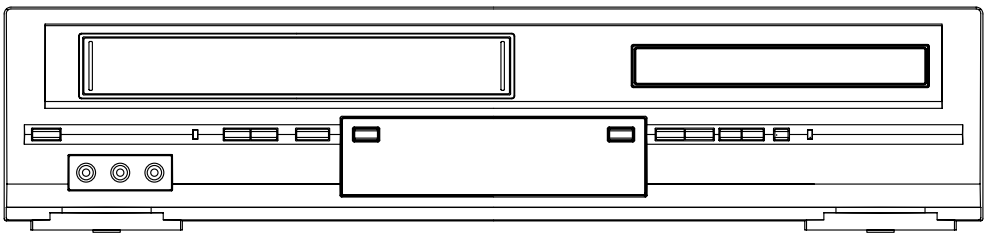
Memorex®

MVD4540C

SERVICE MANUAL

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER



ORIGINAL
MFR'S VERSION A

CAUTION

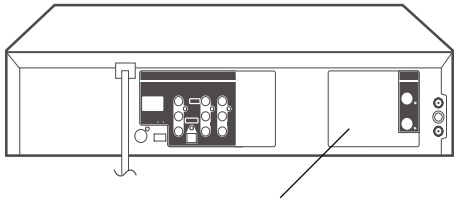
THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

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

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

Location of the required Marking
The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

PREPARATION OF SERVICING

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

- It works on the desk which performed measures against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

IMPORTANT SERVICE SAFETY INFORMATION

Safety precautions to be followed during servicing:

1. Parts marked with an ⚠ are critical parts for safety. Replace only with the one described in the parts list.
2. Before returning the DVD product to the customer, make the appropriate leakage current check or resistance measurements to ensure that exposed parts are properly insulated from the supply circuit.

A leakage current check is recommended for this unit. Plug the AC line cord directly into a 120V 60Hz AC outlet (do not use an isolation transformer for this check). Use a leakage current tester (Fig. 1) or a metering system which complies with Underwriters Laboratories (UL 1409). Measure for current from all exposed metal parts of the cabinet to a known earth ground: particularly, any exposed metal part having a return path to the chassis. Any current measured must not exceed 0.5mA. Any measurement not within the limits outlined above are indicative of a potential shock hazard and corrective action must be taken before returning the unit to the customer.

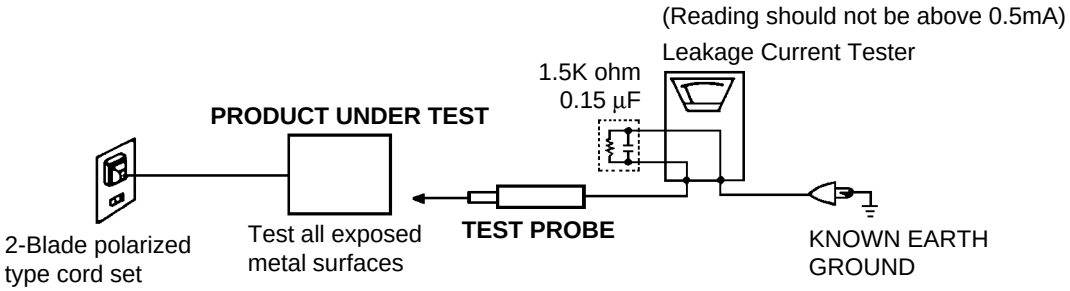


Fig. 1 AC Leakage Test

IMPORTANT SAFEGUARDS

1. **READ INSTRUCTIONS**
   All the safety and operating instructions should be read before the unit is operated.
2. **RETAIN INSTRUCTIONS**
   The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS**
   All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS**
   All operating and use instructions should be followed.
5. **CLEANING**
   Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **ATTACHMENTS**
   Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.
7. **WATER AND MOISTURE**
   Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
8. **ACCESSORIES**
   Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

PORTABLE CART WARNING
(symbol provided by RETAC)

S3125A

8A. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. **VENTILATION**
   Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. **POWER SOURCES**
    This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.
11. **GROUNDING OR POLARIZATION**
    This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
12. **POWER-CORD PROTECTION**
    Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **LIGHTNING**
    To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.
14. **POWER LINES**
    An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.
15. **OVERLOADING**
    Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.
16. **OBJECT AND LIQUID ENTRY**
    Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

17. OUTDOOR ANTENNA GROUNDING

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

18. SERVICING

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

19. DAMAGE REQUIRING SERVICE

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the unit.
c. If the unit has been exposed to rain or water.
d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
e. If the unit has been dropped or the cabinet has been damaged.
f. When the unit exhibits a distinct change in performance, this indicates a need for service.

20. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.
Unauthorized substitutions may result in fire, electric shock or other hazards.

21. SAFETY CHECK

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

22. WALL OR CEILING MOUNTING

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

23. HEAT

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

24. DISC TRAY

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

25. CONNECTING

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

26. SOUND VOLUME

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

27. SOUND DISTORTION

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

28. HEADPHONES

When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

29. LEASER BEAM

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

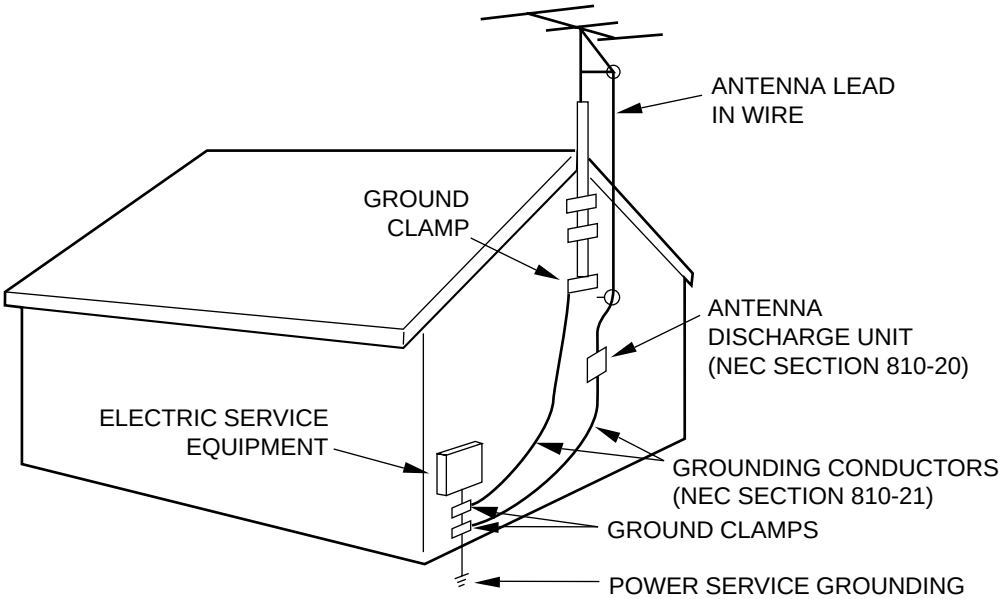
30. DISC

Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

31. NOTE TO CATV SYSTEM INSTALLER

This reminder is provided to call the CATV system installer’s attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



WHEN REPLACING DVD DECK

[When the removal of the DVD Deck]

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

[When the installation of the DVD Deck]

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

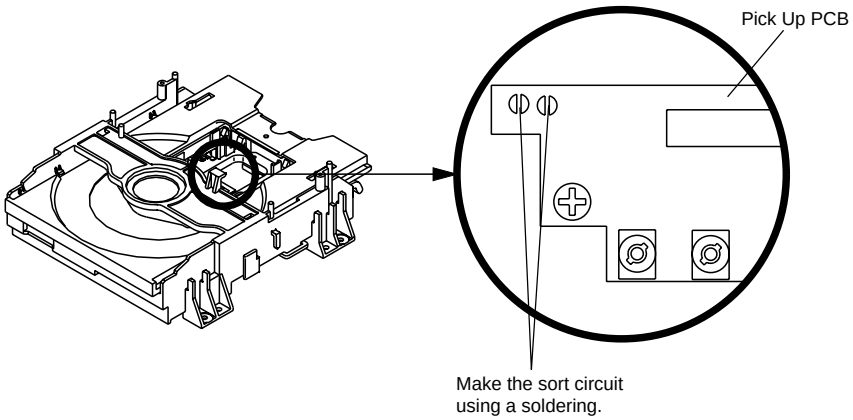


Fig. 1

TAPE REMOVAL METHOD AT NO POWER SUPPLY

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

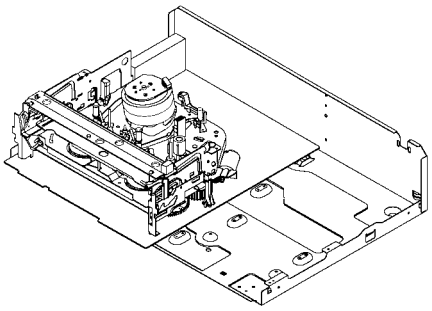


Fig. 1

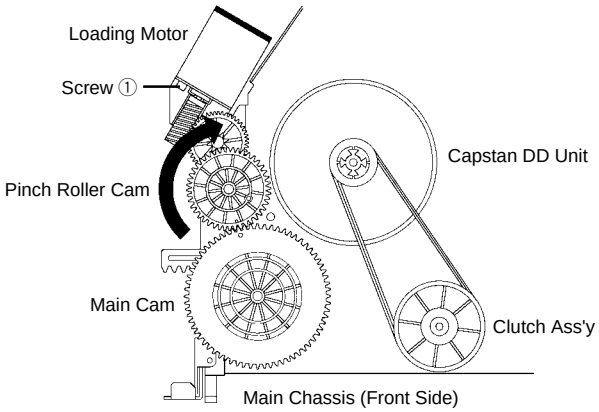


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

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

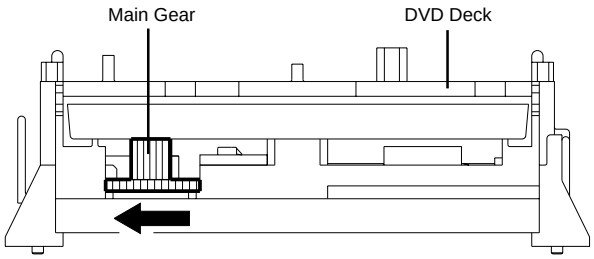


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

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

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

CONTENTS

GENERAL SPECIFICATIONS

G-1	**Outline of the product**				DVD VIDEO PLAYER & VHS Player / Recorder
G-2	**DVD System**	Color System			NTSC
		Disc			DVD, CD-DA, CD-R/RW
		Disc Diameter			120 mm , 80 mm
		Deck	Disc Loading System		Front Disc Loading
			Motor		3 Motors
		Pick up			1-Lens 2-Beams System
		Playback time (Max)	DVD 1-Layer		135min (4.7GB)
			DVD 2-Layer		245min (8.5GB)
			CD		74min
			VIDEO CD		--min
		Search speed			Fwd 4 steps
				Actual	2-45 times (DVD)
					4-40 times (CD)
					Rev 4 steps
				Actual	2-45 times (DVD)
					4-40 times (CD)
		Slow speed			Fwd 1/7-1/2 times
				Actual	--
					Rev --
				Actual	--
G-3	**VCR**	System			VHS Player / Recorder
	System	Video System			NTSC
		Hi-Fi STEREO			Yes
		NTSC PB(PAL60Hz)			No
		Deck	DECK		OVD-7
			Loading System		Front
			Motor		3
		Heads	Video Head		4Head
			FM Audio Head		2Head
			Audio / Control		Mono/Yes
			Erase (Full Track Erase)		Yes
			Erase (Normal Audio Track Erase)		No
		Tape Speed	Rec PAL		-
			Rec NTSC		SP/SLP
			Play PAL		-
			Play NTSC		SP/LP/SLP
		Fast Forward / Rewind Time (Approx.) at 25oC			FF:4'50"/REW:2'30"
				with Cassette	T-120
		Forward/Reverse Picture Search	NTSC or PAL-M		SP/LP/SLP = 3x,5x / 7x,9x / 9x,15x
			PAL or SECAM		-
		Frame Advance			Yes
		Slow Speed			1/10
G-4	**Tuning**	Broadcasting System			US System M
	System	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

GENERAL SPECIFICATIONS

G-5	**Power**	Power Source	AC	120V 60Hz
			DC	-
		Power Consumption		18 W at 120V 60Hz
			Stand by	2 W at 120V 60Hz
			Per Year	-- W
		Protector	Power Fuse	Yes
			Safety Circuit	Yes
			IC Protector(Micro Fuse)	No
G-6	**Regulation**		Safety	UL
			Radiation	FCC
			Laser	DHHS
G-7	**Temperature**		Operation	5oC - 40oC
			Storage	-20oC - 60oC
G-8	**Operating Humidity**			Less than 80% RH
G-9	**Signal**	Video Signal	Output Level	1 V p-p/75 ohm (DVD,VCR)
			S/N Ratio (Weighted)	65 dB(DVD) 50 dB(VCR)
			Horizontal Resolution	500 Lines (DVD) 230 Lines(VCR Mode)
		RGB Signal	Output Level	-
		Audio Signal	Input Level Microphone	-
			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	
				Subtitle	Yes	
				Audio	Yes	
			Picture		Yes	
				TV Screen Size	Yes	
				OSD Display On/Off	Yes	
				JPEG Interval		No
				Select Files		No
				E.B.L. (Enhanced Black Level)		No
			Sound		Yes	
				DRC (Dynamic Range Control)	Yes	
				Dialogue On:DRC(TV)/ Off:DRC(Std)		No
				dts Decode		No
				Output (5.1ch/2ch)		No
				Surround On/Off		No
				Center On/Off		No
				Sub Woofer On/Off		No
			Parental		Yes	
				Password Lock/Unlock	Yes	
				Rating Level	Yes	
			Other		Yes	
				OSD Language (Set up Language)	Yes	
				Output (RGB / Composite)		No
			Open		Yes	
			Close		Yes	
			No disc		Yes	
			Reading		Yes	
			Play		Yes	
			Still/Pause		Yes	
			Stop		Yes	
			Prohibit Mark		Yes	
			Step		Yes	
			Skip (>>|)		Yes	
			Skip (|<<)		Yes	
			Random		Yes (CD, 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	
			Subtitle No.		Yes	
			Angle No.		Yes	
			Vocal On/Off		Yes	
			Audio No.		Yes	
			Audio Stereo L/R			No
			Zoom		Yes	
			Marker No.		Yes	
			Spatializer (N-2-2)			No
			Program Play Back		Yes (CD, MP3)	
			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/CABLE	Yes
				Auto CH Memory	Yes
				Add/Delete	Yes
			System Set Up		Yes
				Clock Set	Yes (Calendar 12H)
				Language	Yes
				No Noise Back Ground	Yes
				Auto Clock	Yes
				Standard Time	Yes
				Daylight Saving Time	Yes
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry			No
		Stereo, Audio Output, SAP			Yes
		Play/Stop/FF/Rew/Rec/OTR/Pause/Eject/Tape In/Repeat (Symbol Mark)			Yes
				CH/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
				Remocon Custom Code	No
				Progressive Scan Out	Yes

GENERAL SPECIFICATIONS

G-14	**Remote Control**	Unit		RC-JN
		Glow in Dark Remocon		No
		Format		NEC
		Custom Code		71-8E
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		46 Keys
		Keys	Power	Yes
			DISPLAY	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
			TOP MENU	Yes
			SETUP MENU/VCR MENU	Yes
			ENTER	Yes
			CANCEL	Yes
			RETURN	Yes
			PLAY	Yes
			STOP	Yes
			PAUSE/STILL/STEP	Yes
			FF(Cue)/SEARCH+	Yes
			REW(Review)/SEARCH-	Yes
			REC/OTR	Yes
			SKIP+ / INDEX+	Yes
			SKIP- / INDEX-	Yes
			AUDIO / AUDIO SELECT	Yes
			ANGLE/COUNTER RESET	Yes
			SUBTITLE/ATR	Yes
			PLAY MODE/SPEED	Yes
			T-REC	Yes
			CLOCK / COUNTER	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
		Tray Lock		No
		Auto Stop		No
		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	Yes	
		Index Search	Yes	
		SQPB		No
		CATV	Yes	
		Energy Star		No
		MTS (SAP)	Yes	
		CM Skip (30sec x 6 Times)		No
		Copy (Disc to Tape)		No
G-16	**Accessories**	Owner's Manual Language	English / Spanish	
		w/Guarantee Card	Yes	
		Remote Control Unit	Yes	
		Guarantee Card		No
		Registration Card		No
		Warning Sheet		No
		Service Station List		No
		Important Tag		No
		AC Plug Adapter		No
		Quick Set-up Sheet		No
		Battery		No
		UM size x pcs	--	
		AC Cord		No
		AV Cord (1.2m)	Yes	
		75 Ohm Coaxial Cable (0.9m)	Yes	
		S-Video Cable		No
		21pin cable		No
		800 No Sticker		No
		Toll Free Insert Sheet		No
		Safety Tip		No

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 227 x 99
G-19	**Weight**			Net (Approx.)	3.5 kg(7.7lbs)
				Gross (Approx.)	4.5 kg(9.9lbs)
G-20	**Carton**		Master Carton		No
				Content	--- Sets
				Material	--- / ---
				Dimensions W x D x H(mm)	---
				Description of Origin	---
			Gift Box		Yes
				Material	Double / Brown
				W/Color Photo Label	No
				Dimensions W x D x H(mm)	497 x 340 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		2,011 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/FRONT CABINET/OPERATION PCB (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).

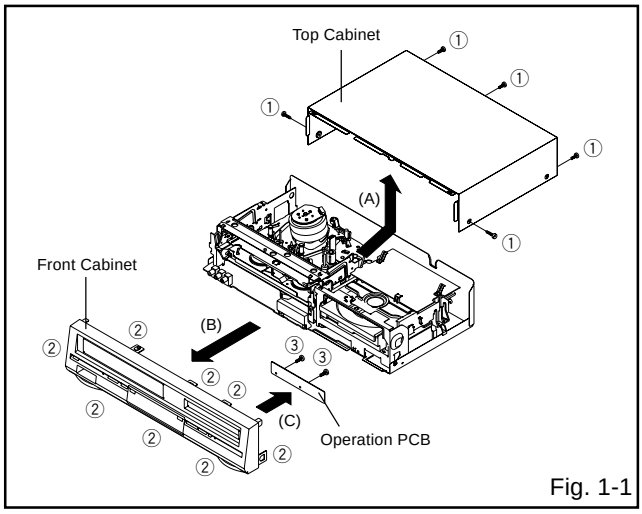


Fig. 1-1

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).

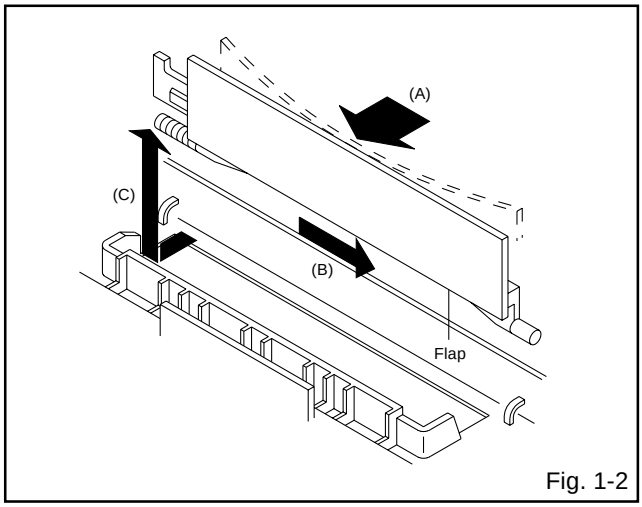


Fig. 1-2

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

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

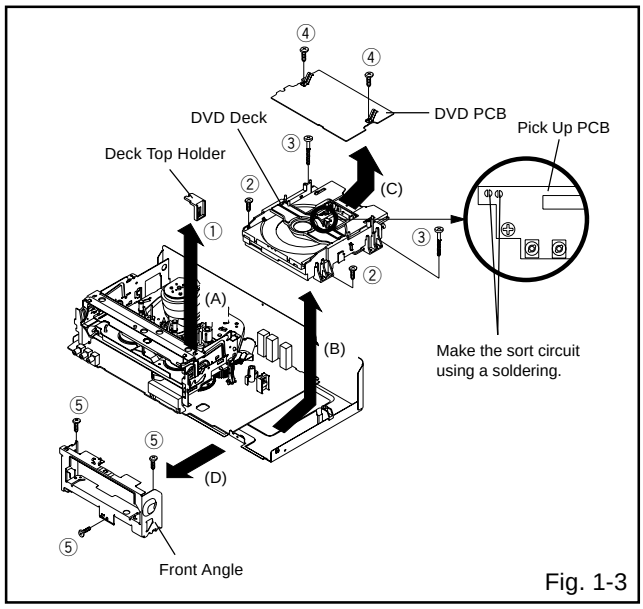


Fig. 1-3

NOTE

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

DISASSEMBLY INSTRUCTIONS

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

NOTE

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

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

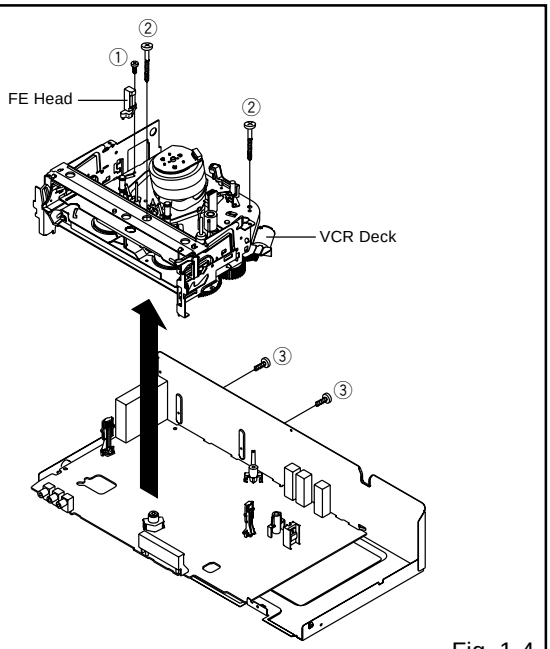


Fig. 1-4

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

1. Remove the screw ①.
2. Remove the 5 screws ②.
3. Remove the 2 screws ③.
4. Remove the 3pin Shield.
5. Remove the VCR PCB in the direction of arrow.

