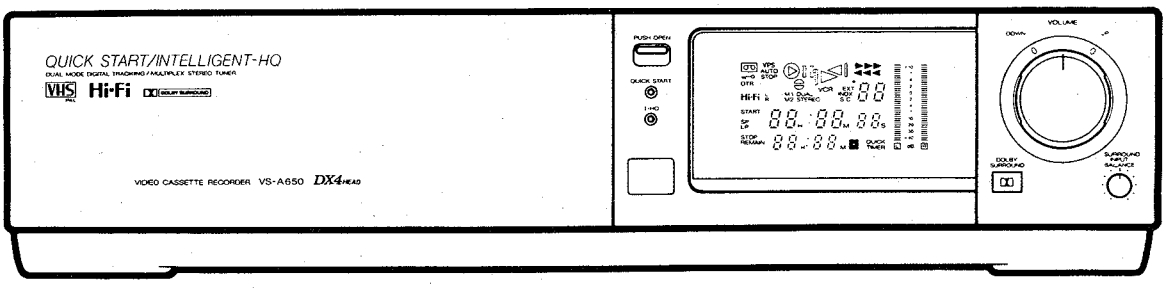
VS-F600
VS-A650

AKAI SERVICE MANUAL



HQ HIGH QUALITY VHS PAL Hi-Fi NICAM DIGITAL STEREO

MODEL VS-A650EK

VIDEO CASSETTE RECORDER

MODEL VS-F600 EA/EK/EO EOG-V/EOH

MODEL VS-A650 EA/EK/EO EOG-V/EOH

SPECIFICATIONS

Format	
EA/EK	VHS standard
EO/EOG-V/EOH	VHS standard (PAL, MESECAM)
Video recording system	Rotary, slant azimuth two-head helical scan system
Rotary heads	4 video heads & 2 audio heads
RF input	
EA	System B, G with monaural or multiplexed 2 channel audio VHF ch 0 - 5, 5A, 6 - 11, UHF ch 21 - 69
EK	System I with monaural or multiplexed 2 channel audio (NICAM) UHF ch 21 - 69
EO	System B, G (PAL,SECAM) with monaural or multiplexed 2 channel audio (NICAM) VHF ch 2 - 4, 5 - 12 UHF ch 21 - 69
EOG-V	System B, G (PAL,SECAM) with monaural or multiplexed 2 channel audio VHF ch 2 - 4, 5 - 12 UHF ch 21 - 69 Cable ch sI' - S3', SI - S20
EOH	System B, G (PAL,SECAM) with monaural or multiplexed 2 channel audio VHF ch 2 - 4, 5 - 12 UHF ch 21 - 69 Cable ch SI' - S3', S1 - S41
RF output	
EA	System B type modulation VHF ch 0, 1 switchable (preset ch 1)
EK	System I type modulation UHF ch 30 - 39 adjustable (preset ch 36)
EO	Sysyem G type modulation UHF ch 30 - 39 adjustable (preset ch 36)
EOG-V	System G type modulation UHF ch 30 - 39 adjustable (preset ch 36)
EOH	System G type modulation UHF ch 30 - 39 adjustable (preset ch 36)
Recording (line input)	
EA/EK	PAL
EO/EOG-V/EOH	PAL, SECAM (Recorded as MESECAM)
Playback(line output)	
EA/EK	PAL
EO/EOG-V/EOH	PAL, SECAM (MESECAM Tape)
Video	
Line input level	0.5 - 2.0 Vp-p/75 ohms, unbalanced
Line output level	1.0 Vp-p/75 ohms, unbalanced
SN ratio	More than 45dB
Horizontal resolution	More than 250 lines
Audio	(VHS Hi-Fi: 2 ch, Linear: 1 ch)
Line input level	-6 dBs/50 k ohms, unbalanced
Line output level	-6 dBs/ 1 k ohms, unbalanced
Dynamic range	More than 90 dB (VHS Hi-Fi)
Variable output level (VS-A650 only)	+6 dBs/330 ohms, unbalanced (Master volume MAX)
Frequency response	20 - 20,000 Hz (VHS Hi-Fi)
Wow & Flutter	Less than 0.005 % WRMS (VHS Hi-Fi)
Power amplifier(VS-A650 only)	
Power output	12 watts RMS per channel at 8 ohms, THD 1.0 %
Frequency response	6 - 35,000 Hz at 1 watt per channel
Recording/playback time	
SP mode	240 min. with E-240 cassette
LP mode	480.min. with E-240 cassette
Tape speed	
SP mode	23.39 mm/sec
LP mode	11.695 mm/sec
Quick finder	
SP mode	Approx. 2 to 15 times normal speed (7 steps)
LP mode	Approx. 2 to 7 times normal speed (4 steps)
FF, REW time	Approx. 4.5 min. with E-180 cassette
Timer	
Program	8 program / year and QUICK TIMER
Clock reference	Quartz crystal
Display	TV screen & FL (Tape counter, Timer etc.)
Power requirements	
EA/EK	240 V AC 50 Hz
EO/EOG-V/EOH	220 V AC. 50 Hz
Power consumption	
F600EA	35 W
F600EK	37 W
F600EO	39 W
F600EOG-V	44 W
F600EOH	40 W
A650EA	64 W
A650EK	65 W
A650EO	66 W
A650EOG-V	68 W
A650EOH	62 W
Operating temperature	5°C - 40°C
Dimensions	425(W) × 99(H) × 365(D) mm
Weight	
VS-F600	7.0 kg
VS-A650	7.5 kg

Standard accessories

	EA/EO/EOH	EK/EOG-V
Connection cord	1	1
Remote control unit	1	1
TV control sticker	1	—
Function decal sheet	—	1
Batteries for remote control	3	3
Operator's manual	1	1

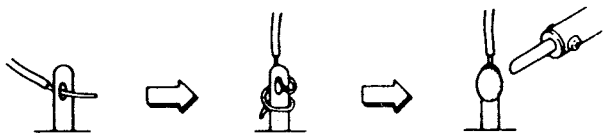
* For improvement purposes, specifications and design are subject to change without notice.
* Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. DOLBY and the double-D symbol DD are trademarks of Dolby Licensing Corporation.

0 dBs=0.775 V

★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ (*) symbol are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal-input/output connectors, etc.) and the earth ground through a resister of 1500 ohms paralleled with a 0.15 μF capacitor, under the unit's normal working conditions. The leakage-current should be less than 0.5 mA rms AC.
The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 Mohms.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.
Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

★ INFORMATION

SYMBOLS OF MODEL NAME FOR PRIMARY DESTINATION

Symbol indicates the destination of the units as listed below.

Symbol	Power Classification	Principal Destination	TV System	
			Color	Broadcast
EA	S	Australia	PAL	B, G
ED	E	China	PAL	D
EDG	E	East Europe	PAL	D, K
EDI	E	China, Hong Kong	PAL	D, K, I
EG	E	Spain, Northern Europe, Other	PAL	B, G
	Y7	Saudi Arabia		
EK	B	U.K.	PAL	I
	Y1	Hong Kong		
EM	E	Middle East	PAL	B, G
	Y7	Saudi Arabia		
EO	E	Holland, Switzerland, Northern Europe	PAL	B, G
	V	Italy		
EOH	E	Holland, Belgium	PAL	B, G
	V	Italy		
EOG	V	W.Germany	PAL	B, G
ES	E	South Africa, Ireland, Hong Kong	PAL	I
EV	E	South-East Asia	PAL	B, G
	U	Middle East, South-East Asia		
	Y1	New Zealand		
	Y7	Saudi Arabia		
EZ	S	New Zealand	PAL	B, G
EGN	E	Middle East	PAL, NTSC	B, G
	Y7	Saudi Arabia		
S	E	France	SECAM	L
SK	E	Latin America, Oceania, SECAM-OIRT	SECAM	K, KI
SEG	E	France, Switzerland	SECAM, PAL	L, B, G
U	A	U.S.A	NTSC	M
	C	Canada		
UM	U	Latin America	NTSC	M
J	J	Japan	NTSC	M

Quick start function

This VCR contains the quick start function.

When a video tape is inserted into this VCR, the QUICK START indicator will automatically light on the front panel. This indicates that the VCR is in the quick start mode and that any function button pressed will operate immediately. If a function button is not pressed within 5 minutes, the indicator will disappear and the VCR will be released from the quick start mode. If the play or record button is pressed after the indicator has disappeared, there will be a short time before the VCR responds.

Automatic functions

This VCR contains the following auto functions.

