

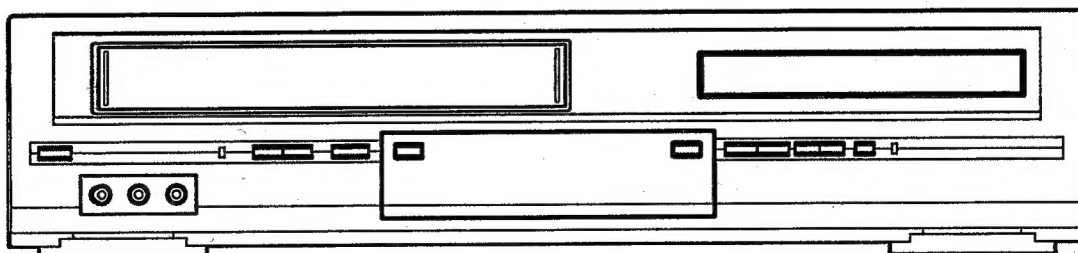
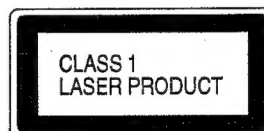
SERVICE MANUAL

Teil 1

ORION

DVD/VR-2961 / 2963 SI

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER



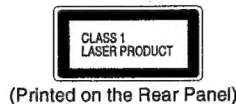
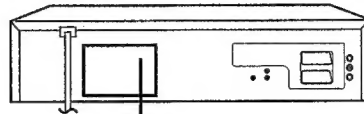
ORIGINAL CHASSIS CODE A

IMPORTANT WARNING

CAUTION:

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

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



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

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

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


SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  mark, the designated parts must be used.

3. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)

1. MODEL NUMBER and CHASSIS CODE

The MODEL NUMBER can be found on the back of each product and the CHASSIS CODE can be found at the end of the SERIAL NUMBER.

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

CONTENTS

IMPORTANT WARNING	A1-1
SERVICING NOTICES ON CHECKING	A1-1
HOW TO ORDER PARTS	A1-1
TAPE REMOVAL METHOD AT NO POWER SUPPLY	A1-2
DISC REMOVAL METHOD AT NO POWER SUPPLY	A1-2
PARENTAL CONTROL-RATING LEVEL	A1-2
CONTENTS	A2-1
GENERAL SPECIFICATIONS	A3-1~A3-7
DISASSEMBLY INSTRUCTIONS	
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS	B1-1, B1-2
2. REMOVAL OF VCR DECK PARTS	B2-1~B2-6
3. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC	B3-1, B3-2
KEY TO ABBREVIATIONS	C1-1, C1-2
SERVICE MODE LIST	C2-1
PREVENTIVE CHECKS AND SERVICE INTERVALS	C3-1, C3-2
WHEN REPLACING EEPROM (MEMORY) IC	C4-1
SERVICING FIXTURES AND TOOLS	D1-1
PREPARATION FOR SERVICING	D1-1
MECHANICAL ADJUSTMENTS	D2-1~D2-4
ELECTRICAL ADJUSTMENTS	D3-1, D3-2
BLOCK DIAGRAMS	
DVD	E-1, E-2
Y/C/AUDIO/HEAD AMP	E-3, E-4
SYSTEM CONTROL/SERVO/TIMER/OSD	E-5, E-6
REGULATOR	E-7, E-8
OPERATION/DISPLAY	E-9, E-10
TUNER/Hi-Fi/21PIN/OSD/G-STEREO/NICAM	E-11, E-12
POWER	E-13, E-14
PRINTED CIRCUIT BOARDS	
VCR/DVD	F-1~F-4
POWER/OPERATION	F-5, F-6
SCHEMATIC DIAGRAMS	
Y/C/AUDIO/HEAD AMP	G-1, G-2
SYSCON/SERVO/TIMER/VPS	G-3, G-4
21PIN/TUNER	G-5, G-6
REGULATOR	G-7, G-8
OPERATION/DISPLAY	G-9, G-10
Hi-Fi/DEMODULATOR	G-11, G-12
MPEG/MICON	G-13, G-14
MEMORY	G-15, G-16
DSP	G-17, G-18
MOTOR DRIVE	G-19, G-20
READ CHANNEL	G-21, G-22
AUDIO/VIDEO	G-23, G-34
POWER	G-25, G-26
OPERATION	G-27, G-29
INTERCONNECTION DIAGRAM	G-29, G-30
WAVEFORMS	H-1~H-2
MECHANICAL EXPLODED VIEW	I1-1
CHASSIS EXPLODED VIEWS	I2-1, I2-2
MECHANICAL REPLACEMENT PARTS LIST	J1-1
CHASSIS REPLACEMENT PARTS LIST	J2-1
ELECTRICAL REPLACEMENT PARTS LIST	J3-1~J3-3

TAPE REMOVAL METHOD AT NO POWER SUPPLY

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

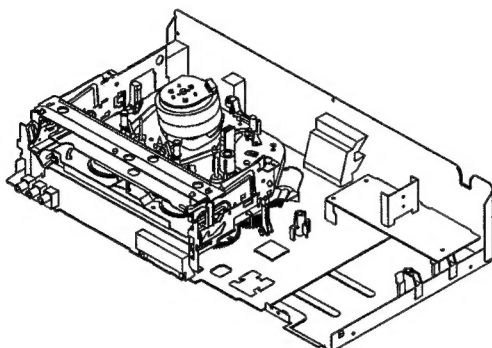


Fig. 1

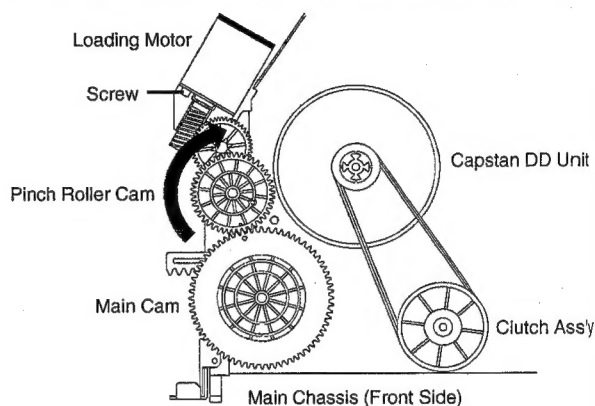


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet and Front Cabinet. (Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)
2. Rotate the gear of Deck CD section in the direction of the arrow by hand, remove the disc from Deck CD. (Refer to Fig. 3)

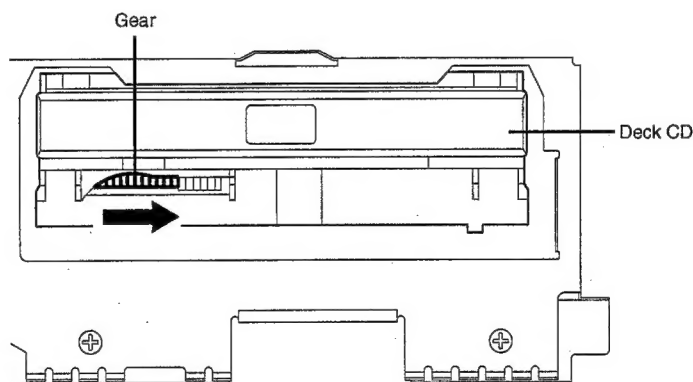


Fig. 3

PARENTAL CONTROL - RATING LEVEL 4-DIGIT SECURITY CODE CANCELLATION

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

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

GENERAL SPECIFICATIONS

G-1	Outline of the product		DVD VIDEO PLAYER & VHS Player / Recorder	
G-2	DVD System	Color System	PAL	
		Disc	DVD, CD-DA, CD-R/RW, VIDEO CD, SVCD	
		Disc Diameter	120 mm, 80 mm	
		Deck	Disc Loading System	
			Motor	Front Disc Loading
				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	74min
		Search speed	Fwd	2-20 times / 4 step
				Actual 2-45 times (DVD, VIDEO CD) 4-40 times (CD)
	Rev	2-20 times / 4 step		
		Actual 2-45 times (DVD, VIDEO CD) 4-40 times (CD)		
Slow speed	Fwd	1/7 -1/2 times		
		Actual --		
	Rev	--		
		Actual --		
G-3	VCR System	System	VHS Player / Recorder	
		Video System	PAL	
		HI-FI STEREO	Yes	
		NTSC PB(PAL60Hz)	Yes	
		Deck	DECK	
			Loading System	
			Motor	
		Heads	Video Head	
			FM Audio Head	
			Audio /Control	
			Erase(Full Track Erase)	
		Tape Speed	Rec	PAL
				NTSC
Play	PAL	SP/LP		
	NTSC	SP		
Fast Forward / Rewind Time (Approx.) at 25°C		FF:1'12"/REW:1'12"		
	with Cassette	E-180		
Forward/Reverse	NTSC or PAL-M	SP=3x, 5x		
Picture Search	PAL or SECAM	SP/LP=5x, 7x / 7x, 13x		
Frame Advance		Yes		
Slow Speed		1/5, 1/10, 1/30		
G-4	Tuning System	Broadcasting System	CCIR System BG	
		Tuner and Receive CH	System	1Tuner
			Destination	Oscar(W/HYPER)
			Tuning System	F-Synth
			Input Impedance	VHF/UHF 75 OHM
			CH Coverage	E2-E4, X-Z+2, S1-S10, E5-E12, S11-S41, E21-E69
		Intermediate Frequency	Picture(FP)	38.9 MHz
			Sound(FS)	33.4 MHz
			FP-FS	5.5 MHz
		Auto Tuning Method		C.C.I.R CH PLAN
		Auto Guide Ch Area		-
		Preset CH		80CH
		RF Converter Output		Yes
			Channel	23-69 CH
			Level/Impedance	73 dBu / 75 Ohm
	Sound Selector	No		
Stereo/Dual TV Sound		G.ST/NICAM DUAL		
Tuner Sound Muting		Yes		
G-5	Power	Power Source	AC	230V 50Hz
			DC	-
		Power Consumption		20 W at 230V 50Hz
			Stand by Per Year	5 W at 230V 50Hz -- W
Protector	Power Fuse	Yes		
G-6	Regulation	Safety	CE	
		Radiation	CE	
G-7	Temperature	Operation	5°C - 40°C	
		Storage	-20°C - 60°C	
G-8	Operating Humidity		Less than 80% RH	

GENERAL SPECIFICATIONS

G-9	Signal	Video Signal	Output Level	1 V p-p/75 ohm (DVD,VCR)	
			S/N Ratio (Weighted)	65 dB(DVD)	53 dB(VCR)
			Horizontal Resolution	500 Lines (DVD)	240 Lines(VCR at SP)
		RGB Signal	Output Level	0.7V p-p / 75 ohm	
			Audio Signal	Input Level Microphone	-
		Input Level Line		-3.8 dBm/ 50k ohm(VCR)	
		Output Level Line		-3.8 dBm/ 1k ohm (VCR, 0dB=0.775Vrms) -12dB/ 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		0.06% (DVD)	1.5% (VCR at SP)
		Frequency Response : DVD Mode at DVD		4 Hz - 22 KHz	
		DVD Mode at VIDEO CD		4 Hz - 20 KHz	
		DVD Mode at CD		4 Hz - 20 KHz	
		VCR Mode at SP		100Hz - 10 KHz	
		VCR Mode at LP	100Hz - 5 KHz		
		VCR Mode at SLP	-		
		Hi-Fi Audio Signal	Dynamic Range : More than	75dB	
			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
		Slide Show	No
		Interval Time	No
		JPEG Interval	Yes
		Select Files	Yes
		Sound	Yes
		DRC (Dynamic Range Control)	Yes
		dts Decode	No
		Output (5.1ch/ 2ch)	No
		Surround On/Off	No
		Center On/Off	No
		Sub Woofer On/Off	No
		Parental	Yes
		Password Lock/Un Lock	Yes
		Rating Level	Yes
		Other	Yes
		OSD Language (Set up Language)	Yes
		Output (RGB/Video)	Yes
		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,Video CD,SVCD,WMA,JPEG)
		Repeat	Yes
		Slow+ ##	Yes
Slow- ##	No		
Search+ ##	Yes		
Search- ##	Yes		
Jump	Yes		
Resume	Yes		
Title No.	Yes		
Chapter No.	Yes		
Track No.	Yes		
Time	Yes		
Sub Title No.	Yes		
Angle No.	Yes		
Vocal On/Off	Yes		
Audio No.	Yes		
Audio Stereo L/R	Yes (Video CD,SVCD)		
Zoom	Yes		
Marker No.	Yes		
Program Play Back	Yes (CD,MP3,Video CD,SVCD,WMA,JPEG)		
Spatializer On/Off	No		
MP3	Folder Name	Yes	
	File Name	Yes	
	File No	Yes	
	Time	Yes	
	Track No	Yes	

GENERAL SPECIFICATIONS

On Screen Display(VCR)	Menu	Menu Type		Yes	Character
		Menu	Type		
		ATS			No
		Timer Rec Set		Yes	
		Auto Repeat On/Off		Yes	
		VCR Set-Up		Yes	
		NICAM Auto/Off		Yes	
		Audio Mix On/Off		Yes	
		Color System			No
		CH Set-Up		Yes	
		CH Tuning		Yes	
		Auto Tuning		Yes	
		CH Mapping		Yes	
		Guide CH Set			No
		System Set-Up		Yes	
		Clock Set		Yes	(Calendar 24H)
		Language		Yes	
		AV2 DEC/AV (LINE)		Yes	
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry		Yes	
		NICAM 1/2,NICAM Off,Audio Output		Yes	
		Stereo,Audio Output,Bilingual		Yes	
		Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In/Zero Return (Symbol Mark)		Yes	
	Others	CH/AV (LINE)		Yes	
		Clock		Yes	
		Repeat			No
		Tape Counter		Yes	
		Index		Yes	
		Tape Speed		Yes	
		Manual Tracking (Bar Setting)		Yes	
		Hi-Fi		Yes	
		VPS			No
		PDC			No
		TEST Signal		Yes	
G-11	OSD Language			English/French/Spanish/German/Italian	
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)		30	Min
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 (24h)	
			AM		No
			PM		No
		Counter	VCR	Yes (hour:min)	
			DVD	Yes (hour:min)	
			CD	Yes (min:sec)	
		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	
		Auto Tuning		Yes	
		Eject		Yes	
		Tape In		Yes	
		Remocon Custom Code			No

GENERAL SPECIFICATIONS

G-14	Remote Control	Unit	RC-FI
		Glow in Dark Remocon	No
		Power Source	3V
		Voltage (D.C)	
		UM size x pcs	UM-3 x 2 pcs
		Total Keys	50
		Keys	Keys
		Power	Yes
		DISPLAY/CALL	Yes
		EJECT	Yes
		OPEN/CLOSE	Yes
		1	Yes
		2	Yes
		3	Yes
		4	Yes
		5	Yes
		6	Yes
		7	Yes
		8	Yes
		9	Yes
		0/AV	Yes
		CH+	Yes
		CH-	Yes
		SHOWVIEW/PROGRAM	Yes
		PROGRAM	No
		TIMER REC	Yes
		REC/OTR	Yes
		MARKER/SPEED	Yes
		JUMP/ZERO RETURN	Yes
		CLOCK / COUNTER	Yes
		COUNTER RESET	Yes
		TV/VCR	Yes
		E.A.M.	No
		REC.END.SEARCH	No
		VCR	Yes
		DVD	Yes
		SET UP/MENU	Yes
		DVD MENU	Yes
		UP	Yes
		DOWN	Yes
		LEFT / TRACKING-	Yes
		RIGHT / TRACKING+	Yes
		ENTER / SELECT	Yes
		TITLE	Yes
		RETURN	Yes
		STOP	Yes
		PLAY	Yes
		PAUSE /STILL/STEP	Yes
		SKIP- / INDEX-	Yes
		SKIP+ / INDEX+	Yes
		REW(Review)/SEARCH-	Yes
		FF(Cue)/SEARCH+	Yes
		CANCEL	Yes
		REPEAT A-B	Yes
		ZOOM	Yes
		SLOW(Forward)	Yes
		ANGLE	Yes
		PLAY MODE	Yes
		SUBTITLE	Yes
		AUDIO	Yes

GENERAL SPECIFICATIONS

G-15	Features (DVD)	Auto Power Off		No	
		Parental Lock	Yes		
		Progressive Video Out		No	
		Video CD Playback	Yes		
		SVCD Playback	Yes		
			Overlay Graphics And Text		No
			Command List		No
			Entry Point Jump		No
			MP3 Playback	Yes	
			WMA Playback	Yes	
			JPEG Playback	Yes	
			Digital Out	(Dolby Digital)	Yes
				(MPEG)	Yes
				(PCM)	Yes
				(DTS)	Yes
		Down Mix Out	(Dolby Digital)	Yes	
			(DTS)		
		Spatializer (N-2-2)		No	
		Dynamic Range Control	Yes		
		Screen Saver		No	
		Auto Stop		No	
	Features (VCR)	Auto Head Cleaning	Yes		
		Auto Tracking	Yes		
		Index Search	Yes		
		HQ (VHS Standard High Quality)	Yes		
		Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes		
		Auto Repeat	Yes		
		Auto Power Off		No	
		VIDEO PLUS+ (SHOWVIEW, G-CODE)	Yes		
		Auto Set Up (CH Auto Set Up/ Auto Clock)		No	
		ATS		No	
		PDC		No	
		VPS		No	
Remote Control Code 1/2/3/4			No		
SQPB (PAL SP Mode Only)			No		
CM Skip(30sec x 6 Times)			No		
Copy (Disc to Tape)	Yes (by Conditioning)				
G-16	Accessories	Owner's Manual	Yes		
			Language	German	
			w/Guarantee Card	Yes	
		Remote Control Unit	Yes		
		Dew Caution Sheet		No	
		Battery	Yes		
			UM size x pcs	UM-3 x 2 pcs	
		Tape Rewinder		No	
		Safety Tip		No	
		Toll Free Insert Sheet		No	
		Quick Set-Up Sheet	Yes		
		Information Sheet	Yes		
		75 Ohm Coaxial Cable	Yes (0.9m)		
			type	Double shield	
		U/V Mixer		No	
		DC Car Cord (Center+)		No	
		Guarantee Card		No	
		Warning Sheet		No	
		Circuit Diagram		No	
		Antenna Change Plug		No	
		Service Facility List		No	
		Important Safeguard		No	
		Dew/AHC Caution Sheet		No	
		AC Plug Adapter		No	
		AC Cord		No	
		AV Cord (2Pin-1Pin)		No	
		Registration Card		No	
		21pin Cable (Double Shield)	Yes		
		300 ohm to 75 ohm Antenna Adapter		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	
		Video/RGB Selector			No	
		RF Out(Slide SW)			No	
		Main Power SW			No	
		Phones Volume			No	
		Volume	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		No
				Audio Output	RCA x 2(Stereo, White/Red) Coaxial x 1 (Digital Audio,DVD Signal Only)	
				Video Input		No
				Audio Input		No
				Optical Digital Audio Out (Option)		No
				Euro Scart	2SCART	
Ext Speaker				No		
VHF/UHF Antenna Input/Output	DIN Type					
AC Inlet		No				
Indicator	LED	Power			No	
		Rec			No	
		T-Rec			No	
		TV/VCR			No	
		DVD	Yes (GREEN)			
		VCR	Yes (GREEN)			
		Surround		No		
		Level Meter		No		
		G-18	Set Size	Approx.	W x D x H (mm)	430 x 253 x 99
		G-19	Weight	Net (Approx.)		4.0 kg(8.8 lbs)
Gross (Approx.)				5.0 kg(11.0 lbs)		
G-20	Carton	Master Carton		No		
			Content	--- Sets		
			Material	--- / ---		
		Dimensions	W x D x H(mm)	---		
		Description of Origin		---		
		Gift Box		Yes		
			Material	Single/Full Color		
			W/Color Photo Label		No	
			Dimensions	W x D x H(mm)	497 x 360 x 180	
			Pulp Package		No	
			Design	As Per BUYER 's		
			Description of Origin		No	
		Drop Test		Natural Dropping At 1 Corner / 3 Edges / 8 Surfaces		
			Height (cm)		80 cm	
			Container Stuffing		1,985 Sets/40' container	
G-21	Material	Cabinet	Front	PS 94HB		
		PCB	Non-Halogen Demand	No		
			Eyelet Demand	No		

DISASSEMBLY INSTRUCTIONS

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

1-1: TOP CABINET AND FRONT CABINET (Refer to Fig. 1-1)

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

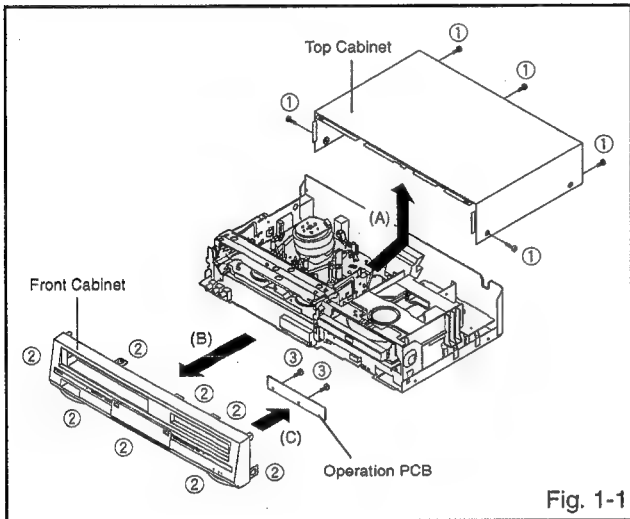


Fig. 1-1

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

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

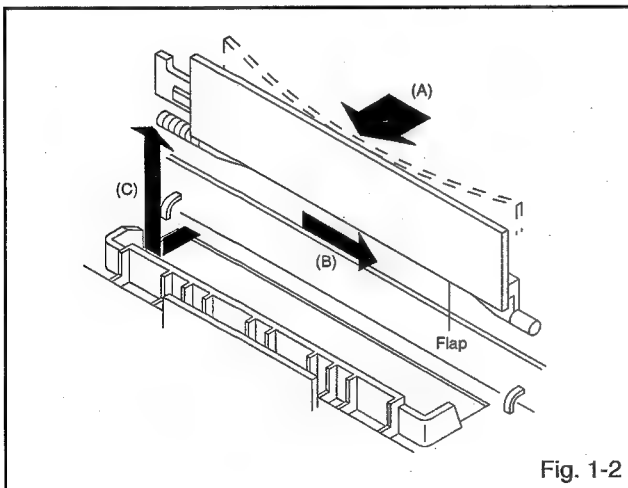


Fig. 1-2

1-3: DECK CD (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 Deck CD 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: (CP2301, CP2302, CP2601).
6. Remove the Deck CD in the direction of arrow (B).
7. Remove the 3 screws ④.
8. Remove the Front Angle in the direction of arrow (C).

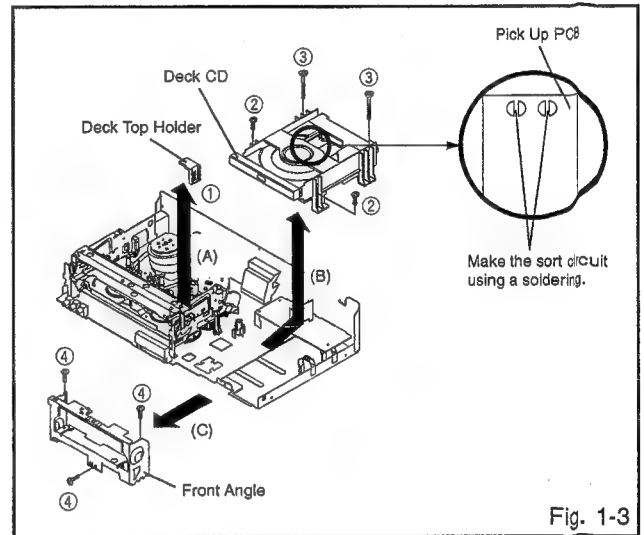


Fig. 1-3

NOTE

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

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

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Disconnect the following connector: (CP502).
4. Remove the Power PCB in the direction of arrow.

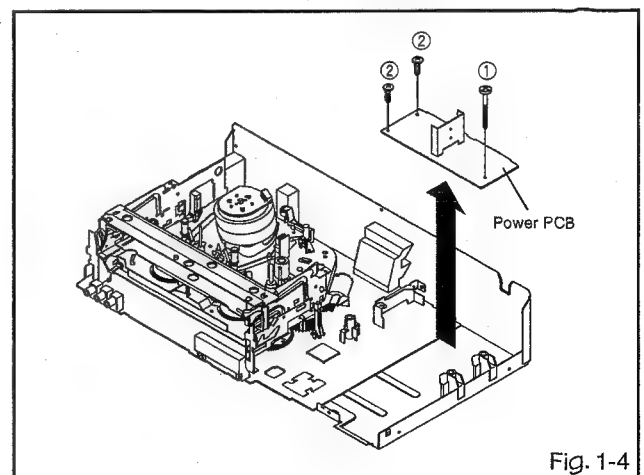


Fig. 1-4

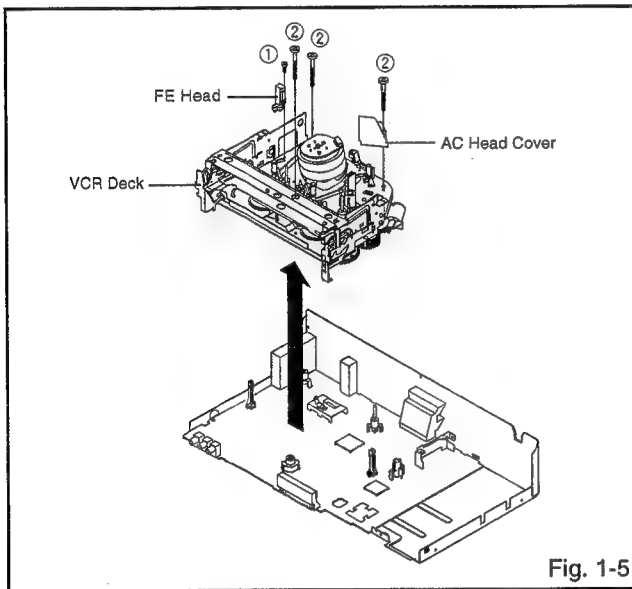
DISASSEMBLY INSTRUCTIONS

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

NOTE

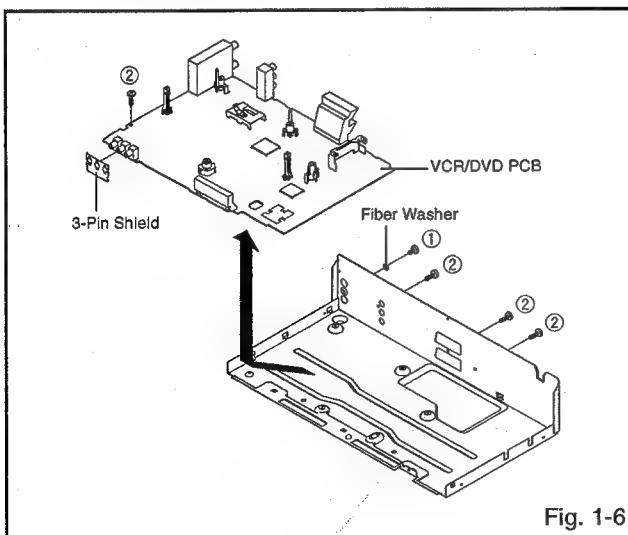
Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Remove the screw ①.
2. Remove the FE Head.
3. Remove the 3 screws ②.
4. Disconnect the following connectors: (CP101, CP102, and CP3001).
5. Remove the AC Head Cover and VCR Deck in the direction of arrow.



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

1. Remove the screw ① and Fiber Washer.
2. Remove the 4 screws ②.
3. Remove the 3-Pin Shield.
4. Remove the VCR/DVD PCB in the direction of arrow.



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.

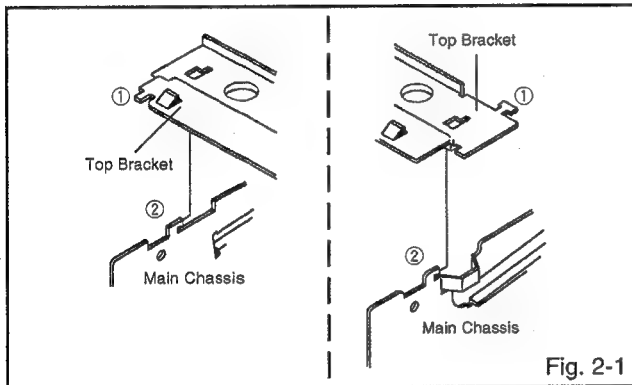


Fig. 2-1

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.

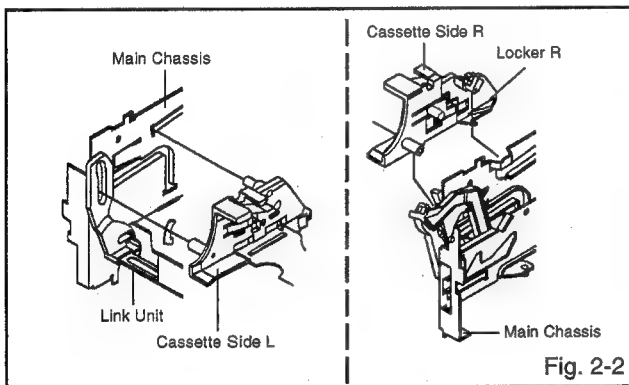


Fig. 2-2

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.

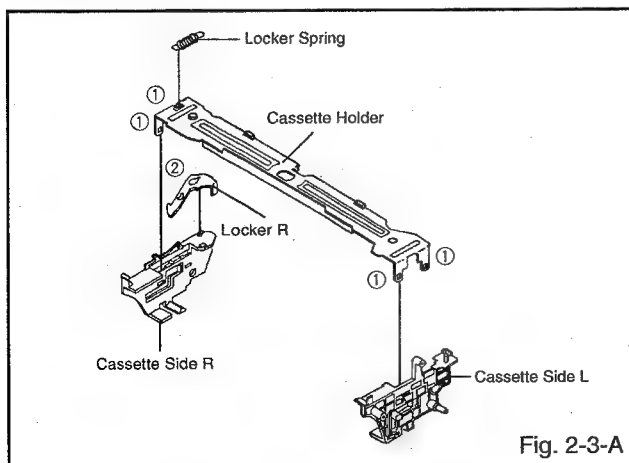


Fig. 2-3-A

NOTE

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

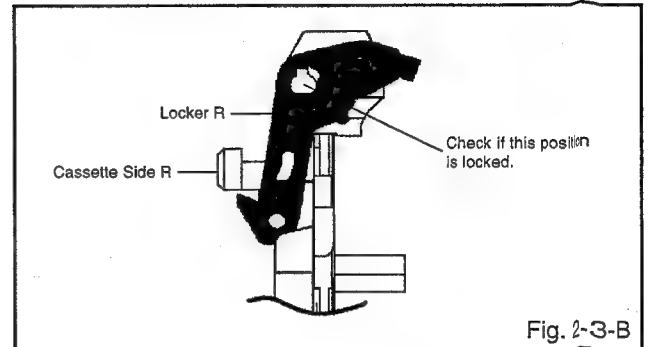


Fig. 2-3-B

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.

