

ELECTRICAL & MECHANICAL ADJUSTMENT

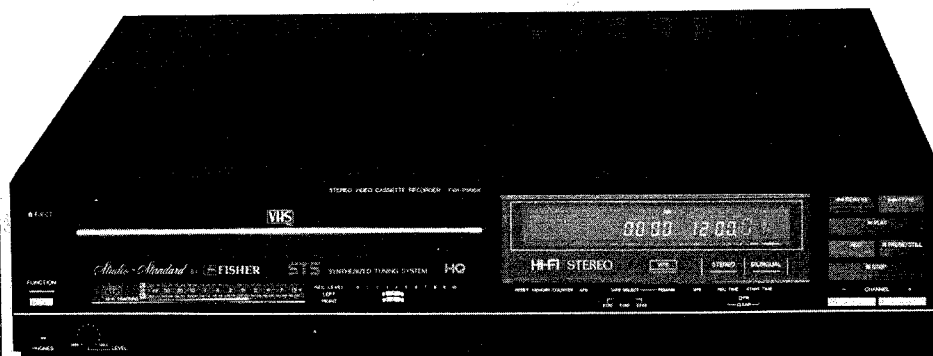


FISHER

VIDEO CASSETTE RECORDER

FVH-P990K/P990KV

(EUROPE)



(Photo: Model FVH-P990KV)

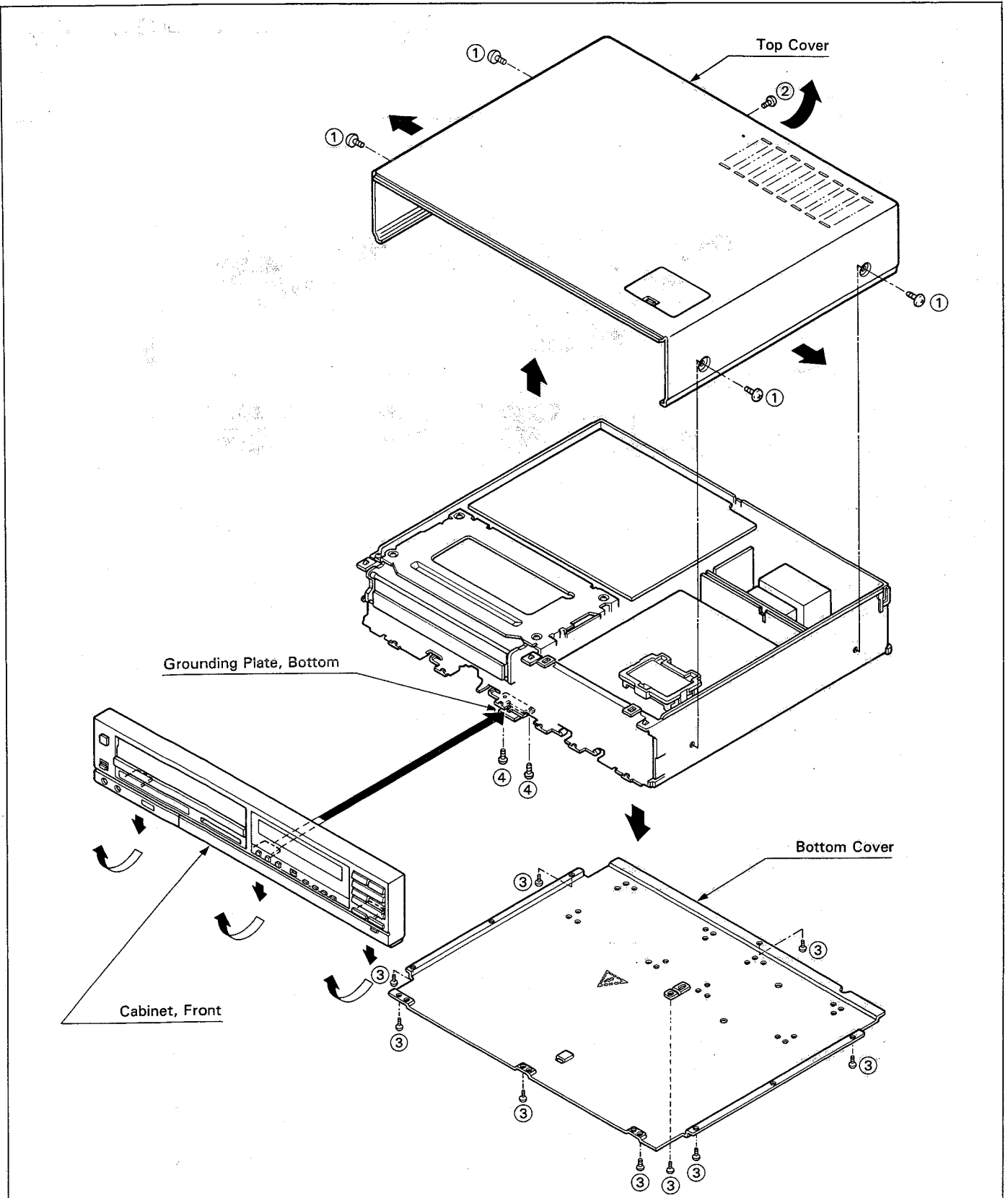
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1. CABINET DISASSEMBLY

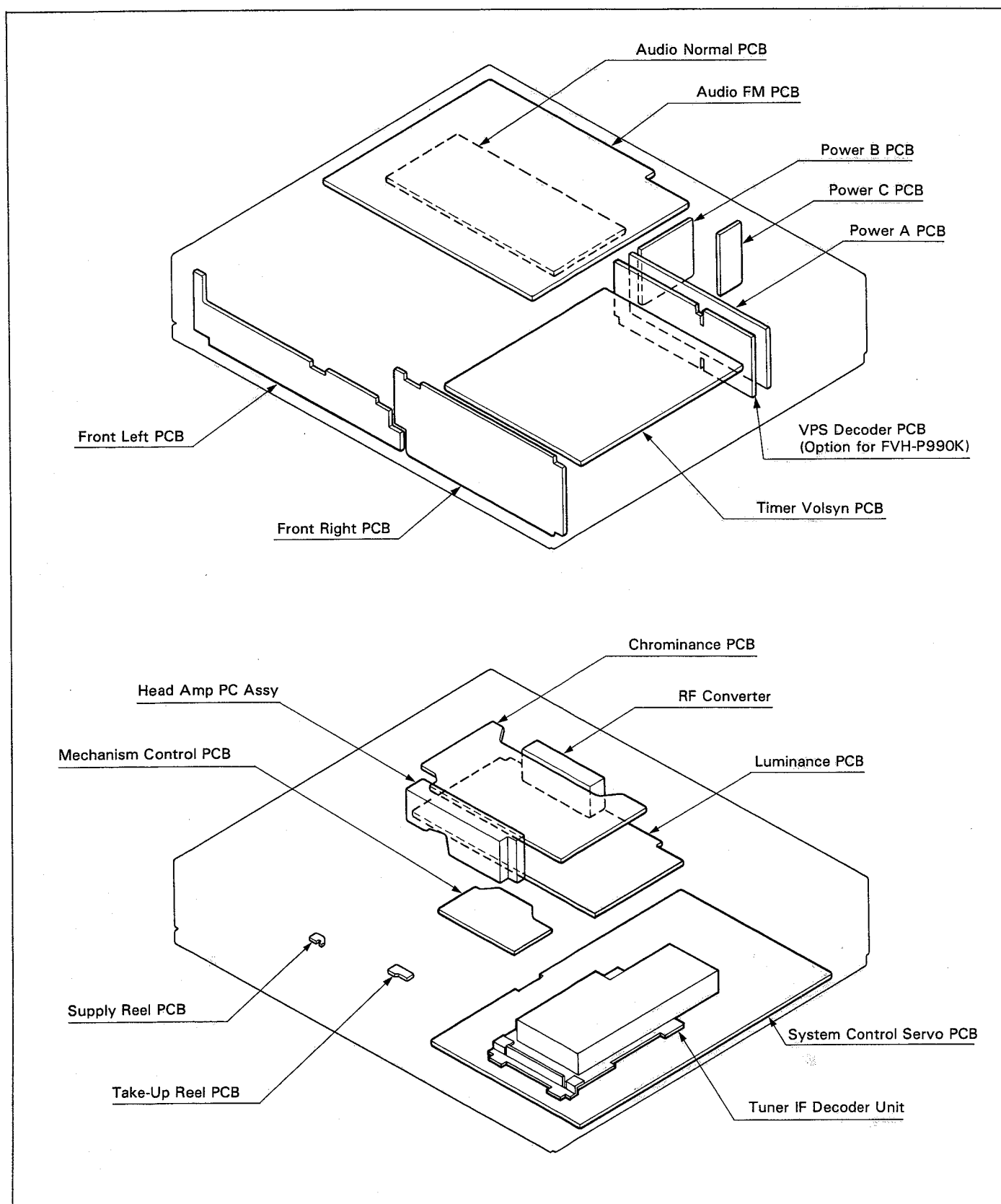
When disassembling the following parts, remove the screws shown in the figure in numerical order, and remove the parts in the direction of the arrows while pulling the clamps.

Note: Do not push or pull the clamps strongly, as damage may occur.



2. CIRCUIT BOARD DISASSEMBLY

2.1 CIRCUIT BOARD LOCATIONS

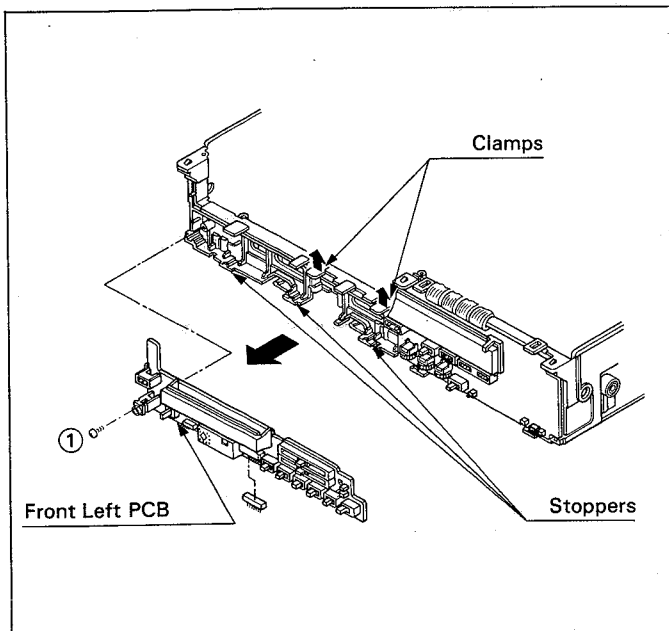


2.2 MAIN CIRCUIT BOARD DISASSEMBLY

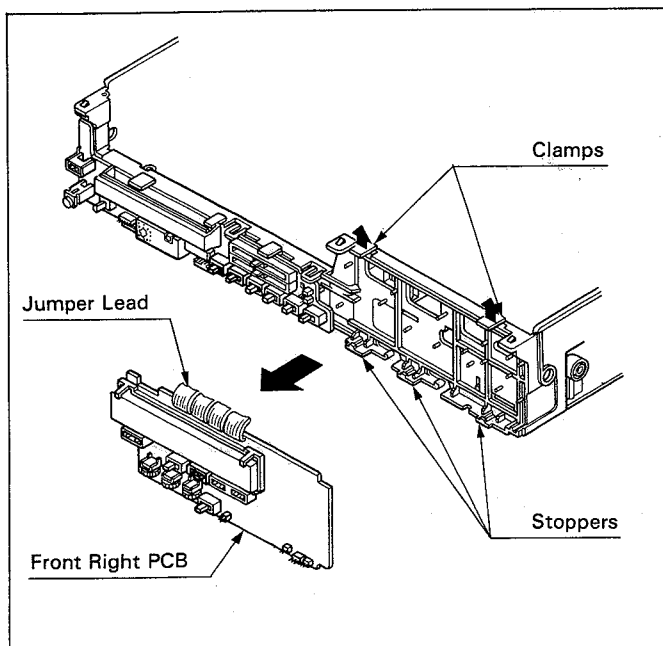
1. Be sure to disconnect the AC plug before doing the following procedures.
2. When disassembling the circuit board, remove the screws shown in the figure in numerical order, and remove the board in the direction of the large arrow while pulling the clamps in the direction of the small arrows. For complete removal, disconnect the connectors and, if necessary, remove the soldered connections on the connectors or the jumper lead.

Note: Do not push or pull the clamps strongly, as damage may occur.

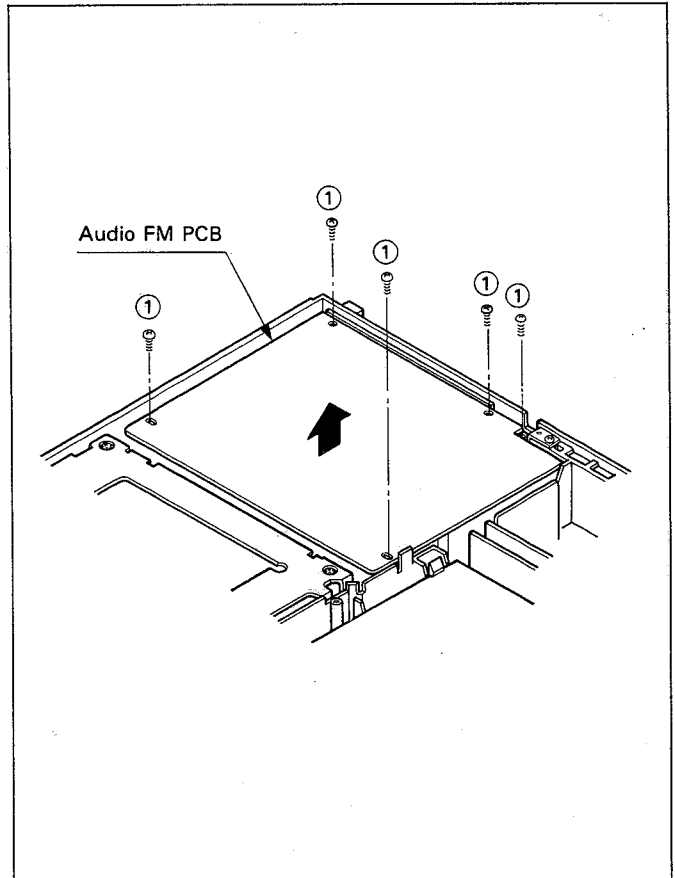
2.2.1 FRONT LEFT PCB



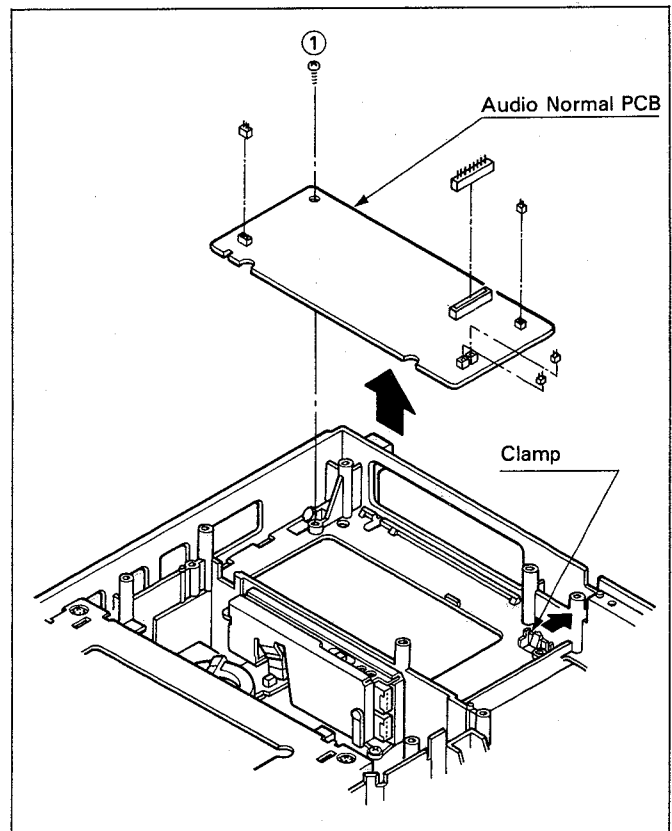
2.2.2 FRONT RIGHT PCB



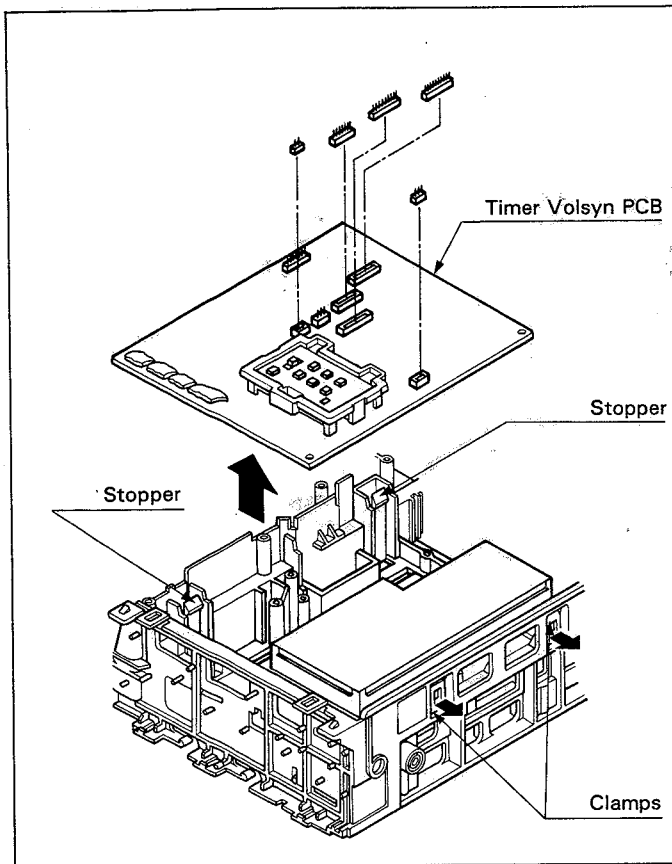
2.2.3 AUDIO FM PCB



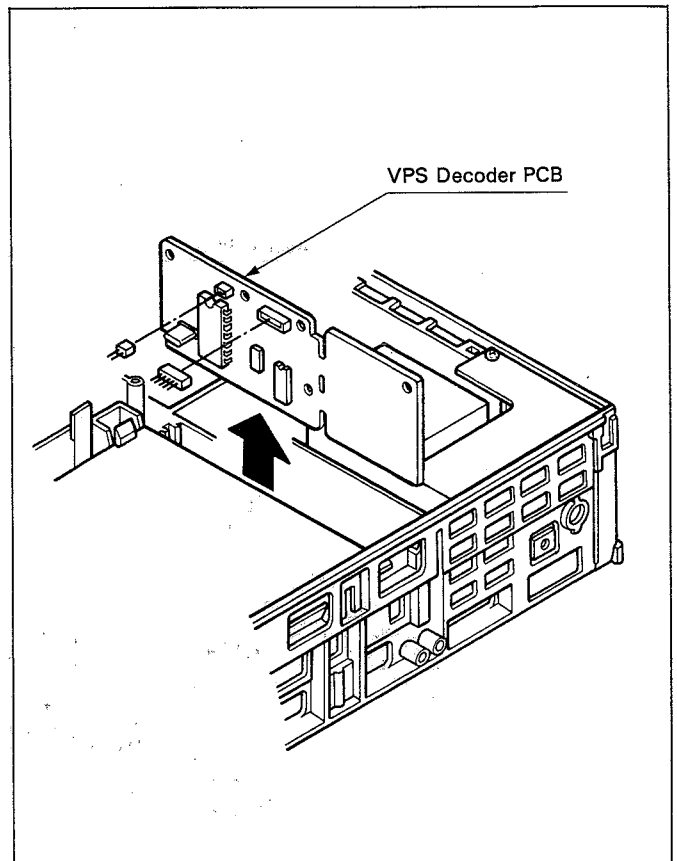
2.2.4 AUDIO NORMAL PCB



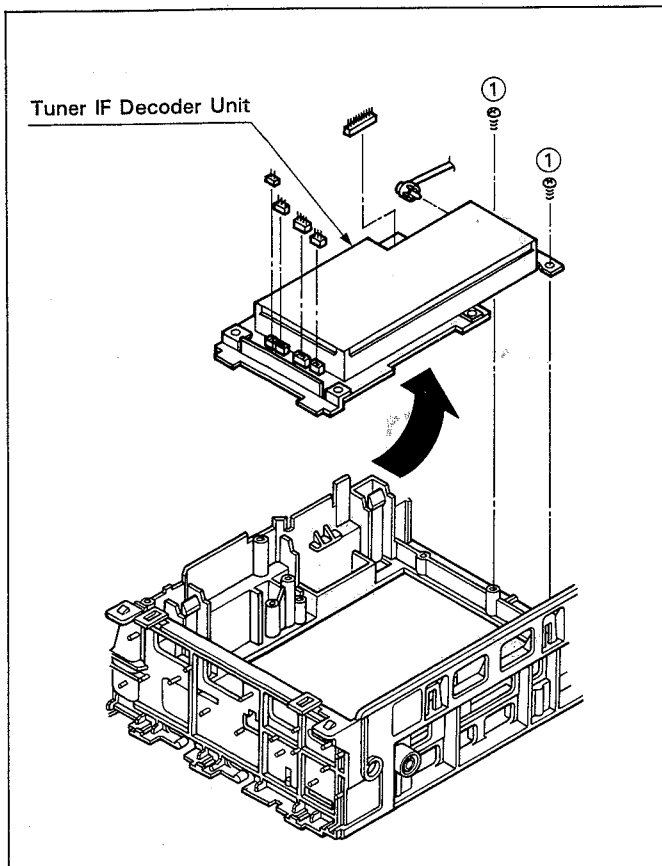
2.2.5 TIMER VOLSYN (VOLTAGE SYNTHESIZER) PCB



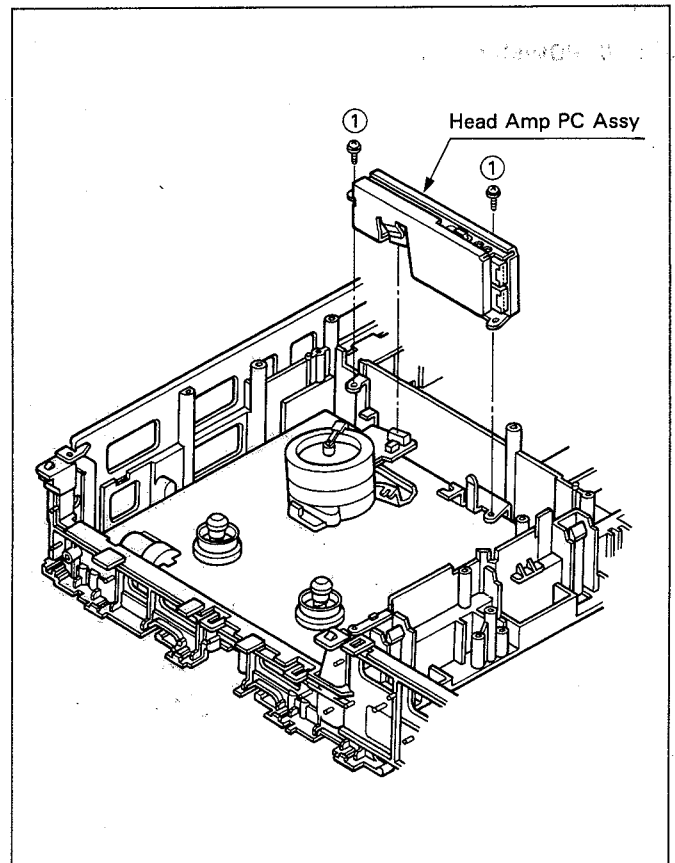
2.2.7 VPS DECODER PCB (OPTION FOR FHV-P990K)



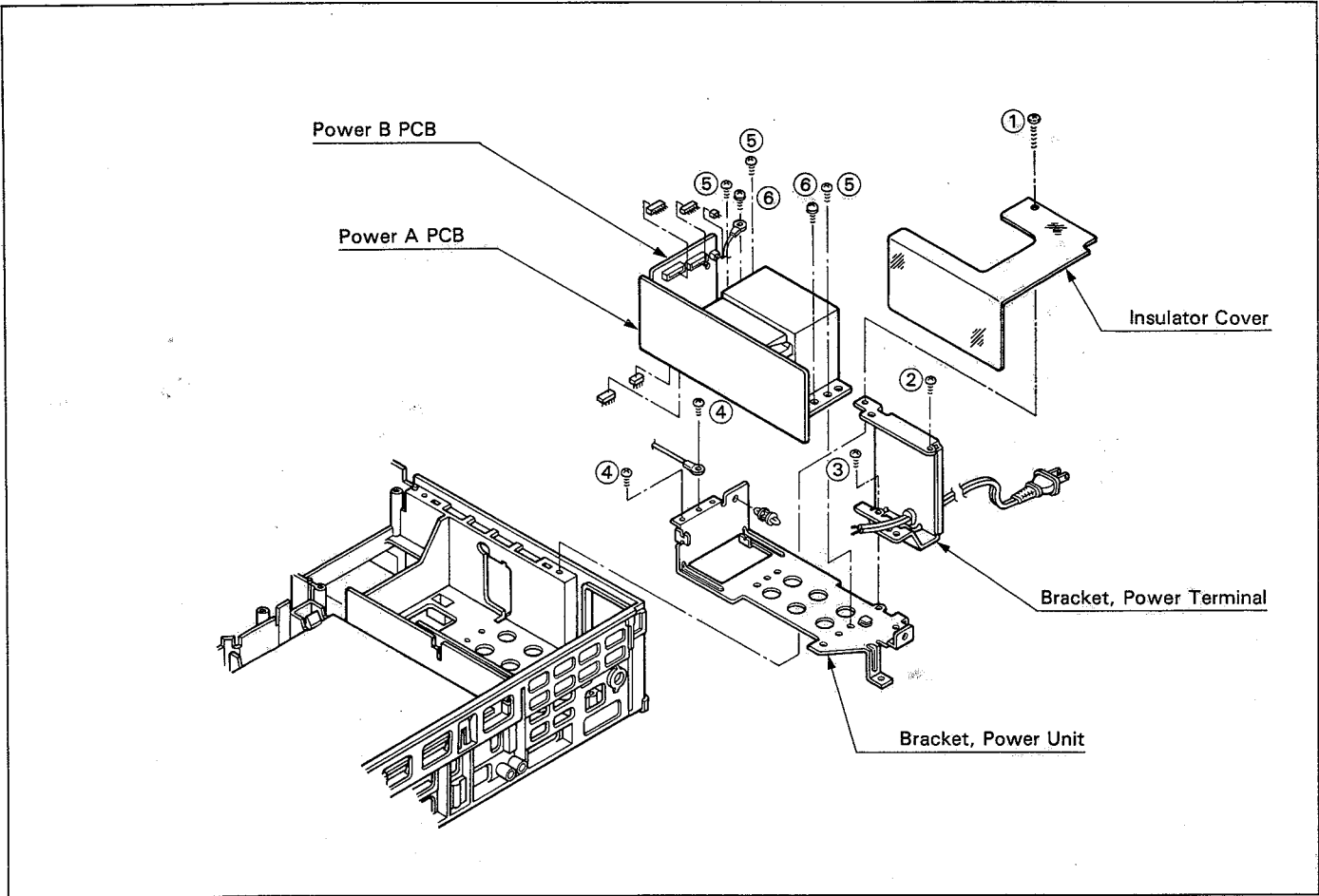
2.2.6 TUNER IF DECODER UNIT



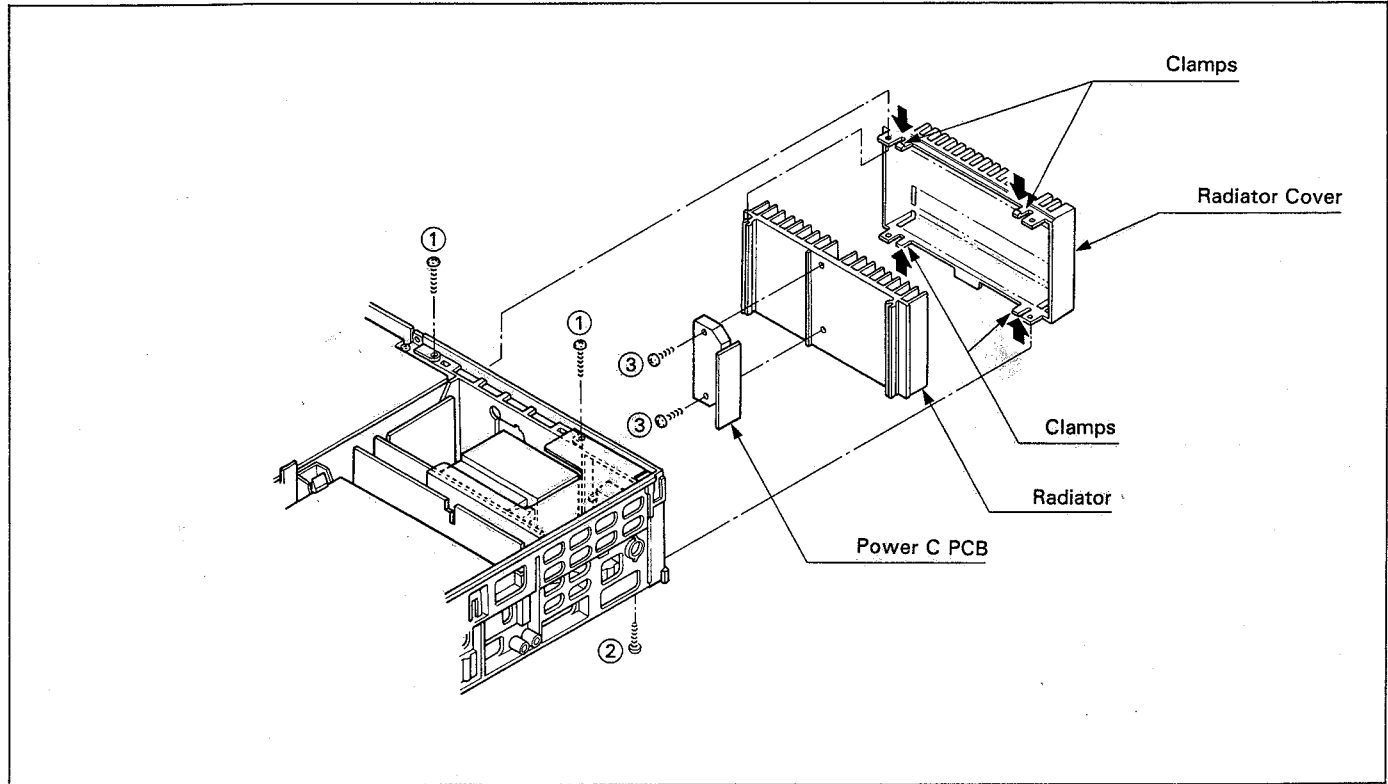
2.2.8 HEAD AMP PC ASSY



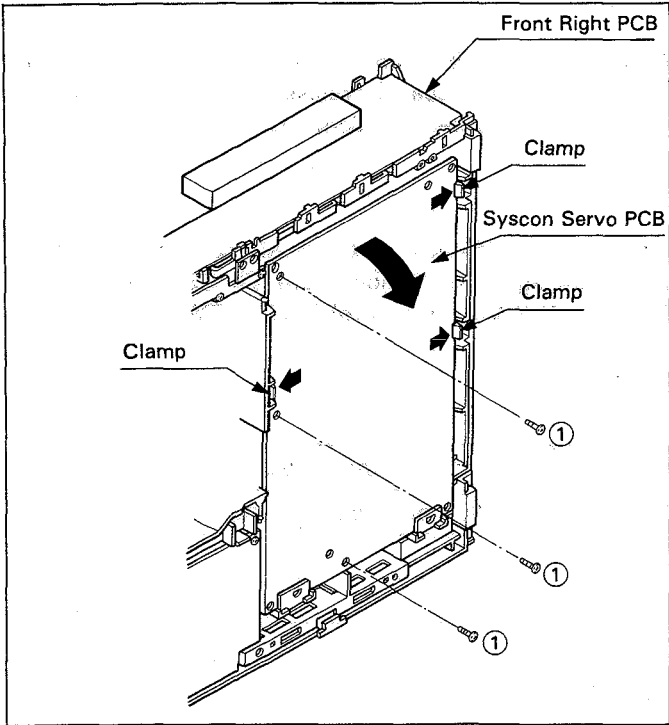
2.2.9 POWER A PCB AND POWER B PCB



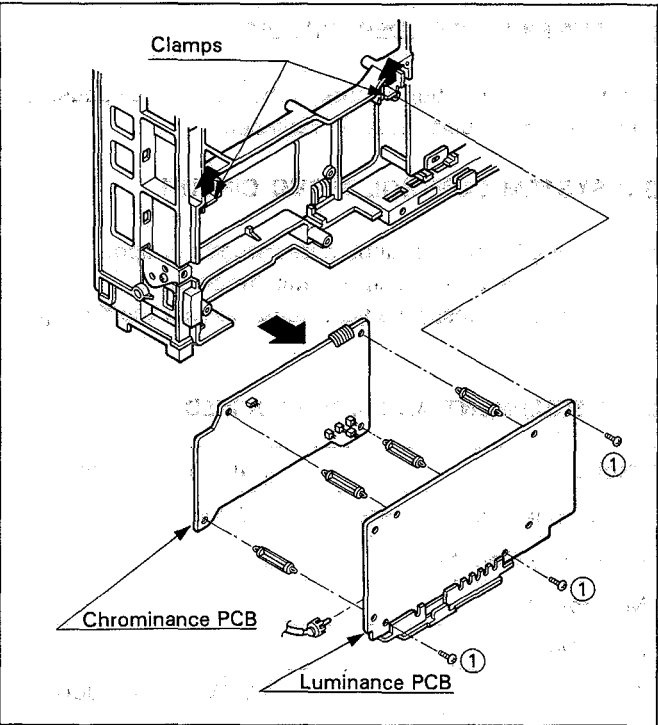
2.2.10 POWER C PCB



2.2.11 SYSTEM CONTROL SERVO PCB



2.2.12 LUMINANCE PCB AND CHROMINANCE PCB



MEMO

3. ELECTRICAL ADJUSTMENT

3.1 TUNER IF DECODER CIRCUIT

When any malfunction occurs in the Tuner IF Decoder Circuit, the whole unit must be replaced.

Note: The Tuner IF Decoder unit does not need any adjustments, because precise adjustments have been performed before shipment.

3.2 SYSTEM CONTROL SERVO CIRCUIT

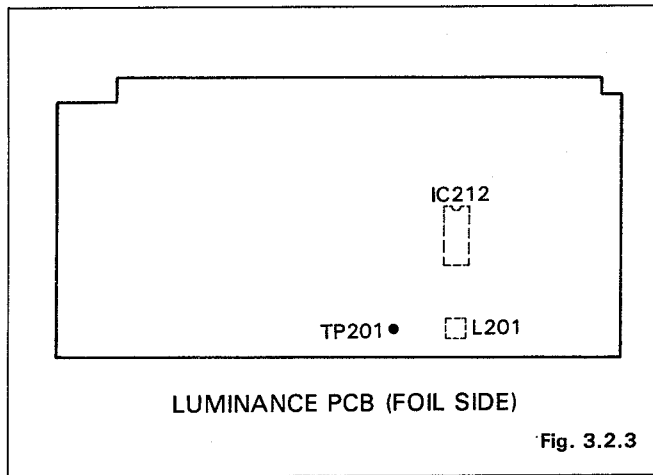
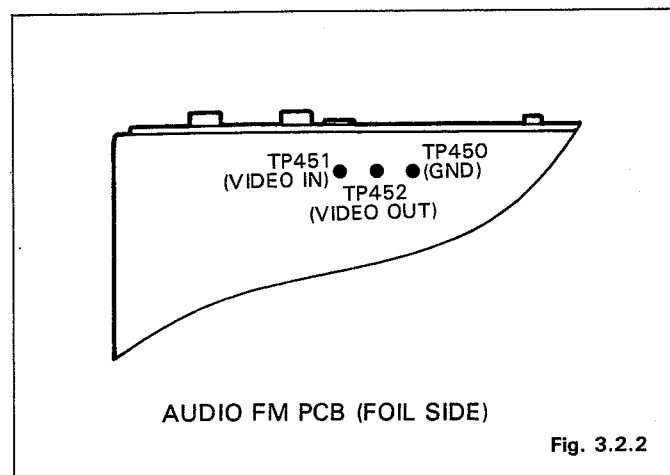
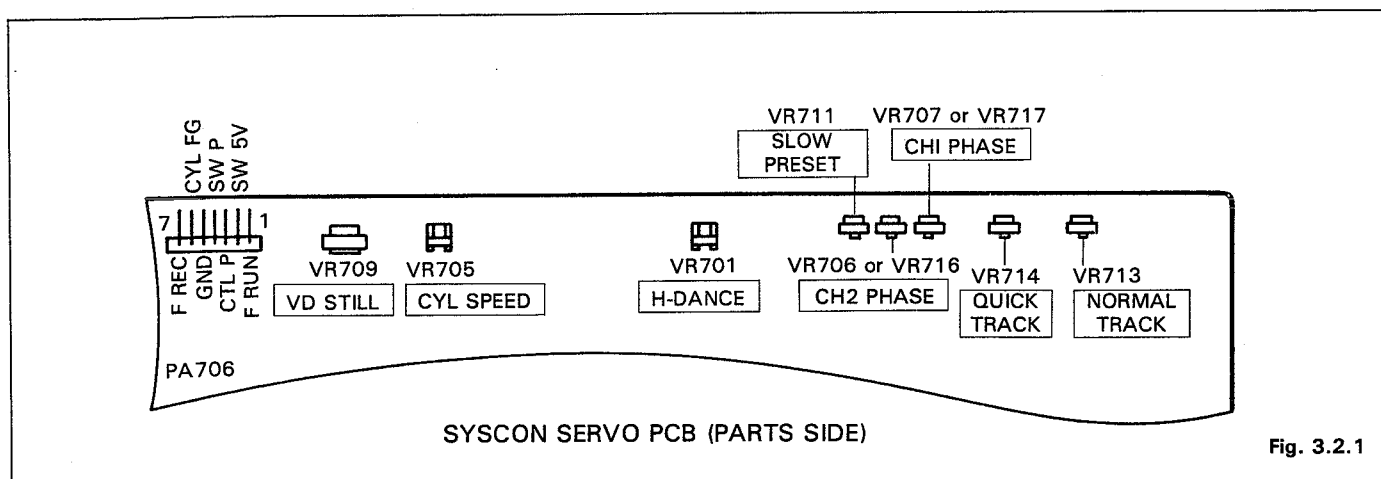
- These adjustments should be carried out upon completion of the tape transport adjustments.
- If the tape transport adjustments (except the tilt adjustment)

are carried out after these adjustments, follow the procedure again in Section 3.2.4 (2) CH1 PHASE/CH2 PHASE, (4) X VALUE and (6) FINE SLOW.

3.2.1 EQUIPMENT AND JIGS REQUIRED

Oscilloscope	Dual trace with an external trigger terminal or more than triple trace.
Colour Bar Signal Generator	Colour bar signal with 100% white level (EBU colour bar signal).
Frequency Counter	
Monitor TV	
Jitter Meter	
Test Tape	VPM-6 (SVJ-00031): Monoscope, 6 kHz
Blank Tape	VHS-type cassette tape

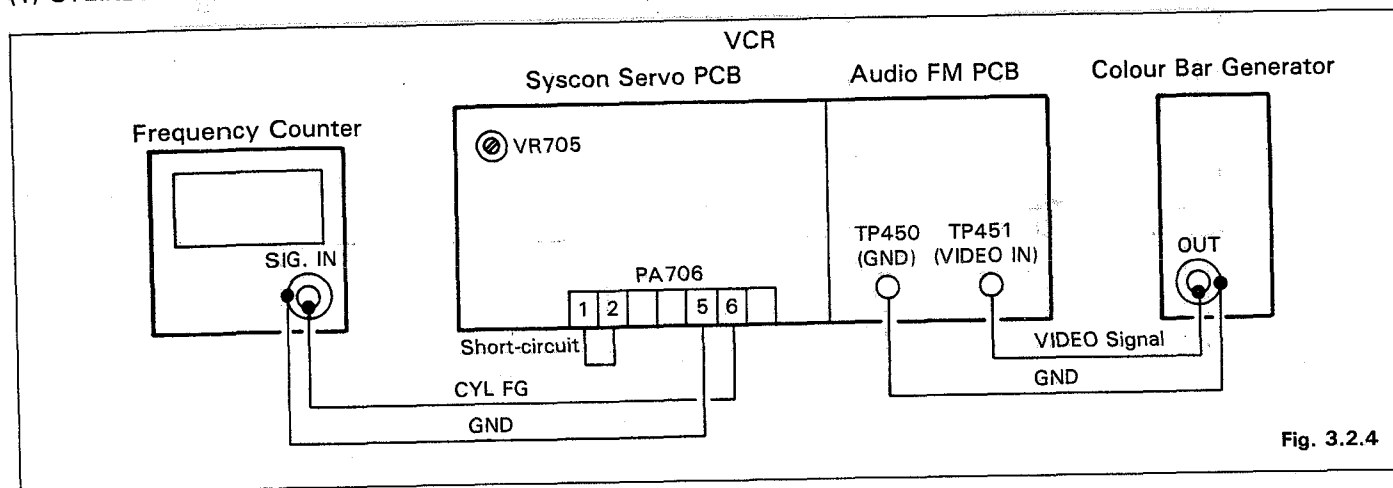
3.2.2 LOCATION OF ADJUSTMENT POINTS



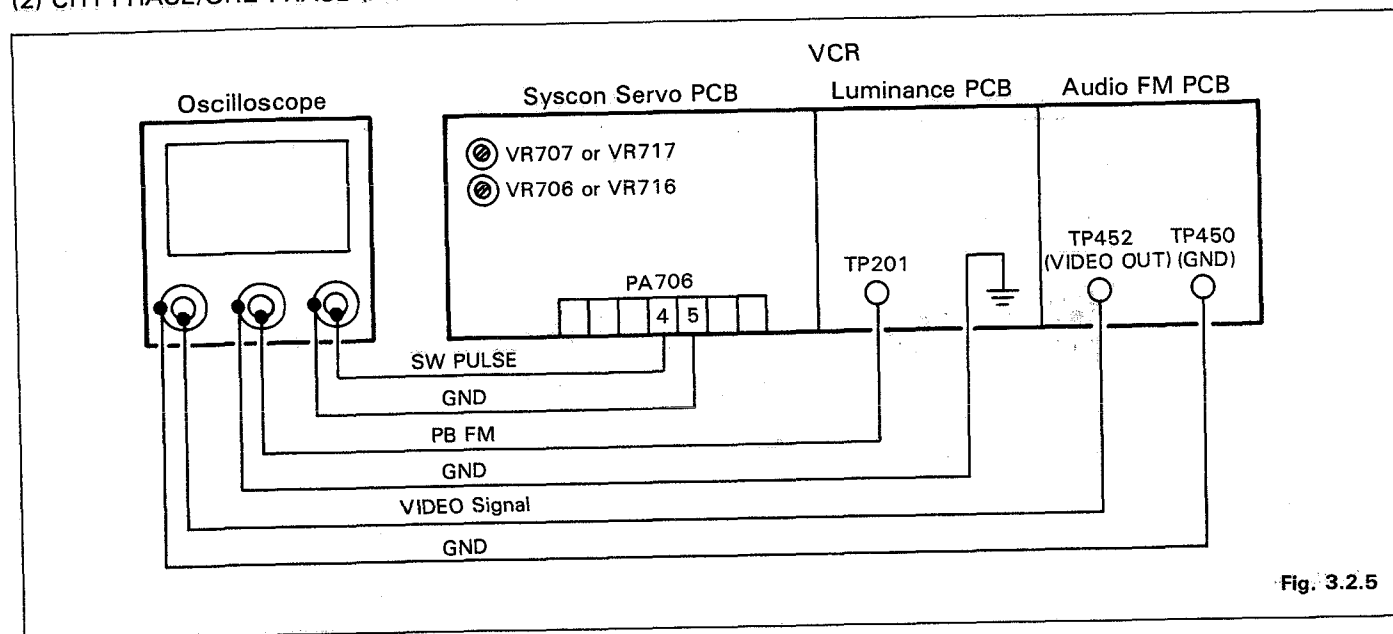
3.2.3 TEST EQUIPMENT CONNECTING DIAGRAMS

For adjustments (1) through (8) in this section, refer to the corresponding paragraphs (number in parentheses) in Section 3.2.4.

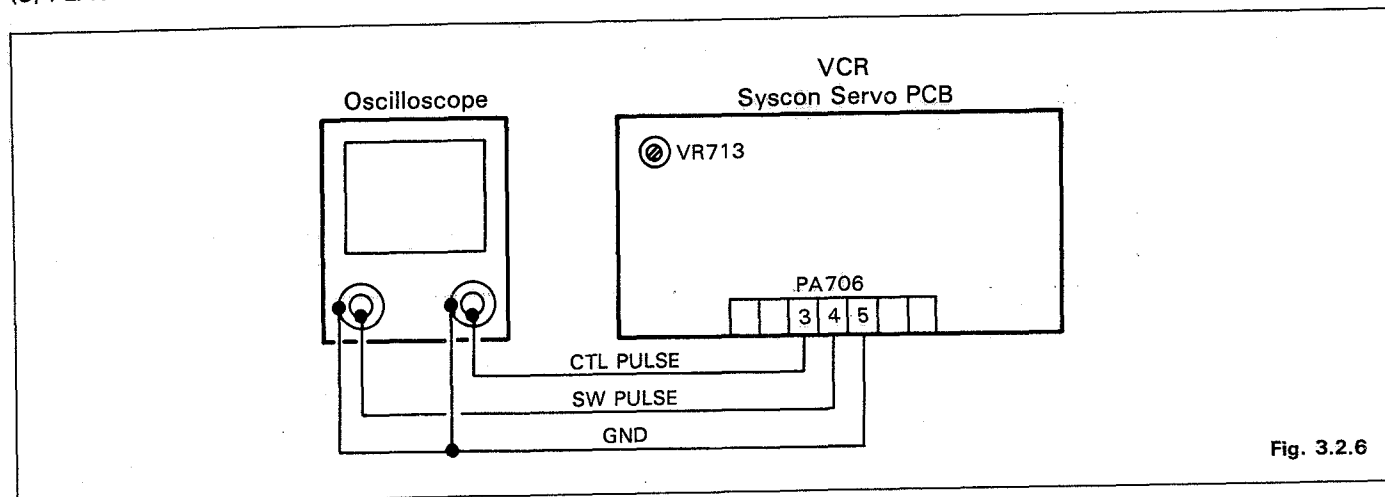
(1) CYLINDER MOTOR SPEED



(2) CH1 PHASE/CH2 PHASE (PLAY MODE)



(3) PLAY MODE TRACKING



3.2.4 ADJUSTMENTS

- For test equipment connecting diagrams for adjustments (1) through (8) in this section, refer to the corresponding diagrams (number in parentheses) in Section 3.2.3.
- Set the following switch to the position indicated below, before making these adjustments.

SWITCH	POSITION
INPUT SELECT	A/V

Note:

- ADJ. is the abbreviation for adjustment in following section.

(1) CYLINDER MOTOR SPEED

Measuring Point	Measuring Equipment	ADJ. Condition
Pin 6 of PA706 (CYL FG) Pin 5 of PA706 (GND)	Colour bar generator Frequency counter	REC mode Blank tape
ADJ. Location	ADJ. Value	
VR705 (CYL SPEED)	625 Hz $\pm$ 2 Hz	

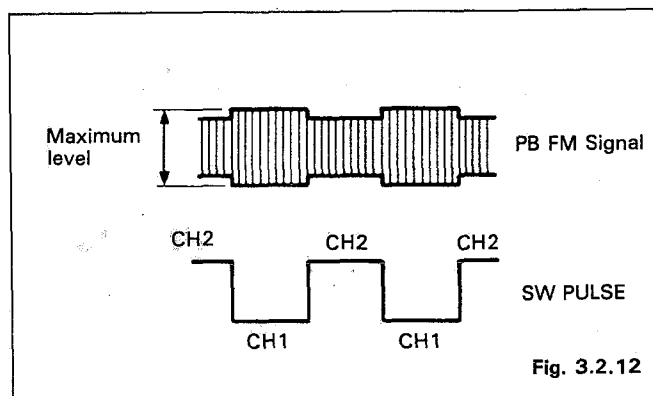
Note: Short-circuit pins 1 (F RUN) and 2 (SW 5V) of PA706.

- Adjust VR705 (CYL SPEED) so that the frequency is 625 Hz $\pm$ 2 Hz.

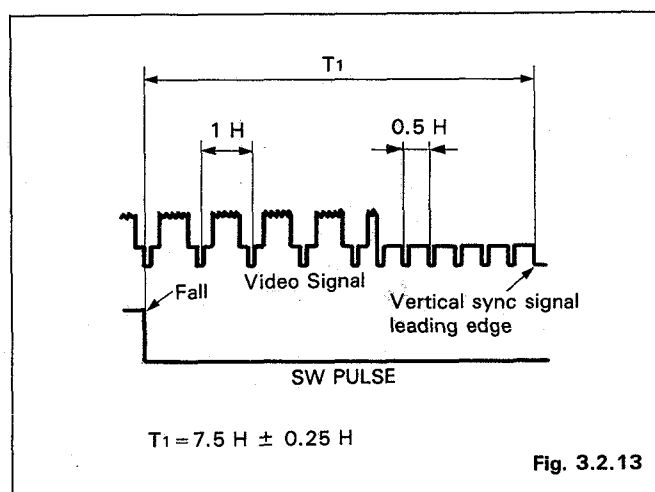
(2) CH1 PHASE/CH2 PHASE (PLAY MODE)

Measuring Point	Measuring Equipment	ADJ. Condition
TP201 (PB FM) (on Luminance PCB) Pin 4 of PA706 (SW PULSE) Pin 5 of PA706 (GND) TP452 (VIDEO OUT) TP450 (GND)	Oscilloscope	PLAY mode Test tape (VPM-6)
ADJ. Location	ADJ. Value	
VR181 (NORMAL TRACKING)	Maximum level (PB FM Signal)	
VR707 or VR717 (CH1 PHASE)	7.5 Hz $\pm$ 0.25 H .. (T ₁)	
VR706 or VR716 (CH2 PHASE)	(T ₁) $\pm$ 0.25 H (T ₂)	

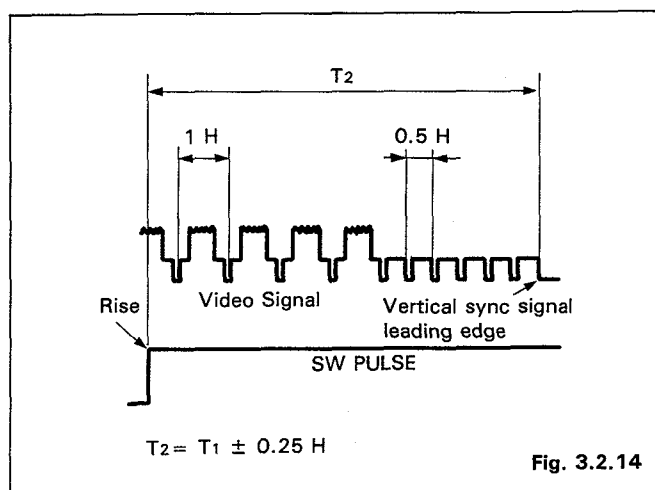
- Adjust VR181 (NORMAL TRACKING) behind the door on the front panel so that the PB FM Signals for both CH1 and CH2 are brought to their maximum levels. (Refer to Fig. 3.2.12)



- Adjust VR707 or VR717 (CH1 PHASE) so that the width "T₁" becomes 7.5 H $\pm$ 0.25 H as shown in Fig. 3.2.13.



- Adjust VR706 or VR716 (CH2 PHASE) so that the width "T₂" becomes "T₁" $\pm$ 0.25 H as shown in Fig. 3.2.14.

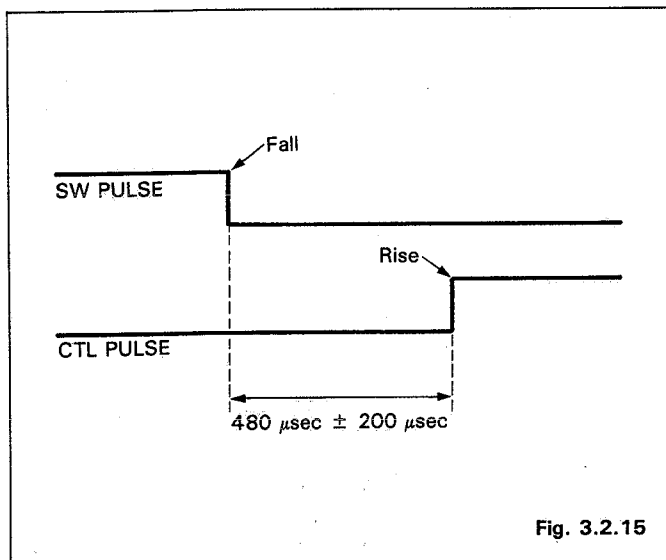


(3) PLAY MODE TRACKING

Refer to Section 5.2.4 (AUDIO CONTROL ERASE HEAD) before making these adjustments.

Measuring Point	Measuring Equipment	ADJ. Condition
Pin 3 of PA706 (CTL PULSE) Pin 4 of PA706 (SW PULSE) Pin 5 of PA706 (GND)	Oscilloscope	PLAY mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
VR713 (NORMAL TRACK)		480 μ sec $\pm$ 200 μ sec

1. Adjust VR181 (NORMAL TRACKING) behind the door on the front panel to its centre (detent) position.
2. Adjust VR713 (NORMAL TRACK) for 480 μ sec $\pm$ 200 μ sec as shown in Fig. 3.2.15.

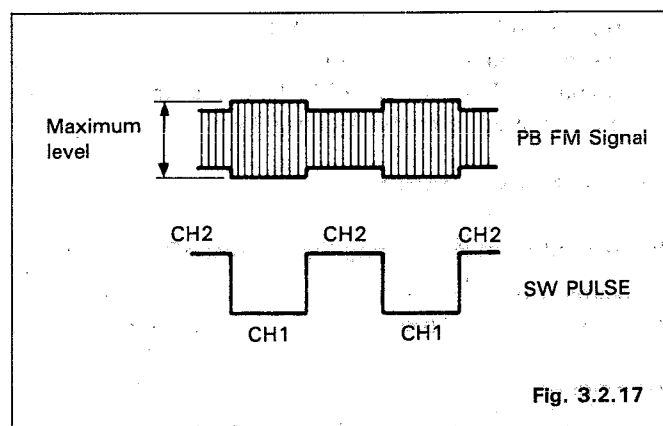
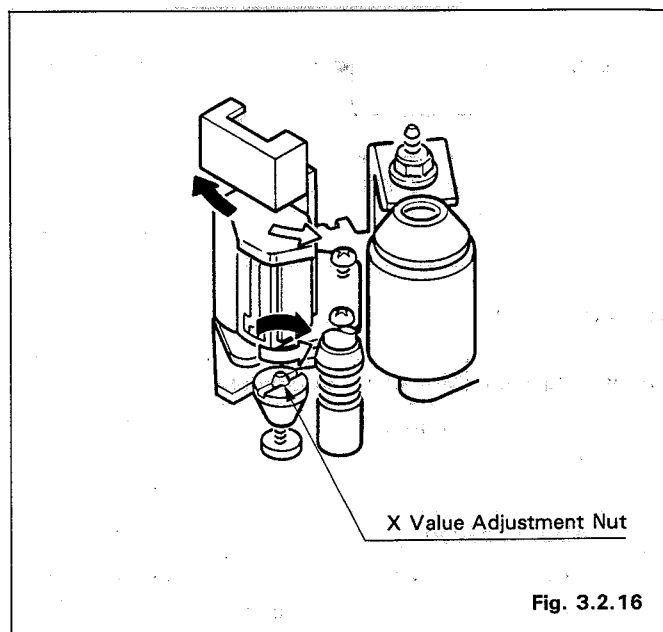


(4) X VALUE

Refer to Section 5.2.4 (AUDIO CONTROL ERASE HEAD) before making these adjustments.

Measuring Point	Measuring Equipment	ADJ. Condition
TP201 (PB FM) (on Luminance PCB) Pin 4 of PA706 (SW PULSE) Pin 5 of PA706 (GND)	Oscilloscope	PLAY mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
X value adjustment nut		Maximum level (PB FM Signal)

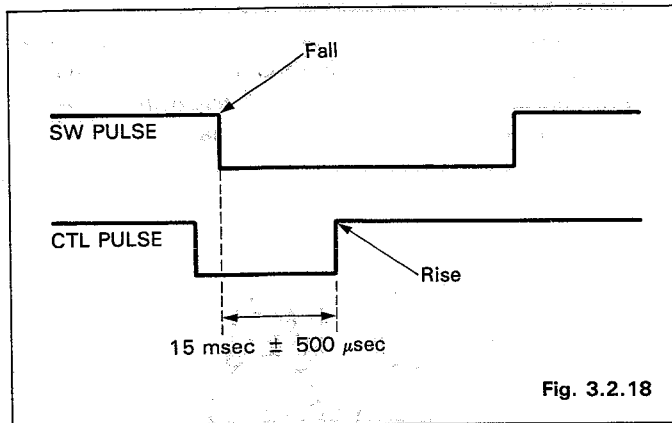
1. Adjust VR181 (NORMAL TRACKING) behind the door on the front panel to its centre (detent) position.
2. Adjust the X value adjustment nut for the maximum PB FM Signals for both CH1 and CH2.
(Refer to Fig. 3.2.16 and Fig. 3.2.17.)
3. After adjusting the X value, check that the output level of the PB FM Signals for both CH1 and CH2 change symmetrically, by rotating VR181 (NORMAL TRACKING) behind the door on the front panel.



(5) QUICK MODE TRACKING

Measuring Point	Measuring Equipment	ADJ. Condition
Pin 3 of PA706 (CTL PULSE) Pin 4 of PA706 (SW PULSE) Pin 5 of PA706 (GND)	Oscilloscope	QUICK mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
VR714 (QUICK TRACK)		15 msec $\pm$ 500 μ sec

1. Adjust VR181 (NORMAL TRACKING) behind the door on the front panel to its centre (detent) position.
2. Adjust VR714 (QUICK TRACK) for **15 msec $\pm$ 500 μ sec** as shown in Fig. 3.2.18.



(6) FINE SLOW

Measuring Point	Measuring Equipment	ADJ. Condition
Noise bars on the Monitor TV	Monitor TV	SLOW mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
VR711 (SLOW PRESET)	Noise bars removed from the picture	

1. Adjust VR182 (SLOW TRACKING) behind the door on the front panel to its centre (detent) position.
2. Adjust VR711 (SLOW PRESET) so that the noise bars are removed from the Monitor TV's picture.

(7) FINE SLOW H-DANCE

Measuring Point	Measuring Equipment	ADJ. Condition
Movement of the vertical line on the screen of Monitor TV	Monitor TV Jitter meter	STILL mode SLOW mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
VR709 (VD STILL)	Minimum (Vertical movement of the vertical line on the screen)	
VR701 (H-DANCE)	Minimum (Movement to the right and the left of the vertical line on the screen)	

1. Adjust VR182 (SLOW TRACKING) behind the door on the front panel to its centre (detent) position.
2. Set the Jitter Meter as shown below.

FUNCTION	CCIR
MONITOR DISPLAY	V
MULTIPLIER	$\times 30$
FILTER	LOW

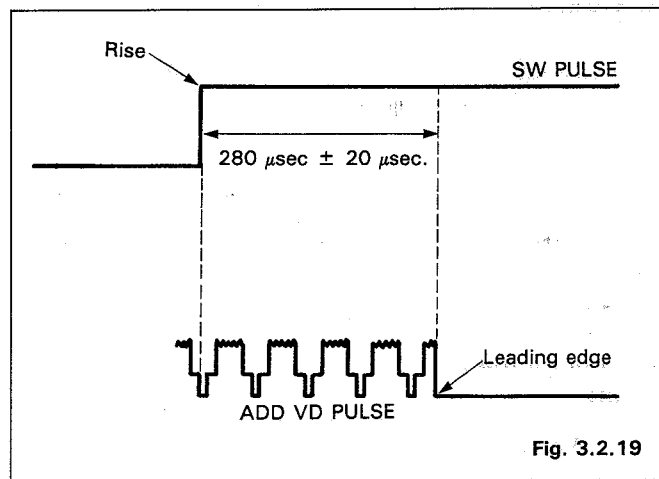
Note: According to the above setting of the Jitter Meter, a vertical line appears at the centre of the Monitor TV.

3. STILL MODE
Adjust VR709 (VD STILL) for minimum vertical movement of the vertical line.
4. SLOW MODE
Adjust VR701 (H-DANCE) for minimum movement to the right and the left of the vertical line.

(8) V-ADDITIONAL PULSE

Measuring Point	Measuring Equipment	ADJ. Condition
Pin 4 of PA706 (SW PULSE) Pin 5 of PA706 (GND) TP452 (VIDEO OUT) TP450 (GND)	Oscilloscope	STILL mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
VR709 (VD STILL)	280 μ sec $\pm$ 20 μ sec	

1. Adjust VR182 (SLOW TRACKING) behind the door on the front panel to its centre (detent) position.
2. Adjust VR709 (VD STILL) for **280 μ sec $\pm$ 20 μ sec** as shown in Fig. 3.2.19.



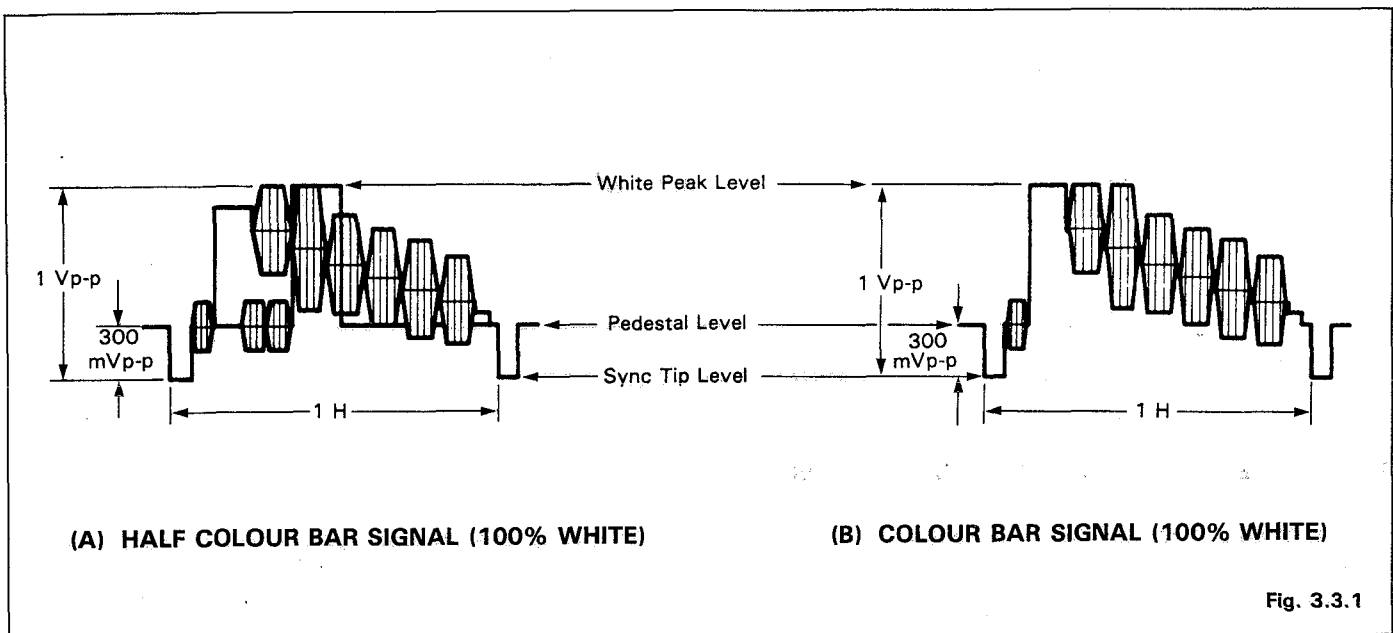
3.3 VIDEO CIRCUIT

- Before making the following adjustments, Section 5 (MECHANICAL) and Section 3.2 (SYSTEM CONTROL SERVO CIRCUIT) adjustments should be completed.
- Prior to these adjustments, set the variable resistors to the mechanical centre of their adjustment ranges.

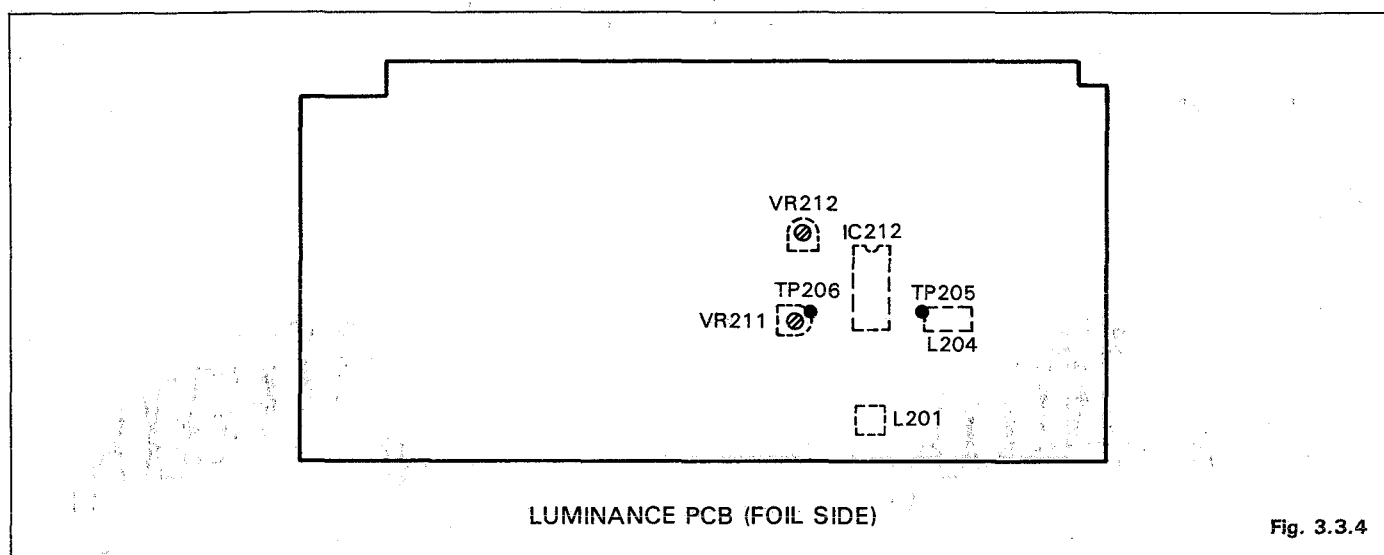
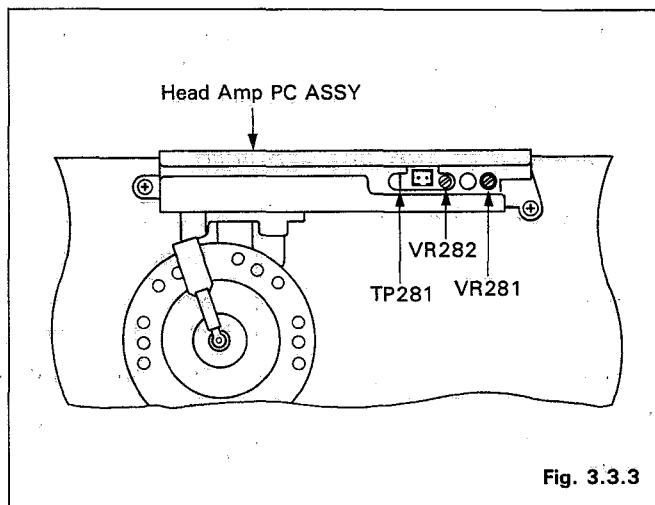
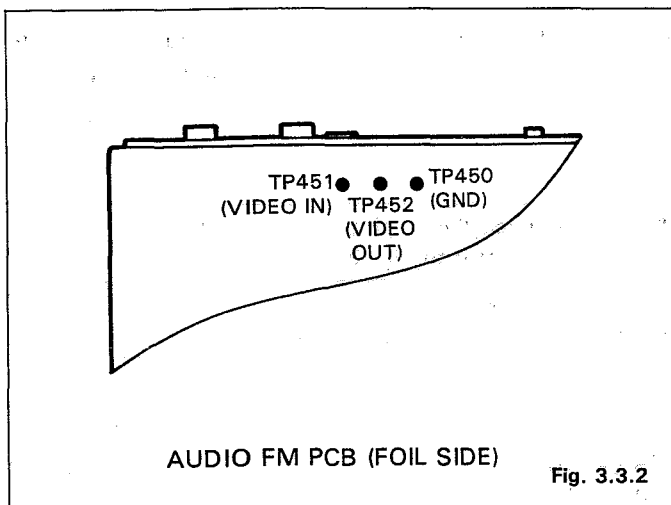
3.3.1 EQUIPMENT AND JIGS REQUIRED

Colour Bar Signal Generator	Colour bar signal with 100% white level. (EBU colour bar signal). (Signal waveform is described below. Refer to Fig. 3.3.1)
Oscilloscope	Vertical sensitivity: 5mV/DIV, easy trigger Roll-off frequency: more than 10 MHz
Test Tape	VPC-1 (SVJ-00032)
Blank Tape	VHS-type cassette tape
Probe	Input capacity: less than 25 pF (10:1) less than 40 pF (1:1) Covering frequency: DC ~ 40 MHz (10:1) DC ~ 30 MHz (1:1)

PAL TV TEST SIGNAL



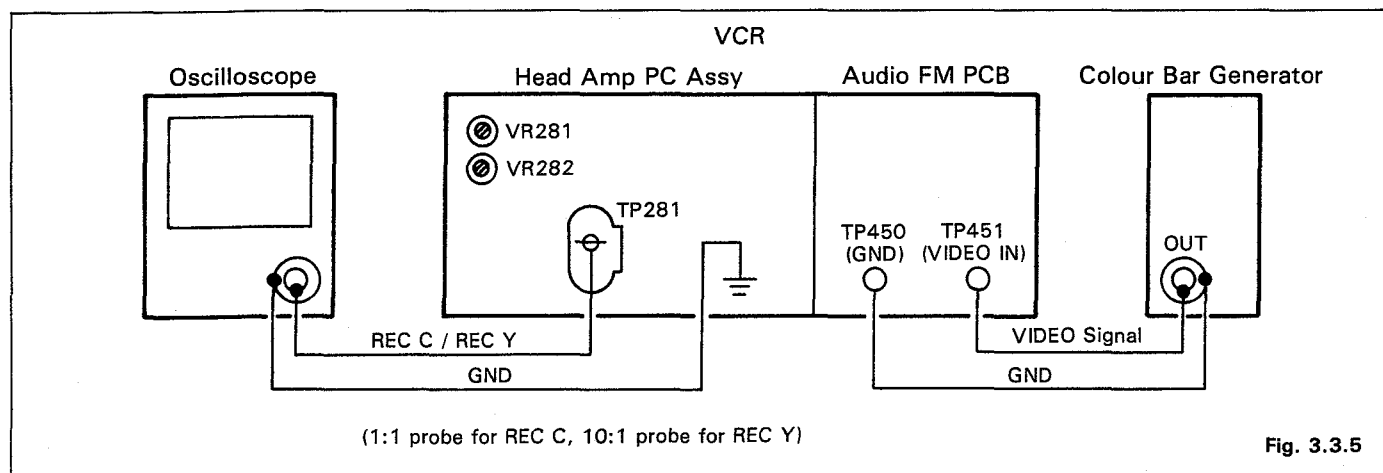
3.3.2 LOCATION OF ADJUSTMENT POINTS



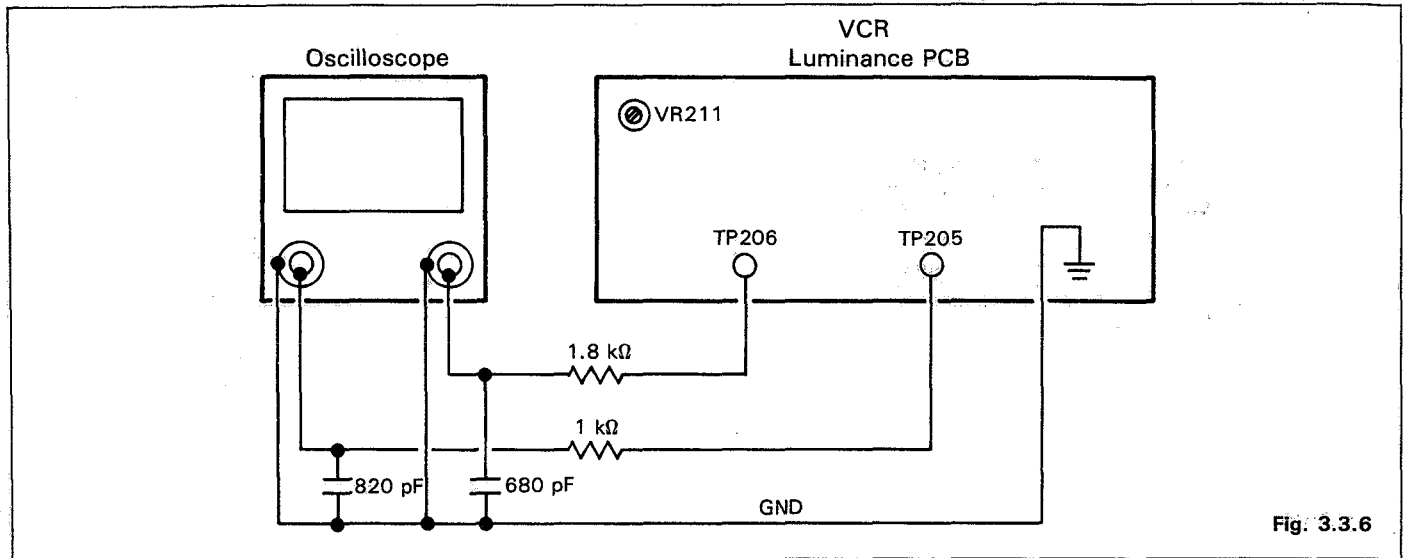
3.3.3 TEST EQUIPMENT CONNECTING DIAGRAMS

For adjustments (1) through (3) in this section, refer to the corresponding paragraphs (number in parentheses) in Section 3.3.4.

