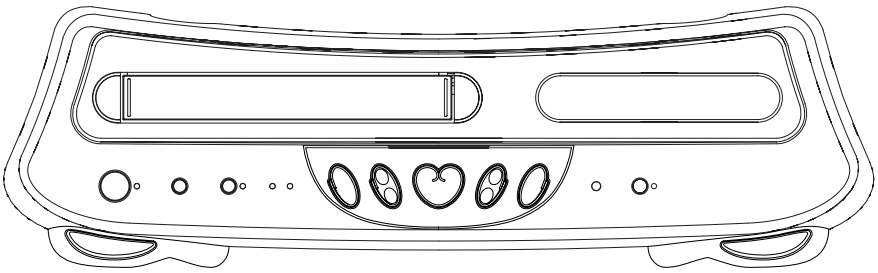
CLASS 1
LASER PRODUCT

DVD2100-P

SERVICE MANUAL

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER

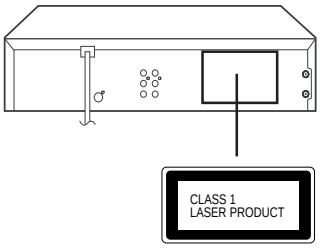


ORIGINAL
MFR'S VERSION A

IMPORTANT WARNING

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

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



(Printed on the Rear Panel)

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

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

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

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. 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

[When the removal of the DVD Deck]

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

[When the installation of the DVD Deck]

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

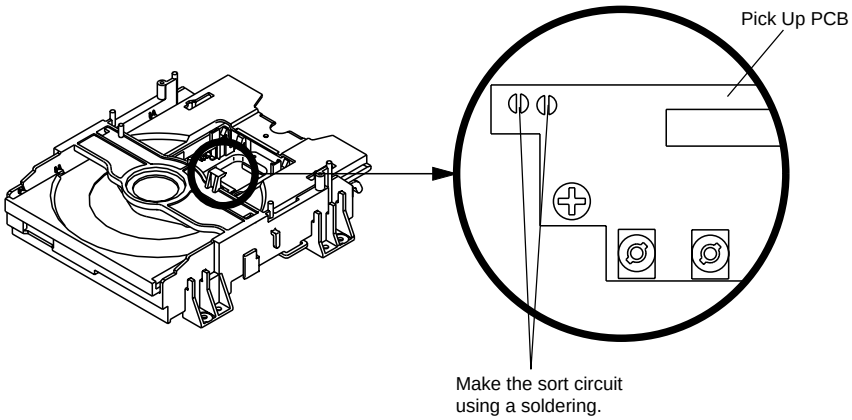


Fig. 1

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, a life of product may become short.
Please perform the following measure against static electricity, be careful of destruction of a laser diode enough at the time of repair, and work.

- It works on the desk which performed measures 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 of the derections to wind the Video Tape in the Cassette Case.
5. Repeat the above step 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch on the tape.

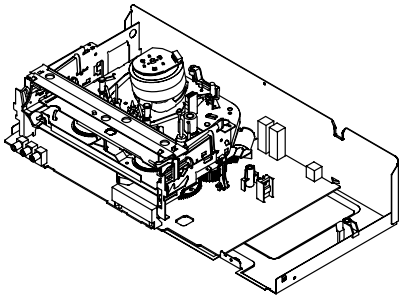


Fig. 1

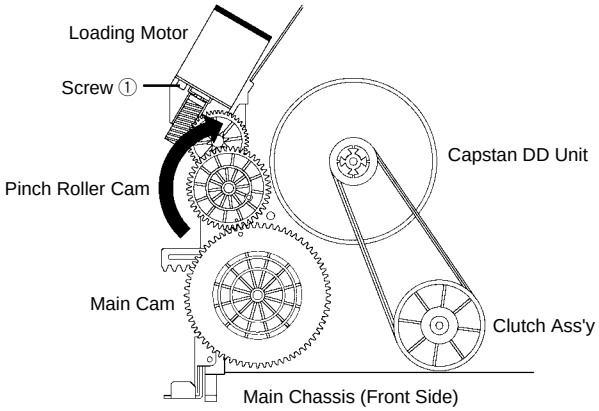


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet and 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. Draw the Tray.

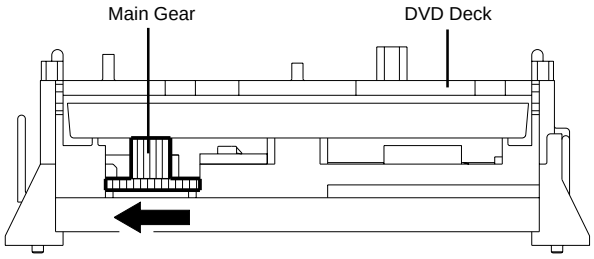


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

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

1. Turn Unit ON.
2. Press and hold the '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

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
		Deck	Disc Loading System		Front Disc Loading
			Motor		3 Motors
		Pick up			1-Lens 2-Beams System
		Playback time (Max)	DVD 1-Layer		135min (4.7GB)
			DVD 2-Layer		245min (8.5GB)
			CD		74min
			VIDEO CD		--min
		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	DECK		OVD-7
			Loading System		Front
			Motor		3
		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		-
			Rec NTSC		SP/SLP
			Play PAL		-
			Play NTSC		SP/LP/SLP
		Fast Forward / Rewind Time (Approx.)	at 25°C		FF:4'50"/REW:2'30"
				with Cassette	T-120
		Forward/Reverse	NTSC or PAL-M		SP/LP/SLP = 3x,5x / 7x,9x / 9x,15x
		Picture Search	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)
			Tuning System		F-Synth
			Input Impedance		VHF/UHF 75 OHM
			CH Coverage		2-69,4A,A-5~ A-1,A~I, J~ W, W+1-W+84
		Intermediate Frequency	Picture (FP)		45.75 MHz
			Sound (FS)		41.25 MHz
			FP-FS		4.50 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)
		RGB Signal	Output Level		-
		Audio Signal	Input Level Microphone		-

GENERAL SPECIFICATIONS

				Input Level Line		-
				Output Level Line		-8 dBm/ 1k ohm (VCR, 0dBm=0.775Vrms) -12dBm/ 1k ohm (DVD, -20dBFs 0dBFs=2.0Vrms)
				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			Character
			Language			Yes
				Menu		Yes
				Subtitle		Yes
				Audio		Yes
			Picture			Yes
				TV Screen Size		Yes
				OSD Display On/Off		Yes
				JPEG Interval		No
				Select Files		No
				E.B.L. (Enhanced Black Level)		No
			Sound			Yes
				DRC (Dynamic Range Control)		Yes
				Dialogue On:DRC(TV)/ Off:DRC(Std)		No
				dts Decode		No
				Output (5.1ch/2ch)		No
				Surround On/Off		No
				Center On/Off		No
				Sub Woofer On/Off		No
			Parental			Yes
				Password Lock/Unlock		Yes
				Rating Level		Yes
			Other			Yes
				OSD Language (Set up Language)		Yes
				Output (RGB / Composite)		No
			Open			Yes
			Close			Yes
			No disc			Yes
			Reading			Yes
			Play			Yes
			Still/Pause			Yes
			Stop			Yes
			Prohibit Mark			Yes
			Step			Yes
			Skip (>>|)			Yes
			Skip (|<<)			Yes
			Random			Yes (CD)
			Repeat			Yes
			Slow+			Yes
			Slow-			No
			Search+			Yes
			Search-			Yes
			Jump			Yes
			Resume			Yes
			Title No.			Yes
			Chapter No.			Yes
			Track No.			Yes
			Time			Yes
			Subtitle No.			Yes
			Angle No.			Yes
			Vocal On/Off			Yes
			Audio No.			Yes
			Audio Stereo L/R			No
			Zoom			Yes
			Marker No.			Yes
			Spatializer (N-2-2)			No
			Program Play Back			Yes (CD)
			MP3/WMA/JF	Folder Name		No
				File Name		No
				File No		No
				Time		No
				Track No		No

GENERAL SPECIFICATIONS

		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
		OTPB Valid Time			No
		Timer Back-up (at Power Off Mode)			5sec
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
		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

GENERAL SPECIFICATIONS

			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	
			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 Tracking		Yes	
		HQ (VHS Standard High Quality)		Yes	
		Auto Power On, Auto Play, Auto Rewind, Auto Eject		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

GENERAL SPECIFICATIONS

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			Yes
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
				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.)	4.5 kg(9.9lbs)
				Gross (Approx.)	6.0 kg(13.2lbs)
G-20	Carton	Master Carton			No
				Content	--- Sets
				Material	--- / ---
				Dimensions W x D x H(mm)	---
				Description of Origin	---
		Gift Box			Yes
				Material	Single / Full Color
				W/Color Photo Label	No
				Dimensions W x D x H(mm)	565 x 408 x 231
				Design	As Per BUYER 's
				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

GENERAL SPECIFICATIONS

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**	Pb Free	Lead-free Solder	No
			Other	No
		Cd Free		No

DISASSEMBLY INSTRUCTIONS

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

1-1: TOP CABINET/FRONT CABINET/ OPERATION 1/2 PCB/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).

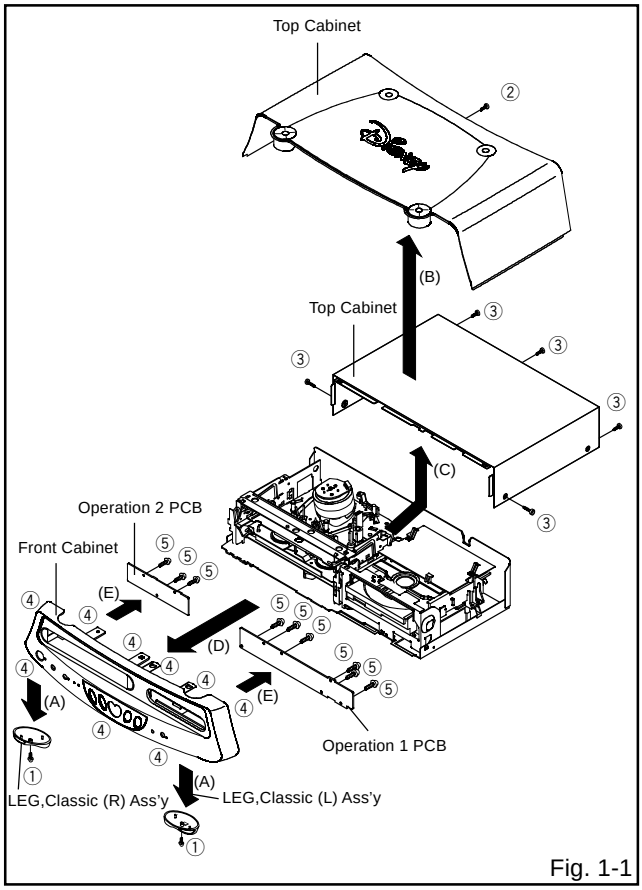


Fig. 1-1

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).

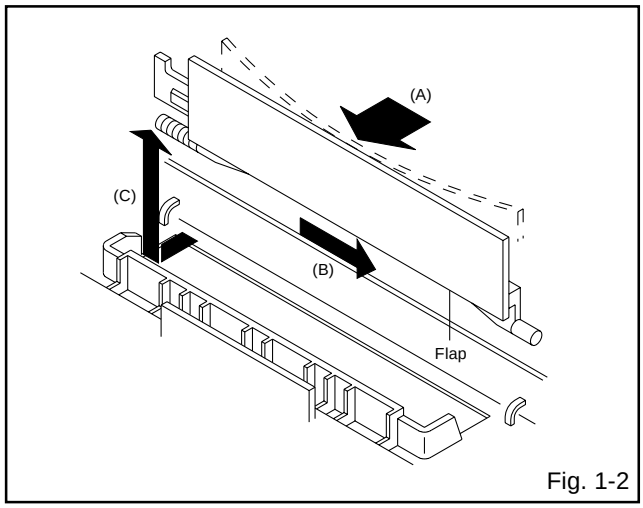


Fig. 1-2

DISASSEMBLY INSTRUCTIONS

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

1. Make the short circuit on the position as shown **Fig. 1-3** using a soldering. 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: (CP2601, CP2602 and CP2603).
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).

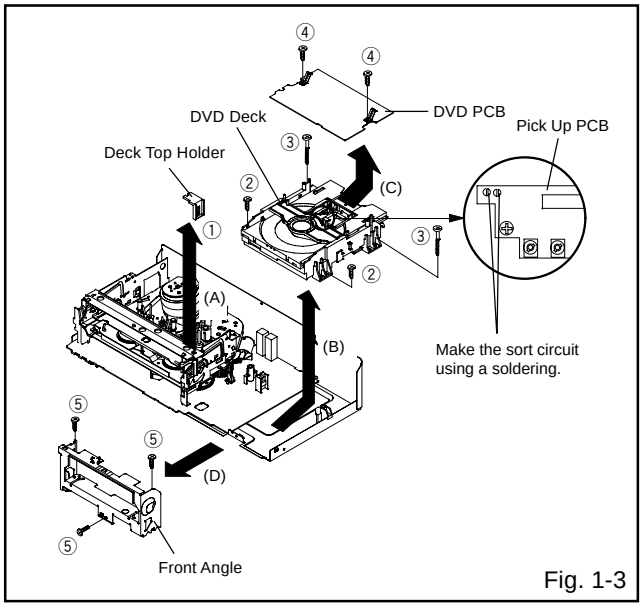


Fig. 1-3

NOTE

When the installation of the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and VCR 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, CP103 and CP3001).
7. Remove the VCR Deck in the direction of arrow.

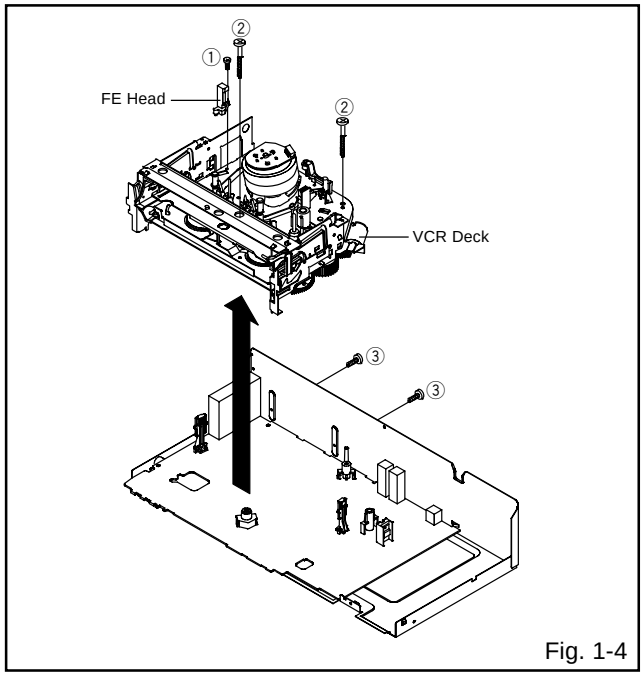


Fig. 1-4

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

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

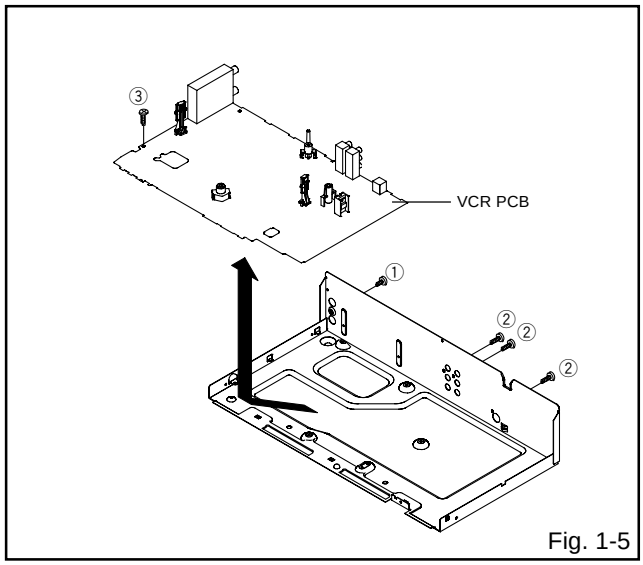


Fig. 1-5

DISASSEMBLY INSTRUCTIONS

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

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

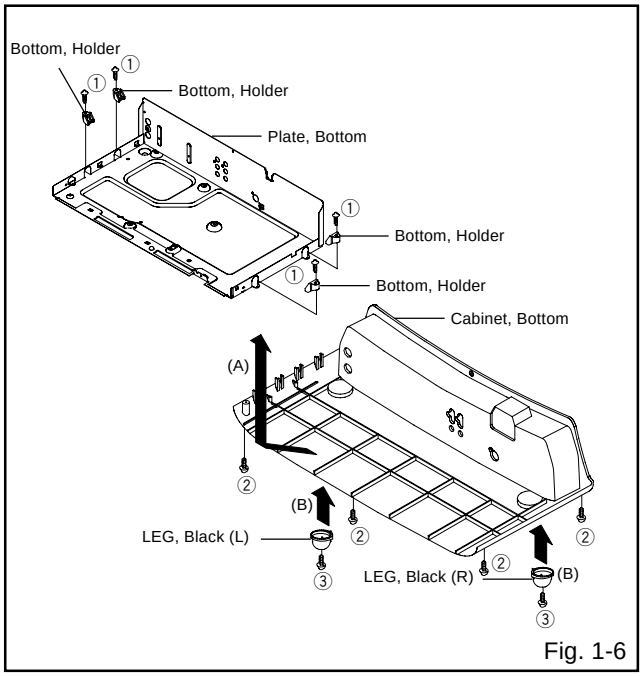


Fig. 1-6

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

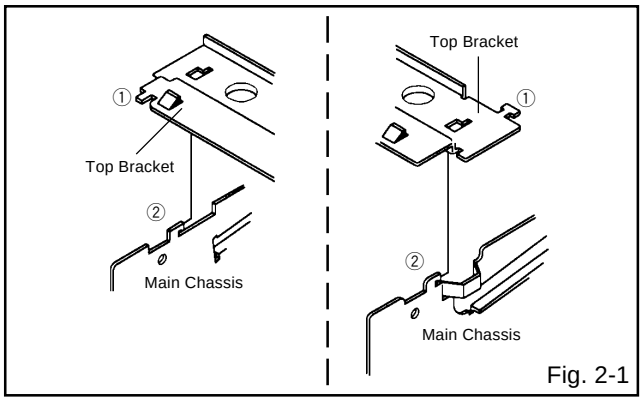


Fig. 2-1

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

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

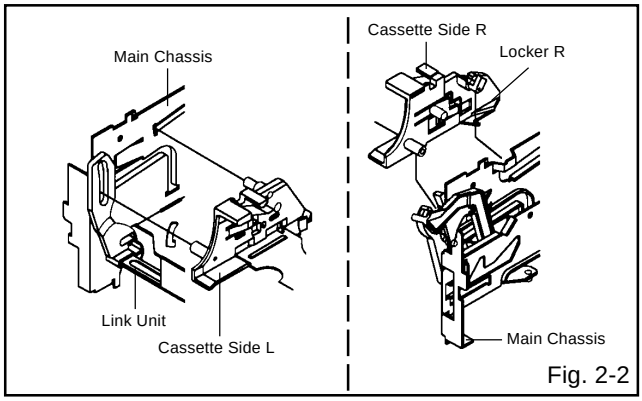


Fig. 2-2

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

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

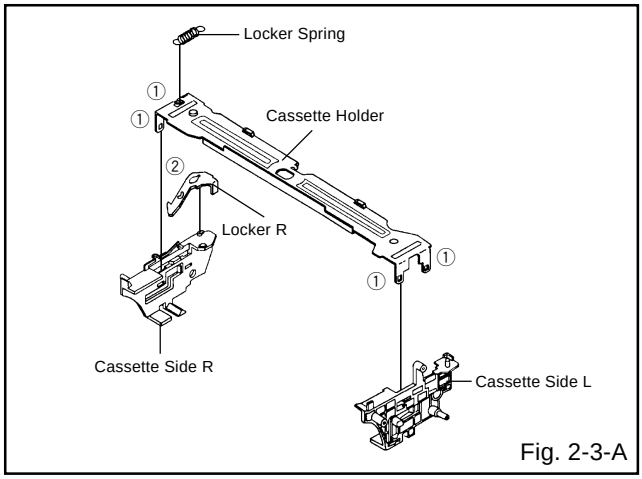


Fig. 2-3-A

NOTE

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

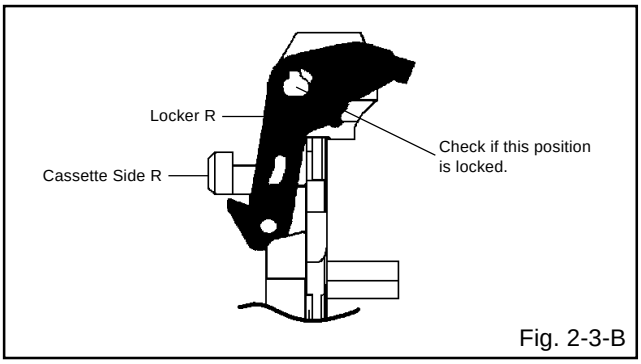


Fig. 2-3-B

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

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

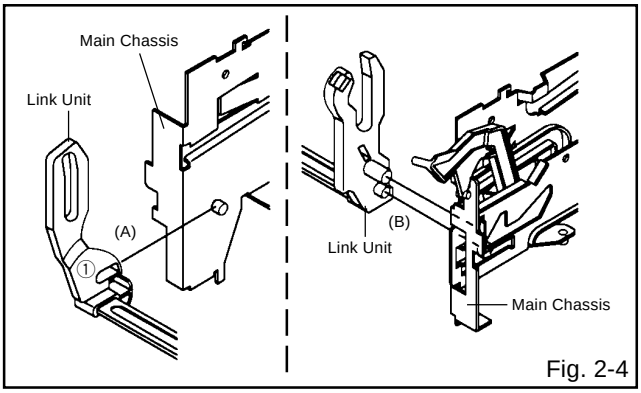


Fig. 2-4

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

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

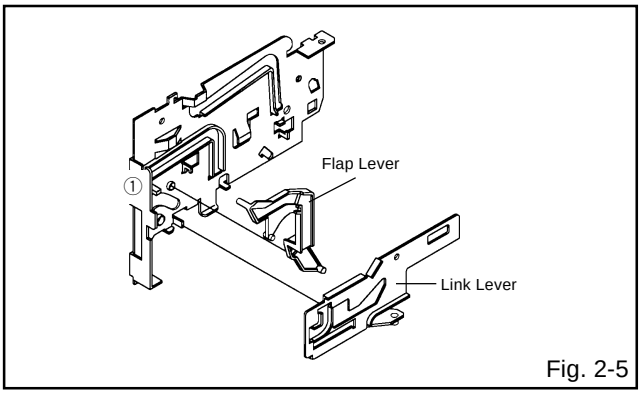


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

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

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

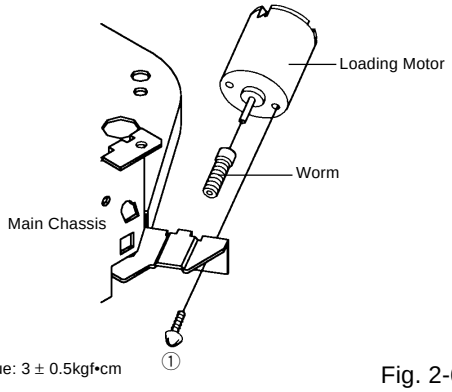


Fig. 2-6-A

NOTE

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-6-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-6-D.

