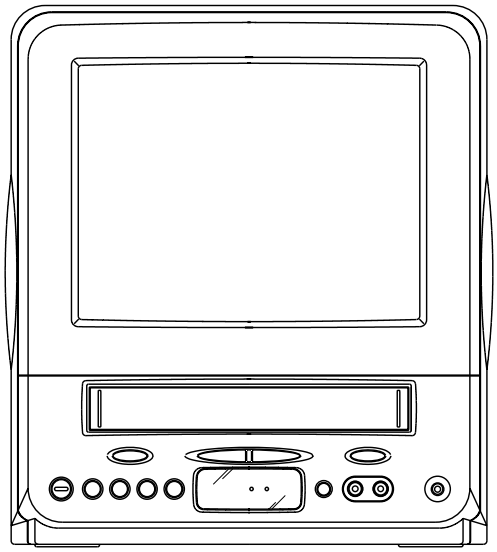
Roadstar

TLV-1081XT

SERVICE MANUAL

COLOR TELEVISION/VIDEO CASSETTE RECORDER



VHS
PAL

ORIGINAL
MFR'S VERSION B

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 **[Note1]** .
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.

CONTENTS

GENERAL SPECIFICATIONS

G-1.Outline of the Product

10 inch(228.6 mmV):Measured diagonally
Color CRT 76 degree deflection
1 -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 : CCIR System B/G

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

G-6.NTSC Playback(PAL 60Hz) ☒Yes ☐No

G-7.MESECAM ☐Yes ☒No

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	11.12 mm/sec		

G-10.Recording/Playback Time

NTSC or PAL-M(NTSC Playback Only)
☒at SP Mode Max. 210 min. (with T-210 cassette)
☐at LP Mode Max. 420 min. (with T-210 cassette)
☐at SLP 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.Rewind/Fast Forward Time(Approx.)

AC:	☒FF:2'15" /Rew:1'48"	(☐ T-120 cassette	☒ E-180 cassette)
	☐FF:3'40" /Rew:2'50"	(☐ T-120 cassette	☐ E-180 cassette)
DC:	☒FF:3'40" /Rew:2'50"	(☐ T-120 cassette	☒ E-180 cassette)

G-12.Search Speed

☒SP 5 and 7 Times(PAL)
☒SP 3 and 5 Times(NTSC)
☐SP _____ Times

G-13.Slow Speed

☒SP 1/10 Times
☐LP _____ Times
☐SLP _____ Times

G-14.Frame Advance

☒SP 1/10 Times
☐LP _____ Times
☐SLP _____ Times

GENERAL SPECIFICATIONS

G-15.Antenna Input Impedance

VHF/UHF 75 ohm unbalanced

G-16.Tuner and Receiving channel ☒1Tuner System ☐2Tuner System

Tuner : Contactless Electric tuner

☐Oscar(W/O HYPER) ☒Oscar(W/ HYPER) ☐France CATV) ☐Others

channel coverage

(SECAM) ___~___, ___~___, ___~___,

(PAL) E 2~E4 , X~ Z+2 , S1~S10 , E5~E12 , S11~S41 , E21~E69

Tuning System

☒Frequency syn. ☐Voltage syn. ☐Others

G-17.Preset Channel

80 channels

G-18.Intermediate Frequency

Picture(FP)	38.9 MHz	____ MHz	____ MHz
Sound (FS)	33.4 MHz	____ MHz	____ MHz
FP-FS	5.5 MHz	____ MHz	____ MHz

G-19.Stereo/Dual TV Sound

☐Yes(☐NICAM ☐GERMAN ☐USA ☐JAPAN) ☒No

G-20.Video Signal

Input Level 1 Vp-p / 75 ohm

Output Level 1 Vp-p / 75 ohm

S/N Ratio 53 dB (Weighted)

Horizontal Resolution at SP Mode 240 Lines

G-21.Audio Signal

Input Level

Line -3.8 dB / 50 Kohm

RCA - dB / - Kohm

Output Level

Line -3.8 dB / 1 Kohm

RCA - dB / - Kohm

(0dB=0.775 V rms)

S/N Ratio at SP Mode 42 dB

Harmonic Distortion : 1.5 % (1KHz)

Frequency Response : at SP Mode 100 Hz ~ 10 KHz

at LP Mode _____ Hz ~ _____ KHz

at SLP Mode _____ Hz ~ _____ KHz

G-22.Heads

Video	☒ 2	Rotary Heads
FM Audio	☐ _____	Rotary Heads
Audio / Control	☒ 1	Stationary Head (☒Mono ☐Stereo(L,R))
Erase	☒ 1	Full Track Erase

G-23.Motor: 3 Motors

☒Tape/Cassette Loading

☒Cylinder (Direct Drive)

☒Capstan (Direct Drive)

G-24.Power Source

230 V ☒AC 50Hz ☐AC 60Hz

☒EXT DC Jack 12 V

GENERAL SPECIFICATIONS

G-25.Power Consumption: 50 W at AC 230 V 50 Hz
(Approx.) 50 W at DC 12 V
(at TV and VCR ON)
Stand by: 6 W at AC 230 V 50 Hz
Per Year: - kWh / Year

G-26.Dimensions(Approx.)
287 mm(W) 333.5 mm(D) 319 mm(H)

G-27.Weight(Approx.) Net : 8.8 Kg (- lbs)
Gross: 10.5 Kg (- lbs)

G-28.Cabinet Material

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

G-29.Cassette Loading System: ☒Front Cassette Loading System
☐Top Loading System

G-30.Tape Counter: Linear Time Tape Counter

G-31.Protector: ☒Power Fuse ☒Dew Sensor

G-32.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

☐PTB	☐DHHS	☐HWC	☐DENTORI	☒NONE

G-33.Temperature
Operation 5 ˚C ~ 40 ˚C
Storage -20 ˚C ~ 60 ˚C

G-34.Operating Humidity
Less than 80 %RH

G-35.Clockand Timer
Built-in 1 Month 8 Events Programmable Timer
One Touch Recording : Max Time SP 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

G-36.Timer back up Time
More than 30 Minutes (at Power Off Mode)

GENERAL SPECIFICATIONS

G-37.Terminals

☒VHF/UHF Antenna ☒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)
☐Audio Output(Rear) ☐Phono Jack (RCA ø8.3)
☒21 Pin (x 1) ☒DC Jack 12V (Center +)
☐AC Inlet ☐Ext Speaker
☐Diversity ☐Ear Phone
☒Head Phone

G-38.Indicator

☐Power (___) ☒Rec/OTR (Red) ☐Play (___) ☐Tape-In (___) ☒Timer Rec (Red)
☒Stand By (Red) ☐On Timer (___) ☐Rental Mode(or Clear Picture) (___)
☐One Touch Playback(Button Lights) ☐Dew Sensor(Play LED Flush)

G-39.On Screen Display

☒Menu
- ☐ATS
- ☒Timer Rec Set
- ☒Ch Set-up
  - ☒Auto Tuning ☐Ch Mapping
  - ☒Ch Tuning ☒CH Allocation
- ☒TV Set-up
  - ☒On/Off Timer Set ☐Audio
  - ☒Picture ☐Tuning Mode
- ☒VCR Set-up
  - ☒Auto Repeat On/Off ☐System Select
  - ☐Scena Repeat
- ☐User Registration
- ☒System Set-up
  - ☒Clock Set(☒Calendar ☐12H ☒24H)
  - ☒Language

☐G-CODE(or SHOWVIEW or PLUSCODE)No. Entry(Option)
☒Clock ☒CH/AV
☒Tape Counter ☐Tape Speed
☒Sleep Time ☒Sound Mute
☒Control Level (☒Vol,☒Bright,☒Cont,☒Color,☐Tint,☒Sharpness)
☒Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause
☒Auto Tracking/Manual Tracking
☒Index ☒Repeat ☒DEW
☐Tone 1/2 ☐Stereo

G-40.OSD Language

☒Eng ☒Ger ☒Fre ☒Spa ☒Ita ☐Por

OSD Language Setting

☐Eng ☐Ger ☒Fre ☐Spa ☐Ita ☐Por

G-41.Speaker

Layout ☒Front ☐Side ☐Bottom
Size/Peace 3 inches x 1 pcs
Imp 8 ohm
Power Max 1.2 W Typical / 10% 0.8 W Typical

GENERAL SPECIFICATIONS

G-42.EXT Speaker

☐Yes _____ W/Imp _____ ohm ☒None

G-43.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: 347 mm(W) 408 mm(D) 392 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: 1160 Sets / 40' container

G-44.Accessories

☒Owner's Manual(☐W/ Guarantee Card) [German/French/English/Italian/Spanish]

☐Channel Film	☐Dew Caution Sheet
☒Remote Control Unit	☐AC Plug Adaptor
☐U/V Mixer	☒Quick Set-up Sheet
☒Rod Antenna (☐One Pole ☒Two Pole/☐F-Type ☒DIN Type ☐France Type)	
☐Loop Antenna(☐F-Type ☐DIN Type ☐France Type)	
☒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 Plug
☐RF Cable	☐Euro Warranty Information Sheet

G-45.Other Features

☒Auto Head Cleaning	☒Index Search
☒Auto Tracking	☒Auto Search
☐CH Auto Set-Up/Auto Clock	☐ATS
☐VIDEO PLUS+(SHOWVIEW,G-CODE) (Option)	
☒HQ (VHS Standard High Quality)	☐VPS ☐PDC
☒Auto Power On, Auto Play, Auto Rewind, Auto Eject, Auto Repeat System	
☒Forward / Reverse Picture Search	☐SQPB
☐One Touch Playback	☐CATV
☒Auto CH Memory	☐Anti-Theft
☐Rental Mode	☒T'Text(☐Fast,☐Top,☒Uni)
☒TV Auto Shutt off Function	☒TV Monitor

GENERAL SPECIFICATIONS

G-46.Switch

Front

☒Power(Tact)	☒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	

Rear

☐Color On/Off (SECAM only)	☐Degauss	
☒Main Power SW		☐AC/DC

G-47.Magnetic Field

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

G-48.Remote Control Unit: RC-CH

Glow in Dark Remocon ☐Yes ☒No

Power Source: D.C 3 V Battery UM - 4 x 2

Total: 36 Key

☒ 0/AV	☒Ch/Tr/Page Up	☒Power
☒ 1	☒Ch/Tr/Page Down	☒Eject
☒ 2	☒Volume Up	☐Play
☒ 3	☒Volume Down	☐Play/Up
☒ 4	☒Muting	☒Play/Slow/Up
☒ 5	☒Menu	☐F.FWD
☒ 6	☒Enter/Hold	☒F.FWD/Right
☒ 7	☒Cancel/Ch Skip/F/T/B	☐Rew
☒ 8	☐Set Up	☒Rew/Left
☒ 9	☐Set Down	☒Pause/Still
☐./..	☐Set Right	☐Pause
☒Call	☐Set Left	☐Stop
☒TV Monitor	☒Program	☒Stop/Down
☒Sleep Timer	☐Speed	☒REC/OTR
☒Timer Rec	☒Text/Mix/TV	☒ATR/Reveal
☒Counter Reset		☒Index/Time Text
☐AD Skip	☒Zero Return	

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

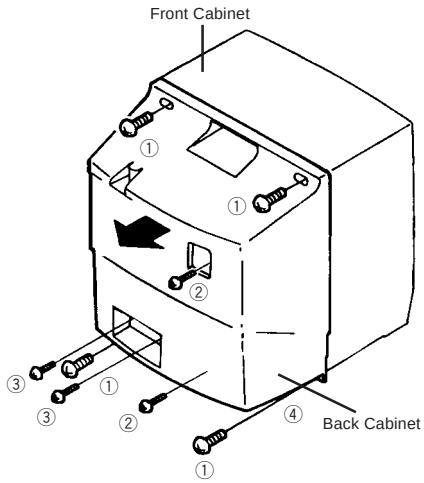


Fig. 1-1

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.

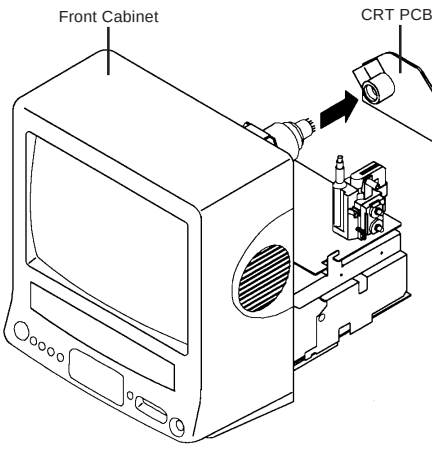


Fig. 1-2

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

1. Remove the 2 screws ①.
2. Disconnect the following connectors: (CP351, CP757, CP302, CP403 and CP401).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

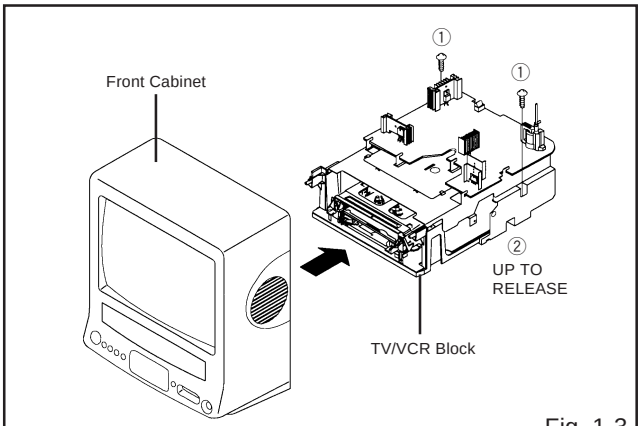


Fig. 1-3

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

1. Remove the screw ①.
2. Remove the Main PCB Holder.
3. Remove the 3 screws ②.
4. Disconnect the following connectors: (CP810, CP820, CP404, CP501 and CP601).
5. Remove the Main PCB in the direction of arrow.

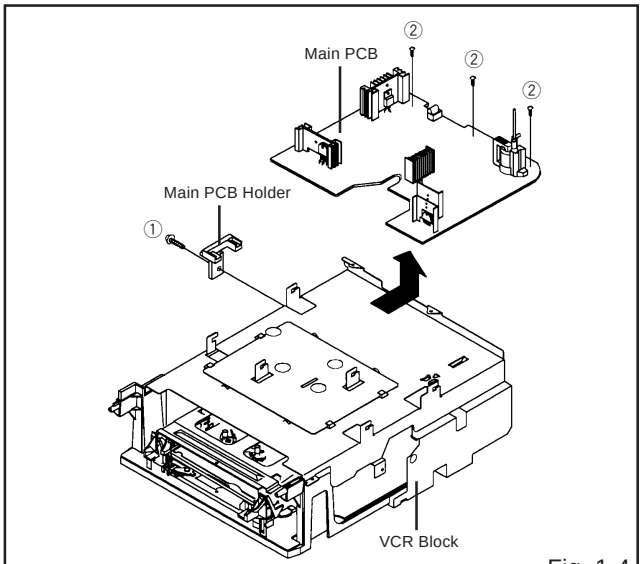


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

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

1. Remove the 2 screws ①.
2. Remove the 4 screws ②.
3. Remove the screw ③.
4. Remove the Deck Shield Plate in the direction of arrow (A).
5. Remove the screw ④.
6. Remove the Bottom Shield Plate in the direction of arrow (B).

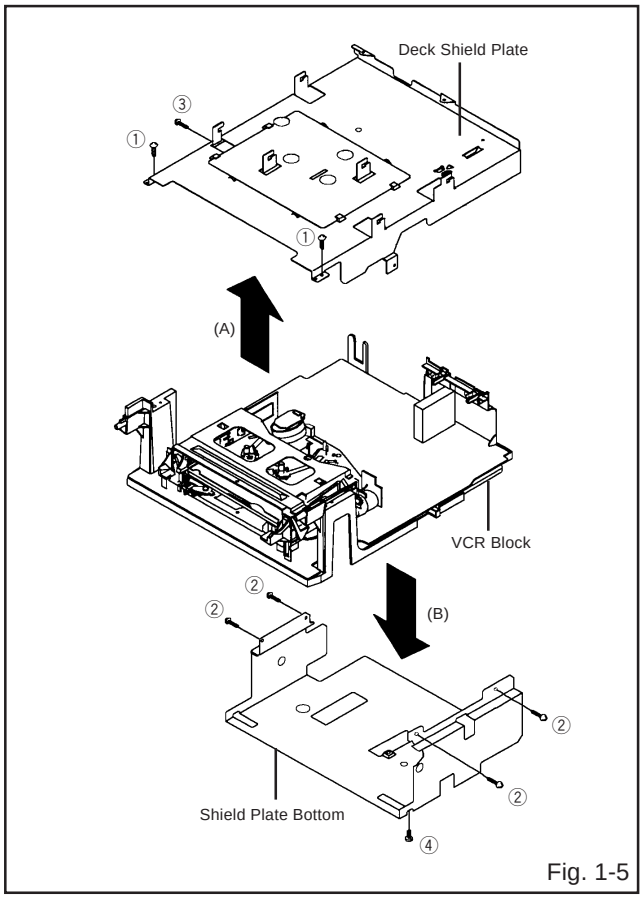


Fig. 1-5

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

1. Remove the 3 screws ①.
2. Disconnect the following connectors:
   (CP1001, CD1002, CP1004, CP1005, CP1006, CP4001, CP4004 and CP4005).
3. Remove the Deck Chassis in the direction of arrow.

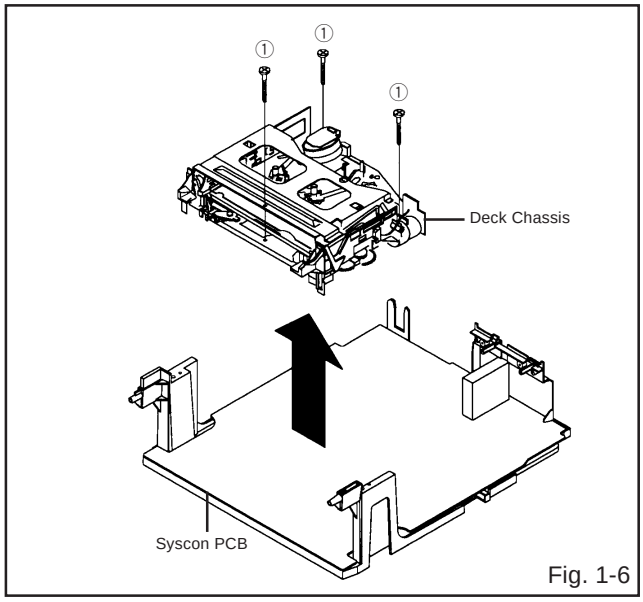


Fig. 1-6

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 2 screws ②.
4. Unlock the 2 supports ③.
5. Remove the Jack Plate in the direction of arrow (B).

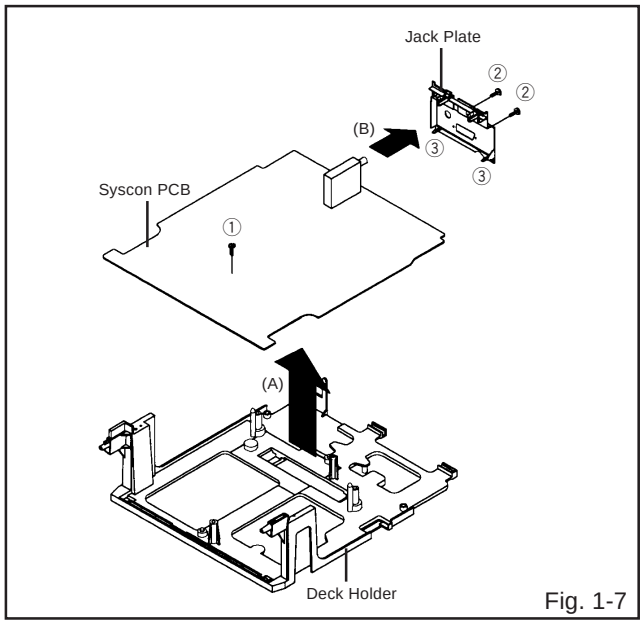


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

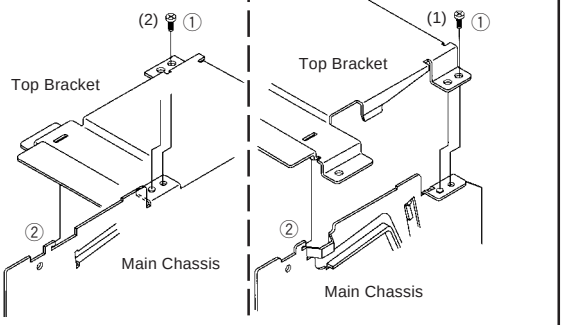
2. REMOVAL OF DECK PARTS

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.

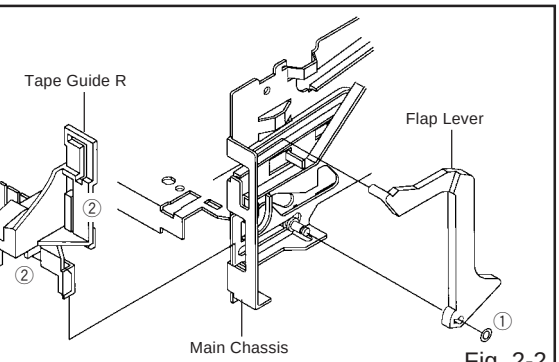
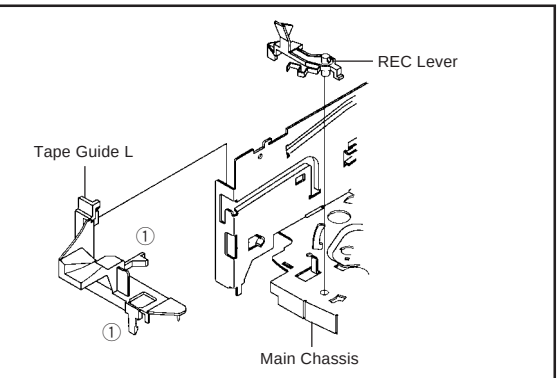


Fig. 2-2

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)

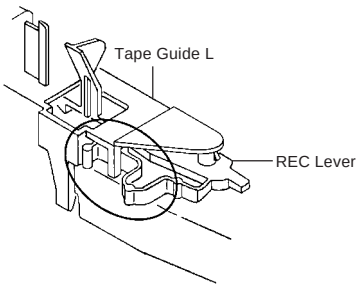


• The REC Lever is not installed on the Video Cassette Player.

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.

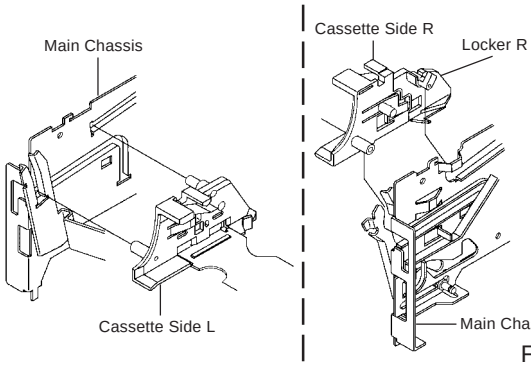


Fig. 2-4

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.

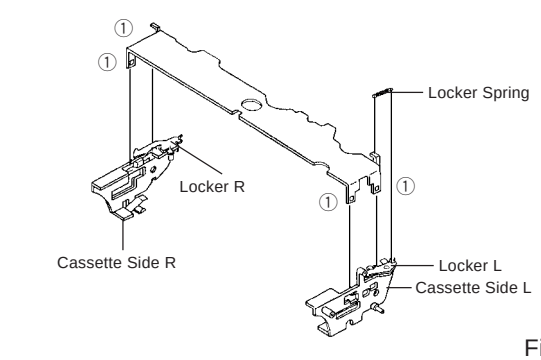


Fig. 2-5

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.

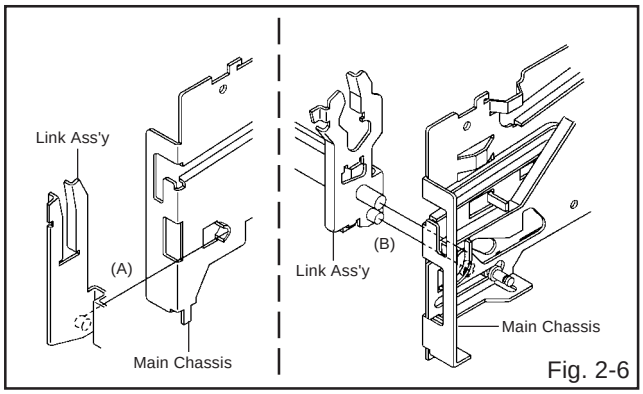
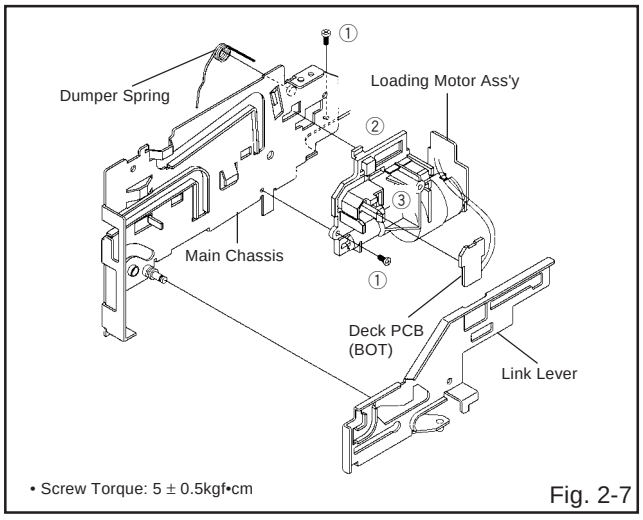


Fig. 2-6

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).



• Screw Torque: 5 ± 0.5kgf•cm

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).

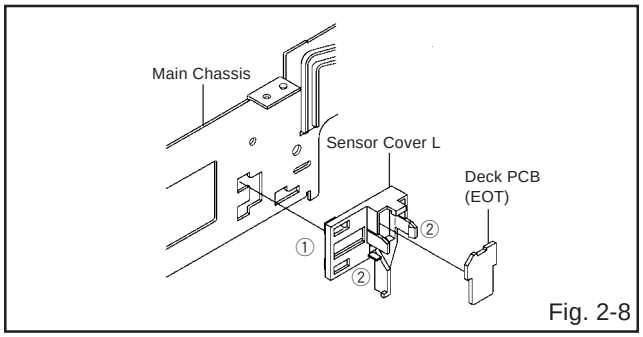


Fig. 2-8

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.

