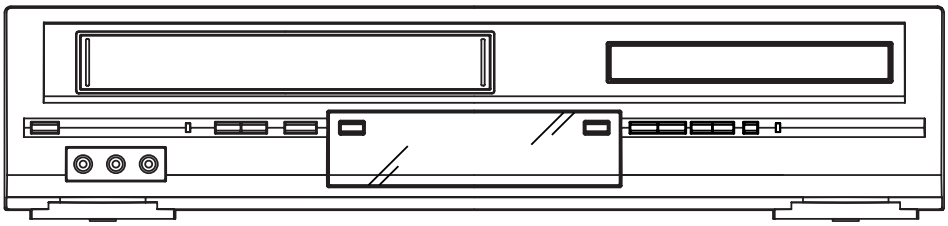
Memorex

CLASS 1
LASER PRODUCT

MVD4540B

SERVICE MANUAL

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER



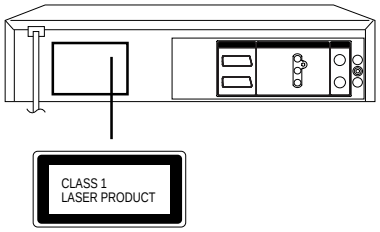
VHS

ORIGINAL
MFR'S VERSION B

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.

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.

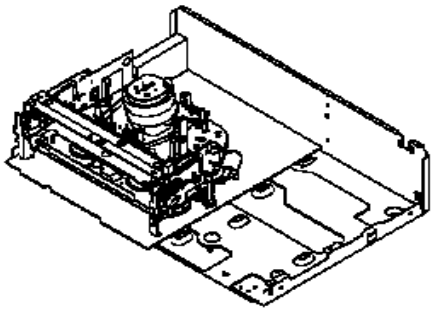


Fig. 1

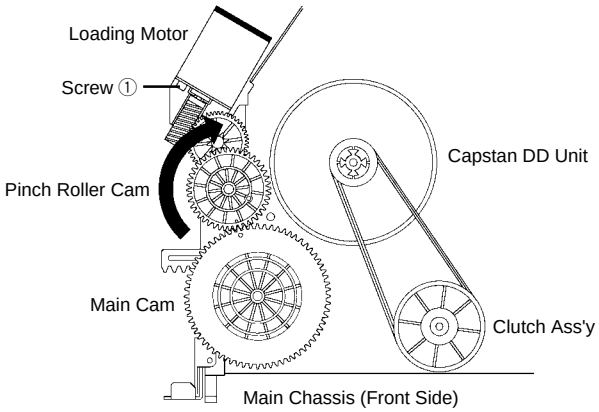


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet and Front Cabinet. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Slide the Rack Loading (White) toward the arrow direction by using a minus driver to release the lock. **(Refer to Fig. 1)**
3. Draw the Tray.

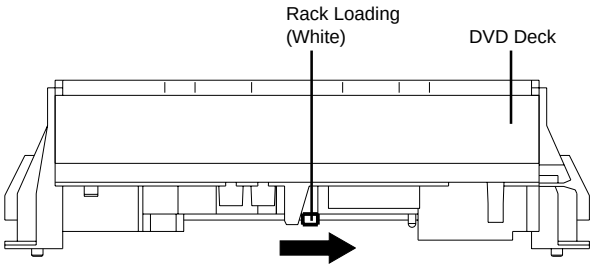


Fig. 1

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		2 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 2-20 times / 4 steps
				Actual	2-45 times (DVD)
					4-40 times (CD)
					Rev 2-20 times / 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
		Tape Speed	Rec PAL		-
			Rec NTSC		SP/SLP
			Play PAL		-
			Play NTSC		SP/LP/SLP
		Fast Forward / Rewind Time (Approx.) at 25oC			FF:1'48"/REW:1'48"
				with Cassette	T-120
		Forward/Reverse Picture Search	NTSC or PAL-M		SP/LP/SLP = 3x,5x / 7x,9x / 9x,15x
			PAL or SECAM		-
		Frame Advance			Yes
		Slow Speed			1/10
G-4	Tuning System	Broadcasting System			US System M
		Tuner and Receive CH	System		1Tuner
			Destination		US (w/CATV)
			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
G-6	Regulation		Safety		UL
			Radiation		FCC
			Laser		DHHS
G-7	Temperature		Operation		5°C - 40°C
			Storage		-20°C - 60°C
G-8	Operating Humidity				Less than 80% RH

GENERAL SPECIFICATIONS

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	-
			Input Level Line	-8 dBm/ 50k ohm (VCR, 0dBm=0.775Vrms)
			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

GENERAL SPECIFICATIONS

G-10	On Screen Display (DVD)	Menu		Yes	
			Menu Type	Character	
			Language	Yes	
			Menu	Yes	
			Sub Title	Yes	
			Audio	Yes	
			Picture	Yes	
			TV Screen Size	Yes	
			OSD Display On/Off	Yes	
			JPEG Interval		No
			Select Files		No
			Sound	Yes	
			DRC (Dynamic Range Control)	Yes	
			dts Decode		No
			Output (5.1ch/2ch)		No
			Surround On/Off		No
			Center On/Off		No
			Sub Woofer On/Off		No
			Parental	Yes	
			Password Lock/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, MP3)	
			Repeat	Yes	
			Slow+ ##	Yes	
			Slow- ##		No
			Search+ ##	Yes	
			Search- ##	Yes	
			Jump	Yes	
			Resume	Yes	
			Title No.	Yes	
			Chapter No.	Yes	
			Track No.	Yes	
			Time	Yes	
			Sub Title No.	Yes	
			Angle No.	Yes	
			Vocal On/Off	Yes	
			Audio No.	Yes	
			Audio Stereo L/R		No
			Zoom	Yes	
			Marker No.	Yes	
			Spatializer (N-2-2)		No
			Program Play Back	Yes (CD, MP3)	
			MP3 Folder Name	Yes	
			File Name	Yes	
			File No	Yes	
			Time	Yes	
			Track No	Yes	
			Progressive Scan Out ON/OFF	Yes	

GENERAL SPECIFICATIONS

	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/CATV	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	No
				Standard Time	No
				Daylight Saving Time	No
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry			No
		Stereo, Audio Output, SAP			Yes
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In/Repeat (Symbol Mark)			Yes
				CH/AV(LINE)	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			Yes
				DISPLAY type	LED Module (Green, "Rec" &Timer symbol = Red)
				Clock/Counter,CH,Timer Rec,OTR, Play Rec,FF(Cue),Rew(Rev),Stop,ATR,Eject	No
				VCR	Yes
				DVD	Yes
				CD	Yes
				Clock	Yes (12h)
				AM	No
				PM	Yes
				Counter VCR	Yes (hour:min)
				DVD	Yes (hour:min)
				CD	Yes (min:sec)
				Eject	Yes
				Counter Remain	No
				Play	Yes
				Stop	No
				Rec	Yes
				FF / Cue	No
				REW / Review	No
				Pause / Still	Yes
				OTR (ITR)	No
				T-Rec	Yes
				Chapter	No
				TITLE	No
				TRACK	Yes
				Repeat	No
				Hi-Fi	No
				SP	No
				LP	No
				SLP	No
				CH	Yes
				RF Output CH	Yes
				Tape In	Yes
				Progressive Scan Out	Yes

GENERAL SPECIFICATIONS

G-14	Remote Control	Unit		RC-ET
		Glow in Dark Remocon		No
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		46 Keys
		Keys	Power	Yes
			DISPLAY/CALL	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			Input Select	No
			Input Select / PROGRESSIVE	Yes
			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
			SET UP 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
			SUB TITLE/ATR	Yes
			PLAY MODE/SPEED	Yes
			T-REC	Yes
			CLOCK / COUNTER	Yes
			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		Yes
		WMA Playback		No
		JPEG Playback		No
		Progressive Scan Out		Yes
		Digital Out	Dolby Digital	Yes
			MPEG	Yes
			PCM	Yes
			DTS	Yes
		Down Mix Out	(Dolby Digital)	Yes
			(DTS)	No
		Spatializer (N-2-2)		No
		Screen Saver		No
		Auto Stop		Yes (5min.)
		Audio DAC		192kHz / 24bit

GENERAL SPECIFICATIONS

	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		No
		Index Search		Yes
		SQPB		No
		CATV		Yes
		Energy Star		No
		MTS (SAP)		Yes
		CM Skip (30sec x 6 Times)		No
		Copy (Disc to Tape)		No
G-16	**Accessories**	Owner's Manual	Language	English / Spanish
			w/Guarantee Card	No
			Buyer Model No.	MVD4540B
		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		Yes (1.2m)
		75 Ohm Coaxial Cable		Yes (0.9m)
		S-Video Cable		No
		21pin cable		No
		800 No Sticker		No
		Toll Free Insert Sheet		No
		Safety Tip		No

GENERAL SPECIFICATIONS

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	Yes
				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	RCA x1 (Yellow)
				Audio In	RCA x 2 (Stereo, White/Red)
			Rear	Video Output	RCA x1 (Yellow) S-Video x 1 (DVD Signal Only) Component x1 (RCA 3pin,DVD Signal Only)
				Audio Output	RCA x 4 (Stereo, White/Red) Coaxial x 1 (Digital Audio,DVD Signal Only)
				Optical Out (Option)	Yes (Digital Audio,DVD Signal Only)
				Video Input (Option)	No
				Audio Input (Option)	No
				RF Input / Output	Yes
				Euro Scart	No
				AC Inlet	No
		Indicator	LED	Power	No
				Rec	No
				T-Rec	No
				TV/VCR	No
				DVD	Yes (RED)
				VCR	Yes (RED)
				Surround	No
				Level Meter	No
G-18	Set Size			Approx. W x D x H (mm)	430 x 253 x 99
G-19	Weight			Net (Approx.)	3.6 kg(7.9lbs)
				Gross (Approx.)	4.7 kg(10.4lbs)
G-20	Carton	Master Carton			No
				Content	--- Sets
				Material	--- / ---
				Dimensions W x D x H(mm)	---
				Description of Origin	---
		Gift Box			Yes
				Material	Double/White
				W/Color Photo Label	No
				Dimensions W x D x H(mm)	497 x 360 x 180
				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			1,985 Sets/40' container
G-21	Material	Cabinet	Front		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, OPERATION PCB AND FRONT CABINET (Refer to Fig. 1-1)

1. Remove the 5 screws (1).
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connector: (CP651).
4. Unlock the 8 supports (2).
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 2 screws (3).
7. Remove the Operation PCB in the direction of arrow (C).

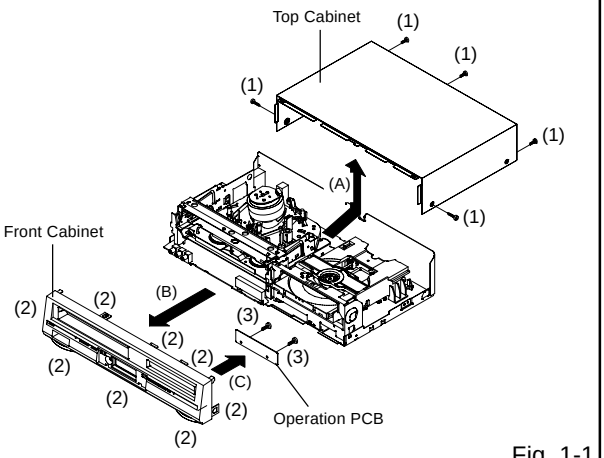


Fig. 1-1

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

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

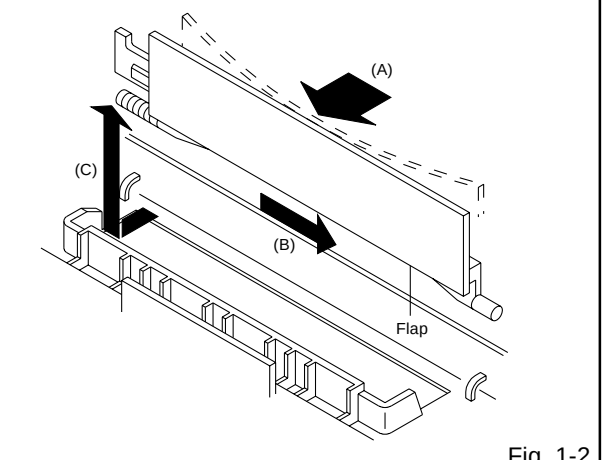


Fig. 1-2

1-3: DVD DECK (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 3 screws (2).
4. Remove the screw (3).
5. Disconnect the following connectors: (CP2601, CP2602 and CP2603).
6. Remove the DVD Deck in the direction of arrow (B).
7. Remove the 3 screws (4).
8. Remove the Front Angle in the direction of arrow (C).
9. Remove the screw (5).
10. Remove the DVD Angle.

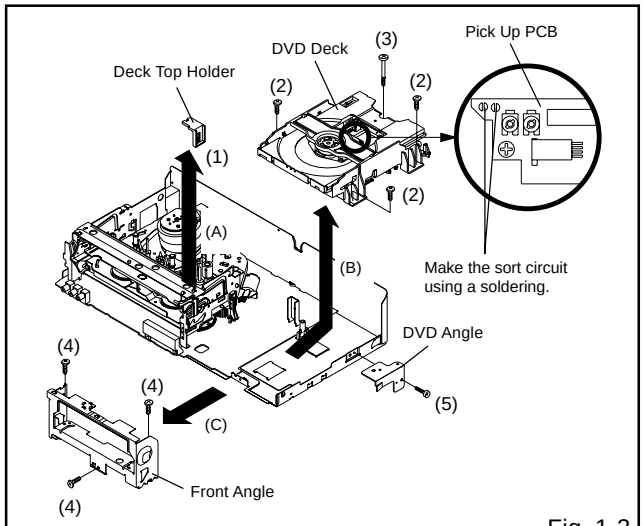


Fig. 1-3

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 DVD PCB connector.

DISASSEMBLY INSTRUCTIONS

1-4: DVD PCB (Refer to Fig. 1-4)

1. Remove the 3 screws (1).
2. Remove the 4 screws (2).
3. Disconnect the following connectors: (CP4002 and CP8102).
4. Remove the DVD PCB in the direction of arrow.

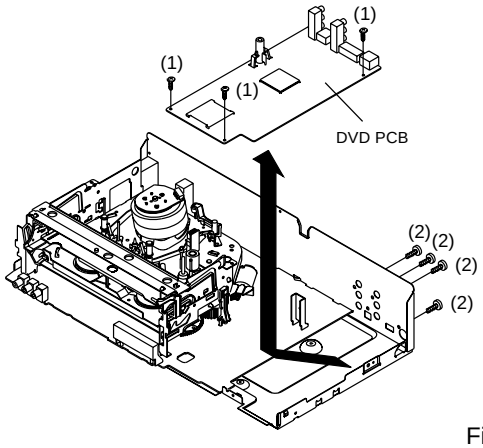


Fig. 1-4

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

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

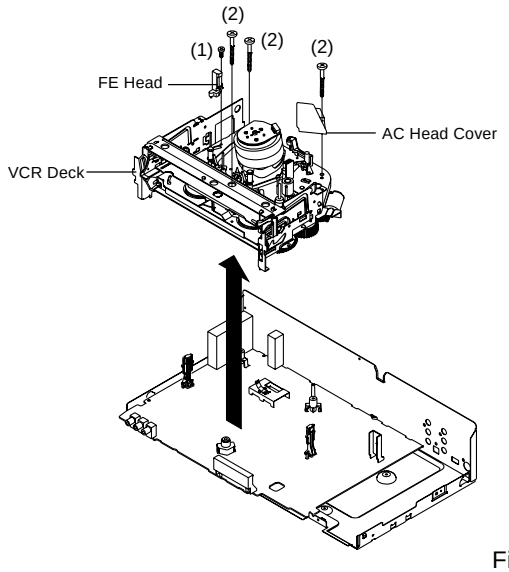


Fig. 1-5

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

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

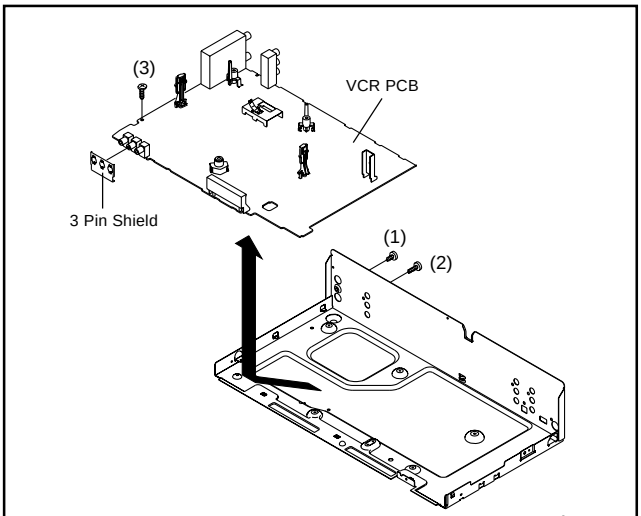


Fig. 1-6

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.

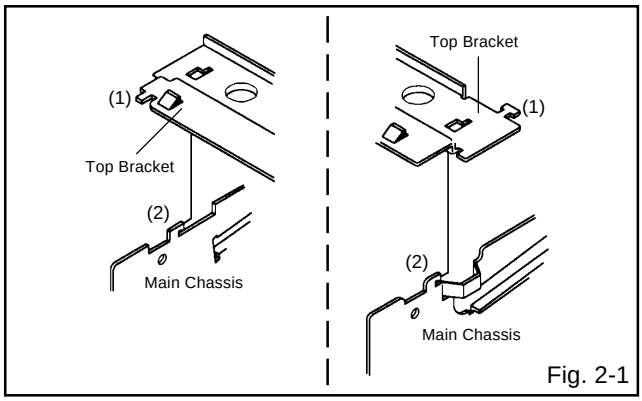


Fig. 2-1

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.

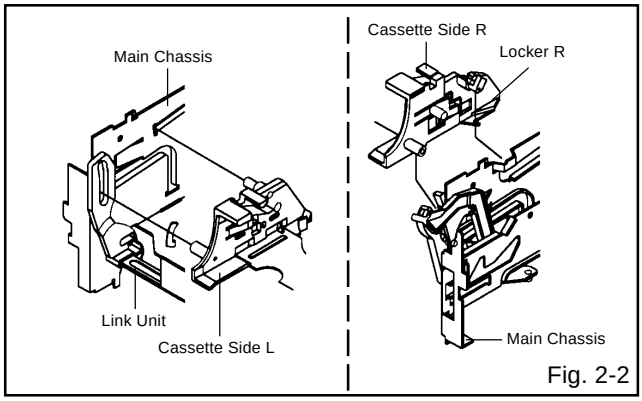


Fig. 2-2

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.

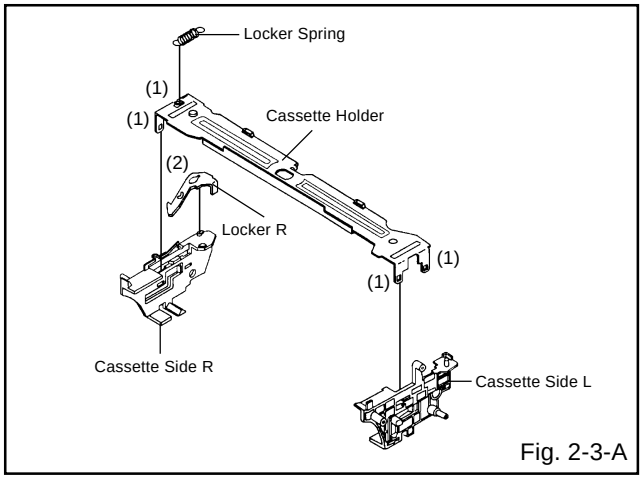


Fig. 2-3-A

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.

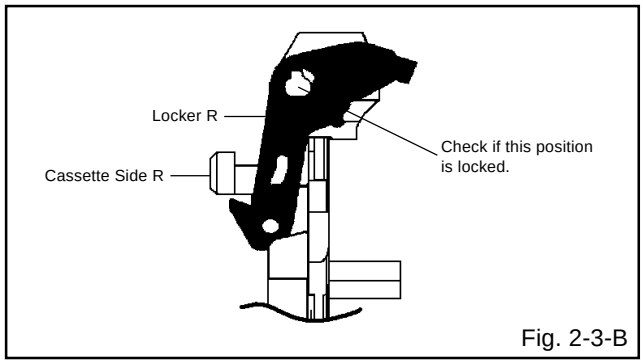


Fig. 2-3-B

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.

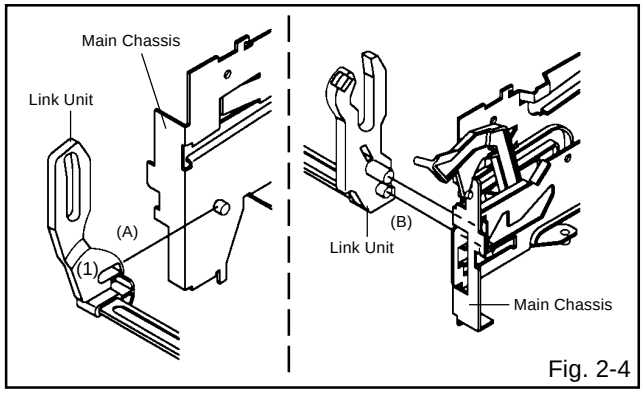


Fig. 2-4

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.

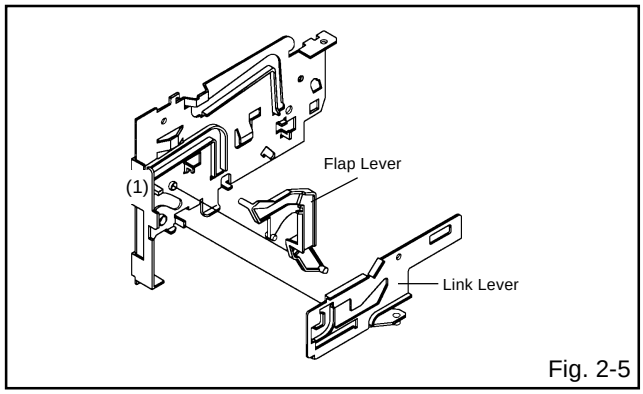


Fig. 2-5

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.

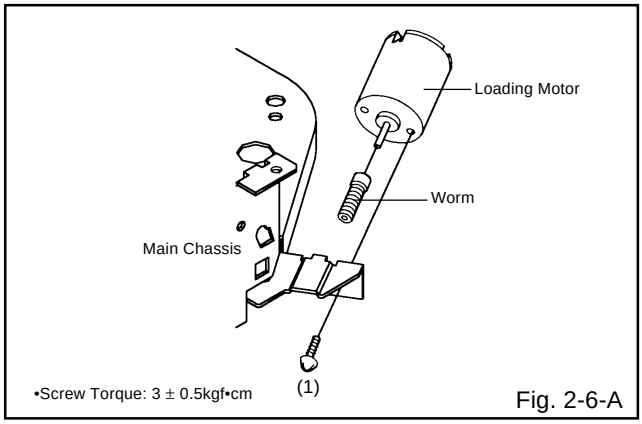


Fig. 2-6-A

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.

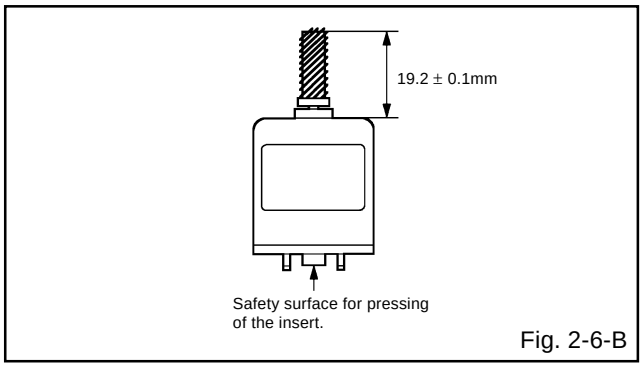


Fig. 2-6-B

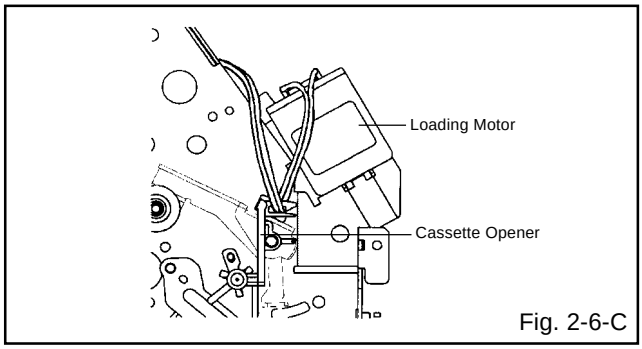


Fig. 2-6-C

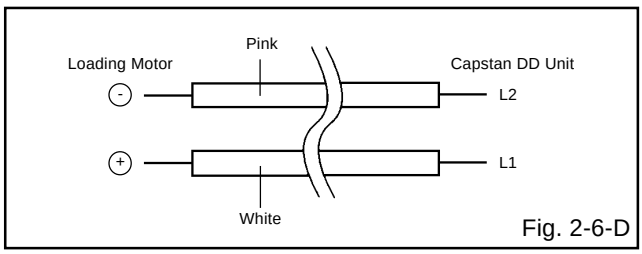


Fig. 2-6-D

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.

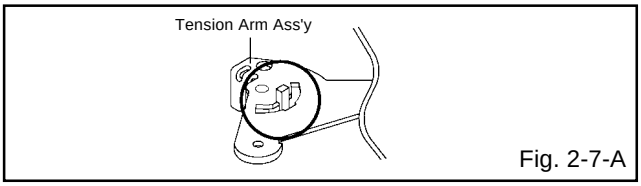


Fig. 2-7-A

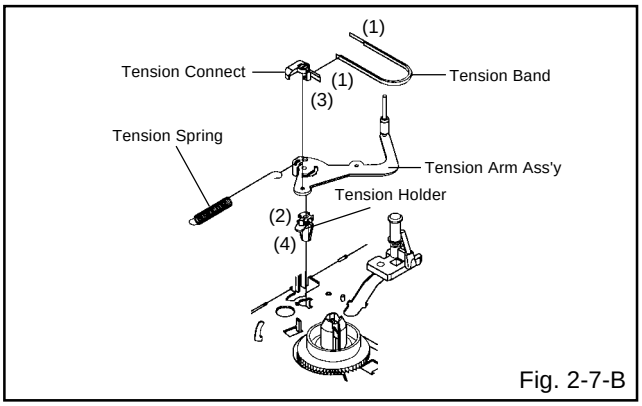


Fig. 2-7-B

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.