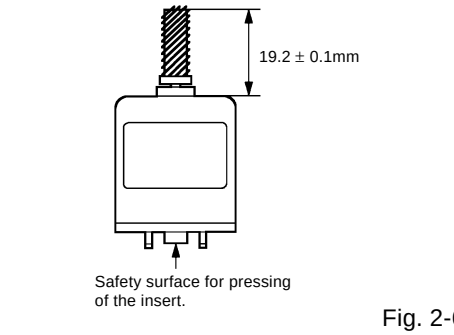


Fig. 2-6-B

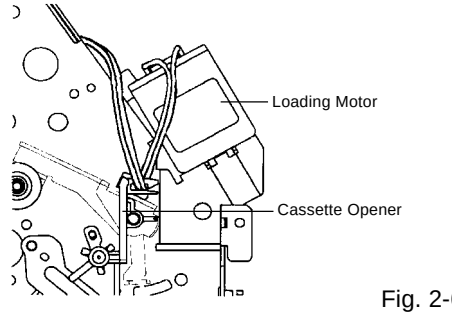


Fig. 2-6-C

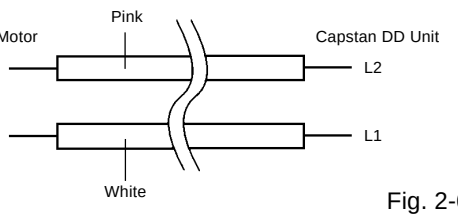


Fig. 2-6-D

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

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

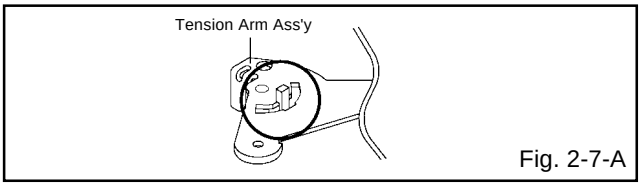


Fig. 2-7-A

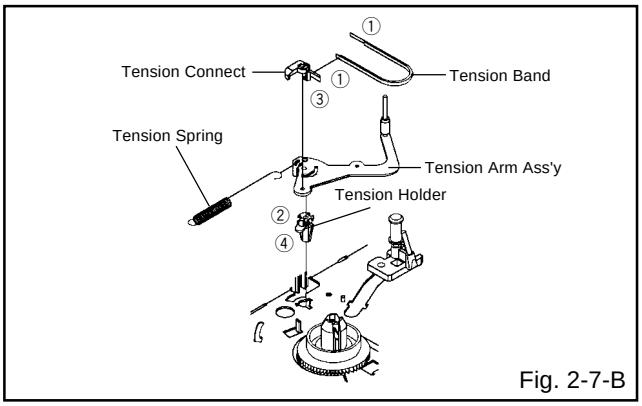


Fig. 2-7-B

NOTE

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

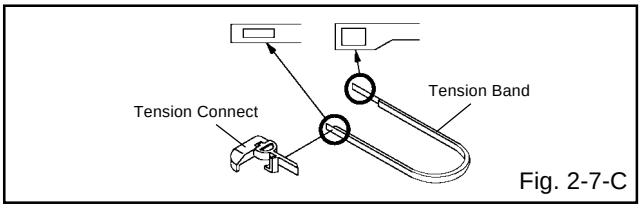


Fig. 2-7-C

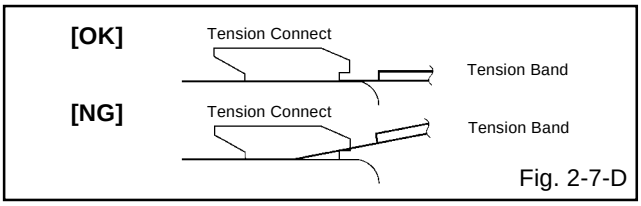


Fig. 2-7-D

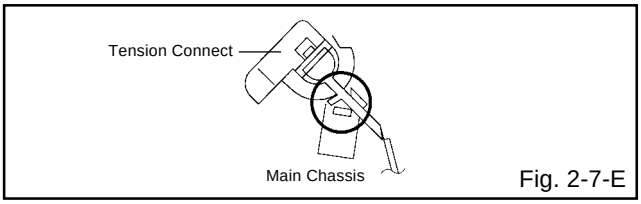


Fig. 2-7-E

DISASSEMBLY INSTRUCTIONS

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

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

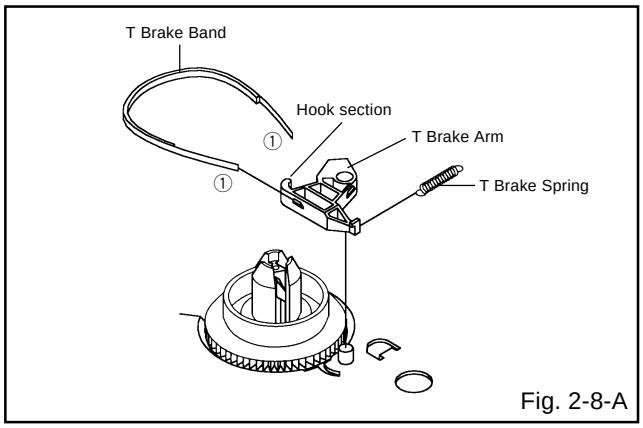


Fig. 2-8-A

NOTE

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

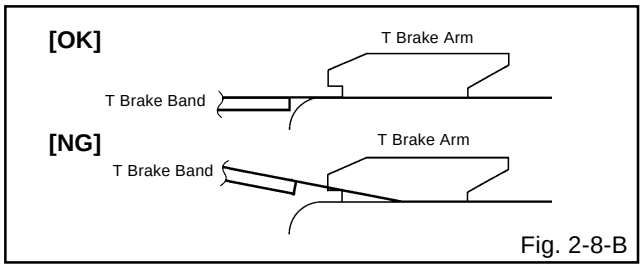


Fig. 2-8-B

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

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

NOTE

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

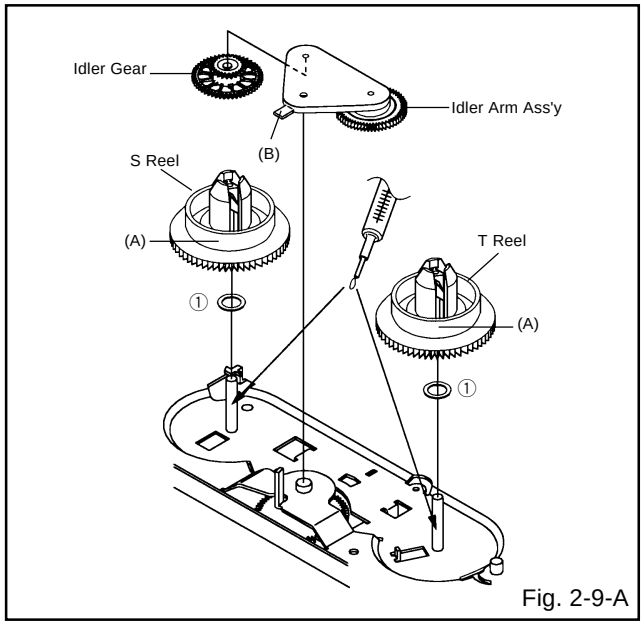


Fig. 2-9-A

NOTE

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

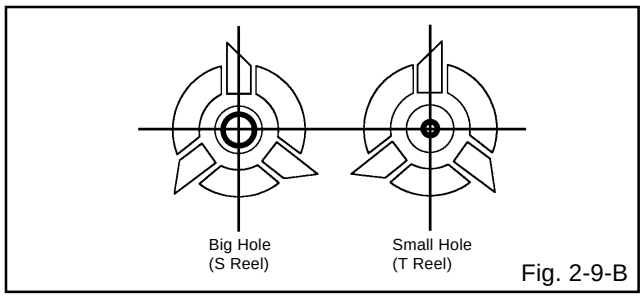


Fig. 2-9-B

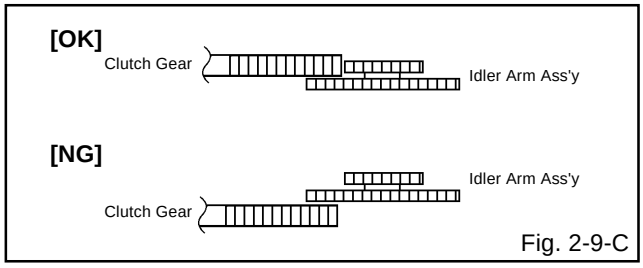


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

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

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

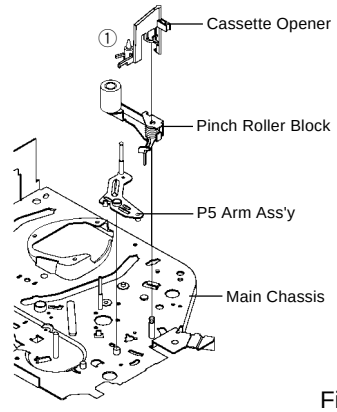


Fig. 2-10-A

NOTE

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

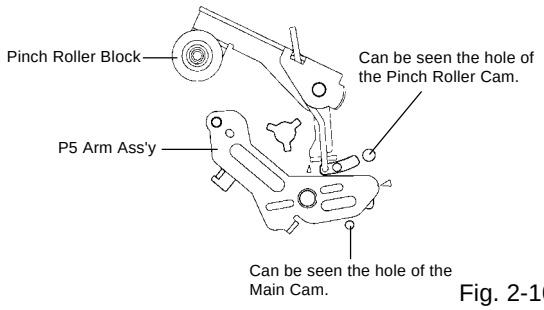


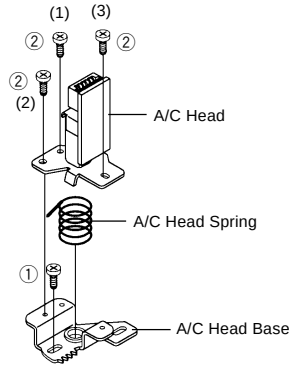
Fig. 2-10-B

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

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

NOTE

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



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

Fig. 2-11-A

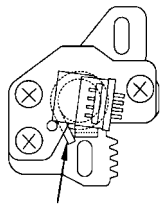
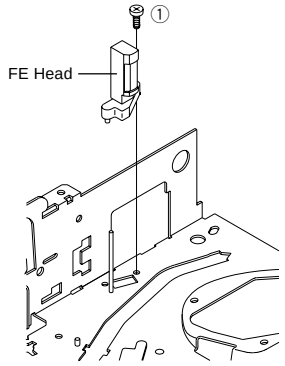


Fig. 2-11-B

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

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



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

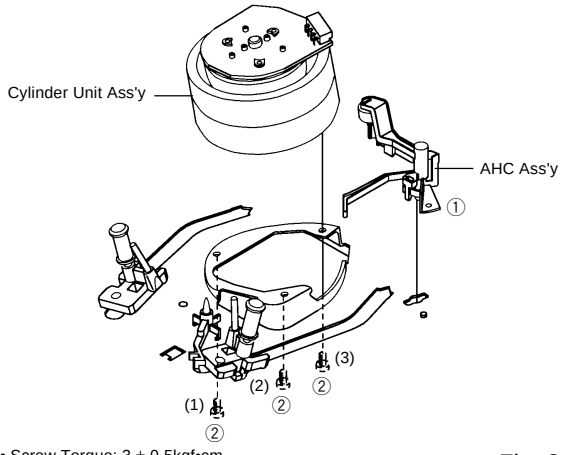
Fig. 2-12

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

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

NOTE

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



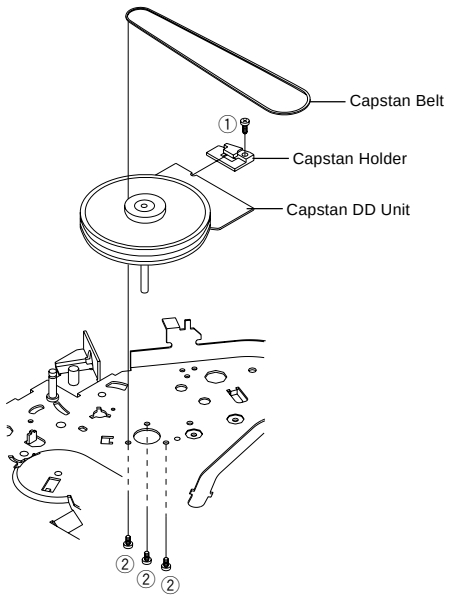
• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

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

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



• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-14

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

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

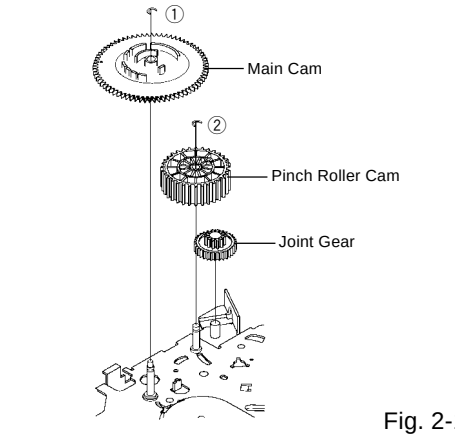


Fig. 2-15-A

NOTE

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

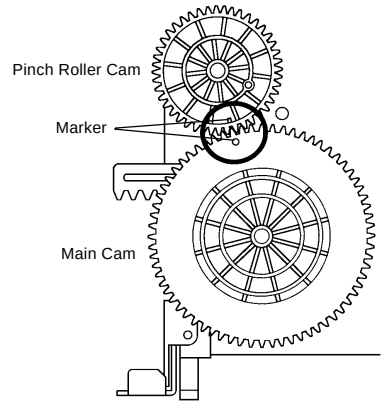


Fig. 2-15-B

2-16: LOADING GEAR S/T UNIT (Refer to Fig. 2-16-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.

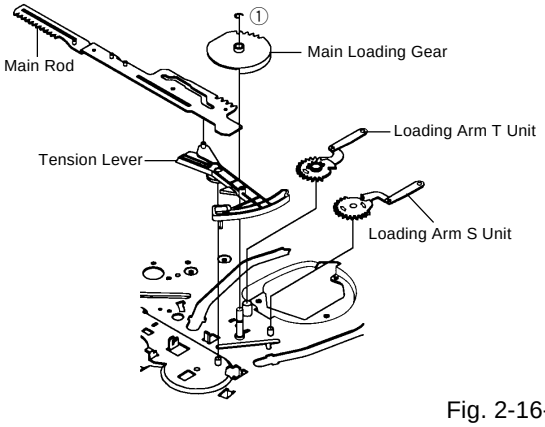


Fig. 2-16-A

NOTE

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

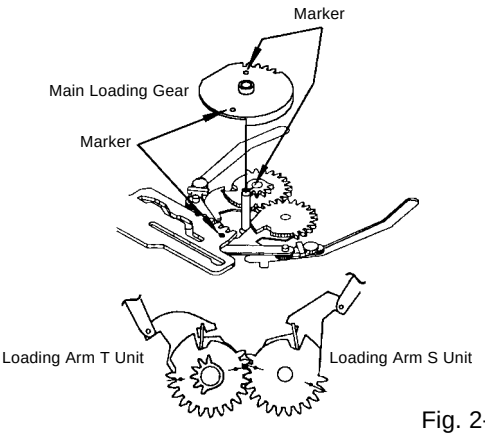


Fig. 2-16-B

DISASSEMBLY INSTRUCTIONS

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

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

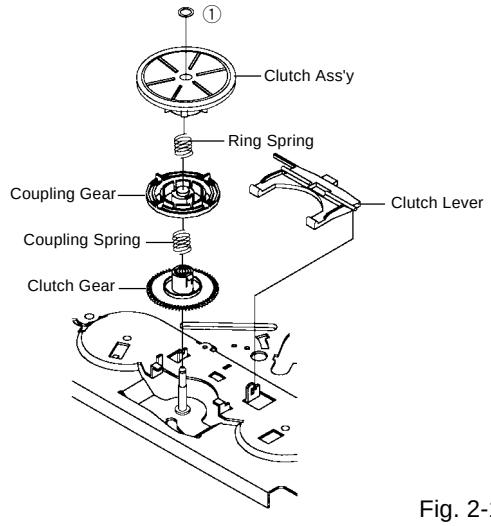


Fig. 2-17-A

NOTE

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

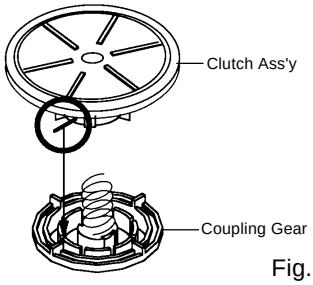


Fig. 2-17-B

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

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.

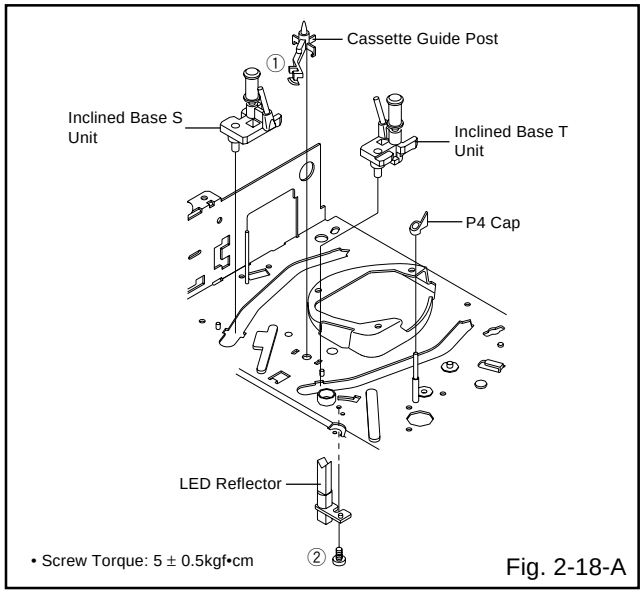


Fig. 2-18-A

NOTE

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

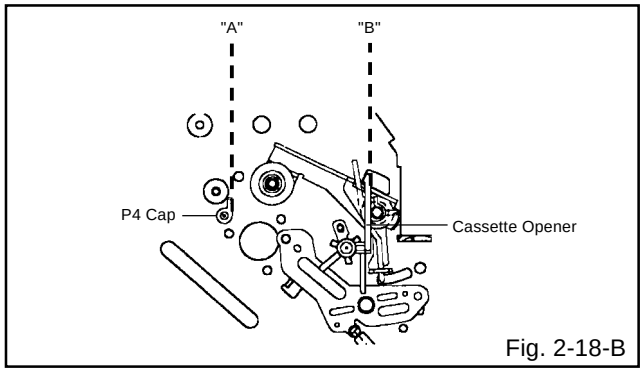


Fig. 2-18-B

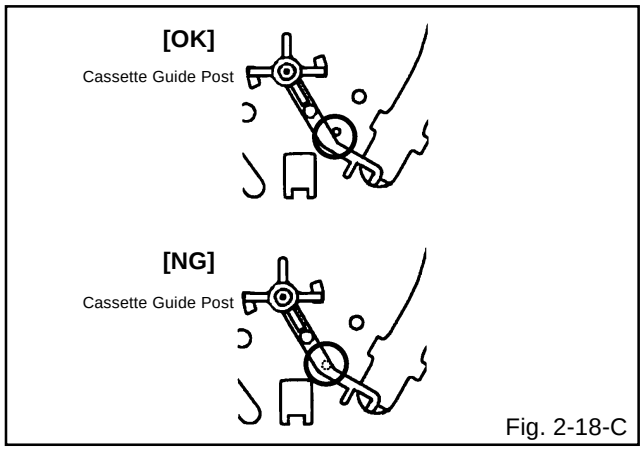


Fig. 2-18-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF DVD DECK PARTS

NOTE

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

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

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

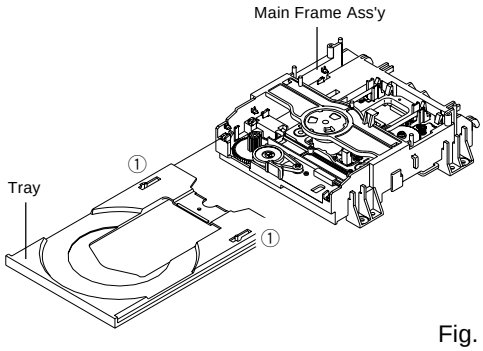


Fig. 3-1-A

NOTE

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

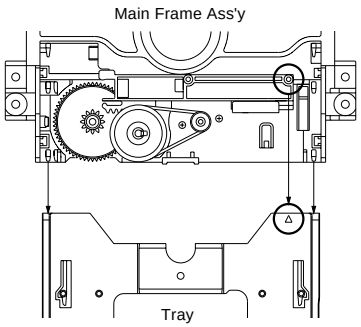
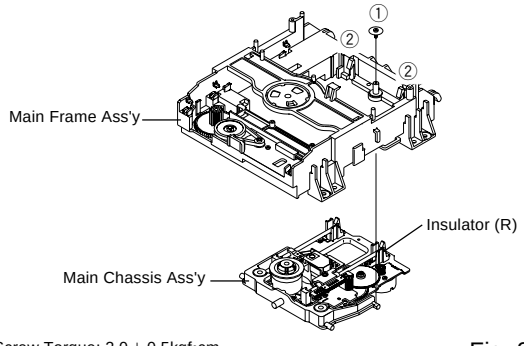


Fig. 3-1-B

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

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



• Screw Torque: 2.0 ± 0.5kgf•cm

Fig. 3-2-A

NOTE

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

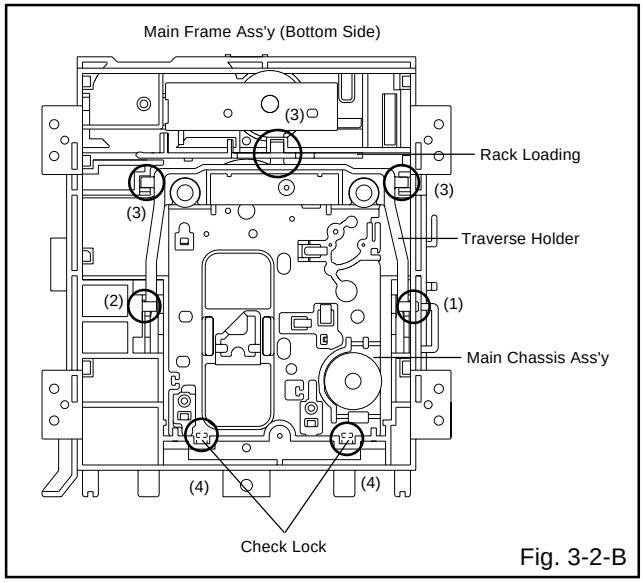


Fig. 3-2-B

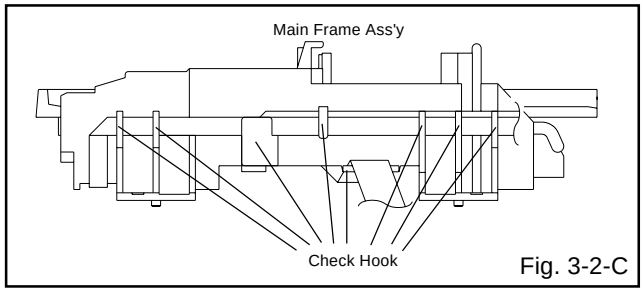
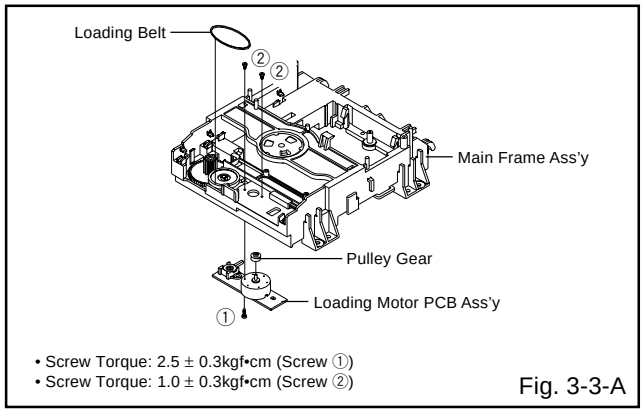


Fig. 3-2-C

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

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



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

Fig. 3-3-A

DISASSEMBLY INSTRUCTIONS

NOTE

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

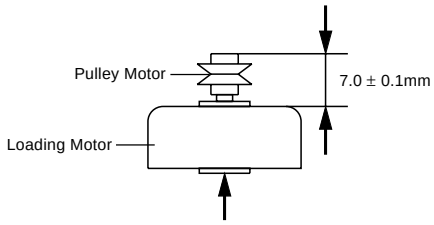


Fig. 3-3-B

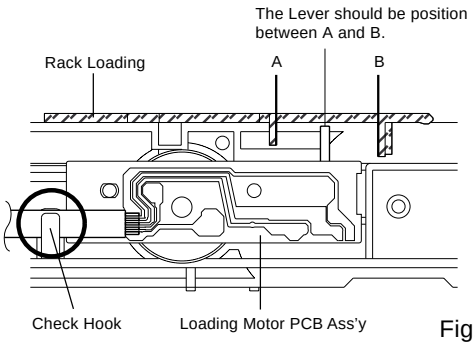


Fig. 3-3-C

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

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

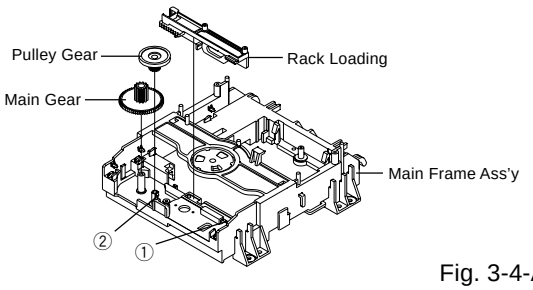


Fig. 3-4-A

NOTE

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

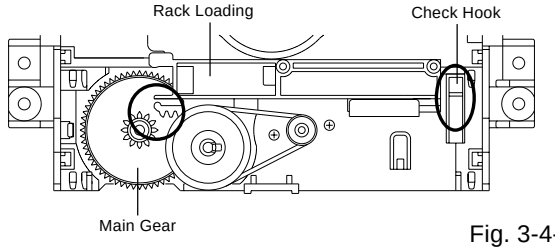


Fig. 3-4-B

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

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

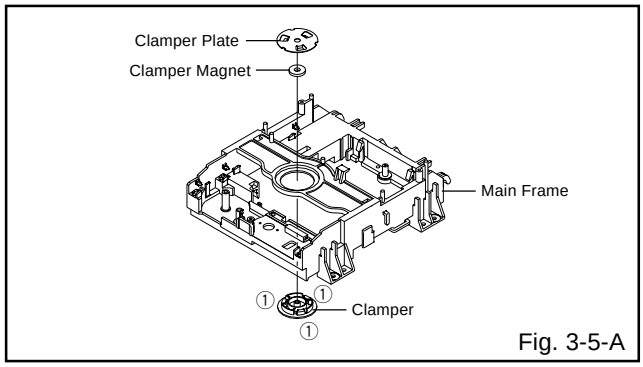


Fig. 3-5-A

NOTE

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

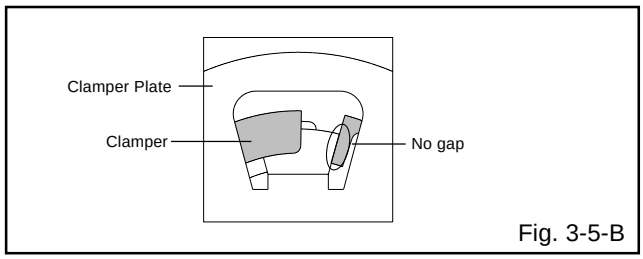


Fig. 3-5-B

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

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

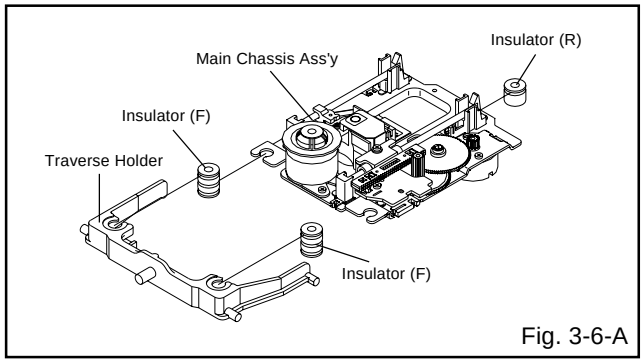


Fig. 3-6-A

NOTE

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

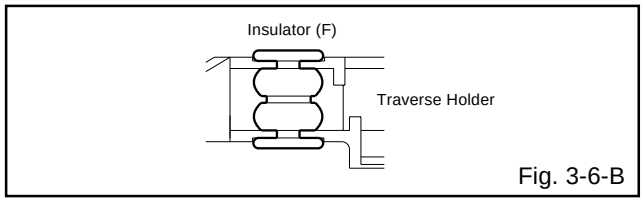


Fig. 3-6-B

DISASSEMBLY INSTRUCTIONS

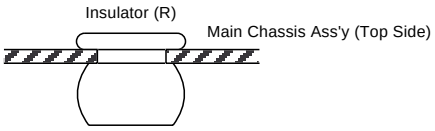
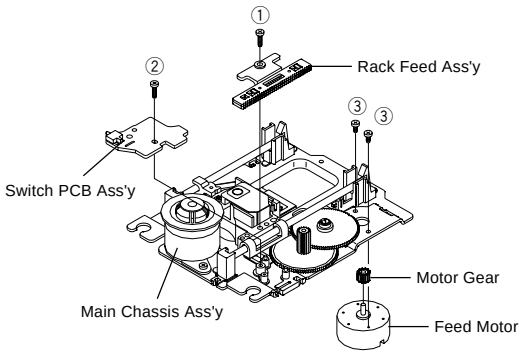


