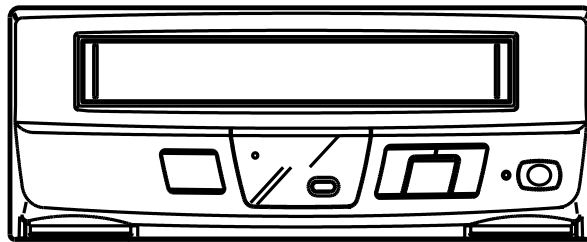


Memorex®

MVP0028

SERVICE MANUAL

VIDEO CASSETTE PLAYER



VHS

**ORIGINAL
MFR' VERSION A**


SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. USE THE DESIGNATED PARTS

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

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

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

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board.

The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

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

HOW TO ORDER PARTS

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

1. MODEL NUMBER and VERSION LETTER

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

2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

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GENERAL SPECIFICATIONS

G-1. Outline of the Product

3 -Speed 1/2" Video Cassette Player

G-2. VCR Format

VHS Standard NTSC PAL SECAM PAL-M PAL-N
VHS Hi-Fi Audio System(for Hi-Fi)

G-3. Color System

NTSC PAL SECAM or Monochrome

G-4. NTSC Playback(PAL60Hz)

Yes No

G-5. MESECAM

Yes No

G-6. Cassette Tape

VHS type video cassette tape Width 12.65mm (1/2 Inch)
VHS-C type video cassette tape Width 12.65mm (1/2 Inch)

G-7. Tape Speed

NTSC or PAL-M	PAL or SECAM
<input checked="" type="checkbox"/> SP 33.35 mm/sec	<input type="checkbox"/> SP 23.39 mm/sec
<input checked="" type="checkbox"/> LP 16.67 mm/sec	<input type="checkbox"/> LP 11.69 mm/sec
<input checked="" type="checkbox"/> SLP 11.12 mm/sec	

G-8. Playback Time

NTSC or PAL-M	
<input checked="" type="checkbox"/> at SP	Mode Max. 210 min. (with T-210 cassette)
<input checked="" type="checkbox"/> at LP	Mode Max. 420 min. (with T-210 cassette)
<input checked="" type="checkbox"/> at SLP	Mode Max. 630 min. (with T-210 cassette)
PAL or SECAM	
<input type="checkbox"/> at SP	Mode Max. 300 min. (with E-300 cassette)
<input type="checkbox"/> at LP	Mode Max. 600 min. (with E-300 cassette)

G-9. Rewind/Fast Forward Time(Approx.)

2'30"(FF) / 2'30"(REW) (with E-180 cassette)

G-10. Search Speed

<input checked="" type="checkbox"/> SP	<u>3 and 5</u> Times
<input checked="" type="checkbox"/> LP	<u>5 and 7</u> Times
<input checked="" type="checkbox"/> SLP	<u>7 and 9</u> Times

G-11. Slow Speed

<input type="checkbox"/> SP	_____ Times
<input type="checkbox"/> LP	_____ Times
<input type="checkbox"/> SLP	_____ Times

G-12. Frame Advance

<input type="checkbox"/> SP	_____ Times
<input type="checkbox"/> LP	_____ Times
<input type="checkbox"/> SLP	_____ Times

G-13. Antenna Input Impedance

VHF/UHF 75 ohm unbalanced

G-14. RF Converter Output

Nothing
Channel 3 or 4 ch.
Level/Impedance 66 dBμ / 75 ohm
Sound Selector Yes(G I K) No

G-15. Stereo/Dual TV Sound

Yes(NICAM GERMAN USA JAPAN) No

G-16. Video Signal

Input Level -- Vp-p / -- ohm
Output Level 1 Vp-p / 75 ohm
S/N Ratio 50 dB (Weighted)
Horizontal Resolution at SP Mode 230 Lines

GENERAL SPECIFICATIONS

G-17.Audio Signal

Input Level	Microphone	--	dB /	--	Kohm	
	Line	--	dB /	--	Kohm	
	RCA	--	dB /	--	Kohm	
Output Level	Line	--	dB /	--	Kohm	
	RCA	- 8	dB /	1	Kohm(0dB=0.775 Vrms)	
S/N Ratio at SP Mode		42	dB (Weighted)			
Harmonic Distortion :		1.5	% (1KHz)			
Frequency Response :		at SP Mode	100	Hz ~	10	KHz
		at LP Mode	100	Hz ~	6	KHz
		at SLP Mode	100	Hz ~	4	KHz

G-18.Heads

Video	<input checked="" type="checkbox"/>	2	Rotary Heads
FM Audio	<input type="checkbox"/>		Rotary Heads
Audio / Control	<input checked="" type="checkbox"/>	1	Stationary Head (<input checked="" type="checkbox"/> Mono <input type="checkbox"/> Stereo(L,R))
Erase	<input type="checkbox"/>		Full Track Erase

G-19.Motor: 3 Motors

Tape/Cassette Loading
Cylinder (Direct Drive)
Capstan (Direct Drive)

G-20.Power Source

--- V AC 50Hz AC 60Hz
12V DC

G-21.Power Consumption:

9.8 W at DC 12V
 Per Year: --- kWh / Year

G-22.Dimensions(Approx.)

255 mm(W) 315 mm(D) 95 mm(H)

G-23.Weight(Approx.)

Net : 3.0 (6.6 lbs)
 Gross : 4.0 (8.8 lbs)

G-24.Cabinet Material

Cabinet Front:	<input checked="" type="checkbox"/> PS	<input checked="" type="checkbox"/> 94HB	<input type="checkbox"/> DECABROM
	<input type="checkbox"/> ABS	<input type="checkbox"/> 94V2	<input checked="" type="checkbox"/> NON-DECA
		<input type="checkbox"/> 94V0	

G-25.Cassette Loading System: Front Cassette Loading System

G-26.Tape Counter: Linear Time Tape Counter Yes No

G-27.Protector: Power Fuse Dew Sensor Fuse Resistor

G-28.Regulation

Safety

<input type="checkbox"/> UL	<input type="checkbox"/> CSA	<input type="checkbox"/> SAA	<input type="checkbox"/> SI	<input type="checkbox"/> CE	<input type="checkbox"/> SEV
<input type="checkbox"/> NEMKO	<input type="checkbox"/> FEMKO	<input type="checkbox"/> DEMKO	<input type="checkbox"/> IEC65	<input type="checkbox"/> CNS	<input type="checkbox"/> SISIR
<input type="checkbox"/> SEMKO	<input type="checkbox"/> NZ	<input type="checkbox"/> HOMOLO	<input type="checkbox"/> SABS	<input type="checkbox"/> GOST	
<input type="checkbox"/> NOM	<input type="checkbox"/> AS3159	<input type="checkbox"/> DENTORI	<input type="checkbox"/> UNE	<input checked="" type="checkbox"/> NONE	

Radiation

<input checked="" type="checkbox"/> FCC	<input type="checkbox"/> DOC	<input type="checkbox"/> PTT	<input type="checkbox"/> CE	<input type="checkbox"/> SEV
<input type="checkbox"/> SABA	<input type="checkbox"/> SI	<input type="checkbox"/> NZ	<input type="checkbox"/> HOMOLO	<input type="checkbox"/> UNE
<input type="checkbox"/> CNS	<input type="checkbox"/> CISPR13	<input type="checkbox"/> DENTORI	<input type="checkbox"/> AS/NZS	<input type="checkbox"/> NONE

G-29.Temperature

Operation 5 °C ~ 40 °C
 Storage -20 °C ~ 60 °C

G-30.Operating Humidity : Less than 80 %RH

GENERAL SPECIFICATIONS

G-31.Terminals

- VHF/UHF Antenna Input/Output Din Type F-Type France Type
 Front Video Input (RCA ø8.3)
 Front Audio Input (RCA ø8.3)
 Rear Video Input (RCA ø8.3)
 Rear Audio Input (RCA ø8.3)
 Rear Video Output (RCA ø8.3)
 Rear Audio Output (RCA ø8.3)
 21 Pin DC 12V Jack (Center+)
 Remote Jack (ø3.5). AC Inlet

G-32.Indicator

- Not Applicable
 Power Stand By Rec Repeat Tape In
 (Red) () () (Red) ()
 Play Still ATR Auto Tracking Level Meter
 (Red) () (Red) () ()

G-33.On Screen Display

- Not Applicable
 Tracking Stereo,Audio Output
 Play/Stop/FF/Rew Repeat On/Off
 Memory Tape Counter
 Index Tape Speed

G-34.OSD Language

- Eng Ger Fre Spa Ita Por Jan

OSD Language Setting

- Eng Ger Fre Spa Ita Por Jan

G-35.Carton

- Master Carton: Need No Need
 Content: ---- Set
 Material: ---- / ---- Corrugated Carton
 Dimensions: ---- mm(L) ---- mm(W) ---- mm(D)
 Description of Origin Yes No

Gift Box

- Material Single/Brown Corrugated Carton (with Photo Label)
 Single/White Corrugated Carton (with Photo Label)
 Single Full Color Carton W/Photo
 Dimensions: 373 mm(L) 326 mm(W) 176.5 mm(D)
 Design: As Per Buyer 's
 Description of Origin: Yes No

Drop Test

- Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces
 Height 25cm 31cm 46cm 62cm 80cm 100cm

Container Stuffing: 2947 Sets / 40' container

G-36.Accessories

- Owner's Manual (English/Spanish)
 Remote Control Unit Dew Caution Sheet
 Video Cassette Tape Battery (UM-____x____)
 Safety Tip Toll Free Insert Sheet
 Guarantee Card Audio-Video Cord (RCA)
 Warning Sheet Quick Set-Up Sheet
 Information Sheet U/V Mixer
 75 ohm Coaxial Cable (Single Shield Double Shield)
 300 ohm to 75 ohm VHF Antenna Adaptor
 21pin Cable AC Cord
 12V DC Car Cord(Single Plug)

GENERAL SPECIFICATIONS

G-37. Other Features

- | | |
|---|---|
| <input checked="" type="checkbox"/> Auto Head Cleaning | <input type="checkbox"/> Index Search |
| <input checked="" type="checkbox"/> Auto Tracking | <input type="checkbox"/> HQ (VHS Standard High Quality) |
| <input checked="" type="checkbox"/> Auto Power On, Auto Play, Auto Rewind, Auto Eject, Auto Power Off | |
| <input checked="" type="checkbox"/> Forward / Reverse Picture Search | <input type="checkbox"/> SQPB |
| <input type="checkbox"/> CM Skip | <input type="checkbox"/> Rental |
| <input checked="" type="checkbox"/> Vertical Eject | |

G-38. Switch

Front

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> Power | <input checked="" type="checkbox"/> Play/Still | <input checked="" type="checkbox"/> F.FWD/Cue |
| <input checked="" type="checkbox"/> Rew/Rev | <input checked="" type="checkbox"/> Eject/Stop | <input type="checkbox"/> Rec |
| | <input checked="" type="checkbox"/> Repeat | |

Rear

- RF-Converter Output Channel Selector (1 or 2CH 3 or 4CH)

G-39. Remote Control Unit: None

RC- _____

Power Source: D.C _____ V Battery UM - _____

- | | | |
|---|---|---|
| <input type="checkbox"/> 0 | <input type="checkbox"/> Ch Up / Tr Up | <input type="checkbox"/> Power |
| <input type="checkbox"/> 1 | <input type="checkbox"/> Ch Down / Tr Down | <input type="checkbox"/> Eject |
| <input type="checkbox"/> 2 | <input type="checkbox"/> Ch Skip | <input type="checkbox"/> Play |
| <input type="checkbox"/> 3 | <input type="checkbox"/> Cancel / CH Skip | <input type="checkbox"/> Play / Up |
| <input type="checkbox"/> 4 | <input type="checkbox"/> Enter | <input type="checkbox"/> Play / Slow / Up |
| <input type="checkbox"/> 5 | <input type="checkbox"/> Speed | <input type="checkbox"/> F.FWD |
| <input type="checkbox"/> 6 | <input type="checkbox"/> Index | <input type="checkbox"/> F.FWD / Right |
| <input type="checkbox"/> 7 | <input type="checkbox"/> Program | <input type="checkbox"/> Rew |
| <input type="checkbox"/> 8 | <input type="checkbox"/> Program / Video Plus | <input type="checkbox"/> Rew / Left |
| <input type="checkbox"/> 9 | <input type="checkbox"/> Video Plus | <input type="checkbox"/> Pause / Still |
| <input type="checkbox"/> 10 | <input type="checkbox"/> Set Up | <input type="checkbox"/> Still |
| <input type="checkbox"/> 11 | <input type="checkbox"/> Set Down | <input type="checkbox"/> Stop |
| <input type="checkbox"/> 12 | <input type="checkbox"/> Set Right | <input type="checkbox"/> Stop / Down |
| <input type="checkbox"/> ./. | <input type="checkbox"/> Set Left | <input type="checkbox"/> REC / OTR |
| <input type="checkbox"/> Auto Tracking | <input type="checkbox"/> Call | <input type="checkbox"/> Clock / Counter |
| <input type="checkbox"/> Jog / Shuttle | <input type="checkbox"/> Menu | <input type="checkbox"/> Counter Memory |
| <input type="checkbox"/> Dial JOG | <input type="checkbox"/> Repeat | <input type="checkbox"/> Counter Reset |
| <input type="checkbox"/> Ring Shuttle | <input type="checkbox"/> Timer Rec | <input type="checkbox"/> Audio Select |
| <input type="checkbox"/> One Touch Playback | <input type="checkbox"/> Audio Dubbing | <input type="checkbox"/> AD Skip |
| <input type="checkbox"/> Tracking + | <input type="checkbox"/> Tracking - | |

DISASSEMBLY INSTRUCTIONS

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

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

1. Remove the 4 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Unlock the 5 supports ②.
4. Remove the Front Cabinet in the direction of arrow (B).

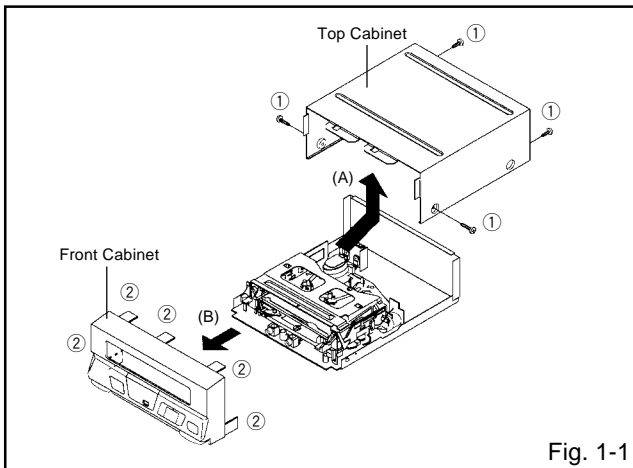


Fig. 1-1

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

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

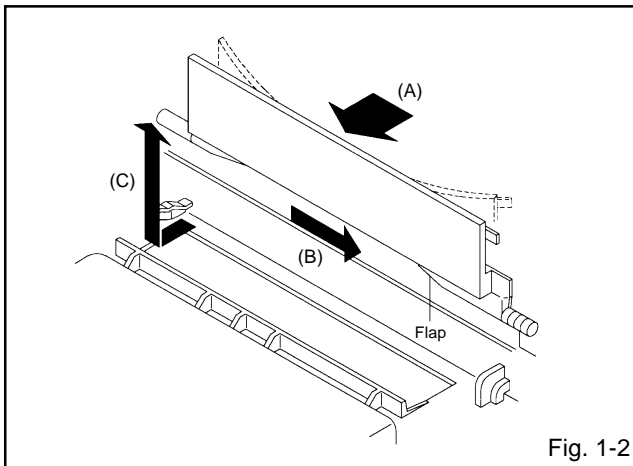


Fig. 1-2

1-3: DECK CHASSIS (Refer to Fig. 1-3)

1. Remove the 3 screws ①.
2. Remove the screw ②.
3. Disconnect the following connectors: (CP4001, CP1004, CP1002, CP1006, CP1003 and CP4101).
4. Remove the Deck Chassis in the direction of arrow.

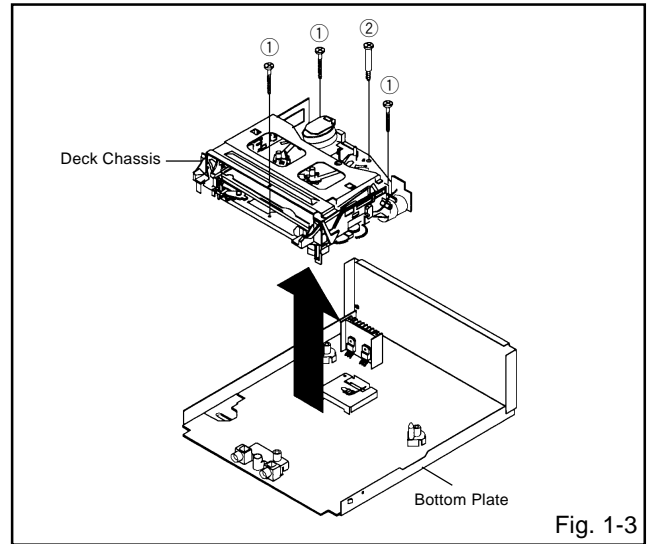


Fig. 1-3

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

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

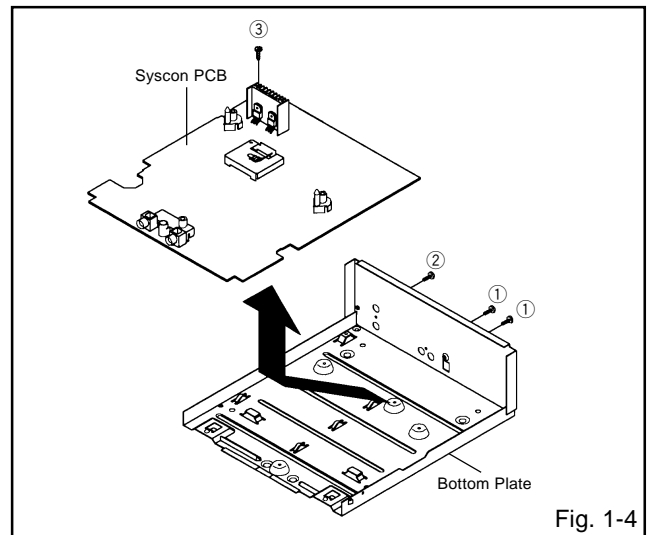


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DECK PARTS

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

1. Remove the 3 screws ①.
2. Remove the Lock Lever Bracket, Lock Lever Rubber, Lock Lever and Lock Lever Spring.
3. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, tighten the screws from (1) to (3) in order.

