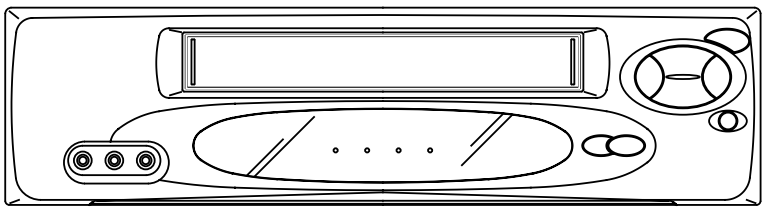
Memorex®

MVR4042

SERVICE MANUAL

VIDEO CASSETTE RECORDER



VHS

ORIGINAL
MFR'S 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.

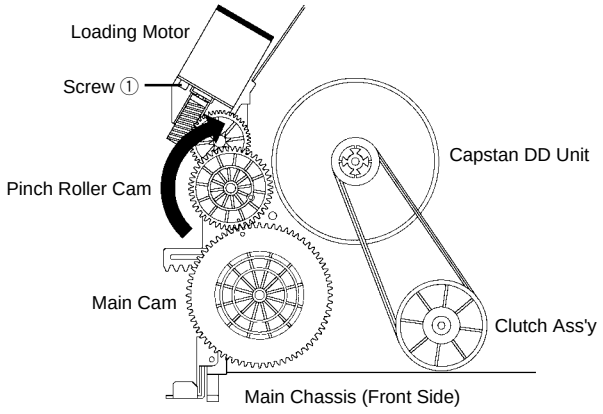
HOW TO ORDER PARTS

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.

TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Top Cabinet and Front Cabinet.
   (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.
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.



CONTENTS

GENERAL SPECIFICATIONS

G-1	VCR System	System			VHS Player / Recorder
		Video System			NTSC
		Hi-Fi STEREO			Yes
		NTSC PB(PAL60Hz)			-
		Deck		DECK	OVD-7
				Loading System	Front
				Motor	3
		Heads	Video Head		4Head
			FM Audio Head		2Head
			Normal Audio /Control		Mono / Yes
			Erase(Full Track Erase)		Yes
		Tape Speed	Rec	PAL	-
				NTSC	SP / SLP
			Play	PAL	-
				NTSC	SP / LP / SLP
		Fast Forward / Rewind Time (Approx.) at +25C° with Cassette			FF:4'50"/REW:2'30" T-120
		Forward/Reverse Picture Search		NTSC or PAL-M	SP / LP / SLP=3x,5x / 7x,9x / 9x,15x
				PAL or SECAM	-
		Frame Advance Slow Speed		Slow	Yes
				Variable Slow	1/10
G-2	Tuning System	Broadcasting System			US System M
		Tuner and Receive CH		System	1Tuner
				Destination	USA(w/CATV)
				Tuning System	F-Synth
				Input Impedance	VHF/UHF 75 OHM
				CH Coverage	2-69,4A,A-5~ A-1,A~I,J~ W W+1-W+84
		Intermediate Frequency		Picture(FP)	45.75MHz
				Sound(FS)	41.25MHz
				FP-FS	4.50MHz
		Preset CH			No
		RF Converter Output			Yes
			Channel		3 or 4 ch
			Level/Impedance		66dBu /75ohm
			Sound Selector		No
		Stereo/Dual TV Sound			Yes (US-Stereo)
G-3	Power	Power Source		AC	120V, 60Hz
				DC	-
		Power Consumption		Power On(at AC)	9W at 120V 60Hz
				Stand by (at AC)	1.7W at 120V 60Hz
				Per Year	- kWh/Year
		Protector		Power Fuse	Yes
				Dew Sensor	No
G-4	Regulation			Safety	UL
				Radiation	FCC
G-5	Temperature			Operation	5°C - 40°C
				Storage	-20°C - 60°C
G-6	Operating Humidity				Less than 80% RH
G-7	Signal	Video Signal		Input Level	1 V p-p/75 ohm
				Output Level	1 V p-p/75 ohm
				S/N Ratio (Weighted)	50
				Horizontal Resolution at SP Mode	230Line
		Audio Signal		Input Level	-8dBm/50Kohm
				Output Level	-8dBm/1Kohm
				S/N Ratio at SP (Weighted)	42dB
				Harmonic Distortion at SP (1KHz) Typical	1.5%
				Frequency Response at SP	100Hz - 10kHz
				at LP	100Hz - 6kHz
				at SLP	100Hz - 4kHz
		Hi-Fi Audio Signal		Dynamic Range : More than	90dB
				Frequency Response	20Hz ~20kHz
				Wow And Flutter : Less than	0.01 %Wrms
				Channel Separation : More than	60 dB
				Harmonic Distortion : Less than	0.01
G-8	On Screen Display	Menu			Yes
			Menu Type		Character
			Timer Rec Set		Yes
			Auto Repeat On/Off		Yes
			SAP On/Off		Yes
			CH Setup		Yes
				TV/CATV	Yes
				Auto CH Memory	Yes
				Add/Delete	Yes
			System Setup		Yes

GENERAL SPECIFICATIONS

			Clock Set	Yes (Calendar 12H)
			Language	Yes
			No Noise Back Ground	Yes
			Auto Clock	No
			Standard Time	No
			Daylight Saving Time	No
		G-CODE(or SHOWVIEW or PLUSCODE)No. Entry		No
		Stereo,Audio Output,SAP		Yes
		Play/Stop/FF/Rew/Rec/OTR(ITR)/T-Rec/Pause/Eject/Tape In (Symbol Mark)		Yes
			CH/AV(LINE)	Yes
			Clock	Yes
			Repeat	Yes
			Tape Counter	Yes
			Index	No
			Tape Speed	Yes
			ATR / Manual Tracking	Yes
			Zero Return	No
			Hi-Fi	Yes
G-9	OSD Language			English French Spanish
		OSD Language Setting		English
G-10	Clock,Timer and Timer Back-up	Calendar		1990/1/1 ~ 2081/12/31
		Timer Events		8 prog/1 month
		One Touch Recording Max Time		6 Hours
		OTPB Valid Time		No
		Timer Back-up (at Power Off Mode)		5 sec.
G-11	Display	Indicator		No
		Indicator Type		--
			Clock/Counter,CH,Timer Rec, Play, REC	--
			OTR,FF(Cue),Rew(Rev),Stop,ATR	--
			VCR	--
			PM	--
			RF Output CH	--
G-12	Remote Control	Unit		RC-EA
		Glow in Dark Remocon		No
		Format type		NEC
		Custom Code		80-7BH
		Power Source	Voltage(D.C)	3V
			UM size x pcs	UM-4 x 2 pcs
		Total Keys		33 Keys
		Keys	Power	Yes
			1	Yes
			2	Yes
			3	Yes
			4	Yes
			5	Yes
			6	Yes
			7	Yes
			8	Yes
			9	Yes
			0	Yes
			CH Up	Yes
			CH Down	Yes
			Input Select	Yes
			Play	Yes
			F.Fwd	Yes
			Rew	Yes
			Pause/Still	Yes
			Stop	Yes
			Rec/OTR	Yes
			Counter Reset	Yes
			Speed	Yes
			Timer Rec	Yes
			Slow	Yes
			Auto Tracking	Yes
			Set/Tracking+	Yes
			Set/ Tracking -	Yes
			Menu	Yes
			Enter	Yes
			Cancel	Yes
			Call	Yes
			TV/VCR	Yes
			Audio Select	Yes
			Clock/Counter	No
			Zero Return	No
G-13	Features	Auto Head Cleaning		Yes
		Auto Tracking		Yes

GENERAL SPECIFICATIONS

		Index Search			No
		HQ (VHS Standard High Quality)			Yes
		Auto Power On, Auto Play, Auto Rewind, Auto Eject			Yes
		Auto Power Off			Yes
		Forward/Reverse Picture Search			Yes
		VIDEO PLUS+ (SHOWVIEW,G-CODE)			No
		One Touch Play Back			No
		Auto CH Memory			Yes
		SQPB			No
		CATV			Yes
		Energy Star			Yes
		MTS (SAP)			Yes
		Auto Clock Set			No
		CM Skip (30sec x 6 Times)			No
G-14	Accessories	Owner's Manual		Language	English / Spanish
				w/Guarantee Card	No
				Buyer Model No.	MVR4042
		Remote Control Unit			Yes
		Dew Caution Sheet			No
		Video Cassette Tape			No
		Battery			No
				UM size x pcs	-
					-
		Safety Tip			No
		Toll Free Insert Sheet			No
		Quick Set-Up Sheet			No
		Information Sheet (Buyer Supply)			No
		75 Ohm Coaxial Cable			Yes(single shield)
		Rod Antenna			No
				Poles	
				Terminal	
		Loop Antenna			No
				Terminal	
		U/V Mixer			No
		DC Car Cord (Center+)			No
		Guarantee Card			Yes
		Warning Sheet			No
		Circuit Diagram			No
		Antenna Change Plug			No
		Service Station List			No
		Important Safeguard			No
		Dew/AHC Caution Sheet			No
		AC Plug Adapter			No
		Quick Set-up Sheet			No
		AC Cord			No
		AV Cord			No
		Registration Card			No
		PTB Sheet			No
		300 ohm to 75 ohm Antenna Adapter			No
G-15	Interface	Switch	Front	Power	Yes
				Play	Yes
				Pause/Still	No
				System Select	No
				One Touch Playback	No
				Channel Up	Yes
				Channel Down	Yes
				F.FWD/Cue	Yes
				Eject/Stop	Yes
				Main Power SW	No
				Volume Up	No
				Volume Down	No
				Rew/Rev	Yes
				Rec/OTR(ITR)	Yes
			Rear	RF Output SW	No
		Indicator		Power	Yes (Red)
				Stand by	No
				Repeat	No
				TV/VCR	Yes (Red)
				Rec	Yes (Red)
				T-Rec	Yes (Red)
				Tape In	No
		Terminals	Front	Video Input	RCA x 1 (Yellow)
				Audio Input	RCA x 2 (Stereo, White/Red)
				Other Terminal	No
			Rear	Video Input	No
				Audio Input	No
				Video Output	RCA x 1 (Yellow)

GENERAL SPECIFICATIONS

			Audio Output	RCA x 2 (Stereo, White/Red)
			Euro Scart	No
			DC Jack 12V (Center +)	No
			VHF/UHF Antenna Input	F Type
			AC Inlet	No
G-16	Set Size		Approx. W x D x H (mm)	360 ~226 ~95
G-17	Weight		Net (Approx.)	3.2kg(7.1lbs)
			Gross (Approx.)	3.8kg(8.4lbs)
G-18	Carton	Master Carton		No
			Content	-
			Material	-
			Dimensions W x D x H (mm)	-
			Description of Origin	-
		Gift Box		Yes
			Material	Single/White
			Dimensions W x D x H (mm)	420x291x160
			Design	As Per BUYER 's
			Description of Origin	Yes
		Drop Test	Natural Dropping At	1Corner / 3Edges / 6Surfaces
			Height (cm)	80
		Container Stuffing(40' container)		3,136 Sets
G-19	Material	Cabinet	Front	PS 94V2 / DECABROM
		PCB	Non-Halogen Demand	No
			Eyelet Demand	No

DISASSEMBLY INSTRUCTIONS

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

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

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

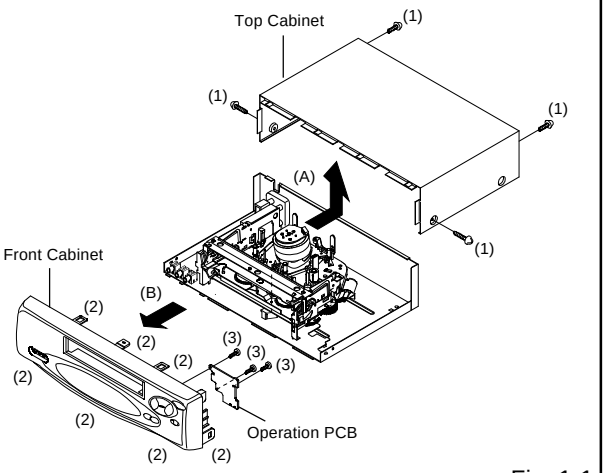


Fig. 1-1

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).

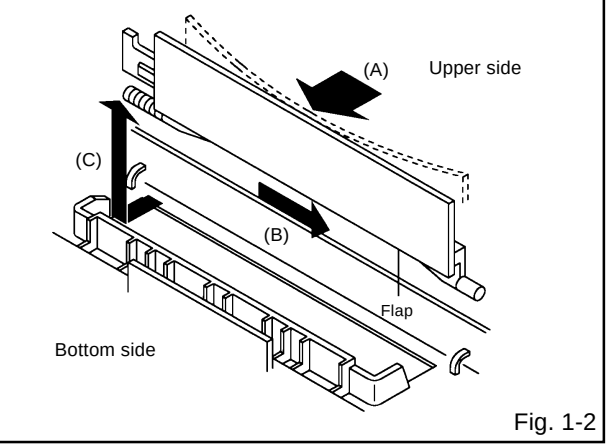


Fig. 1-2

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

NOTE

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

1. Remove the screw (1).
2. Remove the FE Head.
3. Remove the screw (2).
4. Remove the 2 screws (3).
5. Unlock the 2 supports (4).
6. Remove the BOT PCB in the direction of arrow (A).
7. Disconnect the following connectors: (CP1001, CP4001, CP4002 and CP4003).
8. Remove the Deck Chassis in the direction of arrow (B).

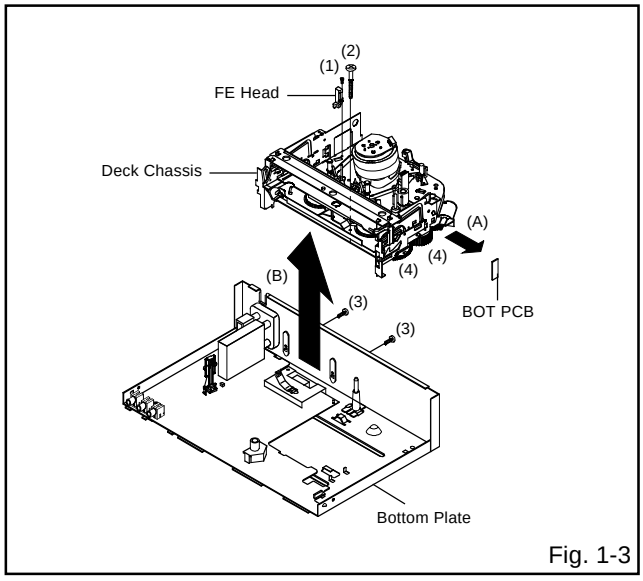


Fig. 1-3

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

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

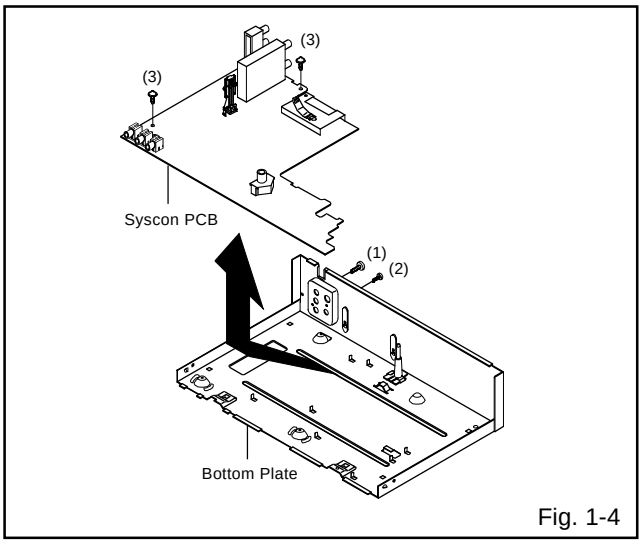


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF VCR DECK PARTS

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

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

NOTE

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

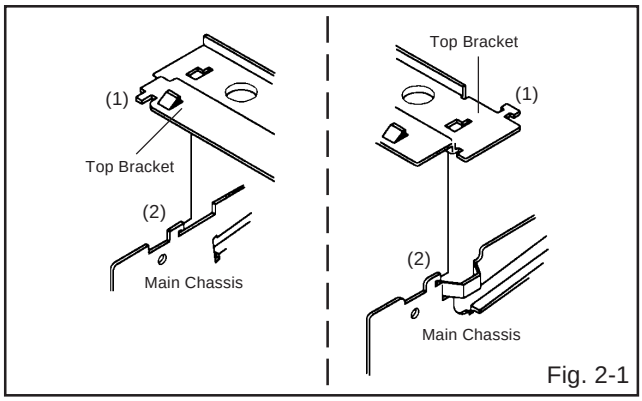


Fig. 2-1

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

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

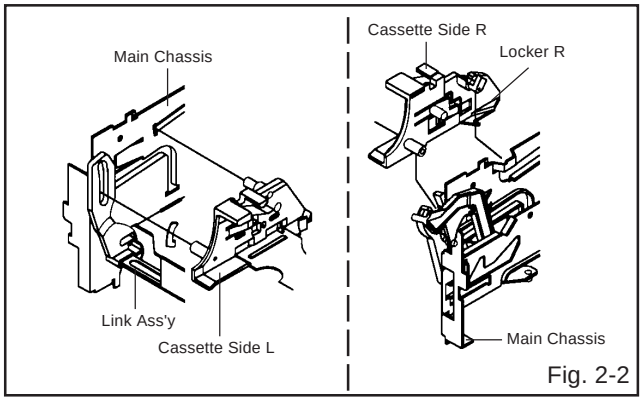


Fig. 2-2

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

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

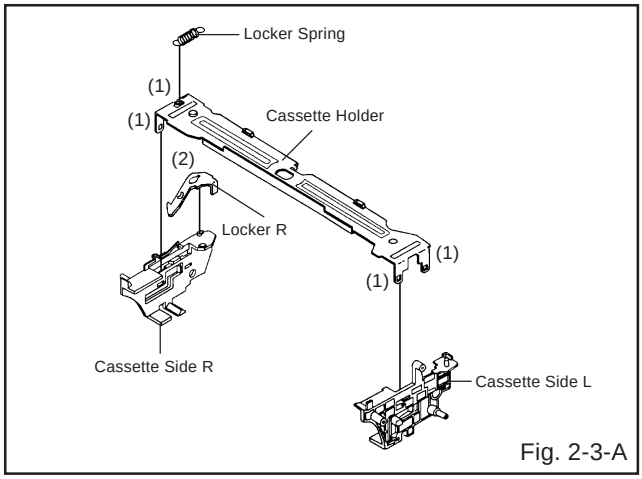


Fig. 2-3-A

NOTE

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

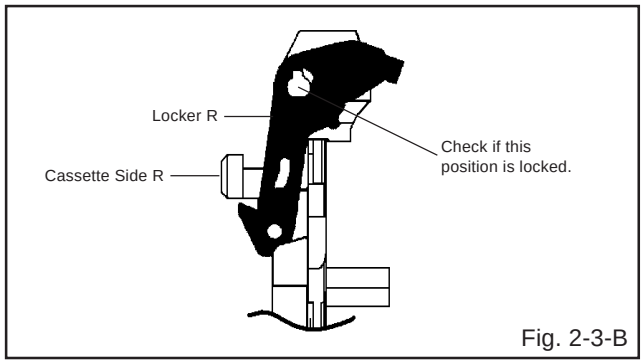


Fig. 2-3-B

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

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

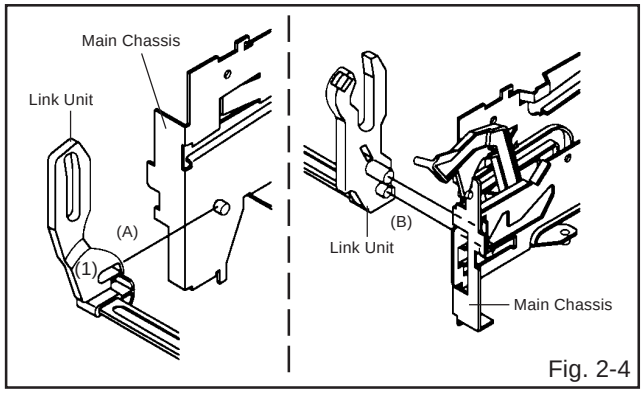


Fig. 2-4

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

1. Unlock the support (1).
2. Remove the Sensor Cover R.
3. Extend the support (1).
4. Remove the Link Lever.
5. Remove the Flap Lever.