Fig. 3-6-C

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

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



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

Fig. 3-7-A

NOTE

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

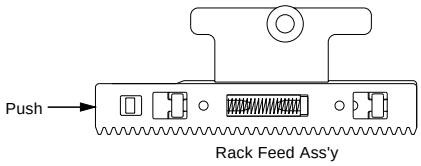


Fig. 3-7-B

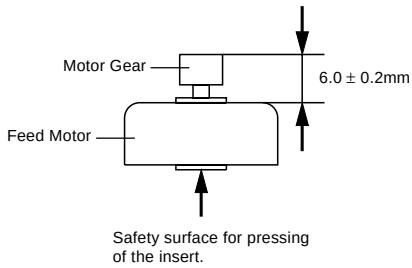
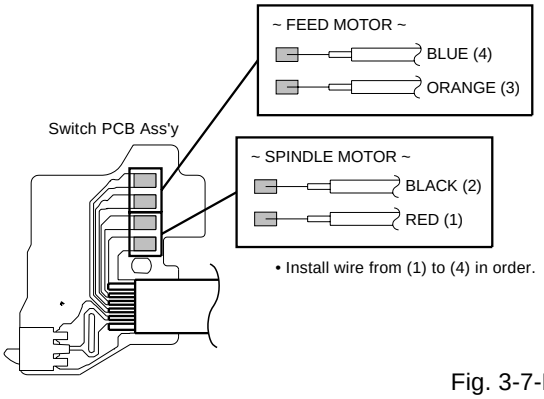
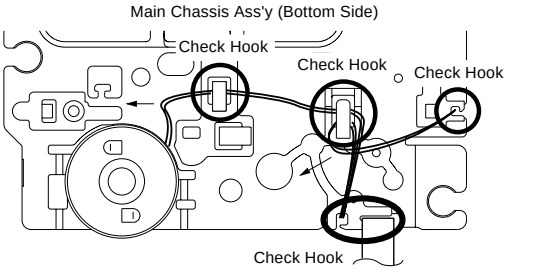


Fig. 3-7-C



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

Fig. 3-7-D



- Loosen the wire in the direction of the arrow.

Fig. 3-7-E

DISASSEMBLY INSTRUCTIONS

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

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

   NOTE

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

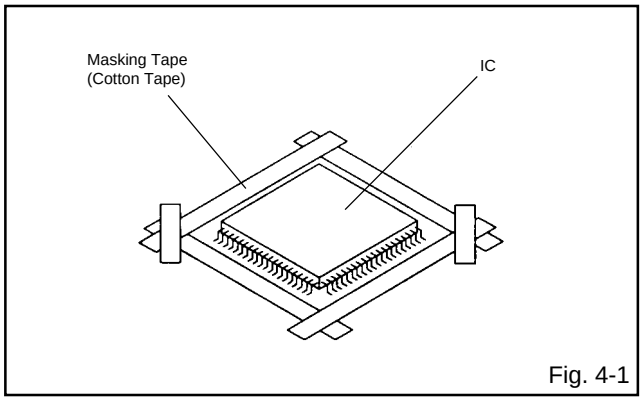


Fig. 4-1

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

   NOTE

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

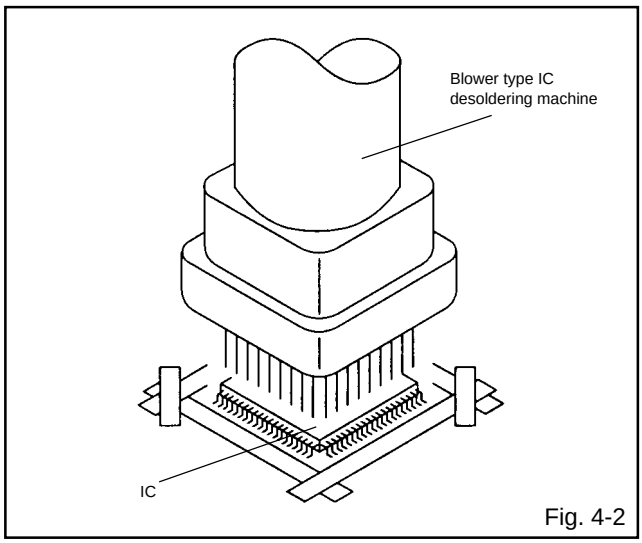


Fig. 4-2

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

   NOTE

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

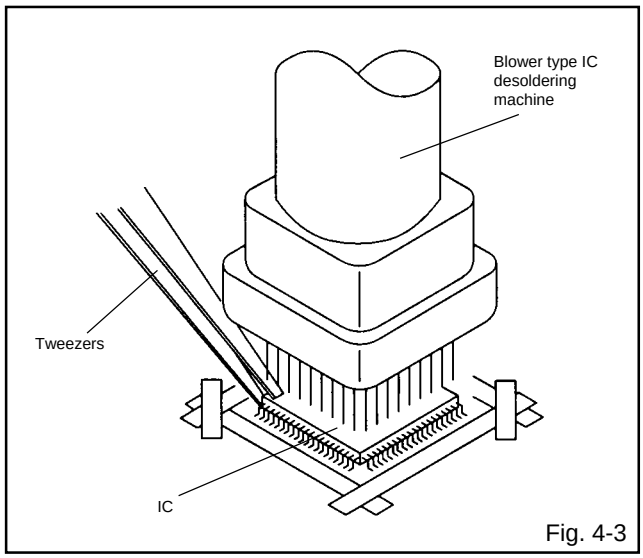


Fig. 4-3

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

   NOTE

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

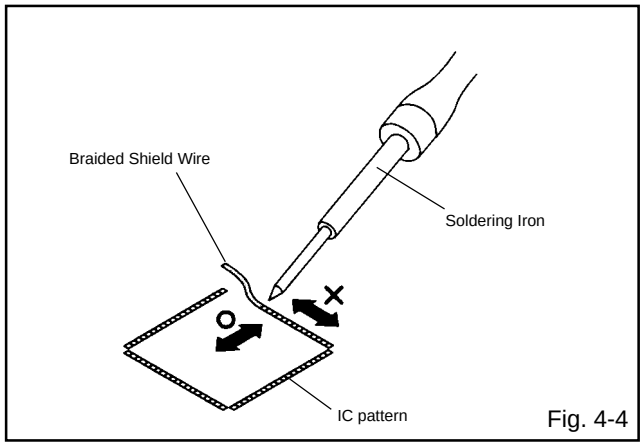


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

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

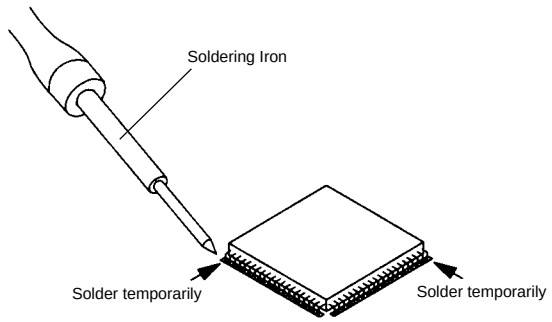


Fig. 4-5

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

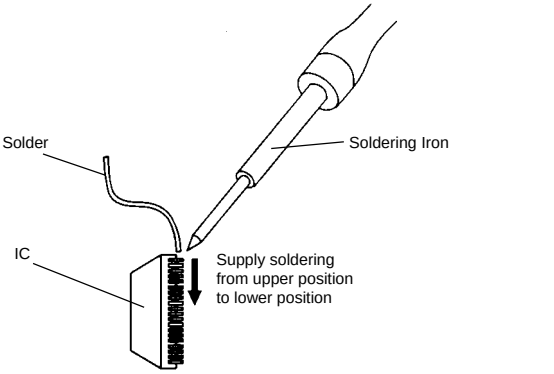


Fig. 4-6

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

   NOTE

   Do not absorb the solder to excess.

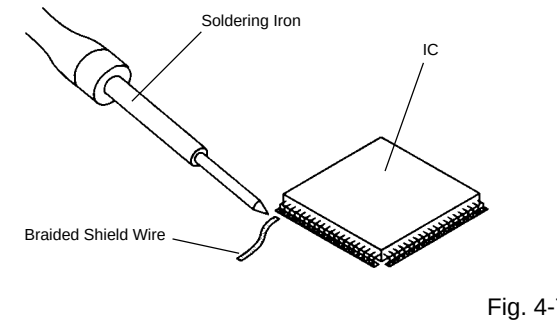


Fig. 4-7

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

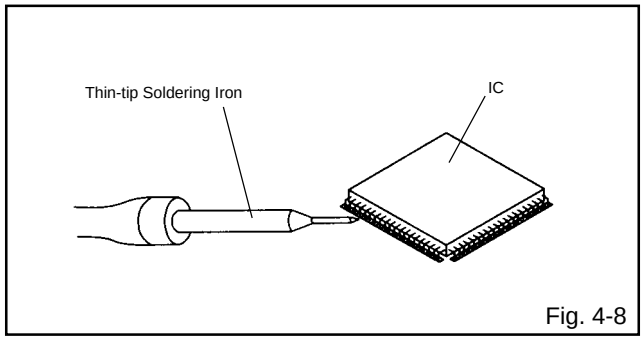


Fig. 4-8

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

   NOTE

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

KEY TO ABBREVIATIONS

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

KEY TO ABBREVIATIONS

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

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter 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 a 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 the factory on VCR. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, 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 the factory on DVD. NOTE: Do not use this for the 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

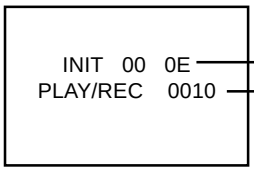
■ : Clean
● : Check it and if necessary, replace it.

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 a 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.



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)

Fig. 1

PREVENTIVE CHECKS AND SERVICE INTERVALS

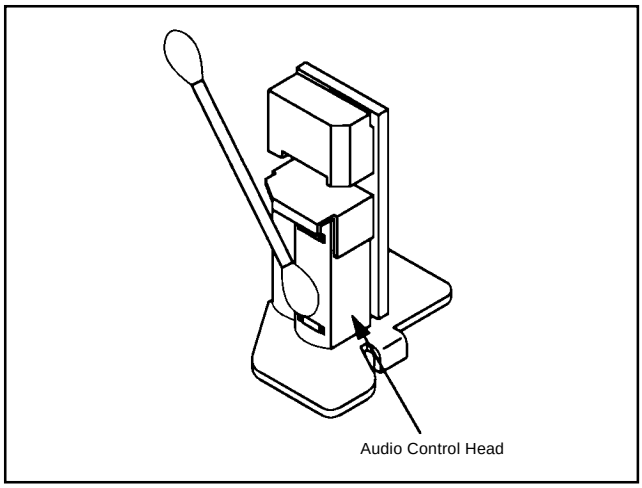
CLEANING

NOTE

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

1. AUDIO CONTROL HEAD

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



2. TAPE RUNNING SYSTEM

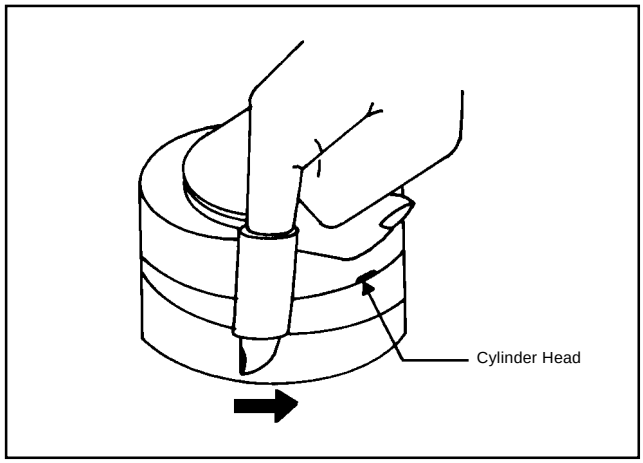
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

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

NOTE

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



WHEN REPLACING EEPROM (MEMORY) IC

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

NOTE: 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	DC	60	C4	64	4A	86	0B	28	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** .

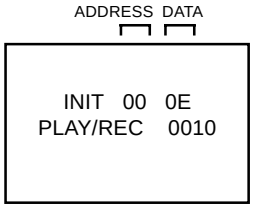


Fig. 1

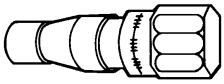
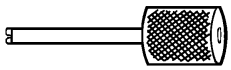
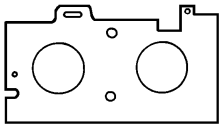
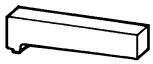
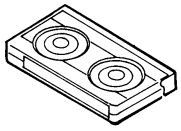
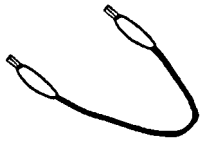
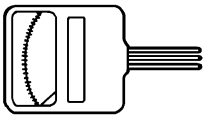
4. ADDRESS is now selected and should “blink”. Using the Tracking + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will “blink”.
6. Again, step through the DATA using Tracking + or - button 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.

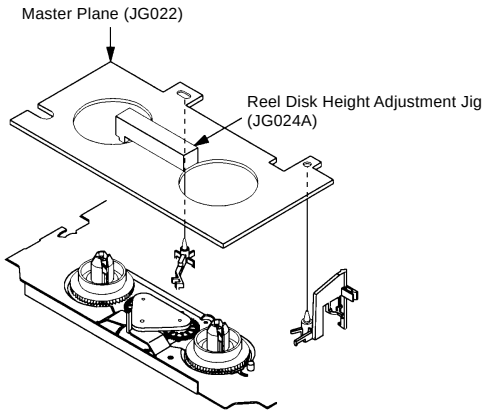


Fig. 1-1-A

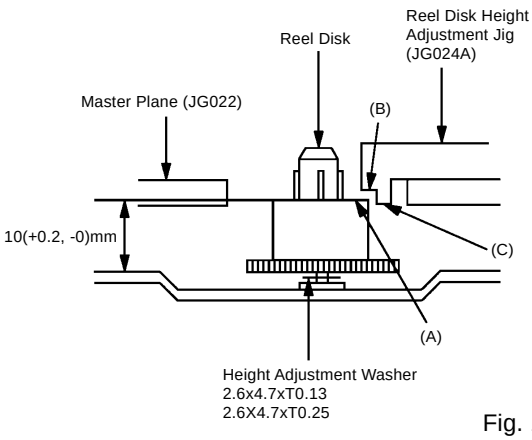


Fig. 1-1-B

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.

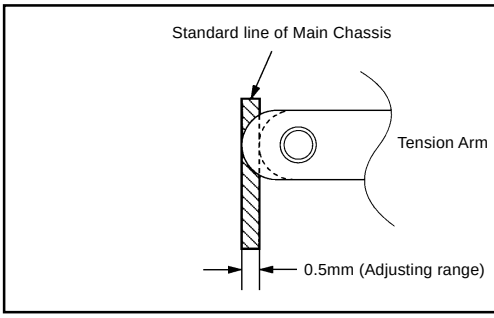


Fig. 1-2-A

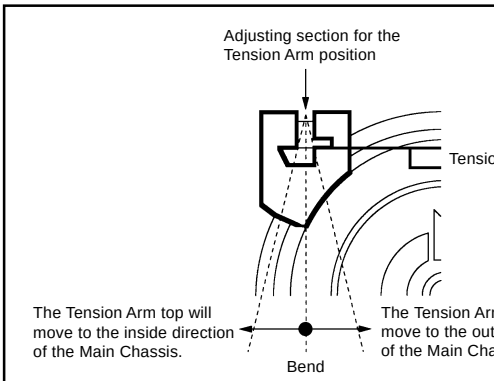


Fig. 1-2-B

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.

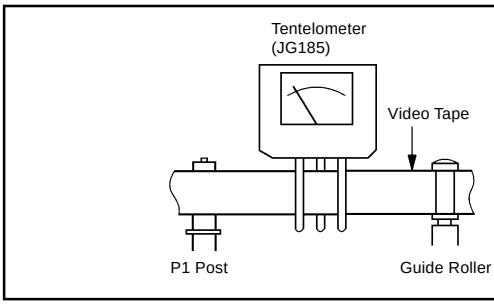


Fig. 1-3

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.

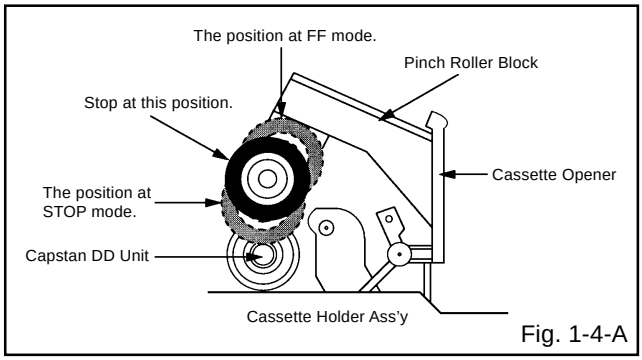


Fig. 1-4-A

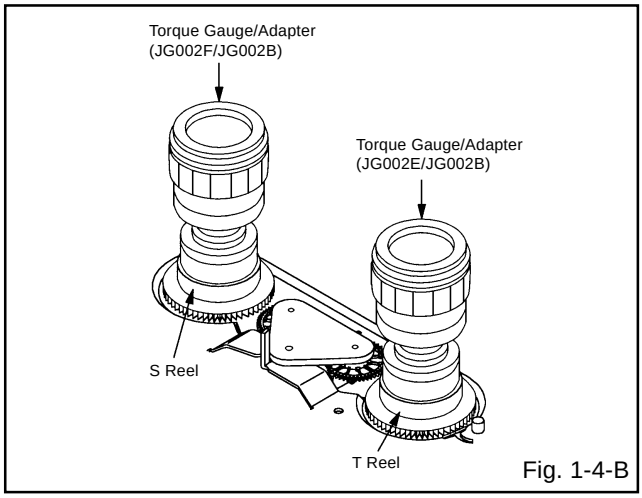


Fig. 1-4-B

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)**

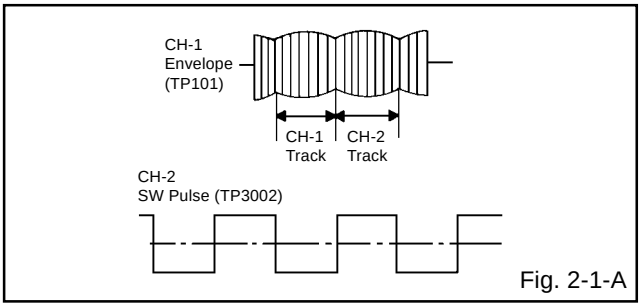


Fig. 2-1-A

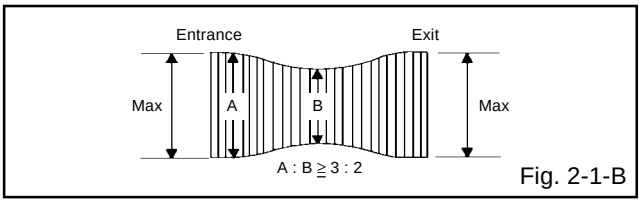


Fig. 2-1-B

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.

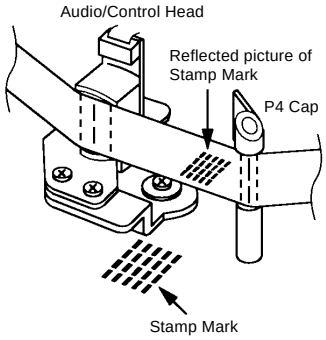


Fig. 2-2-A

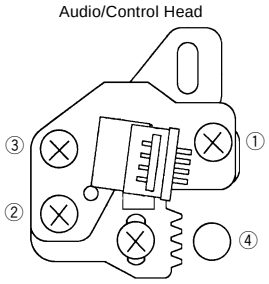


Fig. 2-2-B

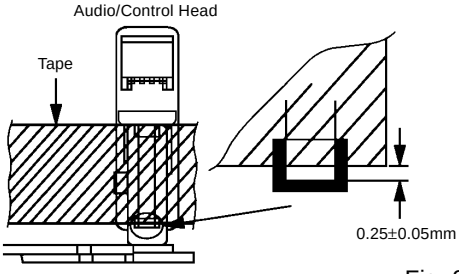


Fig. 2-2-C

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.**

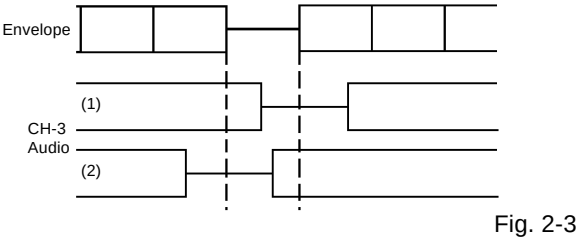


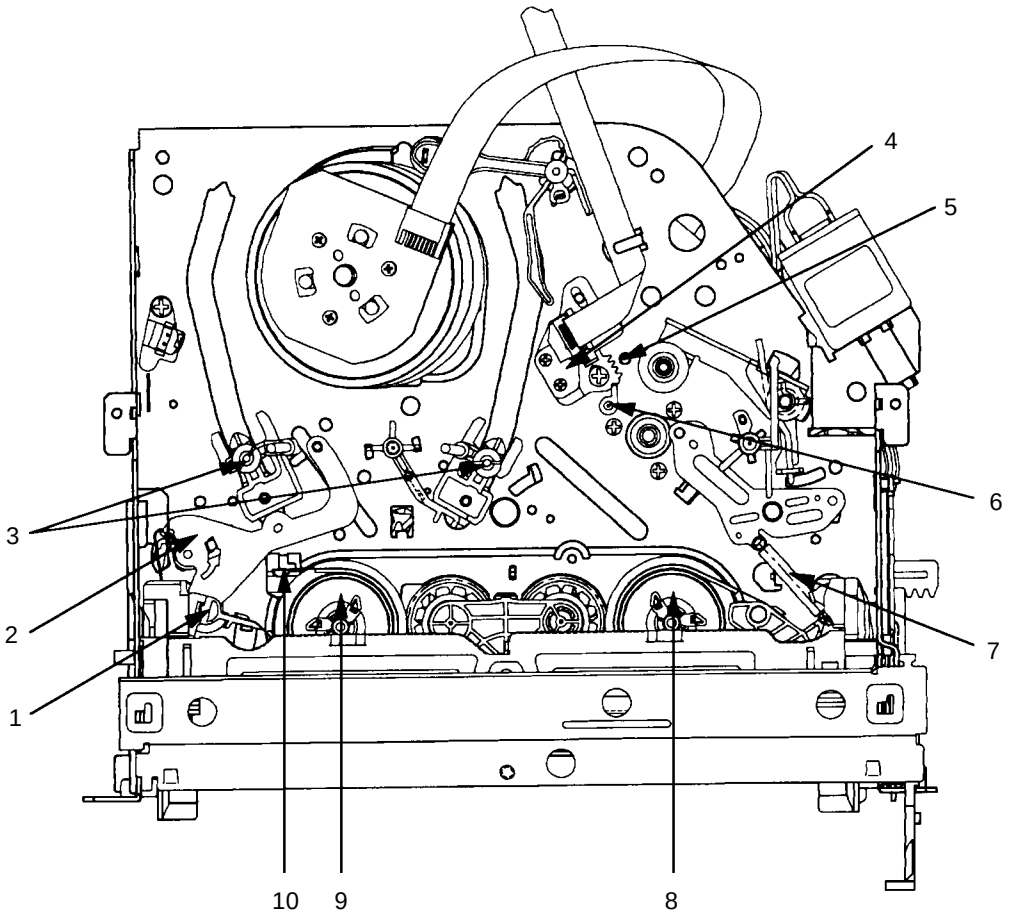
Fig. 2-3

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 for a heat sink, apply the 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 **Video Out Jack**.
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.