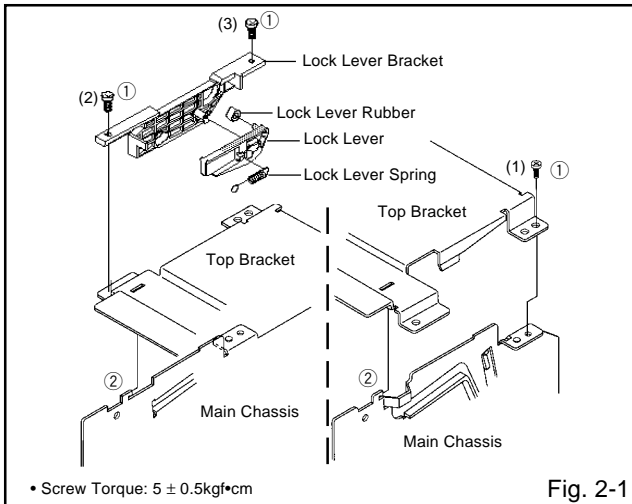


Fig. 2-1

2-2: FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Remove the Polyslider Washer ①.
3. Remove the Flap Lever.
4. Unlock the 3 supports ② and remove the Tape Guide R.

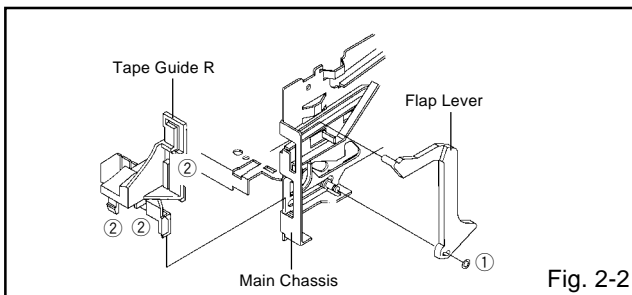
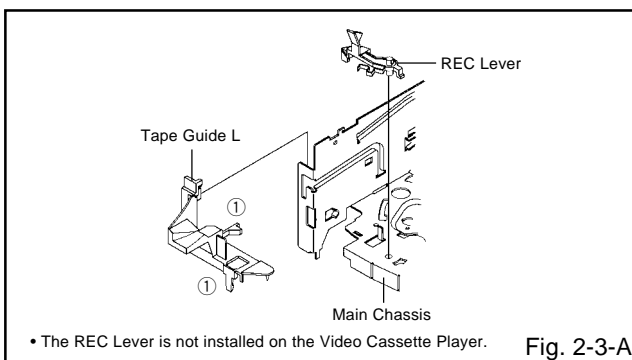


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)



• The REC Lever is not installed on the Video Cassette Player.

Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. (Refer to Fig. 2-3-B)

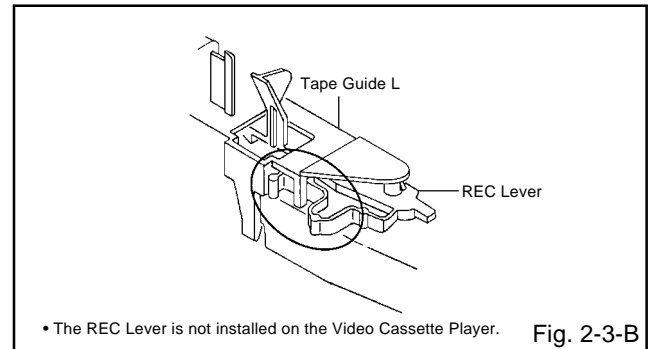


Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

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

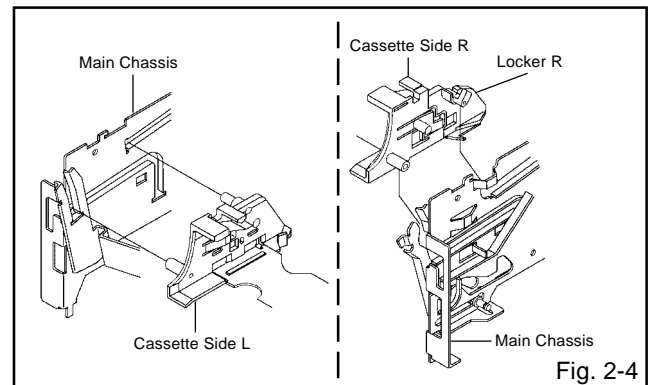


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.

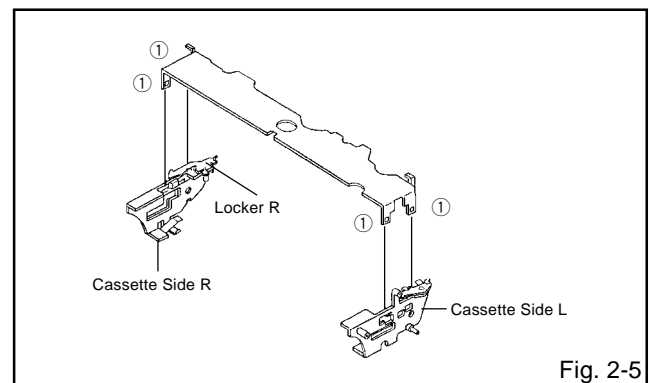
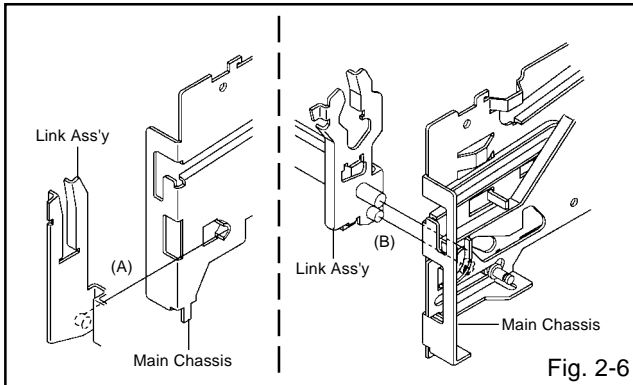


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

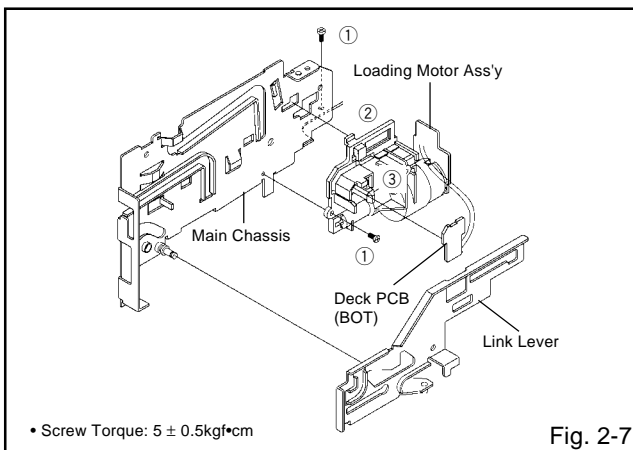
2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.



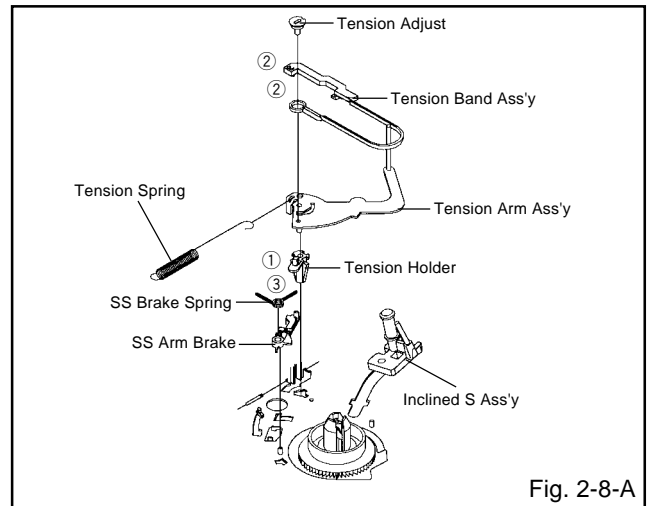
2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the 2 screws ①.
3. Unlock the support ② and remove the Loading Motor Ass'y.
4. Unlock the 2 supports ③ and remove the Deck PCB (BOT).



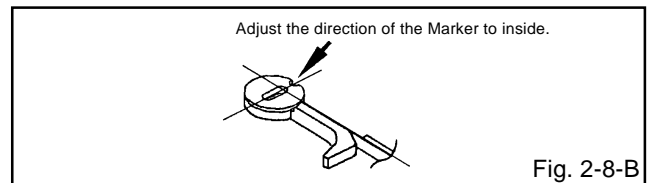
2-8: TENSION ASS'Y (Refer to Fig. 2-8-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.



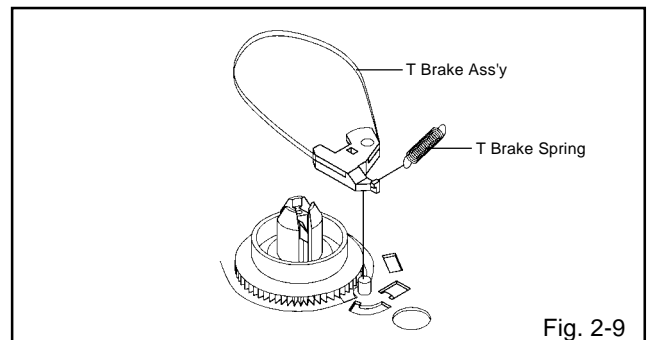
NOTE

When you install the Tension Adjust, install as shown in Fig. 2-8-B. (Refer to Fig. 2-8-B)



2-9: T BRAKE ASS'Y (Refer to Fig. 2-9)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.



DISASSEMBLY INSTRUCTIONS

2-10: S REEL/T REEL (Refer to Fig. 2-10)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

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. 2-10) Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it (FL OIL #6115). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. (Refer to MECHANICAL ADJUSTMENT)

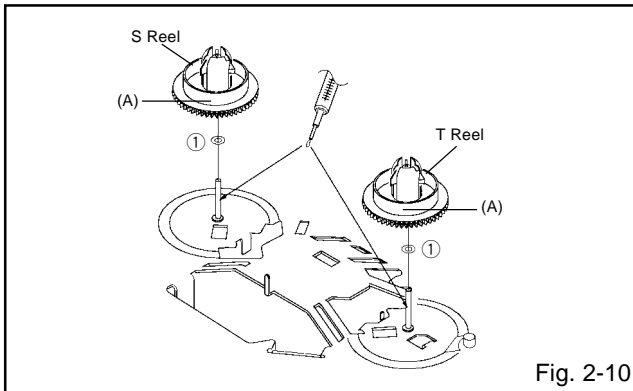


Fig. 2-10

2-11: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-11-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.

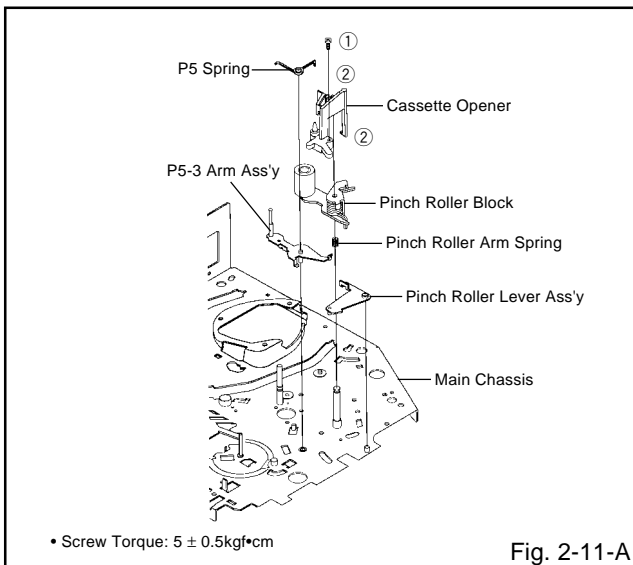


Fig. 2-11-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-11-B. (Refer to Fig. 2-11-B)

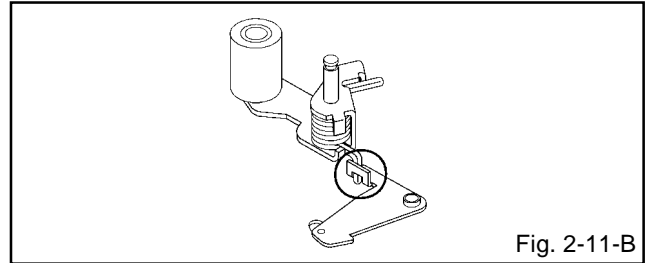


Fig. 2-11-B

2-12: A/C HEAD (Refer to Fig. 2-12-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. 2-12-B. (Refer to Fig. 2-12-B)
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

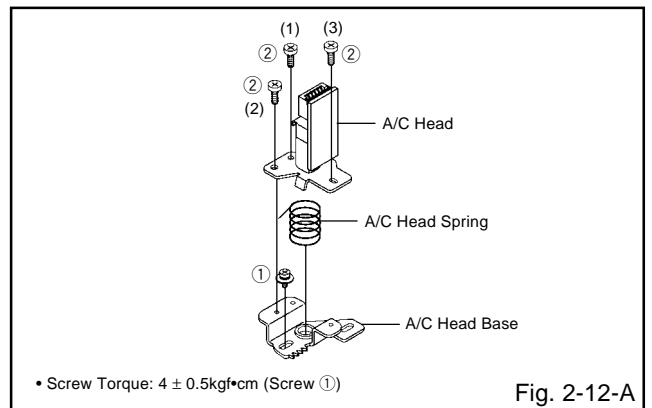


Fig. 2-12-A

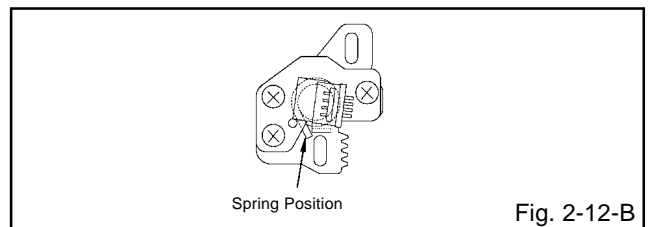


Fig. 2-12-B

2-13: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-13)

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

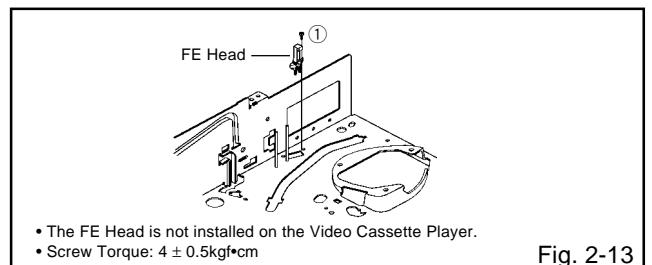


Fig. 2-13

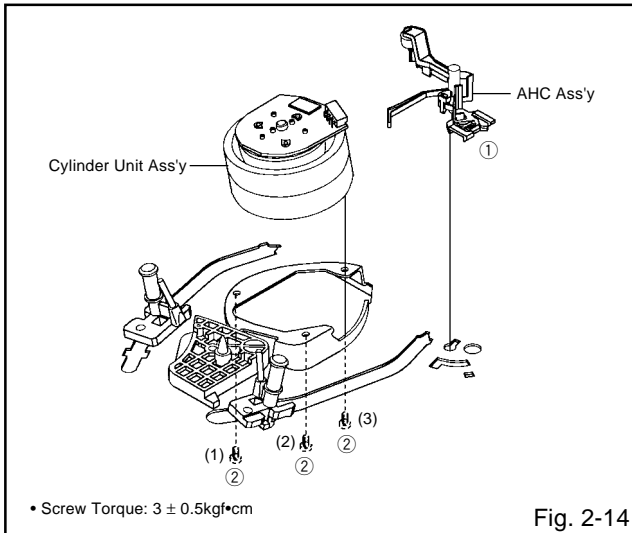
DISASSEMBLY INSTRUCTIONS

2-14: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-14)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

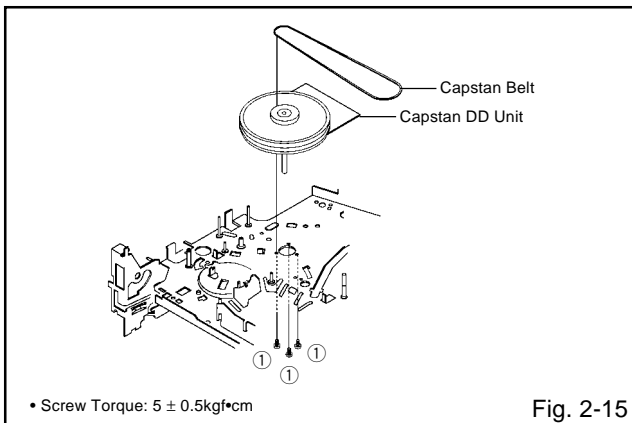
NOTE

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.



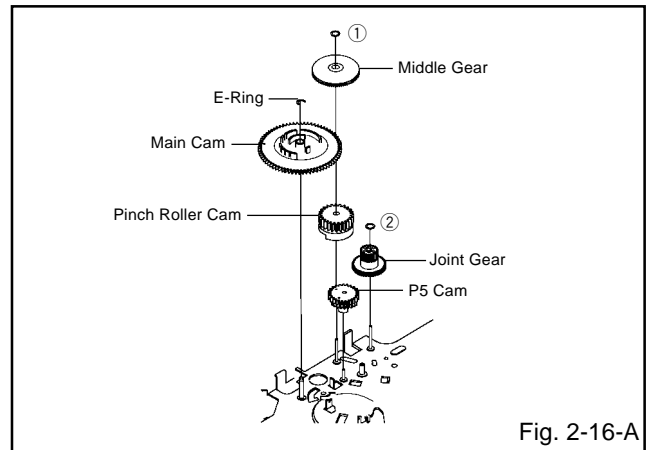
2-15: CAPSTAN DD UNIT (Refer to Fig. 2-15)

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



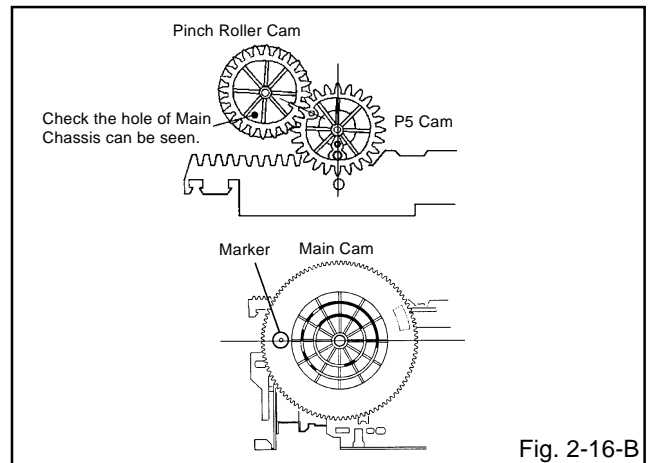
2-16: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam and Pinch Roller Cam.
3. Remove the Polyslider Washer ②, then remove the Joint Gear.



