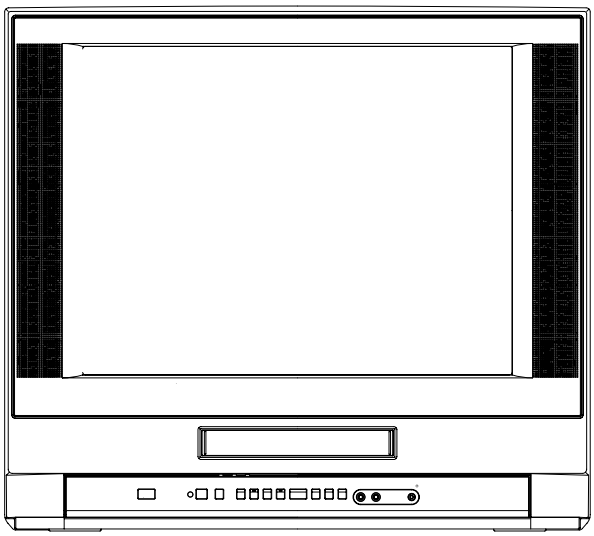
aiwa SERVICE

VX-D2150 K(S)



SERVICE MANUAL

INTEGRATED COLOR TV /VIDEO CASSETTE RECORDER

BASIC TAPE MECHANISM : OVD-7

SPECIFICATIONS

POWER REQUIREMENTS	230V AC, 50Hz
POWER CONSUMPTION	60W Standby 5W
WEIGHT	Approx.25.5 kg (56.1 lbs.)
DIMENSIONS	574 mm (W) x 488.5 mm (D) x 514.5 mm (H) (22 5/8 x 19 1/4 x 20 3/8 in.)
PICTURE TUBE	21 in. (50.8 cm “V”), 90 degree deflection
TUNER SYSTEM	Frequency synthesized tuners
CHANNEL COVERAGE	UHF: 21 to 69
TV SYSTEM	I
HORIZONTAL RESOLUTION	240 lines
OPERATING TEMPERATURE	5°C to 40°C
VIDEO RECORDING SYSTEM	Rotary 2 head helical scanning system
VIDEO SIGNAL SYSTEM	PAL colour signal, 625 lines, 50 fields
VIDEO HEAD	Azimuth 2 heads
USABLE CASSETTES	VHS video cassettes
TAPE SPEED	PAL SP: 23.39 mm/sec. LP: 11.69 mm/sec. NTSC (playback SP only) 33.35 mm/sec.
RECORDING/PLAYBACK TIME	PAL SP: 5 hours max. with E-300 tape LP: 10 hours max. with E-300 tape NTSC (playback SP only) 3 hours 30 minutes max. with T-210 tape
VIDEO INPUT	1.0Vp-p, 75 ohm, unbalanced
VIDEO OUTPUT	1.0Vp-p, 75 ohm, unbalanced
VIDEO S/N	53dB (nominal)
AUDIO INPUT	SCART: –3.8 dBs, 50K ohm RCA: –3.8 dBs, 50K ohm
AUDIO OUTPUT	SCART: –3.8 dBs less than 1K ohm
AUDIO TRACK	1 track (mono)

- **Design and specifications are subject to change without notice.**

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S/M Code No. 09-028-362-4N1

DATA

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SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

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

2. AVOID AN ELECTRIC SHOCK

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

3. USE THE DESIGNATED PARTS

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

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

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

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

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

6. AVOID AN X-RAY

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

7. PERFORM A SAFETY CHECK AFTER SERVICING

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

(INSULATION CHECK PROCEDURE)

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

[Note 1]

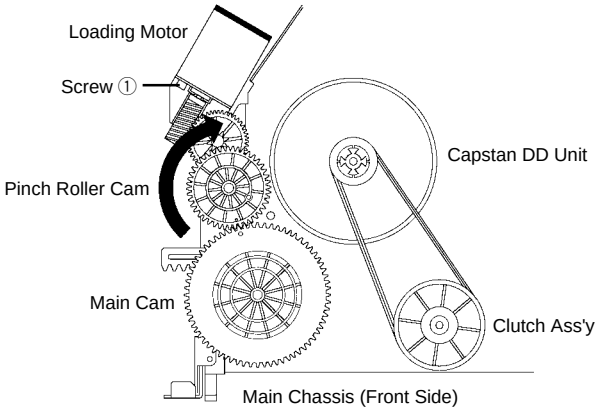
If you have not the 500V insulation resistance meter, use a Tester.

[Note 2]

External exposure metal: Antenna terminal
Earphone jack

TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the VCR block from the main unit.
   (Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)
2. Remove the screw ① of the Deck Chassis and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape.
4. Rotate the Clutch Ass'y either of the derections to wind the Video Tape in the Cassette Case.
5. Repeat the above step 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch on the tape.



DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.W. Boards

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

1. Remove the 6 screws ①.
2. Remove the 2 screws ② which are used for holding the Back Cabinet.
3. Remove the AC cord from the AC cord hook ③.
4. Remove the Back Cabinet in the direction of arrow.

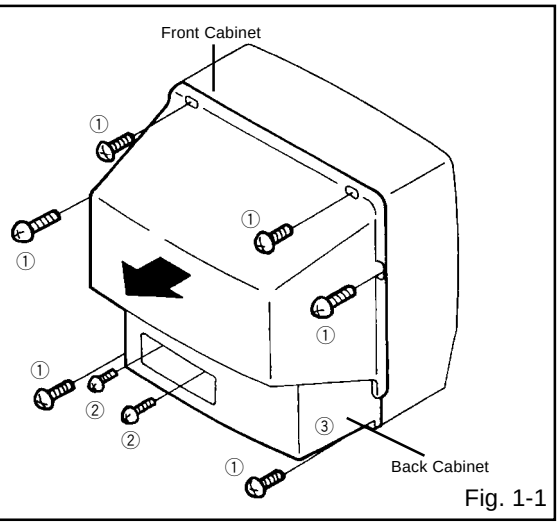


Fig. 1-1

1-2: CRT PWB (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 PWB, UNPLUG THE POWER CORD FROM THE AC SOURCE.

1. Remove the Anode Cap. (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors: (CP802 and CP850).
3. Remove the CRT PWB in the direction of arrow.

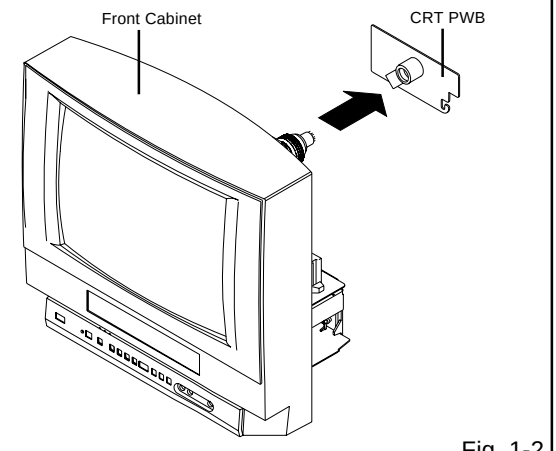


Fig. 1-2

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

1. Remove the 2 screws ①.
2. Disconnect the following connectors: (CP353, CP401, CP501 and CP502).
3. Unlock the support ②.
4. Remove the TV/VCR Block in the direction of arrow.

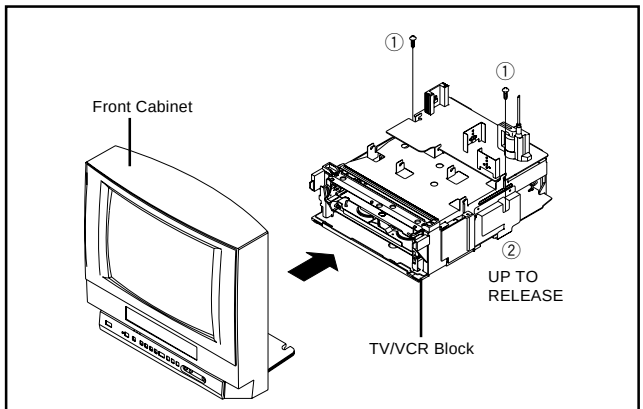


Fig. 1-3

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

1. Remove the screw ①.
2. Remove the Main PWB Holder.
3. Remove the screw ②.
4. Remove the TV PWB Holder.
5. Remove the 2 screws ③.
6. Remove the 3 screws ④.
7. Disconnect the following connectors: (CP403, CP810 and CP820).
8. Remove the Main PWB in the direction of arrow.

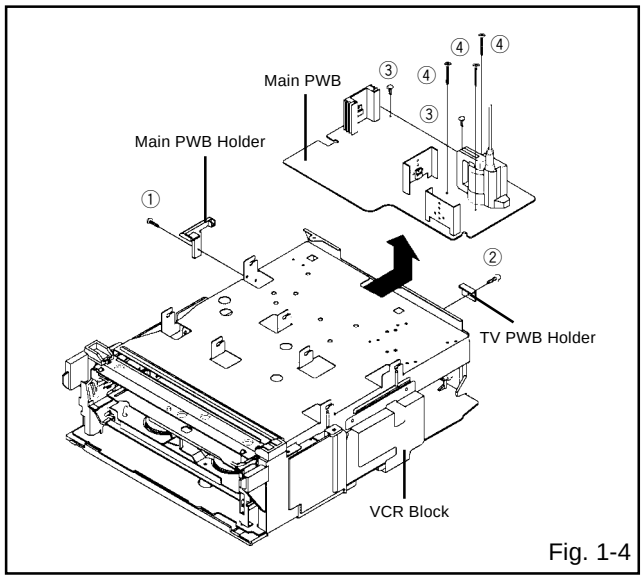


Fig. 1-4

DISASSEMBLY INSTRUCTIONS

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

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

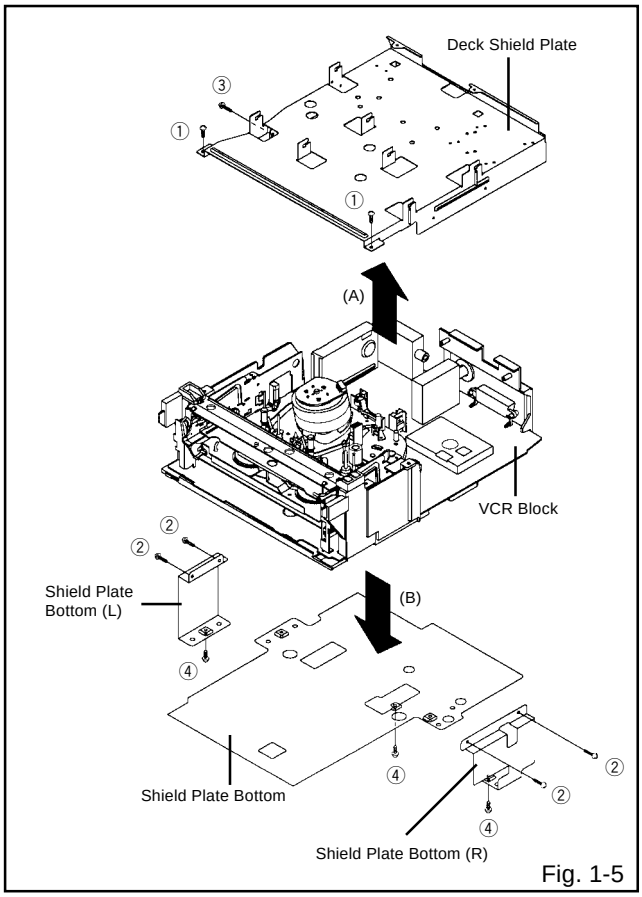


Fig. 1-5

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

1. Remove the 3 screws ①.
2. Disconnect the following connectors:
   (CP1001, CP4001, CP4004 and CP4005).
3. Remove the Deck Chassis and AC Head Cover in the direction of arrow.

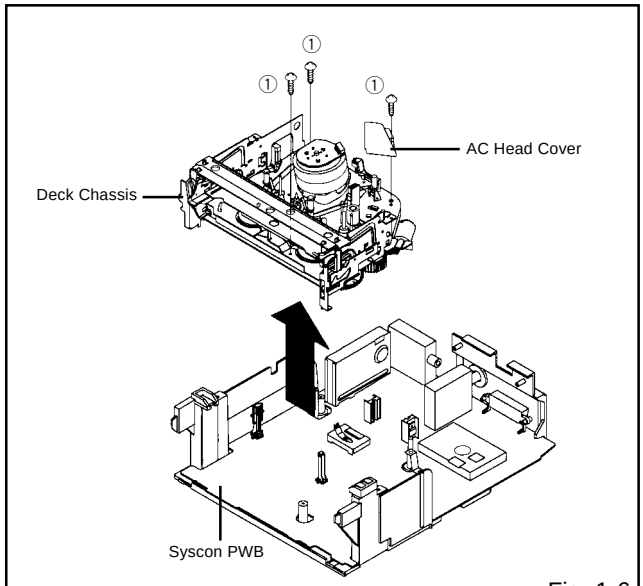


Fig. 1-6

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

1. Remove the screw ①.
2. Remove the Syscon PWB 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).

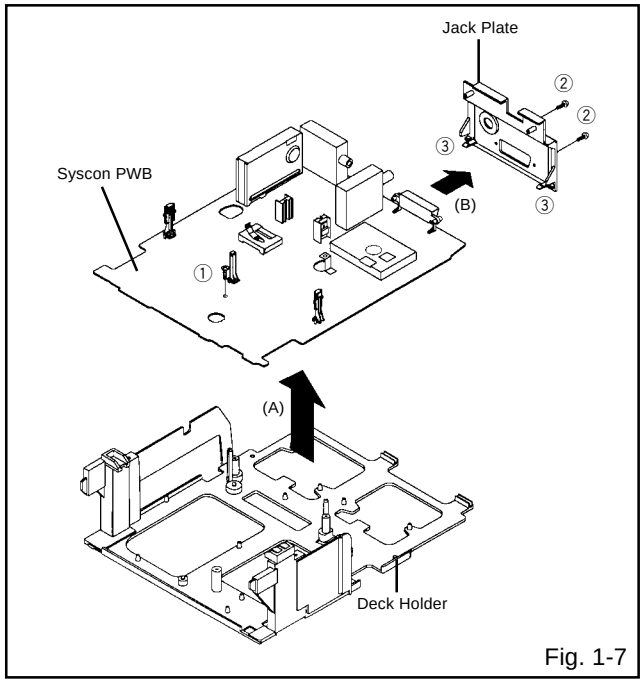


Fig. 1-7

DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DECK PARTS

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

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

NOTE

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

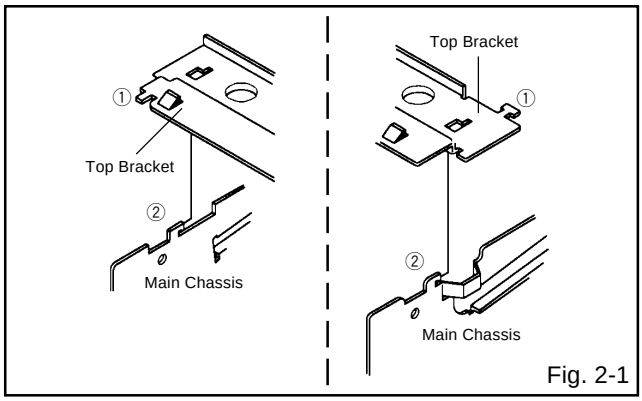


Fig. 2-1

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

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

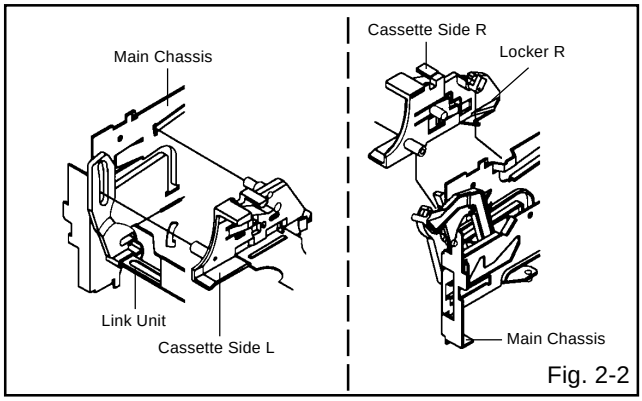


Fig. 2-2

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

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

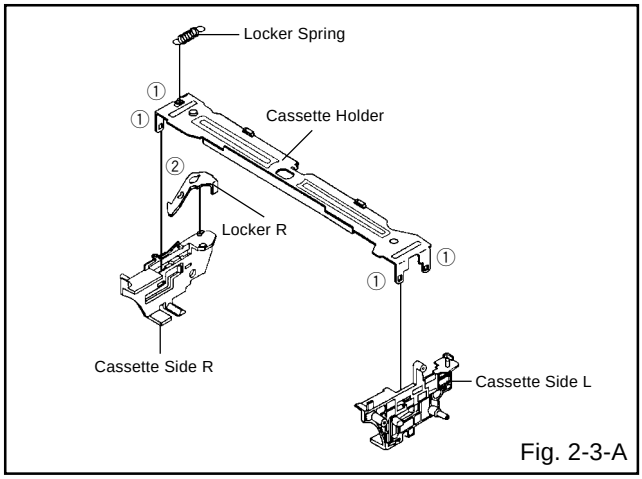


Fig. 2-3-A

NOTE

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

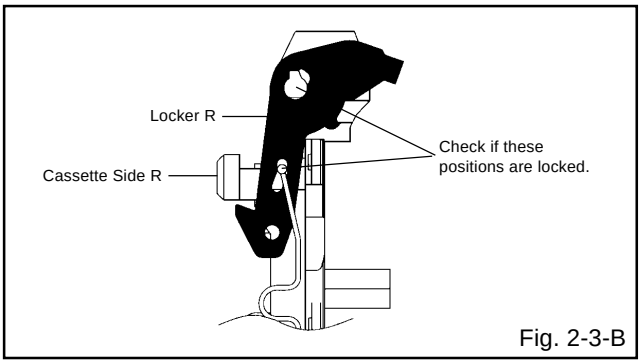


Fig. 2-3-B

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

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

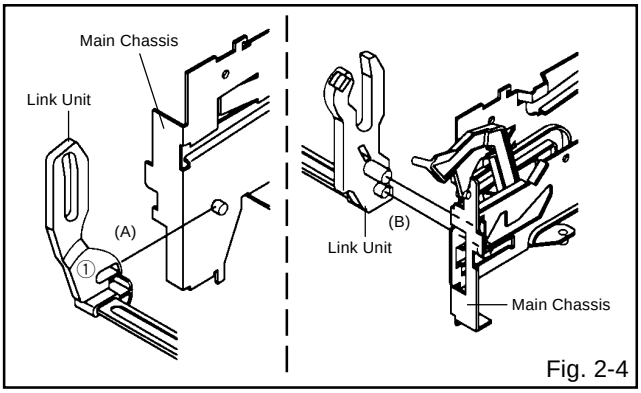


Fig. 2-4

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

1. Unlock the support ①.
2. Remove the BOT Cover.
3. Extend the support ②.
4. Remove the Link Lever.
5. Remove the Flap Lever.

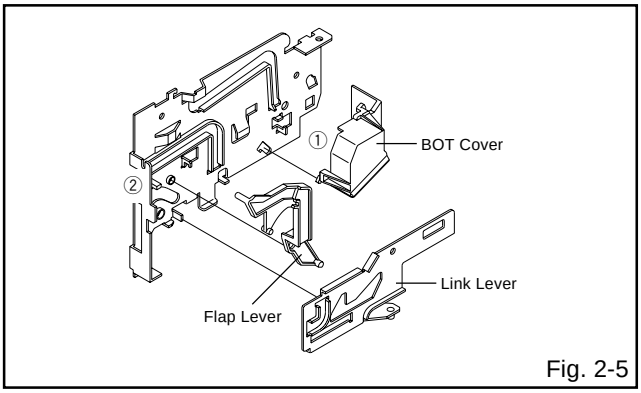


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

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

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

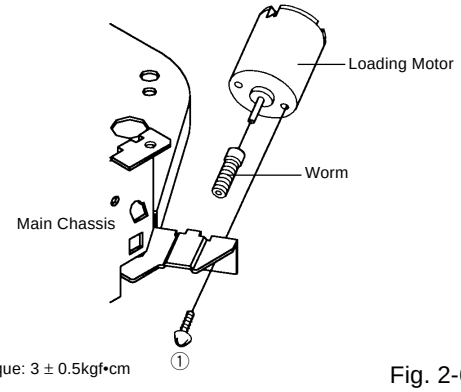


Fig. 2-6-A

NOTE

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

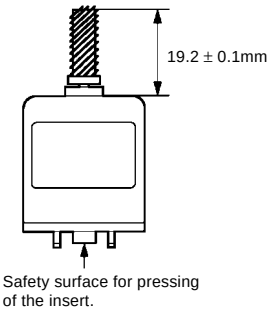


Fig. 2-6-B

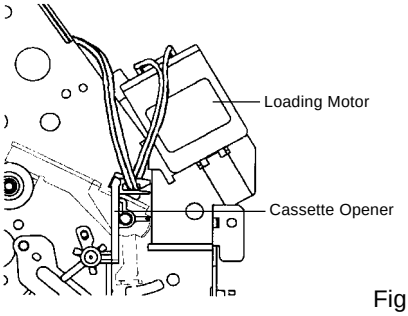


Fig. 2-6-C

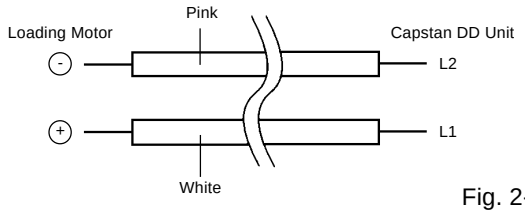


Fig. 2-6-D

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

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

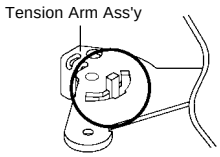


Fig. 2-7-A

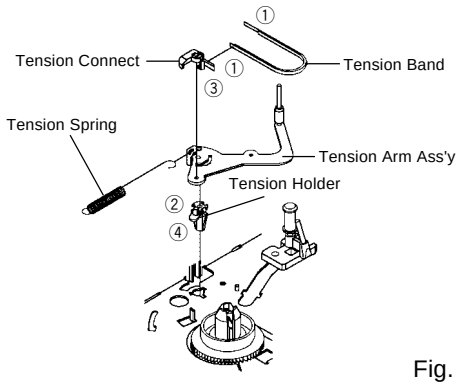


Fig. 2-7-B

NOTE

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

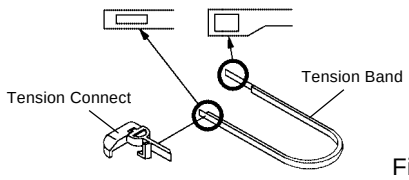


Fig. 2-7-C

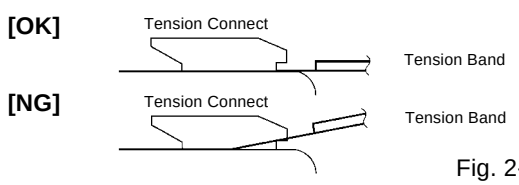


Fig. 2-7-D

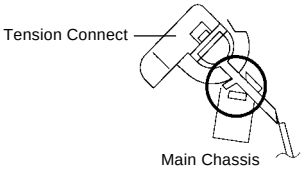


Fig. 2-7-E

DISASSEMBLY INSTRUCTIONS

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

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

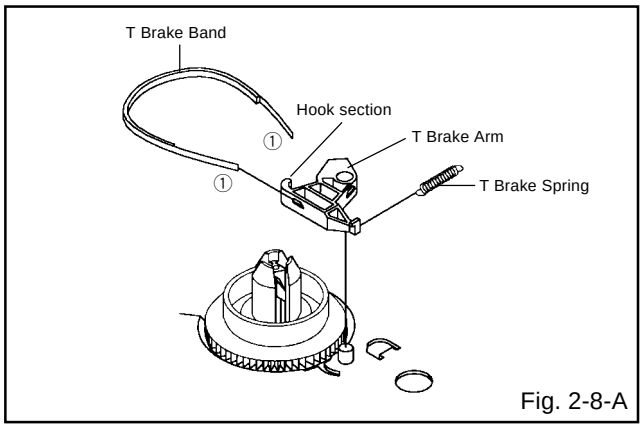


Fig. 2-8-A

NOTE

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

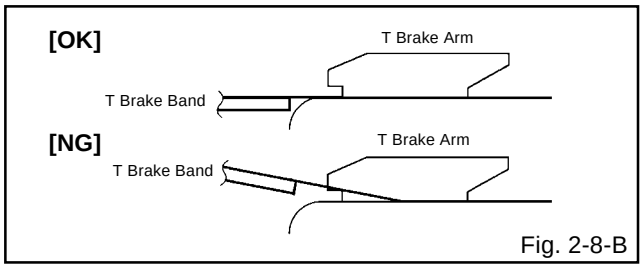


Fig. 2-8-B

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

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

NOTE

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

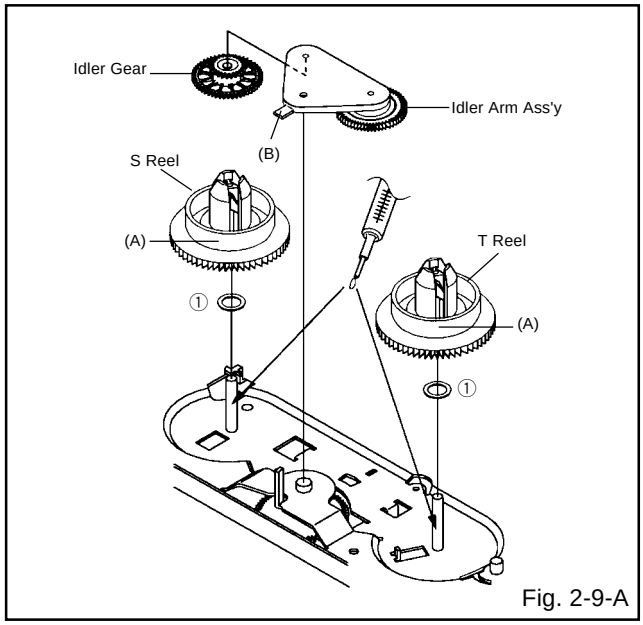


Fig. 2-9-A

NOTE

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

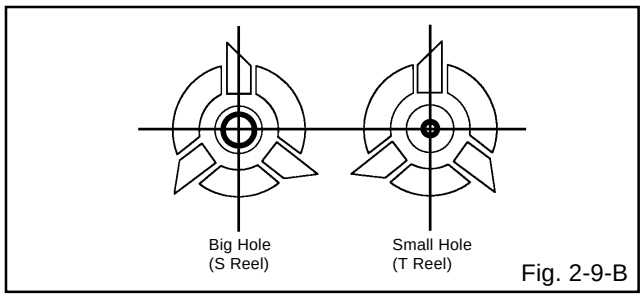


Fig. 2-9-B

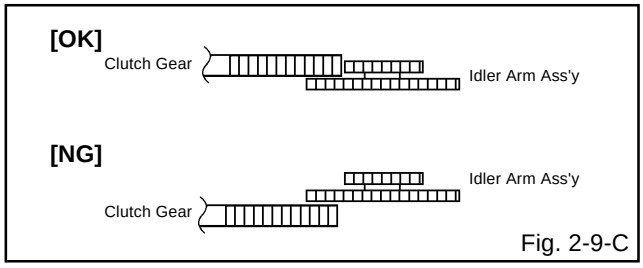


Fig. 2-9-C

DISASSEMBLY INSTRUCTIONS

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

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

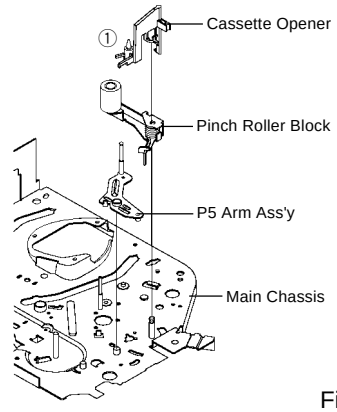


Fig. 2-10-A

NOTE

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

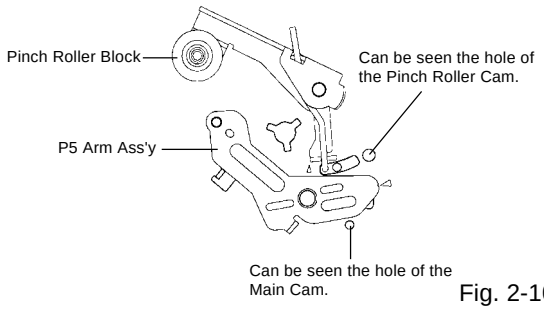


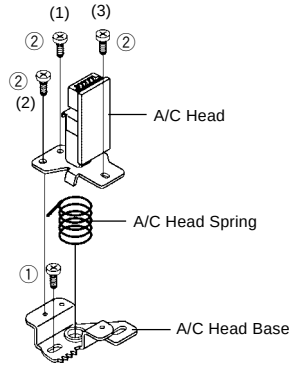
Fig. 2-10-B

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

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

NOTE

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



• Screw Torque: 5 ± 0.5kgf•cm (Screw ①)

Fig. 2-11-A

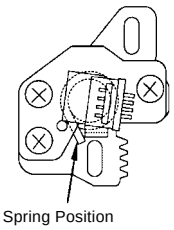
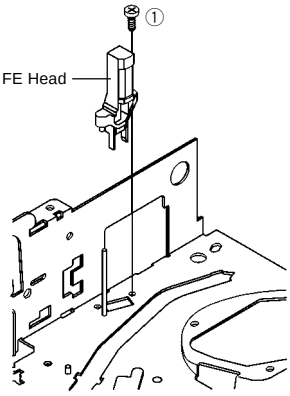


Fig. 2-11-B

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

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



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

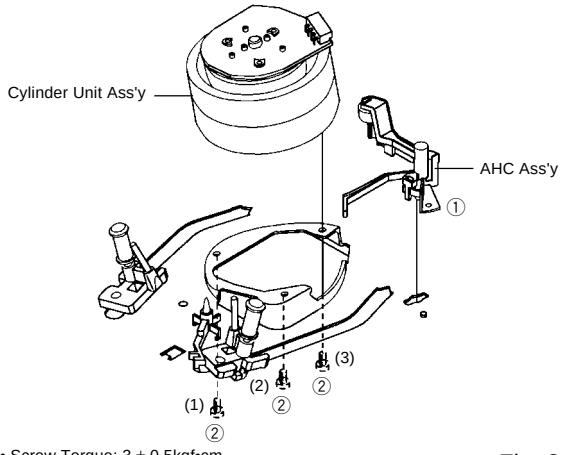
Fig. 2-12

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

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

NOTE

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



• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

DISASSEMBLY INSTRUCTIONS

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

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

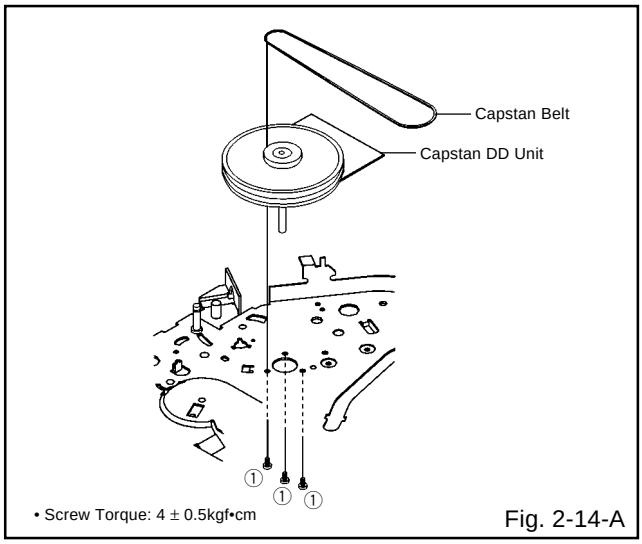


Fig. 2-14-A

NOTE

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

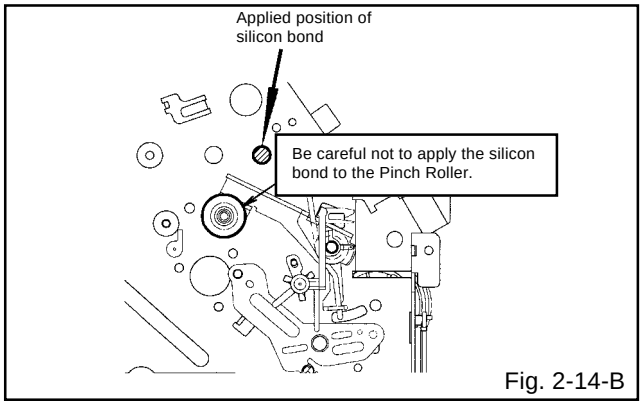


Fig. 2-14-B

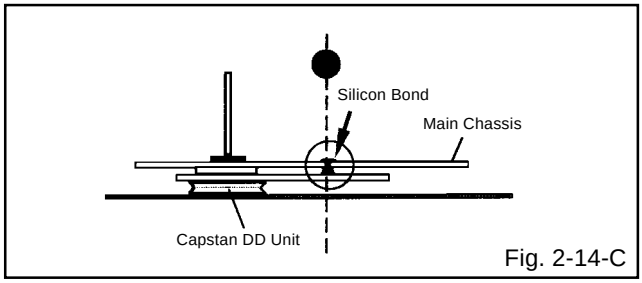


Fig. 2-14-C

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

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

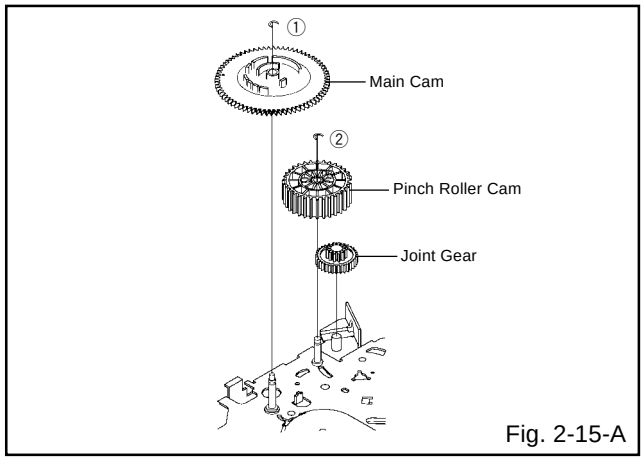


Fig. 2-15-A

NOTE

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

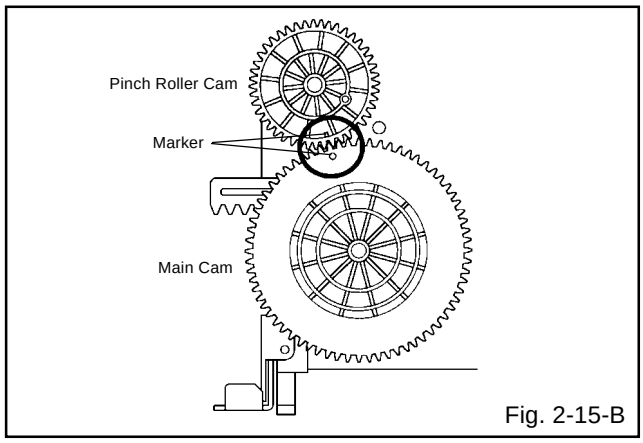


Fig. 2-15-B

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

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

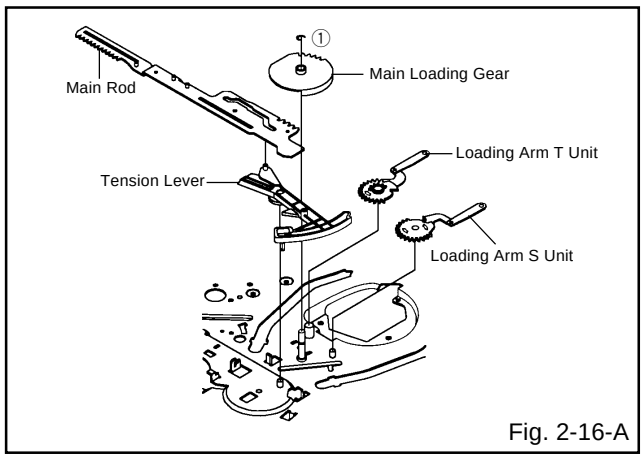


Fig. 2-16-A

DISASSEMBLY INSTRUCTIONS

NOTE

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

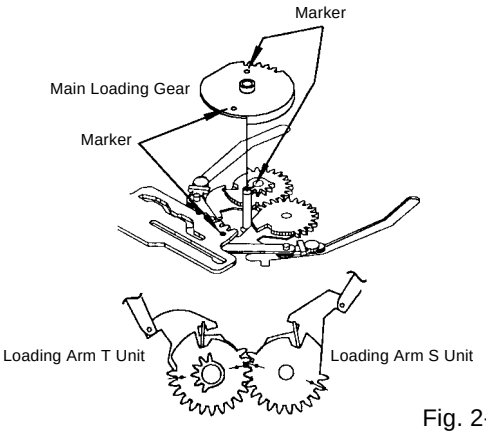


Fig. 2-16-B

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

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

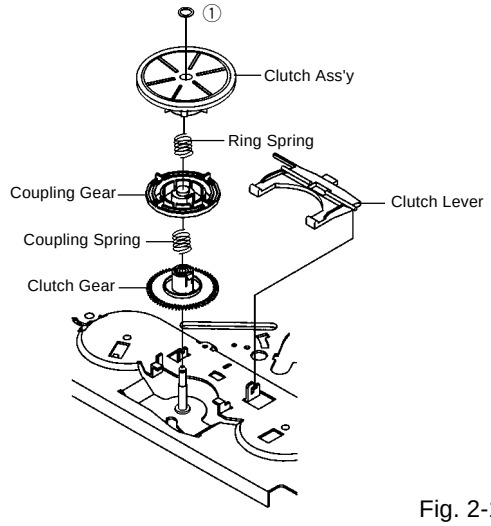


Fig. 2-17-A

NOTE

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

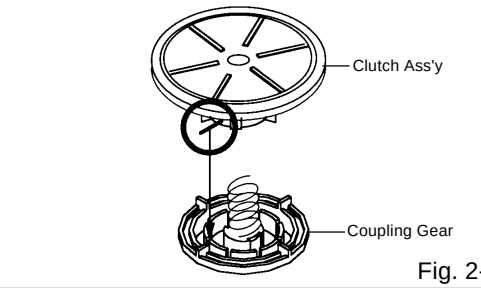


Fig. 2-17-B

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

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S Unit and Inclined Base T Unit.

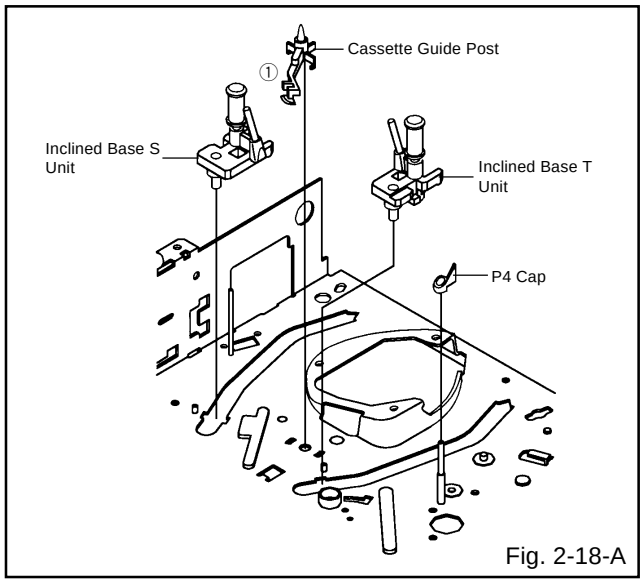


Fig. 2-18-A

NOTE

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

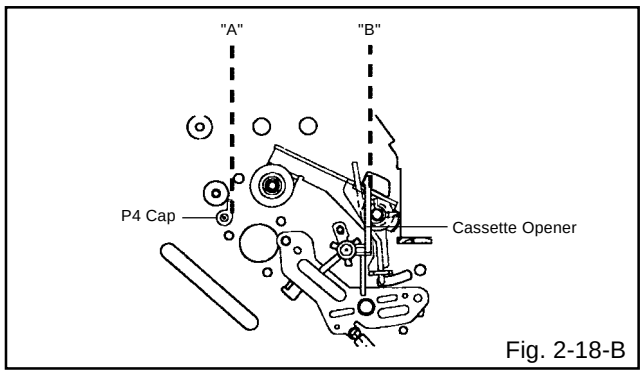


Fig. 2-18-B

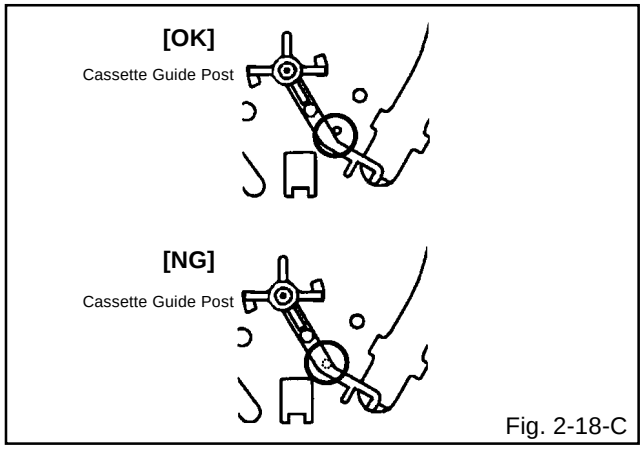


Fig. 2-18-C

DISASSEMBLY INSTRUCTIONS

3. REMOVAL OF ANODE CAP

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

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

REMOVAL

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

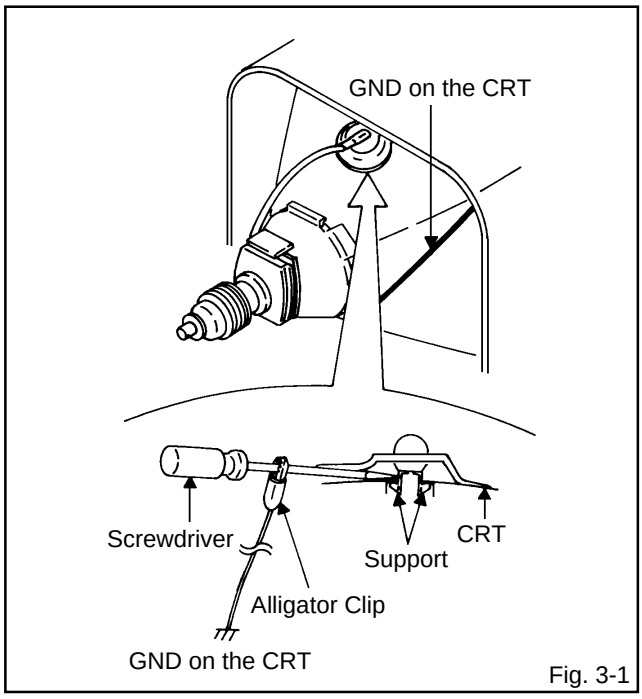


Fig. 3-1

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

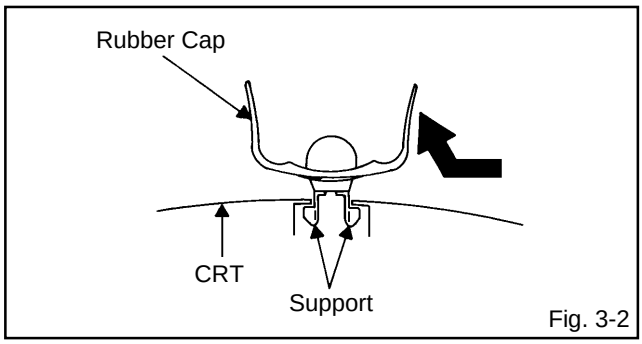


Fig. 3-2

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

NOTE

Take care not to damage the Rubber Cap.