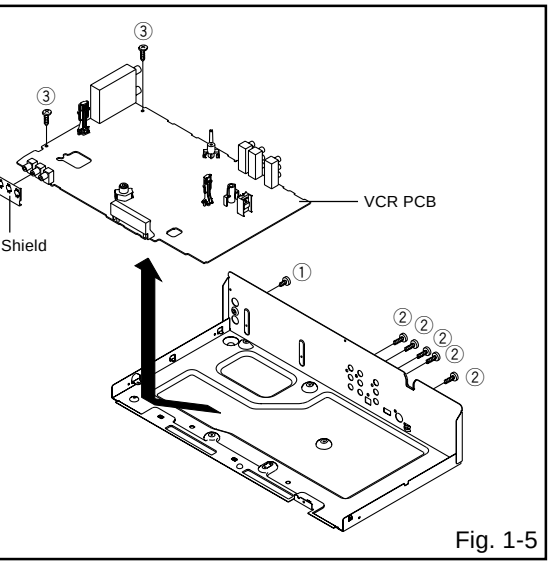


Fig. 1-5

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF VCR DECK PARTS

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

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

NOTE

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

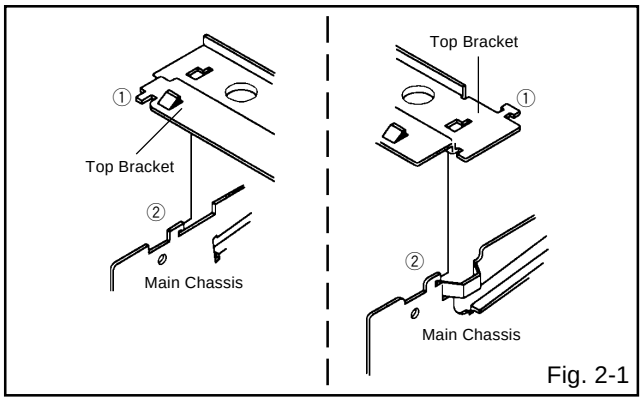


Fig. 2-1

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

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

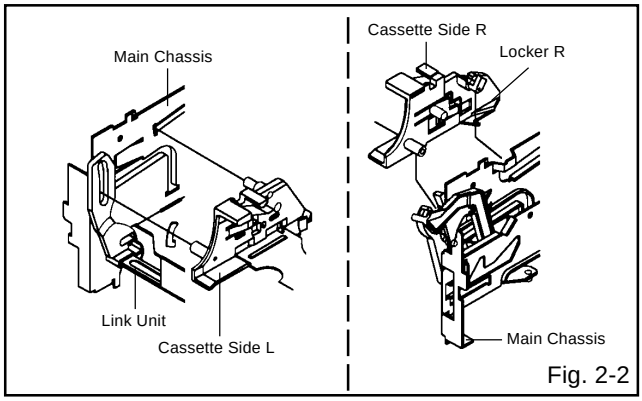


Fig. 2-2

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

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

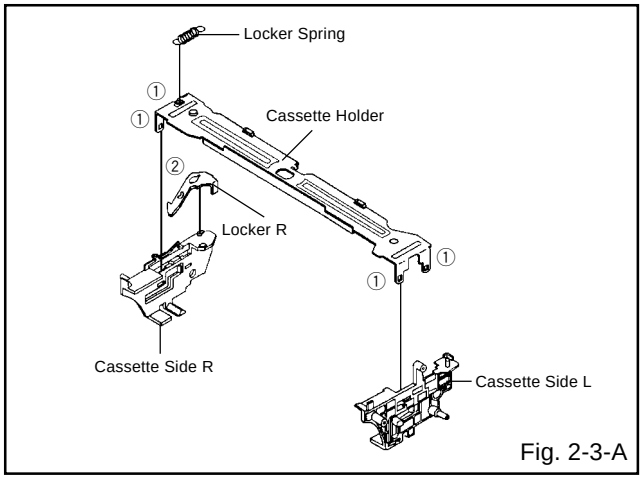


Fig. 2-3-A

NOTE

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

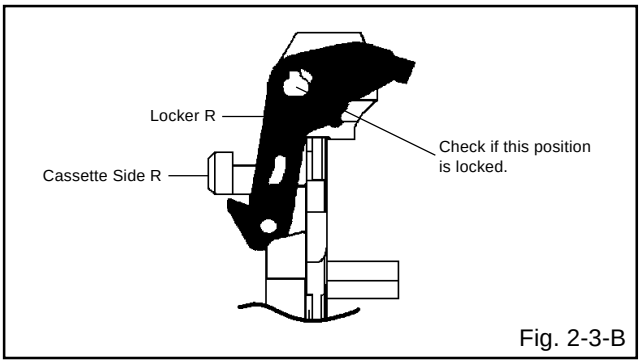


Fig. 2-3-B

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

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

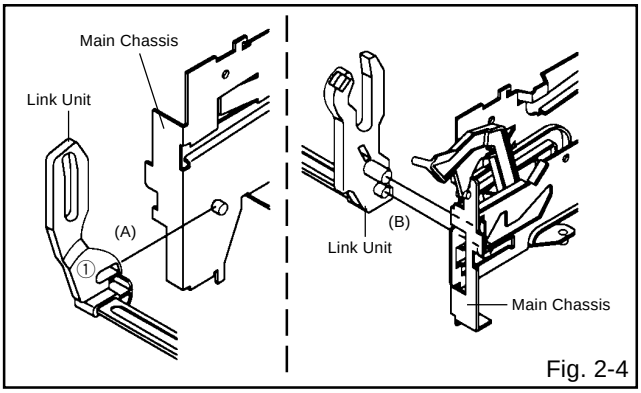


Fig. 2-4

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

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

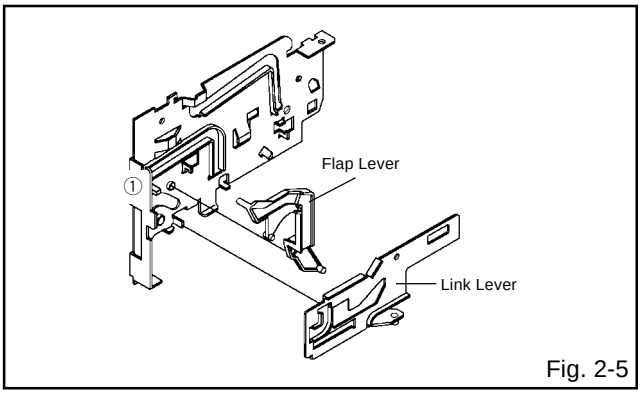


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

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

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

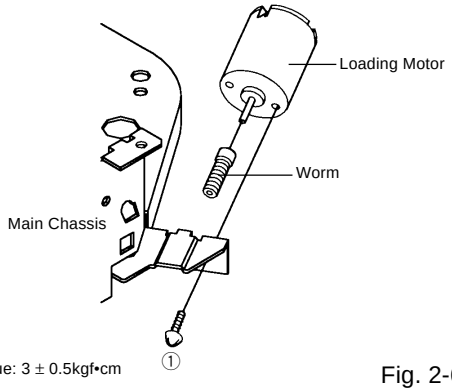


Fig. 2-6-A

NOTE

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

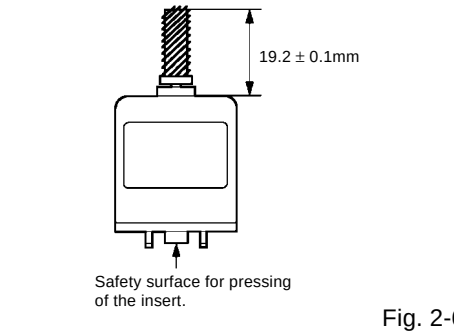


Fig. 2-6-B

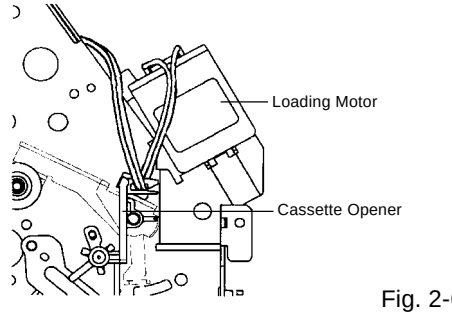


Fig. 2-6-C

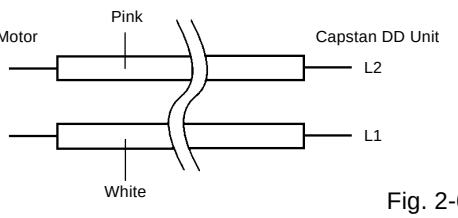


Fig. 2-6-D

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

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

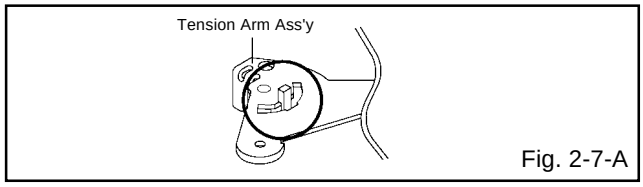


Fig. 2-7-A

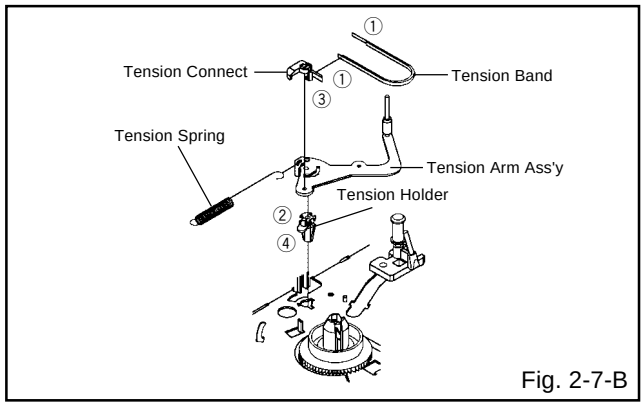


Fig. 2-7-B

NOTE

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

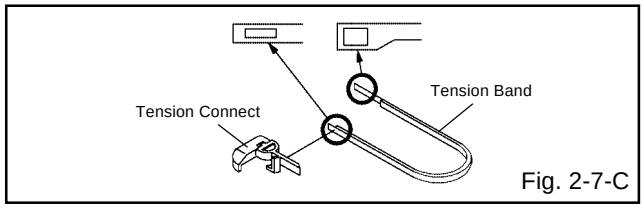


Fig. 2-7-C

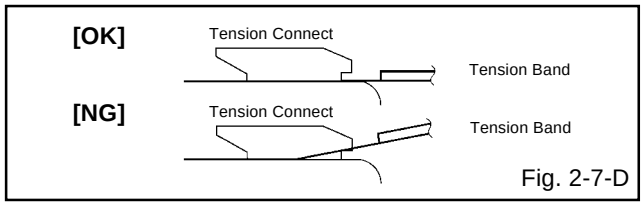


Fig. 2-7-D

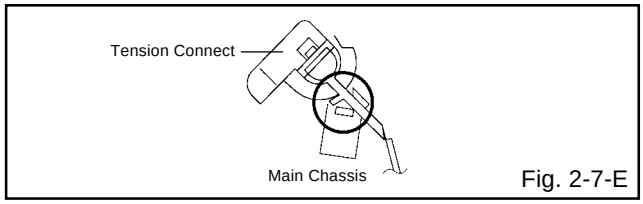


Fig. 2-7-E

DISASSEMBLY INSTRUCTIONS

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

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

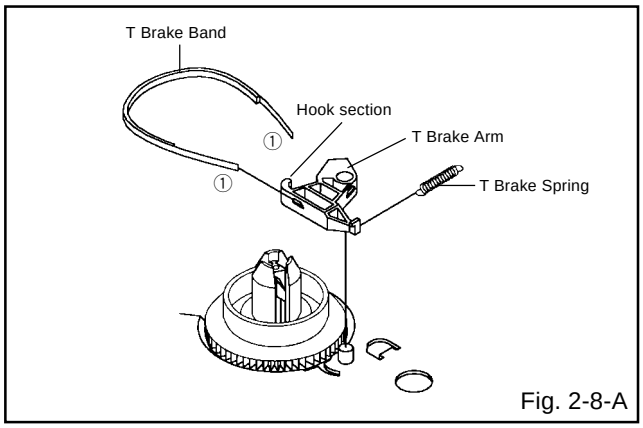


Fig. 2-8-A

NOTE

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

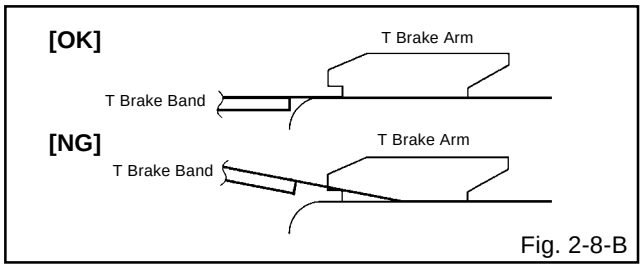


Fig. 2-8-B

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

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

NOTE

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

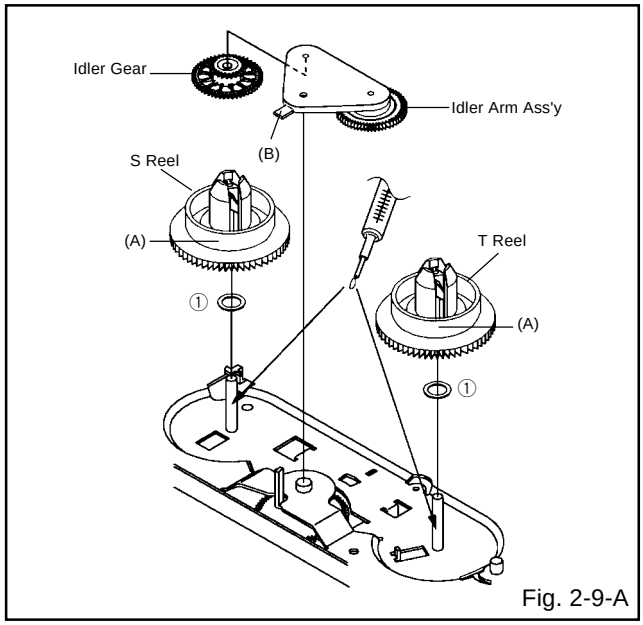


Fig. 2-9-A

NOTE

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

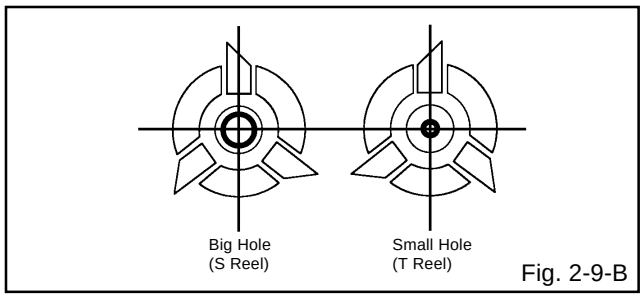


Fig. 2-9-B

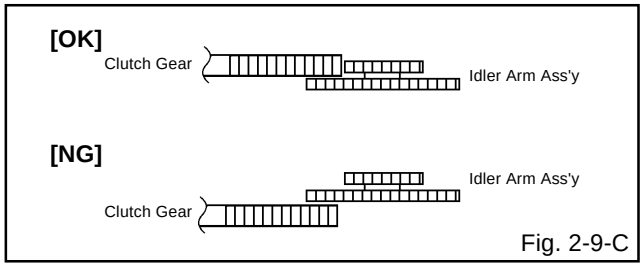


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

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

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

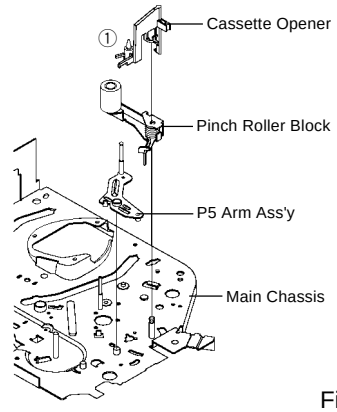


Fig. 2-10-A

NOTE

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

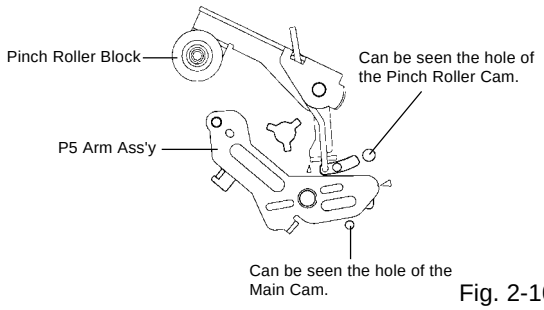


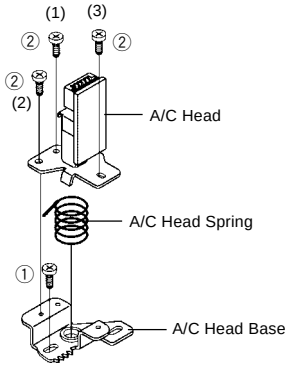
Fig. 2-10-B

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

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

NOTE

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



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

Fig. 2-11-A

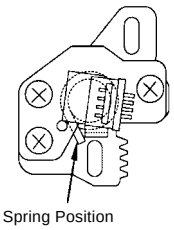
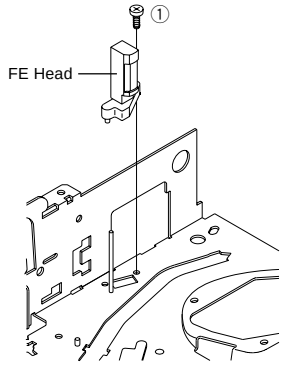


Fig. 2-11-B

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

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



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

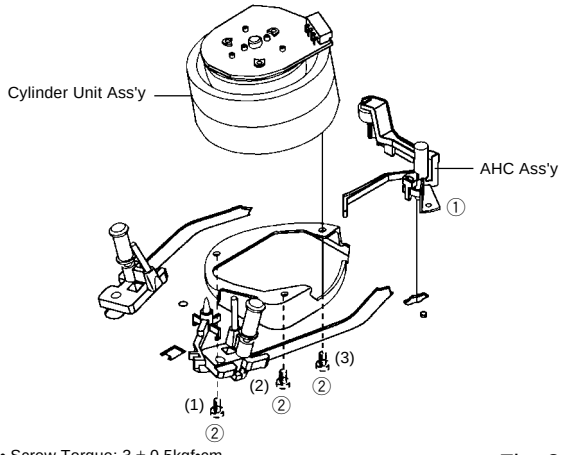
Fig. 2-12

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

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

NOTE

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



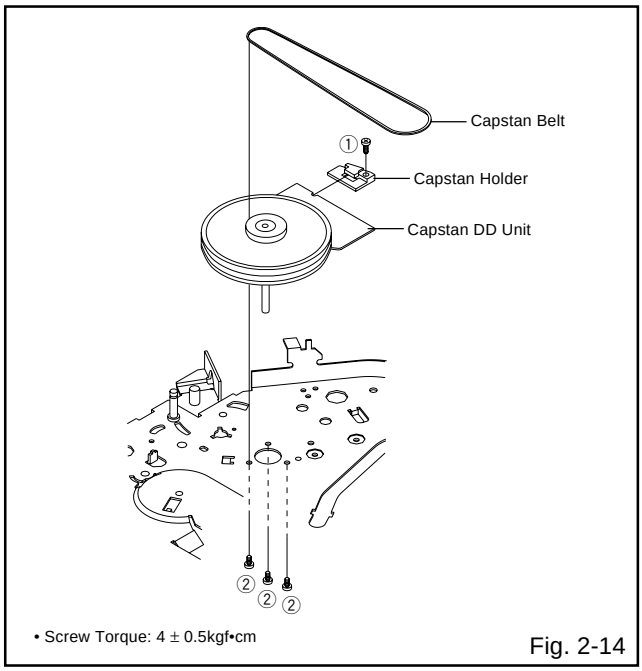
• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