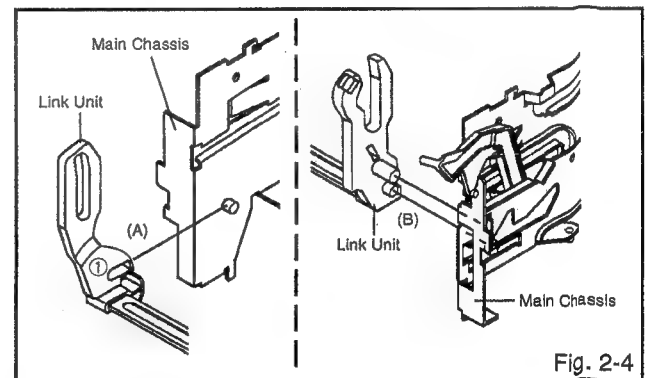


Fig. 2-4

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.

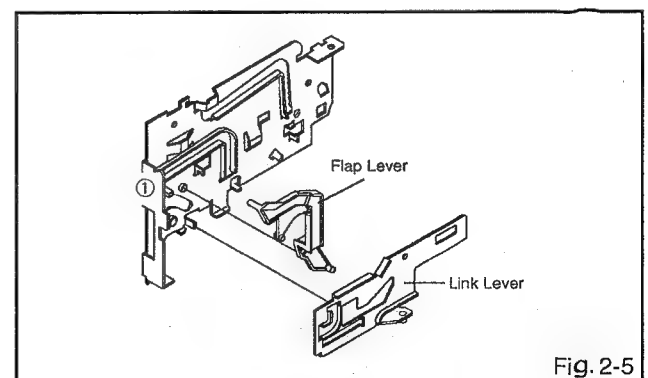
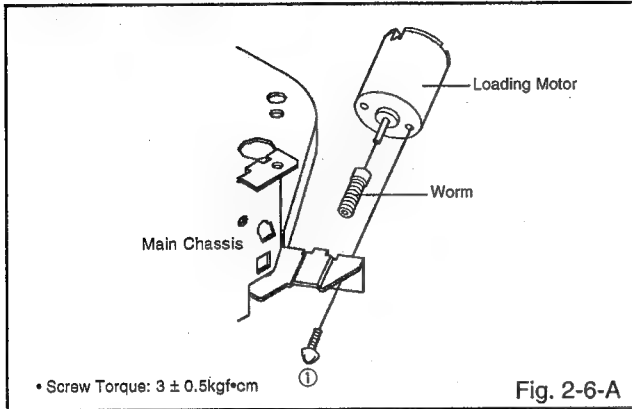


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

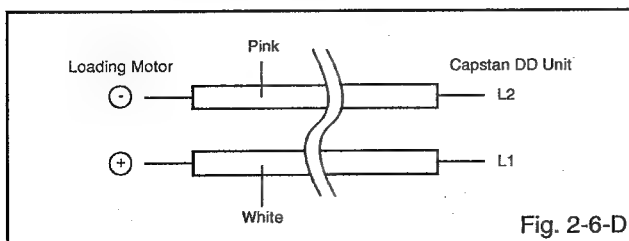
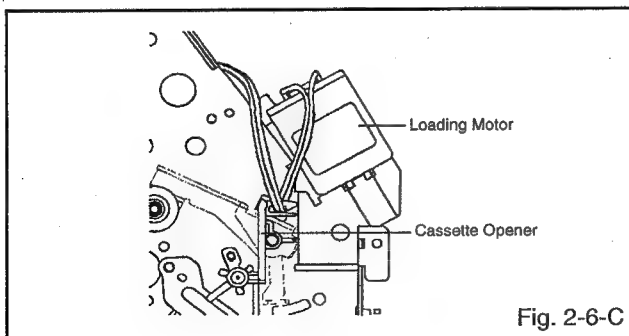
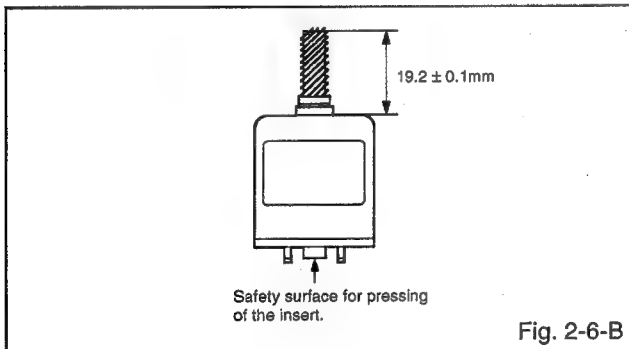
2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

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



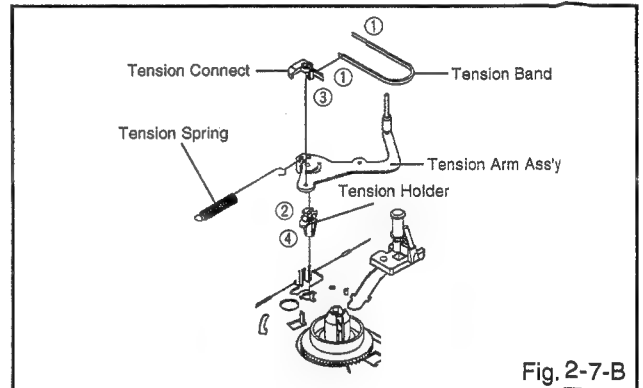
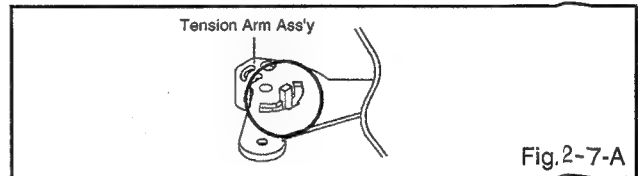
NOTE

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.



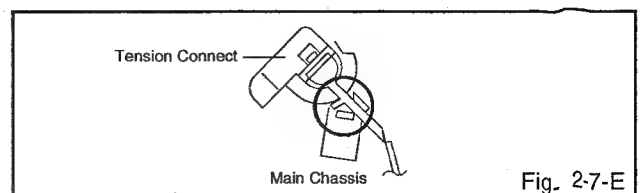
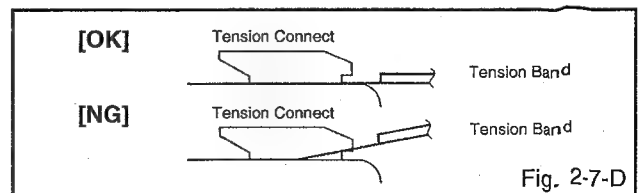
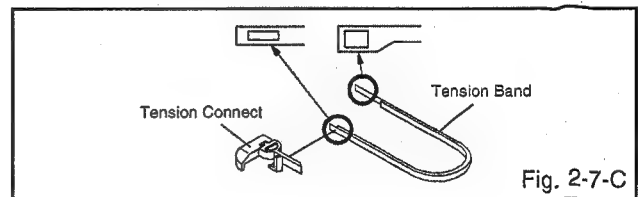
2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

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.



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.



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.

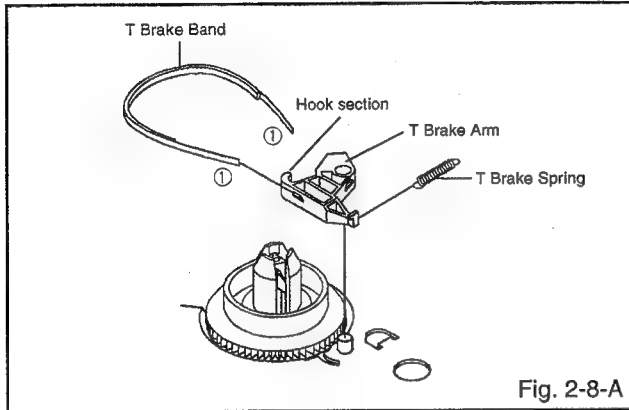


Fig. 2-8-A

NOTE

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

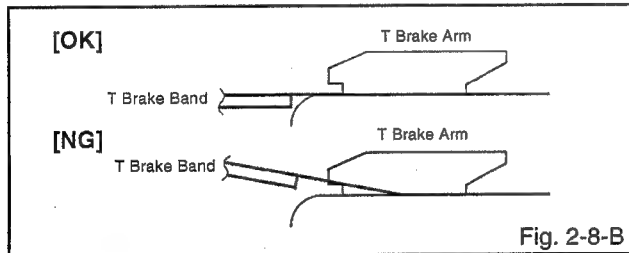


Fig. 2-8-B

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)

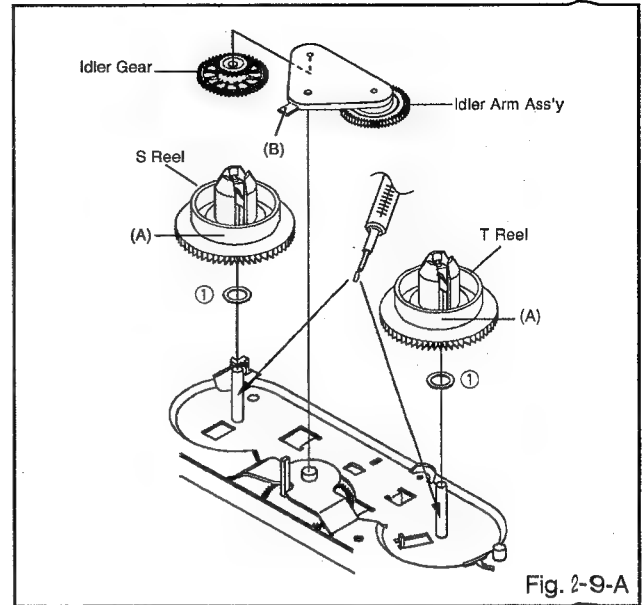


Fig. 2-9-A

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.

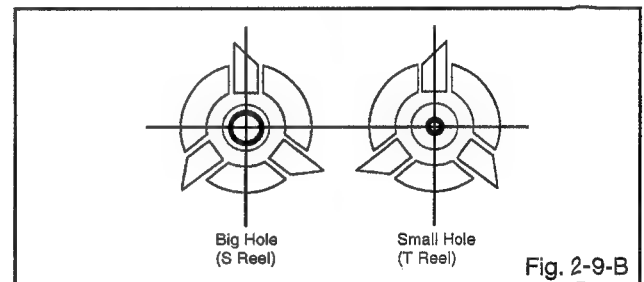


Fig. 2-9-B

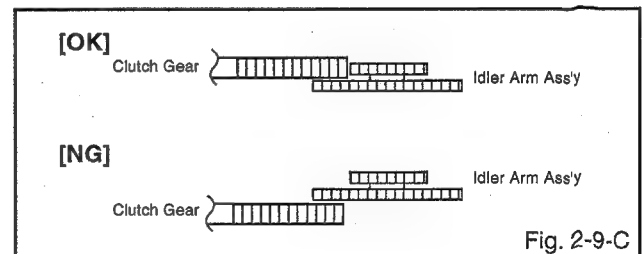
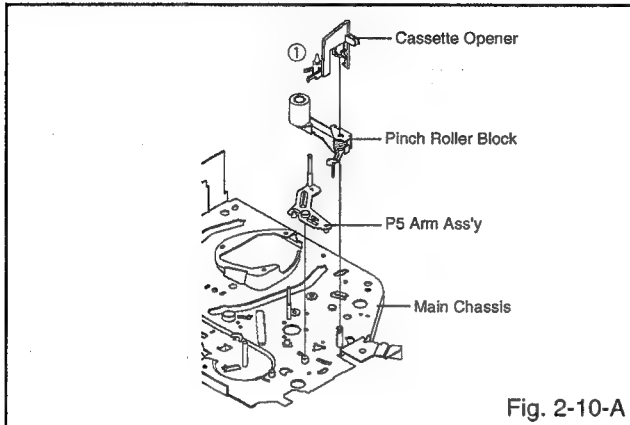


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

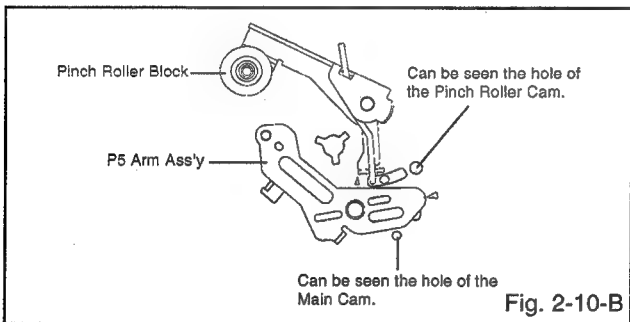
2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/ P5 ARM ASS'Y (Refer to Fig. 2-10-A)

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



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.

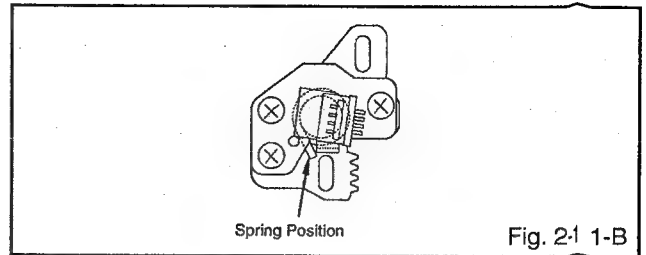
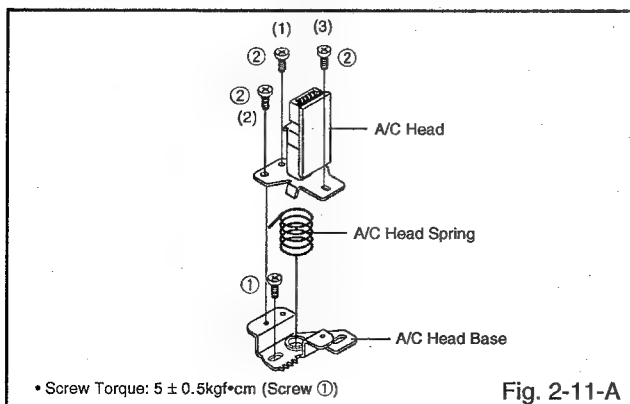


2-11: A/C HEAD (Refer to Fig. 2-11-A)

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.

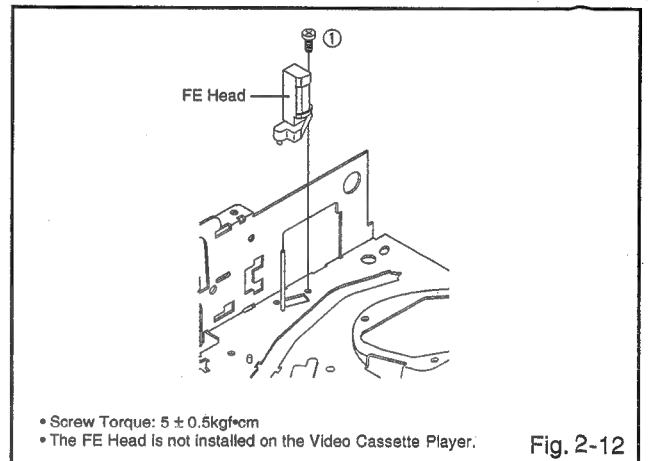
NOTE

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).



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

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

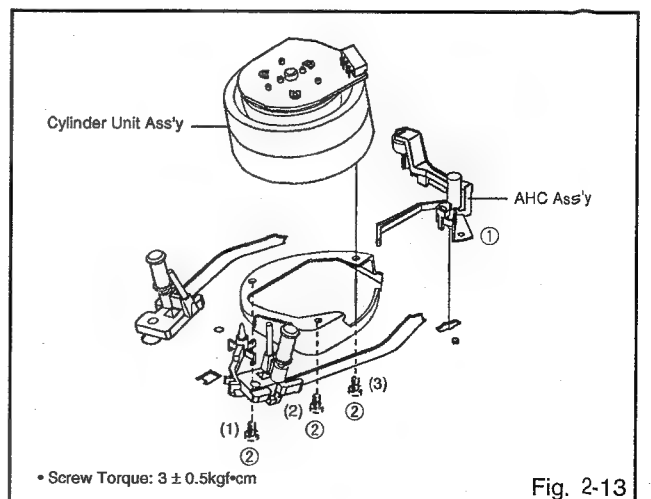


2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

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

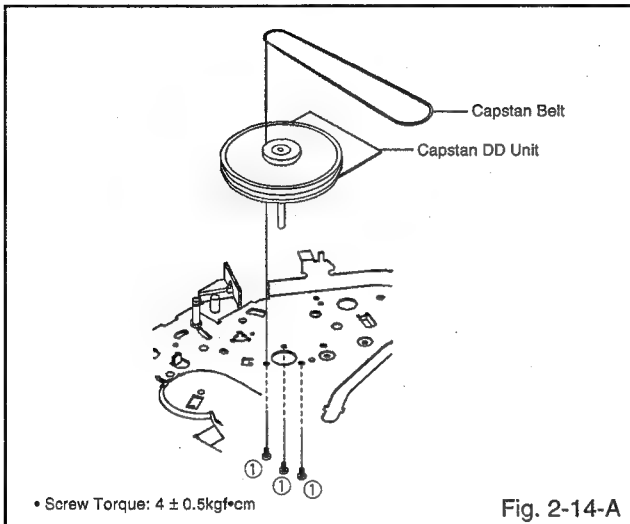
1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



DISASSEMBLY INSTRUCTIONS

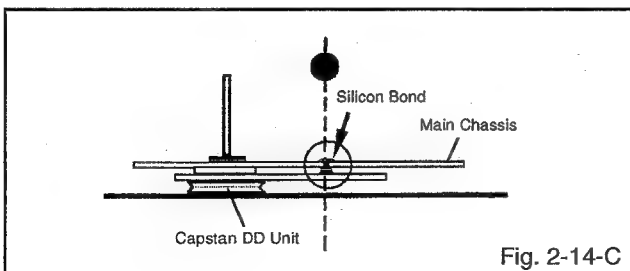
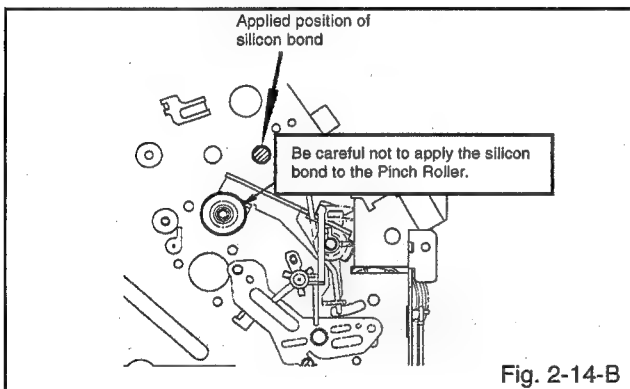
2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14-A)

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



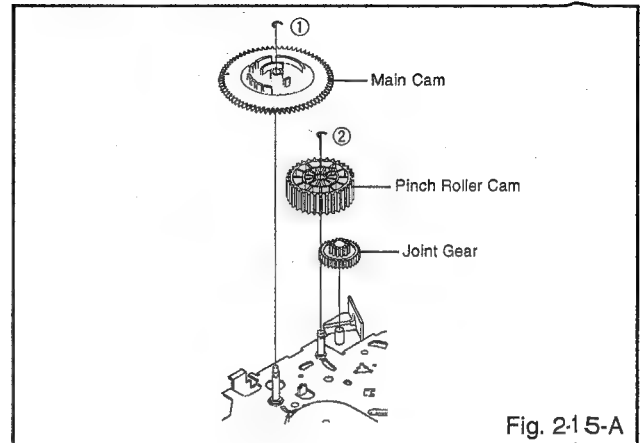
NOTE

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



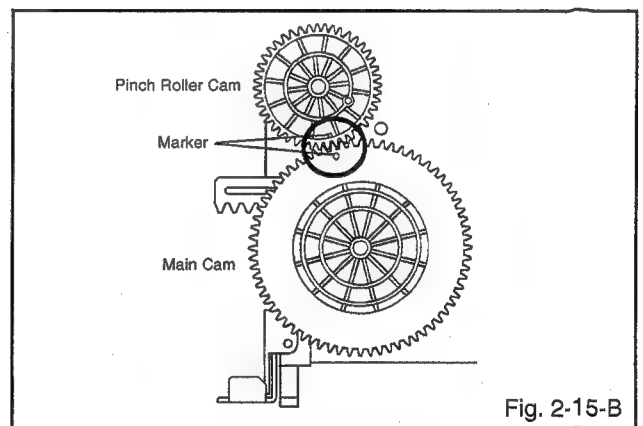
2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

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.



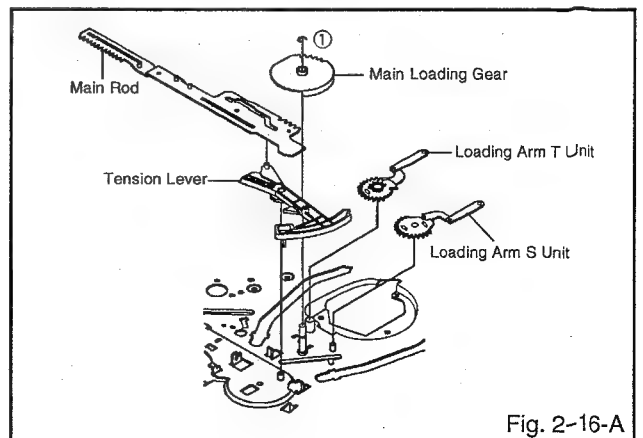
NOTE

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)



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

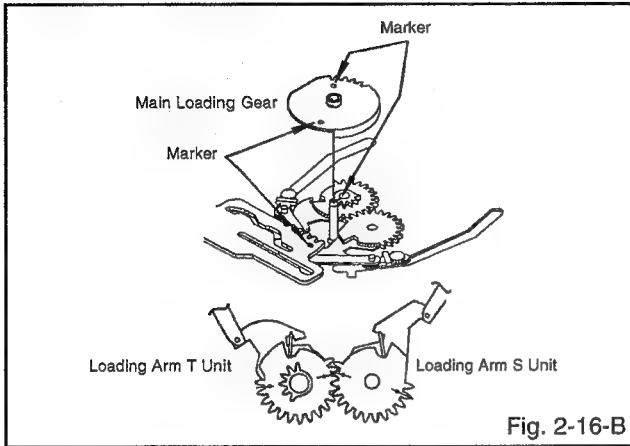
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.



DISASSEMBLY INSTRUCTIONS

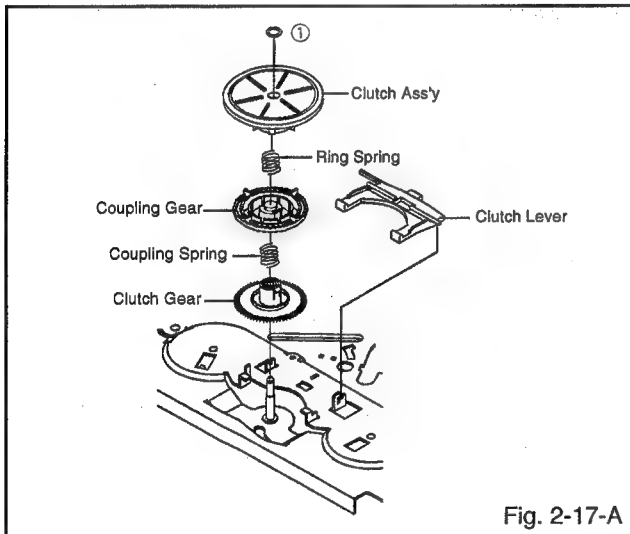
NOTE

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



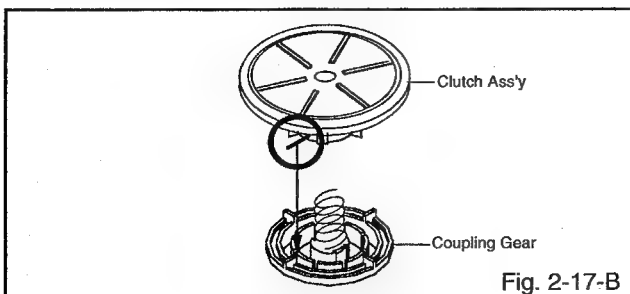
2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/CLUTCH GEAR (Refer to Fig. 2-17-A)

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.



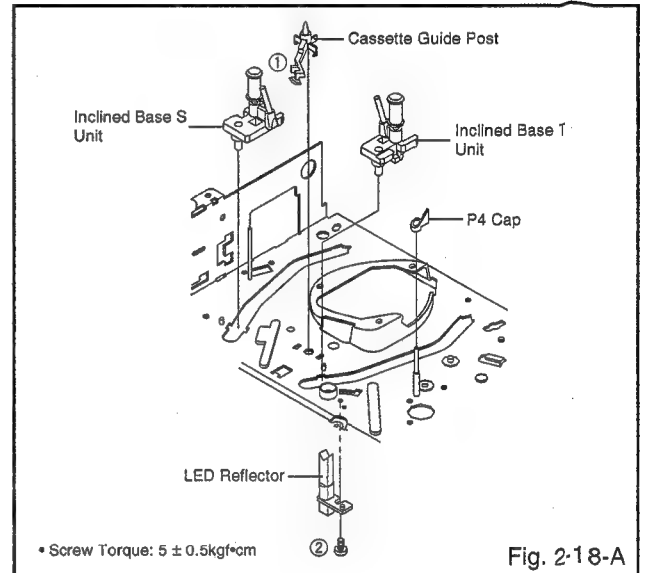
NOTE

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)



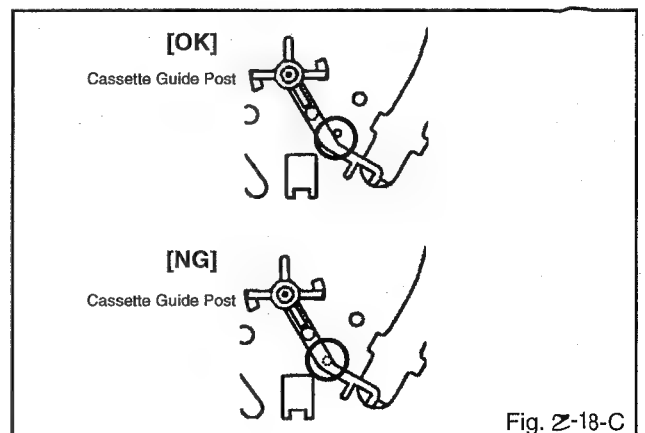
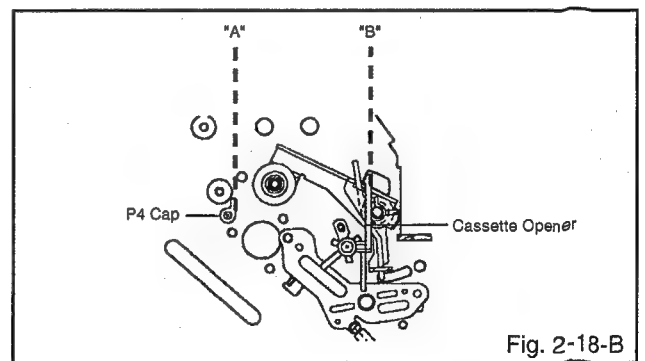
2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP/LED REFLECTOR (Refer to Fig. 2-18-A)

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.



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.



DISASSEMBLY INSTRUCTIONS

3. 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. 3-1.)

NOTE

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

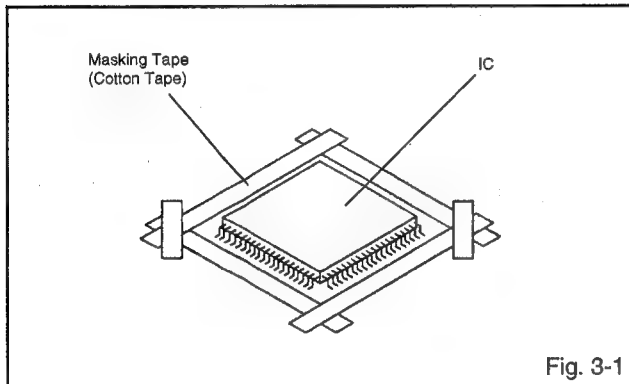


Fig. 3-1

2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 3-2.)

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.

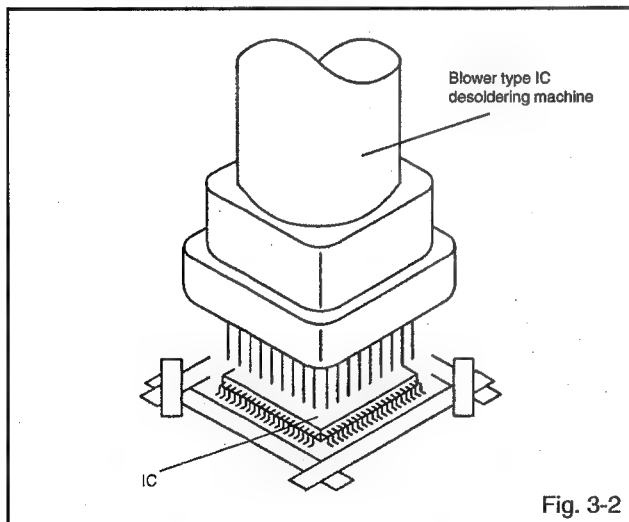


Fig. 3-2

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. 3-3.)

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.

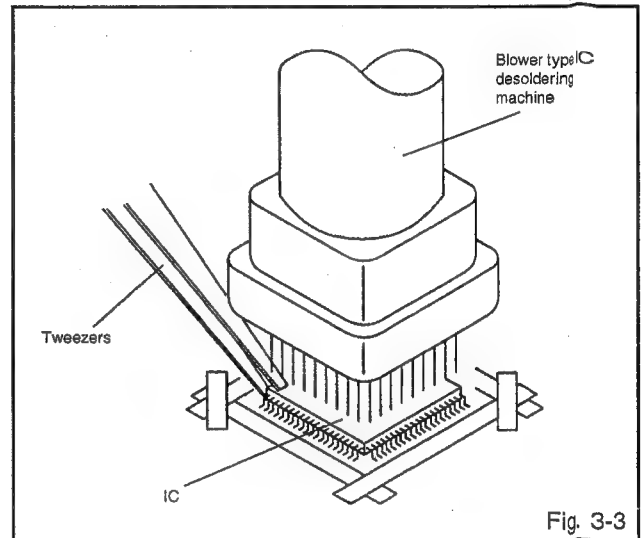


Fig. 3-3

4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 3-4.)