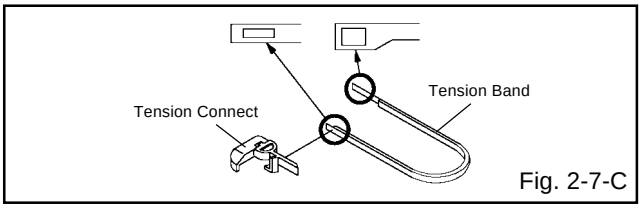


Fig. 2-7-C

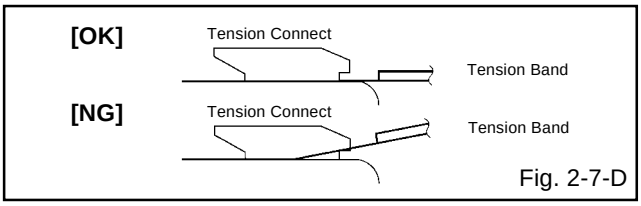


Fig. 2-7-D

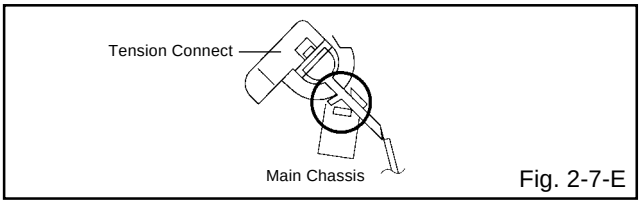


Fig. 2-7-E

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.

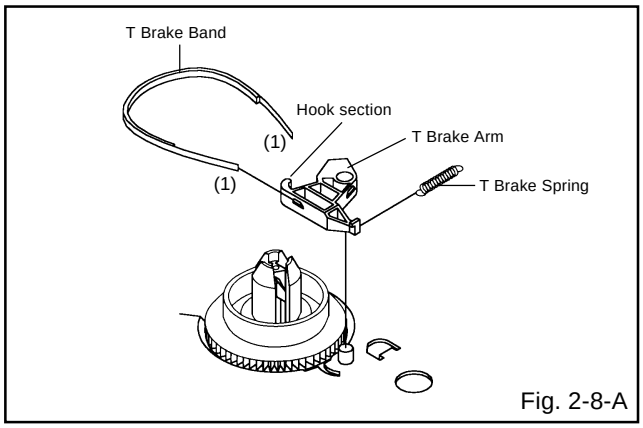


Fig. 2-8-A

NOTE

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

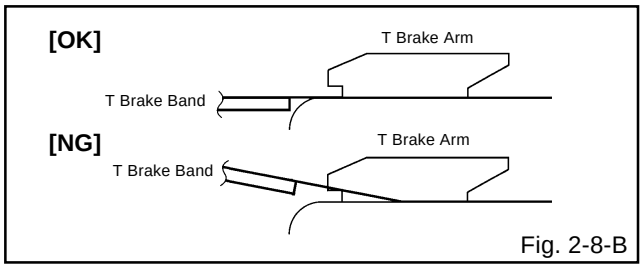


Fig. 2-8-B

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)**

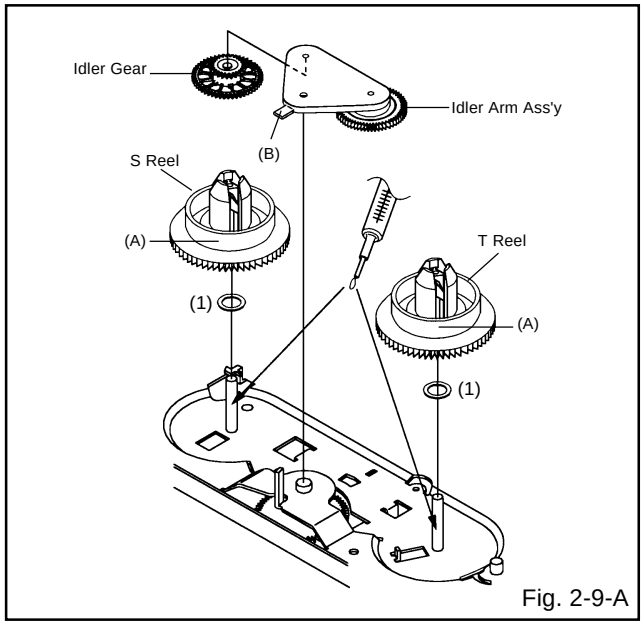


Fig. 2-9-A

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.

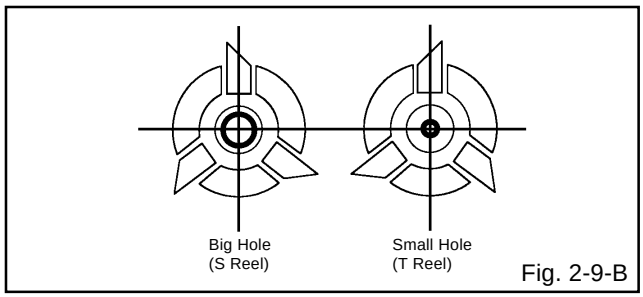


Fig. 2-9-B

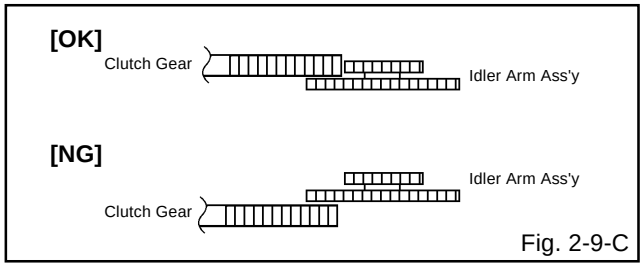


Fig. 2-9-C

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.

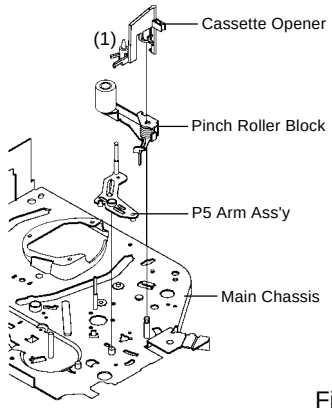


Fig. 2-10-A

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.

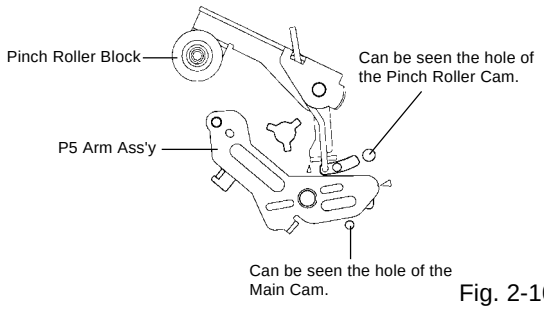


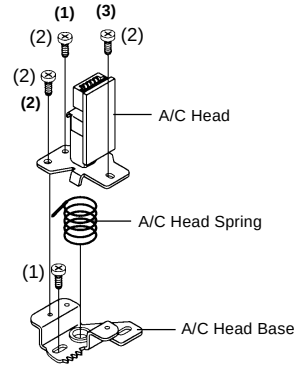
Fig. 2-10-B

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

Fig. 2-11-A

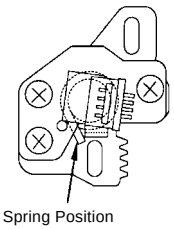
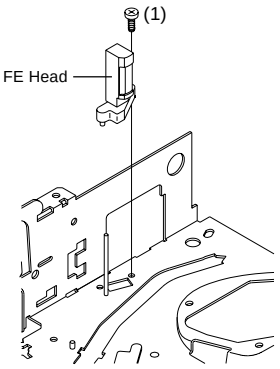


Fig. 2-11-B

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

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



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

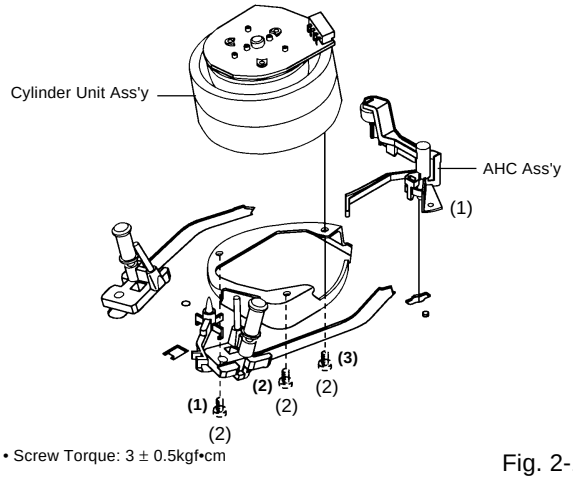
Fig. 2-12

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

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

NOTE

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



• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

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

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

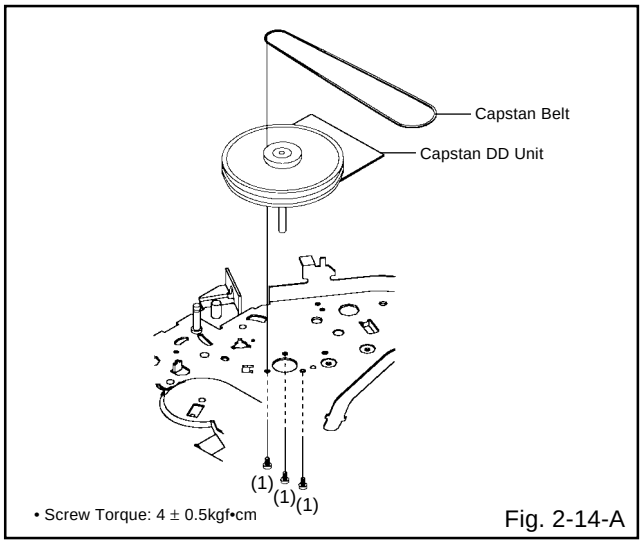


Fig. 2-14-A

NOTE

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

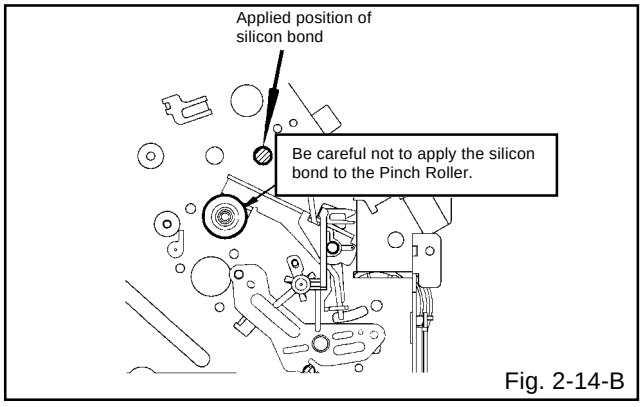


Fig. 2-14-B

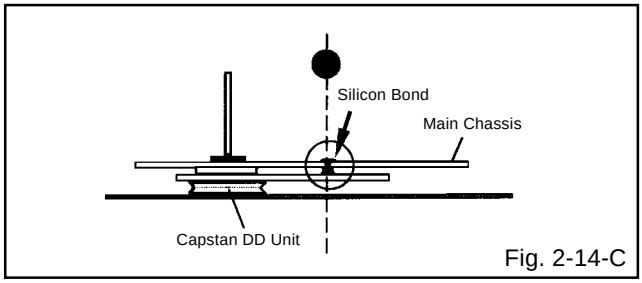


Fig. 2-14-C

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

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

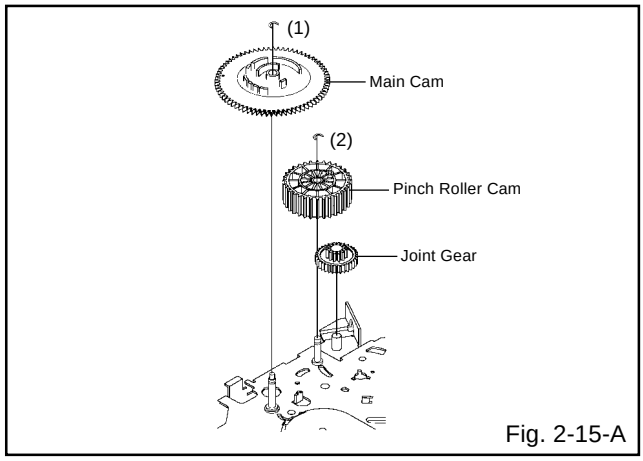


Fig. 2-15-A

NOTE

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

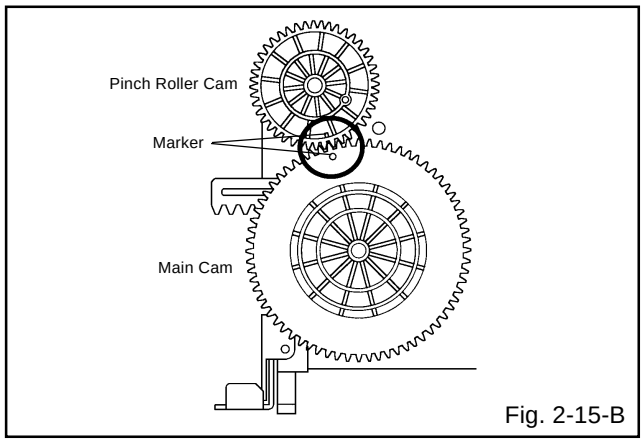


Fig. 2-15-B

2-16: LOADING GEAR S/T 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.

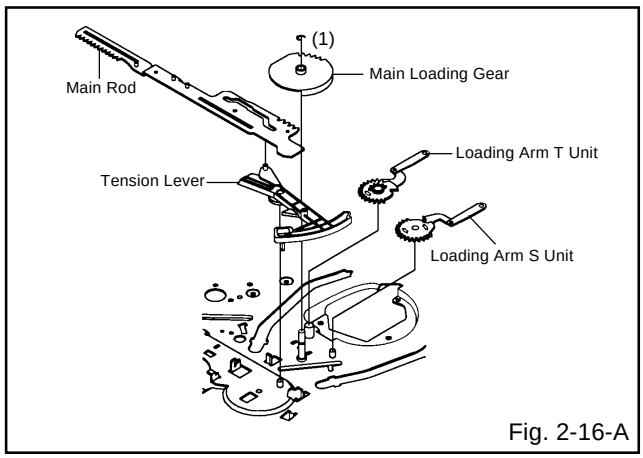


Fig. 2-16-A

DISASSEMBLY INSTRUCTIONS

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)**

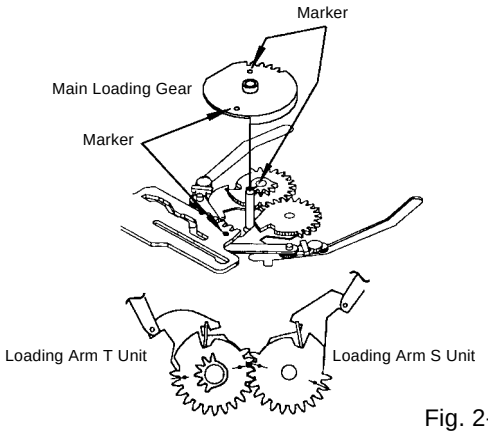


Fig. 2-16-B

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.

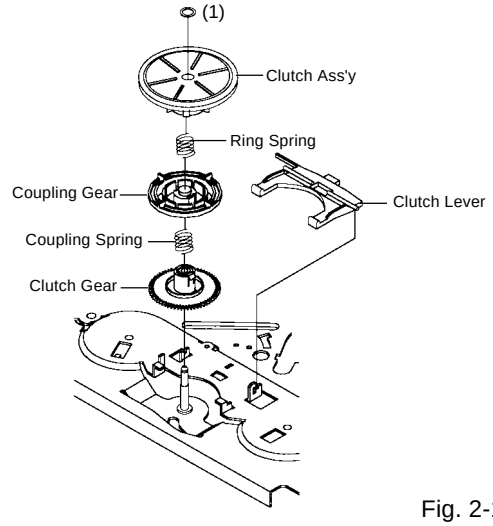


Fig. 2-17-A

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)**

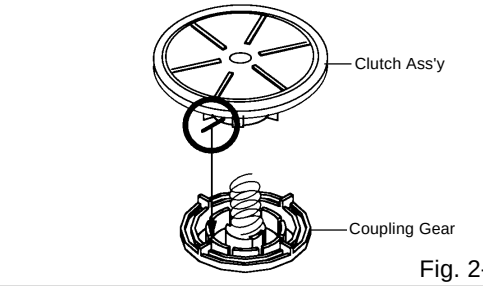


Fig. 2-17-B

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.

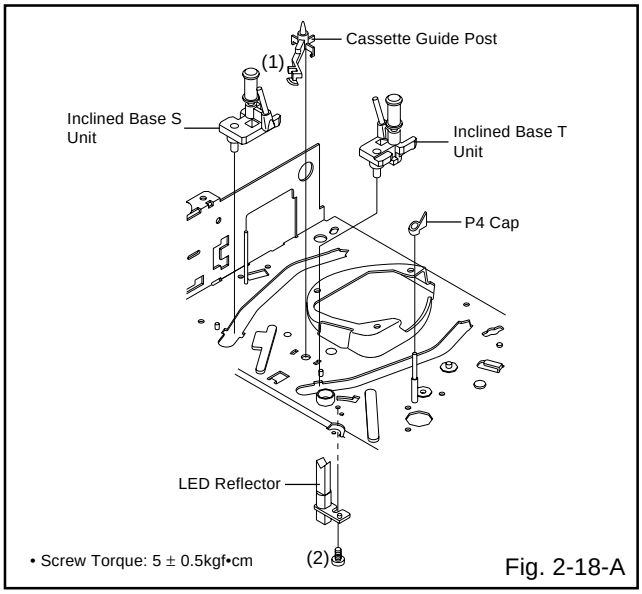


Fig. 2-18-A

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.

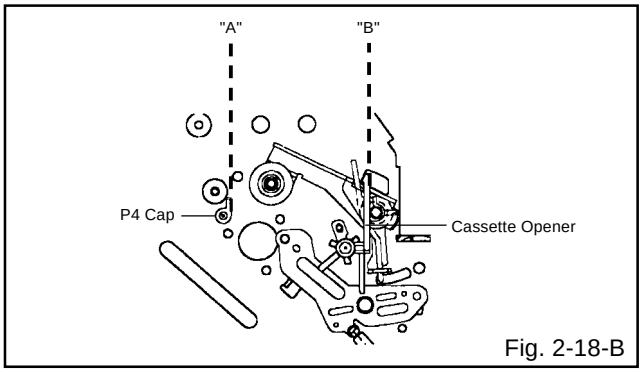


Fig. 2-18-B

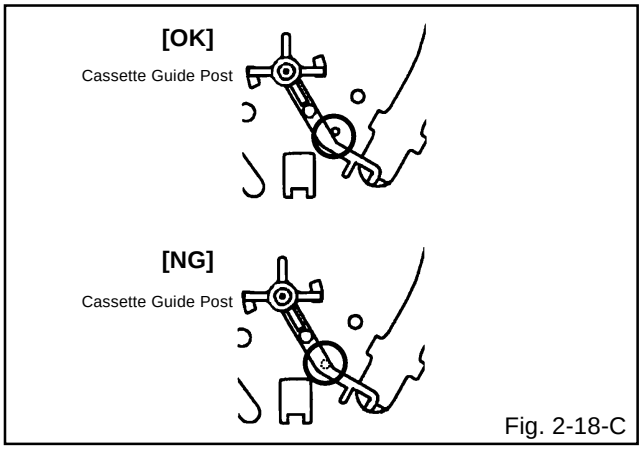


Fig. 2-18-C

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 support (1) and remove the Tray.

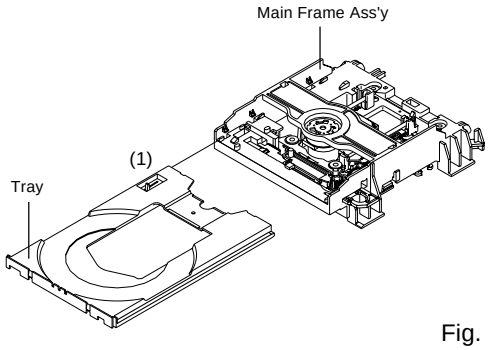


Fig. 3-1-A

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.

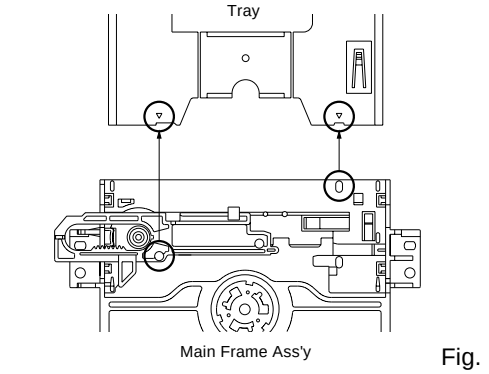


Fig. 3-1-B

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

1. Remove the Main Chassis Ass'y from the Insulator (R).
2. Unlock the support (1).
3. Remove the Main Chassis Ass'y.

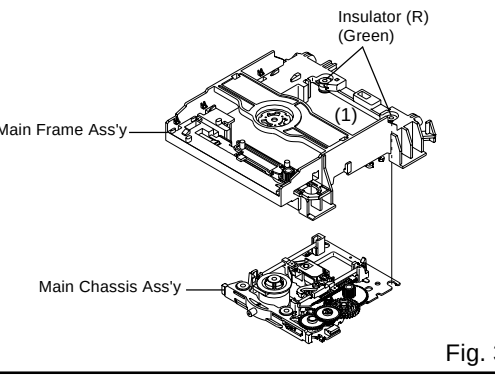


Fig. 3-2-A

NOTE

1. In case of the Main Chassis Ass'y, install it from (1) to (6) in order. **(Refer to Fig. 3-2-B)**

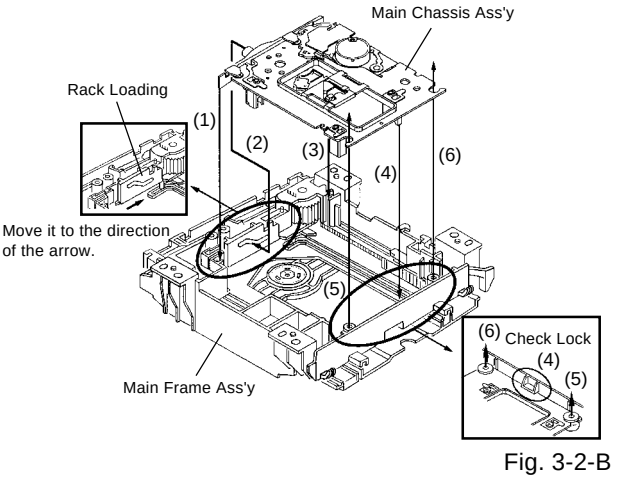


Fig. 3-2-B

3-3: RACK LOADING/MAIN GEAR/ RACK LOADING SPRING (Refer to Fig. 3-3)

1. Remove the Rack L Spring.
2. Press down the catcher (1) and slide the Rack Loading.
3. Remove the Rack Loading, Rack Loading Spring and Main Gear.

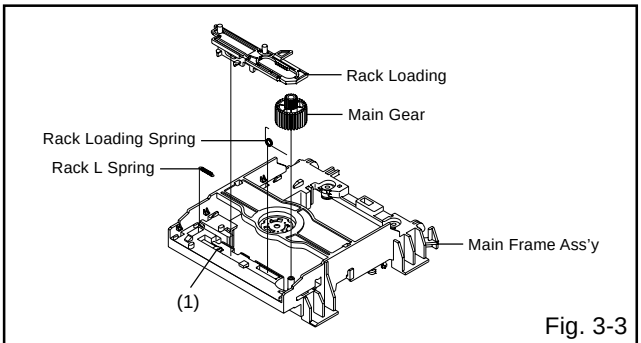


Fig. 3-3

3-4: CLAMPER ASS'Y/INSUL ATOR(R)/LEVER SWITCH (Refer to Fig. 3-4-A)

1. Remove the screw (1).
2. Remove the Lever Switch.
3. Remove the 2 Insulator (R).
4. Press the Clamper and rotate the Clamper Plate clockwise, then unlock the 3 supports (2).
5. Remove the Clamper Plate, Clamper Magnet and Clamper.

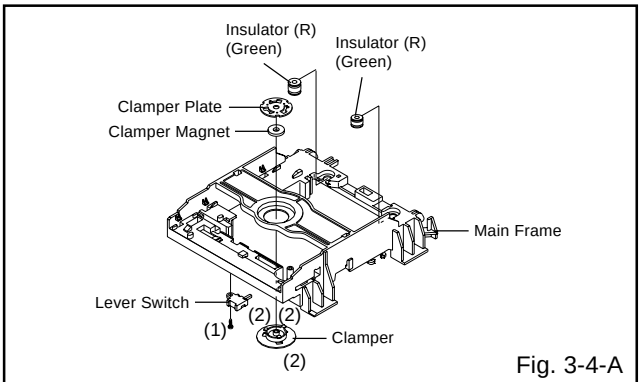


Fig. 3-4-A

DISASSEMBLY INSTRUCTIONS

NOTE

1. When installing the Clamper Magnet, install it with the green face up.
2. When installing the wire of the Lever Switch, install it correctly as Fig. 3-4-B.
3. When installing the Lever Switch, install it correctly as Fig. 3-4-C.
4. In case of the Lever Switch installation, hook the wire on the Main Frame as shown Fig. 3-4-D.