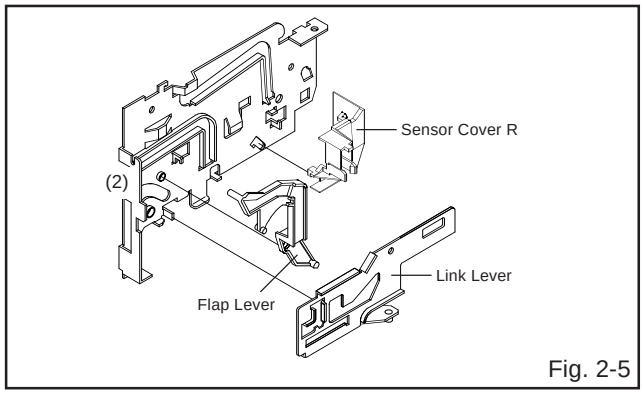


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

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

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

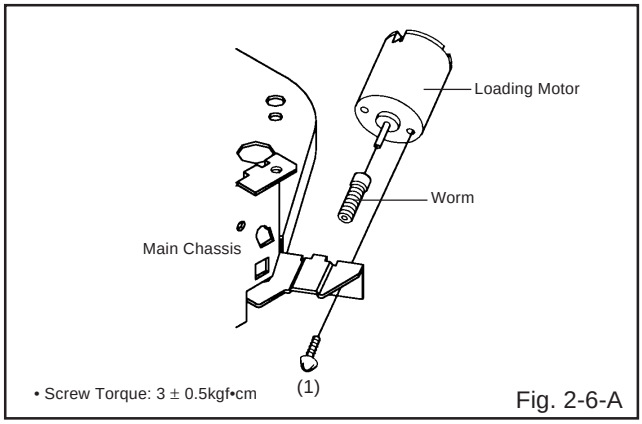


Fig. 2-6-A

NOTE

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

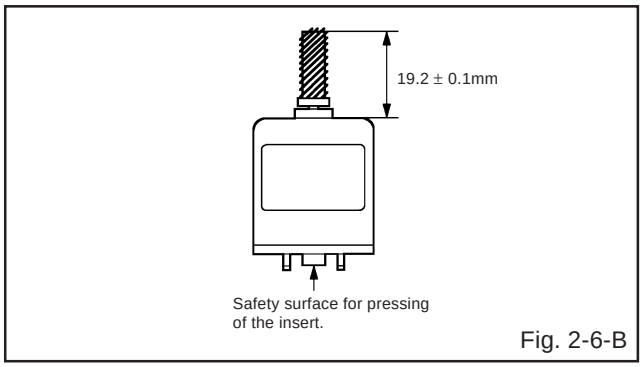


Fig. 2-6-B

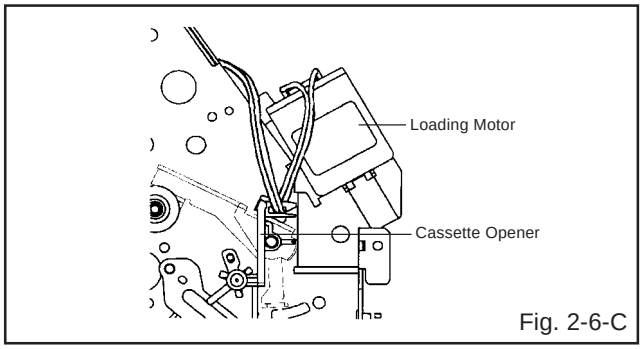


Fig. 2-6-C

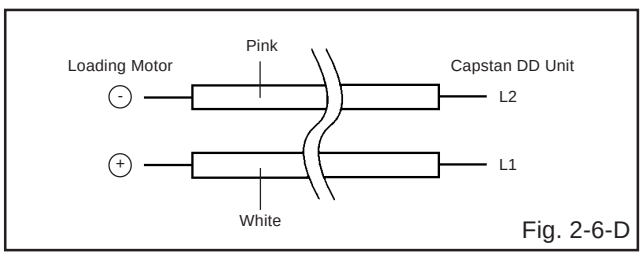


Fig. 2-6-D

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

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

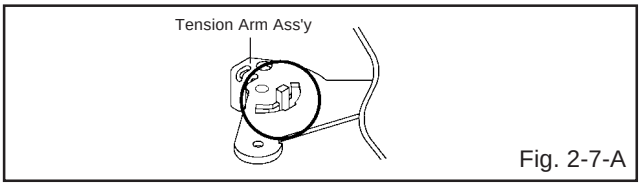


Fig. 2-7-A

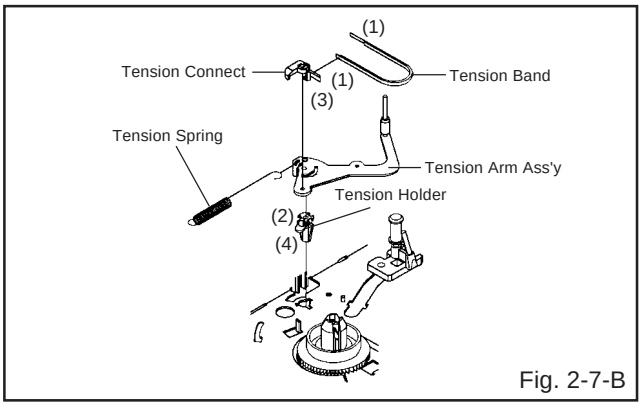


Fig. 2-7-B

NOTE

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

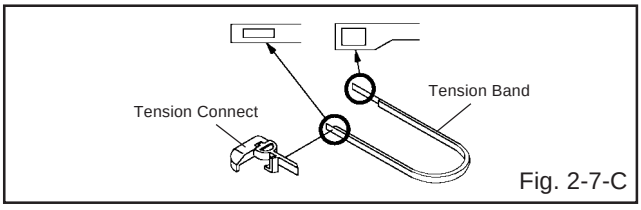


Fig. 2-7-C

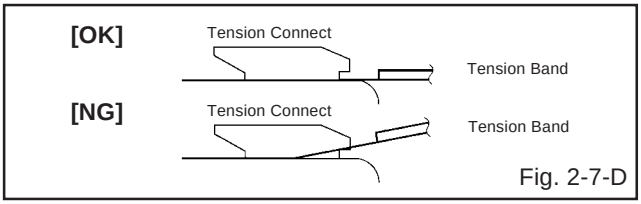


Fig. 2-7-D

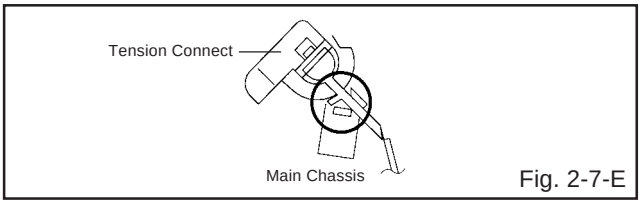


Fig. 2-7-E

DISASSEMBLY INSTRUCTIONS

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

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

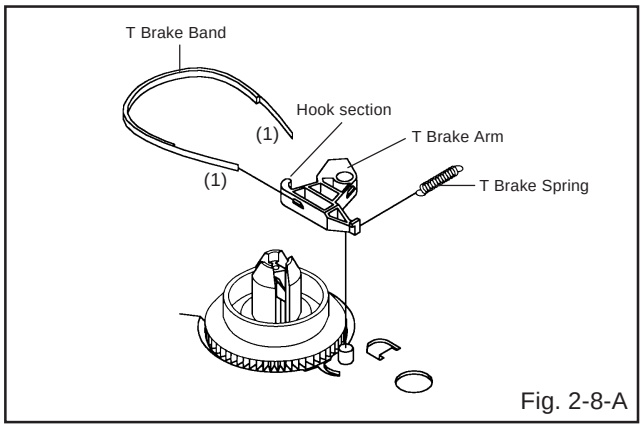


Fig. 2-8-A

NOTE

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

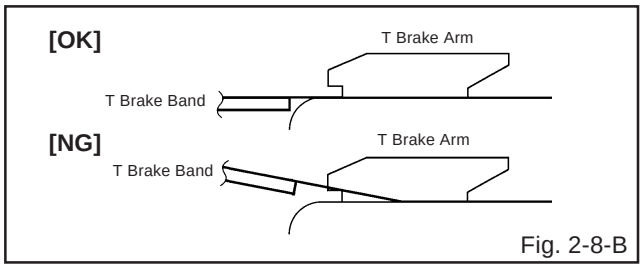


Fig. 2-8-B

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

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

NOTE

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

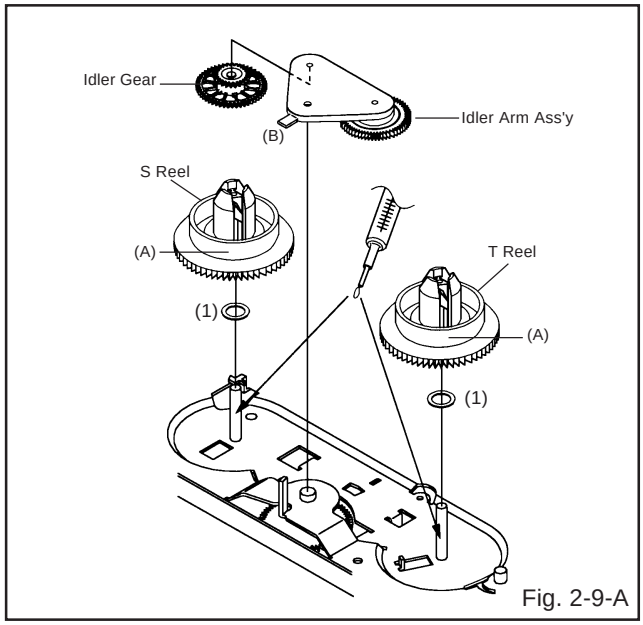


Fig. 2-9-A

NOTE

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

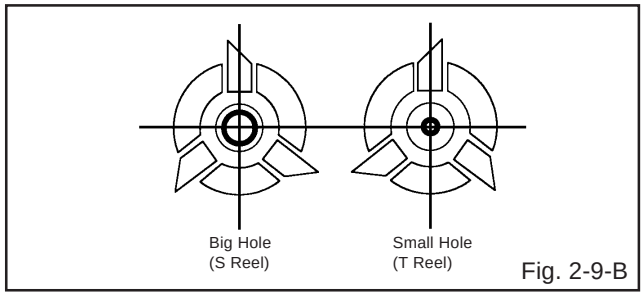


Fig. 2-9-B

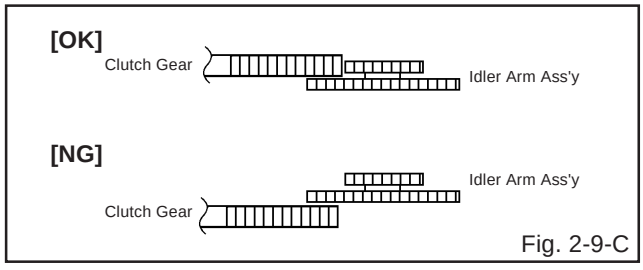


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

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

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

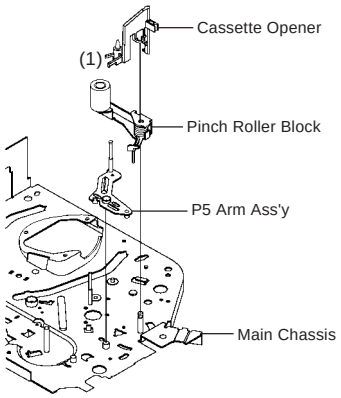


Fig. 2-10-A

NOTE

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

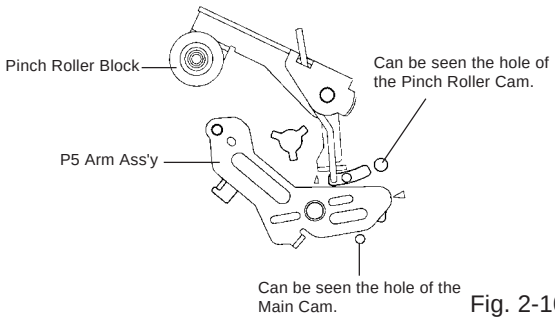


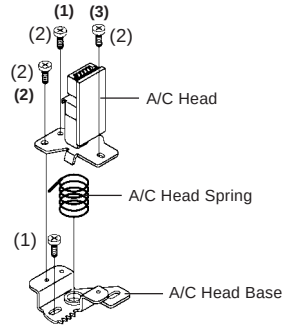
Fig. 2-10-B

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

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

NOTE

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



• Screw Torque: 5 ± 0.5kgf•cm

Fig. 2-11-A

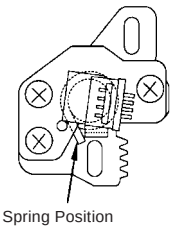
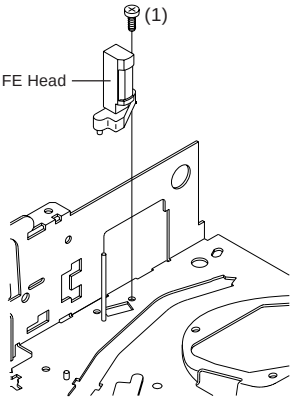


