

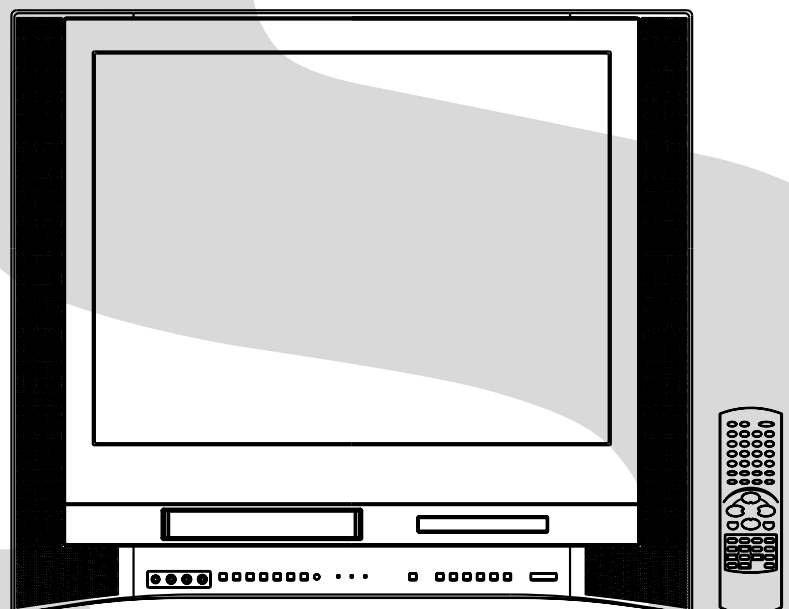
TOSHIBA

FILE NO. 140-200317

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER/ DVD VIDEO PLAYER

MW24FN3



CAUTION

THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

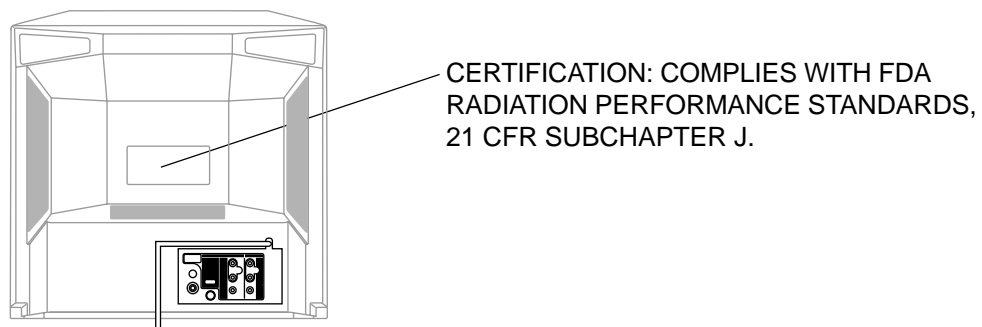
TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

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

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

Location of the required Marking

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



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. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

3. 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.

4. 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.

5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. 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.

(INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

[Note 1]

If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER

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

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

IMPORTANT SAFEGUARDS

1. READ INSTRUCTIONS

All the safety and operating instructions should be read before the unit is operated.

2. RETAIN INSTRUCTIONS

The safety and operating instructions should be retained for future reference.

3. HEED WARNINGS

All warnings on the unit and in the operating instructions should be adhered to.

4. FOLLOW INSTRUCTIONS

All operating and use instructions should be followed.

5. CLEANING

Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

6. ATTACHMENTS

Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.

7. WATER AND MOISTURE

Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.

8. ACCESSORIES

Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

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

9. VENTILATION

Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

10. POWER SOURCES

This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.

11. GROUNDING OR POLARIZATION

This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

12. POWER-CORD PROTECTION

Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

13. LIGHTNING

To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.

14. POWER LINES

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

15. OVERLOADING

Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.

16. OBJECT AND LIQUID ENTRY

Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

17. OUTDOOR ANTENNA GROUNDING

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

18. SERVICING

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

PORTABLE CART WARNING
(symbol provided by RETAC)



S3126A

19. DAMAGE REQUIRING SERVICE

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

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

20. REPLACEMENT PARTS

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.

Unauthorized substitutions may result in fire, electric shock or other hazards.

21. SAFETY CHECK

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

22. WALL OR CEILING MOUNTING

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

23. HEAT

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

24. DISC TRAY

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

25. CONNECTING

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

26. SOUND VOLUME

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

27. SOUND DISTORTION

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

28. HEADPHONES

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

29. LASER BEAM

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

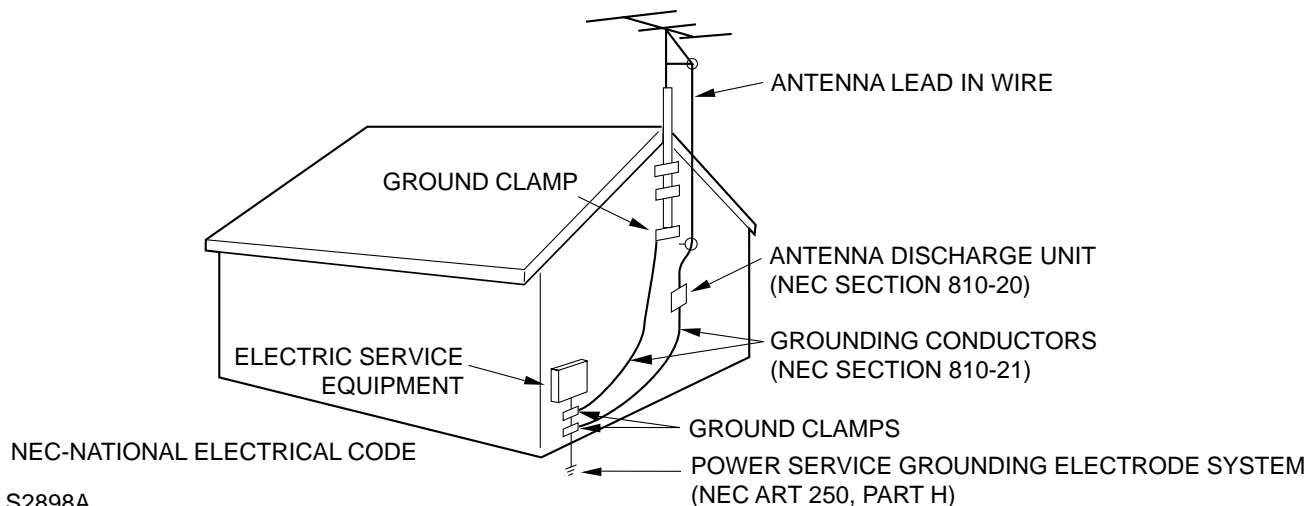
30. DISC

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

31. NOTE TO CATV SYSTEM INSTALLER

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

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the TV/DVD/VCR block from the main unit and the Fig. 1 below can be seen.
(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)
2. Remove the screw ① of the Deck Chassis 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.

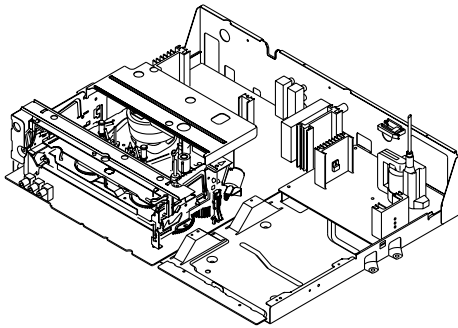


Fig. 1

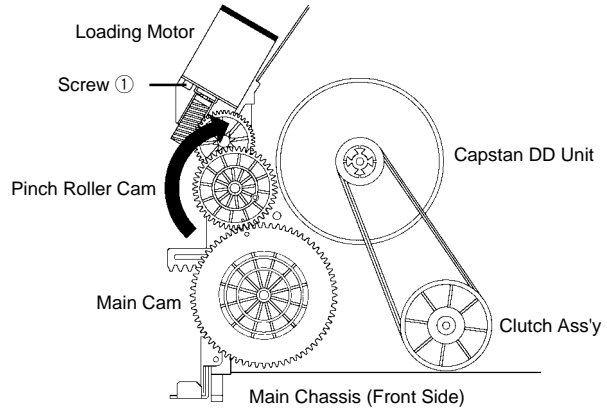


Fig. 2

DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet, TV//DVD/VCR Block and DVD TOP. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Slide the Rack Loading (White) toward the arrow direction by using a minus driver to release the lock.
(Refer to Fig. 1)
3. Draw the Tray.

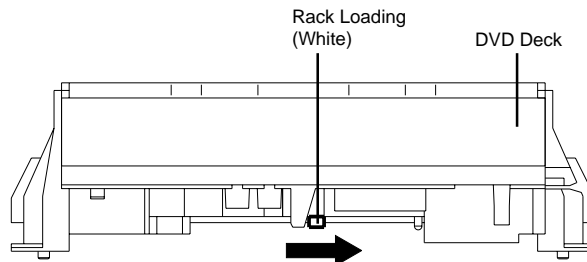


Fig. 1

PARENTAL CONTROL - RATING LEVEL

4 DIGIT PASSWORD CANCELLATION

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

1. Turn Unit ON and set the DVD mode.
2. Check that the "No disk" is displayed on the screen.
3. Press and hold the 'STOP(DVD)' button on the front panel.
4. Simultaneously press and hold the '7' key on the remote control unit.
5. Hold both keys for more than 2 second.
6. The On Screen Display message 'PASSWORD CLEAR' will appear.
7. The 4 digit password has now been cleared.

TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON and set the DVD mode.
2. Press and hold the '9' 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. Press the OPEN/CLOSE key on the front panel to check the Tray Lock setting.

NB: No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON and set the DVD mode.
2. Press and hold the 'REC/OTR' button on the front panel.
3. Simultaneously press and hold the '4' key on the remote control unit.
4. Hold both keys for more than 2 second.
5. The On Screen Display message 'INITIALIZE5 COMPLETE' will appear.
6. The Tray Lock has now been cleared.

NB: The above procedure will reset ALL of the player's settings to the default factory state.

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GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	24 inch / 600mmV	
			CRT Type	Flat	
			Deflection	101 degree	
			Magnetic Field BV/BH	+ 0.45 G / 0.18 G	
			Color System	NTSC	
			Speaker	2 Speaker	
				Position	Front
				Size	1.8 x 3.9 Inch
				Impedance	8 ohm
			Sound Output	MAX 10%(Typical)	1.5W + 1.5W 1.5W + 1.5W
G-2	VCR System	System		VHS Player / Recorder	
		Video System		NTSC	
		Hi-Fi STEREO		Yes	
		NTSC PB		-	
		Deck	DECK Loading System Motor	OVD-7 Front 3	
		Heads	Video Head	4 Heads	
			FM Audio Head	2 Heads	
			Audio /Control	Mono /Yes	
			Erase(Full Track Erase)	Yes	
		Tape Speed	Rec	PAL NTSC	- SP/SLP(EP)
			Play	PAL NTSC	- SP/SLP(EP)
			Fast Forward / Rewind Time (Approx.) at 25oC		FF:1'48"/REW:1'48" T-120
			Forward/Reverse	NTSC or PAL-M	SP/SLP(EP)=3x,5x / 9x,15x
			Picture Search		
			Frame Advance		Yes
			Slow Speed		1/10
G-3	DVD System	Color System		NTSC	
		Disc		DVD, CD-DA, CD-R/RW, Video CD	
		Disc Diameter		120 mm , 80 mm	
		Deck	Disc Loading System Motor	Front Loading 2 Motors	
		Pick up		1-Lens 2-Beams System	
		Playback time(Max)	DVD 1-Layer DVD 2-Layer CD Video CD	135min (4.7GB) 245min (8.5GB) 74min -	
		Search speed	Fwd	2-15 times / 4 step (DVD,VIDEO CD) 2-20 times / 4 step (CD) 2-45 times (DVD,VIDEO CD) 4-40 times (CD)	
			Rew	2-15 times / 4 step (DVD,VIDEO CD) 2-20 times / 4 step (CD) 2-45 times (DVD,VIDEO CD) 4-40 times (CD)	
				Actual	
				Actual	
				Actual	
			Slow speed	Fwd	1/8-1/2 times(DVD,VIDEO CD)
				Actual	-
				Actual	-
		Actual	-		
G-4	Tuning System	Broadcasting System		US System M	
		Tuner and Receive CH	System	1 Tuner	
			Destination	US(w/CATV)	
			Tuning System	F-Synth	
			Input Impedance	VHF/UHF 75 ohm	
			CH Coverage	2-69, 4A,A-5-A-1, A-1, J-W,W+1-W+84	
		Intermediate Frequency	Picture(FP) Sound(FS) FP-FS	45.75MHz 41.25MHz 4.5MHz	
		Preset CH		No	
		Stereo/Dual TV Sound		US-Stereo	
		Tuner Sound Muting		Yes	

GENERAL SPECIFICATIONS

G-5	Signal	Video Signal	Input Level	1 V p-p/75 ohm	
			Output Level	1 V p-p/75 ohm	
			S/N Ratio (Weighted) at DVD Mode	65dB	
			S/N Ratio (Weighted) at VCR Mode	50dB	
			Horizontal Resolution at DVD Mode	400 Lines	
			Horizontal Resolution at VCR(SP)Mode	220 Lines	
		RGB Signal	Output Level	-	
		Audio Signal	VCR DVD	Input Level	-8.0dBm/50k ohm
				Output Level(0dB=0.775Vrms)	-8.0dBm/1k ohm
				Output Level(-20dBFs 0dBFs=2.0Vrms)	-12.0dBm/1k ohm
				Digital Output Level	0.5 V p-p/75 ohm(DVD)
				S/N Ratio at DVD (Weighted)	90 dB
				S/N Ratio at VCR (SP)(CCIR Filter:ON)	38 dB
				Harmonic Distortion at DVD Mode	0.06% (1kHz)
				Harmonic Distortion at VCR(SP) Mode	1.5% (1kHz) Typical
				Frequency Response :	
				DVD Mode	at DVD 4Hz - 22kHz
VCR Mode	at Video CD 4Hz - 20kHz at CD 4Hz - 20kHz at SP 100Hz - 10kHz at LP - at SLP 100Hz - 4kHz				
Hi-Fi Audio Signal	Dynamic Range : More than	90 dB			
	Frequency Response :	20Hz - 20kHz			
	Wow And Flutter : Less than	0.01 %Wrms			
	Channel Separation : More than	60 dB			
	Harmonic Distortion : Less than	1.0 %			
G-6	Power	Power Source	AC DC	120V,60Hz -	
		Power Consumption	at AC at DC	135 W at 120 V 60 Hz -	
		Stand by (at AC) Per Year		4 W at 120 V 60 Hz -	
		Protector	Power Fuse Dew Sensor	Yes No	
		G-7	Regulation	Safety Radiation X-Radiation Laser	UL FCC DHHS DHHS
G-8	Temperature	Operation	+5oC ~ +40oC		
		Storage	-20oC ~ +60oC		
G-9	Operating Humidity		Less than 80% RH		

GENERAL SPECIFICATIONS

G-10	On Screen Display (TV/VCR)	Menu	Yes		
		Menu Type	Character		
		Timer Rec Set	Yes		
		Channel Setup	Yes		
			TV/CATV	Yes	
			Auto CH Memory	Yes	
			Add/ Delete	Yes	
			Guide CH Set	No	
			TV Setup	Yes	
			V-chip Set	Yes	
			On/Off Timer Set	Yes	
			Picture	Yes	
			Audio	Yes	
			Surround	Yes	
			Stable Sound	Yes	
			Sap On/Off	Yes	
			Auto Repeat On/Off	Yes	
			System Setup	Yes	
			Clock Set	Yes (Calendar 12h)	
			Language	Yes	
			Auto Clock On/Off	Yes	
			Standard Time	Yes	
			Daylight Saving Time	Yes	
			G-CODE(or SHOWVIEW or PLUSCODE)No. Entry	No	
			TV/VCR	Yes	
			DVD	Yes	
			Clock / Date	Yes	
			CH/AV(LINE)/DVD	Yes	
			Tape Counter(Linear Counter)	Yes	
			Tape Speed	Yes	
			Sleep Time	Yes	
			Stereo/Audio Output	Yes	
				Bilingual	
				SAP	No
			Control	Volume	Yes
			Level	Brightness/Contrast/Sharpness/Color	Yes
				Tint	Yes
				Bass/Treble/Balance	Yes
				Manual Tracking	Yes
				Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark)	Yes
				Auto Tracking/Manual Tracking	Yes
				Caption / Text	Yes
				Index	No
				Mute	Yes
				Hi-Fi	Yes
		Repeat	Yes		
		Zero Return	Yes		
		DEW	No		

GENERAL SPECIFICATIONS

G-11	On Screen Display (DVD)	Menu	Yes
		Menu Type	Character
		Language	Yes
		OSD Language	Yes
		Menu	Yes
		SubTitle	Yes
		Audio	Yes
		Picture	Yes
		TV Screen Size	Yes
		OSD Display On/Off	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
		Open	Yes
		Close	Yes
		No disc	Yes
		Reading	Yes
		Play	Yes
		Still/Pause	Yes
		Stop	Yes
		Prohibit Mark	Yes
		Step	Yes
		Skip(>>)	Yes
		Skip(<<)	Yes
		Random	Yes (CD)
		Repeat	Yes
		Slow+ ##	Yes
		Slow- ##	No
		Search+ ##	Yes
		Search- ##	Yes
		Jump	Yes
		Resume	Yes
		Title No.	Yes
		Chapter No.	Yes
		Track No.	Yes
		Time	Yes
		Sub Title No.	Yes
		Angle No.	Yes
		Vocal On/Off	No
		Audio No.	Yes
Audio Stereo L/R	Yes (Video CD)		
Zoom	Yes		
Marker No.	No		
Program Play Back	Yes (CD)		
Surround On/Off	No		
Screen Saver	No		
MP3	Folder Name	No	
	File Name	No	
	File No	No	
	Time	No	
	Track No	No	
G-12	OSD Language	TV/VCR DVD	English French Spanish English French Spanish
G-13	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	-
		Sleep Timer	Max Time
			120 Min
		Step	10 Min
		On/Off Timer	Program(On Timer / Off Timer)
			1 Program
		Auto Shut Off	No Signal
			15 Min
			No Operation
			- Min
		Timer Back-up (at Power Off Mode)	5 Sec

GENERAL SPECIFICATIONS

G-14	Remote Control Unit	Unit(for TOSHIBA)	RC-FG	
		Glow in Dark Remocon	Yes	
		Format	NEC	
		Custom Code	40-BFh,44-BBh	
		Power Source	Voltage(D.C) UM size x pcs	3V UM-4 x 2 pcs
		Total Keys		48 Key
		Keys	TV/VCR	Yes
			DVD	Yes
			Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			Channel-	Yes
			Channel+	Yes
			Volume-	Yes
			Volume+	Yes
			Display	Yes
			Sleep	Yes
			Audio Select	Yes
			Mute	Yes
			Channel Return / Skip-	Yes
			Closed Caption / Skip+	Yes
			T-REC	Yes
			Rec(T-Rec/OTR)	Yes
			Rec/OTR	Yes
			Slow+	Yes
			Play	Yes
			Stop	Yes
			Rew	Yes
			F. Fwd	Yes
			Pause / Still	Yes
			CM Skip / Jump	Yes
			SP/SLP / Return	Yes
			Counter Reset / Angle	Yes
			Zero Return / Subtitle	Yes
			Input Select / Zoom	Yes
			Menu /Set Up	Yes
			Program / Repeat A-B	Yes
			D.Tracking / Top Menu	Yes
			Tracking+ / DVD Menu	Yes
			Tracking- / Play Mode	Yes
	Cancel/Clear	Yes		
	3D Surround	No		
	Cursor Up	Yes		
	Cursor Down	Yes		
	Cursor Left	Yes		
	Cursor Right	Yes		
	Enter	Yes		
	VCR Plus+	No		
	One More Search	No		
	Remain/Counter	No		
	Eject	No		
	Index-	No		
	Index+	No		

GENERAL SPECIFICATIONS

G-15	Features	Auto Head Cleaning	Yes			
		Auto Tracking	Yes			
		HQ (VHS Standard High Quality)	Yes			
		Auto Power On, Auto Play, Auto Rewind, Auto Eject	Yes			
		VIDEO PLUS+(SHOWVIEW,G-CODE)	No			
		Auto Clock	Yes			
		Forward / Reverse Picture Search	Yes			
		Auto CH Memory	Yes			
		Surround	Yes			
		Stable Sound	Yes			
		Closed Caption	Yes			
		TV Auto Shut off Function	Yes			
		End Call	No			
		Index Search	No			
		SQPB	No			
		CATV	Yes			
		CM Skip(30sec x 6 Times)	Yes			
		Comb Filter (2Lines)	Yes			
		VM Circuit	No			
		TV Monitor	No			
		Program Extend	No			
		Choke Coil	No			
		Energy Star	Yes			
		Protect of FBT Leak Circuit	Yes			
		Zero Return	Yes			
		Power On Memory	No			
		Dirty Head	No			
		V-chip	USA V-chip CANADA V-chip	Yes No		
		Parental Lock (DVD Only)	Yes			
		Tray Lock	Yes			
		Auto Stop (Pause, and Resume Stop after 5min.)	Yes			
		Video CD Playback	Yes			
		MP3 Playback	No			
		Digital Out	Dolby Digital PCM DTS MPEG1, MPEG2	Yes Yes Yes Yes		
		Down Mix Out (Dolby Digital, MPEG1,MPEG2)	Yes			
		TruSurround	No			
		Screen Saver	No			
		G-16	Accessories	Owner's Manual	Language w/Guarantee Card	English Yes
				Remote Control Unit		Yes
				Battery		Yes
					UM size x pcs OEM Brand	UM-4 x 2 pcs No
				Rod Antenna		No
					Poles Terminal	- -
				Loop Antenna		No
					Terminal	-
U/V Mixer				No		
300 ohm to 75 ohm Antenna Adapter				Yes		
Antenna Change Plug				No		
DC Car Cord (Center+)				No		
AC Plug Adapter				No		
AC Cord				No		
AV Cord (2Pin-1Pin)				No		
Guarantee Card				No		
Registration Card				Yes		
ESP Card				No		
Warning Sheet				No		
Dew/AHC Caution Sheet				No		
Quick Set-up Sheet				No		
Circuit Diagram				No		
Service Facility List				No		
Important Safeguard				No		

GENERAL SPECIFICATIONS

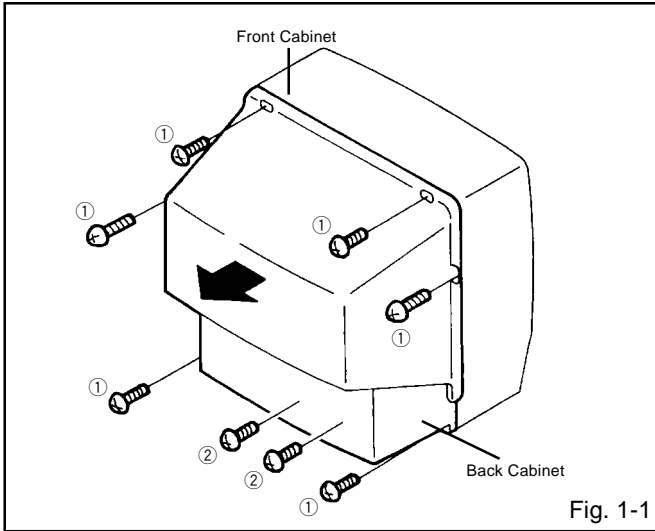
G-17	Interface	Switch	Front	Power (Tact)	Yes
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
				Play (VCR)	Yes
				Stop / Eject (VCR)	Yes
				F.FWD/Cue (VCR)	Yes
				Rew/Rev (VCR)	Yes
				REC/OTR (VCR)	Yes
				Play (DVD)	Yes
				Stop (DVD)	Yes
				Skip+ /Search+ (DVD)	Yes
				Skip- /Search- (DVD)	Yes
				Open/Close (DVD)	Yes
		Input Select	No		
		Main Power SW	No		
		Indicator	Power	Yes(Red)	
			REC/OTR	Yes(Red)	
			T-REC	Yes(Red)	
TV/VCR	No				
DVD	No				
Terminals	Front	Video Input	RCA x 1		
		Audio Input	RCA x 2(Stereo)		
		Other Terminal	HeadPhone (Stereo & Mono, 3.5mm)		
	Rear	Video Input	RCA x 1		
		Audio Input	RCA x 2(Stereo)		
		Video Output	RCA x1		
		Audio Output	RCA x 2(Stereo)		
		Digital Audio Output	Coaxial (DVD Only)		
		VHF/UHF Antenna Input	F Type		
		AC Inlet	No		
	G-18	Set Size		Approx. W x D x H (mm)	655 x 473.5 x 580
	G-19	Weight		Net (Approx.)	36.0kg (79.4lbs)
				Gross (Approx.)	40.0kg (88.2lbs)
G-20	Carton	Master Carton		No	
			Content	-	
			Material	-	
			Dimensions W x D x H(mm)	-	
			Description of Origin	-	
		Gift Box		Yes	
			Material	Double/White	
			Dimensions W x D x H(mm)	766 x 579.5 x 711	
			Design	As per Buyer's	
			Description of Origin	Yes	
		Drop Test	Natural Dropping At	1 Corner / 3 Edges / 6 Surfaces	
			Height (cm)	31	
			Container Stuffing(40' container)	180 Sets	
G-21	Material	Cabinet	Front	PS 94V0 DECABROM	
			Rear	PS 94V0 DECABROM	
			Jack Panel	-	
		PCB	Non-Halogen Demand	No	
			Eyelet Demand	Yes	

DISASSEMBLY INSTRUCTIONS

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

1-1: BACK CABINET (Refer to Fig. 1-1)

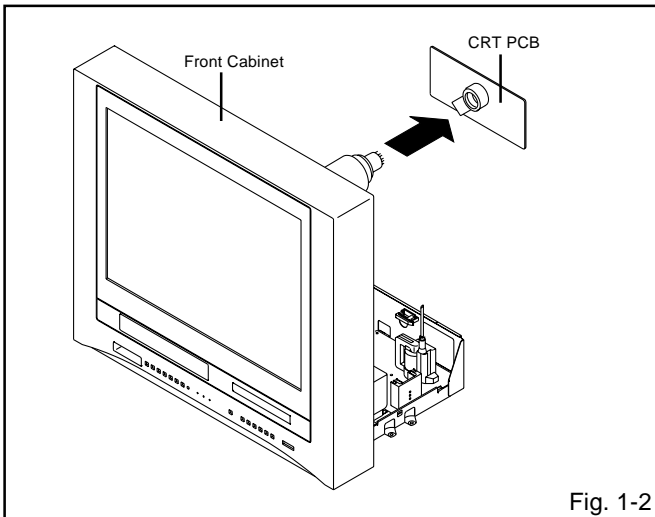
1. Remove the 6 screws ①.
2. Remove the 2 screws ②.
3. Remove the Back Cabinet in the direction of arrow.



1-2: CRT PCB (Refer to Fig. 1-2)

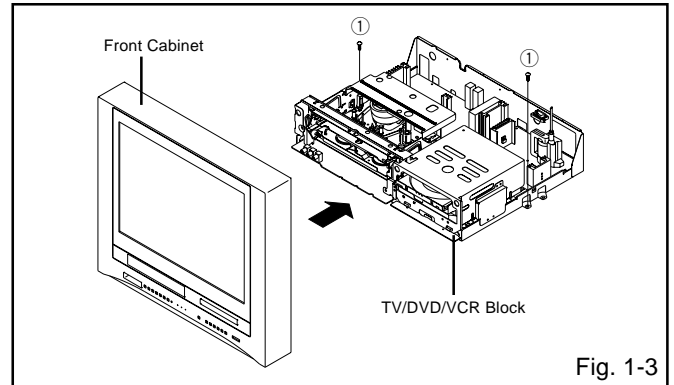
CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap.
(Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
(CP603B, CP803 and CP805).
3. Remove the CRT PCB in the direction of arrow.



1-3: TV/DVD/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
(CP303, CP404 and CP1704).
3. Remove the TV/DVD/VCR Block in the direction of arrow.

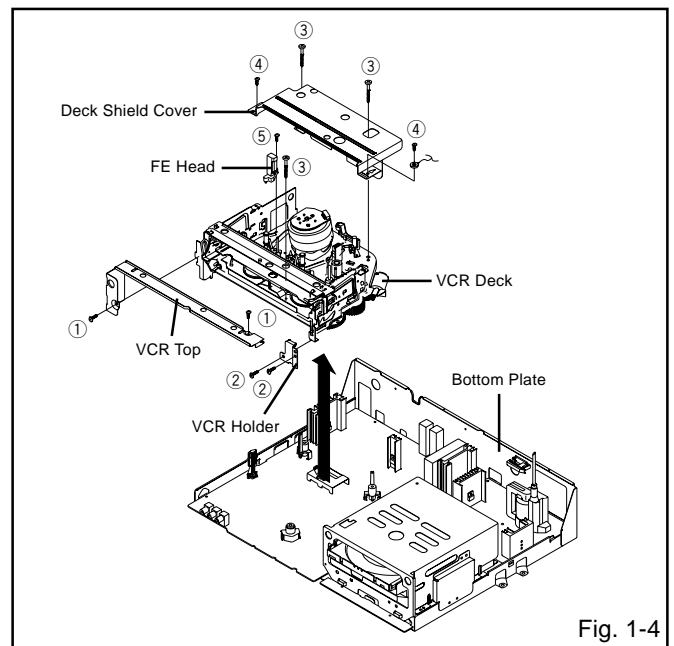


1-4: VCR DECK (Refer to Fig. 1-4)

NOTE

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

1. Remove the 2 screws ①.
2. Remove the VCR Top.
3. Remove the 2 screws ②.
4. Remove the VCR Holder.
5. Move the Cassette Holder Ass'y to the back side.
6. Remove the 3 screws ③.
7. Remove the 2 screws ④.
8. Remove the Deck Shield Cover.
9. Remove the screw ⑤.
10. Remove the FE Head.
11. Disconnect the following connectors:
(CP101, CP4501 and CP4502).
12. Remove the VCR Deck in the direction of arrow.



DISASSEMBLY INSTRUCTIONS

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

1. Remove the 6 screws ①.
2. Remove the screw ②.
3. Remove the AV Jack Shield.
4. Disconnect the following connectors:
(CP001, CP604, CP602B, CP2201, CP8001 and CP8002).
5. Remove the VCR PCB in the direction of arrow.

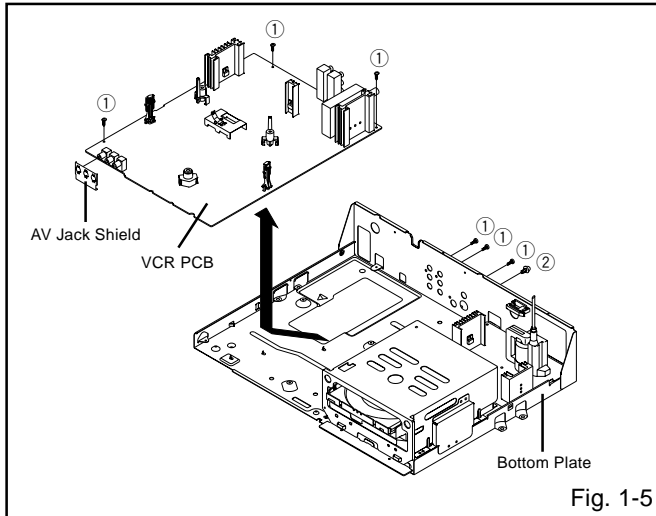


Fig. 1-5

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

1. Remove the 2 screws ①.
2. Remove the DVD Shield.
3. Remove the 4 screws ②.
4. Remove the DVD Block in the direction of arrow (A).
5. Remove the 2 screws ③.
6. Remove the Operation PCB in the direction of arrow (B).

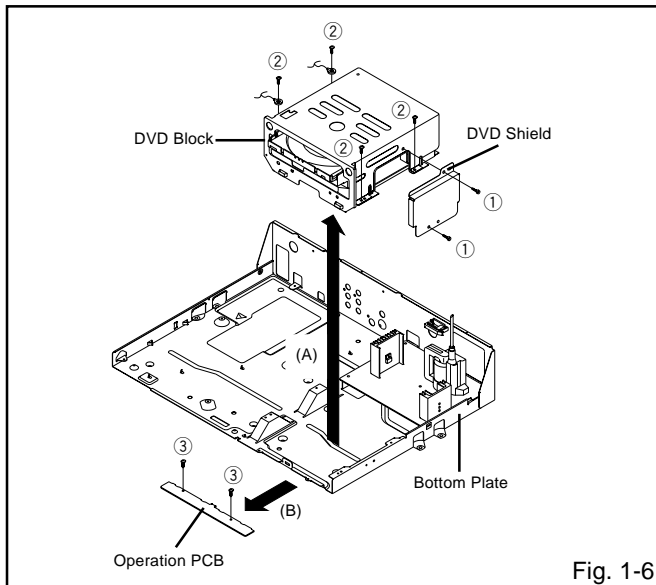


Fig. 1-6

1-7: DVD PCB/DVD DECK (Refer to Fig. 1-7)

1. Make the short circuit on the position as shown Fig. 1-7 using a soldering. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Remove the 3 screws ①.
3. Remove the DVD Top in the direction of arrow (A).
4. Disconnect the following connectors:
(CP2001, CP2301 and CP2302).
5. Remove the 4 screws ②.
6. Remove the DVD Deck in the direction of arrow (B).
7. Remove the 4 screws ③.
8. Remove the DVD PCB in the direction of arrow (C).

NOTE

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

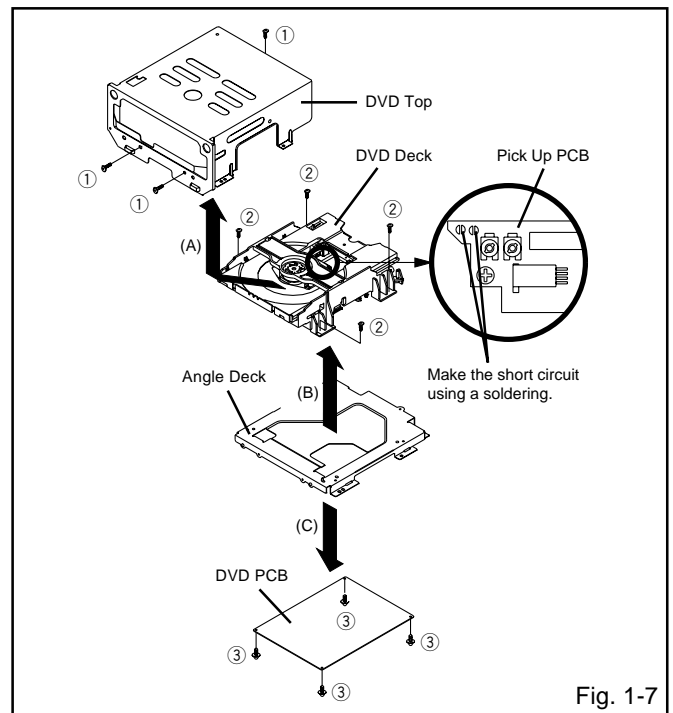


Fig. 1-7

1-8: DEFLECTION PCB (Refer to Fig. 1-8)

1. Remove the 2 screws ①.
2. Remove the 3 screws ②.
3. Remove the Deflection PCB in the direction of arrow.

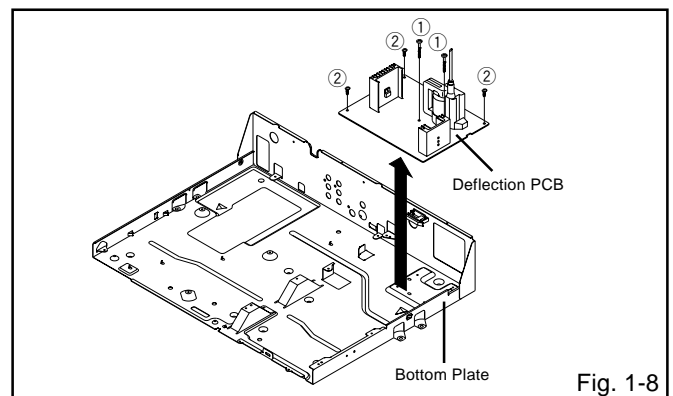


Fig. 1-8

DISASSEMBLY INSTRUCTIONS

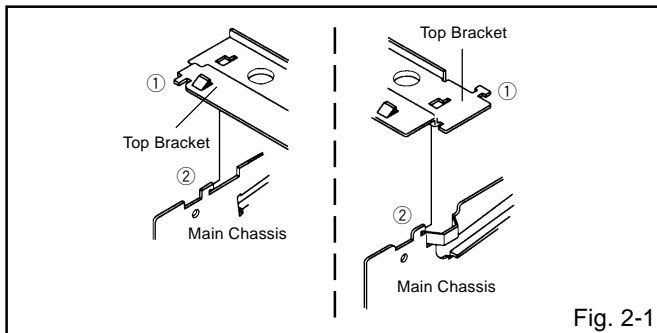
2. REMOVAL OF VCR DECK PARTS

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.

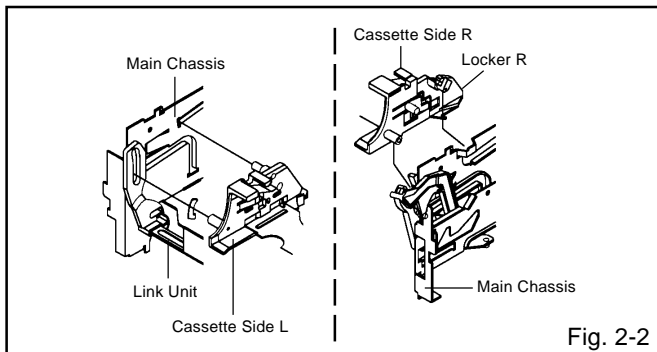
NOTE

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



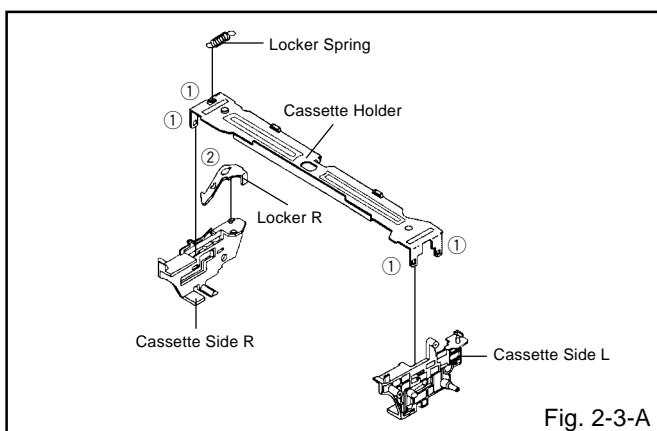
2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

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.



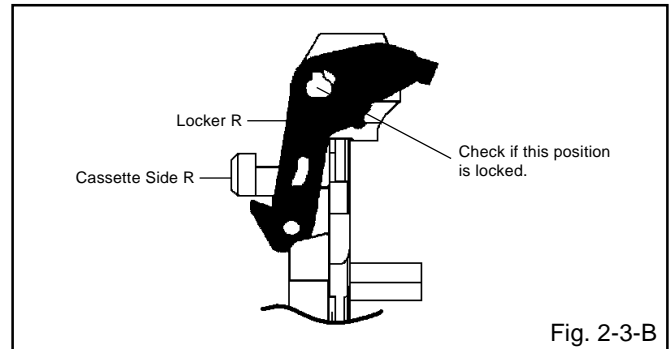
2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

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.



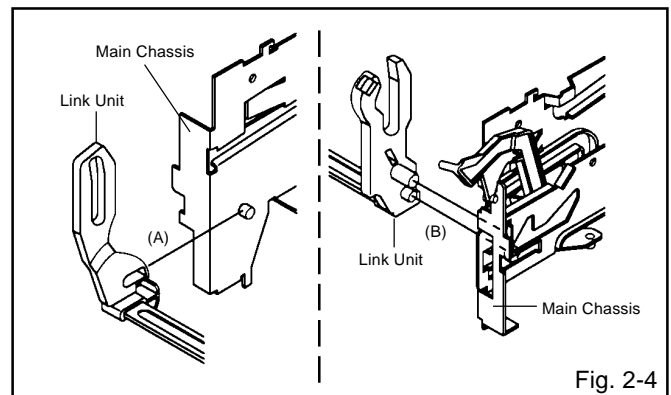
NOTE

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



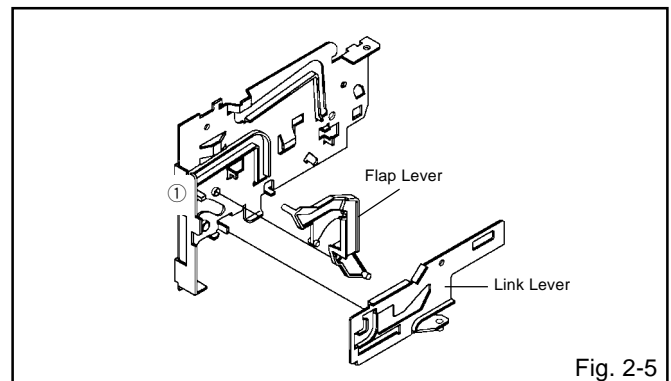
2-4: LINK UNIT (Refer to Fig. 2-4)

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.



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.



DISASSEMBLY INSTRUCTIONS

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

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

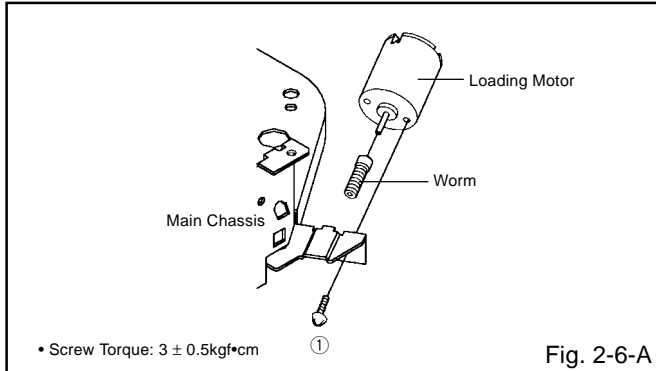


Fig. 2-6-A

NOTE

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

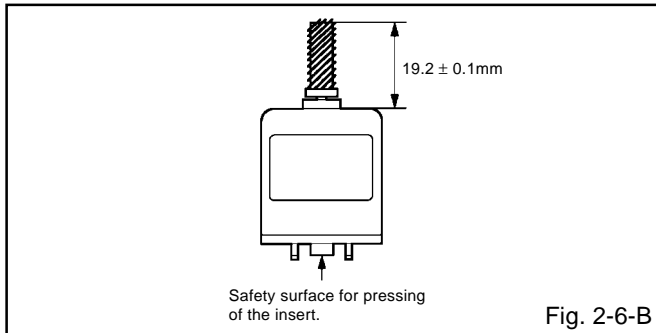


Fig. 2-6-B

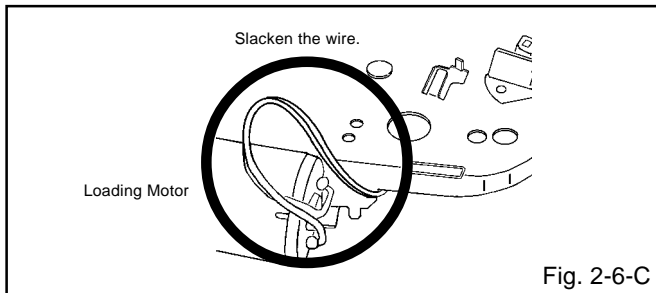


Fig. 2-6-C

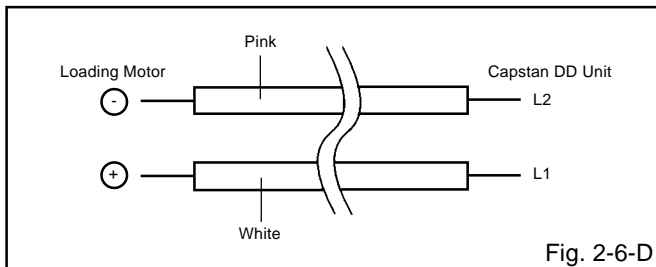


Fig. 2-6-D

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

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

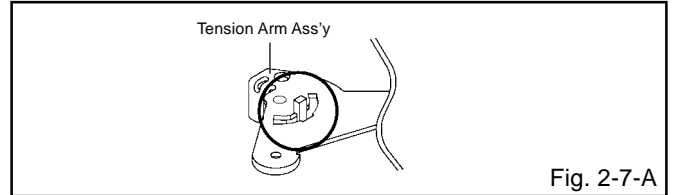


Fig. 2-7-A

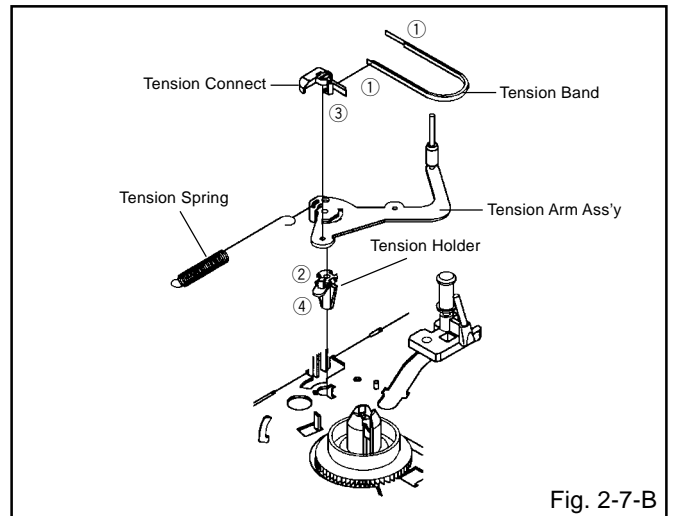


Fig. 2-7-B

NOTE

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

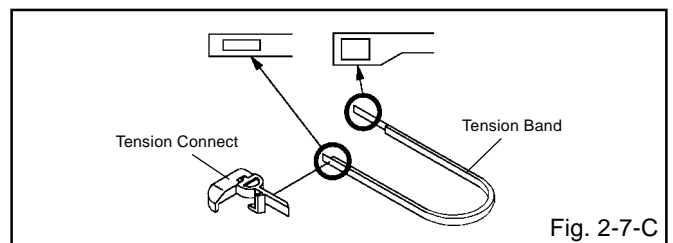
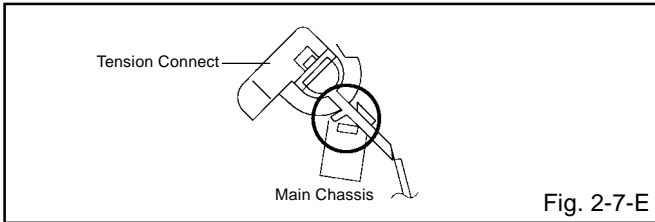
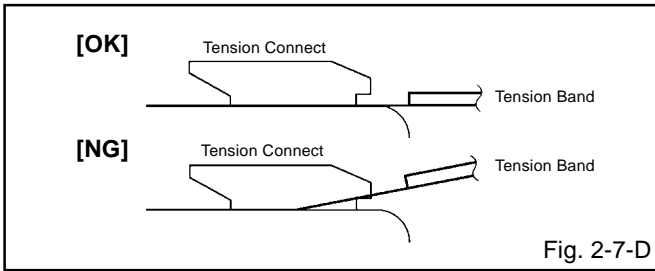


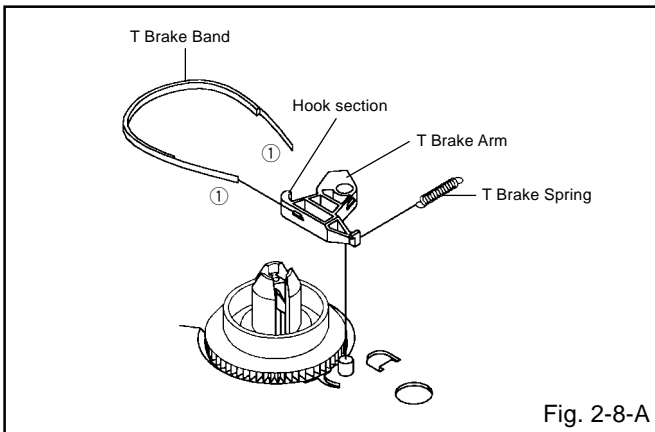
Fig. 2-7-C

DISASSEMBLY INSTRUCTIONS



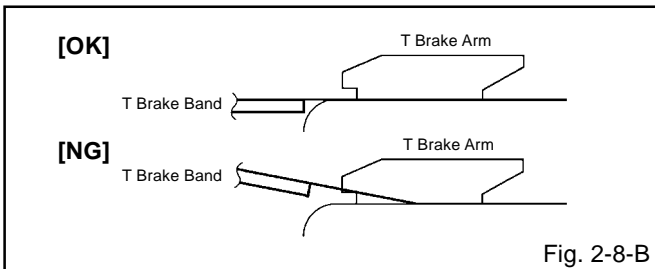
2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)

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.