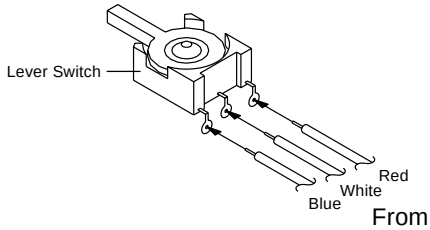


Fig. 3-4-B

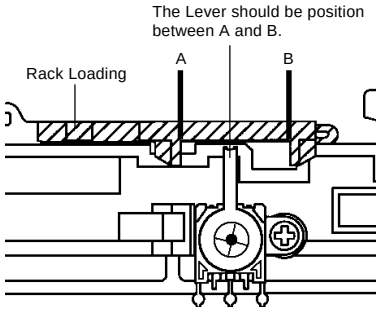


Fig. 3-4-C

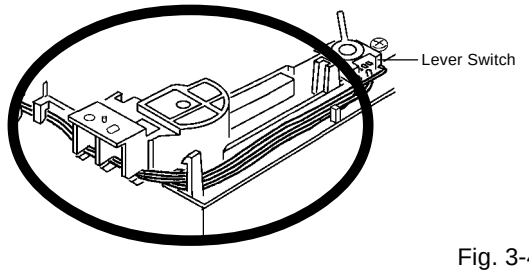


Fig. 3-4-D

3-5: TRAVERSE HOLDER/INSULATOR (F) (Refer to Fig. 3-5-A)

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

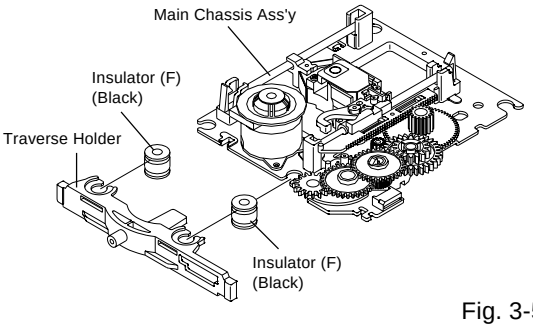


Fig. 3-5-A

NOTE

1. After the installing of the Traverse Holder, check if the wire is like Fig. 3-5-B.

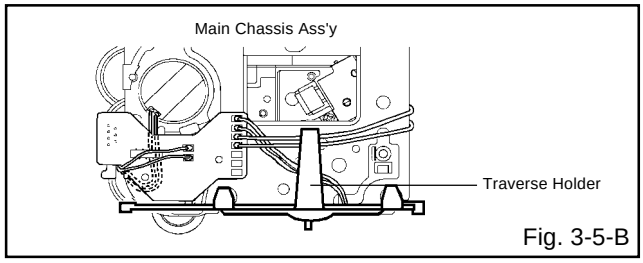


Fig. 3-5-B

3-6: SWITCH PCB ASS'Y (Refer to Fig. 3-6-A)

1. Remove the screw (1).
2. Remove the Switch PCB Ass'y.

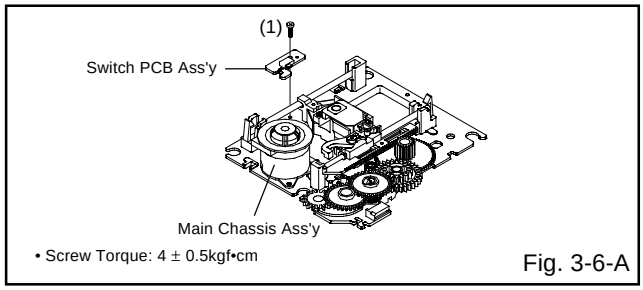


Fig. 3-6-A

NOTE

1. When installing the wire of the Switch PCB, install it correctly as Fig. 3-6-B.

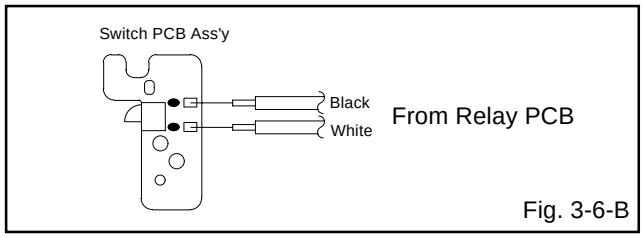


Fig. 3-6-B

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

1. Remove the screw (1).
2. Remove the Rack Feed 1A Spring, Rack Feed 1/2 and Rack Feed Lever.

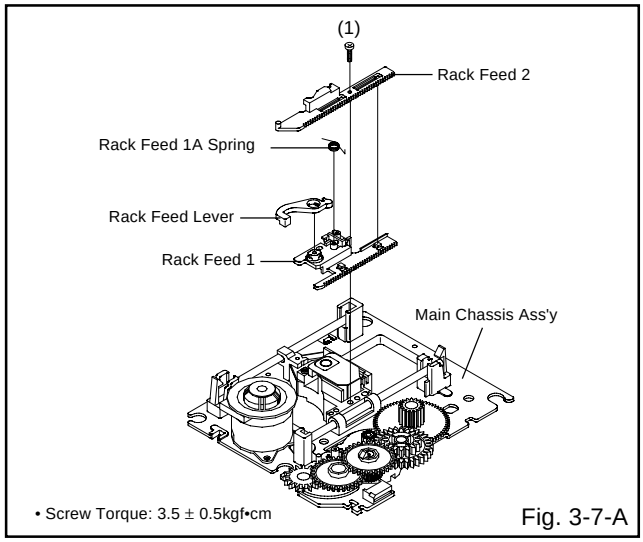


Fig. 3-7-A

DISASSEMBLY INSTRUCTIONS

NOTE

1. After the assembly of the Rack Feed, check if the Rack Feed 1/2 is moving smoothly. **(Refer to Fig. 3-7-B)**
2. In case of the Rack Feed Ass'y installation, install correctly as Fig. 3-7-C.

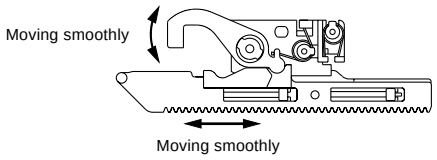


Fig. 3-7-B

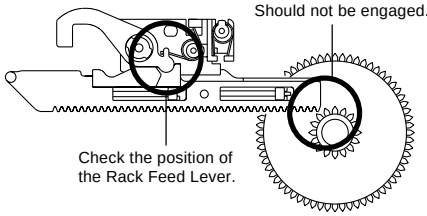


Fig. 3-7-C

3-8: RELAY PCB ASS'Y (Refer to Fig. 3-8-A)

1. Remove the screw (1).
2. Remove the Relay PCB Ass'y.

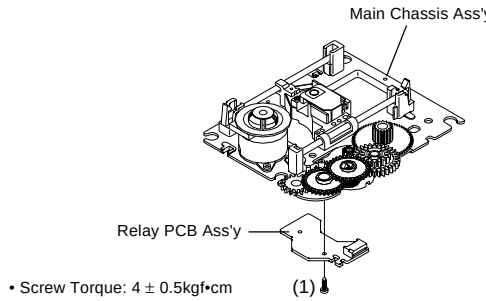


Fig. 3-8-A

NOTE

1. When installing the wire of the Relay PCB, install it correctly as Fig. 3-8-B.

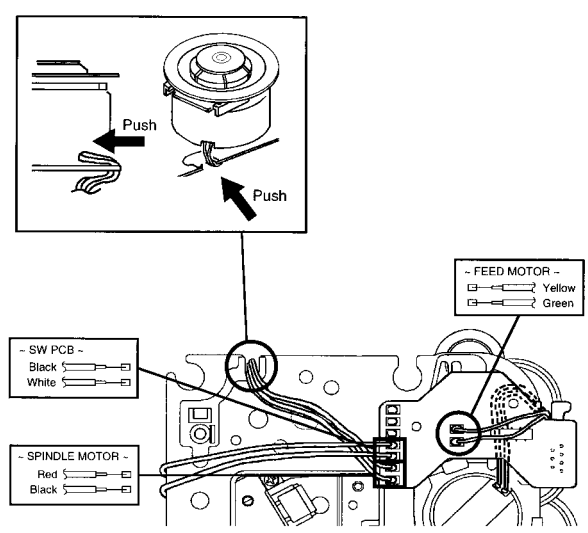


Fig. 3-8-B

3-9: GEAR (Refer to Fig. 3-9-A)

1. Unlock the support (1).
2. Remove the Middle Gear 1/2/3, Idler Gear and Feed Gear.

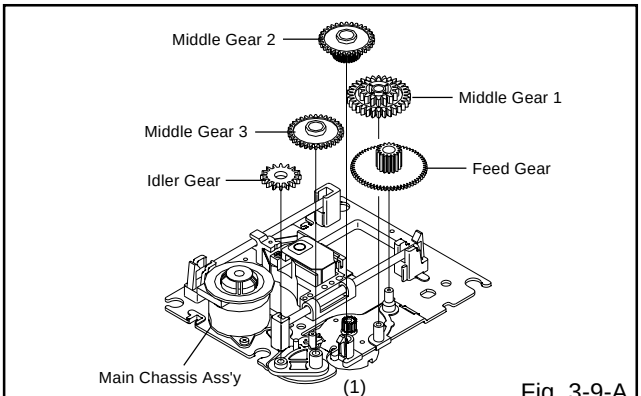


Fig. 3-9-A

NOTE

1. In case of the Idler Gear installation, install correctly as Fig. 3-9-B.
2. When installing the Middle Gear 2, check if the Middle Gear 2 is locked correctly as Fig. 3-9-C.

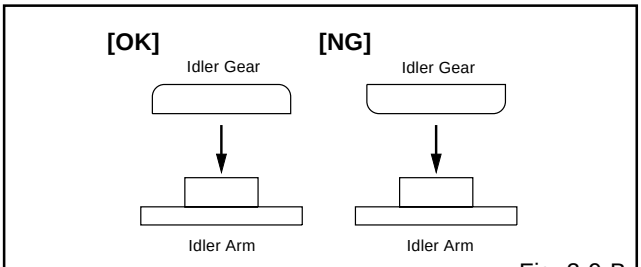


Fig. 3-9-B

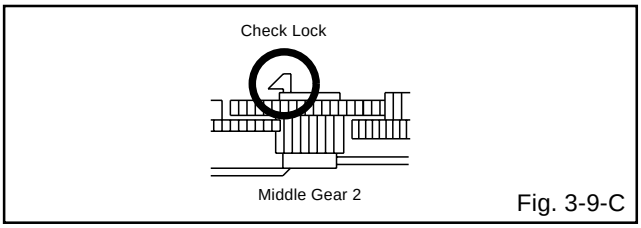


Fig. 3-9-C

3-10: IDLER ARM 2 (Refer to Fig. 3-10-A)

1. Remove the Idler Arm 2.

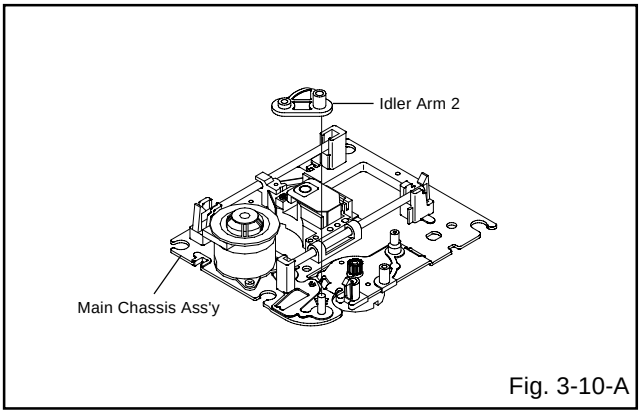
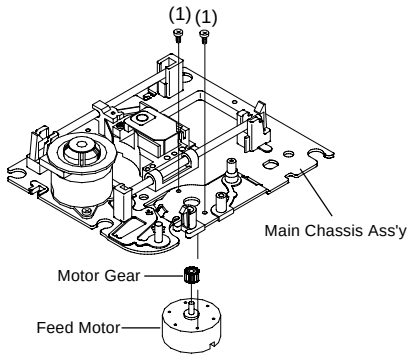


Fig. 3-10-A

DISASSEMBLY INSTRUCTIONS

3-11: FEED MOTOR (Refer to Fig. 3-11-A)

1. Remove the 2 screws (1).
2. Remove the Feed Motor.
3. Remove the Motor Gear.



• Screw Torque: 1 ± 0.5kgf•cm

Fig. 3-11-A

NOTE

1. In case of the Motor Gear installation, check if the value of the Fig. 3-11-B is correct.
2. When installing the Feed Motor, check if the cable is positioned as Fig. 3-11-C.

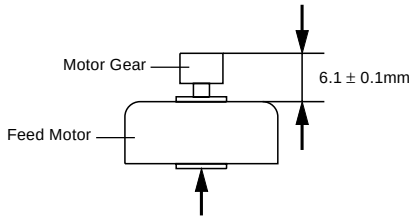


Fig. 3-11-B

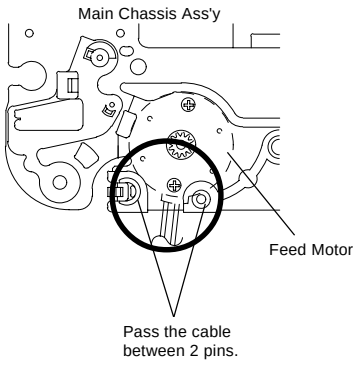


Fig. 3-11-C

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.

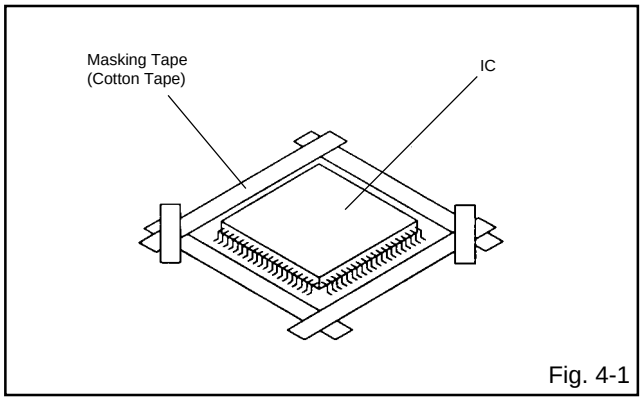


Fig. 4-1

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.

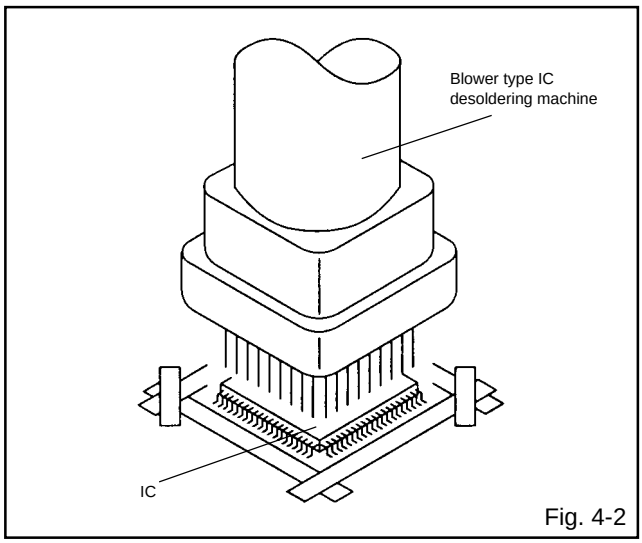


Fig. 4-2

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.

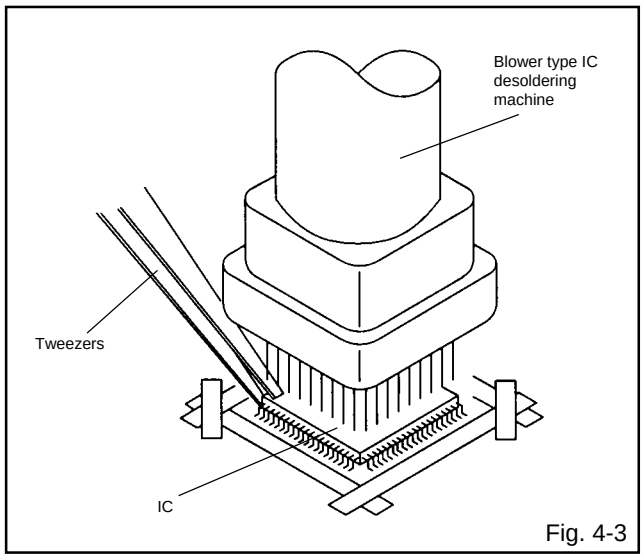


Fig. 4-3

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.

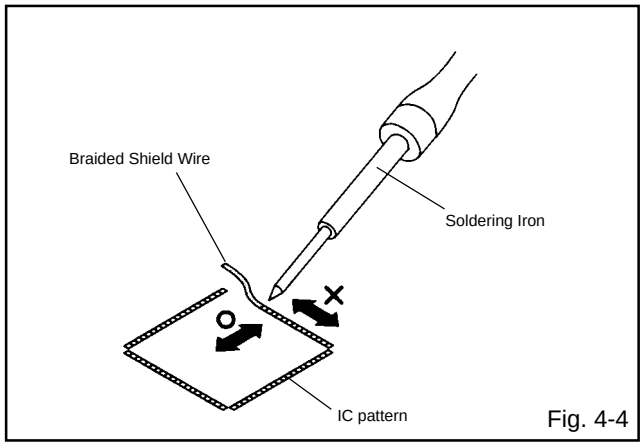


Fig. 4-4

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.)**

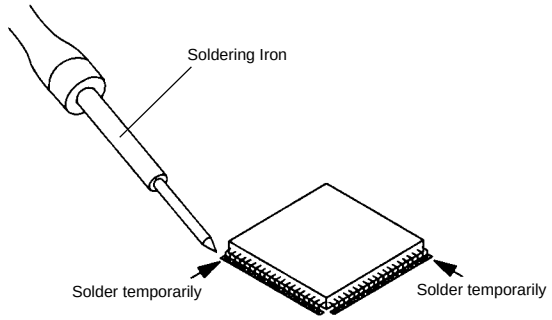


Fig. 4-5

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.)**

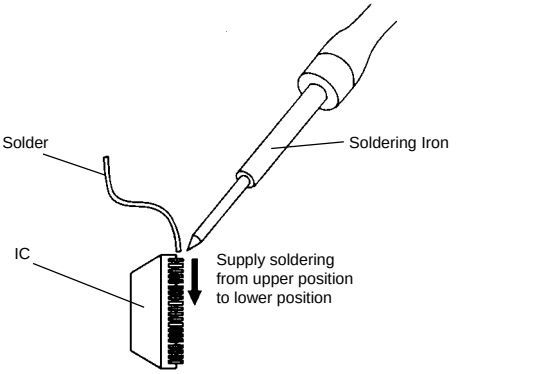


Fig. 4-6

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.

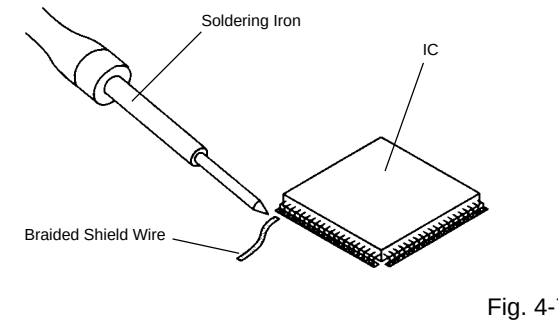


Fig. 4-7

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.)**

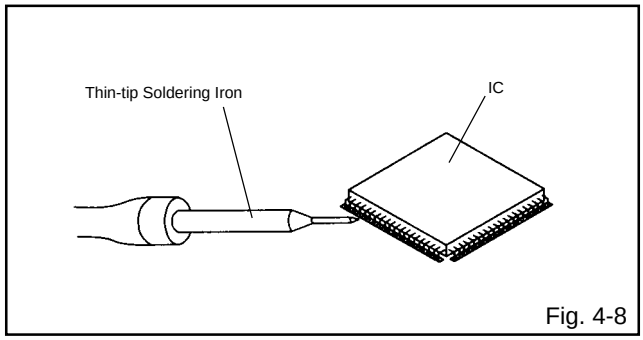


Fig. 4-8

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 (second).

Set Key	Set Key	Standard Time (seconds)	Operations
CH UP	FF	2	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”.
CH UP	STOP	2	Adjust the PG SHIFTER automatically. Refer to the “ELECTRICAL ADJUSTMENT” (PG SHIFTER).
CH UP	PLAY	2	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.
CH DOWN	POWER	2	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 Key	Remocon Key	Standard Time (seconds)	Operations
REC	4	2	Initialization of the factory on DVD. NOTE: Do not use this for the normal servicing. The function will only work without the setting of DVD disc at DVD mode. While pressing the Remocon Key for more than the Standard Time, press the Set Key simultaneously.
STOP	7	3	Releasing of PARENTAL LOCK. Refer to the “PARENTAL CONTROL - RATING LEVEL”. NOTE: The function will only work without the setting of DVD disc at DVD mode.

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

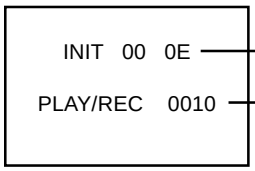
■ : Clean
● : Check it and if necessary, replace it.

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.
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

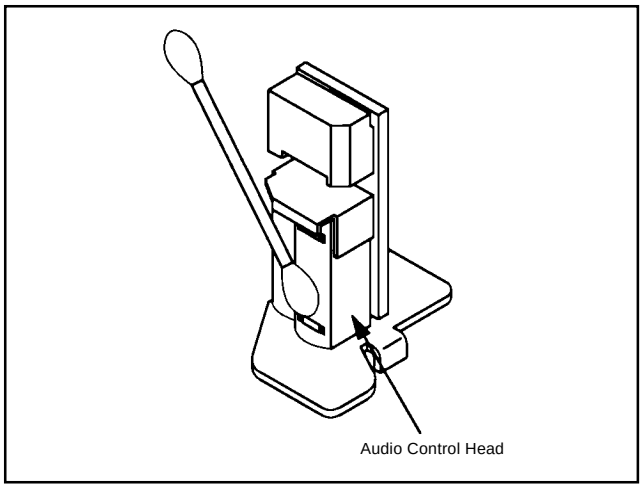
CLEANING

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

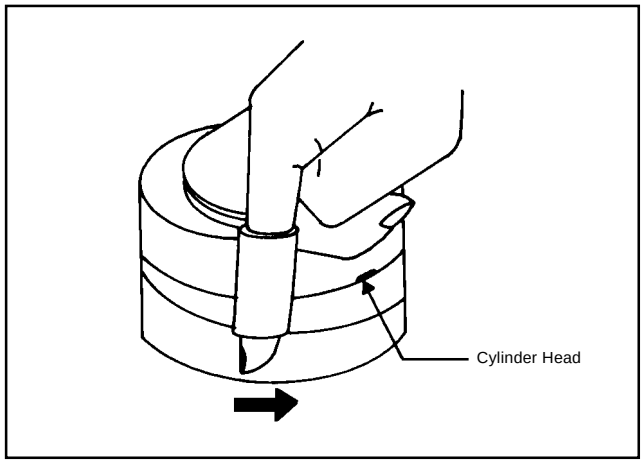
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

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	00	BC	60	64	64	4A	26	0B	2B	86	32	0A	08	0A	0F
10	AF	97	95	8A	A0	90	31	04	88	A5	9F	3A	00	10	BF	00
20	3A	11	22	70	61	2A	3A	00	0B	00	00	C5	A2	B0	00	---

Table 1

1. Connect the set to TV Monitor.
2. Turn on the POWER.
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** .

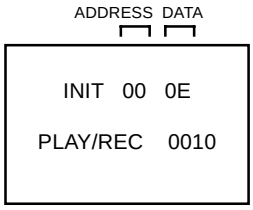


Fig. 1

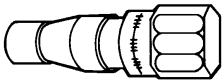
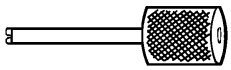
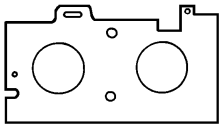
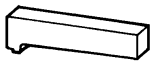
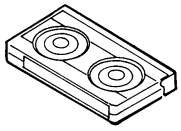
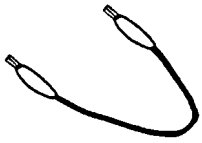
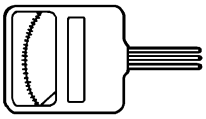
4. ADDRESS is now selected and should ìblinkî. Using the SET + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will ìblinkî.
6. Again, step through the DATA using SET + or - button until required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

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. While pressing the POWER button on the set for more than 2 seconds, press the CH DOWN 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 TAPE 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.

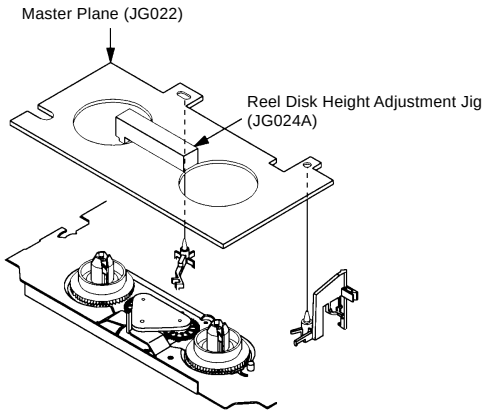


Fig. 1-1-A

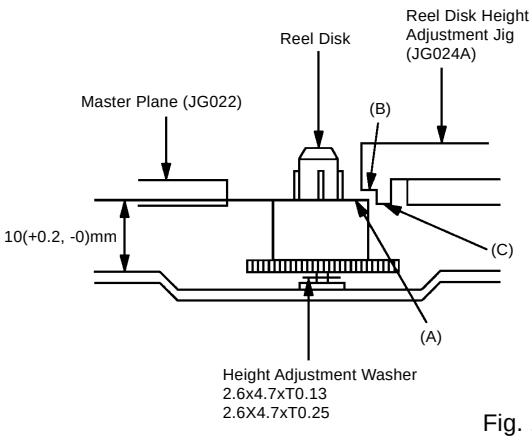


Fig. 1-1-B

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.

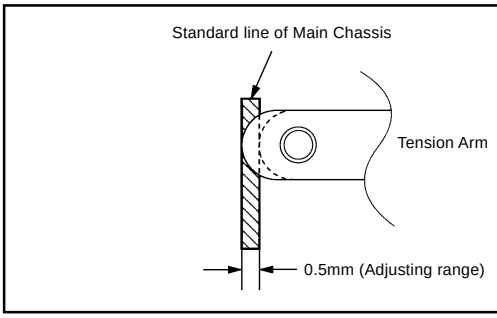


Fig. 1-2-A

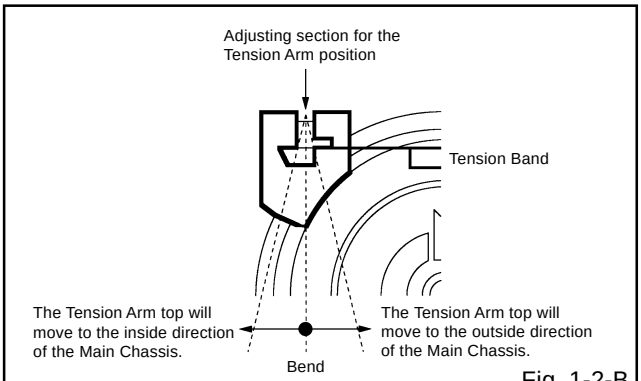


Fig. 1-2-B

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 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.

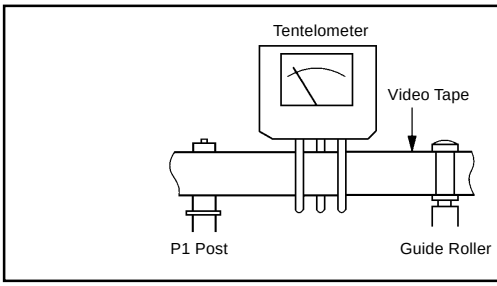


Fig. 1-3

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.