Fig. 2-11-B

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

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



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

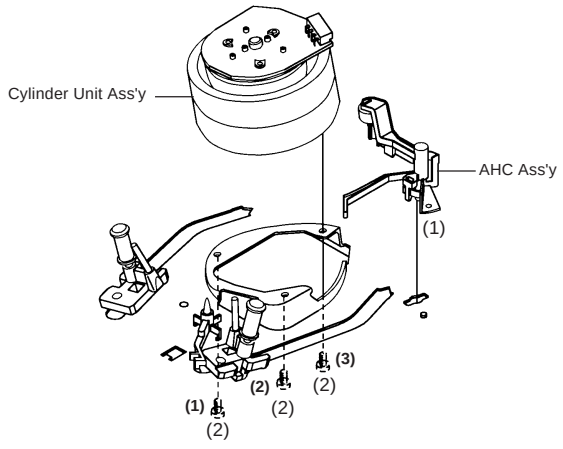
Fig. 2-12

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

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

NOTE

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



• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

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

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

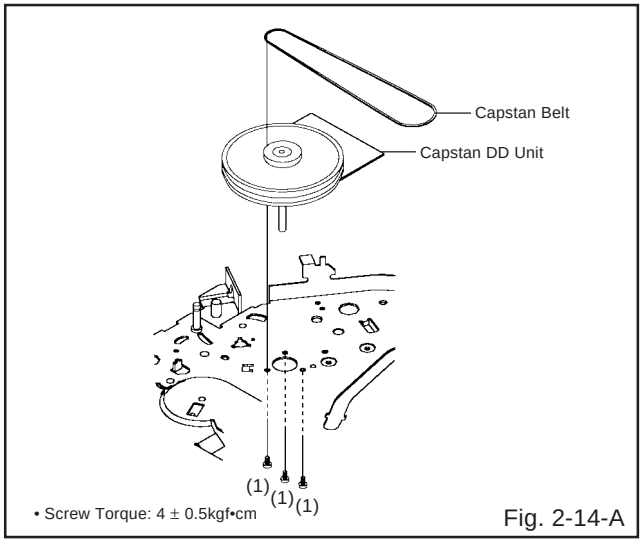


Fig. 2-14-A

NOTE

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

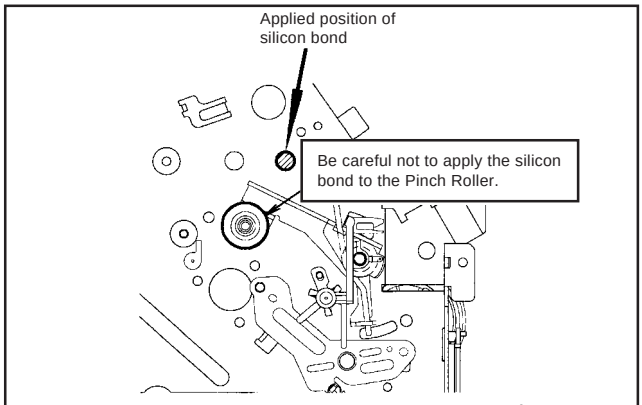


Fig. 2-14-B

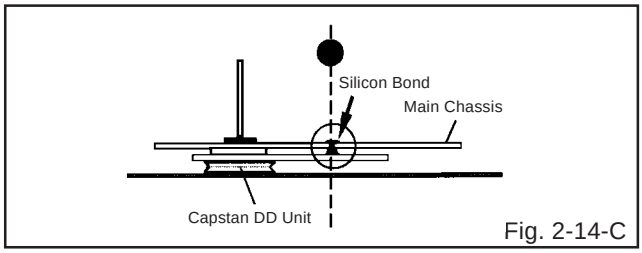


Fig. 2-14-C

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

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

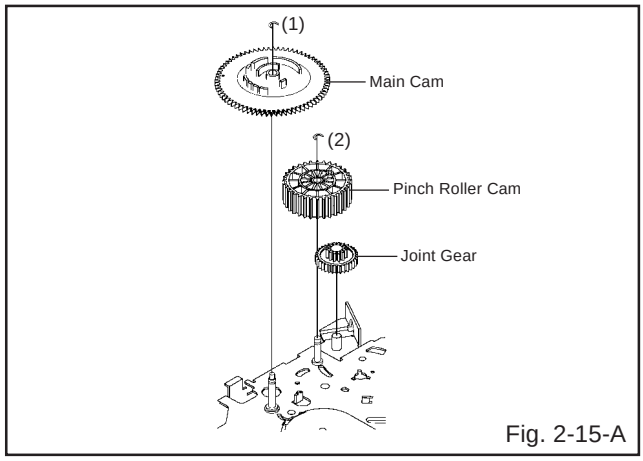


Fig. 2-15-A

NOTE

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

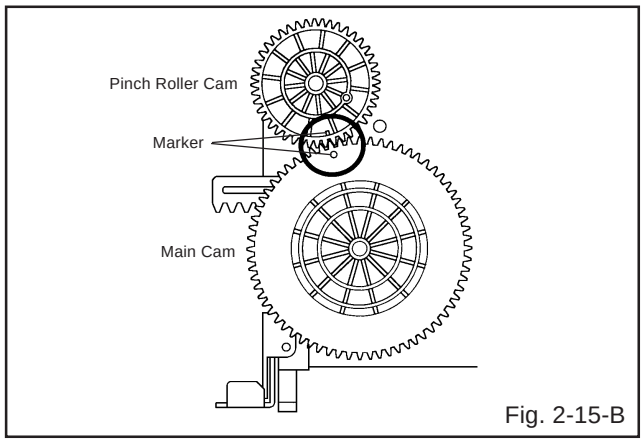


Fig. 2-15-B

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

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

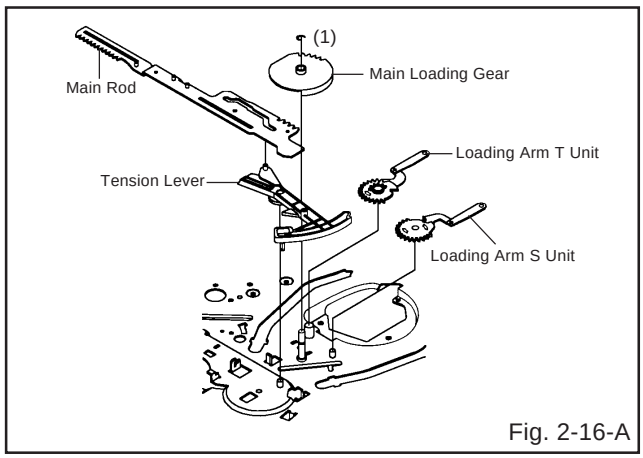


Fig. 2-16-A

DISASSEMBLY INSTRUCTIONS

NOTE

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

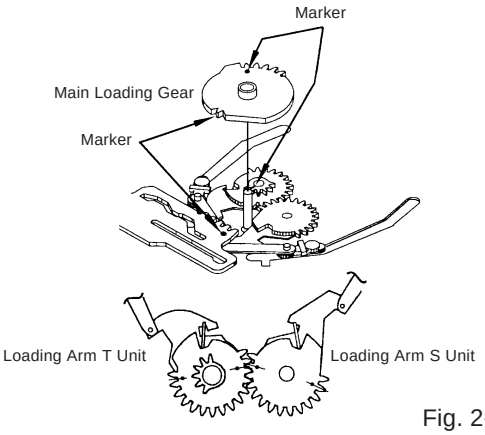


Fig. 2-16-B

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

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

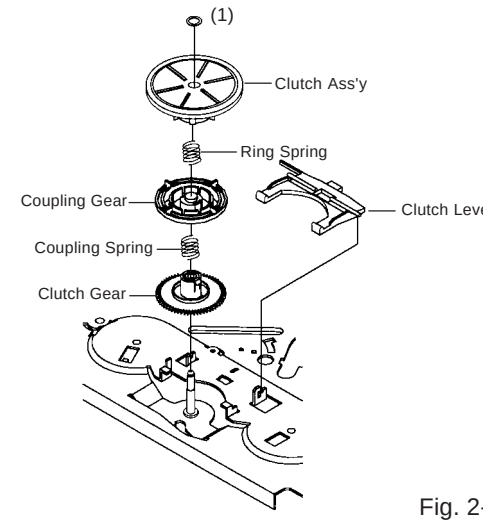


Fig. 2-17-A

NOTE

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

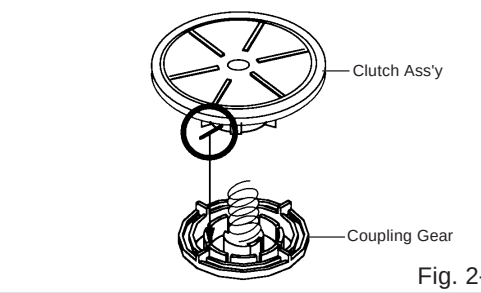


Fig. 2-17-B

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

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

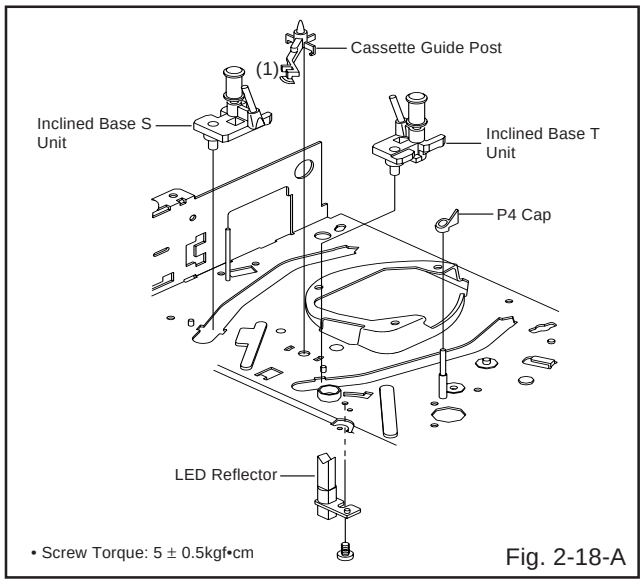


Fig. 2-18-A

NOTE

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

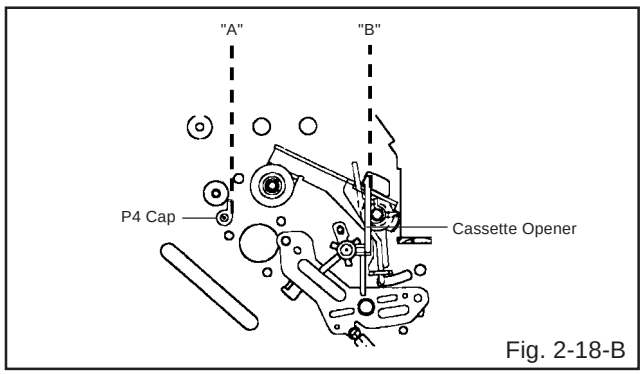


Fig. 2-18-B

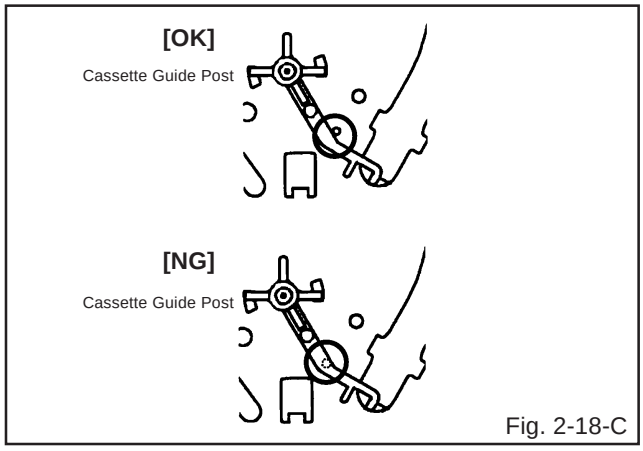


Fig. 2-18-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

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

   NOTE

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

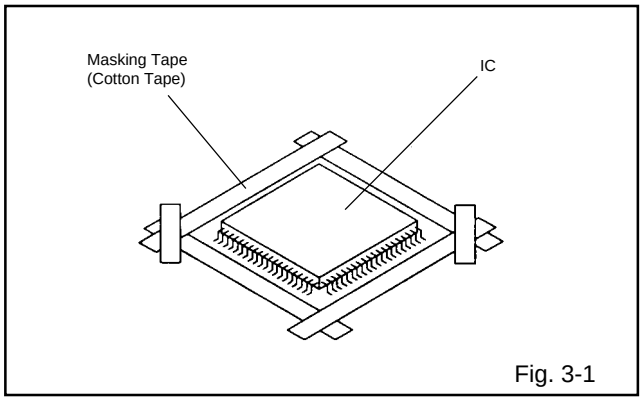


Fig. 3-1

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

   NOTE

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

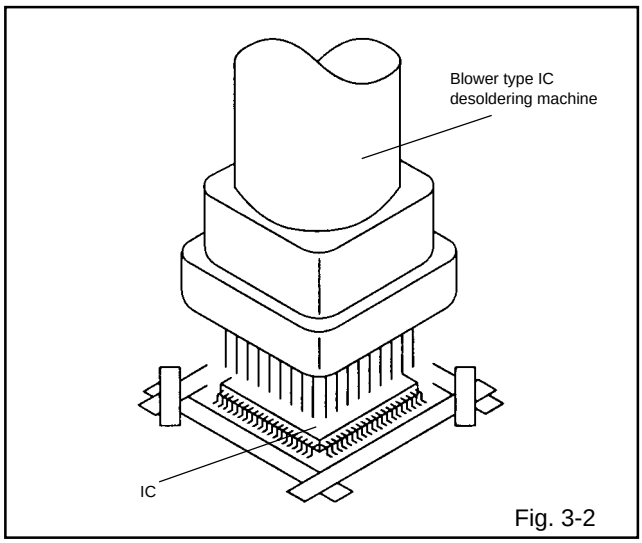


Fig. 3-2

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

   NOTE

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

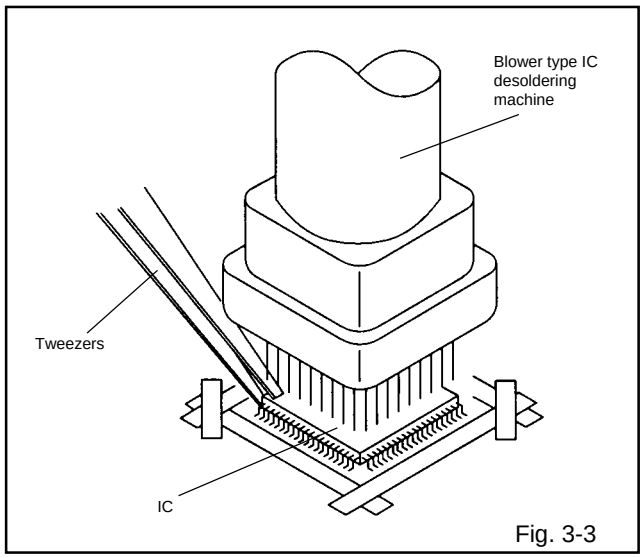


Fig. 3-3

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

   NOTE

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

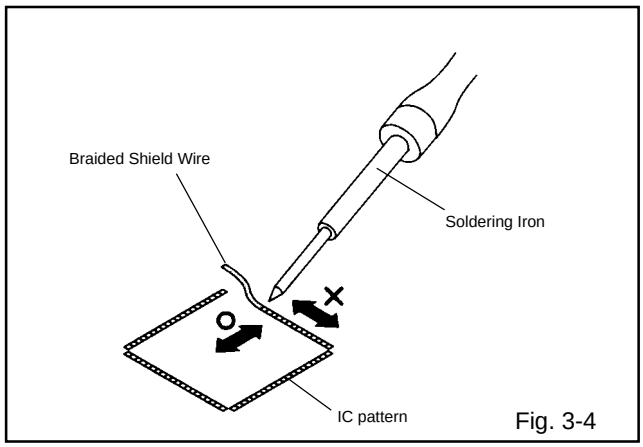


Fig. 3-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

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

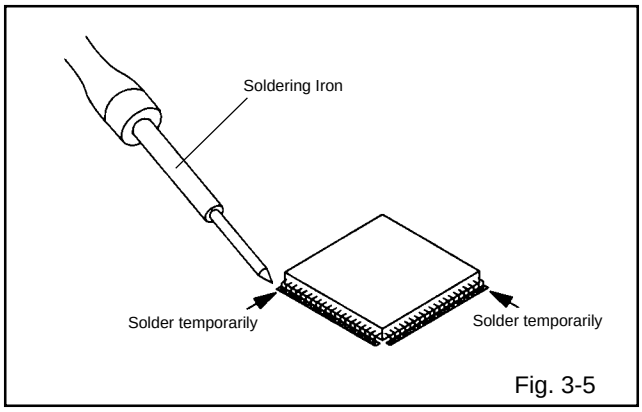


Fig. 3-5

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.)**

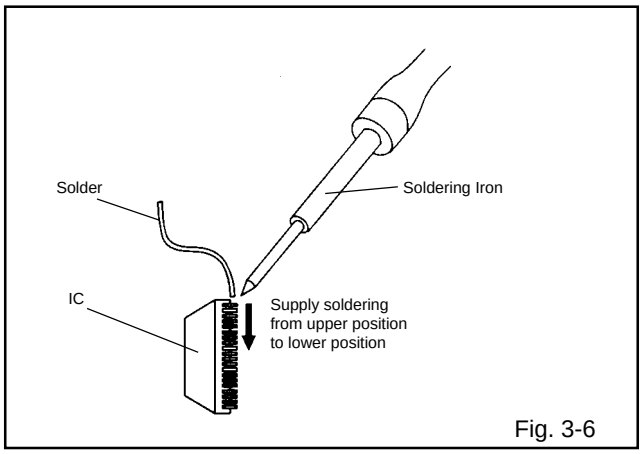


Fig. 3-6

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.

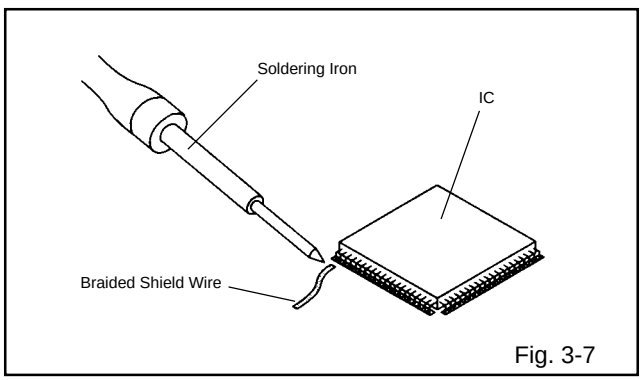


Fig. 3-7

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

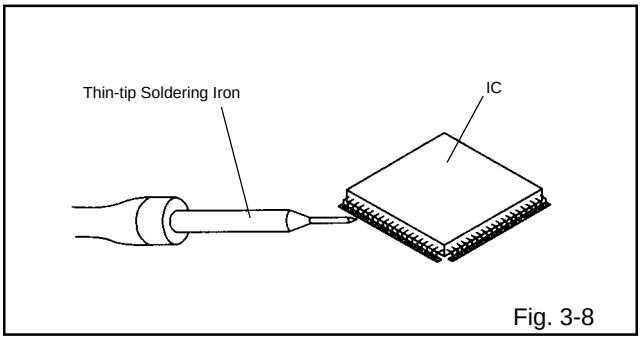


Fig. 3-8

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

KEY TO ABBREVIATIONS

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

SERVICE MODE LIST

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

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

PREVENTIVE CHECKS AND SERVICE INTERVALS

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

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
TBrake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

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

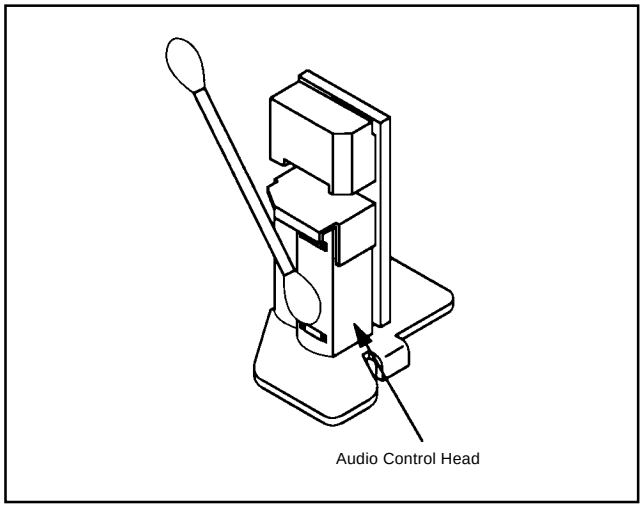
CLEANING

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

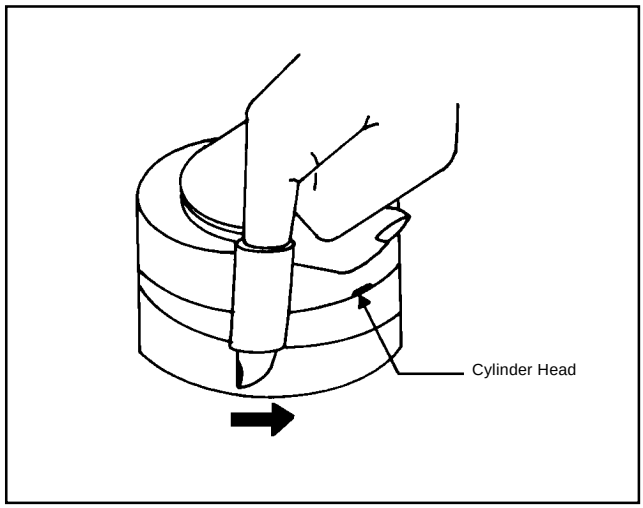
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

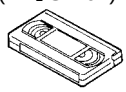
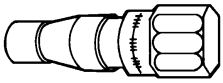
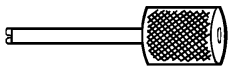
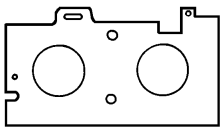
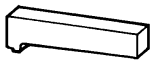
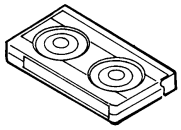
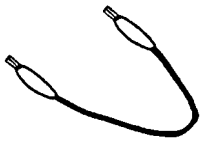
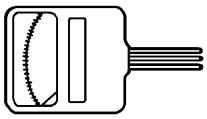
Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

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

(For 2 head model) VHS Alignment Tape JG001 (VN_2 S-LI6^3) JG001A (VN_1 S-CO1^3) JG001Q (VN_1 S-LI6^3 H) JG001T (VN_1 S-X6^3) 	**(For 4 head model)** VHS Alignment Tape JG001B (VN_2 S-LI6^3) JG001I (VN_2 S-CO1^3) JG001P (VN_2 S-LI6^3 H) JG001S (VN_2 S-X6^3) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Ref. No.	Part No.	Parts Name	Remarks
JG001	APJG001000	VHS Alignment Tape **(For 2 head model)**	Monoscope, 6KHz
JG001A	APJG001A00	VHS Alignment Tape **(For 2 head model)**	Color Bar, 1KHz
JG001Q	APJG001Q00	VHS Alignment Tape **(For 2 head model)**	Hi-Fi Audio
JG001T	APJG001T00	VHS Alignment Tape **(For 2 head model)**	X Value Adjustment
JG001B	APJG001B00	VHS Alignment Tape **(For 4 head model)**	Monoscope, 6KHz
JG001I	APJG001I00	VHS Alignment Tape **(For 4 head model)**	Color Bar, 1KHz
JG001P	APJG001P00	VHS Alignment Tape **(For 4 head model)**	Hi-Fi Audio
JG001S	APJG001S00	VHS Alignment Tape **(For 4 head 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

How to use the Servicing Fixture

1. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (The BOT, EOT, and the Reel Sensor do not work and the deck can be operated without a cassette tape.)
2. 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 bofore 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

