm)	655 x 477 x 580
G-19	**Weight**			Net (Approx.)	36.0kg (79.4lbs)
				Gross (Approx.)	40.0kg (88.2lbs)
G-20	**Carton**	Master Carton			No
				Content	-
				Material	-
				Dimensions W x D x H(mm)	-
				Description of Origin	-
		Gift Box			Yes
				Material	Double/Brown
				W/Color Photo Label	No
				Dimensions W x D x H(mm)	766 x 579.5 x 711
				Design	As per Buyer's
				Description of Origin	Yes
		Drop Test		Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	31
		Container Stuffing(40' container)			180 Sets
G-21	**Material**	Cabinet	Front		PS 94V0 DECABROM
			Rear		PS 94V0 DECABROM
			Jack Panel		-
		PCB	Non-Halogen		No
			Eyelet		Yes
G-22	**Environment**	Pb Free	Lead-free Solder		No
			Other		No
		Cd Free			No

DISASSEMBLY INSTRUCTIONS

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

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

1. Remove the 6 screws (1).
2. Remove the 2 screws (2).
3. Remove the Back Cabinet in the direction of arrow.

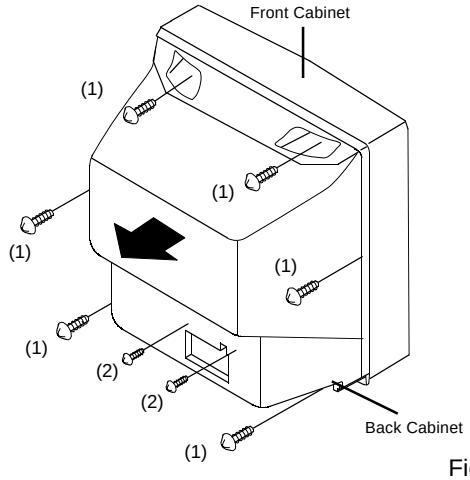


Fig. 1-1

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:
   (CP603B, CP803 and CP805).
3. Remove the CRT PCB in the direction of arrow.

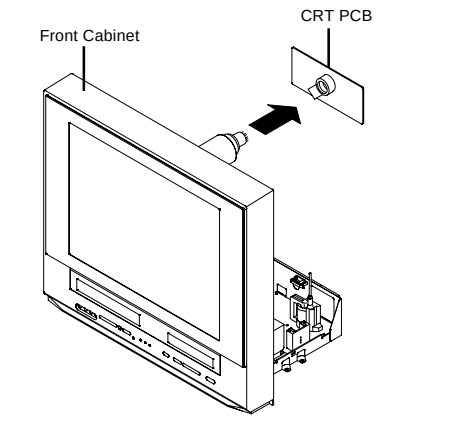


Fig. 1-2

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

1. Remove the 2 screws (1).
2. Disconnect the following connectors:
   (CP303, CP404 and CP1704).
3. Remove the TV/DVD/VCR Block in the direction of arrow.

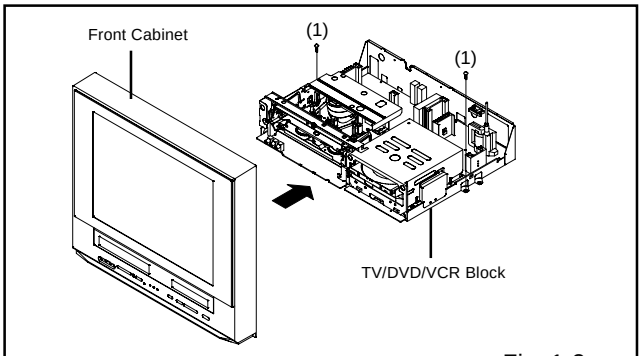


Fig. 1-3

1-4: VCR DECK (Refer to Fig. 1-4)

NOTE

Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Remove the 2 screws (1).
2. Remove the VCR Top.
3. Move the Cassette Holder Ass'y to the back side.
4. Remove the 3 screws (2).
5. Remove the 2 screws (3).
6. Remove the Deck Shield Cover.
7. Remove the screw (4).
8. Remove the FE Head.
9. Disconnect the following connectors:
   (CP101, CP4501, CP4502 and CP4503).
10. Remove the VCR Deck in the direction of arrow.

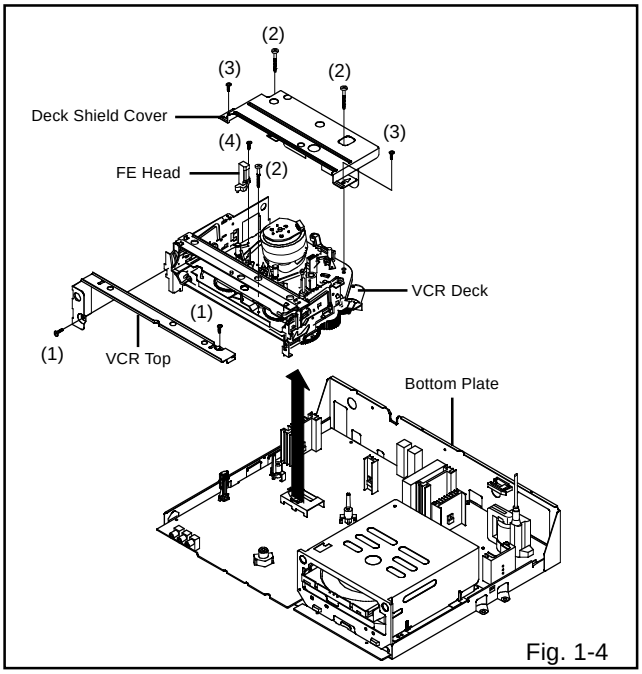


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: VCR PCB (Refer to Fig. 1-5)

1. Remove the 6 screws (1).
2. Remove the screw (2).
3. Remove the AV Jack Shield.
4. Disconnect the following connectors:
   (CP001, CP602B, CP604, CP2201, CP8001 and CP8002).
5. Remove the VCR PCB in the direction of arrow.

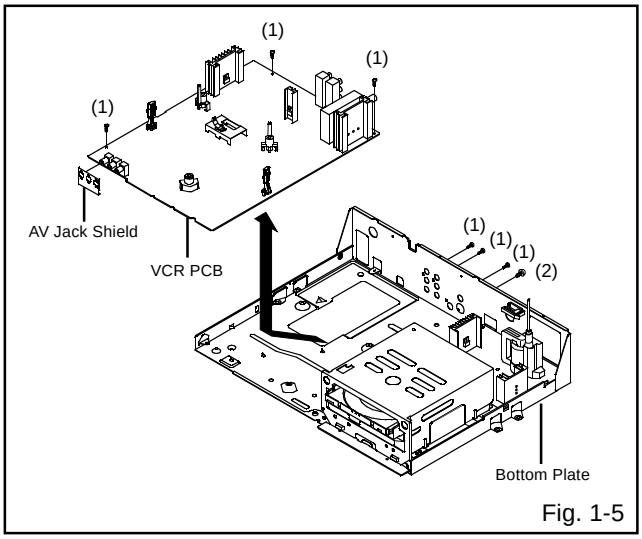


Fig. 1-5

1-6: VCR DECK (Refer to Fig. 1-6)

1. Remove the 4 screws (1).
2. Remove the DVD Block in the direction of arrow (A).
3. Remove the 2 screws (2).
4. Remove the Operation PCB in the direction of arrow (B).

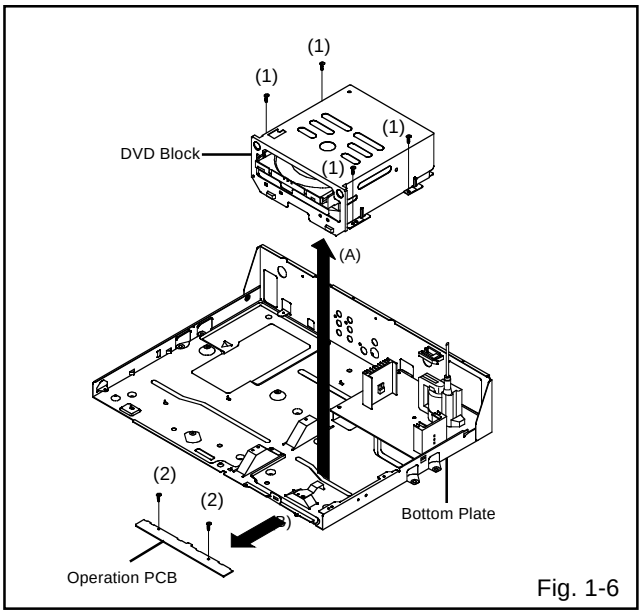


Fig. 1-6

1-7: DVD PCB/DVD DECK (Refer to Fig. 1-7)

1. Make the short circuit on the position as shown **Fig. 1-7** using a soldering. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Remove the 4 screws (1).
3. Remove the DVD Top in the direction of arrow (A).
4. Remove the 2 screws (2).
5. Remove the DVD PCB in the direction of arrow (B).
6. Disconnect the following connectors:
   (CP2601, CP2602 and CP2603).
7. Remove the 4 screws (3).
8. Remove the DVD Deck in the direction of arrow (C).

NOTE

When the installation of the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

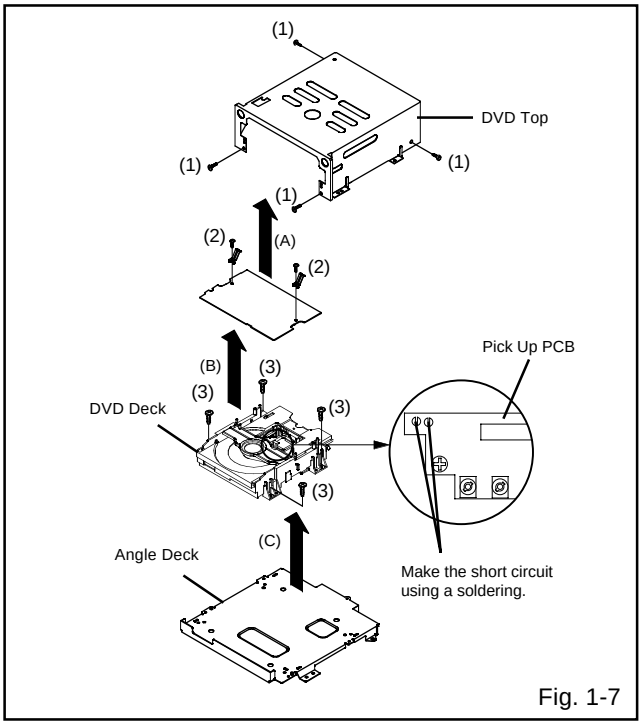


Fig. 1-7

1-8: DEFLECTION PCB (Refer to Fig. 1-8)

1. Remove the 2 screws (1).
2. Remove the 3 screws (2).
3. Remove the Deflection PCB in the direction of arrow.

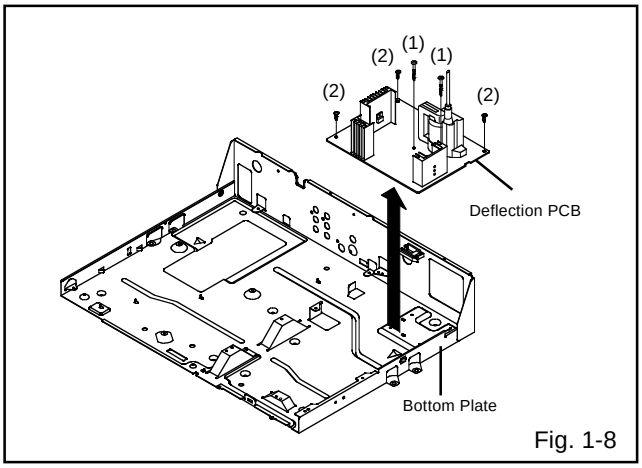


Fig. 1-8

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF VCR 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.

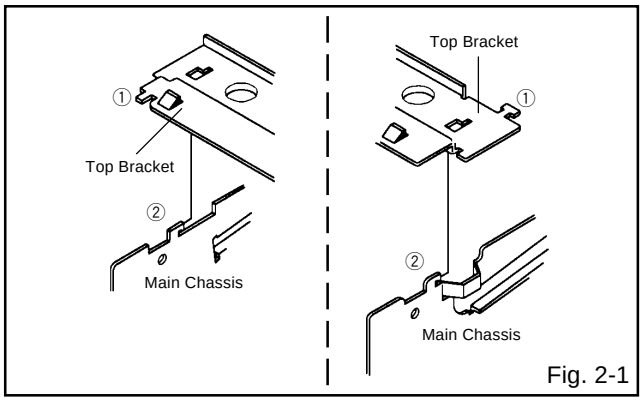


Fig. 2-1

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.

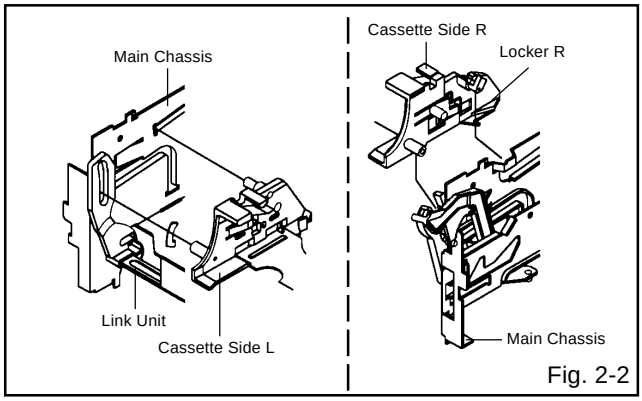


Fig. 2-2

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.

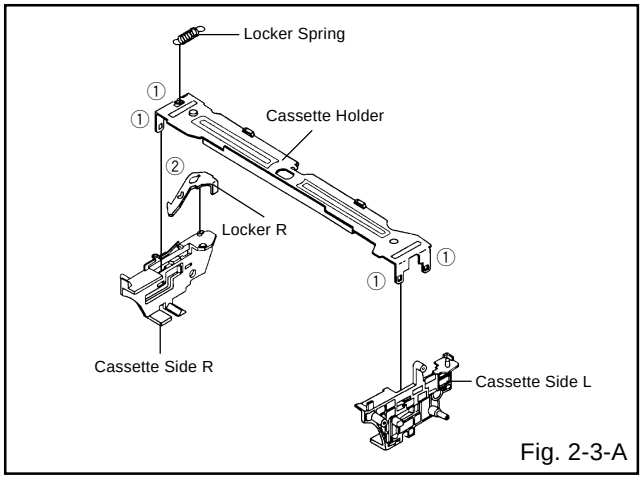


Fig. 2-3-A

NOTE

1. In case of the Locker R installation, check if the one position 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.

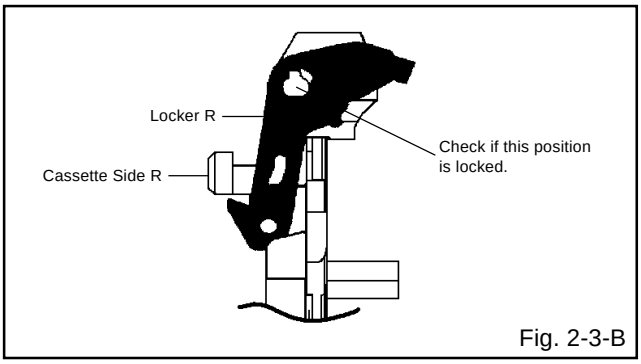


Fig. 2-3-B

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.

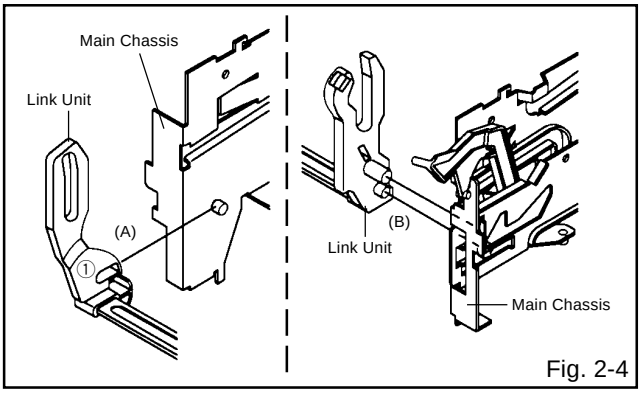


Fig. 2-4

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.

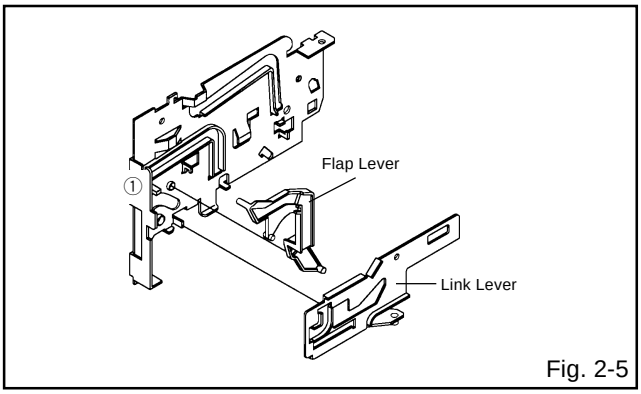


Fig. 2-5

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.

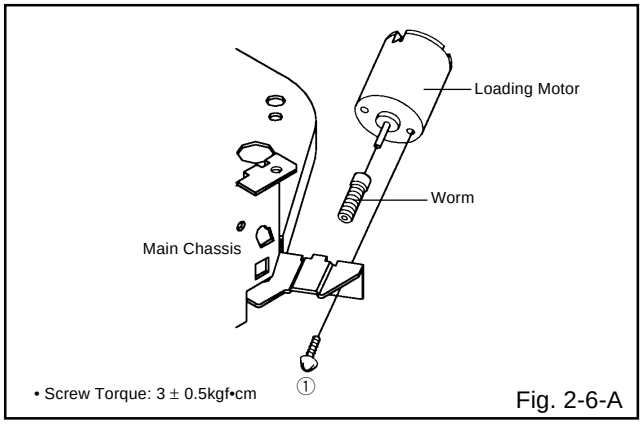


Fig. 2-6-A

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, slacken the wire as shown Fig. 2-6-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-6-D.

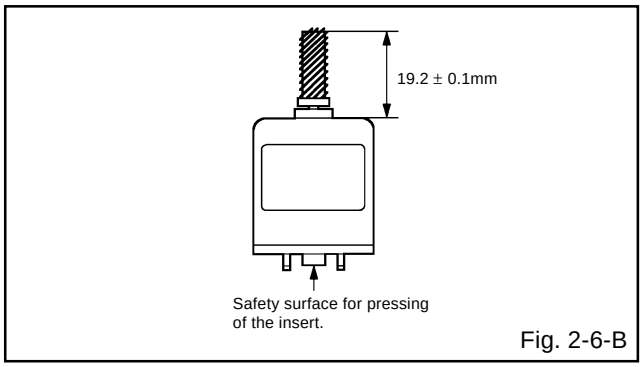


Fig. 2-6-B

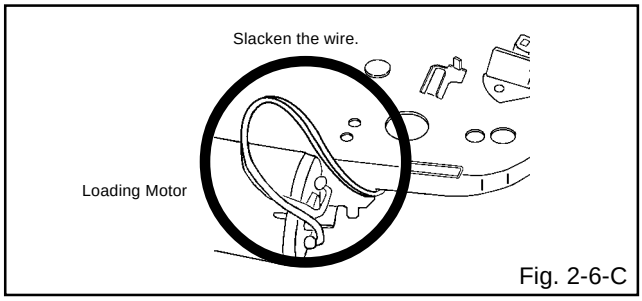


Fig. 2-6-C

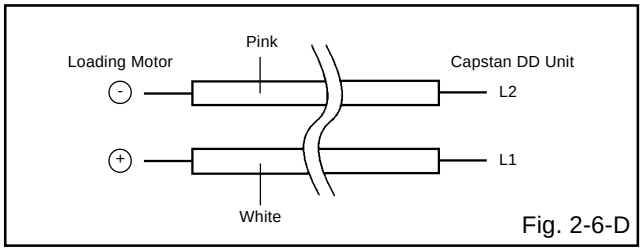


Fig. 2-6-D

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.

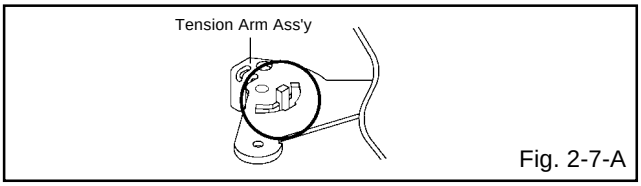


Fig. 2-7-A

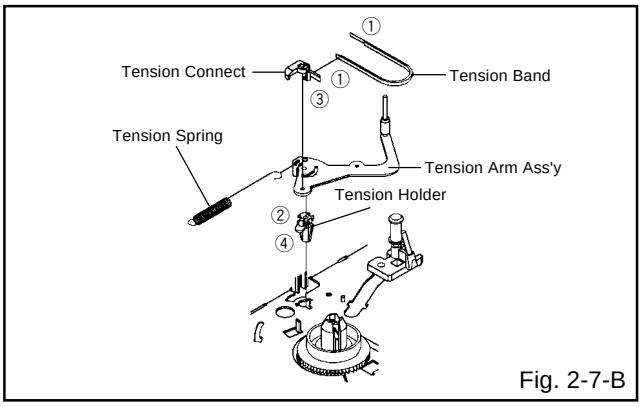


Fig. 2-7-B

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.

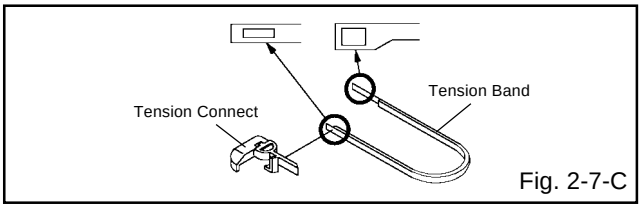


Fig. 2-7-C

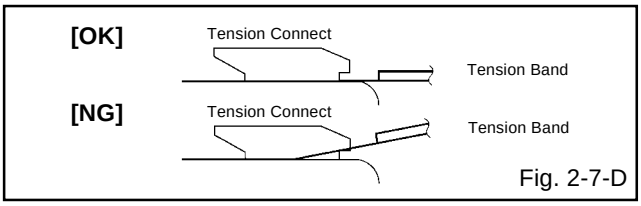


Fig. 2-7-D

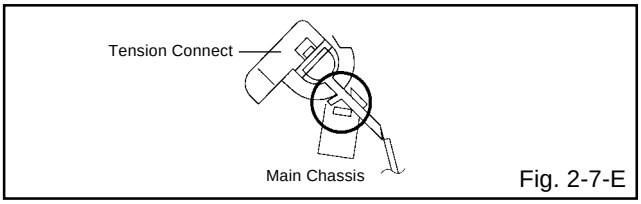


Fig. 2-7-E

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.

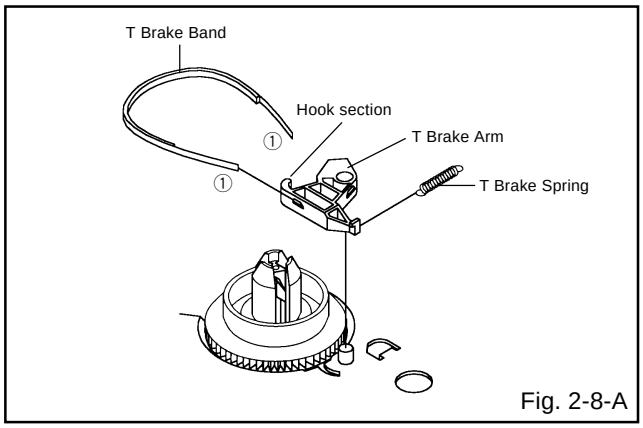


Fig. 2-8-A

NOTE

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

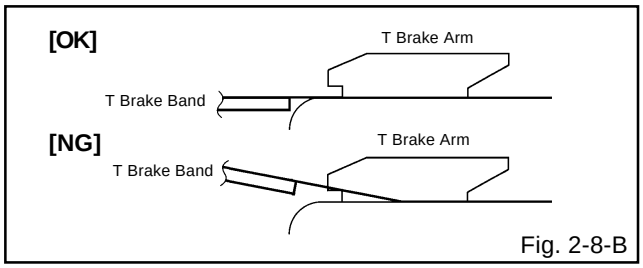


Fig. 2-8-B

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)**

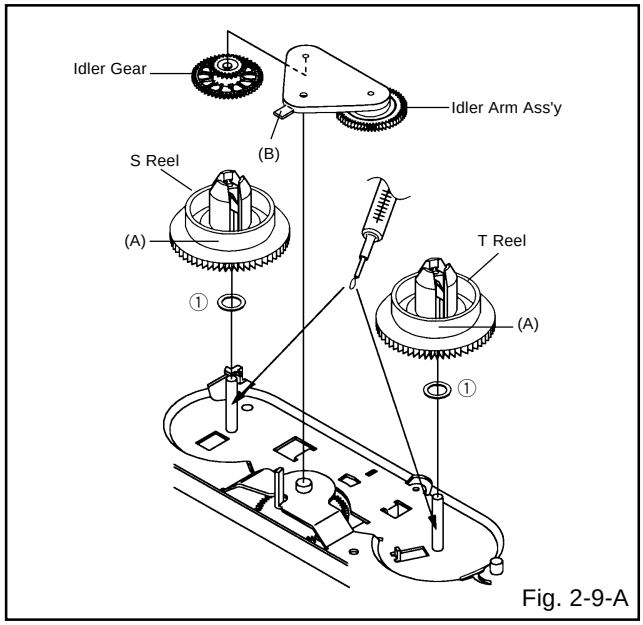


Fig. 2-9-A

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.

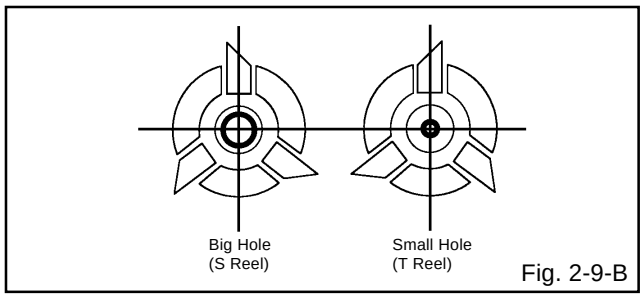


Fig. 2-9-B

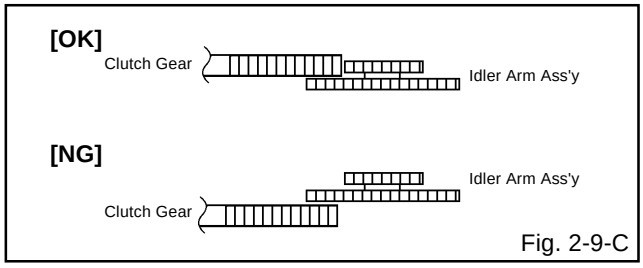


Fig. 2-9-C

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.

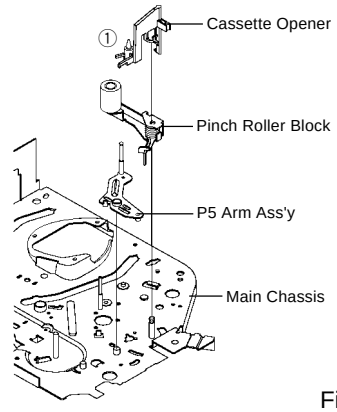


Fig. 2-10-A

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.

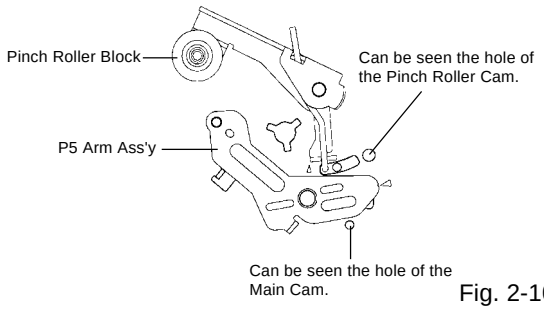


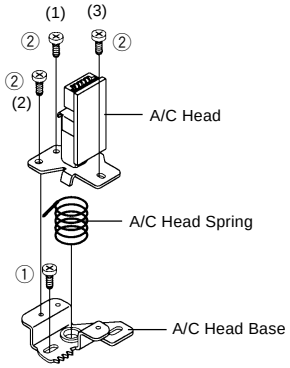
Fig. 2-10-B

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

Fig. 2-11-A

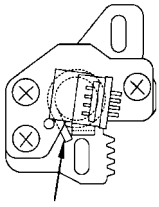
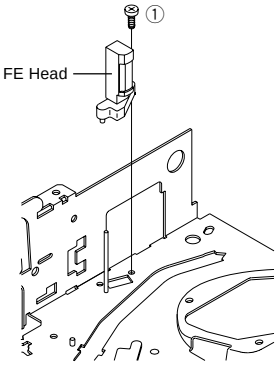


Fig. 2-11-B

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.

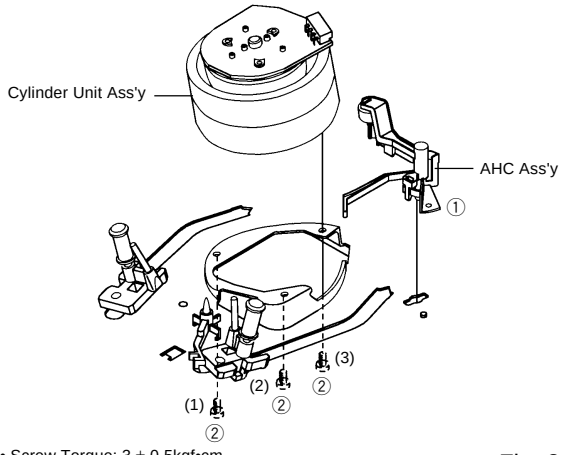
Fig. 2-12

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.



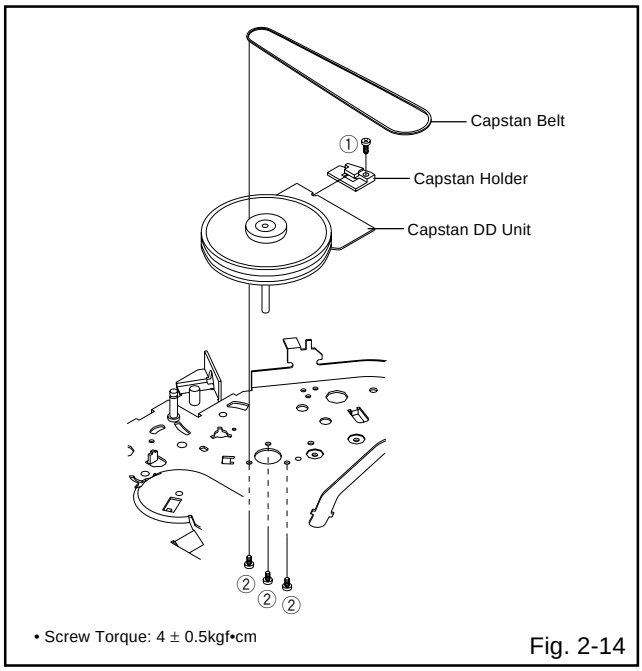
• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

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

1. Remove the Capstan Belt.
2. Remove the screw ①.
3. Remove the Capstan Holder.
4. Remove the 3 screws ②.
5. 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.

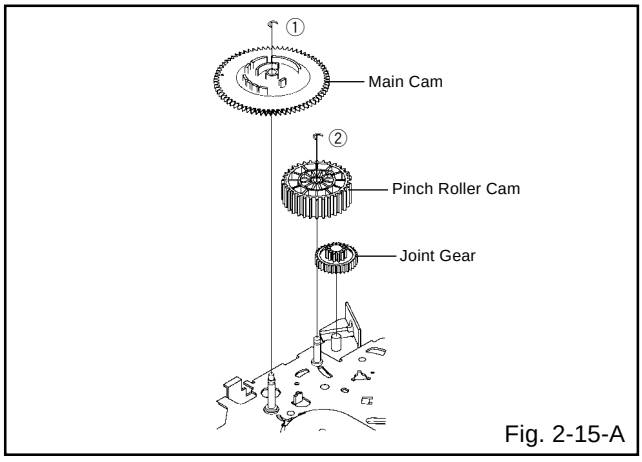


Fig. 2-15-A

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)**

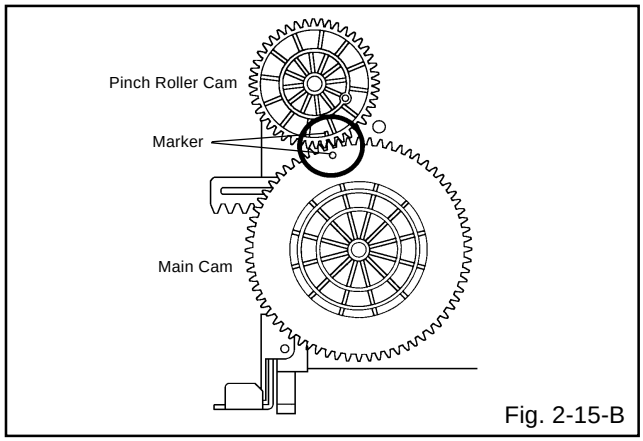


Fig. 2-15-B

2-16: LOADING GEAR S/T UNIT (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 Unit and Loading Arm T Unit.

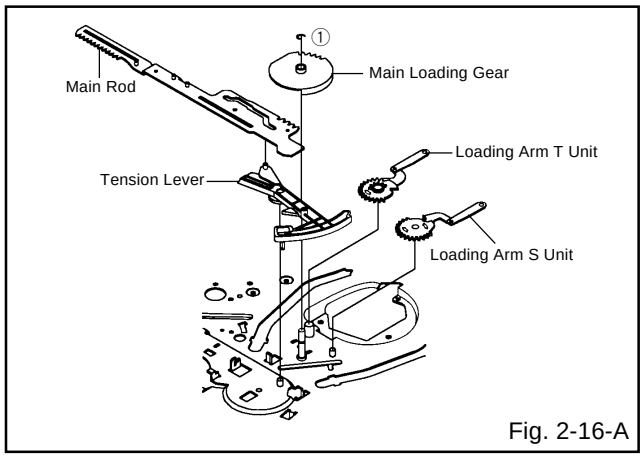


Fig. 2-16-A

NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. **(Refer to Fig. 2-16-B)**

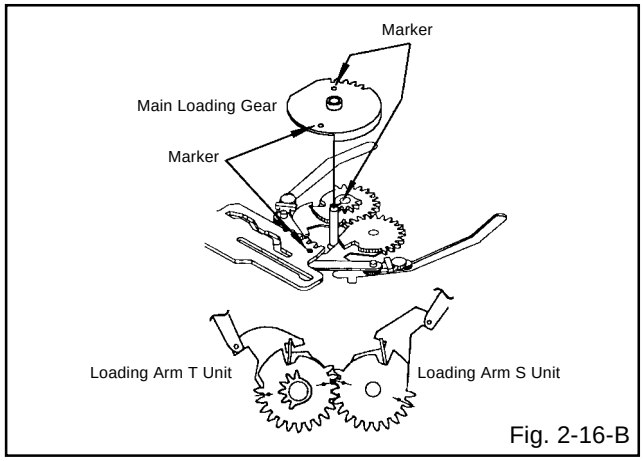


Fig. 2-16-B

DISASSEMBLY INSTRUCTIONS

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.

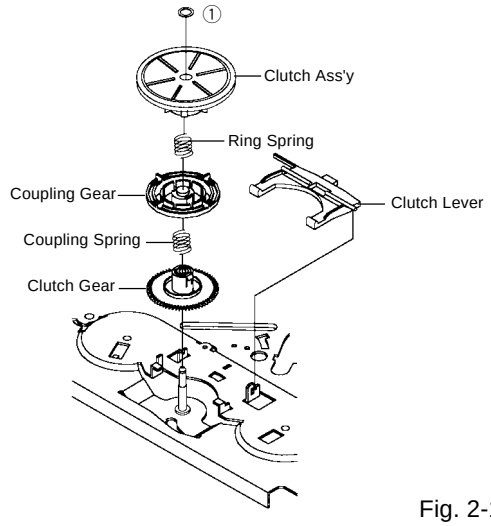


Fig. 2-17-A

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)**

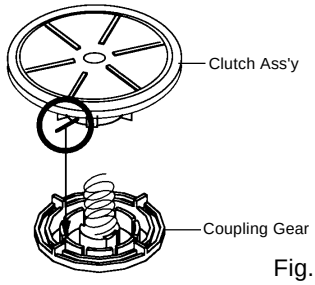


Fig. 2-17-B

2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (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/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.