NOTE

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

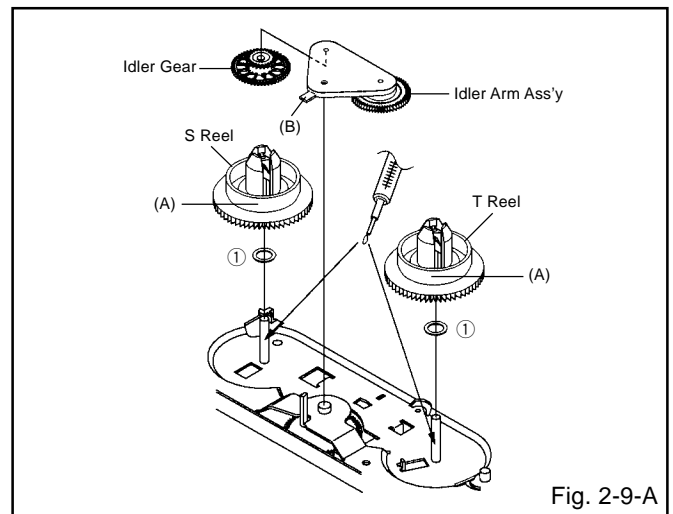


2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)

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.

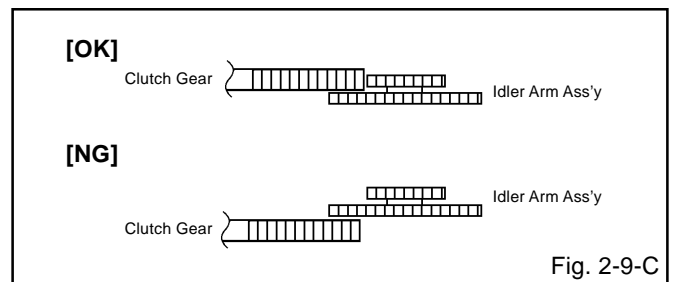
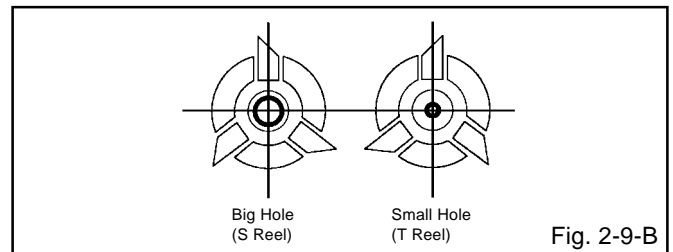
NOTE

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. (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)



NOTE

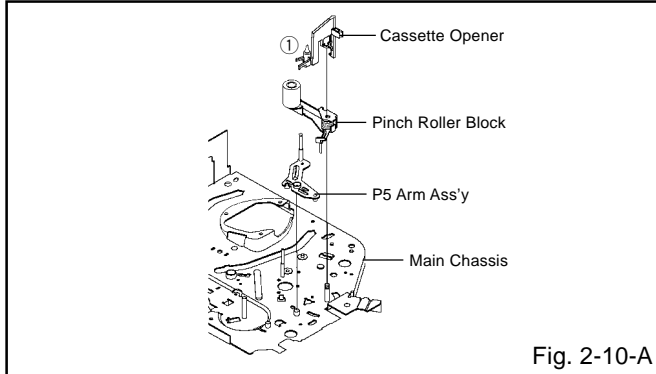
1. In case of the S Reel and T Reel installation, check if the correct parts are installed. (Refer to Fig. 2-9-B)
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C. And also set it so that the section "B" of Fig. 2-9-A is placed under the Main Chassis tab.



DISASSEMBLY INSTRUCTIONS

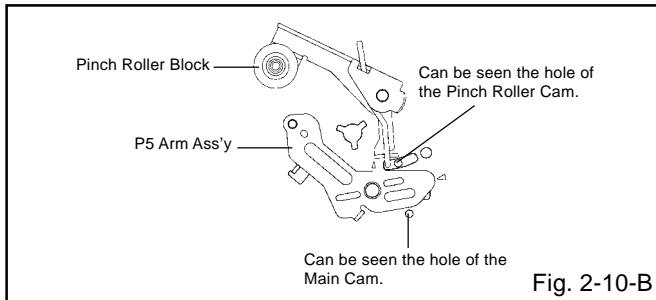
2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASS'Y (Refer to Fig. 2-10-A)

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.

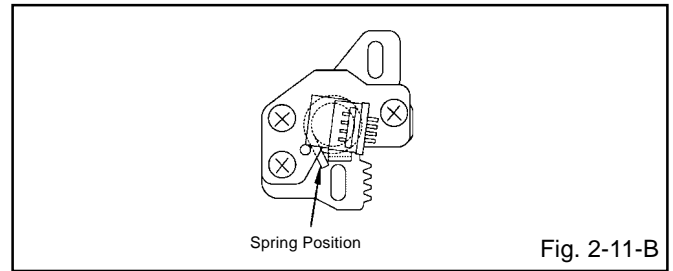
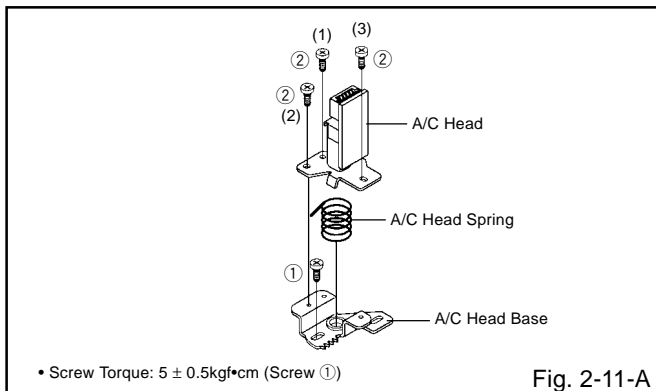


2-11: A/C HEAD (Refer to Fig. 2-11-A)

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.

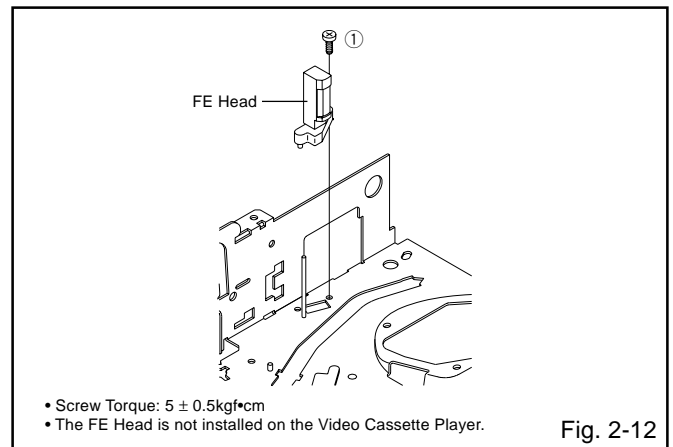
NOTE

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.

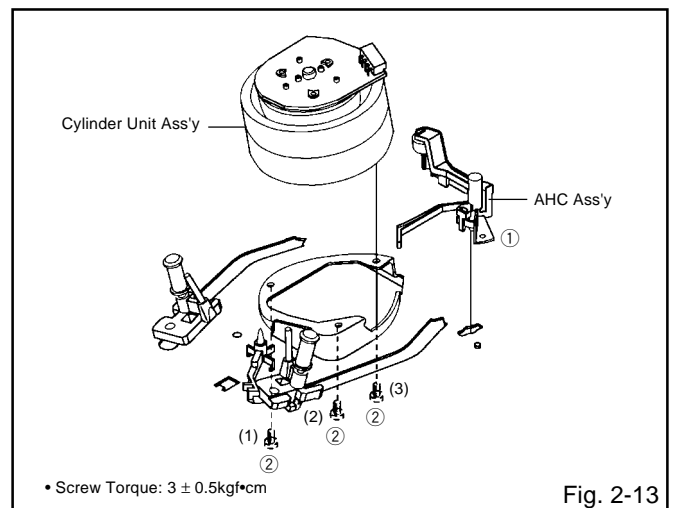


2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

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

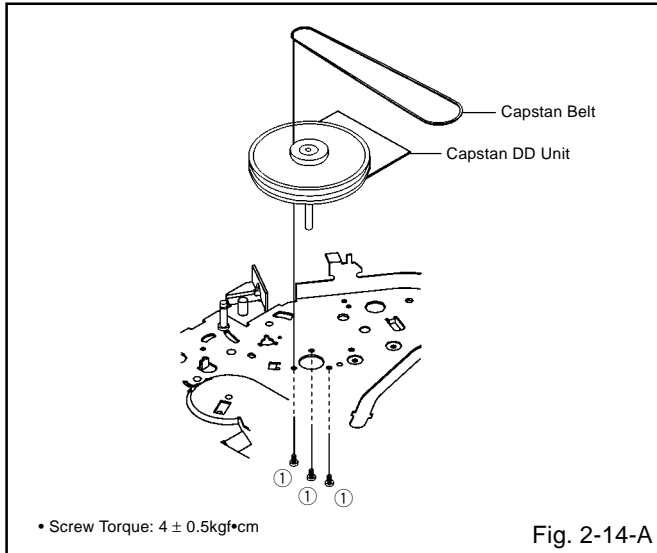
1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



DISASSEMBLY INSTRUCTIONS

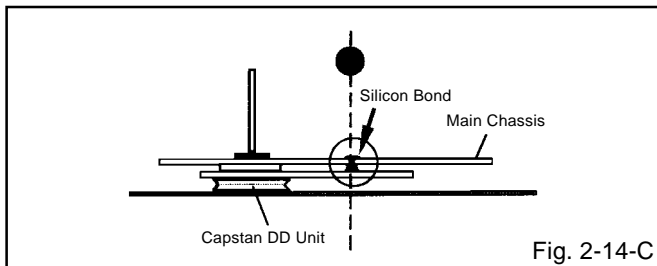
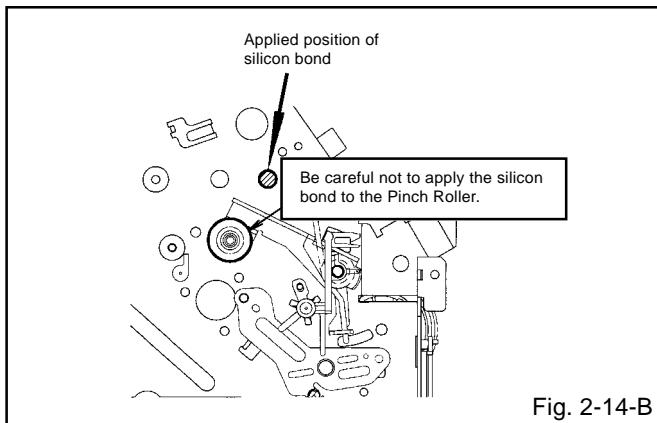
2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14-A)

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



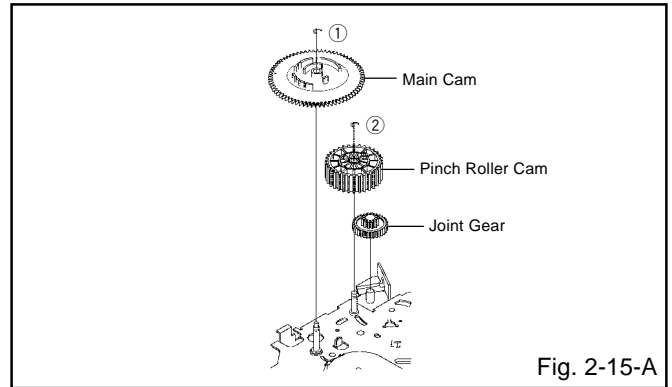
NOTE

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)



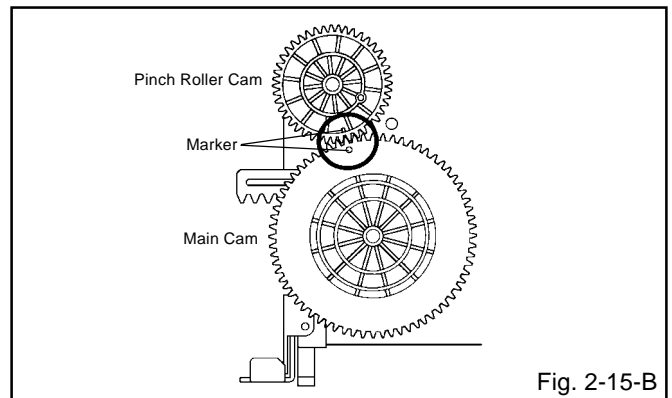
2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)

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.



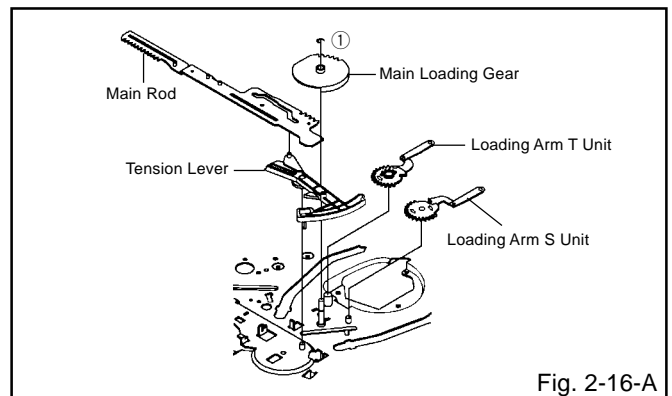
NOTE

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) And also can be seen the Main Chassis hole through the Main Cam maker hole.



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

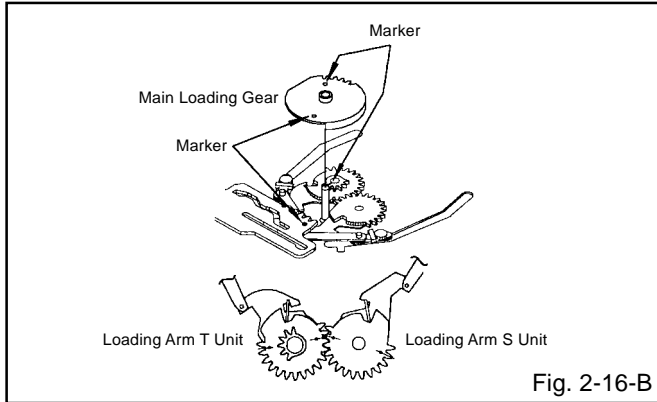
1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.



DISASSEMBLY INSTRUCTIONS

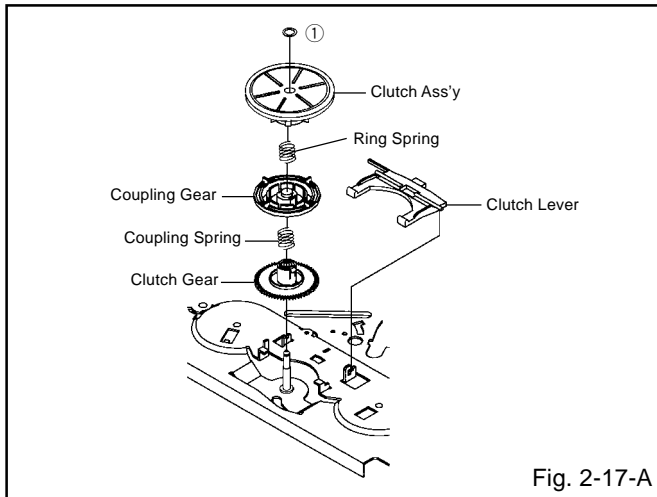
NOTE

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)



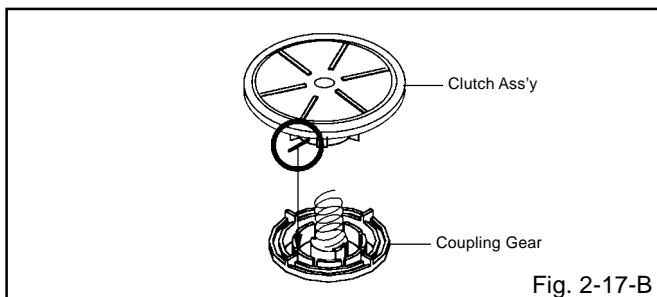
2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/CLUTCH GEAR (Refer to Fig. 2-17-A)

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.



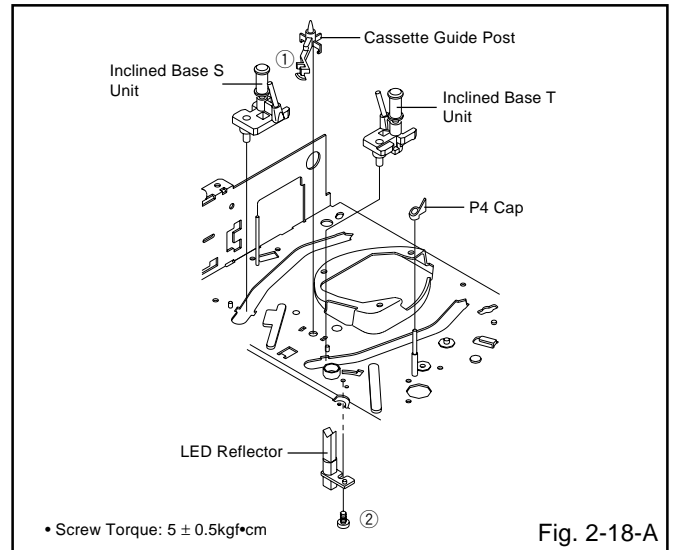
NOTE

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)



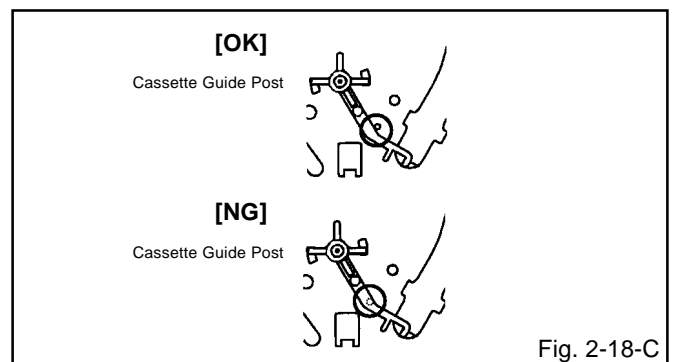
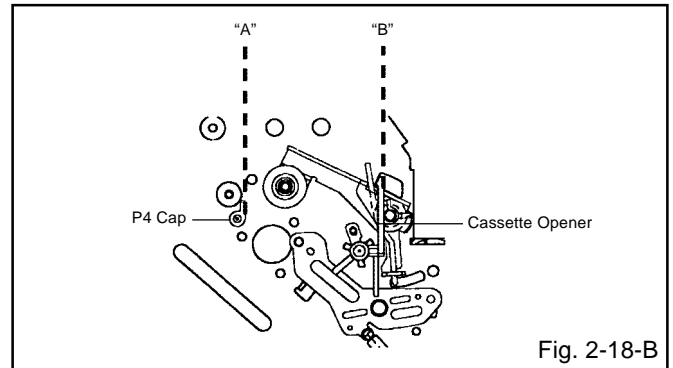
2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)

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 OF DVD DECK PARTS

NOTE

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

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

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

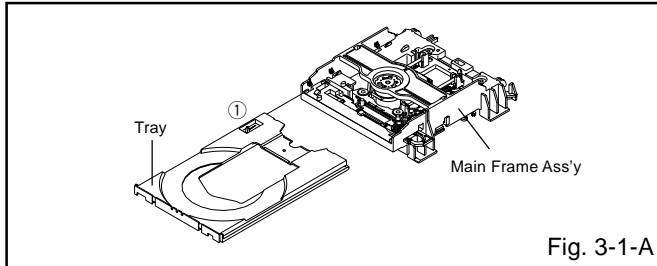


Fig. 3-1-A

NOTE

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

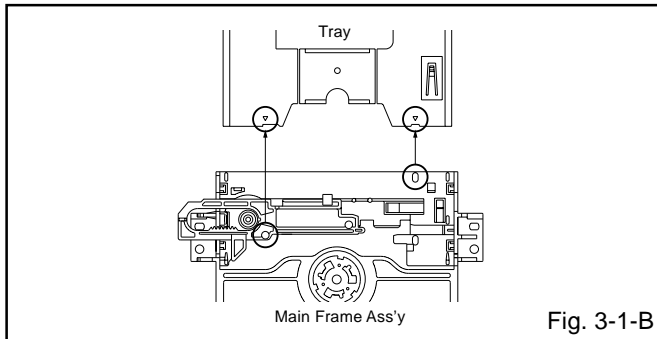


Fig. 3-1-B

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

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

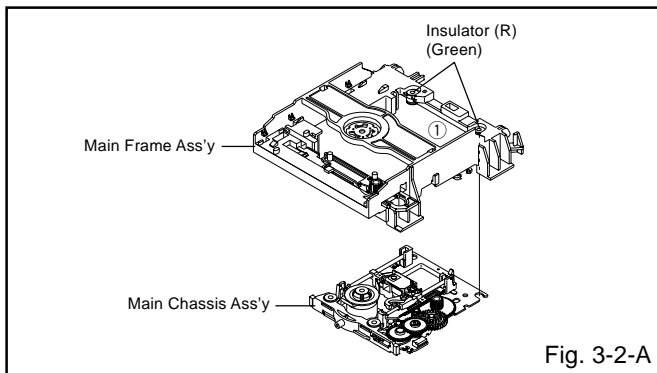


Fig. 3-2-A

NOTE

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

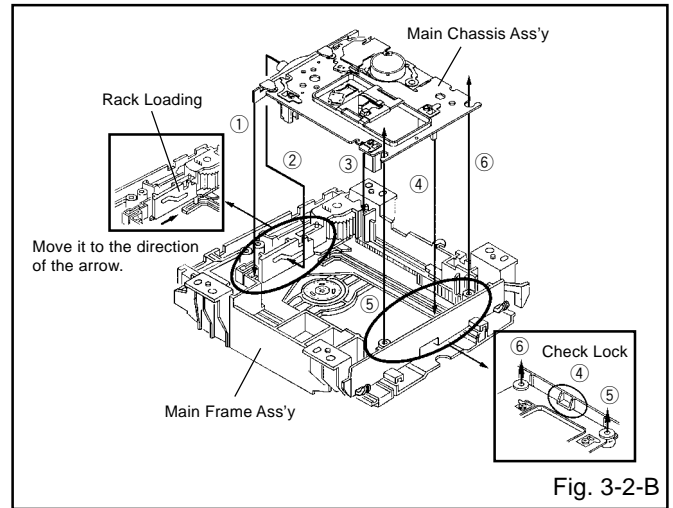


Fig. 3-2-B

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

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

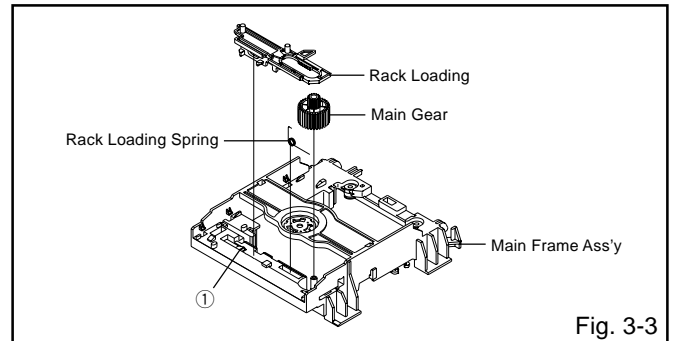


Fig. 3-3

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

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

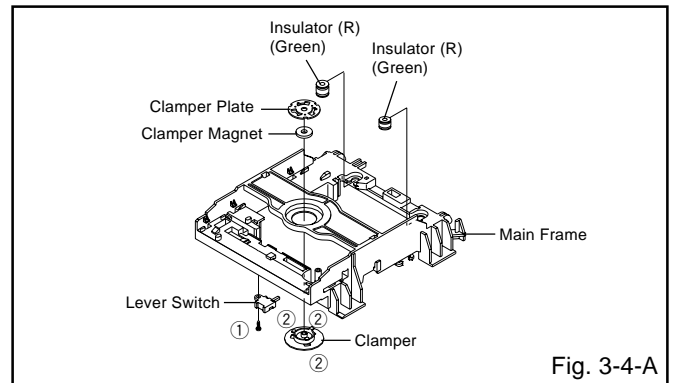
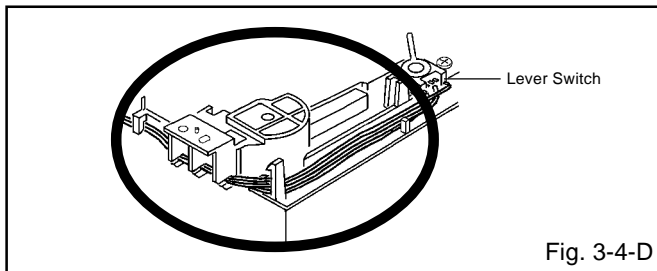
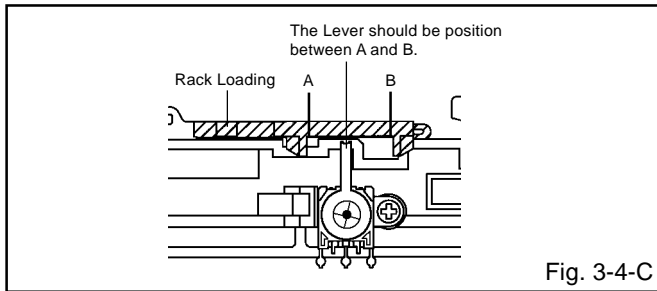
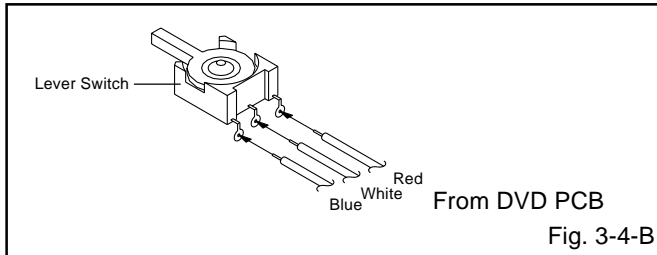


Fig. 3-4-A

DISASSEMBLY INSTRUCTIONS

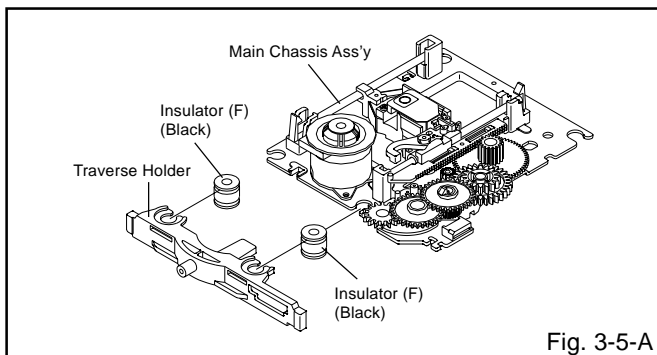
NOTE

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



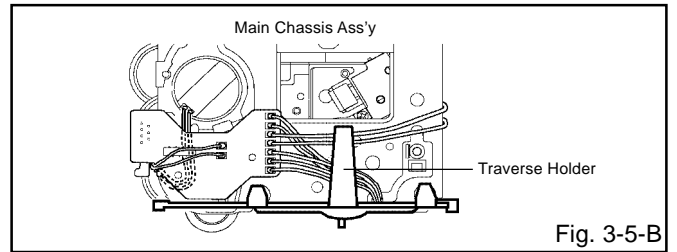
3-5: TRAVERSE HOLDER/INSULATOR (F) (Refer to Fig. 3-5-A)

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



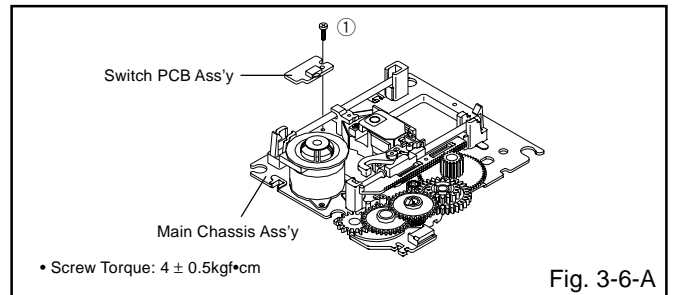
NOTE

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



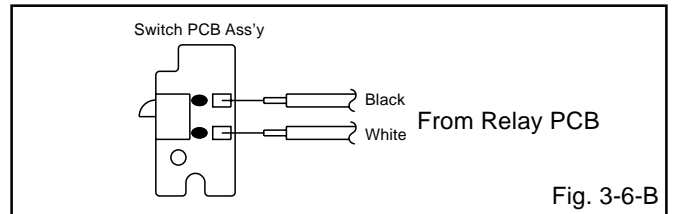
3-6: SWITCH PCB ASS'Y (Refer to Fig. 3-6-A)

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



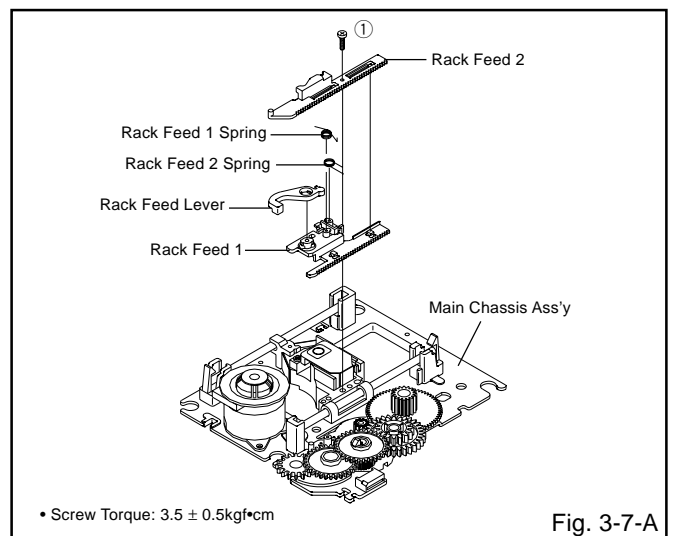
NOTE

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



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

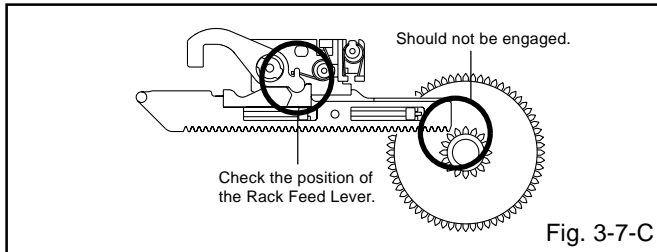
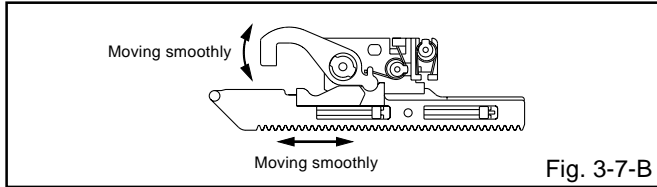
1. Remove the screw ①.
2. Remove the Rack Feed 1/2 Spring, Rack Feed 1/2 and Rack Feed Lever.



DISASSEMBLY INSTRUCTIONS

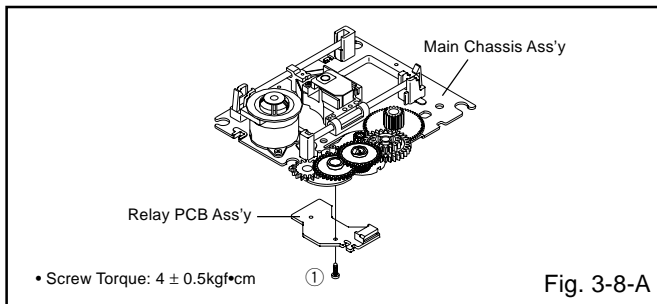
NOTE

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



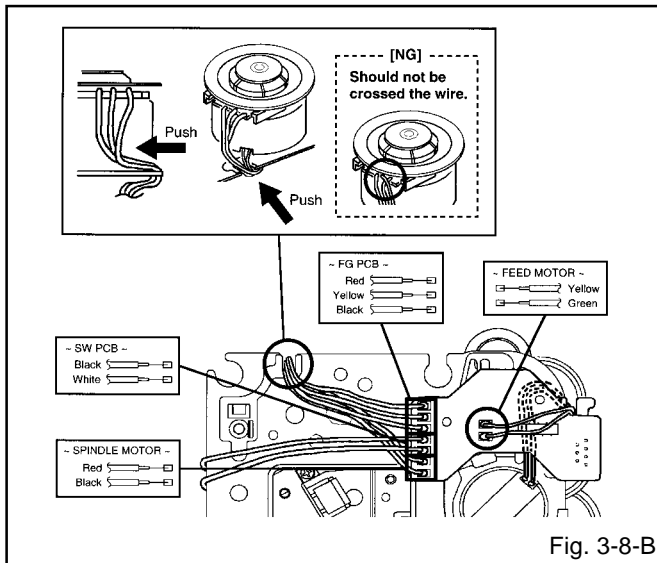
3-8: RELAY PCB ASS'Y (Refer to Fig. 3-8-A)

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



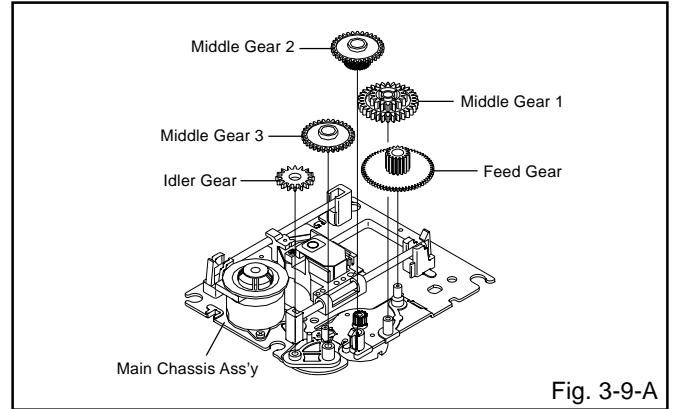
NOTE

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



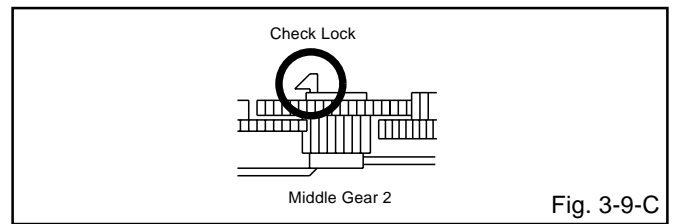
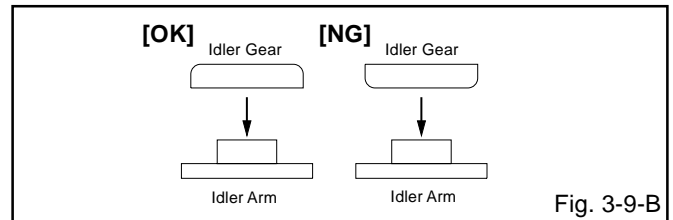
3-9: GEAR (Refer to Fig. 3-9-A)

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



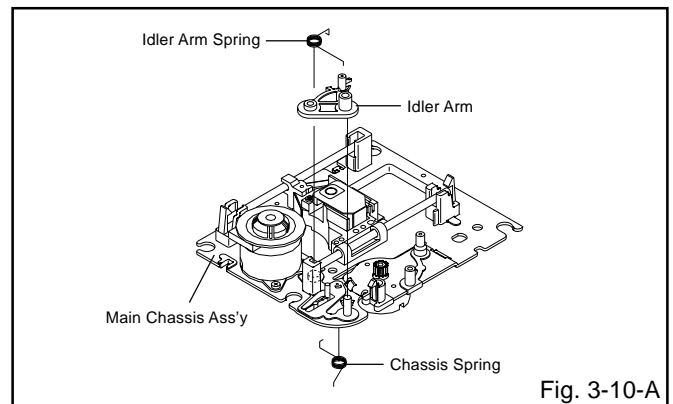
NOTE

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



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

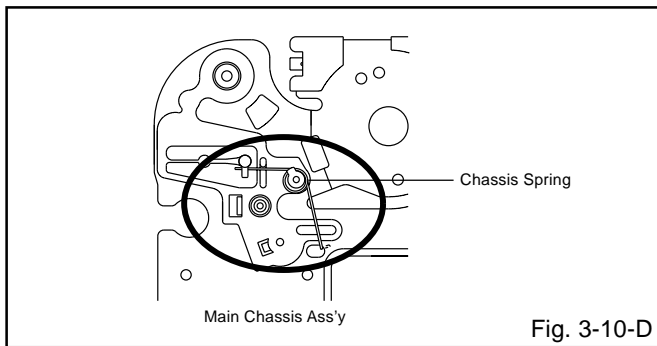
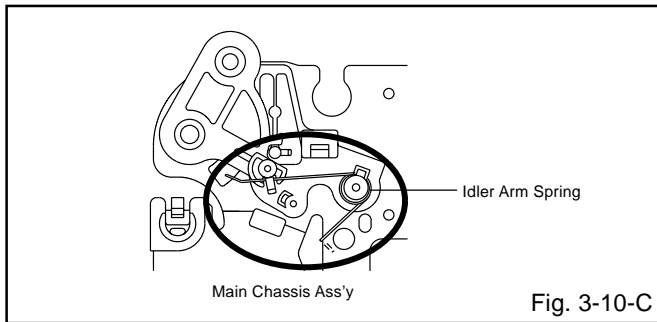
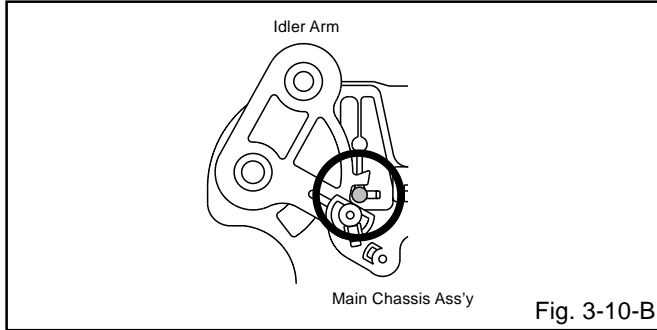
1. Remove the Idler Arm Spring.
2. Remove the Chassis Spring.
3. Remove the Idler Arm.



DISASSEMBLY INSTRUCTIONS

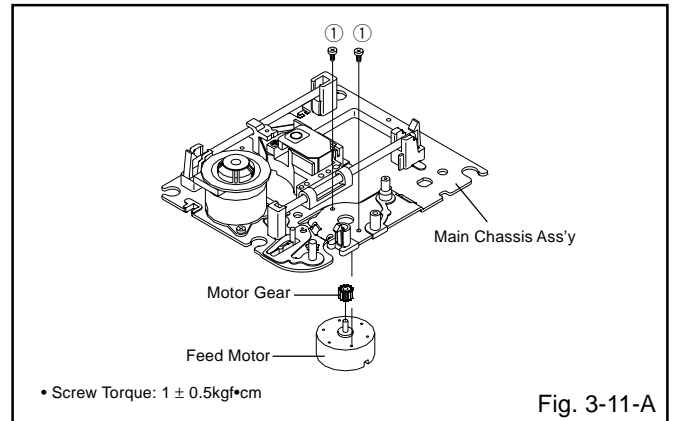
NOTE

1. In case of the Idler Arm installation, install as the circled section of Fig. 3-10-B.
2. In case of the Idler Arm Spring installation, install as the circled section of Fig. 3-10-C.
3. In case of the Chassis Spring installation, install as the circled section of Fig. 3-10-D.



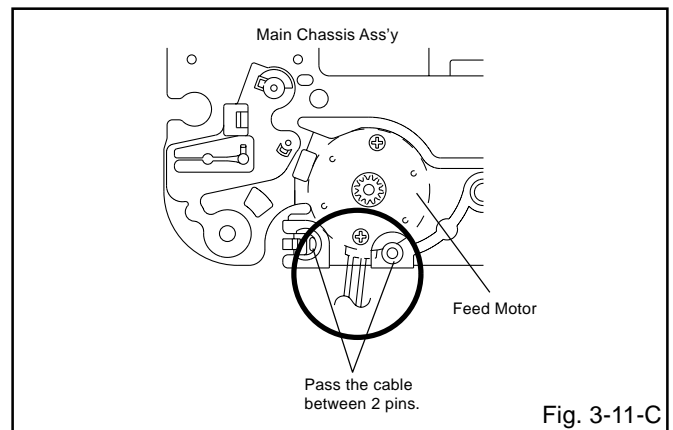
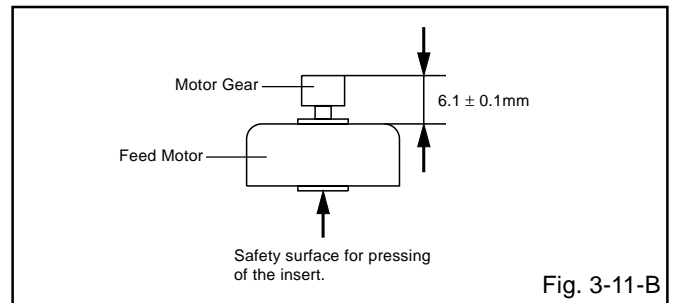
3-11: FEED MOTOR (Refer to Fig. 3-11-A)

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



NOTE

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



DISASSEMBLY INSTRUCTIONS

4. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

- * After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- * Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. (Refer to Fig. 4-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver. A cracking noise will be heard as the voltage is discharged.