1. Auto power on
   The VCR power is automatically turned on when the tape is inserted.
2. Auto play
   If the video tape's recording defeat tab has been removed, playback will begin automatically when the tape is inserted into the VCR.
3. Auto tape reject
   If a video tape with its recording defeat tab removed is loaded, the VCR will automatically eject it when the REC or TIMER button is pressed.
4. Power off eject
   Even when the VCR's power is off, pressing the EJECT button will turn the power on and eject the tape. Once ejected the power will be turned off automatically.
5. Auto counter display
   When the display mode is on, the tape counter will be displayed on the TV screen automatically during fast forward or rewind.
6. Auto rewind
   The video tape is automatically rewound when the end of the tape is reached during the play, recording or quick finder forward mode. (Auto rewind will not function during the next mode when it has been set after the timer recording, fast forward or recording mode.)
7. Auto dimmer display
   Between the hours of 23:00 and 6:00, if the VCR is not in use, the FL display is automatically dimmed to a lower light level.

Safety lock system (Remote control only)

This VCR's PLAY button can be locked to prevent access by small children.

This feature can be operated by the remote control only.

To lock: With the VCR POWER ON, press and hold the remote control's stop button for approx. 8 seconds. The safety lock indicator ⊶O will appear on the FL display to indicate that the VCR is locked.

To unlock: Press and hold the remote control's play button for approx. 8 seconds. The safety lock indicator will flash and disappear from the display.

Multi-language display

The language of your choice can be selected for the on-screen display. You can choose any one of the following languages: English, German, Spanish, French, Italian, Dutch. If a language is not selected, the VCR will select English automatically.

1) Press the MENU button on the remote control unit. The MENU list will be displayed on the TV screen.
2) Select the LANGUAGE mode by setting the arrow indicator with the ∨ button. Then press the OK button.
3) The LANGUAGE list will be displayed on the TV screen. Then set the arrow to the desired language with ∨ button.
4) Press the OK button again. The language list screen will disappear after a few seconds and selected language has been set.

Multi speed playback (Remote control only)

The MULTI SPEED ≫, ≪ buttons make playback speed increase or decrease possible with the remote control.

The tape speed can be increased up to 15 times the normal playback speed in the forward or reverse directions.

In the forward direction, the speed can also be decreased to 1/12 of the normal playback speed (2 video heads type) and 1/4, 1/8, 1/12, 1/16, or 1/20th of the normal playback speed (3 or 4 video heads type).

Press the remote control's MULTI SPEED PLAY ≫ or ≪ button repeatedly during playback until you reach the desired speed.

During this mode, no sound will be heard.

Playback picture sharpness adjustment (Remote control only)

Playback picture sharpness adjustment is possible with the remote control.

Press the MENU button and select the CONTROL mode by pressing the OK button during playback.

The CONTROL mode will be displayed on the TV screen. Then choose the PICTURE mode with the ∧ button.

Press the > button to sharpen the picture or press the < button to soften the picture.

INTRO SCAN system (Remote control only)

This VCR is capable of quickly fast forwarding (or rewinding) to the beginning of each recorded segment on a tape, briefly playing back that segment, and then fast forwarding (or rewinding) to the next segment.

This system works in combination with the control signal which is recorded at the beginning of each recorded segment.

Press the INTRO SCAN button on the remote control during the "play", "stop", "fast forward" or "rewind" mode. The VCR will immediately fast forward (or rewind) the tape to the beginning of the program and play back about the first 8 seconds. The VCR will then again fast forward (or rewind) the tape to the beginning of the next recorded segment and again play back the first 8 seconds of the program.

This operation continues until the end of the tape (or the beginning of the tape) or another mode (such as PLAY or STOP)is chosen. During the INTRO SCAN mode, the index number will be displayed on the TV screen and flash on the FL display. This number will advance each time an index code is found. The INDX indicator will light on the FL display during the intro scan mode.

While intro scan is searching for the beginning of the program, the fast forward (or rewind) indicator lights and the play indicator flashes. During the 8 seconds of playback, the play indicator lights and the fast forward (or the rewind) indicator flashes.

INDEX SEARCH System (Remote control only)

Use the index search mode to jump directly to the beginning of any recorded segment, within 99 segments of your starting point, in either the forward or reverse direction. Using the index code (automatically added when tapes are recorded on this VCR) as a guide, The VCR forwards or rewinds the video tape to the segment you have chosen and begins playback automatically. Because the index search feature uses the index code that is added to the tape when programmes are originally recorded, this feature will only operate with tapes that include this index code.

Press the INDEX SEARCH forward or reverse button the number of index codes you wish to skip on the remote control.

The tape will be fast forwarded or quickly rewound to the desired segment and playback will begin automatically.

During the index search mode the index number will be displayed on the TV screen and flash on the FL display. This number will decrease each time an index code is found.

TEST MODE

To set the VCR to the TEST MODE, press and hold both the "POWER" and "EJECT" buttons on the front panel, then plug in the AC power cord.

When the TEST MODE has been engaged, the QUICK START indicator turns on even when the POWER is turned OFF.

The TEST MODE can be cancelled by disconnecting the AC power cord or simply by pressing the SYSTEM RESET button.

1) MEMORIZATION OF THE REFERENCE RF ENVELOPE DETECT VOLTAGE

For the purpose of correct operation of the I.HQ tape tuning system, memorization of the reference RF envelope detect voltage is absolutely necessary.

When the VIDEO HEAD DRUM, PRE AMP PCB or EEP ROM in the OPERATION PCB is replaced for any reason, memorize the reference RF envelope detect voltage according to the following procedure.

1. Set the VCR to the "TEST MODE" and set the tape speed to "SP mode".
2. Make a recording on a blank tape and play it back (use of a high grade tape is not recommended).
3. Reference RF envelope detect voltage data in the memory is displayed in the left 2 digits of the time display part of the FL display and present envelope detect voltage data is displayed in the right 2 digits of the time display part.
4. After the auto tracking is activated, press the "CANCEL" button on the remote control unit. So, present RF envelope detect voltage data will be memorized in the EEP ROM IC.
5. Set the tape speed to the "LP mode" and repeat steps 2 to 4.

2) TRACKING POSITION DISPLAY

In the SP play mode, tracking position data can be displayed on the FL display. Data is displayed in 64 steps (in hexadecimal numbers from "00" to "3F") in the channel number indicator segment on the FL display.

Pressing the "TV/VCR" button sets tracking to the maximum "3F" tracking position directly during playback and pressing the "COUNTER RESET" button sets it to the minimum "00" position.

Pressing the PLAY button during playback sets tracking to the center position automatically.

3) FL DISPLAY CONFIRMATION

By pressing the QUICK TIMER "M" button on the front panel, all indicator segments in the FL display will light up.

4) TIMER FUNCTION CONFIRMATION

During the TEST MODE, the clock's minute display will advance by one every second to facilitate quick timer function confirmation.

5) SUSPENTION OF THE TAPE PROTECTION SYSTEM

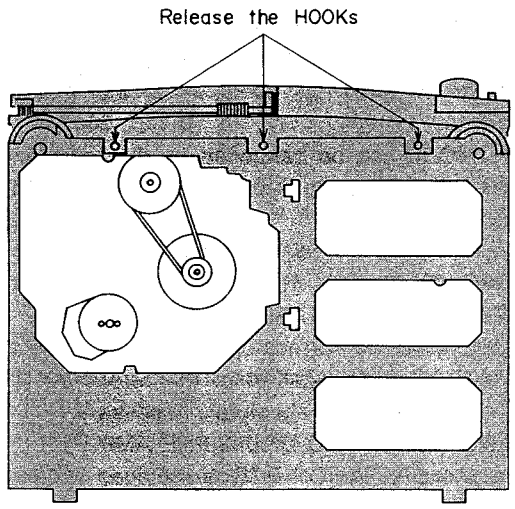
When the VCR is not in the TEST MODE, the REC PAUSE mode will be released after 30 minutes in order to protect the tape. The "STILL" mode will also be released after 5 minutes. During the TEST MODE however, the tape protection system will not operate.

I. DISASSEMBLY

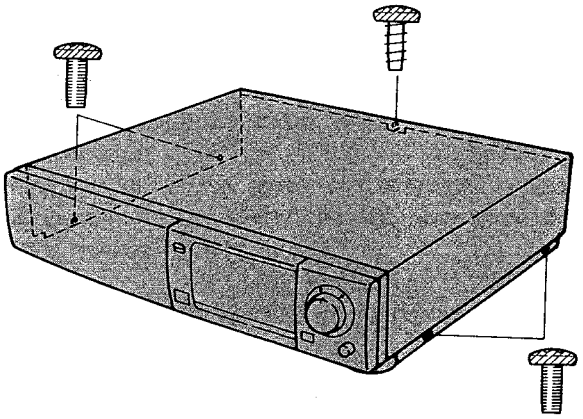
In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in reverse order.
When re-attaching the FRONT PANEL, hold the cassette loading slot door in the upright (open) position.