INSTALLATION

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

NOTE

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

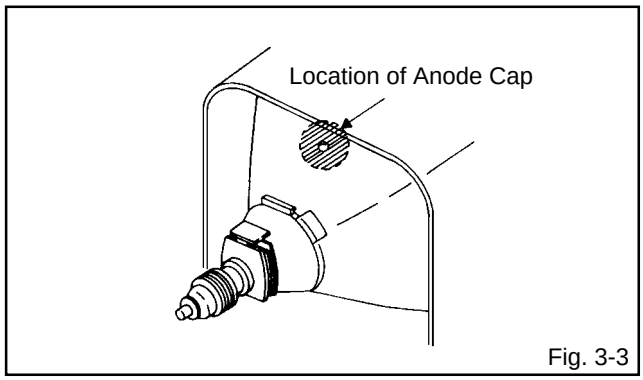


Fig. 3-3

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

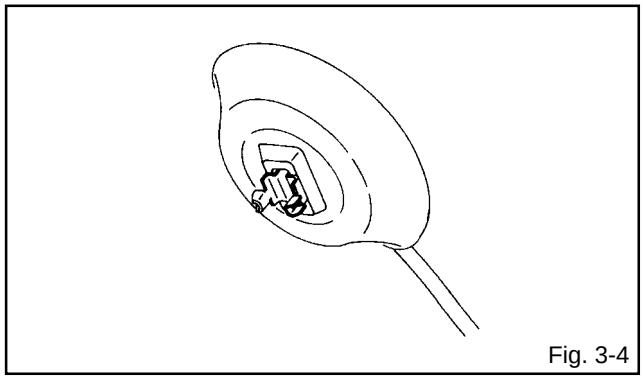


Fig. 3-4

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

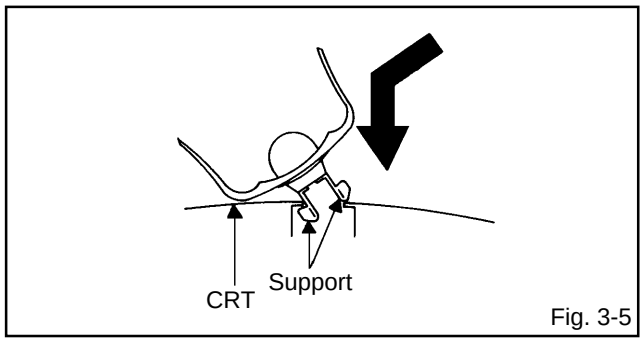


Fig. 3-5

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

DISASSEMBLY INSTRUCTIONS

4. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

REMOVAL

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 4-1.)**

   NOTE

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

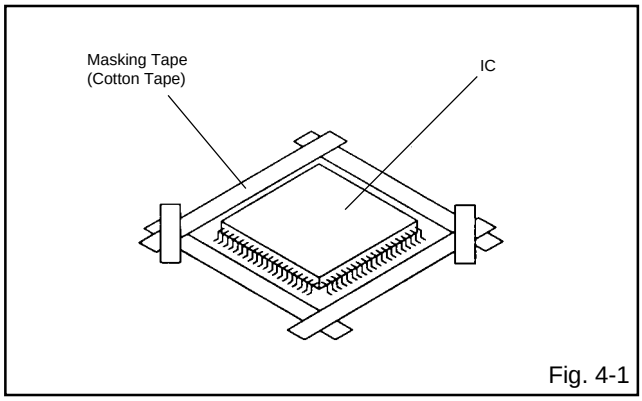


Fig. 4-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 4-2.)**

   NOTE

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

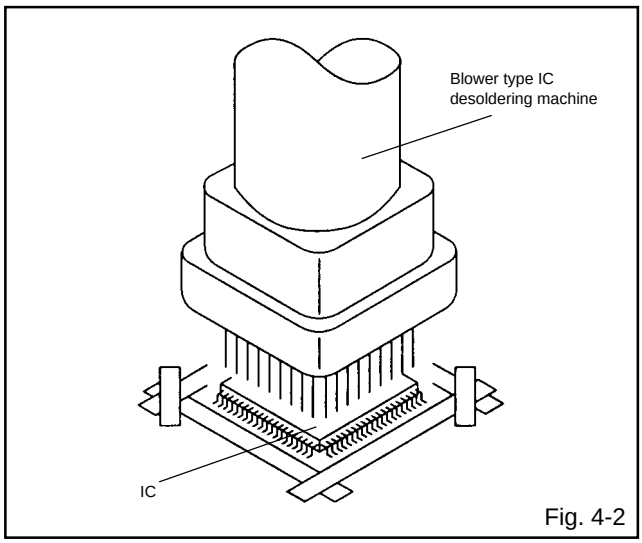


Fig. 4-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 4-3.)**

   NOTE

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

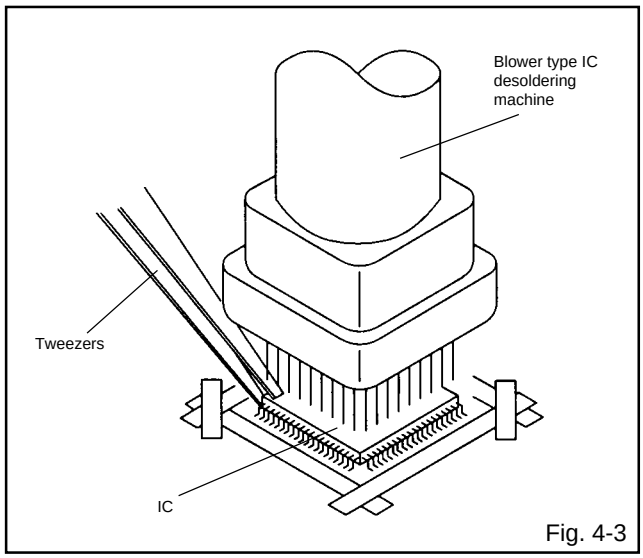


Fig. 4-3

4. Peel off the Masking Tape.

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

   NOTE

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

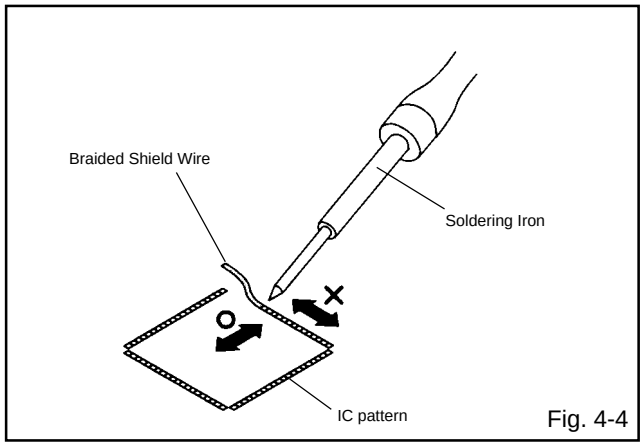


Fig. 4-4

DISASSEMBLY INSTRUCTIONS

INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 4-5.)**

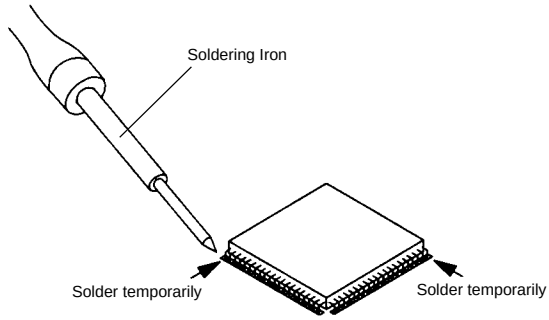


Fig. 4-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 4-6.)**

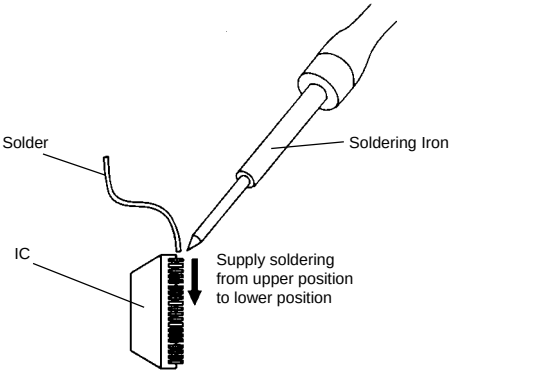


Fig. 4-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 4-7.)**

   NOTE

   Do not absorb the solder to excess.

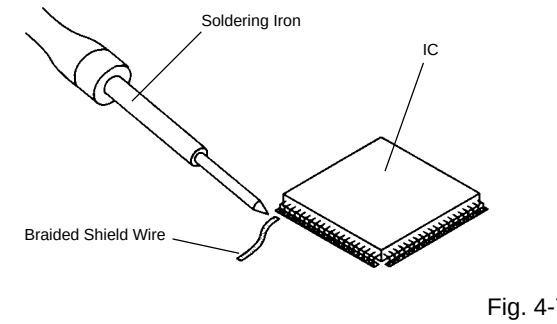


Fig. 4-7

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

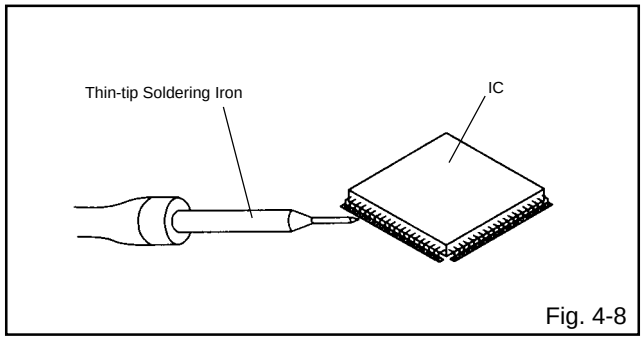


Fig. 4-8

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

   NOTE

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

KEY TO ABBREVIATIONS

A	**A/C**	:	Audio/Control
	ACC	:	Automatic Color Control
	AE	:	Audio Erase
	AFC	:	Automatic Frequency Control
	AFT	:	Automatic Fine Tuning
	AFT DET	:	Automatic Fine Tuning Detect
	AGC	:	Automatic Gain Control
	AMP	:	Amplifier
	ANT	:	Antenna
	A.PB	:	Audio Playback
	APC	:	Automatic Phase Control
	ASS'Y	:	Assembly
	AT	:	All Time
	AUTO	:	Automatic
	A/V	:	Audio/Video
B	**BGP**	:	Burst Gate Pulse
	BOT	:	Beginning of Tape
	BPF	:	Bandpass Filter
	BRAKE SOL	:	Brake Solenoid
	BUFF	:	Buffer
	B/W	:	Black and White
C	**C**	:	Capacitance, Collector
	CASE	:	Cassette
	CAP	:	Capstan
	CARR	:	Carrier
	CH	:	Channel
	CLK	:	Clock
	CLOCK (SY-SE)	:	Clock (Syscon to Servo)
	COMB	:	Combination, Comb Filter
	CONV	:	Converter
	CPM	:	Capstan Motor
	CTL	:	Control
	CYL	:	Cylinder
	CYL-M	:	Cylinder-Motor
	CYL SENS	:	Cylinder-Sensor
D	**DATA (SY-CE)**	:	Data (Syscon to Servo)
	dB	:	Decibel
	DC	:	Direct Current
	DD Unit	:	Direct Drive Motor Unit
	DEMOD	:	Demodulator
	DET	:	Detector
	DEV	:	Deviation
E	**E**	:	Emitter
	EF	:	Emitter Follower
	EMPH	:	Emphasis
	ENC	:	Encoder
	ENV	:	Envelope
	EOT	:	End of Tape
	EQ	:	Equalizer
	EXT	:	External
F	**F**	:	Fuse
	FBC	:	Feed Back Clamp
	FE	:	Full Erase
	FF	:	Fast Forward, Flipflop
	FG	:	Frequency Generator
	FL SW	:	Front Loading Switch
	FM	:	Frequency Modulation
	FSC	:	Frequency Sub Carrier
	FWD	:	Forward
G	**GEN**	:	Generator
	GND	:	Ground
H	**H.P.F**	:	High Pass Filter
	H.SW	:	Head Switch
	Hz	:	Hertz
I	**IC**	:	Integrated Circuit
	IF	:	Intermediate Frequency
	IND	:	Indicator
	INV	:	Inverter
K	**KIL**	:	Killer
L	**L**	:	Left
	LED	:	Light Emitting Diode
	LIMIT AMP	:	Limiter Amplifier
	LM, LDM	:	Loading Motor
	LP	:	Long Play
	L.P.F	:	Low Pass Filter
	LUMI.	:	Luminance
M	**M**	:	Motor
	MAX	:	Maximum
	MINI	:	Minimum
	MIX	:	Mixer, mixing
	MM	:	Monostable Multivibrator
	MOD	:	Modulator, Modulation
	MPX	:	Multiplexer, Multiplex
	MS SW	:	Mecha State Switch
N	**NC**	:	Non Connection
	NR	:	Noise Reduction
O	**OSC**	:	Oscillator
	OPE	:	Operation
P	**PB**	:	Playback
	PB CTL	:	Playback Control
	PB-C	:	Playback-Chrominance
	PB-Y	:	Playback-Luminance
	P. CON	:	Power Control
	PD	:	Phase Detector
	PG	:	Pulse Generator
	P-P	:	Peak-to Peak
	PWB	:	Printed Wiring Board
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 for more than 2 seconds.

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. If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours.
VOL. (-) MIN	2	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 HOURS USED). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

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

PREVENTIVE CHECKS AND SERVICE INTERVALS

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

Time / Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	2,500 hours	Notes
Audio Control Head	■	■	■	●	●	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	●	●	
Capstan Belt		●	●	●	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	●	●	●	●	
Capstan DD Unit		●	●	●	●	
Loading Motor					●	
Tension Band		●	●	●	●	
T Brake Band		●	●	●	●	
Clutch Ass'y		●	●	●	●	
Idler Arm Ass'y		●	●	●	●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	●	●	●	●	Clean the Head

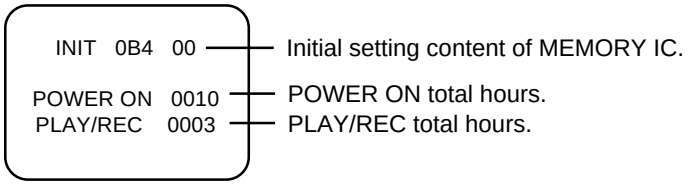
■ : Clean
● : Check it and if necessary, replace it.

CONFIRMATION OF HOURS USED

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

NOTE: If you set a factory initialization, the total hours is reset to "0".
The confirmation of using hours will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 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 for more than 2 seconds.
3. After the confirmation of using hours, turn off the power.



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

PREVENTIVE CHECKS AND SERVICE INTERVALS

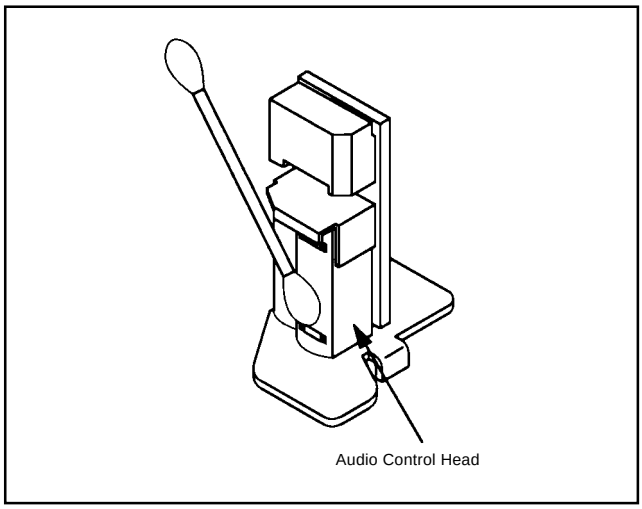
CLEANING

NOTE

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

1. AUDIO CONTROL HEAD

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



2. TAPE RUNNING SYSTEM

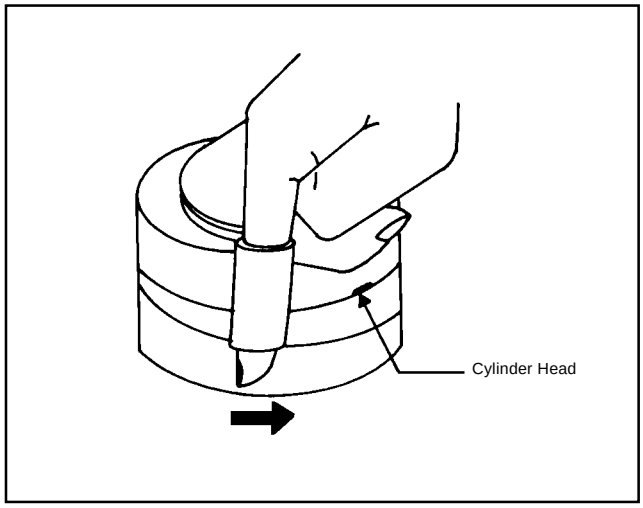
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

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

NOTE

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



WHEN REPLACING EEPROM (MEMORY) IC

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

NOTE: Initial Data setting will not be possible if clock has been set. To reset clock, either unplug AC cord and allow at least 30 minutes before Power On or alternatively, discharge backup capacitor.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
0B0	---	---	---	---	00	06	00	80	C0	4C	01	C7	C4	C1	0A	21
0C0	00	7F	98	B3	00	05	63	65	66	0C	1F	3B	32	17	1D	1B
0D0	3A	0F	4B	20	44	63	64	65	64	EA	00	F5	56	A0	68	5F
0E0	0F	10	90	F0	5F	0F	F0	65	F0	60	99	B2	9A	92	8C	B2
0F0	A0	C4	20	08	BF	10	00	00	00	00	00	00	00	00	00	00
100	27	03	07	15	00	00	00	00	00	00	00	00	09	00	82	10
110	00	03	04	00	40	20	20	00	00	40	00	00	00	00	00	00
120	25	27	29	2B	2D	2F	31	33	35	37	3A	3D	40	43	46	49
130	4C	4F	52	55	57	59	5B	5D	5F	61	63	65	67	69	6B	6D
140	6F	71	73	76	79	7B	7D	7F	81	83	85	87	89	8B	8D	8F
150	91	93	96	99	9D	A1	A4	A7	AF	B7	BF	C7	D5	E3	F1	FF

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 for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

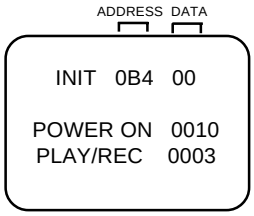


Fig. 1

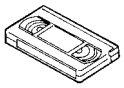
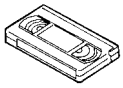
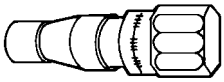
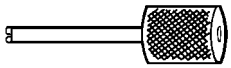
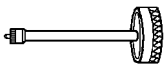
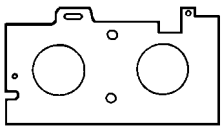
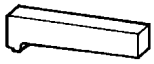
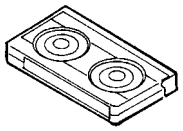
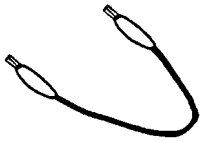
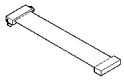
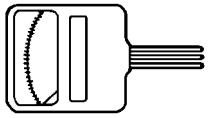
3. ADDRESS is now selected and should "blink". Using the PLAY or STOP button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using PLAY or STOP button until 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.

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

9. Turn POWER on.
10. While holding down VOLUME button on front cabinet, press key 1 on remote control for more than 2 seconds.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

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

SERVICING FIXTURES AND TOOLS

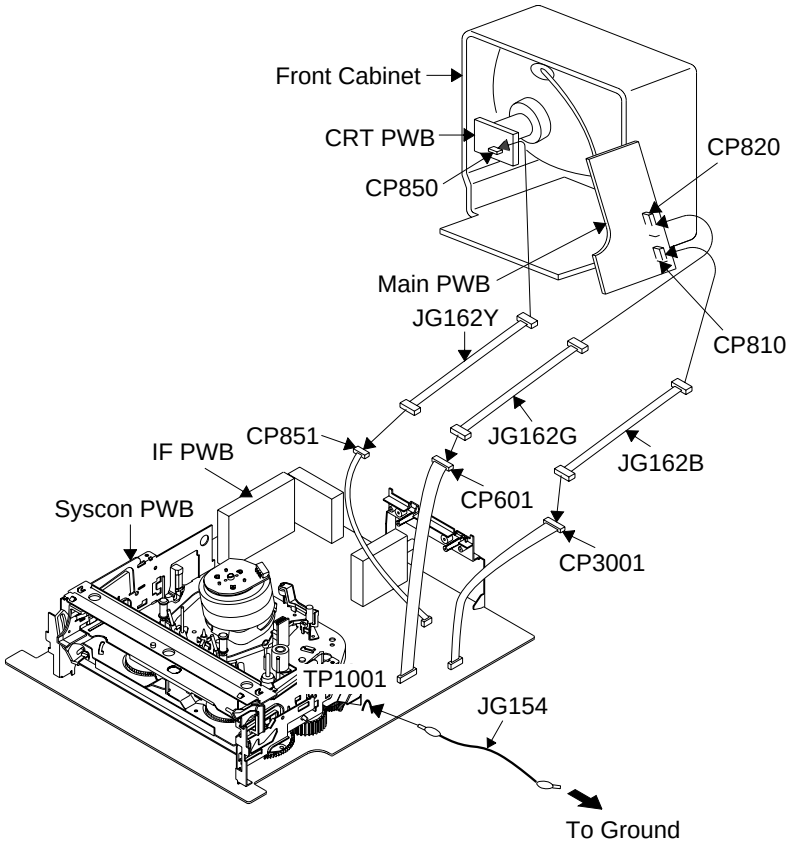
(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (TTV-P2) JG001F (TTV-P1L) JG001U (VP_1S-$X6^3$) 	**(For 2 head 2 speed model)** VHS Alignment Tape JG001C (TTV-P2) JG001D (TTV-P1L) JG001V (VP_2S-$X6^3$) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 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 Parts No. SJ-G15-400-000 	JG162B Cable (9 Pins) Parts No. SJ-G16-2B0-000 JG162G Cable (14 Pins) Parts No. SJ-G16-2G0-000 JG162Y Cable (5 Pins) Parts No. SJ-G16-2Y0-000 	Tentelometer 	

Part No.	Remarks
JG001E	Stair Steps, 7KHz **(For 2 head 1 speed model, 4 head model)**
JG001F	Color Bar, 1KHz **(For 2 head 1 speed model, 4 head model)**
JG001U	X Value Adjustment **(For 2 head 1 speed model, 4 head model)**
JG001C	Stair Steps, 7KHz **(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	Reel Disk Height Adjustment
JG024A	Reel Disk Height Adjustment
JG100A	Playback Torque, Back Tension Torque During Playback
JG154	Used to connect the test point of SERVICE and GROUND
JG162B/JG162G	Used to connect the Syscon PWB and Main PWB
JG162Y	Used to connect the Syscon PWB and CRT PWB

PREPARATION FOR SERVICING

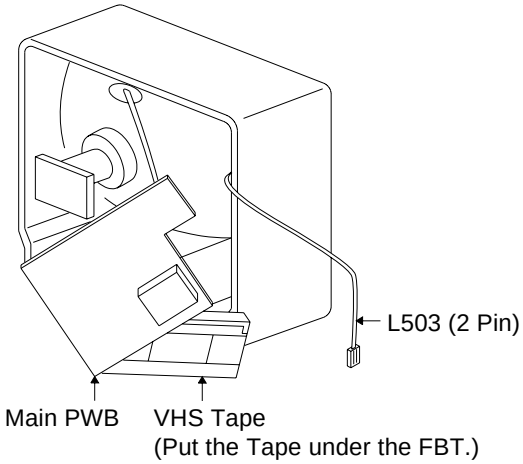
How to use the Servicing Fixture

1. Unplug the connector CP353, then remove the TV/VCR Block from the set.
   Be sure to place the parts on a paper so that they have no short-circuit each other.
2. Unplug the connector CP810, CP820 and CP850, then remove the Main PWB from the VCR Block.
3. Connect as shown in the below figure using the Service Fixture.
   • Connect the Syscon PWB to the Main PWB with the cable JG162B and JG162G.
   • Connect the Syscon PWB to the CRT PWB with the cable JG162Y.
4. Short circuit between **TP1001** and **Ground** with the cable JG154.
   (The BOT, EOT, and the Reel Sensor do not work and the deck can be operated without a cassette tape.)
5. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
   Turn on the power and re-check the cable before checking the trouble points.



Servicing Position for Main PWB (In case of needing to check on Main PWB)

• It's possible to get the Servicing Position without the extension Jig if you arrange the unit as shown below.
(But L503 connection can not be done, Degauss circuit will not operate.)



• Be careful for the short circuit.

VCR TEST TAPE INTERCHANGEABILITY TABLE

There are two types of the new alignment tape CH-1B (for NTSC) and CH-2 (for PAL). On each tape four signals (1) - (4) are recorded for the times and in the order shown below.

(1) : 8min. ---> (2) : 2min. ---> (3) : 5min. ---> (4) : 5min.

The TTV-MP1 (for M-PAL), TTV-MS1 (for MESECAM) and TTV-S1 (for SECAM) alignment tapes have the same contents as the previous tapes.

Method	Now in use TYPE		New TYPE		Application
	Model	Contents*1	Model	Contents*1	
NTSC	TTV-N1	NTSC, Color, 1kHz, SP	CH-1B(2)	NTSC, Stairsteps, 1kHz, SP	PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-N1E	NTSC, Color, 1kHz, EP	CH-1B(4) *2	NTSC, Color, 1kHz, EP	Switching position ADJ.
	TTV-N2	NTSC, Stairsteps, 7kHz, SP	CH-1B(1)	NTSC, Stairsteps, 7kHz, SP	Head ACE Azimuth ADJ.
	TTV-N12 (SCV-1998)	NTSC, Color, 1kHz, SP	CH-1B(4)	NTSC, Color, 1kHz, EP	FM envelope ADJ. X-Value ADJ.
	TTV-N7A	NTSC, Stairsteps, 1kHz, SP, HiFi 400Hz	CH-1B(3)	NTSC, Color, No sound SP, HiFi 400Hz	HiFi Audio PB Level ADJ.
PAL	TTV-P1	PAL, Color, 1kHz, SP	CH-2(2) *3	PAL, Stairsteps, 1kHz, SP	Switching position ADJ. PB-Y Level/General electrical ADJ. Head ACE Height/Tilt ADJ.
	TTV-P1L	PAL, Color, 1kHz, LP	CH-2(4)	PAL, Color, 1kHz, LP	Switching position. (LP Model) FM Envelope ADJ. (LP Model) X-Value ADJ. (LP Model)
	TTV-P2	PAL, Stairsteps, 6kHz, SP	CH-2(1)	PAL, Stairsteps, 6kHz, SP	Head ACE Azimuth ADJ. FM Envelope ADJ. (SP Model) X-Value ADJ. (SP Model)
	TTV-P7	PAL, Stairsteps, 1kHZ, SP, HiFi, 1kHz	CH-2(3)	PAL, Color, No sound SP, HiFi 400Hz	HiFi Audio PB Level ADJ.
	TTV-P16	PAL, Color, 400Hz, SP, HiFi 1kHz	No Changed.		FM Filter ADJ.

*1. Described in the order of color format. Video signal. Linear audio. Tape speed and Hi-Fi audio.
*2. Use CH-1B (1) - (3) with models used exclusively in the SP mode.
*3. Use CH-2 (3) and (4) when it is necessary to observe the chroma signal.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

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

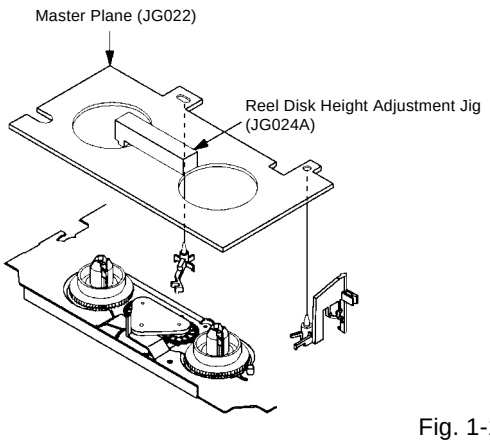


Fig. 1-1-A

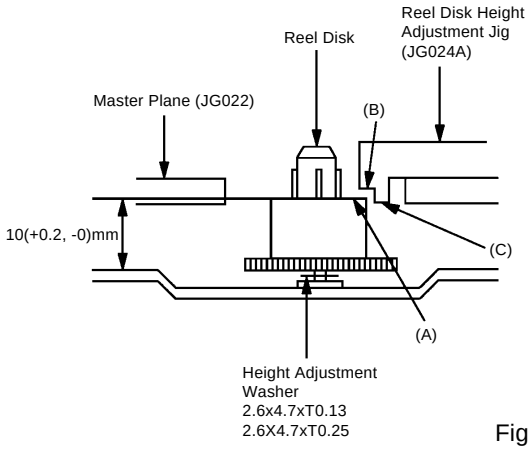


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

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

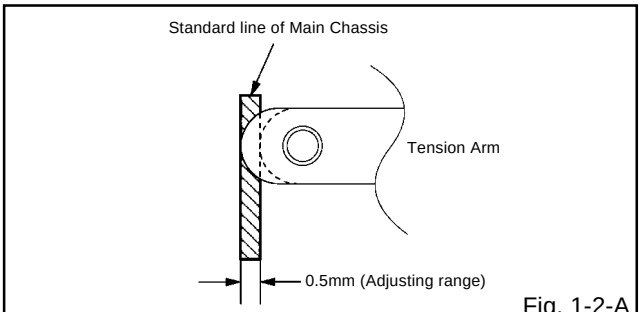


Fig. 1-2-A

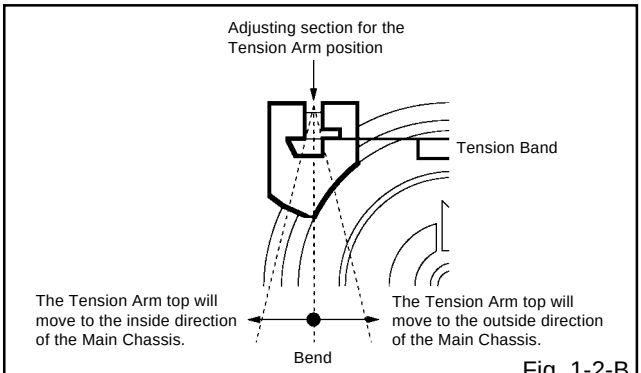


Fig. 1-2-B

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

1. Load a video tape (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 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

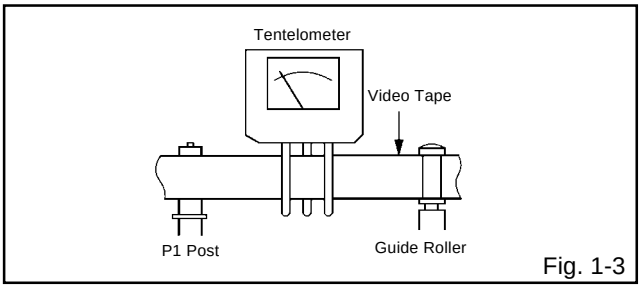


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

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

NOTE

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

1-5: CONFIRMATION OF REEL BRAKE TORQUE

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

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

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

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

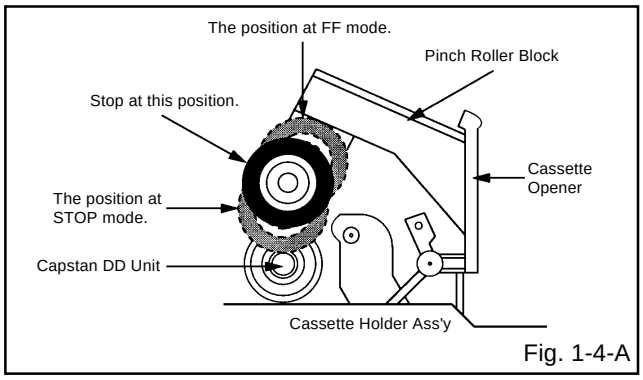


Fig. 1-4-A

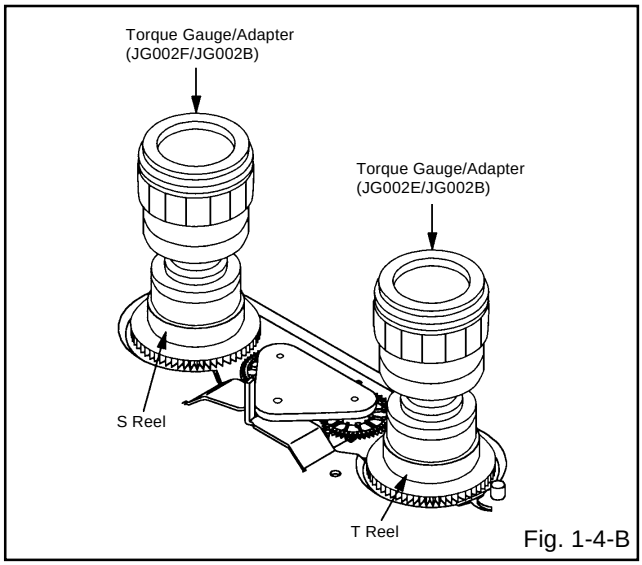


Fig. 1-4-B

NOTE

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

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

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

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

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape **(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)**

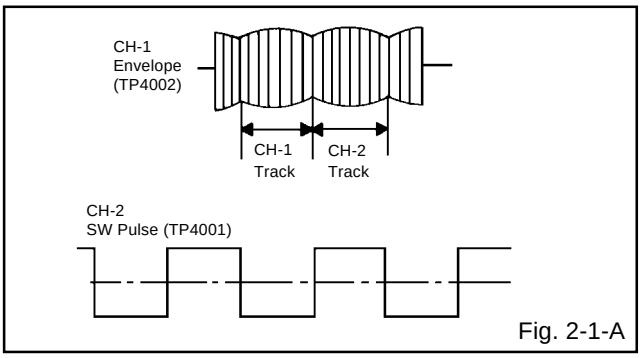


Fig. 2-1-A

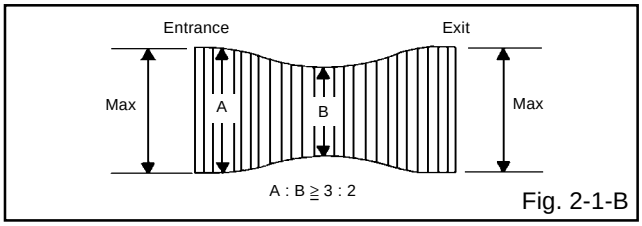


Fig. 2-1-B

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.

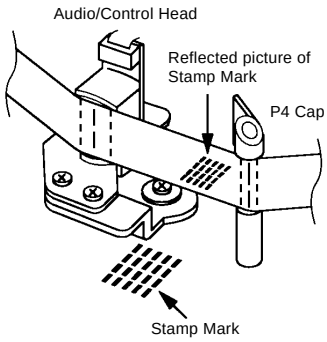


Fig. 2-2-A

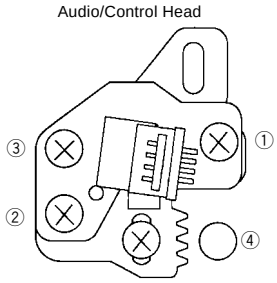


Fig. 2-2-B

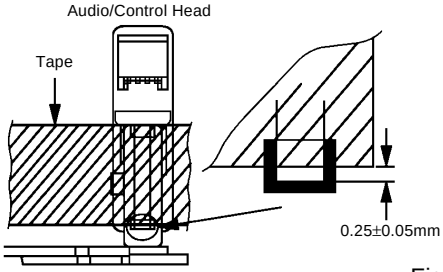


Fig. 2-2-C

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 **TP4001**, CH-2 to **TP4002** 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. 2-3**.

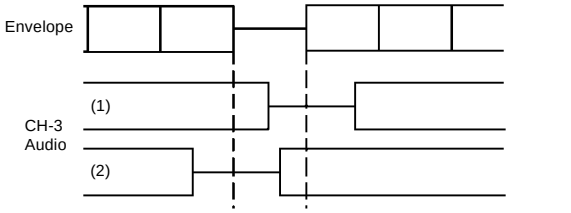
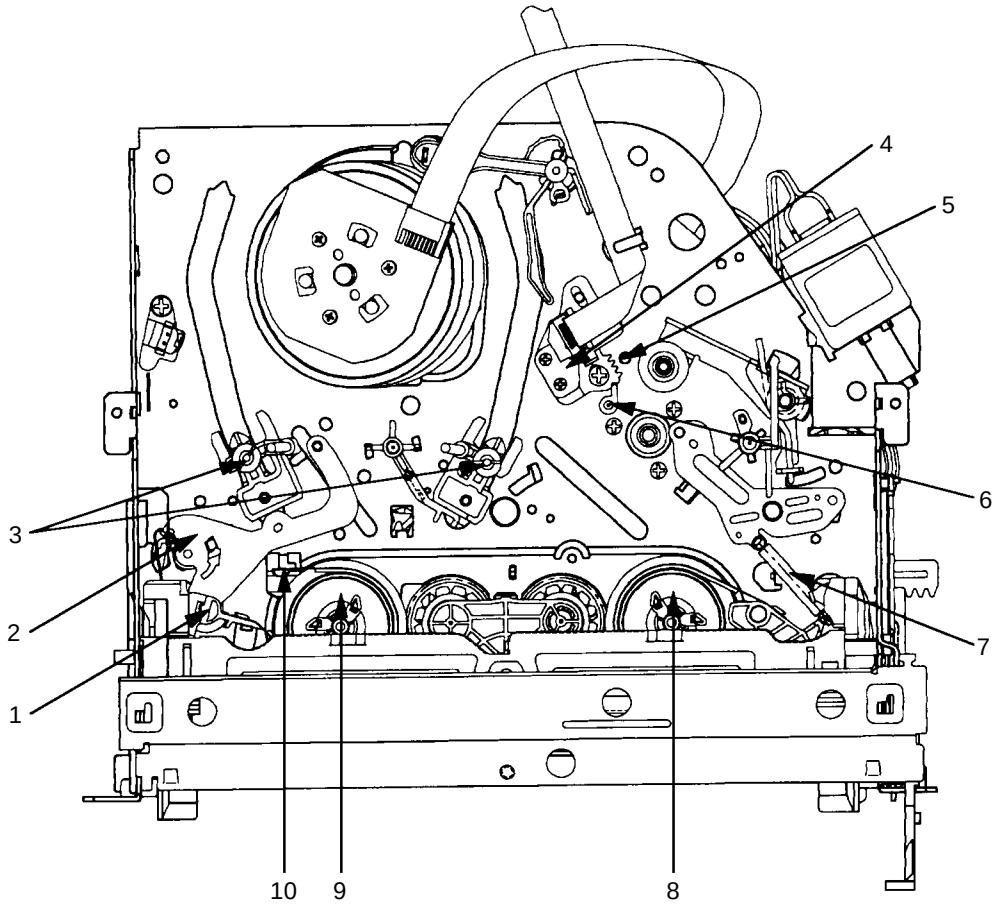


Fig. 2-3

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



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

ELECTRICAL ADJUSTMENTS

1. ADJUSTMENT PROCEDURE

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

CAUTION

When you exchange IC and Transistor for a heat sink, apply the silicon grease **(G-746)** on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

On-Screen Display Adjustment

1. Unplug the AC plug for more than 30 minutes to set the clock to the non-setting state. (To release the Back-Up immediately, take the short circuit between **C1003** and **GND** at the Power Off.) Then, set the volume level to minimum.
2. Press the VOL. DOWN button on the set and the channel button **(9)** on the remote control for more than 2 seconds to display adjustment mode on the screen as shown in **Fig. 1-1**.

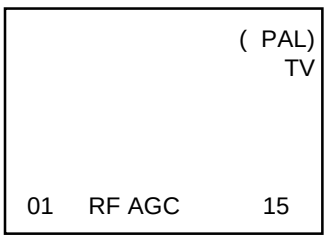


Fig. 1-1

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

NO.	FUNCTION	NO.	FUNCTION
00	CUT OFF	20	CONTRAST CENT
01	RF AGC	21	CONTRAST MAX
02	AGC GAIN	22	CONTRAST MIN
03	R DRIVE	23	COLOR CENT
04	R CUTOFF	24	COLOR MAX
05	G DRIVE	25	COLOR MIN
06	G CUTOFF	26	TINT
07	B DRIVE	27	SHARP
08	H POSI	28	M R CUT OFF
09	V POSI	29	M G CUT OFF
10	---	30	M B CUT OFF
11	V SIZE	31	H POS OSD
12	---	32	---
13	VCO COARSE	33	---
14	VCO FINE	34	---
15	VCO COARSE L1	35	CVBS OUT
16	VCO FINE L1	36	APR THRESHOLD
17	BRIGHT CENT	37	BELL FILTER
18	BRIGHT MAX	38	BANDPASS
19	BRIGHT MIN	39	REC AGC

Fig. 1-2

2. BASIC ADJUSTMENTS (VCR SECTION)

2-1: PG SHIFTER

1. Playback the alignment tape. **(JG001C)**
2. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
3. 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:)

4. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **TP4201**.
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. Stop the alignment tape.

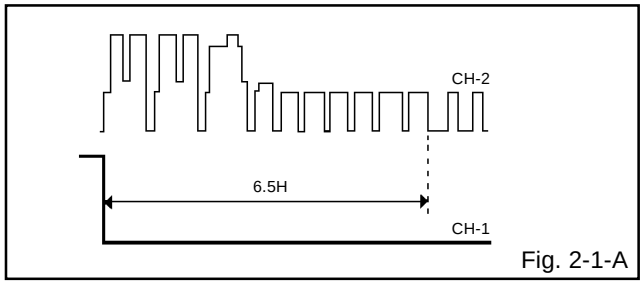


Fig. 2-1-A

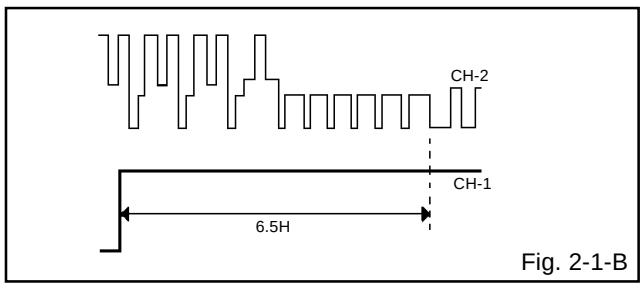


Fig. 2-1-B

2-2: VCO

(MONITOR TUNER)

1. Place the set with Aging Test for more than 15 minutes.
2. Connect the oscillator (39.5MHz) to **TP601**.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(13)** on the remote control to select "VCO COARSE".
4. Press the VOL. UP/DOWN button on the remote control until the "OK" appear on the screen. If the "OK" is not displayed, select the "-" side on the changed from "+" to "-".
5. Press the CH UP button once to set to "VCO FINE" mode.
6. Press the VOL. UP/DOWN button on the remote control to select the 5 step down point from the upper limit on the "OK".
   (Example: In case of the "OK" point 30~41, select 36.)

ELECTRICAL ADJUSTMENTS

(REC TUNER)

1. Place the set with Aging Test for more than 15 minutes.
2. Connect the oscillator (39.5MHz) to **TP1102**.
3. Connect the digital voltmeter between the **pin 7 of CP603** and the **pin 1 (GND) of CP603**.
4. Adjust the **L6006** until the digital voltmeter is 2.4 ± 0.1V.

2-3: RF AGC

(MONITOR TUNER)

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the UHF (63dB).
3. Connect the digital voltmeter between the **pin 5 of CP603** and the **pin 1 (GND) of CP603**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(01)** on the remote control to select "RF AGC".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.6 ± 0.1V.

(REC TUNER)

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the UHF (63dB).
3. Connect the digital voltmeter between the **pin 6 of CP603** and the **pin 1 (GND) of CP603**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(39)** on the remote control to select "REC AGC".
5. Press the VOL. UP/DOWN button on the remote control until the digital voltmeter is 2.8 ± 0.1V.

(TV SECTION)

2-4: CONSTANT VOLTAGE

1. Connect the digital voltmeter to **W018**.
2. Set condition is AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Adjust the **VR502** until the digital voltmeter is 117 ± 0.5V.

2-5: FOCUS

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

2-6: HORIZONTAL POSITION

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "H POSI (50)".
4. Press the VOL. UP/DOWN button on the remote control until the right and left screen size of the vertical line becomes the same.
5. Receive the cross hatch signal of NTSC. (Audio Video Input)
6. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-7: VERTICAL POSITION

NOTE: Adjust after performing adjustments in section 2-6.

1. Receive the center cross signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(09)** on the remote control to select "V POSI (50)".
4. Check if the step No. V. POSI (50) is "00".
5. Adjust the **VR402** until the horizontal line becomes fit to the notch of the shadow mask.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode.
8. Check if the step No. V. POSI (60) is "05".

2-8: VERTICAL SIZE

NOTE: Adjust after performing adjustments in section 2-7.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(11)** on the remote control to select "V SIZE (50)".
4. Press the VOL. UP/DOWN button on the remote control until the rectangle on the center of the screen becomes square.
5. Receive a broadcast and check if the picture is normal.
6. Receive the cross hatch signal of NTSC. (Audio Video Input)
7. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

2-9: VERTICAL LINEARITY

NOTE: Adjust after performing adjustments in section 2-8. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR401** until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

ELECTRICAL ADJUSTMENTS

2-10: OSD HORIZONTAL

1. Using the remote control, set the brightness and contrast to normal position.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(31)** on the remote control to select "H POS OSD".
3. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-2)**

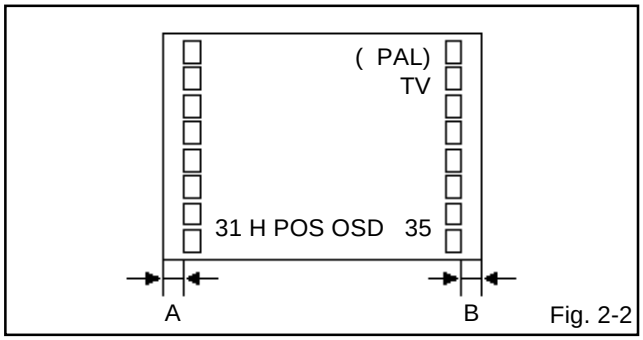


Fig. 2-2

2-11: CUT OFF

1. Set condition is AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Place the set with Aging Test for more than 15 minutes.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(00)** on the remote control to select "CUT OFF".
5. Adjust the **Screen Volume** until a dim raster is obtained.

2-12: WHITE BALANCE

NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "R DRIVE".
5. Press the CH. UP/DOWN button on the remote control to select the "R DRIVE", "G DRIVE", "M R CUTOFF" or "M G CUTOFF".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R DRIVE, G DRIVE, M R CUT OFF, and M G CUT OFF at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

2-13: BRIGHT CENT

1. Receive the PAL black pattern*. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRIGHT CENT".
4. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
5. Receive the PAL black pattern*. (Audio Video Input)
6 Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.

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

2-14: CONTRAST CENT

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(20)** on the remote control to select "CONTRAST CENT".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "33".
3. Receive a broadcast and check if the picture is normal.
4. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.

2-15: COLOR CENT

1. Receive the PAL color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast and color to normal position.
3. Connect the oscilloscope to **TP804**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 90 ± 5% of the white level. **(Refer to Fig. 2-3)**
7. Receive the PAL color bar pattern. (Audio Video Input)
8. Press the AV button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.