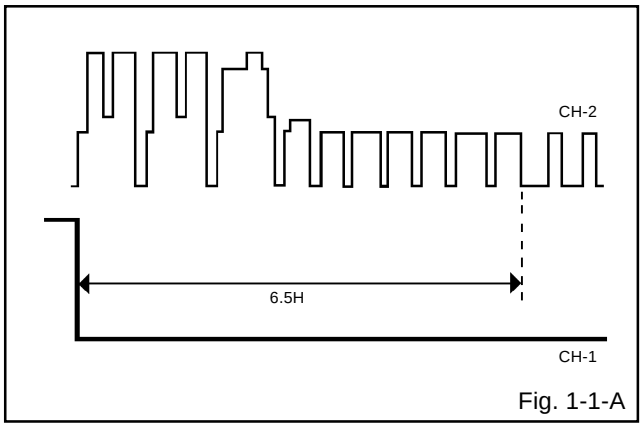


Fig. 1-1-A

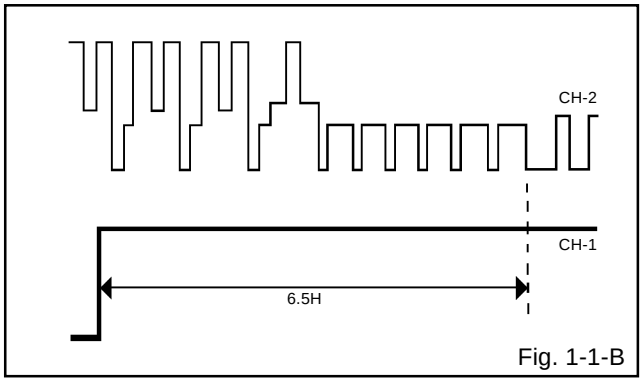
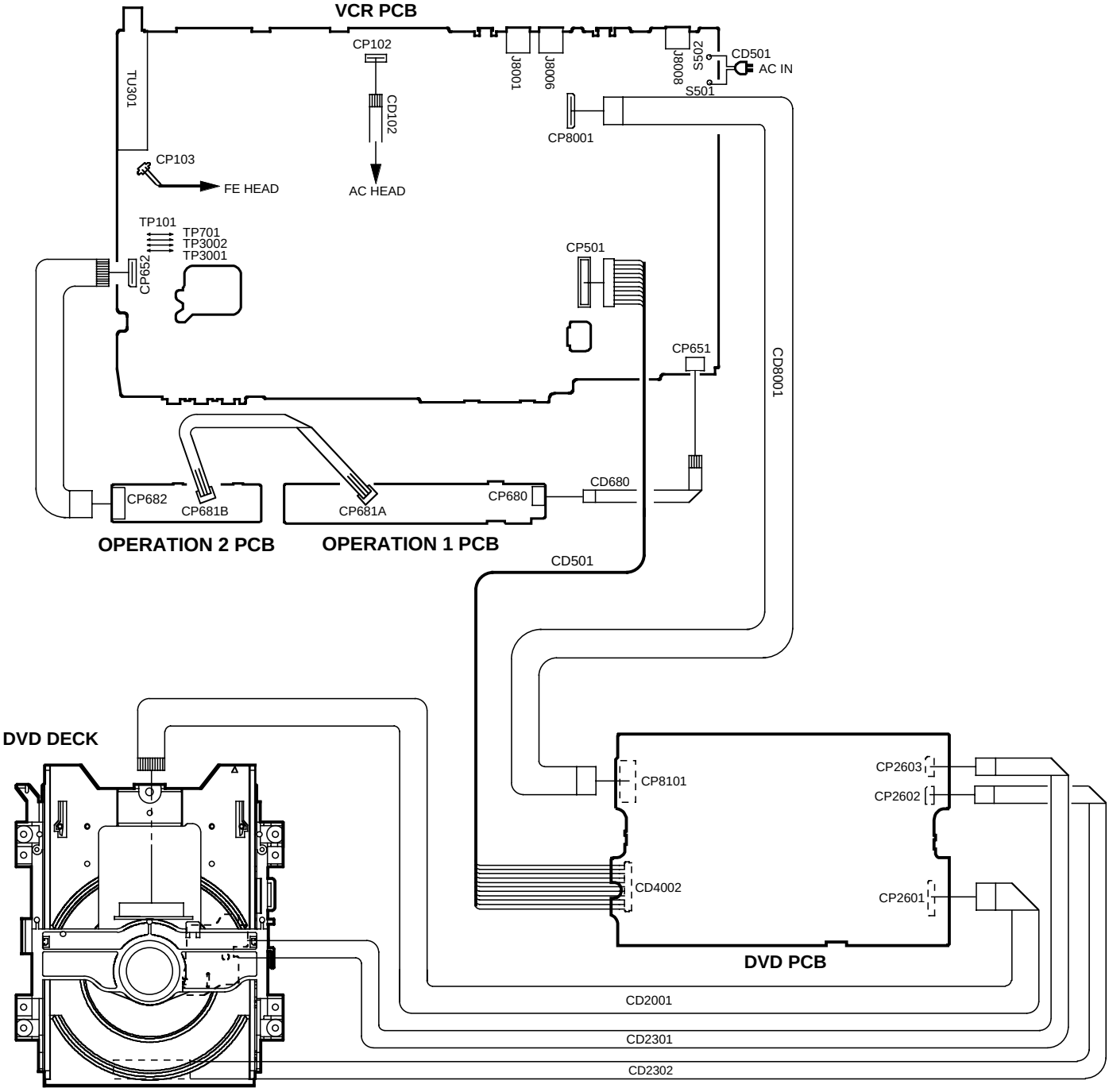


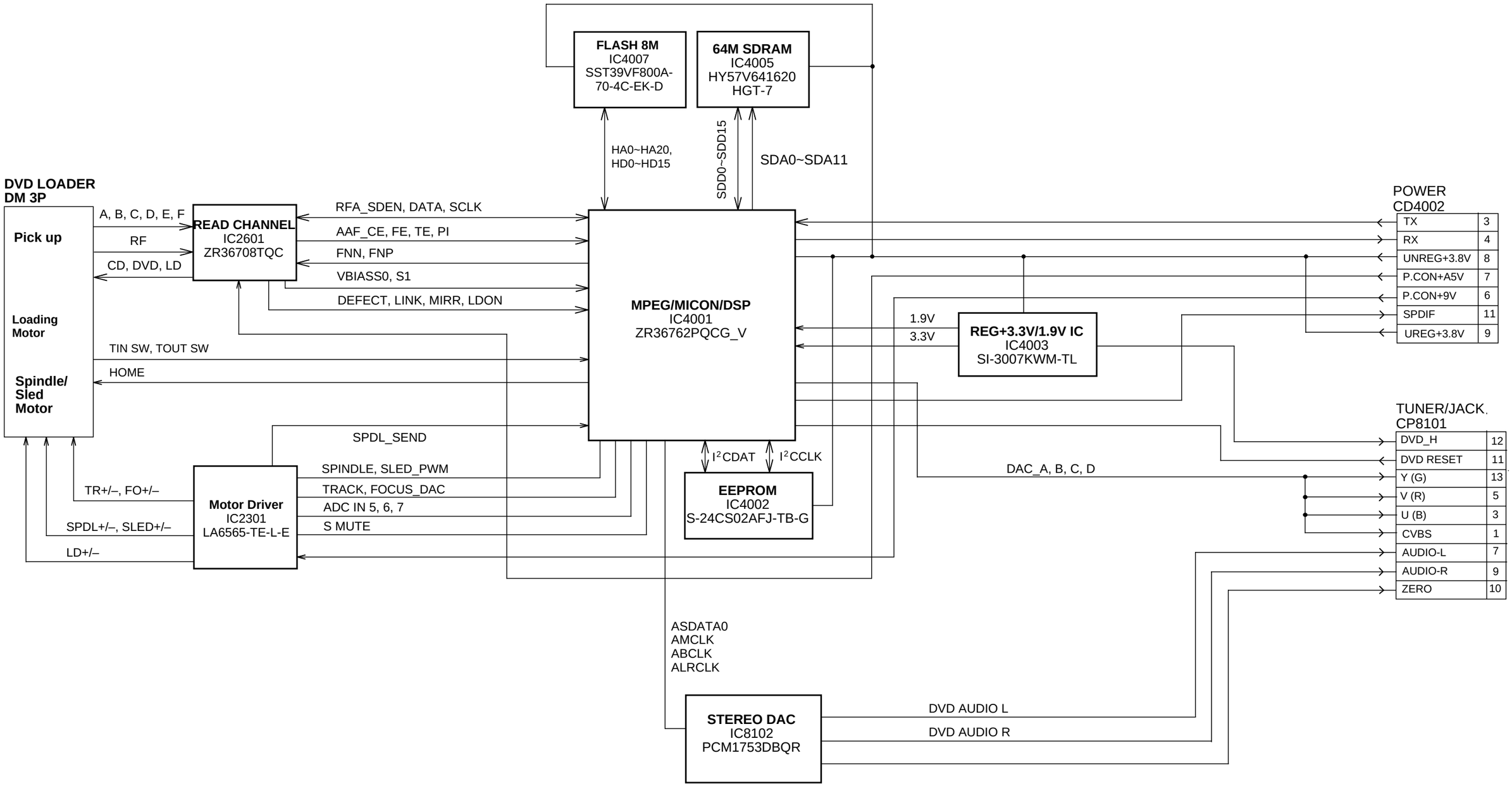
Fig. 1-1-B

ELECTRICAL ADJUSTMENTS

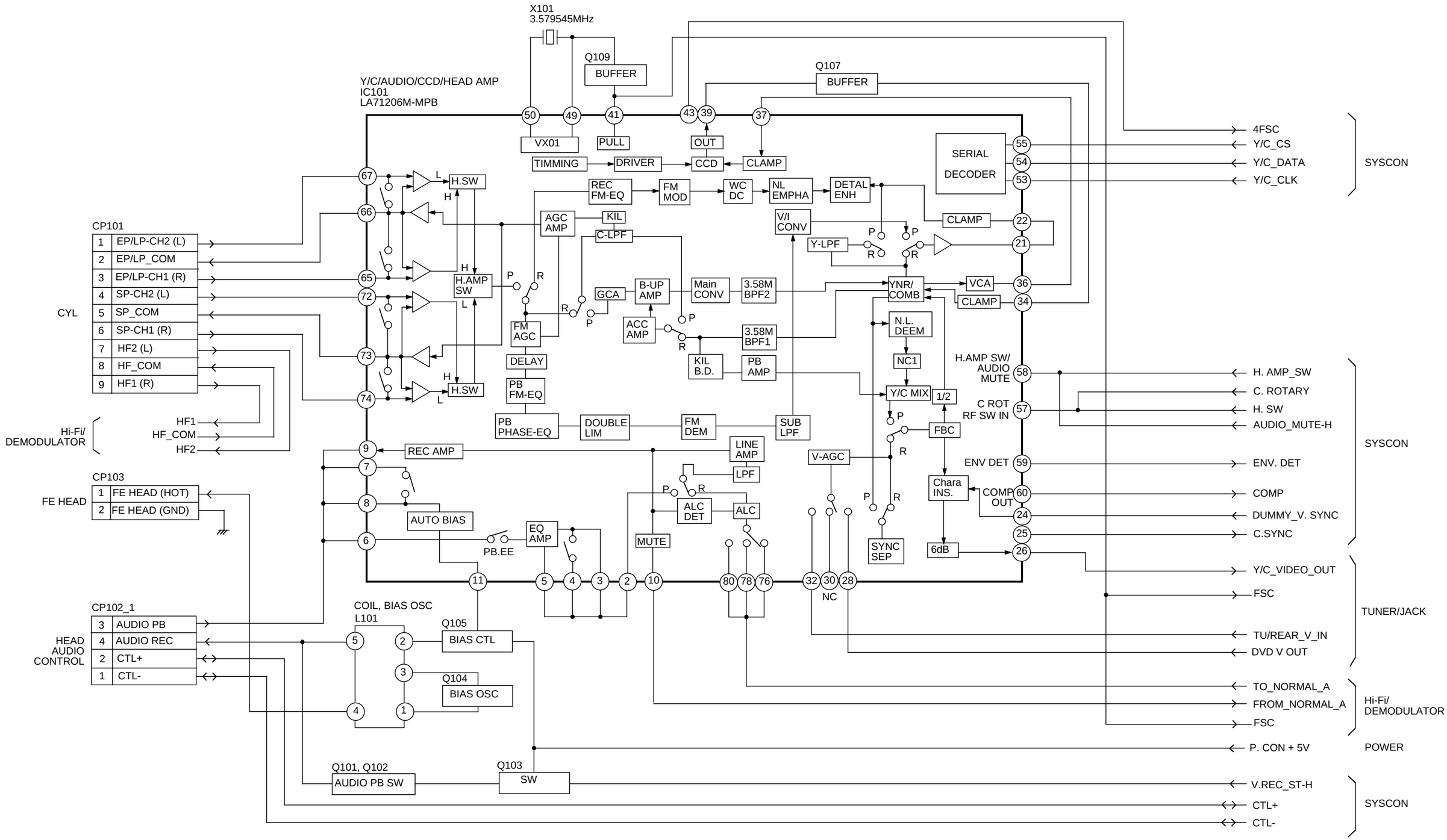
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



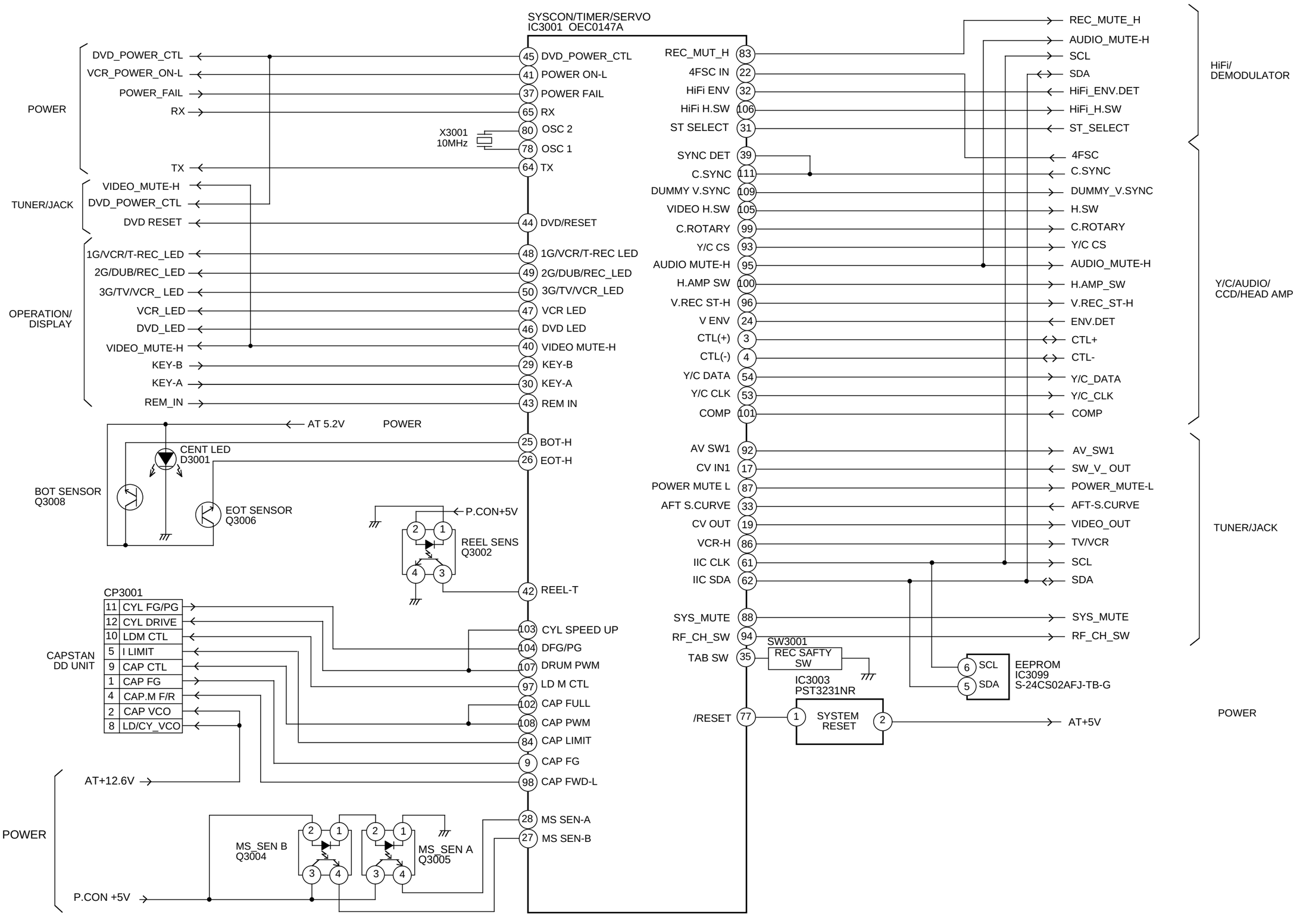
DVD BLOCK DIAGRAM



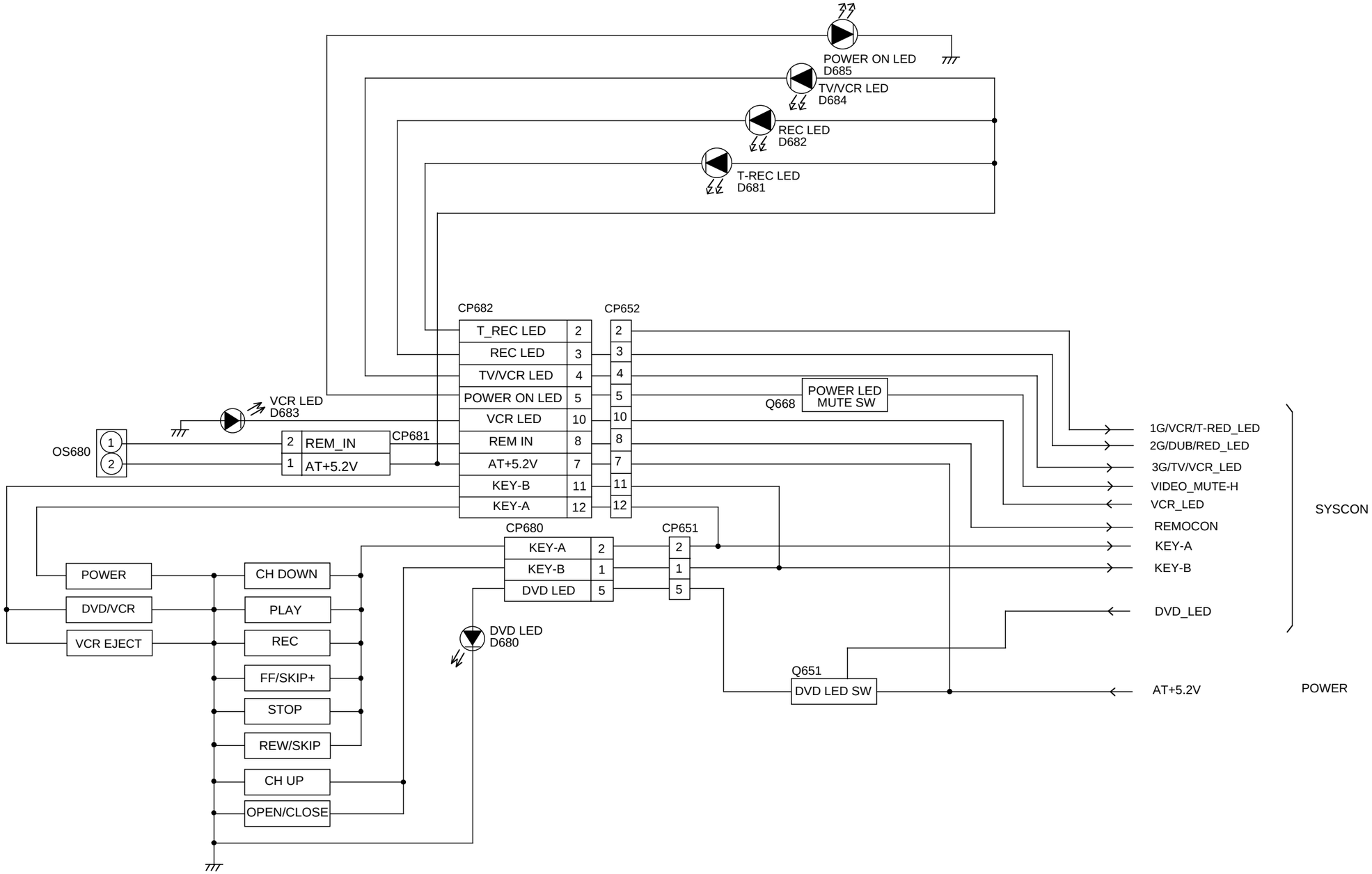
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