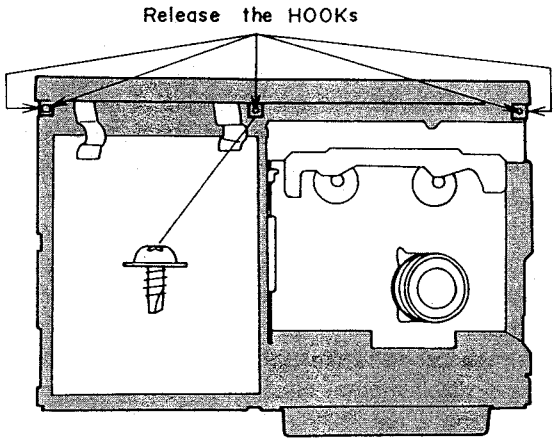
* Illustrations of model VS-A650 are employed here.

3. Removal of FRONT PANEL

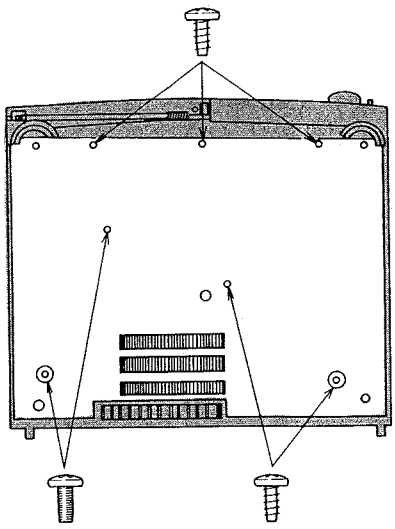


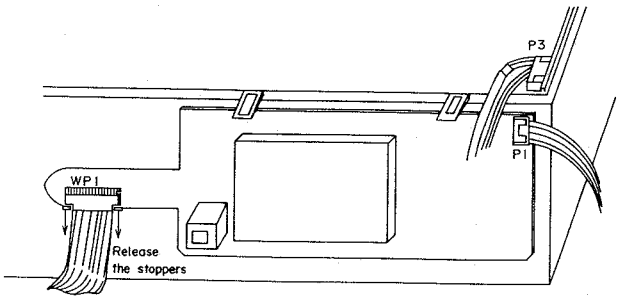
1. Removal of UPPER COVER





2. Removal of BOTTOM COVER





Disconnect the WP1 flat cable.
Disconnect the P1 and P3 connectors (VS-A650 ONLY)

II. PRINCIPAL PARTS LOCATION

* Photograph employed on this page is of model VS-A650EK.

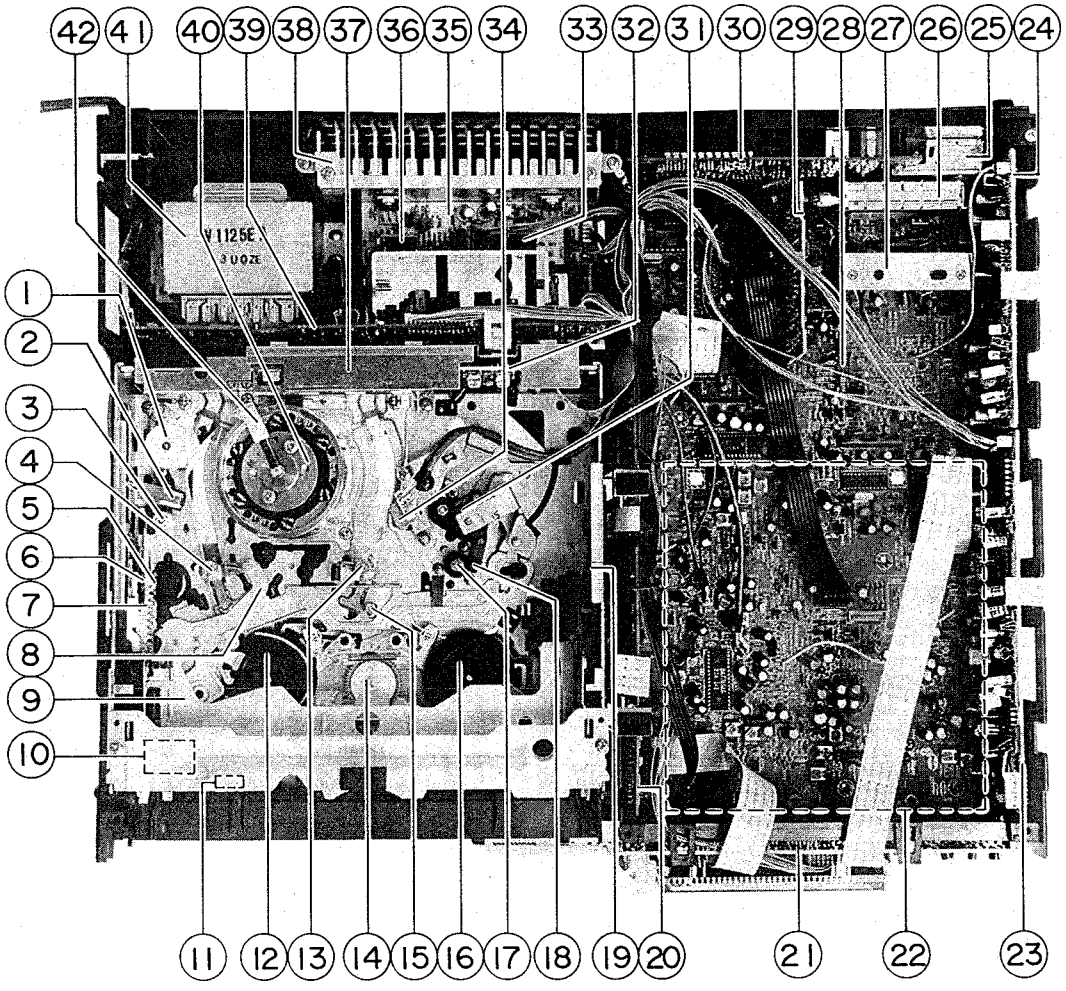


Fig. 3-1 Top view

1. IMPEDANCE ROLLER
2. FULL TRACK ERASE HEAD
3. SUPPLY TAPE GUIDE
4. SUPPLY LOADING LEADER
5. FRONT LOADING GEAR
6. SENSOR (S) PCB (END SENSOR)
7. FRONT LOADING SLIDER
8. TENTION ARM
9. CASSETTE LOAD BLK
10. LOADING MOTOR
11. REC SAFETY SWITCH
12. SUPPLY REEL TABLE
13. TAKE UP LOADING LEADER
14. IDLER PART
15. SENSOR LED
16. TAKE UP REEL TABLE
17. CAPSTAN MOTOR
18. REVIEW ARM
19. SENSOR (T) (START SENSOR)
20. SERVO/SYSCON PCB
21. OPERATION (1) PCB
22. VPT PCB (EOG-V ONLY)
23. SURROUND PCB (VS-A650 ONLY)
24. W.G MULTI PCB (EA/EOG-V/EOH ONLY)
    NICAM PCB (EK/EO ONLY)
25. RF CONVERTOR UNIT
26. TUNER UNIT
27. VIF UNIT
28. MAIN PCB
29. I.HQ (INTELLIGENT HQ) PCB
30. I/O (INPUT/OUTPUT) PCB
31. PINCH ROLLER
32. PRE AMP PCB
33. DIODE (B) PCB (VS-A650 ONLY)
34. AUDIO/CONTROL/S.ERASE HEAD
35. MAIN AMP PCB (VS-A650 ONLY)
36. DIODE (C) PCB (VS-A650 ONLY)
37. PRE AMP SHIELD PLATE (VS-A650 ONLY)
38. HEAT SINK (VS-A650 ONLY)
39. POWER (1) PCB (VS-F600 ONLY)
    POWER (2) PCB (VS-A650 ONLY)
40. UPPER DRUM BLK
41. POWER TRANSFORMER
42. EARTH BRUSH