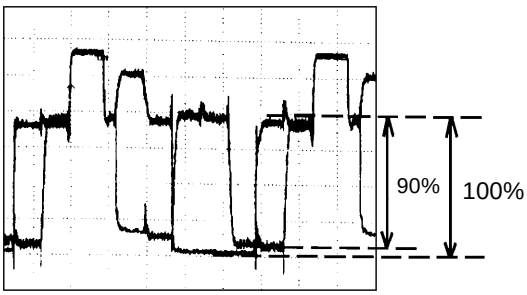


Fig. 2-3

ELECTRICAL ADJUSTMENTS

2-16: Confirmation of Fixed Value (Step No.)

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

NO.	FUNCTION	RF (50Hz)	RF (60Hz)	AV
02	AGC GAIN	00	---	---
04	R CUTOFF	31	---	---
06	G CUTOFF	31	---	---
07	B DRIVE	31	---	---
09	V POSI	00	05	---
18	BRIGHT MAX	55	---	---
19	BRIGHT MIN	05	---	---
21	CONTRAST MAX	55	---	---
22	CONTRAST MIN	10	---	---
24	COLOR MAX	63	---	---
25	COLOR MIN	10	---	---
27	SHARP	03	---	03
30	M B CUT OFF	50	---	---
35	CVBS OUT	10	---	---
36	APR THRESHOLD	15	---	---
37	BELL FILTER	00	---	---
38	BANDPASS	00	---	---

* To check for the fixed values of the RF (60Hz), indicate the adjustment mode screen while input the 60Hz video signal.

ELECTRICAL ADJUSTMENTS

3. PURITY AND CONVERGENCE ADJUSTMENTS

NOTE

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

3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

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

3-2: PURITY

NOTE

Adjust after performing adjustments in section 3-1.

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

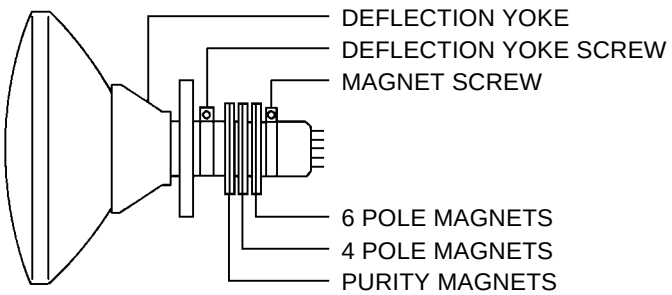


Fig. 3-1

3-3: STATIC CONVERGENCE

NOTE

Adjust after performing adjustments in section 3-2.

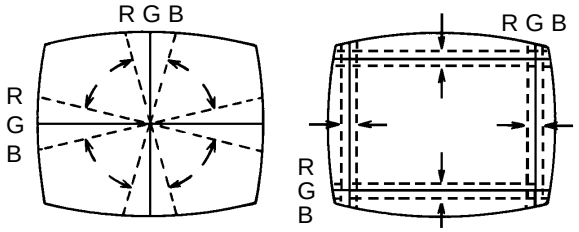
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

3-4: DYNAMIC CONVERGENCE

NOTE

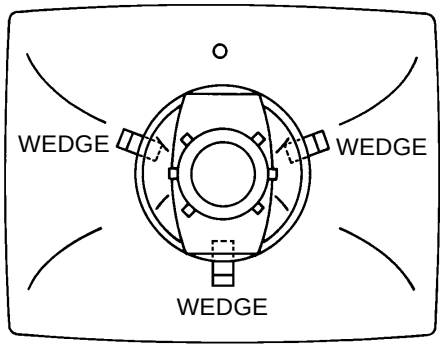
Adjust after performing adjustments in section 3-3.

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



UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

Fig. 3-2-a

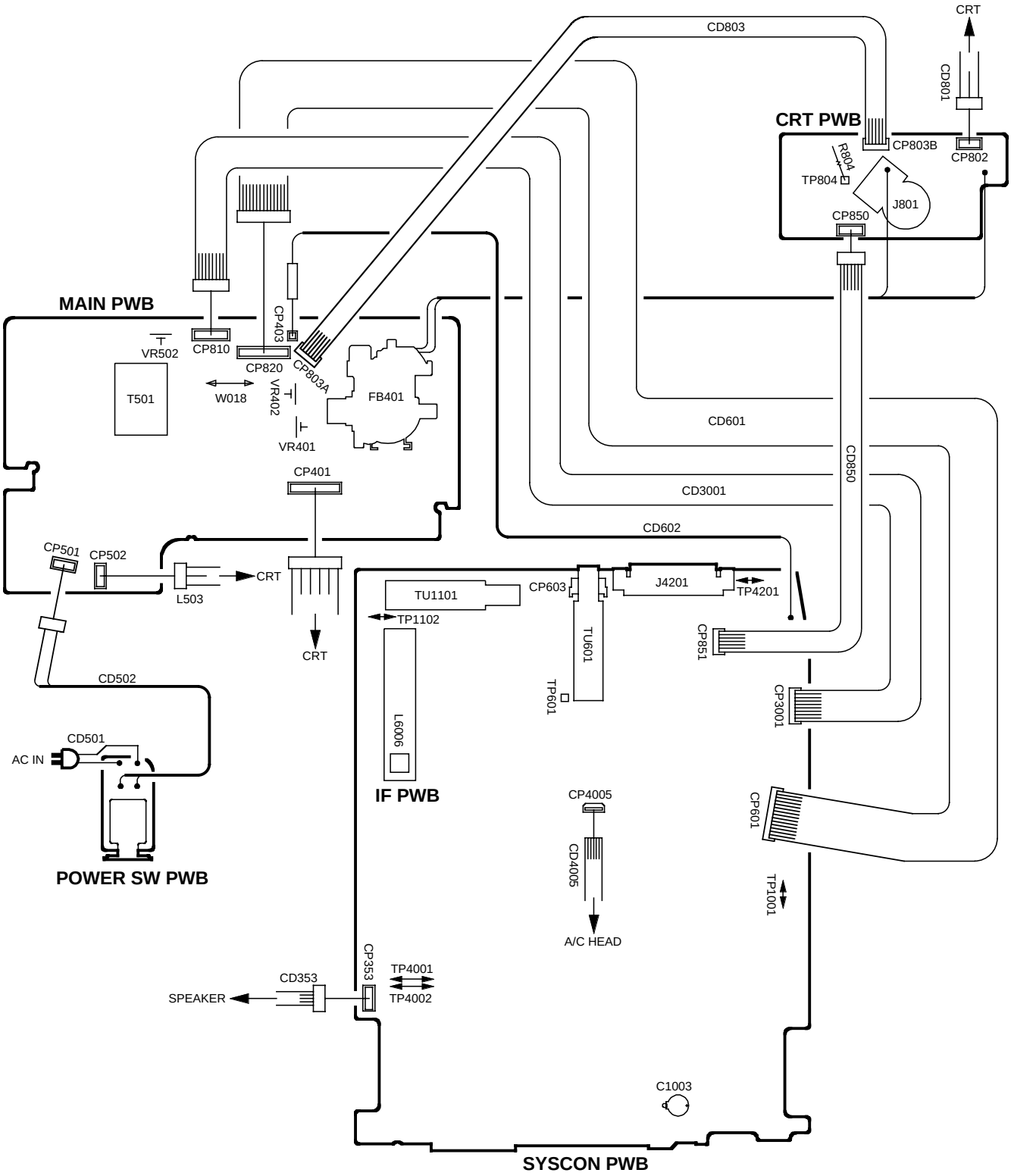


WEDGE POSITION

Fig. 3-2-b

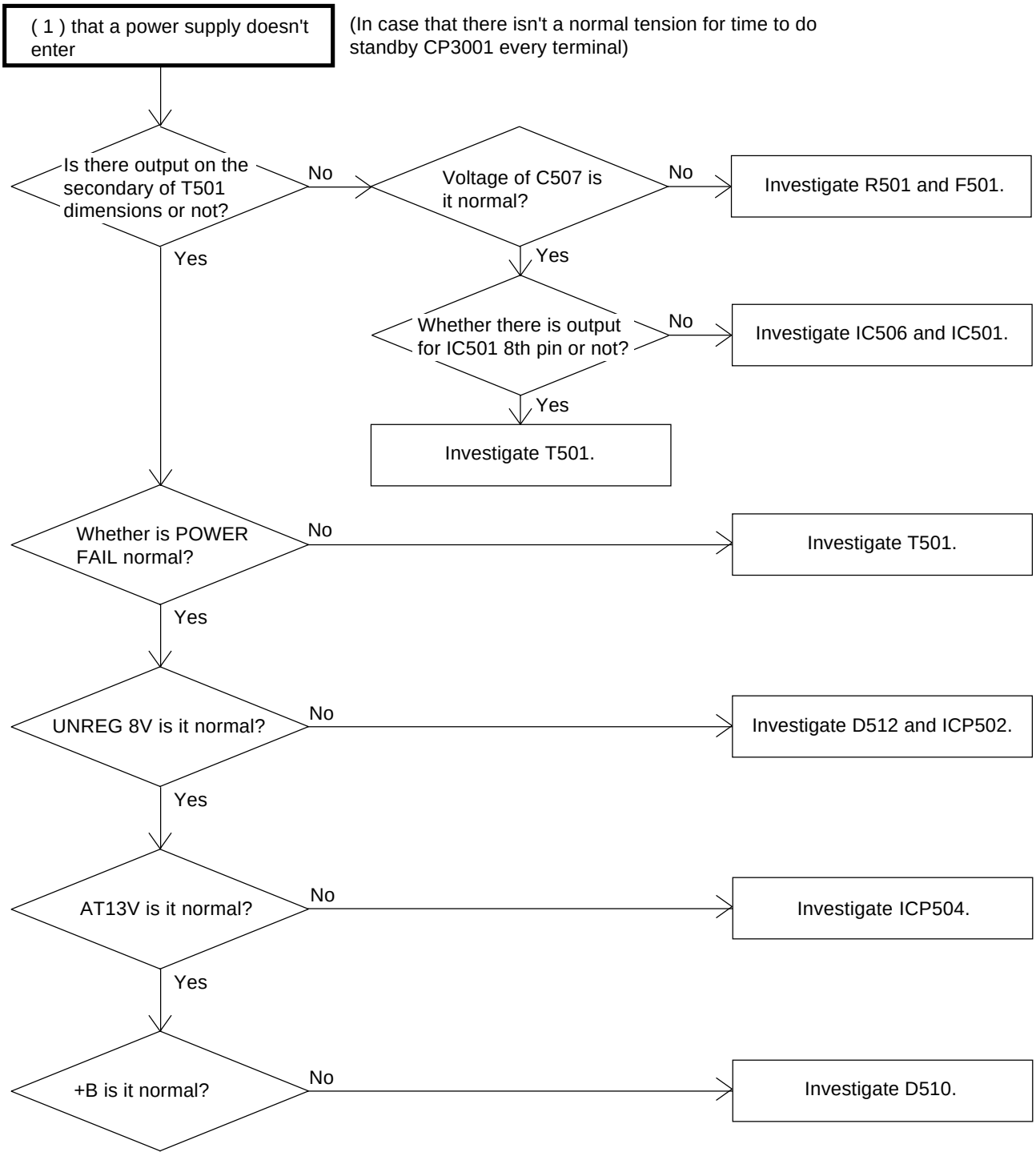
ELECTRICAL ADJUSTMENTS

4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

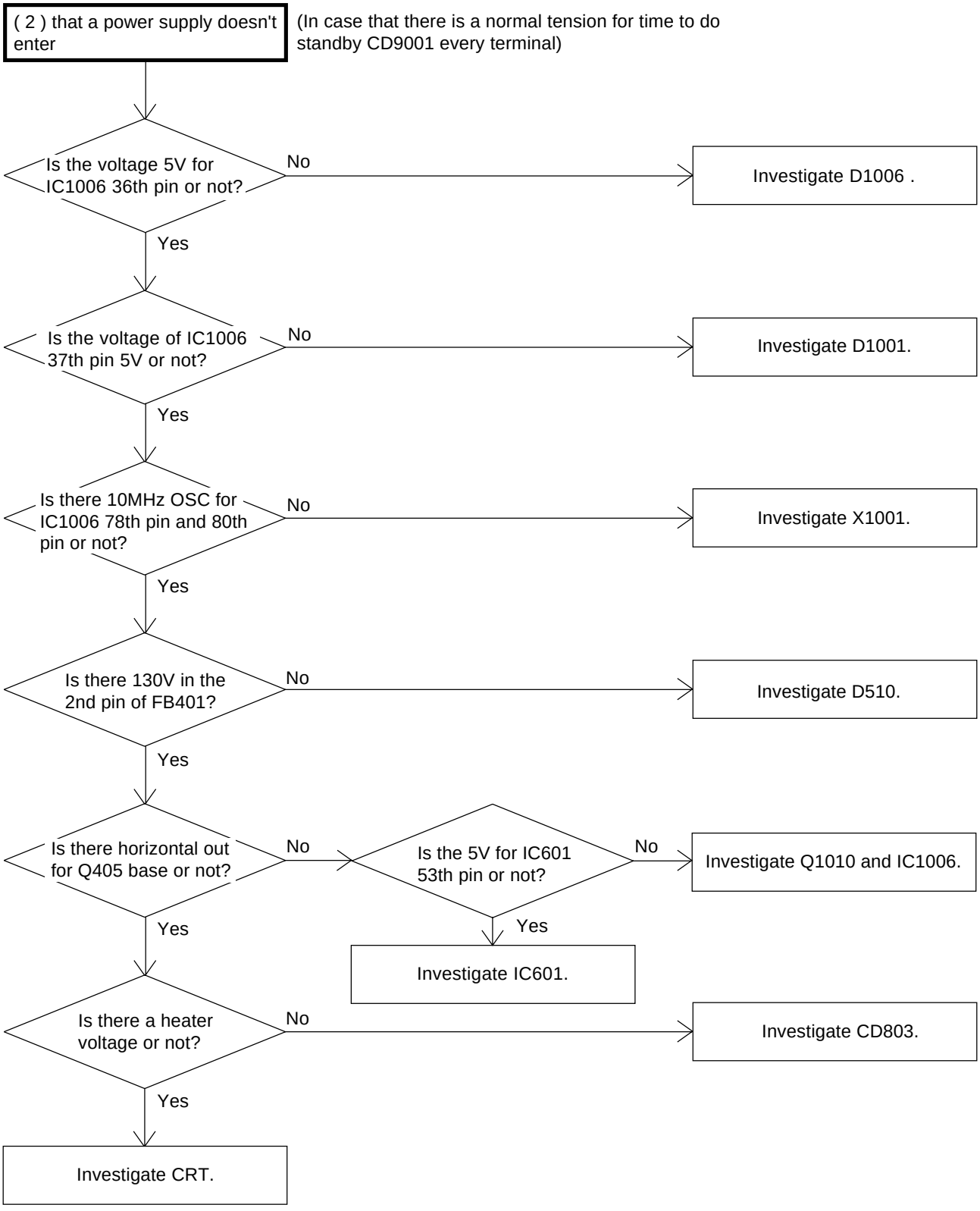


TROUBLESHOOTING GUIDE

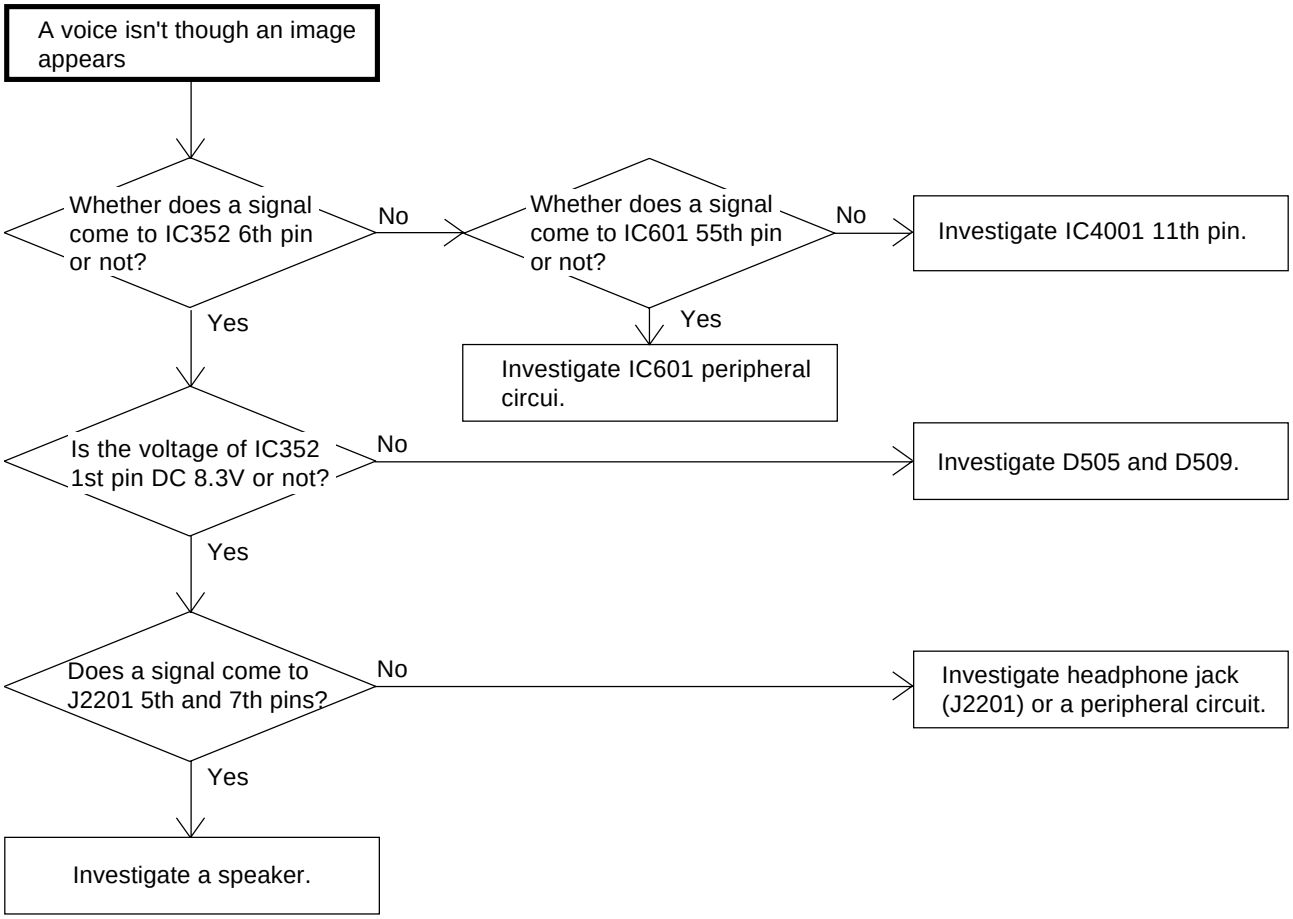
(TV SECTION)



TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



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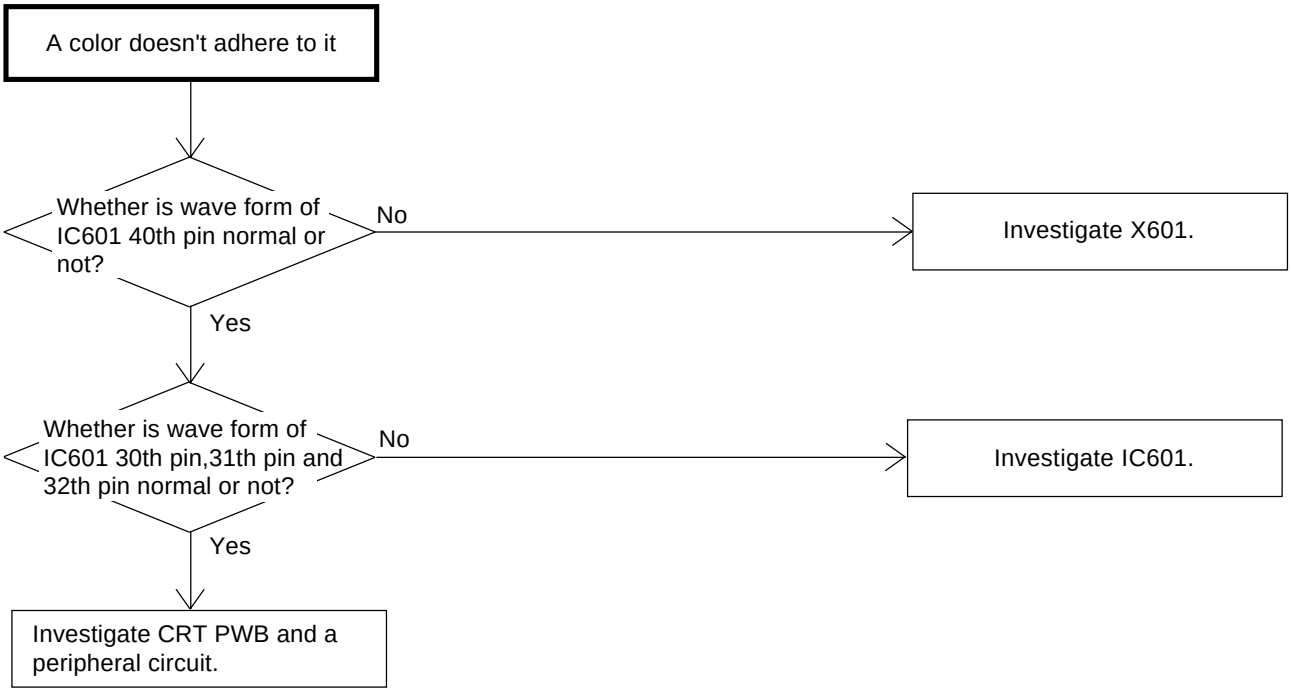
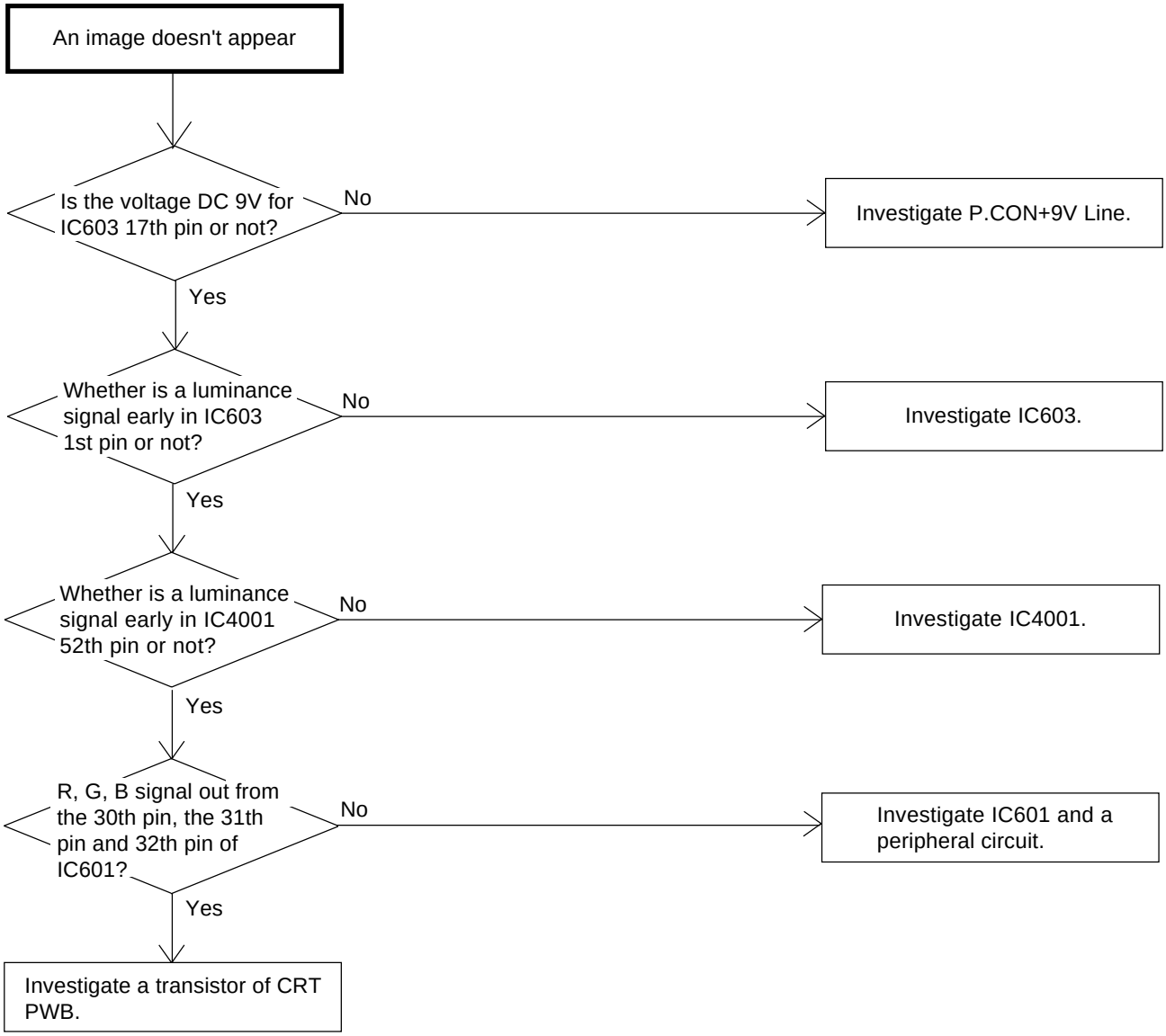
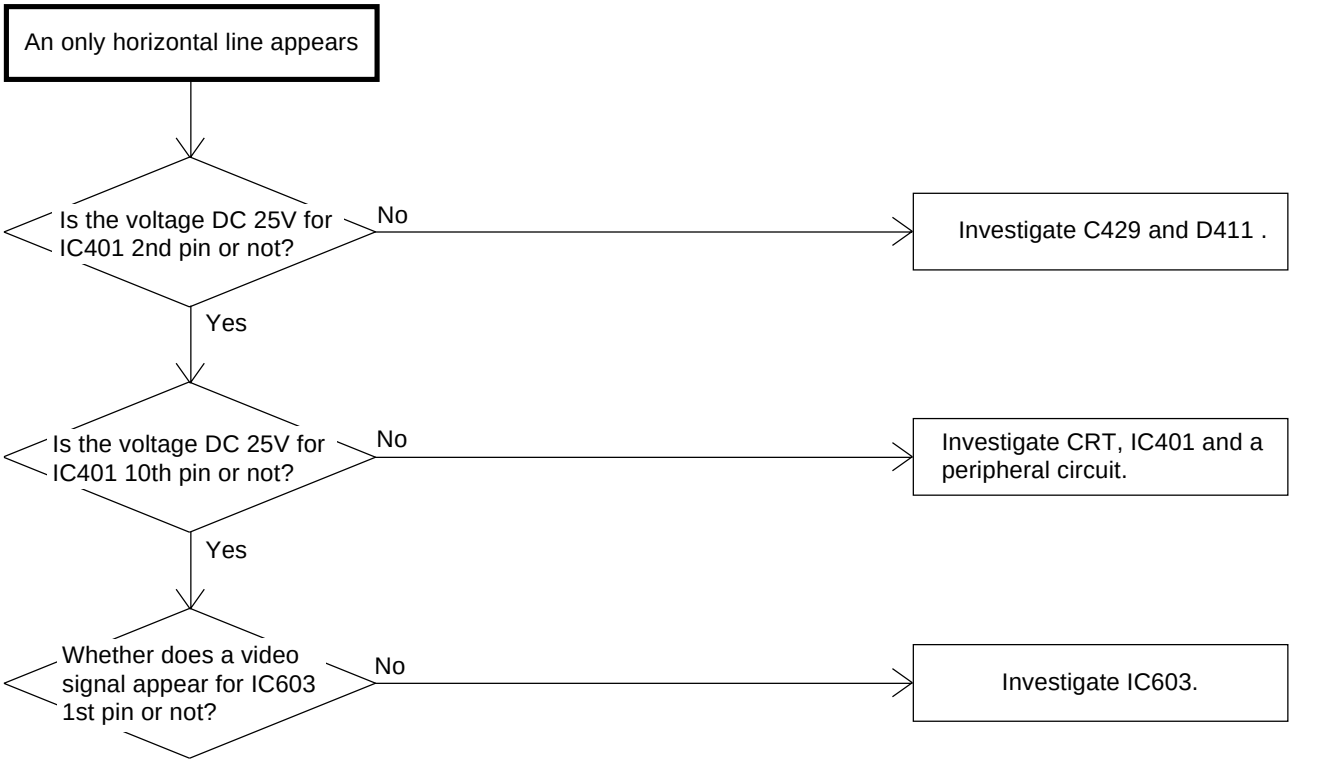
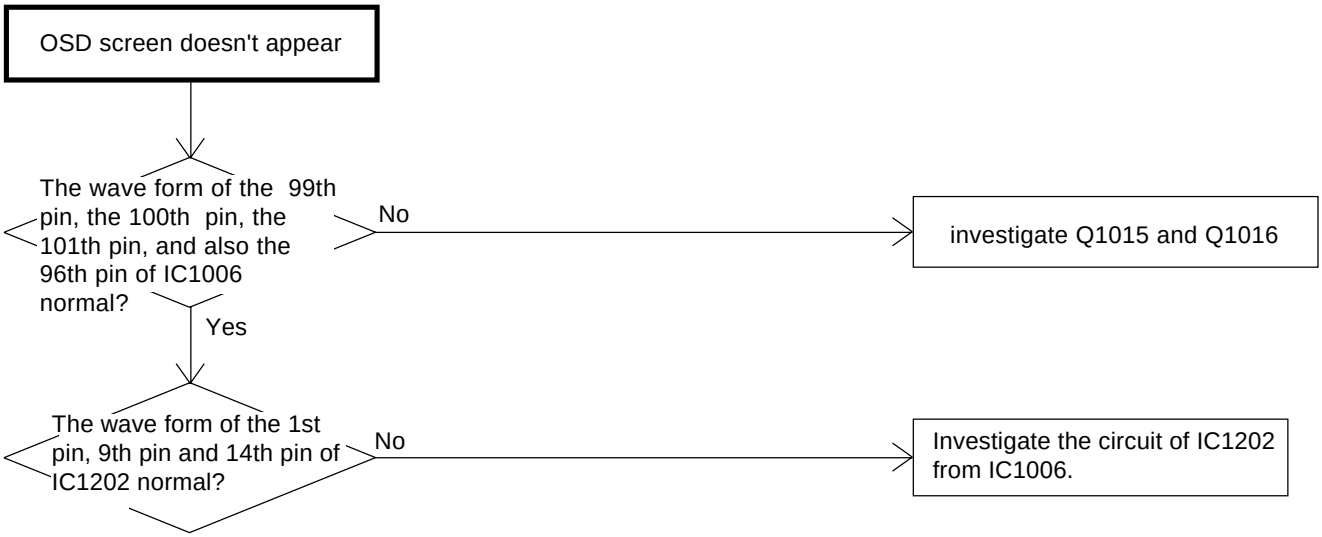


TROUBLESHOOTING GUIDE



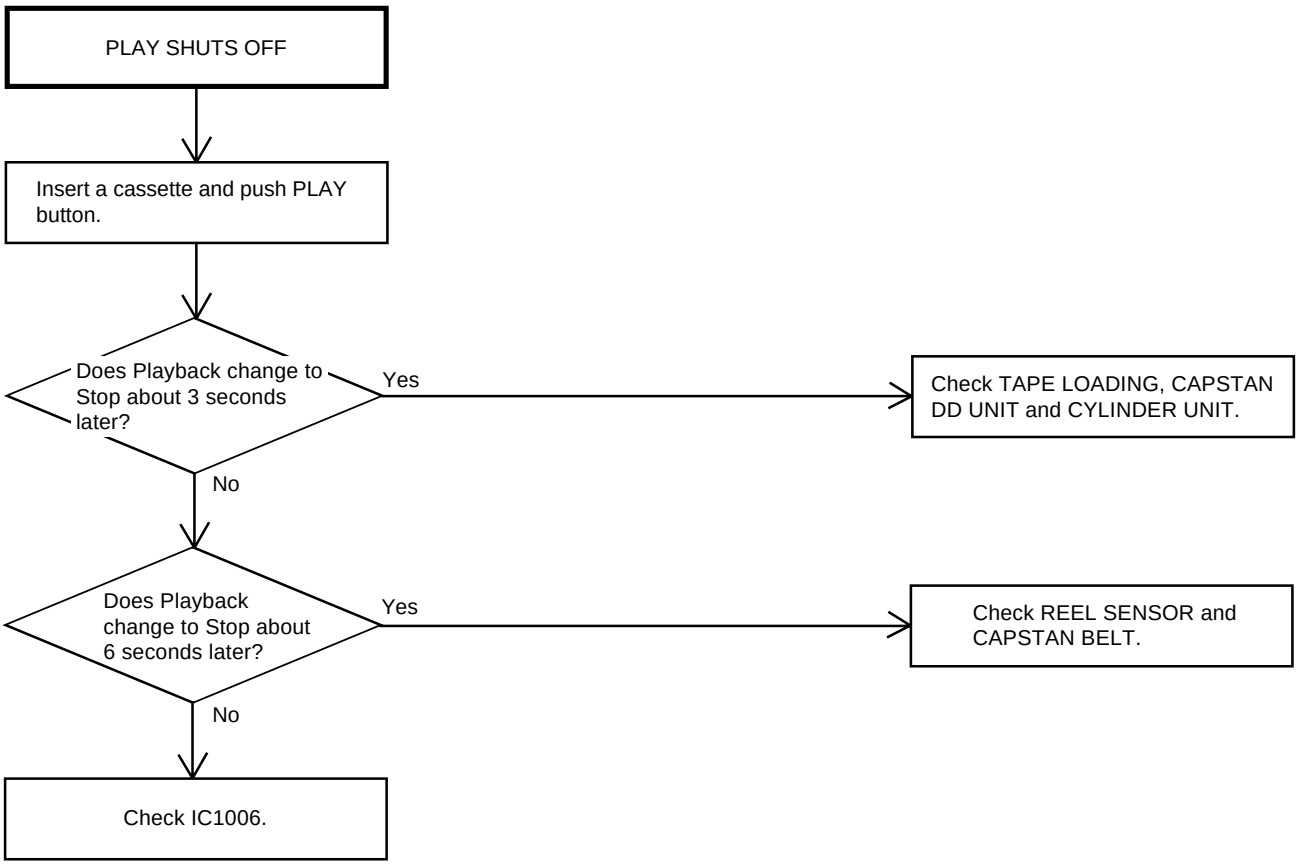
TROUBLESHOOTING GUIDE



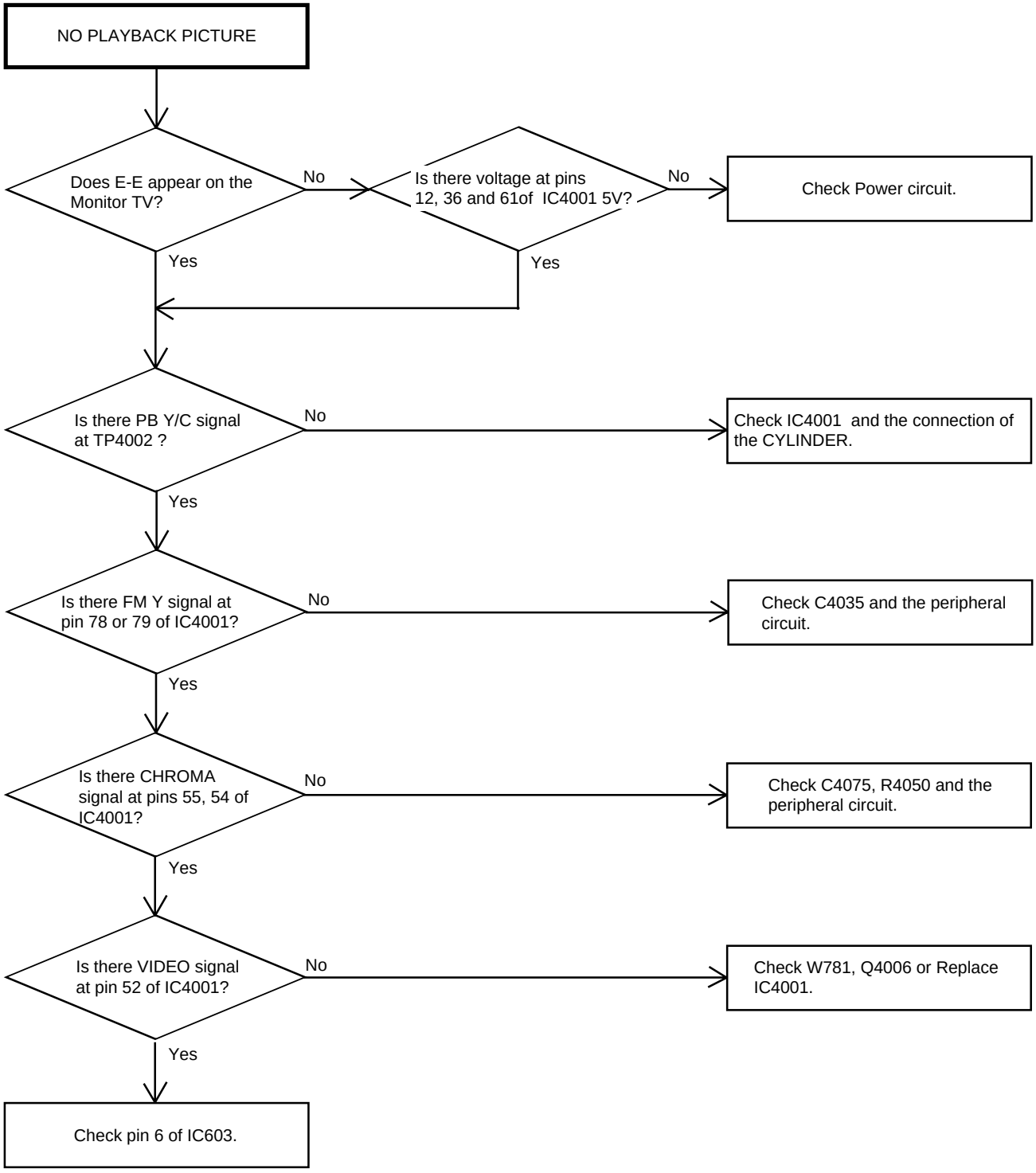


TROUBLESHOOTING GUIDE

(VCR SECTION)



TROUBLESHOOTING GUIDE



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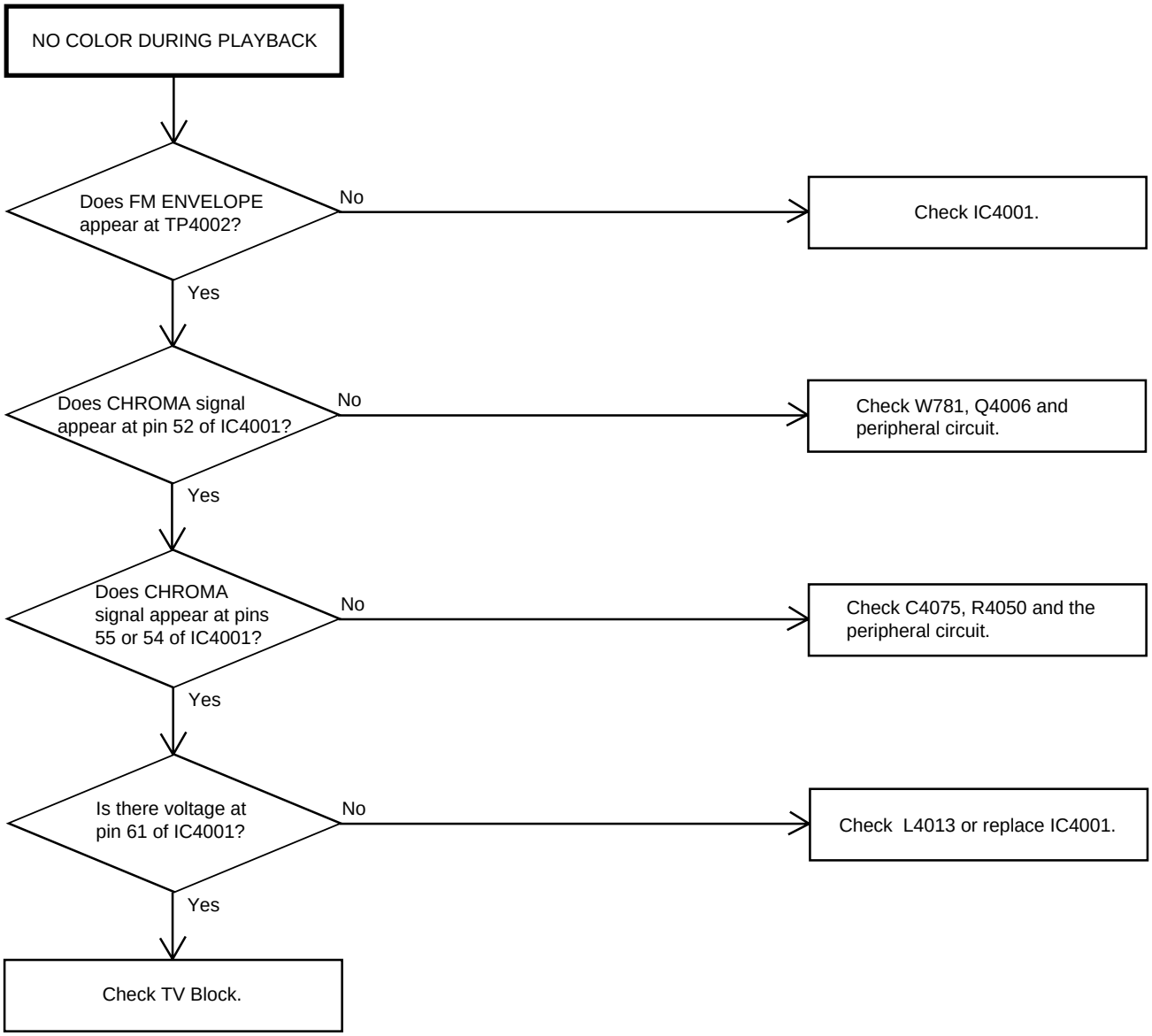