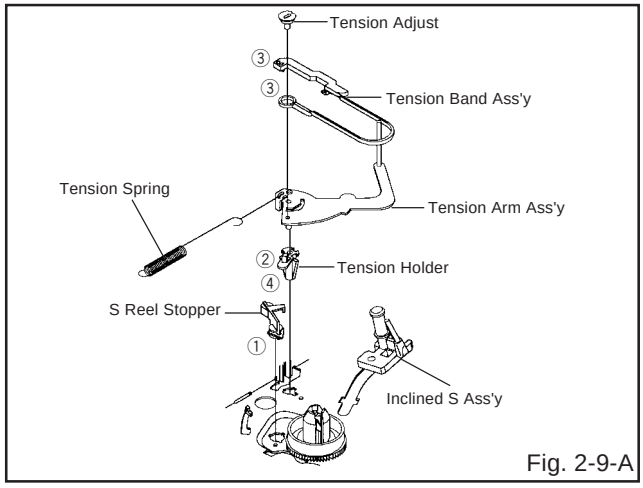


Fig. 2-9-A

NOTE

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

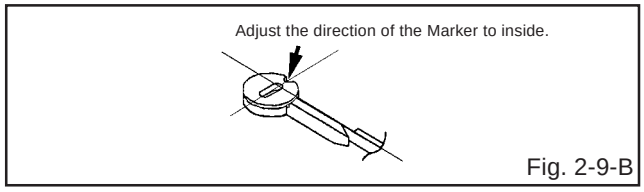


Fig. 2-9-B

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

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

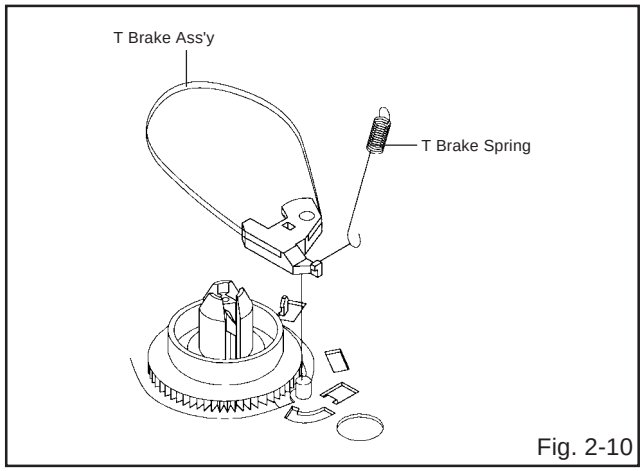


Fig. 2-10

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 (KYODO OIL Slidas #150). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

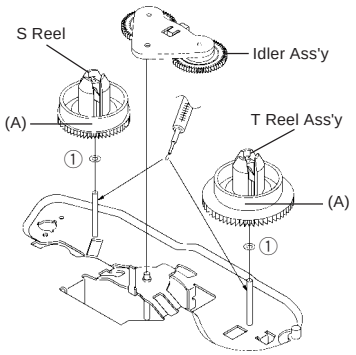
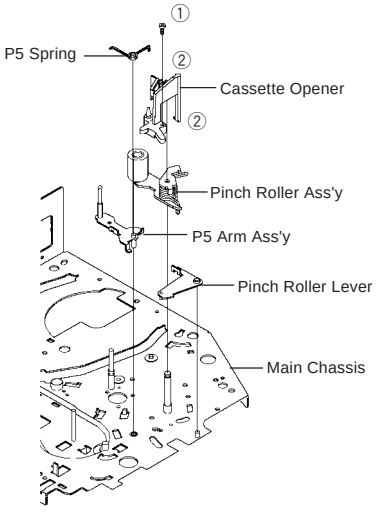


Fig. 2-11

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, Pinch Roller Lever and P5 Arm Ass'y.



• Screw Torque: 5 ± 0.5kgf•cm

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)**

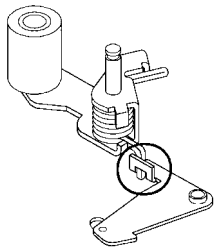


Fig. 2-12-B

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).

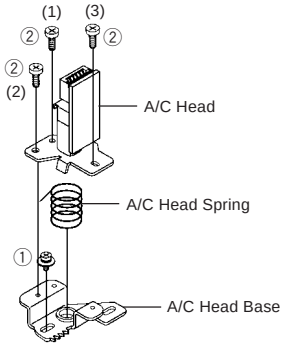


Fig. 2-13-A

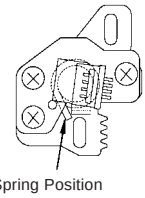
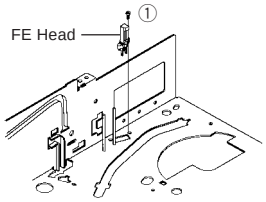


Fig. 2-13-B

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

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



• The FE Head is not installed on the Video Cassette Player.

Fig. 2-14

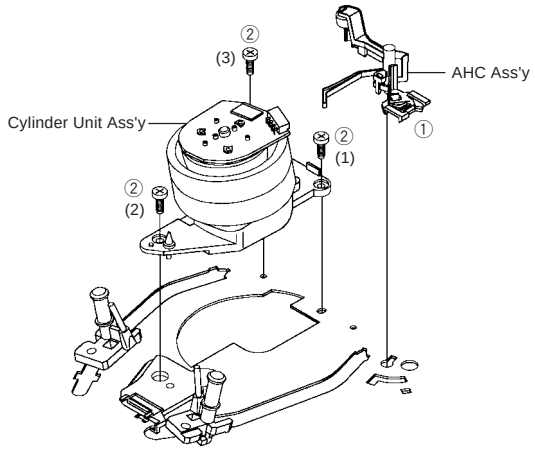
DISASSEMBLY INSTRUCTIONS

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.

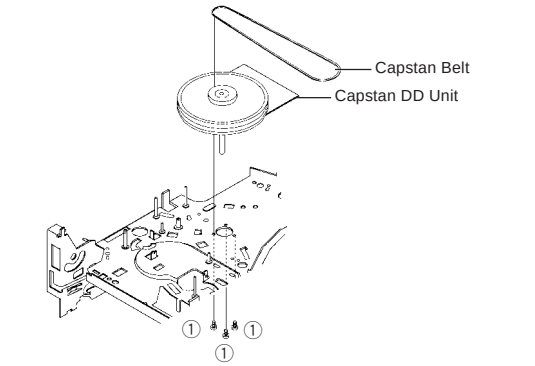


• Screw Torque: 5 ± 0.5kgf•cm

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.



• Screw Torque: 5 ± 0.5kgf•cm

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.

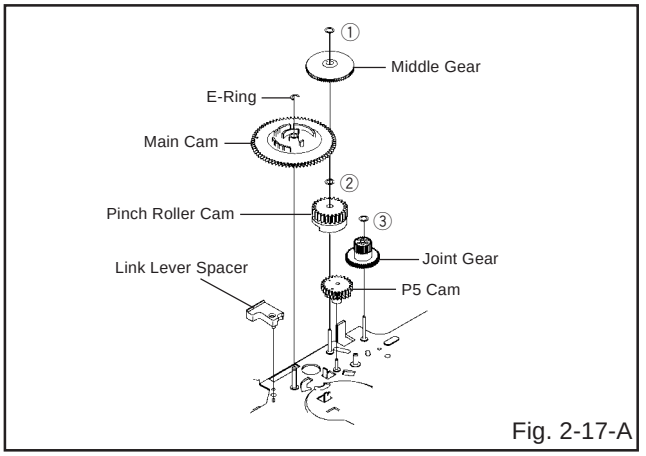


Fig. 2-17-A

NOTE

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

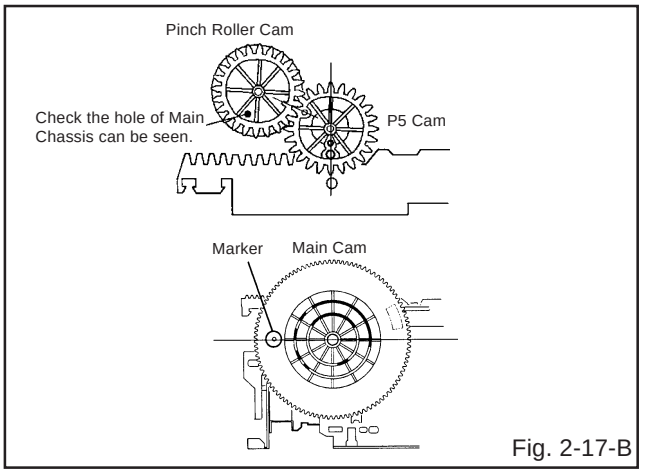


Fig. 2-17-B

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 (KYODO OIL Slidas #150).

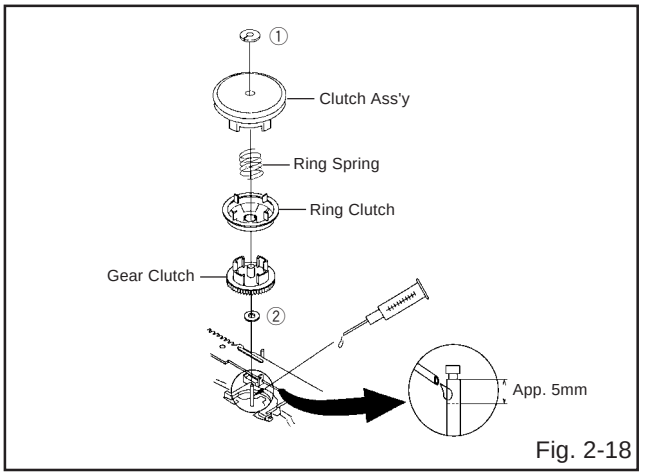


Fig. 2-18

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 Reflector.
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.

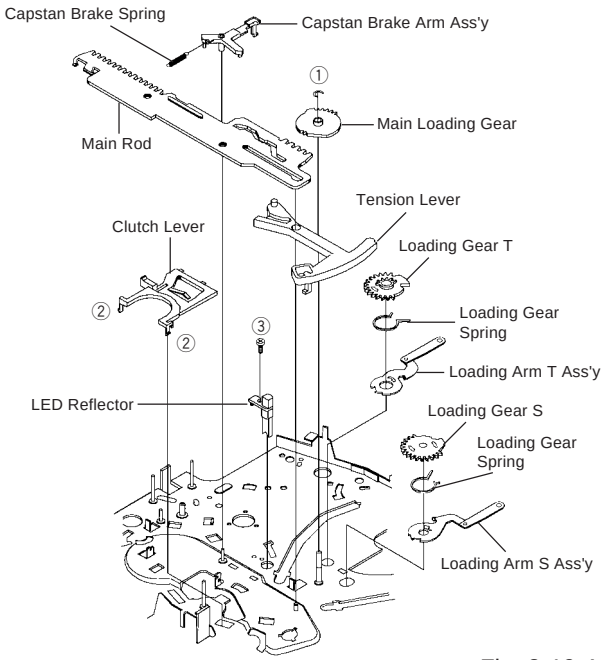


Fig. 2-19-A

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)**

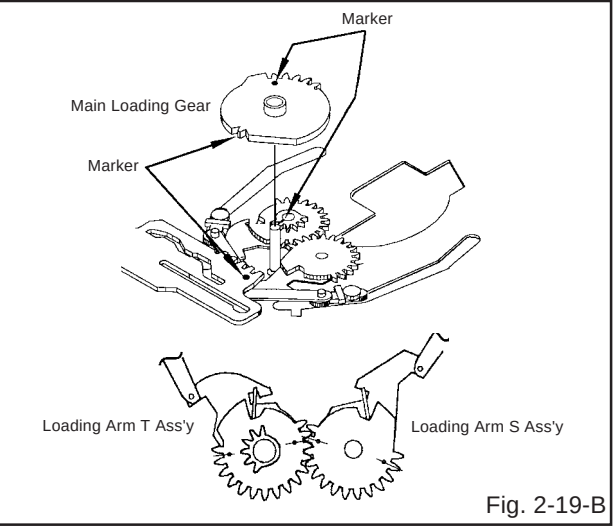


Fig. 2-19-B

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.

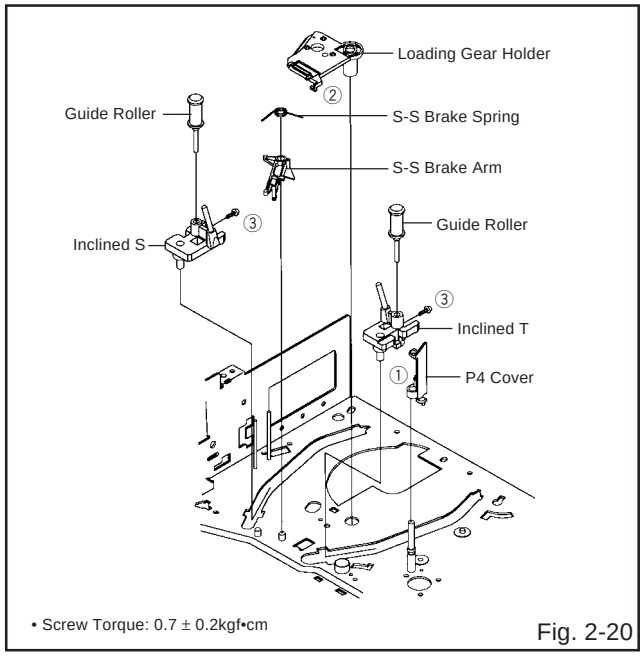


Fig. 2-20

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.

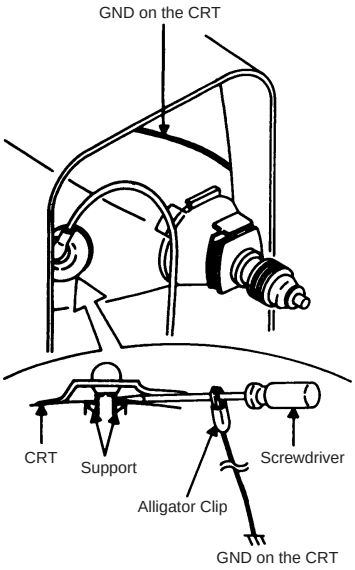


Fig. 3-1

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.)**

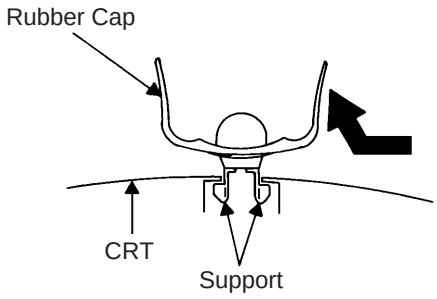


Fig. 3-2

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.)**

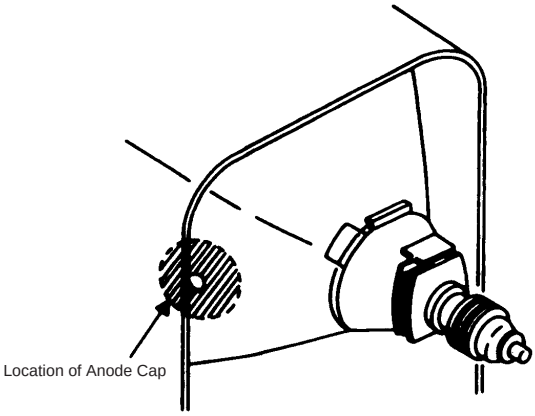


Fig. 3-3

NOTE

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

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.)**

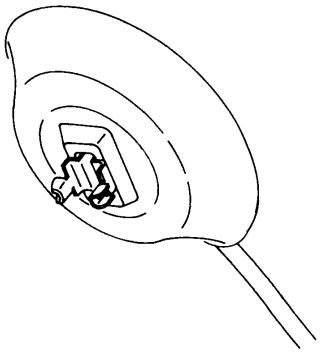


Fig. 3-4

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

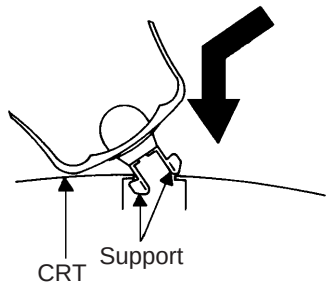


Fig. 3-5

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

4. REMOVAL OF DEFLECTION YOKE

(Refer to Fig. 4-1)

1. Loosen the screw ①.
2. Remove the Convergence • Purity Magnet in the direction of arrow (A).
3. Loosen the screw ②.
4. Remove the 3 Wedges.
5. Remove the Deflection Yoke in the direction of arrow (B).

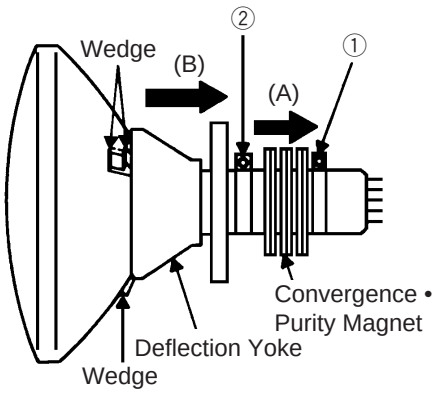


Fig. 4-1

INSTALLATION

Install new Deflection Yoke in reverse steps of REMOVAL.

NOTE

After adjusting the purity and the convergence, fix the screw ② and lock the wedges.

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 30 minutes before Power On or alternatively, discharge backup capacitor.

Set Key	Remocon Key	Operations
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	7	Releasing of PROTECTION PASSWORD.
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

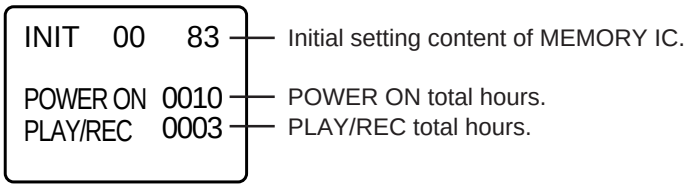
■ : Clean
● : Replace

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 30 minutes before Power On or alternatively, discharge backup capacitor.

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(6)** on the 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

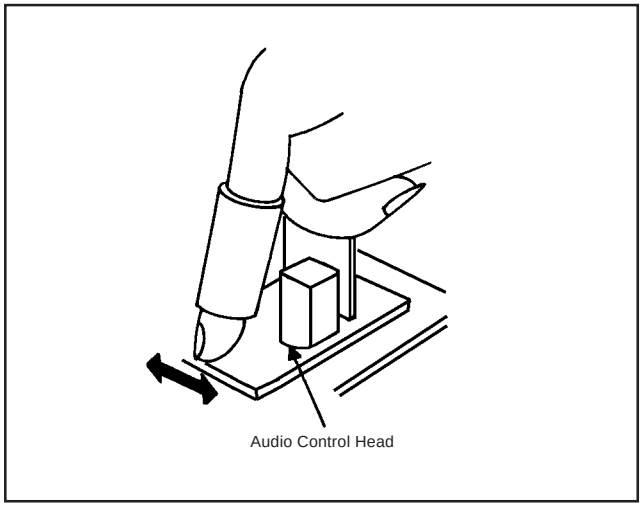
CLEANING

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

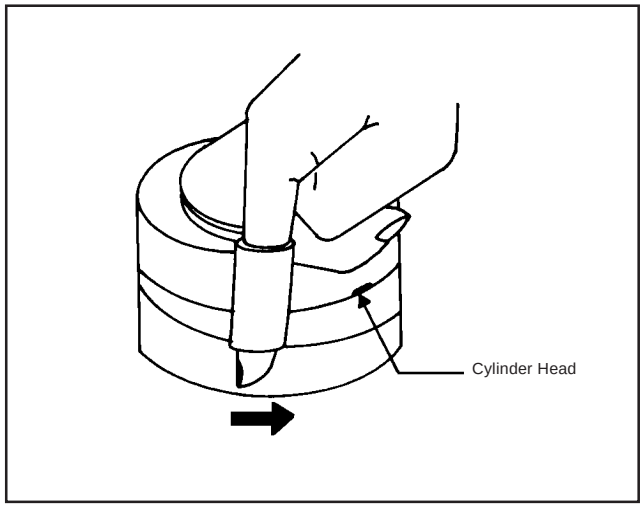
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

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 30 minutes before Power On or alternatively, discharge backup capacitor.

ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
00	00	0C	00	18	A3	24	00	30	04	3C	6C
01	16	0D	F3	19	89	25	5F	31	04	3D	2B
02	04	0E	35	1A	36	26	00	32	20	3E	21
03	C5	0F	66	1B	5F	27	F0	33	1B	3F	15
04	00	10	A6	1C	0A	28	0A	34	00		
05	00	11	AE	1D	F0	29	F3	35	3A		
06	00	12	00	1E	05	2A	01	36	00		
07	2D	13	3F	1F	F3	2B	00	37	40		
08	C4	14	80	20	00	2C	00	38	00		
09	21	15	2A	21	00	2D	01	39	00		
0A	41	16	00	22	00	2E	06	3A	00		
0B	0C	17	35	23	00	2F	01	3B	00		

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. ADDRESS and DATA should appear as FIG 1.

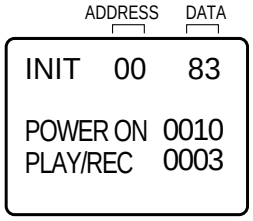
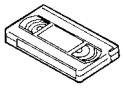
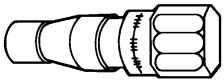
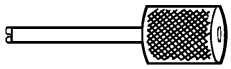
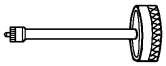
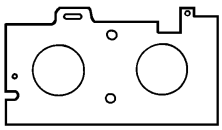
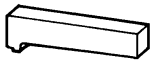
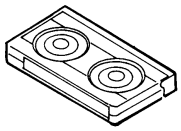
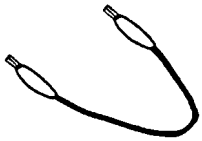
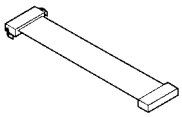
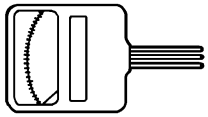


Fig. 1

3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

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

SERVICING FIXTURES AND TOOLS

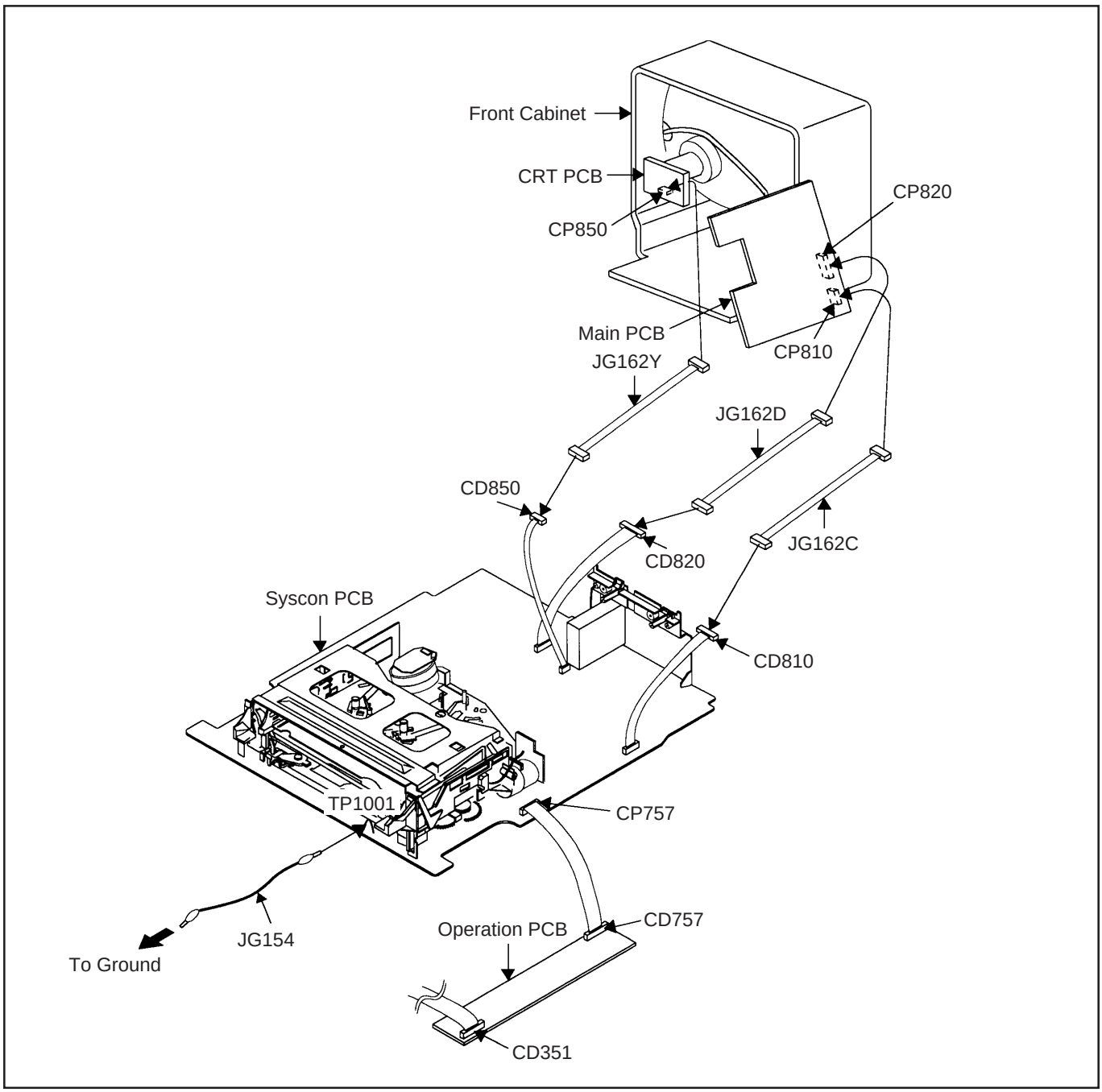
(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP_1S-LI6^3) JG001F (VP_1S-CO1^3) JG001R (VP_1S-LI6^{3}H) JG001U (VP_1S-X6^3) 	**(For 2 head 2 speed model)** VHS Alignment Tape JG001C (VP_2S-LI6^3) JG001D (VP_2S-CO1^3) JG001V (VP_2S-X6^3) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 (small) 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	JG162C Cable (10 Pins) JG162D Cable (11 Pins) JG162Y Cable (5 Pins) 	Tentelometer 	

Part No.	Remarks
JG001E	Monoscope, 6KHz **(For 2 head 1 speed model, 4 head model)**
JG001F	Color Bar, 1KHz **(For 2 head 1 speed model, 4 head model)**
JG001R	Hi-Fi Audio **(For Hi-Fi model)**
JG001U	X Value Adjustment **(For 2 head 1 speed model, 4 head model)**
JG001C	Monoscope, 6KHz **(For 2 head 2 speed model)**
JG001D	Color Bar, 1KHz **(For 2 head 2 speed model)**
JG001V	X Value Adjustment **(For 2 head 2 speed model)**
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)
JG005	Guide Roller Adjustment
JG153	X Value Adjustment
JG022/JG024A	Reel Disk Height Adjustment
JG100A	Playback Torque, Back Tension Torque During Playback
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, CP757, CP302 and CP403, 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 Operation 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.