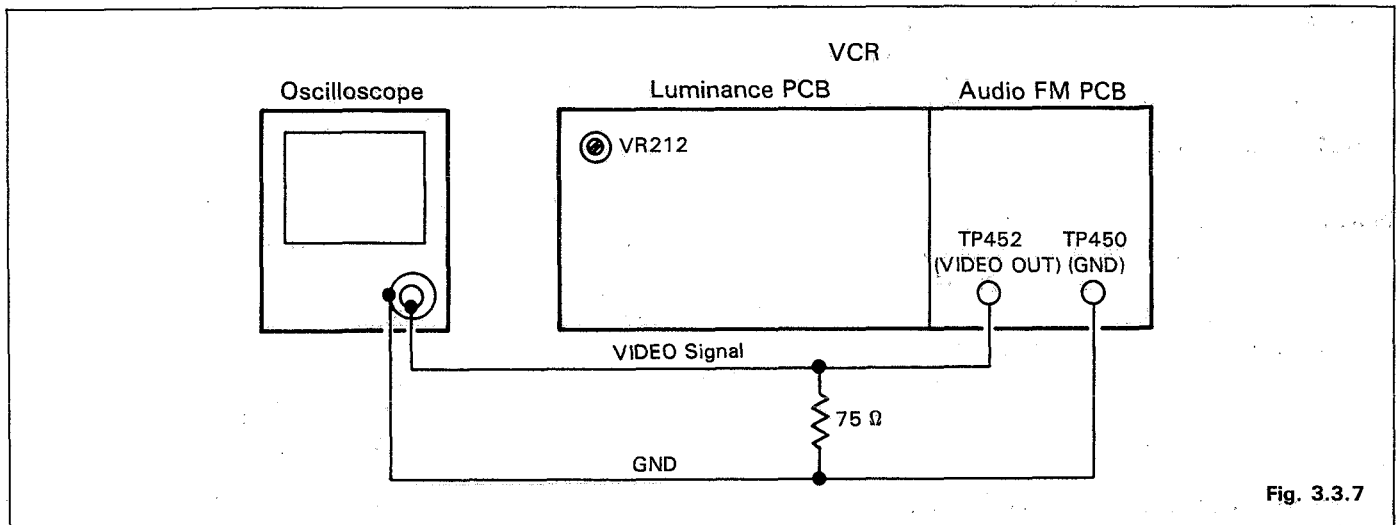
(1) REC C/REC Y



(2) NOISE LEVEL



(3) PB Y



3.3.4 ADJUSTMENTS

- For test equipment connecting diagrams for adjustments (1) through (3) in this section, refer to the corresponding diagrams (number in parentheses) in Section 3.3.3.

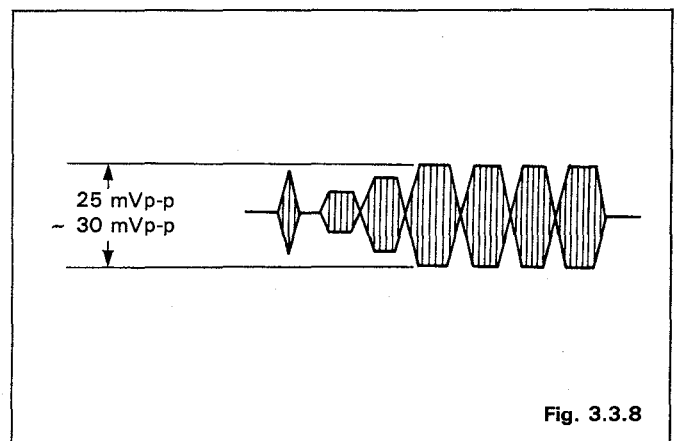
Note:

- ADJ. is the abbreviation for adjustment in following section.

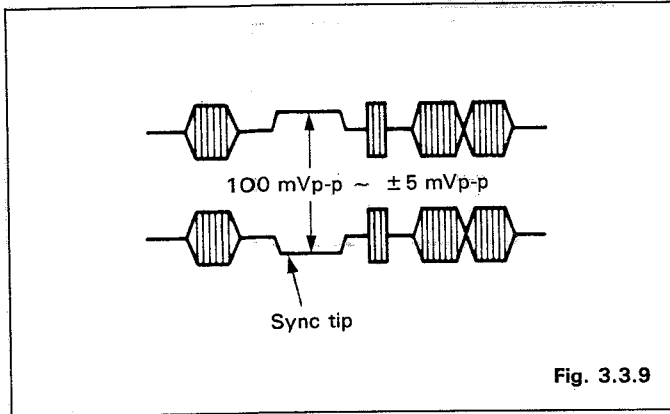
(1) REC C/REC Y

Measuring Point	Measuring Equipment	ADJ. Condition
TP281 (on Head Amp PCB)	Colour bar generator Oscilloscope (1:1 probe for REC C, 10:1 probe for REC Y)	REC mode Blank tape
ADJ. Location		ADJ. Value
VR282 (REC C)		25 mVp-p ~ 30 mVp-p
VR281 (REC Y)		100 mVp-p ± 5 mVp-p

- Adjust VR281 (REC Y) for the minimum video luminance signal level.
- Adjust VR282 (REC C) for the video chrominance signal level of 25 mVp-p ~ 30 mVp-p. (Refer to Fig. 3.3.8)



3. Adjust VR281 (REC Y) for the video luminance signal level at the sync tip of $100 \text{ mVp-p} \pm 5 \text{ mVp-p}$. (Refer to Fig. 3.3.9)

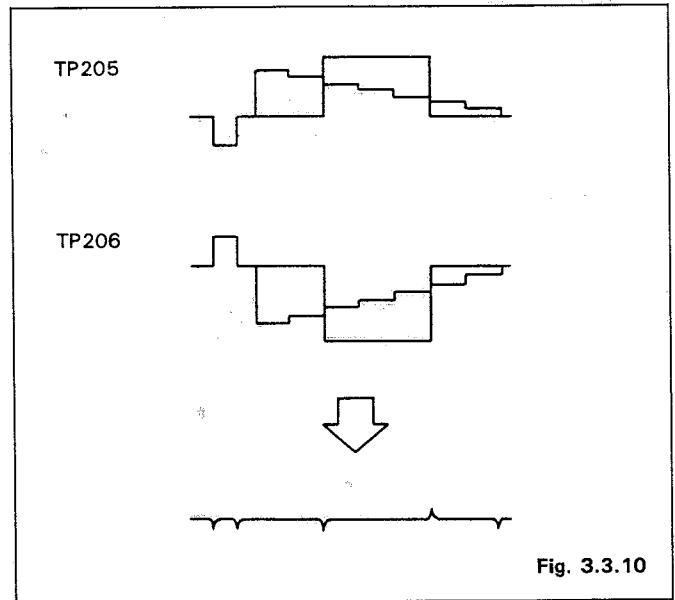


(2) NOISE LEVEL

Measuring Point	Measuring Equipment	ADJ. Condition
TP205 TP206	Oscilloscope (10:1 probe)	PLAY mode Test tape (VPC-1)
ADJ. Location		ADJ. Value
VR211 (NOISE LEVEL)		—

- Notes:** a) With a 10:1 probe, connect the oscilloscope to TP205 through a low pass filter, consisting of a $1 \text{ K}\Omega$ resistor and a 820 pF capacitor. (Refer to Fig. 3.3.6)
- b) With a 10:1 probe, connect the oscilloscope to TP206 through a low pass filter, consisting of a $1.8 \text{ K}\Omega$ resistor and a 680 pF capacitor. (Refer to Fig. 3.3.6)

1. Invert the channel of the oscilloscope connected to TP206, and set the scope to the ADD mode. (Refer to Fig. 3.3.10)
2. Adjust VR211 (NOISE LEVEL) until the waveform becomes a straight line. (Refer to Fig. 3.3.10)

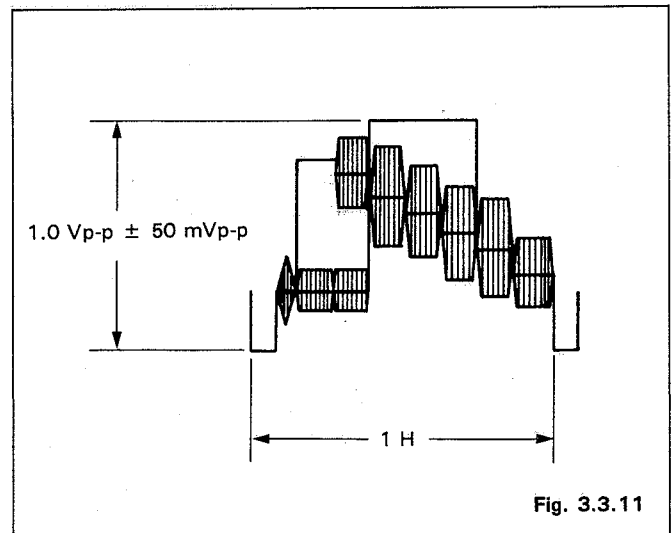


(3) PB Y

Measuring Point	Measuring Equipment	ADJ. Condition
TP452 (VIDEO OUT) TP450 (GND)	Oscilloscope (10:1 probe)	PLAY mode Test tape (VPC-1)
ADJ. Location		ADJ. Value
VR212 (PB Y)		$1.0 \text{ Vp-p} \pm 50 \text{ mVp-p}$

Note: Connect 75Ω resistor between TP452 (VIDEO OUT) and TP450 (GND). (Refer to Fig. 3.3.7)

1. Adjust VR212 (PB Y) for the video luminance signal level of $1.0 \text{ Vp-p} \pm 50 \text{ mVp-p}$. (Refer to Fig. 3.3.11)



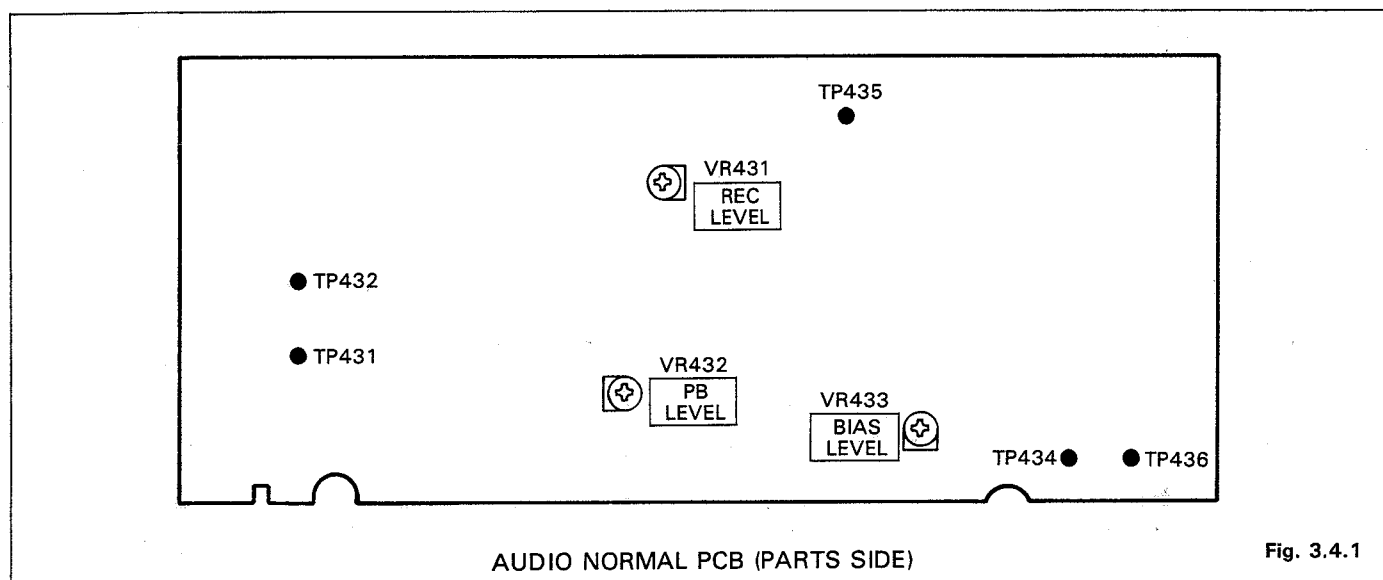
3.4 AUDIO NORMAL CIRCUIT

- Prior to making these adjustments, Section 5 MECHANICAL ADJUSTMENTS (especially, the tape guide height and audio control erase head height adjustments) should be carried out, so that the tape traveling between the loading guide pole and the audio control erase head runs without fluttering, twisting or curling.
- Prior to making these adjustments, (except the audio control erase head adjustments), Section 3.2 SYSTEM CONTROL SERVO and Section 3.3 VIDEO circuit adjustments should be carried out.

3.4.1 EQUIPMENT AND JIGS REQUIRED

Standard Audio Signal Generator (SG)	Output frequency: 10 Hz ~ 20 KHz Output level: more than 1 Vrms Output impedance: 600 Ω Distortion ratio: less than 0.1%	Output in use		
			SG1	SG2
		Frequency	1 KHz, 10 KHz (switchable)	1 KHz
		Output level	– 25 dBV	– 5 dBV
Oscilloscope	Vertical sensitivity: 5 mV/DIV Roll-off frequency: more than 30 MHz			
AC Voltmeter	Effective value indication Input frequency: 10 Hz ~ 20 KHz Input Impedance: more than 1 MΩ Measurement level: 500 μVrms (full scale)			
Test Tape	VPC-1 (SVJ-00032): Colour bar, 1 KHz VPM-6 (SVJ-00031): Monoscope, 6 KHz			
Blank Tape	VHS-type cassette tape			
Dummy Plug	RCA plug, HOT and COLD short-circuited			
Adjustment Screw Drivers	1. ACE Head height adjustment box driver 2. Azimuth adjustment screw driver 3. Variable resistor adjustment screw driver			

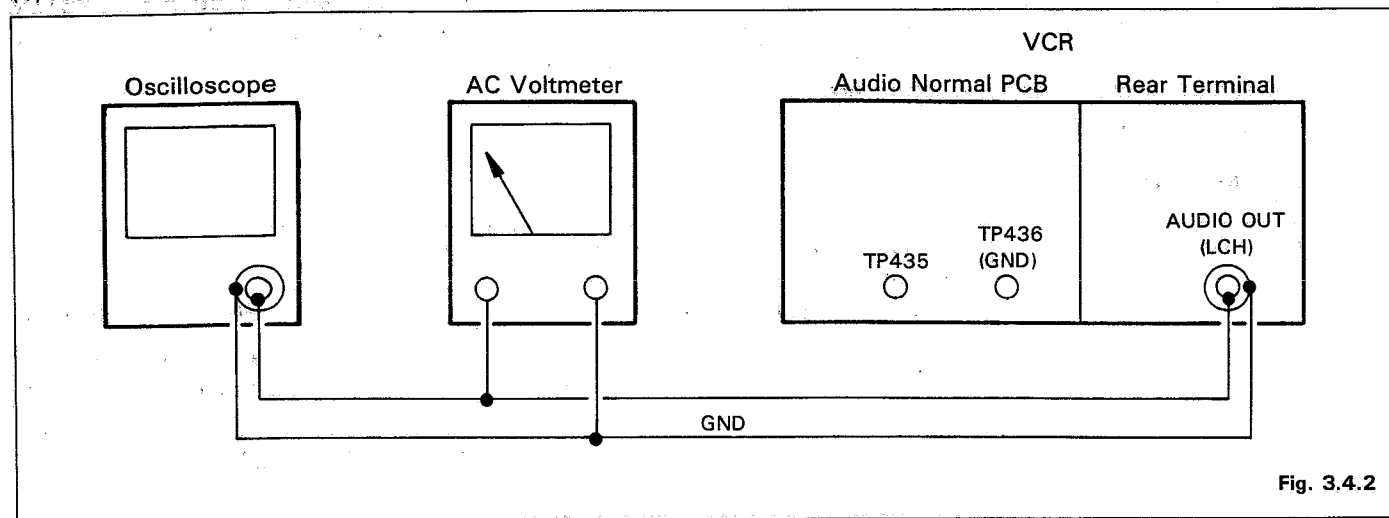
3.4.2 LOCATION OF ADJUSTMENT POINTS



3.4.3 TEST EQUIPMENT CONNECTING DIAGRAMS

For adjustments (1) through (5) in this section, refer to the corresponding paragraphs (number in parentheses) in Section 3.4.4.

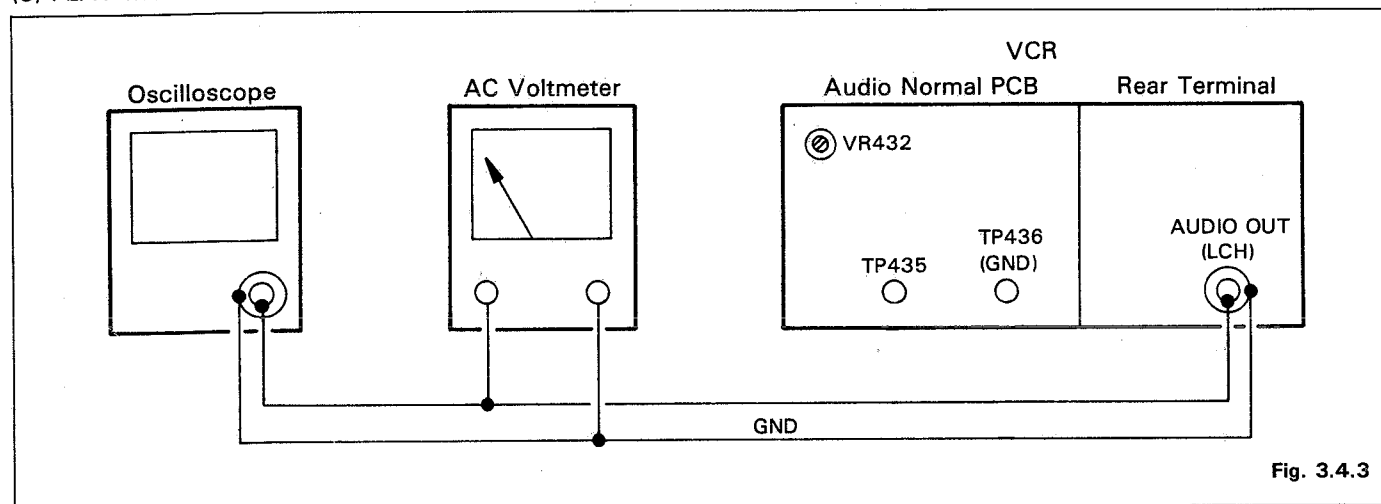
(1) ACE HEAD HEIGHT/ACE HEAD TILT



(2) ACE HEAD AZIMUTH

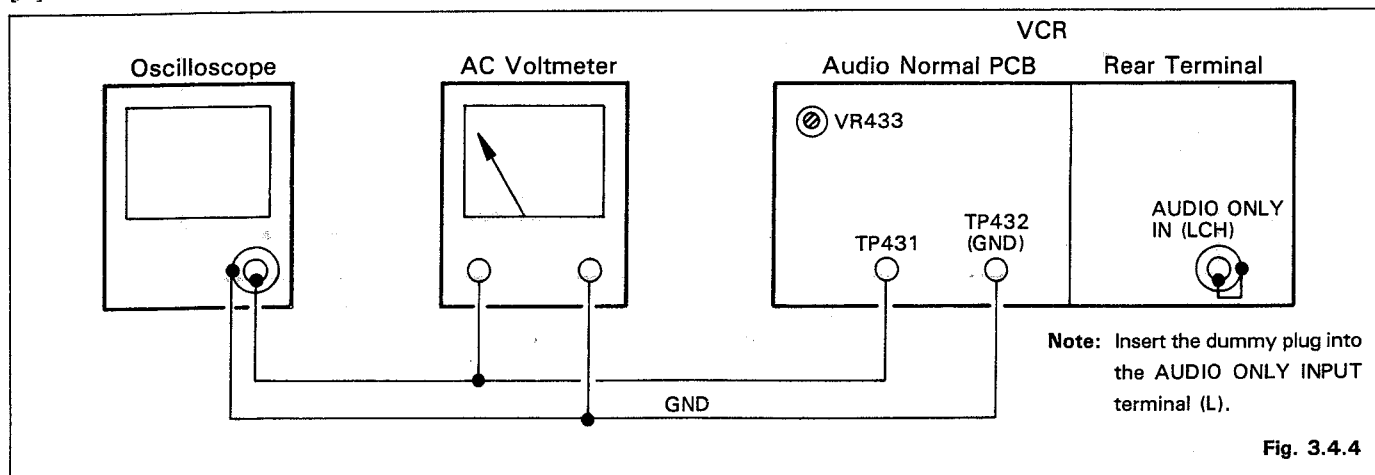
Refer to Fig. 3.4.2.

(3) PLAY MODE LEVEL

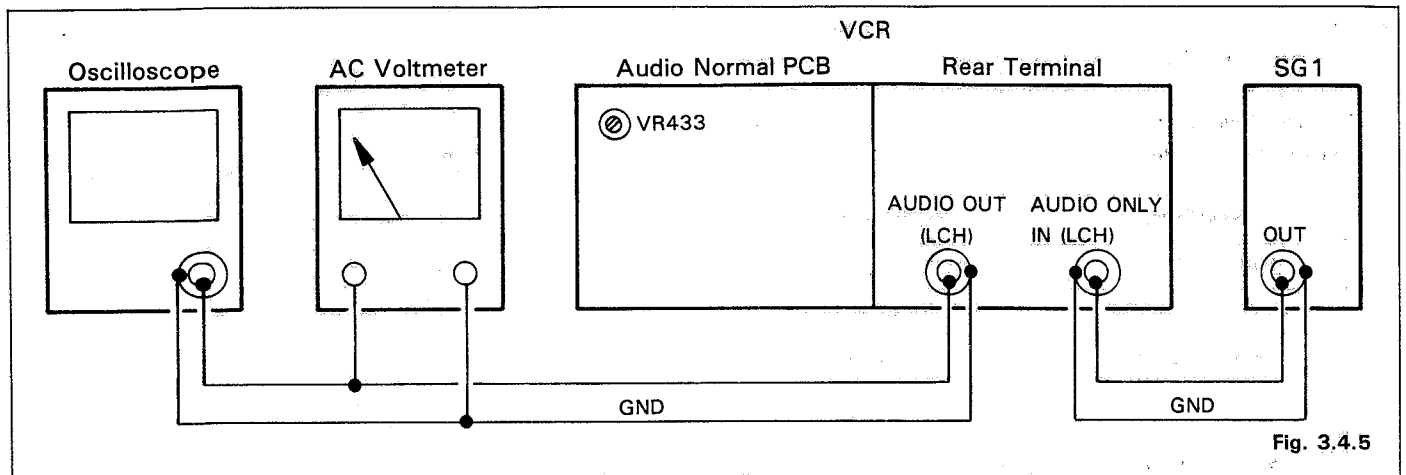


(4) BIAS LEVEL

[A]

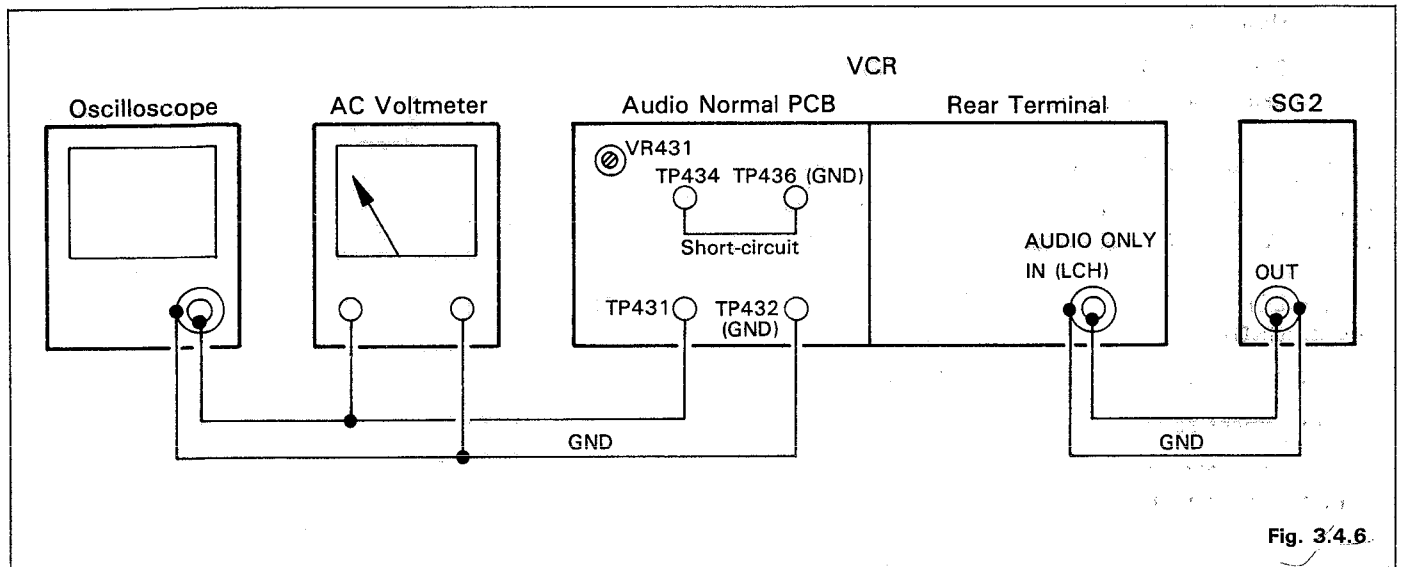


[B]

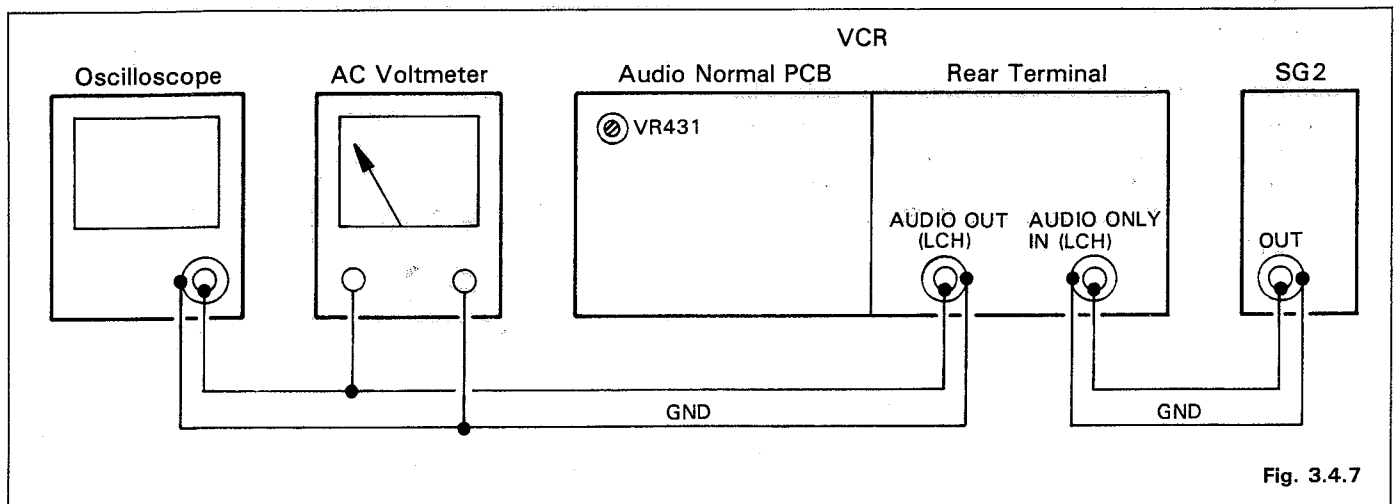


(6) REC LEVEL

[A]



[B]



3.4.4 ADJUSTMENTS

- For test equipment connecting diagrams for adjustments (1) through (5) in this section, refer to the corresponding diagrams (number in parentheses) in Section 3.4.3.
- Set the following switches to the positions indicated below, before making these adjustments.

SWITCH	POSITION
INPUT SELECT	AUDIO ONLY
OUTPUT MODE	ST (TRACK I/II)
PB SELECT	NORMAL

Notes:

- ADJ. is the abbreviation for adjustment in following section.
- Self-recording means "Record the AUDIO Signal and play back the just-recorded portion".

(1) ACE HEAD HEIGHT/ACE HEAD TILT

Refer to Section 5.2.4 (AUDIO CONTROL ERASE HEAD) before making these adjustments.

Measuring Point	Measuring Equipment	ADJ. Condition
AUDIO OUTPUT terminal (L) or TP435 (LCH) TP436 (GND)	Oscilloscope AC voltmeter	PLAY mode Test tape (VPC-1)
ADJ. Location	ADJ. Value	
Tilt adjustment screw	—	
Height adjustment nut	Maximum level	
Azimuth adjustment screw	(AC voltmeter)	

Note: If case of measuring at the test points, AC voltmeter's reading decreases approximately 10 dB, than AC voltmeter's reading of AUDIO OUTPUT terminal.

- Confirm that the tape running between the guide roller and ACE head has no slack. If the tape has slack, take it up by turning the tilt adjustment screw (Refer to Fig. 3.4.8). Then, readjust GUIDE ROLLER HEIGHT (Refer to Section 5.2.3) and the X VALUE (Refer to Section 3.2.4 (4)).

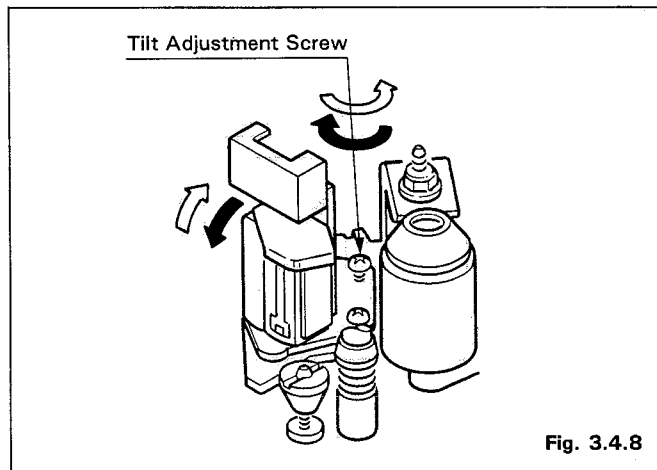


Fig. 3.4.8

- After confirming on the oscilloscope that a 1 KHz sine wave is being output, adjust the height adjustment nut so that the AC voltmeter's reading is brought to its maximum level. (Refer to Fig. 3.4.9)

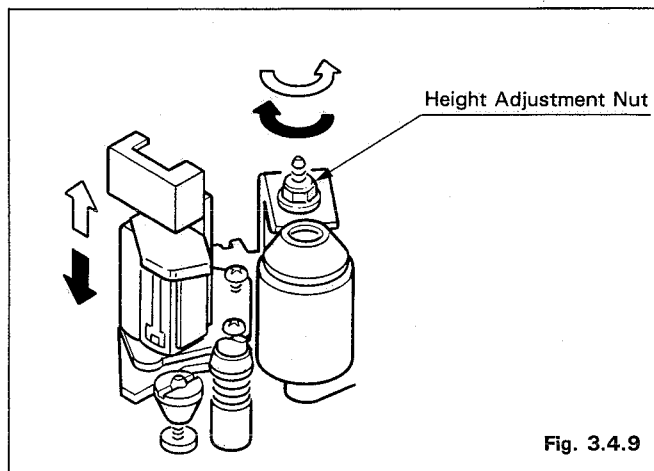


Fig. 3.4.9

- Adjust the azimuth adjustment screw so that the AC voltmeter's reading is brought to its maximum level. (Refer to Fig. 3.4.10)

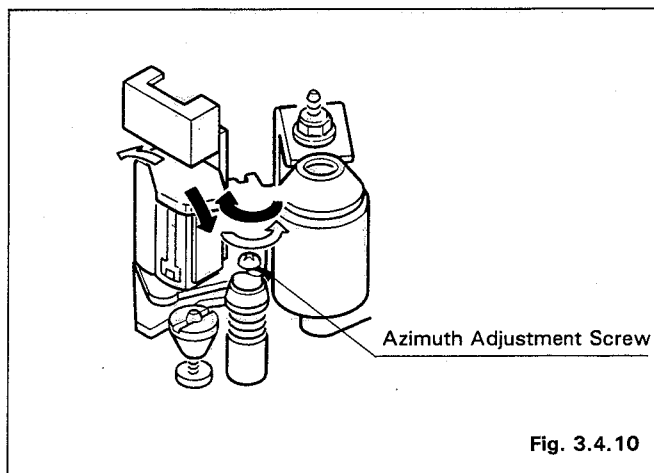


Fig. 3.4.10

4. If the AC voltmeter's reading in step 2 increased more than 2 dB after step 3, perform step 2 again.

Note: The maximum reading on the AC voltmeter obtained in steps 2 and 3 is approximately -10 dBV.

(2) ACE HEAD AZIMUTH

Refer to Section 5.2.4 (AUDIO CONTROL ERASE HEAD) before making these adjustments.

Measuring Point	Measuring Equipment	ADJ. Condition
AUDIO OUTPUT terminal (L) or TP435 (LCH) TP436 (GND)	Oscilloscope AC voltmeter	PLAY mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
Azimuth adjustment screw		Maximum level (AC voltmeter)

1. After confirming on the oscilloscope that a 6 KHz sine wave is being output, adjust the azimuth adjustment screw so that waveform on the oscilloscope or the AC voltmeter's reading is brought to its maximum level. (Refer to Fig. 3.4.10)

Note: The maximum reading on the AC voltmeter obtained in step 1 should not be more than -5 dB below the value given in section 3.4.4. (1).

(3) PLAY MODE LEVEL

Measuring Point	Measuring Equipment	ADJ. Condition
AUDIO OUTPUT terminal (L) or TP435 TP436 (GND)	Oscilloscope AC voltmeter	PLAY mode Test tape (VPC-1)
ADJ. Location		ADJ. Value
VR432 (PB LEVEL)		-10 dBV $\pm$ 1 dB

1. After confirming on the oscilloscope that a 1 kHz sine wave is being output, adjust VR432 (PB LEVEL) so that the AC voltmeter's reading is -10 dBV $\pm$ 1 dB.

(4) BIAS LEVEL

[A]

Measuring Point	Measuring Equipment	ADJ. Condition
TP431 TP432 (GND)	Oscilloscope AC voltmeter Dummy plug	REC mode Blank tape
ADJ. Location		ADJ. Value
VR433 (BIAS LEVEL)		22 mVrms $\pm$ 2 mVrms

Note: Insert the dummy plug into the AUDIO ONLY INPUT terminal (L).

1. After confirming on the oscilloscope that a 70 KHz sine wave is being output, adjust VR433 (BIAS LEVEL) so that the AC voltmeter's reading is 22 mVrms $\pm$ 2 mVrms. (Refer to Fig. 3.4.1)

[B]

Measuring Point	Measuring Equipment	ADJ. Condition
AUDIO OUTPUT terminal (L)	Oscilloscope AC voltmeter Standard audio signal generator (SG1)	Self-recording Blank tape
ADJ. Location		ADJ. Value
VR433 (BIAS LEVEL)		-2 dB ~ +2 dB between 1 KHz and 10 KHz

1. Set the standard audio signal generator's frequency to 1 KHz and then 10 KHz. Record each frequency's signals.
2. Play back the just-recorded portion.
3. Confirm that the difference between AC voltmeter's readings for the 1 KHz and 10 kHz signals is **between -2 dB ~ +2 dB**.
4. If the difference is under -2 dB, rotate VR433 (BIAS LEVEL) slightly counterclockwise (as seen from the parts side) to adjust it.
5. If the difference is over +2 dB, rotate VR433 (BIAS LEVEL) slightly clockwise (as seen from the parts side) to adjust it.
6. Repeat steps 1 through 5, if necessary.

(5) REC LEVEL

[A]

Measuring Point	Measuring Equipment	ADJ. Condition
TP431 TP432 (GND)	Oscilloscope AC voltmeter Standard audio signal generator (SG2)	REC mode Blank tape
ADJ. Location		ADJ. Value
VR431 (REC LEVEL)		2.5 mVrms $\pm$ 200 μ Vrms

Note: Short-circuit TP434 and TP436 (GND).

1. After confirming on the oscilloscope that a 1 KHz sine wave is being output, adjust VR431 (REC LEVEL) so that the AC voltmeter's reading is **2.5 mVrms $\pm$ 200 μ Vrms**. (Refer to Fig. 3.4.1)

[B]

Measuring Point	Measuring Equipment	ADJ. Condition
AUDIO OUTPUT terminal (L)	Oscilloscope AC voltmeter Standard audio signal generator (SG2)	Self-recording Blank tape
ADJ. Location		ADJ. Value
VR431(REC LEVEL)		-8 dBV $\pm$ 1.5 dB

1. Play back the just-recorded portion.
2. After confirming on the oscilloscope that a 1 KHz sine wave is being output, confirm that the AC voltmeter's reading is **-8 dBV $\pm$ 1.5 dB**.
3. If the AC voltmeter's reading is under -9.5 dBV, rotate VR431 (REC LEVEL) slightly clockwise (as seen from the parts side) to adjust it.
4. If the AC voltmeter's reading is over -6.5 dBV, rotate VR431 (REC LEVEL) slightly counterclockwise (as seen from the parts side) to adjust it.
5. Repeat steps 1 through 4, if necessary.

3.5 AUDIO FM CIRCUIT

- Prior to making these adjustments, Section 5 MECHANICAL ADJUSTMENTS (especially, the tape guide height and audio control erase head height adjustments) should be carried out, so that the tape traveling between the loading guide pole and the audio control erase head runs without curl, flutter, slack or twist.
- Prior to making these adjustments, Section 3.2 SYSTEM CONTROL SERVO, Section 3.3 VIDEO and Section 3.4 AUDIO NORMAL circuit adjustments should be carried out.

3.5.1 EQUIPMENT AND JIGS REQUIRES

Standard Signal Generator (SSG) (With frequency modulator)	Output frequency : 0.5 MHz ~ 3 MHz Output level : more than 1 Vrms Output impedance : 75 Ω Distortion ratio : less than 0.1 % (THD) Modulation frequency: 20 Hz ~ 20 KHz Deviation : $\pm$ 150 KHz Output in use <table border="1"> <tr> <th></th><th>SSG</th></tr> <tr> <td>Carrier frequency</td><td>1.4 MHz</td></tr> <tr> <td>Deviation</td><td>—</td></tr> <tr> <td>Modulation frequency</td><td>—</td></tr> <tr> <td>Output level</td><td>20 mVp-p, 25 mVp-p (switchable)</td></tr> </table>		SSG	Carrier frequency	1.4 MHz	Deviation	—	Modulation frequency	—	Output level	20 mVp-p, 25 mVp-p (switchable)
	SSG										
Carrier frequency	1.4 MHz										
Deviation	—										
Modulation frequency	—										
Output level	20 mVp-p, 25 mVp-p (switchable)										
Standard Audio Signal Generator (SG)	Output frequency : 10 Hz ~ 100 KHz Output level : more than 3 Vrms Output impedance : 600 Ω Distortion ratio : less than 0.05 % Output in use <table border="1"> <tr> <th></th><th>SG</th></tr> <tr> <td>Frequency</td><td>1 KHz</td></tr> <tr> <td>Output level</td><td>—8 dBV</td></tr> </table>		SG	Frequency	1 KHz	Output level	—8 dBV				
	SG										
Frequency	1 KHz										
Output level	—8 dBV										
Oscilloscope	Vertical sensitivity: 5 mV/DIV Dual trace with an external trigger Roll-off frequency: more than 30 MHz										
AC Voltmeter	Effective value indication and dual channel Input frequency : 10 Hz ~ 100 KHz Input Impedance : more than 1 M Ω Measurement level: 10 μ Vrms (full scale)										
Frequency Counter	Input frequency: 20 Hz ~ 10 MHz										
Test Tape	VPM-6 -11 (SVJ-00048): Monoscope 6 kHz (NORMAL) 1 kHz (Hi-Fi) VPS-3 (SVJ-00033): Monoscope 3 kHz										
Blank Tape	VHS-type cassette tape										
Dummy Plug	RCA plug, HOT and COLD short-circuited										
Shorting Clip (1)	Jumper wire (Refer to Fig. 3.5.1)										
Shorting Clip (2)	Jumper wire with 1 K Ω resistor (Refer to Fig. 3.5.1)										
Adjustment Screw Driver	Variable resistor adjustment screw driver										

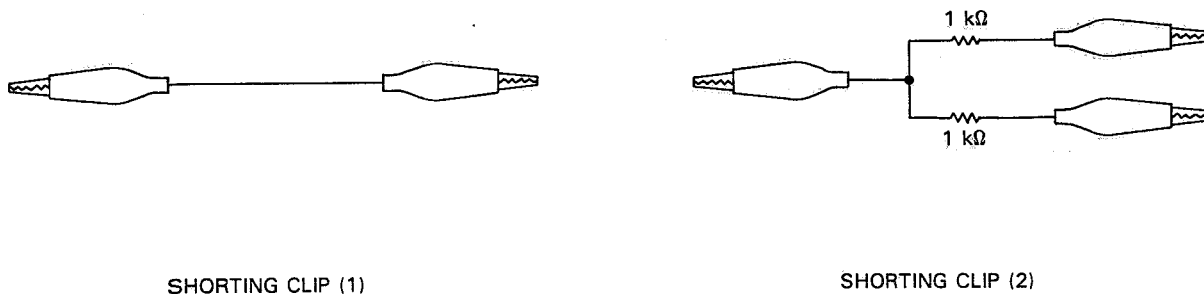


Fig. 3.5.1

3.5.2 LOCATION OF ADJUSTMENT POINTS

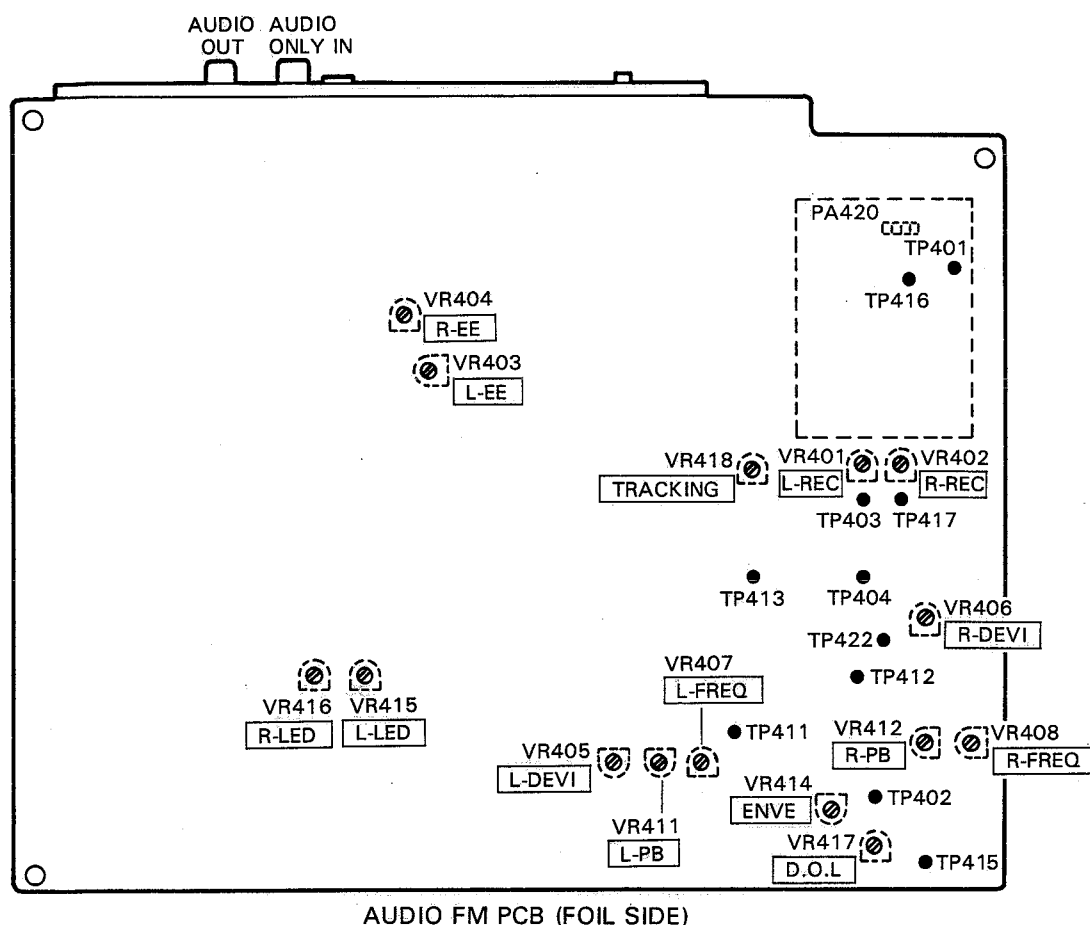
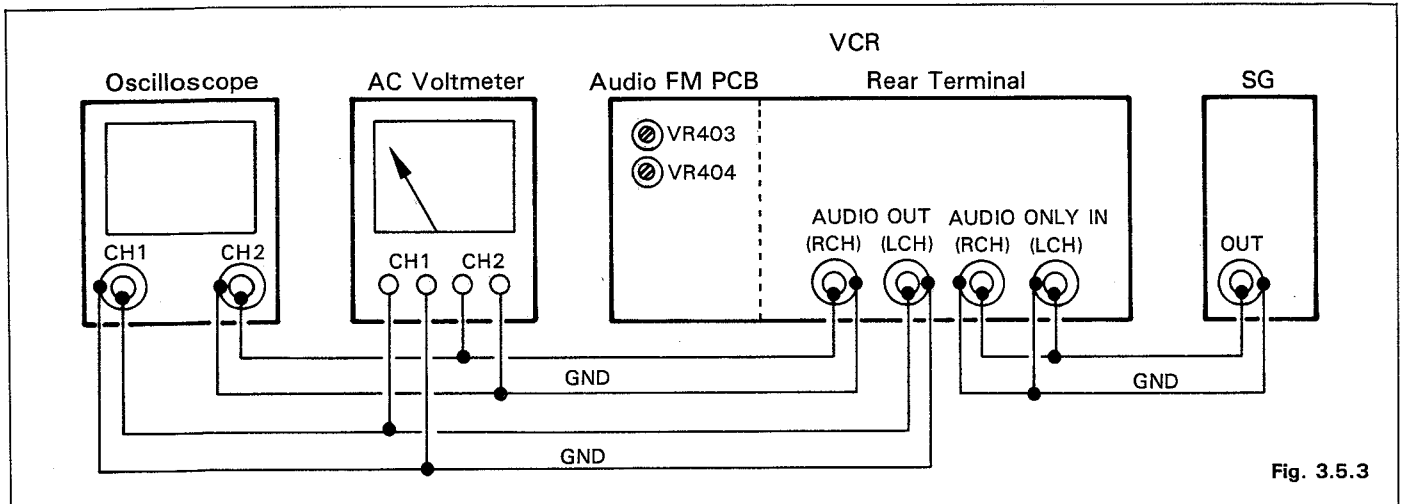


Fig. 3.5.2

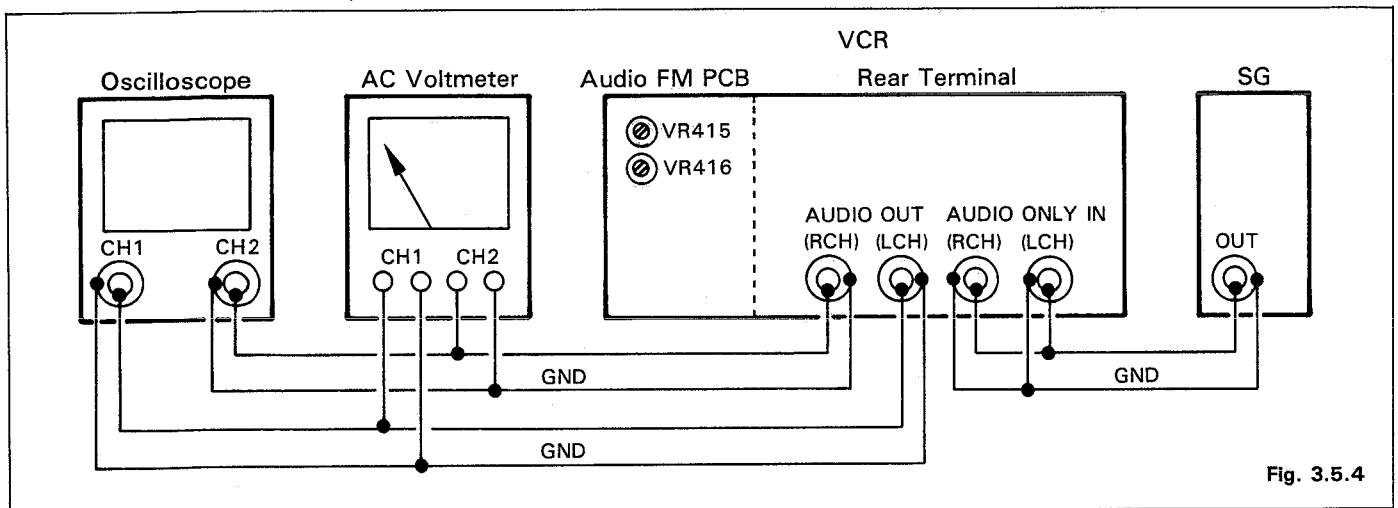
3.5.3 TEST EQUIPMENT CONNECTING DIAGRAMS

For adjustments (1) through (8) in this section, refer to the corresponding paragraphs (number in parentheses) in Section 3.5.4.

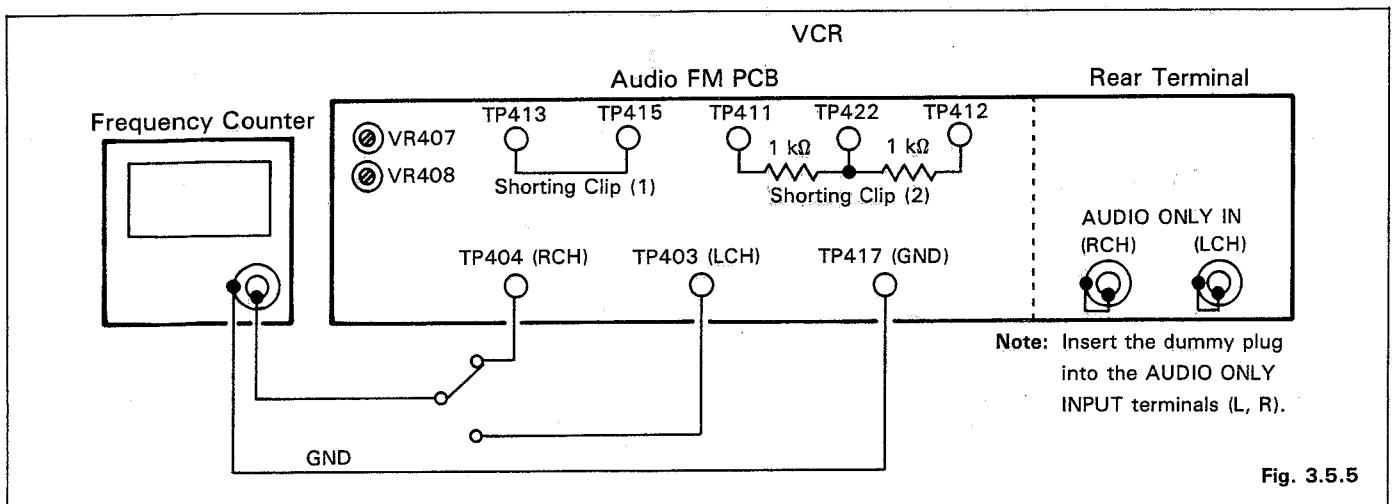
(1) E-E LEVEL



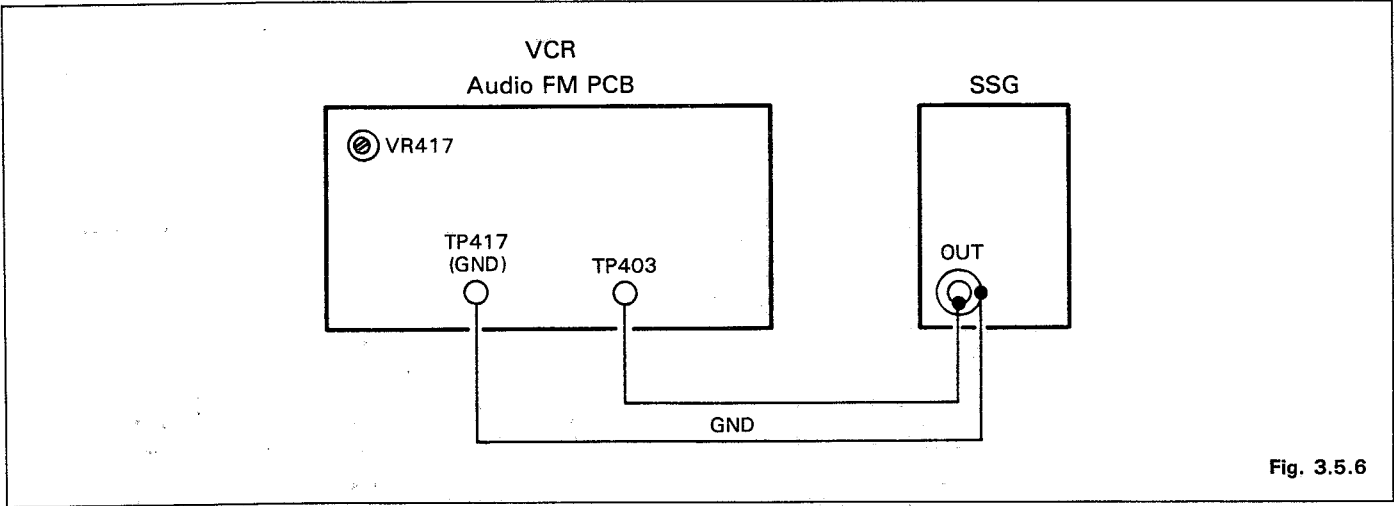
(2) AUDIO LEVEL INDICATOR



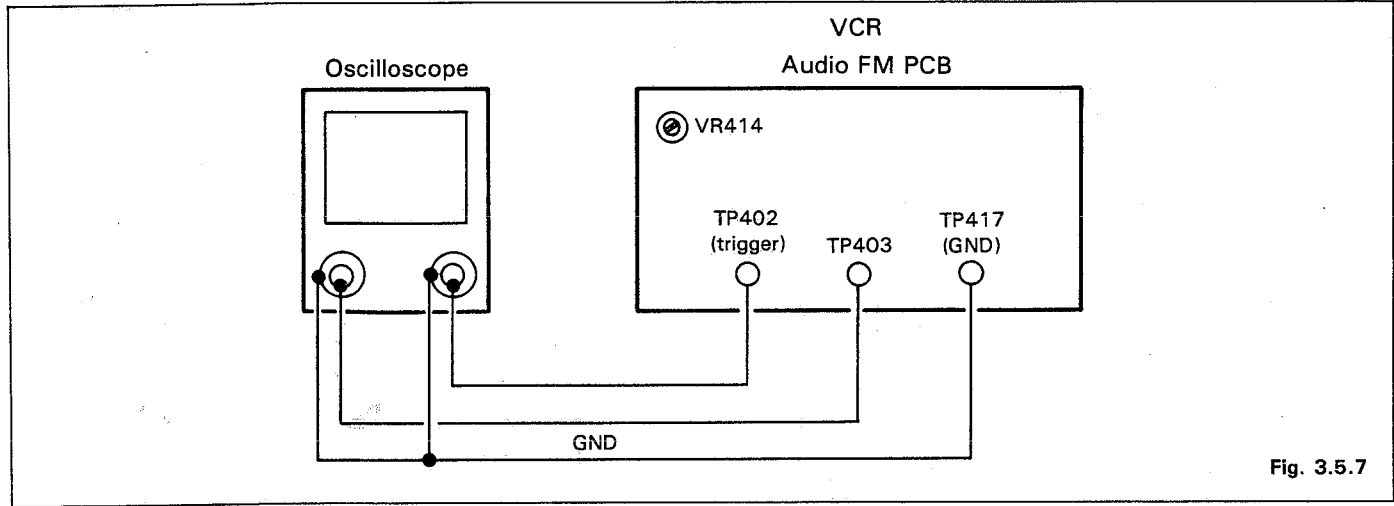
(3) A-FM CARRIER FREQUENCY



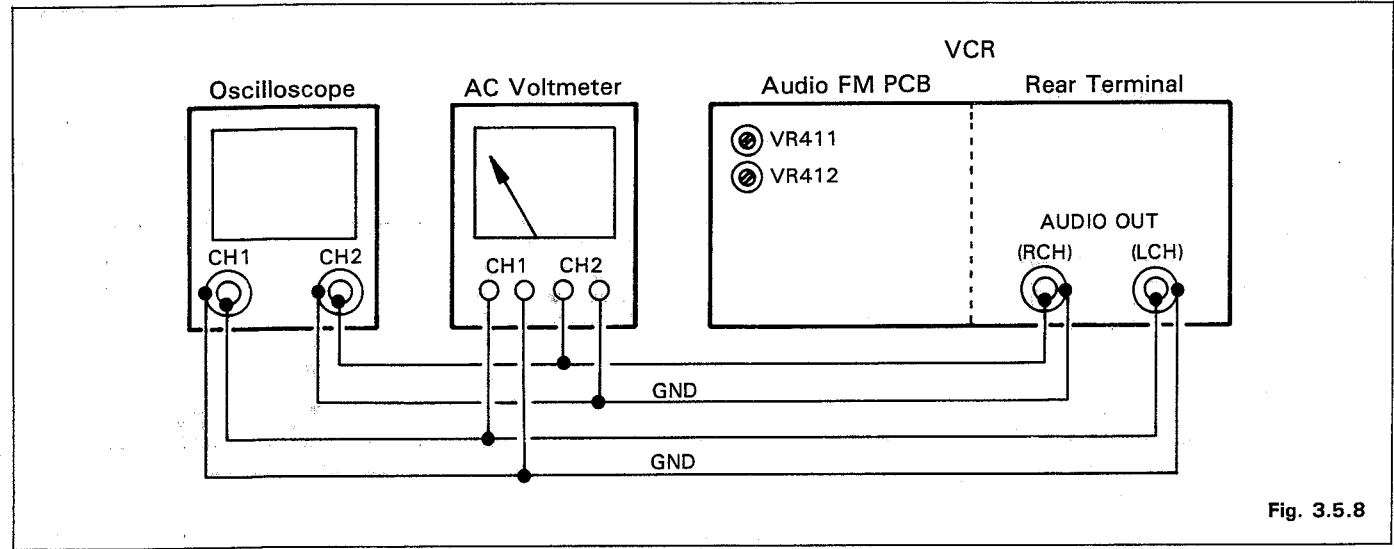
(4) A-FM PB CARRIER DROPOUT LEVEL



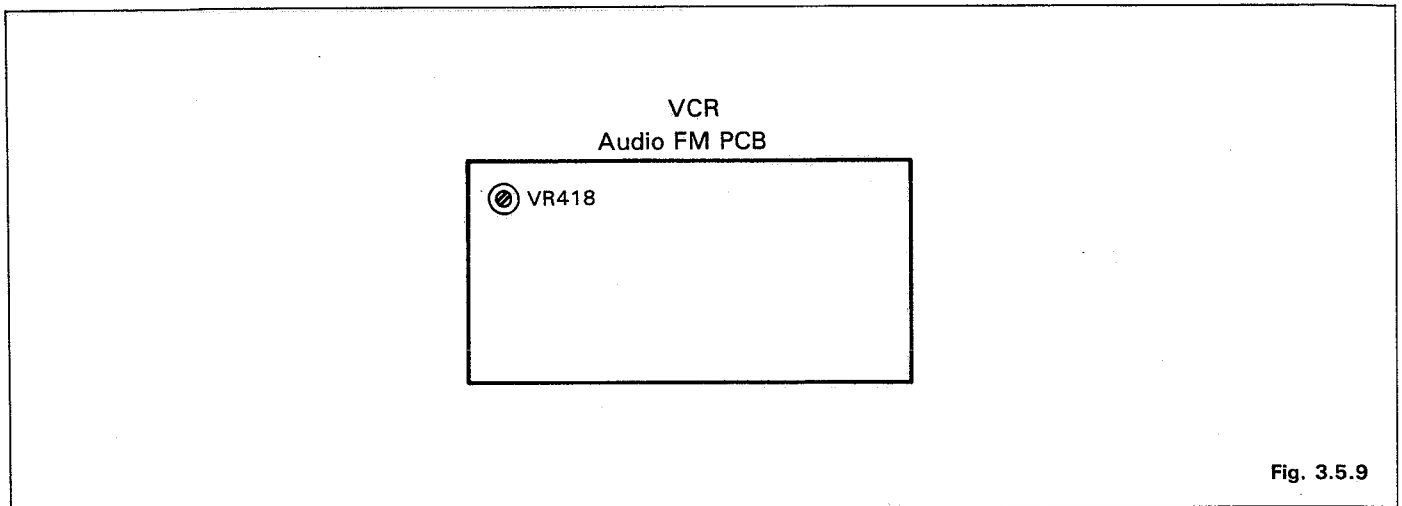
(5) A-FM PB CARRIER ENVELOPE



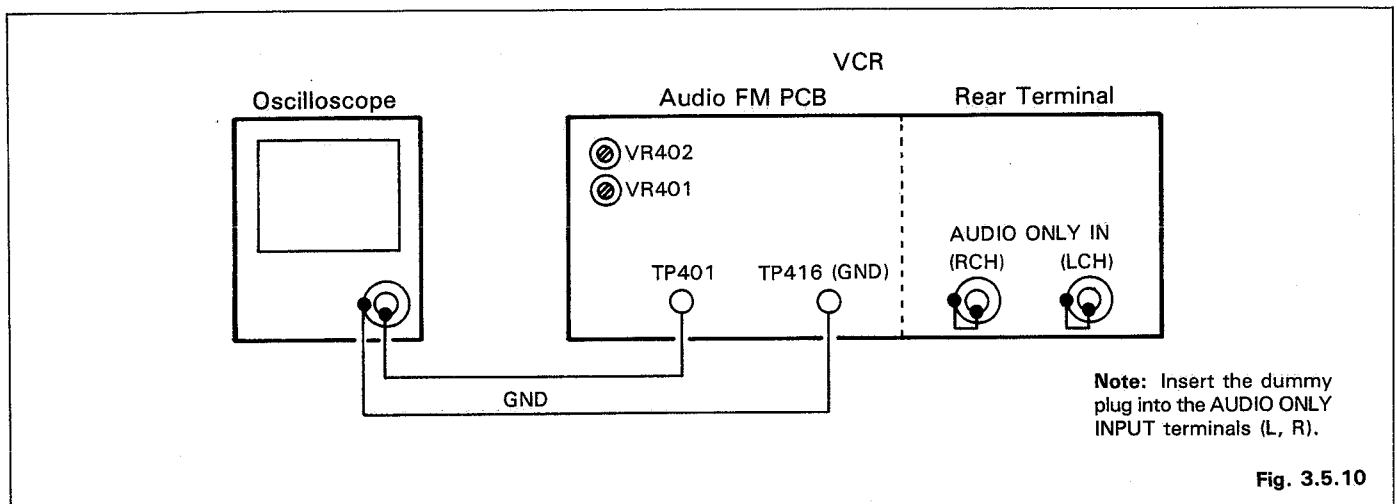
(6) A-FM PB LEVEL



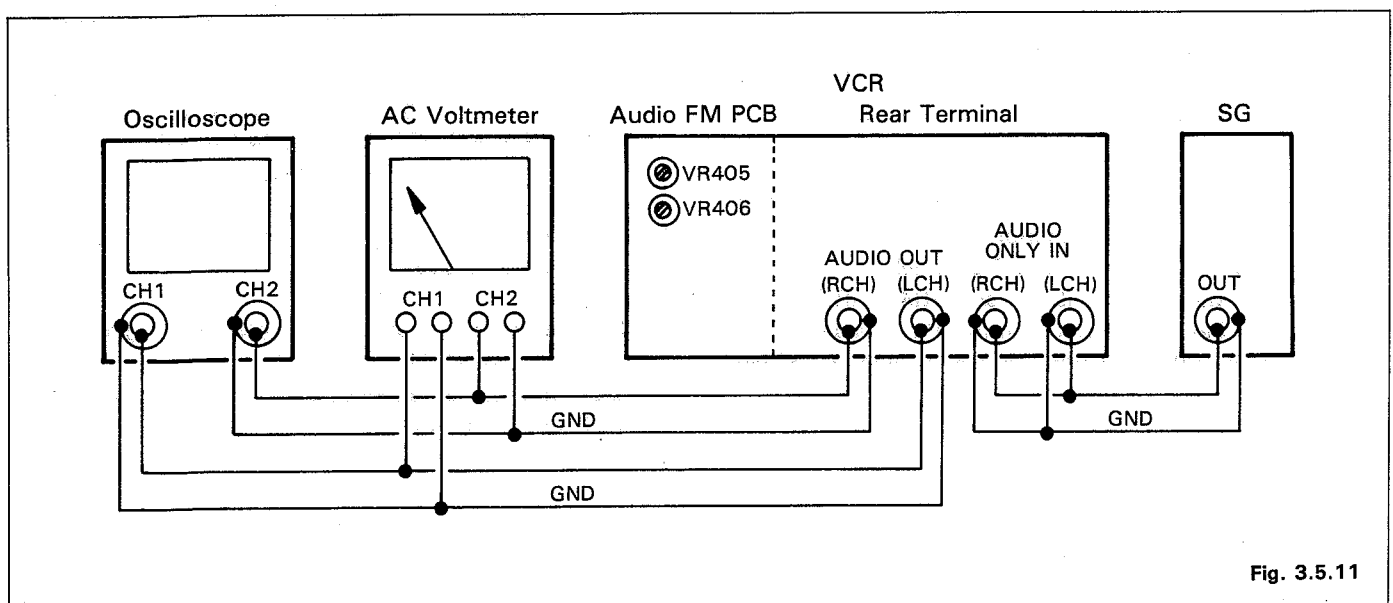
(7) HI-FI TRACKING LEVEL



(8) REC CARRIER LEVEL



(9) REC DEVIATION



3.5.4 ADJUSTMENTS

- Before making these adjustments, check that the surface of the parts touching the tape such as the A-FM head or guides are clean.
- For the test equipment diagrams for adjustments (1) through (9) in this section, refer to the corresponding diagrams (number in parentheses) in Section 3.5.3.
- Set the following switches to the positions indicated below, before making these adjustments.

SWITCH	POSITION
INPUT SELECT	AUDIO ONLY
OUTPUT MODE	ST (TRACK I/II)
PB SELECT	Hi-Fi (AUTO)
LEVEL METER	ON
ALC	ON
NORMAL TRACKING	Centre (detent)

Notes:

- ADJ. is the abbreviation for adjustment in following section.
- Check that the Hi-Fi indicator remains lit when making all adjustments and checks, except for the adjustment of the A-FM PB CARRIER DROPOUT LEVEL.

(1) E-E LEVEL

Measuring Point	Measuring Equipment	ADJ. Condition
CH1: AUDIO OUTPUT terminal (L) CH2: AUDIO OUTPUT terminals (R)	Oscilloscope AC voltmeter Standard audio signal generator (SG)	STOP mode
ADJ. Location		ADJ. Value
VR403 (L-EE) VR404 (R-EE)	-8 dBV $\pm$ 0.5 dB (both LCH and RCH)	

1. After confirming on the oscilloscope that a 1 KHz sine wave is being output, adjust VR403 (L-EE) and VR404 (R-EE) so that the AC voltmeter's readings are **-8 dBV $\pm$ 0.5 dB** on both the L and R channels.
2. After adjusting VR403 (L-EE) and VR404 (R-EE), the difference between the AC voltmeter's readings for the L channel and R channel signals should be **within $\pm$ 0.5 dB**.

(2) AUDIO LEVEL INDICATOR

Measuring Point	Measuring Equipment	ADJ. Condition
Audio level meter	Oscilloscope AC voltmeter Standard audio signal generator (SG)	STOP mode
ADJ. Location		ADJ. Value
VR415 (L-LED) VR416 (R-LED)	"- 4" indicator on the audio level meter lights (both LCH and RCH)	

1. Confirm that a 1 KHz, -8 dBV sine wave is being output on the AC voltmeter and the oscilloscope.
2. Adjust VR415 (L-LED) and VR416 (R-LED) so that the "- 4" indicator on the audio level meter lights (on both the L channel and R channel).

(3) A-FM CARRIER FREQUENCY

Measuring Point	Measuring Equipment	ADJ. Condition
TP403 (LCH) TP404 (RCH) TP417 (GND)	Frequency counter Dummy plug Shorting clip (1) Shorting clip (2)	STOP mode
ADJ. Location		ADJ. Value
VR407 (L-FREQ)	1.425 MHz $\pm$ 5 KHz	
VR408 (R-FREQ)	1.825 MHz $\pm$ 5 KHz	

- Notes:**
- a) Connect the Shorting Clip (1) between TP413 and TP415. (Refer to Fig. 3.5.1 and Fig. 3.5.5)
 - b) Connect the Shorting Clip (2) between TP422, TP411 and TP412. (Refer to Fig. 3.5.1 and Fig. 3.5.5)
 - c) Insert the dummy plug into the AUDIO ONLY INPUT terminals (both L channel and R channel).

1. Adjust VR407 (L-FREQ) so that the frequency counter's reading at TP403 (LCH) is **1.425 MHz $\pm$ 5 KHz**.
2. Adjust VR408 (R-FREQ) so that the frequency counter's reading at TP404 (RCH) is **1.825 MHz $\pm$ 5 KHz**.

Note: Remove the shorting clip connections made in notes a) and b) above.

3. Confirm that the frequency counter's reading at TP403 (LCH) is **1.4029 MHz $\pm$ 3 KHz**.
4. Confirm that the frequency counter's reading at TP404 (RCH) is **1.797 MHz $\pm$ 3 KHz**.

(4) A-FM PB CARRIER DROPOUT LEVEL

Use the method in step 1 or step 2 to make these adjustments.

Measuring Point	Measuring Equipment	ADJ. Condition
Hi-Fi indicator (on the front panel)	Standard signal generator (SSG)	PLAY mode Test tape (VPS-3) or (VPM-6 -11)
ADJ. Location		ADJ. Value
VR417 (D.O.L)		—

1. VPS-3 (PLAY mode)
Adjust VR417 (D.O.L) so that the Hi-Fi indicator will light when the output level of the standard signal generator (SSG) is 25 mVp-p and go out when the output level of the standard signal generator (SSG) is 20 mVp-p.
2. VPM-6 -11 (PLAY mode)
Note: Remove the connector PA420 at the AUDIO FM PCB. (Refer to Fig. 3.5.2)
Adjust VR417 (D.O.L) so that the Hi-Fi indicator will light when the output level of the standard signal generator (SSG) is 25 mVp-p and go out when the output level of the standard signal generator (SSG) is 20 mVp-p.