NOTE

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

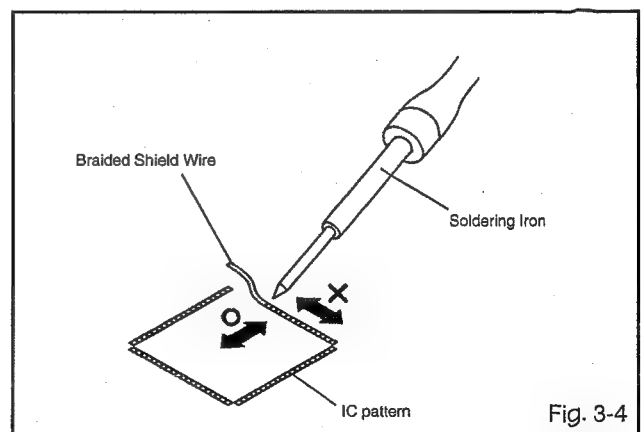
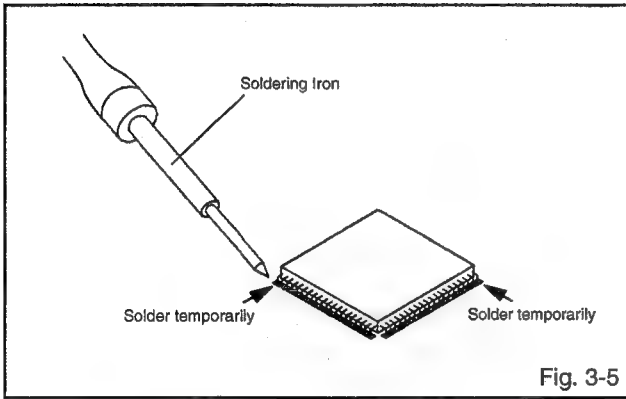


Fig. 3-4

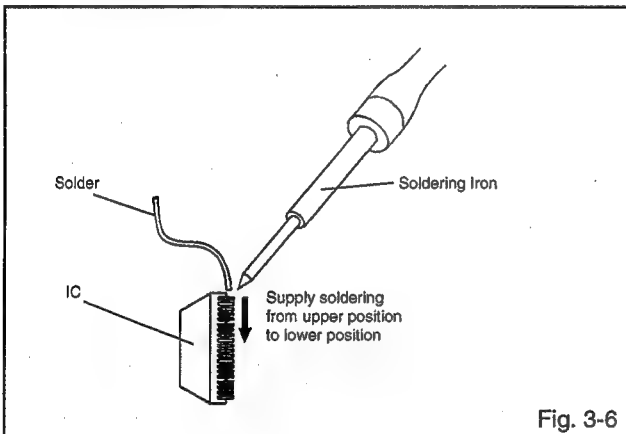
DISASSEMBLY INSTRUCTIONS

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. 3-5.)



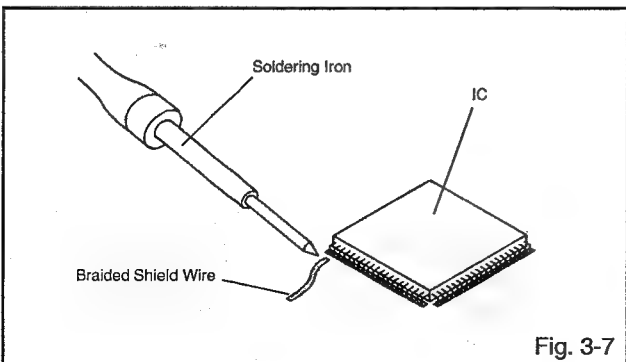
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 3-6.)



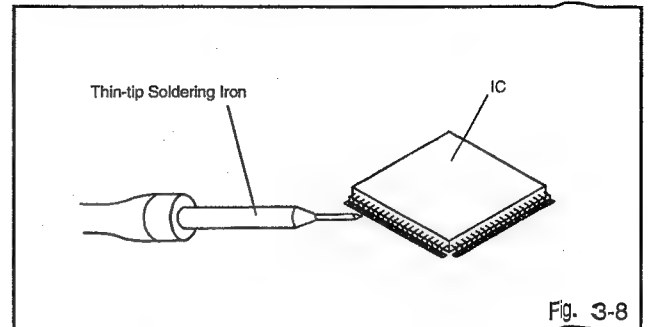
3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 3-7.)

NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. (Refer to Fig. 3-8.)



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

NOTE

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

KEY TO ABBREVIATIONS

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

KEY TO ABBREVIATIONS

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

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

To enter to the SERVICE MODE function, press and hold both buttons simultaneously on the main unit or on the main unit and on the remote control for more than a standard time (second).

Set Key	Set Key	Standard Time (seconds)	Operations
CH UP	FF	2	PLAY/REC total hours are displayed on the FIP. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
CH UP	STOP	2	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
CH UP	PLAY	2	Initialization of the factory on VCR. NOTE: Do not use this for the normal servicing. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, and PLAY/REC total hours.
VCR EJECT	REC	2	The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape. NOTE: It can also be done by making the short circuit between the test point of SERVICE and the GND.

Set Key	Remocon Key	Standard Time (seconds)	Operations
REC	4	2	Initialization of the factory on DVD. NOTE: Do not use this for the normal servicing. The function will only work without the setting of DVD disc at DVD mode. While pressing the Remocon Key for more than the Standard Time, press the Set Key simultaneously.
STOP	2	3	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL". NOTE: The function will only work without the setting of DVD disc at DVD mode.

Method	Operations
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.

Parts Name \ Time	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	■	■	■	■	■	
Cylinder Unit	■	●	●	●	●	Clean the Head

■ : Clean

● : Check it and if necessary, replace it.

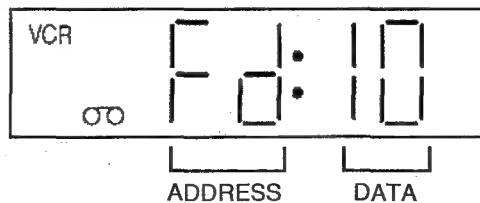
CONFIRMATION OF HOURS USED

PLAY/REC total hours can be checked on the FIP.

Total hours are displayed in 16 system of notation.

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

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds.
3. Adjust the ADDRESS to "FD" by TRACKING + or - button and read the DATA.
(This DATA becomes the thousands digit and hundreds digit value of the following formula.)
4. Adjust the ADDRESS to "FE" by TRACKING + or - button and read the DATA.
(This DATA becomes the tens digit and ones digit value of the following formula.)
5. After the confirmation of using hours, turn off the power.



$$(16 \times 16 \times 16 \times \text{thousands digit value}) + (16 \times 16 \times \text{hundreds digit value}) + (16 \times \text{tens digit value}) + (\text{ones digit value})$$

PREVENTIVE CHECKS AND SERVICE INTERVALS

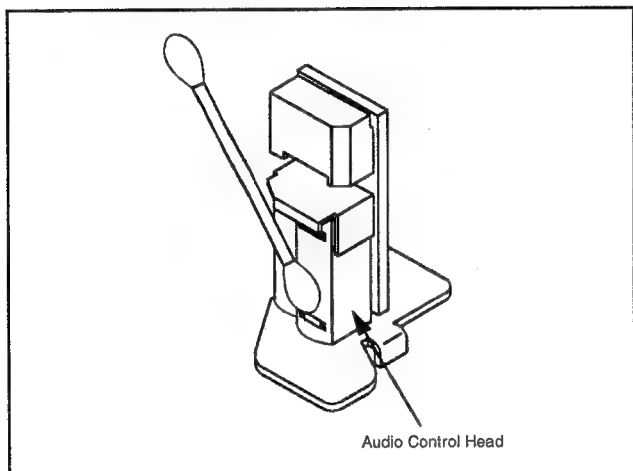
CLEANING

NOTE

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

1. AUDIO CONTROL HEAD

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



2. TAPE RUNNING SYSTEM

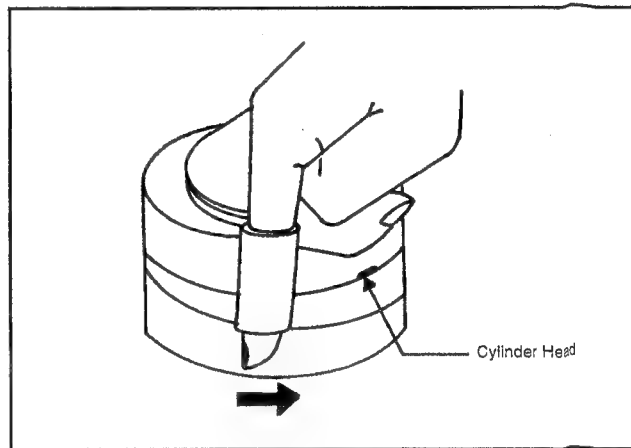
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip 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: No need setting for after INI FD.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
B0	---	---	---	---	---	---	---	---	---	1D	42	00	44	00	02	38
C0	44	50	04	89	9F	82	18	07	00	B2	B2	9F	8E	8E	00	00
D0	00	08	42	30	60	56	65	5F	00	DB	20	F9	5F	00	00	00
E0	00	00	00	00	00	00	00	00	00	00	00	5F	00	DF	01	F9
F0	5F	00	00	00	21	01	80	3D	68	08	89	3A	90	---	---	---

Table 1

1. Turn on the POWER.
2. 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 FIP as Fig 1.

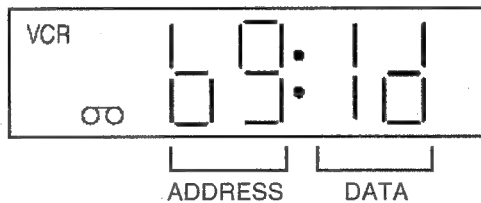


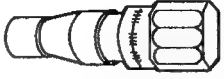
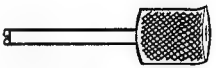

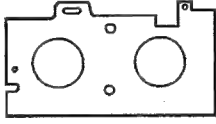

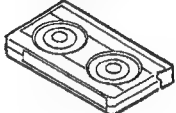

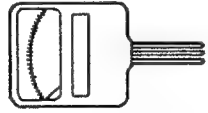


Fig. 1

3. 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.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using TRACKING + or - button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

<p>(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP₁S-LI6³) JG001F (VP₁S-CO1³) JG001R (VP₁S-LI6³H) JG001U (VP₁S-X6³)</p> 	<p>(For 2 head 2 speed model) VHS Alignment Tape JG001C (VP₂S-LI6³) JG001D (VP₂S-CO1³) JG001V (VP₂S-X6³)</p> 	<p>JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm)</p> 	<p>JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small)</p> 
<p>JG153 X Value Adjustment Screwdriver</p> 	<p>JG022 Master Plane</p> 	<p>JG024A Reel Disk Height Adjustment Jig</p> 	<p>JG100A Torque Tape (VHT-063)</p> 
<p>JG154 Cable</p> 	<p>Tentelometer</p> 		

Ref. No.	Part No.	Parts Name	Remarks
JG001E	APJG001E00	VHS Alignment Tape	Monoscope, 6KHz (For 2 head 1 speed model, 4 head model)
JG001F	APJG001F00	VHS Alignment Tape	Color Bar, 1KHz (For 2 head 1 speed model, 4 head model)
JG001R	APJG001R00	VHS Alignment Tape	Hi-Fi Audio (For Hi-Fi model)
JG001U	APJG001U00	VHS Alignment Tape	X Value Adjustment (For 2 head 1 speed model, 4 head model)
JG001C	APJG001C00	VHS Alignment Tape	Monoscope, 6KHz (For 2 head 2 speed model)
JG001D	APJG001D00	VHS Alignment Tape	Color Bar, 1KHz (For 2 head 2 speed model)
JG001V	APJG001V00	VHS Alignment Tape	X Value Adjustment (For 2 head 2 speed model)
JG002B	APJG002B00	Adapter	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	APJG002E00	Dial Torque Gauge (10~90gf•cm)	Brake Torque (T Reel Ass'y)
JG002F	APJG002F00	Dial Torque Gauge (60~600gf•cm)	VSR Torque, Brake Torque (S Reel)
JG005	APJG005000	Post Adjustment Screwdriver	Guide Roller Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG100A	APJG100A00	Torque Tape (VHT-063)	Playback Torque, Back Tension Torque During Playback
JG154	APJG154000	Cable	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

1. Press both VCR EJECT button on the set and the REC button on the set for more than 2 seconds.
(The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
2. In case of using a cassette tape, press the EJECT button to insert or eject a cassette tape.
Turn on the power and re-check the cable before checking the trouble points.

NOTE: It can also be done by making the short circuit between the TP3001 and the Ground with the cable JG154.

MECHANICAL ADJUSTMENTS

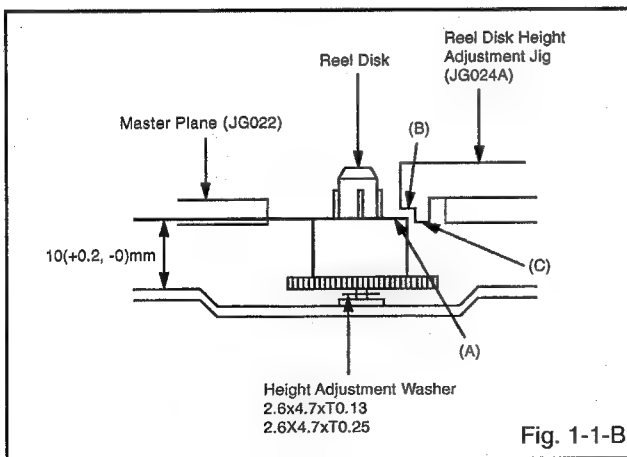
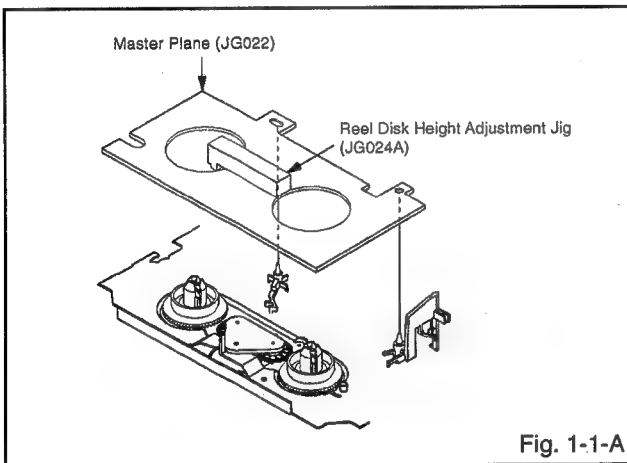
1. CONFIRMATION AND ADJUSTMENT

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.)

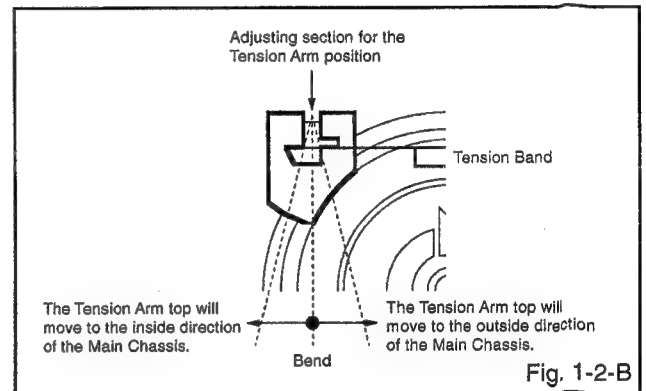
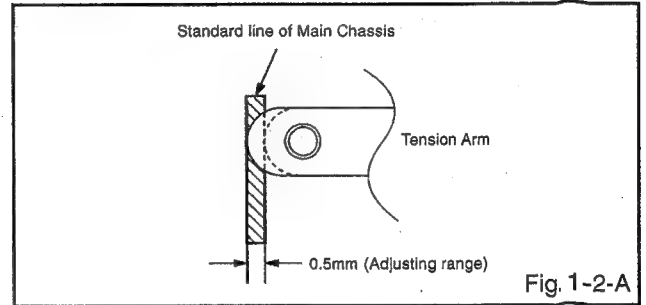
1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- Turn on the power and set to the STOP mode.
- 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.
- 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.
- Adjust the other reel in the same way.



1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

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

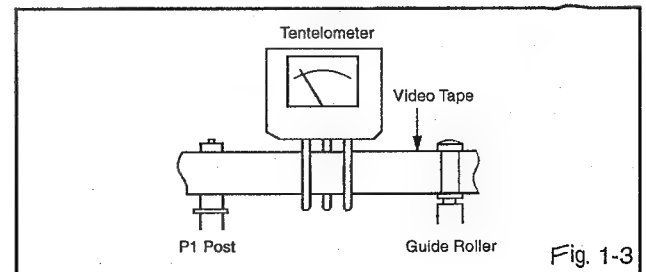


1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
- Install the tentelometer as shown in Fig. 1-3. Confirm that the meter indicates $20 \pm 2\text{gf}$ in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (JG100A)

- 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.
- Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
- Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.



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.

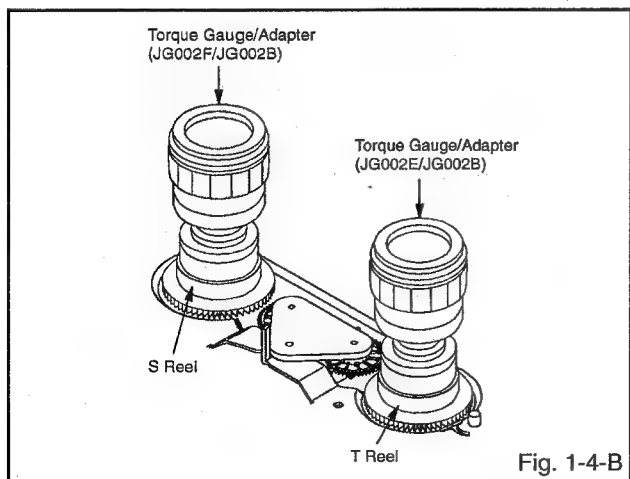
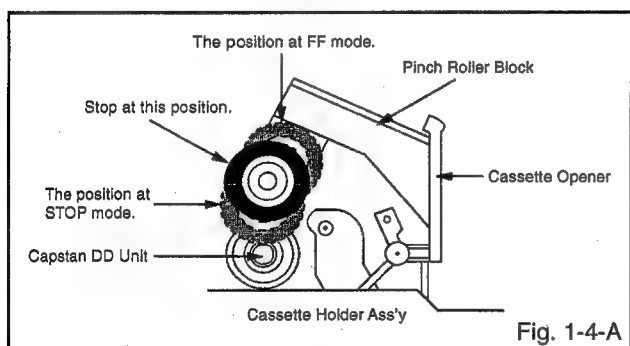
1-5: CONFIRMATION OF REEL BRAKE TORQUE

(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.



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

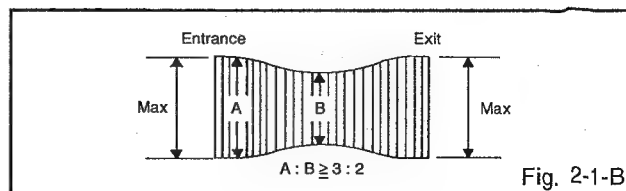
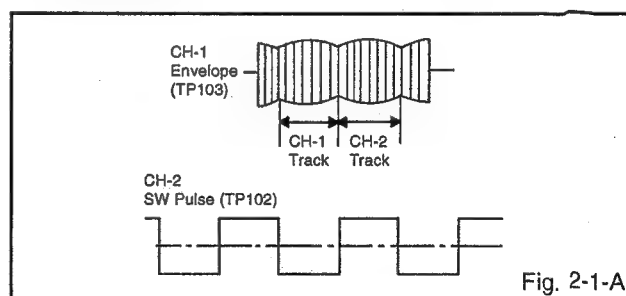
Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)
2. Connect CH-1 of the oscilloscope to TP103 (Envelope) and CH-2 to TP102 (SW Pulse).
3. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
4. 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.
5. 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).
6. 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)



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 (JG001C or JG001E). (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.
 - a) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

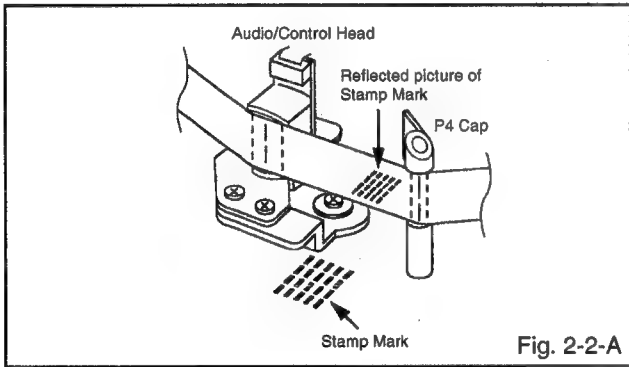


Fig. 2-2-A

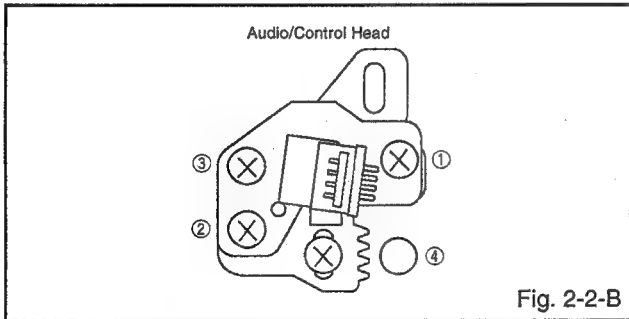


Fig. 2-2-B

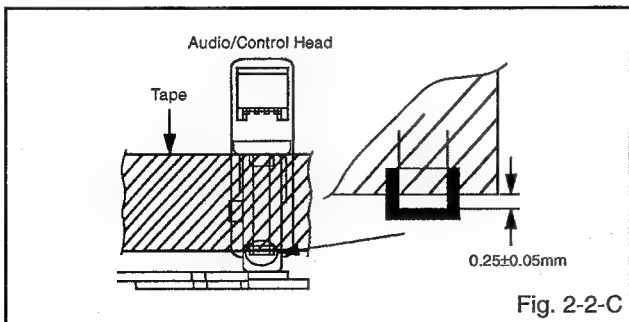


Fig. 2-2-C

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

1. Confirm and adjust the height of the Reel Disk. (Refer to item 1-1)
2. Confirm and adjust the position of the Tension Post. (Refer to item 1-2)
3. Adjust the Guide Roller. (Refer to item 2-1)
4. Confirm and adjust the Audio/Control Head. (Refer to item 2-2)
5. Connect CH-1 of the oscilloscope to TP102, CH-2 to TP103 and CH-3 to pin 19 of J8004.
6. Playback the VHS Alignment Tape (JG001U or JG001V). (Refer to **SERVICING FIXTURE AND TOOLS**)
7. 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.

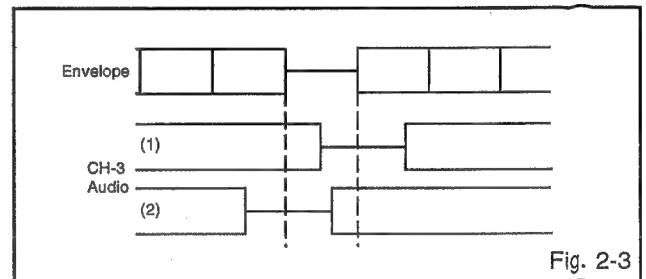


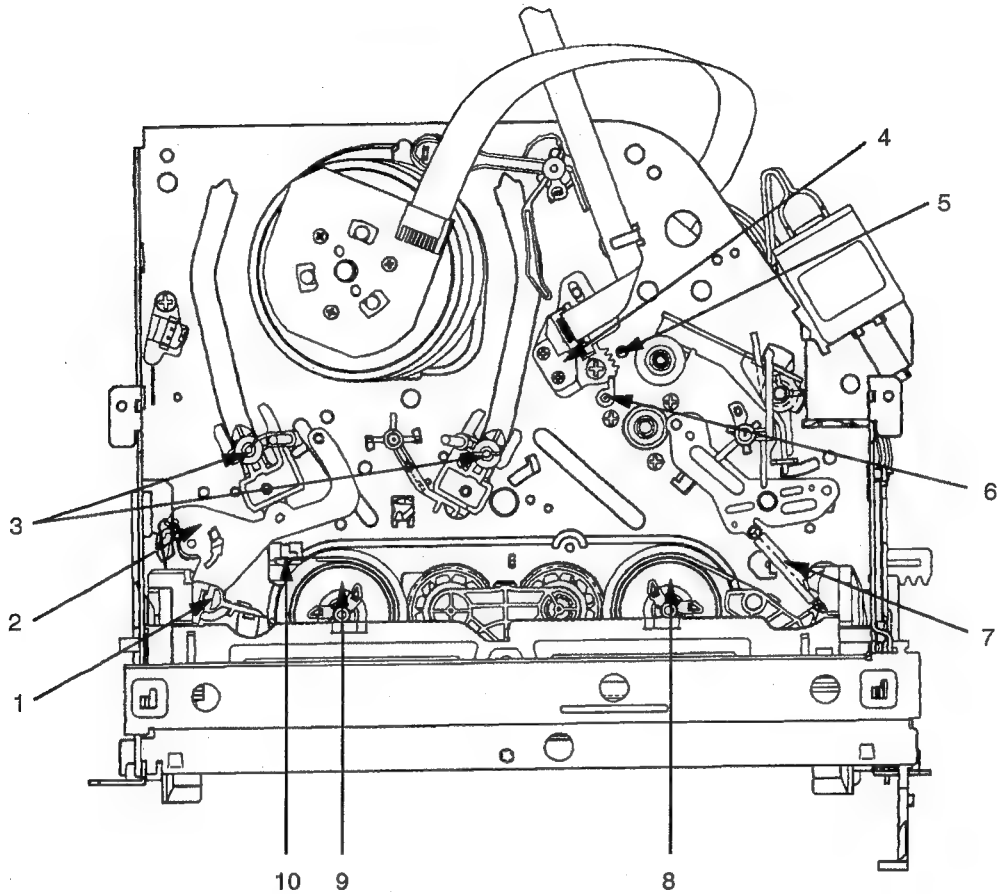
Fig. 2-3

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

1. Connect CH-1 of the oscilloscope to TP103 and CH-2 to the pin 19 of J8004.
2. Playback the VHS Alignment Tape (JG001R). (Refer to **SERVICING FIXTURE AND TOOLS**)
3. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
4. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. 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 | 6. P4 Post |
| 2. Tension Arm | 7. T Brake Spring |
| 3. Guide Roller | 8. T Reel |
| 4. Audio/Control Head | 9. S Reel |
| 5. X value adjustment driver hole | 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

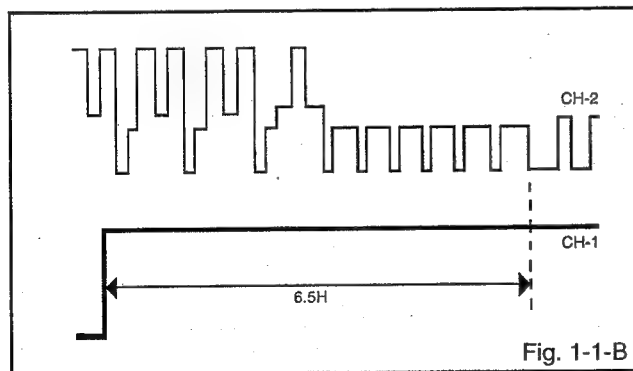
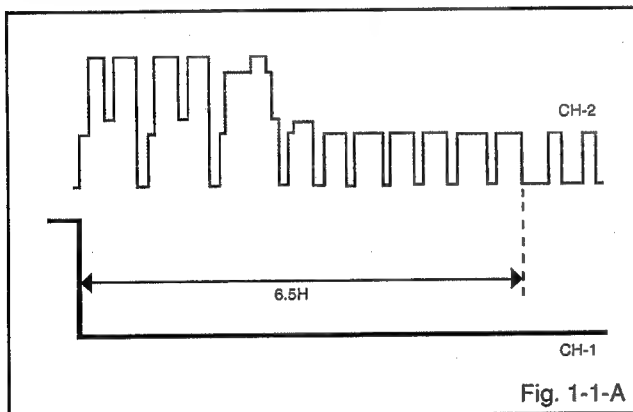
CONDITIONS

MODE-PLAYBACK

Input Signal-Alignment Tape (JG001E)

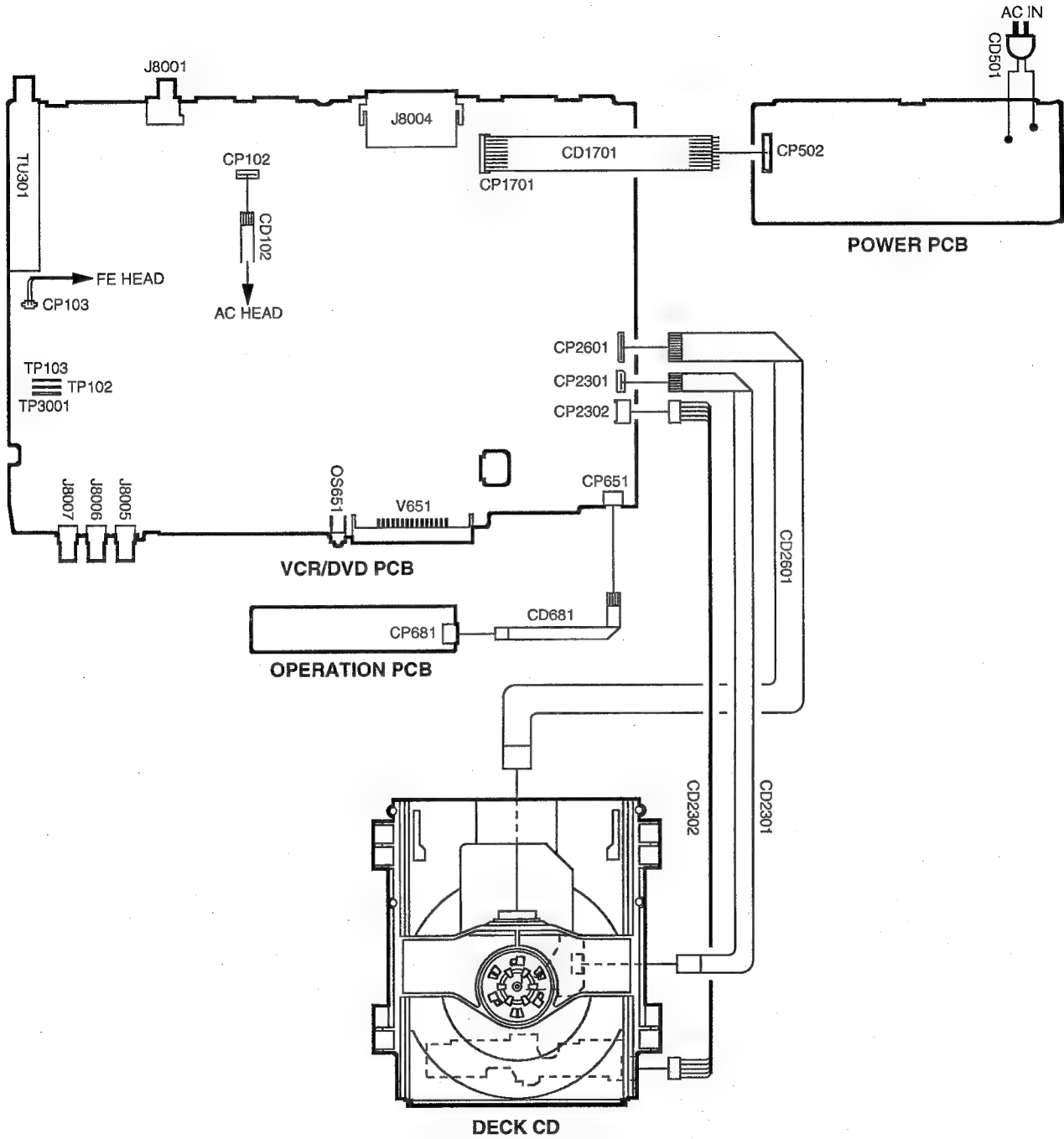
INSTRUCTIONS

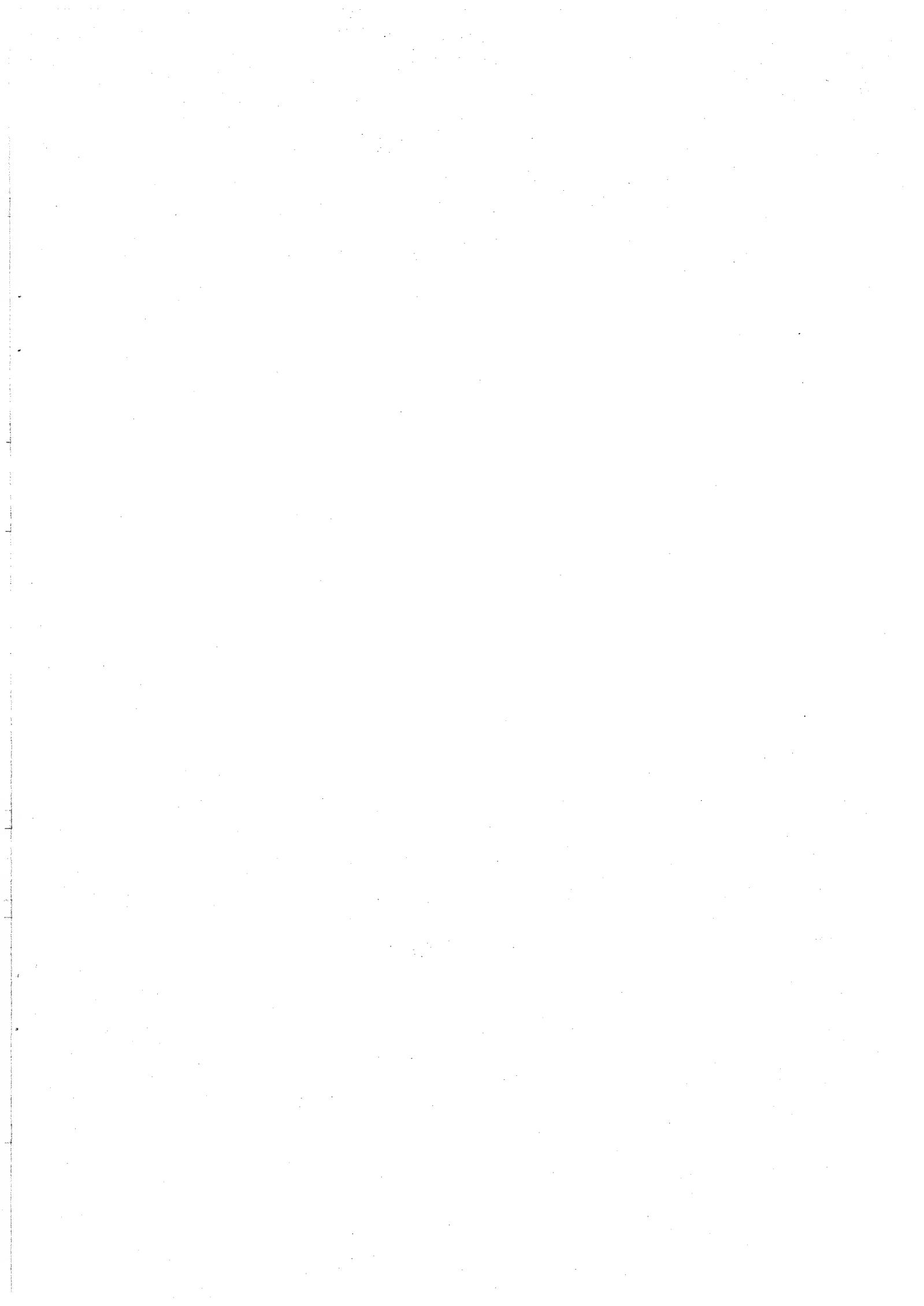
1. Connect CH-1 on the oscilloscope to TP102 and CH-2 to pin 19 of J8004.
2. Playback the alignment tape. (JG001E)
3. Press both CH UP button on the set and the STOP button on the set for more than 2 seconds.