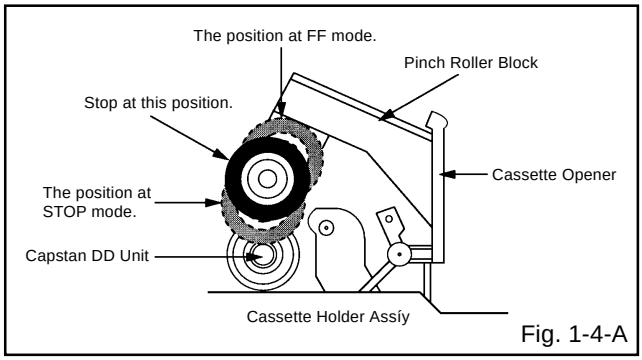


Fig. 1-4-A

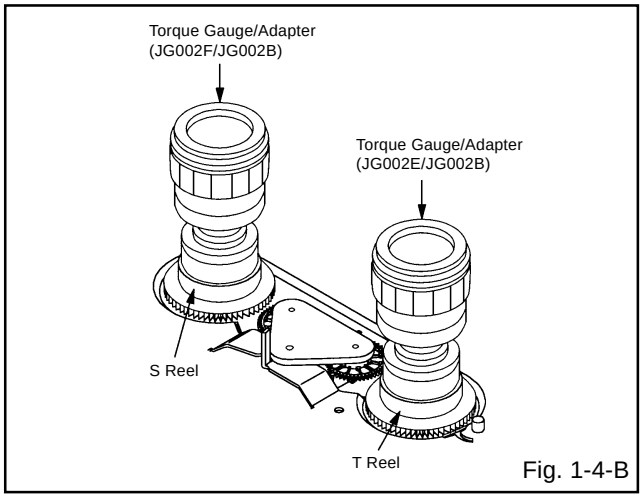


Fig. 1-4-B

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 Assíy 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)**

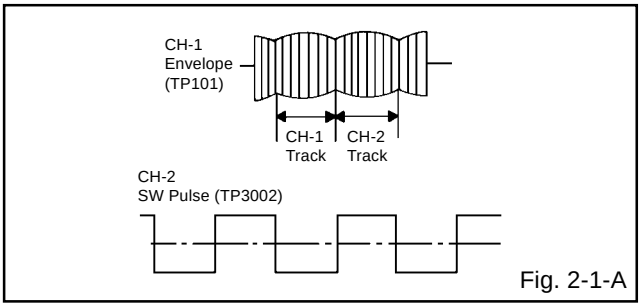


Fig. 2-1-A

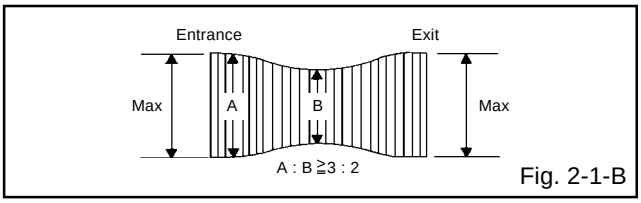


Fig. 2-1-B

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.

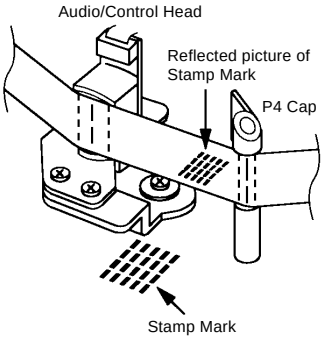


Fig. 2-2-A

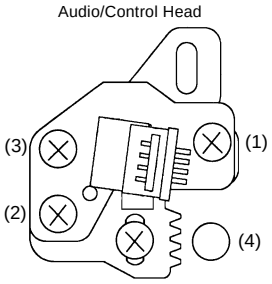


Fig. 2-2-B

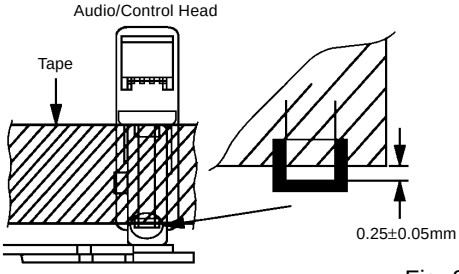


Fig. 2-2-C

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.**

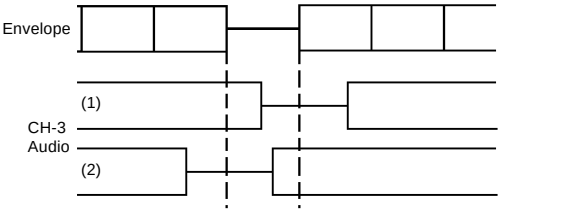


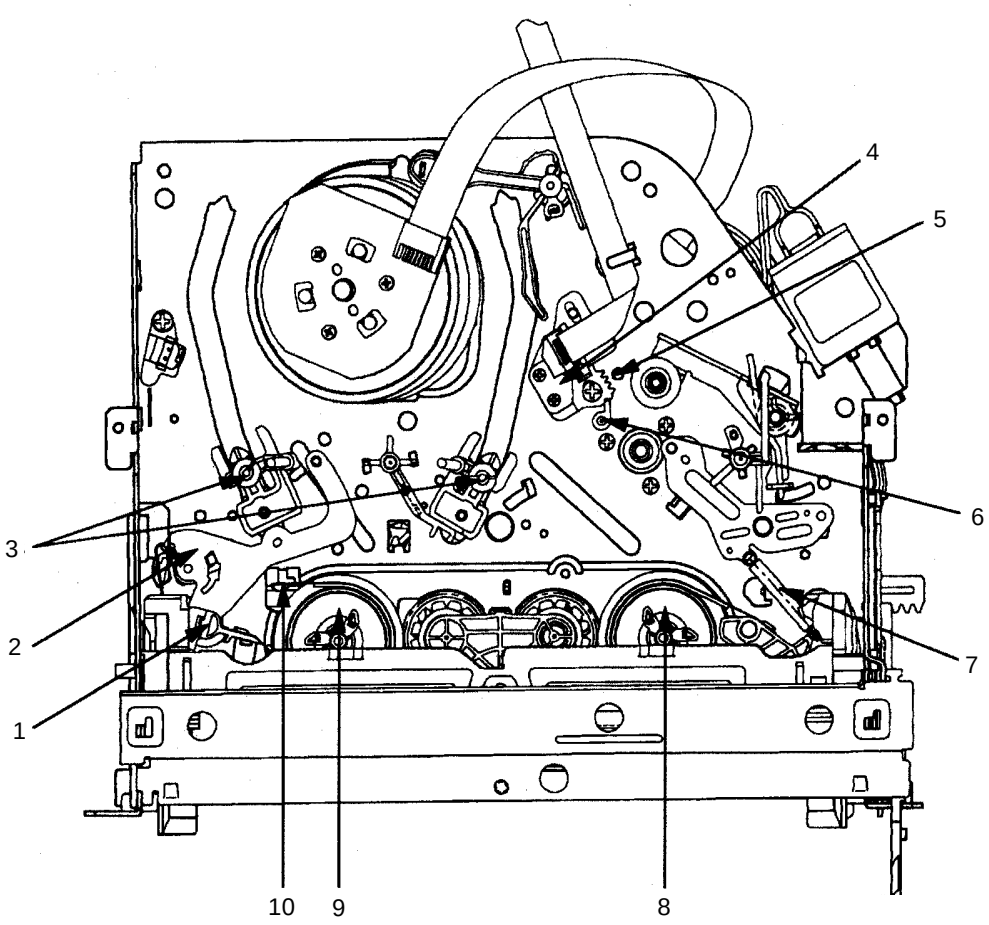
Fig. 2-3

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 **TP8001.**
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.

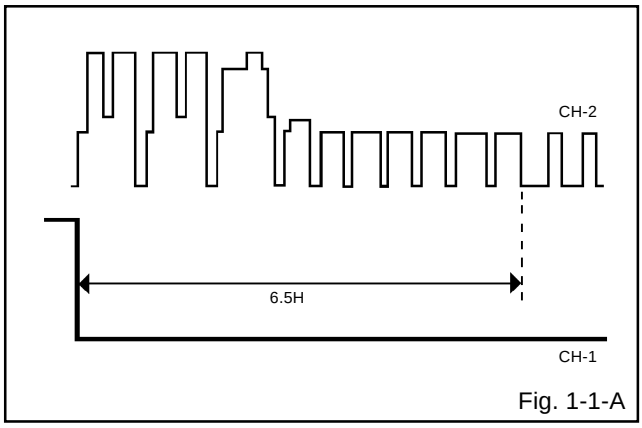


Fig. 1-1-A

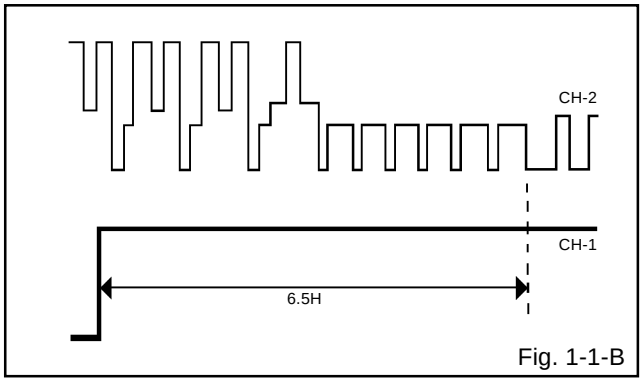
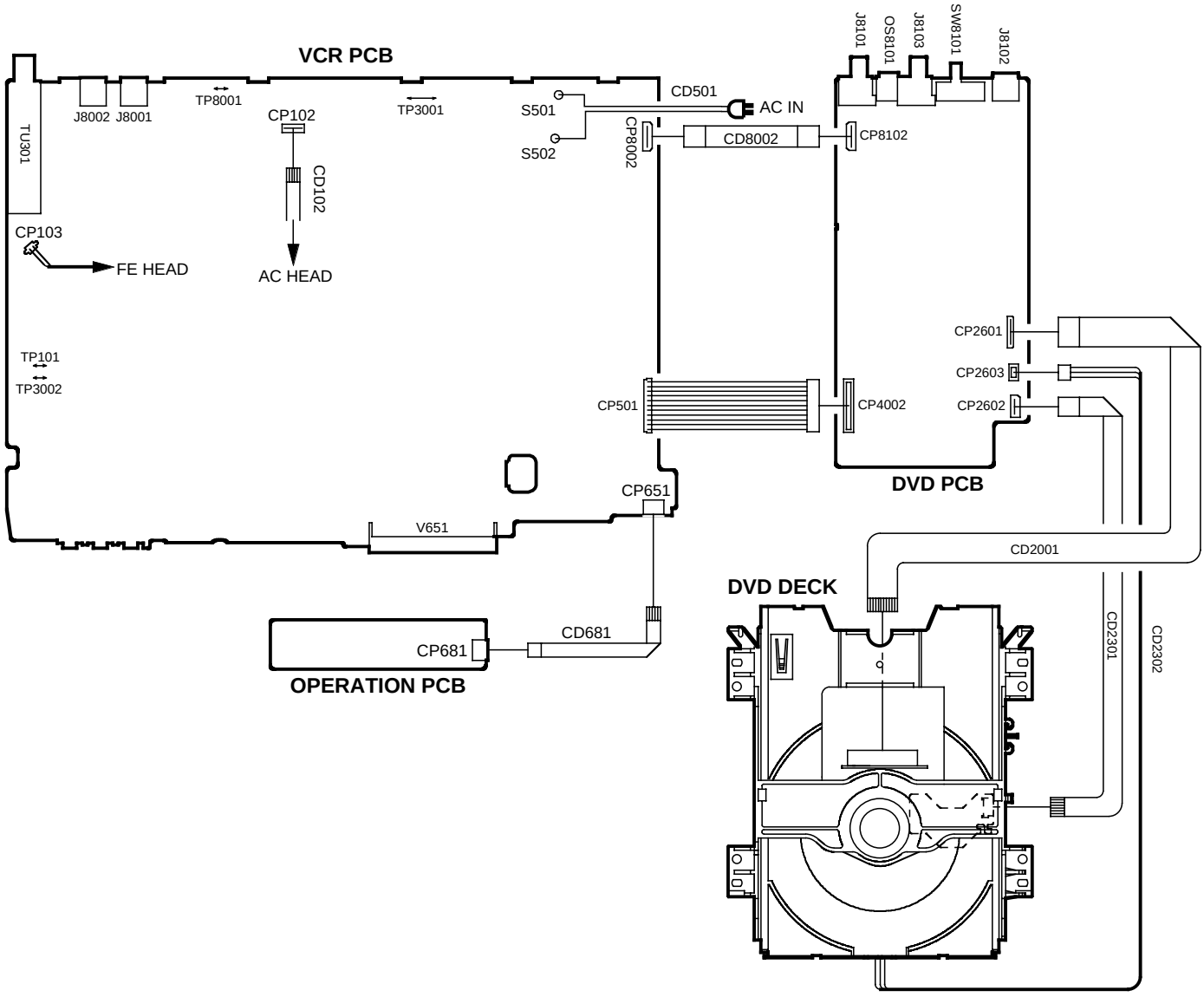


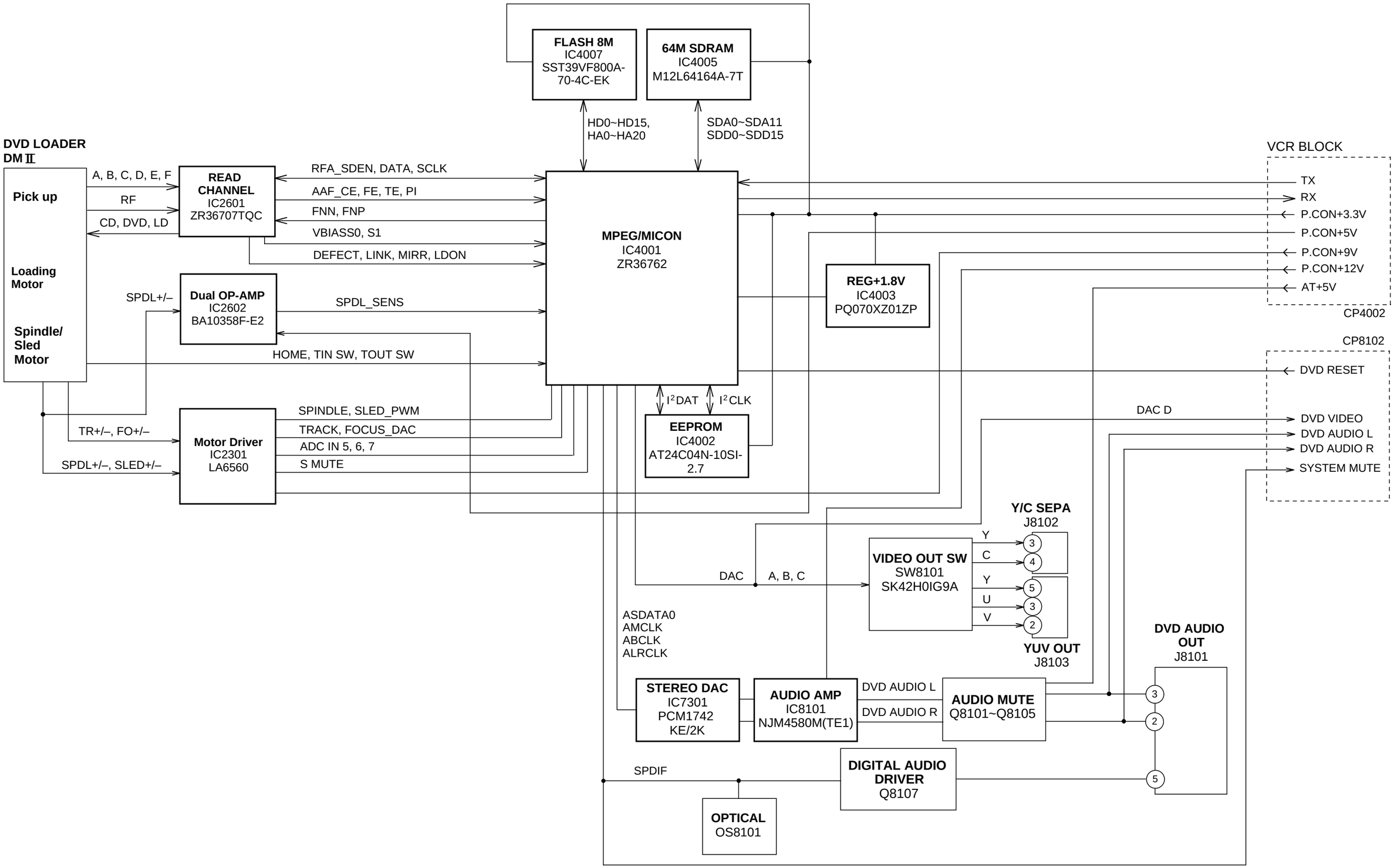
Fig. 1-1-B

ELECTRICAL ADJUSTMENTS

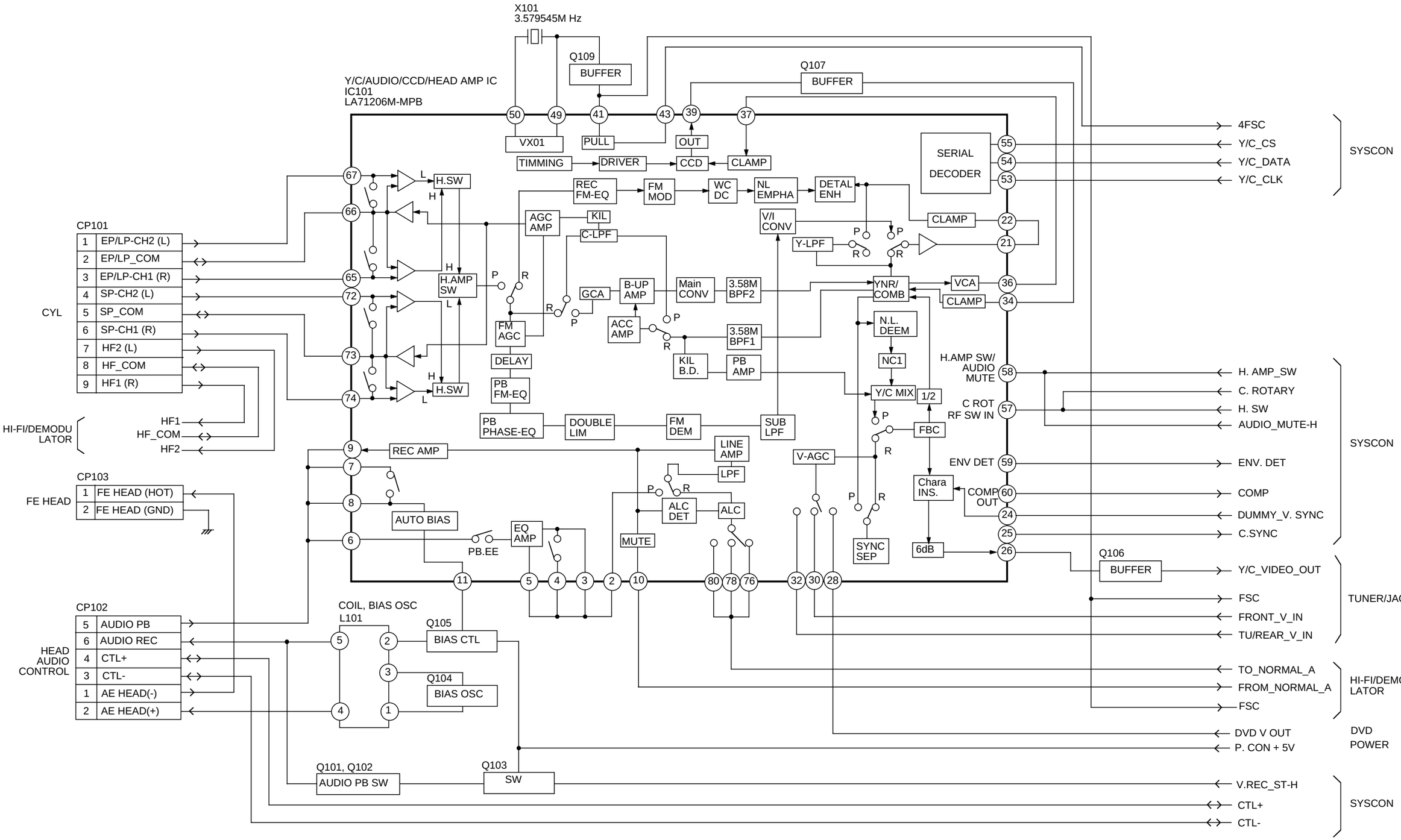
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



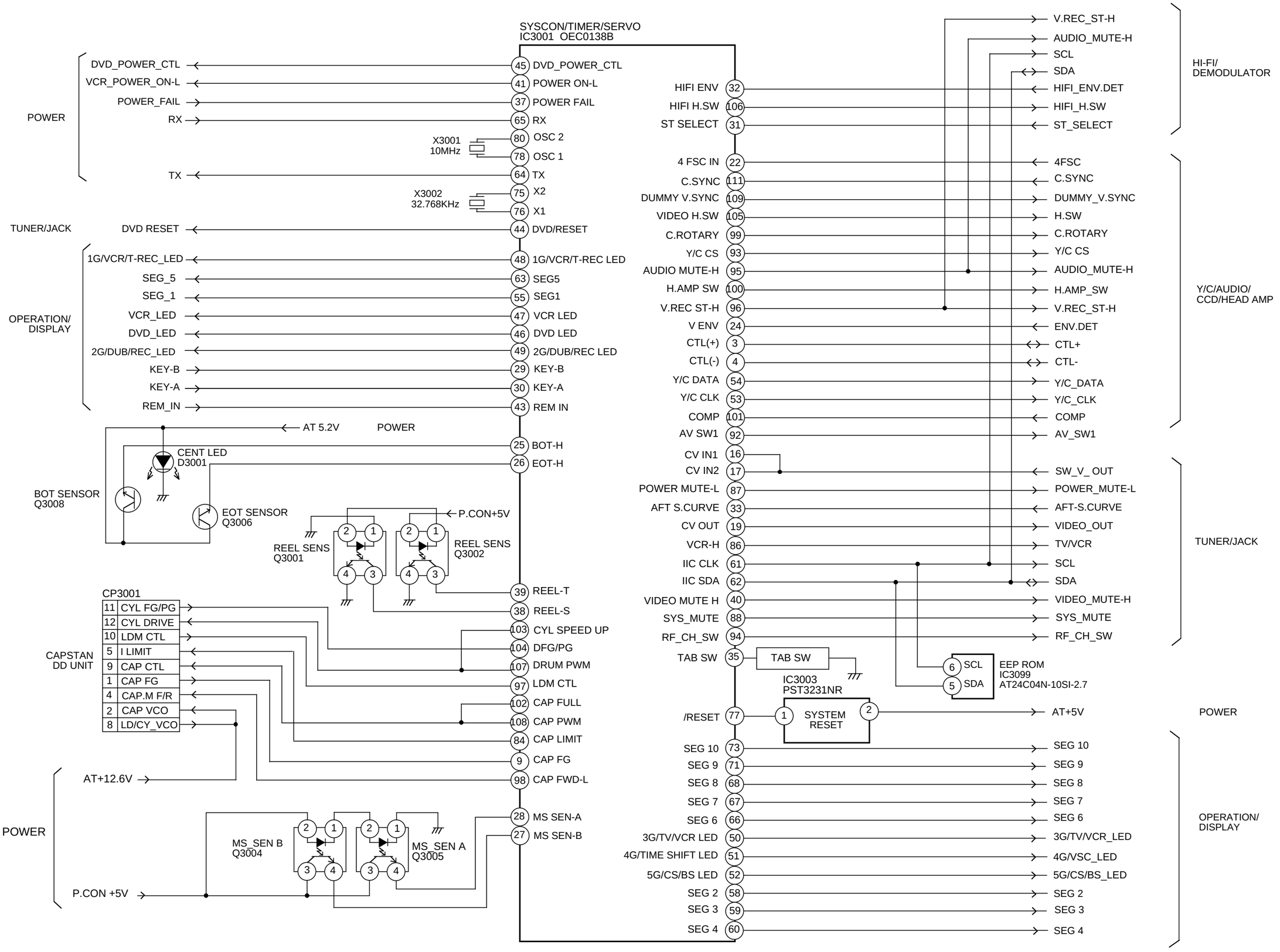
DVD BLOCK DIAGRAM



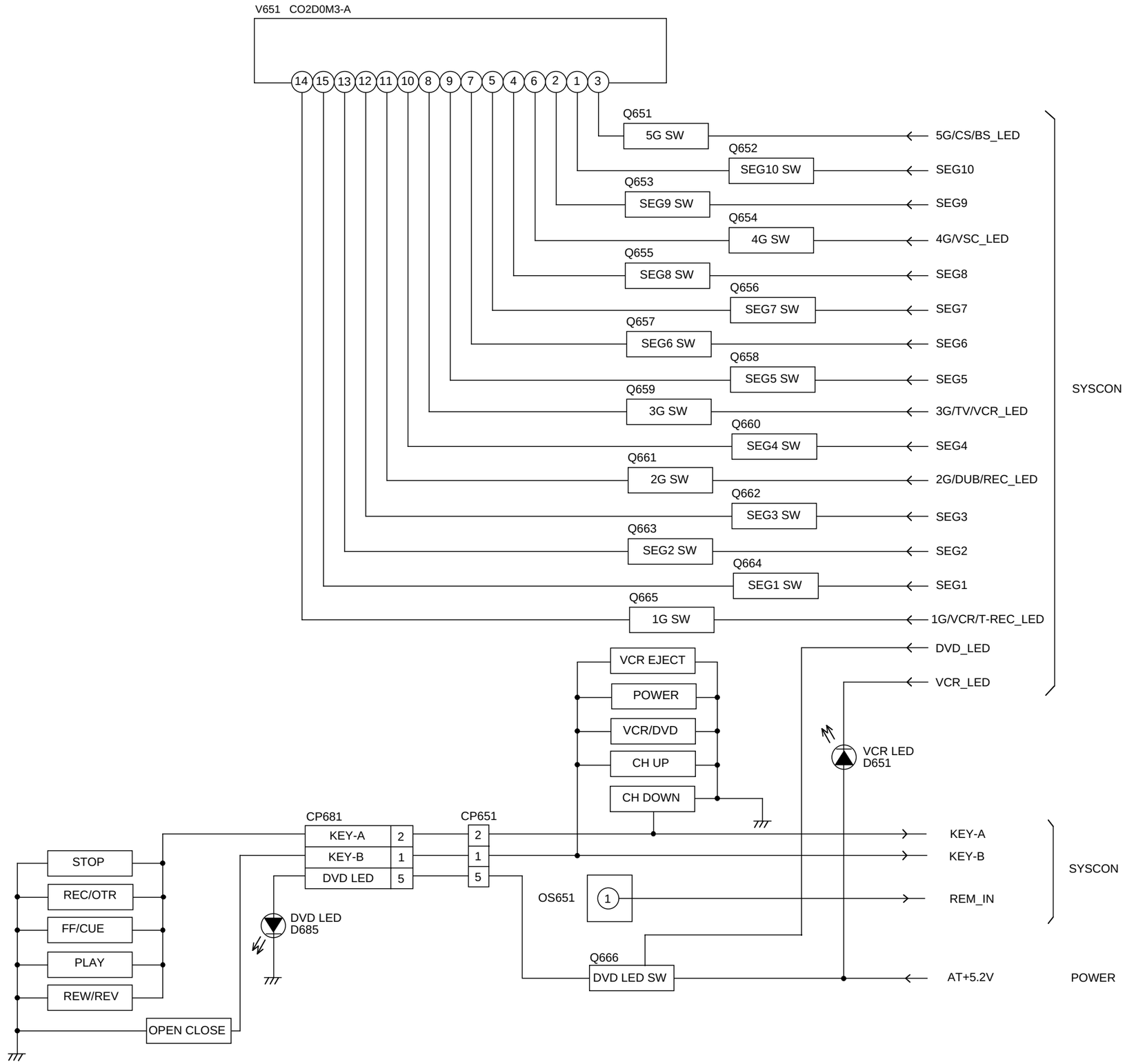
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



