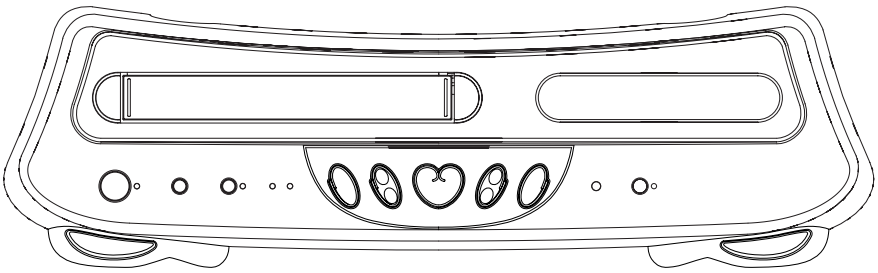
Disney

DVD2100-PA-A

SERVICE MANUAL

DVD VIDEO PLAYER & VIDEO CASSETTE RECORDER



ORIGINAL
MFR'S VERSION B

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. 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.

3. 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.

4. 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.

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

[Removing the DVD Deck]

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

[Installing the DVD Deck]

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

NOTE

- Before your operation, please read "PREPARATION OF SERVICING".
- Use the Lead Free solder.
- Manual soldering conditions
  - Soldering temperature: 320 ± 20°C
  - Soldering time: Within 3 seconds
  - Soldering combination: Sn-3.0Ag-0.5Cu
- When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.

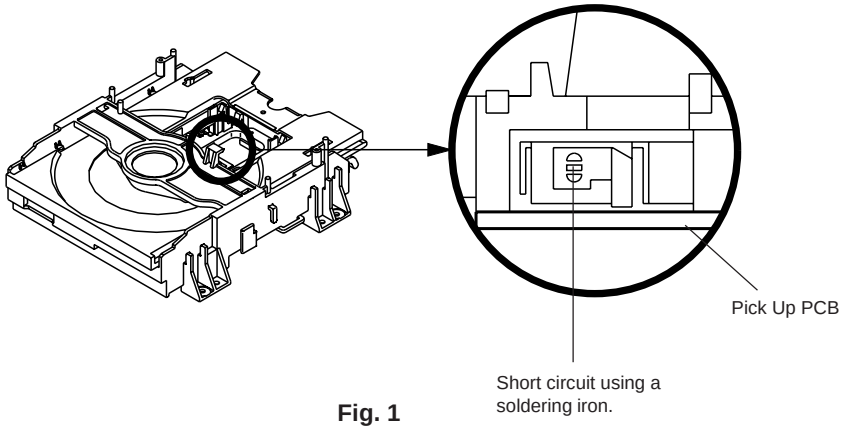


Fig. 1

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity. Moreover, even if it is operating normally after repair when static electricity discharge is received at the time of repair, the life of the product may be shortened.
Please perform the following measure against static electricity, be careful of destruction of a laser diode at the time of repair.

- Place the unit on a workstation equipped to protect against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet, Front Cabinet and DVD Block. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Remove the screw (1) of the Deck Chassis and remove the Loading Motor. **(Refer to Fig. 2)**
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape.
4. Rotate the Clutch Ass'y either derections to wind the Video Tape in the Cassette Case.
5. Repeat step 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch on the tape.

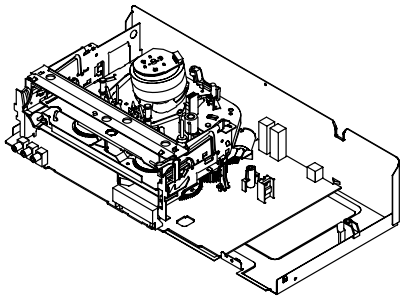


Fig. 1

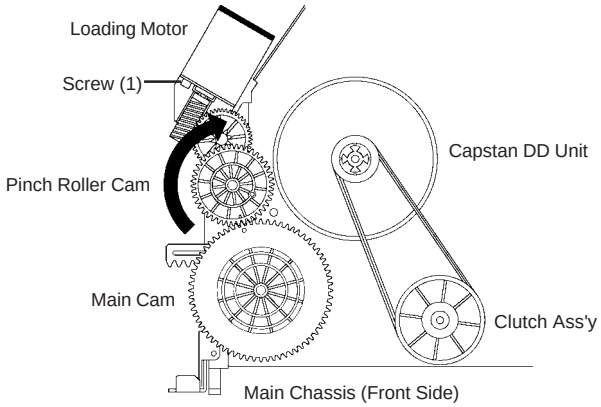


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and TV//DVD/VCR 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. Manually open the Tray.

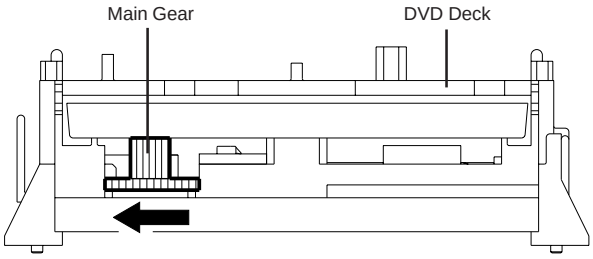


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

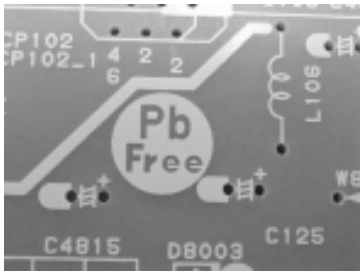
If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Press and hold the '7' key on the remote control unit.
3. Simultaneously press and hold the 'STOP' key on the front panel.
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

ABOUT LEAD FREE SOLDER (PbF)

Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.
(Please refer to figures.)



Caution:

- Pb free solder has a higher melting point than standard solder;
  Typically the melting point is 50°F~70°F(30°C~40°C) higher.
  Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).
  In case of using high temperature soldering iron, please be carefull not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.
  When soldering or unsoldering, completely remove all of the solder from the pins or solder area,
  and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

TABLE OF CONTENTS

GENERAL SPECIFICATIONS

G-1	**Outline of the product**				DVD VIDEO PLAYER & VHS Player / Recorder
G-2	**DVD System**	Color System			NTSC
		Disc			DVD, CD-DA, CD-R/RW
		Disc Diameter			120 mm , 80 mm
		Drive			DM3PA
		Search speed			Fwd 4 steps
				Actual	2-45 times (DVD)
					4-40 times (CD)
					Rev 4 steps
				Actual	2-45 times (DVD)
					4-40 times (CD)
		Slow speed			Fwd 1/7-1/2 times
				Actual	--
					Rev --
				Actual	--
G-3	**VCR System**	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			Yes
		NTSC PB(PAL60Hz)			No
		Deck			OVD-7
		Heads	Video Head		4Head
			FM Audio Head		2Head
			Audio / Control		Mono/Yes
			Erase (Full Track Erase)		Yes
			Erase (Normal Audio Track Erase)		No
		Tape Speed	Rec	PAL	-
				NTSC	SP/SLP
			Play	PAL	-
				NTSC	SP/LP/SLP
		Fast Forward / Rewind Time (Approx.) at 25°C			FF:4'50"/REW:2'30"
				with Cassette	T-120
		Forward/Reverse Picture Search	NTSC or PAL-M		SP/LP/SLP = 3x,5x / 7x,9x / 9x,15x
			PAL or SECAM		-
		Frame Advance			Yes
		Slow Speed			1/10
G-4	**Tuning System**	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		US (w/CATV)
			CH Coverage		2-69,4A,A-5~ A-1,A~I, J~ W, W+1-W+84
		Intermediate Frequency	Picture (FP)		45.75 MHz
			Sound (FS)		41.25 MHz
			FP-FS		4.50 MHz
		Preset CH			-
		RF Converter Output			Yes
			Channel		3 or 4 ch
			Level / Impedance		66 dBu / 75 Ohm
			Sound Selector		No
		Stereo / Dual TV Sound			US-ST
		Tuner Sound Muting			Yes
G-5	**Power**	Power Source	AC		120V 60Hz
			DC		-
		Power Consumption			18 W at 120V 60Hz
			Stand by		2 W at 120V 60Hz
			Per Year		-- W
		Protector	Power Fuse		Yes
			Safety Circuit		Yes
			IC Protector (Micro Fuse)		No
G-6	**Regulation**		Safety		UL / CSA
			Radiation		FCC / IC
			Laser		DHHS
G-7	**Temperature**		Operation		5°C - 40°C
			Storage		-20°C - 60°C
G-8	**Operating Humidity**				Less than 80% RH
G-9	**Signal**	Video Signal	Output Level		1 V p-p/75 ohm (DVD,VCR)
			S/N Ratio (Weighted)		65 dB(DVD) 50 dB(VCR)
			Horizontal Resolution		500 Lines (DVD) 230 Lines(VCR Mode)

GENERAL SPECIFICATIONS

		RGB Signal	Output Level		-
		Audio Signal	Input Level Microphone		-
			Input Level Line		-
			Output Level Line		-8 dBm/ 1k ohm (VCR, 0dBm=0.775Vrms) -12dBm/ 1k ohm
			Digital Output Level		0.5 V p-p / 75 ohm(DVD)
			S/N Ratio at (Weighted)		90dB(DVD), 42dB(VCR at SP)
			Harmonic Distortion (1KHz) Typical		0.02% (1KHz) (DVD) , 1.5% (1KHz) (VCR)
			Frequency Response : DVD Mode at DVD		4 Hz - 22 KHz
			DVD Mode at VIDEO CD		-
			DVD Mode at CD		4 Hz - 20 KHz
			VCR Mode at SP		100Hz - 10 KHz
			VCR Mode at LP		-
			VCR Mode at SLP		100Hz - 4 KHz
		Hi-Fi Audio Signal	Dynamic Range : More than		90dB
			Frequency Response		20Hz ~20kHz
			Wow And Flutter : Less than		0.01 %Wrms
			Channel Separation : More than		60 dB
			Harmonic Distortion : Less than		0.01
G-10	**On Screen Display (DVD)**	Menu			Yes
		Menu Type			Icon
		Language			Yes
			Menu		Yes
			Subtitle		Yes
			Audio		Yes
			OSD Language (Set up Language)		Yes
		Video			Yes
			TV Screen Size		Yes
			OSD Display On/Off		Yes
			Picture Mode(Video/Film/Auto)		Yes
			JPEG Interval		No
			E.B.L. (Enhanced Black Level)		No
		Audio			Yes
			DRC (Dynamic Range Control)		Yes
			Dialogue On:DRC(TV)/ Off:DRC(Std)		No
			dts Decode		No
			Surround On/Off		No
		System			Yes
			Disc/Card Slot		No
			Password Lock/Unlock		Yes
			Rating Level		Yes
			Select Files		No
			HDMI(480p/1080i/720p)		No
			Output		No
		Open			Yes
		Close			Yes
		No disc			Yes
		Reading			Yes
		Play			Yes
		Still/Pause			Yes
		Stop			Yes
		PBC			No
		Prohibit Mark			Yes
		Step			Yes
		Skip (>>|)			Yes
		Skip (|<<)			Yes
		Random			Yes (CD)
		Repeat			Yes
		Slow+			Yes
		Slow-			No
		Search+			Yes
		Search-			Yes
		Jump			Yes
		Resume			Yes
		Title No.			Yes
		Chapter No.			Yes
		Track No.			Yes

GENERAL SPECIFICATIONS

			Time		Yes
			Subtitle No.		Yes
			Angle No.		Yes
			Vocal On/Off		No
			Audio No.		Yes
			Audio Stereo L/R		No
			Zoom		Yes
			Marker No.		Yes
			Surrond On/Off		No
			Program Play Back		Yes (CD)
			MP3/WMA	Folder Name	No
				File Name	No
				File No	No
				Time	No
				Track No	No
			Progressive Scan Out ON/OFF		No
	On Screen Display(VCR)	Menu			Yes
			Menu Type		Character
			Timer Rec Set		Yes
			Auto Repeat On/Off		Yes
			SAP On/Off		Yes
			CH Set-Up		Yes
				TV/CABLE	Yes
				Auto CH Memory	Yes
				Add/Delete	Yes
			System Set Up		Yes
				Clock Set	Yes (Calendar 12H)
				Language	Yes
				No Noise Back Ground	Yes
				Auto Clock	Yes
				Standard Time	Yes
				Daylight Saving Time	Yes
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry			No
		Stereo, Audio Output, SAP			Yes
		Play/Stop/FF/Rew/Rec/OTR/Pause/Eject/Tape In/Repeat (Symbol Mark)			Yes
				CH	Yes
				Clock	Yes
				Repeat	Yes
				Tape Counter	Yes
				Index	Yes
				Tape Speed	Yes
				ATR / Manual Tracking	Yes
				ZERO Return	Yes
				Hi-Fi	Yes
G-11	**OSD Language**		DVD OSD		English / French / Spanish
			VCR OSD		English / French / Spanish
G-12	**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
		Timer Back-up (at Power Off Mode)			30min
G-13	**Display**	DISPLAY			No
				DISPLAY type	--
				Clock/Counter,CH,Timer Rec,OTR, Play Rec,FF(Cue),Rew(Rev),Stop,ATR,Eject	--
				VCR	--
				DVD	--
				CD	--
				Clock	--
				AM	
				PM	
				Counter VCR	--
				DVD	--
				CD	--
				Eject	--
				Counter Remain	--
				Play	--
				Stop	--
				Rec	--
				FF / Cue	--

			REW / Review	--
			Pause / Still	--
			OTR (ITR)	--
			T-Rec	--
			Chapter	--
			TITLE	--
			TRACK	--
			Repeat	--
			Hi-Fi	--
			SP	--
			LP	--
			SLP	--
			CH	--
			RF Output CH	--
			Tape In	--
			Remocon Custom Code	--
			Progressive Scan Out	--
G-14	**Remote Control**	Unit		RC-JT
		Glow in Dark Remocon		No
		Remocon Format		Orion
		Format		NEC
		Custom Code		71-8E
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		44 Keys
		Keys	Power	Yes
			DISPLAY/CALL	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			Input Select	No
			Input Select / PROGRESSIVE	No
			UP/CH+	Yes
			DOWN/CH-	Yes
			LEFT/ SET- / TRACKING-	Yes
			RIGHT/ SET+ / TRACKING+	Yes
			VCR/DVD	Yes
			TV/VCR	Yes
			DVD MENU	Yes
			TITLE	Yes
			SETUP MENU/VCR MENU	Yes
			SELECT/ENTER	Yes
			CLEAR/CANCEL	Yes
			RETURN	Yes
			PLAY	Yes
			STOP	Yes
			PAUSE/STILL/STEP	Yes
			FF(Cue)/SEARCH+	Yes
			REW(Review)/SEARCH-	Yes
			REC/OTR	Yes
			SKIP+ / INDEX+	Yes
			SKIP- / INDEX-	Yes
			AUDIO / AUDIO SELECT	Yes
			ANGLE/COUNTER RESET	Yes
			SUBTITLE/ATR	Yes
			PLAY MODE/SPEED	Yes
			T-REC	Yes
			CLOCK / COUNTER	No
			JUMP/ZERO RETURN	Yes
			ZOOM	Yes
			REPEAT A-B	Yes
			SLOW (Forward)	Yes

GENERAL SPECIFICATIONS

			MARKER	Yes
			OPEN/CLOSE	Yes
			EJECT	Yes
G-15	**Features (DVD)**	Auto Power Off		No
		Parental Lock		Yes
		Video CD Playback		No
		MP3 Playback		No
		WMA Playback		No
		JPEG Playback		No
		Progressive Scan Out		No
		Digital Out	Dolby Digital	Yes
			MPEG	Yes
			PCM	Yes
			DTS	No
		Down Mix Out	(Dolby Digital)	Yes
			(DTS)	No
		Spatializer (N-2-2)		No
		Screen Saver		Yes
		Tray Lock		No
		Auto Stop		No
		Audio DAC		192kHz / 24bit
	Features (VCR)	Auto Head Cleaning		Yes
		Auto Power Off		No
		Forward/Reverse Picture Search		Yes
		VIDEO PLUS+ (SHOWVIEW, G-CODE)		No
		One Touch Playback		No
		Auto CH Memory		Yes
		AREA CODE		No
		Auto Clock Set		Yes
		Index Search		Yes
		SQPB		No
		CATV		Yes
		Energy Star		No
		MTS (SAP)		Yes
		CM Skip (30sec x 6 Times)		No
		Copy (Disc to Tape)		No
G-16	**Accessories**	Owner's Manual	Language	English / French
			w/Guarantee Card	No
		Remote Control Unit		Yes
		Guarantee Card		Yes
		Registration Card		No
		Warning Sheet		No
		Service Station List		No
		Important Tag		No
		AC Plug Adapter		No
		Quick Set-up Sheet		No
		Battery		No
			UM size x pcs	--
		AC Cord		No
		AV Cord (1.2m)		Yes
		75 Ohm Coaxial Cable (0.9m)		Yes
		S-Video Cable		No
		21pin cable		No
		800 No Sticker		No
		Toll Free Insert Sheet		No
		Safety Tip		No
		Disney Leaflet		No
		Aladdin Coupon		No
G-17	**Interface**	Switch Front	Power	Yes
			Play	Yes
			Eject (VCR)	Yes
			Stop	Yes
			Rec/OTR	Yes
			Open/Close (DVD)	Yes
			CH +	Yes
			CH -	Yes
			FF/ Search(>>)	Yes
			Rew/Search(<<)	Yes
			Still/Pause	No

GENERAL SPECIFICATIONS

				Shuttle (Search/REV/FWD)	No
				DVD/VCR	Yes
				Main Power SW	No
			Rear	Attenuator	No
				S-Video/Component Video Selector	No
				RF Out (Slide SW)	No
				Main Power SW	No
		Volume		Phones Volume	No
				Mic Volume	No
				Echo Volume	No
				Rec/OTR	No
		Terminals	Front	Video In	No
				Audio In	No
			Rear	Video Output	RCA x1 (Yellow) S-Video x 1 (DVD Signal Only)
				Audio Output	RCA x 4 (Stereo, White/Red) Coaxial x 1 (Digital Audio,DVD Signal Only)
				Optical Out (Option)	No
				Video Input (Option)	No
				Audio Input (Option)	No
				RF Input / Output	Yes
				Euro Scart	No
				AC Inlet	No
		Indicator	LED	Power	Yes(GREEN)
				Rec	Yes (RED)
				T-Rec	Yes (RED)
				TV/VCR	Yes (RED)
				DVD	Yes (RED)
				VCR	Yes (RED)
				Surround	No
				Level Meter	No
G-18	**Set Size**			Approx. W x D x H (mm)	497.5 x 295 x 149.5
G-19	**Weight**			Net (Approx.)	4.8 kg(10.5lbs)
				Gross (Approx.)	6.5 kg(14.3lbs)
G-20	**Carton**	Master Carton			No
				Content	--- Sets
				Material	--- / ---
				Dimensions W x D x H(mm)	---
				Description of Origin	---
		Gift Box		Material	Single / Full Color
				W/Color Photo Label	No
				Dimensions W x D x H(mm)	565 x 408 x 231
				Description of Origin	Yes
		Drop Test			Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
				Height (cm)	80 cm
		Container Stuffing			1,160 Sets/40' container
G-21	**Material**	Cabinet		Front	PS 94V2 or More / DECABROM
				Top	PS 94V2 or More / DECABROM
				Bottom	PS 94V2 or More / DECABROM
		PCB		Non-Halogen Demand	No
				Eyelet Demand	No
G-22	**Environment**	Environmental standard requirement			Green procurement of ORION
		Pb-free			Phase3 (Phase3A)

DISASSEMBLY INSTRUCTIONS

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

1-1: TOP CABINET/FRONT CABINET/ OPERATION 1/2 PCB AND LEG CLASSIC (L,R) (Refer to Fig. 1-1)

1. Remove the 2 screws (1).
2. Remove the LEG, Classic (L,R) Ass'y in the direction of arrow (A).
3. Remove the screw (2).
4. Remove the Top Cabinet in the direction of arrow (B).
5. Remove the 5 screws (3).
6. Remove the Top Cabinet in the direction of arrow (C).
7. Disconnect the following connector: **(CP680 and CP682)**.
8. Unlock the 9 supports (4).
9. Remove the Front Cabinet in the direction of arrow (D).
10. Remove the 9 screws (5).
11. Remove the Operation 1/2 PCB in the direction of arrow (E).

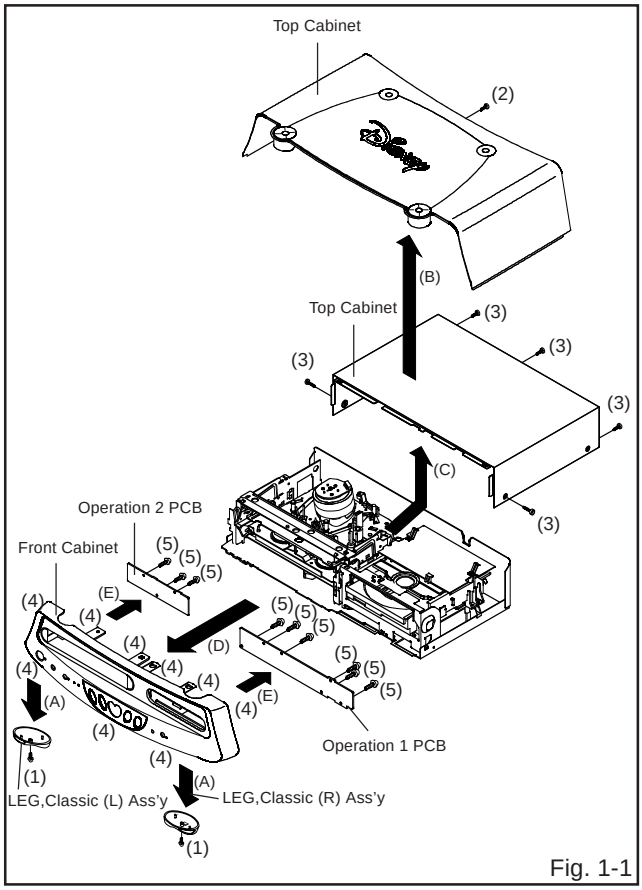


Fig. 1-1

1-2: FLAP (Refer to Fig. 1-2)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).

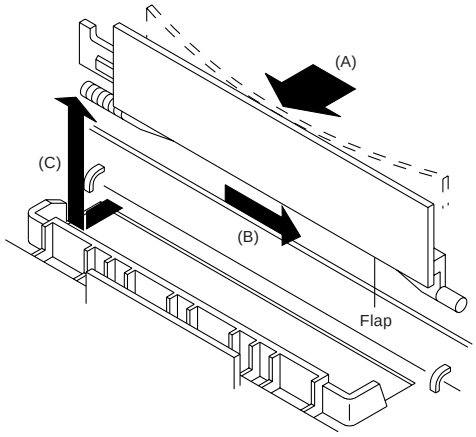


Fig. 1-2

1-3: DVD DECK/DVD PCB (Refer to Fig. 1-3)

1. Short circuit the position shown in **Fig. 1-3** using a soldering iron. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Unlock the support (1) and remove the Deck Top Holder in the direction of arrow (A).
3. Remove the 2 screws (2).
4. Remove the 2 screws (3).
5. Disconnect the following connectors: **(CP501, CP8001).**
6. Remove the DVD Deck in the direction of arrow (B).
7. Remove the 2 screws (4).
8. Disconnect the following connectors: **(CP2301, CP2302 and CP2303).**
9. Remove the DVD PCB in the direction of arrow (C).
10. Remove the 3 screws (5).
11. Remove the Front Angle in the direction of arrow (D).

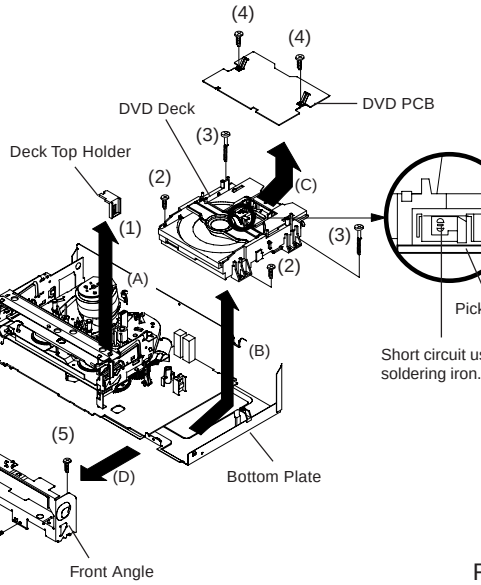


Fig. 1-3

DISASSEMBLY INSTRUCTIONS

NOTE

1. Before your operation, please read “PREPARATION OF SERVICING”.
2. Use the Lead Free solder.
3. Manual soldering conditions
   - Soldering temperature: 320 ± 20°C
   - Soldering time: Within 3 seconds
   - Soldering combination: Sn-3.0Ag-0.5Cu
4. When Soldering/Removing of solder, use the drawing equipment over the Pick Up Unit to keep the Flux smoke away from it.
5. When installing the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

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 screw (1).
2. Remove the FE Head.
3. Move the Cassette Holder Ass’y to the back side.
4. Remove the 2 screws (2).
5. Remove the 2 screws (3).
6. Disconnect the following connectors: **(CP101, CP102 and CP3001).**
7. Remove the VCR Deck in the direction of arrow.

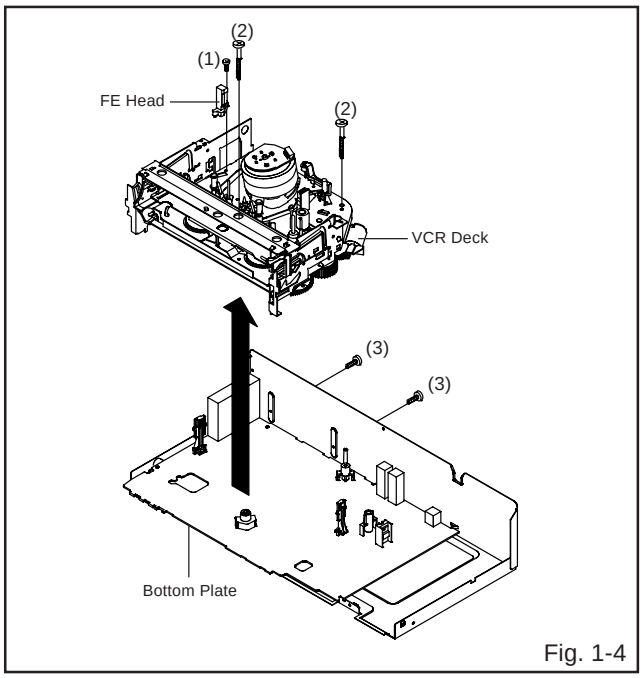


Fig. 1-4

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

1. Remove the screw (1).
2. Remove the 3 screws (2).
3. Remove the 2 screws (3).
4. Remove the VCR PCB in the direction of arrow.

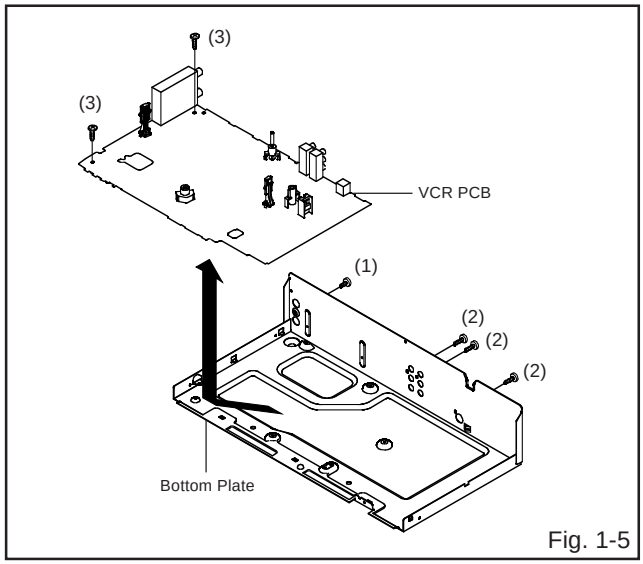


Fig. 1-5

1-6: BOTTOM, PLATE/BOTTOM CABINET AND LEG, BACK (L, R) (Refer to Fig. 1-6)

1. Remove the 4 screw (1).
2. Remove the Bottom, Holder.
3. Remove the Bottom, Plate in the direction of arrow (A).
4. Remove the 4 screws (2).
5. Remove the 2 screws (3).
6. Remove the Bottom, Cabinet and LEG, Black (L,R) in the direction of arrow (B).

