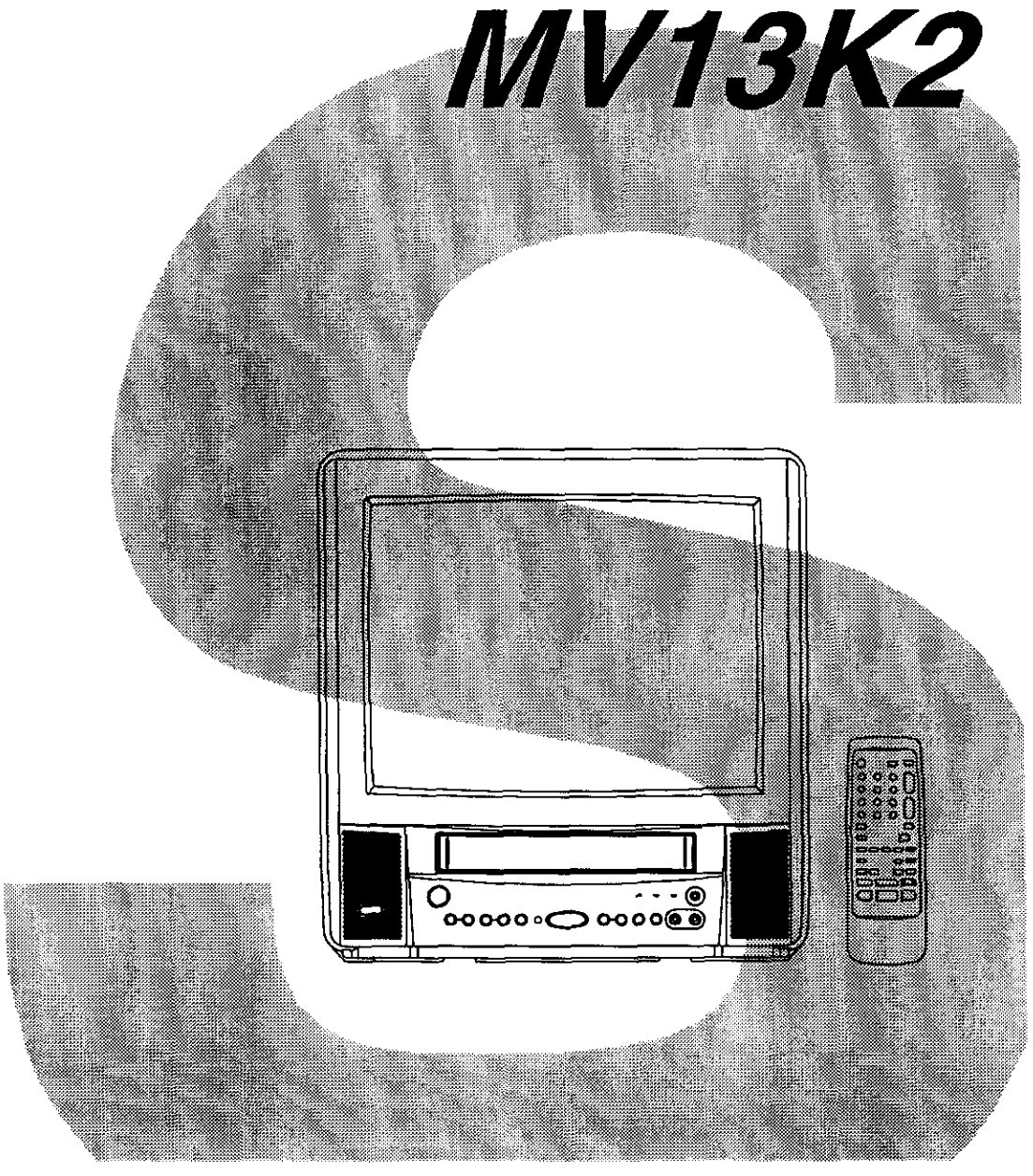
TOSHIBA

FILE NO. 140-200003

SERVICE MANUAL

COLOR TELEVISION/ VIDEO CASSETTE RECORDER

MV13K2



SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. AVOID AN ELECTRIC SHOCK

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

3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

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

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

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

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

6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

7. PERFORM A SAFETY CHECK AFTER SERVICING

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

(INSULATION CHECK PROCEDURE)

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

[Note 1]
If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]
External exposure metal: Antenna terminal
Earphone jack

HOW TO ORDER PARTS

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

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

GENERAL SPECIFICATIONS

G-1.Outline of the Product

13 inch(335.4 mmV):Measured diagonally
Color CRT 90 degree deflection
2 -Speed 1/2" Video Cassette Recorder

☒VHS ☒Recorder/Player
☐VHS-C ☐Player

G-2.VCR Format

VHS Standard ☒NTSC ☐PAL ☐SECAM ☐PAL-M ☐PAL-N
☐VHS Hi-Fi Audio System

G-3.Video Recording System :Rotary,slant azimuth two head helical scan system
Luminance Component :FM recording
Chrominance Component :Low frequency converted direct recording

G-4.Broadcasting System US System M

G-5.Color System ☒NTSC ☐PAL ☐SECAM or Monochrome signal

G-6.NTSC Playback(PAL 60Hz) ☐Yes ☐No ☒Not Applicable

G-7.MESECAM ☐Yes ☐No ☒Not Applicable

G-8.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-9.Tape Speed

NTSC or PAL-M		PAL or SECAM	
☒SP	33.35 mm/sec	☐SP	23.39 mm/sec
☐LP	16.67 mm/sec	☐LP	11.69 mm/sec
☒SLP(EP)	11.12 mm/sec		

G-10.Recording/Playback Time

NTSC or PAL-M
☒at SP Mode Max. 210 min. (with T-210 cassette)
☐at LP Mode Max. 420 min. (with T-210 cassette)
☒at SLP(EP) Mode Max. 630 min. (with T-210 cassette)
PAL or SECAM
☐at SP Mode Max. 300 min. (with E-300 cassette)
☐at LP Mode Max. 600 min. (with E-300 cassette)

G-11.Deck

☐OVD-5 ☒OVD-6 ☐OVD-6S

G-12.Rewind/Fast Forward Time(Approx.)

FF:2'15" / Rew:1'48" ☒(with T-120 cassette) ☐(with E-180 cassette)

G-13.Search Speed

☒SP 3 and 5 Times
☐LP _____ Times
☒SLP(EP) 9 and 15 Times

G-14.Slow Speed

☐SP _____ Times
☐LP _____ Times
☐SLP(EP) _____ Times

G-15.Frame Advance

☐SP _____ Times
☐LP _____ Times
☐SLP(EP) _____ Times

GENERAL SPECIFICATIONS

G-16.Antenna Input Impedance
VHF/UHF 75 ohm unbalanced

G-17.Tuner and Receiving channel ☒1Tuner System ☐2Tuner System ☐BS Tuner
Tuner : Contactless Electric tuner
☐Oscar(W/O HYPER) ☐Oscar(W/ HYPER) ☐France CATV) ☒Others
channel coverage
2 ~ 69, 4A, A-5 ~ A-1, A ~ I, J ~ W, W+1 ~ W+84
Tuning System
☒Frequency syn. ☐Voltage syn. ☐Others

G-18.Preset Channel: -- channels

G-19.Intermediate Frequency

Picture(FP)	45.75 MHz	_____ MHz	_____ MHz
Sound (FS)	41.25 MHz	_____ MHz	_____ MHz
FP-FS	4.50 MHz	_____ MHz	_____ MHz

G-20. Stereo/Dual TV Sound
☐Yes(☐NICAM ☐GERMAN ☐USA ☐JAPAN ☐JAPAN BS) ☒No

G-21.Video Signal
Input Level 1 Vp-p / 75 ohm
Output Level 1 Vp-p / 75 ohm
S/N Ratio 50 dB (Weighted)
Horizontal Resolution at SP Mode 220 Lines

G-22.Audio Signal
Input Level
Line - dB / - Kohm
RCA - 8 dB / 50 Kohm
Output Level
Line - dB / - Kohm
RCA - 8 dB / 1 Kohm
(0dB=0.775 V rms)
S/N Ratio at SP Mode 38 dB
Harmonic Distortion : 1.5 % (1KHz)
Frequency Response : at SP Mode 100 Hz ~ 10 KHz
at LP Mode _____ Hz ~ _____ KHz
at SLP(EP) Mode 100 Hz ~ 4 KHz
Hi-Fi Model's Spes ☒NONE
Depth Multiplex Recording Rotary, Slant Azimuth Two Head System Helical Scan System
Dynamic Range : More than -- dB
Wow And Flutter : Less than -- % Wrms
Channel Separation : More than -- dB
Harmonic Distortion : Less than -- %

G-23.Heads

Video	☒2 Rotary Heads	Track Width(SP/LP/SLP : 1ch 26 μm, 2ch 31 μm)
FM Audio	☐__ Rotary Heads	Track Width(SP/LP/SLP : 1ch ____μm, 2ch ____μm)
Audio / Control	☒1 Stationary Head (☒Mono ☐Stereo(L,R))	
Erase	☒1 Full Track Erase	

G-24.Motor: 3 Motors
☒Tape/Cassette Loading
☒Cylinder (Direct Drive)
☒Capstan (Direct Drive)

G-25.Power Source
120 V ☐AC 50Hz ☒AC 60Hz
☐EXT DC Jack _____ - _____ V

GENERAL SPECIFICATIONS

G-26.Power Consumption: 75 W at AC 120 V 60 Hz(Approx.)
- W at DC - V
(at TV and VCR ON)
Stand by: 6 W at AC 120 V 60 Hz(Approx.)
Per Year: — kWh / Year

G-27.Dimensions(Approx.) 362 mm(W) 369 mm(D) 382 mm(H)

G-28.Weight(Approx.) Net : 12.5 Kg (27.6 lbs)
Gross: 14.5 Kg (32.0 lbs)

G-29.Cabinet Material

Cabinet Front:	☒PS ☐ABS	☐94HB ☐94V2 ☒94V0	☒DECABROM ☐NON-DECA
Cabinet Rear:	☒PS ☐ABS	☐94HB ☐94V2 ☒94V0	☒DECABROM ☐NON-DECA
Jack Panel:	☒PS ☐ABS	☐94HB ☐94V2 ☒94V0	☒DECABROM ☐NON-DECA

G-30.Cassette Loading System: ☒Front Cassette Loading System ☐Top Loading System

G-31.Tape Counter: Linear Time Tape Counter

G-32.Protector: ☒Power Fuse ☐Dew Sensor

G-33.Regulation

Safety

☒UL	☐CSA	☐SAA	☐SI	☐CE	☐SEV
☐BS	☐NF	☐NEMKO	☐FEMKO	☐DEMKO	☐IEC65
☐SEMKO	☐NZ	☐HOMOLO	☐SABS	☐CNS	☐SISIR
☐NOM	☐AS3159	☐DENTORI	☐UNE	☐GOST	☐NONE

Radiation

☒FCC	☐DOC	☐FTZ	☐PTT	☐CE	☐SEV
☐SABA	☐SI	☐NF	☐NZ	☐HOMOLO	☐UNE
☐CNS	☐CISPR13	☐DENTORI	☐AS/NZS	☐NONE	

X-Radiation

☒DHHS	☐HWC	☐PTB	☐DENTORI	☐NONE

G-34.Temperature
Operation 5 ℃ ~ 40 ℃
Storage -20 ℃ ~ 60 ℃

G-35.Operating Humidity Less than 80 %RH

G-36.Clockand Timer
Calender : 1990/1/1 ~ 2081/12/31
Built-in 1 Month 8 Events Programmable Timer
One Touch Recording : Max Time 5 Hours

Sleep Timer	☒Yes Max 120 Min.(10 Min. Step)	☐No
On/Off Timer	☒Yes 1 Programs	☐No
Wake Up Timer	☐Yes ____ Programs	☒No
Auto Shut Off	15 Minutes	

GENERAL SPECIFICATIONS

G-37.Timer back up Time

More than 1/12 Minutes (at Power Off Mode)

G-38.Terminals

☒VHF/UHF Antenna Input ☐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>

☐Ear Phone Jack(ø3.5) ☒Head Phone Jack(Stereo & Mono, ø3.5)
☐DC Jack 12V(Center +) ☐AC Inlet ☐Ext Speaker
☐Diversity ☐Ear Phone ☐21 Pin (x___)

G-39.Indicator

Indicator ☒Power (Red) ☒Rec/OTR (Red) ☒T-Rec (Red) ☐On Timer (_____) ☐CS (___) ☐NONE

G-40.On Screen Display

☒Menu ☒Timer Rec Set
☒Ch Set Up ☒TV/CATV ☒Auto Ch Memory
☒Add/Delete ☐Guide Ch Set
☒TV Set Up ☒V-Chip Set ☒On/Off Timer
☒Picture ☐Audio
☐Sap On/Off
☒Auto Repeat On/Off
☒System Set Up ☒Clock Set(☒Calender ☒12H ☐24H)
☒Language ☒Auto Clock On/Off
☒Standard Time ☒Daylight Saving Time

☐G-CODE(or SHOWVIEW or PLUSCODE)No. Entry
☒Clock/Date ☒CH/AV
☒Tape Counter ☒Tape Speed
☒Sleep Time ☒Tape In
☒Control Level (Vol,Bright,Cont,Color,Tint,Sharpness)
☐Control Level (Vol,Bright,Cont,Color,Sharpness)
☒Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject(Symble Mak)
☒Auto Tracking/Manual Tracking ☒Caption/Text 1/2
☐Index ☒Repeat
☒Add/Delete ☐Auto Wide On/Off
☐Wide Select ☐Picture Position
☐Tone 1/2 ☐Stereo
☒Muting

G-41.OSD Language

☒Eng ☐Ger ☒Fre ☒Spa ☐Ita ☐Por ☐Jan

OSD Language Setting

☒Eng ☐Ger ☐Fre ☐Spa ☐Ita ☐Por ☐Jan ☐Not Applicable

GENERAL SPECIFICATIONS

G-42.Speaker

Position ☒Front ☐Side ☐Bottom
Size 1.5 x 2.5 inches
Imp. 8 ohm x 1 pcs
Output Max 1.25 W
10% 1.0 W (Typical)

G-43.EXT Speaker

☐Yes _____ W Imp _____ ohm ☒No

G-44.Carton

Master Carton: ☐Need ☒No Need
Content: ___ Set
Material: ___ / ___ Corrugated Carton
Dimensions: ___ mm(W) ___ mm(D) ___ mm(H)
Description of Origin ☐Yes ☐No

Gift Box

Material ☐Double/Brown Corrugated Carton (☐with Photo Label)
☒Double/White Corrugated Carton (☐with Photo Label)
☐Double Full Color Carton W/Photo
Dimensions: 447 mm(W) 423 mm(D) 443 mm(H)
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

Container Stuffing: 700 Sets / 40' container

G-45.Accessories

☐Channel Film ☐Dew/AHC Caution Sheet
☒Owner's Manual (☒W/Guarantee Card) [English]
☒Remote Control Unit ☐AC Plug Adaptor
☐Rod Antenna (☐One Pole ☐Two Pole/☐F-Type ☐DIN Type ☐France Type)
☐Loop Antenna(☐F-Type ☐DIN Type ☐France Type)
☐U/V Mixer ☐Quick Set-up Sheet
☐DC Car Cord (Center+) ☒Battery (UM- 4 x 2)
☐Guarantee Card ☐AC Cord
☐Warning Sheet ☐AV Cord (2Pin-1Pin)
☐Circuit Diagram ☒Registration Card
☐Antenna Change Plug ☐PTB Sheet
☐Service Facility List ☒300 ohm to 75 ohm Antenna Adaptor
☐Important Safeguard ☐Euro Warranty Information Sheet
☒ESP Card

G-46.Other Features

☒Auto Head Cleaning ☐Index Search
☒Auto Tracking ☒Auto Search
☒Auto Clock ☐CS Kantan Record
☐VIDEO PLUS+(SHOWVIEW,G-CODE) ☐Choke Coil
☒HQ (VHS Standard High Quality) ☐BS
☒Auto Power On, Auto Play, Auto Rewind, Auto Eject
☒Forward / Reverse Picture Search ☐SQPB
☐One Touch Playback ☒CATV
☒Auto CH Memory ☒CM Skip(30sec x 6Times)
☐Just Clock Function ☐Area Code
☒Closed Caption ☐Standby Power Save
☒TV Auto Shutt off Function ☐Energy Star
☐NTSC Playback PAL TV (PAL 60Hz) ☐Comb Filter
☐End Call ☒TV Monitor
☒V-chip(☒USA ☐CANADA) ☐Program Extend
☐SAP

GENERAL SPECIFICATIONS

G-47.Switch

Front	☒Power	☒Channel Up	☒Volume Up
	☒Play	☒Channel Down	☒Volume Down
	☐Pause/Still	☒F.FWD/Cue	☒Rew/Rev
	☐System Select	☒Eject/Stop	☒Rec/OTR
	☐One Touch Playback	☐Main Power SW	☒Inout Select
Rear	☐Color On/Off (SECAM only)		☐Degauss
	☐Main Power SW		☐AC/DC

G-48.Magnetic Field

☒BV : +0.45G	☐BV : +0.35G	☐BV : +0.25G
BH : 0.18G	BH : 0.30G	BH : 0.30G
☐BV : -0.15G	☐BV : -0.25G	☐BV : -0.50G
BH : 0.15G	BH : 0.15G	BH : 0.30G

G-49.Remote Control Unit:

Unit: RC-DA
Format : NEC
Custom Code : 40-BF/44-BB h
Glow in Dark Remocon ☐Yes ☒No
Power Source: D.C 3 V Battery UM - 4 x 2
Total 41 Keys

☒ 0	☒Power	☒Tracking Auto
☒ 1	☒Rec/OTR	☒Tracking Up/Set +
☒ 2	☒Play	☒Tracking Down/Set -
☒ 3	☒F.Fwd	☒Menu
☒ 4	☒Rew	☒Enter
☒ 5	☒Pause/Still	☒Cancel
☒ 6	☒Stop	☒Muting
☒ 7	☒Eject	☒Volume Up
☒ 8	☒Timer Rec	☒Volume Down
☒ 9	☒TV/Caption/Text	☒Ch Up
☒Sleep Timer	☐Index	☒Ch Down
☒Quick View	☒Zero Return	☒Input Select
☒TV Monitor	☒Counter Reset	☒Speed
☒Call	☒CM Skip(Skip Search)	☐Audio Select(for Hi-Fi)
☐Slow(for 4Head)		
☒Program(without V+)	☐VCR PLUS+/Program(with V+)	

DISASSEMBLY INSTRUCTIONS

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

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

1. Remove the 4 screws ①.
2. Remove the 2 screws ② which are used for holding the Back Cabinet.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.

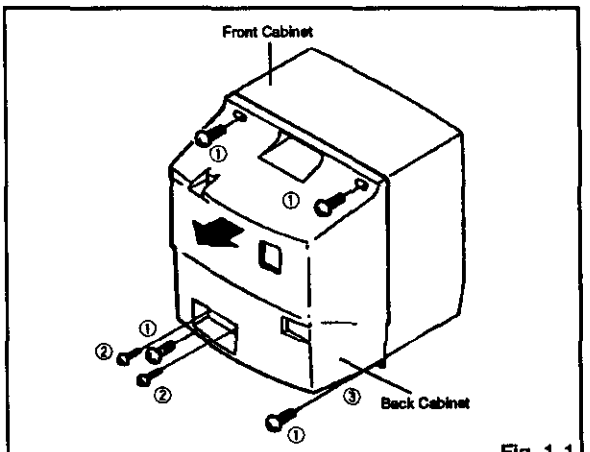


Fig. 1-1

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

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

1. Remove the Anode Cap. (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors: (CP801 and CP850).
3. Remove the CRT PCB in the direction of arrow.

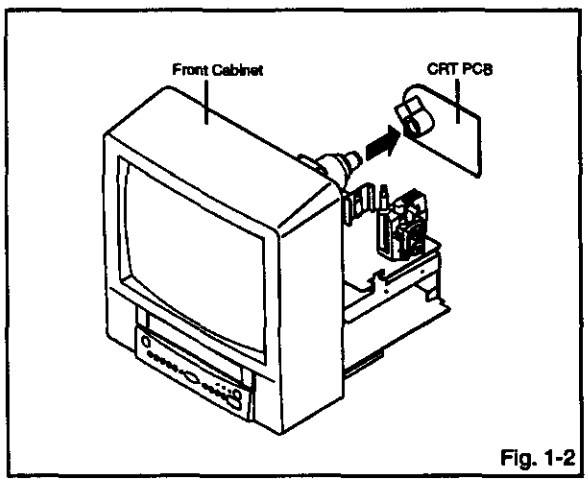


Fig. 1-2

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

1. Remove the 2 screws ①.
2. Disconnect the following connectors: (CP355, CP353, CP401, CP502 and CP351).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

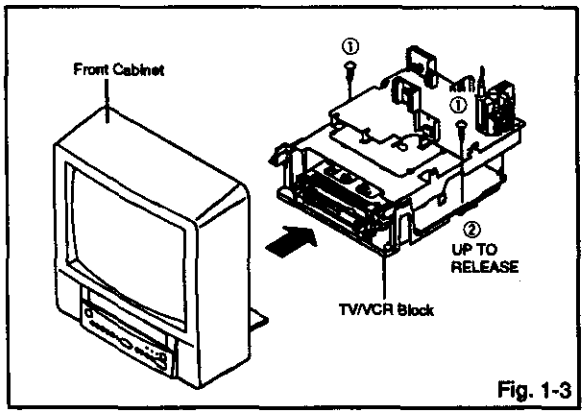


Fig. 1-3

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

1. Remove the screw ①.
2. Remove the Main PCB Holder.
3. Remove the 2 screws ②.
4. Remove the 3 screws ③.
5. Disconnect the following connectors: (CP810, CP820 and CP804).
6. Remove the Main PCB in the direction of arrow.

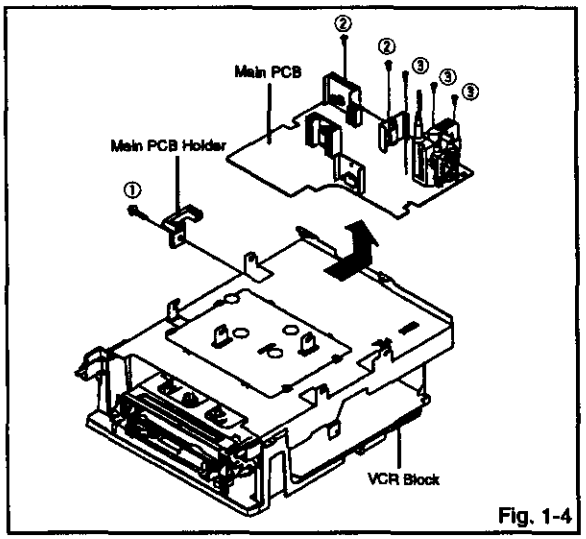


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

1-5: DECK SHIELD PLATE (Refer to Fig. 1-5)

1. Remove the 2 screws ①.
2. Remove the screw ②.
3. Remove the Deck Shield Plate in the direction of arrow.

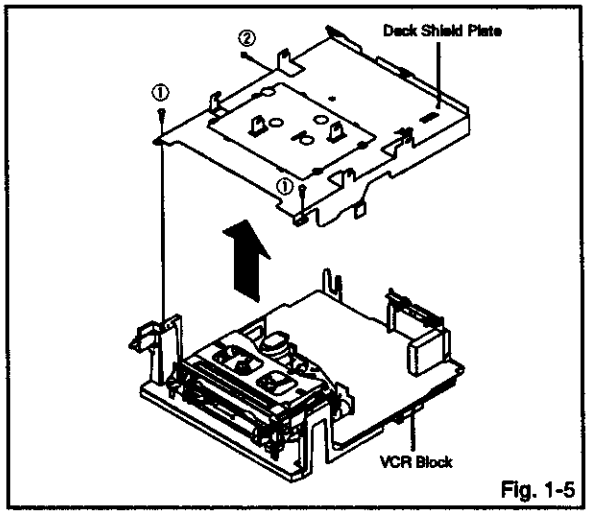


Fig. 1-5

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

1. Remove the 3 screws ①.
2. Disconnect the following connectors: (CP1002, CP1005, CP1006, CP4001, CP4004 and CP4005).
3. Remove the Deck Chassis in the direction of arrow.

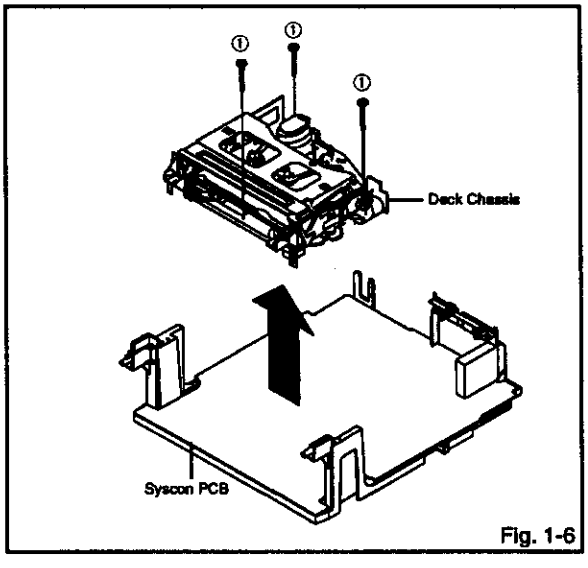


Fig. 1-6

1-7: JACK PLATE AND SYSCON PCB (Refer to Fig. 1-7)

1. Remove the screw ①.
2. Remove the Syscon PCB in the direction of arrow (A).
3. Remove the screw ②.
4. Remove the nut ③.
5. Remove the washer ④.
6. Unlock the 2 supports ⑤.
7. Remove the Jack Plate in the direction of arrow (B).