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

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



• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-14

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

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

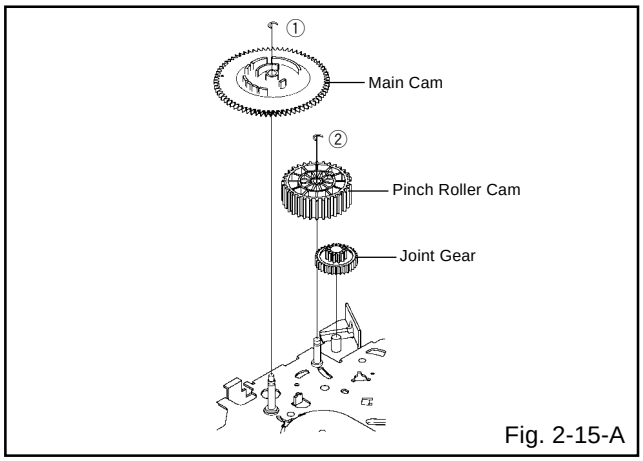


Fig. 2-15-A

NOTE

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

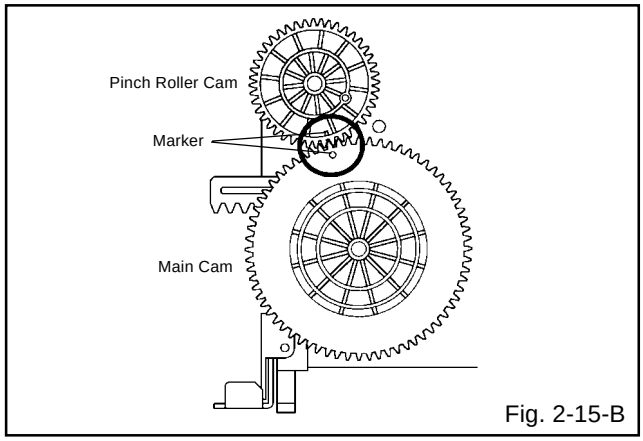


Fig. 2-15-B

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

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

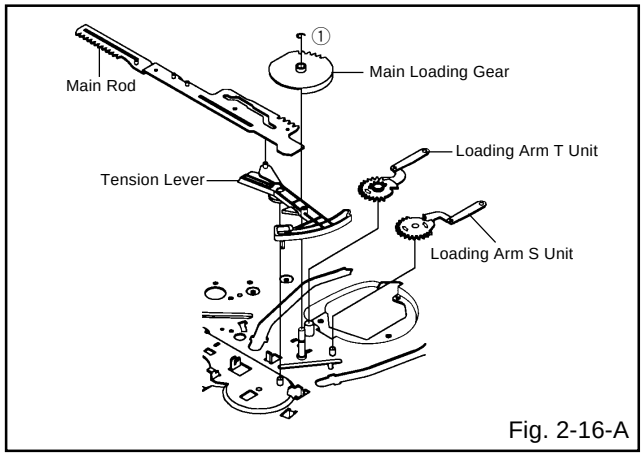


Fig. 2-16-A

NOTE

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

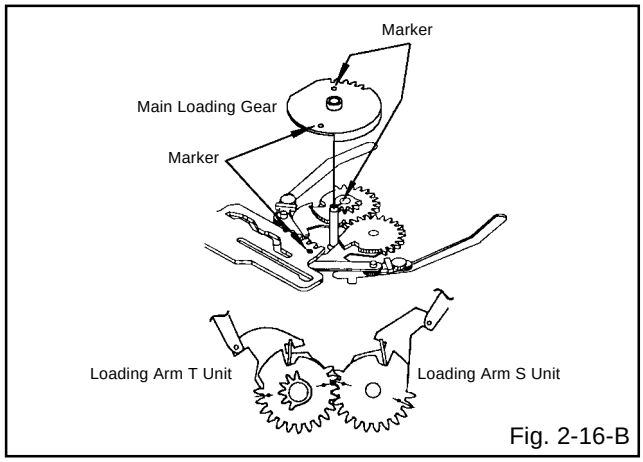


Fig. 2-16-B

DISASSEMBLY INSTRUCTIONS

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

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

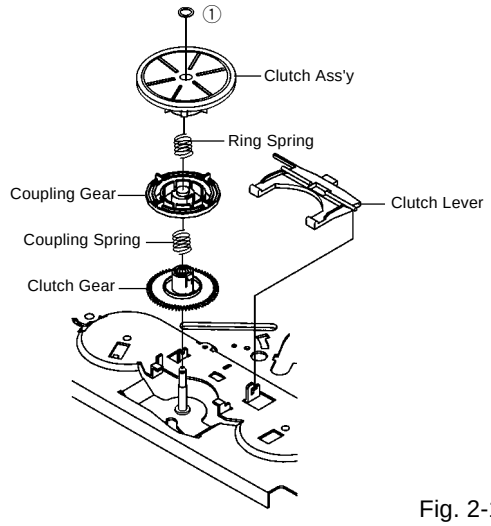


Fig. 2-17-A

NOTE

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

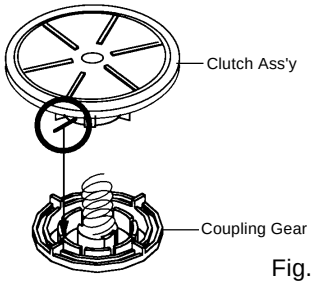


Fig. 2-17-B

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

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

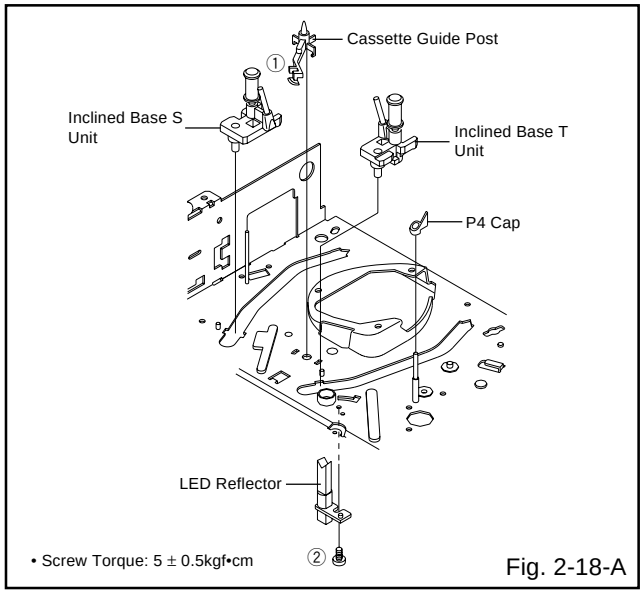


Fig. 2-18-A

NOTE

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

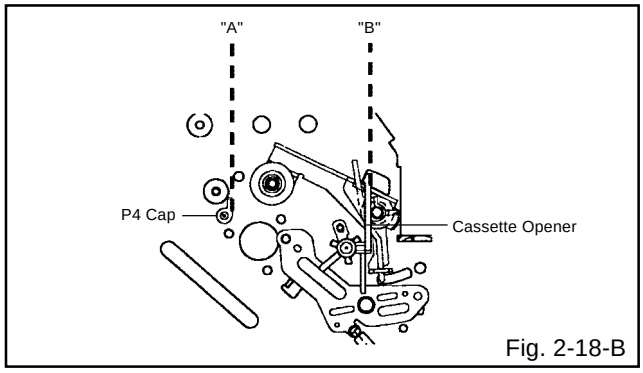


Fig. 2-18-B

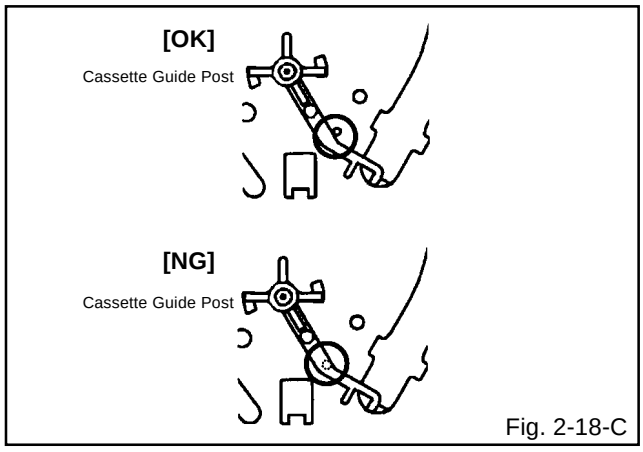


Fig. 2-18-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF DVD DECK PARTS

NOTE

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

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

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

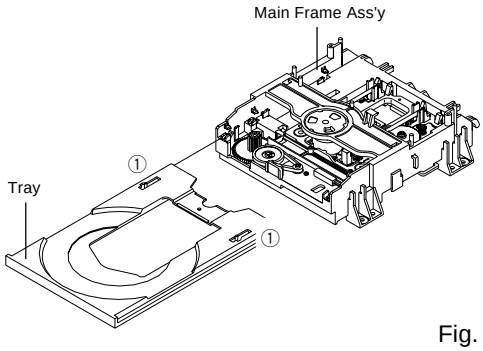


Fig. 3-1-A

NOTE

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

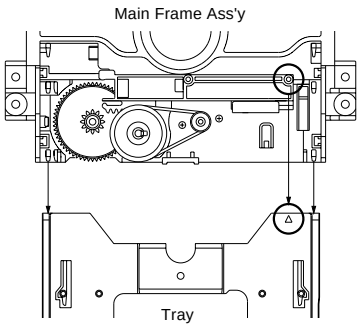


Fig. 3-1-B

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

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

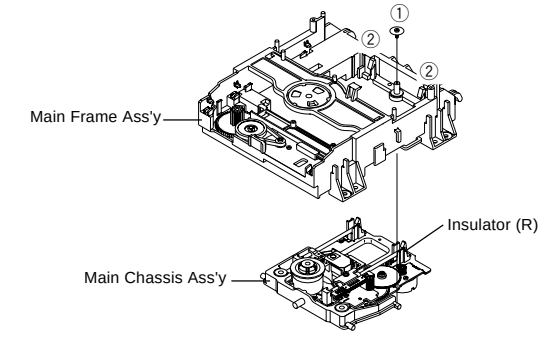


Fig. 3-2-A

NOTE

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

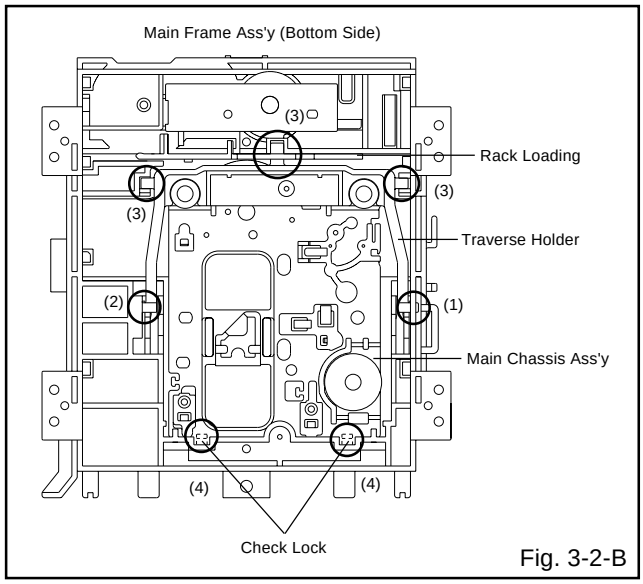


Fig. 3-2-B

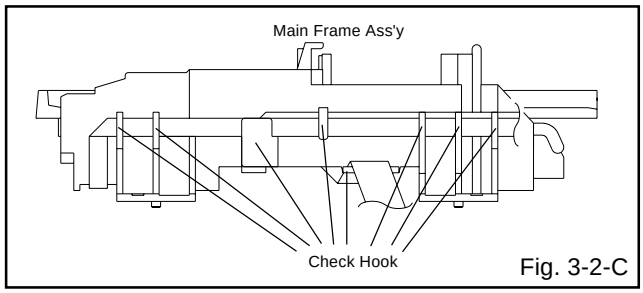


Fig. 3-2-C

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

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

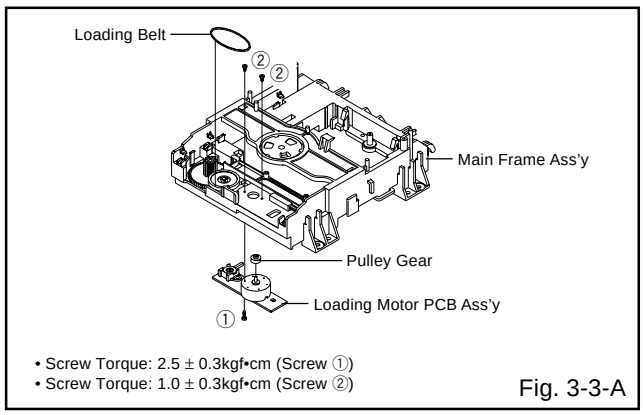


Fig. 3-3-A

DISASSEMBLY INSTRUCTIONS

NOTE

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

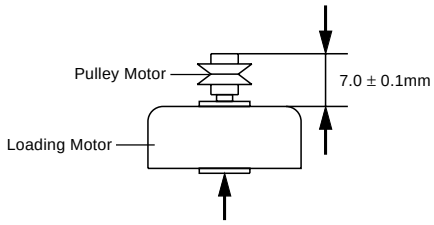


Fig. 3-3-B

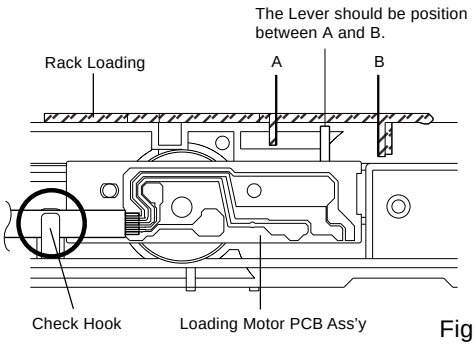


Fig. 3-3-C

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

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

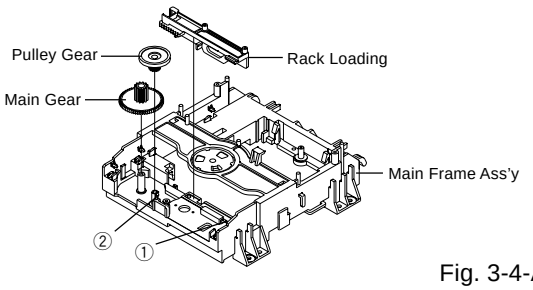


Fig. 3-4-A

NOTE

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

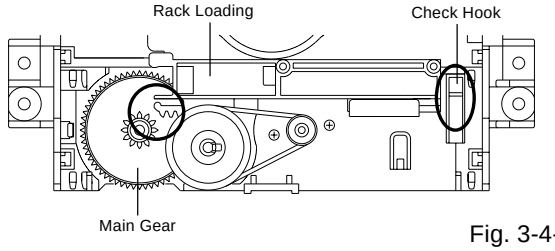


Fig. 3-4-B

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

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

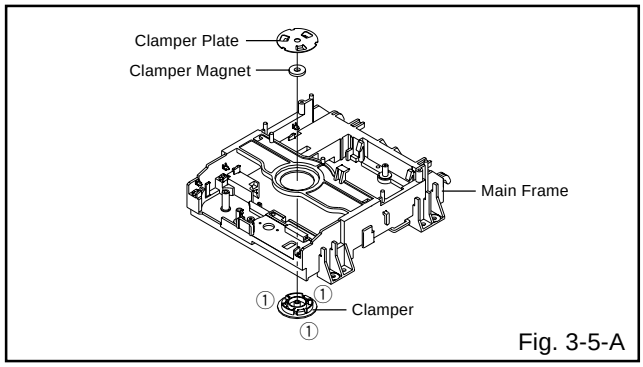


Fig. 3-5-A

NOTE

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

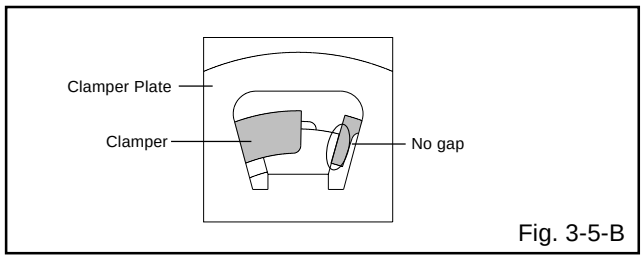


Fig. 3-5-B

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

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

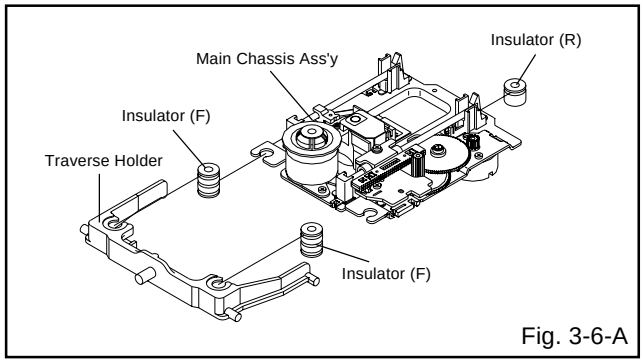


Fig. 3-6-A

NOTE

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

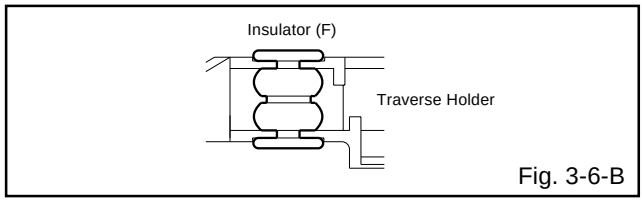


Fig. 3-6-B

DISASSEMBLY INSTRUCTIONS

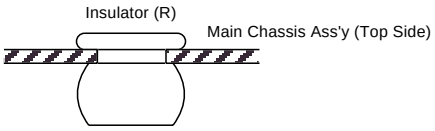
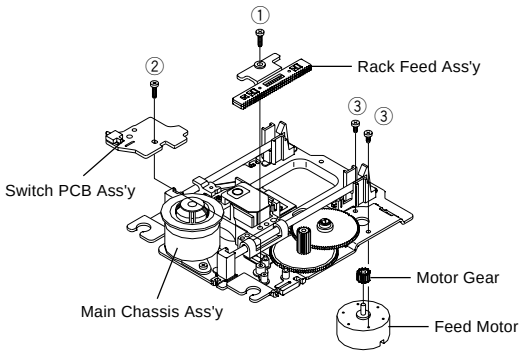


Fig. 3-6-C

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

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



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

Fig. 3-7-A

NOTE

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

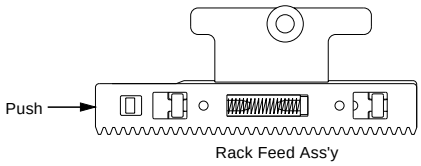


Fig. 3-7-B

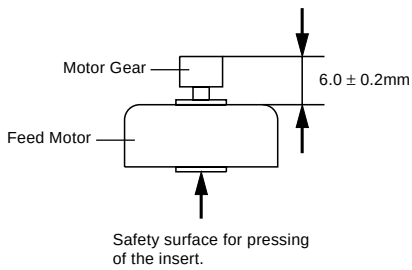


Fig. 3-7-C

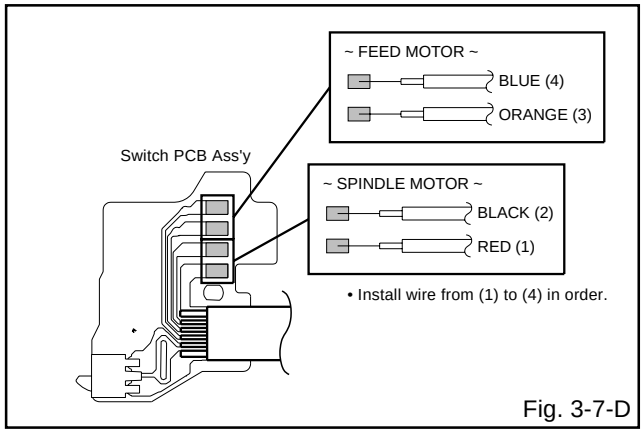


Fig. 3-7-D

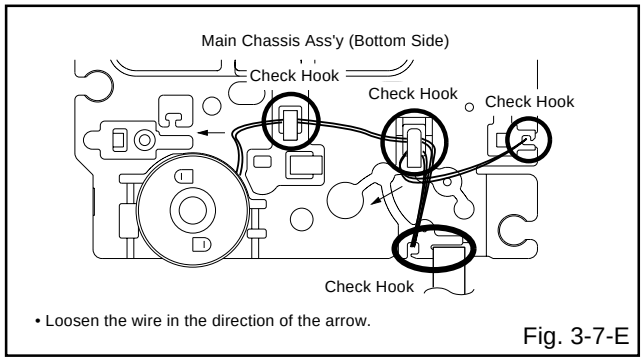


Fig. 3-7-E

DISASSEMBLY INSTRUCTIONS

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

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

   NOTE

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

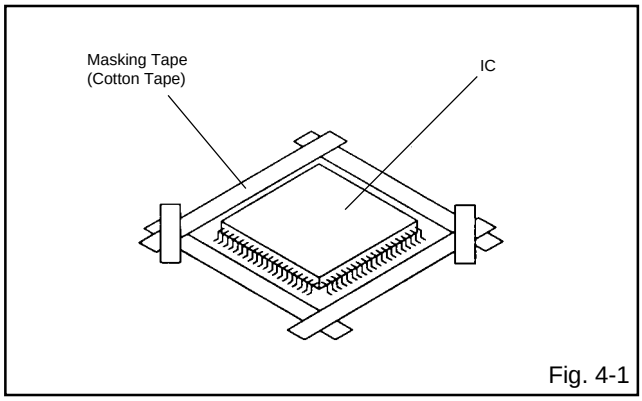


Fig. 4-1

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

   NOTE

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

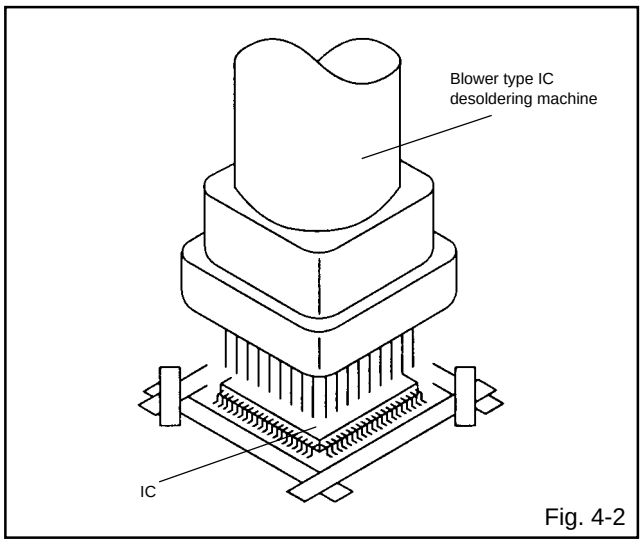


Fig. 4-2

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

   NOTE

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

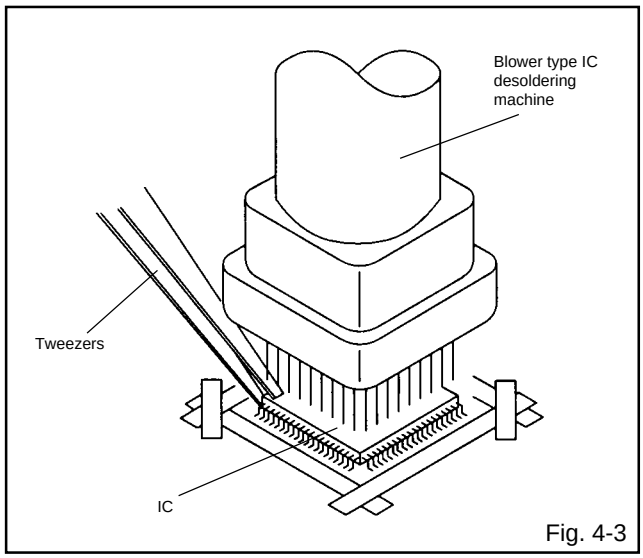


Fig. 4-3

4. Peel off the Masking Tape.

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

   NOTE

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

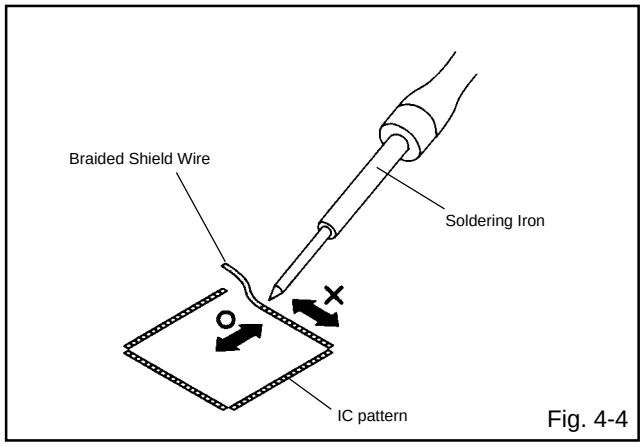


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

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

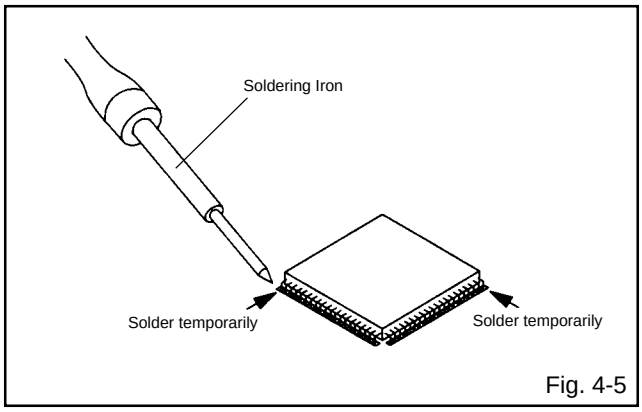


Fig. 4-5

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

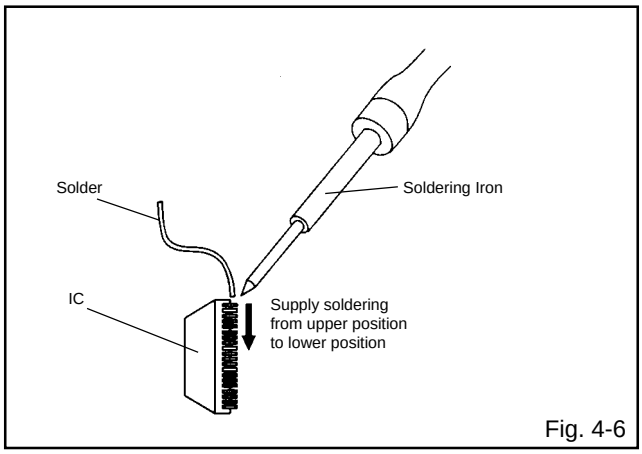


Fig. 4-6

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

   NOTE

   Do not absorb the solder to excess.

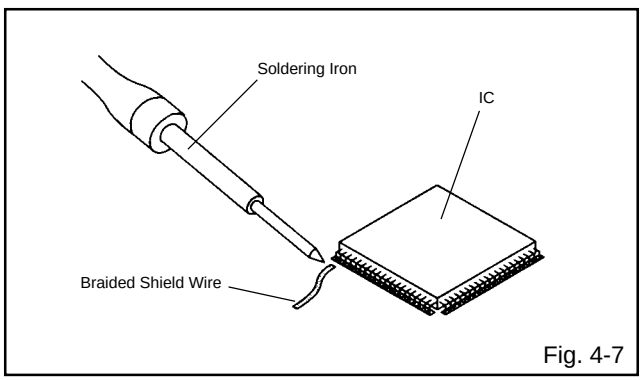


Fig. 4-7

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

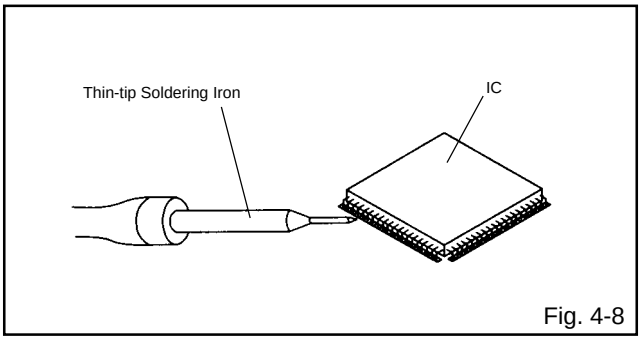


Fig. 4-8

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

   NOTE

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

KEY TO ABBREVIATIONS

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

KEY TO ABBREVIATIONS

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

SERVICE MODE LIST

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

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

Set Condition	Set Key	Remocon Key	Standard Time	Operations
DVD mode (No disc)	REC/OTR	4	2 sec.	Initialization of the factory on DVD. NOTE: Do not use this for the normal servicing. This function will only work without the setting of DVD disc at DVD mode. While pressing the Remocon Key for more than 2 seconds, press the Set Key simultaneously.
DVD mode (No disc)	STOP	7	3 sec.	Releasing of PARENTAL LOCK. Refer to the “PARENTAL CONTROL - RATING LEVEL”. NOTE: The function will only work without the setting of DVD disc at DVD mode.

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

PREVENTIVE CHECKS AND SERVICE INTERVALS

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

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

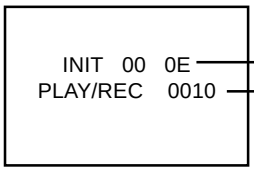
■ : Clean
● : Check it and if necessary, replace it.

CONFIRMATION OF HOURS USED

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

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

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



Initial setting content of MEMORY IC.
PLAY/REC total hours.
= (16 x 16 x 16 x thousands digit value)
+ (16 x 16 x hundreds digit value)
+ (16 x tens digit value)
+ (ones digit value)

Fig. 1

PREVENTIVE CHECKS AND SERVICE INTERVALS

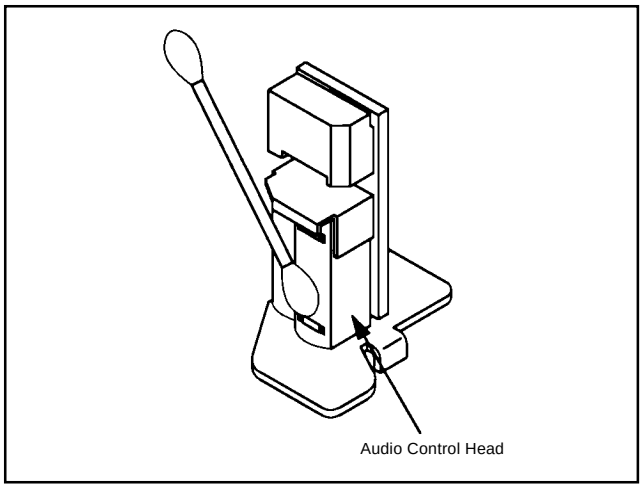
CLEANING

NOTE

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

1. AUDIO CONTROL HEAD

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



2. TAPE RUNNING SYSTEM

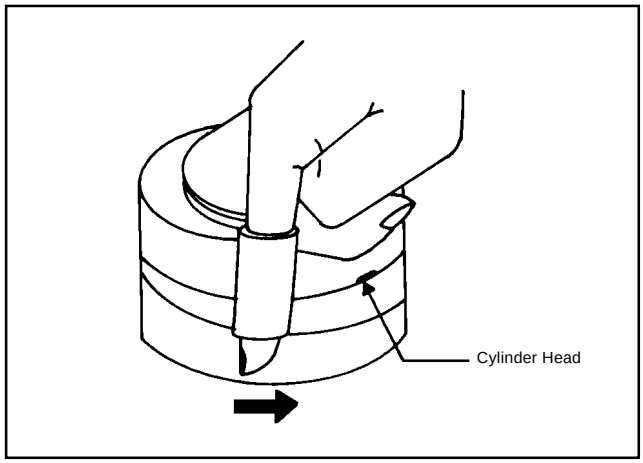
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

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

NOTE

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



WHEN REPLACING EEPROM (MEMORY) IC

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

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

INIT	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	0E	10	DC	60	64	64	4A	86	0B	2B	86	32	0A	08	0A	01
10	AF	97	95	8A	A0	57	31	04	88	A5	9F	3A	00	10	BF	00
20	3A	11	22	70	61	2A	3A	00	0B	00	40	C5	9A	B0	00	37
30	03	17	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Table 1

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

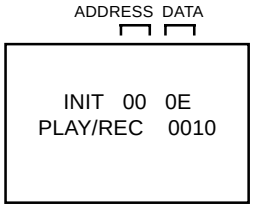


Fig. 1

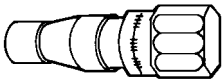
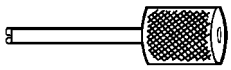
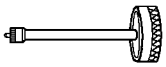
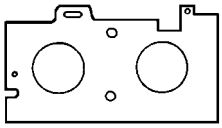
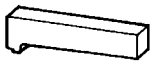
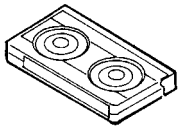
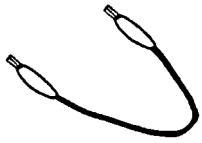
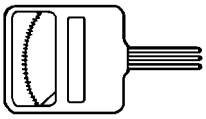
4. ADDRESS is now selected and should “blink”. Using the Tracking + or - button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
5. Press ENTER to select DATA. When DATA is selected, it will “blink”.
6. Again, step through the DATA using Tracking + or - button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

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

10. Turn on the POWER, and set to the VCR mode.
11. Press both CH UP button on the set and the PLAY button on the set for more than 2 seconds.
12. After the finishing of the initializing of shipping, the unit will turn off automatically.

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

SERVICING FIXTURES AND TOOLS

(For 2 heads model) VHS Alignment Tape JG001 (VN_2S-$LI6^3$) JG001A (VN_2S-$CO1^3$) JG001Q (VN_2S-$LI6^3H$) JG001T (VN_2S-$X6^3$) 	**(For 4 heads model)** VHS Alignment Tape JG001B (VN_1S-$LI6^3$) JG001I (VN_1S-$CO1^3$) JG001P (VN_1S-$LI6^3H$) JG001S (VN_1S-$X6^3$) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	JG185 Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001	APJG001000	VHS Alignment Tape	Monoscope, 6KHz **(For 2 heads model)**
JG001A	APJG001A00	VHS Alignment Tape	Color Bar, 1KHz **(For 2 heads model)**
JG001Q	APJG001Q00	VHS Alignment Tape	Hi-Fi Audio **(For 2 heads model)**
JG001T	APJG001T00	VHS Alignment Tape	X Value Adjustment **(For 2 heads model)**
JG001B	APJG001B00	VHS Alignment Tape	Monoscope, 6KHz **(For 4 heads model)**
JG001I	APJG001I00	VHS Alignment Tape	Color Bar, 1KHz **(For 4 heads model)**
JG001P	APJG001P00	VHS Alignment Tape	Hi-Fi Audio **(For 4 heads model)**
JG001S	APJG001S00	VHS Alignment Tape	X Value Adjustment **(For 4 heads model)**
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND
JG185	APJG185000	Tentelometer	Confirmation of Tape Tension on Playback

PREPARATION FOR SERVICING

1. While pressing the CH DOWN button on the set for more than 2 seconds, press the POWER button on the set simultaneously at the Power OFF. Although the DVD is connected, the DVD mode cannot be selected.
2. Short circuit between **TP3001** and **Ground** with the cable JG154.
   (The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
3. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
   Turn on the power and re-check the cable before checking the trouble points.

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

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

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

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

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

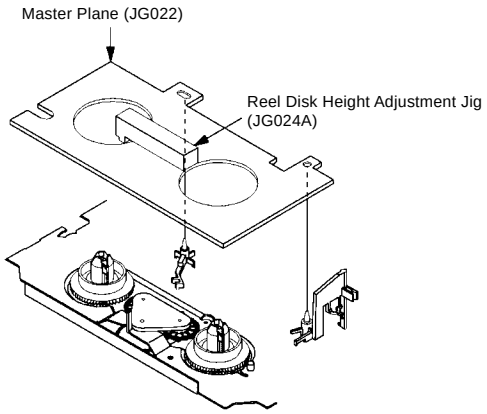


Fig. 1-1-A

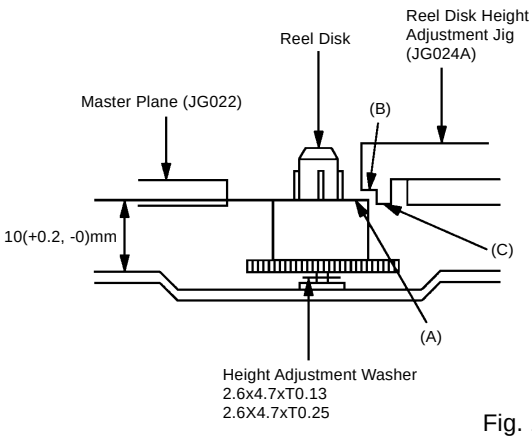


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

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

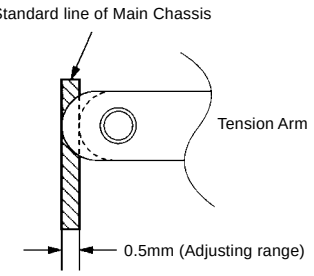


Fig. 1-2-A

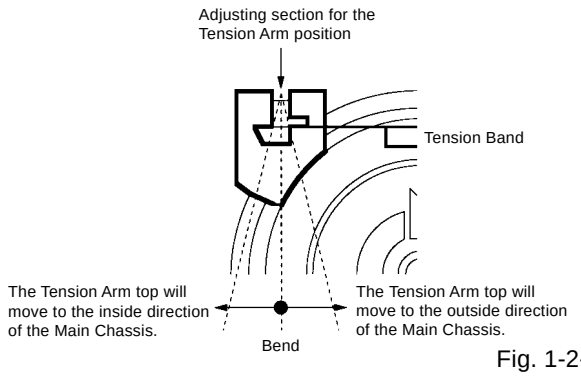


Fig. 1-2-B

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

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer **(JG185)** as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

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

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

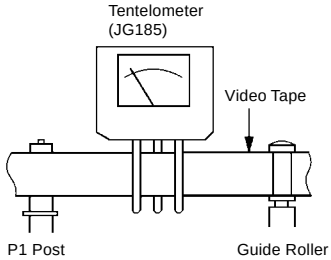


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

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

NOTE

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

1-5: CONFIRMATION OF REEL BRAKE TORQUE

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

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

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

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

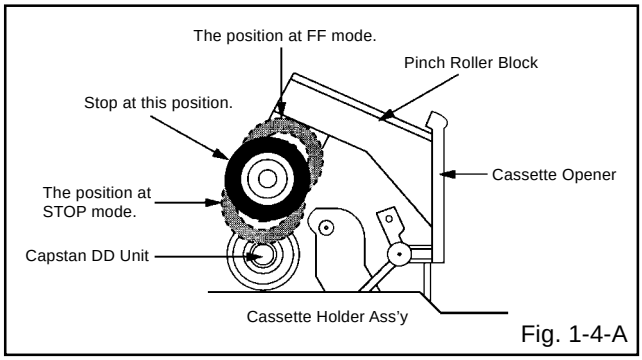


Fig. 1-4-A

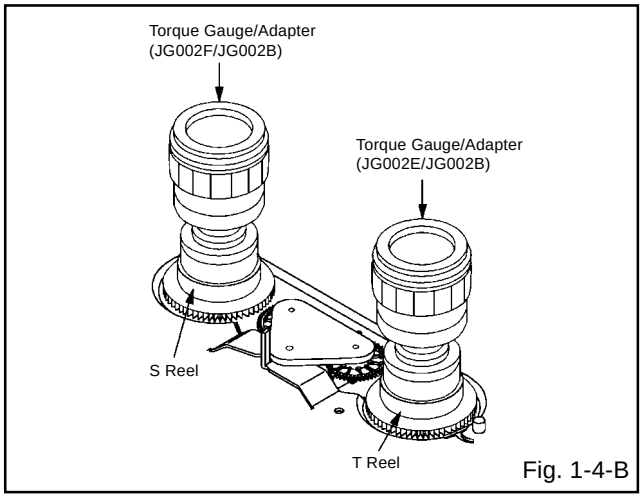


Fig. 1-4-B

NOTE

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

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

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

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

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(JG001 or JG001B)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP101 (Envelope)** and CH-2 to **TP3002 (SW Pulse)**.
3. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