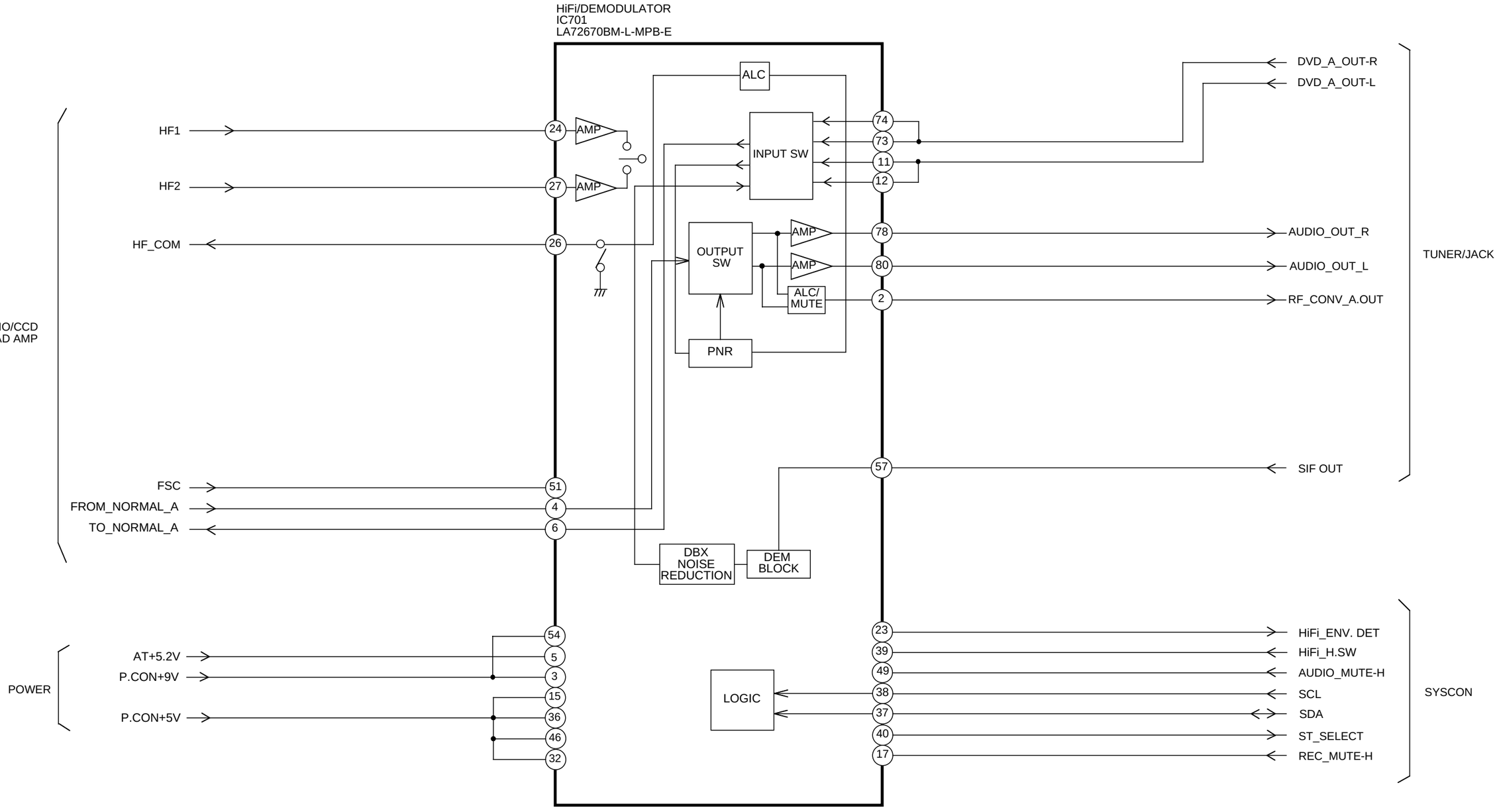
SYSCON BLOCK DIAGRAM



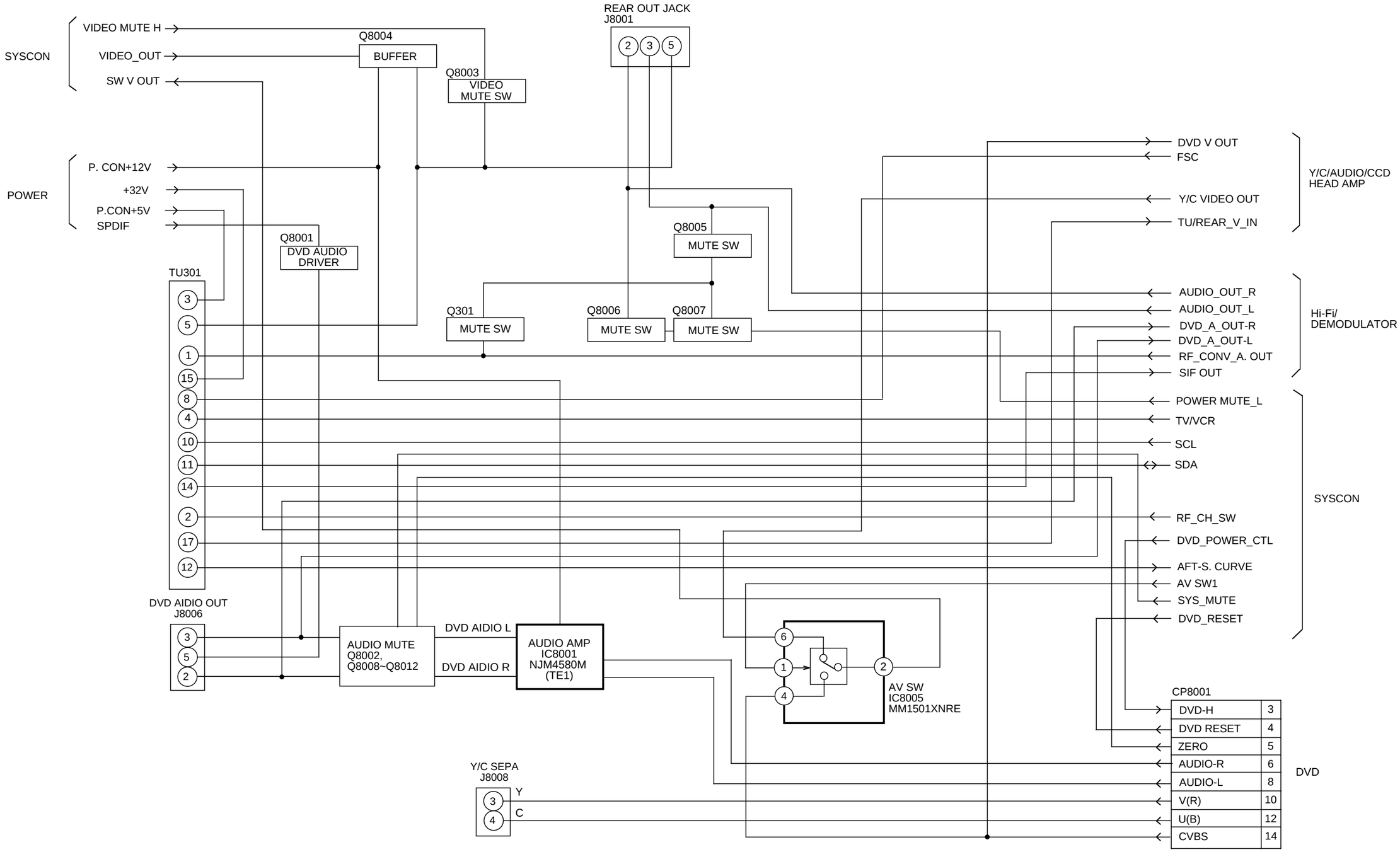
OPERATION/DISPLAY BLOCK DIAGRAM



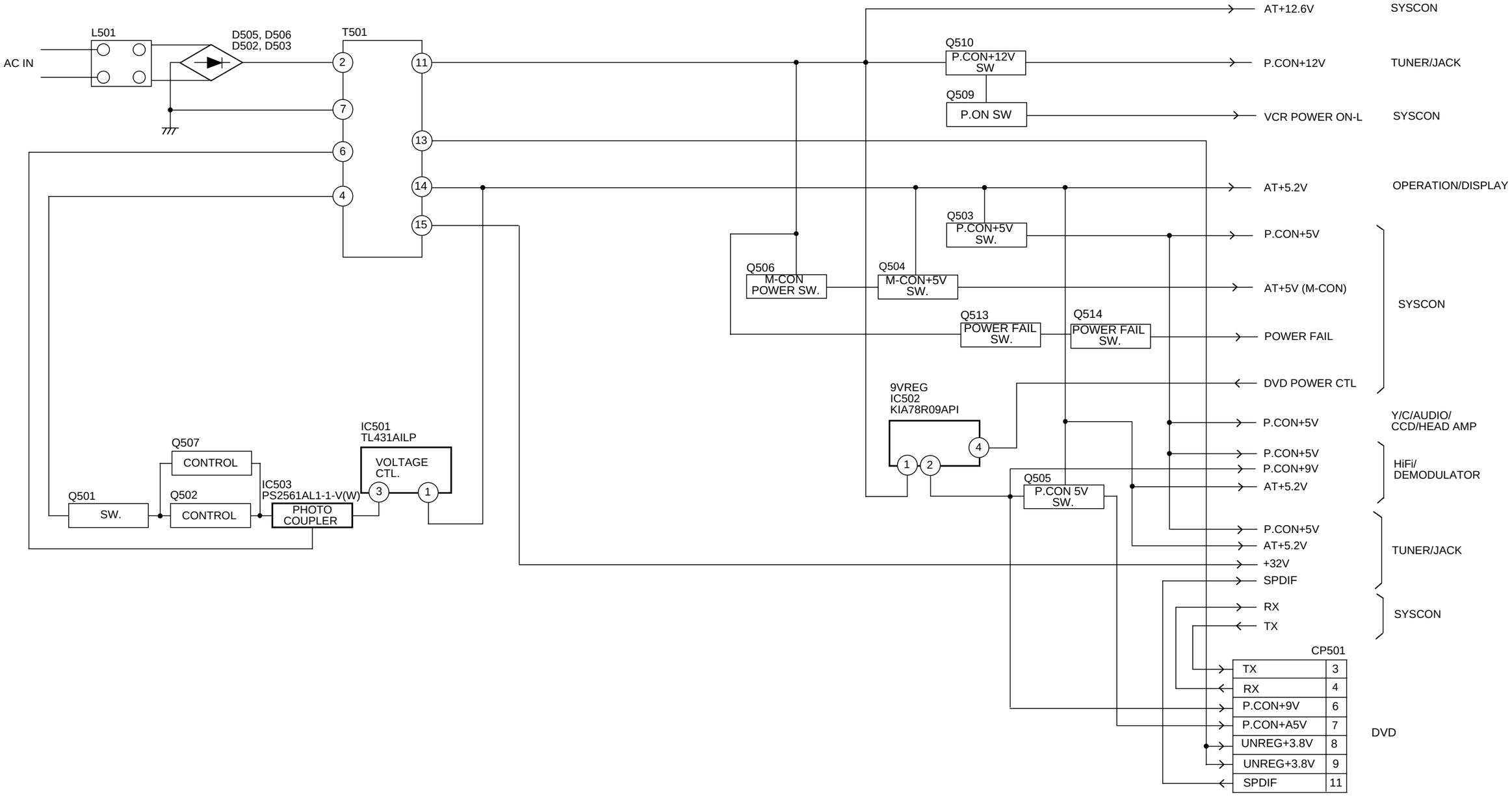
Hi-Fi/DEMODULATOR BLOCK DIAGRAM



TUNER/JACK BLOCK DIAGRAM

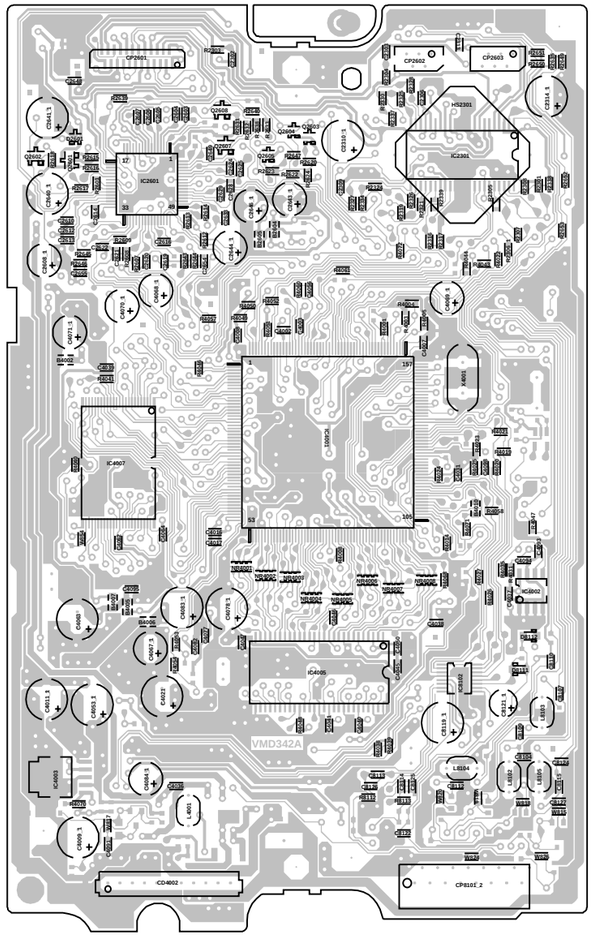


POWER BLOCK DIAGRAM

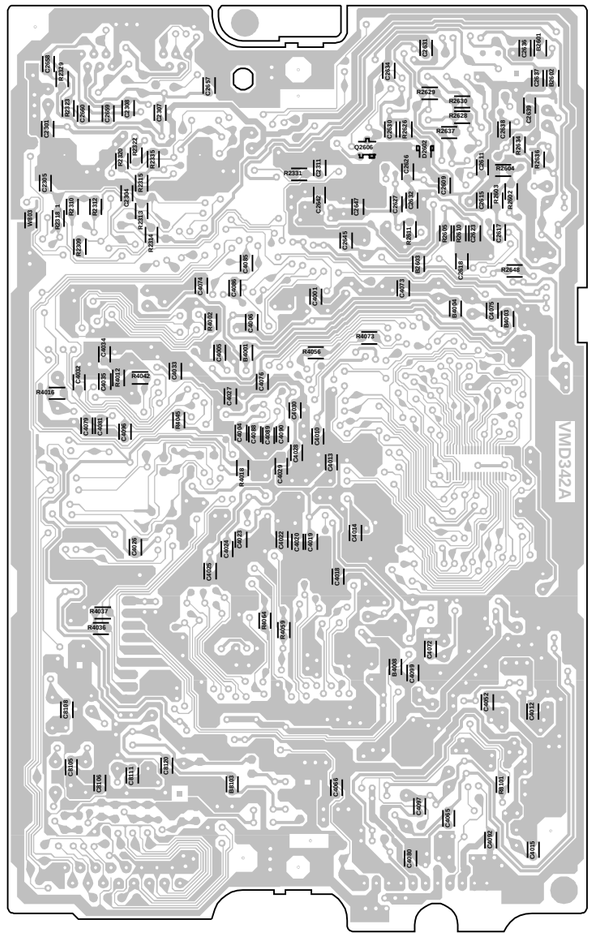


PRINTED CIRCUIT BOARDS

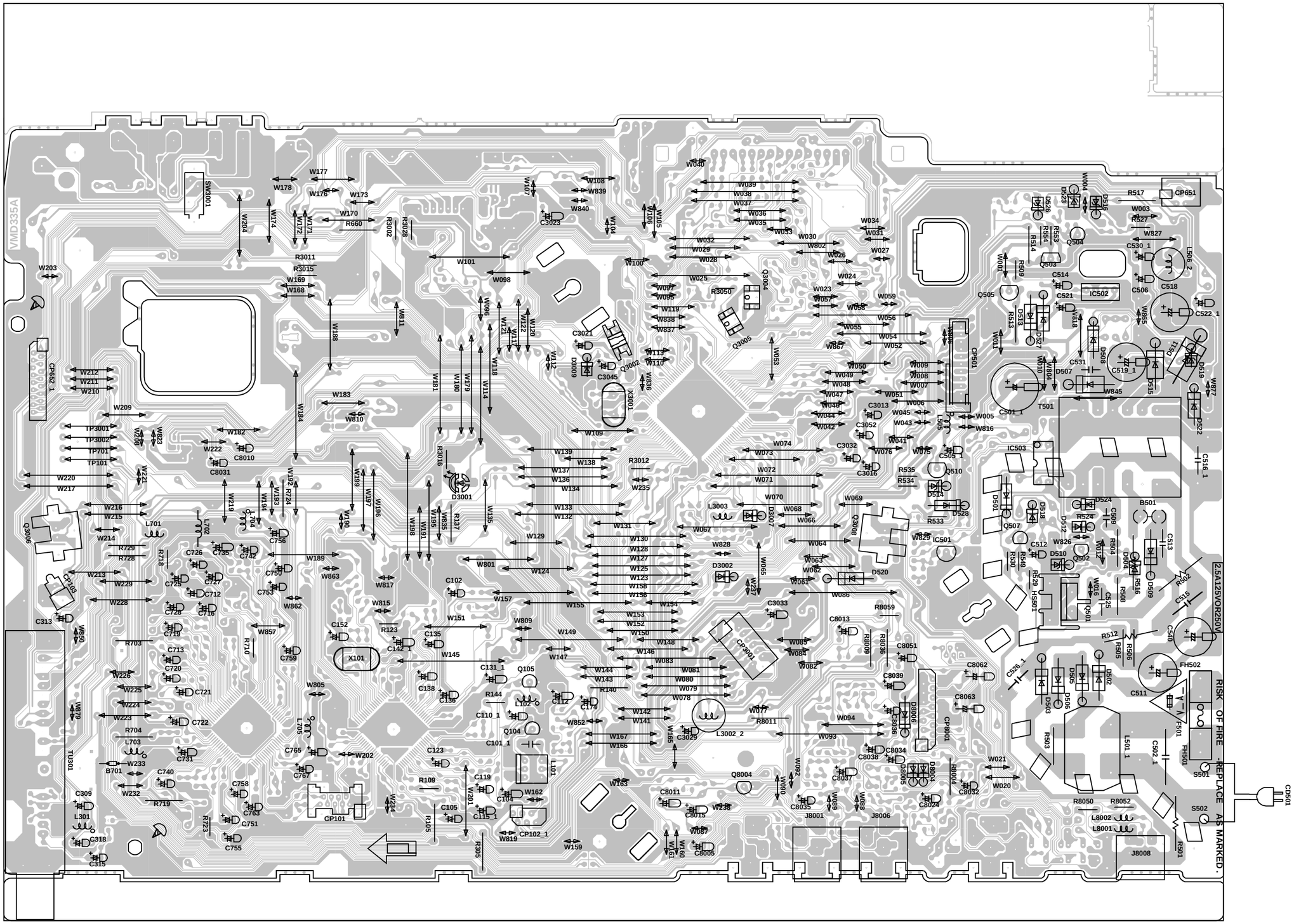
DVD (TOP SIDE)



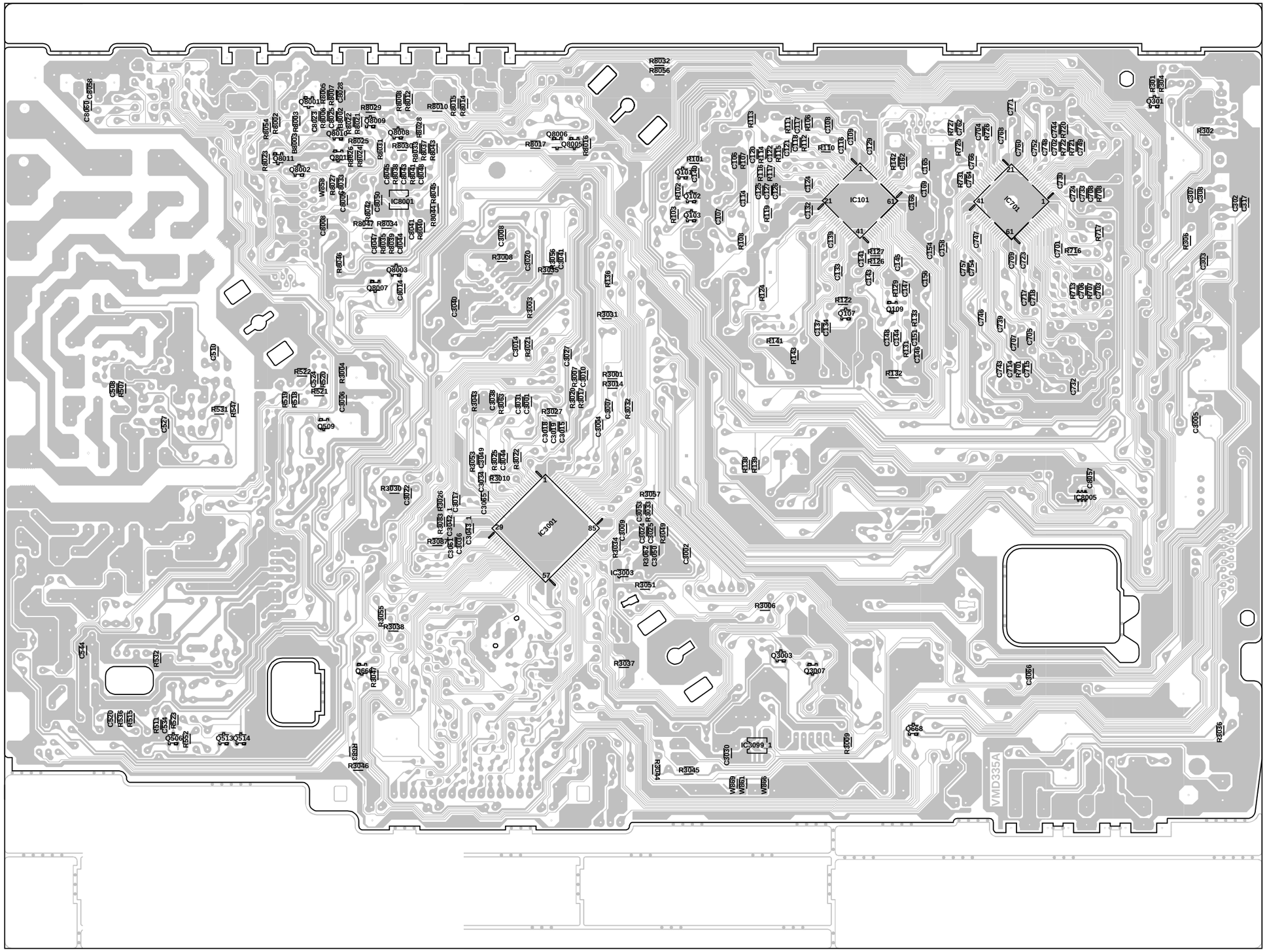
DVD (BOTTOM SIDE)



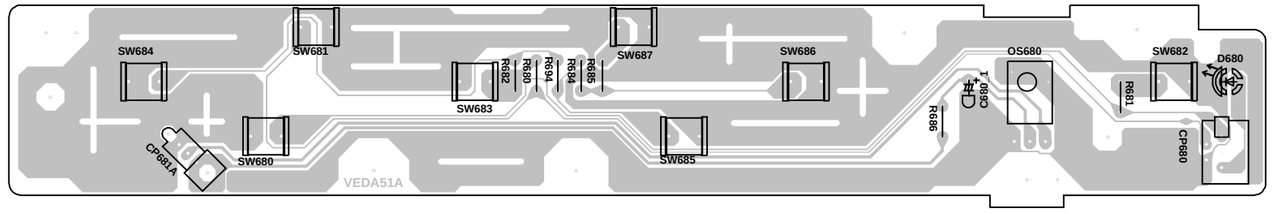
PRINTED CIRCUIT BOARDS
VCR (INSERTED PARTS)
SOLDER SIDE



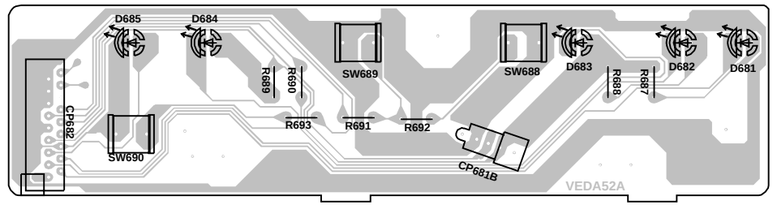
PRINTED CIRCUIT BOARDS
VCR (CHIP MOUNTED PARTS)
SOLDER SIDE



OPERATION
SOLDER SIDE



OPERATION 2
SOLDER SIDE



MPEG/MICON/DSP SCHEMATIC DIAGRAM

(DVD PCB)

MPEG/MICON/DSP
IC4001
ZR36762PQCG_V

FROM/TO MEMORY

FROM/TO AUDIO/VIDEO

FROM/TO RF AMP/DSP

FROM/TO POWER

DVD/VR 130mm
DVD COMBO 250mm
CD4002 (CP8001)
CU2B1101

PCB130
VMD342

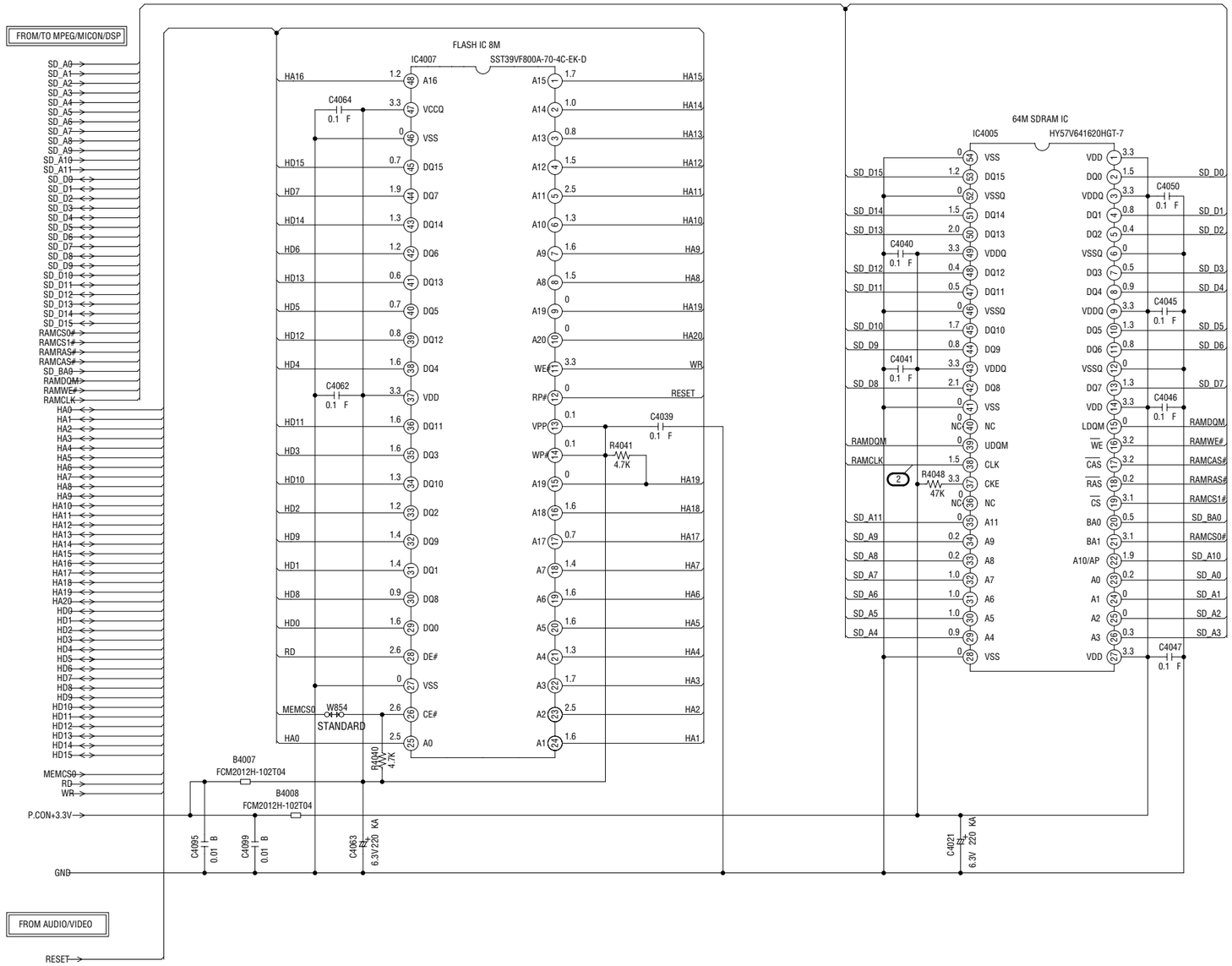
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

DIGITAL AUDIO SIGNAL(PB)

MEMORY SCHEMATIC DIAGRAM

(DVD PCB)



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

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

PCB130
VMD342

RF AMP/DSP SCHEMATIC DIAGRAM

(DVD PCB)

DM3P

FROM/TO LOADER

CP2601
09-5000-024-001-001

1	GND
2	VCC
3	C
4	B
5	SW1(DVD/CD)
6	E
7	SW2(L/H)
8	F
9	A
10	D
11	Vref
12	VR(DVD)
13	VR COM
14	VR(CD)
15	GND
16	LD(CD)
17	PD
18	LD(DVD)
19	GND
20	NC
21	T DRV
22	T RTN
23	F DRV
24	F RTN