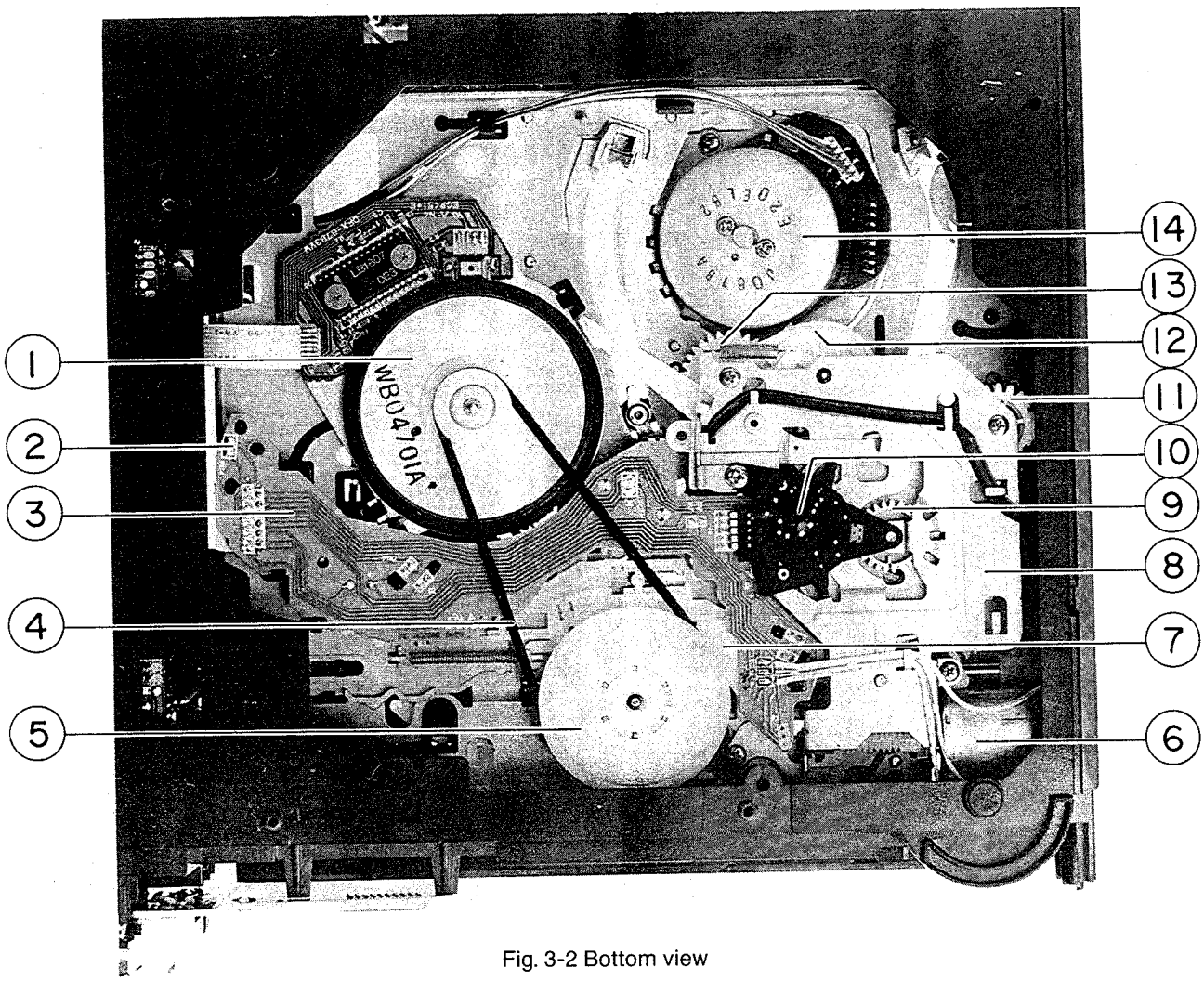


Fig. 3-2 Bottom view

1. CAPSTAN MOTOR BLOCK
2. SENSER (T) (START SENSOR)
3. SENSOR PCB
4. CAPSTAN BELT
5. CLUTCH DISK PART
6. LOADING MOTOR
7. BRAKE SLIDER PART
8. LOADING DRIVE BLOCK
9. CAM SLIDER GEAR
10. MODE SELECT SWITCH
11. FRONT LOADING GEAR
12. TOGGLE (S) GEAR BLOCK
13. TOGGLE (T) GEAR BLOCK
14. DRUM MOTOR BLOCK

III. MAIN COMPONENTS REPLACEMENT

3-1. REMOVAL OF THE EJECTOR BLOCK

* Set the loading mechanism to the "EJECT" position by pressing the EJECT button. Then disconnect the AC power plug from the AC socket before proceeding.

3-1-1. Removal of the CASSETTE LOAD BLK

1) Remove the two Ⓐ screws on the UPPER PLATE as shown in Fig. 3-1 then remove the UPPER PLATE.
2) Lift up the FRONT GUIDE while pushing the CASSETTE LOAD BLK backward, then remove the FRONT GUIDE.
3) Lift up the front side of the CASSETTE LOAD BLK gently then remove it. To avoid damaging the pins of the CASSETTE LOAD BLK and the groove of the MECHA.FRAME, do not add excessive force to the CASSETTE LOAD BLK when removing it.

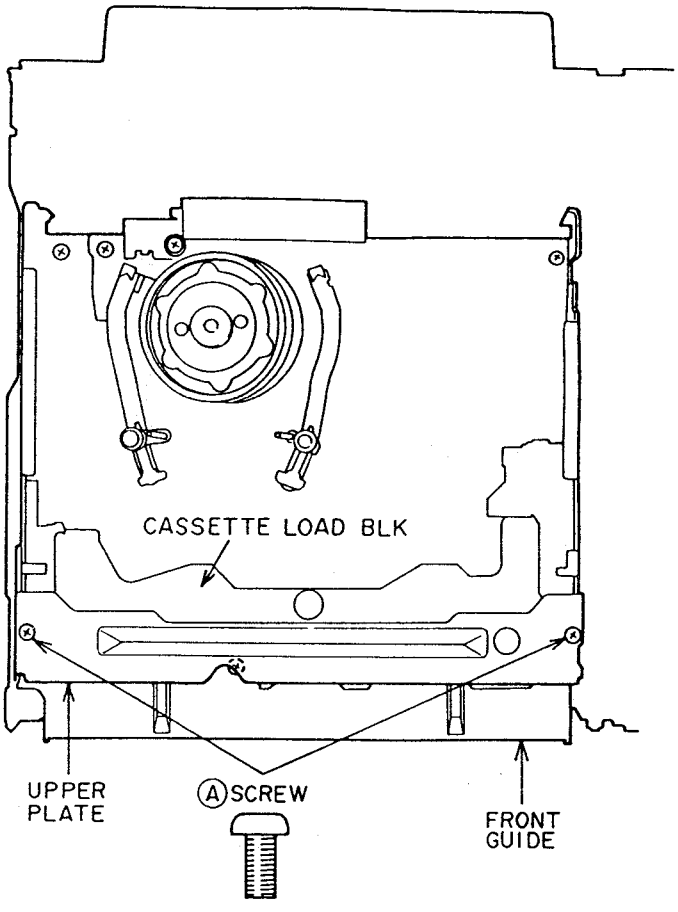


Fig. 3-1

3-1-2. Removal of the LOADING ARM BLK

1) Release the stopper on the right side end of the LOADING ARM BLK's shaft (Refer Fig. 3-2) by pressing the stopper tab with a flat head (—) screwdriver. Then remove the shaft's right end from the bracket.

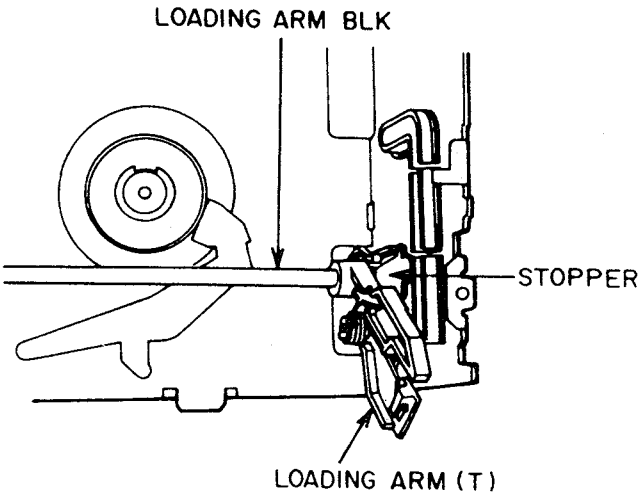


Fig. 3-2

2) Hold the LOADING ARM (T) and turn it 30 degrees clockwise, then pull out the shaft's left end from the bracket. To avoid damaging the JOINT GEAR and EJECT GEAR, take special care when removing. (Refer Fig. 3-3)

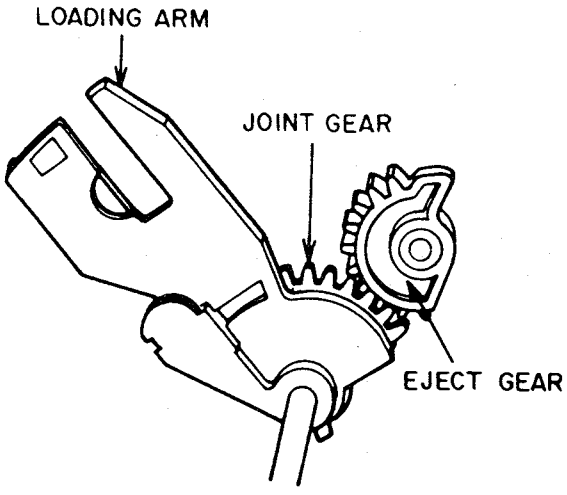


Fig. 3-3

3-2. REMOVAL OF THE SENSOR PC BOARD

* Before proceeding with removal of the SENSOR PCB the loading mechanism must be set to the "unloaded" position (the position where the CAM SLIDER GEAR's groove mark is visible through the hole of the MODE SELECT SW.) as shown in Fig. 3-4.