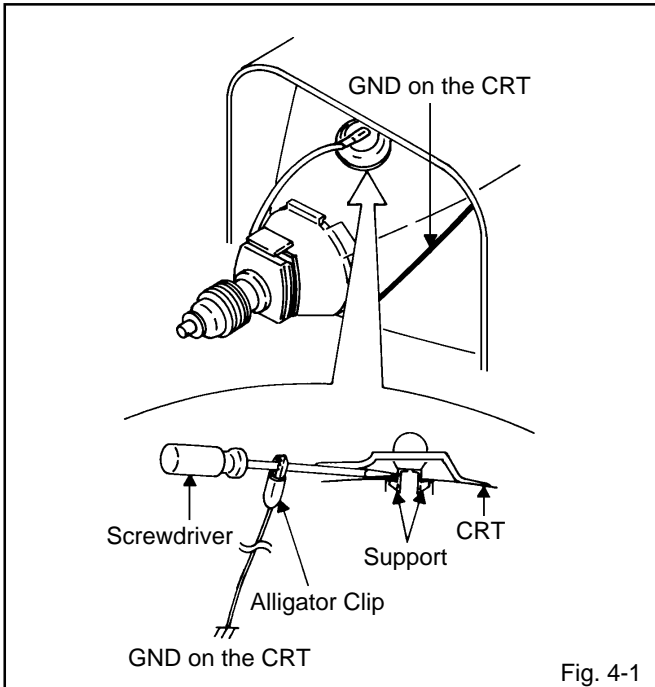


Fig. 4-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. (Refer to Fig. 4-2.)

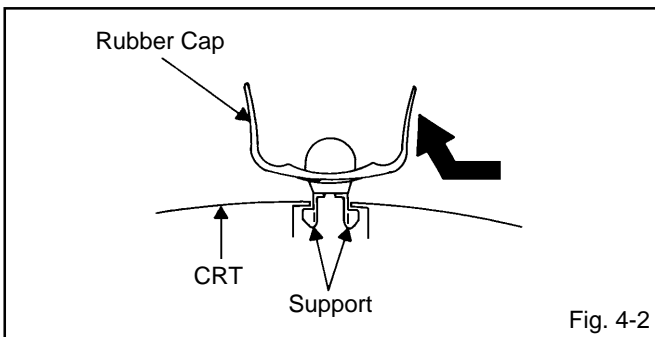


Fig. 4-2

3. After one side is removed, pull in the opposite direction to remove the other.

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 4-3.)

NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

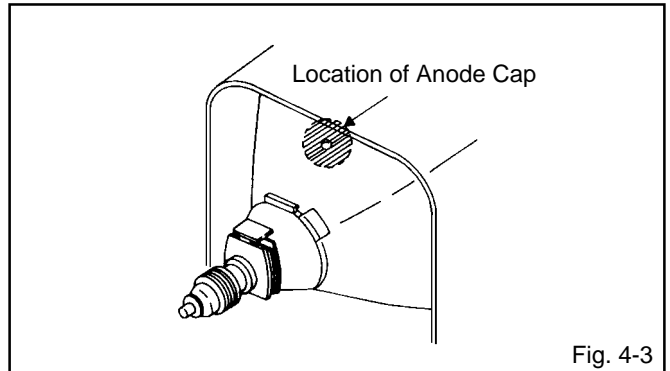


Fig. 4-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 4-4.)

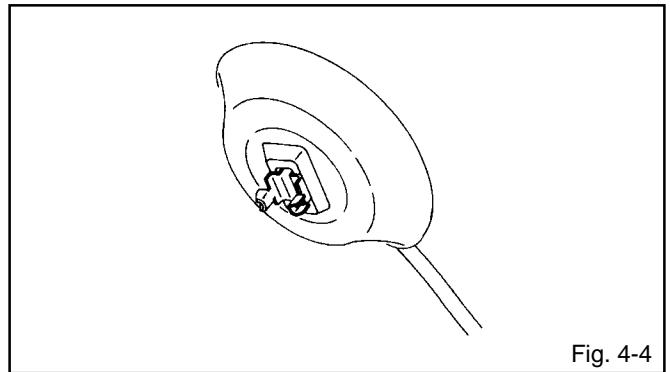


Fig. 4-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 4-5.

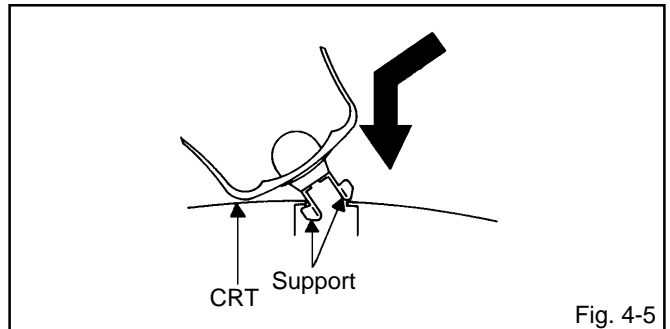


Fig. 4-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

DISASSEMBLY INSTRUCTIONS

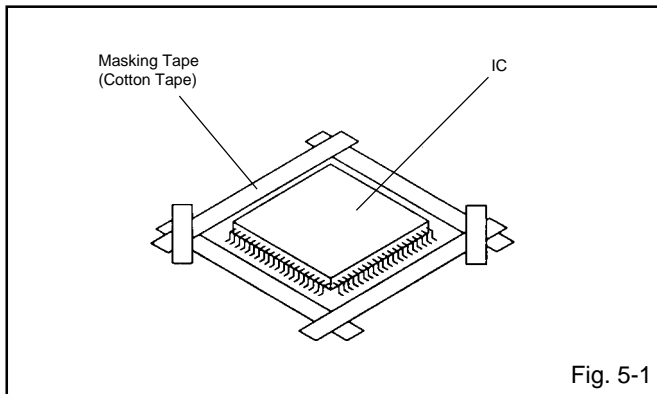
5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 5-1.)

NOTE

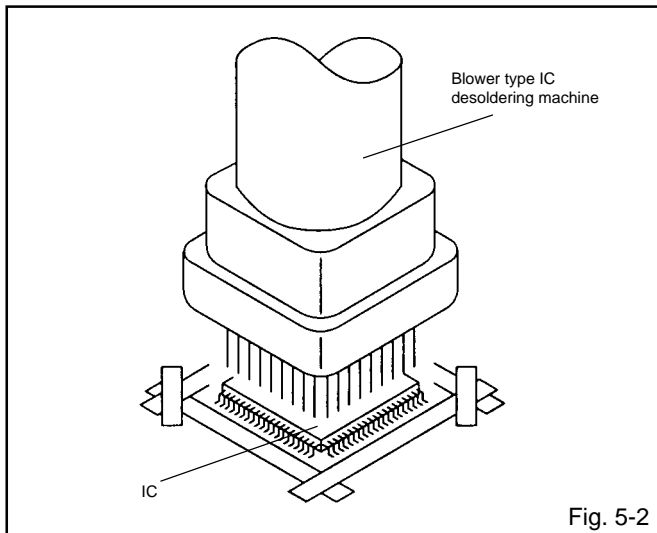
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 5-2.)

NOTE

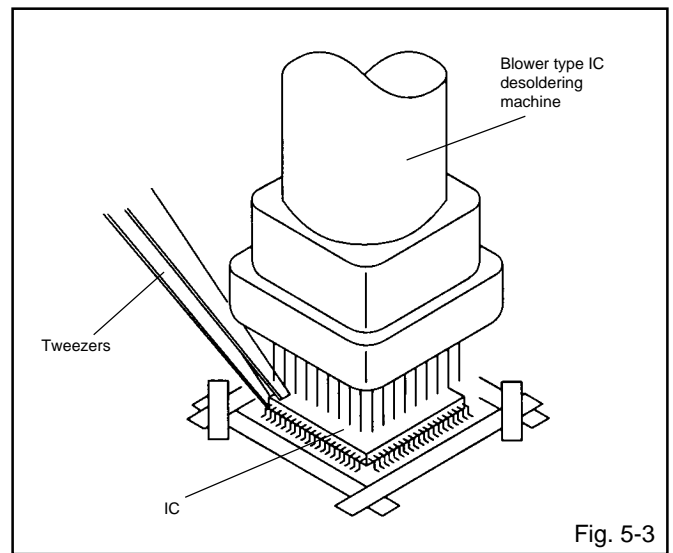
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



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. 5-3.)

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.

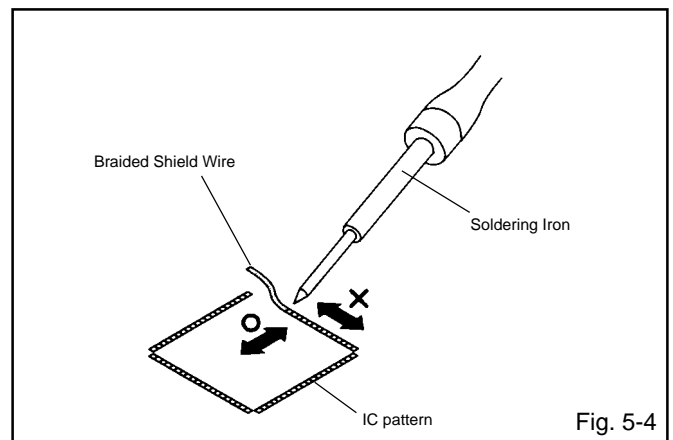


4. Peel off the Masking Tape.

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

NOTE

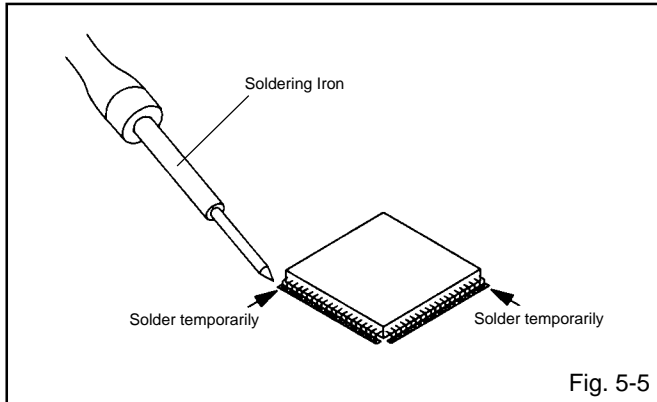
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



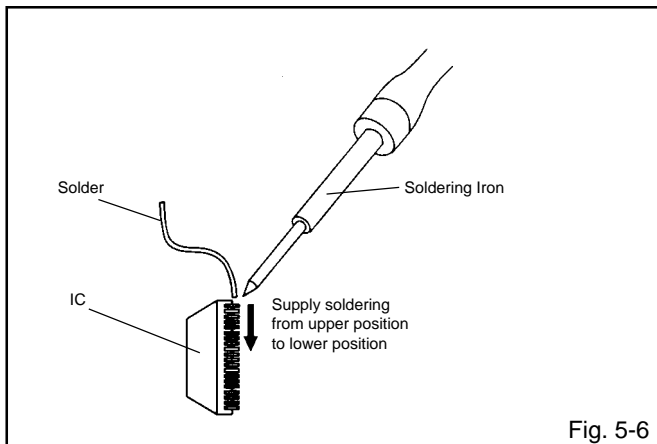
DISASSEMBLY INSTRUCTIONS

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. 5-5.)



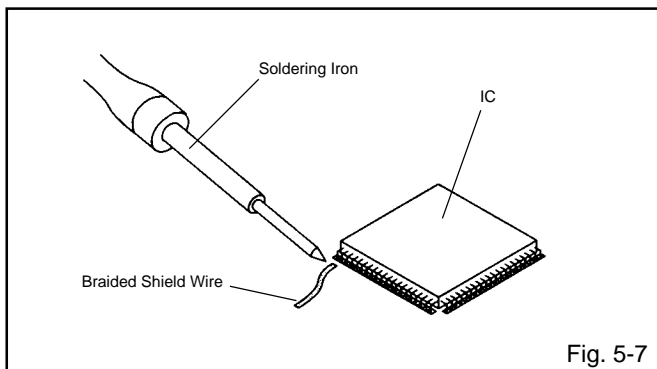
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 5-6.)



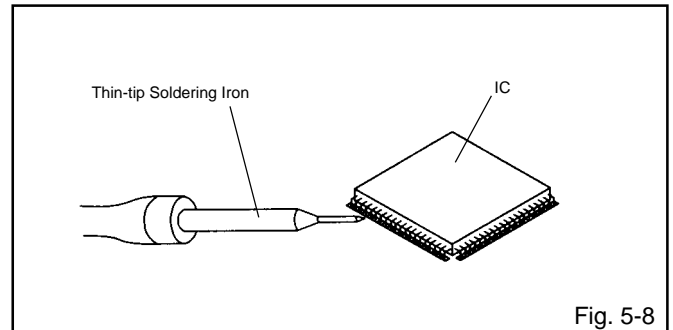
3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 5-7.)

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. 5-8.)



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

KEY TO ABBREVIATIONS

S	STB	:	Serial Strobe
	SW	:	Switch
	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 SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

Set Key	Remocon Key	Standard Time (seconds)	Operations
VOL. (-) MIN	0	2	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	2	Initialization of the factory. 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, the POWER ON total hours, and PLAY/REC total hours.
VOL. (-) MIN	2	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	2	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	2	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	2	Adjusting of the Tracking to the center position.
VOL. (-) MIN	6	2	POWER ON total hours and PLAY/REC total hours are displayed on the screen. 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".
VOL. (-) MIN	9	2	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).
REC/OTR	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 (DVD)	7	3	Releasing of PARENTAL LOCK. Refer to the "PARENTAL CONTROL - RATING LEVEL". NOTE: The function will only work without the setting of DVD disc at DVD mode.
STOP (DVD)	9	3	Tray cannot be opened. Refer to the "TRAY LOCK". NOTE: No indications on the screen when the Tray Lock is setting.

Set Key	Set Key	Standard Time (seconds)	Operations
VOL. (-) MIN	FF	2	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

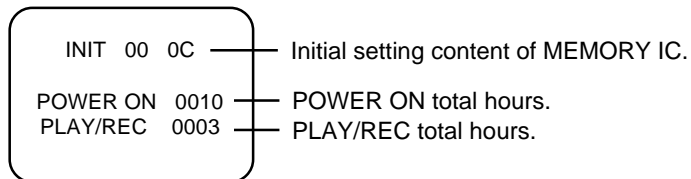
POWER ON total hours and PLAY/REC total hours can be checked on the screen.

Total hours are displayed in 16 system of notation.

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

The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button (6) on the remote control for more than 2 seconds.
3. After the confirmation of using hours, turn off the power.



(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

PREVENTIVE CHECKS AND SERVICE INTERVALS

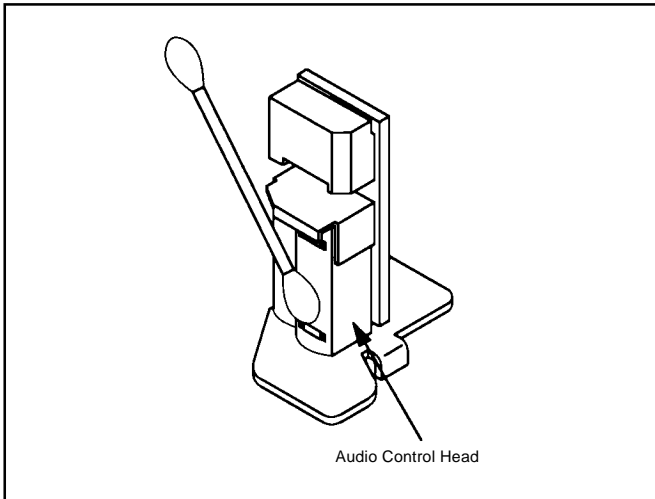
CLEANING

NOTE

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

1. AUDIO CONTROL HEAD

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



2. TAPE RUNNING SYSTEM

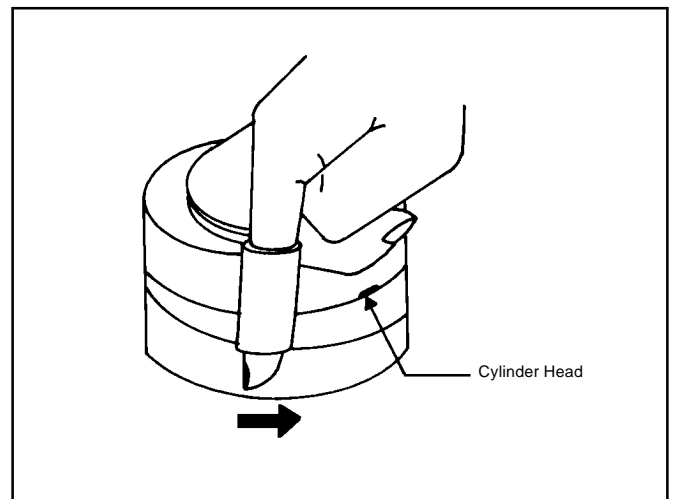
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

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

NOTE

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



WHEN REPLACING EEPROM (MEMORY) IC

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

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

No need setting for the position of the mark @ due to the adjustment value.

No need setting for after INI 3F due to the adjustment value..

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	0C	00	F3	02	C4	AD	20	22	86	45	F0	08	A6	A0	87	35
10	32	64	E3	52	03	87	00	48	00	FF	15	4B	1C	54	83	B2
20	9A	97	8C	A5	B7	88	91	B6	1A	0B	3D	00	36	16	25	30
30	01	31	19	40	00	@	@	0F	00	23	FF	FF	FF	FF	FF	FF

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

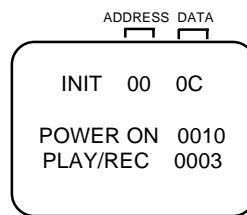


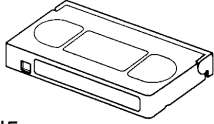
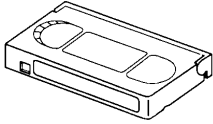
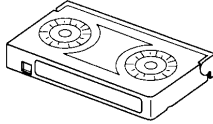
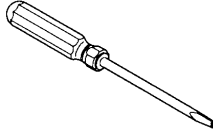
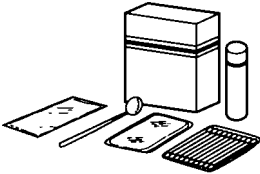


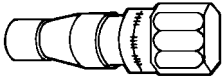
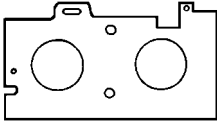
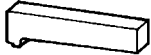
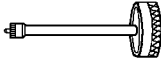
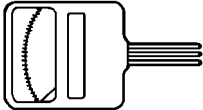
Fig. 1

3. ADDRESS is now selected and should "blink". Using the UP or DOWN 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 UP or DOWN 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.

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

9. Turn POWER on.
 10. Press both VOL. DOWN button on the set and the Channel button **(1)** on the remote control for more than 2 seconds.
 11. After the finishing of the initializing of shipping, the unit will turn off automatically.
- The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

Alignment Tape  ST-N5 ST-NF	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	Tentelometer 

Ref. No.	Part No.	Parts Name	Remarks
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)
JG022	APJG022000	Master Plane	Reel Disk Height Adjustment
JG024A	APJG024A00	Reel Disk Height Adjustment Jig	Reel Disk Height Adjustment
JG153	APJG153000	X Value Adjustment Screwdriver	X Value Adjustment

PREPARATION FOR SERVICING

NOTE: The both pressing of set key and remote control key will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 5 seconds before Power On.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the FF 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.)
3. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
Turn on the power and re-check the cable before checking the trouble points.

MECHANICAL ADJUSTMENTS

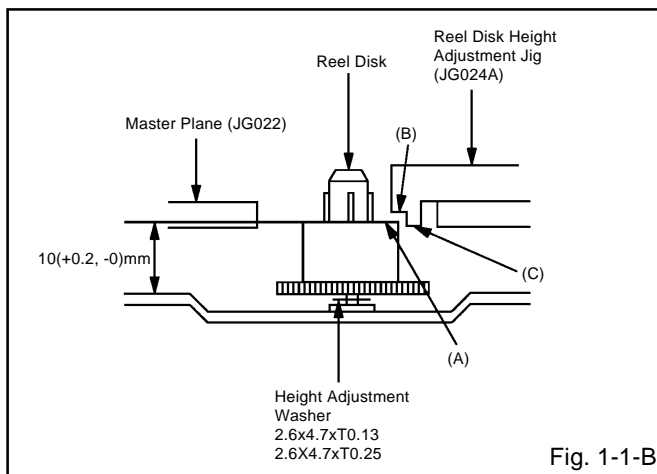
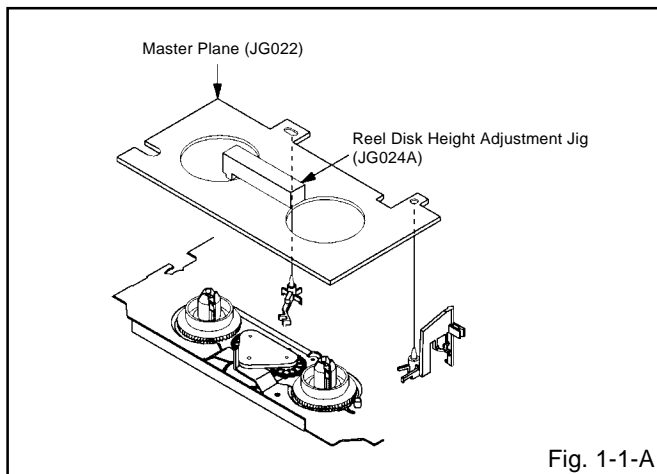
1. CONFIRMATION AND ADJUSTMENT

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.)

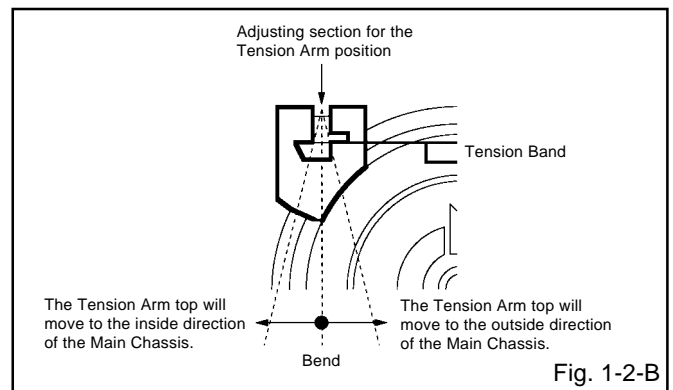
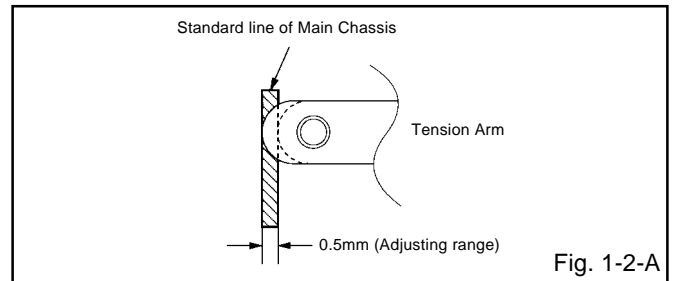
1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

- 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.

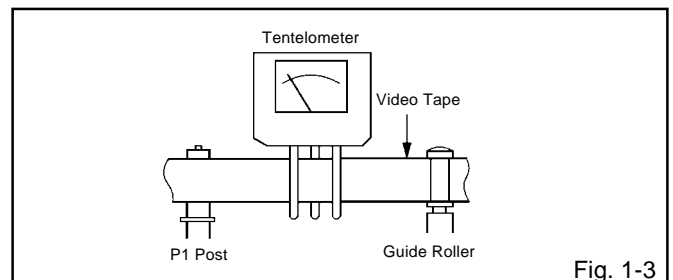


1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

- Load a video tape (T-120) 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 (**KT-300NR**)

- After confirmation and adjustment of Tension Post position (**Refer to item 1-2**), load the cassette type torque tape (**KT-300NR**) 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.

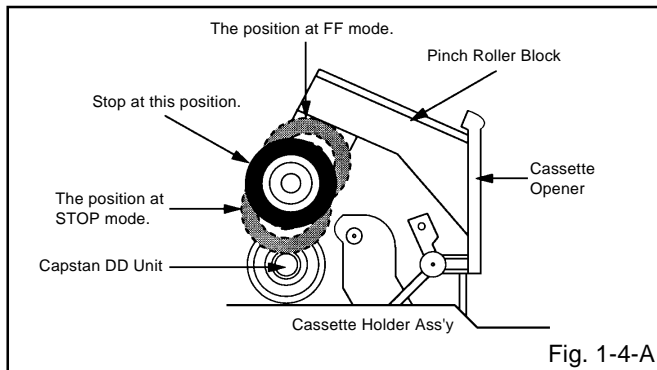


Fig. 1-4-A

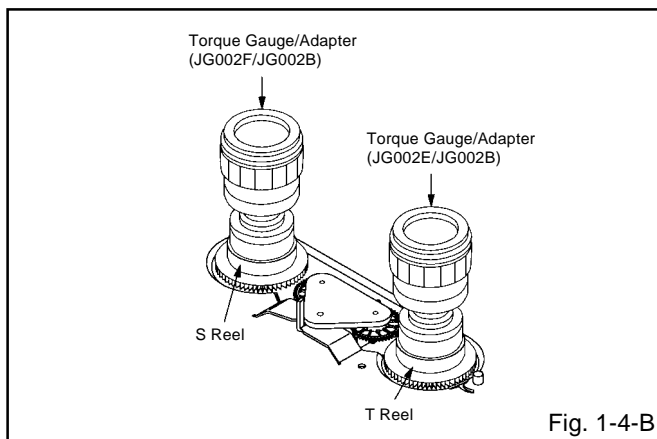


Fig. 1-4-B

NOTE

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

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

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

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

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4501 (Envelope)** and CH-2 to **TP102 (SW Pulse)**.
3. Press both VOL. DOWN button on the set and the Channel button (**5**) on the remote control for more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the **ELECTRICAL ADJUSTMENTS**)

NOTE

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

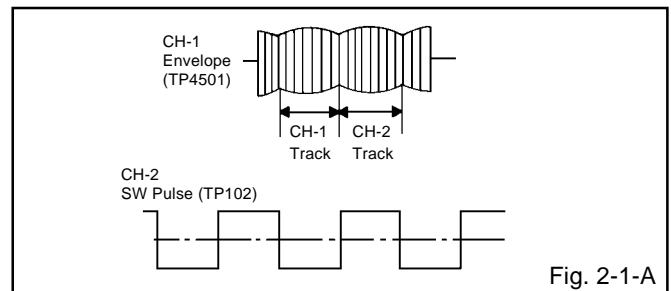


Fig. 2-1-A

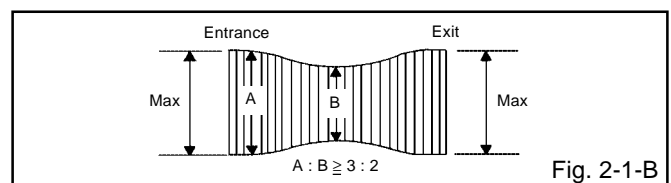


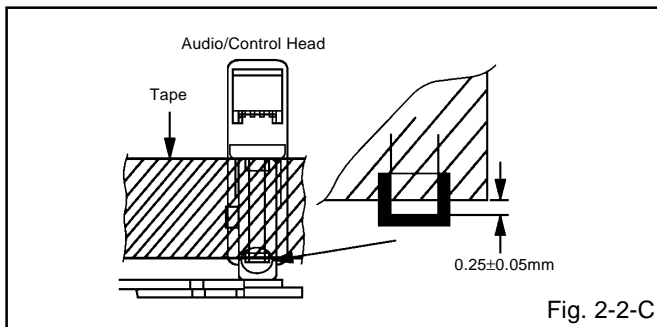
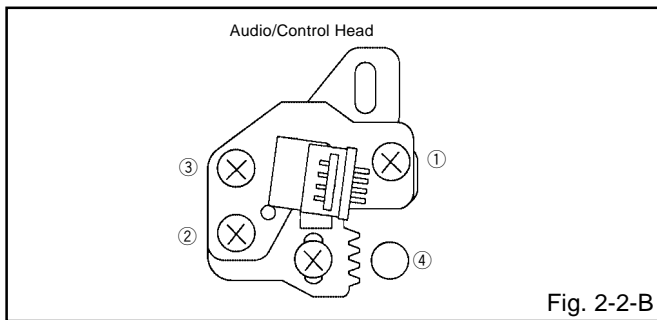
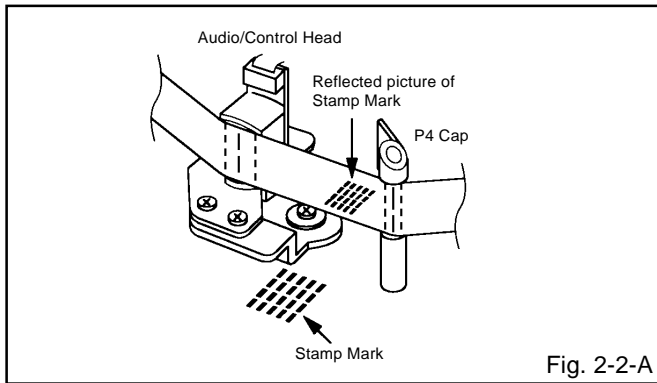
Fig. 2-1-B

MECHANICAL ADJUSTMENTS

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

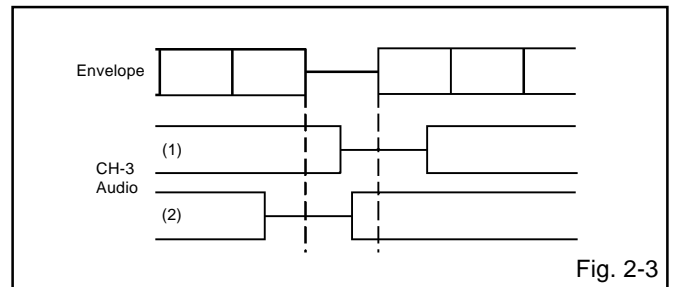
When the Tape Running Mechanism does not work well, adjust the following items.

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



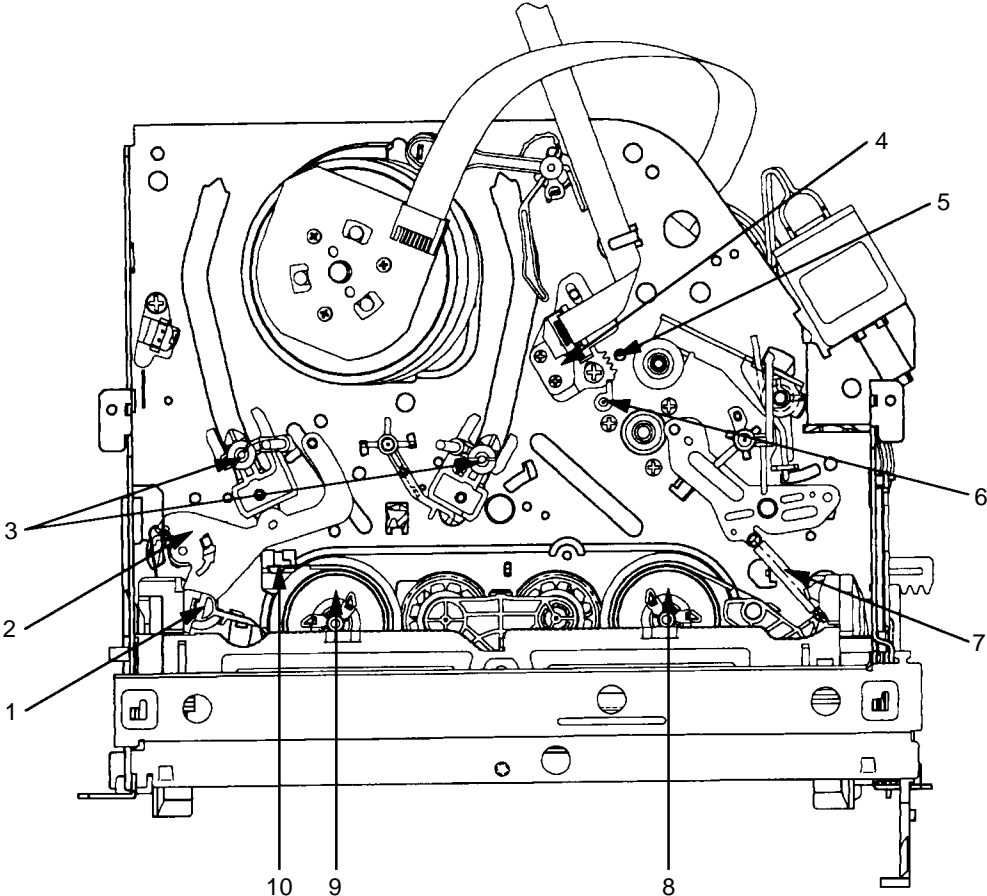
2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

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 **TP4501** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press both VOL. DOWN button on the set and the Channel button (5) on the remote control for more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (**JG153**) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.



MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



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

ELECTRICAL ADJUSTMENTS

1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease 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).

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

On-Screen Display Adjustment

1. Unplug the AC plug for more than 5 seconds to set the clock to the non-setting state. Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the Channel button (9) on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in Fig. 1-1.

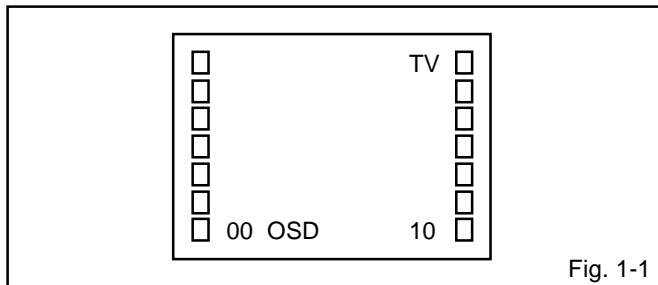


Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options shown in Fig. 1-2.
4. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	18	BRI MAX
01	OSD C	19	BRI MIN
02	CUT OFF	20	CONT CENT
03	H.POSI	21	CONT MAX
04	H.BLK L	22	CONT MIN
05	H.BLK R	23	COL CENT
06	V.SIZE	24	COL MAX
07	V.POSI	25	COL MIN
08	V.LIN	26	TINT
09	VS.CORR	27	SHARP
10	V.COMP	28	SUB BIAS
11	R.BIAS	29	H.SIZE
12	G.BIAS	30	PARABOLA
13	B.BIAS	31	TRAPEZIUM
14	R.DRV	32	COR TOP
15	G.DRV	33	COR BTM
16	B.DRV	34	H.COMP
17	BRI CENT	35	T.STE

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to TP102 and CH-2 to TP4201.
2. Playback the alignment tape.
3. Press both VOL. DOWN button on the set and the Channel button (5) on the remote control for more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button (3) on the remote control for more than 2 seconds until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

(If the above adjustments doesn't work well:)

5. Press the VOL. DOWN button on the set and the channel button (3) on the remote control for more than 2 seconds until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button (4) on the remote control for more than 2 seconds and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes $6.5 \pm 0.5H$.
(Refer to Fig. 2-1-A, B)

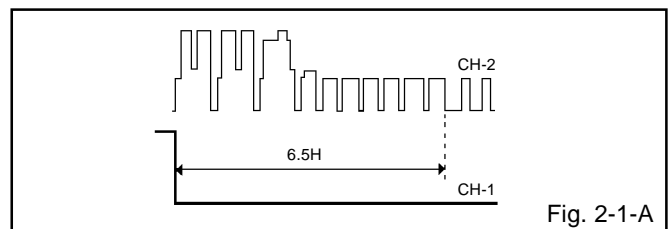


Fig. 2-1-A

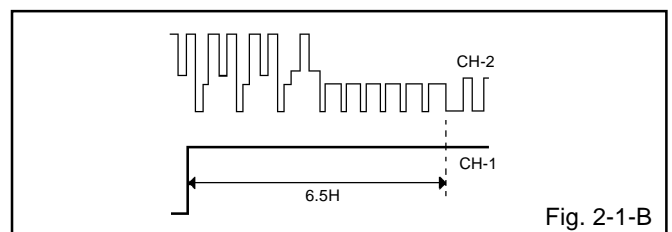


Fig. 2-1-B

ELECTRICAL ADJUSTMENTS

(TV SECTION)

2-2: CONSTANT VOLTAGE

1. Set condition is AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to **TP401**.
4. Adjust the **VR1701** until the digital voltmeter is $116 \pm 0.5V$.

2-3: CUT OFF

1. Adjust the unit to the following settings.
R.BIAS=127, G.BIAS=127, B.BIAS=127, R.DRV=63,
G.DRV=07, B.DRV=63,
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**02**) on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-4: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**11**) on the remote control to select "R.BIAS".
5. Press the CH. UP/DOWN button on the remote control to select the "R.BIAS", "G.BIAS", "B.BIAS", "R.DRV", "B.DRV" or "G.DRV".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R.BIAS, G.BIAS, B.BIAS, R.DRV, B.DRV, and G.DRV at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

2-5: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**03**) on the remote control to select "H.POSI".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

2-7: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**29**) on the remote control to select "H. SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes $10 \pm 2\%$.

2-8: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**07**) on the remote control to select "V.POSI".
4. Check if the step No. V.POSI is "00".
5. Adjust the **VR404** until the horizontal line becomes fit to the notch of the shadow mask.

2-9: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**06**) on the remote control to select "V.SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the Up/Down OVER SCAN Quantity becomes equal to the Right/Left OVER SCAN Quantity.

2-10: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-9. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**08**) on the remote control to select "V.LIN".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-11: TRAPEZIUM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**31**) on the remote control to select "TRAPEZIUM".
4. Press the VOL. UP/DOWN button on the remote control until the both vertical lines of the screen become parallel.

ELECTRICAL ADJUSTMENTS

2-12: PARABOLA

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(30)** on the remote control to select "PARABOLA".
4. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.

2-13: CORNER CORR TOP

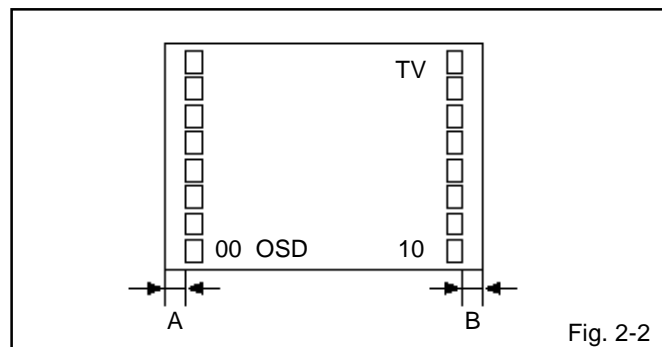
1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "COR TOP".
4. Press the VOL. UP/DOWN button on the remote control until the upper section of the both ends vertical lines are straight.

2-14: CORNER CORR BOTTOM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "COR BTM".
4. Press the VOL. UP/DOWN button on the remote control until the bottom section of the both ends vertical lines are straight.

2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. (**Refer to Fig. 2-2**)

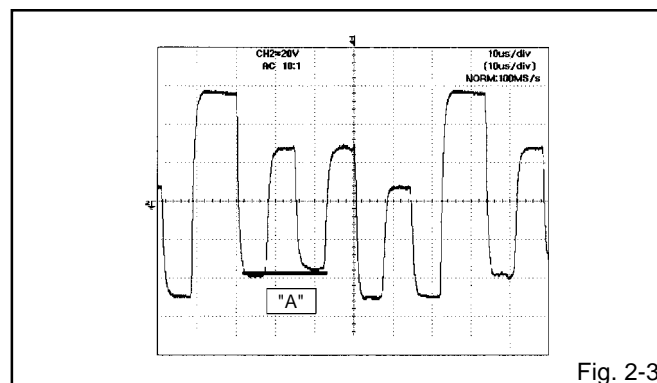


2-16: BRIGHT CENTER

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
4. Press the VOL. UP/DOWN button on the remote control until the white 10% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
7. Press the DVD button on the remote control to set to the DVD mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
9. Press the RIGHT/LEFT button on the remote control to increase the step numbers by 10 steps to the AV.

2-17: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP803**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TNT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line (**Refer to Fig. 2-3**).
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.
8. Press the DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TNT".
10. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.