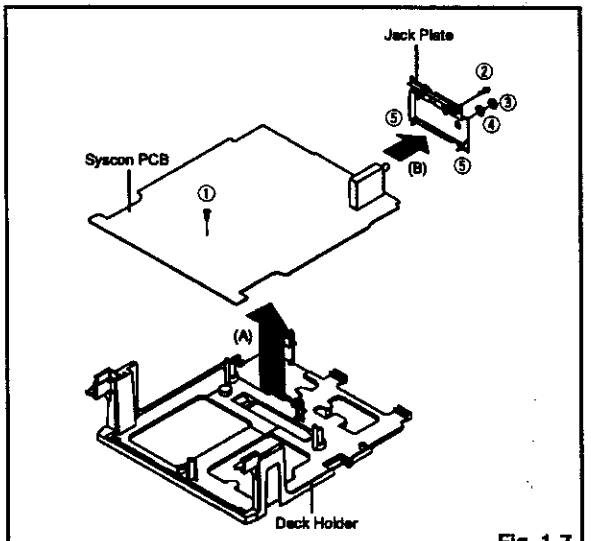


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

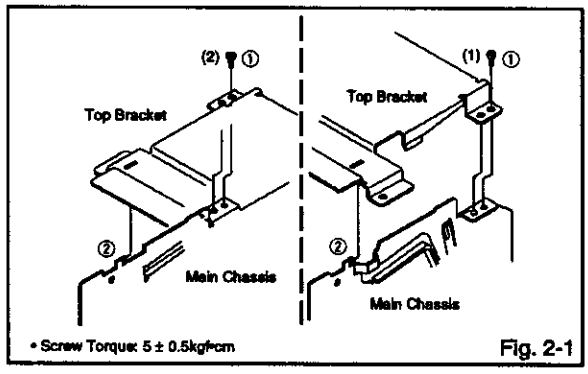
2. REMOVAL OF DECK PARTS

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

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).



• Screw Torque: 5 ± 0.5kgf•cm

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.

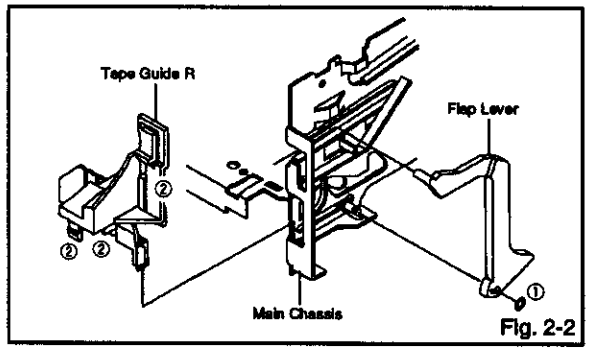
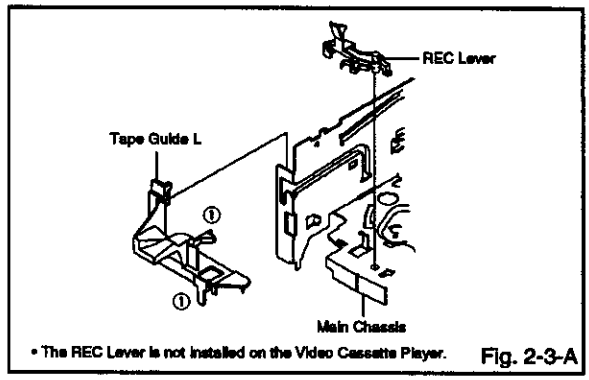


Fig. 2-2

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)

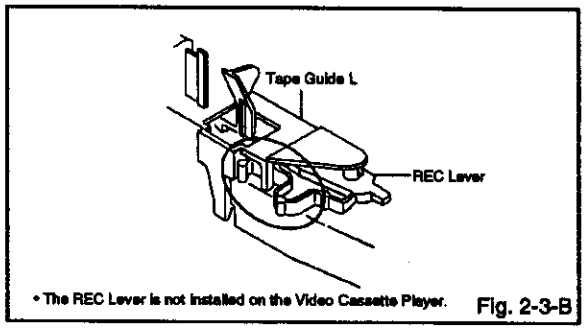


• The REC Lever is not installed on the Video Cassette Player.

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)**



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

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.

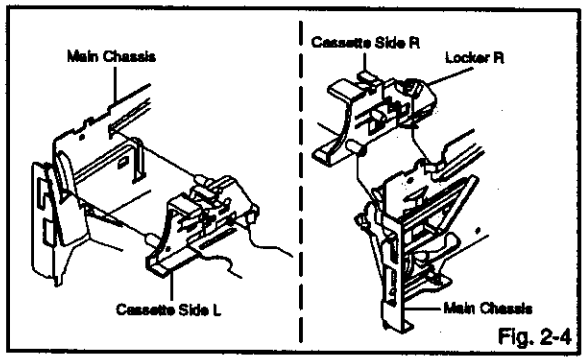


Fig. 2-4

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

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

NOTE

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

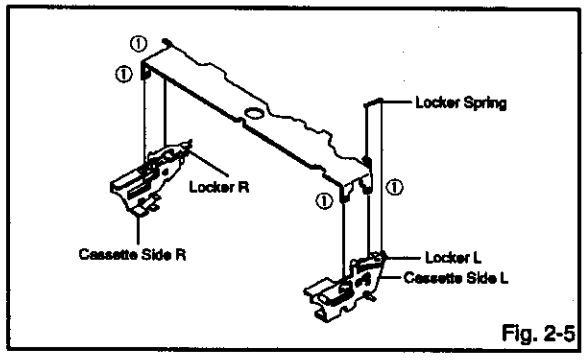


Fig. 2-5

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.

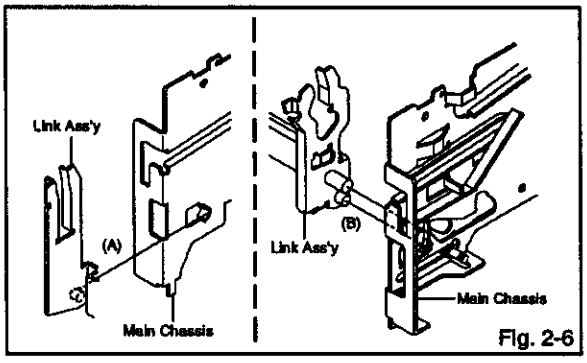


Fig. 2-6

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

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

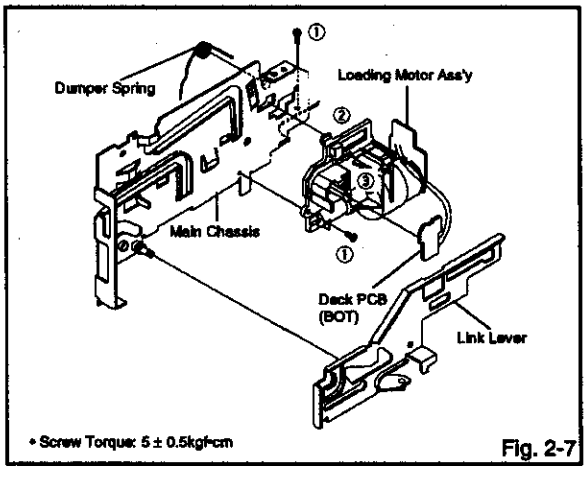


Fig. 2-7

2-8: SENSOR COVER L (Refer to Fig. 2-8)

1. Unlock the support ① and remove the Sensor Cover L.
2. Unlock the 2 supports ② and remove the Deck PCB (EOT).

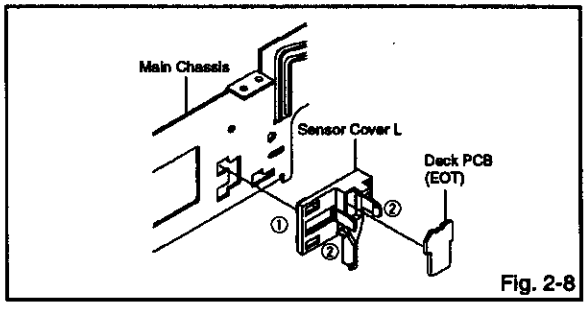


Fig. 2-8

2-9: TENSION ASS'Y (Refer to Fig. 2-9-A)

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

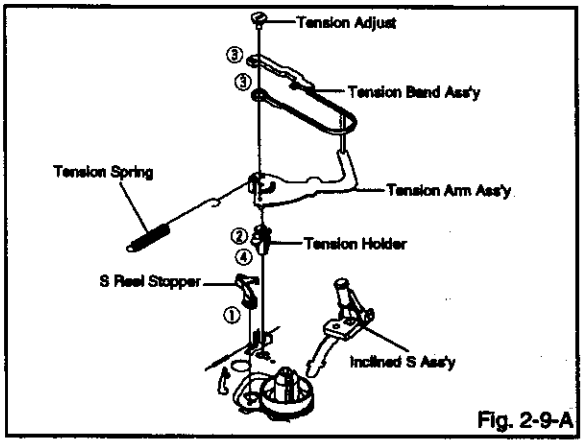


Fig. 2-9-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-9-B. **(Refer to Fig. 2-9-B)**

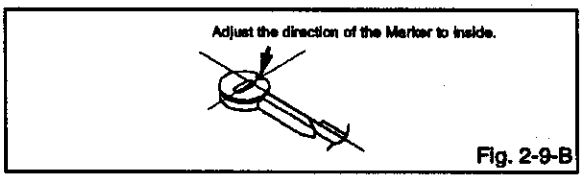


Fig. 2-9-B

2-10: T BRAKE ASS'Y (Refer to Fig. 2-10)

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

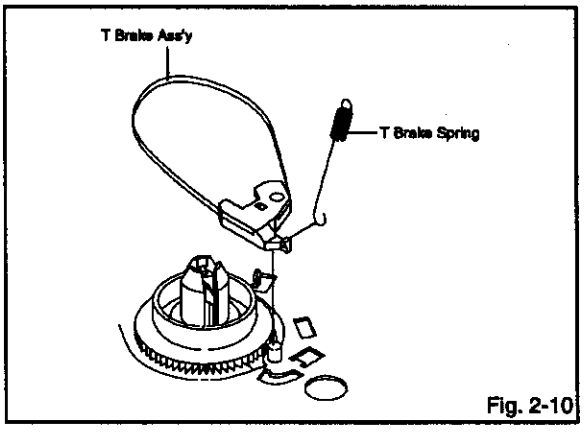


Fig. 2-10

DISASSEMBLY INSTRUCTIONS

2-11: S REEL/T REEL ASS'Y (Refer to Fig. 2-11)

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

NOTE

1. Take care not to damage the gears of the S Reel, T Reel Ass'y and Idler Ass'y.
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 Ass'y. (Use gloves.) **(Refer to Fig. 2-11)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it. (If you do not oil, noise may be heard in FF/REW mode.) After installing the reel, adjust the height of the reel.
6. **(Refer to MECHANICAL ADJUSTMENT)**

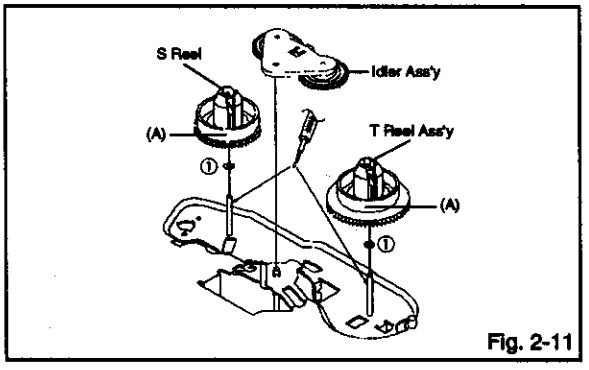


Fig. 2-11

2-12: PINCH ROLLER ASS'Y/P5 ARM ASS'Y (Refer to Fig. 2-12-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 Ass'y, P/R Arm Spring, Pinch Roller Lever and P5 Arm Ass'y.

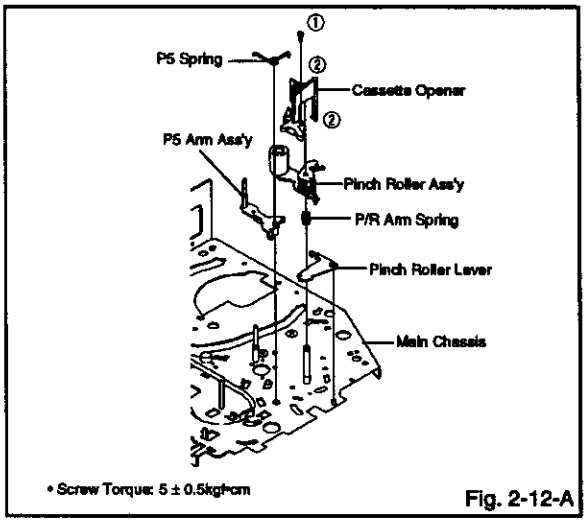


Fig. 2-12-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Ass'y, install as shown in the circle. **(Refer to Fig. 2-12-B)**

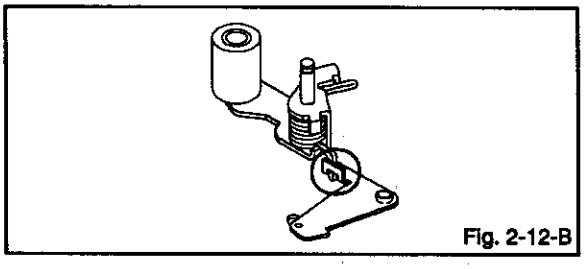


Fig. 2-12-B

2-13: A/C HEAD (Refer to Fig. 2-13-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. 2-13-B. **(Refer to Fig. 2-13-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

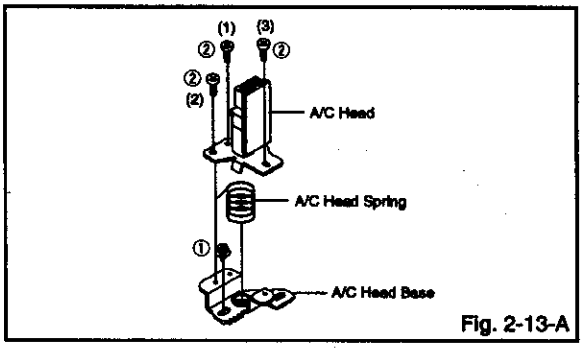


Fig. 2-13-A

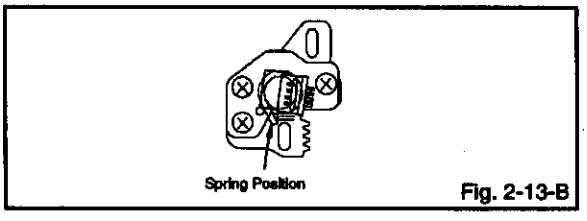


Fig. 2-13-B

2-14: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-14)

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

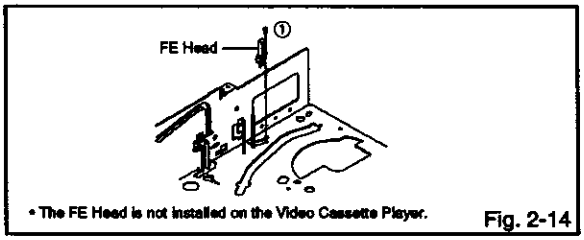


Fig. 2-14

DISASSEMBLY INSTRUCTIONS

2-15: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-15)

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.

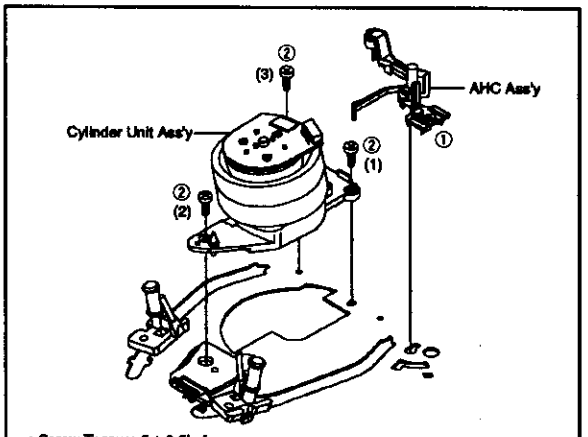


Fig. 2-15

2-16: CAPSTAN DD UNIT (Refer to Fig. 2-16)

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

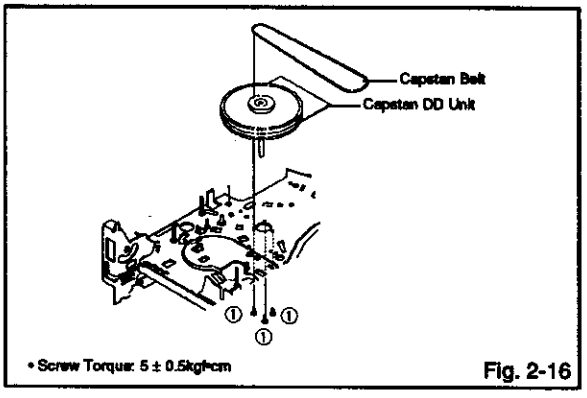


Fig. 2-16

2-17: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-17-A)

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

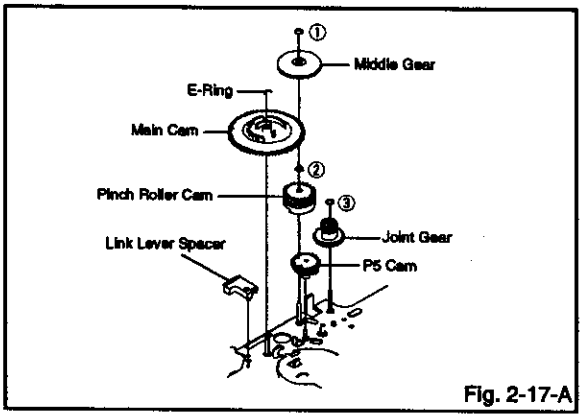


Fig. 2-17-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. **(Refer to Fig. 2-17-B)**

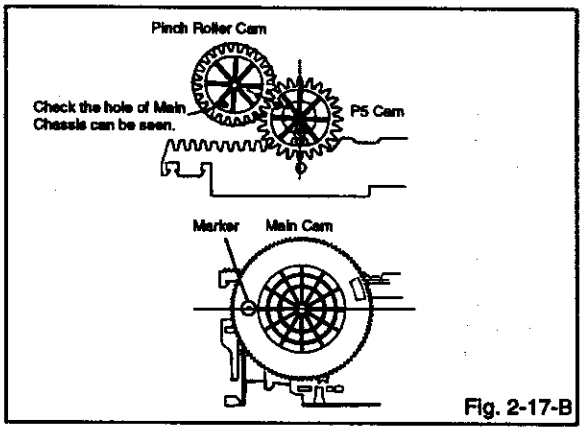


Fig. 2-17-B

2-18: CLUTCH ASS'Y (Refer to Fig. 2-18)

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

NOTE

When you install the Clutch Ass'y, oil the shaft.

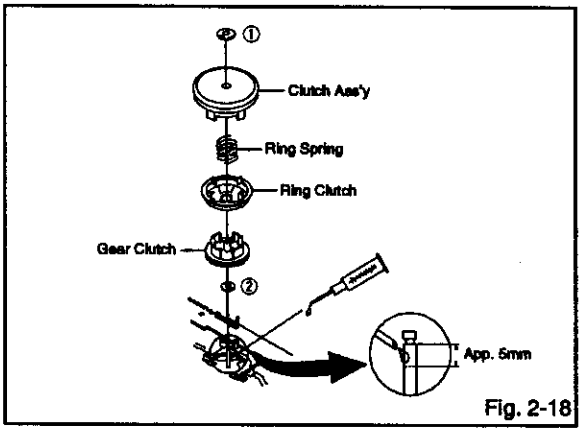


Fig. 2-18

DISASSEMBLY INSTRUCTIONS

2-19: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-19-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 Arm Ass'y.
4. Remove the Main Rod.
5. Remove the Tension Lever.
6. Unlock the 2 supports ② and remove the Clutch Lever.
7. Remove the screw ③.
8. Remove the LED Reflecter.
9. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
10. Remove the Loading Gear S and Loading Gear T.
11. Remove the Loading Gear Spring.

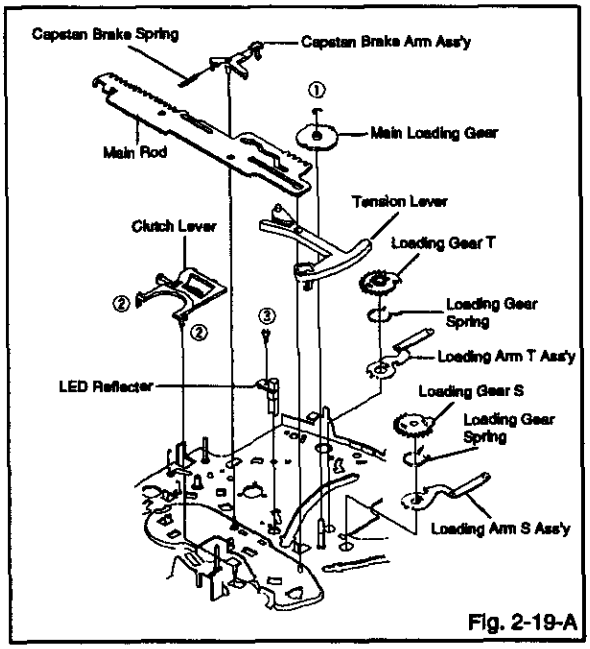


Fig. 2-19-A

NOTE

When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. **(Refer to Fig. 2-19-B)**

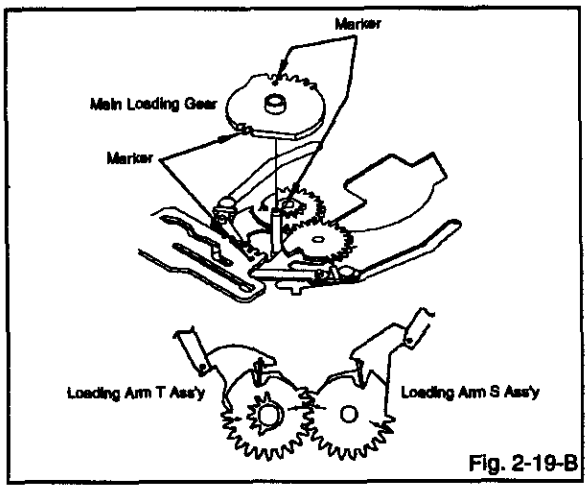


Fig. 2-19-B

2-20: INCLINED S/T ASS'Y (Refer to Fig. 2-20)

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

NOTE

Do not touch the roller of Guide Roller.

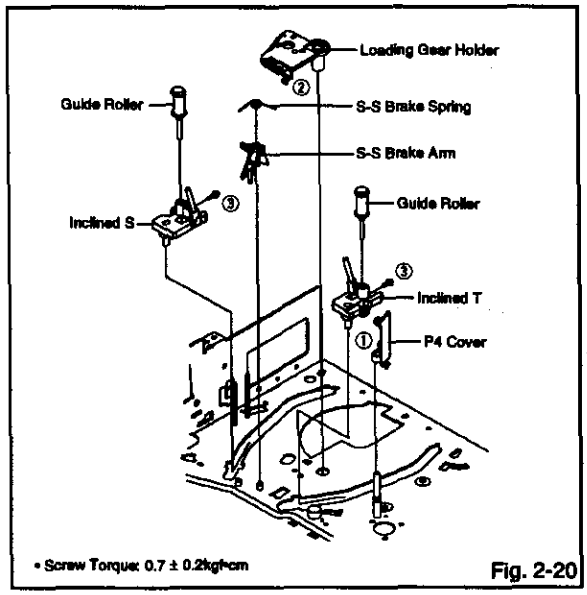


Fig. 2-20

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

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

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

REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 3-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

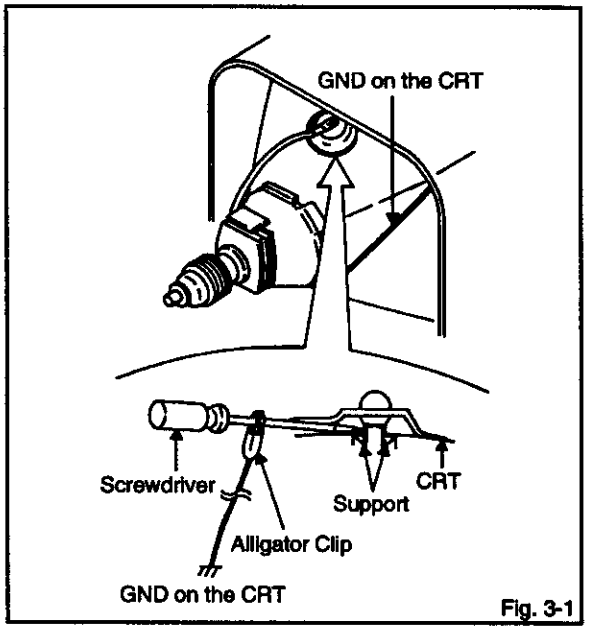


Fig. 3-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 3-2.)**

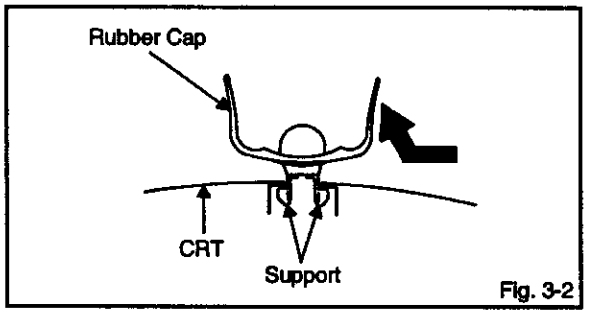


Fig. 3-2

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

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

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

NOTE

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

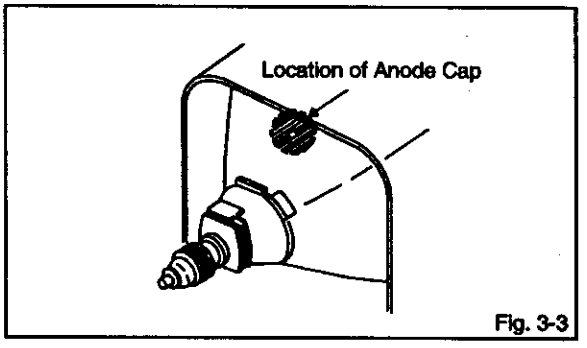


Fig. 3-3

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

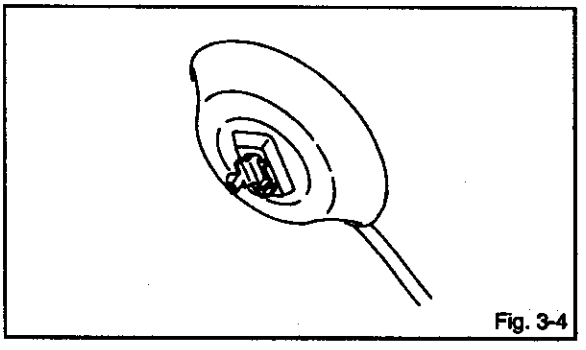


Fig. 3-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 3-5.**

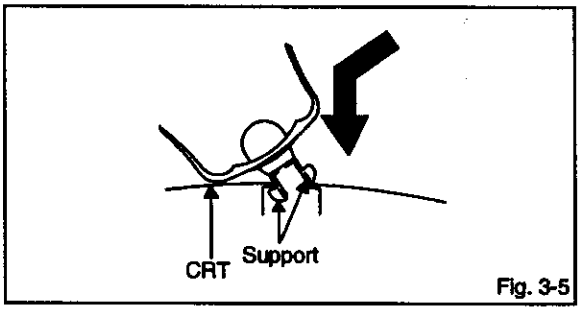


Fig. 3-5

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

KEY TO ABBREVIATIONS

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

KEY TO ABBREVIATIONS

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

SERVICE MODE LIST

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

To enter SERVICE MODE, unplug AC cord till lost actual clock time. Then press and hold Vol (-) button of main unit and remocon key simultaneously.