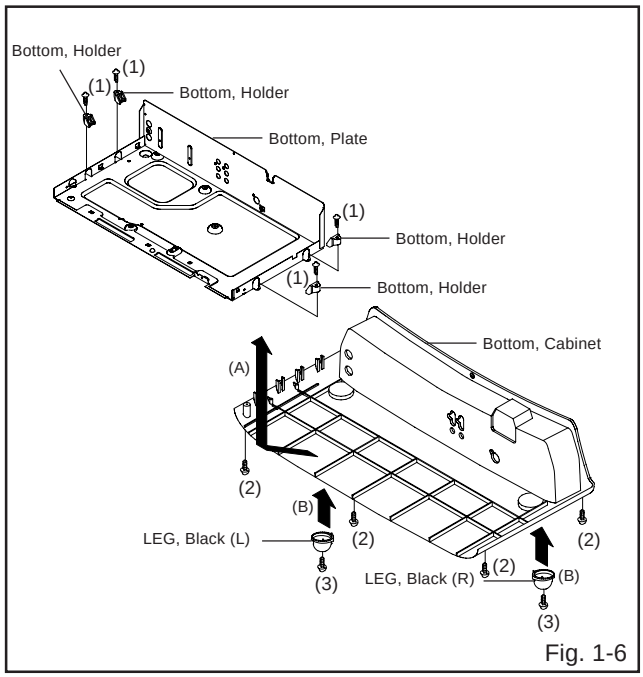


Fig. 1-6

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

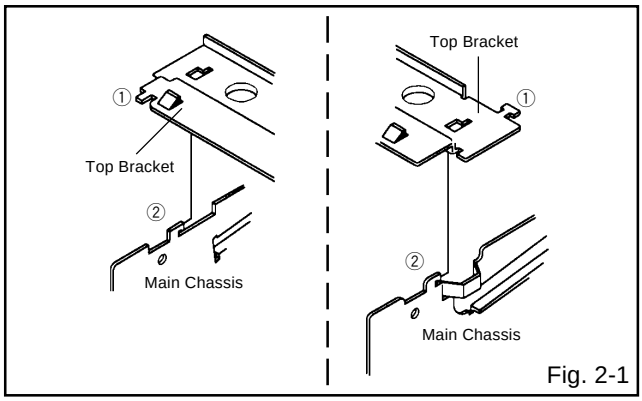


Fig. 2-1

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.

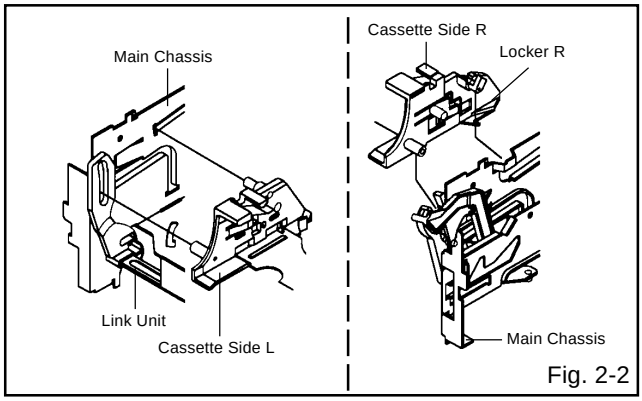


Fig. 2-2

2-3: LINK UNIT (Refer to Fig. 2-3)

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.

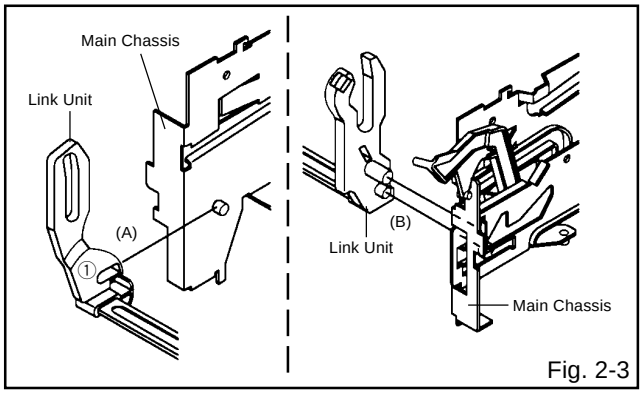


Fig. 2-3

2-4: LINK LEVER/FLAP LEVER (Refer to Fig. 2-4)

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

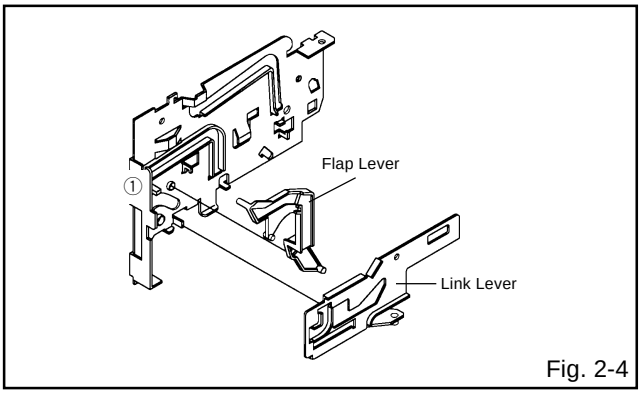


Fig. 2-4

2-5: LOADING MOTOR/WORM (Refer to Fig. 2-5-A)

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

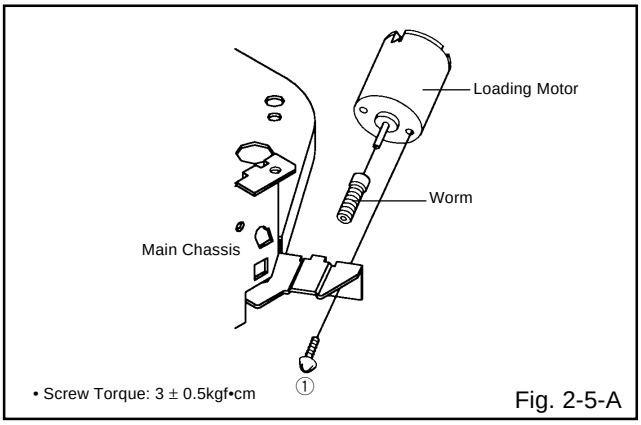


Fig. 2-5-A

NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-5-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-5-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-5-D.

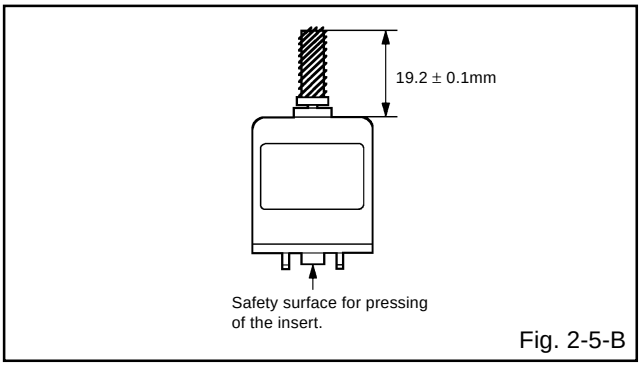


Fig. 2-5-B

DISASSEMBLY INSTRUCTIONS

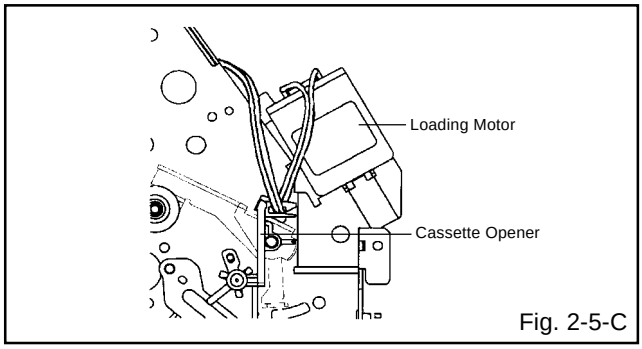


Fig. 2-5-C

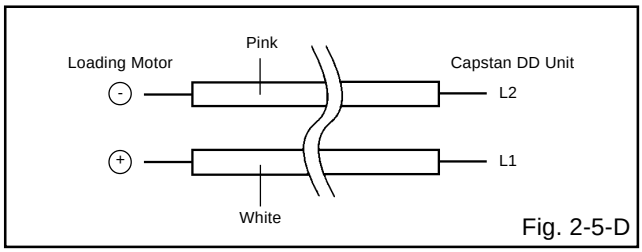


Fig. 2-5-D

2-6: TENSION ASS'Y (Refer to Fig. 2-6-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-6-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.

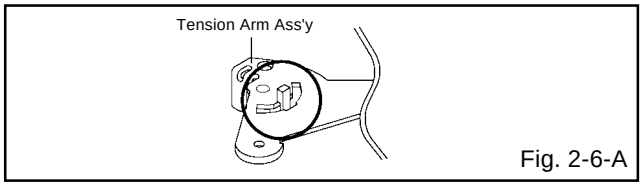


Fig. 2-6-A

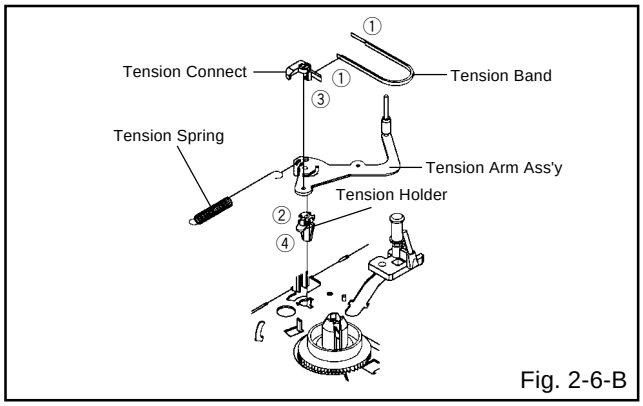


Fig. 2-6-B

NOTE

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-6-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-6-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-6-E.

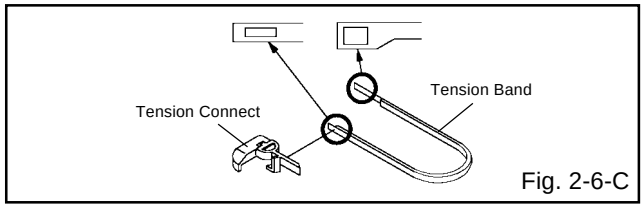


Fig. 2-6-C

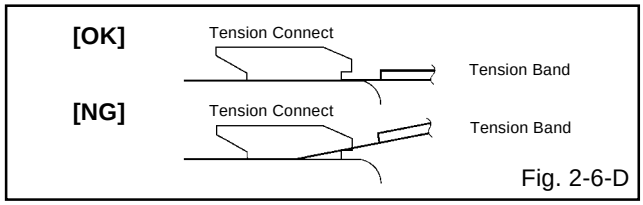


Fig. 2-6-D

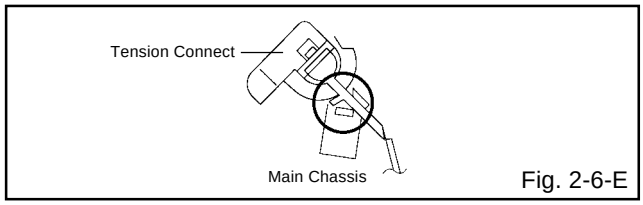


Fig. 2-6-E

2-7: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-7-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.

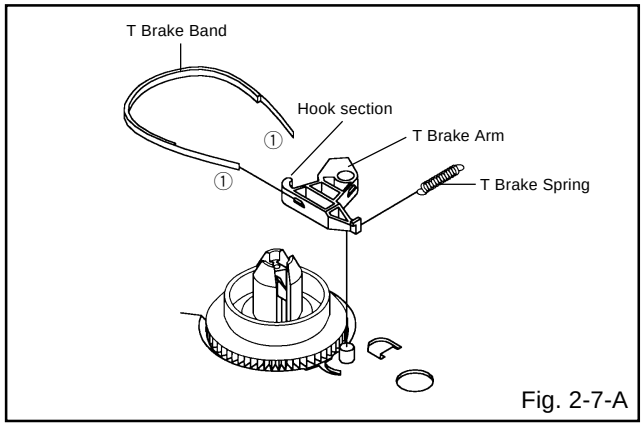


Fig. 2-7-A

NOTE

1. In case of the T Brake Band installation, install correctly as Fig. 2-7-B.

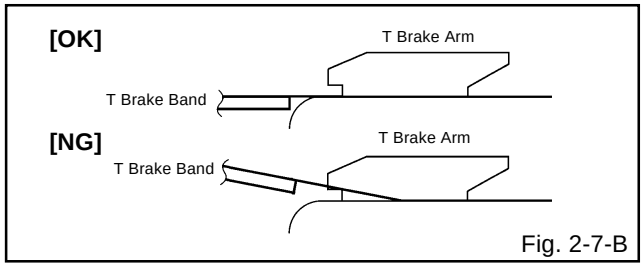


Fig. 2-7-B

DISASSEMBLY INSTRUCTIONS

2-8: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-8-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 remain on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-8-A)** Touching may leave stains on section "A".
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)**

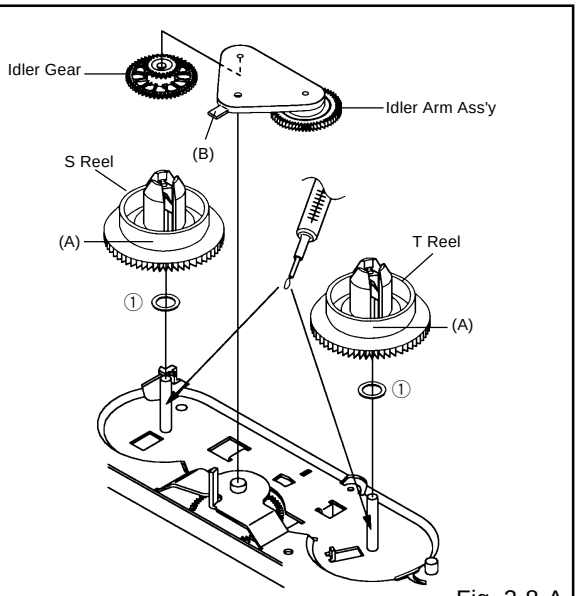


Fig. 2-8-A

NOTE

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-8-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-8-C. And also set it so that the section "B" of Fig. 2-8-A is placed under the Main Chassis tab.

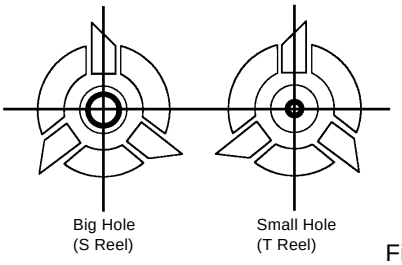


Fig. 2-8-B

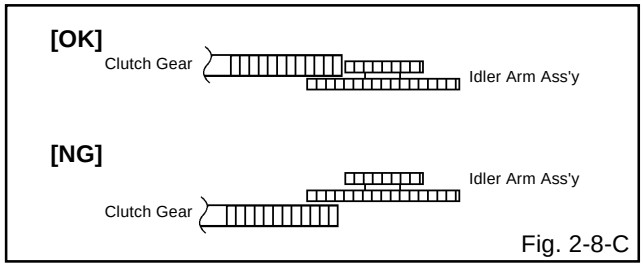


Fig. 2-8-C

2-9: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-9-A)

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

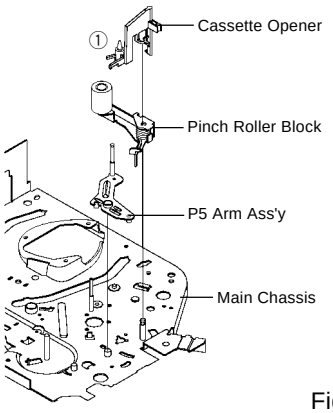


Fig. 2-9-A

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. 2-9-B.

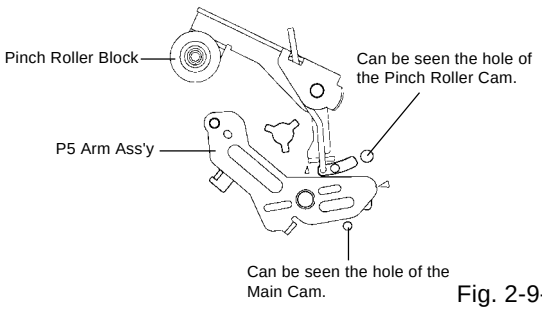


Fig. 2-9-B

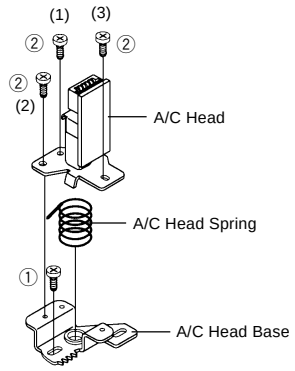
2-10: A/C HEAD (Refer to Fig. 2-10-A)

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. 2-10-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

DISASSEMBLY INSTRUCTIONS



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

Fig. 2-10-A

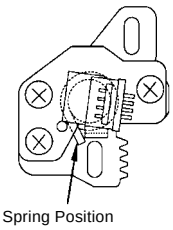
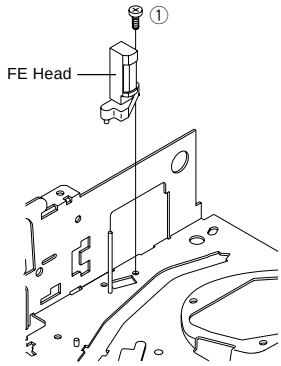


Fig. 2-10-B

2-11: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-11)

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.

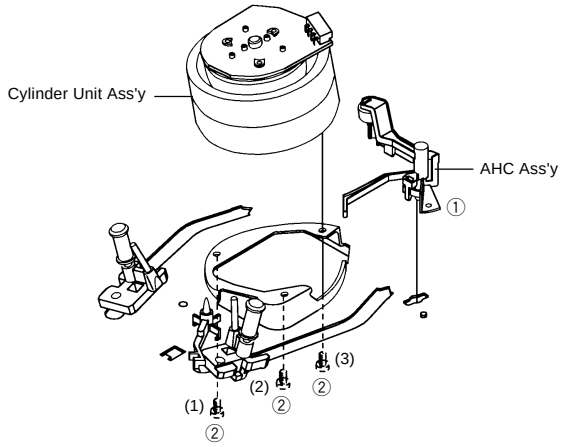
Fig. 2-11

2-12: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-12)

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.

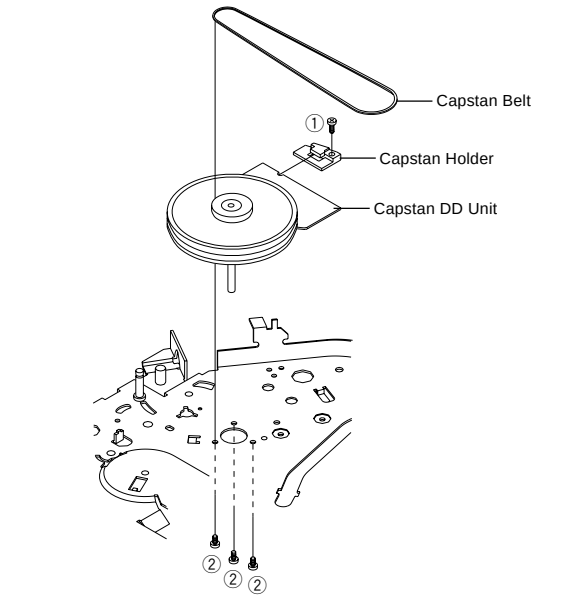


• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-12

2-13: CAPSTAN DD UNIT (Refer to Fig. 2-13)

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. 2-13

DISASSEMBLY INSTRUCTIONS

2-14: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-14-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.

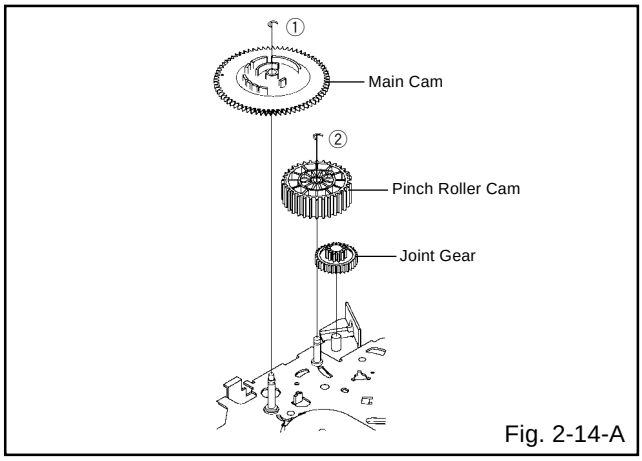


Fig. 2-14-A

NOTE

1. In case of the Pinch Roller Cam and Main Cam installation, install them as shown in the circled section of Fig. 2-14-B so that the markers meet. **(Refer to Fig. 2-14-B)**
   And also can be seen the Main Chassis hole through the Main Cam maker hole.

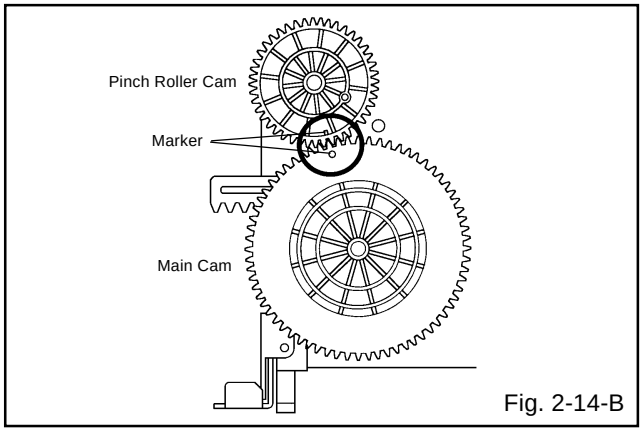


Fig. 2-14-B

2-15: LOADING GEAR S/T UNIT (Refer to Fig. 2-15-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.

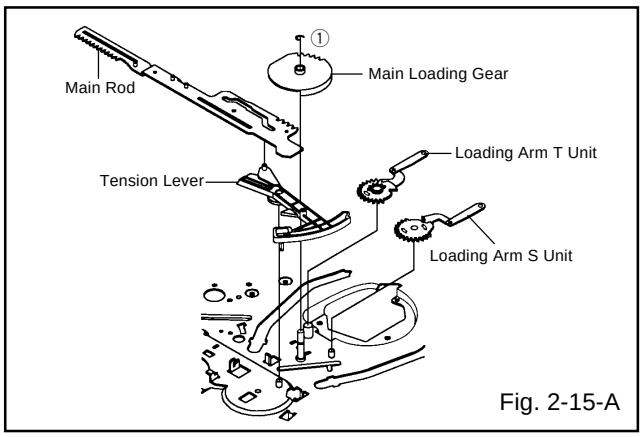


Fig. 2-15-A

NOTE

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. **(Refer to Fig. 2-15-B)**

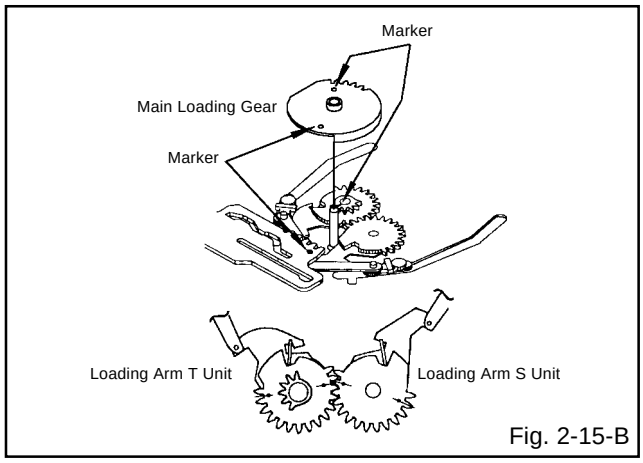


Fig. 2-15-B

2-16: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-16-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.

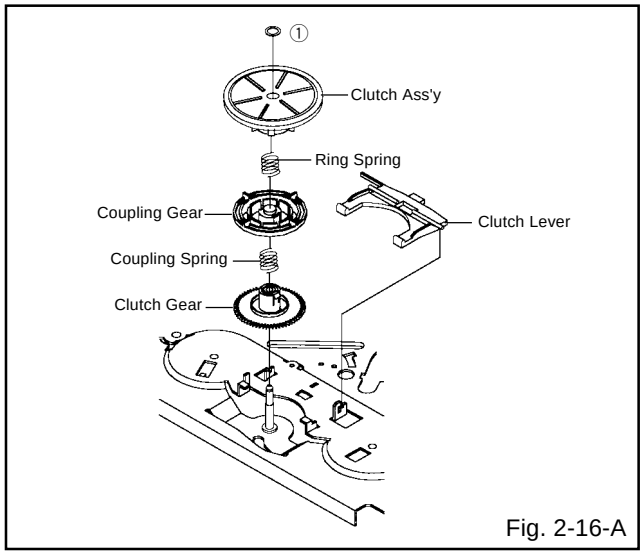


Fig. 2-16-A

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. 2-16-B)**

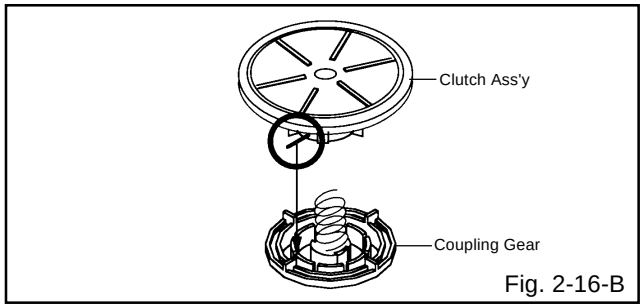


Fig. 2-16-B

DISASSEMBLY INSTRUCTIONS

2-17: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-17-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.

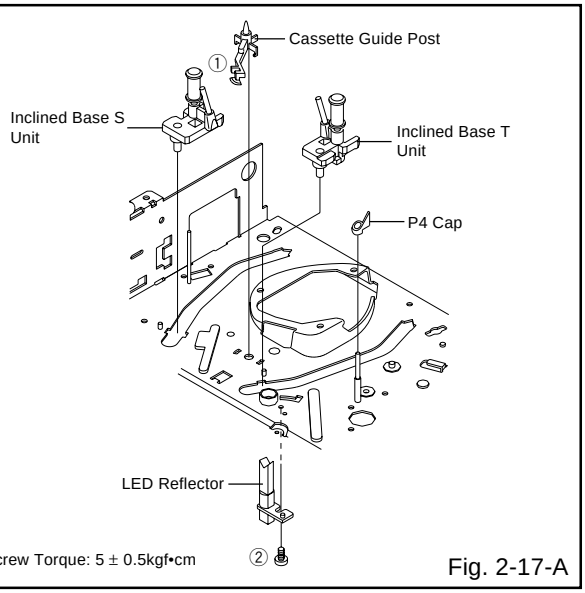


Fig. 2-17-A

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. 2-17-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-17-C.

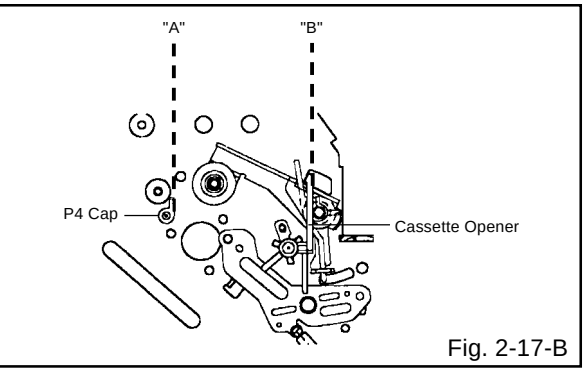


Fig. 2-17-B

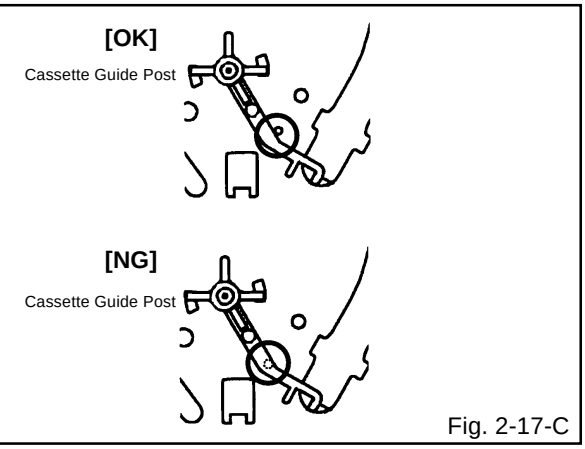


Fig. 2-17-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF DVD DECK PARTS

NOTE

1. Disassemble only the DVD DECK PARTS parts listed here. Minute adjustments are needed if the disassembly 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.