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

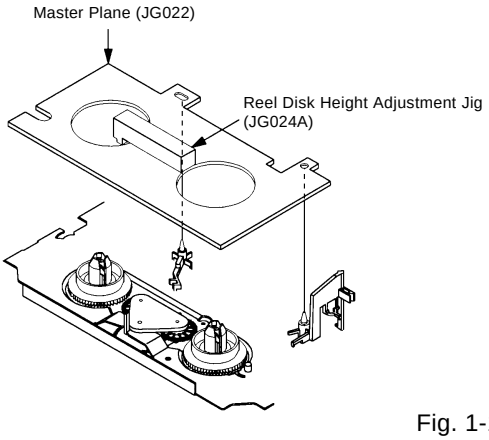


Fig. 1-1-A

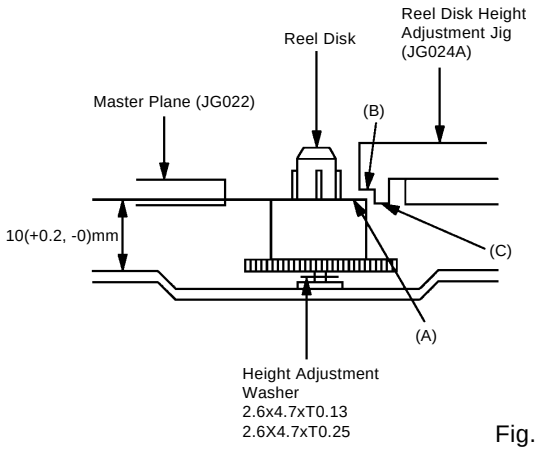


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

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

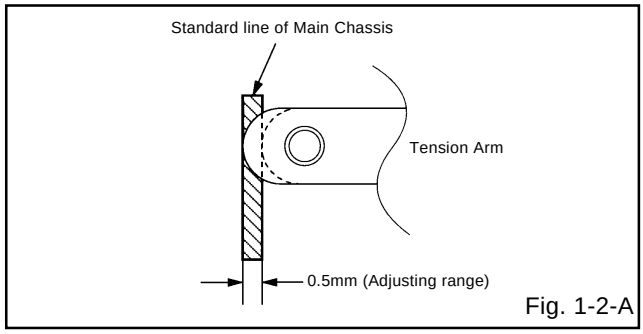


Fig. 1-2-A

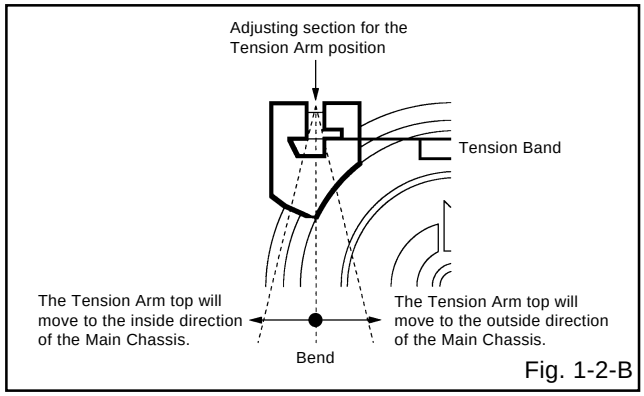


Fig. 1-2-B

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

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

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

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

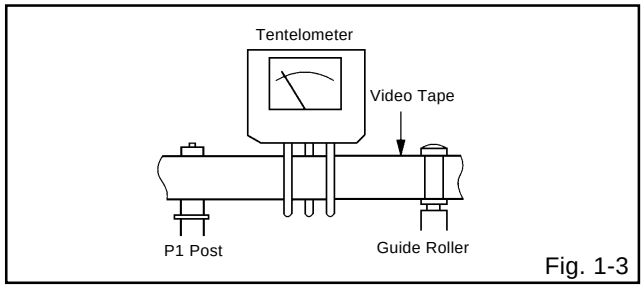


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

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

NOTE

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

1-5: CONFIRMATION OF REEL BRAKE TORQUE

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

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

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

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

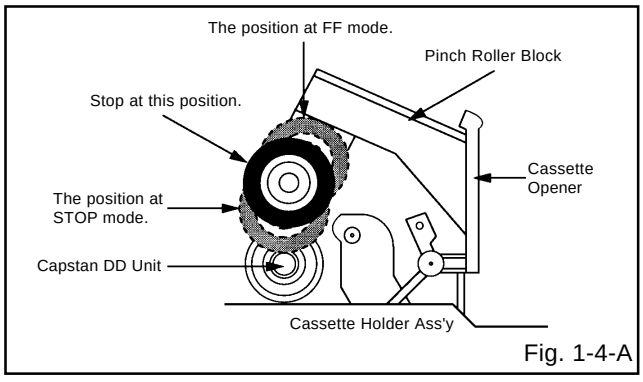


Fig. 1-4-A

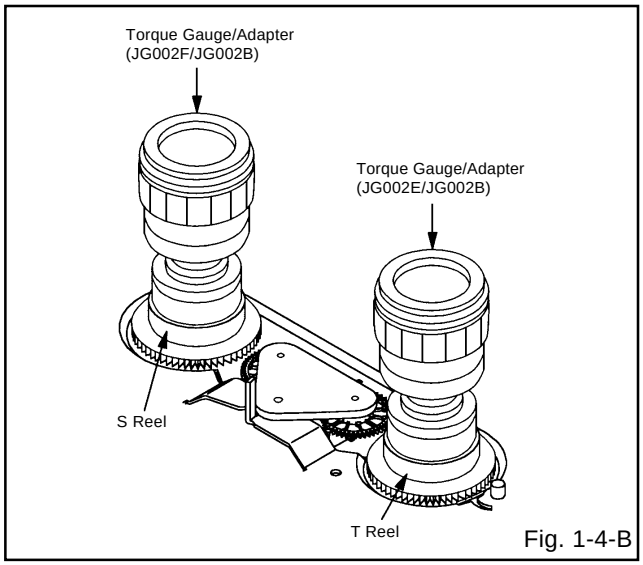


Fig. 1-4-B

NOTE

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

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

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

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

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(JG001 or JG001B). (Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **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)**

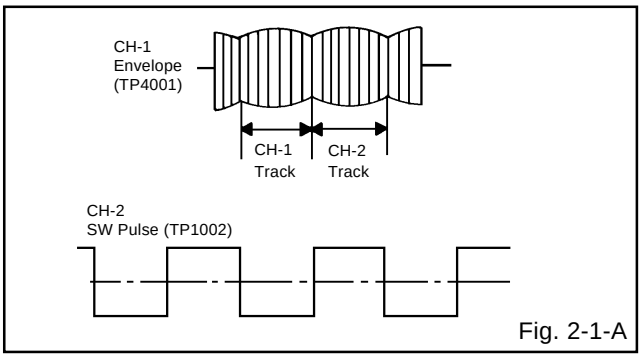


Fig. 2-1-A

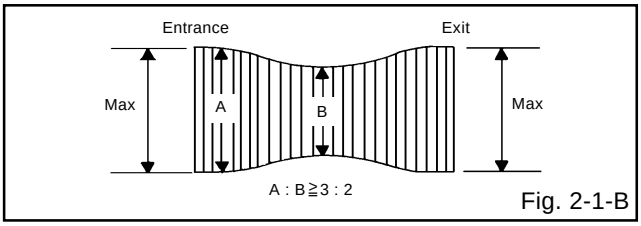


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

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

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

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

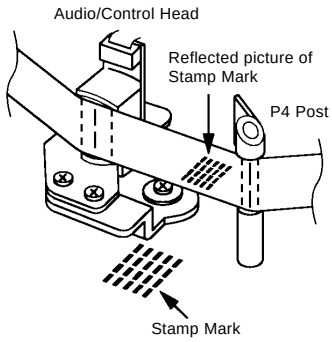


Fig. 2-2-A

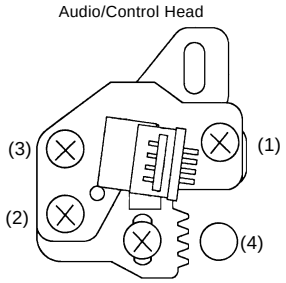


Fig. 2-2-B

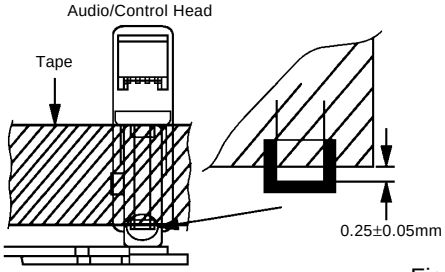


Fig. 2-2-C

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

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP1002,** CH-2 to **TP4001** 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. 2-3.**

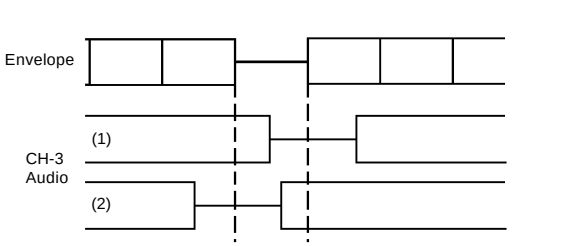


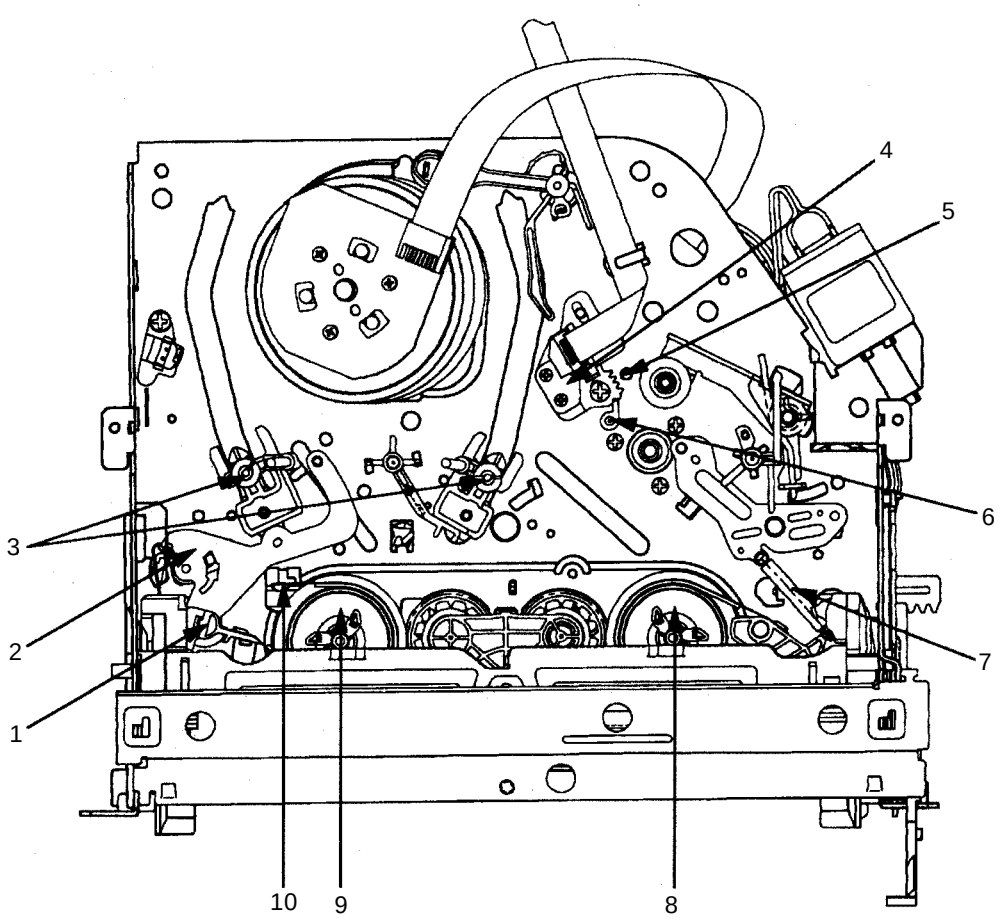
Fig. 2-3

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

1. Connect CH-1 of the oscilloscope to **TP1002** and CH-2 to the **Hi-Fi Audio Out Jack.**
2. Playback the VHS Alignment Tape **(JG001P or JG001Q). (Refer to SERVICING FIXTURE AND TOOLS)**
3. Press and hold the 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 and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
6. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
7. If the difference are more than 3 steps, set the X Value adjustment driver **(JG153)** to (4) of **Fig. 2-2-B.** Change the X Value and adjust it so that the value becomes within 2 steps.

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



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

ELECTRICAL ADJUSTMENTS

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

1. BASIC ADJUSTMENT

CAUTION

When replacing IC's or transistor, use only specified silicon grease **(YG260M)**.
(To prevent the damage to IC's and transistors.)

1-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape **(JG001P)**

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **TP4201**.
2. Playback the alignment tape. **(JG001P)**
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Adjust the **VR1001** until the waveform of the oscilloscope measures 6.5 ± 0.5(H) at both leading and trailing edges. **(Refer to Fig. 1-1-A, B)**

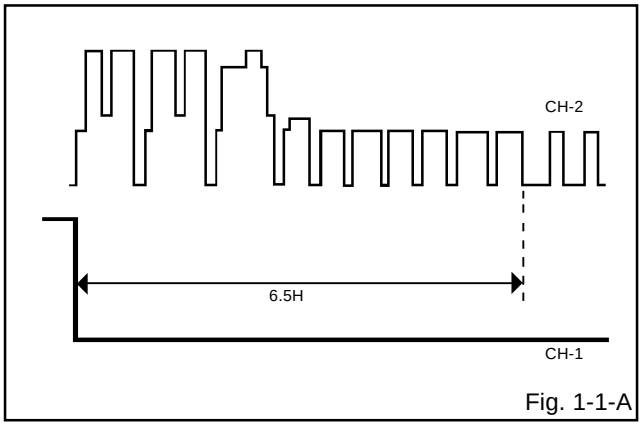


Fig. 1-1-A

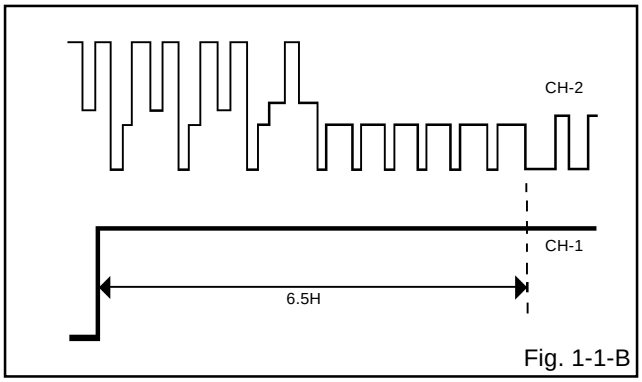
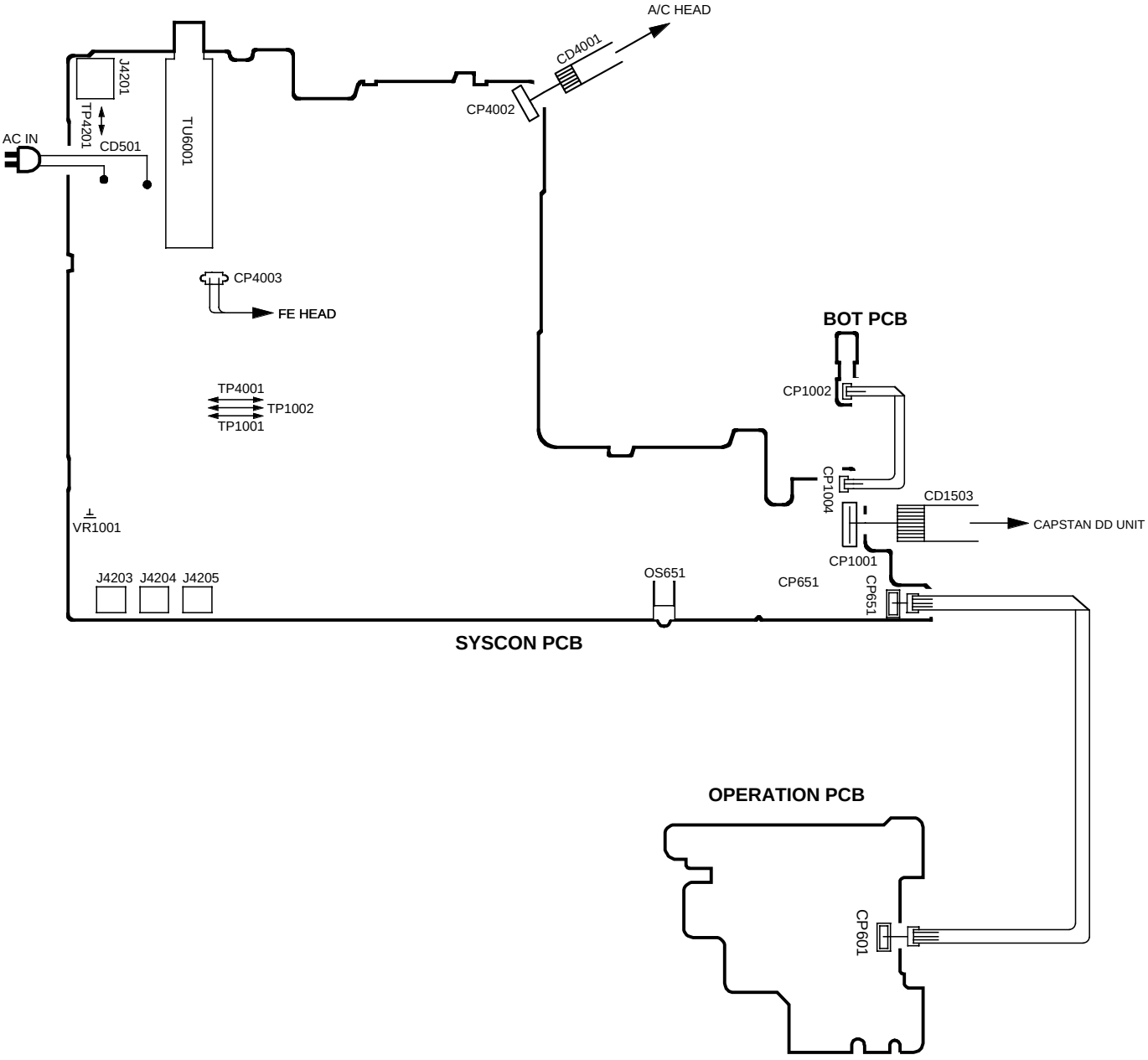