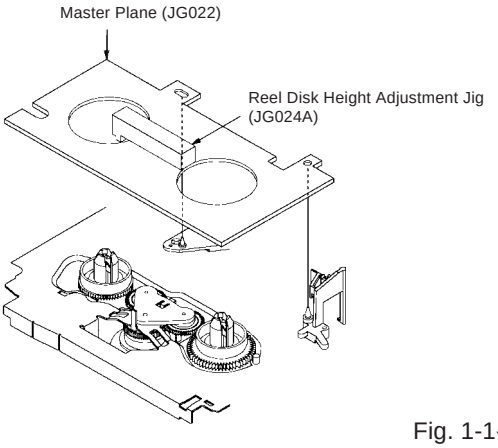


Fig. 1-1-A

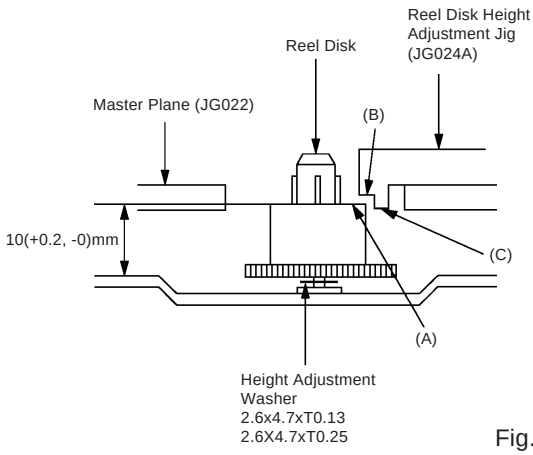


Fig. 1-1-B

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.

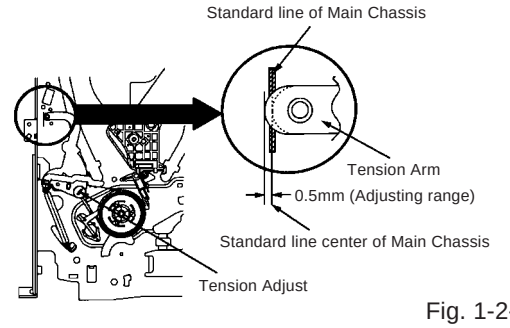


Fig. 1-2-A

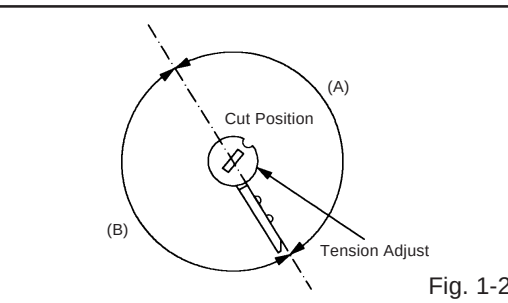


Fig. 1-2-B

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

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

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

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(JG100A)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~100gf•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.

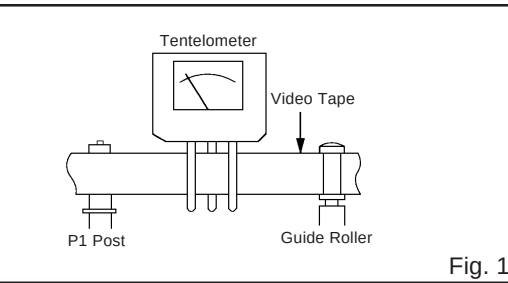


Fig. 1-3

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.

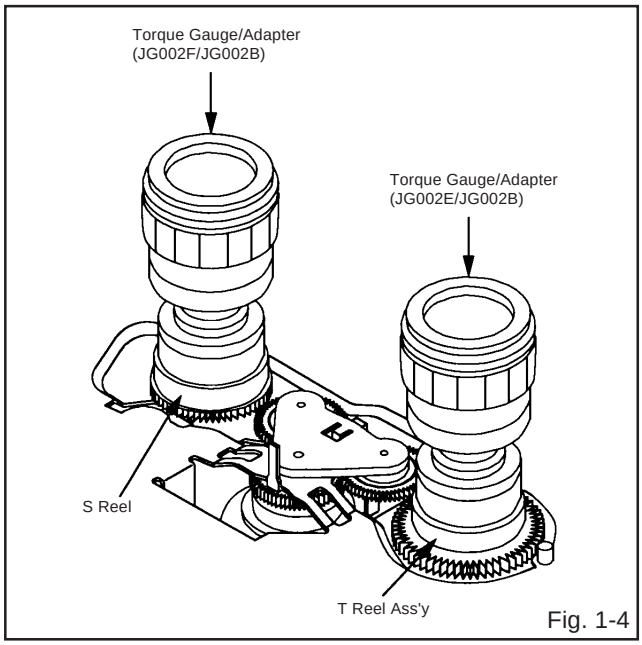


Fig. 1-4

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 VHS Alignment Tape **(JG001C or JG001E)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Connect CH-1 of the oscilloscope to **TP4002 (Envelope)** and CH-2 to **TP4001 (SW Pulse)**.
3. Press and hold the TRACKING-AUTO button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Adjusting Driver **(JG005)** slightly until the envelope will be flat.
   Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback.
   (Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

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

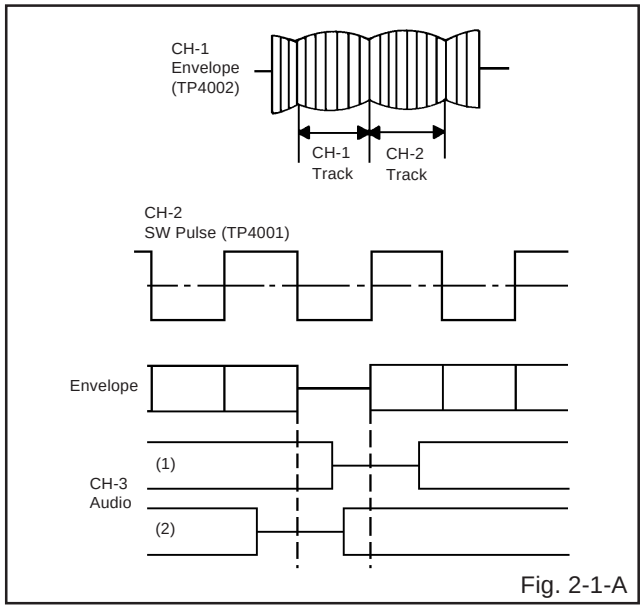


Fig. 2-1-A

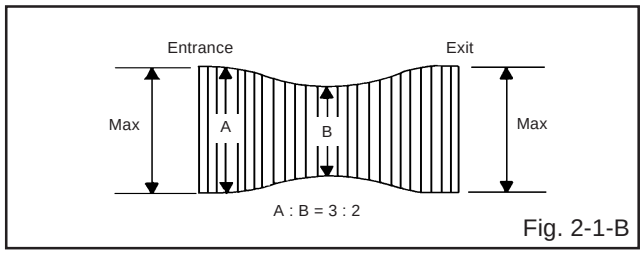


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

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

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

1. Playback the VHS Alignment Tape **(JG001C or JG001E)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

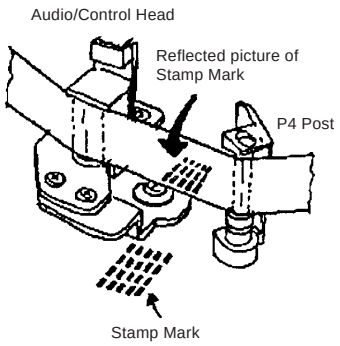


Fig. 2-2-A

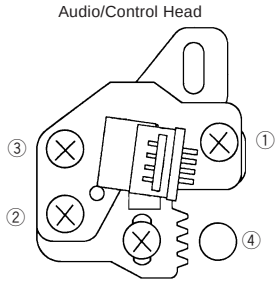


Fig. 2-2-B

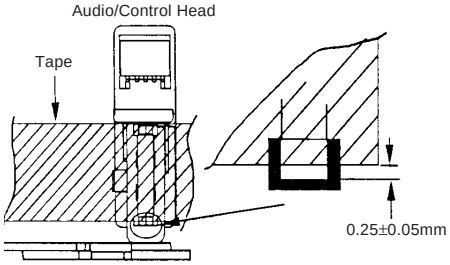


Fig. 2-2-C

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

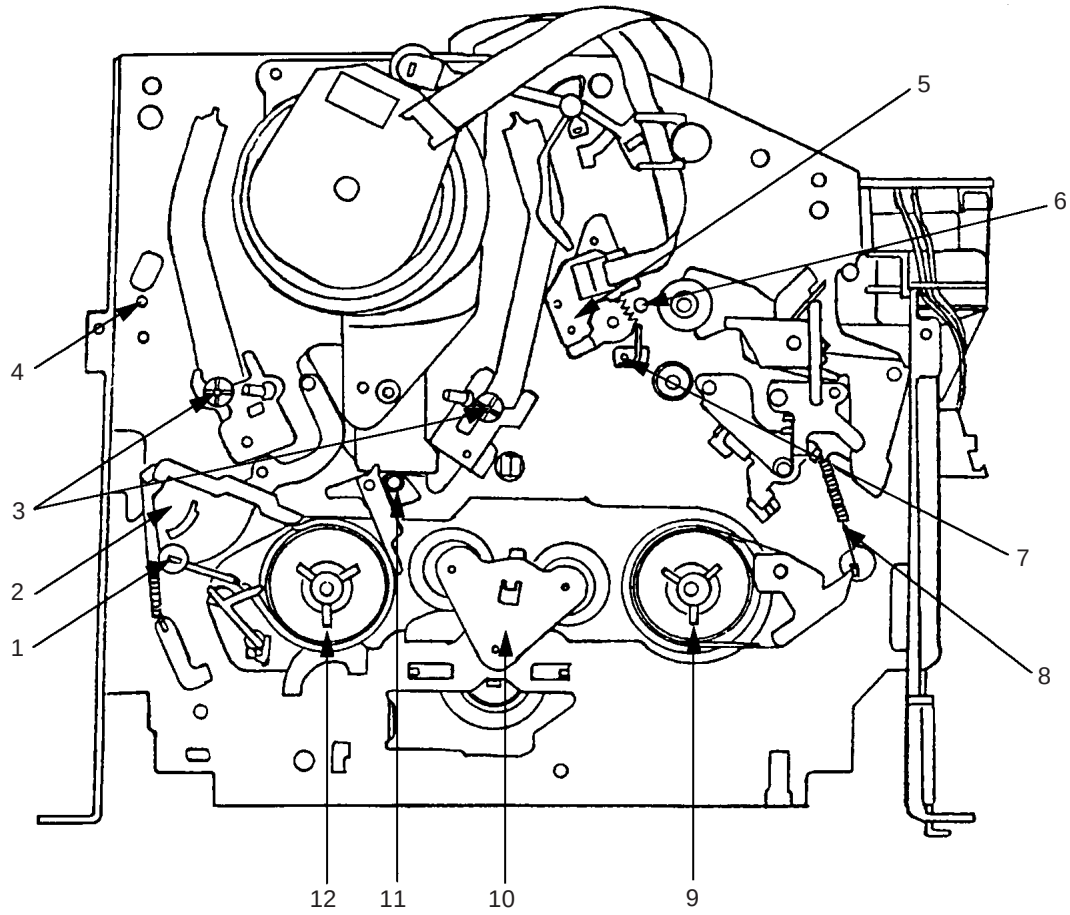
1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape **(JG001U or JG001V)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
7. Press and hold the TRACKING-AUTO button on the remote control more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

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

1. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape **(JG001R)**. **(Refer to SERVICING FIXTURE AND TOOLS)**
3. Press and hold the TRACKING-AUTO button on the remote control more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
6. Confirm that the difference between these counted steps number in the above items are within 2 steps. If the difference are more than 3 steps, do Tape Running Adjustment again. **(Refer to item 2-3)**

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



1. Tension Adjust
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 **(YG6260M)**.
(To prevent the damage to IC's and transistors.)

On-Screen Display Adjustment

1. Unplug the AC plug for more than 30 minutes 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.
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 **TP4001** and CH-2 to **TP4501**.
2. Playback the alignment tape. **(JG001C)**
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.

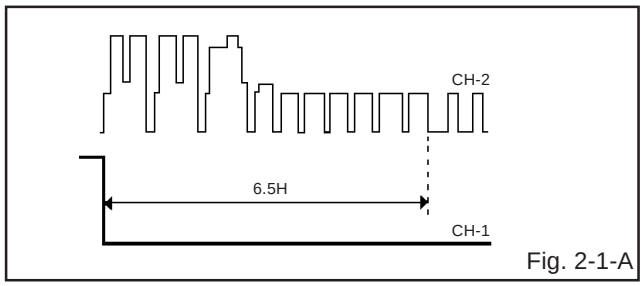


Fig. 2-1-A

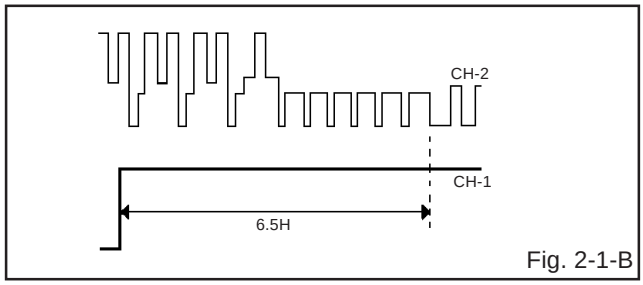


Fig. 2-1-B

2-2: RF AGC DELAY

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 to select "RF AGC DELAY".
5. Press the PLAY or STOP button on the remote control until the digital voltmeter is 1.50 ± 0.05V (80dB).

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. Connect the oscillator to **pin 11 of TU601.**
2. Connect the digital voltmeter to **pin 47 of IC601.**
3. Adjust the **L608** until the digital voltmeter is 3.8 ± 0.05V.

(TV SECTION)

2-4: CONSTANT VOLTAGE (AC)

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 DC 100 ± 0.5V.

2-5: CONSTANT VOLTAGE (DC)

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 **VR501** until the DC voltage is DC 100 ± 0.5V.

ELECTRICAL ADJUSTMENTS

2-6: 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 to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

2-7: FOCUS

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

2-8: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustments.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the white 100% signal from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(2)** on the remote control to select "AKB". The **Fig. 2-3** appears on the display.
5. Press the channel button **(2)** on the remote control to select the "R.BIAS".
6. Using the SET +/- keys on the remote control, adjust the R.BIAS.
7. Press the CH. UP/DOWN button on the remote control to select the "G.BIAS", "B.BIAS", "R.DRIVE" or "B.DRIVE".
8. Using the SET +/- keys on the remote control, adjust the G.BIAS, B.BIAS, R.DRIVE or B.DRIVE.
9. Perform the above adjustment 7 and 8 until the white color is looked 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. 2-3

2-9: SUB BRIGHTNESS

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(4)** on the remote control. The **Fig. 2-4** appears on the display.
4. Press the channel button **(1)** on the remote control to select "BRIGHT".
5. Press the PLAY or STOP button on the remote control until the white 25% is starting to be visible.
6. Receive the monoscope pattern. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.

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

Fig. 2-4

2-10: SUB COLOR

1. Receive the color bar pattern. (RF Input)
2. Connect the synchro scope to **TP801**.
3. Using the remote control, set the brightness, contrast and color 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. 2-4** appears on the display.
5. Press the channel button **(3)** on the remote control to select "COLOR".
6. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 divisions on the screen of the oscilloscope.
7. Press the PLAY or STOP button on the remote control until the red level is set to the 4 divisions. **(Refer to Fig. 2-5)**
8. Receive the monoscope pattern. (Audio Video Input)
9. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~7.

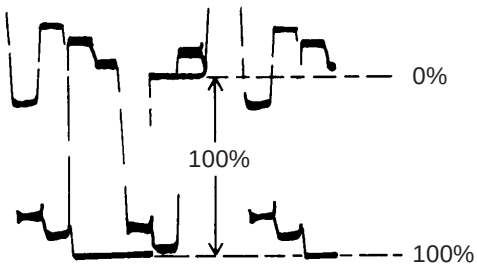


Fig. 2-5

ELECTRICAL ADJUSTMENTS

2-11: 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 to select "H. PHASE".
5. Press the PLAY or STOP 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

2-12: 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 to select "V. SIZE".
5. Press the PLAY or STOP button on the remote control until the horizontal over scan is equal to the vertical over scan.

2-13: 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 to select "V. LIN".
5. Press the PLAY or STOP button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

2-14: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(1)** on the remote control. The **Fig. 2-6** appears on the display.
4. Press the channel button **(4)** on the remote control to select "V. POSI".
5. Press the PLAY or STOP button on the remote control until the horizontal line of the monoscope comes to approximate center of the CRT.

2-15: OSD HORIZONTAL

1. Receive 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 **(5)** on the remote control. The **Fig. 2-2** appears on the display.
4. Press the channel button **(4)** on the remote control to select "OSD H".
5. Press the PLAY or STOP button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-7)**

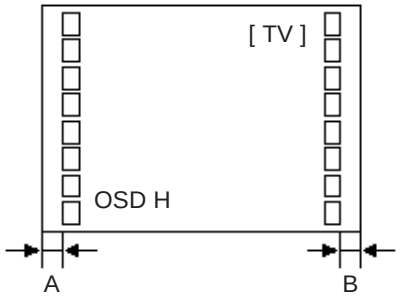


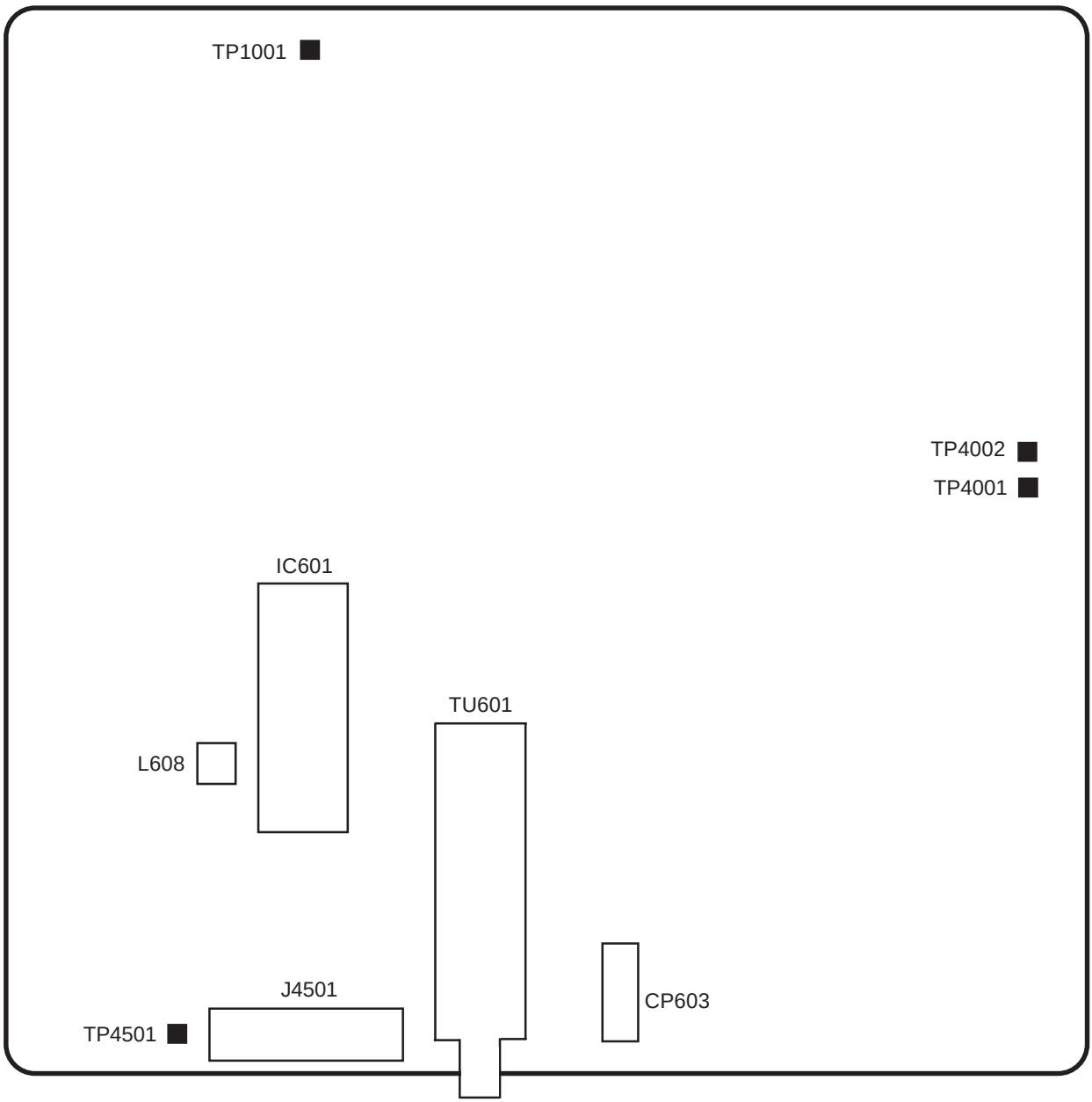
Fig. 2-7

2-16: VERTICAL LINEARITY 60 (AV)

1. Receive the monoscope 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 **(1)** on the remote control. The **Fig. 2-6** appears on the display.
4. Press the channel button **(5)** on the remote control to select "V. LIN".
5. Press the PLAY or STOP button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

ELECTRICAL ADJUSTMENTS

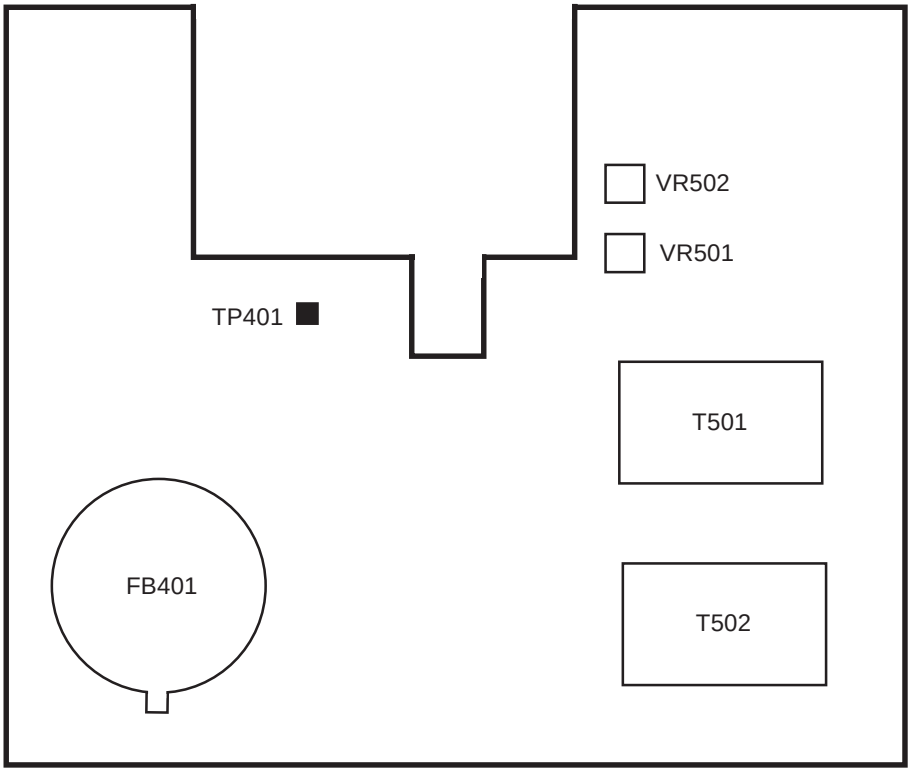
3. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (VCR SECTION)



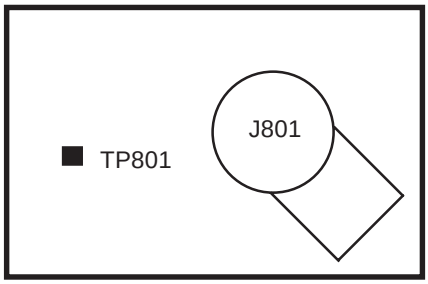
SYSCON PCB

ELECTRICAL ADJUSTMENTS

(TV SECTION)



MAIN PCB



CRT PCB

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 color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

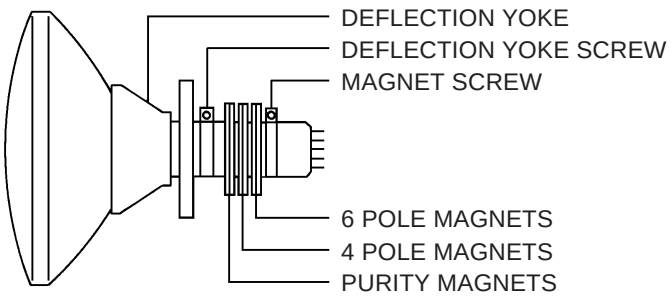


Fig. 4-1

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)**

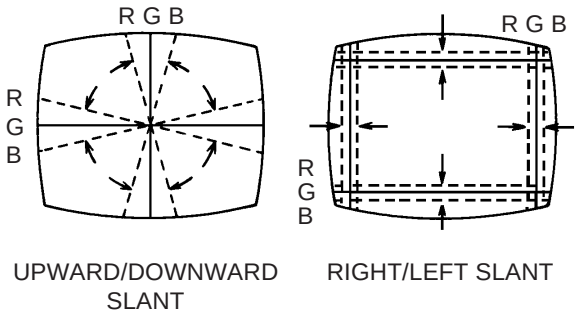
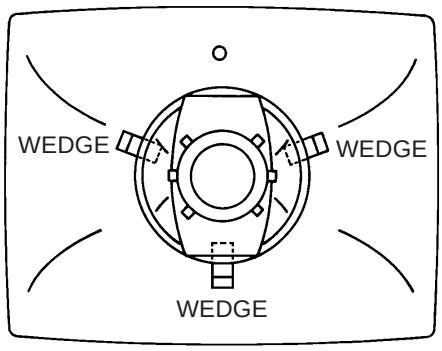