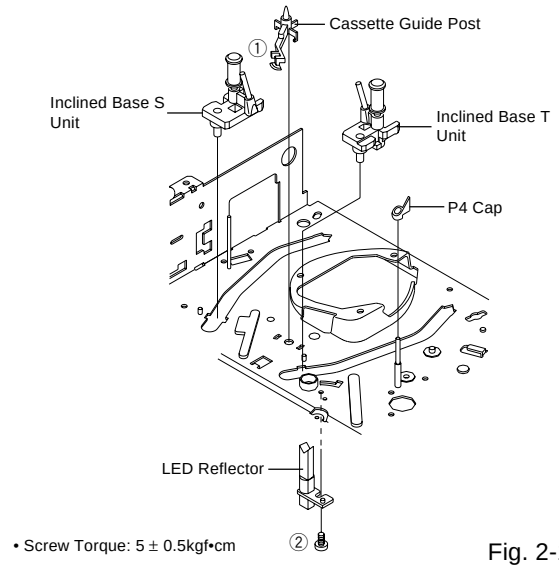


Fig. 2-18-A

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.

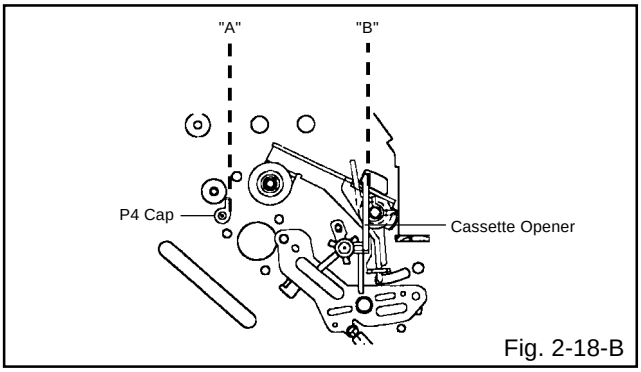


Fig. 2-18-B

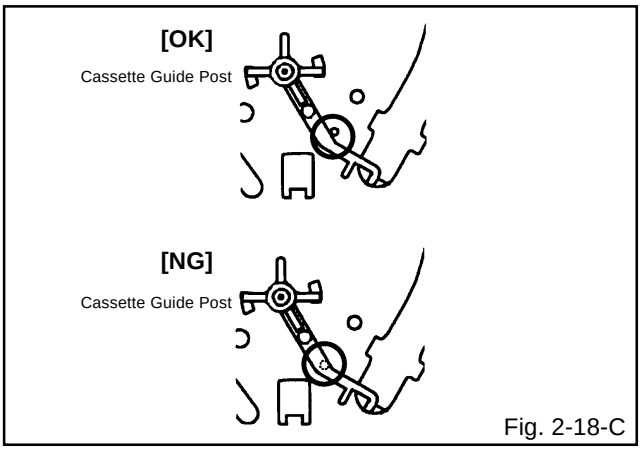


Fig. 2-18-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF DVD DECK PARTS

NOTE

1. Do not disassemble the DVD DECK PARTS except listed parts here. Minute adjustments are needed if the disassemble is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

3-1: TRAY (Refer to Fig. 3-1-A)

1. Set the Tray opened. **(Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)**
2. Unlock the 2 supports ① and remove the Tray.

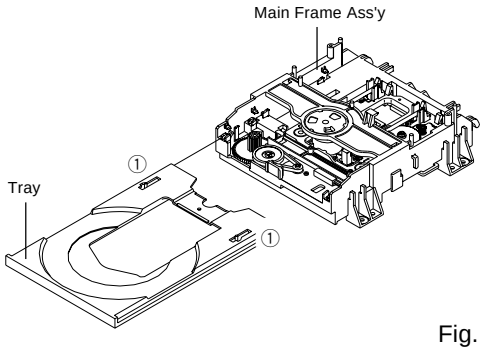


Fig. 3-1-A

NOTE

1. In case of the Tray installation, install them as the circled section of Fig. 3-1-B so that the each markers are met.

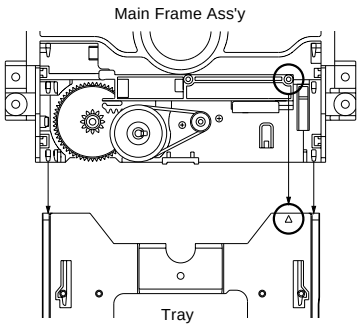
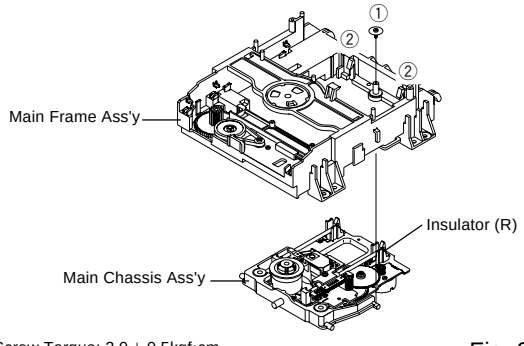


Fig. 3-1-B

3-2: MAIN CHASSIS ASS'Y (Refer to Fig. 3-2-A)

1. Remove the screw ①.
2. Unlock the 2 supports ②.
3. Remove the Insulator (R) from the Main Frame Ass'y.
4. Remove the Main Chassis Ass'y.



• Screw Torque: 2.0 ± 0.5kgf•cm

Fig. 3-2-A

NOTE

1. In case of the Main Chassis Ass'y, install it from (1) to (4) in order. **(Refer to Fig. 3-2-B)**
2. In case of the Main Chassis Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-2-C.

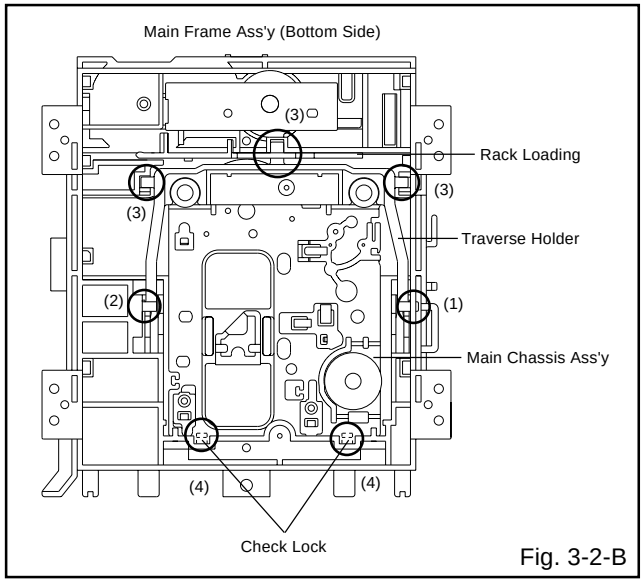


Fig. 3-2-B

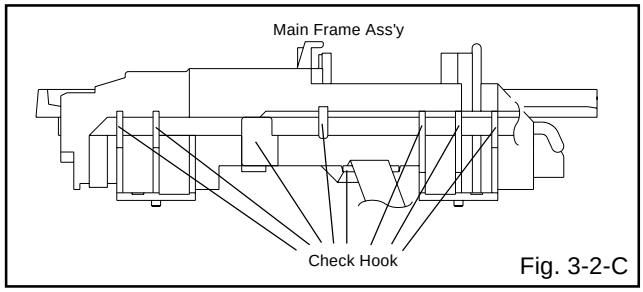
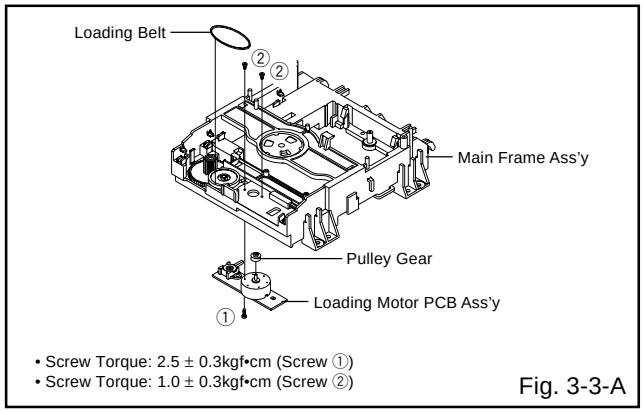


Fig. 3-2-C

3-3: LOADING MOTOR PCB ASS'Y/ LOADING BELT (Refer to Fig. 3-3-A)

1. Remove the Loading Belt.
2. Remove the screw ①.
3. Remove the 2 screws ②.
4. Remove the Loading Motor PCB Ass'y.
5. Remove the Pulley Gear.



• Screw Torque: 2.5 ± 0.3kgf•cm (Screw ①)
• Screw Torque: 1.0 ± 0.3kgf•cm (Screw ②)

Fig. 3-3-A

DISASSEMBLY INSTRUCTIONS

NOTE

1. In case of the Pulley Motor installation, check if the value of the Fig. 3-3-B is correct.
2. When installing the Loading Motor PCB Ass'y, install it correctly as Fig. 3-3-C.
3. In case of the Loading Motor PCB Ass'y installation, hook the wire on the Main Frame Ass'y as shown Fig. 3-3-C.

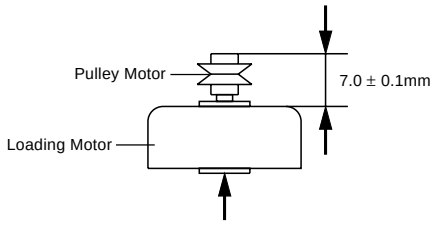


Fig. 3-3-B

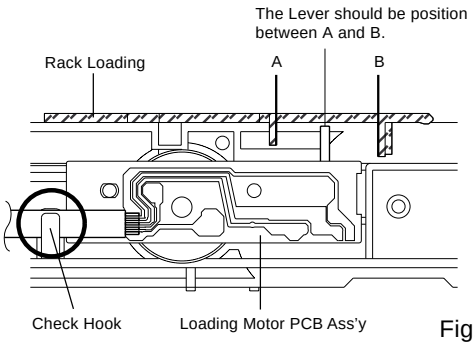


Fig. 3-3-C

3-4: RACK LOADING/MAIN GEAR/PULLEY GEAR (Refer to Fig. 3-4-A)

1. Press down the catcher ① and slide the Rack Loading.
2. Unlock the support ② and remove the Pulley Gear.
3. Remove the Main Gear.

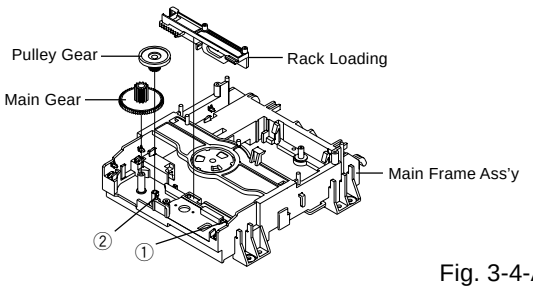


Fig. 3-4-A

NOTE

1. In case of the Rack Loading installation, do not mesh it to the Main Gear as shown the Fig. 3-4-B.

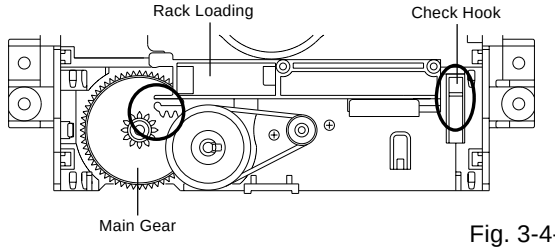


Fig. 3-4-B

3-5: CLAMPER ASS'Y (Refer to Fig. 3-5-A)

1. Press the Clamper and rotate the Clamper Plate clockwise, then unlock the 3 supports ①.
2. Remove the Clamper Plate, Clamper Magnet and Clamper.

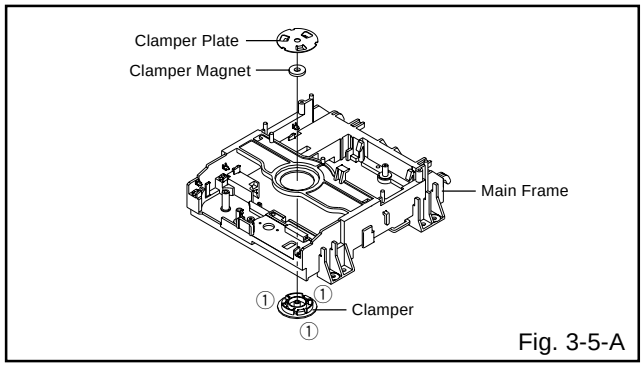


Fig. 3-5-A

NOTE

1. In case of the Clamper Ass'y installation, install correctly as Fig. 3-5-B.

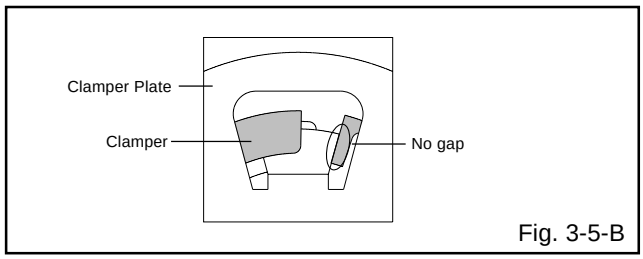


Fig. 3-5-B

3-6: TRAVERSE HOLDER/INSULATOR (F)/INSULATOR (R) (Refer to Fig. 3-6-A)

1. Remove the Traverse Holder.
2. Remove the 2 Insulator (F).
3. Remove the Insulator (R).

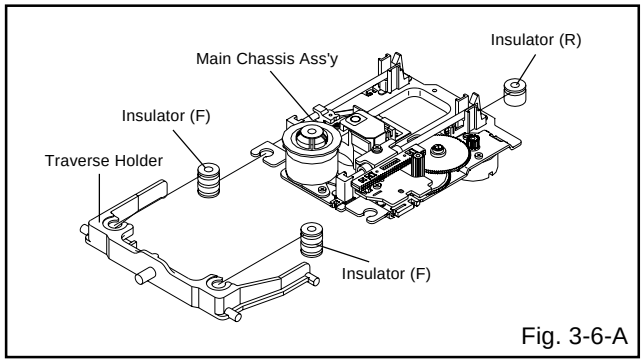


Fig. 3-6-A

NOTE

1. In case of the Insulator (F) installation, install correctly as Fig. 3-6-B.
2. In case of the Insulator (R) installation, install correctly as Fig. 3-6-C.

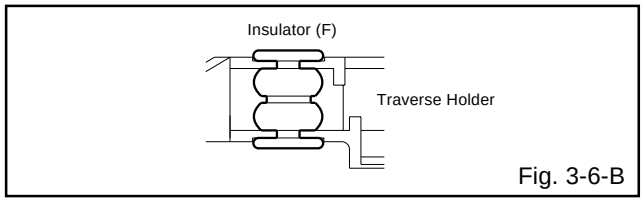


Fig. 3-6-B

DISASSEMBLY INSTRUCTIONS

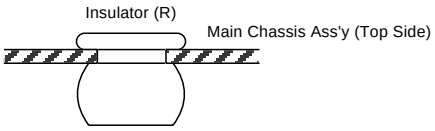
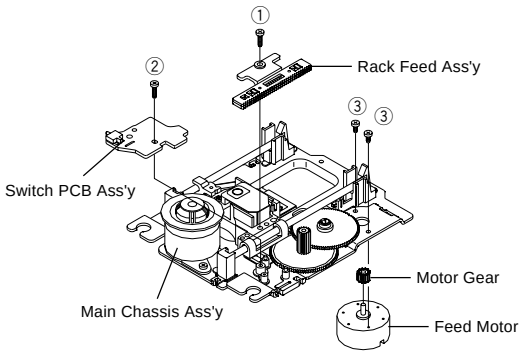


Fig. 3-6-C

3-7: RACK FEED ASS'Y/SWITCH PCB ASS'Y/FEED MOTOR (Refer to Fig. 3-7-A)

1. Remove the screw ①.
2. Remove the Rack Feed Ass'y.
3. Remove the screw ②.
4. Remove the Switch PCB Ass'y.
5. Remove the 2 screw ③.
6. Remove the Feed Motor.
7. Remove the Motor Gear.



- Screw Torque: 5.0 ± 0.3kgf•cm (Screw ①)
- Screw Torque: 3.0 ± 0.3kgf•cm (Screw ②)
- Screw Torque: 1.0 ± 0.3kgf•cm (Screw ③)
- Screw Torque: 3.5 ± 0.3kgf•cm (Screw ④)

Fig. 3-7-A

NOTE

1. When pushing the Rack Feed in the direction of the arrow, it should be restored to the original position by the spring force. **(Refer to Fig. 3-7-B)**
2. In case of the Motor Gear installation, check if the value of the Fig. 3-7-C is correct.
3. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 3-7-D.
4. After the assembly of the Main Chassis Ass'y, hook the wire on the Main Chassis Ass'y as shown Fig. 3-7-E.

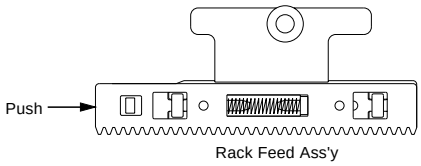


Fig. 3-7-B

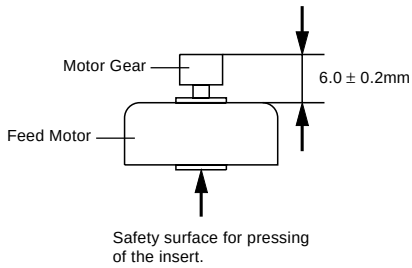
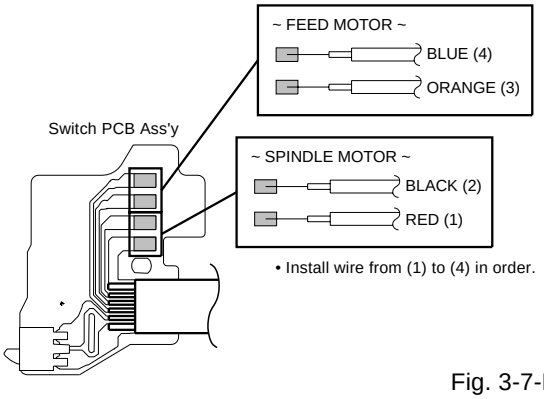
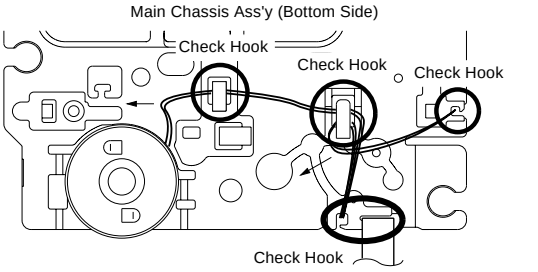


Fig. 3-7-C



- Install wire from (1) to (4) in order.

Fig. 3-7-D



- Loosen the wire in the direction of the arrow.

Fig. 3-7-E

DISASSEMBLY INSTRUCTIONS

4. 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. 4-1.)**
   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.

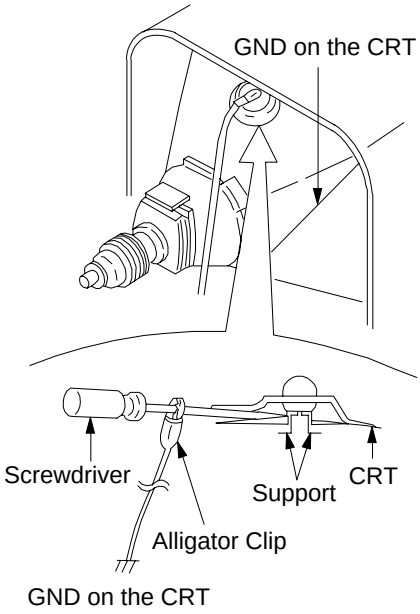


Fig. 4-1

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. 4-2.)**

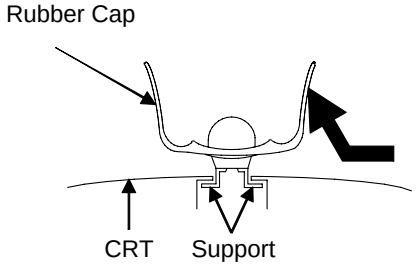


Fig. 4-2

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. 4-3.)**

NOTE

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

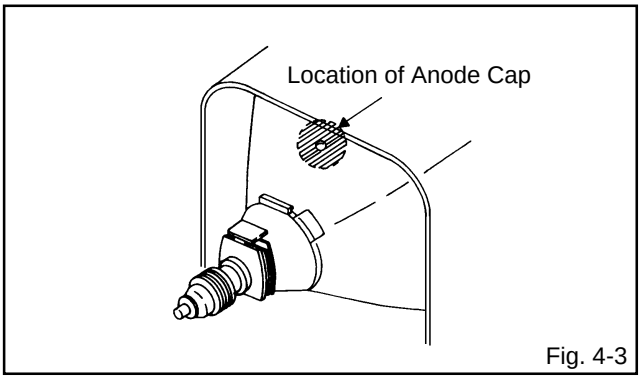


Fig. 4-3

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. 4-4.)**

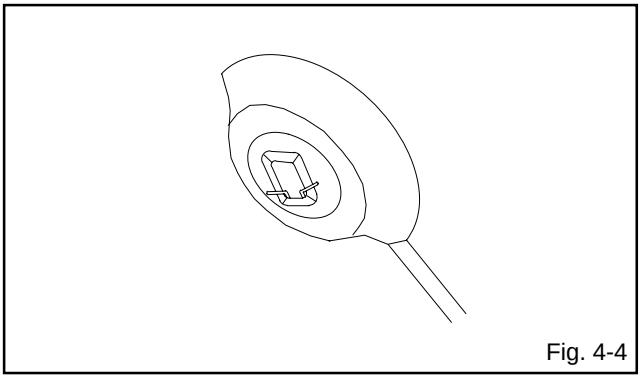


Fig. 4-4

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

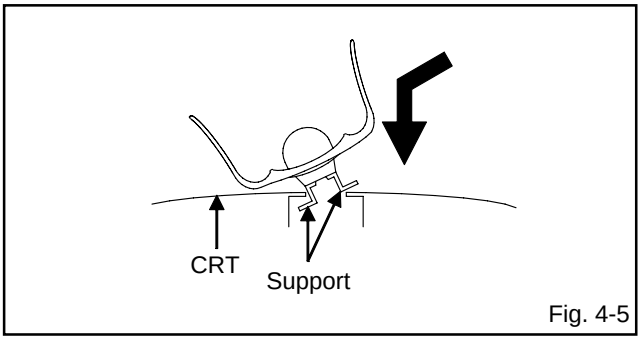


Fig. 4-5

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

DISASSEMBLY INSTRUCTIONS

5. 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. 5-1.)**

   NOTE

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

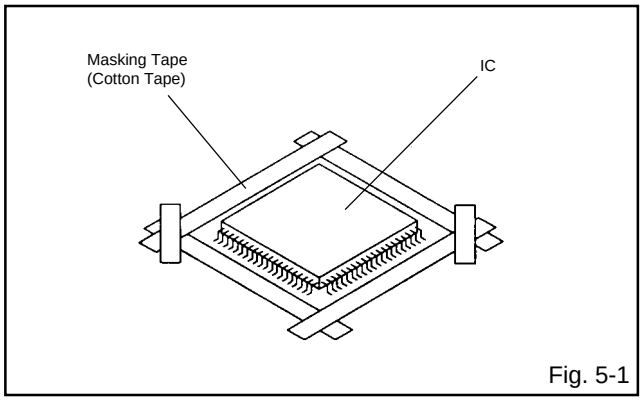


Fig. 5-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 5-2.)**

   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.

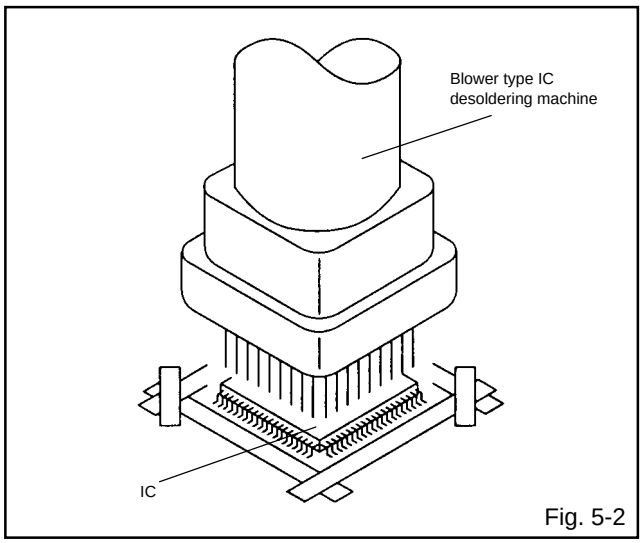


Fig. 5-2

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. 5-3.)**

   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.

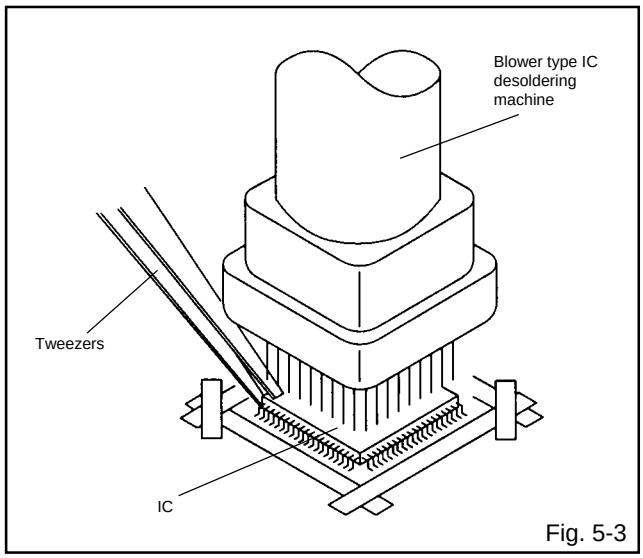


Fig. 5-3

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

   NOTE

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

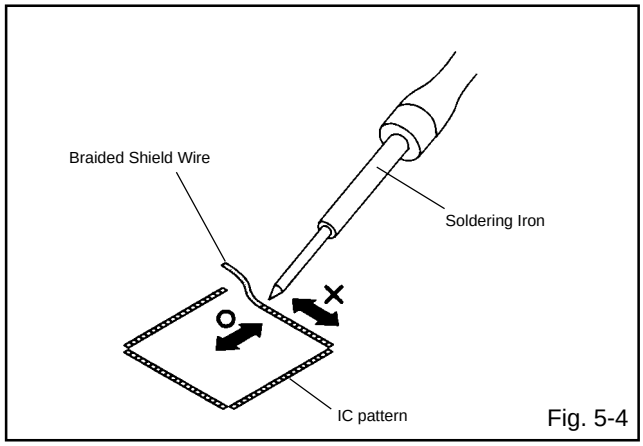


Fig. 5-4

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. 5-5.)**

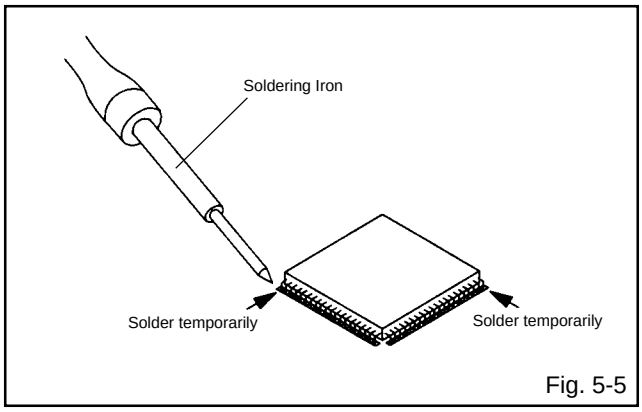


Fig. 5-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 5-6.)**

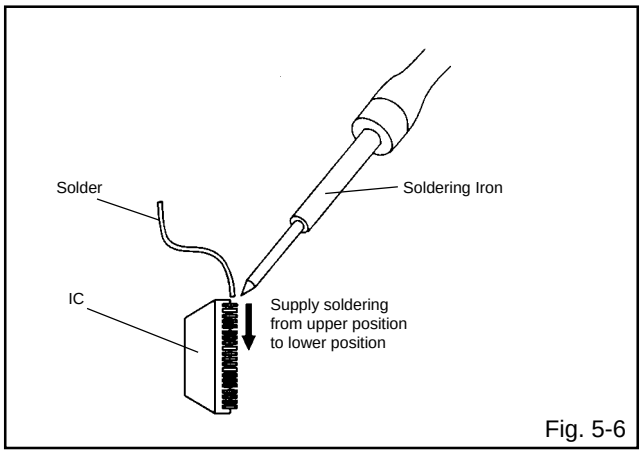


Fig. 5-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 5-7.)**

   NOTE

   Do not absorb the solder to excess.

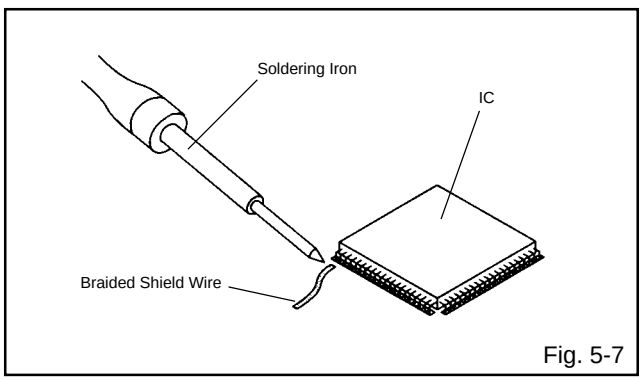


Fig. 5-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 5-8.)**

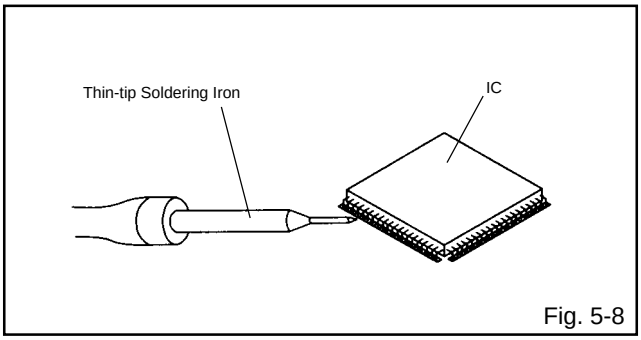


Fig. 5-8

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	Standard Time (seconds)	Operations
VOL. (-) MIN	0	2	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	2	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	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	2	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	2	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	2	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	2	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	9	2	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
REC/OTR	4	2	Initialization of the factory on DVD. NOTE: Do not use this for the normal servicing. The function will only work without the setting of DVD disc at DVD mode. While pressing the Remocon Key for more than the Standard Time, press the Set Key simultaneously.
STOP (DVD)	7	3	Releasing of PARENTAL LOCK. Refer to the “PARENTAL CONTROL - RATING LEVEL”. NOTE: The function will only work without the setting of DVD disc at DVD mode.

Set Key	Set Key	Standard Time (seconds)	Operations
VOL. (-) MIN	FF	2	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. Refer to the "PREPARATION FOR SERVICING"

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).

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

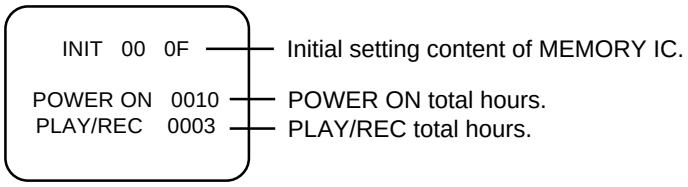
■ : Clean
● : Check it and if necessary, replace it.

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. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds.
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

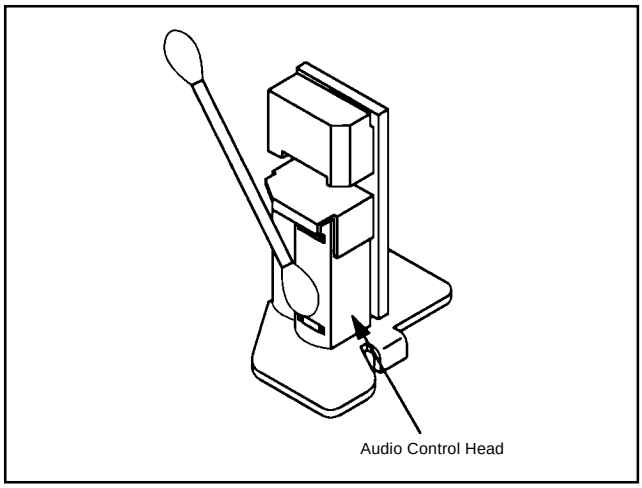
CLEANING

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

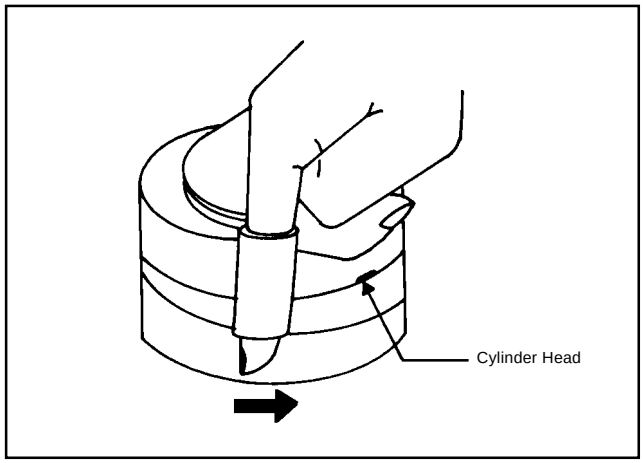
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

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.

- **No need setting for the position of the mark @ due to the adjustment value.**
- **No need setting for after INI 44 due to the adjustment value.**

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	0F	00	F3	02	C4	AD	20	22	86	C1	F0	08	A6	A1	8F	45
10	32	64	E3	52	03	87	00	48	00	F4	13	4B	17	54	83	B2
20	9A	97	8C	9F	B7	85	91	B6	1A	0B	3C	14	36	16	26	30
30	05	31	19	40	00	@	@	0F	00	23	FF	FF	FF	80	88	83
40	88	89	88	00	00	---	---	---	---	---	---	---	---	---	---	---

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

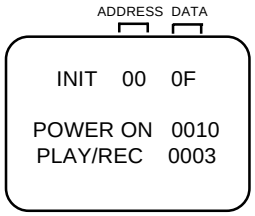


Fig. 1

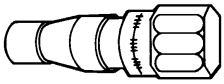
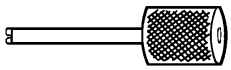
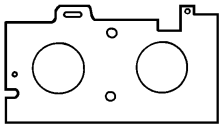
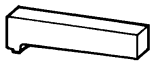
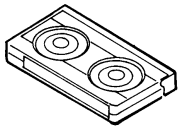
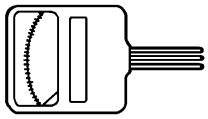
3. ADDRESS is now selected and should "blink". Using the UP or DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using UP or DOWN button until required 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.

After the data input, set to the initializing of shipping.