ELECTRICAL ADJUSTMENTS

2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)





Zentralwerkstatt und
Ersatzteildepot
für ORION-Produkte


Schwalbe
Service & Versand GmbH

Postfach 10 10 26
63264 Dreieich
Max-Planck-Str. 20
63303 Dreieich

Ersatzteil-Bestellung

Tel.: (06103) 39 99-95 Fax.: (06103) 39 99-79

SERVICE MANUAL

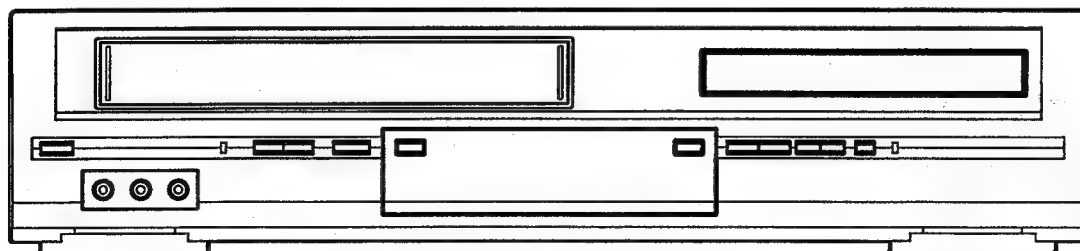
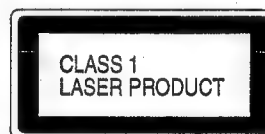
Nachdruck bzw. Kopieren dieser Unterlagen ist grundsätzlich verboten!

Teil 2

ORION

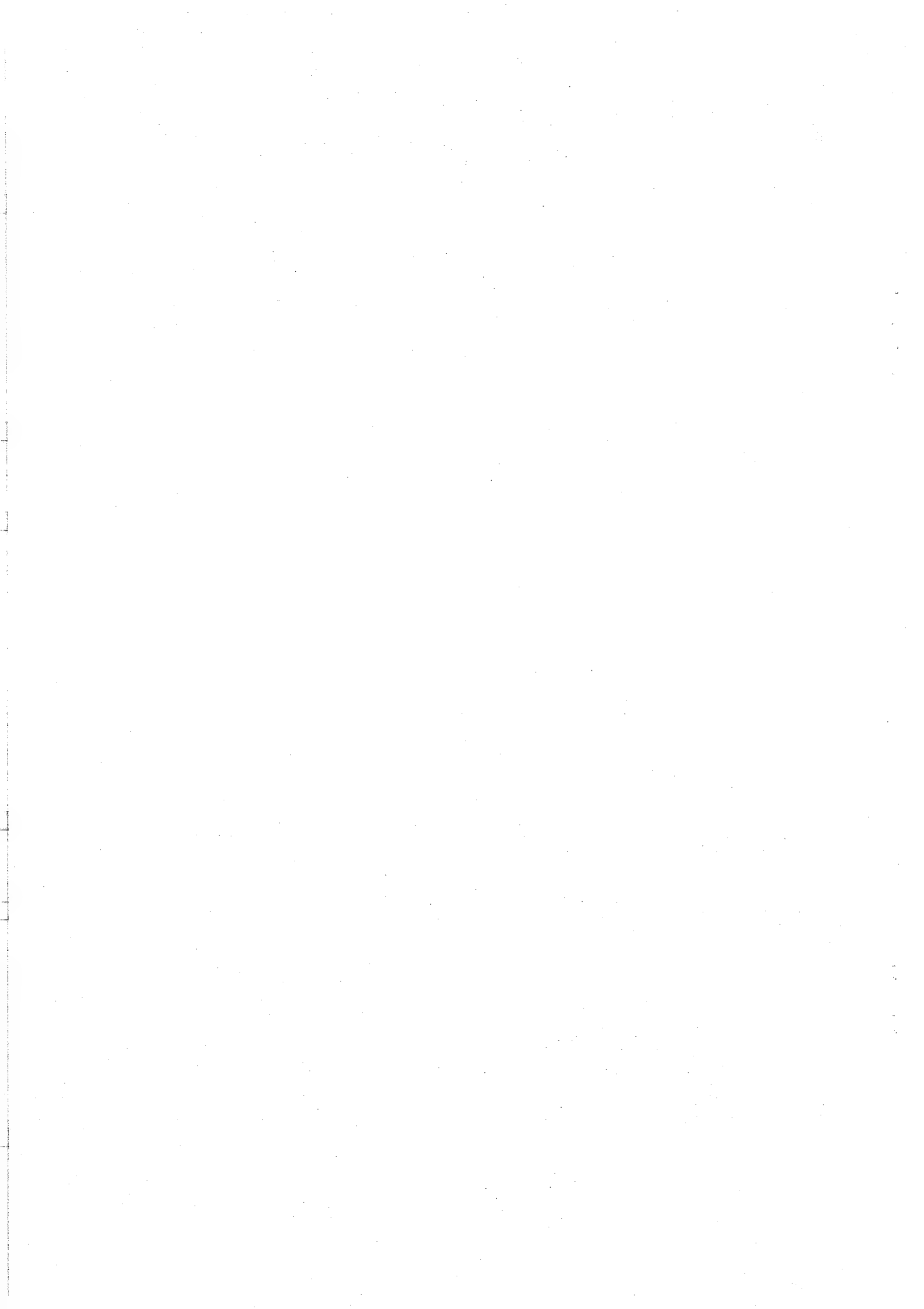
DVD/VR-2961 / 2963 SI

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER

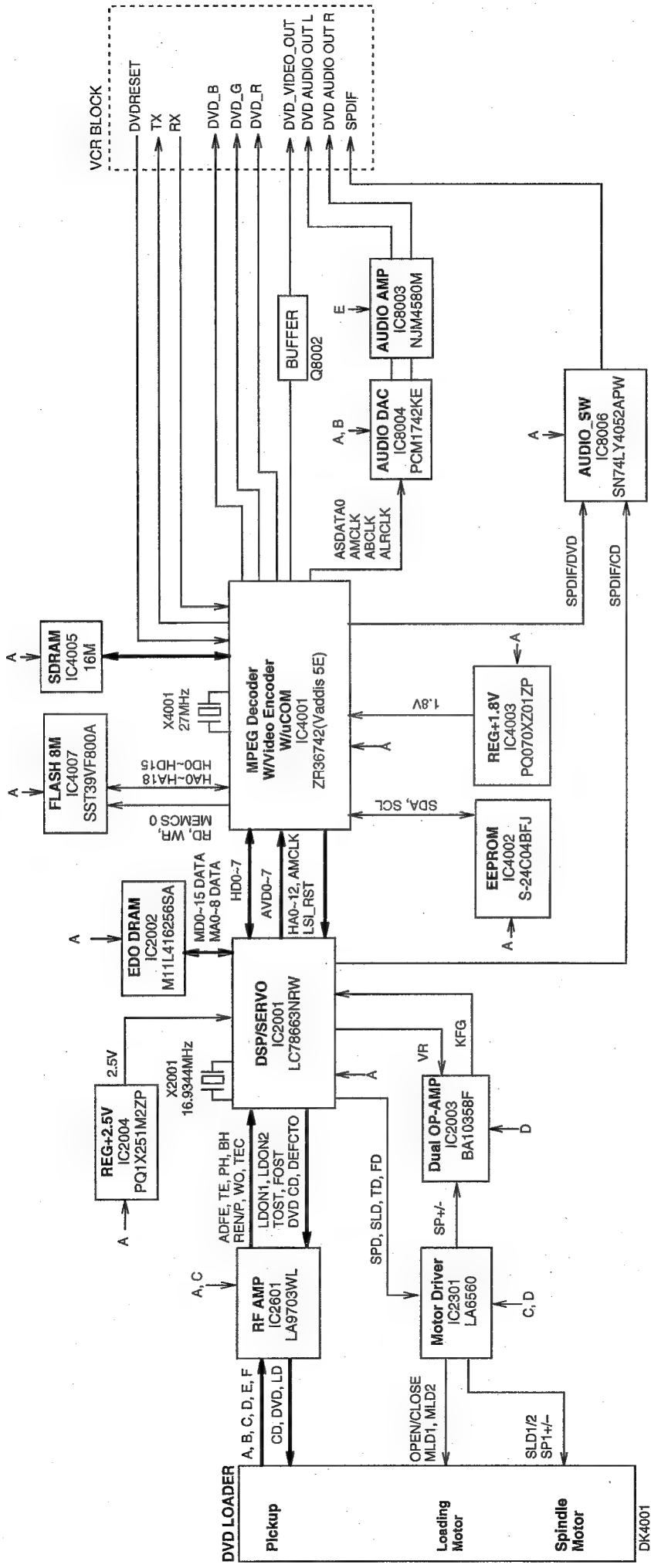


ORIGINAL CHASSIS CODE A

Best. Nr. SM2963-2

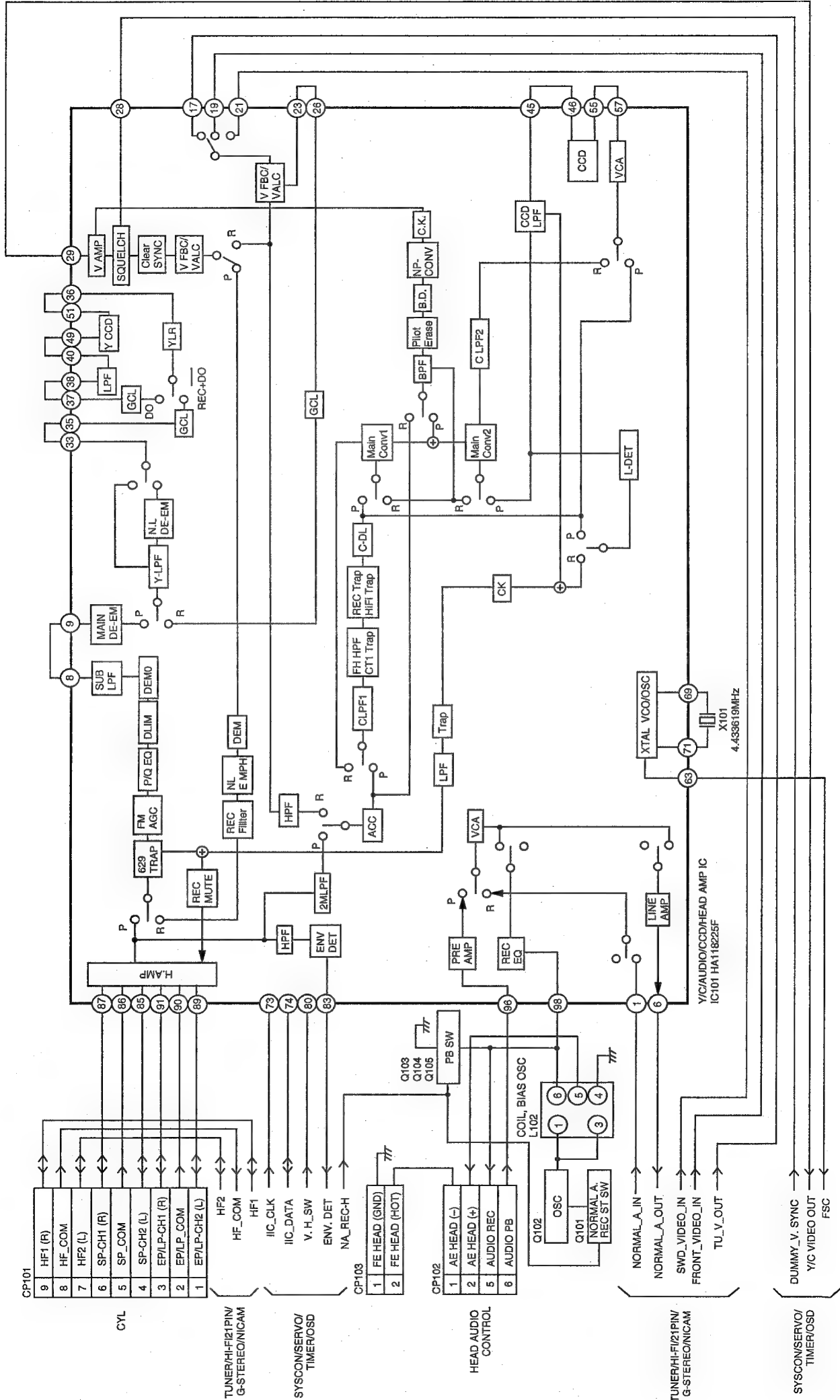


DVD BLOCK DIAGRAM

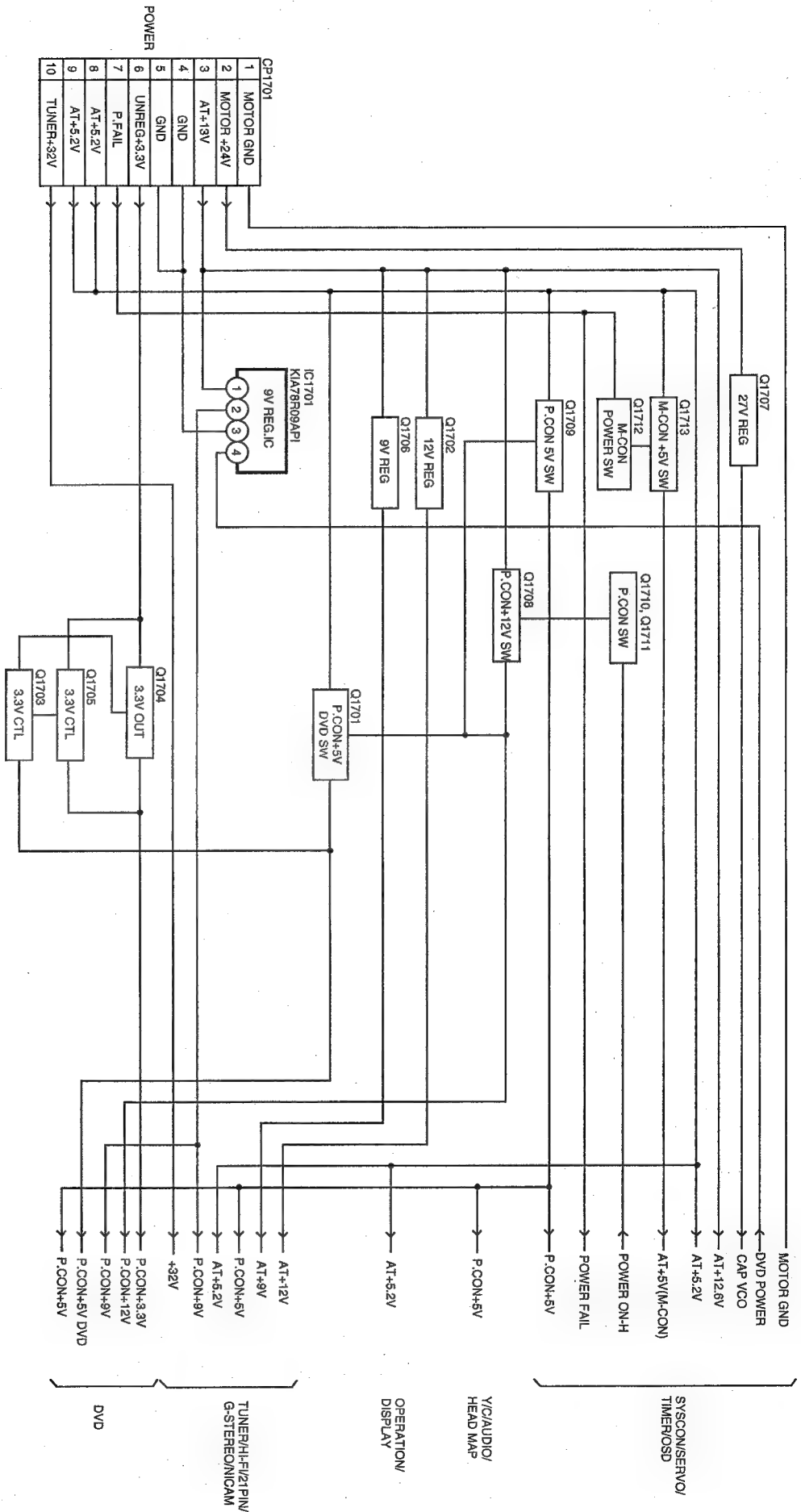


- A P.CON+3.3V
- B P.CON+5V
- C P.CON+5V
- D P.CON+9V_DVD
- E P.CON+12V

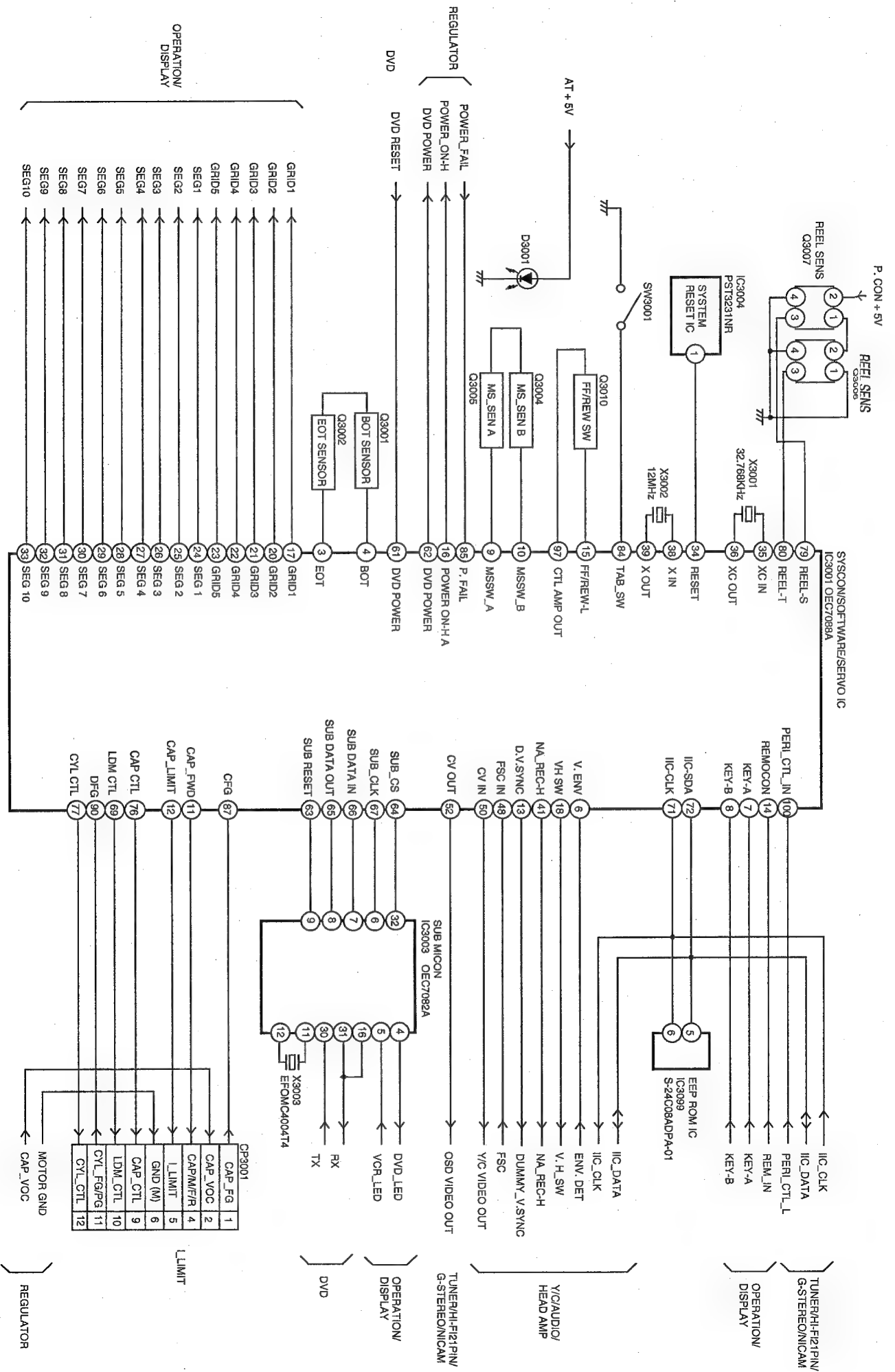
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



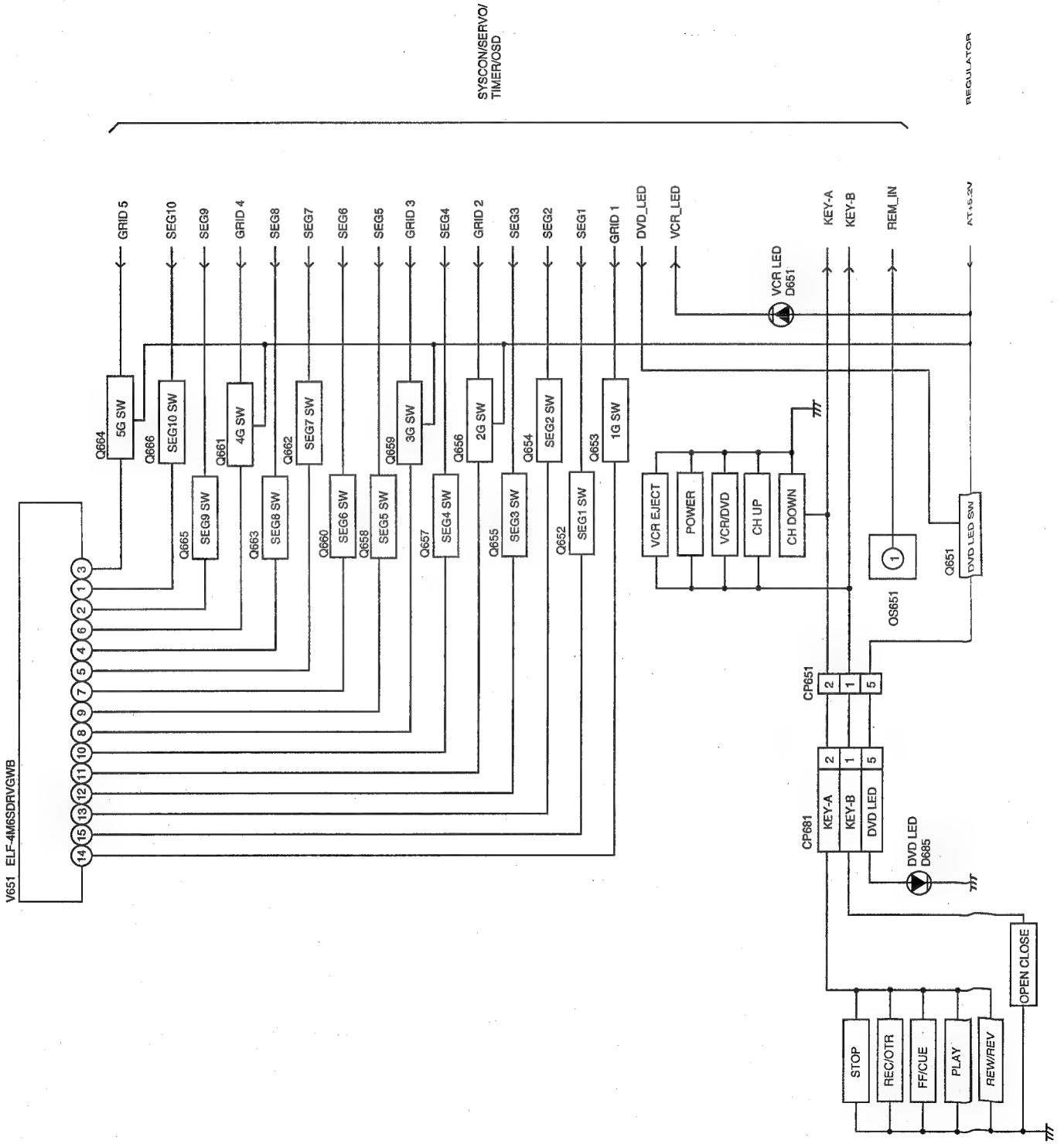
REGULATOR BLOCK DIAGRAM



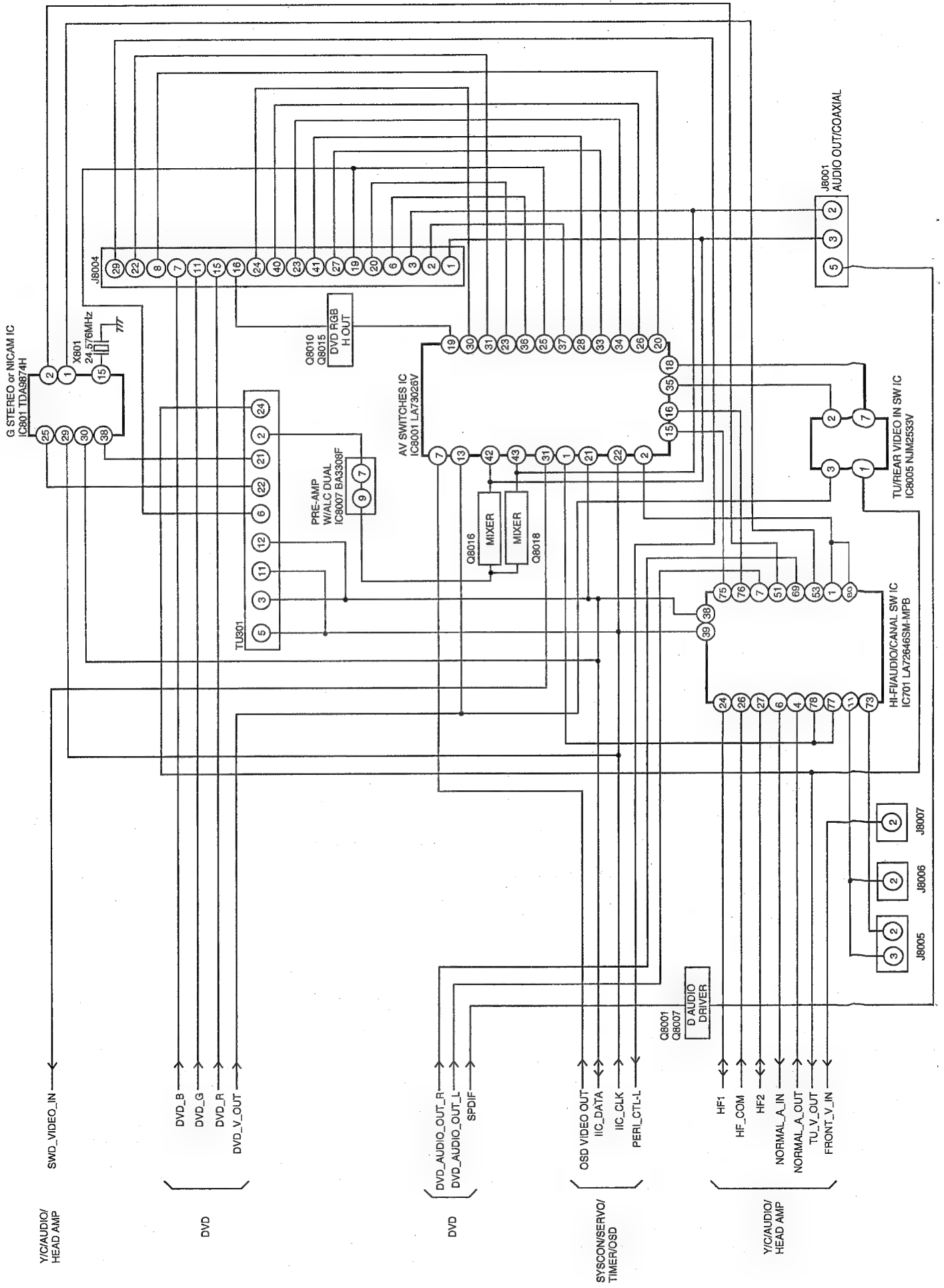
SYSTEM CONTROL/SERVO/TIMER/OSD BLOCK DIAGRAM