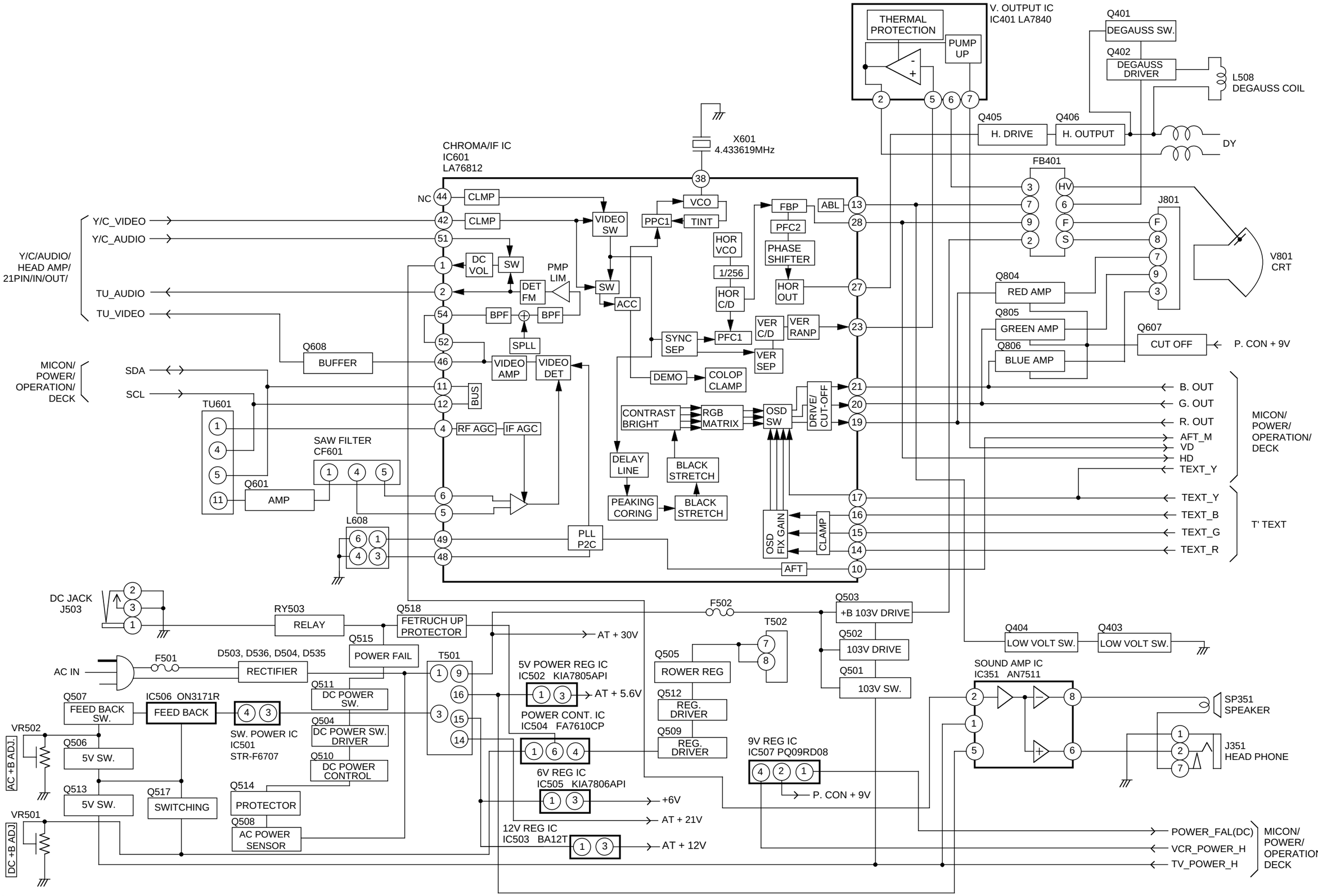
Fig. 4-2-a



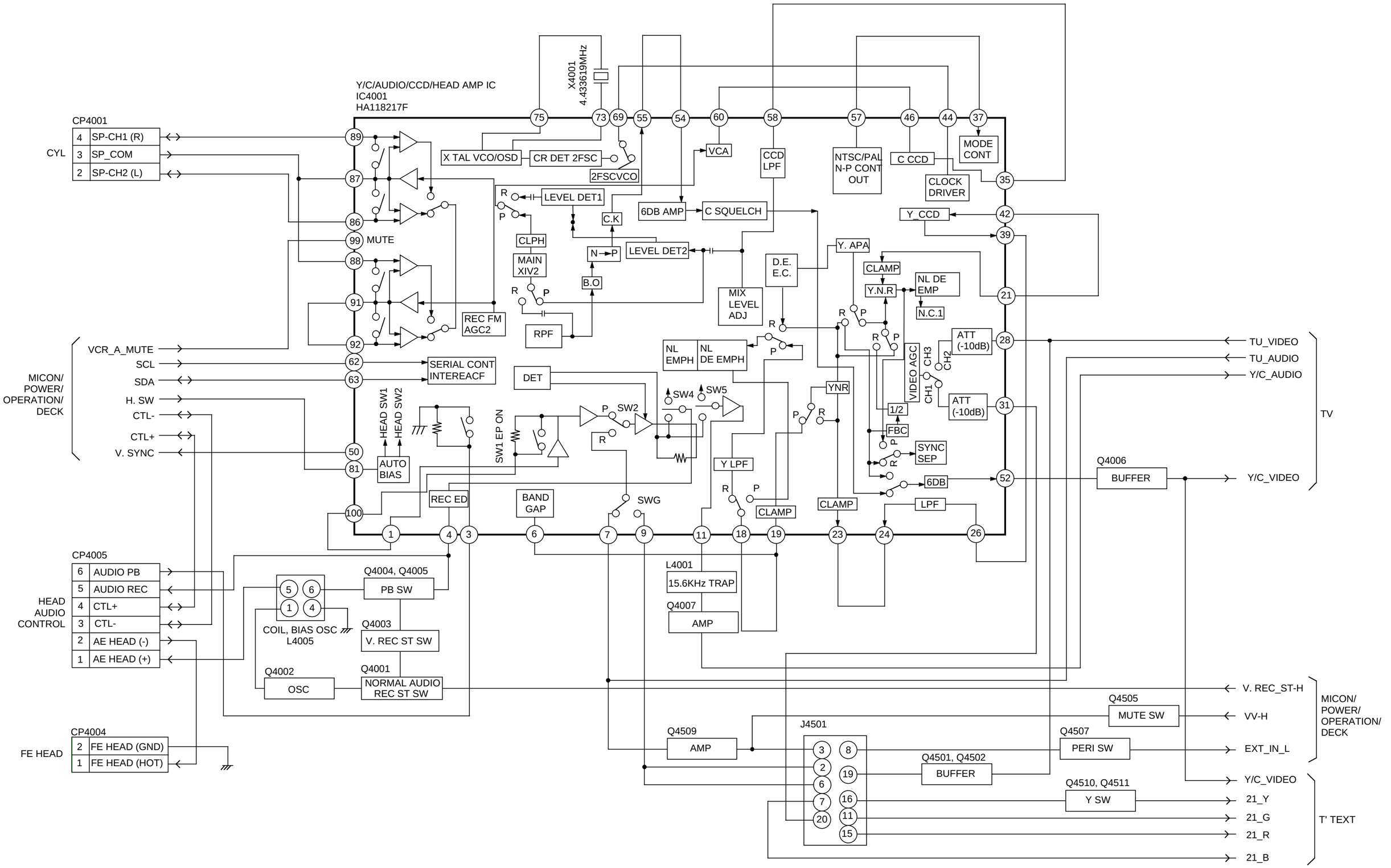
WEDGE POSITION

Fig. 4-2-b

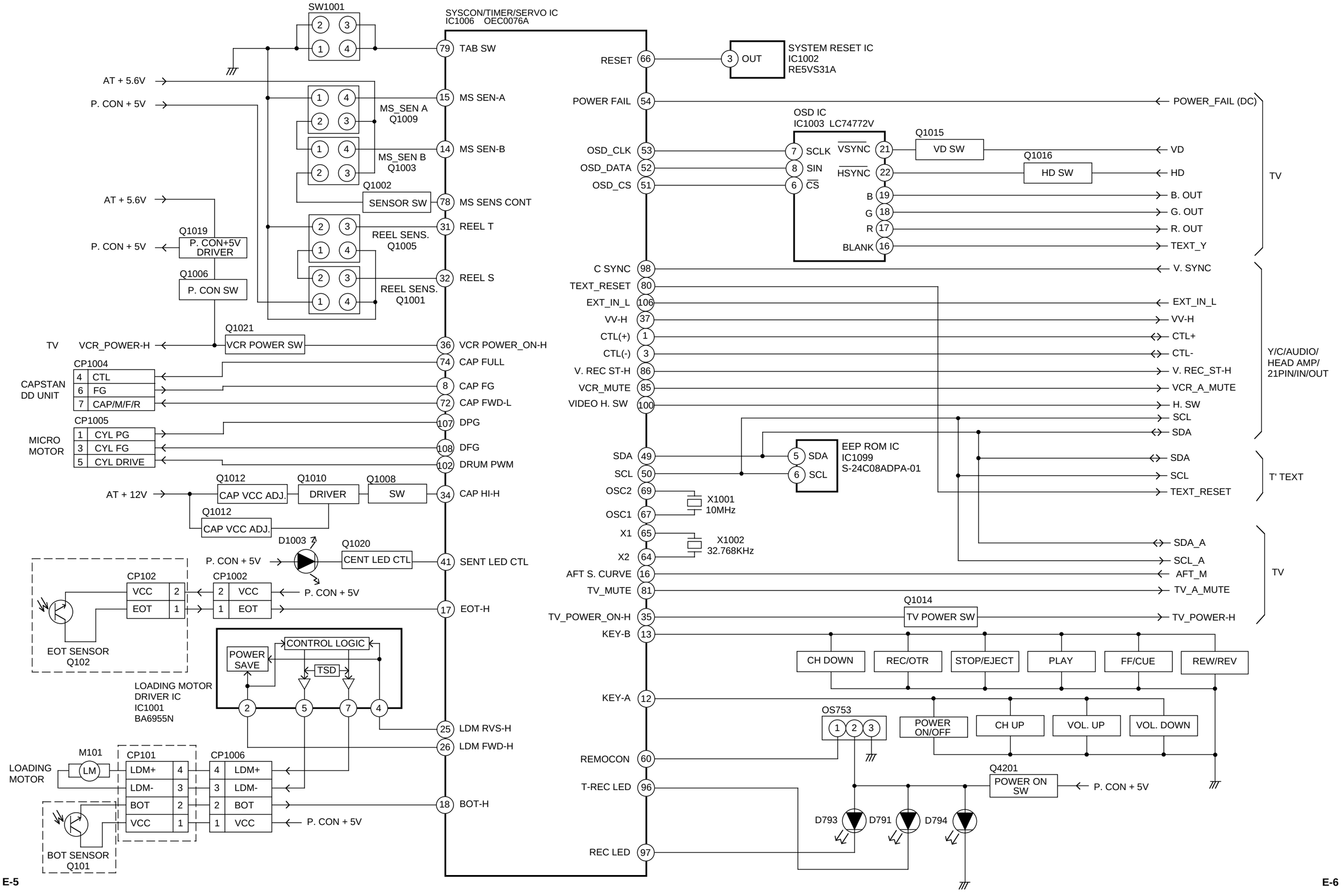
TV BLOCK DIAGRAM



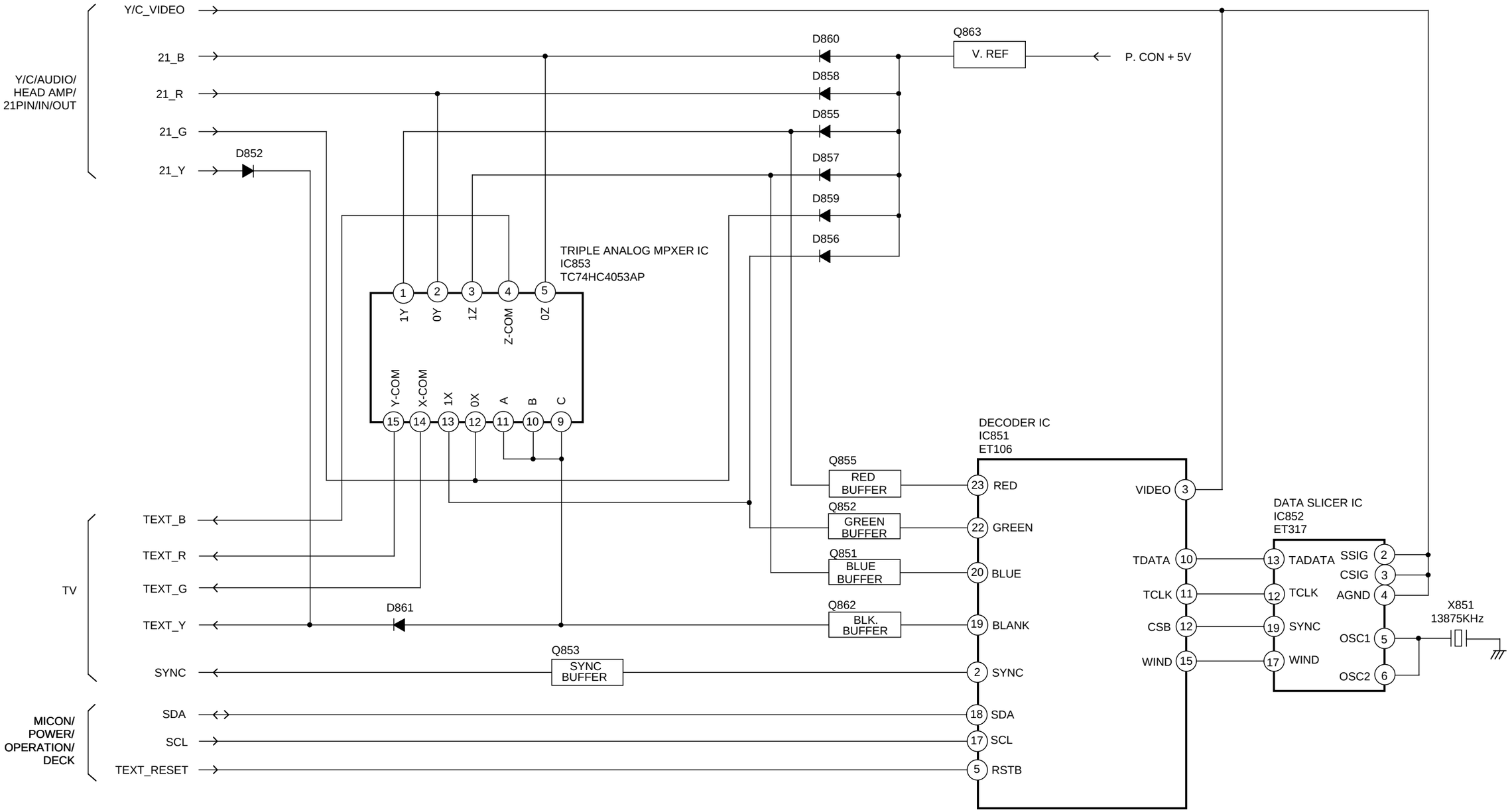
Y/C/AUDIO/HEAD AMP/21PIN/IN/OUT BLOCK DIAGRAM



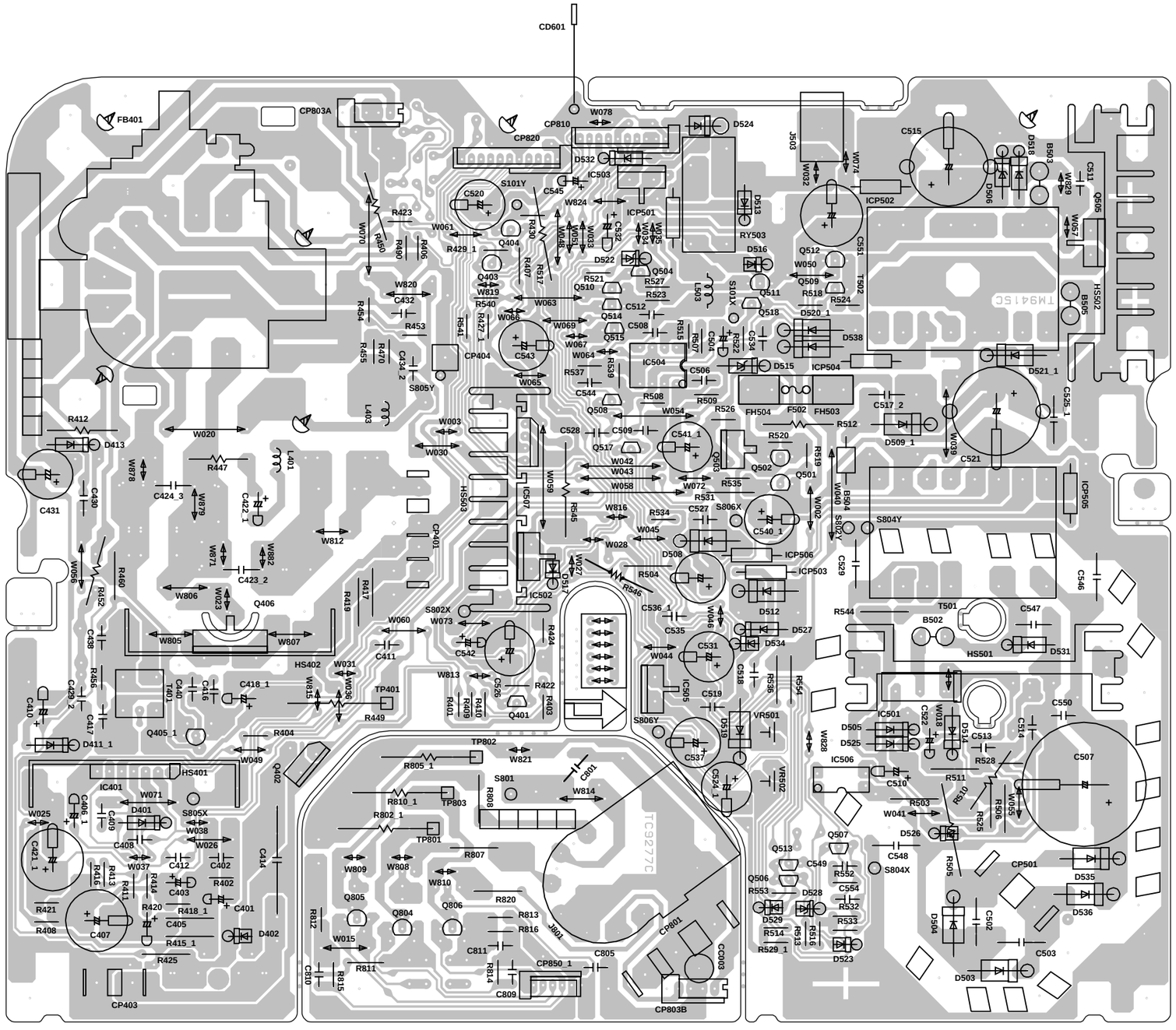
MICON/POWER/OPERATION/DECK BLOCK DIAGRAM



T' TEXT BLOCK DIAGRAM



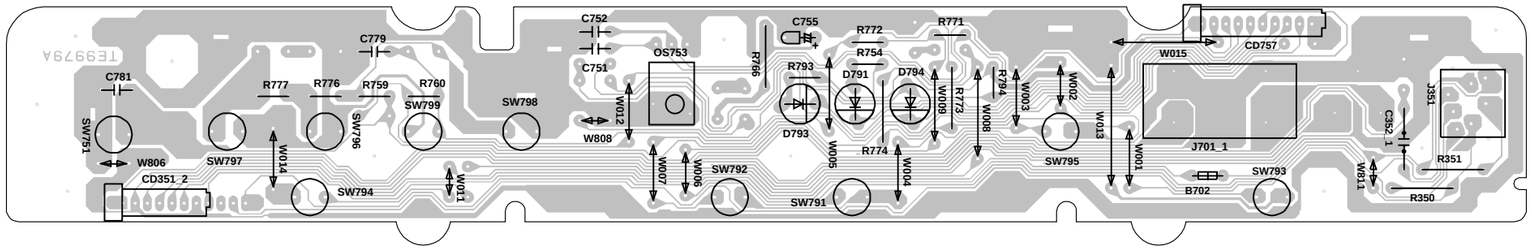
PRINTED CIRCUIT BOARDS
MAIN/CRT
SOLDER SIDE