9. Turn POWER on.
10. Press both VOL. DOWN button on the set and the Channel button **(1)** on the remote control for more than 2 seconds.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

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) 
JG185 Tentelometer 			

Ref. No.	Part No.	Parts Name	Remarks
JG001	APJG001000	VHS Alignment Tape	Monoscope, 6KHz **(For 2 heads model)**
JG001A	APJG001A00	VHS Alignment Tape	Color Bar, 1KHz **(For 2 heads model)**
JG001Q	APJG001Q00	VHS Alignment Tape	Hi-Fi Audio **(For 2 heads model)**
JG001T	APJG001T00	VHS Alignment Tape	X Value Adjustment **(For 2 heads model)**
JG001B	APJG001B00	VHS Alignment Tape	Monoscope, 6KHz **(For 4 heads model)**
JG001I	APJG001I00	VHS Alignment Tape	Color Bar, 1KHz **(For 4 heads model)**
JG001P	APJG001P00	VHS Alignment Tape	Hi-Fi Audio **(For 4 heads model)**
JG001S	APJG001S00	VHS Alignment Tape	X Value Adjustment **(For 4 heads model)**
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
JG185	APJG185000	Tentelometer	Confirmation of Tape Tension on Playback

PREPARATION FOR SERVICING

NOTE: 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.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the FF button on the set for more than 2 seconds.
   (The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
3. 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.

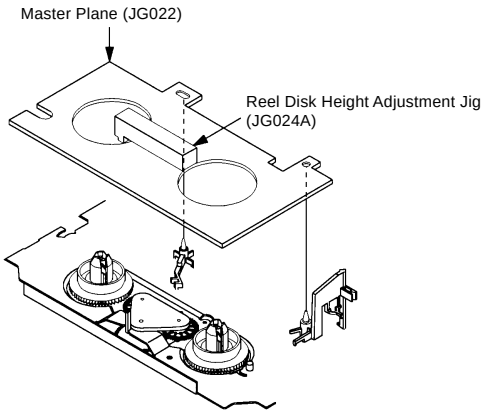


Fig. 1-1-A

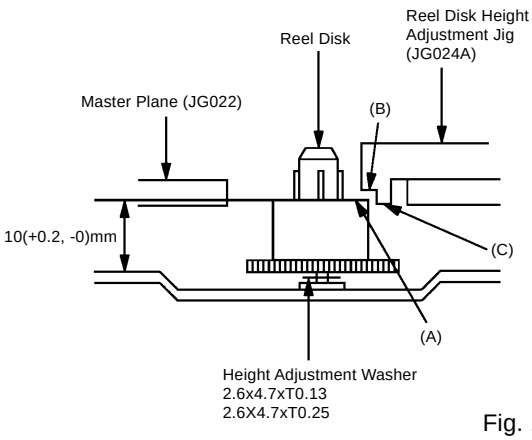


Fig. 1-1-B

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.

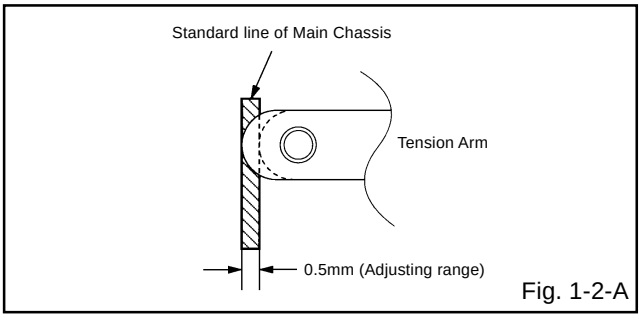


Fig. 1-2-A

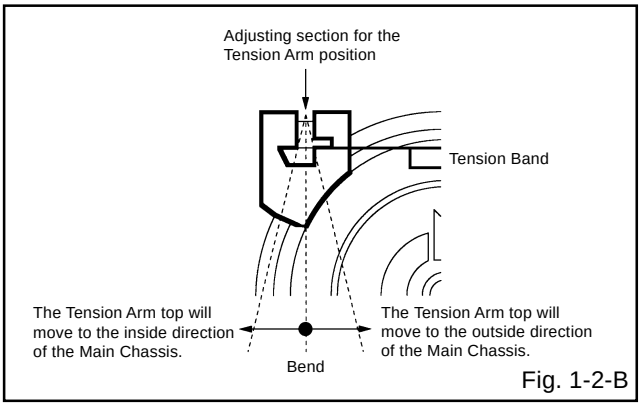


Fig. 1-2-B

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 (JG185) 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.

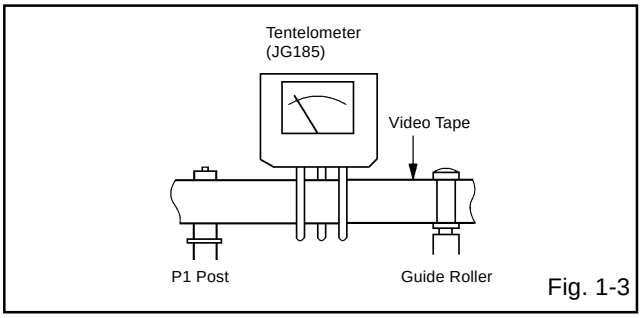


Fig. 1-3

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.

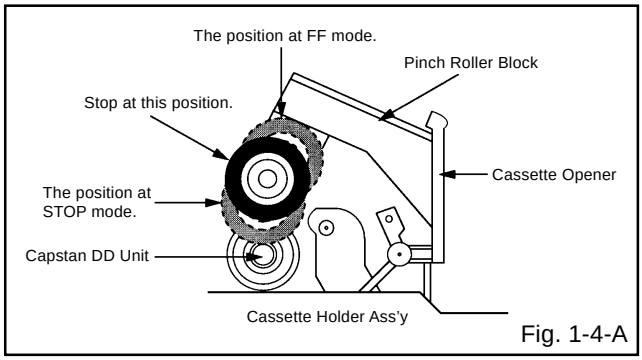


Fig. 1-4-A

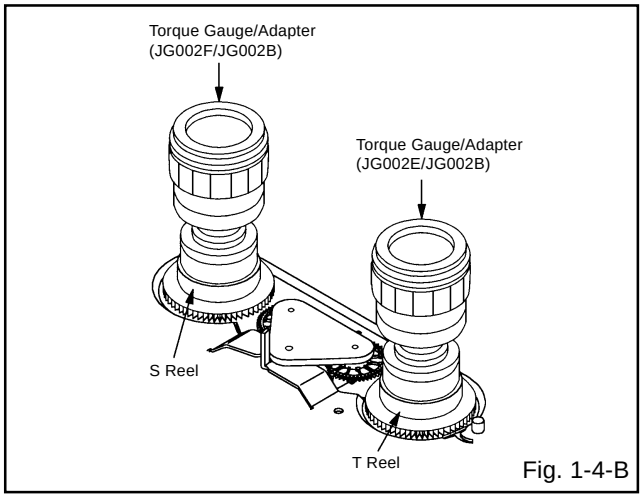


Fig. 1-4-B

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 **TP4501 (Envelope)** and CH-2 to **TP102 (SW Pulse).**
3. Press and hold the ATR 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)**

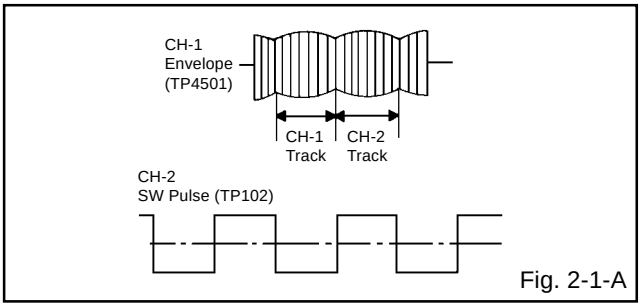


Fig. 2-1-A

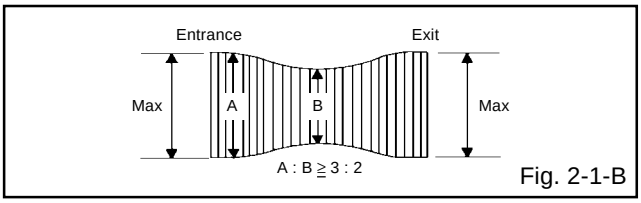


Fig. 2-1-B

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.

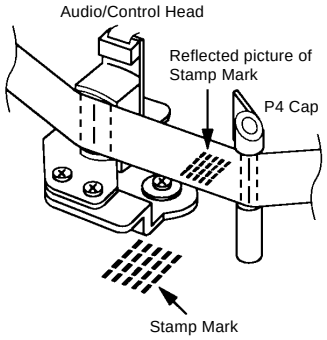


Fig. 2-2-A

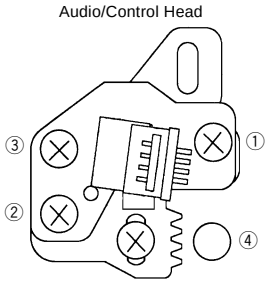


Fig. 2-2-B

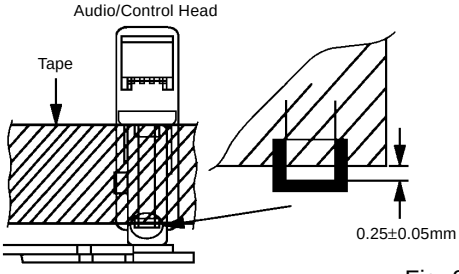


Fig. 2-2-C

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 **TP102**, CH-2 to **TP4501** 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 ATR 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.**

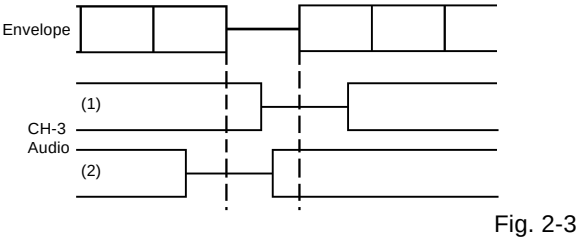


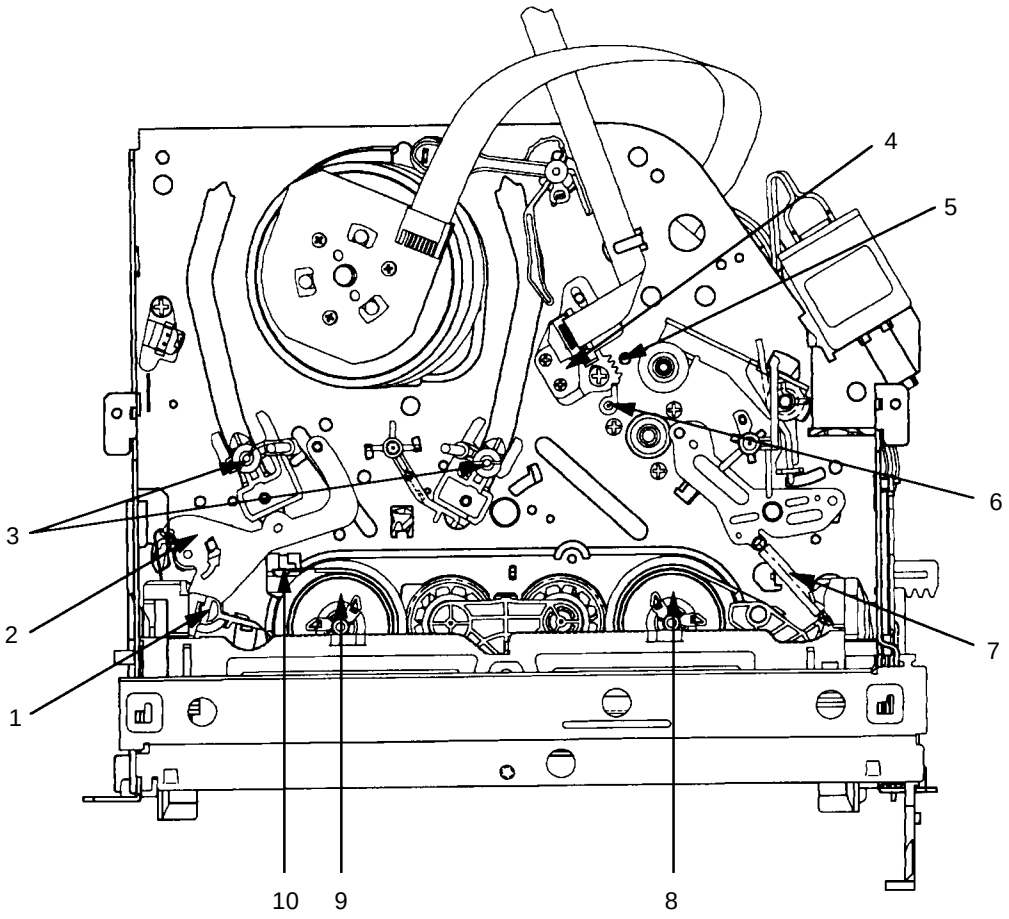
Fig. 2-3

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

1. Connect CH-1 of the oscilloscope to **TP4501** 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 ATR 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.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor).

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

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 for more than 2 seconds to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

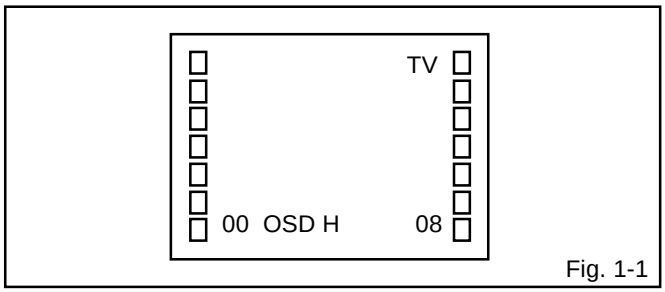


Fig. 1-1

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	18	BRI MAX
01	OSD C	19	BRI MIN
02	CUT OFF	20	CONT CENT
03	H.POSI	21	CONT MAX
04	H.BLK L	22	CONT MIN
05	H.BLK R	23	COL CENT
06	V.SIZE	24	COL MAX
07	V.POSI	25	COL MIN
08	V.LIN	26	TINT
09	VS.CORR	27	SHARP
10	V.COMP	28	SUB BIAS
11	R.BIAS	29	H.SIZE
12	G.BIAS	30	PARABOLA
13	B.BIAS	31	TRAPEZIUM
14	R.DRV	32	COR TOP
15	G.DRV	33	COR BTM
16	B.DRV	34	H.COMP
17	BRI CENT	35	T.STE

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP102** and CH-2 to **TP4201**.
2. Playback the alignment tape.
3. Press both VOL. DOWN button on the set and the Channel button **(5)** on the remote control for 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 for more than 2 seconds 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 for more than 2 seconds 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 for more than 2 seconds 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)

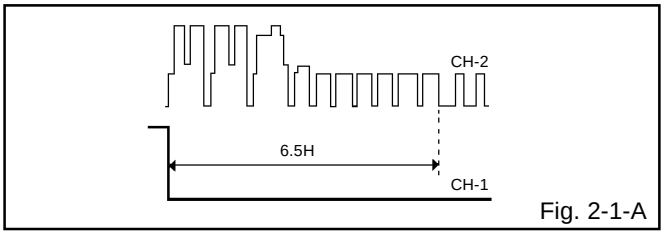


Fig. 2-1-A

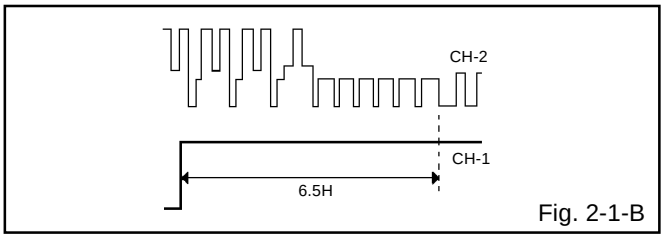


Fig. 2-1-B

ELECTRICAL ADJUSTMENTS

(TV SECTION)

2-2: CONSTANT VOLTAGE

1. Set condition is AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to **TP401**.
4. Adjust the **VR1701** until the digital voltmeter is 116 ± 0.5V.

2-3: CUT OFF

1. Adjust the unit to the following settings.
   R.BIAS=127, G.BIAS=127, B.BIAS=127, R.DRV=63, G.DRV=07, B.DRV=63.
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 **(02)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
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 **(11)** on the remote control to select "R.BIAS".
5. Press the CH. UP/DOWN button on the remote control to select the "R.BIAS", "G.BIAS", "B.BIAS", "R.DRV", "B.DRV" or "G.DRV".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R.BIAS, G.BIAS, B.BIAS, R.DRV, B.DRV, and G.DRV at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

2-5: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern.
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 **(03)** on the remote control to select "H.POSI".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-7: HORIZONTAL SIZE

1. Receive the monoscope pattern.
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 **(29)** on the remote control to select “H. SIZE”.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes 10 ± 4%.

2-8: VERTICAL POSITION

1. Receive the monoscope pattern.
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.POSI".
4. Check if the step No. V.POSI is "00".
5. Adjust the **VR404** until the horizontal line becomes fit to the notch of the shadow mask.

2-9: VERTICAL SIZE

1. Receive the monoscope pattern.
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 Up/Down OVER SCAN Quantity becomes equal to the Right/Left OVER SCAN Quantity.

2-10: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-9. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
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 **(08)** on the remote control to select "V.LIN".
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: TRAPEZIUM

1. Receive the crosshatch 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 **(31)** on the remote control to select “TRAPEZIUM”.
4. Press the VOL. UP/DOWN button on the remote control until the both vertical lines of the screen become parallel.

ELECTRICAL ADJUSTMENTS

2-12: PARABOLA

1. Receive the crosshatch 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 **(30)** on the remote control to select “PARABOLA”.
4. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.

2-13: CORNER CORR TOP

1. Receive the crosshatch 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 **(32)** on the remote control to select “COR TOP”.
4. Press the VOL. UP/DOWN button on the remote control until the upper section of the both ends vertical lines are straight.

2-14: CORNER CORR BOTTOM

1. Receive the crosshatch 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 **(33)** on the remote control to select “COR BTM”.
4. Press the VOL. UP/DOWN button on the remote control until the bottom section of the both ends vertical lines are straight.

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. 2-2)**

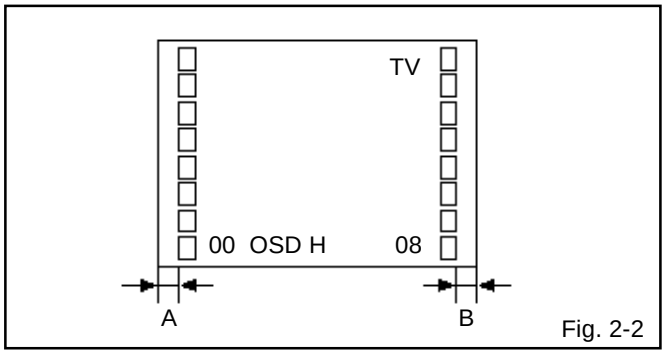


Fig. 2-2

2-16: OSD CONTRAST

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select “OSD C”.
2. Check if the step No. OSD C is "3".

2-17: BRIGHT CENTER

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
2. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible.
3. Press the INPUT SELECT button on the remoted control to set to the AV mode. Then perform the above adjustments 1, 2.
4. Press the DVD button on the remote control to set to the DVD mode.
   Activate the adjustment mode display of **Fig. 1-1** and
5. press the channel button **(17)** on the remote control to select "BRI CENT".
6. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode "+" 10 step up from AV mode.

2-18: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP803**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** 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. 2-3)**.
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.
8. Press the DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TINT".
10. Press the VOL. UP/DOWN button on the remote control to set the same step number as the AV mode.

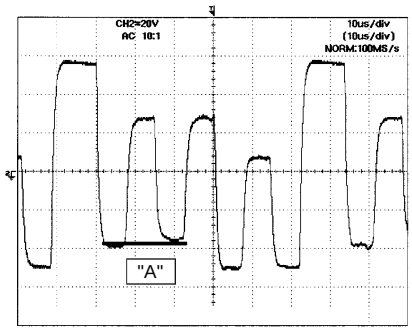


Fig. 2-3

ELECTRICAL ADJUSTMENTS

2-19: COLOR CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP802**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
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 120 ± 10% of the white level. **(Refer to Fig. 2-5)**
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.
9. Press the DVD button on the remote control to set to the DVD mode.
10. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
11. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

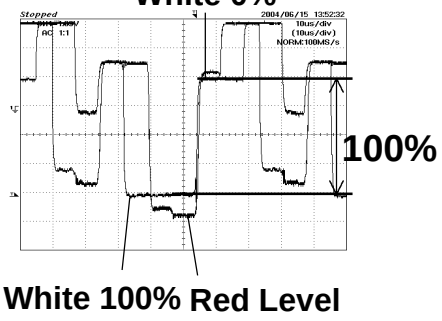


Fig. 2-5

2-20: SHARPNESS

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(27)** on the remote control to select "SHARP".
2. Check if the step No. SHARP is "30".
3. Press the INPUT SELECT button on the remoted control to set to the AV mode. Then perform the above adjustments 1, 2.
4. Press the DVD button on the remote control to set to the DVD mode.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(27)** on the remote control to select "SHARP".
6. Check if the step No. SHARP is "15".

2-21: SUB CONTRAST MAX

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "110".
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT SELECT button on the remote control to set to the AV mode.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
6. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "110".
7. Receive a broadcast and check if the picture is normal.
8. Press the DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
10. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

2-22: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF	AV	DVD
04	H.BLK L	04	04	04
05	H.BLK R	02	02	02
09	VS.CORR	05	05	05
10	V.COMP	03	03	03
15	G DRIVE	07	07	07
18	BRI MAX	75	75	75
19	BRI MIN	10	10	10
20	CONT CENT	80	80	80
22	CONT MIN	30	30	30
24	COL MAX	127	127	127
25	COL MIN	00	00	00
28	SUB BIAS	24	24	24
34	H.COMP	00	00	00
35	T.STE	00	00	00

ELECTRICAL ADJUSTMENTS

3. 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.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   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.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

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 color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

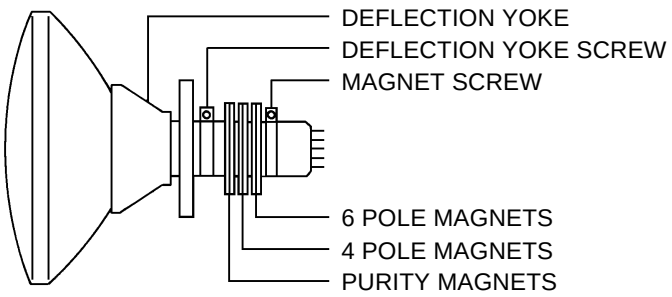


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

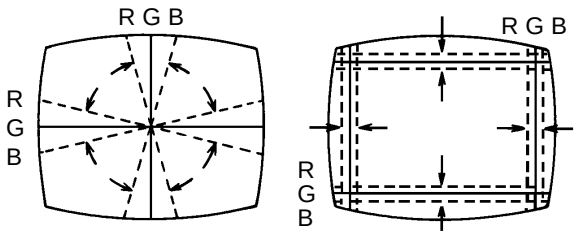
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

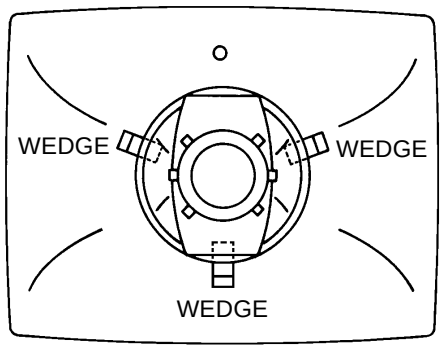
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 3-2-a

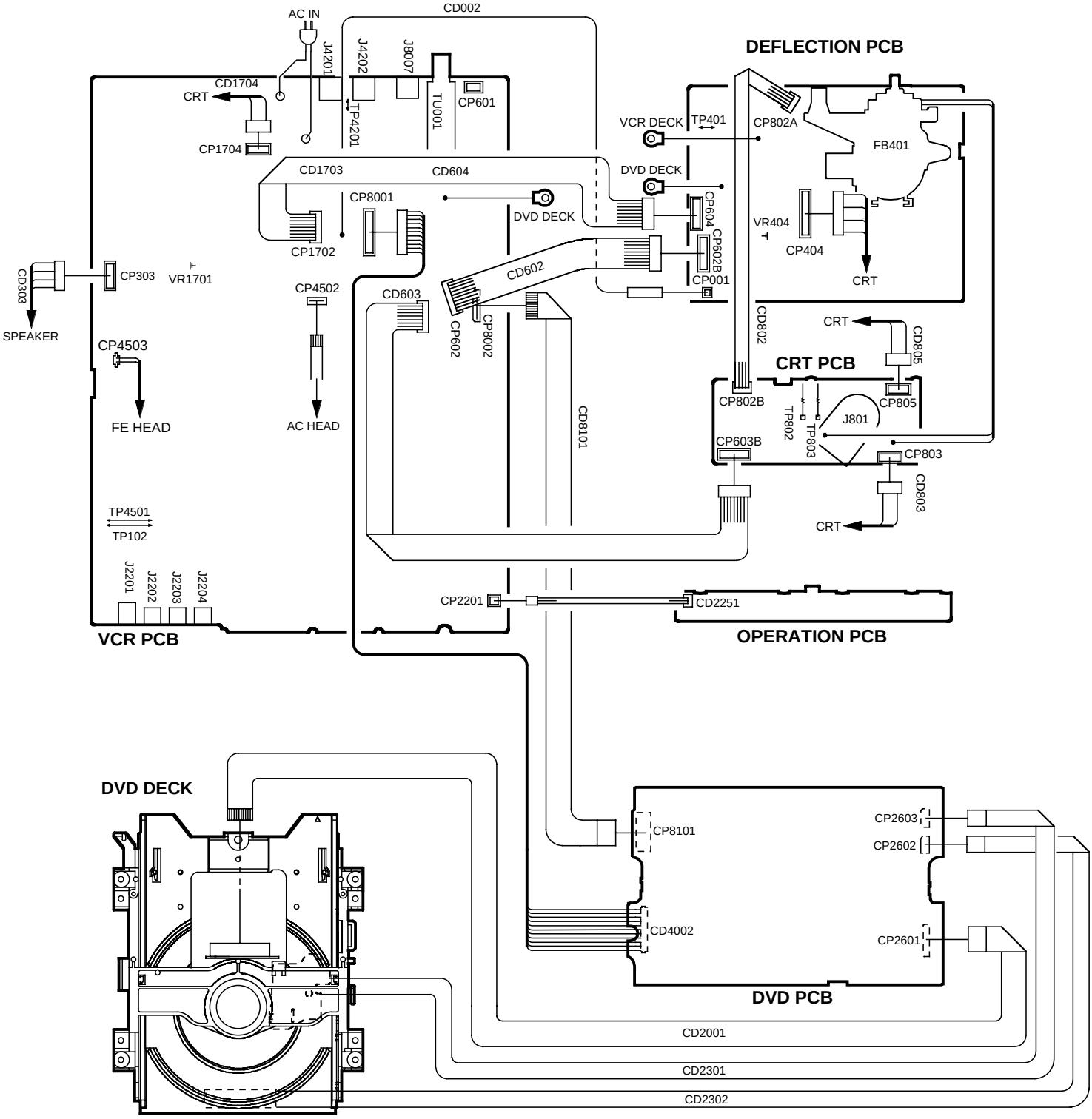


WEDGE POSITION

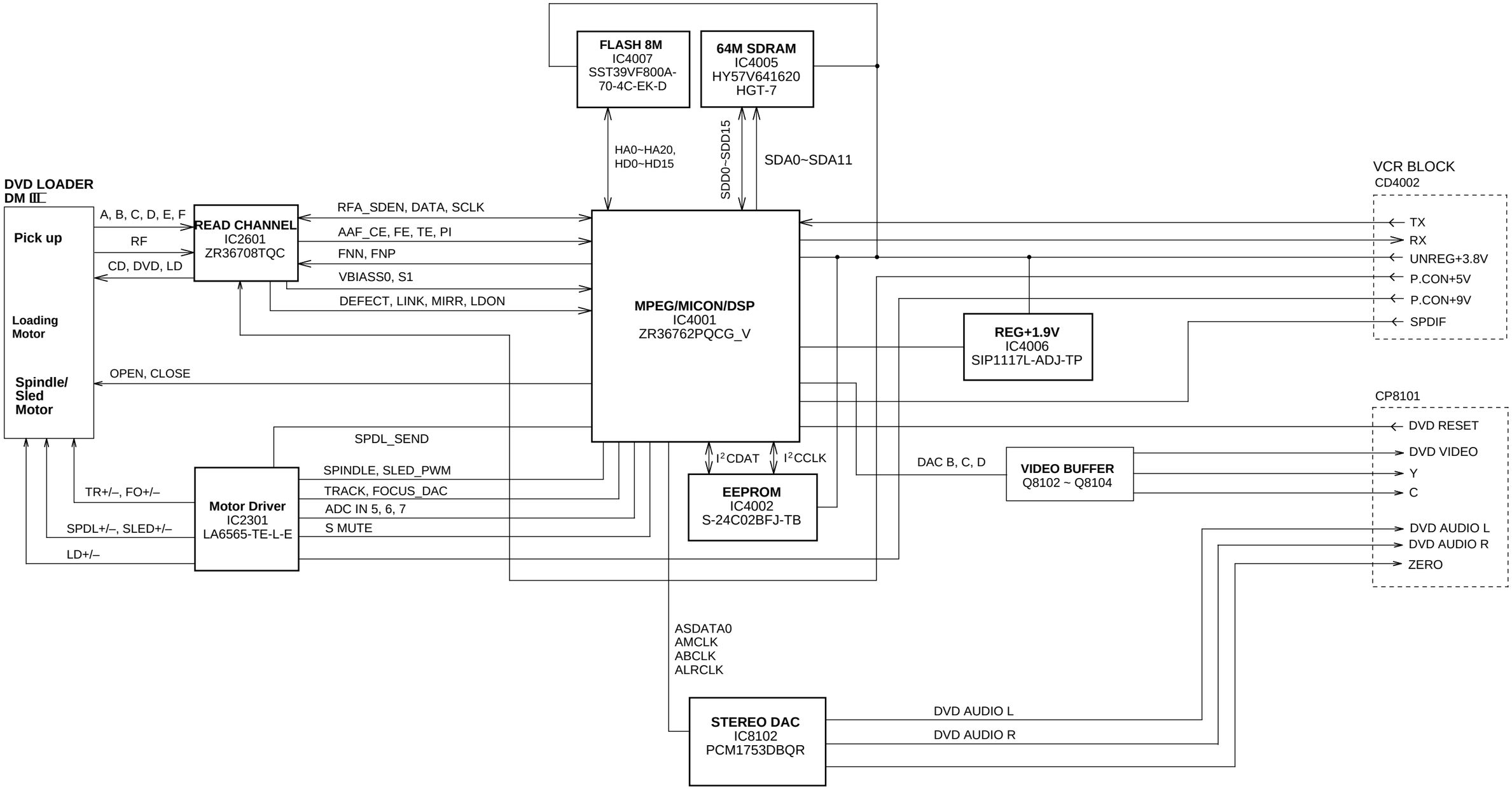
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

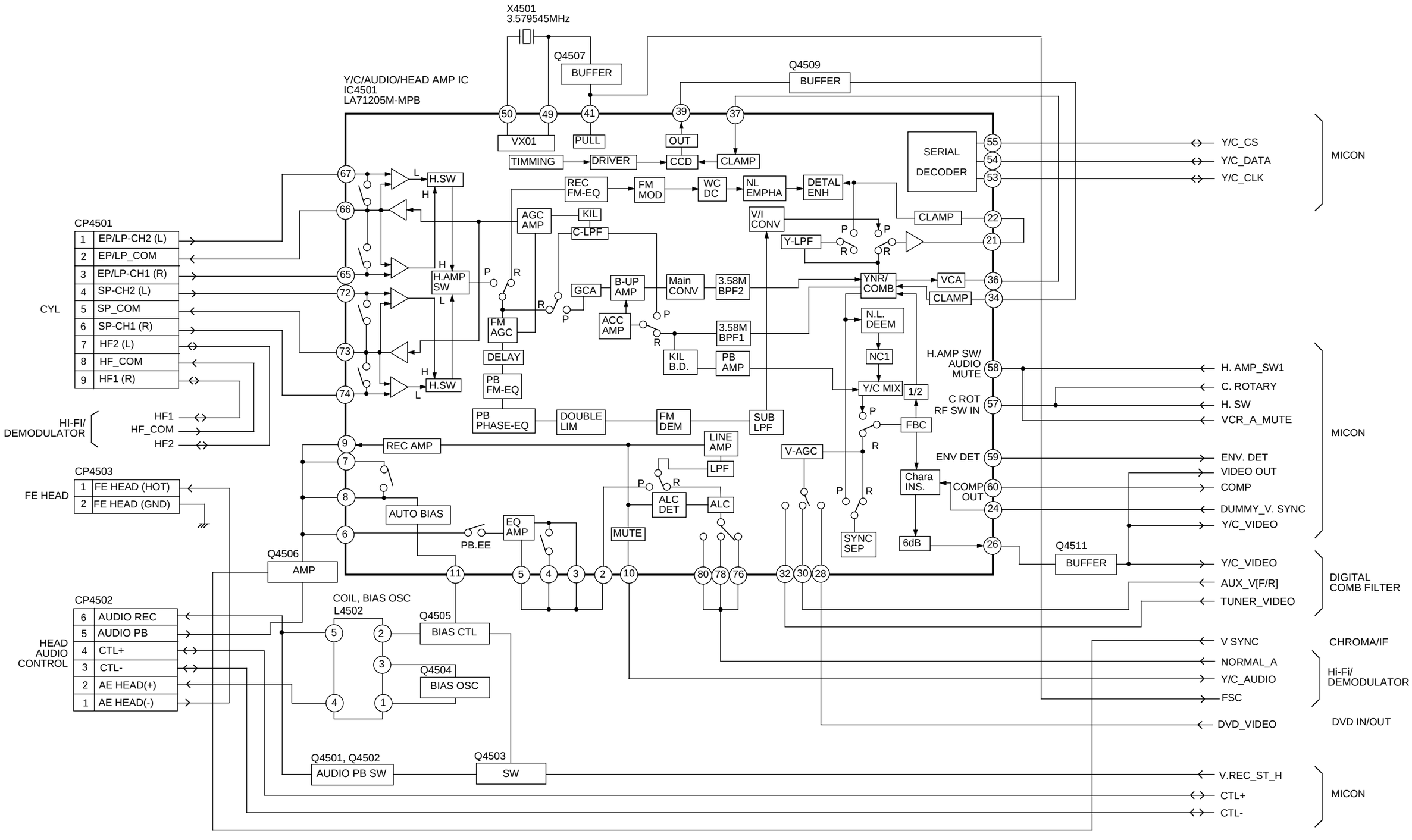
4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