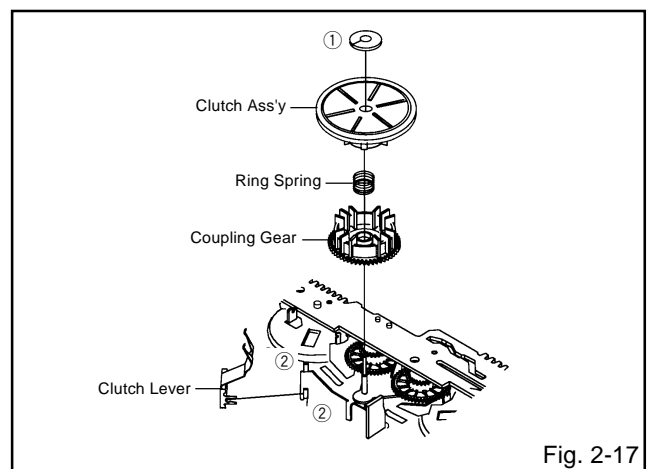
NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. (Refer to Fig. 2-16-B)



2-17: CLUTCH ASS'Y (Refer to Fig. 2-17)

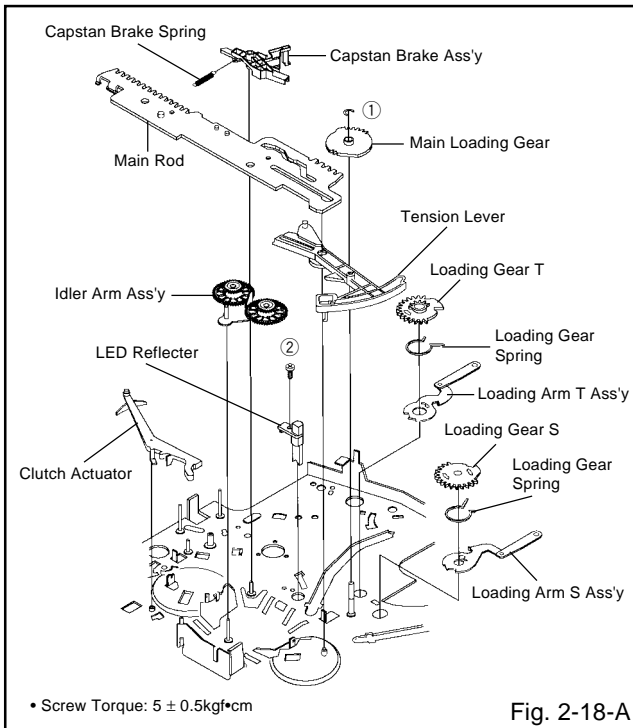
1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.



DISASSEMBLY INSTRUCTIONS

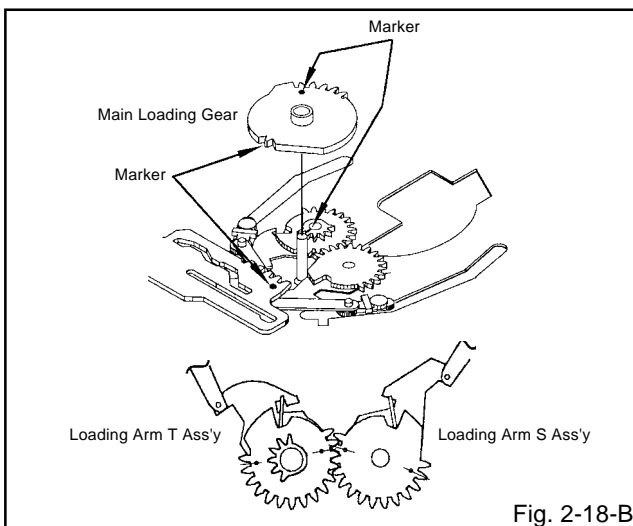
2-18: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-18-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflector.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.

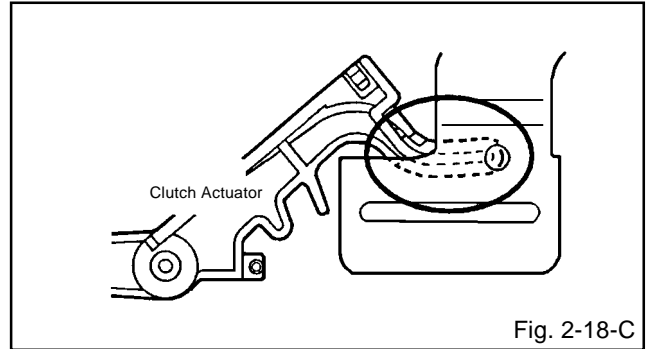


NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. (Refer to Fig. 2-18-B)



2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-18-C. (Refer to Fig. 2-18-C)

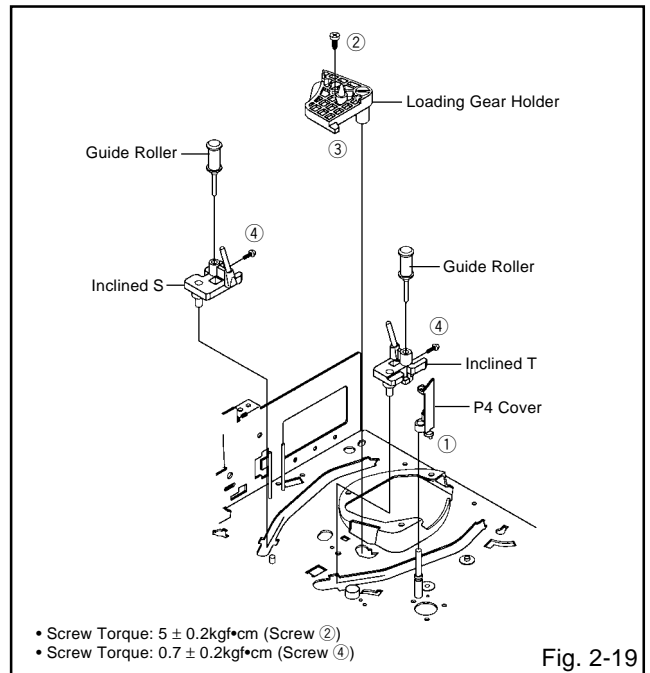


2-19: INCLINED S/T ASS'Y (Refer to Fig. 2-19)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the screw ②.
3. Unlock the support ③ and remove the Loading Gear Holder.
4. Remove the Inclined S.
5. Remove the Inclined T.
6. Remove the 2 screws ④, then remove the Guide Roller.

NOTE

Do not touch the roller of Guide Roller.



DISASSEMBLY INSTRUCTIONS

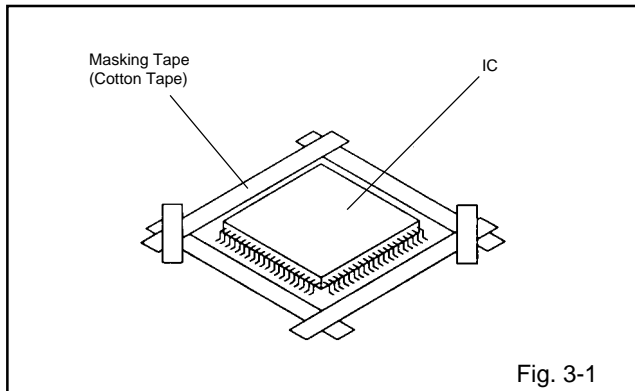
3. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 3-1.)

NOTE

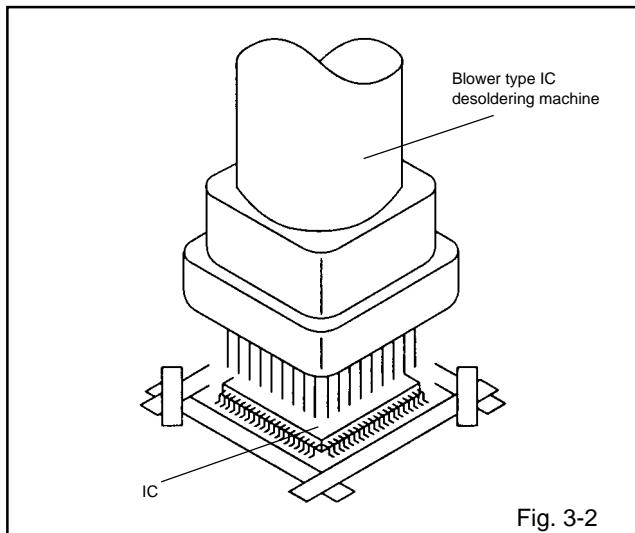
Masking is carried out on all the parts located within 10 mm distance from IC leads.



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

NOTE

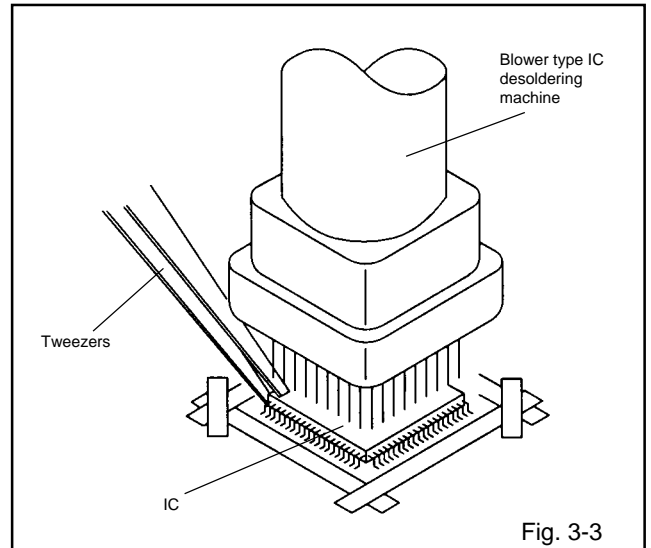
Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.



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

NOTE

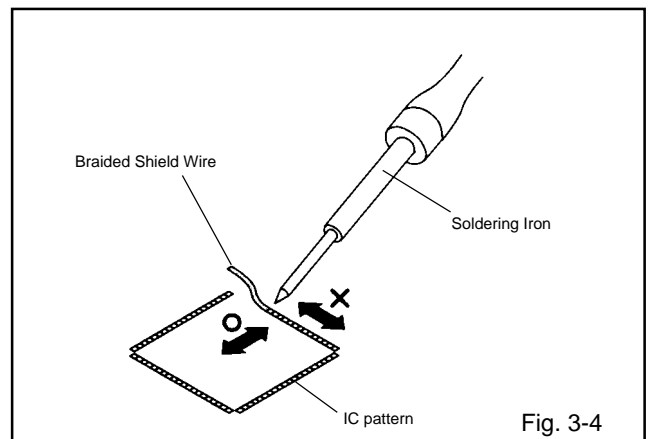
Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.



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

NOTE

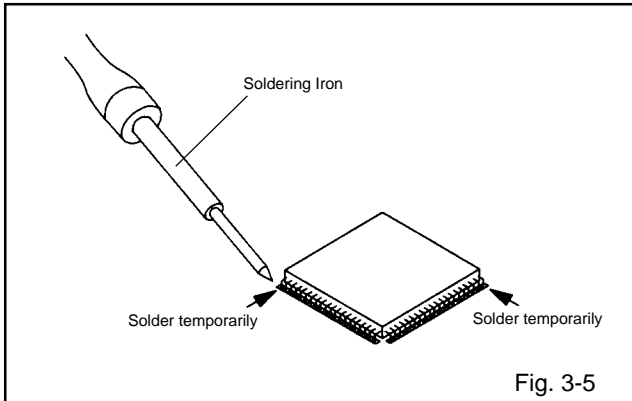
Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.



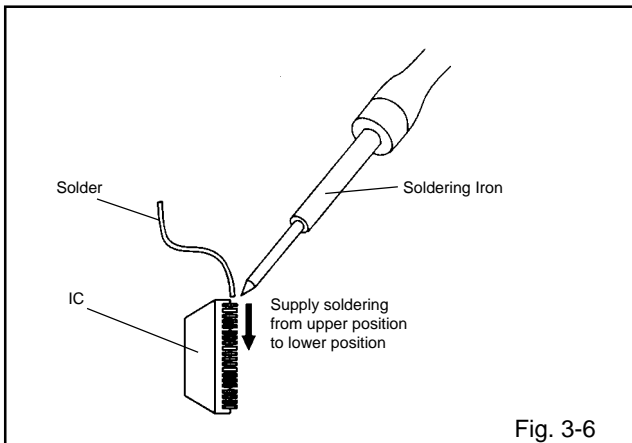
DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. (Refer to Fig. 3-5.)



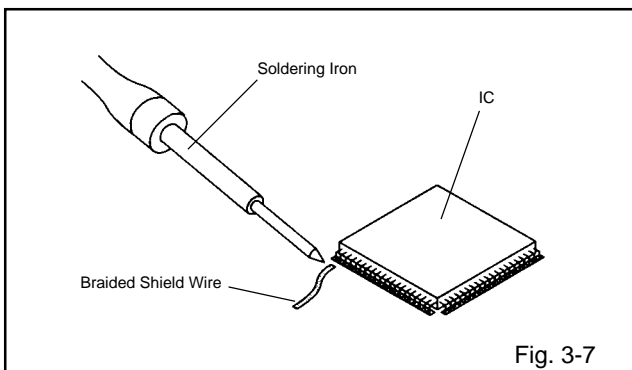
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 3-6.)



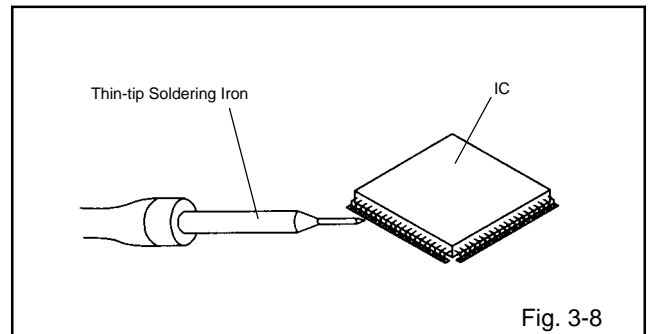
3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 3-7.)

NOTE

Do not absorb the solder to excess.



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



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

NOTE

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

KEY TO ABBREVIATIONS

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

KEY TO ABBREVIATIONS

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

SERVICE MODE LIST

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

Method	Operations
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 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					●	
Capstan Shaft	■	■	■	■	■	Replace when rolling becomes abnormal.
Tape Running Guide Post	■	■	■	■	■	
Cylinder Unit	■	■	■	■	●	Clean the Head

■ : Clean
● : Replace

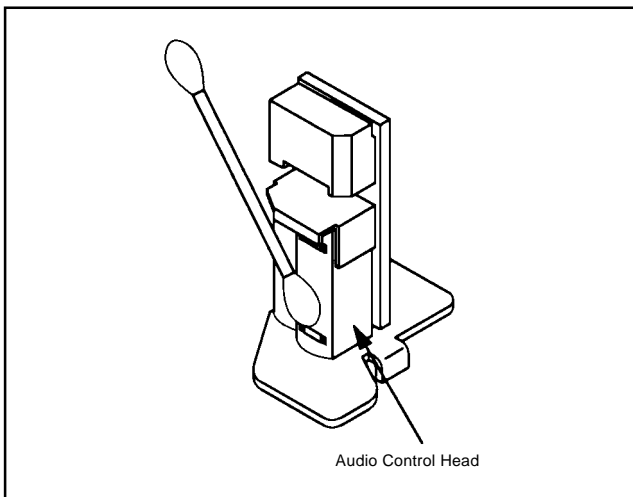
CLEANING

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

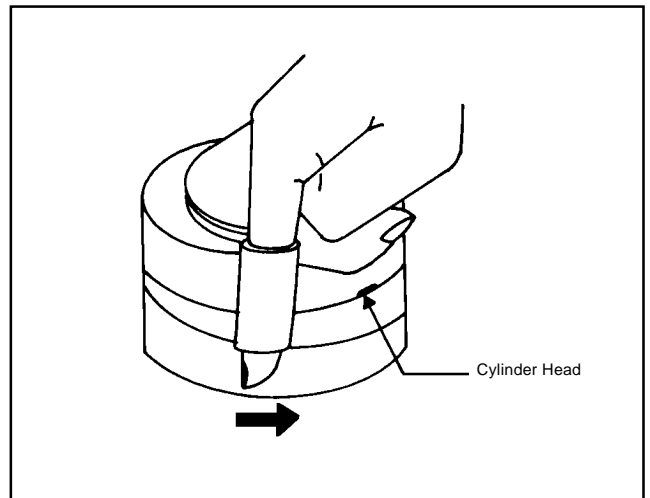
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

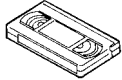
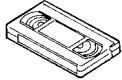
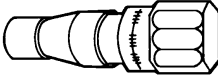
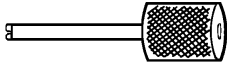
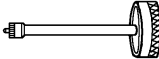
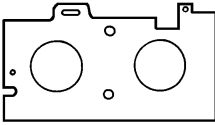
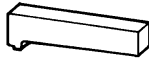
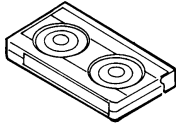
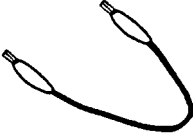
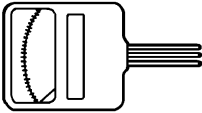
Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). (Refer to the figure below.)