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

Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of the factory. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	2	Horizontal position adjustment of OSD. NOTE: Also can be adjusted by using the Adjustment MENU. Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL).
VOL. (-) MIN	3	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	4	Adjust the PG SHIFTER manually. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
VOL. (-) MIN	5	Adjusting of the Tracking to the center position. NOTE: Also can be adjusted by pressing the ATR button for more than 2 seconds during PLAY.
VOL. (-) MIN	6	POWER ON total hours and PLAY/REC total hours are displayed on the screen. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

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	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

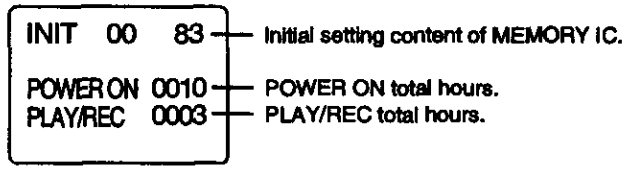
■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

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

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

1. Set the VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. After the confirmation of using hours, turn off the power.



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

PREVENTIVE CHECKS AND SERVICE INTERVALS

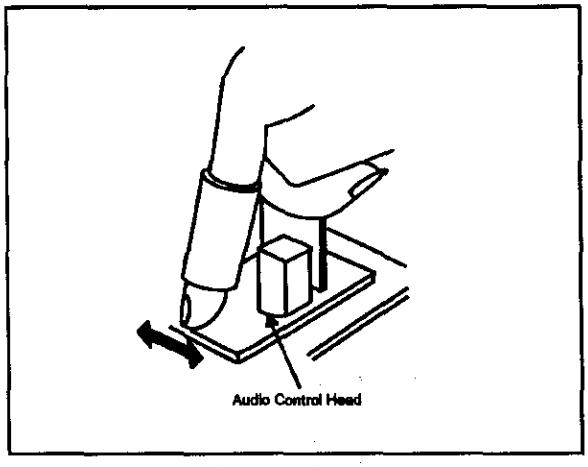
CLEANING

NOTE

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

1. AUDIO CONTROL HEAD

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. **(Refer to the figure below.)**



2. TAPE RUNNING SYSTEM

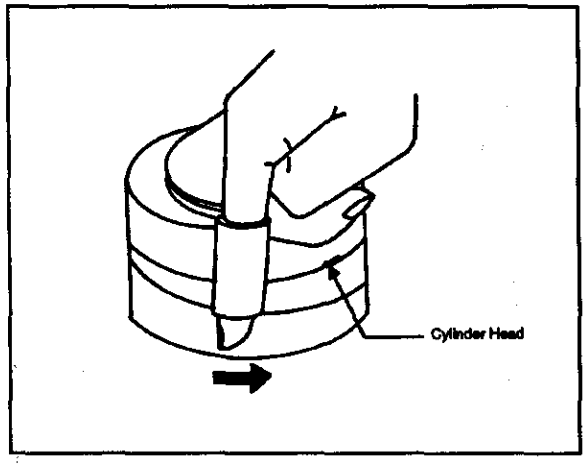
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

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.



NOTE FOR THE REPLACING OF MEMORY IC

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

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

ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
00	81	0A	2B	14	04	1E	43	28	00
01	6D	0B	24	15	A0	1F	05	29	02
02	07	0C	12	16	61	20	0D		
03	00	0D	00	17	54	21	0A		
04	00	0E	00	18	B9	22	32		
05	00	0F	00	19	0F	23	00		
06	C4	10	C0	1A	04	24	3A		
07	8B	11	68	1B	82	25	00		
08	11	12	5C	1C	6A	26	00		
09	16	13	53	1D	FA	27	35		

Table 1

1. Enter DATA SET mode by setting VOLUME to minimum.
2. While holding down VOLUME button on front cabinet, press key 6 on remote control simultaneously.
3. ADDRESS and DATA should appear as FIG 1.

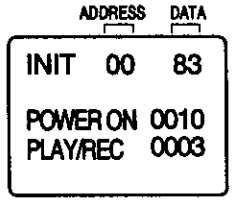
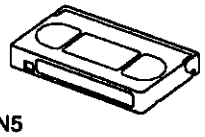
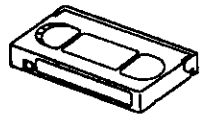
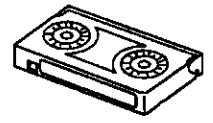
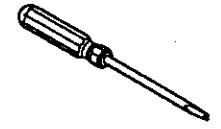
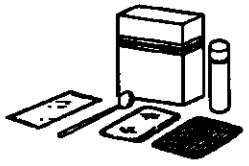
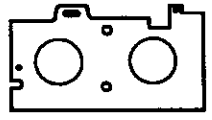
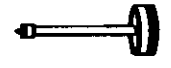
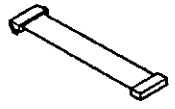


Fig. 1

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

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

SERVICING FIXTURES AND TOOLS

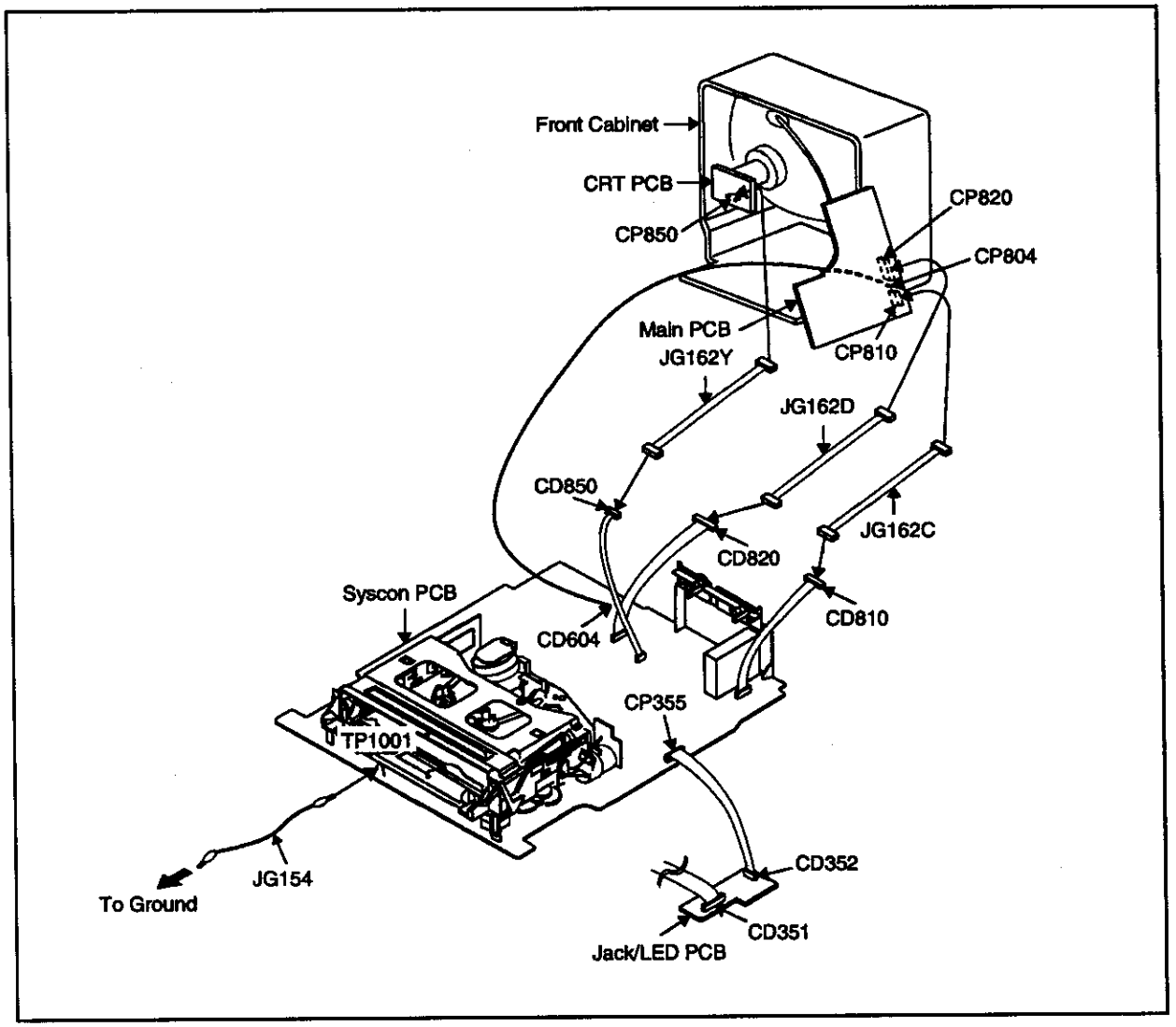
Alignment Tape  ST-N5 ST-NF	Back tension cassette gauge  70909103	Torque cassette gauge (KT-300NR)  70909199	Taper nut driver  70909228
VTR cleaning kit 	VTR lubrication kit 	Grease 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 
JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG153 X Value Adjustment Screwdriver 	JG154 Cable 
JG162C Cable (10 Pins) JG162D Cable (11 Pins) JG162Y Cable (5 Pins) 	Tentelometer 		

Part No.	Remarks
JG002B	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	Brake Torque (T Reel Ass'y)
JG002F	VSR Torque, Brake Torque (S Reel)
JG153	X Value Adjustment
JG022/JG024A	Reel Disk Height Adjustment
JG154	Used to connect the test point of SERVICE and GROUND
JG162C/JG162D	Used to connect the Syscon PCB and Main PCB
JG162Y	Used to connect the Syscon PCB and CRT PCB

PREPARATION FOR SERVICING

How to use the Servicing Fixture

1. Unplug the connector CP351, CP355, CP502 and CP353, then remove the TV/VCR Block from the set.
2. Unplug the connector CP810, CP820 and CP850, then remove the Main PCB from the VCR Block.
3. Connect as shown in the below figure using the Service Fixture.
   - Connect the Syscon PCB to the Main PCB with the cable JG162C and JG162D.
   - Connect the Syscon PCB to the CRT PCB with the cable JG162Y.
4. Remove the Jack/LED PCB from the set, then connect it with the Syscon PCB.
   If necessary, connect CP351 (Front A/V Jack Input Terminal)
5. 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.
6. 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.

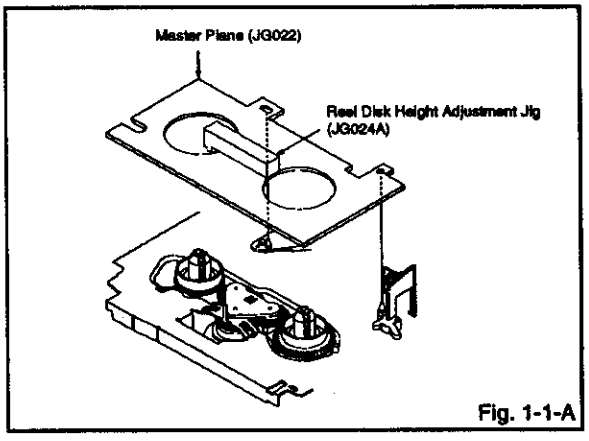


Fig. 1-1-A

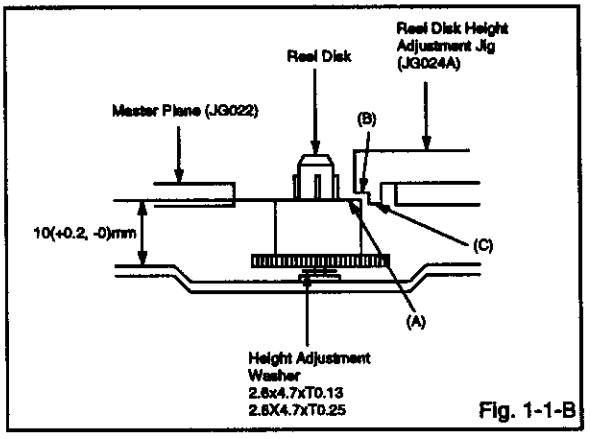


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the 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.

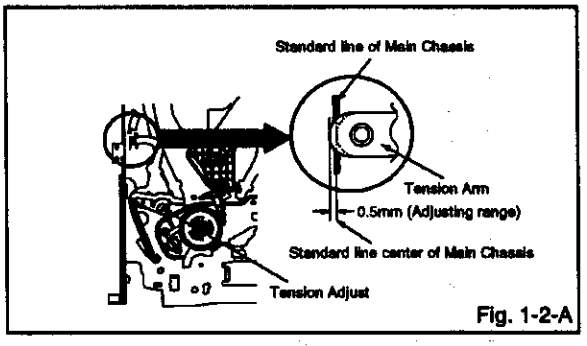


Fig. 1-2-A

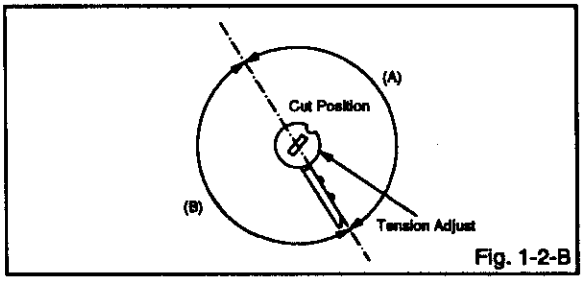


Fig. 1-2-B

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 TORQUE CASSETTE GAUGE **(KT-300NR)**

1. After confirmation and adjustment of Tension Post position **(Refer to Item 1-2)**, load the torque cassette gauge **(KT-300NR)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 70~110gf•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.

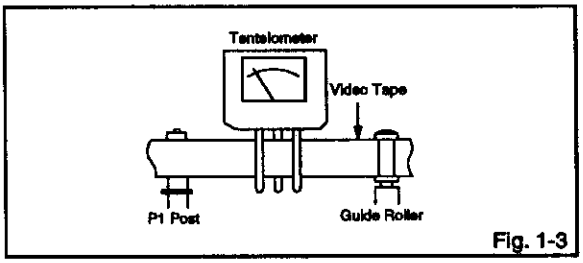


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. 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 70~100gf•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 Ass'y.
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 35~60gf•cm.

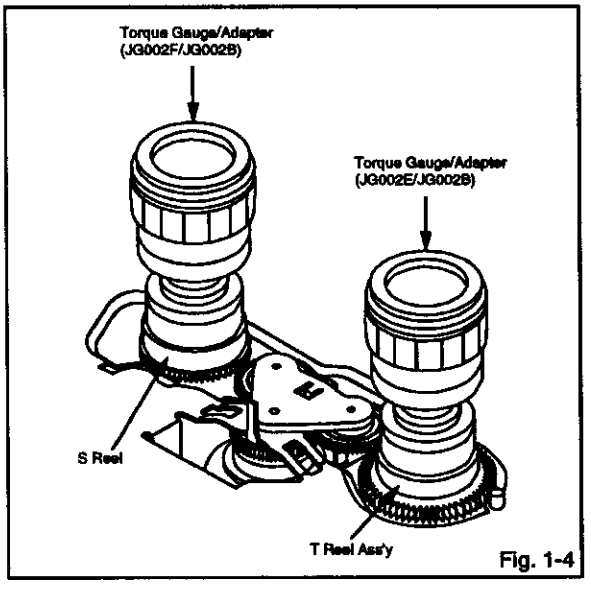


Fig. 1-4

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 Alignment Tape.
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 Taper Nut Driver slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback. **(Refer to the ELECTRICAL ADJUSTMENTS)**

NOTE

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

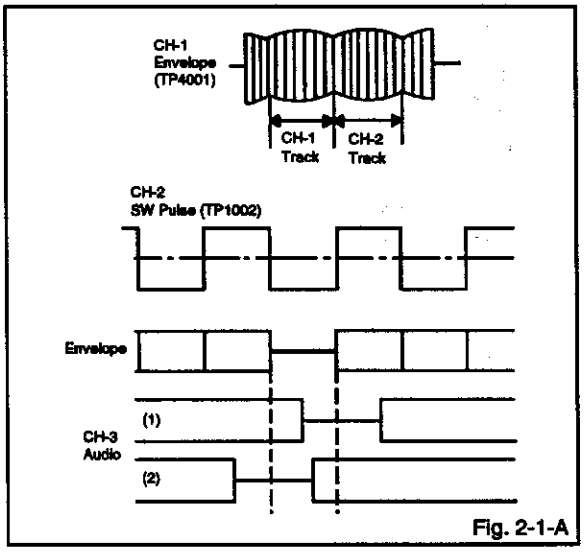


Fig. 2-1-A

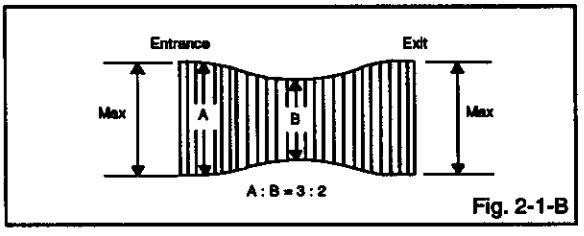


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

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

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

1. Playback the Alignment Tape.
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.

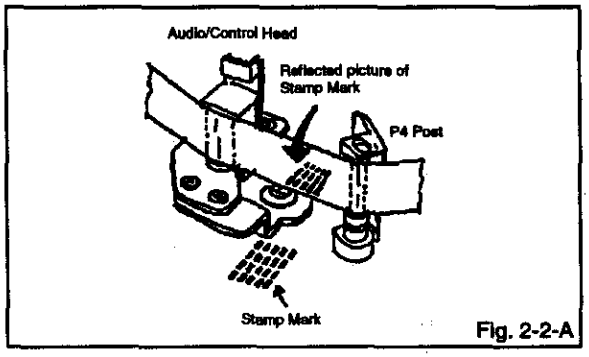


Fig. 2-2-A

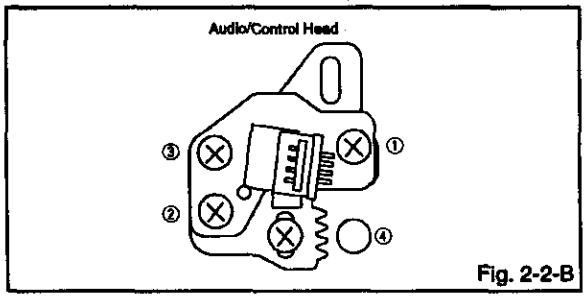


Fig. 2-2-B

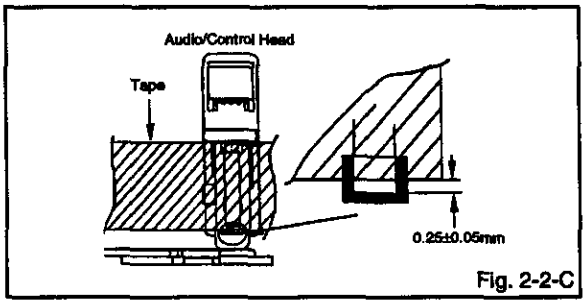


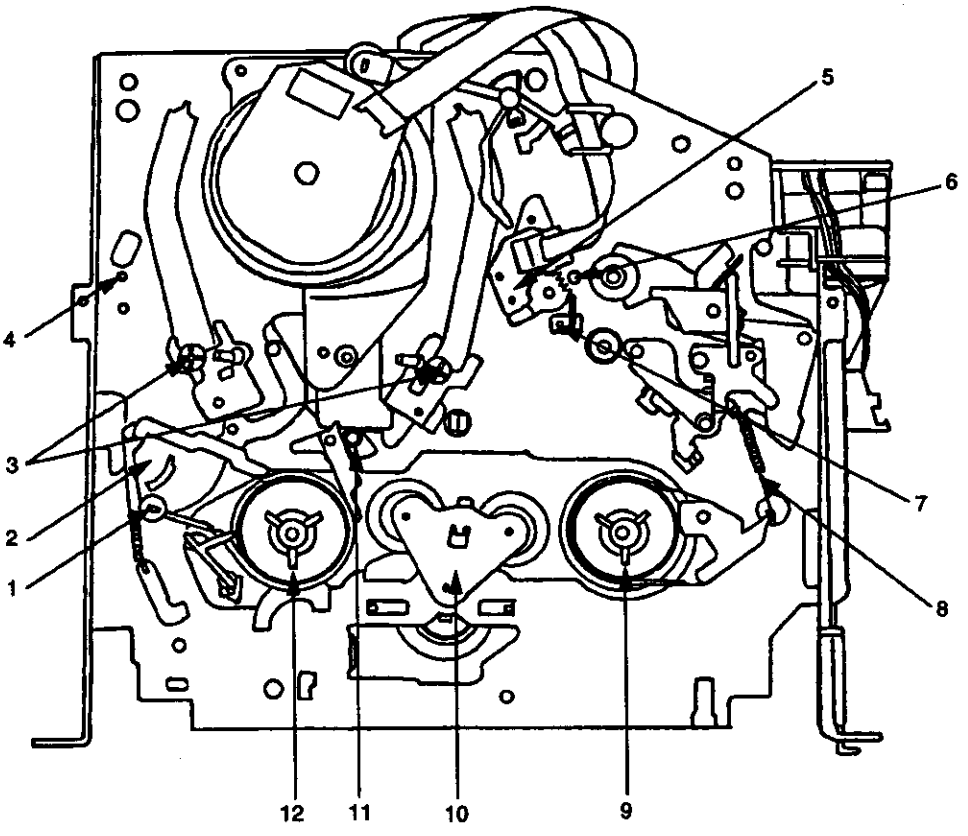
Fig. 2-2-C

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 **TP4001**, CH-2 to **TP1002** and CH-3 to **HOT side of Audio Out Jack.**
6. Playback the Alignment Tape.
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.**

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust
2. Tension Arm
3. Guide Roller
4. P1 Post
5. Audio/Control Head
6. X value adjustment driver hole
7. P4 Post
8. T Brake Spring
9. T Reel Ass'y
10. Idler Ass'y
11. S-S Brake Spring
12. S Reel

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

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

CAUTION

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

On-Screen Display Adjustment

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

NOTE

Use the channel buttons (1-8) on the remote control to select the options shown in **Fig. 1-1.**
Press the channel button (0) on the remote control to end the adjustments.

1. H/V
2. AKB
3. COLOR TEMP
4. PICTURE
5. OTHERS
6. TEST PATTERN
7. STEREO/SAP
8. (VOL TEST) 0. END

Fig. 1-1

2. BASIC ADJUSTMENTS

(VCR SECTION)

2-1: PG SHIFTER

1. Connect CH-1 on the oscilloscope to **TP1002** and CH-2 to **TP4201.**
2. Playback the alignment tape.
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button (3) on the remote control simultaneously until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

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

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

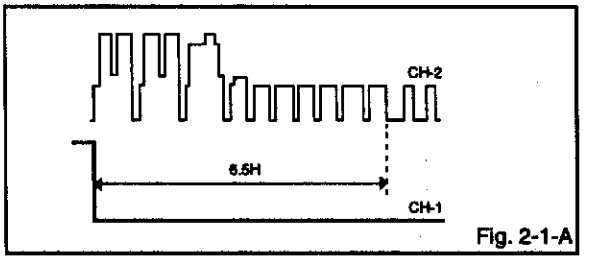


Fig. 2-1-A

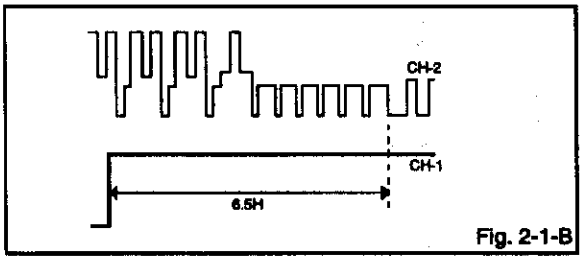


Fig. 2-1-B

2-2: RF AGC

1. Receive the monoscope pattern.
2. Connect the digital voltmeter between the **pin 5 of CP603** and the **pin 1 (GND) of CP603.**
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (5) on the remote control. The **Fig. 2-2** appears on the display.
4. Press the channel button (1) on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.3 ± 0.05V.

1. RF AGC DELAY
2. VIDEO LEVEL
3. FM LEVEL
4. OSD H
5. CUT OFF
6.
7.
8. 0. RETURN

Fig. 2-2

2-3: VCO FREERUN

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the UHF.
3. Disconnect the Antenna while receiving the UHF and set to the Noise screen.
4. Once turn off the Power and turn on the Power again.
5. Approxi. 3 seconds later, input the Antenna again.
6. Connect the digital voltmeter to **TP601.**
7. Adjust the **L610** until the digital voltmeter is 3.1 ± 0.05V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Using the remote control, set the brightness and contrast to normal position.
2. Connect the digital voltmeter to **TP401.**
3. Set condition is AV MODE without signal.
4. Adjust the **VR502** until the DC voltage is 132 ± 0.5V.

ELECTRICAL ADJUSTMENTS

2-5: CUT OFF

1. Place the set with Aging Test for more than 15 minutes.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control. The **Fig. 2-2** appears on the display.
5. Press the channel button **(5)** on the remote control.
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-6: FOCUS

1. Using the remote control, set the brightness and contrast to normal position.
2. Receive the monoscope pattern.
3. Turn the Focus Volume fully counterclockwise once.
4. Adjust the **Focus Volume** until picture is distinct.

2-7: SUB BRIGHTNESS (TV)

1. Receive the black pattern*. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-3** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control to adjust the screen brightness from bright to dim. Then set to the completely dim point.

*The Black Pattern means the whole black raster signal. Select the "RASTER" of the pattern generator, set to the OFF position for each R, G and B.

1. BRIGHT
2. CONTRAST
3. COLOR
4. TINT
5. SHARPNESS
6. OSD CONT
7.
8. 0. RETURN

Fig. 2-3

2-8: SUB BRIGHTNESS (AV)

1. Receive the black pattern*. (Audio Video Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-3** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control to adjust the screen brightness from bright to dim. Then set to the completely dim point.