ELECTRICAL ADJUSTMENTS

2-18: COLOR CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP802**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to $110 \pm 5\%$ of the white level. **(Refer to Fig. 2-4)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.
9. Press the DVD button on the remote control to set to the DVD mode.
10. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
11. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

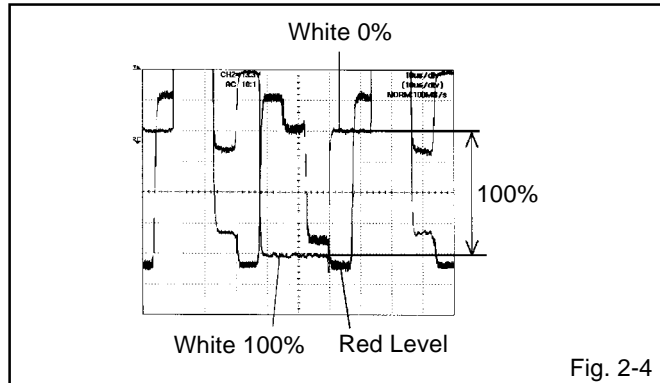


Fig. 2-4

2-19: SUB CONTRAST MAX

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "105".
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT SELECT button on the remote control to set to the AV mode.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
6. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "104".
7. Receive a broadcast and check if the picture is normal.
8. Press the DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
10. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

2-20: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF	AV	DVD
01	OSD C	03	03	03
04	H.BLK L	02	02	02
05	H.BLK R	02	02	02
09	VS.CORR	05	05	05
10	V.COMP	03	03	03
15	G.DRV	07	07	07
18	BRI MAX	75	75	75
19	BRI MIN	20	20	20
20	CONT CENT	80	80	80
22	CONT MIN	30	30	30
24	COL MAX	127	127	127
25	COL MIN	00	00	00
27	SHARP	25	25	15
28	SUB BIAS	30	30	30
34	H.COMP	00	00	00
35	T.STE	00	00	00

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

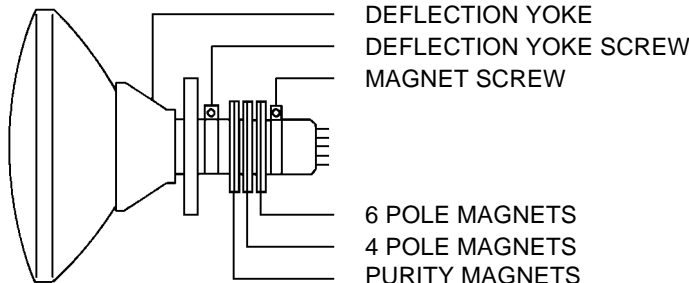


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

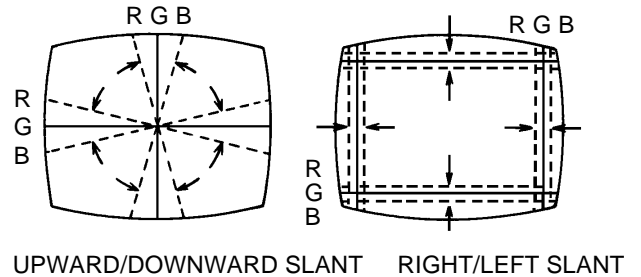
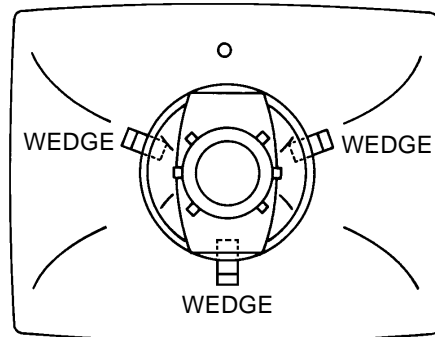


Fig. 3-2-a

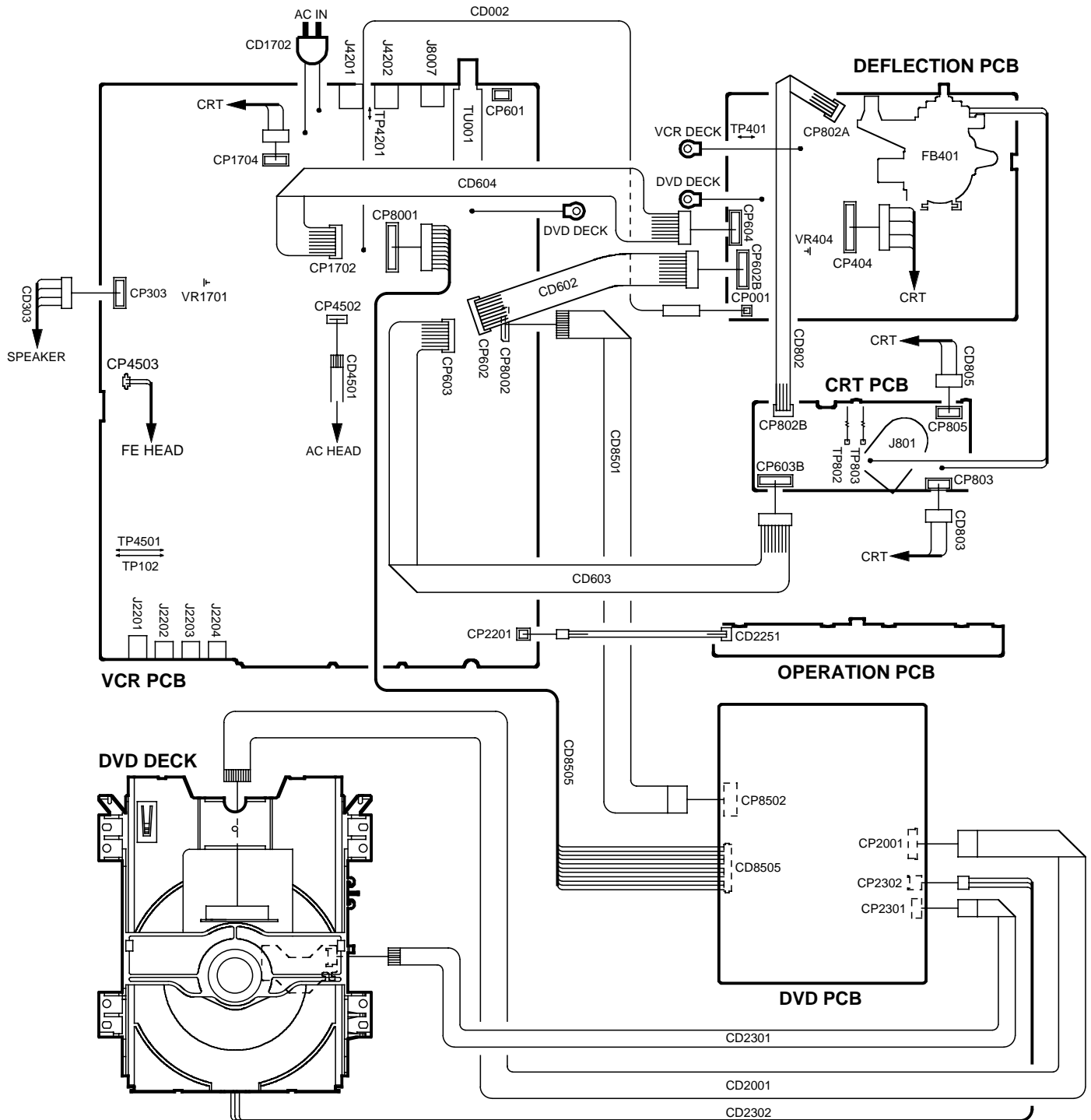


WEDGE POSITION

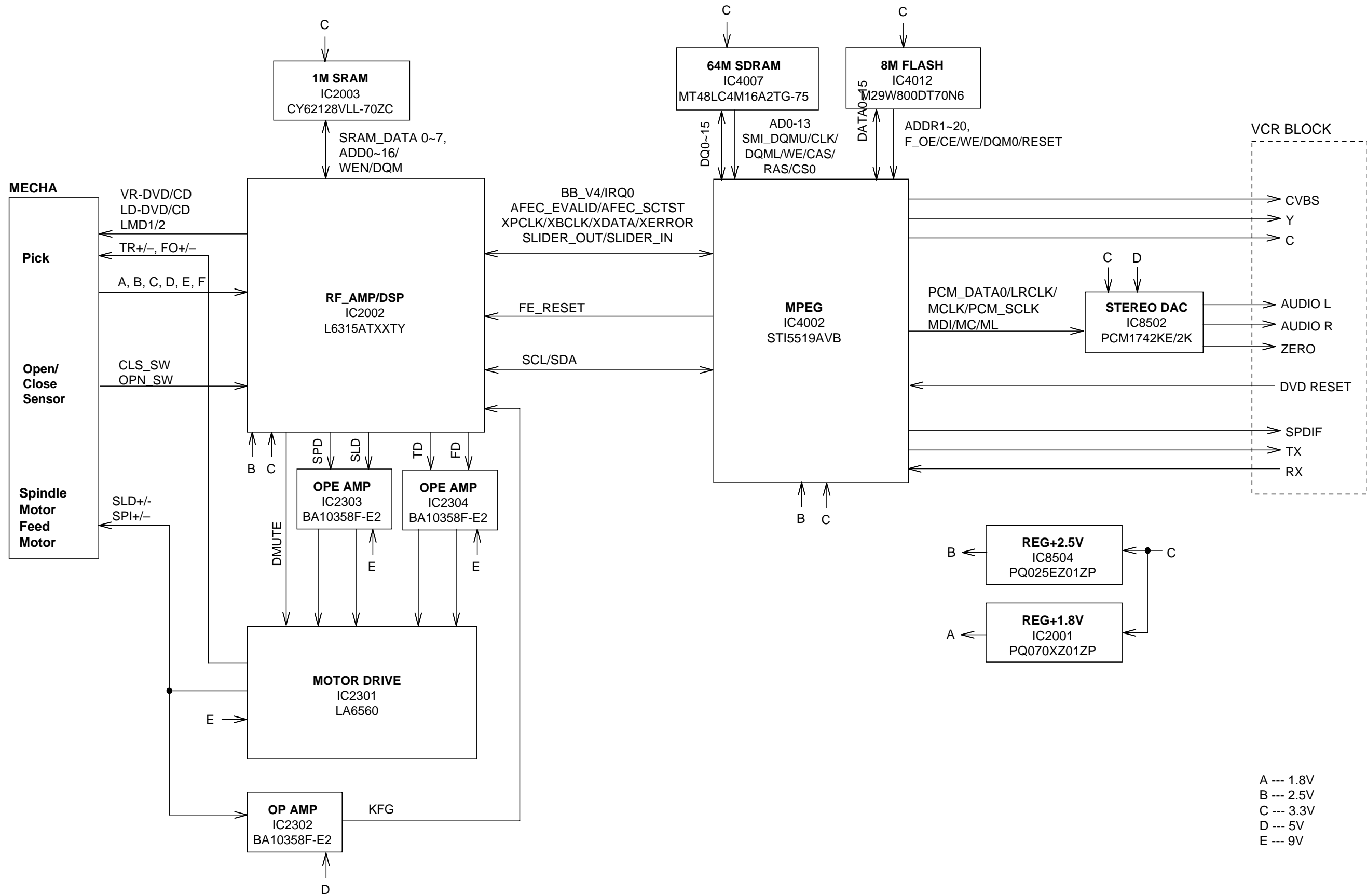
Fig. 3-2-b

ELECTRICAL ADJUSTMENTS

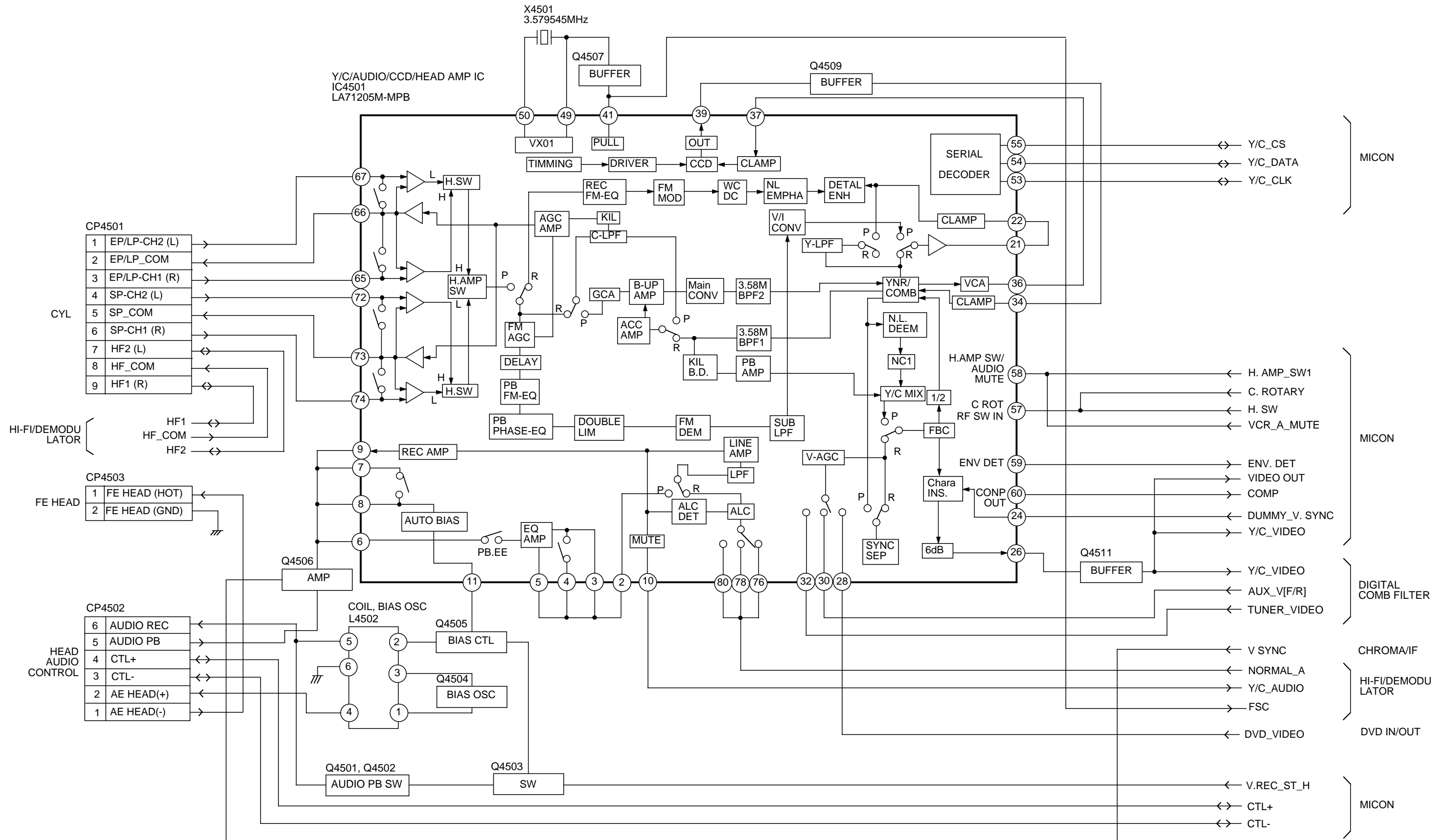
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



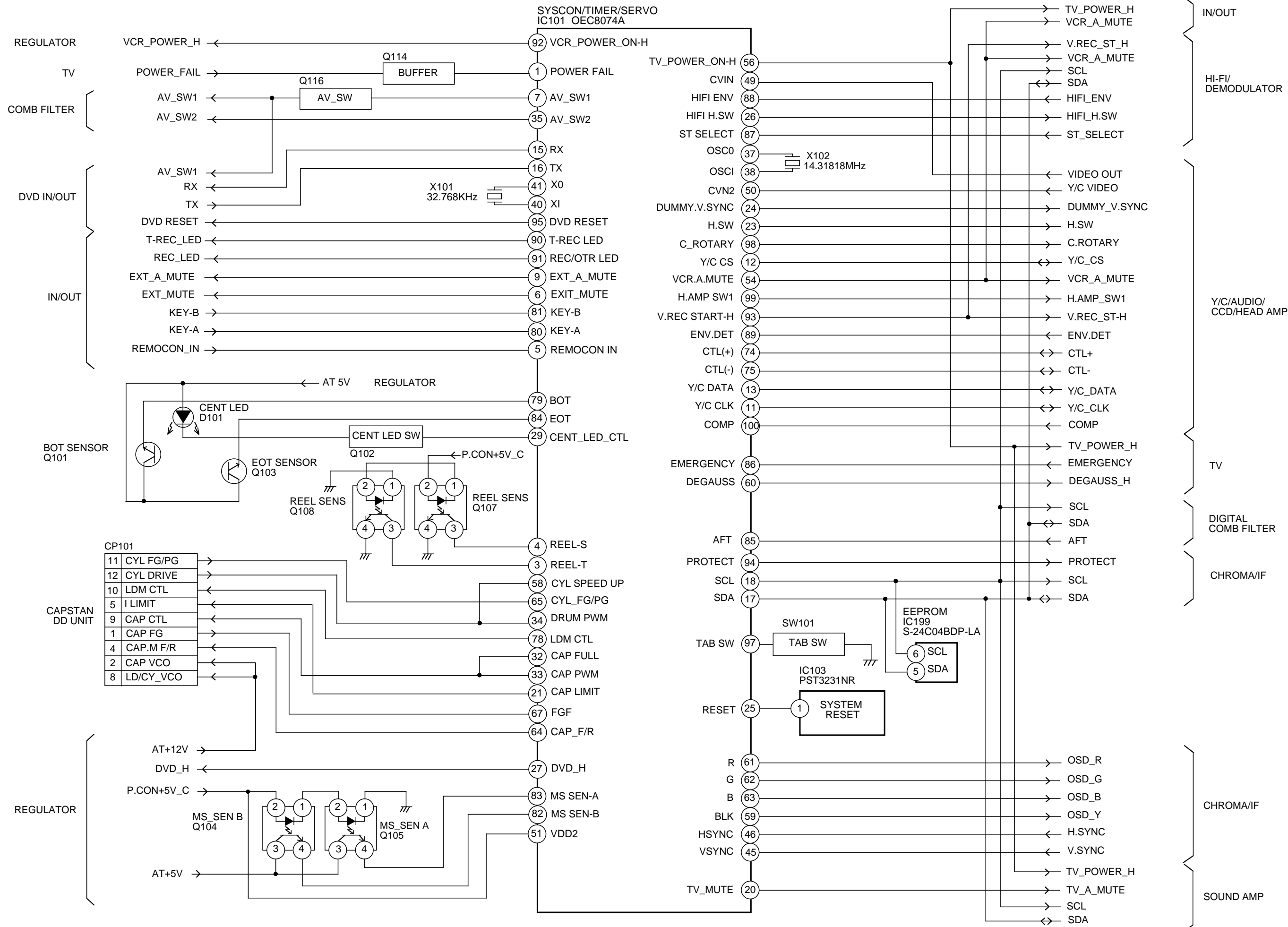
DVD BLOCK DIAGRAM



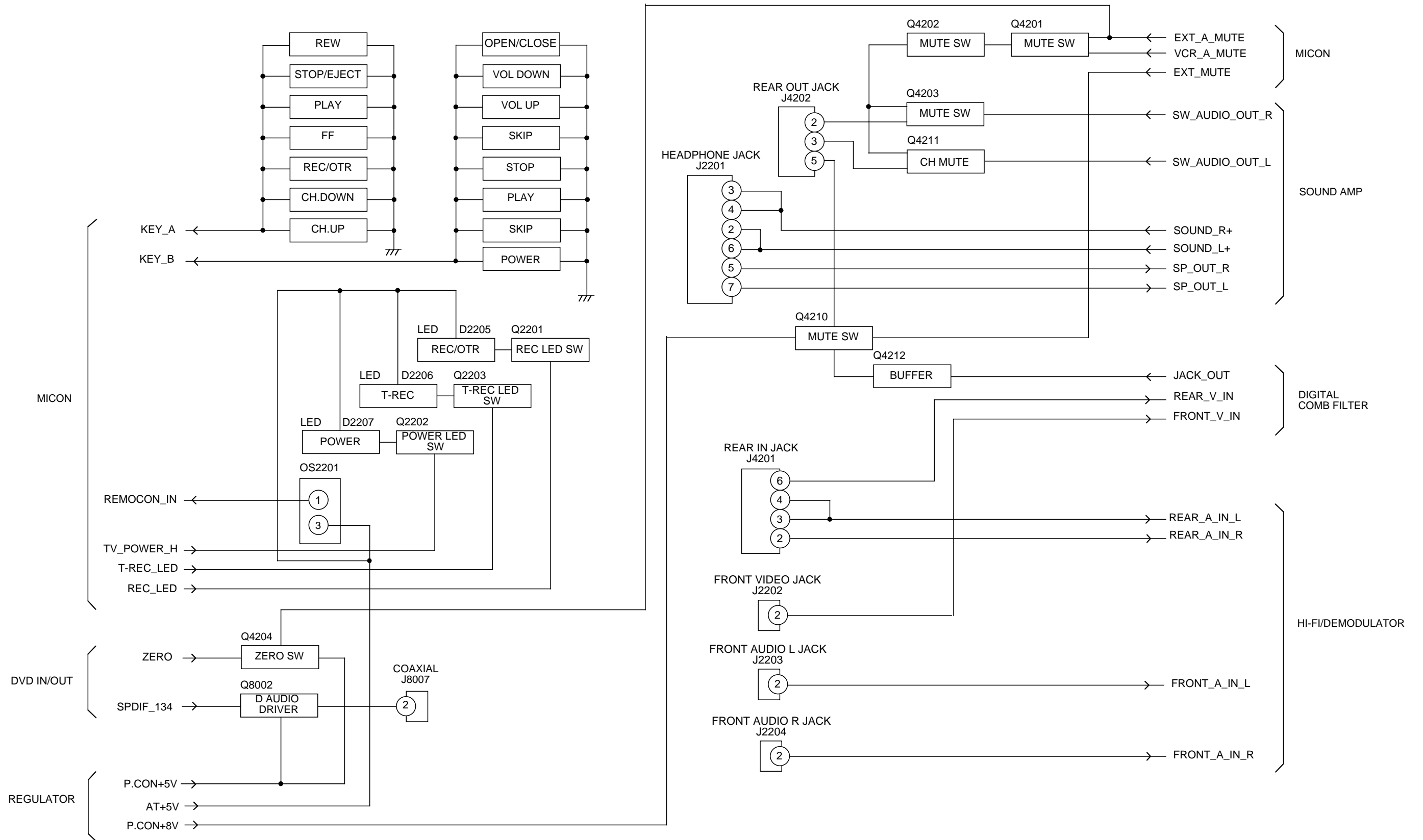
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



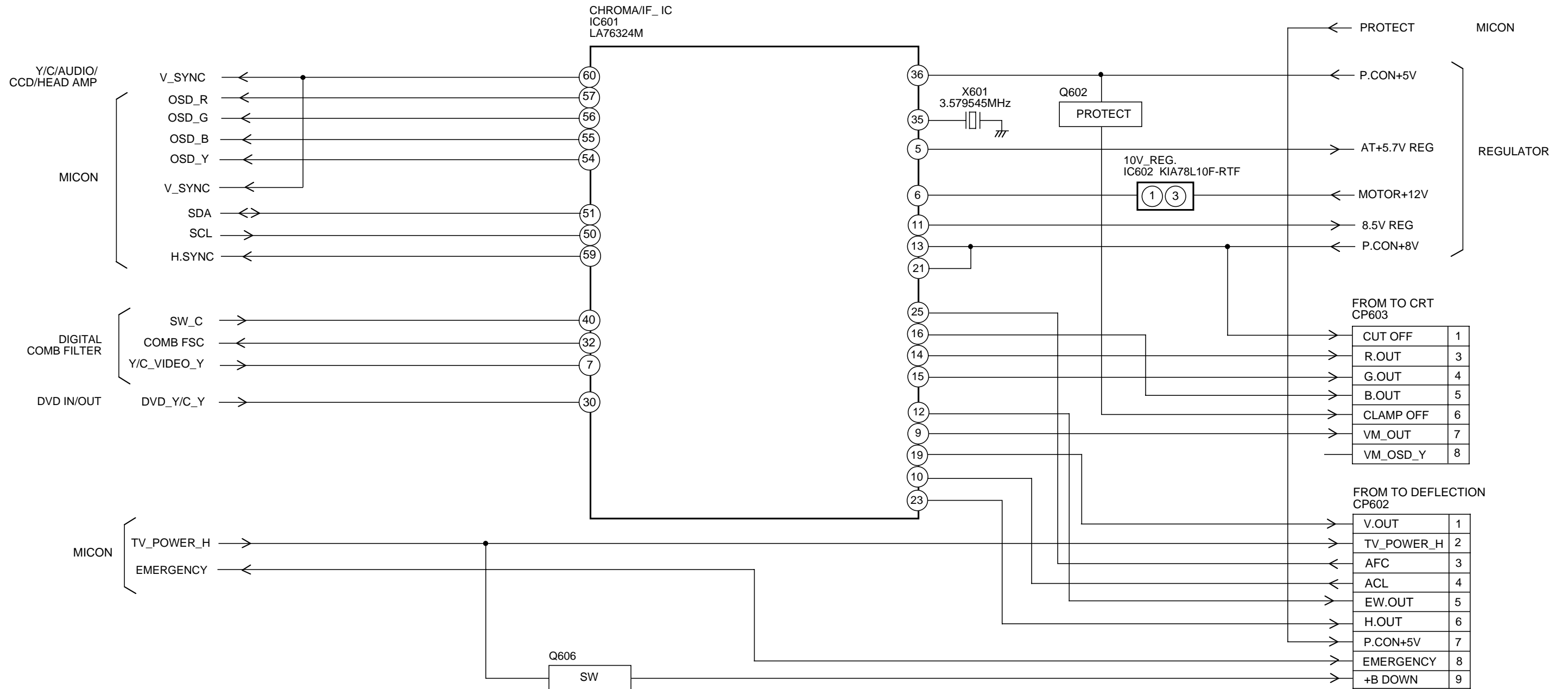
MICON BLOCK DIAGRAM



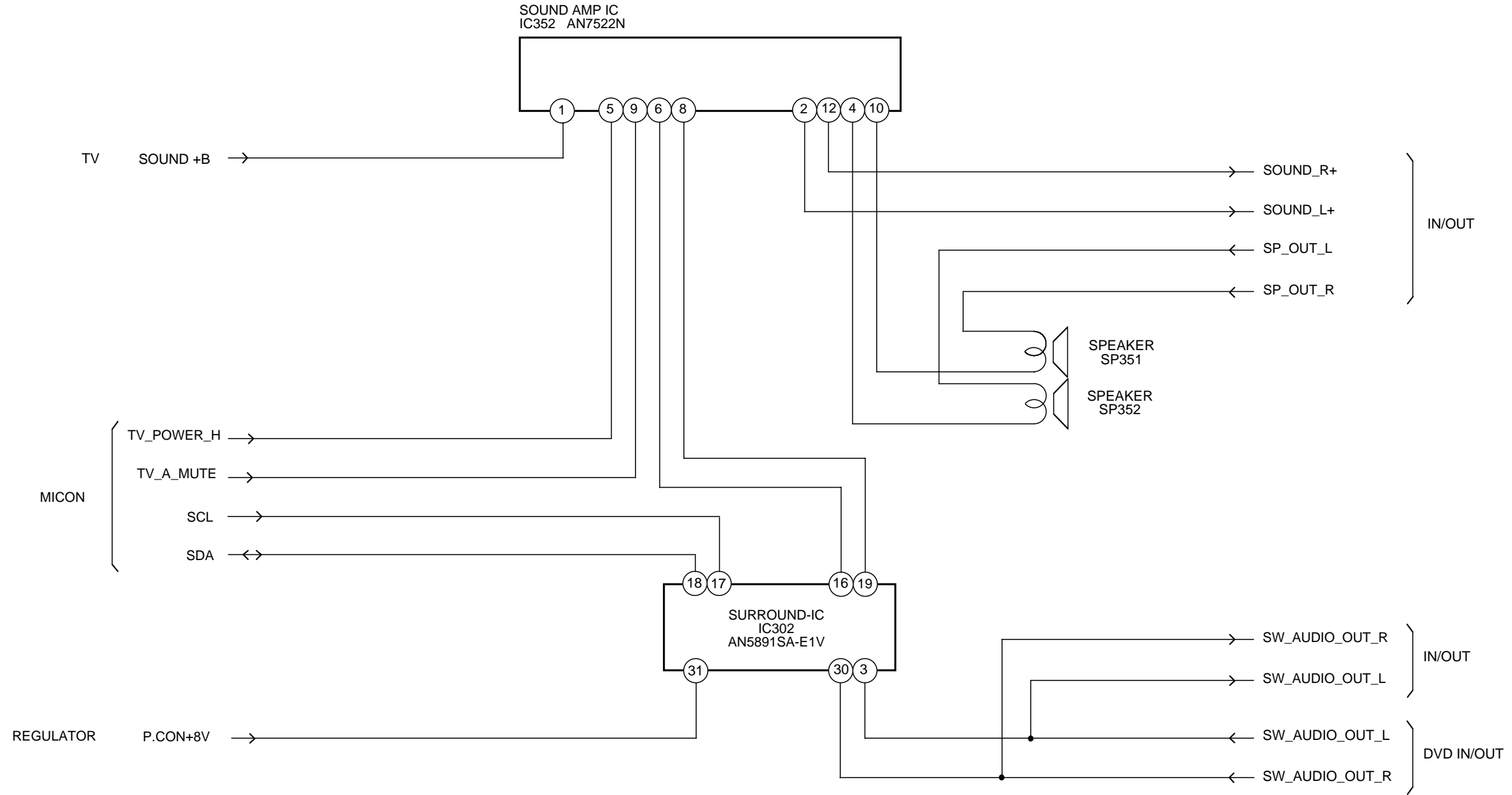
IN/OUT BLOCK DIAGRAM



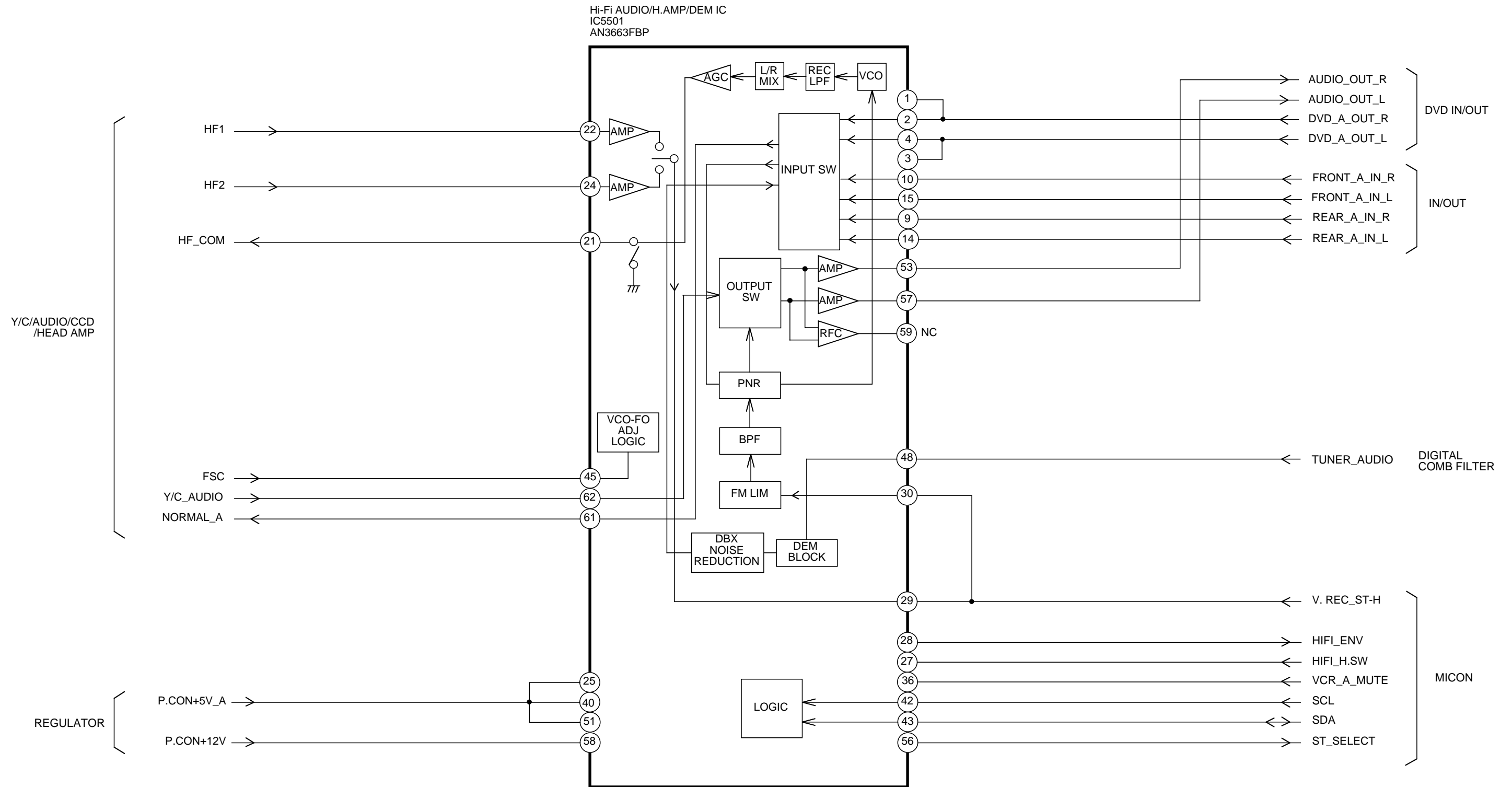
CHROMA/IF BLOCK DIAGRAM



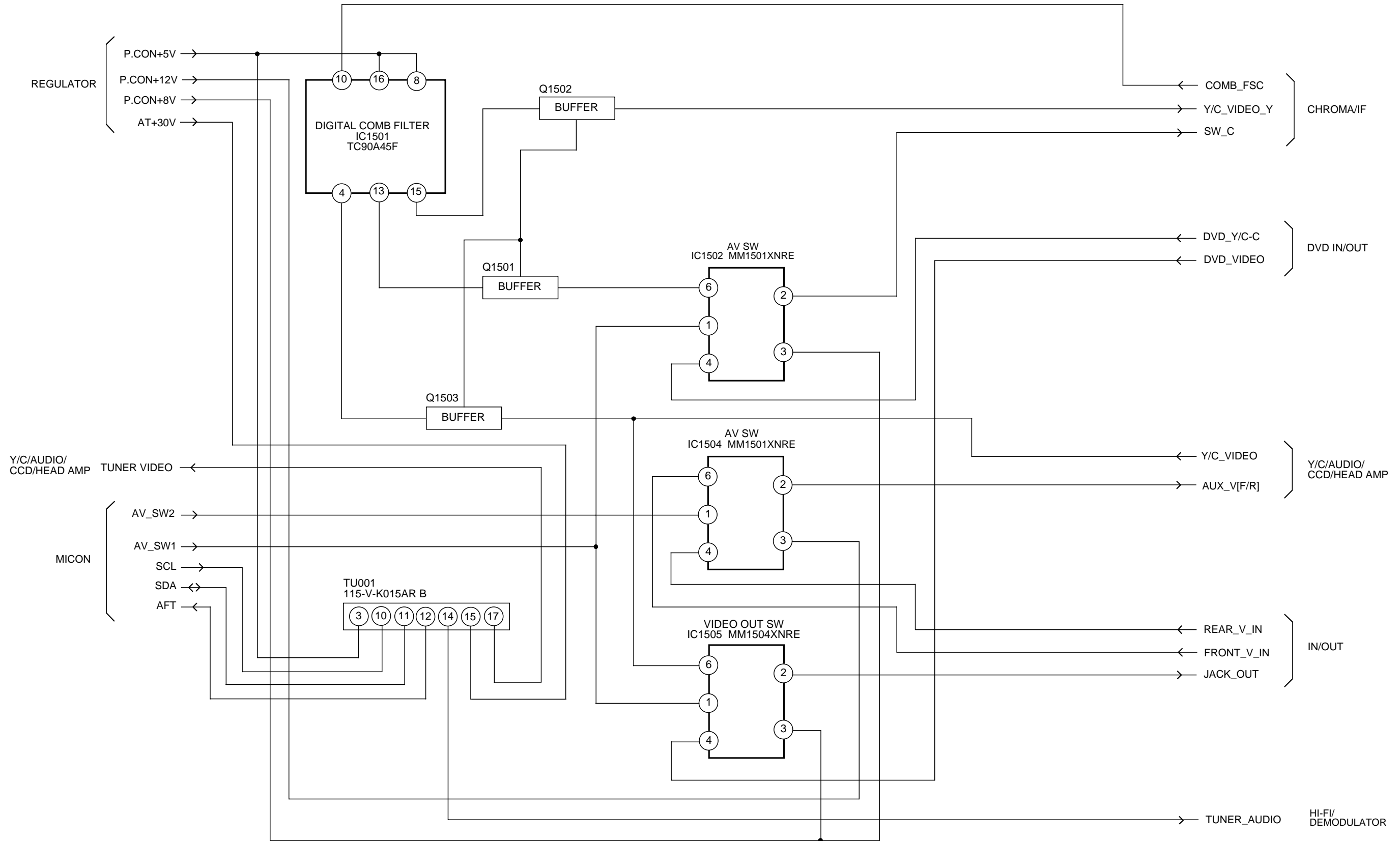
SOUND AMP BLOCK DIAGRAM



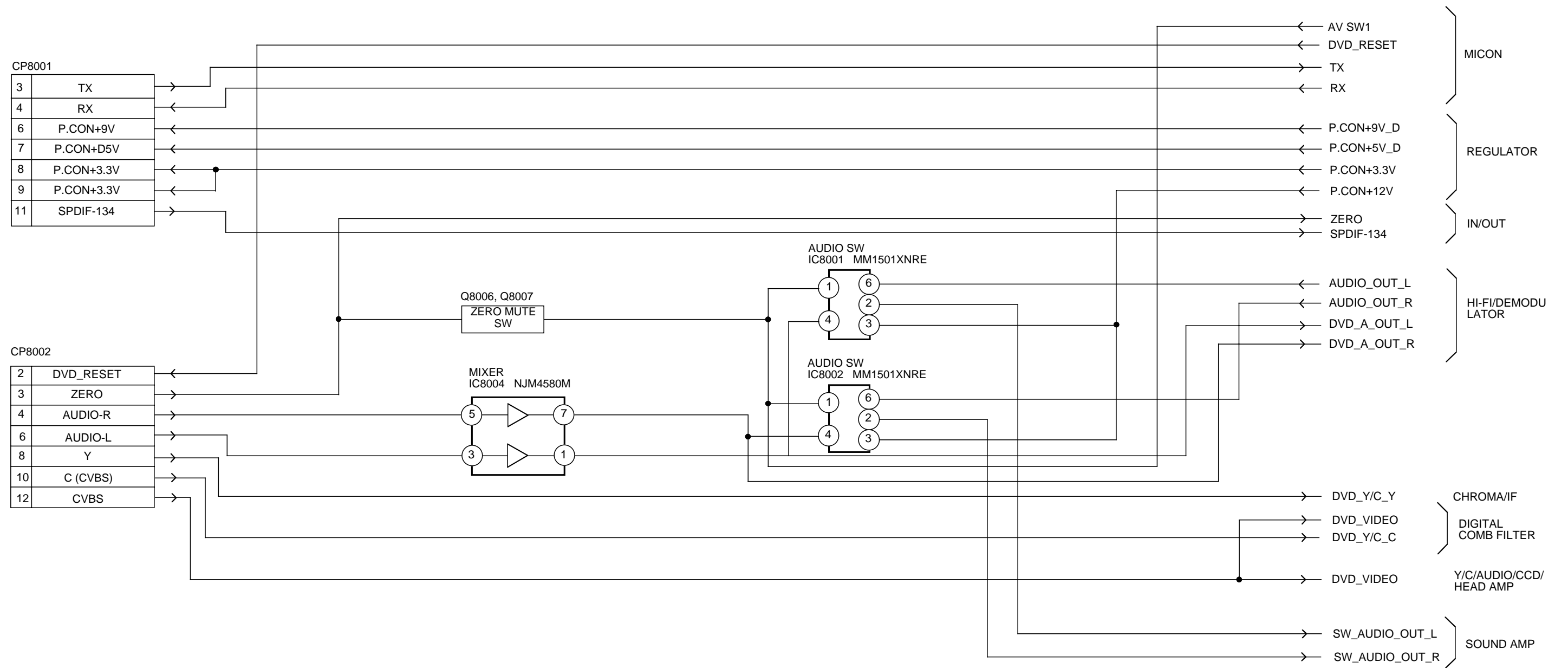
Hi-Fi/DEMODULATOR BLOCK DIAGRAM



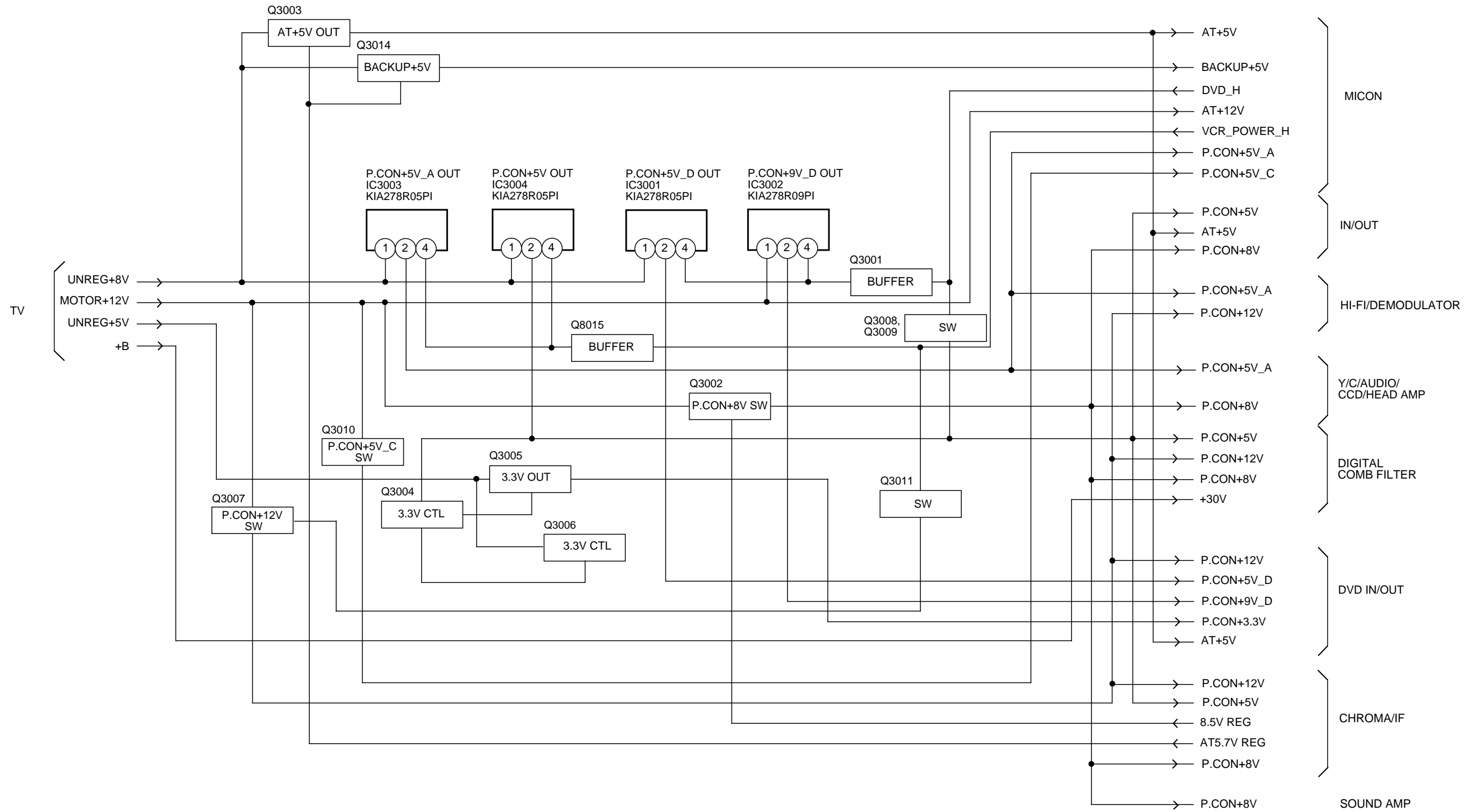
DIGITAL COMB FILTER BLOCK DIAGRAM



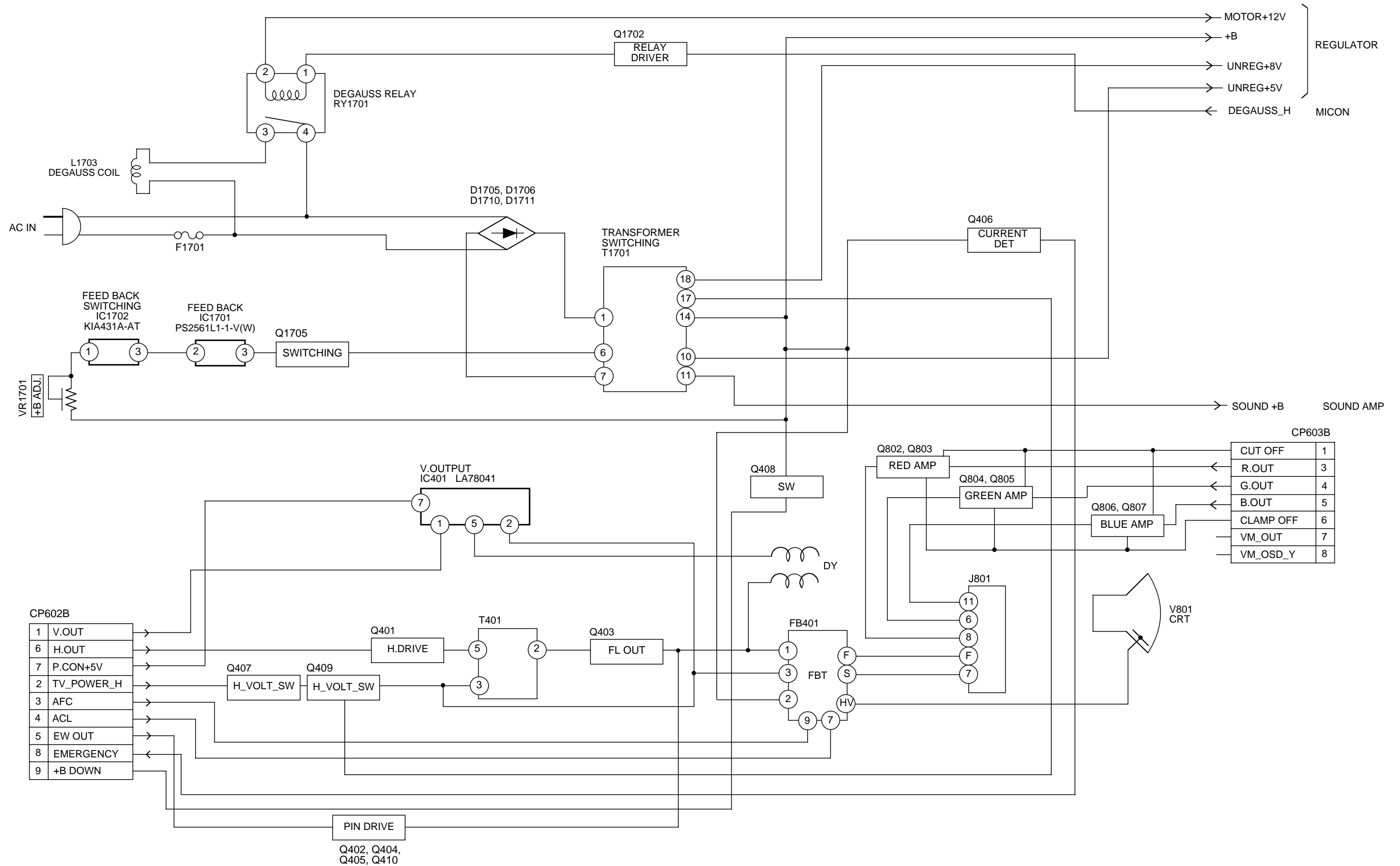
DVD IN/OUT BLOCK DIAGRAM



REGULATOR BLOCK DIAGRAM



TV BLOCK DIAGRAM



CP602B

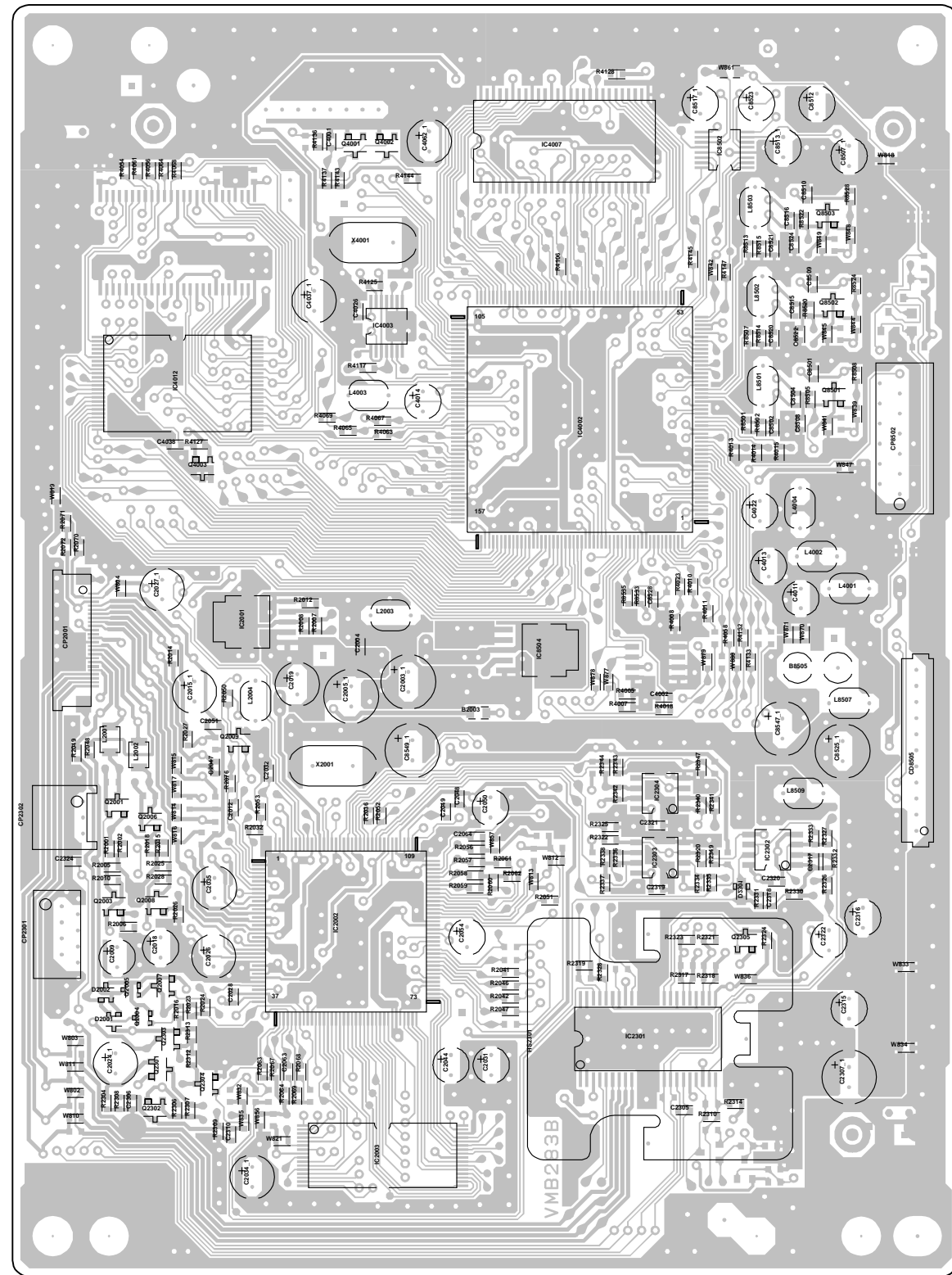
1	V.OUT
6	H.OUT
7	P.CON+5V
2	TV_POWER_H
3	AFC
4	ACL
5	EW OUT
8	EMERGENCY
9	+B DOWN