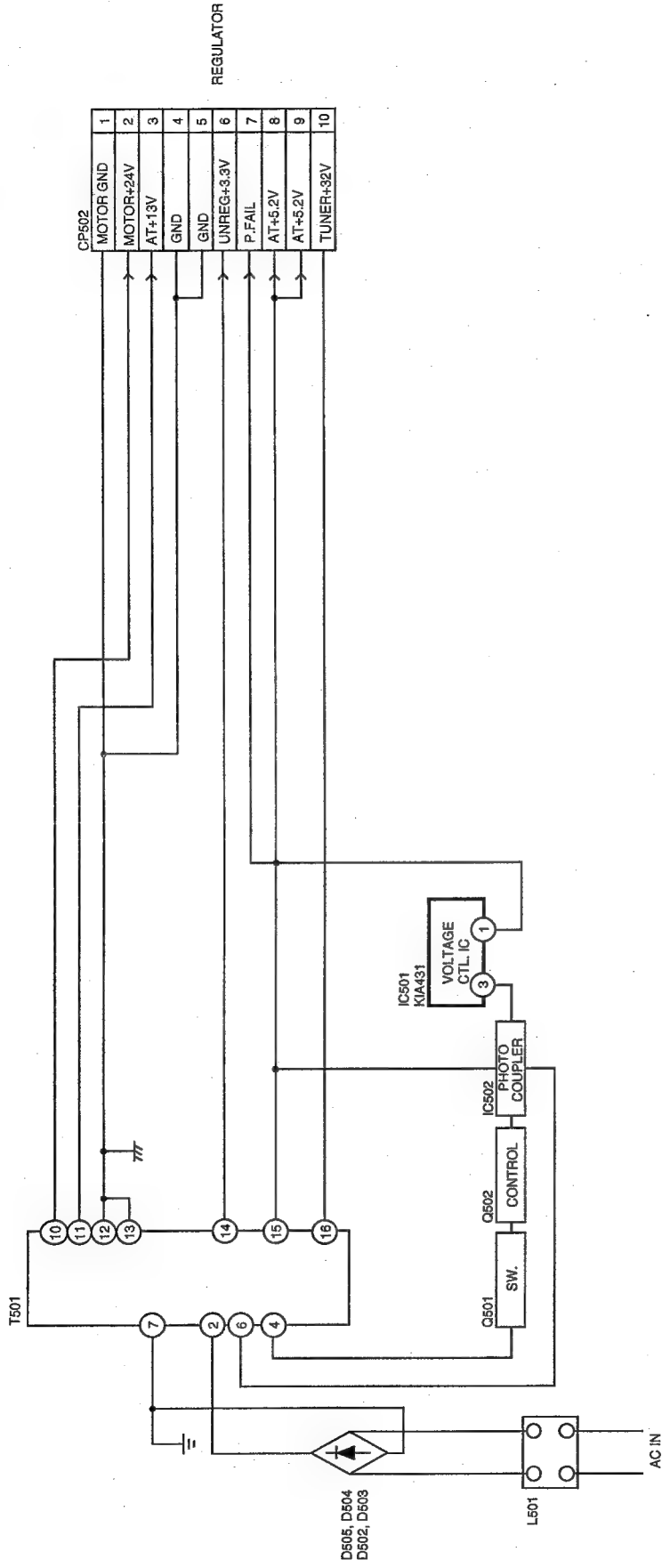
OPERATION/DISPLAY BLOCK DIAGRAM



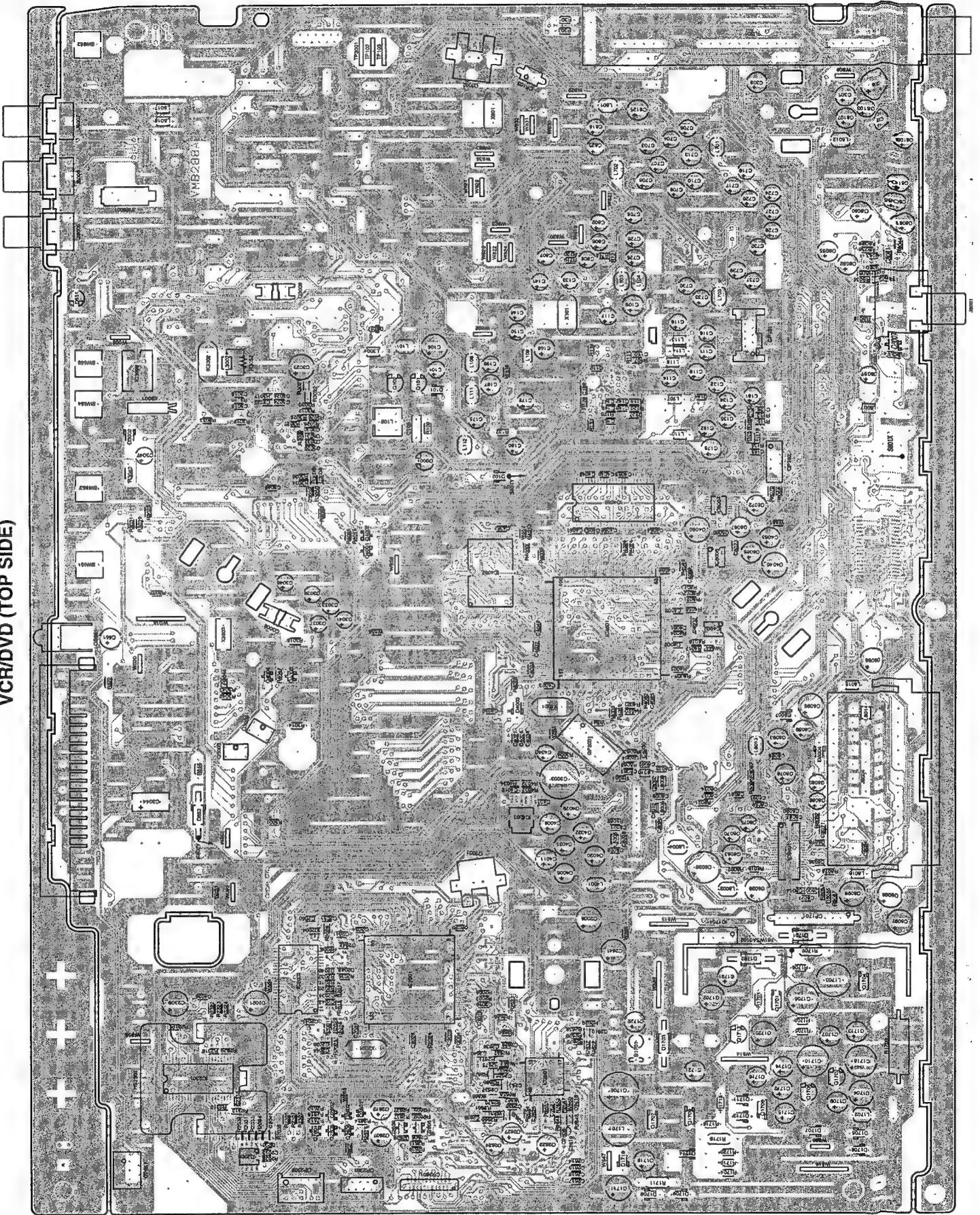
TUNER/HI-FI/21PIN/G-STEREO/NICAM BLOCK DIAGRAM



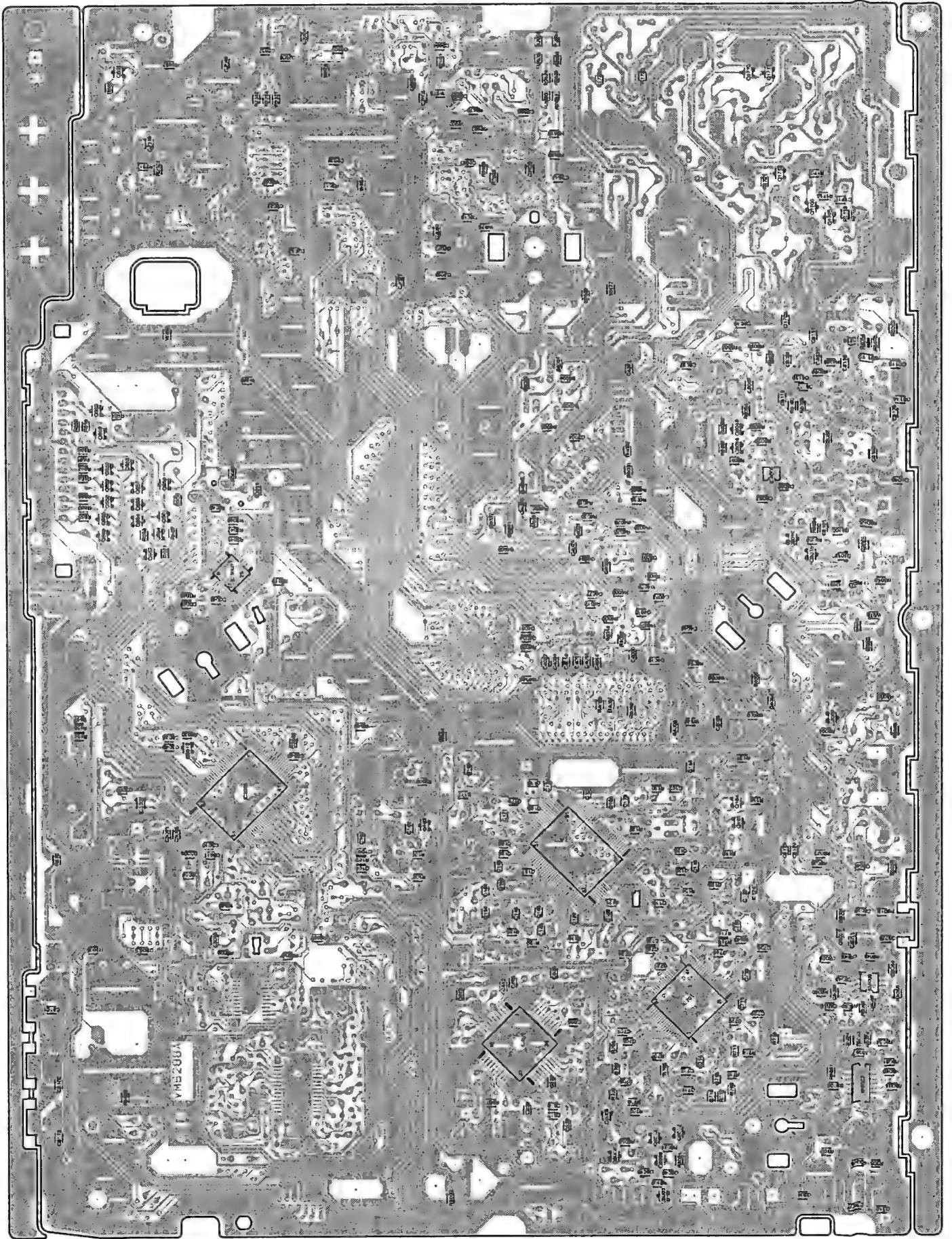
POWER BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
VCR/DVD (TOP SIDE)

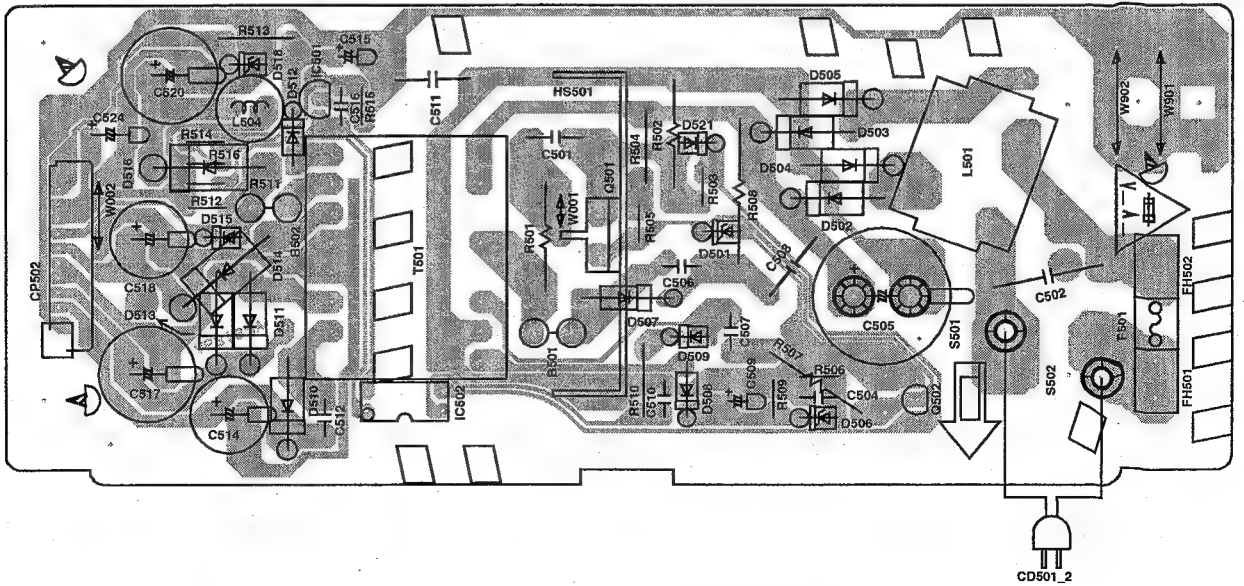


PRINTED CIRCUIT BOARDS
VCR/DVD (BOTTOM SIDE)

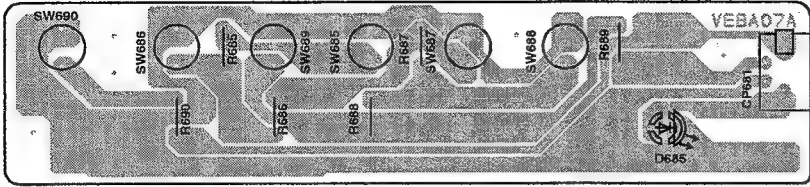


PRINTED CIRCUIT BOARDS

POWER SOLDER SIDE

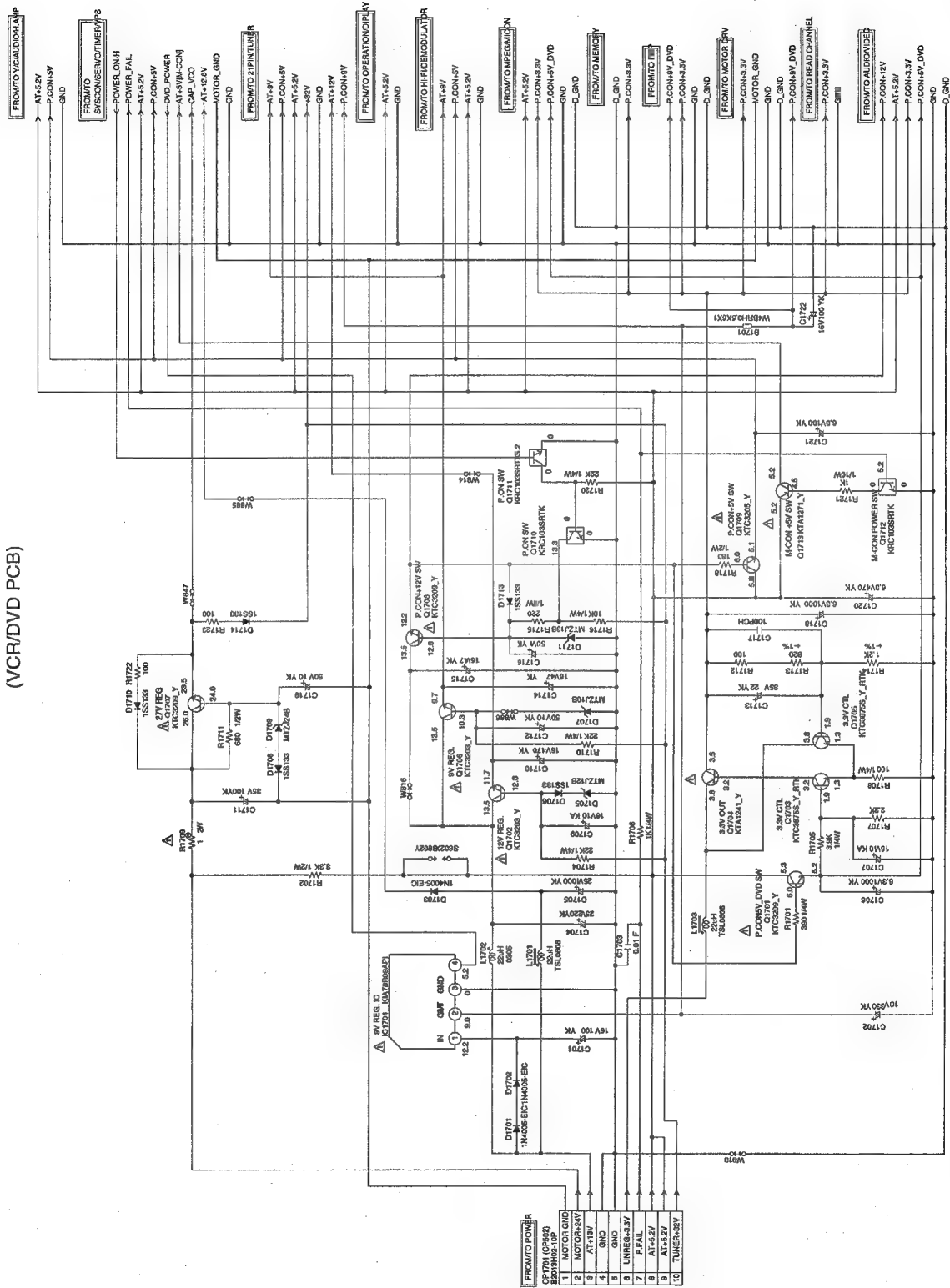


OPERATION SOLDER SIDE



REGULATOR SCHEMATIC DIAGRAM (VCR/DVD PCB)

(VCR/DVD PCB)



FROM TO POWER
1 MOTOR GND
2 MOTOR +24V
3 AT +18V
4 GND
5 UNREGULATED
6 AT +5.5V
7 AT +5.5V
8 AT +5.5V
9 AT +5.5V
10 TUNER +24V

PCB08
1/MS209

CAUTION: DIGITAL TRANSISTOR

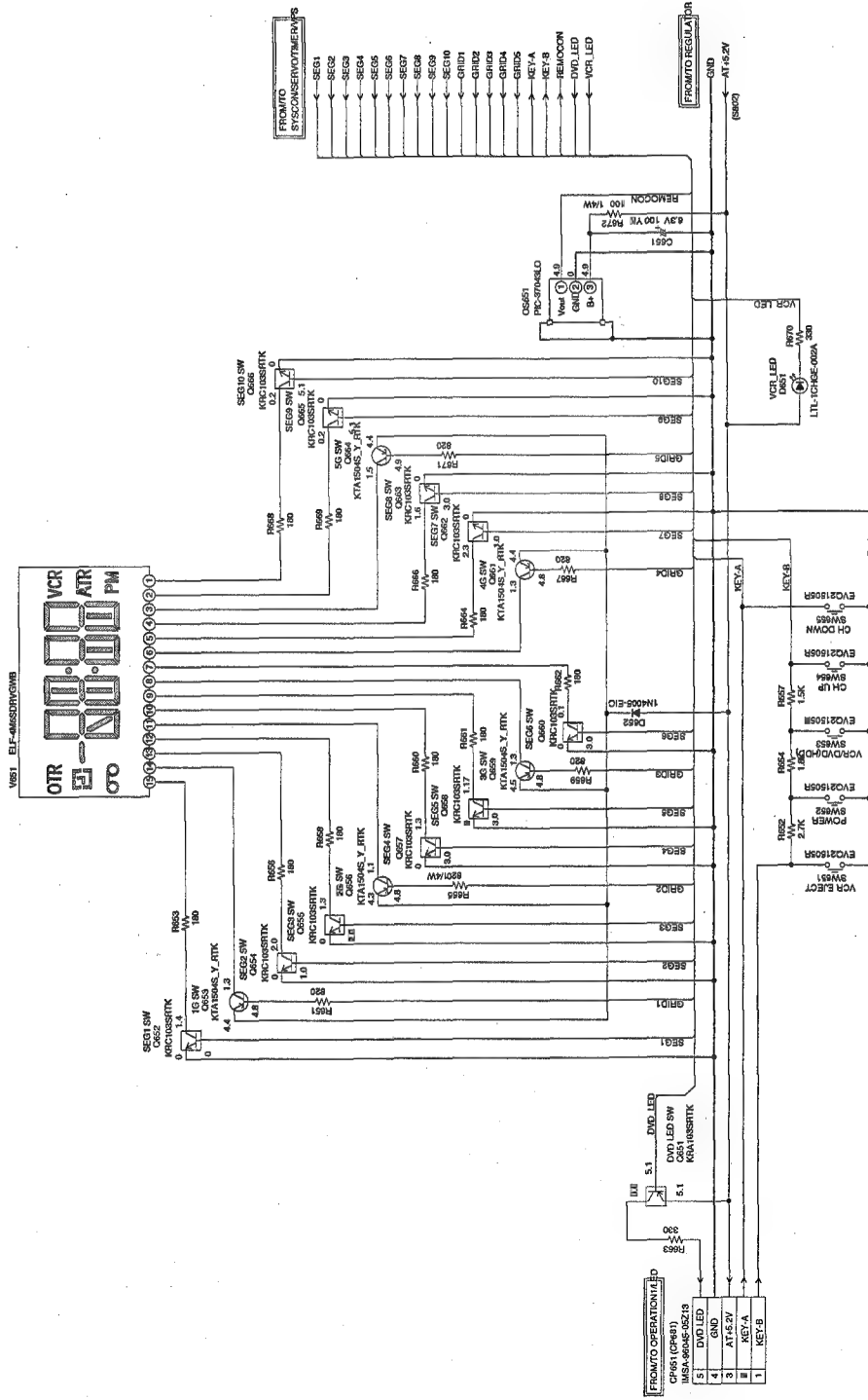


NOTE: THE DC VOLTAGE EACH PART NUMBER IN THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME THIS SCHEMATIC WAS PREPARED. THESE PARTS MAY BE SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE REFER TO THE PARTS LIST FOR THE MOST CURRENT INFORMATION. THE DC VOLTAGE MEASURED WITH THE DIGITAL TESTER PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE. DURING PLAYBACK.

ATTENTION: LES PIÈCES REPRÉSENTÉES DANS CE SCHEMATIQUE SONT LES PLUS RÉCENTES À LA DATE DE RÉDACTION DE CE SCHEMATIQUE. CES PIÈCES PEUVENT ÊTRE SUJETTES À DES MODIFICATIONS. VÉRIFIER LA LISTE DES PIÈCES POUR OBTENIR LES DERNIÈRES INFORMATIONS. LA TENSION EN DC MESURÉE AVEC LE TESTEUR NUMÉRIQUE ET SOUS TENSION DE LA LISTE DES PIÈCES.

OPERATION/DISPLAY SCHEMATIC DIAGRAM

(VCR/DVD PCB)



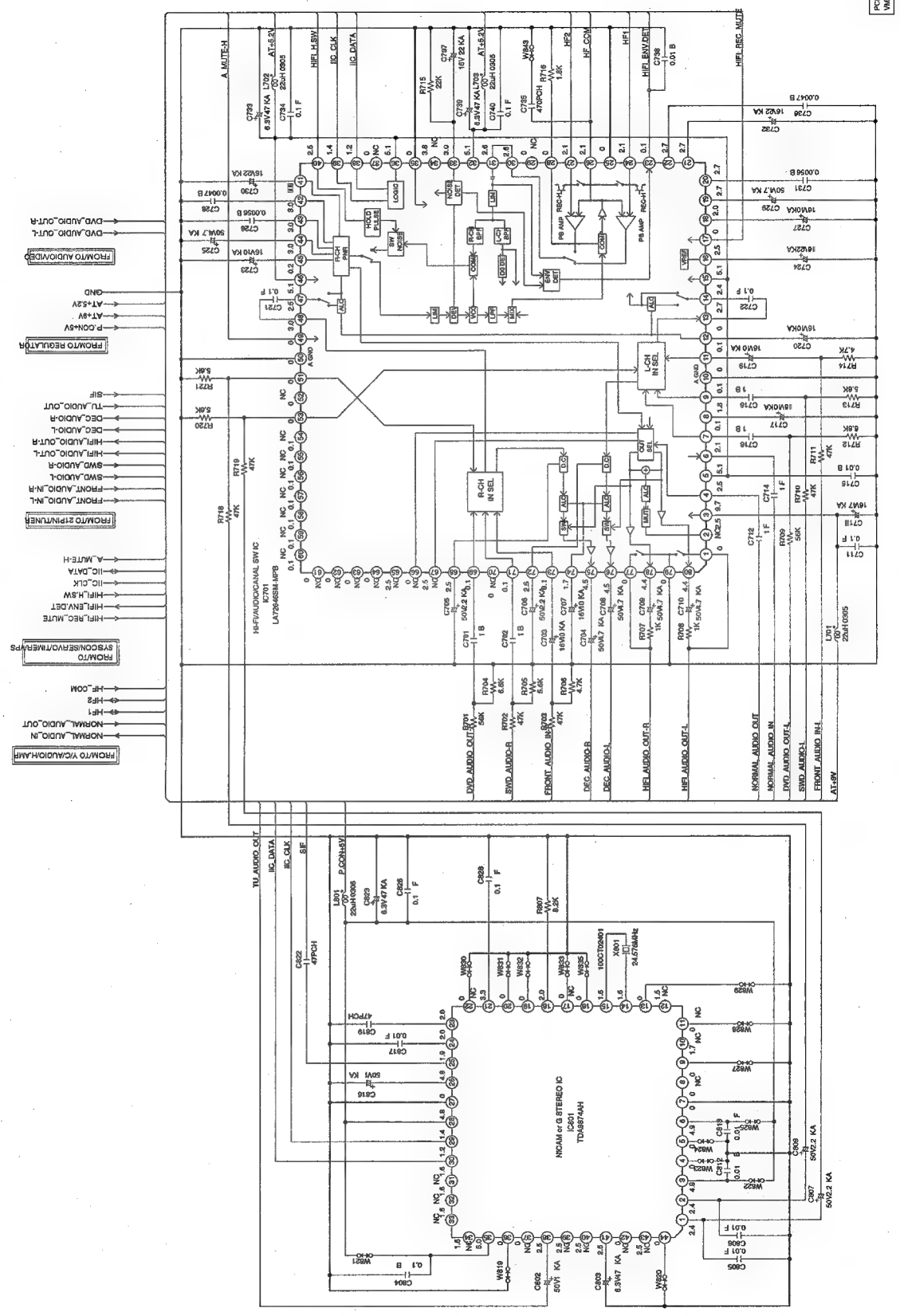
PCB03A
1/10/2007

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



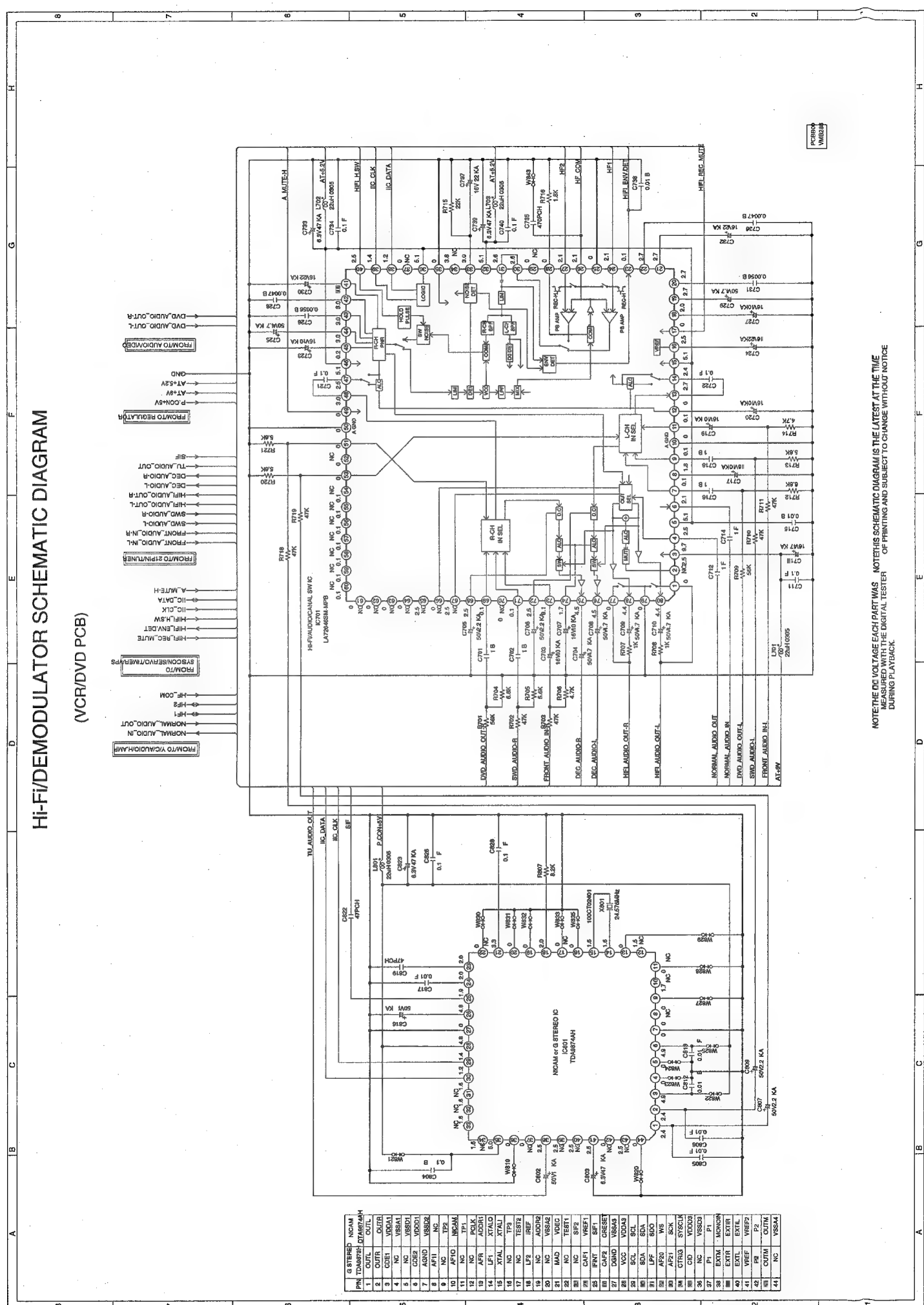
Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

(VCR/DVD PCB)

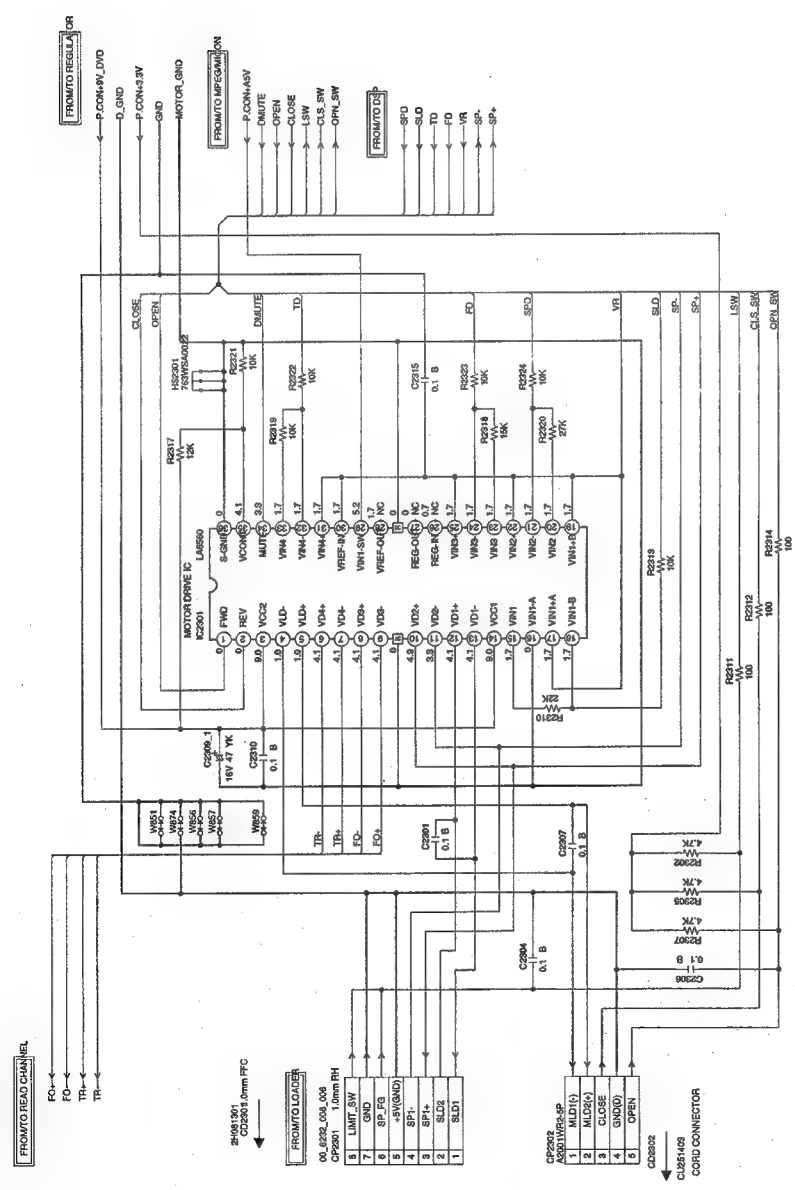


PIN	SYMBOL	DESCRIPTION
1	OUTA	STEREO NCAM OUT A
2	OUTB	STEREO NCAM OUT B
3	CODE	VIDEO CODE
4	VSSA1	NC
5	VSSA2	NC
6	VDDO1	NC
7	VSSO2	NC
8	AP11	NC
9	NC	NC
10	AP10	NCAM
11	TP1	NC
12	NC	NC
13	ADDR1	NC
14	XTAL	XTAL
15	TP2	NC
16	TEST1	NC
17	IFB	NC
18	ADDR2	NC
19	VSSA2	NC
20	VDDO1	NC
21	VSSO2	NC
22	TEST1	NC
23	SP1	NC
24	SP2	NC
25	SP3	NC
26	CAFS	NC
27	CGRES1	NC
28	VCC	VCC
29	VDDA3	NC
30	SCL	NC
31	SDA	NC
32	SIO	NC
33	AP20	NC
34	AP21	NC
35	SVSC1	NC
36	VDDO2	NC
37	VSSO2	NC
38	VSSO3	NC
39	EXTL	EXTL
40	EXTB	EXTB
41	VREF	VREF
42	P2	NC
43	OUTM	OUTM
44	VSSA4	NC

NOTE THE DV VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE DURING PLAYBACK.