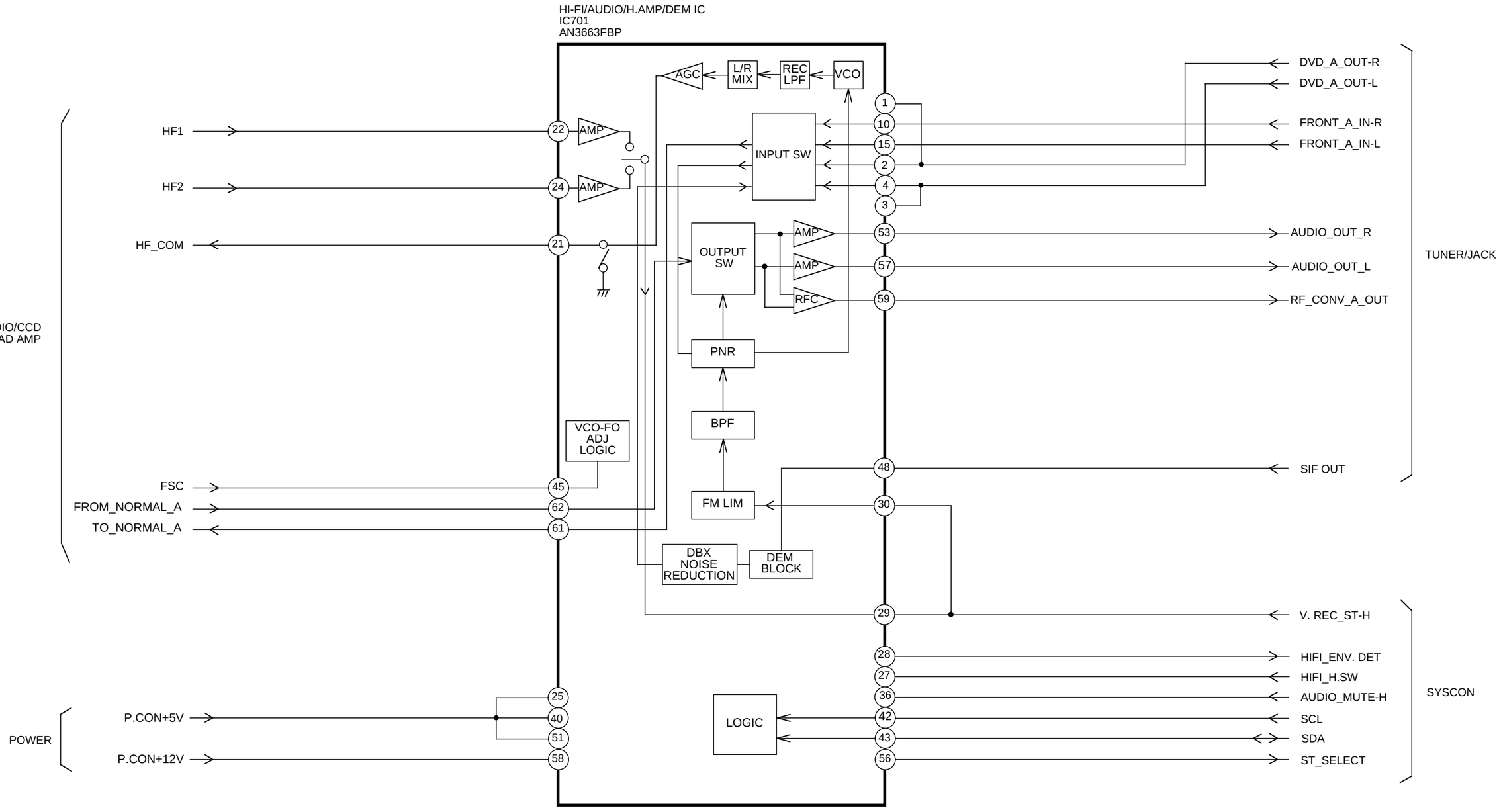
SYSCON BLOCK DIAGRAM



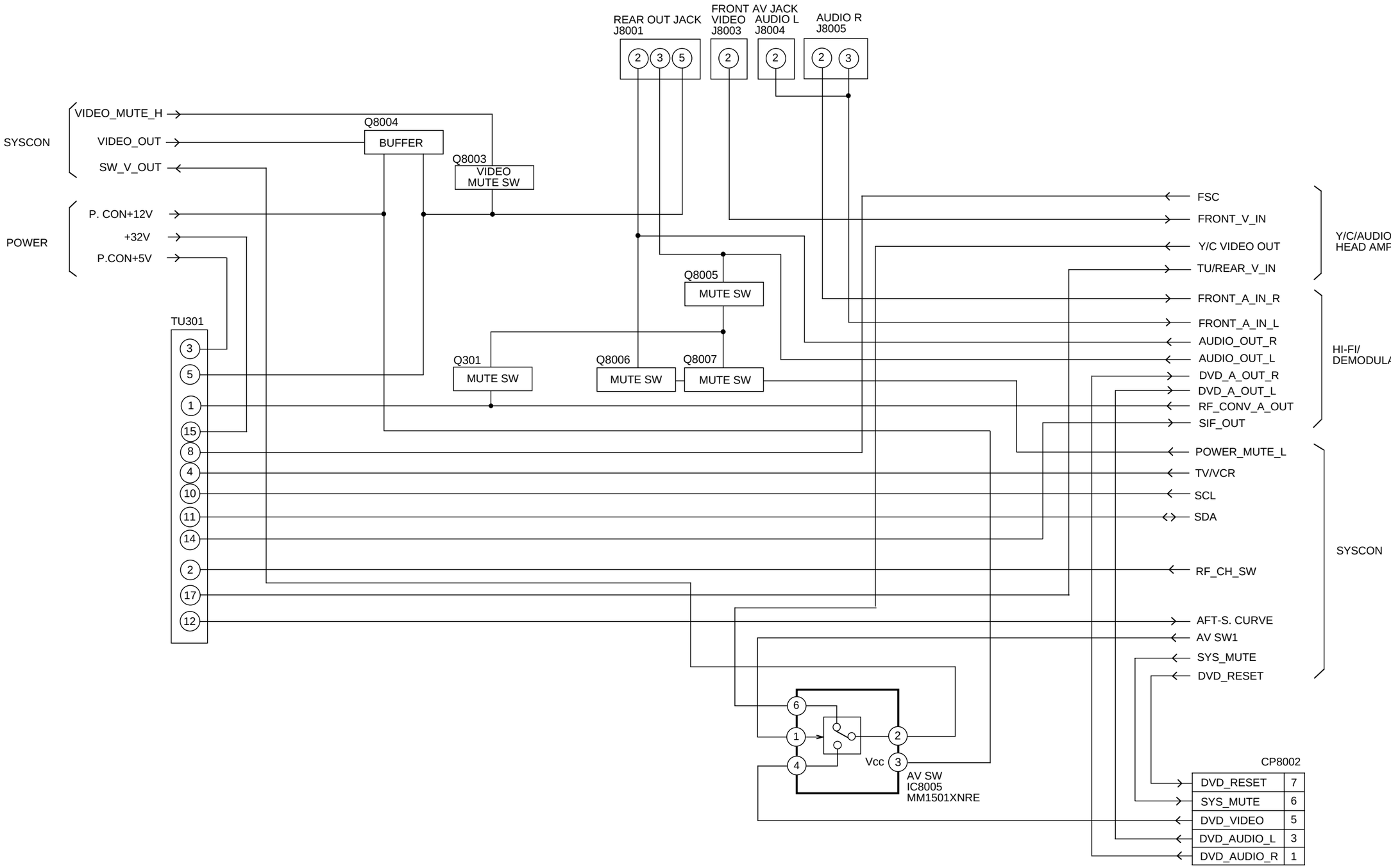
OPERATION/DISPLAY BLOCK DIAGRAM



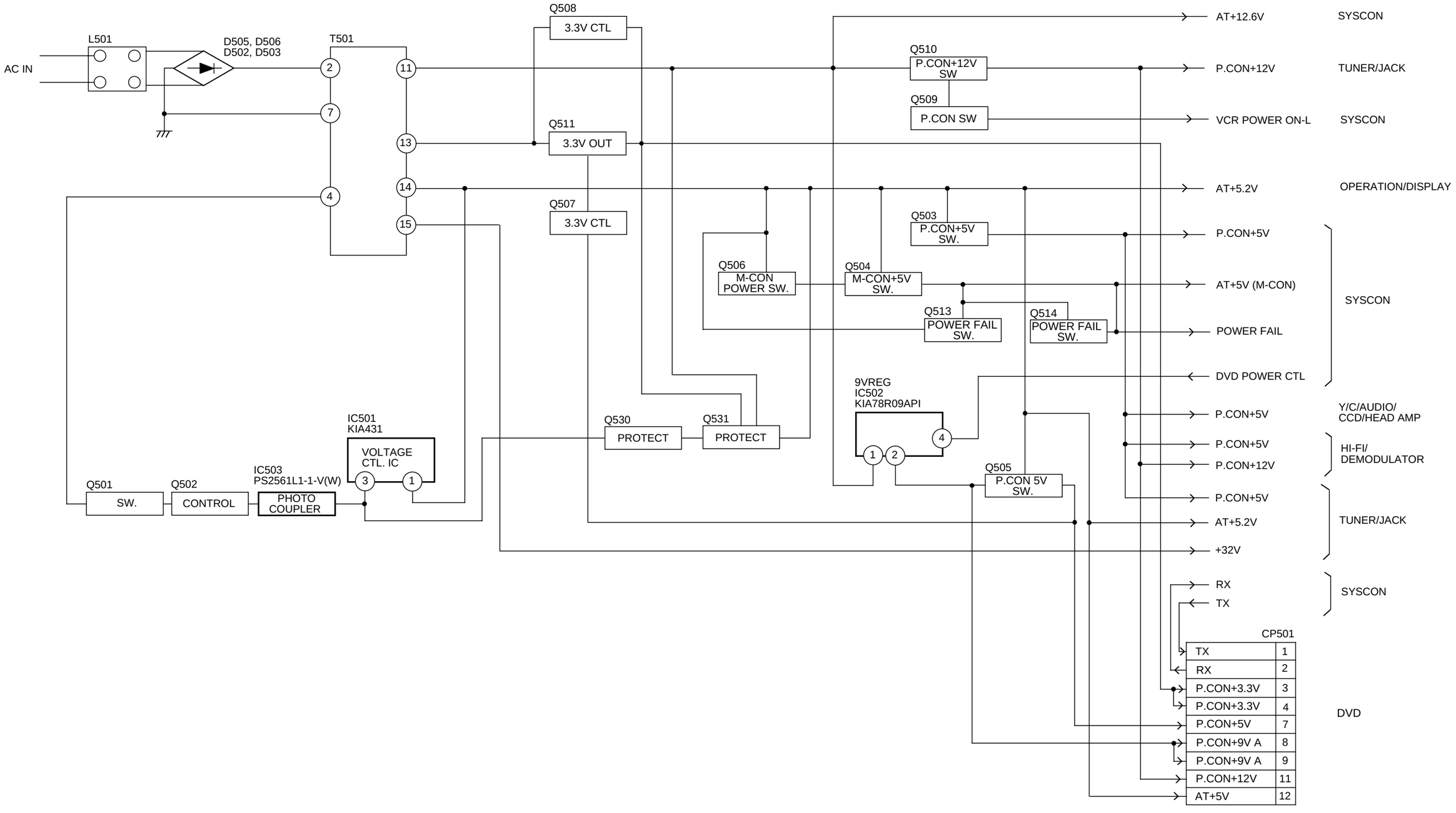
HI-FI/DEMODULATOR BLOCK DIAGRAM



TUNER/JACK BLOCK DIAGRAM

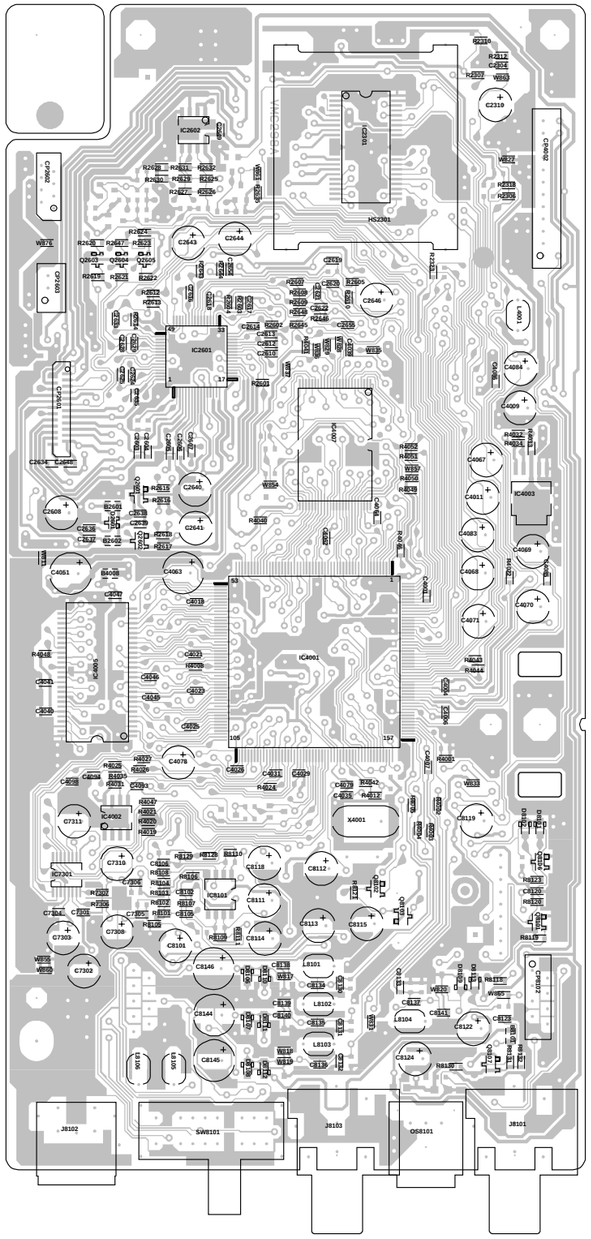


POWER BLOCK DIAGRAM

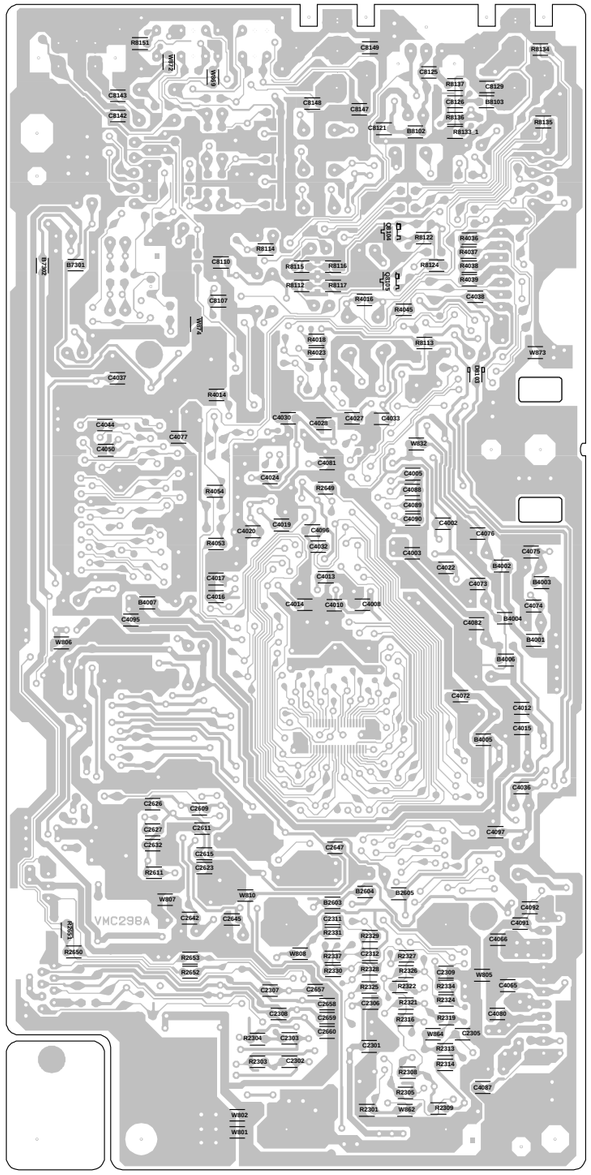


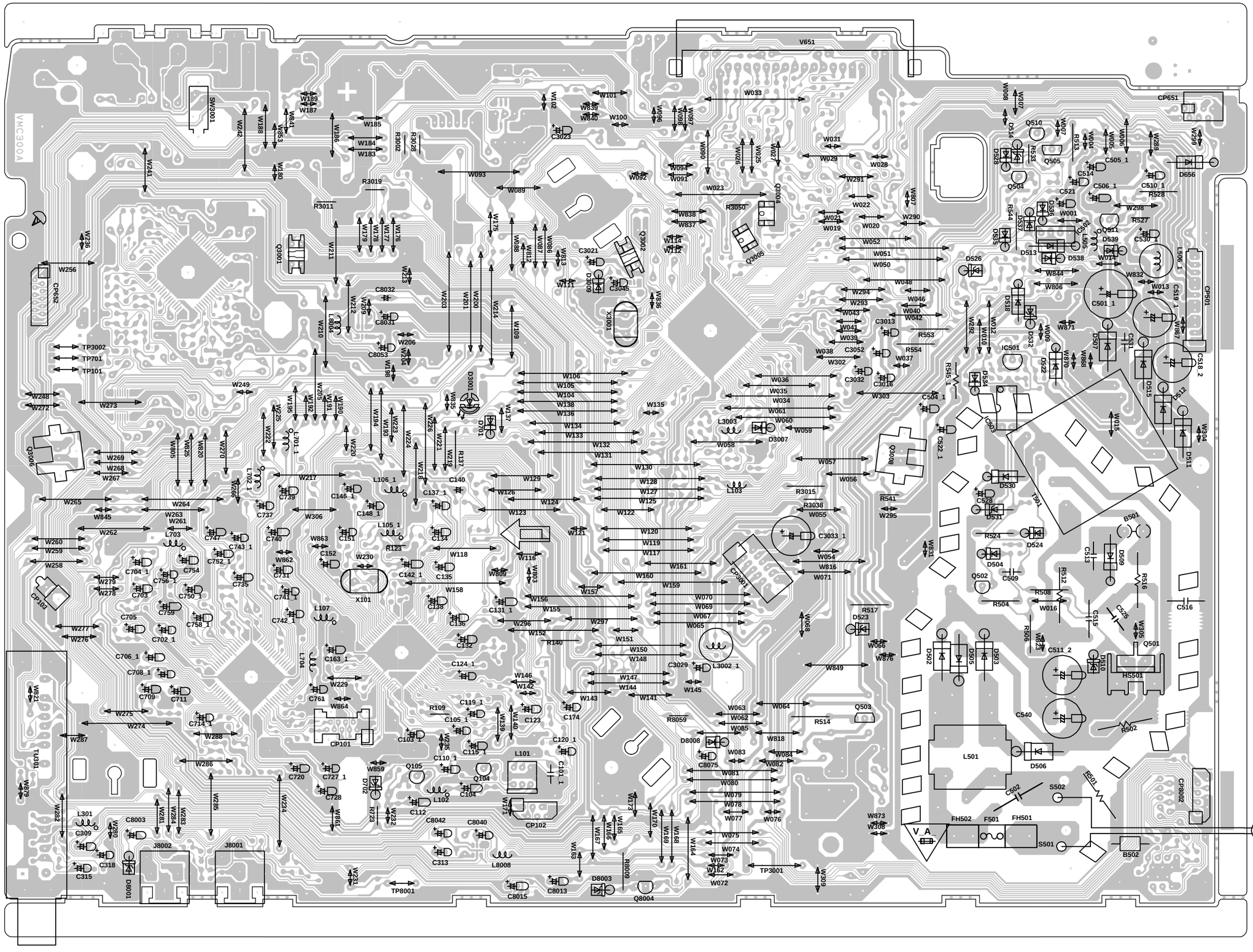
PRINTED CIRCUIT BOARDS

DVD (TOP SIDE)



DVD (BOTTOM SIDE)



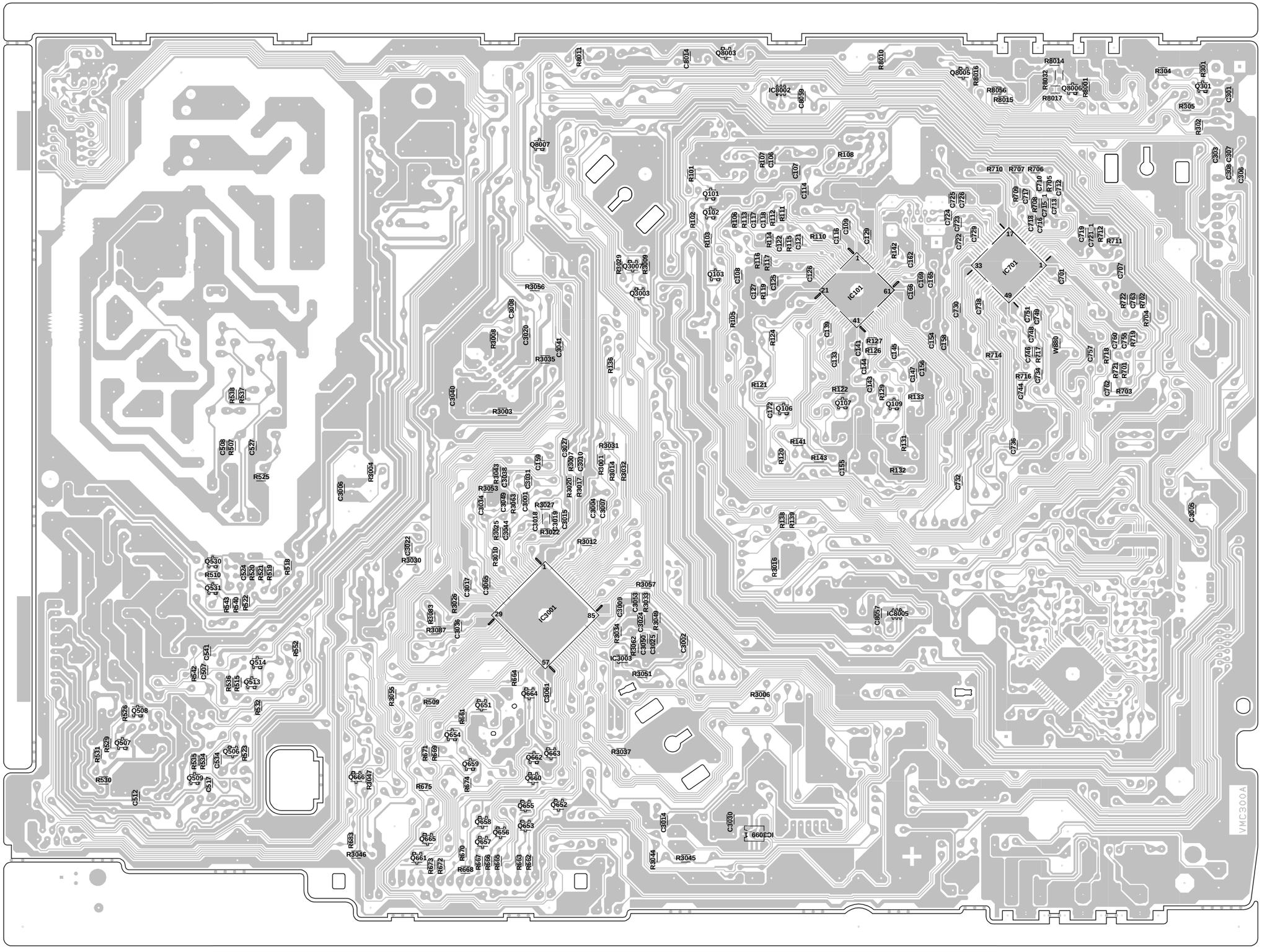


PRINTED CIRCUIT BOARDS

VCR (INSERTED PARTS)
SOLDER SIDE

OPERATION
SOLDER SIDE

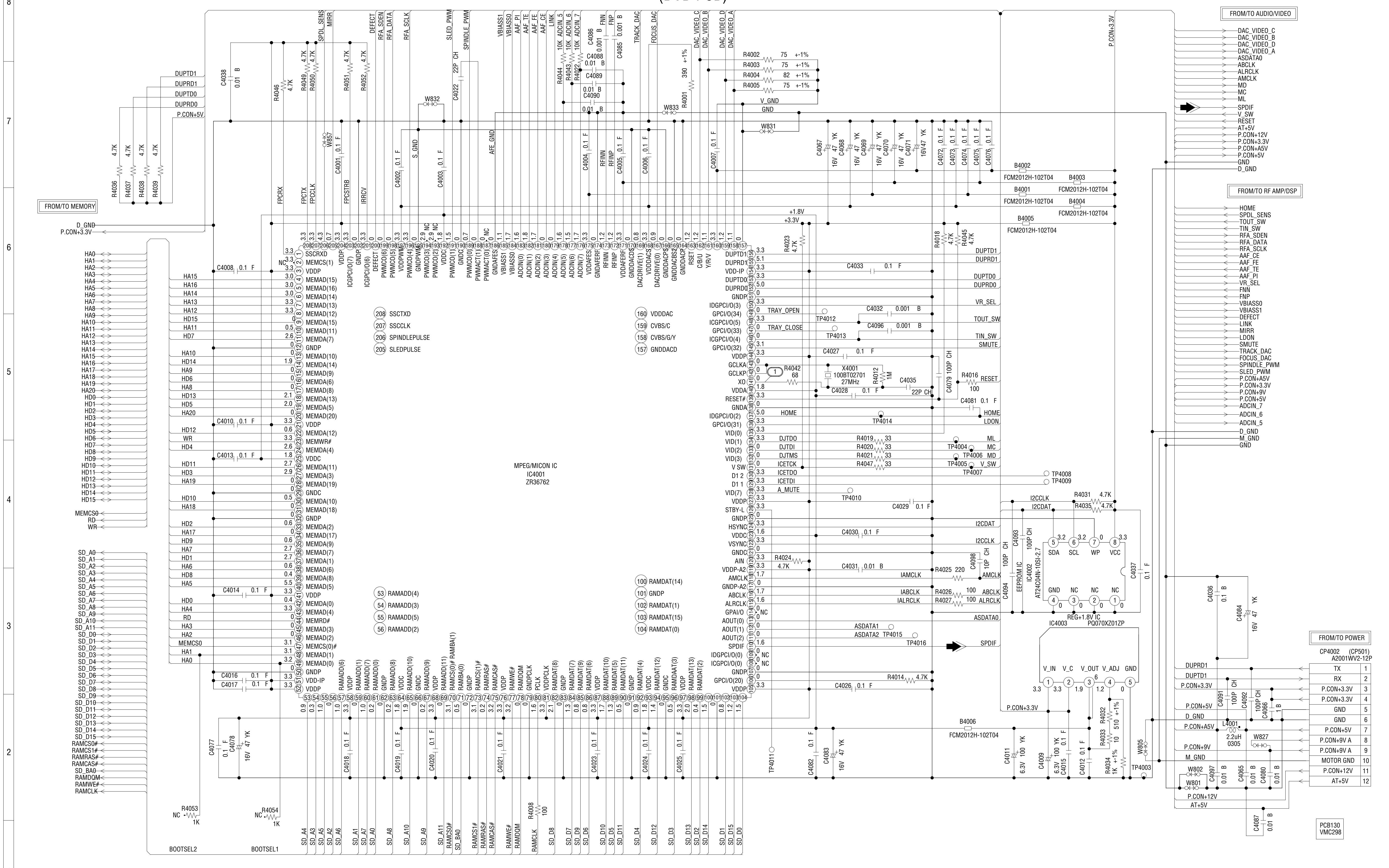
PRINTED CIRCUIT BORDS
VCR (CHIP MONTED PARTS)
SOLDER SIDE



F-5

MPEG/MICON SCHEMATIC DIAGRAM

(DVD PCB)