CP603B

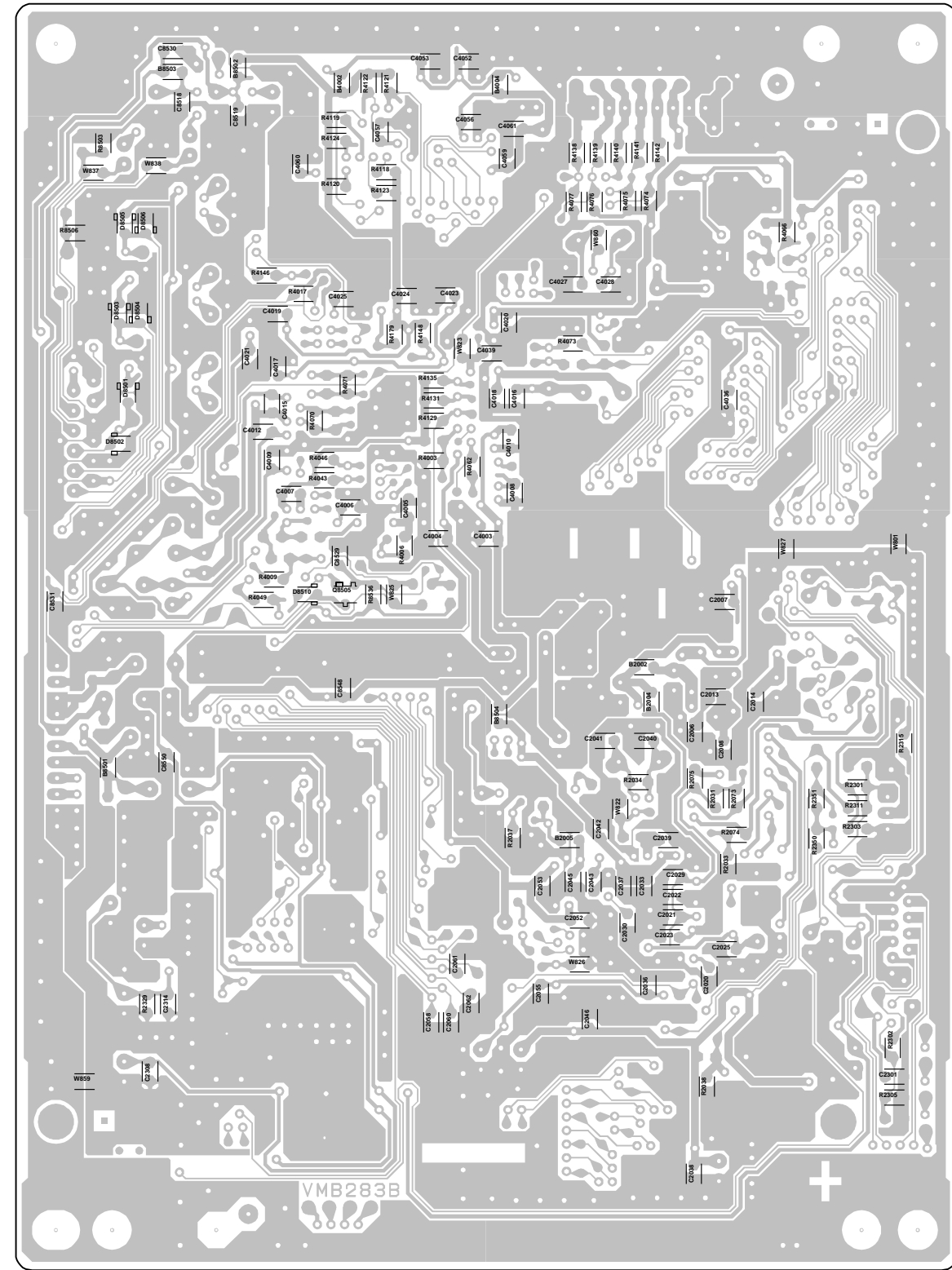
CUT OFF	1
R.OUT	3
G.OUT	4
B.OUT	5
CLAMP OFF	6
VM_OUT	7
VM_OSD_Y	8

PRINTED CIRCUIT BOARDS

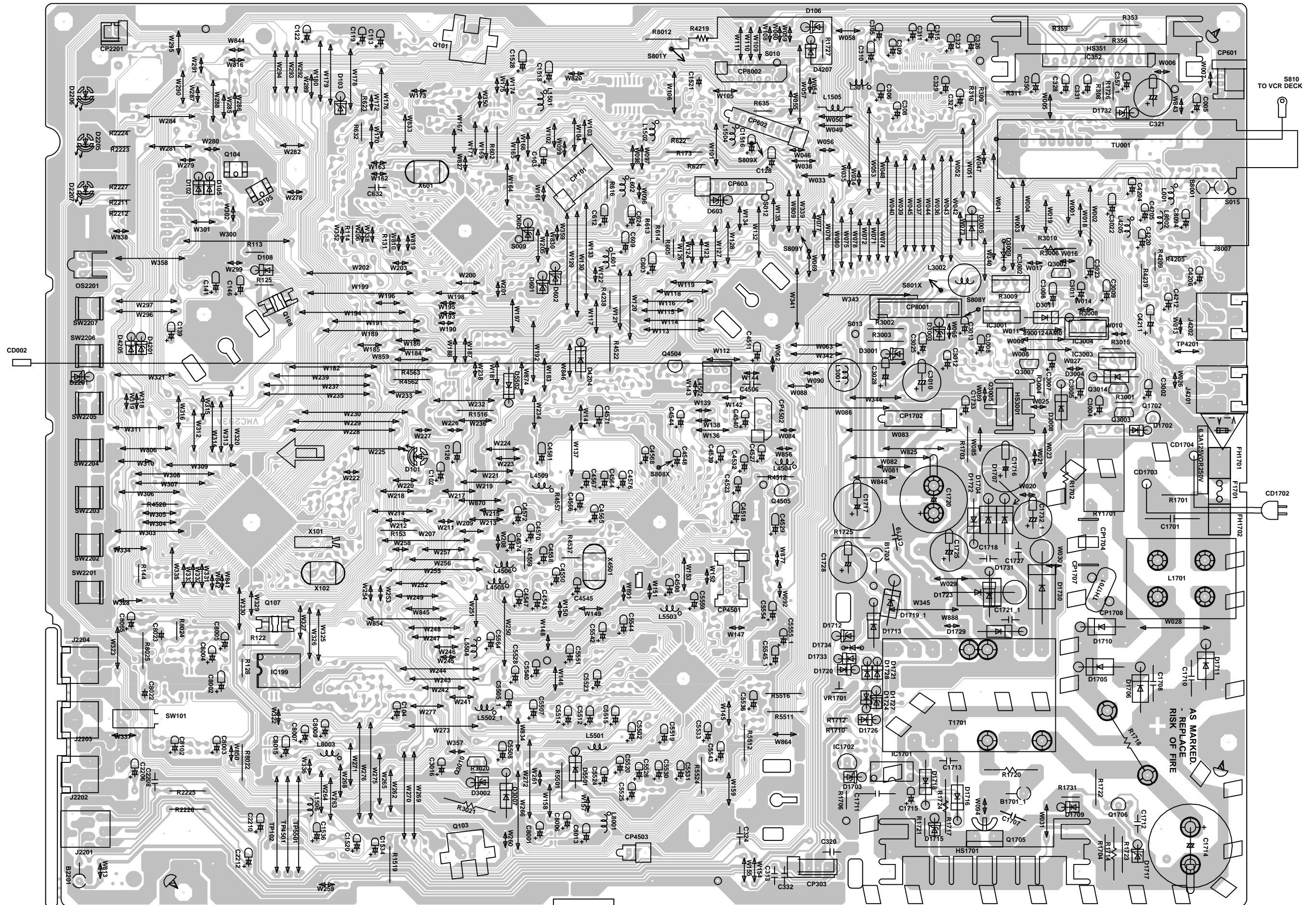
DVD (TOP SIDE)



DVD (BOTTOM SIDE)

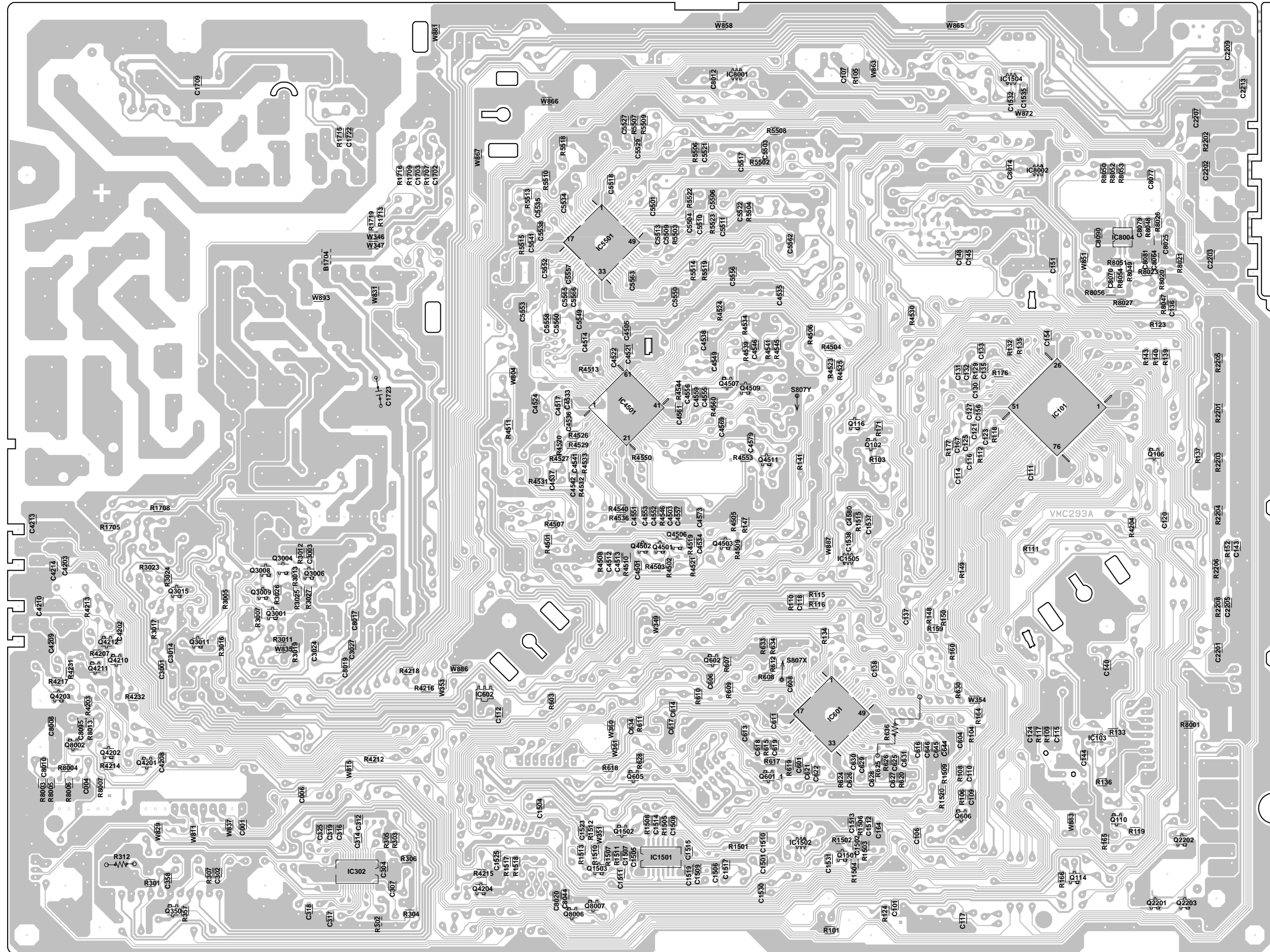


PRINTED CIRCUIT BOARDS
VCR (INSERTED PARTS)
SOLDER SIDE

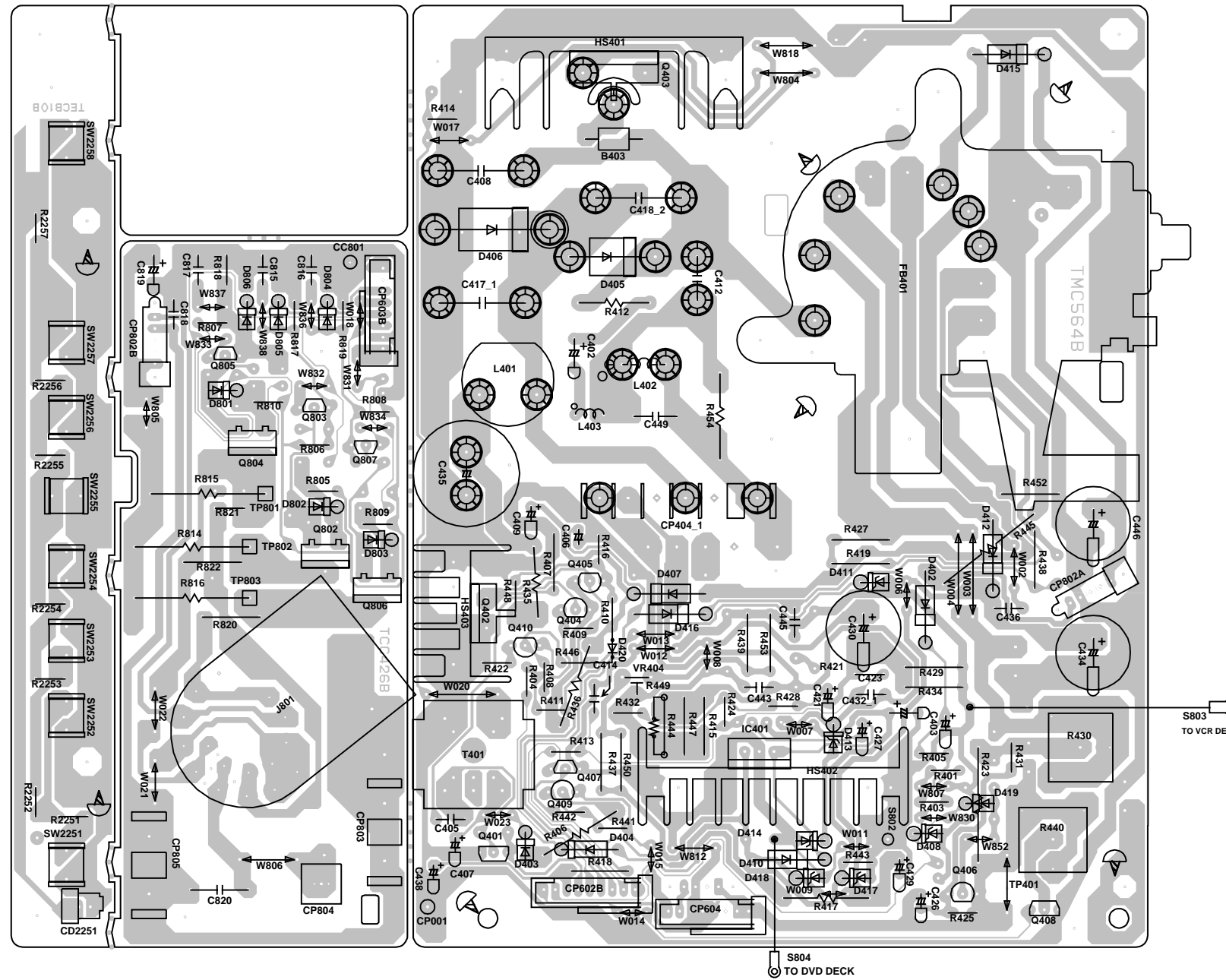


AS MARKED.
- REPLACE
RISK OF FIRE

PRINTED CIRCUIT BOARDS
VCR (CHIP MOUNTED PARTS)
SOLDER SIDE

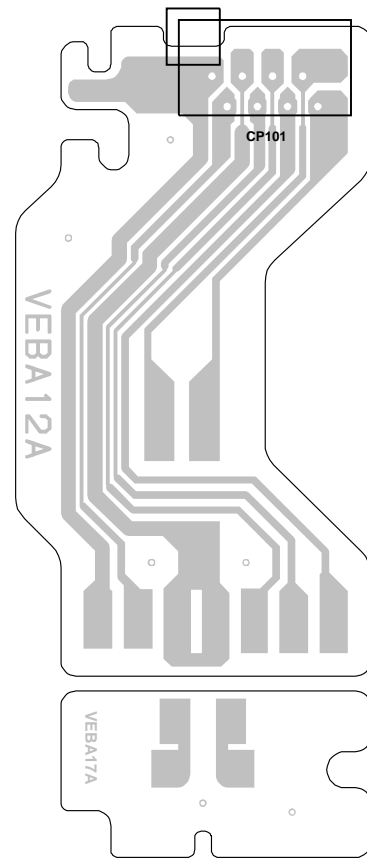


**PRINTED CIRCUIT BOARDS
DEFLECTION/CRT/OPERATION
SOLDER SIDE**

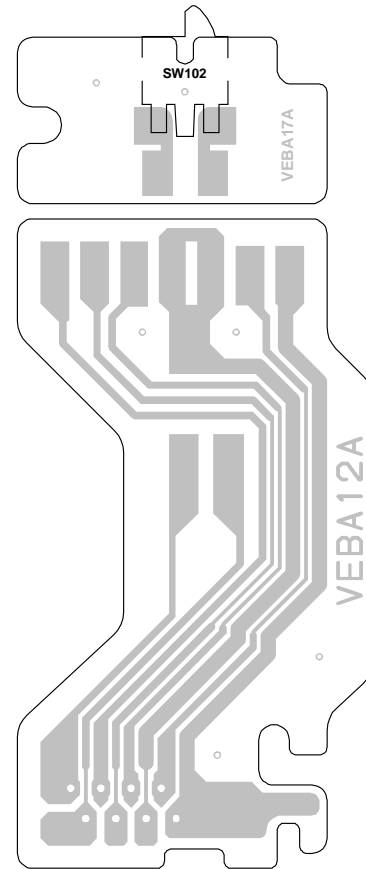


PRINTED CIRCUIT BOARDS

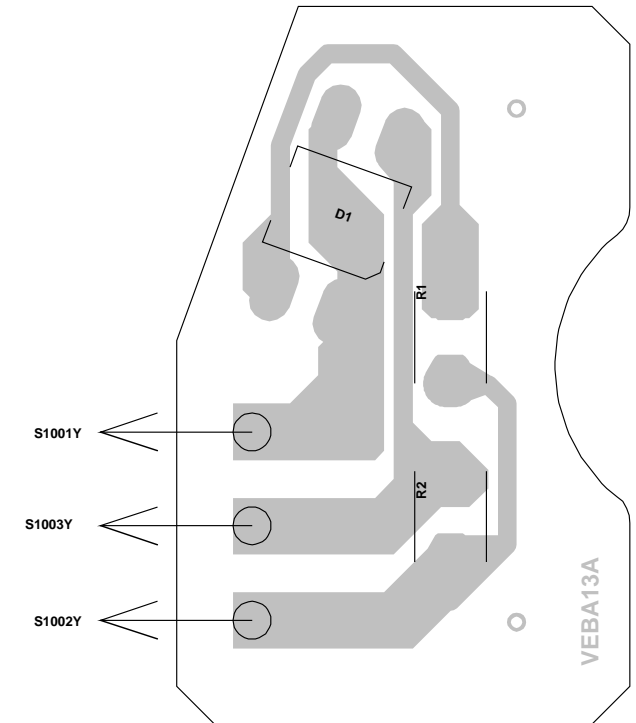
RELAY/SW (INSERTED PARTS) SOLDER SIDE



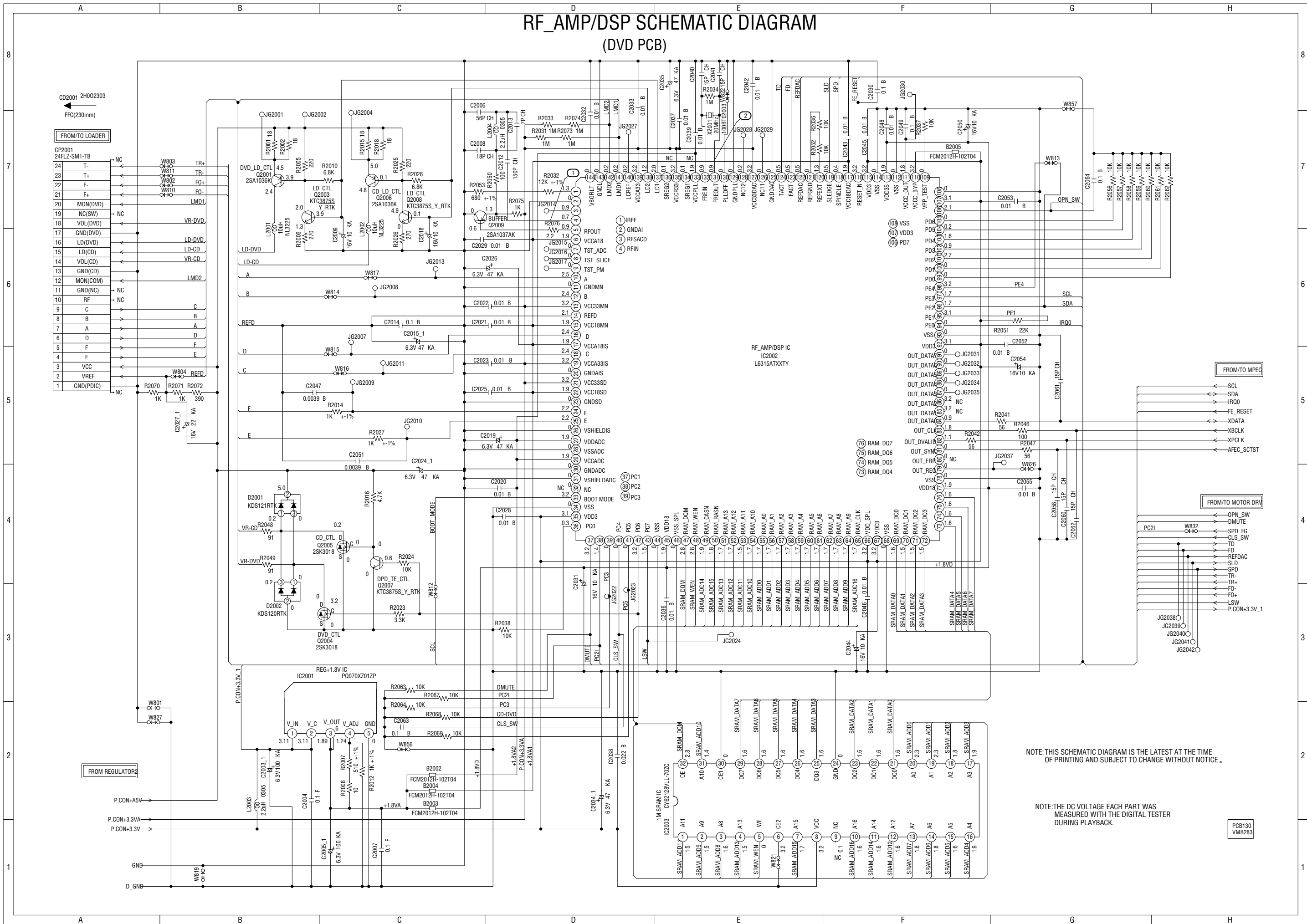
RELAY/SW (CHIP MOUNTED PARTS) SOLDER SIDE



FG (CHIP MOUNTED PARTS) SOLDER SIDE



RF_AMP/DSP SCHEMATIC DIAGRAM (DVD PCB)



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

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

PCB130
VMB283

MOTOR DRIVE SCHEMATIC DIAGRAM

(DVD PCB)

FROM/TO LOADER

8	+5V
7	SP_FG
6	GND
5	LIMIT SW
4	SP1+
3	SP1-
2	SLD+
1	SLD-

CD2301
2H071001
FFC(100mm)

FROM LOADER

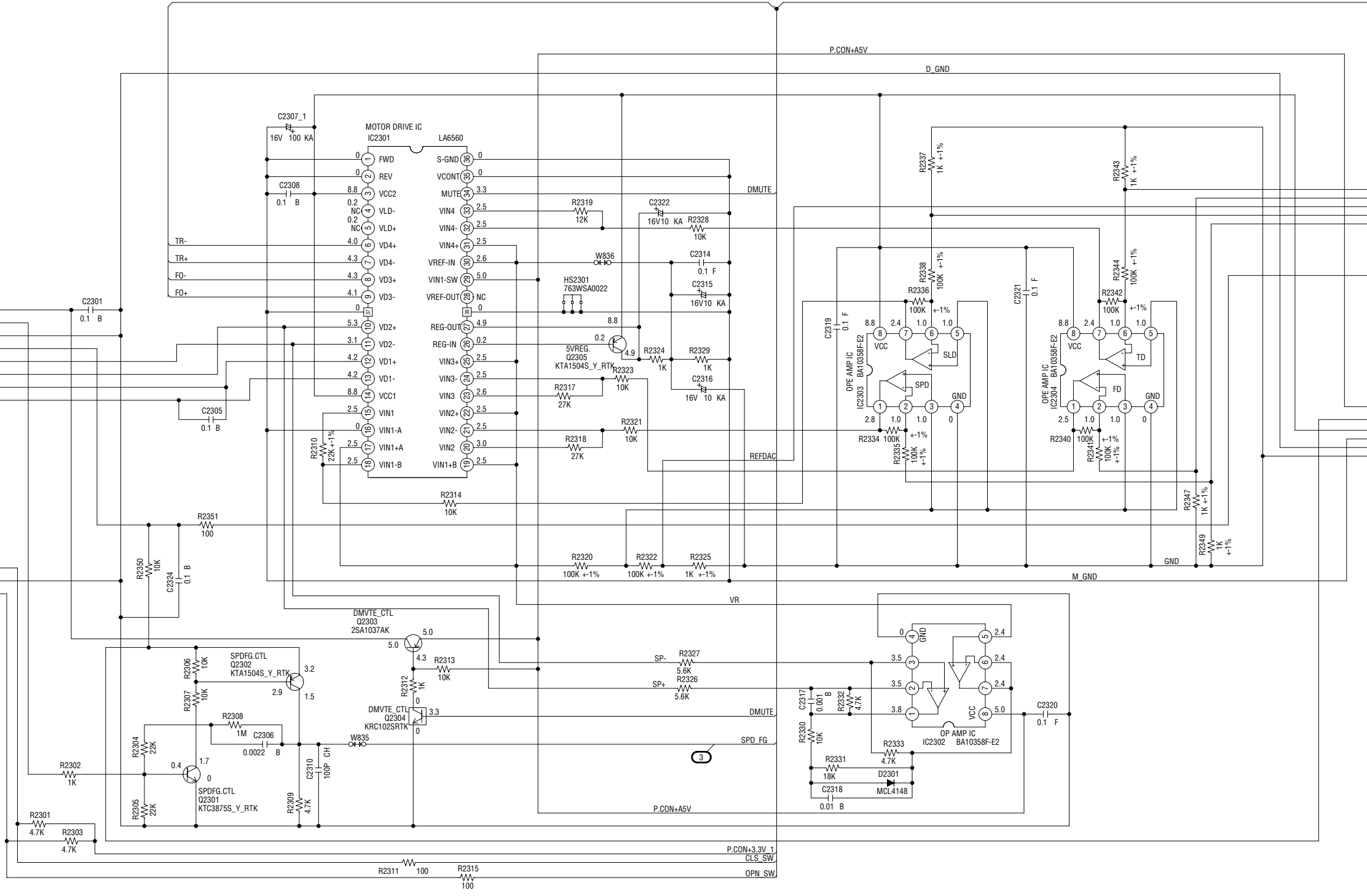
1	CLOSE
2	GND(D)
3	OPEN

FROM/TO RF_AMP/DSP

OPN_SW
DMUTE
SPD_FG
CLS_SW
TD
FD
REFDAC
SLD
SPD
TR+
TR-
FO+
FO-
P.CON+3.3V_1
LSW

FROM/TO REGULATOR2

P.CON+5V
P.CON+3.3V
P.CON+9V
M_GND
D_GND
GND



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

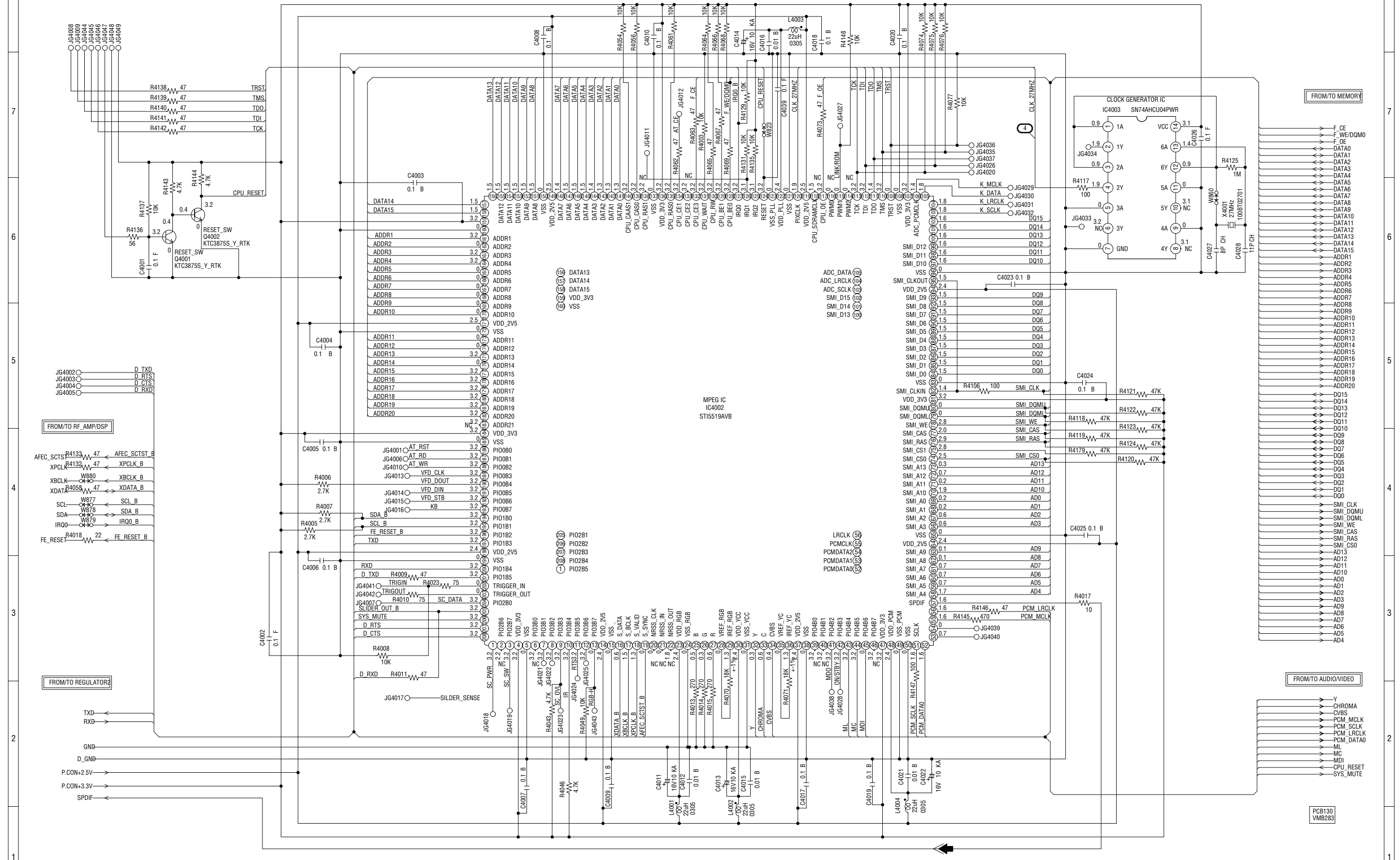
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR



PCB130
VMB283

MPEG SCHEMATIC DIAGRAM (DVD PCB)

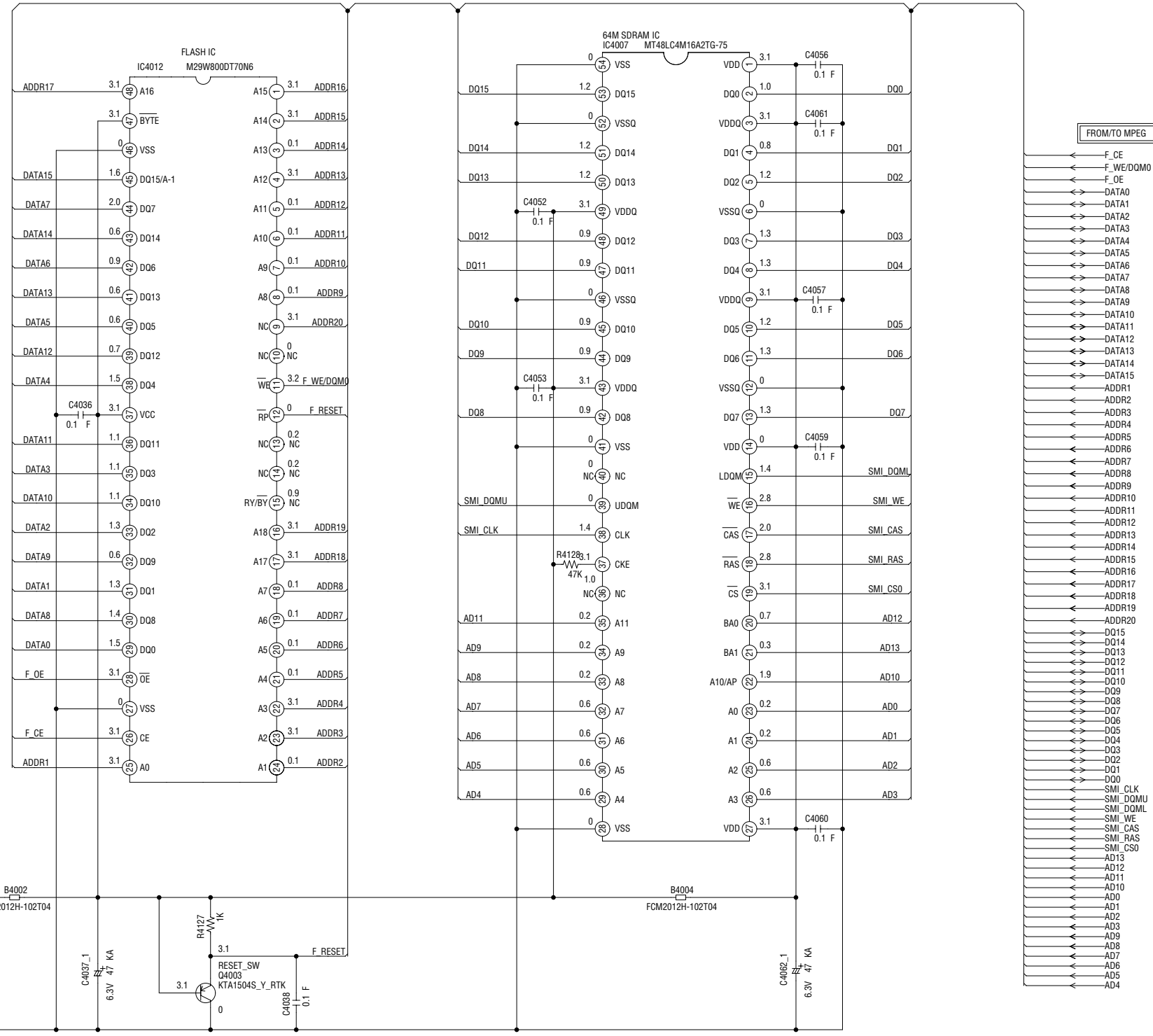


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

← DIGITAL AUDIO SIGNAL (PB)

MEMORY SCHEMATIC DIAGRAM (DVD PCB)



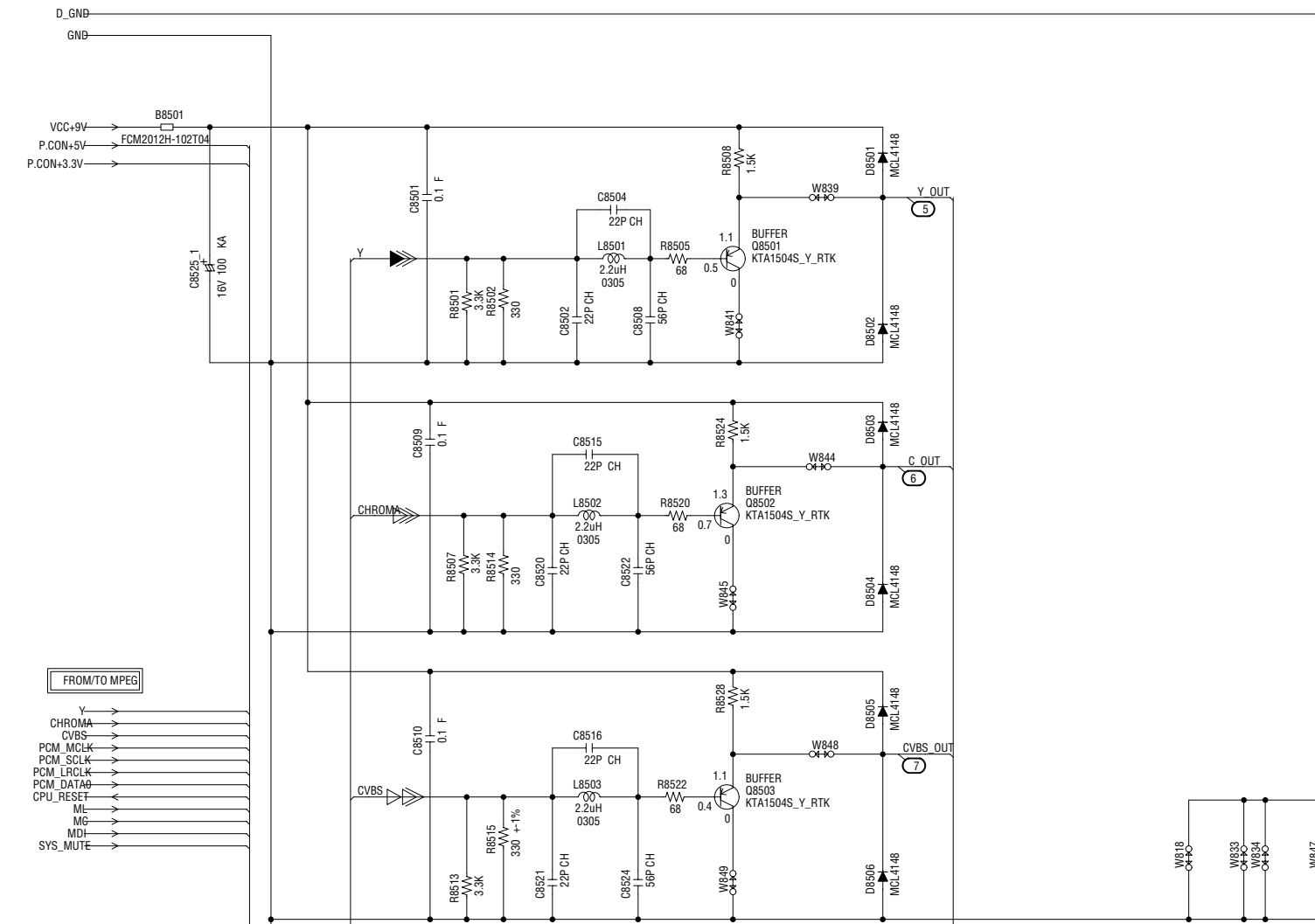
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

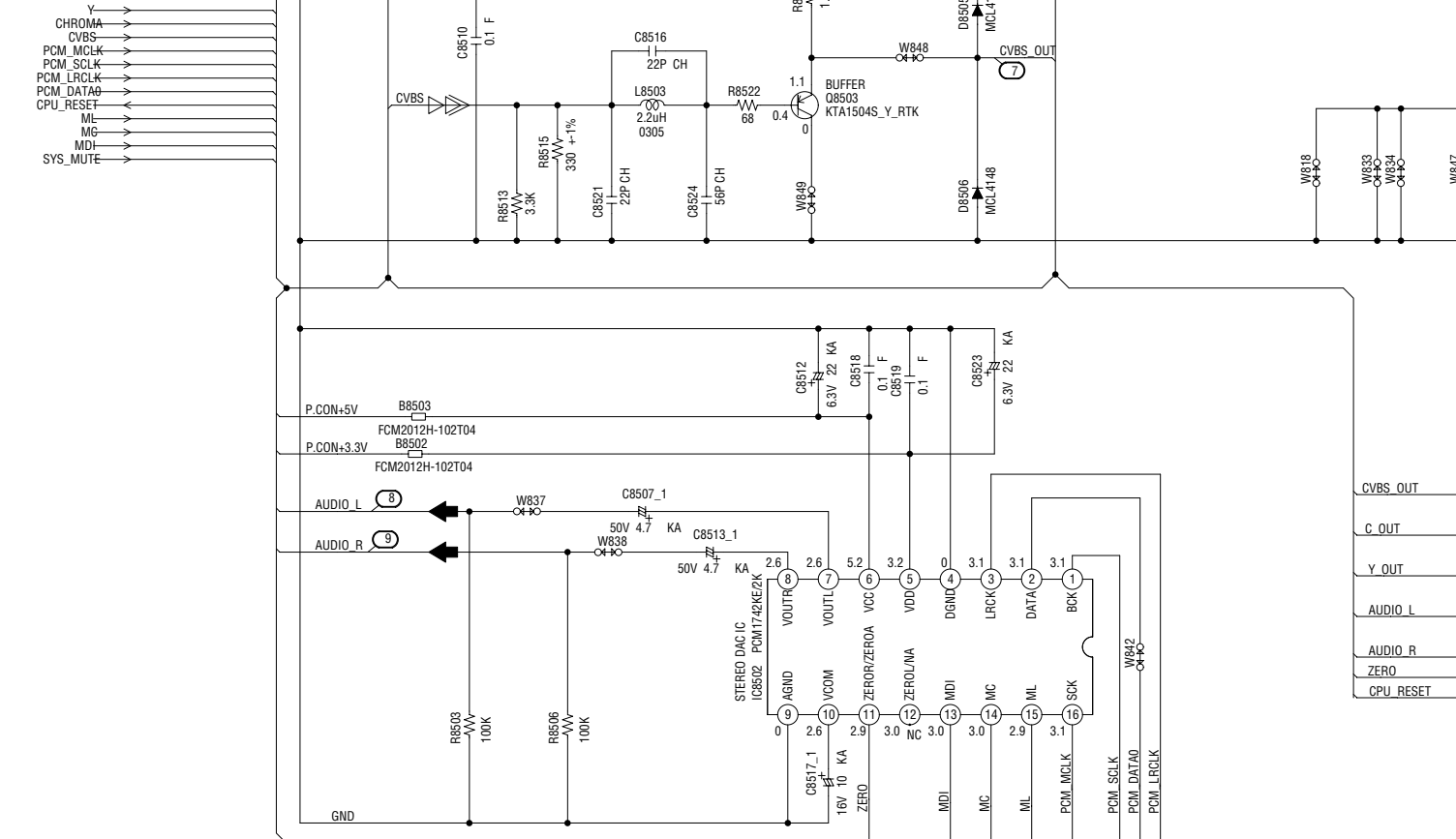
PCB130
VMB283

AUDIO/VIDEO SCHEMATIC DIAGRAM (DVD PCB)

FROM/TO REGULATOR2



FROM/TO MPEG



FFC(1.25mm)

CD8501
2HOC2204

FROM/TO DVD I/O

CP8502 (CP8002)
IMSA-9604S-12Z13



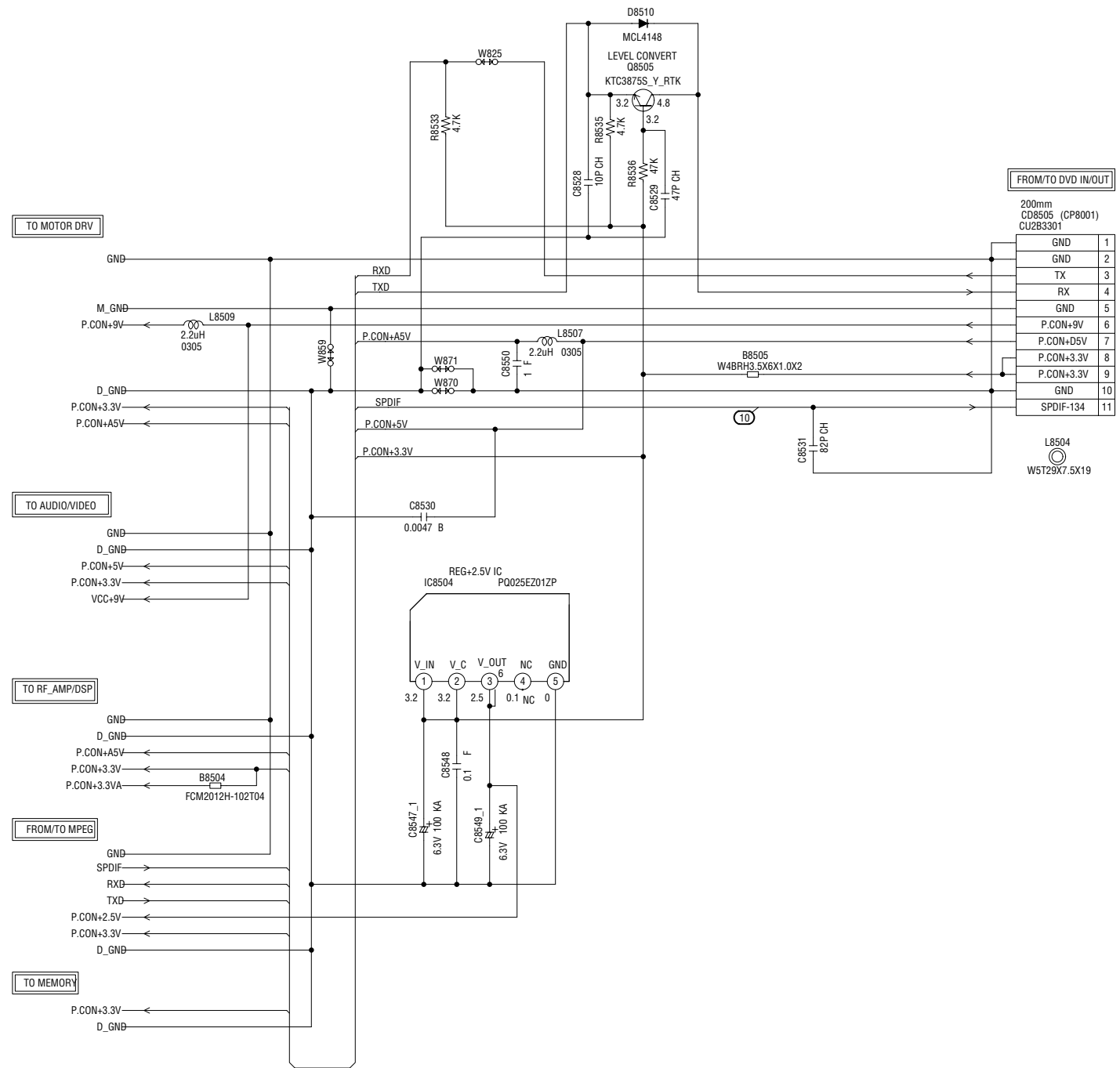
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

- ▶ RECORD LUMINANCE SIGNAL
- ▶ RECORD COLOR SIGNAL
- ▶ PLAYBACK VIDEO SIGNAL
- ▶ AUDIO SIGNAL(PB)

PCB130
VMB283

REGULATOR2 SCHEMATIC DIAGRAM (DVD PCB)

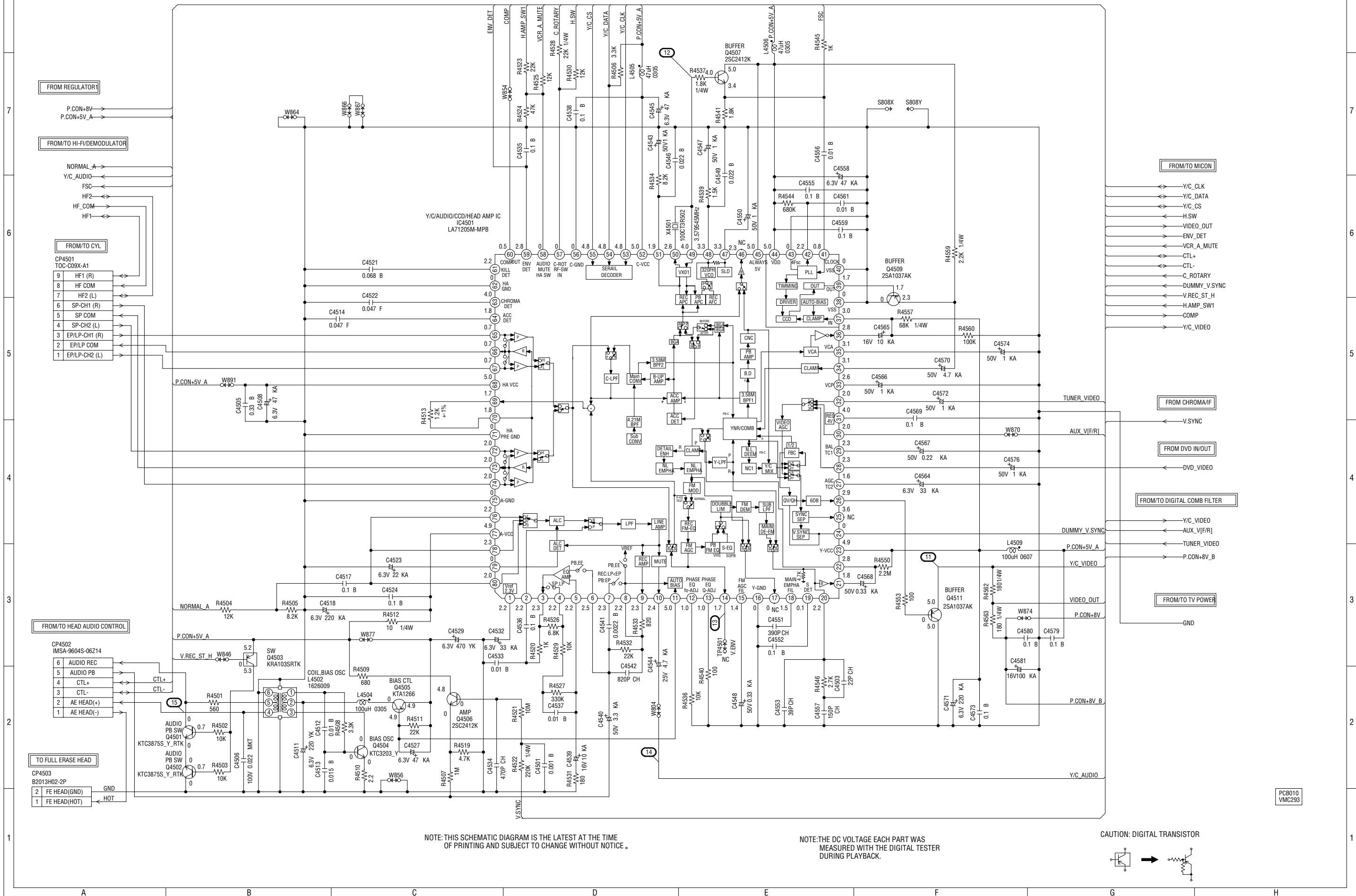


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE .