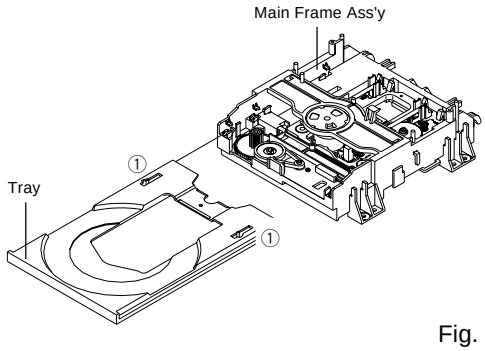


Fig. 3-1-A

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.

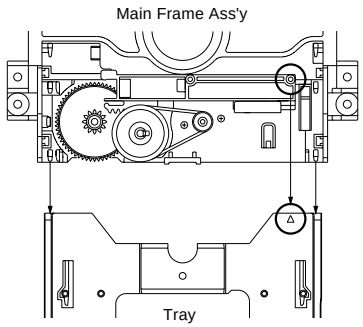
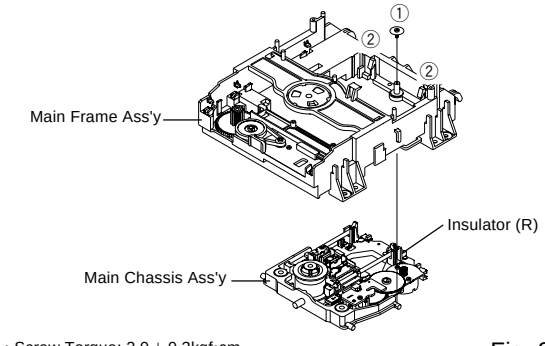


Fig. 3-1-B

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 ± 0.3kgf•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.

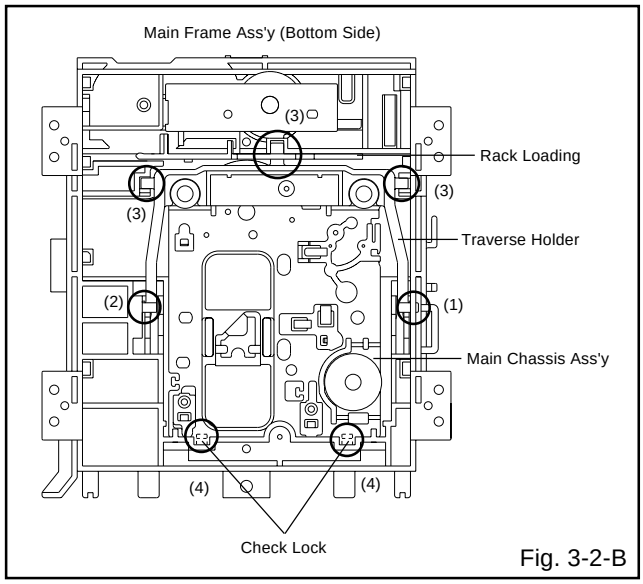


Fig. 3-2-B

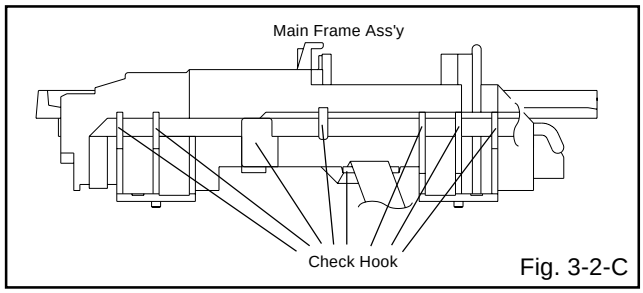
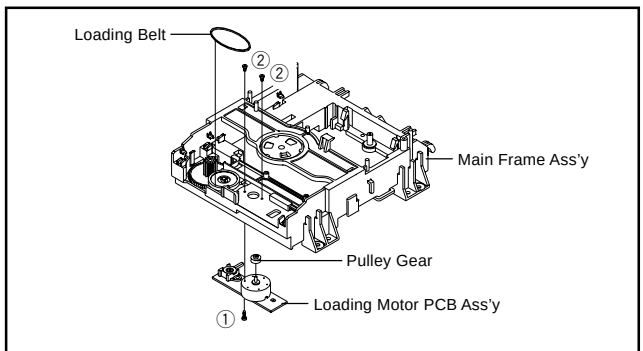


Fig. 3-2-C

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.

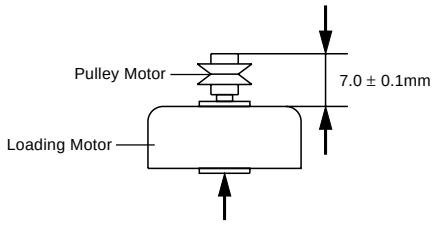


Fig. 3-3-B

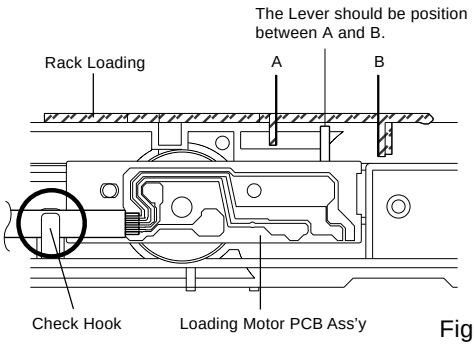


Fig. 3-3-C

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.

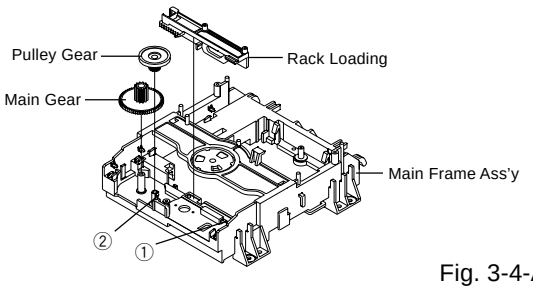


Fig. 3-4-A

NOTE

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

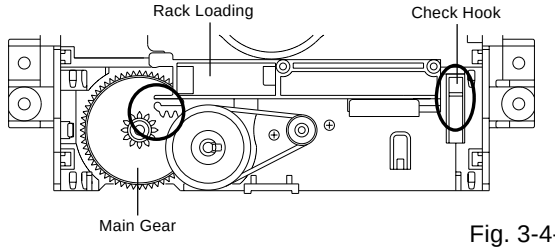


Fig. 3-4-B

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.

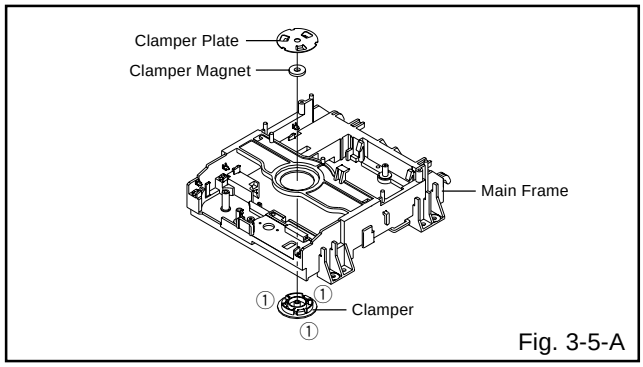


Fig. 3-5-A

NOTE

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

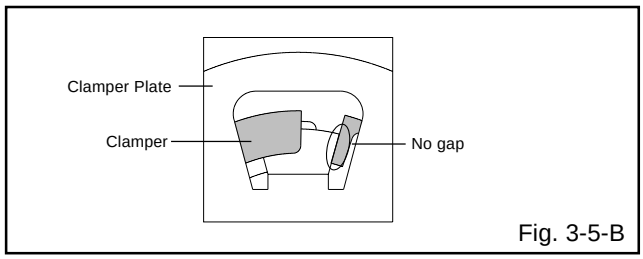


Fig. 3-5-B

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).

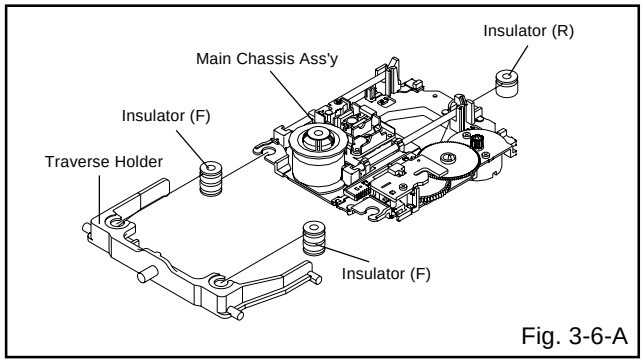


Fig. 3-6-A

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.

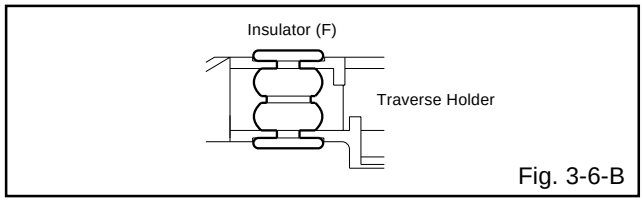


Fig. 3-6-B

DISASSEMBLY INSTRUCTIONS

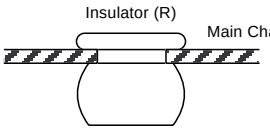
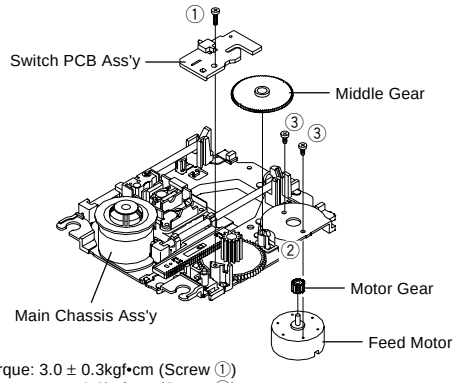


Fig. 3-6-C

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

1. Remove the screw ①.
2. Remove the Switch PCB Ass'y.
3. Unlock the support ②.
4. Remove the Middle Gear.
5. Remove the 2 screws ③.
6. Remove the Feed Motor.
7. Remove the Motor Gear.



• Screw Torque: 3.0 ± 0.3kgf•cm (Screw ①)
• Screw Torque: 1.5 ± 0.3kgf•cm (Screw ③)

Fig. 3-7-A

NOTE

1. In case of the Motor Gear installation, check if the value of the Fig. 3-7-B is correct.
2. When installing the wire of the Switch PCB Ass'y, install it correctly as Fig. 3-7-C.
3. After the assembly of the Main Chassis Ass'y, hook the wire on the Main Chassis Ass'y as shown Fig. 3-7-D.

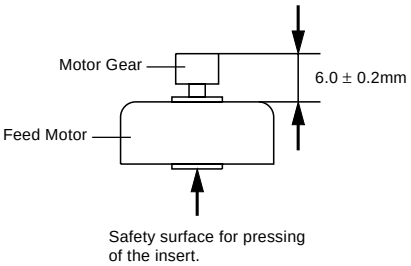


Fig. 3-7-B

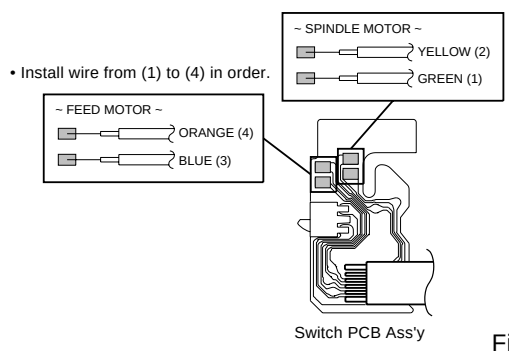
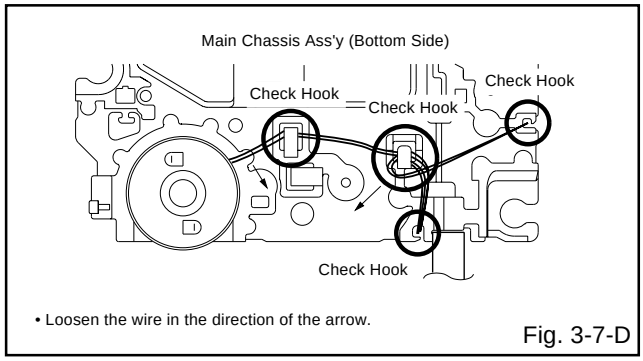


Fig. 3-7-C



• Loosen the wire in the direction of the arrow.

Fig. 3-7-D

3-8: FFC WIRE HANDLING

1. When installing the FFC, fold it correctly and install it as shown from Fig. 3-8-A to Fig. 3-8-C.

NOTE

1. Do not make the folding lines except the specified positions for the FFC.

[24 pin FFC]

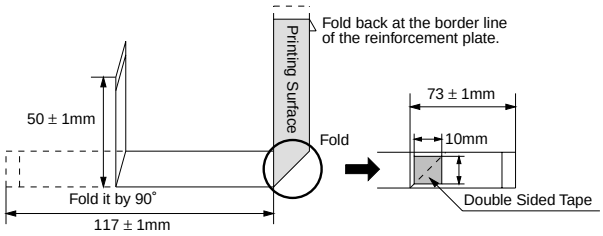
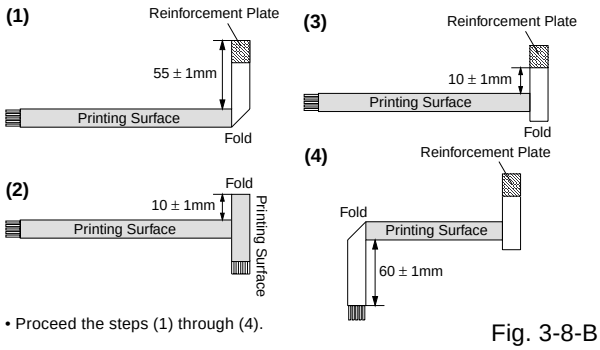


Fig. 3-8-A

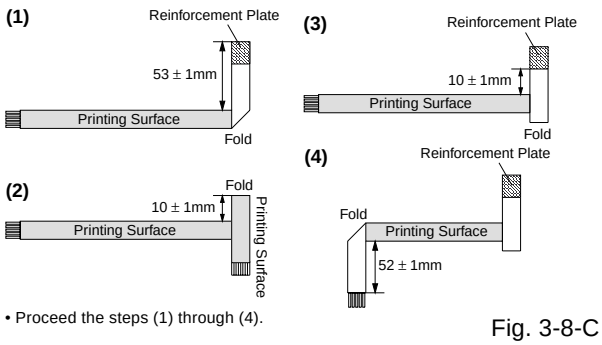
[5 pin FFC]



• Proceed the steps (1) through (4).

Fig. 3-8-B

[6 pin FFC]



• Proceed the steps (1) through (4).

Fig. 3-8-C

DISASSEMBLY INSTRUCTIONS

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

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

   NOTE

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

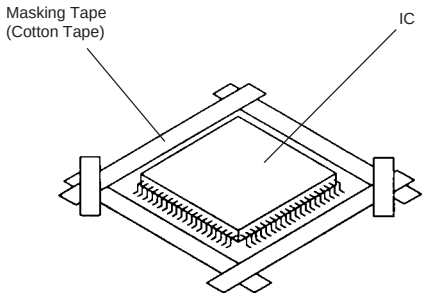


Fig. 4-1

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

   NOTE

   Do not rotate or move the IC back and forth until IC can move back and forth easily after desoldering the leads completely.

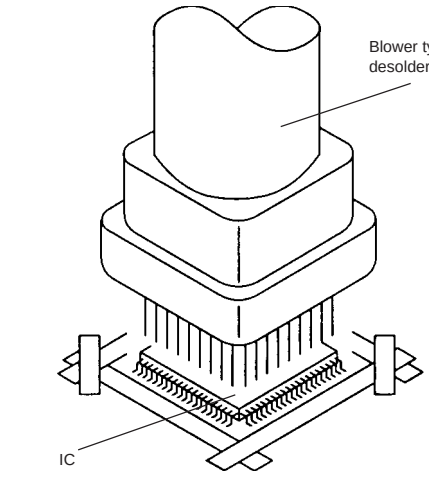


Fig. 4-2

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

   NOTE

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

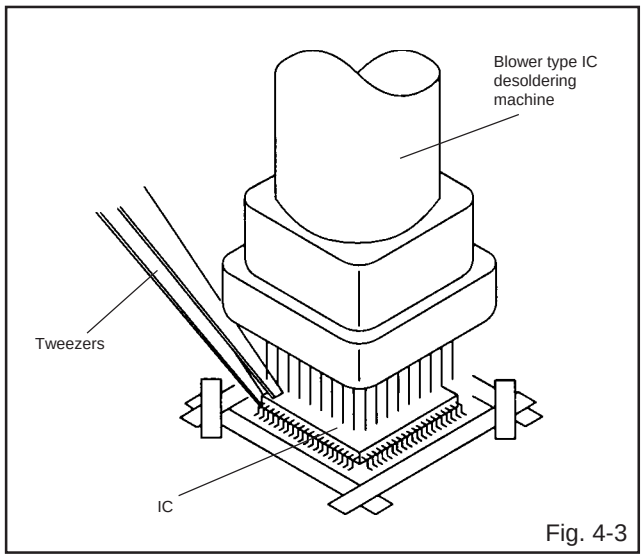


Fig. 4-3

4. Peel off the Masking Tape.

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

   NOTE

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

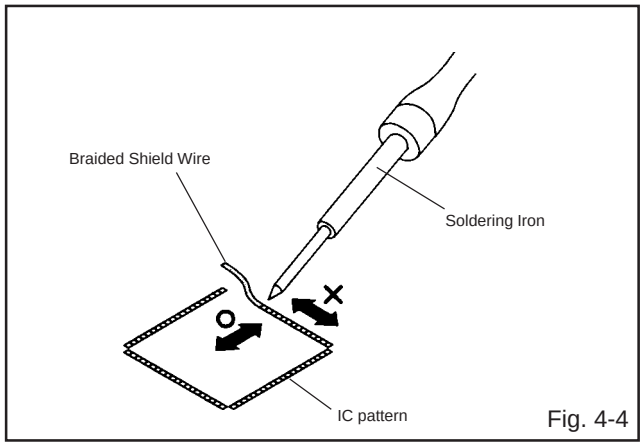


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

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

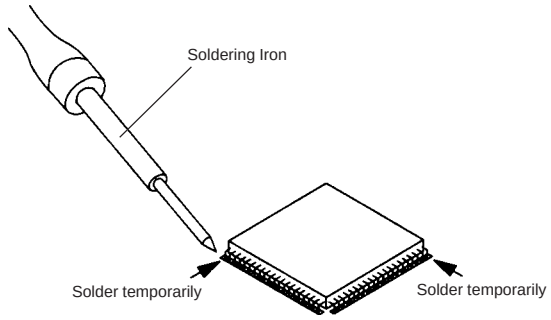


Fig. 4-5

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

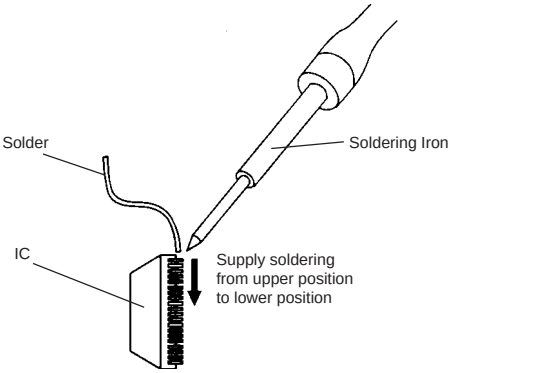


Fig. 4-6

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

   NOTE

   Do not absorb the solder to excess.

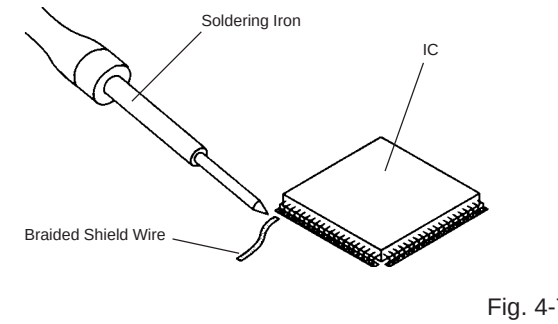


Fig. 4-7

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

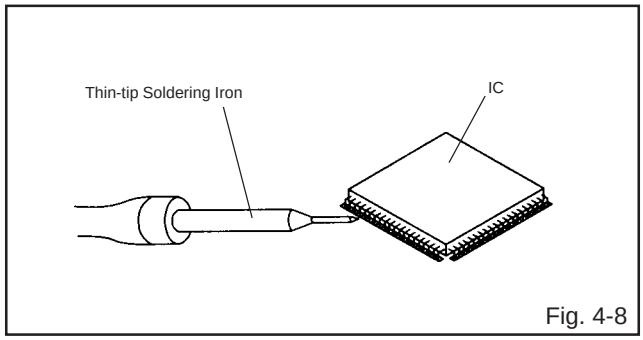


Fig. 4-8

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

   NOTE

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

KEY TO ABBREVIATIONS

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

KEY TO ABBREVIATIONS

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

SERVICE MODE LIST

This unit is provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than the standard time in the appropriate condition. (See below chart.)
In case of the main unit and remote control, press the remote control buttons first, then press the main unit buttons.

Set Condition	Set Key	Set Key	Standard Time	Operations
VCR mode	CH UP	FF	2 sec.	PLAY/REC total hours are displayed on the TV Monitor. 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”.
VCR mode	CH UP	PLAY	2 sec.	Initialization of factory VCR data. NOTE: Do not use this for normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, and PLAY/REC total hours.
VCR mode (Playback)	CH UP	STOP	2 sec.	Adjust the PG SHIFTER automatically. Refer to the “ELECTRICAL ADJUSTMENT”.
Power Off	CH DOWN	POWER	2 sec.	VCR operation mode at no connection of DVD. Refer to the “PREPARATION FOR SERVICING” NOTE: Although the DVD is connected, the DVD mode cannot be selected.

Set Condition	Set Key	Remocon Key	Standard Time	Operations
DVD mode (No disc)	REC/OTR	4	2 sec.	Initialization of factory DVD data. NOTE: Do not use this for normal servicing. This function will only work without the setting of DVD disc at DVD mode. While pressing the Remocon Key for more than 2 seconds, press the Set Key simultaneously.
DVD mode (No disc)	STOP	7	3 sec.	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.

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

PREVENTIVE CHECKS AND SERVICE INTERVALS

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

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

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

CONFIRMATION OF HOURS USED

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

NOTE: If you set factory initialization, the total hours is reset to "0".

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the VCR mode.
3. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.
   The **Fig. 1** screen will appear on TV Monitor.
4. After the confirmation of using hours, turn off the power.

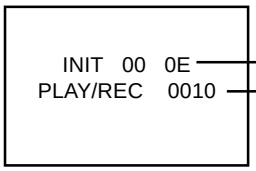


Fig. 1

Initial setting content of MEMORY IC.
PLAY/REC total hours.
= (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

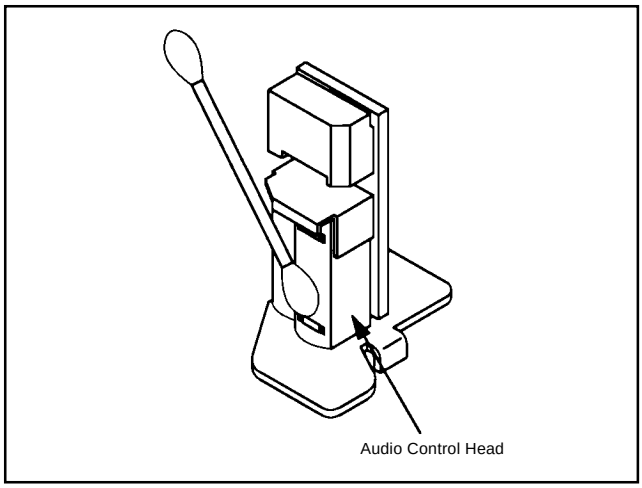
CLEANING

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



2. TAPE RUNNING SYSTEM

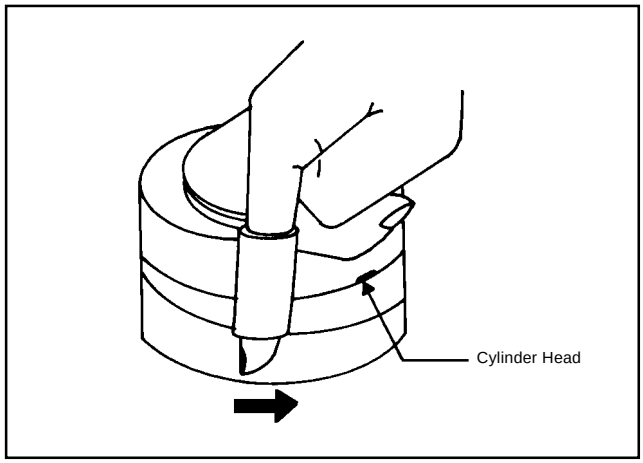
When cleaning the tape transport system, use gauze moistened with isopropyl alcohol.

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: INI 34 and INI 35 cannot be set. Because, the total time for the PLAY/REC of the main unit is recorded.

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	0E	D0	FC	60	C4	64	4A	86	0B	2B	86	32	0A	08	0A	02
10	AF	97	95	8A	A0	57	31	04	88	A5	9F	3A	00	10	BF	00
20	3A	11	22	70	61	3A	3A	00	0B	00	40	85	9A	B0	00	37
30	03	17	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 1

1. Connect the set to TV Monitor.
2. Turn on the POWER, and set to the VCR mode.
3. Press both CH UP button on the set and the FF button on the set for more than 2 seconds.
   ADDRESS and DATA will appear on TV Monitor as **Fig 1**.

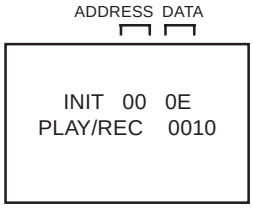


Fig. 1

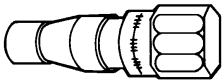
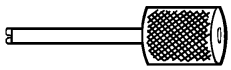
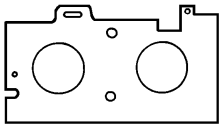
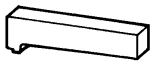
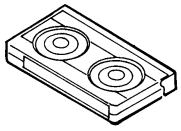
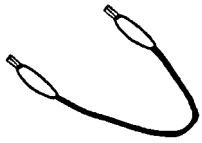
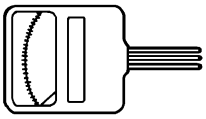
4. ADDRESS is now selected and should “blink”. Using the Tracking + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will “blink”.
6. Again, step through the DATA using Tracking + or - button until required DATA value has been selected.
7. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
8. Repeat steps 4 to 7 until all data has been checked.
9. 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.

10. Turn on the POWER, and set to the VCR mode.
11. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
12. 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) 
JG154 Cable 	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
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND
JG185	APJG185000	Tentelometer	Confirmation of Tape Tension on Playback

PREPARATION FOR SERVICING

1. While pressing the CH DOWN button on the set for more than 2 seconds, press the POWER button on the set simultaneously at the Power OFF. Although the DVD is connected, the DVD mode cannot be selected.
2. Short circuit between **TP3001** and **Ground** with the cable JG154.
   (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.

When you servicing with connection of DVD, perform the operations above step 2 to step 3.

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.

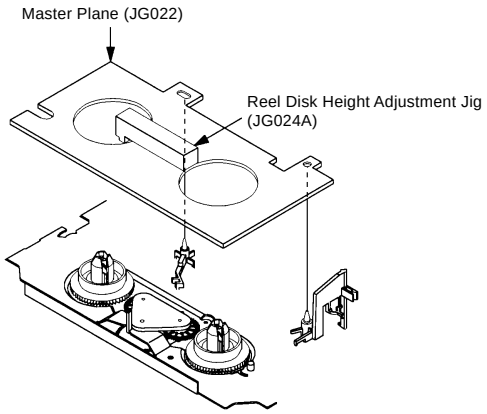


Fig. 1-1-A

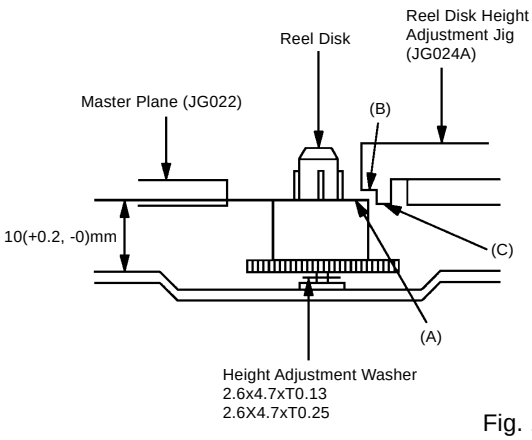


Fig. 1-1-B

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.