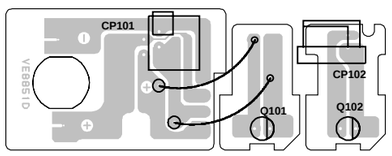
F-1

F-2

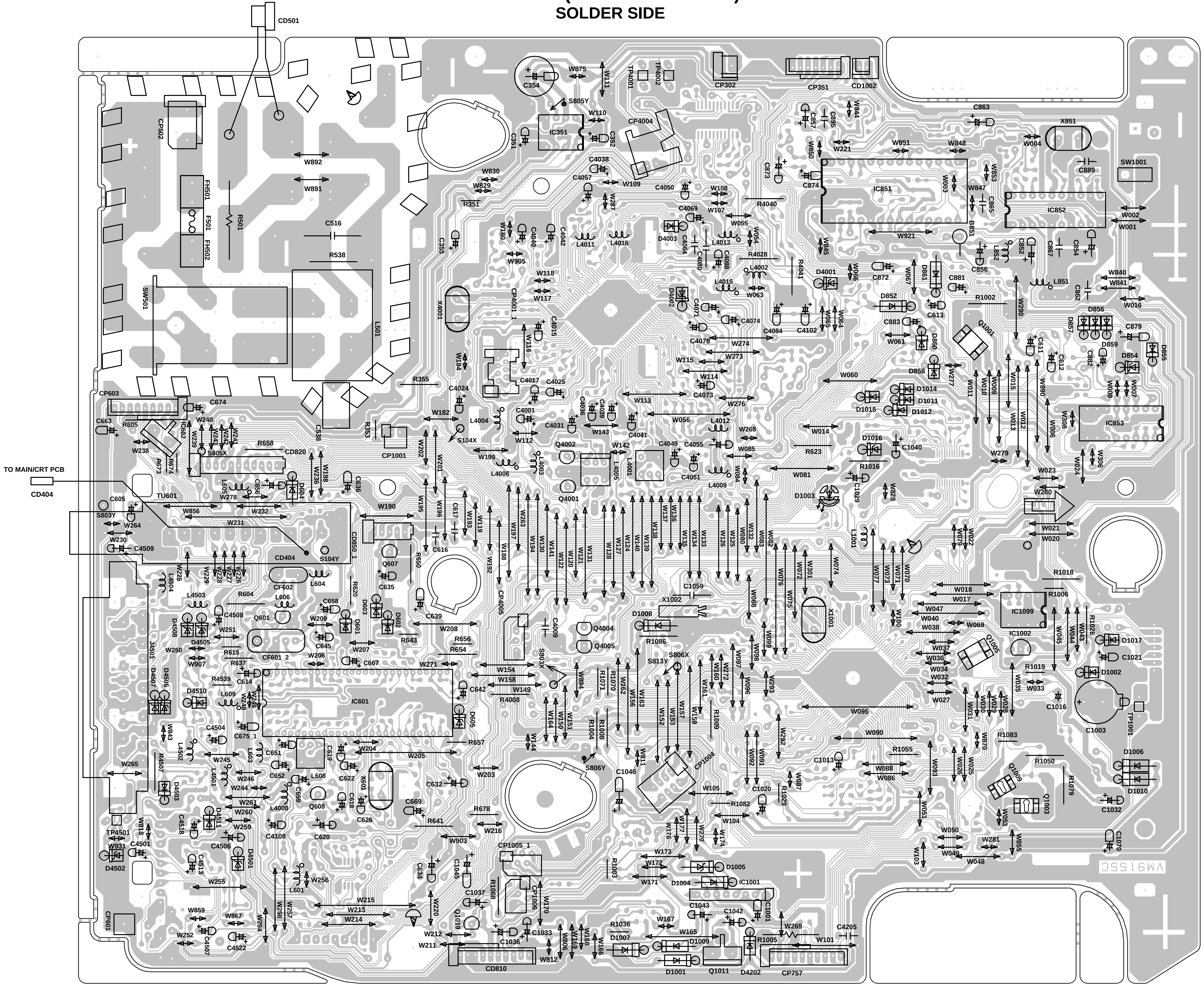
OPERATION
SOLDER SIDE



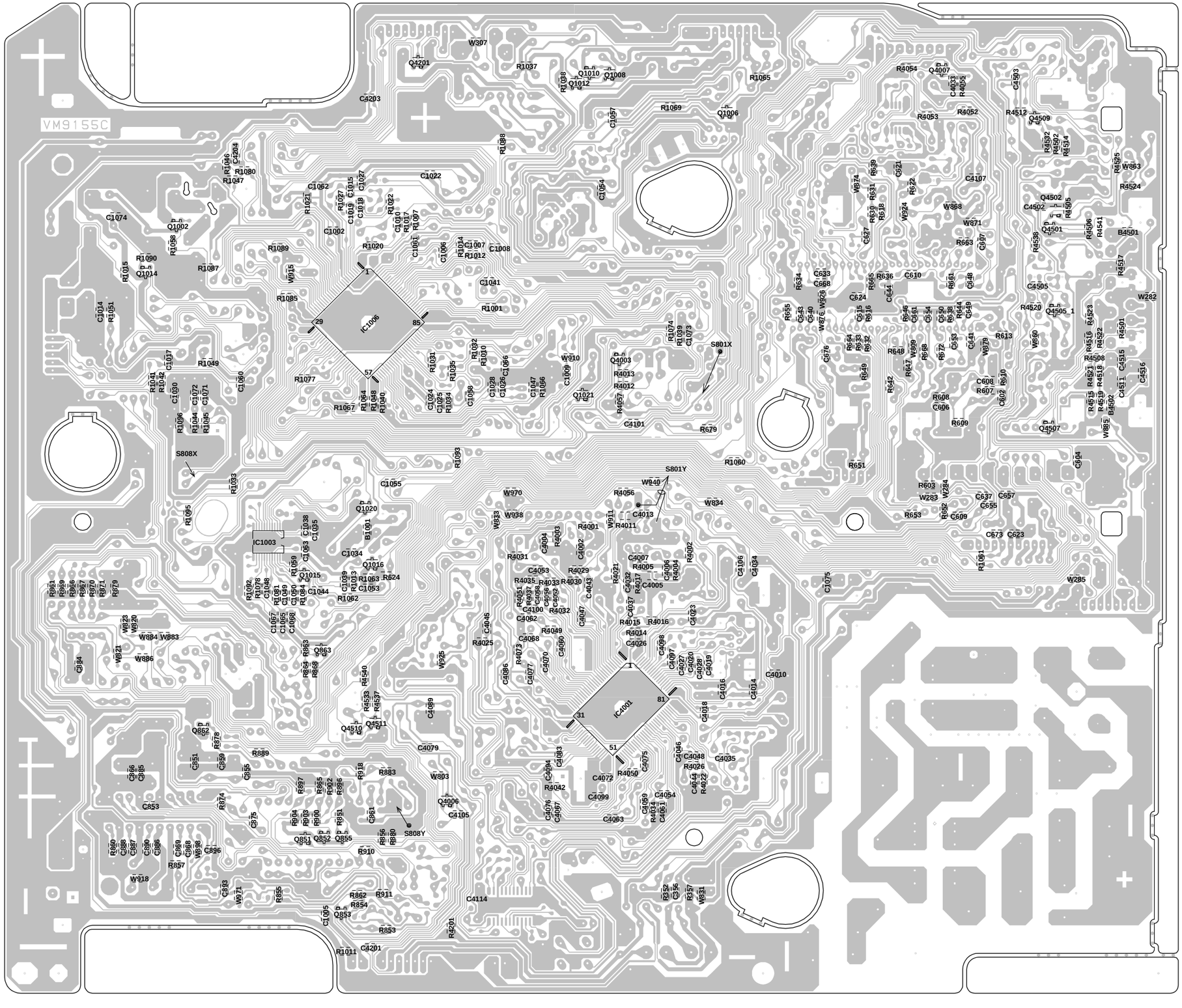
DECK
SOLDER SIDE



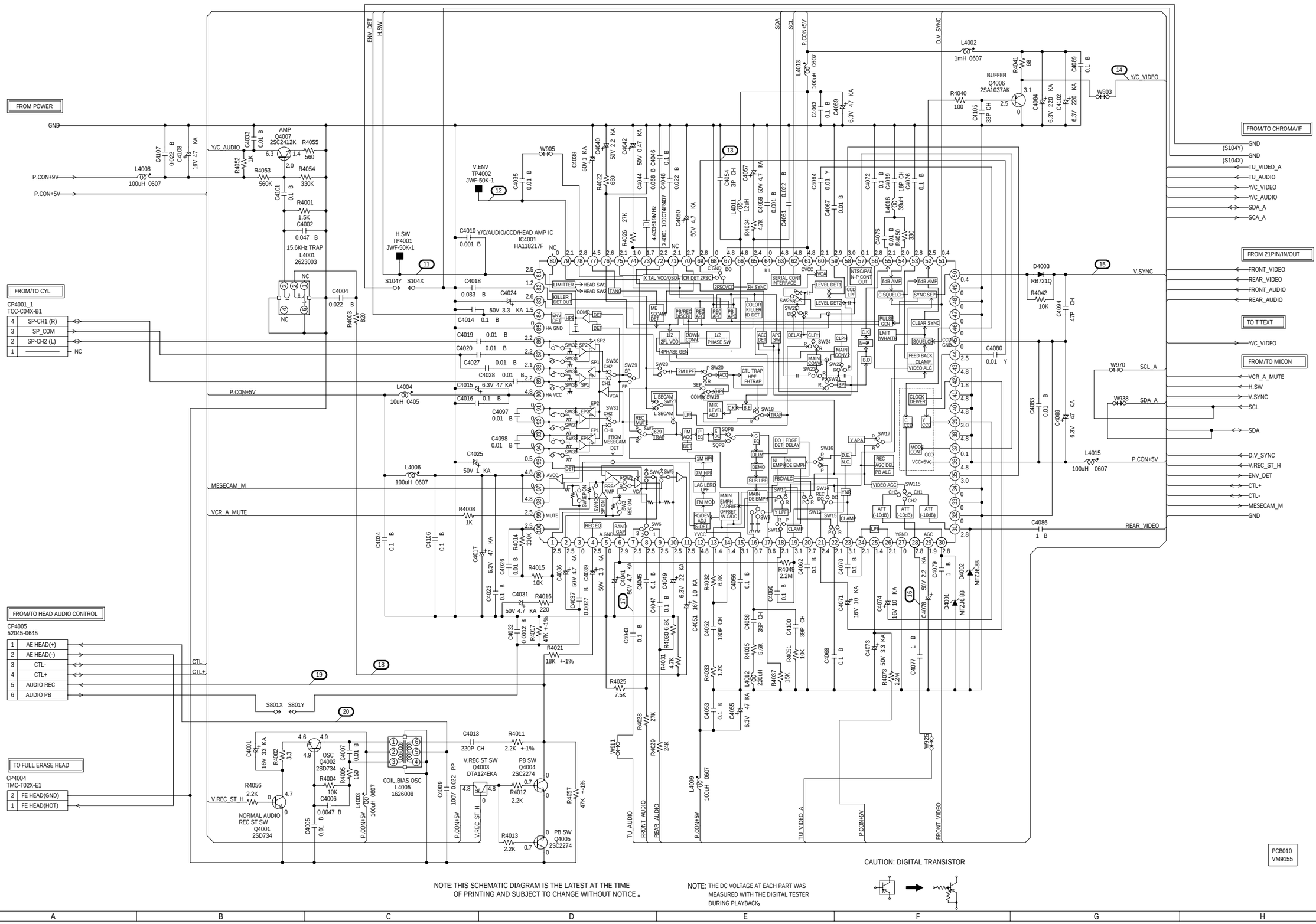
PRINTED CIRCUIT BOARDS
SYSCON (INSERTED PARTS)
SOLDER SIDE



PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED 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: DIGITAL TRANSISTOR

MICON SCHEMATIC DIAGRAM (SYSCON PCB)

SYSCON/TIMER/SERVO IC
IC1006
OEC0076A

SYSTEM RESET IC
IC1002 RE5VS31A

OSD IC
IC1003 LC74772V

LOADING MOTOR DRIVER IC
IC1001 BA6955N

SERVICE
TP1001
JWF-50K-1

EEP ROM IC
IC1008
S-24C08ADPA-01

FROM/TO POWER
AT+5.6V
GND
P.CON+5V
AT+12V
VCR_POWER_H
POWER_FAIL[DC]
CAP_HI_H
CAP_VCC
(LDM)
MOTOR_GND

FROM/TO DECK
CP1006 (CP101)
52045-0445
CD1002 (CP102)
CH22076A

FROM/TO MICRO MOTOR
CP1005_1
52045-0545

FROM/TO CAPSTAN DD UNIT
CP1004
TMC-J08P-B1

FROM/TO Y/C/AUDIO/HEAD AMP
FROM/TO 21PIN/IN/OUT
FROM/TO CHROMA/IF
FROM/TO T'TEXT
TO SOUND AMP
FROM DEW SENSOR
CP1001
52287-0211

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 。

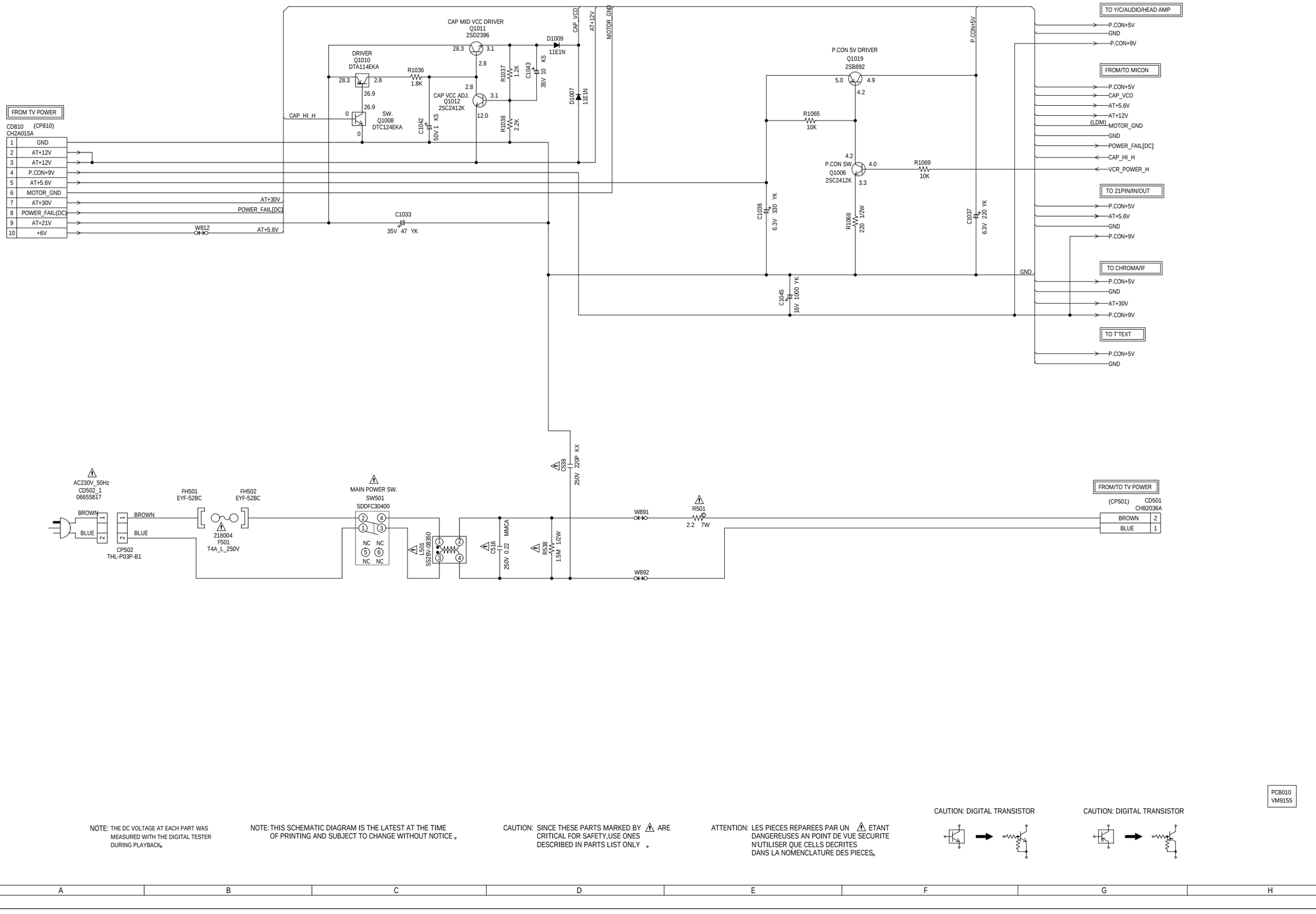
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

PCB010
VM9155

G-3 G-4

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。

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

21PIN/IN/OUT SCHEMATIC DIAGRAM

(SYSCON PCB)

FROM/TO OPERATION
(CD757) CP757
8283_1012_00_000
10 9 8 7 6 5 4 3 2 1
NC KEY_B REC_LED T-REC_LED KEY_A NC POWER_ON_L AT+5V GND REMOCON_OUT

FROM/TO OPERATION
(CD351) CP351
8283_0712_00_000
7 6 5 4 3 2 1
GND SP_OUT SOUND_OUT SOUND_GND FRONT_AUDIO_IN GND FRONT_VIDEO_IN

FROM/TO MICON
KEY_B
REC_LED
T-REC_LED
KEY_A
REMOCON_IN
VV-H
EXT_IN_L
TU_AUDIO_MUTE_H
GND

FROM/TO SOUND AMP
SOUND_GND_A
SOUND+
SP_OUT

FROM POWER
AT+5.6V
P.CON+5V
P.CON+9V
GND

FROM CHROMA/IF
TU_AUDIO
TU_VIDEO

TO Y/C/AUDIO/HEAD AMP
FRONT_VIDEO
FRONT_AUDIO
REAR_AUDIO
REAR_VIDEO

TO T'TEXT
21_Y
21_R
21_G
21_B
GND

V.OUT
TP4501
JWF-50K-1

D4202
11ES1N

W855
POWER ON SW
Q4201
DTC114EK

C4205 0.1 F
C4204 0.1 B
C4203 0.1 B
C4201 470P CH
R4201 75

P.CON+5V
P.CON+9V

31
32

D4502 MTZJ13B
R4524 68
21_R
21_G
21_B
MTZJ12B
D4506
D4507
D4508
R4523 150
R4522 150
R4521 150
W931
B4501 BLM21A601SPT
L4504 10uH
W885
C4509 16V 10 KA
W860
W907
W863
J4501 035_0_9985_05
C4511 470P CH
C4515 470P CH
C4516 470P CH
R4533 10K
R4537 10K
21_Y
Y SW Q4510 2SC2412K
Y SW Q4511 2SC2412K
R4540 1K
R4516 75
D4505 MTZJ12B
R4517 75
R4501 56K
R4518 5.6K
R4519 5.6K
L4503 10uH
C4508 50V 1 KA
R4508 6.8K
B4502 BLM21A601SPT
R4515 120K
R4520 680
W859
MUTE SW Q4505_1 2SC2412K
D4510 1SS133
D4511 1SS133
R4538 1.5K
W818
C4522 16V 10 KA
C4518 50V 0.1 KA
R4539 1.5K
R4507 150 1/2W
L4502 100uH
W843
R4506 22K
BUFFER Q4501 2SC2412K
BUFFER Q4502 2SA1037AK
R4525 100
C4501 16V 10 KA
C4502 1 F
R4505 12K
D4503 1SS133
C4505 0.018 B
PERI SW Q4507 2SC2412K
C4506 16V 100 KA
C4503 1 F
C4504 16V 10 KA
D4501 MTZJ13B
W867
L4501 100uH
R4512 1K
C4507 50V 2.2 KA
R4502 560K
C4513 50V 2.2 KA
AMP Q4509 2SC2412K
R4532 180
R4514 330K

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

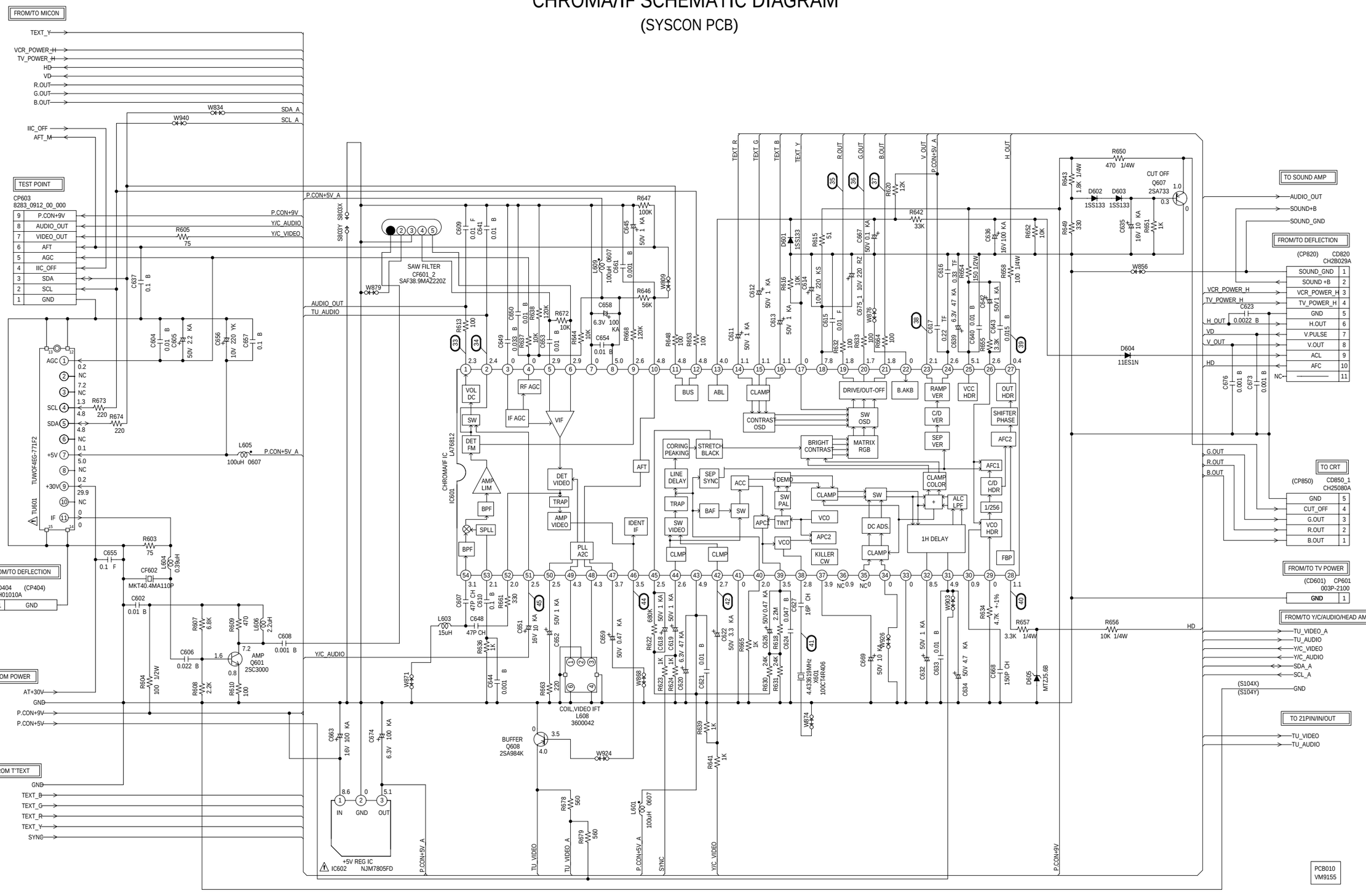
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK。

CAUTION: DIGITAL TRANSISTOR

PCB010
VM9155

CHROMA/IF SCHEMATIC DIAGRAM

(SYSCON PCB)



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

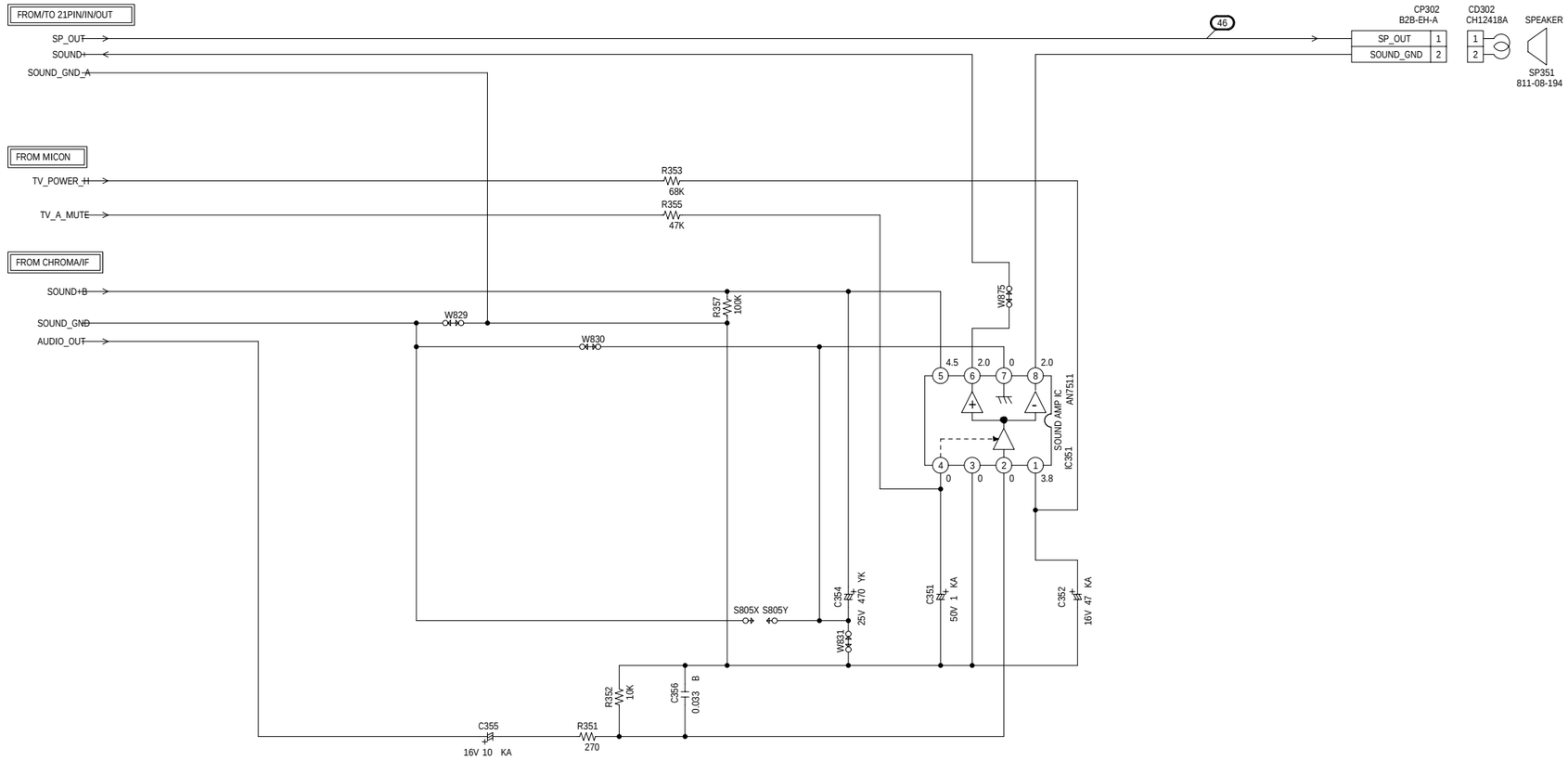
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS 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。

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PCB)



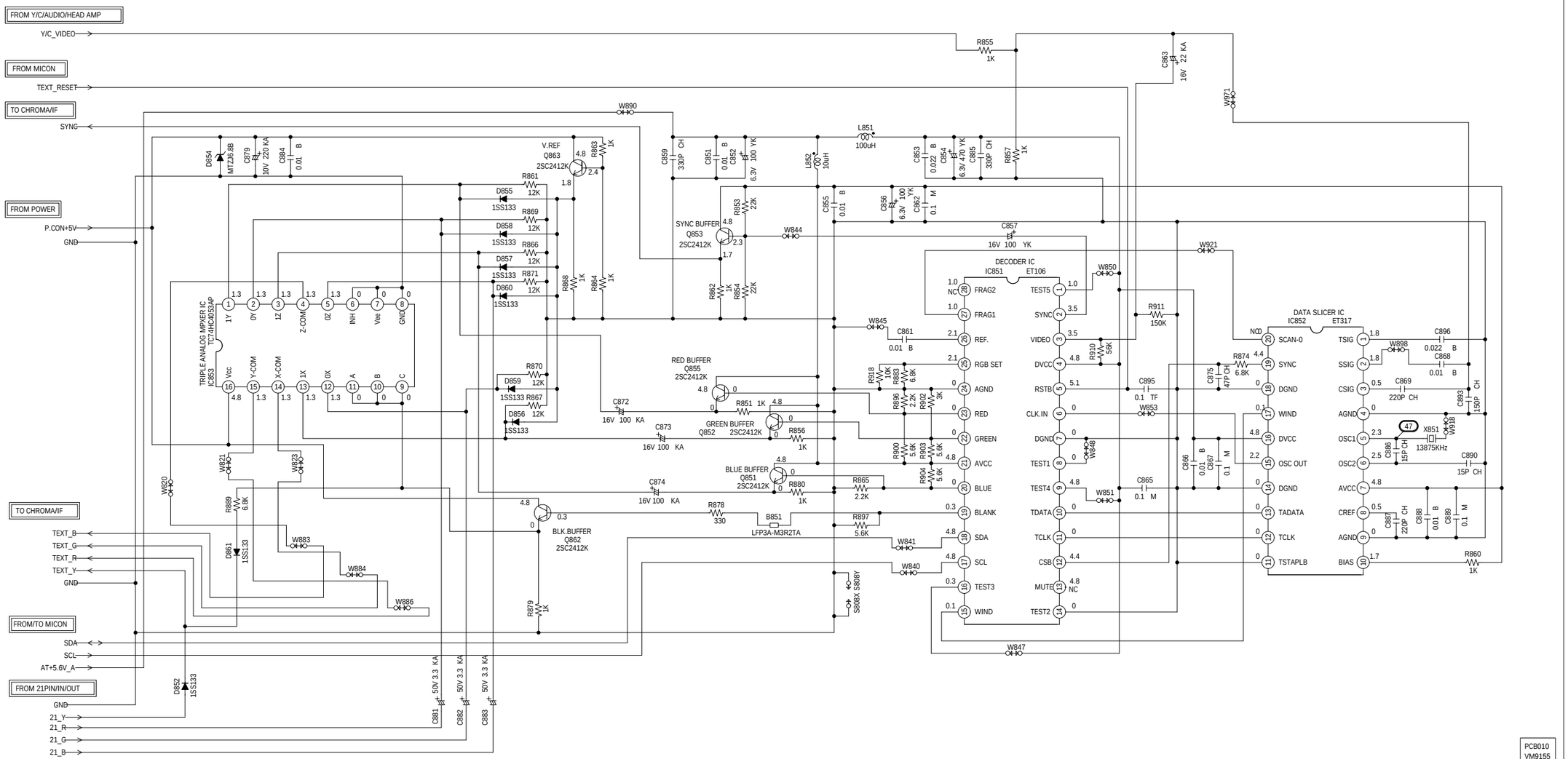
PCB010
VM9155

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。

T'TEXT 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。

TV POWER SCHEMATIC DIAGRAM

(MAIN PCB)