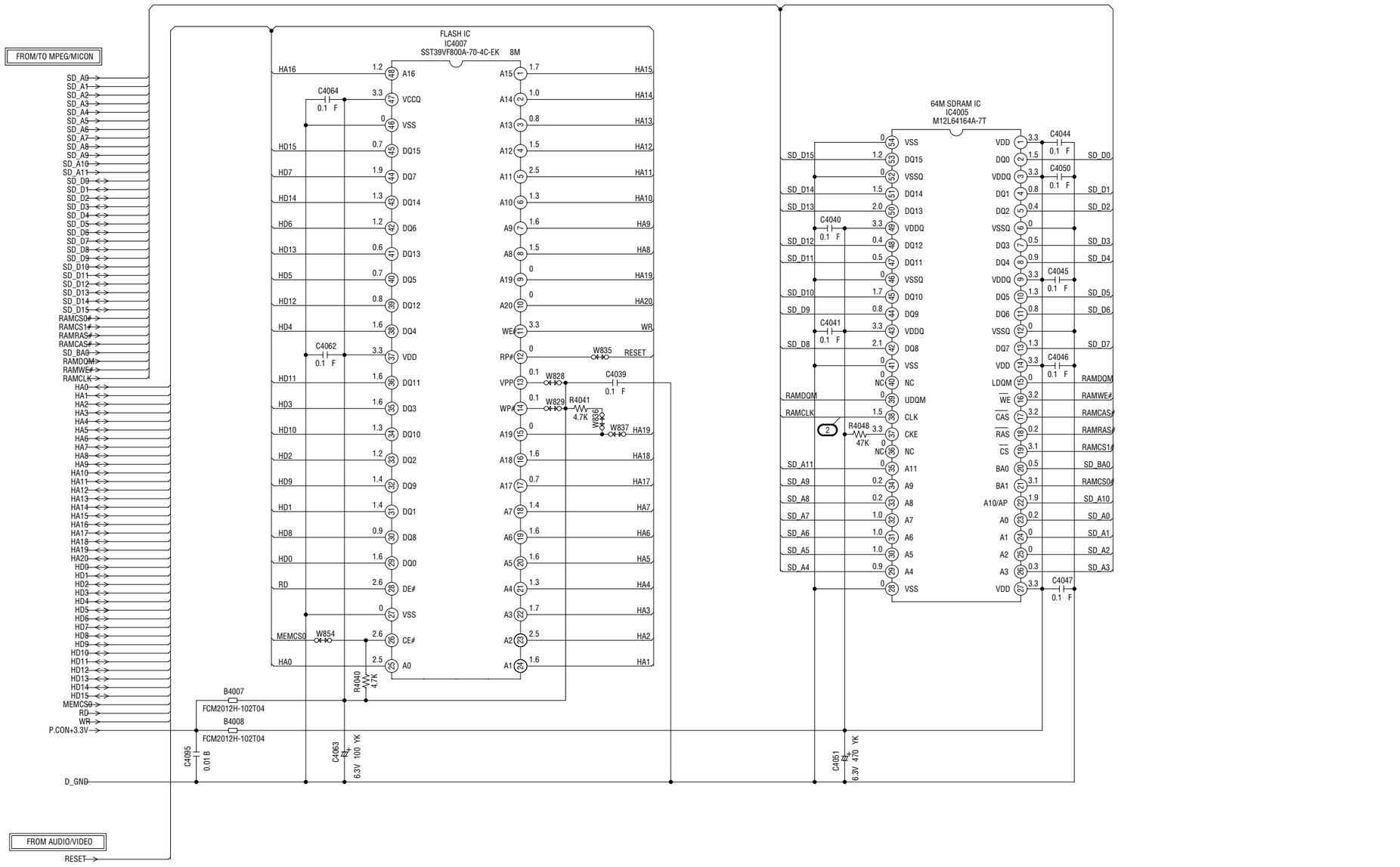


NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

DIGITAL 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
VMC298

RF AMP/DSP SCHEMATIC DIAGRAM

(DVD PCB)

FROM/TO LODER

CP2601
09-5000-024-001

1	T-	TR-
2	T+	TR+
3	F-	FO-
4	F+	FO+
5	MON(DVD)	DVDPD
6	NC	
7	VOL(DVD)	VR_DVD
8	GND(DVD)	
9	LD(DVD)	DVDLD
10	LD(CD)	CDLD
11	VOL(CD)	VR_CD
12	GND(CD)	RF_GND
13	MON(COM)	CDPD
14	NC	
15	RF	OPU_RF
16	C	OPU_C
17	B	OPU_B
18	A	OPU_A
19	D	OPU_D
20	F	OPU_F
21	E	OPU_E
22	VCC	
23	Vref	OPU_VREF
24	GND(PDIC)	

FROM/TO LODER

CP2602
00_6232_008_006

1	SLD-	MOT_SLED-
2	SLD+	MOT_SLED+
3	SP1-	MOT_SPDL-
4	SP1+	MOT_SPDL+
5	LIMIT SW	HOME
6	GND	
7	SP_FG	NC
8	+5V	P.CON+A5V

FROM LODER

CP2603
A2001WV2-3P

1	CLOSE	TIN_SW
2	GND(D)	TOUT_SW
3	OPEN	P.CON+3.3V

FROM/TO MPEG/MICON

SPDL_SENS, 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, D_GND, 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, P.CON+9V, M_GND

READ CHANNEL IC
IC2601
ZR36707TQC

MOTOR DRIVE IC
IC2301
LA6560

DUAL OP-AMP IC
IC2602
BA10358F-E2

HS2301
76WHSA0023

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

D2601 KDS120RTK

DVD LD CTL Q2601 2SA1036K
CD LD CTL Q2602 2SA1036K
VR DVD CTL Q2603 2SK3018
VR CD CTL Q2604 2SK3018
VR SEL CTL Q2605 2SK3018

PCB130
VMC298

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)

FROM/TO MPEG/MICON

P.CON+A5V
DAC_VIDEO_A
DAC_VIDEO_C
DAC_VIDEO_B
DAC_VIDEO_D
P.CON+5V
P.CON+3.3V
DVD_AUDIO_L
DVD_AUDIO_R
AT+5V
P.CON+12V
V_SW
RESET
MC
MD
ML
AMCLK
ABCLK
ALRCLK
ASDATA0
SPDIF
GND
D_GND

OPTICAL OS8101 OFTG038101 (1 INPUT, 2 VCC, 3 GND)
B8101 FCM2012H-102T04
B8102 FCM2012H-102T04
B8103 FCM2012H-102T04
DVD AUDIO OUT J8101 MSP-213V1-732_PBSN
D AUDIO DRIVER Q8107 KTC3875S_Y_RTK

L8101 1uH 0305
L8102 1uH 0305
L8103 1uH 0305
L8104 1uH 0305

W817 W818 W819 W820 W865 W869 W872 W873 W874 W860 W855

Y/C SEPA J8102 MDC-070V
YUV OUT J8103 MSP-213V1-652_PBSN
V_SW
S/CVBS ⟷ COMP
VIDEO OUT SW SW8101 SK42H01G9A
DAC_D_DVD_VIDEO

TO MEMORY
RESET
B7301 FCM2012H-102T04
B7302 FCM2012H-102T04

STEREO DAC IC IC8201 PCM1742KE/2K
(VOUTR, VOUTL, VCC, VDD, DGND, LRCK, DATA, BCK, AGND, VCOM, ZERO/ZEROA, ZERO/ZEROL/NA, MD, MC, ML, SCK)
AUDIO AMP IC IC8101 NJM4580M(TE1)
(A_GND, VCC)

R_AUDIO
L_AUDIO
SYS_MUTE
ZERO

MUTE SW Q8106 KRC104SRTK
MUTE SW. Q8103 KRA101SRTK
MUTE SW Q8105 KTC3875S_Y_RTK
MUTE SW. Q8102 KRC103SRTK
MUTE SW Q8104 KTC3875S_Y_RTK
MUTE DET Q8101 KTC3875S_Y_RTK

FRON/TO TUNER/JACK
CP8102 (CP8002) IMSA-9604S-08C
(DVD_AUDIO_R 8, GND 7, DVD_AUDIO_L 6, GND 5, DAC_D_DVD_VIDEO 4, SYS_MUTE 3, DVD_RESET 2, NC 1)
1.25m FFC
CD8002 2F080601
PCB130 VMC298

AUDIO SIGNAL(PB)
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL
PLAYBACK VIDEO SIGNAL
DIGITAL AUDIO SIGNAL(PB)
R.SIGNAL + COMPONENT SIGNAL(U)
B.SIGNAL + COMPONENT SIGNAL(V)

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

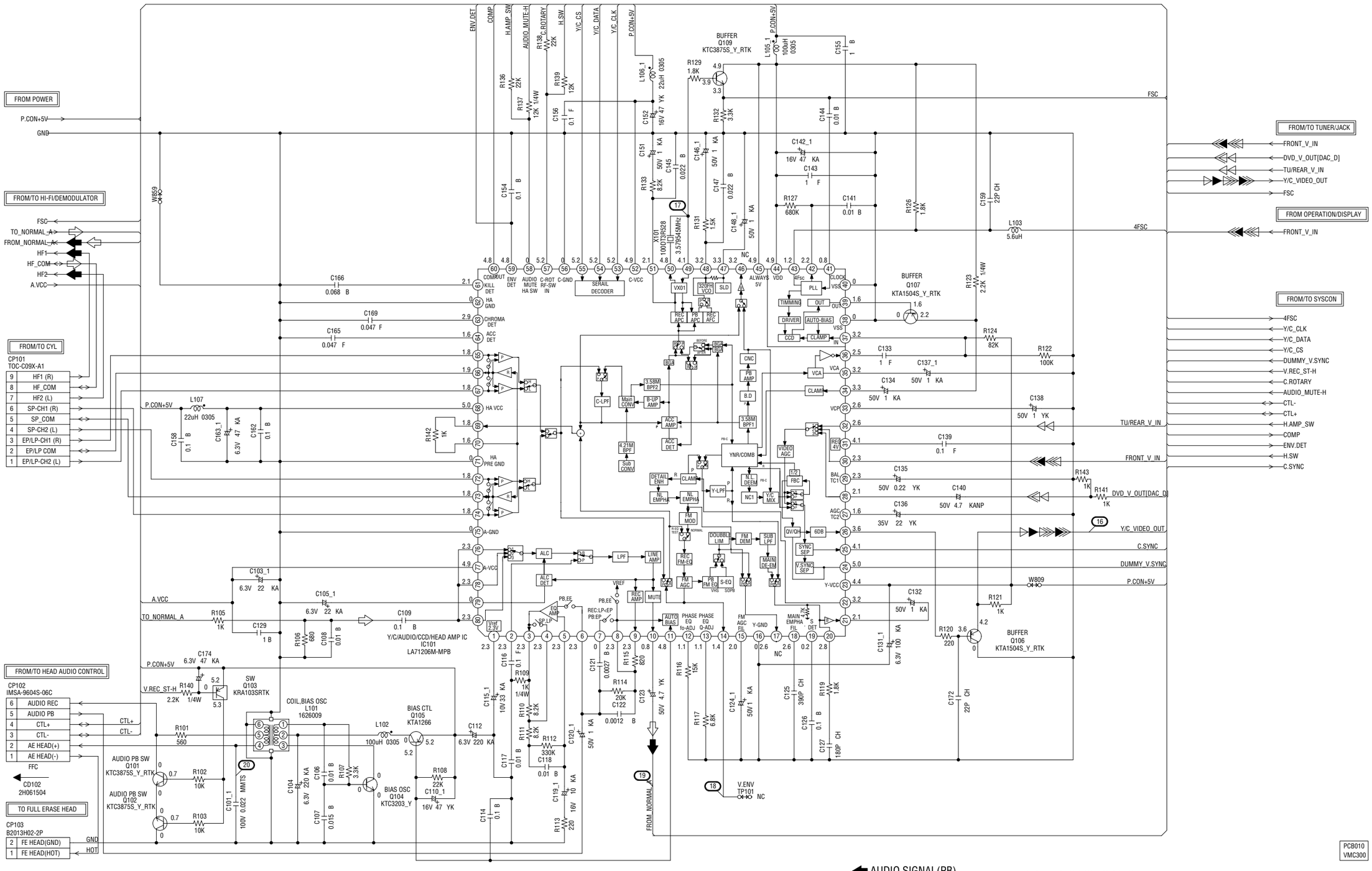
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

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

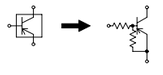
(VCR PCB)



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

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

CAUTION: DIGITAL TRANSISTOR



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

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
OEC0138B

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
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
V.REC_ST-H
HIFI_ENV.DET
HIFI_H.SW
AUDIO_MUTE-H
SCL
SDA
ST_SELECT

FROM/TO OPERATION1/DISPLAY
DVD_LED
VCR_LED
KEY-A
KEY-B
REM_IN
1G/VCR/T-REC_LED
2G/DUB/REC_LED
3G/TV/VCR_LED
4G/VSC_LED
5G/CS/BS_LED
SEG_1
SEG_2
SEG_3
SEG_4
SEG_5
SEG_6
SEG_7
SEG_8
SEG_9
SEG_10

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

PCB010
VMC300

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

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

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

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

TUNER/JACK SCHEMATIC DIAGRAM

(VCR PCB)

TU301
115-V-H015ARE

RF MUTE SW
Q301
KTC3875S_Y_RTK

REAR OUT JACK
J8001
MSP-213V1-432_PBSN

VIDEO OUT
TP8001

CP8002 (CP8102)
IMSA-9604S-08C

FROM/TO AUDIO/VIDEO

FFC
CD8002
2F080601

FROM/TO Y/C/AUDIO/CCD/HEAD AMP

FROM/TO SYSCON

FROM/TO HI-FI/DEMODULATOR

FROM POWER

VIDEO MUTE SW
Q8003
KRC103SRTK

BUFFER
Q8004
KTA1266

MUTE SW
Q8006
KTC3875S_Y_RTK

MUTE SW
Q8005
KTC3875S_Y_RTK

MUTE SW
Q8007
KRA103SRTK

AV SW IC
IC8005
MM1501XNRE

FRONT AV JACK VIDEO J8003 MSP-2B1V4-B

FRONT AV JACK AUDIO L J8004 MSP-2B1V1-B

FRONT AV JACK AUDIO R J8005 MSP-2B1V3-A

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

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

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

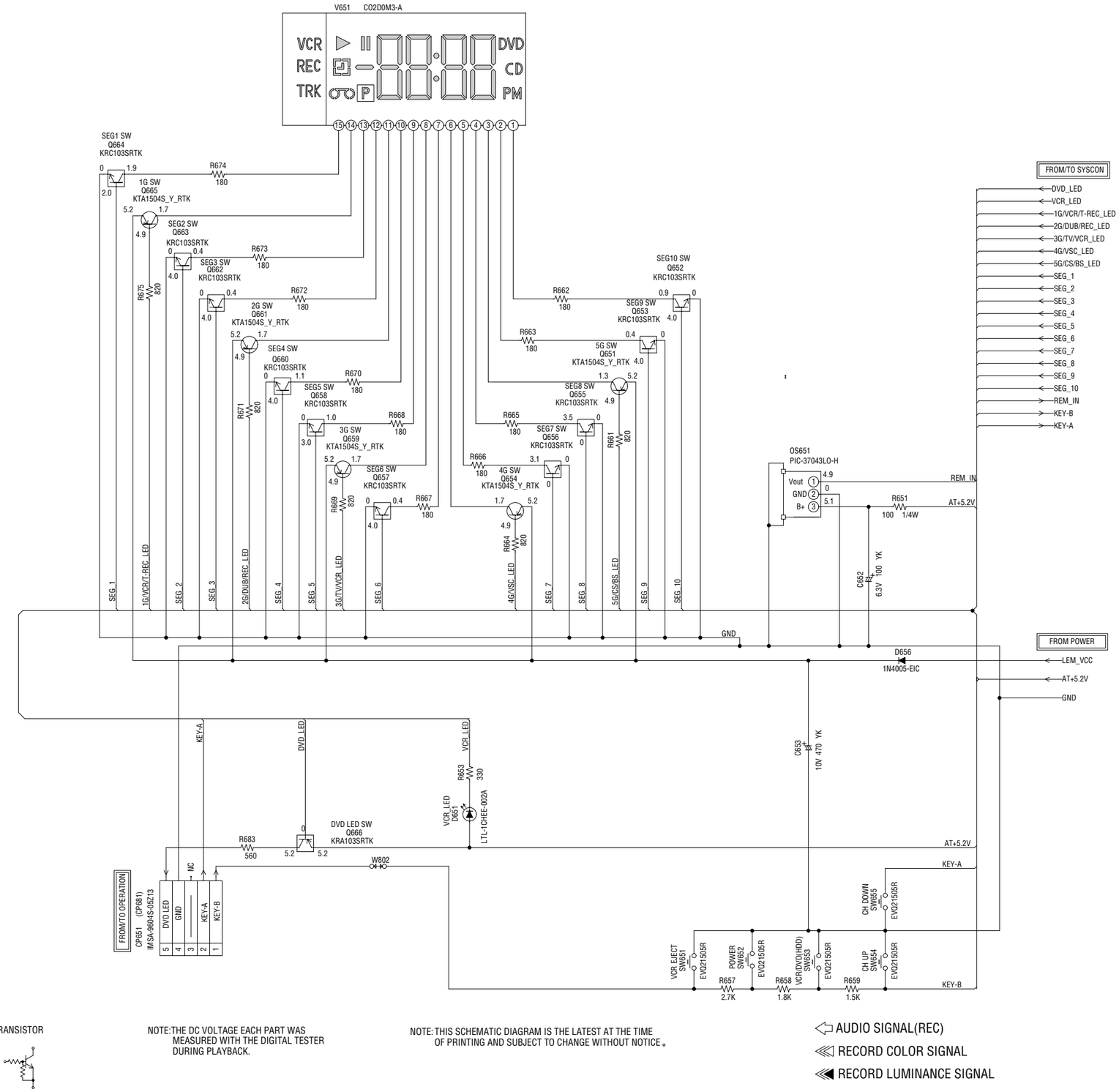
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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

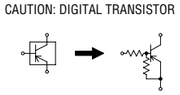
PCB010
VMC300

OPERATION/DISPLAY SCHEMATIC DIAGRAM

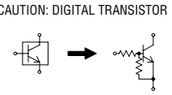
(VCR PCB)



CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR



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

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

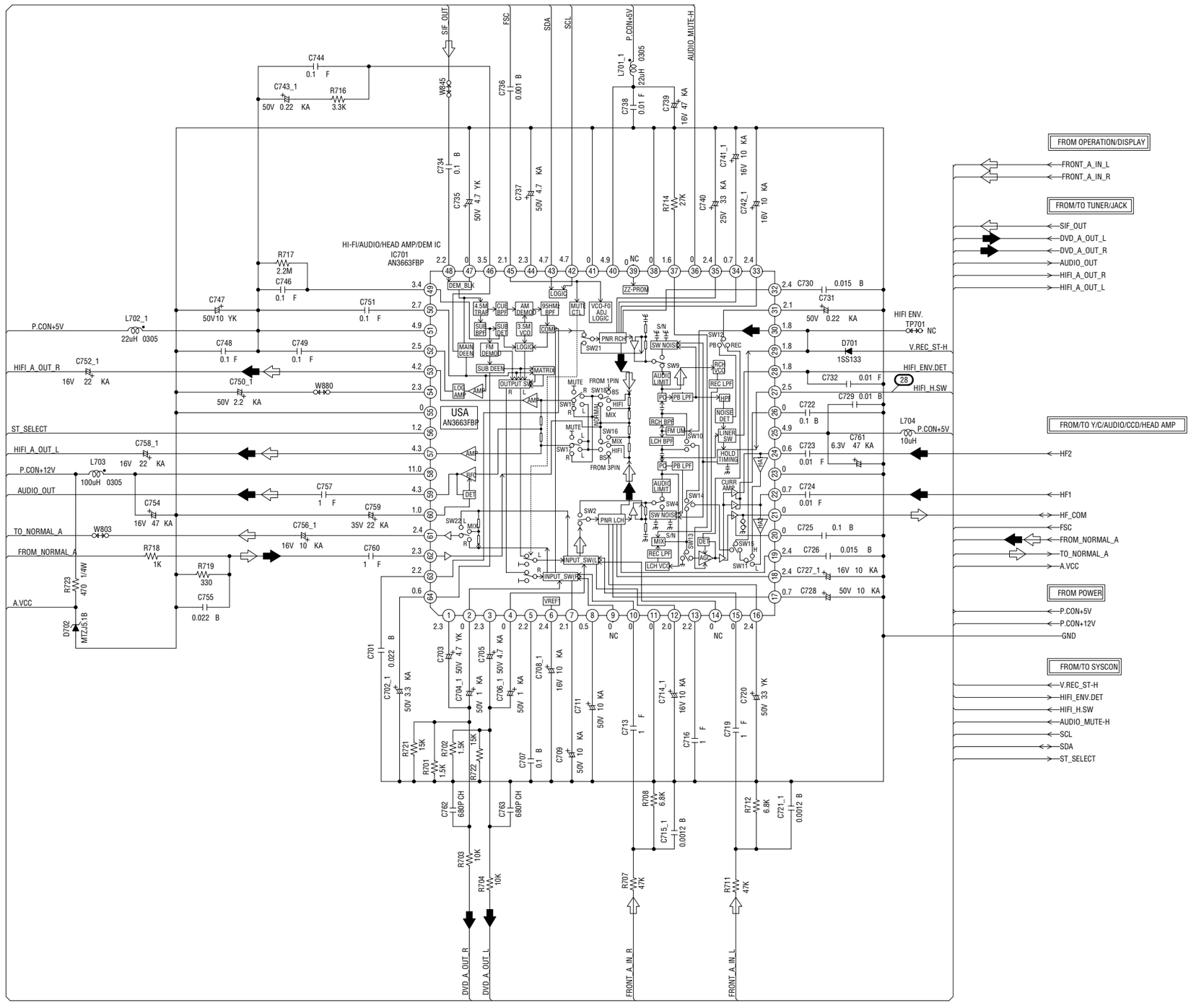
AUDIO SIGNAL(REC)

RECORD COLOR SIGNAL

RECORD LUMINANCE SIGNAL

HI-FI/DEMODULATOR SCHEMATIC DIAGRAM

(VCR PCB)



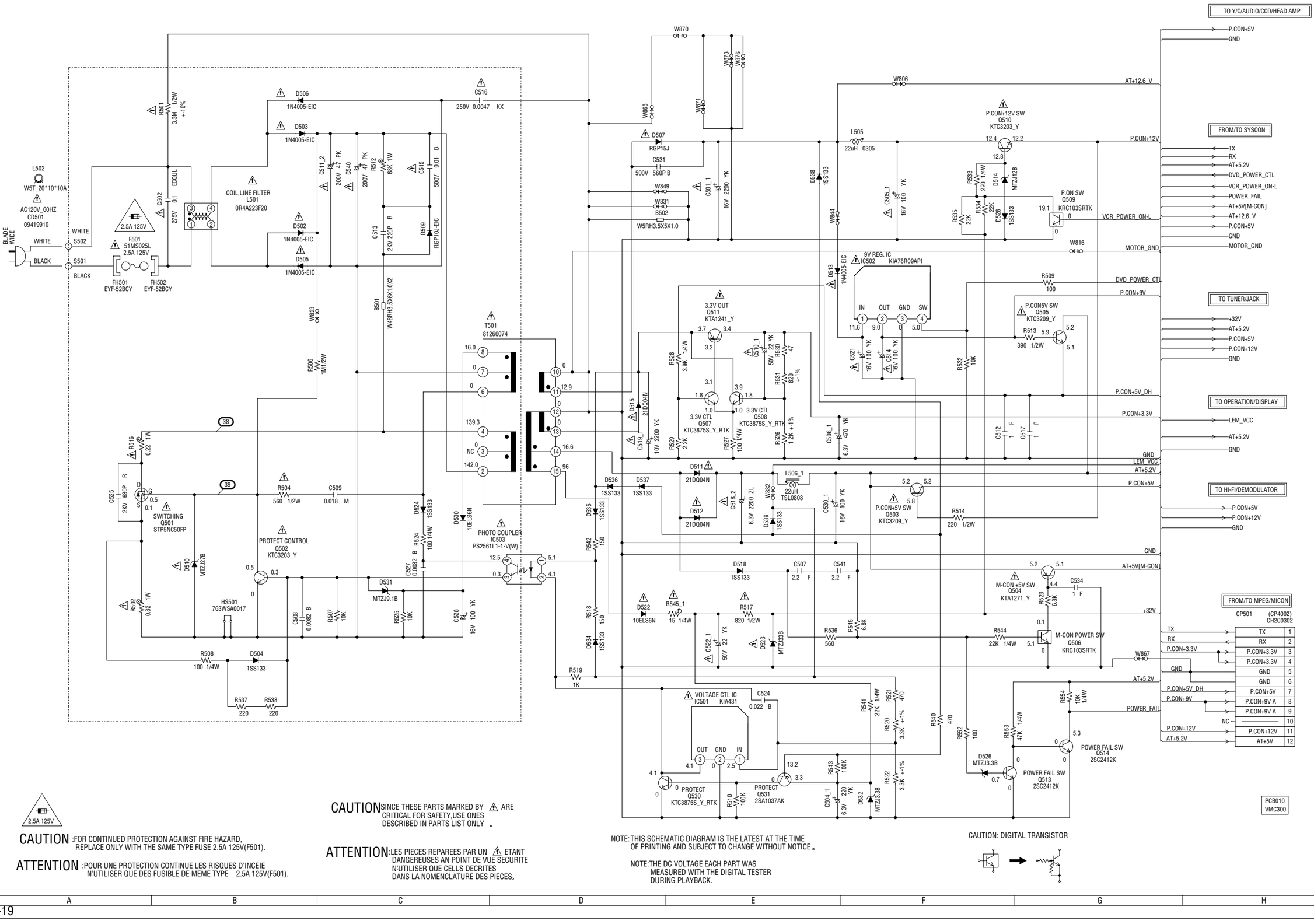
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

AUDIO SIGNAL(REC)

AUDIO SIGNAL(PB)

POWER SCHEMATIC DIAGRAM
(VCR PCB)



2.5A 125V

CAUTION :FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 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).