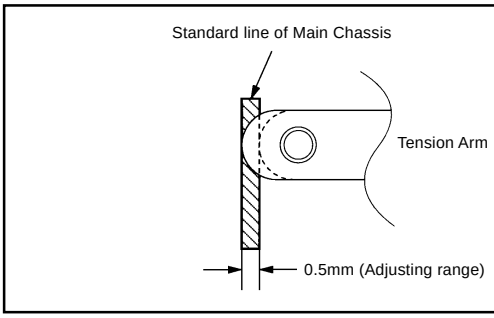


Fig. 1-2-A

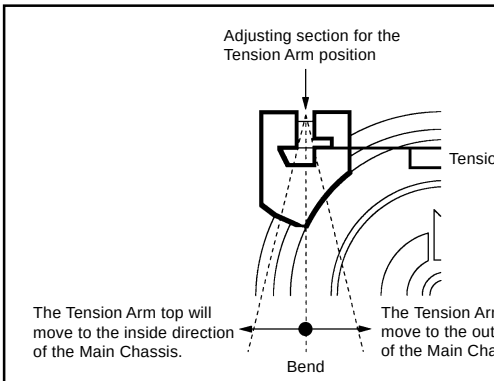


Fig. 1-2-B

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.

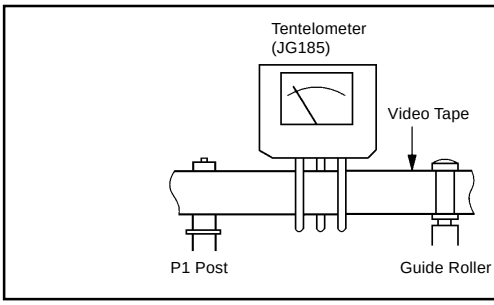


Fig. 1-3

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.

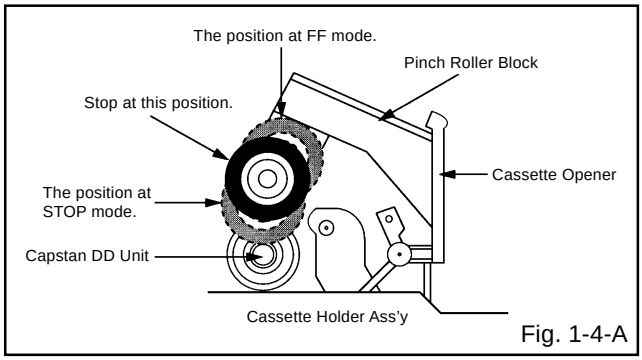


Fig. 1-4-A

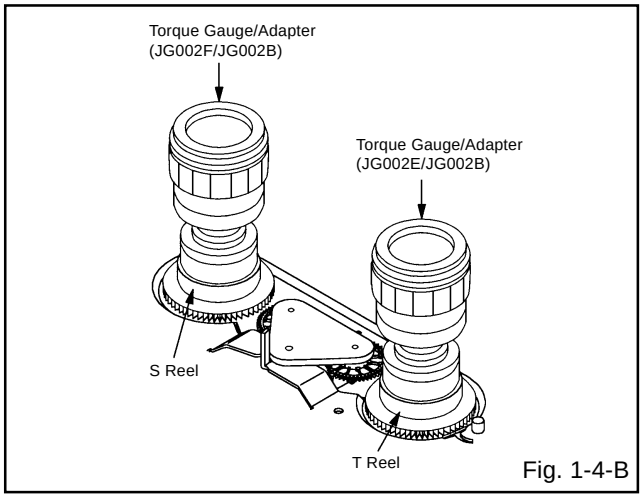


Fig. 1-4-B

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 **TP101 (Envelope)** and CH-2 to **TP3002 (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)**

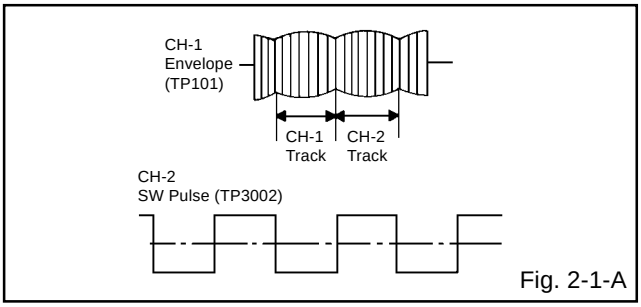


Fig. 2-1-A

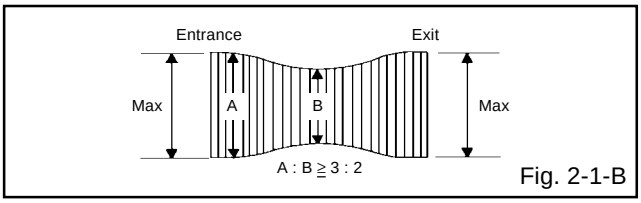


Fig. 2-1-B

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.

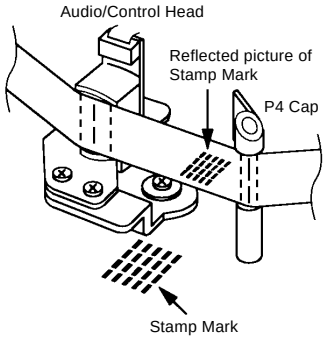


Fig. 2-2-A

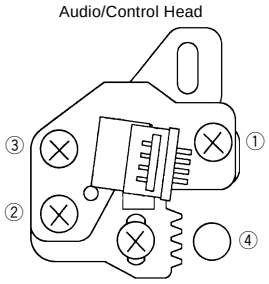


Fig. 2-2-B

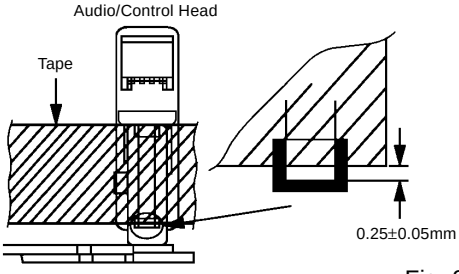


Fig. 2-2-C

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 **TP3002**, CH-2 to **TP101** 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.**

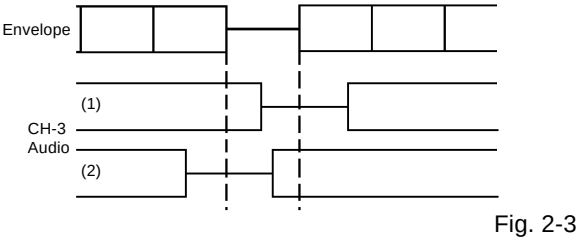


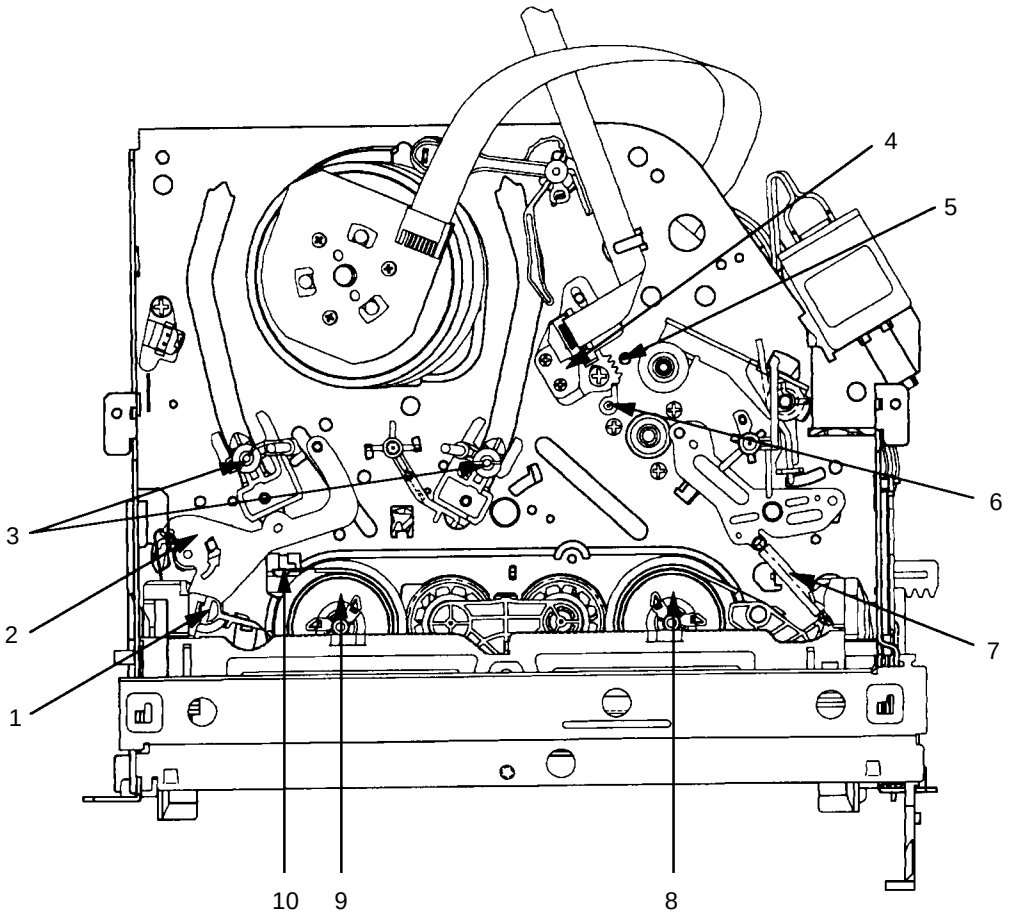
Fig. 2-3

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

1. Connect CH-1 of the oscilloscope to **TP101** 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 ATR 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

Read and perform this adjustment when repairing the circuits or replacing electrical parts or PCB assemblies.

1. BASIC ADJUSTMENT

CAUTION

- When you exchange IC and Transistor with a heat sink, apply silicon grease **(YG6260M)** 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.)

1-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape **(JG001P)**

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP3002** and CH-2 to **J8001 (Video Out)**.
2. Playback the alignment tape. **(JG001P)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press both CH UP button on the set and the STOP button on the set for more than 2 seconds.

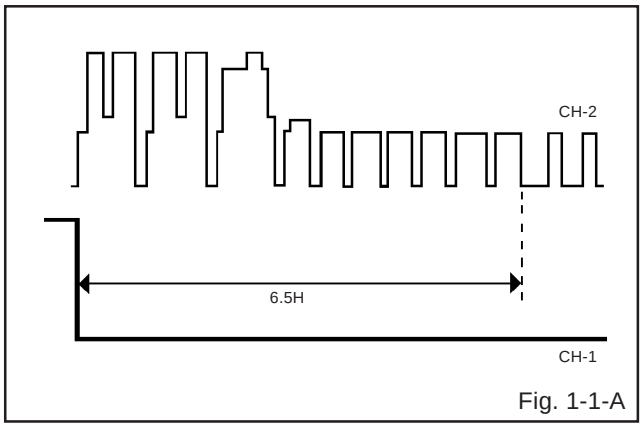


Fig. 1-1-A

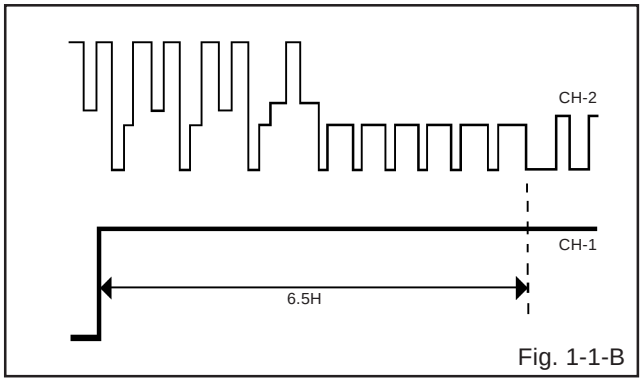
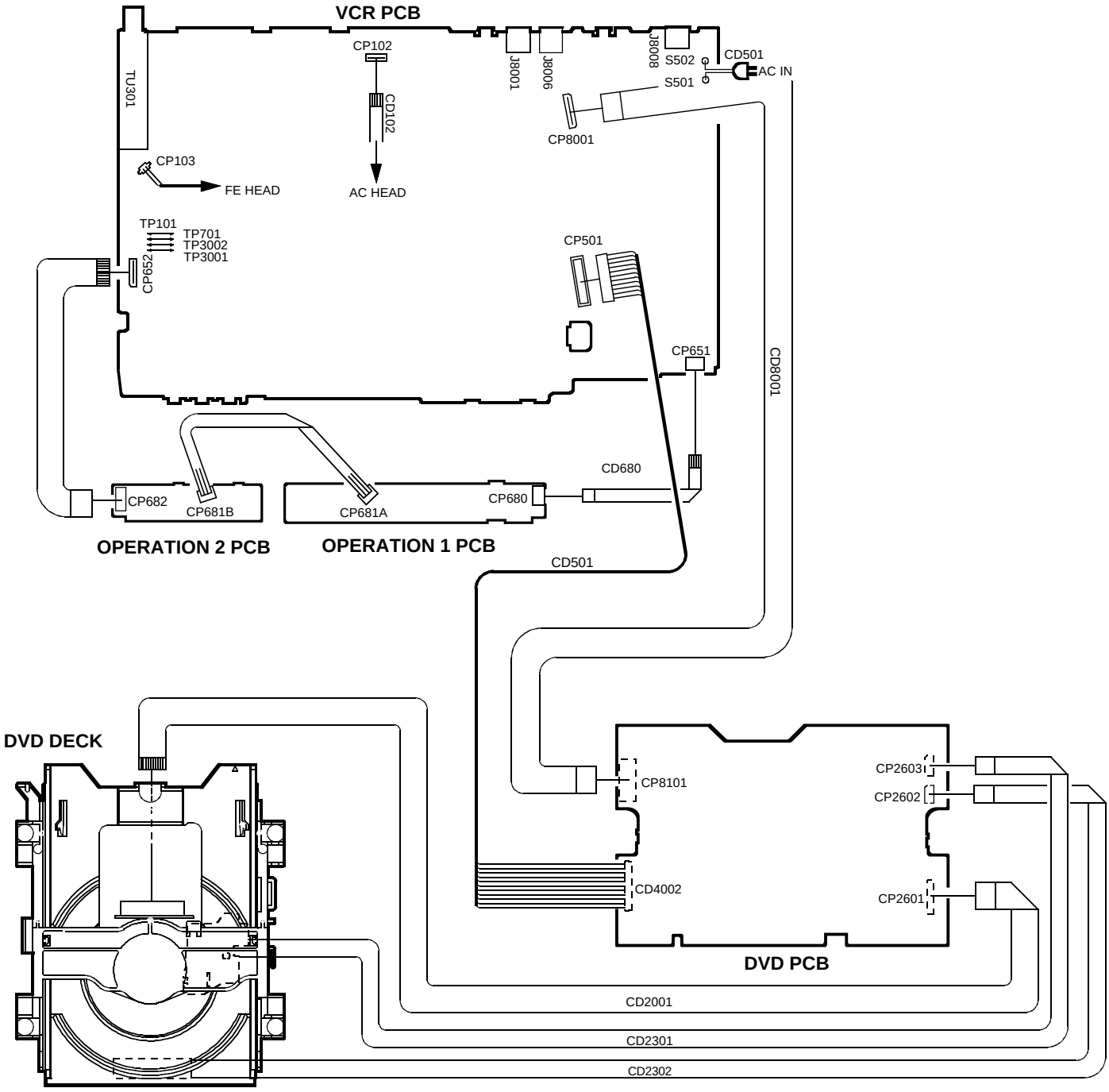


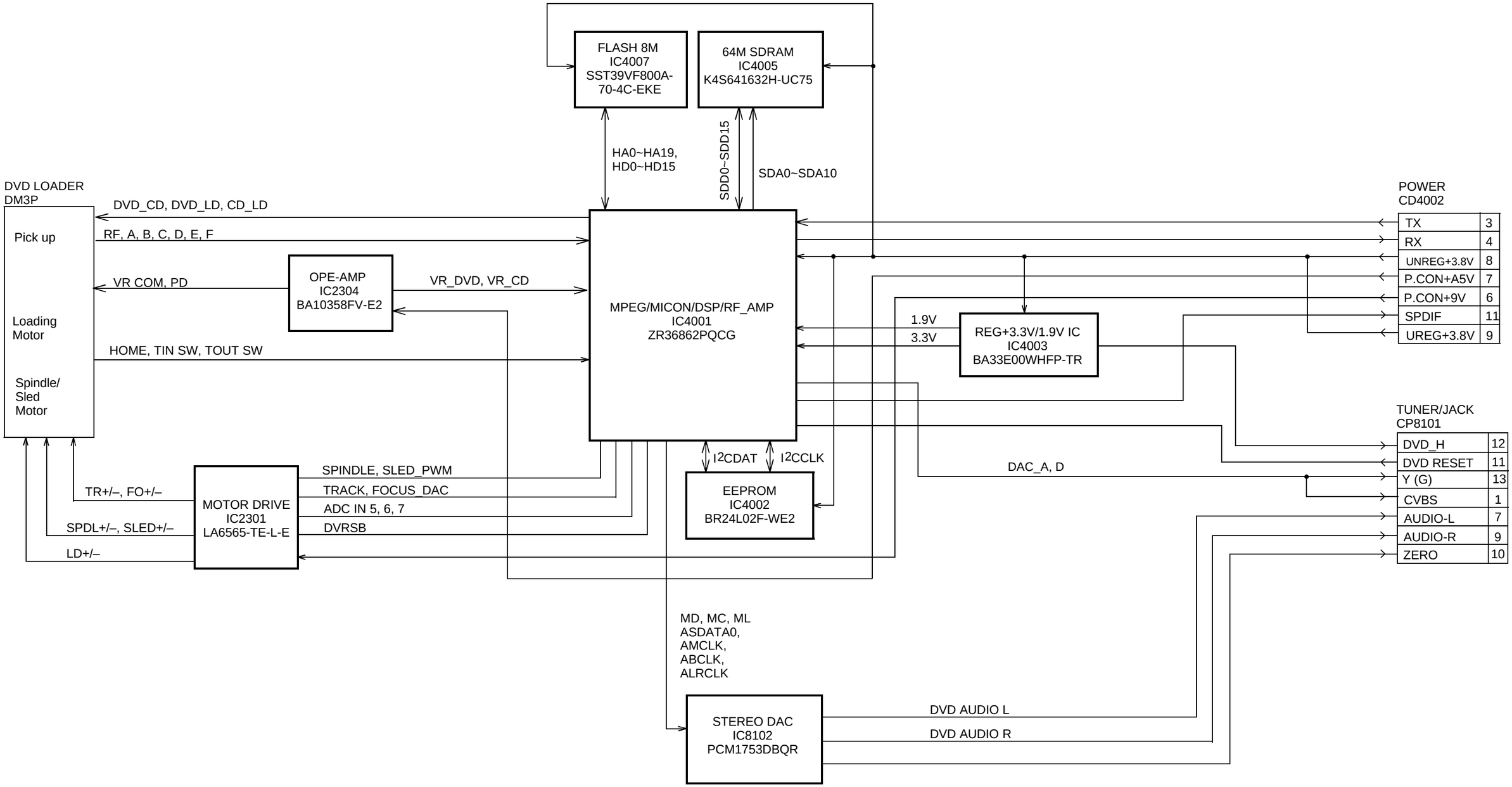
Fig. 1-1-B

ELECTRICAL ADJUSTMENTS

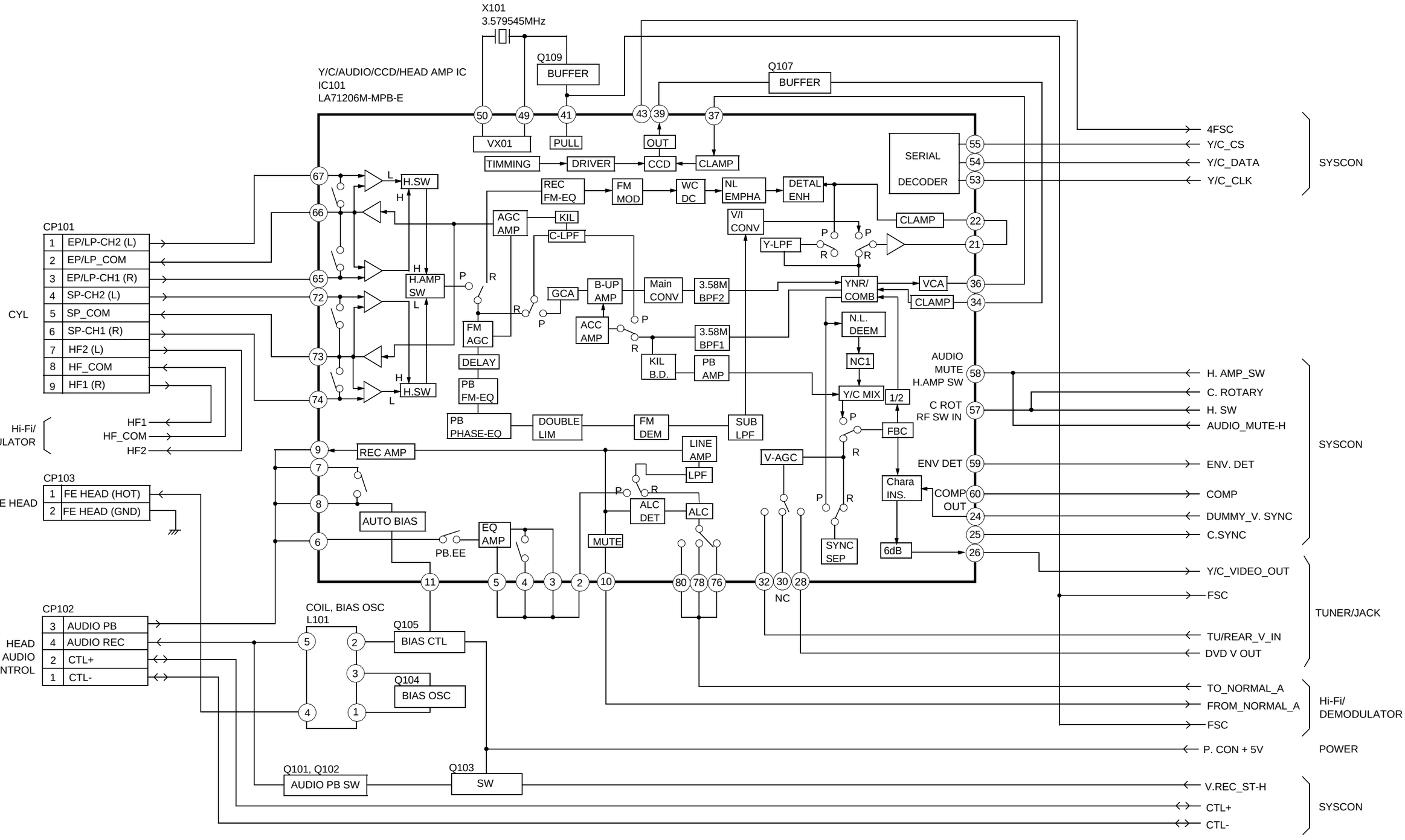
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



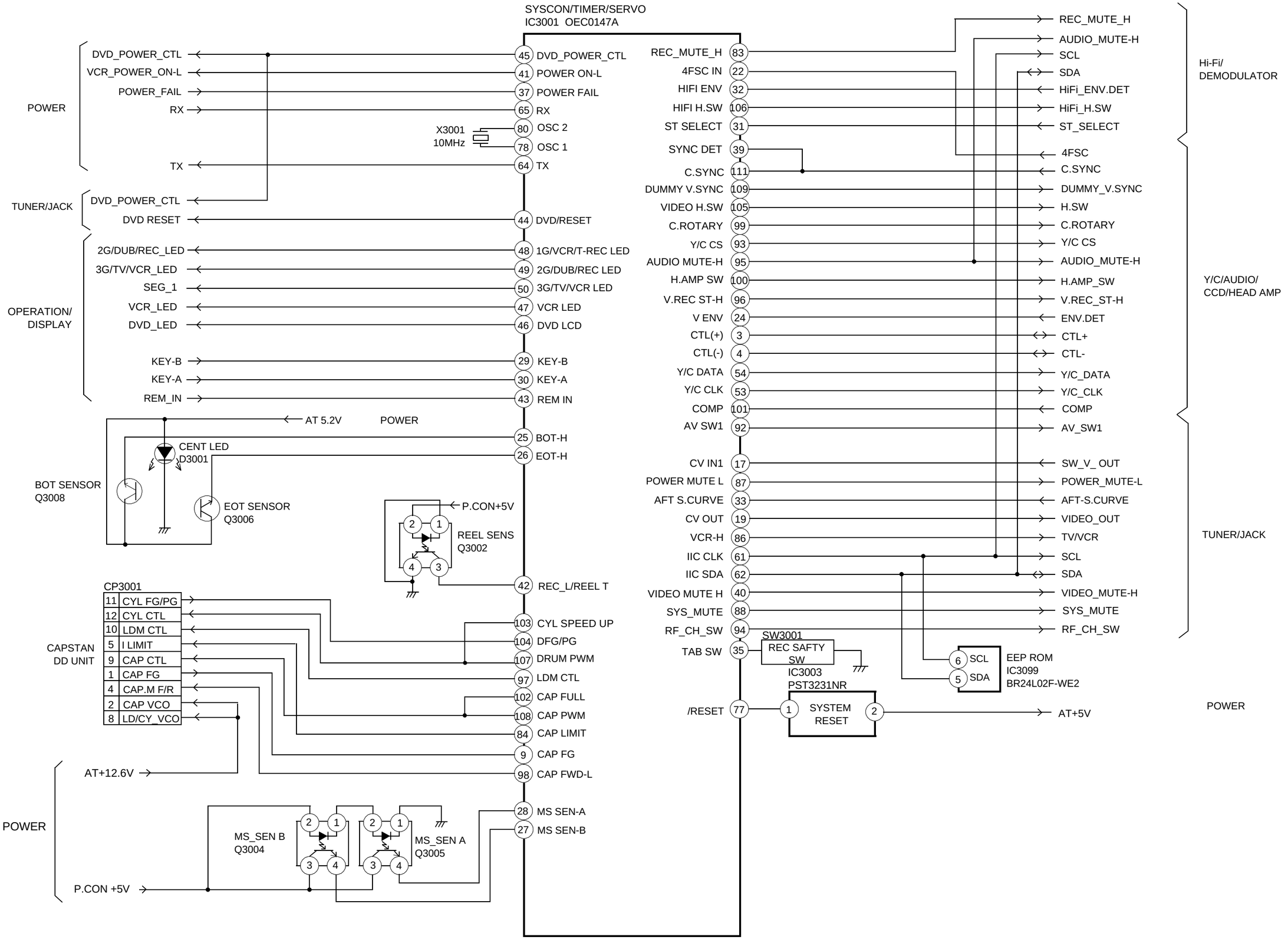
DVD BLOCK DIAGRAM



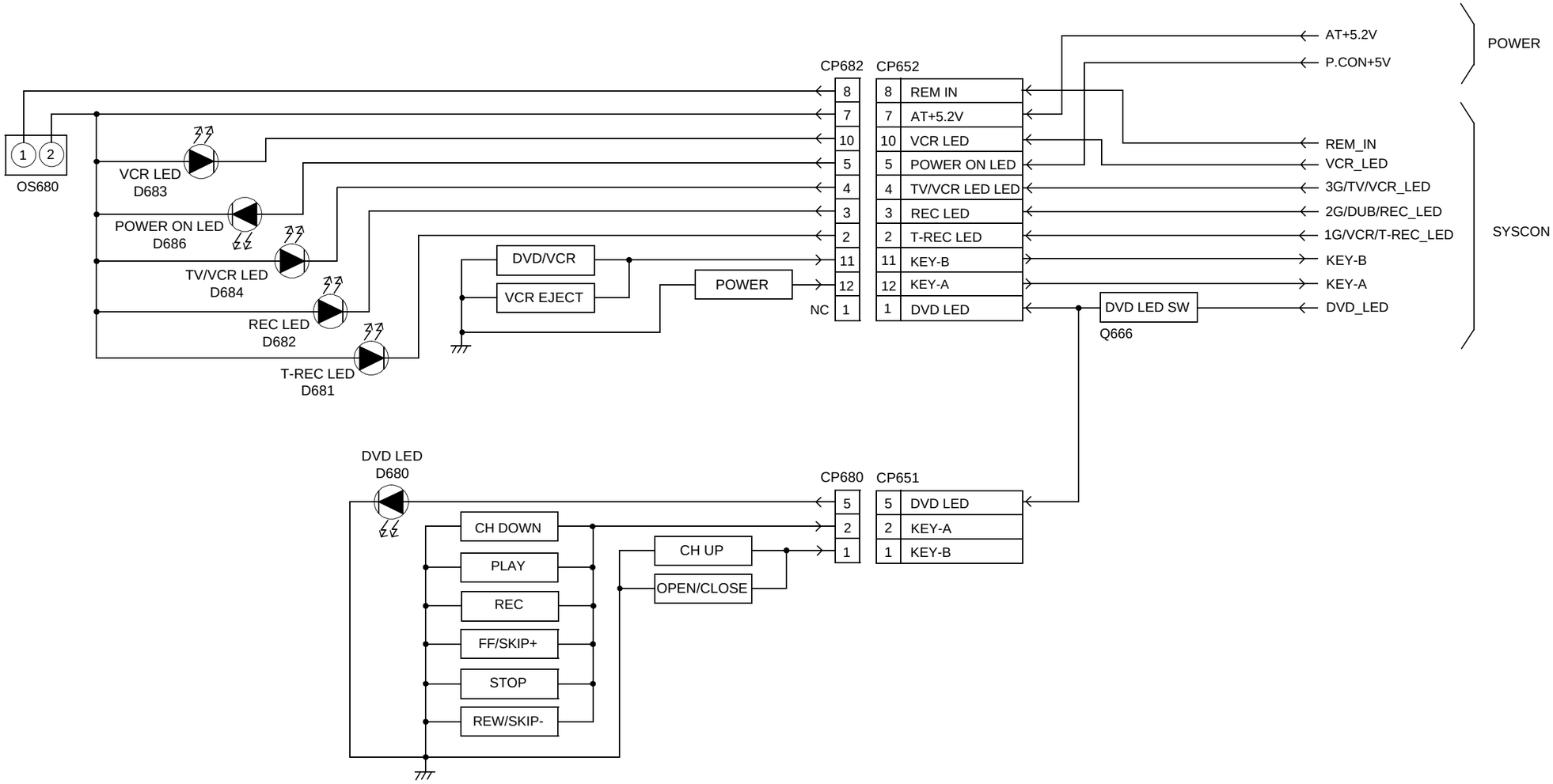
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