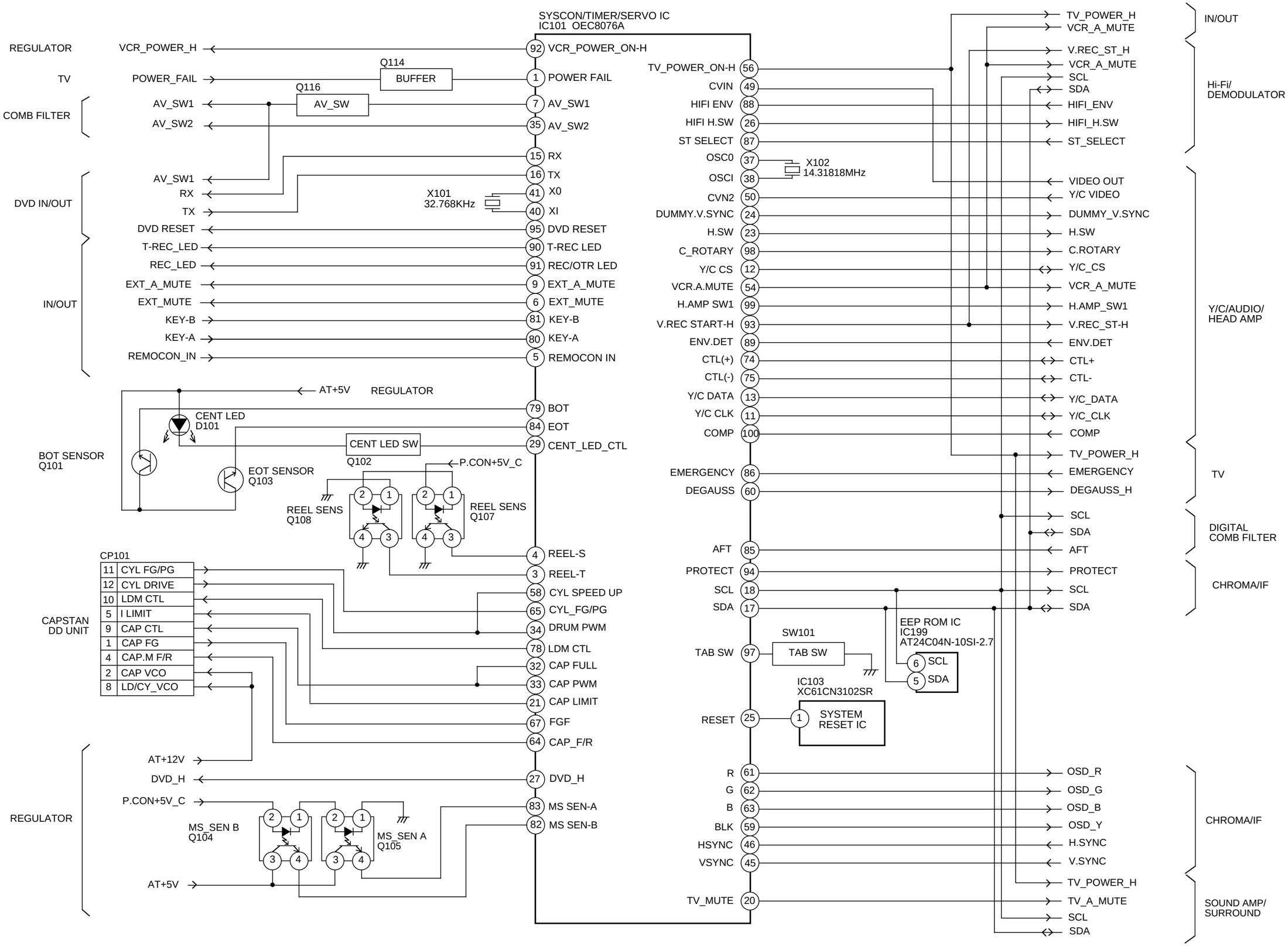
DVD BLOCK DIAGRAM



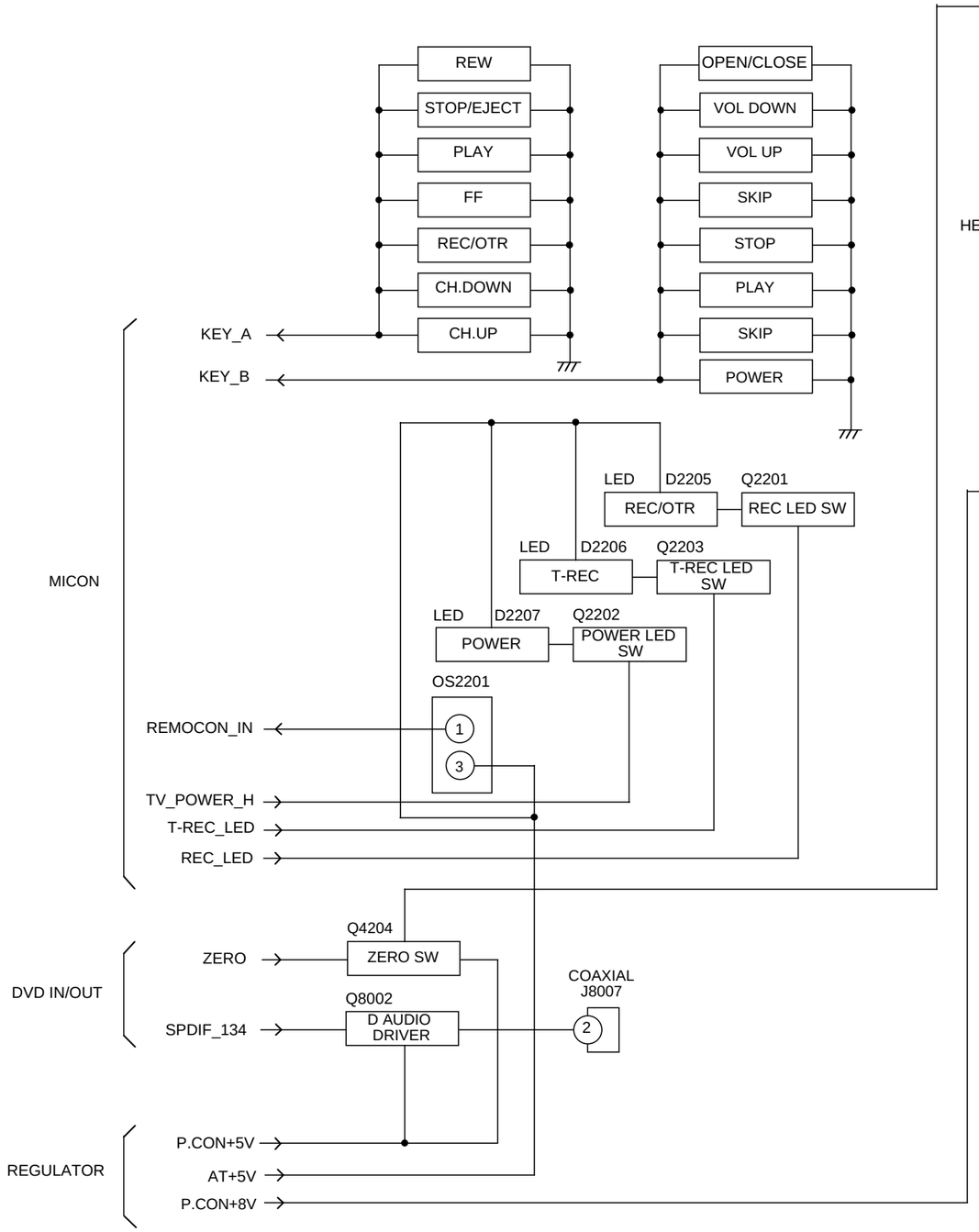
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM

