

# Service Manual

## VIDEO CASSETTE RECORDER

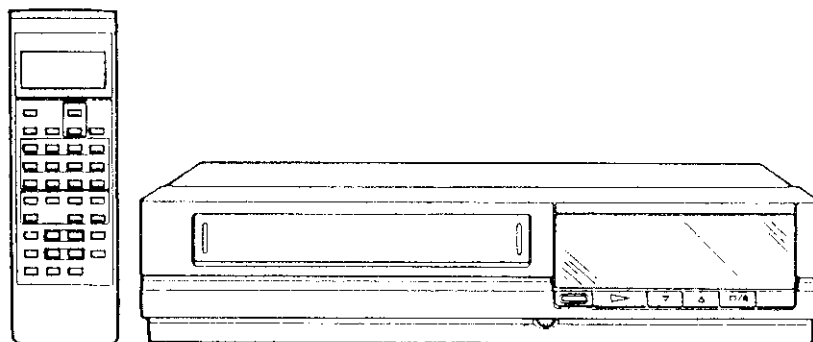


HQ HIGH QUALITY PICTURE

VPS VIDEO PROGRAM SYSTEM

### UHER

VH-791  
VCR-330  
VH-901



*Bei technischen Änderungen können Ergänzungsblätter angefordert werden.*

*Specifications are subject to change without notice.*

Chassis Code:

**A**

Bestell-Nr.:

**3501**

# SPECIFICATIONS

Power Source :	220V 50Hz	Heads :	Video : 2 rotary heads
Power Consumption :	Approx. 27W		Audio/Control : 1 stationary head
Operating Temperature :	5°C to 40°C		Erase : 1 full track erase
Television System :	CCIR : 625 lines, 50 fields	Input Level :	Video : VIDEO IN socket 1.0Vp-p, 75 ohm unbalanced
	PAL and OST color signal		Audio : AUDIO IN socket - 8 dB, 50K ohm unbalanced
Video Recording System :	2 rotary heads, helical scanning system	Output Level :	Video : VIDEO OUT socket 1.0Vp-p, 75 ohm unbalanced
	Luminance : FM azimuth recording		Audio : AUDIO OUT socket - 6 dB, 1K ohm unbalanced
	Color signal : Converted subcarrier phase shift recording	Weight :	5.2kg
Audio Track :	1 track	Dimension :	385(W)x81.5(H)x334(D)mm
Tape Format :	Tape width 12.7mm high density tape		
RF Output Channel :	36 (±4) channel		

# CONTENTS

	PAGE		PAGE
SPECIFICATIONS .....	1	2-4: NOISE CANCEL .....	14
KEY TO ABBREVIATIONS .....	2	2-5: E-E LEVEL .....	14
SERVICING FIXTURES & TOOLS .....	3	2-6: CARRIER AND DEVIATION .....	14
PREVENTIVE CHECKS AND SERVICE INTERVALS .....	3	2-7-A: SECAM IDENTIFICATION (1) .....	14
DECK PARTS LOCATION .....	4	2-7-B: SECAM IDENTIFICATION (2) .....	14
MECHANICAL ADJUSTMENTS		2-8: RECORD CURRENT .....	15
1. BEFORE MECHANICAL ADJUSTMENT		2-9: AUDIO BIAS CURRENT .....	15
1-1: HOW TO REMOVE AND INSTALL STAGE .....	5	2-10: PLAYBACK AUDIO LEVEL .....	15
2. REPLACEMENT OF MAIN PARTS		2-11: CLOCK .....	15
2-1: REEL DISK .....	5	2-12-A: VIDEO IF .....	15
2-2: A/C HEAD .....	6	2-12-B: CHECKING VIDEO IF OVERALL .....	16
2-3: UPPER DRUM .....	6	2-12-C: TRAP .....	16
2-4: CYLINDER UNIT .....	7	2-13: AFT .....	16
2-5: TENSION BAND .....	7	2-14: RF AGC .....	17
2-6: LOADING MOTOR/LOADING MOTOR BELT .....	7	2-15: COLOR LEVEL .....	17
2-7: PINCH ROLLER .....	7	MAJOR COMPONENTS LOCATION GUIDE .....	18
2-8: CAPSTAN DD UNIT .....	8	HOW TO RESET MICROCOMPUTER .....	19
2-9: TRANSISTOR PCB .....	9	TIMING CHARTS .....	20, 21
3. CONFIRMATION AND ADJUSTMENT		BLOCK DIAGRAMS	
3-1: CONFIRMATION OF FAST FORWARD TORQUE .....	9	Y. C. ....	22
3-2: CONFIRMATION OF REWIND TORQUE .....	9	SYSTEM CONTROL .....	23
3-3: CONFIRMATION OF PLAYBACK TAKE-UP TORQUE .....	10	SERVO .....	24
3-4: CONFIRMATION OF REEL BRAKE TORQUE .....	10	OPERATION / TUNER .....	25
3-5: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT .....	10	POWER SUPPLY / HEAD AMP/AUDIO .....	26
3-6: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION .....	11	P. C. BOARDS	
3-7: CONFIRMATION AND ADJUSTMENT OF BACK TENSION ON PLAYBACK .....	11	MAIN / OPERATION .....	27
4. TAPE RUNNING CONFIRMATION AND ADJUSTMENT		Y. C. / HEAD AMP .....	28
4-1: P1 POST .....	11	POWER SUPPLY/TRANSISTOR / DECK BOTTOM .....	29
4-2: P4 POST .....	11	SCHEMATIC DIAGRAMS	
4-3: GUIDE ROLLER .....	12	OPERATION .....	30
4-4: CONFIRMATION AND ADJUSTMENT OF A/C HEAD TILT .....	12	Y. C. ....	31
4-5: ADJUSTMENT OF A/C HEAD HEIGHT AND AZIMUTH .....	12	HEAD AMP/AUDIO .....	32
4-6: TAPE RUNNING ADJUSTMENT .....	12	SYSTEM CONTROL .....	33
ELECTRICAL ADJUSTMENTS		SERVO .....	34
1. BEFORE ELECTRICAL ADJUSTMENT .....	13	POWER SUPPLY .....	35
2. ADJUSTMENT PROCEDURE		TUNER .....	36
2-1: PB. SWITCHING POSITION .....	13	INTERCONNECTION DIAGRAM .....	37
2-2: TRACKING FIX .....	13	MECHANICAL EXPLODED VIEW .....	38
2-3: PLAYBACK LUMINANCE LEVEL .....	13	DECK EXPLODED VIEWS .....	39, 40
		MECHANICAL REPLACEMENT PARTS LIST .....	41
		DECK REPLACEMENT PARTS LIST .....	42
		ELECTRICAL REPLACEMENT PARTS LIST .....	43, 44

## HQ FEATURE

This video recorder is equipped with HQ (High Quality) recording capability. A built-in detail enhancer is used to boost the recorded signal for cleaner, sharper images and maximum picture quality in playback.

## VPS FUNCTION

If the VCR is turned to a TV station transmitting the VPS signal, the VCR automatically takes any delay or extension of the program into account and can record the specified program.

# KEY TO ABBREVIATIONS

<b>A</b>	AC	: Alternating Current	<b>L</b>	LED	: Light Emitting Diode
	A/C	: Audio/Control		LIMIT AMP	: Limiter Amplifier
	ACC	: Automatic Color Control		LM	: Loading Motor
	AE	: Audio Erase		LOAD	: Loading
	AFC	: Automatic Frequency Control		L.P.F	: Low Pass Filter
	AFT	: Automatic Fine Tuning		LUMI	: Luminance
	AFT DEF	: Automatic Fine Tuning Defeat	<b>M</b>	MM	: Monostable Multivibrator
	AGC	: Automatic Gain Control		MOD	: Modulator, Modulation
	AMP	: Amplifier		MS SW	: Mech State Switch
	ANT	: Antenna	<b>N</b>	NC	: Non Connection
	APC	: Automatic Phase Control	<b>O</b>	OSC	: Oscillator
	ASB	: Assemble Mode		OR EQ	: Or Equivalent
	AT	: All Time	<b>P</b>	PB	: Playback
<b>B</b>	BGP	: Burst Gate Pulse		PB CTL	: Playback Control
	BOT	: Beginning of Tape		P.CON	: Power Control
	B.P.F	: Band Pass Filter		PD	: Phase Detector
	B/W	: Black & White		PG	: Phase Generator
<b>C</b>	CASE	: Cassette		PWM	: Pulse Width Modulation
	CAP	: Capstan		PWM TV	: Pulse Width Modulated Tuning Voltage
	CARR	: Carrier	<b>R</b>	REC	: Recording
	CCD	: Charged Coupled Device		REC ST	: Recording Start
	CH	: Channel		REEL BRK	: Reel Brake
	CLK	: Clock		REEL S	: Reel Sensor
	CLOCK(SY-SE)	: Clock(Syscon to Servo)		REG	: Regulator, Regulated
	CONV	: Converter		REW	: Rewind
	CPM	: Capstan Motor		RF	: Radio Frequency
	CTL	: Control	<b>S</b>	S.CLK	: Serial Clock
	CYL	: Cylinder		S.COM	: Sensor Common
	CYL-M	: Cylinder Motor		S.DATE IN	: Serial Date Input
	CYL SENS	: Cylinder Sensor		S.DATE OUT	: Serial Date Output
<b>D</b>	DATA(SY-SE)	: Data(Syscon to Servo)		SEG	: Segment
	DC	: Direct Current		SER	: Search Mode
	DD UNIT	: Direct Drive Motor Unit		SI	: Serial Input
	DET	: Detection, Detector		SIF	: Sound Intermediate Frequency
	DEV	: Deviation		SO	: Serial Output
<b>E</b>	EE	: Electric to Electric		SP	: Standard Play
	EF	: Emitter Follower		STB	: Serial Strobe
	EOT	: Ending of Tape		SW	: Switch
	EQ	: Equalizer		SYNC SEP	: Sync Separator, Separation
	EXT	: External	<b>T</b>	TR	: Transistor
<b>F</b>	FBC	: Feed Back Clamp		TRACK VR	: Tracking Variable Resistor
	FE	: Full Erase		TRIC PB	: Trick Playback
	FG	: Frequency Generator		TP	: Test Point
	FL SW	: Front Loading Switch	<b>U</b>	UNREG	: Unregulated
	FM	: Frequency Modulation	<b>V</b>	VCO	: Voltage Controlled Oscillator
	FSC	: Frequency Sub Carrier		VIF	: Video Intermediate Frequency
	FWD	: Forward		VP	: Vertical Pulse, Voltage Display
<b>G</b>	GND	: Ground		VR	: Variable Resistor
<b>H</b>	H.P.F	: High Pass Filter		V-SYNC	: Vertical-Synchronization
<b>I</b>	IF	: Intermediate Frequency		VI	: Voltage Tuning
	INST	: Insert Mode	<b>Y</b>	Y/C	: Luminance/Chrominance
	INT	: Interrupt			
	INV	: Inverter			

# PREVENTIVE CHECKS AND SERVICE INTERVALS

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

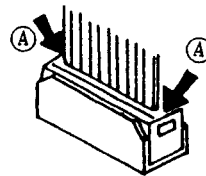
Parts Name	Time	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Full Erase Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clean those parts in contact with the tape.
Audio Control Head		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Loading Belt			<input type="checkbox"/>		<input type="checkbox"/>		Clean the rubber, and parts which the rubber touches.
Reel Belt			<input type="checkbox"/>		<input type="checkbox"/>		
Front Loading Belt			<input type="checkbox"/>		<input type="checkbox"/>		
Pinch Roller		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Capstan DD Unit						<input type="checkbox"/>	
Loading Motor						<input type="checkbox"/>	
Tension Band						<input type="checkbox"/>	
Capstan Shaft		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Replace when rolling becomes abnormal.
Impedance Roller		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Tape Running Guide Post		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cylinder Unit		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	※

○ : Replace  
 : Clean

※ Clean the upper drum (especially the video heads) in the direction of drum rotation using a thick, textured cloth with a high quality methyl alcohol. Avoid wiping vertically as this may cause damage to the video heads.

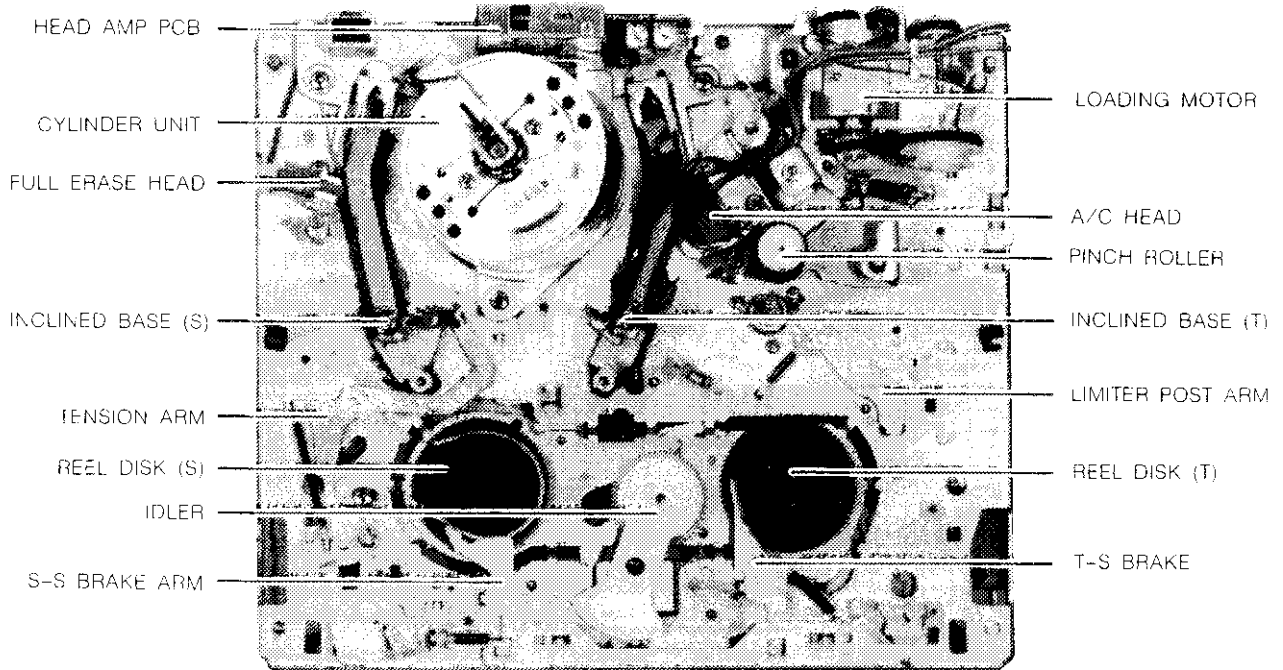
## HOW TO REMOVE AND INSTALL RIBBON WIRE IN CASE OF DISCONNECTION.

1. To remove the wire, simultaneously press both parts indicated by arrow (A).
2. To install the wire, do not press the parts indicated by arrow (A), but insert the wire into the connector.

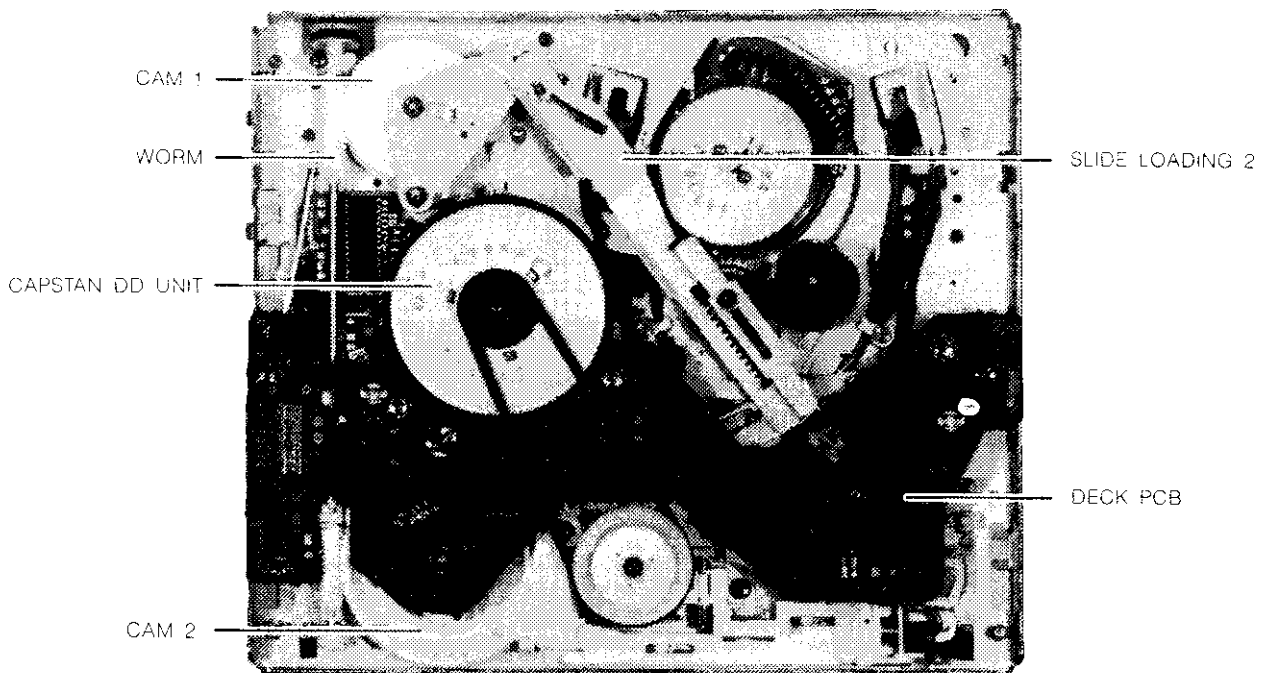


# DECK PARTS LOCATION

(TOP VIEW)



(BOTTOM VIEW)



# MECHANICAL ADJUSTMENTS

## 1. BEFORE MECHANICAL ADJUSTMENT

### CAUTION

Inferior silicon grease can damage IC's and transistors.  
When replacing an IC or transistor, use only specified silicon grease (YG6260M).  
Remove all the old silicon before applying new silicon.

### PRECAUTION

Remove the following items before adjusting the deck and starting work.

1. Remove 2 screws and remove the TOP CABINET.
2. Remove 5 screws and remove the BOTTOM CABINET.
3. Remove the FRONT CABINET.
4. Remove the STAGE. (Refer to item 1-1)

Read the following NOTED items before starting work.

- \* Remove the stage when replacing the deck parts.
- \* Place an object which weighs between 350g and 500g on the Cassette Tape to keep it steady when you want to make the tape run without the stage. (Do not place an object which weighs over 500g.)
- \* When you activate the deck without the stage, short Q1101(BOT SENSOR). EOT/BOT sensor will not function in this condition. Be sure to return the deck to it's original condition after repairs are completed.

### 1-1: HOW TO REMOVE AND INSTALL STAGE

#### REMOVAL (Refer to Fig. 1)

1. Remove the pulley of loading motor box and the loading motor belt hooked on the stage worm.
2. Remove the screws ① and ② in the EJECT mode.
3. Push the stage in the direction of the arrow and lift up to remove the stage.

#### NOTE

When you remove and install the stage, be careful not to touch the guide pin or cylinder head.

#### INSTALLATION

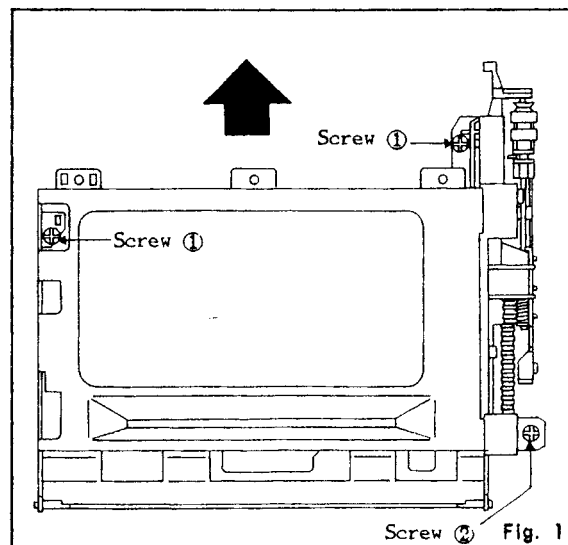
Install new stage in the reverse steps of REMOVAL.

#### NOTE

When you re-install the stage, it should be in the EJECT mode.

#### CONFIRMATION

1. The front loading operation works well when turning on the power and when inserting a cassette tape into the stage.
2. Each function works well when pressing the PLAY, EJECT and REC buttons.



## 2. REPLACEMENT OF MAIN PARTS

### 2-1: REEL DISK

#### REMOVAL (Refer to Fig. 2-1)

##### (Supply Reel Disk)

1. Remove the actuator sub brake.
2. Remove the SS brake spring, then remove the SS brake arm.
3. Remove the tension band from the main chassis.
4. Remove the polyslider washer ①.
5. Pull the supply reel disk ③ upward and replace it.

##### (Take-Up Reel Disk)

1. Remove the actuator sub brake.
2. Remove the TS brake spring, then remove the TS brake.
3. Remove the polyslider washer ④.
4. Pull the take-up reel disk ⑤ upward and replace it.

#### NOTE

The height adjustment washers ② and ⑥ are sometimes attached to the back of the reel disk.

#### INSTALLATION

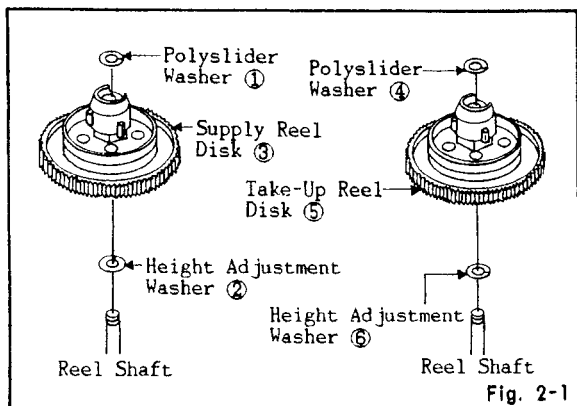
##### (Supply/Take-Up Reel Disk)

1. Clean the reel disk shaft and put in height adjusting washers ② and ⑥.
2. Install new reel disk.
3. Adjust the height of the reel disk. (Refer to item 3-5)
4. Pull out the new supply/take-up reel disk. After oiling (Cosmo Oil Hydro HV100) the reel disk shaft, install the new supply/take-up reel disk again.
5. Install the supply/take-up reel disk in the reverse steps of REMOVAL.

# MECHANICAL ADJUSTMENTS

## NOTE

1. Be careful not to damage the tension band at the time of removal and installation.
2. Be careful not to scratch the reel disk shaft with the polyslider washer or the tool at the time of removal and installation.
3. After installation, adjust and confirm the tension post position. (Refer to Item 3-6)



## 2-2: A/C HEAD

### REMOVAL (Refer to Fig. 2-2)

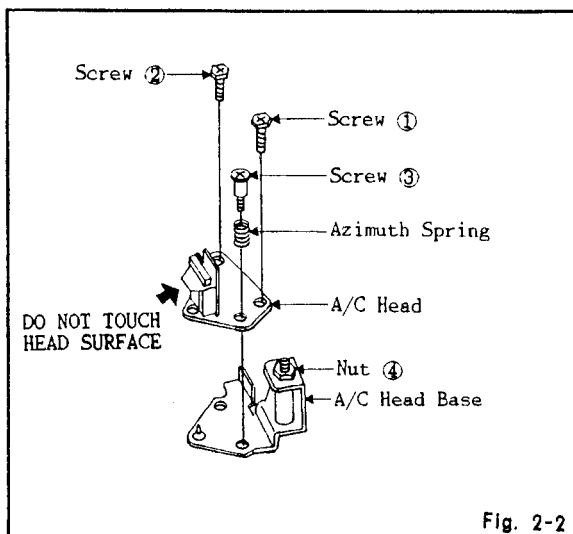
Remove the screws ①, ② and ③.

### INSTALLATION

Install new A/C head in reverse steps of REMOVAL.

## NOTE

Do not touch the heads by any means when replacing the A/C head.



## 2-3: UPPER DRUM

### REMOVAL (Refer to Fig. 2-3)

1. Remove the screw ② which holds the earth brush.
2. Desolder the lead wires ① from the upper drum assembly.
3. Be sure to use gloves, avoid the surface of cylinder unit. Hold down the upper drum preventing it from turning, then remove the screws ④, and remove the upper drum with the upper drum fixing jig (JG031).

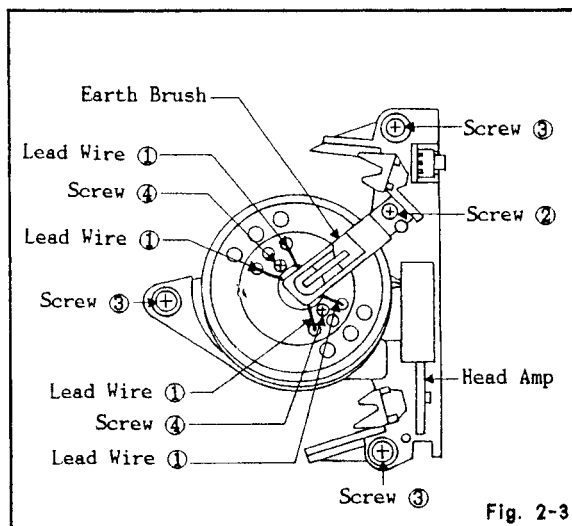
### INSTALLATION

Install new upper drum in the reverse steps of REMOVAL.