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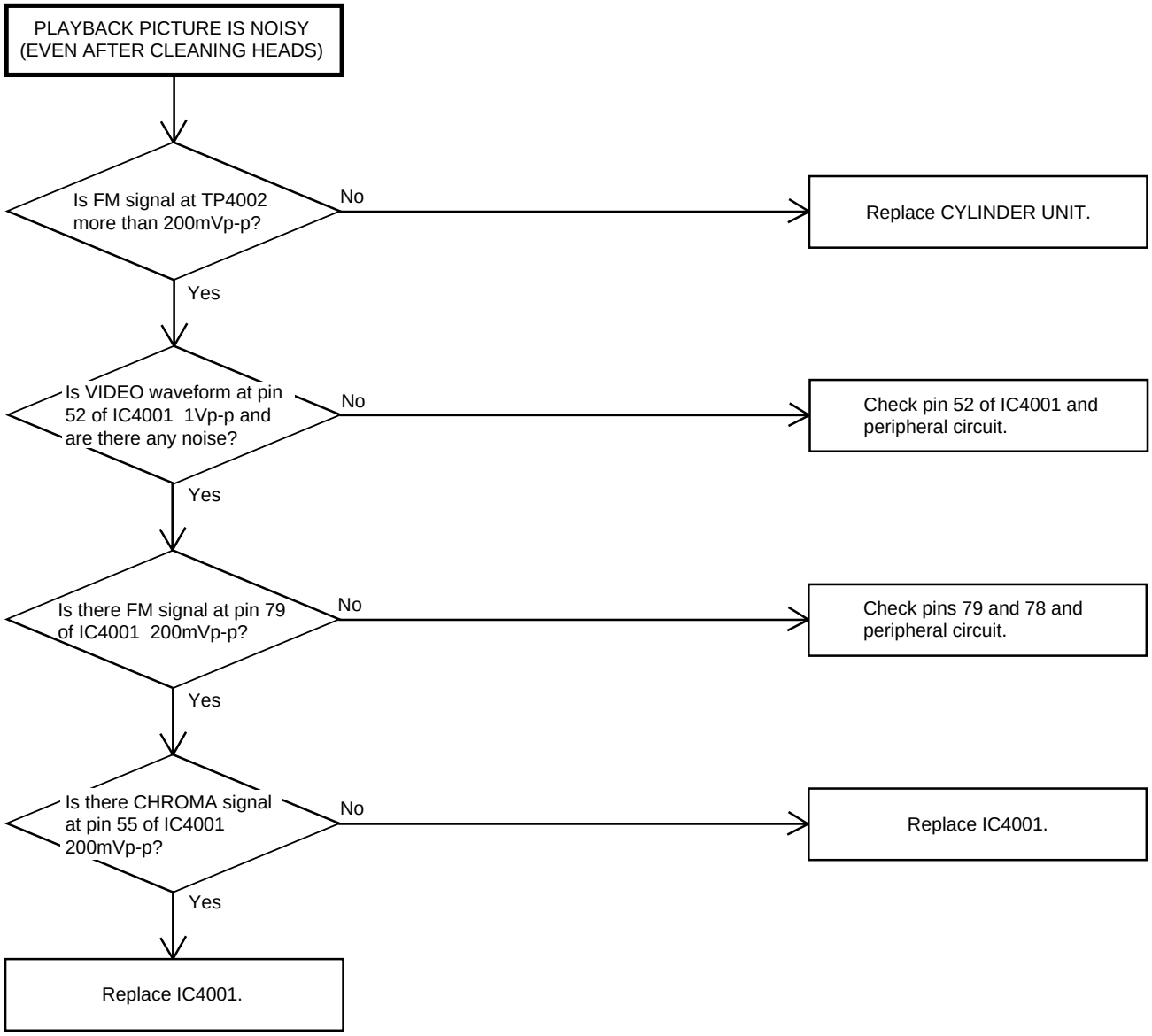
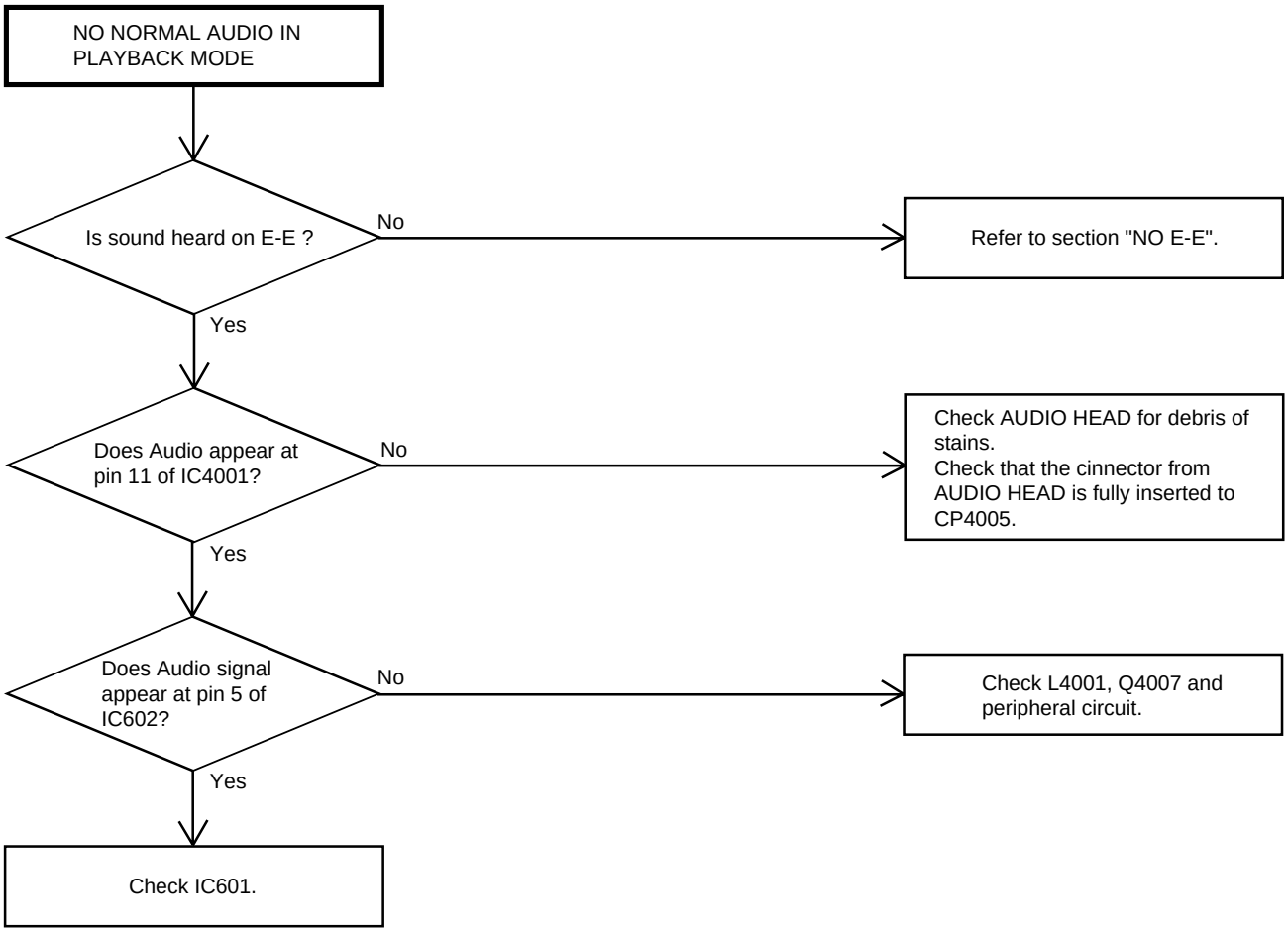


TROUBLESHOOTING GUIDE

TROUBLESHOOTING GUIDE



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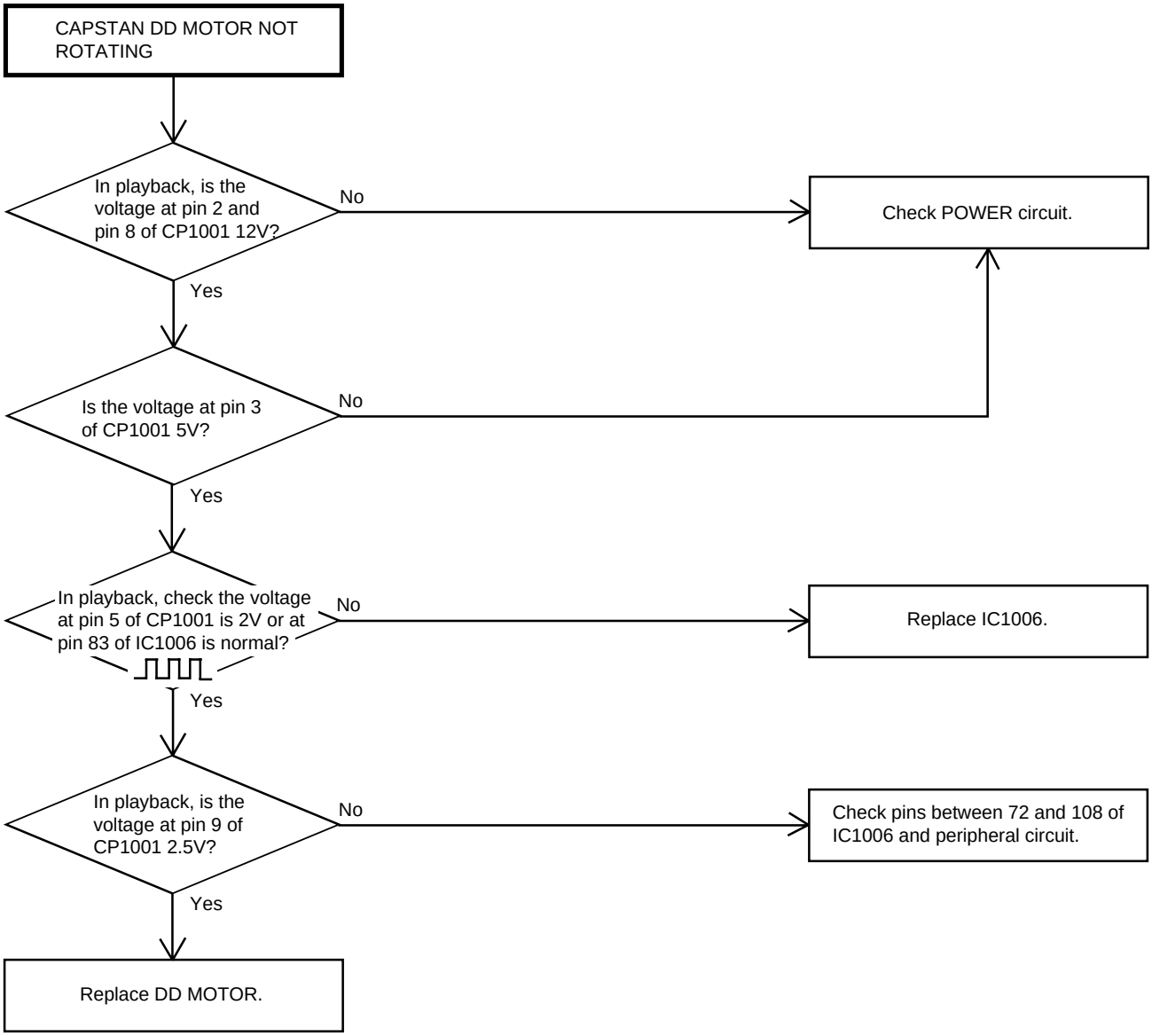

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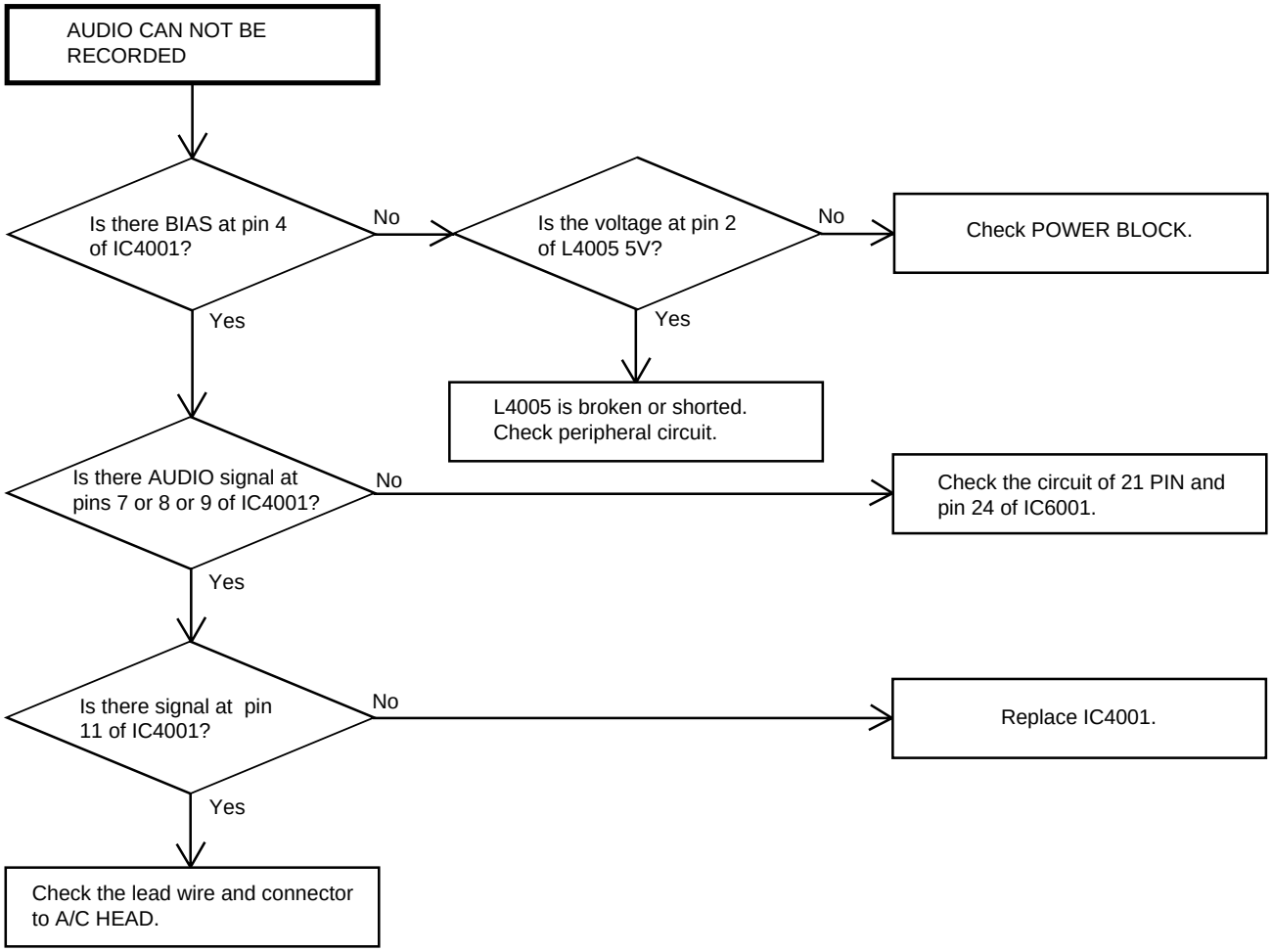

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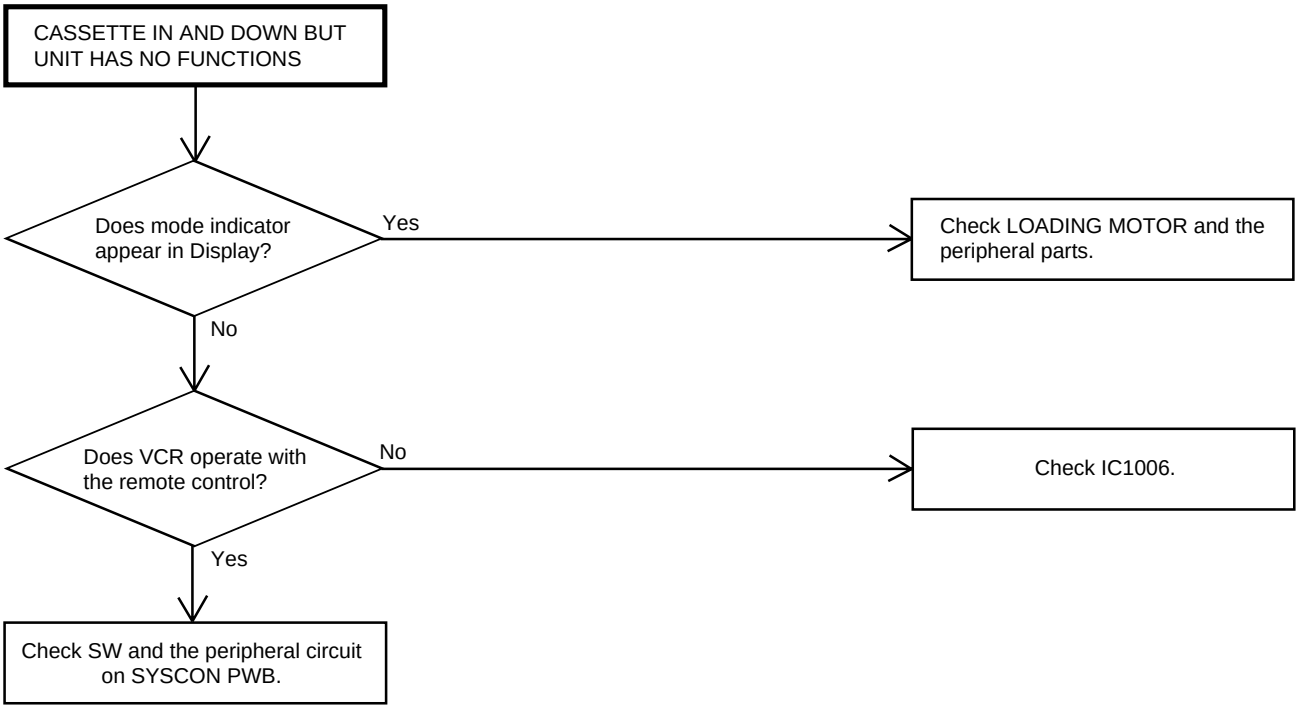
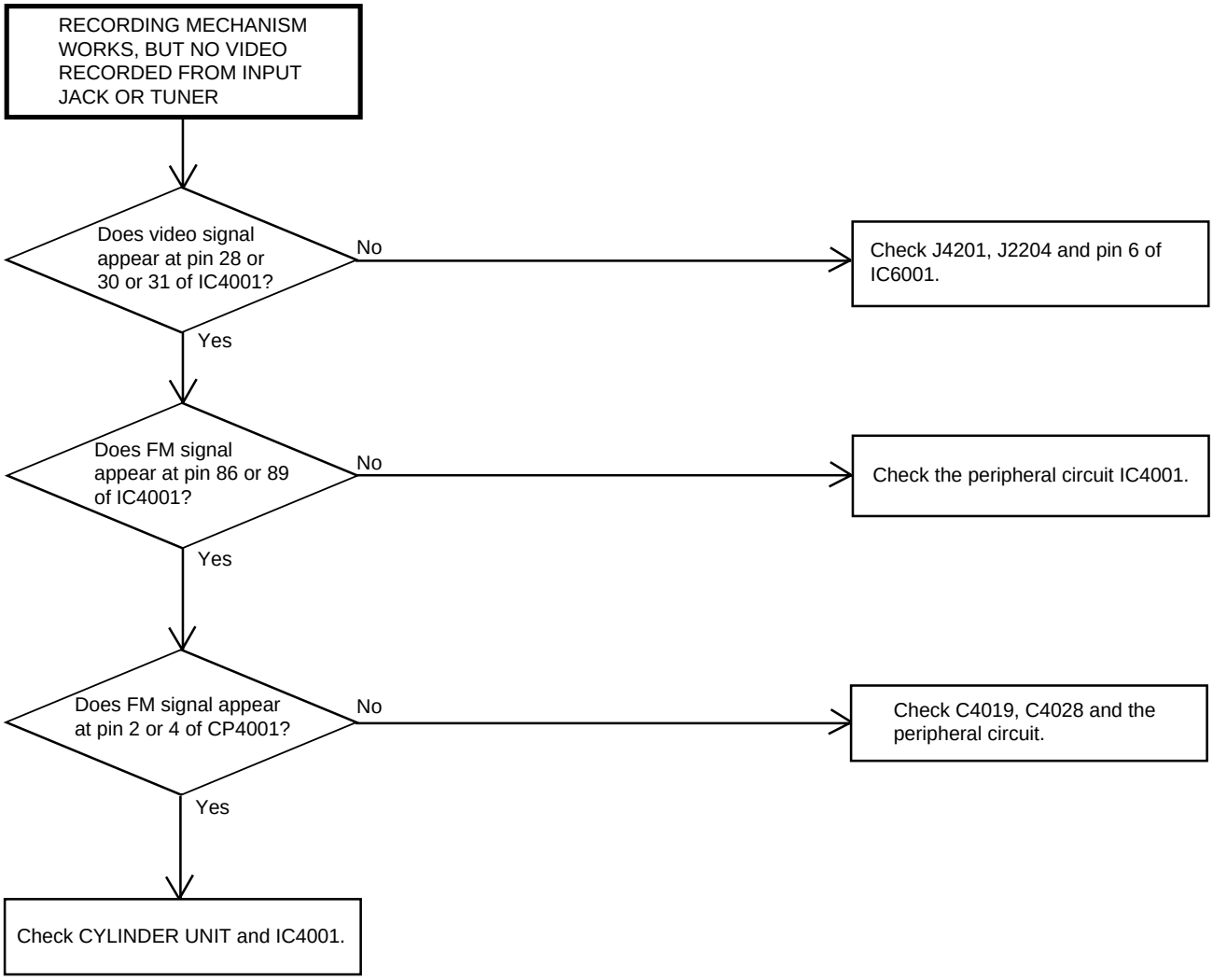
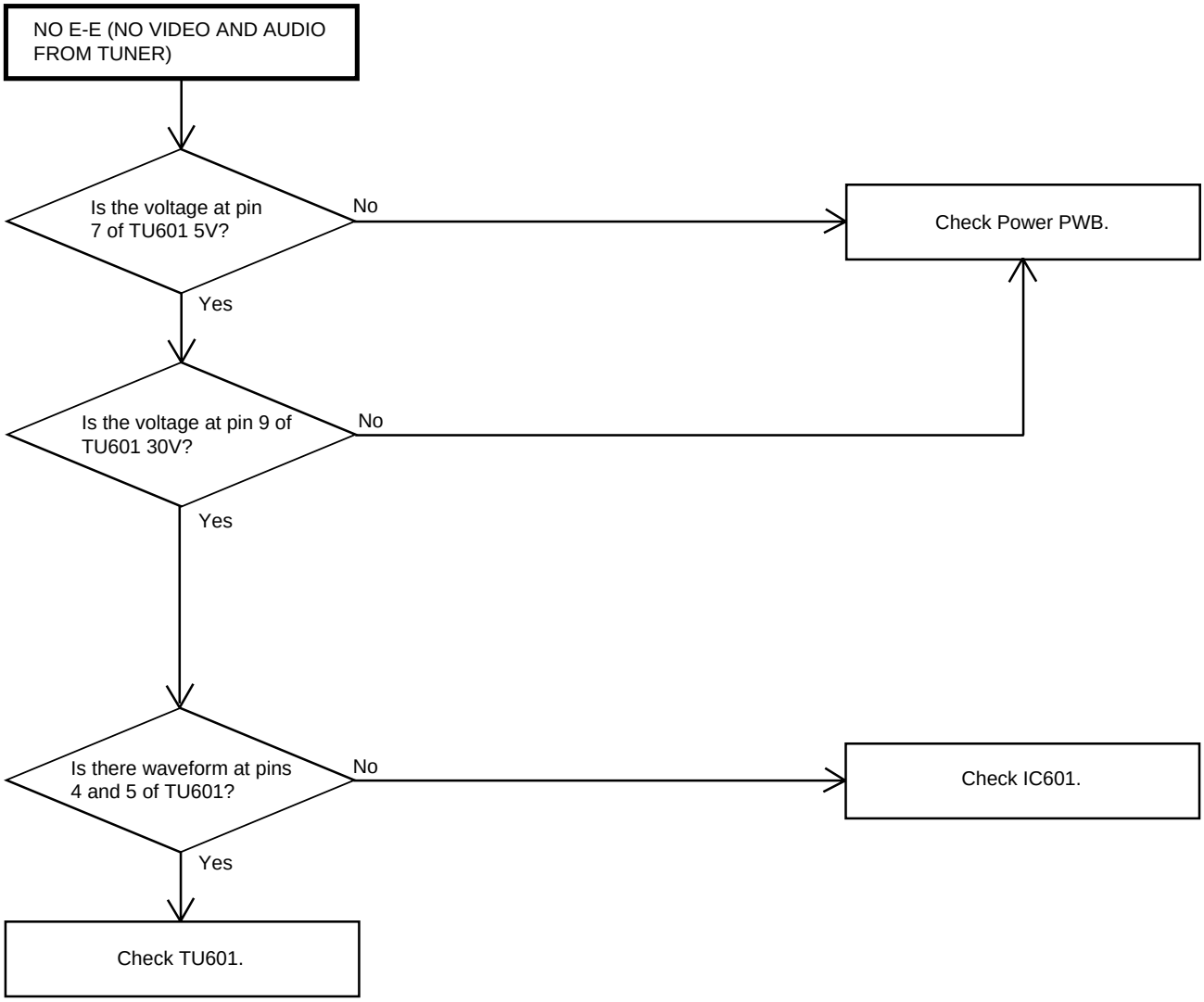


TROUBLESHOOTING GUIDE



TROUBLESHOOTING GUIDE



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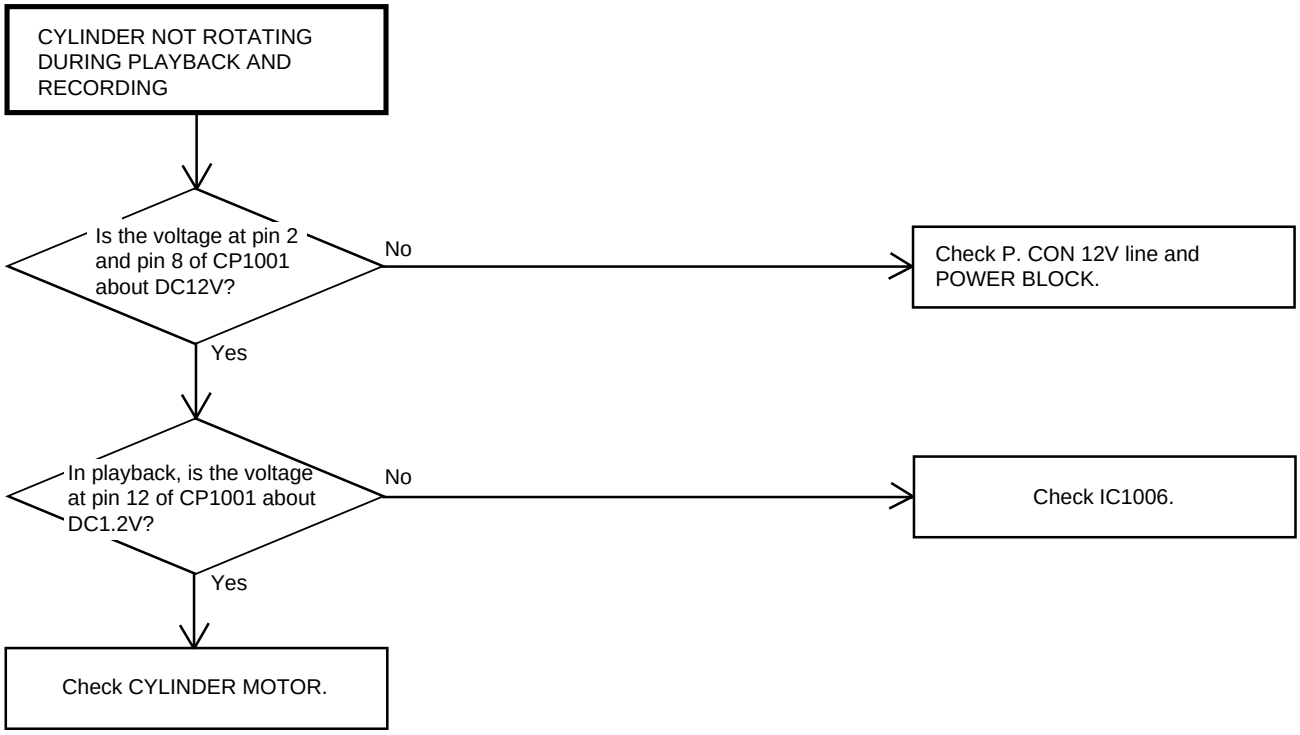

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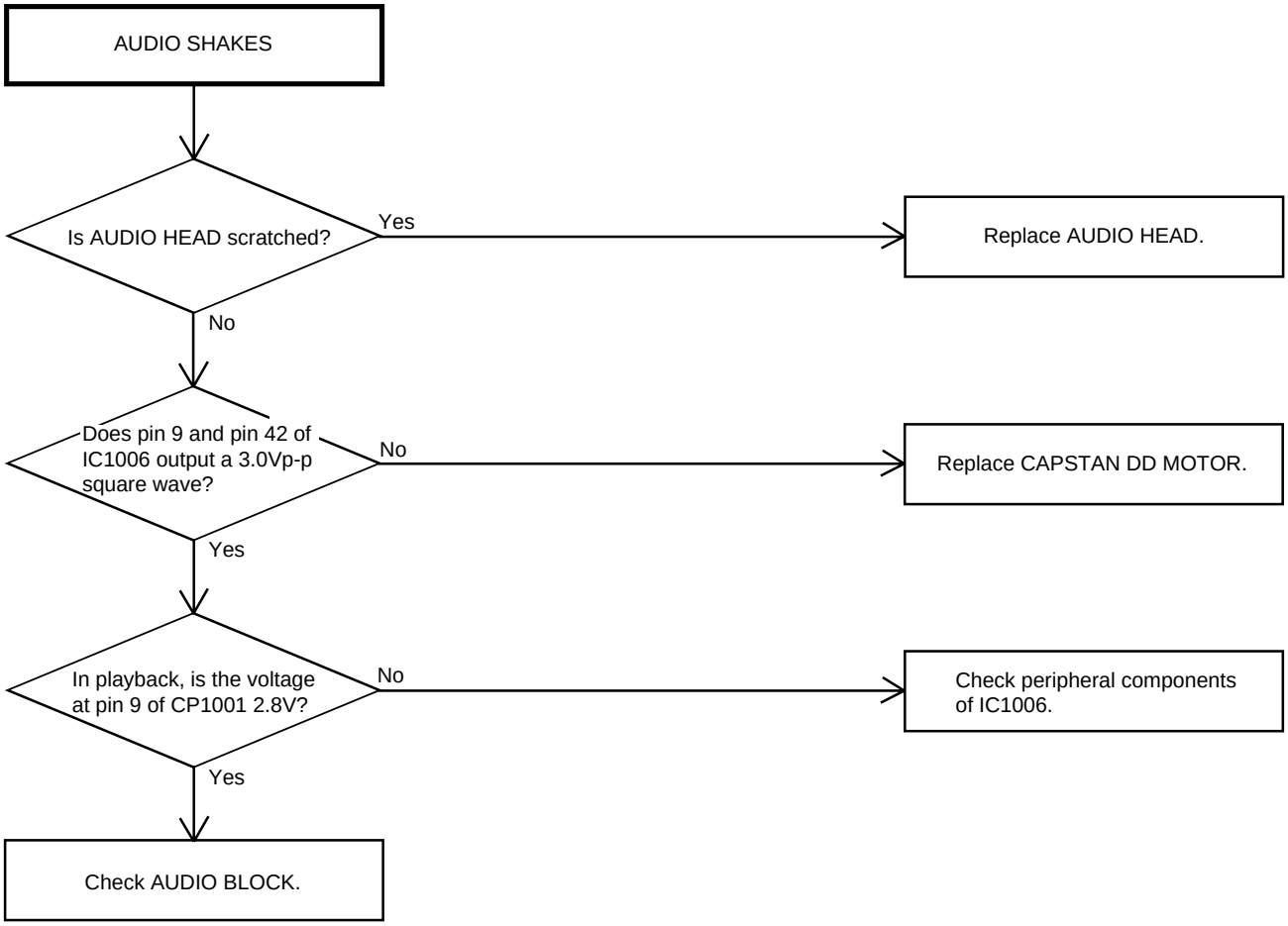

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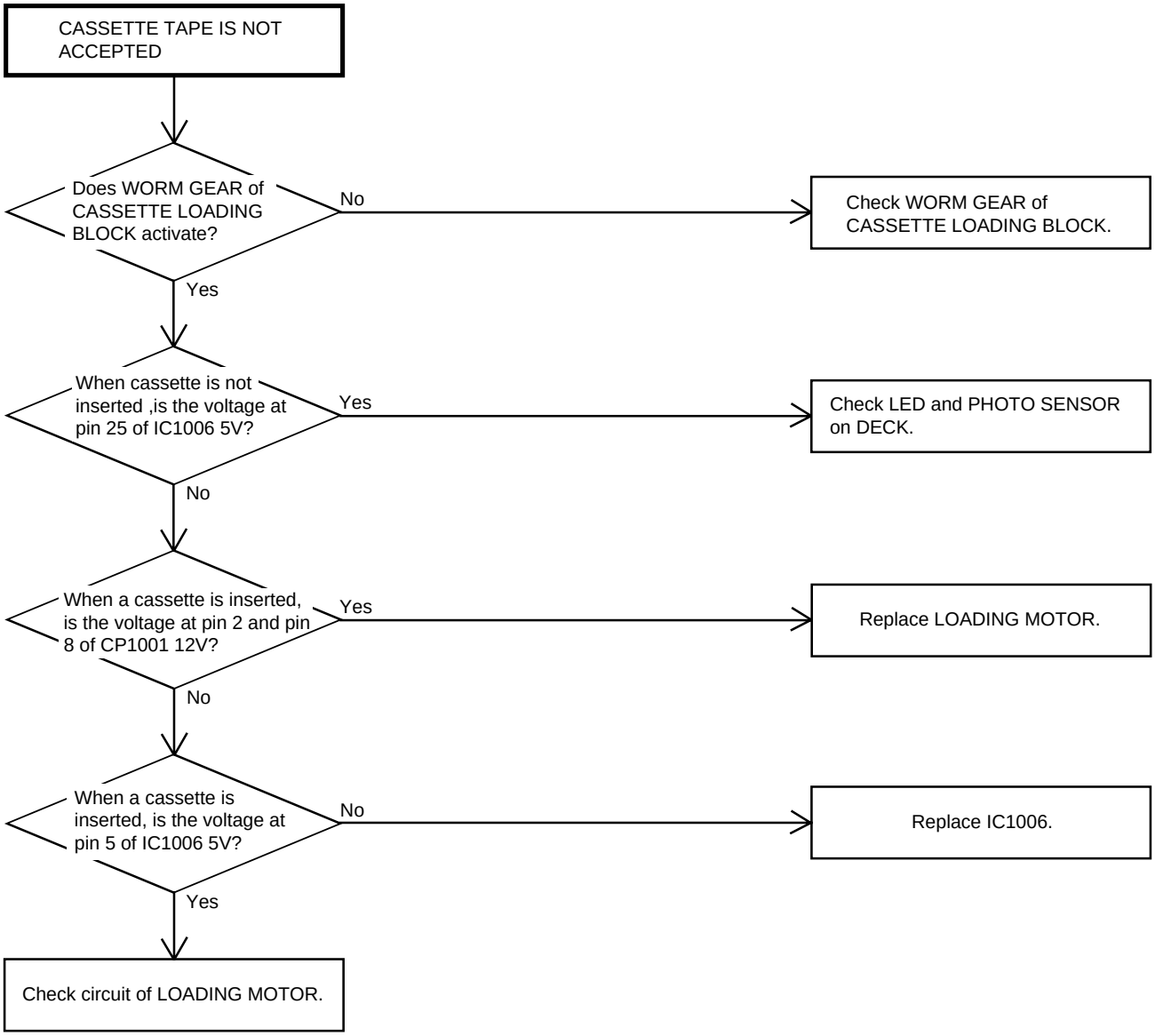

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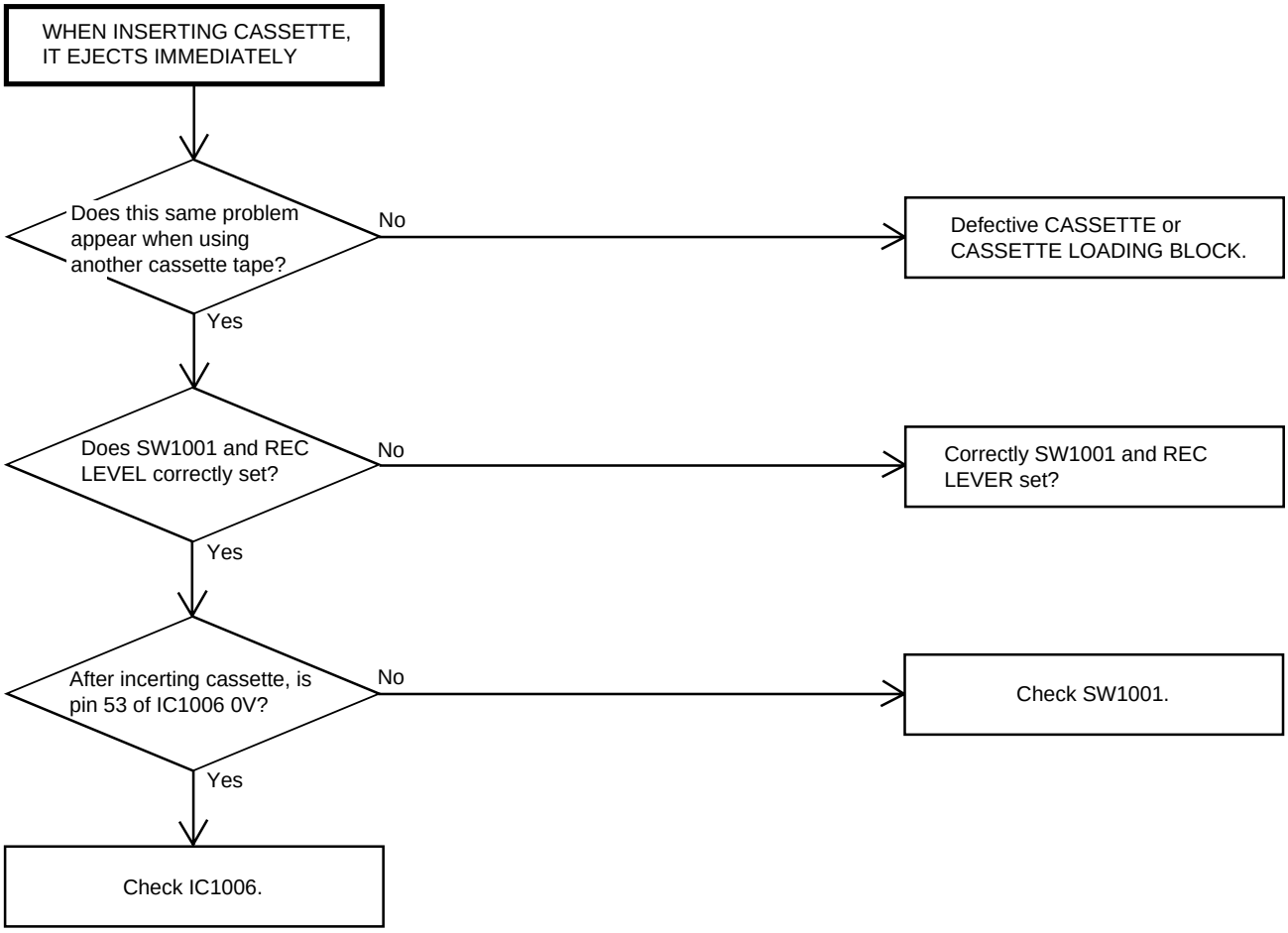

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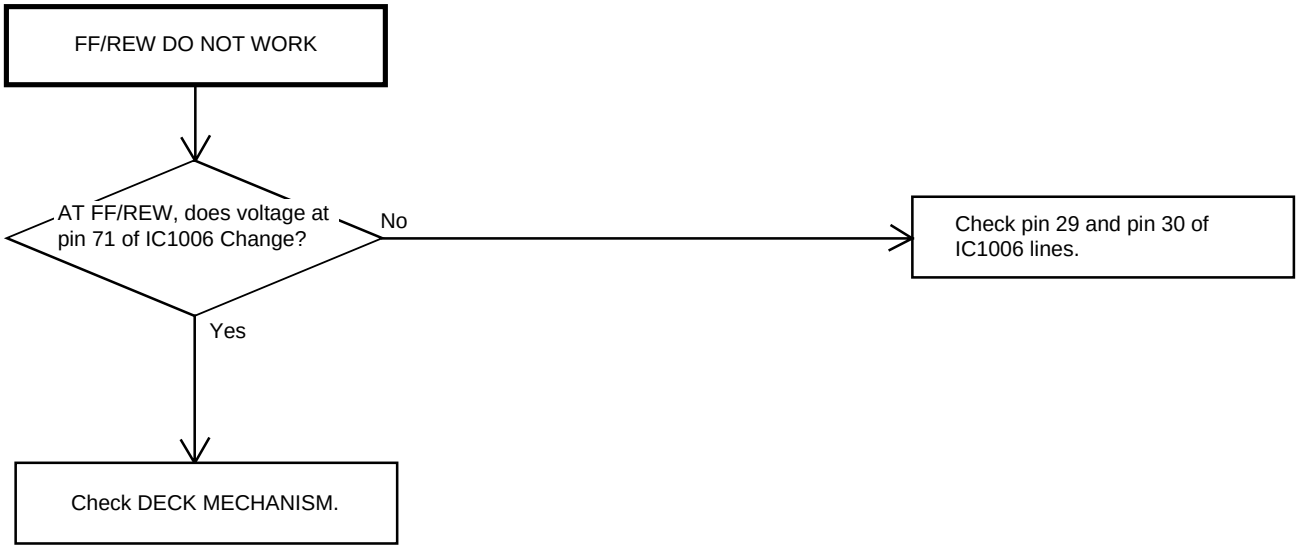

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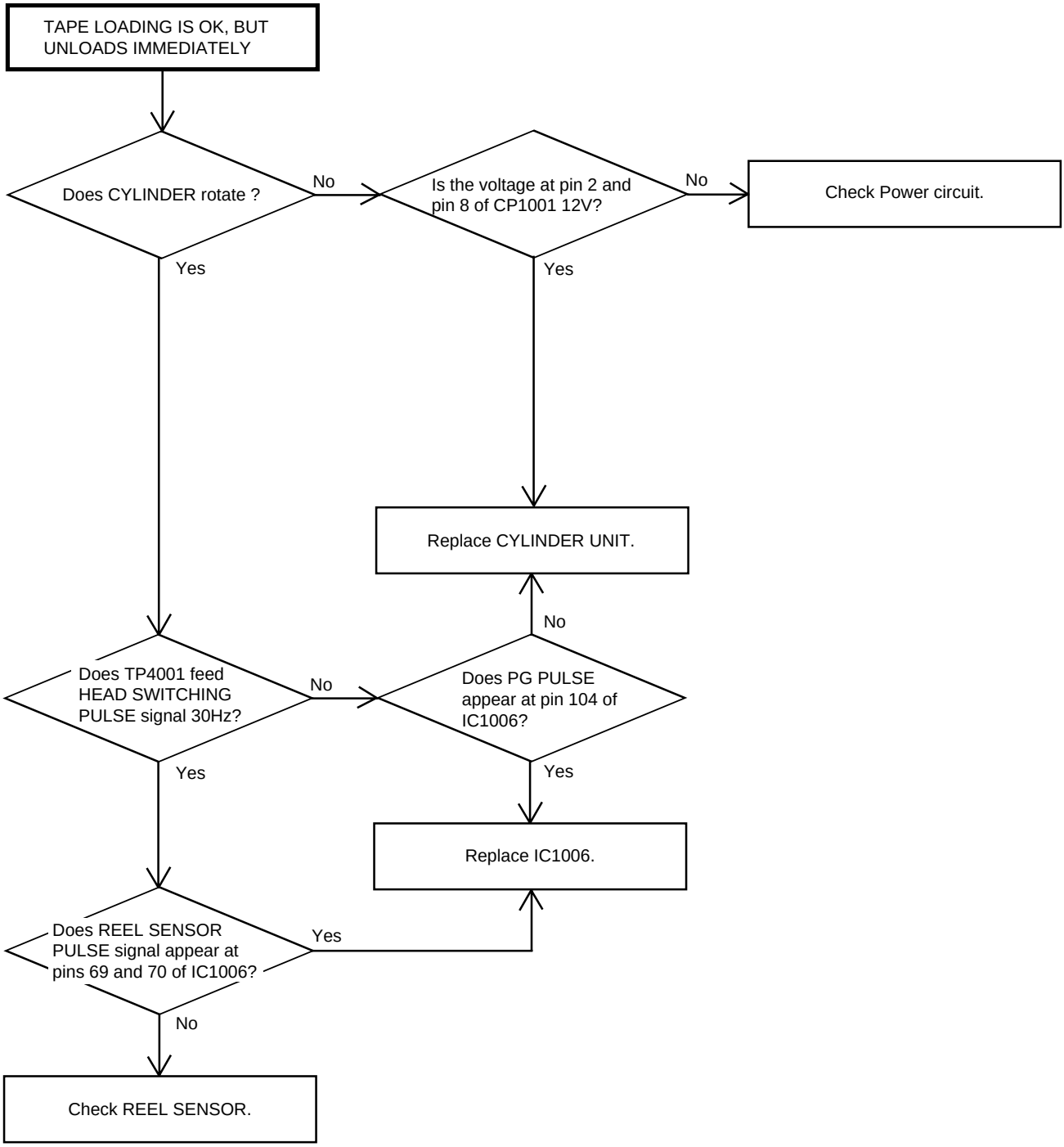

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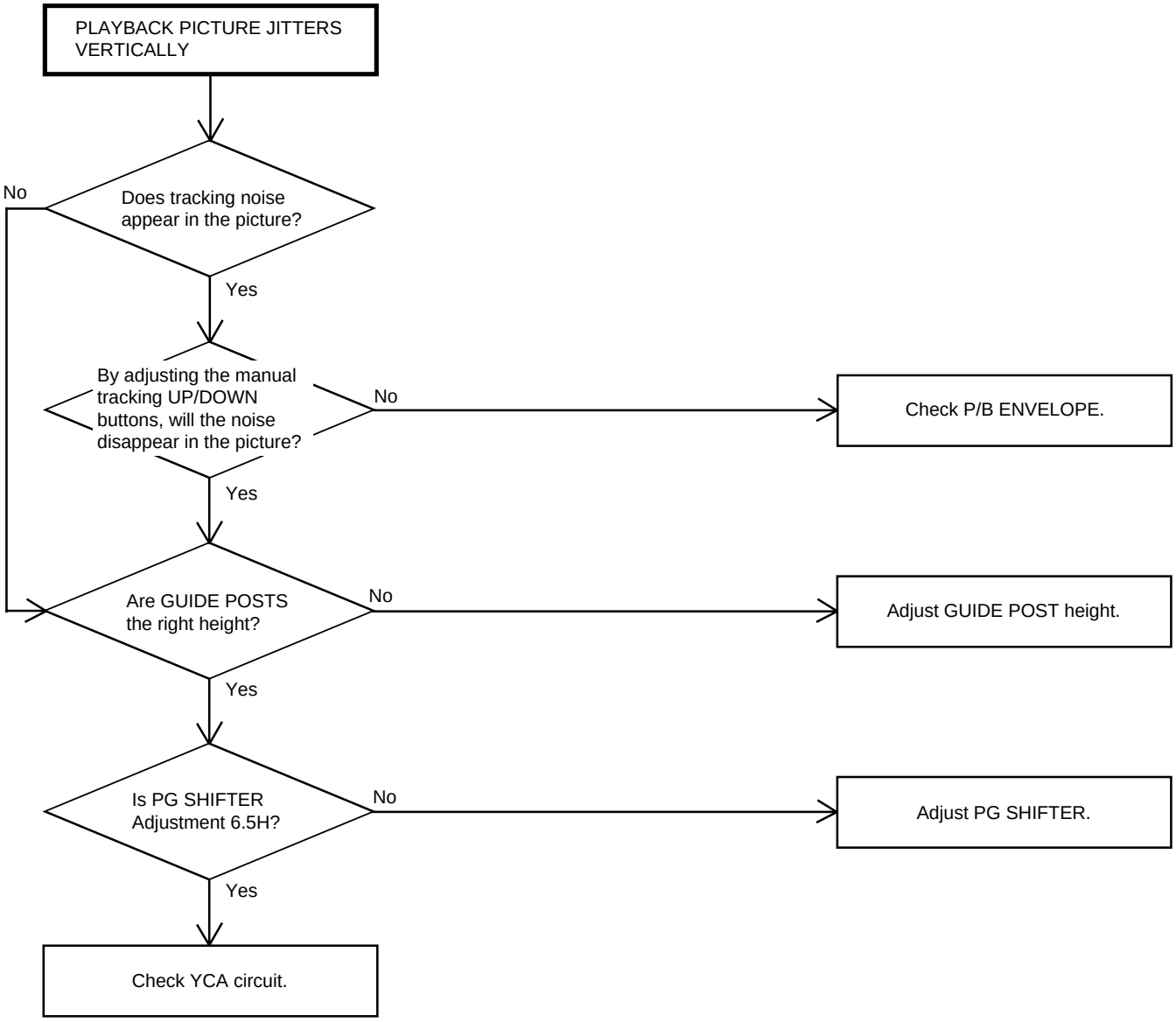