2-9: SUB COLOR (TV)

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP801.**
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-3** appears on the display.
5. Press the channel button **(3)** on the remote control.
6. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 95 ± 5% of the white level. **(Refer to Fig. 2-4)**

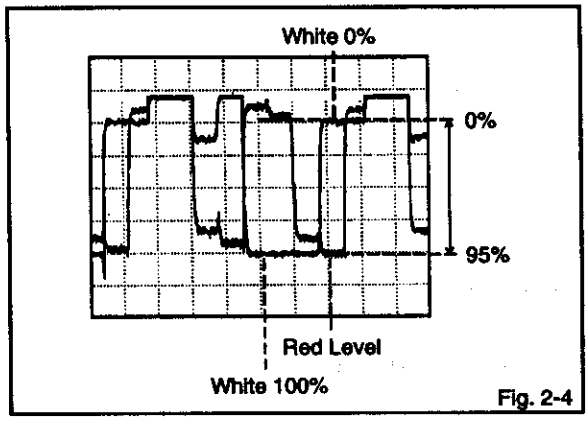


Fig. 2-4

2-10: SUB COLOR (AV)

1. Receive the color bar pattern. (Audio Video Input)
2. Connect the synchro scope to **TP801.**
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-3** appears on the display.
5. Press the channel button **(3)** on the remote control.
6. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
7. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 95 ± 5% of the white level. **(Refer to Fig. 2-4)**

2-11: SUB TINT (TV)

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP803.**
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-3** appears on the display.
5. Press the channel button **(4)** on the remote control.
6. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. **(Refer to Fig. 2-5)**

ELECTRICAL ADJUSTMENTS

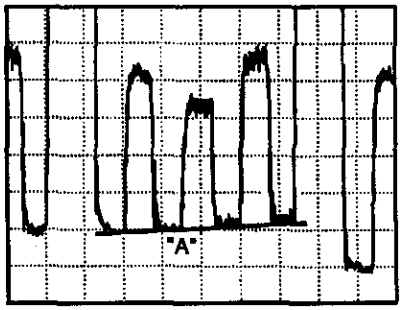


Fig. 2-5

2-12: SUB TINT (AV)

1. Receive the color bar pattern. (Audio Video Input)
2. Connect the synchro scope to **TP803.**
3. Using the remote control, set the brightness, contrast, color and tint to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-3** appears on the display.
5. Press the channel button **(4)** on the remote control.
6. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line. **(Refer to Fig. 2-5)**

2-13: HORIZONTAL PHASE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control. The **Fig. 2-6** appears on the display.
4. Press the channel button **(1)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

1. H. PHASE
2. H. BLK
3. V. SIZE
4. V. POSI
5. V. LIN
6. V. SC
7. V. COMP
8. (H FREQ) 0. RETURN

Fig. 2-6

2-14: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control. The **Fig. 2-6** appears on the display.
4. Press the channel button **(3)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the horizontal over scan is equal to the vertical over scan.

2-15: VERTICAL LINEARITY

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control. The **Fig. 2-6** appears on the display.
4. Press the channel button **(5)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-16: VERTICAL POSITION

1. Receive the color bar pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control. The **Fig. 2-6** appears on the display.
4. Press the channel button **(4)** on the remote control.
5. Press the VOL. UP/DOWN button on the remote control until the horizontal line of the color bar comes to approximate center of the CRT.

2-17: OSD HORIZONTAL

1. Receive monoscope pattern.
2. Using the remote control, set brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(5)** on the remote control. The **Fig. 2-2** appears on the display.
4. Press the channel button **(4)** on the remote control.
5. Press the VOL. UP/DOWN on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-7)**

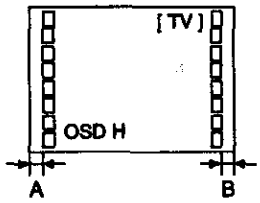


Fig. 2-7

2-18: WHITE BALANCE

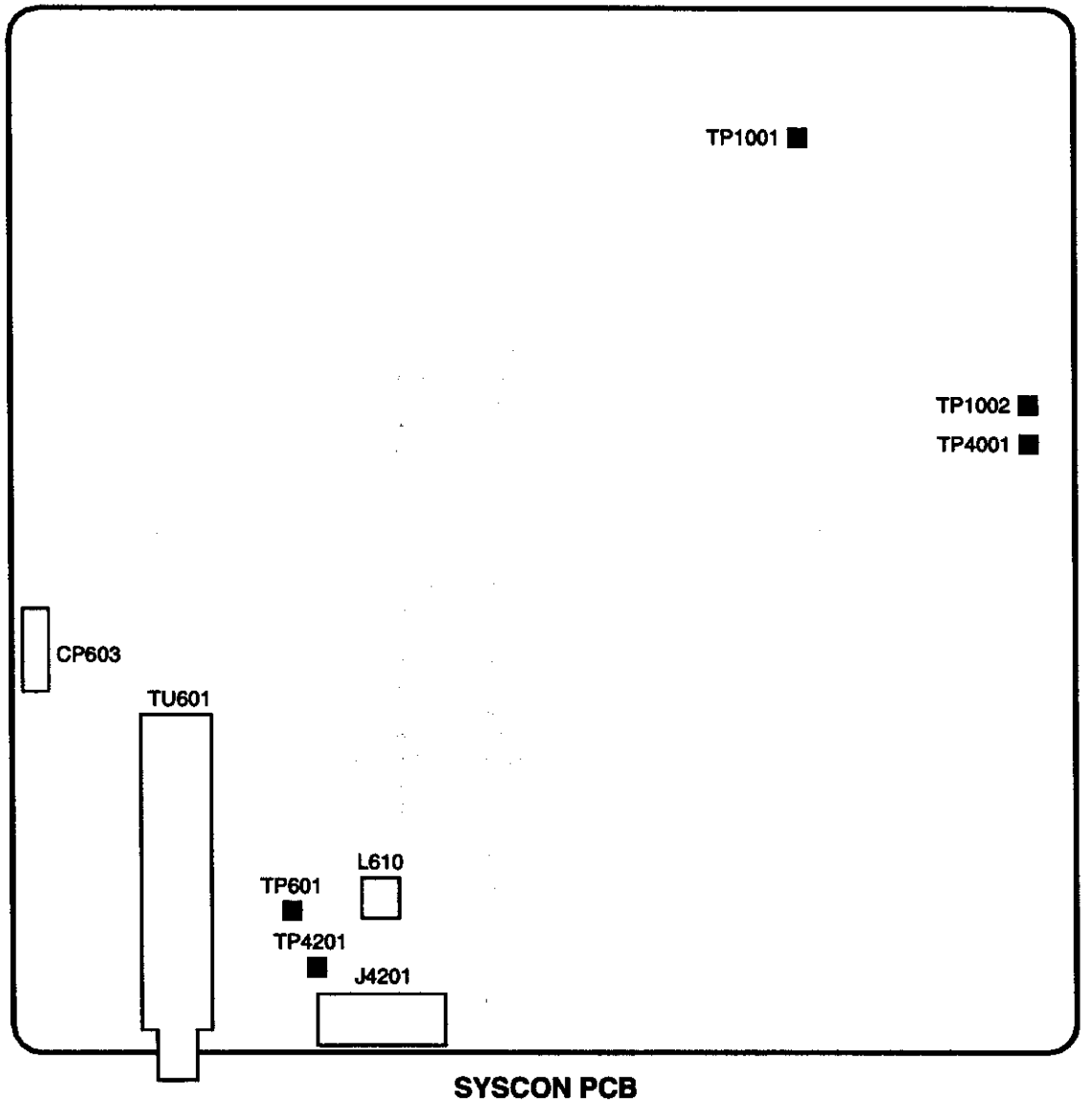
1. Place the set with Aging Test for more than 15 minutes.
2. Receive the color bar pattern.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(2)** on the remote control. The **Fig. 2-8** appears on the display.
4. Adjust the adjustment mode display of **Fig. 2-8** until the white color is loocked like a white.

1. AKB AUTO
2. R.BIAS
3. G.BIAS
4. B.BIAS
5. R.DRIVE
6. G.DRIVE
7. B.DRIVE
8. AGC AUTO 0. RETURN

Fig. 2-8

ELECTRICAL ADJUSTMENTS

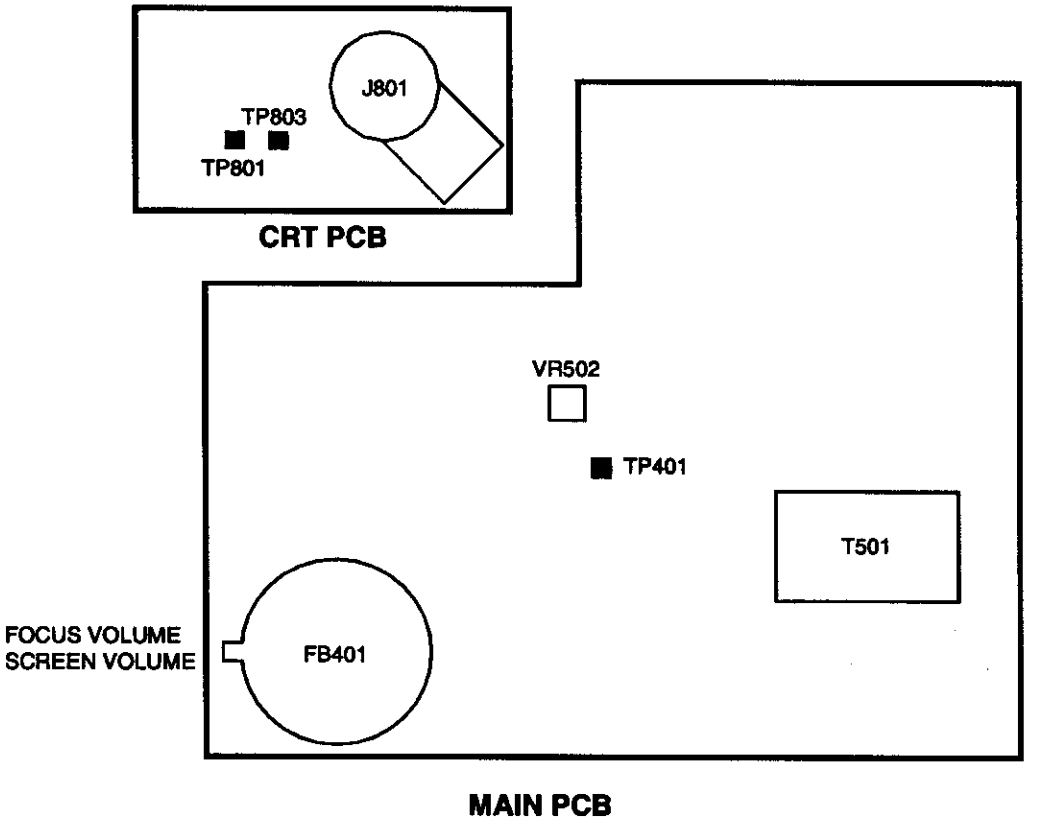
3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (VCR SECTION)



SYSCON PCB

ELECTRICAL ADJUSTMENTS

(TV SECTION)



ELECTRICAL ADJUSTMENTS

4. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

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

4-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

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

4-2: PURITY

NOTE

Adjust after performing adjustments in section 4-1.

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

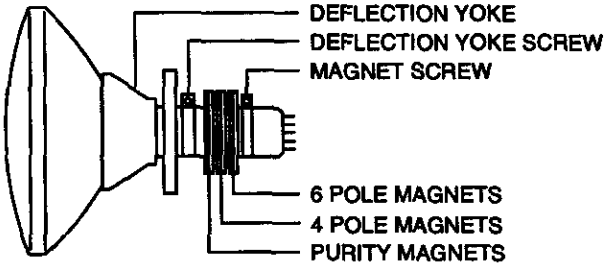


Fig. 4-1

4-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 4-2.

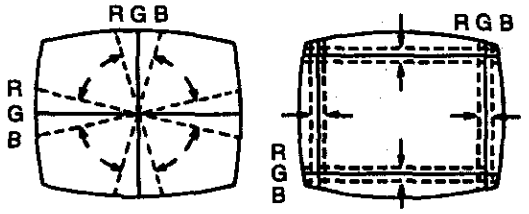
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

4-4: DYNAMIC CONVERGENCE

NOTE

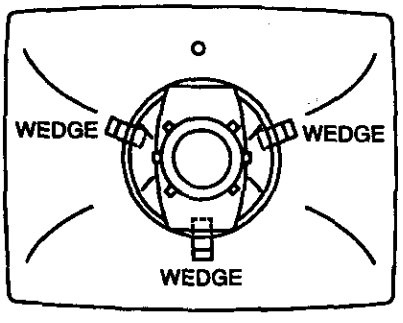
Adjust after performing adjustments in section 4-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 4-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 4-2-b)**