## NOTE

1. Do not apply excessive pressure to screwdriver.
2. Before installing, confirm that there are no scratches or dust on the disk, upper drum surface and drum head surface.
3. When setting, take care not to let any dust or dirt go into the clearance between disk and upper drum.
4. Do not touch the surface of the cylinder head.
5. Check the adjustment of tape running. (Refer to Item 4-6)
6. After replacement confirm the following adjustments.

- a. ELECTRICAL ADJUSTMENTS : ITEM 2-1
- b. ELECTRICAL ADJUSTMENTS : ITEM 2-2
- c. ELECTRICAL ADJUSTMENTS : ITEM 2-3
- d. MECHANICAL ADJUSTMENTS : ITEM 4-3



# MECHANICAL ADJUSTMENTS

## 2-4: CYLINDER UNIT

REMOVAL (Refer to Fig. 2-3)

1. Remove the transistor PCB.  
(Refer to Item 2-9)
2. Disconnect the connector (CP4102, 8 pin) from the head amp PCB.
3. Remove the screws ③, then remove the cylinder unit from the main chassis.
4. Disconnect the connector of the cylinder motor.

INSTALLATION

Install new cylinder unit in reverse steps of REMOVAL.

NOTE

1. Do not touch the surface of the cylinder head.
2. After replacement confirm the following adjustments.
  - a. ELECTRICAL ADJUSTMENTS : ITEM 2-1
  - b. ELECTRICAL ADJUSTMENTS : ITEM 2-2
  - c. ELECTRICAL ADJUSTMENTS : ITEM 2-3
  - d. MECHANICAL ADJUSTMENTS : ITEM 4-3

## 2-5: TENSION BAND

REMOVAL (Refer to Fig. 2-4)

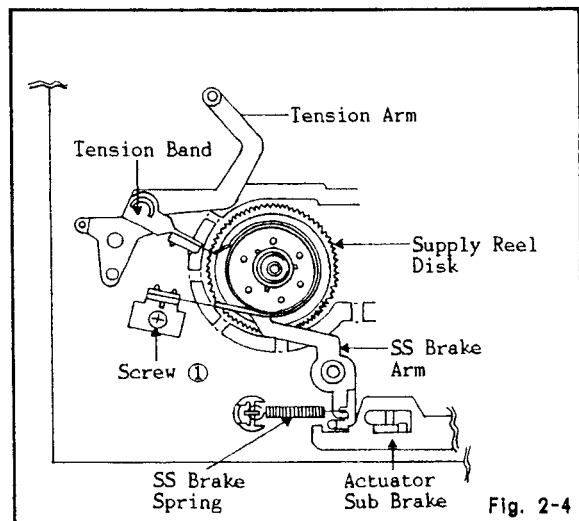
1. Remove the actuator sub brake.
2. Remove the SS brake spring, then remove the SS brake arm.
3. Remove the screw ①.
4. Remove the tension band from the tension arm.

INSTALLATION

Install new tension band in reverse steps of REMOVAL.

NOTE

1. Install the tension band without twisting it.
2. Adjust the placement of the tension post.  
(Refer to Item 3-6)
3. Adjust and confirm the back tension during playback. (Refer to Item 3-7)



## 2-6: LOADING MOTOR / LOADING MOTOR BELT

REMOVAL (Refer to Fig. 2-5)

1. Remove the 2 wires soldered to the loading motor.
2. Remove the lead wire in the hook of the loading motor box.
3. Remove the loading motor belt ②.
4. Remove the screw ①, then remove the loading motor box.
5. Remove the loading motor belt ③.
6. Remove the screw ④, then lift the loading motor upward.

INSTALLATION

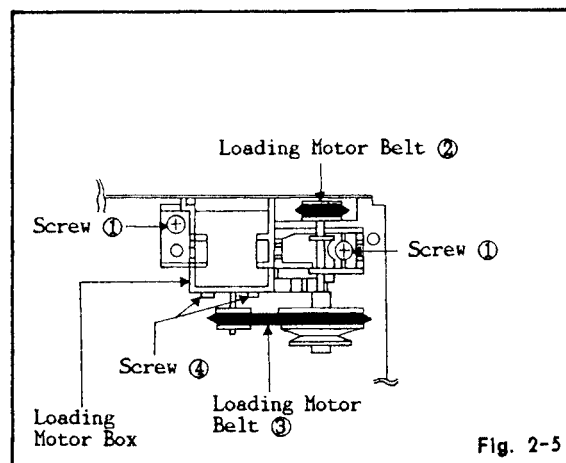
Install new loading belt in reverse steps of REMOVAL.

NOTE

1. Clean the pulley when replacing loading belt.
2. Replace it while in the EJECT mode.
3. Avoid getting grease on the loading belt.

CHECK AFTER INSTALLATION

1. Check if strange sound is heard in PLAY mode.
2. Check if P2 post and P3 post are fitted to the post stopper.
3. Check if P2 post and P3 post are completely returned in EJECT mode.



## 2-7: PINCH ROLLER

REMOVAL (Refer to Fig. 2-6)

1. Remove the pinch roller arm spring.
2. Remove the polyslider washer ①.
3. Remove the pinch roller.

INSTALLATION

Install new pinch roller in reverse steps of REMOVAL.

NOTE

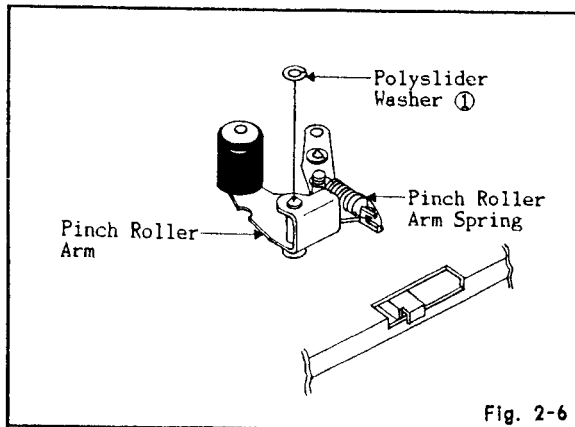
1. Be careful not to bend the pinch roller arm in removal and installation.
2. Do not touch the pinch roller. (Use gloves.)

CHECK AFTER INSTALLATION

Check if the tape is running normally in PLAY mode.



# MECHANICAL ADJUSTMENTS



## 2-8: CAPSTAN DD UNIT

### REMOVAL

1. Disconnect the connector (CP2003 17 pin) from the main PCB.
2. Disconnect the connector (CP4102 8 pin) of the head amp PCB and the connector (CP5001 5 pin, CP2001 2 pin) of the main PCB.
3. Remove the screw ①, unlock the hooks (3 positions) which have been connected to the main PCB. (Refer to Fig. 2-7-A)
4. Disconnect the connector (9 pin) of the capstan DD unit.
5. Disconnect the connector (6 pin) of the cylinder unit back side.
6. Remove the reel belt.
7. Remove the solder "A" positions, remove the screws ① and then remove the deck bottom PCB.
8. Remove the loading motor belt ②.
9. Remove the screw ④, then remove the bracket worm 3.
10. Pull the hook ③ in the direction of arrow, then remove the worm. (Refer to Fig. 2-7-B)
11. Remove the screws ①, then remove the capstan DD unit. (Refer to Fig. 2-7-C)  
(Be sure to support with hand under the capstan DD unit.)

### INSTALLATION

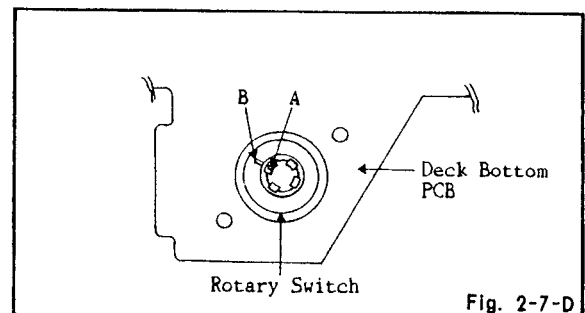
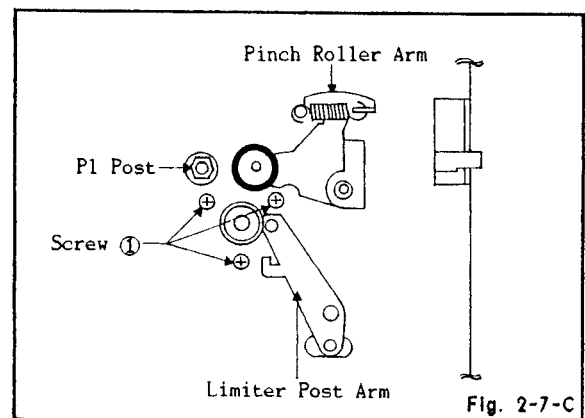
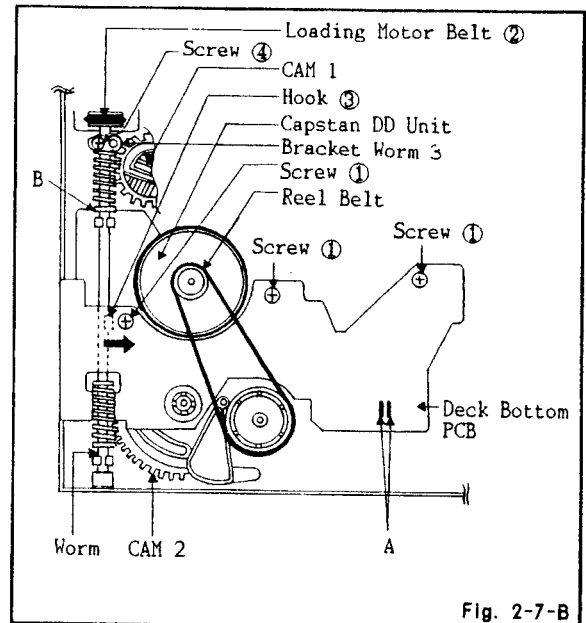
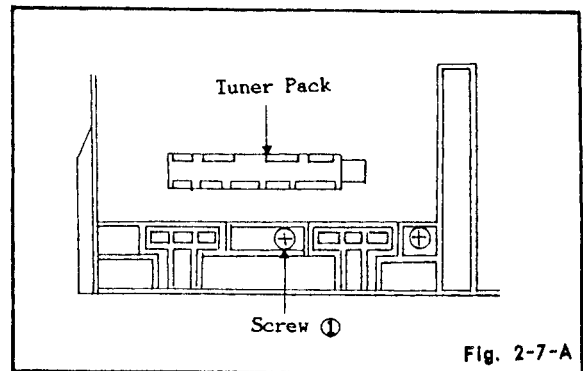
Install new capstan DD unit in reverse steps of REMOVAL.

### NOTE

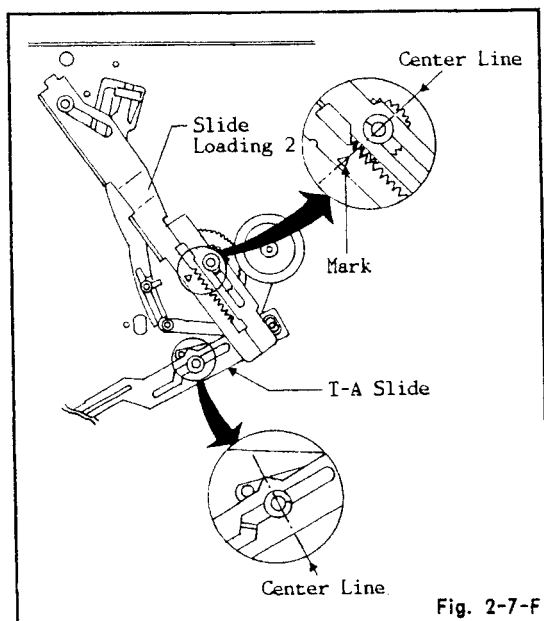
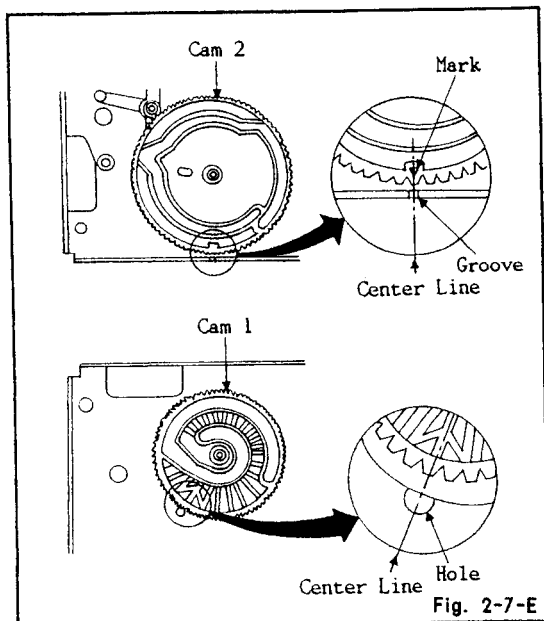
1. Do not bend the limiter post.
2. Use the specified screw held to the DD unit.
3. Avoid getting grease on the reel belt.
4. Be sure to install in the EJECT position. (Refer to Fig. 2-7-E, F)
5. Install in the position where the capstan DD unit PCB gets up to the "B" position. (Refer to Fig. 2-7-B)
6. When installing the worm, be sure to unlock the hook ③ in the direction of arrow, and the cam 1 and cam 2 must be meshed smoothly. (Refer to Fig. 2-7-B)
7. When installing the deck bottom PCB, be sure to install the rotary switch in the EJECT position. The EJECT position is the point where the "A" tooth is aligned to the "B". (Refer to Fig. 2-7-D)

### CHECK AFTER INSTALLATION

1. Check if tape running is normal in PLAY mode.
2. Check if FF/REW mode works normally.



# MECHANICAL ADJUSTMENTS



## 2-9: TRANSISTOR PCB

### REMOVAL

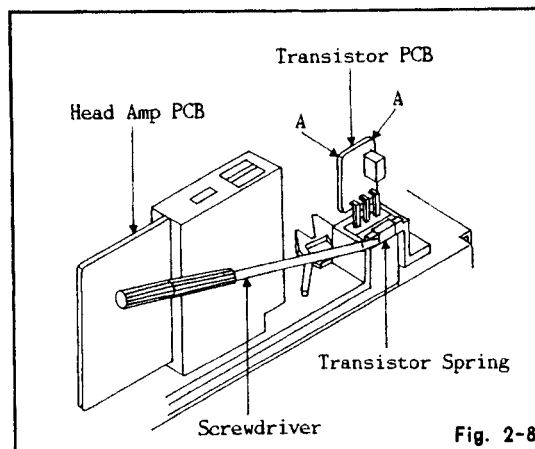
1. Insert a small flat-blade screwdriver into the transistor spring as shown in Fig. 2-8.
2. Hold both edges of the transistor PCB ("A" part) with your fingers and pull out the transistor PCB while turning the driver.

### INSTALLATION

Install new transistor PCB in reverse steps of REMOVAL.

### NOTE

1. The unit should be unplugged from the AC outlet.
2. Do not scratch or mar the cylinder.
3. Be careful not to split the transistor PCB.
4. If the transistor spring is broken when holding or removing the transistor PCB, replace with a new one.



## 3. CONFIRMATION AND ADJUSTMENT

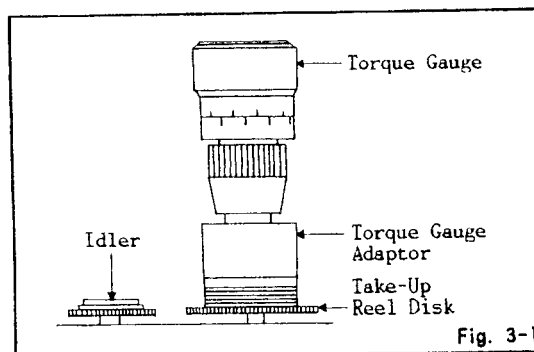
### 3-1: CONFIRMATION OF FAST FORWARD TORQUE

#### CONFIRMATION

1. Set torque gauge (JG002G) on take-up reel disk, and place unit in FAST FORWARD mode. (Refer to Fig. 3-1)
2. Confirm that torque is more than 800g/cm.

#### NOTE

After setting the torque gauge on the reel disk, hold the gauge in place. Push the FAST FORWARD button and the reel disk will begin to turn.



### 3-2: CONFIRMATION OF REWIND TORQUE

#### CONFIRMATION

1. Operate within 4 or 5 seconds after the reel disk begins to turn.
2. Set torque gauge (JG002G) on supply reel Disk, and place the unit in REWIND mode. (Refer to Fig. 3-2)
3. Confirm that torque is more than 800g/cm.

#### NOTE

After setting the torque gauge on the reel disk, hold the gauge in place. Push the FAST FORWARD button and the reel disk will begin to turn.

# MECHANICAL ADJUSTMENTS

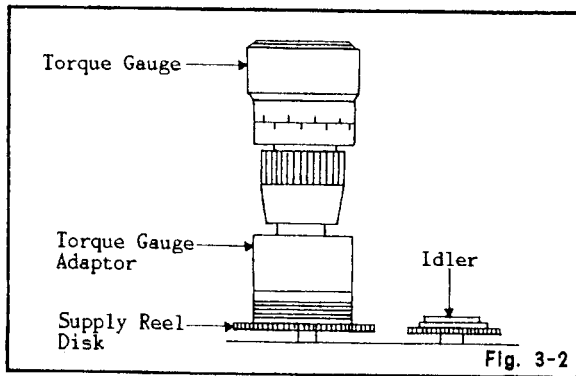


Fig. 3-2

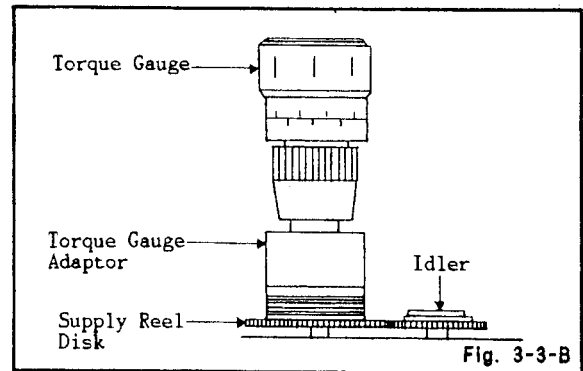


Fig. 3-3-B

## 3-3: CONFIRMATION OF PLAYBACK TAKE-UP TORQUE

### CONFIRMATION

1. Set the torque gauge (JG002F) on the rewind reel disk, then check PB mode.
2. Make sure that the torque covers the range, 60~150g/cm.

## 3-4: CONFIRMATION OF REEL BRAKE TORQUE

### CONFIRMATION (Refer to Fig. 3-3-A)

#### (Take-Up Reel Brake)

1. Set to STOP mode.
2. Set the torque gauge (JG002G) to the take-up reel and turn it counter-clockwise.
3. Confirm that it is more than 200g/cm at that time.

### CONFIRMATION (Refer to Fig. 3-3-B)

#### (Supply Reel Brake)

1. Set to STOP mode.
2. Set the torque gauge (JG002G) to the supply reel and turn it clockwise.
3. Confirm that it is more than 200g/cm at that time.

### NOTE

Separate the idler from the reel and confirm the brake torque.

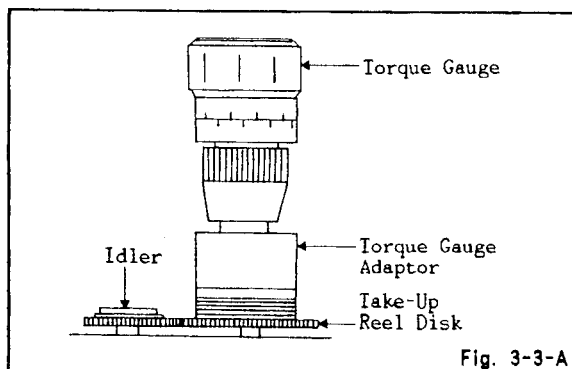


Fig. 3-3-A

### NOTE

Refer to the table below for possible cause of problems when confirmation cannot be made for indicated items.

CONFIRMATION ITEM	CHECK POINT (REPLACEMENT)
3-1 3-2 3-3	Capstan belt may be stretched. Clutch may be worn out (if so, change reel disk.) Idler ass'y may be worn out.
3-4	Main brake belt may be worn out.

## 3-5: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

### ADJUSTMENT

1. Turn the POWER SW ON.
2. Set the master plane (JG022) at mechanism framework, taking care not to scratch the drum, as shown in Fig. 3-4-A.
3. Confirm that the reel disk is lower than "A" of the reel disk height adjustment jig, (JG024) on the master plane and higher than "B" as shown in Fig. 3-4-B.
4. When it does not satisfy above items, adjust to less than  $7.5 \pm 0.2$ mm with the height adjustment washer.

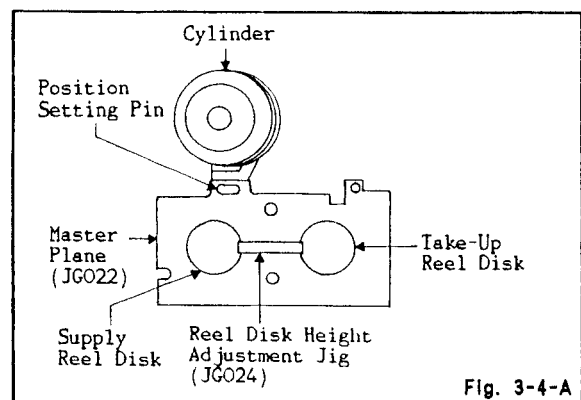


Fig. 3-4-A

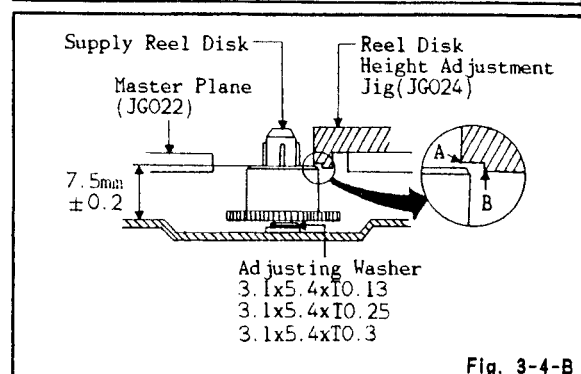


Fig. 3-4-B

# MECHANICAL ADJUSTMENTS

## 3-6: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

### CONFIRMATION

1. Turn on the power and set to the PLAY mode by using the tension post adjustment jig (JG036).
2. As soon as the guide rollers, L, R begin to draw the tape from the cassette, the tension post shall move to the left, thus loading will start.
3. Move the tension band adjuster to the "A" or the "B" direction to set tension post adjusting jig red line to the round of the tension post. (Refer to Fig. 3-5)
4. Confirm that the video tape is not curling at the flange of P1 post or is not running on flanges.

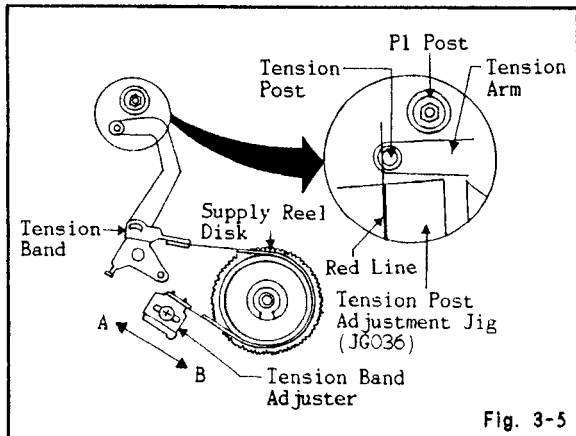


Fig. 3-5

## 3-7: CONFIRMATION AND ADJUSTMENT OF BACK TENSION ON PLAYBACK

### CONFIRMATION

1. Load the E-60 cassette tape recorded in standard speed mode.
2. Set the unit in the PLAY mode.
3. Install the tentelometer as shown in Fig. 3-6. Confirm the value is within 25~35g/cm at this time.
4. Confirm the video tape is running tight on P1 post.
5. Confirm there is no sag or damage on edges of the tape both in the beginning and ending of the video tape.
6. Adjust when it does not satisfy the above items.
7. Set the tension arm spring to "B" direction when the tentelometer indicates less than 25g/cm. (Refer to Fig. 3-6)  
Set the tension arm spring to "A" direction when the tentelometer indicates more than 35g/cm. (Refer to Fig. 3-6)

### NOTE

The tentelometer should not touch F/E Head, cylinder or other components in the tape path.