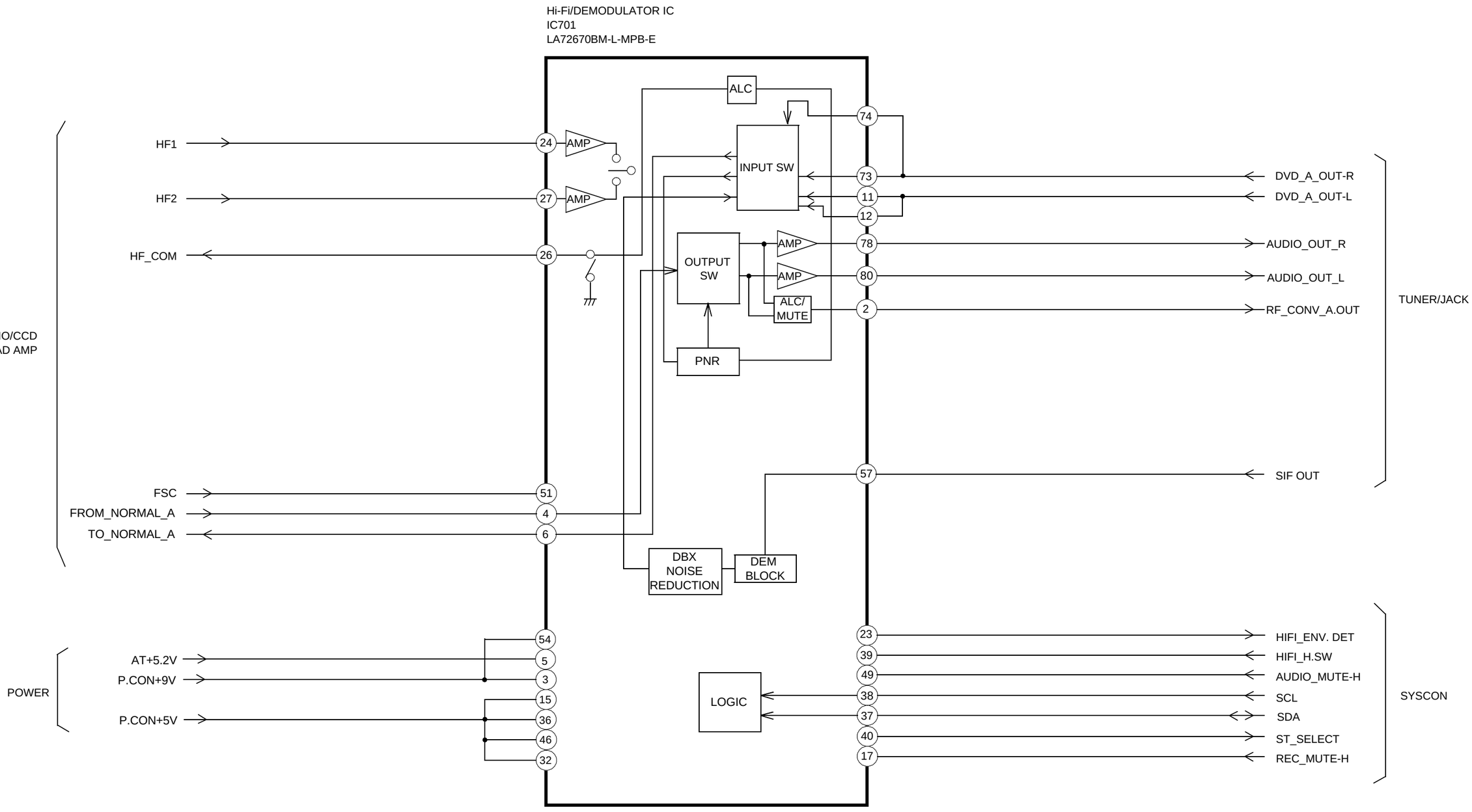
SYSCON BLOCK DIAGRAM



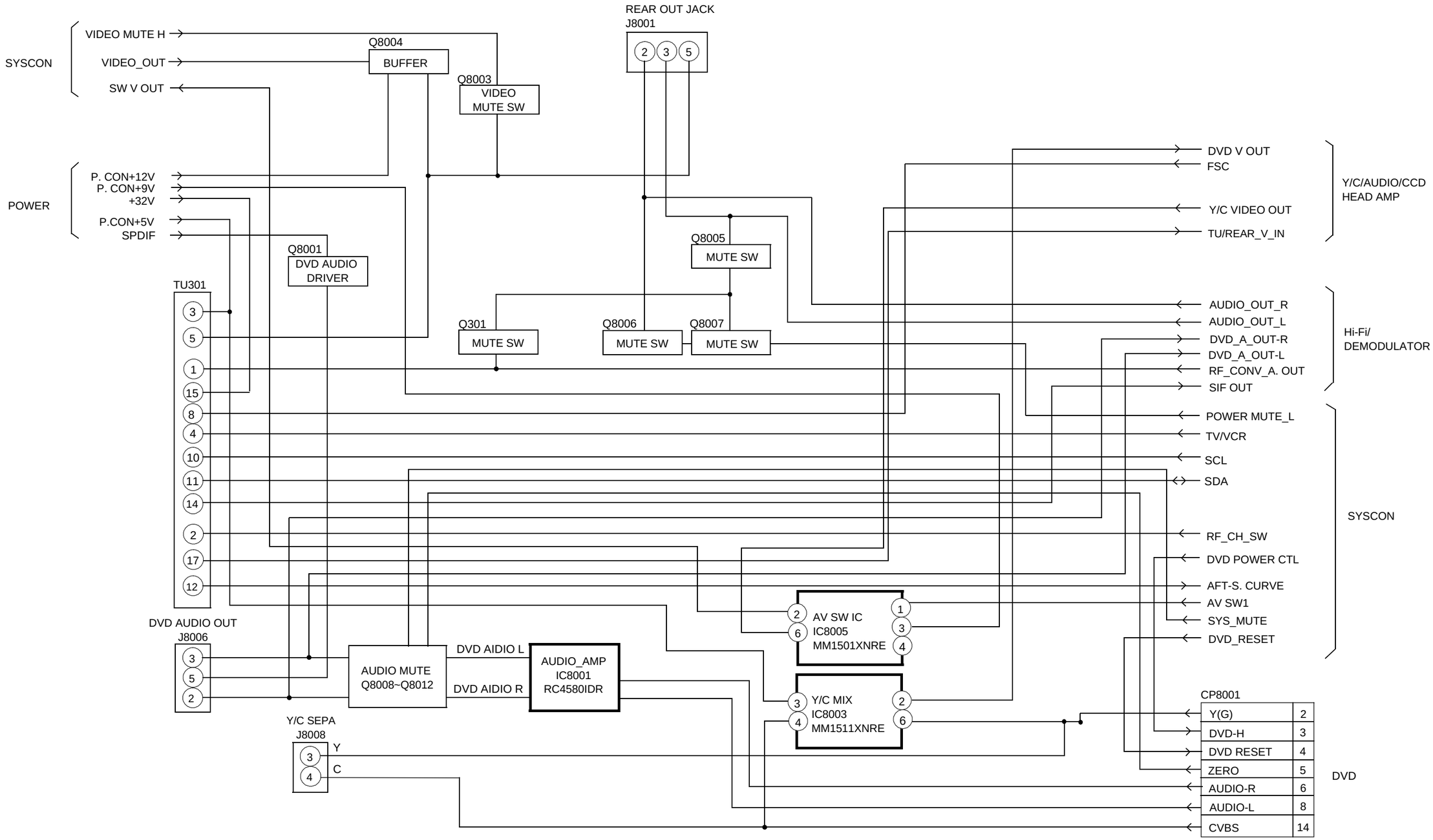
OPERATION/DISPLAY BLOCK DIAGRAM



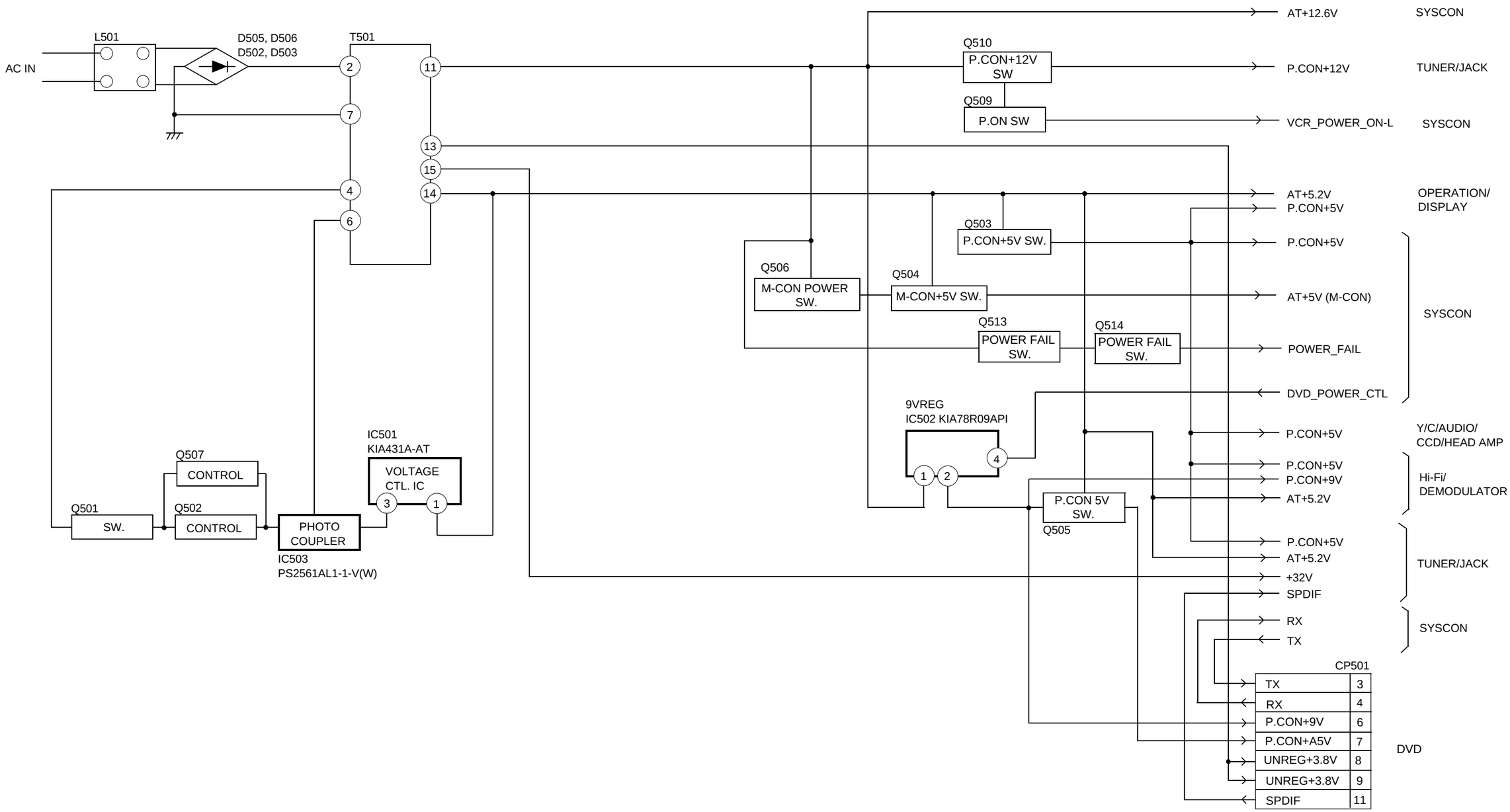
Hi-Fi/DEMODULATOR BLOCK DIAGRAM



TUNER/JACK BLOCK DIAGRAM

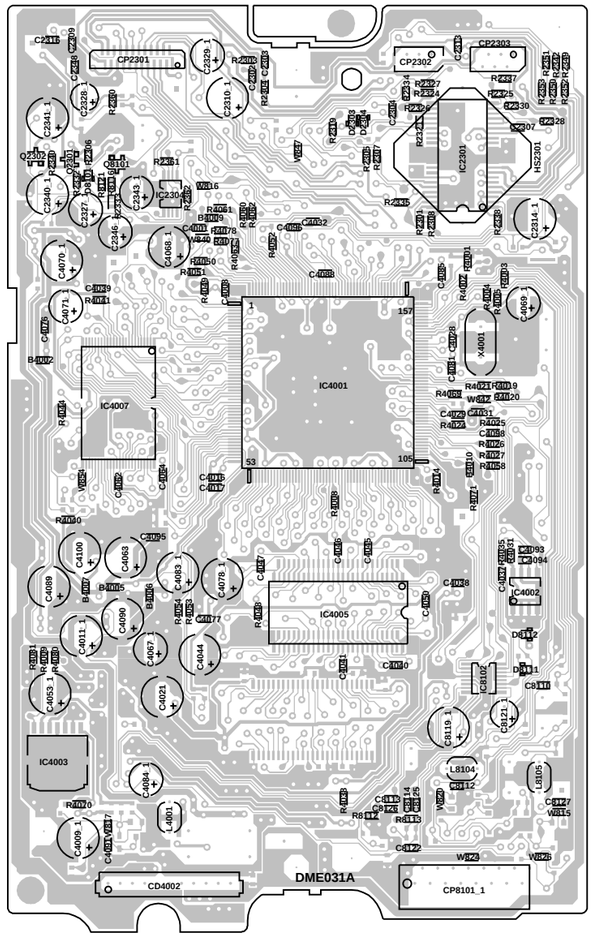


POWER BLOCK DIAGRAM

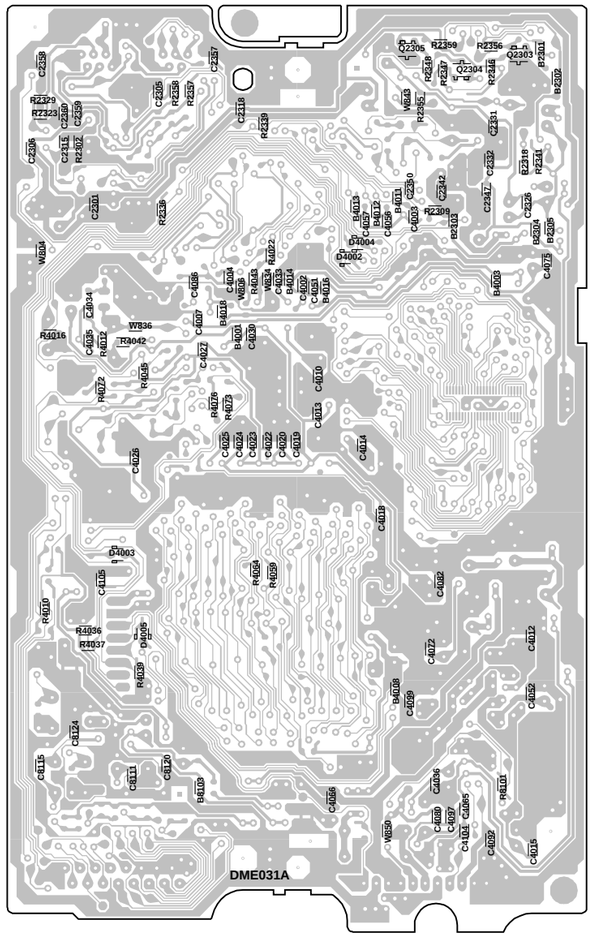


PRINTED CIRCUIT BOARDS

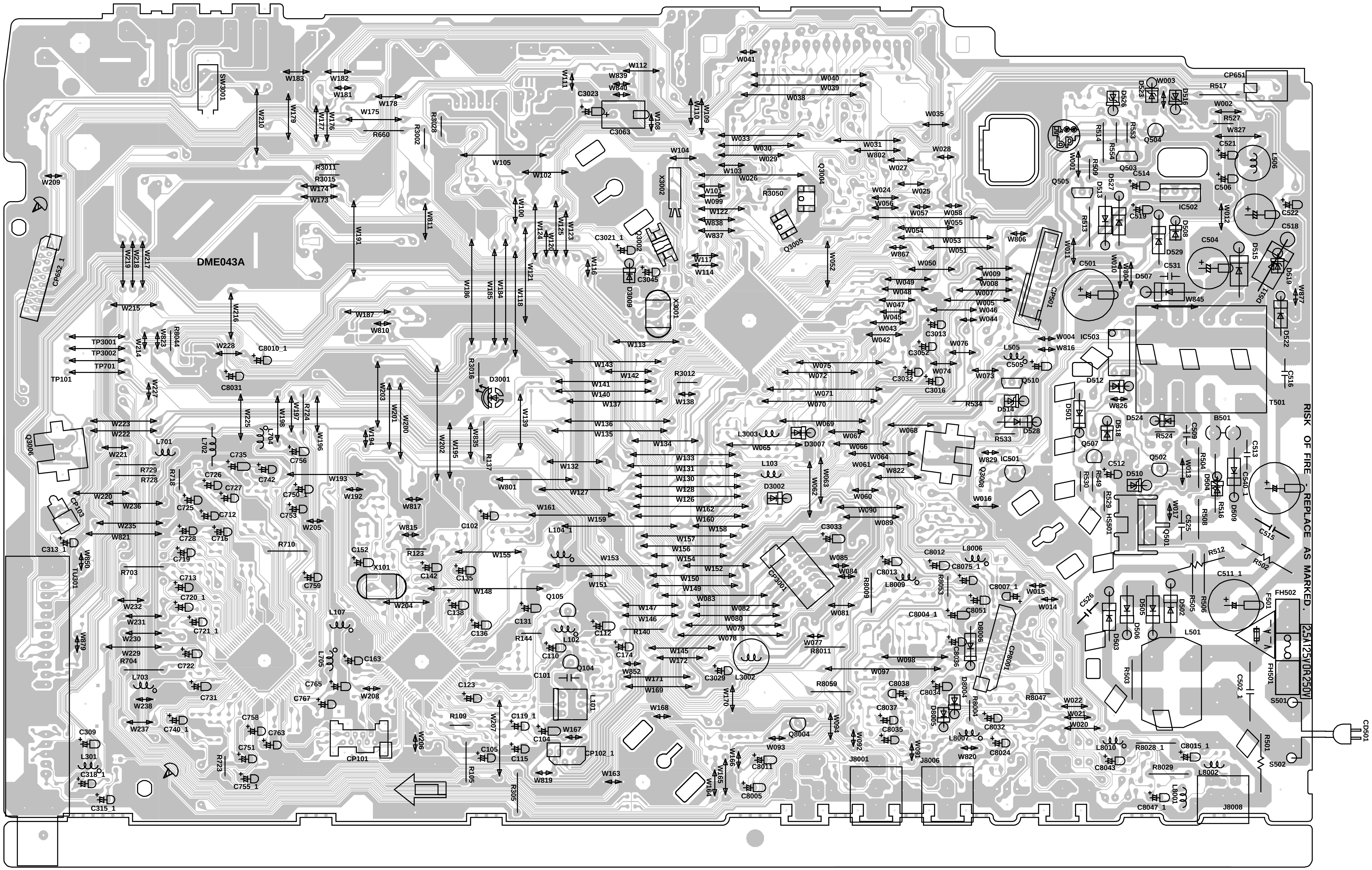
DVD (TOP SIDE)



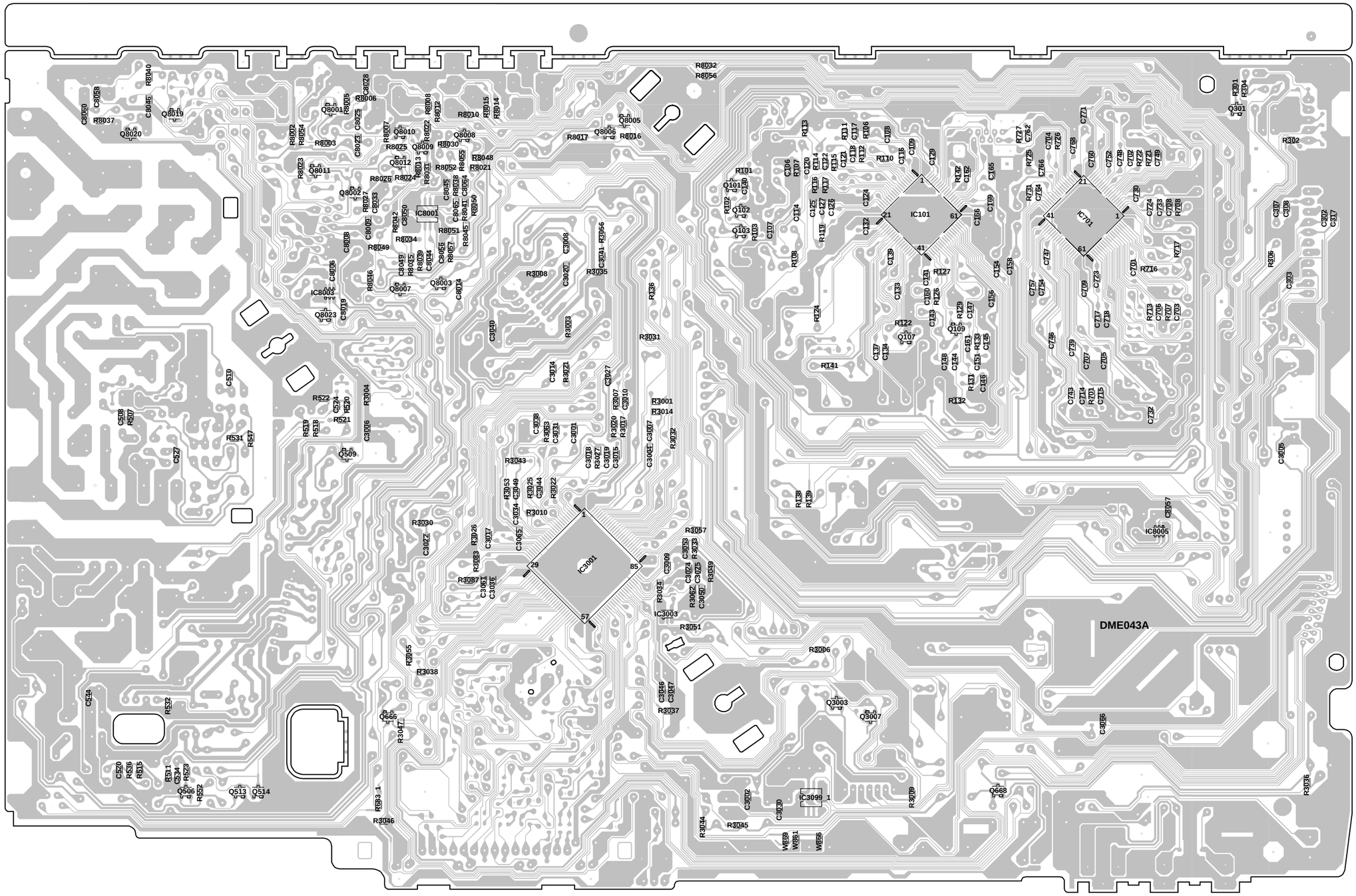
DVD (BOTTOM SIDE)



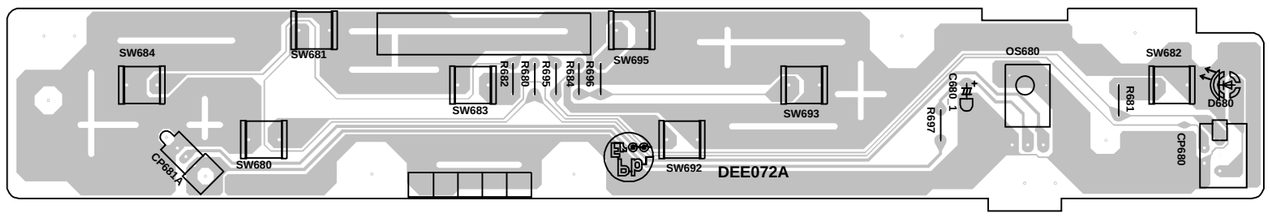
PRINTED CIRCUIT BOARDS
VCR (INSERTED PARTS)
SOLDER SIDE



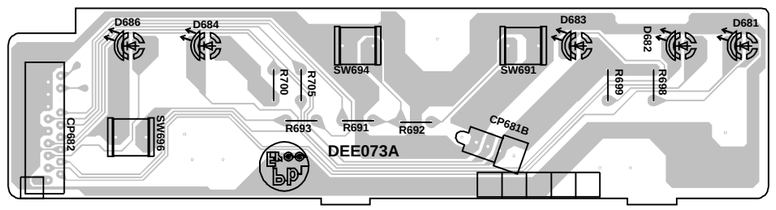
PRINTED CIRCUIT BOARDS
VCR (CHIP MOUNTED PARTS)
SOLDER SIDE



OPERATION
SOLDER SIDE



OPERATION 2
SOLDER SIDE



MPEG/MICON/DSP/RF_AMP SCHEMATIC DIAGRAM

(DVD PCB)

MPEG/MICON/DSP/RF_AMP IC
IC4001
ZR36862PQCG

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.