CP2602
00_6232_005_006_800

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

CP2603
00_6232_006_006_800

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

FROM/TO MPEG/MICON/DSP

TOUT_SW, TIN_SW, RFA_SDEN, RFA_DATA, RFA_SCLK, AAF_CE, AAF_FE, AAF_TE, AAF_PI, VR_SEL, FNN, FNP, VBIASS0, VBIASS1, DEFECT, LINK, MIRR, LDON, HOME, GND, GAIN_SW, P.CON+5V, P.CON+A5V, P.CON+3.3V, SMUTE, TRACK_DAC, FOCUS_DAC, SPINDLE_PWM, SLED_PWM, ADCIN_7, ADCIN_5, ADCIN_6, VCC+9V, M_GND, SPDL_SENS, TRAY_CLOSE, TRAY_OPEN

READ CHANNEL IC
IC2601
ZR36708TQC

MOTOR DRIVE IC
L6585-TE-L-E
IC2301

B2605 FCM2012H-102T04
B2604 FCM2012H-102T04
B2603 FCM2012H-102T04
B2601 FCM2012H-102T04
B2602 FCM2012H-102T04

DVD LD CTL Q2601 2SA1036K
CD LD CTL Q2602 2SA2048
VR DVD CTL Q2603 2SK3018
VR CD CTL Q2604 2SK3018
VR SEL CTL Q2605 2SK3018
TURN LOGIC Q2606 DTC124EKA
Q2607 KTA1504S Y_RTK
Q2608 KTC3875S Y_RTK
D2602 02DZ2.2-X(TH3)(RION)
D2601 KDS120RTK

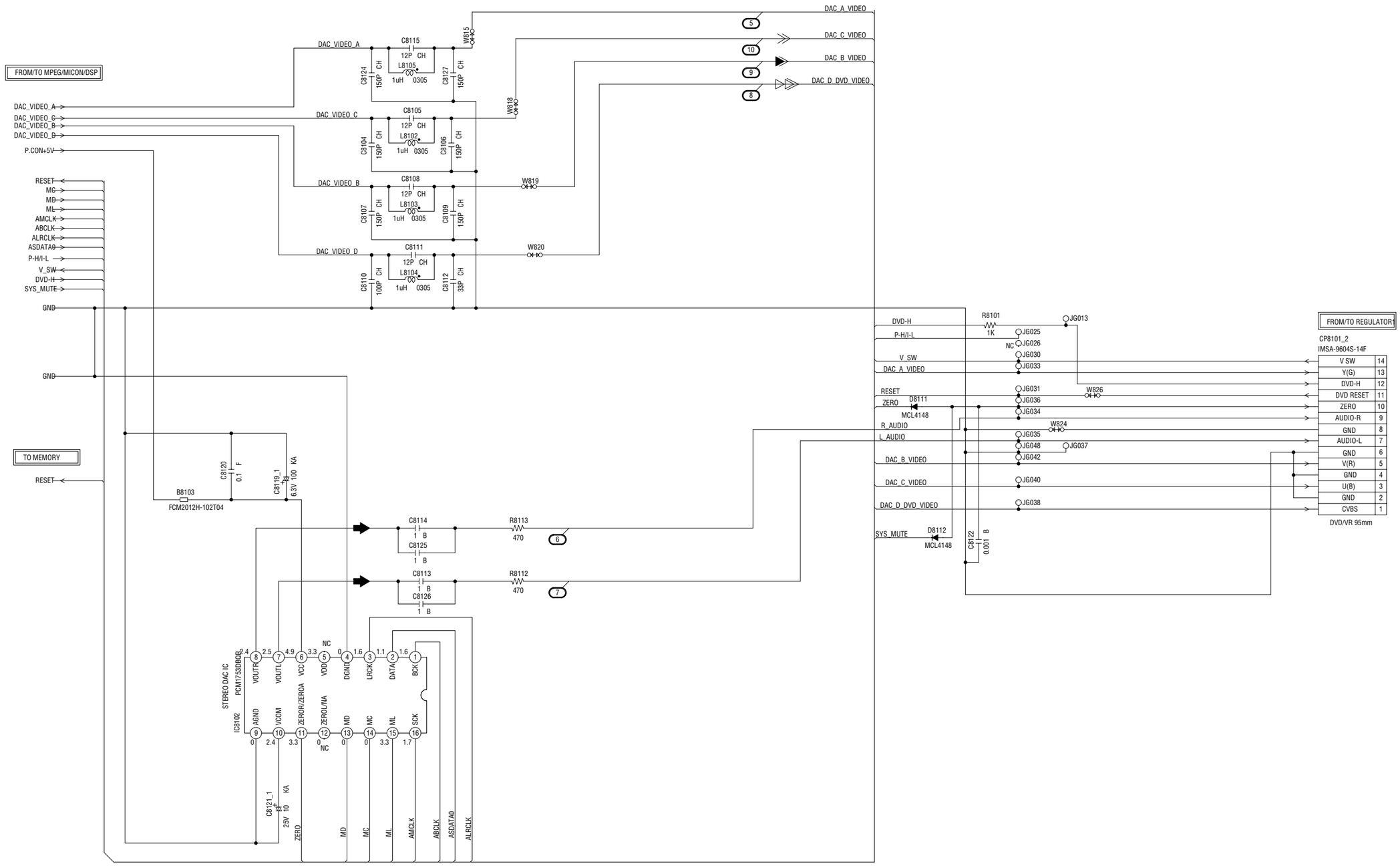
PCB130
VMD342

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)



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

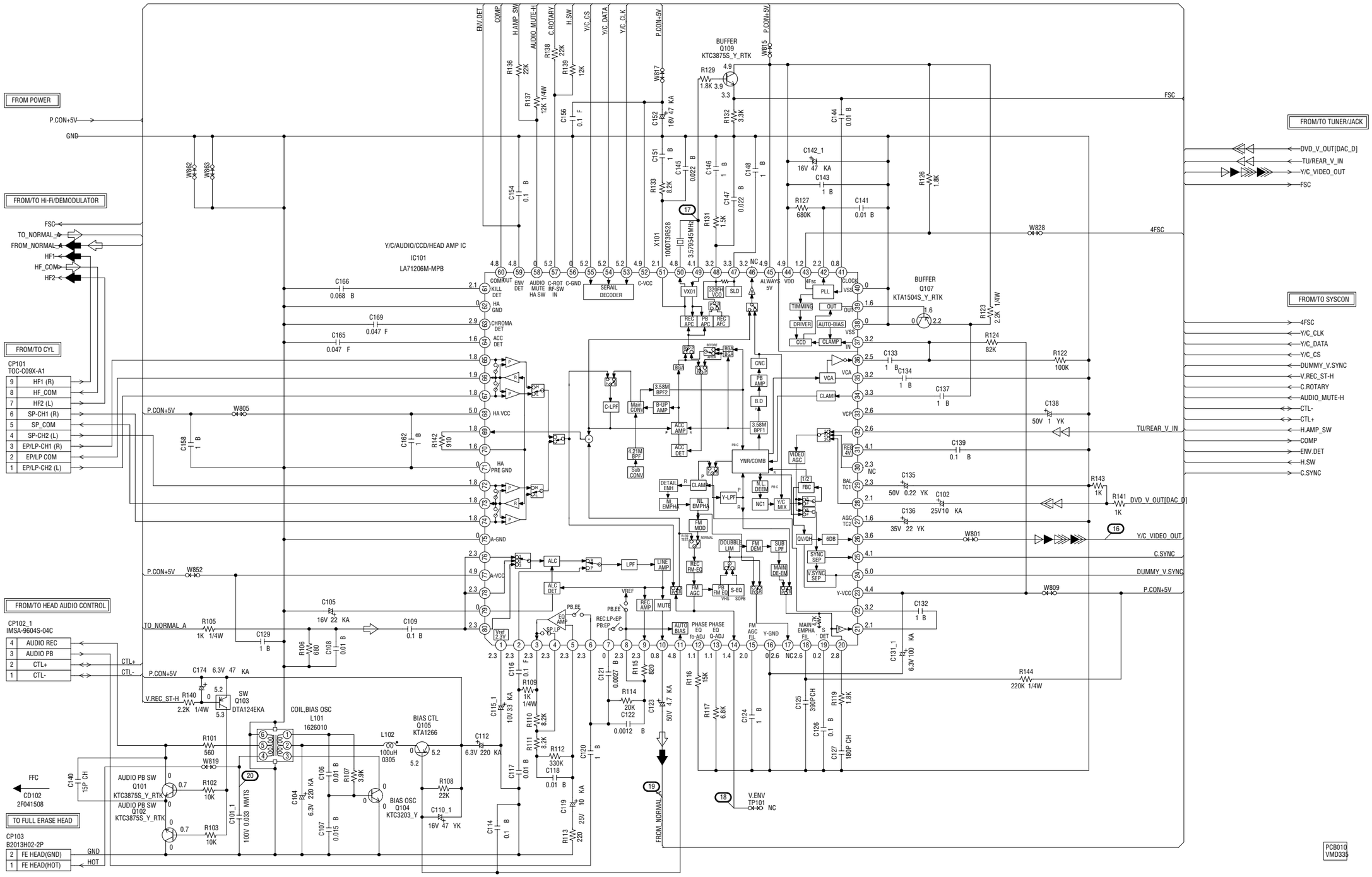
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

◁ PLAYBACK COLOR SIGNAL
◁◁ PLAYBACK VIDEO SIGNAL
◀ AUDIO SIGNAL(PB)

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.

- AUDIO SIGNAL(REC)
- RECORD COLOR SIGNAL
- RECORD LUMINANCE SIGNAL
- PLAYBACK VIDEO SIGNAL
- PLAYBACK COLOR SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- TUNER VIDEO SIGNAL
- AUDIO SIGNAL(PB)

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/HEAD 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
SCL
SDA
AFT-S.CURVE
TV/VCR
VIDEO_OUT
POWER_MUTE-L
VIDEO_MUTE-H
DVD_RESET
SYS_MUTE

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
VIDEO_MUTE-H

RX DRIVE Q3003 DTA124EKA
RX DRIVE Q3007 DTC124EKA
RX

BOT SENSOR Q3008 ST-304L
EOT SENSOR Q3006 ST-304L
D3001 LTE-3271T-012A-O
TAB SW SW3001 LSA-1144EAU

MS_SEN B Q3004 RPI-352C40N
MS_SEN A Q3005 RPI-352C40N
REEL SENS Q3002 RPI-303

SYSTEM RESET IC IC3003 PST3231NR
EEP ROM IC IC3099_1 S-24CS02AFJ-TB-G

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

PCB010
VMD335

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
CAUTION: DIGITAL TRANSISTOR

◀◀ RECORD LUMINANCE SIGNAL
◀◀ RECORD COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◁ PLAYBACK COLOR SIGNAL

TUNER/JACK SCHEMATIC DIAGRAM

(VCR PCB)

TU301
115-V-H035ARE

RF MUTE SW
Q301
KTC3875S_Y_RTK

REAR OUT JACK
J8001
MSP-213V1-432_NI

DVD AUDIO OUT
J8006
MSP-213V1-732_NI

D AUDIO DRIVER
Q8001
KTC3875S_Y_RTK

Q8002
MUTE SW
DTC144EKA

MUTE SW
Q8008
KTC3875S_Y_RTK

MUTE SW.
Q8010
DTA143EKA

MUTE SW
Q8011
DTC124EKA

MUTE SW
Q8009
KTC3875S_Y_RTK

MUTE DET
Q8012
KTC3875S_Y_RTK

VIDEO MUTE SW
Q8003
DTC124EKA

BUFFER
Q8004
KTA1266

MUTE SW
Q8005
KTC3875S_Y_RTK

MUTE SW
Q8006
KTC3875S_Y_RTK

MUTE SW
Q8007
DTA124EKA

Y/C SEPA
J8008
MDC-070V-B_LF

AUDIO_AMP IC
IC8001
NJM4580M(TE1)

AV SW IC
IC8005
MM1501XNRE

W858

CP8001 (CP8101)
IMSA-9604S-14C

V SW	1
Y(G)	2
DVD-H	3
DVD RESET	4
ZERO	5
AUDIO-R	6
GND	7
AUDIO-L	8
GND	9
V(R)	10
GND	11
U(B)	12
GND	13
CVBS	14

FFC

CD8001
2F0E1001

FROM/TO AUDIO/VIDEO

FROM/TO Y/C/AUDIO/CCD/HEAD AMP
DVD_V_OUT[DAC_D]
FSC
TU/REAR_V_IN
Y/C_VIDEO_OUT

FROM/TO SYSCON
DVD_POWER_CTL
DVD_RESET
SYS_MUTE
SCL
SDA
AV_SW1
TV/VCR
RF_CH_SW
AFT-S.CURVE
POWER_MUTE-L
VIDEO_MUTE-H

AUDIO_OUT_R
AUDIO_OUT_L
AT+5.2V
VIDEO_OUT

FROM/TO Hi-Fi/DEMODULATOR
DVD_A_OUT_R
DVD_A_OUT_L
SIF_OUT

POWER_MUTE-L
AV_SW1
SW_V_OUT
P.CON+9V

AUDIO_OUT_L
AUDIO_OUT_R
RF_CONV_A_OUT

FROM POWER
GND
+32V
AT+5.2V
P.CON+5V
P.CON+12V
SPDIF
P.CON+9V

PCB010
VMD335

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.

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

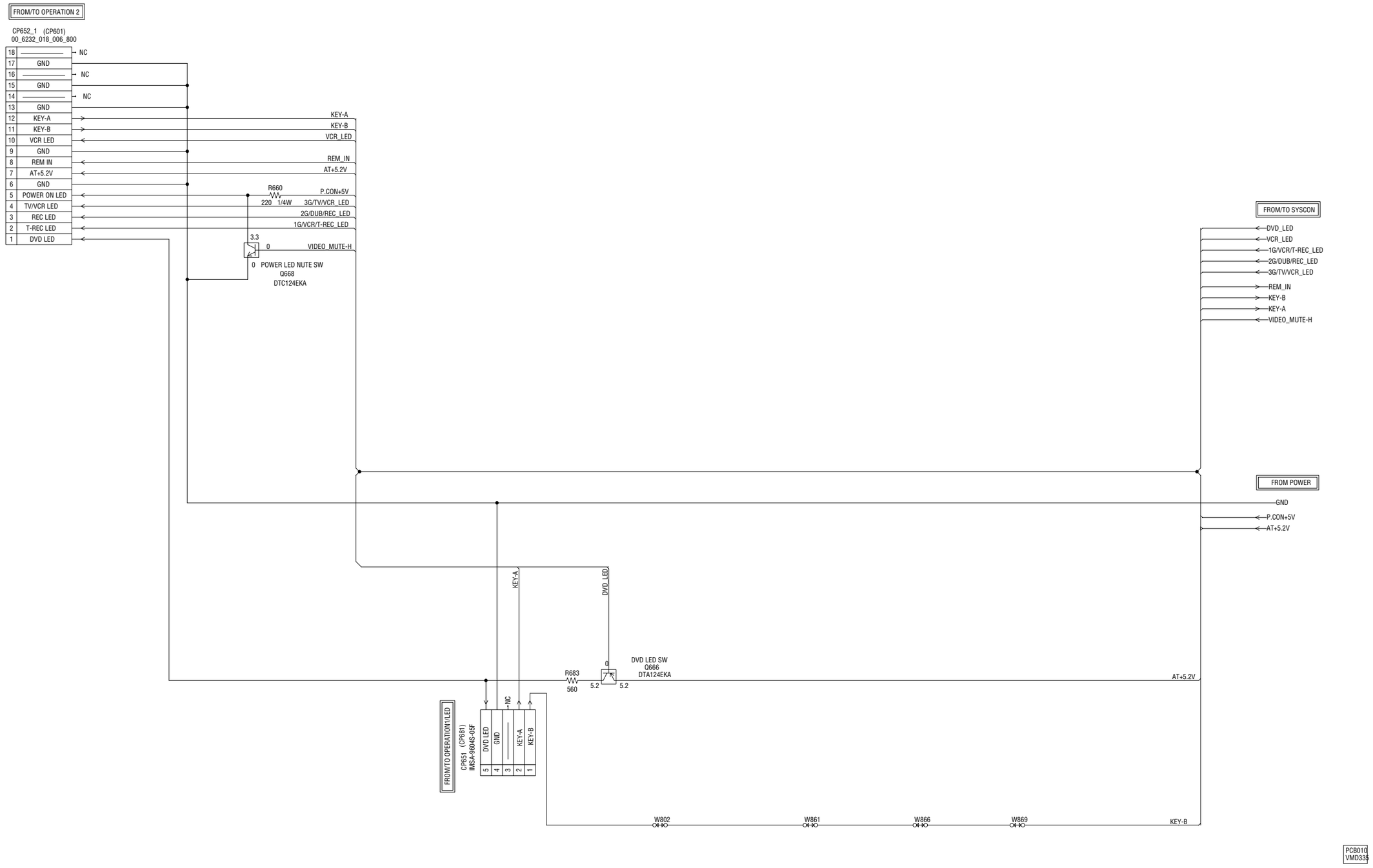
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

RECORD COLOR SIGNAL
RECORD LUMINANCE SIGNAL
PLAYBACK VIDEO SIGNAL
TUNER VIDEO SIGNAL
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)

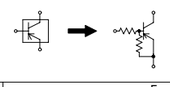
OPERATION/DISPLAY SCHEMATIC DIAGRAM
(VCR PCB)



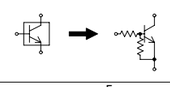
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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

CAUTION: DIGITAL TRANSISTOR



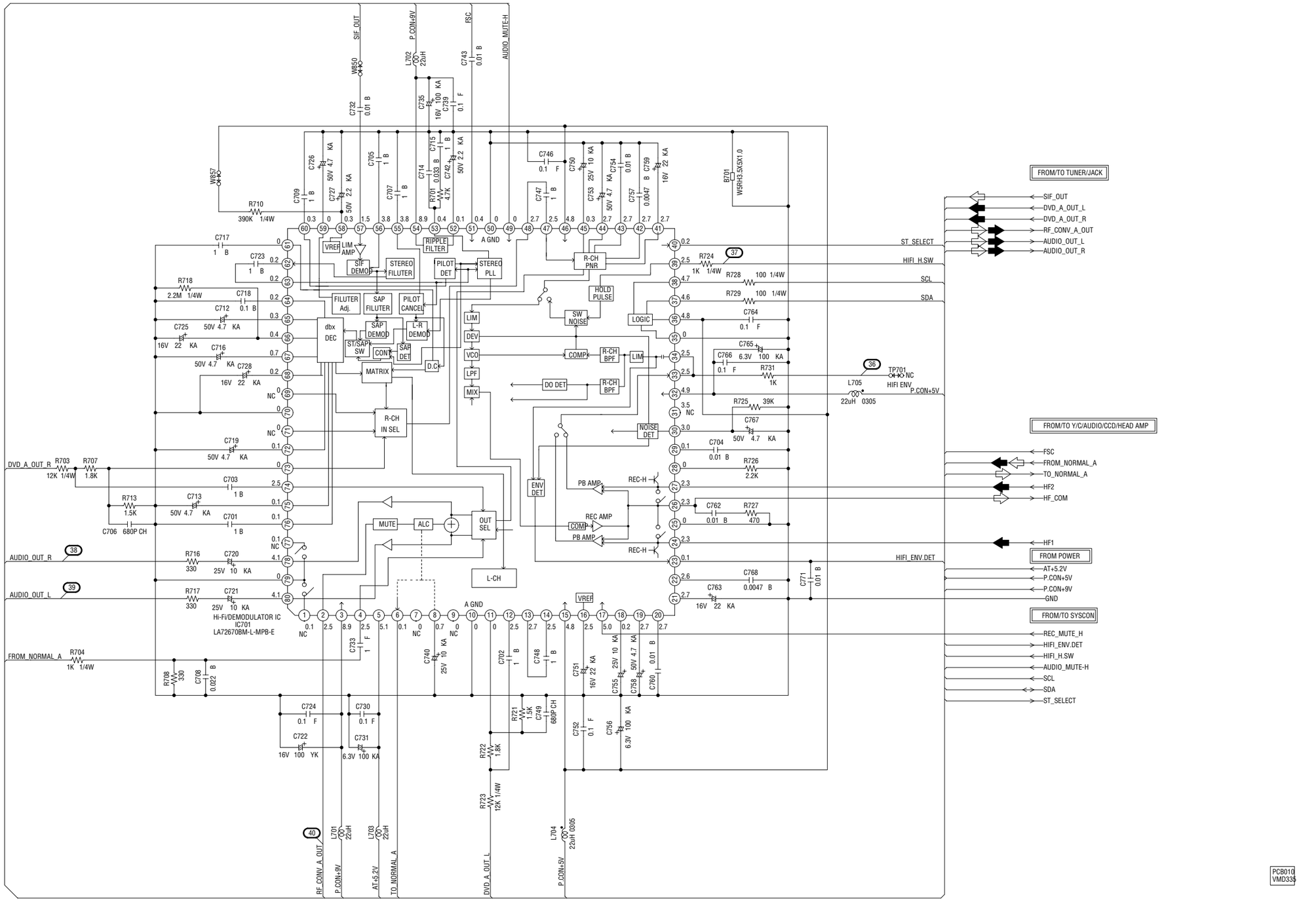
CAUTION: DIGITAL TRANSISTOR



⇦ AUDIO SIGNAL(REC)
⋘ RECORD COLOR SIGNAL
⋘ RECORD LUMINANCE SIGNAL

Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

(VCR PCB)

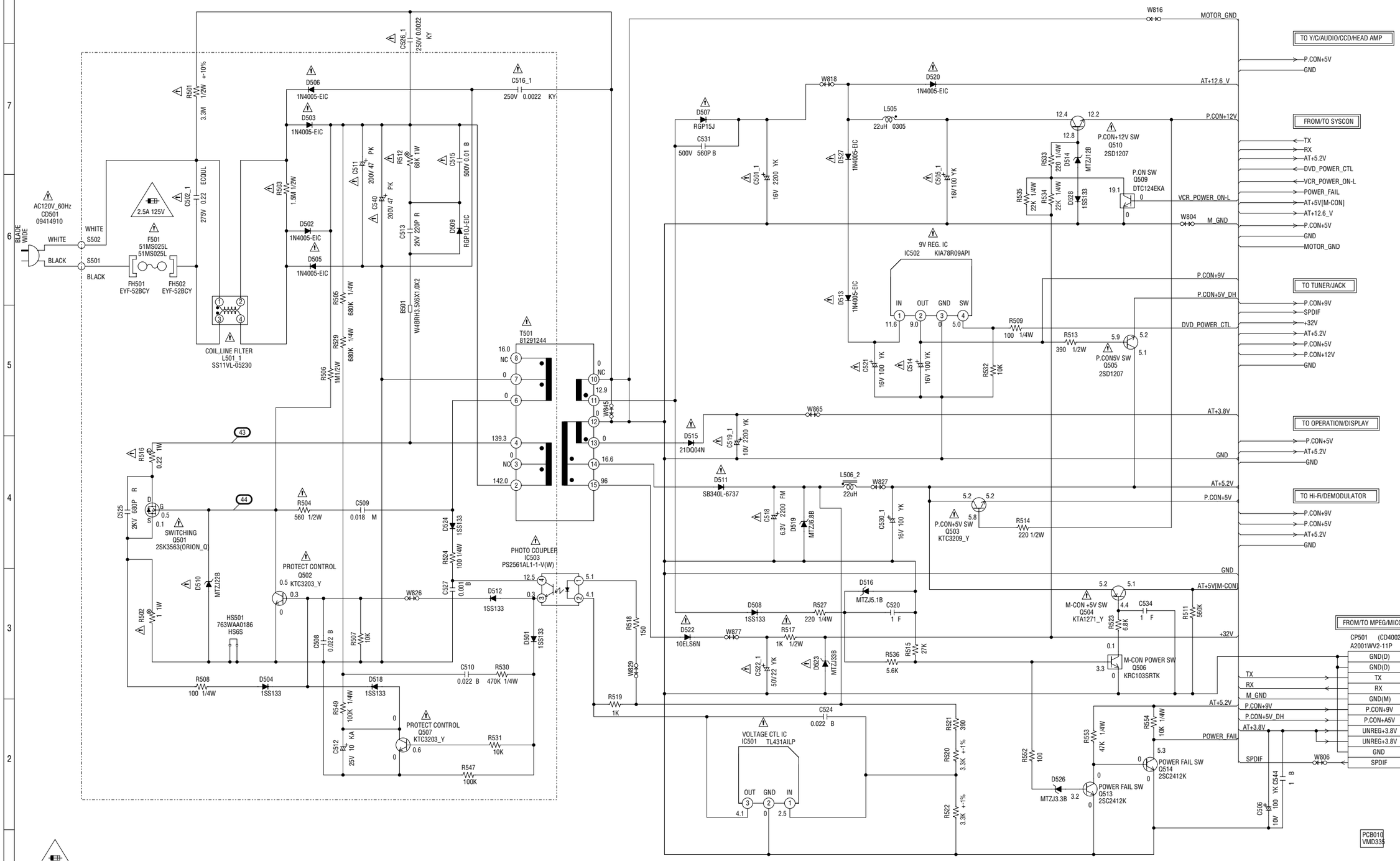


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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

⇦ 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 FUSE 2.5A 125V(F501).