MOTOR DRIVE SCHEMATIC DIAGRAM (VCR/DVD PCB)



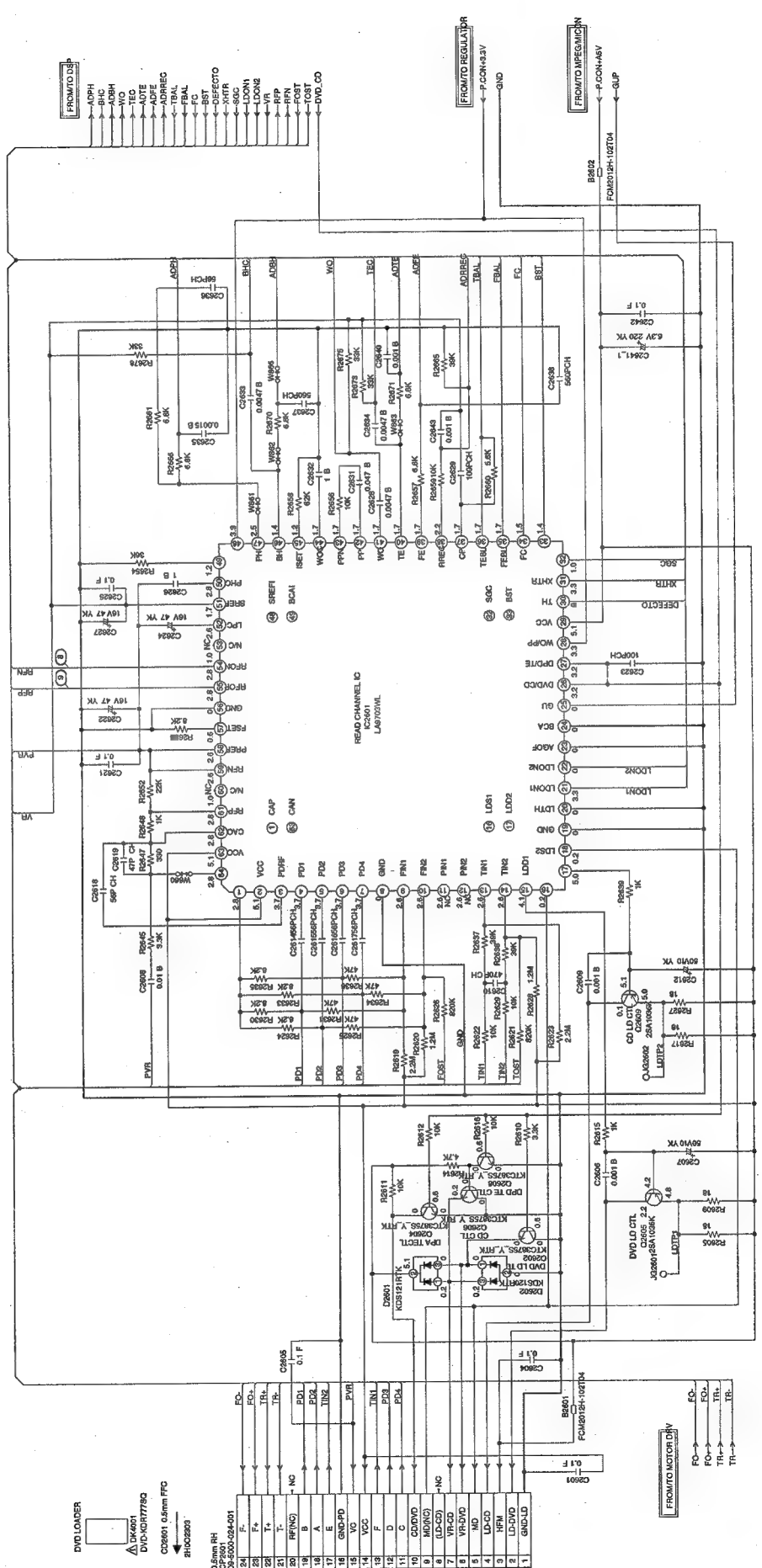
NOTE THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

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

PCBB04
VMB294

READ CHANNEL SCHEMATIC DIAGRAM

(VCR/DVD PCB)

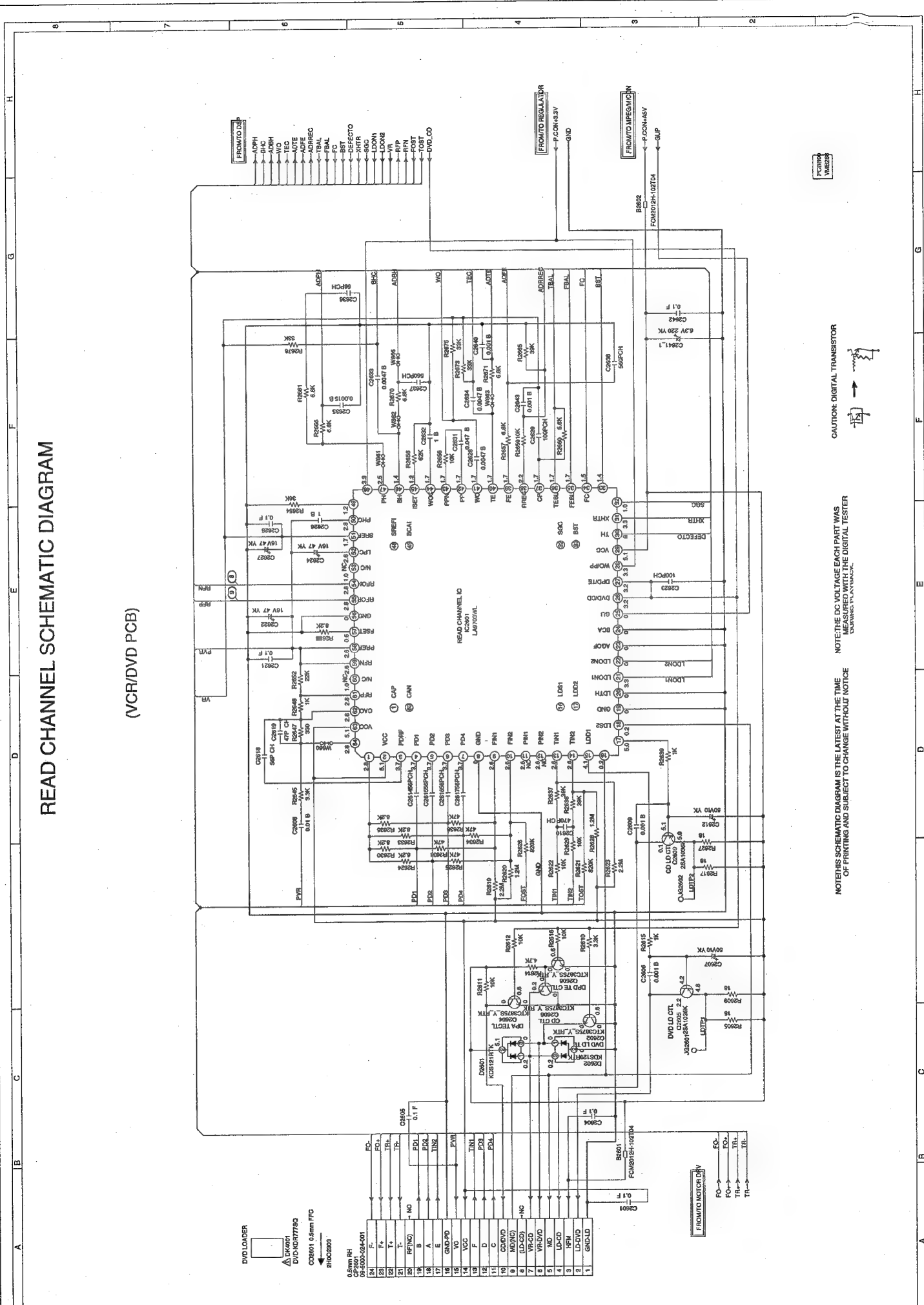


CAUTION: DIGITAL TRANSISTOR

 NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER SOURCE PLATED BACK.

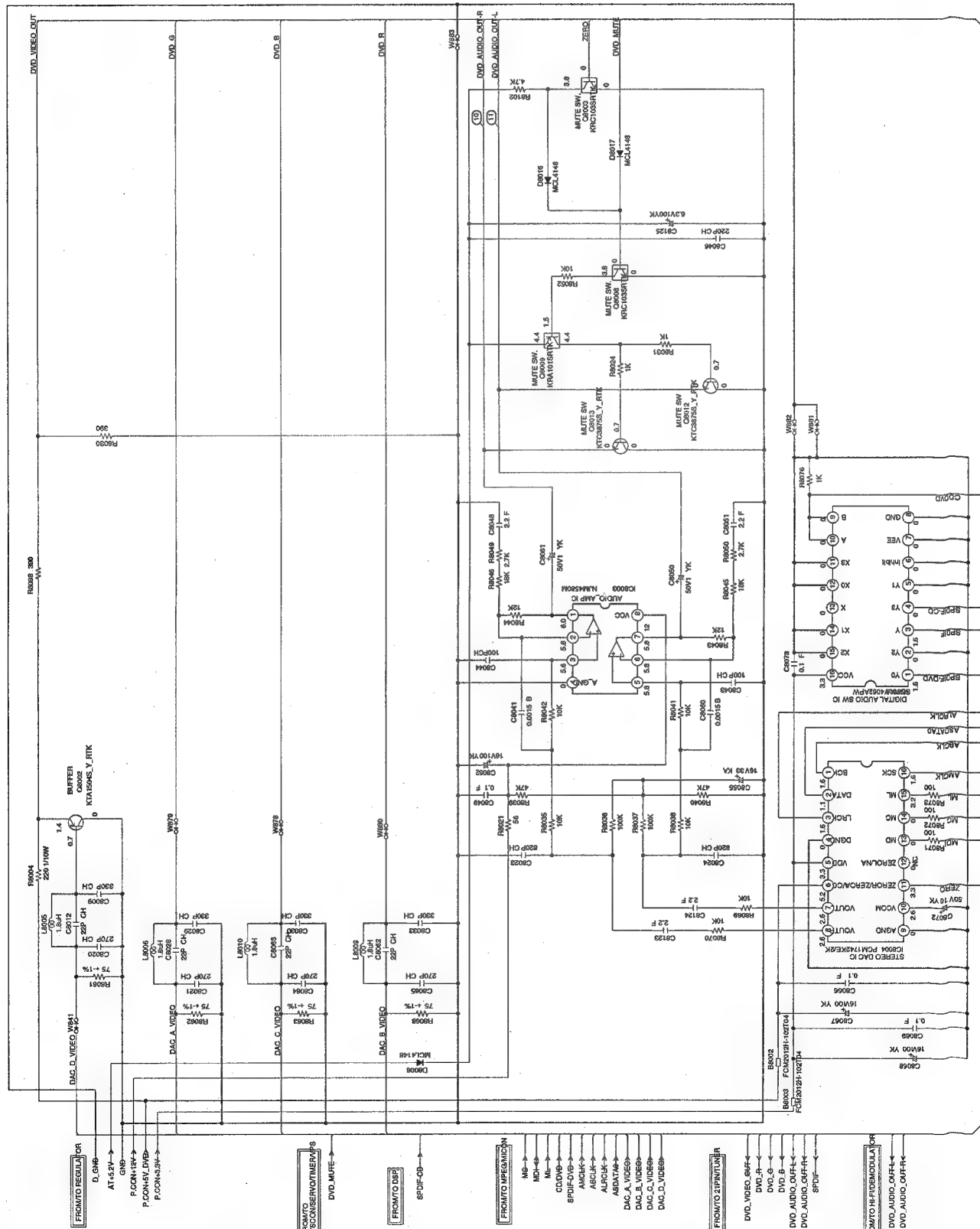
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

FROM TO MOTOR/IN
 FROM TO MFG/CM/IN
 FROM TO MFG/CM/IN



AUDIO/VIDEO SCHEMATIC DIAGRAM (DVD PCB)

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



CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

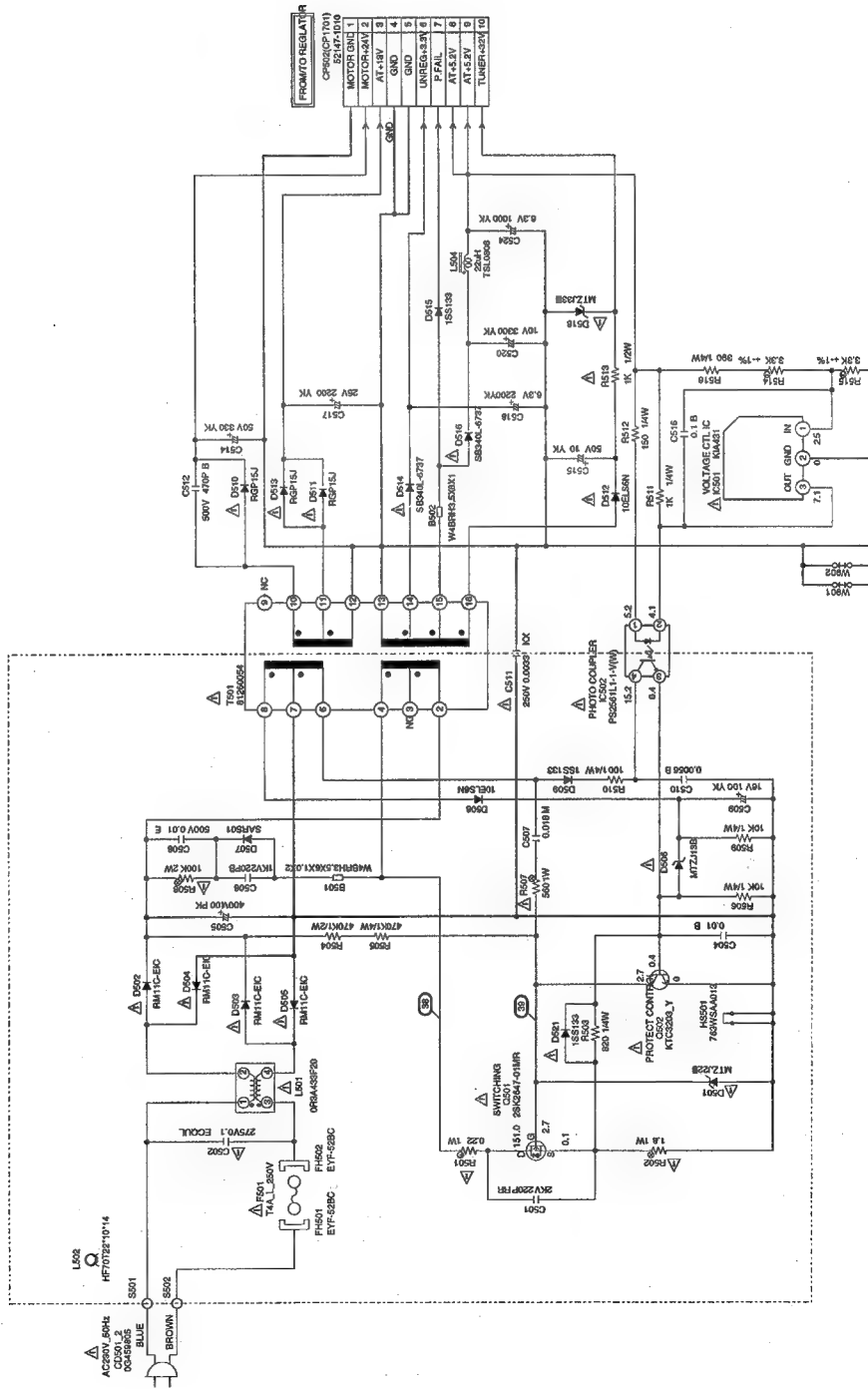
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

PCB000
V00250

POWER SCHEMATIC DIAGRAM

(POWER PCB)



PCB20
VPR105

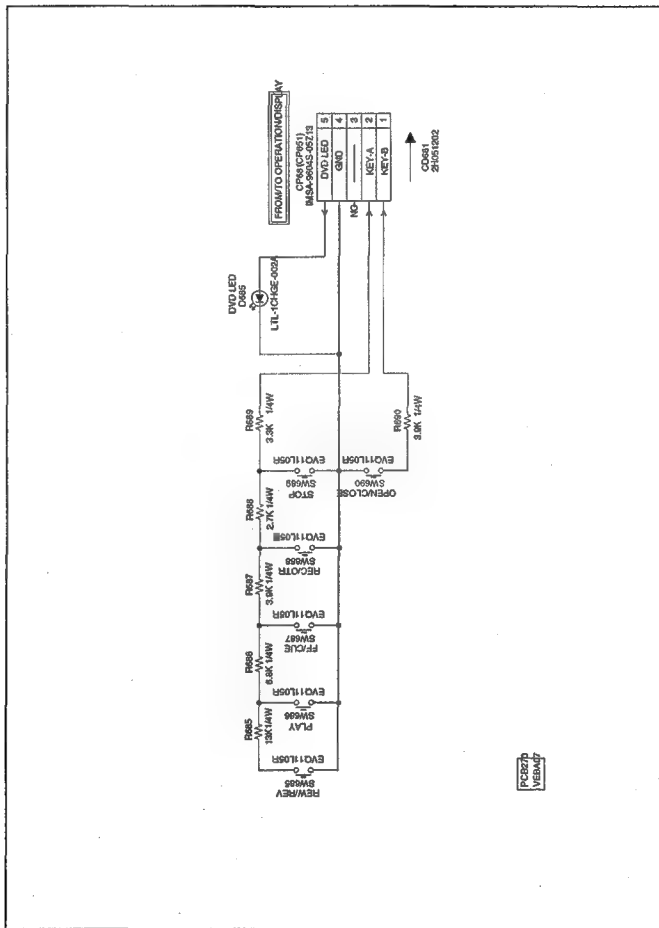
ATTENTION: PIÈCES RÉPARÉES PARMIANT
DANGEREUSES AN POINT DE VUE SECURITE
UTILISER QUE CELLES DECRITES
DANS LA NOMENCLATURE DES PIÈCES

CAUTION: THESE PARTS MARKED WIDE
DANGEROUS AT THE TIME OF REPAIR
USE ONLY THE PARTS LISTED
DESCRIBED IN PARTS LIST ONLY

NOTE: PLEASE USE THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

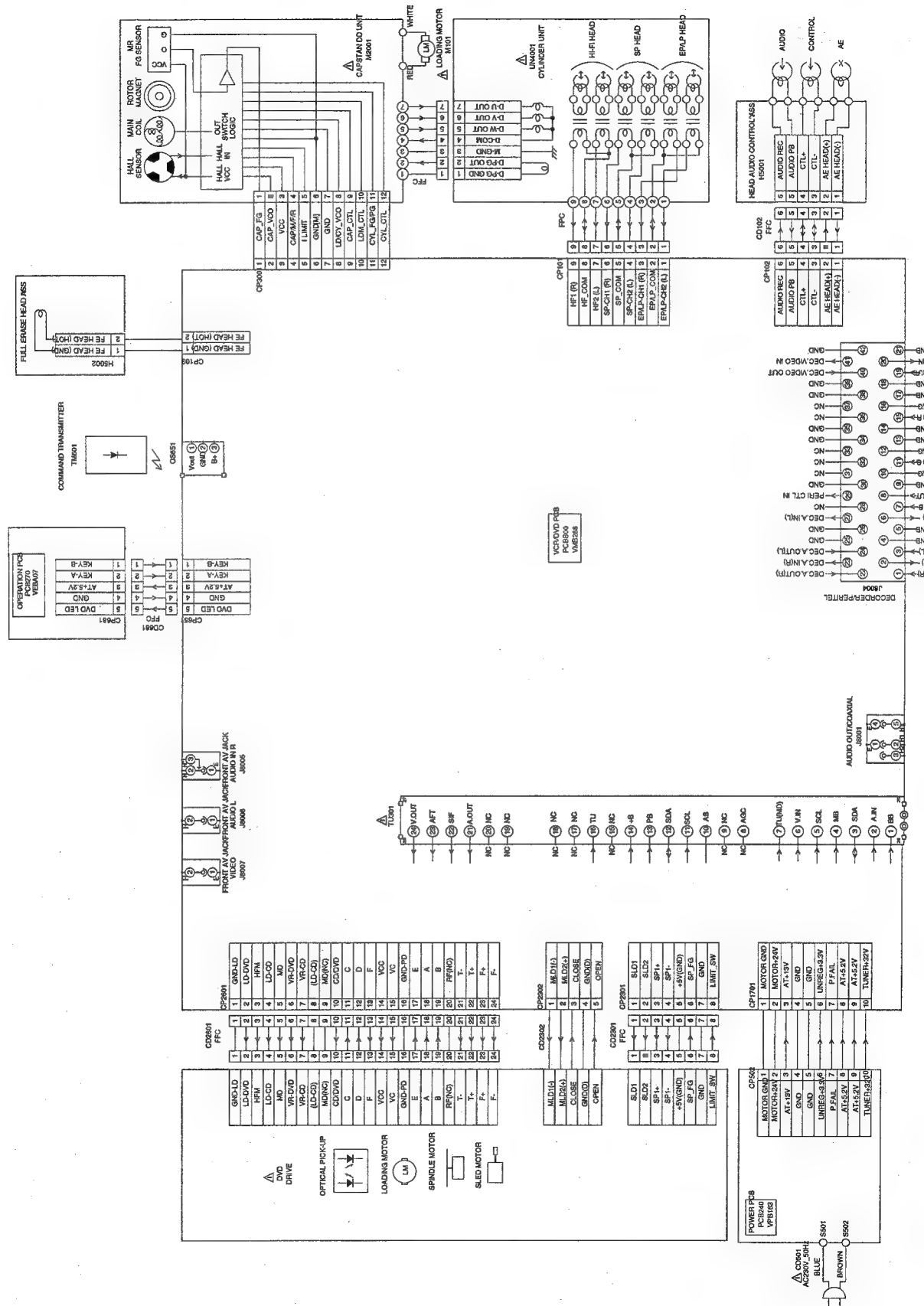
OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



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

INTERCONNECTION DIAGRAM



CAUTION: USE ONLY PARTS MANUFACTURED BY SANYO. SEE PARTS LIST FOR PARTS DESCRIBED IN PARTS LIST ONLY.

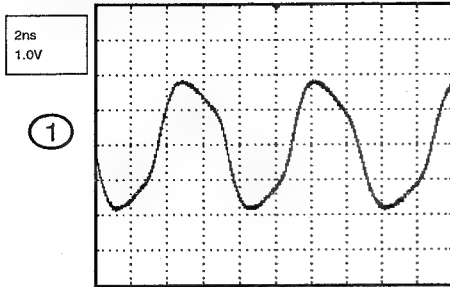
ATTENTION: PIÈCES RÉPARÉES PAR SANYO. VOIR LA NOMÉNCLATURE DES PIÈCES DANS LA NOMÉNCLATURE DES PIÈCES.

WARNING: THIS INTERCONNECTION DIAGRAM IS THE LATEST EDITION. IT IS SUBJECT TO CHANGE WITHOUT NOTICE.

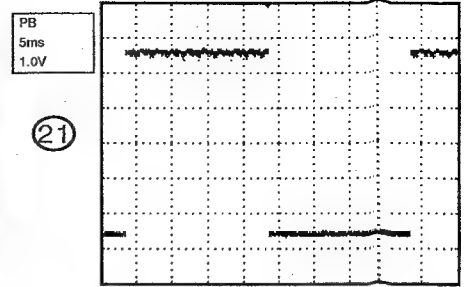
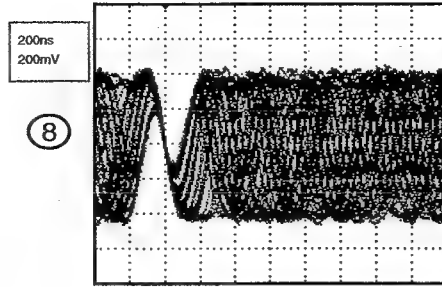
H
G
F
E
D
C
B
A
 8
7
6
5
4
3
2
1

WAVEFORMS

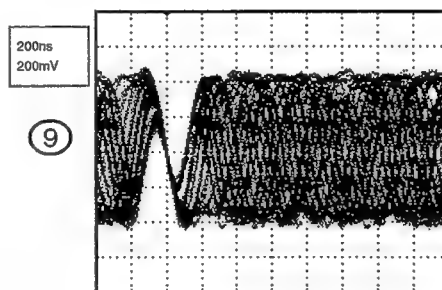
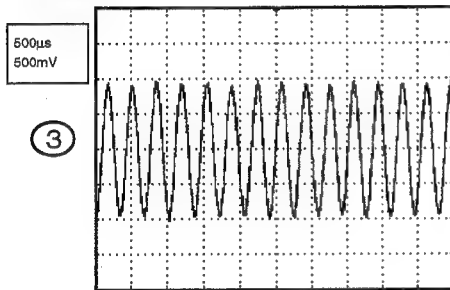
MPEG/MICON



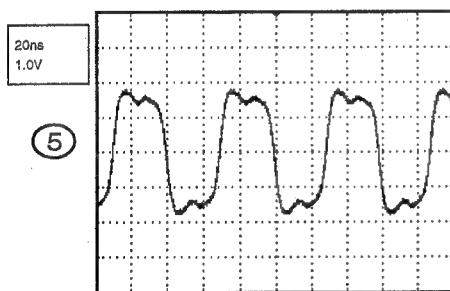
READ CHANNEL



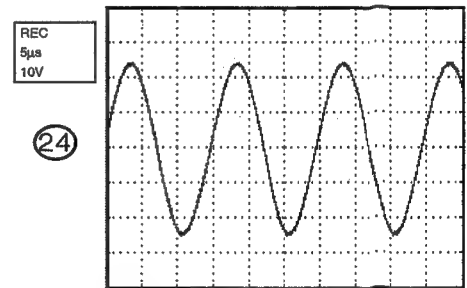
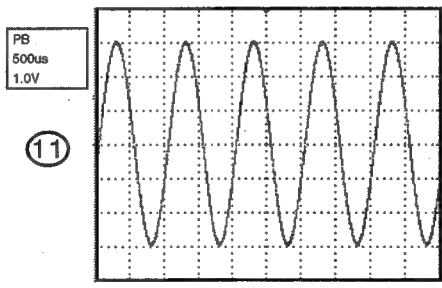
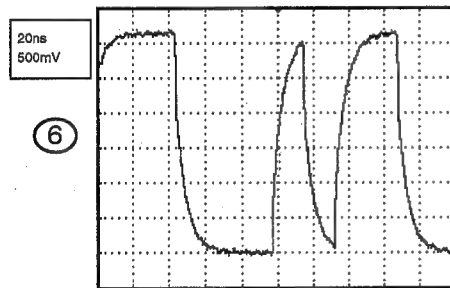
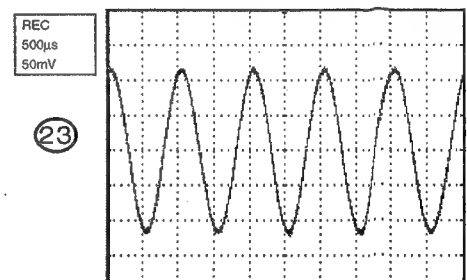
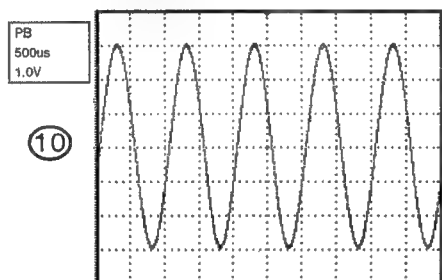
MEMORY



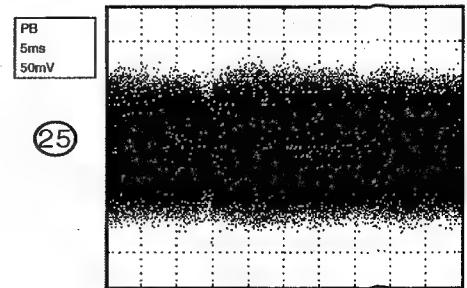
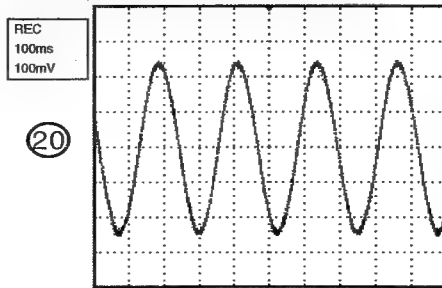
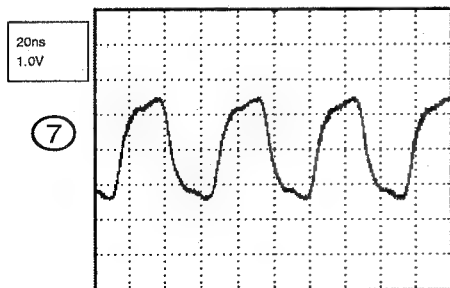
DSP