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.



SERVICING FIXTURES AND TOOLS

<p>(For 2 heads model) VHS Alignment Tape JG001 (VN₂S-LI6³) JG001A (VN₂S-CO1³) JG001Q (VN₂S-LI6³H) JG001T (VN₂S-X6³)</p> 	<p>(For 4 heads model) VHS Alignment Tape JG001B (VN₁S-LI6³) JG001I (VN₁S-CO1³) JG001P (VN₁S-LI6³H) JG001S (VN₁S-X6³)</p> 	<p>JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm)</p> 	<p>JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small)</p> 
<p>JG153 X Value Adjustment Screwdriver</p> 	<p>JG022 Master Plane</p> 	<p>JG024A Reel Disk Height Adjustment Jig</p> 	<p>JG100A Torque Tape (VHT-063)</p> 
<p>JG154 Cable</p> 	<p>Tentelometer</p> 		

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

PREPARATION FOR SERVICING

- Short circuit between **TP1001** and **Ground** with the cable JG154.
(Refer to MAJOR COMPONENTS LOCATION GUIDE)
The EOT, BOT and Reel Sensor do not work at this moment.
At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

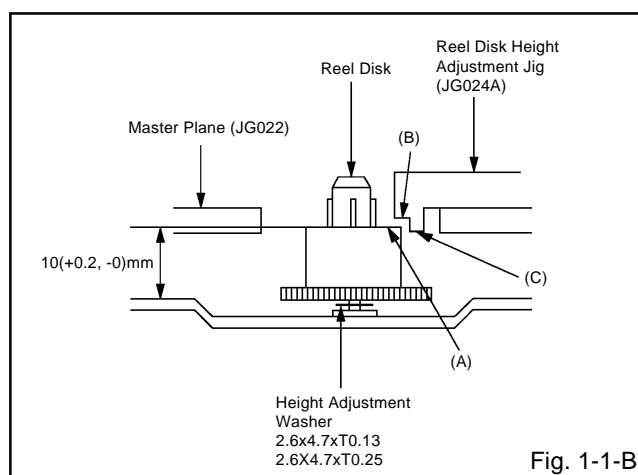
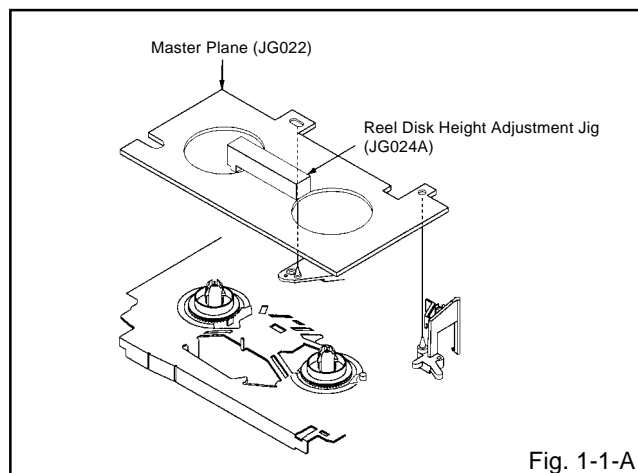
1. CONFIRMATION AND ADJUSTMENT

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.)
- When you activate the deck without the Cassette Holder, short circuit between **TP1001** and **GND**. (Refer to **ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE**) In this condition the BOT/EOT/Reel Sensor will not function.

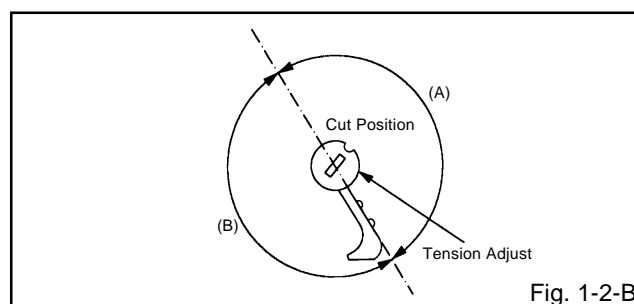
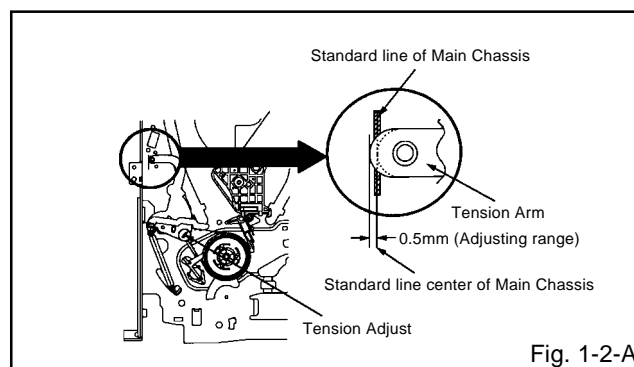
1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (**JG022**) and reel disk height adjustment jig (**JG024A**) on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig (**JG024A**), and is higher than "C". If it is not enough height, adjust to $10(+0.2, -0)$ mm with the height adjustment washer.
4. Adjust the other reel in the same way.



1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis. After this adjustment, confirm that the cut position is located in "A" area as shown in **Fig. 1-2-B**. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

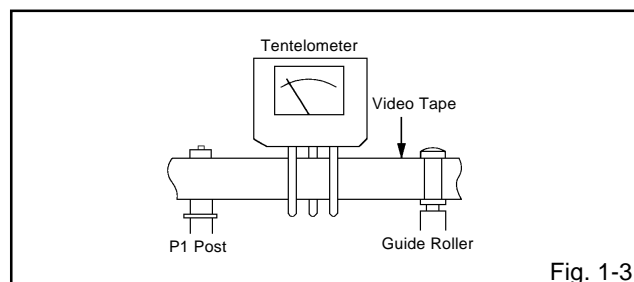


1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

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

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

1. After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (**JG100A**) and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates $60 \sim 110$ gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates $25 \sim 40$ gf•cm during playback in SP mode.



MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Set to the Rewind mode. (Refer to Fig.1-4)
3. 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.

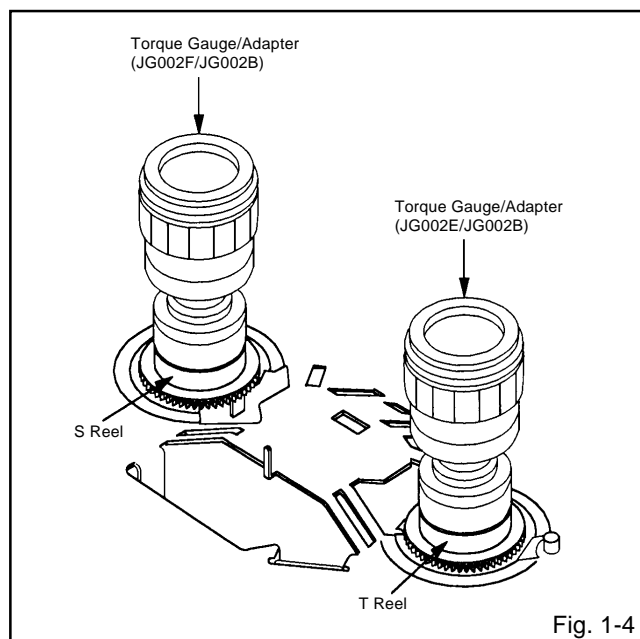
1-5: CONFIRMATION OF REEL BRAKE TORQUE

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

1. Set to the STOP mode.
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)

1. Set to the STOP mode.
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 45~70gf•cm.



NOTE

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

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	T Brake Spring/Tension Spring

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

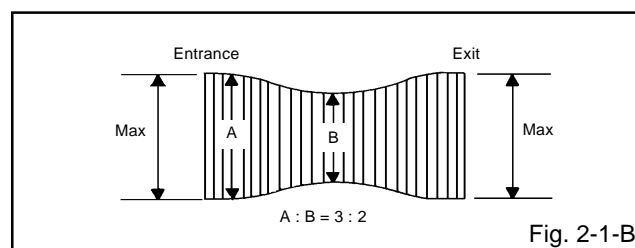
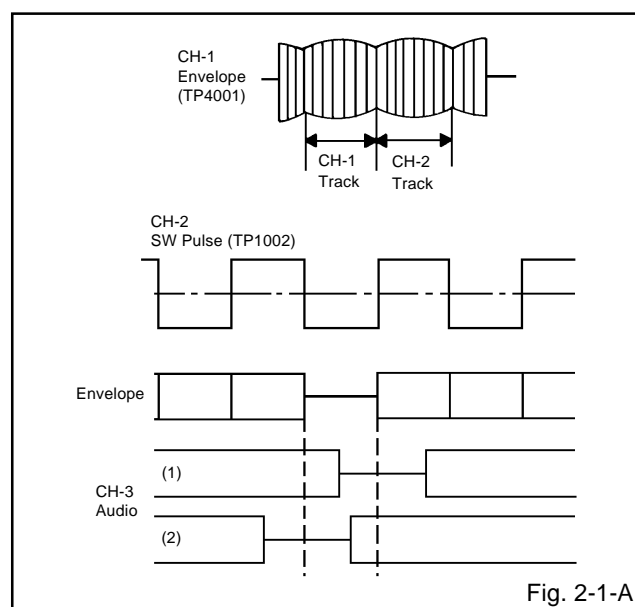
Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (JG001 or JG001B). (Refer to SERVICING FIXTURE AND TOOLS)
2. Connect CH-1 of the oscilloscope to TP4001 (Envelope) and CH-2 to TP1002 (SW Pulse).
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Adjusting Driver (JG005) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

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

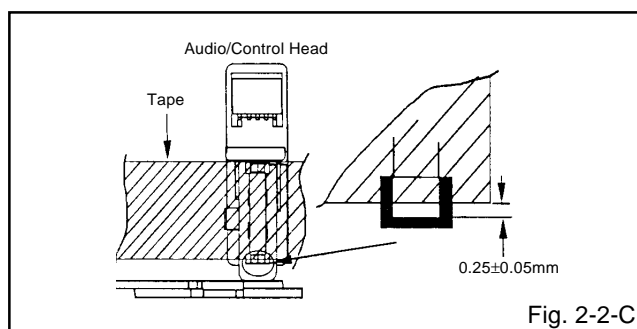
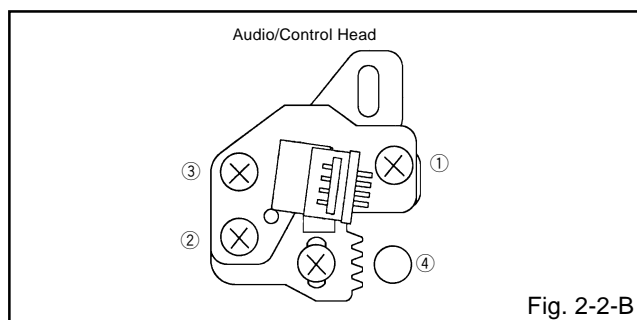
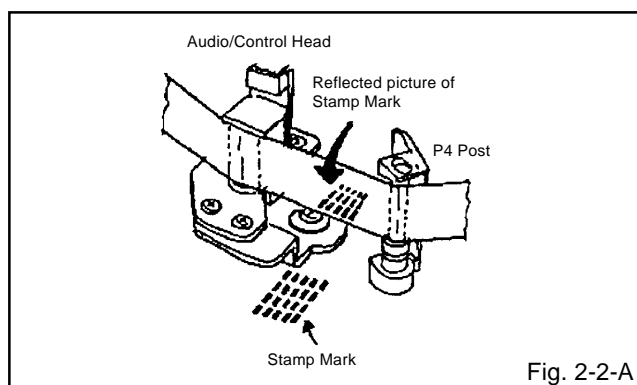


MECHANICAL ADJUSTMENTS

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

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

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



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

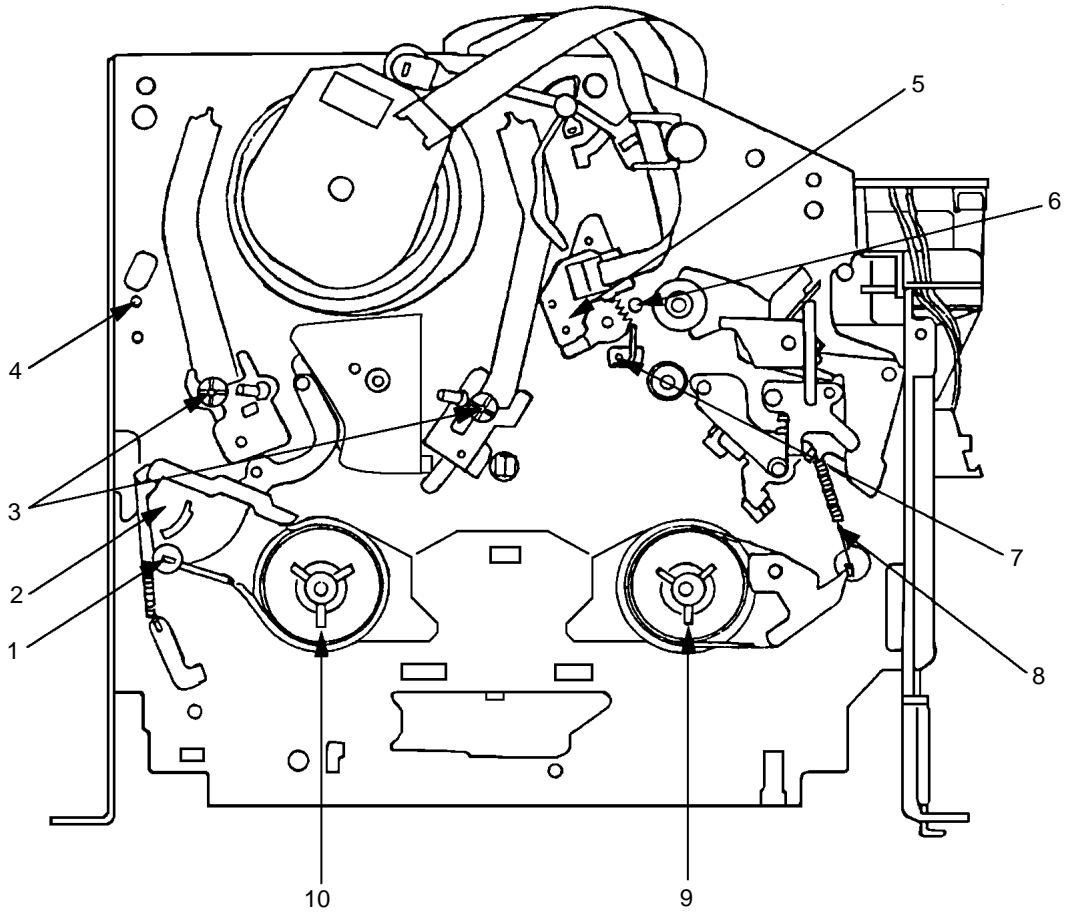
1. Confirm and adjust the height of the Reel Disk. (Refer to **item 1-1**)
2. Confirm and adjust the position of the Tension Post. (Refer to **item 1-2**)
3. Adjust the Guide Roller. (Refer to **item 2-1**)
4. Confirm and adjust the Audio/Control Head. (Refer to **item 2-2**)
5. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape (JG001S or JG001T). (Refer to **SERVICING FIXTURE AND TOOLS**)
7. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (JG153) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

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

1. Connect CH-1 of the oscilloscope to **TP4001**, CH-2 to **TP1002** and CH-3 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape (JG001P or JG001Q). (Refer to **SERVICING FIXTURE AND TOOLS**)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
6. Confirm that the difference between these counted steps number in the above items are within 2 steps. If the difference are more than 3 steps, do Tape Running Adjustment again. (Refer to **item 2-3**)

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- | | |
|-----------------------|-----------------------------------|
| 1. Tension Adjust | 6. X value adjustment driver hole |
| 2. Tension Arm | 7. P4 Post |
| 3. Guide Roller | 8. T Brake Spring |
| 4. P1 Post | 9. T Reel |
| 5. Audio/Control Head | 10. S Reel |

ELECTRICAL ADJUSTMENTS

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

1. BASIC ADJUSTMENT

CAUTION

When replacing IC's or transistors, use only specified silicon grease (**YG6260M**).
(To prevent the damage to IC's and transistors.)