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

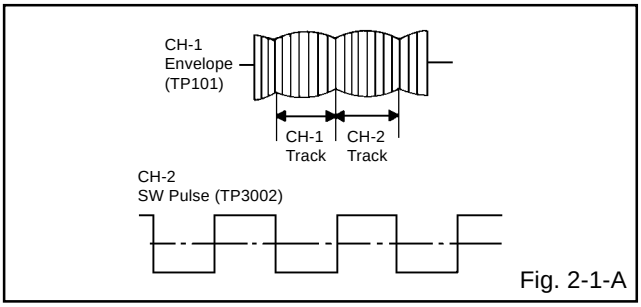


Fig. 2-1-A

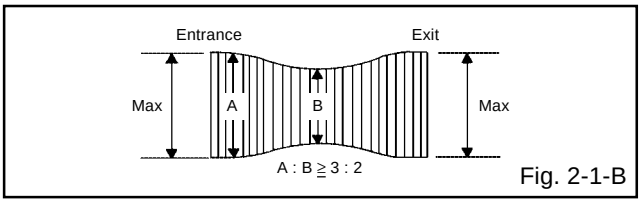


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

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

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

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

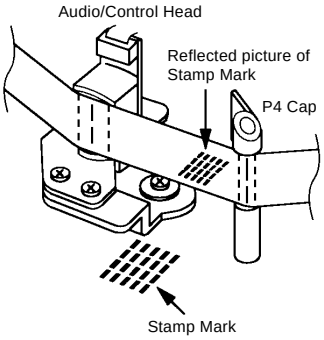


Fig. 2-2-A

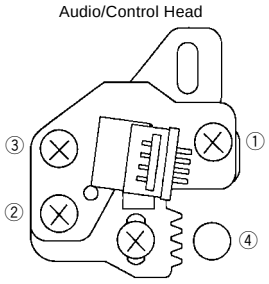


Fig. 2-2-B

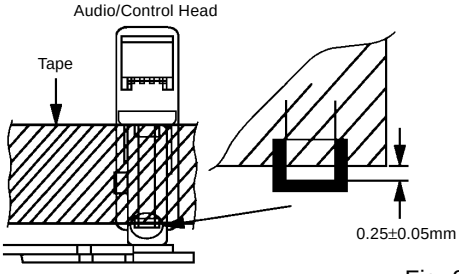


Fig. 2-2-C

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

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP3002**, CH-2 to **TP101** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(JG001S or JG001T)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
7. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

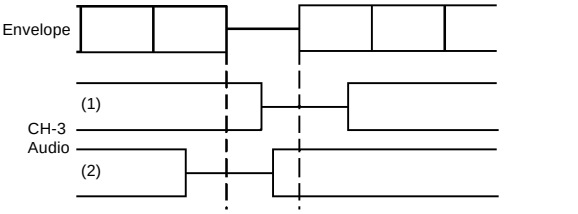


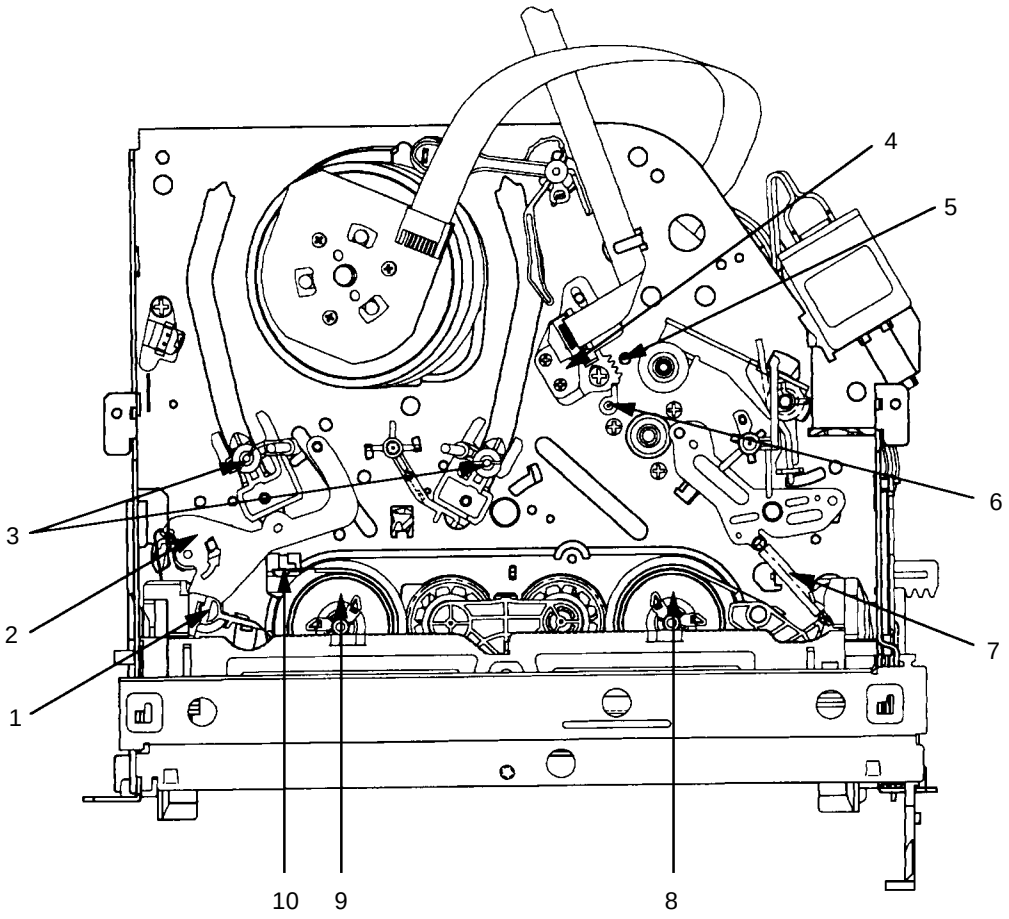
Fig. 2-3

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

1. Connect CH-1 of the oscilloscope to **TP101** and CH-2 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape **(JG001P or JG001Q)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
3. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press and hold the ATR button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver **(JG153)** to ④ of **Fig. 2-2-B**. Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



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

ELECTRICAL ADJUSTMENTS

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

1. BASIC ADJUSTMENT

CAUTION

- When you exchange IC and Transistor for a heat sink, apply the silicon grease **(YG6260M)** on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

1-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape **(JG001B)**

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP3002** and CH-2 to **Video Out Jack**.
2. Playback the alignment tape. **(JG001B)**
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.

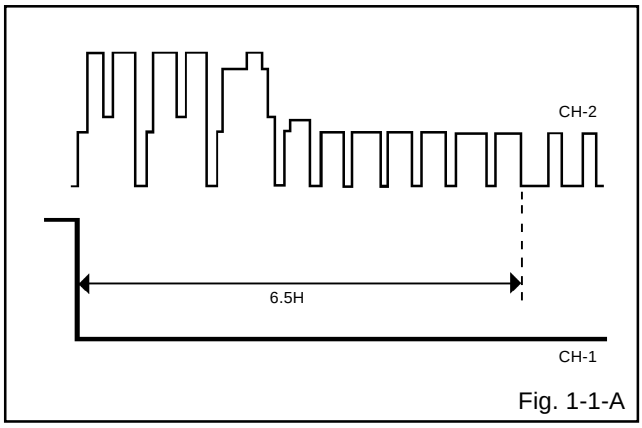


Fig. 1-1-A

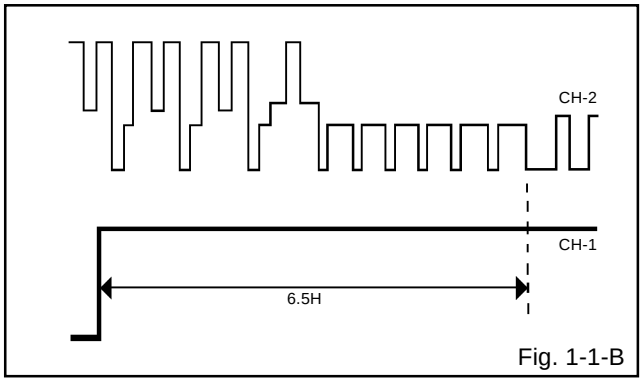
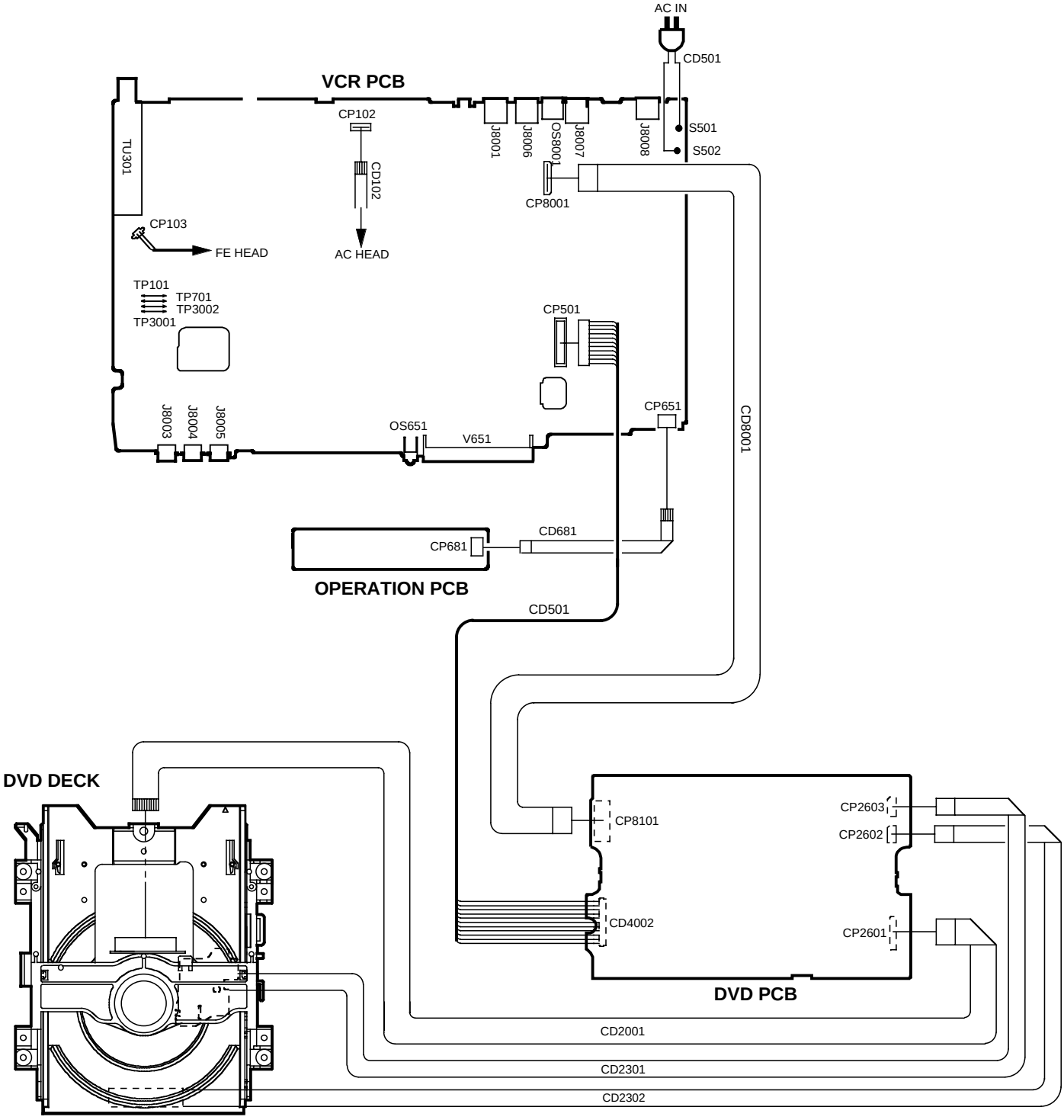


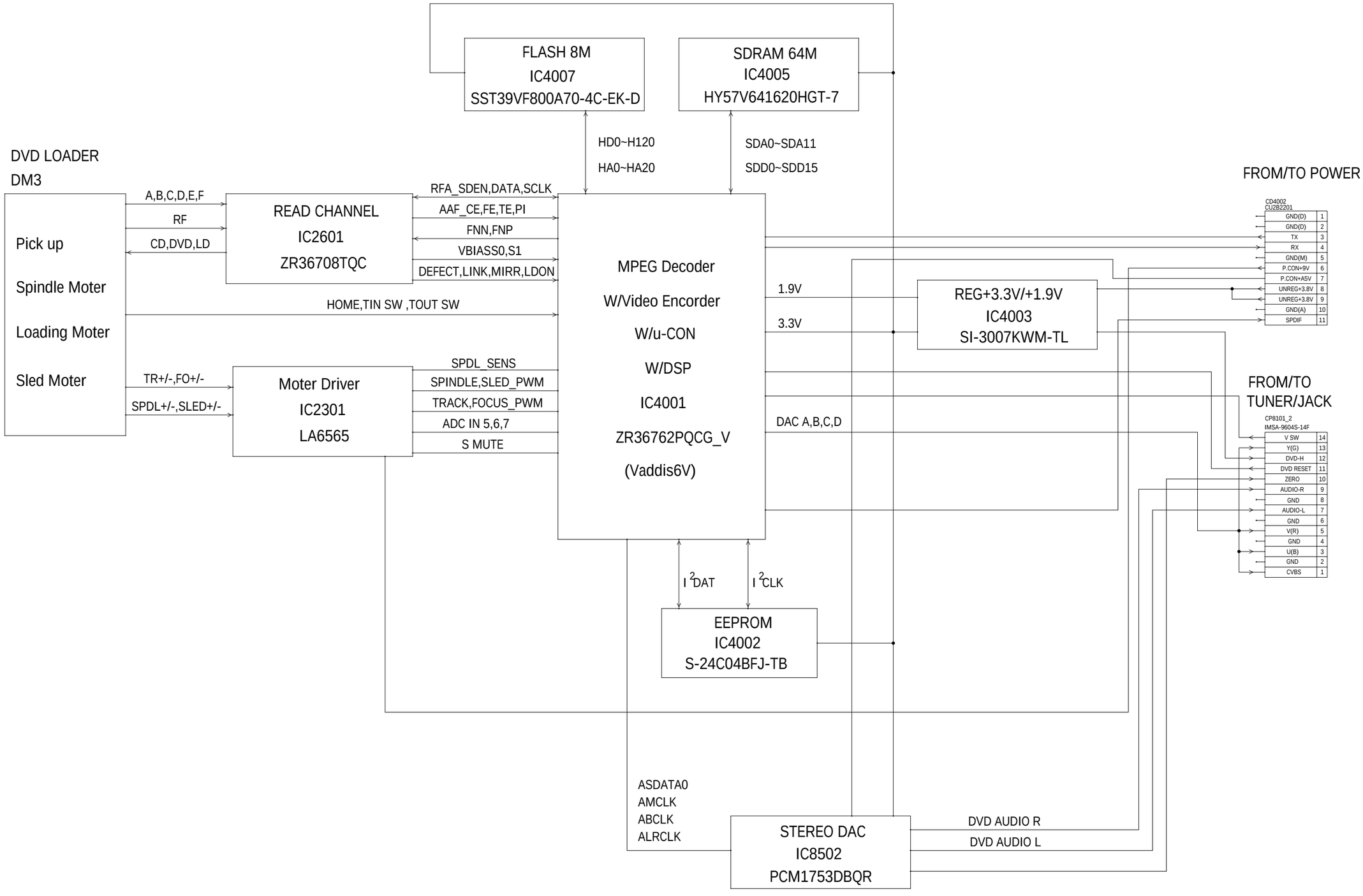
Fig. 1-1-B

ELECTRICAL ADJUSTMENTS

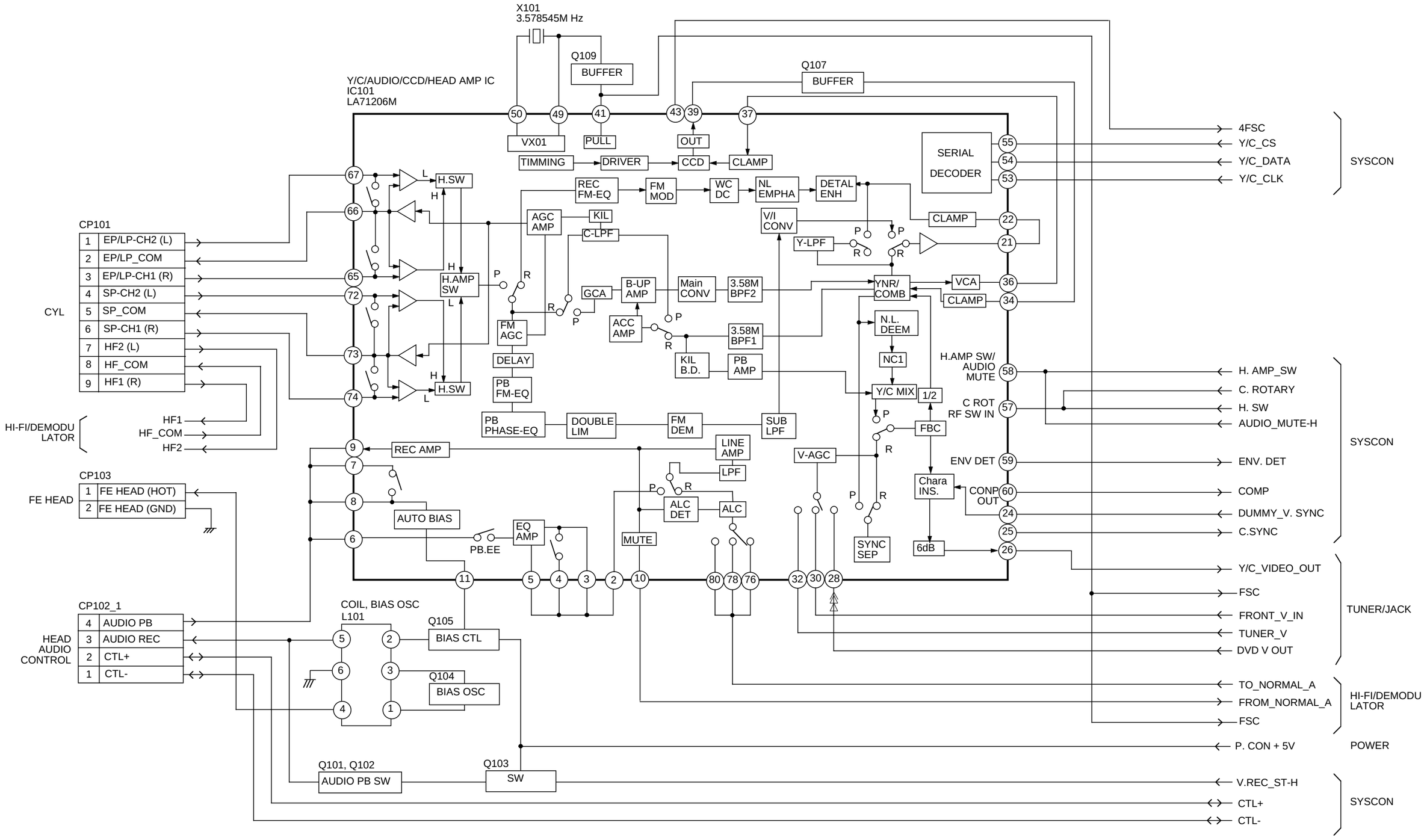
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