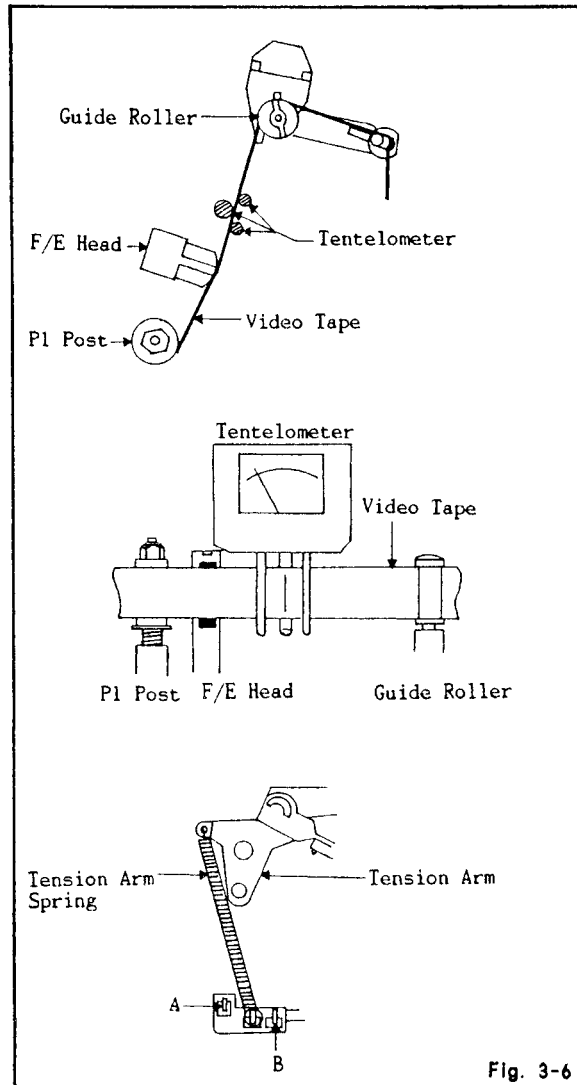


Fig. 3-6

## 4. TAPE RUNNING CONFIRMATION AND ADJUSTMENT

Tape running is adjusted precisely at the factory. Normally, it is not necessary to make adjustments. It is necessary to confirm and make adjustments when the parts of the tape running mechanism are replaced because of extensive usage or failure.

### 4-1: P1 POST

#### ADJUSTMENT

1. Set to the EJECT mode. Install the P1/P4 post height adjustment jig (JG035) to the main chassis.
2. Adjust the P1 post with P1/P4 post height adjustment jig "A" part. (Refer to Fig.4-1)

### 4-2: P4 POST

#### ADJUSTMENT

1. Set to the EJECT mode. Install the P1/P4 post height adjustment jig (JG035) to the main chassis.
2. Adjust the P4 post with P1/P4 post height adjustment jig "B" part. (Refer to Fig.4-1)

# MECHANICAL ADJUSTMENTS

## NOTE

1. Adjust the guide roller. (Refer to Item 4-3. Confirm there no crease on the edge of the tape).
2. Do not move the nut.
3. Fix P4 post with screw lock.
4. Adjust the tape running. (Refer to Item 4-6)

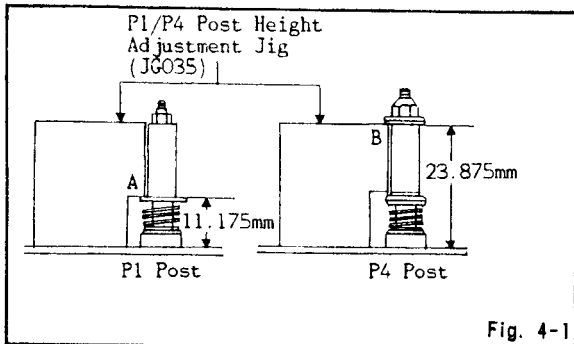


Fig. 4-1

## 4-3: GUIDE ROLLER

### ADJUSTMENT

1. Switch on main power and then connect monitor output cord and video input cord to proper positions.
2. Insert the VHS adjustment tape (JG001) into the unit.
3. Connect CH-1 and CH-2 of oscilloscope to envelope output and to the test point of switching pulse, respectively.
4. Carry out this adjustment in PLAY mode.
5. Trigger with SW pulse and observe the envelope. (Refer to Fig. 4-2-A)
6. Adjust the guide roller height while observing the envelope, and make the envelope flat. Adjust the envelope so that the flatness will not be affected even when the tracking control knob is turned. (Use the adjustment screwdriver JG005).
7. When the tracking control knob is turned (the point that the envelope waveform starts to reduce), adjust the envelope so that its A:B ratio is better than 10:7. (Refer to Fig. 4-2-B)
8. Adjust the PB switching position (ELECTRICAL ADJUSTMENTS : ITEM 2-1) in the PLAY mode.

## NOTE

After adjustment, confirm and adjust A/C head tilt. (Refer to Item 4-4)

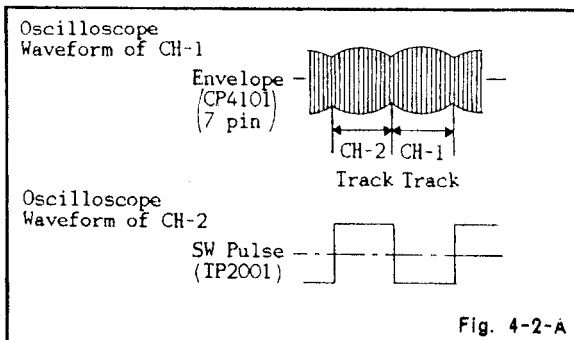


Fig. 4-2-A

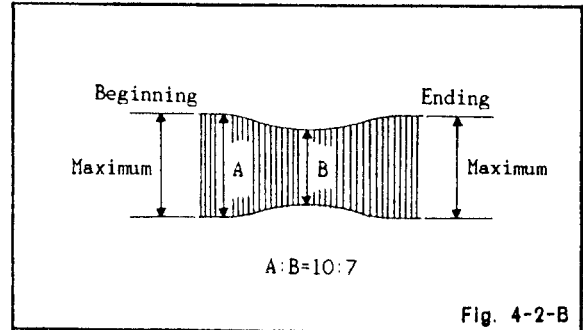


Fig. 4-2-B

## 4-4: CONFIRMATION AND ADJUSTMENT OF A/C HEAD TILT

### ADJUSTMENT

When the tape is running abnormally, perform the following adjustments.

1. Check the tape running condition with the unit in the PLAY mode using the E-60 tape.
2. Confirm that there is no crease on the tape between the guide post and guide roller(R) and the tape is running smoothly. (It is absolutely impossible to get satisfactory sound if the tape is distorted between the A/C head and guide post.)
3. If the tape still does not run smoothly, turn the screw ① and adjust the tilt of the A/C head. Do not move the guide post. (Refer to Fig. 2-2)

## 4-5: ADJUSTMENT OF A/C HEAD HEIGHT AND AZIMUTH

### ADJUSTMENT

1. Playback a VHS adjustment tape (JG001) and observe the waveform at the audio output terminal.
2. Turn the screw ② slowly to change the height of the A/C head. Adjust the height so that the audio output becomes maximum. (Refer to Fig. 2-2)
3. Adjust the nut ③. (Refer to Fig. 2-2) until the height of the A/C head reaches the position against the tape as shown in Fig. 4-3.

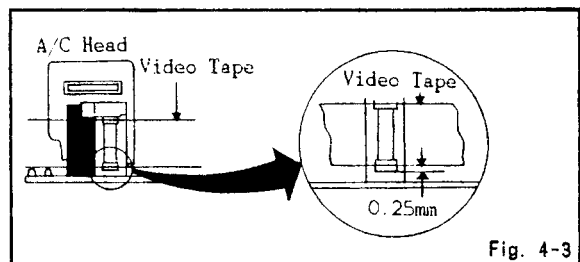


Fig. 4-3

## 4-6: TAPE RUNNING ADJUSTMENT

1. Adjust the height of reel disk. (Refer to Item 2-1)
2. Adjust the P1 post, P4 post. (Refer to Item 4-1, 2)
3. Confirm and adjust tension post position. (Refer to Item 3-6)
4. Adjust the guide roller. (Refer to Item 4-3)
5. Adjust the A/C head height and azimuth. (Refer to Item 4-5)
6. Adjust the A/C head tilt. (Refer to Item 4-4)
7. Set the tracking control to the center position. Turn X-nut adjustment screwdriver (JG021) until the envelope appears maximum.

# ELECTRICAL ADJUSTMENTS

## 1. BEFORE ELECTRICAL ADJUSTMENT

These are adjustments when you replace electric parts or PCB ass'y. When you repair the electric circuit, please read these adjustments.

1-1: Prepare the following measurement tools for the electrical adjustment.

1. Oscilloscope (2 channel type)
2. AC Voltmeter
3. Sweepmarker Generator
4. AFT Adjustment Oscillator
5. VIF Unit
6. Audio Oscillator
7. Frequency Counter
8. DC Voltmeter
9. Spectrum Analyzer

## 2. ADJUSTMENT PROCEDURE

2-1: PB. SWITCHING POSITION

CONDITIONS

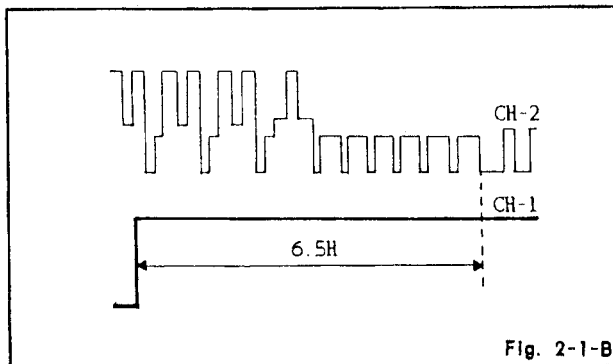
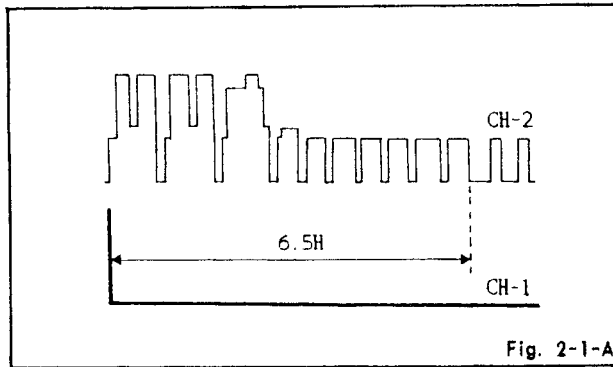
MODE - PLAYBACK  
Input Signal - Standard Test Tape

NOTE

Tracking control should be set at click point.

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to TP2001 and CH-2 to TP4201.
2. Playback the tape.
3. Adjust VR2001 so that the waveform of the oscilloscope measures  $6.5 \pm 0.5(H)$  at both leading and trailing edges.  
(Refer to Fig. 2-1-A, B)



2-2: TRACKING FIX

CONDITIONS

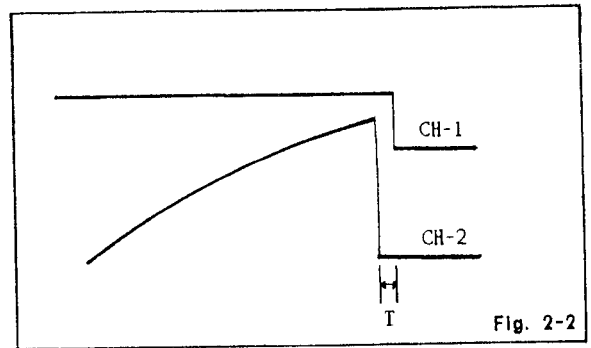
MODE - PLAYBACK  
Input Signal - Standard Test Tape

NOTE

Tracking control should be set at click point.

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to TP2001 and CH-2 to TP2003.
2. Playback the tape.
3. Adjust VR2002 so that the "T" portion measures  $-1.0 \pm 0.3 \text{msec}$ .  
(Refer to Fig. 2-2)



2-3: PLAYBACK LUMINANCE LEVEL

CONDITIONS

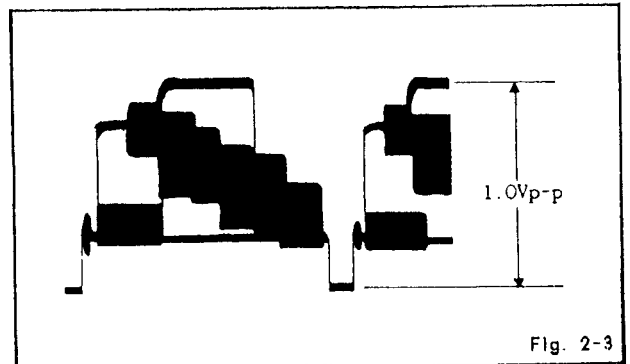
MODE - PLAYBACK  
Input Signal - Color Bar Test Tape

NOTE

Video out of the unit should be terminated with 75 ohm load.

INSTRUCTIONS

1. Connect the oscilloscope to TP4201.
2. Playback the tape.
3. Adjust VR4003 so that the signal becomes  $1.0 \pm 0.05 \text{Vp-p}$  as shown in Fig. 2-3.



# ELECTRICAL ADJUSTMENTS

## 2-4: NOISE CANCEL

### CONDITIONS

MODE - PLAYBACK

Input Signal - Color Bar Test Tape

### INSTRUCTIONS

1. Connect CH-1 of the oscilloscope to TP4003 and CH-2 on the oscilloscope to TP4004.
2. Reverse the waveform for CH-2 with an inverter and put both the waveforms for CH-1 and CH-2 together by pressing the ADD SW on the oscilloscope.
3. Adjust the VR4005 so that the waveform of CH-1 is straight as shown in Fig. 2-4.

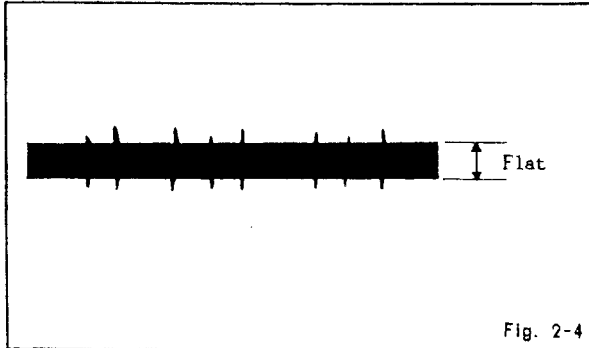


Fig. 2-4

## 2-5: E-E LEVEL

### CONDITIONS

MODE - STOP

Input Signal - PAL Color Bar

### NOTE

Video out of the unit should be terminated with 75 ohm load.

### INSTRUCTIONS

1. Input the color bar signal to the VIDEO IN.
2. Connect the oscilloscope to TP4005.
3. Adjust VR4004 so that the waveform measures  $0.53 \pm 0.01V_{p-p}$ . (Refer to Fig. 2-5)

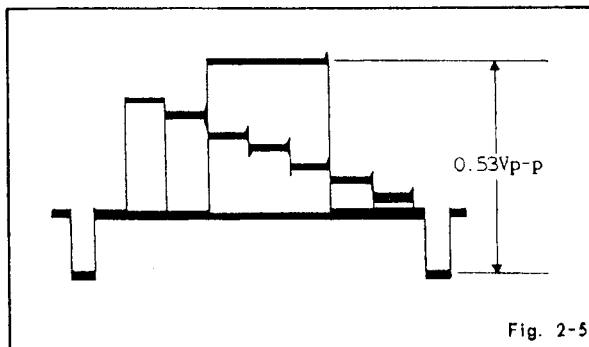


Fig. 2-5

## 2-6: CARRIER AND DEVIATION

### CONDITIONS

MODE - STOP

Input Signal - PAL Color Bar

### INSTRUCTIONS

1. Input the color bar signal to the VIDEO IN.
2. Connect TP4001 to the input terminal on the spectrum analyzer, then adjust 3.8MHz and 4.8MHz as shown in Fig. 2-6 with VR4001 and VR4002.

VR4001 (CARRIER)  
VR4002 (DEVIATION)

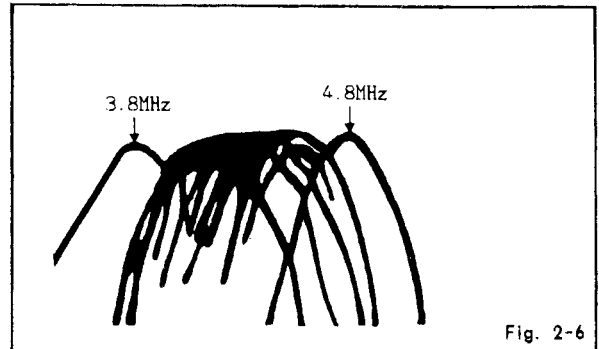


Fig. 2-6

## 2-7-A: SECAM IDENTIFICATION (1)

### CONDITIONS

MODE - RECORD

Input signal - SECAM RF signal

### INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to TP4201 and CH-2 to TP3702.
2. Adjust L3702 so that peak of waveform "A" and leading edge of video signal of waveform "B" may become same as shown in Fig. 2-7.

## 2-7-B: SECAM IDENTIFICATION (2)

### CONDITIONS

MODE - RECORD

Input signal - SECAM RF signal

### INSTRUCTIONS

1. Connect the oscilloscope to TP3701.
2. Receive SECAM RF signal at 33dB.
3. At this time, adjust TP3701 to High Level with VR3701
4. Next, check that the TP3701 will indicate Low Level with adjusting the output level to 31dB.
5. Receiving the PAL signal, check that the TP3701 will indicate Low Level regardless of output strength.

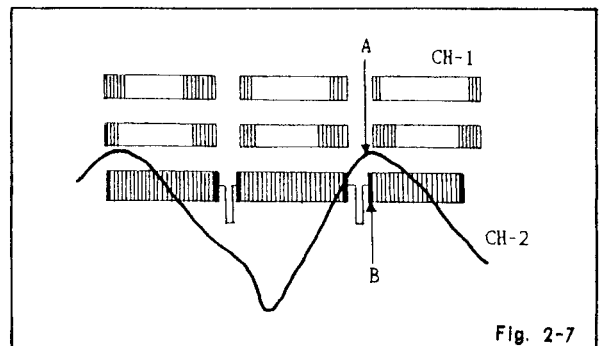


Fig. 2-7

# ELECTRICAL ADJUSTMENTS

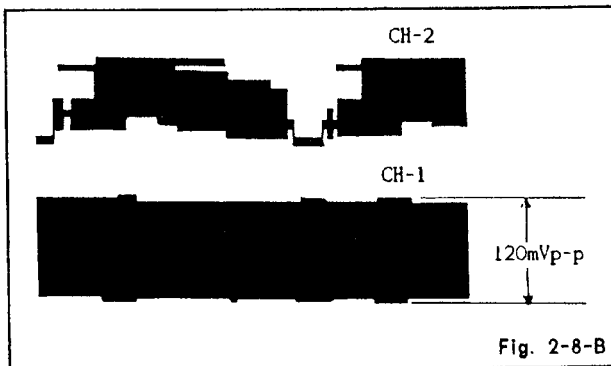
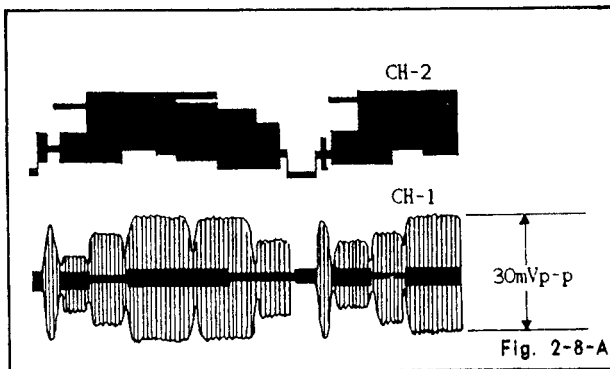
## 2-8: RECORD CURRENT

### CONDITIONS

MODE - RECORD (SP MODE)  
Input Signal - PAL Color Bar

### INSTRUCTIONS

1. Input the color bar signal to the VIDEO IN.
2. Connect CH-1 on the oscilloscope to TP4101 and connect the GND side to TP4102. Connect CH-2 on the oscilloscope to TP4201.  
Reduce REC.-Luminance signal factors by turning VR4102 fully counter-clockwise.
3. Adjust VR4101 so that the cyan level becomes  $30 \pm 2\text{mVp-p}$  as shown in Fig. 2-8-A.
4. Adjust VR4102 so that the horizontal sync level becomes  $120 \pm 5\text{mVp-p}$  as shown in Fig. 2-8-B.



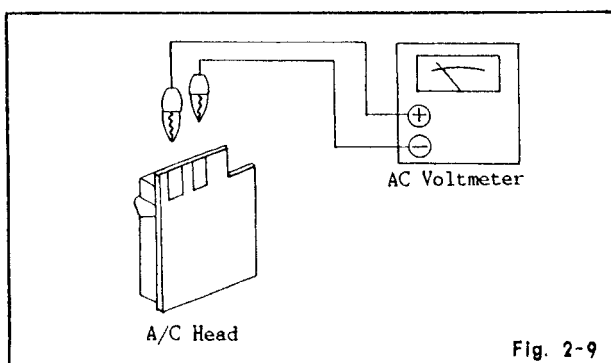
## 2-9: AUDIO BIAS CURRENT

### CONDITIONS

MODE - RECORD  
Input Signal - No Signal

### INSTRUCTIONS

Connect the AC voltmeter to the arrow point, then adjust the voltage to  $3.3 \pm 0.1\text{mVrms}$  with VR5002. (Refer to Fig. 2-9)



## 2-10: PLAYBACK AUDIO LEVEL

### CONDITIONS

MODE - Self (RECORD and PLAYBACK) (SP MODE)  
Input Signal - 1KHz 300mVrms, Audio Signal  
Video Signal : PAL Color Bar

### INSTRUCTIONS

1. Connect the AC voltmeter to AUDIO OUT, which is terminated with 47K ohm resistor.
2. Record and then playback the audio signal as specified.
3. Adjust VR5001 so that the playback output may become  $390 \pm 10\text{mVrms}$ .

## 2-11: CLOCK

### CONDITIONS

MODE - STOP  
POWER ON  
CLOCK SET

### INSTRUCTIONS

1. Connect the frequency counter to TP601.
2. Adjust TC601 so that the value of frequency counter is  $1048576 \pm 1\text{Hz}$ .

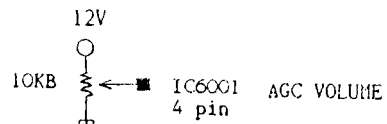
## 2-12-A VIDEO IF

### CONDITION

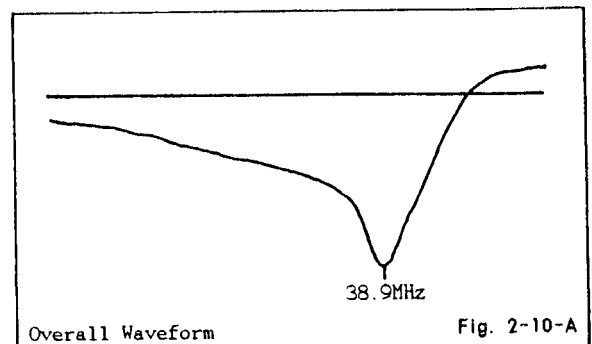
MODE - STOP

### INSTRUCTIONS

1. Connect the output of sweepmarker generator to pin 7 side on IC6001 of resistor R6030 (1 Kohm).



2. Adjust L6004 so that output waveform of pin 16 on IC6001 may become as shown in Fig. 2-10-A.





# ELECTRICAL ADJUSTMENTS

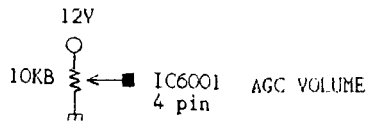
## 2-12-B: CHECKING VIDEO IF OVERALL

CONDITION

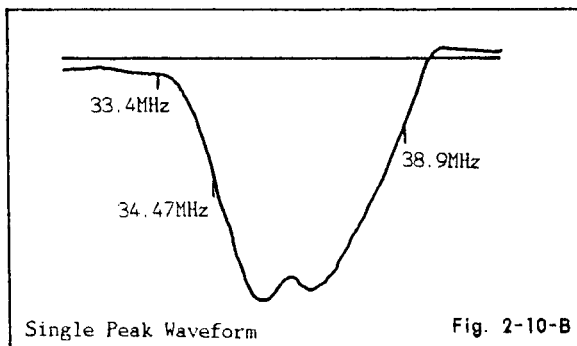
MODE - STOP

INSTRUCTIONS

1. Connect the output of sweepmarker generator to the tuner pack TP.



2. Terminate with a 100 ohm resistor between pins 13 and 14 on IC6001.
3. Make sure that the output of waveform of pin 16 on IC6001 may become as shown in Fig. 2-10-B.



## 2-12-C: TRAP

CONDITION

MODE - TUNER

INSTRUCTIONS

1. Connect the pin 1 of connector CP6001 to the output of the sweepmarker generator.
2. Connect the saw filter (CF6001) side of the condenser, to the oscilloscope. (Use the detector as prob.) (Refer to Fig. 2-10-C)
3. Adjust L6014 until the marker of 32.4MHz will be same as shown in Fig. 2-10-D.

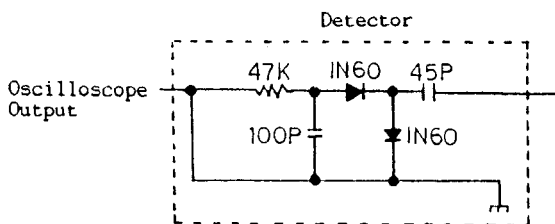


Fig. 2-10-C

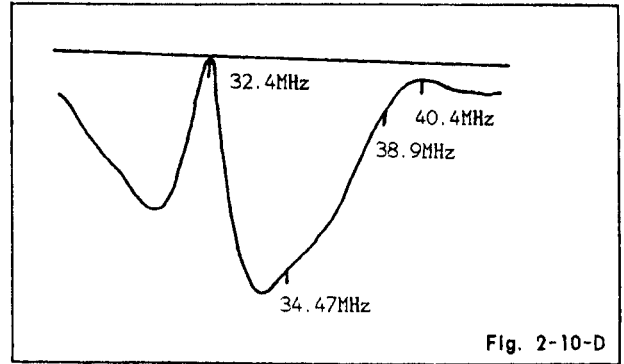


Fig. 2-10-D

## 2-13: AFT

NOTE

Disconnect the condenser C6014 in the adjustment.