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

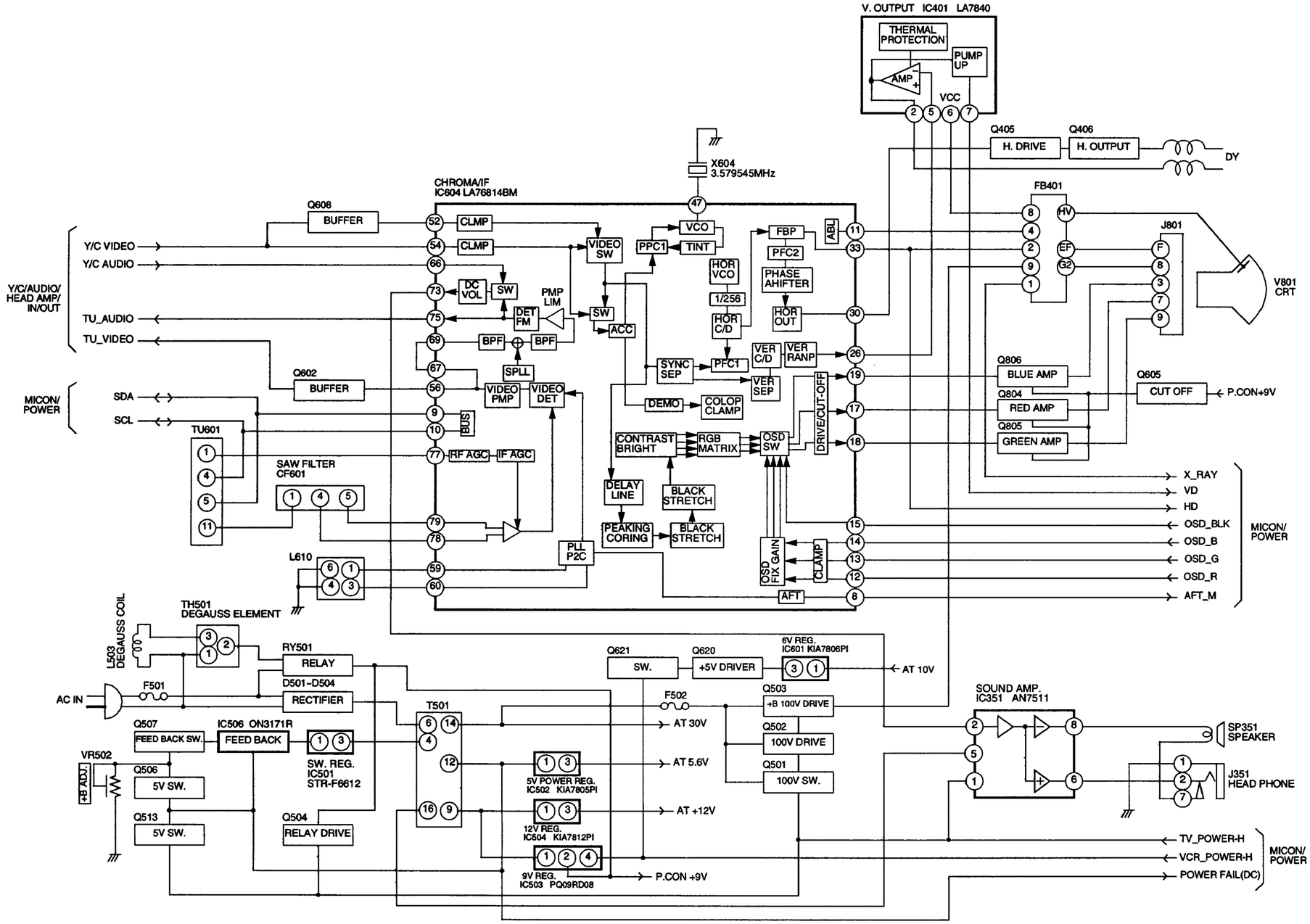
Fig. 4-2-a



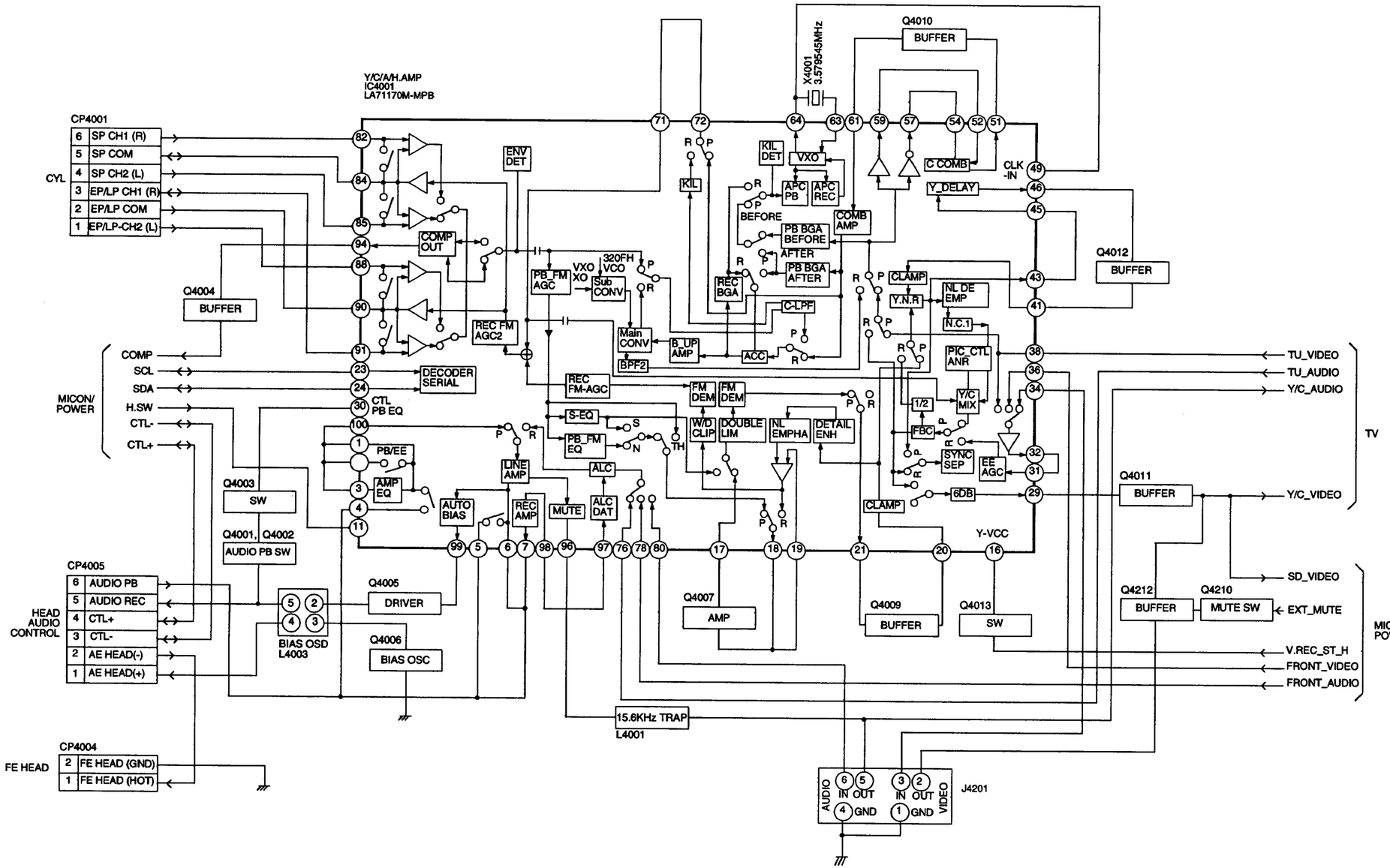
WEDGE POSITION

Fig. 4-2-b

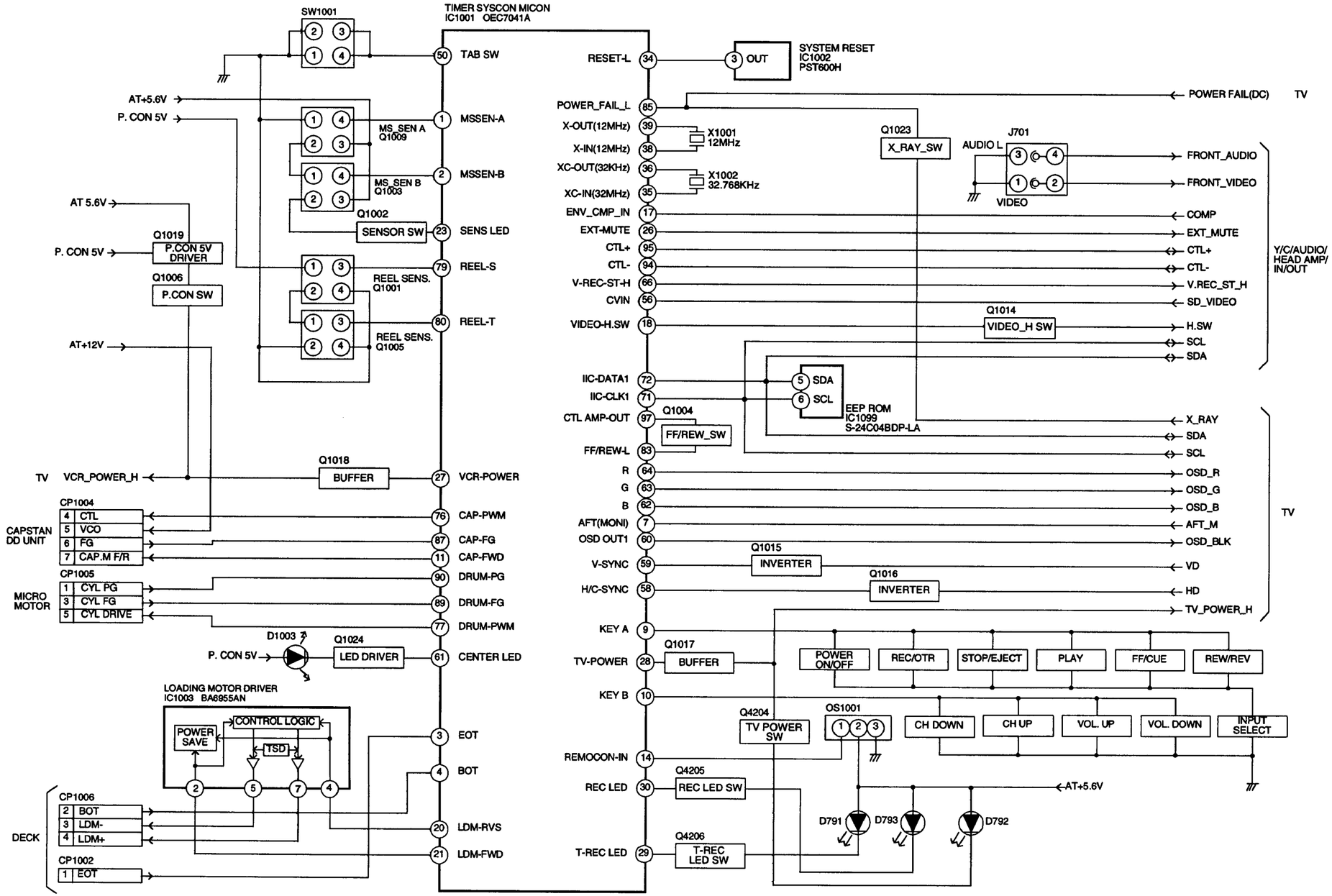
TV BLOCK DIAGRAM



Y/C/AUDIO/HEAD AMP/IN/OUT BLOCK DIAGRAM

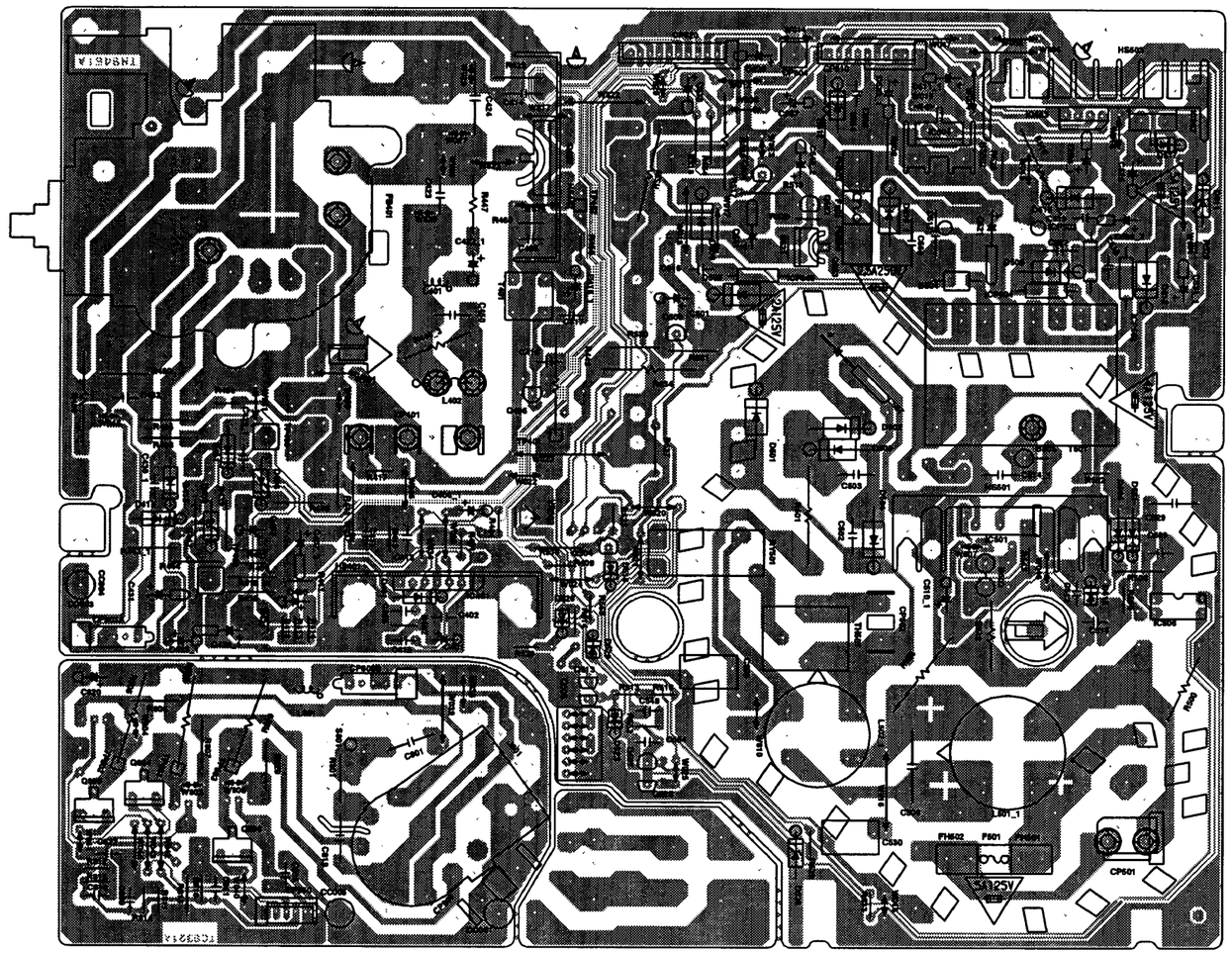


MICON/POWER BLOCK DIAGRAM



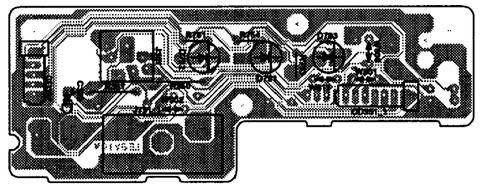
PRINTED CIRCUIT BOARDS

MAIN/CRT
SOLDER SIDE

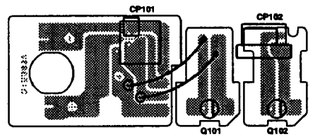


PRINTED CIRCUIT BOARDS

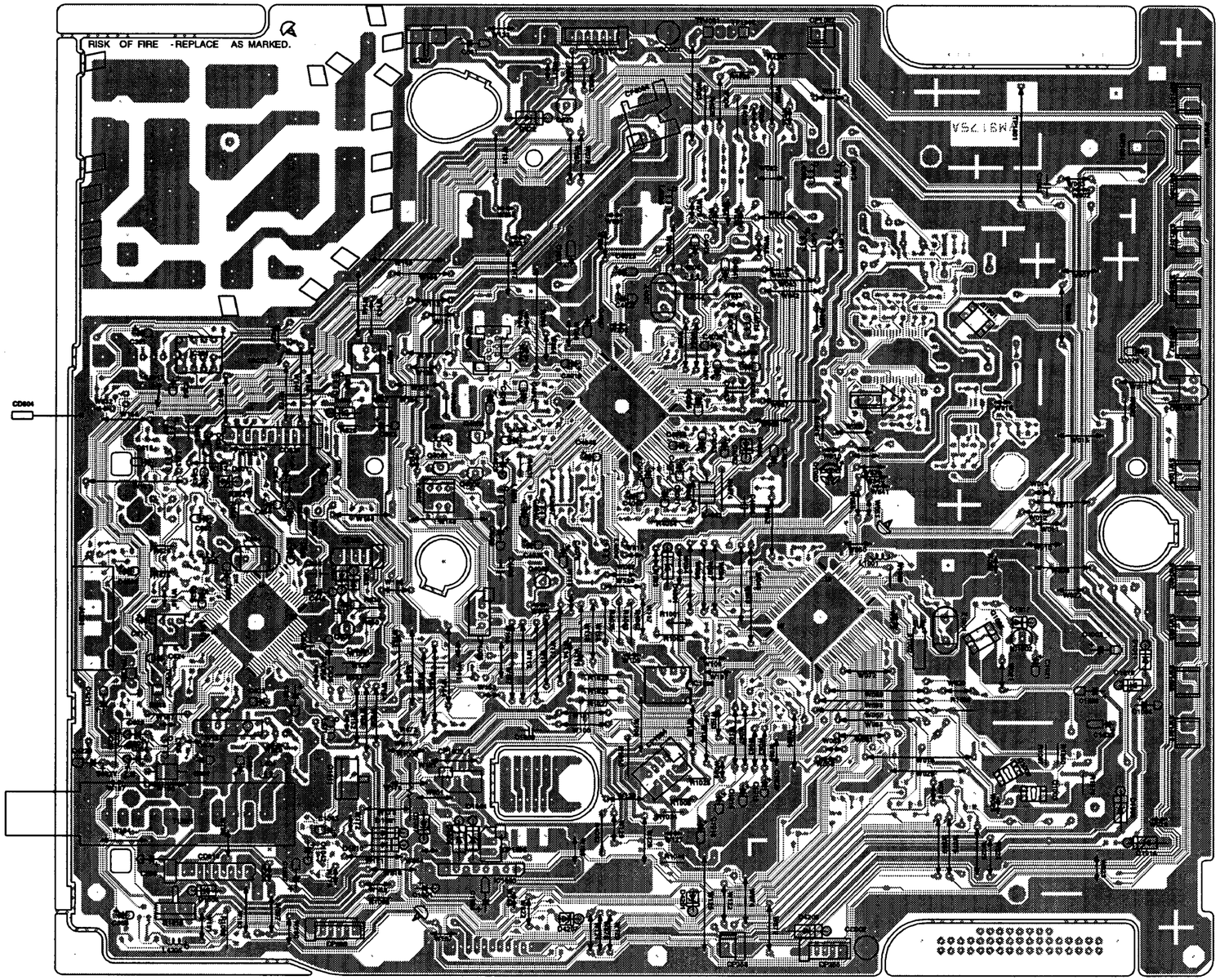
JACK/LED
SOLDER SIDE



DECK
SOLDER SIDE

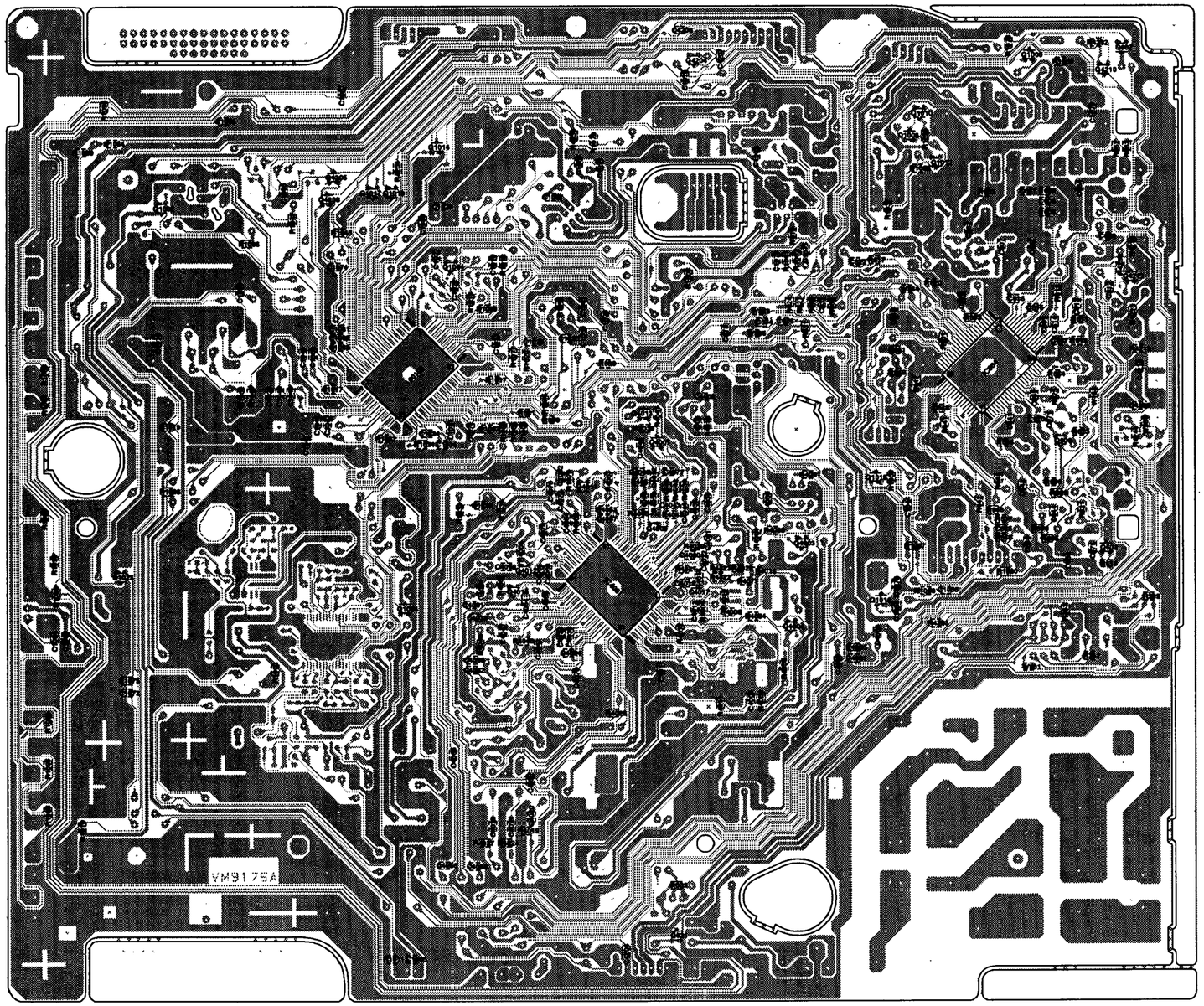


PRINTED CIRCUIT BOARDS
SYSCON (INSERTED PARTS)
SOLDER SIDE



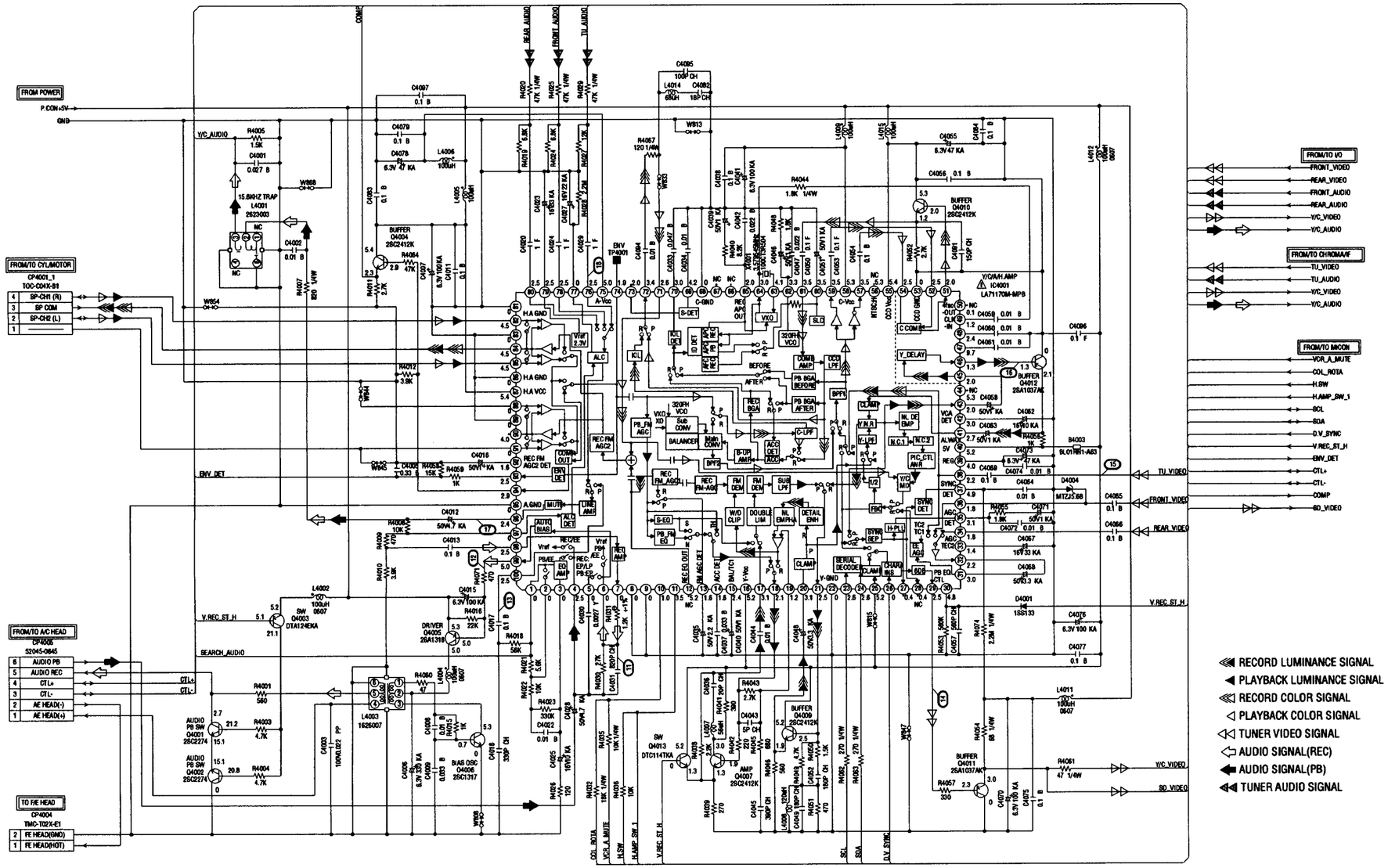
PRINTED CIRCUIT BOARDS

SYSCON (INSERTED PARTS)
SOLDER SIDE



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



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

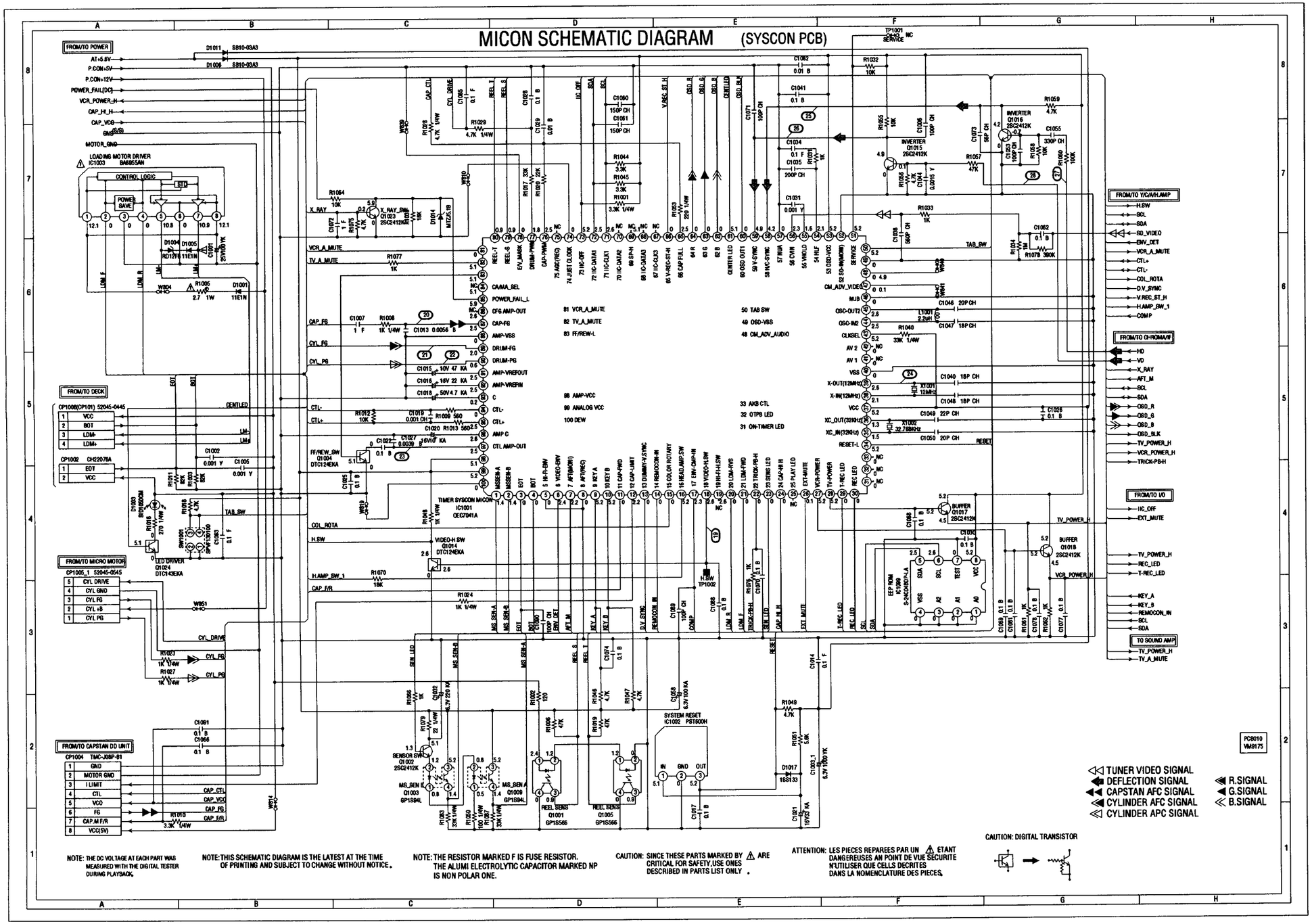
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

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.

PCB010
VM9975

MICON 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.

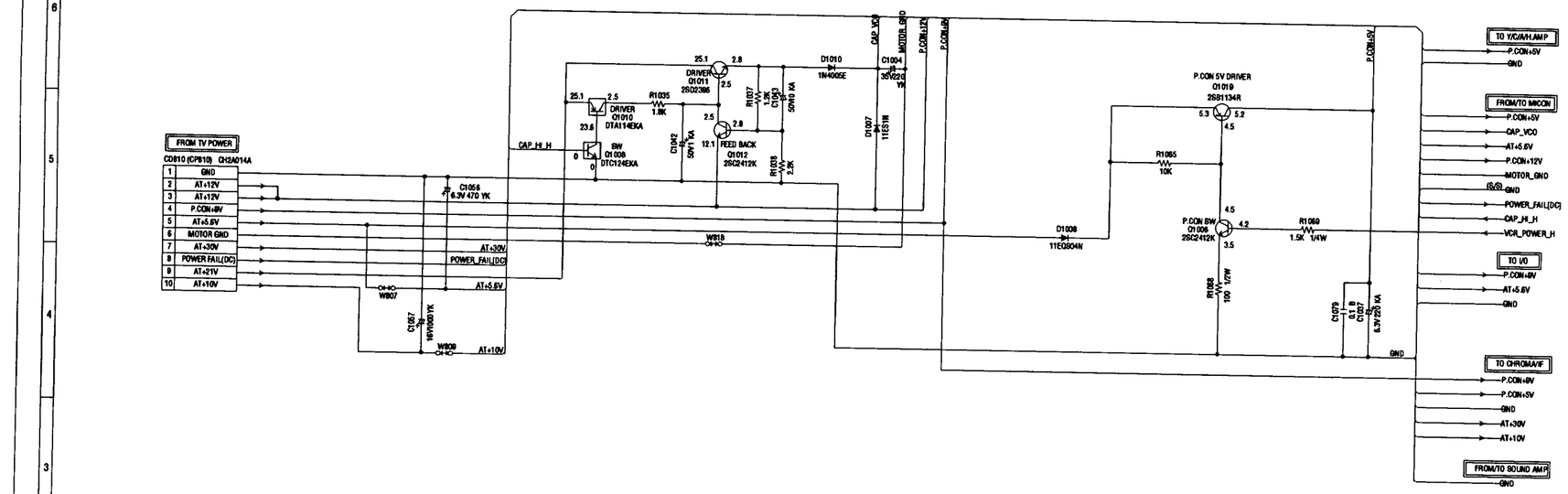
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

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.

POWER 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.

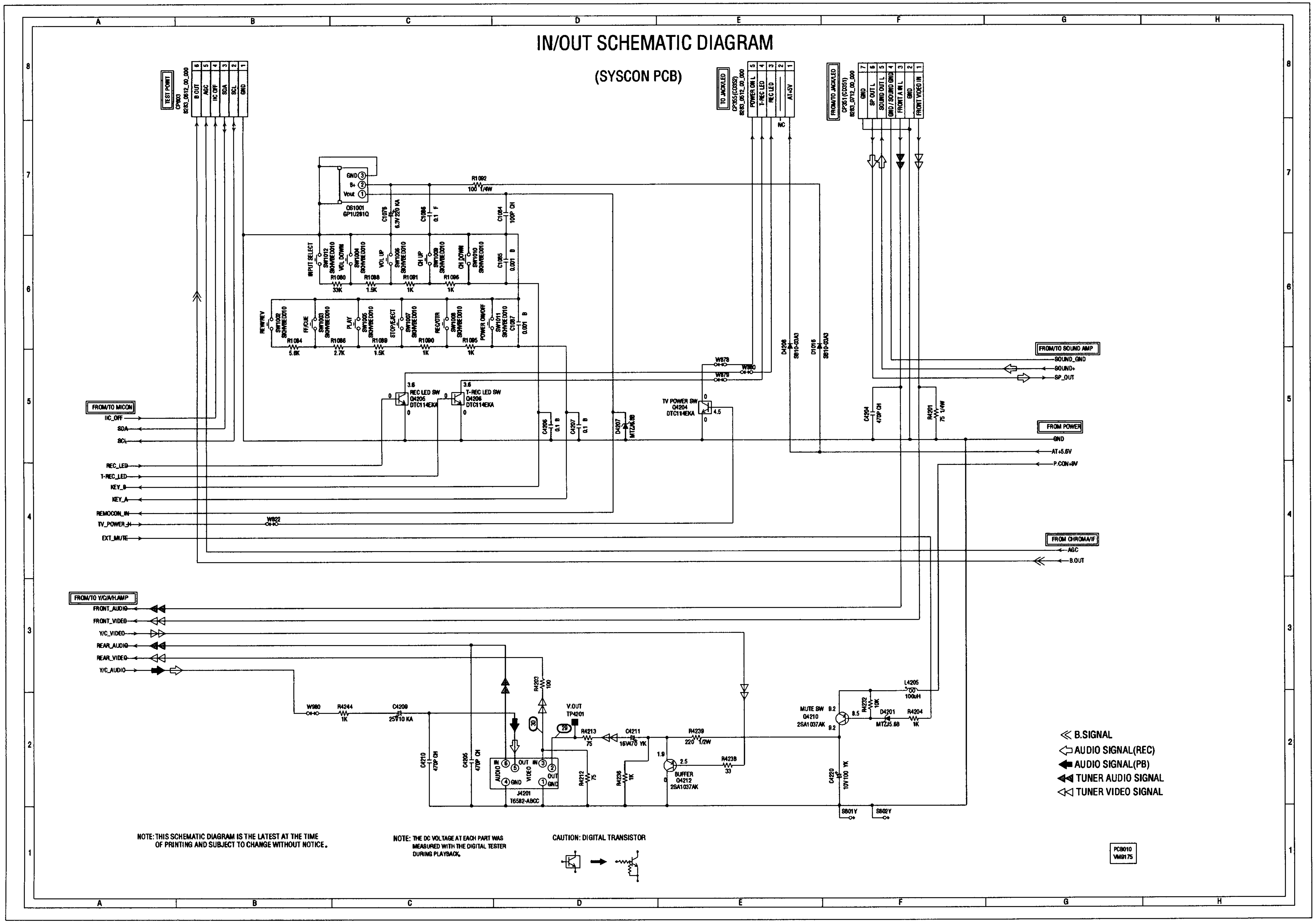
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

PC9010
VM9175

IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)

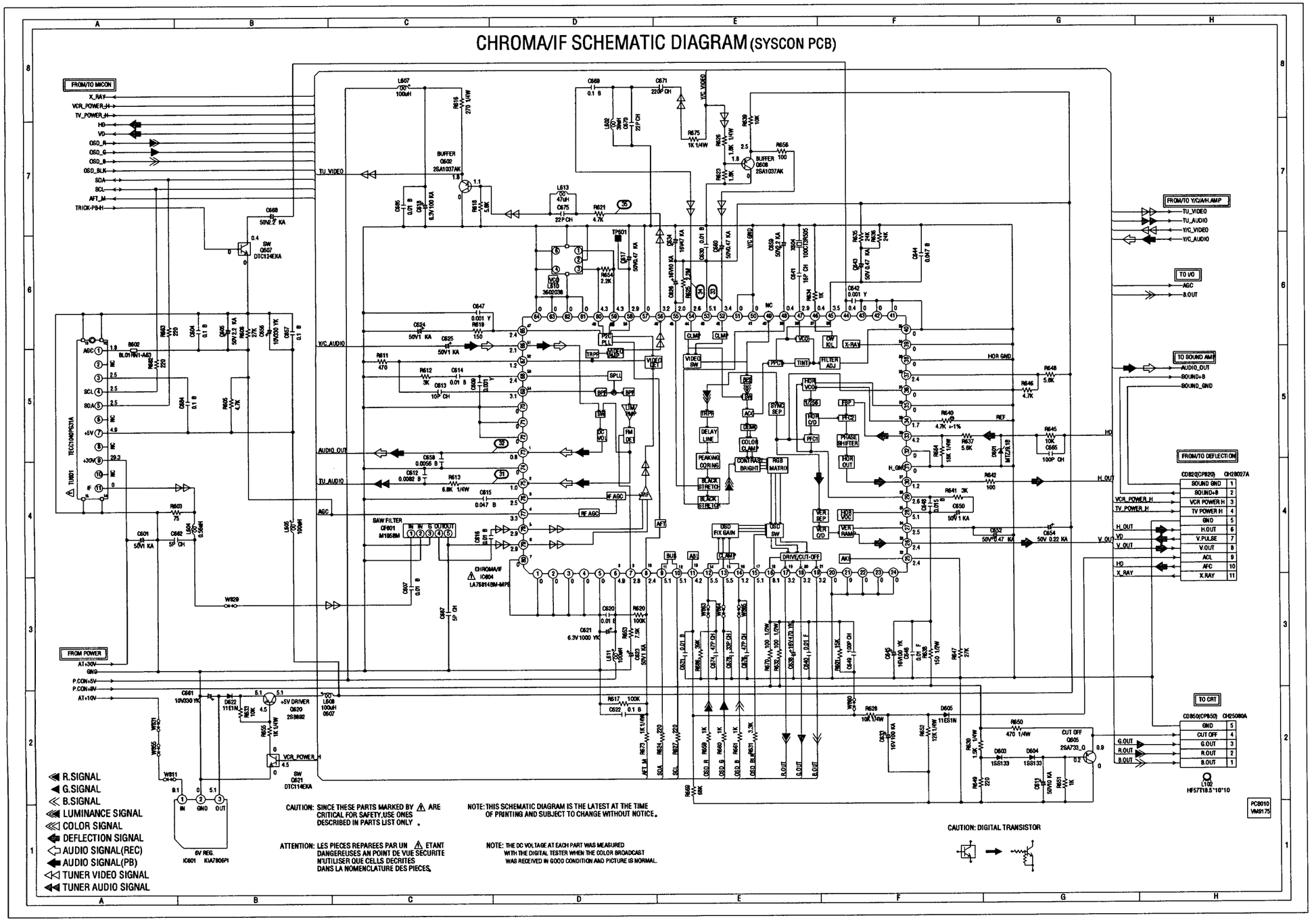


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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