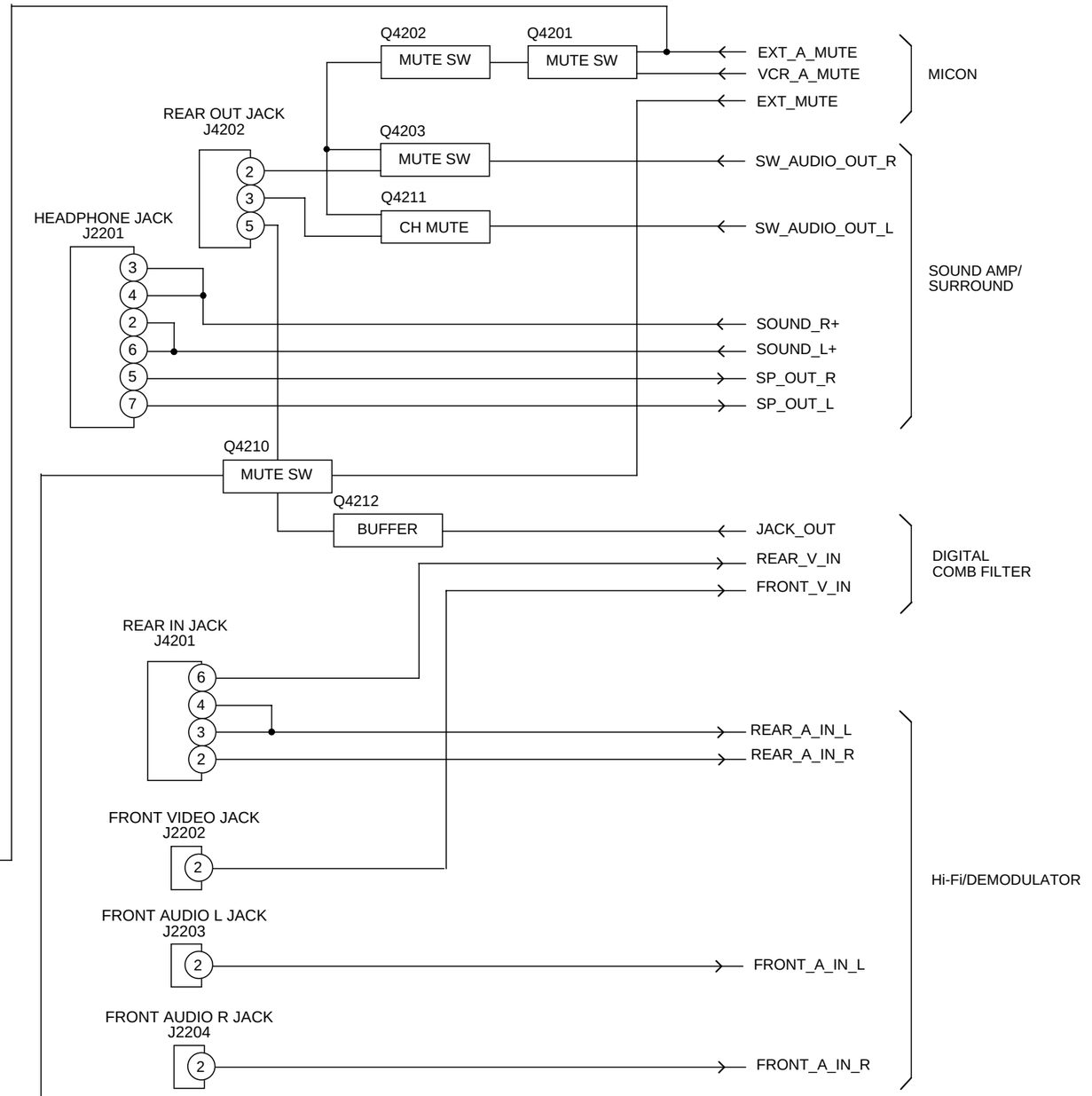


MICON BLOCK DIAGRAM

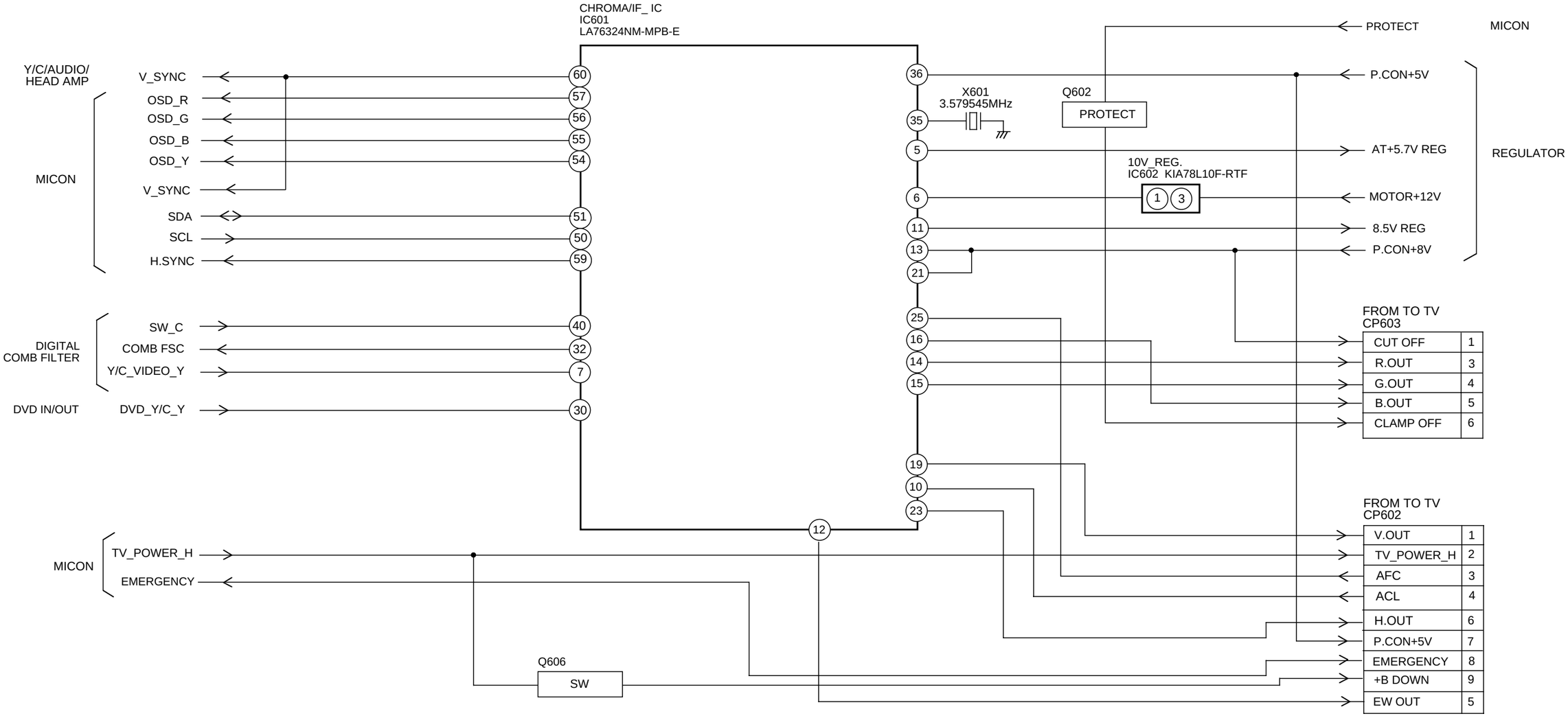


IN/OUT BLOCK DIAGRAM

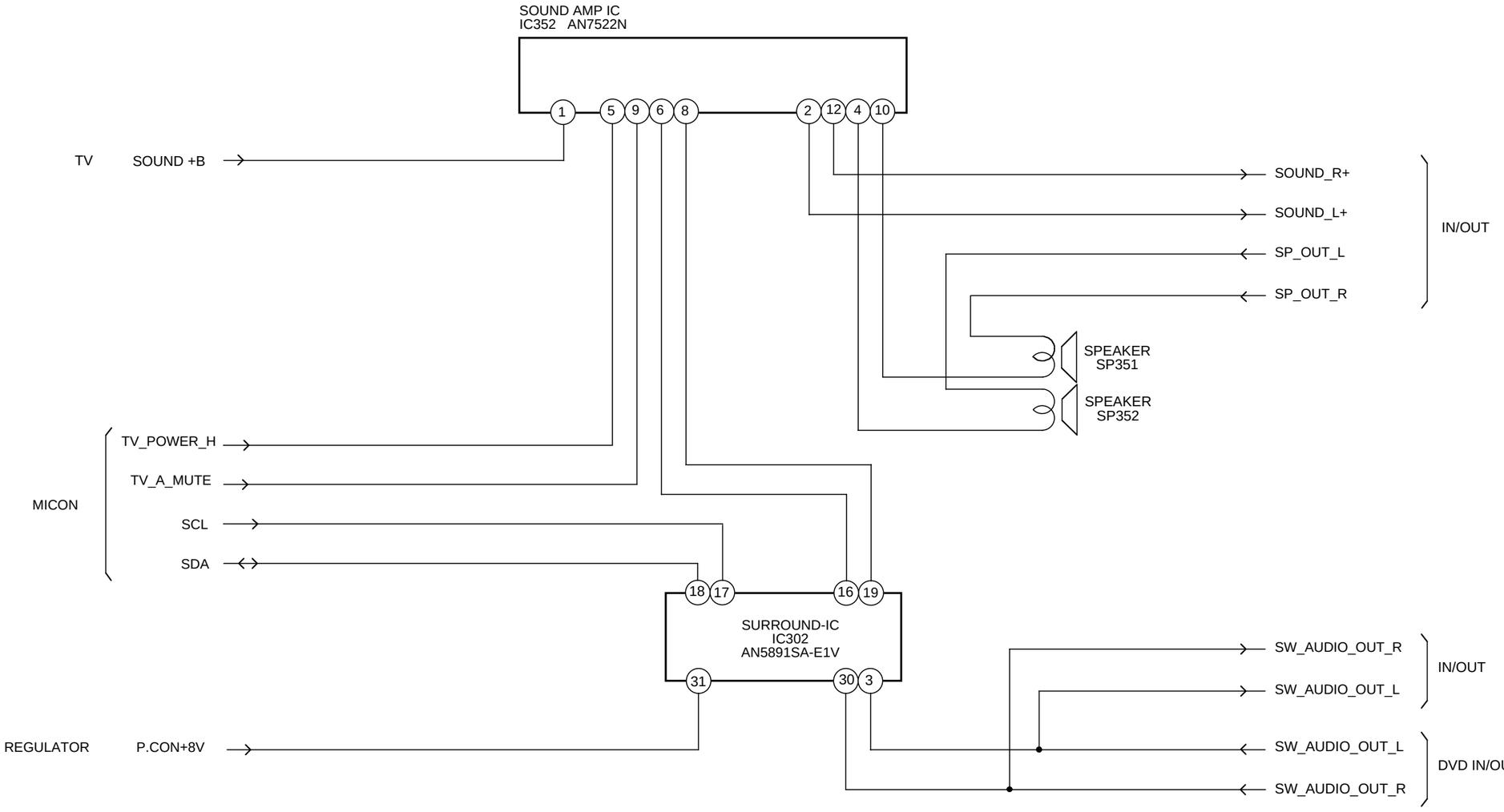




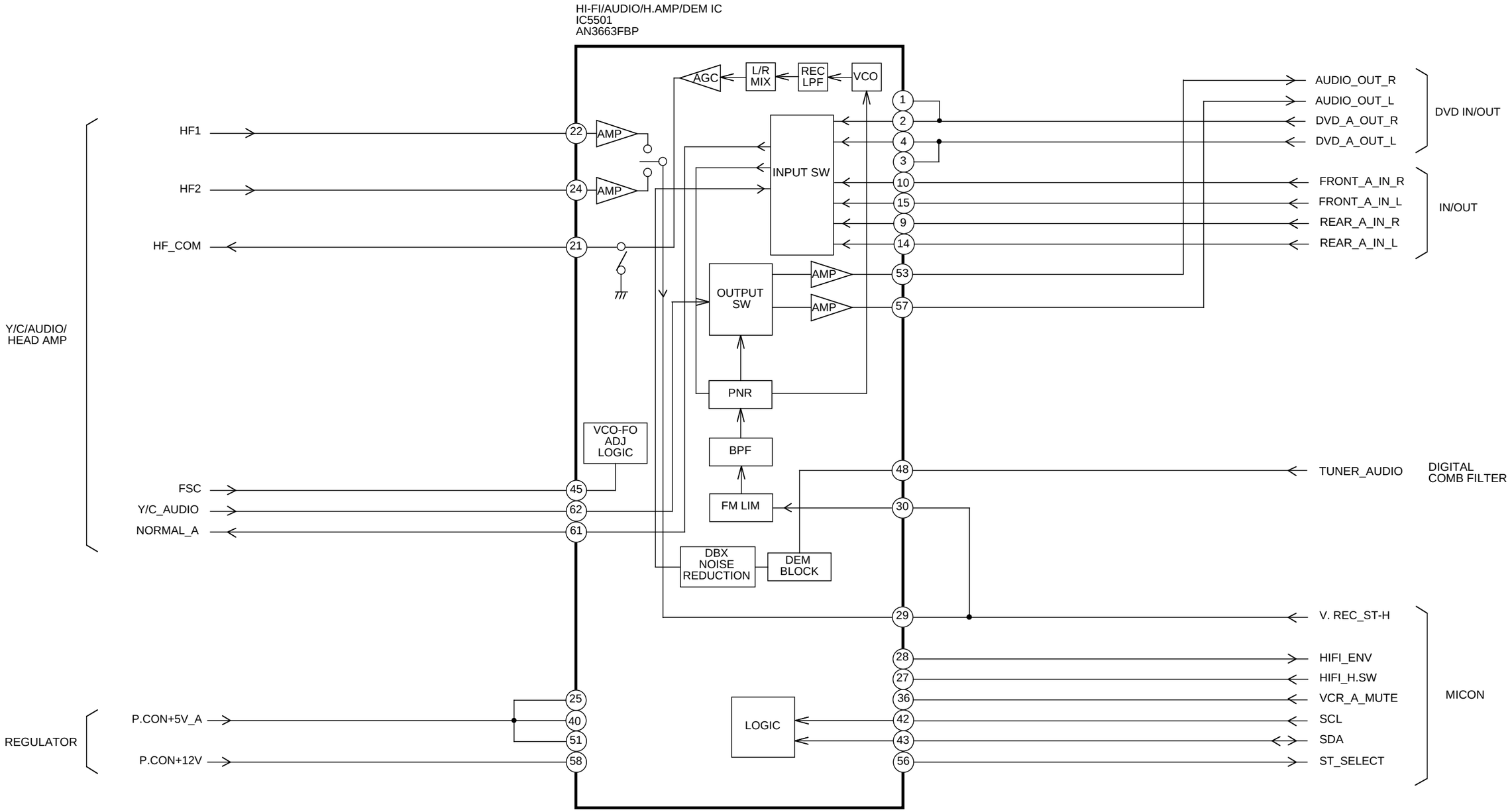
CHROMA/IF BLOCK DIAGRAM



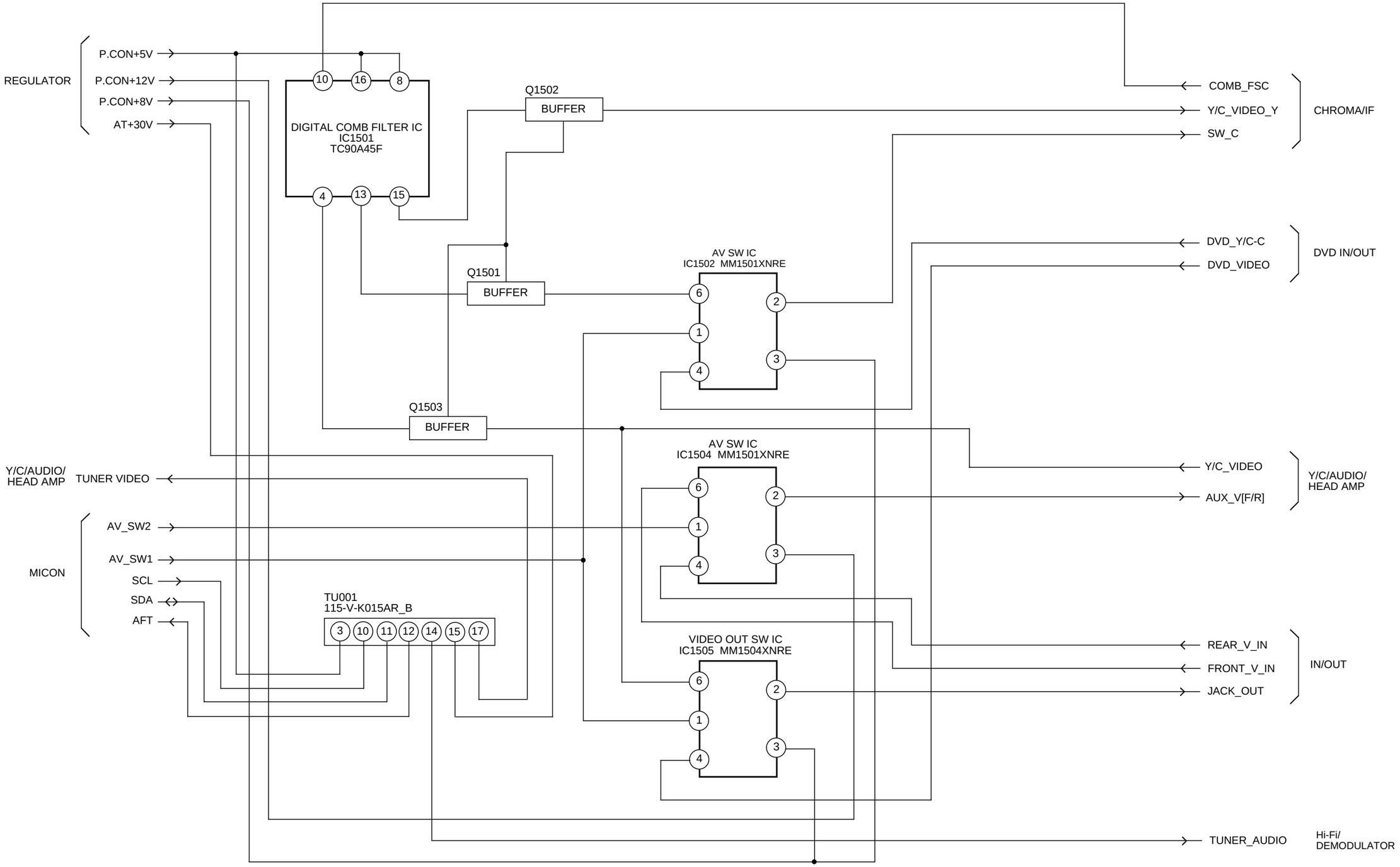
SOUND AMP/SURROUND BLOCK DIAGRAM



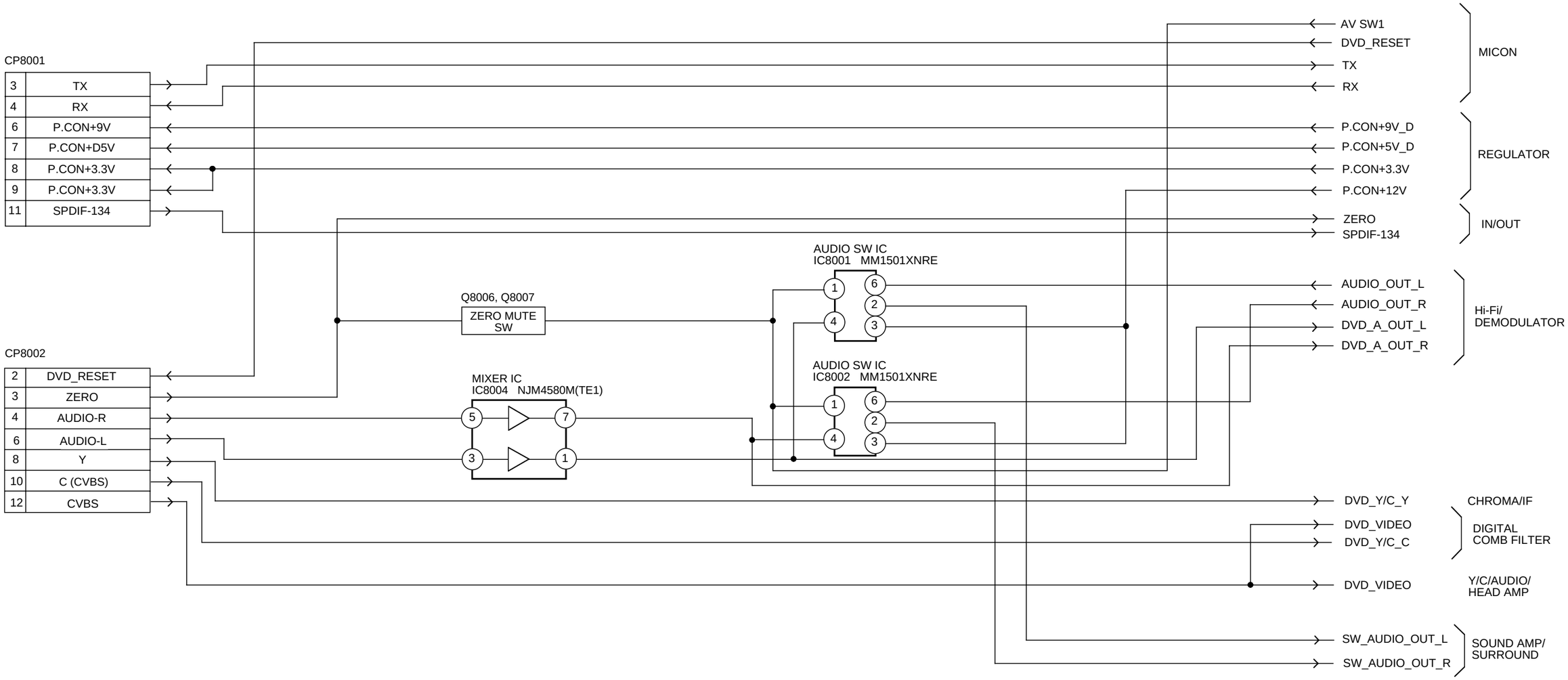
Hi-Fi/DEMODULATOR BLOCK DIAGRAM



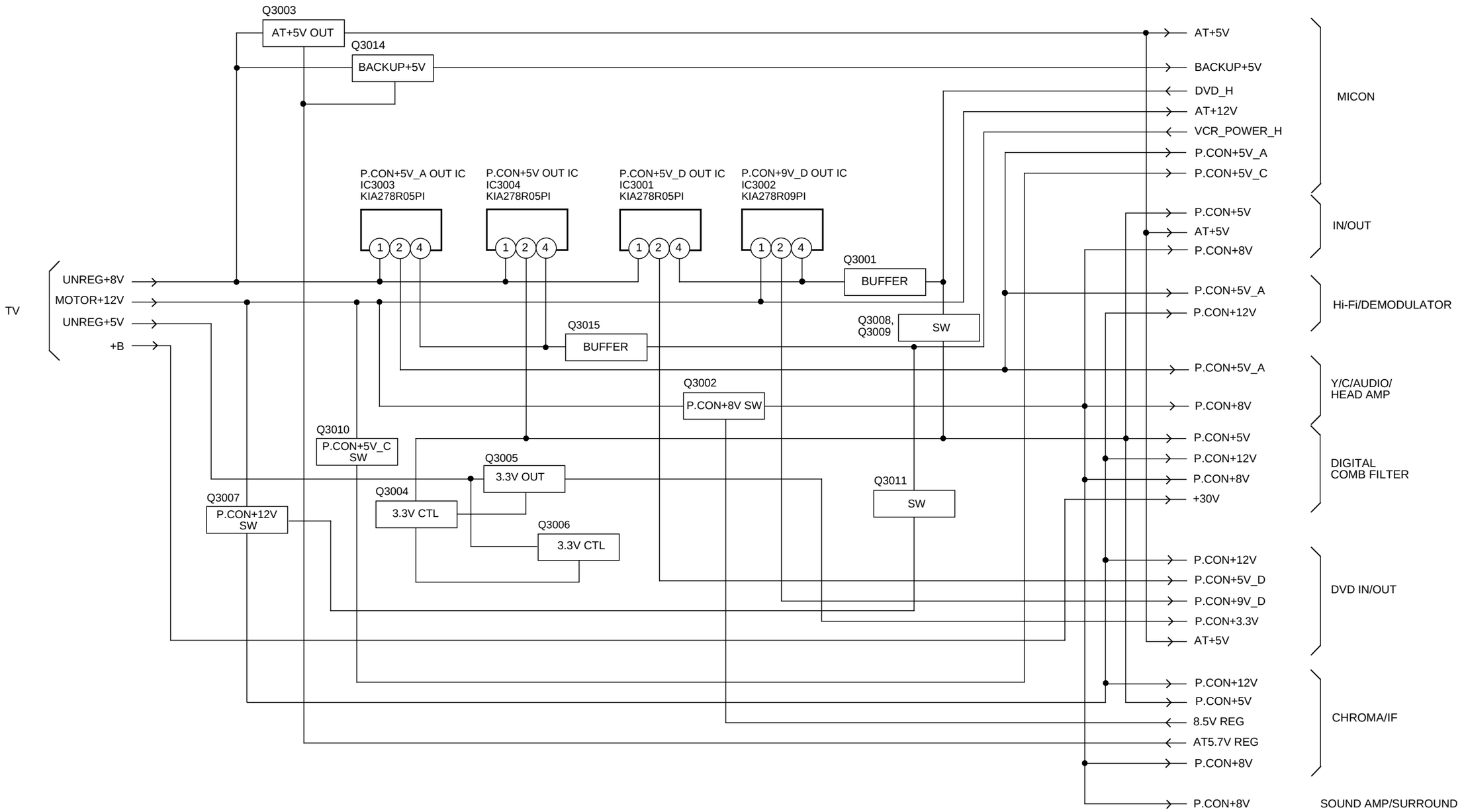
DIGITAL COMB FILTER BLOCK DIAGRAM



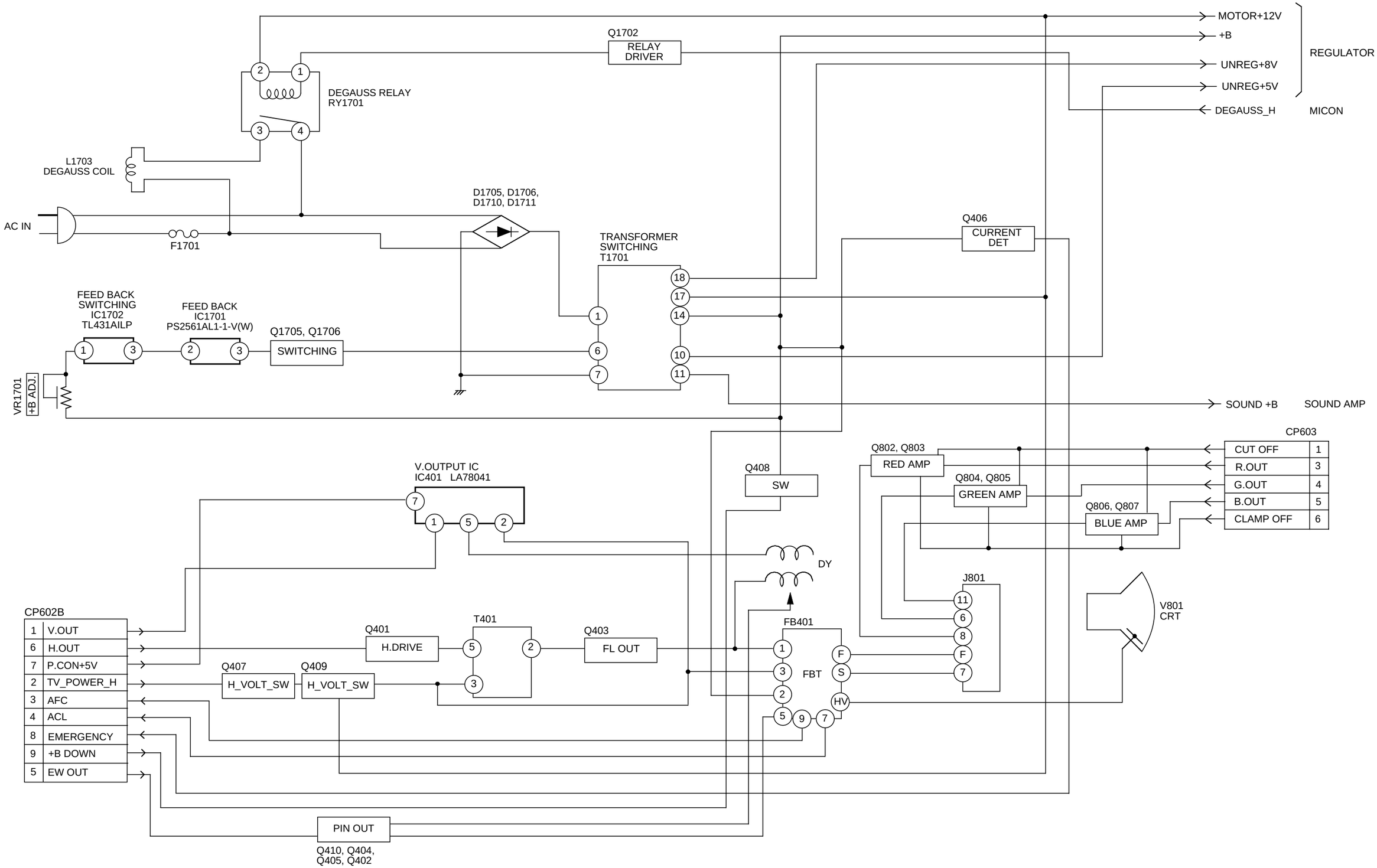
DVD IN/OUT BLOCK DIAGRAM



REGULATOR BLOCK DIAGRAM

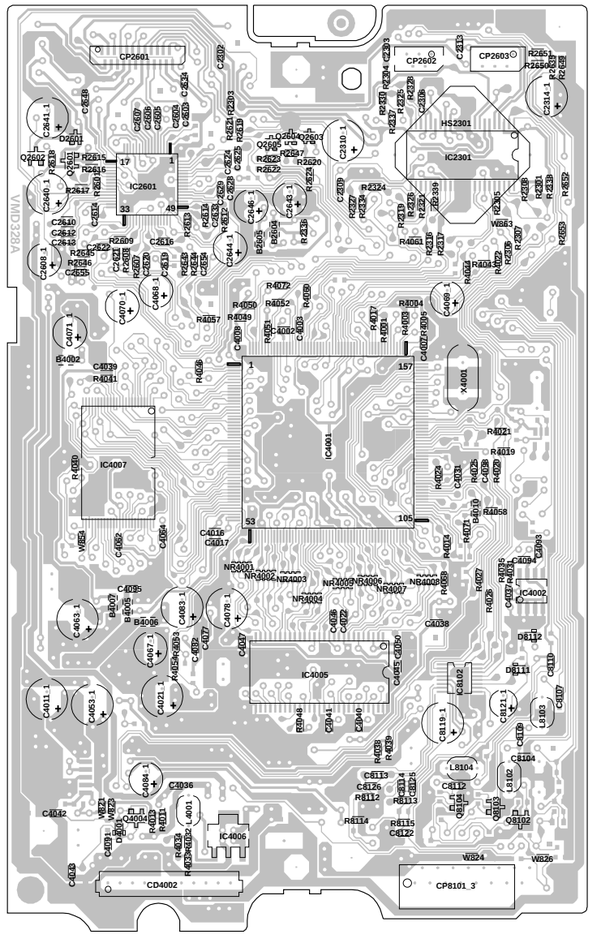


TV BLOCK DIAGRAM

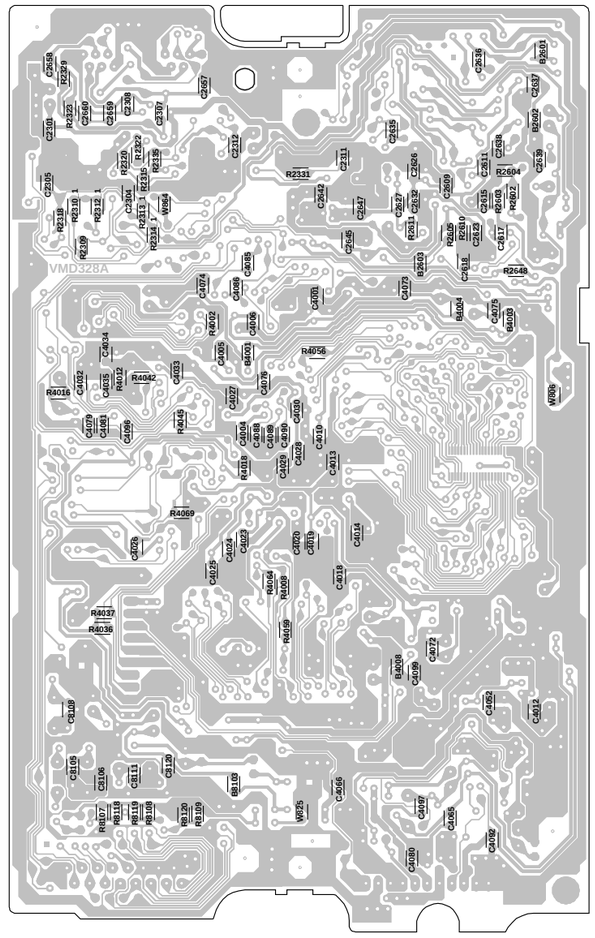


PRINTED CIRCUIT BOARDS

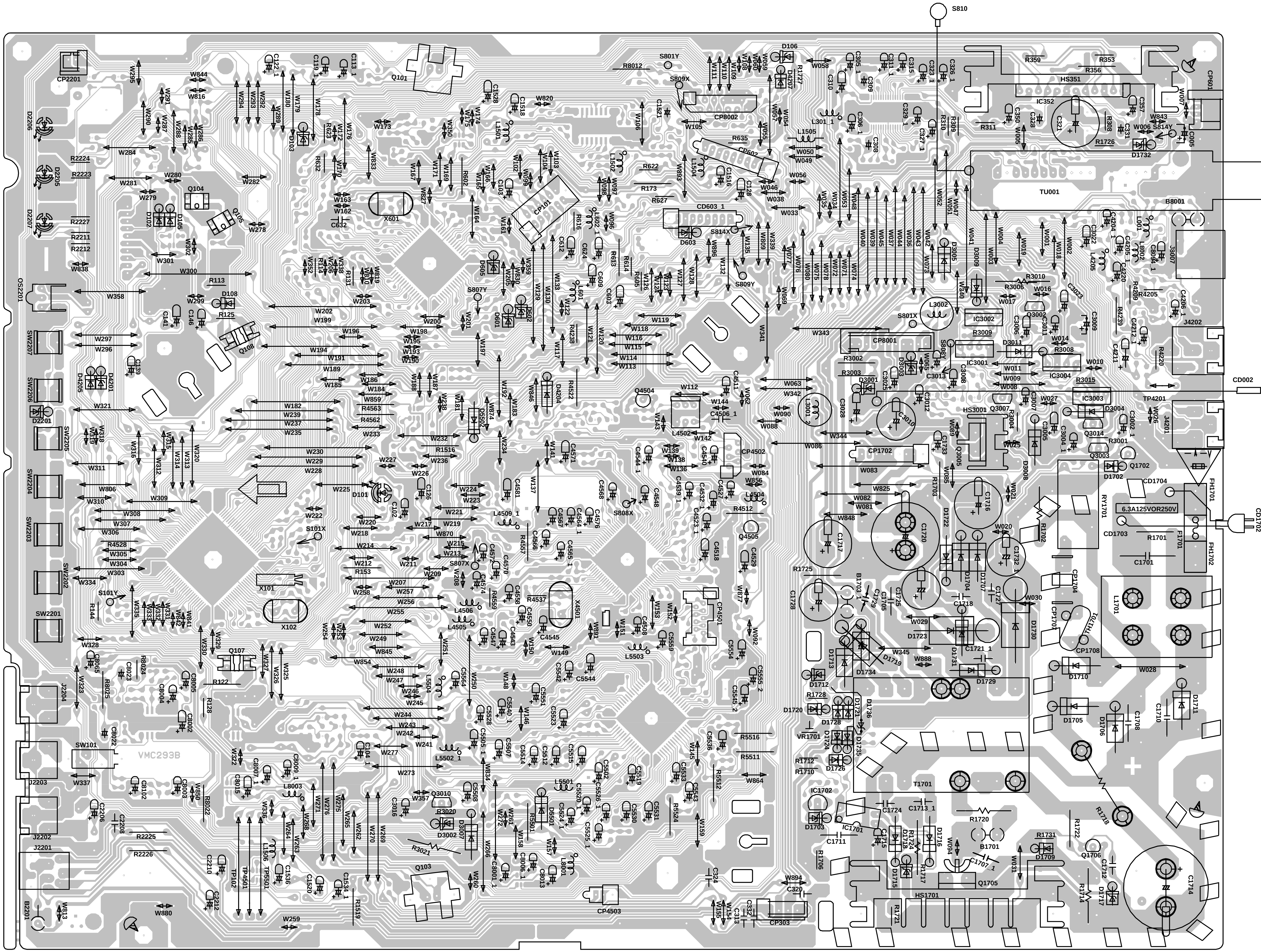
DVD (TOP SIDE)



DVD (BOTTOM SIDE)



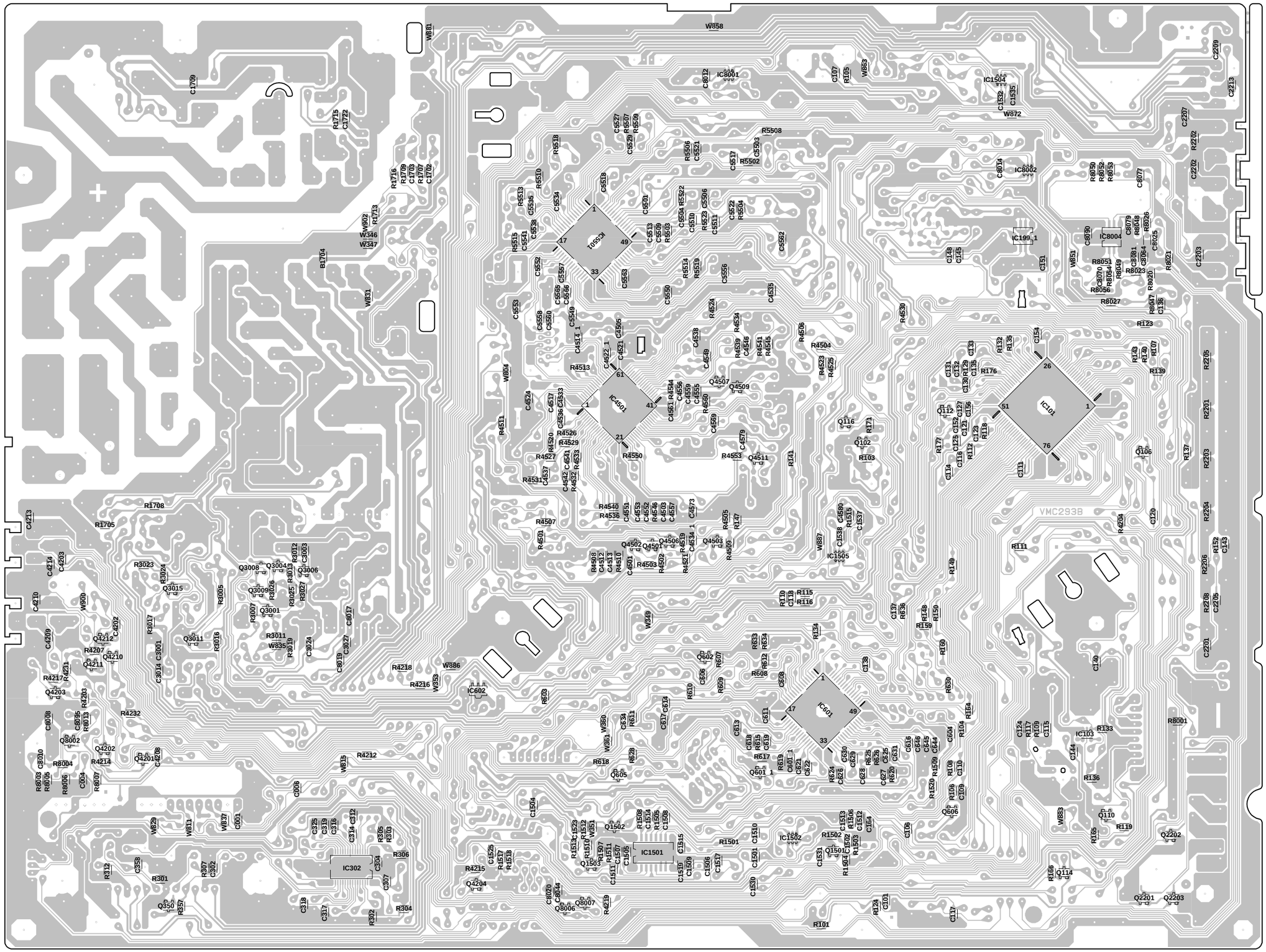
PRINTED CIRCUIT BOARDS
VCR (INSERTED PATRS)
SOLDER SIDE



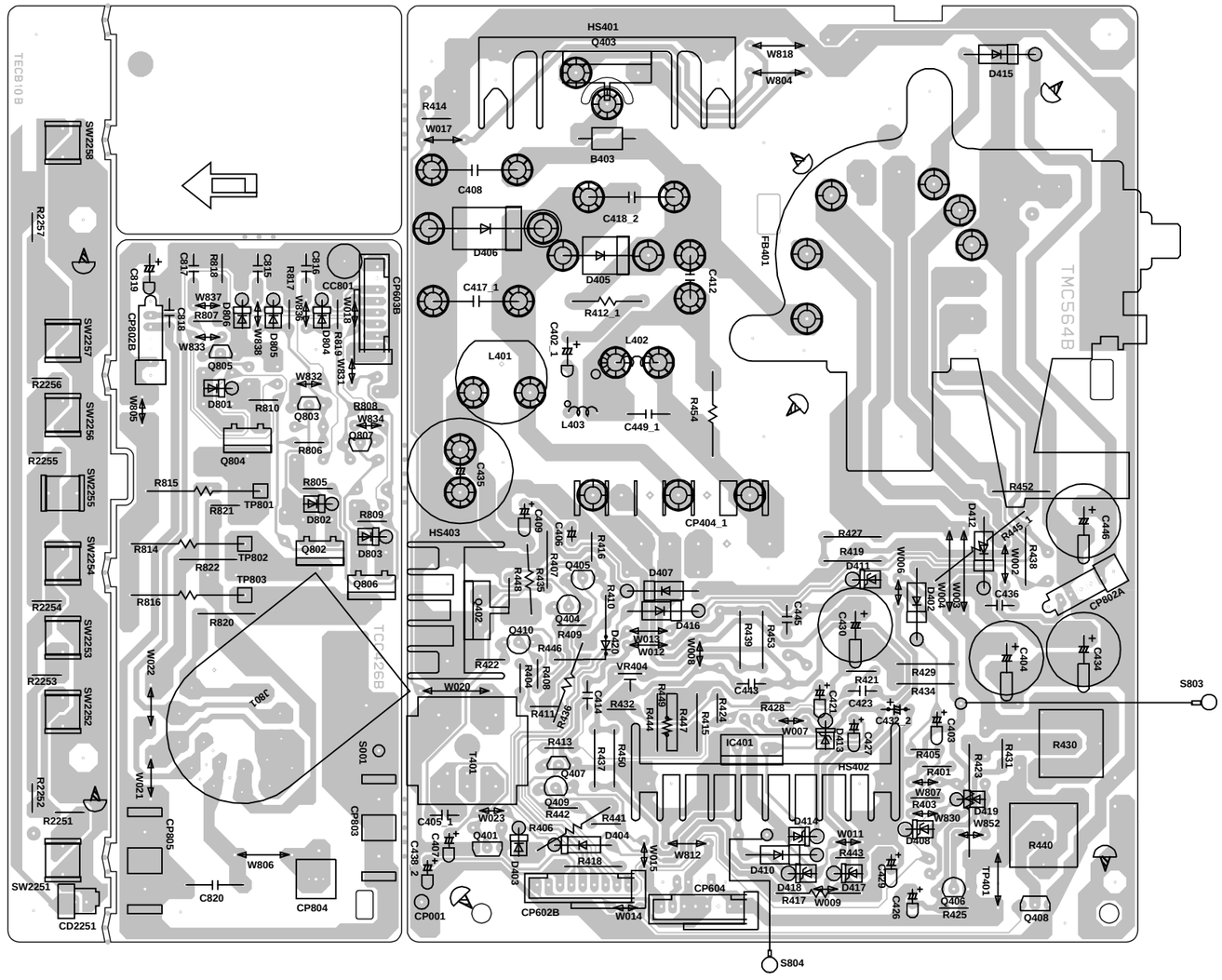
F-3

F-4

PRINTED CIRCUIT BOARDS
VCR (CHIP MOUNTED PARTS
SOLDER SIDE



PRINTED CIRCUIT BOARDS
DEFLECTION/CRT/OPERATION
SOLDER SIDE



MPEG/MICON/DSP SCHEMATIC DIAGRAM

(DVD PCB)

MPEG/MICON/DSP IC
IC4001
ZR36762PQCG_V

FROM/TO MEMORY

FROM/TO AUDIO/VIDEO

FROM/TO RF AMP/DSP

FROM/TO DVD IN/OUT

DVD COMBO 330mm
CD4002 (CP8001)
CU2B3301

REG+1.9V IC
IC4006
SIP1117L-ADJ-TP

EEPROM IC
IC4002
S-24C02BFJ-TB

PCB130
VMD328

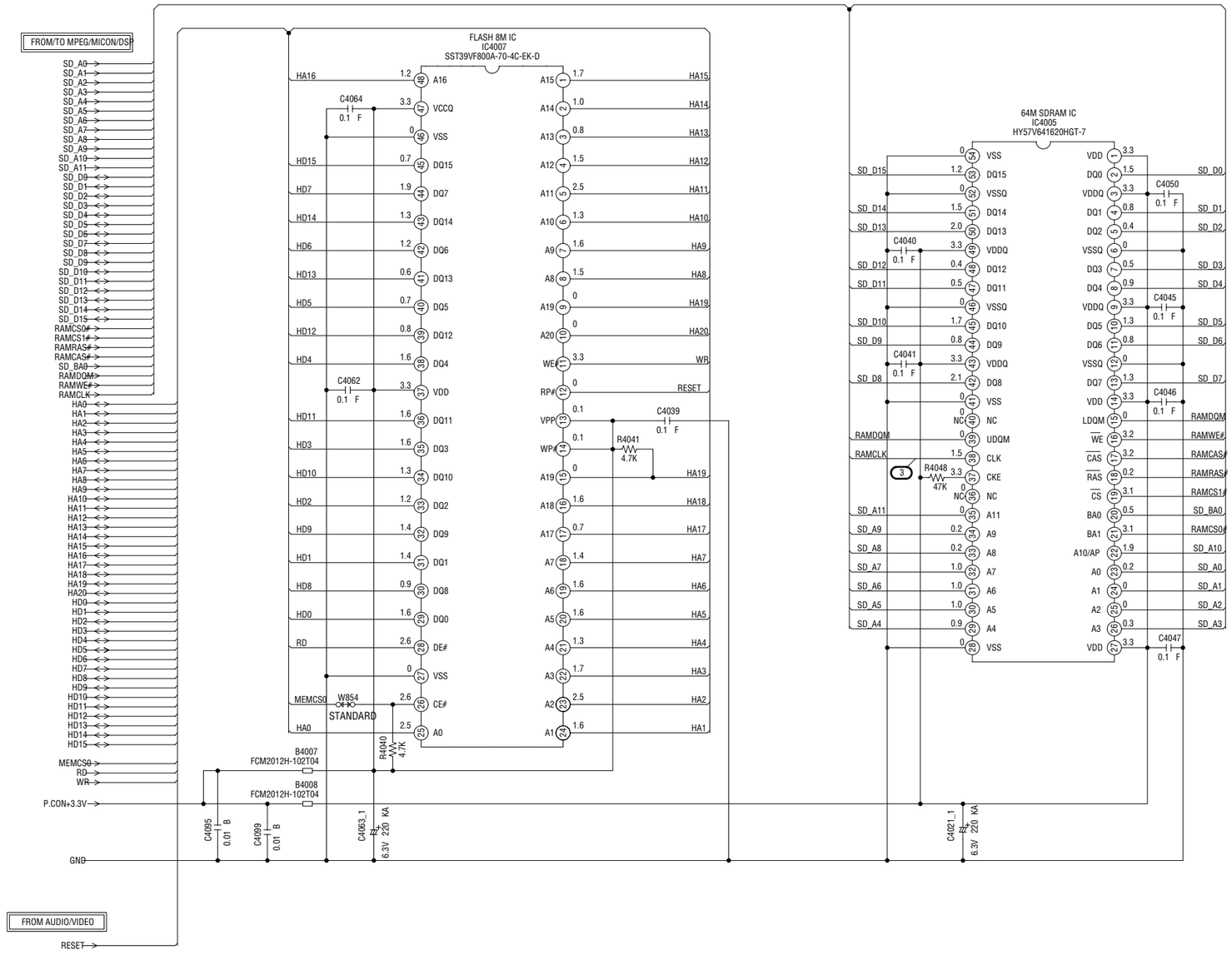
DIGITAL AUDIO SIGNAL(PB)

NOTE:THE DC VOLTAGE 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 。

MEMORY SCHEMATIC DIAGRAM

(DVD PCB)



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

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

PCB130
VMD328

RF AMP/DSP SCHEMATIC DIAGRAM

(DVD PCB)

DM3

FROM/TO LODER

CP2601
09-5000-024-001-001

1	T-
2	T+
3	F-
4	F+
5	MON(DVD)
6	NC(SW)
7	VOL(DVD)
8	GND(DVD)
9	LD(DVD)
10	LD(CD)
11	VOL(CD)
12	GND(CD)
13	MON(COM)
14	DVD/CD
15	RF
16	C
17	B
18	A
19	D
20	F
21	E
22	VCC
23	Vref
24	GND(PDIC)

TO LODER

CP2602
00_6232_005_006_800

5	LD-
4	LD+
3	OPEN
2	GND(D)
1	CLOSE

FROM/TO LODER

CP2603
00_6232_006_006_800

6	SW(GND)
5	LIMIT SW
4	SLD-
3	SLD+
2	SP1-
1	SP1+

READ CHANNEL IC
IC2601
ZR36708TQC

MOTOR DRIVE IC
IC2301
LA6565

FROM/TO MPEG/MICON/DSP

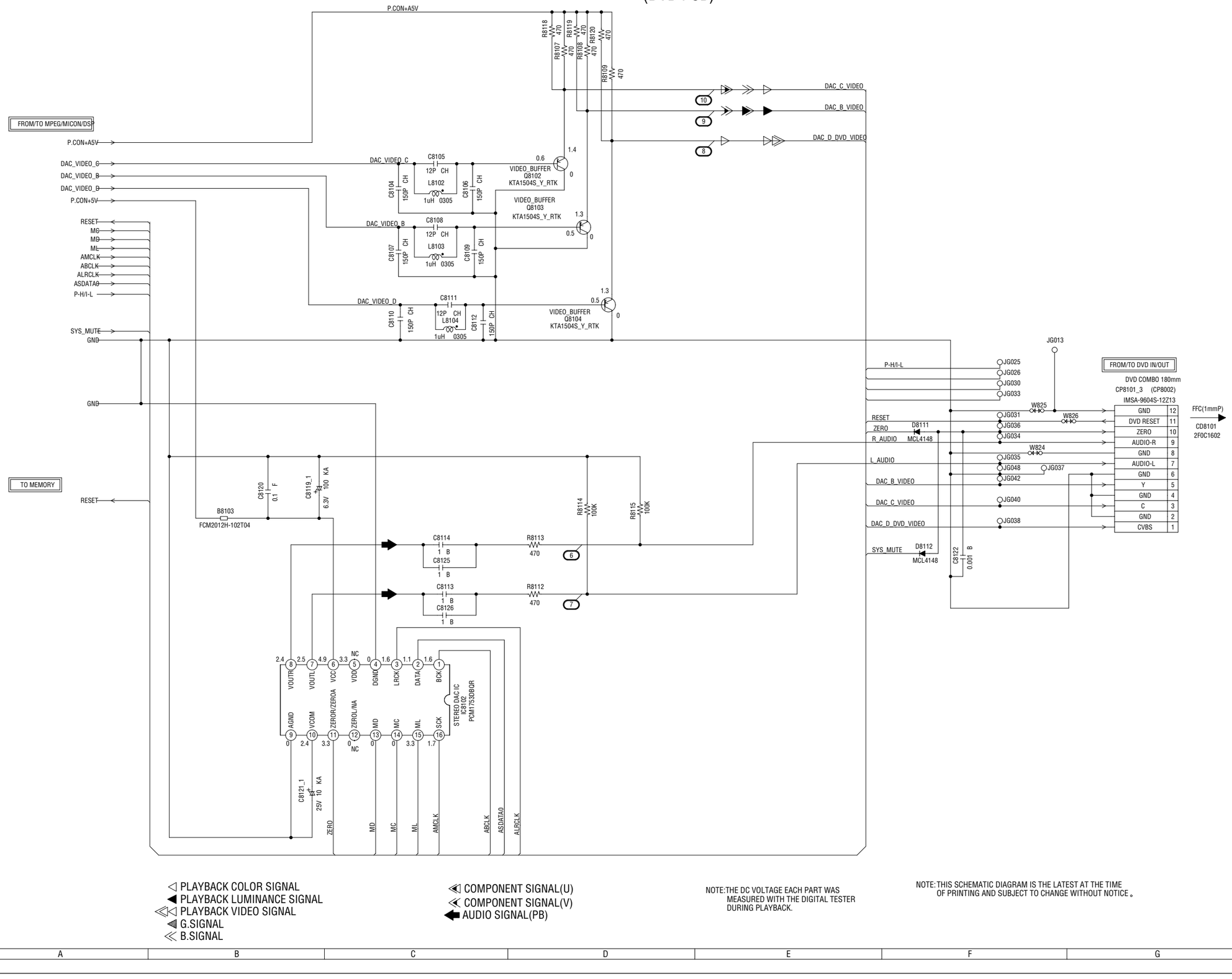
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

PCB130
VMD328

AUDIO/VIDEO SCHEMATIC DIAGRAM

(DVD PCB)



◁ PLAYBACK COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◁◁ PLAYBACK VIDEO SIGNAL
◀◁ G.SIGNAL
◁◁ B.SIGNAL

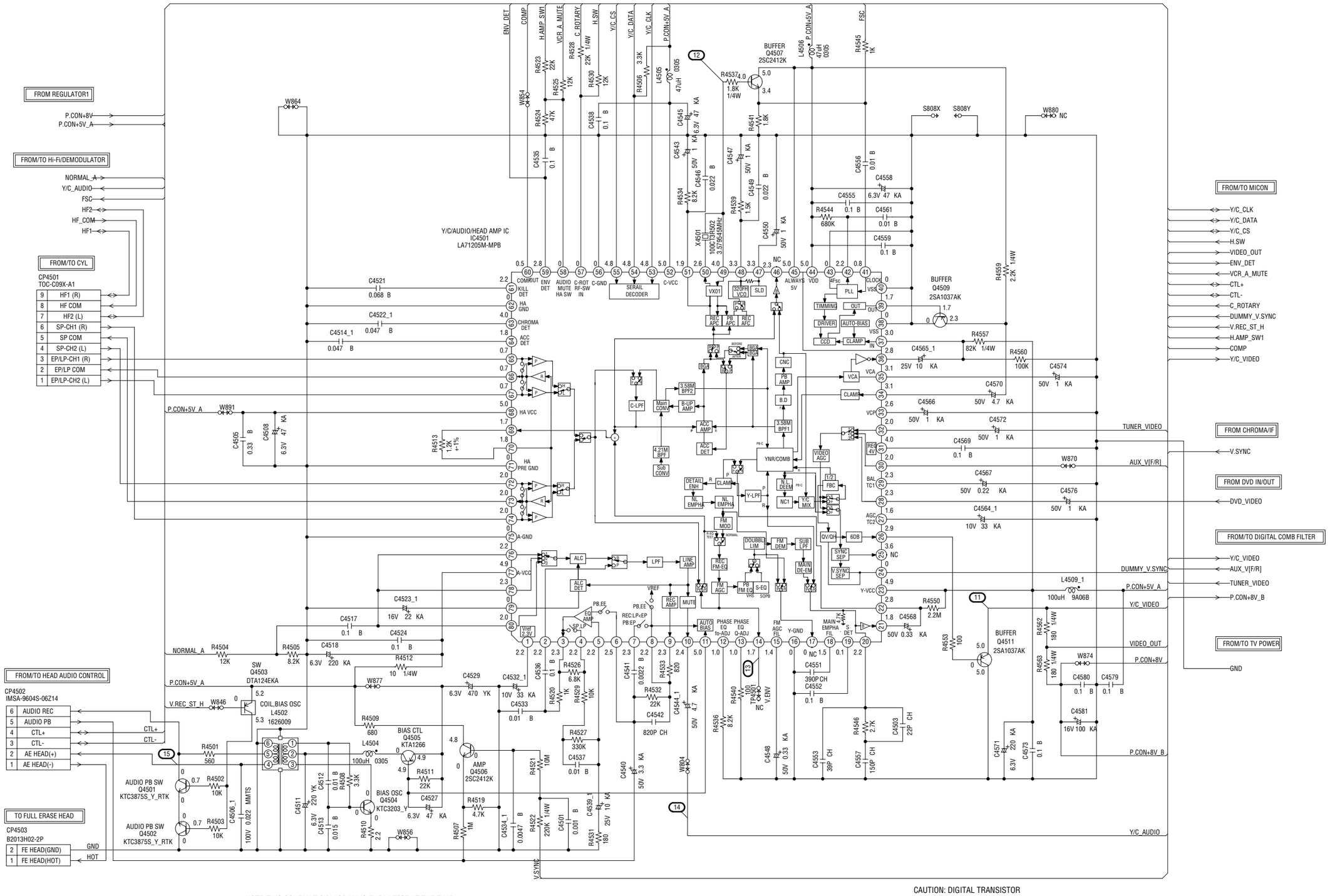
◀◁ COMPONENT SIGNAL(U)
◁◁ COMPONENT SIGNAL(V)
◀ AUDIO SIGNAL(PB)

NOTE:THE DC VOLTAGE 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。

Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

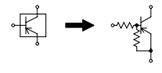
(VCR PCB)



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

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

CAUTION: DIGITAL TRANSISTOR



MICON SCHEMATIC DIAGRAM (VCR PCB)

FROM/TO REGULATOR

BACKUP+5V
AT+5V
DVD_H
VCR_POWER_H
AT+12V
P.CON+5V_C
P.CON+5V_A

FROM/TO Y/C/AUDIO/HEAD AMP

Y/C_VIDEO
Y/C_CLK
Y/C_DATA
Y/C_CS
H.SW
VIDEO_OUT
ENV_DET
VCR_A_MUTE
CTL+
CTL-
C_ROTARY
DUMMY_V.SYNC
V.REC_ST_H
H.AMP_SW1
COMP

FROM/TO CAPSTAN DD UNIT

CP101
TMC-J12P-B2

1	CAP FG
2	CAP VCO
3	VCC
4	CAP.M F/R
5	I LIMIT
6	MOTOR GND
7	GND
8	LD/CY VCO
9	CAP CTL
10	LDM CTL
11	CYL FG/PG
12	CYL CTL

SYSCON/TIMER/SERVO IC
IC101
OEC8076A

51: VDD2
52: AFCC
25:RESET
24:DUMMY.V.SYNC
98:C_ROTARY
99:H.AMP.SW1
100:COMP
76:CO
77: NC

FROM/TO DVD IN/OUT
TX
RX
DVD_RESET
AV_SW1
GND

FROM/TO IN/OUT
KEY_B
KEY_A
REC_LED
T-REC_LED
REMOCON_IN
EXT_A_MUTE
VCR_A_MUTE
EXT_MUTE
TV_POWER_H

FROM/TO CHROMA/IF
OSD_R
OSD_G
OSD_B
OSD_Y
TV_POWER_H
V.SYNC
H_CONTROL
H.SYNC
SDA
SCL
VCR_POWER_H
PROTECT
IIC_OFF
EMERGENCY

FROM/TO Hi-Fi/DEMODULATOR
V.REC_ST_H
HIFI_ENV
HIFI_H.SW
VCR_A_MUTE
SDA
SCL
ST_SELECT

FROM/TO SOUND AMP/SURROUND
TV_POWER_H
TV_A_MUTE
SCL
SDA

FROM/TO DIGITAL COMB FILTER
AV_SW1
AV_SW2
SDA
SCL
AFT

FROM/TO TV POWER
GND
DEGAUSS_H
POWER_FAIL
MOTOR_GND

PCB010
VMC293

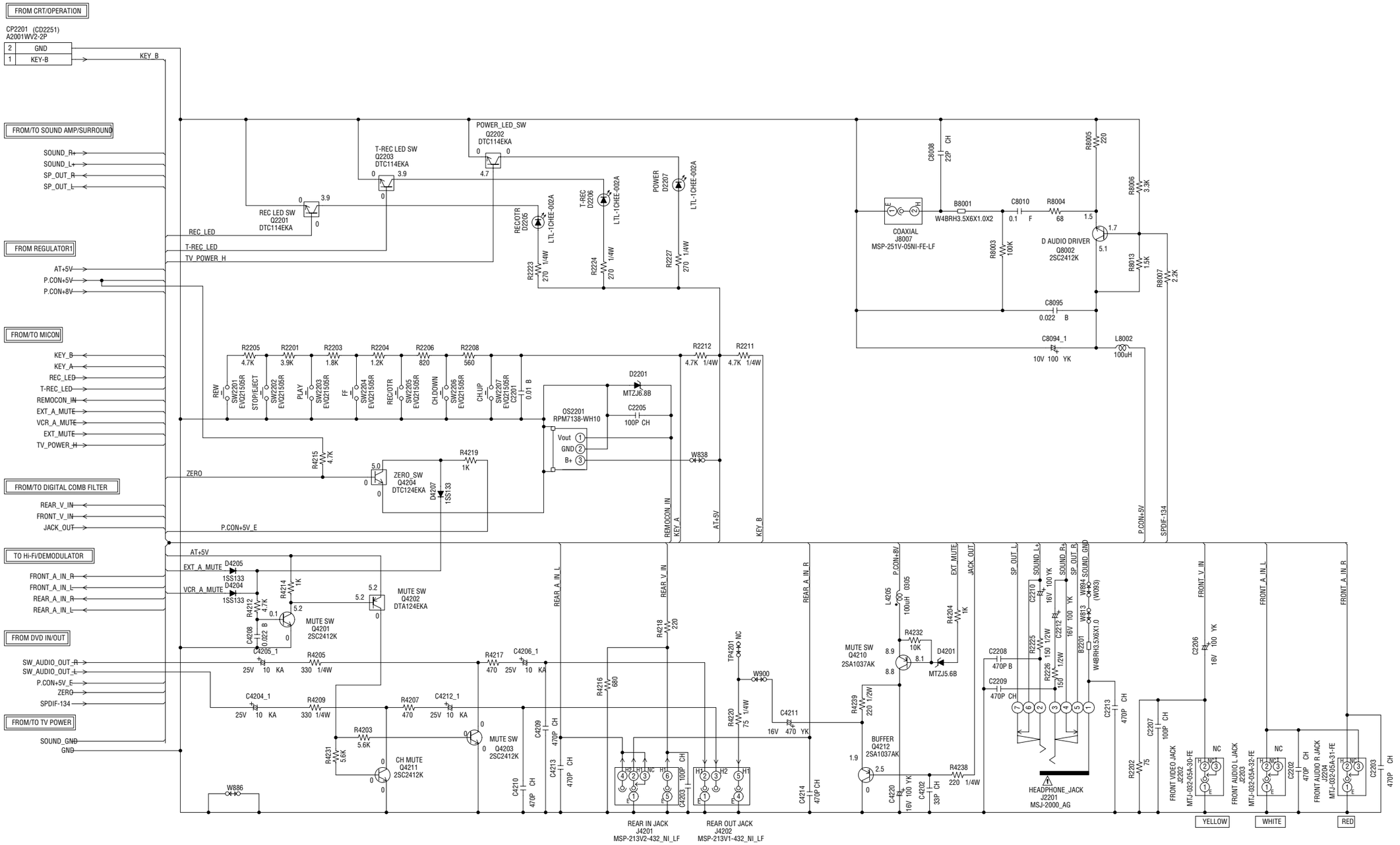
EEP ROM IC
IC199
AT24C04N-10SI-2.7

CAUTION: DIGITAL TRANSISTOR

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

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

IN/OUT SCHEMATIC DIAGRAM
(VCR PCB)



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

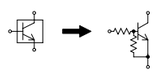
ATTENTION:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE:THE DC VOLTAGE 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

CAUTION: DIGITAL TRANSISTOR



CHROMA/IF SCHEMATIC DIAGRAM

(VCR PCB)

FROM/TO REGULATOR
P.CON+5V
P.CON+8V
AT5.7VREG
8.5VREG
P.CON+5V_C

FROM/TO DIGITAL COMB FILTER
Y/C_VIDEO-Y
COMB_FSC
SW_C

FROM DVD IN/OUT
DVD_Y/C-Y

TO Y/C/AUDIO/HEAD AMP
V.SYNC

FROM/TO DEFLECTION
CP602 (CP602B)
B2013H02-9P

1	V.OUT	V.OUT
2	TV_POWER_H	TV_POWER_H
3	AFC	AFC
4	ACL	ACL
5	EW_OUT	EW_OUT
6	H.OUT	H.OUT
7	P.CON+5V	P.CON+5V
8	EMERGENCY	EMERGENCY
9	+B_DOWN	