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

PCB130
VMB283

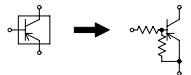
Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM (VCR PCB)



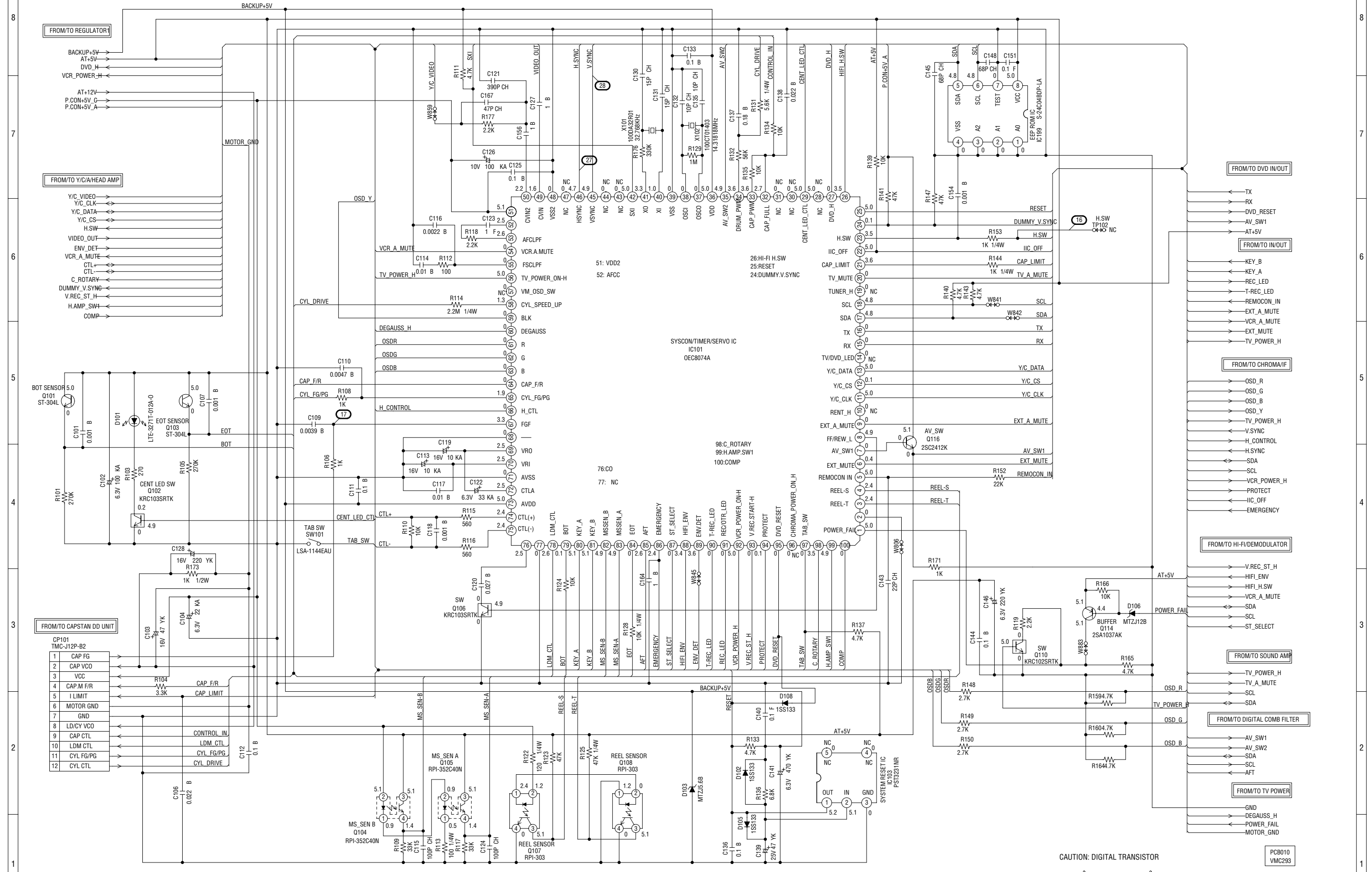
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

CAUTION: DIGITAL TRANSISTOR



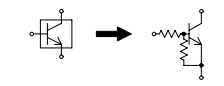
MICON SCHEMATIC DIAGRAM (VCR PCB)



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

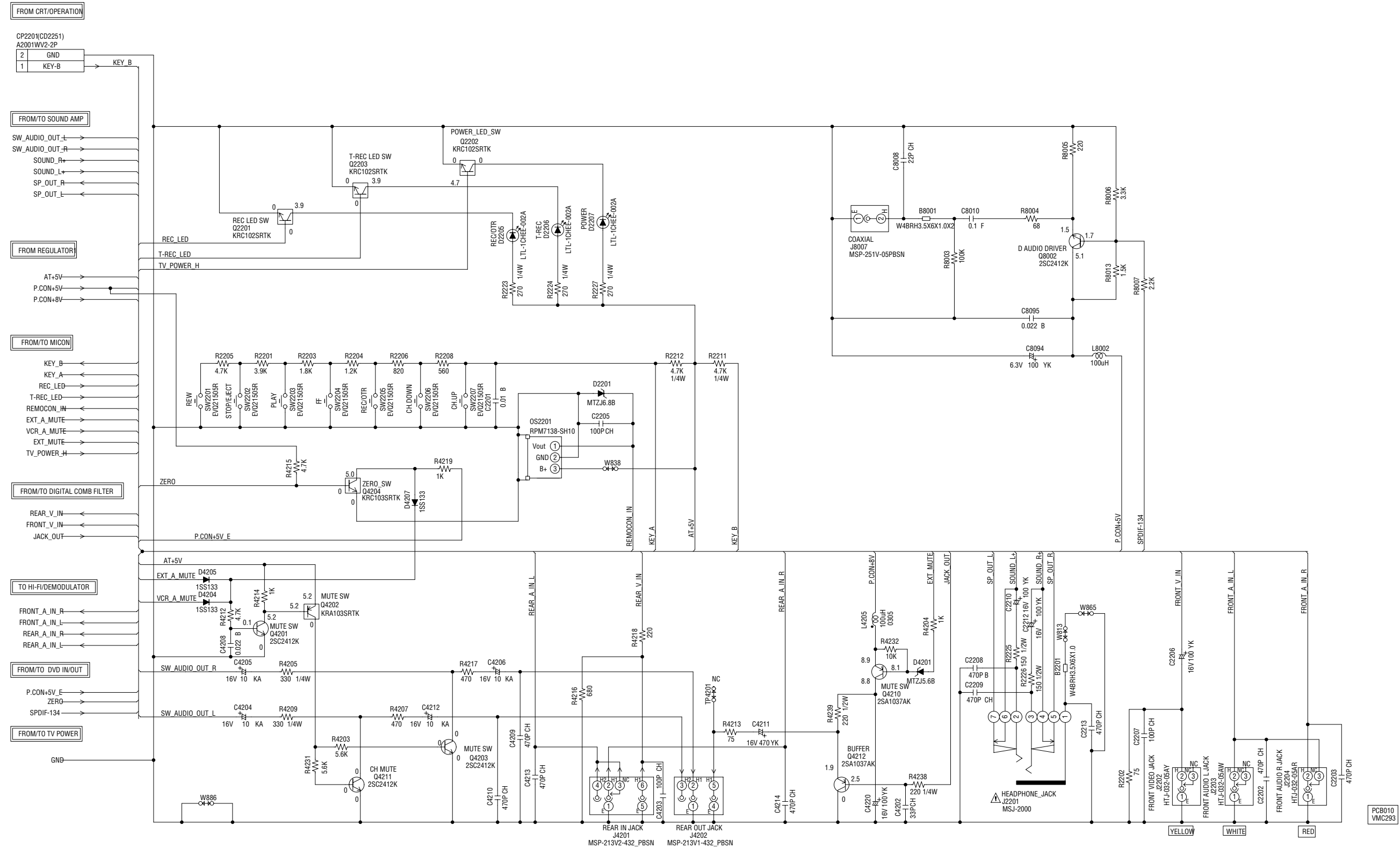
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR



PCB010 VMC293

IN/OUT SCHEMATIC DIAGRAM (VCR PCB)



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

ATTENTION LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIÈCES.

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

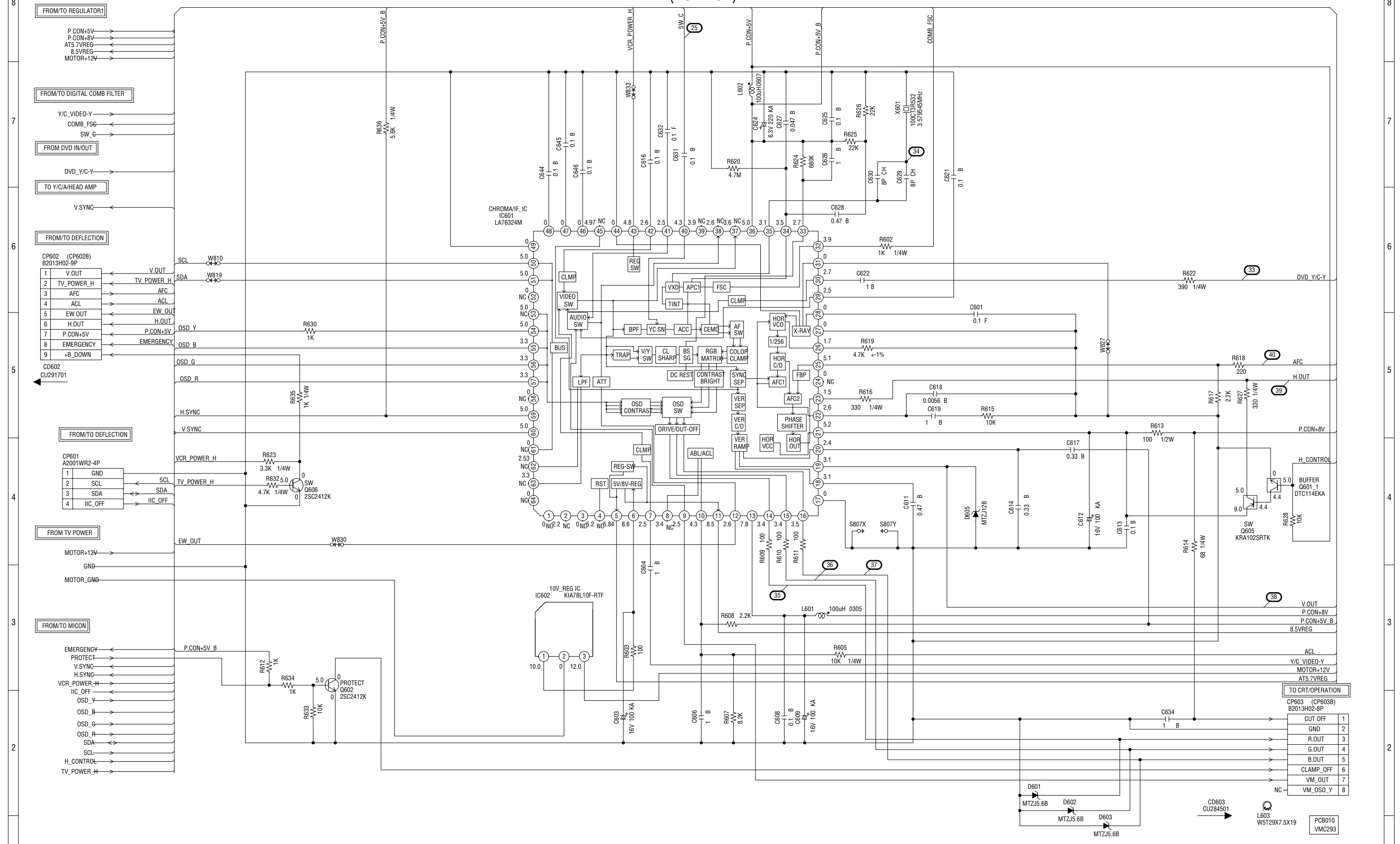
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR

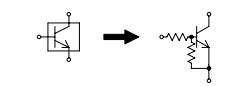
CAUTION: DIGITAL TRANSISTOR



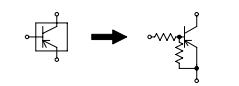
CHROMA/IF SCHEMATIC DIAGRAM (VCR PCB)



CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR

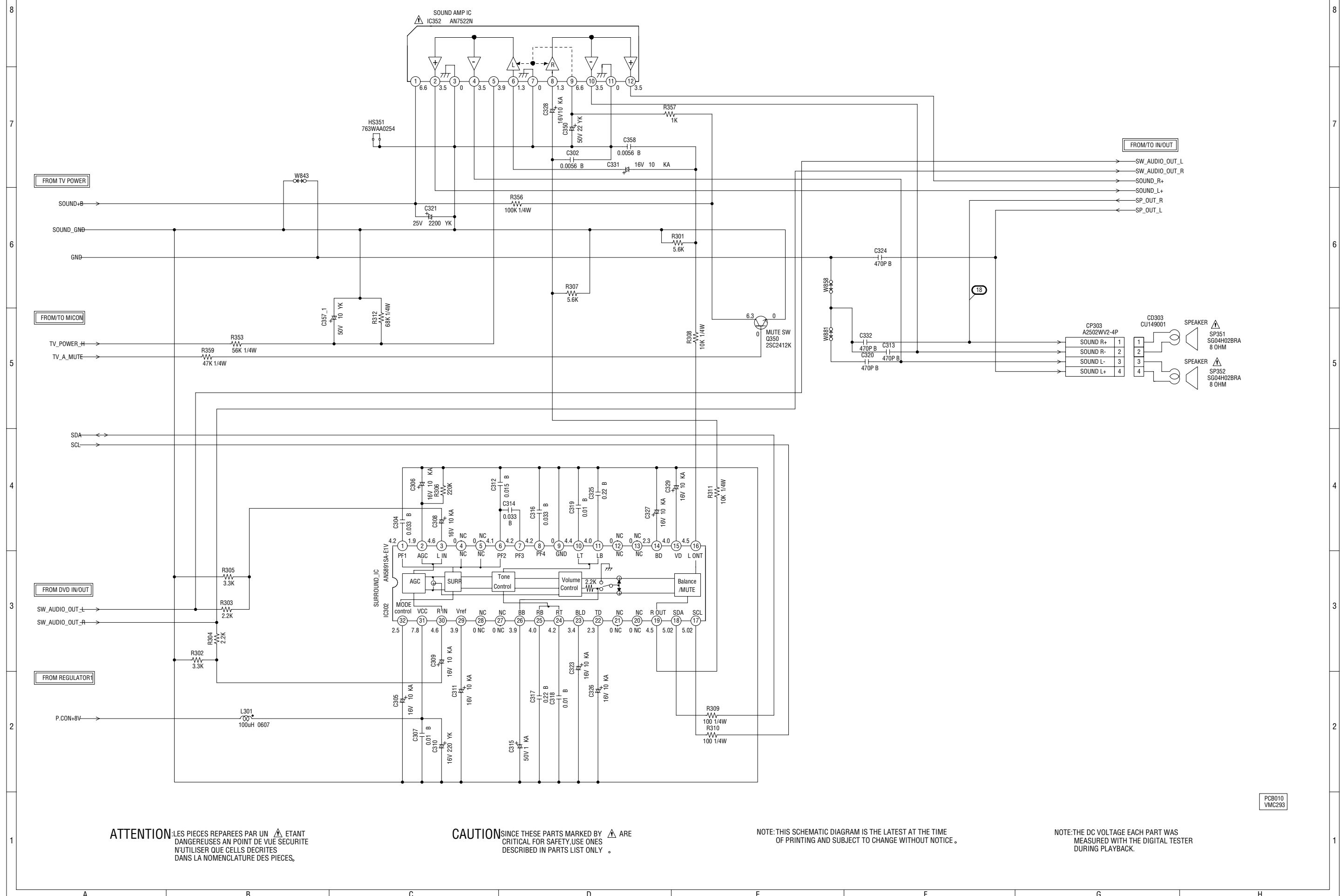


NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

SOUND AMP/SURROUND SCHEMATIC DIAGRAM (VCR PCB)



ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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

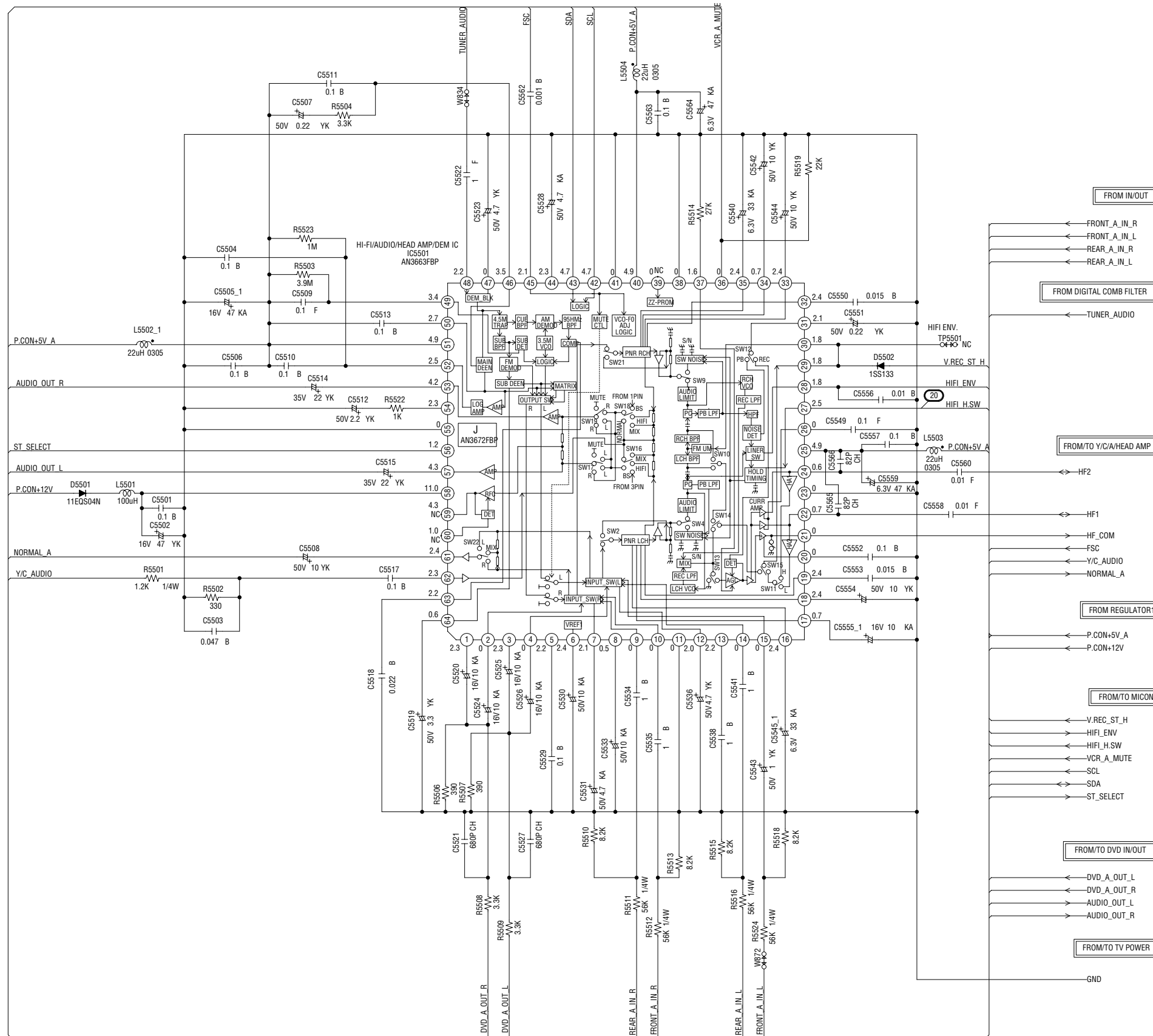
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

PCB010
VMC293

Hi-Fi/DEMODULATOR SCHEMATIC DIAGRAM

(VCR PCB)



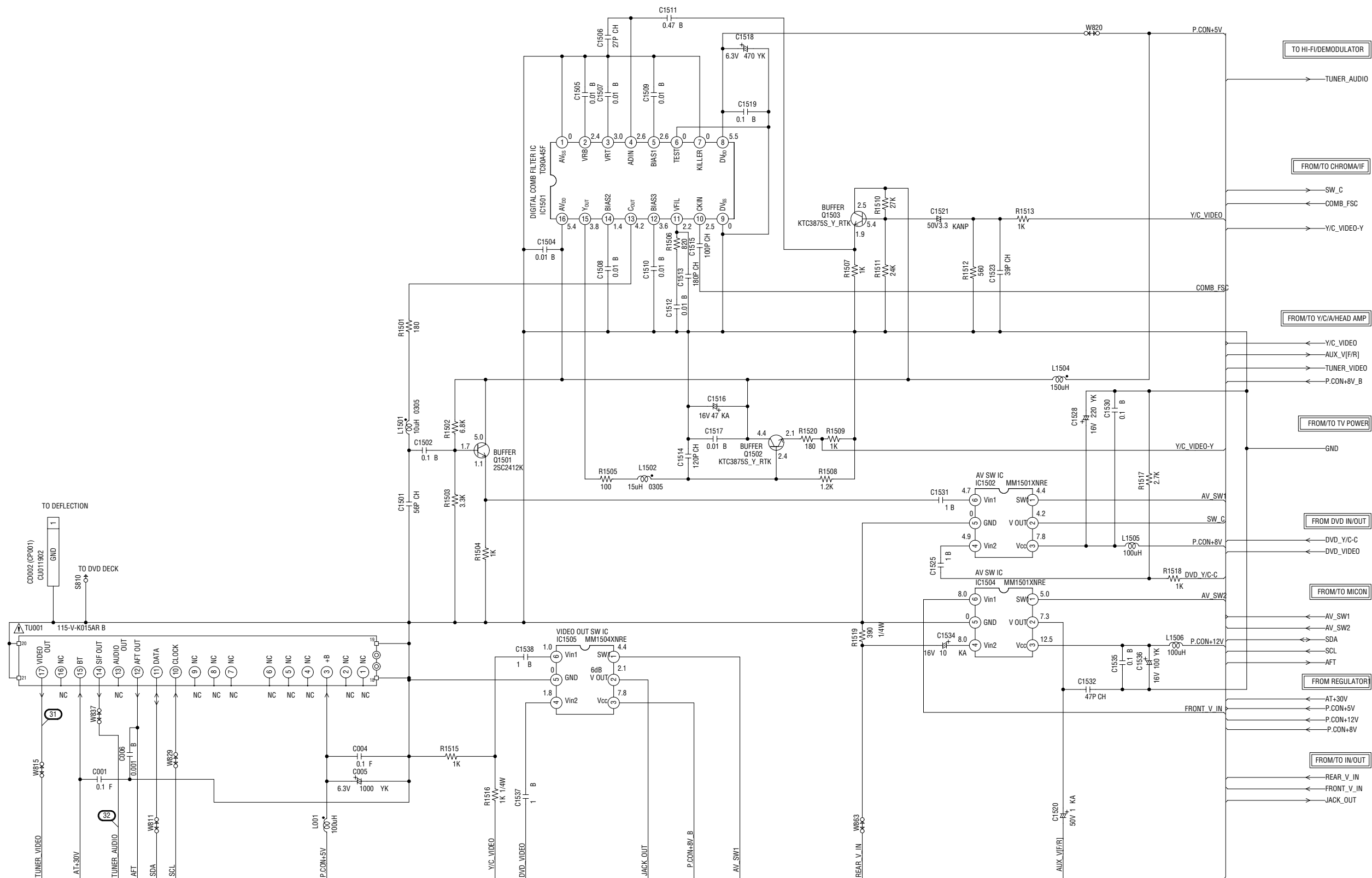
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

PCB010
VMC293

DIGITAL COMB FILTER SCHEMATIC DIAGRAM

(VCR PCB)



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

ATTENTION LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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.

PC8010
VMC293

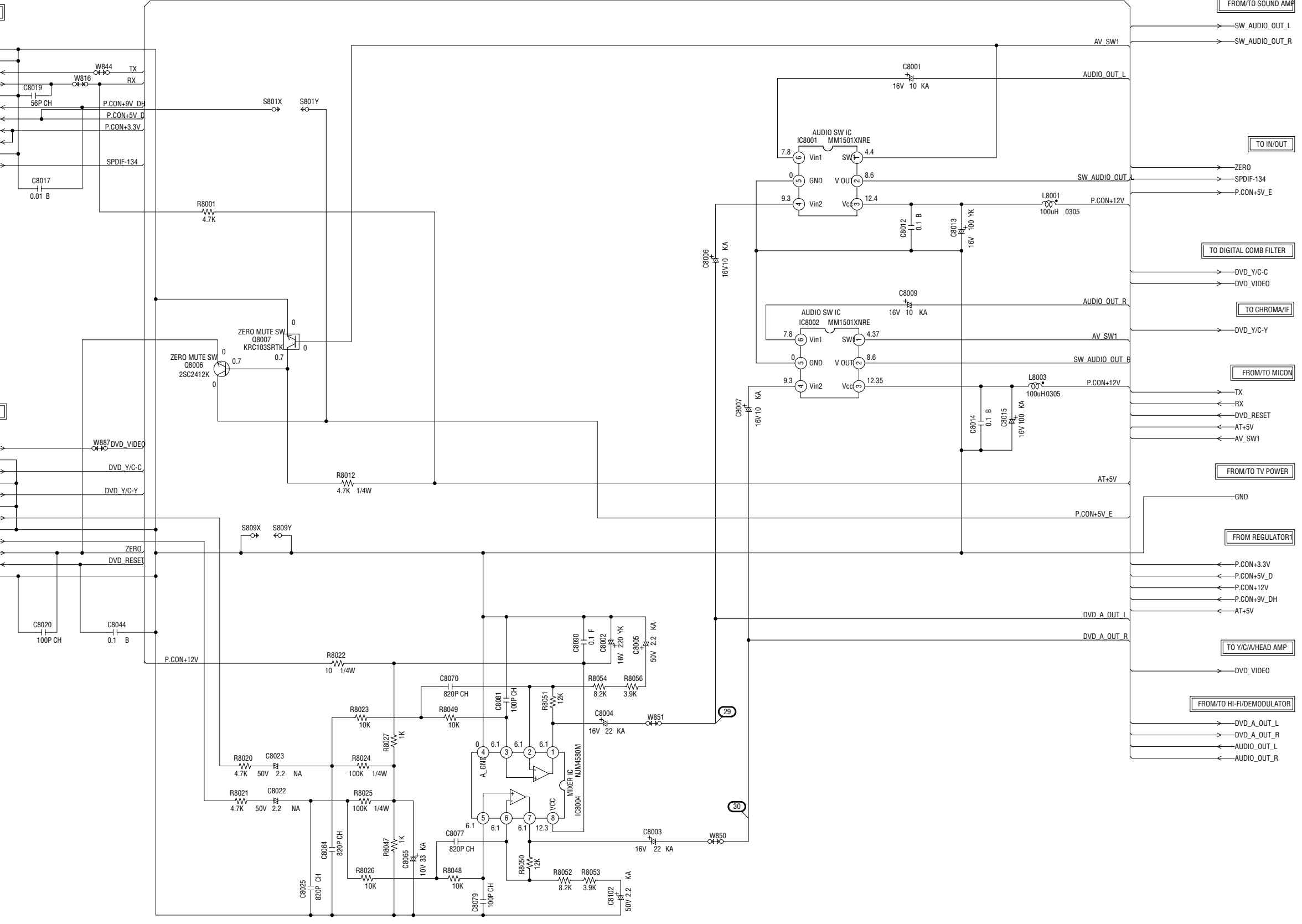
DVD IN/OUT SCHEMATIC DIAGRAM (VCR PCB)

FROM/TO REGULATOR2

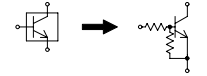
1	GND
2	GND
3	TX
4	RX
5	GND
6	P.CON+9V
7	P.CON+5V D
8	P.CON+3.3V
9	P.CON+3.3V
10	GND
11	SPDIF-134

FROM/TO AUDIO/VIDEO

12	CVBS
11	GND
10	C(CVBS)
9	GND
8	Y
7	GND
6	AUDIO-L
5	GND
4	AUDIO-R
3	ZERO
2	DVD RESET
1	GND



CAUTION: DIGITAL TRANSISTOR



NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

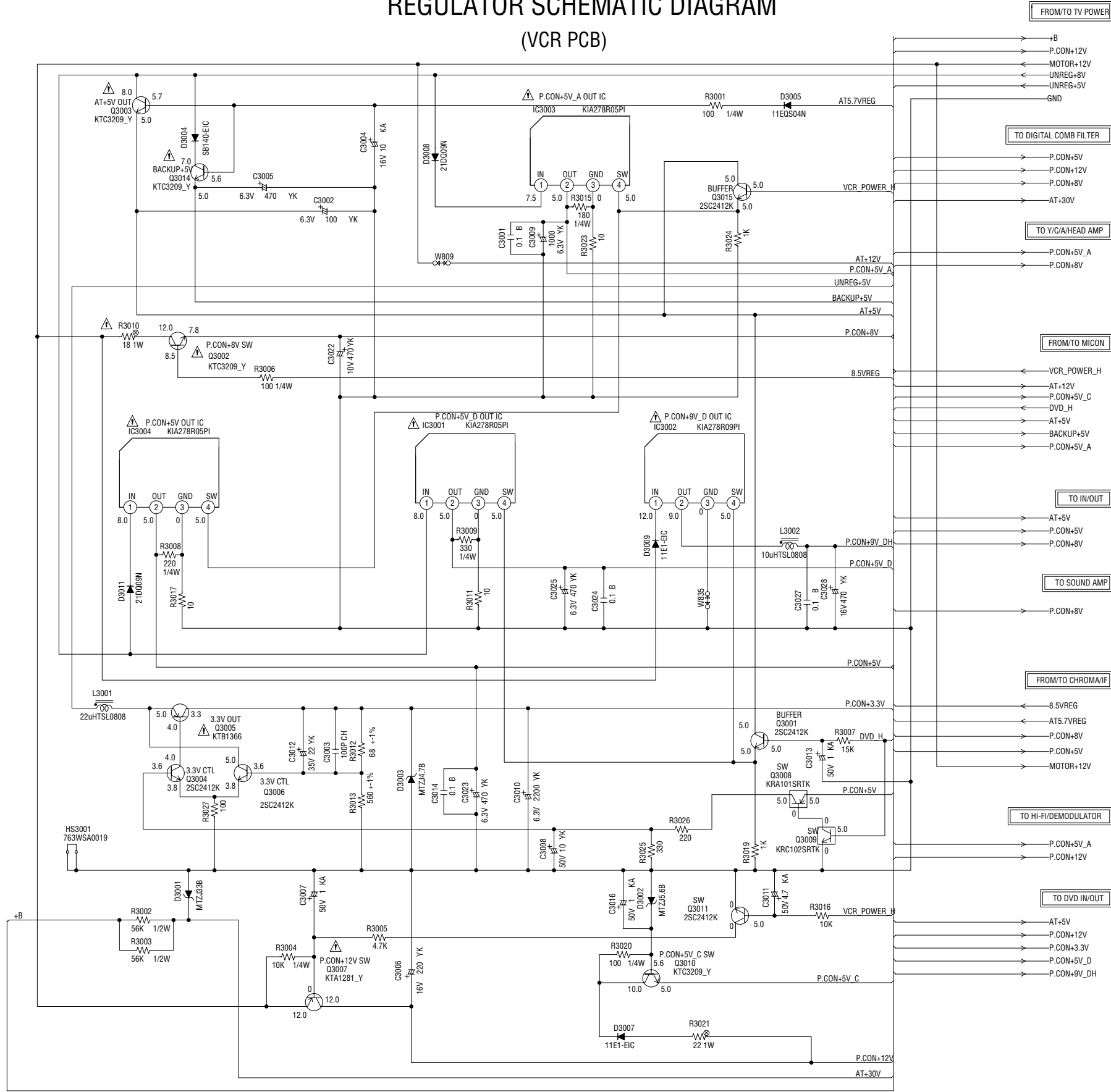
NOTE: THE DC VOLTAGE EACH PART WAS
MEASURED WITH THE DIGITAL TESTER
DURING PLAYBACK.

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

PC8010
VMC293

REGULATOR SCHEMATIC DIAGRAM

(VCR PCB)



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

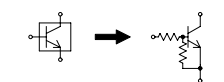
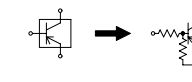
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

ATTENTION - LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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

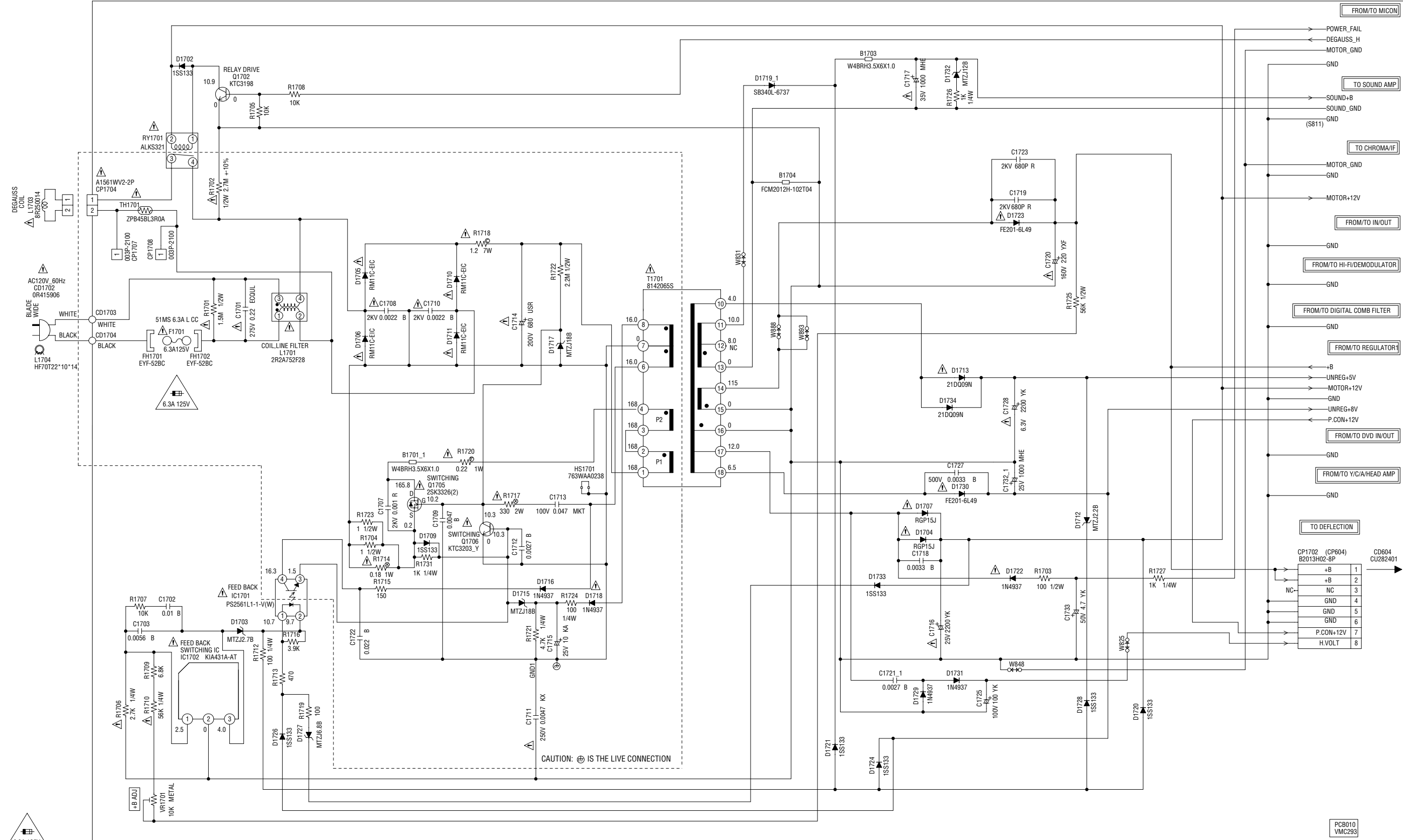
CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR



PCB010
VMC293

TV POWER SCHEMATIC DIAGRAM (VCR PCB)



CAUTION FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V (F1701)

ATTENTION POUR UNE PROTECTION CONTINUE LES RISQUES D'INCENDIE N'UTILISER QUE DES FUSIBLES DE MEME TYPE 6.3A 125V (F1701)

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

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

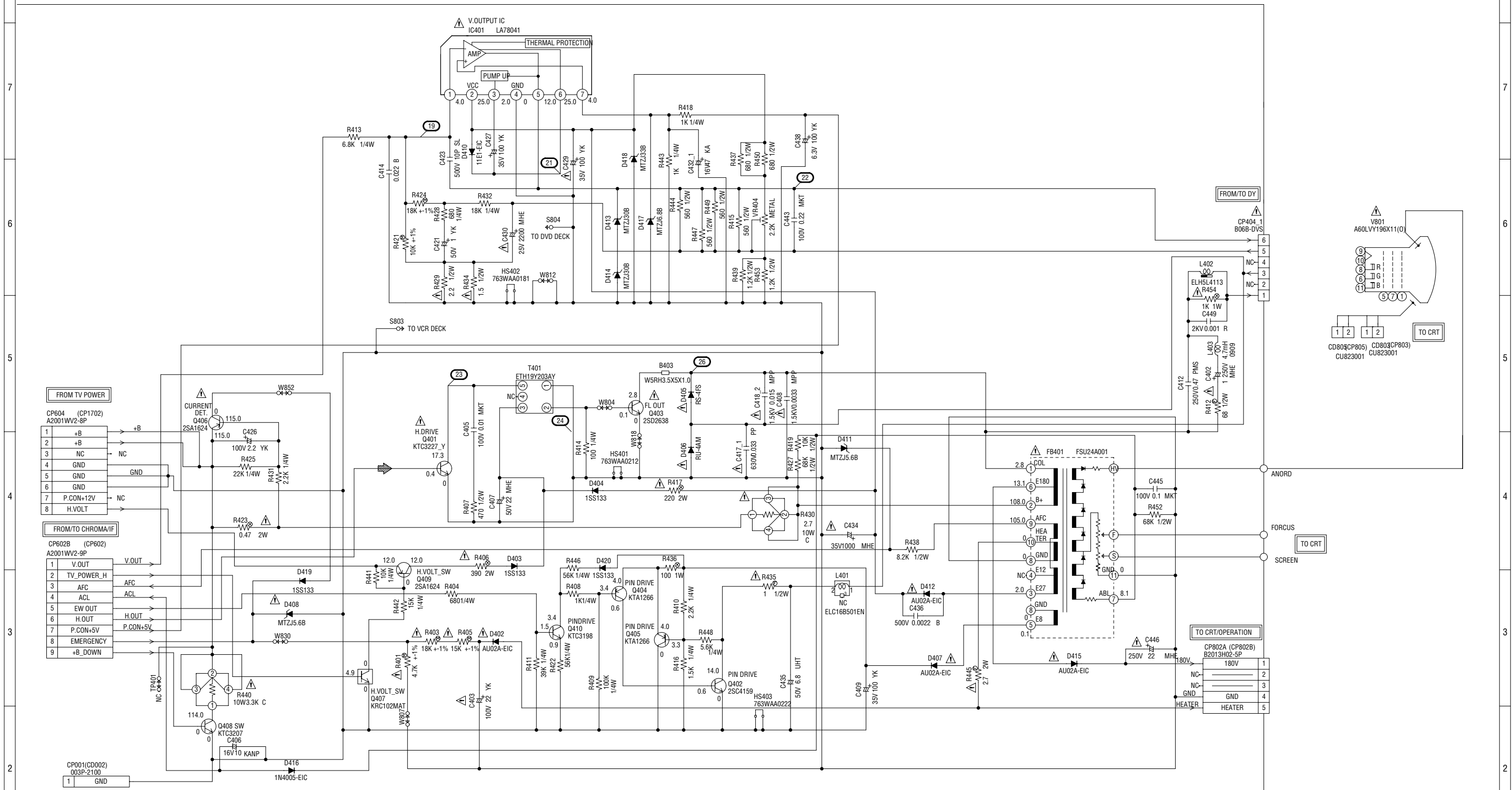
CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION LES PIECES REPARÉES PAR UN ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

DEFLECTION SCHEMATIC DIAGRAM

(DEFLECTION MT PCB)



FROM TV POWER

1	+B
2	+B
3	NC
4	GND
5	GND
6	GND
7	P.CON+12V
8	H.VOLT

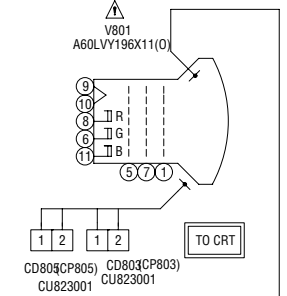
FROM/TO CHROMA/IF

1	V.OUT
2	TV_POWER_H
3	AFC
4	ACL
5	EW OUT
6	H.OUT
7	P.CON+5V
8	P.CON+5V
9	EMERGENCY
9	+B_DOWN

CP001(CD002) 003P-2100

1	GND
---	-----

FROM/TO DY



TO CRT/OPERATION

1	180V
2	NC
3	NC
4	GND
5	HEATER

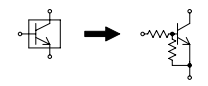
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

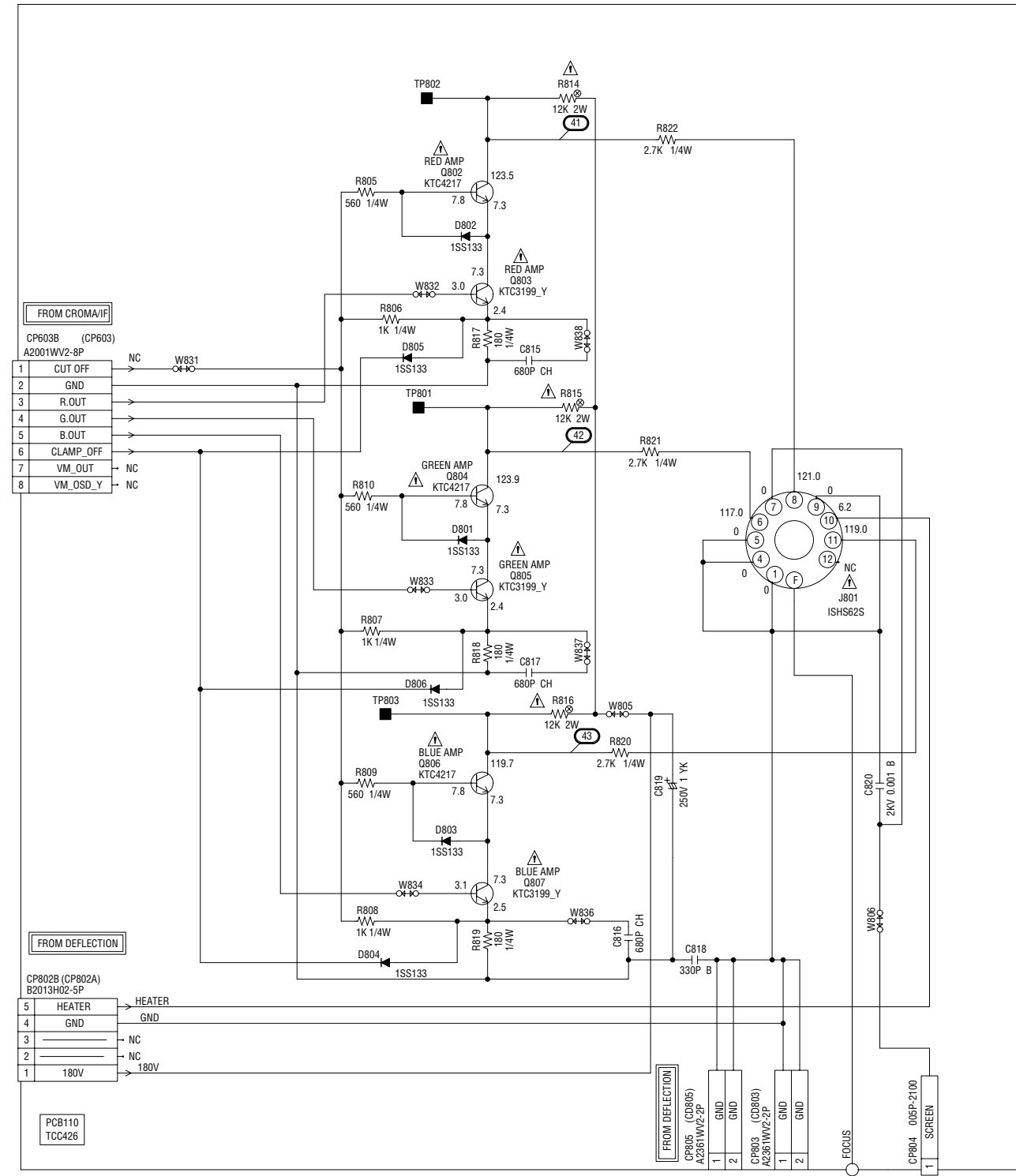
CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRIRES DANS LA NOMENCLATURE DES PIECES.