(5) A-FM PB CARRIER ENVELOPE

Measuring Point	Measuring Equipment	ADJ. Condition
TP403 TP402 (trigger) TP417 (GND)	Oscilloscope	PLAY mode Test tape (VPM-6 -11)
ADJ. Location		ADJ. Value
VR414 (ENVE)		—

1. Confirm on the oscilloscope that the 1.4 MHz A-FM CARRIER signal appears in two fields on the oscilloscope screen.
2. Adjust VR414 (ENVE) so that A-FM CARRIER signal from Head CH1 and CH2 forms a continuous envelope.

(6) A-FM PB LEVEL

Measuring Point	Measuring Equipment	ADJ. Condition
CH1: AUDIO OUTPUT terminal (L) CH2: AUDIO OUTPUT terminal (R)	Oscilloscope AC voltmeter	PLAY mode Test tape (VPM-6 -11)
ADJ. Location		ADJ. Value
VR411 (L-PB) VR412 (R-PB)		−8 dBV ± 0.5 dB (both LCH and RCH)

1. After confirming on the oscilloscope that a 1.KHz sine wave is being output, adjust VR411 (L-PB) and VR412 (R-PB) so that the AC voltmeter's readings are −8 dBV ± 0.5 dB on both the L and R channels.
2. After adjusting VR411 (L-PB) and VR412 (R-PB), the difference between the AC voltmeter's readings for the L channel and R channel signals should be within ± 0.5 dB.

(7) HI-FI TRACKING LEVEL

Measuring Point	Measuring Equipment	ADJ. Condition
Hi-Fi tracking level meter		PLAY mode Test tape (VPM-6 -11)
ADJ. Location		ADJ. Value
VR418 (TRACKING)		The "−2" indicator on the Hi-Fi tracking level meter lights (both LCH and RCH)

1. Set the LEVEL METER switch to Hi-Fi TRACK.
2. Adjust VR181 (NORMAL TRACKING) behind the door on the front panel so that the maximum number of LEDs on the Hi-Fi tracking level meter lights.
3. Retain the setting in step 2, and adjust VR418 (TRACKING) so that the "−2" indicator on the Hi-Fi tracking level meter lights.

(8) REC CARRIER LEVEL

Measuring Point	Measuring Equipment	ADJ. Condition
TP401 TP416 (GND)	Oscilloscope Dummy plug	REC mode Blank tape
ADJ. Location		ADJ. Value
VR401 (L-REC)		70 mVp-p $\pm$ 5 mVp-p
VR402 (R-REC)		270 mVp-p $\pm$ 5 mVp-p

Note: Insert the dummy plug into the AUDIO ONLY INPUT terminals. (both LCH and RCH)

1. Adjust VR402 (R-REC) for a minimum level 1.8 MHz A-FM CARRIER signal (RCH) by rotating VR402 (R-REC) clockwise (as seen from the foil side).
2. After confirming on the oscilloscope that a 1.4 MHz A-FM CARRIER signal is being output, adjust VR401 (L-REC) so that the A-FM CARRIER signal is **70 mVp-p $\pm$ 5 mVp-p**.
3. Keep VR401 (L-REC) set to the position obtained in step 2, and adjust VR402 (R-REC) so that A-FM CARRIER signal on the oscilloscope is **270 mVp-p $\pm$ 5 mVp-p**.

(9) REC DEVIATION

Measuring Point	Measuring Equipment	ADJ. Condition
CH1: AUDIO OUTPUT terminal (L) CH2: AUDIO OUTPUT terminals (R)	Oscilloscope AC voltmeter Standard audio signal generator (SG)	Self-recording Blank tape
ADJ. Location		ADJ. Value
VR405 (L-DEVI) VR406 (R-DEVI)		- 8 dBV $\pm$ 0.5 dB (both LCH and RCH)

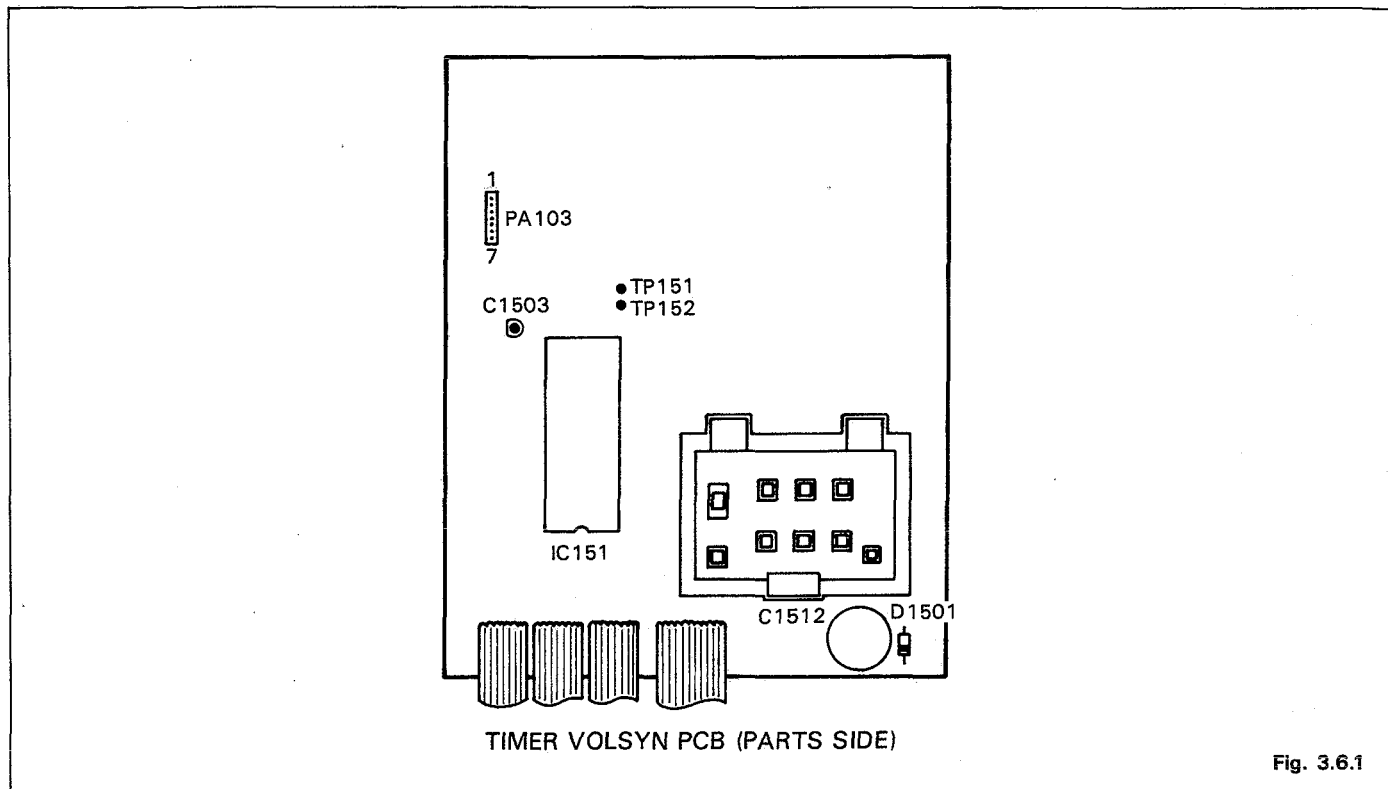
1. Play back the just-recorded portion.
2. After confirming on the oscilloscope and the AC voltmeter that a 1 KHz, - 8 dBV sine wave is being output, adjust VR405 (L-DEVI) and VR406 (R-DEVI) so that the oscilloscope and the AC voltmeter's readings are sine wave of 1 KHz, **- 8 dBV $\pm$ 0.5 dB** on both the L and R channels.

3.6 TIMER CIRCUIT

3.6.1 EQUIPMENT AND JIGS REQUIRED

Universal Counter	8 significant digits
DC Voltmeter	
Probe	10:1 probe or 1:1 probe

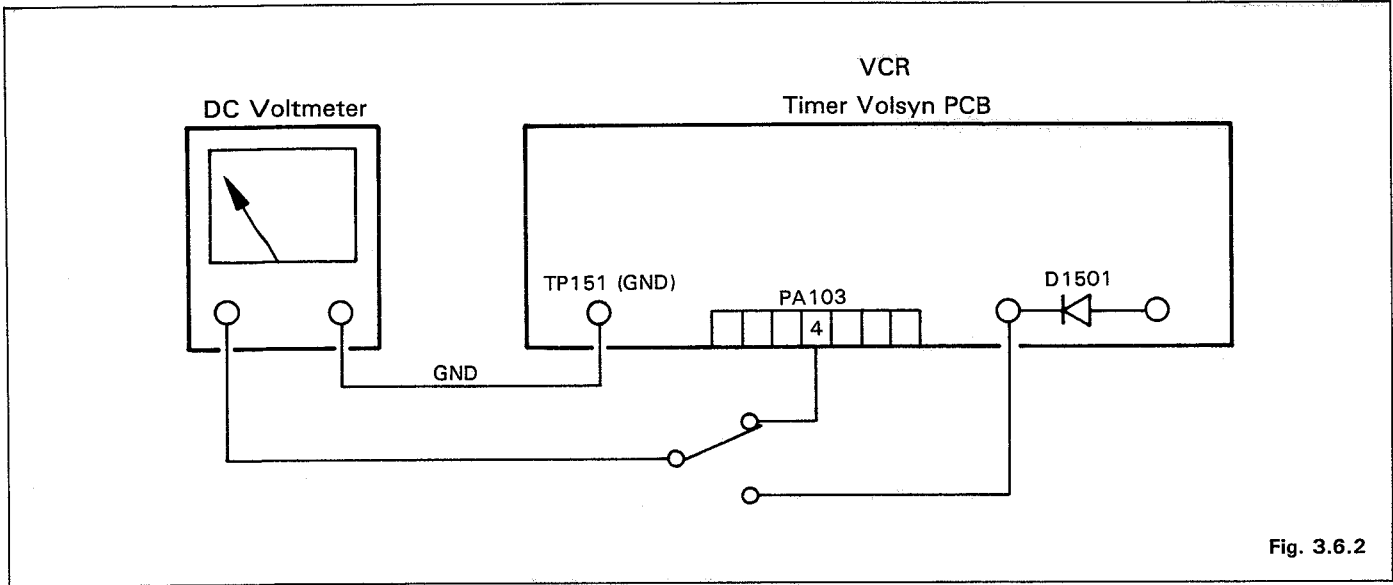
3.6.2 LOCATION OF ADJUSTMENT POINTS



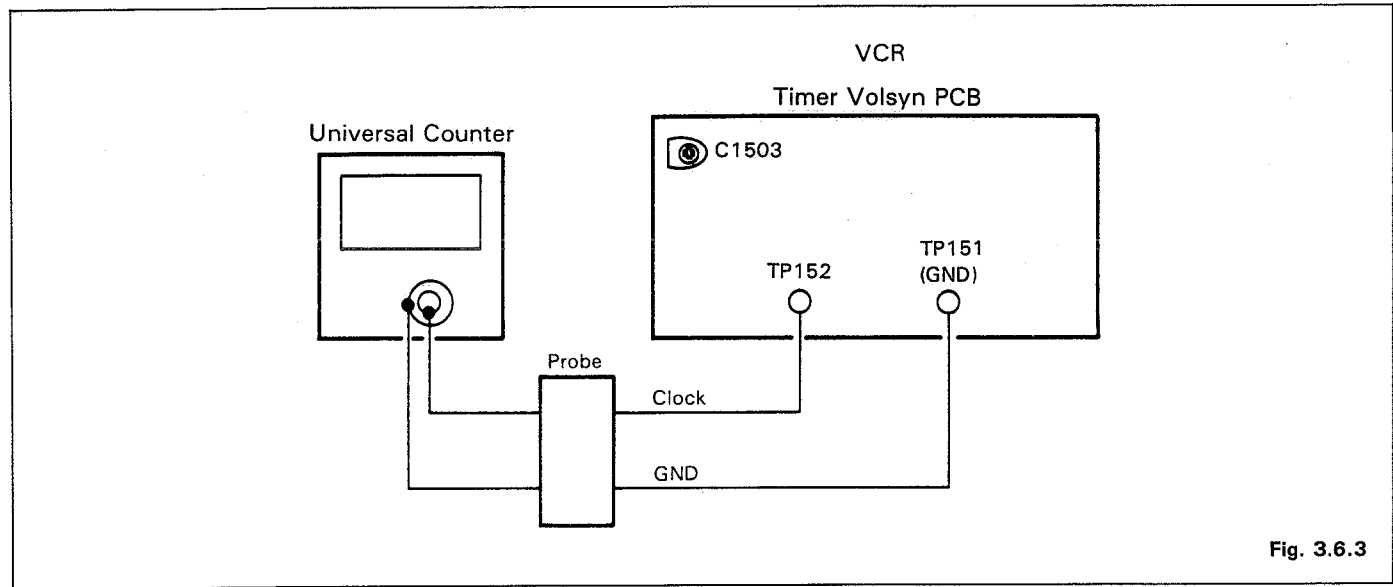
3.6.3 TEST EQUIPMENT CONNECTING DIAGRAMS

For adjustments (1) through (2) in this section, refer to the corresponding paragraphs (number in parentheses) in Section 3.6.4.

(1) VOLTAGE TEST



(2) CRTC CLOCK FREQUENCY



3.6.4 ADJUSTMENTS

- For test equipment diagrams (1) and (2) in this section, refer to the corresponding diagrams (number in parentheses) in Section 3.6.3.

Note:

- ADJ. is the abbreviation for adjustment in following section.

(1) VOLTAGE TEST

Measuring Point	Measuring Equipment	ADJ. Condition
Pin 4 of PA103 TP151 (GND)	DC Voltmeter	STOP mode
Cathode side of D1501 TP151 (GND)		
ADJ. Location		ADJ. Value
—		5.0 V ~ 5.2 V
		4.7 V ~ 4.9 V

VOLTAGE TEST OF PIN 4 OF PA103

- Check that the DC voltmeter's reading is **between 5.0 V and 5.2 V**. (Refer to Fig. 3.6.2)

VOLTAGE TEST OF CATHODE SIDE OF D1501

- Check that the DC voltmeter's reading is **between 4.7 V and 4.9 V**. (Refer to Fig. 3.6.2)

(2) CLOCK FREQUENCY OF TIMER MPU

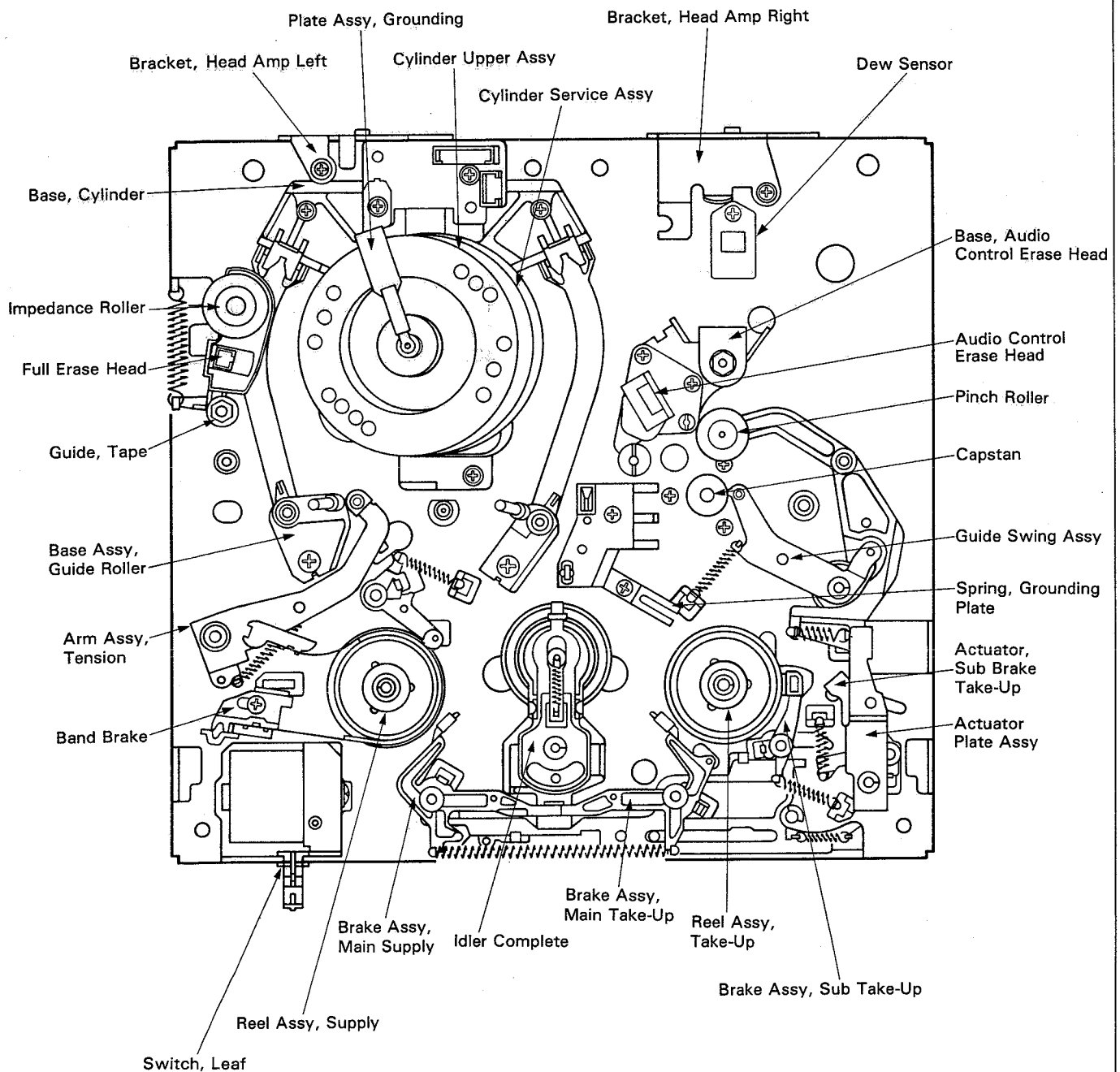
Measuring Point	Measuring Equipment	ADJ. Condition
TP152 (Clock) TP151 (GND)	Universal counter probe	STOP mode
ADJ. Location		ADJ. Value
C1503		488.2813 μsec $\pm 2.7 \times 10^{-3} \mu\text{sec}$ (Monthly allowance $\pm 15 \text{ sec}$)

- Set the universal counter to the period measuring mode, accurate to 8 significant digits.
- Adjust C1503 so that the counter indicates **488.2813 $\mu\text{sec} \pm 2.7 \times 10^{-3} \mu\text{sec}$** .

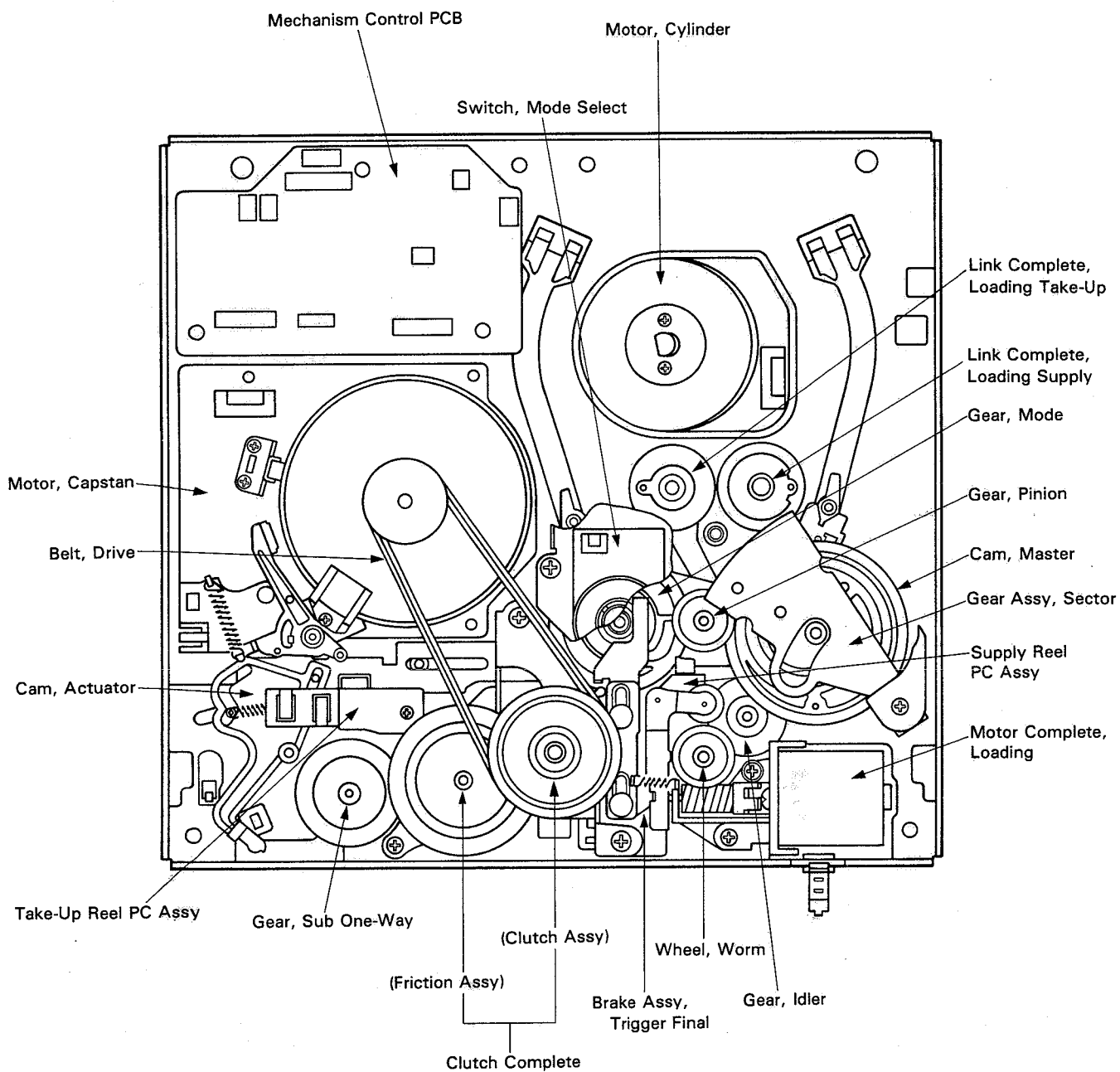
MEMO

4. MECHANICAL DISASSEMBLY

4.1 MECHANICAL PARTS LOCATIONS



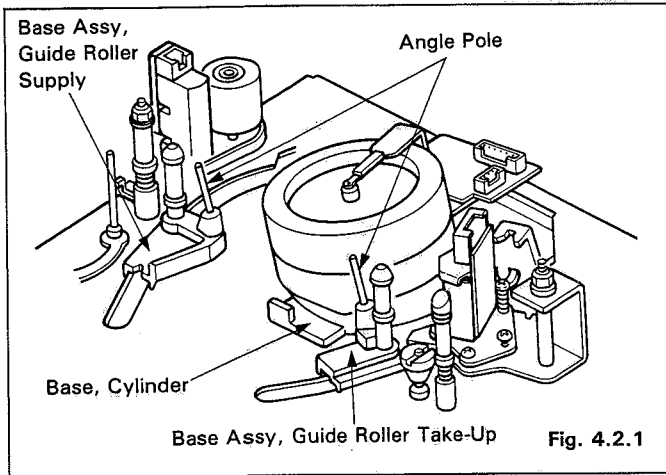
(TOP VIEW)



(BOTTOM VIEW)

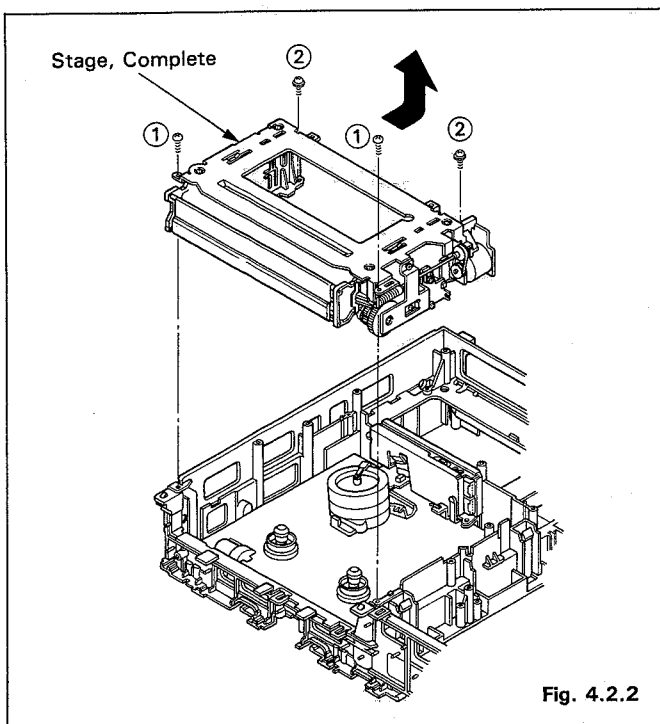
4.2 MAIN MECHANICAL PARTS DISASSEMBLY

1. When disassembling the unit, making replacements or adjustments, or cleaning parts, set the power switch to OFF before proceeding.
2. The parts shown in Fig. 4.2.1 were secured after having been adjusted at the manufacturing plant with precision jigs. These parts should not be removed or adjusted since this will make the tape running adjustments more difficult to perform.

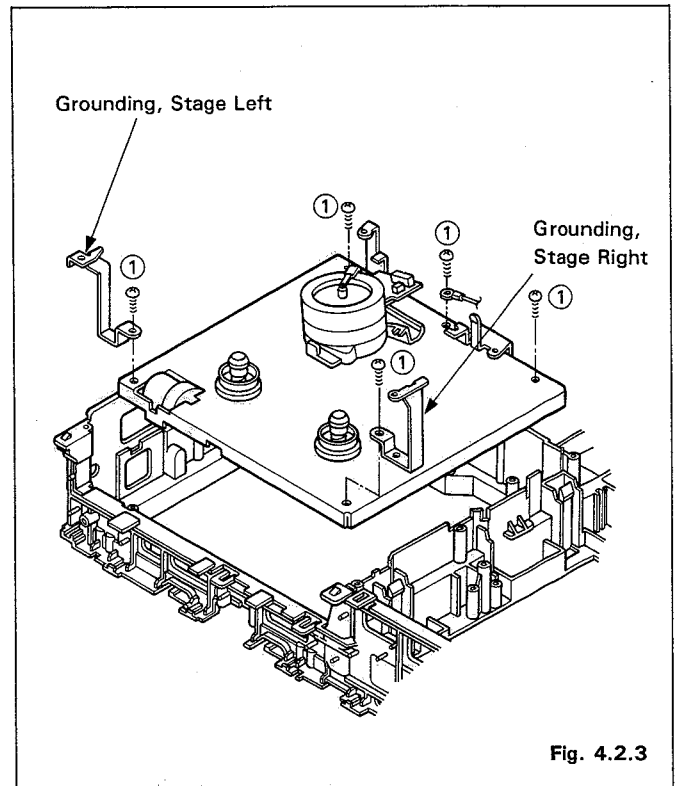


3. When removing the following parts, remove screws, nuts or washers in numerical order. If necessary, disconnect the connectors. When reassembling, reverse the order of disassembly.
4. Do not touch the tape transport area of the parts with bare hands. If a tape transport area is touched with bare hands, clean it with cleaning fluid and chamois.

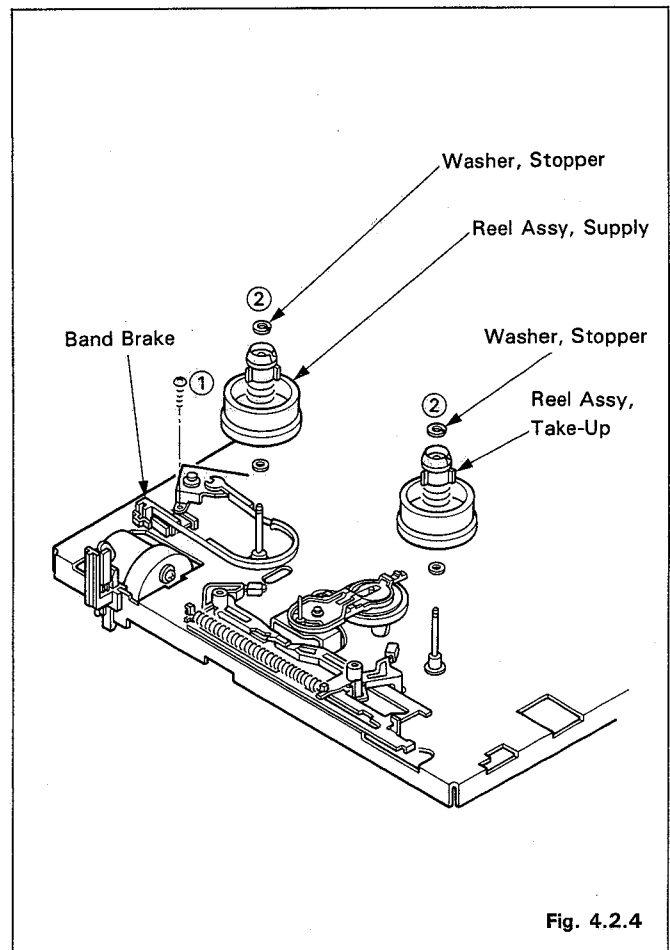
4.2.1 STAGE



4.2.2 MAIN CHASSIS



4.2.3 SUPPLY REEL/TAKE-UP REEL



4.2.4 AUDIO CONTROL ERASE HEAD

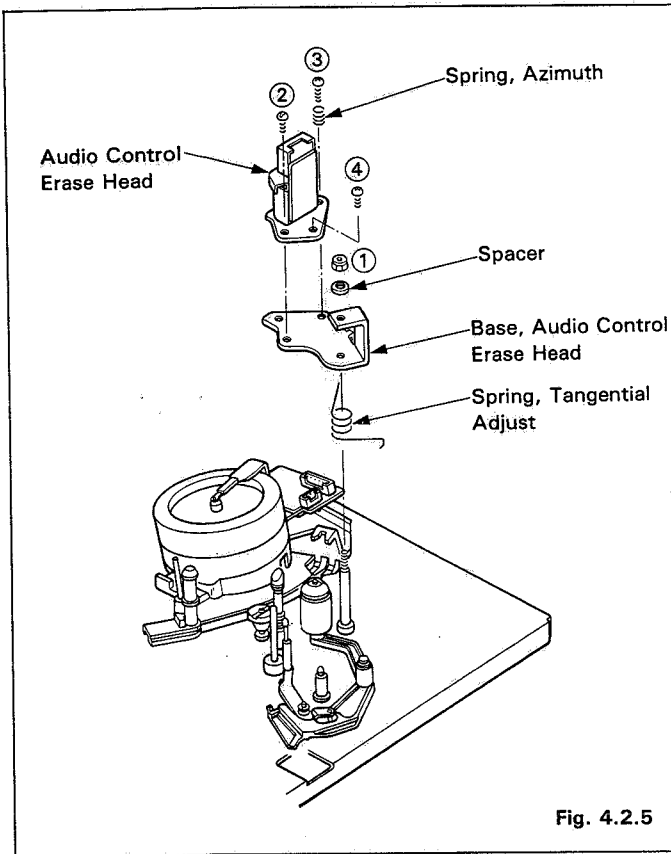


Fig. 4.2.5

4.2.6 CAPSTAN MOTOR

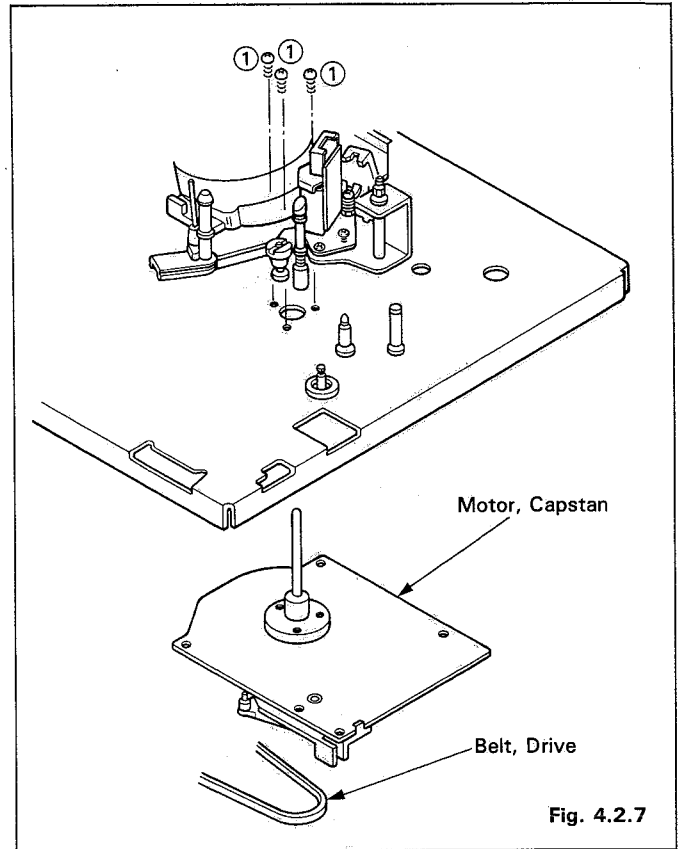


Fig. 4.2.7

4.2.5 FULL ERASE HEAD

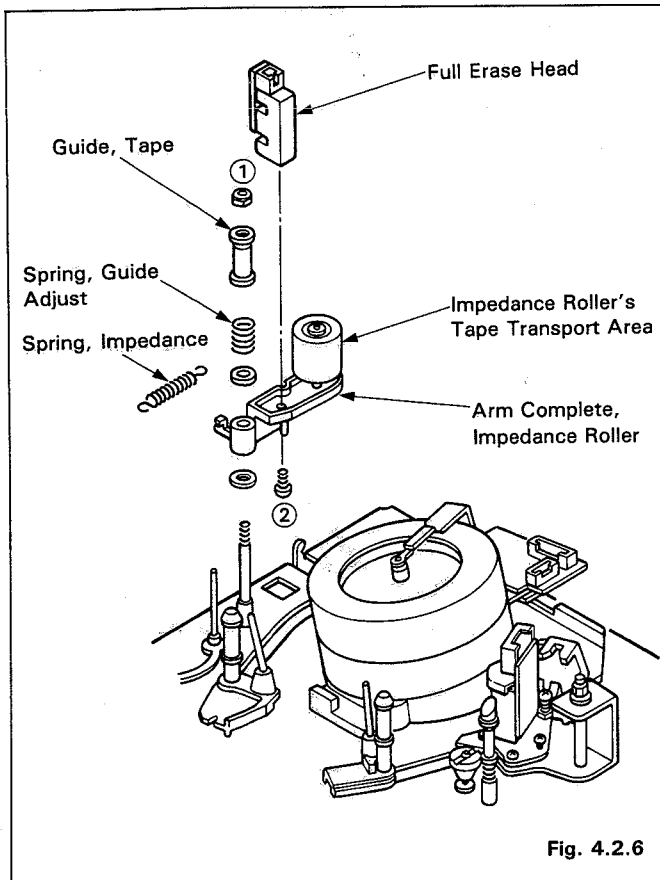


Fig. 4.2.6

4.2.7 LOADING MOTOR

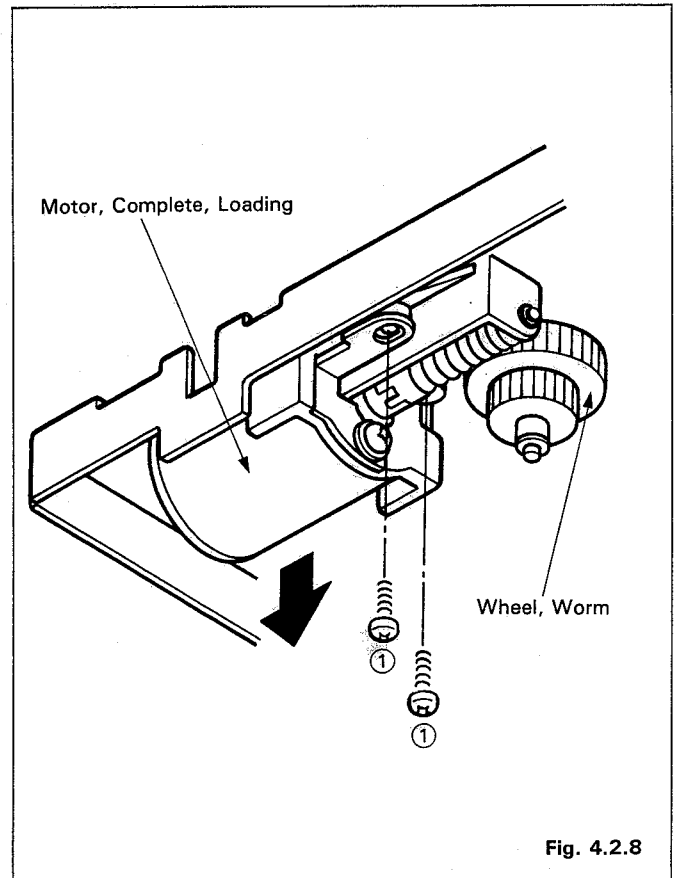
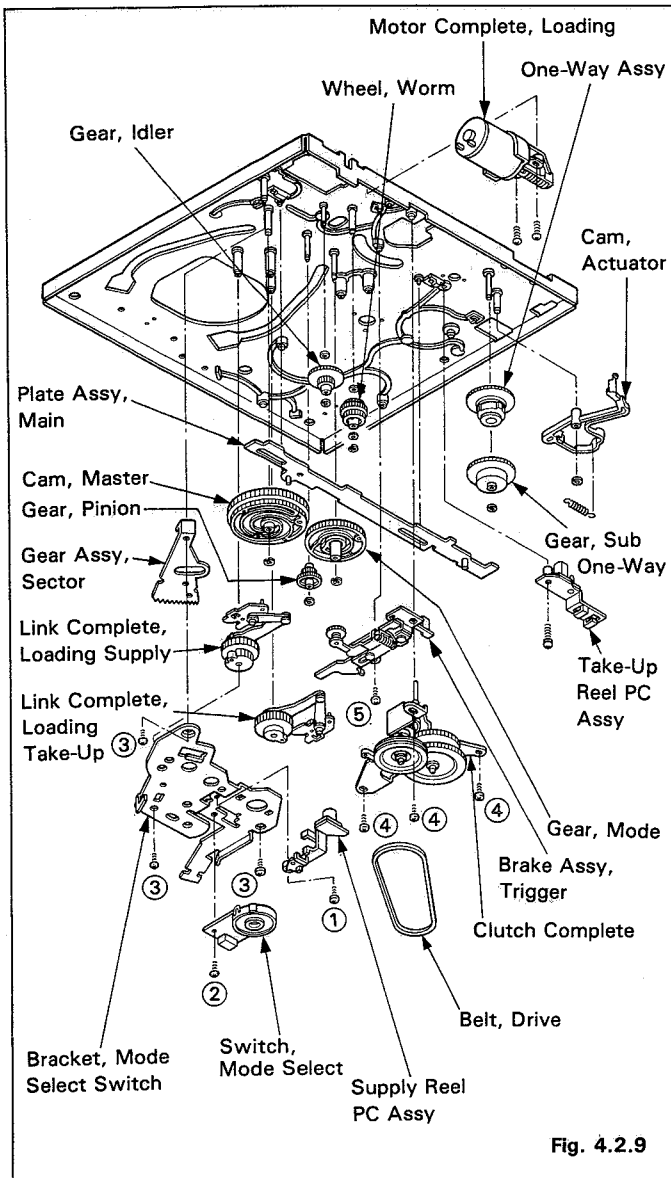
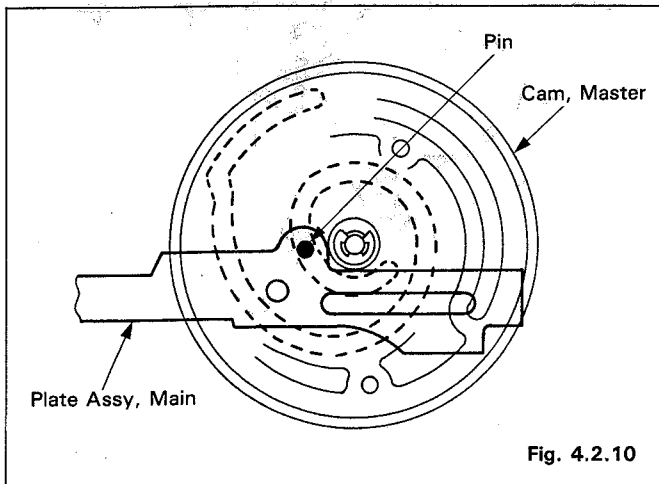


Fig. 4.2.8

4.2.8 LOADING/UNLOADING MECHANISM

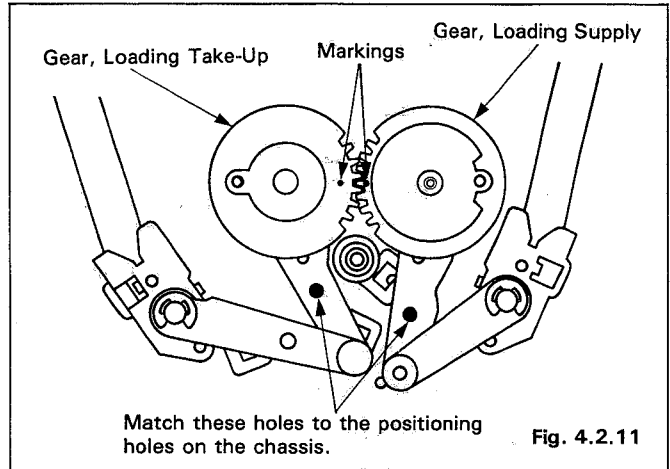


When installing the master cam, insert the pin of the main plate into the appropriate position in the master cam. (Refer to Fig. 4.2.10)

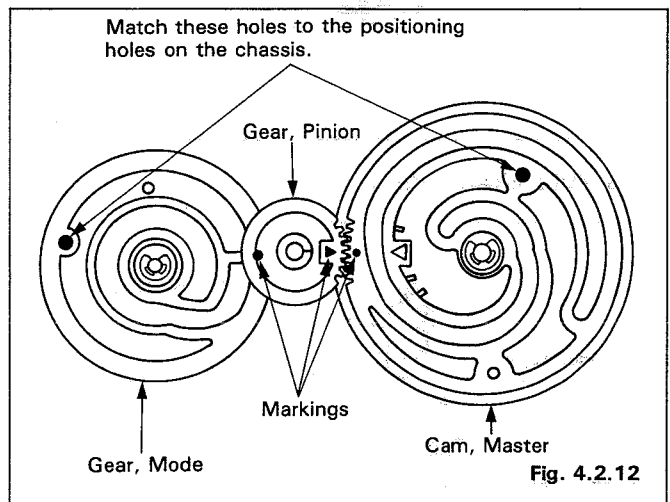


When reassembling, positioning the parts in following order.

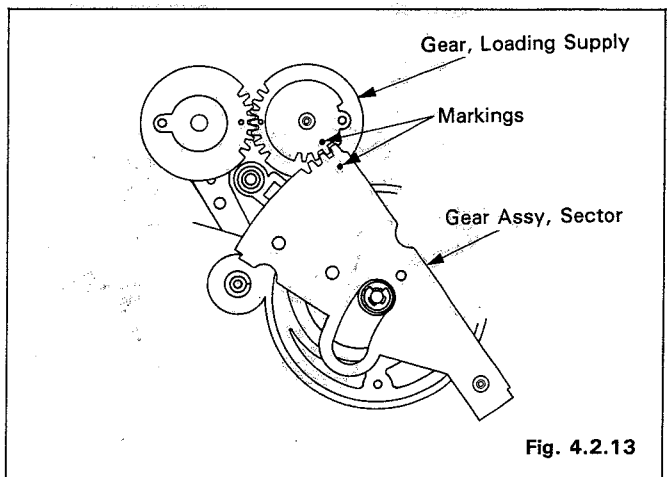
1. Match the mark on the supply loading gear and the take-up loading gear, as shown below.



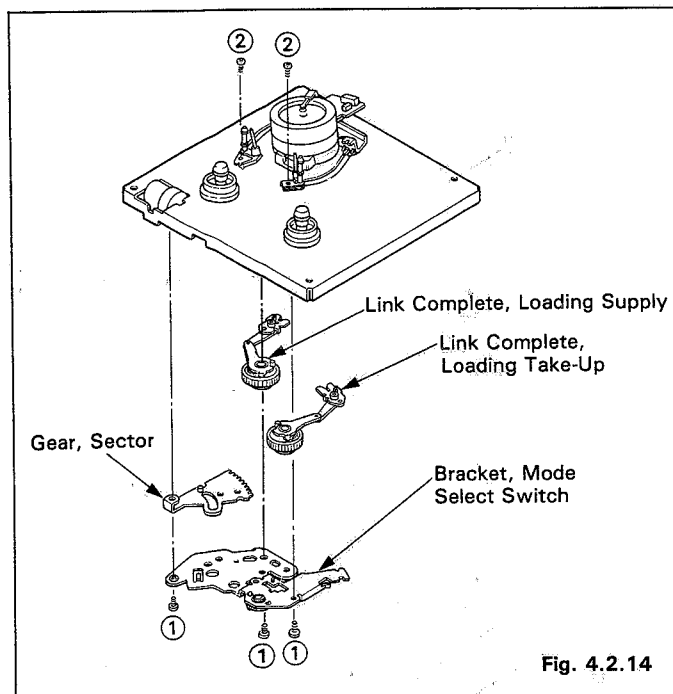
2. Match the marks on the pinion gear to the mark on the master cam and the mode gear as shown below.



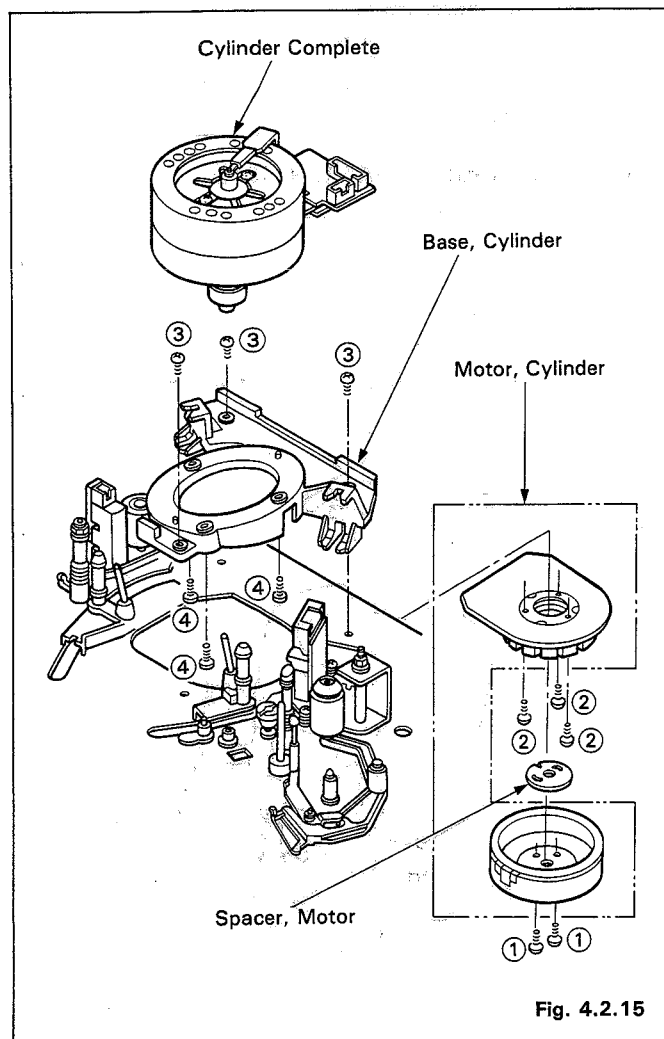
3. Match the mark on the sector gear to the mark on the supply loading gear as shown below.



4.2.9 LINK LOAD T COMPLETE/ LINK LOAD S COMPLETE

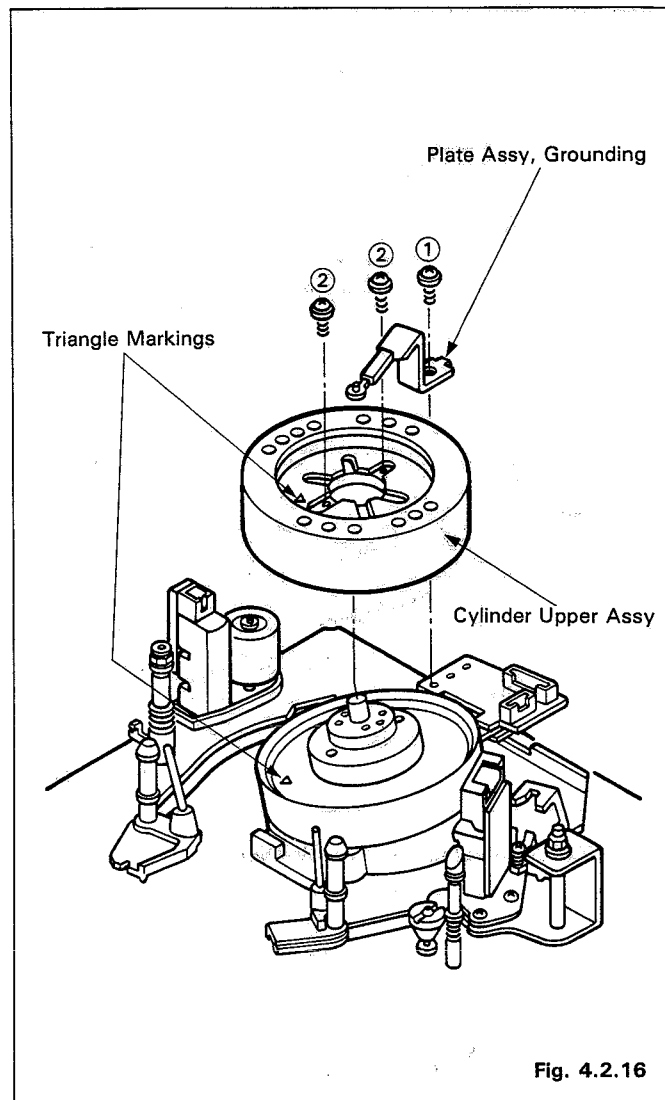


4.2.10 CYLINDER



4.2.11 UPPER CYLINDER

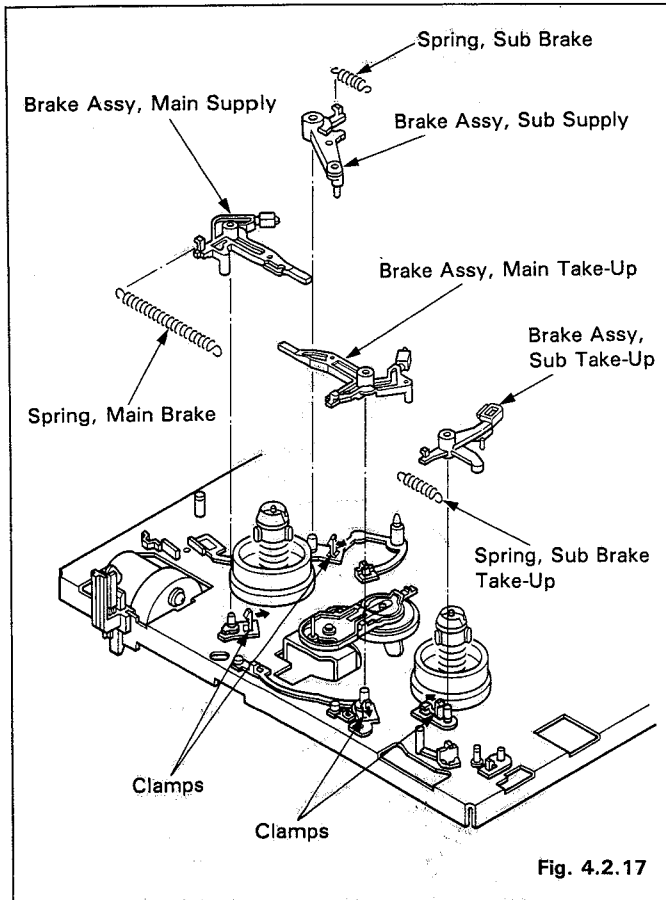
Prior to removing the upper cylinder, remove the soldered connection of the ten lead wires inside the upper cylinder.



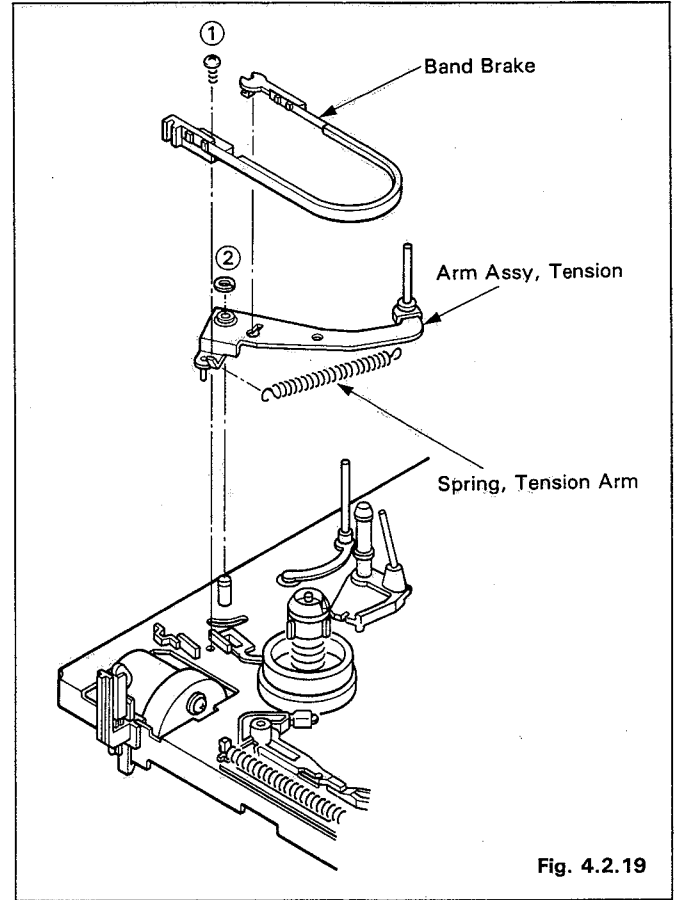
Notes:

- As the cylinder is a precision part, take care not to damage the heads or the tape transport area.
- Hold the side of the upper cylinder (the tape transport area), and pull it upwards while turning it gradually to avoid excessive force. If the upper cylinder does not come off, it should be heated with a dryer to about 40°C before removal.
- When installing the cylinder, tighten two screws ② uniformly to obtain a 5 kg-cm to 6 kg-cm torque value.
- Prior to reassembling, clean up the contact surface on the upper cylinder with cleaning fluid. (Refer to Fig. 4.2.16)
- When reassembling, match the triangle marke of the PCB on the upper cylinder to the triangle mark of the PCB on the service cylinder.
- After reassembling the cylinder, clean up the tape transport area with cleaning fluid and chamois. (Refer to Fig. 4.2.16)

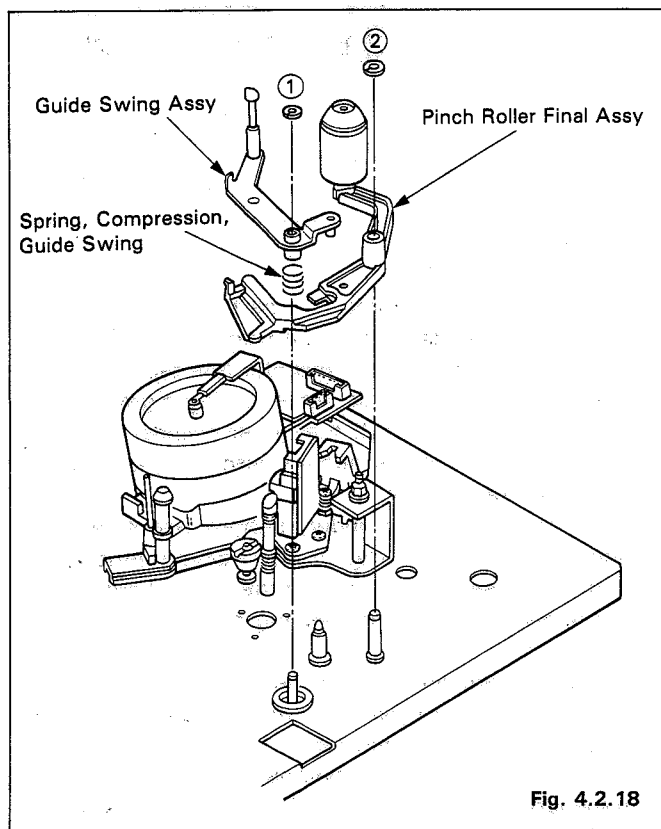
4.2.12 MAIN BRAKE/SUB BRAKE



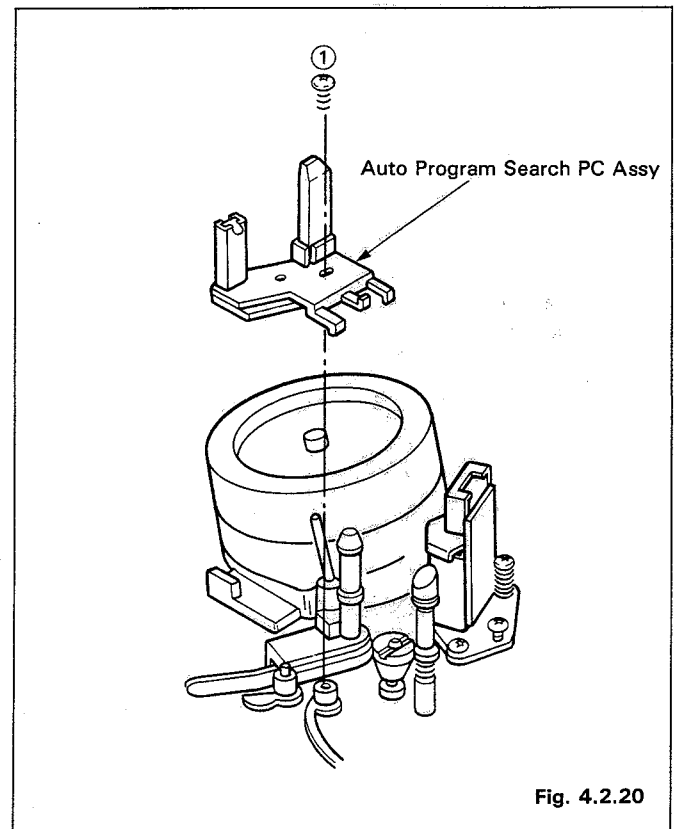
4.2.14 TENSION ARM/BAND BRAKE



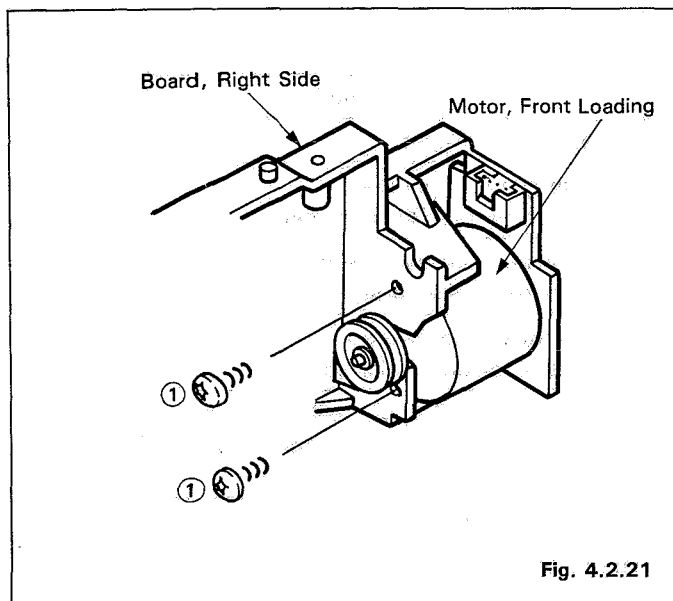
4.2.13 PINCH ROLLER/GUIDE SWING



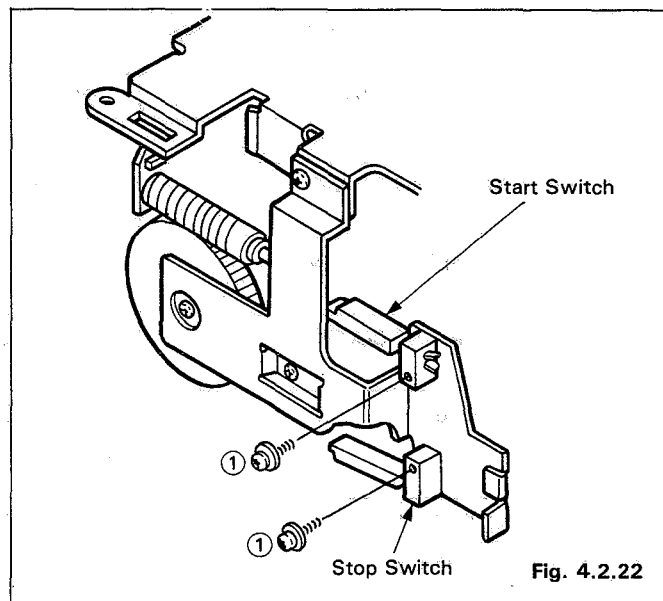
4.2.15 AUTO PROGRAM SEARCH HEAD



4.2.16 FRONT LOADING MOTOR



4.2.17 START SWITCH/STOP SWITCH



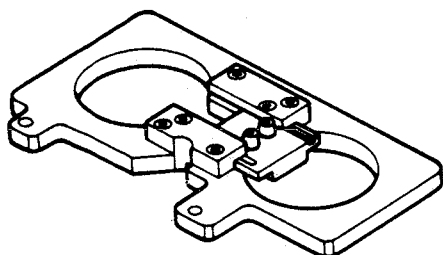
MEMO

5. MECHANICAL ADJUSTMENT

5.1 JIGS AND TOOLS FOR ADJUSTMENTS

No.	Part Name	Part No.	Remarks
1	Cassette Housing Positioning Jig	SVJ-00010	Reel height adjustment
2	Torque Meter (KT-300FF)	SVJ-00011	Rewind torque (Supply reel) Fast forward torque (Take-up reel)
3	Torque Meter (KT-300NV)	SVJ-00012	Back tension adjustment (Supply reel) Take-up torque (Take-up reel)
4	Torque Meter (KT-300RV)	SVJ-00052	Review torque (Supply reel) Review back tension (Take-up reel)
5	Torque Gauge	SVJ-00020	Main brake torque (Supply reel, Take-up reel) Fast forward back tension (Supply reel) Rewind back tension (Take-up reel)
6	Test Tape (VPM-6)	SVJ-00031	Monoscope, 6 kHz
7	Adjustment Driver	SVJ-00040	Guide roller height adjustment

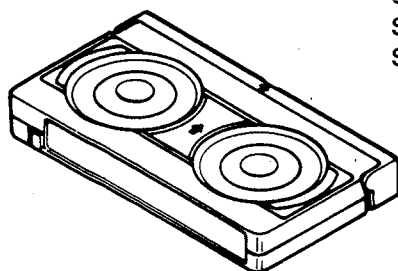
SVJ-00010



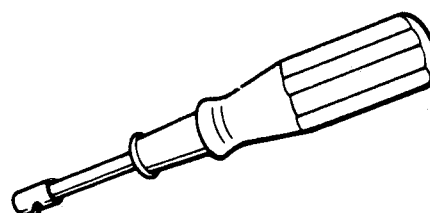
SVJ-00020



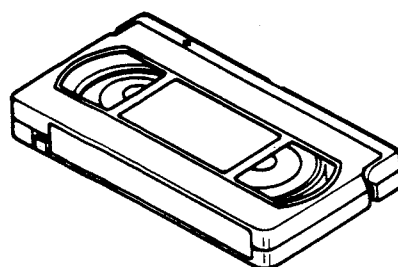
SVJ-00011
SVJ-00012
SVJ-00052



SVJ-00040



SVJ-00031



5.2 TAPE TRANSPORT ADJUSTMENT

5.2.1 REEL HEIGHT

1. Mount the cassette housing positioning jig and slide the gauge on the jig in the directions marked by the arrows.

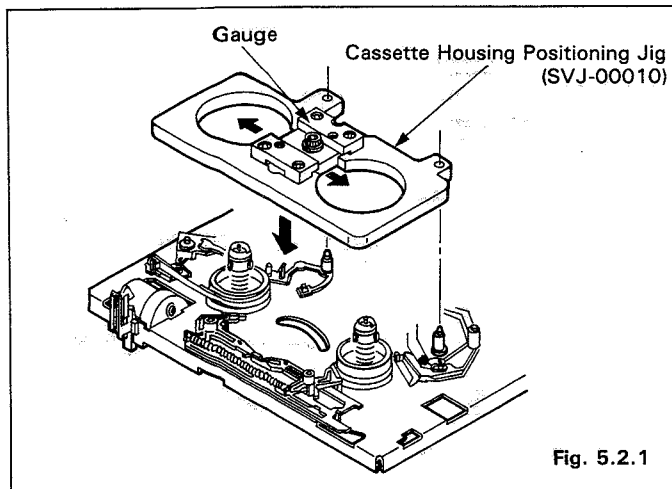


Fig. 5.2.1

2. The reel height is adjusted by changing the thickness of the POLYSLIDER washer.

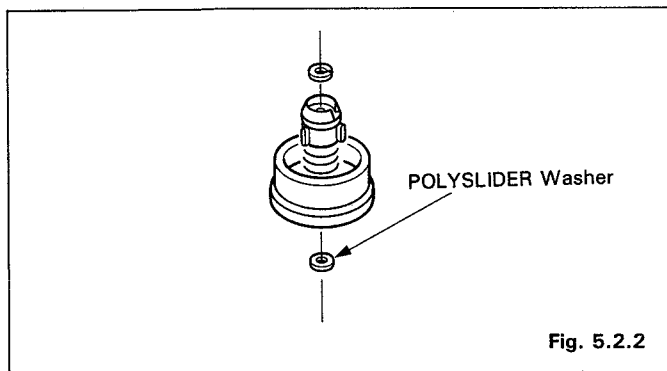


Fig. 5.2.2

3. Adjust the reel height so that the reel slides under surface A of the gauge but is stopped by surface B.
4. If the reel does not slide under surface A, change the washer thickness by using POLYSLIDER washer 0.5 mm or 0.3 mm. POLYSLIDER washer 0.4 mm is inserted at the factory.
5. Perform the same adjustment for the other reel.

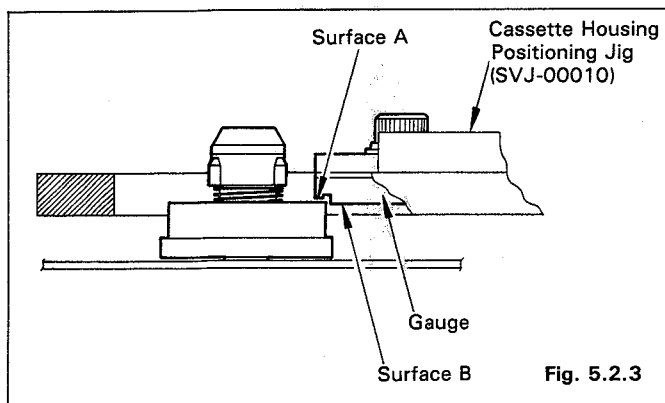


Fig. 5.2.3

5.2.2 BACK TENSION

1. Insert the torque meter (KT-300NV).
2. Set the VCR to the REC mode.
3. Measure the tension on the supply reel with a cassette-type torque meter (KT-300NV). The tension should be $50 \text{ gr-cm} \pm 5 \text{ gr-cm}$.

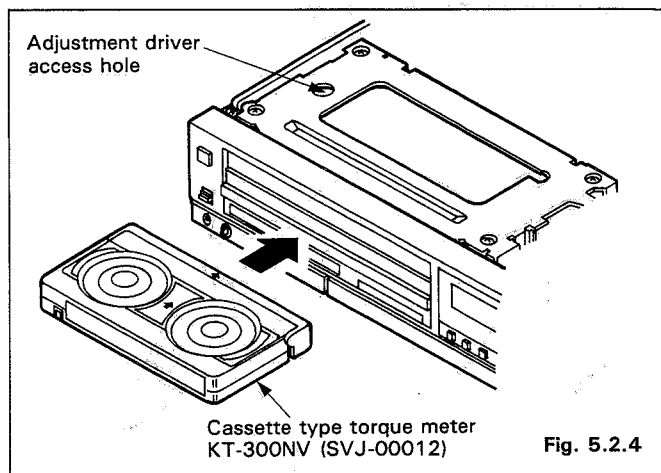


Fig. 5.2.4

4. If necessary, loosen the back tension adjustment screw, and adjust the position of the band brake to obtain the required tension value.
5. Retighten the screw when the required tension has been obtained.

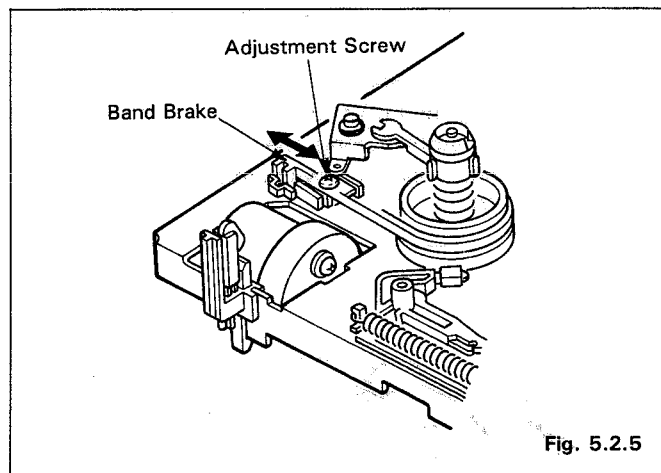


Fig. 5.2.5

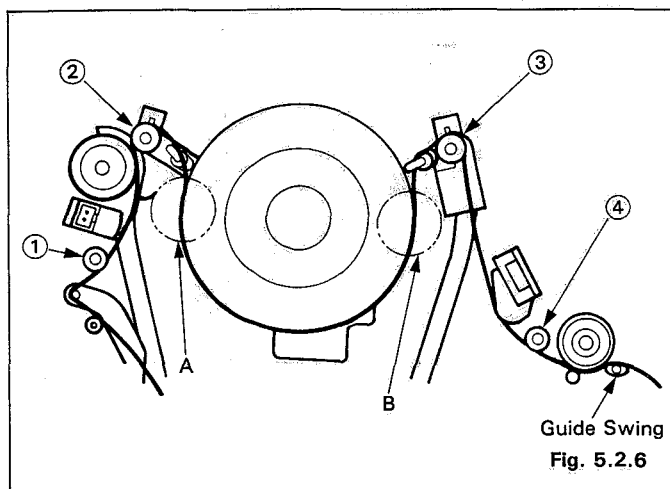
Note:

The VCR should be placed horizontally for the back tension measuring procedure.