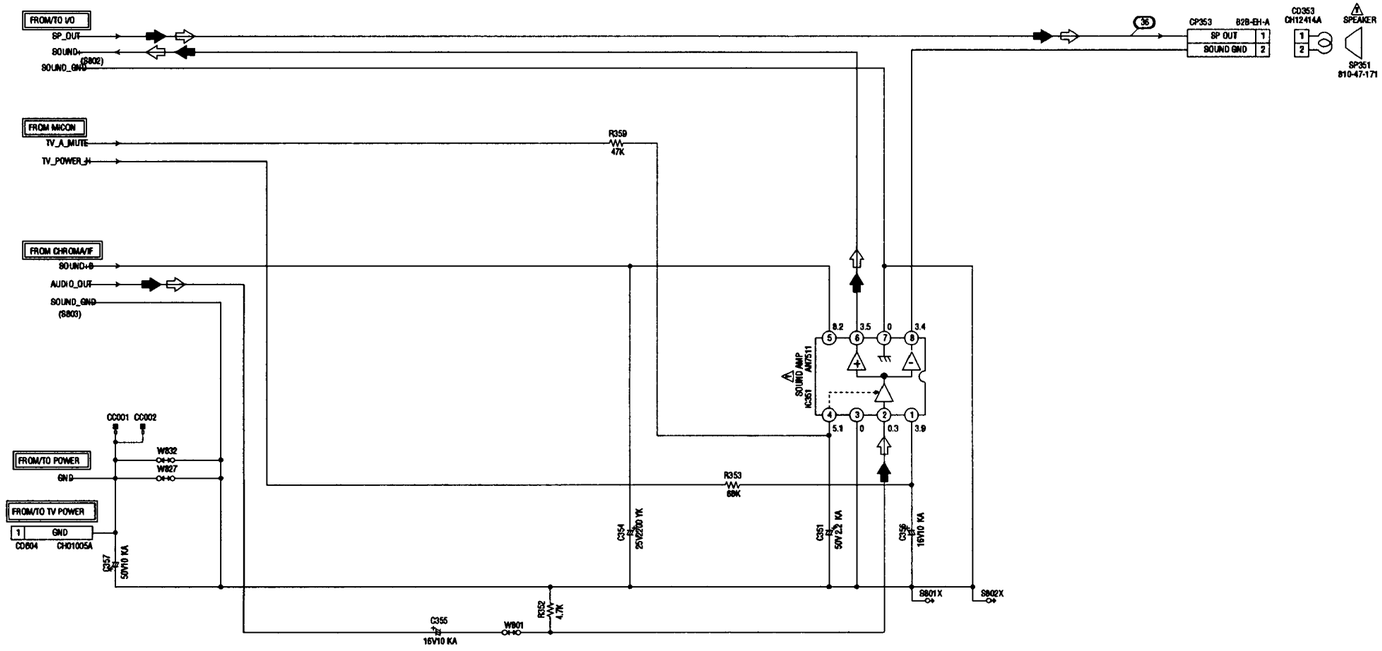
CAUTION: DIGITAL TRANSISTOR

CHROMA/IF SCHEMATIC DIAGRAM (SYSCON PCB)



SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



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

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

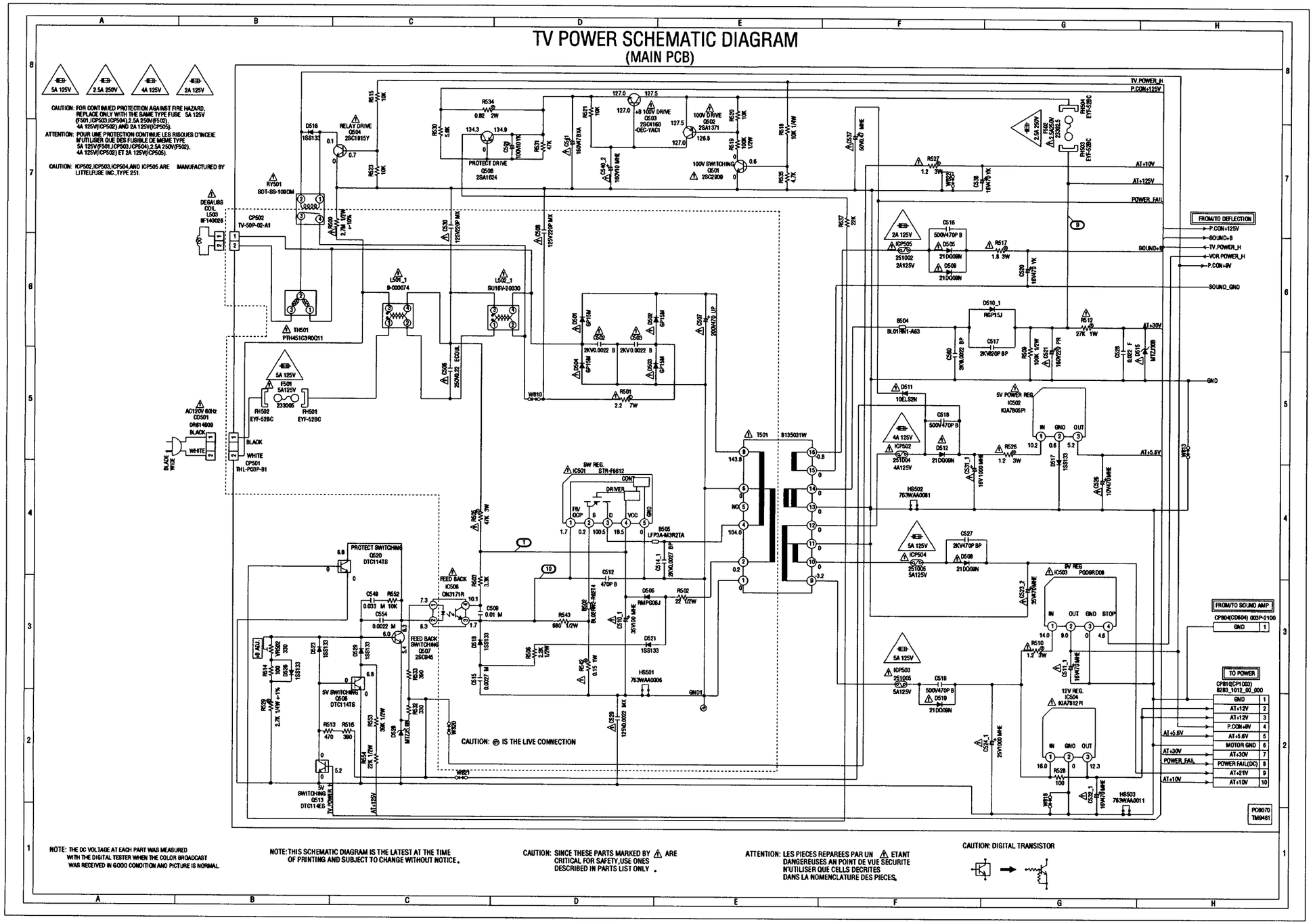
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

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

⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)

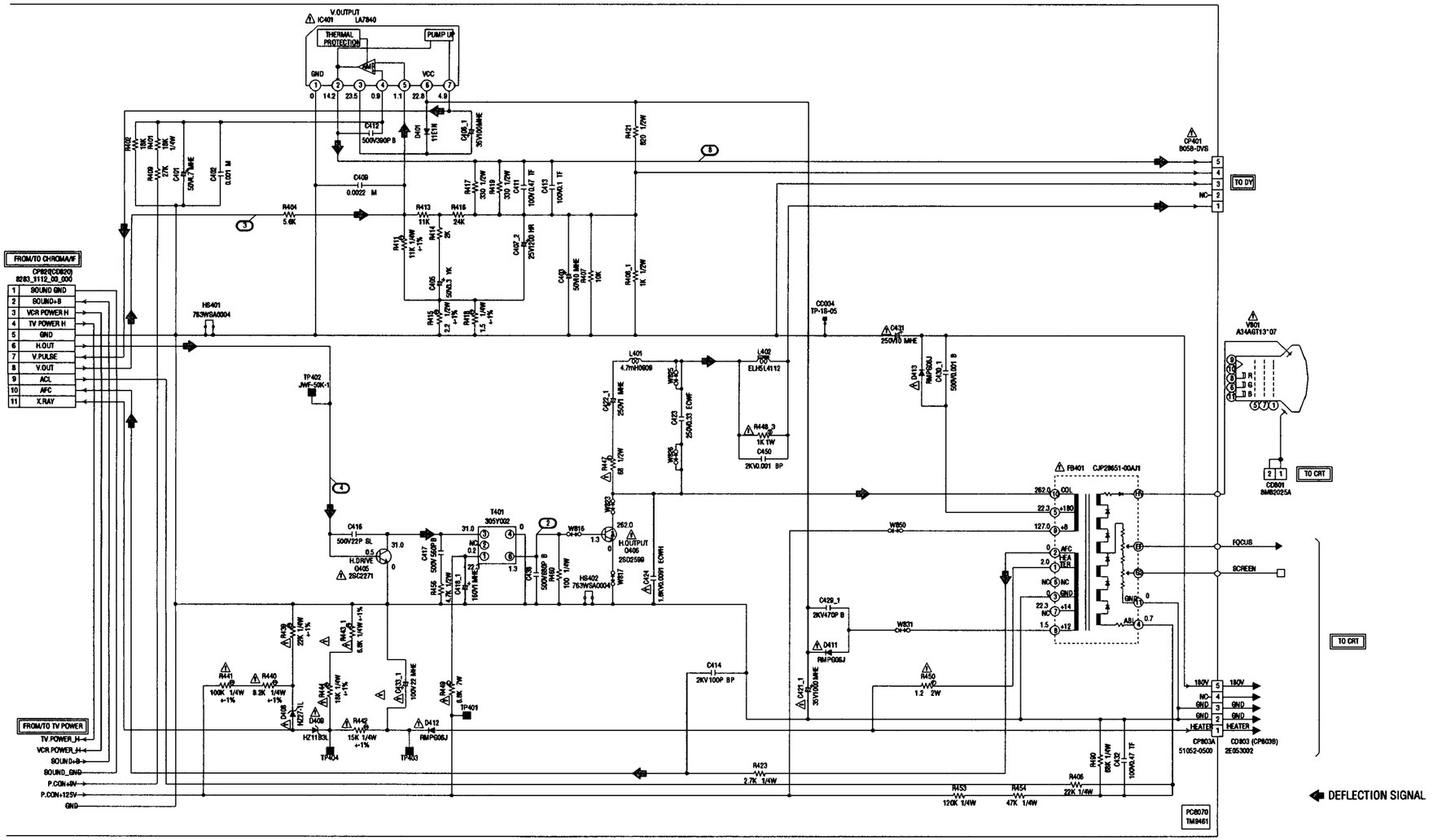
PCB010
VM01 75

TV POWER SCHEMATIC DIAGRAM
(MAIN PCB)



DEFLECTION SCHEMATIC DIAGRAM

(MAIN PCB)



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

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

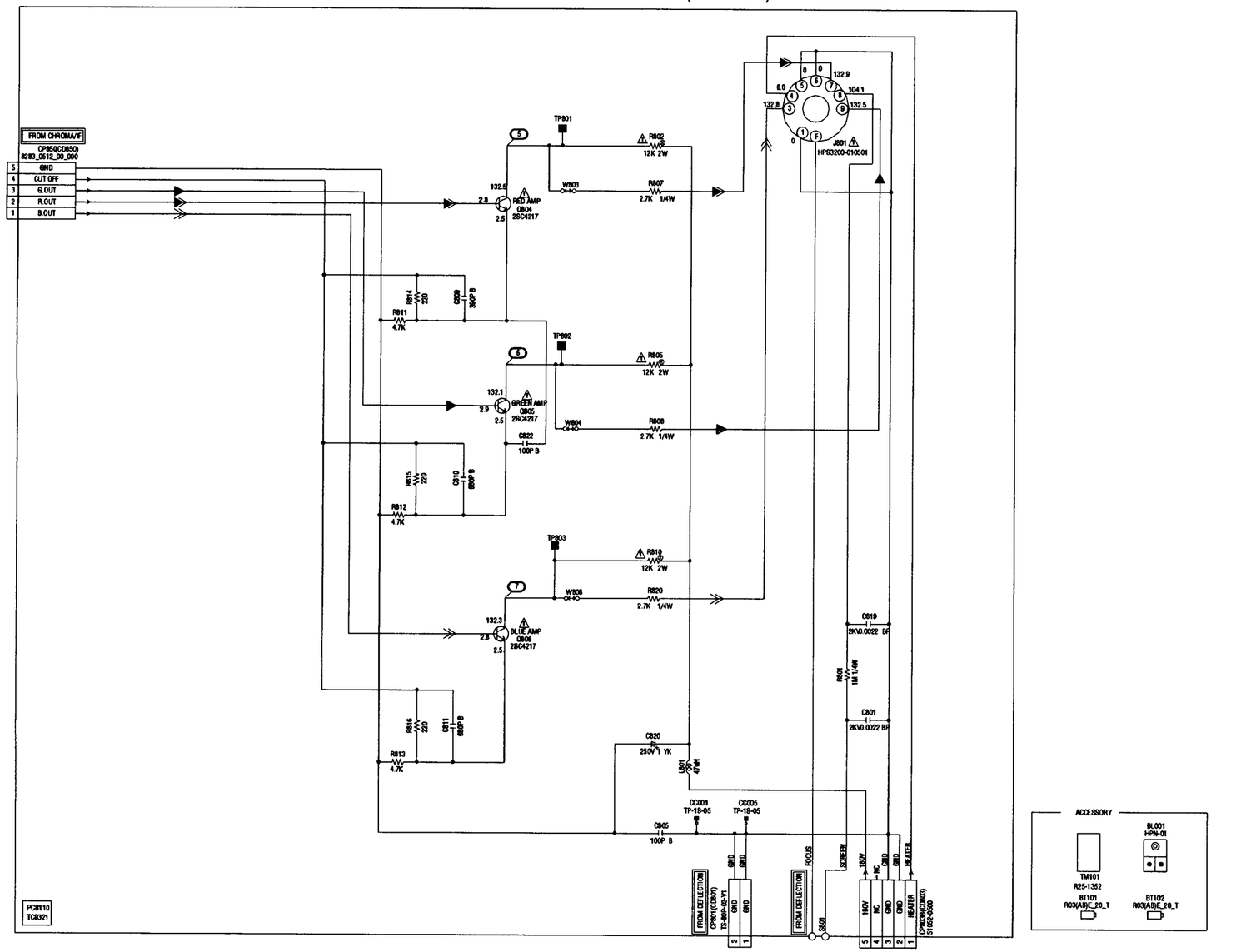
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

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.

CRT SCHEMATIC DIAGRAM

(MAIN PCB)



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

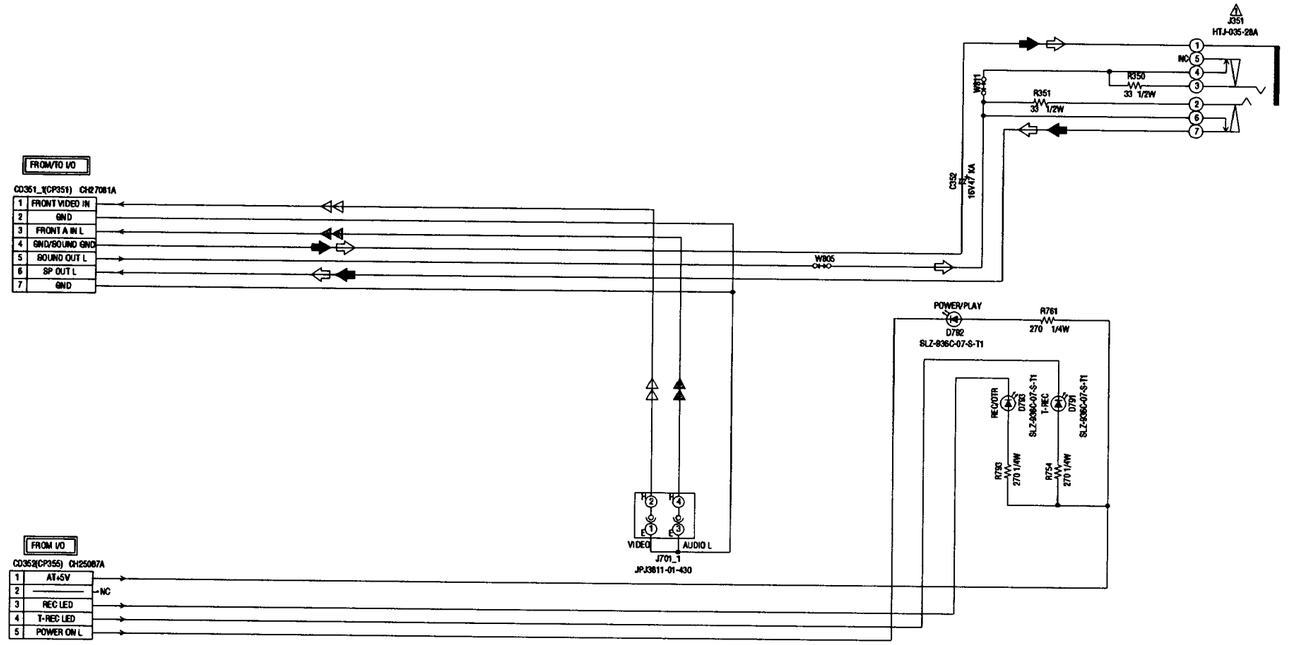
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

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

JACK/LED SCHEMATIC DIAGRAM

(JACK/LED PCB)



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

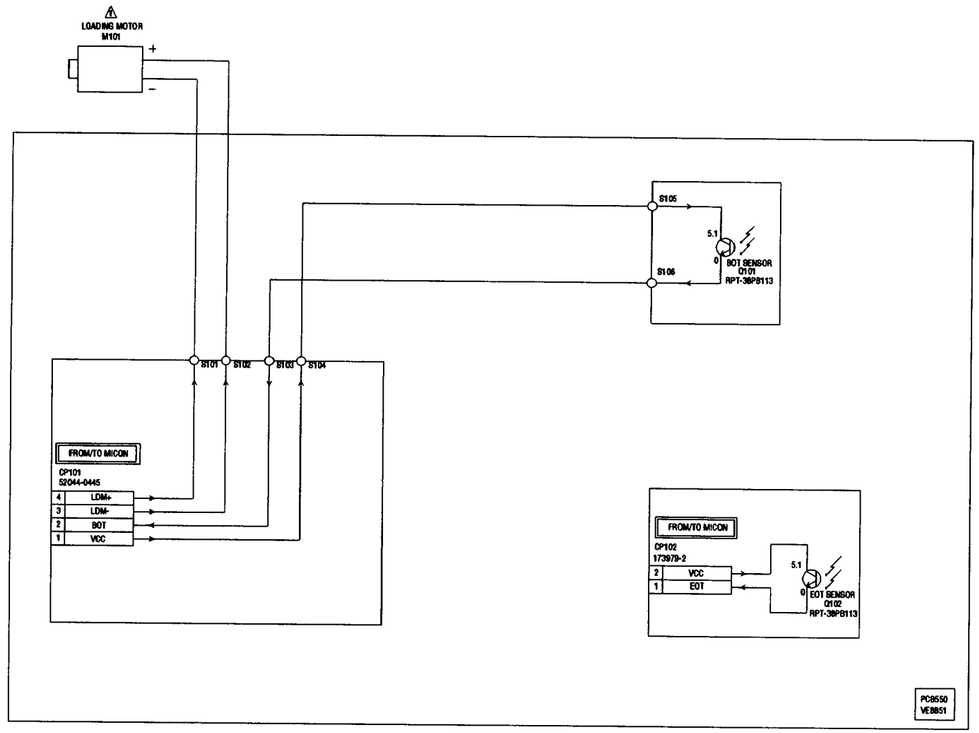
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

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

⇦ AUDIO SIGNAL(REC)
⬅ AUDIO SIGNAL(PB)
⋘ TUNER VIDEO SIGNAL
⋘ TUNER AUDIO SIGNAL

DECK SCHEMATIC DIAGRAM



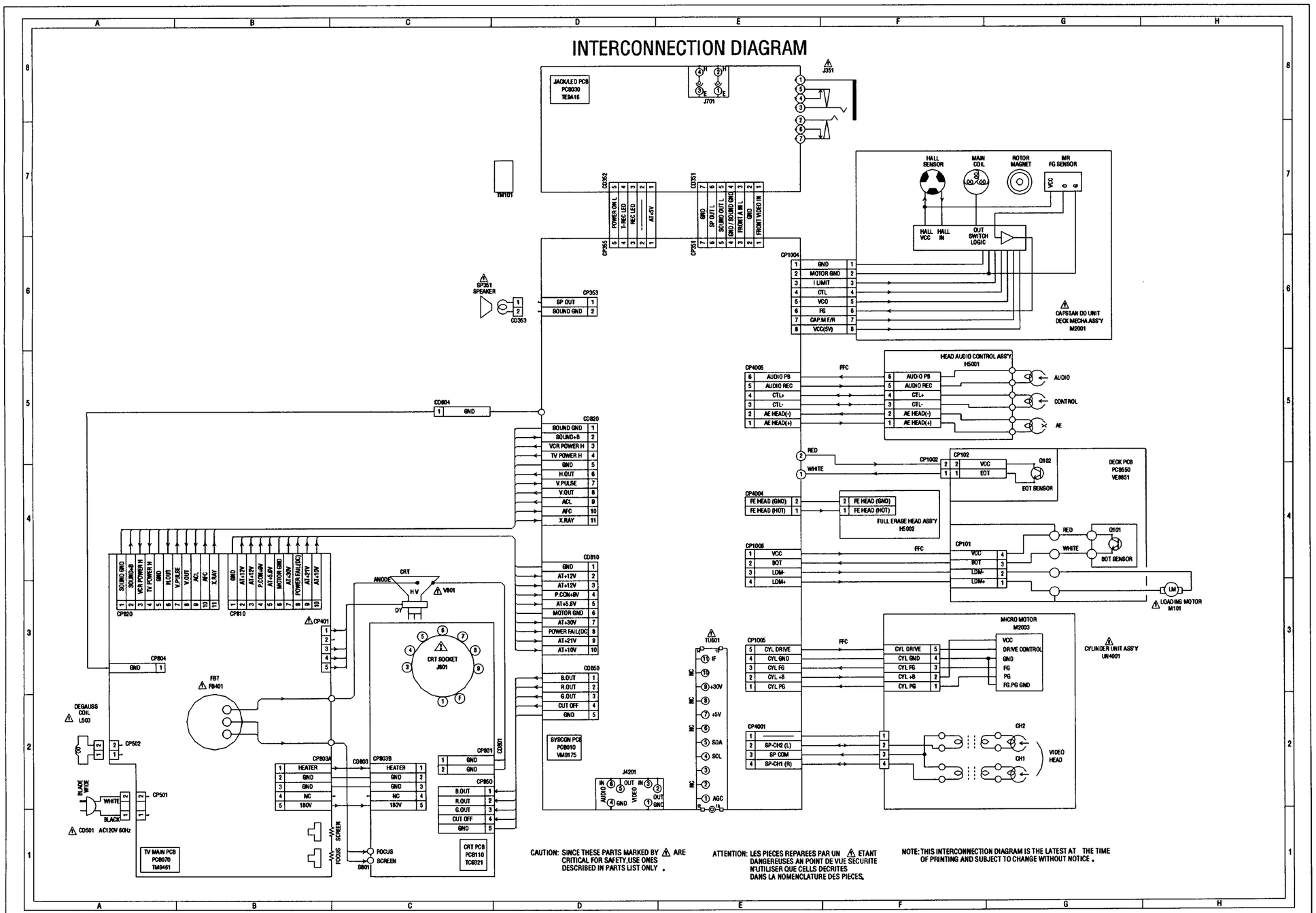
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY .

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

NOTE: 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



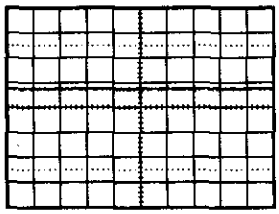
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY .

ATTENTION: LES 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 .