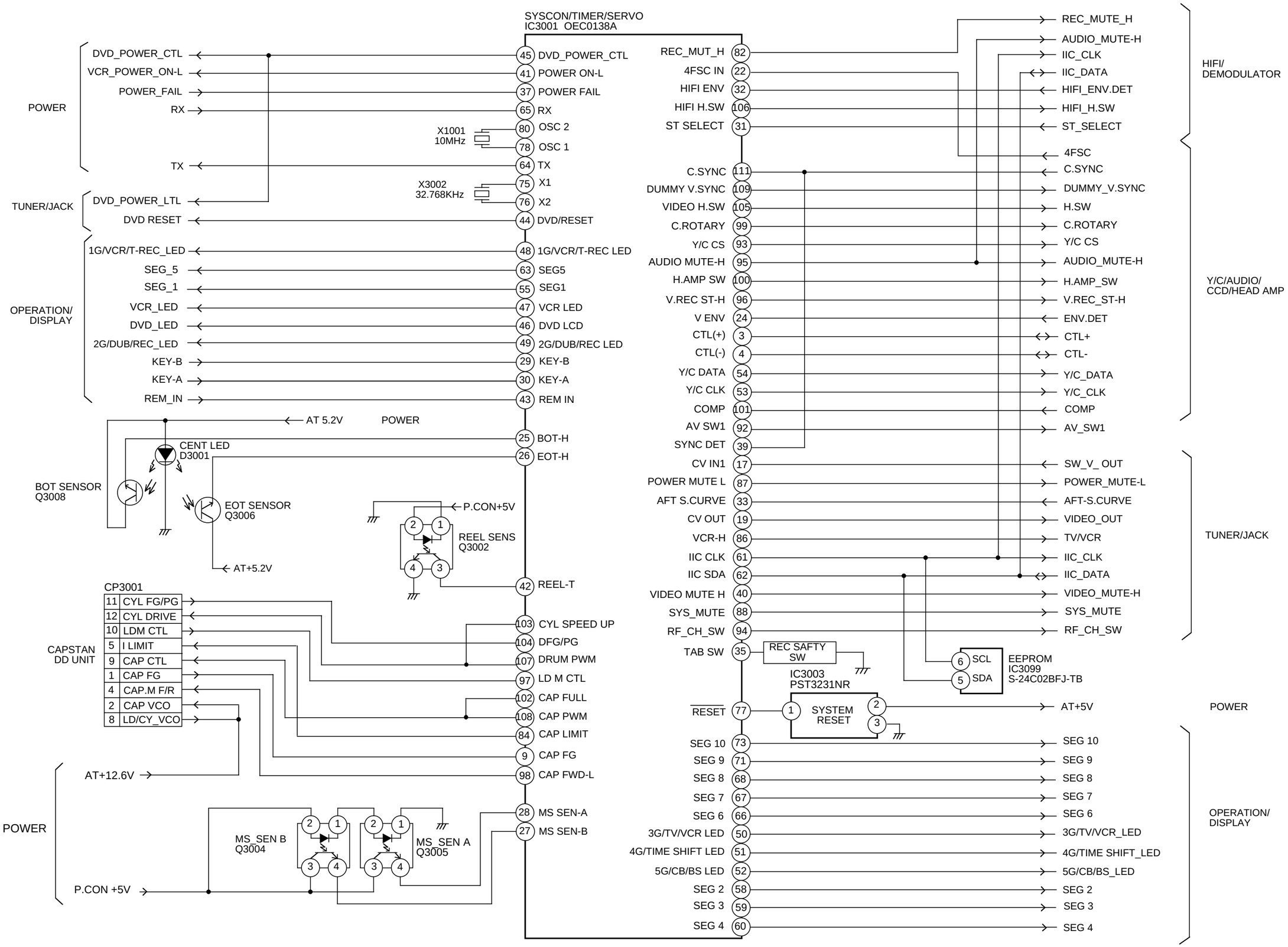
DVD BLOCK DIAGRAM



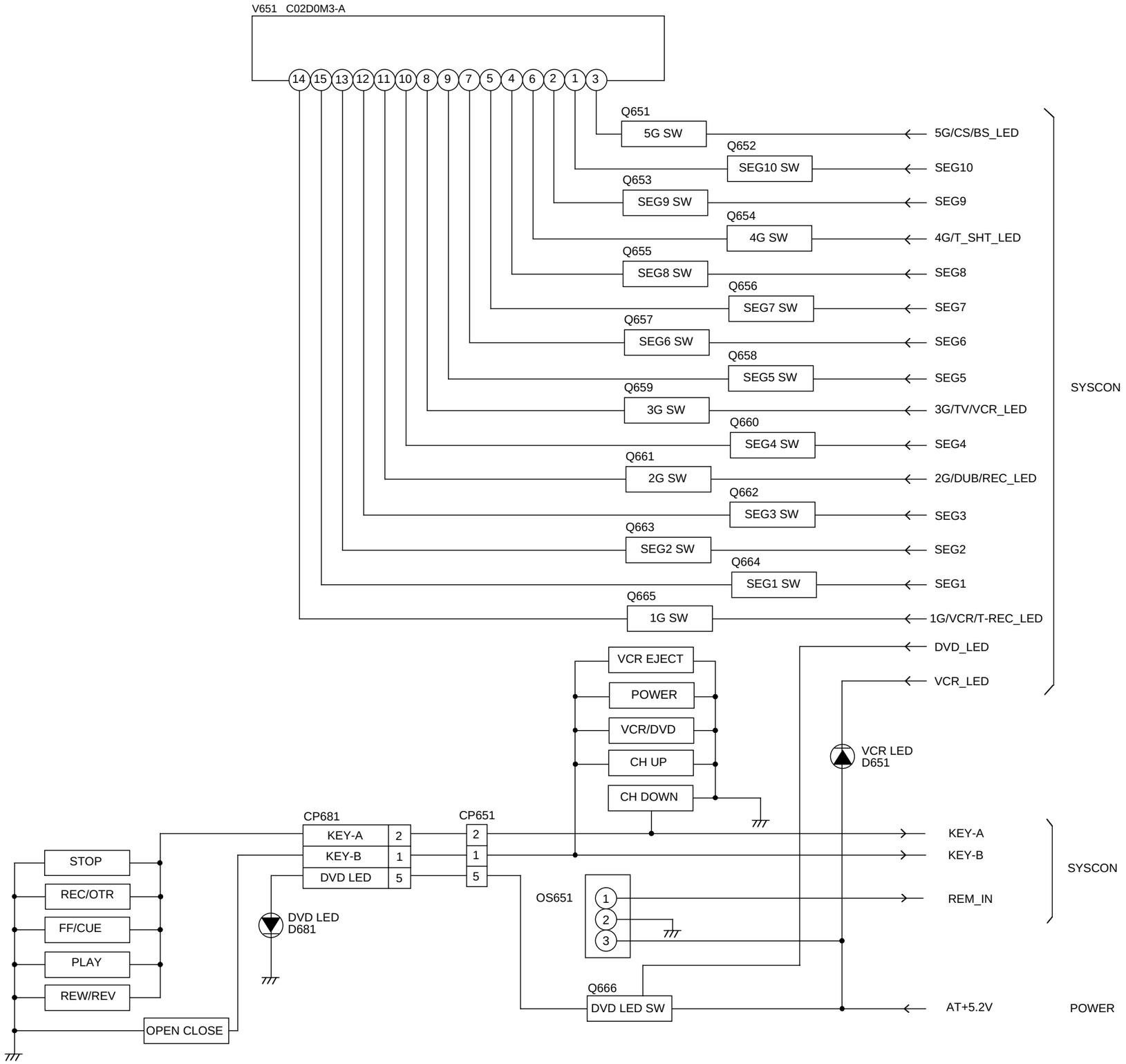
Y/C/AUDIO/CCD/HEAD MAP BLOCK DIAGRAM



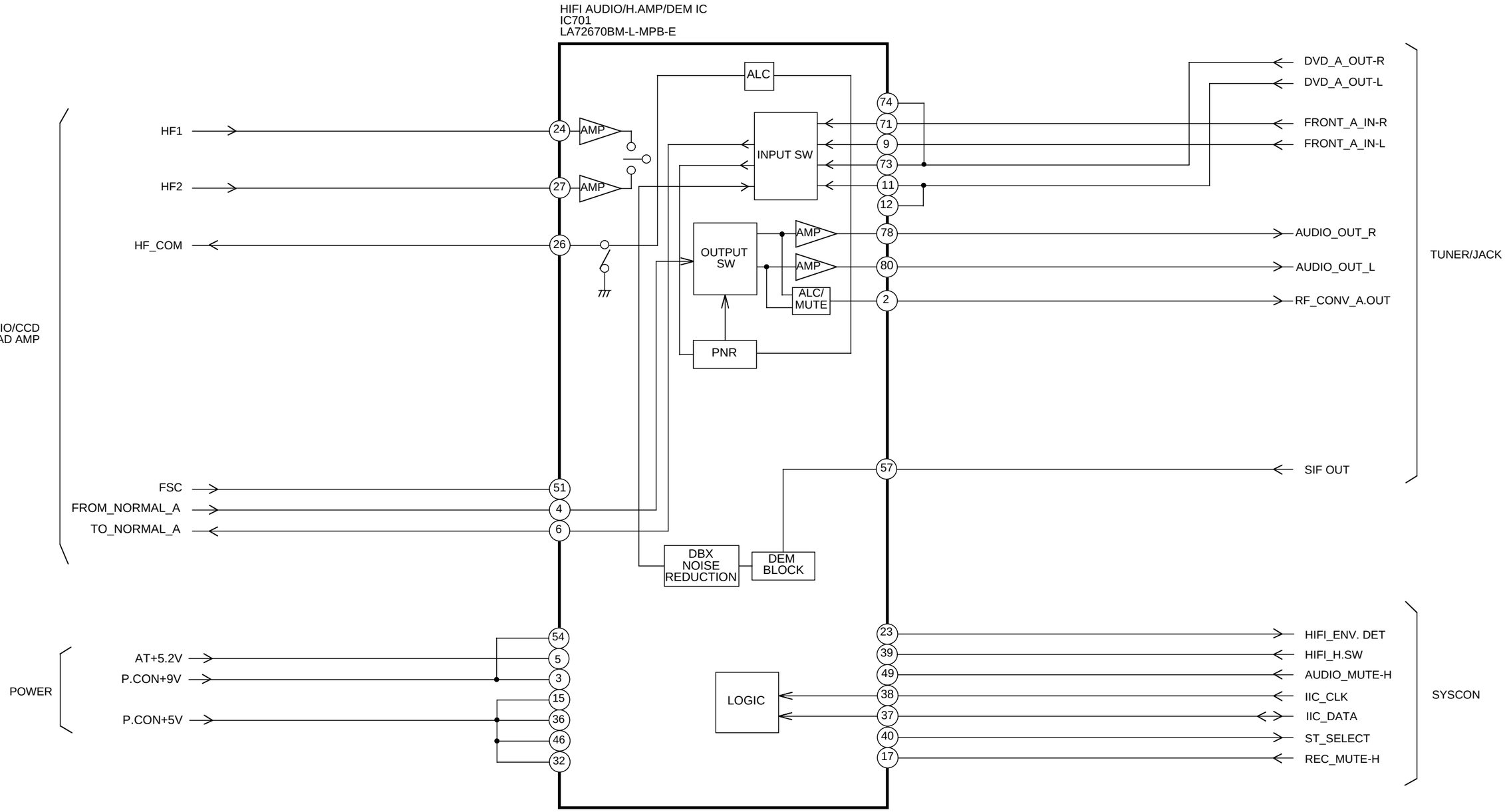
SYSTEM CONTROL BLOCK DIAGRAM



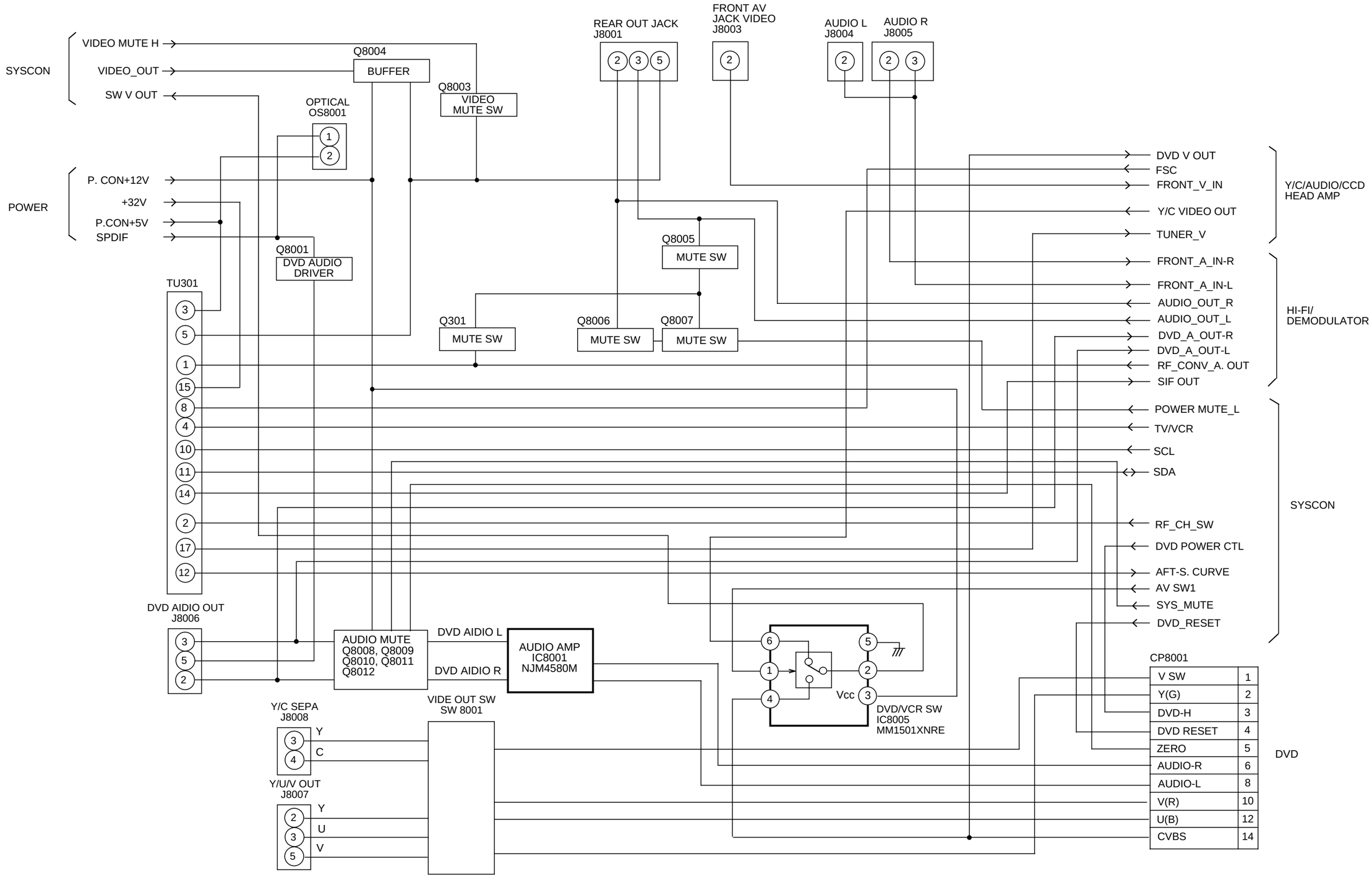
OPERATION/DISPLAY BLOCK DIAGRAM



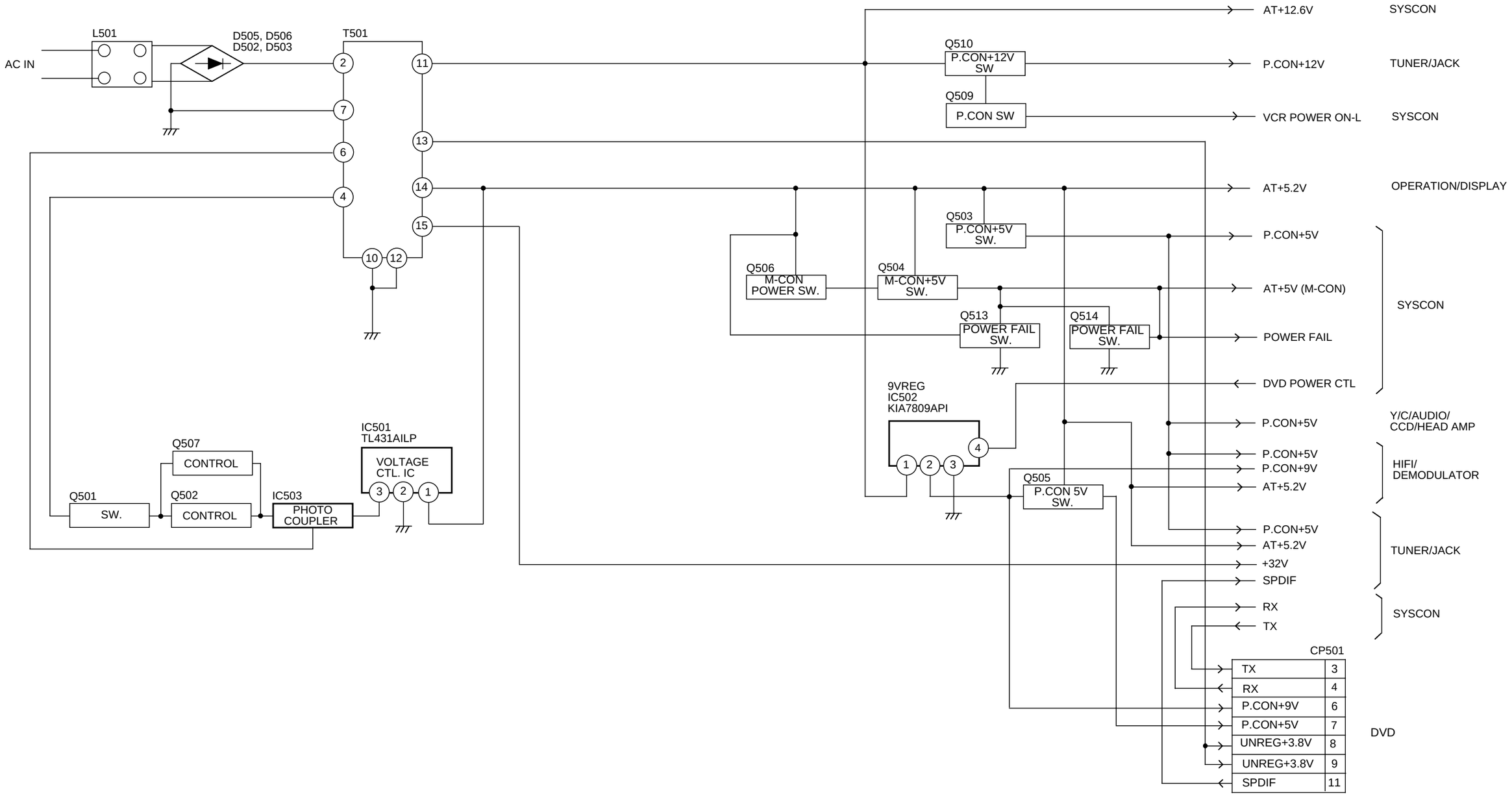
HiFi/DEMODULATOR BLOCK DIAGRM



TUNER/JACK BLOCK DIAGRAM

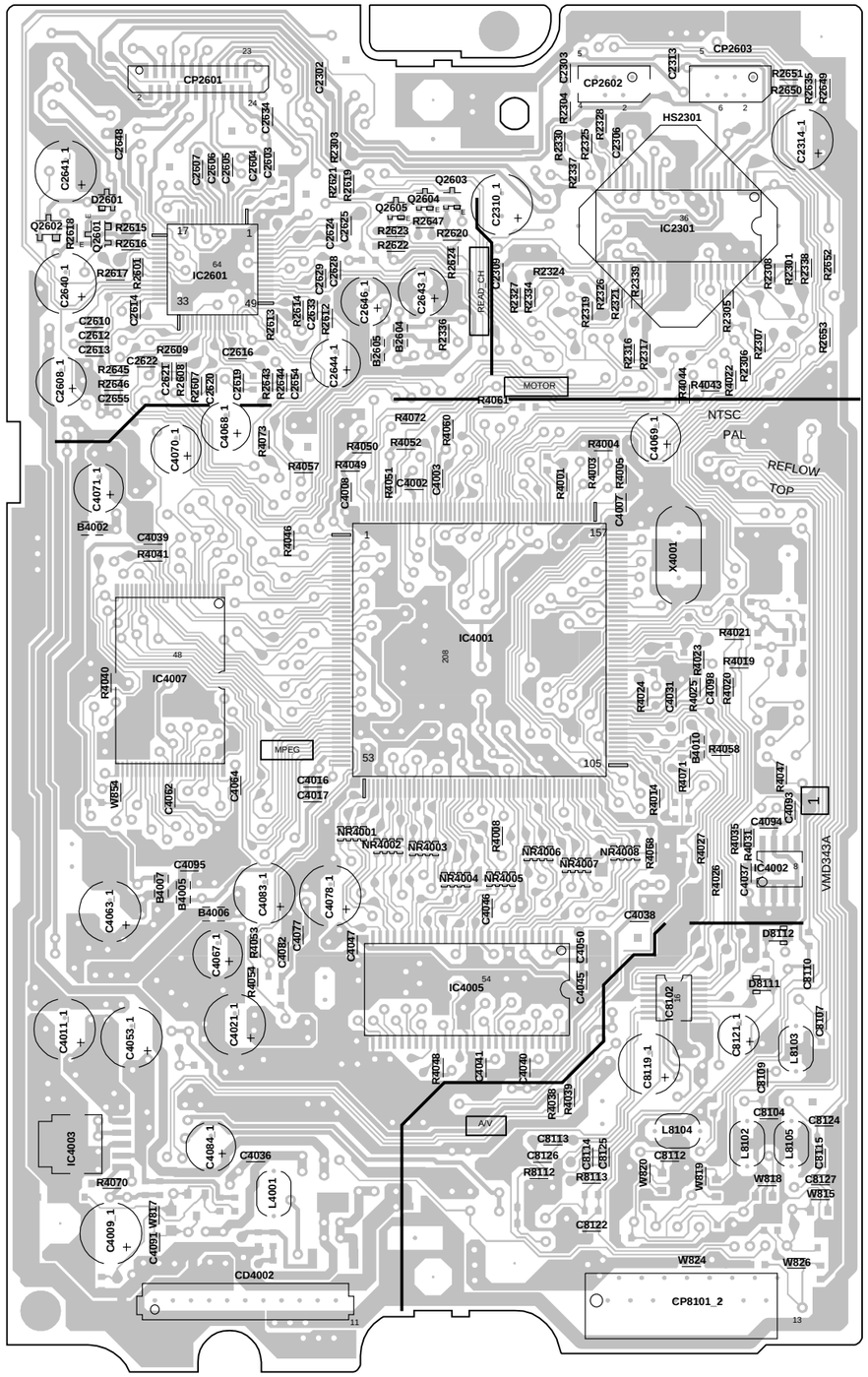


POWER BLOCK DIAGRAM

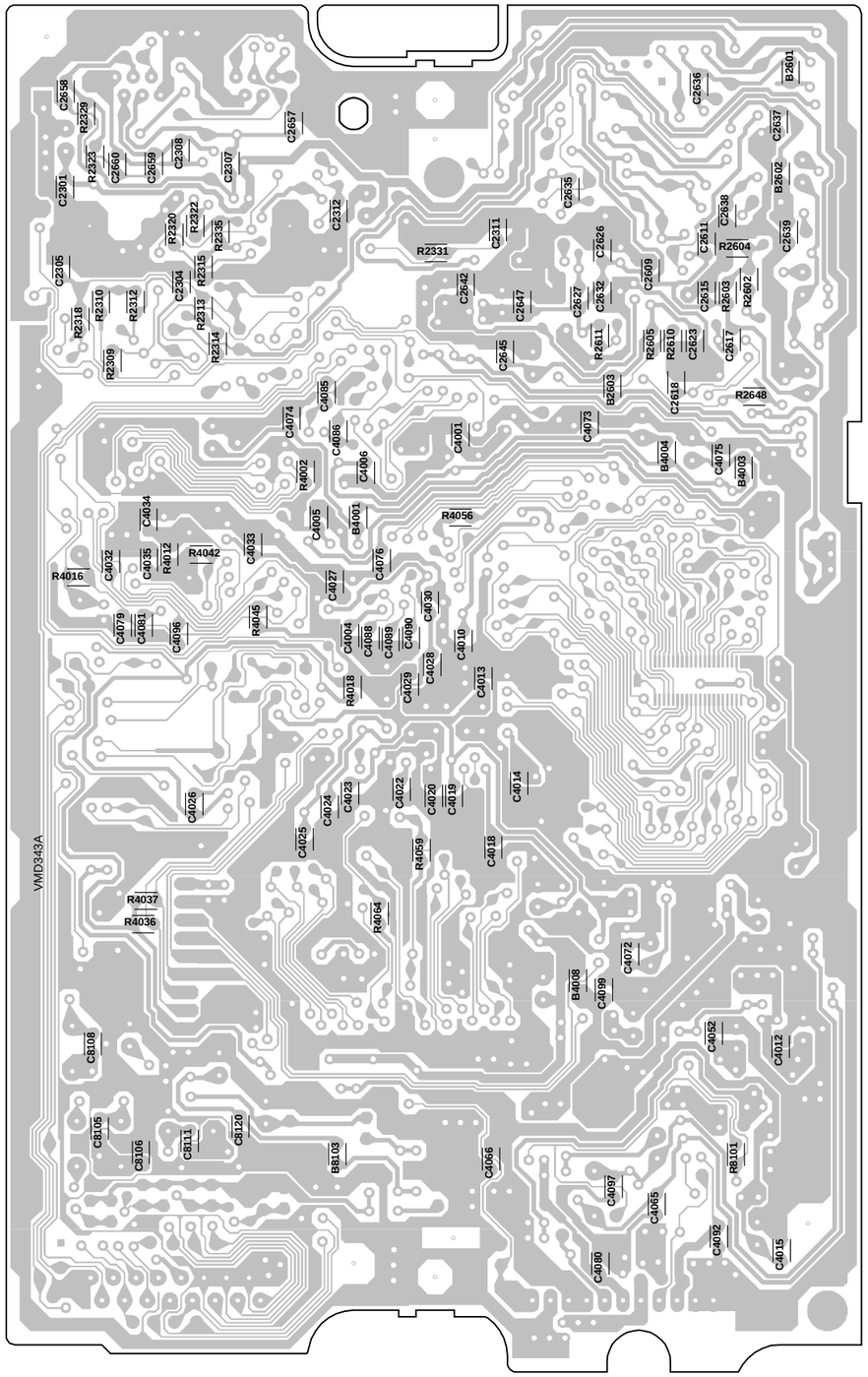


PRINTED CIRCUIT BARDS

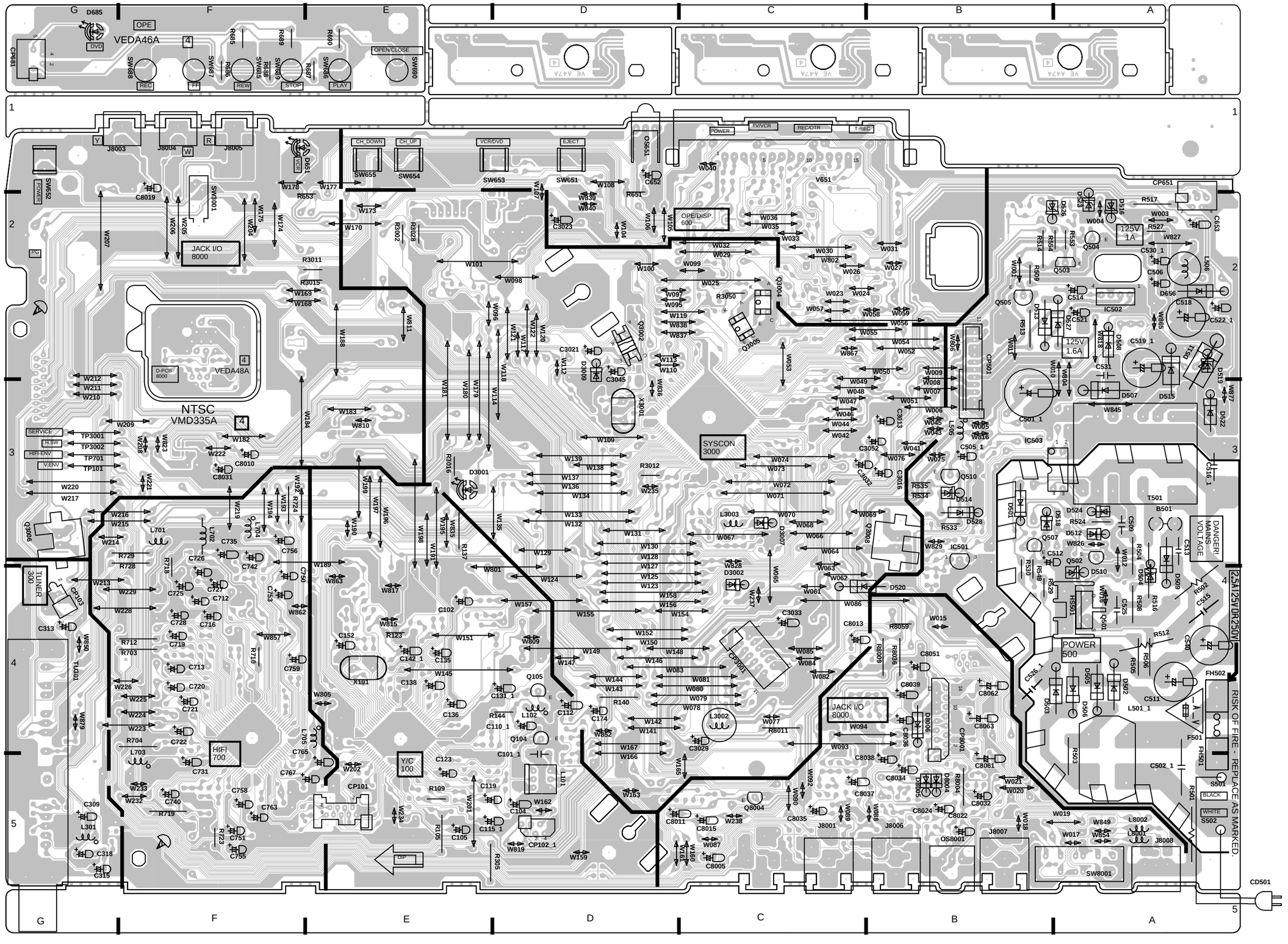
DVD (TOP SIDE)



DVD (BOTTOM SIDE)



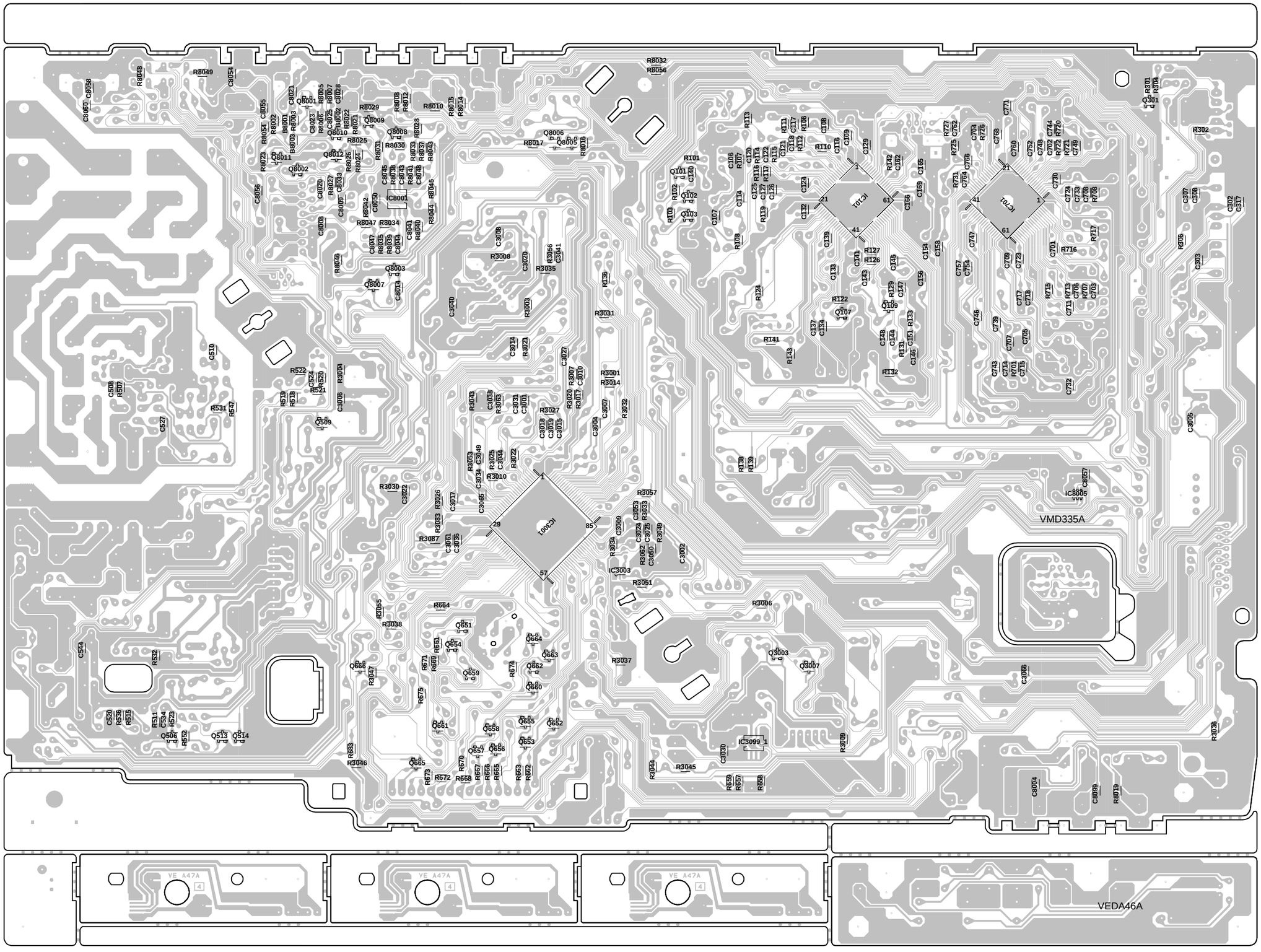
PRINTED CIRCUIT BARDS
VCR/OPERATION (INSERTED PARTS)
SOLDER SIDE



F-3

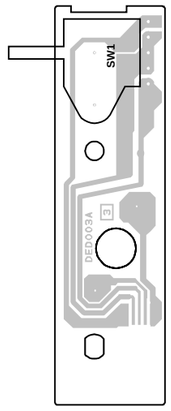
F-4

PRINTED CIRCUIT BARDS
VCR (CHIP MOUNTED PARTS)
SOLDER SIDE

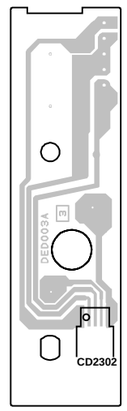


PRINTED CIRCUIT BOARDS

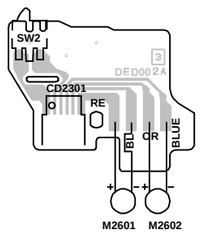
LOADING MOTOR (INSERTED PARTS)
SOLDER SIDE



LOADING MOTOR (CHIP MOUNTED PARTS)
SOLDER SIDE



SW
SOLDER SIDE



MPEG/MICON/DSP SCHEMATIC DIAGRAM

(DVD PCB)

MPEG/MICON/DSP
IC4001
ZR36762PQCG_V

FROM/TO MEMORY

FROM/TO AUDIO/VIDEO

FROM/TO RF AMP/DSP

FROM/TO POWER

DIGITAL AUDIO SIGNAL(PB)