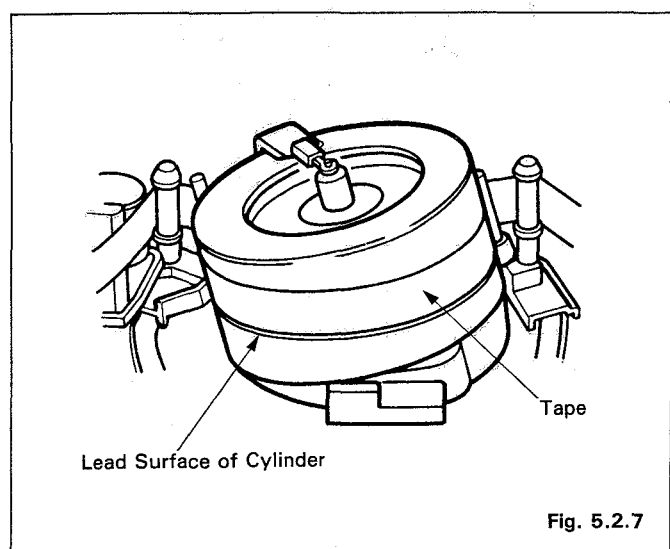
5.2.3 TAPE RUNNING POSITION ADJUSTMENT (GUIDE ROLLER/TAPE GUIDE)

1. Perform the height adjustment for the following items to obtain the proper tape running position.

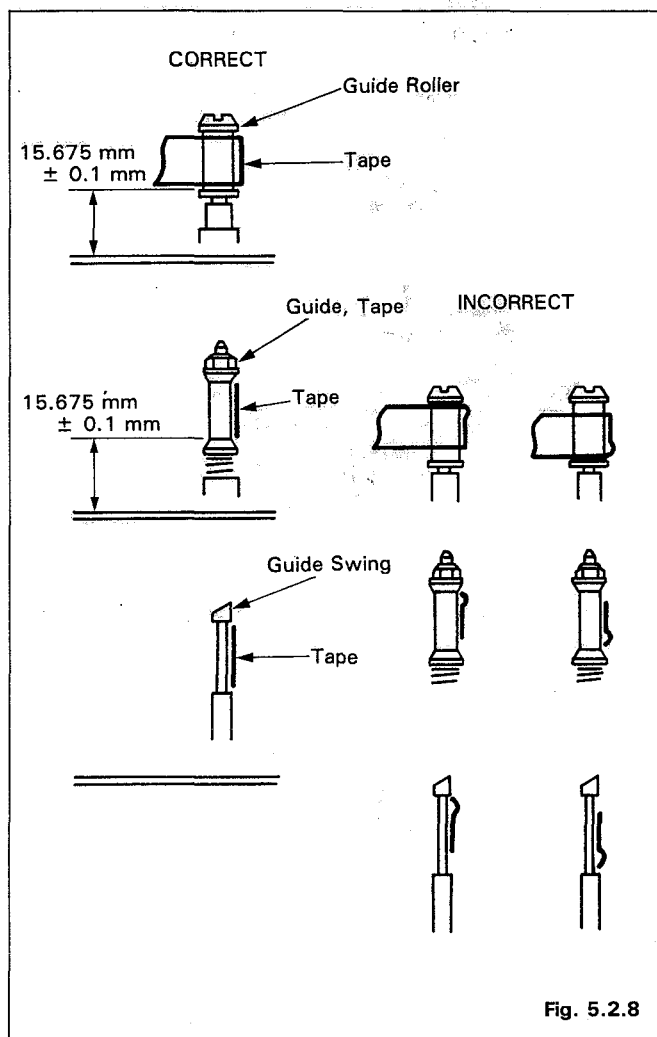
- ① Tape Guide (supply side)
- ② Guide Roller (supply side)
- ③ Guide Roller (take-up side)
- ④ Tape Guide (take-up side)



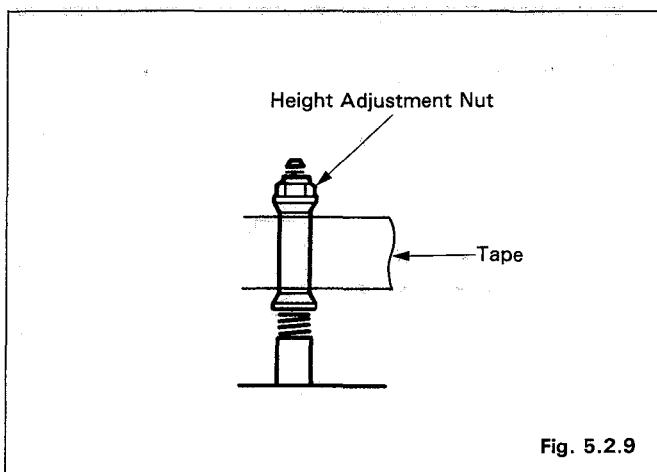
2. Load a blank tape and set the VCR to the PLAY mode. Check the tape transport at points "A" and "B" as shown in Fig. 5.2.6.
3. Operate the VCR between the PLAY and STOP modes several times.
4. Observe the tape transport at the lead surface of the cylinder during the PLAY mode, and confirm that the tape runs smoothly along the lead surface of the cylinder without slipping downward and upward. (Refer to Fig. 5.2.7)



5. During loading, play and unloading, observe the tape at the supply and take-up guide rollers and tape guides. Confirm that there is no curling or creasing, etc., as shown in Fig. 5.2.8.

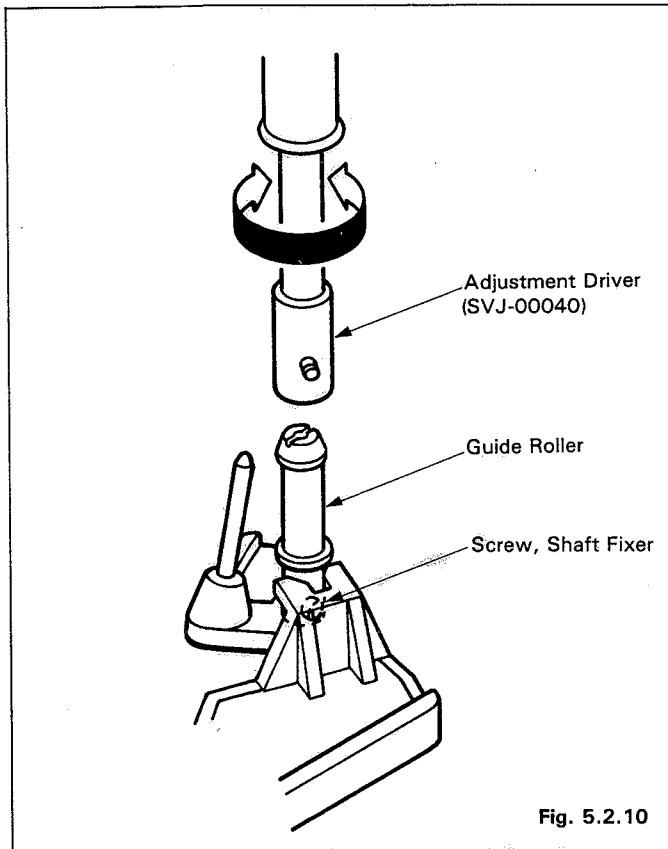


6. If any curling or defects are noted, adjust the supply side tape guide first. Adjust the height adjustment nut so that the tape runs as shown in Fig. 5.2.8. (Refer to Fig. 5.2.9)



7. Next, adjust the guide roller height. Insert the adjustment driver (SVJ-00040) into the guide roller top. (Refer to Fig. 5.2.10)

Adjust the height by turning the driver slightly so that the tape runs on the guide roller as shown in Fig. 5.2.8, and the lower edge of the tape runs along the lead surface of the cylinder.

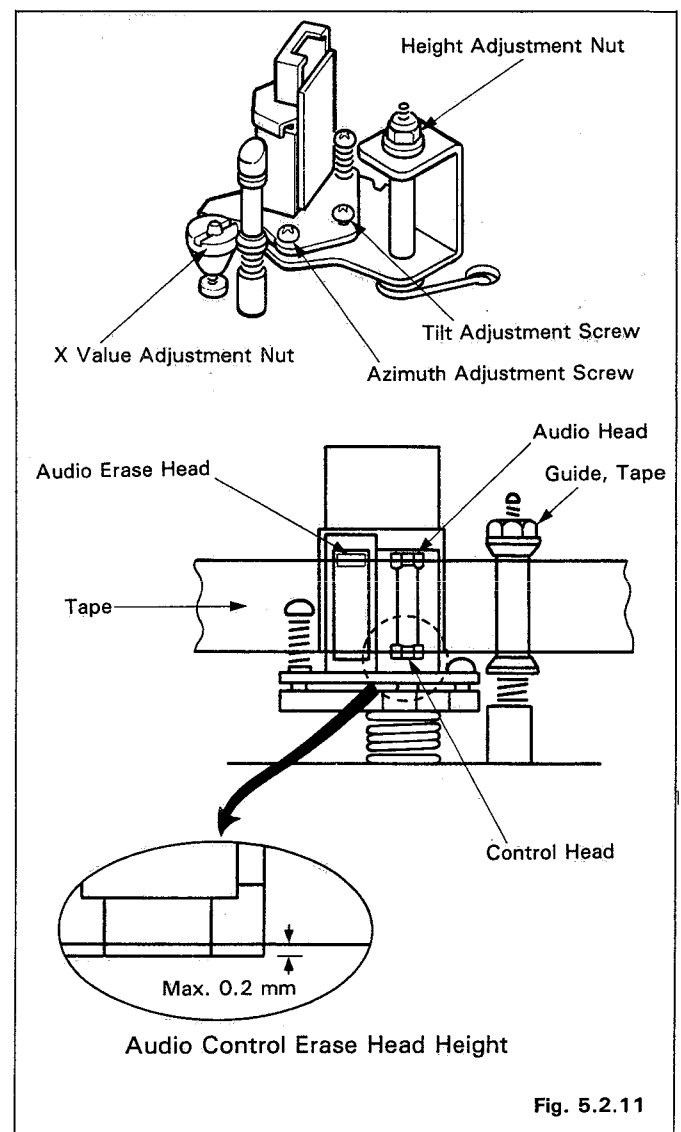


8. After completion of the supply side tape guide and guide roller adjustments, adjust the take-up side tape guide and guide roller by using the same procedures as for the supply side adjustments. In this case, adjust the guide roller height first.
9. Finally, confirm that there is no curling or creasing at the take-up side guide roller and tape guide. If there is any curling or creasing between the take-up side guide roller and the audio control erase head, adjust the audio control erase head.

5.2.4 AUDIO CONTROL ERASE HEAD ADJUSTMENT

These adjustments should be carried out prior to the PLAY MODE TRACKING adjustment in Section 3.2.4 (3), and the X VALUE adjustment in Section 3.2.4 (4), the ACE HEAD HEIGHT/ACE HEAD TILT adjustment in Section 3.4.4 (1), and the ACE HEAD AZIMUTH adjustment in Section 3.4.4 (2).

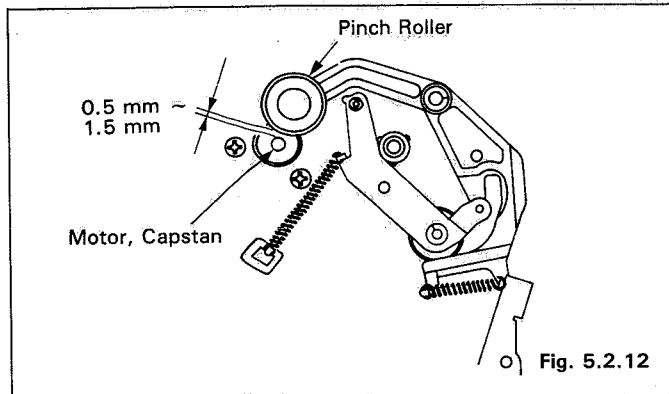
1. Load a recorded tape and set the VCR to the PLAY mode.
2. Adjust the height of the edge of the audio track on the audio control erase head, using the height adjustment nut and the tilt adjustment screw, so that the tape transport is smooth at the take-up tape guide. Align the audio control erase head height. (Refer to fig. 5.2.11). Do not turn the tilt adjustment screw more than 90° .



3. The fine adjustment is not required at this time. The following conditions are sufficient:
 - a) Proper tape transport between the audio control erase head and the take-up side tape guide.
 - b) Stable SERVO system operation (proper pickup of the tape's recorded control signal).

5.2.5 PINCH ROLLER POSITION CHECKING

1. Set the VCR to the REC PAUSE mode.
2. Measure the clearance between the capstan and the pinch roller. It should be from 0.5 mm to 1.5 mm.



3. If the clearance is out of tolerance, replace the appropriate parts (Pinch Roller F Assy, Cam Actuator, etc.).

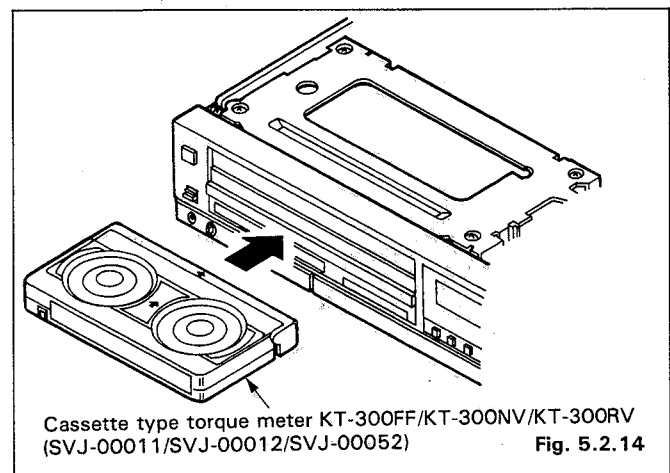
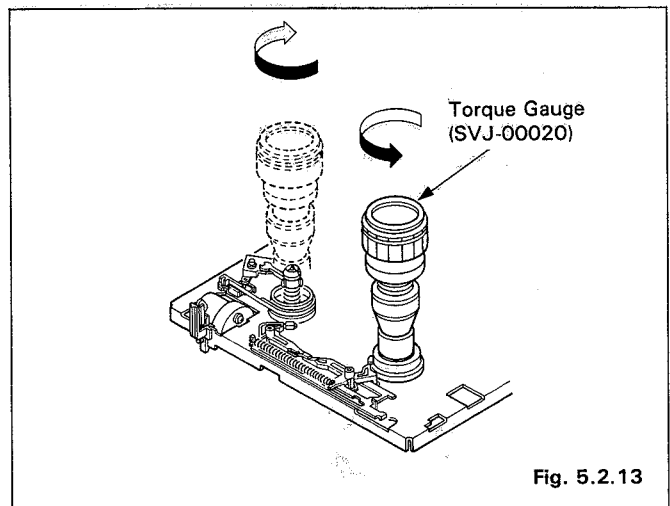
5.2.6 TORQUE VALUE CHECKING

Measuring Mode	Torque	Measuring reel	Torque Value	Measuring Equipment
PLAYBACK	Back Tension	Supply	45 gr-cm to 55 gr-cm *1	KT-300NV
	Take-up Torque	Take-up	100 gr-cm to 200 gr-cm	KT-300NV
REVIEW	Rewind Torque	Supply	150 gr-cm to 220 gr-cm	KT-300RV
	Back Tension	Take-up	40 gr-cm to 65 gr-cm	KT-300RV
FAST FORWARD *3	Back Tension	Supply	15 gr-cm to 30 gr-cm	Torque Gauge
	Take-up Torque	Take-up	800 gr-cm or more	KT-300FF
REWIND *3	Rewind Torque	Supply	800 gr-cm or more	KT-300FF
	Back Tension	Take-up	15 gr-cm to 30 gr-cm	Torque Gauge
STOP	Brake Torque	Supply	150 gr-cm or more *2	Torque Gauge
	Brake Torque	Take-up	150 gr-cm or more *2	Torque Gauge

*1 The adjustment value at Section 5.2.5.

*2 Check this value before the reel starts to rotate.

*3 Cover the tape end sensor on the supply reel side with black insulating tape etc., so that the mechanism will operate without inserting a cassette.



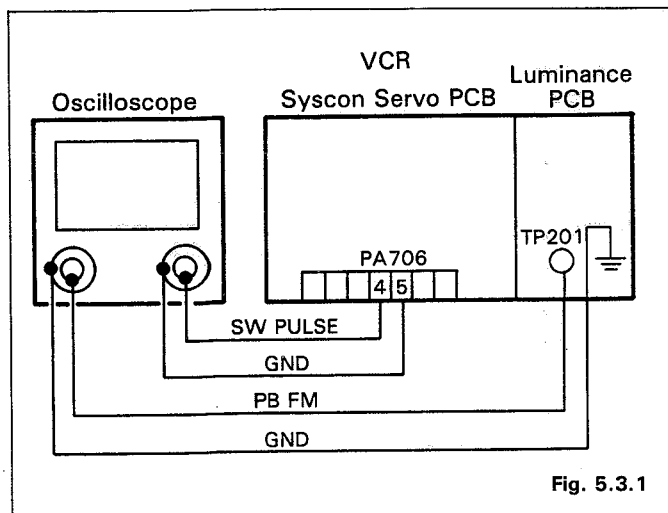
If the torque value checked is out of tolerance, replace the appropriate parts as follows:

Check Items	Replace Parts
PLAY BACK Back Tension	Refer to Section 5.2.5
PLAY BACK Take-up Torque	Idler, Complete or Belt Drive or Clutch, Complete
REVIEW Rewind Torque	Idler, Complete or Belt Drive or Clutch, Complete
REVIEW Back Tension	Sub Brake Take-up
FAST FORWARD Back Tension	Band Brake
FAST FORWARD Take-up Torque	Idler, Complete or Belt Drive
REWIND Rewind Torque	Idler, Complete or Belt Drive
REWIND Back Tension	Sub Brake Take-up
Brake Torque Supply	Main Brake Supply
Brake Torque Take-up	Main Brake Take-up

5.3 ENVELOPE ADJUSTMENT

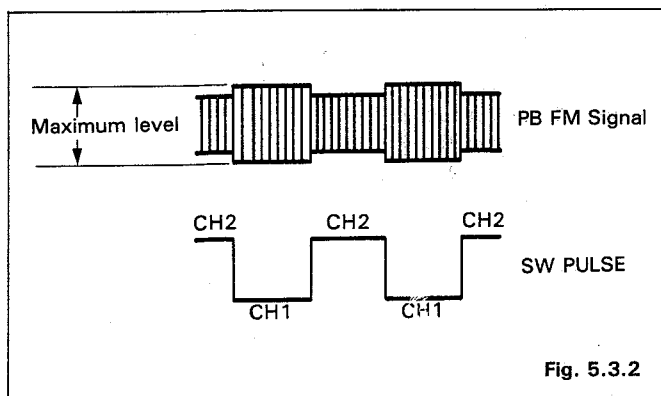
1. This adjustment should be made after making the tape transport adjustments.
2. When exchanging a circuit board, or parts on a circuit board, perform Section 3 (ELECTRICAL ADJUSTMENT).

5.3.1 ENVELOPE WAVEFORM SHAPING

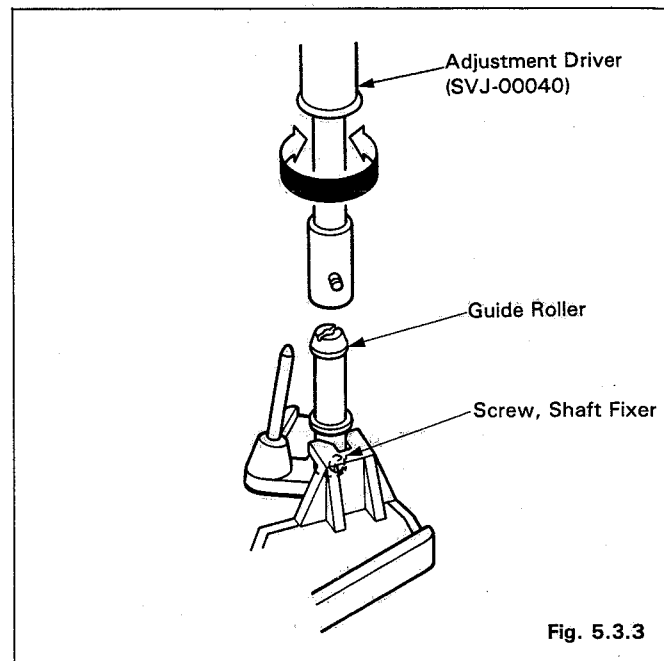


Measuring Point	Measuring Equipment	ADJ. Condition
TP201 (PB FM) (on Luminance PCB) Pin 4 of PA706 (SW PULSE) Pin 5 of PA706 (GND)	Oscilloscope	PLAY mode Test tape (VPM-6)
ADJ. Location		ADJ. Value
Guide Rollers Tape Guides		Maximum level and correct waveform (PB FM Signal)

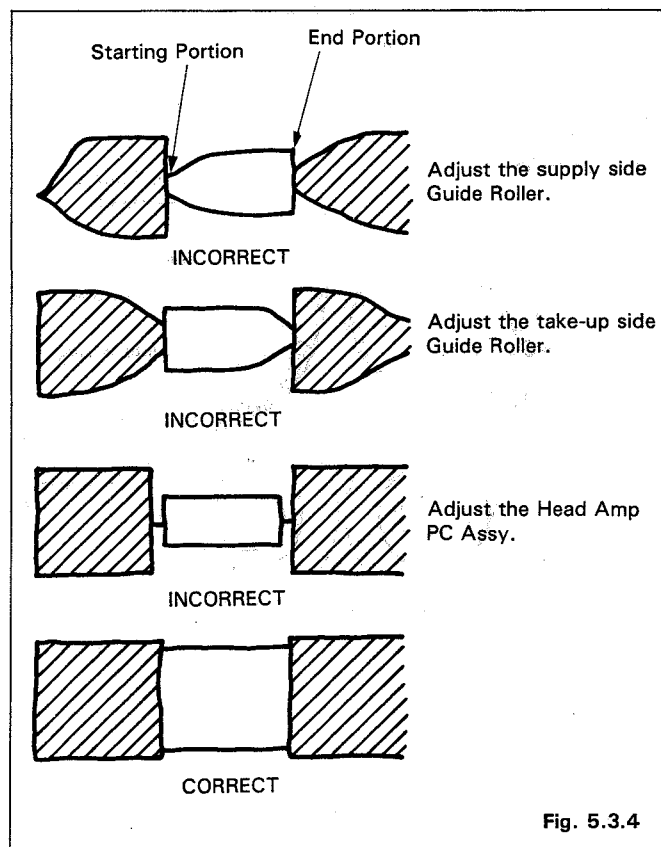
1. Rotate VR181 (NORMAL TRACKING) behind the door on the front panel, and check with the oscilloscope that the PB FM Signal is brought to its maximum level. Then set VR181 (NORMAL TRACKING) behind the door on the front panel to its centre (detent) position and confirm that a nearly maximum level is obtained.



2. The envelope adjustment can be performed by adjusting the height of both the supply side and the take-up side guide rollers.
3. The starting portion of the waveform can be adjusted by adjusting the supply side guide roller height. (Refer to Fig. 5.3.3)



4. Adjust the supply side guide roller height so that a flat continuous large waveform is obtained as shown in Fig. 5.3.4



5. Adjust the end portion of the waveform by adjusting the take-up side guide roller height, so that the waveform as shown in Fig. 5.3.3 is obtained.
6. After adjustment, rotate VR181 (NORMAL TRACKING) behind the door on the front panel to the left and right, and check that the waveform changes symmetrically.
7. Check the tape curl, referring to Section 5.2.3 (TAPE RUNNING POSITION ADJUSTMENT).

Note:

After the adjustment of Section 5.3.1 ENVELOPE WAVEFORM SHAPING, check the items described in the following table. If necessary, readjust them.

1	CH1 PHASE/CH2 PHASE	Refer to Section 3.2.4 (2)
2	ACE HEAD HEIGHT/ ACE HEAD TILT	Refer to Section 3.4.4 (1)
2	AZIMUTH	Refer to Section 3.4.4 (2)
4	X VALUE	Refer to Section 3.2.4 (4)

5.4 TAPE TRANSPORT ADJUSTMENT

It is very important for a VCR that the tape runs without creasing or curling, from the tape outlet of the video cassette to the tape inlet of the cassette.

The tape transport adjustment must be performed when the parts shown in Fig. 5.4 are removed and refitted. When adjustment is required, perform it in accordance with the sequence given in the chart below:

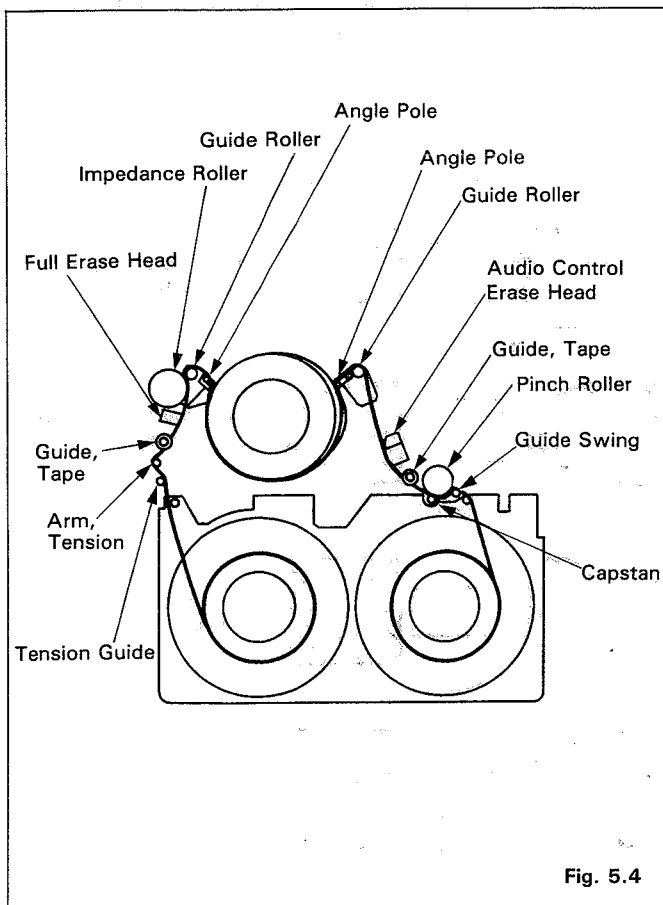
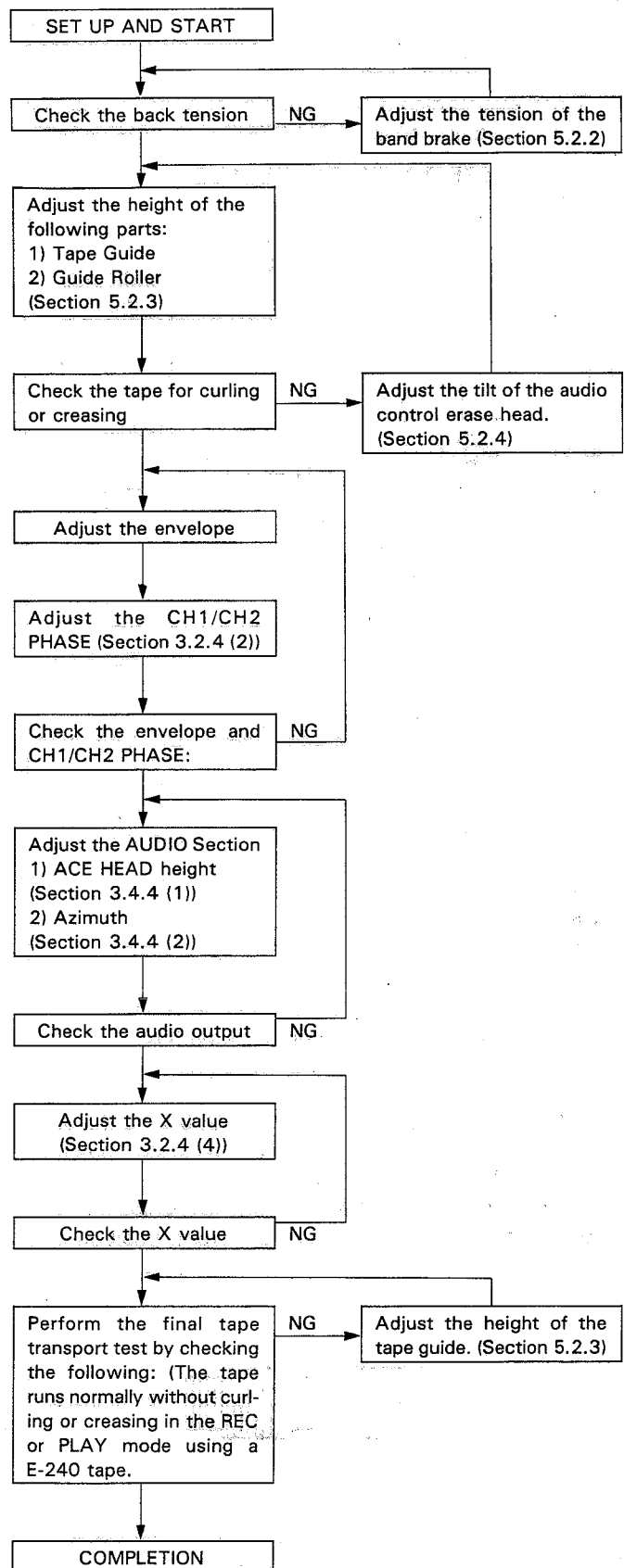


Fig. 5.4



6. MAINTENANCE

6.1 MAINTENANCE PARTS AND PERIODS

In order to keep the VCR in peak working order, maintain the parts indicated in Table 6.1 at the periods given.

Parts \ Hours	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
CYLINDER	○	○	○	○	○	○	○	○	○	○
AUDIO CONTROL ERASE HEAD	○	○	○	○	○	○	○	○	○	○
FULL ERASE HEAD	○	○	○	○	○	○	○	○	○	○
CAPSTAN	○	○	○	○	○	○	○	○	○	○
IDLER COMPLETE	○	○	○	●	○	○	○	●	○	○
PINCH ROLLER	○	○	○	○	○	●	○	○	○	○
BELT, DRIVE	○	○	○	●	○	○	○	●	○	○
PAD, MAIN BRAKE				●				●		
CLUTCH COMPLETE (FRICTION ASSY)				●				●		
ONE-WAY ASSY				●				●		
REEL, TAKE-UP				○				○		
REEL, SUPPLY				○				○		

Table 6.1

○: Cleaning . . . Freon (fluorine-based organic solvent) Absolute methyl alcohol

●: Replacement

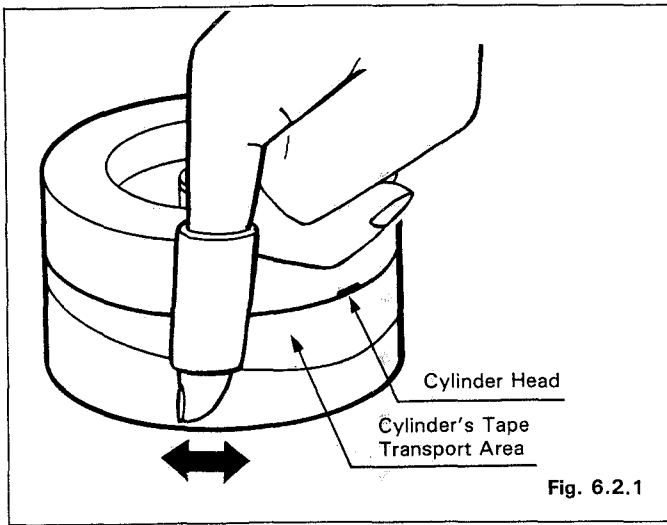
Above replacement times will vary greatly according to environmental and usage conditions. Routine inspection and maintenance are also important factors that influence the unit life. Note that rubber parts may become aged or deformed after long periods of storage, even if the unit is not used.

Note: Even if the unit is not used frequently, cleaning and replacement of the rubber parts should be undertaken every 2 years.

6.2 CLEANING

6.2.1 CYLINDER

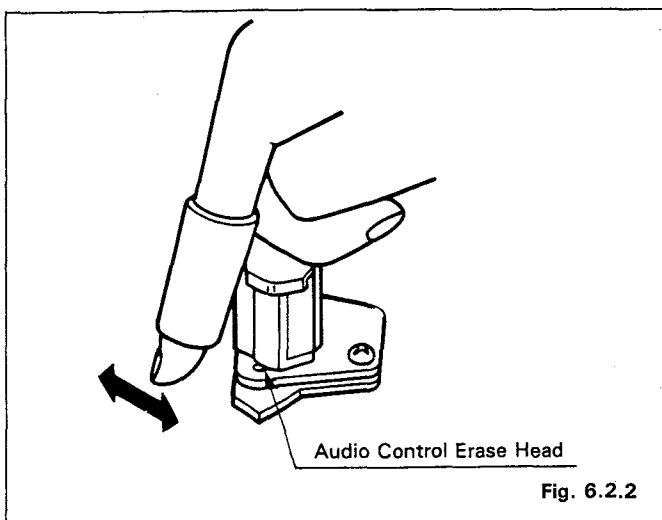
Wrap a piece of chamois around your finger. Dip it in head-cleaning fluid and clean the cylinder head. Move the chamois horizontally several times (in the direction of the arrow). Another cylinder head is located 180° away on the opposite side. Clean it the same way. In the same manner clean the tape transport area of the cylinder. (Refer to Fig. 6.2.1)



Note: Do not push forcefully against the cylinder head. Do not move the chamois up or down since this may damage the head. Always use a piece of chamois for cleaning.

6.2.2 AUDIO CONTROL ERASE HEAD

Wrap a piece of chamois around your finger. Dip it in head-cleaning fluid and clean the audio control erase head, wiping it horizontally. Clean the FULL ERASE HEAD, the CAPSTAN MOTOR and the PINCH ROLLER in the same manner. (Refer to Fig. 6.2.2)



6.3 LUBRICATION

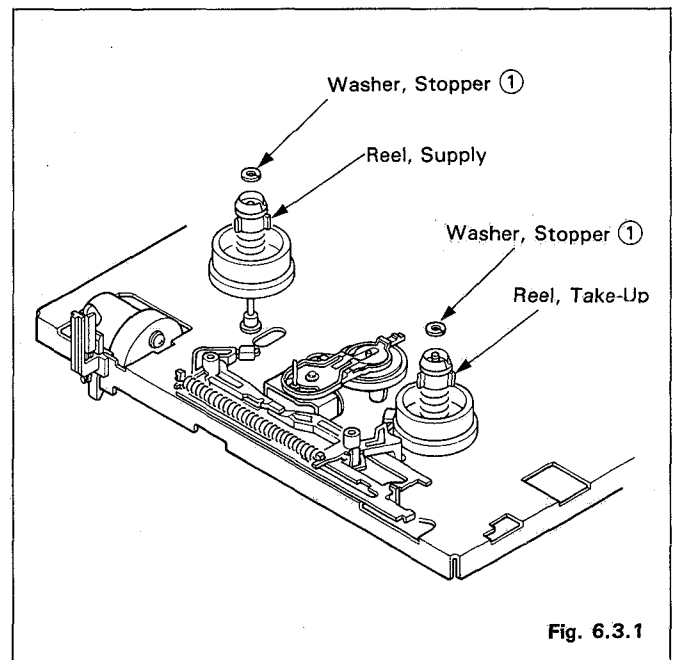
6.3.1 LUBRICATING PARTS

The following parts should be lubricated with oil (Turbionol No. 64 or equivalent) every 2000 hours.

- (1) Supply reel
- (2) Take-up reel

6.3.2 LUBRICATING PROCEDURE

1. Detach both of the reel stopper washers. (Refer to Fig. 6.3.1 ①)
2. Remove the supply and take-up reels.
3. Apply oil to the top at the axes.
4. Replace the supply reel and take-up reel, then replace the reel stopper washers.



MEMO

[illegible]

MEMO

[illegible]

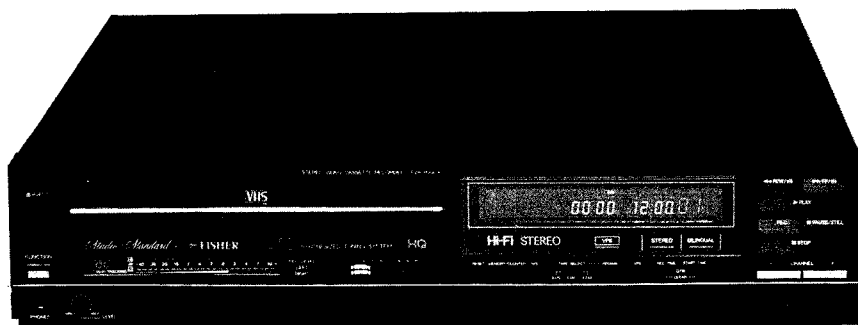
PARTS LIST & SCHEMATIC DIAGRAMS



FISHER®

FVH-P990K FVH-P990KV (EUROPE)

VIDEO CASSETTE RECORDER



TECHNICAL SPECIFICATIONS

General Specifications

Television system	PAL standard colour (system B & G) & CCIR monochrome signals 625 lines
Recording system	Rotary helical scan system with 2 video heads and two additional heads for FM azimuth recording (VHS Hi-Fi stereo sound) one stationary head for normal track monaural sound
Format	VHS PAL standard
Tape width	12.7 mm
Tape speed	23.39 mm/sec.
Recording time	240 minutes with E-240 cassette
Tape loading system	Automatic loading
Tuner	Voltage Synthesizer tuner with sequential channel selection. Direct channel selection with remote control 40 program memories
Tuner channels	VHF: #2—#12, S1—S23 UHF: #21—#69
RF converter output	UHF channel 36 (30—39 adjustable)
Time indication	24-hour display system
Timer	14-day / 7 programs
Tape counter	Separate 4-digit electronic display
Auto rewind system	Activated at the end of the tape (FUNCTION ON only)
Terminals	
Aerial input	DIN (socket)
RF output	DIN (plug)
Video input/output	SCART connector
Audio input/output	SCART connector RCA connector
Camera remote pause	2.5 mm ϕ jack
Headphone	3.5 mm ϕ jack

Electrical Specifications

Video output	1 Volt (pp) / 75 Ω
Video input	0.5—2.0 Volt (pp) / 75 Ω
Audio output	400 mV (—8 dBV), 600 Ω
Audio input	400 mV (—8 dBV), 50k Ω
Video S/N ratio	More than 45 dB
Audio frequency response	50—10,000 Hz (normal sound)
Audio frequency response	20—20,000 Hz (VHS Hi-Fi)
Audio S/N ratio	More than 40 dB (normal sound)
Audio dynamic range	More than 90 dB (VHS Hi-Fi)
Wow and flutter	0.005% WRMS (VHS Hi-Fi)
THD	0.5% (VHS Hi-Fi)
Channel separation	More than 60 dB (VHS Hi-Fi)
Other Specifications	
Power requirement	220 VAC, 50 Hz
Power consumption	40 Watts (FVH-P990K) 42 Watts (FVH-P990KV)
Dimensions (W×H×D)	440mm × 95mm × 395mm
Weight (approximate)	8.8Kg

FISHER reserves the right to modify product designs and specifications without notice and without incurring any obligation.

REFERENCE NO. WM-17506

PARTS LIST

PRODUCT SAFETY NOTICE

The components designated by a symbol (Δ) in this schematic diagram designates components whose value are of special significance to product safety. Should any component designated by a symbol need to be replaced, use only the part designated in the Parts List.

Do not deviate from the resistance, wattage and voltage ratings shown.

ACCESSORIES

Ref No.	Part No.	Description
or	143-6-2704-47900	FAN BAG ASSY(ACC)(Plastic Bag)
	4-1924-01350	WIRELESS REMOTE CONTROL RVR-990B
	143-6-2714-00700	ENVELOPE-HAC
	4-2394-00030	CONNECTOR CABLE DIN
	4-2394-00035	CONNECTOR CABLE DIN
	143-6-2704-48000	FAN BAG ASSY(MANUAL)(Plastic Bag)
	143-6-2714-00200	ENVELOPE
	143-6-4114-30300	INSTRUCTION MANUAL
	143-6-4724-03900	POWER CAUTION SHEET
	143-6-4724-04000	ZZF INFORMATION SHEET
	143-6-4724-02700	CAUTION SHEET-SE

PACKING MATERIALS

Ref No.	Part No.	Description
	143-6-1424-02201	IND. CORR CARTON-EWP990K
	143-6-1424-02208	IND. CORR CARTON-EWP990KV
	143-6-2514-00300	IND. POLY COVER-HAA
	143-6-3114-04100	TOP. INNER CUSHION-HAQ
	143-6-3114-04200	BOT. INNER CUSHION-HAQ

NOTE: Parts order must contain Model Number, Part Number and Description.

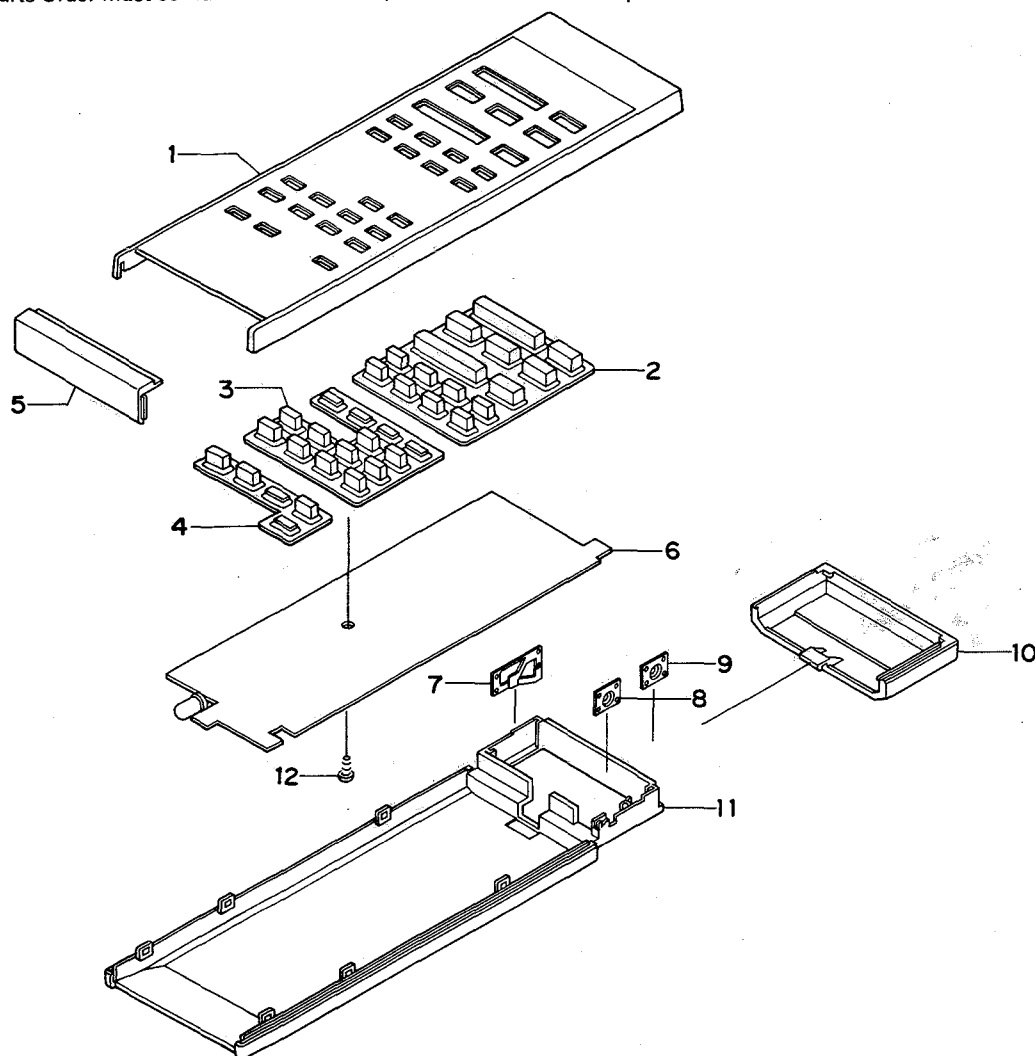
WIRELESS REMOTE CONTROL UNIT RVR-990B

Ref No.	Part No.	Description
	4-1924-01350	Wireless Remote Control RVR-990B
1	143-0-9964-10301	Case, Upper Assy-RC
2	143-0-9964-10302	15 Button-RC
3	143-0-9964-07903	10 Button-RC
4	143-0-9964-10303	3 Button-RC
5	143-0-9964-07904	Filter-RC
6	143-0-9964-10304	PC Assy-RC
7	143-0-9964-07906	Battery, Holder A-RC
8	143-0-9964-07907	Battery, Holder B-RC
9	143-0-9964-07908	Battery, Holder C-RC
10	143-0-9964-07909	Battery, Lid-RC
11	143-0-9964-07910	Case, Lower-RC
12	116-3-1303-00511	Screw, Pan Hd Tapping B-Tite +M3X5

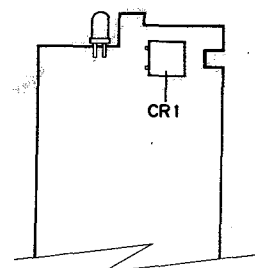
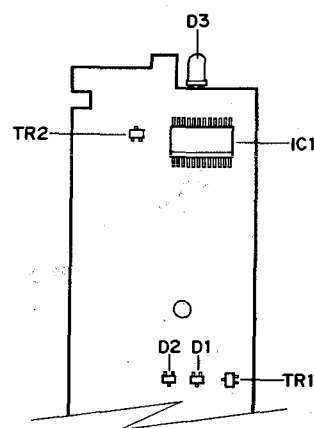
ELECTRICAL PARTS

Ref No.	Part No.	Description
		(CAPACITORS)
C1	COJLEM107A	ELECT 100 μ F 6.3V
C2	C1HYDK101B	CERAM 100pF 50V
C3	C1HYDK101B	CERAM 100pF 50V

Parts Order must contain Model Number, Part Number and Description.



Ref No.	Part No.	Description
		(DIODES)
D1	143-0-9964-07108	DCB015-RC
or	143-0-9964-07108	DAN202K-RC
or	143-0-9964-07108	1SS184-RC
D2	143-0-9964-07108	DCB015-RC
or	143-0-9964-07108	DAN202K-RC
or	143-0-9964-07108	1SS184-RC
D3	143-0-9964-07109	LED LD271E-RC
or	143-0-9964-07109	LED SLR932A-RC
CR1	143-0-9964-00320	RESONATOR 455kHz-RC
		(IC)
IC1	143-0-9964-10305	μ PD6102G-RC
		(TRANSISTORS)
TR1	143-0-9964-07110	TR 2SC2812-RC
or	143-0-9964-07110	TR 2SC2412K-RC
or	143-0-9964-07110	TR 2SC2712-RC
TR2	143-0-9964-07111	TR 2SD1048-RC
or	143-0-9964-07111	TR 2SC3426-RC
or	143-0-9964-07111	TR 2SD1781K-RC

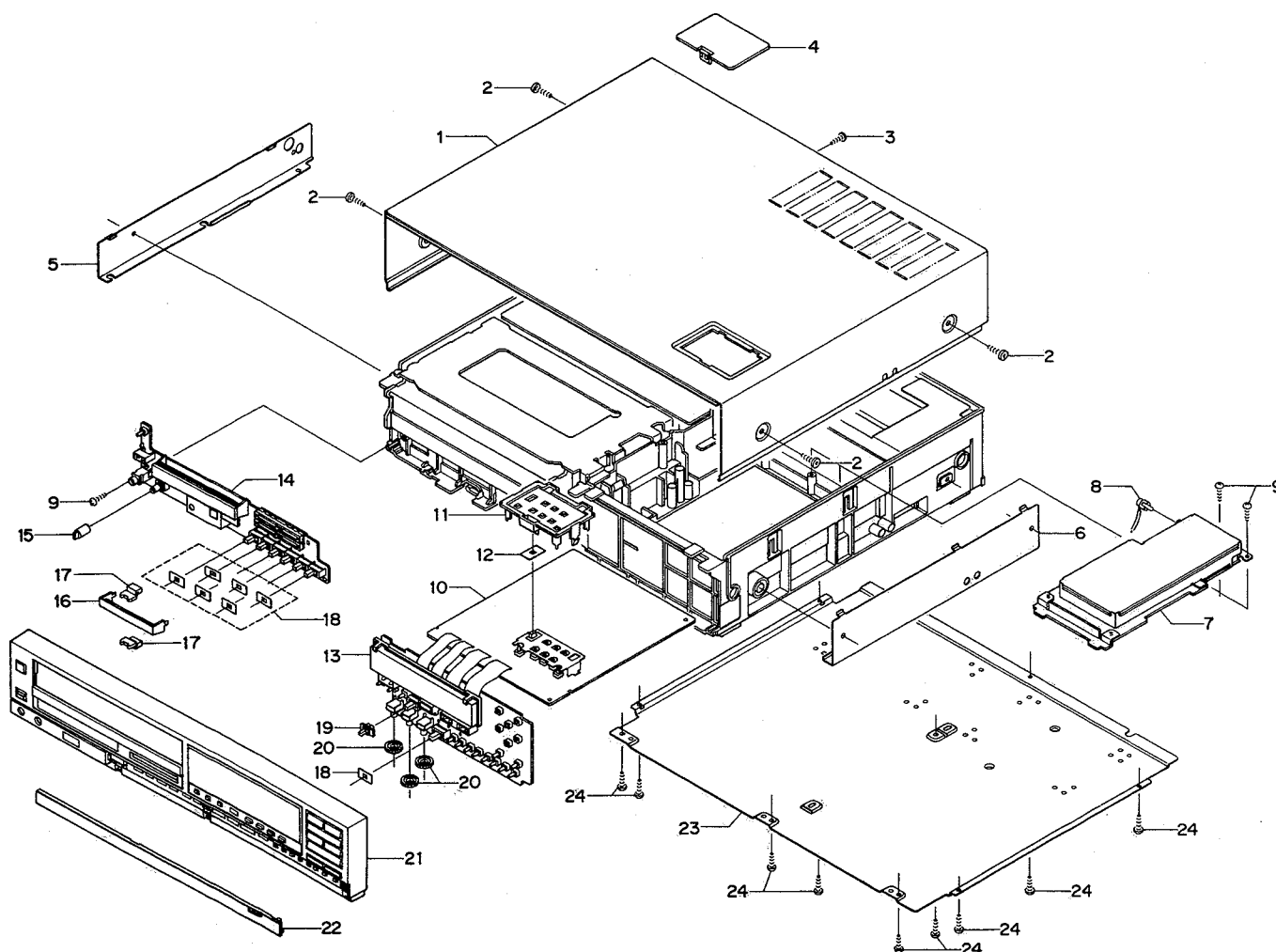


CABINET PARTS (1)

Ref No.	Part No.	Description
1	143-0-1254-00501	Top Cover Assy-HAQ-B
2	116-3-1704-01218	Screw, Bind Hd Tapping B-Tite 4X12
3	116-3-1703-00618	Screw, Bind Hd Tapping B-Tite +M3X6
4	143-2-1454-02300	Door, Preset-HAR
5	143-2-3504-15300	Shield, Bottom Side-Left-HAQ
6	143-2-3504-15400	Shield, Bottom Side-Right-HAQ
7	4-1154-16635	Tuner IF Decoder Assy
8	0-4034-00110	Wire Shield Assy
9	103-3-1903-01019	Screw, Brazier Hd Tapping +M3X10
10	0-4014-04840	Timer,Voltage Synthesizer PC Assy
11	143-0-1204-00605	Case Preset Assy-HAR-G
12	143-2-3704-00900	Switch, Insulator Cover-HAJ
13	0-4014-04830	Front Right PC Assy

Ref No.	Part No.	Description
14	0-4014-04820	Front Left PC Assy
15	143-2-1704-24000	Knob, Phone Level-HAQ
16	143-2-3704-01000	Blind, Level VR-HAQ
17	143-2-1704-24100	Knob, REC Level-HAQ
18	143-2-3704-00800	Blind, Sheet-HAP
19	143-2-1704-24200	Knob, Slide Switch-HAQ
20	143-2-1704-24300	Knob, Tracking-HAQ
21	143-0-1104-02001	Cabinet Front Assy-HAQ-B (FVH-P990K)
	143-0-1104-02008	Cabinet Front Assy-HAQ-L (FVH-P990KV)
22	143-0-1454-01201	Door Front Assy-HAQ-B
23	143-2-1354-00900	Bottom, Cover-HAQ
24	116-3-1903-01218	Screw, Brazier Hd Tapping B-Tite 3X12

NOTE: Parts order must contain Model Number, Part Number and Description.

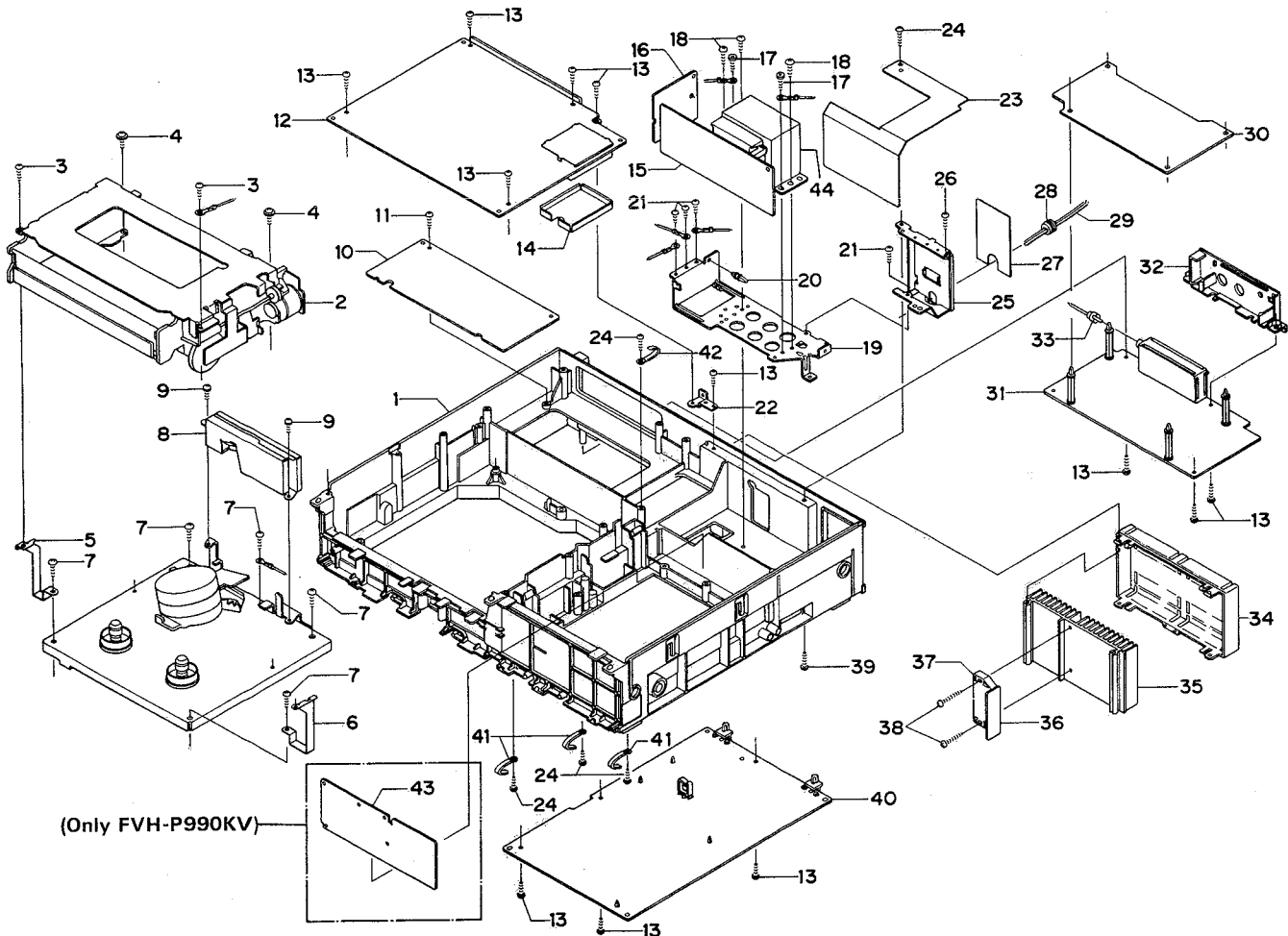


CABINET PARTS (2)

Ref No.	Part No.	Description
1	143-0-1304-01201	Cabinet Bottom Assy-HAQ-B (FVH-P990K)
	143-0-1304-01207	Cabinet Bottom Assy-HAQ-H (FVH-P990KV)
2	143-0-7304-09001	Stage, Complete-G
3	103-3-1703-01211	Screw, Bind Hd Tapping 3X12
4	143-2-5804-04800	Flange, Screw 3X4.6
5	143-2-6204-11400	Ground, Stage Left-HAQ
6	143-2-6204-11500	Ground, Stage Right-HAQ
7	103-3-1804-01211	Screw, Tras Hd Tapping +M4X12
8	0-4014-04950	Head Amp PC Assy
9	143-2-5804-03600	Screw, Pan Hd Machine Combination Spring Washer & Small Round Washer M3X6
10	0-4014-05590	Audio Normal PC Assy
11	103-3-1903-01019	Screw, Brazier Hd Tapping +M3X10
12	0-4014-05580	Audio FM PC Assy
13	103-3-1903-01219	Screw, Brazier Hd Tapping 3X12
14	143-2-3504-15500	Shield, Top AFM-HAQ
15	0-4014-05160	Power A, PC Assy
16	0-4014-05170	Power B, PC Assy
17	116-3-1704-00811	Screw, Bind Hd Tapping B-Tite +M4X8
18	103-3-1904-01211	Screw, Brazier Hd Tapping +M4X12
19	143-2-3404-15200	Bracket, Power Unit-HAQ
20	143-2-3404-14700	Holder, P.C.B.-HAQ-H5

Ref No.	Part No.	Description
21	103-3-1903-00811	Screw, Brazier Hd Tapping +M3X8
22	143-2-3404-15400	Bracket, Top Cover-HAQ-B
23	143-2-3604-02500	Insulator, Plate-HAQ
24	103-3-1903-01011	Screw, Brazier Hd Tapping +M3X10
25	143-2-3404-16400	Bracket, Power Terminal-HAQ-B
26	103-3-1903-01211	Screw, Brazier Hd Tapping +M3X12
27	143-2-1954-09200	Indicator, Sheet Power-HAQ-P
28	143-2-6104-03800	HEYCO, Bush-SR-4N-4
29	0-4054-00160	Power Cord Assy (EUR)
or	0-4054-00161	Power Cord Assy (EUR)
30	0-4014-04930	Chrominance PC Assy
31	0-4014-04920	Luminance PC Assy
32	143-2-1304-02100	Rear, Terminal Board-HAQ-B
33	0-4034-00110	Wire Shield Assy
34	143-2-1354-01000	Radiator, Cover-HAQ
35	143-2-7904-03000	Radiator-HAQ
36	0-4014-05180	Power C, PC Assy
37	IGSTK5461ST	H/B, IC STK5461ST
38	103-3-1903-51611	Screw, Brazier Hd Tapping +M3.5X16
39	116-3-1903-01218	Screw, Brazier Hd Tapping B-Tite 3X12
40	0-4014-04990	Syscon Servo PC Assy
41	143-2-5854-02500	Wire, Clamp-HBC
42	143-2-5854-00400	Wire, Clamp
43	0-4014-05610	VPS Decoder PC Assy (only FVH-P990KV)
44	4-2514-01402	Power, Transformer

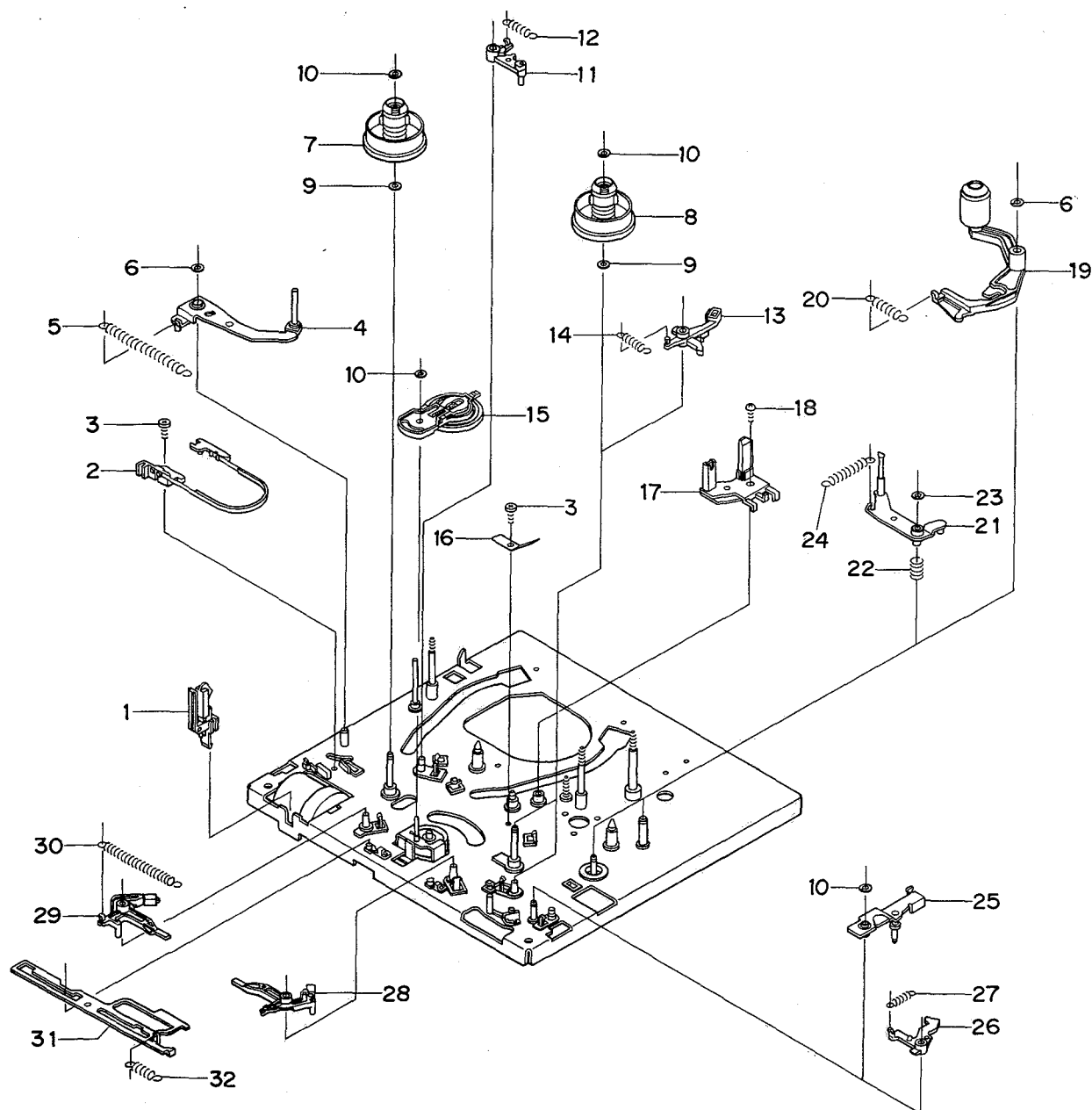
NOTE: Parts order must contain Model Number, Part Number and Description.



CHASSIS PARTS (3)

Ref No.	Part No.	Description	Ref No.	Part No.	Description
1	4-2314-00780	Leaf Switch	17	0-4014-03690	APS Head PC Assy
2	143-2-5204-03000	Band, Brake	18	119-3-1302-60611	Screw, Pan Hd Tapping Del-Tite +M2.6X6
3	101-3-1702-60411	Screw, Bind Hd Machine +M2.6X4	19	143-0-4604-00800	Pinch Roller Final Assy
4	143-0-5104-05200	Arm Tension Assy	20	143-2-6604-06500	Spring, Pinch Roller
5	143-2-6604-06900	Spring, Arm Tension	21	143-0-5104-05100	Guide Swing Assy
6	143-2-6304-03900	Washer, Stopper 6X3.5X0.25	22	143-2-6704-04800	Spring, Arm Guide Compression
7	143-0-4104-01200	Reel Supply Assy	23	143-2-6304-03500	Washer, Stopper 4.7X2.6X0.5
8	143-0-4104-01300	Reel Take-Up Assy	24	143-2-6604-06800	Spring, Arm Guide Extension
9	143-2-6304-02900	Washer, 6X3.1X0.3	25	143-0-5104-04800	Actuator Plate Assy
or	143-2-6304-03000	Washer, 6X3.1X0.4	26	143-2-5204-02700	Actuator Sub Brake Take-Up
or	143-2-6304-03100	Washer, 6X3.1X0.5	27	143-2-6604-06200	Spring, Actuator Brake
10	143-2-6304-01800	Washer, Stopper 2.5X6X0.25	28	143-0-5204-01800	Main Brake Take-Up Assy
11	143-2-5204-02500	Sub Brake Supply	29	143-0-5204-01700	Main Brake Supply Assy
12	143-2-6604-06100	Spring, Sub Brake Supply	30	143-2-6604-06300	Spring, Main Brake
13	143-0-5204-01600	Sub Brake Take-Up Assy	31	143-2-5104-09900	Plate, Main Brake
14	143-2-6604-08100	Spring, Sub Brake Take-Up	32	143-2-6604-06400	Spring, Plate Main Brake
15	143-0-4204-00700	Idler, Complete			
16	143-2-6904-03200	Spring, Plate Earth			

NOTE: Parts order must contain Model Number, Part Number and Description.

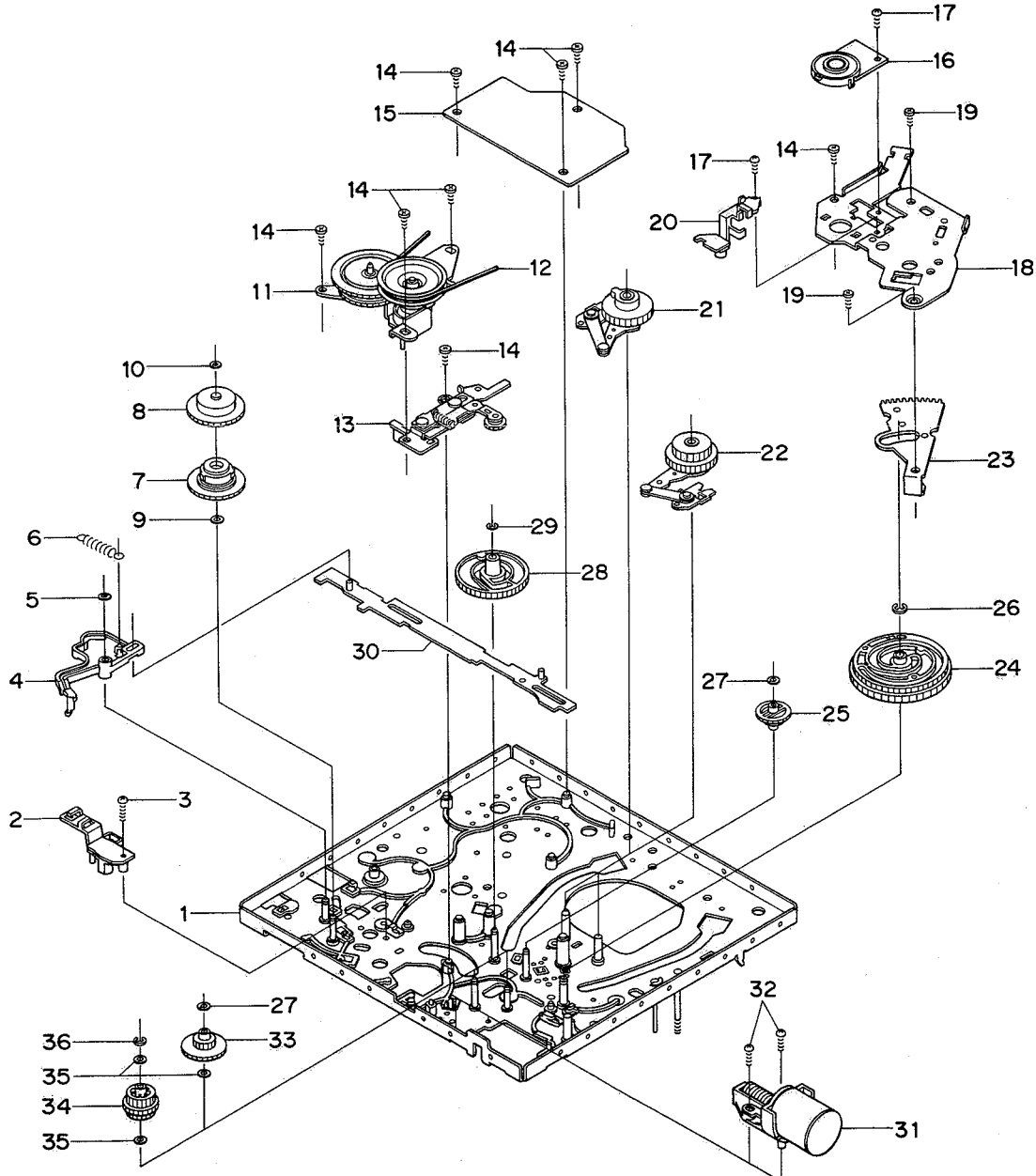


CHASSIS PARTS (4)

Ref No.	Part No.	Description
1	143-0-3104-00600	Chassis-Assy
2	0-4014-03700	Take-Up Reel PC Assy
3	101-3-1302-61011	Screw, Pan Hd Machine +M2.6×10
4	143-2-7804-00800	Cam, Actuator
5	143-2-6304-03500	Washer, Stopper 4.7×2.6×0.5
6	143-2-6304-06600	Spring, Actuator Plate
7	143-0-4904-01900	One Way Assy
8	143-2-4904-02800	Gear, Sub One Way
9	143-2-6304-00500	Washer, 4.7×2.6×0.25
10	143-2-6304-03800	Washer, Stopper 5×2.1×0.5
11	143-0-5104-04200	Clutch Complete
12	143-2-7504-00900	Belt, Drive
or	143-2-7504-01300	Belt, Drive
13	143-0-5104-04300	Brake Trigger Final Assy
14	119-3-1702-60511	Screw, Bind Hd Tapping Del-Tite +M2.6×5
15	0-4014-04360	Mecha Control PC Assy
16	4-2314-00700	Mode Select Switch
17	101-3-1302-60411	Screw, Pan Hd Machine +M2.6×4

Ref No.	Part No.	Description
18	143-2-3404-13700	Bracket, Mode Switch
19	101-3-1702-00411	Screw, Bind Hd Machine +M2×4
20	0-4014-03740	Supply Reel PC Assy
21	143-0-5104-03900	Link, Load Take-Up Complete
22	143-0-5104-03700	Link, Load Supply Complete
23	143-0-4904-02100	Gear Sector Assy
24	143-2-7804-00600	Cam, Master
25	143-2-4904-03200	Gear Pinion
26	112-3-1303-00012	E-Ring, M3.0
27	143-2-6304-01800	Washer, Stopper 2.5×6×0.25
28	143-2-7804-00700	Gear, Mode
29	112-3-1302-00012	E-Ring, M2.0
30	143-0-5104-04600	Main Plate Assy
31	143-0-3404-03200	Load, Motor Complete
32	101-3-1302-60811	Screw, Pan Hd Machine +M2.6×8
33	143-2-4904-03100	Gear, Idler
34	143-2-4904-03000	Worm, Wheel
35	143-2-6304-00700	Washer, 3.2×6×0.25
36	112-3-1302-50012	E-Ring, M2.5

NOTE: Parts order must contain Model Number, Part Number and Description.