◀ DIGITAL AUDIO SIGNAL(PB)

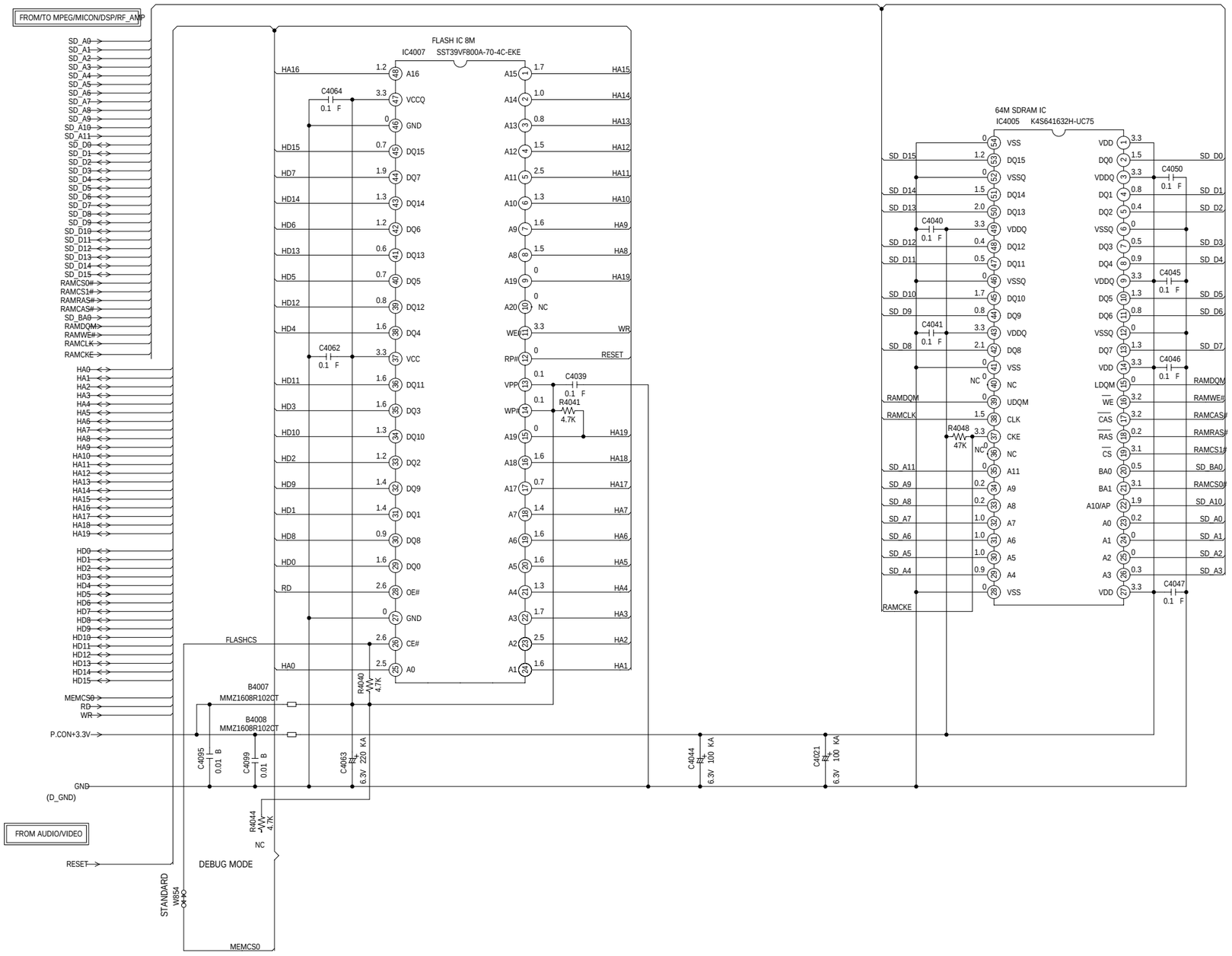
PCB130
DME031

G-1

G-2

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.

MOTOR DRIVE SCHEMATIC DIAGRAM

(DVD PCB)

DM3P(05SD)

FROM/TO LOADER

CP2301
09-5000-024-001-001

1	GND
2	F
3	Vref
4	VCC
5	E
6	D
7	C
8	SW1(DVD/CD)
9	VRF(RF_OUT)
10	B
11	A
12	VR(DVD)
13	VR COM
14	VR(CD)
15	GND
16	LD(CD)
17	PD/GND
18	LD(DVD)
19	GND
20	NC
21	T DRV
22	T RTN
23	F DRV
24	F RTN

CP2302
00_6232_005_006_800+

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

CP2303
00_6232_006_006_800+

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

FROM AUDIO/VIDEO

CD_LD_CTL

FROM/TO MPEG/MICON/DSP/RF_AMP

DVD_CD
DVD_LD
CD_LD
VR_DVD
VR_CD
RF
OPU_A
OPU_B
OPU_C
OPU_D
OPU_E
OPU_F
VC
HOME
GND
(GND,D_GND)
TOUT_SW
TIN_SW
P.CON+A5V
TRACK_PWM
FOCUS_PWM
P.CON+3.3V
DRVSB
SPINDLE_PWM
SLED_PWM
ADCIN_7
ADCIN_5
ADCIN_6
VCC+9V
M_GND
SPDL_SENS+
SPDL_SENS-
TRAY_CLOSE
TRAY_OPEN

PCB130
DME031

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

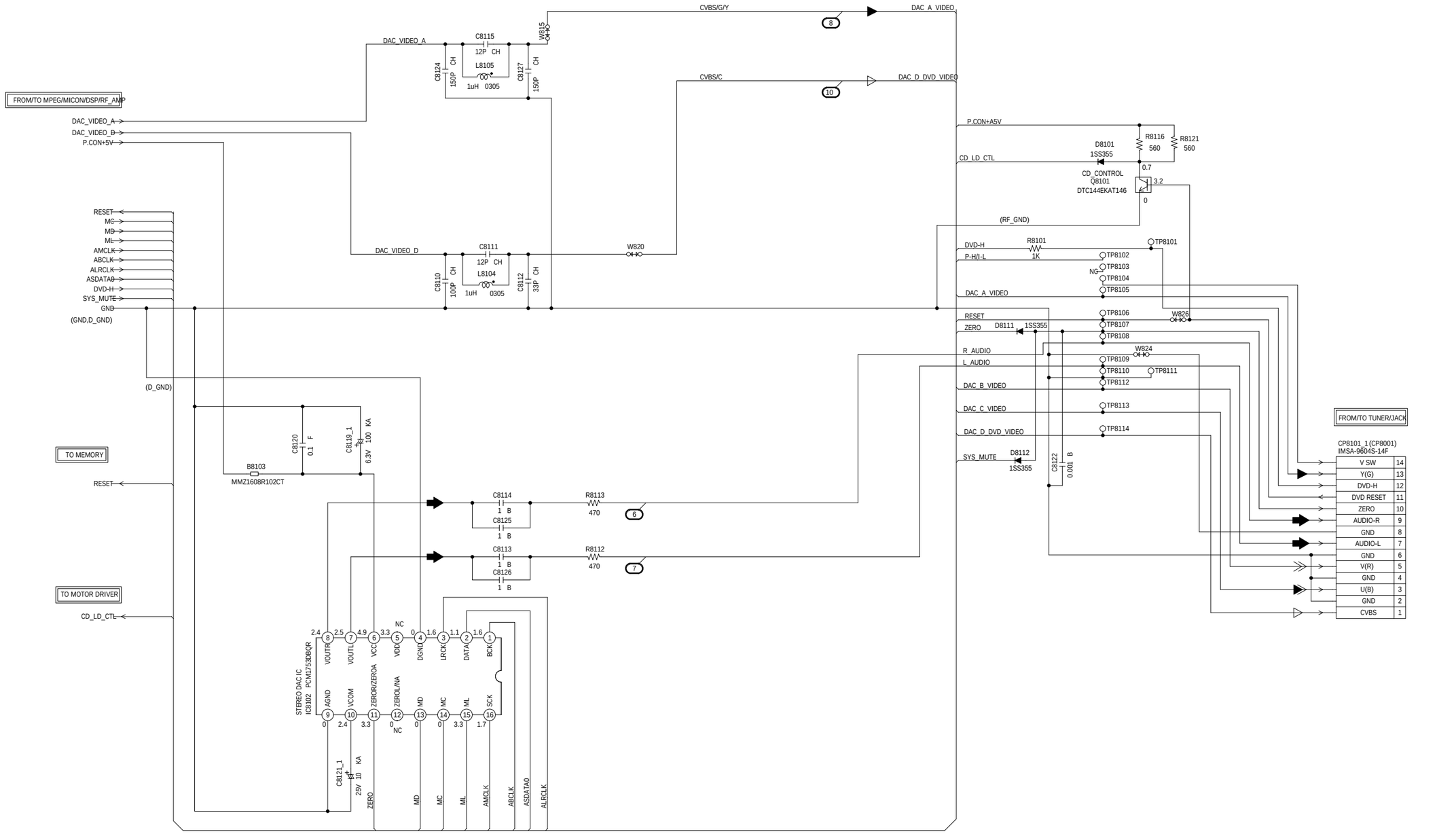
ATTENTION LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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.

AUDIO/VIDEO SCHEMATIC DIAGRAM

(DVD PCB)



PCB130
DME031

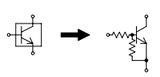
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

◁ PLAYBACK COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
⬅ AUDIO SIGNAL(PB)

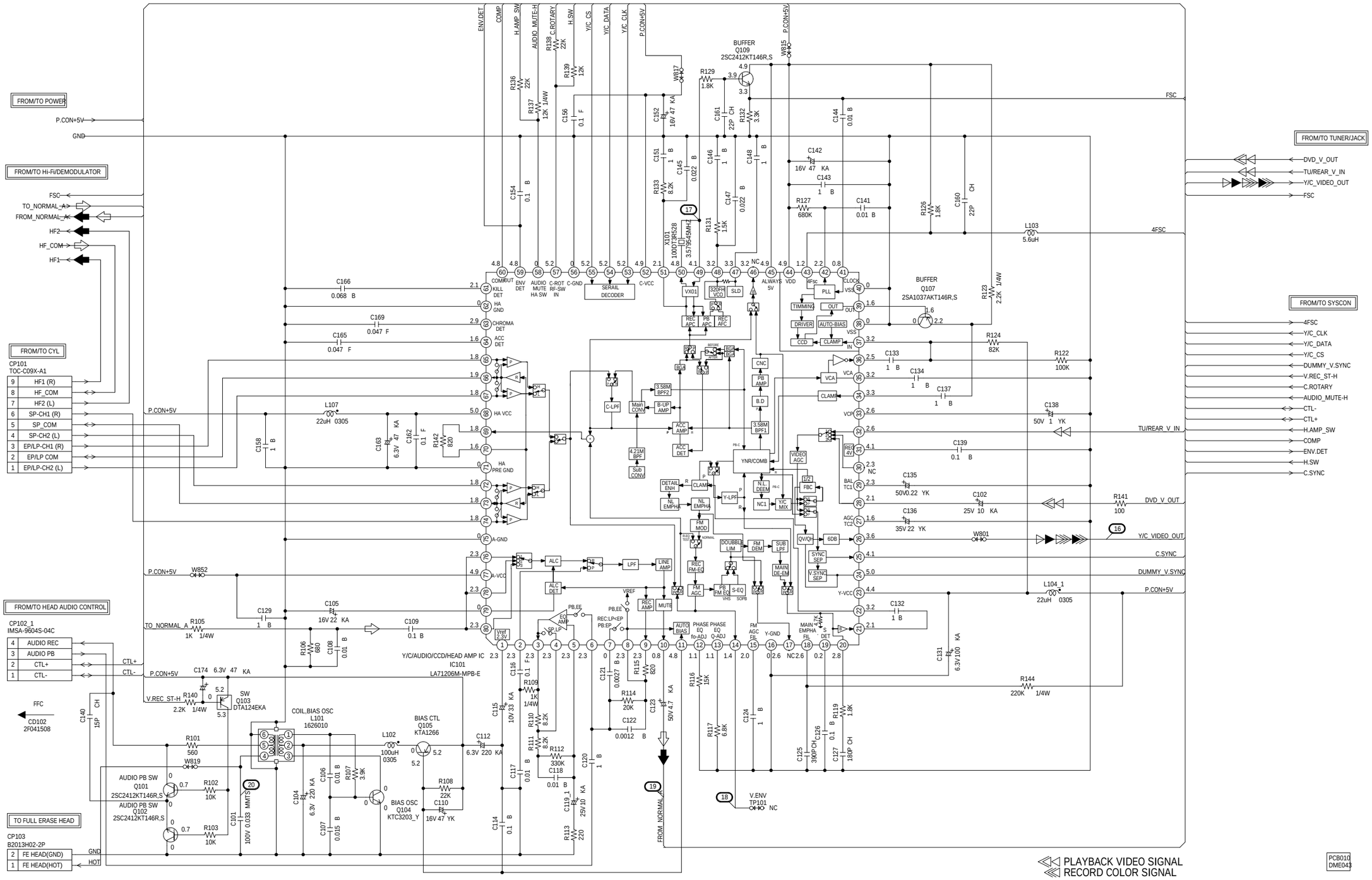
◀◀ R.SIGNAL + COMPONENT SIGNAL(U)
≪ B.SIGNAL + COMPONENT SIGNAL(V)

CAUTION: DIGITAL TRANSISTOR



Y/C/AUDIO/CCD/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

SYSCON SCHEMATIC DIAGRAM
(VCR PCB)

FROM/TO POWER
TX
RX
DVD_POWER_CTL
AT+12.6_V
P.CON+5V
AT+5V[M-CON]
VCR_POWER_ON-L
POWER_FAIL
AT+5.2V
GND
MOTOR_GND

FROM/TO DECK
CP3001
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
IC3001
OEC0147A

FROM/TO Y/C/AUDIO/CCD/H.AMP
DUMMY_V.SYNC
C.SYNC
V.REC_ST-H
C.ROTARY
AUDIO_MUTE-H
CTL-
CTL+
H.AMP_SW
COMP
ENV.DET
H.SW
Y/C_CS
Y/C_DATA
Y/C_CLK
4FSC

FROM/TO TUNER/JACK
DVD_POWER_CTL
RF_CH_SW
SW_V_OUT
AV_SW1

FROM/TO Hi-Fi/DEMODULATOR
REC_MUTE_H
HIFI_ENV.DET
HIFI_H.SW
AUDIO_MUTE-H
SCL
SDA
ST_SELECT

FROM/TO OPERATION/DISPLAY
DVD_LED
VCR_LED
KEY-A
KEY-B
REM_IN
1G/VCR/T-REC_LED
2G/DUB/REC_LED
3G/TV/VCR_LED

JG3002 JG3003 JG3004 JG3005 JG3006 JG3007 JG3008
TX
MD0
RESET
FWE
AT+5V[M-CON]

PCB010
DME043

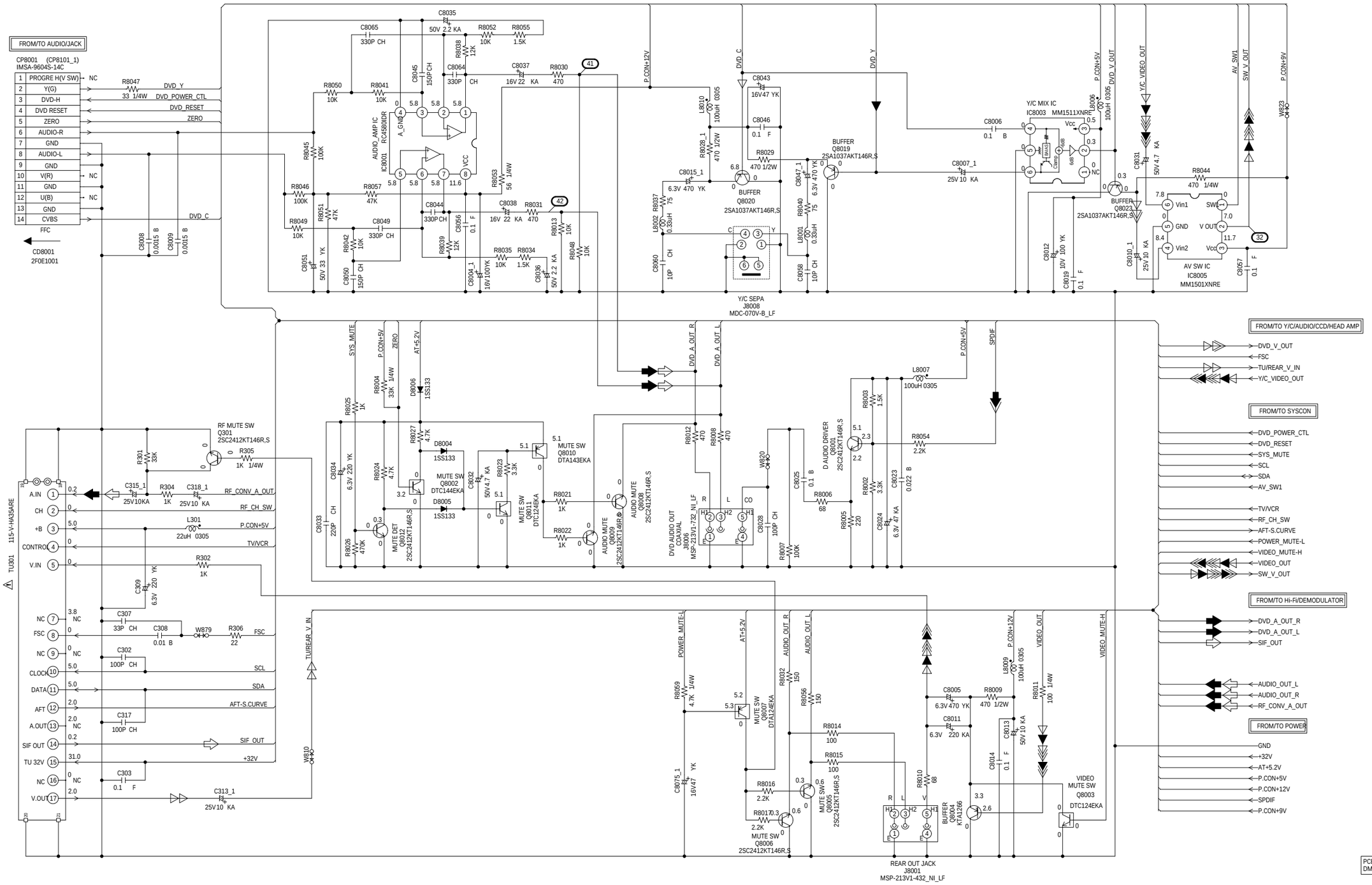
CAUTION: DIGITAL TRANSISTOR
CAUTION: DIGITAL TRANSISTOR

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

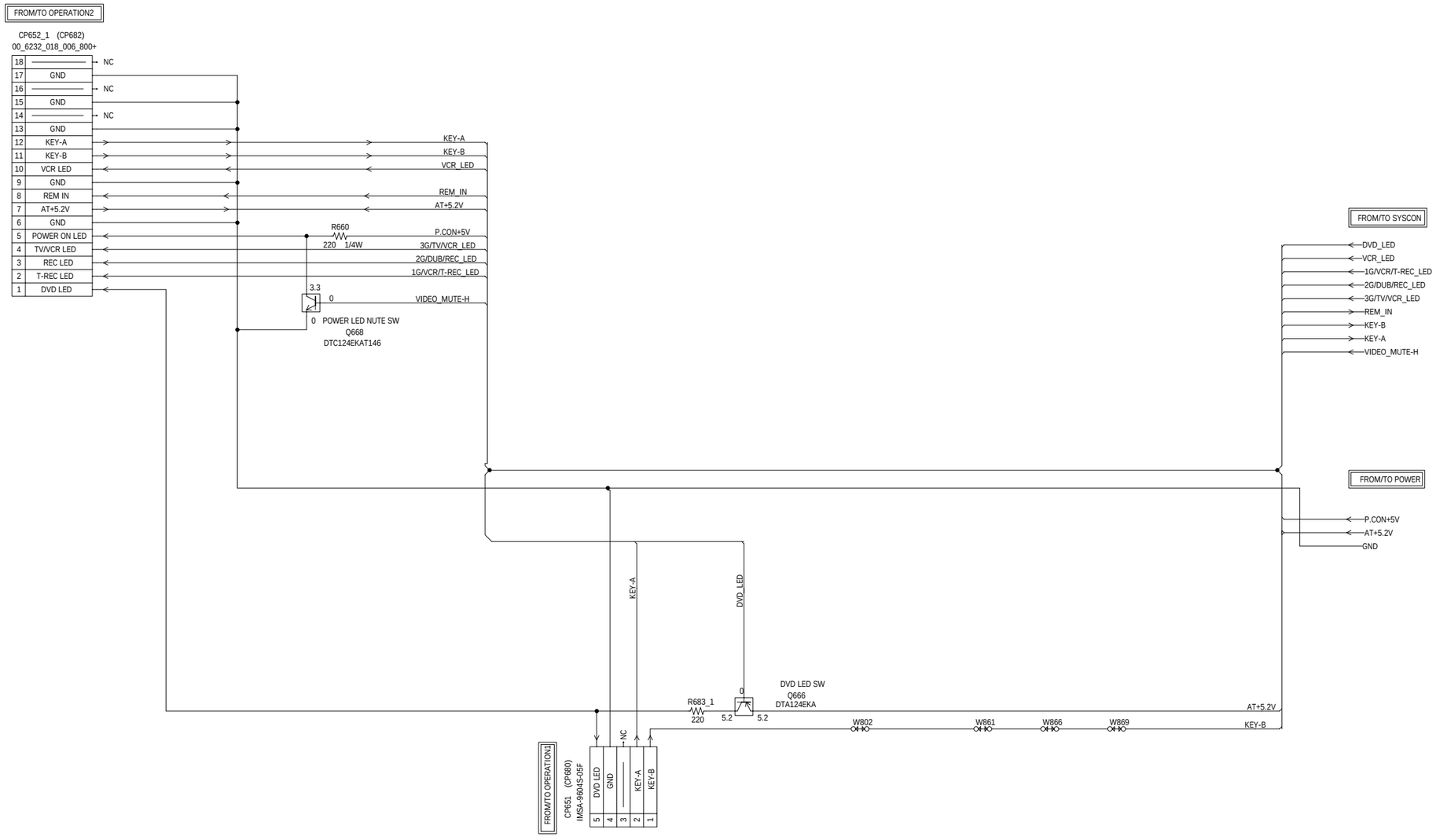
NOTE:THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

RECORD LUMINANCE SIGNAL
RECORD COLOR SIGNAL
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL

TUNER/JACK SCHEMATIC DIAGRAM (VCR PCB)

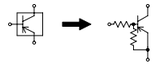


OPERATION/DISPLAY SCHEMATIC DIAGRAM
(VCR PCB)

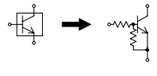


PCB010
DME043

CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR

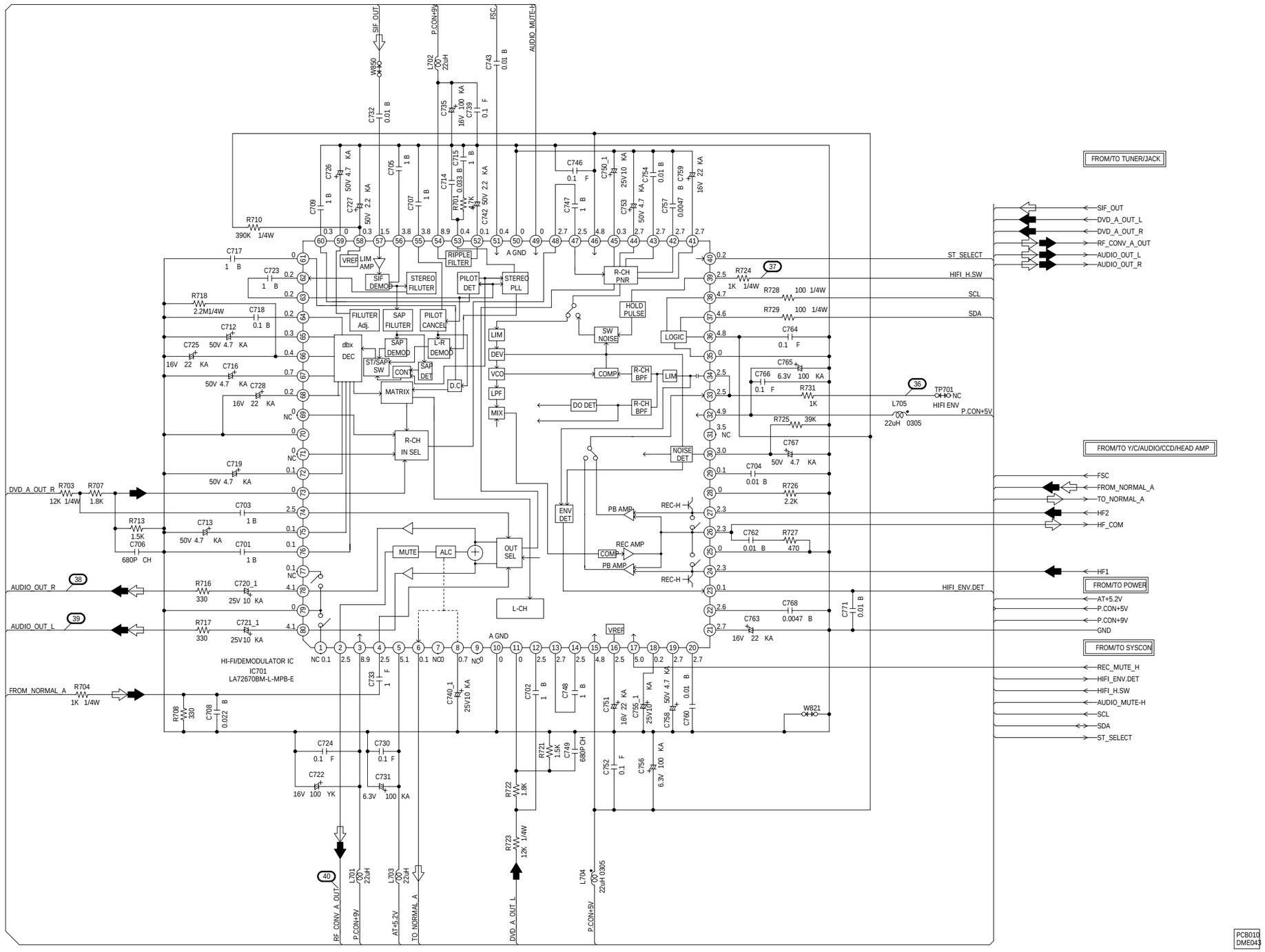


NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

(VCR PCB)

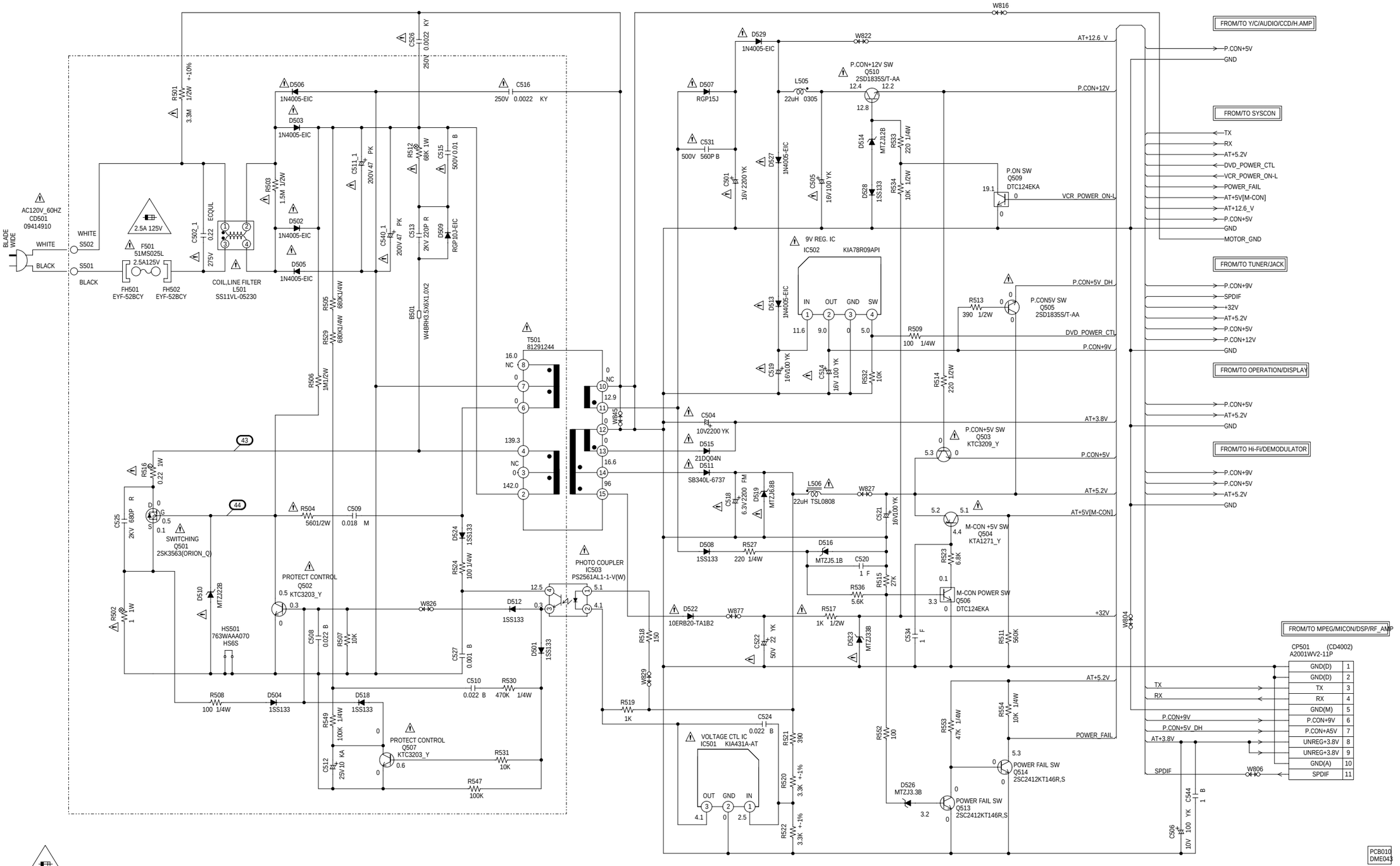


NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)

POWER SCHEMATIC DIAGRAM
(VCR PCB)



2.5A 125V

CAUTION :FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE2.5A 125V(F501).