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

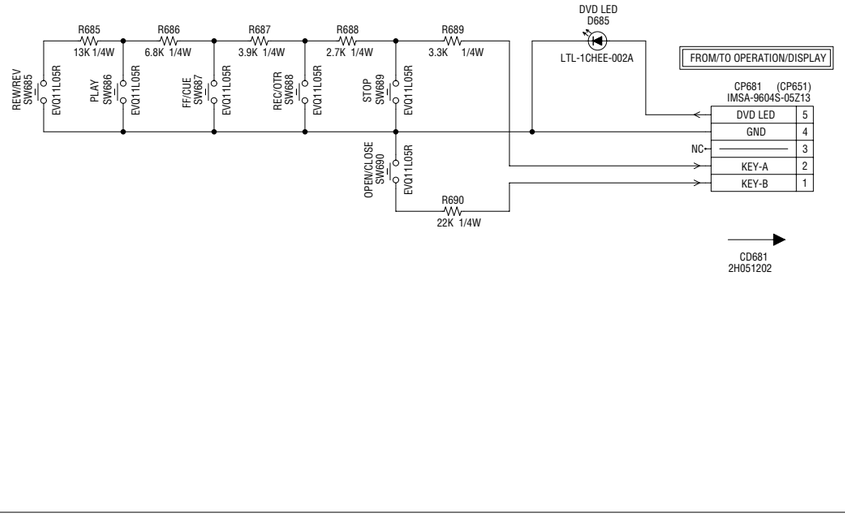
ATTENTION:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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

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

CAUTION: DIGITAL TRANSISTOR

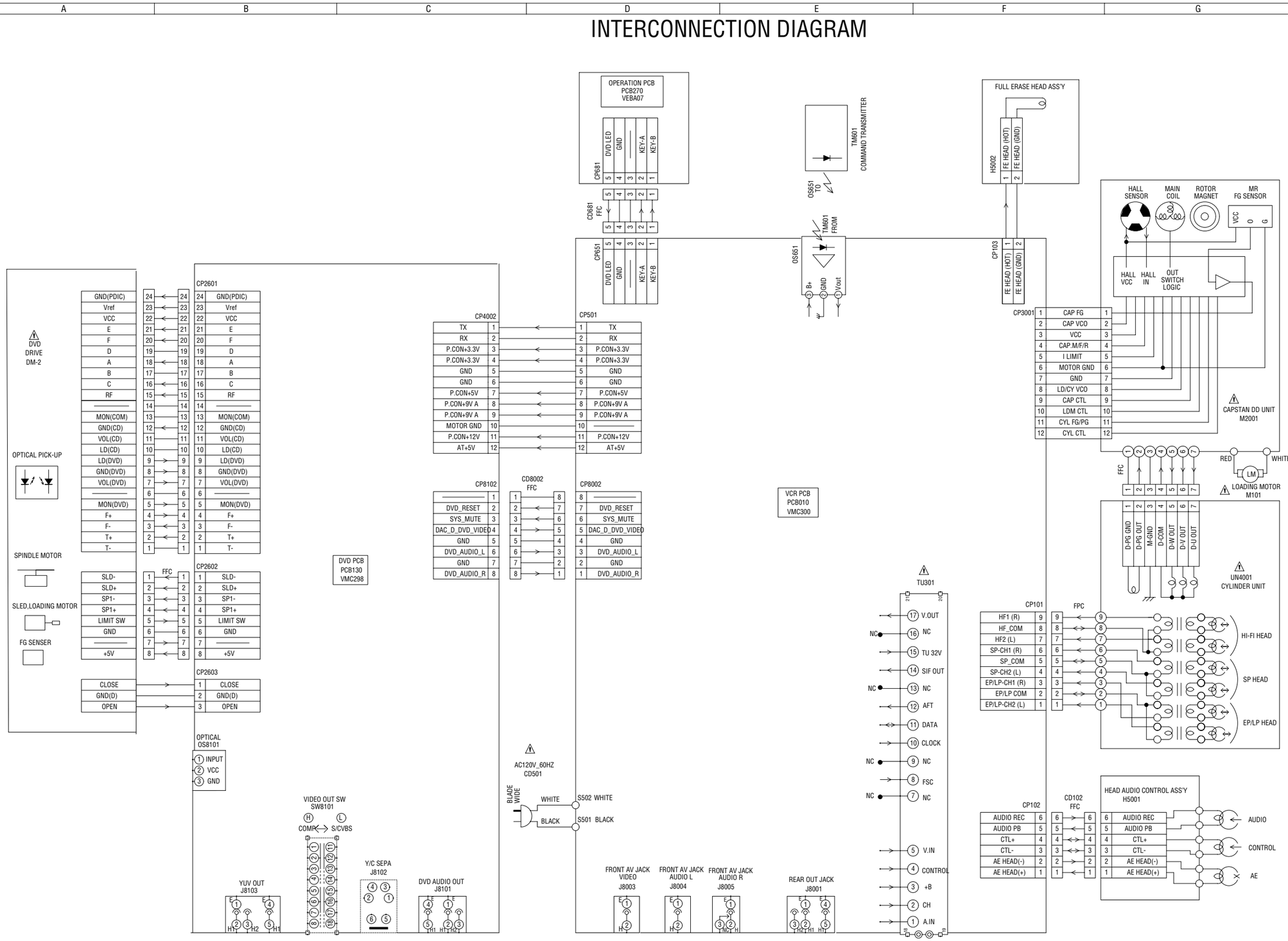
OPERATION/LED SCHEMATIC DIAGRAM
(OPERATION PCB)



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

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

INTERCONNECTION DIAGRAM



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

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

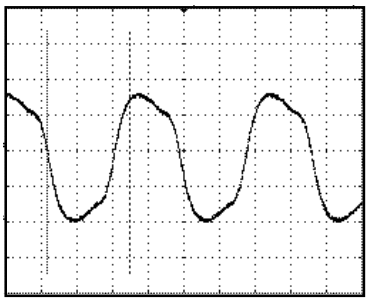
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

MPEG/MICON

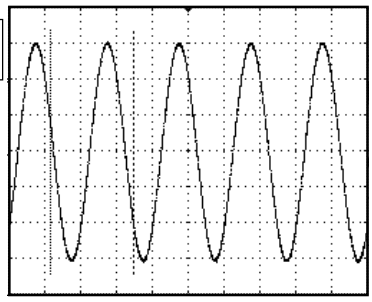
10ns
100mV

①



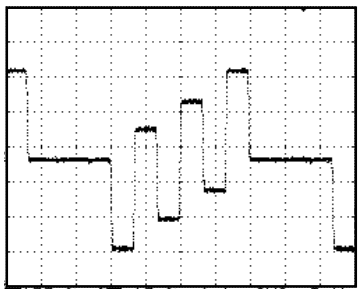
500µs
100mV

⑥



10µs
100mV

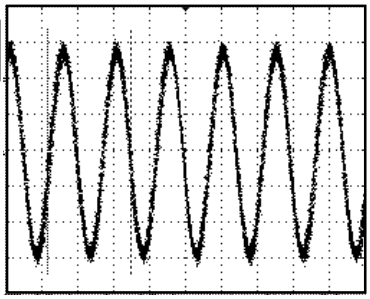
⑪



MEMORY

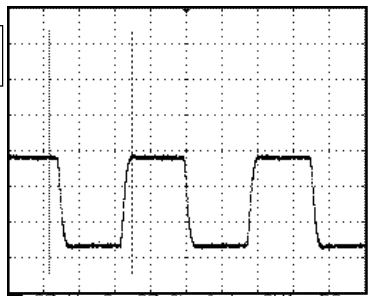
5ns
20mV

②



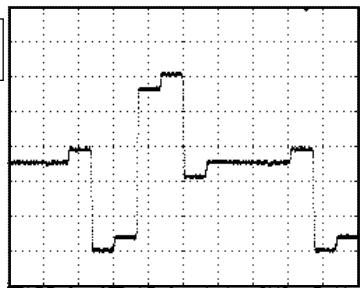
200ns
20mV

⑦



10µs
100mV

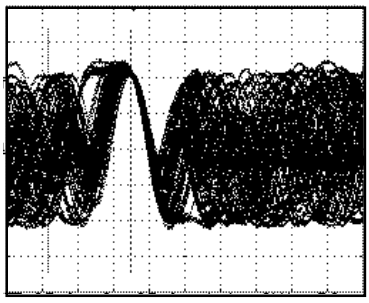
⑫



RF AMP/DSP

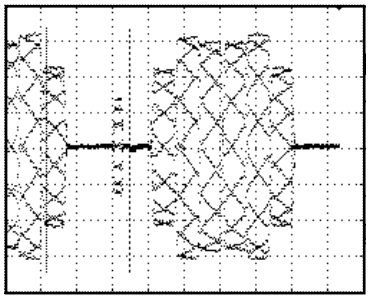
200ns
20mV

③



10µs
100mV

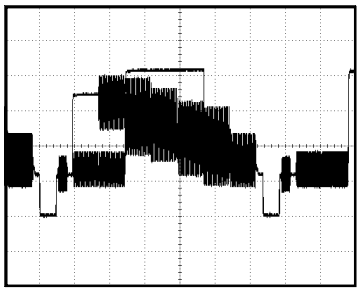
⑧



Y/C/AUDIO/CCD/HEAD AMP

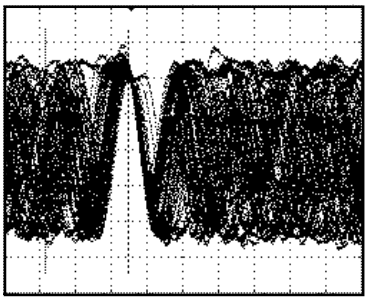
PB
10µs
500mV

⑯



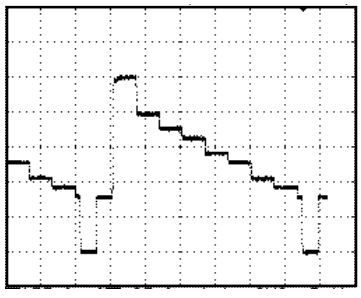
200ns
10mV

④



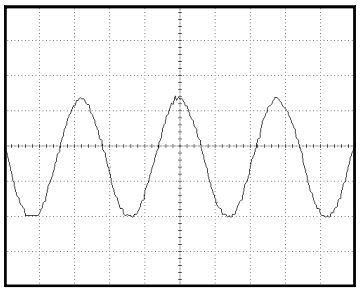
10µs
100mV

⑨



PB
100ns
100mV

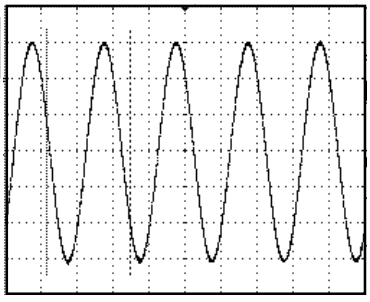
⑰



AUDIO/VIDEO

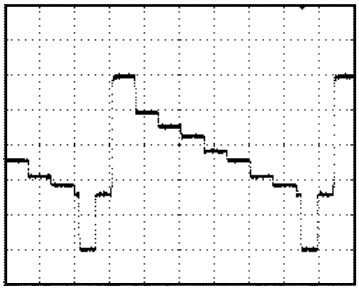
500µs
100mV

⑤



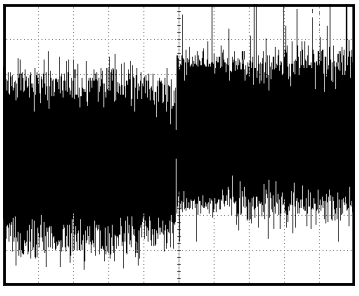
10µs
100mV

⑩



PB
1ms
100mV

⑱



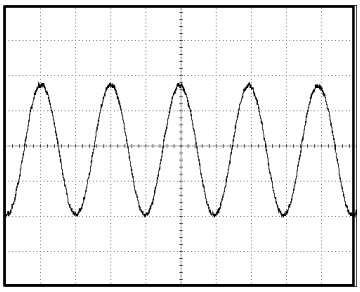
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

POWER

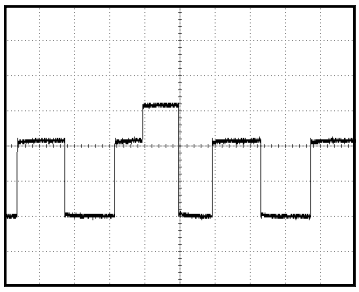
PB
200ms
500mV

⑲



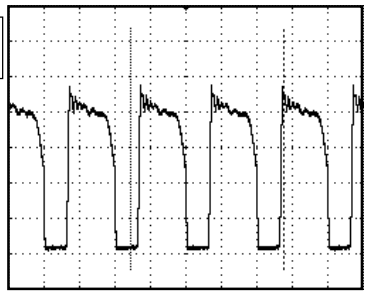
PB
500µs
1.0V

㉔



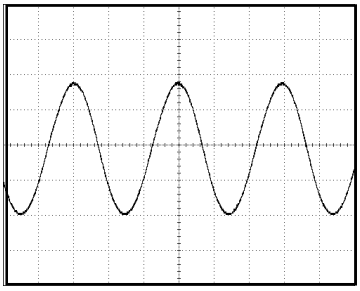
5µs
500mV

㊳



REC
5µs
20V

⑳

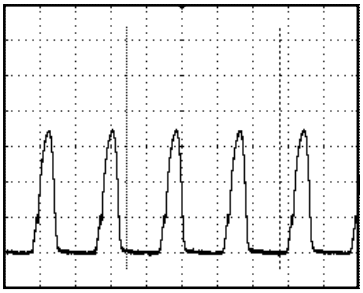


PB
5ms
500mV

㉕

5µs
5.0V

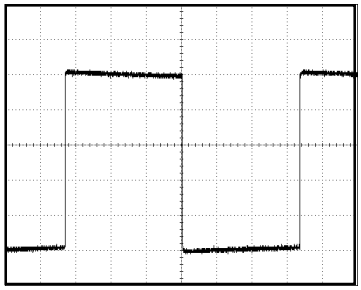
㊴



SYSCON

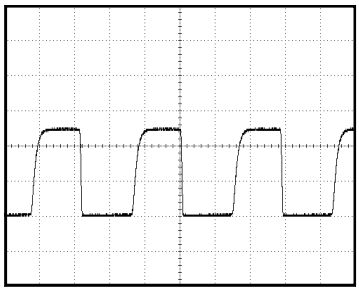
PB
5ms
1.0V

㉑



PB
5ms
2.0V

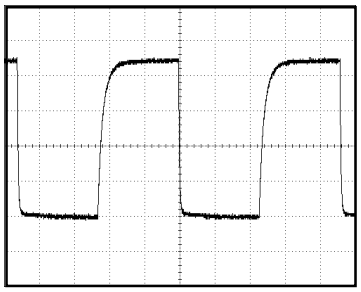
㉗



HI-FI/DEMODULATOR

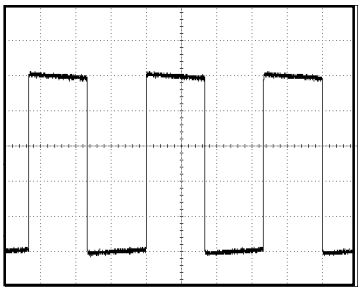
PB
200µs
1.0V

㉒



PB
10ms
1.0V

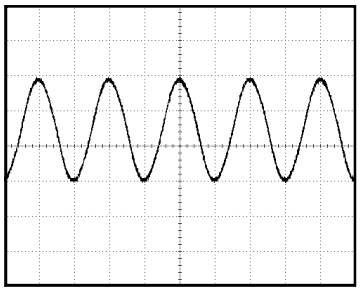
㉘



TUNER/JACK

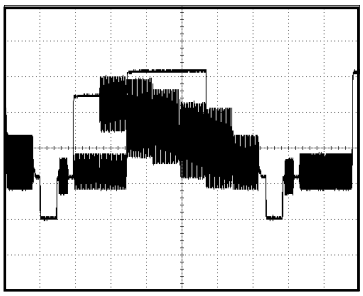
POWER ON
50ns
1.0V

㉓



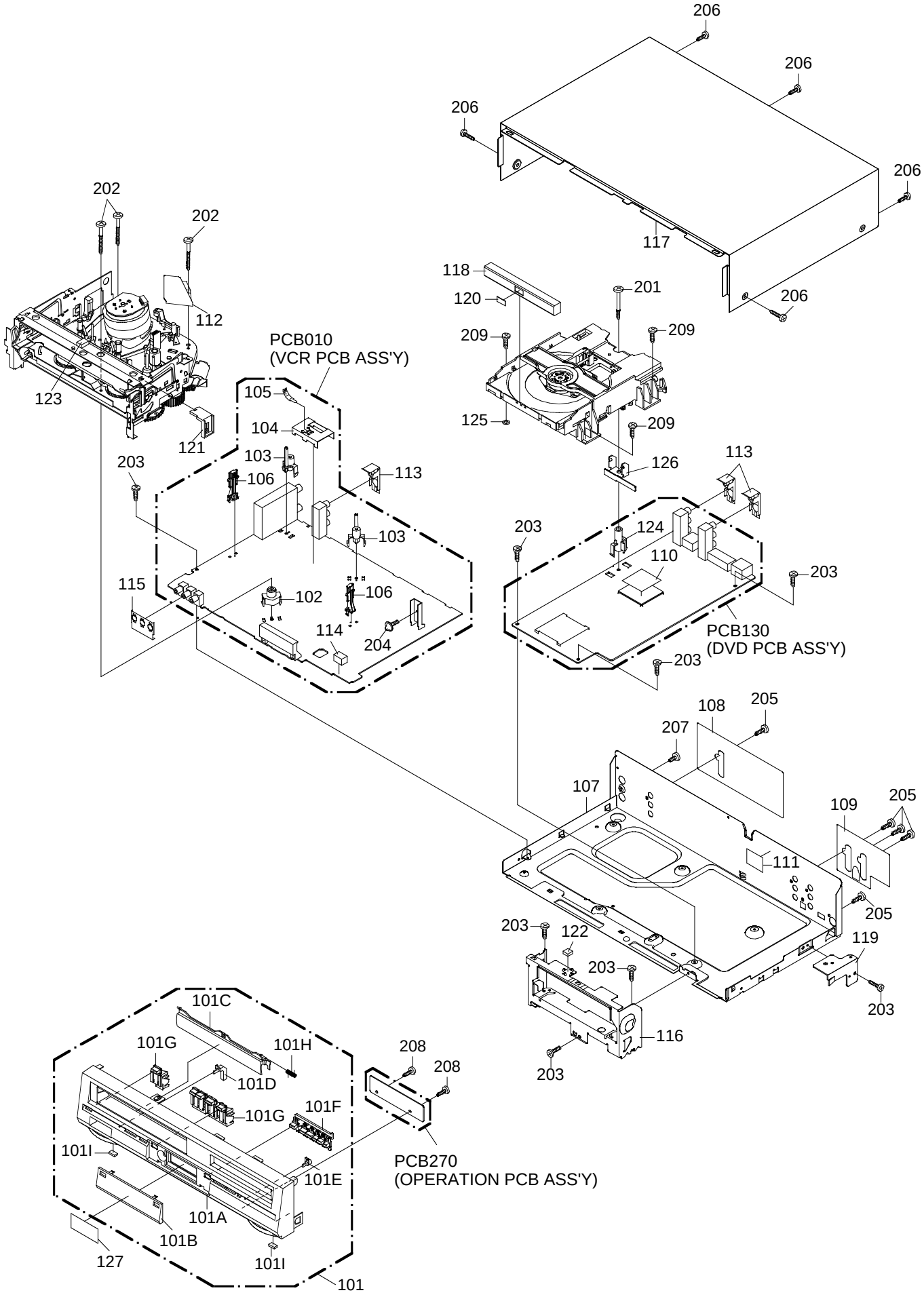
10µs
200mV

㉜

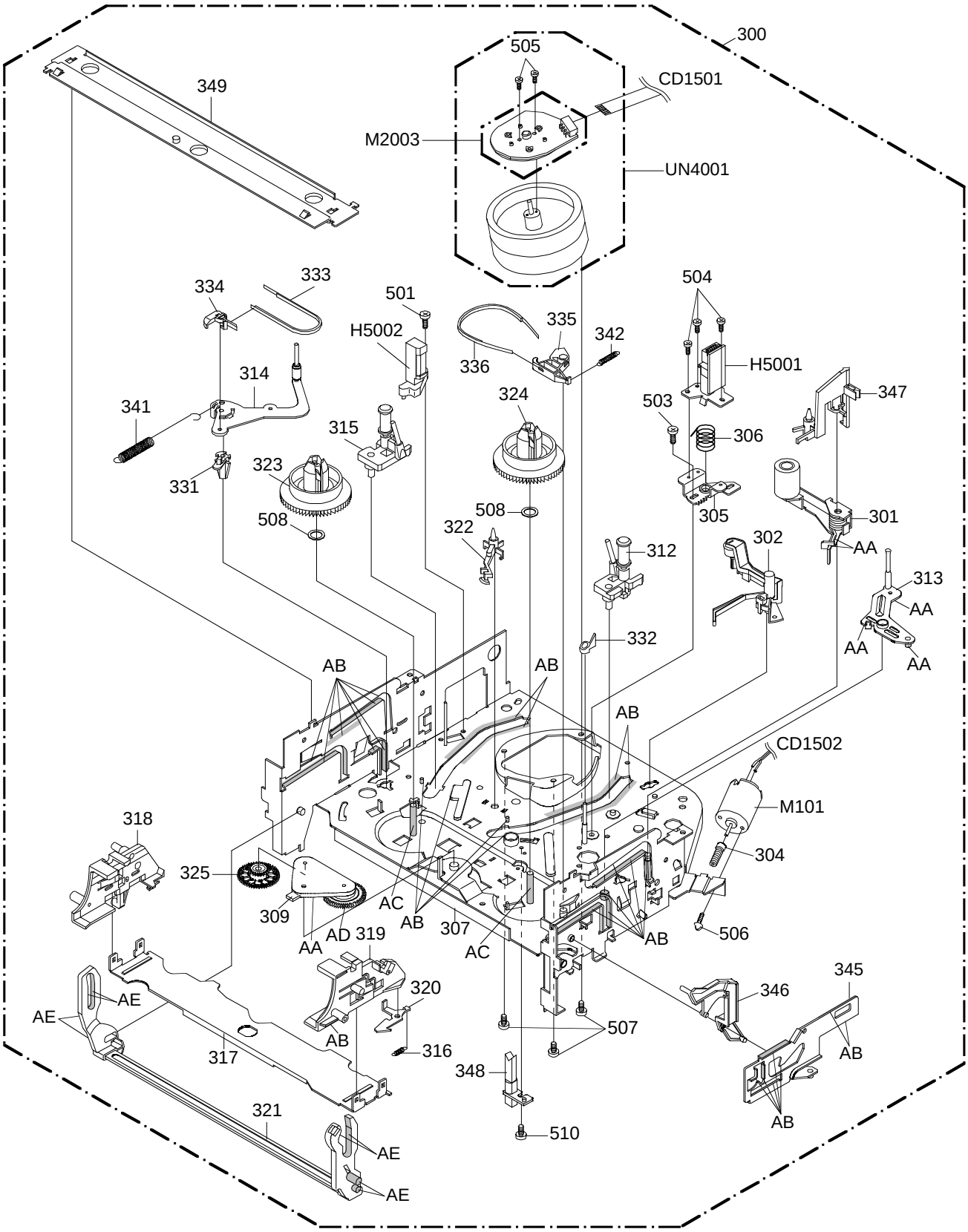


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



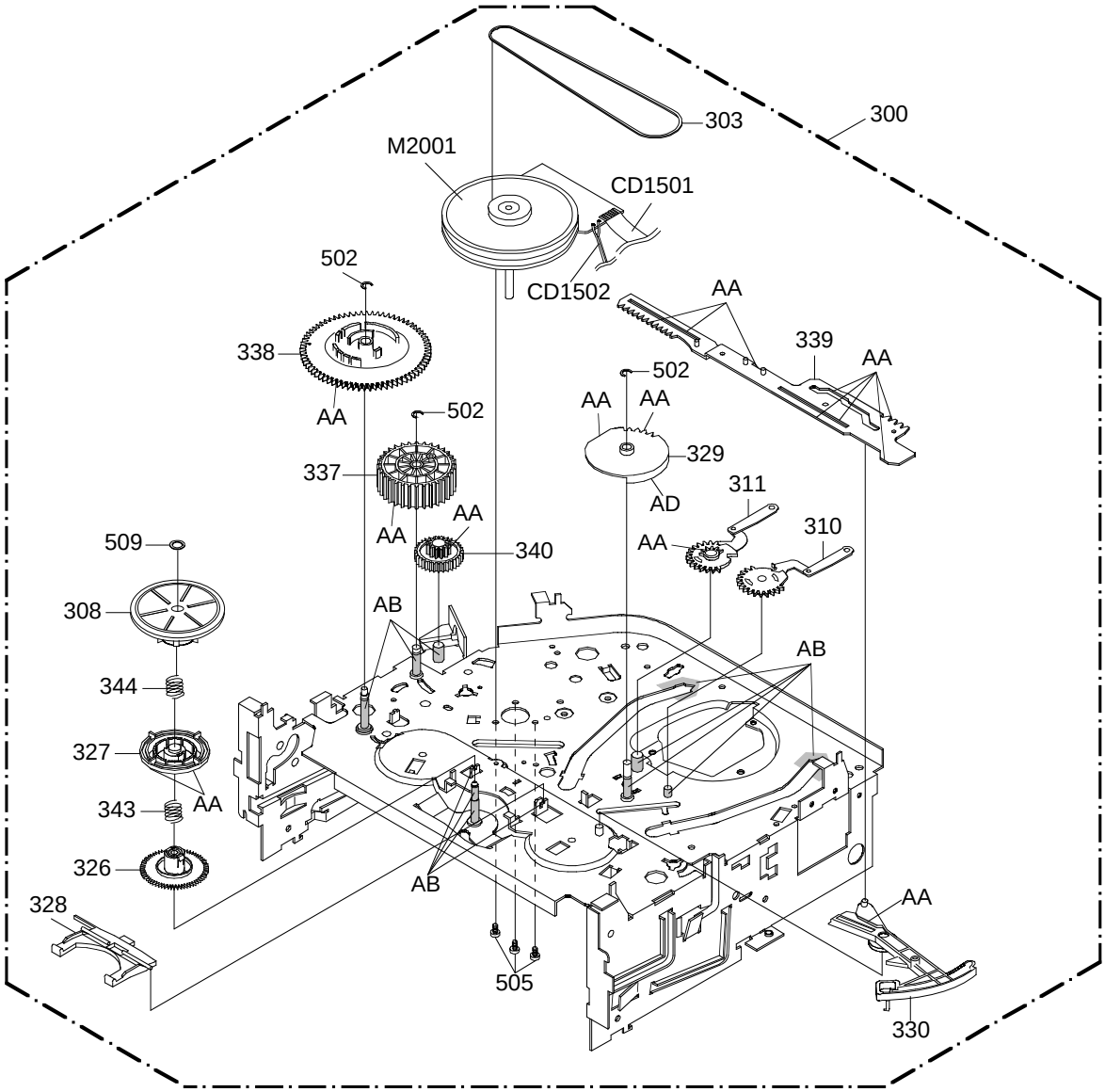
CHASSIS EXPLODED VIEW (TOP VIEW)