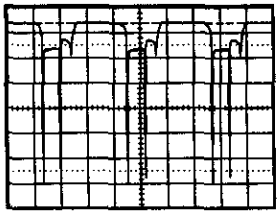
WAVEFORMS

TV POWER

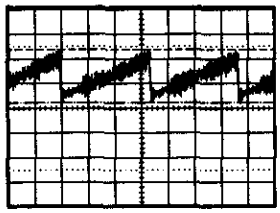


① 5.0V 0.1ms/div

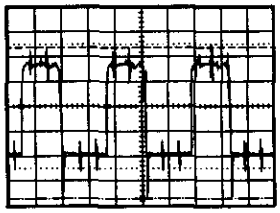
DEFLECTION



② 2.0V 20µs/div

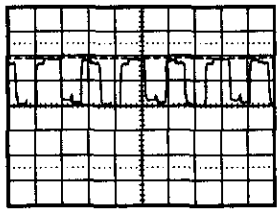


③ 0.5V 5ms/div

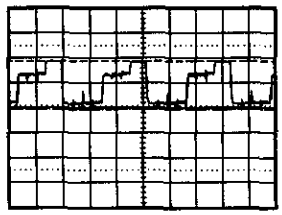


④ 200mV 20µs/div

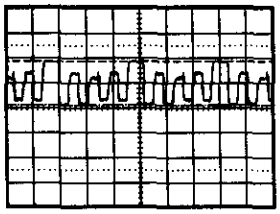
CRT



⑤ 50.0V 20µs/div

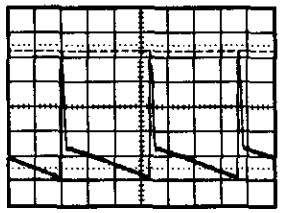


⑥ 50.0V 20µs/div



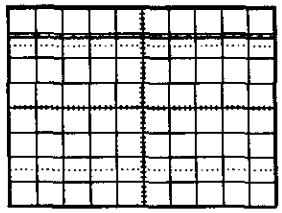
⑦ 50.0V 20µs/div

DEFLECTION

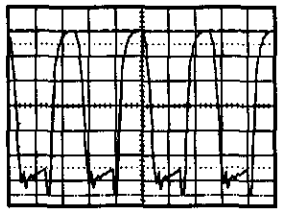


⑧ 10.0V 5ms/div

TV POWER

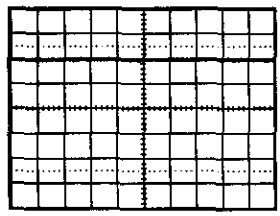


⑨ 20.0V 0.1ms/div

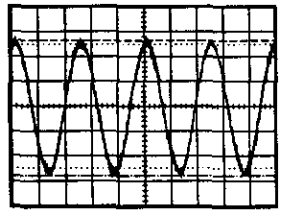


⑩ 0.5V 5µs/div

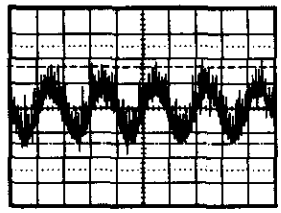
Y/C/AUDIO/HEAD AMP



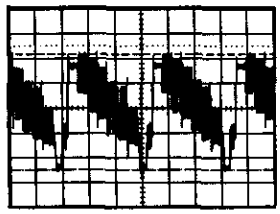
⑪ PB
0.5V 0.5ms/div



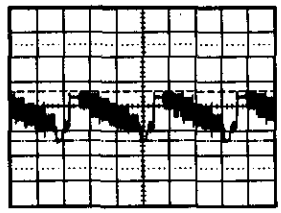
⑫ PB
100mV 1ms/div



⑬ PB
50mV 0.5ms/div



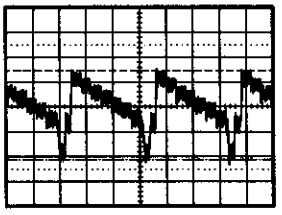
⑭ PB
0.5V 20µs/div



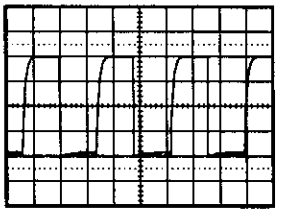
⑮ POWER ON
0.5V 20µs/div

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

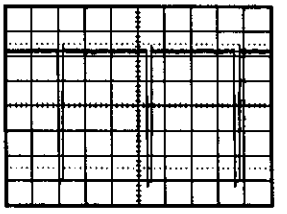
WAVEFORMS



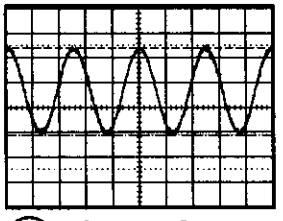
⑯ REC
100mV 20µs/div



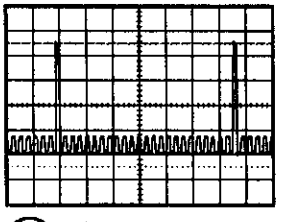
㉑ PB
1.0V 0.5ms/div



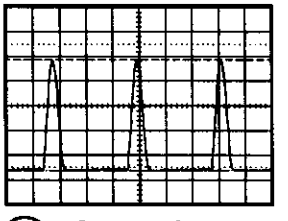
㉖ POWER ON
0.5V 10ms/div



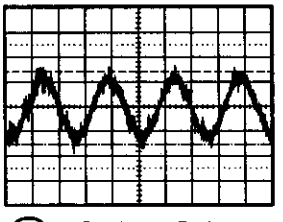
⑰ POWER ON
0.5V 1ms/div



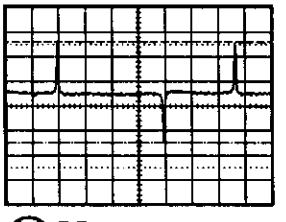
㉒ PB
1.0V 5ms/div



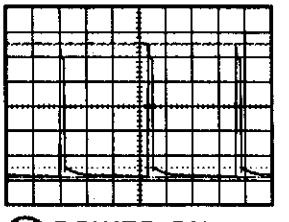
㉗ POWER ON
20.0V 20µs/div



⑱ POWER ON
50mV 1ms/div

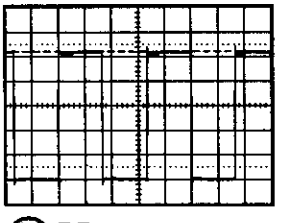


㉓ PB
1.0V 5ms/div

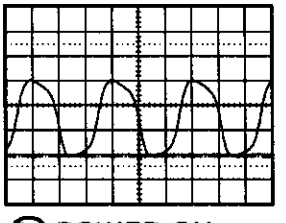


㉘ POWER ON
5.0V 5ms/div

MICON

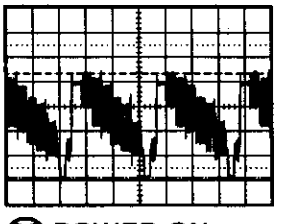


⑲ PB
1.0V 10ms/div

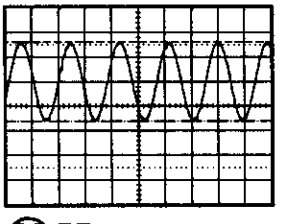


㉔ POWER ON
1.0V 10µs/div

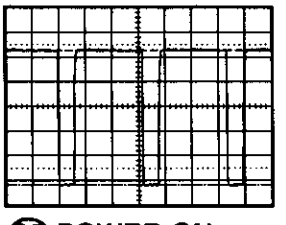
IN/OUT



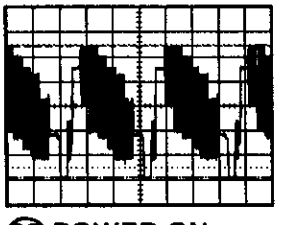
㉙ POWER ON
0.5V 20µs/div



⑳ PB
0.5V 0.5ms/div



㉕ POWER ON
1.0V 20µs/div

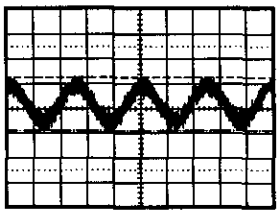


㉚ POWER ON
200mV 20µs/div

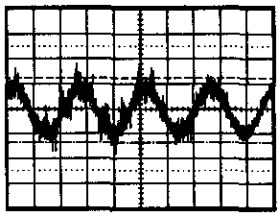
NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

WAVEFORMS

CHROMA/IF

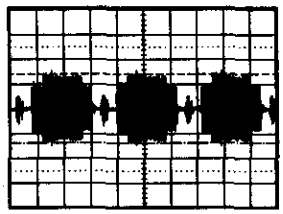


(31) POWER ON
0.5V 1ms/div

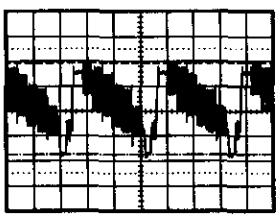


(32) POWER ON
50mV 1ms/div

(33) POWER ON
0.5V 20µs/div

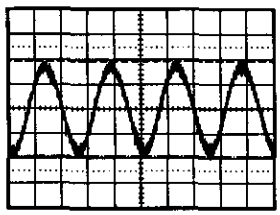


(34) POWER ON
200mV 20µs/div



(35) POWER ON
10.5V 20µs/div

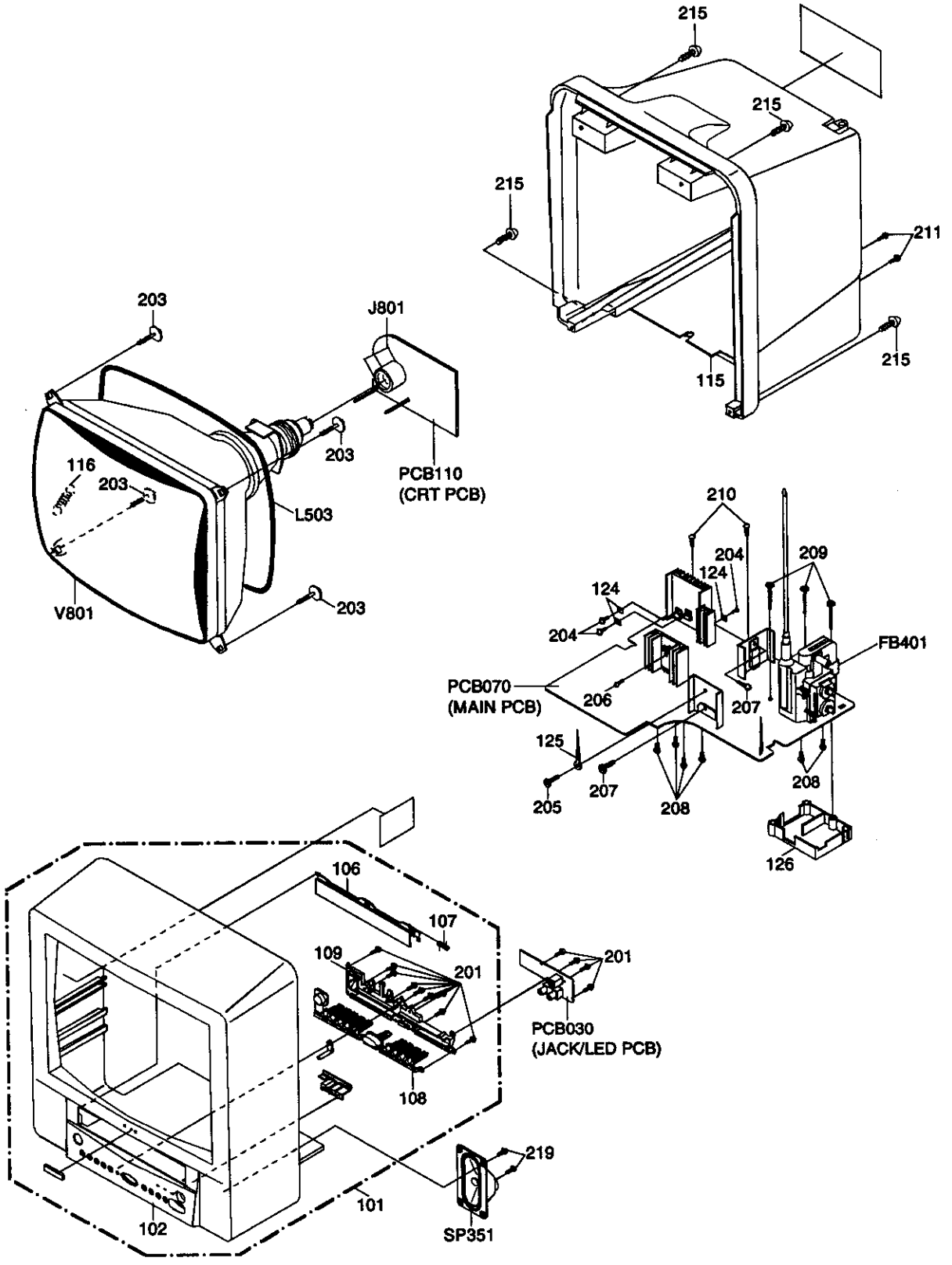
SOUND AMP



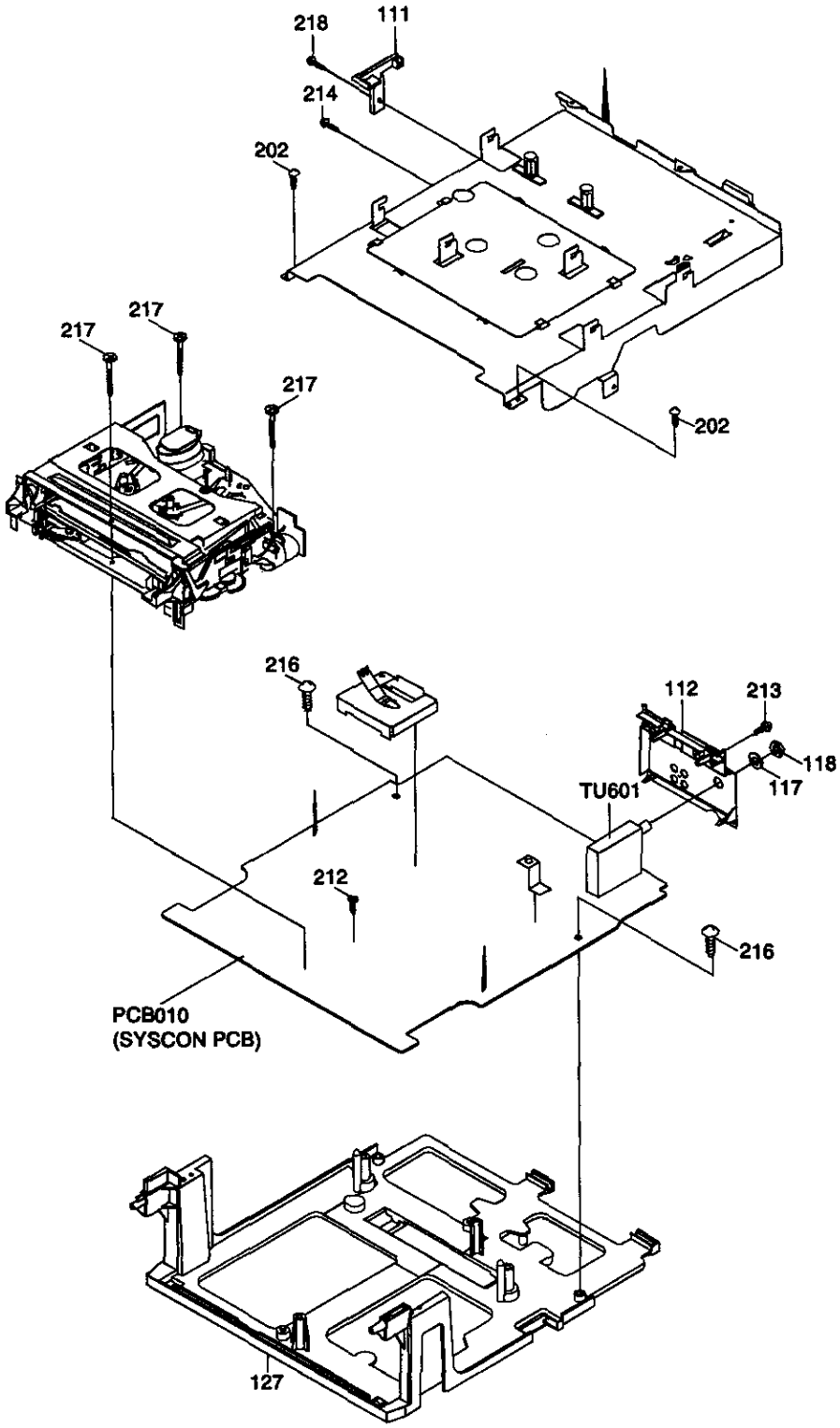
(36) POWER ON
200mV 1ms/div

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

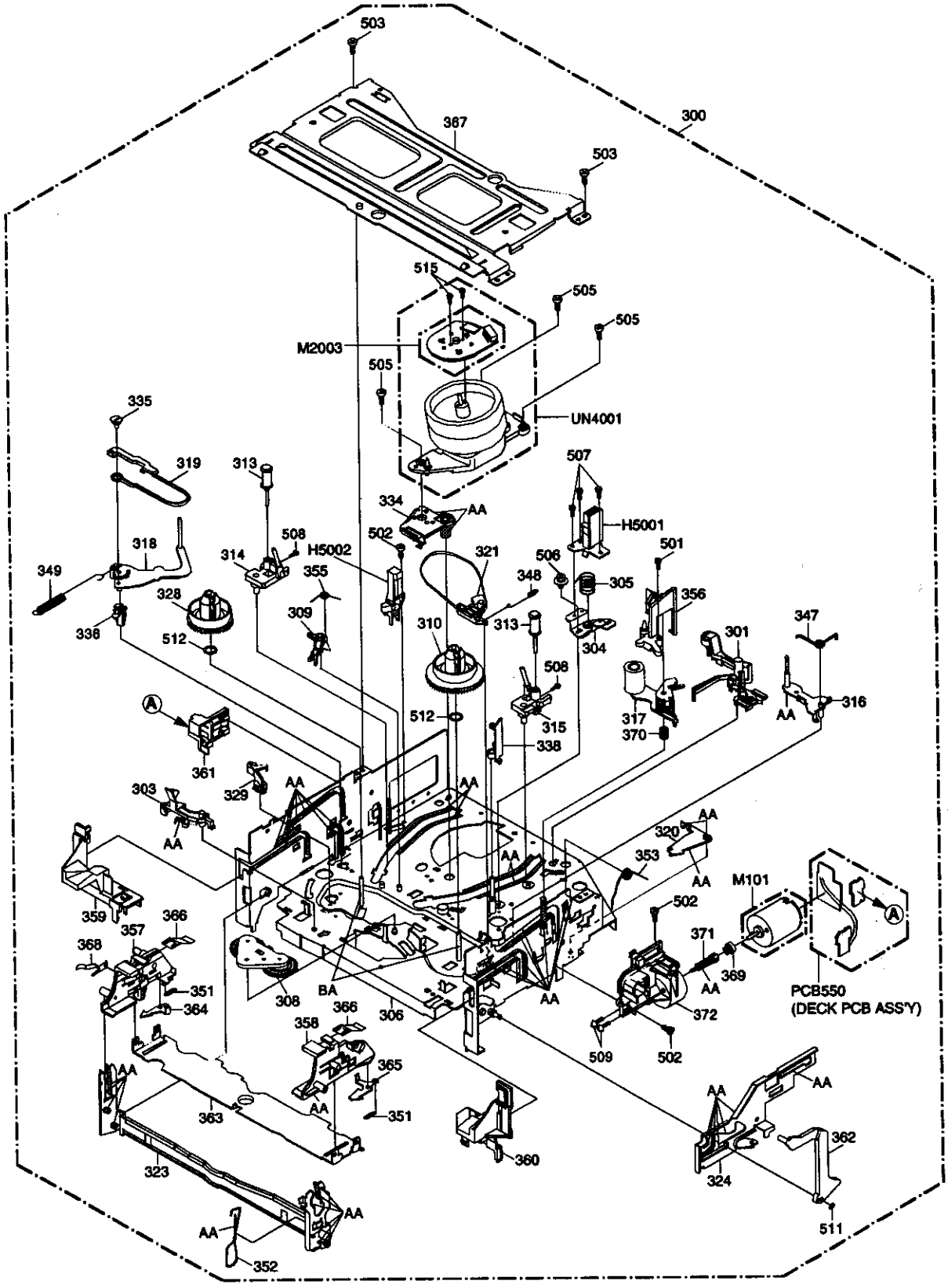
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



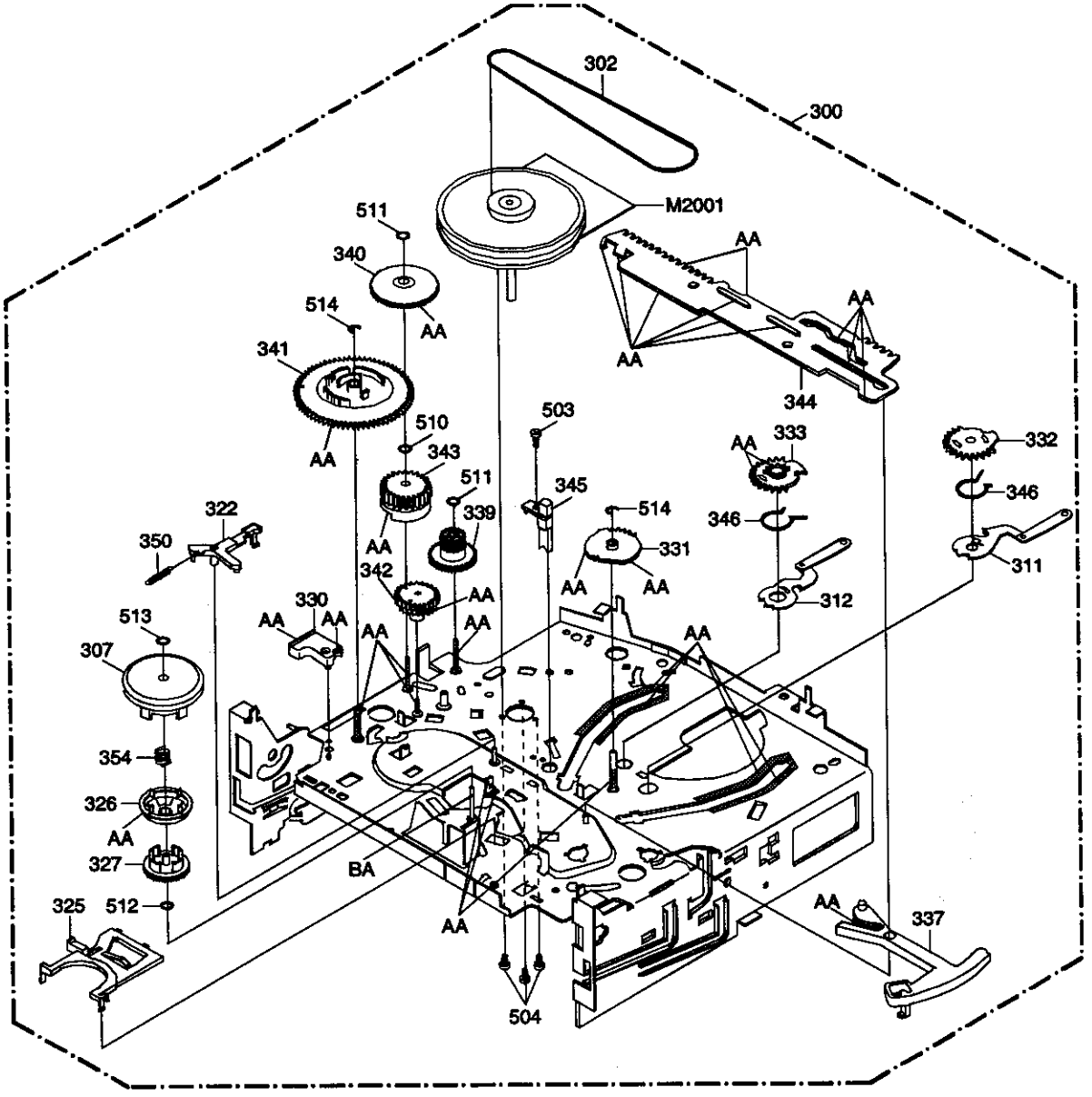
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	MARK
GREASE	AA
OIL	BA

NOTE: Applying positions AA 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	MARK
GREASE	AA
OIL	BA

NOTE: Applying positions AA 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

Location No.	TSB P/N	Reference No.	Description	
101	BZ610019	A54552A720	CABINET,FRONT ASS'Y	
102	BZ710142	701WPJ0916	CABINET,FRONT	
106	BZ710143	712WPJ0671	FLAP	
107	BZ710010	743WKA0032	SPRING,FLAP	
108	BZ710144	735WPJ0134	BUTTON,FRAME	
109	BZ710008	738WPA0014	BUTTON,BASE	
111	BZ710012	761WPA0151	HOLDER,M/PCB	
112	BZ710139	771WPAA010	PLATE,JACK	
115	BZ710134	702WPA0632	CABINET,BACK	
116	BZ710009	741WUA0019	SPRING,EARTH	
117	BZ710037	82A97A4077	WASHER	9.7x14xT0.7
118	BZ710038	8300495207	NUT (VOLUME NUT 3/8 INCH)	
124	BZ710082	769WSF0001	METAL SPACER	
125	BZ710039	8995034000	CORD CLIP UL CO.	
126	BZ710011	761WPA0145	HOLDER,FBT	
127	BZ710013	761WPA0195	HOLDER,DECK	
201	BZ710031	8110630A04	SCREW,TAP TITE(P) BRAZIER	3x10
202	BZ710030	8110630804	SCREW,TAP TITE(P) BRAZIER	3x8
203	BZ710033	8111J50D05	SCREW,TAPPING (A) GW22	5x35
204	BZ710023	810A130A04	SCREW/WASHER(A)	M3x10
205	BZ710022	810A130804	SCREW/WASHER(A)	M3x8
206	BZ710026	810B130A04	SCREW/WASHER(B)	M3x10
207	BZ710025	810B130804	SCREW/WASHER(B)	M3x8
208	BZ710019	8109630802	SCREW,TAP TITE(B) BRAZIER	3x8
209	BZ710024	810A130B04	SCREW/WASHER(A)	M3x20
210	BZ710021	810A130604	SCREW/WASHER(A)	M3x6
211	BZ710032	8110630A24	SCREW,TAP TITE(P) BRAZIER	3x12
212	BZ710028	8110330804	SCREW,TAP TITE(P) FLAT	3x8
213	BZ710027	8110230A02	SCREW,TAP TITE(P) BIND	3x10
214	BZ710017	8107226804	SCREW,TAP TITE(S) BIND	2.6x6
215	BZ710035	8117540A64	SCREW,TAPPING(B0) TRUSS	4x16
216	BZ710036	8117540B04	SCREW,TAPPING(B0) TRUSS	4x20
217	BZ710034	8117140A24	SCREW,TAPPING(B0) PAN	4x12
218	BZ710018	8107630804	SCREW,TAP TITE(S) BRAZIER	3x8
219	BZ710029	8110330A04	SCREW,TAP TITE(P) FLAT	3x10
---	BZ710014	792WHA0258	PACKAGE,TOP	
---	BZ710015	792WHA0259	PACKAGE,BOTTOM	
---	BZ710145	793WCD1212	GIFT BOX	
---	BZ614056	J5455201	INSTRUCTION BOOK	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
300	BZ610017	A54547A420A	DECK ASSY	A54547A420A
301	BZ710073	85OA500022	AHC ASS'Y	
302	BZ710081	85OP200270	BELT,CAPSTAN	
303	BZ710132	85OP900710	LEVER,REC	
304	BZ710094	85OP500083	BASE,AC HEAD	
305	BZ710112	85OP800324	SPRING,AC HEAD	
306	BZ710059	85OA000360	MAIN CHASSIS ASS'Y	
307	BZ710082	85OA200081	CLUTCH ASS'Y X	
308	BZ710060	85OA200073	ARM,IDLER ASS'Y	
309	BZ710104	85OP600553	ARM,S-S BRAKE	
310	BZ710061	85OA200076	T REEL ASS'Y	
311	BZ710063	85OA300061	LOADING ARM S ASS'Y	
312	BZ710064	85OA300062	LOADING ARM T ASS'Y	
313	BZ710068	85OA400187	G-ROLLER ASS'Y	
314	BZ710069	85OA400188	BASE,INCL S ASS'Y	
315	BZ710070	85OA400196	BASE,INCL T(S) ASS'Y	
316	BZ710071	85OA400197	P5-3 ARM ASS'Y	
317	BZ710072	85OA400205	PINCH ROLLER BLOCK	
318	BZ710065	85OA400175	TENSION ARM ASS'Y	
319	BZ710066	85OA400176	TENSION BAND ASS'Y	
320	BZ710067	85OA400178	PINCH ROLLER LEVER ASS'Y	
321	BZ710074	85OA600182	BRAKE T ASS'Y	
322	BZ710075	85OA600183	CAP BRAKE ARM ASS'Y	
323	BZ710076	85OA900213	LINK ASS'Y	
324	BZ710077	85OA900216	LINK LEVER ASS'Y	
325	BZ710078	85OP200261	LEVER,CLUTCH	
326	BZ710079	85OP200262	RING,CLUTCH	
327	BZ710080	85OP200263	GEAR,CLUTCH	
328	BZ710083	85OP200271	REEL,S	
329	BZ710084	85OP200273	STOPPER,REEL S	
330	BZ710085	85OP200274	SPACER,LINK LEVER	
331	BZ710086	85OP300178	GEAR,MAIN LOADING	
332	BZ710087	85OP300179	GEAR,LOADING S	
333	BZ710088	85OP300180	GEAR,LOADING T	
334	BZ710089	85OP300186	HOLDER,LOADING GEAR	
335	BZ710090	85OP400472	ADJUST,TENSION	
336	BZ710093	85OP400492	HOLDER,TENSION	
337	BZ710092	85OP400490	LEVER,TENSION	
338	BZ710091	85OP400475	COVER,P4	
339	BZ710097	85OP600543	GEAR,JOINT	
340	BZ710098	85OP600544	GEAR,MIDDLE	
341	BZ710100	85OP600545	CAM,MAIN	
342	BZ710101	85OP600546	CAM,P5	
343	BZ710102	85OP600547	CAM,PINCH ROLLER	
344	BZ710103	85OP600548	ROD,MAIN	
345	BZ710106	85OP700035	REFLECTOR,LED	
346	BZ710107	85OP800318	SPRING,LOADING GEAR	
347	BZ710108	85OP800319	SPRING,P5	
348	BZ710109	85OP800321	SPRING,BRAKE T	
349	BZ710110	85OP800322	SPRING,TENSION	
350	BZ710111	85OP800323	SPRING,CAP BRAKE	
351	BZ710118	85OP800342	SPRING,LOCKER (S)	
352	BZ710113	85OP800326	SPRING,LINK	
353	BZ710114	85OP800328	SPRING,DAMPER	
354	BZ710115	85OP800330	SPRING,RING	
355	BZ710116	85OP800332	SPRING,S-S BRAKE	
356	BZ710119	85OP900680	OPENER,CASS	
357	BZ710120	85OP900683	CASS SIDE L	
358	BZ710121	85OP900684	CASS SIDE R	
359	BZ710131	85OP900709	TAPE GUIDE L (P,R)	
360	BZ710122	85OP900686	TAPE GUIDE R	
361	BZ710130	85OP900707	COVER,SENSOR L	
362	BZ710123	85OP900688	LEVER,FLAP	
363	BZ710124	85OP900690	CASS HOLDER	
364	BZ710125	85OP900691	LOCKER,L	
365	BZ710126	85OP900692	LOCKER,R	
366	BZ710127	85OP900694	SPRING,PACK	
367	BZ710128	85OP900695	BRACKET,TOP	
368	BZ710129	85OP900696	SPRING,CASS EARTH	
369	BZ710095	85OP600540	DRIVER,WORM	
370	BZ710117	85OP800341	SPRING,P/R ARM	
371	BZ710096	85OP600541	WORM	
372	BZ710105	85OP600583	BRACKET,MOTOR	