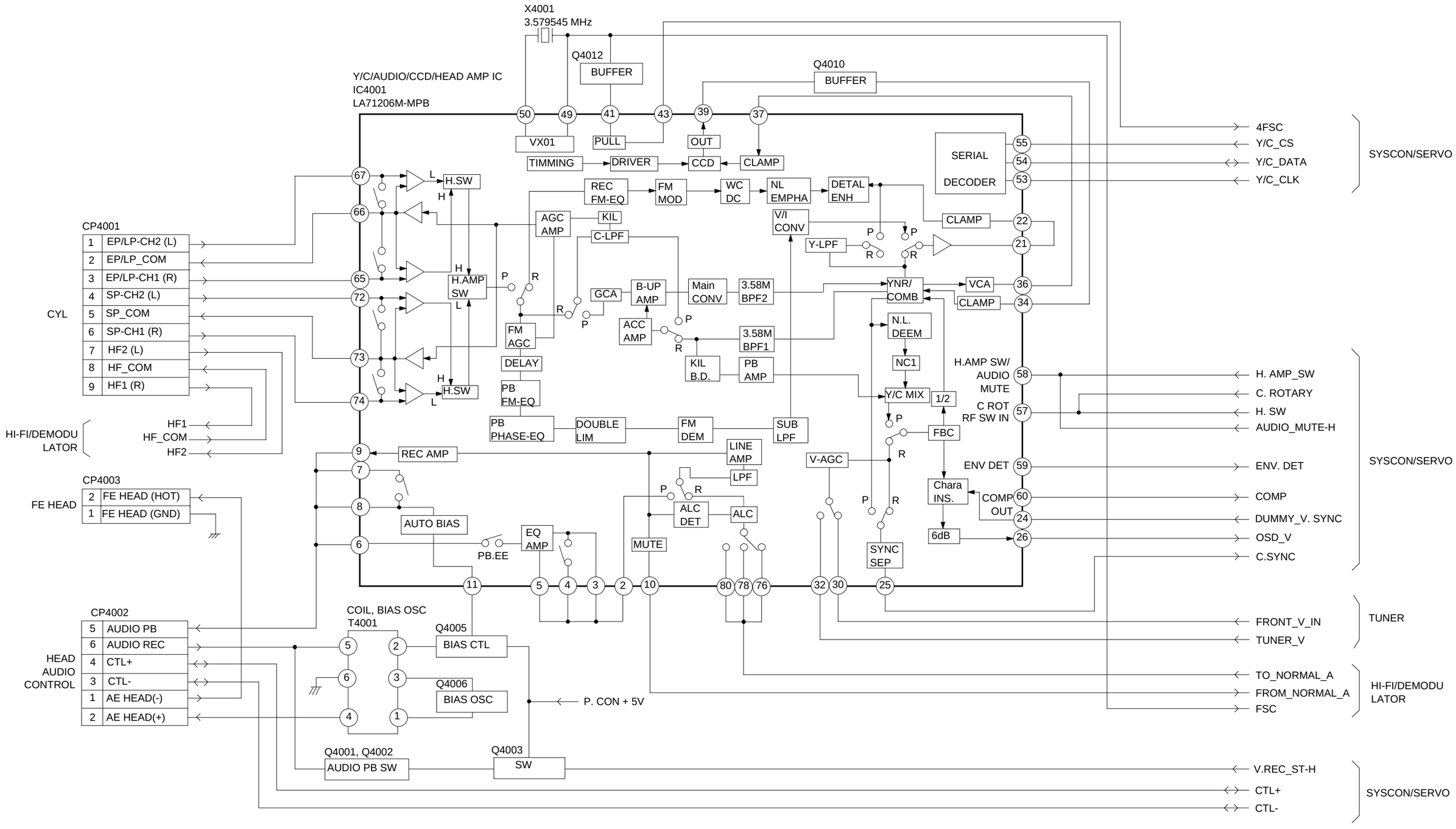
Fig. 1-1-B

ELECTRICAL ADJUSTMENTS

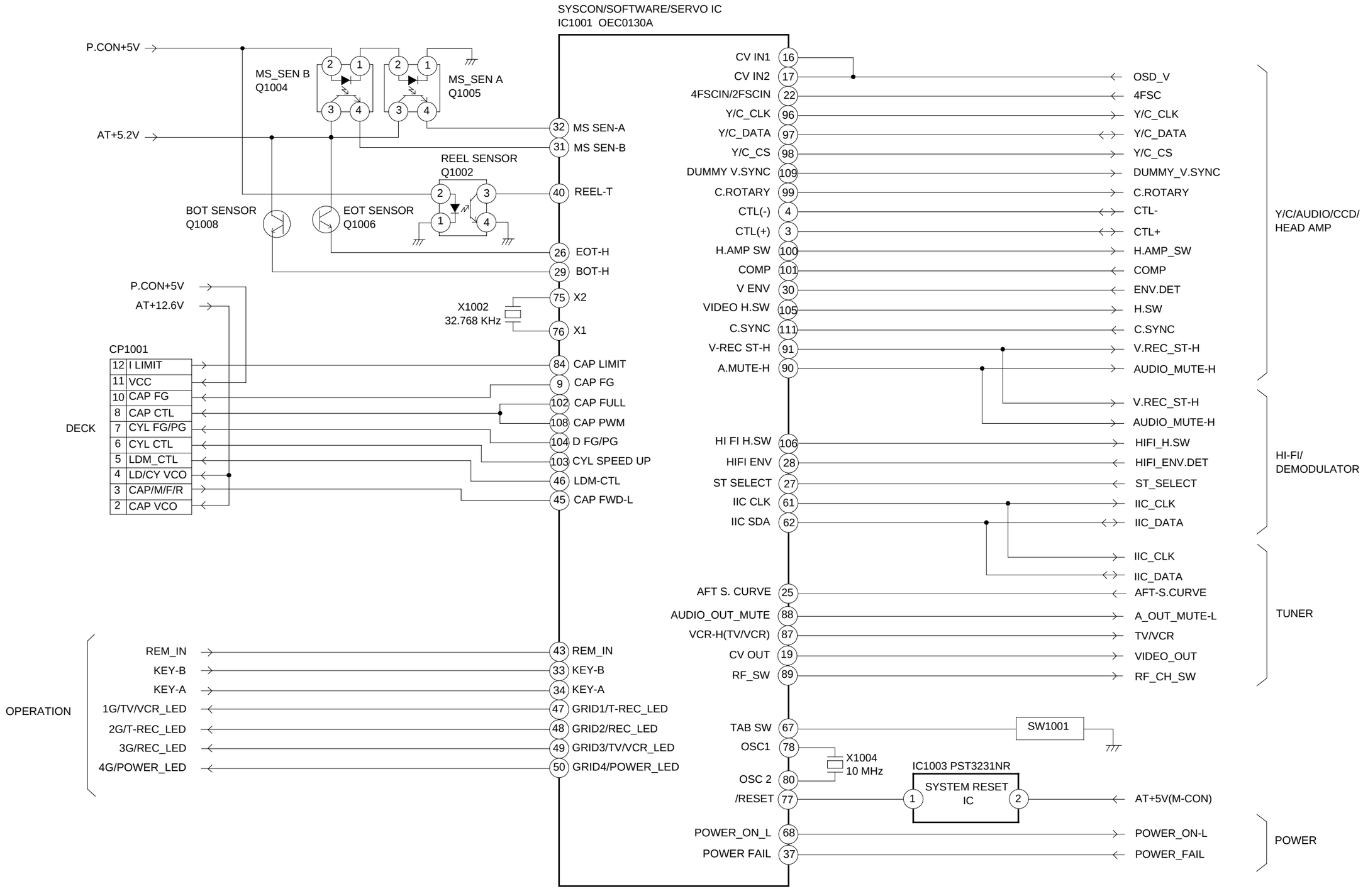
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