CD602
CU291701

TEST POINT
CP601
A2001WR2-4P

1	GND	
2	SCL	SCL
3	SDA	SDA
4	IIC_OFF	IIC_OFF

FROM TV POWER
MOTOR+12V
MOTOR_GND
GND

FROM/TO MICON
PROTECT
EMERGENCY
V.SYNC
H.SYNC
VCR_POWER_H
IIC_OFF
OSD_Y
OSD_B
OSD_G
OSD_R
SDA
SCL
H_CONTROL
TV_POWER_H

SCL W810
SDA W819
OSD_Y R630 1K
OSD_B
OSD_G
OSD_R
H.SYNC R635 1K 1/4W
V.SYNC
VCR_POWER_H R623 3.3K 1/4W
TV_POWER_H R632 4.7K 1/4W
SW Q606 2SC2412K
EW_OUT W830
P.CON+5V_B R612 1K
R634 1K
PROTECT Q602 2SC2412K
R633 10K

P.CON+5V_C R636 5.6K
VCR_POWER_H W833
SW_C 25
P.CON+5V W883 (W101)
P.CON+5V_B
COMB_FSC

L602_1 100uH 9A06B
C624 220 KA 6.3V
C627 0.047 B
C625 0.1 B
R626 22K
X601 100CT3R532 3.579545MHz
R625 22K
34
R620 4.7M
R624 680K
C626 1 B
C630 8P CH
C629 8P CH
C621 0.1 B
C644 0.1 B
C645 0.1 B
C646 0.1 B
C616 0.1 B
C632 0.1 F
C631 0.1 B
C628 0.47 B

CHROMA/IF IC
IC601
LA76324NM-MPB-E

R602 1K 1/4W
C622 1 B
R622 390 1/4W
33
DVD_Y/C-Y
C601_1 0.1 F
W827
R619 4.7K +-1%
R618 220
40
AFC
H.OUT
39
R617 2.2K
R627 330 1/4W
C618 0.0056 B
C619 1 B
R616 330 1/4W
R615 10K
R613 100 1/2W
P.CON+8V
C617 0.33 B
BUFFER Q601_1 DTC114EKA
H_CONTROL
SW Q605 DTA114EKA
R628 10K
C611 0.47 B
D605 MTZJ12B
C614 0.33 B
C612 16V 100 KA
C613 0.1 B
R614 68 1/4W
S807X S807Y
R609 100
R610 100
R611 100
36
37
38
V.OUT
P.CON+5V_B
P.CON+8V
8.5VREG
ACL
Y/C_VIDEO-Y
MOTOR+12V
AT5.7VREG

10V_REG IC
IC602
KIA78L10F-RTF
OUT GND IN
C604 1 B
R608 2.2K
35
L601 100uH 0305
R605 10K 1/4W
R603 100
C603 16V 100 KA
C606 1 B
R607 8.2K
C608 0.1 B
C609 16V 100 KA

TO CRT/OPERATION
CD603_1 (CP603B)
CU285001

CUT_OFF	1	
GND	2	
R.OUT	3	
G.OUT	4	
B.OUT	5	
CLAMP_OFF	6	
VM_OUT	7	
NC	8	

L603
W5T29X7.5X19
C634 1 B
W896
D601 MTZJ12B
D602 MTZJ12B
D603 MTZJ12B

PCB010
VMC293

REG SW
CLMP
VIDEO SW
AUDIO SW
BUS
LPF
ATT
VXD
APC1
FSC
TINT
BPF
YC SN
ACC
CEMO
AF SW
TRAP
V/Y SW
CL SHARP
BS SG
RGB MATRIX
COLOR CLAMP
DC REST
CONTRAST BRIGHT
SYNC SEP
OSD CONTRAS
OSD SW
ORIVE/OUT-OFF
VER SEP
VER C/D
VER RAMP
HOR VCO
1/256
HOR C/D
AFC1
AFC2
PHASE SHIFTER
HOR VCC
HOR OUT
FBP
X-RAY
CLMP
REG-SW
RST
5V/8V-REG
ABL/ACL

CAUTION: DIGITAL TRANSISTOR

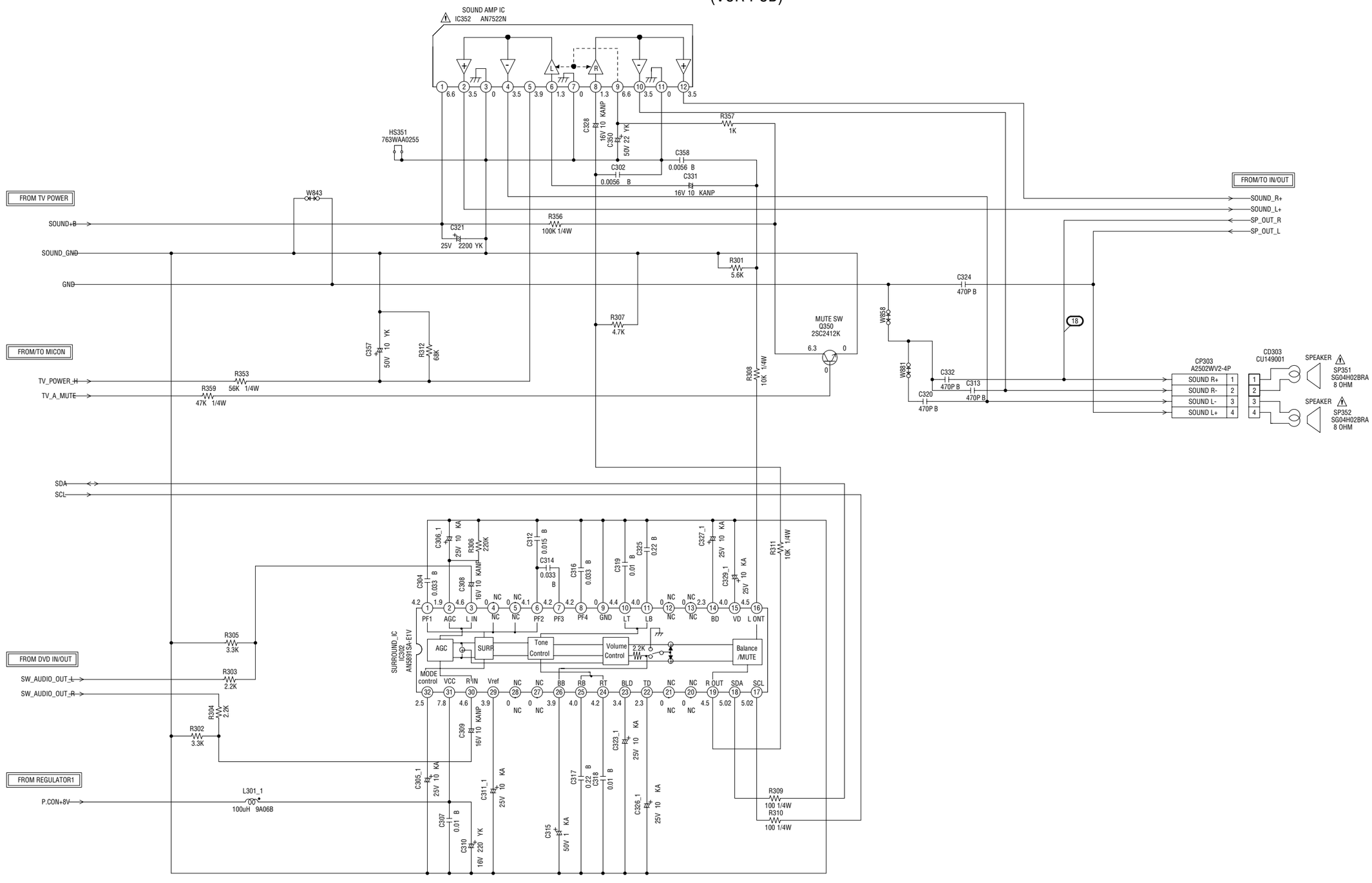
CAUTION: DIGITAL TRANSISTOR

NOTE:THE DC VOLTAGE 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。

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

SOUND AMP/SURROUND SCHEMATIC DIAGRAM
(VCR PCB)



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

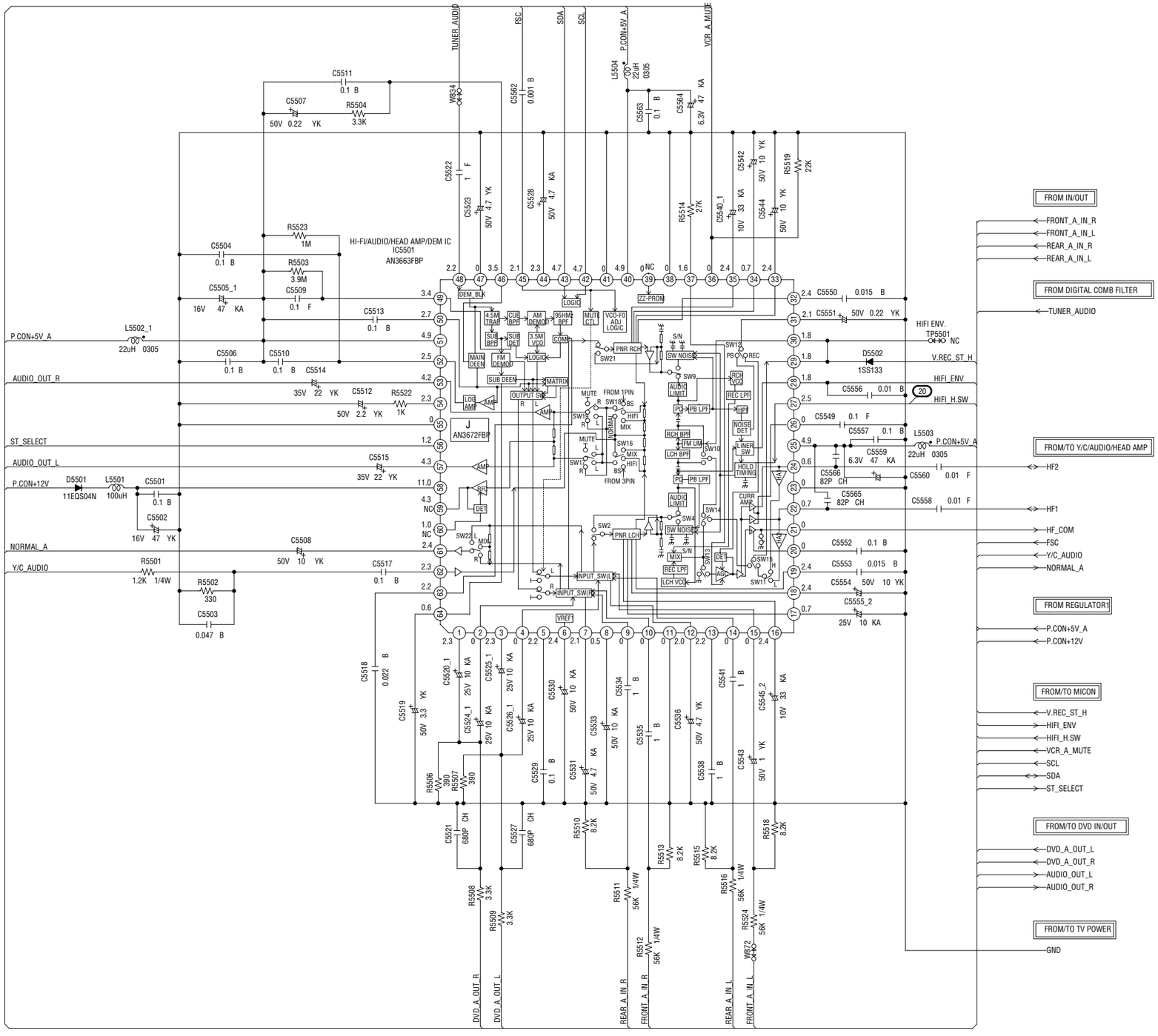
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

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

Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

(VCR PCB)

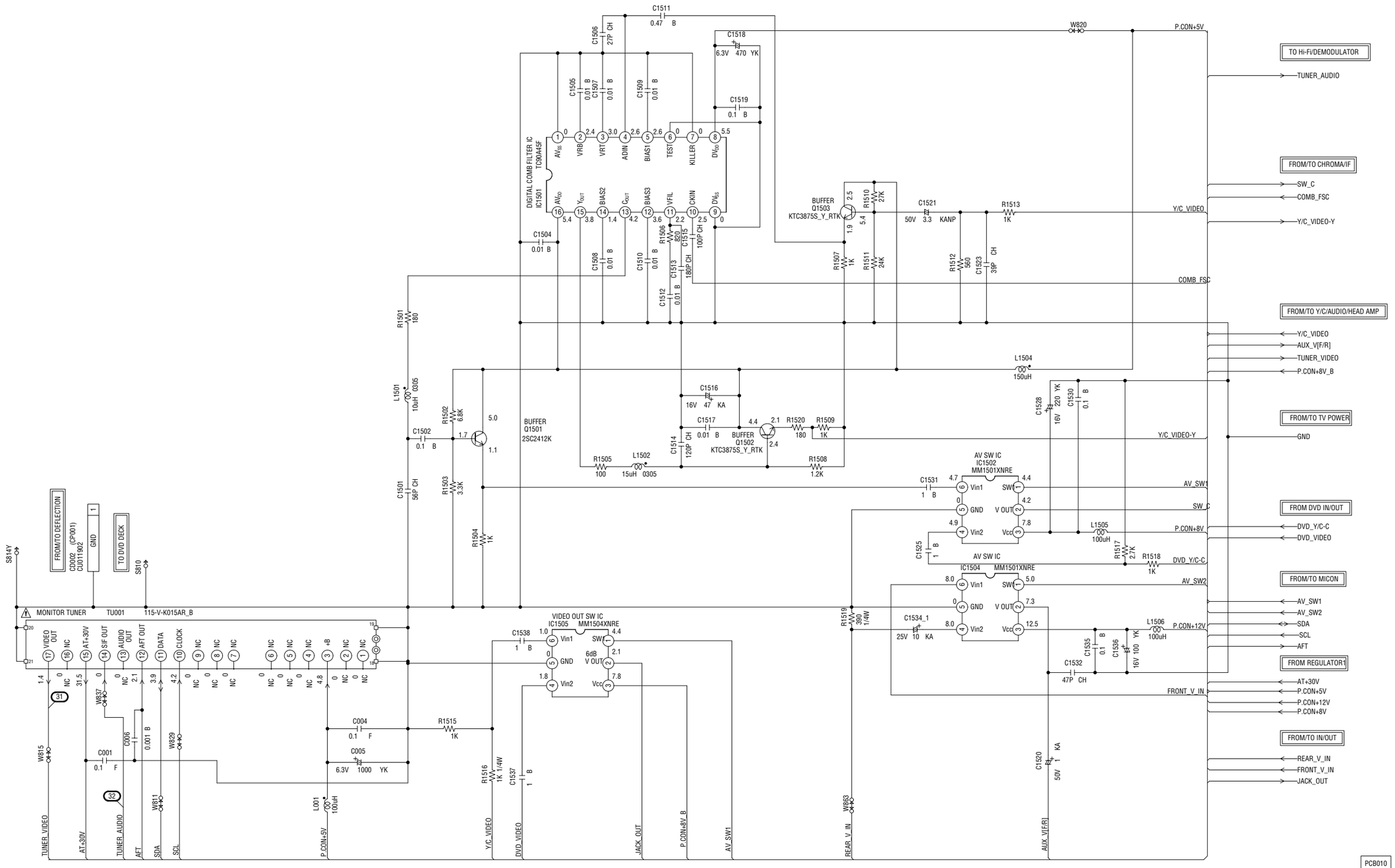


NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

DIGITAL COMB FILTER SCHEMATIC DIAGRAM

(VCR PCB)



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

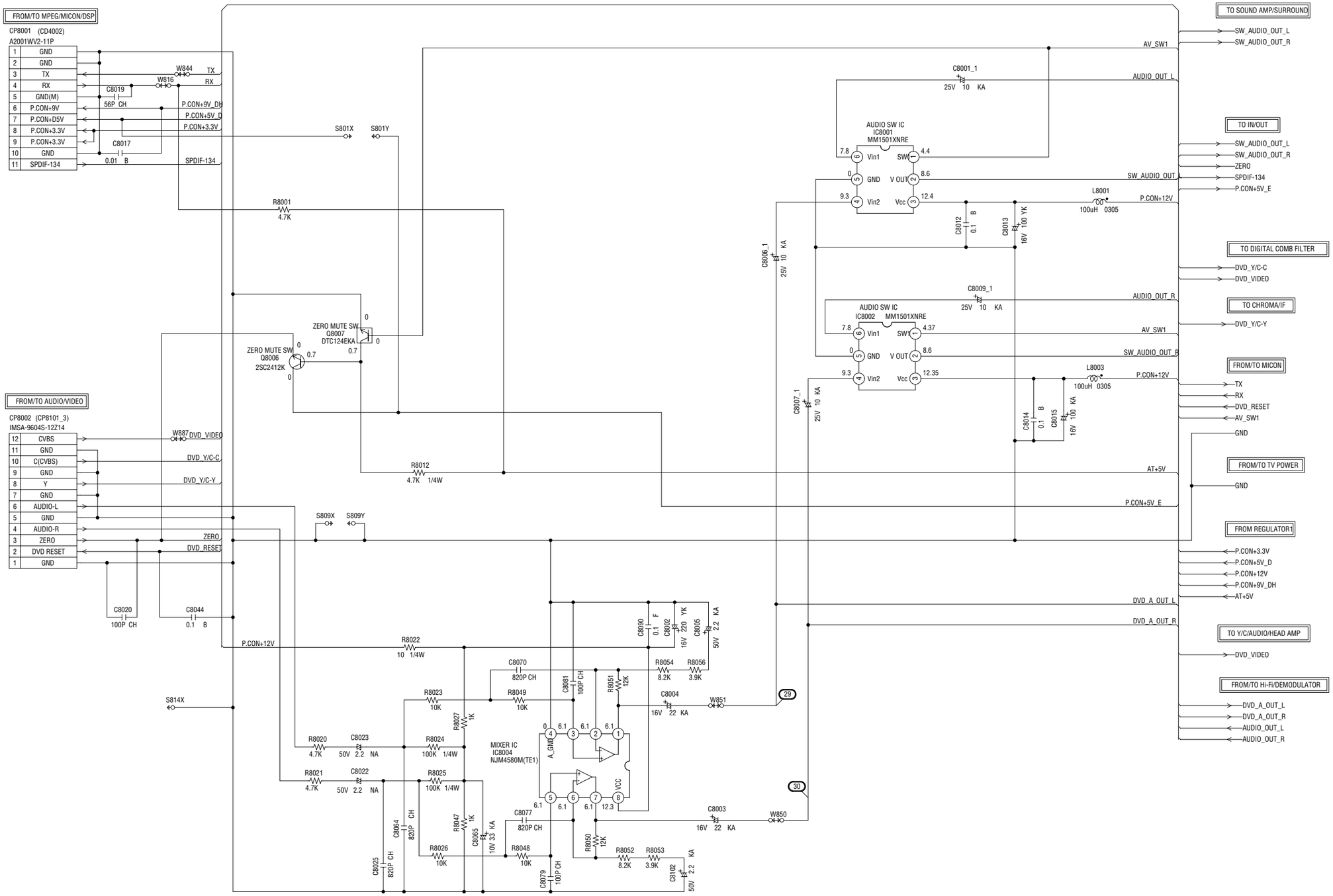
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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

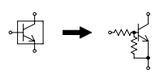
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

DVD IN/OUT SCHEMATIC DIAGRAM

(VCR PCB)



CAUTION: DIGITAL TRANSISTOR



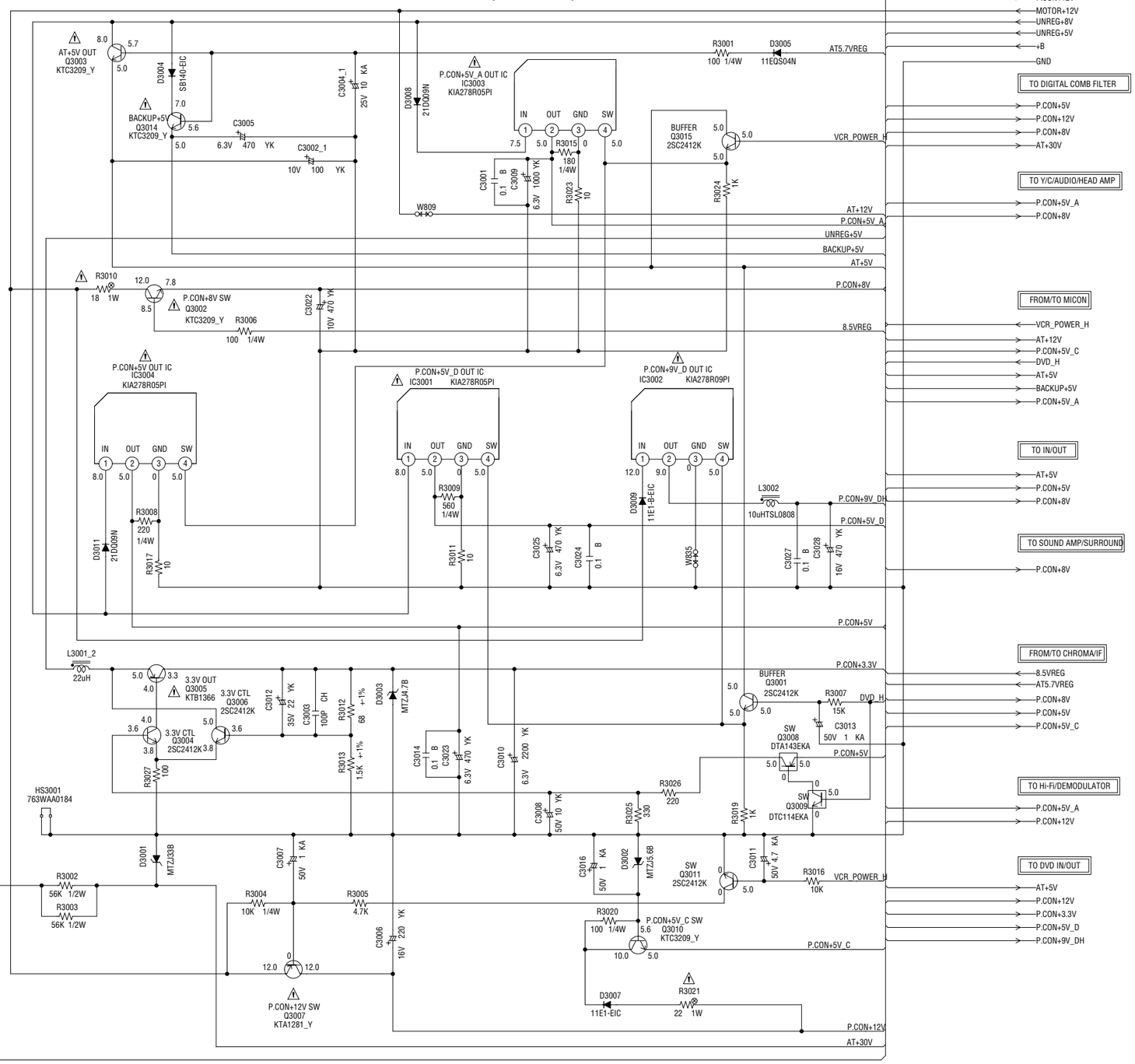
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

NOTE: THE DC VOLTAGE 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 。

REGULATOR1 SCHEMATIC DIAGRAM

(VCR PCB)



PCB010
VMC293

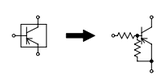
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

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

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

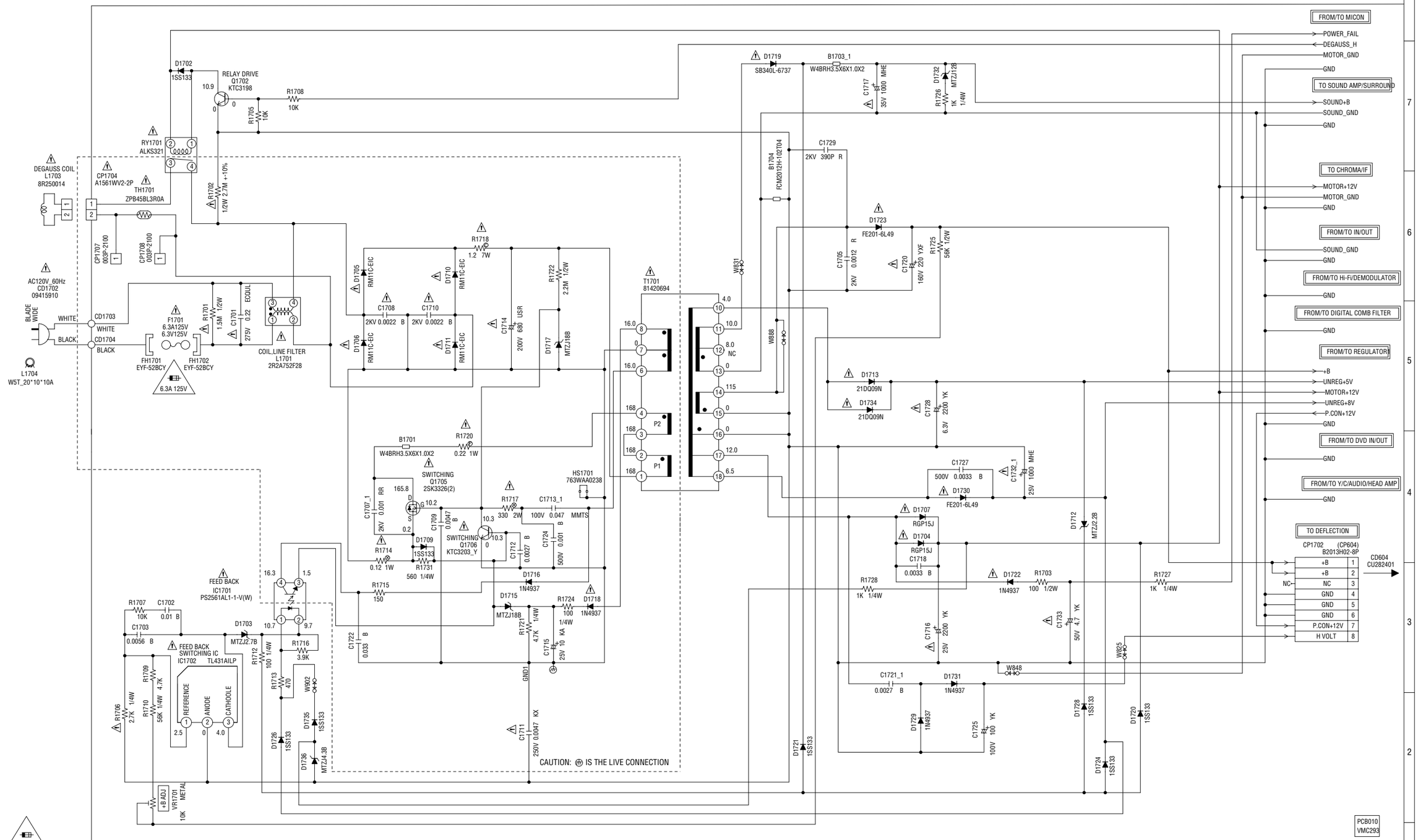
CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR

TV POWER SCHEMATIC DIAGRAM

(VCR PCB)



CAUTION: ⚠ IS THE LIVE CONNECTION

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V (F1701)

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V (F1701)

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 WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

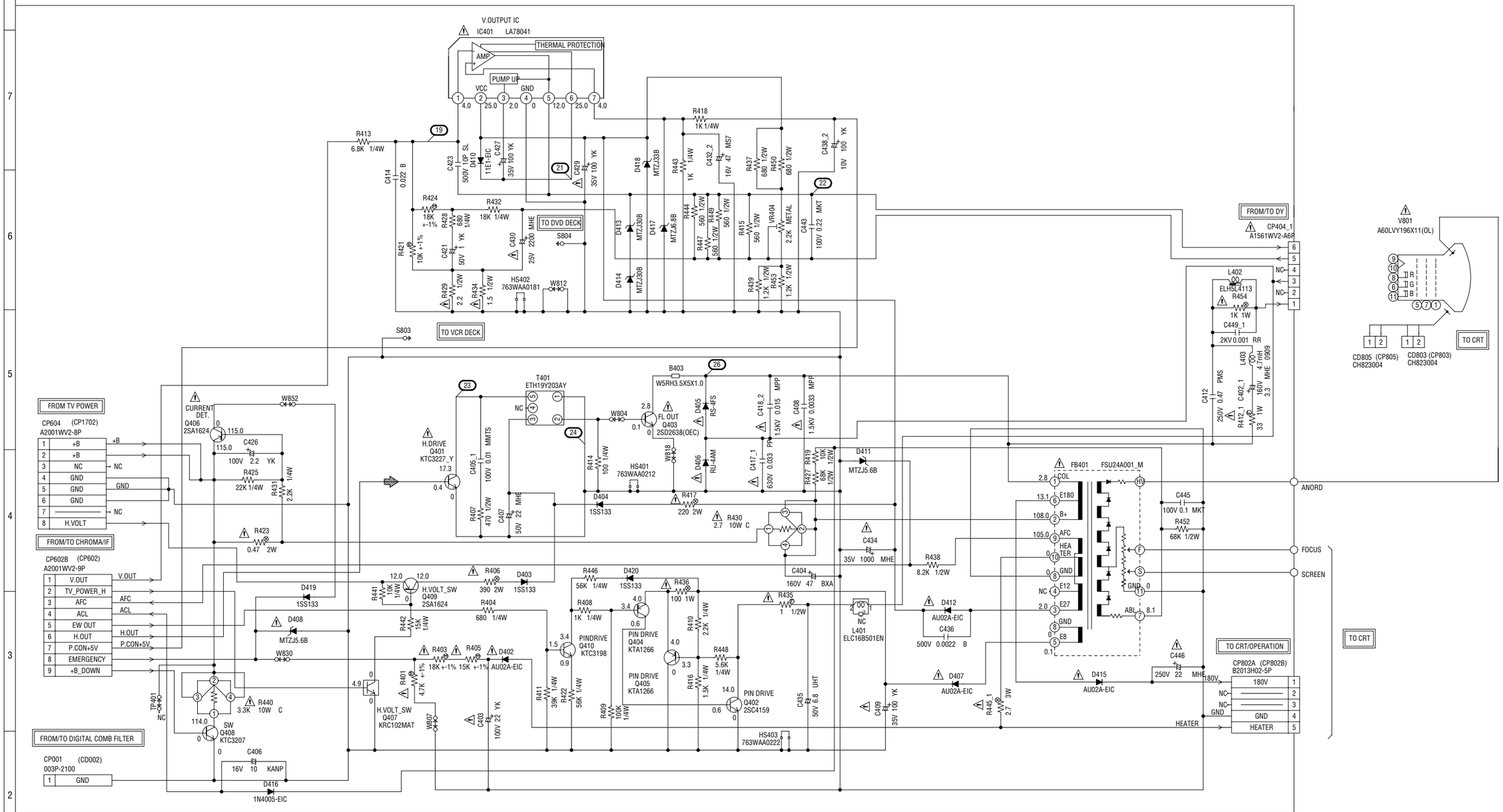
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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.