INSTRUCTIONS

1. Connect output of the sweepmarker generator to Tuner Pack TP and adjust L6005 so that output waveform for TP6002 is as shown in Fig. 2-11.
2. Disconnect the sweepmarker generator and the oscilloscope from tuner pack TP and connect the condenser C6014.
3. Connect the AFT adjustment oscillator (38.9MHz) to the tuner pack TP through 2.2K ohm and connect the DC voltmeter to TP6002.
4. Adjust L6005 so that voltage at AFT switch ON is as much as one at AFT switch OFF.

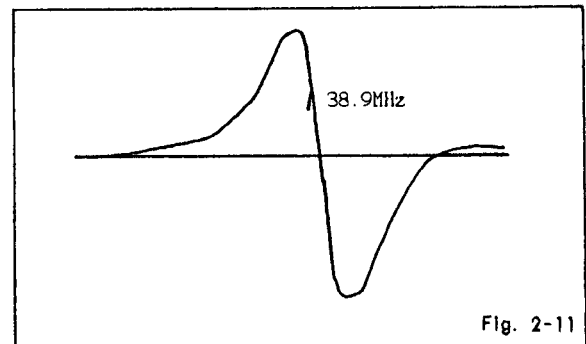


Fig. 2-11

# ELECTRICAL ADJUSTMENTS

## 2-14: RF AGC

### CONDITIONS

MODE - STOP  
AFT SW : ON MODE

### INSTRUCTIONS

1. Receive the monochrome pattern signal.  
(Receive the E-11ch)
2. Connect the DC voltmeter to TP6008.
3. Set input field strength to 80dB  $\mu$ .
4. Adjust VR6001 so that the voltage is equal to  $4.5 \pm 0.1V$ .

## 2-15: COLOR LEVEL

### CONDITIONS

MODE - STOP  
AFT SW : ON MODE

### NOTE

Video out of the unit should be terminated with 75 ohm load.

### INSTRUCTIONS

1. Obtain a color bar signal.  
(Receive the E-48ch)
2. Connect the oscilloscope to TP4201.
3. Adjust VR6002 so that the magenta level is  $55 \pm 5\%$  when Y-level is 100%.  
(Refer to Fig. 2-12)

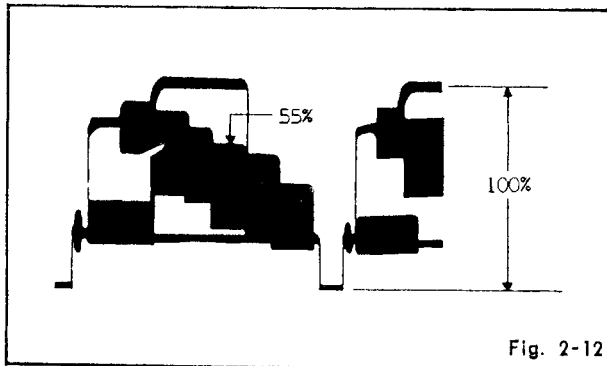
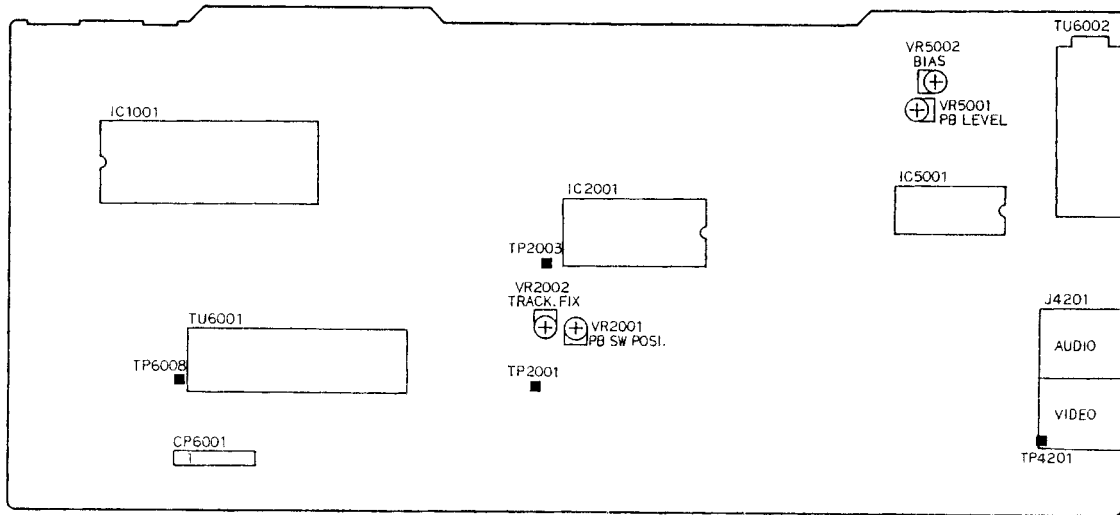
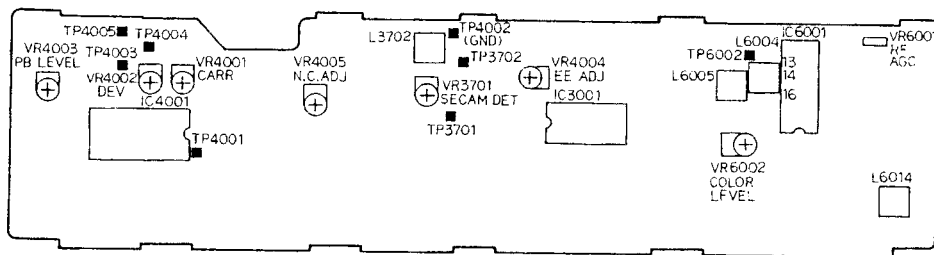


Fig. 2-12

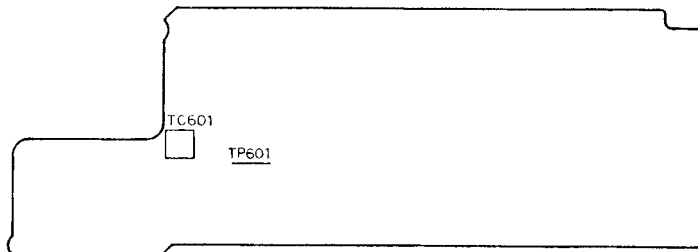
# MAJOR COMPONENTS LOCATION GUIDE



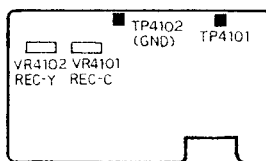
MAIN P.C. BOARD



Y. C P.C. BOARD



OPERATION P.C. BOARD



HEAD AMP P.C. BOARD

# HOW TO RESET MICROCOMPUTER

When either or both of the following conditions occur, follow the procedure below:

## CONDITIONS

- \* The digitron display does not light up.
- \* The unit does not stop, even when the "STOP" button is pressed.

## PROCEDURE

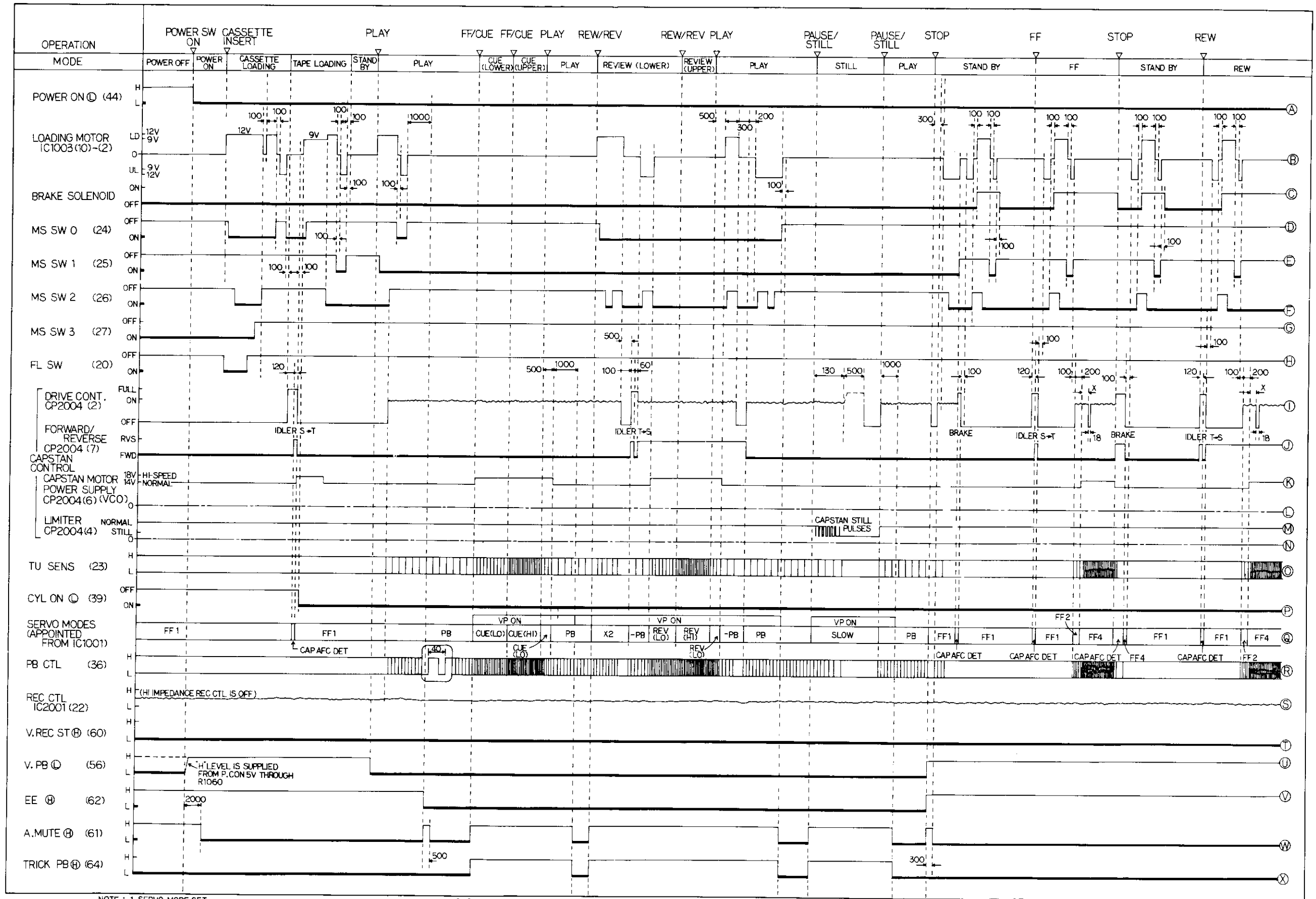
1. The reset switch is accessed through an unmarked hole, which is pointed by arrow in the illustration.
2. The unit is reset when a long, narrow probe (eg, the end of a paper clip) is inserted into the hole.

\* After resetting the microcomputer, set the clock to the present time according to the owner's manual.

\* A back-up circuit protects the unit from entering reset mode, even if the AC cord is unplugged from its AC outlet.