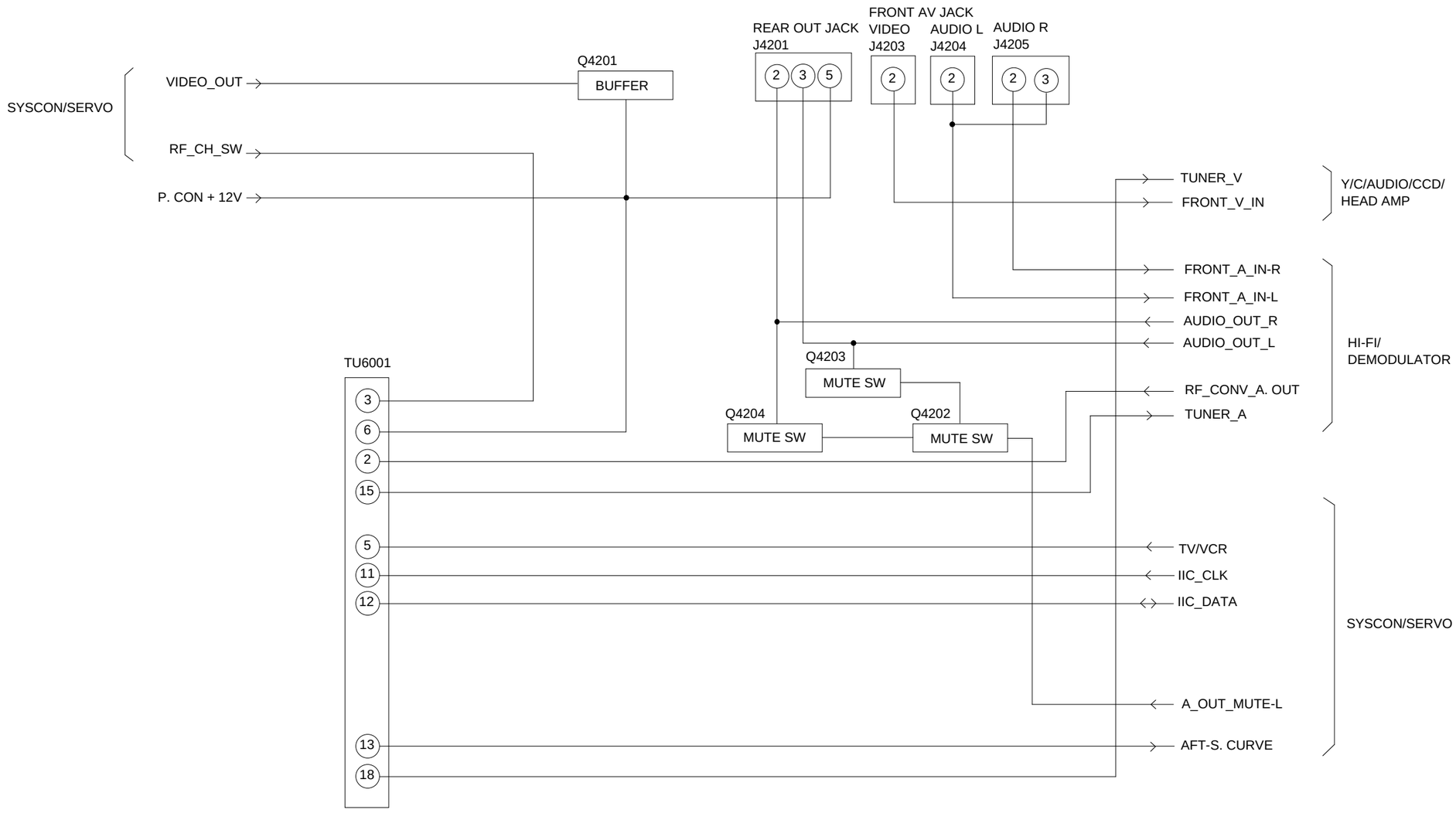
Y/C/AUDIO/CCD/HEAD AMP BLOCK DIAGRAM



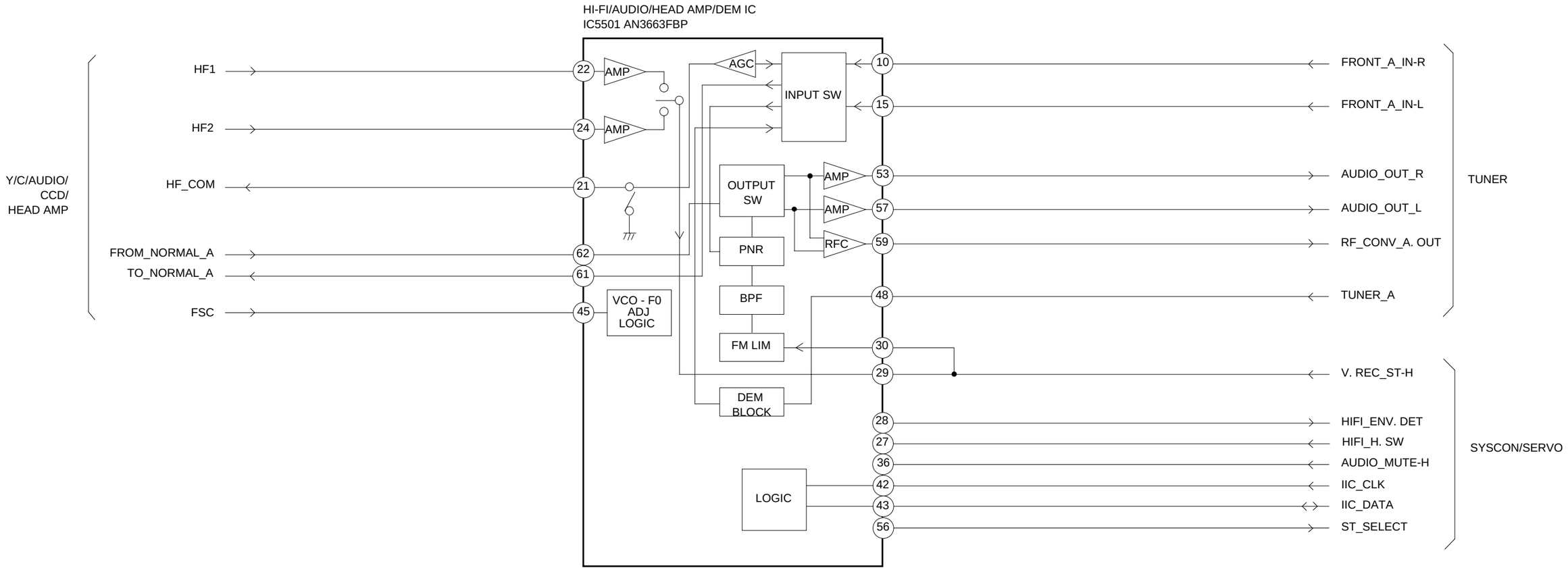
SYSTEM CONTROL/SERVO BLOCK DIAGRAM



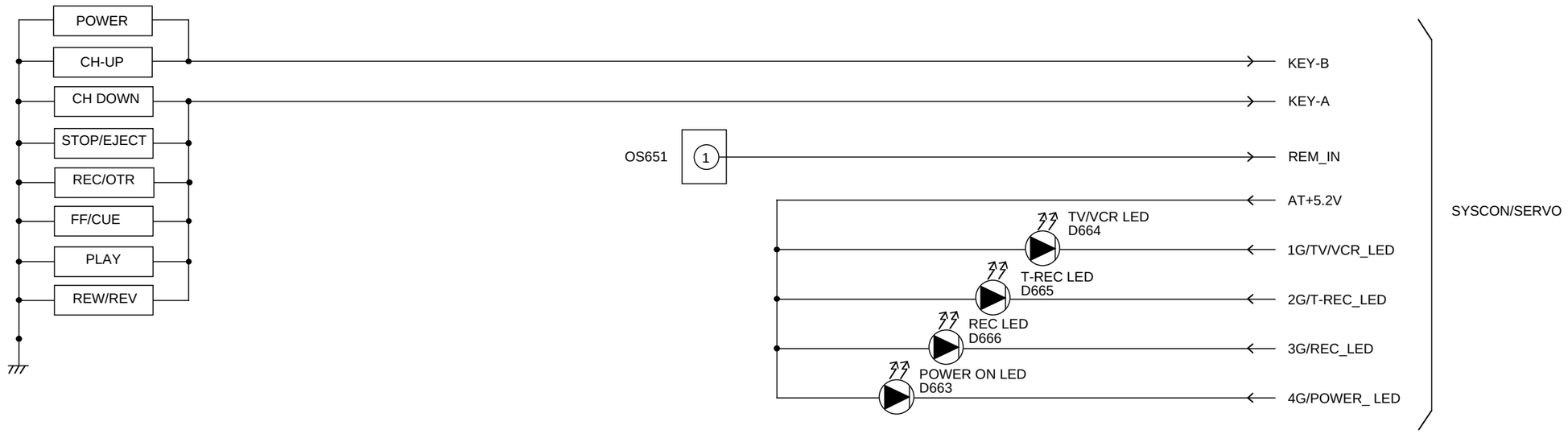
TUNER BLOCK DIAGRAM



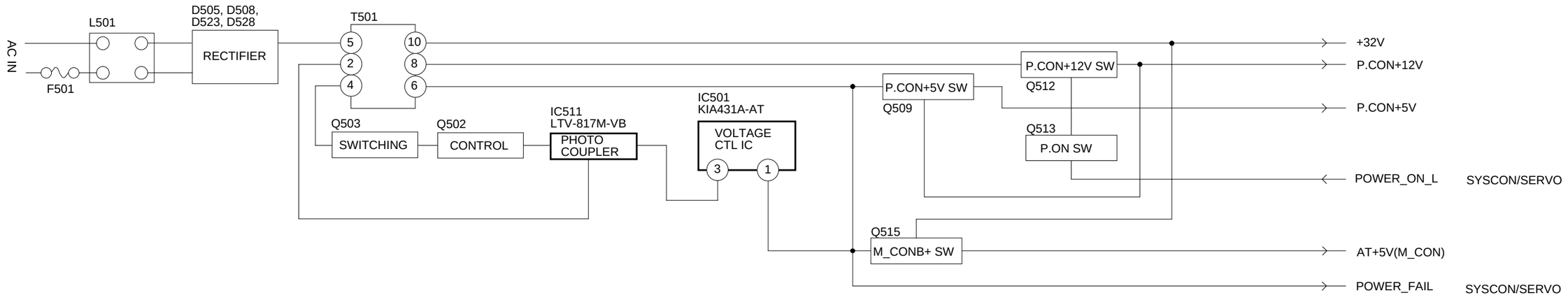
HI-FI/DEMODULATOR BLOCK DIAGRAM



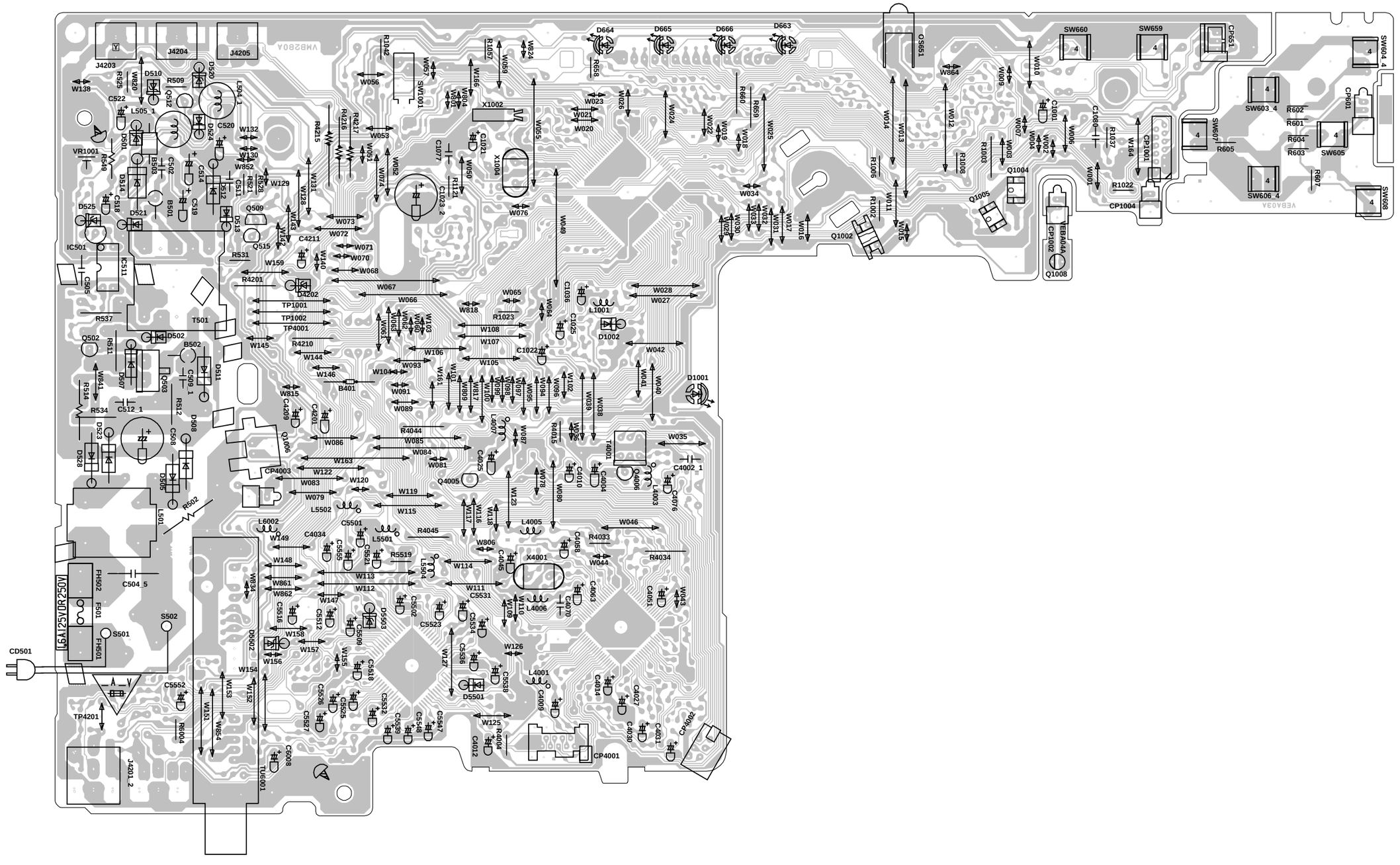
OPERATION BLOCK DIAGRAM



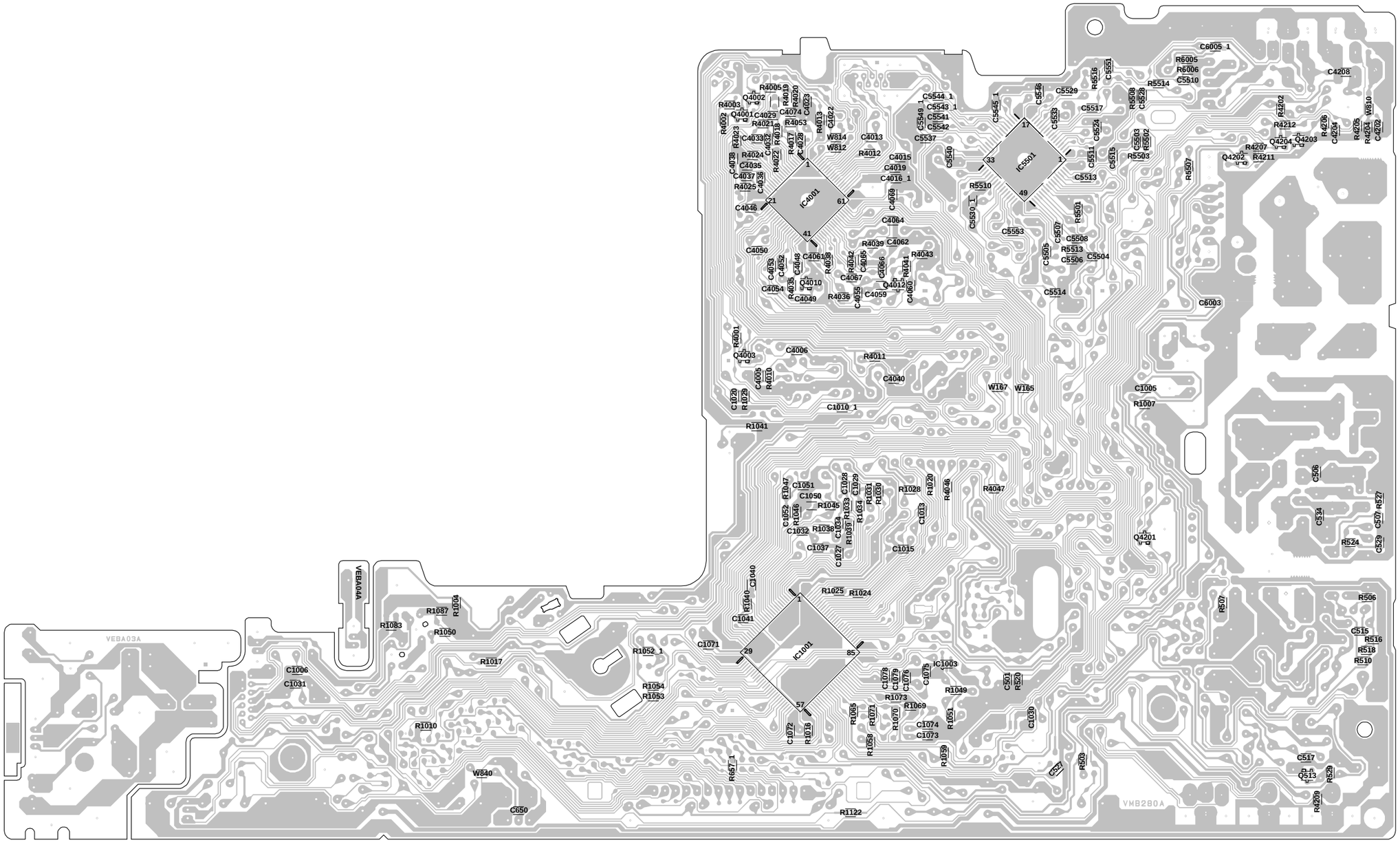
POWER BLOCK DIAGRAM



PRINTED CIRCUIT BOARDS
SYSCON/OPERATION/BOT (INSERTED PARTS)
SOLDER SIDE

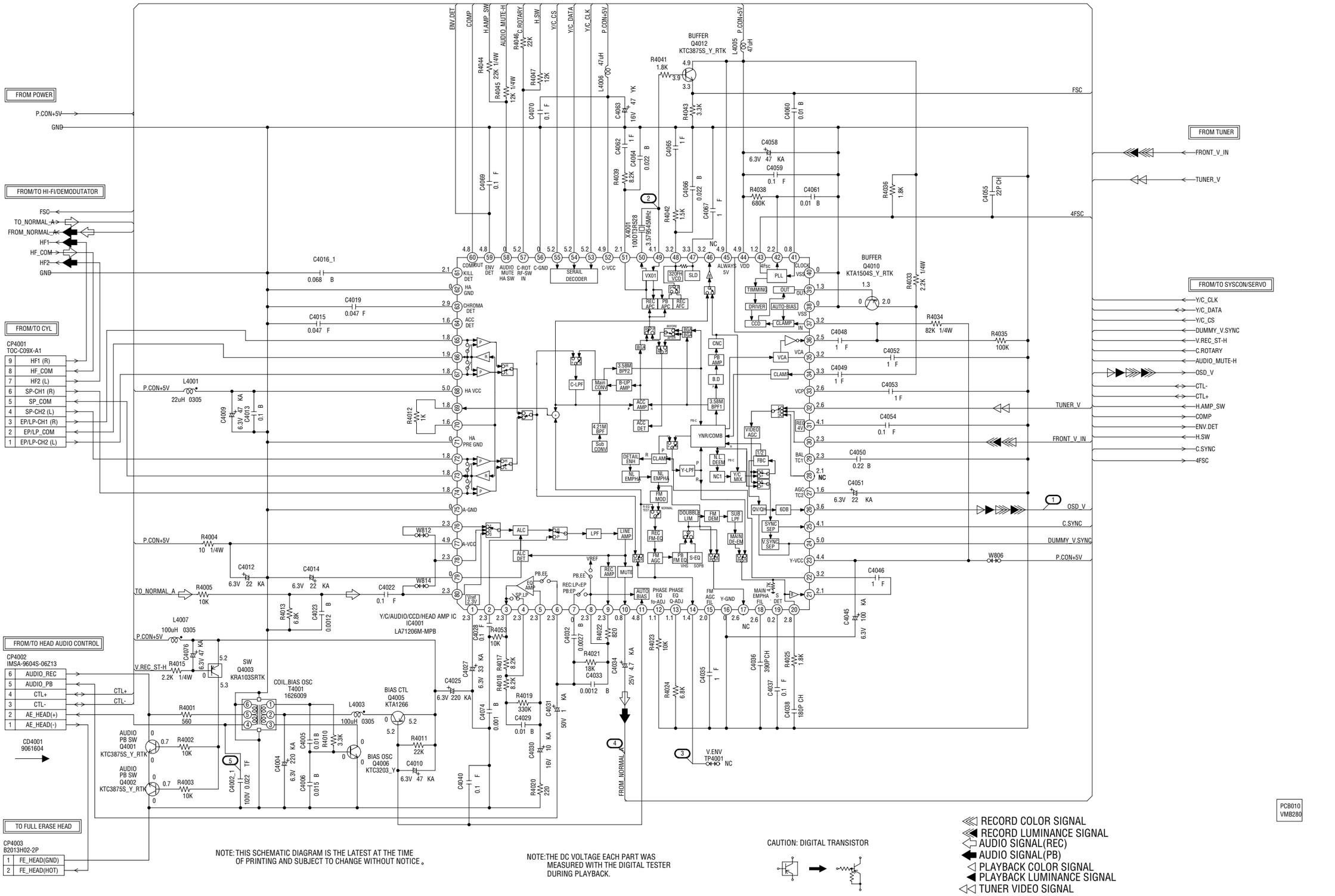


PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED PARTS)
SOLDER SIDE

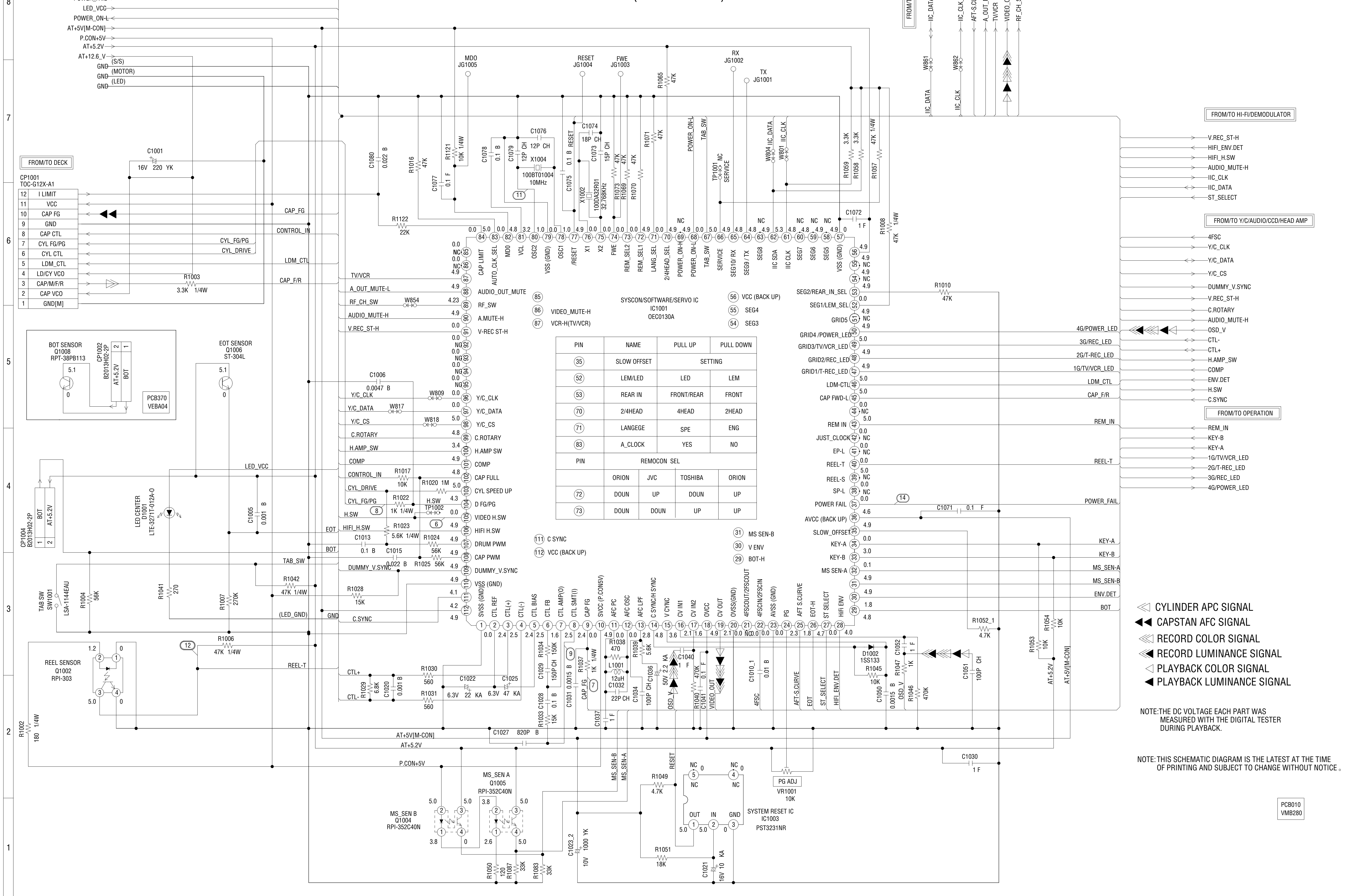


Y/C/AUDIO/CCD/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



SYSTEM CONTROL/SERVO SCHEMATIC DIAGRAM
(SYSCON PCB)



PIN	NAME	PULL UP	PULL DOWN
35	SLOW OFFSET	SETTING	
52	LEM/LED	LED	LEM
53	REAR IN	FRONT/REAR	FRONT
70	2/4HEAD	4HEAD	2HEAD
71	LANGEGE	SPE	ENG
83	A_CLOCK	YES	NO

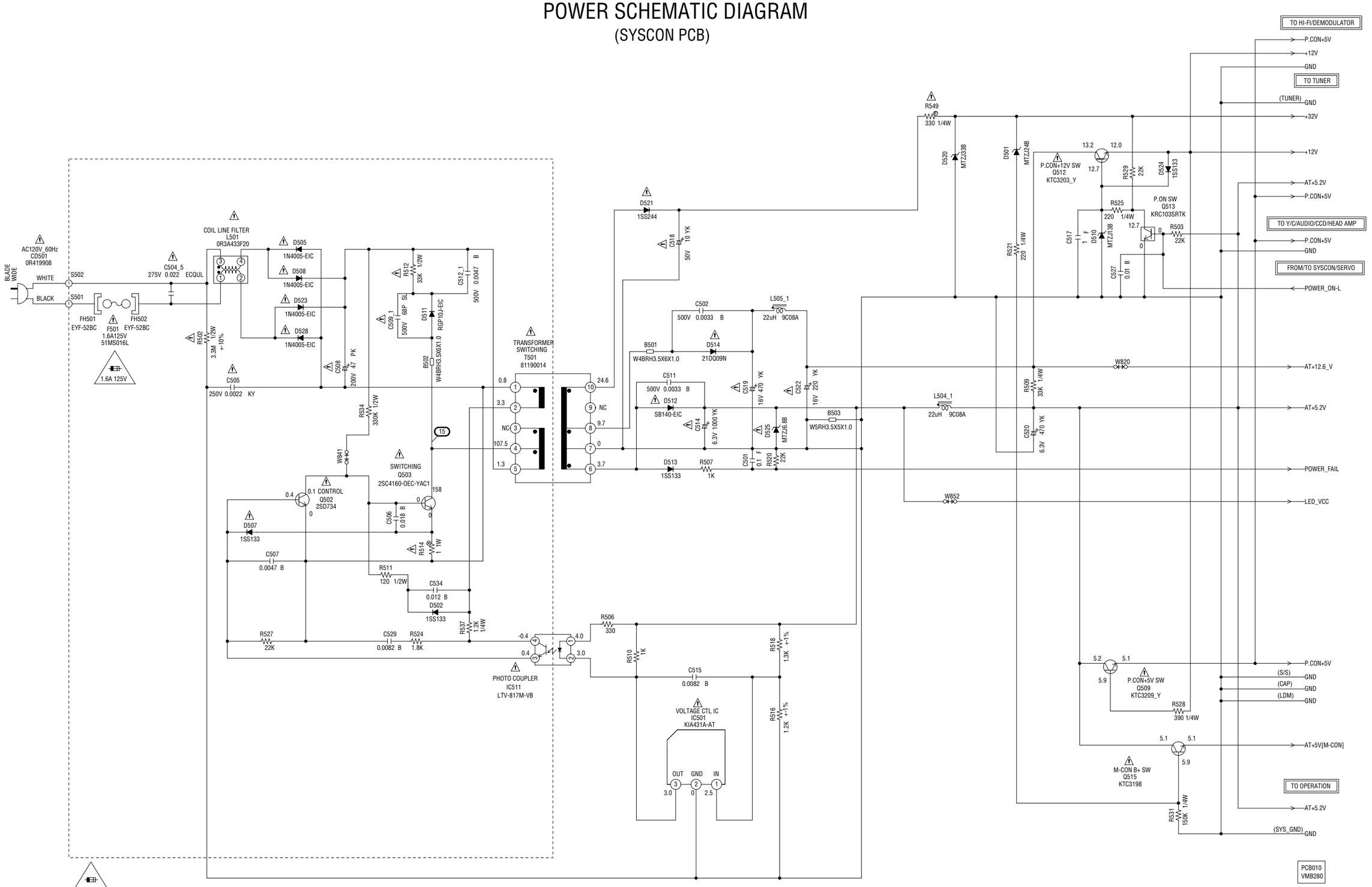
PIN	REMOCON SEL			
	ORION	JVC	TOSHIBA	ORION
72	DOUN	UP	DOUN	UP
73	DOUN	DOUN	UP	UP

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。

POWER SCHEMATIC DIAGRAM

(SYSCON PCB)



1.6A 125V

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 1.6A 125V OR 1.6A 250V(F501).

ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTOLISER QUE DES FUSIBLE DE MEME TYPE 1.6A 125V OR 1.6A 250V(F501).

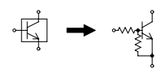
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT 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



OPERATION SCHEMATIC DIAGRAM
(SYSCON PCB)

REW/REV
SW607
EVQ21505R

R605 1/4W 13K

PLAY
SW606_4
EVQ21505R

R604 1/4W 6.8K

FF/CUE
SW605
EVQ21505R

R603 1/4W 3.9K

REC/OTR
SW604_4
EVQ21505R

POWER
SW608
EVQ21505R

R602 1/4W 2.7K

STOP/EJECT
SW603_4
EVQ21505R

R601 1/4W 3.3K

R607 1/4W 3.3K

CP601
B2013H02-3P

KEY-A	3
KEY-B	2
GND	1

PCB270
VEBA03

CD651
SM1382-001-1B

CP651
A2001WV2-3P

3	KEY-A
2	KEY-B
1	GND

OS651
PIC-37043LO

Vout 1
GND 2
B+ 3

C650 0.1 F

W840

W824

CH DOWN
SW660
EVQ21505R

CH UP
SW659
EVQ21505R

W864

R658 560 1/4W
R659 560 1/4W
R660 560 1/4W
R657_1 560

TV/VCR LED D664 LTL-1CHEE-002A
T-REC LED D665 LTL-1CHEE-002A
REC LED D666 LTL-1CHEE-002A
D663 POWER ON LED LTL-1CHEE-002A

FROM/TO SYSCON/SERVO

1G/TV/VCR_LED
2G/T-REC_LED
3G/REC_LED
4G/POWER_LED
REM_IN
KEY-B
KEY-A

1G/TV/VCR_LED
2G/T-REC_LED
3G/REC_LED
4G/POWER_LED
REM_IN
KEY-B
KEY-A

FROM POWER

AT+5.2V

(SYS_GND)
GND

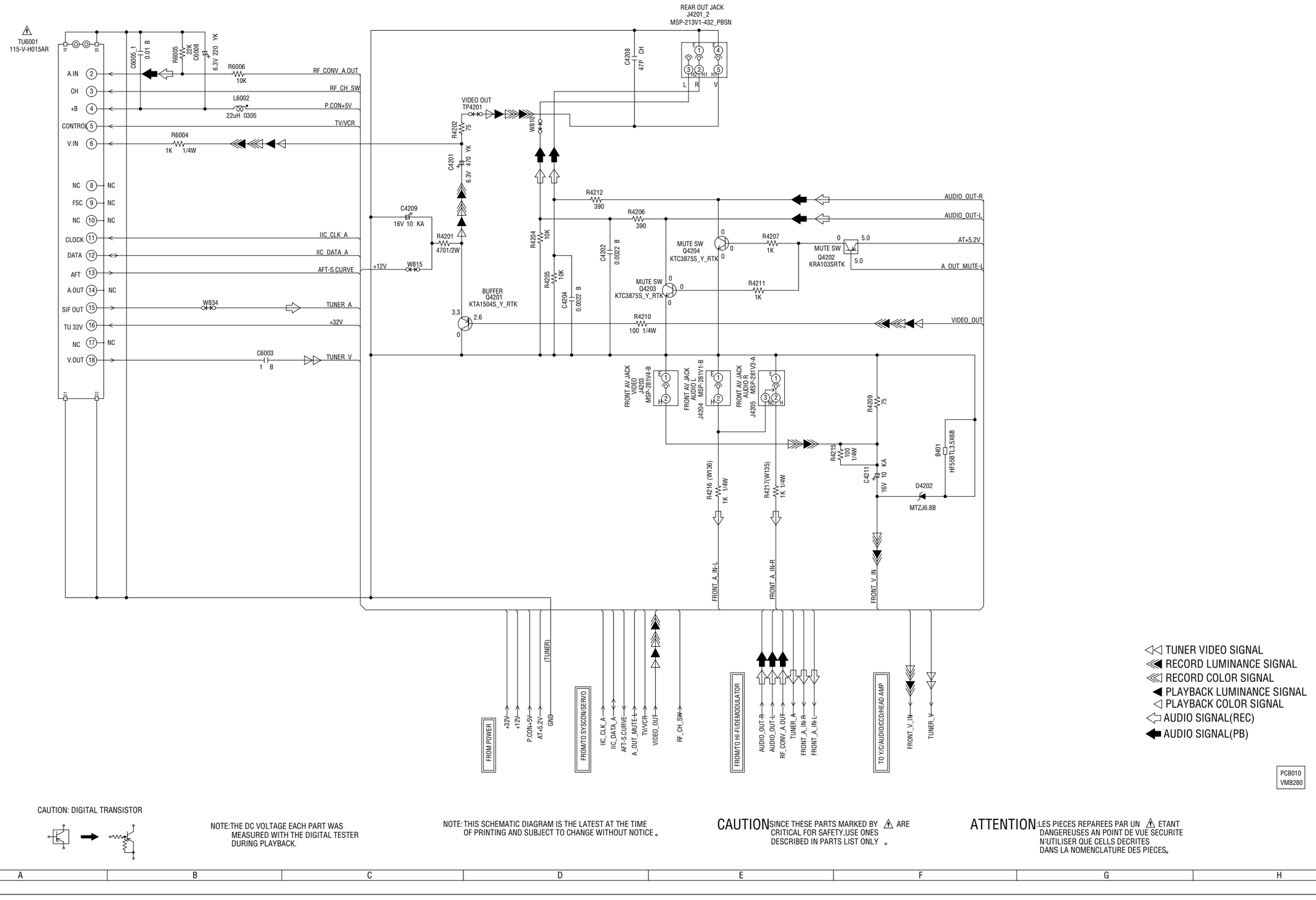
PCB010
VMB280

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 。

TUNER SCHEMATIC DIAGRAM

(SYSCON PCB)