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

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

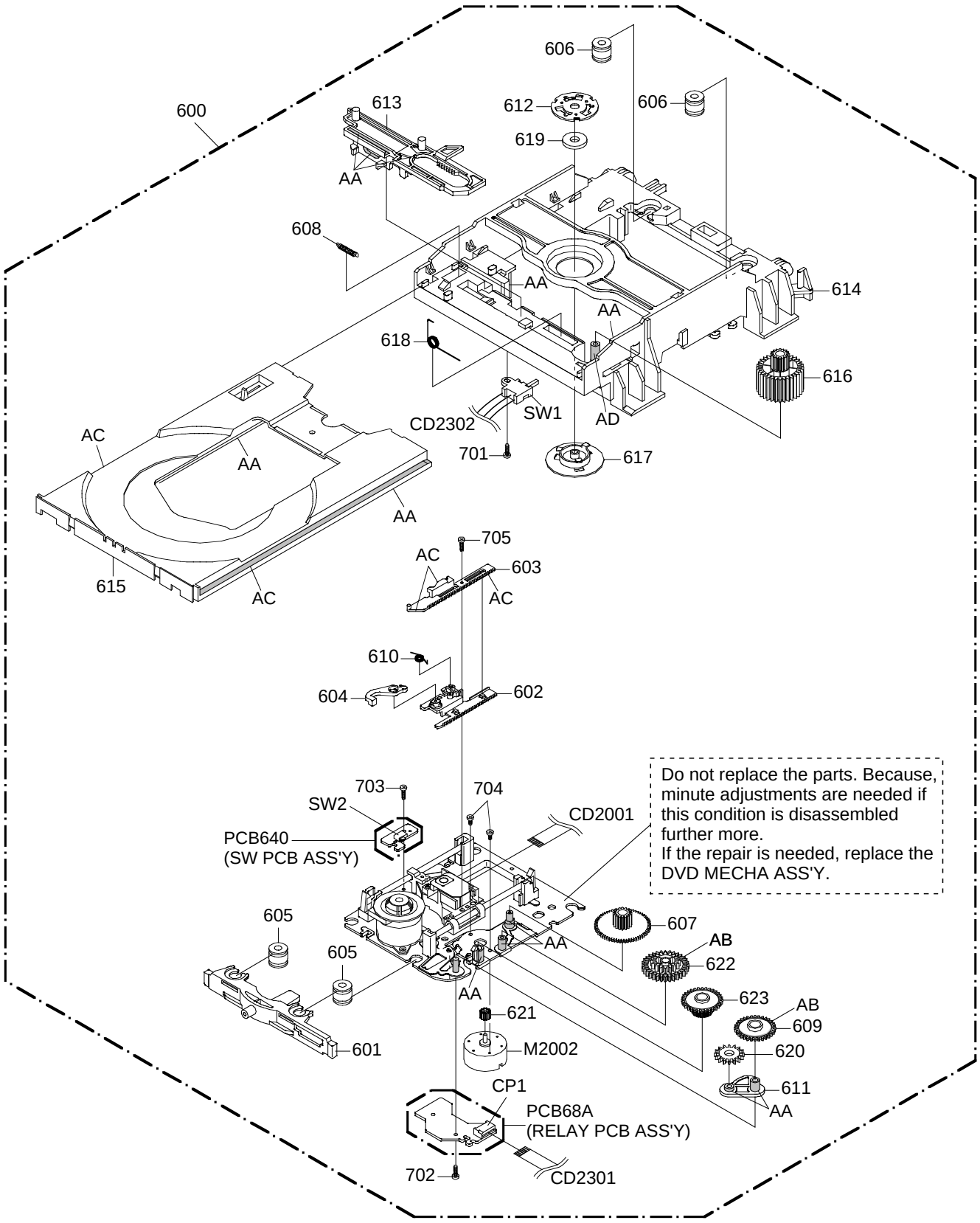
CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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

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

DVD DECK EXPLODED VIEW



CLASS	PART NO.	PART NAME	MARK
GREASE	Y315061000	G-555G	AA
	Y315121000	G-337F	AB
	Y315131000	SF-112	AC
	Y31D031000	ORG-102	AD

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

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
101	A2C510H720	CABINET,FRONT ASS'Y			
101A	701WPJC393	CABINET,FRONT			
101B	711WPDA628	PLATE,DISPLAY			
101C	712WPJB882	FLAP			
101D	713WPA0193	GLASS,LED-VCR			
101E	713WPA0194	GLASS,LED-DVD			
101F	735WPB0258	BUTTON,FRAME-DVD			
101G	735WPB0259	BUTTON,FRAME-VCR			
101H	743WKA0042	SPRING,FLAP			
101I	800WFA0051	CUSHION,LEG			
102	701WPA0686	HOLDER,DECK			
103	701WPA0751	HOLDER,DECK			
104	752WSA0230	SHIELD,CASE HEAD AMP			
105	753WUAA006	SPRING,EARTH HEAD AMP			
106	85OP700038	HOLDER,END SENSOR			
107	702WSA0183	PLATE,BOTTOM			or
	702WSAA073	PLATE,BOTTOM			
108	722A08A142	SHEET,RATING			
109	7230007673	SHEET,JACK			
110	7232020748	SHEET,IC			
111	7260000341	SHEET,CAUTION			
112	752WSA0275	COVER,AC HEAD			
113	752WSA0290	SHIELD,COMPO			
114	800WFA0046	CUSHION		10x15xT10	
115	752WUAA001	SHIELD,3PIN			
116	761WSA0127	ANGLE,FRONT			
117	702WSB0086	CABINET,TOP			
118	712WPB0162	PLATE,TRAY-FRONT			
119	761WSA0130	ANGLE,DVD			
120	7235630001	SHEET,DVD(NEW)			
121	761WPA0262	HOLDER,DECK TOP			
122	8965TS1010	CUSHION		65TS 10-10H L=10	
123	8965TS1017	CUSHION		65TS 10-10H	
124	761WPA0292	HOLDER,DVD			
125	800WB00004	FIBER,WASHER		7x3.2xT0.5	
126	752WSA0359	ANGLE,DVD 2			
127	723000A698	SHEET,DISPLAY			
201	8154730414	SCREW,TAP TITE(B)		M3x41R	
202	8109130B94	SCREW,TAP TITE(B)R	PAN	3x29	
203	8109230704	SCREW,TAP TITE(B)R	BIND	3x7	
204	8109I30A04	SCREW,TAP TITE(B)	WH7	3x10	
205	8109230804	SCREW,TAP TITE(B)	BIND	3x8	
206	8109K30601	SCREW,TAP TITE(B)	BIND(3D)	3x6	
207	8107130404	SCREW,TAP TITE(S)	PAN	3x4	
208	8110226804	SCREW,TAP TITE(P)	BIND	2.6x8	
209	810F130804	SEMS(F)		3x8	
---	A2C510H975	INSTRUCTION BOOK KIT			
---	723000C229	LABEL BOOMERANGIT			
---	791WHA0100	GIFT,SHEET			
---	792WHA0489	PACKAGE,FRONT			
---	792WHA0515	PACKAGE,BACK			
---	793WCDB930	GIFT BOX			
---	795WCA0662	PAD,DVD/VR		155x250	
---	795WCAA181	PAD,L		(340x480x160)	

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION		
300	A2C303N420K	DECK ASSY	A2C303N420K	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8	
				502	83ETW30000	E-RING	3	
301	85OA400240	PINCH ROLLER BLOCK (VA)		503	8107226404	SCREW,TAP TITE(S) BIND	2.6x4	
302	85OA500026	AHC ASS'Y		504	8102120604	SCREW,PAN	M2x6	
303	85OP200290	BELT,CAPSTAN (S)		505	8109126604	SCREW,TAP TITE(B) PAN	2.6x6	
304	85OP600581	WORM		506	810A130404	SCREW/WASHER(A)	M3x4	
305	85OP500083	BASE,AC HEAD		507	810A126504	SCREW/WASHER(A)	M2.6x5	
306	85OP800324	SPRING,AC HEAD		508	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13	
307	85OA000459	MAIN CHASSIS ASS'Y		509	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5	
308	85OA200089	CLUTCH ASS'Y						
309	85OA200090	ARM IDLER ASS'Y		510	8107226604	SCREW,TAP TITE(S) BIND	2.6x6	
310	85OA300065	LOADING ARM S UNIT		CD1501	122H071704	CORD JUMPER	2H071704	
311	85OA300066	LOADING ARM T UNIT		CD1502	122Y021902	CORD JUMPER	2Y021902	
312	85OA400223	INCLINED BASE T UINT 3S		H5001	1523Q91003	HEAD (AUDIO CONTROL)	VTR-1X2RPE22-756	
313	85OA400232	P5 ARM ASS'Y 2		H5002	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154	
314	85OA400235	TENSION ARM ASS'Y 2		⚠ M101	1596P98001	MOTOR (LOADING)	MXN13FB12K3	or
315	85OA400231	INCLINED BASE S UNIT			1596S98001	MOTOR (LOADING)	MDB2B66	
316	85OP800367	SPRING LOCKER		⚠ M2001	1510S98038	CAPSTAN DD UNIT	F2QVB33	or
317	85OP900736	CASS,HOLDER			1510S98040	CAPSTAN DD UNIT	F2QVB33B	
318	85OP900748	CASS,SIDE L		M2003	1589S11017	MICRO MOTOR	I2OAL05	
319	85OP900749	CASS,SIDE R		⚠ UN4001	A2C301N500	CYLINDER UNIT ASS'Y	A2C301N500	
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	85OP900750	LEVER,LINK 2						
346	85OP900744	LEVER,FLAP						
347	85OP900745	CASS,OPENER						
348	85OP700035	REFLECTOR,LED						
349	85OP900746	BRACKET,TOP 3V						

DVD DECK REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
600	A5E602V650P	DVD MECHA ASS'Y	A5E602V650P
601	92P100022A	TRAVERSE HOLDER	
602	92P100080A	RACK,FEED 1A	
603	92P100081A	RACK,FEED 2A	
604	92P100035A	LEVER,RACK FEED	
605	92P200006A	INSULATOR(F)	
606	92P200007A	INSULATOR(R)	
607	92P100029A	GEAR,FEED	
608	92P300009A	SPRING,RACK L	
609	92P100028A	GEAR,MIDDLE 3	
610	92P300019A	SPRING,RACK FEED 1A	
611	92P100040A	ARM,IDLER 2	
612	92P000001A	CLAMPER PLATE	
613	92P100019A	RACK,LOADING	
614	92P100020A	MAIN FRAME M	
615	92P100021A	TRAY	
616	92P100023A	GEAR,MAIN	
617	92P100082A	CLAMPER 2	
618	92P300002A	SPRING,RACK LOADING	
619	92P400002A	MAGNET,CLAMPER	
620	92P100030A	GEAR,IDLER	
621	92P100025A	GEAR,MOTOR	
622	92P100083A	GEAR,MIDDLE 1	
623	92P100027A	GEAR,MIDDLE 2	
701	8110226804	SCREW,TAP TITE(P) BIND	2.6x8
702	8110120604	SCREW,TAP TITE(P) PAN	2x6
703	8107220504	SCREW,TAP TITE(S) BIND	2x5
704	8140117254	SCREW,PAN	M1.7x2.5 P3
705	8110220804	SCREW,TAP TITE(P) BIND	2x8
CD2001	122H0O1901	CORD JUMPER	2H0O1901
CD2301	122H080701	CORD JUMPER	2H080701
CD2302	06CH232101	CORD CONNECTOR	232101
CP1	069JV80180	CONNECTOR PCB SIDE	IMSA-9615S-08C-PP
⚠ M2602	1515S98001	FEED MOTOR	BCD3B81
PCB640	A5E601V640	PCB ASS'Y	BEC001A
PCB68A	A5E601V680	PCB ASS'Y	BEC002A
SW1	0515S32001	SWITCH	SSS-23-6
SW2	0500101036	PUSH SWITCH	ESE22MH22

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R501	R0G3K2335K	RC	3.3M OHM 1/2W
⚠ R502	R3X181R82J	R,METAL OXIDE	0.82 OHM 1W
⚠ R512	R3X181683J	R,METAL OXIDE	68K OHM 1W
⚠ R516	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R517	R002T2821J	RC	820 OHM 1/2W
⚠ R545	R65584150J	R,FUSE	15 OHM 1/4W
		CAPACITORS	
⚠ C501	E02LF2222M	CE	2200 UF 16V
⚠ C502	P2122B104M	CMP	0.1 UF 275V ECQUL
⚠ C505	E02LU2101M	CE	100 UF 16V
⚠ C511	E62QFC470M	CE	47 UF 200V
C513	C0PLRR7H2K	CC	220 PF 2KV R
⚠ C514	E02LU2101M	CE	100 UF 16V
⚠ C515	C0J0B0514K	CC	0.01 UF 500V B
⚠ C516	CD39E0MQ3M	CC	0.0047UF 250V
⚠ C518	E62F00222M	CE	2200 UF 6.3V
⚠ C519	E02L01222M	CE	2200 UF 10V
⚠ C521	E02LU2101M	CE	100 UF 16V
⚠ C522	E02LU5220M	CE	22 UF 50V
C525	C0PLRR7U2K	CC	680 PF 2KV R
⚠ C540	E62QFC470M	CE	47 UF 200V
		DIODES	
⚠ 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
D509	D2WXGP10J0	DIODE RECTIFIER	RGP10J-EIC
⚠ D510	D97U02701B	DIODE,ZENER	MTZJ27B T-77 or
	D97T02701D	DIODE,ZENER	MTZJ27D T-77
⚠ D511	D28T21DQN4	DIODE SCHOTTKY	21DQ04N-TA2B1
⚠ D512	D28T21DQN4	DIODE SCHOTTKY	21DQ04N-TA2B1
⚠ D513	D2WXN40050	DIODE SILICON	1N4005-EIC
D514	D97U01201B	DIODE,ZENER	MTZJ12B T-77
⚠ D515	D28T21DQN4	DIODE SCHOTTKY	21DQ04N-TA2B1
D518	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ 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
D528	D1VT001330	DIODE,SILICON	1SS133T-77
D530	D28TELS6N6	DIODE RECTIFER	10ELS6N-TA1B2
D531	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
D532	D97U03R31B	DIODE,ZENER	MTZJ3.3B T-77
D534	D1VT001330	DIODE,SILICON	1SS133T-77
D535	D1VT001330	DIODE,SILICON	1SS133T-77
D536	D1VT001330	DIODE,SILICON	1SS133T-77
D537	D1VT001330	DIODE,SILICON	1SS133T-77
D538	D1VT001330	DIODE,SILICON	1SS133T-77
D539	D1VT001330	DIODE,SILICON	1SS133T-77
D651	0021E2Q140	LED	LTL-1CHEE-002A
D656	D2WXN40050	DIODE SILICON	1N4005-EIC
D685	0021E2Q140	LED	LTL-1CHEE-002A
D701	D1VT001330	DIODE,SILICON	1SS133T-77
D702	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D2601	DDARDS1200	DIODE SILICON	KDS120RTK
D3001	0010E00330	INFRARED LED	LTE-3271T-012A-O
D3007	D1VT001330	DIODE,SILICON	1SS133T-77
D3009	D1VT001330	DIODE,SILICON	1SS133T-77
D8002	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D8003	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D8008	D1VT001330	DIODE,SILICON	1SS133T-77
D8101	DDDRL41480	DIODE SILICON	MCL4148
D8102	DDDRL41480	DIODE SILICON	MCL4148
D8103	DDDRL41480	DIODE SILICON	MCL4148
D8106	DDDRL41480	DIODE SILICON	MCL4148
D8107	DDDRL41480	DIODE SILICON	MCL4148
D8108	DDDRL41480	DIODE SILICON	MCL4148
D8109	DDDRL41480	DIODE SILICON	MCL4148
D8110	DDDRL41480	DIODE SILICON	MCL4148
D8111	DDDRL41480	DIODE SILICON	MCL4148
D8112	DDDRL41480	DIODE SILICON	MCL4148
D8113	DDDRL41480	DIODE SILICON	MCL4148
		ICS	
IC101	I03F3206M0	IC	LA71206M-MPB
⚠ IC501	I1KJ9A4310	IC	KIA431

REF. NO.	PART NO.	DESCRIPTION	
		ICS	
⚠ IC502	I1KA98R09A	IC	KIA78R09API
⚠ IC503	000220001W	PHOTO COUPLER	PS2561L1-1-V(W)
IC701	I01F63FBP0	IC	AN3663FBP
IC2301	I03F065600	IC	LA6560
IC2601	ICQK067070	IC	ZR36707TQC
IC2602	I07E00358F	IC	BA10358F-E2
IC3001	I54F50138B	IC	OEC0138B
IC3003	I9UF032310	IC	PST3231NR
IC3099	A2C509K015	IC	AT24C04N-10SI-2.7
IC4001	ICQK067620	IC	ZR36762
IC4002	ICRJ0C04N0	IC	AT24C04N-10SI-2.7 or
	I5HJ004BF0	IC	S-24C04BFJ-TB
IC4003	I0GF9XZ010	IC	PQ070XZ01ZP
IC4005	IF9J0164A7	IC	M12L64164A-7T or
	IF9J0164A6	IC	M12L64164A-6T or
	IF3J00HGT7	IC	HY57V641620HGT-7
IC4007	ICMJ0800A7	IC	SST39VF800A-70-4C-EK or
	ICMJ0800A8	IC	SST39VF800A-70-4C-EK-D
IC7301	I17F0742K0	IC	PCM1742KE/2K
IC8005	I0UF015010	IC	MM1501XNRE
IC8101	I0QJ045800	IC	NJM4580M(TE1)
		TRANSISTORS	
Q101	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q102	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q103	TPAAC05002	COMPOUND TRANSISTOR	
Q104	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q105	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q106	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q107	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q109	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q301	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
⚠ Q501	TJXG5NC500	FET	STP5NC50FP
⚠ Q502	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
⚠ Q503	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
⚠ Q504	TAAT012714	TRANSISTOR, SILICON	KTA1271_Y-AT
⚠ Q505	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
Q506	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q507	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q508	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q509	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
⚠ Q510	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
⚠ Q511	TAAT01241Y	TRANSISTOR SILICON	KTA1241_Y-AT
Q513	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q514	T8YJ2412K0	TRANSISTOR SILICON	2SC2412KT146 R,S
Q530	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q531	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q651	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q652	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q653	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q654	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q655	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q656	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q657	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q658	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q659	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q660	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q661	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q662	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q663	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q664	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q665	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q666	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q2601	T67J1036K0	TRANSISTOR SILICON	2SA1036KT146
Q2602	T67J1036K0	TRANSISTOR SILICON	2SA1036KT146
Q2603	T27T030180	FET	2SK3018
Q2604	T27T030180	FET	2SK3018
Q2605	T27T030180	FET	2SK3018
Q3001	0002700690	PHOTO COUPLER	RPI-303
Q3002	0002700690	PHOTO COUPLER	RPI-303
Q3003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q3004	0002700680	PHOTO COUPLER	RPI-352C40N
Q3005	0002700680	PHOTO COUPLER	RPI-352C40N
Q3006	0000M00390	PHOTO TRANSISTOR	ST-304L
Q3007	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q3008	0000M00390	PHOTO TRANSISTOR	ST-304L
Q8003	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q8004	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		TRANSISTORS	
Q8005	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8006	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8007	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q8101	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8102	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
Q8103	TPAAA05001	COMPOUND TRANSISTOR	KRA101SRTK
Q8104	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8105	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q8106	TNAAD05001	COMPOUND TRANSISTOR	KRC104SRTK
Q8107	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
		COILS &TRANSFORMER	
L101	031626009R	COIL,BIAS OSC	1626009
L102	02167F101J	COIL	100 UH
L103	0216A65R6K	COIL	5.6 UH
L105	02167F101J	COIL	100 UH
L106	02167F220J	COIL	22 UH
L107	02167F220J	COIL	22 UH
L301	02167F220J	COIL	22 UH
⚠ L501	029T000107	COIL,LINE FILTER	0R4A223F20
L502	02AHB0A0A4	CORE,FERRITE	W5T_20*10*10A
L505	02167F220J	COIL	22 UH
⚠ L506	02167E220K	COIL	22 UH
L701	02167F220J	COIL	22 UH
L702	02167F220J	COIL	22 UH
L703	02167F101J	COIL	100 UH
L704	0216A6100K	COIL	10 UH
L3002	021W7A220K	COIL	22 UH
L3003	0216A6120K	COIL	12 UH
L4001	02167F2R2J	COIL	2.2 UH
L8004	0216A6470K	COIL	47 UH
L8101	02167F1R0K	COIL	1 UH
L8102	02167F1R0K	COIL	1 UH
L8103	02167F1R0K	COIL	1 UH
L8104	02167F1R0K	COIL	1 UH
L8105	02167FR33K	COIL	0.33 UH
L8106	02167FR33K	COIL	0.33 UH
⚠ T501	0481260074	TRANSFORMER,SWITCHING	81260074
		JACKS	
J8001	060J411018	RCA JACK	MSP-213V1-432 PBSN
J8003	060J401079	RCA JACK	MSP-281V4-B
J8004	060J401080	RCA JACK	MSP-281V1-B
J8005	060J421023	RCA JACK	MSP-281V3-A
J8101	060J411029	RCA JACK	MSP-213V1-732_PBSN
J8102	063D700005	JACK	MDC-070V
J8103	060J411024	RCA JACK	MSP-213V1-652 PBSN
		SWITCHES	
SW651	0504101T34	SWITCH,TACT	EVQ21505R
SW652	0504101T34	SWITCH,TACT	EVQ21505R
SW653	0504101T34	SWITCH,TACT	EVQ21505R
SW654	0504101T34	SWITCH,TACT	EVQ21505R
SW655	0504101T34	SWITCH,TACT	EVQ21505R
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
SW8101	0510Y24001	SWITCH SLIDE	SK42H01G9A
		P.C.BOARD ASSEMBLIES	
PCB010	A2C505H010	PCB ASS'Y	VMC300A
PCB130	A2C505H130	PCB ASS'Y	VMC298A
PCB270	A2C503X270	PCB ASS'Y	VEBA07A
		MISCELLANEOUS	
B501	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B502	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

REF. NO.	PART NO.	DESCRIPTION		
		MISCELLANEOUS		
B4006	024HC31022	CORE,BEADS	FCM2012H-102T04	
B4007	024HC31022	CORE,BEADS	FCM2012H-102T04	
B4008	024HC31022	CORE,BEADS	FCM2012H-102T04	
B7301	024HC31022	CORE,BEADS	FCM2012H-102T04	
B7302	024HC31022	CORE,BEADS	FCM2012H-102T04	
B8101	024HC31022	CORE,BEADS	FCM2012H-102T04	
B8102	024HC31022	CORE,BEADS	FCM2012H-102T04	
B8103	024HC31022	CORE,BEADS	FCM2012H-102T04	
CD102	122H061504	CORD JUMPER	2H061504	
⚠ CD501	1209419910	CORD AC BUSH	9419910	
CD681	122H051202	CORD JUMPER	2H051202	
CP101	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1	
CP102	069J760599	CONNECTOR PCB SIDE	IMSA-9604S-06C	
CP103	067U002019	WIRE HOLDER	B2013H02-2P	
CP501	06CH2C0302	CORD CONNECTOR	CH2C0302	
CP651	069J750019	CONNECTOR PCB SIDE	IMSA-9604S-05Z13	
CP681	069J750019	CONNECTOR PCB SIDE	IMSA-9604S-05Z13	
CD6002	06CPL02006	CABLE	CPL02006	
CD6003	06CPBA2003	CORD,RCA PIN	TD-020301-3	
CD8002	122F080601	CORD JUMPER	2F080601	
CP2601	069GYOT079	CONNECTOR PCB SIDE	09-5000-024-001-006	
CP2602	069EV83010	CONNECTOR PCB SIDE	00_6232_008_006_800	
CP2603	069S230629	CONNECTOR PCB SIDE	A2001WV2-3P	
CP3001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2	
CP4002	069S2C0629	CONNECTOR PCB SIDE	A2001WV2-12P	
CP8002	069J780599	CONNECTOR PCB SIDE	IMSA-9604S-08C	
CP8102	069J780599	CONNECTOR PCB SIDE	IMSA-9604S-08C	
⚠ F501	081PC2R505	FUSE	51MS025L	
FH501	06710T0009	HOLDER,FUSE	EYF-52BCY	or
	06710T0006	HOLDER,FUSE	EYF-52BC	
FH502	06710T0009	HOLDER,FUSE	EYF-52BCY	or
	06710T0006	HOLDER,FUSE	EYF-52BC	
OS651	077Q037009	REMOTE RECEIVER	PIC-37043LO-H	or
	077Q037001	REMOTE RECEIVER	PIC-37043LO	
OS8101	07AQ000009	OPTICAL DEVICE	OFTG038101	or
	07A9000006	OPTICAL DEVICE	GP1FA553TZ	
TM601	076R0ET050	TRANSMITTER	R25-1941	
⚠ TU301	0162300038	RF UNIT	115-V-H015ARE	
V651	0040H54010	LED DISPLAY	CO2D0M3-A	or
	0040F54009	LED DISPLAY	ELF-4M6SDRVGWB/S423	
X101	100DT3R528	CRYSTAL	HC-49/U	
X3001	100BT01004	CRYSTAL	HC-49U/S	
X3002	100DA32R01	CRYSTAL	DT-26	
X4001	100BT02701	CRYSTAL	HC-49U/S	

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

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

SPEC.NO.	M2C5-10H
O/R NO.	K3Z2007