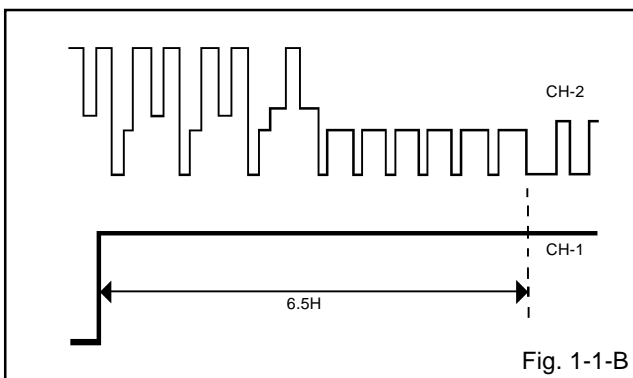
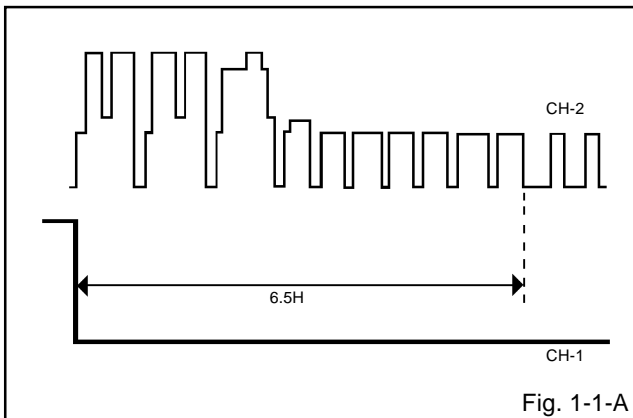
1-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape (**JG001A**)

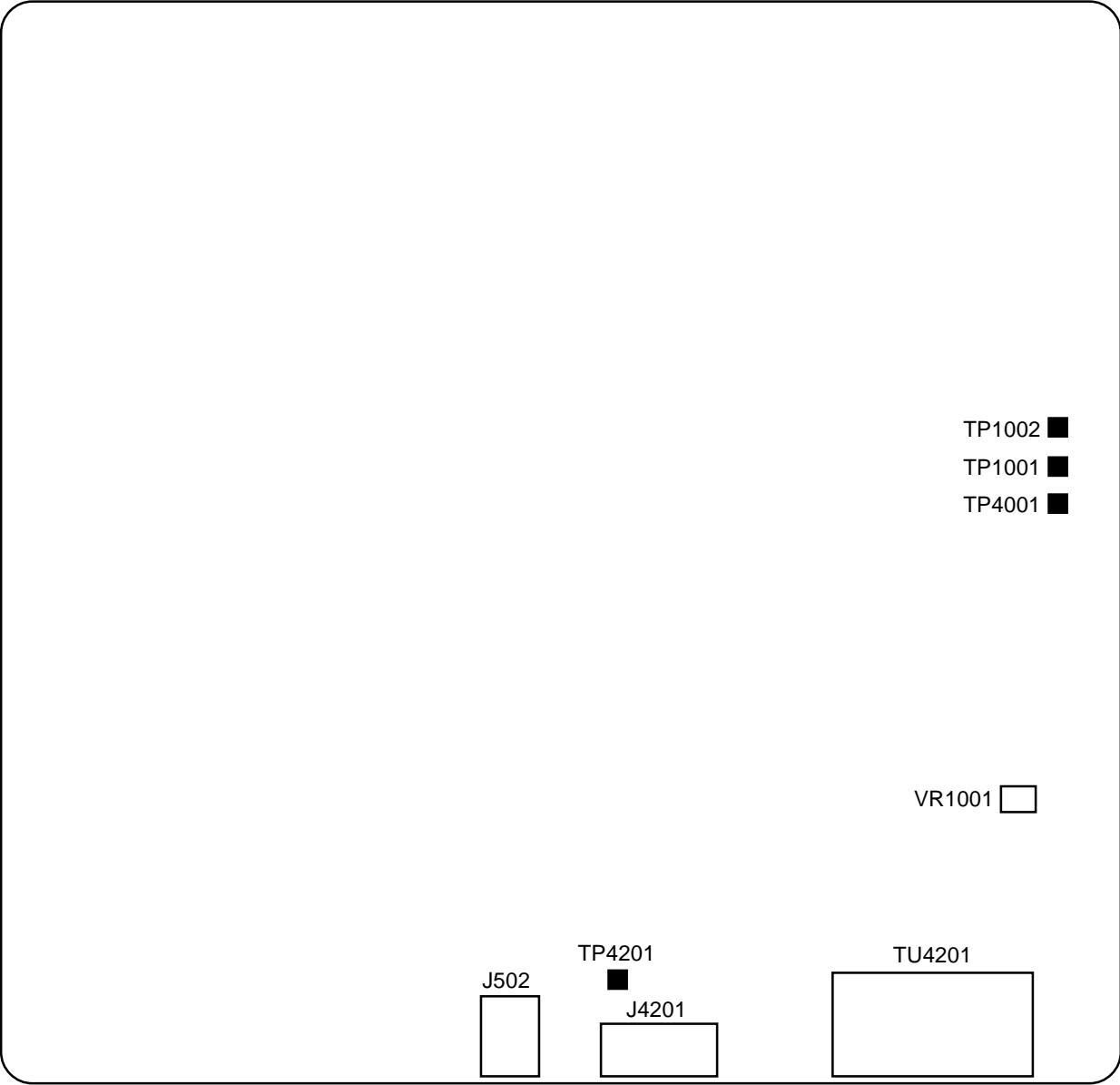
INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **TP4201**.
2. Playback the alignment tape. (**JG001A**)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Adjust the **VR1001** until the waveform of the oscilloscope measures $6.5 \pm 0.5(H)$ at both leading and trailing edges. (Refer to Fig. 1-1-A, B)



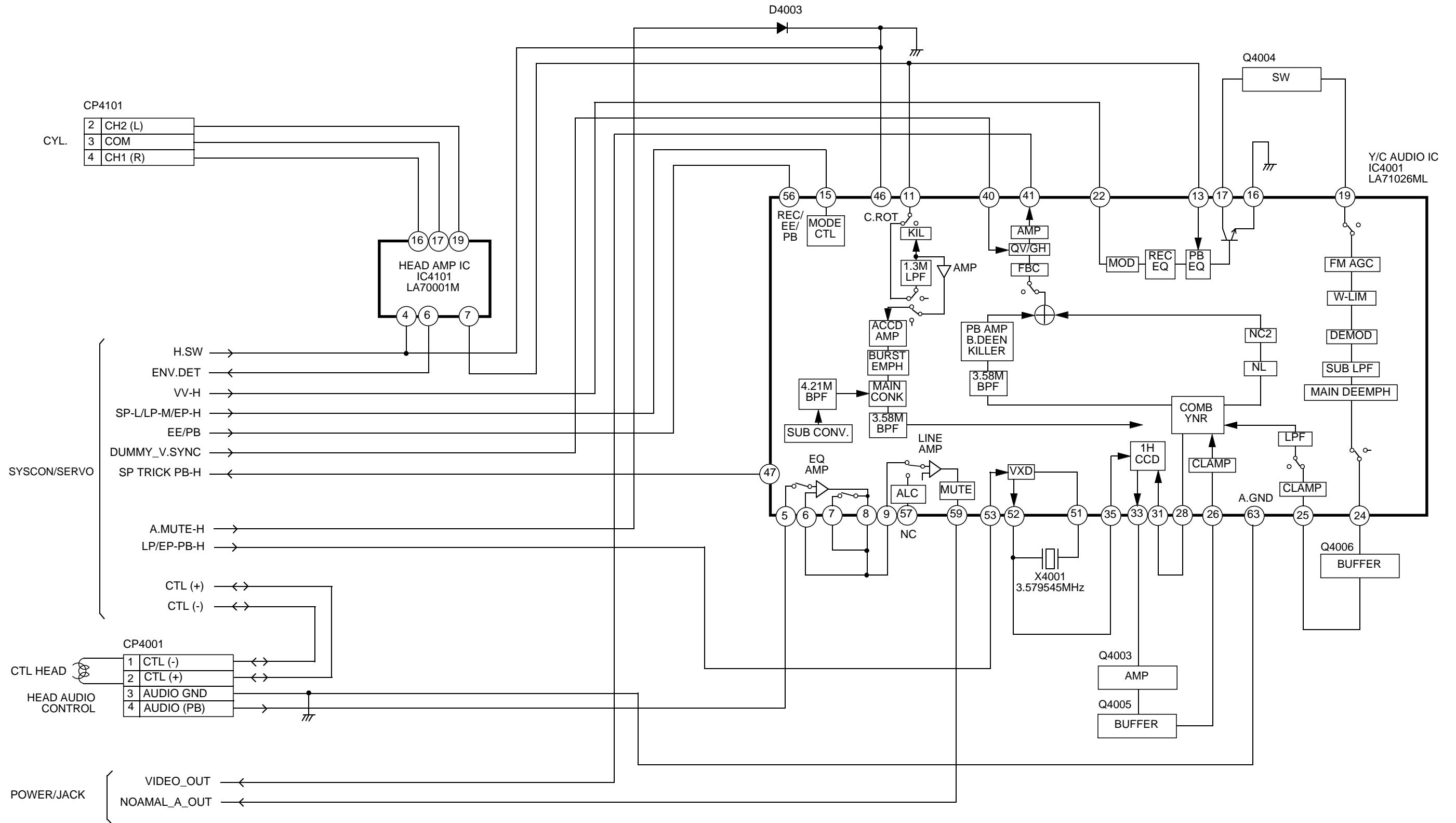
ELECTRICAL ADJUSTMENTS

2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE

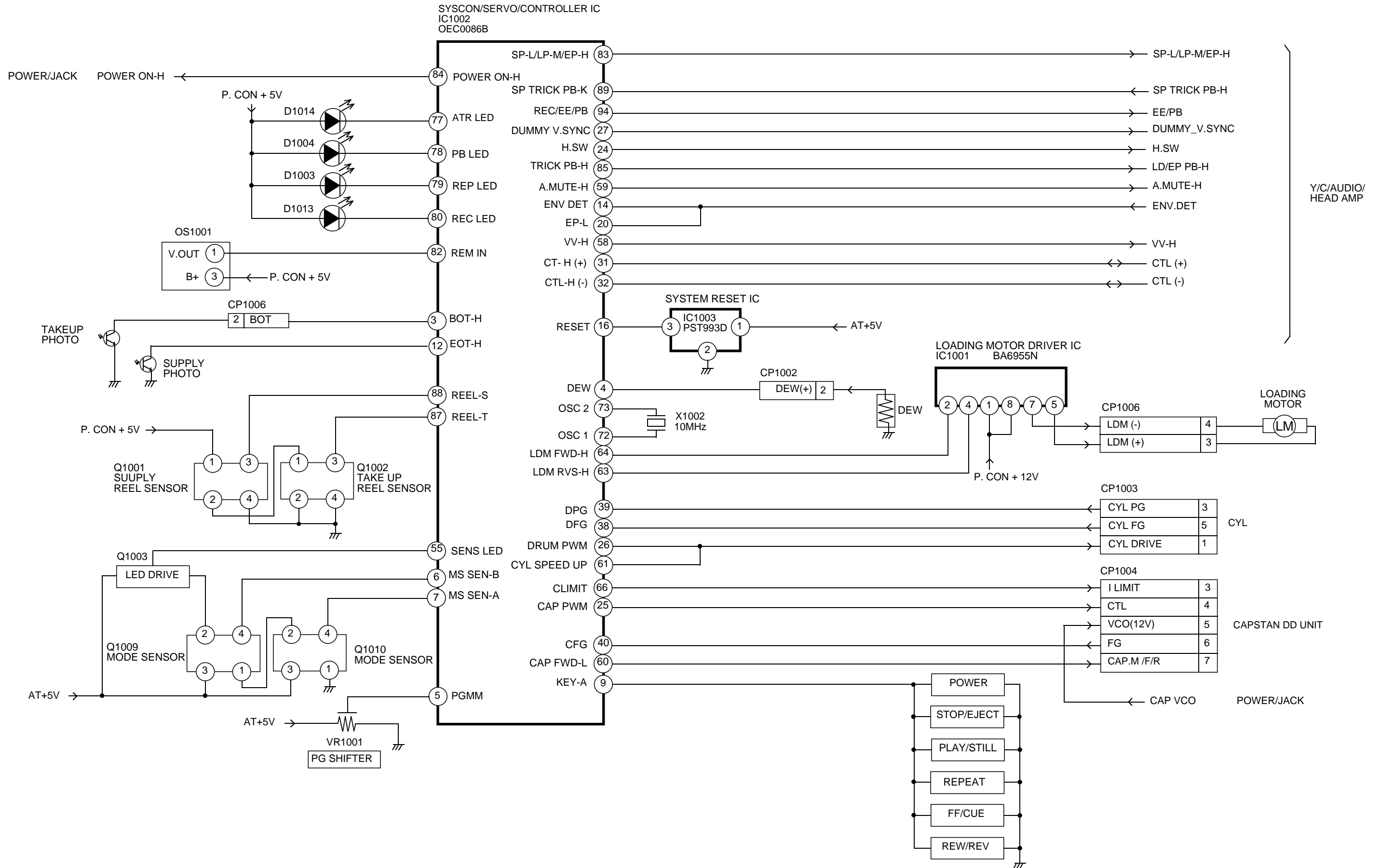


SYSCON PCB

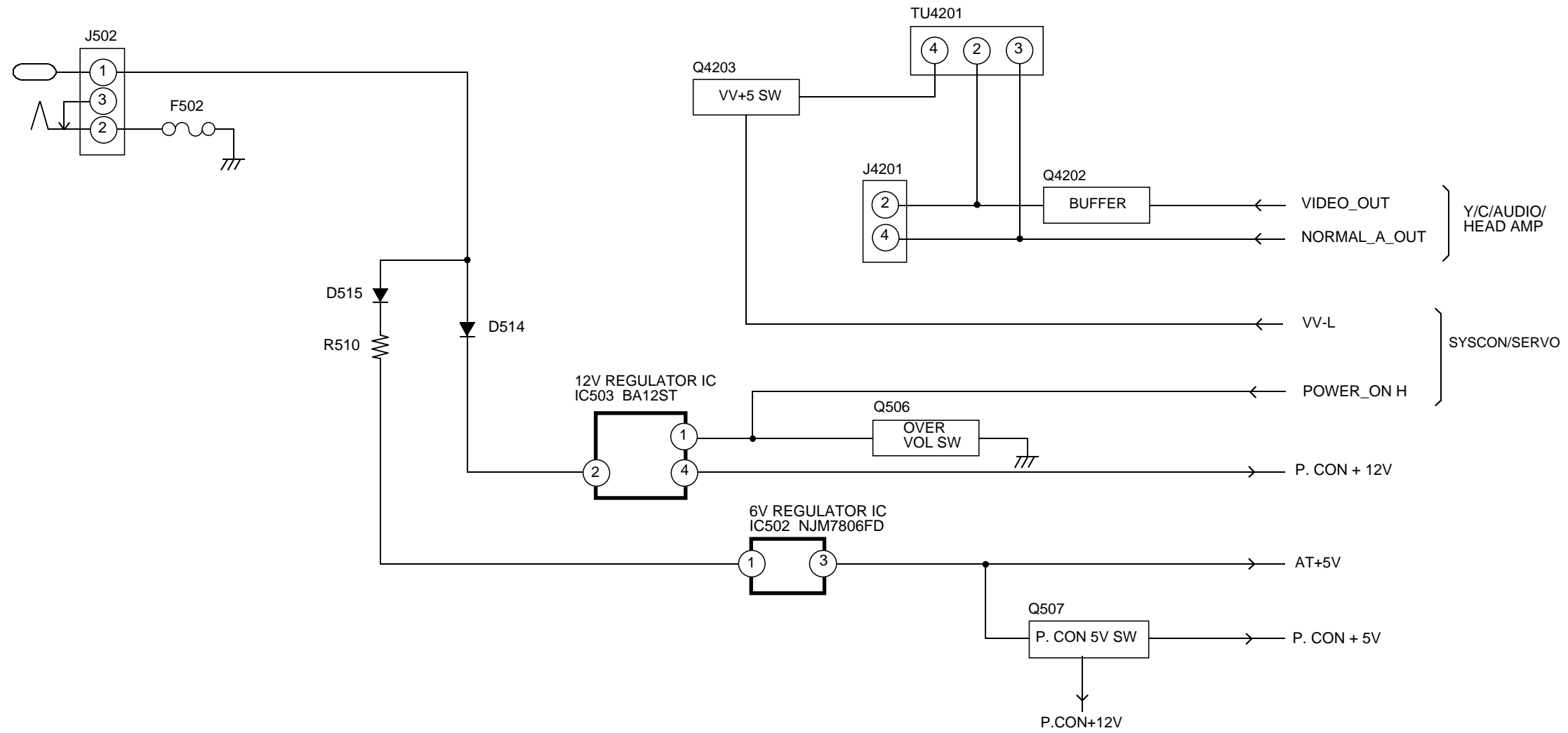
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