CAUTION: DIGITAL TRANSISTOR

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

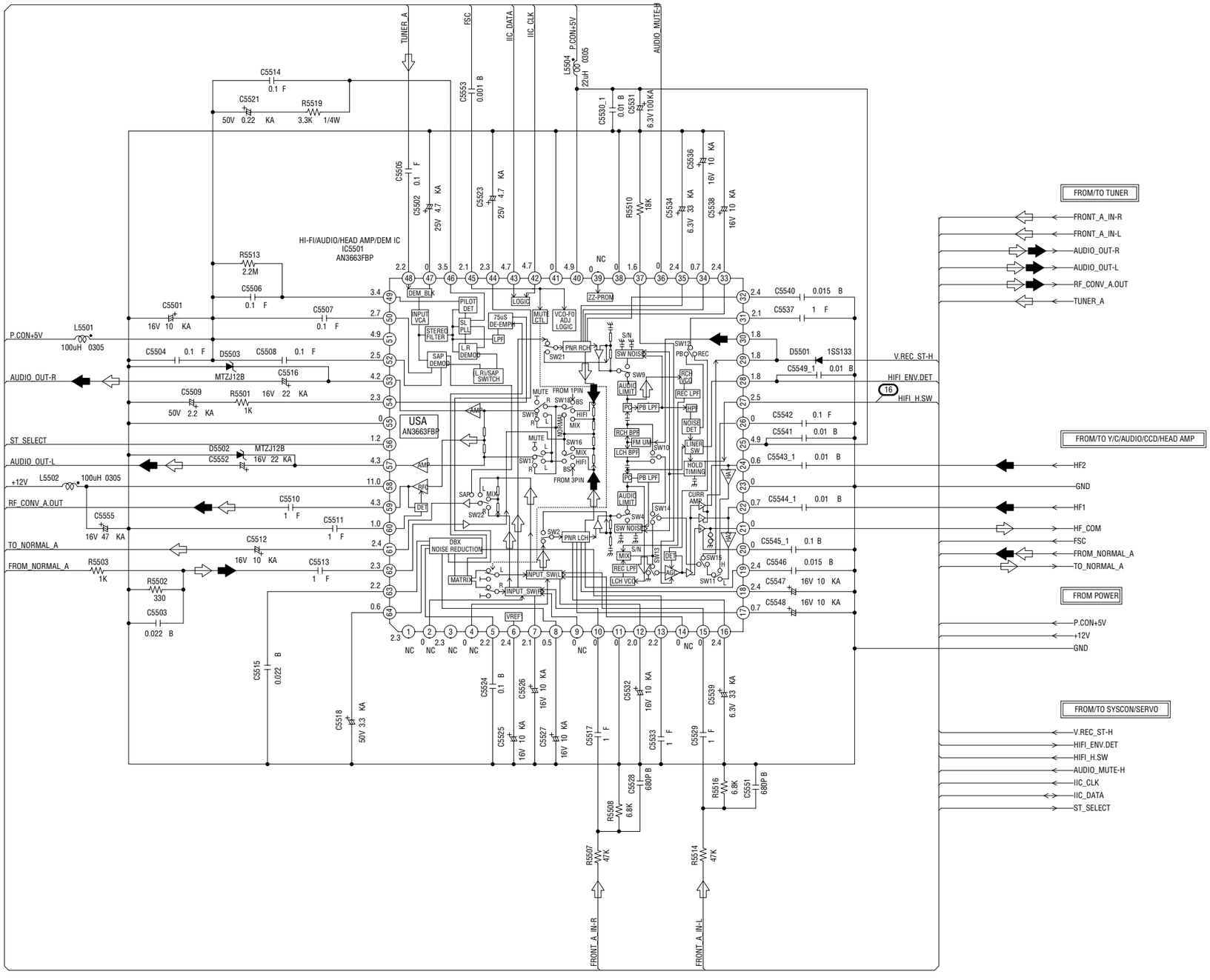
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

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

HI-FI/DEMODULATOR SCHEMATIC DIAGRAM

(SYSCON PCB)



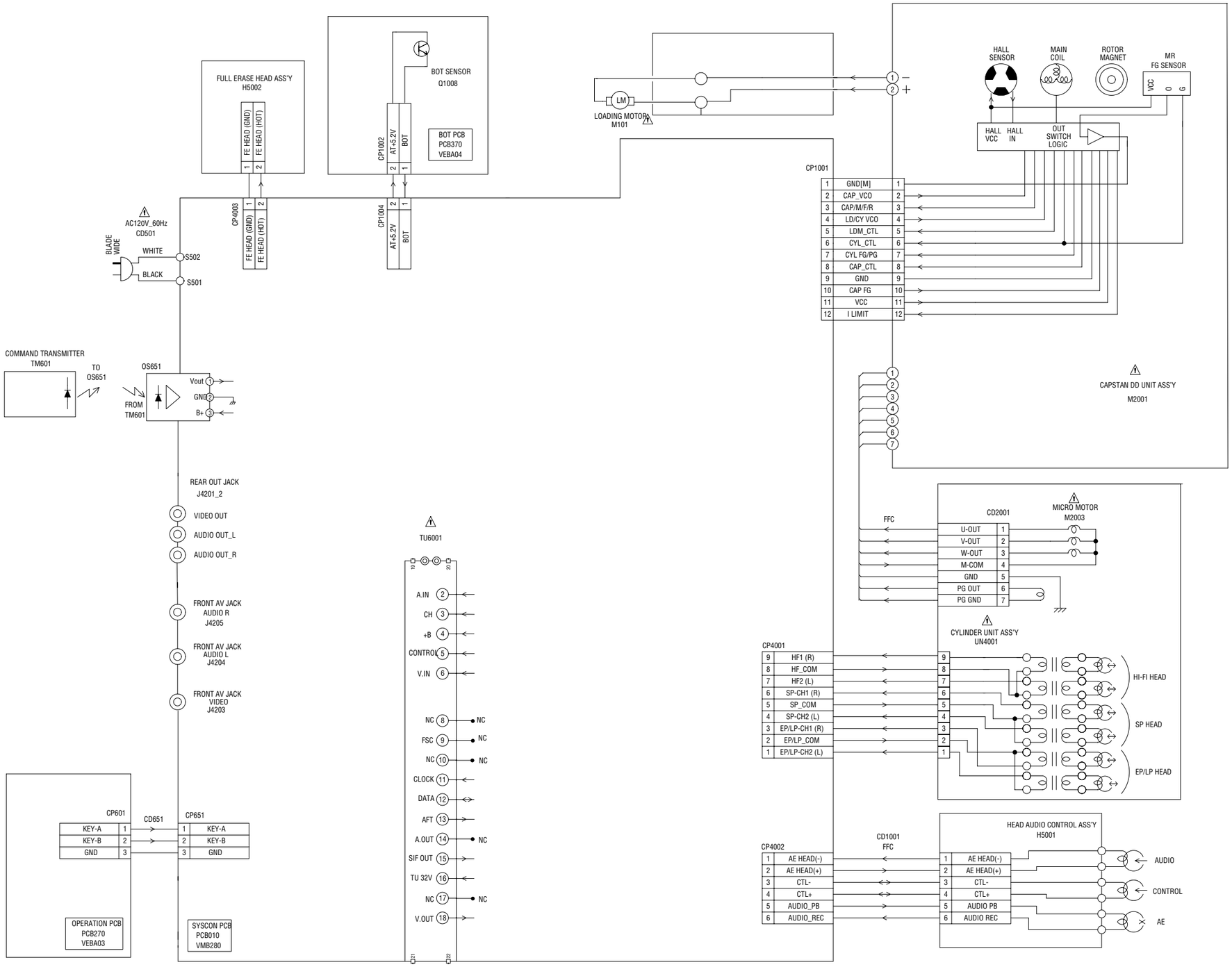
NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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

AUDIO SIGNAL(REC)

AUDIO SIGNAL(PB)

INTERCONNECTION DIAGRAM



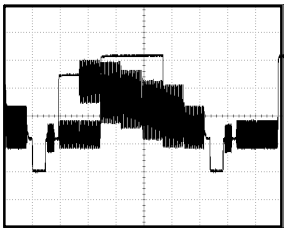
CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

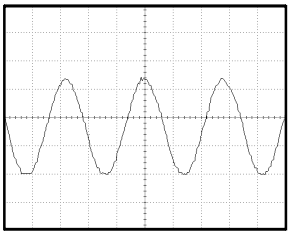
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