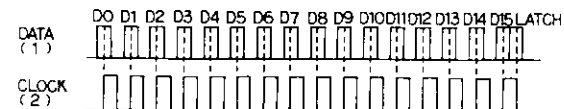


# TIMING CHART



NOTE : 1. SERVO MODE SET

2. TIMING VALUES IN (ms)



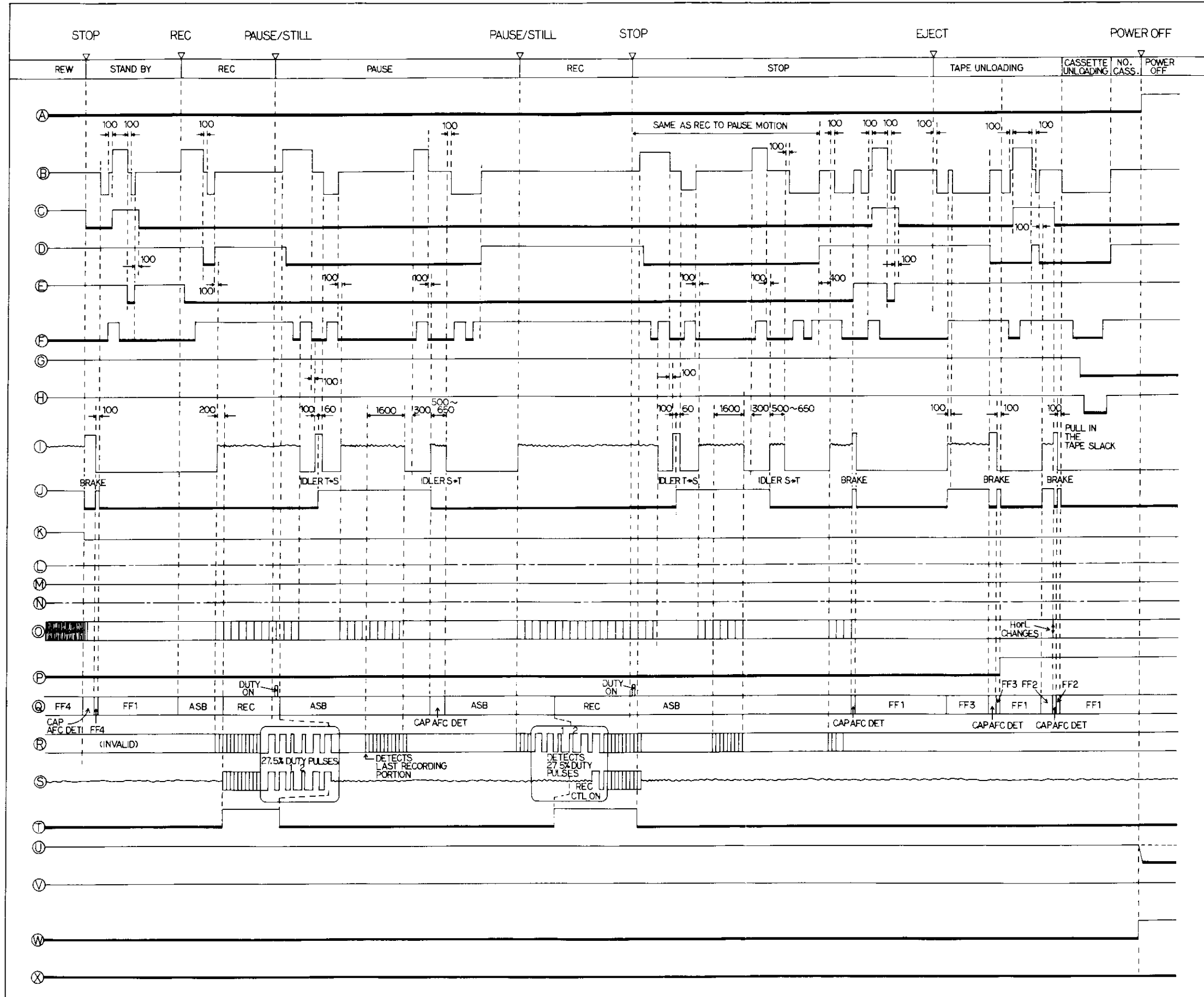
3. TIMING WAVEFORMS

— HIGH — STAY HIGH or LOW

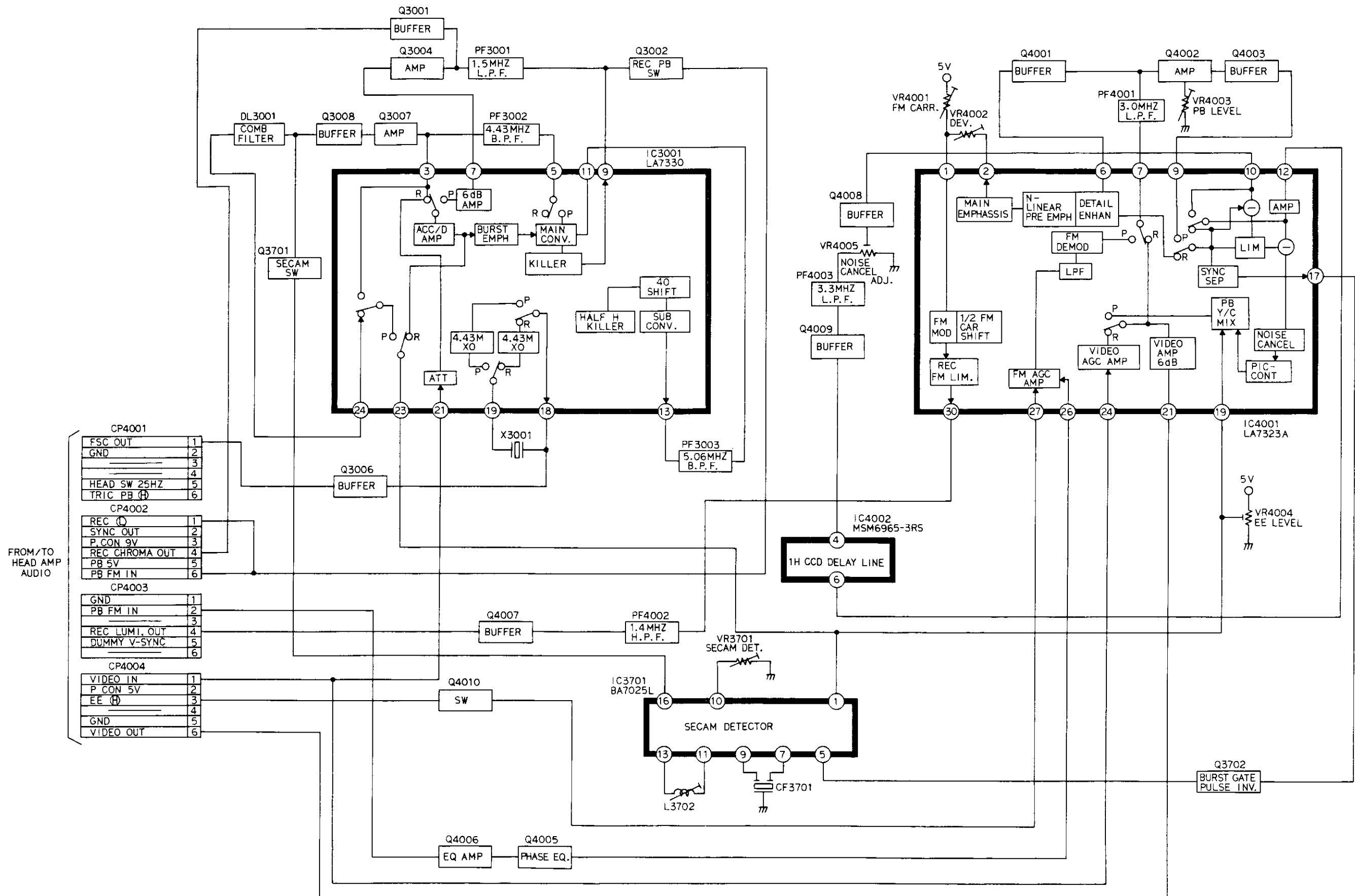
— LOW — ALTERNATELY HIGH and LOW

**TIMING CHART**  
1-8266

# TIMING CHART



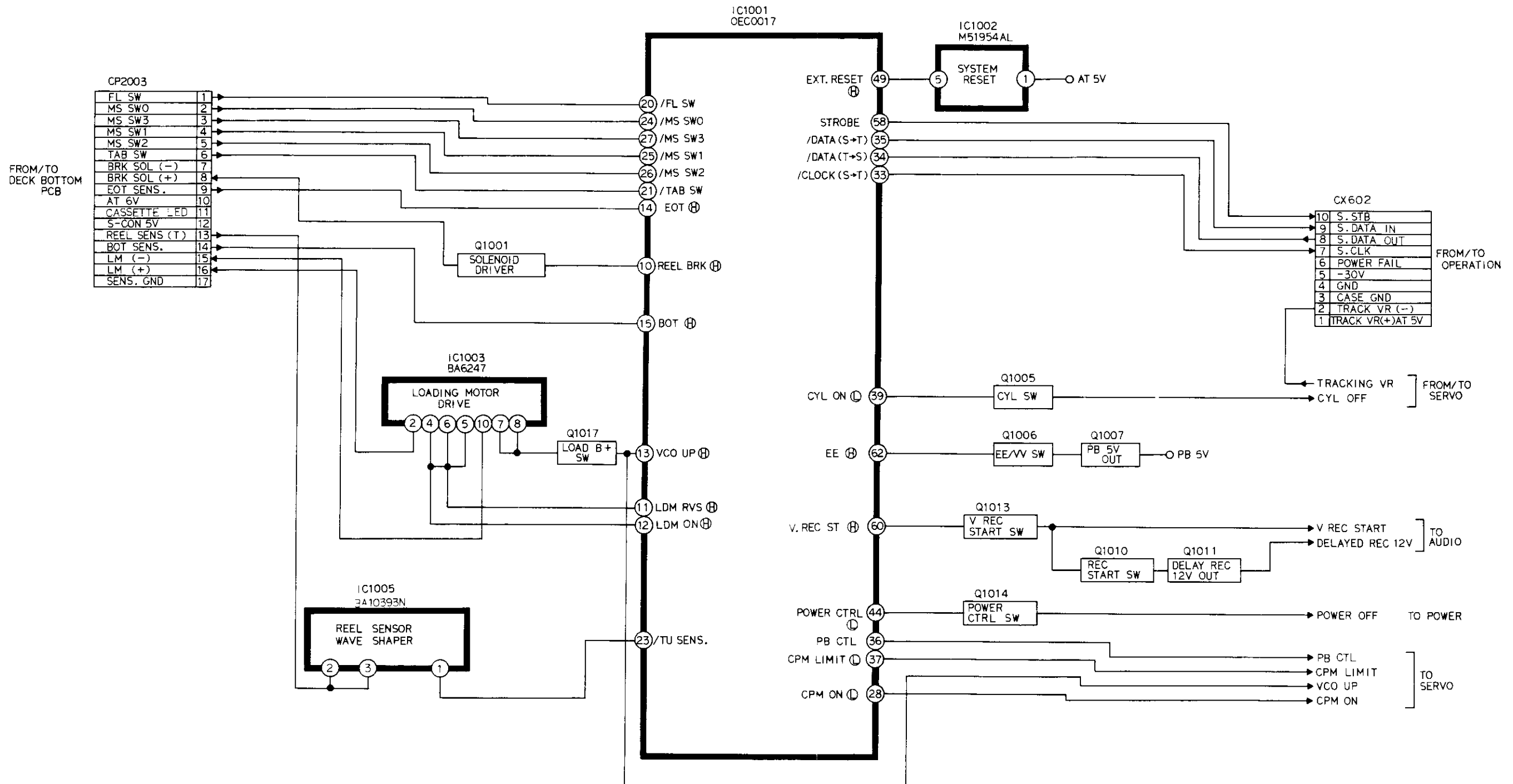
# Y.C. BLOCK DIAGRAM



Y.C. BLOCK DIAGRAM

2-3378

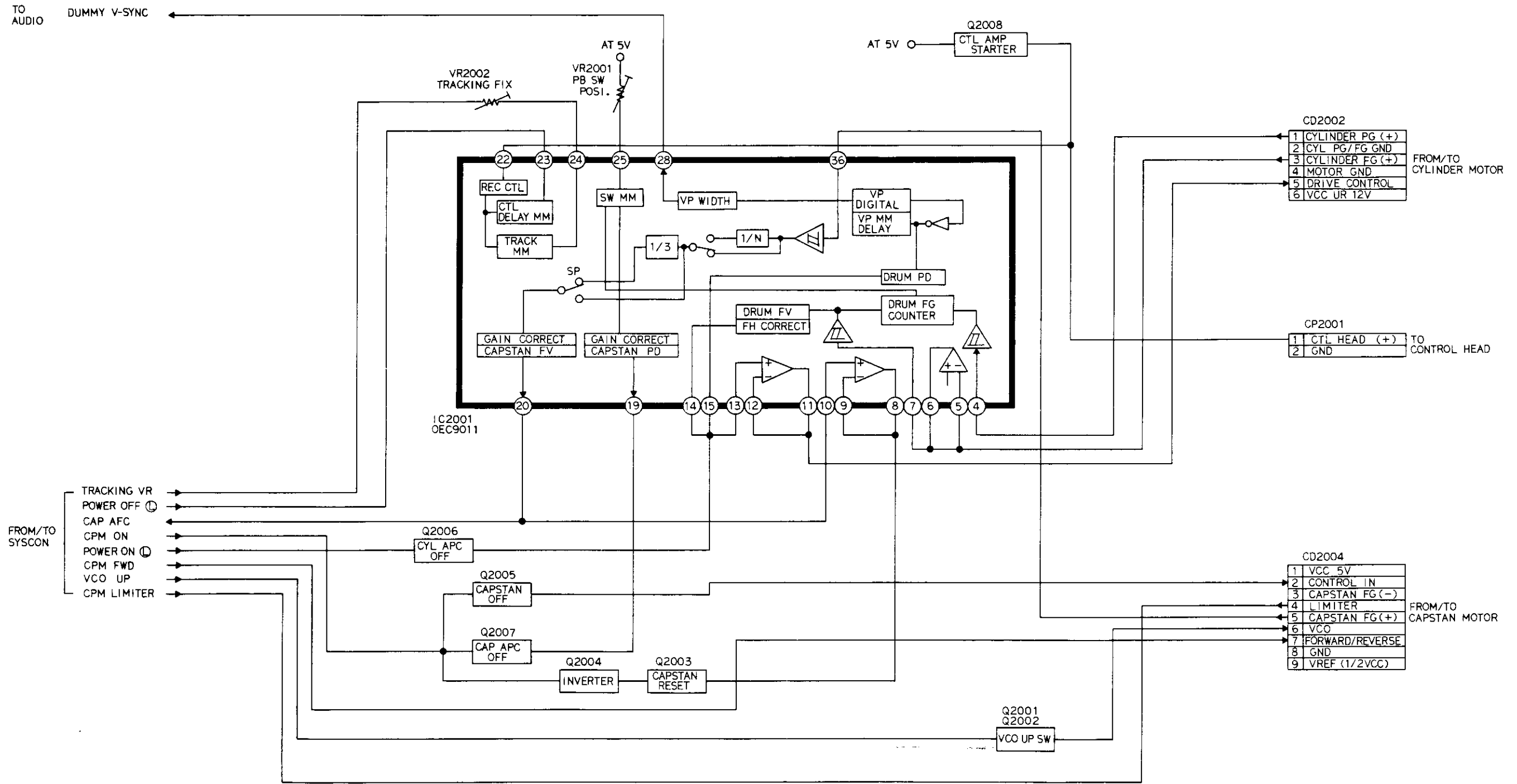
# SYSTEM CONTROL BLOCK DIAGRAM



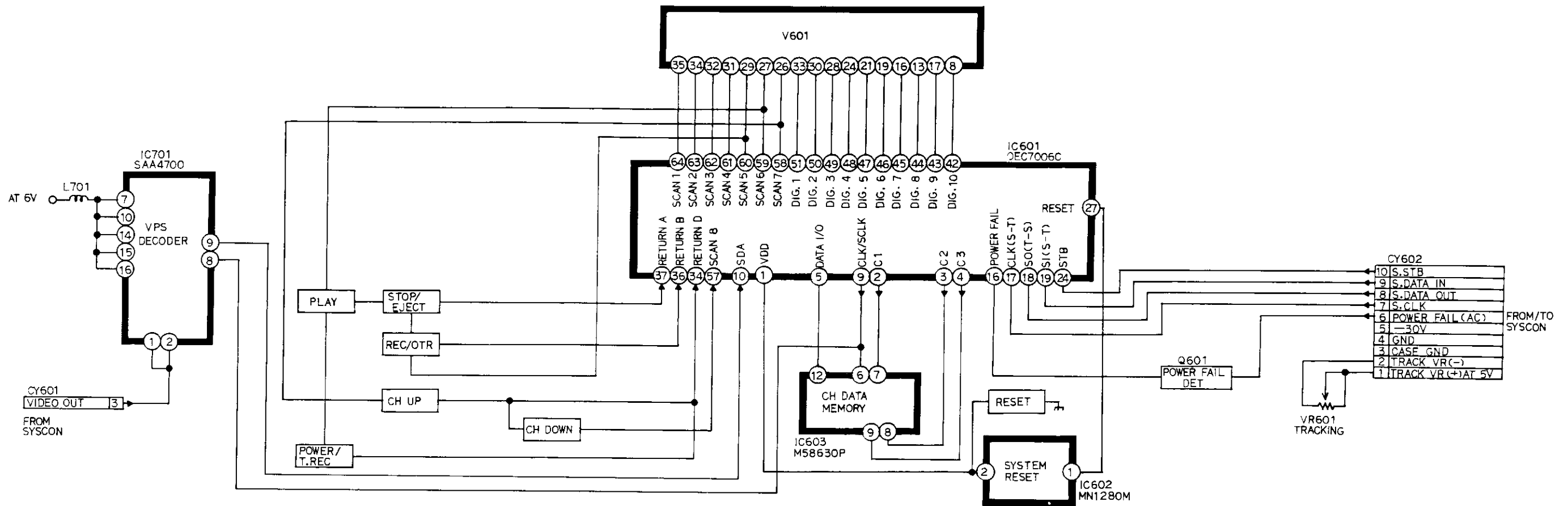
SYSTEM CONTROL BLOCK DIAGRAM



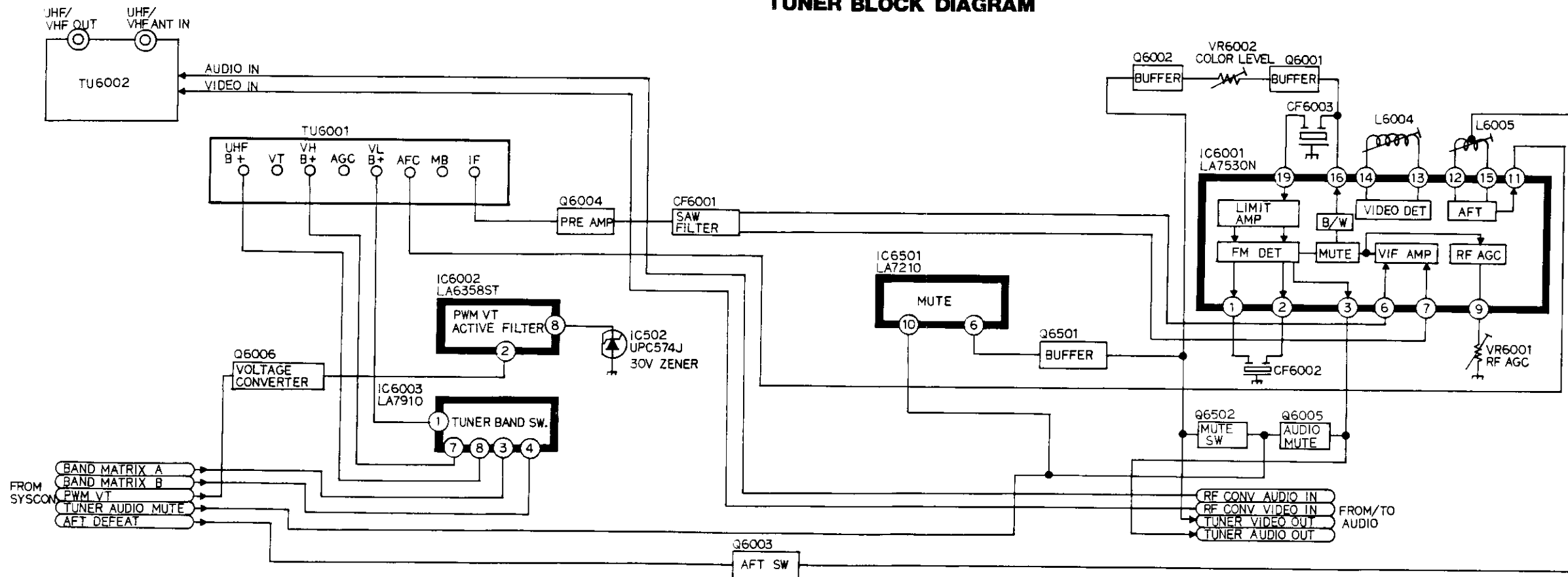
# SERVO BLOCK DIAGRAM



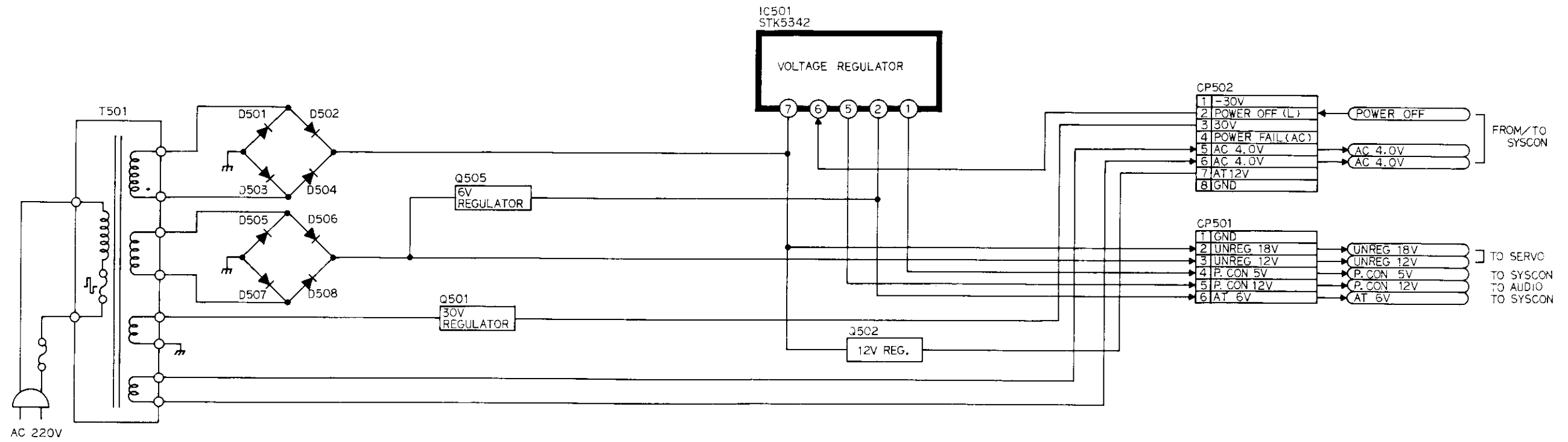
### OPERATION BLOCK DIAGRAM



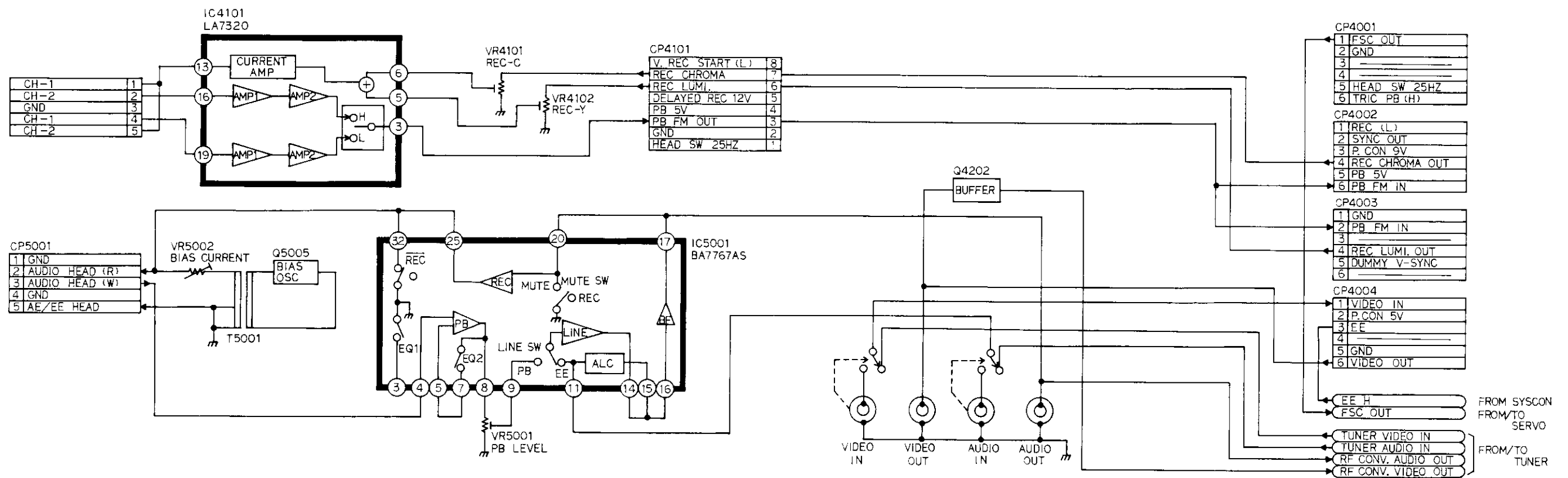
### TUNER BLOCK DIAGRAM



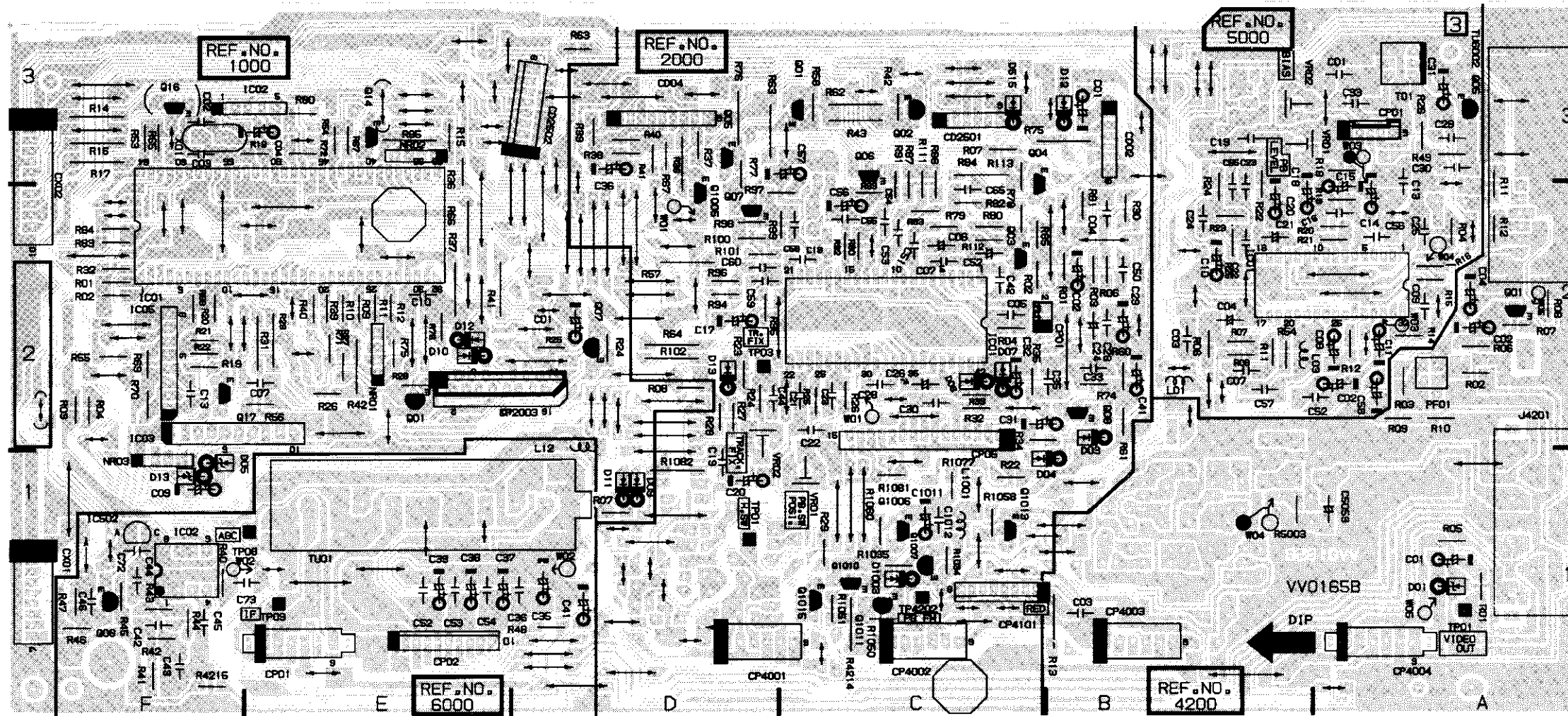
## POWER SUPPLY BLOCK DIAGRAM



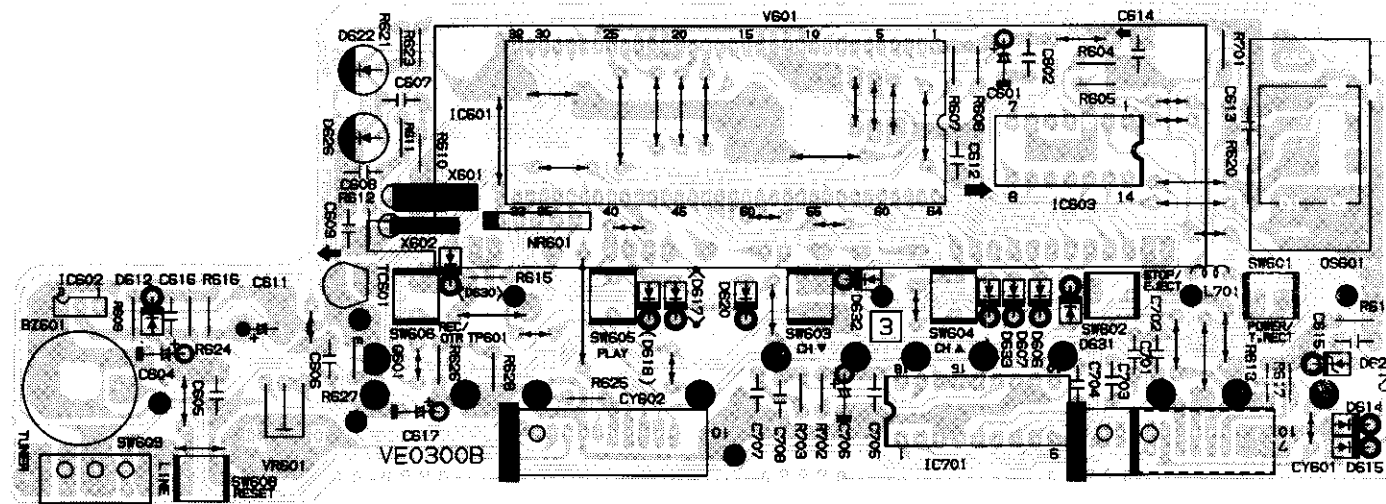
## HEAD AMP/AUDIO BLOCK DIAGRAM



# MAIN P. C. BOARD

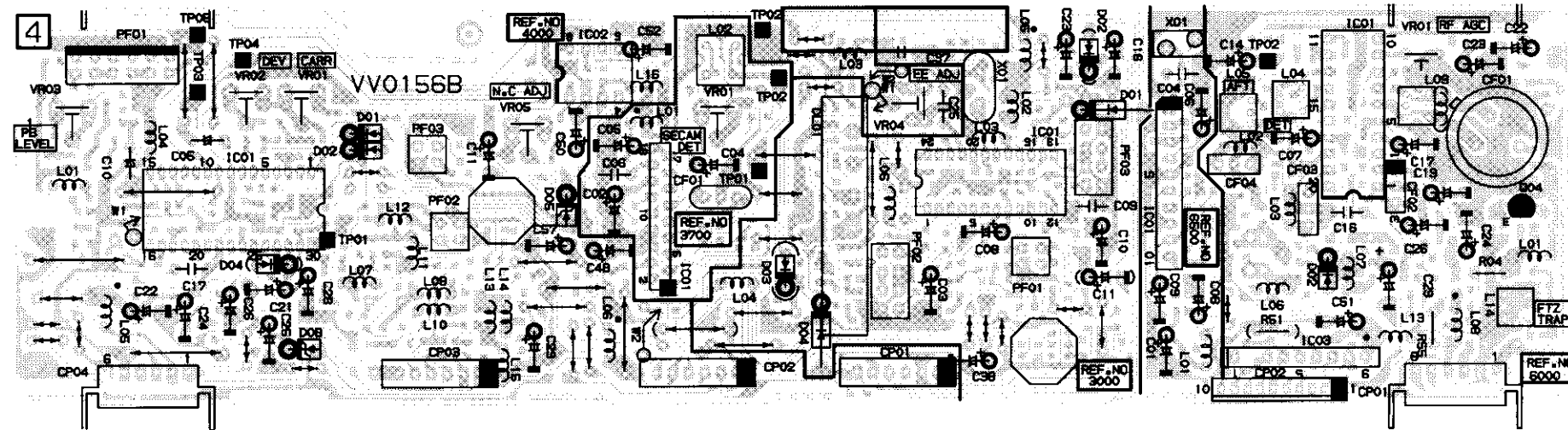


# OPERATION P. C. BOARD

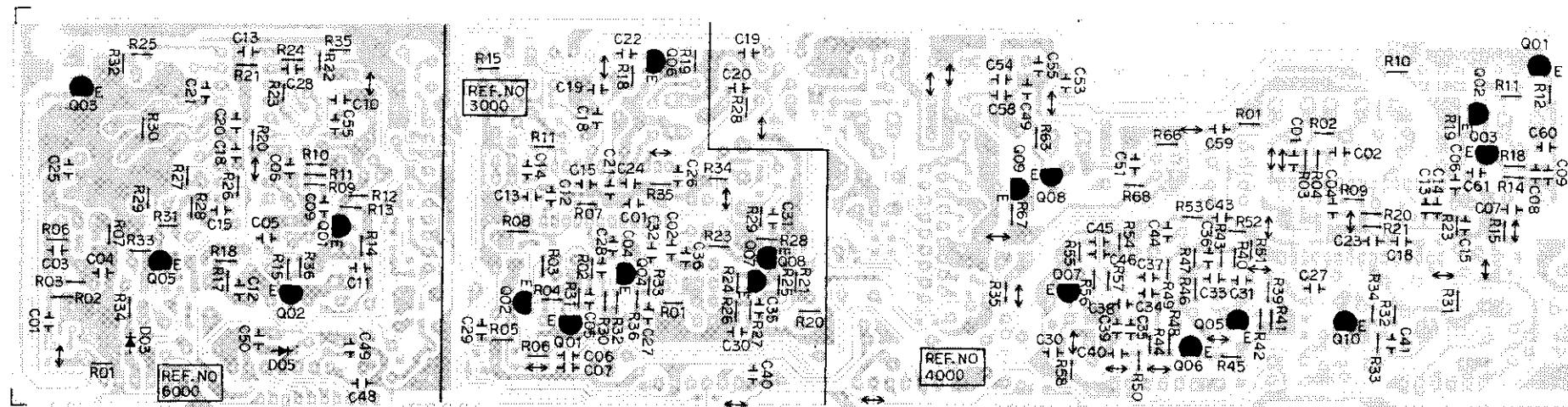


Y. C. P. C. BOARD

COMPONENT SIDE

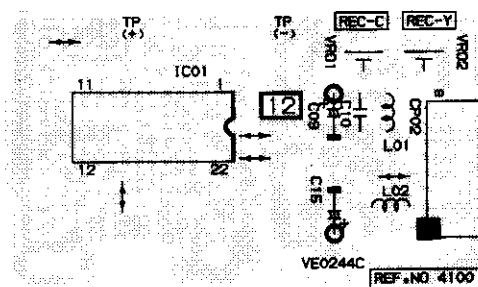


SOLDER SIDE

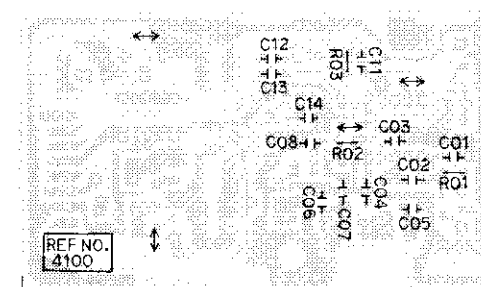


HEAD AMP P. C. BOARD

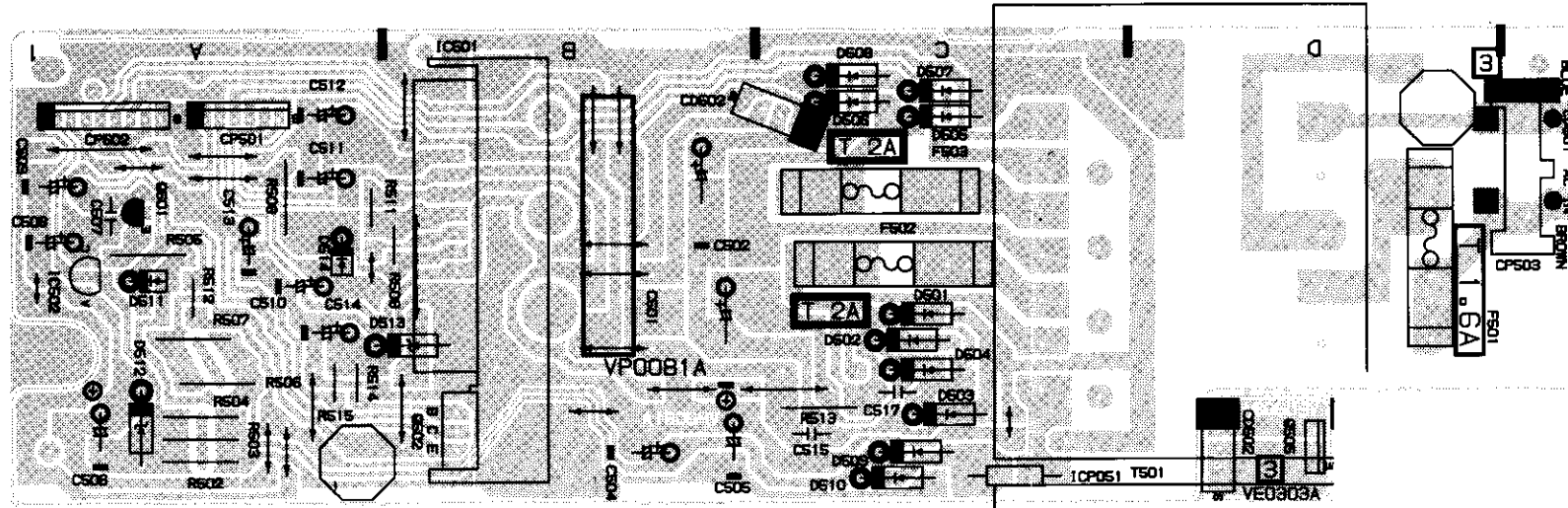
COMPONENT SIDE



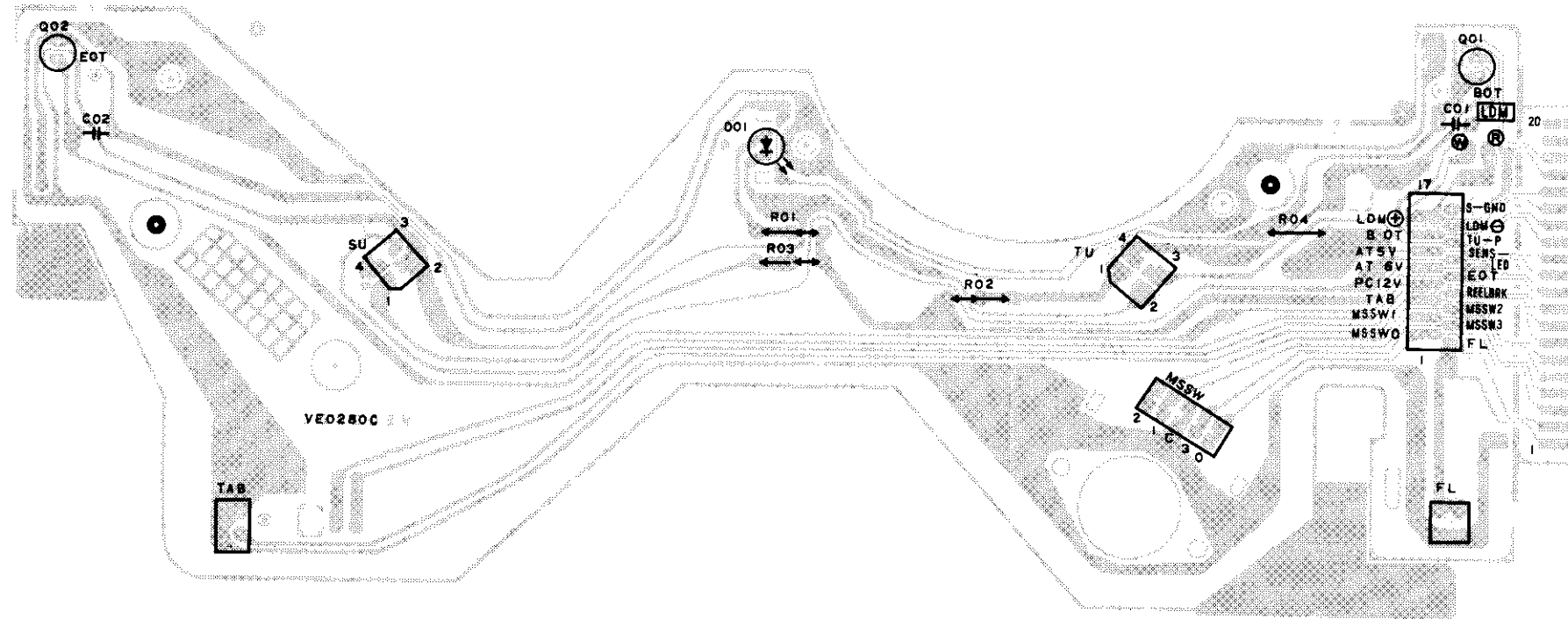
SOLDER SIDE



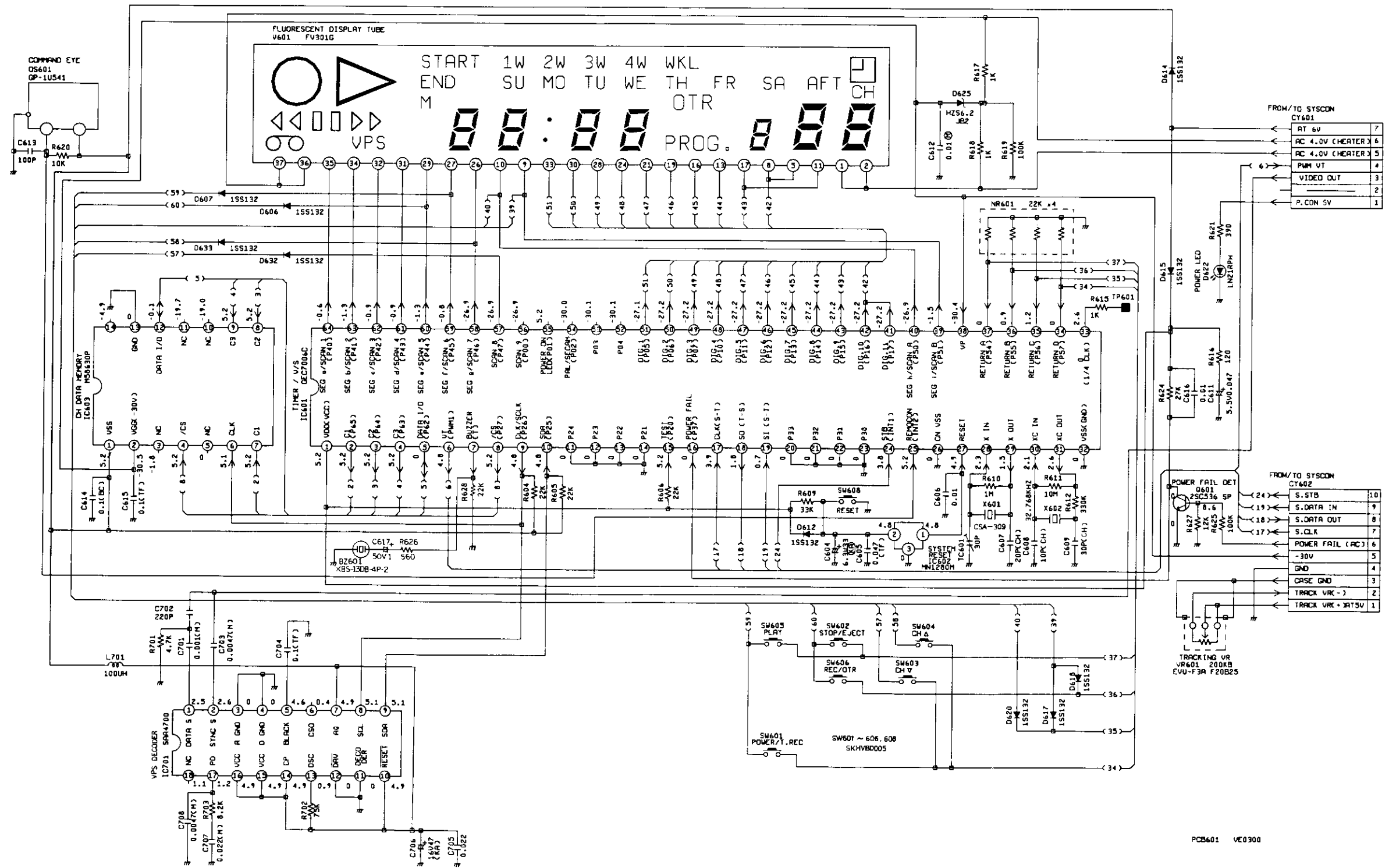
**POWER SUPPLY/TRANSISTOR P. C. BOARD**



**DECK BOTTOM P.C. BOARD**



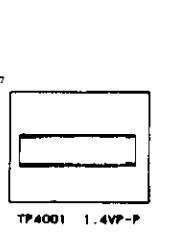