DEFLECTION SCHEMATIC DIAGRAM

(DEFLECTION PCB)



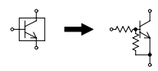
NOTE:THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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。

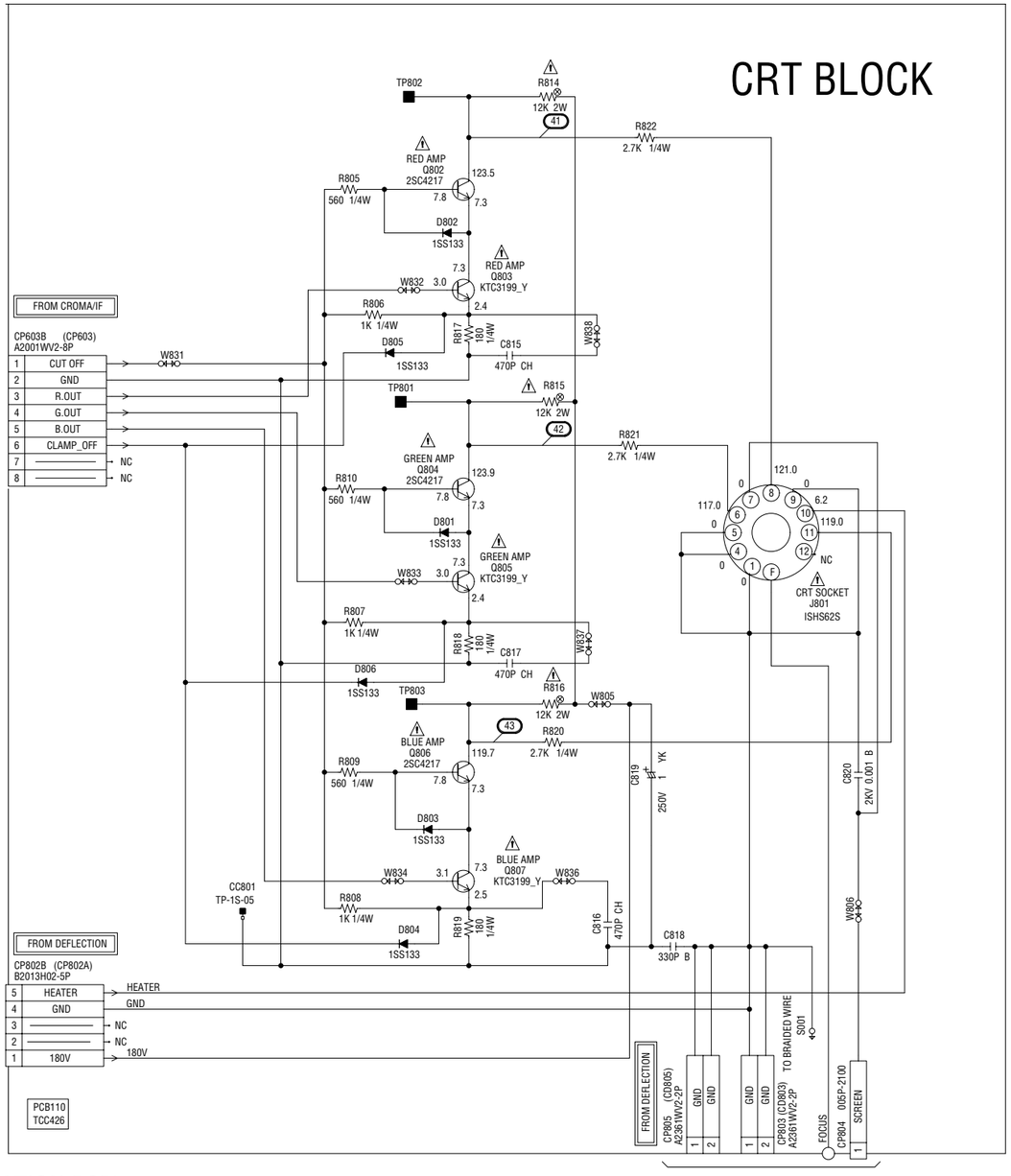
CAUTION: DIGITAL TRANSISTOR



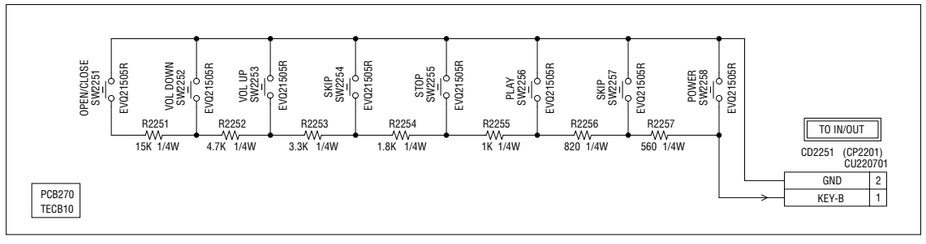
PCB080
TMC564

CRT/OPERATION SCHEMATIC DIAGRAM

(CRT PCB)



(OPERATION PCB)



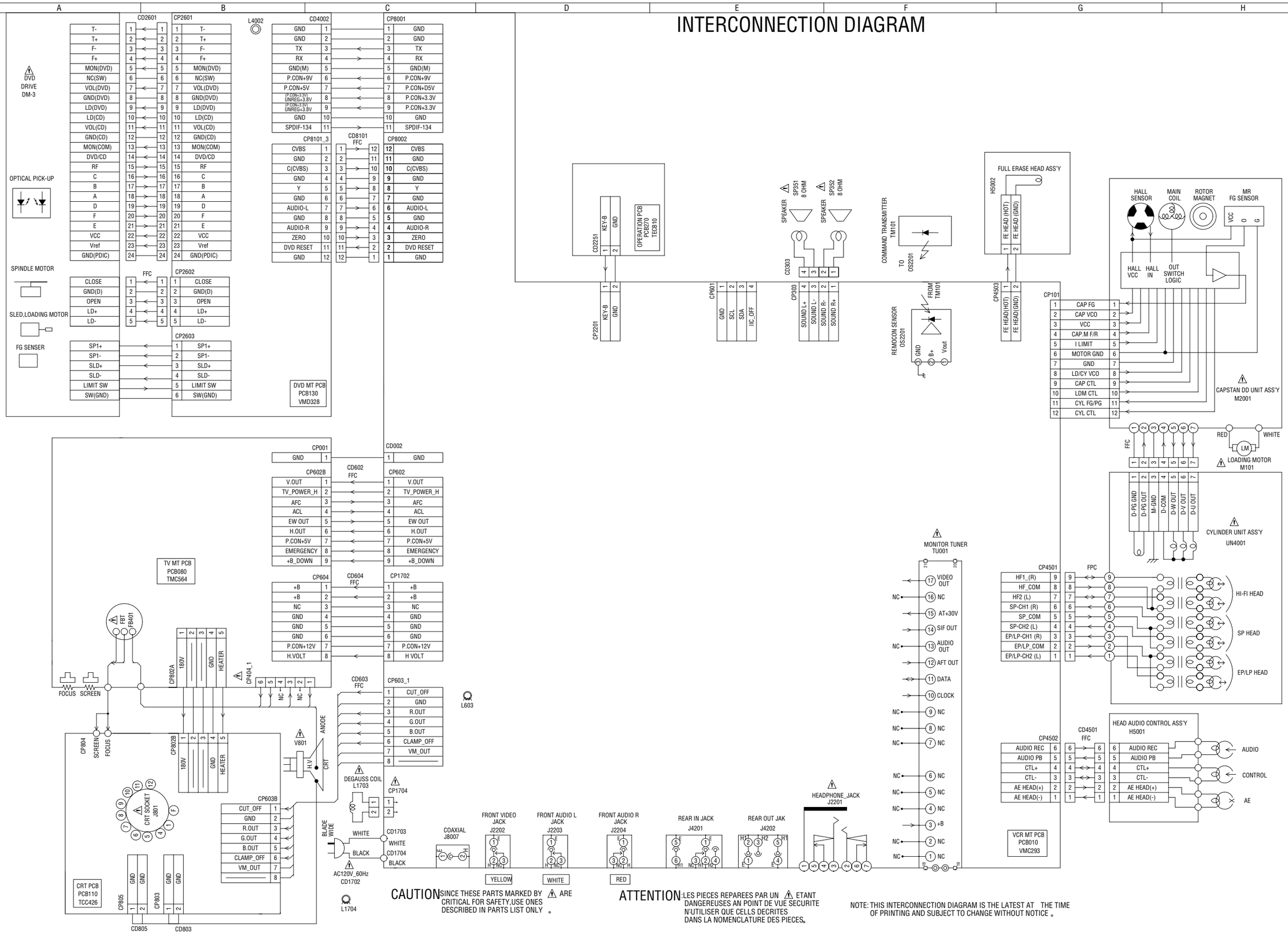
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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。

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。

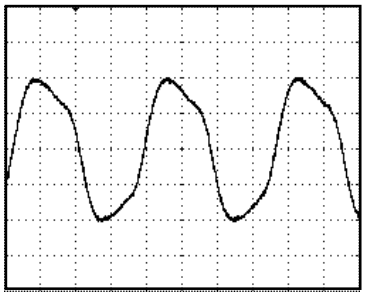
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

MPEG/MICON/DSP

10ns
100mV

1



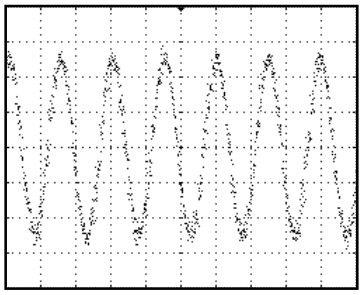
100ns
100mV

2

MEMORY

5ns
200mV

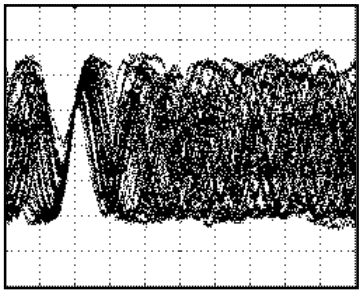
3



RF AMP/DSP

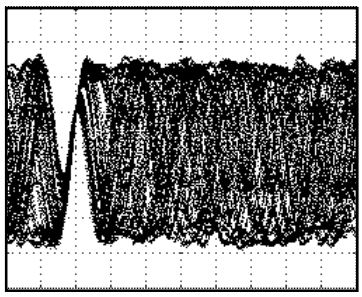
200ns
500mV

4



200ns
100mV

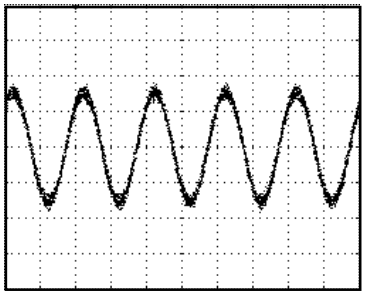
5



AUDIO/VIDEO

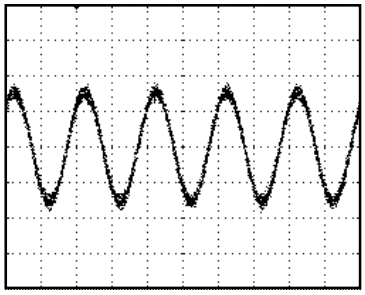
500µs
500mV

6



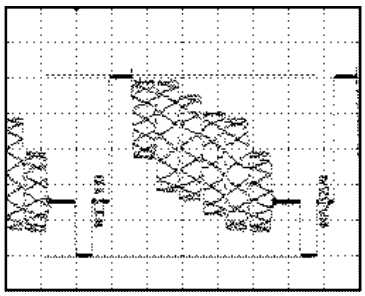
500µs
500mV

7



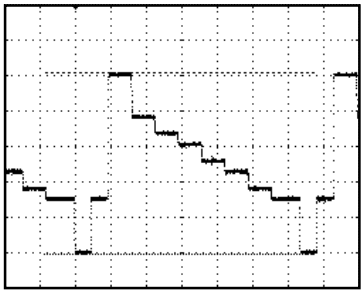
10µs
200mV

8



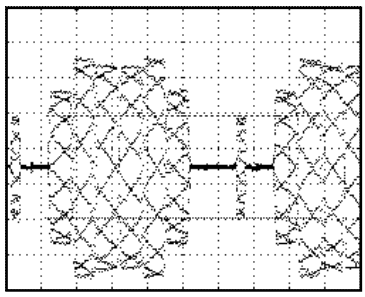
100µs
200mV

9



10µs
100mV

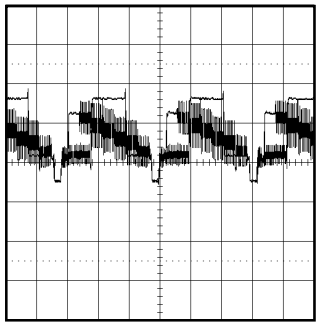
10



Y/C/AUDIO/HEAD AMP

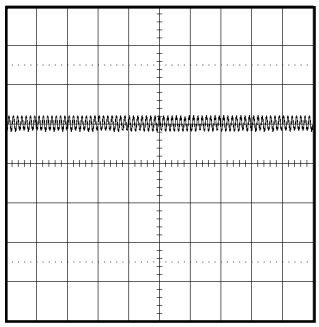
20µs
1.0V

11



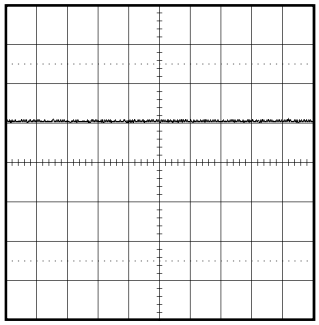
2µs
1.0V

12



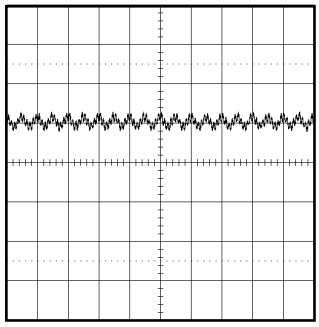
1ms
1.0V

13



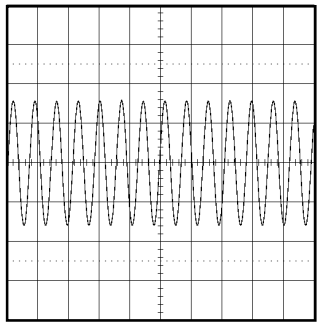
5ms
2.0V

14



20µs
20V

15



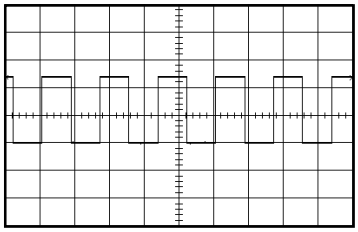
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

MICON

20ms
2.0V

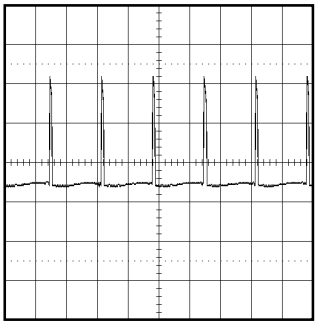
16



DEFLECTION

10ms
10V

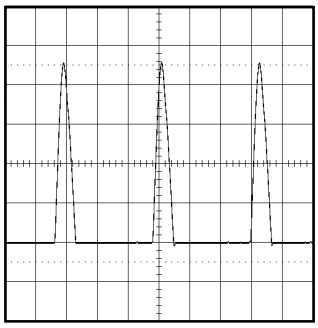
21



DEFLECTION

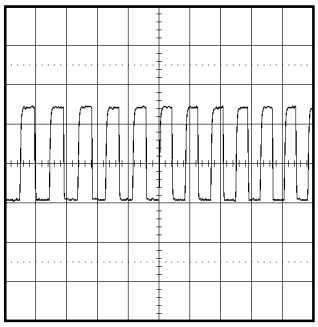
20µs
200V

26



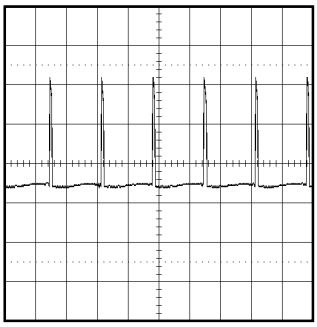
1ms
2.0V

17



10ms
10V

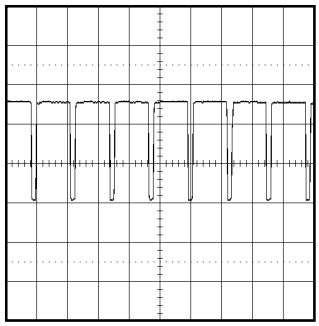
22



MICON

50µs
2.0V

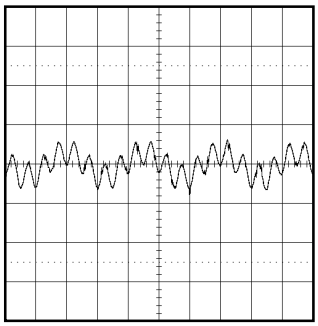
27



SOUND AMP/SURROUND

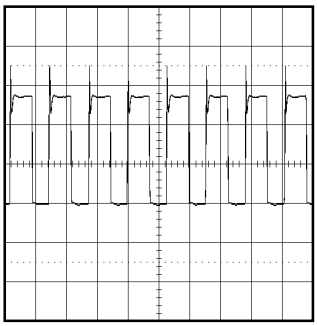
1ms
200mV

18



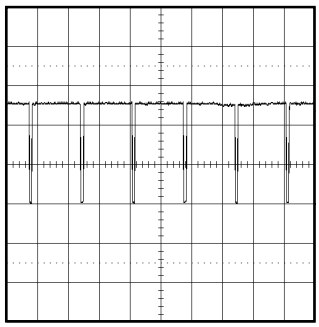
50µs
10V

23



10ms
2.0V

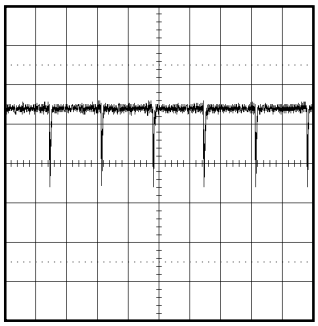
28



DEFLECTION

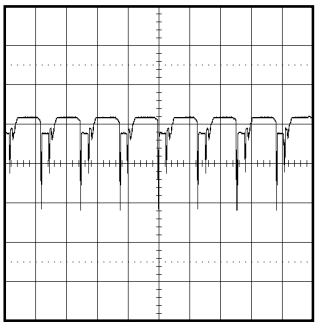
10ms
0.5V

19



50µs
5.0V

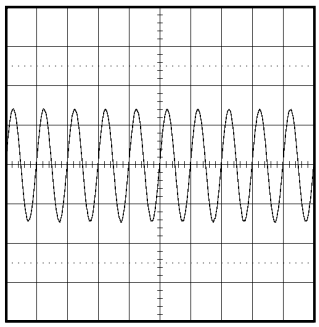
24



DVD IN/OUT

1ms
2.0V

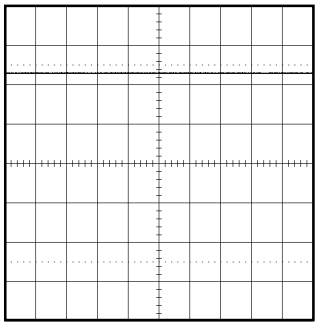
29



Hi-Fi/DEMODULATOR

1ms
1.0V

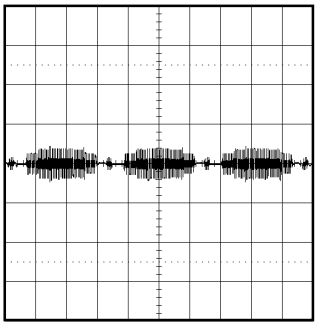
20



CHROMA/IF

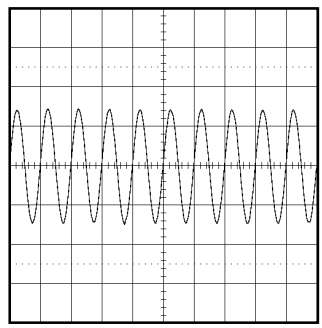
20µs
0.5V

25



1ms
2.0V

30

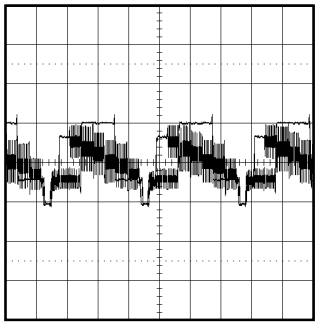


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

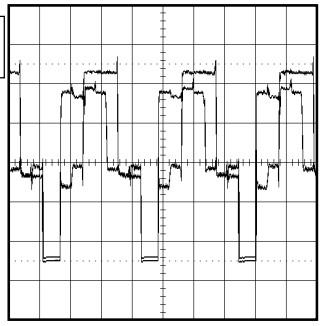
DIGITAL COMB FILTER

20µs
0.5V



31

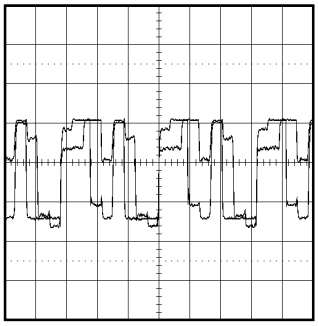
20µs
1.0V



36

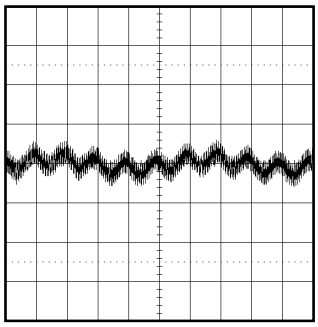
CRT/OPERATION

20µs
50V



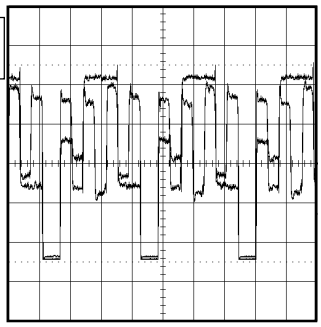
41

0.5ms
0.5V



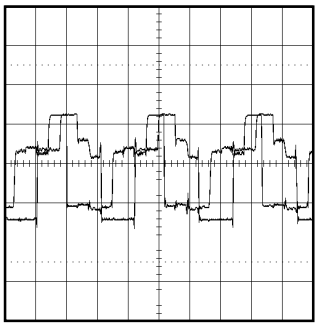
32

20µs
1.0V



37

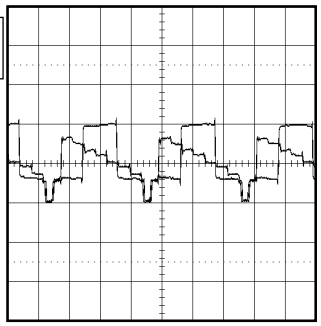
20µs
50V



42

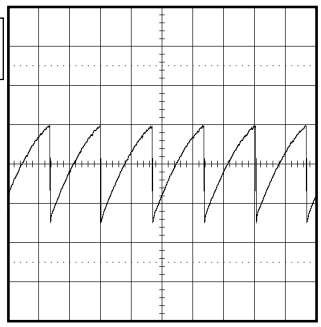
CHROMA/IF

20µs
0.5V



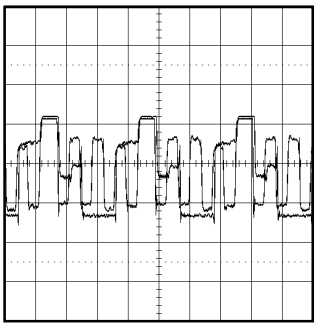
33

10ms
1.0V



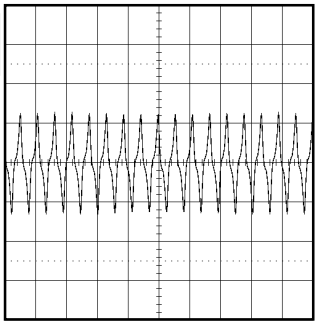
38

20µs
50V



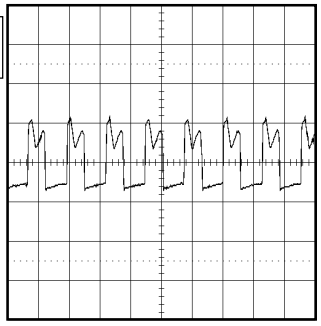
43

0.5µs
100mV



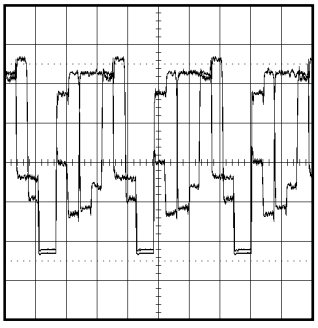
34

50µs
0.5V



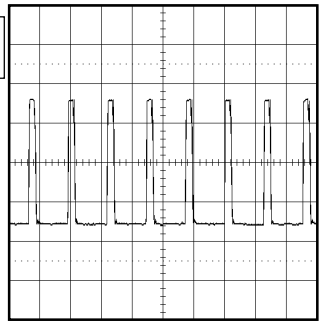
39

20µs
1.0V



35

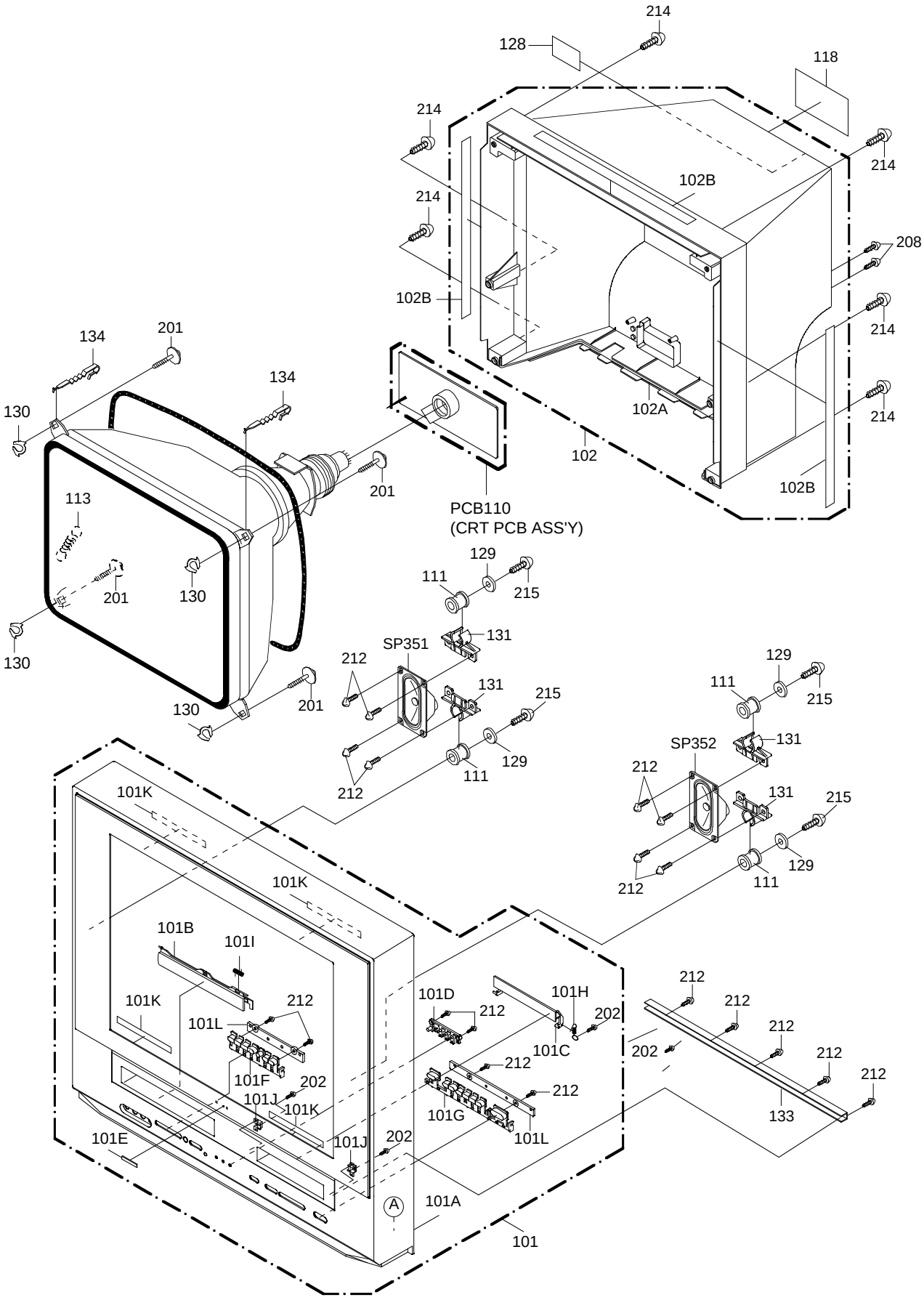
50µs
2.0V



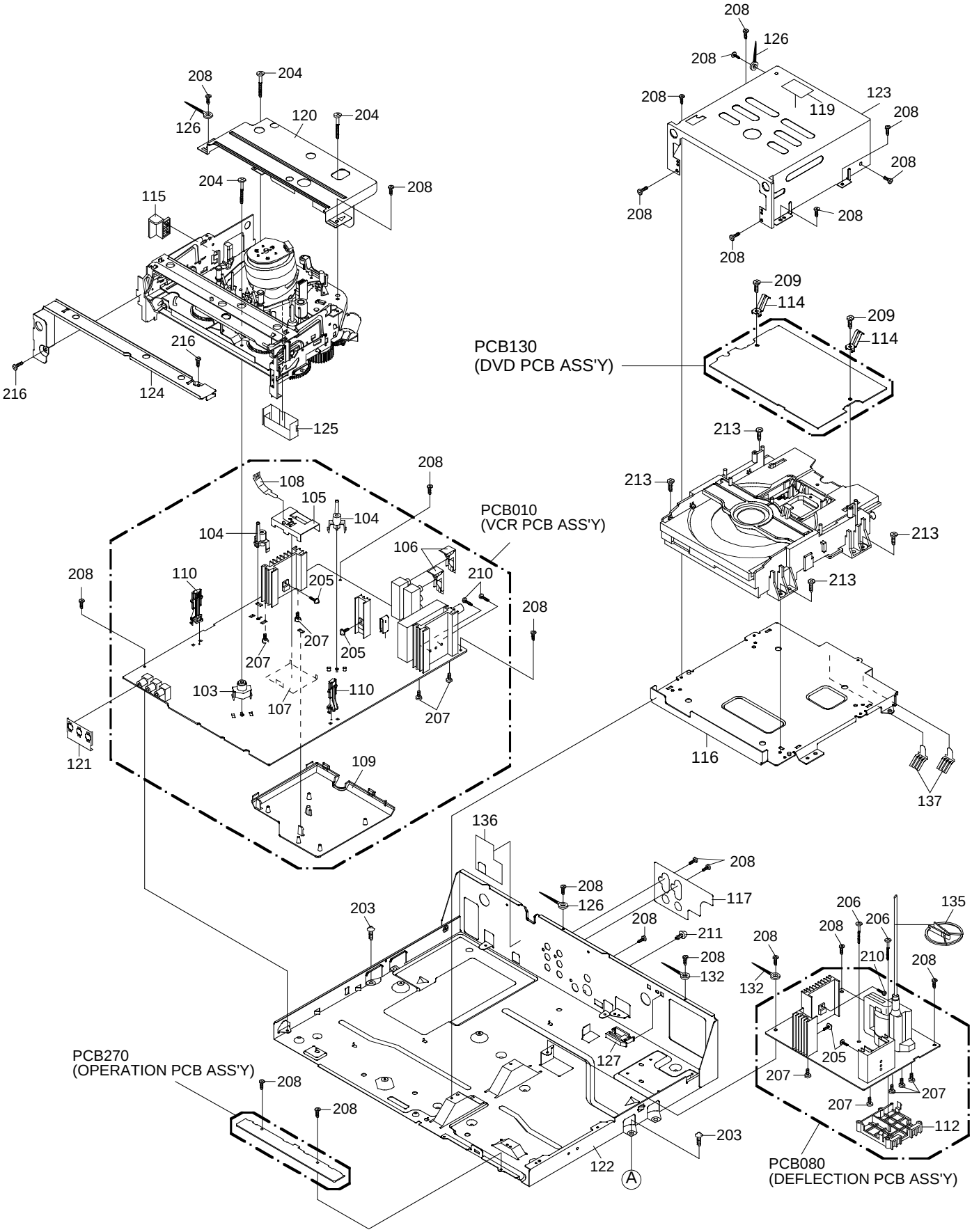
40

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

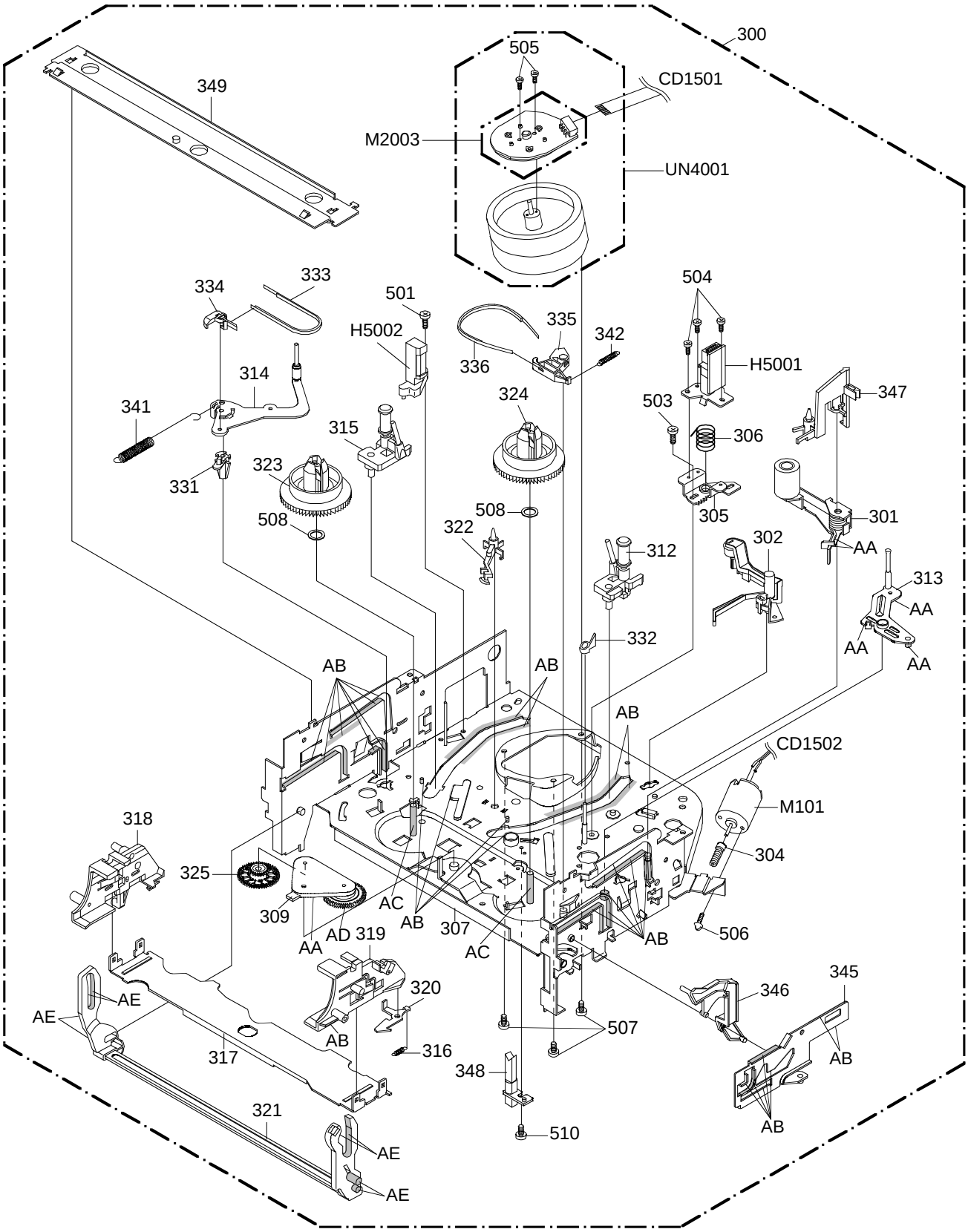
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



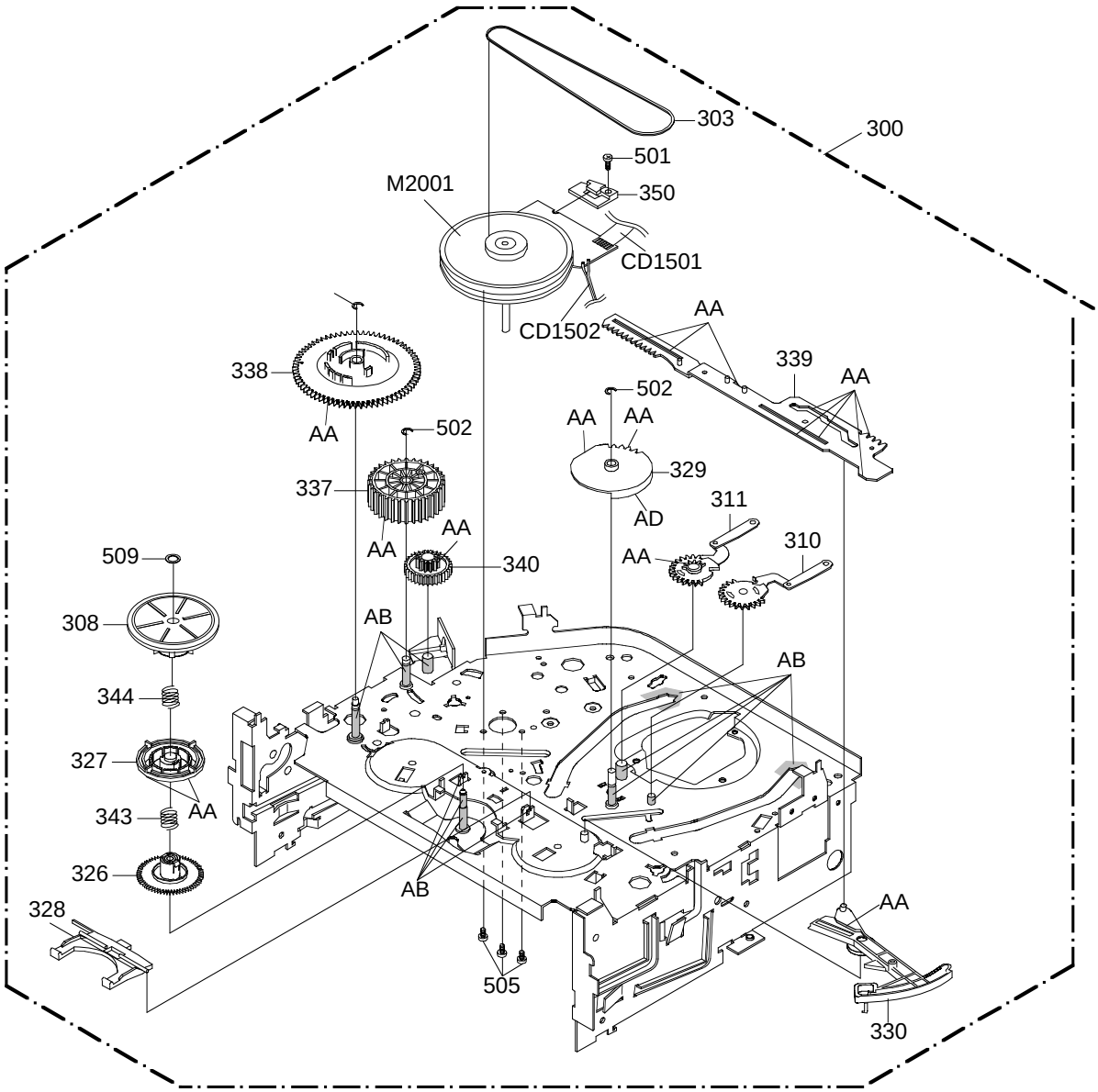
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	PART NAME	MARK
GREASE	Y315061000	G-555G	AA
	Y315071000	MG-33	AB
	Y31D011000	FG-84M	AC
	Y315041000	FL-721	AD
	Y315141000	G-313Y	AE