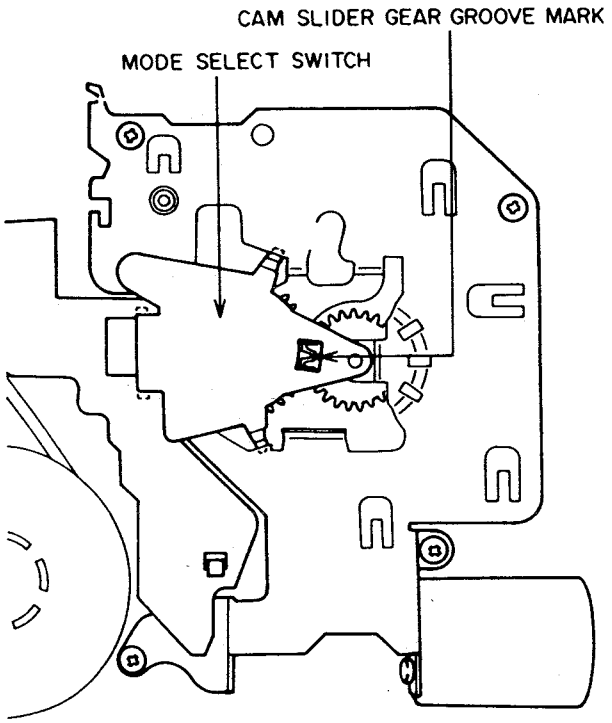


Fig. 3-4

To set the loading mechanism to the "unloaded" position, proceed with one of the following 1) or 2) procedures.

1) Insert a video cassette tape which you no longer need. Once the tape has been loaded or has entered the "play" mode press the POWER button to turn the power off. Disconnect the AC power plug from the AC socket after the cassette tape has been unloaded.
2) Remove the UPPER PLATE, FRONT GUIDE and CASSETTE LOAD BLK. (Refer to 3-1-1. Removal of the CASSETTE LOAD BLK.)
   Plug in the AC power cord. The LOADING ARM BLK will move backward (the cassette load BLK will be in the down position) and forward (the cassette load BLK will be in the eject position) continuously.
   Cover and hold the SENSOR (T) with your right index finger and attach a piece of black adhesive tape on the SENSOR (S) with your left hand at the same time when the LOADING ARM BLK is in the back position. The unit will enter the "play" mode without the cassette tape. While covering both sensors, press the "POWER" button. The unit will now enter the "tape unloaded" position. Release your fingers from the sensors, and disconnect the AC power plug from the AC power socket.

3-2-1. Removal of the MODE SELECT SWITCH

1) Remove the Ⓐ screw and remove the MECHA. EARTH PLATE.
2) Release the two Ⓐ stoppers as shown in Fig. 3-5.

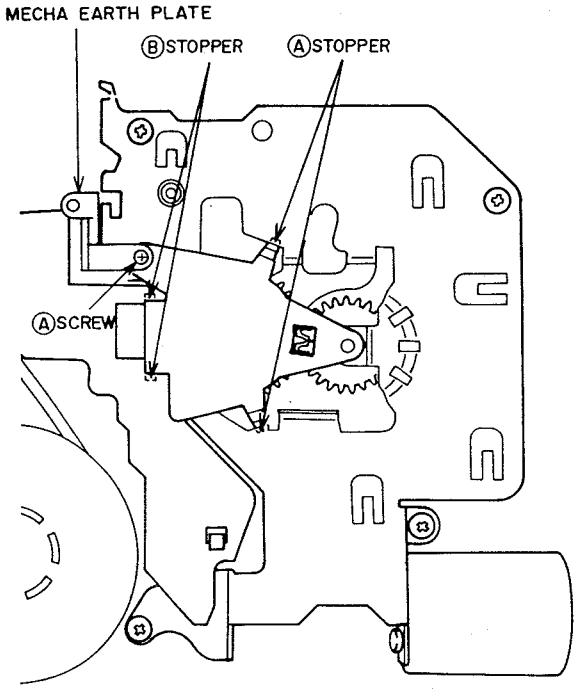


Fig. 3-5

3) Release the two Ⓑ stoppers carefully while pulling up the MODE SELECT SWITCH. Then remove the MODE SELECT SWITCH. (Do not damage the pins of the MODE SELECT SWITCH or the connector P1 on the SENSOR PCB).

3-2-2. Removal of the SENSOR PC Board

1) Disconnect the P603 connector on the SERVO/SYS-CON PCB.
2) Remove the capstan belt.
3) Release the Ⓐ, Ⓑ and Ⓒ stoppers as shown in Fig. 3-6. Then remove the SENSOR PCB.

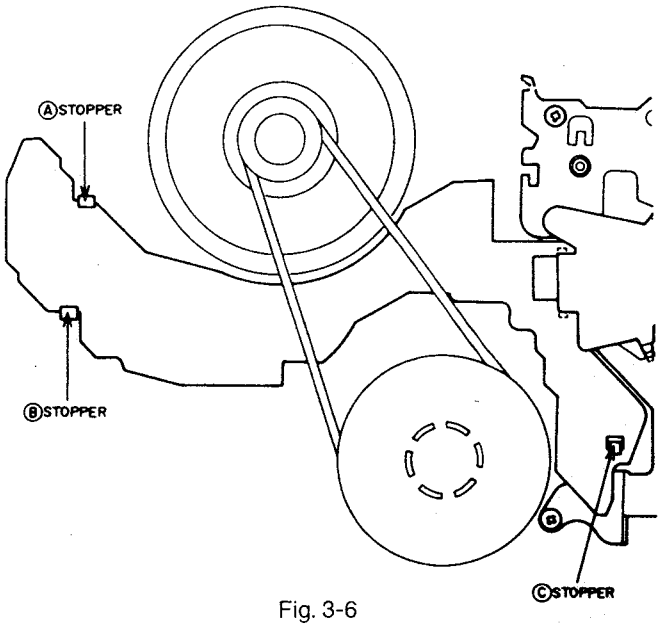


Fig. 3-6

3-3. REMOVAL OF THE LOADING DRIVE BLK

Set the loading mechanism at the "unloaded" position as well as 3-2 (REMOVAL OF THE SENSOR PC BOARD). However this time, to avoid damaging the tape and mechanical parts, refer to 3-2, *(2) only.

1) Remove the MODE SELECT SWITCH in the same manner as 3-2-1 (Removal of the MODE SELECT SWITCH).
2) Unhook the five wires from each tab. Two wires from the SENSOR(S), two wires from the LOADING MOTOR and one wire from the REC SAFETY SWITCH.
3) Remove the Ⓐ, Ⓑ, Ⓒ and Ⓓ screws, then remove the LOADING DRIVE BLK as shown in Fig. 3-7.

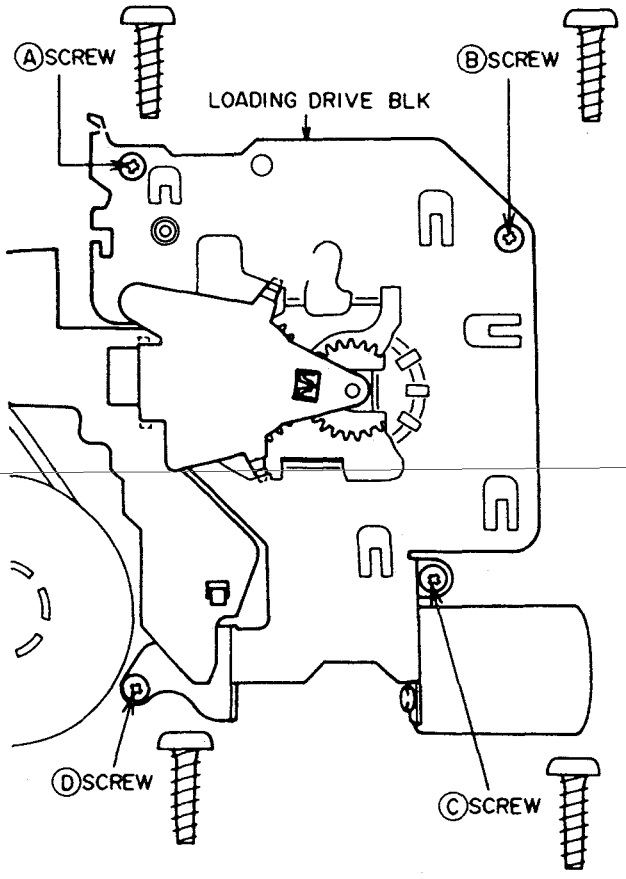


Fig. 3-7

3-4. REPLACEMENT OF THE PINCH HOLDER PART

1) Release the stopper of the PINCH ARM and remove the PINCH ARM BLK as shown in Fig 3-8.