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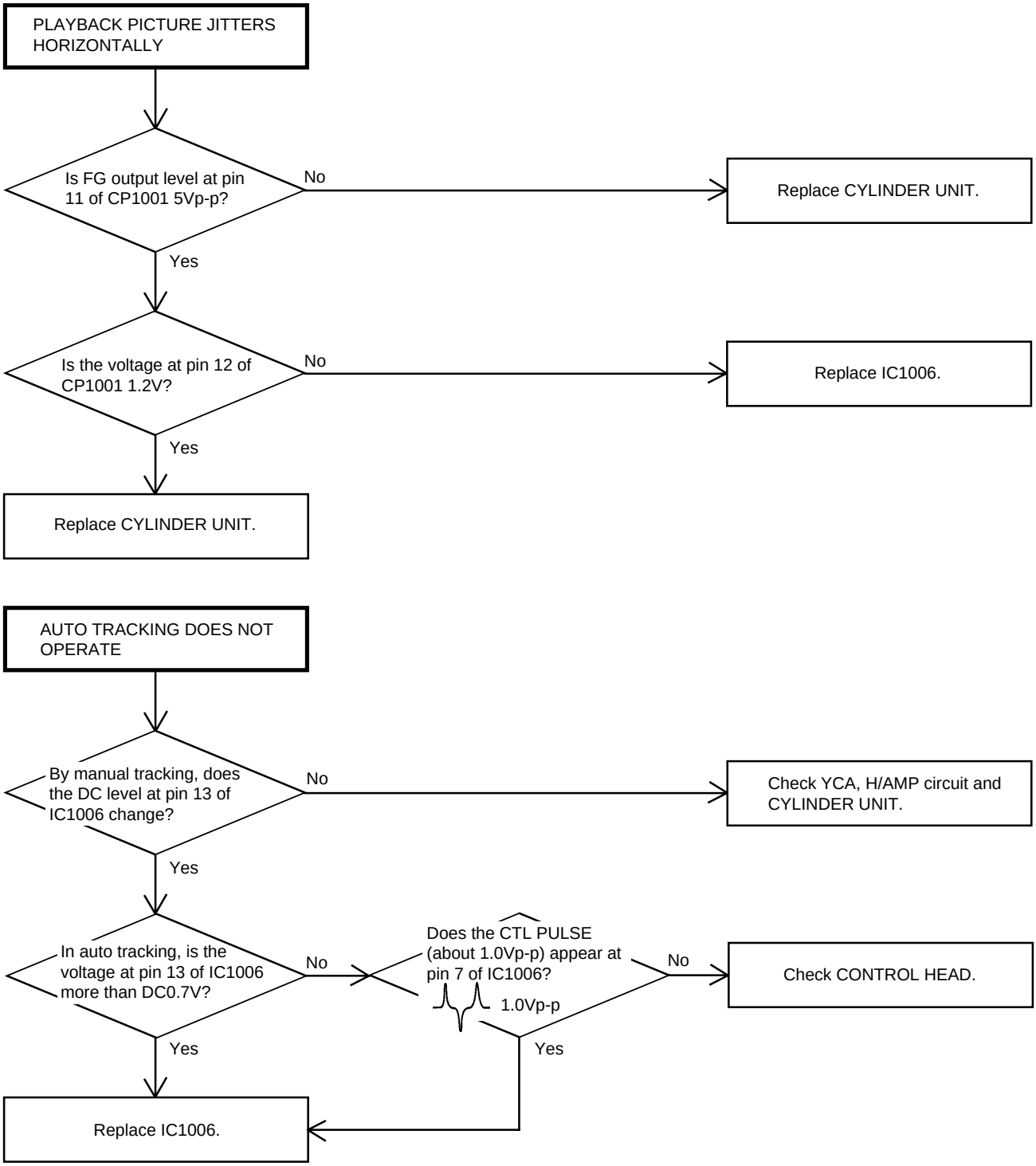

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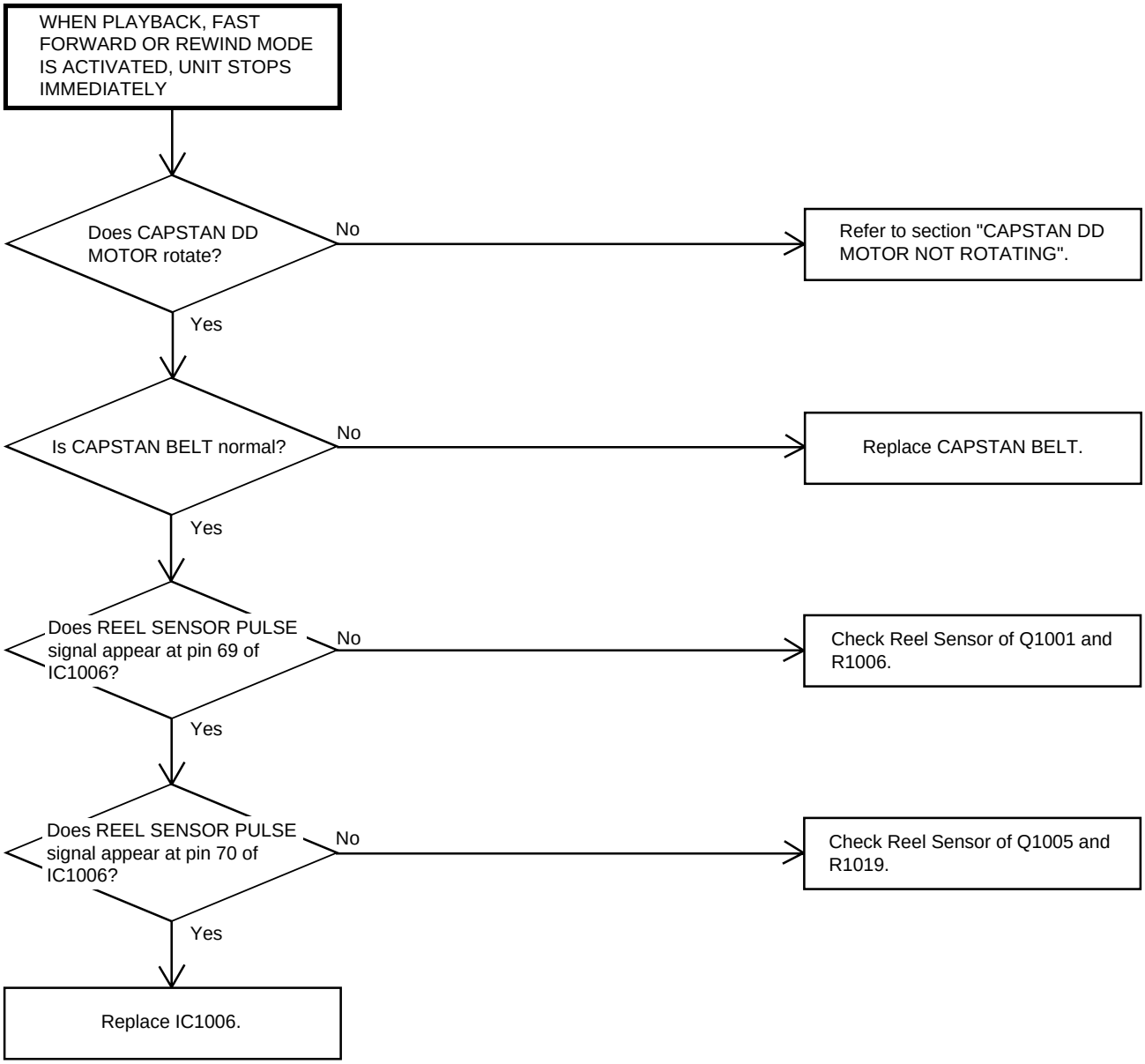

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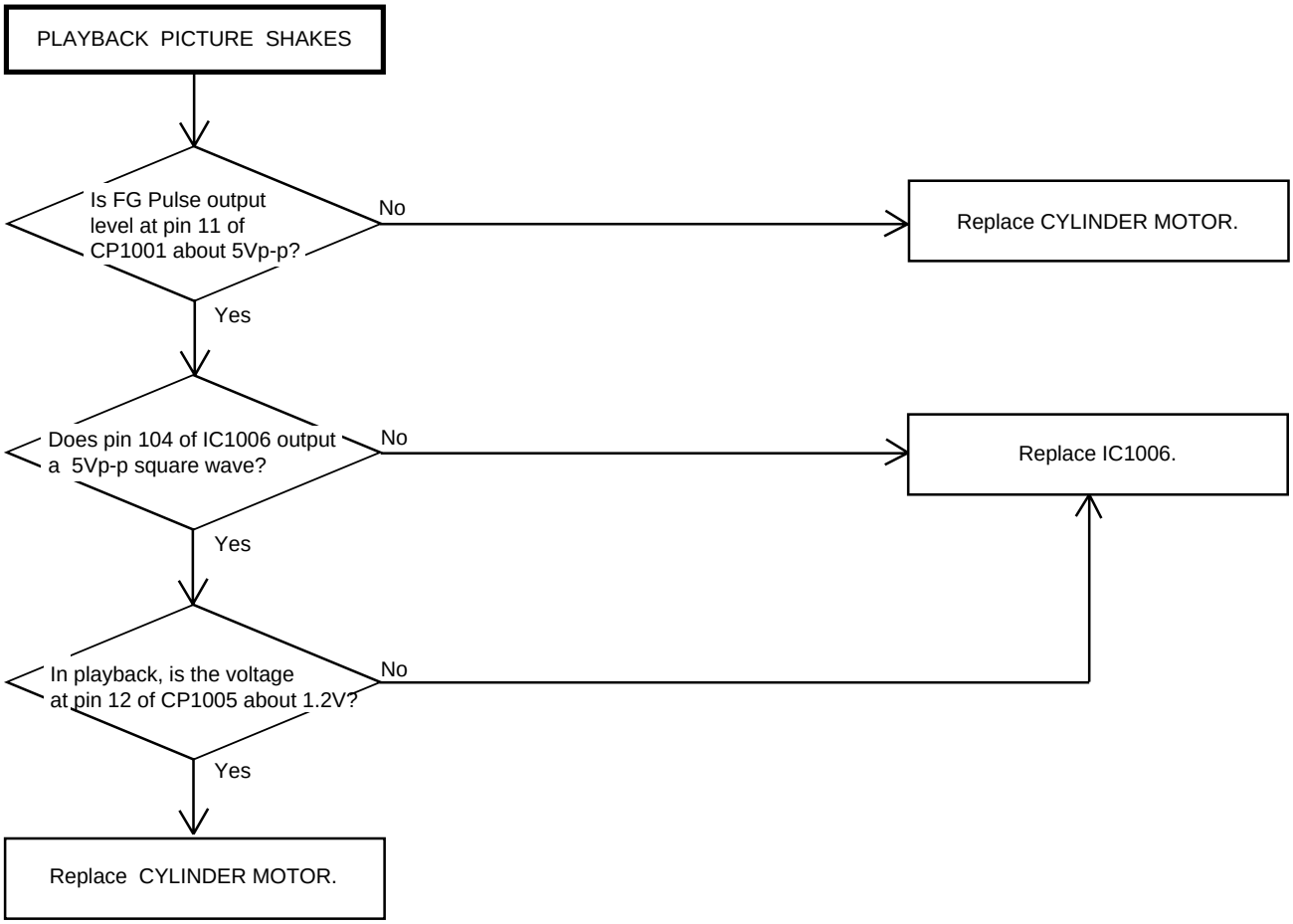


IC DESCRIPTIONS

OEC0113B (IC1006)

No.	PORT	PIN NAME	I/O	DESCRIPTION
1	SVSS	SVSS	-	Ground.
2	CTLREF	CTLREF	OUT	Output terminal for AMP REFERENCE.
3	CTL(+)	CTL(+)	I/O	Input and output terminal of Control Head.
4	CTL(-)	CTL(-)	I/O	Input terminal of Control Head.
5	CTLBIAS	CTLBIAS	IN	Input terminal for Control Bias.
6	CTLFB	CTLFB	IN	Input terminal for Control Feedback.
7	CTLAMP(O)	CTLAMP(O)	OUT	Output terminal for Control Amp Output.
8	CTLSMT(I)	CTLSMT(I)	IN	Input terminal for Control SMT Input.
9	CFG	CFG	IN	Input terminal for Capstan FG Input.
10	SVCC	SVCC	-	P.CON +5 V.
11	AFCPC	AFCPC	I/O	Condenser connection for AFC PC.
12	AFCOSC	AFCOSC	I/O	Condenser connection for AFC OSC.
13	AFCLPF	AFCLPF	I/O	Condenser connection for AFC LPF.
14	CSYNC/HSYNC	HSYNC	IN	Input terminal for video H.SYNC signal.
15	VLPF/VSYNC	VSYNC	IN	Input terminal for video V.SYNC signal.
16	CVIN2	CVIN2	IN	Not used.
17	CVIN1	CVIN1	IN	Not used.
18	OSDVCC	OSDVCC	-	Power source of OSD (AT +5 V).
19	CVOUT	CVOUT	OUT	Not used.
20	OSDVSS	OSDVSS	-	Ground of OSD.
21	4/2FSCOUT	4/2FSCOUT	OUT	Not used.
22	4/2FSCIN	4/2FSCIN	IN	2 FSC pulse.
23	AVSS	AVSS	-	Ground of A/D conversion.
24	ANB	VIDEO_ENV	IN	Input terminal of Video RF envelope.
25	ANA	BOT	IN	Tape start sensor input signal.
26	AN9	EOT	IN	Tape end sensor input signal.
27	AN8	MSSEN_B	IN	Input terminal of mecha state sensor.
28	P07/AN7	MSSEN_A	IN	Input terminal of mecha state sensor.
29	P06/AN6	KEY_B	IN	Main unit key B input.
30	P05/AN5	KEY_A	IN	Main unit key A input.
31	P04/AN4	HI-FI_ENV	IN	Input terminal of Hi-Fi envelope.
32	P03/AN3	MESECAM	IN	Input terminal of MESECAM or NOT.
33	P02/AN2	AFT.S.CURVE	IN	AFT S Curve input for tuner.
34	P01/AN1	REC_AFT.S.CURVE	IN	Input AFT-S_CURVE for REC TUNER.
35	P00/AN0	TUNER AGC	IN	Input terminal of Electric field strength for Auto setup.
36	AVCC	AVCC	-	Power source of A/D conversion (AT +5 V).
37	P10/IRQ0	POWER_FAIL	IN	input terminal for power fail.
38	P11/IRQ1	SYNC IN	IN	input terminal for SD distinction.
39	P12/IRQ2	SERVICE	IN	Input terminal for Service Mode.
40	P13/IRQ3	EXT IN_L	IN	Input terminal for Compulsion outside input.
41	P14/IRQ4	IIC_OFF	IN	Serial clock/data stop input.
42	P15/IRQ5	CFG_IN2	IN	Input terminal for CFG.
43	P16/IC	REMOCON IN	IN	Receive the remote control signal input.

IC DESCRIPTIONS

OEC0113B

No.	PORT	PIN NAME	I/O	DESCRIPTION
44	P17/TMOW	TUNER CTL	OUT	Output terminal for TUNER control at 2 tuner.
45	P67/RP7/TMB	T-REC_LED	OUT	Output terminal control for T-REC-LED voltage drive.
46	P66/RP6/ADTRG	REC/OTR_LED	OUT	Output terminal control for REC-LED voltage drive.
47	P65/RP5	ON_TIMER_LED	OUT	Output terminal control for ON TIMER-LED voltage drive.
48	P64/RP4	STAND_BY_LED	OUT	Output terminal control for STAND BY-LED.
49	P63/RP3	OTPB_LED	OUT	Output terminal control for one toucth PB LED.
50	P62/RP2	TV_POWER_ON-H	OUT	For control of the user TV-power switch ON/OFF.
51	P61/RP1	VCR_POWER_ON-H	OUT	For control of the user VCR-power switch ON/OFF.
52	P60/RP0	NICAM RESET	OUT	Output terminal for NICAM IC RESET.
53	P37/TM0	TAB_SW	IN	Input terminal for judge the tape if it has TAB or not.
54	P36/BUZZ	PAL-H	OUT	Output terminal of 50/60 Hz(PAL/NTSC) destinction.
55	P35/PWM3	CENT LED	OUT	Output terminal for center LED control.
56	VCC	VCC	-	AT +5V.
57	VSS	VSS	-	Ground.
58	P27/SYNC1	DEGAUSS	OUT	Output terminal for DEGAUSS.
59	P26/SCL0	IIC_CLK	OUT	Output Clock terminal for IICBUS communication.
60	P25/SDA0	IIC_DATA	I/O	Output Data terminal for IICBUS communication.
61	P24/SCL1	TEXT RESET	OUT	Output terminal of reset for TEXT_IC.
62	P23/SDA1	AV2	OUT	Output terminal external SW .
63	P22/SCK1	DEC TU_SW	OUT	Output terminal control for 21pin output SW.
64	P21/SO1	SECAM-L	OUT	Control Video SECAM IC and REC tuner IF at SECAM.
65	P20/SI1	SECAM_REC-L	OUT	Control Video SECAM IC at SECAM REC.
66	P47/RPTRG	PROTECT	OUT	Output terminal for protect from ihigh-voltage remaining.
67	P46/FTOB	LDM_CTL	OUT	Control terminal of the Loading Motor.
68	P45/FTOA	SP-H	OUT	Output High when SP on EE screen. The other is Low.
69	P44/FTID	REEL-S	IN	Input terminal of reel sensor SUPPLY.
70	P43/FTIC	REEL-T	IN	Input terminal of reel sensor TAKE UP.
71	P42/FTIB	CAP_FWD-L	OUT	Capstan forward and backward command.
72	P41/FTIA	CAP_FULL	OUT	A direct control terminal with the microcomputer of capstan motor control voltage.
73	P40/PWM14	VV-H	OUT	Output"H" at the "VV".
74	FWE	FWE	IN	Input terminal of FZTAT signal(L: low signal input).
75	X2	X2	OUT	Subclock pulse (32.768KHz).
76	X1	X1	IN	Subclock pulse (32.768KHz).
77	/RES	/RES	IN	Input terminal of RESET.
78	OSC1	OSC1	IN	Connect the main crystal (10MHz).
79	VSS	VSS	-	Ground.
80	OSC2	OSC2	OUT	Connect the main crystal (10MHz).
81	VCL	VCL	IN	Condenser connection for VCC.
82	MDO	MD0	IN	Input terminal of FZTAT signal.
83	P34/PWM2	CAP_LIMIT	OUT	Switch the maximum out put current of the CAPSTAN Motor.
84	P33/PWM1	REC AGC CONT	OUT	PWM output of REC tuner for AGC tuning.
85	P32/PWM0	VOLUME_PWM	OUT	PWM output of VOLUME.
86	P31/SV2	PAL/SECAM	IN	Input terminal of SECAM or NOT.

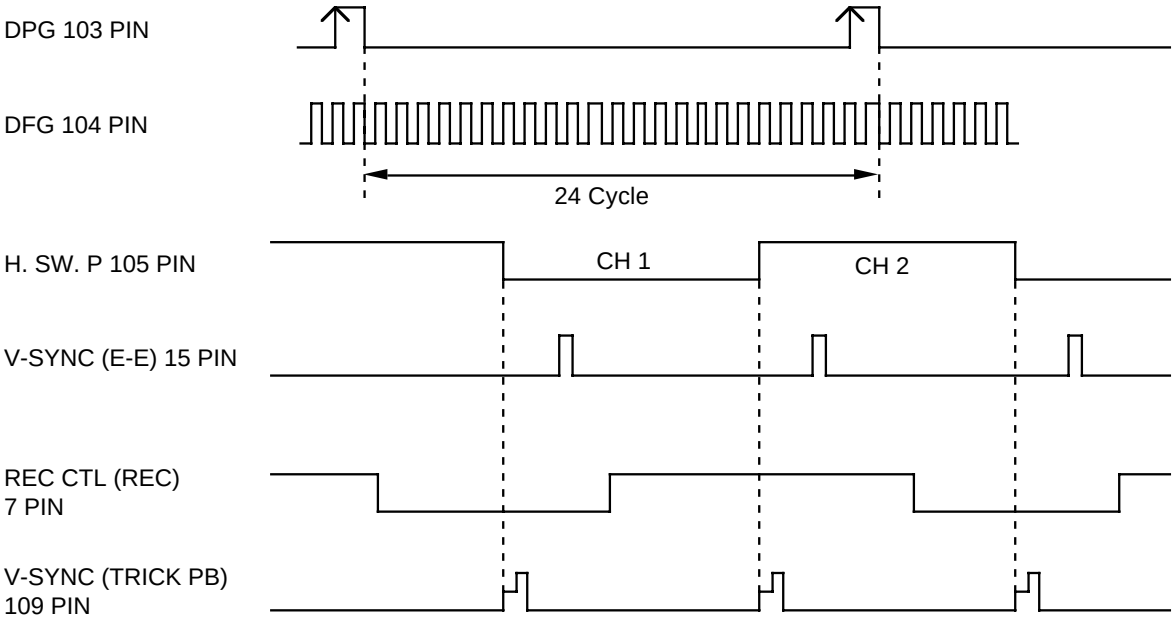
IC DESCRIPTIONS

OEC0113B

No.	PORT	PIN NAME	I/O	DESCRIPTION
87	P30/SV1	AV1	OUT	Output terminal external SW .
88	P70/PPG0	TV_MUTE	OUT	Mute signal of TV mute.
89	P71/PPG1	VCR MUTE	OUT	Mute signal of VCR mute.
90	P72/PPG2	V.REC.START-H	OUT	Output terminal for REC signal when record.
91	P73/PPG3	TUNER MUTE	OUT	Mute signal of audio mute for tuner.
92	P74/PPG4/RP8	REC_SECAM_VL-H	OUT	Output terminal of REC tuner IF.
93	P75/PPG5/RP9	IF MOD	OUT	Output terminal control of REC tuner IF.
94	P76/PPG6/RPA	MONI_SECAM_VL-H	OUT	Output terminal of Monitor tuner IF.
95	P77/RPG7/RPB	FF/REW-L	OUT	Output terminal for FF/REW or NOT.
96	P80/YC0	YCO	OUT	Output signal for OSD Y.
97	P81/EXCAP/YB0	H CONTROL	OUT	Output terminal for Horizontality Control.
98	P82/EXCTL	DA RGB SW	OUT	Output signal to cut of RGB sync.
99	P83/C.ROTARY/R	R	OUT	Output signal for OSD R.
100	P84/H.AMP/SW/G	G	OUT	Output signal for OSD G.
101	P85/COMP/B	B	OUT	Output signal for OSD B.
102	P85/EZTTRG	CYL_SPEED_UP	OUT	Output terminal for correct cylinder during SLOW.
103	P87/DPG	MONI_SD	OUT	SD output terminal of MONITOR TIMER.
104	A.	DFG	IN	Input terminal for DRUM FG/PG signal.
105	VIDEO_FF	VIDEO_H.SW	OUT	Output terminal of signal Video head switching.
106	AUDIO_FF	HI-FI_H.SW	OUT	Output terminal of signal Hi-Fi head switching.
107	DRMPWM	DRUM_PWM	OUT	Output terminal for PWM of Drum Motor.
108	CAPPWM	CAP_PWM	OUT	Output terminal for PWM of Capstan Motor.
109	V_PULSE	DUMMY.V.SYNC	OUT	Output terminal of Video Pulse signal.
110	VSS	VSS	-	Ground.
111	C.SYNC_IN	C.SYNC	IN	Input terminal for composite C SYNC.
112	VCC	VCC	-	AT +5V.

SERVO TIMING CHART

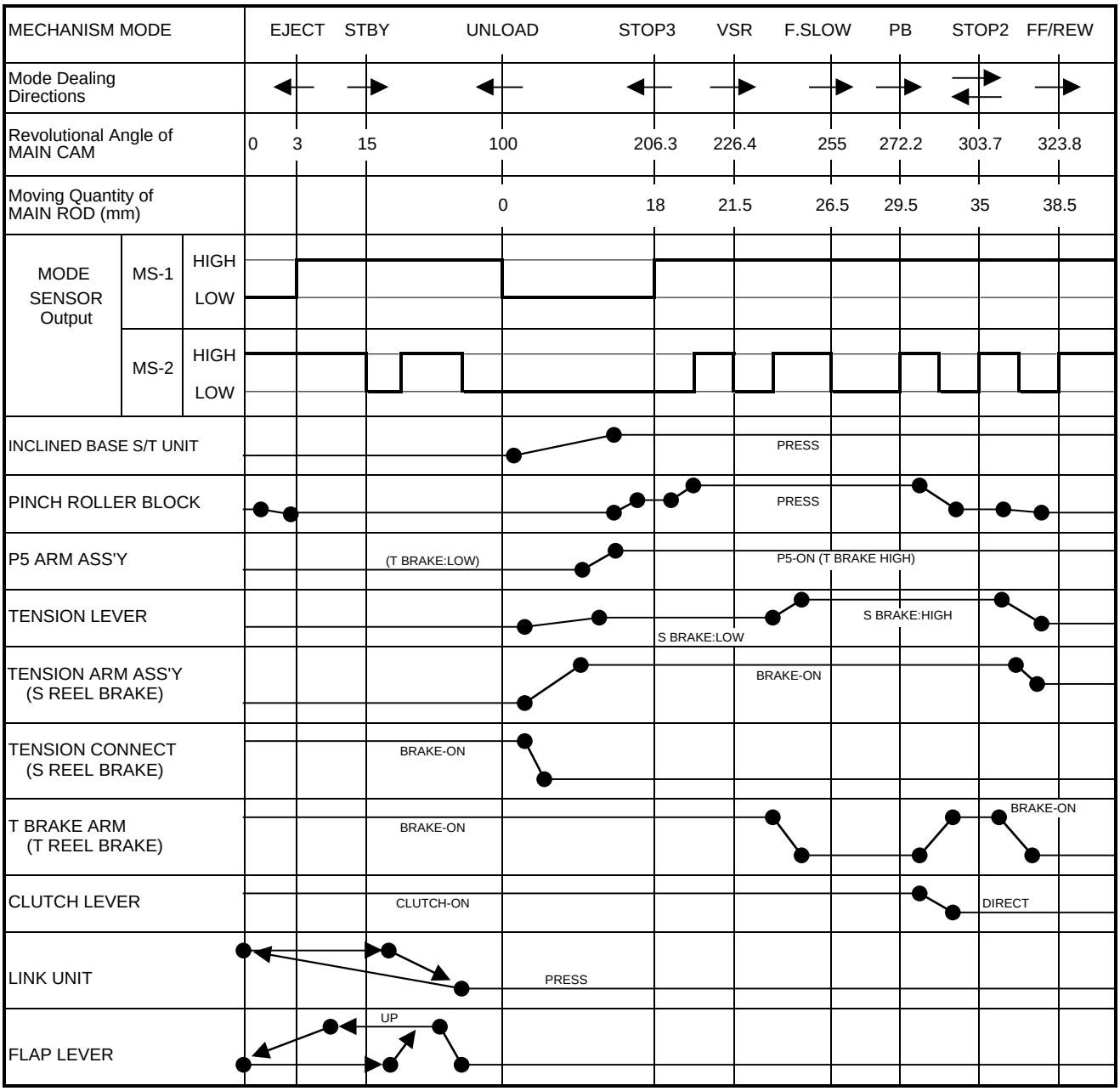
IC1006 (OEC0113B)



• WAVEFORM CHANGES DEPENDED ON THE TAPE SPEED

SYSTEM SWITCH MODE

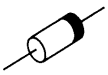
Please see the list below for the operational timing and the mode sensor output of the main parts on each mechanism modes.



SEMICONDUCTOR BASE CONNECTIONS

DIODE

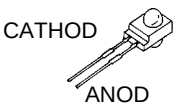
1N4937
1SS133T-77
AK04V0
MTZJ10B T-77
MTZJ15B T-77
MTZJ33B T-77
MTZJ5.6B T-77



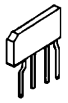
11E1-EIC
11EQS04N-TA1B2
11ES1-EIC

RU2AM-EIC
SB140-EIC
SB290S

SLR-342VCT32



LNA2702L010R



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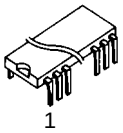
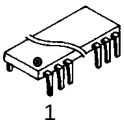
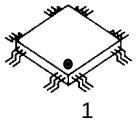
IC



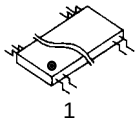
SDA5650/X
STV2246C



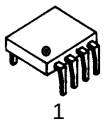
LA7567B



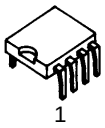
ET-TVT008B
HA118217F
OEC0113B



MM1231XF



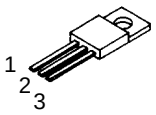
TEA1507P/N1



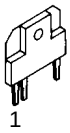
BR24C08F

NJM2534V(TE2)

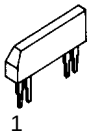
R3111N311A/C-TR



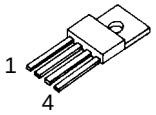
KIA7805API



AN7523

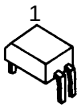


LA7956

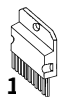


KIA78R05PI
KIA78R09API
PQ09RD08

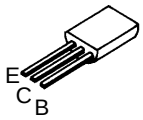
TRANSISTOR



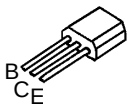
LTV-817M-VB



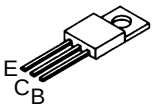
TDA8174A



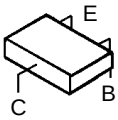
2SA1371(D,E)-AE
2SA608KF-NP-AA
2SC13840W
2SC1627_Y(TPE2)
2SC2909(S,T)-AA
2SC3000-AA



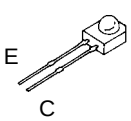
KTC3198-AT(Y,GR)
KTC3203_Y-AT



KTD863_Y-AT

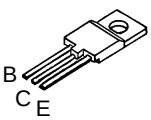


2SA1037AKT146
2SC2412KT146 R,S
DTC114EKAT146
DTC124EKAT146
DTC144EKAT146
KRA102SRTK
KRA103SRTK
KRC102SRTK
KRC103SRTK
KRC104SRTK
KRC111SRTK
KTC3875S_Y_RTK

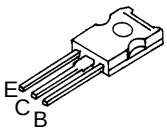


ST-304L

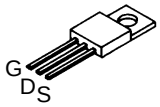
RPI-352C40N



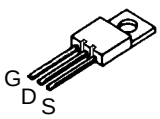
2SD2499(LBOEC1)



KTC4217(O,Y)

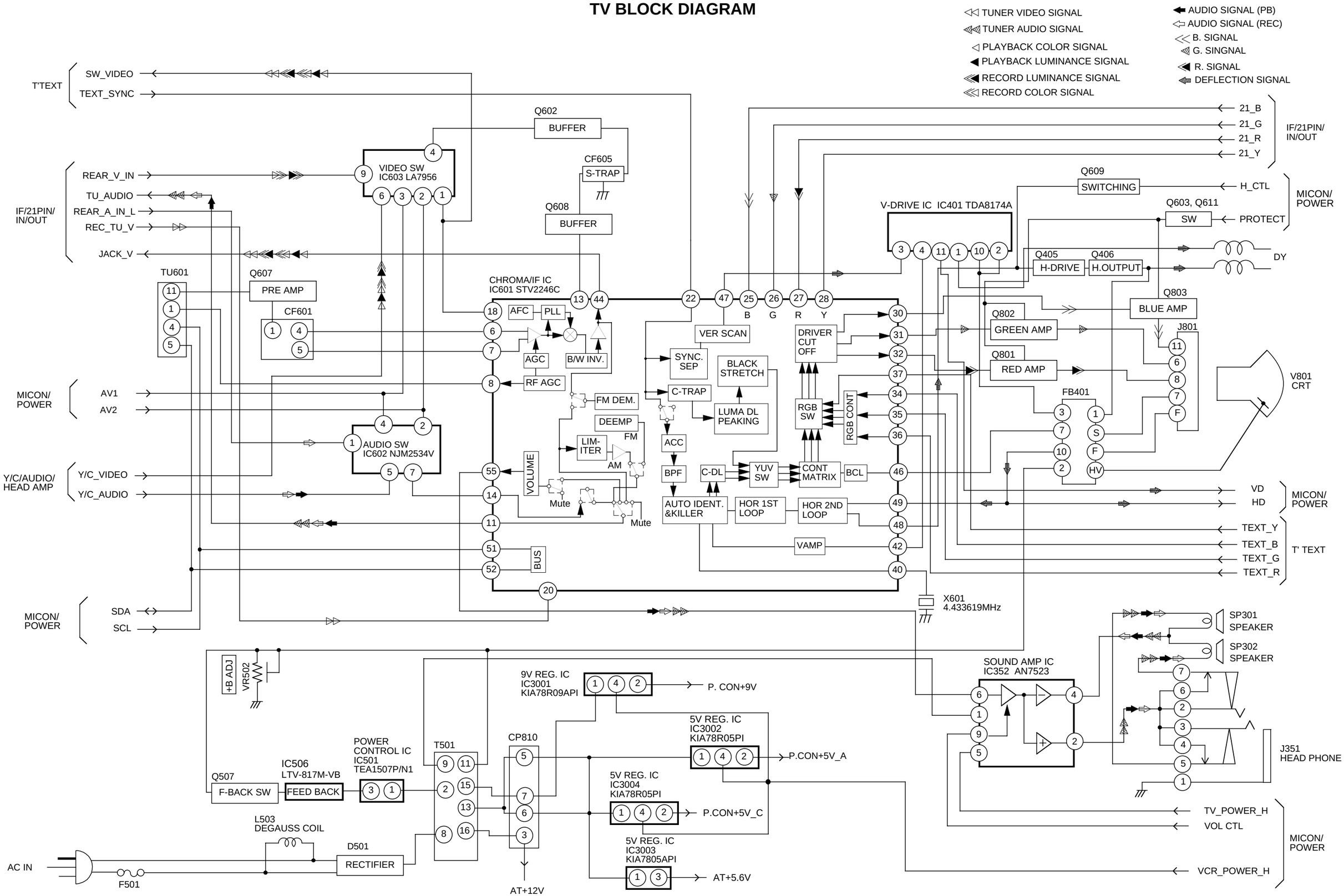


2SK2647-01MR

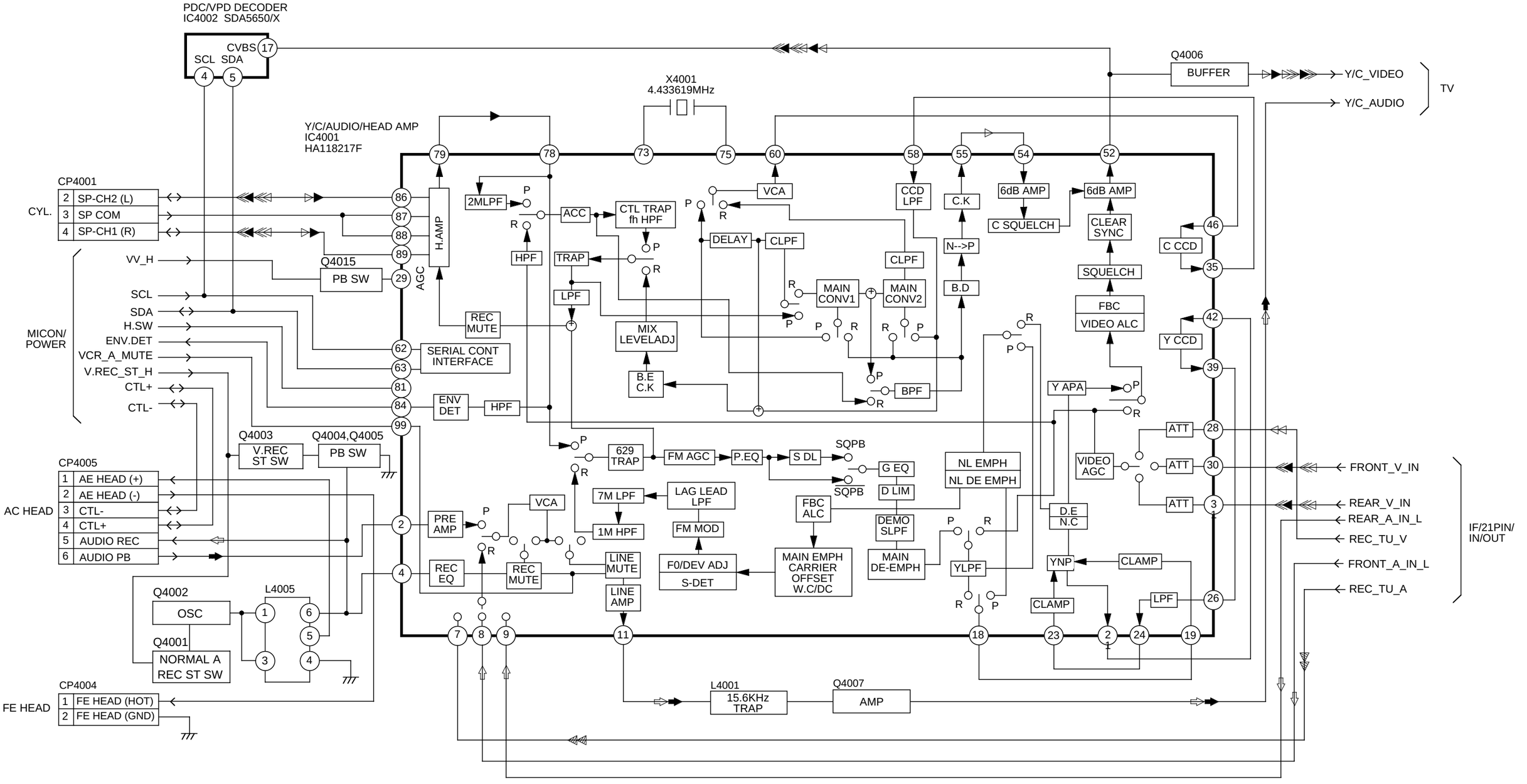


RPI-303

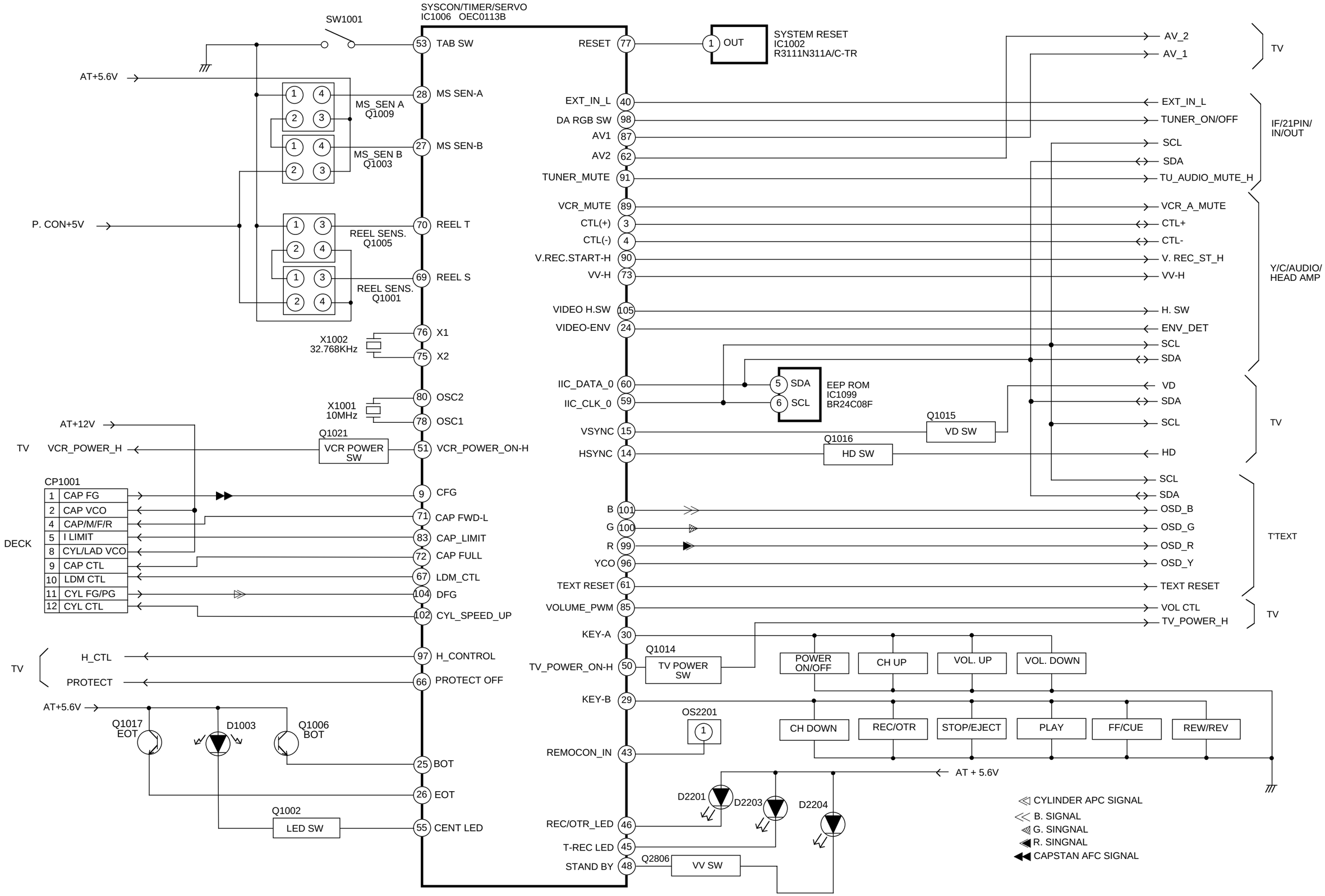
TV BLOCK DIAGRAM



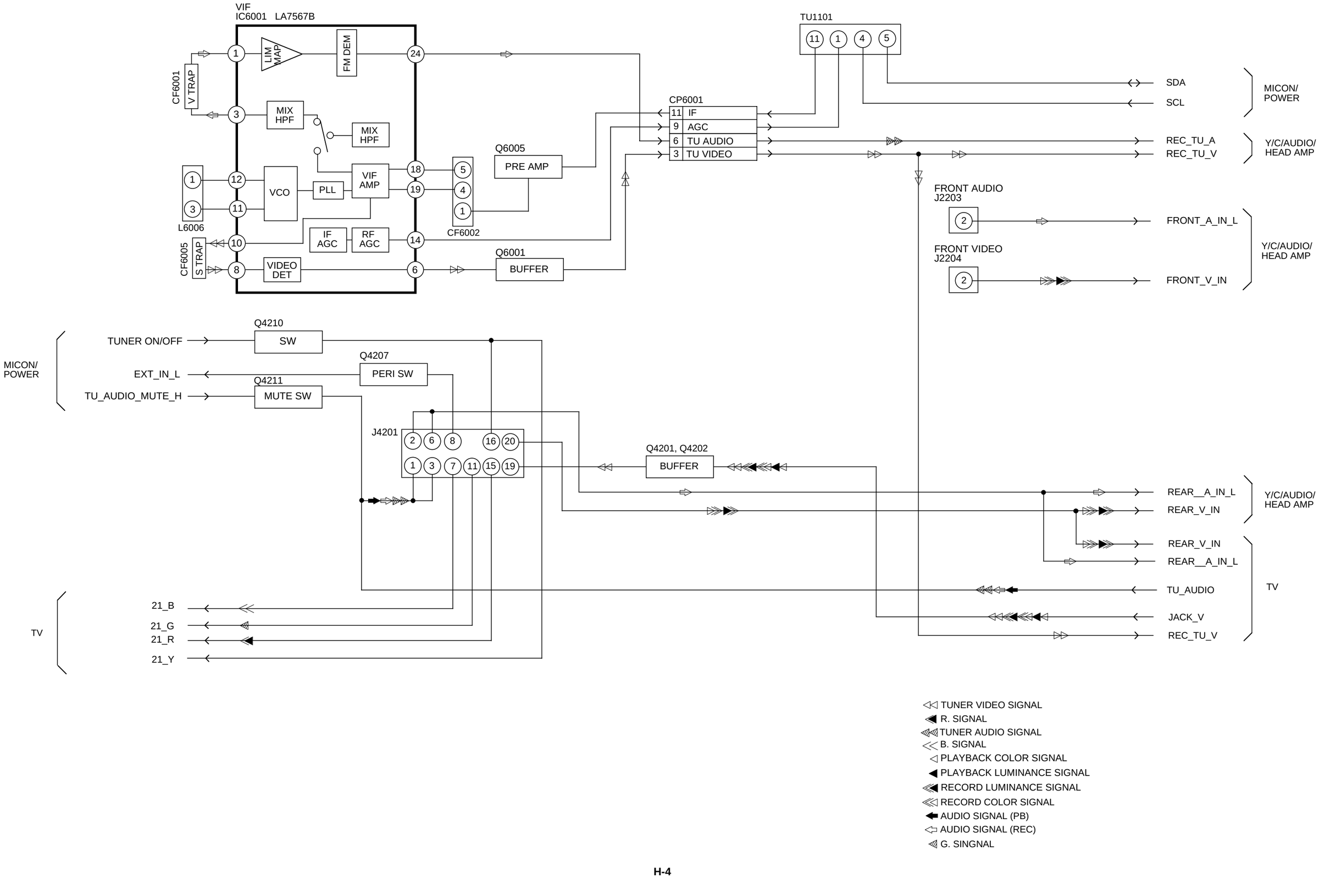
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