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

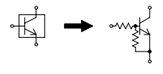
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

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

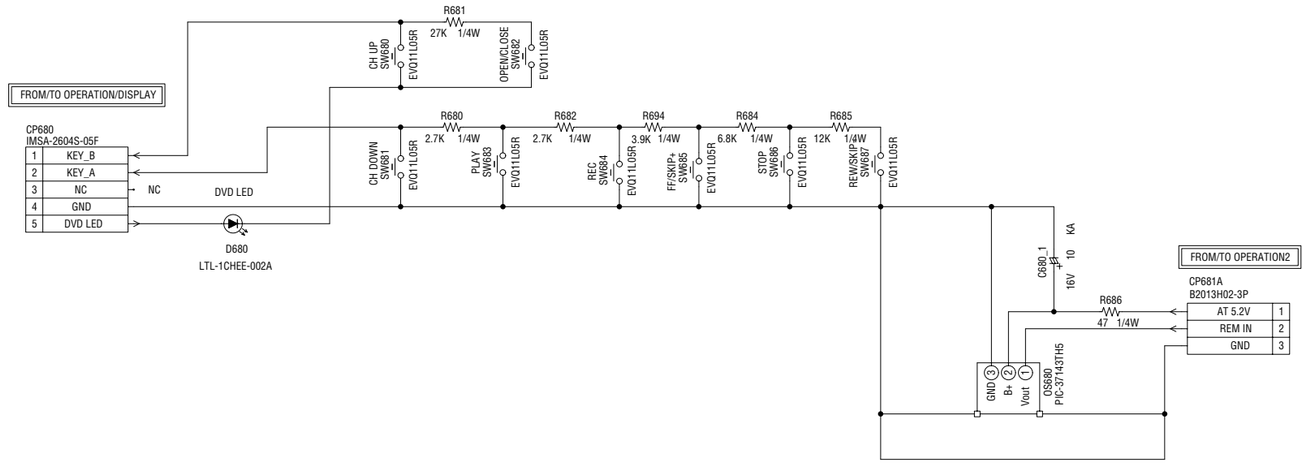
CAUTIONSINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR



OPERATION 1 SCHEMATIC DIAGRAM

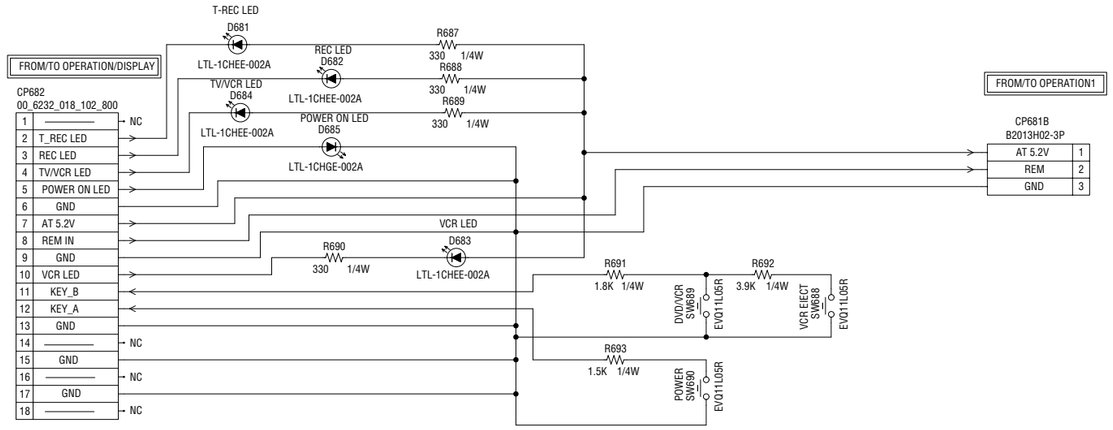
(OPERATION 1 PCB)



PCB270
VEDA51

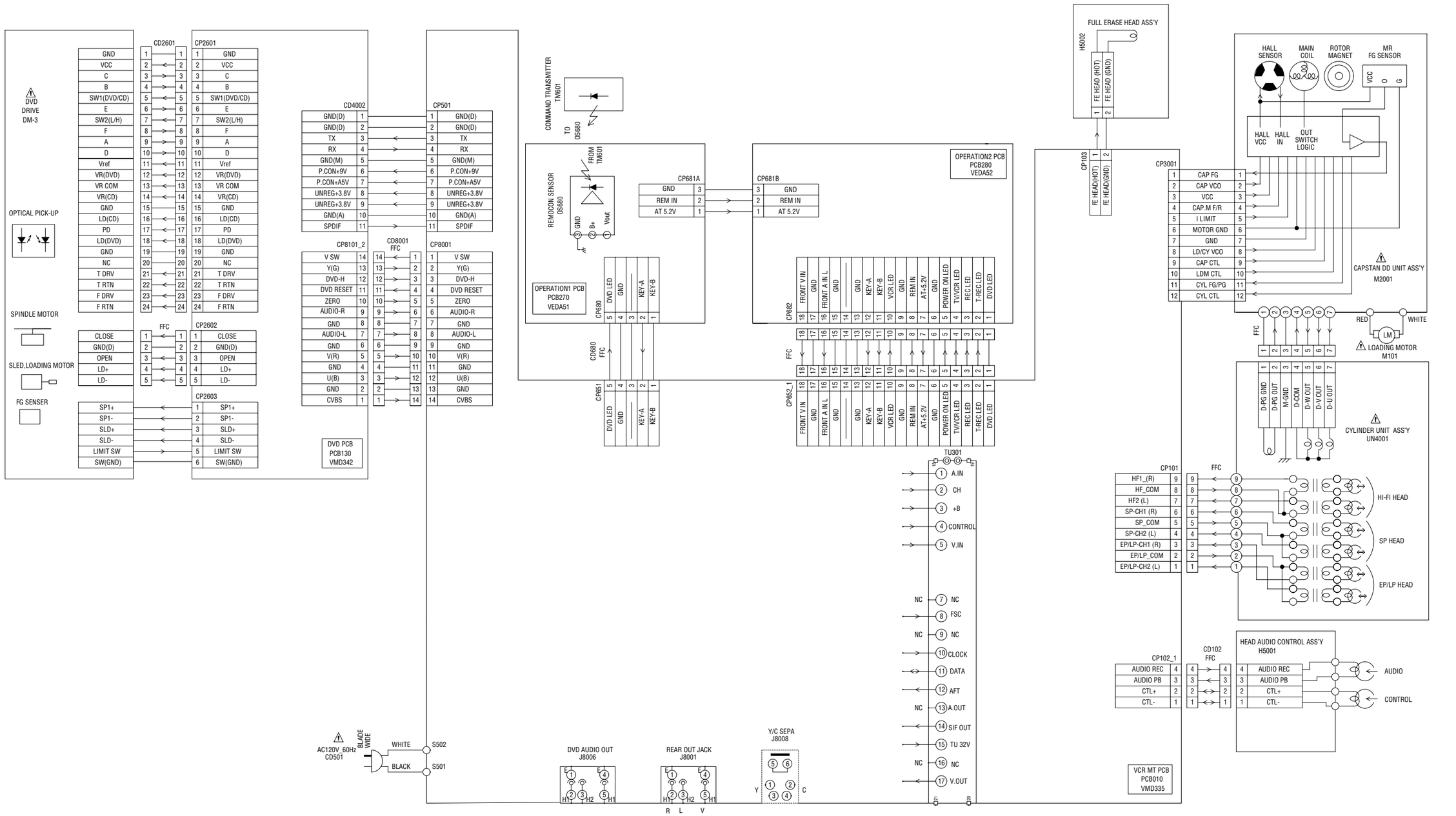
OPERATION 2 SCHEMATIC DIAGRAM

(OPERATION 2 PCB)



PCB270
VEDA52

INTERCONNECTION DIAGRAM



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

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

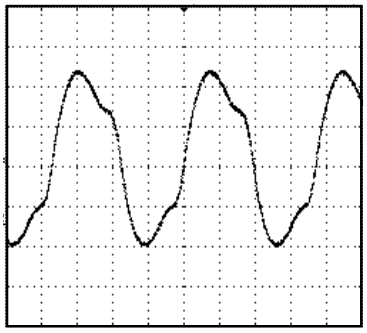
CAUTION:SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

WAVEFORMS

MPEG/MICON/DSP

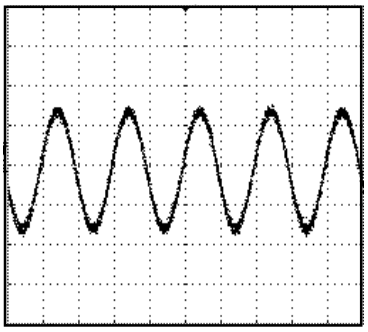
10ns
1.0V

①



500µs
1.0V

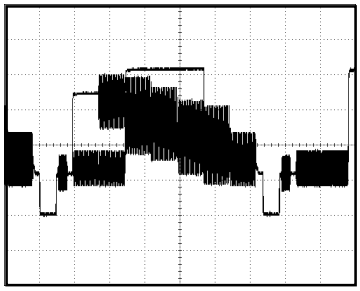
⑥



Y/C/AUDIO/CCD/HEAD AMP

PB
10µs
500mV

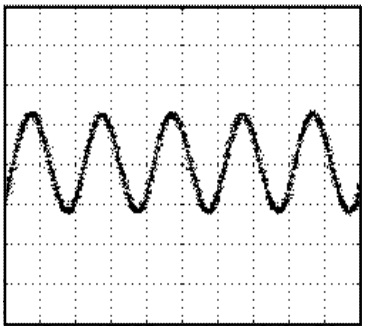
⑯



MEMORY

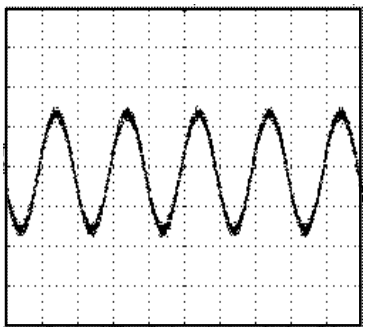
200µs
500mV

②



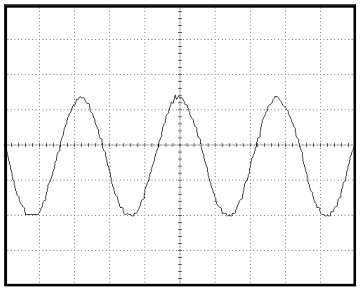
500µs
1.0V

⑦



PB
100ns
100mV

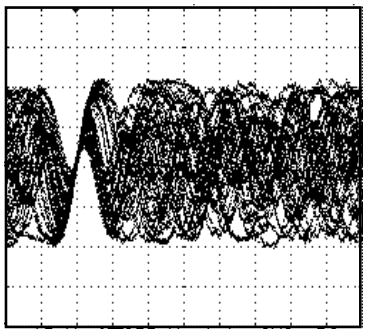
⑰



RF AMP/DSP

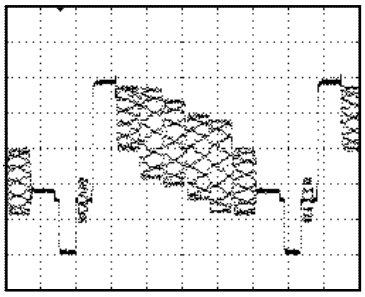
200ns
200mV

③



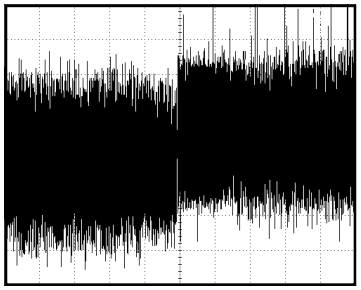
10µs
200mV

⑧



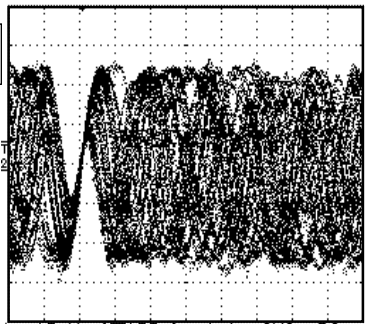
PB
1ms
100mV

⑱



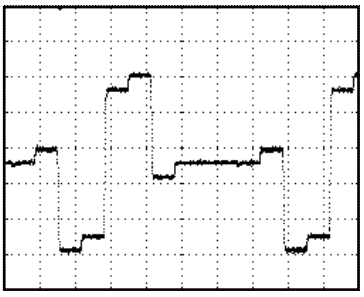
200ns
100mV

④



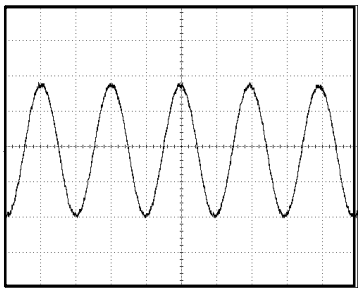
10µs
100mV

⑨



PB
200ms
500mV

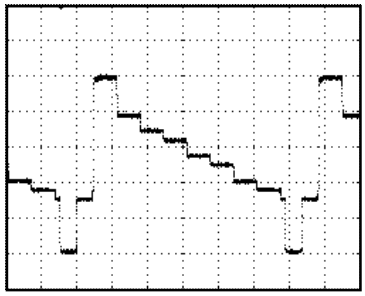
⑲



AUDIO/VIDEO

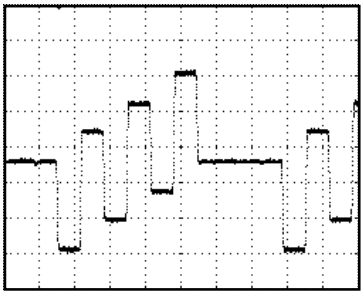
10µs
200mV

⑤



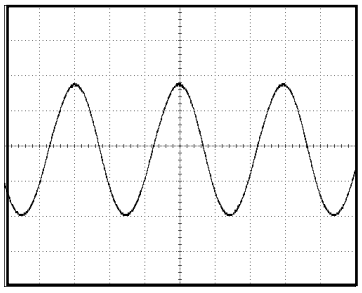
10µs
100mV

⑩



REC
5µs
20V

⑳



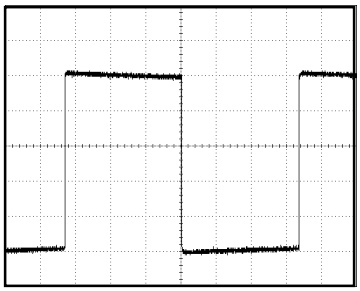
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

SYSCON

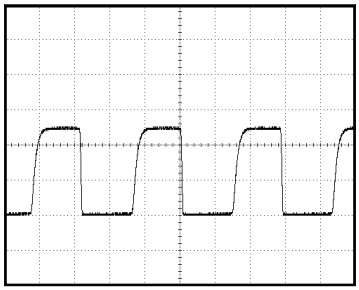
PB
5ms
1.0V

(21)



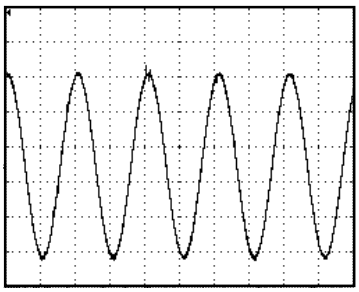
PB
5ms
2.0V

(27)



PB
500µs
200mV

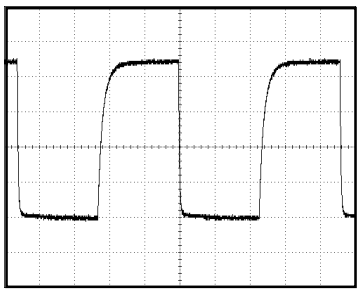
(39)



TUNER/JACK

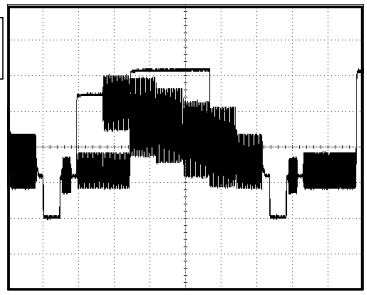
PB
200µs
1.0V

(22)



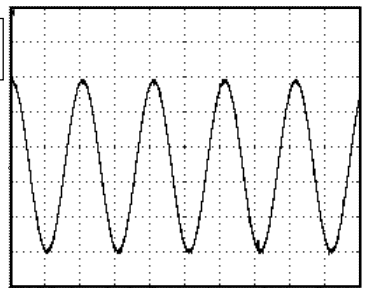
PB
10µs
200mV

(32)



PB
500µs
200mV

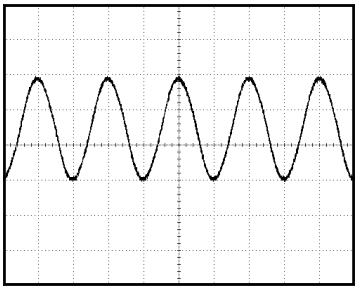
(40)



Hi-Fi/DEMODULATOR

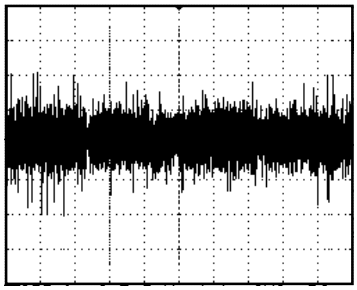
POWER ON
50ns
1.0V

(23)



PB
10ms
1.0V

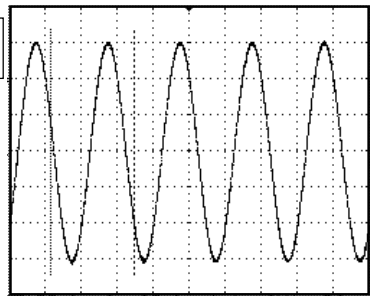
(36)



TUNER/JACK

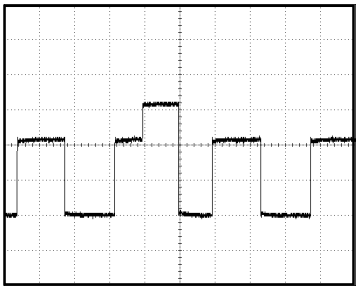
PB
500µs
100mV

(41)



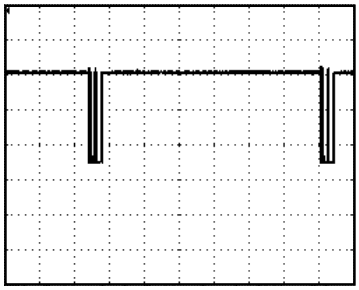
PB
500µs
1.0V

(24)



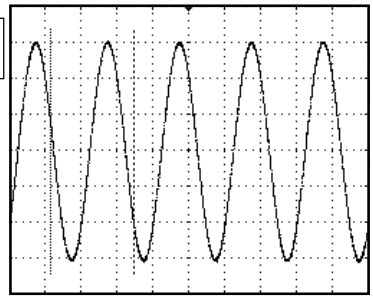
PB
1ms
2.0V

(37)



PB
500µs
100mV

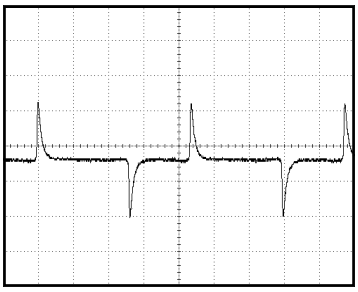
(42)



POWER

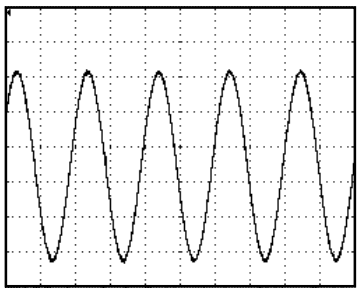
PB
5ms
500mV

(25)



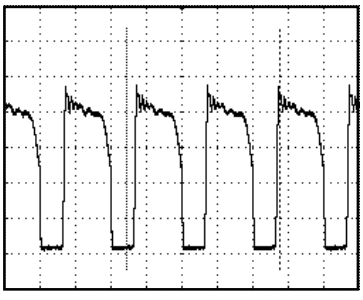
PB
500µs
200mV

(38)



PB
5µs
500mV

(43)

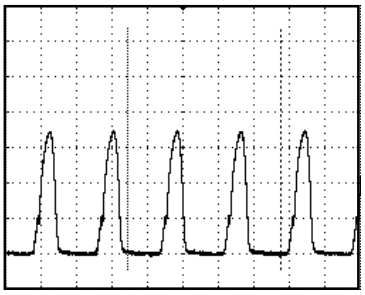


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

PB
5µs
5.0V

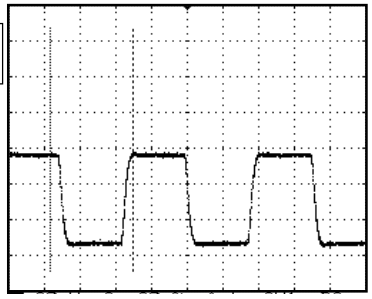
(44)



TUNER/JACK

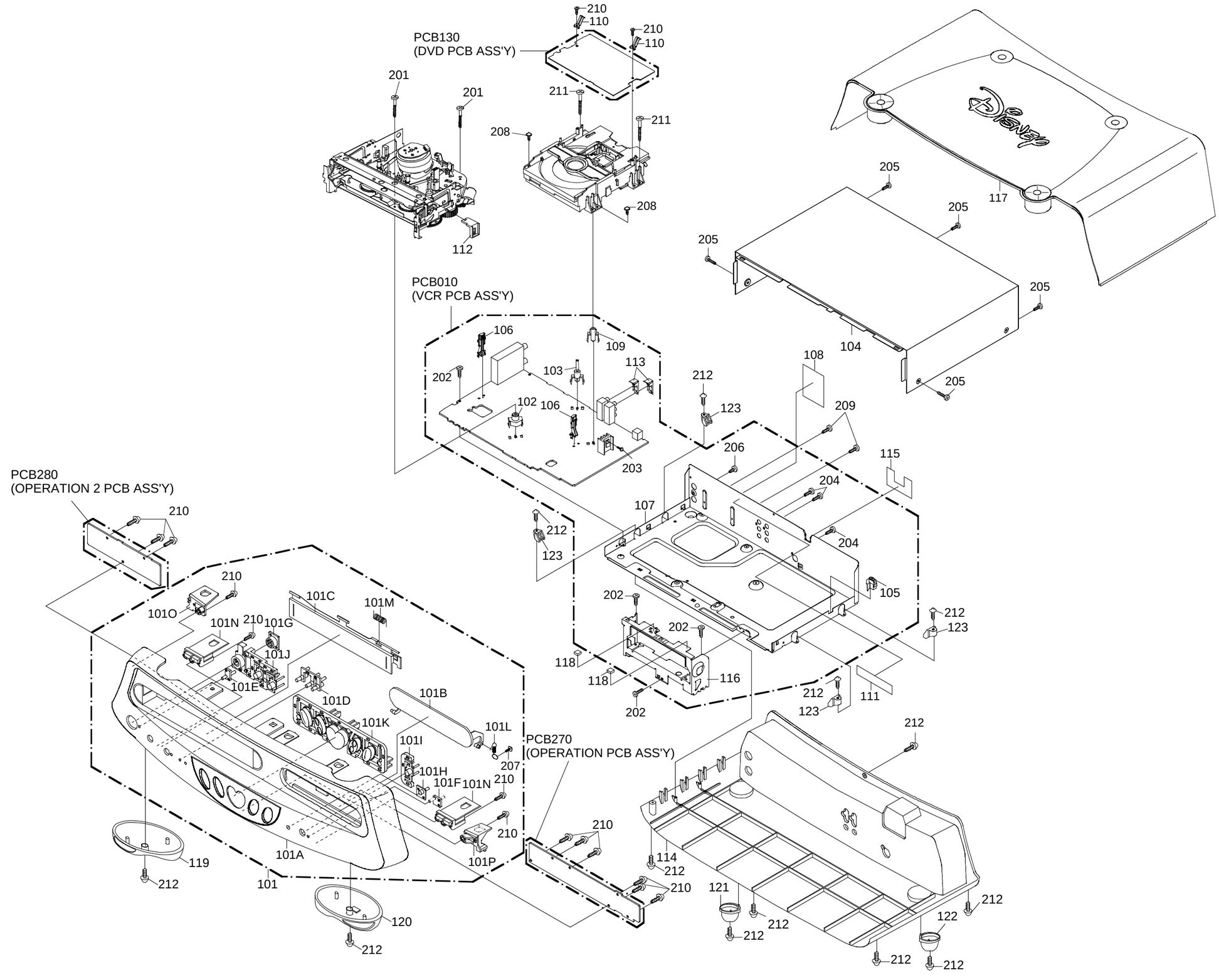
PB
200ns
20mV

(45)