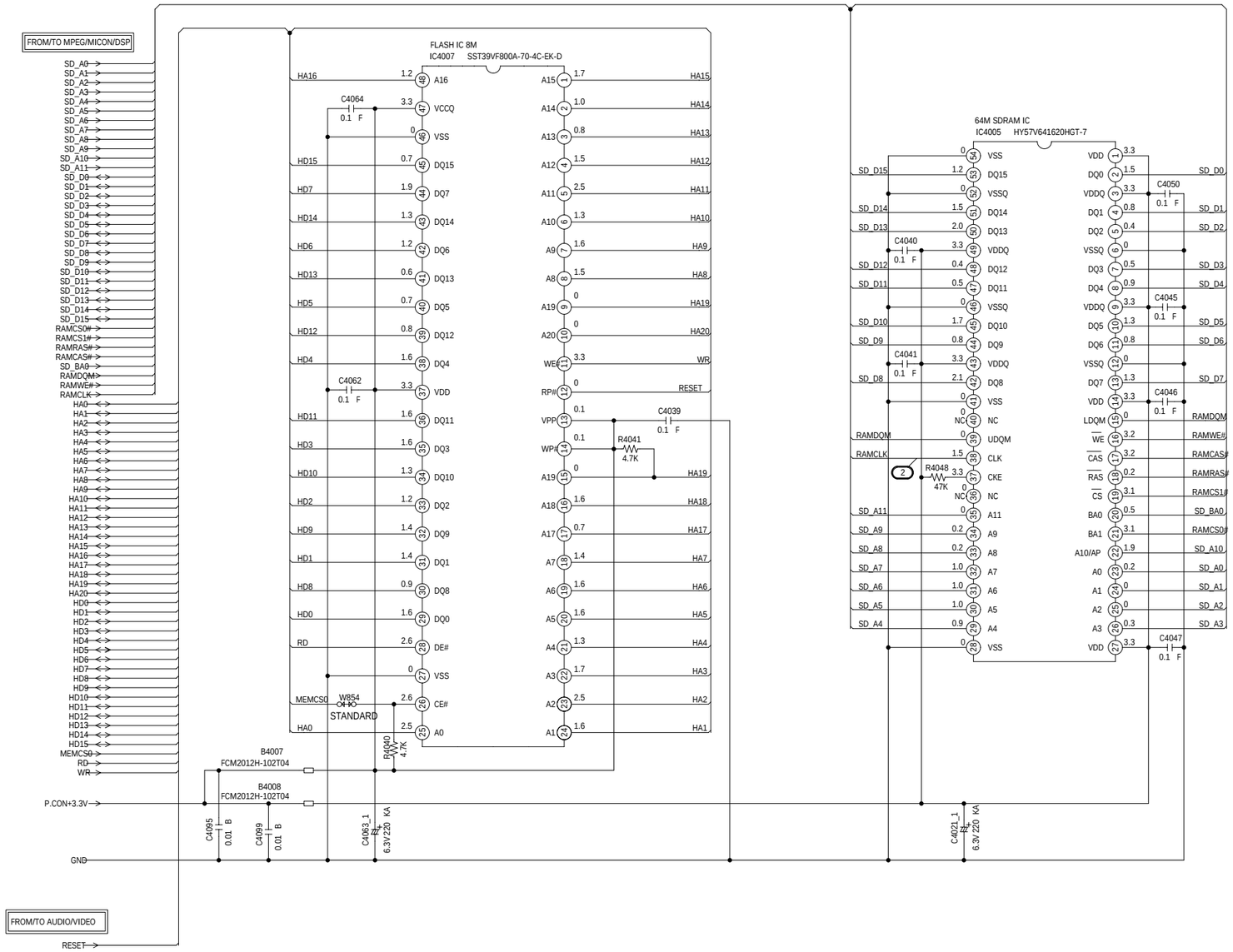
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

PCB130
VMD343

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
VMD343

RF AMP/DSP SCHEMATIC DIAGRAM

(DVD PCB)

FROM/TO MPEG/MICON/DSP

DM3

FROM/TO LODER

CP2601
09-5000-024-001-001

1	T-	TR-
2	T+	TR+
3	F-	FO-
4	F+	FO+
5	MON(DVD)	DVDPD
6	NC(SW)	NC
7	VOL(DVD)	VR_DVD
8	GND(DVD)	JG056
9	LD(DVD)	DVDLD
10	LD(CD)	CDLD
11	VOL(CD)	VR_CD
12	GND(CD)	GND
13	MON(COM)	CDPD
14	DVD/CD	
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)	

CP2602
00_6232_005_006_800

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

CP2603
00_6232_006_006_800

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

READ CHANNEL IC
IC2601
ZR36708TQC

MOTOR DRIVE IC
IC2301
LA6565

DVD LD CTL
Q2601
2SA1036K

CD LD CTL
Q2602
2SA2048

VR DVD CTL
Q2603
2SK3018

VR CD CTL
Q2604
2SK3018

VR SEL CTL
Q2605
2SK3018

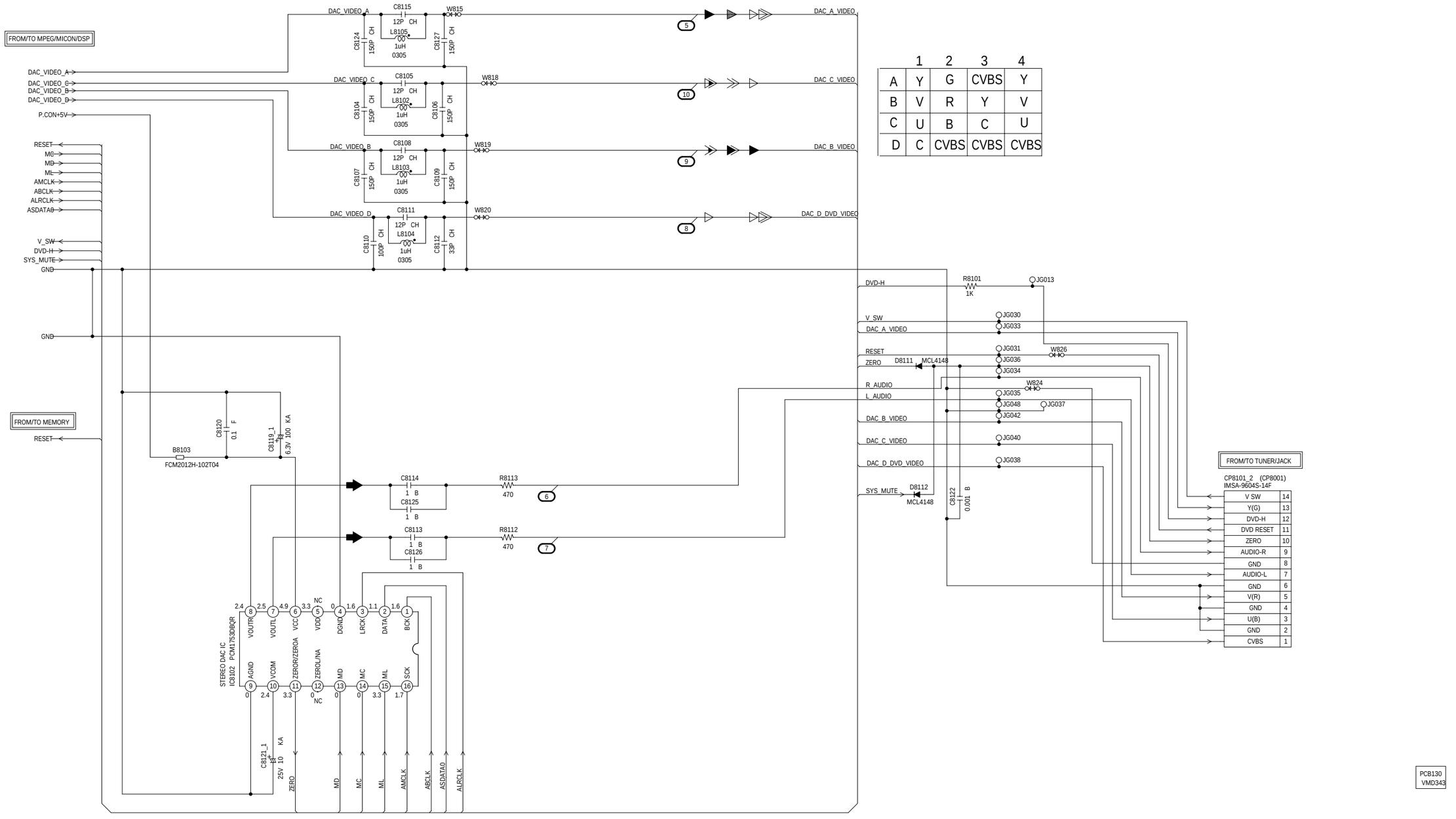
PCB130
VMD343

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)



	1	2	3	4
A	Y	G	CVBS	Y
B	V	R	Y	V
C	U	B	C	U
D	C	CVBS	CVBS	CVBS

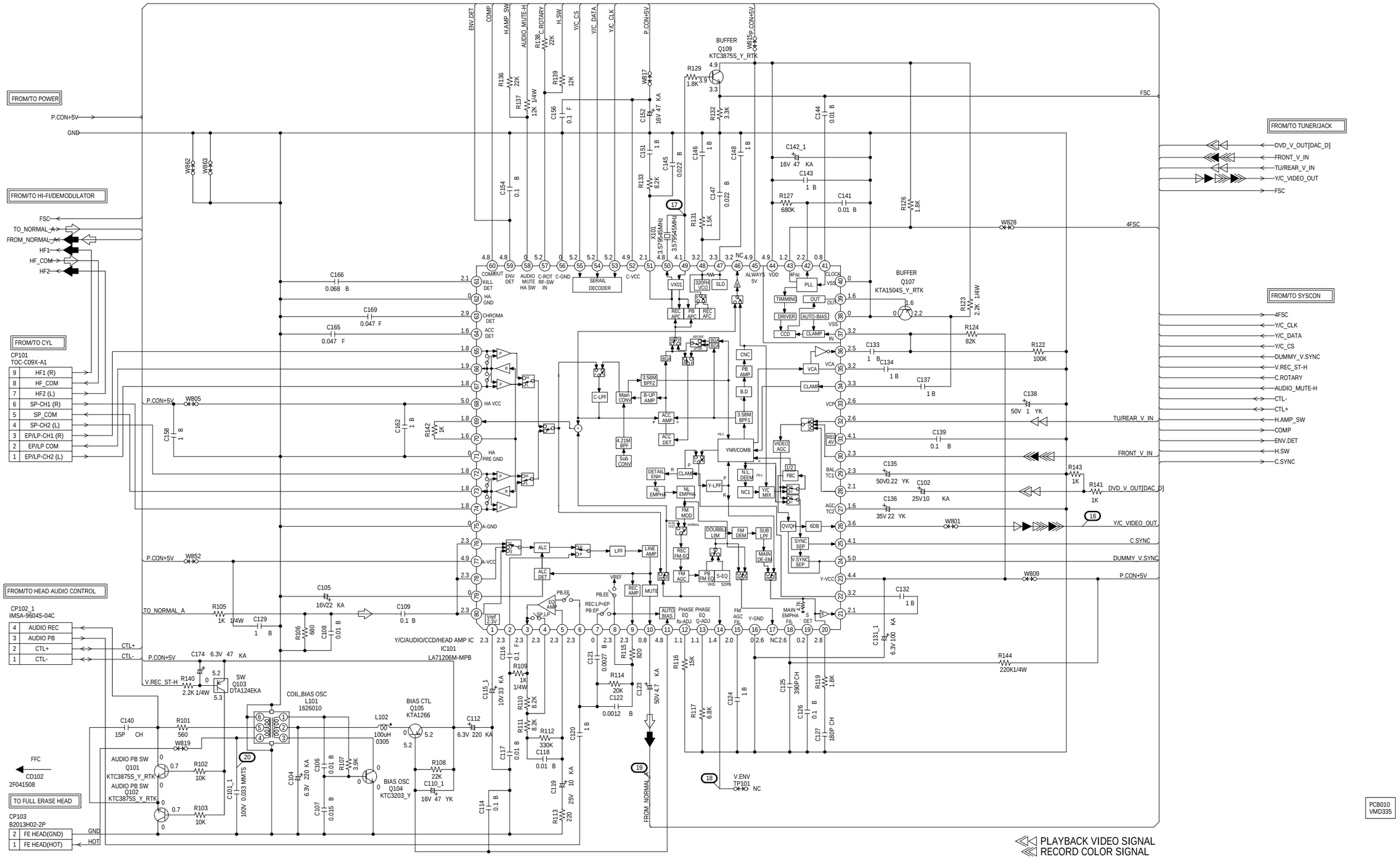
◁ PLAYBACK COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◁◁ PLAYBACK VIDEO SIGNAL
◀◁ COMPONENT SIGNAL(U)
◀◁ COMPONENT SIGNAL(V)
◀ AUDIO SIGNAL(PB)

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.

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

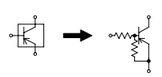
(VCR PCB)



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

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

CAUTION: DIGITAL TRANSISTOR



SYSCON SCHEMATIC DIAGRAM
(VCR PCB)

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

FROM/TO DECK
CP3001
TMC-J12P-B2
1 CAP FG
2 CAP VCO
3 VCC
4 CAP.M/F/R
5 I LIMIT
6 MOTOR GND
7 GND
8 LD/CY VCO
9 CAP CTL
10 LDM CTL
11 CYL FG/PG
12 CYL CTL

SYSCON/TIMER/SERVO IC
IC3001
OEC0147A

SYSTEM RESET IC
IC3003
PST3231NR

EEP ROM IC
IC3099_1
S-24C02BFJ-TB

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

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

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

FROM/TO 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
VMD335

CAUTION: DIGITAL TRANSISTOR
CAUTION: DIGITAL TRANSISTOR

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

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

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

TUNER/JACK SCHEMATIC DIAGRAM

(VCR PCB)

TU301 115-V-H035ARE

RF MUTE SW Q301 KTC3875S_Y_RTK

REAR OUT JACK J8001 MSP-213V1-432_NI_LF

DVD AUDIO OUT J8006 MSP-213V1-732_NI_LF

YUV OUT J8007 MSP-213V1-652_NI_LF

VIDEO OUT SW SW8001 SK42H01G9A

FROM/TO AUDIO/VIDEO

CP8001 (CP8101_2) IMSA-9604S-14C

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

FFC

CD8001 2F0E1001

FROM/TO Y/C/AUDIO/CCD/H.AMP

- DVD_V_OUT[DAC_D]
- FSC
- TU/REAR_V_IN
- FRONT_V_IN
- Y/C_VIDEO_OUT

FROM/TO SYSCON

- DVD_POWER_CTL
- DVD_RESET
- SYS_MUTE
- SCL
- SDA
- AV_SW1
- TV/VCR
- RF_CH_SW
- AFT-S.CURVE
- POWER_MUTE-L
- VIDEO_MUTE-H
- VIDEO_OUT
- SW_V_OUT

FROM/TO HI-FI/DEMODULATOR

- DVD_A_OUT_R
- DVD_A_OUT_L
- SIF_OUT
- FRONT_A_IN_L
- FRONT_A_IN_R

- AUDIO_OUT_L
- AUDIO_OUT_R
- RF_CONV_A_OUT

FROM/TO POWER

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

AV SW IC IC8005 MM1501XNRE

AUDIO_AMP IC IC8001 NJM4580M

D AUDIO DRIVER Q8001 KTC3875S_Y_RTK

MUTE SW Q8008 KTC3875S_Y_RTK

MUTE SW. Q8010 DTA143EKA

MUTE SW. Q8011 DTC124EKA

MUTE DET Q8012 KTC3875S_Y_RTK

MUTE SW Q8009 KTC3875S_Y_RTK

MUTE SW Q8006 KTC3875S_Y_RTK

MUTE SW Q8007 DTA124EKA

MUTE SW Q8005 KTC3875S_Y_RTK

VIDEO MUTE SW Q8003 DTC124EKA

BUFFER Q8004 KTA1266

MUTE SW Q8002 DTC144EKA

Y/C SEPA J8008 MDC-070V-B_LF

FRONT AV JACK VIDEO J8003 MSP-281V42-B

FRONT AV JACK AUDIO L J8004 MSP-281V40-B

FRONT AV JACK AUDIO R J8005 MSP-281V31-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 。

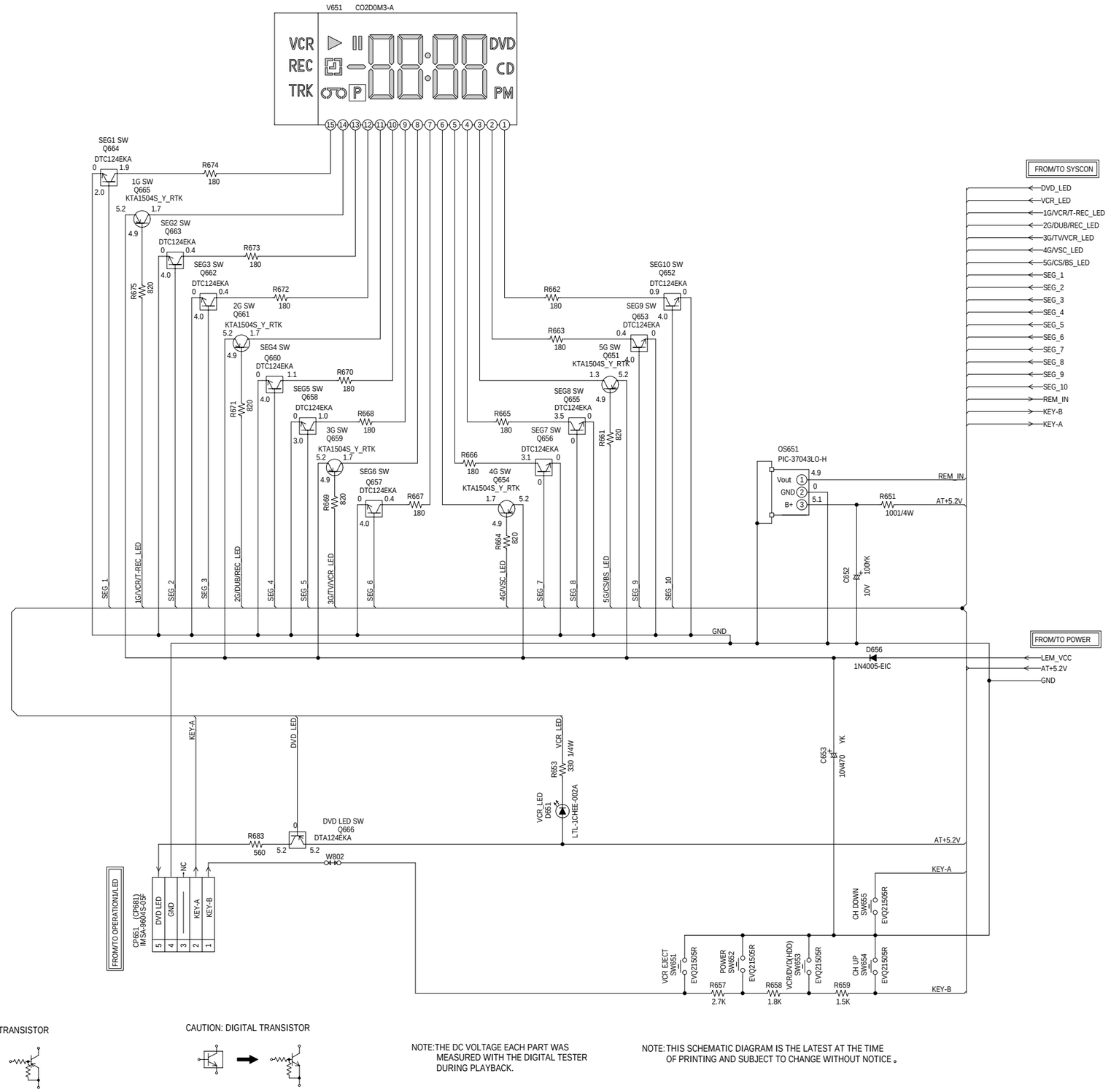
ATTENTION :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

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

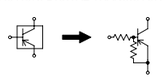
PCB010 VMD335

OPERATION/DISPLAY SCHEMATIC DIAGRAM

(VCR PCB)



CAUTION: DIGITAL TRANSISTOR



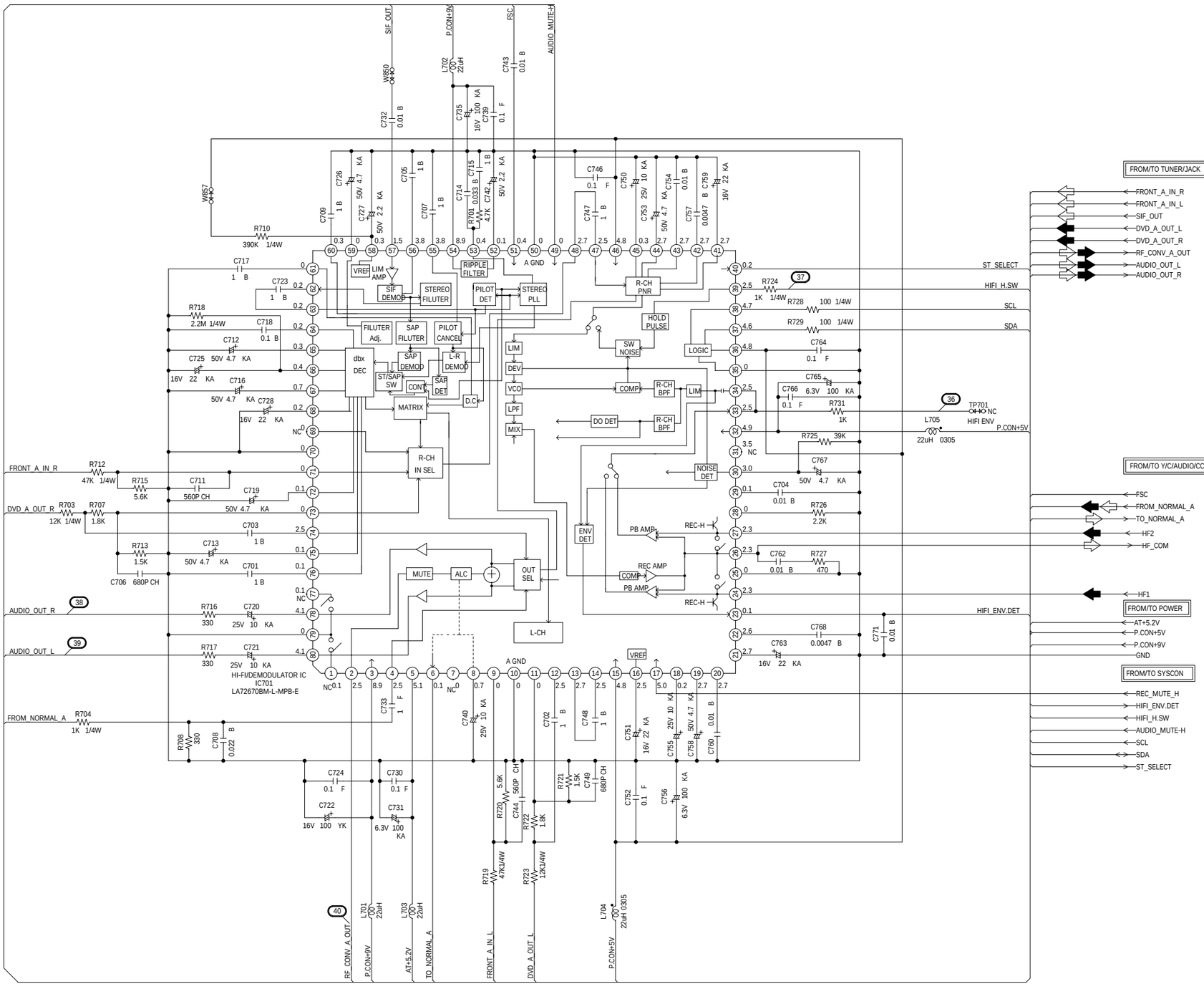
CAUTION: DIGITAL TRANSISTOR

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 。

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)

AC120V_60HZ
CD501
09414910
BLADE WIDE
WHITE
BLACK
S502
S501
F501
2.5A125V
51MS025L
FH501 EYF-52BCY
FH502 EYF-52BCY
C502_1 0.22 275V ECQUL
L501_1
COIL,LINE FILTER
SS11VL-05230
R501 3.3M 1/2W +-10%
C526_1 0.0022 250V KY
C516_1 0.0022 250V KY
D506 1N4005-EIC
D503 1N4005-EIC
D502 1N4005-EIC
D505 1N4005-EIC
R503 1.5M 1/2W
C511 47 200V PK
C540 47 200V PK
R512 68K 1W
C513 2KV 220P R
C515 0.01 500V B
D509 RGP10J-EIC
B501 W4BRH3.5X6X1.0X2
R505 680K1/4W
R529 680K1/4W
R506 1M1/2W
T501 81291244
16.0 NC 8
0 7
0 6
139.3 4
0 NC 3
142.0 2
0 NC 10
12.9 11
0 12
0 13
16.6 14
96 15
W845
D515 21DQ04N
C519_1 10V2200 YK
W865
D511 SB340L-6737
L506 22uH 9C08A
W827
C518 6.3V 2200 RM
D519 MTZJ6.8B
C530_1 16V 100 YK
R516 0.22 1W
C525 680P 2KV
R502 1 1W
SWITCHING Q501 2SK3563(ORION_Q)
D510 MTZJ2.2B
HS501 763WAA0186 HS6S
R504 5601/2W
C509 0.018 M
C508 0.022 B
R507 10K
PROTECT CONTROL Q502 KTC3203_Y
W826
D524 1SS133
R524 100 1/4W
C527 0.001 B
D512 1SS133
D501 1SS133
PHOTO COUPLER IC503 PS2561AL1-1-V(W)
R508 100 1/4W
D504 1SS133
D518 1SS133
C510 0.022 B
R530 470K1/4W
R549 100K 1/4W
C512 25V10 KA
PROTECT CONTROL Q507 KTC3203_Y
R531 10K
R547 100K
R518 150
W829
R519 1K
C524 0.022 B
VOLTAGE CTL IC IC501 TL431AILP
R521 390
R520 3.3K +-1%
R522 3.3K +-1%
D522 10ELS6N
W877
R517 1K 1/2W
C522_1 50V 22 YK
D523 MTZJ3.3B
D508 1SS133
R527 220 1/4W
D516 MTZJ5.1B
C520 1 F
R536 5.6K
R515 27K
C534 1 F
R511 560K
R523 6.8K
M-CON +5V SW Q504 KTA1271_Y
M-CON POWER SW Q506 KRC103SRTK
W818
D520 1N4005-EIC
D507 RGP15J
C531 560P B
500V
L505 22uH 0305
P.CON+12V SW Q510 2SD1207
D527 1N4005-EIC
C501_1 16V 2200 YK
C505_1 16V 100 YK
R533 220 1/4W
D514 MTZJ12B
R535 22K J/4W
R534 22K 1/4W
D528 1SS133
P.ON SW Q509 DTC124EKA
9V REG. IC
IC502 KIA78R09API
IN OUT GND SW
D513 1N4005-EIC
R509 1001/4W
R513 390 1/2W
P.CON5V SW Q505 2SD1207
C521 16V 100 YK
C514 16V 100 YK
R532 10K
W816 MOTOR_GND
W804 M_GND
FROM/TO Y/C/AUDIO/CCD/H.AMP
P.CON+5V
GND
AT+12.6_V
P.CON+12V
FROM/TO SYSCON
TX
RX
AT+5.2V
DVD_POWER_CTL
VCR_POWER_ON-L
POWER_FAIL
AT+5V[M-CON]
AT+12.6_V
P.CON+5V
GND
MOTOR_GND
P.CON+9V
P.CON+5V_DH
DVD_POWER_CTL
FROM/TO TUNER/JACK
P.CON+9V
SPDIF
+32V
AT+5.2V
P.CON+5V
P.CON+12V
GND
AT+3.8V
FROM/TO OPERATION/DISPLAY
LEM_VCC
AT+5.2V
GND
GND
LEM_VCC
AT+5.2V
P.CON+5V
FROM/TO HI-FI/DEMODULATOR
P.CON+9V
P.CON+5V
AT+5.2V
GND
GND
AT+5V[M-CON]
+32V
FROM/TO MPEG/MICON/DSP
CP501 (CD4002) A2001WV2-11P
GND(D) 1
GND(D) 2
TX 3
RX 4
GND(M) 5
P.CON+9V 6
P.CON+A5V 7
UNREG+3.8V 8
UNREG+3.8V 9
GND 10
SPDIF 11
TX
RX
M_GND
P.CON+9V
P.CON+5V_DH
AT+3.8V
AT+5.2V
POWER_FAIL
SPDIF
R553 47K 1/4W
R554 10K 1/4W
R552 100
POWER FAIL SW Q514 2SC2412K
D526 MTZJ3.3B
POWER FAIL SW Q513 2SC2412K
W806
C544 1 B
C506 10V 100 YK
PCB010
VMD335