AUDIO/VIDEO



Y/C/AUDIO/HEAD AMP



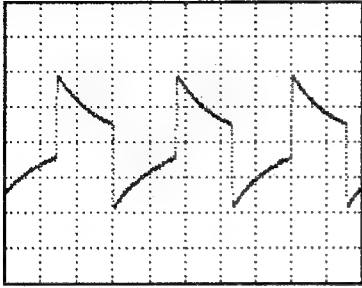
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

SYSCON/SERVO/TIMER/VPS

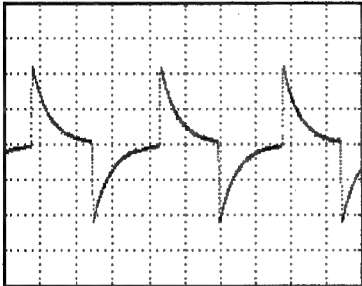
PB
200ms
2.0V

26



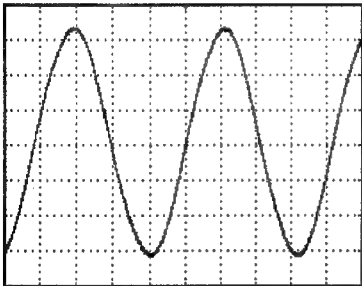
PB
500ms
2.0V

27



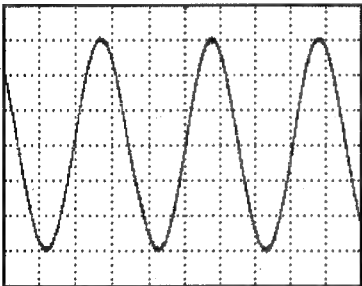
REC
20ns
50mV

28



REC
10µs
20mV

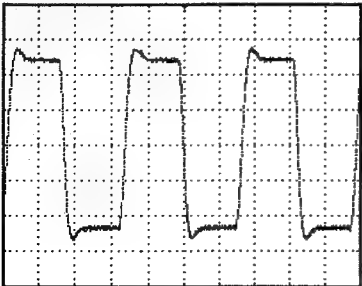
29



21PIN/TUNER

PB
200ns
10mV

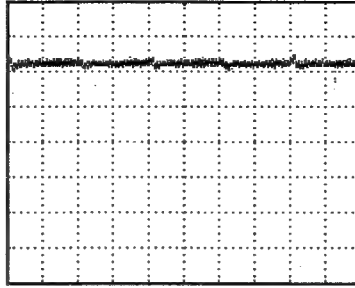
30



Hi-Fi/DEMODULATOR

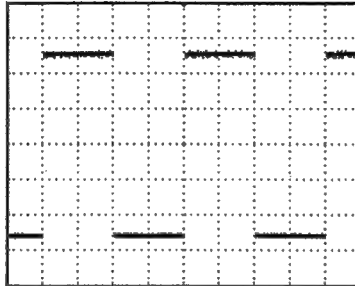
PB
10ms
1.0V

31



PB
10ms
1.0V

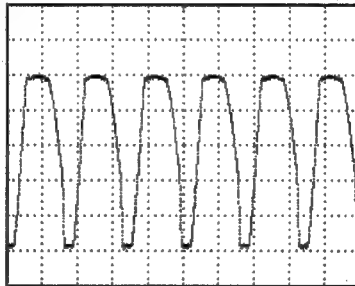
32



POWER

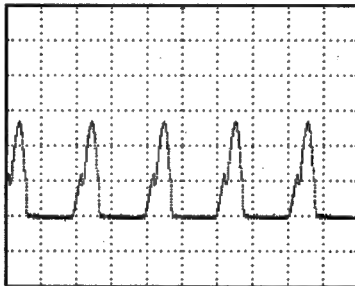
REC
5µs
100V

38



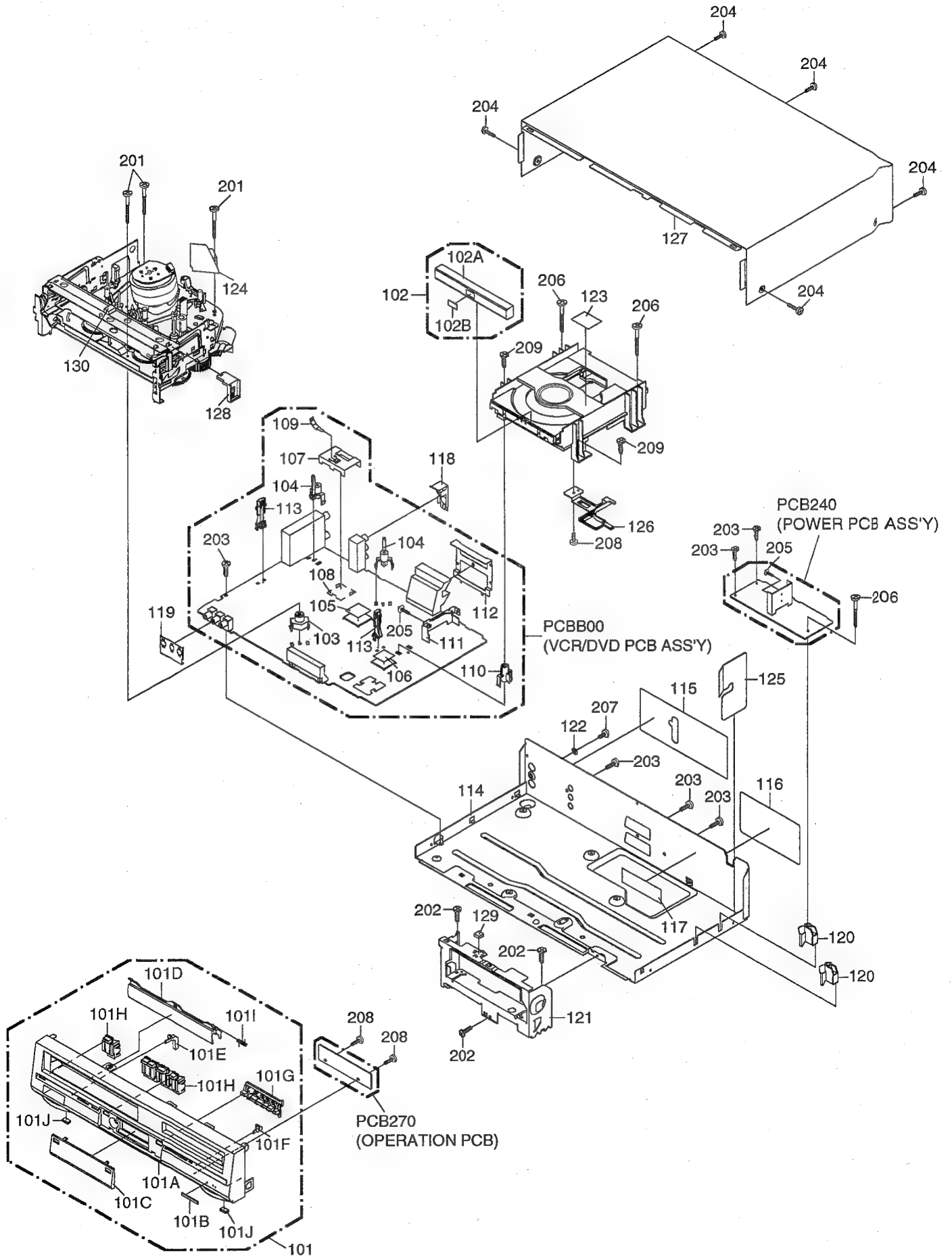
REC
5µs
5.0V

39

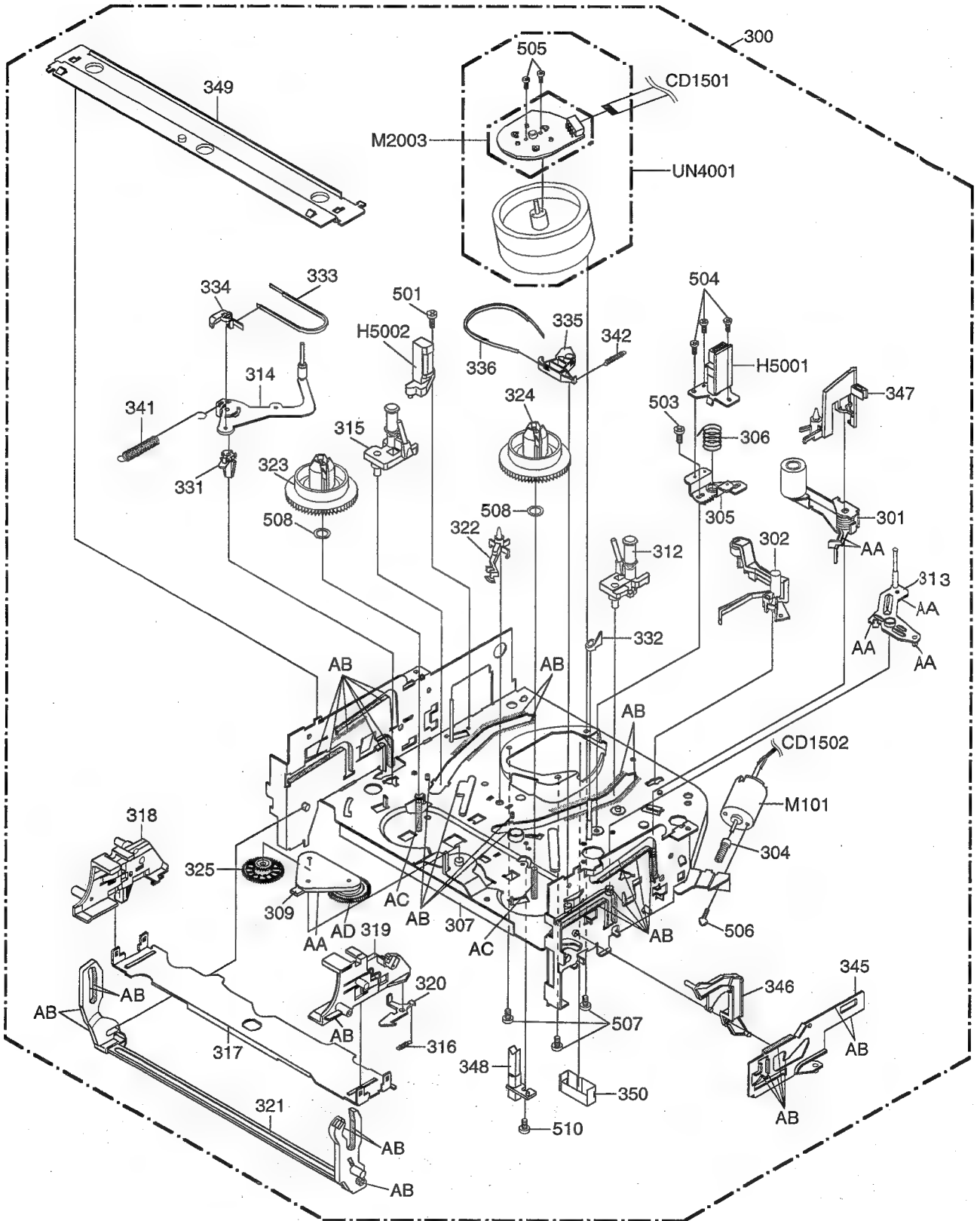


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



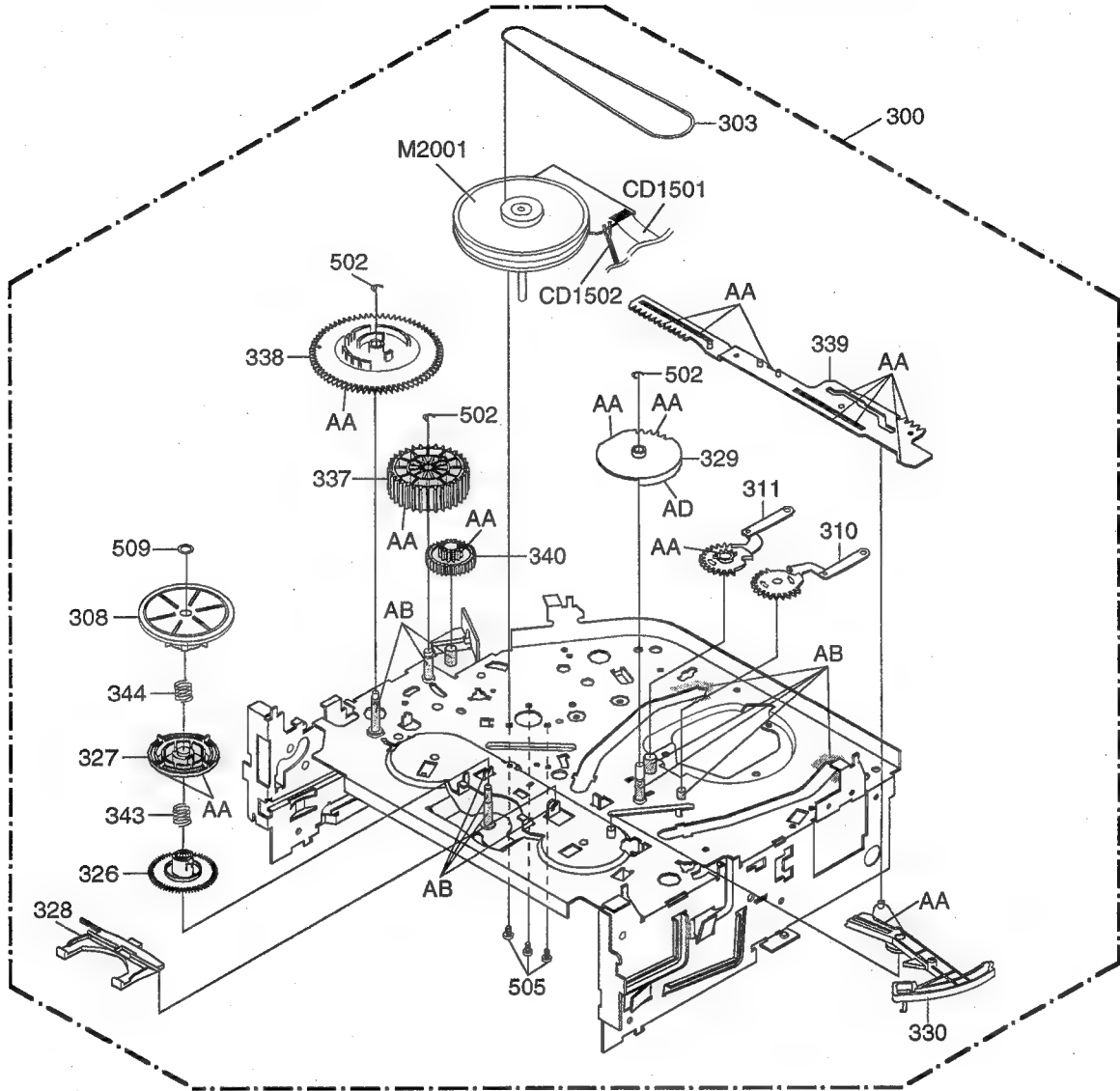
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

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

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD

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

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
101	A2C412T720K	CABINET,FRONT ASSY	
101A	701WPJ1200	CABINET,FRONT	
101B	711WPC0005	BADGE,BRAND	
101C	711WPD0638	PLATE,DISPLAY	
101D	712WPJ0814	FLAP	
101E	713WPA0193	GLASS,LED-VCR	
101F	713WPA0194	GLASS,LED-DVD	
101G	735WPB0258	BUTTON,FRAME-DVD	
101H	735WPB0259	BUTTON,FRAME-VCR	
101I	743WKA0042	SPRING,FLAP	
101J	800WFA0051	CUSHION,LEG	
102	A2C412T770K	PLATE TRAY FRONT ASSY	
102A	712WPB0140	PLATE,TRAY-FRONT	
102B	7235630001	SHEET,DVD	
103	701WPA0686	HOLDER,DECK	
104	701WPA0751	HOLDER,DECK	
105	7230007556	SHEET,IC	
106	7230007623	SHEET,IC	
107	752WSA0230	SHIELD,CASE HEAD AMP	
108	752WSA0308	SHIELD,COVER HEAD AMP	
109	753WUAA006	SPRING,EARTH HEAD AMP	
110	761WPA0260	HOLDER,DVD BL	
111	761WSA0102	ANGLE,PCB	
112	761WSA0104	SHIELD,21PIN	
113	85OP700038	HOLDER,END SENSOR	
114	702WSA0168	PLATE,BOTTOM	
115	7220001168	SHEET,JACK	
116	7222022630	SHEET,RATING	
117	7260000341	SHEET,CAUTION	
118	752WSA0290	SHIELD,COMPO	
119	752WUA0001	SHIELD,3-PIN	
120	761WPA0261	HOLDER,DVD-BR	
121	761WSA0101	ANGLE,FRONT	
122	800WB00004	FIBER WASHER	7x3.2xT0.5
123	7260000342	SHEET,CAUTION	
124	752WSA0275	COVER,AC HEAD	
125	755WNA0021	SHEET,POWER	
126	761WPA0250	HOLDER,FFC	
127	702WSB0081	CABINET,TOP	
128	761WPA0262	HOLDER,DECK TOP	
129	8965TS1010	CUSHION	65TS 10-10H L=10
130	8965TS1017	CUSHION	65TS10-10H L17.5
201	8109130B94	SCREW,TAP TITE(B) R PAN	3x29
202	8109230704	SCREW,TAP TITE(B) R BIND	3x7
203	8109230804	SCREW,TAP TITE(B) BIND	3x8
204	8109K30601	SCREW,TAP TITE(B) BIND(3D)	3x6
205	8109130A04	SCREW,TAP TITE(B) WH7	3x10
206	8154D30334	SCREW,TAP TITE(B) WH8	3x33R
207	8107130404	SCREW,TAP TITE(S) PAN	3x4
208	8110226804	SCREW,TAP TITE(P) BIND	2.6x8
209	8102230804	SCREW,BIND	M3x8
---	791UHA0014	GIFT SHEET	
---	792UHA0186	PACKAGE,FRONT	
---	792UHA0187	PACKAGE,BACK	
---	793UCD1190	GIFT BOX	
---	795UCA0021	PAD,DVD/VR	155x250
---	A2C412N975	INSTRUCTION BOOK KIT	
---	JB5X0300	POLYBAG,INSTRUCTION	
---	J2C41201A	INSTRUCTION BOOK	
---	J2C41207A	QUICK SET-UP SHEET	
---	J4E00129	INFORMATION SHEET	

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
300	A2C412N420A	DECK ASSY A2C412N420A	501	8107226804	SCREW,TAP TITE(S) BIND 2.6x8
			502	83ETW30000	E-RING 3.0
301	85OA400234	PINCH ROLLER BLOCK	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	122H071603	CORD JUMPER SMCD-7X151
311	85OA300066	LOADING ARM T UNIT	CD1502	122Y021902	CORD JUMPER 2Y021902
312	85OA400223	INCLINED BASE T UINT 3S	H5001	1523Q91003	HEAD (AUDIO CONTROL) VTR-1X2RPE22-7 56
313	85OA400232	P5 ARM ASS'Y 2	H5002	1543Q02014	HEAD (FULL ERASE) VTR-1X2ERS11-1 54
314	85OA400235	TENSION ARM ASS'Y 2	△ M101	1596S98001	MOTOR (LOADING) MDB2B66
315	85OA400231	INCLINED BASE S UNIT	△ M2001	1510S98036	CAPSTAN DD UNIT F2QVB08
316	85OP800358	SPRING,LOCKER	M2003	1589S11017	MICRO MOTOR I2OAL05
317	85OP900736	CASS,HOLDER		1589S11015	MICRO MOTOR I2OAL01
318	85OP900748	CASS,SIDE L	△ UN4001	A2A741B500	CYLINDER UNIT ASSY A2A741B500
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	85OP900750	LEVER,LINK 2			
346	85OP900744	LEVER,FLAP			
347	85OP900745	CASS,OPENER			
348	85OP700035	REFLECTOR,LED			
349	85OP900746	BRACKET, TOP 3V			
350	752WSA0327	SHIELD,COVER FPC			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
RESISTORS			ICS		
△ R501	R63581R22J	R,FUSE 0.22 OHM 1W	IC2301	I03F065600	IC LA6560
R502	R3X1811R8J	R,METAL OXIDE 1.8 OHM 1W	IC2601	I03FR97030	IC LA9703WL
△ R507	R3X181561J	R,METAL OXIDE 560 OHM 1W	IC3001	I56F57088A	IC OEC7088A
△ R508	R3X18A104J	R,METAL OXIDE 100K OHM 2W	IC3002	I9UF032310	IC PST3231NR
△ R513	R002T2102J	RC 1K OHM 1/2W	IC3003	I56F07082A	IC OEC7082A
△ R1709	R3X18A010J	R,METAL OXIDE 1 OHM 2W	IC3099	A2C412TB05	IC S-24C08ADP01
R3052	R002T4472J	RC 4.7K OHM 1/4W	IC4001	ICQK067420	IC ZR36742
CAPACITORS			IC4002	I5HJ004BF0	IC S-24C04BFJ1B
C501	C0PLRR7H2K	CC 220 PF 2KV R	IC4003	I0GF9XZ010	IC PQ070XZ01P
△ C502	P2122B104M	CMP 0.1 UF 275V ECQUL or	IC4005	I59J0160FB	IC MSM56V1610F-8
	P2472B104M	CMP 0.1 UF 275V PHE840	IC4007	ICMJ0800A7	IC SST39VF800A-70-4C-EK
C505	E62QFH101M	CE 100 UF 400V	IC8001	I03F0026A0	IC LA73028AV-LM-E
C508	C0JFE0514M	CC 0.01 UF 500V E	IC8003	I0QF045800	IC NJM4580M
△ C511	CD39E0ML3M	CC 0.0033UF 250V	IC8004	I17F0742K0	IC PCM1742KE2K
C517	E02LF3222M	CE 2200 UF 25V	IC8005	I0GF02533V	IC NJM2533V(T22)
C520	E02LF1332M	CE 3300 UF 10V	IC8006	I5CF040520	IC SN74LV4052APW
C1705	E02LF3102M	CE 1000 UF 25V	IC8007	I07F033080	IC BA3308F
DIODES			TRANSISTORS		
D101	D1VT001330	DIODE,SILICON 1SS133T-77	Q101	TCAT032034	TRANSISTOR,SILICON KTC3203_Y-AT
D102	D97U06R81B	DIODE,ZENER MTZJ6.8B T-77	Q102	TCAT032034	TRANSISTOR,SILICON KTC3203_Y-AT
△ D501	D97U02201B	DIODE,ZENER MTZJ22B T-77	Q103	TPAAC05002	COMPOUND TRANSISTOR KRA103SRTK
△ D502	D2WTRM11C0	DIODE,SILICON RM11C-EIC	Q104	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
△ D503	D2WTRM11C0	DIODE,SILICON RM11C-EIC	Q105	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
△ D504	D2WTRM11C0	DIODE,SILICON RM11C-EIC	△ Q501	T410K26470	FET 2SK2647-01MR
△ D505	D2WTRM11C0	DIODE,SILICON RM11C-EIC	△ Q502	TCAT032034	TRANSISTOR,SILICON KTC3203_Y-AT
△ D506	D97U01301B	DIODE,ZENER MTZJ13B T-77	Q651	TPAAC05002	COMPOUND TRANSISTOR KRA103SRTK
D507	D2BXARS010	DIODE,SILICON SARS01-V1	Q652	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
D508	D28TELS6N6	DIODE,RECTIFIER 10EL56N-TA1B2	Q653	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
D509	D1VT001330	DIODE,SILICON 1SS133T-77	Q654	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ D510	D23TGP15J0	DIODE,SILICON RGP15J-G23	Q655	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ D511	D23TGP15J0	DIODE,SILICON RGP15J-G23	Q656	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
△ D512	D28TELS6N6	DIODE,RECTIFIER 10EL56N-TA1B2	Q657	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ D513	D23TGP15J0	DIODE,SILICON RGP15J-G23	Q658	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ D514	D2LKB340L0	DIODE,SCHOTTKY SB340L-6737	Q659	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
D515	D1VT001330	DIODE,SILICON 1SS133T-77	Q660	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ D516	D2LKB340L0	DIODE,SCHOTTKY SB340L-6737	Q661	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
△ D518	D97U03301B	DIODE,ZENER MTZJ33B T-77	Q662	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ D521	D1VT001330	DIODE,SILICON 1SS133T-77	Q663	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
D651	0021E5Q210	LED LTL-1CHGE-002A	Q664	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
D652	D2WXN40050	DIODE,SILICON 1N4005-EIC	Q665	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
D685	0021E5Q210	LED LTL-1CHGE-002A	Q666	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
D1701	D2WXN40050	DIODE,SILICON 1N4005-EIC	Q1701	TCAT03209Y	TRANSISTOR,SILICON KTC3209_Y-AT
D1702	D2WXN40050	DIODE,SILICON 1N4005-EIC	Q1702	TCAT032034	TRANSISTOR,SILICON KTC3203_Y-AT
D1703	D2WXN40050	DIODE,SILICON 1N4005-EIC	Q1703	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
D1705	D97U01201B	DIODE,ZENER MTZJ12B T-77	Q1704	TAAT01241Y	TRANSISTOR,SILICON KTA1241_Y-AT
D1706	D1VT001330	DIODE,SILICON 1SS133T-77	Q1705	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
D1707	D97U01001B	DIODE,ZENER MTZJ10B T-77	Q1706	TCAT032034	TRANSISTOR,SILICON KTC3203_Y-AT
D1708	D1VT001330	DIODE,SILICON 1SS133T-77	Q1707	TCAT03209Y	TRANSISTOR,SILICON KTC3209_Y-AT
D1709	D97U02401B	DIODE,ZENER MTZJ24B T-77	Q1708	TCAT03209Y	TRANSISTOR,SILICON KTC3209_Y-AT
D1710	D1VT001330	DIODE,SILICON 1SS133T-77	Q1709	TCAT03205Y	TRANSISTOR,SILICON KTC3205_Y-AT
D1711	D97U01301B	DIODE,ZENER MTZJ13B T-77	Q1710	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
D1713	D1VT001330	DIODE,SILICON 1SS133T-77	Q1711	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
D1714	D1VT001330	DIODE,SILICON 1SS133T-77	Q1712	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
D2001	DDRL41480	DIODE,SILICON MCL4148	Q1713	TAAT012714	TRANSISTOR,SILICON KTA1271_Y-AT
D2601	DDARDS1210	DIODE,SILICON KDS121RTK	Q2602	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
D2602	DDARDS1200	DIODE,SILICON KDS120RTK	Q2604	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
D3001	0010E00330	INFRARED LED LTE-3271T-012A-0	Q2605	T67J1036K0	TRANSISTOR,SILICON 2SA1036KT146
D3002	D1VT001330	DIODE,SILICON 1SS133T-77	Q2606	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
D4003	D1VT001330	DIODE,SILICON 1SS133T-77	Q2608	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
D8004	D97U06R21B	DIODE,ZENER MTZJ6.2B T-77	Q2609	T67J1036K0	TRANSISTOR,SILICON 2SA1036KT146
D8006	DDRL41480	DIODE,SILICON MCL4148	Q3001	0000M00390	PHOTO TRANSISTOR ST-304L
D8007	D97U06R21B	DIODE,ZENER MTZJ6.2B T-77	Q3002	0000M00390	PHOTO TRANSISTOR ST-304L
D8011	DDRL41480	DIODE,SILICON MCL4148	Q3003	0002700680	PHOTO COUPLER RPI-352C40N
D8012	DDRL41480	DIODE,SILICON MCL4148	Q3006	0002700680	PHOTO COUPLER RPI-352C40N
D8016	DDRL41480	DIODE,SILICON MCL4148	Q3008	0002700690	PHOTO COUPLER RPI-303
D8017	DDRL41480	DIODE,SILICON MCL4148	Q3009	0002700690	PHOTO COUPLER RPI-303
ICS			Q3010	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
IC101	I04F38225F	IC HA118225F	Q4001	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ IC501	I1KJ9A4310	IC KIA431	Q4002	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
△ IC502	000220001W	PHOTO COUPLER PS2561L1-1-V(W)	Q4003	TPAAC05002	COMPOUND TRANSISTOR KRA103SRTK
IC701	I03F7646SM	IC LA72646SM-MPB	Q4004	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
IC801	I0KFA9874A	IC TDA9874AH	Q8001	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
△ IC1701	I1KA98R09A	IC KIA78R09API	Q8002	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
IC2001	I53K08663R	IC LC78663NRW	Q8003	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
IC2002	ICUJ062569	IC M11L416256SA-35T	Q8007	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
IC2003	I07E00358F	IC BA10358F-E2	Q8008	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
IC2004	I0GF9X2510	IC PQ1X251M2ZP	Q8009	TPAAC05001	COMPOUND TRANSISTOR KRA101SRTK