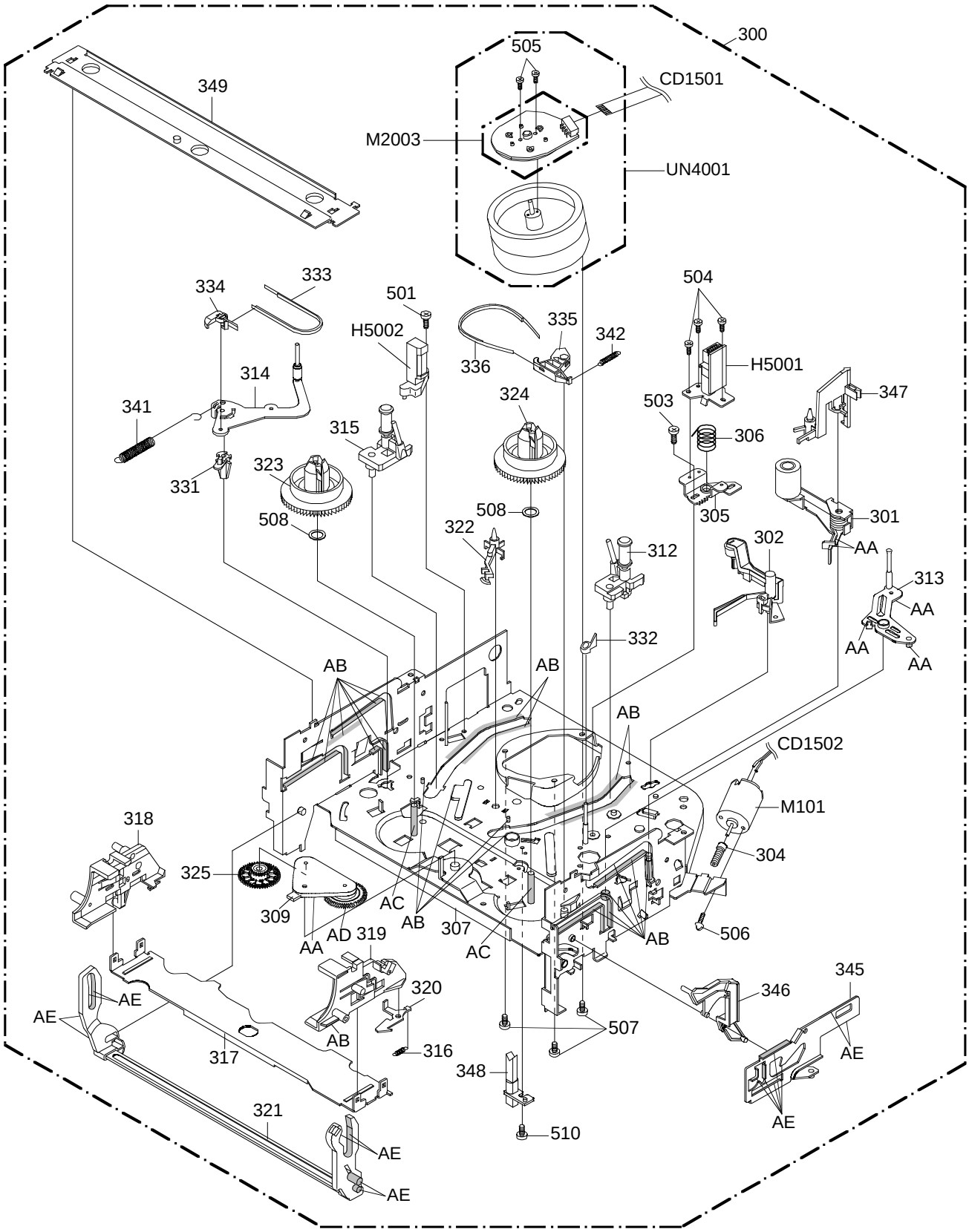


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



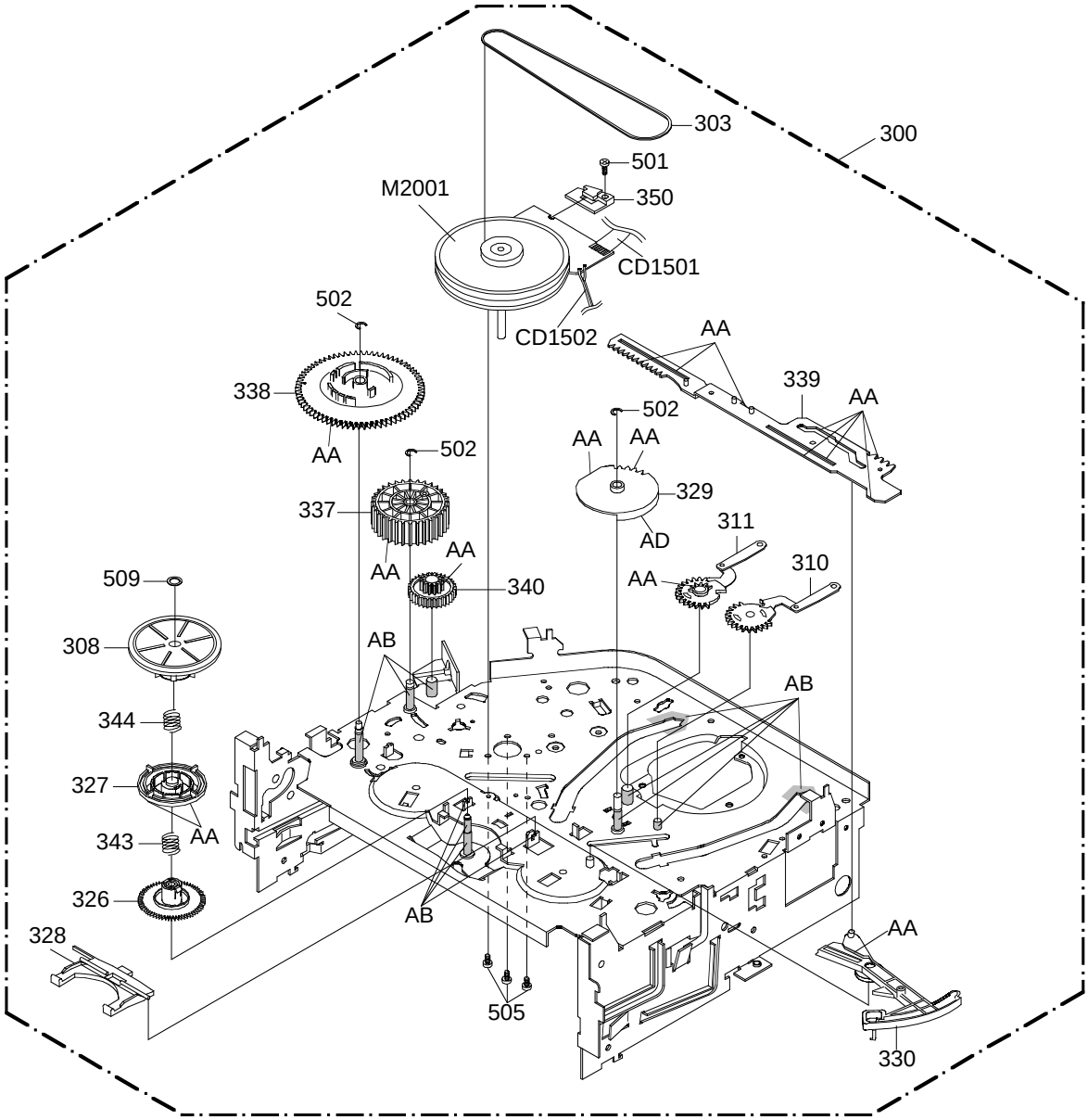
CHASSIS EXPLODED VIEW (TOP VIEW)



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.

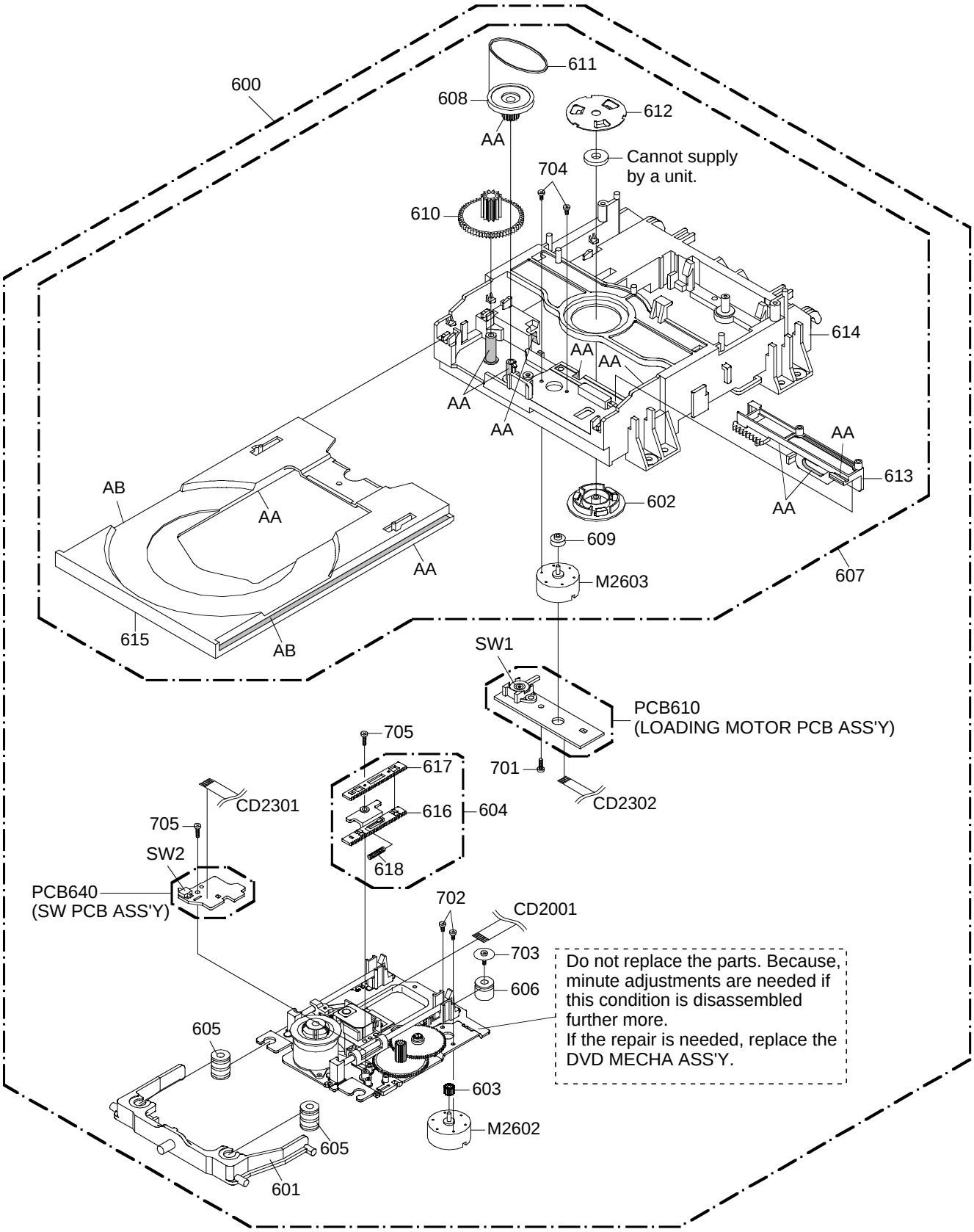
CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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
	Y315131000	SF-112	AB

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

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
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	701WPA0686	HOLDER,DECK			
103	701WPA0751	HOLDER,DECK			
104	702WPBA188	CABINET,TOP			
105	761WPA0261	HOLDER,DVD BR			
106	85OP700038	HOLDER,END SENSOR			
107	702WSA0217	PLATE,BOTTOM			
108	722616A008	SHEET,RATING			
109	761WPA0321	HOLDER,DVD BL			
110	753WUA0065	SPRING,EARTH			
111	726000A073	SHEET,CAUTION			or
	7260000341	SHEET,CAUTION			
112	761WPA0262	HOLDER,DECK TOP			
113	752WSA0290	SHIELD,COMPO			
114	702WPBA189	CABINET,BOTTOM			
115	725000A082	SHEET,BACK PR			
116	761WSAA025	ANGLE,FRONT			
117	702WSA0212	CABINET,TOP			
118	8965TS1010	CUSHION		65TS10-10(10x20x25)	
119	7A704A004A	LEG,PRINCESS (R)ASS'Y			
120	7A704A003A	LEG,PRINCESS (L)ASS'Y			
121	704WPA0037	LEG,BACK(L)			
122	704WPA0038	LEG,BACK(R)			
123	761WPA0332	HOLDER,BOTTOM			
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	8110E2680U	SCREW,TAP TITE(P)	WH10	M2.6x8	
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			
---	793WCDC404	GIFT,BOX			
---	J2D81321A	INSTRUCTION BOOK			
---	J3P90130A	DISNEY LEAFLET			
---	J3P90202C	WARRANTY SHEET(E/F)			
---	JB5U0300	POLYBAG,INSTRUCTION			
---	A2D813T975	INSTRUCTION BOOK KIT			

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
300	A2D801T420K	DECK ASSY	A2D801T420K	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
				502	83ETW30000	E-RING	3
301	85OA400240	PINCH ROLLER BLOCK (VA)		503	8107226404	SCREW,TAP TITE(S) BIND	2.6x4
302	85OA500026	AHC ASS'Y		504	8102120604	SCREW,PAN	M2x6
303	85OP200290	BELT,CAPSTAN (S)		505	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
304	85OP600581	WORM		506	810A130404	SCREW/WASHER(A)	M3x4
305	85OP500083	BASE,AC HEAD		507	810A126504	SCREW/WASHER(A)	M2.6x5
306	85OP800324	SPRING,AC HEAD		508	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
307	85OA000516	MAIN CHASSIS ASS'Y		509	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
308	85OA200089	CLUTCH ASS'Y					
309	85OA200090	ARM IDLER ASS'Y		510	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
310	85OA300065	LOADING ARM S UNIT		CD1501	122H071704	CORD JUMPER	2H071704
311	85OA300066	LOADING ARM T UNIT		CD1502	122Y021902	CORD JUMPER	2Y021902
312	85OA400223	INCLINED BASE T UINT 3S		H5001	1523Q91004	HEAD,AUDIO CONTROL	VTR-1X2RPE22-772
313	85OA400232	P5 ARM ASS'Y 2		H5002	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
314	85OA400235	TENSION ARM ASS'Y 2		⚠ M101	1596S98001	MOTOR (LOADING)	MDB2B66
315	85OA400231	INCLINED BASE S UNIT		⚠ M2001	1510S98042	CAPSTAN DD UNIT	F2QVB73
316	85OP800367	SPRING LOCKER		M2003	1589S11020	MICRO MOTOR	I2OAL34
317	85OP900736	CASS,HOLDER		⚠ UN4001	A5L1046500	CYLINDER UNIT ASS'Y	A5L1046500
318	85OP900748	CASS,SIDE L					
319	85OP900749	CASS,SIDE R					
320	85OP900739	LOCKER,R					
321	85OA900228	LINK UNIT					
322	85OP000496	POST,CASS GUIDE					
323	85OP200316	REEL,S (S)					
324	85OP200317	REEL,T (S)					
325	85OP200308	GEAR,IDLER					
326	85OP200311	GEAR,CLUTCH					
327	85OP200312	GEAR,COUPLING					
328	85OP200313	LEVER,CLUTCH					
329	85OP300194	GEAR,MAIN LOADING					
330	85OP400490	LEVER,TENSION					
331	85OP400492	HOLDER,TENSION					
332	85OP400520	CAP.P4					
333	85OP400542	BAND,TENSION					
334	85OP400533	CONNECT,TENSION					
335	85OP600573	ARM,BRAKE T					
336	85OP600584	BAND,BRAKE T					
337	85OP600577	CAM,PINCH ROLLER					
338	85OP600578	CAM,MAIN					
339	85OP600579	ROD,MAIN					
340	85OP600582	GEAR,JOINT					
341	85OP800322	SPRING,TENSION					
342	85OP800360	SPRING,BRAKE T					
343	85OP800355	SPRING,COUPLING					
344	85OP800356	SPRING,RING					
345	85OP900743	LEVER,LINK					
346	85OP900744	LEVER,FLAP					
347	85OP900745	CASS,OPENER					
348	85OP700035	REFLECTOR,LED					
349	85OP900746	BRACKET,TOP 3V					
350	85OP400549	HOLDER,CAPSTAN					

DVD DECK REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
⚠ 600	A2D812T650	DVD MECHA ASS'Y	A2D812T650
601	92P100109A	HOLDER,TRAVERSE	
602	92P100094A	CLAMPER	
603	92P100088A	GEAR,MOTOR	
604	92AAA0014A	FEED RACK ASS'Y	
605	92P200013A	INSULATOR(F)	
606	92P200014A	INSULATOR(R)	
607	92SBB0019A	LOADER SUB ASS'Y	
608	92P100095A	GEAR,PULLEY	
609	92P100097A	PULLEY,MOTOR	
610	92P100096A	GEAR,MAIN	
611	92P200012A	BELT,LOADING	
612	92P000014A	PLATE,CLAMPER	
613	92P100093A	RACK,LOADING	
614	92P100091A	FRAME,MAIN	
615	92P100092A	TRAY	
616	92P100110A	RACK,FEED 1	
617	92P100090A	RACK,FEED 2	
618	92P300020A	SPRING,RACK FEED	
701	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
702	814011723U	SCREW,PAN	M1.7x2.3 P3
703	816112080U	SEMS.TAP TITE(P) PAN	W10 2x8
704	814011730U	SCREW,PAN	M1.7x3 P3
705	811022080U	SCREW,TAP TITE(P) BIND	2x8
CD2001	122H0O1901	CORD JUMPER	2H0O1901
CD2301	122H062102	CORD JUMPER	2H062102
CD2302	122H052601	CORD JUMPER	2H052601
⚠ M2602	1515S98002	FEED MOTOR	BCZ3B03
⚠ M2603	1596S18002	LOADING MOTOR	BCZ3B52
PCB610	A5M4016610	PCB ASS'Y	DED003A
PCB640	A2E220T640	PCB ASS'Y	DED012A
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
⚠ R504	R002T2561J	RC	560 OHM 1/2W
⚠ R512	R3X181683J	R,METAL OXIDE	68K OHM 1W
⚠ R516	R63581R22J	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
⚠ 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	E02LF1222M	CE	2200 UF 10V
⚠ C521	E02LU2101M	CE	100 UF 16V
⚠ C522	E02LU5220M	CE	22 UF 50V
C525	C0PLRR7U2K	CC	680 PF 2KV R
⚠ C526	CC3LE0MH3M	CC	0.0022UF 250V
⚠ 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
D520	D2WXN40050	DIODE SILICON	1N4005-EIC
⚠ D522	D28TELS6N6	DIODE RECTIFER	10ELS6N-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
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
D685	0021E5Q210	LED	LTL-1CHGE-002A
D2601	DDARDS1200	DIODE SILICON	KDS120RTK
D2602	DE5RB2R21X	DIODE ZENER	02DZ2.2-X(TH3ORION
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
D8004	D1VT001330	DIODE,SILICON	1SS133T-77
D8005	D1VT001330	DIODE,SILICON	1SS133T-77
D8006	D1VT001330	DIODE,SILICON	1SS133T-77
D8111	DDDRL41480	DIODE SILICON	MCL4148
D8112	DDDRL41480	DIODE SILICON	MCL4148
		ICS	
IC101	I03F3206M0	IC	LA71206M-MPB
⚠ IC501	I0CJ9AILP0	IC	TL431AILP
⚠ IC502	I1KA98R09A	IC	KIA78R09API
⚠ IC503	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC701	I03F670BM0	IC	LA72670BM-L-MPB-E
IC2301	I03F065650	IC	LA6565-TE-L-E
IC2601	ICQK067080	IC	ZR36708TQC
IC3001	I54F50147A	IC	OEC0147A
IC3003	I9UF032310	IC	PST3231NR
IC3099	A2D812T015	INIT DATA	
IC4001	ICQK06762V	IC	ZR36762PQCG_V

REF. NO.	PART NO.	DESCRIPTION	
		ICS	
IC4002	I5HJ002AF0	IC	S-24CS02AFJ-TB-G or
	I5HJ002BF0	IC	S-24C02BFJ-TB
IC4003	I0BF97KWM0	IC	SI-3007KWM-TL
IC4005	IF3J00HGT7	IC	HY57V641620HGT-7 or
	IFLJ0632H7	IC	K4S641632H-UC75
IC4007	ICMJ0800A8	IC	SST39VF800A-70-4C-EK-D
IC8001	I0QJ045800	IC	NJM4580M(TE1)
IC8005	I0UF015010	IC	MM1501XNRE
IC8102	I17F017530	IC	PCM1753DBQR
		TRANSISTORS	
Q101	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q102	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q103	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q104	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q105	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q107	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q301	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
⚠ 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	TD3T012070	TRANSISTOR,SILICON	2SD1207(S,T)-AE
Q506	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
⚠ Q507	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q509	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
⚠ Q510	TD3T012070	TRANSISTOR,SILICON	2SD1207(S,T)-AE
Q513	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q514	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q666	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q668	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q2601	T67J1036K0	TRANSISTOR SILICON	2SA1036KT146
Q2602	T67J048TL0	TRANSISTOR SILICON	2SA2048TL
Q2603	T27T030180	FET	2SK3018
Q2604	T27T030180	FET	2SK3018
Q2605	T27T030180	FET	2SK3018
Q2606	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q2607	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q2608	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
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	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8002	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q8003	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8004	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q8005	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8006	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8007	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q8008	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8009	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8010	TPYJA05001	COMPOUND TRANSISTOR	DTA143EKAT146
Q8011	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8012	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
		COILS &TRANSFORMERS	
L101	031626010R	COIL,BIAS OSC	1626010
L102	02167F101J	COIL	100 UH
L301	02167F220J	COIL	22 UH
⚠ L501	029X000117	COIL,LINE FILTER	SS11VL-05230
L505	02167F220J	COIL	22 UH
L506	021W7A220K	COIL	22 UH
L701	021LA6220J	COIL	22 UH
L702	021LA6220J	COIL	22 UH
L703	02167F220J	COIL	22 UH
L704	02167F220J	COIL	22 UH
L705	02167F220J	COIL	22 UH
L3002	021W7A220K	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
L8102	02167F1R0K	COIL	1 UH
L8103	02167F1R0K	COIL	1 UH

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		COILS &TRANSFORMERS	
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
SW685	0504R01T38	SWITCH TACT	EVQ11L05R
SW686	0504R01T38	SWITCH TACT	EVQ11L05R
SW687	0504R01T38	SWITCH TACT	EVQ11L05R
SW688	0504R01T38	SWITCH TACT	EVQ11L05R
SW689	0504R01T38	SWITCH TACT	EVQ11L05R
SW690	0504R01T38	SWITCH TACT	EVQ11L05R
SW3001	0508S11001	SWITCH (LEAF)	LSA-1144EAU
		P.C.BOARD ASSEMBLIES	
PCB010	A2D813T010	PCB ASS'Y	VMD335A
PCB130	A2D812T130	PCB ASS'Y	VMD342A
PCB270	A2D813T270	PCB ASS'Y	VEDA51A
PCB280	A2D812T280	PCB ASS'Y	VEDA52A
		MISCELLANEOUS	
B501	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B701	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
B2601	024HC31022	CORE,BEADS	FCM2012H-102T04
B2602	024HC31022	CORE,BEADS	FCM2012H-102T04
B2603	024HC31022	CORE,BEADS	FCM2012H-102T04
B2604	024HC31022	CORE,BEADS	FCM2012H-102T04
B2605	024HC31022	CORE,BEADS	FCM2012H-102T04
B4001	024HC31022	CORE,BEADS	FCM2012H-102T04
B4002	024HC31022	CORE,BEADS	FCM2012H-102T04
B4003	024HC31022	CORE,BEADS	FCM2012H-102T04
B4004	024HC31022	CORE,BEADS	FCM2012H-102T04
B4005	024HC31022	CORE,BEADS	FCM2012H-102T04
B4006	024HC31022	CORE,BEADS	FCM2012H-102T04
B4007	024HC31022	CORE,BEADS	FCM2012H-102T04
B4008	024HC31022	CORE,BEADS	FCM2012H-102T04
B4010	024HC31022	CORE,BEADS	FCM2012H-102T04
B8002	024HC31022	CORE,BEADS	FCM2012H-102T04
B8003	024HC31022	CORE,BEADS	FCM2012H-102T04
B8103	024HC31022	CORE,BEADS	FCM2012H-102T04
CD102	122F041508	CORD JUMPER	2F041508
⚠ CD501	1209414910	CORD AC BUSH	9414910
CD680	122H050801	CORD JUMPER	2H050801
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	069EVI3010	CONNECTOR PCB SIDE	00_6232_018_006_800
CP680	069J750589	CONNECTOR PCB SIDE	IMSA-9604S-05F
CP682	069EVI3020	CONNECTOR PCB SIDE	00_6232_018_102_8
CD4002	06CU2B1101	CORD CONNECTOR	CU2B1101 or
	06C32B1103	CORD CONNECTOR	C32B1103
CD6002	06CPL02006	CABLE	CPL02006
CD6003	06CPBA2003	CORD,RCA PIN	TD-020301-3
CD8001	122F0E1001	CORD JUMPER	2F0E1001
CP2601	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2602	069EV53010	CONNECTOR PCB SIDE	00_6232_005_006_800
CP2603	069EV63010	CONNECTOR PCB SIDE	00_6232_006_006_800
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
NR4001	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4002	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4003	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4004	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4005	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4006	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4007	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4008	110P4101M4	R,NETWORK	4D03WGJ0101T5E
OS680	077Q037002	REMOTE RECEIVER	PIC-37143TH5
TM601	076R0JT020	TRANSMITTER	R56-0539
⚠ TU301	0162300042	RF UNIT	115-V-H035ARE
X101	100DT3R528	CRYSTAL	HC-49/U
X3001	100GT01006	CRYSTAL	B10000C001
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.	M2D8-13T
O/R NO.	K482002