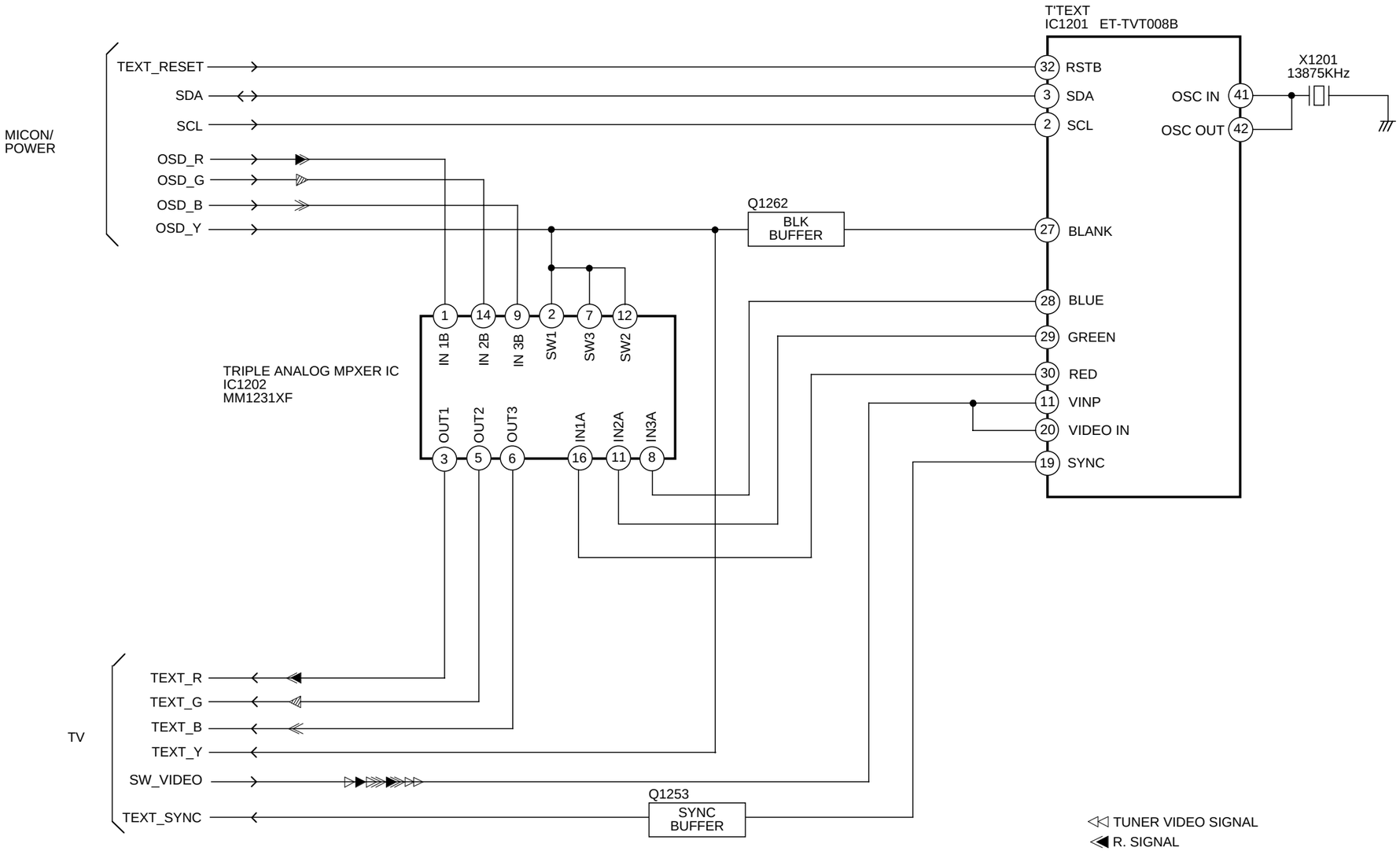
MICON/POWER BLOCK DIAGRAM



IF/21PIN/IN/OUT BLOCK DIAGRAM



T' TEXT BLOCK DIAGRAM



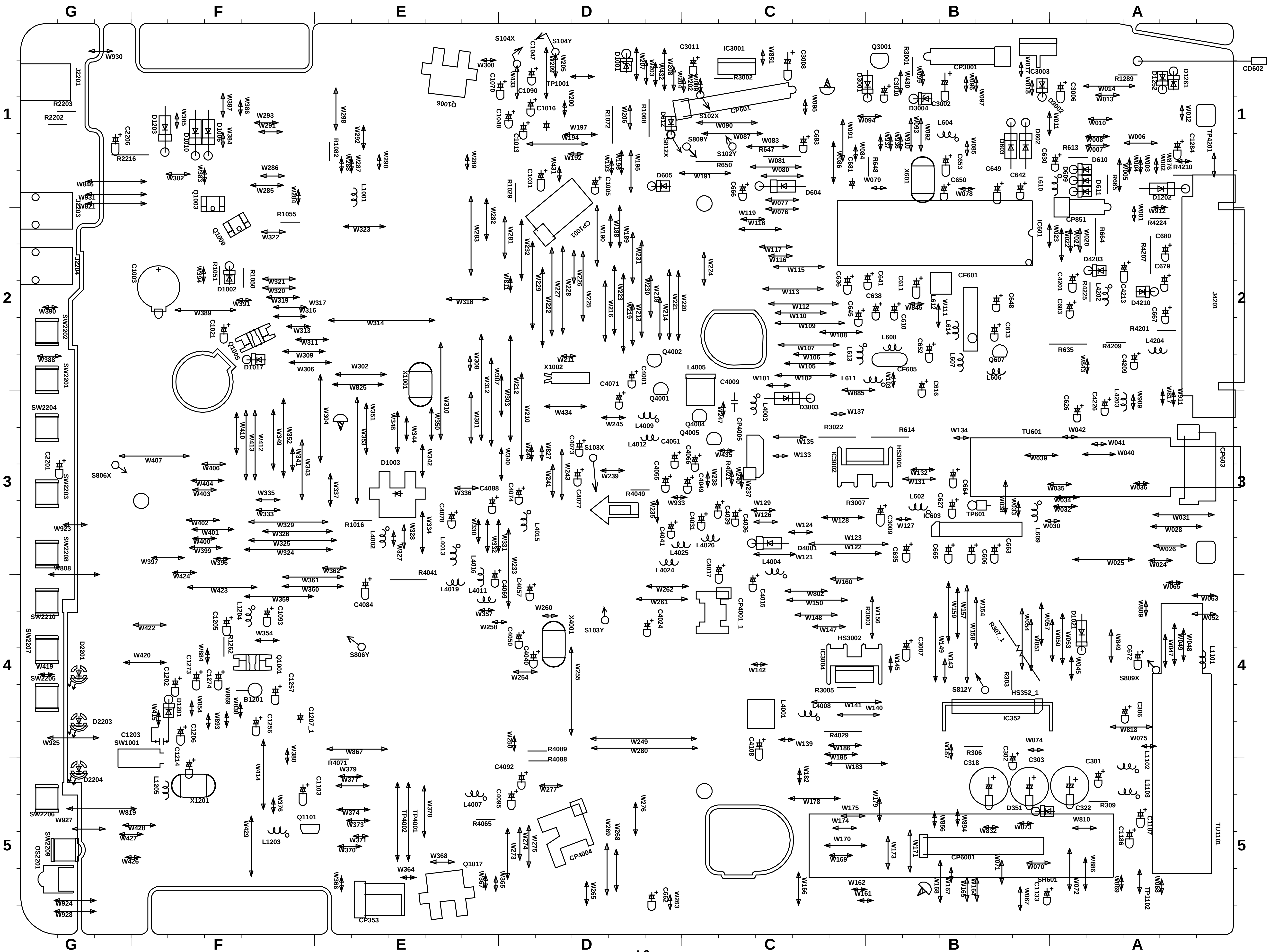
TUNER VIDEO SIGNAL
R. SIGNAL
G. SIGNAL
B. SIGNAL
PLAYBACK COLOR SIGNAL
PLAYBACK LUMINANCE SIGNAL
RECORD LUMINANCE SIGNAL
RECORD COLOR SIGNAL

PRINTED WIRING BOARDS

SYSCON

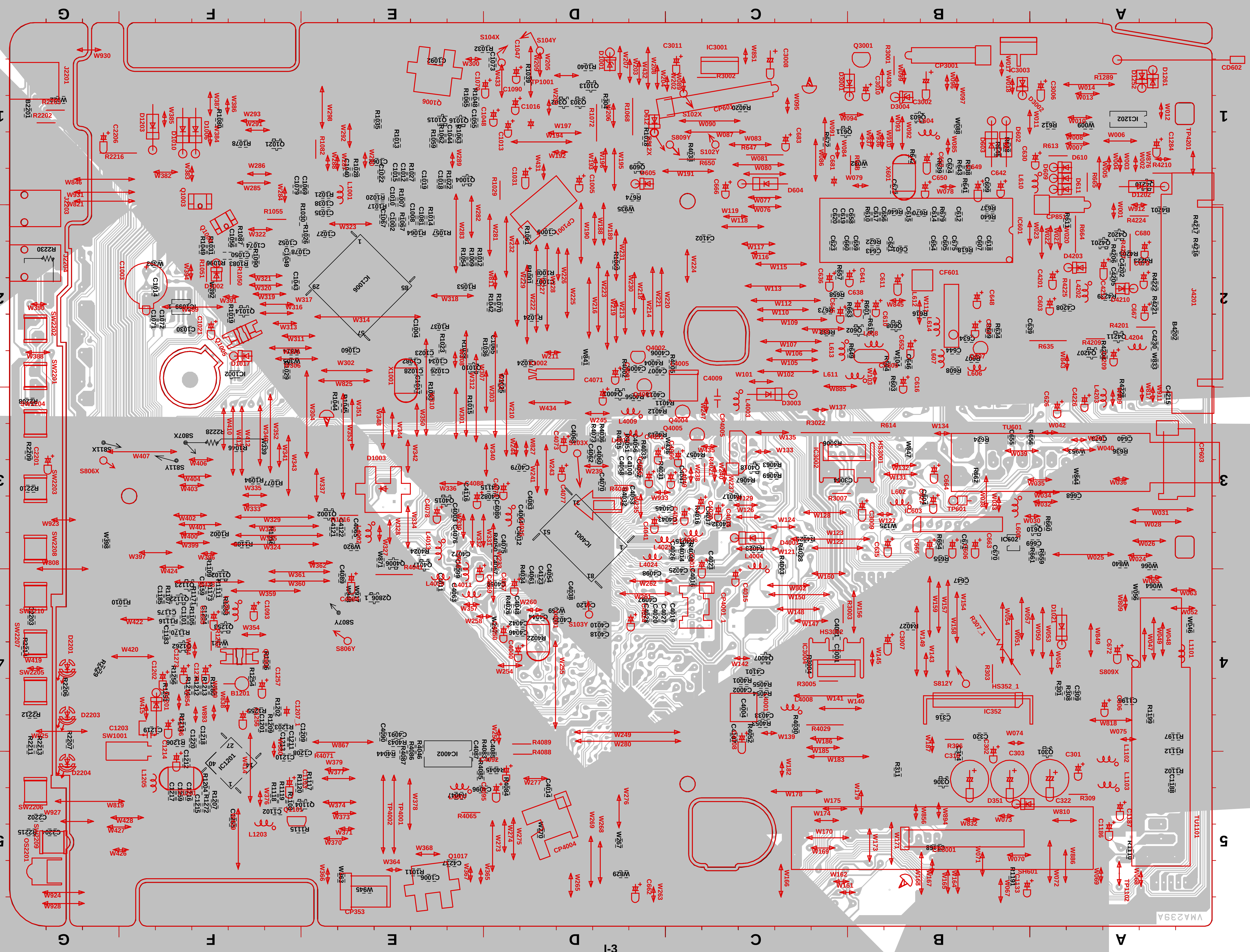
PRINTED WIRING BOARDS

SYSCON

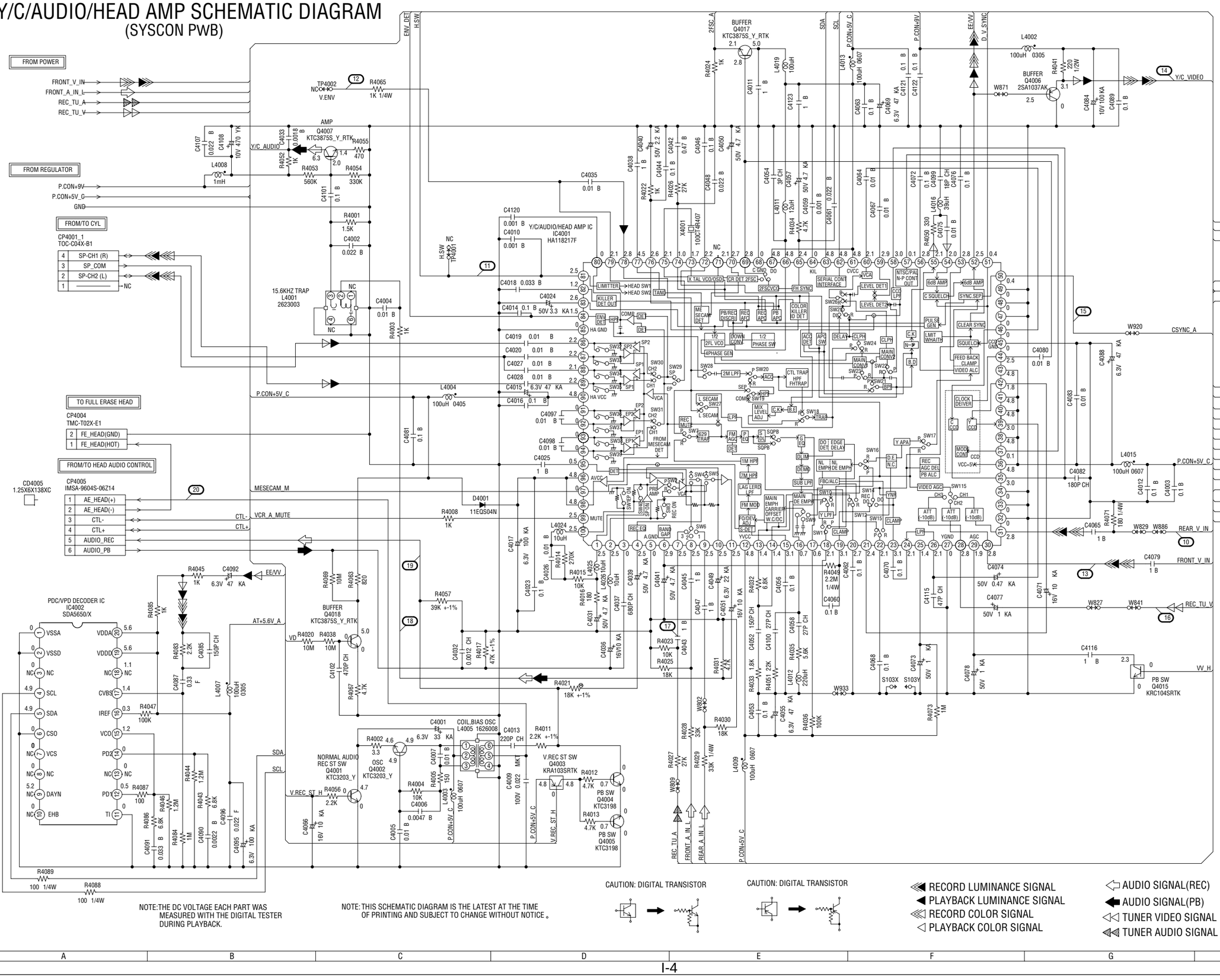


PRINTED WIRING BOARDS

SYSCON



Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM
(SYSCON PWB)



CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

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

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

MICON SCHEMATIC DIAGRAM
(SYSCON PWB)

FROM/TO REGULATOR
AT+5.6V
VCR_POWER_H
AT+12V
P.CON+5V_G
MOTOR_GND
GND

FROM/TO POWER
AT+5.6V_A
T-REC_LED
REC_LED
SCL
SDA
MO_SYNC
REC_AFT
REC_AGC_CTL
REMOCON_IN
KEY_A
KEY_B
STANDBY_H

FROM/TO Y/C/AUDIO/HEAD AMP
CSYNC_A
MESECAM_M
D_V_SYNC
V.REC_ST_H
VV_H
2FSC_A
SCL
SDA
H.SW
ENV_DET
VCR_A_MUTE
CTL+
CTL-

FROM/TO CYL CAPSTAN MOTOR
CP1001 TMC-J12P-B2
1 CAP_FG
2 CAP_VCO
3 VCC
4 CAP/M/F/R
5 I_LIMIT
6 MOTOR_GND
7 GND
8 CYL/LAD_VCO
9 CAP_CTL
10 LDM_CTL
11 CYL_FG/PG
12 CYL_CTL

SYSCON/TIMER/SERVO IC
IC1006
OEC0113B

FROM/TO 21PIN IN/OUT
EXT_IN_L
TU_AUDIO_MUTE_H
TUNER_ON/OFF
AT+5.6V_A

FROM/TO CHROMA/IF
PROTECT
VCR_POWER_H
HD
VD
H_CTL
SDA
SCL
IIC_OFF
AGC_M
TUNER_CTL
POWER_FAIL[DC]
DEGAUSS_H
AV_1
AV_2

FROM/TO T'TEXT
OSD_R
OSD_G
OSD_B
OSD_Y
SCL
SDA
TEXT_RESET

TO SOUND AMP
POWER_FAIL_A
TV_POWER_H
TV_A_MUTE
VOL_CTL
M.P.OFF_H

PWB010
VMA239

R.SIGNAL
G.SIGNAL
B.SIGNAL
CYLINDER APC SIGNAL
CAPSTAN AFC SIGNAL

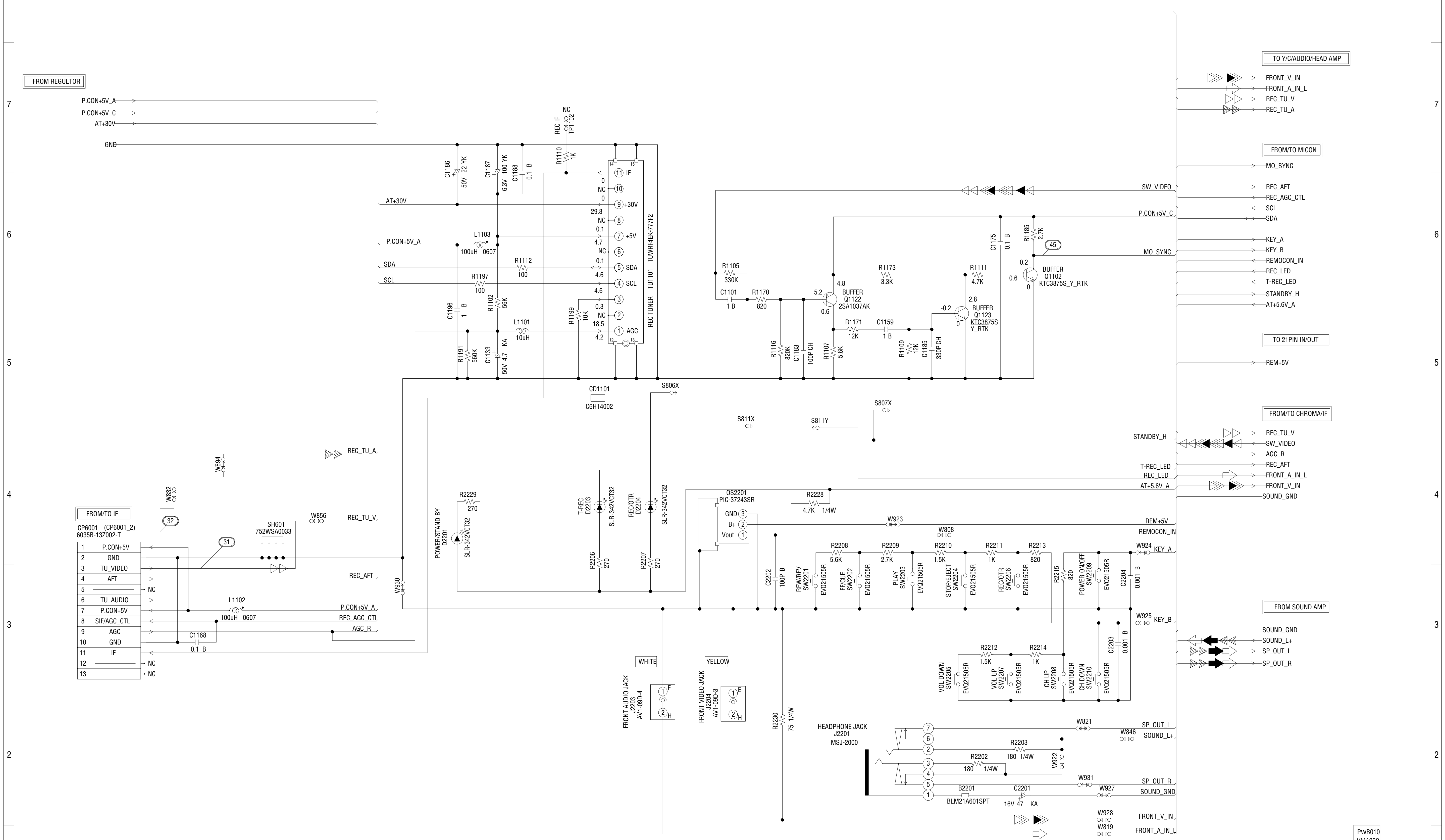
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

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

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

POWER SCHEMATIC DIAGRAM
(SYSCON PWB)



FROM REGULTOR
P.CON+5V_A
P.CON+5V_C
AT+30V
GND
FROM/TO IF
CP6001 (CP6001_2)
6035B-13Z002-T
P.CON+5V
GND
TU_VIDEO
AFT
TU_AUDIO
SIF/AGC_CTL
AGC
IF
NC
SH601
752WSA0033
REC_TU_A
REC_TU_V
REC_AFT
P.CON+5V_A
REC_AGC_CTL
AGC_R
L1102
100uH 0607
C1168
0.1 B
REC TUNER TU1101 TUWR4EK-777F2
CD1101
C6H14002
S806X
S811X
S811Y
S807X
POWER/STAND-BY D2201
T-REC D2203
REC/OTR D2204
SLR-342VCT32
OS2201
PIC-37243SR
BUFFER Q1122 2SA1037AK
BUFFER Q1123 KTC3875S_Y_RTK
BUFFER Q1102 KTC3875S_Y_RTK
REW/REV SW2201
FF/CUE SW2202
PLAY SW2203
STOP/EJECT SW2204
REC/OTR SW2206
POWER ON/OFF SW2209
VOL DOWN SW2205
VOL UP SW2207
CH UP SW2208
CH DOWN SW2210
EVQ21505R
WHITE
YELLOW
FRONT AUDIO JACK J2203 AV1-09D-4
FRONT VIDEO JACK J2204 AV1-09D-3
HEADPHONE JACK J2201 MSJ-2000
TO Y/C/AUDIO/HEAD AMP
FRONT_V_IN
FRONT_A_IN_L
REC_TU_V
REC_TU_A
FROM/TO MICON
MO_SYNC
REC_AFT
REC_AGC_CTL
SCL
SDA
KEY_A
KEY_B
REMOCON_IN
REC_LED
T-REC_LED
STANDBY_H
AT+5.6V_A
TO 21PIN IN/OUT
REM+5V
FROM/TO CHROMA/IF
REC_TU_V
SW_VIDEO
AGC_R
REC_AFT
FRONT_A_IN_L
FRONT_V_IN
SOUND_GND
FROM SOUND AMP
SOUND_GND
SOUND_L+
SP_OUT_L
SP_OUT_R
PWB010
VMA239

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

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

- TUNER VIDEO SIGNAL
- TUNER AUDIO SIGNAL
- AUDIO SIGNAL(REC)
- AUDIO SIGNAL(PB)
- RECORD LUMINANCE SIGNAL
- PLAYBACK LUMINANCE SIGNAL
- RECORD COLOR SIGNAL
- PLAYBACK COLOR SIGNAL

21PIN IN/OUT SCHEMATIC DIAGRAM

(SYSCON PWB)

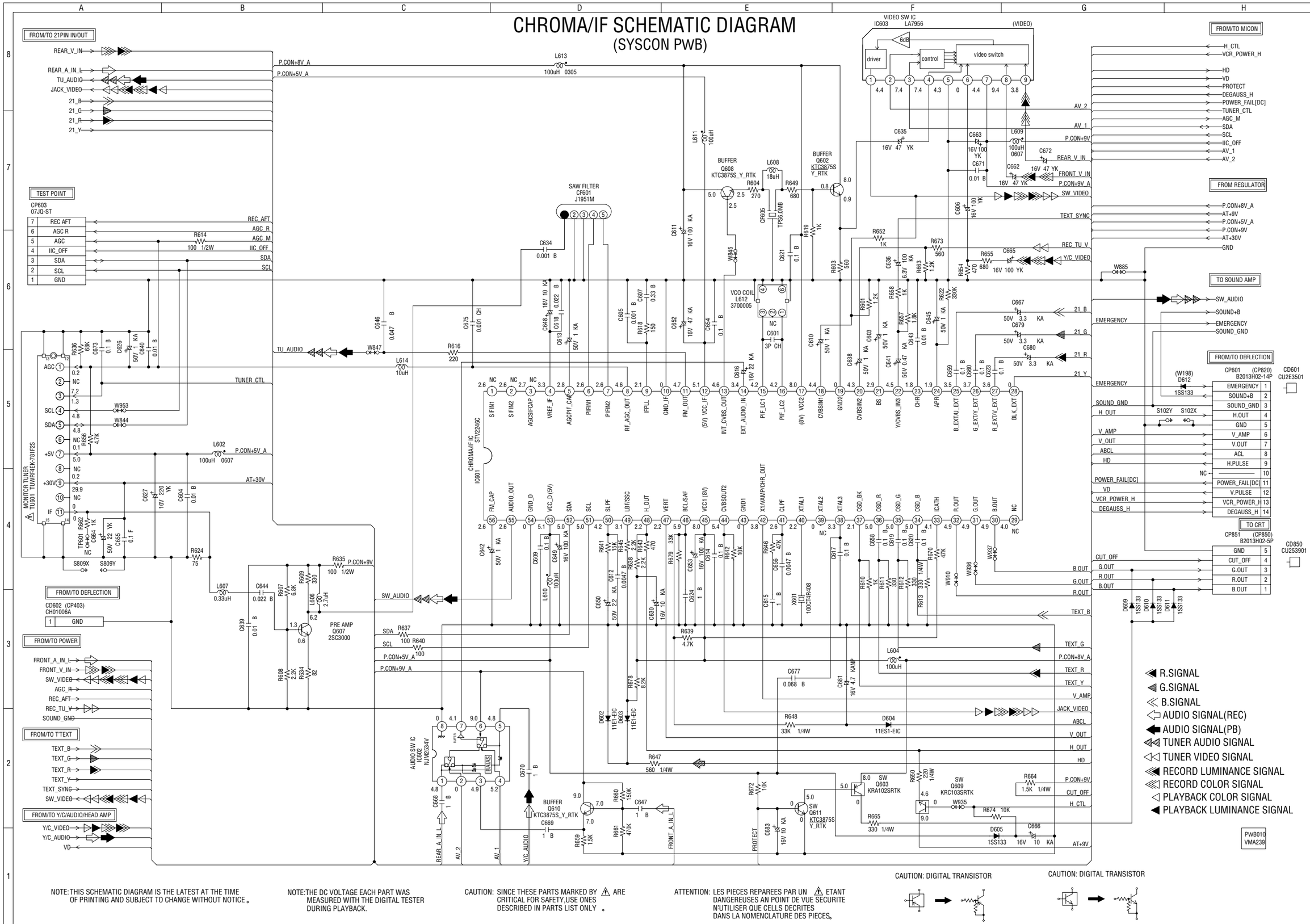
FROM/TO MICON
AT+5.6V_A
TUNER_ON/OFF
EXT_IN_L
TU_AUDIO_MUTE_H
REM+5V
R2216 100 1/4W
C2206 6.3V 220 KA
TP4201 NC VIDEO OUT
21_R
21_G
21_B
C4209 16V 10 KA
R4224 75 1/4W
46
B4201 BLM21A601SPT
21PIN JACK J4201 0350_9982_05
R4223 68
R4222 82
R4221 75
L4204 10uH
52
W833
C4230 470P CH
R4217 150
R4216 75
B4202 BLM21A601SPT
21_Y
C4215 0.001 CH
W817
W912
REAR_V_IN
SW Q4210 KTC3875S_Y_RTK
TUNER_ON/OFF
R4210 4.7K 1/4W
R4201 56K 1/4W
W911
L4203 10uH
W909
REAR_A_IN_L
R4208 12K
R4228 120K
D4210 1SS133
MUTE SW Q4211 KTC3875S_Y_RTK
R4209 680 1/4W
C4226 16V 10 KA
C4237 0.001 CH
FRONT_A_IN_L
FROM REGULATOR
P.CON+9V
GND
FROM POWER
REM+5V
R4239 4.7K
C4201 6.3V 100 YK
R4207 220 1/2W
L4202 100uH
W843
R4206 22K
BUFFER Q4201 KTC3875S_Y_RTK
C4213 16V 330 YK
BUFFER Q4202 2SA1037AK
R4225 100 1/4W
C4202 1 B
R4205 12K
D4203 1SS133
C4205 0.018 B
C4208 0.1 B
PERI SW Q4207 KTC3875S Y_RTK
W940
FROM/TO Y/C/AUDIO/HEAD AMP
FRONT_A_IN_L
REAR_V_IN
REAR_A_IN_L
FROM/TO CHROMA/IF
JACK_VIDEO
REAR_V_IN
TU_AUDIO
REAR_A_IN_L
21_R
21_G
21_B
21_Y
P.CON+9V
JACK_VIDEO
TU_AUDIO
PWB010 VMA239

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

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

AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)
TUNER VIDEO SIGNAL
TUNER AUDIO SIGNAL
RECORD LUMINANCE SIGNAL
RECORD COLOR SIGNAL
PLAYBACK LUMINANCE SIGNAL
PLAYBACK COLOR SIGNAL
R.SIGNAL
G.SIGNAL
B.SIGNAL

CHROMA/IF SCHEMATIC DIAGRAM
(SYSCON PWB)



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

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

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

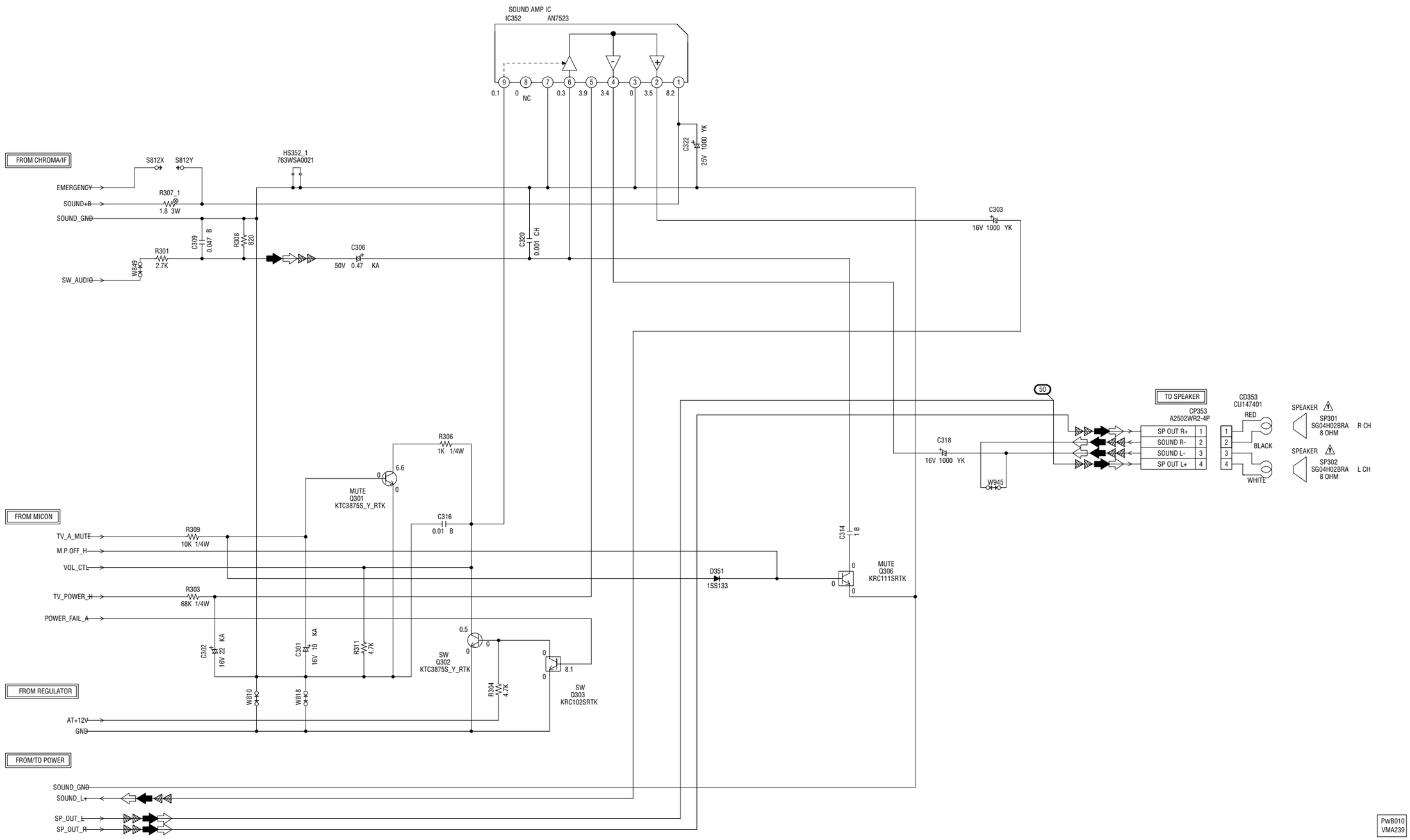
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

SOUND AMP SCHEMATIC DIAGRAM

(SYSCON PWB)



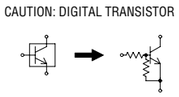
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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 EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

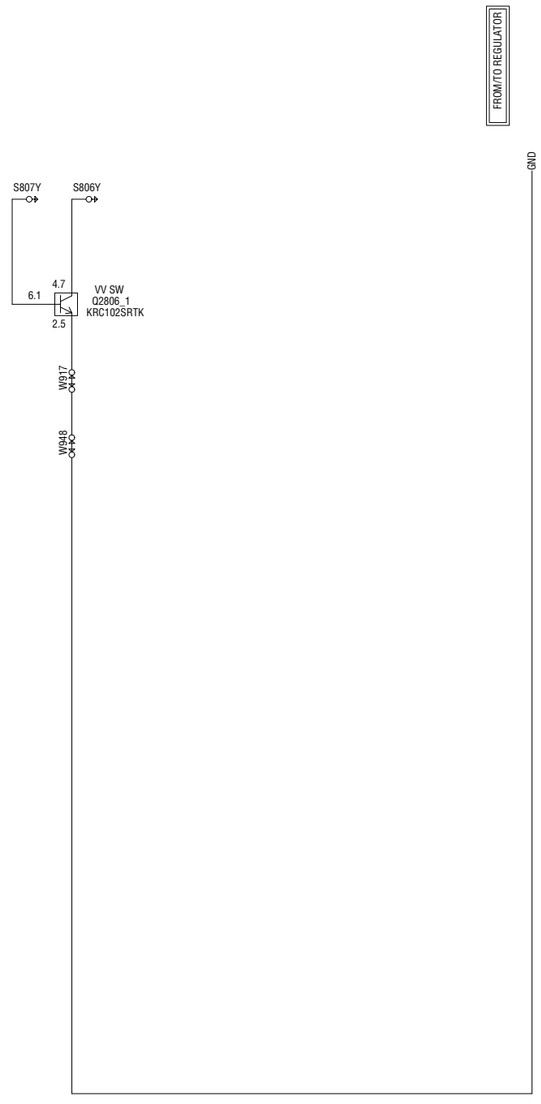
CAUTION: DIGITAL TRANSISTOR



TUNER AUDIO SIGNAL
AUDIO SIGNAL(REC)
AUDIO SIGNAL(PB)

SECAM CHROMA/HI-FI SCHEMATIC DIAGRAM

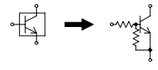
(SYSCON PWB)



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

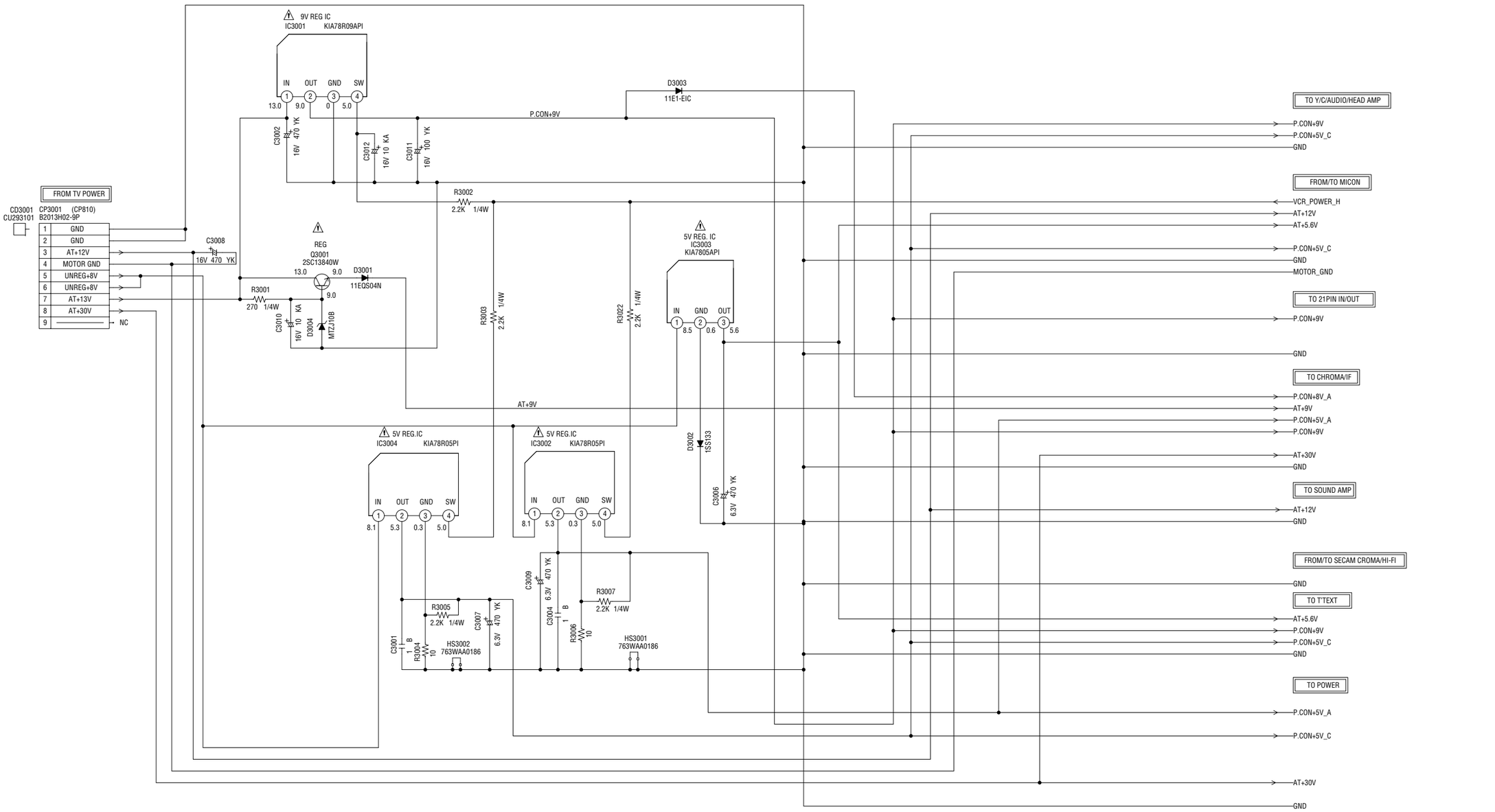
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

CAUTION: DIGITAL TRANSISTOR



PWB010
VMA239

REGULATOR SCHEMATIC DIAGRAM
(SYSCON PWB)



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

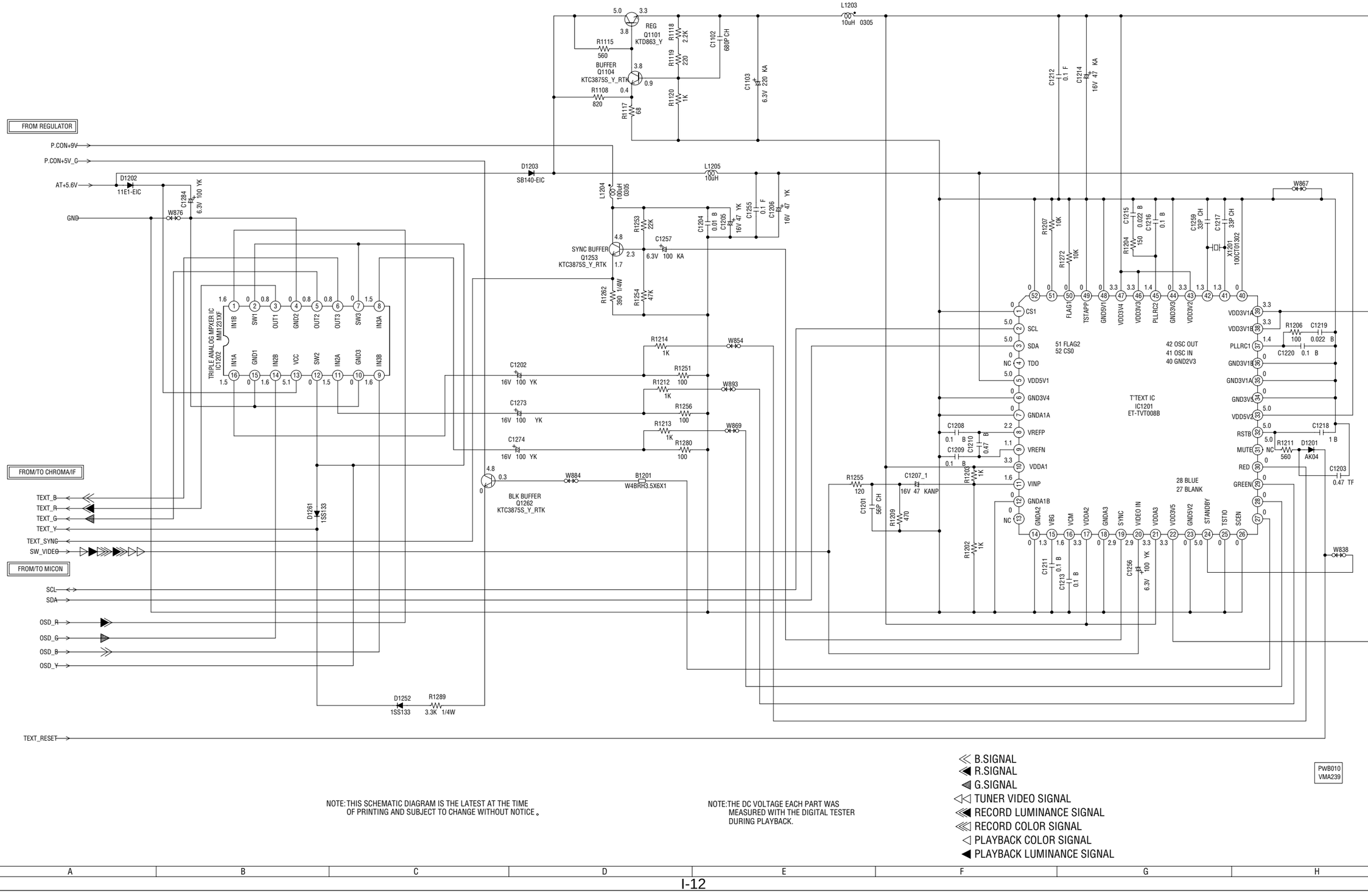
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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

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

T'TEXT SCHEMATIC DIAGRAM

(SYSCON PWB)