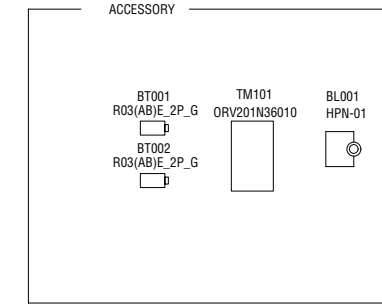
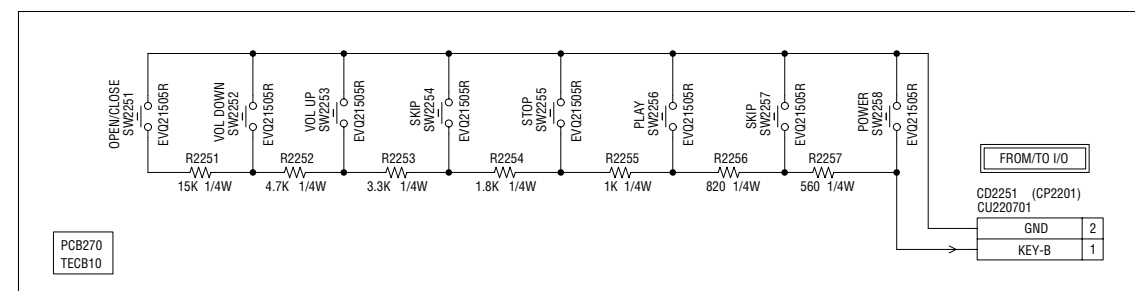
CAUTION: DIGITAL TRANSISTOR



CRT/OPERATION SCHEMATIC DIAGRAM (CRT PCB)



(OPERATION PCB)



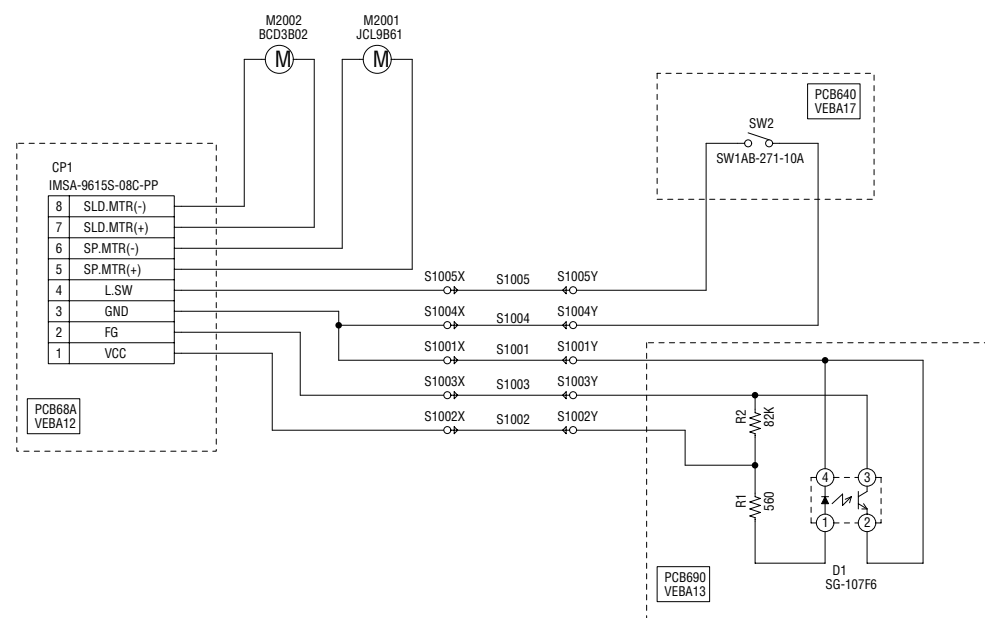
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

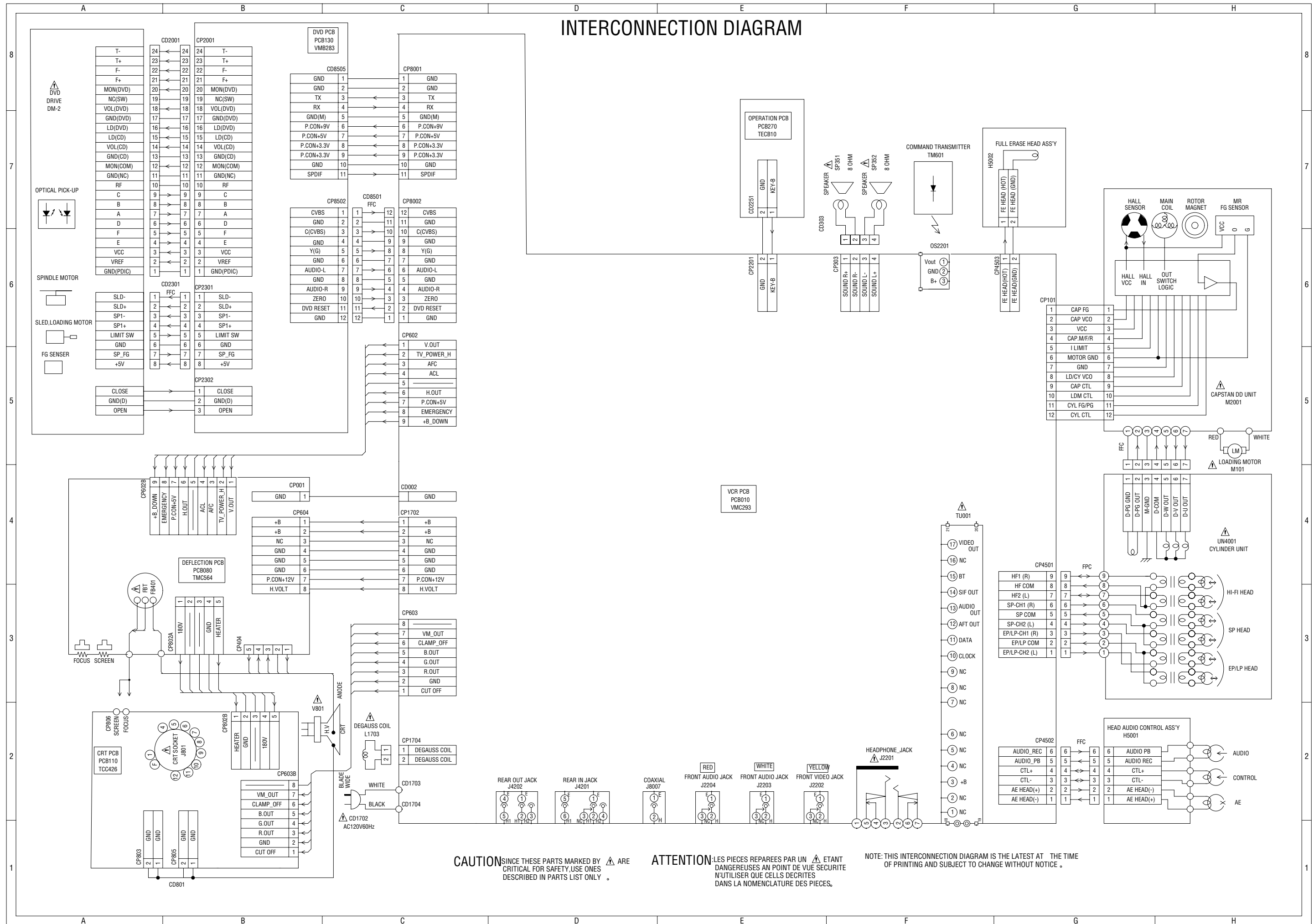
CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

SW/RELAY/FG SCHEMATIC DIAGRAM



INTERCONNECTION DIAGRAM



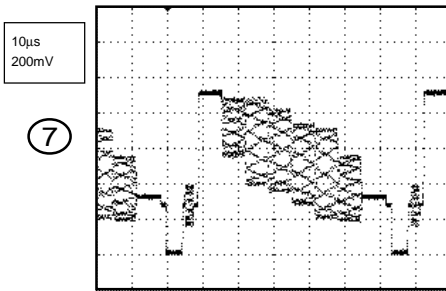
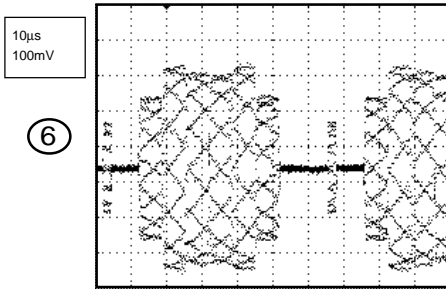
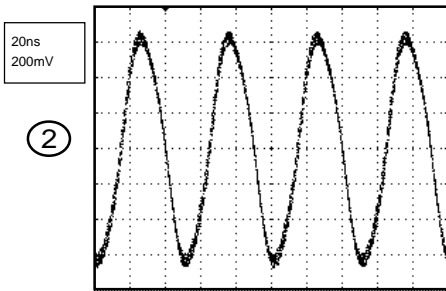
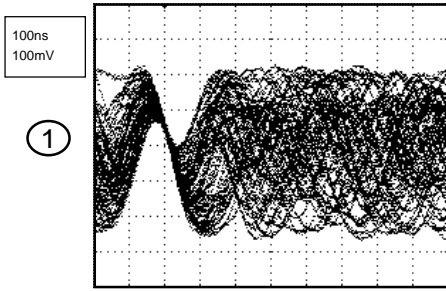
CAUTION SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIÈCES.

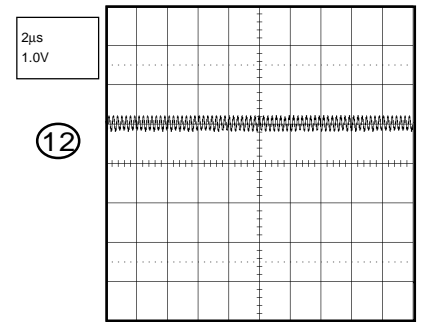
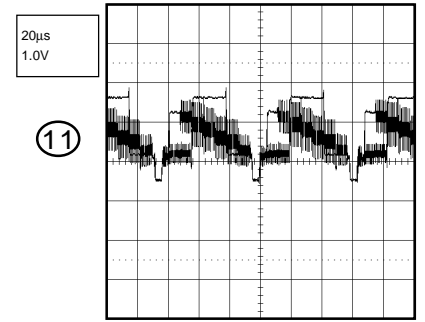
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

WAVEFORMS

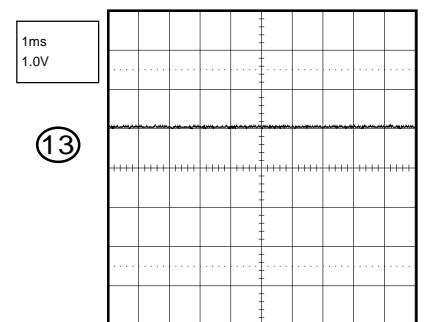
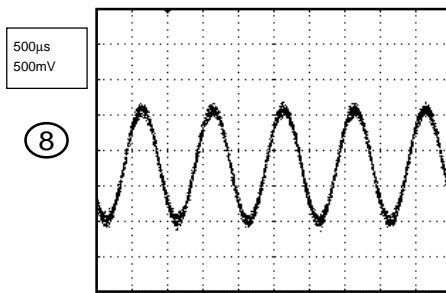
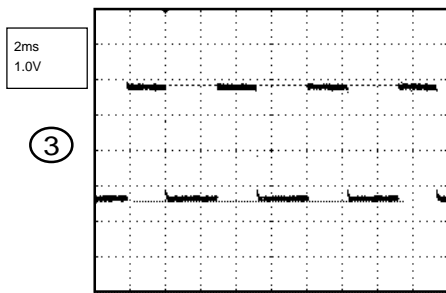
RF_AMP/DSP



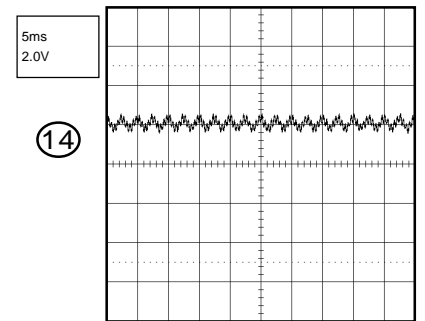
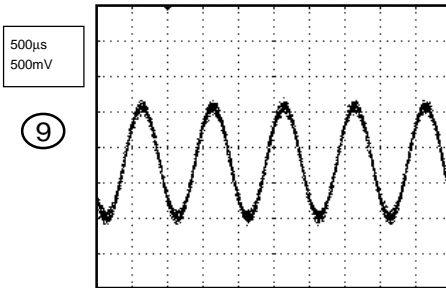
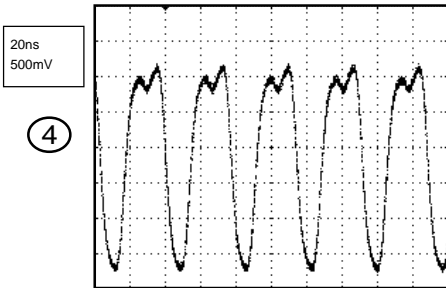
Y/C/AUDIO/CCD HEAD AMP



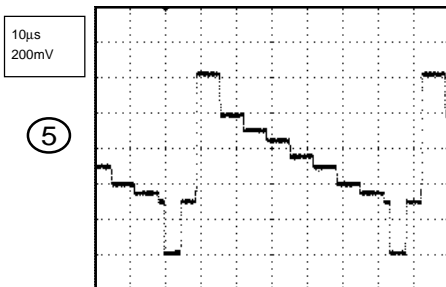
MOTOR DRIVE



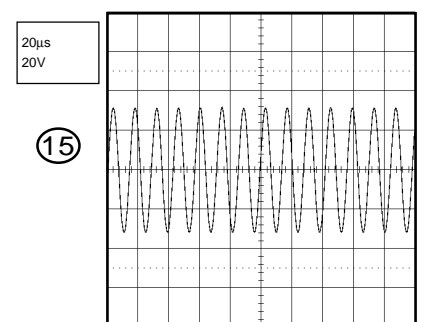
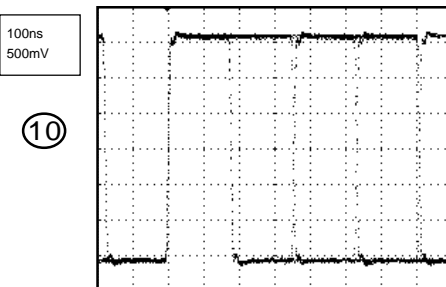
MPEG



AUDIO/VIDEO



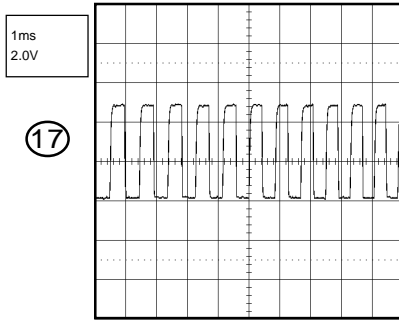
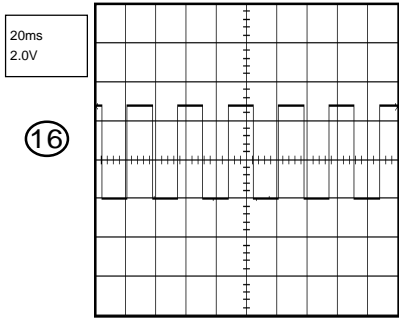
REGULATOR 2



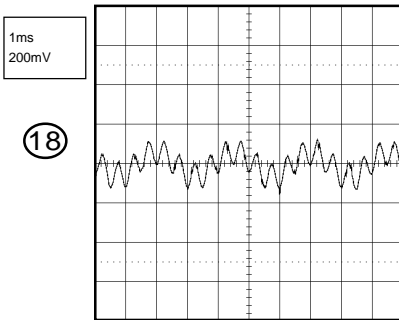
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

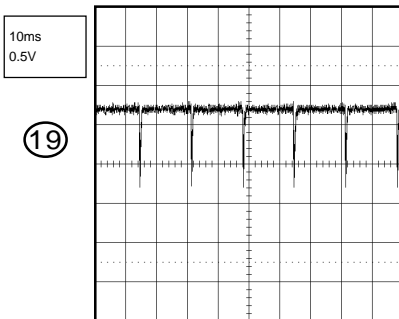
MICON



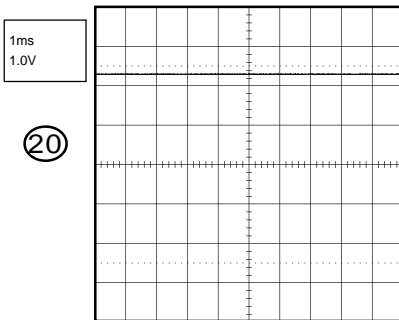
SOUND AMP/SURROUND



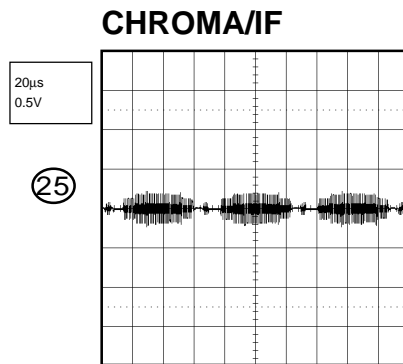
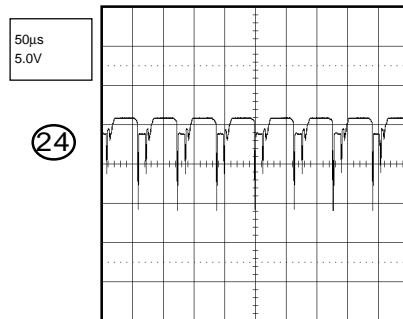
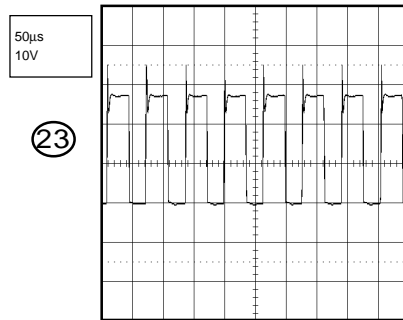
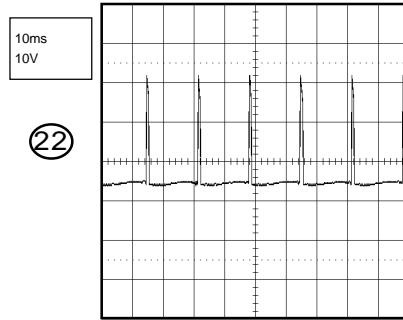
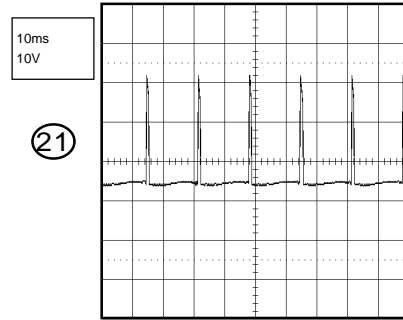
DEFLECTION



Hi-Fi/DEMODULATOR

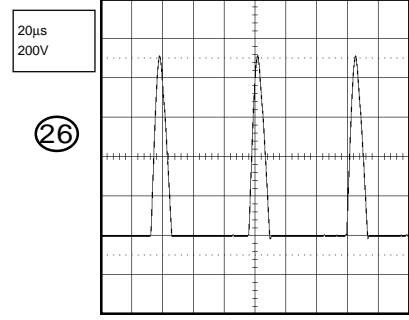


DEFLECTION

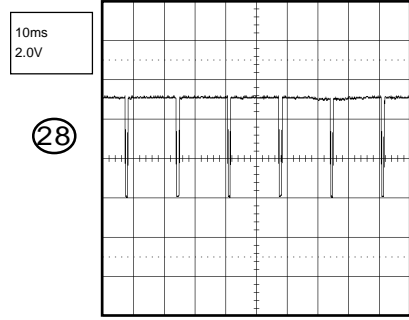
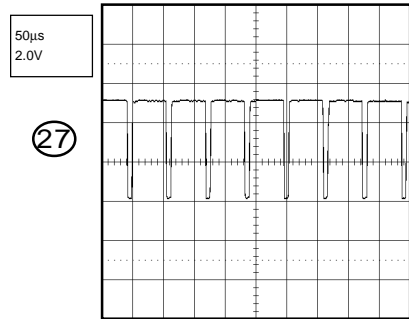


CHROMA/IF

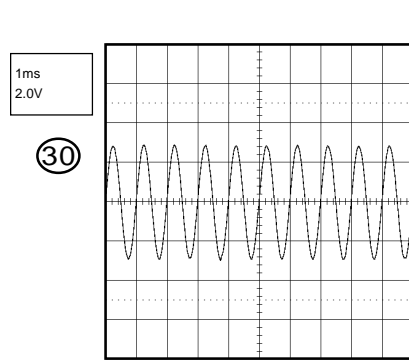
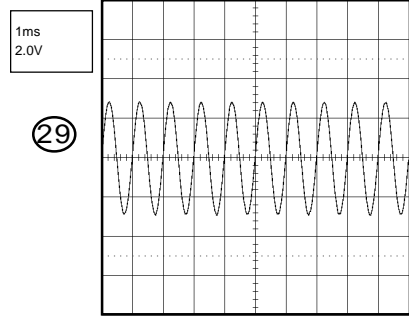
DEFLECTION



MICON



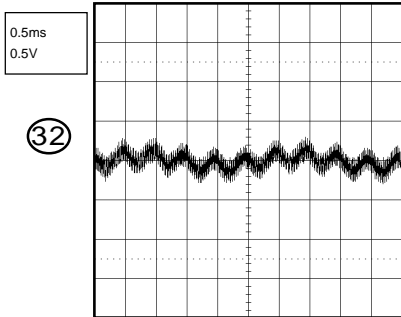
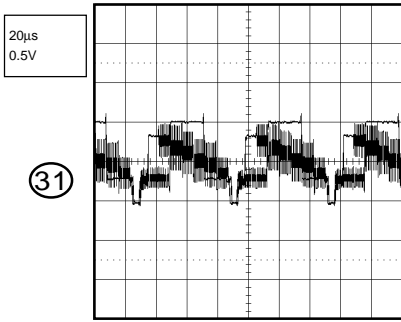
DVD IN/OUT



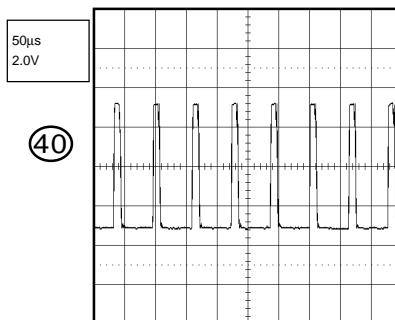
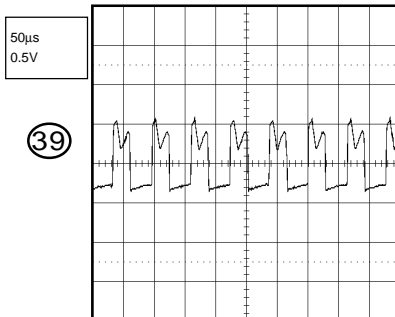
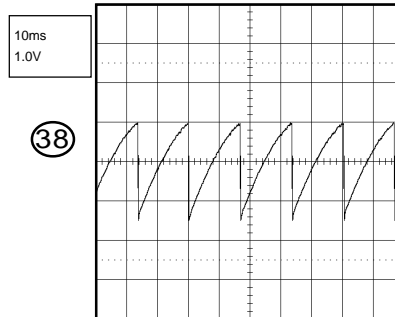
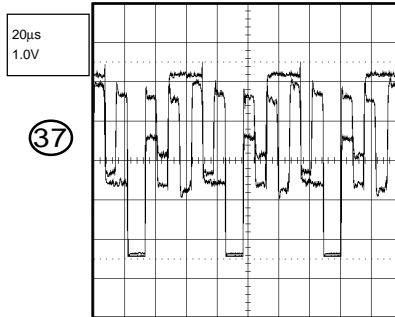
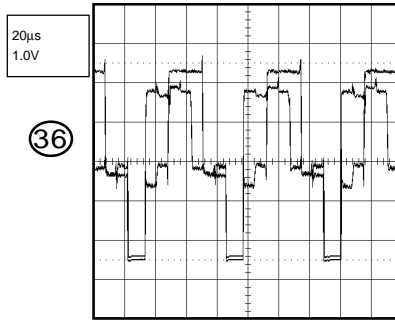
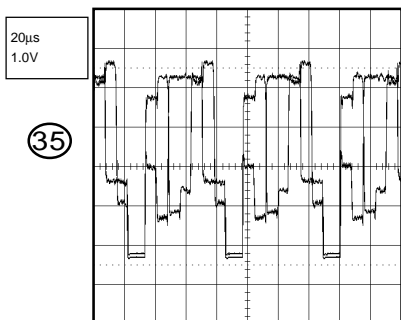
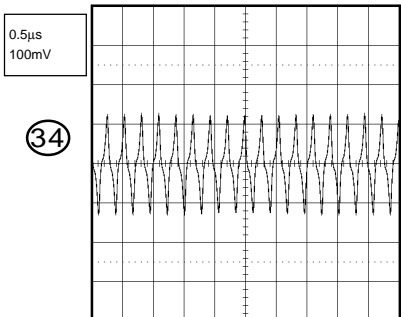
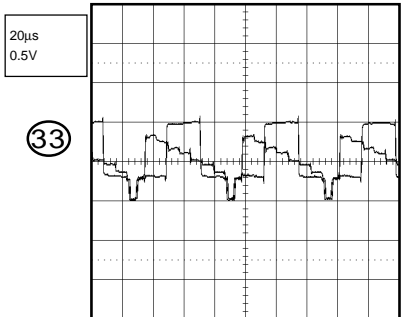
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

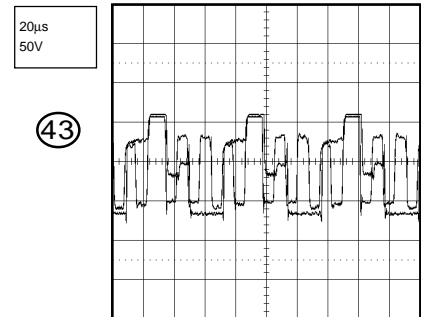
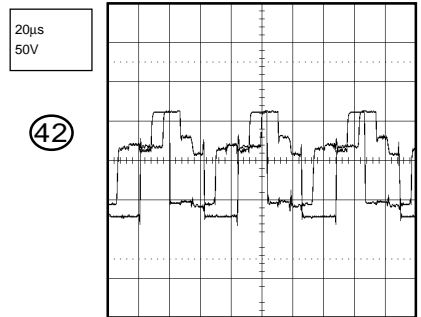
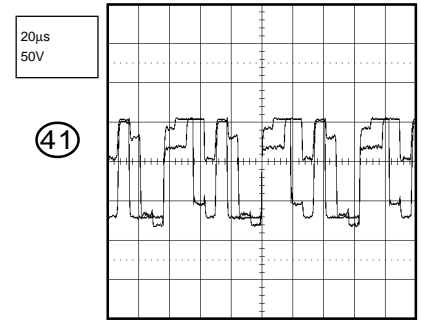
DIGITAL COMB FILTER



CHROMA/IF

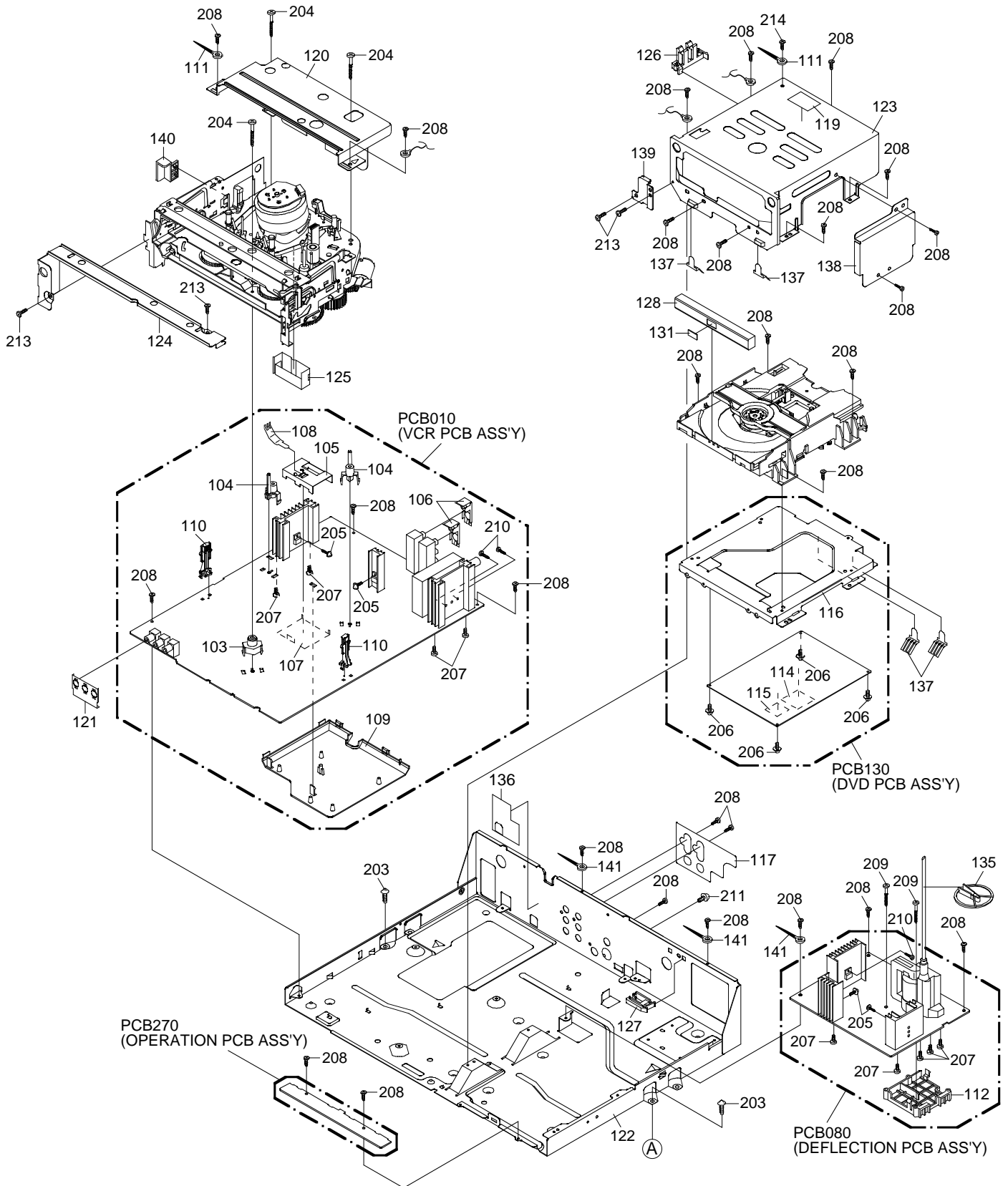


CRT/OPERATION

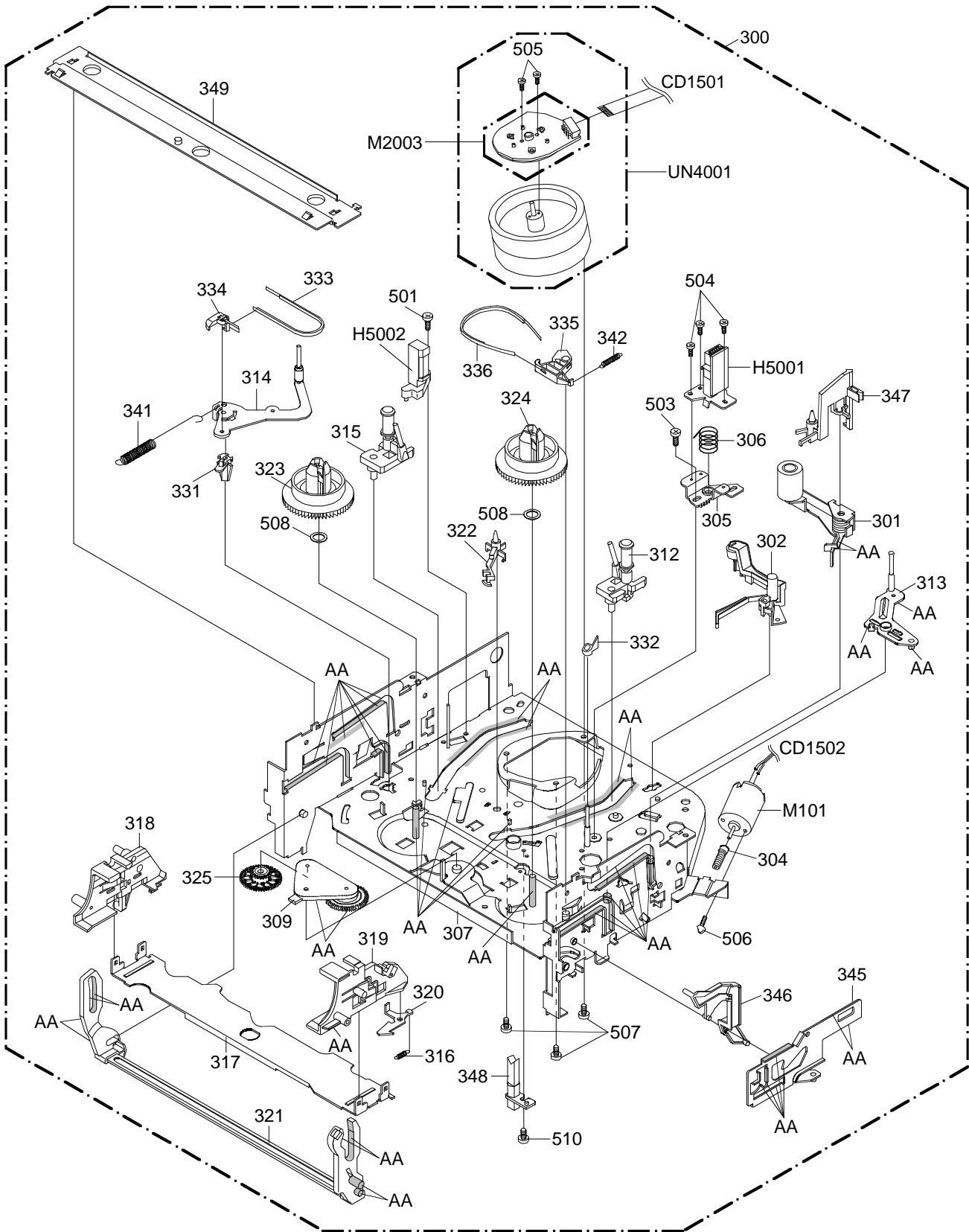


NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



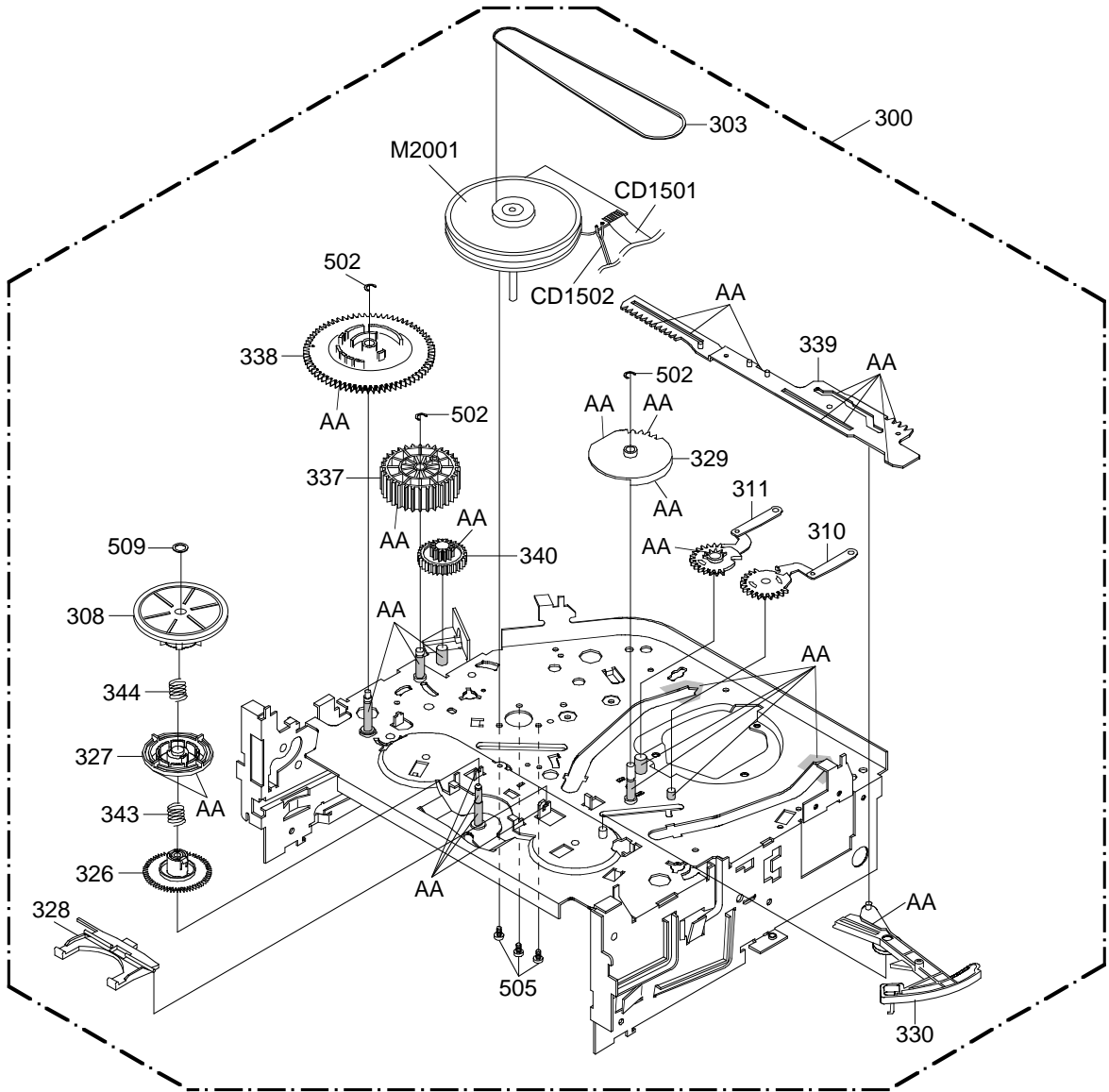
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	MARK
GREASE	AA