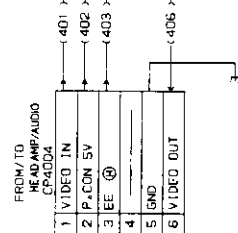
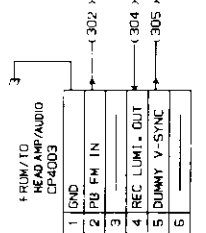
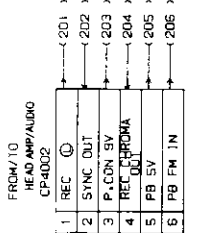
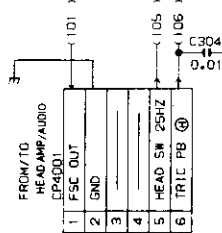
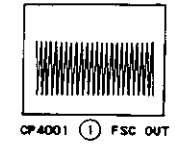
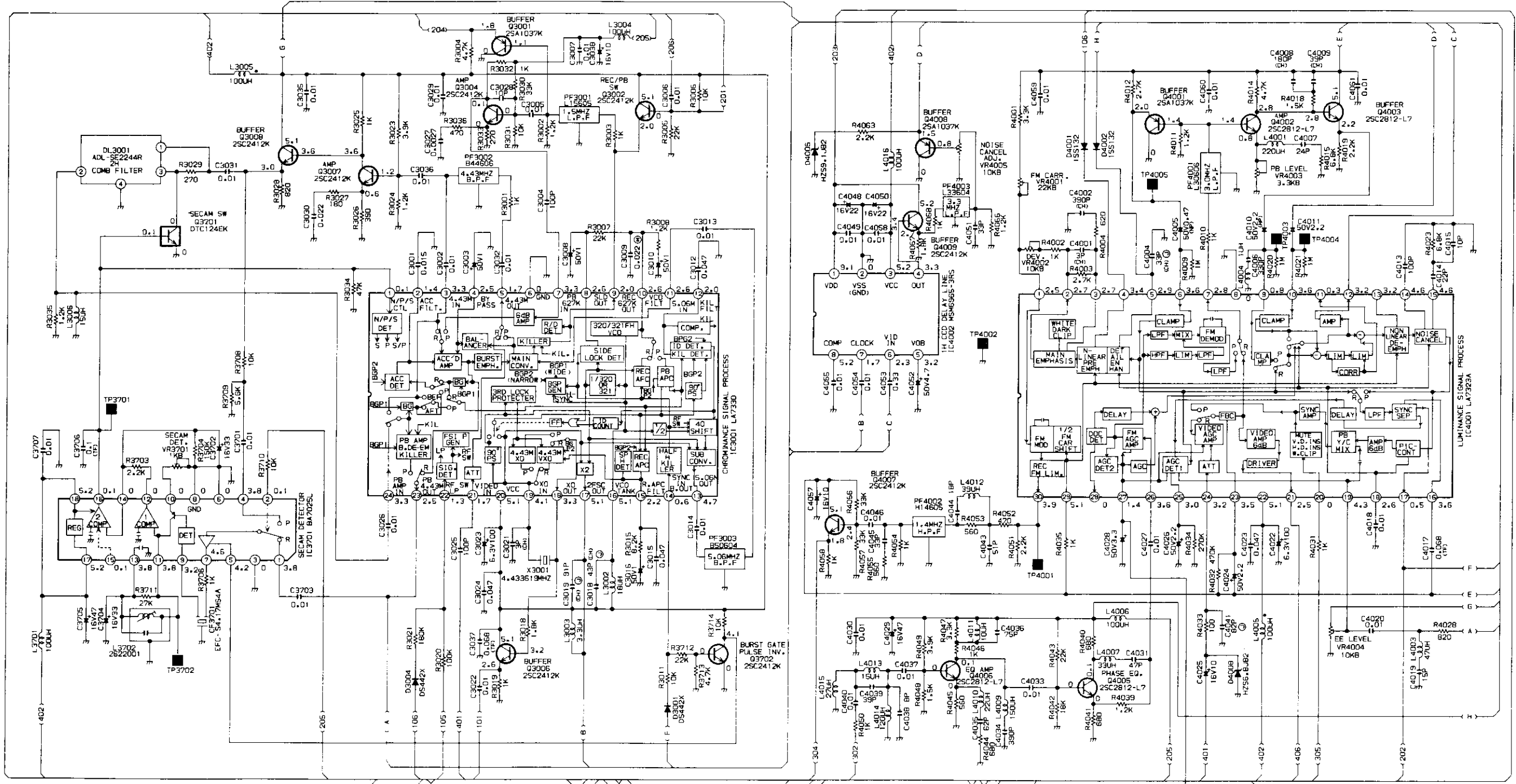
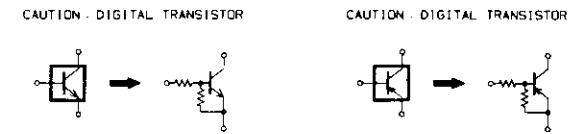
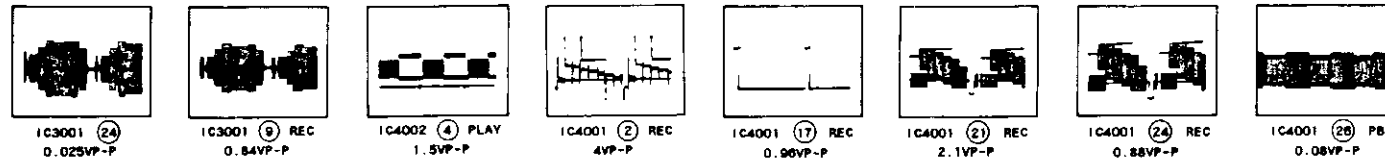
# OPERATION SCHEMATIC DIAGRAM



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

# OPERATION SCHEMATIC DIAGRAM

# Y.C. SCHEMATIC DIAGRAM

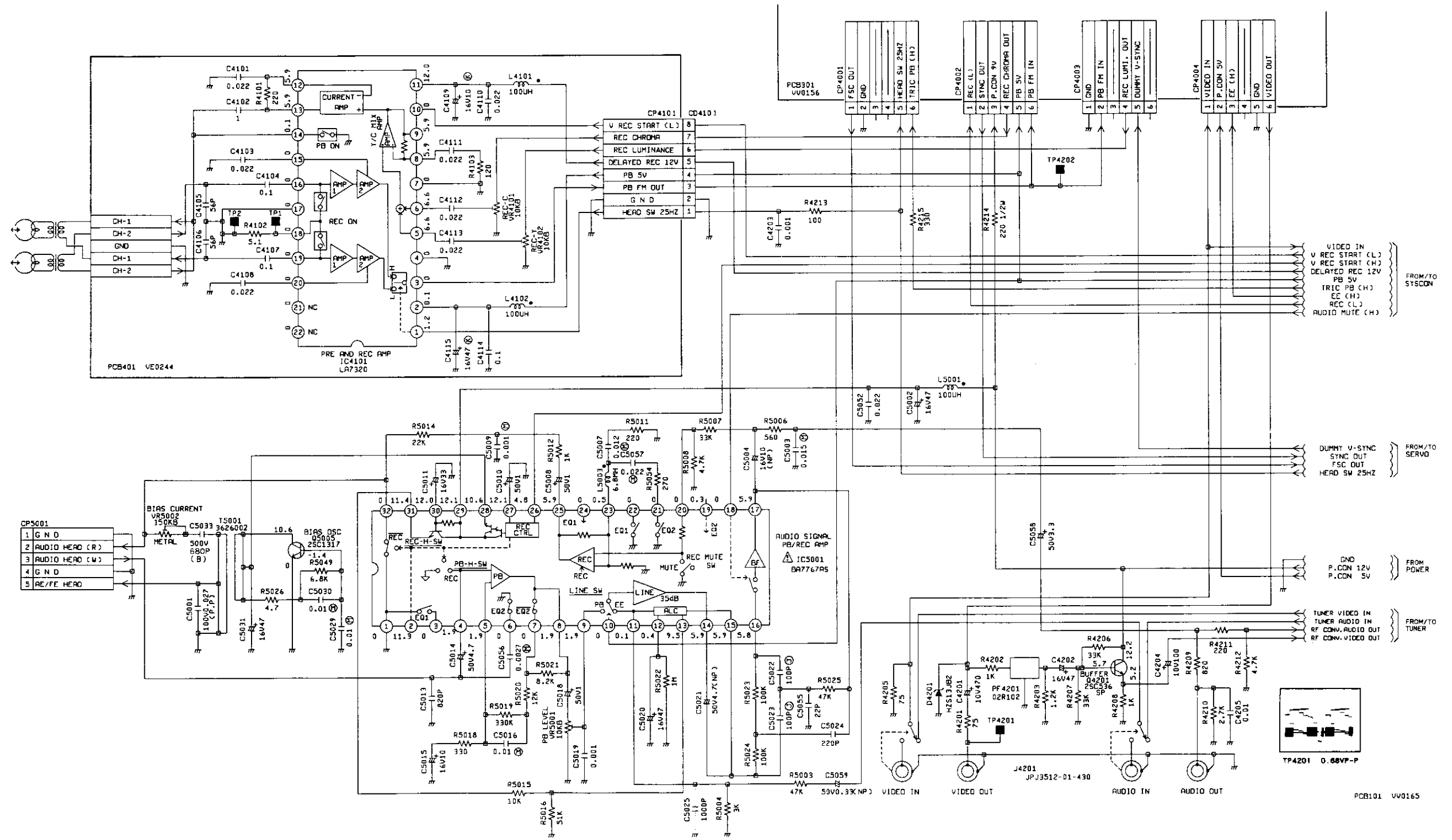


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

# Y.C. SCHEMATIC DIAGRAM



# HEAD AMP/AUDIO SCHEMATIC DIAGRAM



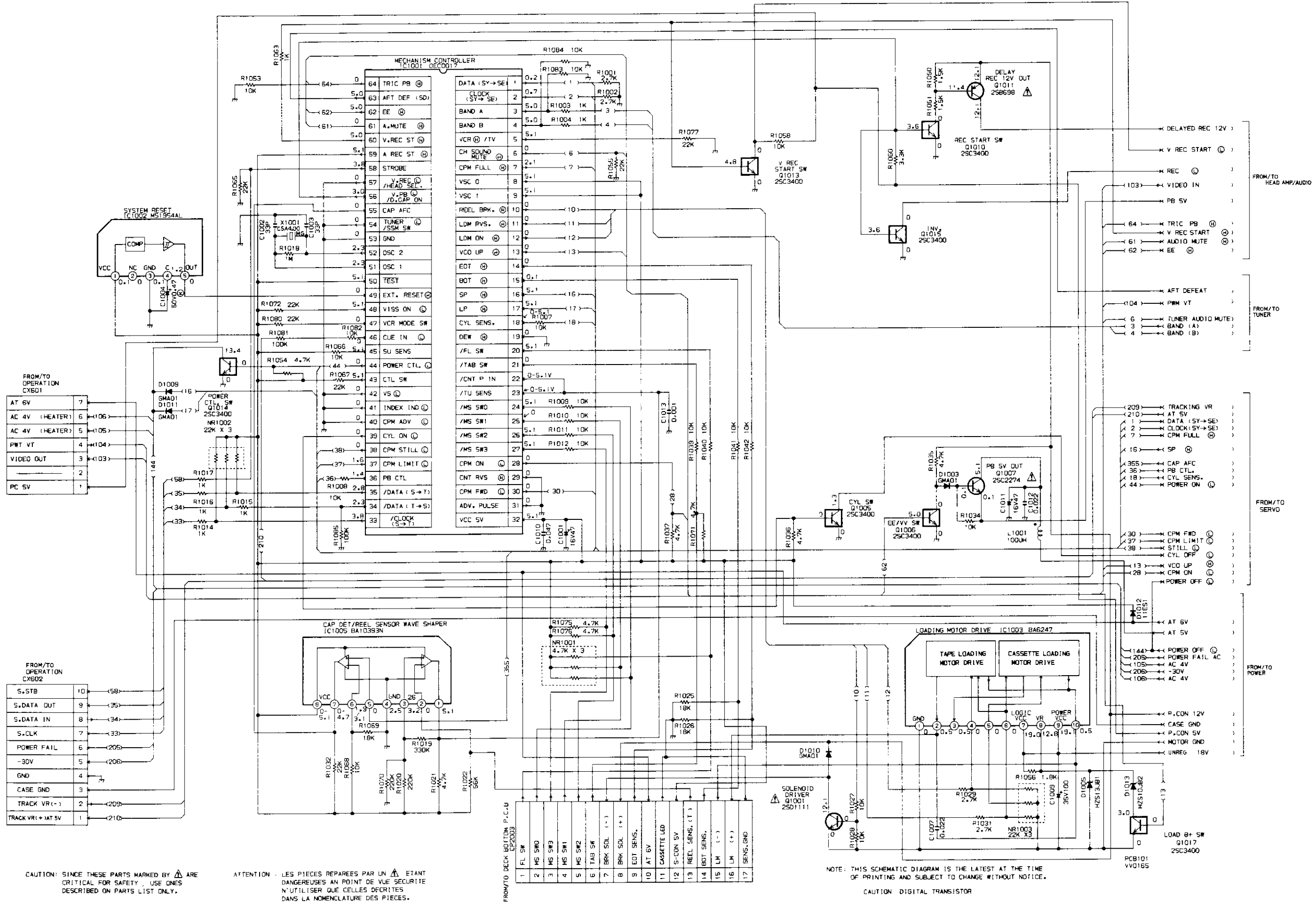
CAUTION: SINCE THESE PARTS MARKED BY  $\Delta$  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIÈCES REPARÉES PAR UN  $\Delta$  ÉTANT DANGEREUSES AU POINT DE VUE SECURITE, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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

## HEAD AMP/AUDIO SCHEMATIC DIAGRAM

# SYSTEM CONTROL SCHEMATIC DIAGRAM

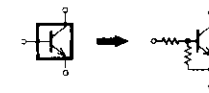


CAUTION: SINCE THESE PARTS MARKED BY  $\Delta$  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN  $\Delta$  ÉTANT DANGEREUSES AN POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

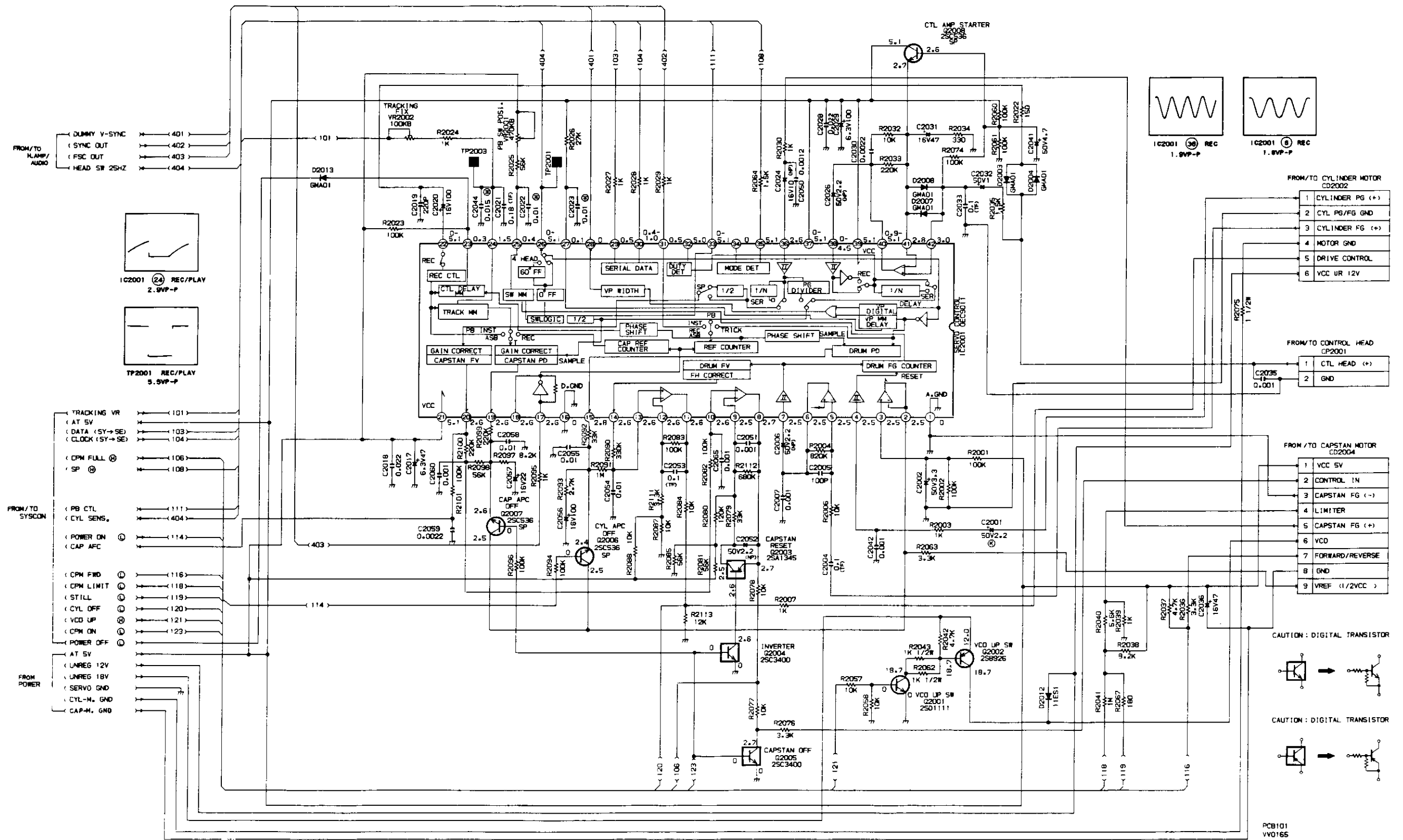
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR