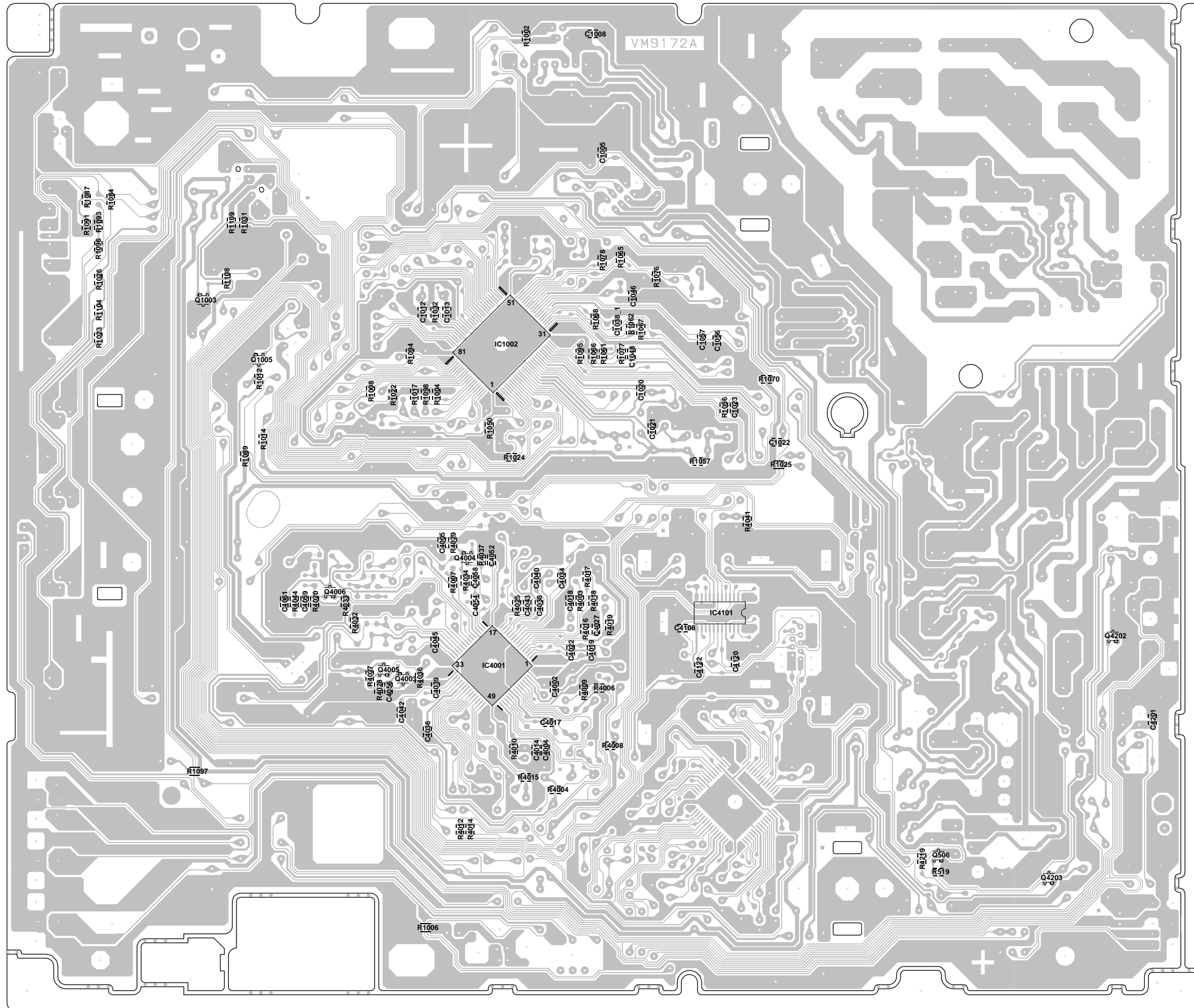
SYSTEM CONTROL/SERVO BLOCK DIAGRAM



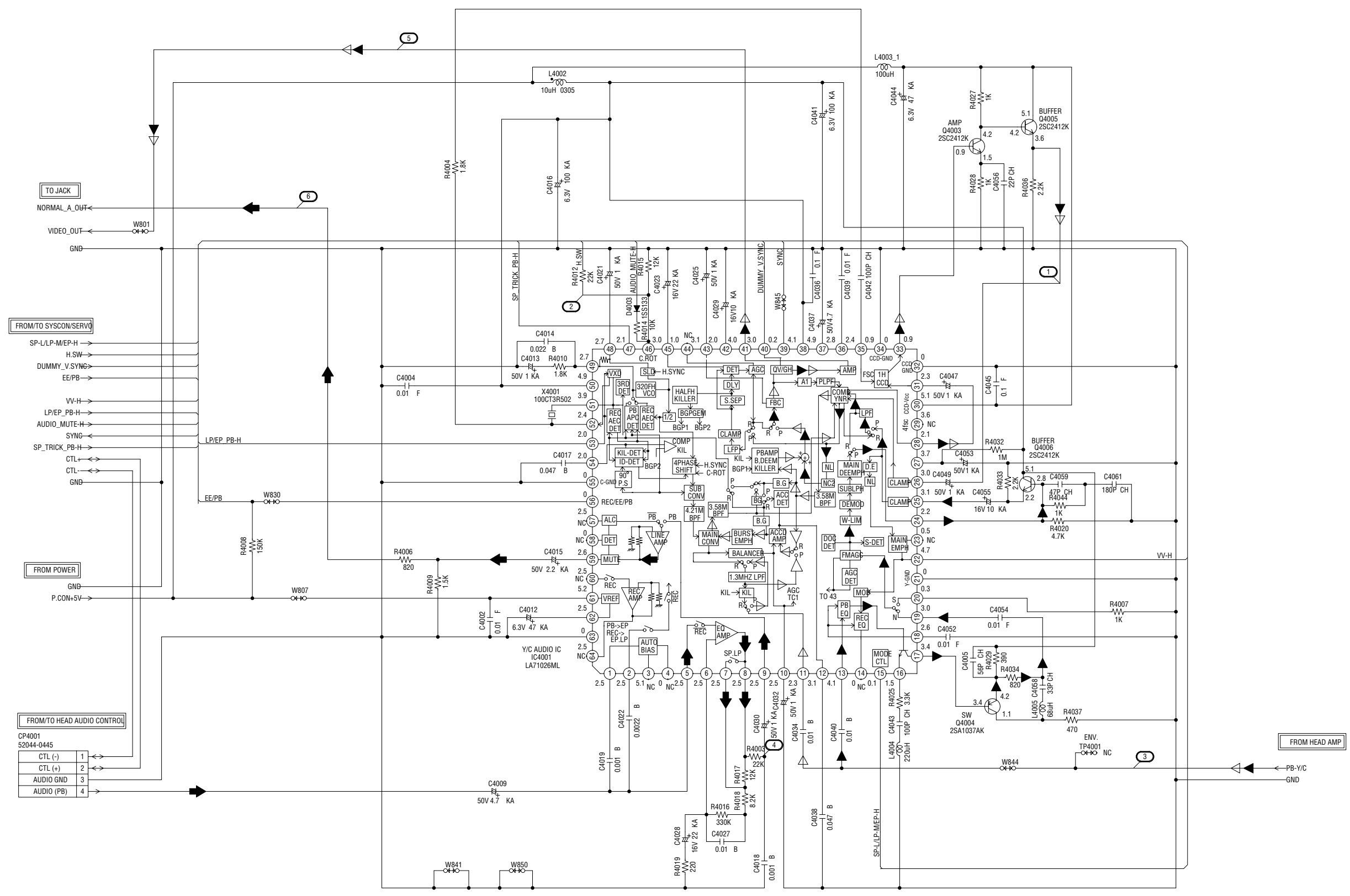
POWER/JACK BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED PARTS)
SOLDER SIDE



Y/C/AUDIO SCHEMATIC DIAGRAM (SYSCON PCB)



FROM/TO SYSCON/SERV

FROM POWER

FROM/TO HEAD AUDIO CONTROL

CTL (-)	1
CTL (+)	2
AUDIO GND	3
AUDIO (PB)	4

FROM HEAD AMP

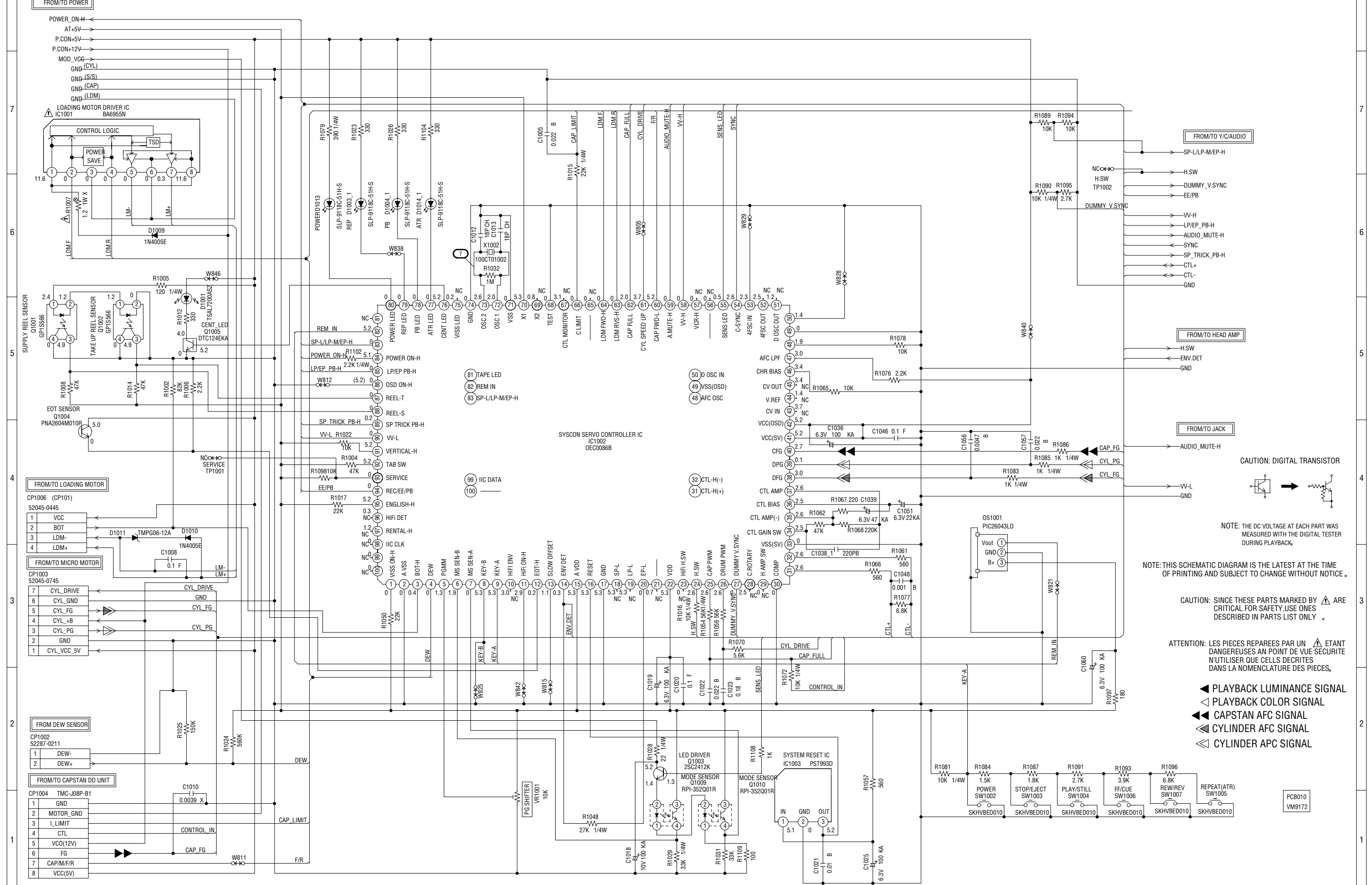
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

- ◄ AUDIO SIGNAL (PB)
- ◄ PLAYBACK COLOR SIGNAL
- ◄ PLAYBACK LUMINANCE SIGNAL

PCB010
VM9172

SYSCON CONTROL/SERVO SCHEMATIC DIAGRAM (SYSCON PCB)



CAUTION: DIGITAL TRANSISTOR

NOTE: THE DC VOLTAGE AT 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.

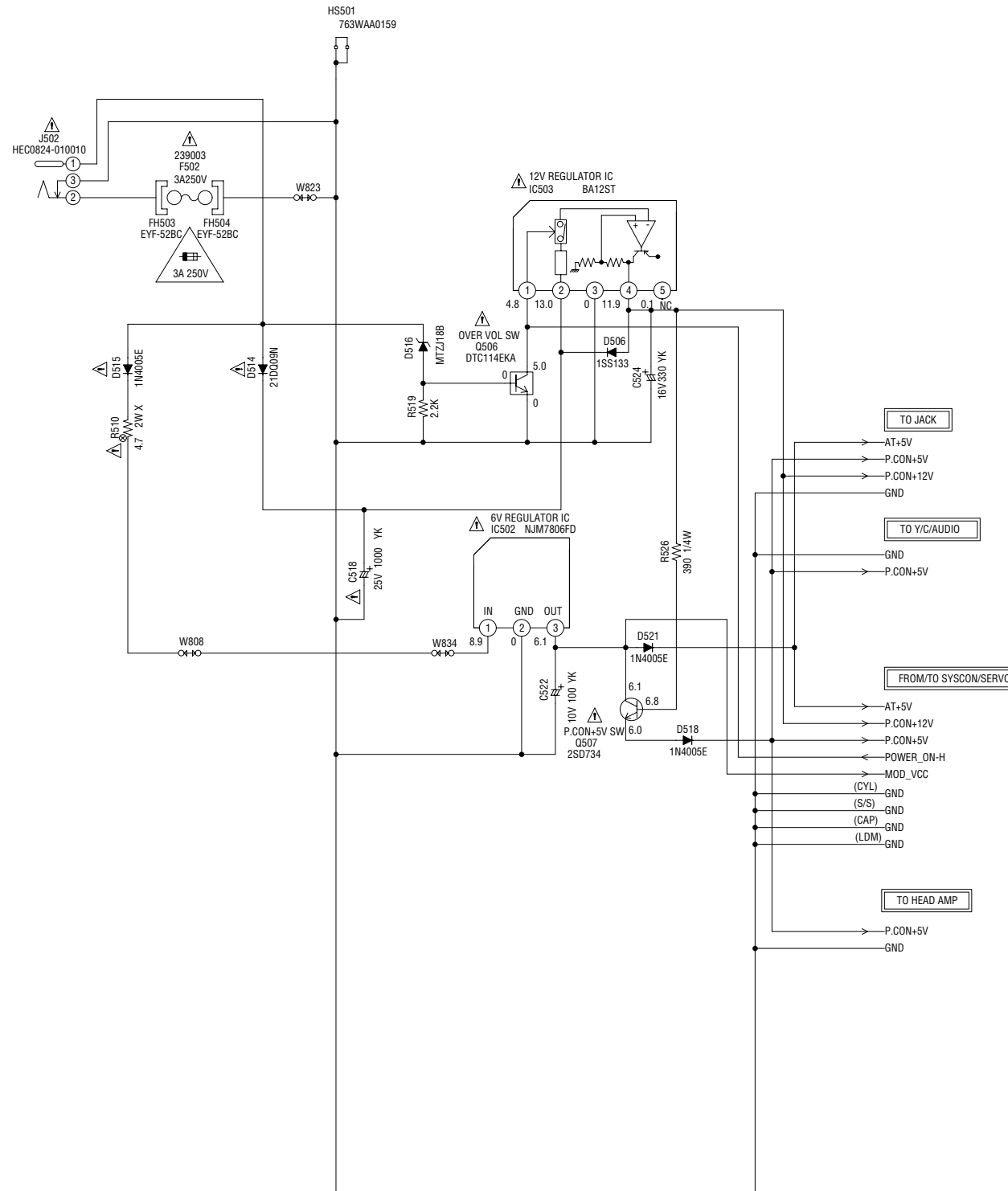
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

- PLAYBACK LUMINANCE SIGNAL
- PLAYBACK COLOR SIGNAL
- CAPSTAN AFC SIGNAL
- CYLINDER AFC SIGNAL
- CYLINDER APC SIGNAL

PCB010
VM9172

POWER SCHEMATIC DIAGRAM (SYSCON PCB)



CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 3A 250V (F502).

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 3A 250V (F502).

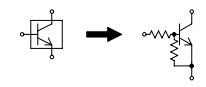
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

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

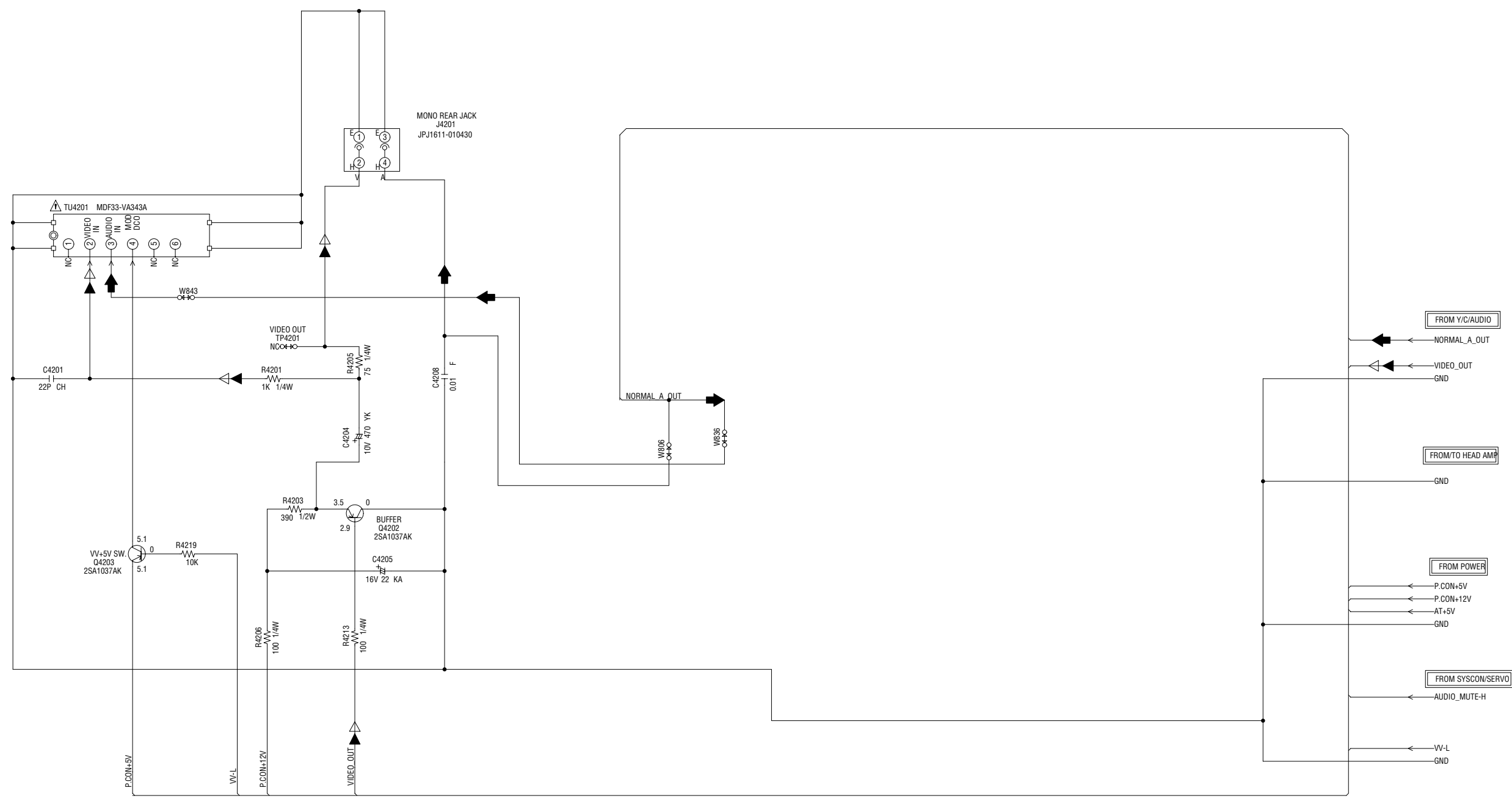
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

CAUTION: DIGITAL TRANSISTOR



PCB010
VM9172

JACK SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT 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.