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。

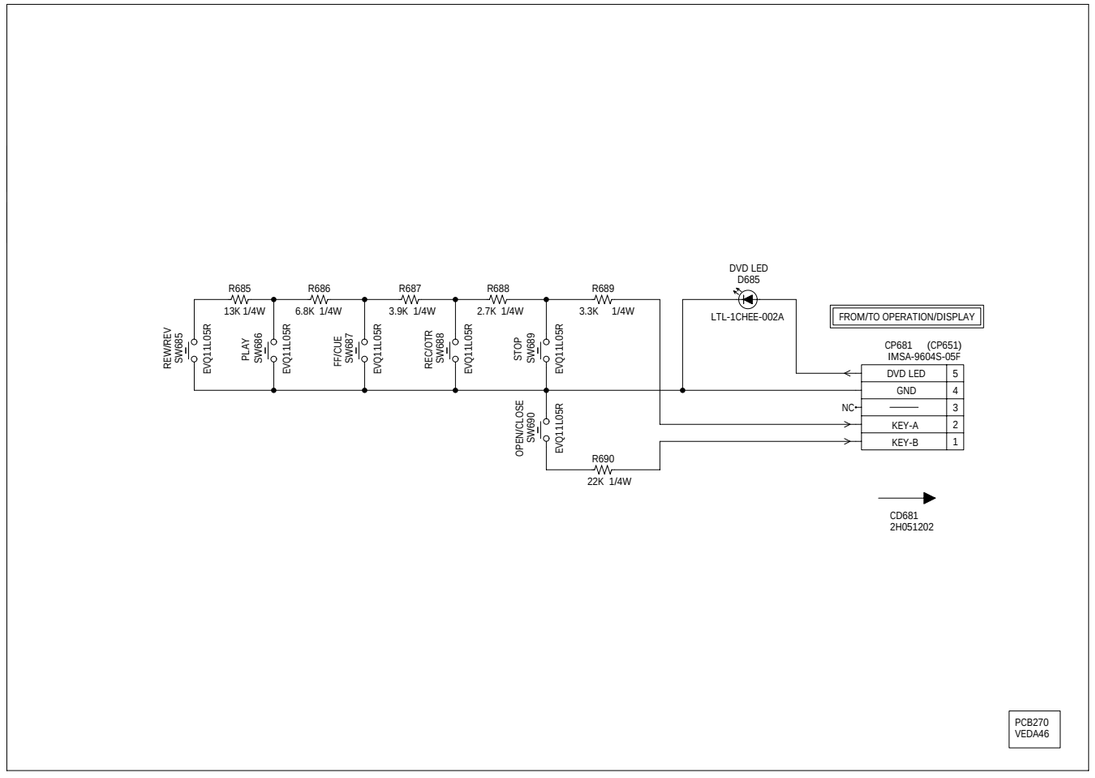
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

CAUTION: DIGITAL TRANSISTOR

OPERATION/LED SCHEMATIC DIAGRAM

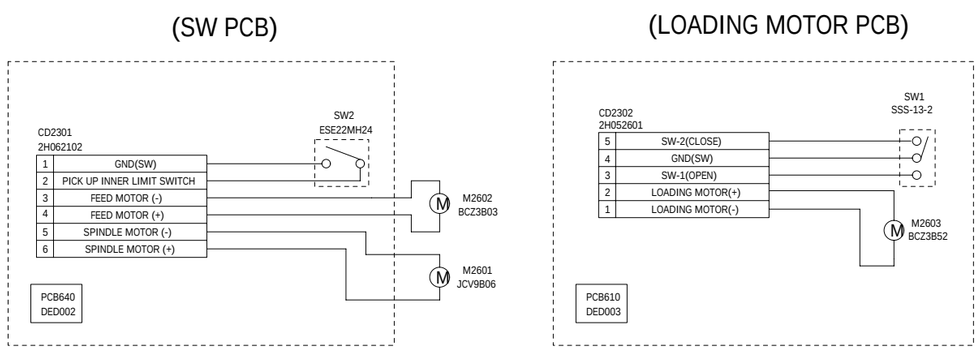
(OPERATION PCB)



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

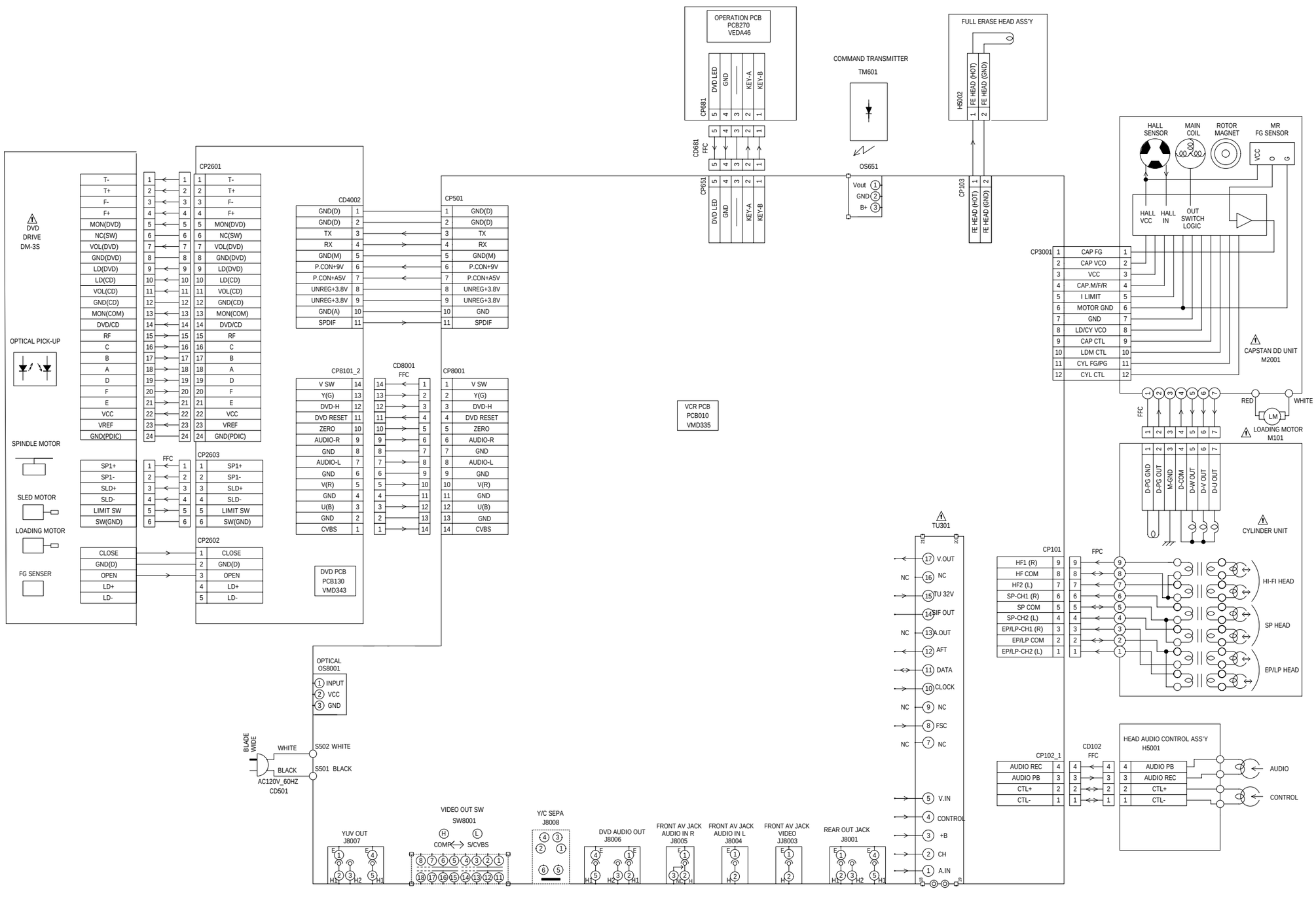
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

LOADING MOTOR/SW SCHEMATIC DIAGRAM



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。

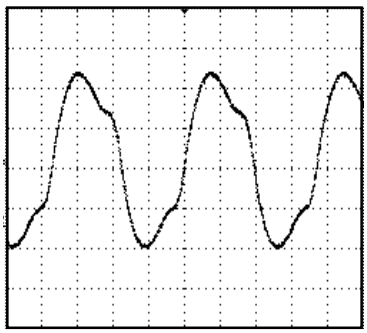
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

MPEG/MICON/DSP

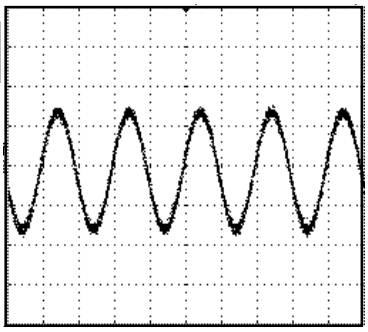
10ns
1.0V

①



500µs
1.0V

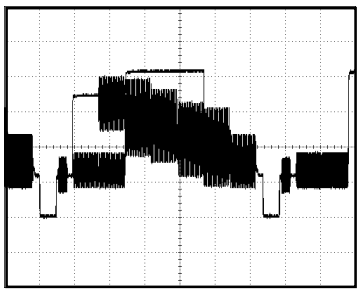
⑥



Y/C/AUDIO/CCD/HEAD AMP

PB
10µs
500mV

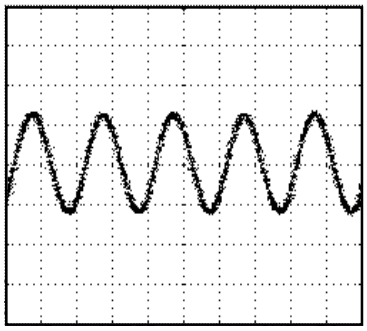
⑯



MEMORY

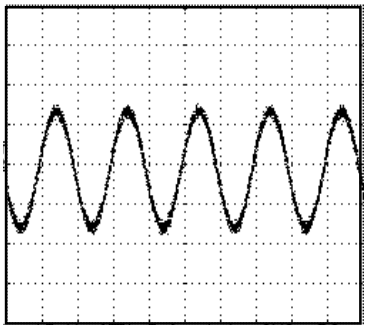
200µs
500mV

②



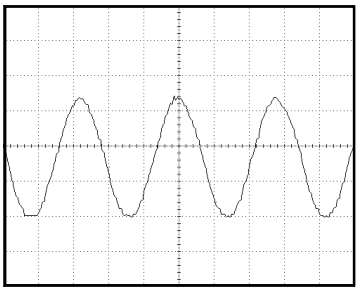
500µs
1.0V

⑦



PB
100ns
100mV

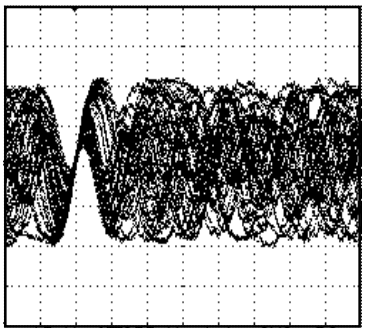
⑰



RF_AMP/DSP

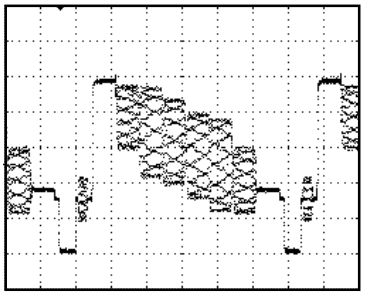
200ns
200mV

③



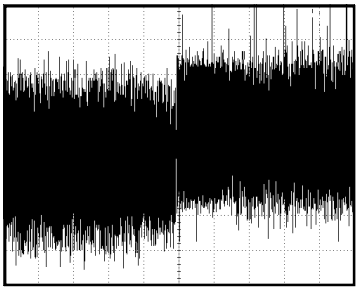
10µs
200mV

⑧



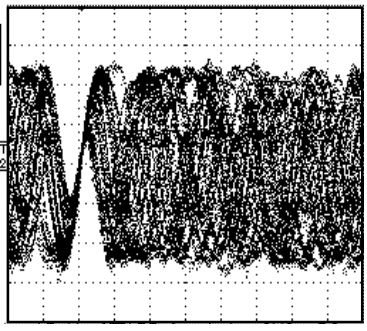
PB
1ms
100mV

⑱



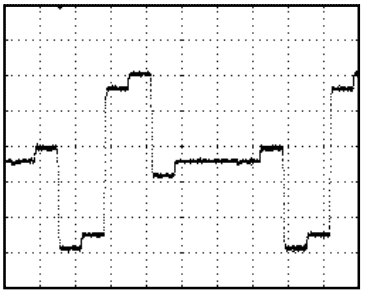
200ns
100mV

④



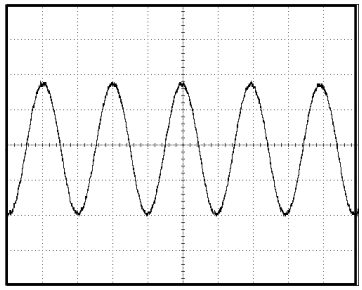
10µs
100mV

⑨



PB
200ms
500mV

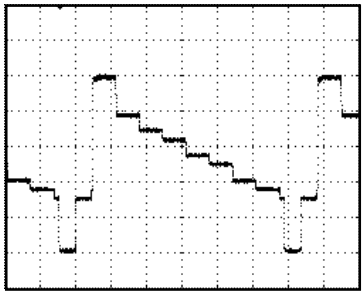
⑲



AUDIO/VIDEO

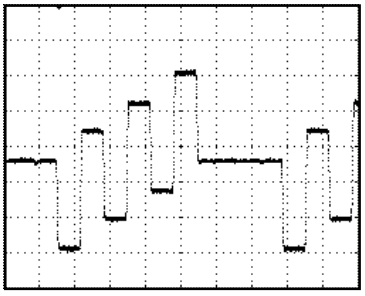
10µs
200mV

⑤



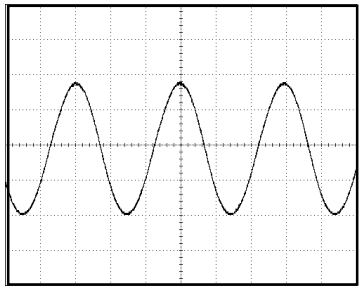
10µs
100mV

⑩



REC
5µs
20V

⑳



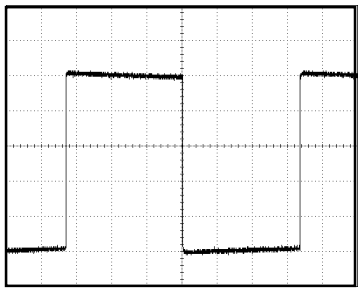
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

SYSCON

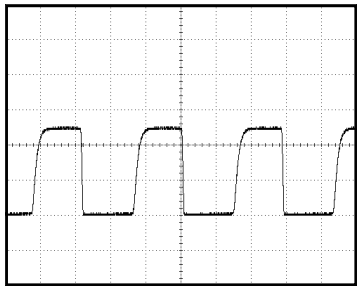
PB
5ms
1.0V

21



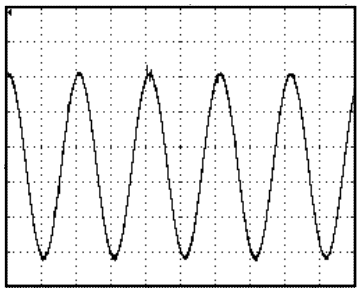
PB
5ms
2.0V

27



PB
500µs
200mV

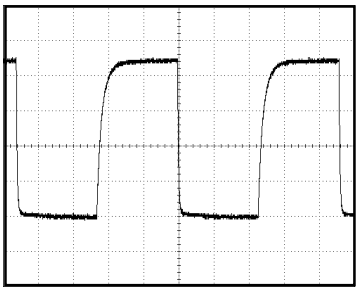
39



TUNER/JACK

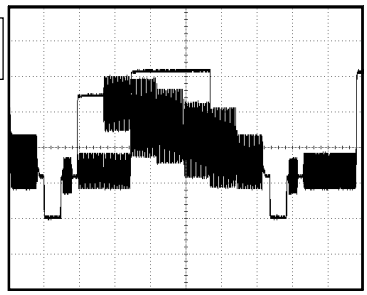
PB
200µs
1.0V

22



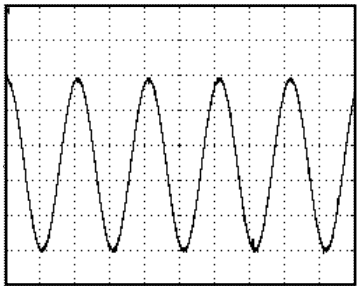
10µs
200mV

32



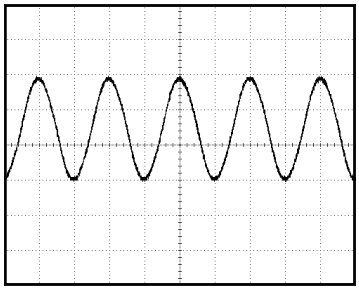
PB
500µs
200mV

40



POWER ON
50ns
1.0V

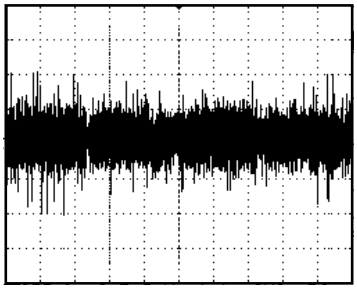
23



Hi-Fi/DEMODULATOR

PB
10ms
1.0V

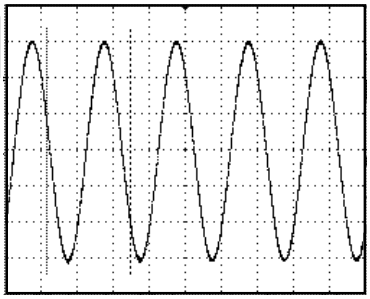
36



TUNER/JACK

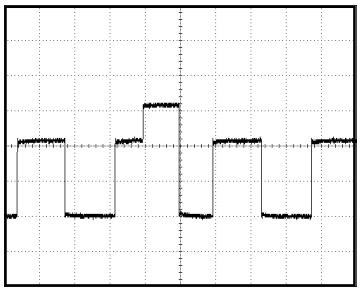
PB
500µs
100mV

41



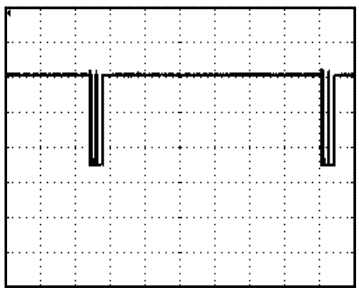
PB
500µs
1.0V

24



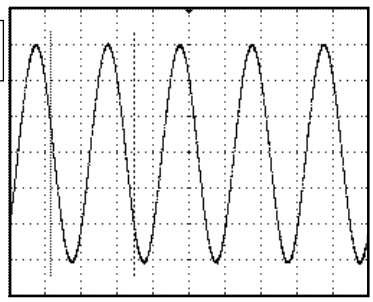
PB
1ms
2.0V

37



PB
500µs
100mV

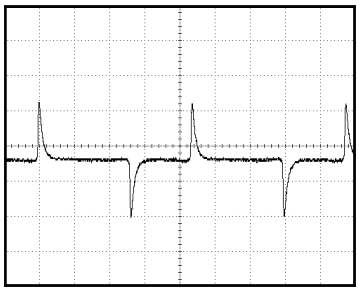
42



POWER

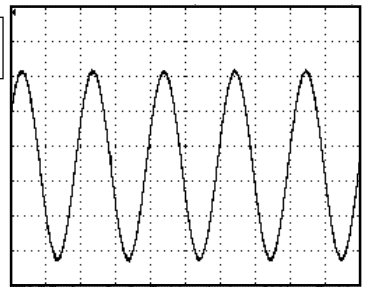
PB
5ms
500mV

25



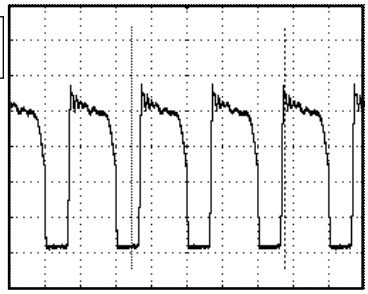
PB
500µs
200mV

38



PB
5µs
500mV

43

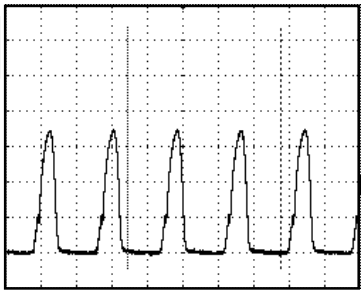


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

PB
5µs
5.0V

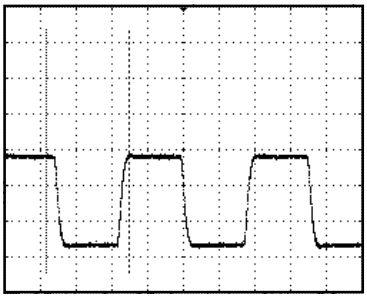
(44)



TUNER/JACK

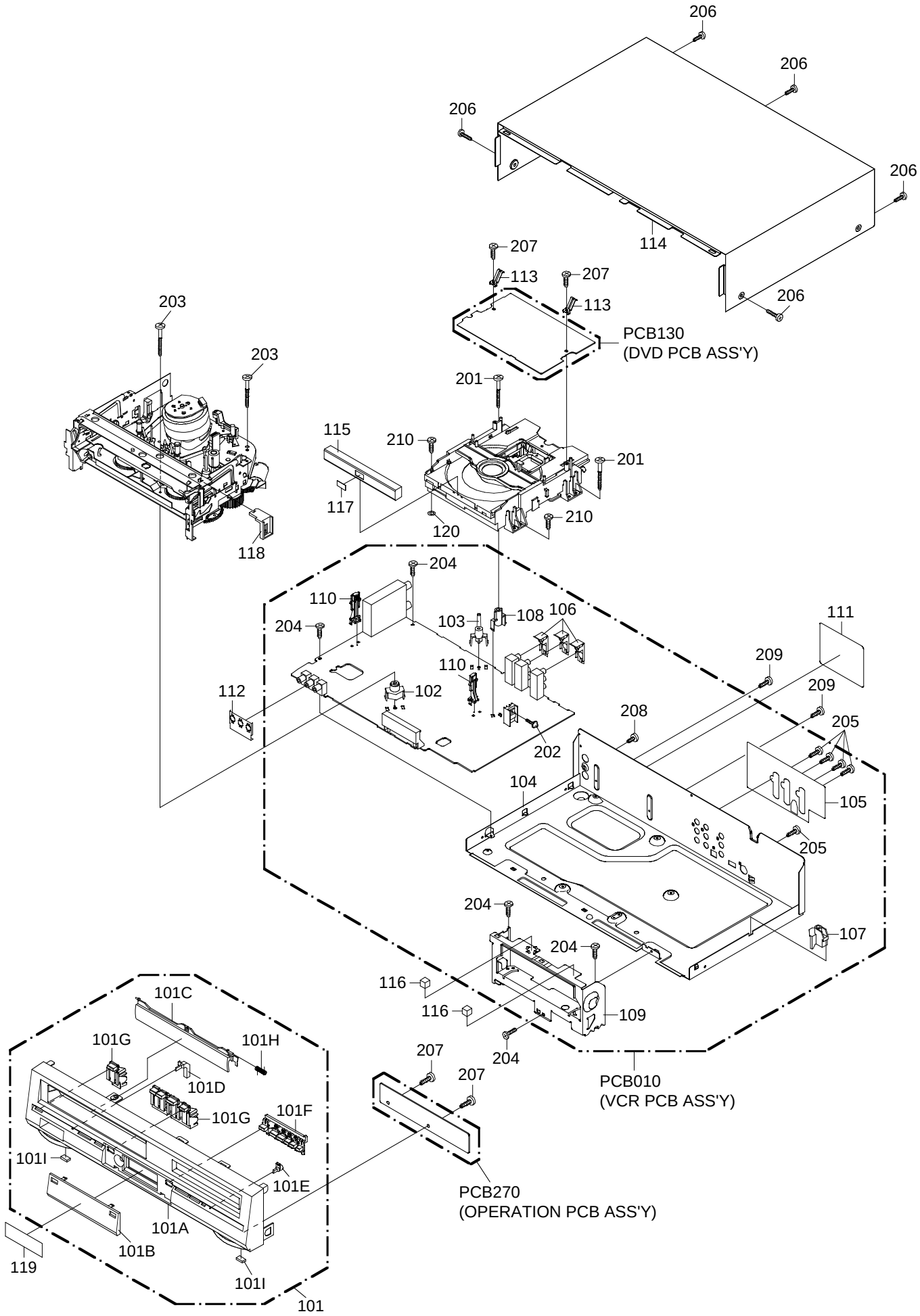
PB
200ns
20mV

(45)