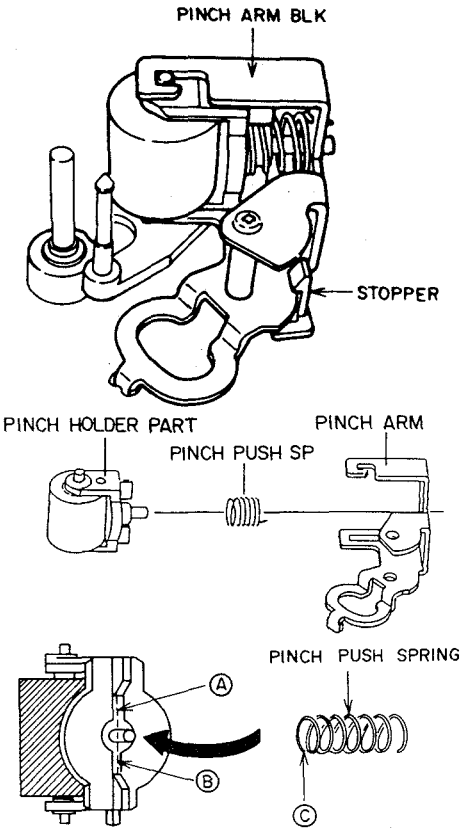


Fig. 3-8

2) Turn the PINCH HOLDER PART 30 degrees clockwise while pushing it backward and remove the PINCH HOLDER PART from the PINCH ARM.
3) Reassemble the PINCH ROLLER ARM BLK in the reverse order of 1) to 2).
4) At this point, the end of the PINCH PUSH SPRING (Ⓒ part) must be aligned with the Ⓐ or Ⓑ part of the PINCH HOLDER PART as shown.

3-5. REPLACEMENT OF THE IDLER PART AND REVIEW BRAKE PART

1) Remove the CASSETTE LOAD BLK & ARM LOADING BLK. (Refer to 3-1, REMOVAL OF THE EJECTOR BLK.)
2) Release the stopper of the IDLER PART as shown in Fig. 3-9, then remove it.

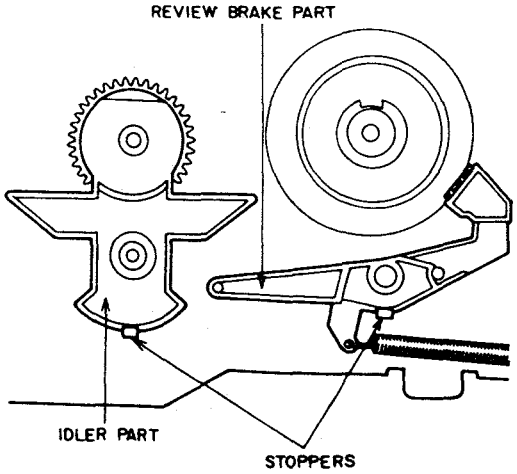


Fig. 3-9

3) Take off the review brake part spring, then release the stopper of the REVIEW BRAKE PART and remove it.
4) Reassemble these parts in the reverse order of 1) to 3).

3-6. REASSEMBLY OF THE LOADING MECH ANISM BLK

3-6-1. Position of the TOGGLE GEARs (T) and (S)

1) Set the TOGGLE GEAR (T) and TOGGLE GEAR (S) to the unloaded position with your fingers. Align the Ⓐ mark on the TOGGLE GEAR (S) with the Ⓐ hole of the TOGGLE GEAR (T) as shown in Fig. 3-10.

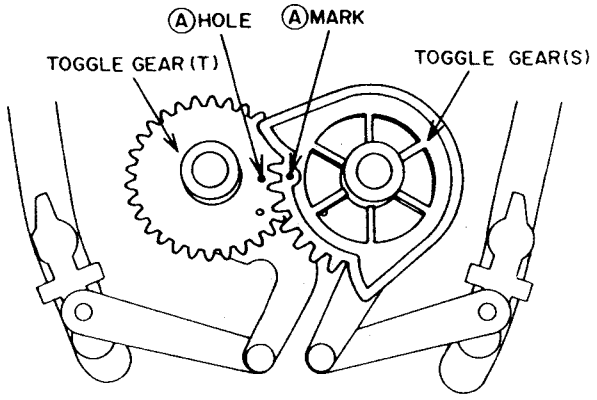


Fig. 3-10

3-6-2. Installation of the CAM SLIDER GEAR & FRONT LOADING GEAR

1) Attach the WORM WHEEL GEAR as shown in Fig. 3-11.

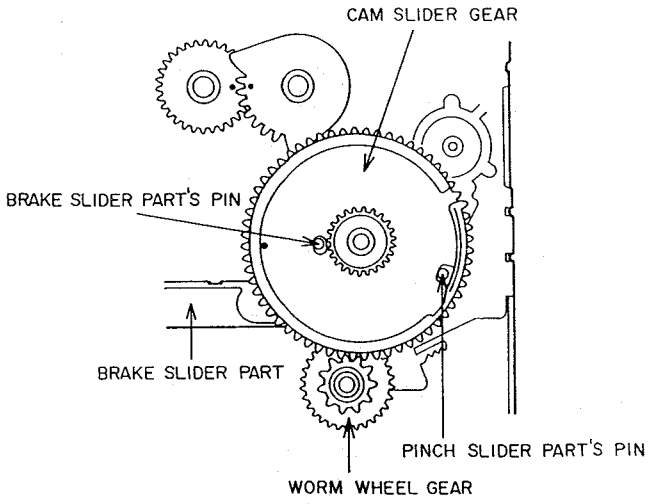


Fig. 3-11

2) Set the CAM SLIDER GEAR. At this time, adjust the position of the BRAKE SLIDER PART and PINCH SLIDER PART so that both pins appear through the holes on the CAM SLIDER GEAR as shown in Fig. 3-11.

3) Attach the FRONT LOADING GEAR as shown in Fig. 3-12. At this time, align the Ⓑ mark on the FRONT LOADING GEAR with the Ⓑ hole of the FRONT LOADING SLIDER as shown in Fig. 3-13.

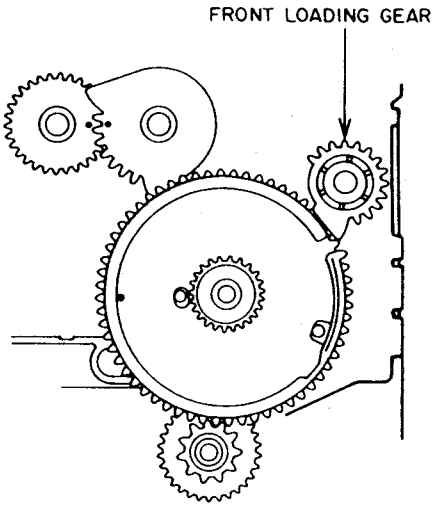


Fig. 3-12

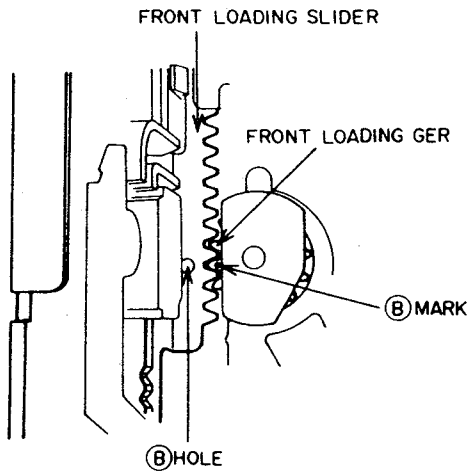


Fig. 3-13

3-6-3. Confirmation of the position of the EJECT GEAR

1) Confirm that the EJECT GEAR is in the correct position as shown in Fig. 3-14.

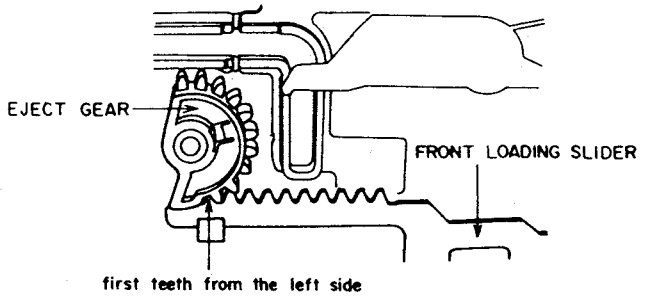


Fig. 3-14

2) Install the LOADING DRIVE BLK as shown in Fig. 3-15.