NOTE:

Capacitor and Resistor Materials are abbreviated as follows:

ALSIC Alsicon Capacitor
 CERAM Ceramic Capacitor
 ELECT Electrolytic Capacitor
 FUSE Fuse Resistor
 METAL Metal Oxide Metal Film
 MYLAR Mylar Film Capacitor
 M-FIL Metal Film Capacitor
 PMCON Polyester Polypropylene Capacitor
 SEMI Semiconductor Capacitor
 TANTA Tantalum Electrolytic Capacitor

Capacitor and Resistor Tolerances are noted as follows:

C $\pm 0.25\text{pF}$
 D $\pm 0.5\text{pF}$
 F $\pm 1\%$
 J $\pm 5\%$
 K $\pm 10\%$
 M $\pm 20\%$
 Z $+80\% - 20\%$

LUMINANCE CIRCUIT P.C.B PARTS

Schematic Location	Parts No.	Description
	0-4014-04920	LUMINANCE PC ASSY
	0-4030-00450	1P CORD ASSY D
	4-2374-00070	1P TERMINAL-D
	4-1164-12230	RF CONVERTER
		(CAPACITORS)
C2101	C1EBDK333SR	SEMI 0.033 μF 25V K
C2102	C1HCDJ331SL	CERAM 330pF 50V J
C2103	C1HCDJ331SL	CERAM 330pF 50V J
C2104	C1EBDK473SR	SEMI 0.047 μF 25V K
C2105	C1EBDK473SR	SEMI 0.047 μF 25V K
C2106	C1EBDK223SR	SEMI 0.022 μF 25V K
C2107	C1HCDD100CH	CERAM 10pF 50V D
C2109	C1EBDK223SR	SEMI 0.022 μF 25V K
C2110	C1EBDK223SR	SEMI 0.022 μF 25V K
C2111	C1HCDJ150CH	CERAM 15pF 50V J
C2112	C1EBDK223SR	SEMI 0.022 μF 25V K
C2113	C1EBDK473SR	SEMI 0.047 μF 25V K
C2114	C1CLEM476A	ELECT 47 μF 16V M
C2115	C1HLEM225A	ELECT 2.2 μF 50V M
C2116	C1ALEM336A	ELECT 33 μF 10V M
C2117	C1CLEM106A	ELECT 10 μF 16V M
C2118	C1HLEM105A	ELECT 1 μF 50V M
C2120	C1HCDJ220CH	CERAM 22pF 50V J
C2121	C1CLEM106A	ELECT 10 μF 16V M
C2122	C1HCDJ820SL	CERAM 82pF 50V J
C2123	C1HCDJ221SL	CERAM 220pF 50V J
C2124	COJLEM107A	ELECT 100 μF 6.3V M
C2125	C1HCDJ470SL	CERAM 47pF 50V J
C2126	COJLEM107A	ELECT 100 μF 6.3V M
C2127	C1HCDJ391SL	CERAM 390pF 50V J
C2128	C1HCDJ471SL	CERAM 470pF 50V J
C2129	COJLEM107A	ELECT 100 μF 6.3V M
C2130	C1HCDJ181SL	CERAM 180pF 50V J
C2131	COJLEM107A	ELECT 100 μF 6.3V M
C2132	C1HCDJ330SL	CERAM 33pF 50V J
C2133	C1HCDJ270SL	CERAM 27pF 50V J
C2134	C1HCDJ181SL	CERAM 180pF 50V J
C2136	C1EBDK223SR	SEMI 0.022 μF 25V K
C2137	C1HLEM104A	ELECT 0.1 μF 50V M

Schematic Location	Parts No.	Description
C2138	C1EBDK223SR	SEMI 0.022 μF 25V K
C2139	C1EBDK473SR	SEMI 0.047 μF 25V K
C2141	COJLEM107A	ELECT 100 μF 6.3V M
C2142	C1AAEM476A	ELECT 47 μF 10V M
C2143	COJLEM107A	ELECT 100 μF 6.3V M
C2144	C1EBDK182SR	SEMI 0.0018 μF 25V K
C2145	C1EBDK272SR	SEMI 0.0027 μF 25V K
C2146	C1HCDJ221SL	CERAM 220pF 50V J
C2147	C1HCDJ121SL	CERAM 120pF 50V J
C2148	C1HCDJ101SL	CERAM 100pF 50V J
C2149	C1HCDJ101SL	CERAM 100pF 50V J
C2151	C1EBDK223SR	SEMI 0.022 μF 25V K
C2152	COJLEM107A	ELECT 100 μF 6.3V M
C2153	C1EBDK104SR	SEMI 0.1 μF 25V K
C2154	C1HCDJ820SL	CERAM 82pF 50V J
C2155	C1EBDK473SR	SEMI 0.047 μF 25V K
C2156	COJLEM476A	ELECT 47 μF 6.3V M
C2157	C1EBDK223SR	SEMI 0.022 μF 25V K
C2158	C1HCDJ220SL	CERAM 22pF 50V J
C2159	C1HCDJ390SL	CERAM 39pF 50V J
C2160	C1EBDK473SR	SEMI 0.047 μF 25V K
C2161	C1EBDK473SR	SEMI 0.047 μF 25V K
C2163	C1CLEM106A	ELECT 10 μF 16V M
C2164	COJLEM107A	ELECT 100 μF 6.3V M
C2165	C1HLEM474A	ELECT 0.47 μF 50V M
C2166	COJLEM107A	ELECT 100 μF 6.3V M
C2167	COJLEM477A	ELECT 470 μF 6.3V M
C2168	C1EBDK473SR	SEMI 0.047 μF 25V K
C2169	C1ALEM476A	ELECT 47 μF 10V M
C2170	C1EBDK103SR	SEMI 0.01 μF 25V K
C2171	C1CLEM226A	ELECT 22 μF 16V M
C2172	C1CLEM226A	ELECT 22 μF 16V M
C2173	COJLEM108A	ELECT 1000 μF 6.3V M
C2174	C1EBDK473SR	SEMI 0.047 μF 25V K
C2175	C1CLEM227A	ELECT 220 μF 16V M
C2176	C1EBDK473SR	SEMI 0.047 μF 25V K
C2178	COJLEM108A	ELECT 1000 μF 6.3V M
C2179	C1HLEM225A	ELECT 2.2 μF 50V M
C2181	C1EBDK473SR	SEMI 0.047 μF 25V K
C2182	C1EBDK473SR	SEMI 0.047 μF 25V K
C2186	C1EBDK473SR	SEMI 0.047 μF 25V K

Schematic Location	Parts No.	Description	Schematic Location	Parts No.	Description
C2187	C1EBDK473SR	SEMI 0.047 μ F 25V K	L2204	4-2534-00700	3.5MHz L.P.F.
C2189	C1HCDJ180SL	CERAM 18pF 50V J	L2205	4-2534-00910	DELAY EQUALIZER
C2190	C1HCDD8R0SL	CERAM 8pF 50V D	L2206	4-2594-00170	4.43MHz TRAP COIL
C2191	C1EBDK223SR	SEMI 0.022 μ F 25V K	L2207	4-2534-00740	RF DELAY EQUALIZER
C2192	C1EBDK473SR	SEMI 0.047 μ F 25V K	L2301	4-2724-U101K	INDUCTOR 100 μ H
C2193	C1EBDK473SR	SEMI 0.047 μ F 25V K			(PLUGS)
C2194	C1EBDK473SR	SEMI 0.047 μ F 25V K	PA205	4-2364-00280	8P PLUG VERTICAL
C2301	C1CLEM106A	ELECT 10 μ F 16V M	PA213	4-2364-00220	2P PLUG VERTICAL
C2302	C1CLEM107A	ELECT 100 μ F 16V M			(TRANSISTORS)
C2303	COJLEM476A	ELECT 47 μ F 6.3V M	Q2101	TG2SC3000	TR 2SC3000(F)
C2304	C1ALEM476A	ELECT 47 μ F 10V M	Q2102	TG2SC3330	TR 2SC3330(S)
		(DIODES)	Q2103	TG2SC536SP	TR 2SC536SP(F)or(G)
D2101	DGGMA01-L	DIODE GMA01-L	Q2104	TG2SC3000	TR 2SC3000(F)
or	DY1SS133	DIODE 1SS133	Q2105	TG2SC536SP	TR 2SC536SP(F)or(G)
D2103	DGGMA01-L	DIODE GMA01-L	Q2106	TG2SA608SP	TR 2SA608SP(F)or(G)
or	DY1SS133	DIODE 1SS133	Q2108	TG2SK212	FET 2SK212
D2105	DGGMA01-L	DIODE GMA01-L	Q2109	TG2SC2999	TR 2SC2999(E)
or	DY1SS133	DIODE 1SS133	Q2110	TG2SC3400	DIGI TR 2SC3400
D2106	DGGMA01-L	DIODE GMA01-L	or	TYDTC124S	DIGI TR DTC124S
or	DY1SS133	DIODE 1SS133	Q2111	TG2SA608SP	TR 2SA608SP(F)or(G)
D2108	DGGMA01-L	DIODE GMA01-L	Q2112	TG2SA608SP	TR 2SA608SP(F)or(G)
or	DY1SS133	DIODE 1SS133	Q2113	TG2SC3330	TR 2SC3330(S)
D2109	DGGMA01-L	DIODE GMA01-L	Q2114	TG2SA608SP	TR 2SA608SP(F)or(G)
or	DY1SS133	DIODE 1SS133	Q2115	TG2SC3330	TR 2SC3330(S)or(T)
D2110	DGGMA01-L	DIODE GMA01-L	Q2116	TG2SA1317	TR 2SA1317(S)or(T)
or	DY1SS133	DIODE 1SS133	Q2117	TG2SC536SP	TR 2SC536SP(F)or(G)
D2111	DGGMA01-L	DIODE GMA01-L	Q2118	TG2SC536SP	TR 2SC536SP(F)or(G)
or	DY1SS133	DIODE 1SS133	Q2119	TG2SC3330	TR 2SC3330(S)
D2113	DMMA4062-M	ZENER DIODE MA4062-M	Q2121	TG2SC3330	TR 2SC3330(S)
D2115	DGGMA01-L	DIODE GMA01-L	Q2122	TG2SB560	TR 2SB560(F)
or	DY1SS133	DIODE 1SS133	or	TG2SB598	TR 2SB598(F)
D2120	DGGMA01-L	DIODE GMA01-L	Q2123	TG2SC3400	DIGI TR 2SC3400
or	DY1SS133	DIODE 1SS133	or	TYDTC124S	DIGI TR DTC124S
D2301	DGGMA01-L	DIODE GMA01-L	Q2124	TG2SD400	TR 2SD400(E)or(F)
or	DY1SS133	DIODE 1SS133	Q2125	TG2SB560	TR 2SB560(F)
DL211	4-2844-00251	DELAY LINE DOC 1H	or	TG2SB598	TR 2SB598(F)
		(ICS)	Q2126	TG2SC3400	DIGI TR 2SC3400
IC211	IPSV7302AP	H/B IC SV7302AP	or	TYDTC124S	DIGI TR DTC124S
IC212	IGLA7072	IC LA7072	Q2127	TG2SA1346	DIGI TR 2SA1346
IC213	ITTA7347P	IC TA7347P	or	TYDTA124S	DIGI TR DTA124S
		(COILS)	Q2128	TG2SC3400	DIGI TR 2SC3400
L2101	4-2724-U221K	INDUCTOR 220 μ H	or	TYDTC124S	DIGI TR DTC124S
L2102	4-2724-U330K	INDUCTOR 33 μ H	Q2129	TG2SC3400	DIGI TR 2SC3400
L2103	4-2724-U101K	INDUCTOR 100 μ H	or	TYDTC124S	DIGI TR DTC124S
L2104	4-2724-U220K	INDUCTOR 22 μ H	Q2131	TG2SC3400	DIGI TR 2SC3400
L2105	4-2724-U820K	INDUCTOR 82 μ H	or	TYDTC124S	DIGI TR DTC124S
L2106	4-2724-U220K	INDUCTOR 22 μ H	Q2132	TG2SC3068	SI TR 2SC3068
L2107	4-2724-U470K	INDUCTOR 47 μ H	Q2133	TG2SC3400	DIGI TR 2SC3400
L2108	4-2724-U120K	INDUCTOR 12 μ H	or	TYDTC124S	DIGI TR DTC124S
L2109	4-2724-U120K	INDUCTOR 12 μ H	Q2134	TG2SC3400	DIGI TR 2SC3400
L2111	4-2724-U101K	INDUCTOR 100 μ H	or	TYDTC124S	DIGI TR DTC124S
L2112	4-2724-U101K	INDUCTOR 100 μ H	Q2135	TG2SC3400	DIGI TR 2SC3400
L2113	4-2724-U150K	INDUCTOR 15 μ H	or	TYDTC124S	DIGI TR DTC124S
L2114	4-2724-U220K	INDUCTOR 22 μ H	Q2136	TG2SA1346	DIGI TR 2SA1346
L2116	4-2724-U680K	INDUCTOR 68 μ H	or	TYDTA124S	DIGI TR DTA124S
L2117	4-2724-U101K	INDUCTOR 100 μ H	Q2301	TG2SC2274	TR 2SC2274(F)
L2119	4-2724-U680K	INDUCTOR 68 μ H	Q2302	TG2SC3068	SI TR 2SC3068
L2120	4-2724-U331K	INDUCTOR 330 μ H	Q2303	TG2SC536SP	TR 2SC536SP(F)or(G)
L2121	4-2724-U180K	INDUCTOR 18 μ H	Q2304	TG2SC3400	DIGI TR 2SC3400
L2122	4-2724-U180K	INDUCTOR 18 μ H	or	TYDTC124S	DIGI TR DTC124S
L2124	4-2724-U390K	INDUCTOR 39 μ H			(RESISTORS)
L2201	4-2594-00220	5.6MHz PEAKING COIL	R2101	401 014 4006	CARBON 1.5k Ω 1/4W J
L2202	4-2534-00320	1.4MHz H.P.F.	R2102	401 012 6903	CARBON 10k Ω 1/4W J
L2203	4-2534-00910	DELAY EQUALIZER	R2103	401 020 1907	CARBON 4.7k Ω 1/4W J
			R2104	401 013 5202	CARBON 1.2k Ω 1/4W J

Schematic Location	Parts No.	Description
R2105	401 017 0708	CARBON 270Ω 1/4W J
R2106	401 019 0904	CARBON 390Ω 1/4W J
R2107	401 016 4707	CARBON 22kΩ 1/4W J
R2108	401 013 6308	CARBON 12kΩ 1/4W J
R2109	401 020 0702	CARBON 470Ω 1/4W J
R2111	401 013 4106	CARBON 120Ω 1/4W J
R2112	401 012 5609	CARBON 1kΩ 1/4W J
R2113	401 016 3700	CARBON 2.2kΩ 1/4W J
R2114	401 016 3700	CARBON 2.2kΩ 1/4W J
R2115	401 022 1806	CARBON 680Ω 1/4W J
R2116	401 019 0904	CARBON 390Ω 1/4W J
R2117	401 023 3601	CARBON 82kΩ 1/4W J
R2118	401 015 3701	CARBON 18kΩ 1/4W J
R2119	401 014 4006	CARBON 1.5kΩ 1/4W J
R2121	401 012 5609	CARBON 1kΩ 1/4W J
R2122	401 012 6903	CARBON 10kΩ 1/4W J
R2123	401 012 6903	CARBON 10kΩ 1/4W J
R2124	401 021 1807	CARBON 560Ω 1/4W J
R2125	401 021 1807	CARBON 560Ω 1/4W J
R2126	401 012 5609	CARBON 1kΩ 1/4W J
R2127	401 020 2805	CARBON 47kΩ 1/4W J
R2128	401 021 4006	CARBON 56kΩ 1/4W J
R2129	401 018 5702	CARBON 330kΩ 1/4W J
R2130	401 022 4005	CARBON 68kΩ 1/4W J
R2133	401 012 8006	CARBON 100kΩ 1/4W J
R2134	401 016 3700	CARBON 2.2kΩ 1/4W J
R2135	401 012 6903	CARBON 10kΩ 1/4W J
R2136	401 018 2701	CARBON 330Ω 1/4W J
R2137	401 020 0702	CARBON 470Ω 1/4W J
R2138	401 019 0904	CARBON 390Ω 1/4W J
R2139	401 019 0904	CARBON 390Ω 1/4W J
R2140	401 016 5704	CARBON 220kΩ 1/4W J
R2141	401 014 4006	CARBON 1.5kΩ 1/4W J
R2142	401 021 4006	CARBON 56kΩ 1/4W J
R2143	401 018 4804	CARBON 33kΩ 1/4W J
R2144	401 019 0904	CARBON 390Ω 1/4W J
R2145	401 013 5202	CARBON 1.2kΩ 1/4W J
R2146	401 017 1705	CARBON 2.7kΩ 1/4W J
R2147	401 015 3701	CARBON 18kΩ 1/4W J
R2148	401 023 2703	CARBON 8.2kΩ 1/4W J
R2149	401 012 5609	CARBON 1kΩ 1/4W J
R2151	401 012 5609	CARBON 1kΩ 1/4W J
R2152	401 017 1705	CARBON 2.7kΩ 1/4W J
R2153	401 021 2903	CARBON 5.6kΩ 1/4W J
R2154	401 019 0904	CARBON 390Ω 1/4W J
R2155	401 020 0702	CARBON 470Ω 1/4W J
R2156	401 020 0702	CARBON 470Ω 1/4W J
R2157	401 020 0702	CARBON 470Ω 1/4W J
R2158	401 016 4707	CARBON 22kΩ 1/4W J
R2159	401 014 5102	CARBON 15kΩ 1/4W J
R2160	401 016 4707	CARBON 22kΩ 1/4W J
R2161	401 017 0708	CARBON 270Ω 1/4W J
R2162	401 019 0904	CARBON 390Ω 1/4W J
R2163	401 020 0702	CARBON 470Ω 1/4W J
R2164	401 018 3708	CARBON 3.3kΩ 1/4W J
R2165	401 012 5609	CARBON 1kΩ 1/4W J
R2166	401 018 2701	CARBON 330Ω 1/4W J
R2167	401 018 2701	CARBON 330Ω 1/4W J
R2168	401 022 0700	CARBON 68Ω 1/4W J
R2169	401 022 1806	CARBON 680Ω 1/4W J
R2171	401 013 6308	CARBON 12kΩ 1/4W J
R2172	401 022 3008	CARBON 6.8kΩ 1/4W J
R2173	401 022 1806	CARBON 680Ω 1/4W J
R2174	401 013 5202	CARBON 1.2kΩ 1/4W J
R2175	401 012 5609	CARBON 1kΩ 1/4W J
R2176	401 016 3700	CARBON 2.2kΩ 1/4W J
R2177	401 014 4006	CARBON 1.5kΩ 1/4W J
R2178	401 012 6903	CARBON 10kΩ 1/4W J

Schematic Location	Parts No.	Description
R2179	401 014 5102	CARBON 15kΩ 1/4W J
R2181	401 013 6308	CARBON 12kΩ 1/4W J
R2182	401 022 1806	CARBON 680Ω 1/4W J
R2183	401 021 2903	CARBON 5.6kΩ 1/4W J
R2184	401 021 2903	CARBON 5.6kΩ 1/4W J
R2185	401 021 1807	CARBON 560Ω 1/4W J
R2186	401 012 4404	CARBON 100Ω 1/4W J
R2187	401 016 4707	CARBON 22kΩ 1/4W J
R2188	401 014 5102	CARBON 15kΩ 1/4W J
R2189	401 020 0702	CARBON 470Ω 1/4W J
R2191	401 020 0702	CARBON 470Ω 1/4W J
R2192	401 020 0702	CARBON 470Ω 1/4W J
R2193	401 022 1806	CARBON 680Ω 1/4W J
R2194	401 013 5202	CARBON 1.2kΩ 1/4W J
R2195	401 014 4006	CARBON 1.5kΩ 1/4W J
R2196	401 012 6903	CARBON 10kΩ 1/4W J
R2197	401 012 6903	CARBON 10kΩ 1/4W J
R2198	401 023 1607	CARBON 820Ω 1/4W J
R2199	401 012 6903	CARBON 10kΩ 1/4W J
R2200	401 008 6009	CARBON 22Ω 1/2W J
R2201	401 020 1907	CARBON 4.7kΩ 1/4W J
R2202	401 022 6702	CARBON 75Ω 1/4W J
R2203	401 022 6702	CARBON 75Ω 1/4W J
R2204	401 012 6903	CARBON 10kΩ 1/4W J
R2205	401 012 6903	CARBON 10kΩ 1/4W J
R2206	402 021 3808	FUSE 47Ω 2W J
R2207	401 012 6903	CARBON 10kΩ 1/4W J
R2208	401 012 6903	CARBON 10kΩ 1/4W J
R2209	401 023 0600	CARBON 82Ω 1/4W J
R2211	401 022 0700	CARBON 68Ω 1/4W J
R2212	401 023 1607	CARBON 820Ω 1/4W J
R2213	401 013 5202	CARBON 1.2kΩ 1/4W J
R2215	401 016 4707	CARBON 22kΩ 1/4W J
R2219	401 012 6903	CARBON 10kΩ 1/4W J
R2222	401 012 8006	CARBON 100kΩ 1/4W J
R2225	401 012 5609	CARBON 1kΩ 1/4W J
R2230	401 015 4609	CARBON 180kΩ 1/4W J
R2231	401 015 4609	CARBON 180kΩ 1/4W J
R2232	401 022 4005	CARBON 68kΩ 1/4W J
R2300	401 019 9501	CARBON 47Ω 1/4W J
R2301	401 018 2701	CARBON 330Ω 1/4W J
R2302	401 023 1607	CARBON 820Ω 1/4W J
R2303	401 016 3700	CARBON 2.2kΩ 1/4W J
R2304	401 014 2804	CARBON 150Ω 1/4W J
R2305	401 021 2903	CARBON 5.6kΩ 1/4W J
R2306	401 012 3308	CARBON 10Ω 1/4W J
R2307	401 016 3700	CARBON 2.2kΩ 1/4W J
R2308	401 022 0700	CARBON 68Ω 1/4W J
(VARIABLE RESISTORS)		
VR211	4-2224-00610	SEMI 470B
VR212	4-2224-00430	SEMI 4.7kB

CHROMINANCE P.C.B. PARTS

Schematic Location	Parts No.	Description
	0-4014-04930	CHROMINANCE PC ASSY
(CAPACITORS)		
C2601	C1EBDK103SR	SEMI 0.01μF 25V K
C2602	C1EBDK473SR	SEMI 0.047μF 25V K
C2603	C0JLEM476A	ELECT 47μF 6.3V M
C2604	C1ATCK475A	TANA 4.7μF 10V K
or	C1AUEK475A	ALSIC 4.7μF 10V K
C2605	C1EBDK103SR	SEMI 0.01μF 25V K

Schematic Location	Parts No.	Description	Schematic Location	Parts No.	Description
C2606	C1EBDK333SR	SEMI 0.033 μ F 25V K	or	DY1SS133	DIODE 1SS133
C2607	C1EUEK334A	ALSIC 0.33 μ F 25V K	D2607	DMMA700	SK DIODE MA700
C2608	C1CLEM106A	ELECT 10 μ F 16V M	D2608	DGGMA01-L	DIODE GMA01-L
C2611	C1ATCK225A	TANTA 2.2 μ F 10V K	or	DY1SS133	DIODE 1SS133
or	C1AUEK225A	ALSIC 2.2 μ F 10V K	D2609	DGGMA01-L	DIODE GMA01-L
C2612	C1ATCK335A	TANTA 3.3 μ F 10V K	or	DY1SS133	DIODE 1SS133
or	C1AUEK335A	ALSIC 3.3 μ F 10V K	D2610	DGGMA01-L	DIODE GMA01-L
C2614	C1EBDK333SR	SEMI 0.033 μ F 25V K	or	DY1SS133	DIODE 1SS133
C2615	C1ATCK335A	TANTA 3.3 μ F 10V K	D2611	DGGMA01-L	DIODE GMA01-L
or	C1AUEK335A	ALSIC 3.3 μ F 10V K	or	DY1SS133	DIODE 1SS133
C2616	C1HCDJ330CH	CERAM 33pF 50V J	D2701	DGGMA01-L	DIODE GMA01-L
C2619	C1HCDJ150RH	CERAM 15pF 50V J	or	DY1SS133	DIODE 1SS133
C2621	C1EBDK103SR	SEMI 0.01 μ F 25V K	DL202	4-2844-00221	DELAY LINE COMB 2H
C2622	C1EBDK102SR	SEMI 0.001 μ F 25V K			(ICS)
C2623	C1HCDJ151CH	CERAM 150pF 50V J	IC261	IGLA7313A	IC LA7313A
C2624	C1HCDJ101CH	CERAM 100pF 50V J	IC262	IGLC7432	IC LC7432
C2625	C1EBDK103SR	SEMI 0.01 μ F 25V K	IC271	IYBA7025L	IC BA7025L
C2626	C1HLEM105A	ELECT 1 μ F 50V M			(COILS)
C2627	C1EBDK223SR	SEMI 0.022 μ F 25V K	L2601	4-2724-E101K	INDUCTOR 100 μ H
C2628	C1EBDK223SR	SEMI 0.022 μ F 25V K	L2602	4-2724-R101K	INDUCTOR 100 μ H
C2631	C1EBDK223SR	SEMI 0.022 μ F 25V K	or	4-2724-U101K	INDUCTOR 100 μ H
C2632	C1EBDK103SR	SEMI 0.01 μ F 25V K	L2603	4-2724-R102K	INDUCTOR 1000 μ H
C2634	C1HFRJ103C	MYLAR 0.01 μ F 50V J	or	4-2724-U102K	INDUCTOR 1000 μ H
C2637	C1EBDK103SR	SEMI 0.01 μ F 25V K	L2605	4-2724-F101K	INDUCTOR 100 μ H
C2639	C1EBDK102SR	SEMI 0.001 μ F 25V K	or	4-2724-R101K	INDUCTOR 100 μ H
C2640	C1EBDK103SR	SEMI 0.01 μ F 25V K	or	4-2724-U101K	INDUCTOR 100 μ H
C2641	C1HFRJ473C	MYLAR 0.047 μ F 50V J	L2606	4-2724-E101K	INDUCTOR 100 μ H
C2642	C1EBDK103SR	SEMI 0.01 μ F 25V K	or	4-2724-F101K	INDUCTOR 100 μ H
C2643	C1HYDK821B	CERAM 820pF 50V K	L2607	4-2724-F101K	INDUCTOR 100 μ H
C2644	C1EBDK103SR	SEMI 0.01 μ F 25V K	or	4-2724-R101K	INDUCTOR 100 μ H
C2645	C1EBDK103SR	SEMI 0.01 μ F 25V K	or	4-2724-U101K	INDUCTOR 100 μ H
C2646	C1HCDJ561SL	CERAM 560pF 50V J	L2608	4-2724-F270K	INDUCTOR 27 μ H
C2647	C1EBDK223SR	SEMI 0.022 μ F 25V K	or	4-2724-R270K	INDUCTOR 27 μ H
C2648	C1EBDK103SR	SEMI 0.01 μ F 25V K	or	4-2724-U270K	INDUCTOR 27 μ H
C2651	C1EBDK222SR	SEMI 0.0022 μ F 25V K	L2611	4-2724-FR22M	INDUCTOR 0.22 μ H
C2652	C1HLEM104A	ELECT 0.1 μ F 50V M	or	4-2724-UR22M	INDUCTOR 0.22 μ H
C2653	C1EBDK473SR	SEMI 0.047 μ F 25V K	L2621	4-2724-F150K	INDUCTOR 15 μ H
C2654	COJLEM476A	ELECT 47 μ F 6.3V M	or	4-2724-R150K	INDUCTOR 15 μ H
C2655	C1EBDK223SR	SEMI 0.022 μ F 25V K	or	4-2724-U150K	INDUCTOR 15 μ H
C2656	C1EBDK223SR	SEMI 0.022 μ F 25V K	L2651	4-2534-00730	5.06MHz B.P.F.
C2657	C1EBDK223SR	SEMI 0.022 μ F 25V K	L2652	4-2534-00930	4.43MHz B.P.F.
C2658	C1HYDK561B	CERAM 560pF 50V K	L2701	4-2554-00060	INDUCTOR 12 μ H
C2661	COJLEM476A	ELECT 47 μ F 6.3V M	or	4-2554-00250	INDUCTOR 12 μ H
C2662	C1EBDK473SR	SEMI 0.047 μ F 25V K	L2702	4-2724-F101K	INDUCTOR 100 μ H
C2665	C1ALEM226A	ELECT 22 μ F 10V M	or	4-2724-R101K	INDUCTOR 100 μ H
C2666	C1EBDK473SR	SEMI 0.047 μ F 25V K	or	4-2724-U101K	INDUCTOR 100 μ H
C2667	C1EBDK473SR	SEMI 0.047 μ F 25V K	L2703	4-2724-U151K	INDUCTOR 150 μ H
C2701	C1EBDK103SR	SEMI 0.01 μ F 25V K			(TRANSISTORS)
C2702	C1EBDK103SR	SEMI 0.01 μ F 25V K	Q2601	TG2SC536SP	TR 2SC536SP(F)or(G)
C2703	C1CLEM336A	ELECT 33 μ F 16V M	or	TM2SC1684	TR 2SC1684(Q)or(R)
C2704	C1HFRJ333C	MYLAR 0.033 μ F 50V J	or	TY2SC1740	TR 2SC1740(R)or(S)
C2705	C1CLEM336A	ELECT 33 μ F 16V M	Q2602	TG2SC536SP	TR 2SC536SP(F)or(G)
C2706	COJLEM476A	ELECT 47 μ F 6.3V M	or	TM2SC1684	TR 2SC1684(Q)or(R)
C2707	C1EBDK473SR	SEMI 0.047 μ F 25V K	or	TY2SC1740	TR 2SC1740(R)or(S)
C2708	C1HCDJ680RH	CERAM 68pF 50V J	Q2603	TG2SD313	TR 2SD313(E)
C2709	C1EBDK103SR	SEMI 0.01 μ F 25V K	or	TG2SD313	SI TR 2SD313(EF)
C2710	C1HCDJ330CH	CERAM 33pF 50V J	or	TG2SD313	TR 2SD313(F)
C2711	C1EBDK103SR	SEMI 0.01 μ F 25V K	Q2605	TG2SA608SP	TR 2SA608SP(F)or(G)
C2721	C1HYDZ473F	CERAM 0.047 μ F 50V Z	Q2701	TG2SC3400	DIGI TR 2SC3400
C2722	C1EUEK154A	ALSIC 0.15 μ F 25V K	or	TYDTC124S	DIGI TR DTC124S
		(DIODES)	Q2702	TG2SC3400	DIGI TR 2SC3400
D2601	DGGMA01-L	DIODE GMA01-L	or	TYDTC124S	DIGI TR DTC124S
or	DY1SS133	DIODE 1SS133	Q2703	TG2SC3400	DIGI TR 2SC3400
D2604	DGGMA01-L	DIODE GMA01-L	or	TYDTC124S	DIGI TR DTC124S
or	DY1SS133	DIODE 1SS133			
D2605	DGGZS5.1-Z	ZENER DIODE GZS5.1-Z			
D2606	DGGMA01-L	DIODE GMA01-L			

AUDIO NORMAL CIRCUIT P.C.B. PARTS

Schematic Location	Parts No.	Description
Q2704 or Q2705 Q2711 or Q2712	TG2SC3400 TYDTC124S TG2SA608SP TG2SC3400 TYDTC124S TG2SC536SP	DIGI TR 2SC3400 DIGI TR DTC124S TR 2SA608SP(F)or(G) DIGI TR 2SC3400 DIGI TR DTC124S TR 2SC536SP(F)or(G)
		(RESISTORS)
R2601	401 018 3708	CARBON 3.3k Ω 1/4W J
R2602	401 012 6903	CARBON 10k Ω 1/4W J
R2603	401 016 3700	CARBON 2.2k Ω 1/4W J
R2604	401 015 3701	CARBON 18k Ω 1/4W J
R2606	401 019 0904	CARBON 390 Ω 1/4W J
R2607	401 016 4707	CARBON 22k Ω 1/4W J
R2608	401 012 6903	CARBON 10k Ω 1/4W J
R2610	401 012 8006	CARBON 100k Ω 1/4W J
R2612	401 020 0702	CARBON 470 Ω 1/4W J
R2613	401 021 4006	CARBON 56k Ω 1/4W J
R2614	401 041 3102	METAL 10k Ω 1/4W F
R2615	401 023 2703	CARBON 8.2k Ω 1/4W J
R2616	401 016 4707	CARBON 22k Ω 1/4W J
R2617	401 012 8006	CARBON 100k Ω 1/4W J
R2621	401 012 5609	CARBON 1k Ω 1/4W J
R2622	401 020 0702	CARBON 470 Ω 1/4W J
R2623	401 012 8006	CARBON 100k Ω 1/4W J
R2624	401 020 2805	CARBON 47k Ω 1/4W J
R2625	401 025 2503	CARBON 1.5M Ω 1/6W J
R2632	401 021 1807	CARBON 560 Ω 1/4W J
R2633	401 021 1807	CARBON 560 Ω 1/4W J
R2634	401 012 5609	CARBON 1k Ω 1/4W J
R2635	401 013 5202	CARBON 1.2k Ω 1/4W J
R2636	401 012 5609	CARBON 1k Ω 1/4W J
R2638	401 013 5202	CARBON 1.2k Ω 1/4W J
R2639	401 014 4006	CARBON 1.5k Ω 1/4W J
R2641	401 023 1607	CARBON 820 Ω 1/4W J
R2642	401 020 0702	CARBON 470 Ω 1/4W J
R2643	401 022 1806	CARBON 680 Ω 1/4W J
R2644	401 018 4804	CARBON 33k Ω 1/4W J
R2645	401 019 0904	CARBON 390 Ω 1/4W J
R2646	402 021 3709	FUSE 27 Ω 1W J
R2656	401 022 3008	CARBON 6.8k Ω 1/4W J
R2701	401 016 4707	CARBON 22k Ω 1/4W J
R2702	401 018 9700	CARBON 39 Ω 1/4W J
R2703	401 016 3700	CARBON 2.2k Ω 1/4W J
R2704	401 014 6000	CARBON 150k Ω 1/4W J
R2705	401 012 5609	CARBON 1k Ω 1/4W J
R2706	401 012 6903	CARBON 10k Ω 1/4W J
R2707	401 018 3708	CARBON 3.3k Ω 1/4W J
R2708	401 012 6903	CARBON 10k Ω 1/4W J
R2709	401 012 6903	CARBON 10k Ω 1/4W J
R2711	401 017 1705	CARBON 2.7k Ω 1/4W J
R2712	401 012 4404	CARBON 100 Ω 1/4W J
R2713	401 016 3700	CARBON 2.2k Ω 1/4W J
R2714	401 012 6903	CARBON 10k Ω 1/4W J
R2715	401 017 1705	CARBON 2.7k Ω 1/4W J
R2716	401 023 1607	CARBON 820 Ω 1/4W J
R2720	401 018 3708	CARBON 3.3k Ω 1/4W J
R2721	401 021 2903	CARBON 5.6k Ω 1/4W J
X261 or X271	4-2254-00140 4-2254-00141 4-2534-00570	CRYSTAL 4.433MHz CRYSTAL 4.433MHz CERAMIC FILTER 4.17MHz

Schematic Location	Parts No.	Description
	0-4014-05590	AUDIO NORMAL PC ASSY
		(CAPACITORS)
C4301	C1HYDK471B	CERAM 470pF 50V K
C4302	C1ELEM475A	ELECT 4.7 μ F 25V M
C4304	C1HLEM105A	ELECT 1 μ F 50V M
C4305	C1CLEM106A	ELECT 10 μ F 16V M
C4306	C1CLEM106A	ELECT 10 μ F 16V M
C4307	C1ELEM475A	ELECT 4.7 μ F 25V M
C4308	C1CLEM106A	ELECT 10 μ F 16V M
C4309	C1HFRJ153C	MYLAR 0.015 μ F 50V J
C4312	C1HFRJ123C	MYLAR 0.012 μ F 50V J
C4315	C1HCDJ121SL	CERAM 120pF 50V J
C4318	C1CLEM107A	ELECT 100 μ F 16V M
C4319	C1HLEM105A	ELECT 1 μ F 50V M
C4321	C1HLEM104A	ELECT 0.1 μ F 50V M
C4322	C1ALEM226A	ELECT 22 μ F 10V M
C4323	C1ALEM227A	ELECT 220 μ F 10V M
C4324	C1CLEM106A	ELECT 10 μ F 16V M
C4326	C1HLEM105A	ELECT 1 μ F 50V M
C4327	C1HFRJ183C	MYLAR 0.018 μ F 50V J
C4328	C1HYDK331B	CERAM 330pF 50V K
C4329	C1ALEM476A	ELECT 47 μ F 10V M
C4331	C1ELEM475A	ELECT 4.7 μ F 25V M
C4332	C1HYDK821B	CERAM 820pF 50V K
C4335	C1HFRJ102C	MYLAR 0.001 μ F 50V J
C4336	C1HYDK221B	CERAM 220pF 50V K
C4340	C1CLEM336A	ELECT 33 μ F 16V M
C4341	C1HLEM225A	ELECT 2.2 μ F 50V M
C4342	C1CAEM106A	ELECT 10 μ F 16V M
C4343	C1HLEM474A	ELECT 0.47 μ F 50V M
C4344	C1ALEM476A	ELECT 47 μ F 10V M
		(DIODES)
D4301 or or	DGGMA01-L DMMA165.SAN DY1SS133	DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133
D4302 or or	DGGMA01-L DMMA165.SAN DY1SS133	DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133
D4305 or or	DGGMA01-L DMMA165.SAN DY1SS133	DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133
D4306 or or	DGGMA01-L DMMA165.SAN DY1SS133	DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133
D4308 or or	DGGMA01-L DMMA165.SAN DY1SS133	DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133
D4309 or or	DGGMA01-L DMMA165.SAN DY1SS133	DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133
D4311 or or	DGGMA01-L DMMA165.SAN DY1SS133	DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133
		(ICS)
IC431 or IC432	IGLA7040 IYBA5102A INMPC1513HA	IC LA7040 IC BA5102A IC μ PC1513HA
		(COILS)
L4301	4-2554-00270	INDUCTOR 22 μ H
L4302	4-2524-00070	15.6 kHz TRAP FILTER
L4303	4-2724-E101K	INDUCTOR 100 μ H
L4304	4-2724-U101K	INDUCTOR 100 μ H
L4311	4-2724-E120K	INDUCTOR 12 μ H

Schematic Location	Parts No.	Description
PB401 PB403 PB404 PB406 PB407	4-2364-00280 4-2364-00220 4-2364-00220 4-2364-00220 4-2364-00230	(PLUGS) 8P PLUG VERTICAL 2P PLUG VERTICAL 2P PLUG VERTICAL 2P PLUG VERTICAL 3P PLUG VERTICAL
Q4301 or or or Q4302 or Q4303 or Q4304 Q4307 or Q4308 Q4311 or Q4312 Q4313 or Q4315 or Q4319 or Q4321 or or or or Q4322 or or or Q4323 Q4325 or or or	TG2SC536SP TM2SC1684 TN2SC945 TY2SC1740 TG2SC3400 TYDTC124S TG2SC3399 TYDTC144S TM2SC1684 TG2SC3399 TYDTC144S TG2SA608SP TG2SC3399 TYDTC144S TG2SA608SP TG2SC3399 TYDTC144S TG2SC3399 TYDTC144S TG2SC3399 TYDTC144S TG2SC3399 TYDTC144S TG2SC3399 TYDTC144S TG2SC536SP TM2SC1684 TN2SC945 TY2SC1740 TG2SC536SP TM2SC1684 TN2SC945 TY2SC1740 TG2SC2274 TG2SC536SP TM2SC1684 TN2SC945 TY2SC1740	(TRANSISTORS) TR 2SC536SP(F)or(G) TR 2SC1684(R)or(S) TR 2SC945(K)or(P) TR 2SC1740(R)or(S) DIGI TR 2SC3400 DIGI TR DTC124S DIGI TR 2SC3399 DIGI TR DTC144S TR 2SC1684(R)or(S) DIGI TR 2SC3399 DIGI TR DTC144S TR 2SA608SP(F)or(G) DIGI TR 2SC3399 DIGI TR DTC144S TR 2SA608SP(F)or(G) DIGI TR 2SC3399 DIGI TR DTC144S TR 2SC536SP(F)or(G) TR 2SC1684(R)or(S) TR 2SC945(K)or(P) TR 2SC1740(R)or(S) TR 2SC536SP(F)or(G) TR 2SC1684(R)or(S) TR 2SC945(K)or(P) TR 2SC1740(R)or(S) (RESISTORS) CARBON 390kΩ 1/4W J CARBON 330kΩ 1/4W J CARBON 3.3kΩ 1/4W J CARBON 6.8kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 56kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 56kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 1.5kΩ 1/4W J CARBON 470Ω 1/4W J CARBON 10kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 390Ω 1/4W J CARBON 33kΩ 1/4W J CARBON 100kΩ 1/4W J
R4301 R4303 R4304 R4305 R4306 R4307 R4308 R4309 R4310 R4311 R4312 R4313 R4314 R4315 R4318 R4319 R4321 R4322 R4323 R4325 R4326 R4329 R4333 R4341	401 019 3905 401 018 5702 401 018 3708 401 022 3008 401 021 2903 401 016 4707 401 016 4707 401 016 4707 401 021 4006 401 012 5609 401 021 2903 401 012 6903 401 021 4006 401 012 5609 401 012 5609 401 014 4006 401 020 0702 401 012 6903 401 012 6903 401 012 8006 401 012 6903 401 019 0904 401 018 4804 401 012 8006	CARBON 390kΩ 1/4W J CARBON 330kΩ 1/4W J CARBON 3.3kΩ 1/4W J CARBON 6.8kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 56kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 56kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 1.5kΩ 1/4W J CARBON 470Ω 1/4W J CARBON 10kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 390Ω 1/4W J CARBON 33kΩ 1/4W J CARBON 100kΩ 1/4W J

Schematic Location	Parts No.	Description
R4342 R4344 R4345 R4346 R4347 R4348 R4354 R4355 R4356 R4357 R4358 R4359 R4361 R4362 R4371 R4372 R4373 R4374 R4375 R4376 R4378	401 012 6903 401 016 3700 401 016 4707 401 018 4804 401 014 4006 401 012 4404 401 022 3008 401 015 4609 401 021 4006 401 015 3701 401 013 6308 401 012 6903 401 012 4404 401 015 1509 401 020 2805 401 019 2908 401 019 2908 401 020 2805 401 012 5609 401 017 3709 401 013 6308	CARBON 10kΩ 1/4W J CARBON 2.2kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 1.5kΩ 1/4W J CARBON 100Ω 1/4W J CARBON 6.8kΩ 1/4W J CARBON 180kΩ 1/4W J CARBON 56kΩ 1/4W J CARBON 18kΩ 1/4W J CARBON 12kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 100Ω 1/4W J CARBON 180Ω 1/4W J CARBON 47kΩ 1/4W J CARBON 39kΩ 1/4W J CARBON 39kΩ 1/4W J CARBON 47kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 270kΩ 1/4W J CARBON 12kΩ 1/4W J
ST431 ST432	4-2374-00540 4-2374-00540	(PINS) STYLE PIN STYLE PIN
T431	4-2584-00280	70kHz OSC BLOCK
TP431 TP432 TP434 TP435 TP436	4-2374-00030 4-2374-00030 4-2374-00030 4-2374-00030 4-2374-00030	(PINS) TEST POINT PIN TEST POINT PIN TEST POINT PIN TEST POINT PIN TEST POINT PIN
VR431 VR432 VR433	4-2224-00690 4-2224-00440 4-2224-00710	(VARIABLE RESISTORS) SEMI 22kΩ SEMI 47kΩ SEMI 100kΩ

AUDIO FM CIRCUIT P.C.B. PARTS

Schematic Location	Parts No.	Description
	0-4014-05580	AUDIO FM PC ASSY
	0-4030-00450 4-2374-00070 4-2374-00600 143-2-3504-03900 143-2-3504-15200 143-2-5854-03000 143-2-6204-11300 143-2-6904-03200	1P CORD ASSY D 1P TERMINAL-D REAR TERMINAL BOARD SHIELD CASE AUDIO-HAB SHIELD BOTTOM AFM-HAQ PCB SUPPORT-5 GROUND WASHER-HAQ SPRING PLATE EARTH
C4001 C4002 C4003 C4004 C4005 C4006 C4007 C4008 C4011 C4012	C1EBDK223SR C1EBDK223SR C1HCDJ330SL C1HCDJ330SL C1EBDK223SR C1EBDK223SR C1EBDK103SR C1EBDK103SR C1EBDK103SR C1EBDK103SR	(CAPACITORS) SEMI 0.022μF 25V K SEMI 0.022μF 25V K CERAM 33pF 50V J CERAM 33pF 50V J SEMI 0.022μF 25V K SEMI 0.022μF 25V K SEMI 0.01μF 25V K SEMI 0.01μF 25V K SEMI 0.01μF 25V K SEMI 0.01μF 25V K

Schematic Location	Parts No.	Description
C4013	C1EBDK103SR	SEMI 0.01μF 25V K
C4014	C1EBDK103SR	SEMI 0.01μF 25V K
C4015	C1HFRJ122C	MYLAR 0.0012μF 50V J
C4016	C1HFRJ102C	MYLAR 0.001μF 50V J
C4017	C1EBDK103SR	SEMI 0.01μF 25V K
C4018	C1EBDK103SR	SEMI 0.01μF 25V K
C4021	C1EBDK223SR	SEMI 0.022μF 25V K
C4022	C1EBDK473SR	SEMI 0.047μF 25V K
C4023	C1EBDK223SR	SEMI 0.022μF 25V K
C4024	C1EBDK223SR	SEMI 0.022μF 25V K
C4025	C1EBDK223SR	SEMI 0.022μF 25V K
C4026	C1ALEM336A	ELECT 33μF 10V M
C4027	C1EBDK103SR	SEMI 0.01μF 25V K
C4028	C1EBDK223SR	SEMI 0.022μF 25V K
C4031	C1EBDK223SR	SEMI 0.022μF 25V K
C4032	C1EBDK223SR	SEMI 0.022μF 25V K
C4033	C1HLEM105A	ELECT 1μF 50V M
C4034	C1HLEM105A	ELECT 1μF 50V M
C4035	C1EBDK103SR	SEMI 0.01μF 25V K
C4036	C1EBDK103SR	SEMI 0.01μF 25V K
C4037	C1EBDK103SR	SEMI 0.01μF 25V K
C4038	COJLEM107A	ELECT 100μF 6.3V M
C4041	C1CLEM106A	ELECT 10μF 16V M
C4042	C1CLEM106A	ELECT 10μF 16V M
C4043	C1CLEM106A	ELECT 10μF 16V M
C4044	C1CLEM106A	ELECT 10μF 16V M
C4045	C1HLEM105A	ELECT 1μF 50V M
C4046	C1HLEM105A	ELECT 1μF 50V M
C4047	C1HCDJ221SL	CERAM 220pF 50V J
C4048	C1HCDJ221SL	CERAM 220pF 50V J
C4049	C1HYDK102B	CERAM 0.001μF 50V K
C4050	C1HYDK102B	CERAM 0.001μF 50V K
C4051	C1CLEM106A	ELECT 10μF 16V M
C4052	C1CLEM106A	ELECT 10μF 16V M
C4053	C1CLEM107A	ELECT 100μF 16V M
C4054	COJLEM227A	ELECT 220μF 6.3V M
C4055	C1CLEM107A	ELECT 100μF 16V M
C4057	C1CLEM106A	ELECT 10μF 16V M
C4058	C1CLEM106A	ELECT 10μF 16V M
C4059	C1HLEM225A	ELECT 2.2μF 50V M
C4061	C1HYDK102B	CERAM 0.001μF 50V K
C4062	C1HYDK102B	CERAM 0.001μF 50V K
C4073	C1ELEM475A	ELECT 4.7μF 25V M
C4074	C1ELEM475A	ELECT 4.7μF 25V M
C4075	C1ELEM475A	ELECT 4.7μF 25V M
C4076	C1ELEM475A	ELECT 4.7μF 25V M
C4077	C1CLEM107A	ELECT 100μF 16V M
C4078	C1CLEM106A	ELECT 10μF 16V M
C4079	COJLEM227A	ELECT 220μF 6.3V M
C4081	C1ELEM475A	ELECT 4.7μF 25V M
C4082	C1ELEM475A	ELECT 4.7μF 25V M
C4083	C1HFRJ822C	MYLAR 0.0082μF 50V J
C4084	C1HFRJ822C	MYLAR 0.0082μF 50V J
C4085	C1CLEM106A	ELECT 10μF 16V M
C4086	C1CLEM106A	ELECT 10μF 16V M
C4087	C1CLEM106A	ELECT 10μF 16V M
C4088	C1CLEM106A	ELECT 10μF 16V M
C4091	C1HLEM224A	ELECT 0.22μF 50V M
C4092	C1HLEM224A	ELECT 0.22μF 50V M
C4093	COJLEM477A	ELECT 470μF 6.3V M
C4094	COJLEM337A	ELECT 330μF 6.3V M
C4095	C1ALEM336A	ELECT 33μF 10V M
C4096	C1ALEM336A	ELECT 33μF 10V M
C4097	C1HYDK681B	CERAM 680pF 50V K
C4098	C1HYDK681B	CERAM 680pF 50V K
C4099	C1ALEM226A	ELECT 22μF 10V M
C4100	C1EBDK223SR	SEMI 0.022μF 25V K
C4101	C1ELEM475A	ELECT 4.7μF 25V M

Schematic Location	Parts No.	Description
C4102	C1ELEM475A	ELECT 4.7μF 25V M
C4103	COJLEM107A	ELECT 100μF 6.3V M
C4104	COJLEM107A	ELECT 100μF 6.3V M
C4105	C1CLEM106A	ELECT 10μF 16V M
C4106	C1CLEM106A	ELECT 10μF 16V M
C4107	C1ELEM475A	ELECT 4.7μF 25V M
C4108	C1ELEM475A	ELECT 4.7μF 25V M
C4109	COJLEM227A	ELECT 220μF 6.3V M
C4110	COJLEM337A	ELECT 330μF 6.3V M
C4111	C1HFRJ223C	MYLAR 0.022μF 50V J
C4112	C1HFRJ223C	MYLAR 0.022μF 50V J
C4113	C1CLEM106A	ELECT 10μF 16V M
C4114	C1CLEM106A	ELECT 10μF 16V M
C4115	C1CLEM106A	ELECT 10μF 16V M
C4116	C1CLEM106A	ELECT 10μF 16V M
C4117	C1CAEM106A	ELECT 10μF 16V M
C4118	C1CAEM106A	ELECT 10μF 16V M
C4121	C1HCDJ101SL	CERAM 100pF 50V J
C4122	C1HCDJ101SL	CERAM 100pF 50V J
C4123	C1HCDJ331SL	CERAM 330pF 50V J
C4124	C1HCDJ331SL	CERAM 330pF 50V J
C4125	C1HCDJ471SL	CERAM 470pF 50V J
C4126	C1HCDJ471SL	CERAM 470pF 50V J
C4127	C1ALEM476A	ELECT 47μF 10V M
C4128	C1ALEM476A	ELECT 47μF 10V M
C4129	C1CLEM476A	ELECT 47μF 16V M
C4130	C1CLEM476A	ELECT 47μF 16V M
C4131	C1EBDK223SR	SEMI 0.022μF 25V K
C4132	C1EBDK223SR	SEMI 0.022μF 25V K
C4133	C1HFRJ153C	MYLAR 0.015μF 50V J
C4134	C1HFRJ153C	MYLAR 0.015μF 50V J
C4135	C1CLEM106A	ELECT 10μF 16V M
C4136	C1CLEM106A	ELECT 10μF 16V M
C4137	C1HFRJ153C	MYLAR 0.015μF 50V J
C4138	C1HFRJ153C	MYLAR 0.015μF 50V J
C4139	C1HLEM105A	ELECT 1μF 50V M
C4141	C1CLEM106A	ELECT 10μF 16V M
C4142	C1CLEM106A	ELECT 10μF 16V M
C4143	C1HFRJ823C	MYLAR 0.082μF 50V J
C4144	C1HCDJ331SL	CERAM 330pF 50V J
C4145	C1HCDJ331SL	CERAM 330pF 50V J
C4146	C1HQRJ473A	PMCON 0.047μF 50V J
C4147	C1HFRJ822C	MYLAR 0.0082μF 50V J
C4148	C1HFRJ822C	MYLAR 0.0082μF 50V J
C4151	C1HFRJ473C	MYLAR 0.047μF 50V J
C4152	C1HFRJ473C	MYLAR 0.047μF 50V J
C4153	C1HLEM474A	ELECT 0.47μF 50V M
C4154	C1HLEM335A	ELECT 3.3μF 50V M
C4155	C1ALEM107A	ELECT 100μF 10V M
C4156	C1EBDK473SR	SEMI 0.047μF 25V K
C4162	C1CLEM476A	ELECT 47μF 16V M
C4163	C1CLEM106A	ELECT 10μF 16V M
C4164	C1CLEM106A	ELECT 10μF 16V M
C4165	C1CLEM106A	ELECT 10μF 16V M
C4166	C1CLEM106A	ELECT 10μF 16V M
C4167	C1CLEM106A	ELECT 10μF 16V M
C4168	C1CLEM106A	ELECT 10μF 16V M
C4175	C1CLEM106A	ELECT 10μF 16V M
C4176	C1CLEM106A	ELECT 10μF 16V M
C4177	COJLEM108A	ELECT 1000μF 6.3V M
C4178	COJLEM107A	ELECT 100μF 6.3V M
C4179	C1CLEM106A	ELECT 10μF 16V M
C4180	C1CLEM106A	ELECT 10μF 16V M
C4181	C1CLEM106A	ELECT 10μF 16V M
C4182	C1CLEM106A	ELECT 10μF 16V M
C4184	C1EBDK333SR	SEMI 0.033μF 25V K
C4193	C1CLEM107A	ELECT 100μF 16V M
C4194	C1CLEM476A	ELECT 47μF 16V M

Schematic Location	Parts No.	Description	Schematic Location	Parts No.	Description
C4195	C1CLEM107A	ELECT 100μF 16V M	or	DY1SS133	DIODE 1SS133
C4196	C1CLEM476A	ELECT 47μF 16V M	D4022	DGGMA01-L	DIODE GMA01-L
C4197	COJLEM107A	ELECT 100μF 6.3V M	or	DMMA165.SAN	SI DIODE MA165.SAN
C4198	COJLEM107A	ELECT 100μF 6.3V M	or	DY1SS133	DIODE 1SS133
C4199	C1EBDK222SR	SEMI 0.0022μF 25V K	D4023	DGGMA01-L	DIODE GMA01-L
C4201	COJLEM107A	ELECT 100μF 6.3V M	or	DMMA165.SAN	SI DIODE MA165.SAN
C4202	C1EBDK473SR	SEMI 0.047μF 25V K	or	DY1SS133	DIODE 1SS133
C4205	C1EBDK473SR	SEMI 0.047μF 25V K	D4024	DGGMA01-L	DIODE GMA01-L
C4211	COJLEM227A	ELECT 220μF 6.3V M	or	DMMA165.SAN	SI DIODE MA165.SAN
C4212	C1CLEM106A	ELECT 10μF 16V M	or	DY1SS133	DIODE 1SS133
		(DIODES)	D4025	DGGMA01-L	DIODE GMA01-L
D4001	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4026	DGGMA01-L	DIODE GMA01-L
D4002	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4027	DGGMA01-L	DIODE GMA01-L
D4003	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4028	DGGMA01-L	DIODE GMA01-L
D4004	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4031	DGGMA01-L	DIODE GMA01-L
D4005	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4032	DGGMA01-L	DIODE GMA01-L
D4006	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4033	DGGMA01-L	DIODE GMA01-L
D4007	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4034	DGGMA01-L	DIODE GMA01-L
D4008	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4035	DGGMA01-L	DIODE GMA01-L
D4010	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4036	DGGMA01-L	DIODE GMA01-L
D4011	DGGMA01-L	DIODE GMA01-L	or	DMMA165.SAN	SI DIODE MA165.SAN
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133	D4050	DYDA210S	DIODE DA210S
D4012	DGGMA01-L	DIODE GMA01-L	D4051	DGGMA01-L	DIODE GMA01-L
or	DMMA165.SAN	SI DIODE MA165.SAN	or	DY1SS133	DIODE 1SS133
or	DY1SS133	DIODE 1SS133			(ICS)
D4013	DGGMA01-L	DIODE GMA01-L	IC401	IHHA11797	IC HA11797
or	DMMA165.SAN	SI DIODE MA165.SAN	IC402	ITTC4052BP	IC TC4052BP
or	DY1SS133	DIODE 1SS133	IC403	IGLA6458DF	IC LA6458DF
D4014	DGGMA01-L	DIODE GMA01-L	or	IJNJM4558D	IC NJM4558D
or	DMMA165.SAN	SI DIODE MA165.SAN	or	IMAN6558	IC AN6558
or	DY1SS133	DIODE 1SS133	or	IWM5218P	IC M5218P
D4015	DGGMA01-L	DIODE GMA01-L	IC405	IGLC4066B	IC LC4066B
or	DMMA165.SAN	SI DIODE MA165.SAN	or	INMPD4066BC	IC μPD4066BC
or	DY1SS133	DIODE 1SS133	or	ITTC4066BP	IC TC4066BP
D4016	DGGMA01-L	DIODE GMA01-L	IC406	IHHA12072ANT	IC HA12072ANT
or	DMMA165.SAN	SI DIODE MA165.SAN	IC407	IHHA12094NT	IC HA12094NT
or	DY1SS133	DIODE 1SS133	IC409	ITTA78L005AP	3-TERMINAL REGULATOR
D4017	DGGMA01-L	DIODE GMA01-L	IC410	ITTA78L005AP	3-TERMINAL REGULATOR
or	DMMA165.SAN	SI DIODE MA165.SAN	IC411	IJNJM2058D	IC NJM2058D
or	DY1SS133	DIODE 1SS133	or	IMAN6554	IC AN6554
D4018	DGGMA01-L	DIODE GMA01-L	IC413	IGLA7245	IC LA7245
or	DMMA165.SAN	SI DIODE MA165.SAN			(COILS)
or	DY1SS133	DIODE 1SS133	L4001	4-2724-E101K	INDUCTOR 100μH
D4019	DGGMA01-L	DIODE GMA01-L	L4002	4-2724-E101K	INDUCTOR 100μH
or	DMMA165.SAN	SI DIODE MA165.SAN	L4003	4-2724-E101K	INDUCTOR 100μH
or	DY1SS133	DIODE 1SS133	L4004	4-2724-E101K	INDUCTOR 100μH
D4021	DGGMA01-L	DIODE GMA01-L	L4005	4-2724-E101K	INDUCTOR 100μH
or	DMMA165.SAN	SI DIODE MA165.SAN			

Schematic Location	Parts No.	Description
L4006	4-2724-E101K	INDUCTOR 100μH
L4007	4-2724-E101K	INDUCTOR 100μH
L4008	4-2724-E101K	INDUCTOR 100μH
L4009	4-2534-00950	NOISE FILTER
or	4-2534-00951	NOISE FILTER
L4010	4-2534-00950	NOISE FILTER
or	4-2534-00951	NOISE FILTER
L4011	4-2534-00800	1.4MHz B.P.F
L4012	4-2534-00900	1.8MHz B.P.F
L4013	4-2524-00140	20kHz L.P.F
L4014	4-2524-00140	20kHz L.P.F
L4015	4-2524-00140	20kHz L.P.F
L4016	4-2524-00140	20kHz L.P.F
L4017	4-2524-00170	15.625kHz TRAPFILTER
L4018	4-2534-00780	BEAD FILTER
L4019	4-2534-00780	BEAD FILTER
L4031	4-2594-00210	70kHz TRAP
L4032	4-2594-00210	70kHz TRAP
(PLUGS)		
PA401	4-2364-00240	4P PLUG VERTICAL
PA402	4-2364-00290	9P PLUG VERTICAL
PA404	4-2364-00220	2P PLUG VERTICAL
PA405	4-2364-00250	5P PLUG VERTICAL
PA406	4-2364-00290	9P PLUG VERTICAL
PA407	4-2364-00230	3P PLUG VERTICAL
PA408	4-2364-00220	2P PLUG VERTICAL
PA411	4-2364-00230	3P PLUG VERTICAL
PA412	4-2364-00240	4P PLUG VERTICAL
PA413	4-2364-00220	2P PLUG VERTICAL
PA414	4-2364-00240	4P PLUG VERTICAL
PA415	4-2364-00220	2P PLUG VERTICAL
PA416	4-2364-00220	2P PLUG VERTICAL
PA417	4-2364-00220	2P PLUG VERTICAL
PA418	4-2364-00280	8P PLUG VERTICAL
PA420	4-2364-00240	4P PLUG VERTICAL
PA421	4-2364-00310	11P PLUG VERTICAL
PA422	4-2364-00220	2P PLUG VERTICAL
PA423	4-2364-00220	2P PLUG VERTICAL
(TRANSISTORS)		
Q4001	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4002	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4003	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4004	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4005	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4006	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4008	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)

Schematic Location	Parts No.	Description
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4009	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4011	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4012	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4013	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4014	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4017	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4018	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4021	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4022	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4023	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4024	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)
Q4025	TG2SC2274	TR 2SC2274(E)or(F)
Q4026	TG2SC2274	TR 2SC2274(E)or(F)
Q4027	TG2SA608SP	TR 2SA608SP(F)or(G)
Q4028	TG2SA608SP	TR 2SA608SP(F)or(G)
Q4031	TG2SA608SP	TR 2SA608SP(F)or(G)
Q4034	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4035	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4036	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4037	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4041	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4042	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4043	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4045	TG2SC3399	DIGI TR 2SC3399
or	TYDTC144S	DIGI TR DTC144S
Q4046	TG2SC536SP	TR 2SC536SP(F)or(G)
or	TM2SC1684	TR 2SC1684(R)or(S)
or	TN2SC945	TR 2SC945(K)or(P)
or	TY2SC1740	TR 2SC1740(R)or(S)

Schematic Location	Parts No.	Description
Q4048 or	TG2SC3399 TYDTC144S	DIGI TR 2SC3399 DIGI TR DTC144S
		(RESISTORS)
R4001	401 012 3308	CARBON 10Ω 1/4W J
R4002	401 012 3308	CARBON 10Ω 1/4W J
R4003	401 018 3708	CARBON 3.3kΩ 1/4W J
R4004	401 018 3708	CARBON 3.3kΩ 1/4W J
R4005	401 023 2703	CARBON 8.2kΩ 1/4W J
R4006	401 023 2703	CARBON 8.2kΩ 1/4W J
R4007	401 023 1607	CARBON 820Ω 1/4W J
R4011	401 023 2703	CARBON 8.2kΩ 1/4W J
R4012	401 023 2703	CARBON 8.2kΩ 1/4W J
R4013	401 023 0600	CARBON 82Ω 1/4W J
R4014	401 016 4707	CARBON 22kΩ 1/4W J
R4015	401 019 6104	CARBON 4.7Ω 1/4W J
R4016	401 020 0702	CARBON 470Ω 1/4W J
R4017	401 022 4005	CARBON 68kΩ 1/4W J
R4022	401 022 0700	CARBON 68Ω 1/4W J
R4023	401 019 1802	CARBON 3.9kΩ 1/4W J
R4024	401 018 3708	CARBON 3.3kΩ 1/4W J
R4025	401 012 5609	CARBON 1kΩ 1/4W J
R4026	401 020 2805	CARBON 47kΩ 1/4W J
R4027	401 012 5609	CARBON 1kΩ 1/4W J
R4028	401 018 4804	CARBON 33kΩ 1/4W J
R4031	401 012 5609	CARBON 1kΩ 1/4W J
R4032	401 012 5609	CARBON 1kΩ 1/4W J
R4033	401 012 6903	CARBON 10kΩ 1/4W J
R4034	401 012 5609	CARBON 1kΩ 1/4W J
R4035	401 014 2804	CARBON 150Ω 1/4W J
R4036	401 012 5609	CARBON 1kΩ 1/4W J
R4037	401 018 4804	CARBON 33kΩ 1/4W J
R4038	401 018 3708	CARBON 3.3kΩ 1/4W J
R4041	401 020 2805	CARBON 47kΩ 1/4W J
R4042	401 020 2805	CARBON 47kΩ 1/4W J
R4043	401 020 2805	CARBON 47kΩ 1/4W J
R4044	401 020 2805	CARBON 47kΩ 1/4W J
R4045	401 021 4006	CARBON 56kΩ 1/4W J
R4046	401 021 4006	CARBON 56kΩ 1/4W J
R4047	401 021 4006	CARBON 56kΩ 1/4W J
R4048	401 021 4006	CARBON 56kΩ 1/4W J
R4051	401 012 8006	CARBON 100kΩ 1/4W J
R4052	401 012 8006	CARBON 100kΩ 1/4W J
R4053	401 012 8006	CARBON 100kΩ 1/4W J
R4054	401 012 8006	CARBON 100kΩ 1/4W J
R4055	401 012 8006	CARBON 100kΩ 1/4W J
R4056	401 012 8006	CARBON 100kΩ 1/4W J
R4057	401 012 8006	CARBON 100kΩ 1/4W J
R4058	401 012 8006	CARBON 100kΩ 1/4W J
R4061	401 012 8006	CARBON 100kΩ 1/4W J
R4062	401 012 8006	CARBON 100kΩ 1/4W J
R4063	401 020 2805	CARBON 47kΩ 1/4W J
R4064	401 020 2805	CARBON 47kΩ 1/4W J
R4065	401 016 2505	CARBON 220Ω 1/4W J
R4066	401 012 6903	CARBON 10kΩ 1/4W J
R4067	401 012 6903	CARBON 10kΩ 1/4W J
R4068	401 020 2805	CARBON 47kΩ 1/4W J
R4071	401 020 2805	CARBON 47kΩ 1/4W J
R4072	401 020 2805	CARBON 47kΩ 1/4W J
R4073	401 021 4006	CARBON 56kΩ 1/4W J
R4074	401 021 4006	CARBON 56kΩ 1/4W J
R4075	401 012 5609	CARBON 1kΩ 1/4W J
R4076	401 012 5609	CARBON 1kΩ 1/4W J
R4083	401 020 2805	CARBON 47kΩ 1/4W J
R4084	401 020 2805	CARBON 47kΩ 1/4W J
R4090	401 020 2805	CARBON 47kΩ 1/4W J
R4105	401 021 4006	CARBON 56kΩ 1/4W J
R4106	401 021 4006	CARBON 56kΩ 1/4W J

Schematic Location	Parts No.	Description
R4107	401 021 4006	CARBON 56kΩ 1/4W J
R4108	401 021 4006	CARBON 56kΩ 1/4W J
R4109	401 021 4006	CARBON 56kΩ 1/4W J
R4111	401 021 4006	CARBON 56kΩ 1/4W J
R4112	401 021 4006	CARBON 56kΩ 1/4W J
R4113	401 018 3708	CARBON 3.3kΩ 1/4W J
R4114	401 018 3708	CARBON 3.3kΩ 1/4W J
R4115	401 023 2703	CARBON 8.2kΩ 1/4W J
R4116	401 023 2703	CARBON 8.2kΩ 1/4W J
R4117	401 021 4006	CARBON 56kΩ 1/4W J
R4121	401 016 2505	CARBON 220Ω 1/4W J
R4122	401 021 4006	CARBON 56kΩ 1/4W J
R4123	401 012 5609	CARBON 1kΩ 1/4W J
R4124	401 012 5609	CARBON 1kΩ 1/4W J
R4125	401 012 5609	CARBON 1kΩ 1/4W J
R4126	401 012 5609	CARBON 1kΩ 1/4W J
R4127	401 017 0708	CARBON 270Ω 1/4W J
R4128	401 017 0708	CARBON 270Ω 1/4W J
R4129	401 012 8006	CARBON 100kΩ 1/4W J
R4130	401 012 6903	CARBON 10kΩ 1/4W J
R4131	401 017 1705	CARBON 2.7kΩ 1/4W J
R4132	401 021 2903	CARBON 5.6kΩ 1/4W J
R4133	401 012 8006	CARBON 100kΩ 1/4W J
R4134	401 021 2903	CARBON 5.6kΩ 1/4W J
R4135	401 012 6903	CARBON 10kΩ 1/4W J
R4136	401 014 5102	CARBON 15kΩ 1/4W J
R4137	401 016 4707	CARBON 22kΩ 1/4W J
R4141	401 018 4804	CARBON 33kΩ 1/4W J
R4142	401 018 4804	CARBON 33kΩ 1/4W J
R4143	401 012 6903	CARBON 10kΩ 1/4W J
R4144	401 012 6903	CARBON 10kΩ 1/4W J
R4145	401 025 9007	CARBON 2.2MΩ 1/6W J
R4146	401 025 9007	CARBON 2.2MΩ 1/6W J
R4147	401 012 6903	CARBON 10kΩ 1/4W J
R4148	401 012 6903	CARBON 10kΩ 1/4W J
R4149	401 012 8006	CARBON 100kΩ 1/4W J
R4151	401 012 5609	CARBON 1kΩ 1/4W J
R4152	401 012 5609	CARBON 1kΩ 1/4W J
R4153	401 020 2805	CARBON 47kΩ 1/4W J
R4154	401 020 2805	CARBON 47kΩ 1/4W J
R4155	401 020 1907	CARBON 4.7kΩ 1/4W J
R4156	401 012 8006	CARBON 100kΩ 1/4W J
R4158	401 016 2505	CARBON 220Ω 1/4W J
R4159	401 012 5609	CARBON 1kΩ 1/4W J
R4161	401 012 5609	CARBON 1kΩ 1/4W J
R4162	401 012 5609	CARBON 1kΩ 1/4W J
R4163	401 016 4707	CARBON 22kΩ 1/4W J
R4164	401 016 4707	CARBON 22kΩ 1/4W J
R4165	401 013 7206	CARBON 120kΩ 1/4W J
R4166	401 013 7206	CARBON 120kΩ 1/4W J
R4167	401 021 9605	CARBON 62kΩ 1/4W J
R4168	401 021 9605	CARBON 62kΩ 1/4W J
R4171	401 021 8103	CARBON 620Ω 1/4W J
R4172	401 019 7200	CARBON 430Ω 1/4W J
R4173	401 013 7206	CARBON 120kΩ 1/4W J
R4174	401 013 7206	CARBON 120kΩ 1/4W J
R4175	401 019 0904	CARBON 390Ω 1/4W J
R4176	401 019 0904	CARBON 390Ω 1/4W J
R4177	401 012 5609	CARBON 1kΩ 1/4W J
R4178	401 012 5609	CARBON 1kΩ 1/4W J
R4179	401 016 5704	CARBON 220kΩ 1/4W J
R4180	401 016 5704	CARBON 220kΩ 1/4W J
R4181	401 013 6308	CARBON 12kΩ 1/4W J
R4182	401 013 6308	CARBON 12kΩ 1/4W J
R4183	401 020 1907	CARBON 4.7kΩ 1/4W J
R4184	401 020 1907	CARBON 4.7kΩ 1/4W J
R4185	401 022 7105	CARBON 750Ω 1/4W J
R4186	401 022 7105	CARBON 750Ω 1/4W J

Schematic Location	Parts No.	Description
R4187	401 013 4106	CARBON 120Ω 1/4W J
R4188	401 013 4106	CARBON 120Ω 1/4W J
R4191	401 017 1705	CARBON 2.7kΩ 1/4W J
R4192	401 017 1705	CARBON 2.7kΩ 1/4W J
R4193	401 012 6903	CARBON 10kΩ 1/4W J
R4194	401 017 9701	CARBON 30kΩ 1/4W J
R4195	401 012 5609	CARBON 1kΩ 1/4W J
R4196	401 012 5609	CARBON 1kΩ 1/4W J
R4197	401 020 8807	CARBON 51kΩ 1/4W J
R4198	401 016 0006	CARBON 20kΩ 1/4W J
R4201	401 021 2903	CARBON 5.6kΩ 1/4W J
R4202	401 021 2903	CARBON 5.6kΩ 1/4W J
R4203	401 020 0702	CARBON 470Ω 1/4W J
R4204	401 020 0702	CARBON 470Ω 1/4W J
R4205	401 012 6903	CARBON 10kΩ 1/4W J
R4207	401 014 9001	CARBON 16kΩ 1/4W J
R4208	401 018 3708	CARBON 3.3kΩ 1/4W J
R4211	401 018 3708	CARBON 3.3kΩ 1/4W J
R4212	401 012 5609	CARBON 1kΩ 1/4W J
R4221	401 012 8006	CARBON 100kΩ 1/4W J
R4227	401 012 8006	CARBON 100kΩ 1/4W J
R4228	401 012 8006	CARBON 100kΩ 1/4W J
R4231	401 023 2703	CARBON 8.2kΩ 1/4W J
R4232	401 023 2703	CARBON 8.2kΩ 1/4W J
R4233	401 013 7206	CARBON 120kΩ 1/4W J
R4234	401 013 7206	CARBON 120kΩ 1/4W J
R4235	401 021 4006	CARBON 56kΩ 1/4W J
R4236	401 021 4006	CARBON 56kΩ 1/4W J
R4237	401 013 5202	CARBON 1.2kΩ 1/4W J
R4238	401 013 5202	CARBON 1.2kΩ 1/4W J
R4241	401 013 5202	CARBON 1.2kΩ 1/4W J
R4242	401 013 5202	CARBON 1.2kΩ 1/4W J
R4243	401 013 5202	CARBON 1.2kΩ 1/4W J
R4244	401 013 5202	CARBON 1.2kΩ 1/4W J
R4245	401 012 6903	CARBON 10kΩ 1/4W J
R4246	401 012 6903	CARBON 10kΩ 1/4W J
R4251	401 022 4005	CARBON 68kΩ 1/4W J
R4252	401 018 3708	CARBON 3.3kΩ 1/4W J
R4253	401 018 3708	CARBON 3.3kΩ 1/4W J
R4254	401 018 3708	CARBON 3.3kΩ 1/4W J
R4255	401 020 2805	CARBON 47kΩ 1/4W J
R4256	401 020 2805	CARBON 47kΩ 1/4W J
R4257	401 020 2805	CARBON 47kΩ 1/4W J
R4258	401 012 6903	CARBON 10kΩ 1/4W J
R4261	401 021 2903	CARBON 5.6kΩ 1/4W J
R4262	401 021 2903	CARBON 5.6kΩ 1/4W J
R4263	401 017 1705	CARBON 2.7kΩ 1/4W J
R4264	401 012 6903	CARBON 10kΩ 1/4W J
R4265	401 012 6903	CARBON 10kΩ 1/4W J
R4266	401 012 8006	CARBON 100kΩ 1/4W J
R4267	401 020 2805	CARBON 47kΩ 1/4W J
R4271	401 012 6903	CARBON 10kΩ 1/4W J
R4272	401 023 2703	CARBON 8.2kΩ 1/4W J
R4273	401 012 6903	CARBON 10kΩ 1/4W J
R4274	401 012 6903	CARBON 10kΩ 1/4W J
R4275	401 012 6903	CARBON 10kΩ 1/4W J
R4276	401 021 2903	CARBON 5.6kΩ 1/4W J
R4277	401 020 2805	CARBON 47kΩ 1/4W J
R4278	401 021 2903	CARBON 5.6kΩ 1/4W J
R4283	401 020 2805	CARBON 47kΩ 1/4W J
R4284	401 020 1907	CARBON 4.7kΩ 1/4W J
R4285	401 016 3700	CARBON 2.2kΩ 1/4W J
R4286	401 021 4006	CARBON 56kΩ 1/4W J
R4287	401 019 0904	CARBON 390Ω 1/4W J
R4288	401 012 5609	CARBON 1kΩ 1/4W J
R4289	402 021 3600	FUSE 22Ω 1W J
R4290	402 021 3501	FUSE 10Ω 1W J
R4291	401 021 4006	CARBON 56kΩ 1/4W J