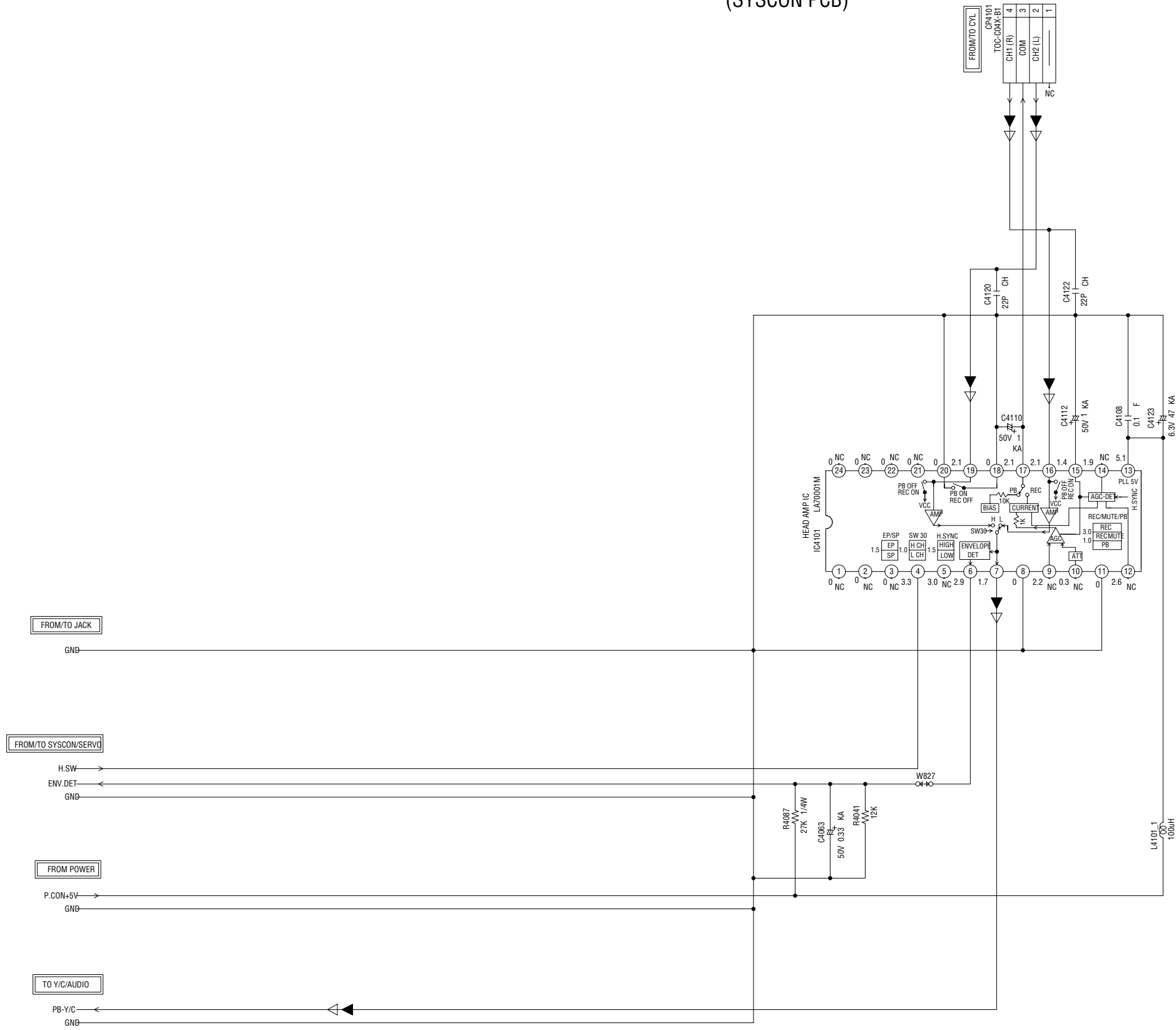
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

AUDIO SIGNAL (PB)
 PLAYBACK COLOR SIGNAL
 PLAYBACK LUMINANCE SIGNAL

PCB010
VM9172

HEAD AMP SCHEMATIC DIAGRAM (SYSCON PCB)



FROM/TO JACK

GND

FROM/TO SYSCON/SERV0

H.SW

ENV.DET

GND

FROM POWER

P.CON+5V

GND

TO Y/C/AUDIO

PB-Y/C

GND

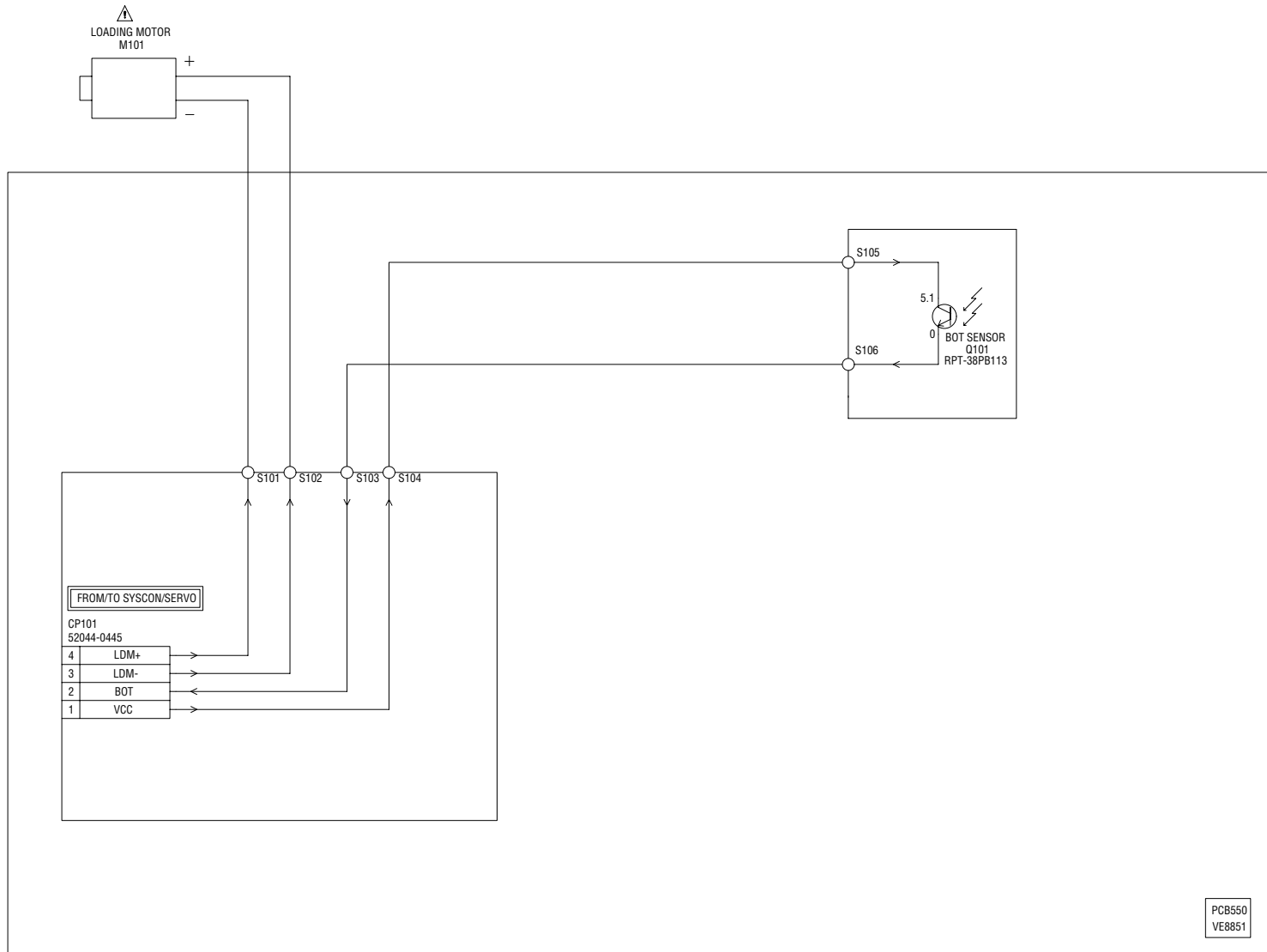
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.


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


- ◄ AUDIO SIGNAL (PB)
- ◁ PLAYBACK COLOR SIGNAL
- ▲ PLAYBACK LUMINANCE SIGNAL

PC8010
VM9172

DECK SCHEMATIC DIAGRAM



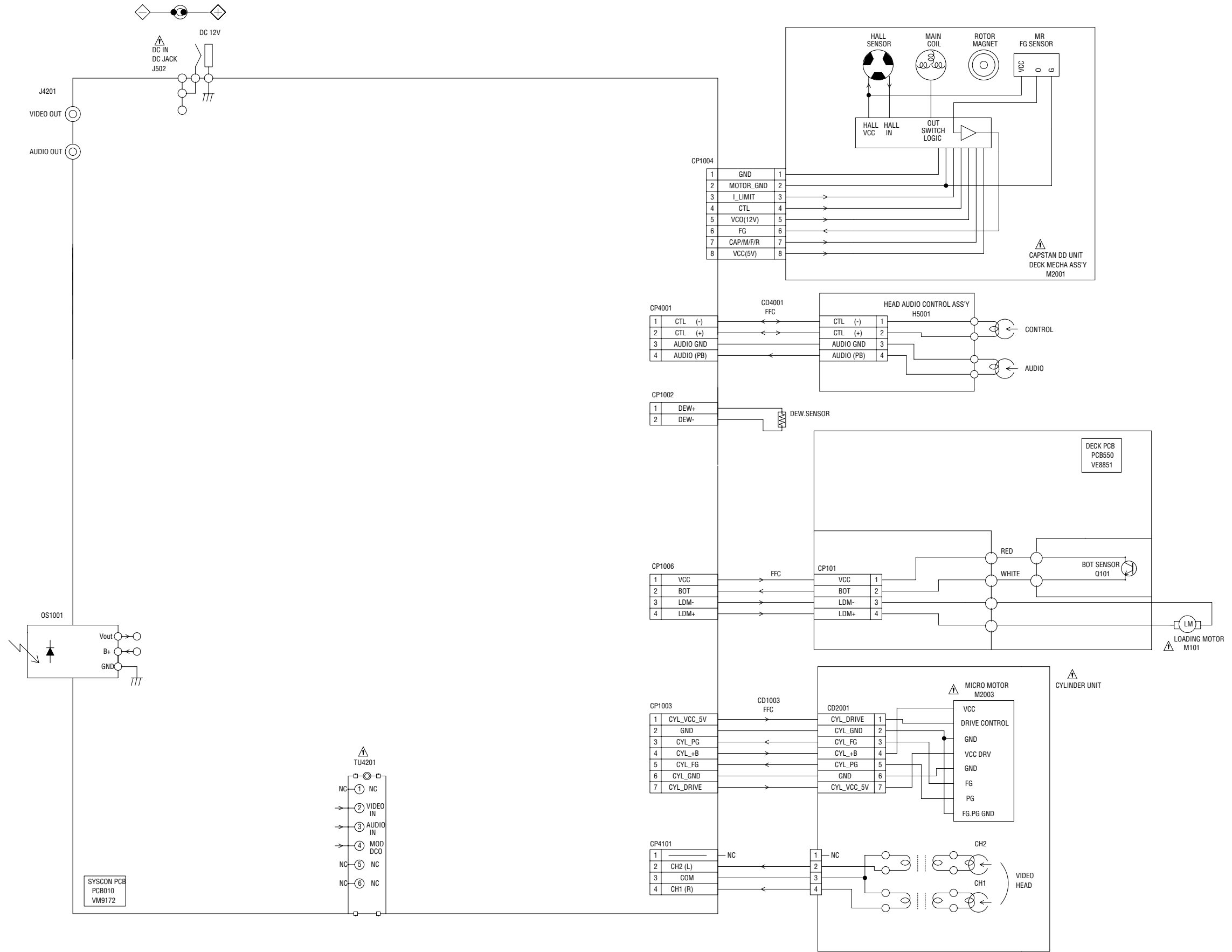
CAUTION: SINCE THESE PARTS MARKED BY  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

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

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

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

INTERCONNECTION DIAGRAM



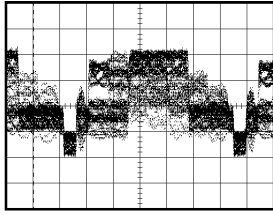
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

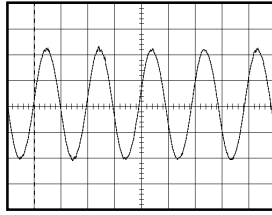
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