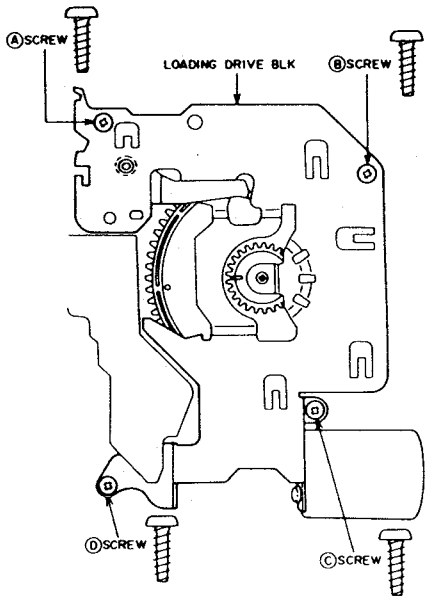


Fig. 3-15

3-6-4. Installation of the MODE SELECT SWITCH

1) Set the MODE SELECT SWITCH's gear so that the © mark is in the center of the © hole as shown in Fig. 3-16.

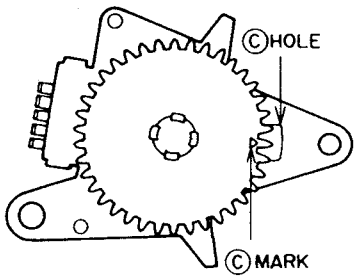


Fig. 3-16

2) Attach the MODE SELECT SWITCH to the LOADING DRIVE BLK. At this time, align the hollow of the gear's tooth (reverse side of the © mark) with the © groove of the CAM SLIDER GEAR as shown in Fig. 3-17.

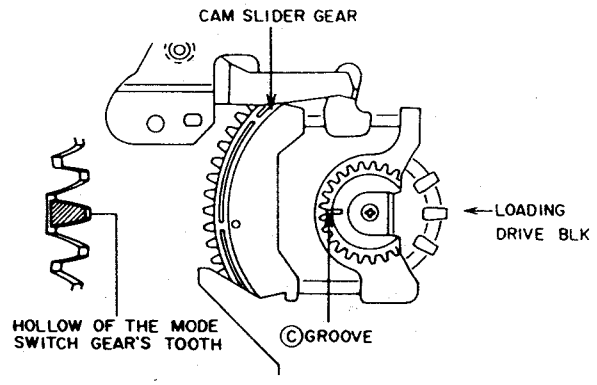


Fig. 3-17

3-6-5. Installation of the LOADING ARM BLK

1) While covering the SENSOR (S) with your fingers, connect the AC power plug to the AC socket. The FRONT LOADING SLIDER will reach the "EJECT" position. Then disconnect the AC power plug from the AC socket before you release your fingers from the SENSOR (S).
2) Install the LOADING ARM BLK in the reverse order of 3-1-2 (Removal of the LOADING ARM BLK). Set the position between both the EJECT GEAR and the JOINT GEAR as shown in Fig. 3-18.

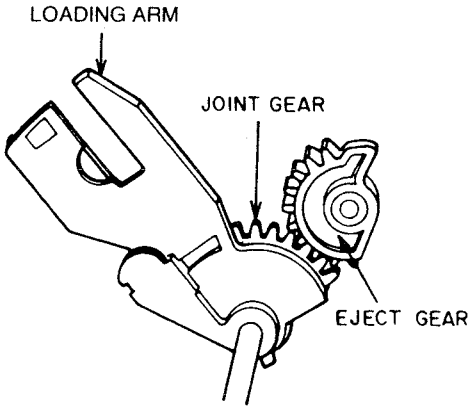


Fig. 3-18

3-6-6. Installation of the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE

1) Attach the CASSETTE LOAD BLK, FRONT GUIDE and UPPER PLATE in the reverse order of 3-1-1 (Removal of the CASSETTE LOAD BLK).
2) Insert a video cassette tape and confirm that the loading mechanism will operate properly.

3-7. REPLACEMENT OF THE UPPER DRUM

3-7-1. Removal of the UPPER DRUM

1) Remove the EARTH BRUSH fixing screw and remove the EARTH BRUSH.
2) Unsolder the twelve relay leads and remove the two upper drum fixing screws as shown in Fig. 3-19.
3) Gently lift and remove the UPPER DRUM.

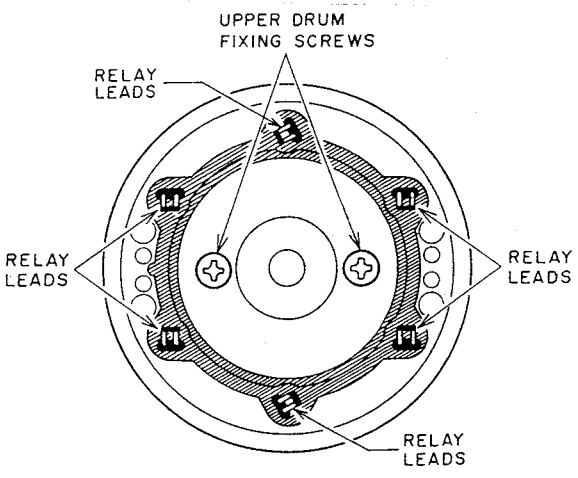


Fig. 3-19

3-7-2. Installation of the UPPER DRUM

1) Attach the UPPER DRUM to the LOWER DRUM ROTOR so that the upper drum convex Ⓐ and lower drum rotor's white mark are in the same direction as shown in Fig. 3-20.

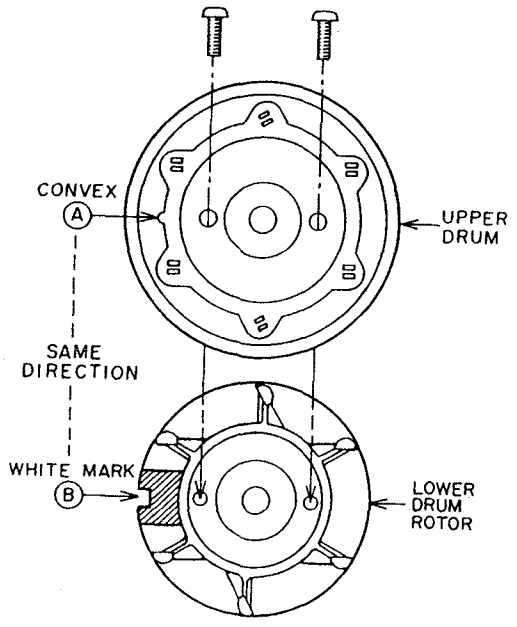


Fig. 3-20

NOTE: Because height precision is required for proper performance, and because head tips are fragile, the following points should be noted when replacing the UPPER DRUM BLOCK.

(a) Do not loosen the set screw on the collar preload.
(b) Before fixing, use alcohol to clean both surfaces where the upper drum and the rotary transformer meet.
(c) If the UPPER DRUM can not be inserted on to the shaft easily during installation, clean the hole in the UPPER DRUM with alcohol and put a little oil on the shaft.
(d) Make sure that the upper drum fixing screw holes on the rotary transformer part and the upper drum fixing screw penetration holes match exactly before inserting the fixing screws.
(e) Tighten the two upper drum fixing screws alternately and gradually.

3-7-3. After replacement

After replacement, the following adjustments are necessary for the proper performance.

1) Reference RF envelope detect voltage preset (Refer to "TEST MODE", step 1)
2) Control head Phase adjustment (IV. MECHANICAL ADJUSTMENT 4-3-3.)
3) PB switching point adjustment. (V. ELECTRICAL ADJUSTMENT 5-1. Step 1)
4) Video head REC current adjustment. (V. ELECTRICAL ADJUSTMENT 5-1. Step 6)
5) Hi-Fi head REC current adjustment. (V. ELECTRICAL ADJUSTMENT 5-2. Step 5)

3-8. DRUM MOTOR PC BOARD REPLACEMENT

1) Remove the two Ⓐ screws on the ROTARY PLATE and remove the ROTARY PLATE.
Then disconnect the connector on the DRUM MOTOR PCB as shown.

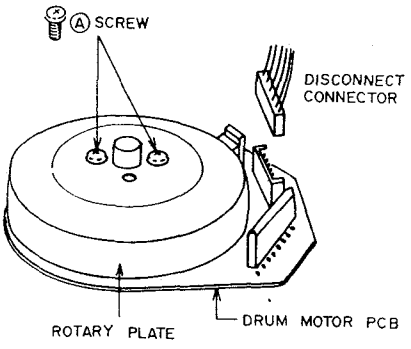


Fig. 3-21

2) Remove the three Ⓑ screws which fix the DRUM MOTOR PCB and replace the DRUM MOTOR PCB.