Schematic Location	Parts No.	Description
R4292	401 012 6903	CARBON 10kΩ 1/4W J
R4293	401 012 8006	CARBON 100kΩ 1/4W J
R4295	401 012 5609	CARBON 1kΩ 1/4W J
R4296	401 016 2505	CARBON 220Ω 1/4W J
R4297	401 012 8006	CARBON 100kΩ 1/4W J
R4298	401 012 6903	CARBON 10kΩ 1/4W J
ST401	4-2374-00540	(PIN) STYLE PIN
TP401	4-2374-00030	(PINS) TEST POINT PIN
TP402	4-2374-00030	TEST POINT PIN
TP403	4-2374-00030	TEST POINT PIN
TP404	4-2374-00030	TEST POINT PIN
TP411	4-2374-00030	TEST POINT PIN
TP412	4-2374-00030	TEST POINT PIN
TP413	4-2374-00030	TEST POINT PIN
TP415	4-2374-00030	TEST POINT PIN
TP416	4-2374-00030	TEST POINT PIN
TP417	4-2374-00030	TEST POINT PIN
TP422	4-2374-00030	TEST POINT PIN
VR401	4-2224-00600	(VARIABLE RESISTORS) SEMI 220B
VR402	4-2224-00620	SEMI 1kΩ
VR403	4-2224-00440	SEMI 47kΩ
VR404	4-2224-00440	SEMI 47kΩ
VR405	4-2224-00450	SEMI 68kΩ
VR406	4-2224-00450	SEMI 68kΩ
VR407	4-2224-00630	SEMI 1.5kΩ
VR408	4-2224-00620	SEMI 1kΩ
VR411	4-2224-00670	SEMI 10kΩ
VR412	4-2224-00670	SEMI 10kΩ
VR414	4-2224-01550	SEMI 150kΩ
VR415	4-2224-00430	SEMI 4.7kΩ
VR416	4-2224-00430	SEMI 4.7kΩ
VR417	4-2224-00730	SEMI 470kΩ
VR418	4-2224-00730	SEMI 470kΩ
W421	0-4053-00350	CORD ASSY
W422	0-4053-00360	CORD ASSY
W423	0-4053-00370	CORD ASSY
W424	0-4053-00380	CORD ASSY
ZD401	DYMTZ10-C	(ZENER DIODE) ZENER DIODE MTZ10-C

SYSTEM CONTROL SERVO P.C.B. PARTS

Schematic Location	Parts No.	Description
BR501	0-4014-04990	SYSCON SERVO PC ASSY
or	4-2214-00220 4-2214-00221	BLOCK RESIST 2.7k X 4 BLOCK RESIST 2.7k X 4
C5001	C1HYDZ223F	(CAPACITORS) CERAM 0.022μF 50V Z
C5002	COJLEM337A	ELECT 330μF 6.3V M
C5003	C1HYDZ223F	CERAM 0.022μF 50V Z
C5004	C1ELEM107A	ELECT 100μF 25V M
C5005	COJLEM107A	ELECT 100μF 6.3V M
C5006	COJLEM477A	ELECT 470μF 6.3V M
C5007	C1CLEM226A	ELECT 22μF 16V M
C5008	C1EBDK473SR	SEMI 0.047μF 25V K
C5011	C1HYDZ103F	CERAM 0.01μF 50V Z

Schematic Location	Parts No.	Description
C5012	C1EBDK103SR	SEMI 0.01μF 25V K
C5013	C1HYDZ103F	CERAM 0.01μF 50V Z
C5014	COJLEM227A	ELECT 220μF 6.3V M
C5015	C1HCDJ101SL	CERAM 100pF 50V J
C5017	C1HYDK102B	CERAM 0.001μF 50V K
C5018	C1HYDK102B	CERAM 0.001μF 50V K
C5019	C1HYDK102B	CERAM 0.001μF 50V K
C5021	C1HLEM334A	ELECT 0.33μF 50V M
C5022	C1HCDJ330CH	CERAM 33pF 50V J
C5023	C1HCDJ330CH	CERAM 33pF 50V J
C5024	C1HCDJ561SL	CERAM 560pF 50V J
C5025	C1HYDZ103F	CERAM 0.01μF 50V Z
C5028	C1HYDK102B	CERAM 0.001μF 50V K
C5029	C1HYDZ223F	CERAM 0.022μF 50V Z
C5031	C1HFRK182C	MYLAR 0.0018μF 50V K
C5032	C1HAEM105A	ELECT 1μF 50V M
C5033	C1HCDJ101SL	CERAM 100pF 50V J
C5034	C1HLEM105A	ELECT 1μF 50V M
C5035	C1HFRK223C	MYLAR 0.022μF 50V K
C5036	C1HFRK333C	MYLAR 0.033μF 50V K
C5037	C1CLEM476A	ELECT 47μF 16V M
C5038	C1CLEM476A	ELECT 47μF 16V M
C7001	C1CHEK106A	ELECT 10μF 16V K
C7002	C1CHEK106A	ELECT 10μF 16V K
C7003	C1HFRK153C	MYLAR 0.015μF 50V K
C7004	C1HFRK153C	MYLAR 0.015μF 50V K
C7005	C1HFRK473C	MYLAR 0.047μF 50V K
C7006	C1HFRK473C	MYLAR 0.047μF 50V K
C7007	C1CHEK106A	ELECT 10μF 16V K
C7008	C1CHEK106A	ELECT 10μF 16V K
C7009	C1HAEM225A	ELECT 2.2μF 50V M
C7010	C1EBDK333SR	SEMI 0.033μF 25V K
C7011	C1HFRK472C	MYLAR 0.0047μF 50V K
C7012	C1HFRK472C	MYLAR 0.0047μF 50V K
C7013	C1HFRK472C	MYLAR 0.0047μF 50V K
C7014	C1HCDJ560SL	CERAM 56pF 50V J
C7015	C1CLEM476A	ELECT 47μF 16V M
C7016	C1HLEM475A	ELECT 4.7μF 50V M
C7017	C1HCDJ560SL	CERAM 56pF 50V J
C7018	C1HLEM104A	ELECT 0.1μF 50V M
C7019	C1HLEM104A	ELECT 0.1μF 50V M
C7020	C1EBDK333SR	SEMI 0.033μF 25V K
C7021	C1HYDZ223F	CERAM 0.022μF 50V Z
C7022	C1CLEM226A	ELECT 22μF 16V M
C7023	C1CLEM226A	ELECT 22μF 16V M
C7024	C1EAEM335A	ELECT 3.3μF 25V M
C7025	C1HFRK104C	MYLAR 0.1μF 50V K
C7026	C1CLEM476A	ELECT 47μF 16V M
C7027	C1HLEM105A	ELECT 1μF 50V M
C7028	C1HLEM105A	ELECT 1μF 50V M
C7029	C1HFRK333C	MYLAR 0.033μF 50V K
C7030	C1HLEM105A	ELECT 1μF 50V M
C7031	C1HFRJ562B	MYLAR 0.0056μF 50V J
C7032	C1ELEM475A	ELECT 4.7μF 25V M
C7033	C1EBDK103SR	SEMI 0.01μF 25V K
C7034	C1EBDK103SR	SEMI 0.01μF 25V K
C7035	COJLEM227A	ELECT 220μF 6.3V M
C7037	C1HFRJ563C	MYLAR 0.056μF 50V J
C7039	C1HCDJ330SL	CERAM 33pF 50V J
C7041	C1HYDZ223F	CERAM 0.022μF 50V Z
C7042	C1EBDK272SR	SEMI 0.0027μF 25V K
C7043	C1HQRJ273A	PMCON 0.027μF 50V J
C7044	C1HQRJ273A	PMCON 0.027μF 50V J
C7045	C1HFRJ562C	MYLAR 0.0056μF 50V J
C7046	C1HFRJ392C	MYLAR 0.0039μF 50V J
C7047	C1HFRJ392C	MYLAR 0.0039μF 50V J
C7048	C1HFRJ392C	MYLAR 0.0039μF 50V J
C7049	C1EBDK103SR	SEMI 0.01μF 25V K

Schematic Location	Parts No.	Description
C7051	C1HLEM105A	ELECT 1μF 50V M
C7052	C1HYDZ223F	CERAM 0.022μF 50V Z
C7053	C1HFRK473C	MYLAR 0.047μF 50V K
C7054	C1HAEM105A	ELECT 1μF 50V M
C7055	COJLEM107A	ELECT 100μF 6.3V M
C7056	C1HFRK473C	MYLAR 0.047μF 50V K
C7057	C1HLEM105A	ELECT 1μF 50V M
C7058	C1CLEM106A	ELECT 10μF 16V M
C7059	C1HFRK102C	MYLAR 0.001μF 50V K
C7061	C1HFRJ333C	MYLAR 0.033μF 50V J
C7062	C1HFRJ123C	MYLAR 0.012μF 50V J
C7063	C1HYDZ103F	CERAM 0.01μF 50V Z
C7065	COJLEM227A	ELECT 220μF 6.3V M
C7066	C1HYDZ103F	CERAM 0.01μF 50V Z
C7067	C1HCDJ330CH	CERAM 33pF 50V J
C7068	C1HCDJ330CH	CERAM 33pF 50V J
C7069	C1HYDZ223F	CERAM 0.022μF 50V Z
C7071	C1HFRJ104C	MYLAR 0.1μF 50V J
C7073	COJLEM337A	ELECT 330μF 6.3V M
C7075	C1EBDK103SR	SEMI 0.01μF 25V K
C7100	C1EBDK333SR	SEMI 0.033μF 25V K
(DIODES)		
D501	DMMA700	SK DIODE MA700
D502	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D503	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D504	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D507	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D509	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D511	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D512	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D701	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D702	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D707	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D712	DMMA700	SK DIODE MA700
D713	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D714	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D715	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D716	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D717	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D718	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D719	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D721	DMMA700	SK DIODE MA700
D722	DMMA700	SK DIODE MA700
D723	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D724	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D725	DGGMA01-L	DIODE GMA01-L
or	DY1SS133	DIODE 1SS133
D728	DGGMA01-L	DIODE GMA01-L

Schematic Location	Parts No.	Description
R5014	401 048 9701	METAL 4.99kΩ 1/4W D
R5015	401 016 3700	CARBON 2.2kΩ 1/4W J
R5016	401 016 3700	CARBON 2.2kΩ 1/4W J
R5017	401 012 6903	CARBON 10kΩ 1/4W J
R5018	401 012 8006	CARBON 100kΩ 1/4W J
R5019	401 012 8006	CARBON 100kΩ 1/4W J
R5021	401 012 8006	CARBON 100kΩ 1/4W J
R5022	401 020 0702	CARBON 470Ω 1/4W J
R5023	401 042 9905	METAL 14.9kΩ 1/4W D
R5024	401 050 0208	METAL 59.9kΩ 1/4W D
R5025	401 042 2401	METAL 120kΩ 1/4W D
R5026	401 016 4707	CARBON 22kΩ 1/4W J
R5027	401 016 4707	CARBON 22kΩ 1/4W J
R5028	401 016 4707	CARBON 22kΩ 1/4W J
R5029	401 018 3708	CARBON 3.3kΩ 1/4W J
R5031	401 018 4804	CARBON 33kΩ 1/4W J
R5032	401 021 0602	CARBON 56Ω 1/4W J
R5033	401 023 3601	CARBON 82kΩ 1/4W J
R5035	401 022 5002	CARBON 680kΩ 1/4W J
R5036	401 012 8006	CARBON 100kΩ 1/4W J
R5037	401 012 8006	CARBON 100kΩ 1/4W J
R5038	401 012 8006	CARBON 100kΩ 1/4W J
R5039	401 012 8006	CARBON 100kΩ 1/4W J
R5041	401 012 6903	CARBON 10kΩ 1/4W J
R5042	401 012 8006	CARBON 100kΩ 1/4W J
R5043	401 012 6903	CARBON 10kΩ 1/4W J
R5044	401 012 9201	CARBON 1MΩ 1/4W J
R5046	401 020 1907	CARBON 4.7kΩ 1/4W J
R5047	401 016 3700	CARBON 2.2kΩ 1/4W J
R5048	401 018 3708	CARBON 3.3kΩ 1/4W J
R5049	401 021 2903	CARBON 5.6kΩ 1/4W J
R5051	401 012 6903	CARBON 10kΩ 1/4W J
R5052	401 018 3708	CARBON 3.3kΩ 1/4W J
R5053	401 012 8006	CARBON 100kΩ 1/4W J
R5054	401 021 2903	CARBON 5.6kΩ 1/4W J
R5055	401 012 6903	CARBON 10kΩ 1/4W J
R5056	401 012 6903	CARBON 10kΩ 1/4W J
R5057	401 016 3700	CARBON 2.2kΩ 1/4W J
R5058	401 012 6903	CARBON 10kΩ 1/4W J
R5059	401 016 3700	CARBON 2.2kΩ 1/4W J
R5061	401 012 6903	CARBON 10kΩ 1/4W J
R5062	401 016 3700	CARBON 2.2kΩ 1/4W J
R5071	401 012 6903	CARBON 10kΩ 1/4W J
R5072	401 012 5609	CARBON 1kΩ 1/4W J
R5073	401 012 5609	CARBON 1kΩ 1/4W J
R5074	401 013 5202	CARBON 1.2kΩ 1/4W J
R5075	401 012 6903	CARBON 10kΩ 1/4W J
R5076	401 022 4005	CARBON 68kΩ 1/4W J
R5077	401 018 5702	CARBON 330kΩ 1/4W J
R5078	401 018 2701	CARBON 330Ω 1/4W J
R5079	401 015 2605	CARBON 1.8kΩ 1/4W J
R5081	401 022 1806	CARBON 680Ω 1/4W J
R5082	401 022 1806	CARBON 680Ω 1/4W J
R5083	401 020 0702	CARBON 470Ω 1/4W J
R5084	401 013 5202	CARBON 1.2kΩ 1/4W J
R5085	401 012 5609	CARBON 1kΩ 1/4W J
R5086	401 012 4404	CARBON 100Ω 1/4W J
R7001	401 021 2903	CARBON 5.6kΩ 1/4W J
R7003	401 017 2702	CARBON 27kΩ 1/4W J
R7010	401 012 5609	CARBON 1kΩ 1/4W J
R7012	401 020 1907	CARBON 4.7kΩ 1/4W J
R7013	401 020 1907	CARBON 4.7kΩ 1/4W J
R7014	401 021 4006	CARBON 56kΩ 1/4W J
R7015	401 019 3905	CARBON 390kΩ 1/4W J
R7016	401 020 3802	CARBON 470kΩ 1/4W J
R7017	401 012 8006	CARBON 100kΩ 1/4W J
R7018	401 012 9201	CARBON 1MΩ 1/4W J
R7019	401 012 6903	CARBON 10kΩ 1/4W J

Schematic Location	Parts No.	Description
R7021	401 016 4707	CARBON 22kΩ 1/4W J
R7022	401 013 7206	CARBON 120kΩ 1/4W J
R7023	401 020 2805	CARBON 47kΩ 1/4W J
R7024	401 020 2805	CARBON 47kΩ 1/4W J
R7025	401 020 3802	CARBON 470kΩ 1/4W J
R7026	401 023 1607	CARBON 820Ω 1/4W J
R7027	401 014 5102	CARBON 15kΩ 1/4W J
R7028	401 020 1907	CARBON 4.7kΩ 1/4W J
R7029	401 020 1907	CARBON 4.7kΩ 1/4W J
R7031	401 015 3701	CARBON 18kΩ 1/4W J
R7032	401 012 9201	CARBON 1MΩ 1/4W J
R7033	401 021 4006	CARBON 56kΩ 1/4W J
R7034	401 020 2805	CARBON 47kΩ 1/4W J
R7035	401 020 2805	CARBON 47kΩ 1/4W J
R7037	401 012 6903	CARBON 10kΩ 1/4W J
R7038	401 020 2805	CARBON 47kΩ 1/4W J
R7040	401 020 1907	CARBON 4.7kΩ 1/4W J
R7041	401 018 2701	CARBON 330Ω 1/4W J
R7042	401 012 8006	CARBON 100kΩ 1/4W J
R7043	401 012 6903	CARBON 10kΩ 1/4W J
R7044	401 012 6903	CARBON 10kΩ 1/4W J
R7045	401 012 8006	CARBON 100kΩ 1/4W J
R7046	401 014 5102	CARBON 15kΩ 1/4W J
R7047	401 012 6903	CARBON 10kΩ 1/4W J
R7048	401 012 6903	CARBON 10kΩ 1/4W J
R7049	401 018 5702	CARBON 330kΩ 1/4W J
R7050	401 012 6903	CARBON 10kΩ 1/4W J
R7051	401 018 2701	CARBON 330Ω 1/4W J
R7052	401 016 3700	CARBON 2.2kΩ 1/4W J
R7053	401 016 3700	CARBON 2.2kΩ 1/4W J
R7054	401 014 4006	CARBON 1.5kΩ 1/4W J
R7055	401 021 2903	CARBON 5.6kΩ 1/4W J
R7056	401 022 4005	CARBON 68kΩ 1/4W J
R7057	401 014 4006	CARBON 1.5kΩ 1/4W J
R7058	401 018 3708	CARBON 3.3kΩ 1/4W J
R7059	401 019 1802	CARBON 3.9kΩ 1/4W J
R7062	401 022 3008	CARBON 6.8kΩ 1/4W J
R7063	401 014 2804	CARBON 150Ω 1/4W J
R7064	401 020 0702	CARBON 470Ω 1/4W J
R7065	401 018 4804	CARBON 33kΩ 1/4W J
R7066	401 018 4804	CARBON 33kΩ 1/4W J
R7067	401 018 4804	CARBON 33kΩ 1/4W J
R7069	401 012 8006	CARBON 100kΩ 1/4W J
R7072	401 021 2903	CARBON 5.6kΩ 1/4W J
R7074	401 012 8006	CARBON 100kΩ 1/4W J
R7075	401 022 4005	CARBON 68kΩ 1/4W J
R7077	401 021 2903	CARBON 5.6kΩ 1/4W J
R7078	401 020 1907	CARBON 4.7kΩ 1/4W J
R7079	401 020 1907	CARBON 4.7kΩ 1/4W J
R7081	401 021 2903	CARBON 5.6kΩ 1/4W J
R7082	401 020 2805	CARBON 47kΩ 1/4W J
R7083	401 020 2805	CARBON 47kΩ 1/4W J
R7084	401 012 4404	CARBON 100Ω 1/4W J
R7085	401 012 6903	CARBON 10kΩ 1/4W J
R7086	401 020 2805	CARBON 47kΩ 1/4W J
R7087	401 020 2805	CARBON 47kΩ 1/4W J
R7089	401 012 8006	CARBON 100kΩ 1/4W J
R7091	401 012 8006	CARBON 100kΩ 1/4W J
R7092	401 012 8006	CARBON 100kΩ 1/4W J
R7093	401 012 8006	CARBON 100kΩ 1/4W J
R7094	401 012 8006	CARBON 100kΩ 1/4W J
R7095	401 012 8006	CARBON 100kΩ 1/4W J
R7097	401 012 8006	CARBON 100kΩ 1/4W J
R7098	401 012 8006	CARBON 100kΩ 1/4W J
R7101	401 012 8006	CARBON 100kΩ 1/4W J
R7103	401 020 3802	CARBON 470kΩ 1/4W J
R7104	401 012 8006	CARBON 100kΩ 1/4W J
R7105	401 012 8006	CARBON 100kΩ 1/4W J

Schematic Location	Parts No.	Description
R7106	401 020 3802	CARBON 470kΩ 1/4W J
R7107	401 012 6903	CARBON 10kΩ 1/4W J
R7108	401 012 6903	CARBON 10kΩ 1/4W J
R7109	401 021 4907	CARBON 560kΩ 1/4W J
R7111	401 012 6903	CARBON 10kΩ 1/4W J
R7112	401 012 6903	CARBON 10kΩ 1/4W J
R7113	401 021 2903	CARBON 5.6kΩ 1/4W J
R7114	401 021 2903	CARBON 5.6kΩ 1/4W J
R7115	401 021 4907	CARBON 560kΩ 1/4W J
R7116	401 012 6903	CARBON 10kΩ 1/4W J
R7117	401 012 6903	CARBON 10kΩ 1/4W J
R7118	401 016 4707	CARBON 22kΩ 1/4W J
R7119	401 018 4804	CARBON 33kΩ 1/4W J
R7121	401 018 4804	CARBON 33kΩ 1/4W J
R7123	401 012 4404	CARBON 100Ω 1/4W J
R7125	401 012 8006	CARBON 100kΩ 1/4W J
R7127	401 012 8006	CARBON 100kΩ 1/4W J
R7128	401 020 2805	CARBON 47kΩ 1/4W J
R7129	401 012 6903	CARBON 10kΩ 1/4W J
R7132	401 019 2908	CARBON 39kΩ 1/4W J
R7133	401 021 2903	CARBON 5.6kΩ 1/4W J
R7134	401 020 3802	CARBON 470kΩ 1/4W J
R7135	401 020 2805	CARBON 47kΩ 1/4W J
R7136	401 016 3700	CARBON 2.2kΩ 1/4W J
R7138	401 016 5704	CARBON 220kΩ 1/4W J
R7139	401 012 6903	CARBON 10kΩ 1/4W J
R7141	401 020 3802	CARBON 470kΩ 1/4W J
R7201	401 012 8006	CARBON 100kΩ 1/4W J
(VARIABLE RESISTORS)		
VR701	4-2224-00990	SEMI 10kΩ
VR705	4-2224-01780	SEMI 100kΩ
VR709	4-2224-01430	SEMI 100kΩ
VR711	4-2224-01330	SEMI 470kΩ
VR713	4-2224-01330	SEMI 470kΩ
VR714	4-2224-01330	SEMI 470kΩ
VR716	4-2224-01940	SEMI 100kΩ
VR717	4-2224-01940	SEMI 100kΩ
(ZENER DIODES)		
X502	4-2584-00180	CERAMIC RESONATOR 4.00MHz
or	4-2584-00181	CERAMIC RESONATOR 4.00MHz
X701	4-2584-00180	CERAMIC RESONATOR 4.00MHz
or	4-2584-00181	CERAMIC RESONATOR 4.00MHz
ZD501	DGGZA4.3-Y	ZENER DIODE GZA4.3-Y
ZD502	DGGZA5.6-Y	ZENER DIODE GZA5.6-Y

TUNER RF CONVERTER P.C.B. PARTS

Schematic Location	Parts No.	Description
	0-4034-00110	WIRE SHIELD ASSY
	4-1154-16635	TUNER IF DECODER ASSY

TIMER VOLTAGE SYNTHESIZER P.C.B. PARTS

Schematic Location	Parts No.	Description
	0-4014-04840	TIMER VOLTAGE SYNTHESIZER PC ASSY
	0-4030-00310	1P CORD ASSY D
	4-2374-00070	1P TERMINAL-D

Schematic Location	Parts No.	Description
(CAPACITORS)		
C1001	C1HCDJ330CH	CERAM 33pF 50V J
C1002	C1HCDJ330CH	CERAM 33pF 50V J
C1003	C1EBDK473SR	SEMI 0.047μF 25V K
C1004	C1HLEM105A	ELECT 1μF 50V M
C1005	C1HYDK102B	CERAM 0.001μF 50V K
C1006	C1HCDJ560CH	CERAM 56pF 50V J
C1007	C1HPRJ224A	M-FIL 0.22μF 50V J
C1008	C1HPRJ224A	M-FIL 0.22μF 50V J
C1009	C1HPRJ224A	M-FIL 0.22μF 50V J
C1011	C1HLEM226A	ELECT 22μF 50V M
C1012	C1HYDZ103F	CERAM 0.01μF 50V Z
C1013	C1HLEM106A	ELECT 10μF 50V M
C1015	C1HLEM226A	ELECT 22μF 50V M
C1016	C1HYDZ103F	CERAM 0.01μF 50V Z
C1017	C1CLEM106A	ELECT 10μF 16V M
C1018	C1EBDK103SR	SEMI 0.01μF 25V K
C1019	C1ALEM476A	ELECT 47μF 10V M
C1021	C1EBDK223SR	SEMI 0.022μF 25V K
C1022	C1HCDJ121CH	CERAM 120pF 50V J
C1031	C1HLEM105A	ELECT 1μF 50V M
C1032	C1HCDJ221SL	CERAM 220pF 50V J
C1033	C1HPRJ473A	M-FIL 0.047μF 50V J
C1036	C1HYDZ472F	CERAM 0.0047μF 50V Z
C1501	C1HCDJ330CH	CERAM 33pF 50V J
C1502	C1HCDJ330CH	CERAM 33pF 50V J
C1503	4-2244-00030	TRIMER CON 20P
C1504	C1HCDJ330CH	CERAM 33pF 50V J
C1505	C1HCDJ270CH	CERAM 27pF 50V J
C1508	C1HYDK103B	CERAM 0.01μF 50V K
C1509	C1ALEM226A	ELECT 22μF 10V M
C1511	C1ALEM476A	ELECT 47μF 10V M
C1512	COLDEM019T	ELECT 0.47F 5.5V M
or	COLDEZ022T	ELECT 0.47F 5.5V Z
C1513	C1HLEM335A	ELECT 3.3μF 50V M
C1514	C1EBDK683SR	SEMI 0.068μF 25V K
C1515	C1HLEM476A	ELECT 47μF 50V M
(DIODES)		
D1004	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1005	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1007	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1008	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1009	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1011	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1012	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1013	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1014	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1015	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1018	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1019	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1021	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1501	DFERA81-004	SK DIODE ERA81-004
D1502	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131

Schematic Location	Parts No.	Description
D1503 or D1504 or D1505 or D1507 or D1509 or D1511 or D1512 or D1513 or	DGGMA01 DY1SS131 DGGMA01 DY1SS131 DGGMA01 DY1SS131 DGGMA01 DY1SS131 DGGMA01 DY1SS131 DGGMA01 DY1SS131 DGGMA01 DY1SS131	DIODE GMA01 DIODE 1SS131 DIODE GMA01 DIODE 1SS131 DIODE GMA01 DIODE 1SS131 DIODE GMA01 DIODE 1SS131 DIODE GMA01 DIODE 1SS131 DIODE GMA01 DIODE 1SS131 DIODE GMA01 DIODE 1SS131
IC101 IC102 IC103 or IC104 IC105 or IC151 IC152 or	IWM50431-028S IWM58653P IMMN1280-S ISS-8054ALR IGLA7910 IWM5233P IYBA6993 INPD75208-031 IMMN1280-M ISS-8053ALR	(ICS) IC M50431-028S IC M58653P IC MN1280-S IC S-8054ALR IC LA7910 IC M5233P IC BA6993 IC PD75208-031 IC MN1280-M IC S-8053ALR
PA101 PA104 PA108 PB101 PB110	4-2364-00290 4-2364-00270 4-2364-00220 4-2364-00300 4-2364-00230	(PLUGS) 9P PLUG VERTICAL 7P PLUG VERTICAL 2P PLUG VERTICAL 10P PLUG VERTICAL 3P PLUG VERTICAL
Q1001 Q1002 Q1003 Q1004 Q1005 Q1006 or Q1007 Q1008 Q1009 or or Q1012 Q1016 Q1501 or or Q1502 or	TG2SC3402 TG2SC3402 TG2SC3402 TG2SC3402 TM2SC1685 TG2SC2274 TN2SC2002 TG2SA608SP TG2SA608SP TG2SC3400 TYDTC124N TYDTC124S TG2SA608SP TG2SC536SP TG2SC3400 TYDTC124N TYDTC124S TG2SA1345 TYDTA144S	(TRANSISTORS) DIGI TR 2SC3402 DIGI TR 2SC3402 DIGI TR 2SC3402 DIGI TR 2SC3402 TR 2SC1685(R)or(S) TR 2SC2274(E)or(F) TR 2SC2002(L)or(M) TR 2SA608SP(F)or(G) TR 2SA608SP(F)or(G) DIGI TR 2SC3400 DIGI TR DTC124N DIGI TR DTC124S TR 2SA608SP(F)or(G) TR 2SC536SP(F)or(G) DIGI TR 2SC3400 DIGI TR DTC124N DIGI TR DTC124S DIGI TR 2SA1345 DIGI TR DTA144S
R1001 R1002 R1003 R1004 R1005 R1006 R1007 R1008 R1009 R1011	401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707	(RESISTORS) CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J

Schematic Location	Parts No.	Description
R1012 R1013 R1014 R1015 R1016 R1017 R1018 R1019 R1021 R1022 R1023 R1024 R1025 R1026 R1027 R1028 R1029 R1031 R1032 R1033 R1034 R1035 R1036 R1037 R1038 R1039 R1041 R1042 R1044 R1045 R1046 R1047 R1048 R1049 R1051 R1052 R1054 R1055 R1056 R1059 R1061 R1062 R1068 R1069 R1501 R1502 R1503 R1504 R1505 R1506 R1507 R1508 R1509 R1510 R1511 R1512 R1513 R1514 R1515 R1516 R1517 R1518 R1519 R1521 R1522 R1523 R1524 R1528	401 012 6903 401 042 9905 401 046 2902 401 050 0208 401 042 2401 401 021 2903 401 019 1802 401 018 4804 401 017 3709 401 019 3905 401 012 6903 401 023 2703 401 023 2703 401 023 2703 401 012 6903 401 022 1806 401 015 2605 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 018 4804 401 018 4804 401 012 8006 401 012 6903 401 020 1907 401 012 6903 401 016 4707 401 008 7501 401 019 1802 401 012 4404 401 012 6903 401 012 6903 401 012 6903 401 014 5102 401 016 2505 401 012 5609 401 012 5609 401 021 2903 401 021 2903 401 012 5609 401 019 1802 401 012 4404 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 016 4707 401 018 5702 401 016 4707 401 016 4707 401 013 5202 401 013 5202 401 013 5202 401 016 4707 401 020 1907 401 020 1907 401 016 4707 401 012 5609 401 012 6903 401 012 8006 401 019 1802	CARBON 10kΩ 1/4W J METAL 14.9kΩ 1/4W D METAL 29.9kΩ 1/4W D METAL 59.9kΩ 1/4W D METAL 120kΩ 1/4W D CARBON 5.6kΩ 1/4W J CARBON 3.9kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 270kΩ 1/4W J CARBON 390kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 8.2kΩ 1/4W J CARBON 8.2kΩ 1/4W J CARBON 8.2kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 680Ω 1/4W J CARBON 1.8kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 4.7kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 2.2kΩ 1/2W J CARBON 3.9kΩ 1/4W J CARBON 100Ω 1/4W J CARBON 10kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 15kΩ 1/4W J CARBON 220Ω 1/4W J CARBON 1kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 3.9kΩ 1/4W J CARBON 100Ω 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 330kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 1.2kΩ 1/4W J CARBON 1.2kΩ 1/4W J CARBON 1.2kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 4.7kΩ 1/4W J CARBON 4.7kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 22kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 3.9kΩ 1/4W J

Schematic Location	Parts No.	Description
R1529	401 012 5609	CARBON 1k Ω 1/4W J
R1531	401 012 4404	CARBON 100 Ω 1/4W J
R1532	401 018 4804	CARBON 33k Ω 1/4W J
R1533	401 018 4804	CARBON 33k Ω 1/4W J
R1534	401 018 4804	CARBON 33k Ω 1/4W J
R1535	401 018 4804	CARBON 33k Ω 1/4W J
R1536	401 022 4005	CARBON 68k Ω 1/4W J
R1537	401 012 6903	CARBON 10k Ω 1/4W J
R1538	401 012 8006	CARBON 100k Ω 1/4W J
R1539	401 016 2505	CARBON 220 Ω 1/4W J
R1541	401 016 2505	CARBON 220 Ω 1/4W J
(SWITCHES)		
S1001	4-2314-00730	SLIDE SWITCH 1-3
S1002	4-2314-00310	KEY BOARD SWITCH
S1003	4-2314-00310	KEY BOARD SWITCH
S1004	4-2314-00310	KEY BOARD SWITCH
S1005	4-2314-00310	KEY BOARD SWITCH
S1006	4-2314-00310	KEY BOARD SWITCH
S1007	4-2314-00310	KEY BOARD SWITCH
S1501	4-2314-00310	KEY BOARD SWITCH
S1502	4-2314-00310	KEY BOARD SWITCH
(PIN)		
ST156	4-2374-00540	STYLE PIN
(PINS)		
TP151	4-2374-00030	TEST POINT PIN
TP152	4-2374-00030	TEST POINT PIN
TP153	4-2374-00030	TEST POINT PIN
TP154	4-2374-00030	TEST POINT PIN
X101	4-2584-00180	CERAMIC RESONATOR 4.00MHz
or	4-2584-00181	CERAMIC RESONATOR 4.00MHz
X1501	4-2584-00180	CERAMIC RESONATOR 4.00MHz
or	4-2584-00181	CERAMIC RESONATOR 4.00MHz
X1502	4-2254-00150	CRISTAL 32.768kHz
(ZENER DIODES)		
ZD101	DNMPC574J	ZENER DIODE μ PC574J
ZD102	DGGZA36-Y	ZENER DIODE GZA36-Y
ZD103	DFEQA02-30C	ZENER DIODE EQA02-30C
or	DGGZA30-Y	ZENER DIODE GZA30-Y
ZD151	DGGZS9.1-Z	ZENER DIODE GZS9.1-Z
or	DYMTZ9.1-C	ZENER DIODE MTZ9.1-C
ZD152	DMMA4180-M	ZENER DIODE MA4180-M
or	DYMTZ18-C	ZENER DIODE MTZ18-C
ZD153	DGGZS9.1-Z	ZENER DIODE GZS9.1-Z
or	DYMTZ9.1-C	ZENER DIODE MTZ9.1-C

FRONT RIGHT P.C.B. PARTS

Schematic Location	Parts No.	Description
	0-4014-04830	FRONT RIGHT PC ASSY
	0-4030-00310	1P CORD ASSY D
	4-2374-00070	1P TERMINAL-D
	0-4030-00450	1P CORD ASSY D
	4-2374-00070	1P TERMINAL-D
	143-2-3304-03400	BASE FL MOUNTING-HAQ
	143-2-5604-11200	REFLECTOR HI FI-HAQ
	143-2-5604-11500	REFLECTOR ST/BI-HAQ
	143-2-5604-12300	REFLECTOR VPS-HAQ
BR181	4-2214-00380	BLOCK RESIST SANYO-081

Schematic Location	Parts No.	Description
or	4-2214-00381	BLOCK RESIST SANYO-081
(DIODES)		
D1801	DYSLR-40MC3F	LED SLR-40MC3F
D1802	DYSLR-40MC3F	LED SLR-40MC3F
D1803	DYSLR-34MC3F	LED SLR-34MC3F
D1804	DYSLR-34MC3F	LED SLR-34MC3F
D1805	DYSLR-34MC3F	LED SLR-34MC3F
D1806	DYSLR-34MC3F	LED SLR-34MC3F
D1807	DYSLR-34DC3F	LED SLR-34DC3F
D1808	DYSLR-34DC3F	LED SLR-34DC3F
D1809	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1811	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1812	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1813	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1814	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1815	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1816	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1817	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1818	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1819	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1821	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1822	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1823	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1824	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1825	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1826	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1827	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
D1828	DGGMA01	DIODE GMA01
or	DY1SS131	DIODE 1SS131
FL181	4-2154-00130	DIGITRON
(TRANSISTORS)		
Q1801	TG2SA1346	DIGI TR 2SA1346
or	TYDTA124N	DIGI TR DTA124N
or	TYDTA124S	DIGI TR DTA124S
(RESISTORS)		
R1801	401 051 7602	METAL 8.57k Ω 1/4W D
R1802	401 018 2701	CARBON 330 Ω 1/4W J
R1803	401 012 4404	CARBON 100 Ω 1/4W J
R1804	401 016 2505	CARBON 220 Ω 1/4W J
R1805	401 021 1807	CARBON 560 Ω 1/4W J
R1806	401 018 2701	CARBON 330 Ω 1/4W J
R1807	401 012 8006	CARBON 100k Ω 1/4W J
(SWITCHES)		
S1801	4-2314-00820	KEY BOARD SWITCH
S1802	4-2314-00820	KEY BOARD SWITCH
S1803	4-2314-00820	KEY BOARD SWITCH

Schematic Location	Parts No.	Description
S1804	4-2314-00820	KEY BOARD SWITCH
S1805	4-2314-00820	KEY BOARD SWITCH
S1806	4-2314-00820	KEY BOARD SWITCH
S1807	4-2314-00730	SLIDE SWITCH 1-3
S1809	4-2314-00400	KEY BOARD SWITCH
S1811	4-2314-00400	KEY BOARD SWITCH
S1812	4-2314-00400	KEY BOARD SWITCH
S1813	4-2314-00400	KEY BOARD SWITCH
S1814	4-2314-00400	KEY BOARD SWITCH
S1815	4-2314-00400	KEY BOARD SWITCH
S1816	4-2314-00400	KEY BOARD SWITCH
S1817	4-2314-00400	KEY BOARD SWITCH
S1818	4-2314-00400	KEY BOARD SWITCH
S1819	4-2314-00580	SLIDE SWITCH 1-3
S1821	4-2314-00400	KEY BOARD SWITCH
S1822	4-2314-00400	KEY BOARD SWITCH
S1823	4-2314-00400	KEY BOARD SWITCH
S1824	4-2314-00400	KEY BOARD SWITCH
S1825	4-2314-00400	KEY BOARD SWITCH
S1826	4-2314-00400	KEY BOARD SWITCH
S1827	4-2314-00400	KEY BOARD SWITCH
S1828	4-2314-00400	KEY BOARD SWITCH
		(VARIABLE RESISTORS)
VR181	4-2224-01890	VR 500k Ω
VR182	4-2224-01890	VR 500k Ω
VR183	4-2224-01900	VR 30k Ω

FRONT LEFT P.C.B. PARTS

Schematic Location	Parts No.	Description
	0-4014-04820	FRONT LEFT PC ASSY
	0-4030-00300	1P CORD ASSY D
	4-2374-00070	1P TERMINAL-D
	4-2354-00710	3.5 JACK
	4-5114-00010	LEVEL METER
	143-2-3504-12600	SHIELD CASE IR-HAQ
	143-2-3504-12800	SHIELD BOTTOM IR-HAQ
	143-2-5604-01900	SPACER IR-HAA
	143-2-5604-11100	REFLECTOR POWER-HAQ
	143-2-6204-12500	GROUND PLATE C-HAQ
		(CAPACITORS)
C4601	C1AGEM476A	ELECT 47 μ F 10V M
C4602	C1AGEM476A	ELECT 47 μ F 10V M
C4603	C1CGEM106A	ELECT 10 μ F 16V M
C4604	C1CGEM106A	ELECT 10 μ F 16V M
C4605	C1AGEM476A	ELECT 47 μ F 10V M
C4606	C1CGEM476A	ELECT 47 μ F 16V M
C4607	C1HGEM335A	ELECT 3.3 μ F 50V M
C4608	C1HGEM335A	ELECT 3.3 μ F 50V M
C5801	C1CGEM106A	ELECT 10 μ F 16V M
C5802	C1AGEM476A	ELECT 47 μ F 10V M
C5803	C1HGEM225A	ELECT 2.2 μ F 50V M
C5804	C1CGEM106A	ELECT 10 μ F 16V M
C5805	C1EBDK473SR	SEMI 0.047 μ F 25V K
C5806	C1EBDK102SR	SEMI 0.001 μ F 25V K
		(DIODES)
D5801	DESFH205	PH DI SFH205
D5802	DYSLR-34UR3F	SLR-34UR3F
D5803	DYSLR-34UR3F	SLR-34UR3F

Schematic Location	Parts No.	Description
IC461	IJNJM4560D	(ICS) IC NJM4560D
IC581	IGLA7224	IC LA7224
		(COILS)
L5801	4-2584-00080	COIL (38kHz)
or	4-2584-00081	COIL (38kHz)
		(PLUG)
PC509	4-2364-00220	2P PLUG VERTICAL
		(RESISTORS)
R4601	401 014 2804	CARBON 150 Ω 1/4W J
R4602	401 014 2804	CARBON 150 Ω 1/4W J
R4603	401 018 3708	CARBON 3.3k Ω 1/4W J
R4604	401 016 3700	CARBON 2.2k Ω 1/4W J
R4605	401 018 3708	CARBON 3.3k Ω 1/4W J
R4606	401 016 3700	CARBON 2.2k Ω 1/4W J
R4607	401 012 8006	CARBON 100k Ω 1/4W J
R4608	401 012 8006	CARBON 100k Ω 1/4W J
R4609	401 012 6903	CARBON 10k Ω 1/4W J
R4611	401 013 6308	CARBON 12k Ω 1/4W J
R5801	401 012 5609	CARBON 1k Ω 1/4W J
R5802	401 016 1409	CARBON 22 Ω 1/4W J
R5803	401 020 2805	CARBON 47k Ω 1/4W J
R5804	401 012 6903	CARBON 10k Ω 1/4W J
R5805	401 012 4404	CARBON 100 Ω 1/4W J
R5810	401 018 4804	CARBON 33k Ω 1/4W J
		(SWITCHES)
S5801	4-2314-00310	KEY BOARD SWITCH
S5802	4-2314-00310	KEY BOARD SWITCH
S5803	4-2314-00570	SLIDE SWITCH 1-2
S5804	4-2314-00580	SLIDE SWITCH 1-3
S5805	4-2314-00580	SLIDE SWITCH 1-3
S5806	4-2314-00570	SLIDE SWITCH 1-2
S5807	4-2314-00580	SLIDE SWITCH 1-3
S5808	4-2314-00570	SLIDE SWITCH 1-2
		(VARIABLE RESISTORS)
VR461	4-2224-01380	VR 50k Ω x2
VR462	4-2224-01370	SLIDE VR 10K Ω x2

MECHANISM CONTROL CIRCUIT P.C.B. PARTS

Schematic Location	Parts No.	Description
	0-4014-04360	MECHANISM CONTROL PC ASSY
		(CAPACITORS)
C5501	COJLEM227A	ELECT 220 μ F 6.3V M
C5502	C1EBDK104SR	SEMI 0.1 μ F 25V K
C5503	C1HCDJ181SL	CERAM 180pF 50V J
C5505	C1EBDK104SR	SEMI 0.1 μ F 25V K
C5506	C1EBDK102SR	SEMI 0.001 μ F 25V K
C5507	C1EBDK102SR	SEMI 0.001 μ F 25V K
C5508	C1HCDJ330CH	CERAM 33pF 50V J
C5511	C1EBDK473SR	SEMI 0.047 μ F 25V K
C5512	C1EBDK473SR	SEMI 0.047 μ F 25V K
C5513	C1EBDK102SR	SEMI 0.001 μ F 25V K
C5514	C1EBDK103SR	SEMI 0.01 μ F 25V K
C5515	C1CLEM107A	ELECT 100 μ F 16V M
C5516	C1EBDK473SR	SEMI 0.047 μ F 25V K
C5517	C1EBDK473SR	SEMI 0.047 μ F 25V K
C5518	C1HCDJ101SL	CERAM 100pF 50V J

POWER CIRCUIT P.C.B. PARTS

Schematic Location	Parts No.	Description	Schematic Location	Parts No.	Description
CR551 or	4-2584-00180 4-2584-00181	CERAMIC RESONATOR 4.00MHZ CERAMIC RESONATOR 4.00MHZ		0-4014-05160	POWER A PC ASSY
D5502 or or	DGGMA01-L DMMA165.SAN DY1SS133	(DIODES) DIODE GMA01-L SI DIODE MA165.SAN DIODE 1SS133		0-4030-00090 4-2374-00070 4-2354-00700 143-2-3604-03100 143-2-7904-03400	1P CORD ASSY D 1P TERMINAL-D FUSE CL1P INSULATOR PLATE CNDNSR-HAQ RAD PLATE DIODE-HAQ
IC551 IC552	IGLC6523H3119 IWM54649L	(ICS) IC LC6523H3119 IC M54649L			(CAPACITORS)
PB503 PB504 PB505 PB506 PB507 PB508	4-2364-00240 4-2364-00230 4-2364-00230 4-2364-00220 4-2364-00220 4-2364-00220	(PLUGS) 4P PLUG VERTICAL 3P PLUG VERTICAL 3P PLUG VERTICAL 2P PLUG VERTICAL 2P PLUG VERTICAL 2P PLUG VERTICAL	C901 C902 C903 C904 C905 C914	C1ELEM478A C1CLEM228A C1JREM227A C1JREM227A C1HYDZ472F C2EMRM473B-W	ELECT 4700μF 25V M ELECT 2200μF 16V M ELECT 220μF 63V M ELECT 220μF 63V M CERAM 0.0047μF 50V Z M-FIL 0.047μF 250V M
Q5501 Q5502	TG2SC536SP TG2SC536SP	(TRANSISTORS) TR 2SC536SP(F)or(G) TR 2SC536SP(F)or(G)	D901 D902 D903 D904 D905 or D906 or	DFERC01-02F DFERC01-02F DFERC01-02F DFERC01-02F DFERB12-02 DGDSF10C DFERB12-02 DGDSF10C	(DIODES) DIODE ERC01-02F DIODE ERC01-02F DIODE ERC01-02F DIODE ERC01-02F DIODE ERB12-02 DIODE DSF10C DIODE ERB12-02 DIODE DSF10C
R5501 R5502 R5503 R5504 R5505 R5506 R5507 R5508 R5509 R5511 R5512 R5513 R5514 R5515 R5516 R5517 R5518 R5519 R5521 R5522 R5523 R5524 R5525 R5526 R5527 R5528 R5529 R5531 R5532 R5533 R5534 R5535 R5536 R5537 R5539	401 012 6903 401 016 3700 401 012 8006 401 012 8006 401 012 8006 401 012 8006 401 012 8006 401 012 8006 401 012 8006 401 012 8006 401 012 8006 401 012 5609 401 018 4804 401 020 1907 401 020 1907 401 022 5002 401 022 5002 401 012 6903 401 012 6903 401 012 6903 401 012 6903 401 016 3700 401 018 4804 401 018 4804 401 018 4804 401 012 6903 401 013 5202 401 012 6903 401 020 3802 401 012 8006 401 012 8006 401 018 2701 401 023 3601 401 018 2701 401 013 4106 401 022 5002	(RESISTORS) CARBON 10kΩ 1/4W J CARBON 2.2kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 1kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 4.7kΩ 1/4W J CARBON 4.7kΩ 1/4W J CARBON 680kΩ 1/4W J CARBON 680kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 2.2kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 33kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 1.2kΩ 1/4W J CARBON 10kΩ 1/4W J CARBON 470kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 100kΩ 1/4W J CARBON 330Ω 1/4W J CARBON 82kΩ 1/4W J CARBON 330Ω 1/4W J CARBON 120Ω 1/4W J CARBON 680kΩ 1/4W J	F901 or	4-2344-00070 4-2344-00071	FUSE T500MA SEMKO FUSE T500MA SEMKO
ZD551 or or	DGGZS6.8-Z DMMA4068-M DYMTZ6.8-C	(ZENER DIODES) ZENER DIODE GZS6.8-Z ZENER DIODE MA4068-M ZENER DIODE MTZ6.8-C	L901	4-2524-00150	(COIL) LINE FILTER
				0-4014-05170 143-2-3404-15500	POWER B PC ASSY BRACKET TRANSISTOR-HAR
			C906 C907 C908	C1EBDK472SR C1CLEM106A C1CLEM476A	(CAPACITORS) SEMI 0.0047μF 25V K ELECT 10μF 16V M ELECT 47μF 16V M
			D907 or	DFERB12-02 DGDSF10C	(DIODES) DIODE ERB12-02 DIODE DSF10C
			PB901 PB902 PB903 PB904 PB905	4-2364-00241 4-2364-00251 4-2364-00270 4-2364-00280 4-2364-00220	(PLUGS) 4P PLUG HORIZONTAL 5P PLUG HORIZONTAL 7P PLUG VERTICAL 8P PLUG VERTICAL 2P PLUG VERTICAL
			Q902 Q903 or Q904 or Q906 Q907	TG2SB764 TG2SC536SP TN2SC945 TG2SC536SP TN2SC945 TG2SD1153 TG2SD313	(TRANSISTORS) TR 2SB764(F) TR 2SC536SP(F) TR 2SC945(P) TR 2SC536SP(F) TR 2SC945(P) TR 2SD1153 TR 2SD313(E)or(F)
			R901 R902 R903 R904 R905 R906	401 012 6903 401 021 2903 401 020 2805 401 021 2903 401 021 1807 401 015 4609	(RESISTORS) CARBON 10kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 47kΩ 1/4W J CARBON 5.6kΩ 1/4W J CARBON 560Ω 1/4W J CARBON 180kΩ 1/4W J

Schematic Location	Parts No.	Description
R909	401 015 3701	CARBON 18k Ω 1/4W J
R911	401 012 6903	CARBON 10k Ω 1/4W J
R912	401 014 5102	CARBON 15k Ω 1/4W J
R913	401 014 5102	CARBON 15k Ω 1/4W J
TP901	4-2374-00030	(PIN) TEST POINT PIN
ZD901	DGGZA13-Y	(ZENER DIODE) ZENER DIODE GZA13-Y
	0-4014-05180	POWER C PC ASSY
C909	C1CLEM106A	(CAPACITORS) ELECT 10 μ F 16V M
C911	C1ELEM106A	ELECT 10 μ F 25V M
C912	C1CLEM106A	ELECT 10 μ F 16V M
	0-4054-00160	POWER CORD ASSY EUR
	0-4054-00161	POWER CORD ASSY EUR
IC901	IGSTK5461ST	(IC) H/B IC STK5461ST
T901	4-2514-01402	POWER TRANSFORMER

HEAD AMP P.C.B PARTS

Schematic Location	Parts No.	Description
	0-4014-04950	HEAD AMP PC ASSY
	143-2-3504-13500	SHIELD AMP CASE
	143-2-3504-13600	SHIELD FRONT CASE
	143-2-3504-13700	SHIELD REAR CASE
		(CAPACITORS)
C277	C1EBDK223SR	SEMI 0.022 μ F 25V K
C278	C1EBDK103SR	SEMI 0.01 μ F 25V K
C281	C1EBDK223SR	SEMI 0.022 μ F 25V K
C282	C1EBDK223SR	SEMI 0.022 μ F 25V K
C283	C1HCDJ180SL	CERAM 18pF 50V J
C284	C1HCDJ180SL	CERAM 18pF 50V J
C285	C1EBDK223SR	SEMI 0.022 μ F 25V K
C286	C1EBDK223SR	SEMI 0.022 μ F 25V K
C287	C1HGEM105A	ELECT 1 μ F 50V M
C288	C1EBDK223SR	SEMI 0.022 μ F 25V K
C289	C0JLEM227A	ELECT 220 μ F 6.3V M
C291	C1CGEM107A	ELECT 100 μ F 16V M
C292	C1EBDK223SR	SEMI 0.022 μ F 25V K
C293	C1EBDK223SR	SEMI 0.022 μ F 25V K
C294	C1EBDK223SR	SEMI 0.022 μ F 25V K
C295	C1EBDK223SR	SEMI 0.022 μ F 25V K
C296	C1HCDJ180SL	CERAM 18pF 50V J
C297	C1EBDK223SR	SEMI 0.022 μ F 25V K
IC200	IGLA7300-M	(IC) IC LA7300-M
		(COILS)
L281	4-2534-00690	BEAD FILTER
L282	4-2534-00690	BEAD FILTER
L283	4-2724-R101K	INDUCTOR 100 μ H
L284	4-2724-R101K	INDUCTOR 100 μ H

Schematic Location	Parts No.	Description
L285	4-2534-00690	BEAD FILTER
PB201	4-2354-00730	(PLUGS) 8P SOCKET HORIZONTAL
PB204	4-2364-00241	4P PLUG HORIZONTAL
PB205	4-2364-00281	8P PLUG HORIZONTAL
		(RESISTORS)
R281	401 020 5509	CARBON 5.1 Ω 1/4W J
R282	401 014 1500	CARBON 15 Ω 1/4W J
R283	401 018 1506	CARBON 33 Ω 1/4W J
R284	401 016 3700	CARBON 2.2k Ω 1/4W J
TP2	4-2364-00221	(PLUG) 2P PLUG HORIZONTAL
TP281	4-2374-00030	(PIN) TEST POINT PIN
VR281	4-2224-01620	(VARIABLE RESISTORS) SEMI 1k Ω
VR282	4-2224-01620	SEMI 1k Ω

VSP DECODER P.C.B. PARTS

NOTE:

The difference between FVH-P990K and FVH-P990KV is VPS Decoder PC Assy as follows:

VPS Decoder PC Assy for FVH-P990K is Optional.

VPS Decoder PC Assy for FVH-P990KV is built in.

Schematic Location	Parts No.	Description
	0-4014-05610	VPS DECODER PC ASSY
		(CAPACITORS)
C5401	C1HLEM474A	ELECT 0.47 μ F 50V M
C5402	C1HFRJ683C	MYLAR 0.068 μ F 50V J
C5403	C1HYDZ103F	CERAM 0.01 μ F 50V Z
C5404	C1CLEM226A	ELECT 22 μ F 16V M
C5405	C1HYDZ103F	CERAM 0.01 μ F 50V Z
C5406	C1HCDJ150CH	CERAM 15pF 50V J
C5407	C1HYDK102B	CERAM 0.001 μ F 50V K
C5408	C1HCDJ471SL	CERAM 470pF 50V J
C5409	C1HYDZ223F	CERAM 0.022 μ F 50V Z
C5411	C1HCDJ271SL	CERAM 270pF 50V J
C5412	C1HCDJ101CH	CERAM 100pF 50V J
C5413	C1HCDJ150CH	CERAM 15pF 50V J
C5414	C1HCDJ820CH	CERAM 82pF 50V J
C5415	C1HYDZ103F	CERAM 0.01 μ F 50V Z
C5416	C1ALEM226A	ELECT 22 μ F 10V M
C5417	C1HYDZ103F	CERAM 0.01 μ F 50V Z
C5418	C1HYDZ103F	CERAM 0.01 μ F 50V Z
C5419	C1HCDJ330CH	CERAM 33pF 50V J
C5421	C1HCDJ330CH	CERAM 33pF 50V J
C5422	C1HYDK102B	CERAM 0.001 μ F 50V K
C5423	C1HYDK102B	CERAM 0.001 μ F 50V K
C5424	C1HYDK102B	CERAM 0.001 μ F 50V K
		(ICS)
IC541	IDSAA5235	IC SAA5235
IC542	IESDA5640	IC SDA5640
IC543	IGLC6527C3180	IC LC6527C3180
		(COILS)
L541	4-2724-F100K	INDUCTOR 10 μ H

Schematic Location	Parts No.	Description			
PD511 PD512	4-2364-00270 4-2364-00220	(PLUGS) 7P PLUG VERTICAL 2P PLUG VERTICAL			
R5401 R5402 R5403 R5404 R5405 R5406 R5407 R5408 R5409	401 018 3708 401 016 4707 401 016 4707 401 012 6903 401 012 6903 401 012 4404 401 020 0702 401 012 6903 401 012 4404	(RESISTORS) CARBON 3.3k Ω 1/4W J CARBON 22k Ω 1/4W J CARBON 22k Ω 1/4W J CARBON 10k Ω 1/4W J CARBON 10k Ω 1/4W J CARBON 100 Ω 1/4W J CARBON 470 Ω 1/4W J CARBON 10k Ω 1/4W J CARBON 100 Ω 1/4W J			
X541 X542 or	4-2254-00160 4-2584-00180 4-2584-00181	CRYSTAL 10.0MHz CERAMIC RESONATOR 4.00MHz CERAMIC RESONATOR 4.00MHz			REC REC

FVH-P990K FVH-P990KV

(EUROPE)

SCHEMATIC DIAGRAM & PRINTED CIRCUIT BOARD

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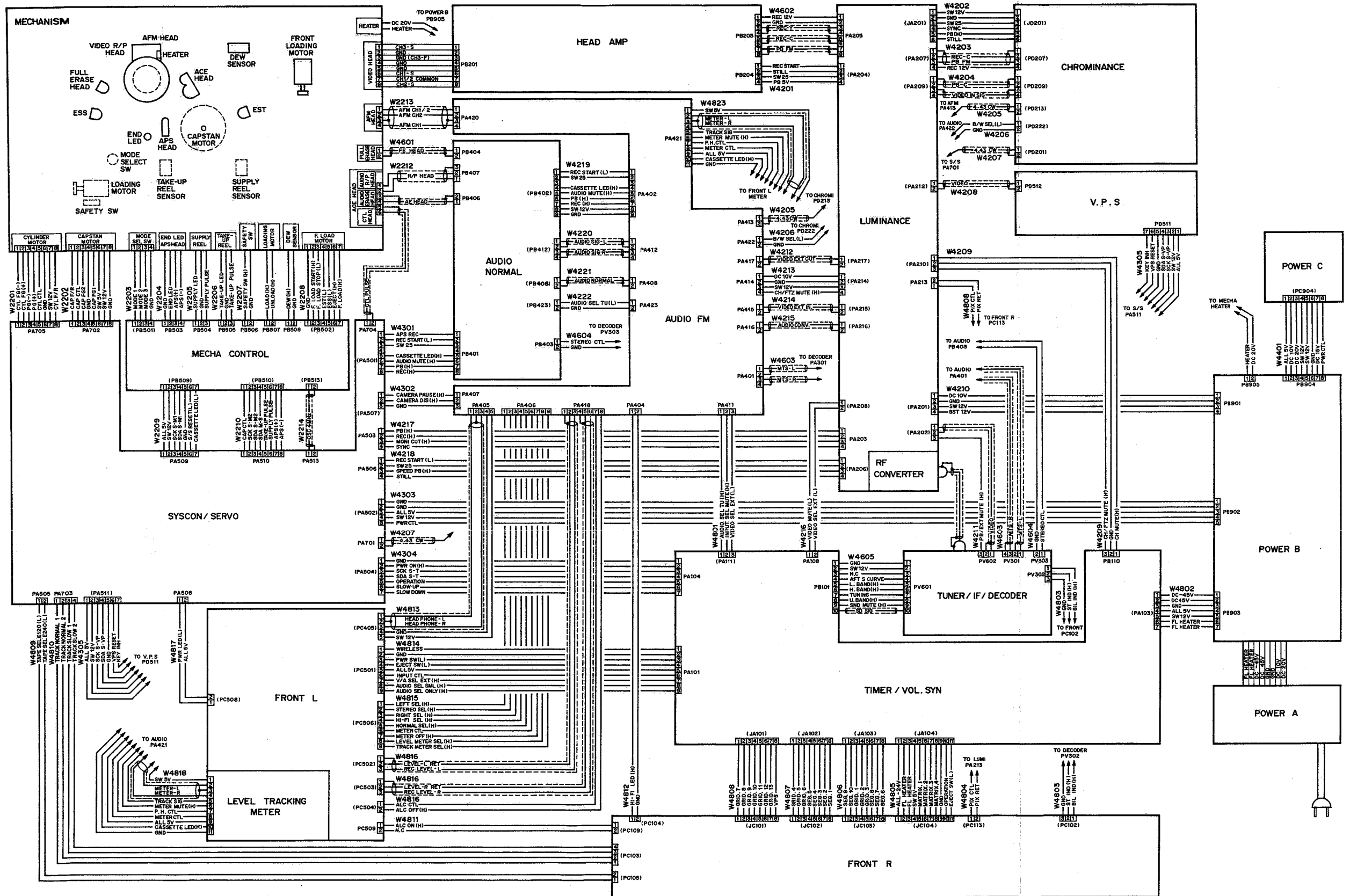
PRODUCT SAFETY NOTICE

PRODUCT SAFETY SHOULD BE CONSIDERED WHEN COMPONENT REPLACEMENT IS MADE IN ANY AREA OF A UNIT. COMPONENTS INDICATED BY THE SYMBOL  IN THIS SCHEMATIC DIAGRAM SHOW COMPONENTS WHOSE VALUE HAVE SPECIAL SIGNIFICANCE TO PRODUCT SAFETY. IT IS PARTICULARLY RECOMMENDED THAT ONLY PARTS SPECIFIED ON THE ATTACHED PARTS LIST BE USED FOR COMPONENT REPLACEMENT DESIGNATED BY THE SYMBOL. 

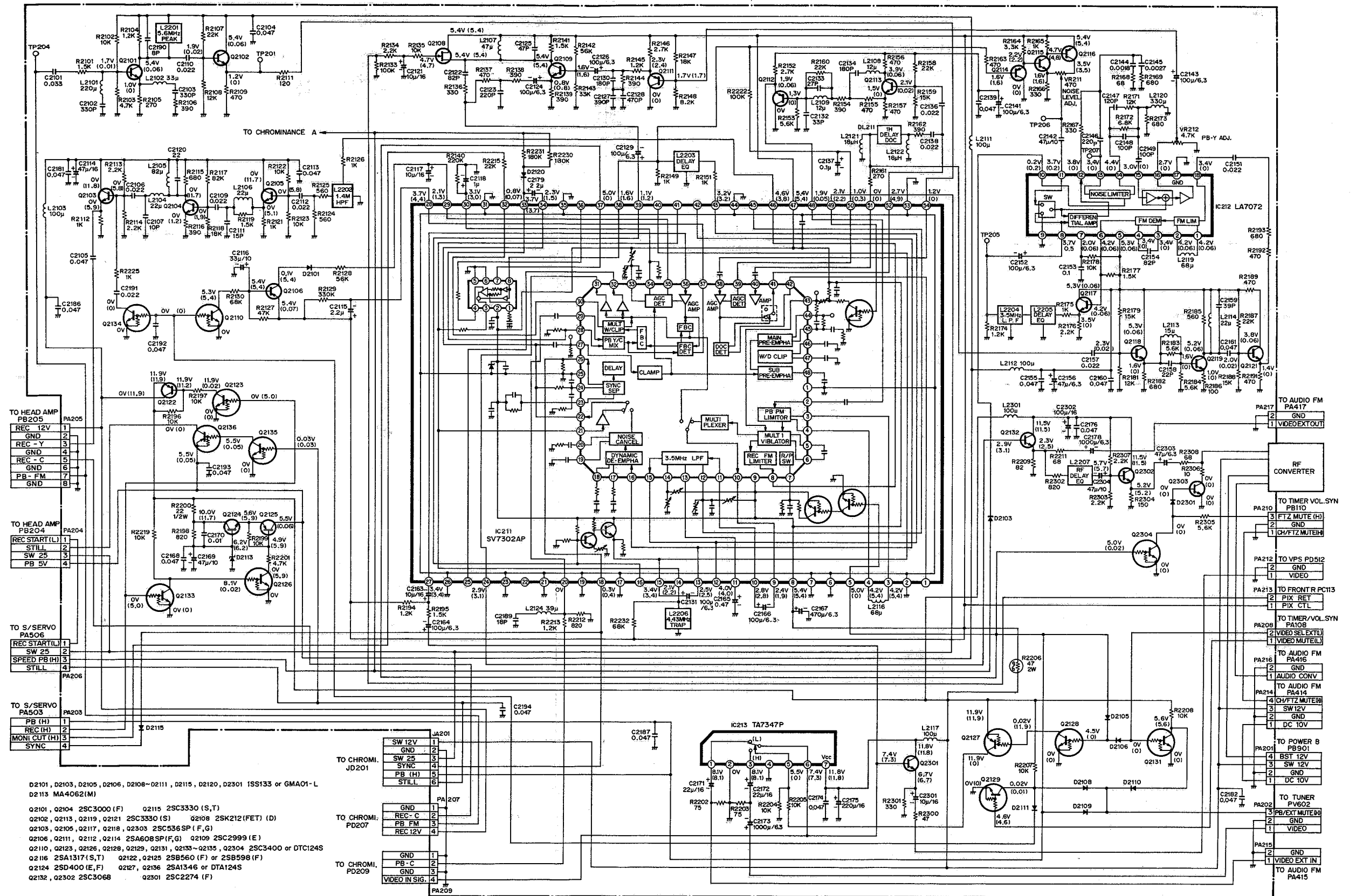
NOTES:

1. Unless otherwise noted in schematic diagram, following items:
 - a) All resistance values in " Ω ".
K=1000 Ω . M=1000 k Ω .
 - b) All inductance values in "mH".
 μ = μ H.
 - c) All capacitance values less than 1 are expressed in " μ F", and the values larger than 1 are in "pF".
2. Voltages (italic) are DC-measured with a digital voltmeter, and voltage reading may vary $\pm 20\%$.
3. This is a fundamental circuit diagram. Some production changes may be made without revision of the diagram.

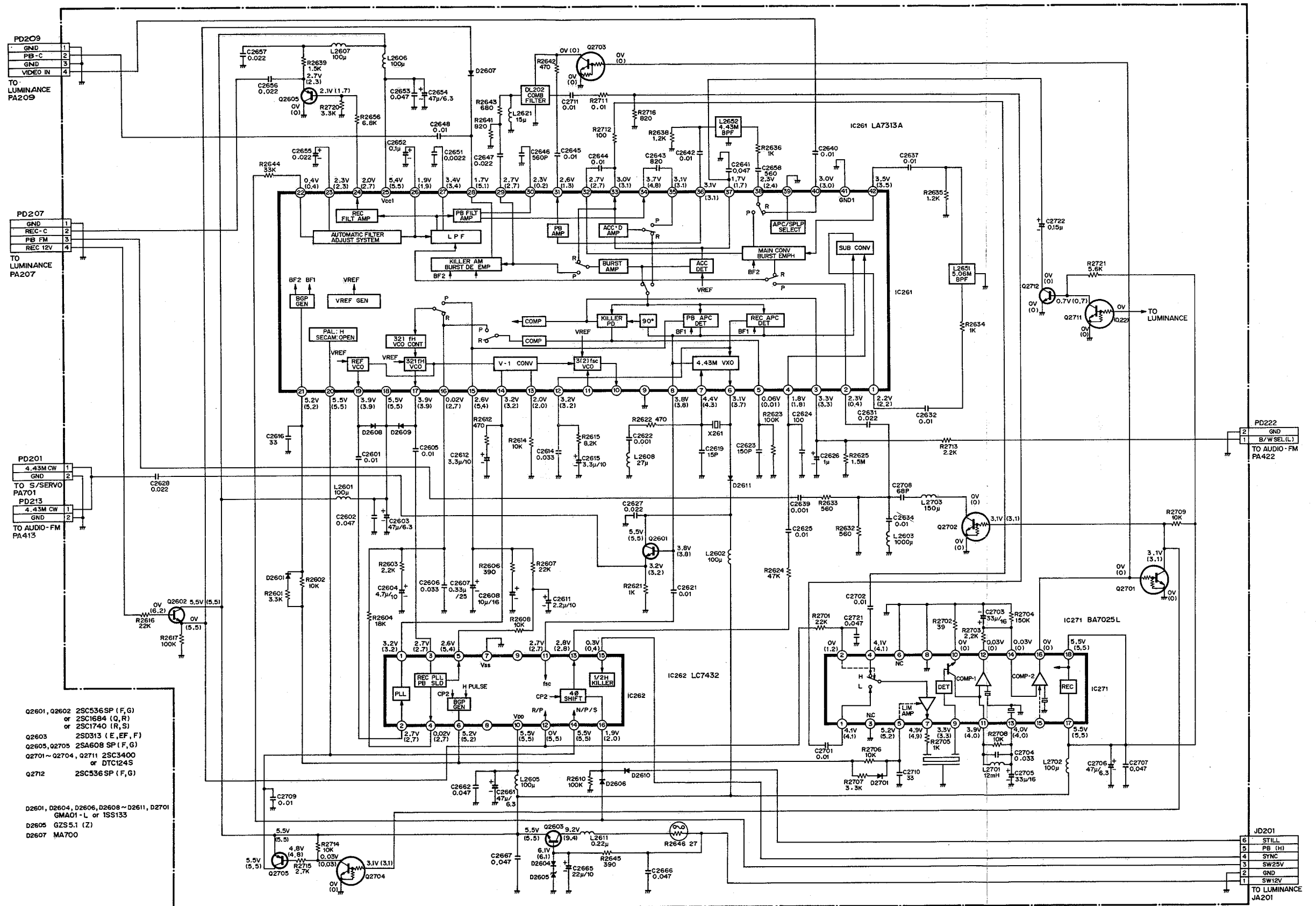
OVERALL WIRING DIAGRAM



LUMINANCE CIRCUIT DIAGRAM

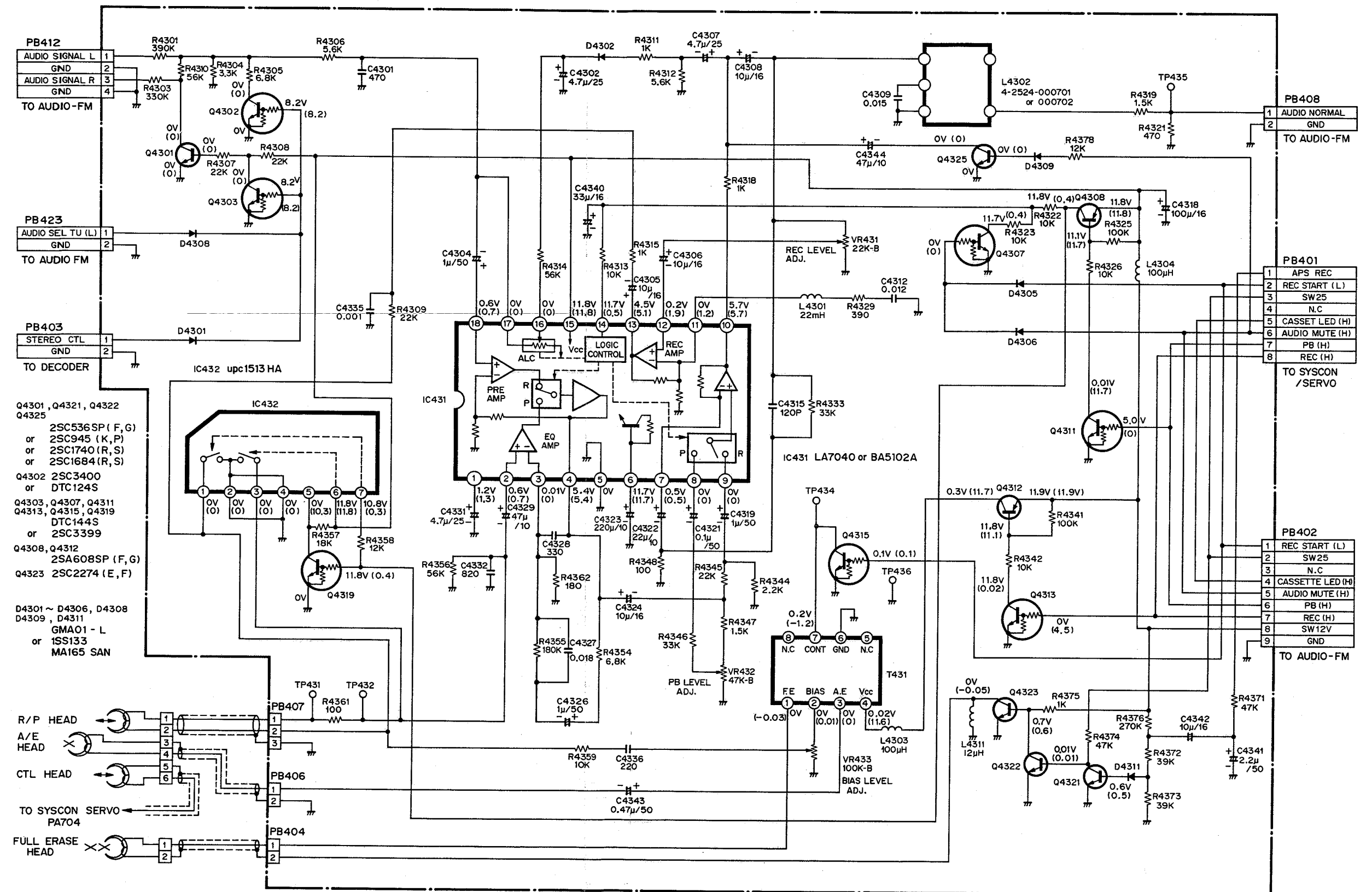


CHROMINANCE CIRCUIT DIAGRAM



NOTE:
All voltage are measured in the PLAY and RECORD modes at SP unless otherwise noted.
()=RECORD mode only.