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

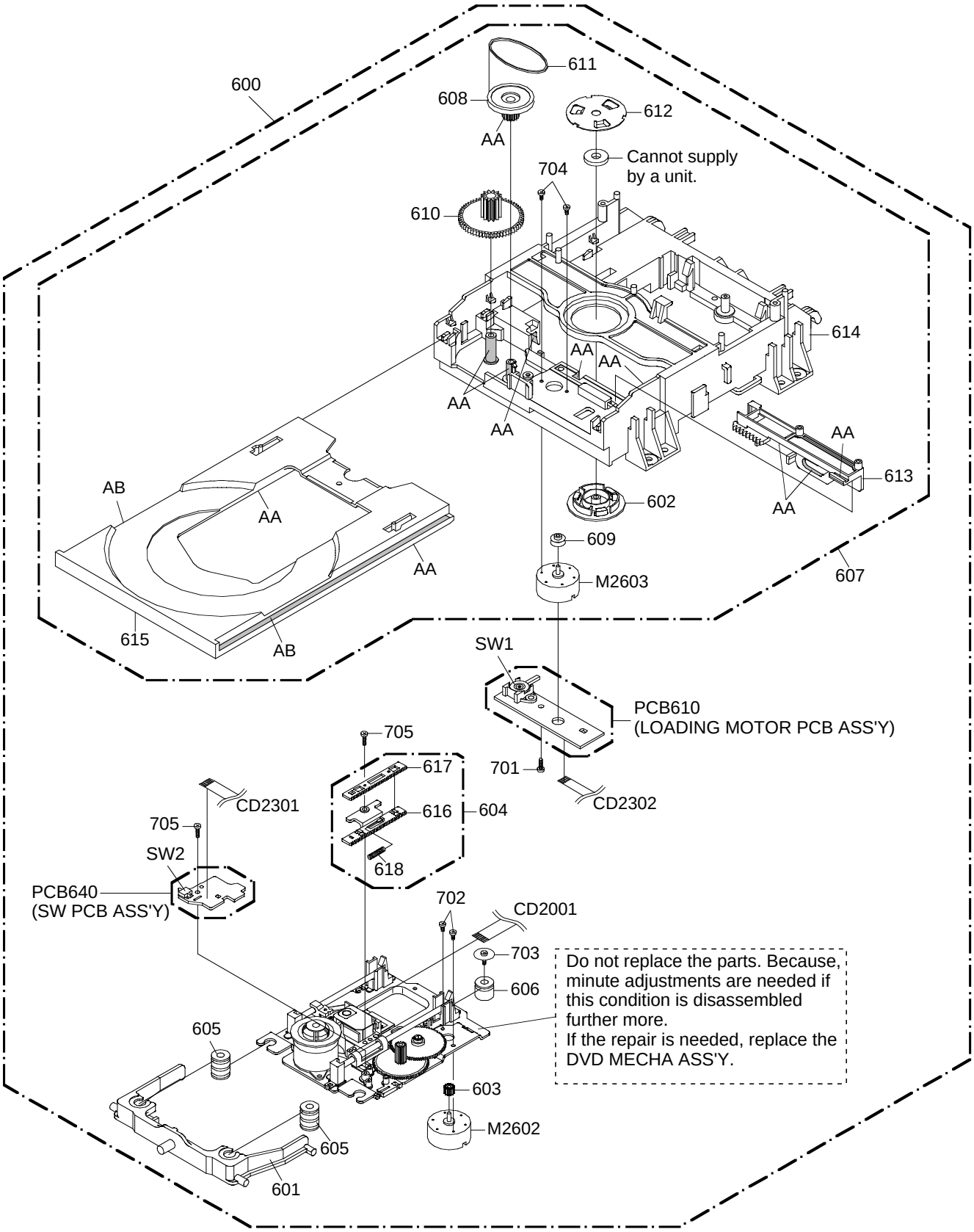
CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	PART NAME	MARK
GREASE	Y315061000	G-555G	AA
	Y315071000	MG-33	AB
	Y31D011000	FG-84M	AC
	Y315041000	FL-721	AD
	Y315141000	G-313Y	AE

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

DVD DECK EXPLODED VIEW



CLASS	PART NO.	PART NAME	MARK
GREASE	Y315061000	G-555G	AA
	Y315131000	SF-112	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		REF. NO.	PART NO.	DESCRIPTION		
101	7A701A161A	FRONT CABI ASS'Y		201	8141H60D54	SCREW,TAP TITE(P)	GW2	6x45
101A	701WPJC735	CABINET,FRONT		202	8110E30804	SCREW,TAP TITE(P)	WH10	3X8
101B	712WPJC036	FLAT,FLAP		203	8117540804	SCREW,TAPPING(B0)	TRUSS	4x8
101C	712WPJC037	FLAP,DVD		204	8109130B94	SCREW,TAP TITE(B)R	TRUSS	3x29
101D	713WPA0292	GLASS,LED		205	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10
101E	711WPCA043	BADGE,BRAND		206	8107630A84	SCREW TAP TITE (S)	BRAZIE	3x18
101F	735WPBB173	BUTTON,FRAME 1		207	8109630802	SCREW,TAP TITE(B)	BRAZIER	3x8
101G	735WPBB174	BUTTON,FRAME 2		208	8109230804	SCREW,TAP TITE(B)	BIND	3x8
101H	742WKA0001	SPRING,DVD-FLAP		209	8110226804	SCREW,TAP TITE(P)	BIND	2.6x8
101I	743WKA0037	SPRING,FLAP						
101J	761WPA0283	HOLDER,FLAP		210	8107630804	SCREW,TAP TITE(S)	BRAZIER	3x8
101K	800WQ0A052	FELT,SHEET	5x150xT=0.3	211	8107230404	SCREW,TAP TITE(S j	BIND	3x4
101L	735WPAA748	STOPPER,BUTTON		212	8110630804	SCREW,TAP TITE(P)	BRAZIER	3x8
				213	810F130804	SEMS(F)		3x8
102	7A702A049A	BACK,CABI ASS'Y		214	8117540B04	SCREW,TAPPING(B0)	TRUSS	4x20
102A	702WPAA746	CABINET,BACK		215	8117540A64	SCREW,TAPPING(B0)	TRUSS	4x16
102B	800WQ0A071	FELT,SHEET	390x18xT=0.5	216	8107230604	SCREW,TAP TITE(S)	BIND	3x6
103	701WPA0686	HOLDER,DECK						
104	701WPA0751	HOLDER,DECK		---	791WHA0026	LAMIFILM BAG		
105	752WSA0230	SHIELD,CASE H/AMP		---	792WHAA128	PACKAGE,TOP		
106	752WSA0290	SHIELD,COMPO		---	792WHAA129	PACKAGE,BOTTOM		
107	752WSA0308	SHIELD,COVER H/AMP		---	793WCDC317	GIFT BOX		
108	753WUAA006	SPRING,EARTH H/AMP		---	J5Q00401A	INSTRUCTION BOOK(E)		
109	755WPA0035	COVER,PCB		---	J5Q00410A	INSTRUCTION BOOK(F)		
				---	JA5U0200	POLYBAG,INSTRUCTION		
110	85OP700038	HOLDER,END SENSOR						
111	801WR00001	DAMPER,SPEAKER						
112	761WPA0223	HOLDER,FBT						
113	741WUA0021	SPRING,EARTH						
114	753WUA0069	SPRING,EARTH						
115	755WPAA012	PLATE,COVER LIGHT (L)						
116	761WSAA023	ANGLE,DECK						
117	7230007691	SHEET,JACK						
118	722A08A150	SHEET,RATING						
119	7230006755	SHEET,CAUTION						
120	752WSA0331	SHIELD,COVER DECK						
121	752WSA0292	SHIELD,AV JACK						
122	752WSAA067	PLATE,BOTTOM						
123	752WSAA091	DVD,TOP						
124	752WSA0324	VCR,TOP						
125	752WSA0327	SHIELD,COVER FPC						
126	8995034000	CORD CLIP UL CO.						
127	774WPA0005	HOLDER,WIRE-2						
128	726000A069	SHEET,CRT SERVICEMAN						
129	82A40B0104	FLAT,WASHER						
130	769WSA0016	WASHER CRT T=0.5						
131	761WPAA090	HOLDER,SPEAKER						
132	899EFBA001	WIRING CLIP	or					
	899EFBA002	WIRING-CLIP						
133	752WSA0288	ANGLE,FRONT						
134	762WPA0011	HOLDER,CRT WIRE						
135	899HV3T000	HOLDER,ANODE WIRE						
136	724WNA0009	SHEET,PVC						
137	744WUA0013	SPRING,EARTH						

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
300	A5L1046420A	DECK ASSY	A5L1046420A	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
				502	83ETW30000	E-RING	3
301	85OA400240	PINCH ROLLER BLOCK (VA)		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	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
310	85OA300065	LOADING ARM S UNIT		CD1501	122H071704	CORD JUMPER	2H071704
311	85OA300066	LOADING ARM T UNIT		CD1502	122Y021002	CORD JUMPER	2Y021002
312	85OA400223	INCLINED BASE T UINT 3S		H5001	1523Q91003	HEAD (AUDIO CONTROL)	VTR-1X2RPE22-756
313	85OA400232	P5 ARM ASS'Y 2		H5002	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
314	85OA400235	TENSION ARM ASS'Y 2		⚠ M101	1596S98001	MOTOR (LOADING)	MDB2B66
315	85OA400231	INCLINED BASE S UNIT		⚠ M2001	1510S98042	CAPSTAN DD UNIT	F2QVB73
316	85OP800367	SPRING LOCKER		M2003	1589S11020	MICRO MOTOR	I2OAL34
317	85OP900736	CASS,HOLDER		⚠ UN4001	A5L1046500	CYLINDER UNIT ASS'Y	A5L1046500
318	85OP900748	CASS,SIDE L					
319	85OP900749	CASS,SIDE R					
320	85OP900739	LOCKER,R					
321	85OA900228	LINK UNIT					
322	85OP000496	POST,CASS GUIDE					
323	85OP200316	REEL,S (S)					
324	85OP200317	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	85OP400542	BAND,TENSION					
334	85OP400533	CONNECT,TENSION					
335	85OP600573	ARM,BRAKE T					
336	85OP600584	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	85OP800360	SPRING,BRAKE T					
343	85OP800355	SPRING,COUPLING					
344	85OP800356	SPRING,RING					
345	85OP900743	LEVER,LINK					
346	85OP900744	LEVER,FLAP					
347	85OP900745	CASS,OPENER					
348	85OP700035	REFLECTOR,LED					
349	85OP900746	BRACKET,TOP 3V					
350	85OP400549	HOILDER,CAPSTAN					

DVD DECK REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
600	A5M4016650	DVD MECHA ASS'Y	
601	92P100098A	HOLDER,TRAVERSE	
602	92P100094A	CLAMPER	
603	92P100088A	GEAR,MOTOR	
604	92AAA0013A	FEED RACK ASS'Y	
605	92P200013A	INSULATOR(F)	
606	92P200014A	INSULATOR(R)	
607	92SBB0019A	LOADER SUB ASS'Y	
608	92P100095A	GEAR,PULLEY	
609	92P100097A	PULLEY,MOTOR	
610	92P100096A	GEAR,MAIN	
611	92P200012A	BELT,LOADING	
612	92P000014A	PLATE,CLAMPER	
613	92P100093A	RACK,LOADING	
614	92P100091A	FRAME,MAIN	
615	92P100092A	TRAY	
616	92P100089A	RACK,FEED 1	
617	92P100090A	RACK,FEED 2	
618	92P300020A	SPRING,RACK FEED	
701	811022680U	SCREW,TAP TITE(P)BIND	2.6x8
702	814011723U	SCREW,PAN	M1.7x2.3 P3
703	816112080U	SEMS.TAP TITE(P)PAN	W10 2x8
704	814011730U	SCREW,PAN	M1.7x3 P3
705	811022080U	SCREW,TAP TITE(P)	2x8
CD2001	122H0O1901	CORD JUMPER	2H0O1901
CD2301	122H062102	CORD JUMPER	2H062102
CD2302	122H052601	CORD JUMPER	2H052601
⚠ M2602	1515S98002	FEED MOTOR	BCZ3B03
PCB610	A5M4016610	PCB	DED003A
PCB640	A5M4016640	PCB	DED002A
SW1	0515S32002	SWITCH	SSS-13-2
SW2	0500101037	PUSH SWITCH	ESE22MH24

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R401	R4X5T6472F	R,METAL	4.7K OHM 1/6W
⚠ R403	R4X5T6183F	R,METAL	18K OHM 1/6W
⚠ R405	R4X5T6153F	R,METAL	15K OHM 1/6W
⚠ R406	R3X28A391J	R.METAL	390 OHM 2W
⚠ R412	R63581330J	R,FUSE	33 OHM 1W
⚠ R417	R3X28A221J	R.METAL	220 OHM 2W
⚠ R423	R3X18AR47J	R,METAL	0.47 OHM 2W
⚠ R429	R002T22R2J	RC	2.2 OHM 1/2W
⚠ R430	R5X34F2R7J	R,CEMENT	2.7 OHM 10W
⚠ R434	R002T21R5J	RC	1.5 OHM 1/2W
⚠ R435	R65582010J	R,FUSE	1 OHM 1/2W
⚠ R436	R3X181101J	R,METAL	100 OHM 1W
⚠ R440	R5X34F332J	R,CEMENT	3.3K OHM 10W
⚠ R445	R3X28B2R7J	R,METAL	2.7 OHM 3W
R449	R00202561J	RC	560 OHM 1/2W
⚠ R454	R3K181102J	R'METAL	1K OHM 1W
⚠ R814	R3X18A123J	R,METAL	12K OHM 2W
⚠ R815	R3X18A123J	R,METAL	12K OHM 2W
⚠ R816	R3X18A123J	R,METAL	12K OHM 2W
⚠ R1701	R002T2155J	RC	1.5M OHM 1/2W
⚠ R1702	R0G3K2275K	RC	2.7M OHM 1/2W
⚠ R1706	R002T4272J	RC	2.7K OHM 1/4W
⚠ R1714	R3X181R12J	R,METAL	0.12 OHM 1W
⚠ R1717	R3X28A331J	R,METAL	330 OHM 2W
⚠ R1718	R5Y2CE1R2J	R,CEMENT	1.2 OHM 7W
⚠ R1720	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R3010	R3X181180J	R,METAL	18 OHM 1W
⚠ R3021	R3X181220J	R,METAL	22 OHM 1W
		CAPACITORS	
C005	E02L00102M	CE	1000 UF 6.3V
C321	E02LF3222M	CE	2200 UF 25V
⚠ C403	E02LU8220M	CE	22 UF 100V
C404	E62DFB470M	CE	47 UF 160V
⚠ C408	P4N8FK332H	CMPP	0.0033UF 1.5KV
⚠ C412	P4J7F3474J	CMPP	0.47 UF 250V PMS
⚠ C417	P3N1F5333J	CPP	0.033 UF 630V
⚠ C418	P4N8FK153H	CMPP	0.015 UF 1.5KV
⚠ C429	E02LU4101M	CE	100 UF 35V
⚠ C430	E5EZF3222M	CE	2200 UF 25V
C432	E52H02470M	CE	47 UF 16V
⚠ C434	E5EZF4102M	CE 35	1000 UF 35V
C435	E53FF56R8K	CE	6.8 UF 50V
⚠ C446	E5EZFD220M	CE	22 UF 250V
C449	C0PLRR713K	CC	0.001 UF 2KV R
C820	C0JBB0713K	CC	0.001 UF 2KV B
⚠ C1701	P2122B224M	CMP	0.22 UF 275V
C1705	C03L0R7B3K	CC	0.0012UF 2KV R
C1707	C0PLRR713K	CC	0.001 UF 2KV R
⚠ C1708	C0JBB07H3K	CC	0.0022UF 2KV B
⚠ C1710	C0JBB07H3K	CC	0.0022UF 2KV B
⚠ C1711	CD39E0MQ3M	CC	0.0047UF 250V
⚠ C1714	E52DHC681M	CE	680 UF 200V
C1716	E02L03222M	CE	2200 UF 25V
⚠ C1717	E5EZF4102M	CE	1000 UF 35V
⚠ C1720	E62NFB221M	CE	220 UF 160V
C1725	E02L08101M	CE	100 UF 100V
⚠ C1728	E02LT0222M	CE	2200 UF 6.3V
C1729	C03L0R7N2K	CC	390 PF 2KV R
C1732	E5EZF3102M	CE 25	1000 UF 25V
C3009	E02L00102M	CE	1000 UF 6.3V
C3010	E02L00222M	CE	2200 UF 6.3V
		DIODES	
D101	0010E00330	INFRARED LED	LTE-3271T-012A-O
D102	D1VT001330	DIODE,SILICON	1SS133T-77
D103	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D105	D1VT001330	DIODE,SILICON	1SS133T-77
D106	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D108	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D402	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D403	D1VT001330	DIODE,SILICON	1SS133T-77
D404	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D405	D2BFRS4FS0	DIODE,SILICON	RS-4FS
⚠ D406	D2BFRU4AM0	DIODE,SILICON	RU-4AM
D407	D2WTAU02A0	DIODE SILICON	AU02A-EIC
⚠ D408	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D410	D2WT011E10	DIODE SILICON	11E1-EIC
D411	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77

REF. NO.	PART NO.	DESCRIPTION	
		DIODES	
⚠ D412	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D413	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D414	D97U03001B	DIODE,ZENER	MTZJ30B T-77
⚠ D415	D2WTAU02A0	DIODE SILICON	AU02A-EIC
D416	D2WXN40050	DIODE SILICON	1N4005-EIC
D417	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D418	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D419	D1VT001330	DIODE,SILICON	1SS133T-77
D420	D1VT001330	DIODE,SILICON	1SS133T-77
D601	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D602	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D603	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D605	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D801	D1VT001330	DIODE,SILICON	1SS133T-77
D802	D1VT001330	DIODE,SILICON	1SS133T-77
D803	D1VT001330	DIODE,SILICON	1SS133T-77
D804	D1VT001330	DIODE,SILICON	1SS133T-77
D805	D1VT001330	DIODE,SILICON	1SS133T-77
D806	D1VT001330	DIODE,SILICON	1SS133T-77
D1702	D1VT001330	DIODE,SILICON	1SS133T-77
D1703	D97U02R71B	DIODE,ZENER	MTZJ2.7B T-77
⚠ D1704	D23TGP15J0	DIODE SILICON	RGP15J-G23
⚠ D1705	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D1706	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D1707	D23TGP15J0	DIODE SILICON	RGP15J-G23
D1709	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D1710	D2WTRM11C0	DIODE SILICON	RM11C-EIC
⚠ D1711	D2WTRM11C0	DIODE SILICON	RM11C-EIC
D1712	D97U02R21B	DIODE,ZENER	MTZJ2.2B T-77
D1713	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D1715	D97U01801B	DIODE,ZENER	MTZJ18B T-77
D1716	D2WXN49370	DIODE SILICON	1N4937
D1717	D97U01801B	DIODE,ZENER	MTZJ18B T-77
⚠ D1718	D2WXN49370	DIODE SILICON	1N4937
D1719	D2LKB340L0	DIODE SCHOTTKY	SB340L-6737
D1720	D1VT001330	DIODE,SILICON	1SS133T-77
D1721	D1VT001330	DIODE,SILICON	1SS133T-77
D1722	D2WXN49370	DIODE SILICON	1N4937
⚠ D1723	D2CF2016L0	DIODE SILICON	FE201-6L49
D1724	D1VT001330	DIODE,SILICON	1SS133T-77
D1726	D1VT001330	DIODE,SILICON	1SS133T-77
D1728	D1VT001330	DIODE,SILICON	1SS133T-77
D1729	D2WXN49370	DIODE SILICON	1N4937
D1730	D2CF2016L0	DIODE SILICON	FE201-6L49
D1731	D2WXN49370	DIODE SILICON	1N4937
D1732	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D1734	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D1735	D1VT001330	DIODE,SILICON	1SS133T-77
D1736	D97U04R31B	DIODE,ZENER	MTZJ4.3B T-77
D2201	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D2205	0021E2Q140	LED	LTL-1CHEE-002A
D2206	0021E2Q140	LED	LTL-1CHEE-002A
D2207	0021E2Q140	LED	LTL-1CHEE-002A
D2601	DDARDS1200	DIODE SILICON	KDS120RTK
D3001	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D3002	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D3003	D97U04R71B	DIODE,ZENER	MTZJ4.7B T-77
D3004	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D3005	D28TQS04N0	DIODE SCHOTTKY	11EQS04N-TA1B2
D3007	D2WT011E10	DIODE SILICON	11E1-EIC
D3008	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D3009	D2W0011E10	DIODE SILICON	11E1-B-EIC
D3011	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D4001	DDDRL41480	DIODE SILICON	MCL4148
D4201	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D4204	D1VT001330	DIODE,SILICON	1SS133T-77
D4205	D1VT001330	DIODE,SILICON	1SS133T-77
D4207	D1VT001330	DIODE,SILICON	1SS133T-77
D5501	D28TQS04N0	DIODE SCHOTTKY	11EQS04N-TA1B2
D5502	D1VT001330	DIODE,SILICON	1SS133T-77
D8111	DDDRL41480	DIODE SILICON	MCL4148
D8112	DDDRL41480	DIODE SILICON	MCL4148
		ICS	
IC101	I51F58076A	IC	OEC8076A
IC103	IE2F031020	IC	XC61CN3102SR or
	I9UF032310	IC	PST3231NR
IC199	A5Q0046015	INIT DATA	

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		ICS	
IC302	I01FF58910	IC	AN5891SA-E1V
IC352	I0FSP7522N	IC	AN7522N
⚠ IC401	I03TD80410	IC	LA78041
IC601	I03FC324N0	IC	LA76324NM-MPB-E
IC602	I1KF98L100	IC	KIA78L10F-RTF
IC1501	I05FE90A45	IC	TC90A45F
IC1502	I0UF015010	IC	MM1501XNRE
IC1504	I0UF015010	IC	MM1501XNRE
IC1505	I0UF015040	IC	MM1504XNRE
⚠ IC1701	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W or
	000220001W	PHOTO COUPLER	PS2561L1-1-V(W)
⚠ IC1702	I0CJ9AILP0	IC	TL431AILP
IC2301	I03F065650	IC	LA6565-TE-L-E
IC2601	ICQK067080	IC	ZR36708TQC
⚠ IC3001	I1KA78R050	IC	KIA278R05PI
IC3002	I1KA78R090	IC	KIA278R09PI
IC3003	I1KA78R050	IC	KIA278R05PI
IC3004	I1KA78R050	IC	KIA278R05PI
IC4001	ICQK06762V	IC	ZR36762PQCG_V
IC4002	I5HJ002BF0	IC	S-24C02BFJ-TB
IC4005	IF3J00HGT7	IC	HY57V641620HGT-7
IC4006	I1HF9117L0	IC	SIP1117L-ADJ-TP
IC4007	ICMJ0800A8	IC	SST39VF800A-70- or
	ICMJ0F8009	IC	SST39VF800-70-4C-EK
IC4501	I03F3205M0	IC	LA71205M-MPB
IC5501	I01F63FBP0	IC	AN3663FBP
IC8001	I0UF015010	IC	MM1501XNRE
IC8002	I0UF015010	IC	MM1501XNRE
IC8004	I0QJ045800	IC	NJM4580M(TE1)
IC8102	I17F017530	IC	PCM1753DBQR
		TRANSISTORS	
Q101	0000M00390	PHOTO TRANSISTOR	ST-304L
Q102	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q103	0000M00390	PHOTO TRANSISTOR	ST-304L
Q104	0002700680	PHOTO COUPLER	RPI-352C40N
Q105	0002700680	PHOTO COUPLER	RPI-352C40N
Q106	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q107	0002700690	PHOTO COUPLER	RPI-303
Q108	0002700690	PHOTO COUPLER	RPI-303
Q110	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
Q112	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q114	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q116	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q350	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
⚠ Q401	TCAT03227Y	TRANSISTOR SILICON	KTC3227_Y-AT
Q402	TC30041590	TRANSISTOR,SILICON	2SC4159(D,E)
⚠ Q403	TD50026380	TRANSISTOR SILICON	2SD2638(OEC)
Q404	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q405	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q406	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q407	TNATB03005	COMPOUND TRANSISTOR	KRC102MAT
Q408	TCAT032070	TRANSISTOR SILICON	KTC3207-AT
Q409	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q410	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q601	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
Q602	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q605	TPYJB05001	COMPOUND TRANSISTOR	DTA114EKAT146
Q606	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
⚠ Q802	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q803	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
⚠ Q804	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q805	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
⚠ Q806	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠ Q807	TCATC3199Y	TRANSISTOR SILICON	KTC3199_Y-AT
Q1501	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q1502	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q1503	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q1702	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
⚠ Q1705	T220033260	FET	2SK3326(2)
⚠ Q1706	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q2201	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
Q2202	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
Q2203	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
Q2601	T67J1036K0	TRANSISTOR SILICON	2SA1036KT146
Q2602	T67J048TL0	TRANSISTOR SILICON	2SA2048TL
Q2603	T27T030180	FET	2SK3018
Q2604	T27T030180	FET	2SK3018

REF. NO.	PART NO.	DESCRIPTION	
		TRANSISTORS	
Q2605	T27T030180	FET	2SK3018
Q3001	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
⚠ Q3002	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q3003	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q3004	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
⚠ Q3005	TBA0013660	TRANSISTOR SILICON	KTB1366(O,Y)
⚠ Q3006	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q3007	TAAT01281Y	TRANSISTOR SILICON	KTA1281_Y
Q3008	TPYJA05001	COMPOUND TRANSISTOR	DTA143EKAT146
Q3009	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
Q3010	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q3011	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q3014	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q3015	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4004	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4201	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4202	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q4203	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4204	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q4210	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4211	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4212	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4501	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4502	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4503	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q4504	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q4505	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q4506	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4507	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q4509	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q4511	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8002	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8006	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8007	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8102	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q8103	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q8104	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
		COILS &TRANSFORMERS	
L001	021673101K	COIL	100 UH
L301	021375101K	COIL	100 UH
L401	02D1000001	COIL	ELC16B501EN
L402	022100027A	COIL,LINEARITY	ELH5L4113
L403	021L75472J	COIL	4.7 MH
L601	02167F101J	COIL	100 UH
L602	021375101K	COIL	100 UH
L603	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
L1501	02167F100J	COIL	10 UH
L1502	02167F150J	COIL	15 UH
L1504	021673151K	COIL	150 UH
L1505	021LA6101J	COIL	100 UH
L1506	021LA6101J	COIL	100 UH
⚠ L1701	029T000105	COIL,	2R2A752F28
⚠ L1703	028R250014	COIL,	8R250014
L1704	02AHB0A0A4	CORE,	W5T_20*10*10A
L3001	021W7A220K	COIL	22 UH
L3002	02167E100K	COIL	10 UH
L4001	02167F2R2J	COIL	2.2 UH
L4002	02AHB9A972	CORE,FERRITE	W5T29X7.5X19
L4205	02167F101J	COIL	100 UH
L4502	031626009R	COIL,BIAS OSC	1626009
L4504	02167F101J	COIL	100 UH
L4505	02167F470J	COIL	47 UH
L4506	02167F470J	COIL	47 UH
L4509	021375101K	COIL	100 UH
L5501	021LA6101J	COIL	100 UH
L5502	02167F220J	COIL	22 UH
L5503	02167F220J	COIL	22 UH
L5504	02167F220J	COIL	22 UH
L8001	02167F101J	COIL	100 UH
L8002	021LA6101J	COIL	100 UH
L8003	02167F101J	COIL	100 UH
L8102	02167F1R0K	COIL	1 UH
L8103	02167F1R0K	COIL	1 UH
L8104	02167F1R0K	COIL	1 UH
T401	0450190161	TRANS,HORIZONTAL DRIVE	ETH19Y203AY
⚠ T1701	0481420694	TRANSFORMER,SWITCHING	81420694

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		*** RESISTORS ***	
		JACKS	
⚠ J801	066F130021	SOCKET,CATHODE RAY,TUBE	ISHS62S
⚠ J2201	060J131016	HEADPHONE JACK	MSJ-2000_AG
J2202	060J421036	RCA JACK	MTJ-032-05A-30-FE
J2203	060J421037	RCA JACK	MTJ-032-05A-32-FE
J2204	060J421030	RCA JACK	MTJ-032-05A-31-FE
J4201	060J431020	RCA JACK	MSP-213V2-432_NI_LF
J4202	060J411031	RCA JACK	MSP-213V1-432_NI_LF
J8007	060J401102	RCA JACK	MSP-251V-05NI-Fl or
	060J401082	RCA JACK	MSP-251V-05PBSN
		SWITCHES	
SW101	0508S11001	SWITCH (LEAF)	LSA-1144EAU
SW2201	0504101T34	SWITCH,TACT	EVQ21505R
SW2202	0504101T34	SWITCH,TACT	EVQ21505R
SW2203	0504101T34	SWITCH,TACT	EVQ21505R
SW2204	0504101T34	SWITCH,TACT	EVQ21505R
SW2205	0504101T34	SWITCH,TACT	EVQ21505R
SW2206	0504101T34	SWITCH,TACT	EVQ21505R
SW2207	0504101T34	SWITCH,TACT	EVQ21505R
SW2251	0504101T34	SWITCH,TACT	EVQ21505R
SW2252	0504101T34	SWITCH,TACT	EVQ21505R
SW2253	0504101T34	SWITCH,TACT	EVQ21505R
SW2254	0504101T34	SWITCH,TACT	EVQ21505R
SW2255	0504101T34	SWITCH,TACT	EVQ21505R
SW2256	0504101T34	SWITCH,TACT	EVQ21505R
SW2257	0504101T34	SWITCH,TACT	EVQ21505R
SW2258	0504101T34	SWITCH,TACT	EVQ21505R
		VARIABLE RESISTORS	
VR404	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222
⚠ VR1701	V1K6314BTE	VOLUME,SEMI FIXED	NVG6TLTAB103
		P.C.BOARD ASSEMBLIES	
PCB010	A5Q0046010	PCB ASS'Y	VMC293B
PCB080	A5Q0046080	PCB ASS'Y	TMC564B
PCB110	A5Q0046110	PCB ASS'Y	TCC426B
PCB130	A5Q0046130	PCB ASS'Y	VMD328A
PCB270	A5Q0046270	PCB ASS'Y	TECB10B
		MISCELLANEOUS	
B403	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B1701	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B1703	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B1704	024HC31022	CORE,BEADS	FCM2012H-102T04
B2201	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B2601	024HC31022	CORE,BEADS	FCM2012H-102T04
B2602	024HC31022	CORE,BEADS	FCM2012H-102T04
B2603	024HC31022	CORE,BEADS	FCM2012H-102T04
B2604	024HC31022	CORE,BEADS	FCM2012H-102T04
B2605	024HC31022	CORE,BEADS	FCM2012H-102T04
B4001	024HC31022	CORE,BEADS	FCM2012H-102T04
B4002	024HC31022	CORE,BEADS	FCM2012H-102T04
B4003	024HC31022	CORE,BEADS	FCM2012H-102T04
B4004	024HC31022	CORE,BEADS	FCM2012H-102T04
B4005	024HC31022	CORE,BEADS	FCM2012H-102T04
B4006	024HC31022	CORE,BEADS	FCM2012H-102T04
B4007	024HC31022	CORE,BEADS	FCM2012H-102T04
B4008	024HC31022	CORE,BEADS	FCM2012H-102T04
B4010	024HC31022	CORE,BEADS	FCM2012H-102T04
B8001	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B8103	024HC31022	CORE,BEADS	FCM2012H-102T04
CD002	06CU011902	CORD CONNECTOR	CU011902
CD303	06CU149001	CORD CONNECTOR	CU149001
CD602	06CU291701	CORD CONNECTOR	CU291701
CD603	06CU285001	CORD CONNECTOR	CU285001
CD604	06CU282401	CORD CONNECTOR	CU282401
CD802	WCL6848038	FLAT CABLE AWM2468	AWG26 5C GRAY 480MM
CD803	06CH823004	CORD CONNECTOR	CH823004
CD805	06CH823004	CORD CONNECTOR	CH823004
CP001	069D01001A	CONNECTOR PCB SIDE	003P-2100
CP101	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP303	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P
⚠ CP404	069S460089	CORD UX CONNECTOR	A1561WV2-A6P
CP601	069S240639	CONNECTOR PCB SIDE	A2001WR2-4P
CP602	067U009039	WIRE HOLDER	B2013H02-9P
CP604	069S280629	CONNECTOR PCB SIDE	A2001WV2-8P
CP803	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
CP804	069W010010	CONNECTOR PCB SIDE	005P-2100
CP805	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P
⚠ CD1702	1209415910	CORD AC BUSH	9415910

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
CD2251	06CU220701	CORD CONNECTOR	CU220701
CD4002	06CU2B3301	CORD CONNECTOR	CU2B3301
CD4501	122F061502	CORD JUMPER	2F061502
CD8101	122F0C1602	CORD JUMPER	2F0C1602
CP1702	067U008029	WIRE HOLDER	B2013H02-8P
⚠ CP1704	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P
CP1707	069D01001A	CONNECTOR PCB SIDE	003P-2100
CP1708	069D01001A	CONNECTOR PCB SIDE	003P-2100
CP2201	069S220629	CONNECTOR PCB SIDE	A2001WV2-2P
CP2601	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2602	069EV53010	CONNECTOR PCB SIDE	00_6232_005_006_800
CP2603	069EV63010	CONNECTOR PCB SIDE	00_6232_006_006_800
CP4501	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
CP4502	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP4503	067U002019	WIRE HOLDER	B2013H02-2P
CP602B	069S290629	CONNECTOR PCB SIDE	A2001WV2-9P
CP603B	069S280629	CONNECTOR PCB SIDE	A2001WV2-8P
CP8001	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP8002	069J7C0029	CONNECTOR PCB SIDE	IMSA-9604S-12Z14
CP802A	067U005049	WIRE HOLDER	B2013H02-5P
CP802B	067U005049	WIRE HOLDER	B2013H02-5P
CP8101	069J7C0019	CONNECTOR PCB SIDE	IMSA-9604S-12Z13
CUS011	800WFAA007	CUSHION B	
CUS013	800WFAA008	CUSHION C	
EL001	124120301A	EYE LET	XRY20X30BD
EL002	124116281A	EYE LET	XRY16X28BD
EL003	124120301A	EYE LET	XRY20X30BD
EL004	124116281A	EYE LET	XRY16X28BD
⚠ F1701	081PC6R305	FUSE	51MS063L
⚠ FB401	043224007F	TRANSFORMER,FLYBACK	FSU24A001_M
FH1701	06710T0009	HOLDER,FUSE	EYF-52BCY
FH1702	06710T0009	HOLDER,FUSE	EYF-52BCY
NR4001	110N4470M3	R,NETWORK	CAY16-470-J-4R
NR4002	110N4470M3	R,NETWORK	CAY16-470-J-4R
NR4003	110N4470M3	R,NETWORK	CAY16-470-J-4R
NR4004	110N4470M3	R,NETWORK	CAY16-470-J-4R
NR4005	110N4470M3	R,NETWORK	CAY16-470-J-4R
NR4006	110N4470M3	R,NETWORK	CAY16-470-J-4R
NR4007	110N4470M3	R,NETWORK	CAY16-470-J-4R
NR4008	110N4470M3	R,NETWORK	CAY16-470-J-4R
OS2201	0773071003	REMOTE RECEIVER	RPM7138-WH10
⚠ RY1701	0560V20115	RELAY	ALKS321
⚠ SP351	070C546004	SPEAKER	SG04H02BRA
⚠ SP352	070C546004	SPEAKER	SG04H02BRA
TM101	076R0HH01B	TRANSMITTER	R56-0487
⚠ TU001	0163300005	RF UNIT	115-V-K015AR_B
⚠ TH1701	DF5EL3R0A0	DEGAUSS ELEMENT	ZPB45BL3R0A
⚠ V801	098W250402	CRT W/DY	A60LVY196X11(OL)
X101	100DA32R01	CRYSTAL	DT-26
X102	100CT01403	CRYSTAL	HC-49/U-S
X601	100CT3R532	CRYSTAL	HC-49/U-S
X4001	100BT02701	CRYSTAL	HC-49U/S
X4501	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.	M5Q0-046
O/R NO.	W465002