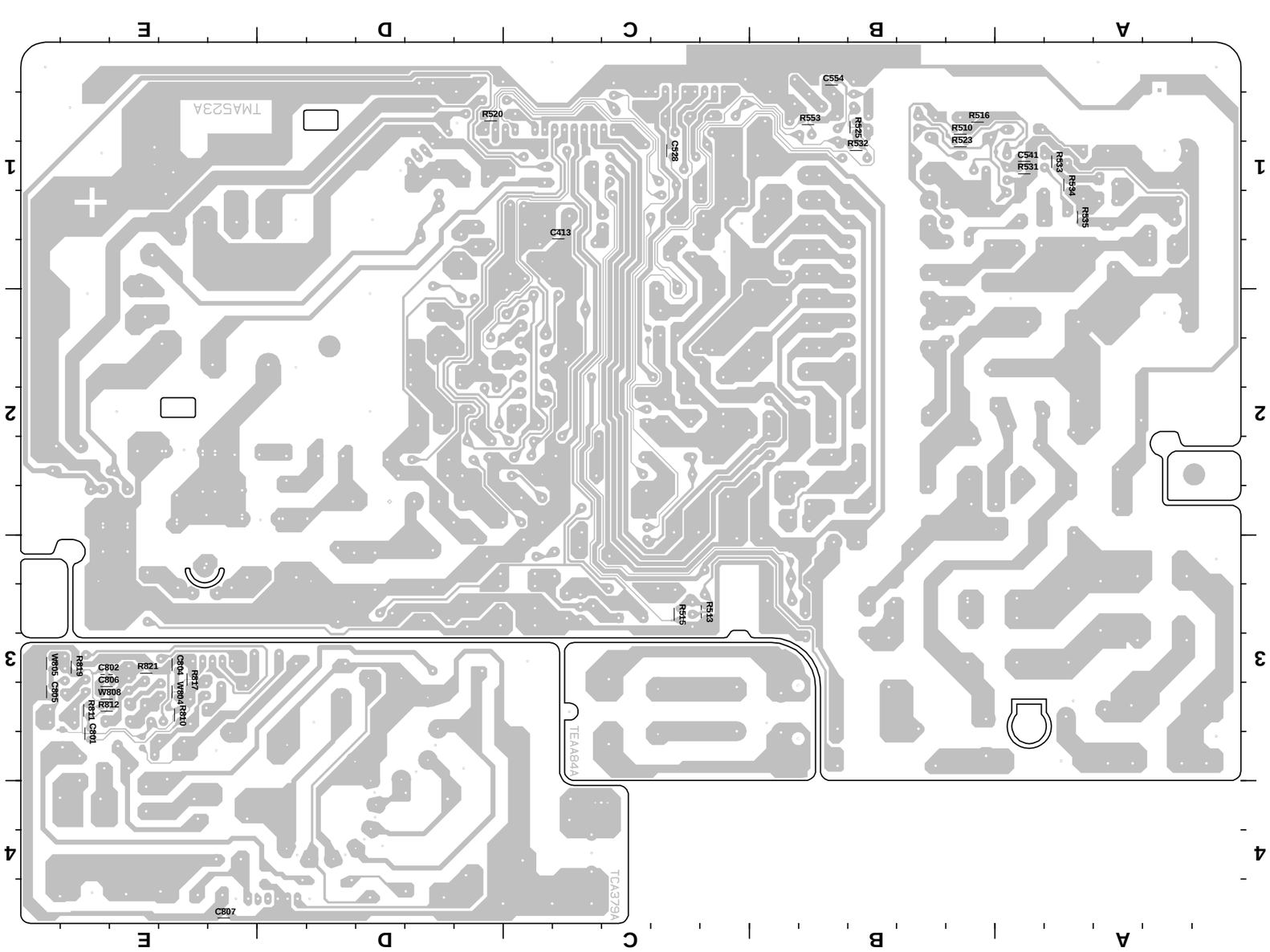


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

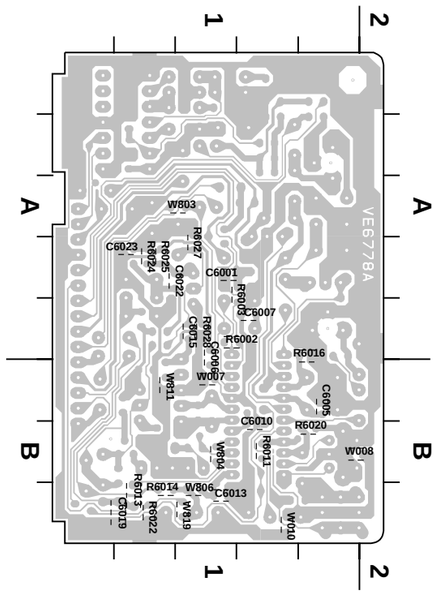
NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

PRINTED WIRING BOARDS

MAIN/CRT

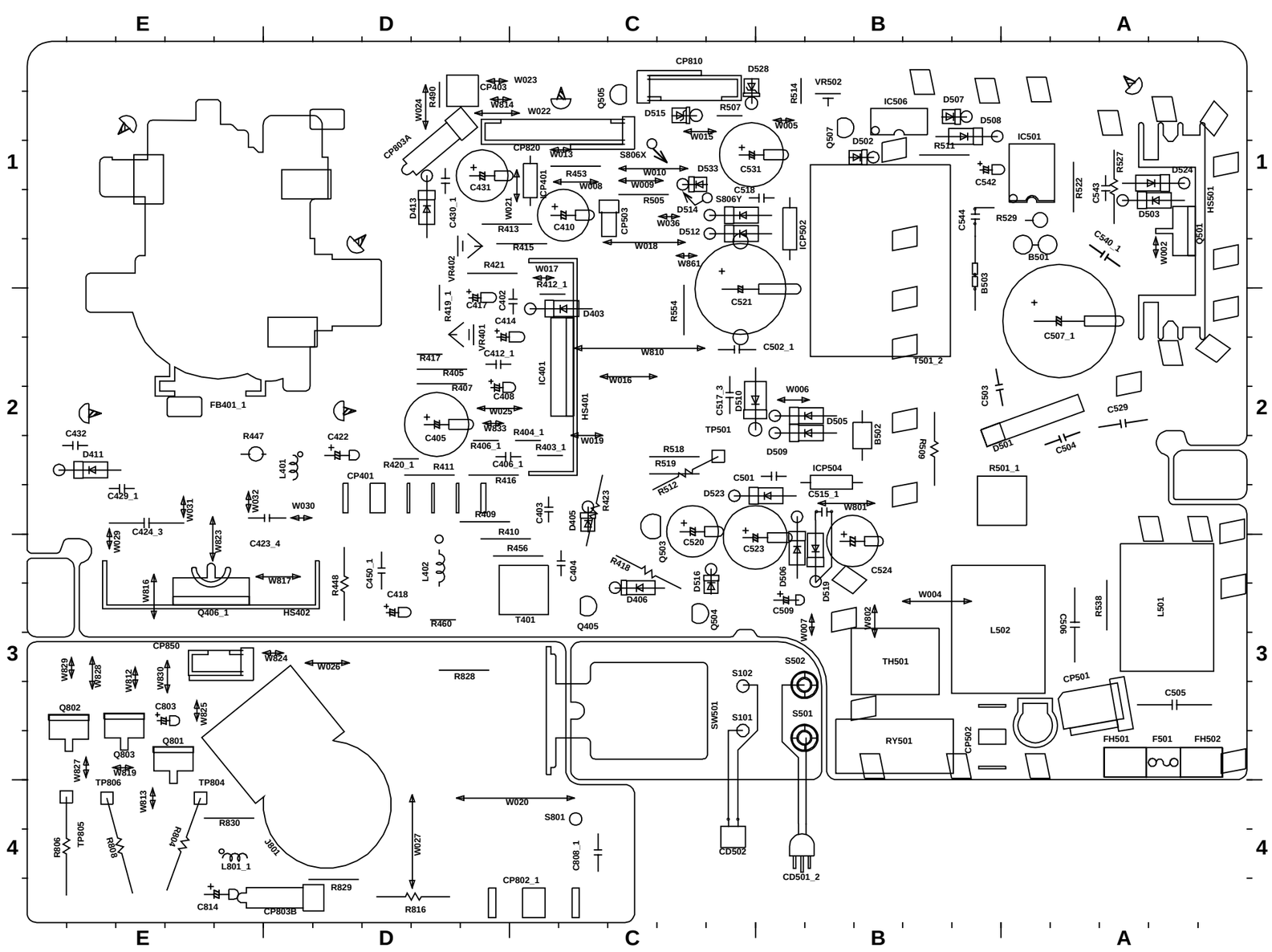


IF

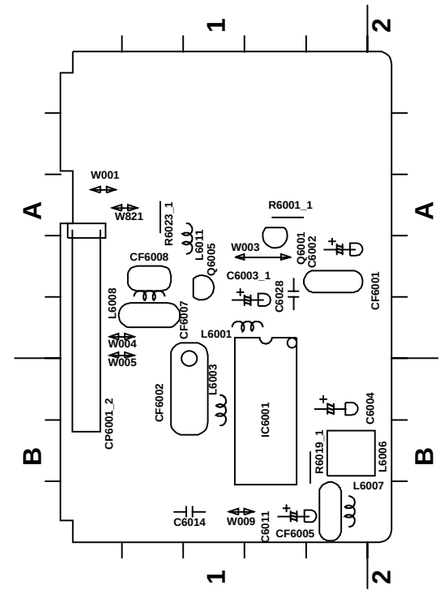


PRINTED WIRING BOARDS

MAIN/CRT/POWER SW.

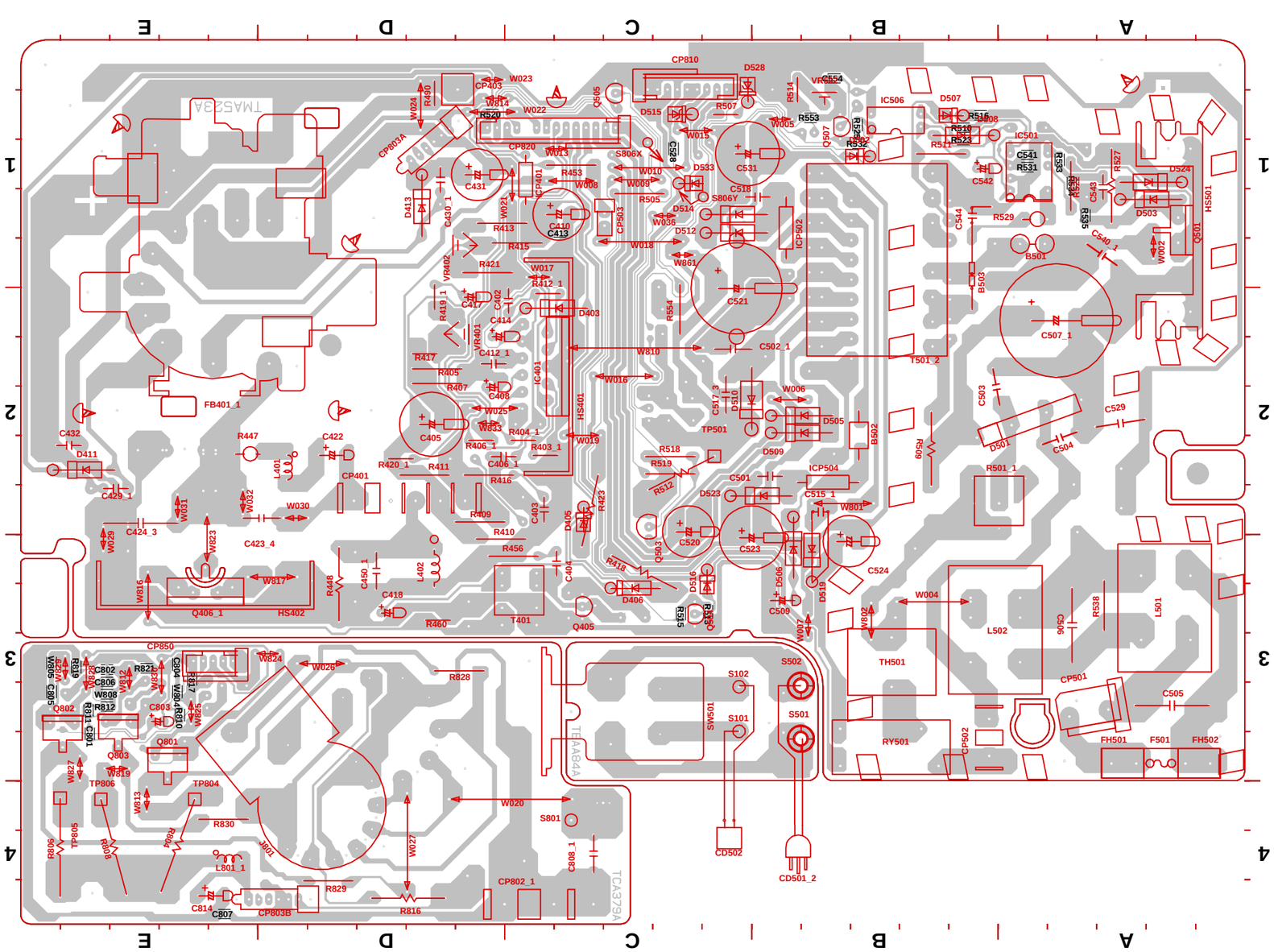


IF

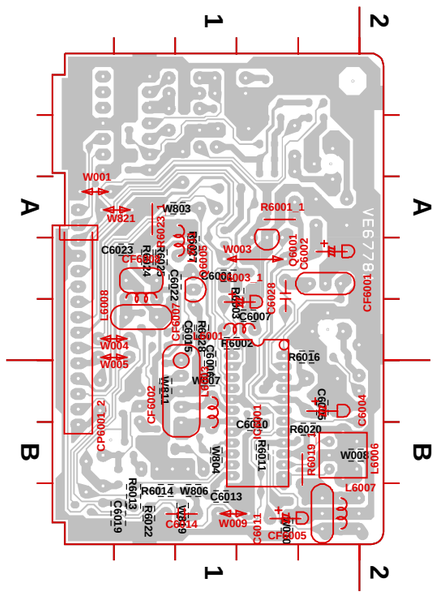


PRINTED WIRING BOARDS

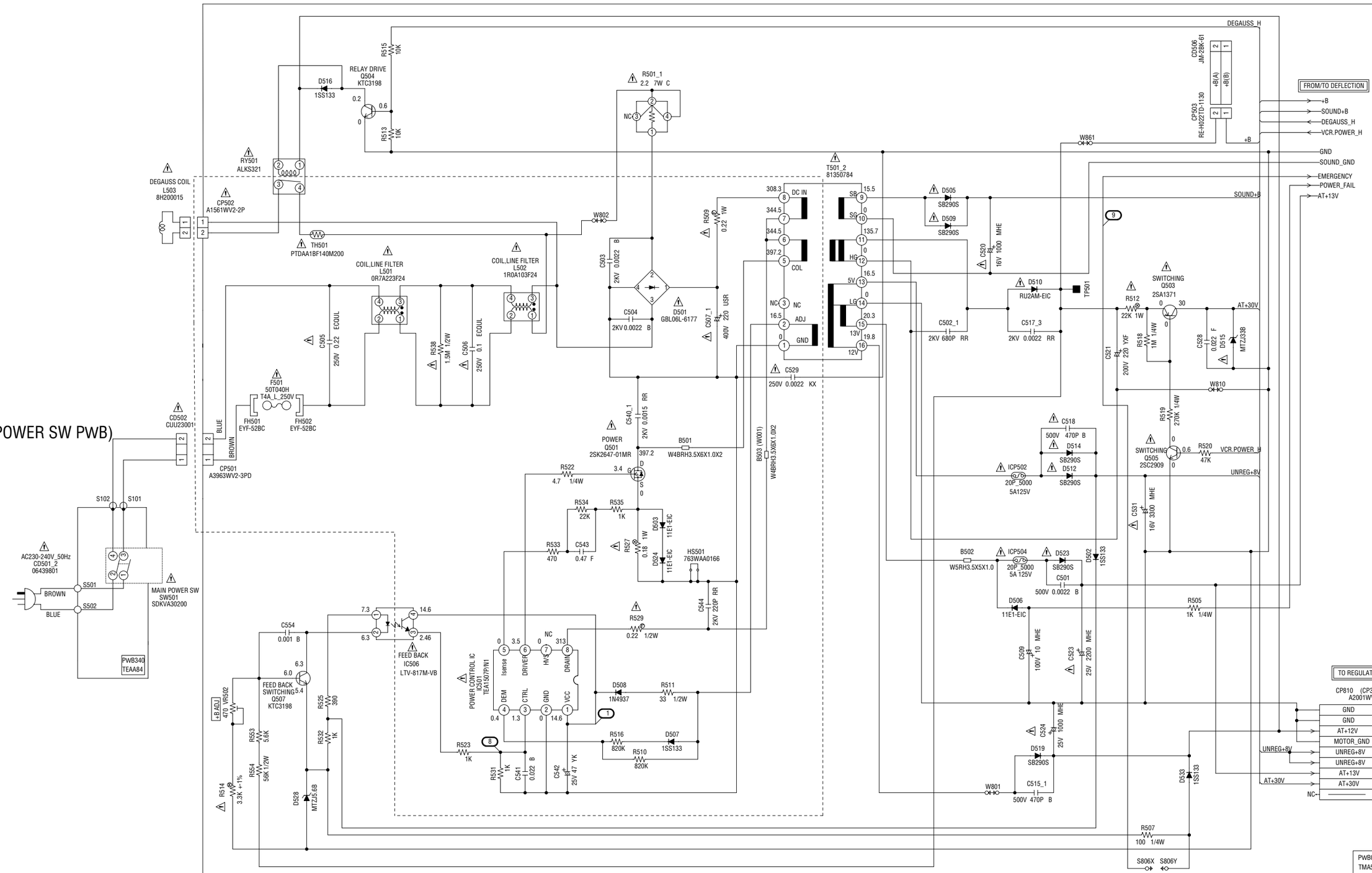
MAIN/CRT/POWER SW.



IF



TV POWER SCHEMATIC DIAGRAM (MAIN PWB)



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

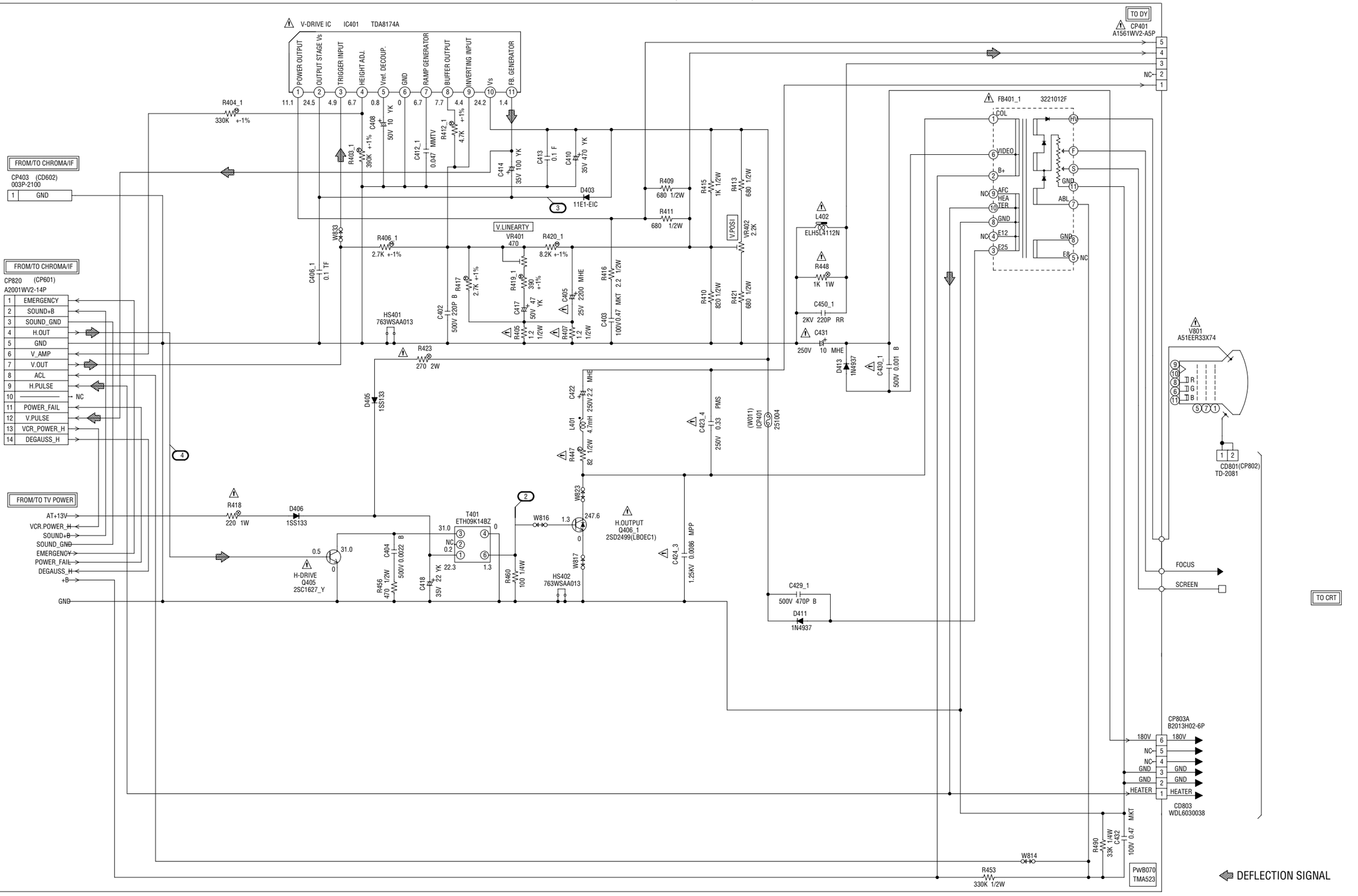
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

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。

DEFLECTION SCHEMATIC DIAGRAM
(MAIN PWB)



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.

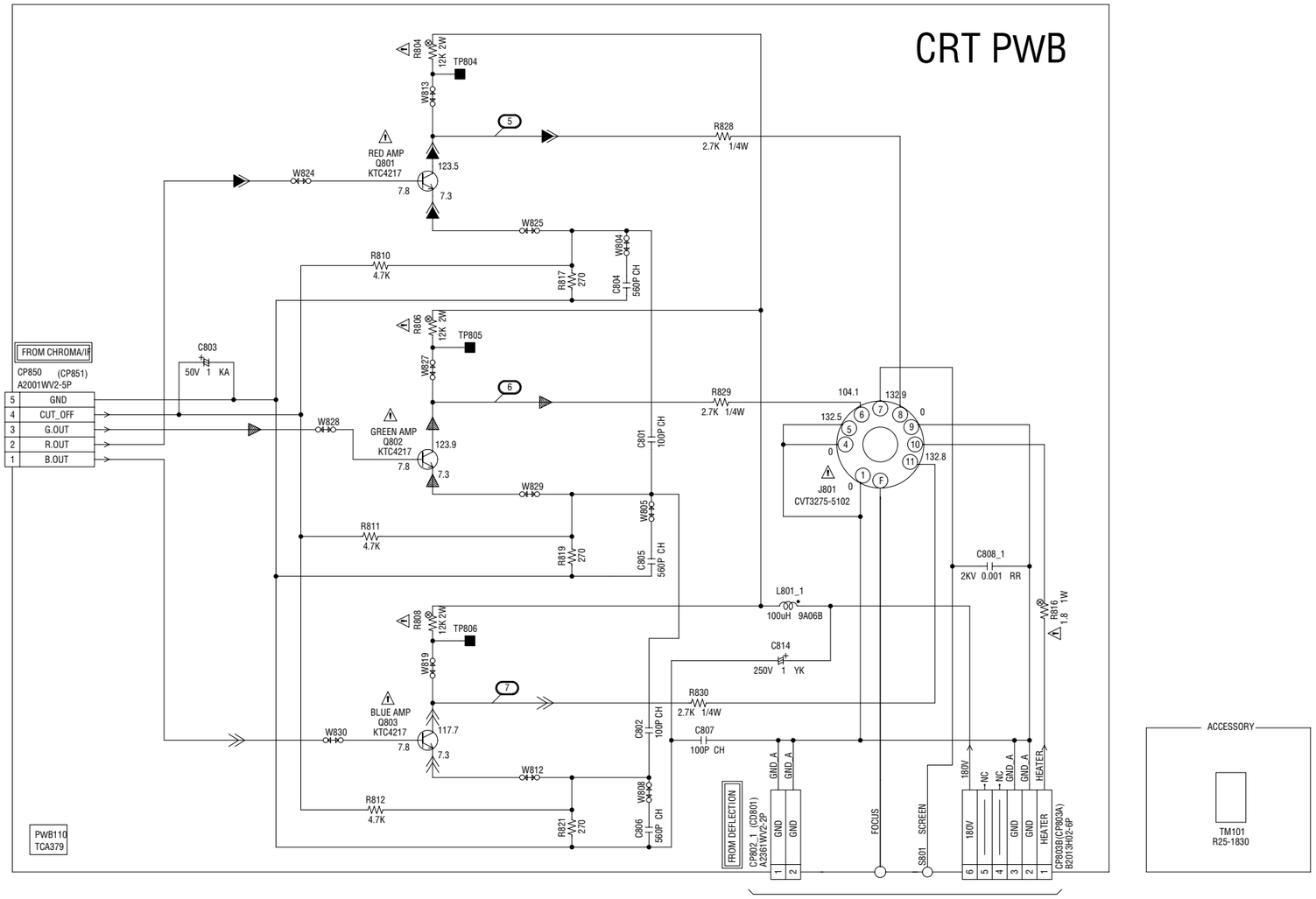
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

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

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

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

CRT SCHEMATIC DIAGRAM
(CRT PWB)



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 。

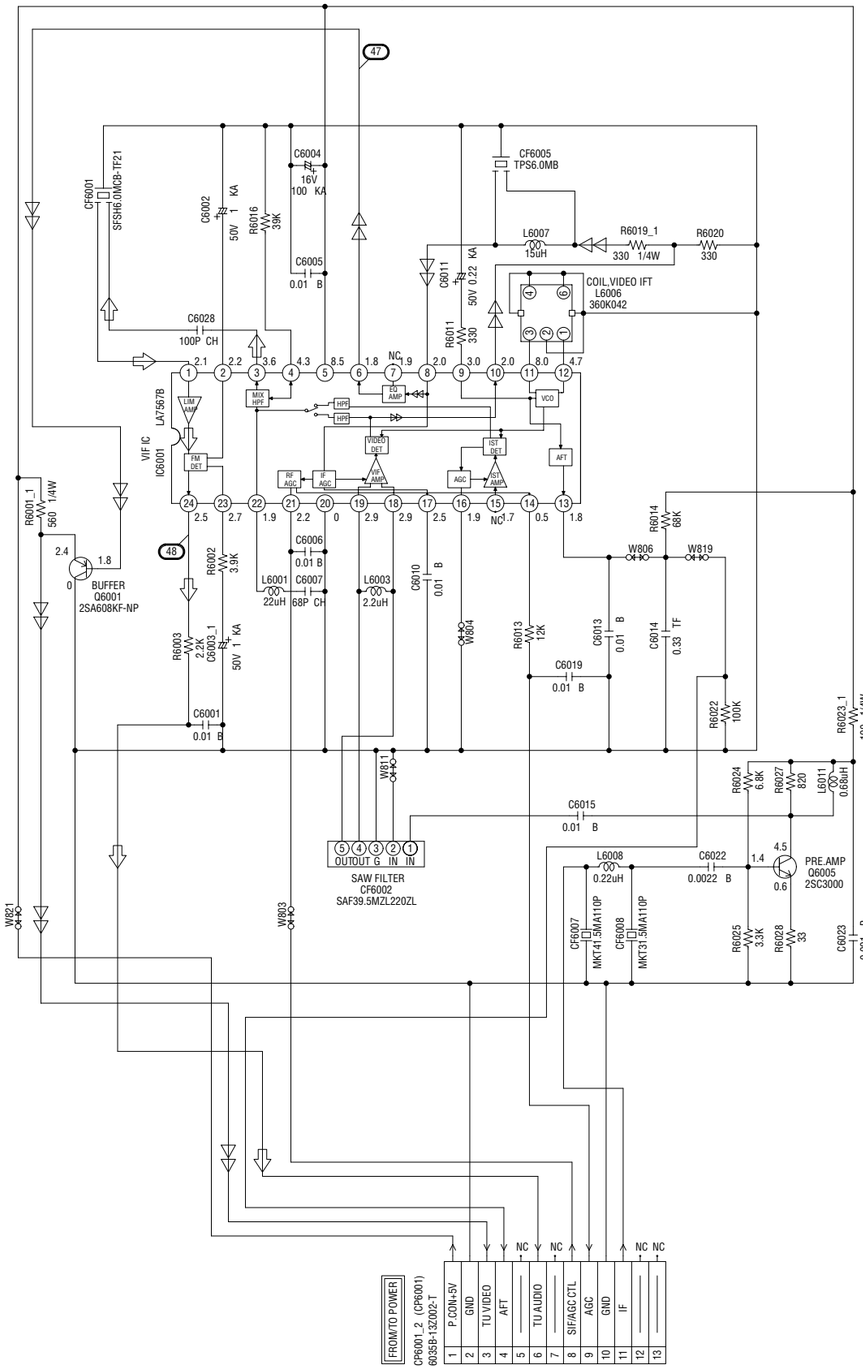
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

◀ R.SIGNAL
◀ G.SIGNAL
≪ B.SIGNAL

IF SCHEMATIC DIAGRAM

(IF PWB)



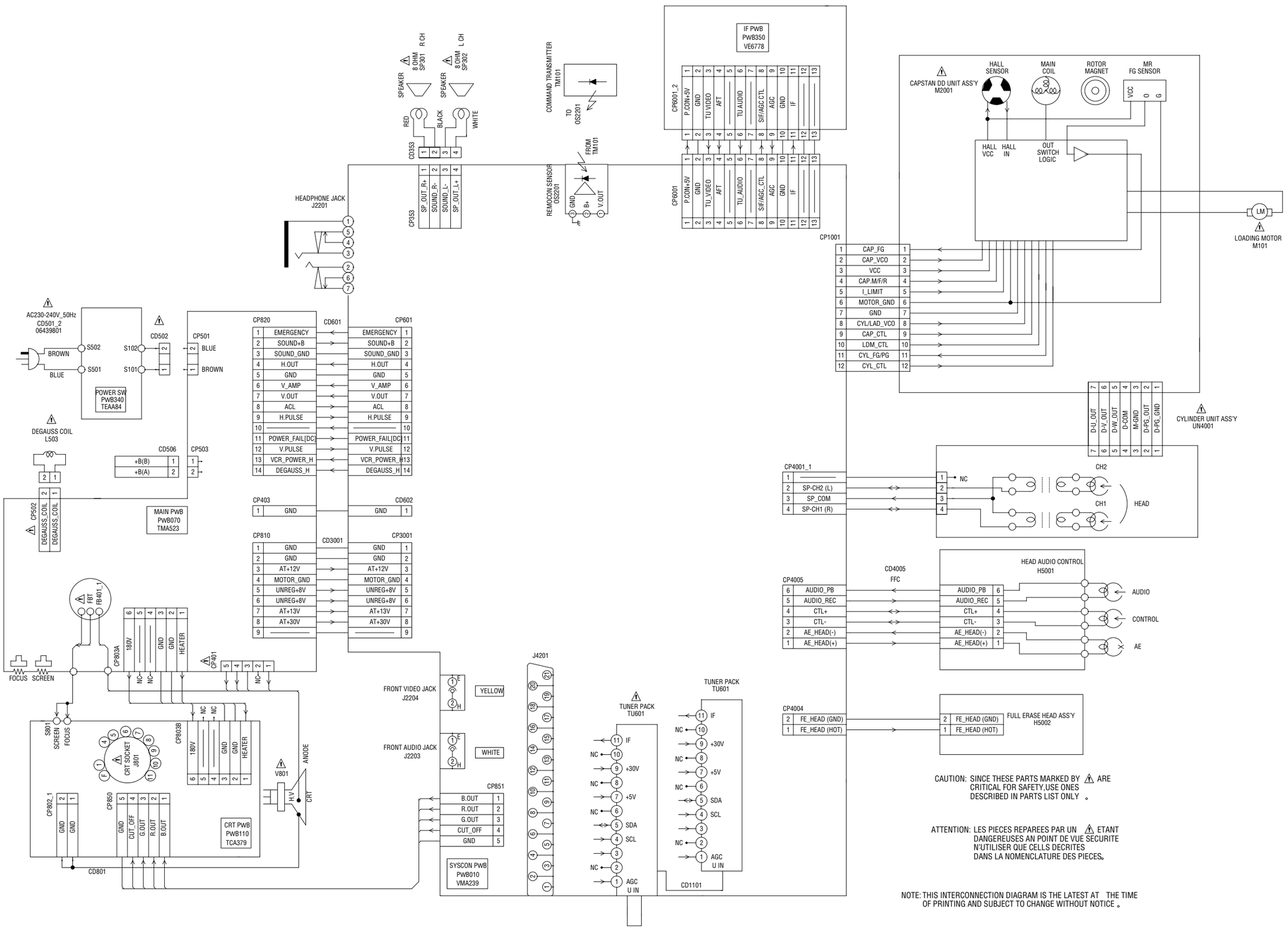
PWB350
VE6778

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

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

◁◁ TUNER VIDEO SIGNAL
◁ AUDIO SIGNAL(REC)

INTERCONNECTION DIAGRAM



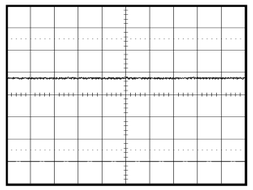
CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