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

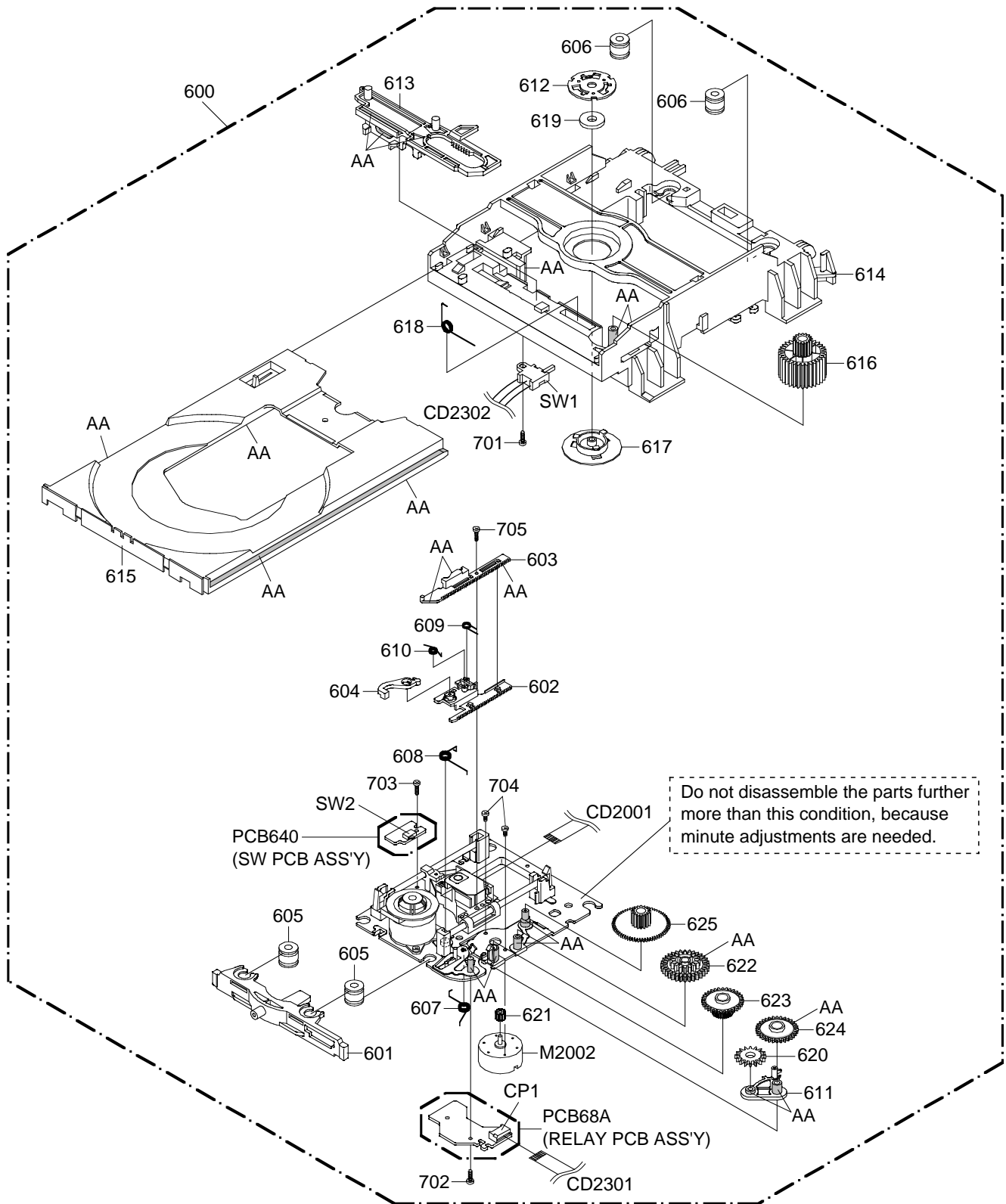
CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	MARK
GREASE	AA

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

DVD DECK EXPLODED VIEW



CLASS	MARK
GREASE	AA

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

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE000080	A5F202Z720	CABINET,FRONT ASSY	
101A	AE000172	701WPJ1218	CABINET,FRONT	
101B	AE000173	712WPJ0829	FLAP	
101C	BZ710665	713WPA0160	GUIDE,REMOCON	
101D	BZ710666	713WPA0195	GLASS,LED	
101E	AE000155	7235490021	BADGE,BRAND	
101F	BZ710667	735WPB0216	BUTTON,FRAME1	
101G	BZ710668	735WPB0217	BUTTON,FRAME2	
101H	BZ710010	743WKA0032	SPRING,FLAP	
101I	AE000174	800WQ00056	FELT SHEET	
102	AE000175	A5F202Z740	CABINET,BACK ASSY	
102A	AE000409	702WPA1001	CABINET,BACK	
102B	AE000166	800WQ00041	FELT SHEET	
103	BZ710577	701WPA0686	HOLDER,DECK	
104	BZ710658	701WPA0751	HOLDER,DECK	
105	BZ710466	752WSA0230	SHIELD,CASE HEAD AMP	
106	BZ710659	752WSA0290	SHIELD,COMPO	
107	AD301956	752WSA0308	SHIELD,COVER HEAD AMP	
108	BZ710331	753WUAA006	SPRING,EARTH HEAD AMP	
109	AD301957	755WPA0035	COVER,PCB	
110	BZ710498	85OP700038	HOLDER,END SENSOR	
111	BZ710039	8995034000	CORD CLIP UL CO.	
112	BZ710459	761WPA0223	HOLDER,FBT	
113	AD300759	741WUA0021	SPRING,EARTH	
114	AD301805	7232020744	SHEET,IC	
115	AD301806	7232020745	SHEET,IC	
116	AD301958	761WSA0099	ANGLE,DECK	
117	AE000733	7230007691	SHEET,JACK	
118	AD300135	769WSA0011	WASHER CRT T=0.5	
119	AD301907	7260000342	SHEET,CAUTION	
120	AE000160	752WSA0331	SHIELD,COVER DECK	
121	BZ710671	752WSA0292	SHIELD,AV JACK	
122	AD301963	752WSA0321	PLATE,BOTTOM	
123	AD301962	752WSA0323	DVD,TOP	
124	AD301964	752WSA0324	VCR,TOP	
125	AD301966	752WSA0327	SHIELD,COVER FPC	
126	BZ710694	774WPA0002	HOLDER,WIRE	
127	AE000164	774WPA0005	HOLDER,WIRE-2	
128	AD301965	712WPB0136	PLATE,TRAY-FRONT	
129	AE000177	722549A193	SHEET,RATING	
130	AD300007	7230006755	SHEET,CAUTION	
131	AE000156	7235630001	SHEET,DVD	
132	BZ710258	741WUA0001	SPRING,EARTH	
133	BZ710686	752WSA0288	ANGLE,FRONT	
134	BZ710259	762WPA0011	HOLDER,CRT WIRE	
135	BZ710260	899HV3T000	HOLDER,ANODE WIRE	
136	AE000157	724WNA0009	SHEET,PVC	
137	AD301574	744WUA0013	SPRING,EARTH	
138	AE000161	752WSA0337	SHIELD,DVD	
139	AE000162	752WSA0343	HOLDER,VCR	
140	BZ710618	755WPAA012	PLATE,COVER LIGHT (L)	
141	AD300758	899EFBA001	WIRING CLIP	
142	AE000178	723000C218	POP LABEL	
143	AE000412	769WSAA005	WASHER CRT T=1	
201	AD302054	8141J50C54	SCREW,TAP TITE(P) GW22	5x35
202	BZ710036	8117540B04	SCREW,TAPPING(B0) TRUSS	4x20
203	BZ710320	8117540804	SCREW,TAPPING(B0) TRUSS	4x8
204	BZ710582	8109130B94	SCREW,TAP TITE(B) R PAN	3x29
205	BZ710239	8109130A04	SCREW,TAP TITE(B) WH7	3x10
206	BZ710562	8109130804	SCREW,TAP TITE(B) WH7	3x8
207	BZ710019	8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
208	BZ710678	8109230804	SCREW,TAP TITE(B) BIND	3x8
209	BZ710409	8107630B04	SCREW,TAP TITE(S) BRAZIER	3x20

MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
210	BZ710018	8107630804	SCREW,TAP TITE(S) BRAZIER	3x8
211	AD301968	8107230404	SCREW,TAP TITE(S) BIND	3x4
212	BZ710030	8110630804	SCREW,TAP TITE(P) BRAZIER	3x8
213	BZ710240	8107230804	SCREW,TAP TITE(S) BIND	3x8
214	BZ710337	8107930604	SCREW,CUP(S)	3x6
---	AE000179	723000C217	SHEET,BAR CODE	
---	AD300432	791WHA0092	LAMIFILM,BAG	
---	BZ710687	792WHA0350	PACKAGE, TOP	
---	BZ710688	792WHA0351	PACKAGE, BOTTOM	
---	AE000180	793WCDB736	GIFT BOX	
---	AE000170	A5F102A975	INSTRUCTION BOOK KIT	
---	AD302404	J5500817	REGISTRATION CARD	
---	AE000171	J5F10201A	INSTRUCTION BOOK	
---	AD302406	JB5UD200	POLYBAG,INSTRUCTION(REDAUTION)	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
300	AD302086	A5F101H420A	DECK ASSY	A5F101H420A
301	BZ710564	85OA400234	PINCH ROLLER BLOCK	
302	BZ710682	85OA500026	AHC ASS'Y	
303	BZ710193	85OP200290	BELT,CAPSTAN (S)	
304	BZ710515	85OP600581	WORM	
305	BZ710094	85OP500083	BASE,AC HEAD	
306	BZ710112	85OP800324	SPRING,AC HEAD	
307	BZ710516	85OA000459	MAIN CHASSIS ASS'Y	
308	BZ710517	85OA200089	CLUTCH ASS'Y	
309	BZ710518	85OA200090	ARM IDLER ASS'Y	
310	BZ710519	85OA300065	LOADING ARM S UNIT	
311	BZ710520	85OA300066	LOADING ARM T UNIT	
312	BZ710521	85OA400223	INCLINED BASE T UNIT 3S	
313	BZ710522	85OA400232	P5 ARM ASS'Y 2	
314	BZ710650	85OA400235	TENSION ARM ASS'Y 2	
315	BZ710524	85OA400231	INCLINED BASE S UNIT	
316	AE000442	85OP800367	SPRING LOCKER	
317	BZ710526	85OP900736	CASS,HOLDER	
318	BZ710527	85OP900748	CASS,SIDE L	
319	BZ710528	85OP900749	CASS,SIDE R	
320	BZ710529	85OP900739	LOCKER,R	
321	BZ710530	85OA900228	LINK UNIT	
322	BZ710531	85OP000496	POST,CASS GUIDE	
323	BZ710532	85OP200316	REEL,S (S)	
324	BZ710533	85OP200317	REEL,T (S)	
325	BZ710534	85OP200308	GEAR,IDLER	
326	BZ710535	85OP200311	GEAR,CLUTCH	
327	BZ710536	85OP200312	GEAR,COUPLING	
328	BZ710537	85OP200313	LEVER,CLUTCH	
329	BZ710538	85OP300194	GEAR,MAIN LOADING	
330	BZ710092	85OP400490	LEVER,TENSION	
331	BZ710093	85OP400492	HOLDER,TENSION	
332	BZ710366	85OP400520	CAP.P4	
333	BZ710762	85OP400542	BAND,TENSION	
334	BZ710540	85OP400533	CONNECT,TENSION	
335	BZ710541	85OP600573	ARM,BRAKE T	
336	BZ710763	85OP600584	BAND,BRAKE T	
337	BZ710543	85OP600577	CAM,PINCH ROLLER	
338	BZ710544	85OP600578	CAM,MAIN	
339	BZ710545	85OP600579	ROD,MAIN	
340	BZ710546	85OP600582	GEAR,JOINT	
341	BZ710110	85OP800322	SPRING,TENSION	
342	BZ710547	85OP800360	SPRING,BRAKE T	
343	BZ710548	85OP800355	SPRING,COUPLING	
344	BZ710549	85OP800356	SPRING,RING	
345	BZ710565	85OP900750	LEVER,LINK 2	
346	BZ710551	85OP900744	LEVER,FLAP	
347	BZ710552	85OP900745	CASS,OPENER	
348	BZ710106	85OP700035	REFLECTOR,LED	
349	BZ710514	85OP900746	BRACKET, TOP 3V	
501	BZ710049	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
502	BZ710058	83ETW30000	E-RING	3.0
503	BZ710371	8107226404	SCREW,TAP TITE(S) BIND	2.6x4
504	BZ710046	8102120604	SCREW,PAN	M2x6
505	BZ710050	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
506	BZ710553	810A130404	SCREW/WASHER(A)	M3x4
507	BZ710219	810A126504	SCREW/WASHER(A)	M2.6x5
508	BZ710056	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
509	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
510	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
CD1501	BZ614292	122H071704	CORD JUMPER	2H071704
CD1502	AD301953	122Y021002	CORD JUMPER	2Y021002
H5001	AD301675	1523Q91003	HEAD (AUDIO CONTROL)	VTR-1X2RPE22-756
H5002	AD301676	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154
M101	BZ710566	1596P98001	MOTOR (LOADING)	MXN13FB12K3
M2001	AD301677	1510S98038	CAPSTAN DD UNIT	F2QVB33
M2003	BZ710657	1589S11017	MICRO MOTOR	I2OAL05
UN4001	AD301954	A2C301N500	CYLINDER UNIT ASS'Y	A2C301N500

DVD DECK REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
600	AE000167	A5F101H650	DVD MECHA ASSY	A5F101H650
601	AD301822	92P100022A	TRAVERSE HOLDER	
602	AD301823	92P100032A	RACK,FEED 1	
603	AD301824	92P100033A	RACK,FEED 2	
604	AD301825	92P100035A	LEVER,RACK FEED	
605	AD301826	92P200006A	INSULATOR(F)	
606	AD301827	92P200007A	INSULATOR(R)	
607	AD301850	92P300008A	SPRING,CHASSIS	
608	AD301849	92P300005A	SPRING,ARM IDLER	
609	AD301830	92P300006A	SPRING,RACK FEED 2	
610	AD301831	92P300007A	SPRING,RACK FEED 1	
611	AD301848	92P100031A	ARM,IDLER	
612	AD301833	92P000001A	CLAMPER PLATE	
613	AD301834	92P100019A	RACK,LOADING	
614	AD301835	92P100020A	MAIN FRAME M	
615	AD301836	92P100021A	TRAY	
616	AD301837	92P100023A	GEAR,MAIN	
617	AD301838	92P100024A	CLAMPER	
618	AD301839	92P300002A	SPRING,RACK LOADING	
619	AD301840	92P400002A	MAGNET,CLAMPER	
620	AD301847	92P100030A	GEAR,IDLER	
621	AD301842	92P100025A	GEAR,MOTOR	
622	AD301843	92P100026A	GEAR,MIDDLE 1	
623	AD301844	92P100027A	GEAR,MIDDLE 2	
624	AD301845	92P100028A	GEAR,MIDDLE 3	
625	AD301846	92P100029A	GEAR,FEED	
701	BZ710187	8110226804	SCREW,TAP TITE(P) BIND	2.6x8
702	AD301851	8110120604	SCREW,TAP TITE(P) PAN	2x6
703	AD301852	8107220504	SCREW,TAP TITE(S) BIND	2x5
704	AD301853	8140117254	SCREW,PAN	M1.7x2.5 P3
705	AD301913	8110220804	SCREW,TAP TITE(P) BIND	2x8
CD2001	AD301855	122H001901	CORD JUMPER	2H001901
CD2301	AD301856	122H080701	CORD JUMPER	2H080701
CD2302	AE000148	06CH232101	CORD CONNECTOR	CH232101
CP1	AD301858	069JV80180	CONNECTOR PCB SIDE	IMSA-9615S-08C-PP
△ M2002	AD301861	1515S98001	FEED MOTOR	BCD3B81
PCB640	AD301862	A5E601V640	PCB ASS'Y	VEBA17A
PCB68A	AD301863	A5E601V680	PCB ASS'Y	VEBA12A
SW1	AD301866	0515S32001	SWITCH	SSS-23-6
SW2	AD301867	0500S01032	PUSH LEVER SWITCH	SW1AB-271-10A

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
		RESISTORS	
R312	AE000271	R002T4683J	RC 68K OHM 1/4W
△R401	AD301014	R4X5T6472F	R,METAL 4.7K OHM 1/6W
△R403	BZ210105	R4X5T6183F	R,METAL 18K OHM 1/6W
△R405	AD300037	R4X5T6153F	R,METAL 15K OHM 1/6W
△R406	BZ210280	R3X28A391J	R,METAL OXIDE 390 OHM 2W
△R412	BZ210021	R65582680J	R,FUSE 68 OHM 1/2W
△R417	AD301140	R3X28A221J	R,METAL OXIDE 220 OHM 2W
△R423	BZ210051	R3X18AR47J	R,METAL OXIDE 0.47 OHM 2W
△R429	BZ210053	R002T22R2J	RC 2.2 OHM 1/2W
△R430	AD301920	R5X34F2R7J	R,CEMENT 0 2.7 OHM 10W
△R434	BZ210130	R002T21R5J	RC 1.5 OHM 1/2W
R435	AD301595	R65582010J	R,FUSE 1 OHM 1/2W
R436	BZ210277	R3X181101J	R,METAL OXIDE 100 OHM 1W
△R440	AD301921	R5X34F332J	R,CEMENT 0 3.3K OHM 10W
△R445	BZ210104	R6558A2R7J	R,FUSE 2.7 OHM 2W
R449	AE000145	R002T2561J	RC 560 OHM 1/2W
△R454	AE000676	R3K181102J	R,METAL 1K OHM 1W
△R814	BZ210050	R3X18A123J	R,METAL OXIDE 12K OHM 2W
△R815	BZ210050	R3X18A123J	R,METAL OXIDE 12K OHM 2W
△R816	BZ210050	R3X18A123J	R,METAL OXIDE 12K OHM 2W
△R1701	BZ210206	R002T2155J	RC 1.5M OHM 1/2W
△R1702	BZ210080	R0G3K2275K	RC 2.7M OHM 1/2W
△R1714	BZ210243	R3X181R18J	R,METAL OXIDE 0.18 OHM 1W
△R1717	AD301016	R3X28A331J	R,METAL OXIDE 330 OHM 2W
△R1718	BZ210250	R5Y2CE1R2J	R,CEMENT 1.2 OHM 7W
△R1720	BZ210190	R63581R22J	R,FUSE 0.22 OHM 1W
R3010	AD302206	R3X181180J	R,METAL OXIDE 18 OHM 1W
R3021	AE000147	R3X181220J	R,METAL OXIDE 22 OHM 1W
R4219	AE000146	R0X1X6102J	RC 1K OHM 1/6W
		CAPACITORS	
C005	AD300413	E02LT0102M	CE 1000 UF 6.3V
C321	BZ210176	E02LF3222M	CE 2200 UF 25V
C357	AD301348	E02LU5100M	CE 10 UF 50V
△C403	BZ110195	E02LU8220M	CE 22 UF 100V
△C408	BZ110233	P4N8FK332H	CMPP 0.0033UF 1.5KV
△C412	BZ210173	P4J7F3474J	CMPP 0.47 UF 250V PMS
△C417	BZ110054	P3N1F5333J	CPP 0.033 UF 630V
△C418	AD302207	P4N8FK153H	CMPP C 0.015 UF 1.5KV
△C429	AD301434	E02LU4101M	CE 100 UF 35V
△C430	BZ110101	E5EZF3222M	CE 2200 UF 25V
C432	AE000272	E50HU2470M	CE 47 UF 16V
△C434	BZ110055	E5EZF4102M	CE 1000 UF 35V
C435	BZ110057	E53FF56R8K	CE 6.8 UF 50V NP
△C446	AD300061	E5EZF2220M	CE 22 UF 250V
C449	BZ110182	C03L0R713K	CC 0.001 UF 2KV R
C820	AD300078	C0JBB0713K	CC 0.001 UF 2KV B
△C1701	BZ110025	P2122B224M	CMP 0.22 UF 275V ECQUL
C1707	BZ110182	C03L0R713K	CC 0.001 UF 2KV R
△C1708	BZ110226	C0JBB07H3K	CC 0.0022UF 2KV B
△C1710	BZ110226	C0JBB07H3K	CC 0.0022UF 2KV B
△C1711	AD301391	CD39E0MQ3M	CC 0.0047UF 250V
△C1714	AE000142	E52DHC681S	CE 680 UF 200V
C1716	BZ110010	E02L03222M	CE 2200 UF 25V
△C1717	BZ110055	E5EZF4102M	CE 1000 UF 35V
C1719	BZ110172	C03L0R7U2K	CC 680 PF 2KV R
△C1720	AD301025	E62NFB221M	CE 220 UF 160V
C1723	BZ110172	C03L0R7U2K	CC 680 PF 2KV R
C1725	AE000074	E02L08101M	CE 100 UF 100V
△C1728	AD300511	E02LT0222M	CE 2200 UF 6.3V
C1732	BZ110032	E5EZF3102M	CE 1000 UF 25V
C3009	AD300413	E02LT0102M	CE 1000 UF 6.3V
C3010	AD300511	E02LT0222M	CE 2200 UF 6.3V
		DIODES	
D101	AD301638	0010E00330	INFRARED LED LTE-3271T-012A-O
D102	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D103	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D105	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D106	AD300070	D97U01201B	DIODE,ZENER MTZJ12B T-77
D108	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
△D402	BZ410063	D2WTAU02A0	DIODE,SILICON AU02A-EIC
D403	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
		DIODES	
D404	BZ410006	D1VT001330	DIODE,SILICON
△D405	AD300074	D2BFRS4FS0	DIODE,SILICON
△D406	AD300073	D2BFRU4AM0	DIODE,SILICON
D407	BZ410063	D2WTAU02A0	DIODE,SILICON
△D408	BZ410021	D97U05R61B	DIODE,ZENER
D410	BZ410043	D2WT011E10	DIODE,SILICON
D411	BZ410021	D97U05R61B	DIODE,ZENER
△D412	BZ410063	D2WTAU02A0	DIODE,SILICON
D413	BZ410019	D97U03001B	DIODE,ZENER
D414	BZ410019	D97U03001B	DIODE,ZENER
△D415	BZ410063	D2WTAU02A0	DIODE,SILICON
D416	BZ410085	D2WXN40050	DIODE,SILICON
D417	BZ410022	D97U06R81B	DIODE,ZENER
D418	BZ410037	D97U03301B	DIODE,ZENER
D419	BZ410006	D1VT001330	DIODE,SILICON
D420	BZ410006	D1VT001330	DIODE,SILICON
D601	BZ410021	D97U05R61B	DIODE,ZENER
D602	BZ410021	D97U05R61B	DIODE,ZENER
D603	BZ410021	D97U05R61B	DIODE,ZENER
D605	AD300070	D97U01201B	DIODE,ZENER
D801	BZ410006	D1VT001330	DIODE,SILICON
D802	BZ410006	D1VT001330	DIODE,SILICON
D803	BZ410006	D1VT001330	DIODE,SILICON
D804	BZ410006	D1VT001330	DIODE,SILICON
D805	BZ410006	D1VT001330	DIODE,SILICON
D806	BZ410006	D1VT001330	DIODE,SILICON
D1702	BZ410006	D1VT001330	DIODE,SILICON
D1703	AE000141	D97U02R71B	DIODE,ZENER
△D1704	BZ410007	D23TGP15J0	DIODE,SILICON
△D1705	BZ410062	D2WTRM11C0	DIODE,SILICON
△D1706	BZ410062	D2WTRM11C0	DIODE,SILICON
△D1707	BZ410007	D23TGP15J0	DIODE,SILICON
D1709	BZ410006	D1VT001330	DIODE,SILICON
△D1710	BZ410062	D2WTRM11C0	DIODE,SILICON
△D1711	BZ410062	D2WTRM11C0	DIODE,SILICON
D1712	BZ410067	D97U02R21B	DIODE,ZENER
D1713	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D1715	AD300671	D97U01801B	DIODE,ZENER
D1716	AD300731	D2WXN49370	DIODE,SILICON
D1717	AD300671	D97U01801B	DIODE,ZENER
△D1718	AD300731	D2WXN49370	DIODE,SILICON
D1719	BZ410115	D2LKB340L0	DIODE,SCHOTTKY
D1720	BZ410006	D1VT001330	DIODE,SILICON
D1721	BZ410006	D1VT001330	DIODE,SILICON
D1722	AD300731	D2WXN49370	DIODE,SILICON
△D1723	AD301980	D2CF2016L0	DIODE,SILICON
D1724	BZ410006	D1VT001330	DIODE,SILICON
D1726	BZ410006	D1VT001330	DIODE,SILICON
D1727	BZ410022	D97U06R81B	DIODE,ZENER
D1728	BZ410006	D1VT001330	DIODE,SILICON
D1729	AD300731	D2WXN49370	DIODE,SILICON
D1730	AD301980	D2CF2016L0	DIODE,SILICON
D1731	AD300731	D2WXN49370	DIODE,SILICON
D1732	AD300070	D97U01201B	DIODE,ZENER
D1733	BZ410006	D1VT001330	DIODE,SILICON
D1734	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D2001	BZ410120	DDARDS1210	DIODE,SILICON
D2002	BZ410121	DDARDS1200	DIODE,SILICON
D2201	BZ410022	D97U06R81B	DIODE,ZENER
D2205	BZ410087	0021E2Q140	LED
D2206	BZ410087	0021E2Q140	LED
D2207	BZ410087	0021E2Q140	LED
D2301	BZ410119	DDDRL41480	DIODE,SILICON
D3001	BZ410037	D97U03301B	DIODE,ZENER
D3002	BZ410021	D97U05R61B	DIODE,ZENER
D3003	BZ410090	D97U04R71B	DIODE,ZENER
D3004	BZ410077	D2WXS1400	DIODE,SCHOTTKY
D3005	BZ410012	D28TQS04N0	DIODE,SCHOTTKY
D3007	BZ410043	D2WT011E10	DIODE,SILICON
D3008	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D3009	BZ410043	D2WT011E10	DIODE,SILICON
			1SS133T-77
			RS-4FS
			RU-4AM
			AU02A-EIC
			MTZJ5.6B T-77
			11E1-EIC
			MTZJ5.6B T-77
			AU02A-EIC
			MTZJ30B T-77
			MTZJ30B T-77
			AU02A-EIC
			1N4005-EIC
			MTZJ6.8B T-77
			MTZJ33B T-77
			1SS133T-77
			1SS133T-77
			MTZJ5.6B T-77
			MTZJ5.6B T-77
			MTZJ5.6B T-77
			MTZJ12B T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			1SS133T-77
			MTZJ2.7B T-77
			RGP15J-G23
			RM11C-EIC
			RM11C-EIC
			RGP15J-G23
			1SS133T-77
			RM11C-EIC
			RM11C-EIC
			MTZJ2.2B T-77
			21DQ09N-TA2B1
			MTZJ18B T-77
			1N4937
			MTZJ18B T-77
			1N4937
			SB340L-6737
			1SS133T-77
			1SS133T-77
			1N4937
			FE201-6L49
			1SS133T-77
			1SS133T-77
			MTZJ6.8B T-77
			1SS133T-77
			1N4937
			FE201-6L49
			1N4937
			MTZJ12B T-77
			1SS133T-77
			21DQ09N-TA2B1
			KDS121RTK
			KDS120RTK
			MTZJ6.8B T-77
			LTL-1CHEE-002A
			LTL-1CHEE-002A
			LTL-1CHEE-002A
			MCL4148
			MTZJ33B T-77
			MTZJ5.6B T-77
			MTZJ4.7B T-77
			SB140-EIC
			11EQS04N-TA1B2
			11E1-EIC
			21DQ09N-TA2B1
			11E1-EIC

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
			DIODES
D3011	BZ410010	D28T21DQN9	DIODE,SCHOTTKY 21DQ09N-TA2B1
D4201	BZ410021	D97U05R61B	DIODE,ZENER MTZJ5.6B T-77
D4204	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D4205	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D4207	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D5501	BZ410012	D28TQS04N0	DIODE,SCHOTTKY 11EQS04N-TA1B2
D5502	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D8501	BZ410119	DDDRL41480	DIODE,SILICON MCL4148
D8502	BZ410119	DDDRL41480	DIODE,SILICON MCL4148
D8503	BZ410119	DDDRL41480	DIODE,SILICON MCL4148
D8504	BZ410119	DDDRL41480	DIODE,SILICON MCL4148
D8505	BZ410119	DDDRL41480	DIODE,SILICON MCL4148
D8506	BZ410119	DDDRL41480	DIODE,SILICON MCL4148
D8510	BZ410119	DDDRL41480	DIODE,SILICON MCL4148
			ICS
IC101	AD301923	I51F58074A	IC OEC8074A
IC103	AD301641	I9UF032310	IC PST3231NR
IC199	AE000071	A5F202Z015	IC S-24C04BDP-LA
IC302	AD301983	I01FF58910	IC AN5891SA-E1V
IC352	AD302184	I0FSP7522N	IC AN7522N
△IC401	AD300414	I03TD80410	IC LA78041
IC601	AD302210	I03FC63240	IC LA76324M
IC602	AE000143	I1KF98L100	IC KIA78L10F-RTF
IC1501	AD300609	I05FE90A45	IC TC90A45F
IC1502	AD301988	I0UF015010	IC MM1501XNRE
IC1504	AD301988	I0UF015010	IC MM1501XNRE
IC1505	AD301927	I0UF015040	IC MM1504XNRE
△IC1701	AD301771	000220001W	PHOTO COUPLER PS2561L1-1-V(W)
△IC1702	AD302211	I1KJ9A431A	IC KIA431A-AT
IC2001	BZ611130	I0GF9XZ010	IC PQ070XZ01ZP
IC2002	AD301766	I5PK063150	IC L6315ATXXTY or
		AE000144	IC L6315ATXXTV
IC2003	AD301767	I5FJ0128V7	IC CY62128VLL-70ZC or
		AE000230	IC M68AW127BM70N6
IC2301	BZ611126	I03F065600	IC LA6560
IC2302	AD301770	I07E00358F	IC BA10358F-E2
IC2303	AD301770	I07E00358F	IC BA10358F-E2
IC2304	AD301770	I07E00358F	IC BA10358F-E2
△IC3001	AD301931	I1KA78R050	IC KIA278R05PI
IC3002	AD301929	I1KA78R090	IC KIA278R09PI
IC3003	AD301931	I1KA78R050	IC KIA278R05PI
IC3004	AD301931	I1KA78R050	IC KIA278R05PI
IC4002	AD301773	I5PK055190	IC STI5519AVB
IC4003	AD301774	I5CF0CU040	IC SN74AHC04PWR
IC4007	AD301775	IF6J016A27	IC MT48LC4M16A2TG-75
IC4012	AD301776	I5PJ000DT7	IC M29W800DT70N6
IC4501	BZ611095	I03F3205M0	IC LA71205M-MPB
IC5501	BZ611114	I01F63FBP0	IC AN3663FBP
IC8001	AD301988	I0UF015010	IC MM1501XNRE
IC8002	AD301988	I0UF015010	IC MM1501XNRE
IC8004	BZ611074	I0QF045800	IC NJM4580M
IC8502	AD301777	I17F0742K0	IC PCM1742KE/2K
IC8504	AD301778	I0GF9Z01Z0	IC PQ025EZ01ZP
			TRANSISTORS
Q101	BZ410097	0000M00390	PHOTO TRANSISTOR ST-304L
Q102	BZ510067	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
Q103	BZ410097	0000M00390	PHOTO TRANSISTOR ST-304L
Q104	BZ410106	0002700680	PHOTO COUPLER RPI-352C40N
Q105	BZ410106	0002700680	PHOTO COUPLER RPI-352C40N
Q106	BZ510067	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
Q107	BZ410107	0002700690	PHOTO COUPLER RPI-303
Q108	BZ410107	0002700690	PHOTO COUPLER RPI-303
Q110	BZ510071	TNAAB05003	COMPOUND TRANSISTOR KRC102SRTK
Q114	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON 2SA1037AKT146R,S
Q116	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S
Q350	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON 2SC2412KT146 R,S
△Q401	BZ510097	TCAT03227Y	TRANSISTOR,SILICON KTC3227_Y-AT
Q402	AD300027	TC30041590	TRANSISTOR,SILICON 2SC4159(D,E)
△Q403	AD302136	TD50026380	TRANSISTOR,SILICON 2SD2638
Q404	BZ510073	TAATA12660	TRANSISTOR,SILICON KTA1266-AT(Y,GR)
Q405	BZ510073	TAATA12660	TRANSISTOR,SILICON KTA1266-AT(Y,GR)

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
		TRANSISTORS	
Q406	BZ510004	TA3T016240	TRANSISTOR,SILICON
Q407	BZ510096	TNATB03005	COMPOUND TRANSISTOR
Q408	AD300674	TCAT032070	TRANSISTOR,SILICON
Q409	BZ510004	TA3T016240	TRANSISTOR,SILICON
Q410	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q601	BZ510020	TNYJB05001	COMPOUND TRANSISTOR
Q602	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q605	BZ510090	TPAAB05001	COMPOUND TRANSISTOR
Q606	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
△Q802	BZ510091	TCA0042170	TRANSISTOR,SILICON
△Q803	AD301032	TCATC3199Y	TRANSISTOR,SILICON
△Q804	BZ510091	TCA0042170	TRANSISTOR,SILICON
△Q805	AD301032	TCATC3199Y	TRANSISTOR,SILICON
△Q806	BZ510091	TCA0042170	TRANSISTOR,SILICON
△Q807	AD301032	TCATC3199Y	TRANSISTOR,SILICON
Q1501	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q1502	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q1503	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q1702	BZ510069	TCATC31980	TRANSISTOR,SILICON
△Q1705	BZ510098	T220033260	FET
△Q1706	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q2001	BZ510112	T67J1036K0	TRANSISTOR,SILICON
Q2003	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q2004	BZ510113	T27T030180	FET
Q2005	BZ510113	T27T030180	FET
Q2006	BZ510112	T67J1036K0	TRANSISTOR,SILICON
Q2007	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q2008	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q2009	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q2201	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q2202	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q2203	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q2301	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q2302	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q2303	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q2304	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q2305	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q3001	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
△Q3002	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q3003	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q3004	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
△Q3005	AD301934	TBA0013660	TRANSISTOR,SILICON
△Q3006	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q3007	BZ510057	TAAT01281Y	TRANSISTOR,SILICON
Q3008	BZ510107	TPAAA05001	COMPOUND TRANSISTOR
Q3009	BZ510071	TNAAB05003	COMPOUND TRANSISTOR
Q3010	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q3011	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q3014	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q3015	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4001	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q4002	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q4003	BZ510108	TAAA1504SY	TRANSISTOR,SILICON
Q4201	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4202	BZ510072	TPAAC05002	COMPOUND TRANSISTOR
Q4203	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4204	BZ510067	TNAAC05002	COMPOUND TRANSISTOR
Q4210	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q4211	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4212	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q4501	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q4502	BZ510109	TCAA3875SY	TRANSISTOR,SILICON
Q4503	BZ510072	TPAAC05002	COMPOUND TRANSISTOR
Q4504	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q4505	BZ510073	TAATA12660	TRANSISTOR,SILICON
Q4506	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4507	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q4509	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q4511	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON
Q8002	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON
Q8006	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
TRANSISTORS			
Q8007	BZ510067	TNAAC05002	COMPOUND TRANSISTOR KRC103SRTK
Q8501	BZ510108	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
Q8502	BZ510108	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
Q8503	BZ510108	TAAA1504SY	TRANSISTOR,SILICON KTA1504S_Y_RTK
Q8505	BZ510109	TCAA3875SY	TRANSISTOR,SILICON KTC3875S_Y_RTK
COILS & TRANSFORMERS			
L001	BZ310002	021673101K	COIL 100 UH
L301	BZ310005	02167D101K	COIL 100 UH
L401	AD300117	02D1000001	COIL ELC16B501EN
L402	BZ310063	022100027A	COIL,LINEARITY ELH5L4113
L403	BZ310004	021679472K	COIL 4.7 MH
L601	BZ310041	02167F101J	COIL 100 UH
L602	BZ310005	02167D101K	COIL 100 UH
L603	BZ310118	02AHB9A972	CORE,FERRITE W5T29X7.5X19
L1501	AD300612	02167F100J	COIL 10 UH
L1502	AD300613	02167F150J	COIL 15 UH
L1504	AD300123	021673151K	COIL 150 UH
L1505	BZ310201	0216A6101K	COIL 100 UH
L1506	BZ310201	0216A6101K	COIL 100 UH
△L1701	BZ310180	029T000105	COIL,LINE FILTER 2R2A752F28
△L1703	AE000066	028R250014	COIL,DEGAUSS 8R250014
L1704	BZ310181	02A6B2E0A1	CORE,FERRITE HF70T22*10*14
L2001	AD301783	0216S1100J	COIL 10 UH
L2002	AD301783	0216S1100J	COIL 10 UH
L2003	BZ310191	02167F2R2J	COIL 2.2 UH
L2004	BZ310191	02167F2R2J	COIL 2.2 UH
L3001	BZ310150	02167E220K	COIL R9 22 UH
L3002	AD301785	02167E100K	COIL R6-1 10 UH
L4001	BZ310039	02167F220J	COIL 22 UH
L4002	BZ310039	02167F220J	COIL 22 UH
L4003	BZ310039	02167F220J	COIL 22 UH
L4004	BZ310039	02167F220J	COIL 22 UH
L4205	BZ310041	02167F101J	COIL 100 UH
L4502	BZ310114	031626009R	COIL,BIAS OSC 1626009
L4504	BZ310041	02167F101J	COIL 100 UH
L4505	BZ310040	02167F470J	COIL 47 UH
L4506	BZ310040	02167F470J	COIL 47 UH
L4509	BZ310005	02167D101K	COIL 100 UH
L5501	BZ310201	0216A6101K	COIL 100 UH
L5502	BZ310039	02167F220J	COIL 22 UH
L5503	BZ310039	02167F220J	COIL 22 UH
L5504	BZ310039	02167F220J	COIL 22 UH
L8001	BZ310041	02167F101J	COIL 100 UH
L8002	BZ310201	0216A6101K	COIL 100 UH
L8003	BZ310041	02167F101J	COIL 100 UH
L8501	BZ310191	02167F2R2J	COIL 2.2 UH
L8502	BZ310191	02167F2R2J	COIL 2.2 UH
L8503	BZ310191	02167F2R2J	COIL 2.2 UH
L8504	BZ310118	02AHB9A972	CORE,FERRITE W5T29X7.5X19
L8507	BZ310191	02167F2R2J	COIL 2.2 UH
L8509	BZ310191	02167F2R2J	COIL 2.2 UH
T401	AD301125	0450190161	TRANS,HORIZONTAL DRIVE ETH19Y203AY
△T1701	AD301935	048142065S	TRANSFORMER,SWITCHING 8142065S
JACKS			
△J801	AD301936	066F130021	SOCKET,CATHODE RAY,TUBE ISHS62S
△J2201	BZ614361	060J131015	HEADPHONE JACK MSJ-2000
J2202	BZ614146	060G421016	RCA JACK HTJ-032-05AY
J2203	BZ614147	060G421017	RCA JACK HTJ-032-05AW
J2204	BZ614280	060G421020	RCA JACK HTJ-032-05AR
J4201	AD301038	060J431019	RCA JACK MSP-213V2-432 PBSN
J4202	BZ614399	060J411018	RCA JACK MSP-213V1-432 PBSN
J8007	BZ614400	060J401082	RCA JACK MSP-251V-05PBSN
SWITCHES			
SW101	BZ612016	0508S11001	SWITCH (LEAF) LSA-1144EAU
SW2201	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2202	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2203	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2204	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2205	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2206	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW2207	BZ612010	0504101T34	SWITCH,TACT EVQ21505R

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description			
			SWITCHES			
	SW2251	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
	SW2252	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
	SW2253	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
	SW2254	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
	SW2255	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
	SW2256	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
	SW2257	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
	SW2258	BZ612010	0504101T34	SWITCH,TACT	EVQ21505R	
				VARIABLE RESISTORS		
	VR404	BZ210218	V1K63H3BTE	VOLUME,SEMI FIXED	NVG6TLTAB222	
△	VR1701	AD301937	V1K6314BTE	VOLUME,SEMI FIXED	NVG6TLTAB103	
				P.C.BOARD ASSEMBLIES		
	PCB010	AE000070	A5F202Z010	PCB ASS'Y	VMC293A	
	PCB080	AE000072	A5F202Z080	PCB ASS'Y	TMC564B	
	PCB110	AD302214	A5F201Z110	PCB ASS'Y	TCC426B	
	PCB130	AD302215	A5F201Z130	PCB ASS'Y	VMB283B	
	PCB270	AD302216	A5F201Z270	PCB ASS'Y	TECB10B	
				MISCELLANEOUS		
	B403	BZ310121	024HT03553	CORE,BEADS	W5RH3.5X5X1.0	
	B1701	BZ310129	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0	
	B1703	BZ310129	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0	
	B1704	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B2002	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B2003	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B2004	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B2005	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B2201	BZ310129	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0	
	B4002	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B4004	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B8001	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2	
	B8501	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B8502	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B8503	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B8504	BZ310186	024HC31022	CORE,BEADS	FCM2012H-102T04	
	B8505	BZ310122	024HT03563	CORE,BEADS	W4BRH3.5X6X1.0X2	
	BL001	BZ310014	023C00022A	COIL,BALUN	HPN-01	
	BT001	AE000012	1412004008	BATTERY,MANGAN	R03(AB)E_2P_G	
	BT002	AE000012	1412004008	BATTERY,MANGAN	R03(AB)E_2P_G	
	CD002	BZ614411	06CU011902	CORD,CONNECTOR	CU011902	
	CD303	BZ614424	06CU149001	CORD,CONNECTOR	CU149001	
	CD602	AD302218	06CU291701	CORD,CONNECTOR	CU291701	
	CD603	AE000133	06CU284501	CORD,CONNECTOR	CU284501	
	CD604	AE000132	06CU282401	CORD,CONNECTOR	CU282401	
	CD802	BZ614310	WCL6844038	FLAT CABLE AWM2468 A	WG26 5C GRAY 440MM	
	CD803	BZ614378	06CU823001	CORD,CONNECTOR	CU823001	
	CD805	BZ614378	06CU823001	CORD,CONNECTOR	CU823001	
	CP001	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100	
	CP101	BZ614289	06972C0010	CONNECTOR PCB SIDE	TMC-J12P-B2	
	CP303	AD301045	069S140419	CONNECTOR PCB SIDE	A2502WV2-4P	
△	CP404	AD300095	069X460029	CONNECTOR PCB SIDE	B06B-DVS	
	CP601	AD301943	069S240639	CONNECTOR PCB SIDE	A2001WR2-4P	
	CP602	BZ614462	067U009039	WIRE HOLDER	B2013H02-9P	
	CP603	AD301944	067U008029	WIRE HOLDER	B2013H02-8P	
	CP604	AD301796	069S280629	CONNECTOR PCB SIDE	A2001WV2-8P	
	CP803	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P	
	CP804	BZ614058	069W010010	CONNECTOR PCB SIDE	005P-2100	
	CP805	BZ614269	069S320010	CONNECTOR PCB SIDE	A2361WV2-2P	
△	CD1702	BZ614407	120R415906	CORD,AC BUSH	0R415906	
	CD2251	BZ614408	06CU220701	CORD,CONNECTOR	CU220701	
	CD4501	BZ614373	122F061502	CORD,JUMPER	2F061502	
	CD8501	AE000134	122H0C2204	CORD,JUMPER	2H0C2204	
	CD8505	AD301946	06CU2B3301	CORD,CONNECTOR	CU2B3301	
	CP1702	AD301944	067U008029	WIRE HOLDER	B2013H02-8P	
△	CP1704	AD300687	069S420110	CONNECTOR PCB SIDE	A1561WV2-2P	
	CP1707	BZ614444	069D01001A	CONNECTOR PCB SIDE	003P-2100	or
		BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100	
	CP1708	BZ614444	069D01001A	CONNECTOR PCB SIDE	003P-2100	or
		BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100	
	CP2001	AD301793	069XYO0010	CONNECTOR PCB SIDE	24FLZ-SM1-TB	
	CP2201	BZ614416	069S220629	CONNECTOR PCB SIDE	A2001WV2-2P	
	CP2301	AD301858	069JV80180	CONNECTOR PCB SIDE	IMSA-9615S-08C-PP	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
MISCELLANEOUS			
CP2302	AD301795	069S230639	CONNECTOR PCB SIDE
CP4501	BZ614011	0697290620	CONNECTOR PCB SIDE
CP4502	BZ614050	069J760029	CONNECTOR PCB SIDE
CP4503	AD301649	067U002019	WIRE HOLDER
CP602B	BZ614458	069S290629	CONNECTOR PCB SIDE
CP603B	AD301796	069S280629	CONNECTOR PCB SIDE
CP8001	BZ614214	069S2B0629	CONNECTOR PCB SIDE
CP8002	AD301797	069J7C0029	CONNECTOR PCB SIDE
CP802A	BZ614276	067U005049	WIRE HOLDER
CP802B	BZ614276	067U005049	WIRE HOLDER
CP8502	AD301798	069J7C0019	CONNECTOR PCB SIDE
CUS011	BZ710148	800WFAA007	CUSHION B
CUS012	BZ710279	800WFAA006	CUSHION A
CUS013	BZ710149	800WFAA008	CUSHION C
CUS131	BZ710279	800WFAA006	CUSHION A
EL001	BZ614044	124120301A	EYE LET
EL002	BZ614043	124116281A	EYE LET
EL003	BZ614044	124120301A	EYE LET
EL004	BZ614043	124116281A	EYE LET
△F1701	AD301046	081PC6R305	FUSE
△FB401	AD302140	043224005F	TRANSFORMER,FLYBACK
FH1701	BZ614005	06710T0006	HOLDER,FUSE
FH1702	BZ614005	06710T0006	HOLDER,FUSE
OS2201	AD301949	0773071003	REMOTE RECEIVER
△RY1701	AD300114	0560V20115	RELAY
△SP351	BZ614381	070C546004	SPEAKER
△SP352	BZ614381	070C546004	SPEAKER
TM101	AD301950	076D0FG020	TRANSMITTER
△TU001	AE000273	0163300005	RF UNIT
△TH1701	BZ410079	DF5EL3R0A0	DEGAUSS ELEMENT
△V801	AD301131	098W250401	CRT W/DY
X101	BZ613006	100DA32R01	CRYSTAL
X102	BZ613033	100CT01403	CRYSTAL
X601	AD301951	100CT3R532	CRYSTAL
X2001	AD301802	100BT02003	CRYSTAL
X4001	AD301803	100BT02701	CRYSTAL
X4501	BZ613017	100CT3R502	CRYSTAL

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

TOSHIBA CORPORATION

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