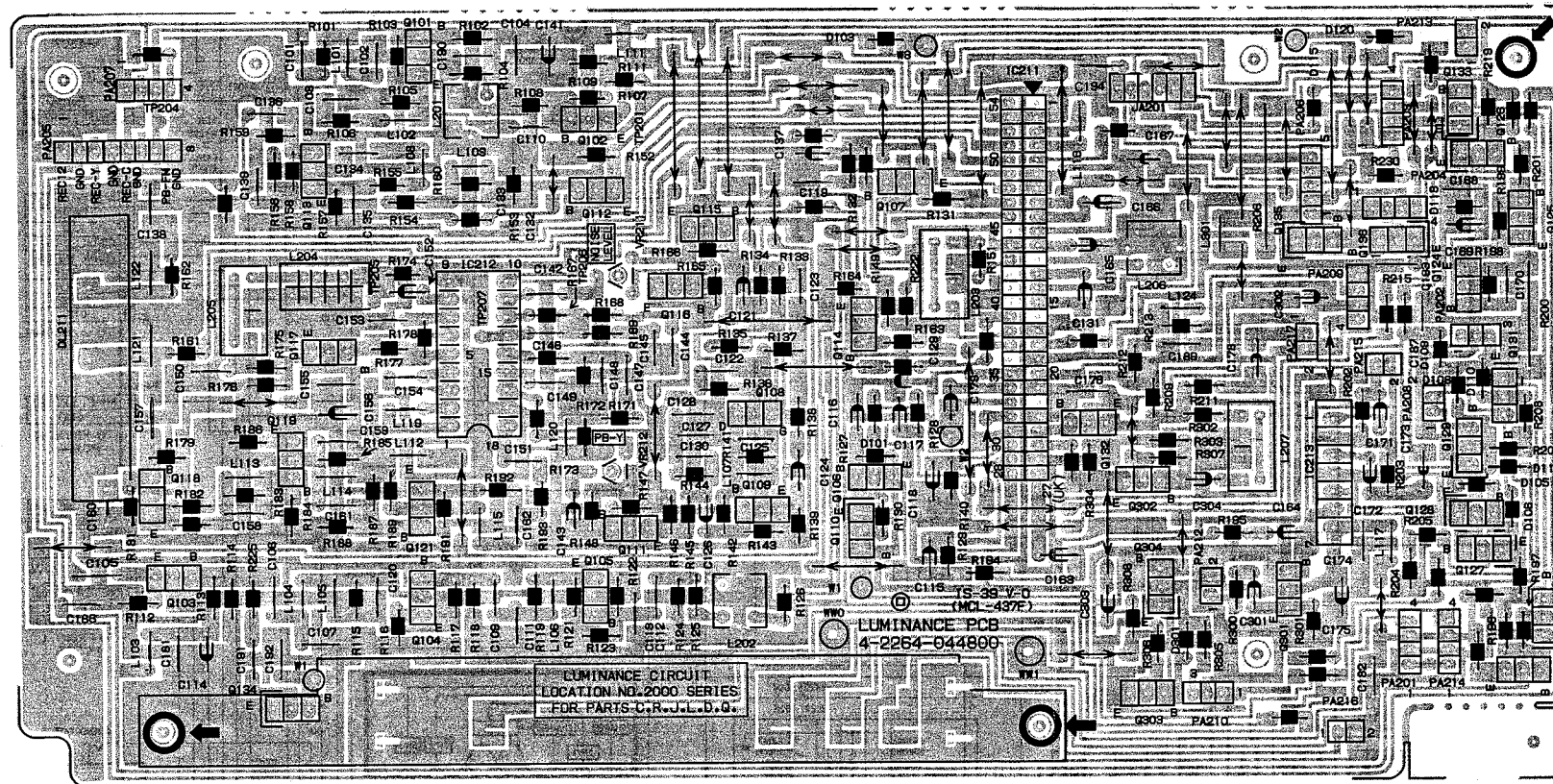
AUDIO NORMAL CIRCUIT DIAGRAM



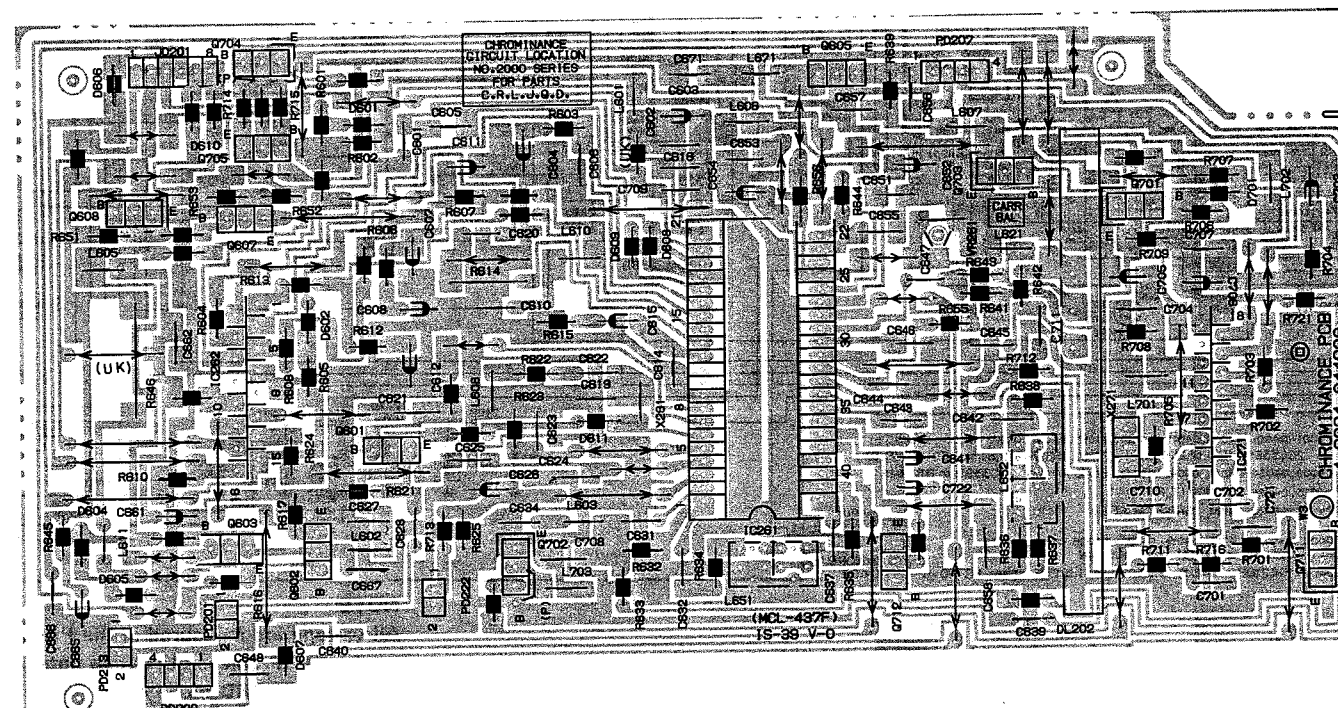
NOTE:
All voltage are measured in the PLAY and RECORD modes at SP unless otherwise noted.
() = RECORD mode only.

LUMINANCE/CHROMINANCE AND AUDIO NORMAL CIRCUIT P.C.B.

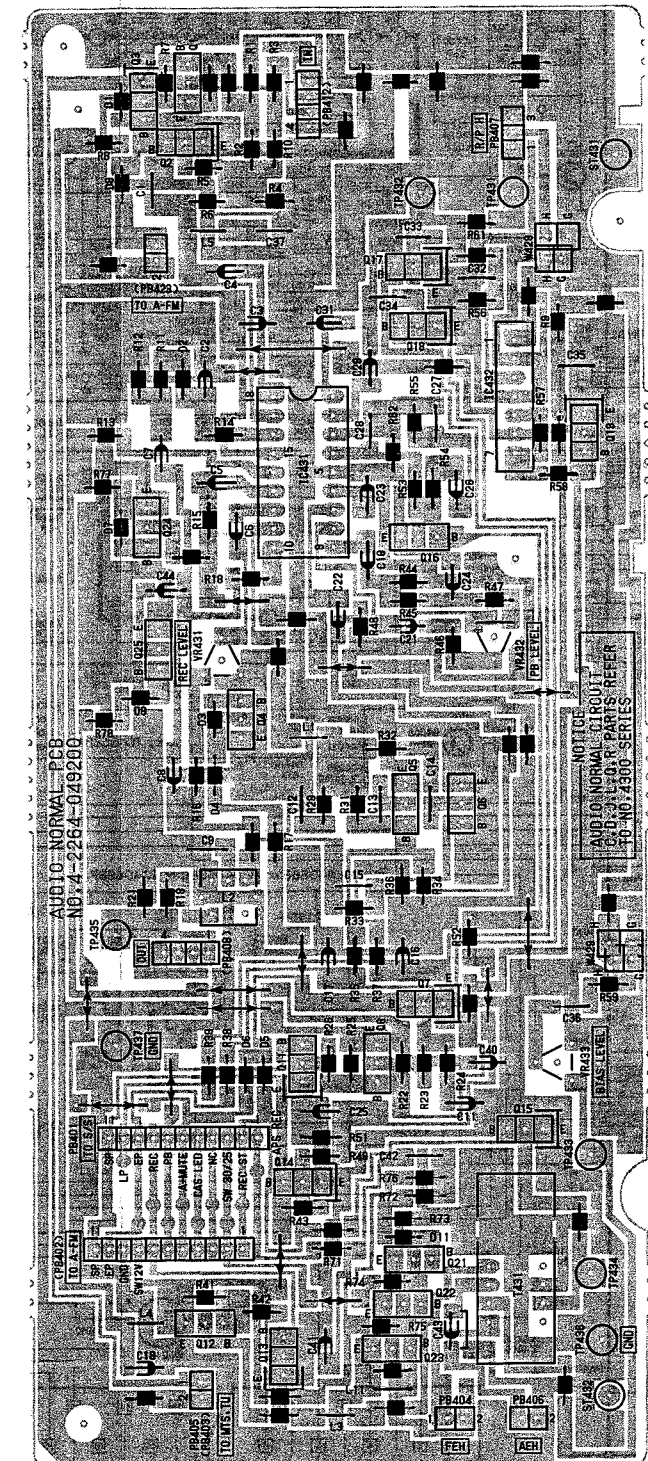
LUMINANCE CIRCUIT P.C.B.



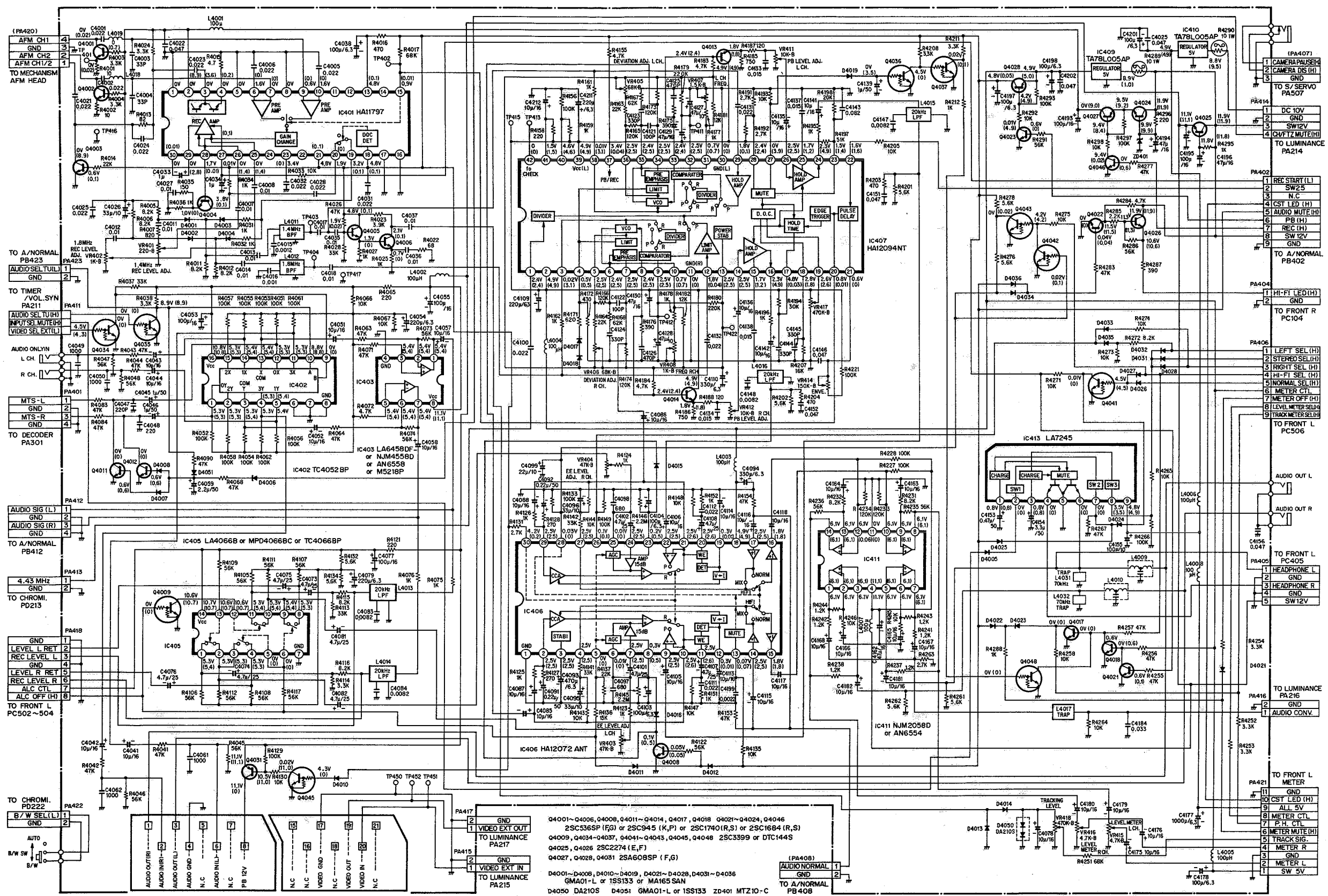
CHROMINANCE CIRCUIT P.C.B.



AUDIO NORMAL CIRCUIT P.C.B.

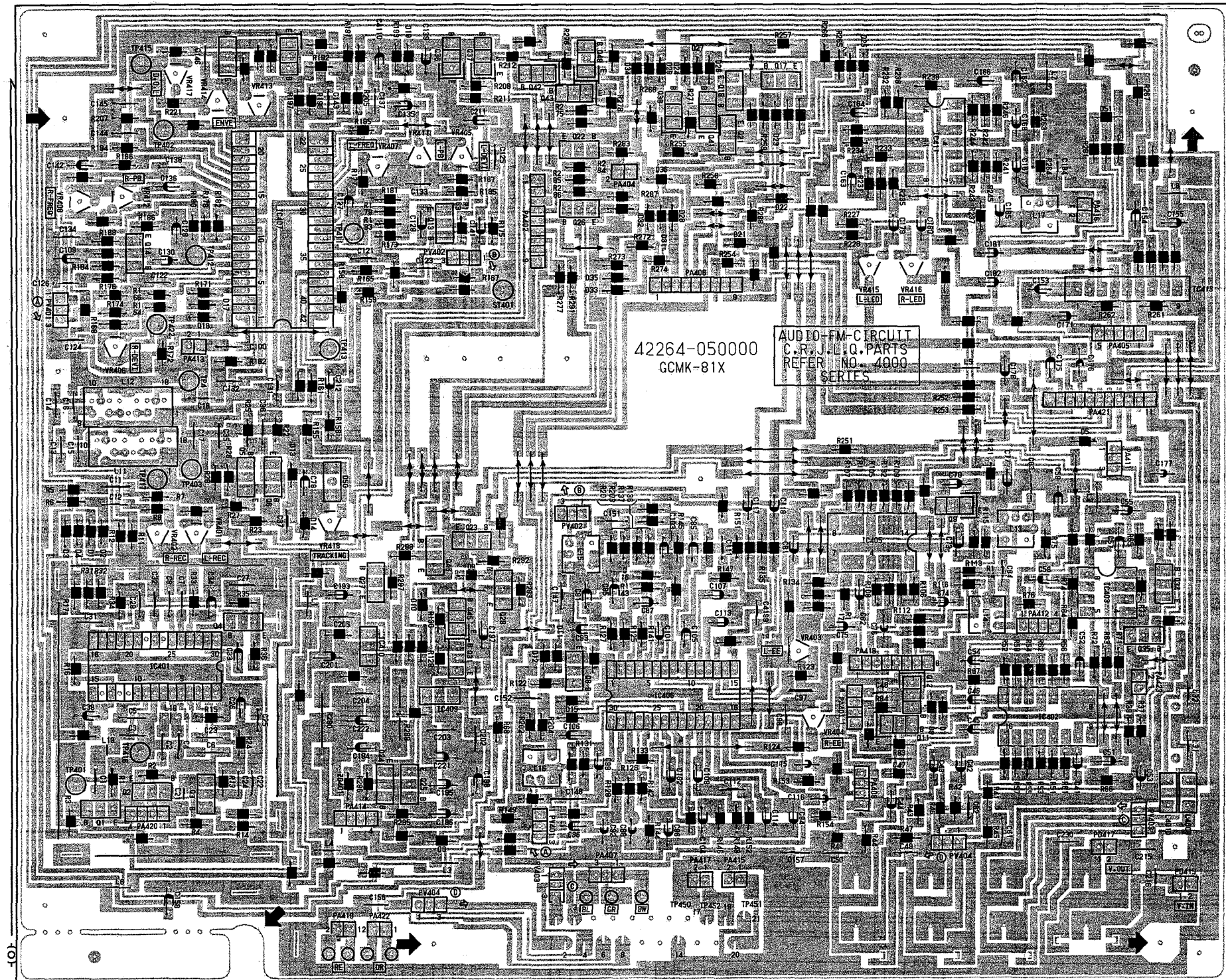


AUDIO FM CIRCUIT DIAGRAM

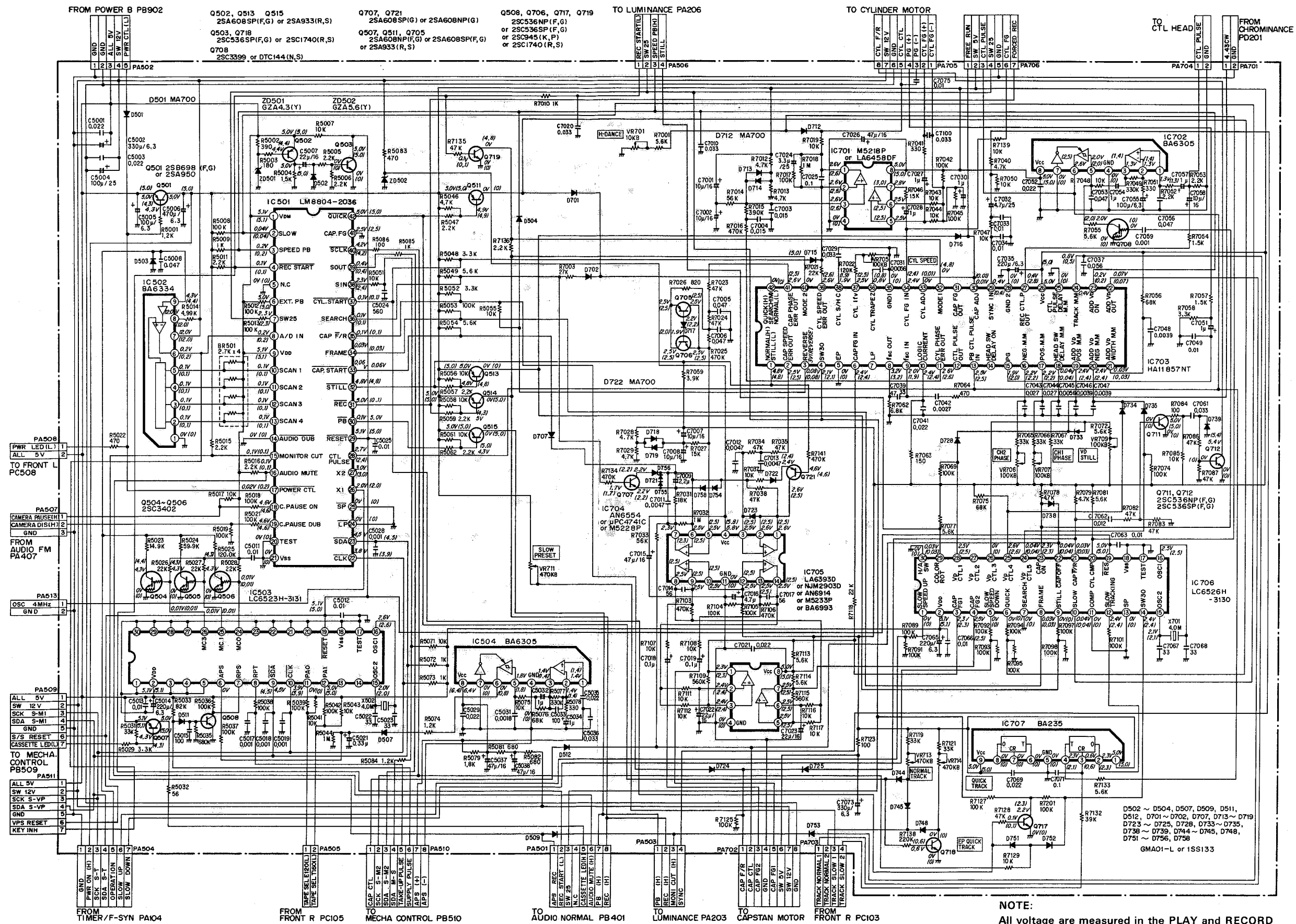


NOTE:
All voltage are measured in the PLAY and RECORD modes at SP unless otherwise noted.
()=RECORD mode only.

AUDIO FM CIRCUIT P.C.B.

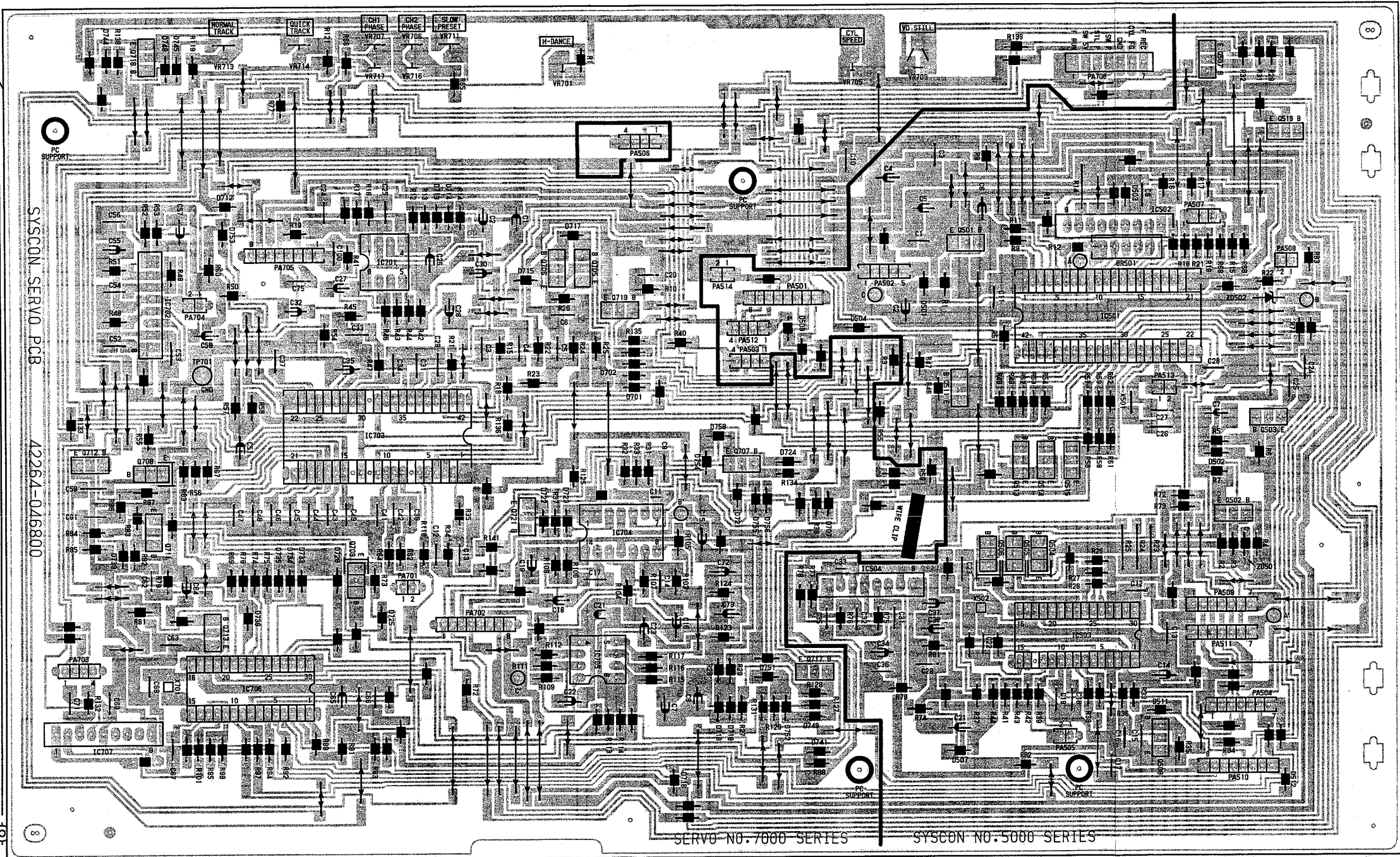


SYSTEM CONTROL SERVO CIRCUIT DIAGRAM

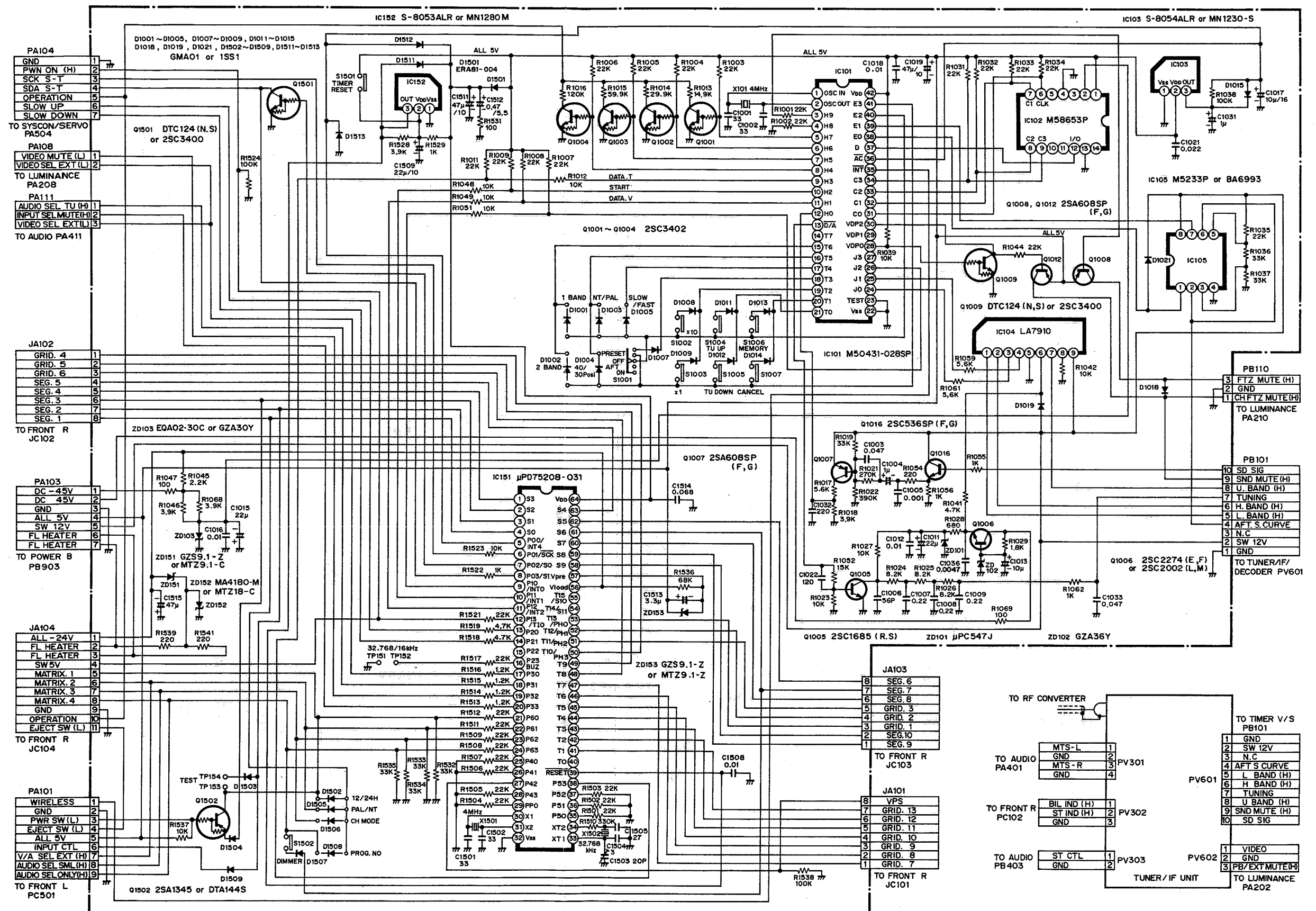


NOTE:
All voltage are measured in the **PLAY** and **RECORD** modes at **SP** unless otherwise noted.
()=RECORD mode only.

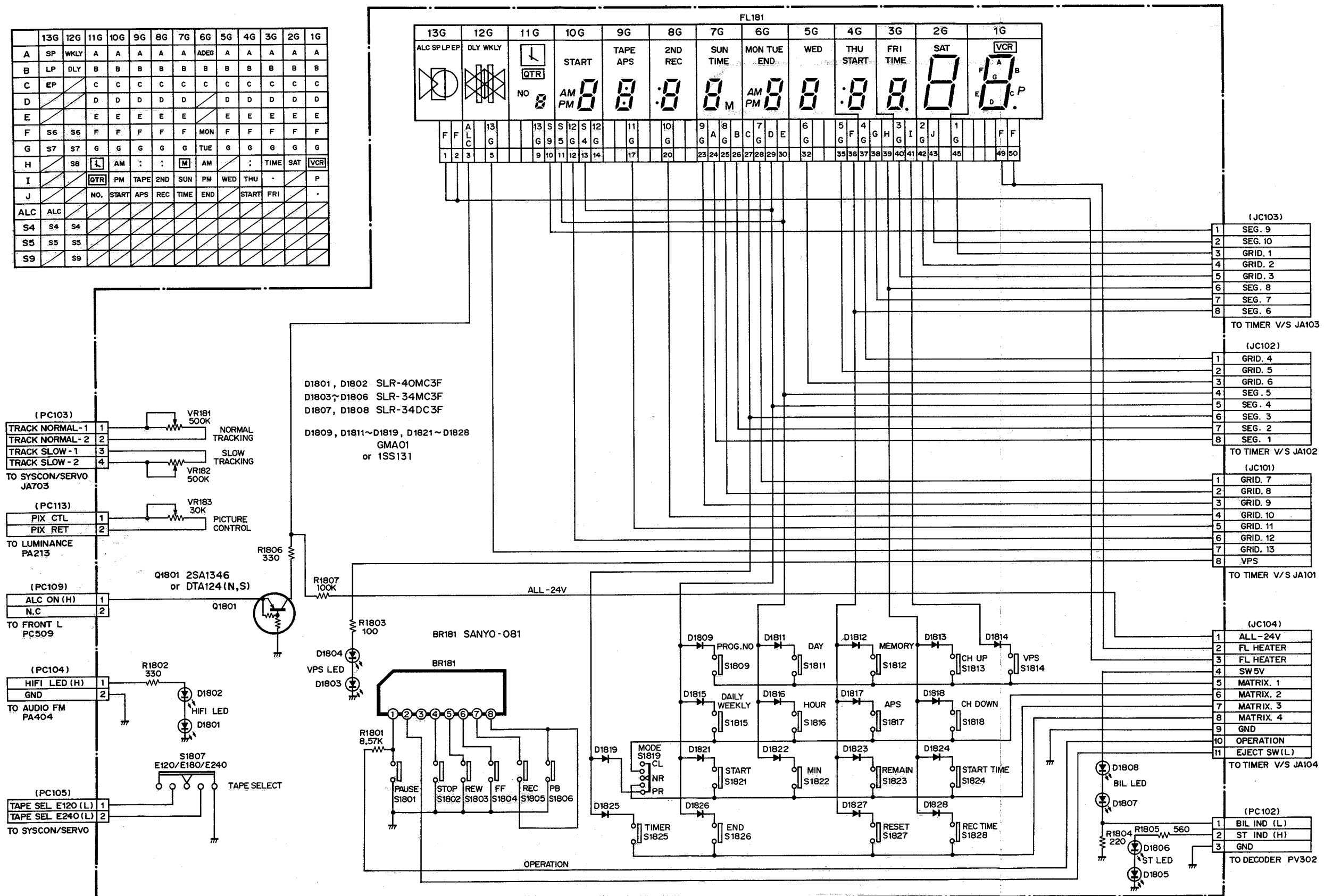
SYSTEM CONTROL SERVO CIRCUIT P.C.B.



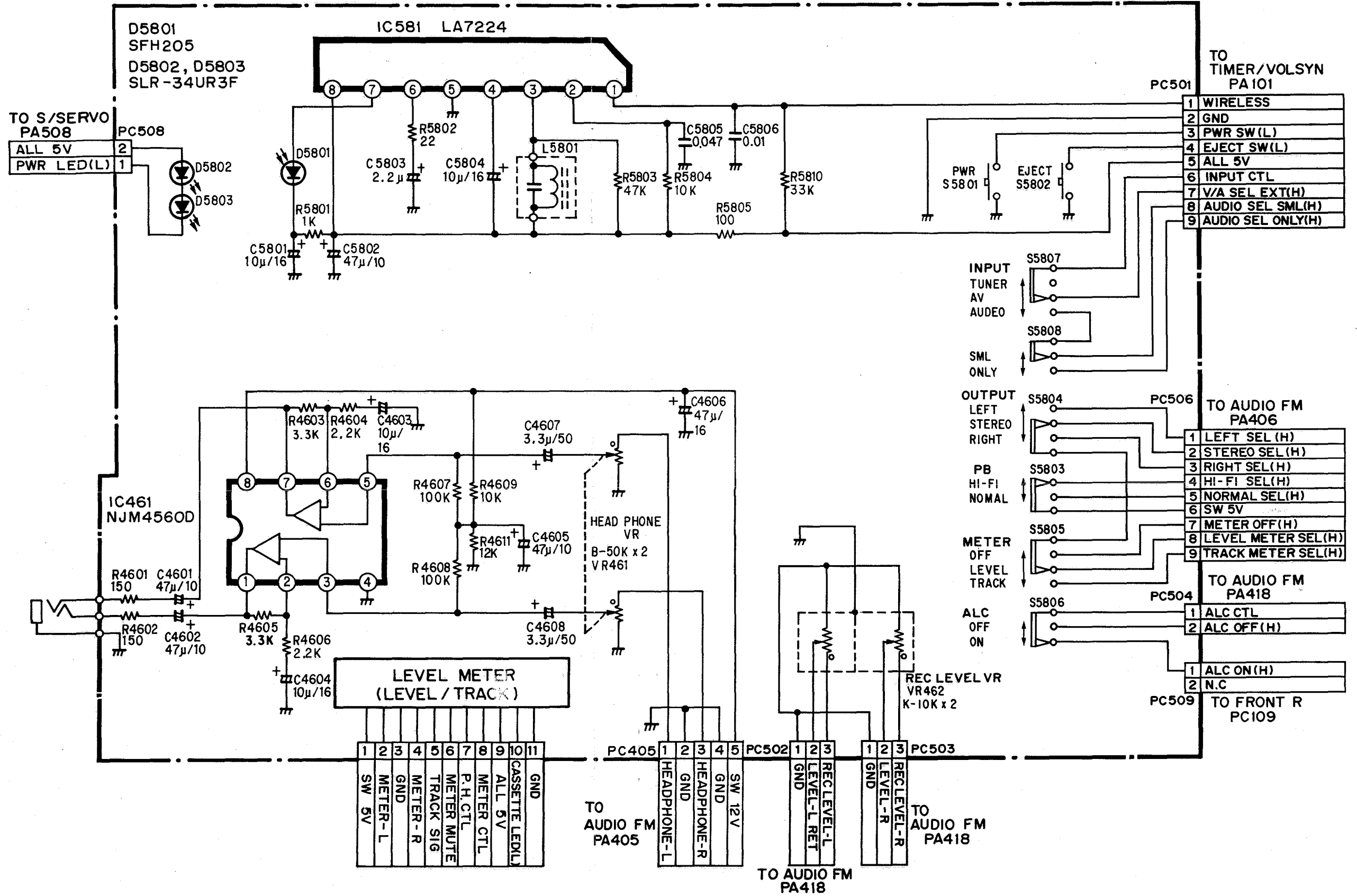
TUNER/TIMER/VOLTAGE SYNTHESIZER CIRCUIT DIAGRAM



FRONT RIGHT CIRCUIT DIAGRAM

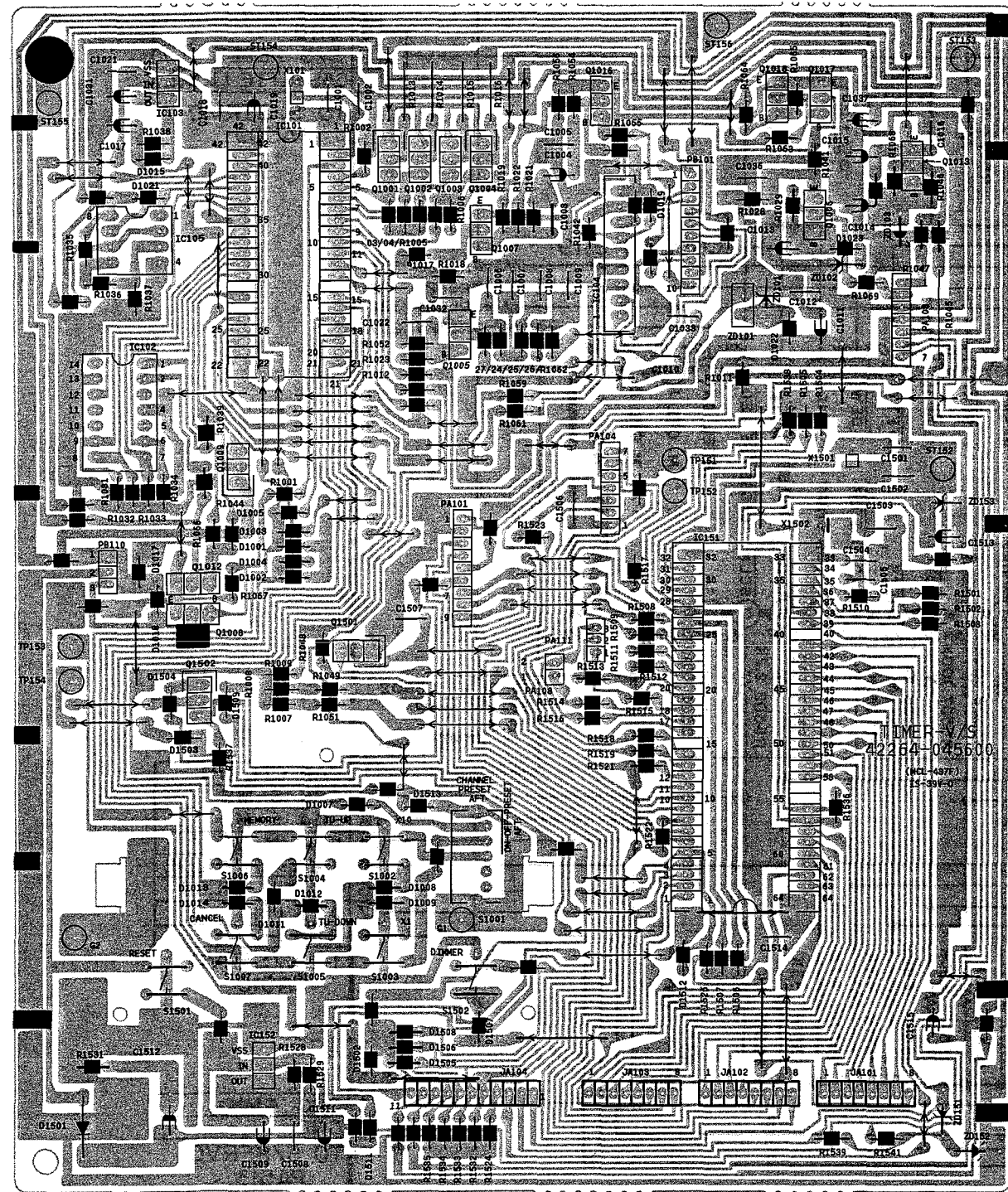


FRONT LEFT CIRCUIT DIAGRAM

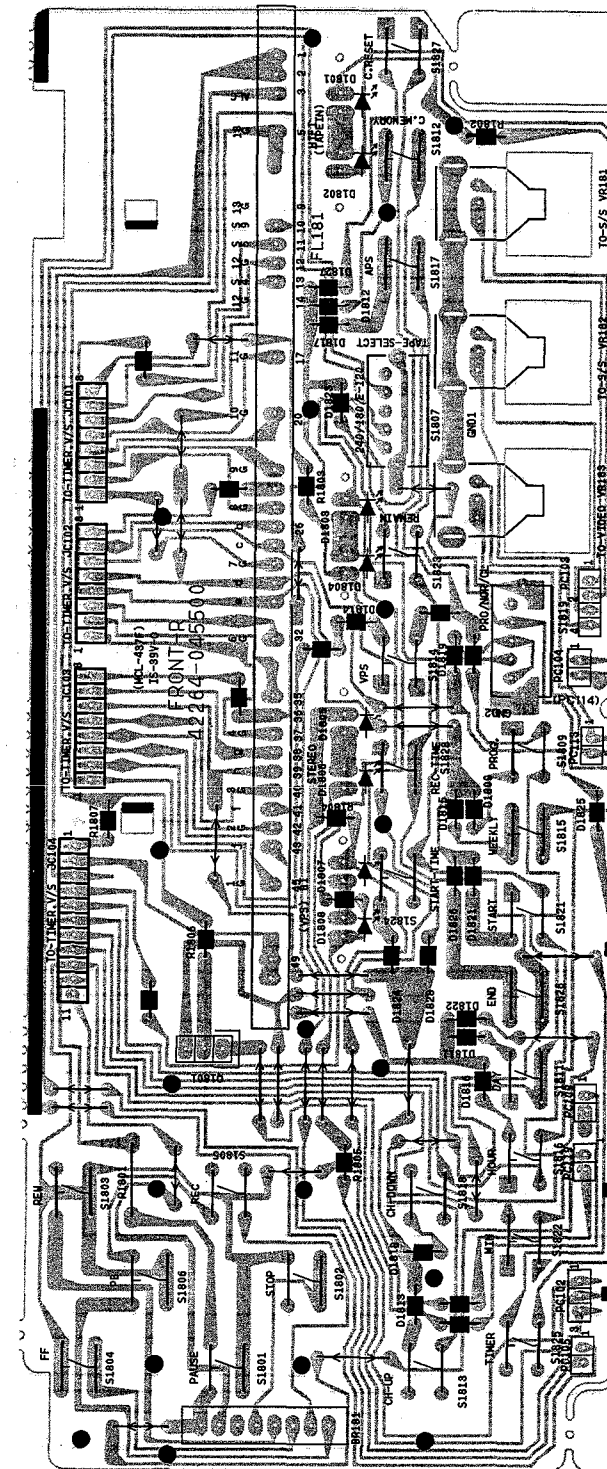


TIMER/VOLTAGE SYNTHESIZER/FRONT RIGHT AND FRONT LEFT CIRCUIT P.C.B.

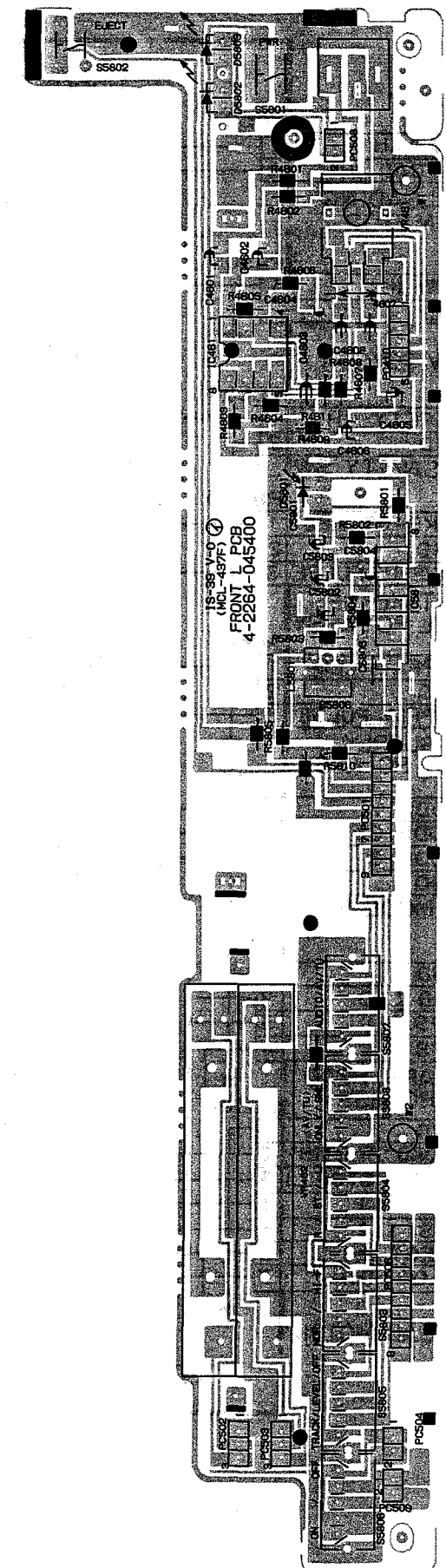
TIMER/VOLTAGE SYNTHESIZER CIRCUIT P.C.B.



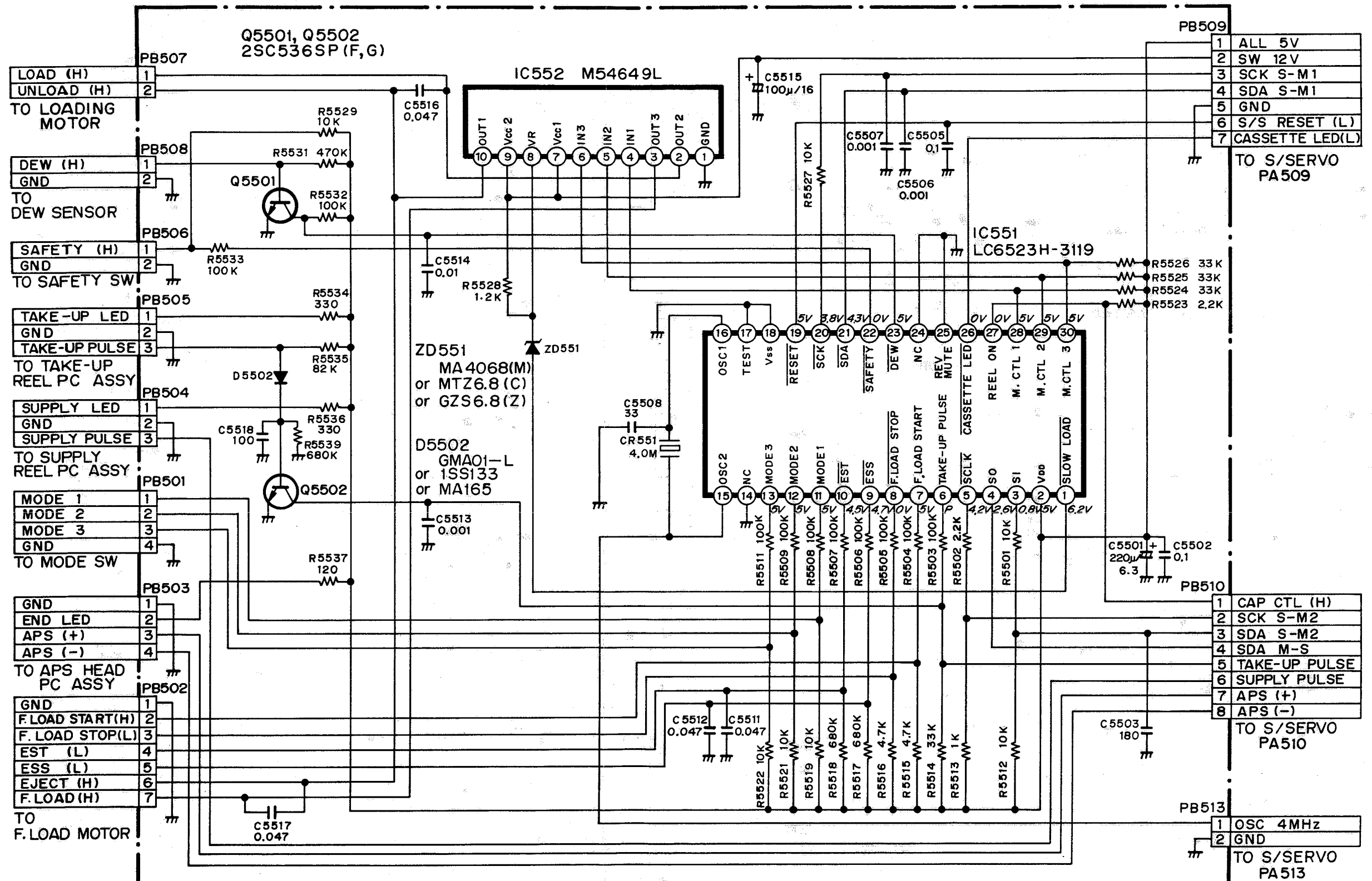
FRONT RIGHT CIRCUIT P.C.B.



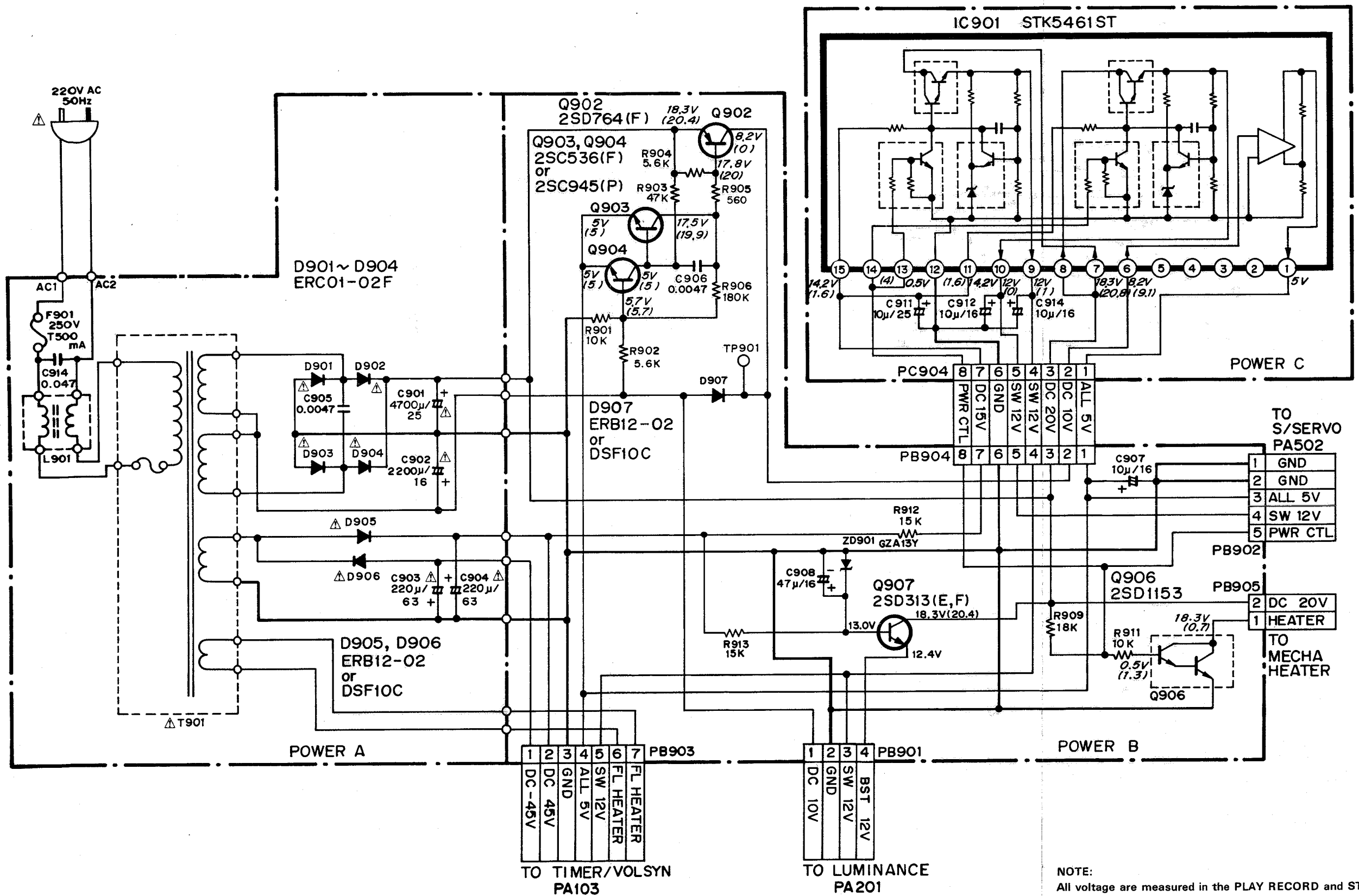
FRONT LEFT CIRCUIT P.C.B.



MECHANISM CONTROL CIRCUIT DIAGRAM



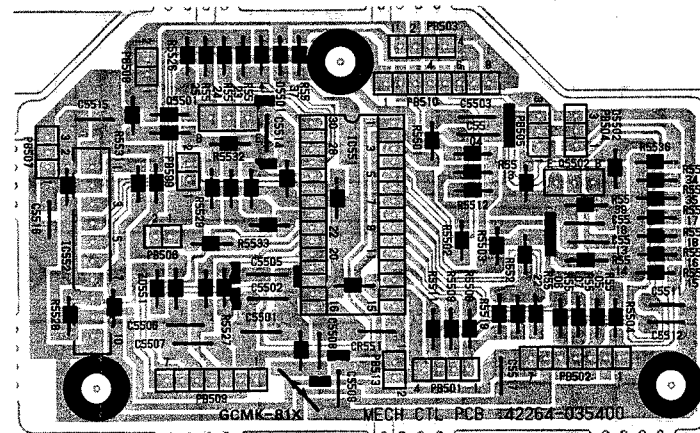
POWER CIRCUIT DIAGRAM



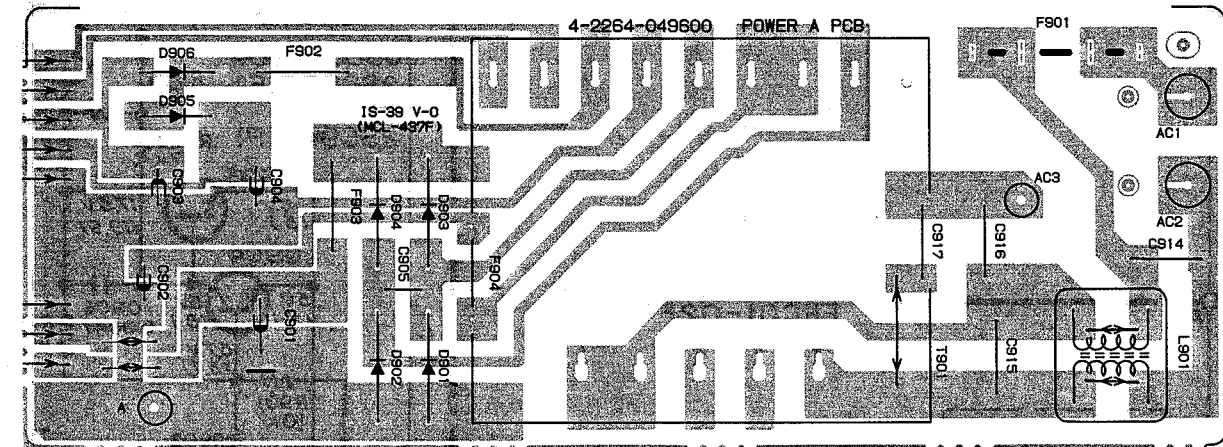
NOTE:
All voltage are measured in the **PLAY RECORD** and **STOP** modes unless otherwise noted.
()=**POWER OFF** mode only.

MECHANISM CONTROL CIRCUIT/POWER A AND B AND C CIRCUIT P.C.B.

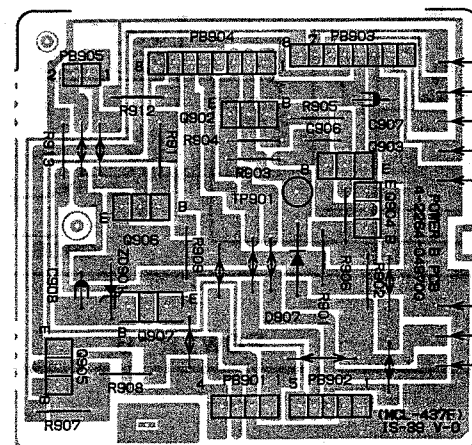
MECHANISM CONTROL CIRCUIT P.C.B.



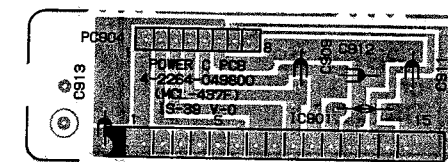
POWER A CIRCUIT P.C.B.



POWER B CIRCUIT P.C.B.

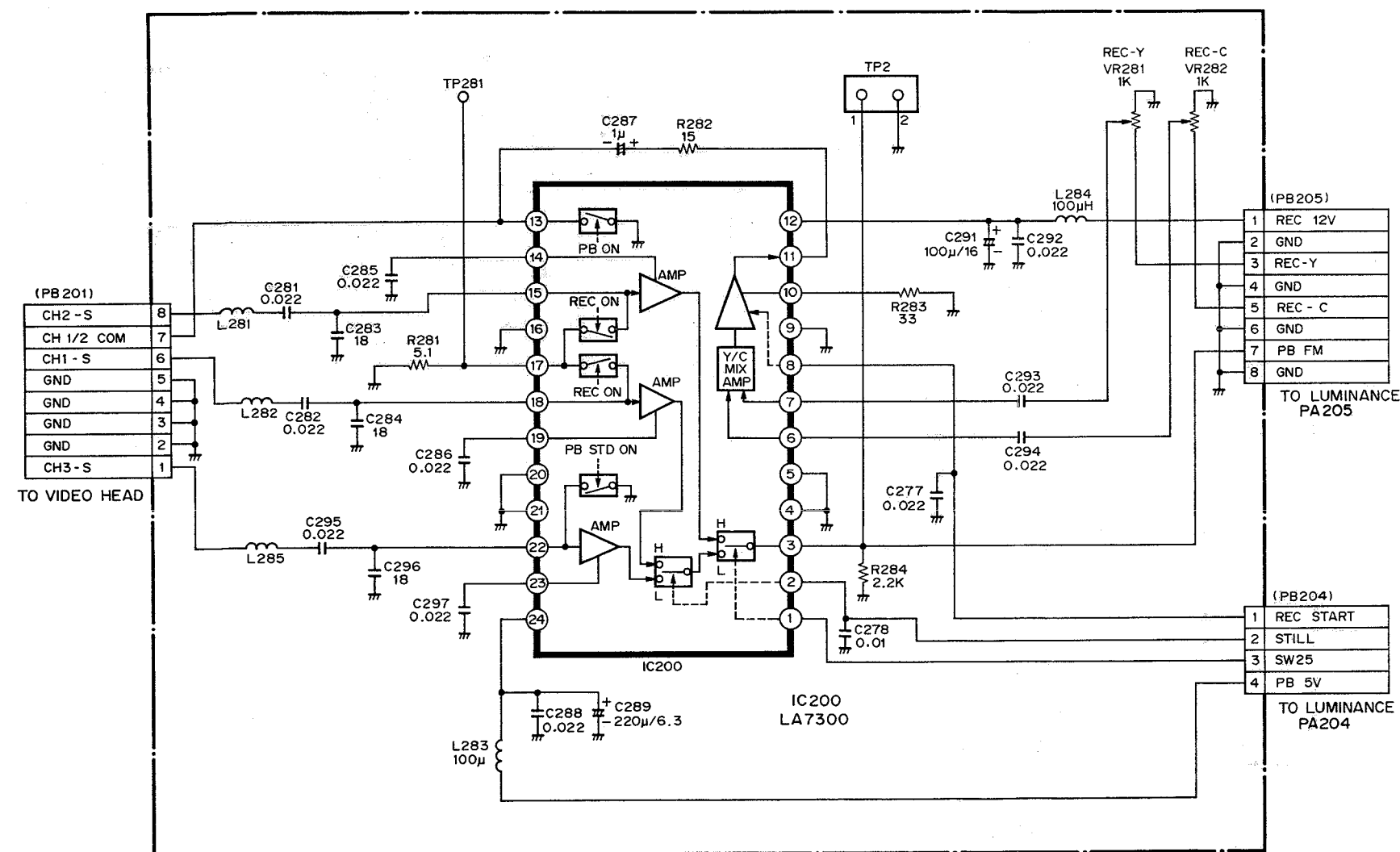


POWER C CIRCUIT P.C.B.

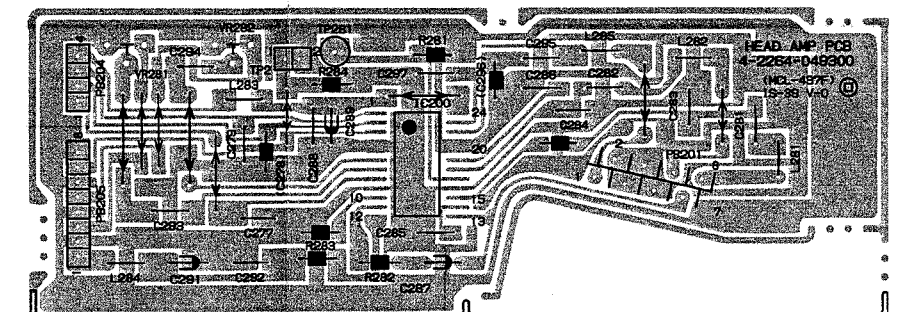


HEAD AMP CIRCUIT DIAGRAM AND HEAD AMP CIRCUIT P.C.B.

HEAD AMP CIRCUIT DIAGRAM



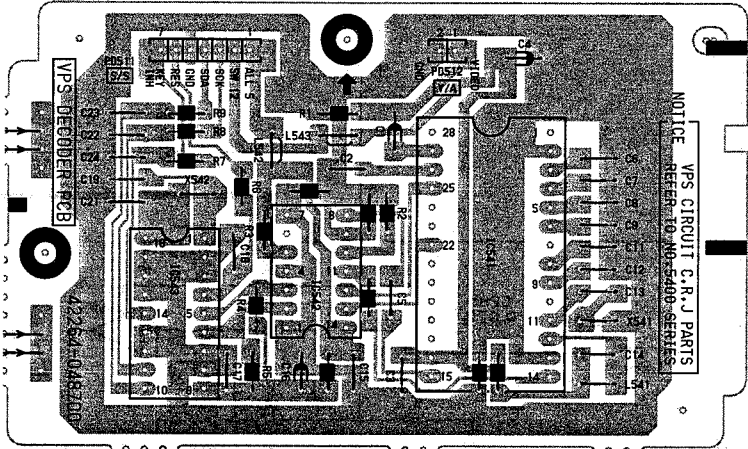
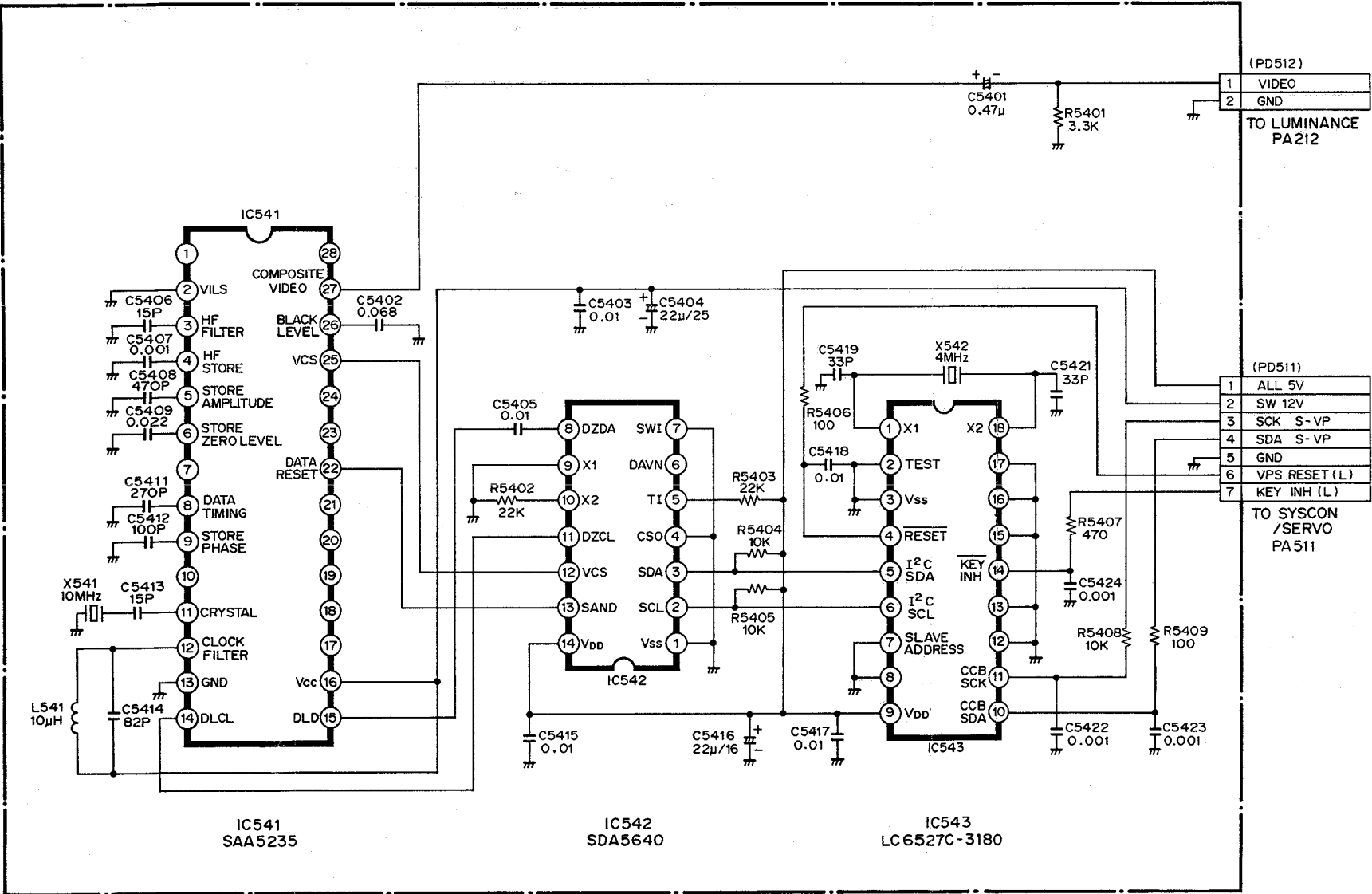
HEAD AMP CIRCUIT P.C.B.