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

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

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

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

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

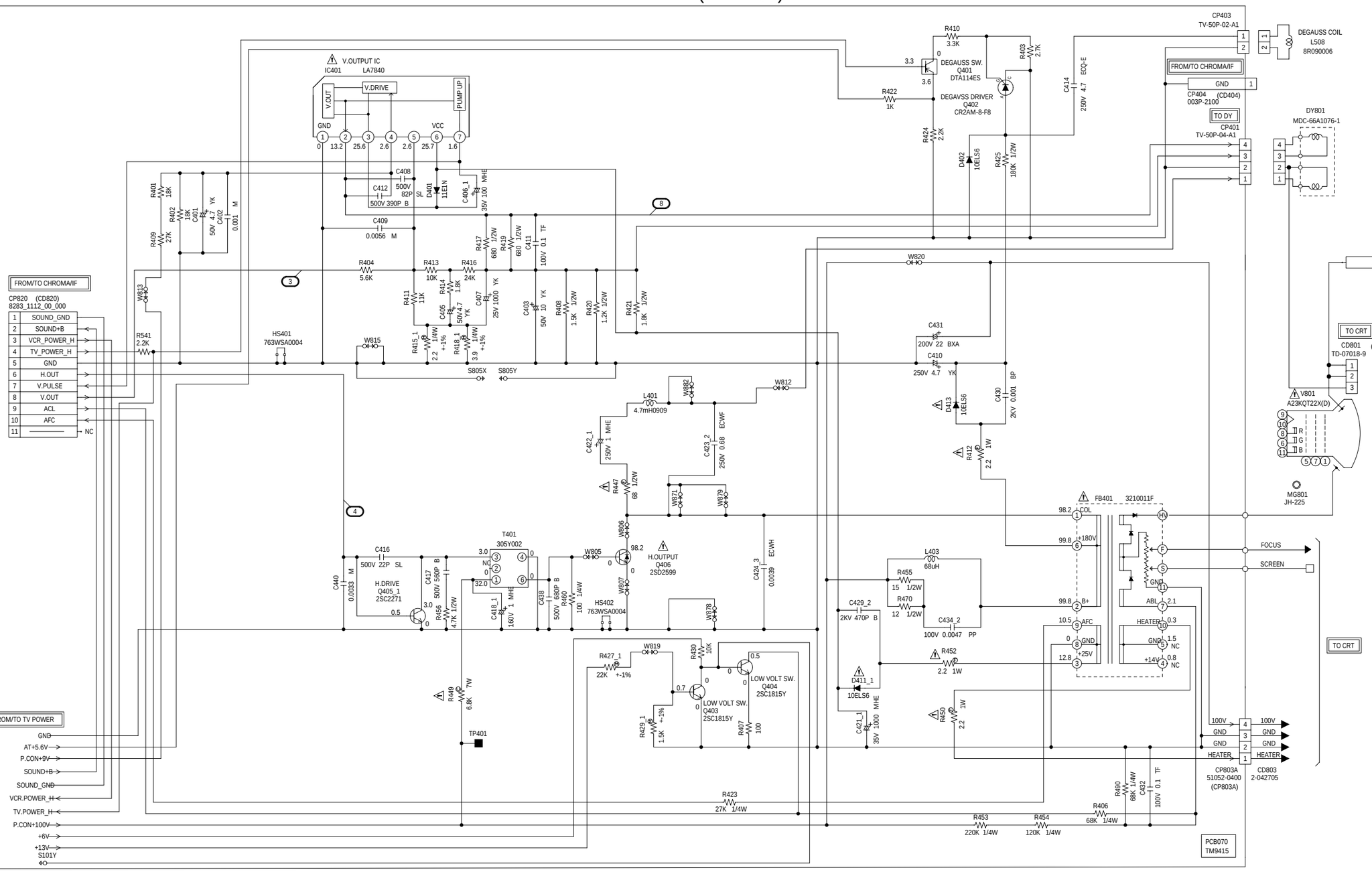
CAUTION: ⚠ IS THE LIVE CONNECTION

CP810 (CD810) 8283_1012_00_000	
GND	1
AT+12V	2
AT+12V	3
P.CON+9V	4
AT 5.6V	5
MOTOR GND	6
AT+30V	7
POWER FAIL(DC)	8
AT+21V	9
+6V	10

PCB070
TM9415

DEFLECTION SCHEMATIC DIAGRAM

(MAIN PCB)



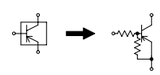
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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

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

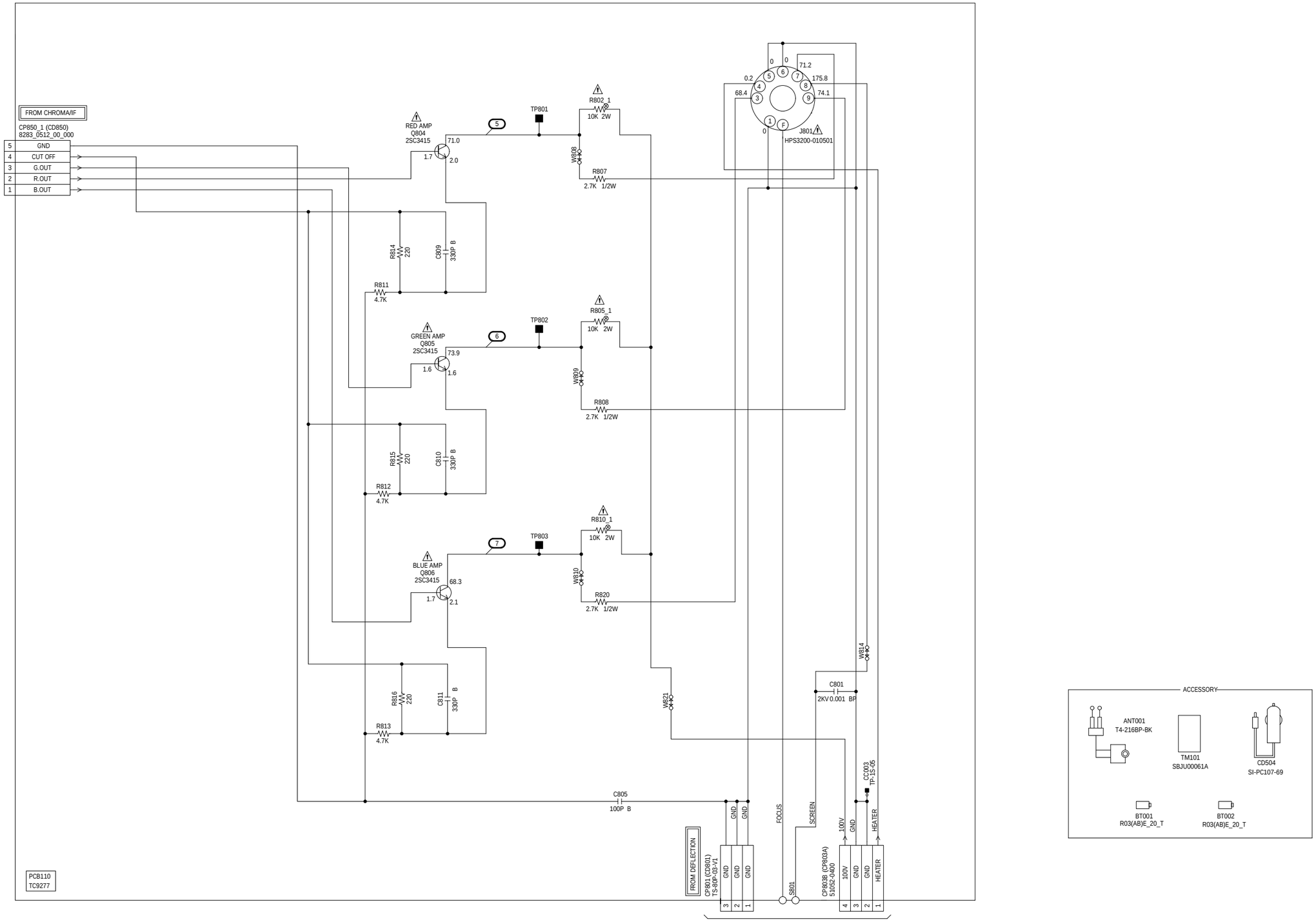
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR



CRT SCHEMATIC DIAGRAM

(CRT PCB)



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

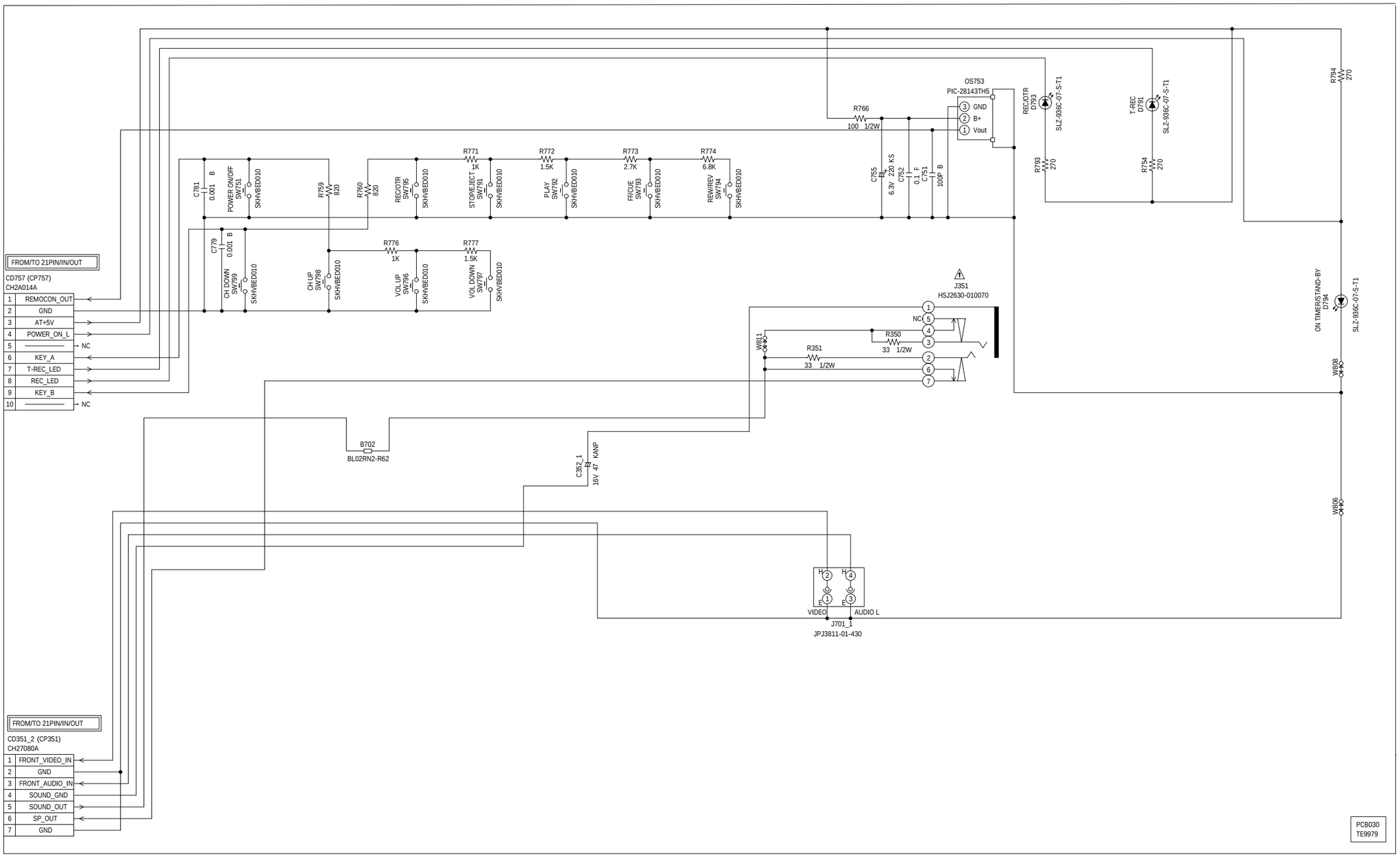
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS 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.

OPERATION SCHEMATIC DIAGRAM

(OPERATION PCB)



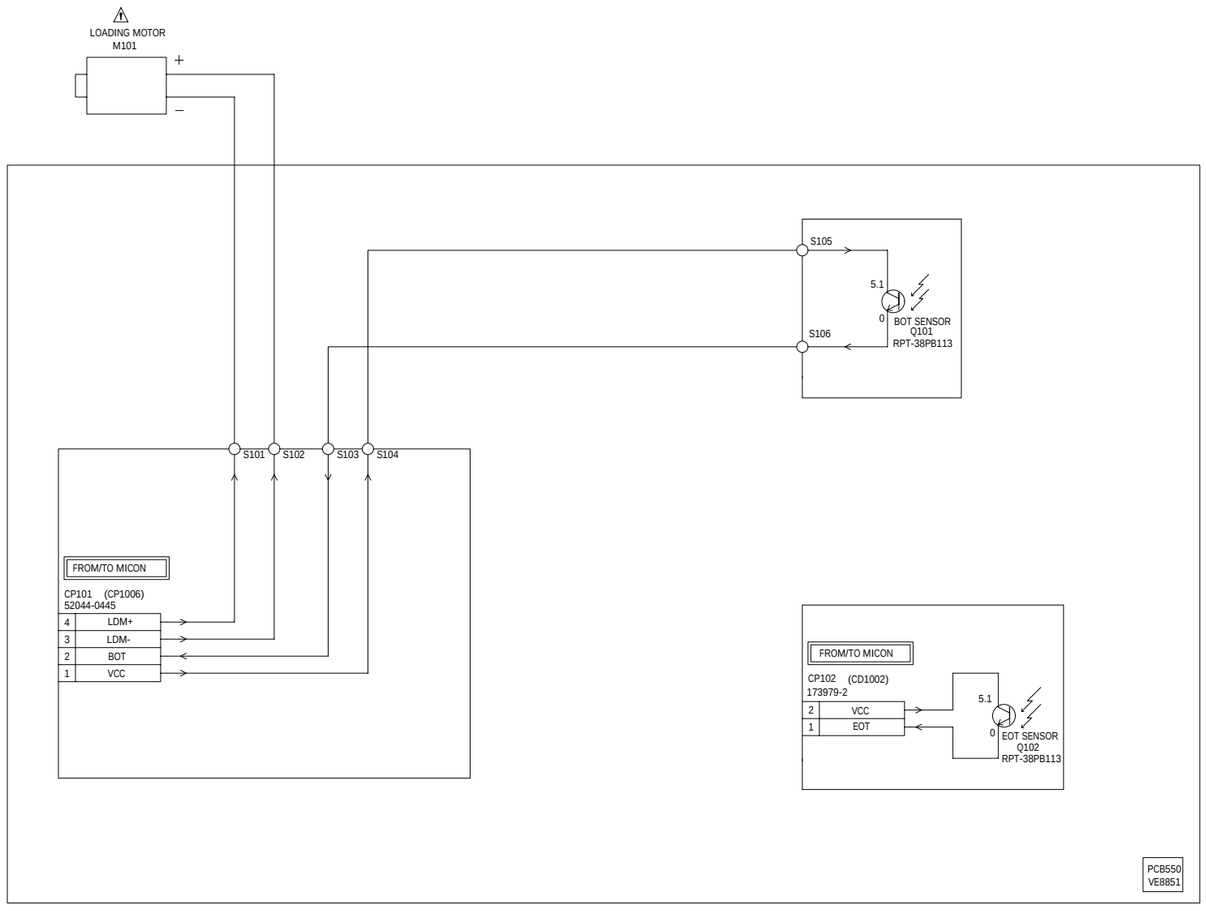
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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。

DECK SCHEMATIC DIAGRAM
(DECK PCB)



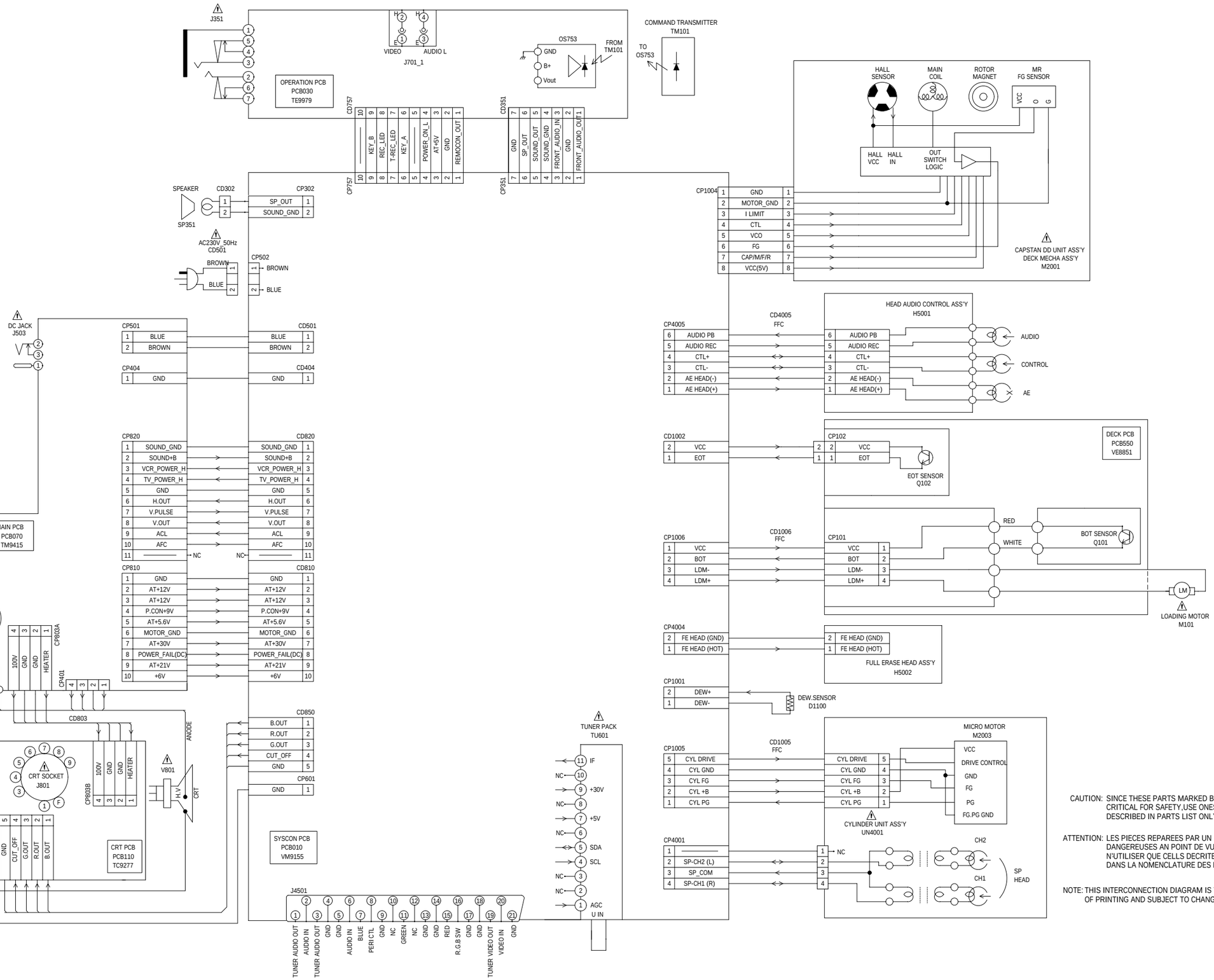
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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



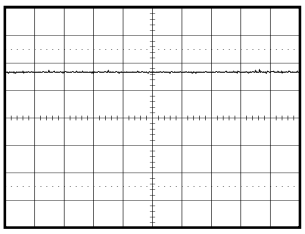
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

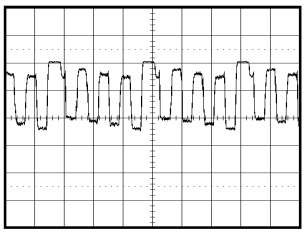
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