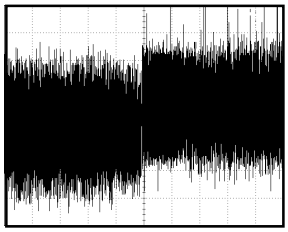
Y/C/AUDIO/CCD/HEAD AMP



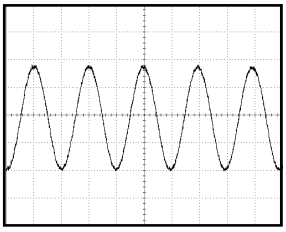
① POWER ON
500mV 10µs/div



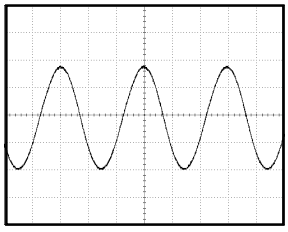
② POWER ON
100mV 100ns/div



③ PB
100mV 1ms/div

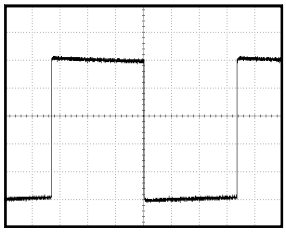


④ PB
200mV 500µs/div

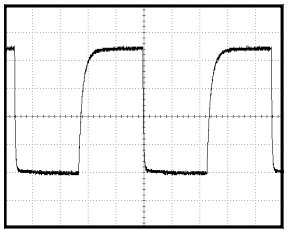


⑤ REC
20V 5µs/div

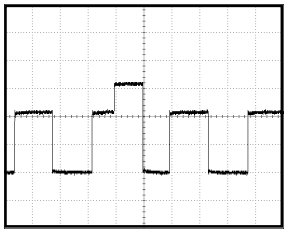
SYSCON/SERVO



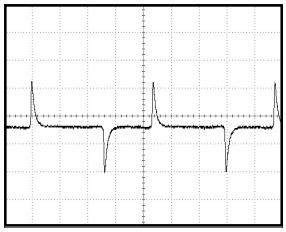
⑥ POWER ON
1V 5ms/div



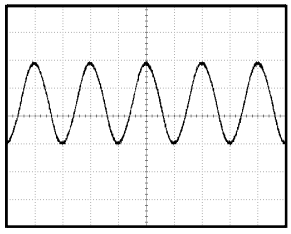
⑦ PB
1V 2µs/div



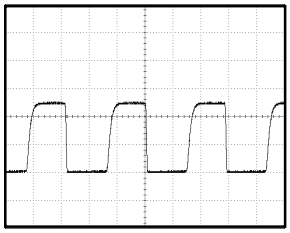
⑧ POWER ON
1V 500µs/div



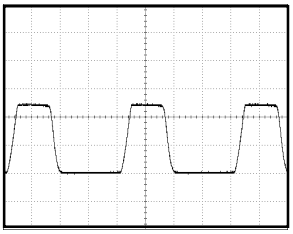
⑨ FF/REW
500mV 500µs/div



⑪ POWER ON
1V 50ns/div

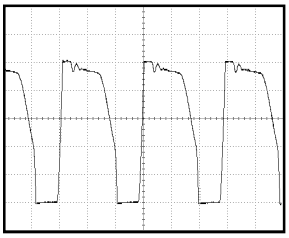


⑫ FF/REW
2V 5ms/div



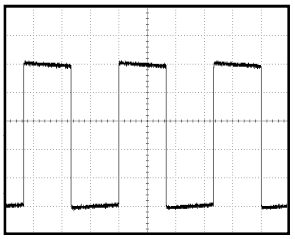
⑭ POWER OFF
2V 5ms/div

POWER



⑮ PB
50V 2µs/div

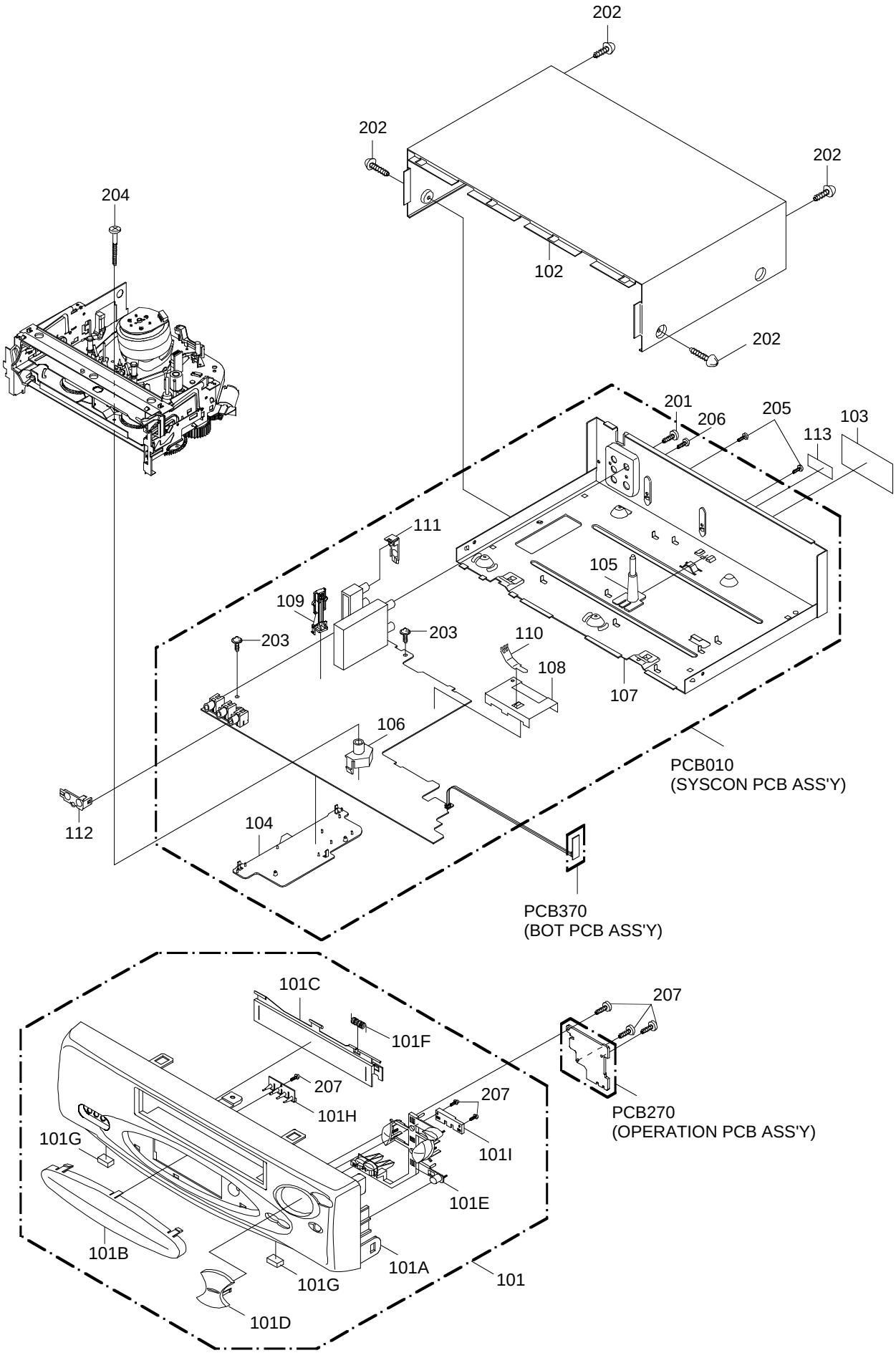
HI-FI/DEMODULATOR



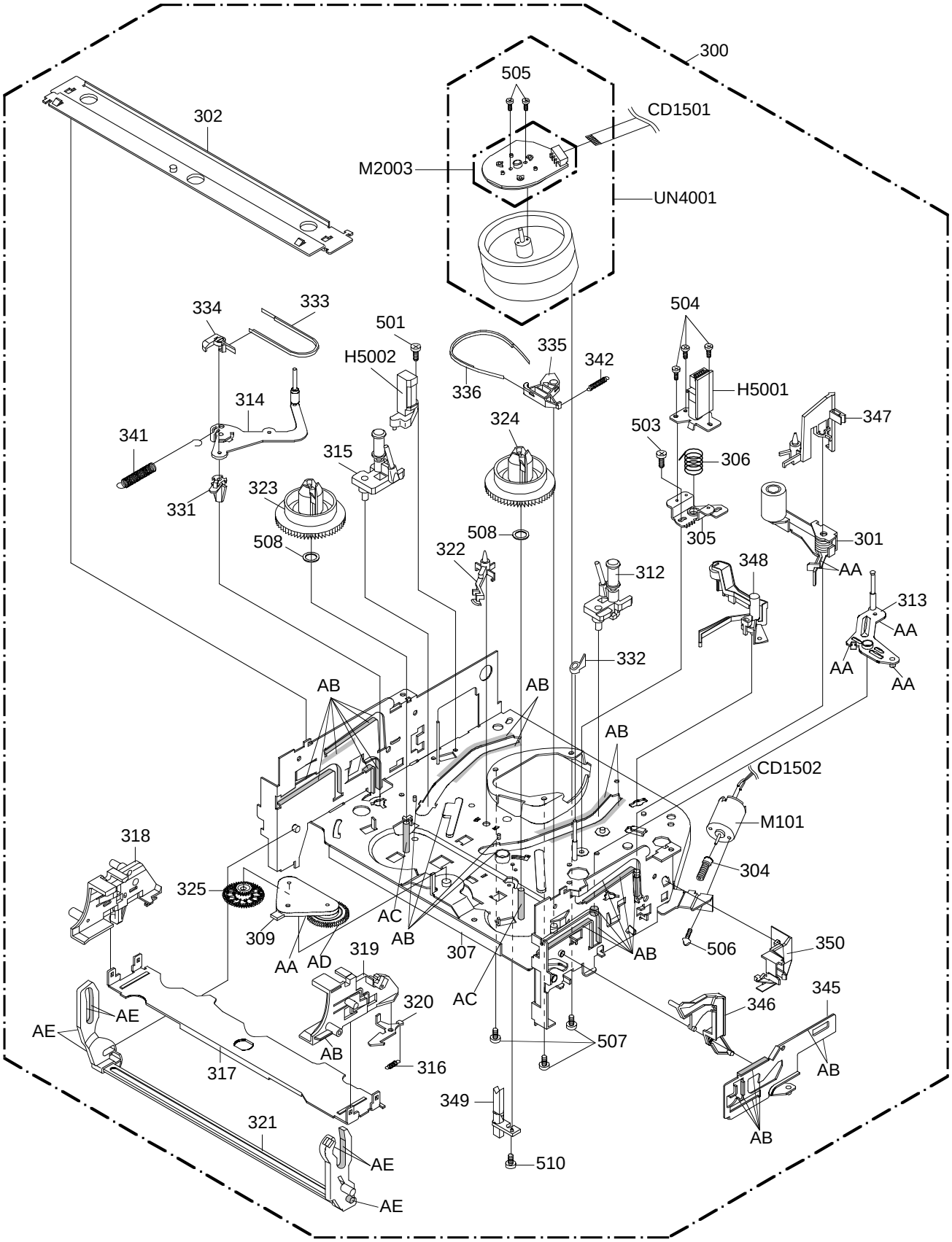
⑯ POWER ON
1V 10ms/div

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

MECHANICAL EXPLODED VIEW



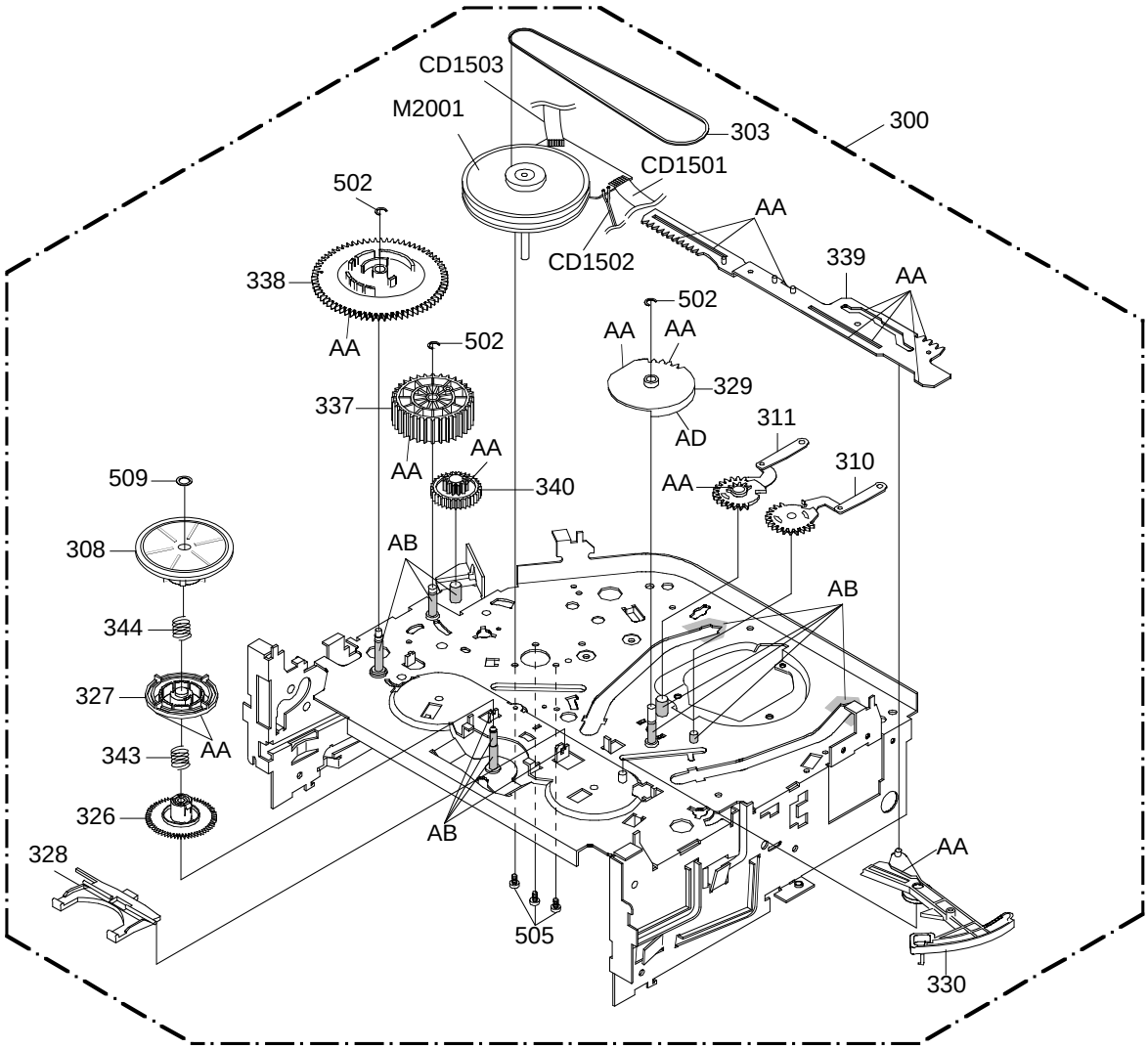
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	MG-33	AB
	FG-84M	AC
	FL-721	AD
	G-313Y	AE

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

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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

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

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A4F907D720	CABINET,FRONT ASSY		
101A	701WPJC208	CABINET,FRONT		
101B	711WPDA590	PLATE,DISPLAY		
101C	712WPJB778	FLAP		
101D	735WPDA571	BUTTON,DECK		
101E	735WPDA572	BUTTON,FRAME		
101F	743WKA0039	SPRING,FLAP		
101G	800WFA0045	CUSHION,LEG		
101H	713WPAA036	GLASS,LED		
101I	735WPAA194	HOLDER,CHANNEL		
102	702WSB0071	CABINET,TOP(VA)		
103	722A08A139	SHEET,RATING		
104	755WPA0034	PLATE,COVER POWER		
105	701WPA0686	HOLDER,DECK		
106	701WPA0968	HOLDER,DECK		
107	702WSA0156	PLATE,BOTTOM		
108	752WSA0230	SHIELD,CASE HEAD AMP		
109	85OP700038	HOLDER,END SENSOR		
110	753WUAA006	SPRING,EARTH HEAD AMP		
111	752WSA0290	SHIELD,COMPO		
112	752WSAA053	SHIELD,COMPO		
113	723000C229	LABEL BOOMERANGIT		
201	8110230804	SCREW,TAP TITE(P)	BIND	3x8
202	8109230802	SCREW,TAP TITE(B)		3x8
203	8109230704	SCREW,TAP TITE(B)R	BIND	3x7
204	8109130B94	SCREW,TAP TITE(B)R	PAN	3x29
205	8107226604	SCREW,TAP TITE(S)	BIND	2.6x6
206	8107130404	SCREW,TAP TITE(S)	PAN	3x4
207	8110226804	SCREW,TAP TITE(P)	BIND	2.6x8
---	791WHA0095	GIFT,SHEET		
---	792WHAA080	PACKAGE		
---	793WCDB737	GIFT BOX		
---	JA5U0200	POLYBAG,INSTRUCTION		
---	J3J81702C	WARRANTY SHEET		
---	J4F90701A	INSTRUCTION BOOK		
---	A4F907D975	INSTRUCTION BOOK KIT		

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION		
300	A4F908D420K	DECK ASS'Y	A4F908D420K	501	8107226804	SCREW,TAP TITE(S) BIND	2.6x8	
				502	83ETW30000	E-RING	3	
301	85OA400234	PINCH ROLLER BLOCK		503	8107226404	SCREW,TAP TITE(S) BIND	2.6x4	
302	85OP900746	BRACKET,TOP 3V		504	8102120604	SCREW,PAN	M2x6	
303	85OP200290	BELT,CAPSTAN (S)		505	8109126604	SCREW,TAP TITE(B) PAN	2.6x6	
304	85OP600581	WORM		506	810A130404	SCREW/WASHER(A)	M3x4	
305	85OP500083	BASE,AC HEAD		507	810A126504	SCREW/WASHER(A)	M2.6x5	
306	85OP800324	SPRING,AC HEAD		508	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13	
307	85OA000459	MAIN CHASSIS ASS'Y		509	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5	
308	85OA200089	CLUTCH ASS'Y						
309	85OA200090	ARM IDLER ASS'Y		510	8107226604	SCREW,TAP TITE(S) BIND	2.6x6	
310	85OA300065	LOADING ARM S UNIT		CD1501	122H071704	CORD JUMPER	2H071704	
311	85OA300066	LOADING ARM T UNIT		CD1502	122Y021002	CORD JUMPER	2Y021002	
312	85OA400223	INCLINED BASE T UINT 3S		CD1503	122H0C2301	CORD JUMPER	2H0C2301	
313	85OA400232	P5 ARM ASS'Y 2		H5001	1523Q91003	HEAD (AUDIO CONTROL)	VTR-1X2RPE22-756	
314	85OA400235	TENSION ARM ASS'Y 2		H5002	1543Q02014	HEAD (FULL ERASE)	VTR-1X2ERS11-154	
315	85OA400231	INCLINED BASE S UNIT		⚠ M101	1596P98001	MOTOR (LOADING)	MXN13FB12K3	or
316	85OP800367	SPRING LOCKER			1596S98001	MOTOR (LOADING)	MDB2B66	
317	85OP900736	CASS,HOLDER		⚠ M2001	1510S98037	CAPSTAN DD UNIT	F2QVB31	
318	85OP900748	CASS,SIDE L		M2003	1589S11017	MICRO MOTOR	I2OAL05	or
319	85OP900749	CASS,SIDE R			1589S11015	MICRO MOTOR	I2OAL01	
				⚠ UN4001	A4F902D500	CYLINDER UNIT ASS'Y	A4F902D500	
320	85OP900739	LOCKER,R						
321	85OA900228	LINK UNIT						
322	85OP000496	POST,CASS GUIDE						
323	85OP200316	REEL,S (S)						
324	85OP200317	REEL,T (S)						
325	85OP200308	GEAR,IDLER						
326	85OP200311	GEAR,CLUTCH						
327	85OP200312	GEAR,COUPLING						
328	85OP200313	LEVER,CLUTCH						
329	85OP300194	GEAR,MAIN LOADING						
330	85OP400490	LEVER,TENSION						
331	85OP400492	HOLDER,TENSION						
332	85OP400520	CAP.P4						
333	85OP400542	BAND,TENSION						
334	85OP400533	CONNECT,TENSION						
335	85OP600573	ARM,BRAKE T						
336	85OP600584	BAND,BRAKE T						
337	85OP600577	CAM,PINCH ROLLER						
338	85OP600578	CAM,MAIN						
339	85OP600579	ROD,MAIN						
340	85OP600582	GEAR,JOINT						
341	85OP800322	SPRING,TENSION						
342	85OP800360	SPRING,BRAKE T						
343	85OP800355	SPRING,COUPLING						
344	85OP800356	SPRING,RING						
345	85OP900750	LEVER,LINK 2						
346	85OP900744	LEVER,FLAP						
347	85OP900745	CASS,OPENER						
348	85OA500026	AHC ASS'Y						
349	85OP700035	REFLECTOR,LED						
350	85OP700040	COVER,SENSOR R						

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
		RESISTORS	
⚠ R502	R0G3K2335K	RC	3.3M OHM 1/2W
⚠ R512	R002T2333J	RC	33K OHM 1/2W
⚠ R514	R3X181010J	R,METAL OXIDE	1 OHM 1W
⚠ R549	R65584331J	R,FUSE	330 OHM 1/4W
R4215	R00204101J	RC	100 OHM 1/4W
		CAPACITORS	
C504	P2122B223M	CMP	0.022 UF 275V ECQUL
⚠ C505	CC3LE0MH3M	CC	0.0022UF 250V
⚠ C508	E62QFC470M	CE	47 UF 200V
⚠ C514	E02LT0102M	CE	1000 UF 6.3V
⚠ C518	E02LU5100M	CE	10 UF 50V
⚠ C519	E02LT2471M	CE	470 UF 16V
⚠ C520	E02LU0471M	CE	470 UF 6.3V
⚠ C522	E02LU2221M	CE	220 UF 16V
		DIODES	
D501	D97U02401B	DIODE,ZENER	MTZJ24B T-77
D502	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D505	D2WXN40050	DIODE SILICON	1N4005-EIC
⚠ D507	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D508	D2WXN40050	DIODE SILICON	1N4005-EIC
D510	D97U01301B	DIODE,ZENER	MTZJ13B T-77
D511	D2WXGP10J0	DIODE RECTIFIER	RGP10J-EIC or
	D25T1R5NU0	DIODE,SILICON	1R5NU41 or
	D2BT0EM1C0	DIODE SILICON	EM1C V1 or
	D2BTAP01C0	DIODE,SILICON	AP01C or
	D2BX0EG01C	DIODE RECTIFIER	EG-01CV1
⚠ D512	D2WXSB1400	DIODE SCHOTTKY	SB140-EIC
D513	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D514	D28T21DQN9	DIODE SCHOTTKY	21DQ09N-TA2B1
D520	D97U03301B	DIODE,ZENER	MTZJ33B T-77
⚠ D521	D17T002440	DIODE SILICON	1SS244T-77
⚠ D523	D2WXN40050	DIODE SILICON	1N4005-EIC
D524	D1VT001330	DIODE,SILICON	1SS133T-77
⚠ D525	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
⚠ D528	D2WXN40050	DIODE SILICON	1N4005-EIC
D663	0021E2Q140	LED	LTL-1CHEE-002A
D664	0021E2Q140	LED	LTL-1CHEE-002A
D665	0021E2Q140	LED	LTL-1CHEE-002A
D666	0021E2Q140	LED	LTL-1CHEE-002A
D1001	0010E00330	INFRARED LED	LTE-3271T-012A-O
D1002	D1VT001330	DIODE,SILICON	1SS133T-77
D4202	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D5501	D1VT001330	DIODE,SILICON	1SS133T-77
D5502	D97U01201B	DIODE,ZENER	MTZJ12B T-77
D5503	D97U01201B	DIODE,ZENER	MTZJ12B T-77
		ICS	
⚠ IC501	I1KJ9A431A	IC	KIA431A-AT
IC511	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC1001	I54F50130A	IC	OEC0130A
IC1003	I9UF032310	IC	PST3231NR
IC4001	I03F3206M0	IC	LA71206M-MPB
IC5501	I01F63FBP0	IC	AN3663FBP
		TRANSISTORS	
⚠ Q502	TD3T007340	TRANSISTOR,SILICON	2SD734(E,F)-AA
⚠ Q503	TCWQ4160E0	TRANSISTOR SILICON	2SC4160-OEC-YAC1
⚠ Q509	TCAT03209Y	TRANSISTOR SILICON	KTC3209_Y-AT
⚠ Q512	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q513	TNAAC05002	COMPOUND TRANSISTOR	KRC103SRTK
⚠ Q515	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q1002	0002700690	PHOTO COUPLER	RPI-303
Q1004	0002700680	PHOTO COUPLER	RPI-352C40N
Q1005	0002700680	PHOTO COUPLER	RPI-352C40N
Q1006	0000M00390	PHOTO TRANSISTOR	ST-304L
Q1008	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
Q4001	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4002	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4003	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q4005	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q4006	TCAT032034	TRANSISTOR, SILICON	KTC3203_Y-AT
Q4010	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q4012	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4201	TAAA1504SY	TRANSISTOR SILICON	KTA1504S_Y_RTK
Q4202	TPAAC05002	COMPOUND TRANSISTOR	KRA103SRTK
Q4203	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
Q4204	TCAA3875SY	TRANSISTOR SILICON	KTC3875S_Y_RTK
		COILS &TRANSFORMERS	
⚠ L501	029T000083	COIL,LINE FILTER	0R3A433F20

REF. NO.	PART NO.	DESCRIPTION	
		COILS &TRANSFORMERS	
L504	021W7A220K	COIL	22 UH
L505	021W7A220K	COIL	22 UH
L1001	0216A6120K	COIL	12 UH
L4001	02167F220J	COIL	22 UH
L4003	02167F101J	COIL	100 UH
L4005	0216A6470K	COIL	47 UH
L4006	0216A6470K	COIL	47 UH
L4007	02167F101J	COIL	100 UH
L5501	02167F101J	COIL	100 UH
L5502	02167F101J	COIL	100 UH
L5504	02167F220J	COIL	22 UH
L6002	02167F220J	COIL	22 UH
⚠ T501	0481190014	TRANSFORMER,SWITCHING	81190014
T4001	031626009R	COIL,BIAS OSC	1626009
		JACKS	
J4201	060J411018	RCA JACK	MSP-213V1-432 PBSN
J4203	060J401079	RCA JACK	MSP-281V4-B
J4204	060J401080	RCA JACK	MSP-281V1-B
J4205	060J421023	RCA JACK	MSP-281V3-A
		SWITCHES	
SW603	0504101T34	SWITCH,TACT	EVQ21505R
SW604	0504101T34	SWITCH,TACT	EVQ21505R
SW605	0504101T34	SWITCH,TACT	EVQ21505R
SW606	0504101T34	SWITCH,TACT	EVQ21505R
SW607	0504101T34	SWITCH,TACT	EVQ21505R
SW608	0504101T34	SWITCH,TACT	EVQ21505R
SW659	0504101T34	SWITCH,TACT	EVQ21505R
SW660	0504101T34	SWITCH,TACT	EVQ21505R
SW1001	0508S11001	SWITCH (LEAF)	LSA-1144EAU
		VARIABLE RESISTOR	
VR1001	V116314BTC	VOLUME,SEMI FIXED	EVNCYAA03B14
		P.C.BOARD ASSEMBLIES	
PCB010	A4F907D010	PCB ASS'Y	VMB280A
PCB270	A4F907D270	PCB ASS'Y	VEBA03A
PCB370	A4F902D370	PCB ASS'Y	VEBA04A
		MISCELLANEOUS	
B401	0246T03562	CORE BEADS	HF55BTL3.5X6B(0.62X63)
B501	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B502	024HT03564	CORE,BEADS	W4BRH3.5X6X1.0
B503	024HT03553	CORE,BEADS	W5RH3.5X5X1.0
⚠ CD501	120R419908	CORD AC BUSH	0R419908
CD651	06CU230901	CORD JUMPER	SM1382-001-1B
CP601	067U003029	WIRE HOLDER	B2013H02-3P
CP651	069S230629	CONNECTOR PCB SIDE	A2001WV2-3P
CD4001	1229061604	CORD JUMPER	9061604
CD6002	06CPL02006	CABLE	CPL02006
CP1001	069WVC001A	CONNECTOR PCB SIDE	TOC-G12X-A1
CP1002	067U002019	WIRE HOLDER	B2013H02-2P
CP1004	067U002019	WIRE HOLDER	B2013H02-2P
CP4001	0697290620	CONNECTOR PCB SIDE	TOC-C09X-A1
CP4002	069J760019	CONNECTOR PCB SIDE	IMSA-9604S-06Z13
CP4003	067U002019	WIRE HOLDER	B2013H02-2P
⚠ F501	081PC1R605	FUSE	51MS016L
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
OS651	077Q037001	REMOTE RECEIVER	PIC-37043LO
TM601	076N0EA040	TRANSMITTER	RC-EA040
⚠ TU6001	0162300033	RF UNIT	115-V-H015AR
X1002	100DA32R01	CRYSTAL	DT-26
X1004	100BT01004	CRYSTAL	HC-49U/S
X4001	100DT3R528	CRYSTAL	HC-49/U or
	100CT3R504	CRYSTAL	HC-49/C

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

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

SPEC.NO.	M4F9-07D
O/R NO.	K344008