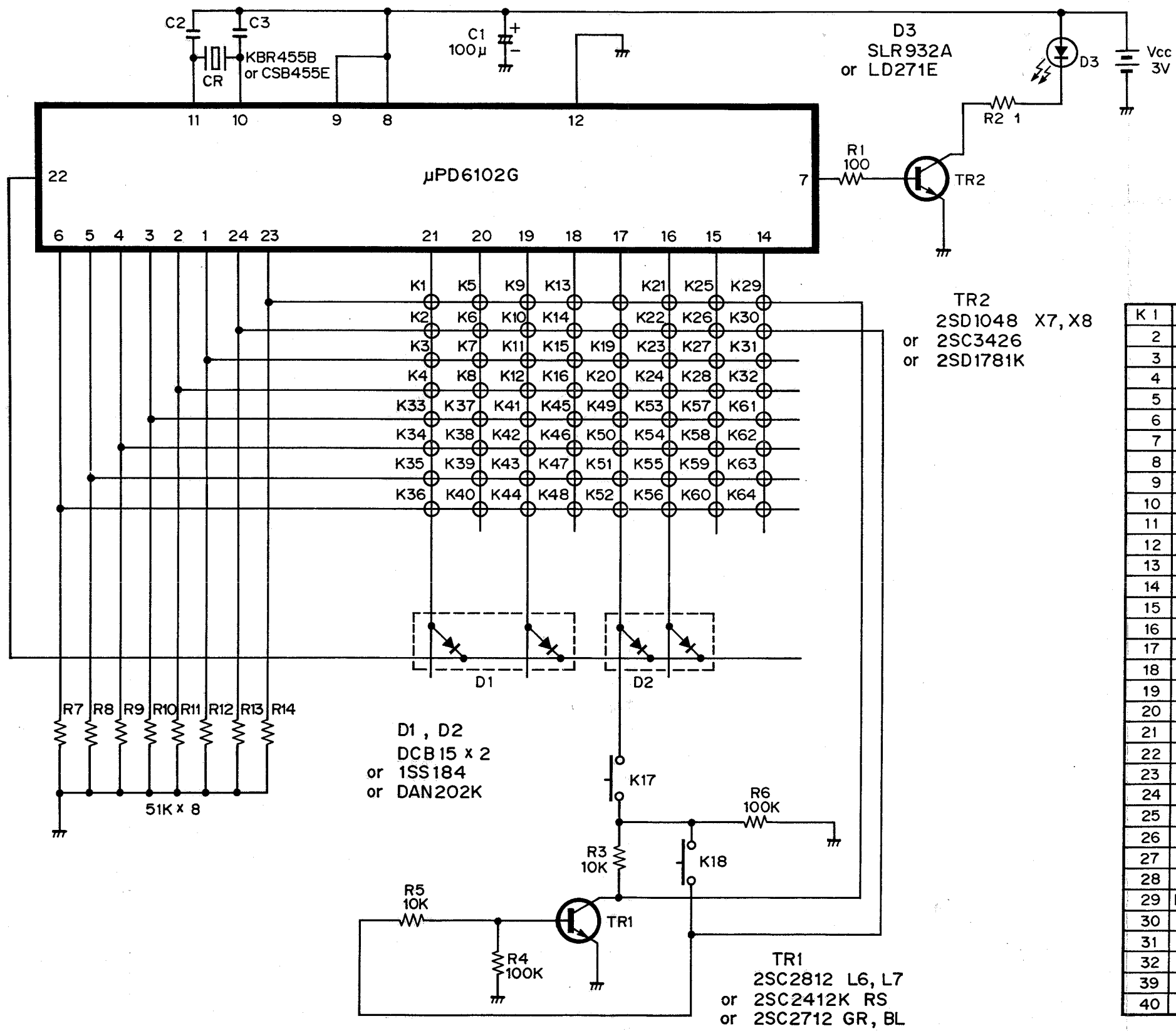
VPS DECODER CIRCUIT DIAGRAM AND VPS DECODER CIRCUIT P.C.B. (FVH-P990KV)

VPS DECODER CIRCUIT DIAGRAM (FVH-P990KV)

VPS DECODER CIRCUIT P.C.B. (FVH-P990KV)



WIRELESS REMOTE CONTROL CIRCUIT DIAGRAM



K 1	0	○
2	1	○
3	2	○
4	3	○
5	4	○
6	5	○
7	6	○
8	7	○
9	8	○
10	9	○
11	PROGRAM	
12	CLEAR	
13	TV / VCR	
14	DISPLAY	
15	CH (DOWN)	○
16	CH (UP)	○
17	PLAY	○
18	REC	○
19	RESET	○
20	FRAME	○
21	SLOW	○
22	QUICK	○
23	CLOCK/COUNTER	
24	TIMER	
25	FF	○
26	REW	○
27	STOP	○
28	PAUSE	○
29	MEMORY/COUNTER	○
30	FUNCTION	○
31	SL DOWN	○
32	SL UP	○
39	APS	○
40	TAPE REMAIN	○

TERMINAL DIAGRAM



2SA608 2SC2274
2SA933 2SC2999
2SA950 2SC3000
2SA1317 2SC3330
2SC536 2SC3399
2SC945 2SC3400
2SC1684 2SC3068
2SC1740 2SC3402



2SB560
2SC598
2SB698
2SB764
2SC2002
2SD313
2SD400



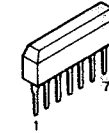
DTA124
DTA144
DTC124
DTC144



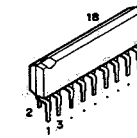
2SA1346



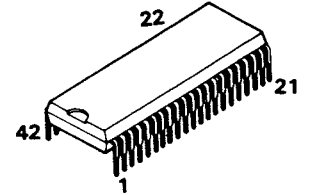
2SK212



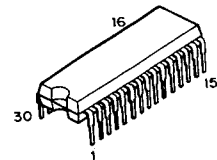
TA7347P
μPC1513HA



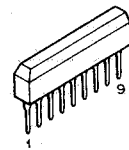
BA7025L



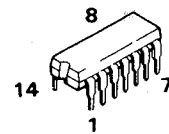
LM8804
LA7313A
M50431



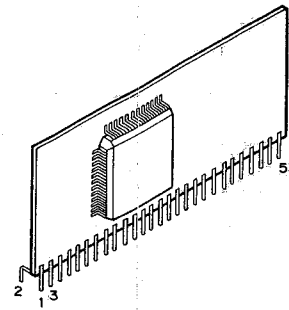
HA12072ANT
LC6523H



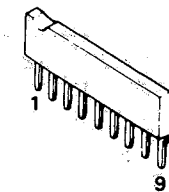
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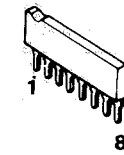
AN6554 TC4066BP
LC4066B SDA5630
NJM2058D μPC4741C
M5228P μPD4066BC
M58653



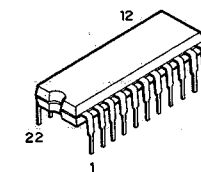
SV7302



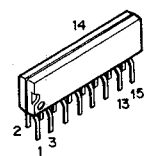
BA6334
L7910



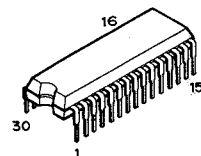
BA6305
LA7224



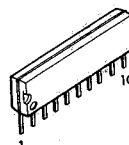
LA7300



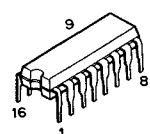
LC7422



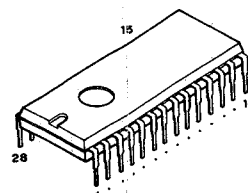
LC6526H
HA11797



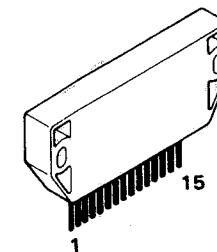
BA235



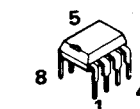
TC4052BF



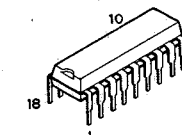
SAA5235



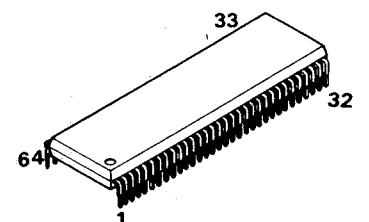
STK5461ST



AN6914 M5218P
BA6993 M5233P
AN6558 NJM4558D



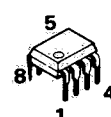
LA7072
LA7025
LA7040
BA5102A
LC6527C



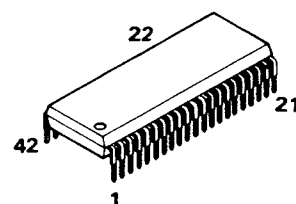
μPD75208



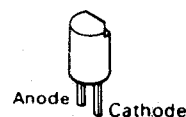
MN1280-M
MN1280-S
S8054ALR
TA78L005AP



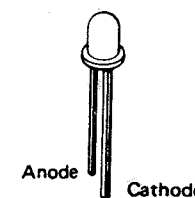
LA6458DF
NJM4560D
LA6393D
NJM2903D



HA11857
HA12094NT

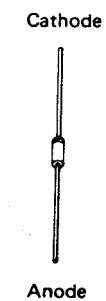


SFH205



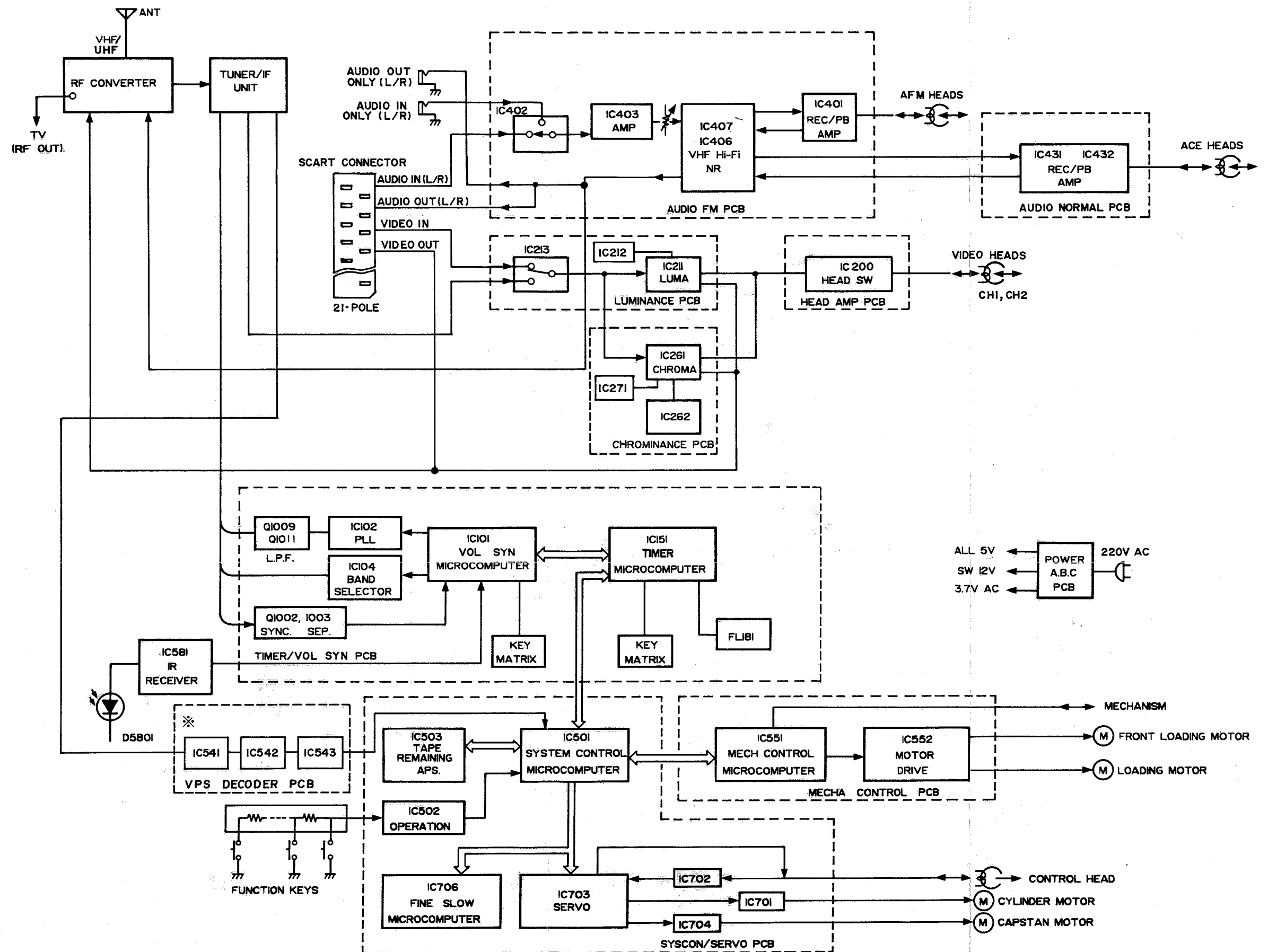
SLR34UR3F
SLR40MC3F
SLR34MC3F
SLR34DC3F

ERA81-004 GMA01
ERC01-02F GMA01-L
ERB12-02 1SS131
DA210S 1SS133
DSF10C MTZ10(C)
GZA4.3(Y) MTZ9.1(C)
GZA5.6(Y) MA165
GZS5.1(Z) MA700
GZA13(Y) MA4180(M)
GZA36(Y) MTZ18(C)
GZS9.1(Z) μPC574J



NOTE:
E: Emitter C: Collector B: Base
D: Drain G: Gate S: Source

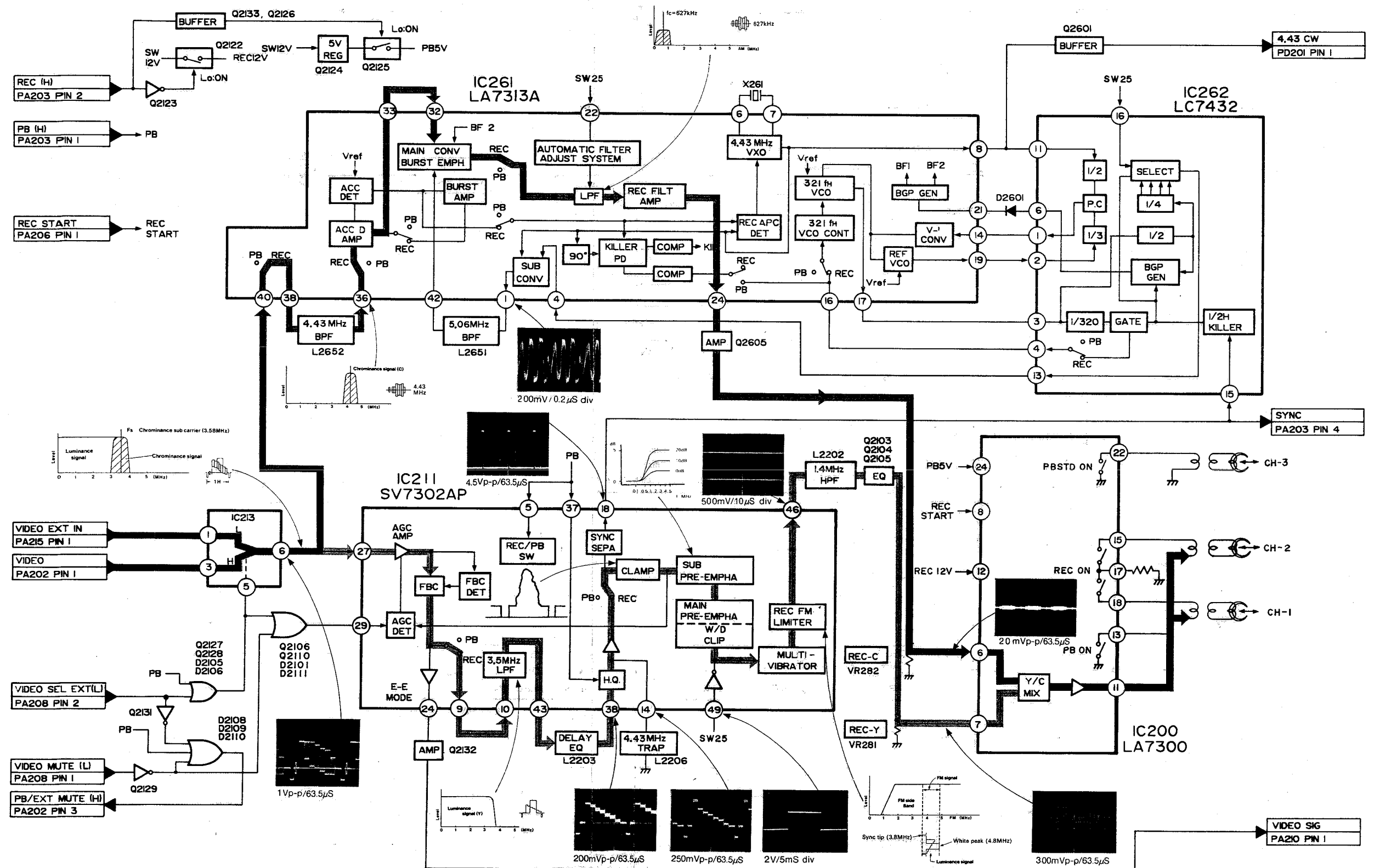
OVERALL BLOCK DIAGRAM



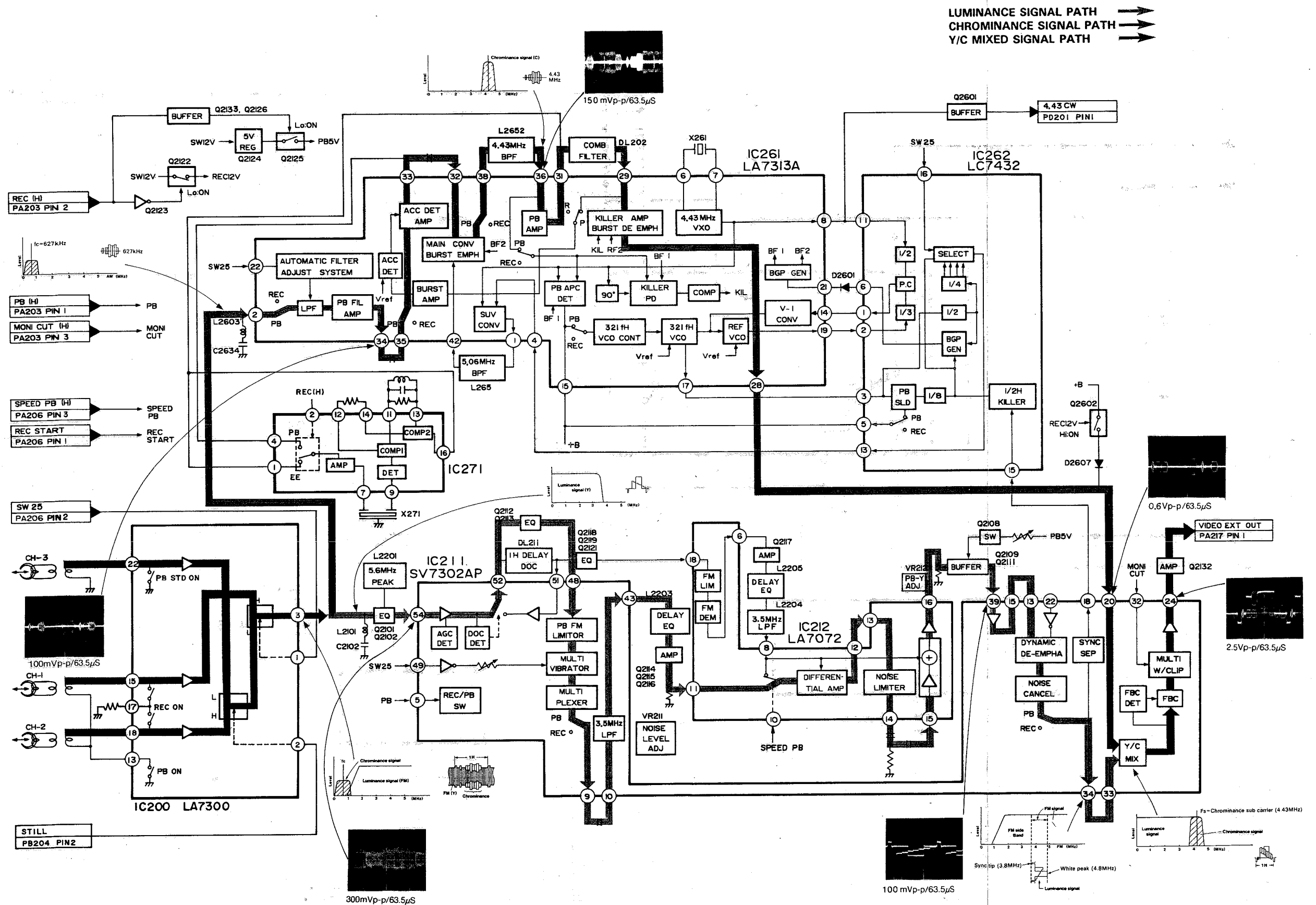
※The FVH-P990K can be used with a VPS DECODER PCB as an option.

VIDEO BLOCK DIAGRAM IN THE RECORD MODE

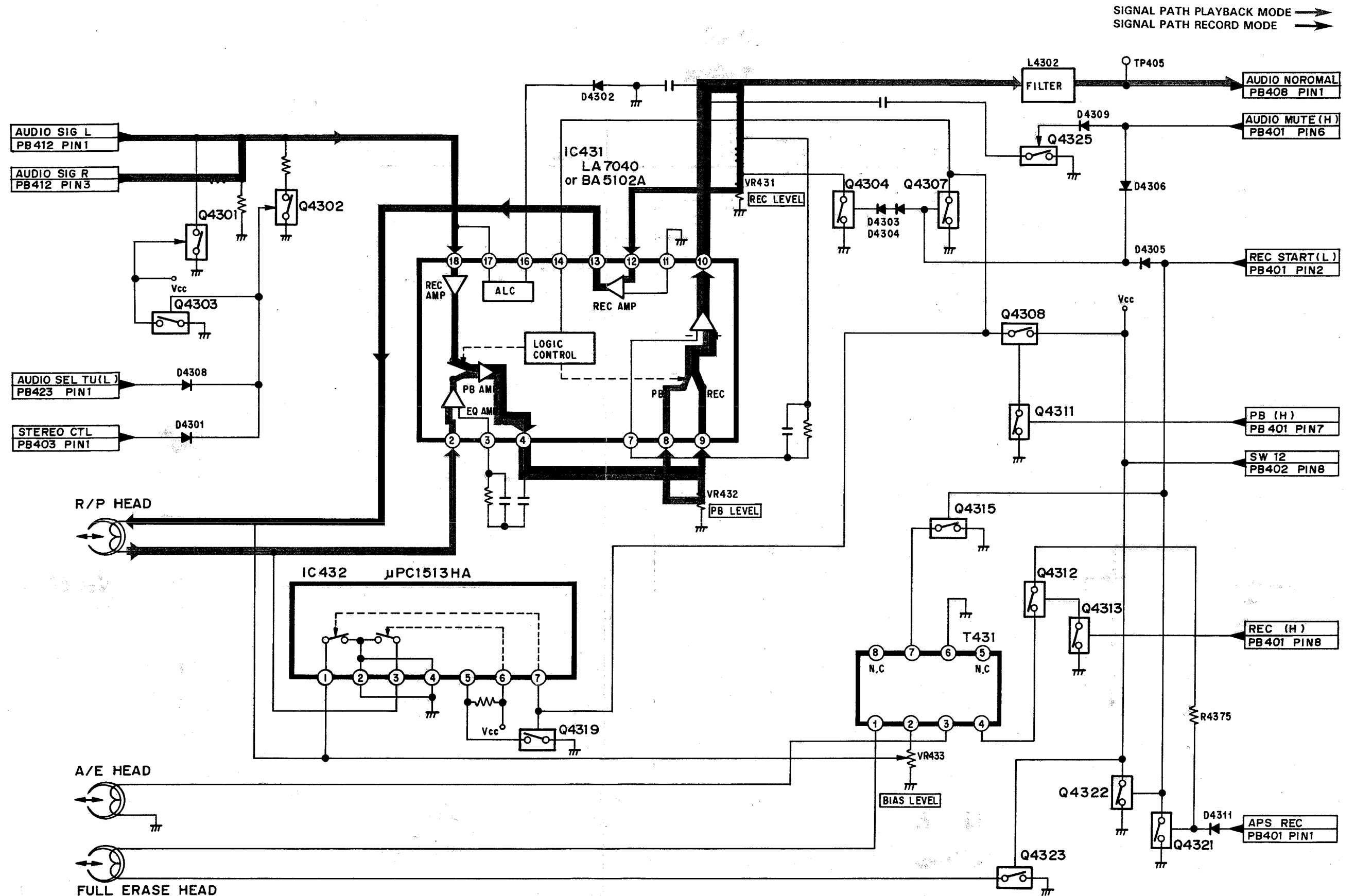
LUMINANCE SIGNAL PATH →
CHROMINANCE SIGNAL PATH →
Y/C MIXED SIGNAL PATH →



VIDEO BLOCK DIAGRAM IN THE PLAYBACK MODE

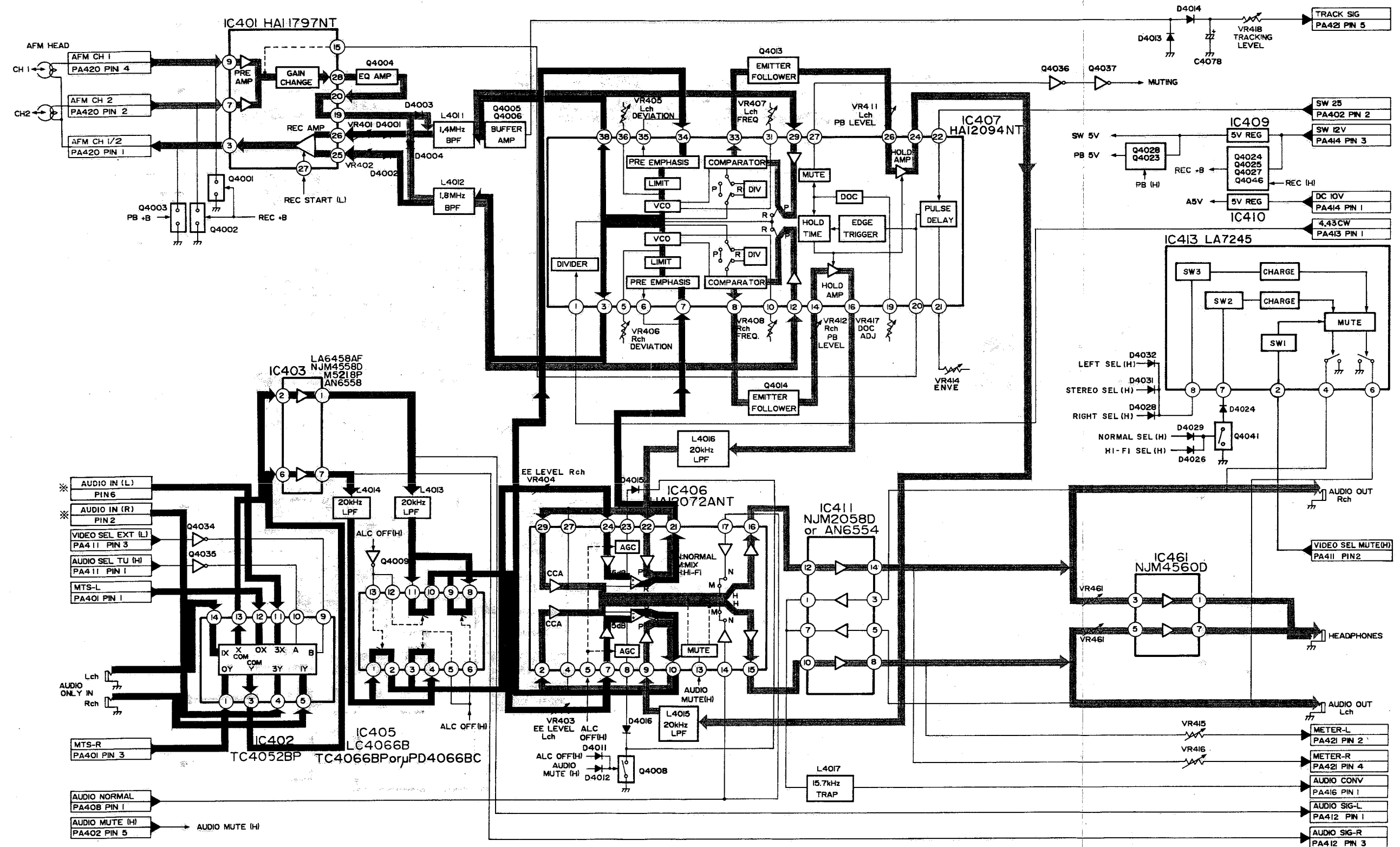


AUDIO NORMAL BLOCK DIAGRAM



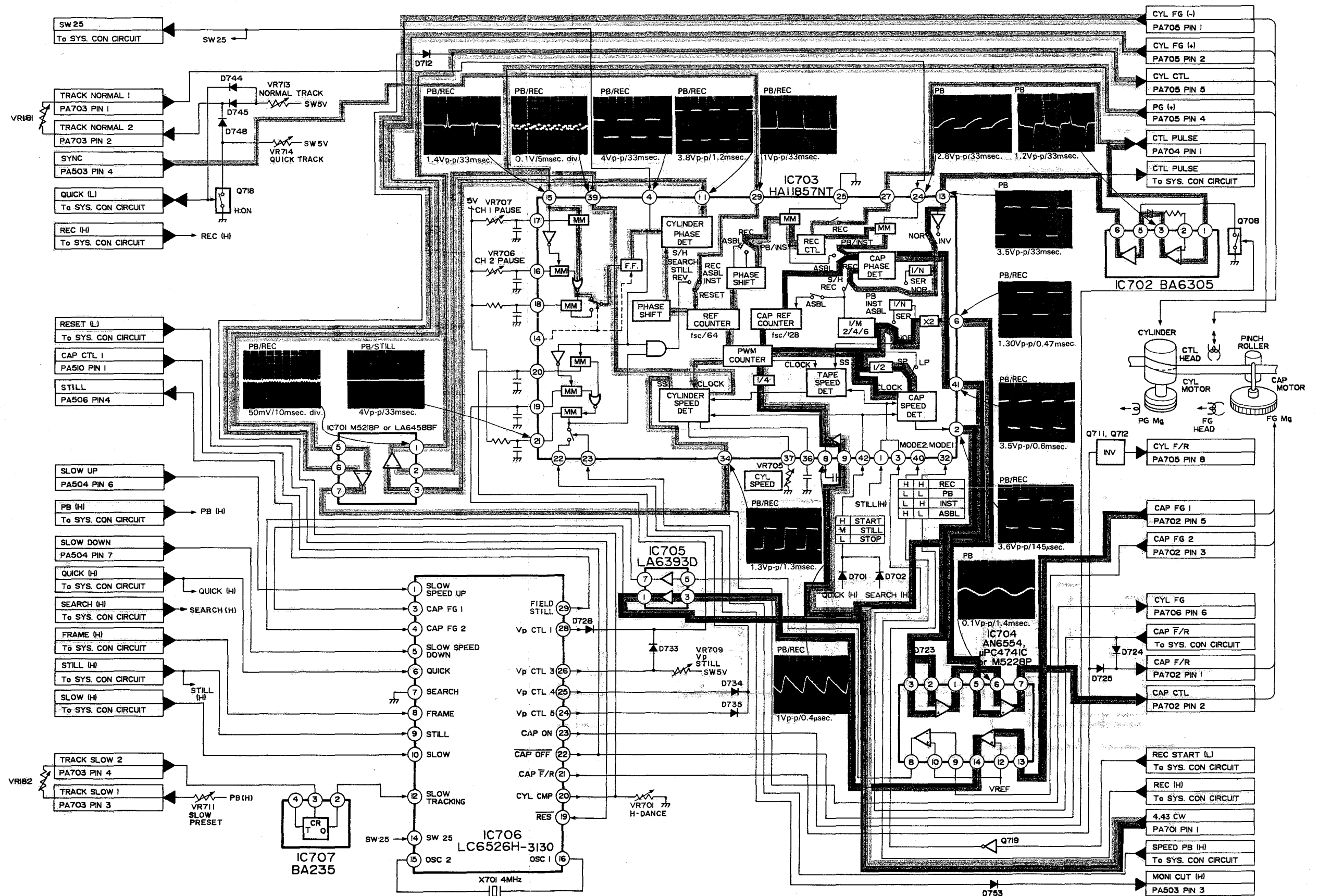
AUDIO FM BLOCK DIAGRAM

SIGNAL PATH PLAYBACK MODE →
SIGNAL PATH RECORD MODE →



※ FROM SCART CONNECTOR (21-POLE)

CAPSTAN MOTOR SIGNAL IN THE REC MODE →
CAPSTAN MOTOR SIGNAL IN THE PB MODE →
CYLINDER MOTOR SIGNAL IN THE REC MODE →
CYLINDER MOTOR SIGNAL IN THE PB MODE →



PARTS LIST & SCHEMATIC DIAGRAMS

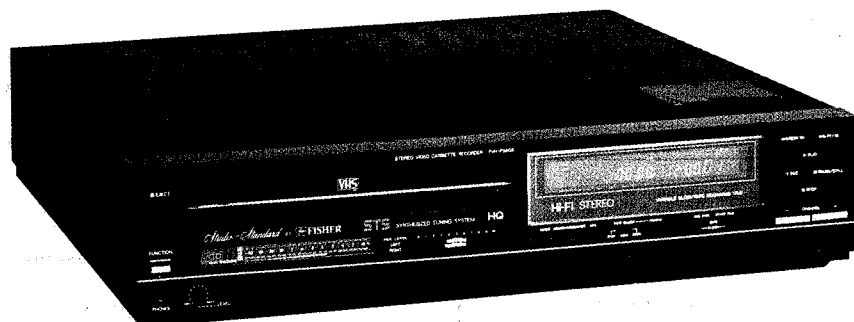


FISHER®

FVH-P990S

(EUROPE)

VIDEO CASSETTE RECORDER



TECHNICAL SPECIFICATIONS

General Specifications

Television system	PAL standard colour (system B & G) & CCIR monochrome signals 625 lines
Recording system	Rotary helical scan system with 2 video heads and two additional heads for FM azimuth recording (VHS Hi-Fi stereo sound) one stationary head for normal track monaural sound
Format	VHS PAL standard
Tape width	12.7 mm
Tape speed	23.39 mm/sec
Recording time	240 minutes with E-240 cassette
Tape loading system	Automatic loading
Tuner	Voltage Synthesizer tuner with sequential channel selection
Tuner channels	Direct channel selection with remote control 40 program memories VHF: #2—#12, S1—S23 UHF: #21—#69 UHF channel 36 (30—39 adjustable)
RF converter output	24-hour display system
Time indication	14-day / 7 programs
Timer	Separate 4-digit electronic display
Tape counter	Activated at the end of the tape (FUNCTION ON only)
Auto rewind system	
Terminals	
Aerial input	DIN (socket)
RF output	DIN (plug)
Video input/output	SCART connector
Audio input/output	SCART connector RCA connector
Camera remote pause	2.5 mm ϕ jack
Headphone	3.5 mm ϕ jack

Electrical Specifications

Video output	1 volt (pp) / 75 Ω
Video input	0.5—2.0 volt (pp) / 75 Ω
Audio output	400 mV (—8 dBV), 600 Ω
Audio input	400 mV (—8 dBV), 50k Ω
Video S/N ratio	More than 45 dB
Audio frequency response	50—10,000 Hz (normal sound)
Audio frequency response	20—20,000 Hz (VHS Hi-Fi)
Audio S/N ratio	More than 40 dB (normal sound)
Audio dynamic range	More than 90 dB (VHS Hi-Fi)
Wow and flutter	0.005% WRMS (VHS Hi-Fi)
THD	0.5% (VHS Hi-Fi)
Channel separation	More than 60 dB (VHS Hi-Fi)
Other Specifications	
Power requirement	220 VAC, 50 Hz
Power consumption	40 Watts
Dimensions (W×H×D)	440mm × 95mm × 395mm
Weight (approximate)	8.8 Kg



FISHER reserves the right to modify product designs and specifications without notice and without incurring any obligation.

REFERENCE NO. WM-19026

This is a Parts List & Schematic Diagrams for Model FVH-P990S and only items changed from Model FVH-P990K are indicated. For other items, refer to Parts List & Schematic Diagrams for Model FVH-P990K (WM-17506) Issued July, '86.

ACCESSORIES

FVH-P990K			FVH-P990S		
Ref No	Part No.	Description	Part No.	Description	Remarks
	143-6-2704-48000	FAN BAG ASSY(MANUAL) (Plastic Bag)	143-6-2704-48001	FAN BAG ASSY(MANUAL) (Plastic Bag)	Change
	143-6-4724-04000	ZZF INFORMATION SHEET			Delete

PACKING MATERIALS

Ref No	Part No.	Description	Part No.	Description	Remarks
	143-6-1424-02201	IND. CORR CARTON-EWP990K	143-6-1424-02215	IND. CORR CARTON-EWP990S	Change

CABINET PARTS (1)

Ref No	Part No.	Description	Part No	Description	Remarks
1	143-0-1254-00501	Top Cover Assy-HAQ-B	143-0-1254-00504	Top Cover Assy-HAQ-F	Change
5	143-2-3504-15300	Shield, Bottom Side-Left-HAQ			Delete
6	143-2-3504-15400	Shield, Bottom Side-Right-HAQ			Delete
7	4-1154-16635	Tuner IF Decoder Assy	4-1154-16235	Tuner IF Decoder Assy	Change
10	0-4014-04840	Timer, Voltage Synthesizer PC Assy	0-4014-04845	Timer, Voltage Synthesizer PC Assy	Change
11	143-0-1204-00605	Case Preset Assy-HAR-G	143-0-1204-00606	Case Preset Assy-HAR-H	
13	0-4014-04830	Front Right PC Assy	0-4014-04835	Front Right PC Assy	Change
18	143-2-3704-00800	Blind, Sheet-HAP	143-2-3704-01200	Blind, Sheet-HAQ	Change
21	143-0-1104-02001	Cabinet Front Assy-HAQ-B	143-0-1104-02015	Cabinet Front Assy-HAQ-W	Change
22	143-0-1454-01201	Door Front Assy-HAQ-B	143-0-1454-01209	Door Front Assy-HAQ-M	Change

CABINET PARTS (2)

Ref No	Part No.	Description	Part No.	Description	Remarks
1	143-0-1304-01201	Cabinet Bottom Assy-HAQ-B	143-0-1304-01214	Cabinet Bottom Assy-HAQ-S	Change
10	0-4014-05590	Audio Normal PC Assy	0-4014-05594	Audio Normal PC Assy	Change
12	0-4014-05580	Audio FM PC Assy	0-4014-05584	Audio FM PC Assy	Change
15	0-4014-05160	Power A, PC Assy	0-4014-05162	Power A, PC Assy	Change
31	0-4014-04920	Luminance PC Assy	0-4014-04922	Luminance PC Assy	Change
40	0-4014-04990	Syscon Servo PC Assy	0-4014-04991	Syscon Servo PC Assy	Change

LUMINANCE CIRCUIT P.C.B. PARTS

FVH-P990K			FVH-P990S		
Schematic Location	Part No.	Description	Part No.	Description	Remarks
	0-4014-04920	LUMINANCE PC ASSY	0-4014-04922	LUMINANCE PC ASSY	Change
C2301	C1CLEM106A	(CAPACITOR) ELECT 10 μ F 16V M			Delete
Q2301	TG2SC2274	(TRANSISTOR) TR 2SC2274(F)			Delete
R2300	401 019 9501	(RESISTORS) CARBON 47 Ω 1/4W J			Delete
R2301	401 018 2701	CARBON 330 Ω 1/4W J			Delete

AUDIO NORMAL CIRCUIT P.C.B. PARTS

FVH-P990K			FVH-P990S		
Schematic Location	Part No.	Description	Part No.	Description	Remarks
	0-4014-05590	AUDIO NORMAL PC ASSY	0-4014-05594	AUDIO NORMAL PC ASSY	Change
D4301 or or D4308 or or	DGGMA01-L DMMA165. SAN DY1SS133 DGGMA01-L DMMA165. SAN DY1SS133	(DIODES) DIODE GMA01-L SI DIODE MA165. SAN DIODE 1SS133 DIODE GMA01-L SI DIODE MA165. SAN DIODE 1SS133			Delete
PB403	4-2364-00220	(PLUG) 2P PLUG VERTICAL			Delete
Q4301 or or or Q4302 or Q4303 or Q4304	TG2SC536SP TM2SC1684 TN2SC945 TY2SC1740 TG2SC3400 TYDTC124S TG2SC3399 TYDTC144S TM2SC1684	(TRANSISTORS) TR 2SC536SP(F)or(G) TR 2SC1684(R)or(S) TR 2SC945(K)or(P) TR 2SC1740 DIGI TR 2SC3400 DIGI TR DTC124S DIGI TR 2SC3399 DIGI TR DTC144S TR 2SC1684(R)or(S)			Delete
R4304 R4305 R4307 R4308	401 018 3708 401 022 3008 401 016 4707 401 016 4707	(RESISTORS) CARBON 3.3k Ω 1/4W J CARBON 6.8k Ω 1/4W J CARBON 22k Ω 1/4W J CARBON 22k Ω 1/4W J	401 016 3730	CARBON 2.2k Ω 1/4W J	Change Delete Delete Delete

AUDIO FM CIRCUIT P.C.B. PARTS

Schematic Location	Part No.	Description	Part No.	Description	Remarks
	0-4014-05580	AUDIO FM PC ASSY	0-4014-05584	AUDIO FM PC ASSY	Change
	0-4030-00450 4-2374-00070 143-2-6904-03200	1P CORD ASSY D 1P TERMINAL-D SPRING PLATE EARTH			Delete Delete Delete
C4156	C1EBDK473SR	(CAPACITOR) SEMI 0.047 μ F 25V K			Delete
L4009 or L4010 or	4-2534-00950 4-2534-00951 4-2534-00950 4-2534-00951	(COILS) NOISE FILTER NOISE FILTER NOISE FILTER NOISE FILTER			Delete Delete
PA401 PA423	4-2364-00240 4-2364-00220	(PLUGS) 4P PLUG VERTICAL 2P PLUG VERTICAL	4-2364-00220	2P PLUG VERTICAL	Change Delete

SYSTEM CONTROL SERVO P.C.B. PARTS

Schematic Location	Part No.	Description	Part No.	Description	Remarks
	0-4014-04990	SYS CON SERVO PC ASSY	0-4014-04991	SYS CON SERVO PC ASSY	Change

TUNER RF CONVERTER P.C.B. PARTS

FVH-P990K			FVH-P990S		
Schematic Location	Part No.	Description	Part No.	Description	Remarks
	4-1154-16635	TUNER IF DECODER ASSY	4-1154-15235	TUNER IF DECODER ASSY	Change

TIMER VOLTAGE SYNTHESIZER P.C.B. PARTS

Schematic Location	Part No.	Description	Part No.	Description	Remarks
D1005 or R1538	0-4014-04840	TIMER VOLTAGE SYNTHESIZER PC ASSY	0-4014-04845	TIMER VOLTAGE SYNTHESIZER PC ASSY	Change
	0-4030-00310	1P CORD ASSY-D			Delete
	4-2374-00070	1P TERMINAL-D			Delete
	DGGMA01 DY1SS131	(DIODES) DIODE GMA01 DIODE 1SS131			Delete
	401 012 8006	(RESISTOR) CARBON 100kΩ 1/4W J			Delete

FRONT RIGHT P.C.B. PARTS

Schematic Location	Part No.	Description	Part No.	Description	Remarks
D1803 D1804 D1805 D1806 D1807 D1808 R1803 R1804 R1805	0-4014-04830	FRONT RIGHT PC ASSY	0-4014-04835	FRONT RIGHT PC ASSY	Change
	143-2-5604-12300	REFLECTOR VPS-HAQ			Delete
	DYSLR-34MC3F	(DIODES) LED SLR-34MC3F			Delete
	DYSLR-34MC3F	LED SLR-34MC3F			Delete
	DYSLR-34MC3F	LED SLR-34MC3F			Delete
	DYSLR-34MC3F	LED SLR-34MC3F			Delete
	DYSLR-34DC3F	LED SLR-34DC3F			Delete
	DYSLR-34DC3F	LED SLR-34DC3F			Delete
	401 012 4404	(RESISTORS) CARBON 100Ω 1/4W J			Delete
	401 016 2505	CARBON 220Ω 1/4W J			Delete
	401 021 1807	CARBON 560Ω 1/4W J			Delete

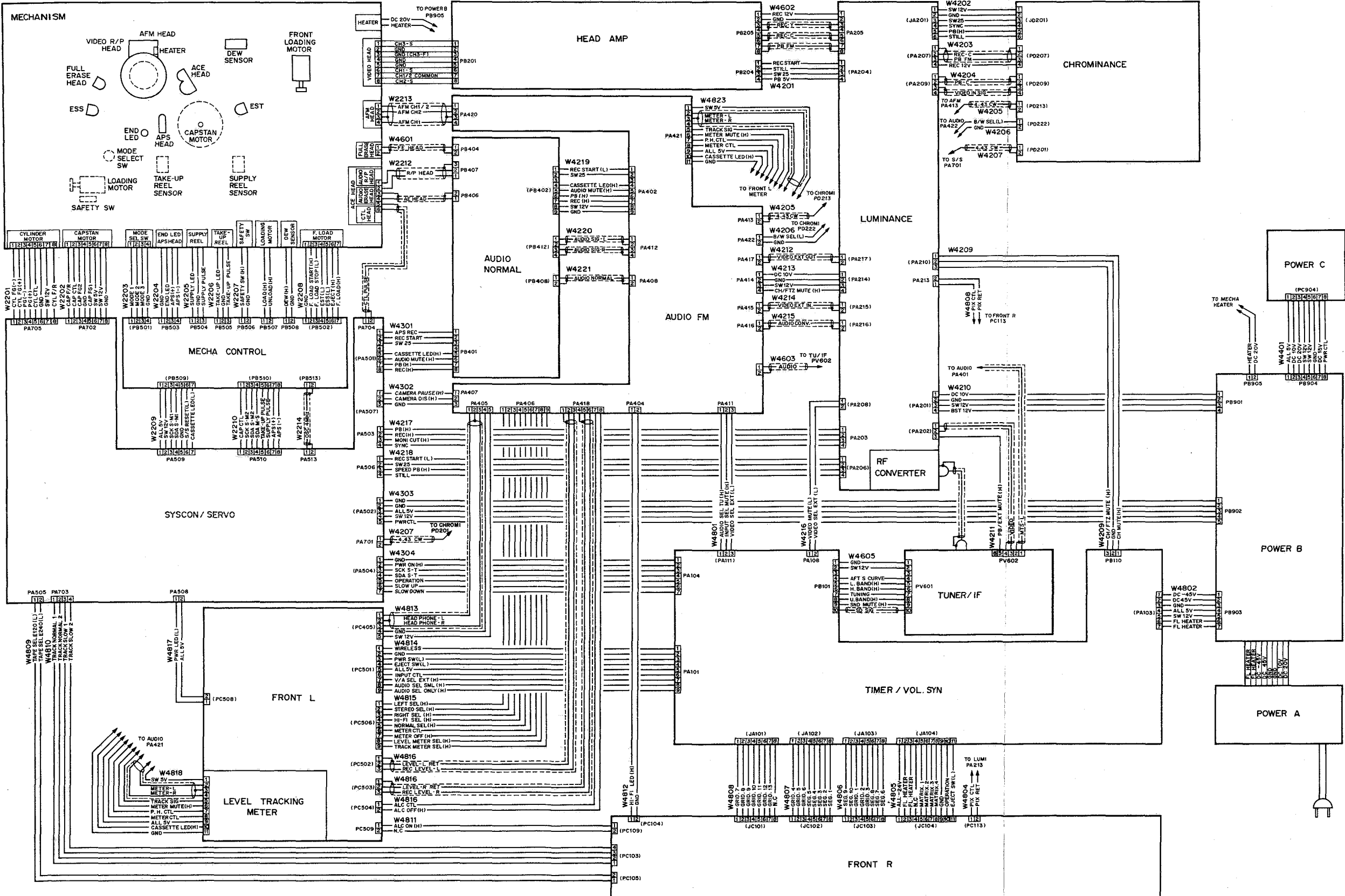
POWER CIRCUIT P.C.B. PARTS

Schematic Location	Part No.	Description	Part No.	Description	Remarks
L901	0-4014-05160	POWER A PC ASSY	0-4014-05162	POWER A PC ASSY	Change
	4-2524-00150	(COIL) LINE FILTER			Delete

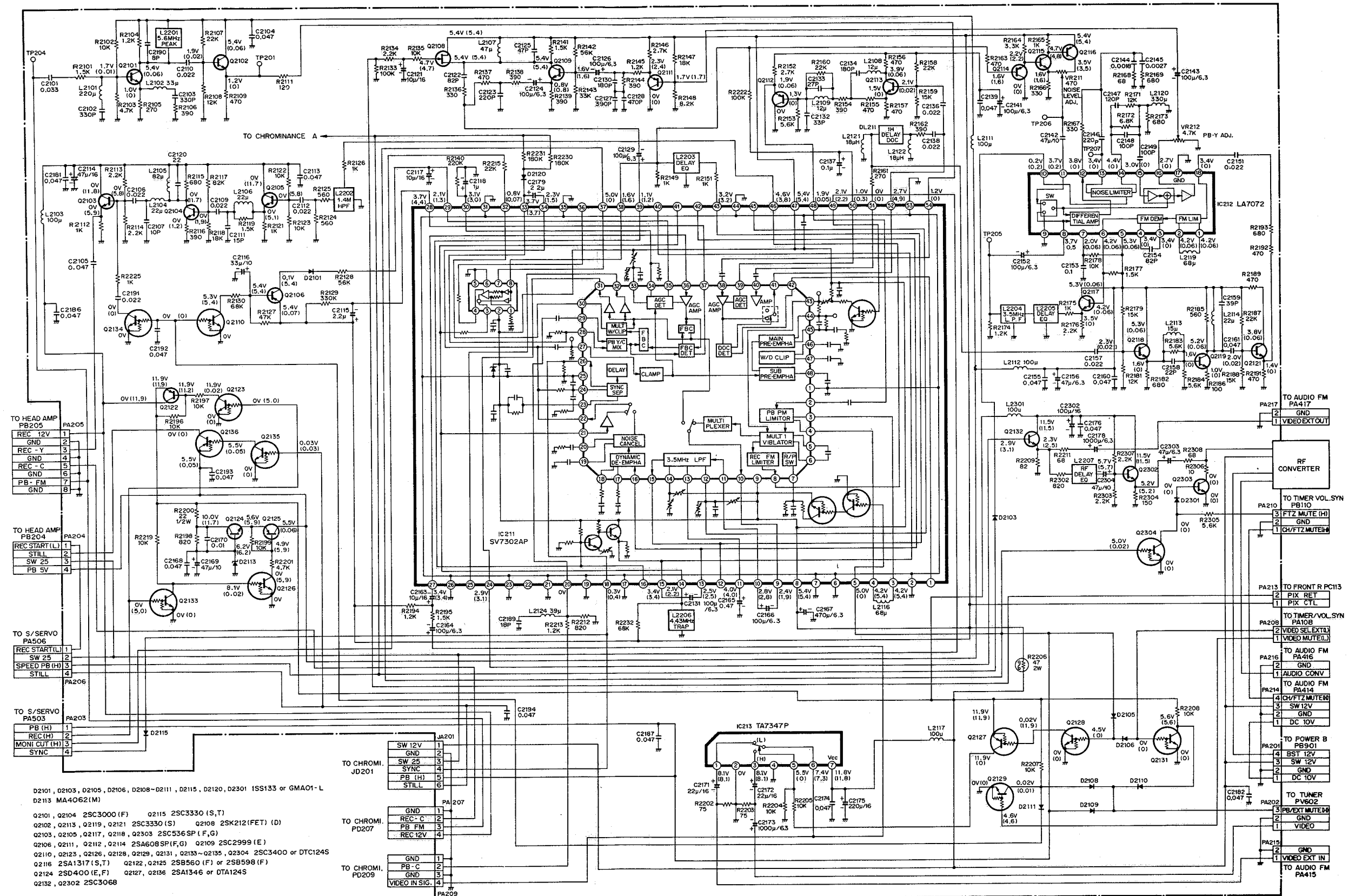
VPS DECODER P.C.B. PARTS

Optional			Not Available		
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OVERALL WIRING DIAGRAM

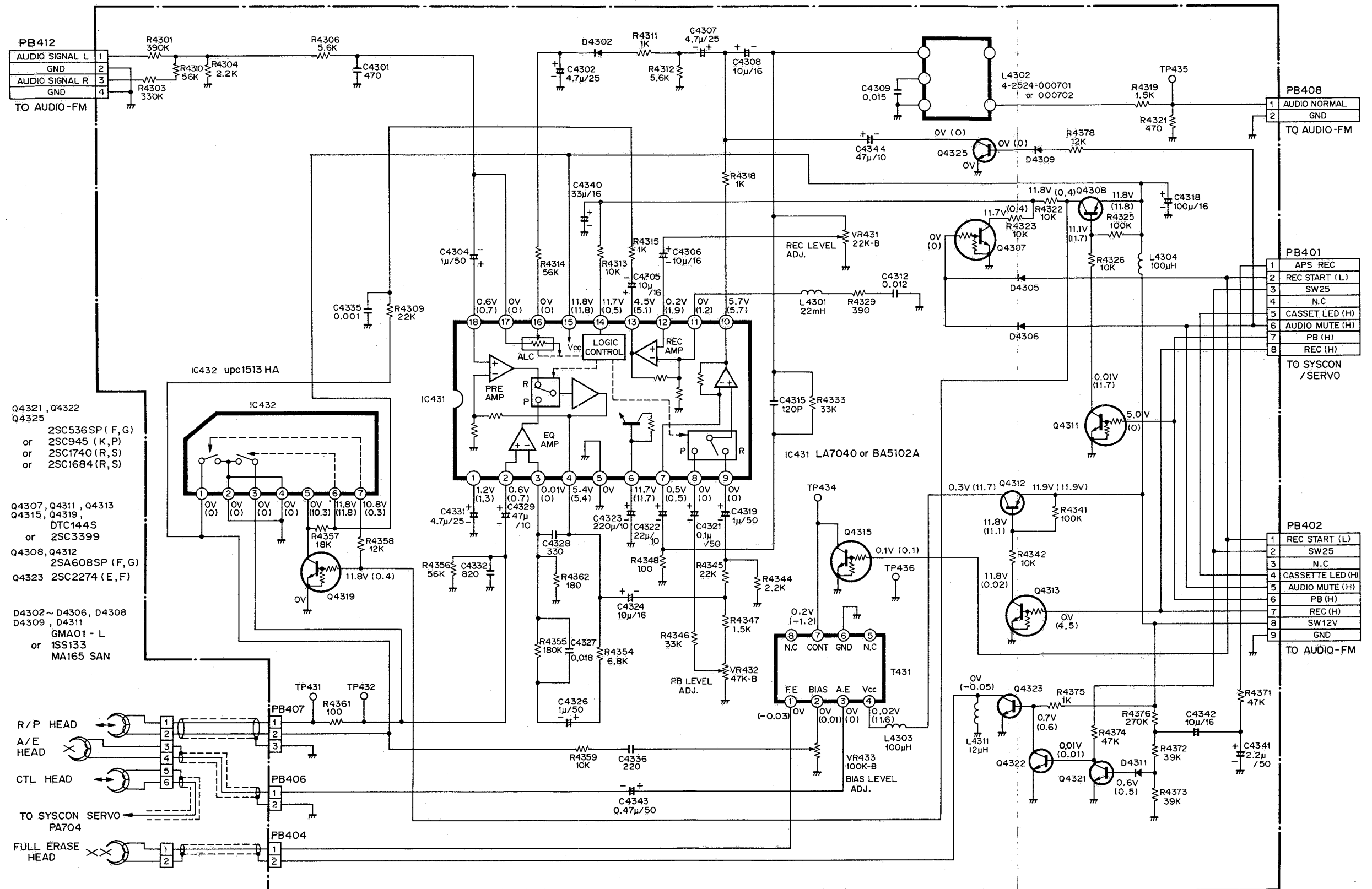


LUMINANCE CIRCUIT DIAGRAM



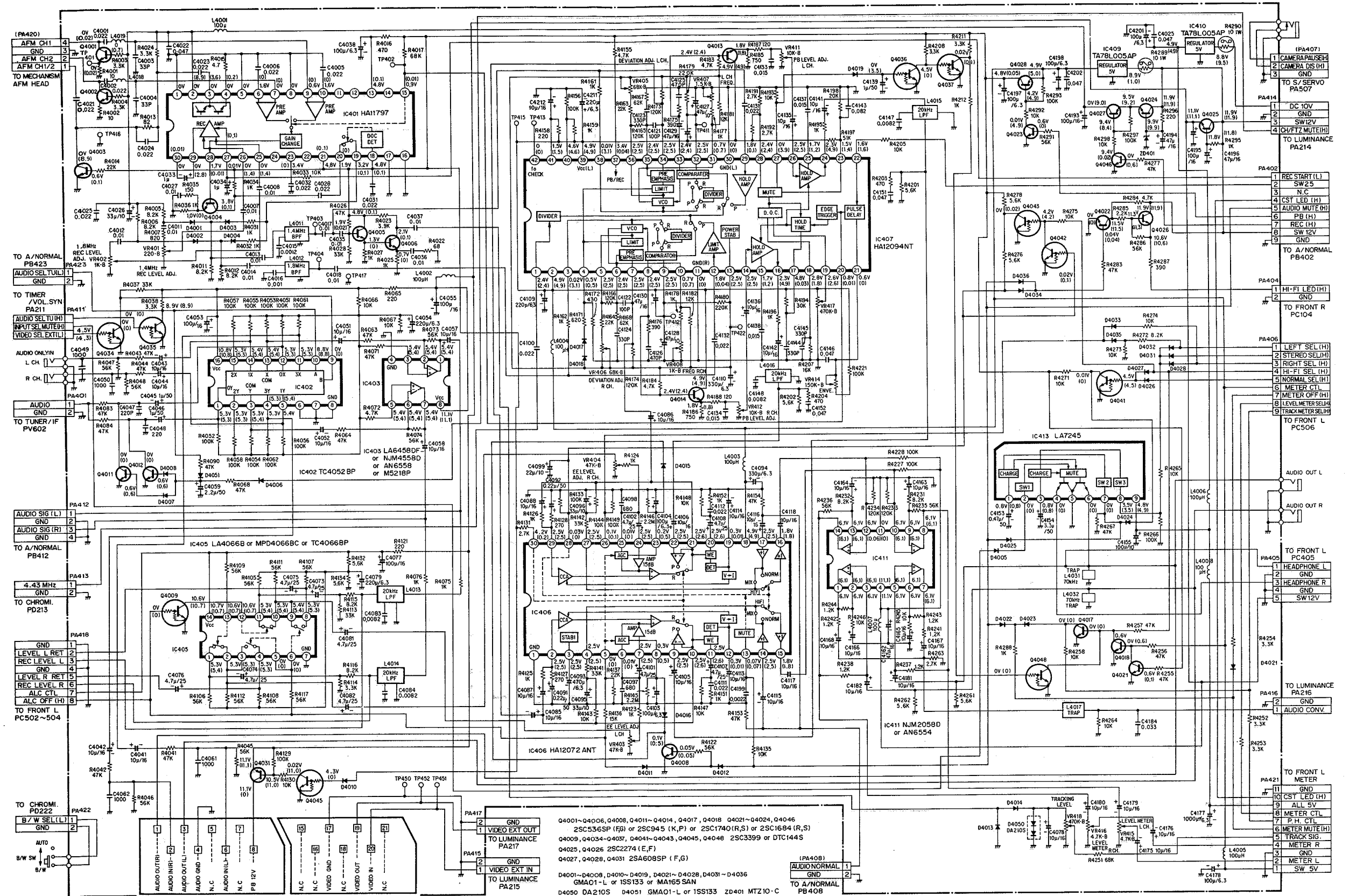
NOTE:
All voltage are measured in the PLAY and RECORD
modes at SP unless otherwise noted.
()=RECORD mode only.

AUDIO NORMAL CIRCUIT DIAGRAM



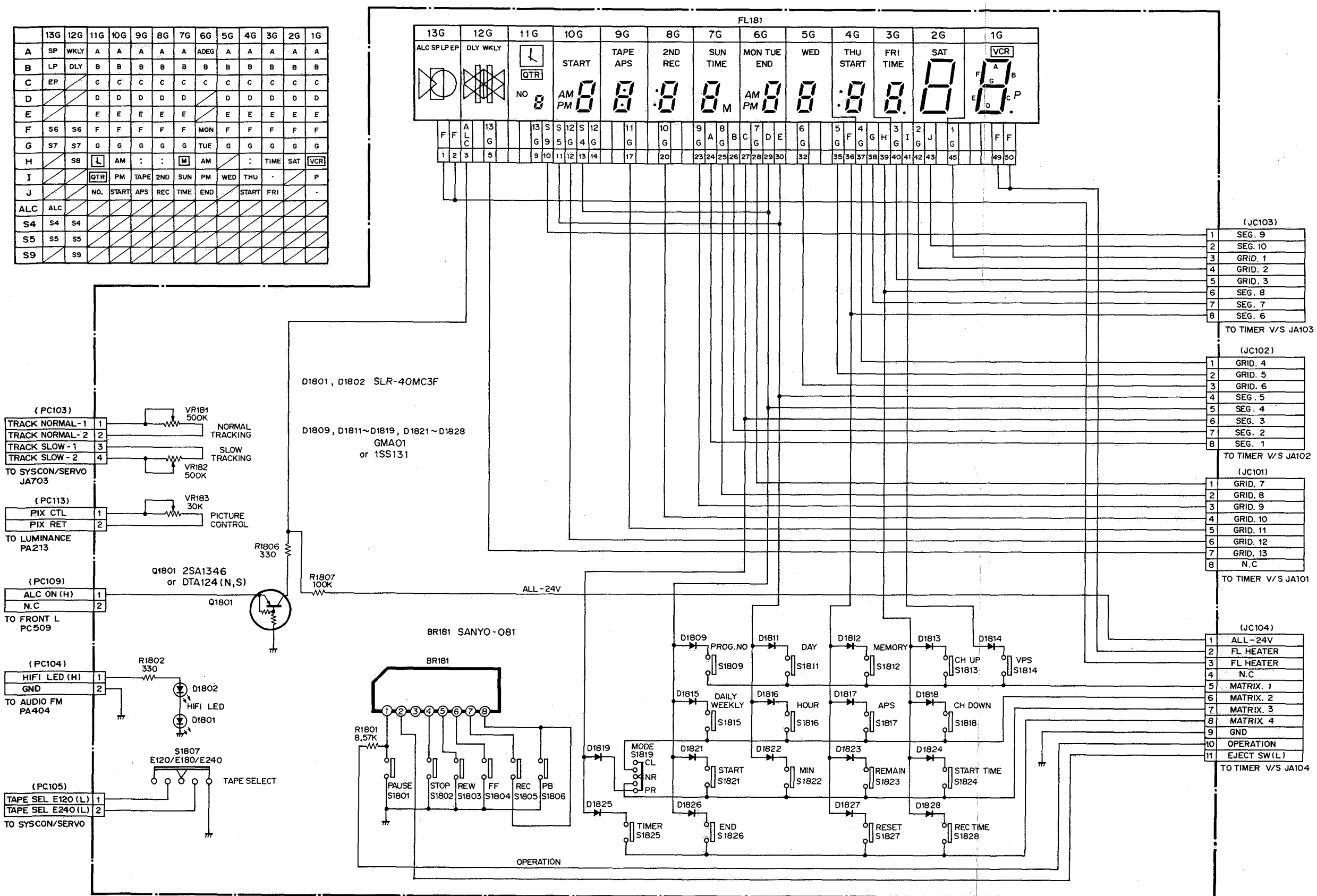
NOTE:
All voltage are measured in the PLAY and RECORD
modes at SP unless otherwise noted.
()=RECORD mode only.

AUDIO FM CIRCUIT DIAGRAM

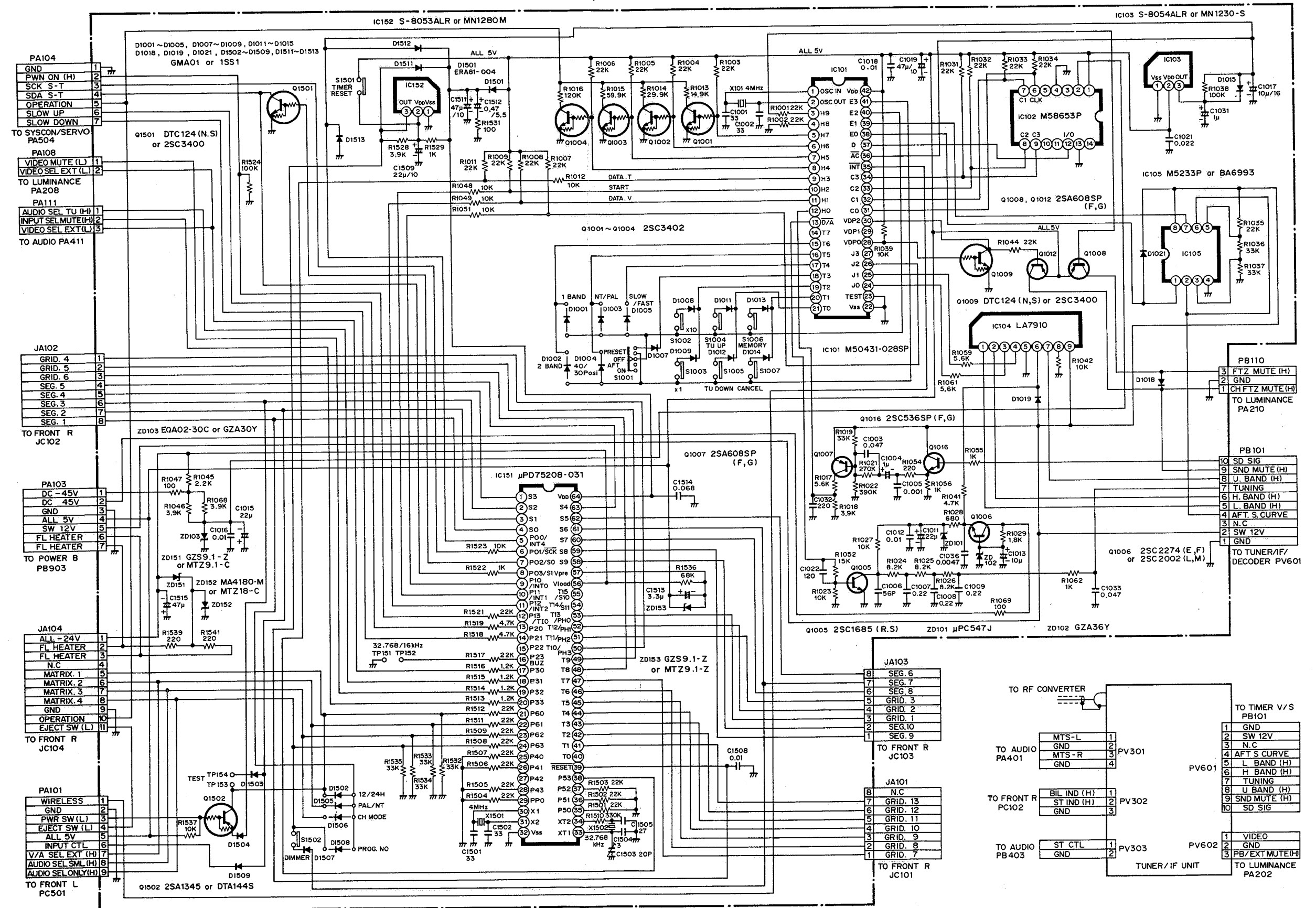


NOTE:
All voltage are measured in the PLAY and RECORD modes at SP unless otherwise noted.
()=RECORD mode only.

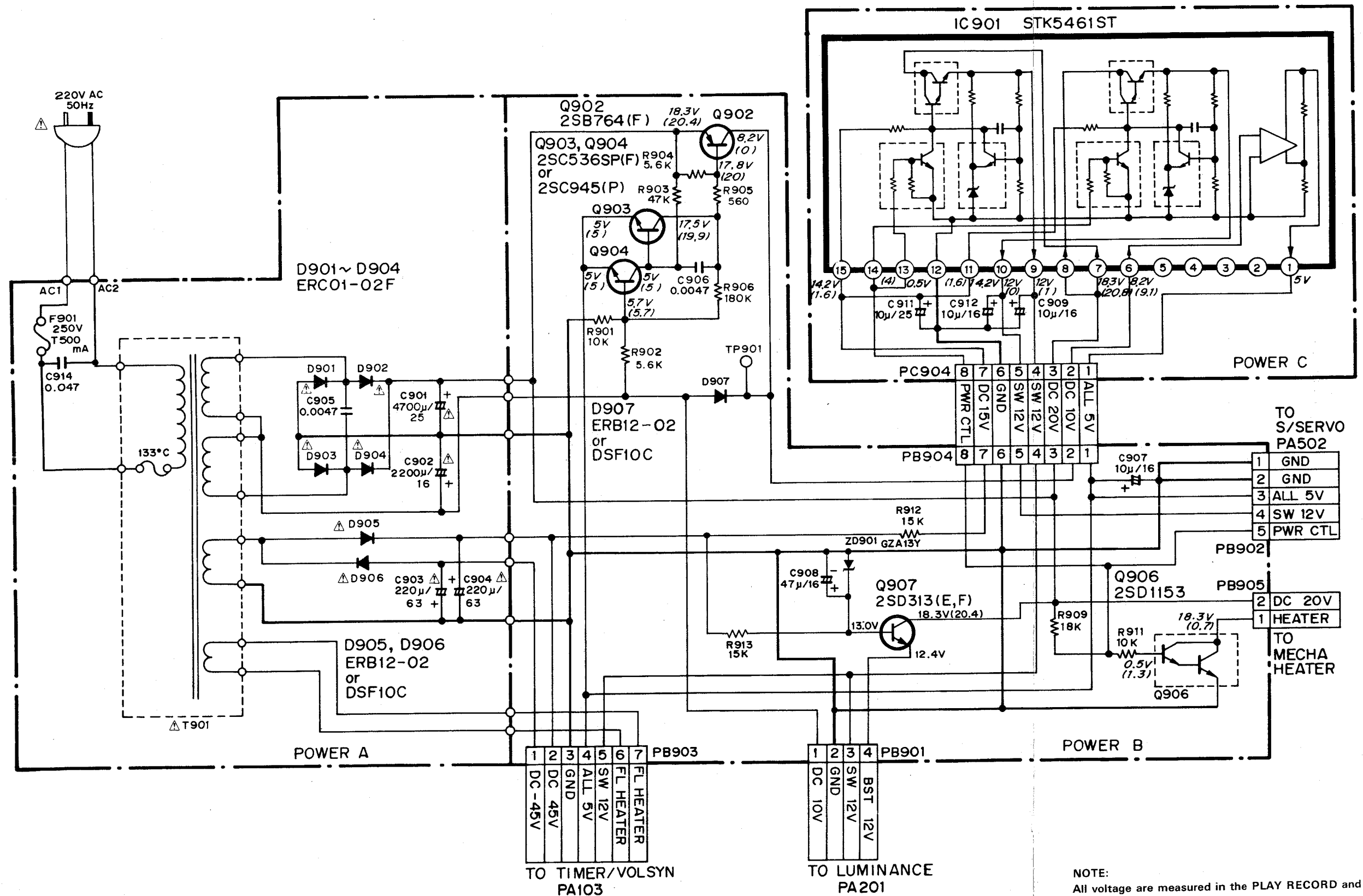
FRONT RIGHT CIRCUIT DIAGRAM



TUNER/TIMER/VOLTAGE SYNTHESIZER CIRCUIT DIAGRAM



POWER CIRCUIT DIAGRAM



NOTE:
All voltage are measured in the PLAY RECORD and STOP
modes unless otherwise noted.
()=POWER OFF mode only.

**ELECTRICAL &
MECHANICAL ADJUSTMENT**

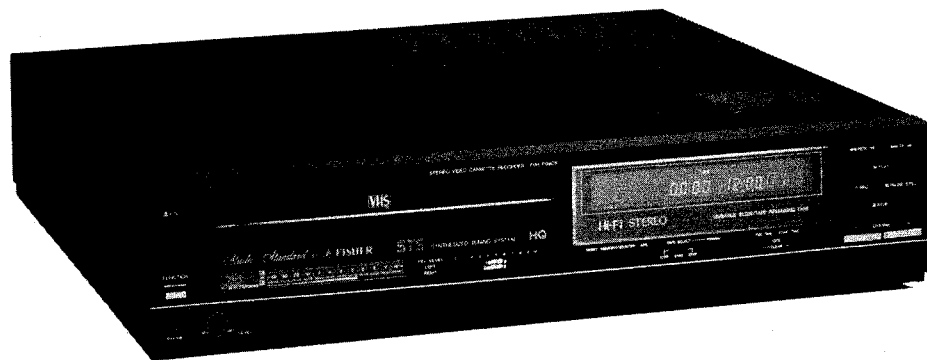


FISHER

**VIDEO
CASSETTE RECORDER**

FVH-P990S

(EUROPE)



The model FVH-P990S is basically the same as the previous model FVH-P990K/KV.

For all service information, refer to the ELECTRICAL & MECHANICAL ADJUSTMENT for the FVH-P990K/KV (WM-18756).

Note: The FVH-P990S is not provided with VPS/MTS function.

Bezeichnung/Description

SERVICE MANUAL E&M

Teil-Nr./Parts No.

Menge/Quantity

WM19091

2

Lagerort

LS-Nr.

33A02

270935 / 8

FISHER HIFI Service

1000

1000

1000

1000

1000

FVH-P990K
FVH-P990KV
Issue Number 1
WM-17506
July. '86/2000
Printed in Japan Kt



Bezeichnung/Description
SERVICE MANUAL, PL
 Teile-Nr./Parts No.
WM17506
 Menge/Quantity
2
 Lagerort
KP75
 LS-Nr.
270935 / 1
FISHER HiFi Service



FISHER Hi-Fi Europa Vertriebs GmbH

Stahlgruberring 4 Tel: 089/420 45-0
 8000 München 82 Tlx: 524033
 Technisches Labor/ Durchwahl -120/121
 Qualitätskontrolle
 Funkstörmeßlabor -127/128
 Service-Zentrale
 Color TV -166
 Hi-Fi/Audio -168
 Video. -172
 Autoradio -170
 Ersatzteillager -155/156
 Techn. Schulung -174

Weitere Service-Zentralen in BRD (keine Ersatzteilbestellungen)

Offenbach/ Frankfurt	Frankfurter Straße 121 6050 Offenbach	Tel: 069/88 80 45/48 Tlx: 4 12 558	Hamburg	Spaldingstraße 1 2000 Hamburg	Tel: 040/23 12 23/24 Tlx: 2 173 839
Military	Frankfurter Straße 121 6050 Offenbach	Tel: 069/88 80 45/48 Tlx: 4 12 558	Ditzingen	Max-Eyth-Straße 11 7257 Ditzingen	Tel: 07156/50 88 Tlx: 7 245 278
Düsseldorf-Erkrath	Albert-Einstein-Straße 8 4006 Erkrath 1	Tel: 0211/200 05-0 Tlx: 8 588 563	Berlin (Fisher Vertragswerkstatt)	Drewitz & Kaulbach Eisenacher Straße 53 1000 Berlin 62	Tel: 030/781 20 01 Tlx: 186 460

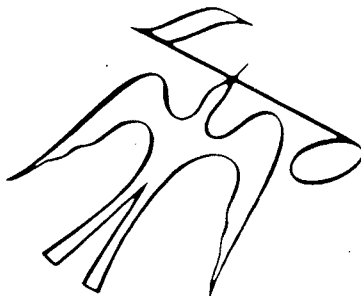
Unser FISHER-Team steht Ihnen jederzeit gerne zur Verfügung. Ersatzteilbestellungen wickeln Sie bitte ausschließlich mit unserer Service-Zentrale München ab.

Senden Sie uns im Garantiefall die ausgefüllte Garantiekarte ein. Bei unverkauften Lagergeräten des Fachhandels gilt als Garantienachweis eine eidesstattliche Versicherung mit eingetragener Modellbezeichnung und Geräte-Nummer oder ein Lieferrachweis. Die gleiche Regelung besteht auch für Reparaturaufträge.

Bitte geben Sie unbedingt die Ersatzteil-Nummer und die Modellbezeichnung an.
 Sie sparen so wertvolle Zeit. Vielen Dank.

FVH-P990K
 FVH-P990KV
 Issue Number 1
 WM-17506
 July. '86/2000
 Printed in Japan Kt

Bezeichnung/Description
SERVICE MANUAL, PL
 Teile-Nr./Parts No.
WM19026
 Menge/Quantity
2
 Lagerort
34006
 LS-Nr.
305478 / 3
FISHER HiFi Service



FISHER Hi-Fi Europa Vertriebs GmbH

Stahlgruberring 4 Tel: 089/420 45-0
 8000 München 82 Tlx: 524033
 Technisches Labor/ Durchwahl -120/121
 Qualitätskontrolle
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 Video -172
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Weitere Service-Zentralen in BRD (keine Ersatzteilbestellungen)

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Military	Frankfurter Straße 121 6050 Offenbach	Tel: 069/88 80 45/48 Tlx: 4 12 558	Ditzingen	Max-Eyth-Straße 11 7257 Ditzingen	Tel: 07156/50 88 Tlx: 7 245 278
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Bitte geben Sie unbedingt die Ersatzteil-Nummer und die Modellbezeichnung an.
 Sie sparen so wertvolle Zeit. Vielen Dank.

FVH-P990S
 Issue Number 1
 WM-19026
 Oct. '86/2000
 Printed in Japan Kt

**ELECTRICAL &
MECHANICAL ADJUSTMENT**



FISHER

**VIDEO
CASSETTE RECORDER**

FVH-P990S

(EUROPE)



The model FVH-P990S is basically the same as the previous model FVH-P990K/KV.

For all service information, refer to the ELECTRICAL & MECHANICAL ADJUSTMENT for the FVH-P990K/KV (WM-18756).

Note: The FVH-P990S is not provided with VPS/MTS function.