WAVEFORMS

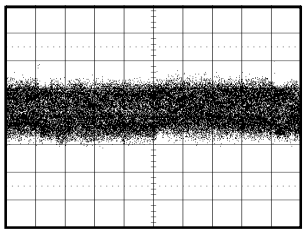
TV POWER



① 5V 0.1ms/div

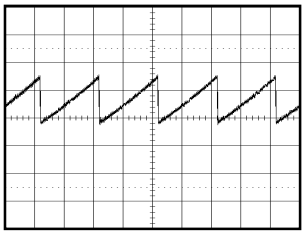


⑦ 20V 20µs/div



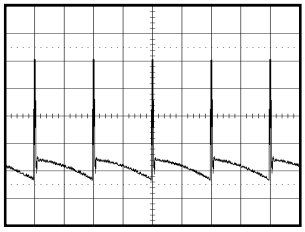
⑫ PB
10mV 5ms/div

DEFLECTION

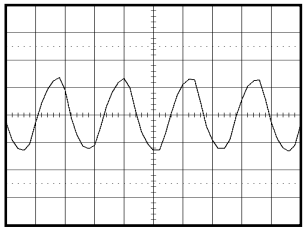


③ 0.5V 10ms/div

DEFLECTION

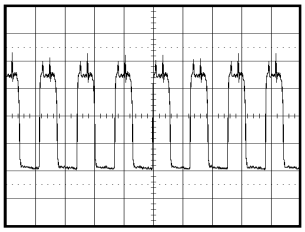


⑧ 10V 10ms/div

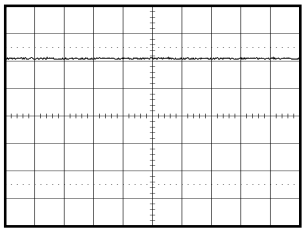


⑬ POWER ON
200mV 50ns/div

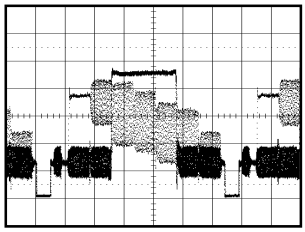
TV POWER



④ 200mV 50µs/div

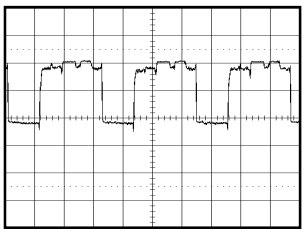


⑨ 20V 10ms/div

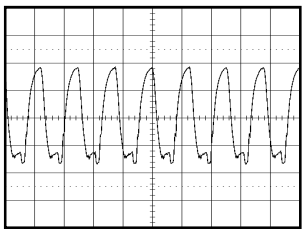


⑭ POWER ON
0.5V 10µs/div

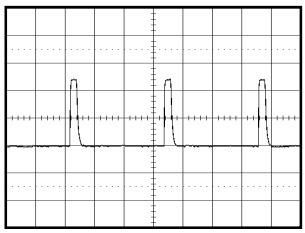
CRT



⑤ 2V 20µs/div

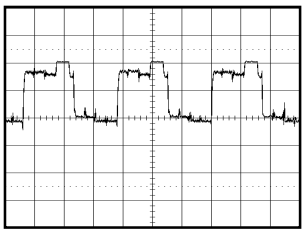


⑩ 1V 10µs/div

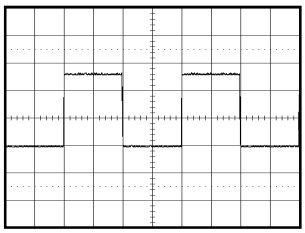


⑮ POWER ON
2V 20µs/div

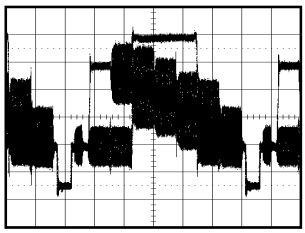
Y/C/AUDIO/HEAD AMP



⑥ 20V 20µs/div



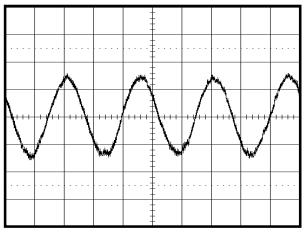
⑪ PB
2V 10ms/div



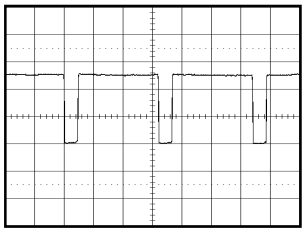
⑯ POWER ON
200mV 10µs/div

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

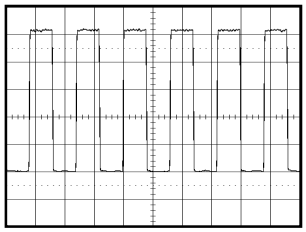
WAVEFORMS



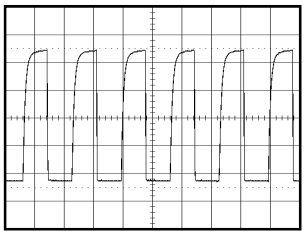
⑰ POWER ON
50mV 1ms/div



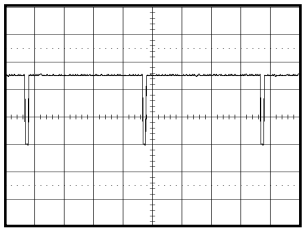
㉒ POWER ON
1V 20µs/div



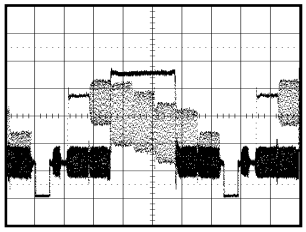
㉗ PB
1V 0.5µs/div



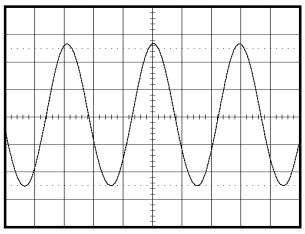
⑱ POWER ON
1V 1ms/div



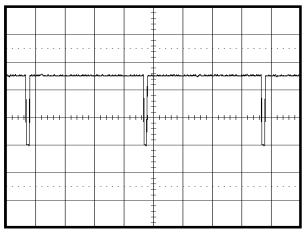
㉓ POWER ON
2V 20µs/div



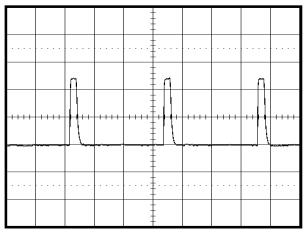
㉘ PB
0.5V 10µs/div



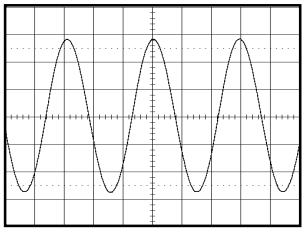
⑲ REC
10V 5µs/div



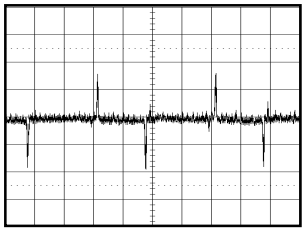
㉔ POWER ON
2V 5ms/div



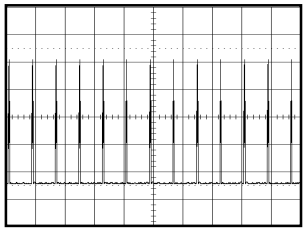
㉙ PB
2V 20µs/div



⑳ REC
10V 5µs/div

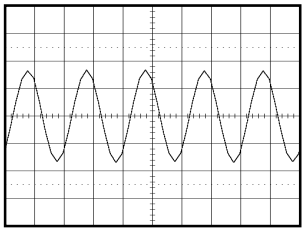


㉕ PB
50mV 10ms/div

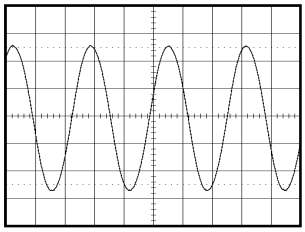


㉚ PB
1V 50ms/div

MICON

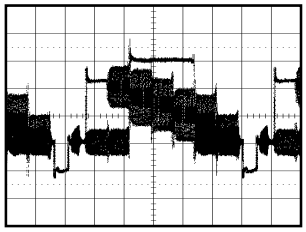


㉑ POWER ON
1V 50ns/div



㉖ PB
50mV 0.5ms/div

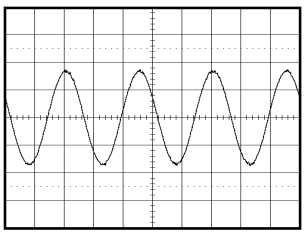
21PIN/IN/OUT



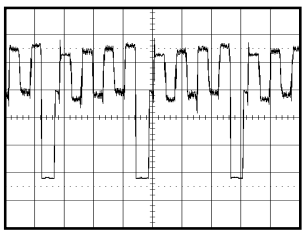
㉛ POWER ON
0.5V 10µs/div

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

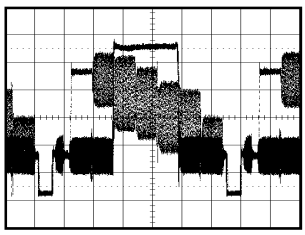
WAVEFORMS



(32) POWER ON
20mV 1ms/div

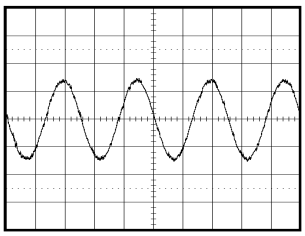


(37) POWER ON
0.5V 20µs/div

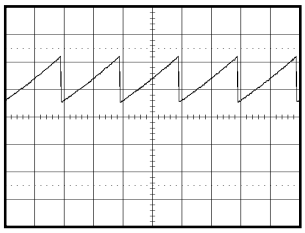


(42) POWER ON
200mV 10µs/div

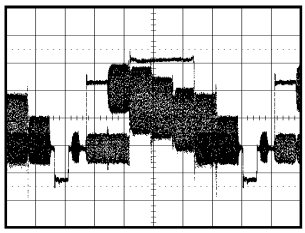
CHROMA/IF



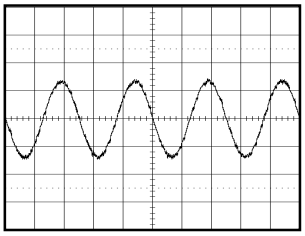
(33) POWER ON
5mV 1ms/div



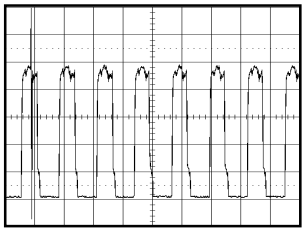
(38) POWER ON
0.5V 10ms/div



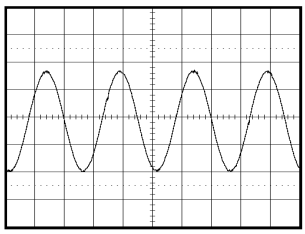
(44) POWER ON
0.5V 10µs/div



(34) POWER ON
5mV 1ms/div

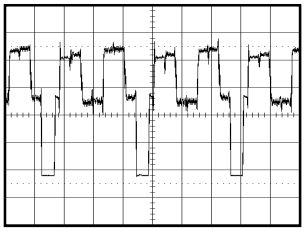


(39) POWER ON
200mV 50µs/div

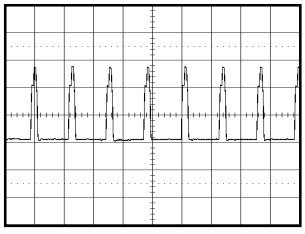


(45) POWER ON
200mV 1ms/div

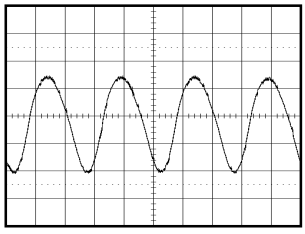
SOUND AMP



(35) POWER ON
0.5V 20µs/div

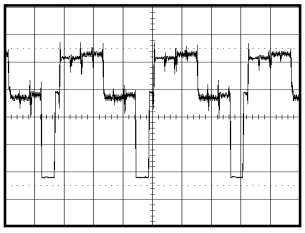


(40) POWER ON
2V 50µs/div

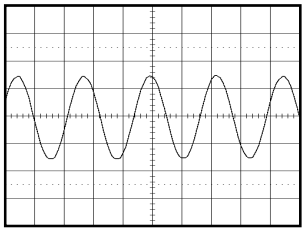


(46) POWER ON
200mV 1ms/div

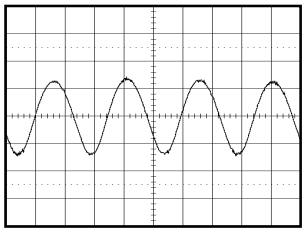
T' TEXT



(36) POWER ON
0.5V 20µs/div



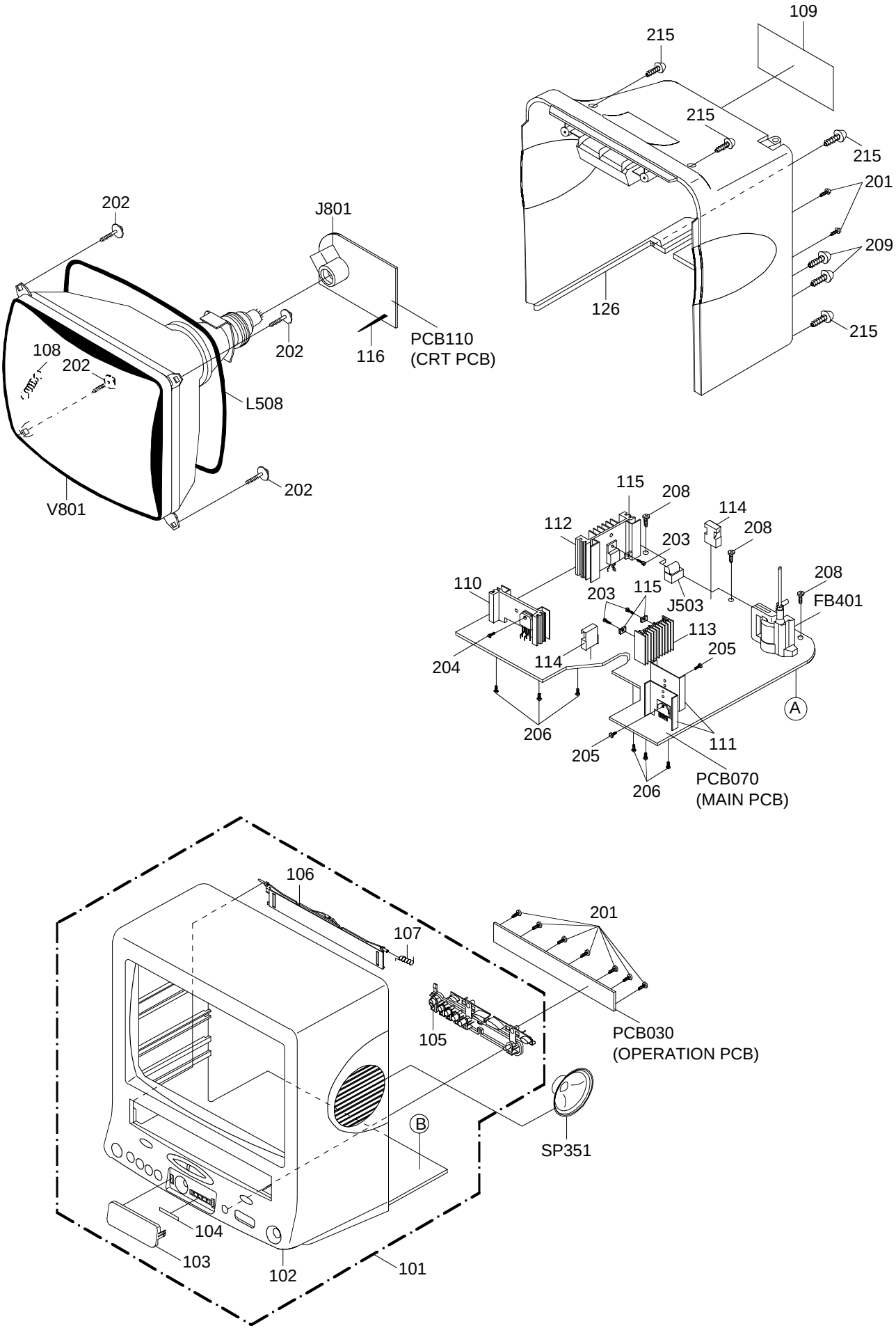
(41) POWER ON
200mV 0.1µs/div



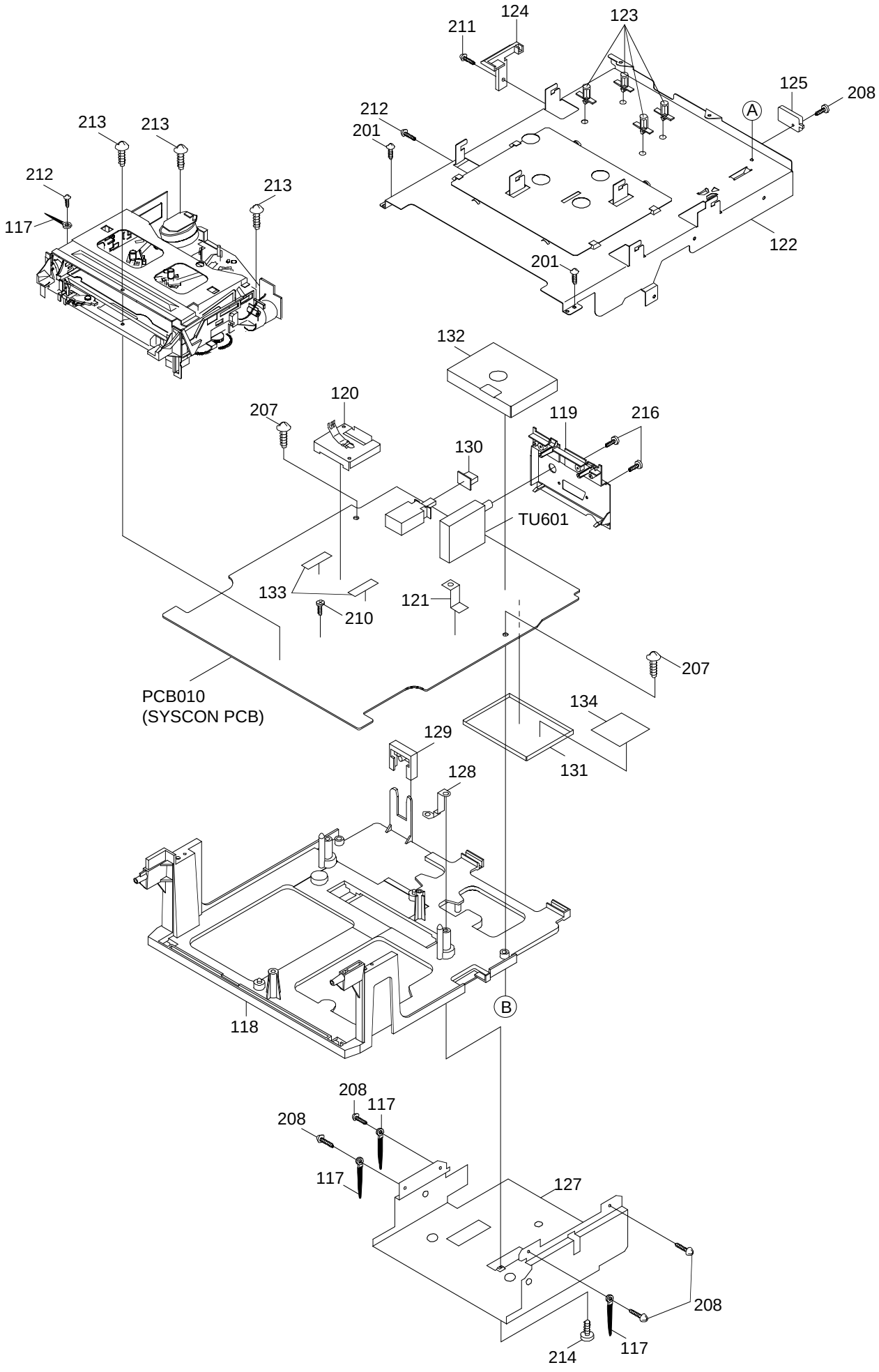
(47) POWER ON
0.5V 20ns/div

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

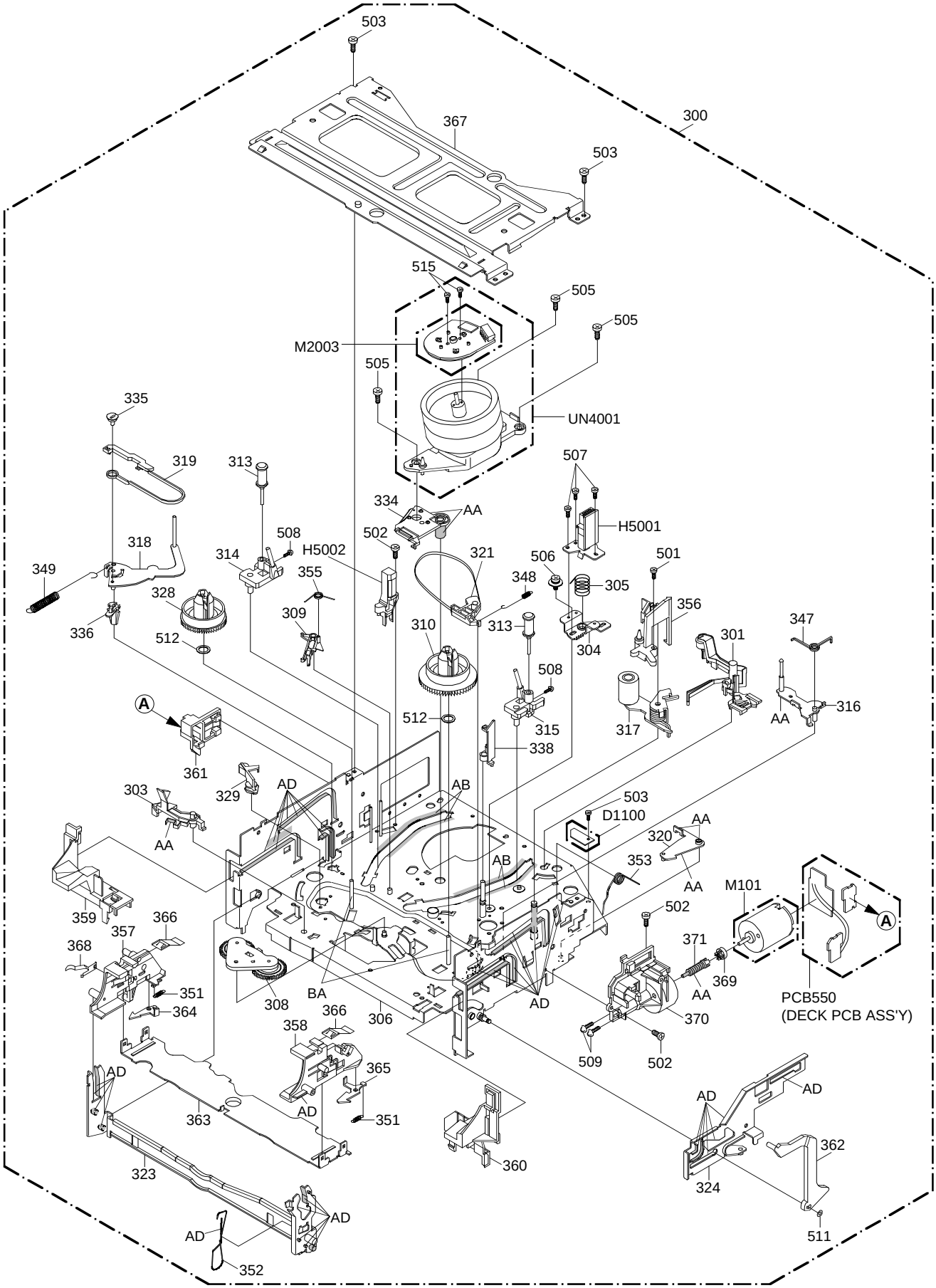
MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



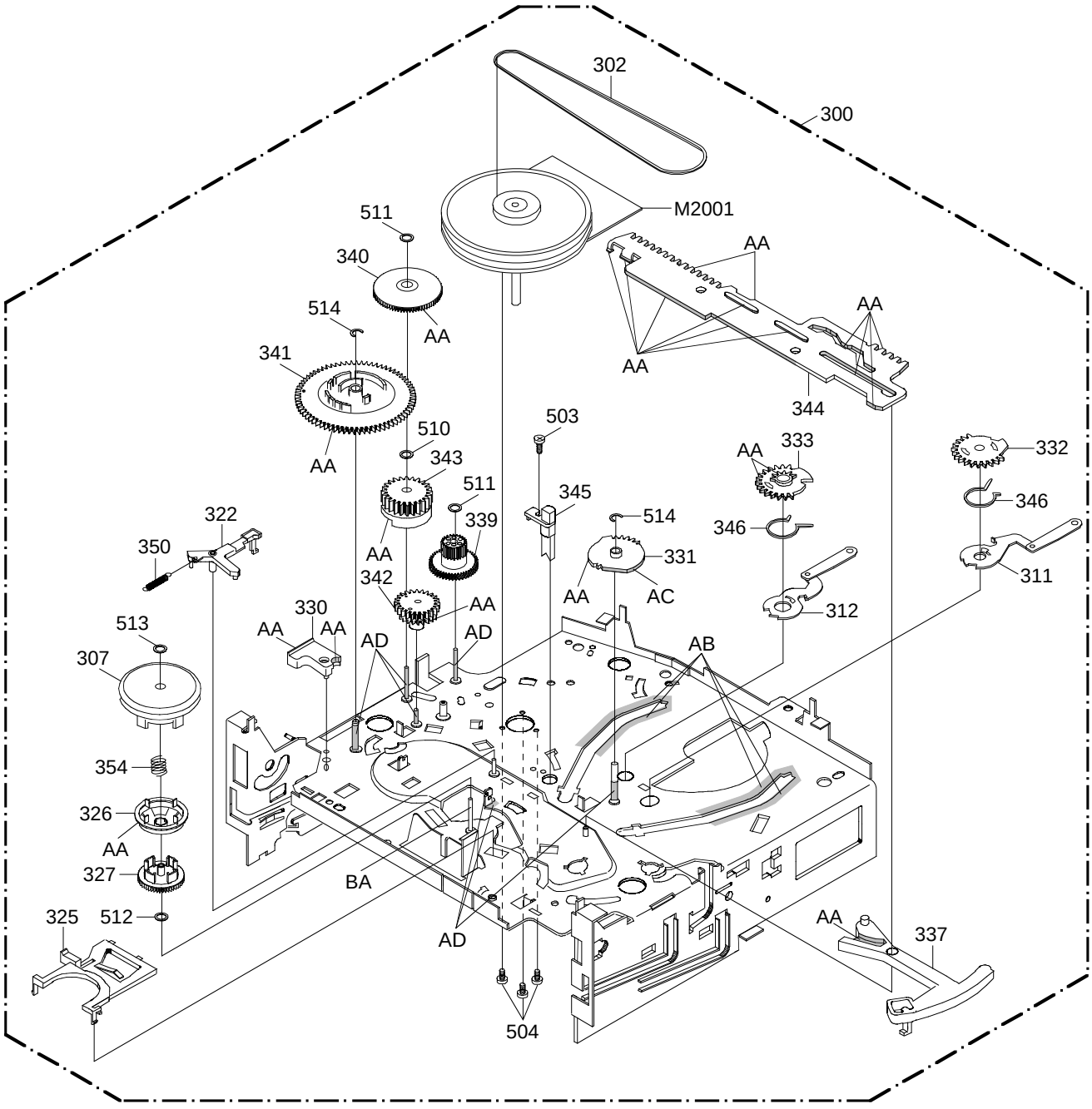
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	KYODO OIL SLIDAS No. 150	BA

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

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	KYODO OIL SLIDAS No. 150	BA

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

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
101	A54715A720	CABINET,FRONT ASS'Y		
102	701WPJB017	CABINET,FRONT		
103	711WPDA318	PLATE,FRONT		
104	7230006988	SHEET,LED		
105	735WPDA362	BUTTON,FRAME		
106	712WPJA735	FLAP		
107	743WKA0032	SPRING,FLAP		
108	741WUA0002	SPRING,EARTH		
109	722A27A002	SHEET,RATING		
110	---	HEAT SINK		
111	---	HEAT SINK		
112	---	HEAT SINK		
113	---	HEAT SINK		
114	---	HEAT SINK		
115	---	METAL SPACER		
116	---	COATING CLIP		
117	8995034000	CORD CLIP UL CO.		
118	761WPA0164	HOLDER,DECK		
119	771WPA0232	PLATE,JACK		
120	752WSA0192	SHIELD,CASE HEAD AMP ASS'Y		
121	753WSA0118	PLATE,EARTH-SYSCON		
122	752WSA0146	PLATE,DECK SHIELD		
123	890PS70100	PUSH SPACER		
124	761WPA0151	HOLDER,M/PCB		
125	761WPA0165	HOLDER,BACK		
126	702WPBA049	CABINET,BACK		
127	752WSA0147	PLATE,SHIELD BOTTOM		
128	753WSA0120	PLATE,BOTTOM-EARTH		
129	761WPA0166	HOLDER,BUSH		
130	735WPA0288	BUTTON,POWER		
131	752WSA0149	SHIELD,COVER		
132	752WSA0191	SHIELD,CASE		
133	800WFAA005	PVC CUSHION SHEET		12x4
134	755WNA0010	SHEET,PVC		
201	8110630A04	SCREW,TAP TITE (P)	BRAZIER	3x10
202	8141J40B84	SCREW,TAP TITE (P)	GW15	4x28
203	810A130804	SCREW/WASHER (A)		M3x8
204	810B130A04	SCREW/WASHER (B)		M3x10
205	810B130804	SCREW/WASHER (B)		M3x8
206	8109630802	SCREW,TAP TITE (B)	BRAZIER	3x8
207	8117540B04	SCREW,TAPPING (B0)	TRUSS	4x20
208	8107230604	SCREW,TAP TITE (S)	BIND	3x6
209	8110630A24	SCREW,TAP TITE (P)	BRAZIER	3x12
210	8110330804	SCREW,TAP TITE (P)	FLAT	3x8
211	8107230804	SCREW,TAP TITE (S)	BIND	3x8
212	8107226604	SCREW,TAP TITE (S)	BIND	2.6x6
213	8117140A24	SCREW,TAPPING (B0)	PAN	4x12
214	8110230604	SCREW,TAP TITE (P)	BIND	3x6
215	8117540A64	SCREW,TAPPING (B0)	TRUSS	4x16
216	8110630A22	SCREW,TAP TITE (P)	BRAZIER	3x12
---	JA4KD200	POLYBAG		
---	J5471501	INSTRUCTION BOOK		
---	J5471502	WARRANTY SHEET		
---	791WHA0023	LAMIFILM BAG		
---	792WHA0228	PACKAGE,TOP		
---	792WHA0229	PACKAGE,BOTTOM		
---	793WCDA741	GIFT BOX		

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
300	A54702A420A	DECK ASS'Y	A54702A420A	501	8107126A04	SCREW,TAP TITE(S) PAN	2.6x10
				502	8107226804	SCREW,TAP TITE(S) BIND	2.6x8
301	85OA500022	AHC ASS'Y		503	8107226604	SCREW,TAP TITE(S) BIND	2.6x6
302	85OP200270	BELT,CAPSTAN		504	8109126604	SCREW,TAP TITE(B) PAN	2.6x6
303	85OP900710	LEVER,REC		505	810A126804	SCREW/WASHER(A)	M2.6x8
304	85OP500083	BASE,AC HEAD		506	810B126404	SCREW/WASHER(B)	M2.6x4
305	85OP800324	SPRING,AC HEAD		507	8102120604	SCREW,PAN	M2x6
306	85OA000360	MAIN CHASSIS ASS'Y		508	8102120304	SCREW,PAN	M2x3
307	85OA200081	CLUTCH ASS'Y X		509	8102130304	SCREW,PAN	M3.0x3.0
308	85OA200073	ARM,IDLER ASS'Y					
309	85OP600553	ARM,S-S BRAKE		510	82Q3154C5N	POLYSLIDER WASHER	3.1x5.4xT0.25
				511	82P266005N	POLYSLIDER WASHER(CUT)	2.6x6.0xT0.5
310	85OA200076	T REEL ASS'Y		512	82Q264713N	POLYSLIDER WASHER	2.6x4.7xT0.13
311	85OA300061	LOADING ARM S ASS'Y		513	82P184505N	POLYSLIDER WASHER(CUT)	1.8x4.5xT0.5
312	85OA300062	LOADING ARM T ASS'Y		514	83ETW30000	E-RING	3.0
313	85OA400210	GUIDE ROLLER ASS'Y		515	810A123504	SEMS A	M2.3x5.0
314	85OA400188	BASE,INCL S ASS'Y					
315	85OA400196	BASE,INCL T(S) ASS'Y		CP101	069R740018	CONNECTOR PCB SIDE	52044-0445
316	85OA400197	P5-3 ARM ASS'Y		CP102	0694220139	CONNECTOR PCB SIDE	173979-2
317	85OA400205	PINCH ROLLER BLOCK		D1100	DAK0000170	DEW SENSORCW/AL,PLATE	HDP-05-26
318	85OA400175	TENSION ARM ASS'Y		H5001	1523D91034	HEAD (AUDIO CONTROL)	HVMXA1072A
319	85OA400176	TENSION BAND ASS'Y		H5002	1543D02013	HEAD (FULL ERASE)	HVFHP0032A
				⚠ M101	1596P78001	MOTOR (LOADING)	MXN13FB11H
320	85OA400178	PINCH ROLLER LEVER ASS'Y		⚠ M2001	1594J98007	CAPSTAN DD UNIT	EP15BB
321	85OA600182	BRAKE T ASS'Y		M2003	1589V11007	MICRO MOTOR	EP14BD
322	85OA600183	CAP BRAKE ARM ASS'Y		PCB550	A4C701B550	DECK PCB ASS'Y	VE8851
323	85OA900213	LINK ASS'Y		Q101	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
324	85OA900216	LINK LEVER ASS'Y		Q102	0000700320	TRANSISTOR,PHOTO	RPT-38PB113
325	85OP200261	LEVER,CLUTCH		⚠ UN4001	A54702A500	CYLINDER UNIT ASS'Y	A54702A500
326	85OP200262	RING,CLUTCH					
327	85OP200263	GEAR,CLUTCH					
328	85OP200271	REEL,S					
329	85OP200273	STOPPER,REEL S					
330	85OP200274	SPACER,LINK LEVER					
331	85OP300178	GEAR,MAIN LOADING					
332	85OP300179	GEAR,LOADING S					
333	85OP300180	GEAR,LOADING T					
334	85OP300186	HOLDER,LOADING GEAR					
335	85OP400472	ADJUST,TENSION					
336	85OP400492	HOLDER,TENSION					
337	85OP400490	LEVER,TENSION					
338	85OP400475	COVER,P4					
339	85OP600543	GEAR,JOINT					
340	85OP600544	GEAR,MIDDLE					
341	85OP600545	CAM,MAIN					
342	85OP600546	CAM,P5					
343	85OP600565	CAM,PINCH ROLLER					
344	85OP600548	ROD,MAIN					
345	85OP700035	REFLECTOR,LED					
346	85OP800318	SPRING,LOADING GEAR					
347	85OP800319	SPRING,P5					
348	85OP800321	SPRING,BRAKE T					
349	85OP800322	SPRING,TENSION					
350	85OP800323	SPRING,CAP BRAKE					
351	85OP800342	SPRING,LOCKER (S)					
352	85OP800326	SPRING,LINK					
353	85OP800328	SPRING,DAMPER					
354	85OP800330	SPRING,RING					
355	85OP800332	SPRING,S-S BRAKE					
356	85OP900680	OPENER,CASS					
357	85OP900683	CASS SIDE L					
358	85OP900684	CASS SIDE R					
359	85OP900709	TAPE GUIDE L (P,R)					
360	85OP900686	TAPE GUIDE R					
361	85OP900707	COVER,SENSOR L					
362	85OP900688	LEVER,FLAP					
363	85OP900690	CASS HOLDER					
364	85OP900691	LOCKER,L					
365	85OP900692	LOCKER,R					
366	85OP900694	SPRING,PACK					
367	85OP900695	BRACKET,TOP					
368	85OP900696	SPRING,CASS EARTH					
369	85OP600540	DRIVER,WORM					
370	85OP600563	BRACKET,MOTOR					
371	85OP600541	WORM					