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
TRANSISTORS			SWITCHES		
Q8010	TNAAD05001	COMPOUND TRANSISTOR KRC104SR TK	SW689	0504R01T38	SWITCH,TACT EVQ11L05R or
Q8012	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK		0504201T32	SWITCH,TACT SKQNAED010
Q8013	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK	SW690	0504R01T38	SWITCH,TACT EVQ11L05R or
Q8015	TPAAB05001	COMPOUND TRANSISTOR KRA102SR TK		0504201T32	SWITCH,TACT SKQNAED010
Q8016	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK	SW3001	0508S11001	SWITCH (LEAF) LSA-1144EAU
Q8018	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK	P.C.BOARD ASSEMBLIES		
COILS & TRANSFORMERS			PCB240	A2C412T240K	PCB ASS'Y VPB163A
L101	02167F101J	COIL 100 UH	PCB270	A2C412T270K	PCB ASS'Y VEBA07A
L102	031616003R	COIL,BIAS OSC 1616003	PCBB00	A2C412TB00K	PCB ASS'Y VMB268A
L103	02167F101J	COIL 100 UH	MISCELLANEOUS		
L104	02167F101J	COIL 100 UH	B501	024HT03563	CORE,BEADS W4BRH3.5X6X1.OX2
L107	0216A6820K	COIL 82 UH or	B502	024HT03564	CORE,BEADS W4BRH3.5X6X1
	021LA6820K	COIL 82 UH	B1701	024HT03564	CORE,BEADS W4BRH3.5X6X1
L108	02167F220J	COIL 22 UH	B2001	024HC31022	CORE,BEADS FCM2012H-102TO4
L109	0216A6120K	COIL 12 UH or	B2601	024HC31022	CORE,BEADS FCM2012H-102TO4
	021LA6120K	COIL 12 UH	B2602	024HC31022	CORE,BEADS FCM2012H-102TO4
L110	0216A6390K	COIL 39 UH or	B4001	024HC31022	CORE,BEADS FCM2012H-102TO4
	021LA6390K	COIL 39 UH	B4002	024HC31022	CORE,BEADS FCM2012H-102TO4
L111	02167F101J	COIL 100 UH	B4003	024HC31022	CORE,BEADS FCM2012H-102TO4
L112	02167F220J	COIL 22 UH	B4004	024HC31022	CORE,BEADS FCM2012H-102TO4
L113	021LA6R22M	COIL 0.22 UH	B4005	024HC31022	CORE,BEADS FCM2012H-102TO4
L114	021LA6R22M	COIL 0.22 UH	B4006	024HC31022	CORE,BEADS FCM2012H-102TO4
L115	021LA6R22M	COIL 0.22 UH	B4007	024HC31022	CORE,BEADS FCM2012H-102TO4
△ L501	029T000083	COIL,LINE FILTER 0R3A433F20	B4008	024HC31022	CORE,BEADS FCM2012H-102TO4
L502	02A6B2E0A1	CORE,FERRITE HF70T22*10*14	B4009	024HC31022	CORE,BEADS FCM2012H-102TO4
L504	02167E220K	COIL 22 UH	B8001	024HC31022	CORE,BEADS FCM2012H-102TO4
L701	02167F220J	COIL 22 UH	B8002	024HC31022	CORE,BEADS FCM2012H-102TO4
L702	02167F220J	COIL 22 UH	B8003	024HC31022	CORE,BEADS FCM2012H-102TO4
L703	02167F220J	COIL 22 UH	BT601	141L003010	BATTERY,MANGAN R6P(AR)XIC1
L801	02167F220J	COIL 22 UH	CD102	122H061504	CORD,JUMPER 2H061504
L1701	02167E220K	COIL 22 UH	△ CD501	120G459805	CORD,AC BUSH OG459805
L1702	02167F220J	COIL 22 UH	CD601	06CDVA5003	CABLE,21PIN S-1002B
L1703	02167E220K	COIL 22 UH	CD681	122H051202	CORD,JUMPER 2H051202
L3002	0216A62R2K	COIL 2.2 UH or	CP101	0697290620	CONNECTOR PCB SIDE TOC-C09X-A1
	021LA62R2K	COIL 2.2 UH	CP102	069J760029	CONNECTOR PCB SIDE IMSA-9604S-06Z14
L3004	0216A6101K	COIL 100 UH	CP103	067U002019	WIRE HOLDER B2013H02-1P
L4001	02167F2R2J	COIL 2.2 UH	CP502	069R2A0589	CONNECTOR PCB SIDE 52147-1010
L8003	02167F220J	COIL 22 UH	CP651	069J750019	CONNECTOR PCB SIDE IMSA-9604S-05Z13
L8004	02167F220J	COIL 22 UH	CP681	069J750019	CONNECTOR PCB SIDE IMSA-9604S-05Z13
L8005	0216S71R8J	COIL 1.8 UH	CD1701	WHL8010038	FLAT CABLE AWM2468 AWG26 10C BLACK 100MM
L8006	0216S71R8J	COIL 1.8 UH	CD2301	122H081301	CORD,JUMPER 2H081301
L8007	0216A6101K	COIL 100 UH or	CD2302	06CU251403	CORD,CONNECTOR CU251403
	021LA6101K	COIL 100 UH	CD2601	122H002303	CORD,JUMPER 2H002303
L8009	0216S71R8J	COIL 1.8 UH	CD6002	06CDL02002	RF CABLE PAL FTZ CDL02002
L8010	0216S71R8J	COIL 1.8 UH	CP1701	067U010049	WIRE HOLDER B2013H02-10P
L8012	02167F101J	COIL 100 UH	CP2302	069EV83010	CONNECTOR PCB SIDE 00_6232_008_006_800
L8013	02167F101J	COIL 100 UH	CP2302	069S250639	CONNECTOR PCB SIDE A2001WR2-5P
L8014	0216A6100K	COIL 10 UH or	CP2601	069GYOT079	CONNECTOR PCB SIDE 09-5000-024-001-006
	021LA6100K	COIL 10 UH	CP3001	06972C0010	CONNECTOR PCB SIDE TMC-J12P-B2
L8015	021LA61ROM	COIL 1 UH	CUSB01	800WFAA006	CUSHION A
L8016	0216A6100K	COIL 10 UH or	CUSB02	800WFAA008	CUSHION C
	021LA6100K	COIL 10 UH	△ DK4001	169G00023A	DECK CD DVD-KDR7776Q
L8017	0216A6100K	COIL 10 UH or	EL001	124120301A	EYE LET XRY20X30BD
	021LA6100K	COIL 10 UH	EL002	124116281A	EYE LET XRY16X28BD
L8018	0216A6100K	COIL 10 UH or	△ F501	080NT04004	FUSE 50T040H
	021LA6100K	COIL 10 UH	FH501	06710T0006	HOLDER,FUSE EYF-52BC
△ T501	0481260054	TRANSFORMER,SWITCHING 81260054	FH502	06710T0006	HOLDER,FUSE EYF-52BC
JACKS			OS651	077Q037001	REMOTE RECEIVER PIC-37043LO
J8001	060J411029	RCA JACK MSP-213V1-732_PBSN	TM601	076D0F080	TRANSMITTER ORV201N38090
J8004	063G000072	SOCKET,21PIN 035_0_8183_00	△ TU301	0162K01031	RF UNIT TCMB0601PD13D(H)
J8005	060J421023	RCA JACK MSP-281V3-A	V651	0040F94003	LED DISPLAY ELF-4M6SDRVGWB
J8006	060J401080	RCA JACK MSP-281V1-B	X101	100DT4R410	CRYSTAL AT-49
J8007	060J401079	RCA JACK MSP-281V4-B	X801	100CT02401	CRYSTAL HC-49/U
SWITCHES			X2001	100BT01613	CRYSTAL HC-49U/S
SW651	0504101T34	SWITCH,TACT EVQ21505R	X3001	100DA32R01	CRYSTAL DT-26
SW652	0504101T34	SWITCH,TACT EVQ21505R	X3002	100CT01207	CRYSTAL HC-49/U-S
SW653	0504101T34	SWITCH,TACT EVQ21505R	X3003	1001T4R010	CERAMIC OSCILLATOR EFOMC4004T4
SW654	0504101T34	SWITCH,TACT EVQ21505R	X4001	100BT02701	CRYSTAL HC-49U/S
SW655	0504101T34	SWITCH,TACT EVQ21505R			
SW685	0504R01T38	SWITCH,TACT EVQ11L05R or			
	0504201T32	SWITCH,TACT SKQNAED010			
SW686	0504R01T38	SWITCH,TACT EVQ11L05R or			
	0504201T32	SWITCH,TACT SKQNAED010			
SW687	0504R01T38	SWITCH,TACT EVQ11L05R or			
	0504201T32	SWITCH,TACT SKQNAED010			
SW688	0504R01T38	SWITCH,TACT EVQ11L05R or			
	0504201T32	SWITCH,TACT SKQNAED010			

ELECTRICAL REPLACEMENT PARTS LIST

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

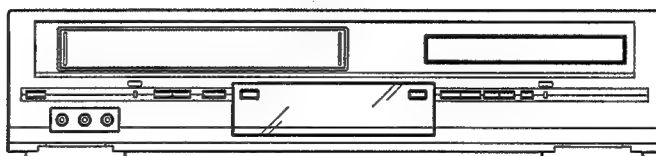
SPEC.NO.	M2C4-12T
O/R NO.	U312510

ORION

DVD/VR-2961 SI

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER



**SUPPLEMENT
CHASSIS CODE A**

This SUPPLEMENT must be used together SERVICE MANUAL for DVD/VR-2963 SI.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSIONS.

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	DVD/VR-2963 SI		DVD/VR-2961 SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
TM601	076D0FI080	TRANSMITTER ORV201N38090	076D0FI090	TRANSMITTER ORV201N38100

MECHANICAL REPLACEMENT PARTS LIST

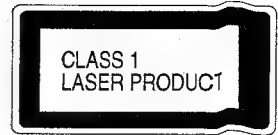
REF. NO.	DVD/VR-2963 SI		DVD/VR-2961 SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
101	A2C412T720K	CABINET FRONT ASS'Y	A2C411T720K	CABINET FRONT ASS'Y
101A	701WPJ1200	CABINET,FRONT	701WPJ1202	CABINET,FRONT
101C	711WPD0638	PLATE,DISPLAY	711WPD0640	PLATE,DISPLAY
101D	712WPJ0814	FLAP	712WPJ0816	FLAP
116	7222022630	SHEET,RATING	722202A696	SHEET,RATING
---	793UCD1190	GIFT BOX	793UCDB129	GIFT BOX
---	J2C41201A	INSTRUCTION BOOK	J2C41101A	INSTRUCTION BOOK
---	J2C41207A	QUICK SET-UP SHEET	J2C41107A	QUICK SET-UP SHEET
---	A2C412N975	INSTRUCTION BOOK KIT	A2C411T975	INSTRUCTION BOOK KIT

WHEN REPLACING EEPROM (MEMORY) IC

ADDRESS	TVBR1352Z Series A	CTSGT-8118T Series A
	DATA	DATA
BD	00	40
FD	---	00
FE	---	00
FF	---	00

SPEC NO.	M2C4-11T
ORDER NO.	U332520

ORION



DVD/VR-2961B SI

SERVICE MANUAL

DVD VIDEO PLAYER & VHS VIDEO CASSETTE RECORDER



This SUPPLEMENT must be used together with the SERVICE MANUAL for DVD/VR-2963 SI.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSION.



**SUPPLEMENT
CHASSIS CODE A**

WHEN REPLACING EEPROM (MEMORY) IC

ADDRESS	DVD/VR-2963 SI	DVD/VR-2961B SI
	DATA	DATA
BA	42	46
BD	00	40
C2	04	28

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	DVD/VR-2963 SI		DVD/VR-2961B SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
101A	701WPJ1200	CABINET,FRONT	701WPJ1202	CABINET,FRONT
101D	712WPJ0814	FLAP	712WPJ0816	FLAP
101C	711WPD0638	PLATE,DISPLAY	711WPD0640	PLATE,DISPLAY
116	7222022630	SHEET,RATING	7222022631	SHEET,RATING
---	793UCD1190	GIFT BOX	793UCD1191	GIFT BOX
---	J2C41201A	INSTRUCTION BOOK	J2C44001A	INSTRUCTION BOOK(F)
---			J2C44010A	INSTRUCTION BOOK(D)
---	J2C41207A	QUICK SET-UP SHEET	J2C44007A	QUICK SET-UP SHEET
---	J4E00129	INFORMATION SHEET		DELETE
---	A2C412N975	INSTRUCTION BOOK KIT	A2C441T975	INSTRUCTION BOOK KIT

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	DVD/VR-2963 SI		DVD/VR-2961B SI	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
CD6002	06CDL02002	RF CABLE PAL FTZ CDL02002	06CDL02003	CABLE,PAL CDL02003
TM601	076D0FI080	TRANSMITTER ORV201N38090	076D0FI090	TRANSMITTER ORV201N38100

SPEC.NO.	M2C4-40T
O/R NO.	U312504

Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(VCR/DVD PCB)

FROM/TO
SYS/CON/SERVO/TIMER/VPS

- V.H_SW →
- NA_REC-H →
- DUMMY_V.SYNC →
- SYNG ←
- A.MUTE-H →
- IIC_DATA ←
- IIC_CLK ←
- ENV_DET ←
- CTL ←
- CTL ←
- Y/C_VIDEO_OUT ←
- FSC ←
- S_DET_OUT ←
- MESECAM-H ←

FROM/TO 21PIN/TUNER

- SWD_VIDEO →
- FRONT_VIDEO_IN →
- TU_VIDEO_OUT →

FROM/TO REGULATOR

- P.CON+5V →
- AT+5.2V →
- GNB →

FROM/TO HI-FI/DEMODULATOR

- NORMAL_AUDIO_IN →
- NORMAL_AUDIO_OUT ←
- HF1 ←
- HF2 ←
- HF_COM ←

FROM/TO CYL

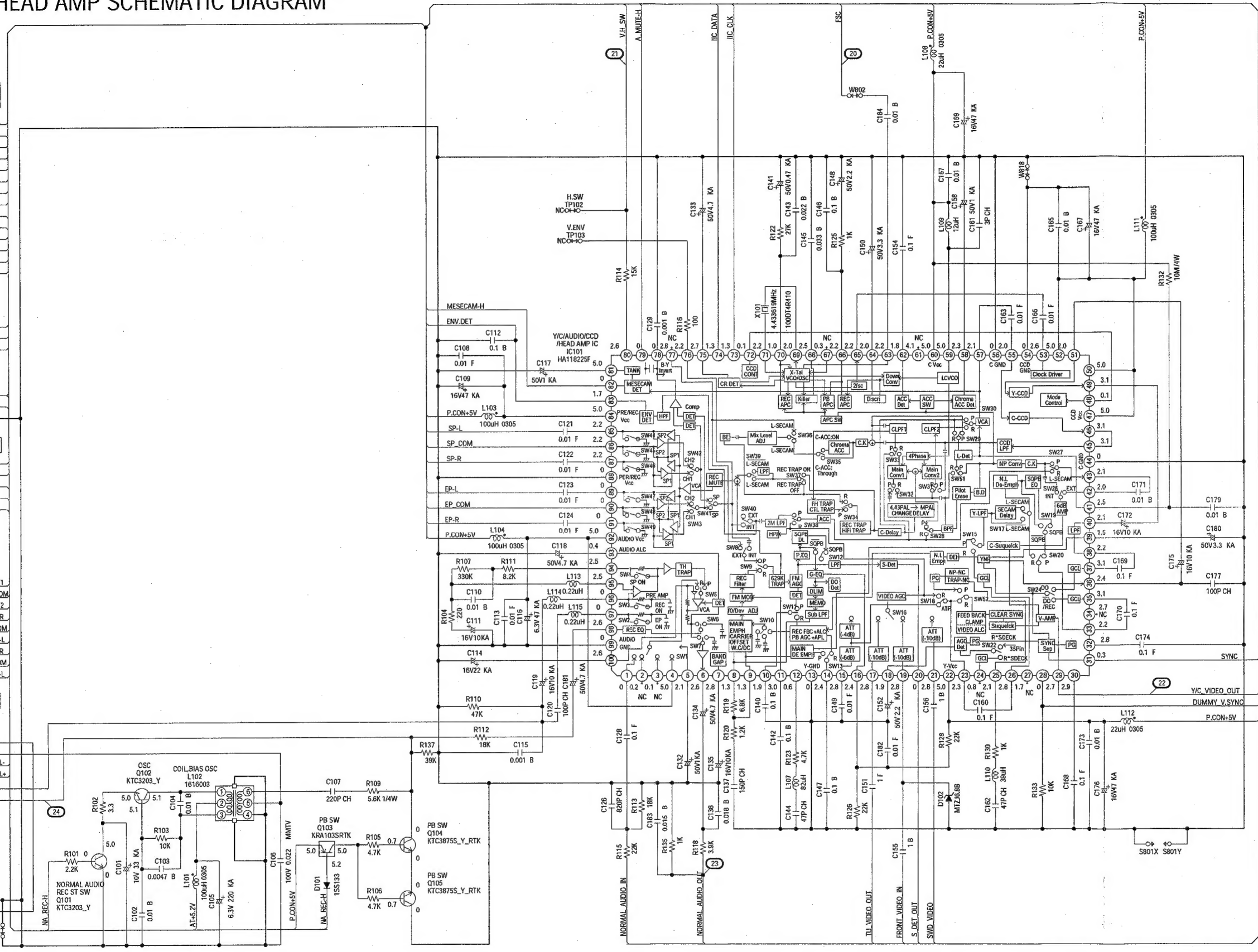
- CP101 TOC-009X-A1
- 9 HF1 (R) → HF1
 - 8 HF_COM → HF_COM
 - 7 HF2 (L) → HF2
 - 6 SP-CH1 (R) → SP-R
 - 5 SP-CH2 (L) → SP-L
 - 4 EP/LP-CH1 (R) → EP-R
 - 3 EP/LP-CH2 (L) → EP-L
 - 2 EP/LP_COM → EP_COM
 - 1 EP/LP-CH2 (L) → EP-L

FROM/TO HEAD AUDIO CONTROL

- CP102 IMSA-9604S-06Z14
- 1 AE HEAD(-) →
 - 2 AE HEAD(+) →
 - 3 CTL- → CTL-
 - 4 CTL+ → CTL+
 - 5 AUDIO PB →
 - 6 AUDIO REC →

TO FULL ERASE HEAD

- CP103 B2013H02-2P
- 1 FE HEAD(GND) →
 - 2 FE HEAD(HOT) →

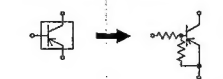


PCBB00
VMB288

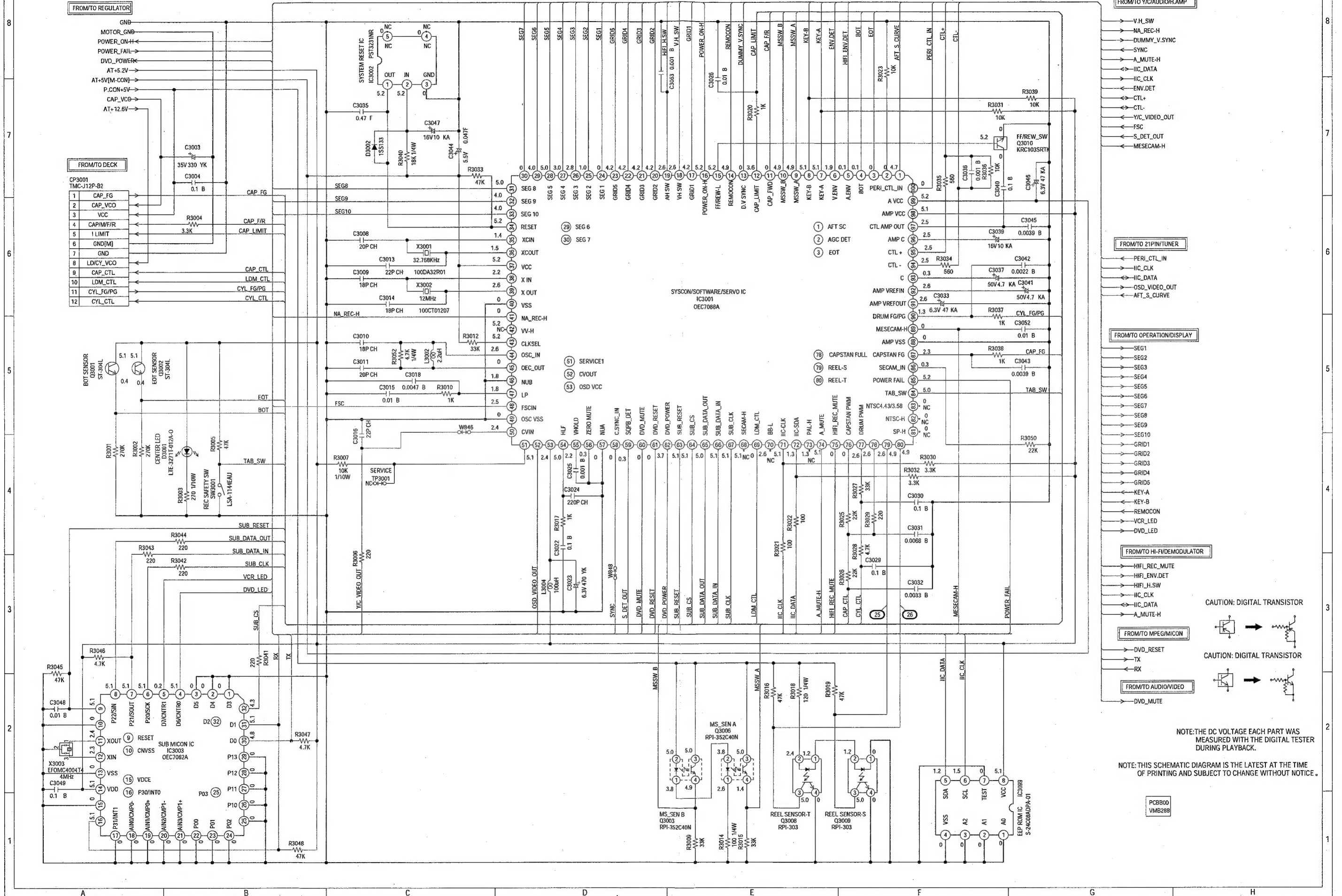
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

CAUTION: DIGITAL TRANSISTOR



SYSCON/SERVO/TIMER/VPS SCHEMATIC DIAGRAM (VCR/DVD PCB)

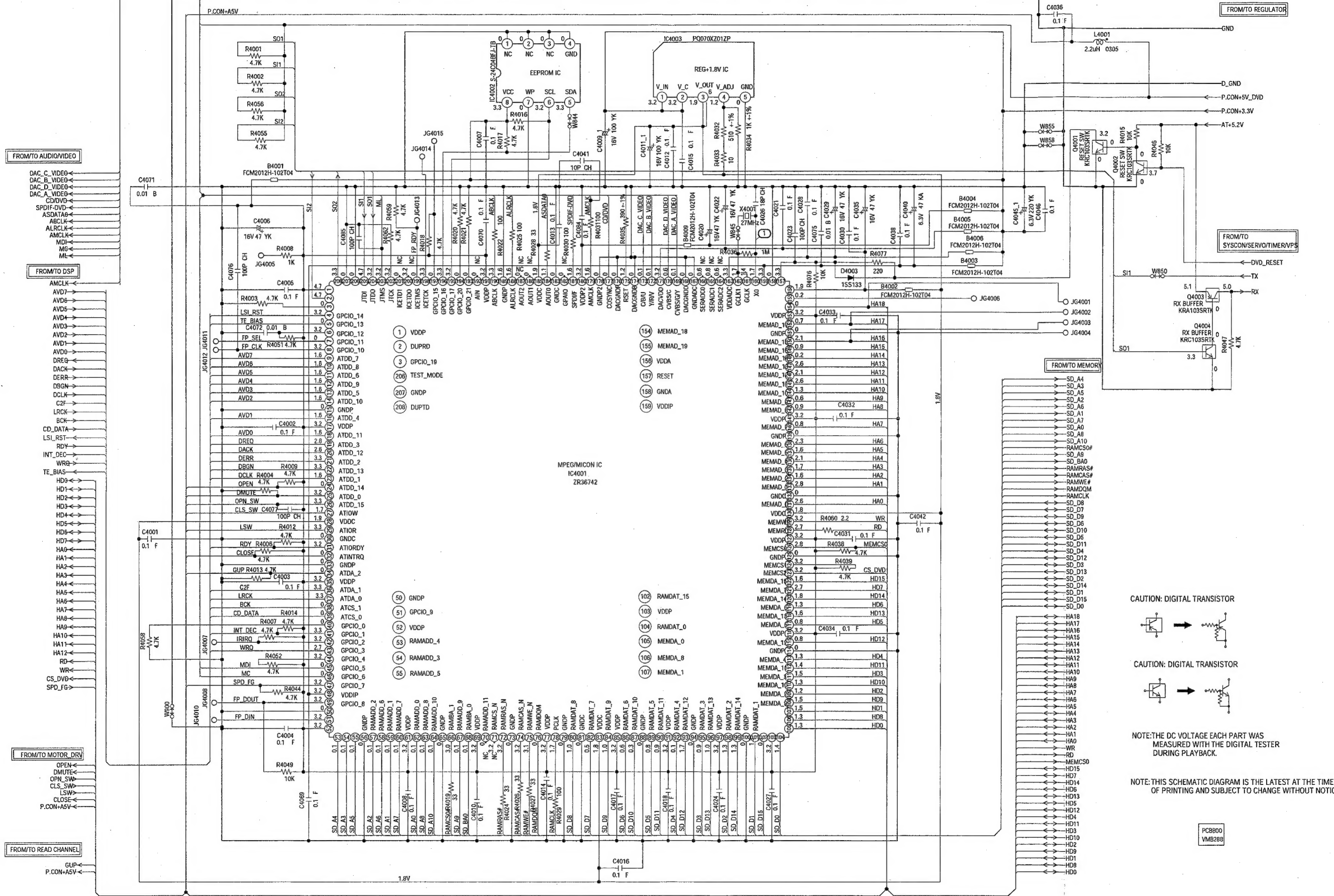


NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

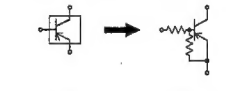
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

PCBB00
VMB288

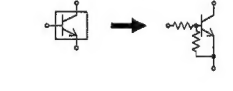
MPEG/MICON SCHEMATIC DIAGRAM (VCR/DVD PCB)



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.

PCB000 VMB288

DSP SCHEMATIC DIAGRAM (VCR/DVD PCB)

FROM/TO READ CHANNEL

FROM/TO MOTOR DRV

FROM/TO REGULATOR

FROM/TO MPEG/MICON

FROM/TO AUDIO/VIDEO

- VR
- LDON1
- LDON2
- XHTR
- ADRREC
- ADPH
- ADBI
- ADTE
- ADFE
- RFP
- RFN
- BHC
- WD
- TEC
- FOST
- FO
- BST
- TBAL
- FBAL
- SGG
- DVD_CD
- DEFECTO

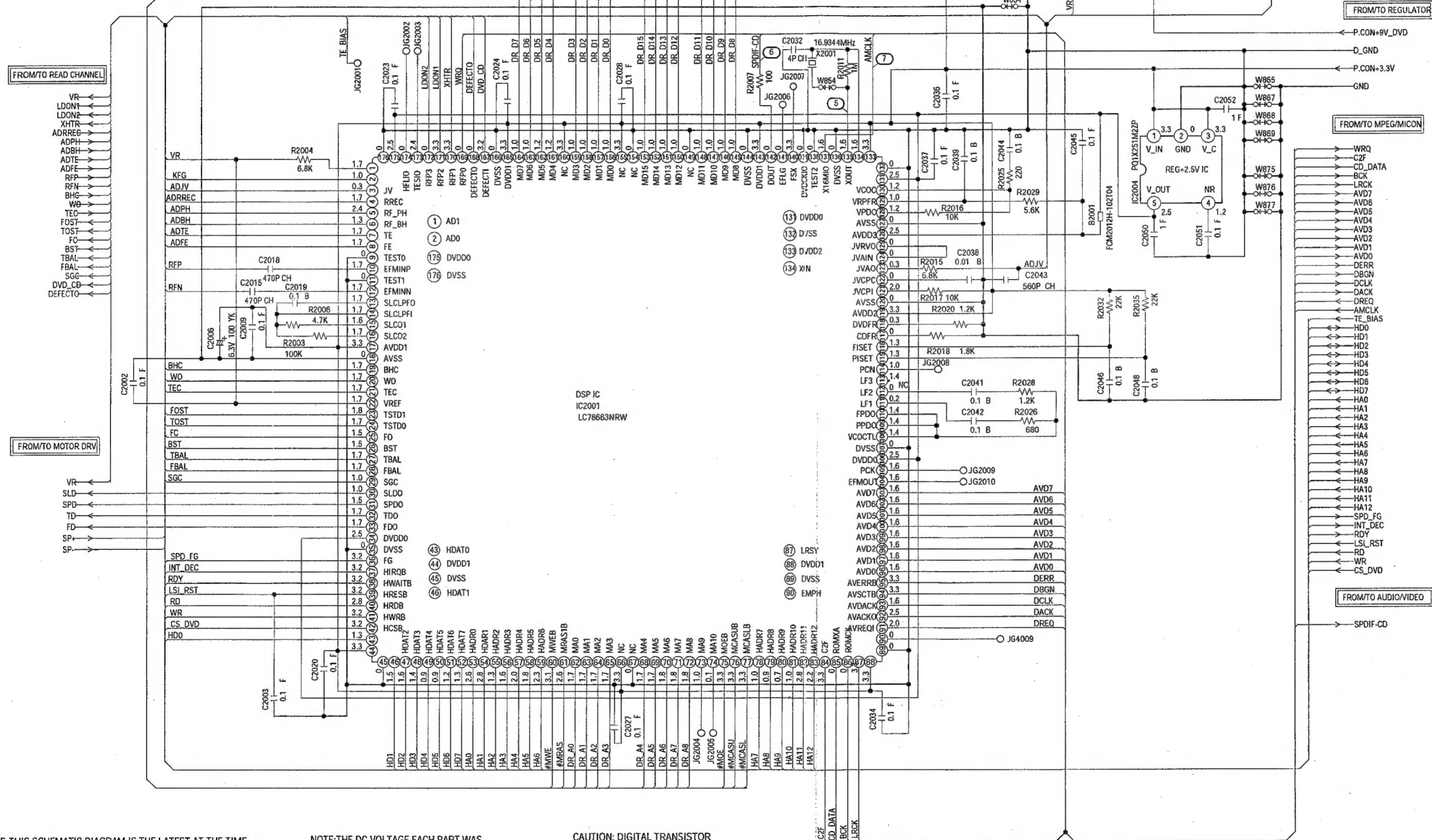
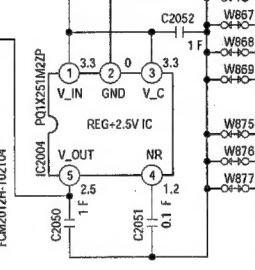
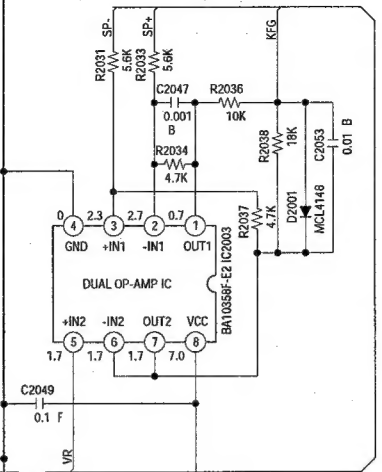
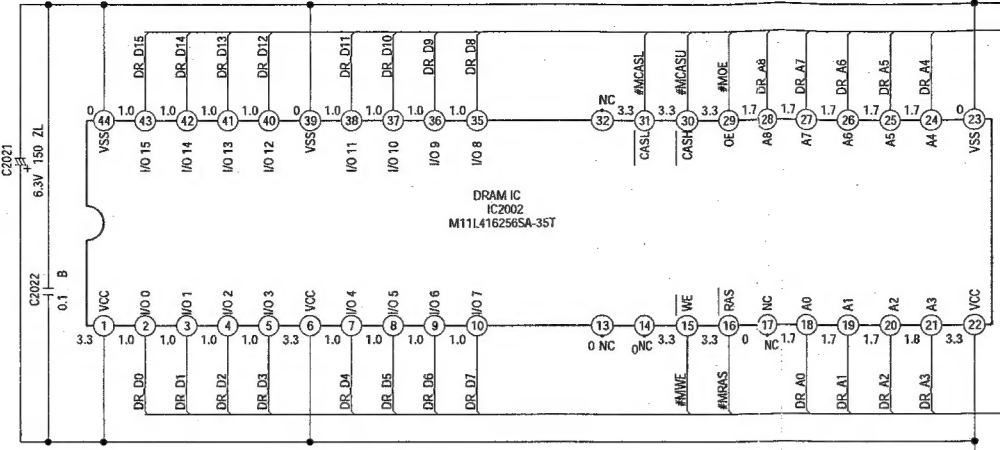
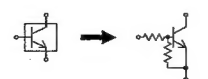
- VR
- SLD
- SPD
- TD
- FD
- SP+
- SP-

- SPD_FG
- INT_DEC
- RDY
- LSL_RST
- RD
- WR
- CS_DVD
- HDD

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



PCB800
VM8288