# SYSTEM CONTROL SCHEMATIC DIAGRAM

# SERVO SCHEMATIC DIAGRAM

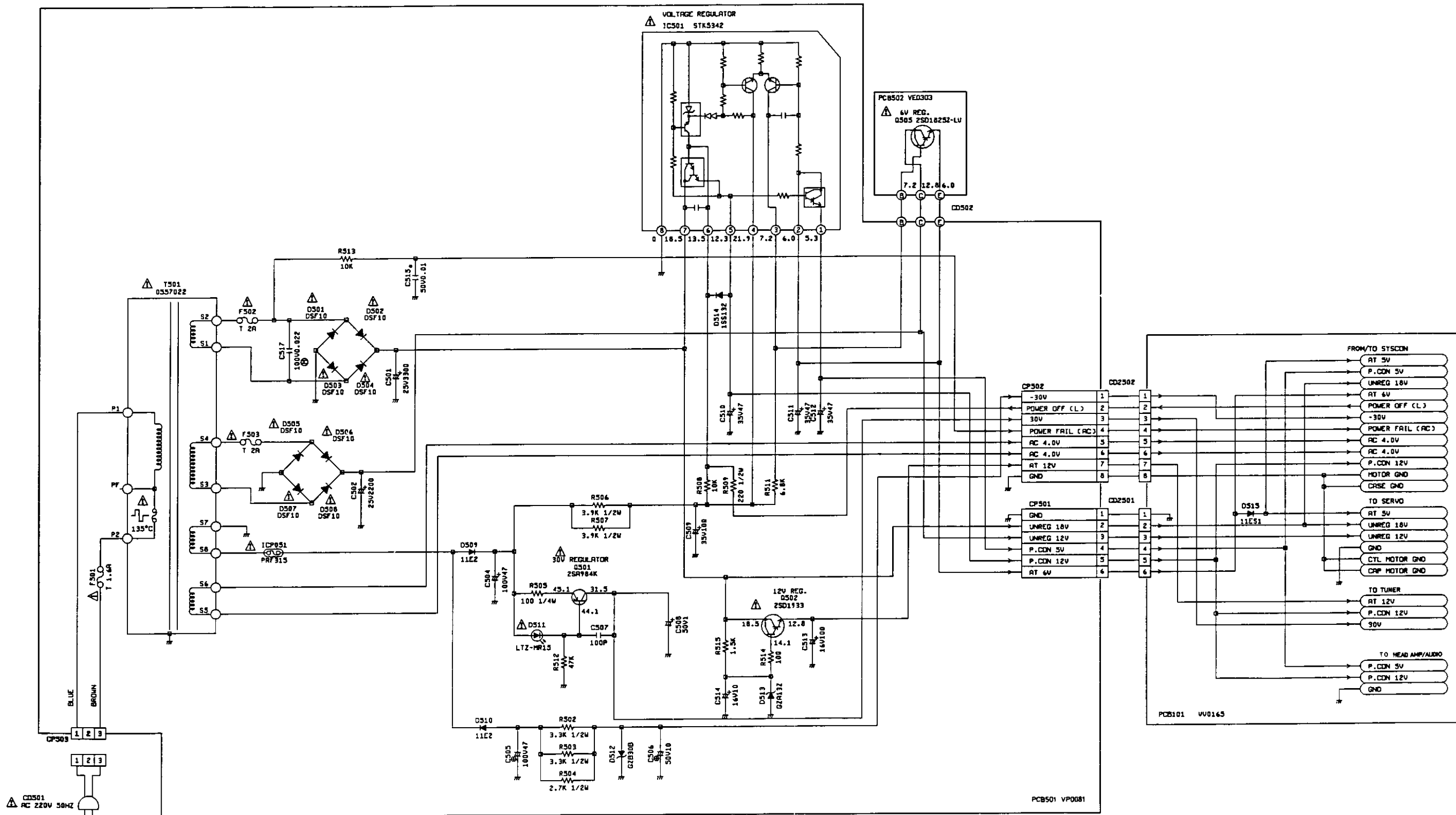


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

**SERVO SCHEMATIC DIAGRAM**

1-8328

# POWER SUPPLY SCHEMATIC DIAGRAM



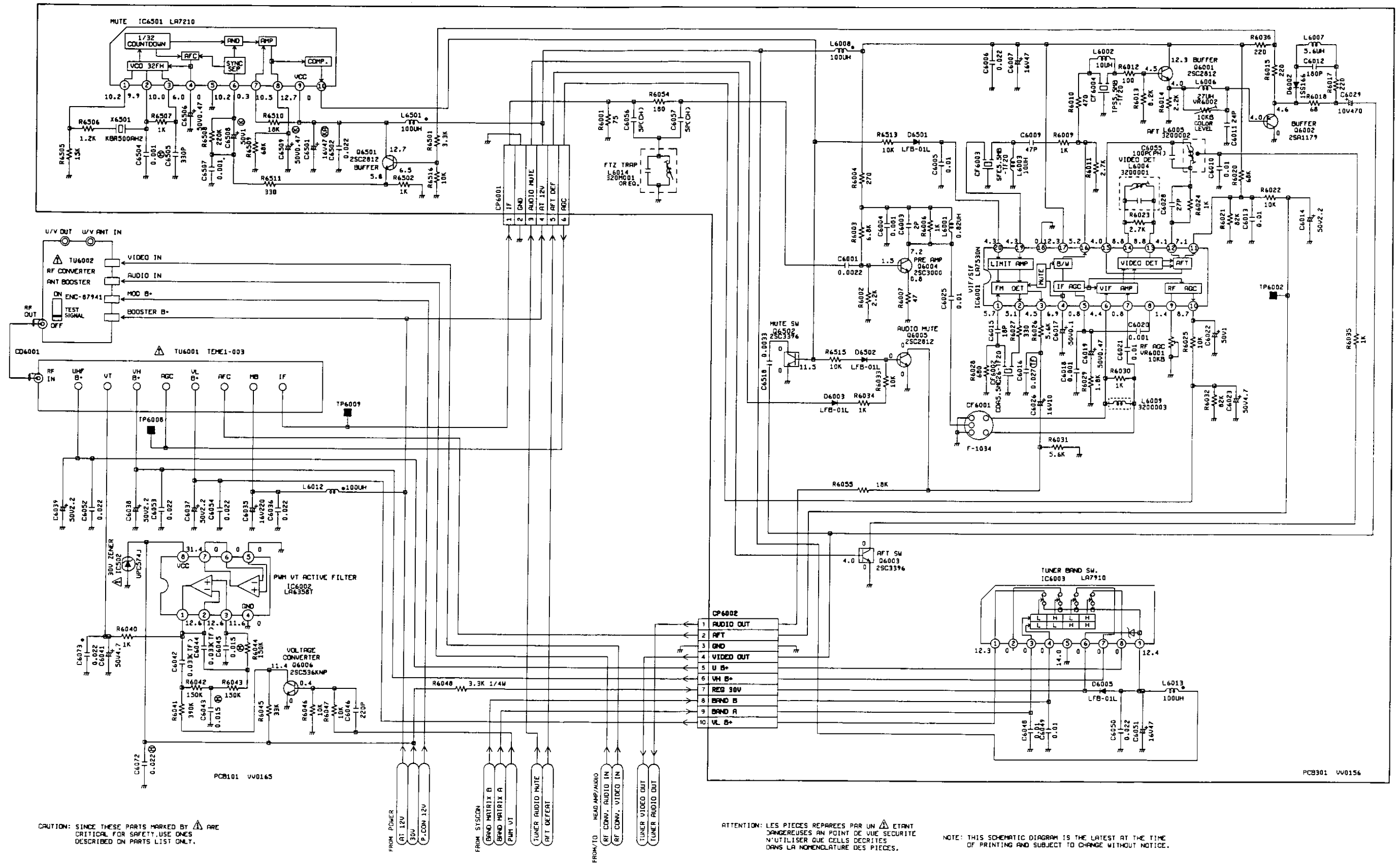
CAUTION: SINCE THESE PARTS MARKED BY  $\Delta$  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIÈCES REPARÉES PAR UN  $\Delta$  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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

# POWER SUPPLY SCHEMATIC DIAGRAM

# TUNER SCHEMATIC DIAGRAM



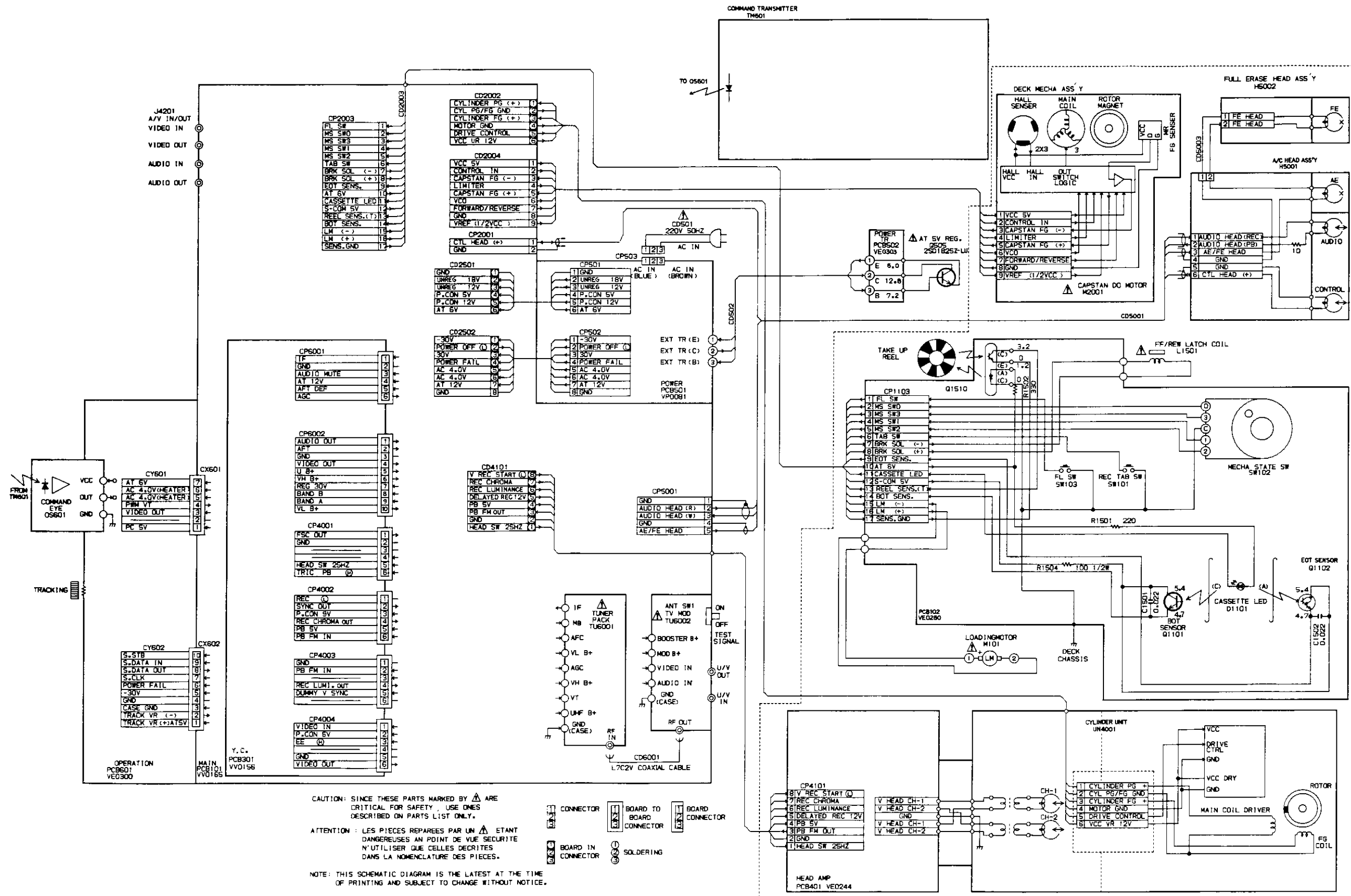
CAUTION: SINCE THESE PARTS MARKED BY  $\Delta$  ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIÈCES REPARÉES PAR UN  $\Delta$  ÉTANT VULNÉRABLES EN POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

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

# TUNER SCHEMATIC DIAGRAM

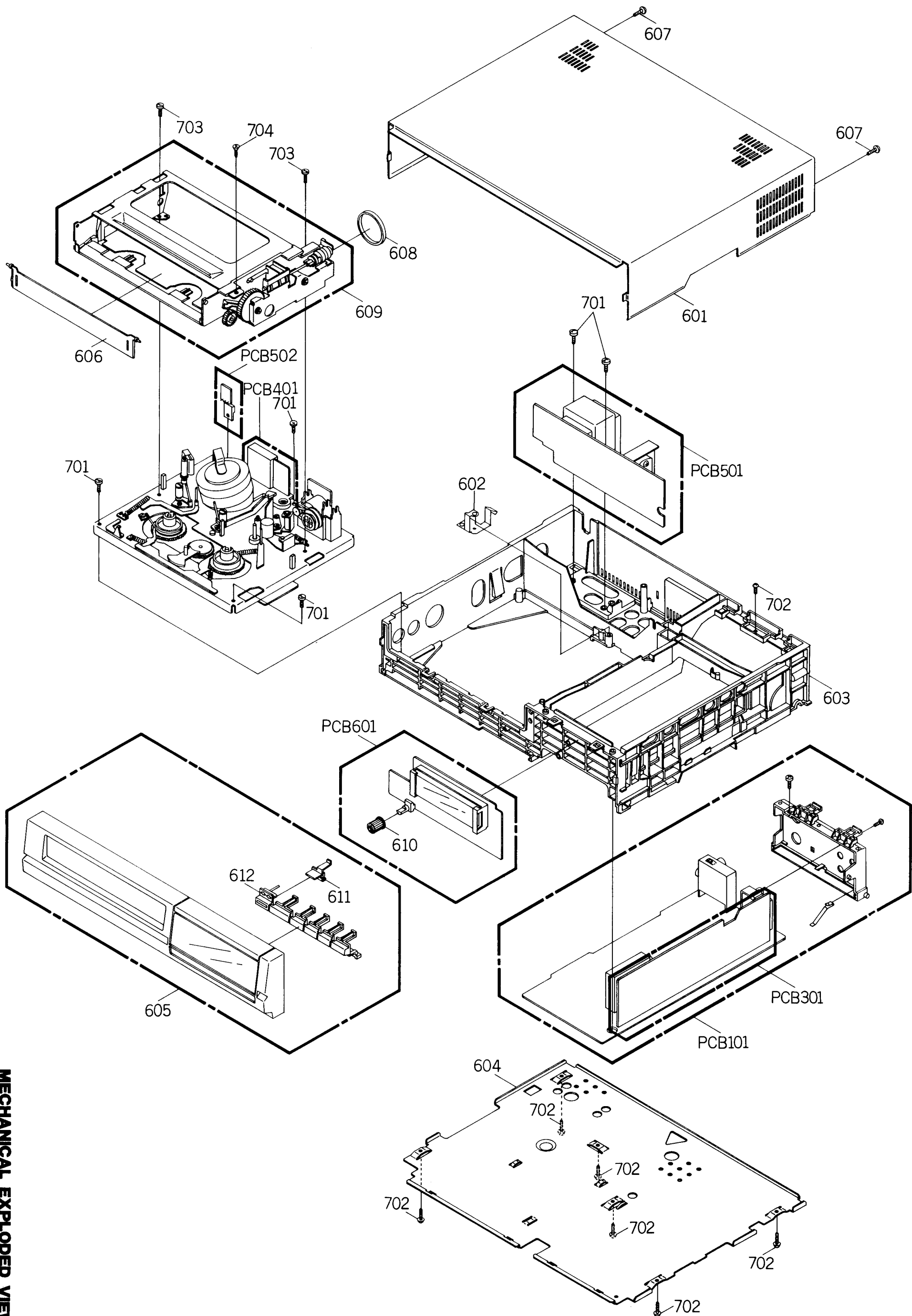
# INTERCONNECTION DIAGRAM



**INTERCONNECTION DIAGRAM**

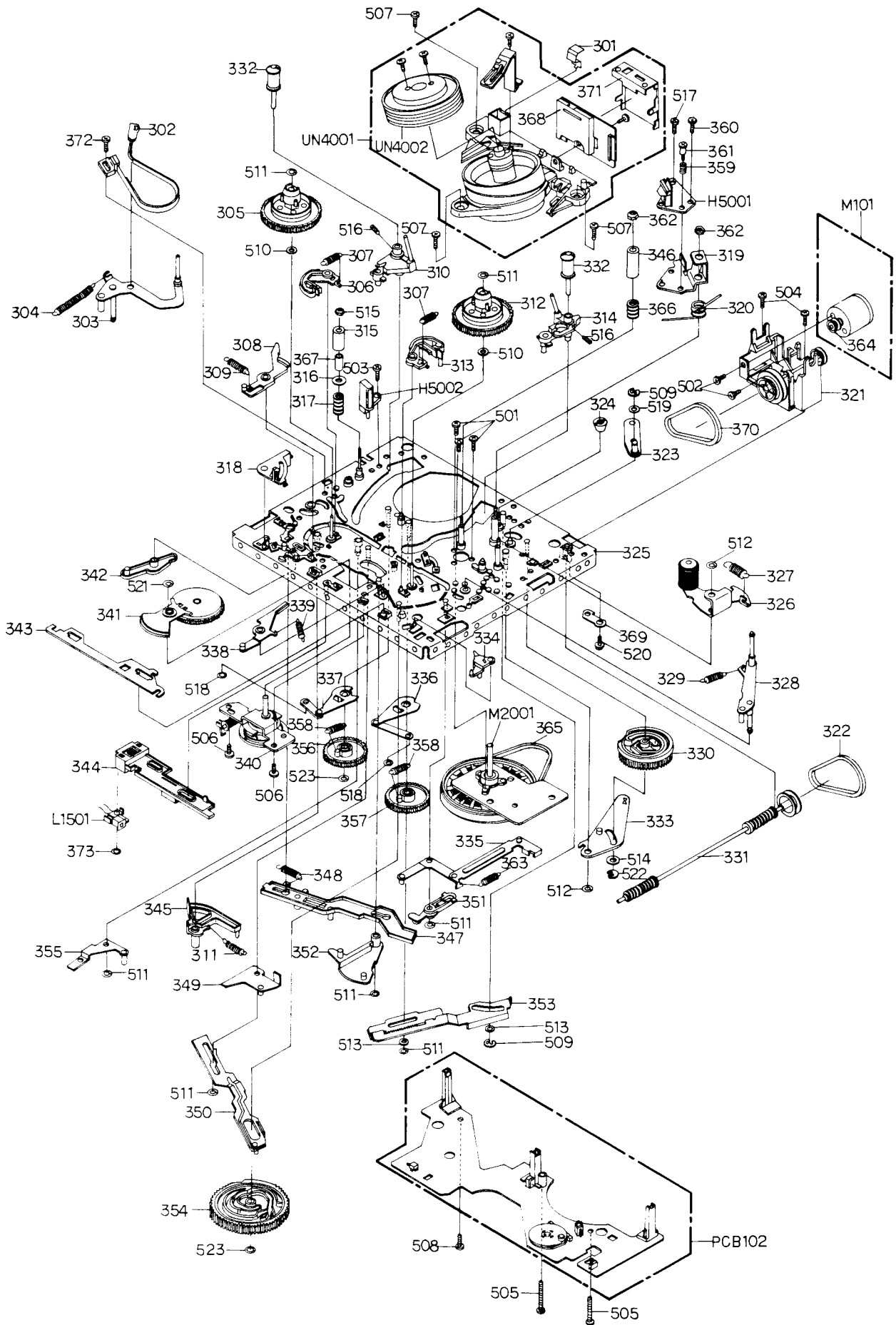
1-8325

MECHANICAL EXPLODED VIEW



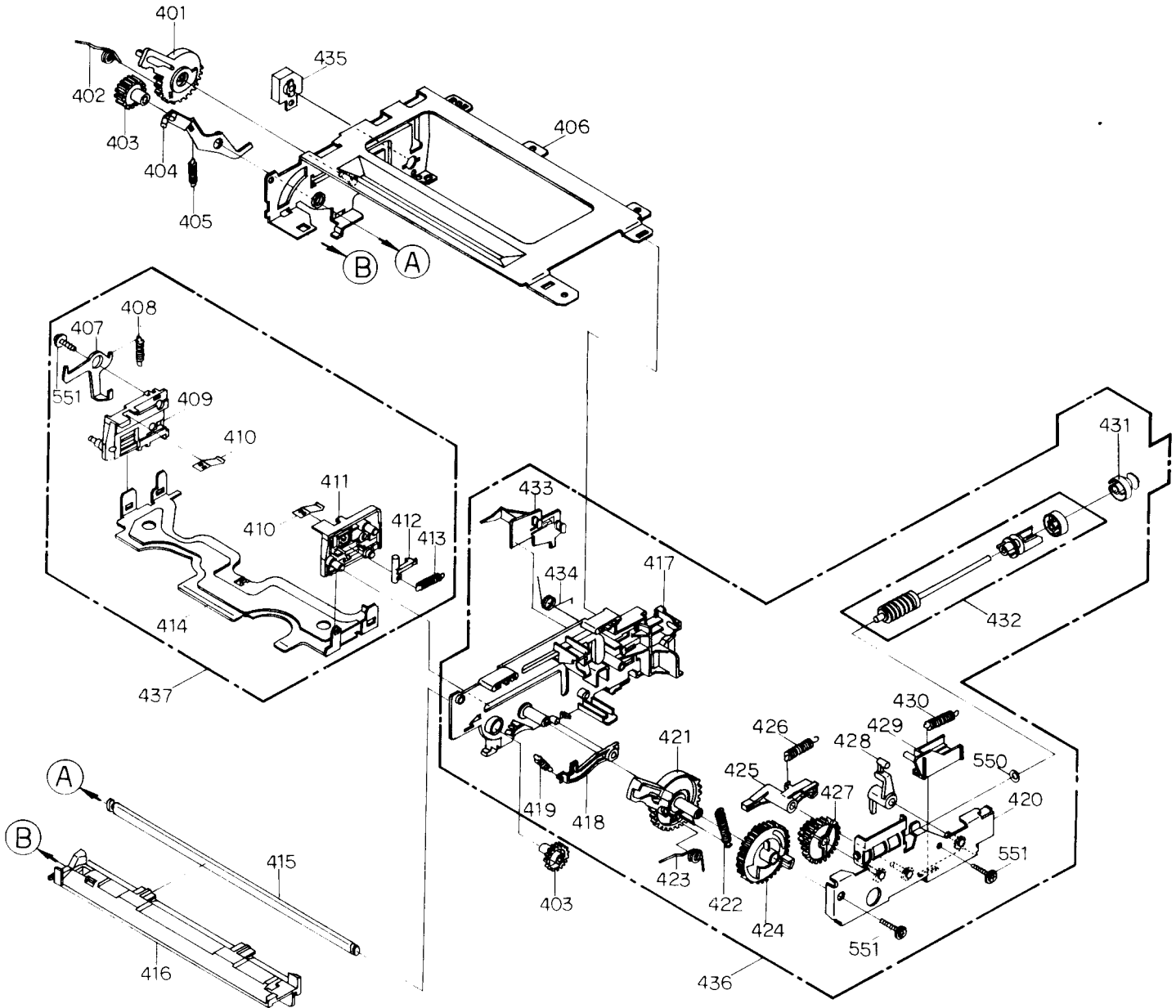
MECHANICAL EXPLODED VIEW  
1-8333

# DECK EXPLODED VIEW





# DECK EXPLODED VIEW



MECHANICAL REPLACEMENT PARTS LIST

REF. NO	PART NO	DESCRIPTION
601	702USS0013	CABINET, TOP
602	753TUA0009	SPRING, DECK EARTH
603	702UPA0017	CABINET, INSIDE SHEET, RATING
604	702USA0013	PLATE, BOTTOM
605	A44826A720	CABINET, FRONT ASS'Y
606	7230003359	FLAP
607	788JSE0014	TAPPING (B0) TRUSS 4*12 BK
608	850P600315	BELT, FRONT LOADING
609	A44802A650	FRONT LOADING UNIT (FL-6)
610	732WPA0002	TRACKING, KNOB
611	735UPA0034	BUTTON, REC
612	735UPD0099	BUTTON, DECK
701	8117140A24	TAPPING (B0) PAN 4*12 CH
702	8110630804	TAP TITE (P) BRAZIER 3*8 CH
703	8107230804	TAP TITE (S) BIND 3*8 CH
704	8117330A04	TAPPING (B0) FLAT 3*10 CH
---	J4237720B	CAUTION SHEET
---	J4244039B	VPS CAUTION SHEET
---	J4371728A	WARNING SHEET
---	J4482601A	INSTRUCTION BOOK
---	J4482607A	QUICK SET-UP SHEET
---	791UHA0005	GIFT, SHEET
---	792UHA0020	PACKAGE
---	793UCD0258	GIFT BOX