WAVEFORMS

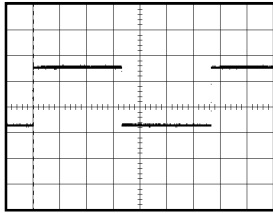
Y/C/AUDIO



① PB
100mV 10 μ s/div

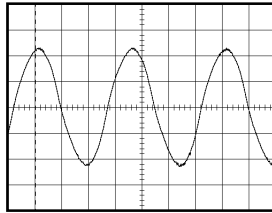


⑥ PB
200mV 0.5ms/div

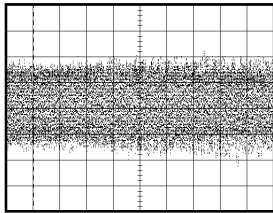


② PB
0.5V 5ms/div

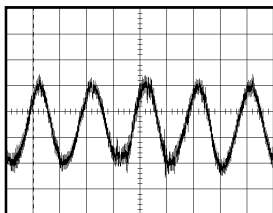
SYSCON/SERVO



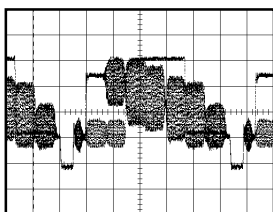
⑦ PB
1V 2ms/div



③ PB
100mV 5 μ s/div



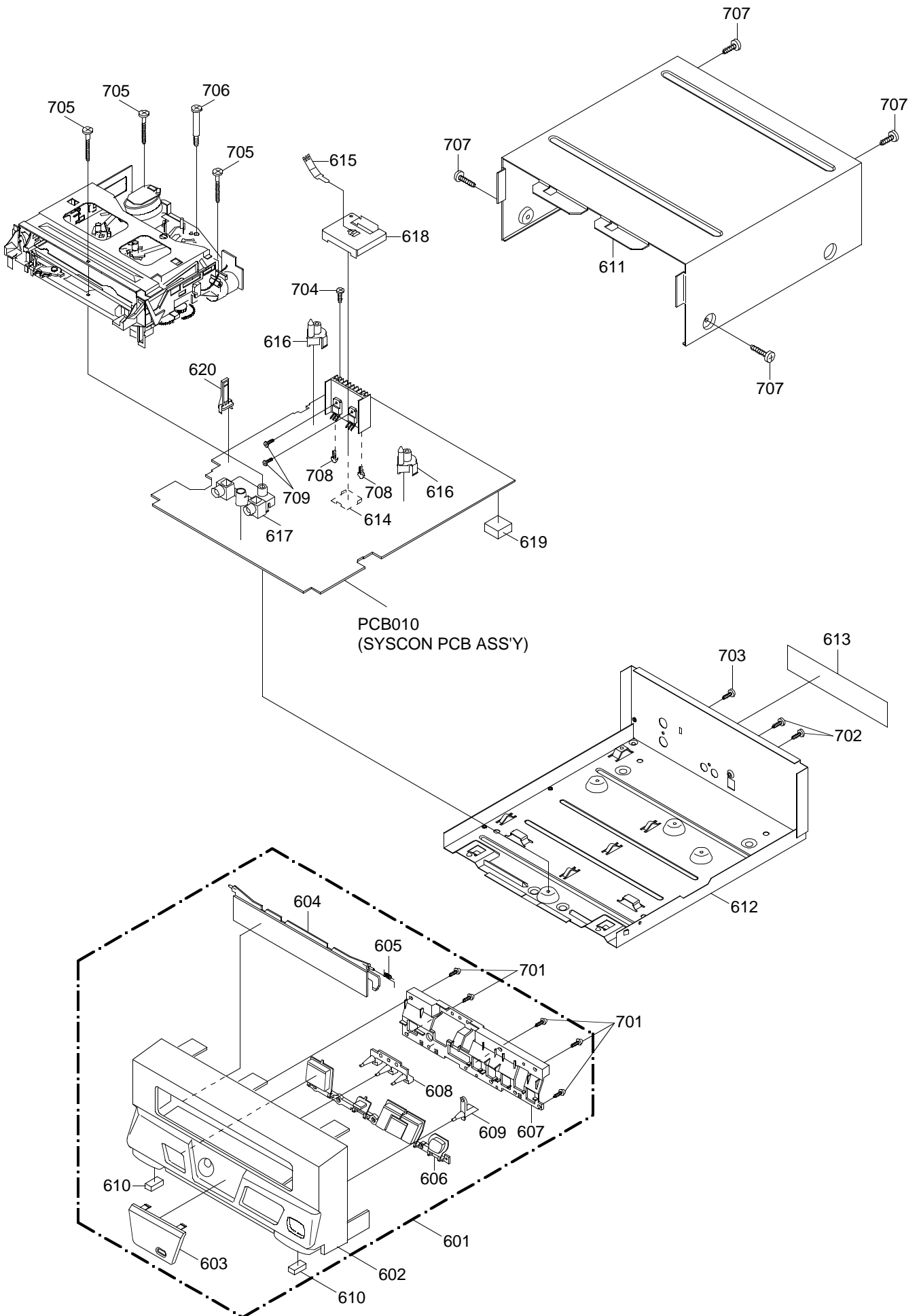
④ PB
20mV 0.5ms/div



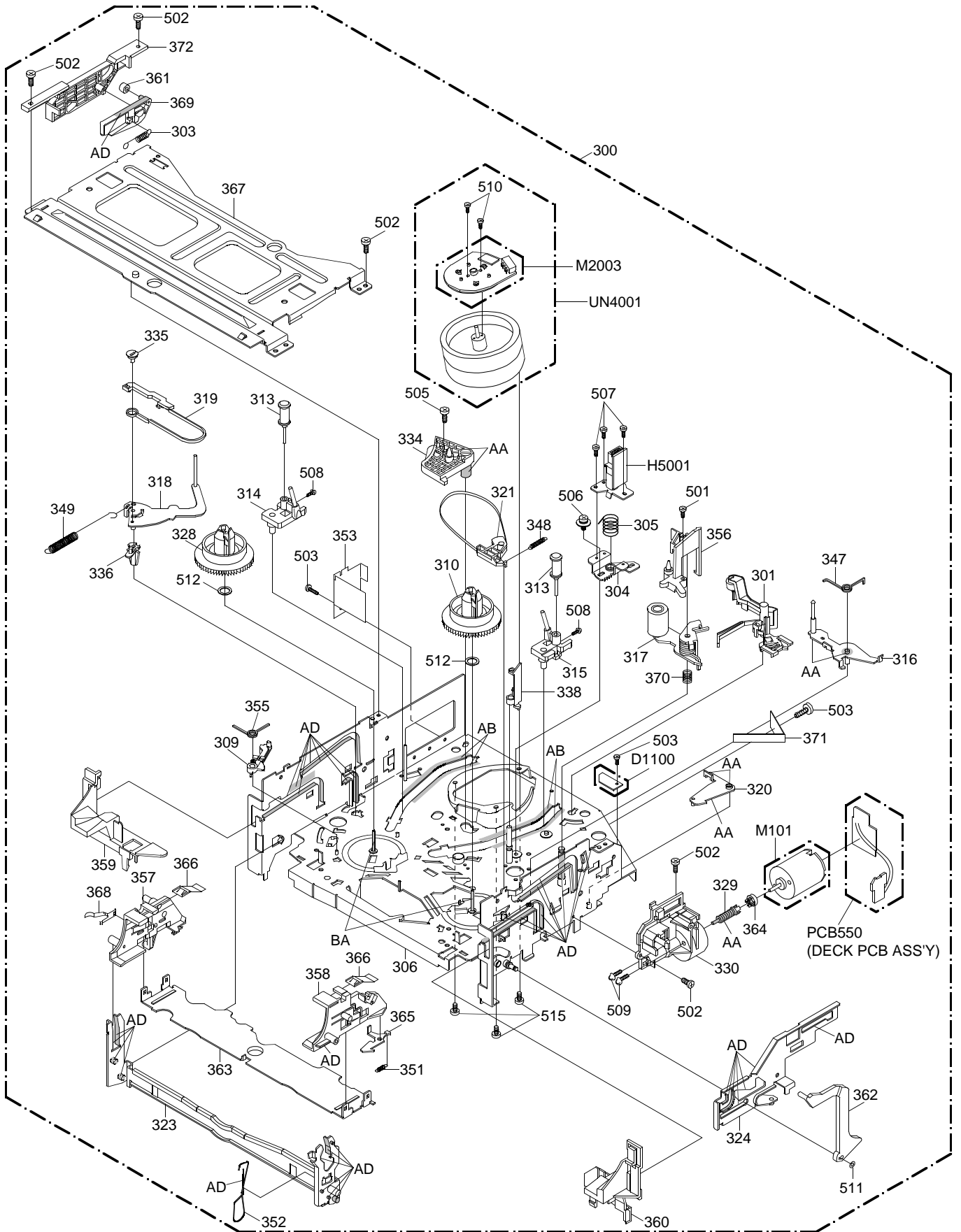
⑤ PB
0.5V 10 μ s/div

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

MECHANICAL EXPLODED VIEW



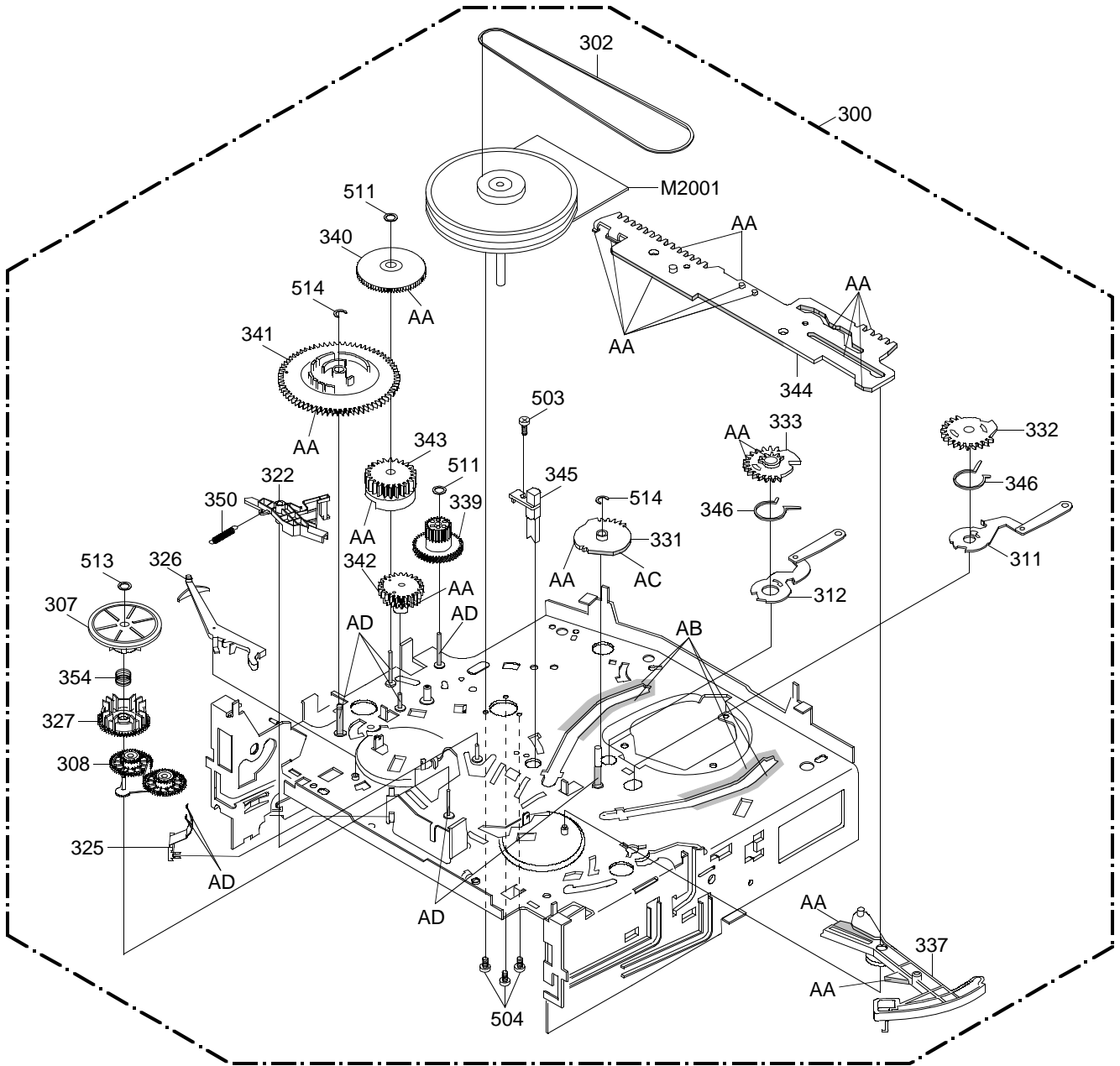
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

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

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

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

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
601	A4C615A720	CABINET,FRONT ASS'Y	
602	701WPJB506	CABINET,FRONT	
603	711WPD0575	PLATE,FRONT	
604	712WPJB260	FLAP	
605	743WKA0032	SPRING,FLAP(COMBO)	
606	735WPDA514	BUTTON,DECK	
607	735WPAA160	BUTTON,BASE	
608	713WPAA028	GLASS,LED	
609	713WPAA029	GLASS,POWER LED	
610	800WFA0041	CUSHION,LEG	
611	702WSB0018	CABINET,TOP	
612	702WSA0066	PLATE,BOTTOM	
613	722A08A097	SHEET,RATING	
614	753WSA0116	SHIELD,COVER HEAD AMP	
615	753WUAA005	SPRING,EARTH HEAD AMP	
616	704WPAA006	HOLDER,DECK(R)	
617	701WPAA148	HOLDER,LED	
618	752WSA0209	SHIELD,CASE HEAD AMP	
619	800WF00034	CUSHION	13x13xT6
620	85OP700036	HOLDER EOT SENSOR	
701	8110226A04	SCREW,TAP TITE (P)	BIND 2.6x10
702	8110630604	SCREW,TAP TITE (P)	BRAZIER 3x6
703	8107630504	SCREW,TAP TITE (S)	BRAZIER 3x5
704	8151230704	SCREW,TAP TITE (S)-R	BIND 3x7
705	8107140B94	SCREW,TAP TITE (S)	PAN 4x29
706	8146240644	SCREW,TAP TITE (S)	BIND 4x6
707	8107240802	SCREW,TAP TITE (S)	BIND 4x8
708	8109630802	SCREW,TAP TITE (B)	BRAZIER 3x8
709	8109130A04	SCREW,TAP TITE (B)	WH7 3x10
---	A4C615A975	INSTRUCTION BOOK KIT	
---	791WHA0009	GIFT SHEET	
---	792WHA0207	PACKAGE	
---	793WCDB105	GIFT BOX	
---	JA5U0100	POLYBAG	
---	J4C61501	INSTRUCTION BOOK	

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
300	A4C615A420K	DECK ASSY A4C615A420K	501	8107126A04	SCREW,TAP TITE(S) PAN 2.6x10
			502	8107226804	SCREW,TAP TITE(S) BIND 2.6x8
301	85OA500025	AHC ASS'Y (VRT)	503	8107226604	SCREW,TAP TITE(S) BIND 2.6x6
302	85OP200290	BELT,CAPSTAN (S)	504	8109126604	SCREW,TAP TITE(B) PAN 2.6x6
303	85OP800344	SPRING,LOCK LEVER (VRT)	505	810A126804	SCREW/WASHER(A) M2.6x8
304	85OP500083	BASE,AC HEAD	506	810B126404	SCREW/WASHER(B) M2.6x4
305	85OP800324	SPRING,AC HEAD	507	8102120604	SCREW,PAN M2x6
306	85OA000367	MAIN CHASSIS ASS'Y (S-Z)	508	8102120304	SCREW,PAN M2x3
307	85OA200082	CLUTCH ASS'Y(S2)	509	8102130304	SCREW,PAN M3.0x3.0
308	85OA200080	ARM IDLER ASS'Y (S)			
309	85OP600556	ARM,SS BRAKE (S)	510	810A123504	SEMS A M2.3x5.0
			511	82P266005N	POLYSLIDER WASHER(CUT) 2.6x6.0xT0.5
310	85OP200292	REEL,T (S)	512	82Q2647C5N	POLYSLIDER WASHER 2.6x4.7xT0.25
311	85OA300061	LOADING ARM S ASS'Y	513	82P184505N	POLYSLIDER WASHER(CUT) 1.8x4.5xT0.5
312	85OA300062	LOADING ARM T ASS'Y	514	83ETW30000	E-RING 3
313	85OA400210	GUIDE ROLLER ASS'Y	515	810A126504	SCREW/WASHER(A) M2.6x5
314	85OA400188	BASE,INCL S ASS'Y			
315	85OA400196	BASE,INCL T(S) ASS'Y	CP101	069R740018	CONNECTOR PCB SIDE 52044-0445
316	85OA400199	P5-3 ARM ASS'Y(S)	D1100	DAK0000170	DEW SENSORCW/AL,PLATE HDP-05-26
317	85OA400205	PINCH ROLLER BLOCK	H5001	1533D91009	HEAD (AUDIO CONTROL) HVMXB1011A
318	85OA400175	TENSION ARM ASS'Y	M101	1596P78001	MOTOR (LOADING) MXN13FB11H
319	85OA400184	TENSION BAND ASS'Y (S)	△ M2001	1510398031	CAPSTAN DD UNIT F2QSB05
			△ M2003	1589311005	MICRO MOTOR F2OEL82
320	85OA400178	PINCH ROLLER LEVER ASS'Y	PCB550	A4C831B550	DECK PCB ASS'Y VE8851
321	85OA600196	BRAKE T ASSY(S)	Q101	0000700320	TRANSISTOR,PHOTO RPT-38PB113
322	85OA600191	CAP BRAKE ASS'Y(S)	△ UN4001	A4C608A500	CYLINDER UNIT ASSY A4C608A500
323	85OA900213	LINK ASS'Y			
324	85OA900216	LINK LEVER ASS'Y			
325	85OP200284	LEVER,CLUTCH (S)			
326	85OP200285	ACTUATOR,CLUTCH			
327	85OP200298	GEAR,COUPLING(S2)			
328	85OP200291	REEL,S (S)			
329	85OP600541	WORM			
330	85OP600563	BRACKET MOTOR			
331	85OP300193	GEAR,MAIN LOADING			
332	85OP300179	GEAR,LOADING S			
333	85OP300180	GEAR,LOADING T			
334	85OP300187	HOLDER,LOADING GEAR (S-Z)			
335	85OP400472	ADJUST,TENSION			
336	85OP400492	HOLDER,TENSION			
337	85OP400508	LEVER,TENSION			
338	85OP400504	COVER,P4 (VRT)			
339	85OP600543	GEAR,JOINT			
340	85OP600544	GEAR,MIDDLE			
341	85OP600564	CAM,MAIN(VRT)			
342	85OP600546	CAM P5			
343	85OP600565	CAM,PINCH ROLLER			
344	85OP600561	ROD,MAIN(S)			
345	85OP700035	REFLECTOR,LED			
346	85OP800318	SPRING LOADING GEAR			
347	85OP800334	SPRING,P5 (S)			
348	85OP800335	SPRING,BRAKE T (S)			
349	85OP800322	SPRING,TENSION			
350	85OP800336	SPRING,CAP BRAKE (S)			
351	85OP800342	SPRING,LOCKER (S)			
352	85OP800326	SPRING,LINK			
353	85OP000487	STOPPER,P2-2			
354	85OP800330	SPRING,RING			
355	85OP800337	SPRING,SS BRAKE (S)			
356	85OP900680	OPENER,CASS			
357	85OP900731	CASS SIDE L(VA)			
358	85OP900732	CASS SIDE R			
359	85OP900728	TAPE GUIDE L(P,R)			
360	85OP900729	TAPE GUIDE R			
361	85OP900708	RUBBER,LOCK LEVER(VRT)			
362	85OP900688	LEVER,FLAP			
363	85OP900690	CASS HOLDER			
364	85OP600540	DRIVER,WORM			
365	85OP900713	LOCKER,R2			
366	85OP900694	SPRING,PACK			
367	85OP900695	BRACKET,TOP			
368	85OP900696	SPRING,CASS EARTH			
369	85OP900705	LEVER,LOCK (VRT)			
370	85OP800341	SPRING,P/R ARM			
371	85OP000466	ANGLE,DECK			
372	85OP900747	BRACKET,LOCK LEVER(LCD)			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION			
RESISTORS								
△ R510	R3K28A4R7J	R,METAL	CP4101	0697240600	CONNECTOR PCB SIDE TOC-C04X-B1			
△ R1007	R3X1811R2J	R,METAL OXIDE	△ F502	080PC03005	FUSE 239003CC			
CAPACITOR								
C518	E02LT3102M	CE	FH503	06710T0006	HOLDER,FUSE EYF-52BC			
DIODES								
D506	D1VT001330	DIODE,SILICON	FH504	06710T0006	HOLDER,FUSE EYF-52BC			
△ D514	D28T21DQN9	DIODE SCHOTTKY	OS1001	077Q000018	REMOTE RECEIVER PIC26043LO or			
△ D515	D2LXE65800	DIODE SILICON	△ TU4201	077Q037001	REMOTE RECEIVER PIC-37043LO			
D516	D97U01801B	DIODE,ZENER	X1002	0150700018	RF CONVERTER MDF33-VA343A			
D518	D2LXE65800	DIODE SILICON	X4001	100CT01002	CRYSTAL HC-49/U-S 10MHZ			
D521	D2LXE65800	DIODE SILICON		100CT3R502	CRYSTAL HC-49/U 3.579545MHZ			
D1001	0010C00090	INFRARED LED	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 CML..... METAL PLASTIC CAPACITOR CMPP..... METAL POLYPROPYLENE CAPACITOR					
D1003	0021320220	LED						
D1004	0021320220	LED						
D1009	D2LXE65800	DIODE SILICON						
D1010	D2LXE65800	DIODE SILICON						
D1011	D93T11201A	DIODE ZENER						
D1013	0021320220	LED						
D1014	0021320220	LED						
D4003	D1VT001330	DIODE,SILICON						
ICS								
△ IC502	I0QK906FD0	IC						
△ IC503	I07T912ST0	IC						
△ IC1001	I07SQ69550	IC						
IC1002	I54F50086B	IC						
IC1003	I9UJ0T993D	IC						
IC4001	I03F326ML0	IC						
IC4101	I03FG70001	IC						
TRANSISTORS								
△ Q506	TNYJB05001	COMPOUND TRANSISTOR						
△ Q507	TD3T007340	TRANSISTOR,SILICON						
Q1001	0002G00540	PHOTO COUPLER			or			
	0002M00570	PHOTO COUPLER						
Q1002	0002G00540	PHOTO COUPLER			or			
	0002M00570	PHOTO COUPLER						
Q1003	T8YJ2412K0	TRANSISTOR SILICON						
Q1004	0000100380	PHOTO TRANSISTOR						
Q1005	TNYJC05001	COMPOUND TRANSISTOR						
Q1009	0002700530	PHOTO COUPLER						
Q1010	0002700530	PHOTO COUPLER						
Q4003	T8YJ2412K0	TRANSISTOR SILICON						
Q4004	T6YJ1037K0	TRANSISTOR,SILICON						
Q4005	T8YJ2412K0	TRANSISTOR SILICON						
Q4006	T8YJ2412K0	TRANSISTOR SILICON						
Q4202	T6YJ1037K0	TRANSISTOR,SILICON						
Q4203	T6YJ1037K0	TRANSISTOR,SILICON						
COILS								
L4002	02167F100J	COIL			10 UH			
L4003	021LA6101K	COIL			100 UH			
L4004	021LA6221K	COIL			220 UH			
L4005	021LA6680K	COIL			68 UH			
L4101	021LA6101K	COIL			100 UH			
JACKS								
△ J502	0602602006	JACK DC			HEC0824-010010			
J4201	060X000003	JACK,RCA			JPJ1611-010430			
SWITCHES								
SW1002	0504201T31	SWITCH,TACT			SKHVBED010			
SW1003	0504201T31	SWITCH,TACT			SKHVBED010			
SW1004	0504201T31	SWITCH,TACT			SKHVBED010			
SW1005	0504201T31	SWITCH,TACT			SKHVBED010			
SW1006	0504201T31	SWITCH,TACT			SKHVBED010			
SW1007	0504201T31	SWITCH,TACT			SKHVBED010			
VARIABLE RESISTOR								
VR1001	V116314BTC	VOLUME,SEMI FIXED			EVNVCYAA03B14			
P.C.BOARD ASSEMBLIES								
PCB010	A4C615A010	PCB ASS'Y			VM9172A			
PCB550	A4C831B550	SEE CHASSIS REPLACEMENT PARTS LIST						
MISCELLANEOUS								
△ CD502	121B164103	CORD,CAR BATTERY			SI-PC107-80			
CD1003	122F071705	CORD JUMPER			2F071705			
CD1006	122F040905	CORD JUMPER			2F040905			
CD4001	122F041802	CORD JUMPER			2F041802			
CP1002	069R220021	CONNECTOR PCB SIDE			52287-0211			
CP1003	069R770028	CONNECTOR PCB SIDE			52045-0745			
CP1004	0697280590	CONNECTOR PCB SIDE			TMC-J08P-B1			
CP1006	069R740028	CONNECTOR PCB SIDE			52045-0445			
CP4001	069R740018	CONNECTOR PCB SIDE			52044-0445			

SPEC.NO.	M4C6-15A
O/R NO.	K1X4013