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

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

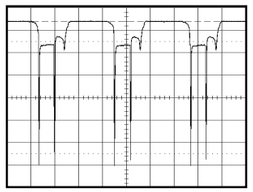
WAVEFORMS

TV POWER

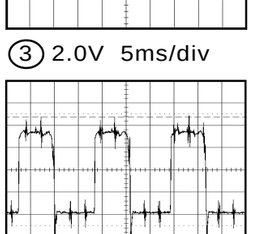


① 5.0V 0.1ms/div

DEFLECTION



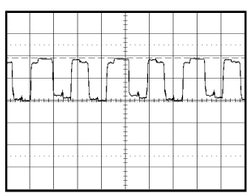
② 2.0V 20µs/div



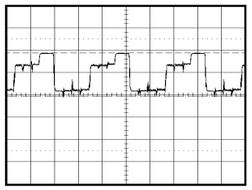
③ 2.0V 5ms/div

④ 200mV 20µs/div

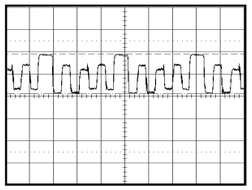
CRT



⑤ 50.0V 20µs/div

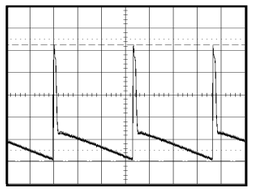


⑥ 50.0V 20µs/div

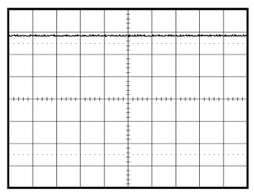


⑦ 50.0V 20µs/div

TV POWER

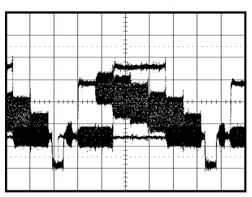


⑧ 10.0V 5ms/div

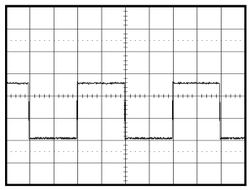


⑨ 20.0V 0.1ms/div

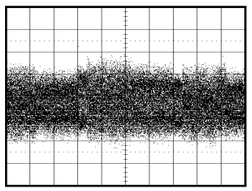
Y/C/AUDIO/HEAD AMP



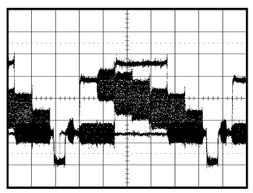
⑩ REC
0.5V 10µs/div



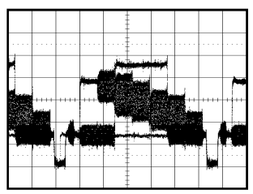
⑪ PB
2.0V 10ms/div



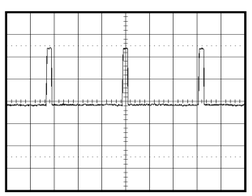
⑫ PB
50mV 5ms/div



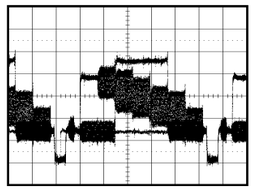
⑬ REC
0.5V 10µs/div



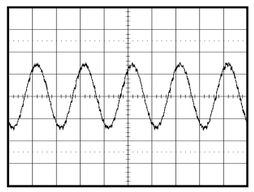
⑭ REC
0.5V 10µs/div



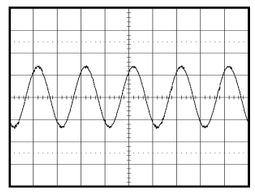
⑮ REC
2.0V 20µs/div



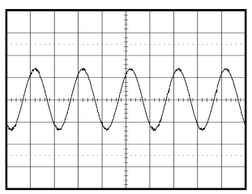
⑯ REC
0.5V 10µs/div



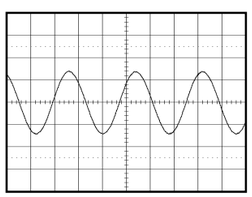
⑰ REC
100mV 0.5ms/div



⑱ REC
0.5V 0.5ms/div

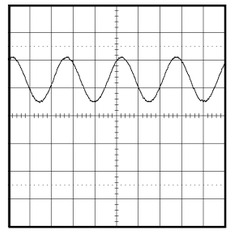


⑲ REC
20.0V 2ms/div

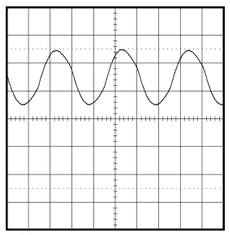


⑳ REC
20.0V 5µs/div

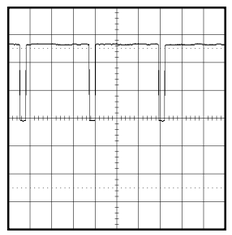
MICON



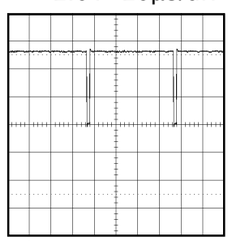
㉑ REC
2.0V 1ms/div



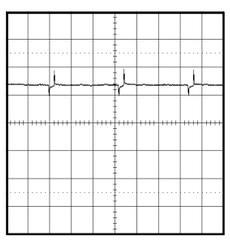
㉒ REC
1.0V 10µs/div



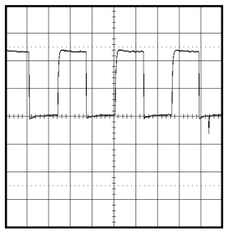
㉓ REC
2.0V 20µs/div



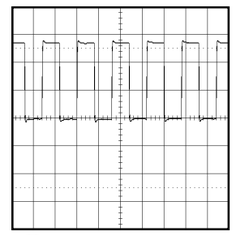
㉔ REC
2.0V 5ms/div



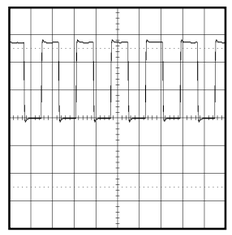
㉕ REC
2.0V 20µs/div



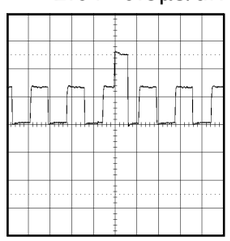
㉖ PB
2.0V 5ms/div



㉗ PB
2.0V 0.5µs/div

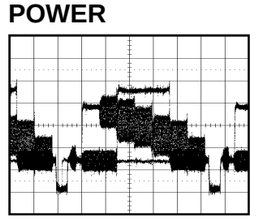


㉘ PB
2.0V 0.5µs/div



㉚ REC
2.0V 1ms/div

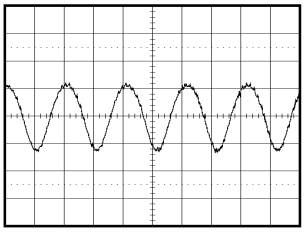
POWER



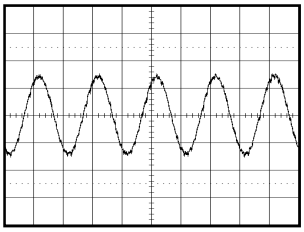
㉛ REC
0.5V 10µs/div

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

WAVEFORMS

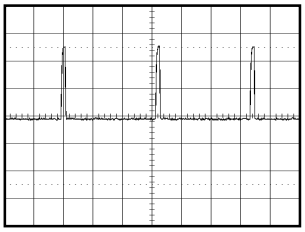


(32) REC
0.5V 0.5ms/div

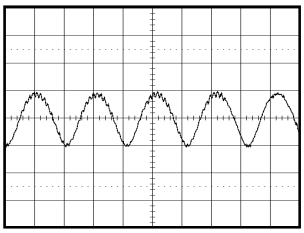


(48) REC
100mV 0.5ms/div

SOUND AMP

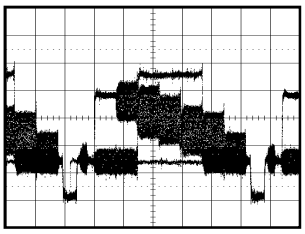


(45) REC
2V 20µs/div

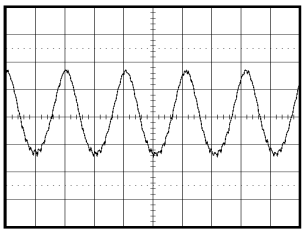


(50) REC
0.5V 0.5ms/div

21PIN/IN/OUT

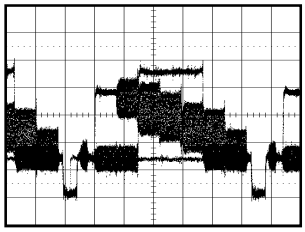


(46) REC
0.5V 10µs/div



(52) REC
0.5V 0.5ms/div

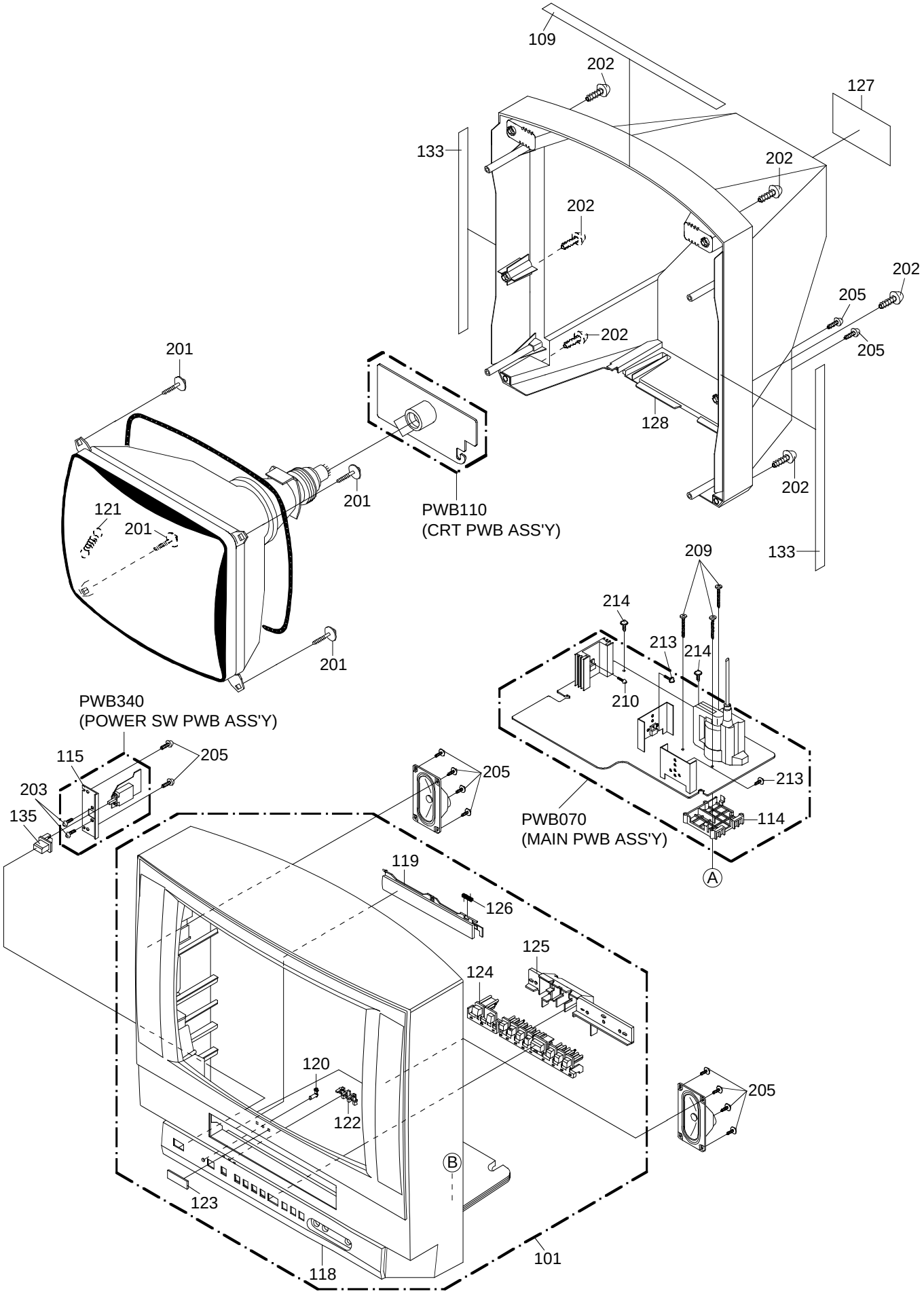
IF



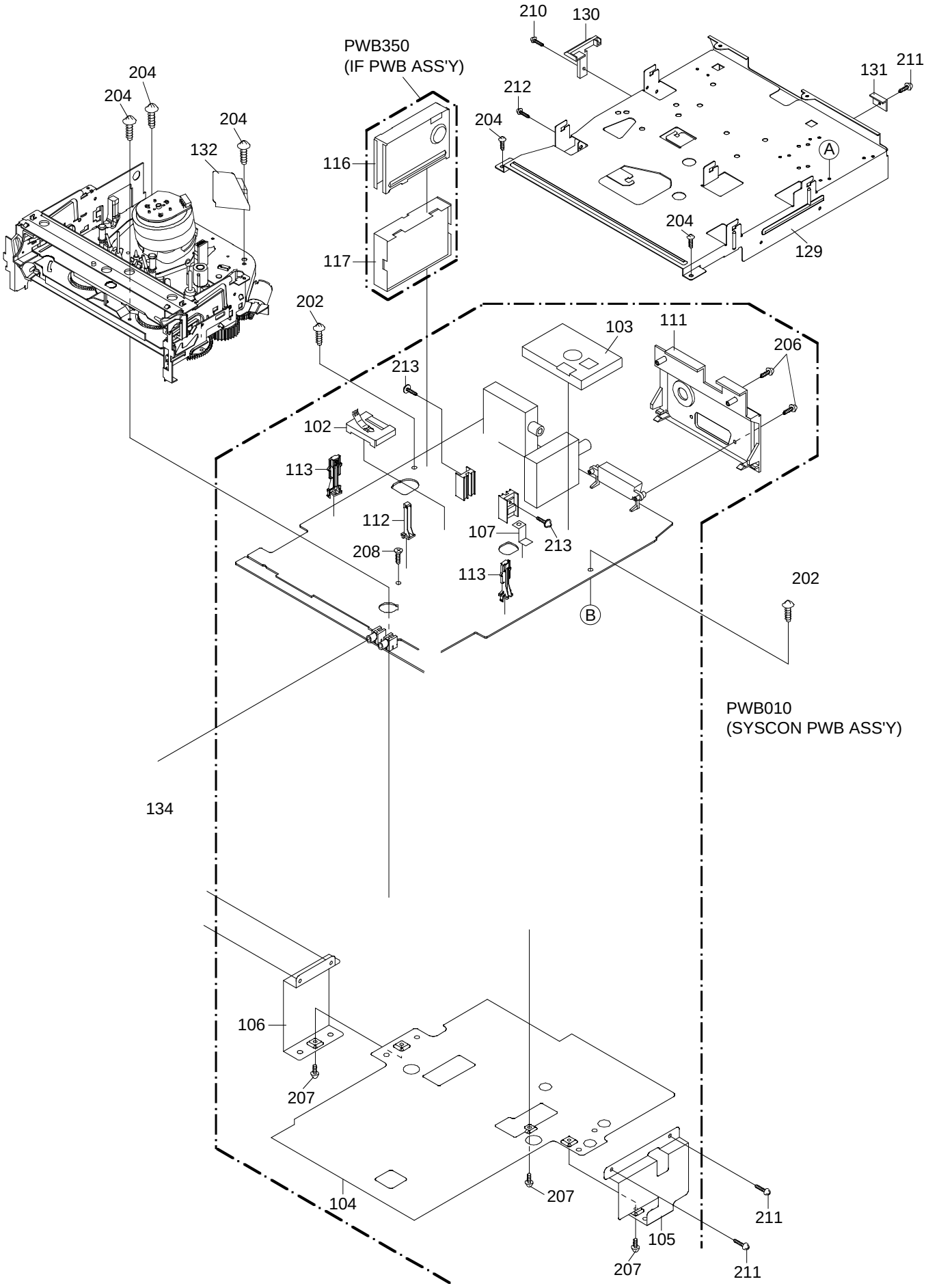
(47) REC
0.5V 10µs/div

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

MECHANICAL EXPLODED VIEW



MECHANICAL EXPLODED VIEW



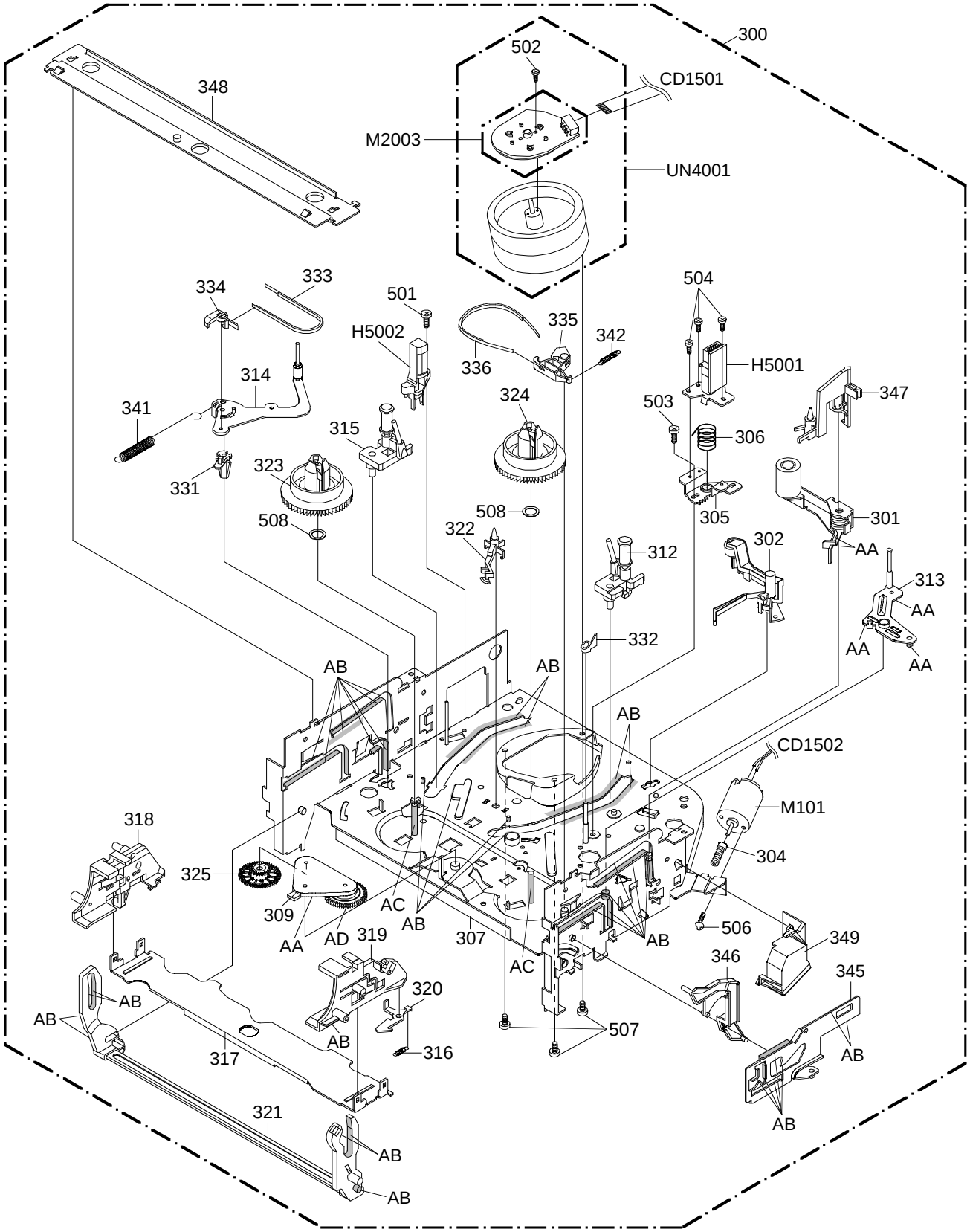
MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
101	S5-C50-4G7-200	CABI,FRONT ASSY	1
102	----	SHIELD,CASE ASS'Y	1
103	----	SHIELD,CASE	1
104	----	PLATE,SHIELD BOTTOM	1
105	----	PLATE,SHIELD BOTTOM(R)	1
106	----	PLATE,SHIELD BOTTOM(L)	1
107	----	PLATE,EARTH-SYSCON	1
108	S5-3WS-A01-440	PLATE,BOTTOM-EARTH	1
109	----	FELT SHEET	1
110	----	HLDR,DECK	1
111	S7-1WP-A02-660	PLATE,JACK	1
112	S5-OP7-000-370	HOLDER,LED	1
113	S5-OP7-000-380	HOLDER,END SENSOR	2
114	S6-1WP-A02-230	HLDR,FBT	1
115	S5-2WS-A02-570	PLATE,POWER SW	1
116	----	IF SHIELD CASE	1
117	----	SHIELD BOTTOM IF	1
118	----	CABI,FRONT	1
119	S1-2WP-JB4-870	FLAP	1
120	S1-3WP-A02-260	GLASS,LED	1
121	S4-1WU-A00-040	SPRING,EARTH	1
122	S1-3WP-A02-270	GUIDE,REMOCON	1
123	----	BADGE,BRAND	1
124	S3-5WP-BA4-180	BUTTON,FRAME	1
125	S3-8WP-A00-490	BUTTON,BASE	1
126	S4-3WK-A00-320	SPR,FLAP	1
127	----	SHEET,RATING	1
128	S0-2UP-A02-460	CABI,BACK	1
129	----	PLATE,DECK SHIELD ASS'Y	1
130	S6-1WP-A01-510	HOLDER,M/PWB	1
131	----	HLDR,TV-PWB	1
132	S5-2WS-A02-750	COVER,AC HEAD	1
133	----	FELT SHEET	2
134	----	SHIELD,AV JACK	1
135	S3-5WP-BA4-430	BUTTON,POWER	1
201	S1-21J-50B-840	SCREW,VTT+5-28	4
202	S1-175-40B-040	SCREW,TAP(B0)TRUSS 4-20	8
203	S1-0A1-305-040	SCREW,WASHER(A) M3-5	2
204	S1-106-30A-240	SCREW,TAP(P)3-12	5
205	S1-106-30A-040	UIT+3-10	12
206	S1-106-308-040	TAP(P)3-8	2
207	S1-106-306-040	UIT+3-6	3
208	87-741-095-410	SCREW,TAP TITE(P) FLAT 3-8	1
209	S1-076-30B-040	SCREW,VTT+3-20	3
210	S1-076-308-040	SCREW,TAP	3
211	S1-076-306-040	BVTT+3-6	5
212	S1-096-306-040	SCREW,VTT+3-6	1
213	S1-09I-30A-040	SCREW,TAP TITE(B) 3-10	4
214	S1-079-306-040	SCREW,CUP(S) 3X6	2

ACCESSORY REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
1	S7-6R0-CH5-900	RC,UNIT(VXD1450K)	1
2	S5-C50-401- 0	INSTRUC BOOK(VXD2150K)	1

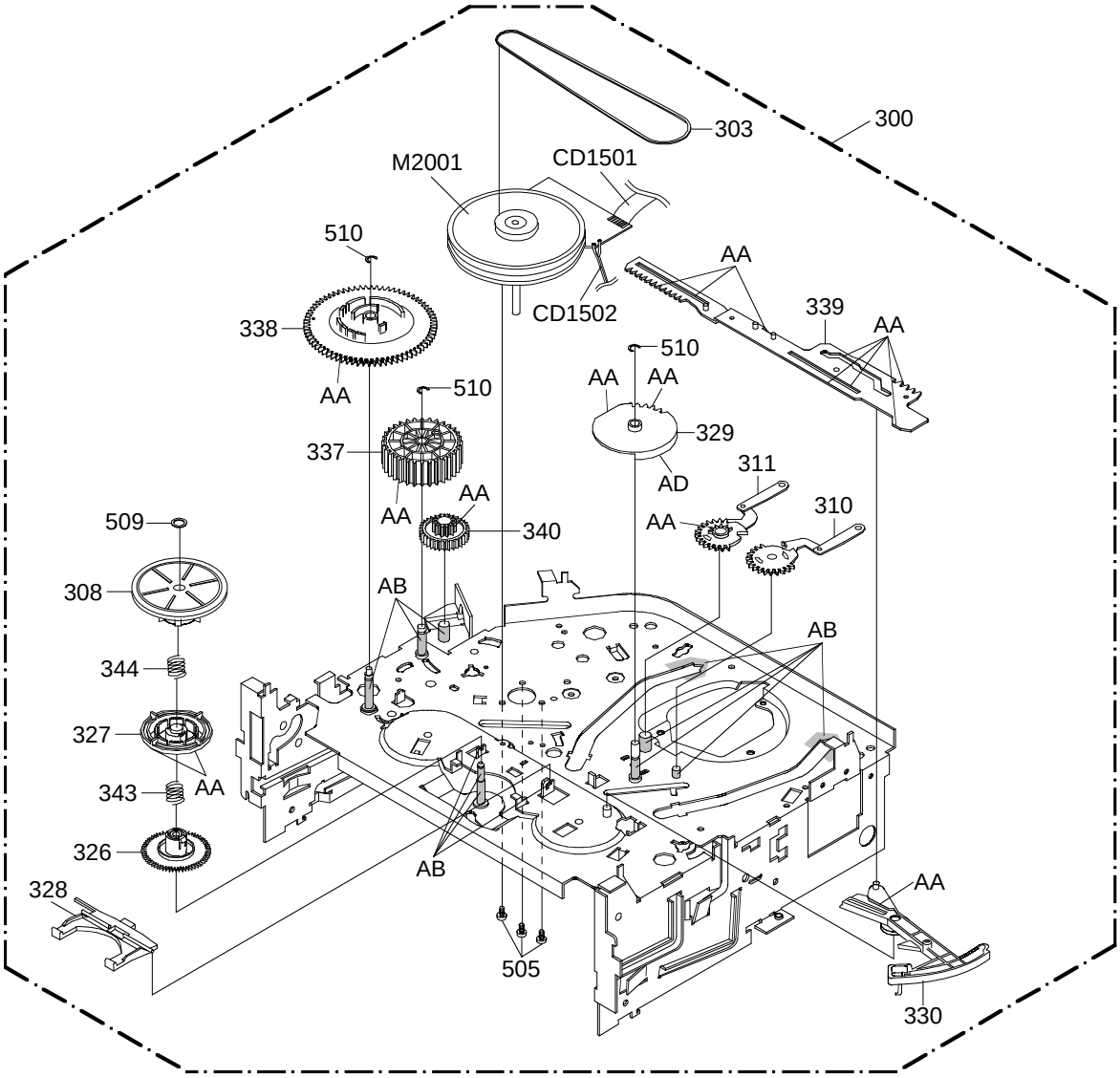
CHASSIS EXPLODED VIEW (TOP VIEW)



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

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

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



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

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

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	Q'TY
300	-----	DECK ASSY A5C504G420A	1
301	S5-OA4-002-340	PINCH ROLLER BLOCK	1
302	S5-OA5-000-260	AHC ASS'Y	1
303	S5-OP2-002-900	BELT,CAPSTAN (S)	1
304	S5-OP6-005-810	WORM	1
305	S5-OP5-000-830	BASE,AC HEAD	1
306	S5-OP8-003-240	SPR,AC HEAD	1
307	-----	MAIN CHASSIS ASS'Y	1
308	S5-OA2-000-890	CLUTCH ASS'Y	1
309	S5-OA2-000-900	ARM IDLER ASS'Y	1
310	S5-OA3-000-650	LOADING ARM S UNIT	1
311	S5-OA3-000-660	LOADING ARM T UNIT	1
312	S5-OA4-002-230	INCLINED BASE T UINT 3S	1
313	S5-OA4-002-320	P5 ARM ASS'Y 2	1
314	S5-OA4-002-350	TENSION ARM ASS'Y 2	1
315	S5-OA4-002-310	INCLINED BASE S UNIT	1
316	S5-OP8-003-580	SPRING,LOCKER	1
317	S5-OP9-007-360	CASS,HOLDER	1
318	S5-OP9-007-480	CASS,SIDE L	1
319	S5-OP9-007-490	CASS,SIDE R	1
320	S5-OP9-007-390	LOCKER,R	1
321	S5-OA9-002-280	LINK UNIT	1
322	S5-OP0-004-960	POST,CASS GUIDE	1
323	S5-OP2-003-160	REEL,S (S)	1
324	S5-OP2-003-170	REEL,T (S)	1
325	S5-OP2-003-080	GEAR,IDLER	1
326	S5-OP2-003-110	GEAR,CLUTCH	1
327	S5-OP2-003-120	GEAR,COUPLING	1
328	S5-OP2-003-130	LEVER,CLUTCH	1
329	S5-OP3-001-940	GEAR,MAIN LOADING	1
330	S5-OP4-004-900	LEVER,TENSION	1
331	S5-OP4-004-920	HOLDER,TENSION	1
332	S5-OP4-005-200	CAP.P4	1
333	S5-OP4-005-420	BAND,TENSION	1
334	S5-OP4-005-330	CONNECT,TENSION	1
335	S5-OP6-005-730	ARM,BRAKE T	1
336	S5-OP6-005-840	BAND,BRAKE T	1
337	S5-OP6-005-770	CAM,PINCH ROLLER	1
338	S5-OP6-005-780	CAM,MAIN	1
339	S5-OP6-005-790	ROD,MAIN	1
340	S5-OP6-005-820	GEAR,JOINT	1
341	S5-OP8-003-220	SPR,TENSION	1
342	S5-OP8-003-600	SPRING,BRAKE T	1
343	S5-OP8-003-550	SPRING,COUPLING	1
344	S5-OP8-003-560	SPRING,RING	1
345	S5-OP9-007-500	LEVER,LINK 2	1
346	S5-OP9-007-440	LEVER,FLAP	1
347	S5-OP9-007-450	CASS,OPENER	1
348	S5-OP9-007-460	BRACKET,TOP 3V	1
349	-----	COVER,BOT	1
501	S1-072-268-040	VT2+2.6-8	1
502	S1-0A1-235-040	SEMS A M2.3-5	1
503	87-341-072-010	VT2+2.6-4	1
504	87-261-035-410	SCREW,PAN M2-6	3
505	87-743-073-410	SCREW,TAP 2.6-6	3
506	S1-0A1-304-040	SCREW/WASHER(A)	1
507	S1-0A1-265-040	SCREW,WASHER(A) M2.6-5	3
508	S2-Q26-471-3N0	PW 2.6-4.7-0.13	2
509	S2-P18-450-5N0	PW(CUT)1.8-4.5-0.5	1
510	S3-ETW-300-000	E-RING 3	3
CD1501	-----	CORD JUMPER	1
CD1502	-----	CORD JUMPER	1
H5001	S5-23D-910-340	HEAD,AC HVMXA1072A	1
H5002	S5-43D-020-130	HEAD,FE	1
⚠ M101	S5-96S-980-010	MOTOR (LOADING)	1
⚠ M2001	S5-10S-980-360	CAPSTAN DD UNIT	1
⚠ M2003	S5-89S-110-140	MICRO MOTOR	1
⚠ UN4001	S5-A60-1N5-000	CYLINDER UNIT ASS'Y	1

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PART NO.	DESCRIPTION
		SYSCON PWB ASS'Y
		*** RESISTORS ***
R307	S3-X28-B1R-8J0	RES,MO 1.8-3W
R4021	S4-X5T-618-3F0	RES,MF 18K-1/6W
		*** CAPACITORS ***
C301	87-015-075-040	CAP,E 10-16V
C302	87-016-053-080	CAP,E 22-16V
C303	87-010-271-080	CAP,E 1000-16V
C306	87-010-400-080	CAP,E 0.47-50V
C318	87-010-271-080	CAP,E 1000-16V
C322	87-010-388-090	CAP,E 1000-25V
C603	87-015-695-080	CAP,E 1-50V
C606	S0-2LU-210-1M0	CAP,E 100-16V
C610	87-015-695-080	CAP,E 1-50V
C611	87-010-112-080	CAP,E 100-16V
C613	87-015-695-080	CAP,E 1-50V
C616	87-016-053-080	CAP,E 22-16V
C626	87-015-695-080	CAP,E 1-50V
C627	87-010-754-040	CAP,E 220UF-10V
C630	87-015-075-040	CAP,E 10-16V
C635	S0-2LU-247-0M0	CAP,E 47-16V
C636	87-015-677-010	CAP,E 100-6.3
C638	87-015-695-080	CAP,E 1-50V
C641	87-010-400-080	CAP,E 0.47-50V
C642	87-015-695-080	CAP,E 1-50V
C645	87-015-695-080	CAP,E 1-50V
C648	87-015-075-040	CAP,E 10-16V
C649	87-010-112-080	CAP,E 100-16V
C650	87-010-402-080	CAP,E 2.2-50V
C652	87-010-380-080	CAP,E 47-16V
C653	87-010-112-080	CAP,E 100-16V
C662	S0-2LU-247-0M0	CAP,E 47-16V
C663	S0-2LU-210-1M0	CAP,E 100-16V
C665	S0-2LU-210-1M0	CAP,E 100-16V
C666	87-015-075-040	CAP,E 10-16V
C667	87-010-403-080	CAP,E 3.3-50V
C672	S0-2LU-247-0M0	CAP,E 47-16V
C679	87-010-403-080	CAP,E 3.3-50V
C680	87-010-403-080	CAP,E 3.3-50V
C681	87-010-419-080	CAP,E 4.7-16
C683	87-015-075-040	CAP,E 10-16V
C1003	S5-1A0-P10-4Z0	CAP,E 0.1F-5.5V
C1005	87-010-076-040	CAP,E 22UF-6.3V
C1013	87-010-076-040	CAP,E 22UF-6.3V
C1016	S0-0NU-047-0M0	CAP,E 47-6.3V
C1021	87-015-683-080	CAP,E 33-16V
C1031	S0-2LU-322-1M0	CAP,E 220-25V
C1047	87-015-075-040	CAP,E 10-16V
C1048	87-010-404-080	CAP,E 4.7-50V
C1070	S0-2LU-022-1M0	CAP,E 220-6.3V
C1090	87-010-076-040	CAP,E 22UF-6.3V
C1093	87-015-677-010	CAP,E 100-6.3
C1103	87-016-088-040	CAP,E 220-6.3V
C1133	87-010-404-080	CAP,E 4.7-50V
C1187	S0-2LU-010-1M0	CAP,E 100-6.3V
C1202	S0-2LU-210-1M0	CAP,E 100-16V
C1205	S0-2LU-247-0M0	CAP,E 47-16V
C1206	S0-2LU-247-0M0	CAP,E 47-16V
C1207	87-010-553-040	CAP,E 47-16
C1214	87-010-380-080	CAP,E 47-16V
C1256	S0-2LU-010-1M0	CAP,E 100-6.3V
C1257	87-015-677-010	CAP,E 100-6.3
C1273	S0-2LU-210-1M0	CAP,E 100-16V
C1274	S0-2LU-210-1M0	CAP,E 100-16V
C1284	S0-2LU-010-1M0	CAP,E 100-6.3V
C2201	87-010-380-080	CAP,E 47-16V
C2206	87-016-088-040	CAP,E 220-6.3V
C3002	87-010-235-080	CAP,E 470-16V
C3006	S0-2LU-047-1M0	CAP,E 470-6.3V
C3007	S0-2LU-047-1M0	CAP,E 470-6.3V
C3008	87-010-235-080	CAP,E 470-16V
C3009	S0-2LU-047-1M0	CAP,E 470-6.3V
C3010	87-015-075-040	CAP,E 10-16V
C3011	S0-2LU-210-1M0	CAP,E 100-16V
C3012	S5-2H0-210-0M0	CAP,E 10-1
C4001	S0-E7T-033-0M0	CAP,E 33-6.3V
C4015	87-010-549-010	CAP,E 47-6.3V
C4017	87-015-677-010	CAP,E 100-6.3
C4024	87-010-403-080	CAP,E 3.3-50V
C4031	87-010-404-080	CAP,E 4.7-50V
C4036	87-015-075-040	CAP,E 10-16V
C4039	87-010-404-080	CAP,E 4.7-50V
C4040	87-010-402-080	CAP,E 2.2-50V
C4041	87-010-404-080	CAP,E 4.7-50V
C4049	87-010-076-040	CAP,E 22UF-6.3V
C4050	87-010-404-080	CAP,E 4.7-50V
C4051	87-015-075-040	CAP,E 10-16V
C4055	87-010-549-010	CAP,E 47-6.3V
C4057	87-010-404-080	CAP,E 4.7-50V
C4066	87-015-075-040	CAP,E 10-16V
C4069	87-010-549-010	CAP,E 47-6.3V
C4071	87-015-075-040	CAP,E 10-16V
C4073	87-015-695-080	CAP,E 1-50V
C4074	87-010-400-080	CAP,E 0.47-50V
C4077	87-015-695-080	CAP,E 1-50V
C4078	87-015-695-080	CAP,E 1-50V
C4084	87-010-263-080	CAP,E 100-10V
C4088	87-010-549-010	CAP,E 47-6.3V
C4092	87-010-549-010	CAP,E 47-6.3V
C4095	87-015-677-010	CAP,E 100-6.3
C4108	S0-2LU-147-1M0	CAP,E 470-10V
C4201	S0-2LU-010-1M0	CAP,E 100-6.3V
C4209	87-015-075-040	CAP,E 10-16V
C4213	S0-2LU-233-1M0	CAP,E 330-16V
C4226	87-015-075-040	CAP,E 10-16V
		*** DIODES ***
D351	87-020-465-010	DIODE,1SS133T
D602	S2-WT0-11E-100	DIODE,11E1-EIC
D603	S2-WT0-11E-100	DIODE,11E1-EIC
D604	S2-WT1-1ES-100	DIODE,11ES1-EIC
D605	87-020-465-010	DIODE,1SS133T
D609	87-020-465-010	DIODE,1SS133T
D610	87-020-465-010	DIODE,1SS133T
D611	87-020-465-010	DIODE,1SS133T
D612	87-020-465-010	DIODE,1SS133T
D1001	S9-7U0-150-1B0	ZENER,MTZJ15B
D1002	87-020-465-010	DIODE,1SS133T
D1003	S0-101-003-200	LED,LNA2702
D1006	S2-WXS-B14-000	DIODE,SB140-E
D1010	S2-WXS-B14-000	DIODE,SB140-E
D1017	87-020-465-010	DIODE,1SS133T
D1021	87-020-465-010	DIODE,1SS133T
D1201	S2-BT0-AK0-400	DIODE,SCHOTTKY AK04V0
D1202	S2-WT0-11E-100	DIODE,11E1-EIC
D1203	S2-WXS-B14-000	DIODE,SB140-E
D1252	87-020-465-010	DIODE,1SS133T
D1261	87-020-465-010	DIODE,1SS133T
D2201	S0-217-211-500	LED,
D2203	S0-217-211-500	LED,
D2204	S0-217-211-500	LED,
D3001	S2-8TE-QS0-400	DIODE,11EQS04N-TA
D3002	87-020-465-010	DIODE,1SS133T
D3003	S2-WT0-11E-100	DIODE,11E1-EIC
D3004	S9-7U0-100-1B0	ZENER,MTZJ10B T-77
D4001	S2-8TE-QS0-400	DIODE,11EQS04N-TA

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PART NO.	DESCRIPTION
D4203	87-020-465-010	DIODE,1SS133T
D4210	87-020-465-010	DIODE,1SS133T
		*** ICS ***
IC352	S0-FSP-752-300	IC,AN7523
IC601	S0-WDE-246-C00	IC,STV2246
IC602	S0-QF0-253-4V0	IC,NJM2534V(TE2)
IC603	87-002-779-010	IC,LA7956
IC1002	SC-7J0-311-A00	IC,R3111N3
IC1006	S5-4F5-011-3B0	IC,OEC0113B
IC1099	S5-C50-4G0-150	IC,BR24C08F
IC1201	SC-KF0-008-B00	IC,ET-TVT008B
IC1202	S0-UF0-123-100	IC,MM1231XF
IC3001	S1-KA9-8R0-9A0	IC,KIA78R0
IC3002	S1-KA9-8R0-500	IC,KIA78R0
IC3003	S1-KA9-780-5A0	IC,KIA7805API
IC3004	S1-KA9-8R0-500	IC,KIA78R0
IC4001	S0-4F3-821-7F0	IC,HA118217F
IC4002	S3-EF6-565-000	IC,SDA5650/X
		*** TRANSISTORS ***
Q301	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q302	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q303	SN-AAB-050-030	TR,KRC102RTK
Q306	SN-AAJ-050-030	TR,KRC111SRTK
Q602	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q603	SP-AAB-050-010	TR,KRA102S
Q607	SC-3T0-300-000	TR,2SC3000
Q608	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q609	SN-AAC-050-020	TR,KRC103RTK
Q610	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q611	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1001	S0-027-006-900	PHOTO COUPLER RPI-303
Q1002	SN-AAC-050-020	TR,KRC103RTK
Q1003	S0-027-006-800	PHOTO COUPLER RPI-352
Q1004	SN-AAC-050-020	TR,KRC103RTK
Q1005	S0-027-006-900	PHOTO COUPLER RPI-303
Q1006	S0-00M-003-900	PHOTO TR,ST-304L
Q1009	S0-027-006-800	PHOTO COUPLER RPI-352
Q1010	SP-AAC-050-020	TR,
Q1013	89-110-372-080	TR,2SA1037AK
Q1014	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1015	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1016	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1017	S0-00M-003-900	PHOTO TR,ST-304L
Q1021	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1101	SD-AT0-086-3Y0	TR,KTD863_Y-AT
Q1102	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1104	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1122	89-110-372-080	TR,2SA1037AK
Q1123	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1253	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q1262	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q2806	SN-AAB-050-030	TR,KRC102RTK
Q3001	SC-100-138-400	TR,2SC13840W
Q4001	SC-AT0-320-340	TR,KTC3203
Q4002	SC-AT0-320-340	TR,KTC3203
Q4003	SP-AAC-050-020	TR,
Q4004	SC-ATC-319-800	TR,KTC3198
Q4005	SC-ATC-319-800	TR,KTC3198
Q4006	89-110-372-080	TR,2SA1037AK
Q4007	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q4015	SN-AAD-050-010	TR,KRC104S
Q4017	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q4018	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q4201	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q4202	89-110-372-080	TR,2SA1037AK
Q4207	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q4210	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
Q4211	SC-AA3-875-SY0	TR,KTC3875S_Y_RT
		*** COILS ***
B2201	S2-4AC-360-1C0	CORE,BEADS BLM21A601SPT
B4201	S2-4AC-360-1C0	CORE,BEADS BLM21A601SPT
B4202	S2-4AC-360-1C0	CORE,BEADS BLM21A601SPT
L602	S2-167-D10-1K0	COIL,100UH
L604	87-003-152-010	COIL,100UH
L606	S2-1LA-62R-7K0	COIL,2.7 LAP02TA2R7K
L607	87-003-106-010	COIL,0.33UH
L608	87-003-283-080	COIL,18UH
L609	S2-167-D10-1K0	COIL,100UH
L610	87-003-152-010	COIL,100UH
L611	87-003-152-010	COIL,100UH
L612	S3-370-000-5R0	COIL,IFT 3700005
L613	S2-167-F10-1J0	COIL,100UH EL0305RA-101J
L614	87-003-102-010	COIL,10UH
L1001	87-003-282-010	COIL,12UH
L1101	87-003-102-010	COIL,10UH
L1102	S2-167-D10-1K0	COIL,100UH
L1103	S2-167-D10-1K0	COIL,100UH
L1203	S2-167-F10-0J0	COIL,10 EL0305RA-100J
L1204	S2-167-F10-1J0	COIL,100UH EL0305RA-101J
L1205	87-003-102-010	COIL,10UH
L4001	S3-262-300-380	COIL,TRAP 2623003
L4002	S2-167-F10-1J0	COIL,100UH EL0305RA-101J
L4003	S2-167-D10-1K0	COIL,100UH
L4004	87-005-208-010	COIL,100UH
L4005	S3-162-600-880	COIL,BIAS OSC 1626008
L4007	S2-167-F10-1J0	COIL,100UH EL0305RA-101J
L4008	87-003-112-010	COIL,1MH
L4009	S2-167-D10-1K0	COIL,100UH
L4011	87-003-282-010	COIL,12UH
L4012	87-003-154-080	COIL,220UH
L4013	S2-167-D10-1K0	COIL,100UH
L4015	S2-167-D10-1K0	COIL,100UH
L4016	87-003-285-010	COIL,39UH
L4019	S2-1LA-610-1J0	COIL,100UH LAP02TA101J
L4024	87-003-102-010	COIL,10UH
L4025	87-003-102-010	COIL,10UH
L4026	87-003-102-010	COIL,10UH
L4202	87-003-152-010	COIL,100UH
L4203	87-003-102-010	COIL,10UH
L4204	87-003-102-010	COIL,10UH
		*** JACKS ***
J2201	S6-0J1-310-150	HEADPHONE JACK MSJ-2000
J2203	S6-0Q4-010-760	RCA JACK AV1-09D
J2204	S6-0Q4-010-770	RCA JACK AV1-09D
J4201	S6-3G1-000-420	SOCKET,21PIN 0350_9982_05
		*** SWITCHES ***
SW1001	S5-08A-110-020	SWITCH(LEAF)MXS0138
SW2201	S5-041-01T-340	SW,TACT EVQ21505R
SW2202	S5-041-01T-340	SW,TACT EVQ21505R
SW2203	S5-041-01T-340	SW,TACT EVQ21505R
SW2204	S5-041-01T-340	SW,TACT EVQ21505R
SW2205	S5-041-01T-340	SW,TACT EVQ21505R
SW2206	S5-041-01T-340	SW,TACT EVQ21505R
SW2207	S5-041-01T-340	SW,TACT EVQ21505R
SW2208	S5-041-01T-340	SW,TACT EVQ21505R
SW2209	S5-041-01T-340	SW,TACT EVQ21505R
SW2210	S5-041-01T-340	SW,TACT EVQ21505R
		*** CONNECTORS ***
CP353	S6-9S1-404-390	CONN,A2502WR2-4P

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PART NO.	DESCRIPTION
CP603	S6-9X1-703-790	CONN,07JQ-ST
CD4005	S2-2S0-614-010	CORD,1.25-6-138-C
CP4001	S6-972-406-000	CONN,PWB SIDE TOC-C04X-B1
CP4004	S6-971-203-200	CONN,TMC-TD2X-E1
CP4005	S6-9J7-600-290	CONN,IMSA-9604S-06Z14
		*** FILTERS ***
CF601	S0-2E2-39R-5B0	FILTER SAW J1951M
CF605	S0-12T-6R0-030	CER,FLTR TPS6.0M
		*** CRYSTAL & CERAMIC OSCILLATORS ***
X601	S0-0CT-4R4-080	CRYSTAL HC-49/U
X1001	S0-0CT-010-020	X'TAL,HC-49/U
X1002	S0-0DA-32R-010	X'TAL DT-26
X1201	S0-0CT-013-020	X'TAL HC-49/U-S
X4001	S0-0CT-4R4-070	X'TAL HC-49/U
		*** TUNER ***
⚠ TU601	S1-445-070-340	TUNER,UHF TUWRF4EK-781F2
TU1101	S1-445-070-330	TUNER,UHF TUWRF4EK-777F2
		*** OTHERS ***
CD601	S6-CU2-E35-010	CORD CONN CU2E3501
CD602	S6-CH0-100-6A0	CONN,CH01006A CH01006A
CD850	S6-CU2-539-010	CORD CONN CU253901
CD1101	S6-C6H-140-020	CORD,COAXIAL C6H14002
CD3001	S6-CU2-931-010	CORD CONN CU293101
OS2201	S7-7Q0-040-170	REMOTE RECEIVER PIC-372
		MAIN PWB ASS'Y
		*** RESISTORS ***
R403	S4-X5T-639-4F0	RES,MF 390K-1/6W
R404	S4-X5T-633-4F0	RES,MF 330K-1/6W
R405	S0-02T-21R-2J0	RES,1.2-1/2W
R406	S4-X5T-627-2F0	RES,M 2.7K-1/6
R407	S0-02T-21R-2J0	RES,1.2-1/2W
R412	S4-X5T-647-2F0	RES,M 4.7K-1/6
R417	S4-X5T-627-2F0	RES,M 2.7K-1/6
R418	87-025-597-090	RES,M 220-1W
R419	87-025-362-080	RES,M 390-1/6W
R420	S4-X5T-682-2F0	RES,M/F 8.2K-1/6W MF-1/6W822F T/B
R423	S3-X28-A27-1J0	RES,MO 270-2W
⚠ R447	S6-35U-282-0J0	RES,FUSE 82-1/2W RF50SSVTPA82
⚠ R501	S5-X34-E2R-2J0	RES,CEMENT 2.2-7W
⚠ R509	S6-358-1R2-2J0	RES,FUSE 0.22-1
R512	S3-X18-122-3J0	RES,MO 22K-1W MOR1W223JB/B
R514	87-025-422-080	RES,M 3.3K-1/6W
⚠ R527	S3-X18-1R1-8J0	RES,MO 0.18-1W
R529	S6-55U-2R2-2J0	RES,FUSE 0.22-1/2W
		*** CAPACITORS ***
C403	S2-35W-147-4J0	CAP,M 0.47-100V MKR82EC3470DQ
C405	S5-EZF-322-2M0	CAP,E 2200-25V
C408	S0-2LU-510-0M0	CAP,E 10-50V 50YK10MT1
C410	S0-2LT-447-1M0	CAP,E 470-35V 35YK470MTA
C414	S0-2LU-410-1M0	CAP,E 100-3
C417	S0-2LU-547-0M0	CAP,E 47-50V
C418	S0-2LU-422-0M0	CAP,E 22-35V 35YK22MT1
C422	S5-EZT-D2R-2M0	CAP,E 2.2-250V 250MHE 2.2
C429	87-012-376-010	CAP,CER 470PF-500V
C431	S5-EZT-D10-0M0	CAP,E 10-250
C432	S2-35W-147-4J0	CAP,M 0.47-100V MKR82EC3470DQ
C502	S0-PLR-R7U-2K0	CAP,680P-2KV CK45-R3DD681K

REF. NO	PART NO.	DESCRIPTION
⚠ C505	S2-122-B22-4M0	CAP,0.22-250V E
⚠ C506	S2-122-B10-4M0	CAP,MP 0.1-250V
C507	S5-2D0-H22-1M0	CAP,E 220-400V 400USR220MS
C509	S5-EZT-810-0M0	CAP,E 10-1
C515	S0-J0B-05Q-2K0	CAP,470P-500V B
C517	S0-PLR-R7H-3K0	CAP,0.0022-2KV
C518	87-012-376-010	CAP,CER 470PF-500V
C520	87-010-271-080	CAP,E 1000-16V
C521	S6-2NF-C22-1M0	CAP,E 220-200V
C523	S5-EZF-322-2M0	CAP,E 2200-25V
C524	S5-EZF-310-2M0	CAP,E 1000-25V
C531	S5-EZF-233-2M0	CAP,E 3300-16V
C540	S0-PLR-R7E-3K0	CAP,0.0015-2KV
		*** DIODES ***
D403	S2-WT0-11E-100	DIODE,11E1-EIC
D405	87-020-465-010	DIODE,1SS133T
D406	87-020-465-010	DIODE,1SS133T
D411	S2-WXN-493-700	DIODE,1N4937
D413	S2-WXN-493-700	DIODE,1N4937
⚠ D501	S4-LZB-L06-L00	DIODE,GBL06L-6177
D502	87-020-465-010	DIODE,1SS133T
D503	S2-WT0-11E-100	DIODE,11E1-EIC
D505	S2-WXB-290-S00	DIODE,SB290S
D506	S2-WT0-11E-100	DIODE,11E1-EIC
D507	87-020-465-010	DIODE,1SS133T
D508	S2-WXN-493-700	DIODE,1N4937
D509	S2-WXB-290-S00	DIODE,SB290S
D510	S2-WXR-U2A-M00	DIODE,RU2AM-E
D512	S2-WXB-290-S00	DIODE,SB290S
D514	S2-WXB-290-S00	DIODE,SB290S
D515	87-002-743-080	ZENER,MTZJ33B T77
D516	87-020-465-010	DIODE,1SS133T
D519	S2-WXB-290-S00	DIODE,SB290S
D523	S2-WXB-290-S00	DIODE,SB290S
D524	S2-WT0-11E-100	DIODE,11E1-EIC
D528	87-017-931-010	ZENER,MTZJ5.6B
D533	87-020-465-010	DIODE,1SS133T
⚠ IC506	S0-02E-006-100	PHOTO COUPLER LTV-817
⚠ TH501	S8-R0A-140-M00	DEGAUSS ELEMENT PTH451A140M21
		*** ICS ***
IC401	S0-WTD-817-400	IC,TDA8174
⚠ IC501	S0-WD0-150-700	IC,TEA1507P/N1
		*** TRANSISTORS ***
Q405	SC-5T0-162-7Y0	TR,2SC1627
⚠ Q406	SD-UU0-249-900	TR,2SD2499(LBOEC1)
Q501	S4-10K-264-700	FET,2SK2647-01MR
Q503	SA-3T1-371-A00	TR,2SA1371
Q504	SC-ATC-319-800	TR,KTC3198
Q505	SC-3T0-290-900	TR,2SC2909
Q507	SC-ATC-319-800	TR,KTC3198
		*** COILS ***
L401	87-003-143-010	COIL,4.7MH
⚠ L402	S2-210-000-130	COIL,LINEA ELH5L4112
⚠ L501	S2-9T0-000-A10	COIL,LINE FILTER 0R7A223
⚠ L502	S2-9T0-000-920	COIL,LINE FILTER 1R0A103
		*** TRANSFORMERS ***
⚠ FB401	S4-322-101-2F0	TRANS,FLYBACK 3221012F
T401	S4-500-900-3J0	TRANS,HORIZ ETH09K1

ELECTRICAL REPLACEMENT PARTS LIST

	REF. NO	PART NO.	DESCRIPTION
⚠	T501	S4-813-507-840	TRANS,SW 81350784
			*** VARIABLE RESISTORS ***
	VR401	S1-163-Q2B-TC0	SFR,EVNCYAA
	VR402	S1-163-H3B-TC0	SFR,EVNCYAA03BE
	VR502	S1-262-Q2B-T60	SFR,RH063LCS2R
			*** CONNECTORS ***
	CD506	S6-9X6-200-400	CONN,JM-2BK-61
	CP403	S6-9D0-100-1A0	CONN,003P-2100
	CP503	S6-9X6-200-300	CONN,RE-H022TD-1130
	CP810	S6-9S2-906-290	CONN,A2001WV2-9P
	CP820	S6-9S2-E06-290	CONN,A2001WV2-14P
			*** FUSES ***
⚠	F501	S8-0NT-040-040	FUSE,50T040H
	FH501	S6-710-T00-060	HOLDER,FUSE EYF-52B
	FH502	S6-710-T00-060	HOLDER,FUSE EYF-52B
			*** RELAYS ***
⚠	RY501	S5-60V-201-150	RELAY,ALKS321
			*** IC PROTECTOR ***
⚠	ICP502	S8-45T-050-030	IC,PROTECTOR 20P_5000
	ICP504	S8-45T-050-030	IC,PROTECTOR 20P_5000
			*** OTHERS ***
	CD803	SD-L60-300-380	FLAT CABLE 300MM
	ICP401	S8-3PC-040-020	MICRO FUSE 251004
			CRT PWB ASS'Y
			*** RESISTORS ***
	R804	87-A00-164-090	RES,M 12K-2W
	R806	87-A00-164-090	RES,M 12K-2W
	R808	87-A00-164-090	RES,M 12K-2W
	R816	S3-X18-11R-8J0	RES,MO 1.8-1W
			*** CAPACITORS ***
	C803	87-015-695-080	CAP,E 1-50V
	C808	S0-PLR-R71-3K0	CAP,0.001-2KV
	C814	S0-ELT-D01-0M0	CAP,E 1-250V 250YK1MTA
			*** TRANSISTORS ***
	Q801	SC-A00-421-700	TR,KTC4217
	Q802	SC-A00-421-700	TR,KTC4217
	Q803	SC-A00-421-700	TR,KTC4217
			*** COILS ***
	L801	S2-137-510-1K0	COIL,100UH 9A06B-101KT
			*** CRT SOCKET ***
⚠	J801	S6-6C1-300-150	SOCKET,CRT CVT3275-510

	REF. NO	PART NO.	DESCRIPTION
			POWER SW PWB ASS'Y
			*** SWITCHES ***
	SW501	S5-302-050-170	SW,SDKVA30
			*** AC CORD ***
⚠	CD501	S2-064-398-010	CORD AC BUSH 0643980
			*** OTHERS ***
	EL001	S2-412-030-1A0	EYE LET XRY20X30BD
			IF PWB ASS'Y
			*** CAPACITORS ***
	C6002	87-010-071-080	CAP,E 1-50V
	C6003	87-010-071-080	CAP,E 1-50V
	C6004	87-010-112-080	CAP,E 100-16V
	C6011	87-010-825-010	CAP,E 0.22-50V
			*** ICS ***
	IC6001	S0-3D7-567-B00	IC,LA7567B
			*** TRANSISTORS ***
	Q6001	SA-3T0-608-KF0	TR,2SA608KF-NP-AA
	Q6005	SC-3T0-300-000	TR,2SC3000
			*** COILS ***
	L6001	87-003-147-010	COIL,22UH
	L6003	87-A50-040-010	COIL,2.2UH
	L6006	S3-360-K04-2R0	COIL,VIDEO IFT 360K042
	L6007	87-003-146-010	COIL,15UH
	L6008	S2-1LA-6R2-2M0	COIL,0.22 LAP02TAR22M
	L6011	87-003-108-010	COIL,0.68UH
			*** FILTERS ***
	CF6001	S0-12T-6R0-120	FILTER,CER SFSH6.0MCB-TF21
	CF6002	S0-22V-39R-520	FILTER,SAW SAF39.5MZL220ZL
	CF6005	S0-12T-6R0-030	CER,FLTR TPS6.0M
	CF6007	S0-12T-041-010	CER,FLTR MKT41.5MA110
	CF6008	S0-12T-031-020	FILTER,CERAMIC TRAP MKT31.5MA110P
			AND OTHERS
			*** COILS ***
⚠	L503	S2-8H2-000-150	COIL,DEGAUSS 8H200015
			*** OTHERS ***
	CD353	S6-CU1-474-010	CORD CONN CU147401
	SP301	S7-0C5-460-040	SPEAKER,SG04H02BRA
	SP302	S7-0C5-460-040	SPEAKER,SG04H02BRA
⚠	V801	S9-8A2-104-400	CRT W/DY A51EER33X74

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