DECK REPLACEMENT PARTS LIST

M448-10A 619

REF. NO	PART NO	DESCRIPTION	REF. NO	PART NO	DESCRIPTION
301	850P500023	SPRING, TR.	413	850P800155	SPRING, REMOVING
302	850A600093	TENSION BAND ASS'Y	414	850P900388	CASS. HOLDER
303	850A400077	TENSION, ARM ASS'Y	415	850P900267	SHAFT, SYNCHRO
304	850P800141	SPRING, TENSION ARM	416	850P900455	TAPE GUIDE PIECE
305	850A200028	REEL DISK S ASS'Y	417	850P900348	BRACKET, SIDE R1
306	850A600092	MAIN BRAKE S ASS'Y	418	850P900361	LEVER, FL SW.
307	850P800142	SPRING, MAIN BRAKE	419	850P800158	SPRING, FL SW, LEVER
308	850P600309	ARM, S-S BRAKE			
309	850P800164	SPRING, SS BRAKE	420	850A900098	SIDE BRACKET R2 ASS'Y
			421	850P900456	GEAR, LINK R
310	850A400087	BASE, S INCLINED ASS'Y	422	850P800153	SPRING, CLUTCH GEAR
311	850P800163	SPRING, M-B 3	423	850P800176	SPRING, LINK GEAR R
312	850A200029	REEL DISK T ASS'Y	424	850P900357	GEAR, CLUTCH
313	850A600094	MAIN BRAKE T ASS'Y	425	850P900382	LEVER, LOCK
314	850A400080	BASE, T INCLINED ASS'Y	426	850P800159	SPRING, LOCK LEVER
315	850P500046	ROLLER, IMPEDANCE	427	850P900367	WHEEL
316	850P600274	FLANGE, P1	428	850P900364	LEVER, CLUTCH
317	850P800075	SPRING, P1	429	850P900363	LEVER, SLIDE
318	850P600306	LEVER, REC. SW			
319	850P500042	BASE, AC HEAD 2	430	850P800160	SPRING, SLIDE LEVER
			431	850P900366	JOINT, PULLEY
320	850P800150	SPRING, AC HEAD BASE	432	850A900082	WORM ASS'Y
321	850A600115	LOADING, M. BOX ASS'Y	433	850P900353	OPENER
322	850P600317	BELT, LOADING MOTOR	434	850P800156	SPRING, OPENER
323	850A500008	P-R, LEVER ASS'Y	435	850P900396	COVER, SENSOR
324	850P600314	NUT, ADJUST X	436	A44802A640	SIDE BRACKET R ASS'Y
325	850A000031	MAIN, CHASSIS ASS'Y	437	A44802A690	CASSETTE HOLDER ASS'Y
326	850A400073	PINCH ROLLER ARM ASS'Y			
327	850P800149	SPRING, P-R ARM	501	868N71G604	TAP TITE(S) PAN
328	850A400078	LIMITER, POST ARM ASS'Y	502	8102130404	PAN
329	850P800148	SPRING, L-P ARM	503	8107226804	TAP TITE(S) BIND
			504	8107230A44	TAP TITE(S) BIND
330	850P600305	CAM 1	505	8107230A64	TAP TITE(S) BIND
331	850A600114	WORM ASS'Y	506	8107230604	TAP TITE(S) BIND
332	850A400085	G-ROLLER ASS'Y	507	8107230804	TAP TITE(S) BIND
333	850A300031	LOADING, LEVER 2 ASS'Y	508	8110230804	TAP TITE(P) BIND
334	850P600311	LEVER, SUB BRAKE	509	83ETW25000	E-RING
335	850A900083	LEVER FRONT LOADING ASS'Y			
336	850A300030	LOAD, ARM T ASS'Y	510	82Q3154B3N	PW
337	850A300029	LOADING, ARM S ASS'Y		82Q3154C5N	PW
338	850A600107	T-S BRAKE ASS'Y		82Q315403N	PW
339	850P800165	SPRING TS BRAKE	511	82P255504N	PW(CUT)
			512	82P316005N	PW(CUT)
340	850A200027	CLUTCH ASS'Y	513	82A3270054	WASHER
341	850A200026	IDLER ASS'Y	514	82A4080054	WASHER
342	850P600300	MAIN BRAKE LEVER 1	515	8300720000	NYLON NUT
343	850P600310	ACTUATOR, SUB BRAKE	516	815DJ20302	SET SCREW 6CUP POINT
344	850A600113	CLUTCH ACTUATOR ASS'Y	517	8145J30601	SCREW +UPSET
345	850P600303	LEVER TENSION	518	83CST35050	CS RING
346	850P600312	POST, P4	519	82A3070C5N	PW
347	850P600299	SLIDE, MAIN BRAKE			
348	850P800143	SPRING, M-B SLIDE	520	86817B8804	TAPPING(B0) WH6
349	850A600109	M-B 2 LEVER ASS'Y	521	82P2660C5N	PW(CUT)
			522	83ETW30000	E-RING
			523	82P306005N	PW(CUT)
350	850A600108	T-A SLIDE ASS'Y			
351	850P600301	LEVER, LIMITER POST	550	82Q315405N	PW
352	850P600302	LEVER, CLUTCH ACTUATOR	551	86817CGA04	TAPPING(B0) BIND WH6.5
353	850P300112	SLIDE, LOADING 2			
354	850P600327	CAM 2	C1501	CH4FF03H4Z	CC
355	850A600099	M-B 3 LEVER ASS'Y	C1502	CH4FF03H4Z	CC
356	850P300114	GEAR, LOADING S			
357	850P300115	GEAR, LOADING T	CD5001	068126017A	CORD EIS CONNECTOR
358	850P800147	SPRING, LOADING GEAR	CD5003	068122007A	CORD EIS CONNECTOR
359	850P800167	SPRING, AZIMUTH	CP1103	069R7H0069	CONNECTOR PCB SIDE
360	8144J30604	CONEHEAD SCREW	D1101	0010100300	INFRARED LED
361	8146230A14	JOINT SCREW BIND	H5001	1523D91010	HEAD AUDIO CONTROL
362	850P500010	ADJUST NUT	H5002	1543D02004	HEAD FULL ERASE
363	850P800161	SPRING, FRONT LOADING LEVER	L1501	02BL000005	ELECTRO MAGNET
364	850P600313	PULLEY, LOADING MOTOR	M101	1596N58008	MOTOR, LOADING
365	850P600277	BELT, REEL	M2001	1510398011	CAPSTAN, DD UNIT
366	850P800146	SPRING, P4	PCB102	A44802A550	PCB ASS'Y
367	850P600273	SLEEVE, P1	Q1101	0000G00040	PHOTO TRANSISTOR
368	850PAA0080	SHIELD, CASE	Q1102	0000G00040	PHOTO TRANSISTOR
369	850P000262	BRACKET, WORM 3	Q1510	0002300140	PHOTO COUPLER
			R1501	R001T6221J	RC
370	789JRA0001	BELT, FRONT LOADING	R1502	R001T6331J	RC
371	850PAA0112	SHIELD, LID 6	R1504	R002T2101J	RC
372	868501H804	TAP TITE(S) PAN W6	SW101	0500211001	PUSH SWITCH
373	850P000285	CS-RING	SW102	0520244002	SWITCH, ROTARY
			SW103	0501211001	PUSH SWITCH
401	850P900457	GEAR, LINK L	UN4001	A44802A500	UNIT, CYLINDER
402	850P800175	SPRING, LINK GEAR L	UN4002	A42350620	UPPER DRUM ASS'Y
403	850P900358	GEAR, SYNCHRO			
404	850P900360	LEVER, FLAP			
405	850P800157	SPRING, FLAP			
406	850A900096	TOP BRACKET ASS'Y			
407	850P900458	LOCKER			
408	850P800154	SPRING, LOCKER			
409	850P900349	CASS. SIDE L			
410	850P900354	SPRING, PACK			
411	850P900350	CASS. SIDE R			
412	850P900365	REMOVING			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PART NO	DESCRIPTION	REF. NO	PART NO	DESCRIPTION
RESISTOR			SEMICONDUCTORS (CONT)		
R611	R00104106J	RC 10M OHM 1/4W	IC6003	I03S079100	IC LA7910
CAPACITORS			IC6501	I03S072100	IC LA7210
C501	E011F3332M	CE 3300 UF 25 V	Q501	TA3T0984K0	TRANSISTOR, SILICON 2SA984K-AA
C502	E011F3222M	CE 2200 UF 25 V	Q502	TD70019330	TRANSISTOR, SILICON 2SD1933
C606	CH40F0314Z	CC 10000 PF 25 V	Q505	TD3H018250	TRANSISTOR, SILICON 2SD1825Z-LU
C611	E59A0P473Z	CE 0.047 UF 5.5V	Q601	TCTT0536S0	TRANSISTOR, SILICON 2SC536-SPA-AC
C2028	CHG0F03H4Z	CC 0.022 UF 25 V	Q1001	TD3T011110	TRANSISTOR, SILICON 2SD1111-AA
C4205	CH40F0314Z	CC 10000 PF 25 V	Q1005	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
SEMICONDUCTORS			Q1006	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
Q1007	TC3T022740	TRANSISTOR, SILICON 2SC2274-AA	Q1010	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
Q1011	TB3T006980	TRANSISTOR, SILICON 2SB698-AA	Q1011	TB3T006980	TRANSISTOR, SILICON 2SB698-AA
D501	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q1013	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
D502	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q1014	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
D503	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q1015	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
D504	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q1017	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
D505	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q2001	TD3T011110	TRANSISTOR, SILICON 2SD1111-AA
D506	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q2002	TB3T009260	TRANSISTOR, SILICON 2SB926-AA
D507	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q2003	TP3TD06001	COMPOUND TRANSISTOR 2SA1345-AC
D508	D23TDSF10T	DIODE, RECTIFIER DSF10TB-BT-A	Q2004	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
D509	D28T011E20	DIODE, SILICON 11E2TA1	Q2005	TNNTC03001	COMPOUND TRANSISTOR 2SC3400-T
D510	D28T011E20	DIODE, SILICON 11E2TA1	Q2006	TCTT0536S0	TRANSISTOR, SILICON 2SC536-SPA-AC
D511	DB7T2MR150	GLASS SEALED LED LTZ-MR15-T77	Q2007	TCTT0536S0	TRANSISTOR, SILICON 2SC536-SPA-AC
D512	D93013001B	DIODE, ZENER GZB308	Q2008	TCTT0536S0	TRANSISTOR, SILICON 2SC536-SPA-AC
D513	D93T01300Z	DIODE, ZENER GZA13 Z BT	Q3001	T67A1037K0	TRANSISTOR, SILICON 2SA1037KT147
D514	D17T001320	DIODE, SILICON 1SS132T-77	Q3002	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D515	D28T011ES1	DIODE, SILICON 11ES1TA1	Q3004	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D606	D17T001320	DIODE, SILICON 1SS132T-77	Q3006	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D607	D17T001320	DIODE, SILICON 1SS132T-77	Q3007	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D612	D17T001320	DIODE, SILICON 1SS132T-77	Q3008	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D614	D17T001320	DIODE, SILICON 1SS132T-77	Q3701	TN7TC05001	COMPOUND TRANSISTOR DTC124EKT147
D615	D17T001320	DIODE, SILICON 1SS132T-77	Q3702	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D617	D17T001320	DIODE, SILICON 1SS132T-77	Q4001	T67A1037K0	TRANSISTOR, SILICON 2SA1037KT147
D618	D17T001320	DIODE, SILICON 1SS132T-77	Q4002	T83A028127	TRANSISTOR, SILICON 2SC2812-L7-TA
D620	D17T001320	DIODE, SILICON 1SS132T-77	Q4003	T83A028127	TRANSISTOR, SILICON 2SC2812-L7-TA
D622	002112P010	LED LN21RPH-(TA)	Q4005	T83A028127	TRANSISTOR, SILICON 2SC2812-L7-TA
D625	D94UA6R2J2	DIODE, ZENER HZS6R2JB2-T	Q4006	T83A028127	TRANSISTOR, SILICON 2SC2812-L7-TA
D632	D17T001320	DIODE, SILICON 1SS132T-77	Q4007	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D633	D17T001320	DIODE, SILICON 1SS132T-77	Q4008	T67A1037K0	TRANSISTOR, SILICON 2SA1037KT147
D1003	D13TGMA010	DIODE, SILICON GMA-01-BT	Q4009	T87A02412K	TRANSISTOR, SILICON 2SC2412KT147
D1005	D94TA130J1	DIODE, ZENER HZS13JB1-TE	Q4010	TN7TC05001	COMPOUND TRANSISTOR DTC124EKT147
D1009	D13TGMA010	DIODE, SILICON GMA-01-BT	Q4201	TCTT0536S0	TRANSISTOR, SILICON 2SC536-SPA-AC
D1010	D13TGMA010	DIODE, SILICON GMA-01-BT	Q5005	TC1T013170	TRANSISTOR, SILICON 2SC1317-T
D1011	D13TGMA010	DIODE, SILICON GMA-01-BT	Q6001	T83A028126	TRANSISTOR, SILICON 2SC2812-L6-TA
D1012	D28T011ES1	DIODE, SILICON 11ES1TA1	Q6002	T63A011790	TRANSISTOR, SILICON 2SA1179-TA
D1013	D94TA100J2	DIODE, ZENER HZS10JB2-TE	Q6003	TN3TC05001	COMPOUND TRANSISTOR 2SC3396(CY)-TA
D2003	D13TGMA010	DIODE, SILICON GMA-01-BT	Q6004	TC3T030000	TRANSISTOR, SILICON 2SC3000-AA
D2004	D13TGMA010	DIODE, SILICON GMA-01-BT	Q6005	T83A028126	TRANSISTOR, SILICON 2SC2812-L6-TA
D2007	D13TGMA010	DIODE, SILICON GMA-01-BT	Q6006	TC3T0536K0	TRANSISTOR, SILICON 2SC536K-NP-AA
D2008	D13TGMA010	DIODE, SILICON GMA-01-BT	Q6501	T83A028126	TRANSISTOR, SILICON 2SC2812-L6-TA
D2012	D28T011ES1	DIODE, SILICON 11ES1TA1	Q6502	TN3TC05001	COMPOUND TRANSISTOR 2SC3396(CY)-TA
D2013	D13TGMA010	DIODE, SILICON GMA-01-BT	COILS & TRANSFORMERS		
D3001	D13TDS442X	DIODE, SILICON DS442X-BT	L701	021JA6101K	COIL 100 UH
D3004	D13TDS442X	DIODE, SILICON DS442X-BT	L1001	021B73101K	COIL 100 UH
D4001	D17T001320	DIODE, SILICON 1SS132T-77	L3002	021JA6180K	COIL 18 UH
D4002	D17T001320	DIODE, SILICON 1SS132T-77	L3003	021JA63R3K	COIL 3.3 UH
D4005	D94TA9R1J2	DIODE, ZENER HZS9R1JB2-TE	L3004	021JA6101K	COIL 100 UH
D4008	D94TA6R8J2	DIODE, ZENER HZS6R8JB2-TE	L3005	021B73101K	COIL 100 UH
D4201	D94TA130J2	DIODE, ZENER HZS13JB2-TE	L3006	021JA6150K	COIL 15 UH
D6002	D14U001660	DIODE, SILICON 1SS166-03TE	L3701	021B73101K	COIL 100 UH
D6003	DD3RLF801L	DIODE, SILICON LFB-01L	L3702	032622001N	COIL, TRAP 2622001
D6005	DD3RLF801L	DIODE, SILICON LFB-01L	L4001	021JA6221K	COIL 220 UH
D6501	DD3RLF801L	DIODE, SILICON LFB-01L	L4003	021JA6470K	COIL 47 UH
D6502	DD3RLF801L	DIODE, SILICON LFB-01L	L4004	021JA61R0M	COIL 1.0 UH
IC501	I23S953420	IC STK5342	L4005	021B73101K	COIL 100 UH
IC502	I02190574J	IC UPC574J-T	L4006	021B73101K	COIL 100 UH
IC601	I56DT7005C	IC OEC7005C	L4007	021JA6330K	COIL 33 UH
IC602	I01901280M	IC MN1280M	L4009	021JA6151K	COIL 150 UH
IC603	I56D086300	IC M58630P	L4010	021JA6220K	COIL 22 UH
IC701	I9KD647000	IC SAA4700	L4011	021JA6100K	COIL 10 UH
IC1001	I54D50017A	IC OEC0017	L4012	021JA6390K	COIL 39 UH
IC1002	I06S51954A	IC M51954AL	L4013	021JA6150K	COIL 15 UH
IC1003	I07S062470	IC BA6247	L4014	021JA6121K	COIL 120 UH
IC1005	I07S003930	IC BA10393N	L4015	021JA6270K	COIL 27 UH
IC2001	I97D49011A	IC OEC9011	L4016	021JA6101K	COIL 100 UH
IC3001	I03D373300	IC LA7330	L4101	021B73101K	COIL 100 UH
IC3701	I07TC7025L	IC BA7025L	L4102	021B73101K	COIL 100 UH
IC4001	I03D37323A	IC LA7323A	L5001	021B73101K	COIL 100 UH
IC4002	I08D369653	IC M586965-3RS	L5003	021J74682J	COIL 6.8 MH
IC4101	I03DG73200	IC LA7320	L6001	021JA6R82M	COIL 0.82 UH
IC5001	I07D767AS0	IC BA767AS	L6002	021JA6100K	COIL 10 UH
IC6001	I03DA7530N	IC LA7530N	L6003	021JA6100K	COIL 10 UH
IC6002	I03D06358T	IC LA6358T			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO	PART NO	DESCRIPTION	REF. NO	PART NO	DESCRIPTION
<b>COILS &amp; TRANSFORMERS (CONT)</b>			<b>MISCELLANEOUS (CONT)</b>		
L6004	033200001K	COIL, VIDEO IFT 3200001	CP4101	0694280139	CONNECTOR, PCB SIDE 173979-8
L6005	033200002K	COIL, VIDEO IFT 3200002	CP5001	069H250329	CONNECTOR, PCB SIDE 1L-S-5P-S2T2-EF
L6006	021JA6270K	COIL 27 UH	CP6001	069Q160179	CONNECTOR, PCB SIDE CPB1806-0101
L6007	021JA65R6K	COIL 5.6 UH	CP6002	069R2A0319	CONNECTOR, PCB SIDE 5550-10A
L6008	021B73101K	COIL 100 UH	DL3001	104A24R436	DELAY LINE, GLASS ADL-SE2244R
L6009	033200003K	COIL, VIDEO IFT 3200003	△ F501	080ET1R601	FUSE BET 1.6A(T) 250V
L6012	021B73101K	COIL 100 UH	△ F502	080ET02001	FUSE BET 2 A(T) 250V
L6013	021B73101K	COIL 100 UH	△ F503	080ET02001	FUSE BET 2 A(T) 250V
L6014	03320M001K	COIL, VIDEO IFT 320M001	FH501	067M0T0004	HOLDER, FUSE H0451
L6501	021B73101K	COIL 100 UH	FH502	067M0T0005	HOLDER, FUSE H0452
△ T501	040557022C	TRANSFORMER, POWER AC 0557022	△ ICP051	084EF0R301	I.C. PROTECTOR PRF-315-F003
T5001	0336260028	COIL, BIAS OSC 3626002	NR601	110E4223T4	R. NETWORK RN5E5A223J01
<b>JACK</b>			NR1001	110E3472T2	R. NETWORK RN5E4A472J01
J4201	0632000024	JACK, PLATE JPJ3512-01-430	NR1002	110E3223T2	R. NETWORK RN5E4A223J01
<b>SWITCHES</b>			NR1003	110E3223T2	R. NETWORK RN5E4A223J01
SW601	0504201T22	SWITCH, TACT SKHVBD005	OS601	0779010002	REMOTE RECEIVER GP-1U541
SW602	0504201T22	SWITCH, TACT SKHVBD005	PF3001	1141L15605	FILTER, LOW PASS 41L15605
SW603	0504201T22	SWITCH, TACT SKHVBD005	PF3002	1141B44606	FILTER, BAND PASS 41B44606
SW604	0504201T22	SWITCH, TACT SKHVBD005	PF3003	1141B50604	FILTER, BAND PASS 41B50604
SW605	0504201T22	SWITCH, TACT SKHVBD005	PF4001	1141L30606	FILTER, LOW PASS 41L30606
SW606	0504201T22	SWITCH, TACT SKHVBD005	PF4002	1141H14605	FILTER, HIGH PASS 41H14605
SW608	0504201T22	SWITCH, TACT SKHVBD005	PF4003	1141L33604	FILTER, LOW PASS 41L33604
<b>VARIABLE RESISTORS</b>			PF4201	103L02R102	DELAY 3L02R102
VR601	V014025B05	VR, ROTARY EVU-F3A F20 B25	TC601	0100614T08	C. CERAMIC TRIMMER VCT51F716A
VR2001	V1263Q5BT5	VR, SEMI FIXED RH0636CS5R07B	TM601	076M00K010	TRANSMITTER R56-6046
VR2002	V126315BT5	VR, SEMI FIXED RH0636C15R07B	TU6001	0145M01016	TUNER, UHF-VHF TEME1-003(KA1)
VR3701	V126313BT5	VR, SEMI FIXED RH0636C13R07B	TU6002	0151N01008	RF-CONVERTER ENC-87941
VR4001	V1263H4BT5	VR, SEMI FIXED RH0636CJ4R07B	V601	096H70R304	TUBE, FLUORESCENT DISPLAY FV301G
VR4002	V126314BT5	VR, SEMI FIXED RH0636C14R07B	X601	100EA4R108	CRYSTAL CSA-309
VR4003	V1263L3BT5	VR, SEMI FIXED RH0636C3R07B	X602	100D32R801	CRYSTAL DT-26S 32.768KHZ
VR4004	V126314BT5	VR, SEMI FIXED RH0636C14R07B	X1001	1002T4R001	CERAMIC OSCILLATOR CSA4.00MG-TF01
VR4005	V126314BT5	VR, SEMI FIXED RH0636C14R07B	X3001	1006A4R302	CRYSTAL HC-49/U 4.43361875MHZ
VR4101	V126214BT1	VR, SEMI FIXED RH0632C14R01	X6501	1003R50001	CERAMIC OSCILLATOR KBR-500AH2
VR4102	V126214BT1	VR, SEMI FIXED RH0632C14R01	<b>RESISTOR</b> RC.....CARBON RESISTOR  <b>CAPACITORS</b> CC.....CERAMIC CAPACITOR CE.....ALUMI ELECTROLYTIC CAPACITOR CP.....POLYESTER CAPACITOR CPP.....POLYPROPYLENE CAPACITOR CPL.....PLASTIC CAPACITOR CMP.....METAL POLYESTER CAPACITOR CMPL.....METAL PLASTIC CAPACITOR CMPP.....METAL POLYPROPYLENE CAPACITOR CST.....STYROL CAPACITOR		
VR5001	V126314BT5	VR, SEMI FIXED RH0636C14R07B			
VR5002	V1263E5B03	VR, SEMI FIXED RH0624CE5J			
VR6001	V126214BT1	VR, SEMI FIXED RH0632C14R01			
VR6002	V126314BT5	VR, SEMI FIXED RH0636C14R07B			
<b>P. C. BOARDS ASS'Y</b>					
PCB101	A44826A01AB	PCB ASS'Y VV0165			
PCB301	A44826A30AB	PCB ASS'Y VV0156			
PCB401	A43709A33AB	PCB ASS'Y VE0244			
PCB501	A44826A02AB	PCB ASS'Y VP0081			
PCB502	A44826A02AB	PCB ASS'Y VE0303			
PCB601	A44826A27AB	PCB ASS'Y VE0300			
<b>MISCELLANEOUS</b>					
△ BT601	141T003004	BATTERY, MANGAN UM-3 1.5V			
BZ601	0717000003	BUZZER, PIEZOELECTRIC K6S-13DB-4P-2			
CD501	120M450031	CORD, AC E2N 7FEET			
CD502	122U031203	CORD, JUMPER 2U031203			
CP501	069R260149	CONNECTOR, PCB SIDE 52008-0610			
CP502	069R280149	CONNECTOR, PCB SIDE 52008-0810			
CP503	0694430100	CORD, UX CONNECTOR 2-173270-3			
CX601	0694270070	CONNECTOR, PCB SIDE 173992-7			
CX602	06942A0070	CONNECTOR, PCB SIDE 1-173992-0			
CY601	0694270060	CONNECTOR, PCB SIDE 173991-7			
CY602	06942A0060	CONNECTOR, PCB SIDE 1-173991-0			
CD2002	068126019A	CORD, EIS CONNECTOR 8126019A			
CD2003	12260H1001	CORD, JUMPER 260H1001			
CD2004	068129017A	CORD, EIS CONNECTOR 8129017A			
CD2501	1226062401	CORD, JUMPER 26062401			
CD2502	1226083001	CORD, JUMPER 26083001			
CD4102	068128024A	CORD, EIS CONNECTOR 8128024A			
CD6001	0682H27003	CORD, COAXIAL 82H27003			
CD6002	0680L05004	CABLE, PAL PDS05-DP05-3C1.5			
CF3701	10114R1703	FILTER, CERAMIC EFCS4R17MS4A			
CF6001	1027038R91	FILTER, SAW F1034			
CF6002	1012T5R501	FILTER, CERAMIC CDA5.5MC26-TF20			
CF6003	1012T5R502	FILTER, CERAMIC SFE5.5MB-TF20			
CF6004	1012T5R503	FILTER, CERAMIC TRAP TPS5.5MB-TF20			
CP2001	069H220329	CONNECTOR, PCB SIDE 1L-S-2P-S2T2-EF			
CP2003	069R7H0059	CONNECTOR, PCB SIDE 52045-1710			
CP4001	0697160189	CONNECTOR, PCB SIDE TXX-H06P-G1			
CP4002	0697160189	CONNECTOR, PCB SIDE TXX-H06P-G1			
CP4003	0697160189	CONNECTOR, PCB SIDE TXX-H06P-G1			
CP4004	0697160179	CONNECTOR, PCB SIDE CPB1806-0101			