CHASSIS REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
501	BZ710048	8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
502	BZ710049	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
503	BZ710017	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
504	BZ710050	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
505	BZ710052	810A126804	SCREW/WASHER(A)	M2.6x8
506	BZ710053	810B126404	SCREW/WASHER(B)	M2.6x4
507	BZ710046	8102120604	SCREW,PAN	M2x6
508	BZ710045	8102120304	SCREW,PAN	M2x3
509	BZ710047	8102130304	SCREW,PAN	M3.0x3.0
510	BZ710057	82Q3154C5N	POLYSLIDER WASHER	3.1x5.4xT0.25
511	BZ710055	82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
512	BZ710056	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
513	BZ710054	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
514	BZ710058	83ETW30000	E-RING	3.0
515	BZ710051	810A123504	SEMS A	M2.3x5.0
CP101	BZ614040	069R740018	CONNECTOR PCB SIDE	52044-0445
CP102	BZ614046	0694220139	CONNECTOR PCB SIDE	173979-2
H5001	BZ710040	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
H5002	BZ710041	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
⚠ M101	BZ710044	1596P78001	MOTOR (LOADING)	MXN13FB11H
⚠ M2001	BZ710141	1510398030	CAPSTAN DD UNIT	F2QSB02
M2003	BZ710042	1589V11007	MICRO MOTOR	EP14BD
PCB550	BZ610002	A4C701B550	DECK PCB ASS'Y	VE8851
Q101	BZ410026	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
Q102	BZ410026	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
⚠ UN4001	BZ610018	A54501A500	CYLINDER UNIT ASS'Y	A54501A500

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.		Description	
			RESISTORS		
⚠R439	BZ210015	R4X5T4223F	R,METAL	22K OHM 1/4W	
⚠R440	BZ210016	R4X5T4822F	R,METAL	8.2K OHM 1/4W	
⚠R441	BZ210013	R4X5T4104F	R,METAL	100K OHM 1/4W	
⚠R442	BZ210014	R4X5T4153F	R,METAL	15K OHM 1/4W	
⚠R444	BZ210023	R4X5T4183F	R,METAL	18K OHM 1/4W	
⚠R447	BZ210021	R65582680J	R,FUSE	68 OHM 1/2W	
⚠R448	BZ210003	R3K181102J	R,METAL	1K OHM 1W	
⚠R449	BZ210018	R5X2CE682J	R,CEMENT	6.8K OHM 7W	or
	BZ210019	R5Y2CE682J	R,CEMENT	6.8K OHM 7W	
⚠R450	BZ210022	R6558A1R2J	R,FUSE	1.2 OHM 2W	
⚠R500	BZ210001	R21202275K	R,SOLID	2.7M OHM 1/2W	
⚠R501	BZ210017	R5X2CE2R2J	R,CEMENT	2.2 OHM 7W	
⚠R505	BZ210012	R3X28B473J	R,METAL OXIDE	47K OHM 3W	or
	BZ210007	R3K28B473J	R,METAL OXIDE	47K OHM 3W	
⚠R510	BZ210010	R3X28B1R2J	R,METAL	1.2 OHM 3W	
⚠R512	BZ210008	R3X181273J	R,METAL OXIDE	27K OHM 1W	or
	BZ210004	R3K181273J	R,METAL	27K OHM 1W	
⚠R517	BZ210011	R3X28B1R8J	R,METAL	1.8 OHM 3W	or
	BZ210006	R3K28B1R8J	R,METAL OXIDE	1.8 OHM 3W	
⚠R526	BZ210010	R3X28B1R2J	R,METAL	1.2 OHM 3W	
⚠R527	BZ210010	R3X28B1R2J	R,METAL	1.2 OHM 3W	
R534	BZ210009	R3X28AR82J	R,METAL	0.82 OHM 2W	
⚠R542	BZ210002	R33681R15J	R,METAL	0.15OHM 1W	
⚠R802	BZ210005	R3K18A123J	R,METAL	12K OHM 2W	
⚠R805	BZ210005	R3K18A123J	R,METAL	12K OHM 2W	
⚠R810	BZ210005	R3K18A123J	R,METAL	12K OHM 2W	
⚠R1005	BZ210020	R615J12R7J	R,FUSE	2.7 OHM 1W	
			CAPACITORS		
C354	BZ110010	E02L03222M	CE	2200 UF 25V	
⚠C407	BZ110024	E62IF3122M	CE	1200 UF 25V	
C414	BZ110001	C01BBP712K	CC	100 PF 2KV BP	
⚠C421	BZ110014	E5EZ04102M	CE	1000 UF 35V	
C423	BZ110026	P411F3334J	CMPP	0.33 UF 250V ECWF	
⚠C424	BZ110027	P414F9912H	CMPP	0.0091UF 1.6KV ECWH	
⚠C431	BZ110022	E5EZTD100M	CE	10 UF 250V	
⚠C433	BZ110020	E5EZT8220M	CE	22 UF 100V	
C450	BZ110002	C01BBP713K	CC	0.001 UF 2KV BP	
⚠C502	BZ110009	C13HB07H3K	CC	0.0022UF 2KV B	
⚠C503	BZ110009	C13HB07H3K	CC	0.0022UF 2KV B	
⚠C506	BZ110025	P2122B224M	CMP	0.22 UF 250V ECQUL	
⚠C507	BZ110012	E51CGC471M	CE	470 UF 200V	
⚠C508	BZ110007	C034B0JH2K	CC	220 PF 125V MX	
⚠C510	BZ110018	E5EZT4101M	CE	100 UF 35V	
⚠C511	BZ110016	E5EZT2471M	CE	470 UF 16V	
C514	BZ110004	C01BBP7K3K	CC	0.0027UF 2KV BP	
C517	BZ110006	C01BBP7W2K	CC	820 PF 2KV BP	
⚠C521	BZ110013	E53VFB221M	CE	220 UF 160V	
C524	BZ110017	E5EZT3102M	CE	1000 UF 25V	
⚠C526	BZ110015	E5EZT1471M	CE	470 UF 10V	
C527	BZ110005	C01BBP7Q2K	CC	470 PF 2KV BP	
⚠C529	BZ110008	C034E0JH3M	CC	0.0022UF 125V MX	
⚠C530	BZ110007	C034B0JH2K	CC	220 PF 125V MX	
⚠C532	BZ110016	E5EZT2471M	CE	470 UF 16V	
⚠C537	BZ110019	E5EZT5R47M	CE	0.47 UF 50V	
⚠C540	BZ110021	E5EZTB100M	CE	10 UF 160V	
⚠C541	BZ110023	E62DFB470M	CE	47 UF 160V	
C560	BZ110003	C01BBP7H3K	CC	0.0022UF 2KV BP	
C801	BZ110003	C01BBP7H3K	CC	0.0022UF 2KV BP	
C819	BZ110003	C01BBP7H3K	CC	0.0022UF 2KV BP	
⚠C1001	BZ110011	E02LT3101M	CE	100 UF 25V	
			DIODES		
D401	BZ410009	D28T11E1N1	DIODE,SILICON	11E1N-TA1B2	
⚠D408	BZ410018	D94TA27011	DIODE,ZENER	HZ27-1L TD	
⚠D409	BZ410017	D94TA11B13	DIODE,ZENER	HZ11B3L TD	
⚠D411	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J	
⚠D412	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J	
⚠D413	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J	
⚠D501	BZ410013	D2LTGP15M0	DIODE RECTIFIER	GP15M-G23	
⚠D502	BZ410013	D2LTGP15M0	DIODE RECTIFIER	GP15M-G23	
⚠D503	BZ410013	D2LTGP15M0	DIODE RECTIFIER	GP15M-G23	
⚠D504	BZ410013	D2LTGP15M0	DIODE RECTIFIER	GP15M-G23	
⚠D505	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1	
D506	BZ410014	D2LTPG06J0	DIODE,SILICON	RMPG06J	
D508	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1	
⚠D509	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1	
D510	BZ410007	D23TGP15J0	DIODE,SILICON	RGP15J-G23	
⚠D511	BZ410011	D28TELS2N2	DIODE RECTIFIER	10ELS2N-TA1B2	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
		DIODES		
⚠D512	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
⚠D515	BZ410019	D97U03001B	DIODE,ZENER	MTZJ30B T-77
D516	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D517	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D518	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
⚠D519	BZ410010	D28T21DQN9	DIODE,SCHOTTKY	21DQ09N-TA2B1
D521	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D523	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D526	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D528	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D529	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D601	BZ410023	D97U09R11B	DIODE,ZENER	MTZJ9.1B T-77
D603	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D604	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D605	BZ410025	D28T11ESN1	DIODE,SILICON	11ES1N-TA1B2
D622	BZ410009	D28T11E1N1	DIODE,SILICON	11E1N-TA1B2
D791	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1
D792	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1
D793	BZ410005	002132Q130	LED	SLZ-936C-07-S-T1
D1001	BZ410009	D28T11E1N1	DIODE,SILICON	11E1N-TA1B2
D1003	BZ410004	0010600060	LED	SID1050CM
D1004	BZ410018	D92T112080	DIODE,ZENER	RD12FB-T7
D1005	BZ410009	D28T11E1N1	DIODE,SILICON	11E1N-TA1B2
D1006	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D1007	BZ410025	D28T11ESN1	DIODE,SILICON	11ES1N-TA1B2
D1008	BZ410012	D28TQS04N0	DIODE,SCHOTTKY	11EQS04N-TA1B2
D1010	BZ410015	D2LXE65800	DIODE,SILICON	1N4005E-G23
D1011	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D1014	BZ410020	D97U05R11B	DIODE,ZENER	MTZJ5.1B T-77
D1016	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
D1017	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D4001	BZ410006	D1VT001330	DIODE,SILICON	1SS133T-77
D4004	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D4201	BZ410021	D97U05R61B	DIODE,ZENER	MTZJ5.6B T-77
D4207	BZ410022	D97U06R81B	DIODE,ZENER	MTZJ6.8B T-77
D4208	BZ410008	D23U1003A3	DIODE,SCHOTTKY	SB10-03A3
		ICS		
⚠IC351	BZ611001	I01DP75110	IC	AN7511
⚠IC401	BZ611004	I03SD78400	IC	LA7840
⚠IC501	BZ611010	I2BT066120	IC	STR-F6612
⚠IC502	BZ611007	I1KA978050	IC	KIA7805PI
⚠IC503	BZ611006	I0GA909RD0	IC	PQ09RD06
⚠IC504	BZ611009	I1KA978120	IC	KIA7812PI
⚠IC506	BZ410001	000210001R	PHOTO COUPLER	ON3171R
IC601	BZ611008	I1KA978060	IC	KIA7806PI
IC604	BZ611003	I03FE814B0	IC	LA76814BM-MPB
IC1001	BZ611011	I56F57041A	IC	OEC7041A
IC1002	BZ611012	I9UJ0T600H	IC	PST600H
⚠IC1003	BZ611005	I07SQ955AN	IC	BA6955AN
IC1099	BZ610012	A54547A015	IC	S-24C04BDP-LA
⚠IC4001	BZ611002	I03F371170	IC	LA71170M-MPB
		TRANSISTORS		
⚠Q405	BZ510010	TC3T022710	TRANSISTOR,SILICON	2SC2271(D,E)-AE
⚠Q406	BZ510018	TDUQ025990	TRANSISTOR,SILICON	2SD2599
⚠Q501	BZ510011	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA
⚠Q502	BZ510005	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE
⚠Q503	BZ510015	TCWQ4160E0	TRANSISTOR,SILICON	2SC4160-OEC-YAC1
⚠Q504	BZ510012	TC5T018154	TRANSISTOR,SILICON	2SC1815Y(TPE2)
Q506	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP
Q507	BZ510014	TCST009450	TRANSISTOR,SILICON	2SC945(C)-T(P,Q)
Q508	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
Q513	BZ510023	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q520	BZ510024	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP
Q602	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q605	BZ510006	TAST00733Q	TRANSISTOR,SILICON	2SA733(C)-T_Q
Q607	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q608	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S
Q620	BZ510008	TB3T008920	TRANSISTOR,SILICON	2SB892(S,T)-AE
Q621	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146
⚠Q804	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠Q805	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
⚠Q806	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
Q1001	BZ410002	0002G00540	PHOTO COUPLER	GP1S586 or
	BZ410027	0002M00570	PHOTO COUPLER	SG-260
Q1002	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S
Q1003	BZ410003	0002G00550	PHOTO COUPLER	GP1S94L
Q1004	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description		
			TRANSISTORS		
Q1005	BZ410002	0002G00540	PHOTO COUPLER	GP1S566	or
	BZ410027	0002M00570	PHOTO COUPLER	SG-260	
Q1006	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q1008	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146	
Q1009	BZ410003	0002G00550	PHOTO COUPLER	GP1S94L	
Q1010	BZ510025	TPYJB05001	COMPOUMD TRANSISTOR	DTA114EKAT146	
Q1011	BZ510017	TD70D23960	TRANSISTOR,SILICON	2SD2396(J,K)	
Q1012	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q1014	BZ510021	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146	
Q1015	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q1016	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q1017	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q1018	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q1019	BZ510007	TB3001134R	TRANSISTOR,SILICON	2SB1134R	
Q1023	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q1024	BZ510019	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146	
Q4001	BZ510016	TCWT022740	TRANSISTOR,SILICON	2SC2274-AA	
Q4002	BZ510016	TCWT022740	TRANSISTOR,SILICON	2SC2274-AA	
Q4003	BZ510026	TPYJC05001	COMPOUMD TRANSISTOR	DTA124EKAT146	
Q4004	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q4005	BZ510003	TA3T013180	TRANSISTOR,SILICON	2SA1318(S,T)-AA	
Q4006	BZ510013	TCKT013170	TRANSISTOR,SILICON	2SC1317(Q,R,S)-T	
Q4007	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q4009	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q4010	BZ510002	T8YJ2412K0	TRANSISTOR,SILICON	2SC2412KT146 R,S	
Q4011	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S	
Q4012	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S	
Q4013	BZ510022	TNYJJ05001	COMPOUMD TRANSISTOR	DTC114TKAT146	
Q4204	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146	
Q4205	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146	
Q4206	BZ510020	TNYJB05001	COMPOUMD TRANSISTOR	DTC114EKAT146	
Q4210	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S	
Q4212	BZ510001	T6YJ1037K0	TRANSISTOR,SILICON	2SA1037AKT146R,S	
			COILS &TRANSFORMERS		
L102	BZ310022	02A6A8A0A1	CORE,FERRITE	HF57T18.5*10*10	
L401	BZ310004	021679472K	COIL	4.7 MH	
L402	BZ310013	0221000013	COIL,LINEARITY	ELH5L4112	
⚠L501	BZ310019	029K000074	COIL,LINE,FILTER	9-000074	
⚠L502	BZ310020	029X000065	COIL LINE FILTER	SU16V-20030	
⚠L503	BZ310018	026F140026	COIL,DEGAUSS	8F140026	
L602	BZ310010	021LA6390K	COIL	39 UH	
L604	BZ310012	021LA8R56M	COIL	0.56 UH	
L605	BZ310002	021673101K	COIL	100 UH	
L607	BZ310002	021673101K	COIL	100 UH	
L608	BZ310005	02167D101K	COIL	100 UH	
L610	BZ310026	0336020368	COIL,VIDEO IFT	3602038	
L611	BZ310001	021673101J	COIL	100 UH	
L613	BZ310007	0216A6470K	COIL	47 UH	or
	BZ310029	021LA6470K	COIL	47 UH	
L801	BZ310003	021673470K	COIL	47 UH	
L1001	BZ310009	021LA62R2K	COIL	2.2 UH	
L4001	BZ310024	0326230038	COIL,TRAP	2623003	
L4002	BZ310005	02167D101K	COIL	100 UH	
L4003	BZ310023	031626007S	COIL,BIAS OSC	1626007	
L4004	BZ310005	02167D101K	COIL	100 UH	
L4005	BZ310001	021673101J	COIL	100 UH	
L4006	BZ310001	021673101J	COIL	100 UH	
L4007	BZ310008	0216A6560K	COIL	56 UH	or
	BZ310030	021LA6560K	COIL	56 UH	
L4008	BZ310006	0216A6121K	COIL	120 UH	or
	BZ310031	021LA6121K	COIL	120 UH	
L4009	BZ310001	021673101J	COIL	100 UH	
L4011	BZ310005	02167D101K	COIL	100 UH	
L4012	BZ310005	02167D101K	COIL	100 UH	
L4014	BZ310011	021LA6680K	COIL	68 UH	
L4015	BZ310001	021673101J	COIL	100 UH	
L4205	BZ310002	021673101K	COIL	100 UH	
T401	BZ310025	03305Y002S	TRANS.,HORIZONTAL DRIVE	305Y002	
⚠T501	BZ310028	048135031W	TRANSFORMER,SWITCHING	8135031W	
			JACKS		
⚠J351	BZ614002	060G131014	RCA JACK	HTJ-035-28A	
J701	BZ614001	0602101020	JACK,RCA	JPJ3811-01-430	
⚠J801	BZ614004	066X120014	SOCKET,CATHODE RAY TUBE	HPS3200-010501	
J4201	BZ614003	063P000064	JACK,PLATE	T6582-ABCC	
			SWITCHES		
SW1001	BZ612002	0508221001	SWITCH (LEAF)	SPVF130100	
SW1002	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description		
			SWITCHES		
SW1003	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1004	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1005	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1006	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1007	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1008	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1009	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1010	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1011	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
SW1012	BZ612001	0504201T31	SWITCH,TACT	SKHVBED010	
			VARIABLE RESISTORS		
VR502	BZ210025	V1263L2BTC	VOLUME,SEMI FIXED	RH063MCN2R	or
	BZ210024	V1163L2BTC	VOLUME,SEMI FIXED	EVNCYAA03BY2	
			P.C.BOARD ASSEMBLIES		
PCB010	BZ610013	A54552A01A	PCB ASS'Y	VM9175A	
PCB030	BZ610014	A54552A03A	PCB ASS'Y	TE9A16A	
PCB070	BZ610015	A54552A07A	PCB ASS'Y	TM9461A	
PCB110	BZ610016	A54552A11A	PCB ASS'Y	TC9321A	
PCB550	BZ610002	A4C701B550	SEE CHASSIS REPLACEMENT PARTS LIST		
			MISCELLANEOUS		
B502	BZ310015	024AT03482	CORE,BEADS	BL02RN2-R62T4	
B504	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6	
B505	BZ310017	024DT03581	CORE,BEADS	LFP3A-M3R2TA	
B602	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6	
B4003	BZ310016	024AT03655	CORE,BEADS	BL01RN1-A63T6	
BL001	BZ310014	023C00022A	COIL BALUN	HPN-01	
CD351	BZ614026	06CH27081A	CORD,CONNECTOR	CH27081A	
CD352	BZ614025	06CH25087A	CORD,CONNECTOR	CH25087A	
CD353	BZ614022	06CH12414A	CORD,CONNECTOR	CH12414A	
⚠CD501	BZ614053	120R614909	CORD,AC	0R614909	
CD604	BZ614021	06CH01005A	CORD,CONNECTOR	CH01005A	
CD801	BZ614007	068M82025A	CORD,CONNECTOR	8M82025A	
CD810	BZ614027	06CH2A014A	CORD,CONNECTOR	CH2A014A	
CD820	BZ614028	06CH2B027A	CORD,CONNECTOR	CH2B027A	
CD850	BZ614024	06CH25080A	CORD,CONNECTOR	CH25080A	
CF801	BZ613005	102E245R71	FILTER,SAW	M1958M	
CP351	BZ614039	069E270129	CONNECTOR PCB SIDE	8283_0712_00_000	
CP353	BZ614019	069X120249	CONNECTOR PCB SIDE	B2B-EH-A	
CP355	BZ614013	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000	
⚠CP401	BZ614020	069X450029	CONNECTOR PCB SIDE	B05B-DVS	
⚠CP501	BZ614012	0697320039	CORD,UX CONNECTOR	THL-P03P-B1	
CP502	BZ614018	069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1	
CP603	BZ614045	069E260129	CONNECTOR PCB SIDE	8283_0612_00_000	
CP801	BZ614017	069W320018	CONNECTOR PCB SIDE	TS-80P-02-V1	
CP804	BZ614016	069W01001A	CONNECTOR PCB SIDE	003P-2100	
CP810	BZ614047	069E2A0129	CONNECTOR PCB SIDE	8283_1012_00_000	or
	BZ614008	06942A0129	CONNECTOR PCB SIDE	1-173981-0	
CP820	BZ614048	069E2B0129	CONNECTOR PCB SIDE	8283_1112_00_000	
CP850	BZ614013	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000	
CP1002	BZ614023	06CH22076A	CORD,CONNECTOR	CH22076A	
CP1004	BZ614010	0697280590	CONNECTOR PCB SIDE	TMC-J08P-B1	
CP1005	BZ614051	069R750028	CONNECTOR PCB SIDE	52045-0545	
CP1006	BZ614015	069R740028	CONNECTOR PCB SIDE	52045-0445	
CP4001	BZ614054	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1	
CP4004	BZ614009	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1	
CP4005	BZ614052	069R760028	CONNECTOR PCB SIDE	52045-0645	
CP803A	BZ614006	067R105019	WIRE HOLDER	51052-0500	
CP803B	BZ614006	067R105019	WIRE HOLDER	51052-0500	
CUS011	BZ710001	800WF00004	CUSHION-A		
CUS012	BZ710002	800WF00019	CUSHION-C		
CUS013	BZ710003	800WF00020	CUSHION-B		
EL001	BZ614043	124116281A	EYE LET	XRY16X28BD	
EL002	BZ614044	124120301A	EYE LET	XRY20X30BD	
⚠F501	BZ614033	081PA05003	FUSE	233005-MB000	
⚠F502	BZ614032	080PA2R501	FUSE	23302.5-MB000	
⚠FB401	BZ310027	043213011R	TRANSFORMER,FLYBACK	CJP28651-00AJ1	
FH501	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC	
FH502	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC	
FH503	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC	
FH504	BZ614005	06710T0006	HOLDER,FUSE	EYF-52BC	
⚠ICP502	BZ614035	083PC04002	MICRO FUSE	251004	
⚠ICP503	BZ614036	083PC05002	MICRO FUSE	251005	
ICP504	BZ614036	083PC05002	MICRO FUSE	251005	
⚠ICP505	BZ614034	083PC02002	MICRO FUSE	251002	
OS1001	BZ614031	0779014002	REMOTE RECEIVER	GP1U281Q	
⚠RY501	BZ612003	0560Q10114	RELAY	SDT-SS-109DM	

ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description		
			SWITCHES		
⚠SP351	BZ614029	070C533008	SPEAKER	810-47-171	
⚠TH501	BZ410024	DF20C3R0Q0	DEGAUSS ELEMENT	PTH451C3R0Q11	
TM101	BZ614055	076R0DA010	TRANSMITTER	R25-1335	
⚠TU601	BZ610001	0145K00050	TUNER UHF-VHF	TECC1040PG31A	
⚠V801	BZ614037	098Q140496	CRT W/DY	A34AGT13*07	
X604	BZ613004	100CT3R505	CRYSTAL HC-49/C	3.579545MHz	
X1001	BZ613002	100CT01207	CRYSTAL HC-49/U-S	12MHz	
X1002	BZ613006	100DA32R01	CRYSTAL DT-26	32.768KHz	or
	BZ613001	100C32R803	CRYSTAL VDSVT-200	32.768KHz	
X4001	BZ613003	100CT3R504	CRYSTAL HC-49/C	3.579545MHz	

RESISTOR

RC.....	CARBON RESISTOR

CAPACITORS

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

TOSHIBA VIDEO PRODUCTS PTE. LTD.

438B ALEXANDRA ROAD, BLOCK B #06-01 ALEXANDRA TECHNOPARK SINGAPORE 119968