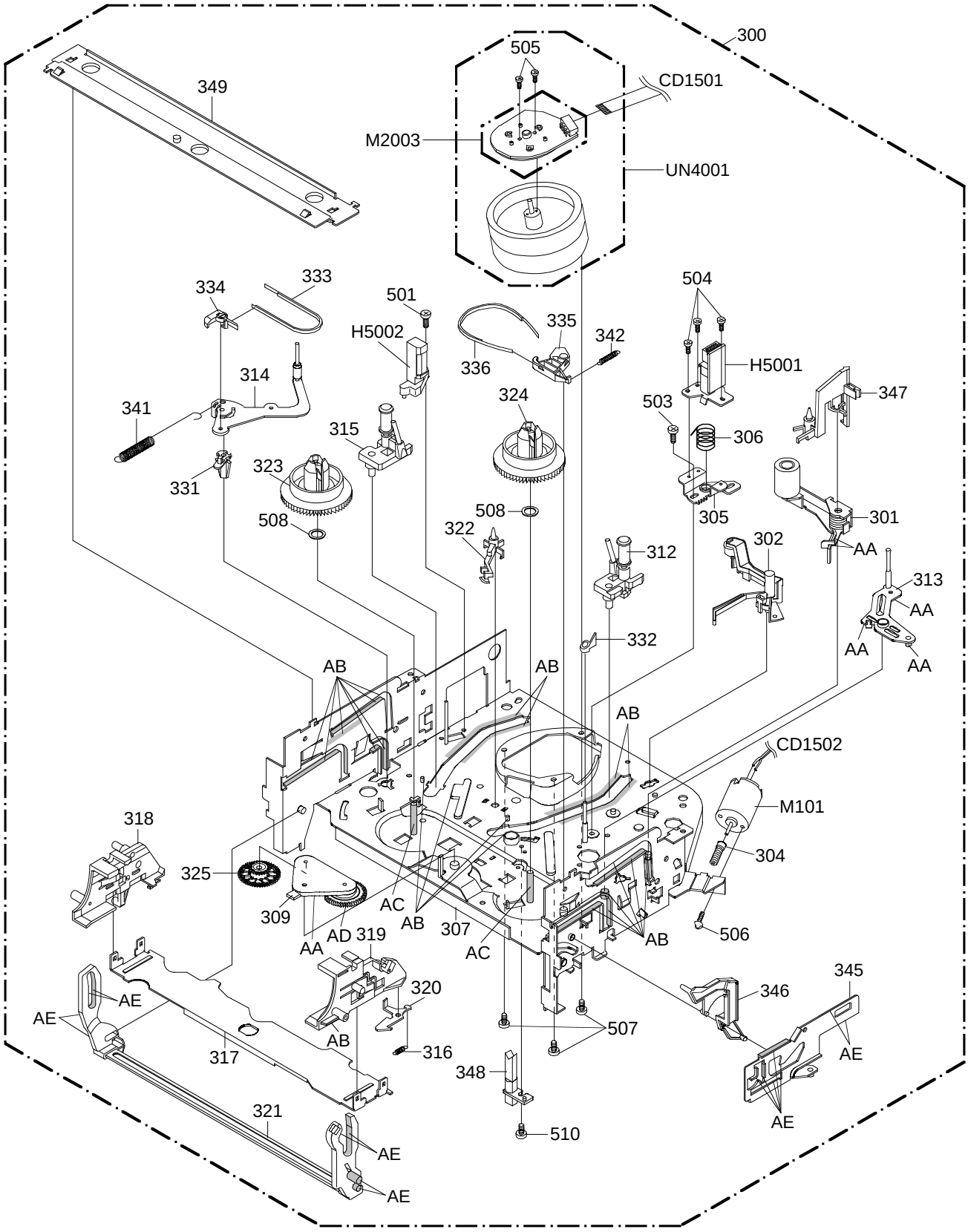


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



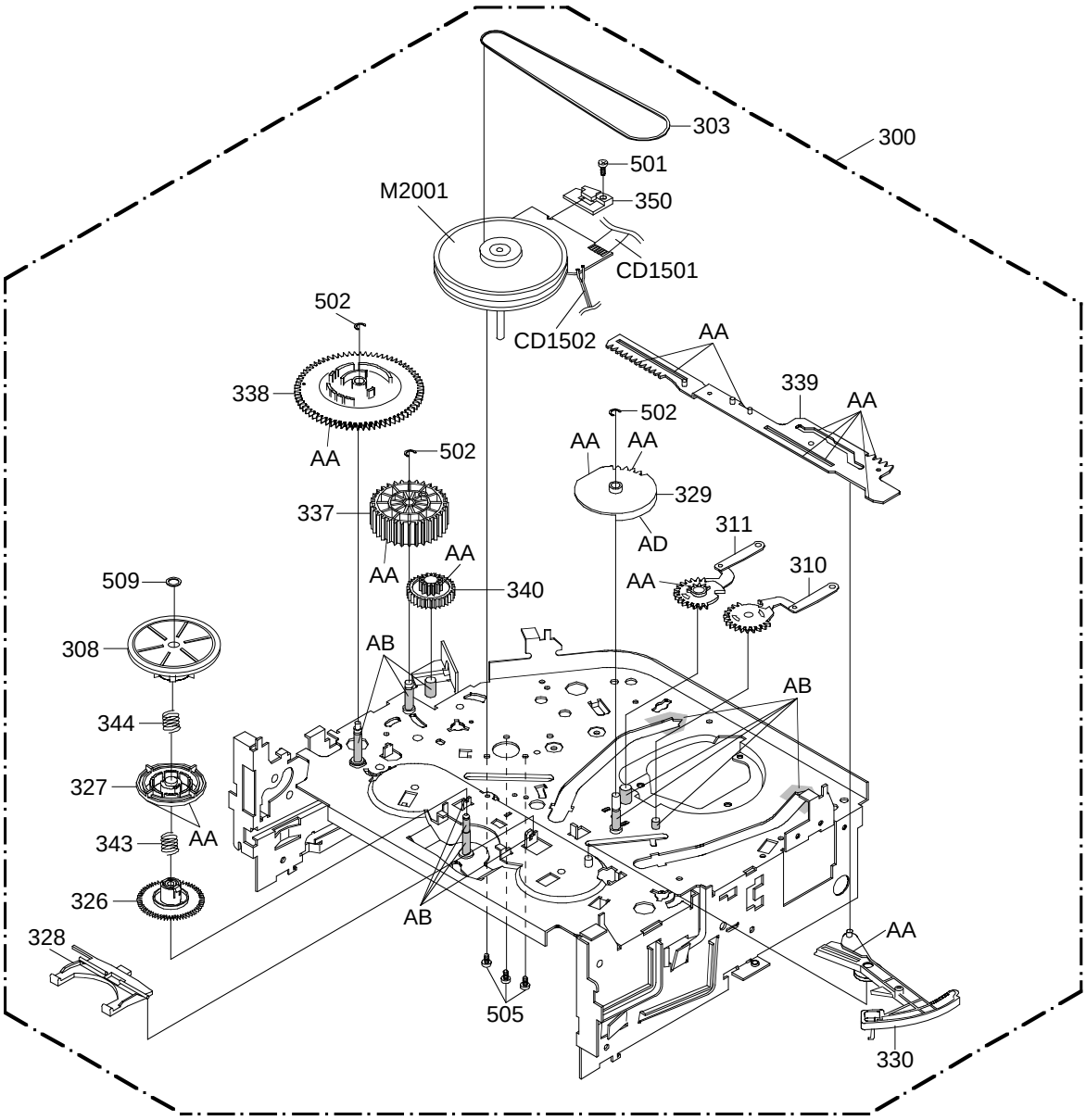
CHASSIS EXPLODED VIEW (TOP VIEW)



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

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

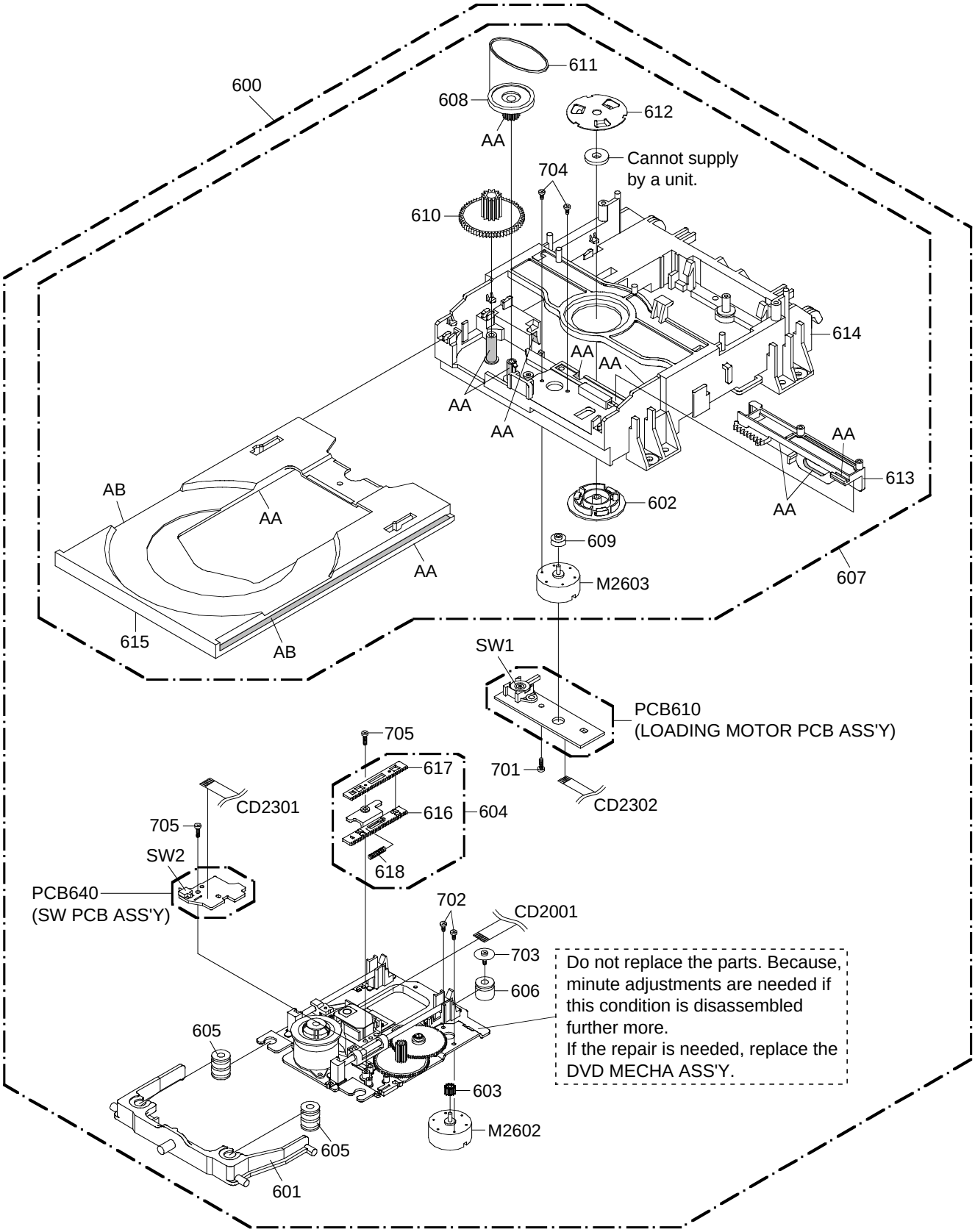
CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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

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

DVD DECK EXPLODED VIEW



CLASS	PART NO.	PART NAME	MARK
GREASE	Y315061000	G-555G	AA
	Y315131000	SF-112	AB

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

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
101	7A7010032A	FRONT CABI 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	800WFAA015	CUSHION,LEG	
102	701WPA0686	HOLDER,DECK	
103	701WPA0751	HOLDER,DECK	
104	702WSA0216	PLATE,BOTTOM	
105	7230007787	SHEET,JACK	
106	752WSA0290	SHIELD,COMPO	
107	761WPA0261	HOLDER,DVD BR	
108	761WPA0321	HOLDER,DVD BL	
109	761WSAA025	ANGLE,FRONT	
110	85OP700038	HOLDER,END SENSOR	
111	722A08A154	SHEET,RATING	
112	752WUAA001	SHIELD,3PIN	
113	753WUA0065	SPRING,EARTH	
114	702WSA0212	CABINET,TOP	
115	712WPB0162	PLATE,TRAY-FRONT	
116	8965TS1010	CUSHION 65TS10-10	10x20x25
117	7235630010	SHEET,DVD	
118	761WPA0262	HOLDER,DECK TOP	
119	723000A698	SHEET,DISPLAY	
120	800WB00004	FIBER WASHER	7x3.2xT0.5
201	8154D3033U	SCREW,TAP TITE(B) WH8	3x33R
202	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
203	8109130B9U	SCREW,TAP TITE(B) R PAN	3x29
204	810923070U	SCREW,TAP TITE(B) R BIND	3x7
205	810923080U	SCREW,TAP TITE(B) BIND	3x8
206	8109K30601	SCREW,TAP TITE(B) BIND(3D)	3x6
207	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
208	810713040U	SCREW,TAP TITE(S) PAN	3x4
209	810722660U	SCREW,TAP TITE(S) BIND	2.6x6
210	810F13080U	SEMS(F)	3x8
---	791WHA0100	GIFT SHEET	
---	792WHA0558	PACKAGE,FRONT	
---	792WHAA117	PACKAGE,BACK	
---	793WCD1569	GIFT BOX	
---	A2D811X975	INSTRUCTION BOOK KIT	
---	J2D81121A	INSTRUCTION BOOK	
---	J3J81702C	WARRANTY SHEET	
---	JB5U0200	POLYBAG,INSTRUCTION	

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
300	A2D801T420K	DECK ASSY	A2D801T420K	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
				502	83ETW30000	E-RING	3.0
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	1523Q91004	HEAD,AUDIO CONTROL	VTR-1X2RPE22-772
313	85OA400232	P5 ARM ASS'Y 2		H5002	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
314	85OA400235	TENSION ARM ASS'Y 2		⚠ M101	1596S98001	MOTOR (LOADING)	MDB2B66
315	85OA400231	INCLINED BASE S UNIT		⚠ M2001	1510S98042	CAPSTAN DD UNIT	F2QVB73
316	85OP800367	SPRING,LOCKER		M2003	1589S11020	MICRO MOTOR	I2OAL34
317	85OP900736	CASS,HOLDER		⚠ UN4001	A5L1046500	CYLINDER UNIT ASS'Y	A5L1046500
318	85OP900748	CASS,SIDE L					
319	85OP900749	CASS,SIDE R					
320	85OP900739	LOCKER,R					
321	85OA900228	LINK UNIT					
322	85OP000496	POST,CASS GUIDE					
323	85OP200316	REEL,S (S)					
324	85OP200317	REEL,T (S)					
325	85OP200308	GEAR,IDLER					
326	85OP200311	GEAR,CLUTCH					
327	85OP200312	GEAR,COUPLING					
328	85OP200313	LEVER,CLUTCH					
329	85OP300194	GEAR,MAIN LOADING					
330	85OP400490	LEVER,TENSION					
331	85OP400492	HOLDER,TENSION					
332	85OP400520	CAP.P4					
333	85OP400542	BAND,TENSION					
334	85OP400533	CONNECT,TENSION					
335	85OP600573	ARM,BRAKE T					
336	85OP600584	BAND,BRAKE T					
337	85OP600577	CAM,PINCH ROLLER					
338	85OP600578	CAM,MAIN					
339	85OP600579	ROD,MAIN					
340	85OP600582	GEAR,JOINT					
341	85OP800322	SPRING,TENSION					
342	85OP800360	SPRING,BRAKE T					
343	85OP800355	SPRING,COUPLING					
344	85OP800356	SPRING,RING					
345	85OP900743	LEVER,LINK					
346	85OP900744	LEVER,FLAP					
347	85OP900745	CASS,OPENER					
348	85OP700035	REFLECTOR,LED					
349	85OP900746	BRACKET,TOP 3V					
350	85OP400549	HOLDER,CAPSTAN					

DVD DECK REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
600	A2D801X650	DVD MECHA ASS'Y	A2D801X650
601	92P100098A	HOLDER,TRAVERSE	
602	92P100094A	CLAMPER	
603	92P100088A	GEAR,MOTOR	
604	92AAA0013A	FEED RACK ASS'Y	
605	92P200013A	INSULATOR(F)	
606	92P200014A	INSULATOR(R)	
607	92SBB0020A	LOADER SUB ASS'Y	
608	92P100095A	GEAR,PULLEY	
609	92P100097A	PULLEY,MOTOR	
610	92P100096A	GEAR,MAIN	
611	92P200012A	BELT,LOADING	
612	92P000014A	PLATE,CLAMPER	
613	92P100093A	RACK,LOADING	
614	92P100091A	FRAME,MAIN	
615	92P100100A	TRAY	
616	92P100089A	RACK,FEED 1	
617	92P100090A	RACK,FEED 2	
618	92P300020A	SPRING,RACK FEED	
701	811022680U	SCREW,TAP TITE(P) BIND	2.6x8
702	814011723U	SCREW,PAN	M1.7x2.3 P3
703	816112080U	SEMS.TAP TITE(P) PAN W10	2x8
704	814011730U	SCREW,PAN	M1.7x3 P3
705	811022080U	SCREW,TAP TITE(P) BIND	2x8
CD2001	122H0O1901	CORD JUMPER	2H0O1901
CD2301	122H062102	CORD JUMPER	2H062102
CD2302	122H052601	CORD JUMPER	2H052601
⚠ M2602	1515S98002	FEED MOTOR	BCZ3B03
M2603	1596S18002	LOADING MOTOR	BCZ3B52
PCB610	A2D801X610	PCB ASS'Y	VEDA47A
PCB640	A5M4016640	PCB ASS'Y	DED002A
SW1	0515S32002	SWITCH	SSS-13-2
SW2	0500101037	PUSH SWITCH	ESE22MH24

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R501	R0G3K2335K	RC	3.3M OHM 1/2W
⚠ R502	R3X181010J	R,METAL OXIDE	1 OHM 1W
⚠ R503	R002T2155J	RC	1.5M OHM 1/2W
⚠ R504	R002T2561J	RC	560 OHM 1/2W
⚠ R512	R3X181683J	R,METAL OXIDE	68K OHM 1W
⚠ R516	R63581R22J	R,FUSE	0.22 OHM 1W
⚠ R517	R002T2102J	RC	1K OHM 1/2W
		CAPACITORS	
⚠ C501	E02LF2222M	CE	2200 UF 16V
⚠ C502	P2122B224M	CMP	0.22 UF 275V ECQUL
⚠ C505	E02LU2101M	CE	100 UF 16V
⚠ C511	E62QFC470M	CE	47 UF 200V
C513	C03L0R7H2K	CC	220 PF 2KV R
⚠ C514	E02LU2101M	CE	100 UF 16V
⚠ C515	C0J0B0514K	CC	0.01 UF 500V B
⚠ C516	CC3LE0MH3M	CC	0.0022UF 250V
⚠ C518	E61FF0222D	CE	2200 UF 6.3V
⚠ C519	E02LF1222M	CE	2200 UF 10V
⚠ C521	E02LU2101M	CE	100 UF 16V
⚠ C522	E02LU5220M	CE	22 UF 50V
C525	C0PLRR7U2K	CC	680 PF 2KV R
⚠ C526	CC3LE0MH3M	CC	0.0022UF 250V
⚠ C540	E62QFC470M	CE	47 UF 200V
		DIODES	
D501	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D502	D2WXN40050	DIODE,SILICON	1N4005-EIC
⚠ D503	D2WXN40050	DIODE,SILICON	1N4005-EIC
D504	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D505	D2WXN40050	DIODE,SILICON	1N4005-EIC
⚠ D506	D2WXN40050	DIODE,SILICON	1N4005-EIC
⚠ D507	D23TGP15J0	DIODE,SILICON	RGP15J-G23
D508	D1VT001330	DIODE,SILICON	1SS133T-77
D509	D2WXGP10J0	DIODE,RECTIFIER	RGP10J-EIC
⚠ D510	D97U02201B	DIODE,ZENER	MTZJ22B T-77
⚠ D511	D2LKB340L0	DIODE,SCHOTTKY	SB340L-6737
D512	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D513	D2WXN40050	DIODE,SILICON	1N4005-EIC
D514	D97U01201B	DIODE,ZENER	MTZJ12B T-77
⚠ D515	D28T21DQN4	DIODE,SCHOTTKY	21DQ04N-TA2B1
D516	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D518	D1VT001330	DIODE,SILICON	1SS133T-77
D519	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D520	D2WXN40050	DIODE,SILICON	1N4005-EIC
⚠ D522	D28TELS6N6	DIODE,RECTIFIER	10ELS6N-TA1B2
⚠ D523	D97U03301B	DIODE,ZENER	MTZJ33B T-77
D524	D1VT001330	DIODE,SILICON	1SS133T-77
D526	D97U03R31B	DIODE,ZENER	MTZJ3.3B T-77
D527	D2WXN40050	DIODE,SILICON	1N4005-EIC
D528	D1VT001330	DIODE,SILICON	1SS133T-77
D651	0021E2Q140	LED	LTL-1CHEE-002A
D656	D2WXN40050	DIODE,SILICON	1N4005-EIC
D685	0021E2Q140	LED	LTL-1CHEE-002A
D2601	DDARDS1200	DIODE,SILICON	KDS120RTK
D3001	0010E00330	INFRARED LED	LTE-3271T-012A-O
D3002	D1VT001330	DIODE,SILICON	1SS133T-77
D3007	D1VT001330	DIODE,SILICON	1SS133T-77
D3009	D1VT001330	DIODE,SILICON	1SS133T-77
D8004	D1VT001330	DIODE,SILICON	1SS133T-77
D8005	D1VT001330	DIODE,SILICON	1SS133T-77
D8006	D1VT001330	DIODE,SILICON	1SS133T-77
D8111	DDDRL41480	DIODE,SILICON	MCL4148
D8112	DDDRL41480	DIODE,SILICON	MCL4148
		ICS	
IC101	I03F3206M0	IC	LA71206M-MPB
⚠ IC501	I0CJ9AILP0	IC	TL431AILP
⚠ IC502	I1KA98R09A	IC	KIA78R09API
⚠ IC503	000220002W	PHOTO COUPLER	PS2561AL1-1-V(W)
IC701	I03F670BM0	IC	LA72670BM-L-MPB-E
IC2301	I03F065650	IC	LA6565-TE-L-E
IC2601	ICQK067080	IC	ZR36708TQC
IC3001	I54F50147A	IC	OEC0147A
IC3003	I9UF032310	IC	PST3231NR
IC3099	S2D801XE01	MEMORY DATA	S-24C02BFJ-TB
IC4001	ICQK06762V	IC	ZR36762PQCG_V
IC4002	I5HJ002BF0	IC	S-24C02BFJ-TB
IC4003	I0BF97KWM0	IC	SI-3007KWM-TL
IC4005	IF3J00HGT7	IC	HY57V641620HGT-7

REF. NO.	PART NO.	DESCRIPTION	
		ICS	
IC4007	ICMJ0800A8	IC	SST39VF800A-70-4C-EK-D
IC8001	I0QJ045800	IC	NJM4580M(TE1)
IC8005	I0UF015010	IC	MM1501XNRE
IC8102	I17F017530	IC	PCM1753DBQR
		TRANSISTORS	
Q101	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q102	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q103	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q104	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q105	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q107	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q109	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q301	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
⚠ Q501	T25F035630	FET	2SK3563(ORION_Q)
⚠ Q502	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
⚠ Q503	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
⚠ Q504	TAAT012714	TRANSISTOR,SILICON	KTA1271_Y-AT
⚠ Q505	TD3T012070	TRANSISTOR,SILICON	2SD1207(S,T)-AE
Q506	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
⚠ Q507	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q509	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
⚠ Q510	TD3T012070	TRANSISTOR,SILICON	2SD1207(S,T)-AE
Q513	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q514	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q651	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q652	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q653	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q654	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q655	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q656	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q657	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q658	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q659	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q660	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q661	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q662	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q663	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q664	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q665	TAAA1504SY	TRANSISTOR,SILICON	KTA1504S_Y_RTK
Q666	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q2601	T67J1036K0	TRANSISTOR,SILICON	2SA1036KT146
Q2602	T67J048TL0	TRANSISTOR,SILICON	2SA2048TL
Q2603	T27T030180	FET	2SK3018
Q2604	T27T030180	FET	2SK3018
Q2605	T27T030180	FET	2SK3018
Q3002	0002700690	PHOTO COUPLER	RPI-303
Q3003	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q3004	0002700680	PHOTO COUPLER	RPI-352C40N
Q3005	0002700680	PHOTO COUPLER	RPI-352C40N
Q3006	0000M00390	PHOTO TRANSISTOR	ST-304L
Q3007	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q3008	0000M00390	PHOTO TRANSISTOR	ST-304L
Q8001	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q8002	TNYJD05001	COMPOUND TRANSISTOR	DTC144EKAT146
Q8003	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8004	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q8005	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q8006	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q8007	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q8008	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q8009	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
Q8010	TPYJA05001	COMPOUND TRANSISTOR	DTA143EKAT146
Q8011	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q8012	TCAA3875SY	TRANSISTOR,SILICON	KTC3875S_Y_RTK
		COILS &TRANSFORMERS	
L101	031626010R	COIL,BIAS OSC	1626010
L102	02167F101J	COIL	100 UH
L301	02167F220J	COIL	22 UH
⚠ L501	029X000117	COIL,LINE FILTER	SS11VL-05230
L505	02167F220J	COIL	22 UH
L506	021W7A220K	COIL	22 UH
L701	021LA6220J	COIL	22 UH
L702	021LA6220J	COIL	22 UH
L703	02167F220J	COIL	22 UH
L704	02167F220J	COIL	22 UH
L705	02167F220J	COIL	22 UH
L3002	021W7A220K	COIL	22 UH

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		COILS &TRANSFORMERS	
L3003	021LA6120J	COIL	12 UH
L4001	02167F2R2J	COIL	2.2 UH
L8001	021LA6R33M	COIL	0.33 UH
L8002	021LA6R33M	COIL	0.33 UH
L8102	02167F1R0K	COIL	1 UH
L8103	02167F1R0K	COIL	1 UH
L8104	02167F1R0K	COIL	1 UH
L8105	02167F1R0K	COIL	1 UH
⚠ T501	0481291244	TRANSFORMER,SWITCHING	81291244
		JACKS	
J8001	060J411031	RCA JACK	MSP-213V1-432_NI_LF
J8003	060J401099	RCA JACK	MSP-281V42-B
J8004	060J401098	RCA JACK	MSP-281V40-B
J8005	060J421039	RCA JACK	MSP-281V31-A
J8006	060J411033	RCA JACK	MSP-213V1-732_NI_LF
J8007	060J411032	RCA JACK	MSP-213V1-652_NI_LF
J8008	063D700008	JACK	MDC-070V-B_LF
		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
SW8001	0510Y24001	SWITCH SLIDE	SK42H01G9A
		P.C.BOARD ASSEMBLIES	
PCB010	A2D811H010	PCB ASS'Y	VMD335A
PCB130	A2D814H130	PCB ASS'Y	VMD343A
PCB270	A2D804X270	PCB ASS'Y	VEDA46A
		MISCELLANEOUS	
B501	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2
B2601	024HC31022	CORE,BEADS	FCM2012H-102T04
B2602	024HC31022	CORE,BEADS	FCM2012H-102T04
B2603	024HC31022	CORE,BEADS	FCM2012H-102T04
B2604	024HC31022	CORE,BEADS	FCM2012H-102T04
B2605	024HC31022	CORE,BEADS	FCM2012H-102T04
B4001	024HC31022	CORE,BEADS	FCM2012H-102T04
B4002	024HC31022	CORE,BEADS	FCM2012H-102T04
B4003	024HC31022	CORE,BEADS	FCM2012H-102T04
B4004	024HC31022	CORE,BEADS	FCM2012H-102T04
B4005	024HC31022	CORE,BEADS	FCM2012H-102T04
B4006	024HC31022	CORE,BEADS	FCM2012H-102T04
B4007	024HC31022	CORE,BEADS	FCM2012H-102T04
B4008	024HC31022	CORE,BEADS	FCM2012H-102T04
B4010	024HC31022	CORE,BEADS	FCM2012H-102T04
B8001	024HC31022	CORE,BEADS	FCM2012H-102T04
B8002	024HC31022	CORE,BEADS	FCM2012H-102T04
B8003	024HC31022	CORE,BEADS	FCM2012H-102T04
B8103	024HC31022	CORE,BEADS	FCM2012H-102T04
CD102	122F041508	CORD,JUMPER	2F041508
⚠ CD501	1209414910	CORD,AC BUSH	9414910
CD681	122H051202	CORD,JUMPER	2H051202
CP101	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
CP102	069J740599	CONNECTOR PCB SIDE	IMSA-9604S-04C
CP103	067U002019	WIRE HOLDER	B2013H02-2P
CP501	069S2B0629	CONNECTOR PCB SIDE	A2001WV2-11P
CP651	069J750589	CONNECTOR PCB SIDE	IMSA-9604S-05F
CP681	069J750589	CONNECTOR PCB SIDE	IMSA-9604S-05F
CD4002	06CU2B1101	CORD,CONNECTOR	CU2B1101
CD6002	06CPL02006	CABLE	CPL02006
CD6003	06CPBA2003	CORD,RCA PIN	TD-020301-3
CD8001	122F0E1001	CORD,JUMPER	2F0E1001
CP2601	069GYOT119	CONNECTOR PCB SIDE	09-5000-024-001-001
CP2602	069EV53010	CONNECTOR PCB SIDE	00_6232_005_006_800
CP2603	069EV63010	CONNECTOR PCB SIDE	00_6232_006_006_800
CP3001	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2
CP8001	069J7E0599	CONNECTOR PCB SIDE	IMSA-9604S-14C
CP8101	069J7E0589	CONNECTOR PCB SIDE	IMSA-9604S-14F
⚠ F501	081PC2R505	FUSE	51MS025L
FH501	06710T0009	HOLDER,FUSE	EYF-52BCY
FH502	06710T0009	HOLDER,FUSE	EYF-52BCY

REF. NO.	PART NO.	DESCRIPTION	
		***** RESISTORS *****	
NR4001	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4002	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4003	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4004	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4005	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4006	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4007	110P4101M4	R,NETWORK	4D03WGJ0101T5E
NR4008	110P4101M4	R,NETWORK	4D03WGJ0101T5E
OS651	077Q037009	REMOTE RECEIVER	PIC-37043LO-H
OS8001	07AQ000009	OPTICAL DEVICE	OFTG038101
TM601	076R0JN01A	TRANSMITTER	R56-0532
⚠ TU301	0162300042	RF UNIT	115-V-H035ARE
V651	0040H54010	LED DISPLAY	CO2D0M3-A
X101	100DT3R528	CRYSTAL	HC-49/U
X3001	100GT01006	CRYSTAL	B10000C001
X4001	100BT02701	CRYSTAL	HC-49U/S

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

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

SPEC.NO.	M2D8-11H
O/R NO.	K462001