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
RESISTORS			
⚠ R412	R635812R2J	R, FUSE	2.2 OHM 1W
⚠ R447	R65582680J	R, FUSE	68 OHM 1/2W
⚠ R449	R5X2CE682J	R, CEMENT	6.8K OHM 7W or
	R5Y2CE682J	R, CEMENT	6.8K OHM 7W
⚠ R450	R655812R2J	R, FUSE	2.2 OHM 1W or
	R635812R2J	R, FUSE	2.2 OHM 1W
⚠ R452	R655812R2J	R, FUSE	2.2 OHM 1W or
	R635812R2J	R, FUSE	2.2 OHM 1W
⚠ R501	R5Y2CE2R2J	R, CEMENT	2.2 OHM 7W
⚠ R505	R3X28B683J	R, METAL	68K OHM 3W
⚠ R510	R32181R39J	R, METAL OXIDE	0.39 OHM 1W
⚠ R511	R63584681J	R, FUSE	680 OHM 1/4W
⚠ R512	R3X101103J	R, METAL	10K OHM 1W
⚠ R517	R3X28B100J	R, METAL OXIDE	10 OHM 3W
⚠ R538	R0G2X2155J	RC	1.5M OHM 1/2W
⚠ R545	R3X20B2R2J	R, METAL OXIDE	2.2 OHM 3W
⚠ R546	R3X28A151J	R, METAL	150 OHM 2W
⚠ R802	R3X28A103J	R, METAL OXIDE	10K OHM 2W
⚠ R805	R3X28A103J	R, METAL OXIDE	10K OHM 2W
⚠ R810	R3X28A103J	R, METAL OXIDE	10K OHM 2W
⚠ R1005	R615J12R7J	R, FUSE	2.7 OHM 1W
CAPACITORS			
C352	E00NU2470M	CE	47 UF 16 V
C407	E02L03102M	CE	1000 UF 25V
C414	P21503475K	CMP	4.7 UF 250V ECQ-E
C421	E5EZ04102M	CE	1000 UF 35V or
	E53Z04102M	CE	1000 UF 35V VZ
C423	P411F3684J	CMPP	0.68 UF 250V ECWF
C424	P414F9392H	CMPP	0.0039UF 1.6KV ECWH
C430	C01BBP713K	CC	0.001 UF 2KV BP
C431	E62D0C220M	CE	22 UF 200V
C502	C13HB07H3K	CC	0.0022UF 2KV B
C503	C13HB07H3K	CC	0.0022UF 2KV B
C507	E52C0H101M	CE	100 UF 400V
C515	E62FF3152M	CE	1500 UF 25V
⚠ C516	P2222B224K	CMP	0.22 UF 250V AC MMCA
C517	C01BBP712K	CC	100 PF 2KV BP
C521	E53VFB101M	CE	100 UF 160V
C525	C01BBP7W2K	CC	820 PF 2KV BP
⚠ C529	CB3930M13M	CC	0.001 UF 250V
C531	E62FF2102M	CE	1000 UF 16V
⚠ C538	CB3930MH2K	CC	220 PF 250V
⚠ C546	CB3930MH3M	CC	0.0022UF 250V
C547	C01BBP7S2K	CC	560 PF 2KV BP
⚠ C548	CB3930M13M	CC	0.001 UF 250V
C551	E62FF3152M	CE	1500 UF 25V
C801	C01BBP713K	CC	0.001 UF 2KV BP
C1003	E51XWP104Z	CE	0.1 F 5.5V
DIODES			
D401	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
D402	D28T10ELS6	DIODE, RECTIFIER	10ELS6TA1B2
⚠ D411	D28T10ELS6	DIODE, RECTIFIER	10ELS6TA1B2
⚠ D413	D28T10ELS6	DIODE, RECTIFIER	10ELS6TA1B2
⚠ D503	D2BTRM11C0	DIODE, RECTIFIER	RM11C
⚠ D504	D2BTRM11C0	DIODE, RECTIFIER	RM11C
D505	D28T10ELS6	DIODE, RECTIFIER	10ELS6TA1B2
⚠ D506	D94TA27011	DIODE, ZENER	HZ27-1L TD
⚠ D508	D28T21DQN9	DIODE, SCHOTTKY	21DQ09N-TA2B1
⚠ D509	D2BTRU2AM0	DIODE, SILICON	RU2AM V1
⚠ D512	D28T21DQN4	DIODE, SCHOTTKY	21DQ04N-TA2B1
D513	D1VT001330	DIODE, SILICON	1SS133T-77
D514	D2BXEU2YX0	DIODE, SILICON	EU2YX-V1
D515	D97U03001B	DIODE, ZENER	MTZJ30B T-77
D516	D1VT001330	DIODE, SILICON	1SS133T-77
D517	D28TQS04N0	DIODE, SCHOTTKY	11EQS04N-TA1B2
D518	D28T10ELS6	DIODE, RECTIFIER	10ELS6TA1B2
⚠ D519	D28T21DQN9	DIODE, SCHOTTKY	21DQ09N-TA2B1
⚠ D520	D28T21DQN9	DIODE, SCHOTTKY	21DQ09N-TA2B1
⚠ D521	D2BTRU2AM0	DIODE, SILICON	RU2AM V1
D522	D97U01601B	DIODE, ZENER	MTZJ16B T-77
D523	D1VT001330	DIODE, SILICON	1SS133T-77
D524	D28021DQN4	DIODE, SCHOTTKY	21DQ04N
D525	D17T002440	DIODE, SILICON	1SS244T-77
D526	D1VT001330	DIODE, SILICON	1SS133T-77
D527	D1VT001330	DIODE, SILICON	1SS133T-77
D528	D97U05R61B	DIODE, ZENER	MTZJ5.6B T-77
D529	D1VT001330	DIODE, SILICON	1SS133T-77

REF. NO.	PART NO.	DESCRIPTION	
DIODES			
D531	D2BT0EG01C	DIODE, RECTIFIER	EG-01C
D532	D1VT001330	DIODE, SILICON	1SS133T-77
D534	D1VT001330	DIODE, SILICON	1SS133T-77
⚠ D535	D2BTRM11C0	DIODE, RECTIFIER	RM11C
⚠ D536	D2BTRM11C0	DIODE, RECTIFIER	RM11C
⚠ D538	D28T21DQN9	DIODE, SCHOTTKY	21DQ09N-TA2B1
D601	D1VT001330	DIODE, SILICON	1SS133T-77
D602	D1VT001330	DIODE, SILICON	1SS133T-77
D603	D1VT001330	DIODE, SILICON	1SS133T-77
D604	D28T11ESN1	DIODE, SILICON	11ES1N-TA1B2
D605	D97U05R61B	DIODE, ZENER	MTZJ5.6B T-77
D791	002132Q130	LED	SLZ-936C-07-S-T1
D793	002132Q130	LED	SLZ-936C-07-S-T1
D794	002132Q130	LED	SLZ-936C-07-S-T1
D852	D1VT001330	DIODE, SILICON	1SS133T-77
D854	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77
D855	D1VT001330	DIODE, SILICON	1SS133T-77
D856	D1VT001330	DIODE, SILICON	1SS133T-77
D857	D1VT001330	DIODE, SILICON	1SS133T-77
D858	D1VT001330	DIODE, SILICON	1SS133T-77
D859	D1VT001330	DIODE, SILICON	1SS133T-77
D860	D1VT001330	DIODE, SILICON	1SS133T-77
D861	D1VT001330	DIODE, SILICON	1SS133T-77
D1001	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23
D1002	D1VT001330	DIODE, SILICON	1SS133T-77
D1003	0010600060	LED	SID1050CM
D1004	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23
D1005	D92T1120B0	DIODE, ZENER	RD12FB-T7
D1006	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
D1007	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
D1008	D97U05R11B	DIODE, ZENER	MTZJ5.1B T-77
D1009	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
D1010	D28T11E1N1	DIODE, SILICON	11E1N-TA1B2
D1011	D1VT001330	DIODE, SILICON	1SS133T-77
D1012	D1VT001330	DIODE, SILICON	1SS133T-77
D1014	D1VT001330	DIODE, SILICON	1SS133T-77
D1015	D1VT001330	DIODE, SILICON	1SS133T-77
D1016	D97U06R21C	DIODE, ZENER	MTZJ6.2C T-77
D1017	D1VT001330	DIODE, SILICON	1SS133T-77
D4001	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77
D4002	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77
D4003	D1VTB721Q0	DIODE, SCHOTTKY	RB721QT-77
D4202	D28T11ESN1	DIODE, SILICON	11ES1N-TA1B2
D4501	D97U01301B	DIODE, ZENER	MTZJ13B T-77
D4502	D97U01301B	DIODE, ZENER	MTZJ13B T-77
D4503	D1VT001330	DIODE, SILICON	1SS133T-77
D4505	D97U01201B	DIODE, ZENER	MTZJ12B T-77
D4506	D97U01201B	DIODE, ZENER	MTZJ12B T-77
D4507	D97U01201B	DIODE, ZENER	MTZJ12B T-77
D4508	D97U01201B	DIODE, ZENER	MTZJ12B T-77
D4510	D1VT001330	DIODE, SILICON	1SS133T-77
D4511	D1VT001330	DIODE, SILICON	1SS133T-77
ICS			
IC351	I01DP75110	IC	AN7511
⚠ IC401	I03SD78400	IC	LA7840
⚠ IC501	I2BT067070	IC	STR-F6707
⚠ IC502	I1KA97805A	IC	KIA7805API
⚠ IC503	I07K9A12T0	IC	BA12T
⚠ IC504	IDJD076100	IC	FA7610CP
⚠ IC505	I1KA97806A	IC	KIA7806API
⚠ IC506	000210001R	PHOTO COUPLER	ON3171R
⚠ IC507	I0GA909RD0	IC	PQ09RD08
IC601	I03DE68120	IC	LA76812
⚠ IC602	I0Q0978050	IC	NJM7805FD
IC851	ICKD001060	IC	ET106
IC852	ICKD003170	IC	ET317
IC853	I55DC4053A	IC	TC74HC4053AP
⚠ IC1001	I07SQ69550	IC	BA6955N
IC1002	IE1J0S31AH	IC	RE5VS31A
IC1003	I03FE772V0	IC	LC74772V
IC1006	I54F50076A	IC	OEC0076A
IC1099	A54715A015	IC	S-24C08ADPA-01
IC4001	I04F38217F	IC	HA118217F
TRANSISTORS			
Q401	TPYTB03001	COMPOUND TRANSISTOR	DTA114ESTP
Q402	TF6FR2AM80	THYRISTOR	CR2AM-8-F8
Q403	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
TRANSISTORS			
Q404	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)
Q405	TC3T022710	TRANSISTOR, SILICON	2SC2271(D,E)-AE
⚠ Q406	TDUQ025990	TRANSISTOR, SILICON	2SD2599
Q501	TC3T029090	TRANSISTOR, SILICON	2SC2909(S,T)-AA
⚠ Q502	TA3T1371A0	TRANSISTOR, SILICON	2SA1371(D,E)-AE
⚠ Q503	TCWQ4160E0	TRANSISTOR, SILICON	2SC4160-OEC-YAC11
Q504	TPYTB03001	COMPOUND TRANSISTOR	DTA114ESTP
⚠ Q505	T410029030	FET	2SK2903-01MR
Q506	TNYTJ03001	COMPOUND TRANSISTOR	DTC114TSTP
Q507	TCYT1740S0	TRANSISTOR, SILICON	2SC1740SP(R,S) TP
Q508	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q509	TCYT1740S0	TRANSISTOR, SILICON	2SC1740SP(R,S) TP
Q510	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q511	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)
Q512	TAST009520	TRANSISTOR, SILICON	2SA952(C)-T(L,M) or
	TALT00952L	TRANSISTOR, SILICON	2SA952(C)-T L or
	TALT009520	TRANSISTOR, SILICON	2SA952(C)-T(L,M)
Q513	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q514	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q515	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q517	TNYTB03001	COMPOUND TRANSISTOR	DTC114ESTP
Q518	TNYTD03002	COMPOUND TRANSISTOR	DTC144TSTP
Q601	TC3T030000	TRANSISTOR, SILICON	2SC3000-AA
Q607	TAST007330	TRANSISTOR, SILICON	2SA733(C)-T(P,Q)
Q608	TAWT0984K0	TRANSISTOR, SILICON	2SA984K(E,F)-AA
⚠ Q804	TCYT034150	TRANSISTOR, SILICON	2SC3415T93-(N,P) or
	TCQT3415S0	TRANSISTOR, SILICON	2SC3415STP(N,P)
⚠ Q805	TCYT034150	TRANSISTOR, SILICON	2SC3415T93-(N,P) or
	TCQT3415S0	TRANSISTOR, SILICON	2SC3415STP(N,P)
⚠ Q806	TCYT034150	TRANSISTOR, SILICON	2SC3415T93-(N,P) or
	TCQT3415S0	TRANSISTOR, SILICON	2SC3415STP(N,P)
Q851	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q852	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q853	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q855	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q862	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q863	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q1001	0002G00540	PHOTO COUPLER	GP1S566 or
	0002M00570	PHOTO COUPLER	SG-260
Q1002	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q1003	0002G00550	PHOTO COUPLER	GP1S94L
Q1005	0002G00540	PHOTO COUPLER	GP1S566 or
	0002M00570	PHOTO COUPLER	SG-260
Q1006	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q1008	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
Q1009	0002G00550	PHOTO COUPLER	GP1S94L
Q1010	TPYJB05001	COMPOUND TRANSISTOR	DTA114EKAT146 or
	TPYTB05001	COMPOUND TRANSISTOR	DTA114EKT147
Q1011	TD70D23960	TRANSISTOR, SILICON	2SD2396(J,K)
Q1012	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q1014	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q1015	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q1016	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q1019	TB3T008920	TRANSISTOR, SILICON	2SB892(S,T)-AE
Q1020	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146
Q1021	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q4001	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA
Q4002	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA
Q4003	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
Q4004	TCWT022740	TRANSISTOR, SILICON	2SC2274(E,F)-AA
Q4005	TCWT022740	TRANSISTOR, SILICON	2SC2274(E,F)-AA
Q4006	T6YJ1037K0	TRANSISTOR, SILICON	2SA1037AKT146(R,S)
Q4007	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q4201	TNYTB05001	COMPOUND TRANSISTOR	DTC114EKT147
Q4501	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q4502	T6YJ1037K0	TRANSISTOR, SILICON	2SA1037AKT146(R,S)
Q4505	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q4507	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q4509	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q4510	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
Q4511	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
COILS &TRANSFORMERS			
L401	021679472K	COIL	4.7 MH
L403	021U6D680K	COIL	68 UH
⚠ L501	029X000052	COIL, LINE FILTER	SS28V-08350
L503	021767100K	COIL	10 UH
L508	028R090006	COIL, DEGAUSS	8R090006

REF. NO.	PART NO.	DESCRIPTION	
COILS &TRANSFORMERS			
L601	02167D101K	COIL	100 UH
L603	021LA6150K	COIL	15 UH
L604	021LA6R39M	COIL	0.39 UH
L605	02167D101K	COIL	100 UH
L606	021LA62R2M	COIL	2.2 UH
L608	0336000428	COIL, VIDEO IFT	3600042
L609	02167D101K	COIL	100 UH
L851	021673101K	COIL	100 UH
L852	021673100K	COIL	10 UH
L1001	021LA6330K	COIL	33 UH
L4001	0326230038	COIL, TRAP	2623003
L4002	02167D102K	COIL	1 MH
L4003	02167D101K	COIL	100 UH
L4004	02167B100K	COIL	10 UH
L4005	0316260088	COIL, BIAS OSC	1626008
L4006	02167D101K	COIL	100 UH
L4008	02167D101K	COIL	100 UH
L4009	02167D101K	COIL	100 UH
L4011	021LA6120K	COIL	12 UH
L4012	021LA6221K	COIL	220 UH
L4013	02167D101K	COIL	100 UH
L4015	02167D101K	COIL	100 UH
L4016	021LA6390K	COIL	39 UH
L4501	021673101K	COIL	100 UH
L4502	021673101K	COIL	100 UH
L4503	021LA6100J	COIL	10 UH
L4504	021LA6100J	COIL	10 UH
T401	03305Y002S	TRANS, HORIZONTAL DRIVE	305Y002
⚠ T501	048135034W	TRANSFORMER, SWITCHING	8135034W
⚠ T502	048135033W	TRANSFORMER, SWITCHING	8135033W
JACKS			
⚠ J351	0602131012	JACK, RCA 3.5	HSJ2630-010070 or
	060G131014	RCA, JACK	HTJ-035-28A
⚠ J503	0602602006	JACK, DC	HEC0824-010010
J701	0602101020	JACK, RCA	JPJ3811-01-430
⚠ J801	066X120014	SOCKET, CRT	HPS3200-010501
J4501	063G100037	SOCKET, 21PIN	035_0_9985_05
SWITCHES			
⚠ SW501	0530205002	SWITCH	SDDFC30400
SW751	0504201T31	SWITCH, TACT	SKHVBED010
SW791	0504201T31	SWITCH, TACT	SKHVBED010
SW792	0504201T31	SWITCH, TACT	SKHVBED010
SW793	0504201T31	SWITCH, TACT	SKHVBED010
SW794	0504201T31	SWITCH, TACT	SKHVBED010
SW795	0504201T31	SWITCH, TACT	SKHVBED010
SW796	0504201T31	SWITCH, TACT	SKHVBED010
SW797	0504201T31	SWITCH, TACT	SKHVBED010
SW798	0504201T31	SWITCH, TACT	SKHVBED010
SW799	0504201T31	SWITCH, TACT	SKHVBED010
SW1001	0508221001	SWITCH (LEAF)	SPVF130100
VARIABLE RESISTORS			
VR501	V116314BTC	VOLUME, SEMI FIXED	EVNCYAA03B14
VR502	V1263Q2BTC	VOLUME, SEMI FIXED	RH063MCS2R
P.C.BOARD ASSEMBLIES			
PCB010	A54715A01A	PCB ASS'Y	VM9155C
PCB030	A54715A03A	PCB ASS'Y	TE9979A
PCB070	A54702A07A	PCB ASS'Y	TM9415C
PCB110	A54702A11A	PCB ASS'Y	TC9277C
PCB550	A4C701B550	SEE CHASSIS REPLACEMENT	PARTS LIST
MISCELLANEOUS			
ANT001	125C108028	ANTENNA, ROD	T4-216BP-BK
B502	024AT03481	CORE, BEADS	BL02RN1-R62T2
B503	024AT03481	CORE, BEADS	BL02RN1-R62T2
B504	024AT03655	CORE, BEADS	BL01RN1-A63T6
B505	024AT03481	CORE, BEADS	BL02RN1-R62T2
B702	024A8407C2	CORE, BEADS	BL02RN2-R62
B851	024DT03581	CORE, BEADS	LFP3A-M3R2TA
B1001	024AC3601C	CORE, BEADS	BLM21A601SPT
B4501	024AC3601C	CORE, BEADS	BLM21A601SPT
B4502	024AC3601C	CORE, BEADS	BLM21A601SPT
BT001	1412004008	BATTERY, MANGAN	R03(AB)E_20_T
BT002	1412004008	BATTERY, MANGAN	R03(AB)E_20_T
CD302	06CH12418A	CORD, CONNECTOR	CH12418A
CD351	06CH27080A	CORD, CONNECTOR	CH27080A
CD404	06CH01010A	CORD, CONNECTOR	CH01010A
CD501	06CH82036A	CORD, CONNECTOR	CH82036A
⚠ CD502	1206655817	CORD, AC	6655817

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		
		MISCELLANEOUS		
	CD504	121B164102	CORD, CAR BATTERY	SI-PC107-69	
	CD601	06CH01010A	CORD, CONNECTOR	CH01010A	
	CD757	06CH2A014A	CORD, CONNECTOR	CH2A014A	
	CD801	127C100008	BRAIDED WIRE	TD-07018-9	
	CD802	06CH01011A	CORD, CONNECTOR	CH01011A	
	CD803	122U042705	CORD, JUMPER	2-042705	
	CD810	06CH2A015A	CORD, CONNECTOR	CH2A015A	
	CD820	06CH2B029A	CORD, CONNECTOR	CH2B029A	
	CD850	06CH25080A	CORD, CONNECTOR	CH25080A	
	CF601	1022T38R9A	FILTER, SAW	SAF38.9MAZ220Z	
	CF602	1012T04001	FILTER, CERAMIC TRAP	MKT40.4MA110P-TF	
	CP302	069X120249	CONNECTOR PCB SIDE	B2B-EH-A	
	CP351	069E270129	CONNECTOR PCB SIDE	8283_0712_00_000	
	CP401	069W440019	CONNECTOR PCB SIDE	TV-50P-04-A1	
	CP403	069W420029	CONNECTOR PCB SIDE	TV-50P-02-A1	
	CP404	069W01001A	CONNECTOR PCB SIDE	003P-2100	
	CP501	069W320018	CONNECTOR PCB SIDE	TS-80P-02-V1	
	CP502	0697320039	CORD, UX CONNECTOR	THL-P03P-B1	
	CP601	069W01001A	CONNECTOR PCB SIDE	003P-2100	
	CP603	069E290129	CONNECTOR PCB SIDE	8283_0912_00_000	
	CP757	069E2A0129	CONNECTOR PCB SIDE	8283_1012_00_000	or
		06942A0129	CONNECTOR PCB SIDE	1-173981-0	
	CP801	069W330018	CONNECTOR PCB SIDE	TS-80P-03-V1	
	CP810	069E2A0129	CONNECTOR PCB SIDE	8283_1012_00_000	or
		06942A0129	CONNECTOR PCB SIDE	1-173981-0	
	CP820	069E2B0129	CONNECTOR PCB SIDE	8283_1112_00_000	or
		06942B0129	CONNECTOR PCB SIDE	1-173981-1	
	CP850	069E250129	CONNECTOR PCB SIDE	8283_0512_00_000	
	CD1002	06CH22076A	CORD, CONNECTOR	CH22076A	
	CD1005	122F051702	CORD, JUMPER	2F051702	
	CD1006	122L040904	CORD, JUMPER	2L040904	
	CD4005	122L061501	CORD, JUMPER	2L061501	
	CP1001	069R220021	CONNECTOR PCB SIDE	52287-0211	
	CP1004	0697280590	CONNECTOR PCB SIDE	TMC-J08P-B1	
	CP1005	069R750028	CONNECTOR PCB SIDE	52045-0545	
	CP1006	069R740028	CONNECTOR PCB SIDE	52045-0445	
	CP4001	0697240600	CONNECTOR PCB SIDE	TOC-C04X-B1	
	CP4004	0697120320	CONNECTOR PCB SIDE	TMC-T02X-E1	
	CP4005	069R760028	CONNECTOR PCB SIDE	52045-0645	
	CP803A	067R104019	WIRE HOLDER	51052-0400	
	CP803B	067R104019	WIRE HOLDER	51052-0400	
	CUS011	800WFAA006	CUSHION A		
	CUS011	800WFAA006	CUSHION A		
	CUS012	800WF00019	CUSHION-C		
	CUS013	800WFAA006	CUSHION A		
	DY801	027S051005	DY	MDC-66A1076-1	
⚠	F501	0808T04002	FUSE	218004	
⚠	F502	0808T2R502	FUSE	21802.5	
⚠	FB401	043210011F	TRANSFORMER, FLYBACK	3210011F	
	FH501	06710T0006	HOLDER, FUSE	EYF-52BC	
	FH502	06710T0006	HOLDER, FUSE	EYF-52BC	
	FH503	06710T0006	HOLDER, FUSE	EYF-52BC	
	FH504	06710T0006	HOLDER, FUSE	EYF-52BC	
⚠	ICP501	083PC07002	MICRO FUSE	251007	
⚠	ICP502	083PC07002	MICRO FUSE	251007	
⚠	ICP503	083PC05002	MICRO FUSE	251005	
⚠	ICP504	083PC05002	MICRO FUSE	251005	
⚠	ICP505	083PC04002	MICRO FUSE	251004	
⚠	ICP506	083PC05002	MICRO FUSE	251005	
	K001	129N000001	WEDGE	VB25SR	
	K002	129N000001	WEDGE	VB25SR	
	K003	129N000001	WEDGE	VB25SR	
	MG801	026B051404	MAGNET CONVERGENCE	JH-225	
	OS753	077Q000017	REMOTE RECEIVER	PIC-28143TH5	
⚠	RY503	0560V50118	RELAY	ALKS329	
	SP351	070C132014	SPEAKER	811-08-194	
	TM101	07660CH390	TRANSMITTER	SBJU00061A	
⚠	TU601	0145511021	TUNER, VHF-UHF	TUWOF4EG-771F2	
⚠	V801	092F090403	COLOR PICTURE TUBE W/O	A23KQT22X(D)	
	X601	100CT4R406	CRYSTAL HC-94/U	4.433619MHz	
	X851	100CT01302	CRYSTAL HC-49/U-S	13875KHz	
	X1001	100CT01002	CRYSTAL HC-49/U-S	10MHz	
	X1002	100DA32R01	CRYSTAL DT-26	32.768KHz	or
		100C32R803	CRYSTAL DSVT-200	32.768KHz	
	X4001	100CT4R407	CRYSTAL HC-49/U	4.433619MHz	

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

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

SPEC.NO.	M547-15A
O/R NO.	W065513