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

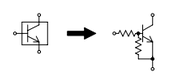
CAUTION :SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

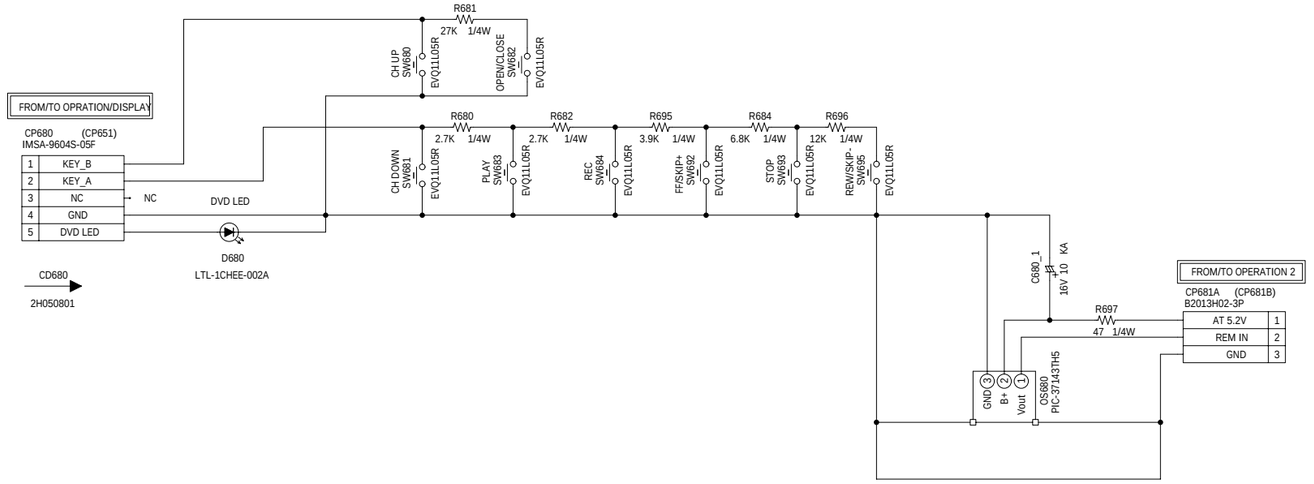
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

CAUTION: DIGITAL TRANSISTOR

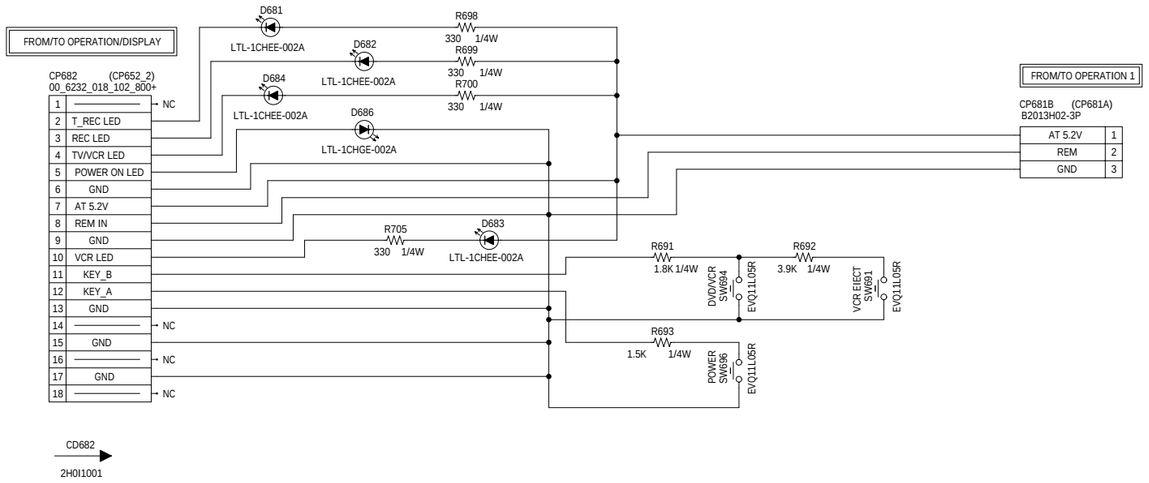


OPERATION 1 SCHEATIC DIAGRAM



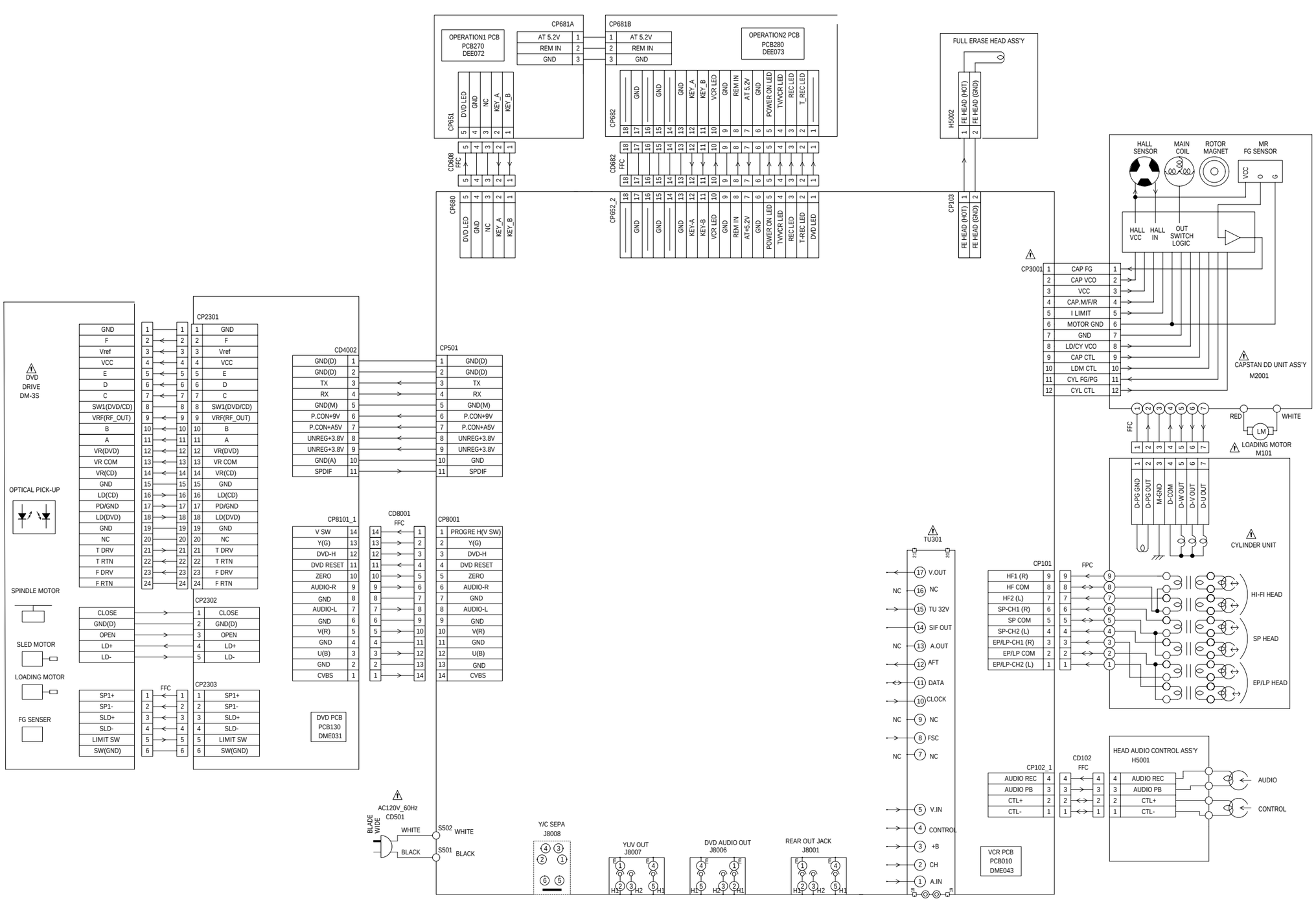
PCB270
DEE072

OPERATION 2 SCHEMATIC DIAGRAM



PCB280
DEE073

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。

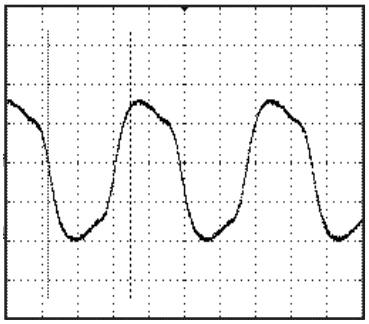
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

WAVEFORMS

MPEG/MICON/DSP/RF_AMP

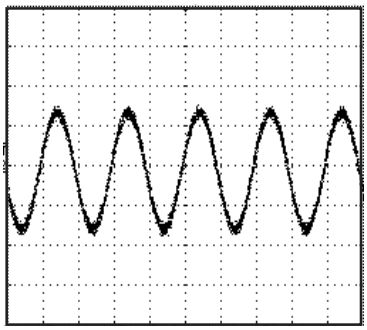
10ns
100mV

①



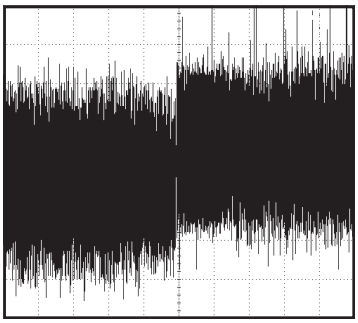
500µs
1.0V

⑦



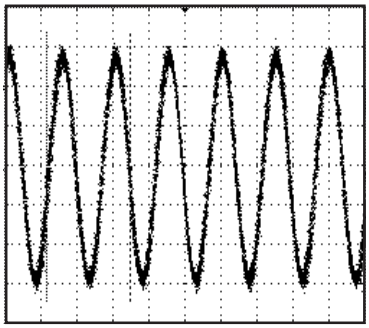
PB
1ms
100mV

⑱



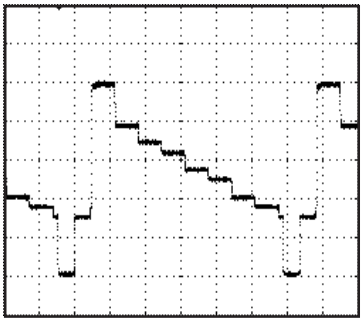
5ns
20mV

②



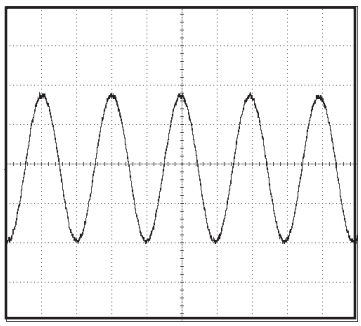
10µs
200mV

⑧



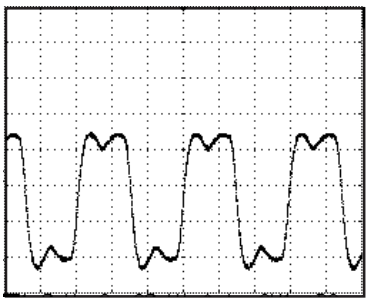
PB
200ms
500mV

⑲



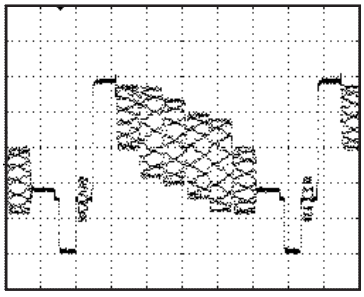
20ns
1.0V

③



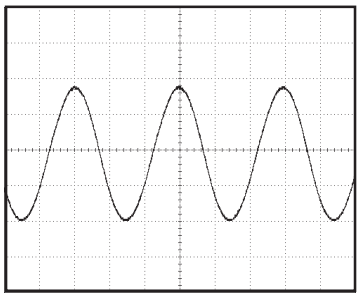
10µs
200mV

⑩



REC
5µs
20V

⑳



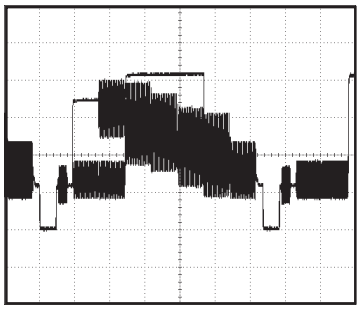
Y/C/AUDIO/CCD/HEAD AMP

200ns
1.0V

④

PB
10µs
500mV

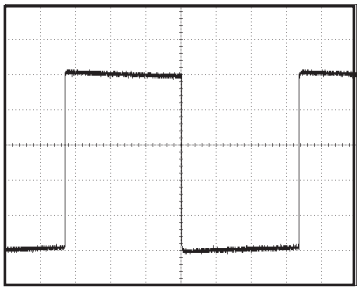
⑯



SYSCON

PB
5ms
1.0V

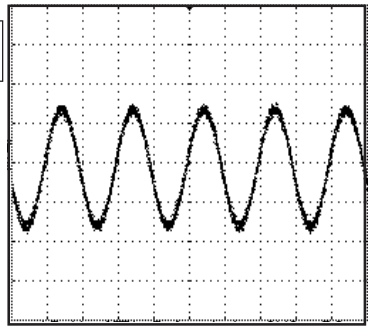
㉑



AUDIO/VIDEO

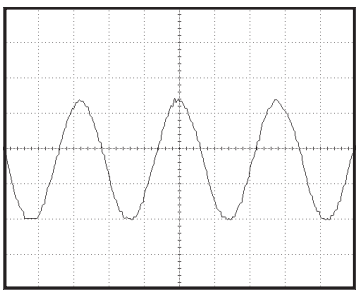
500µs
1.0V

⑥



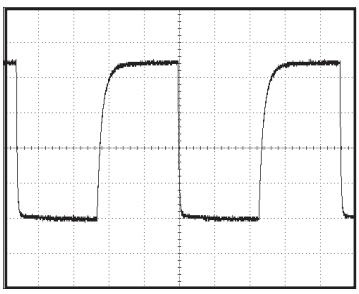
PB
100ns
100mV

⑰



PB
200µs
1.0V

㉒

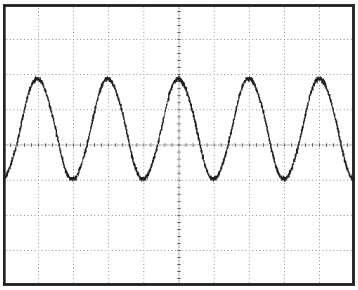


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

POWER ON
50ns
1.0V

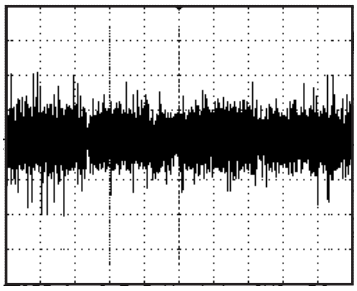
(23)



Hi-Fi/DEMODULATOR

PB
10ms
1.0V

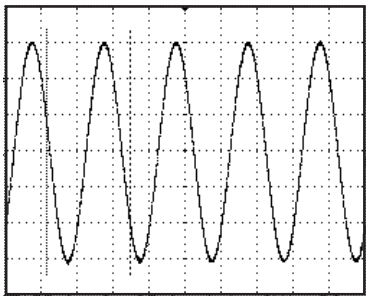
(36)



TUNER/JACK

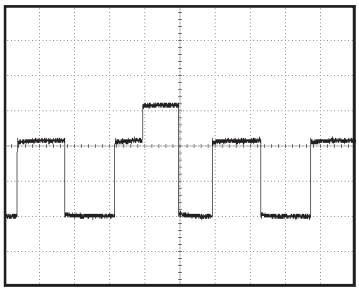
PB
500µs
100mV

(41)



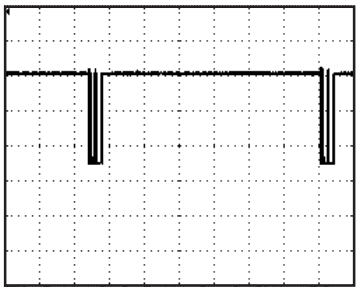
PB
500µs
1.0V

(24)



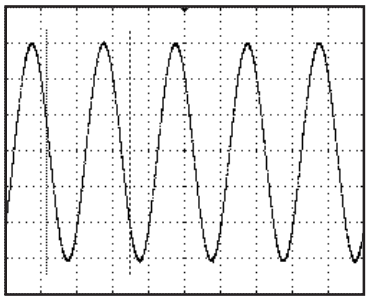
PB
1ms
2.0V

(37)



PB
500µs
100mV

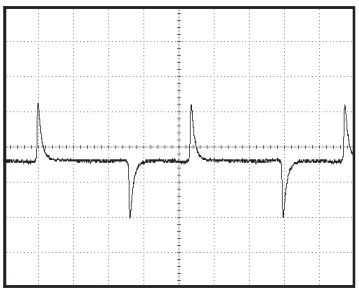
(42)



POWER

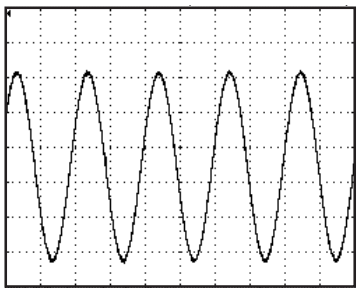
PB
5ms
500mV

(25)



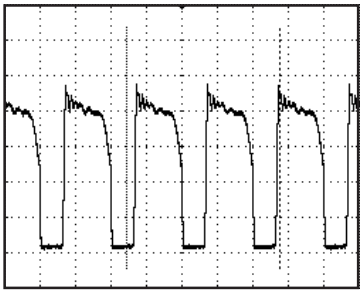
PB
500µs
200mV

(38)



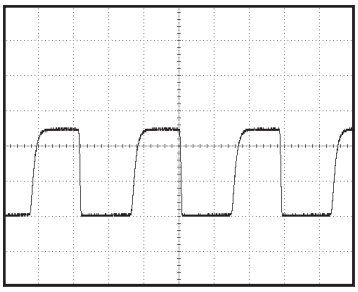
PB
5µs
500mV

(43)



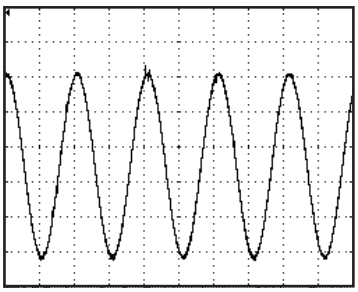
PB
5ms
2.0V

(27)



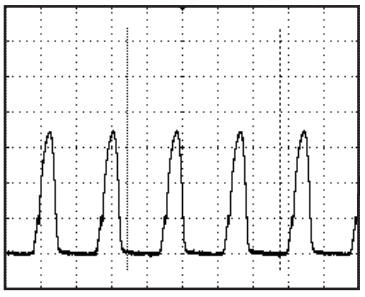
PB
500µs
200mV

(39)



PB
5µs
5.0V

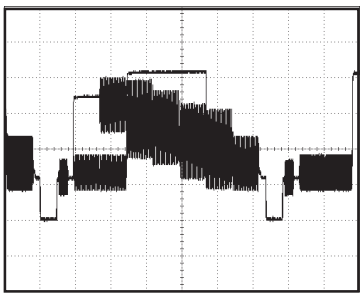
(44)



TUNER/JACK

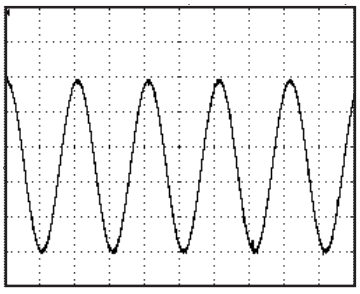
PB
10µs
200mV

(32)



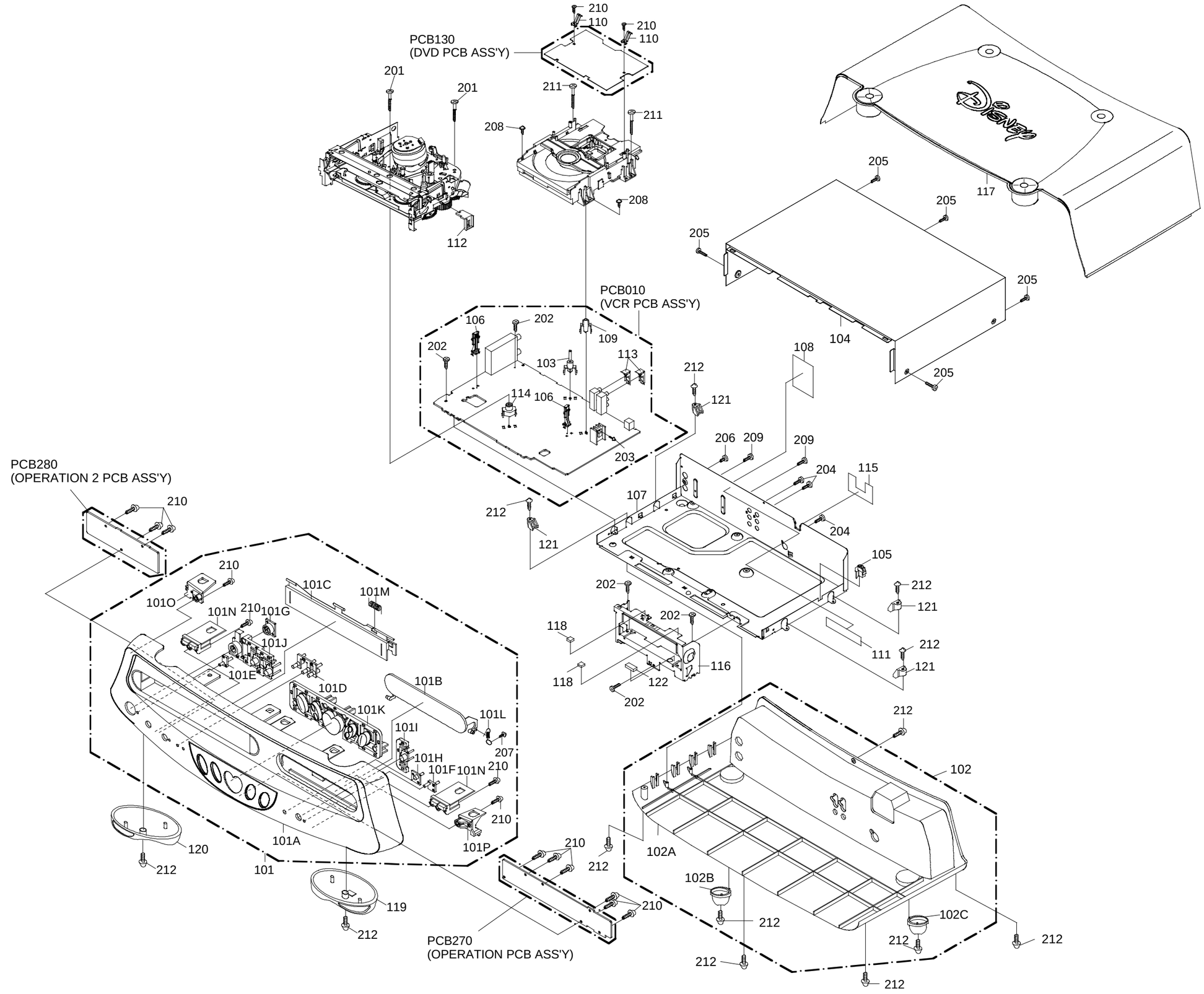
PB
500µs
200mV

(40)

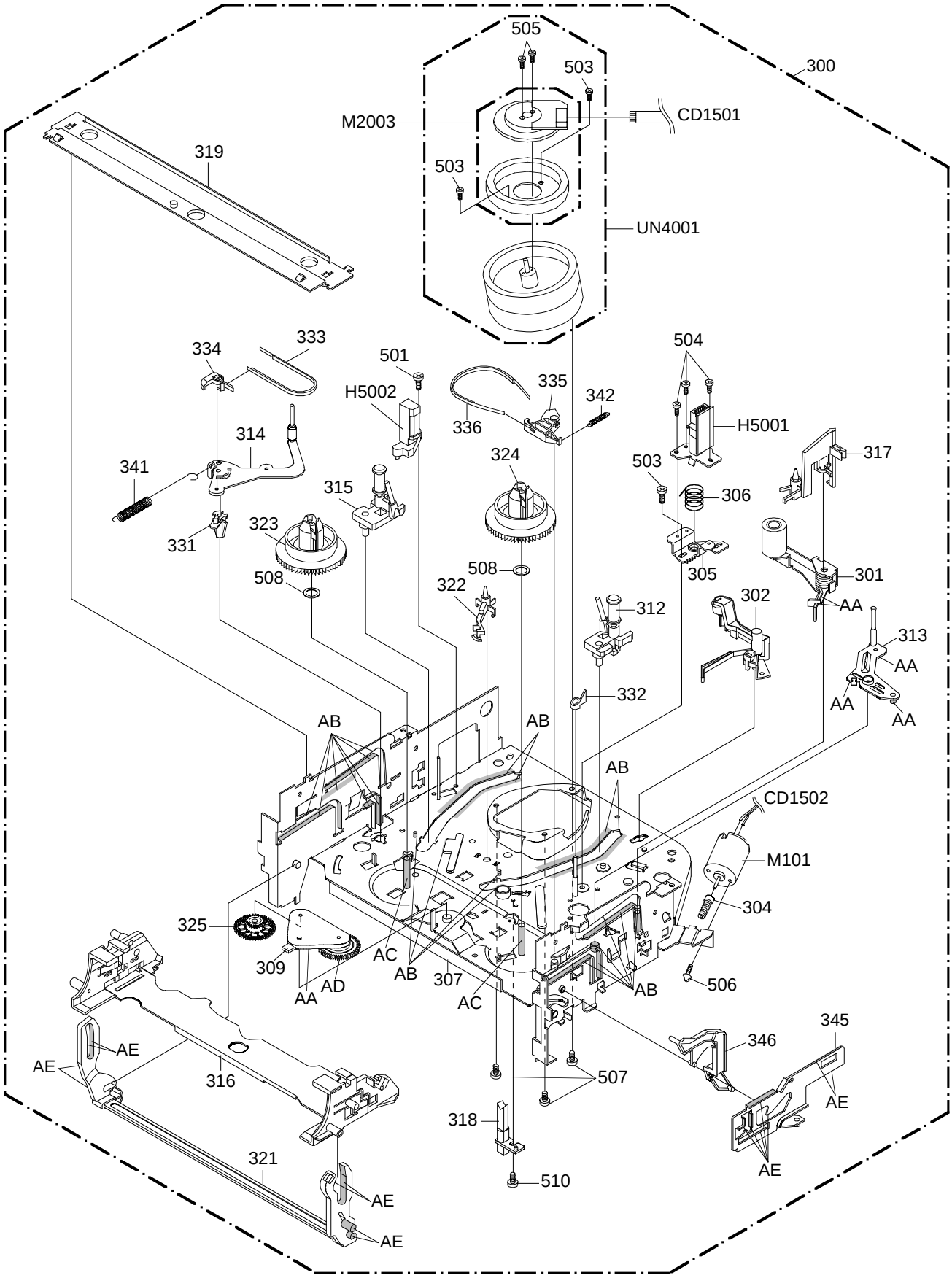


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



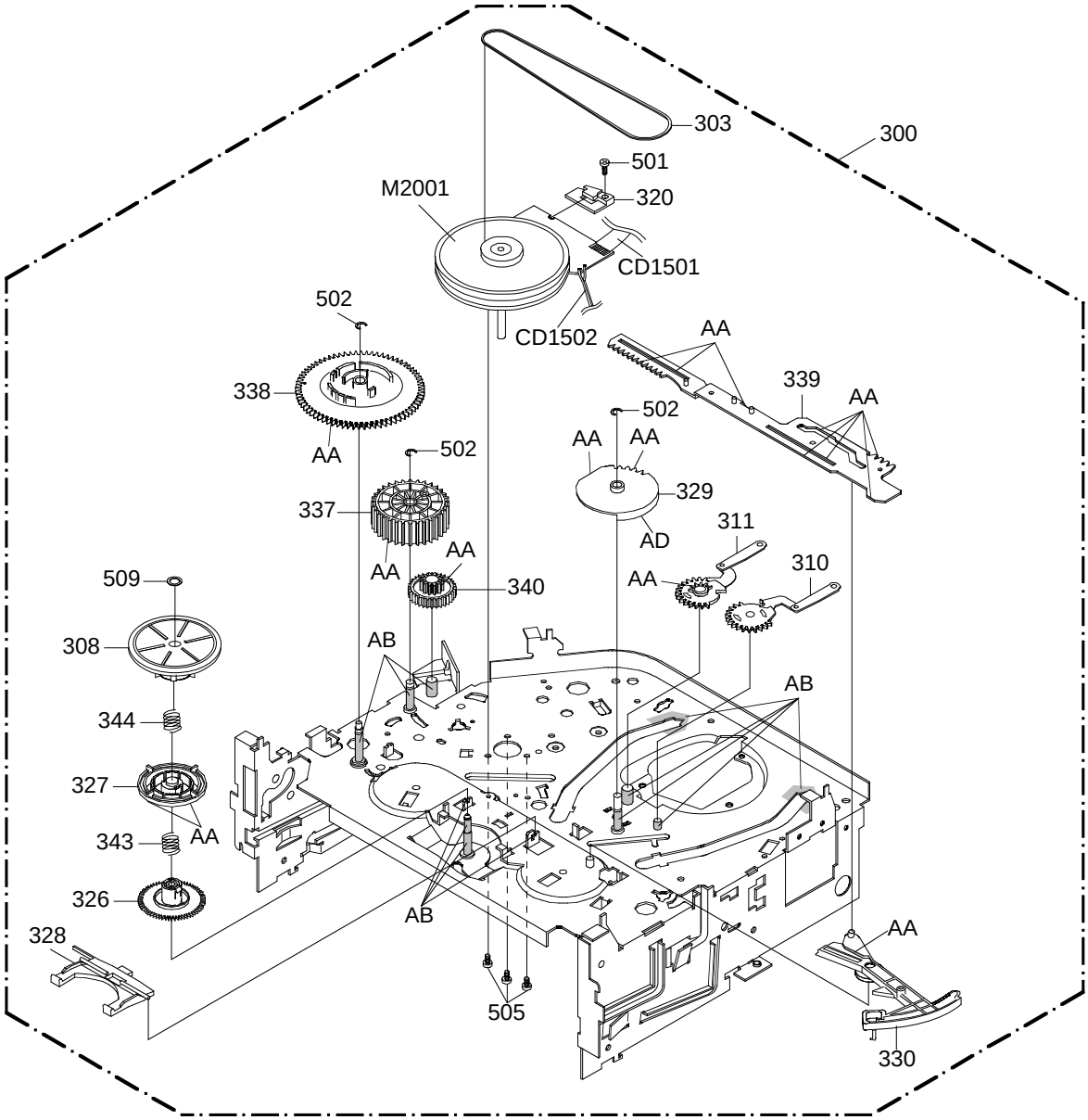
CHASSIS EXPLODED VIEW (TOP VIEW)



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.

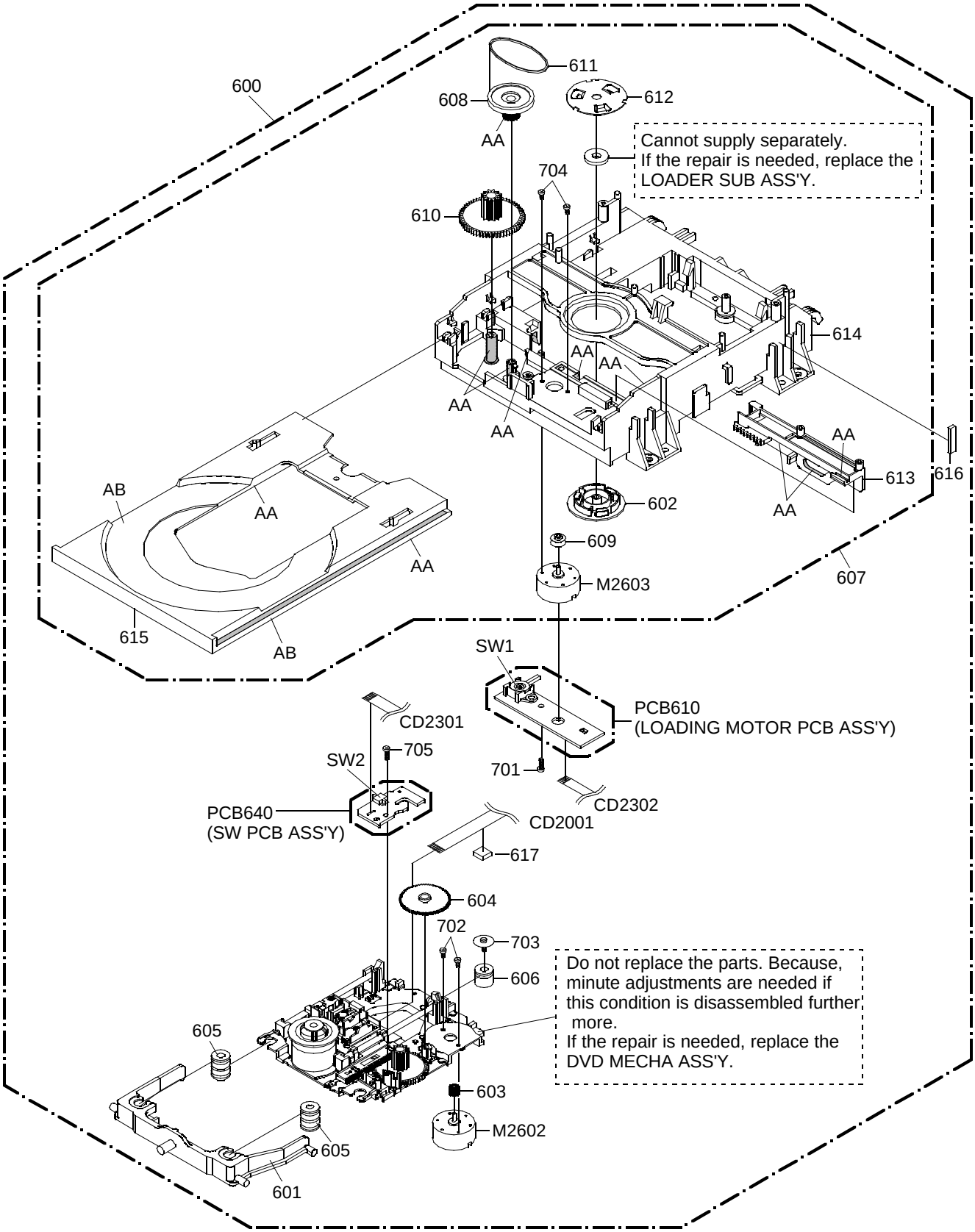
CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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
	Y315121000	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 p osition.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	7A701A217A	FRONT CABI ASS'Y		
101A	701WPJC809	CABINET,FRONT		
101B	712WPJC063	FLAP,DVD		
101C	712WPJC064	FLAP,VCR		
101D	713WPA0338	GLASS,LED1		
101E	713WPA0339	GLASS,LED2		
101F	713WPA0340	GLASS,LED3		
101G	713WPA0341	GLASS,LED-BUTTON		
101H	713WPA0342	GUIDE,REMOCON		
101I	738WPJA014	BUTTON,OPEN		
101J	738WPJA015	BUTTON,FRAME		
101K	738WPJA016	BUTTON,FRAME PRINCESS		
101L	742WKA0001	SPRING,DVD-FLAP		
101M	743WKA0042	SPRING,FLAP		
101N	761WPA0335	HOOK,BOTTOM		
101O	761WPA0345	HOOK,TOP(L)		
101P	761WPA0346	HOOK,TOP(R)		
102	7A702A079A	CABINET BOTTOM ASS'Y		
102A	702WPBA189	CABINET,BOTTOM		
102B	704WPA0037	LEG,BACK(L)		
102C	704WPA0038	LEG,BACK(R)		
103	701WPA0751	HOLDER,DECK		
104	702WPBA188	CABINET,TOP		
105	761WPA0261	HOLDER,DVD BR		
106	85OP700038	HOLDER,END SENSOR		
107	702WSA0217	PLATE,BOTTOM		
108	722616A025	SHEET,RATING		
109	761WPA0321	HOLDER,DVD BL		
110	753WUA0065	SPRING,EARTH		
111	726000A073	SHEET CAUTION		
112	761WPA0262	HOLDER,DECK TOP		
113	752WSA0290	SHIELD,COMPO		
114	701WPA0686	HOLDER,DECK		
115	725000A082	SHEET,BACK PR		
116	761WSAA025	ANGLE,FRONT		
117	702WSA0212	CABINET,TOP		
118	8965TS1010	CUSHION		65TS10-10(10x10x25)
119	7A704A003A	LEG PRINCESS (R)ASS'Y		
120	7A704A004A	LEG PRINCESS (L)ASS'Y		
121	761WPA0332	HOLDER,BOTTOM		
122	8965TS1017	CUSHION		65TS10-10(17.5x20x14)
201	8109130B9U	SCREW,TAP TITE(B)R	PAN	3x29
202	810923070U	SCREW TAP TITE(B) R	BIND	3x7
203	8109I30A0U	SCREW TAP TITE(B)	WH7	3x10
204	810923080U	SCREW TAP TITE(B)	BIND	3x8
205	8109K3060U	SCREW,TAP TITE(B)	BIND(3D)	3x6
206	810713040U	SCREW,TAP TITE(S)	PAN	3x4
207	811022680U	SCREW TAP TITE(P)	BIND	2.6x8
208	810F13080U	SEMS(F)		3x8
209	810722660U	SCREW,TAP TITE(S)	BIND	2.6x6
210	811022680U	SCREW TAP TITE(P)	BIND	2.6x8
211	8154D3033U	SCREW,TAP TITE(B)	WH8	3x33R
212	8110630A0U	SCREW TAP TITE(P)	BRAZIER	3x10
---	791WHAA112	GIFT,SHEET		
---	792WHA0561	PACKAGE,TOP		
---	792WHA0562	PACKAGE,BOTTOM		
---	793WCDC552	GIFT,BOX		
---	A2F3PEH975	INSTRUCTION BOOK KIT		
---	J2F3PE02A	WARRANTY SHEET(E/F)		
---	J2F3PE21A	INSTRUCTION BOOK		
---	JB5UD200	POLYBAG INSTRUCTION(RED CAUTION)		

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
300	A2F3PDH420K	DECK ASSY	A2F3PDH420K	501	810722680U	SCREW,TAP TITE(S) BIND	M2.6x8
				502	83ETW3000U	E-RING	3
301	85OA400245	PINCH ROLLER BLOCK VA2		503	810722640U	SCREW,TAP TITE(S) BIND	M2.6x4
302	85OA500026	AHC ASS'Y		504	810212060U	SCREW,PAN	M2x6
303	85OP200290	BELT,CAPSTAN (S)		505	810912660U	SCREW,TAP TITE(B) PAN	M2.6x6
304	85OP600581	WORM		506	810A13040U	SCREW/WASHER(A)	M3x4
305	85OP500083	BASE,AC HEAD		507	810A12650U	SCREW/WASHER(A)	M2.6x5
306	85OP800324	SPRING,AC HEAD		508	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
307	85OA000528	MAIN CHASSIS ASS'Y		509	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
308	85OA200089	CLUTCH ASS'Y					
309	85OA200092	ARM IDLER ASS'Y		510	810722660U	SCREW,TAP TITE(S) BIND	2.6x6
310	85OA300068	LOADING ARM S UNIT		CD1501	122H071704	CORD JUMPER	2H071704
311	85OA300070	LOADING ARM T UNIT		CD1502	122Y021902	CORD JUMPER	2Y021902
312	85OA400223	INCLINED BASE T UINT 3S		H5001	1523Q91004	HEAD,AUDIO CONTROL	VTR-1X2RPE22-772
313	85OA400249	P5 ARM ASS'Y 2		H5002	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
314	85OA400248	TENSION ARM ASS'Y 2		⚠ M101	1596S98002	MOTOR,LOADING	MDB2B66B
315	85OA400231	INCLINED BASE S UNIT		⚠ M2001	1510S98044	CAPSTAN DD UNIT	F2QVB73B
316	85OA900234	CASS HOLDER ASS'Y		⚠ M2003	1589S11025	MICRO MOTOR	I20AL34K
317	85OP900745	CASS,OPENER		⚠ UN4001	A2F3PDH500	CYLINDER UNIT ASS'Y	A2F3PDH500
318	85OP700035	REFLECTOR,LED					
319	85OP900755	BRACKET,TOP 3V					
320	85OP400554	HOLDER,CAPSTAN					
321	85OA900233	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	85OP600585	ROD,MAIN					
340	85OP600582	GEAR,JOINT					
341	85OP800322	SPRING,TENSION					
342	85OP800360	SPRING,BRAKE T					
343	85OP800355	SPRING,COUPLING					
344	85OP800356	SPRING,RING					
345	85OP900754	LEVER,LINK					
346	85OP900744	LEVER,FLAP					

DVD DECK REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
⚠ 600	A2F3PDH650	DVD MECHA ASS'Y	A2F3PDH650
601	92P100109A	HOLDER,TRAVERSE	
602	92P100094A	CLAMPER	
603	92P100088A	GEAR,MOTOR	
604	92P100108A	GEAR,MIDDLE	
605	92P200013A	INSULATOR(F)	
606	92P200014A	INSULATOR(R)	
607	92SBB0029A	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	800WFAA008	CUSHION C	
617	7230007850	SHEET,FFC	
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) BIND	2x8
CD2001	122H0O1901	CORD JUMPER	2H0O1901
CD2301	122H062102	CORD JUMPER	2H062102
CD2302	122H052601	CORD JUMPER	2H052601
⚠ M2602	1515S98003	FEED MOTOR	BCZ3B03B
⚠ M2603	1596S18003	MOTOR,LOADING	BCZ3B52B
PCB610	A5R801V610	PCB ASS'Y	DED003A
PCB640	A2F401H640	PCB ASS'Y	DED012B
SW1	0515S32002	SWITCH	SSS-13-2
SW2	0500101037	PUSH SWITCH	ESE22MH24

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠R501	R0G3K2335K	RC	3.3M OHM 1/2W
⚠R502	R3X181010J	R,METAL OXIDE	1 OHM 1W
⚠R503	R002T2155J	RC	1.5M OHM 1/2W
⚠R504	R002T2561J	RC	560 OHM 1/2W
⚠R512	R3X181683J	R,METAL OXIDE	68K OHM 1W
⚠R516	R63881R22J	R,FUSE	0.22 OHM 1W
⚠R517	R002T2102J	RC	1K OHM 1/2W
		CAPACITORS	
⚠C501	E02LF2222M	CE	2200 UF 16V
⚠C502	P2122B224M	CMP	0.22 UF 275V ECQUL
⚠C504	E02LF1222M	CE	2200 UF 10V
⚠C505	E02LU2101M	CE	100 UF 16V
⚠C511	E62QFC470M	CE	47 UF 200V
C513	C03L0R7H2K	CC	220 PF 2KV R
⚠C514	E02LU2101M	CE	100 UF 16V
⚠C515	C0J0B0514K	CC	0.01 UF 500V B
⚠C516	CC3LE0MH3M	CC	0.0022UF 250V
⚠C518	E61FF0222D	CE	2200 UF 6.3V
⚠C519	E02LU2101M	CE	100 UF 16V
C525	C03L0R7U2K	CC	680 PF 2KV R
⚠C526	CC3LE0MH3M	CC	0.0022UF 250V
⚠C531	C0JTB05S2K	CC	560 PF 500V B
⚠C540	E62QFC470M	CE	47 UF 200V
		DIODES	
D501	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D502	D2WXN40050	DIODE SILICON	1N4005-EIC
⚠D503	D2WXN40050	DIODE SILICON	1N4005-EIC
D504	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D505	D2WXN40050	DIODE SILICON	1N4005-EIC
⚠D506	D2WXN40050	DIODE SILICON	1N4005-EIC
⚠D507	D23TGP15J0	DIODE SILICON	RGP15J-G23
D508	D1VT001330	DIODE,SILICON	1SS133T-77
D509	D2WXGP10J0	DIODE RECTIFIER	RGP10J-EIC
⚠D510	D97U02201B	DIODE ZENER	MTZJ22B T-77
⚠D511	D2LKB340L0	DIODE SCHOTTKY	SB340L-6737
D512	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D513	D2WXN40050	DIODE SILICON	1N4005-EIC
D514	D97U01201B	DIODE,ZENER	MTZJ12B T-77
⚠D515	D28T21DQN4	DIODE SCHOTTKY	21DQ04N-TA2B1
D516	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D518	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D519	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
⚠D522	D28T0ERB20	DIODE RECTIFIER	10ERB20-TA1B2
⚠D523	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D524	D1VT001330	DIODE,SILICON	1SS133T-77
D526	D97U03R31B	DIODE,ZENER	MTZJ3.3B T-77
⚠D527	D2WXN40050	DIODE SILICON	1N4005-EIC
D528	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D529	D2WXN40050	DIODE SILICON	1N4005-EIC
D680	0021E2Q140	LED	LTL-1CHEE-002A
D681	0021E2Q140	LED	LTL-1CHEE-002A
D682	0021E2Q140	LED	LTL-1CHEE-002A
D683	0021E2Q140	LED	LTL-1CHEE-002A
D684	0021E2Q140	LED	LTL-1CHEE-002A
D686	0021E5Q210	LED	LTL-1CHGE-002A
D2303	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D2304	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D3001	0010E00330	INFRARED LED	LTE-3271T-012A-O
D3002	D1VT001330	DIODE,SILICON	1SS133T-77
D3007	D1VT001330	DIODE,SILICON	1SS133T-77
D3009	D1VT001330	DIODE,SILICON	1SS133T-77
D4002	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D4003	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D4004	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D4005	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D8004	D1VT001330	DIODE,SILICON	1SS133T-77
D8005	D1VT001330	DIODE,SILICON	1SS133T-77
D8006	D1VT001330	DIODE,SILICON	1SS133T-77
D8101	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D8111	DD7R0S3550	DIODE SILICON	1SS355 TE-17
D8112	DD7R0S3550	DIODE SILICON	1SS355 TE-17
		ICS	
IC101	I03F3206ME	IC	LA71206M-MPB-E
⚠IC501	I1KJ9A431A	IC	KIA431A-AT
⚠IC502	I1KA98R09A	IC	KIA78R09API
⚠IC503	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC701	I03F670BM0	IC	LA72670BM-L-MPB-E

REF. NO.	PART NO.	DESCRIPTION	
		ICS	
⚠IC2301	I03F065650	IC	LA6565-TE-L-E
IC2304	I07J003580	IC	BA10358FV-E2
IC3001	I54F50147A	IC	OEC0147A
IC3003	I9UF032310	IC	PST3231NR
IC3099	A2F3P4H015	INIT DATA	BR24L02F-WE2
IC4001	ICQK068620	IC	ZR36862PQCG
IC4002	I57J0L02F0	IC	BR24L02F-WE2
⚠IC4003	I07F9E00W0	IC	BA33E00WHFP-TR
IC4005	IFLJ0632H7	IC	K4S641632H-UC75
IC4007	ICMJ0CEKE8	IC	SST39VF800A-70-4C-EKE
IC8001	I04J045800	IC	RC4580IDR
IC8003	I0UF015110	IC	MM1511XNRE
IC8005	I0UF015010	IC	MM1501XNRE
IC8102	I17F017530	IC	PCM1753DBQR
		TRANSISTORS	
Q101	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q102	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q103	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q104	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q105	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q107	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q109	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q301	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
⚠Q501	T25F035630	FET	2SK3563(ORION_Q)
⚠Q502	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
⚠Q503	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
⚠Q504	TAAT012714	TRANSISTOR, SILICON	KTA1271_Y-AT
⚠Q505	TD3T018350	TRANSISTOR SILICON	2SD1835S/T-AA
Q506	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
⚠Q507	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q509	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
⚠Q510	TD3T018350	TRANSISTOR SILICON	2SD1835S/T-AA
Q513	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q514	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q666	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q668	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q2301	T67J1036K0	TRANSISTOR SILICON	2SA1036KT146
Q2302	T67J048TL0	TRANSISTOR SILICON	2SA2048TL
Q2303	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q2304	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q2305	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q3002	0002700690	PHOTO COUPLER	RPI-303
Q3003	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q3004	0002700680	PHOTO COUPLER	RPI-352C40N
Q3005	0002700680	PHOTO COUPLER	RPI-352C40N
Q3006	0000M00390	PHOTO TRANSISTOR	ST-304L
Q3007	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q3008	0000M00390	PHOTO TRANSISTOR	ST-304L
Q8001	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8002	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q8003	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8004	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q8005	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8006	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8007	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q8008	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8009	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8010	TPYJA05001	COMPOUND TRANSISTOR	DTA143EKAT146
Q8011	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8012	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q8019	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8020	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8023	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q8101	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
		COILS &TRANSFORMER	
L101	031626010R	COIL,BIAS OSC	1626010
L102	02167F101J	COIL	100 UH
L103	021LA65R6K	COIL	5.6 UH
L104	02167F220J	COIL	22 UH
L107	02167F220J	COIL	22 UH
L301	02167F220J	COIL	22 UH
⚠L501	029X000117	COIL,LINE FILTER	SS11VL-05230
L505	02167F220J	COIL	22 UH
L506	02167E220K	COIL	22 UH
L701	021LA6220J	COIL	22 UH
L702	021LA6220J	COIL	22 UH
L703	02167F220J	COIL	22 UH

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		COILS &TRANSFORMER	
L704	02167F220J	COIL	22 UH
L705	02167F220J	COIL	22 UH
L3002	02167E220K	COIL	22 UH
L3003	021LA6120J	COIL	12 UH
L4001	02167F2R2J	COIL	2.2 UH
L8001	021LA6R33M	COIL	0.33 UH
L8002	021LA6R33M	COIL	0.33 UH
L8006	02167F101J	COIL	100 UH
L8007	02167F101J	COIL	100 UH
L8009	02167F101J	COIL	100 UH
L8010	02167F101J	COIL	100 UH
L8104	02167F1R0K	COIL	1 UH
L8105	02167F1R0K	COIL	1 UH
⚠T501	0481291244	TRANSFORMER,SWITCHING	81291244
		JACKS	
J8001	060J411031	RCA JACK	MSP-213V1-432_NI_LF
J8006	060J411033	RCA JACK	MSP-213V1-732_NI_LF
J8008	063D700008	JACK	MDC-070V-B_LF
		SWITCHES	
SW680	0504R01T38	SWITCH TACT	EVQ11L05R
SW681	0504R01T38	SWITCH TACT	EVQ11L05R
SW682	0504R01T38	SWITCH TACT	EVQ11L05R
SW683	0504R01T38	SWITCH TACT	EVQ11L05R
SW684	0504R01T38	SWITCH TACT	EVQ11L05R
SW691	0504R01T38	SWITCH TACT	EVQ11L05R
SW692	0504R01T38	SWITCH TACT	EVQ11L05R
SW693	0504R01T38	SWITCH TACT	EVQ11L05R
SW694	0504R01T38	SWITCH TACT	EVQ11L05R
SW695	0504R01T38	SWITCH TACT	EVQ11L05R
SW696	0504R01T38	SWITCH TACT	EVQ11L05R
SW3001	0508S11001	SWITCH (LEAF)	LSA-1144EAU
		P.C.BOARD ASSEMBLIES	
PCB010	A2F3PEH010	PCB ASS'Y	DME043A
PCB130	A2F3PEH130	PCB ASS'Y	DME031A
PCB270	A2F3PEH270	PCB ASS'Y	DEE072A
PCB280	A2F3PEH280	PCB ASS'Y	DEE073A
		MISCELLANEOUS	
B501	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B2301	0246C51024	CORE,BEADS	MMZ1608R102CT
B2302	0246C51024	CORE,BEADS	MMZ1608R102CT
B2303	0246C51024	CORE,BEADS	MMZ1608R102CT
B2304	0246C51024	CORE,BEADS	MMZ1608R102CT
B2305	0246C51024	CORE,BEADS	MMZ1608R102CT
B4001	0246C51024	CORE,BEADS	MMZ1608R102CT
B4002	0246C51024	CORE,BEADS	MMZ1608R102CT
B4003	0246C51024	CORE,BEADS	MMZ1608R102CT
B4005	0246C51024	CORE,BEADS	MMZ1608R102CT
B4006	0246C51024	CORE,BEADS	MMZ1608R102CT
B4007	0246C51024	CORE,BEADS	MMZ1608R102CT
B4008	0246C51024	CORE,BEADS	MMZ1608R102CT
B4009	0246C51024	CORE,BEADS	MMZ1608R102CT
B4010	0246C51024	CORE,BEADS	MMZ1608R102CT
B4011	0246C51024	CORE,BEADS	MMZ1608R102CT
B4012	0246C51024	CORE,BEADS	MMZ1608R102CT
B4013	0246C51024	CORE,BEADS	MMZ1608R102CT
B4014	0246C51024	CORE,BEADS	MMZ1608R102CT
B4016	0246C51024	CORE,BEADS	MMZ1608R102CT
B4018	0246C51024	CORE,BEADS	MMZ1608R102CT
B8103	0246C51024	CORE,BEADS	MMZ1608R102CT
CD102	122F041508	CORD JUMPER	2F041508
CD103	W9L6012042	FLAT CABLE AWM2468	AWG26 2C BLACK 120MM
⚠CD501	1209414910	CORD AC BUSH	9414910
CD680	122H050801	CORD JUMPER	2H050801
CD681	WAL6812038	FLAT CABLE AWM2468	AWG26 3C GRAY 120MM
CD682	122H0I1001	CORD JUMPER	2H0I1001
CP101	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
CP102	069J740599	CONNECTOR PCB SIDE	IMSA-9604S-04C
CP103	067U002019	WIRE HOLDER	B2013H02-2P
CP501	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP651	069J750589	CONNECTOR PCB SIDE	IMSA-9604S-05F
CP652	069EVI3030	CONNECTOR PCB SIDE	00_6232_018_006_800+
CP680	069J750589	CONNECTOR PCB SIDE	IMSA-9604S-05F
CP682	069EVI3050	CONNECTOR PCB SIDE	00_6232_018_102_800+
CD4002	06C32B1104	CORD CONNECTOR	C32B1104
CD6002	06CPL02006	CABLE	CPL02006
CD6003	06CPBA2006	CORD,RCA PIN	TD-OR0201R
CD8001	122F0E1001	CORD JUMPER	2F0E1001

REF. NO.	PART NO.	DESCRIPTION	
		MISCELLANEOUS	
CP2301	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2302	069EV53030	CONNECTOR PCB SIDE	00_6232_005_006_800+
CP2303	069EV63030	CONNECTOR PCB SIDE	00_6232_006_006_800+
⚠CP3001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP681A	067U003029	WIRE HOLDER	B2013H02-3P
CP681B	067U003029	WIRE HOLDER	B2013H02-3P
CP8001	069J7E0599	CONNECTOR PCB SIDE	IMSA-9604S-14C
CP8101	069J7E0589	CONNECTOR PCB SIDE	IMSA-9604S-14F
⚠F501	081PC2R505	FUSE	51MS025L
FH501	06710T0009	HOLDER,FUSE	EYF-52BCY
FH502	06710T0009	HOLDER,FUSE	EYF-52BCY
OS680	077Q037002	REMOTE RECEIVER	PIC-37143TH5
TM601	076R0JT020	TRANSMITTER	R56-0539
⚠TU301	0162300044	RF UNIT	115-V-HA35ARE
X101	100DT3R528	CRYSTAL	HC-49/U
X3001	100GT01006	CRYSTAL	B10000C001
X3002	100DA32R01	CRYSTAL	DT-26
X4001	100BT02701	CRYSTAL	HC-49U/S

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.	M2F3-PEH
O/R NO.	K572303