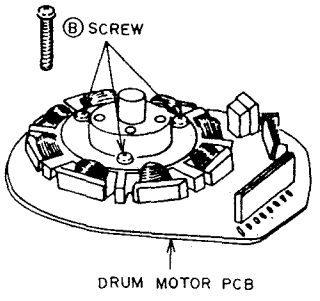


Fig. 3-22

3) Attatch the ROTARY PLATE to the collar preload so that the rotary plate Ⓒ hole and collar preload Ⓓ hole are in the same direction.

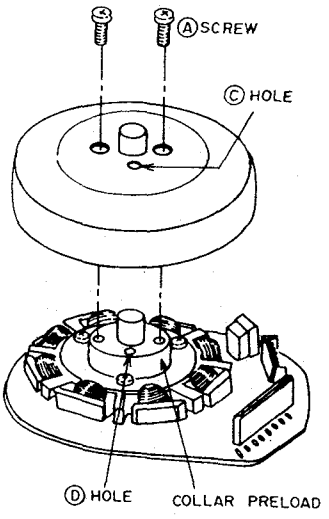


Fig. 3-23

3-9. REMOVAL OF THE MECHANISM BLOCK

3-9-1. Removal of the PRE AMP PC Board

1) Pull up and remove the PRE AMP SHIELD PLATE which is installed in parallel with the PRE AMP PCB. (VS-A650 only)
2) Remove the Ⓐ screw which fix the EARTH BRUSH and remove the EARTH BRUSH.
3) Remove the Ⓑ and Ⓓ screw which fix the PRE AMP PCB then pull up the PRE AMP PCB as shown in Fig. 3-24.

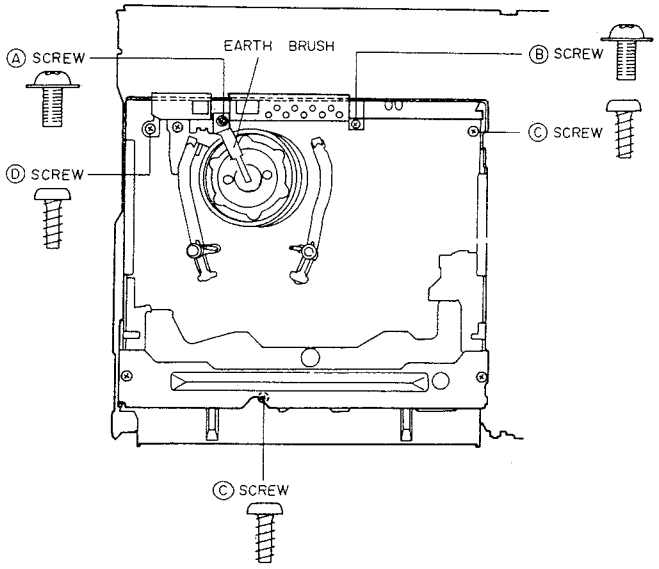


Fig. 3-24

3-9-2. Removal of the MECHANISM BLK (MECHA. FRAME)

1) Disconnect the P601, P602 and P603 connectors on the SERVO/SYSCON PCB.
2) Disconnect the P1 connector on the A/C HEAD PCB and connector on the FULL TRACK ERASE HEAD.
3) Remove the two Ⓒ screws from the MECHA. FRAME as shown in Fig. 3-24.
4) Hold the rear side of the MECHA. FRAME then remove by pulling up backward.
5) Reassemble in the reverse order for installation.

IV. MECHANICAL ADJUSTMENT

4-1. BACK TENSION ADJUSTMENT

1) Play back a recorded tape which is no longer needed.
2) Confirm that the Ⓐ groove on the TENSION ARM aligns with right end of the Ⓐ mark on the MECHA. CHASSIS as shown in Fig. 4-1.
3) If the result is not satisfactory, eject the tape and adjust the TENSION ADJUST repeatedly until the result is satisfactory.

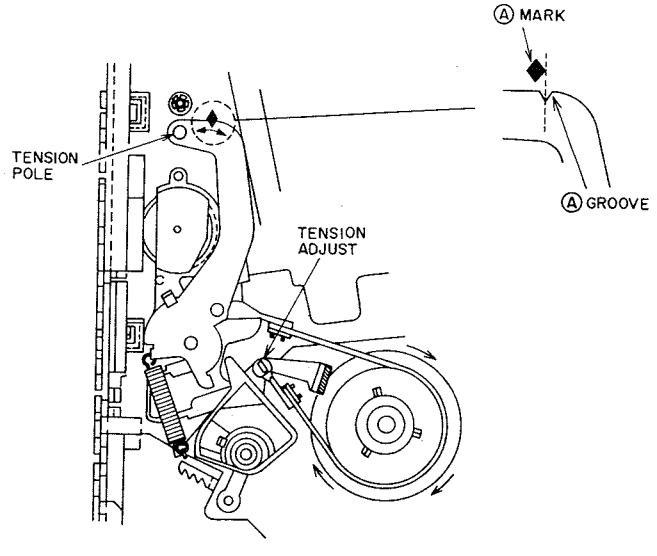


Fig. 4-1

4-2. TAPE TRANSPORT ADJUSTMENTS

NOTE: The following adjustments are required only when an irregularity is found since these adjustment are performed precisely at the factory.

4-2-1. Tape curl adjustment at the TAKE-UP TAPE GUIDE

1) Play back a recorded tape which is no longer needed.
2) Turn the Ⓐ screw on the A/C HEAD BLK until the edge of the tape barely touches the lower part of TAKE UP TAPE GUIDE without any curl or wrinkle.
3) Once the Ⓐ screw is adjusted, A/C HEAD height and azimuth adjustment is required. (Refer to 4-3. A/C HEAD POSITION ADJUSTMENT.)

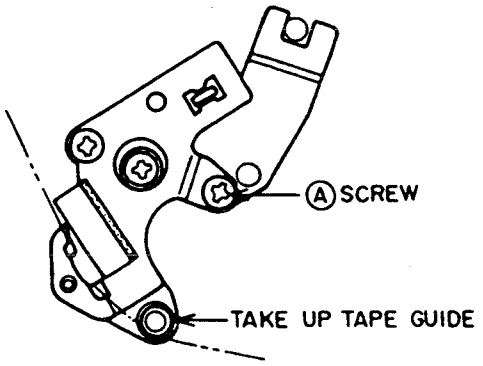


Fig. 4-2

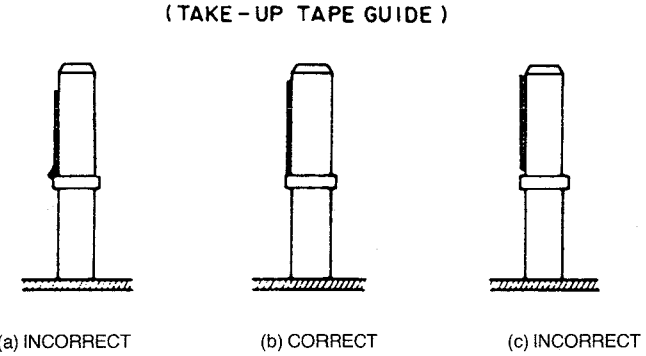


Fig. 4-3

4-2-2. Confirmation of tape curl at the SUPPLY TAPE GUIDE

Confirm that the edge of the tape barely touches the lower part of the SUPPLY TAPE GUIDE without any curl or wrinkle as shown in Fig. 4-4.

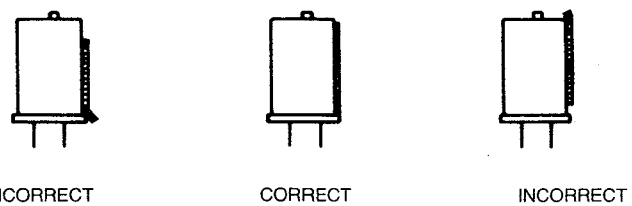


Fig. 4-4

4-2-3. REVIEW ARM height adjustment

1) Play back the beginning part of an E-240 (T-160) tape and set the unit in the REVIEW mode by pressing the REW button.
(Remove the tape protection cover to make the adjustment easy.)

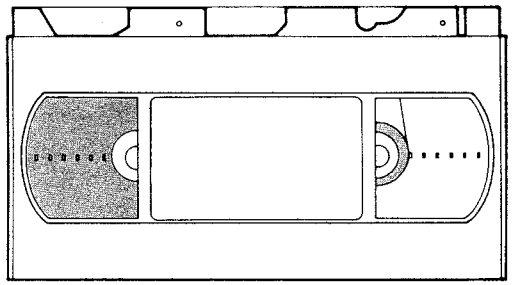


Fig. 4-5

2) Turn the REVIEW ARM height Ⓐ nut so that the edge of the tape barely touches the lower part of the TAKE-UP TAPE GUIDE without any curl or wrinkle between the TAKE-UP TAPE GUIDE and the CAPSTAN SHAFT as shown in Fig. 4-6 to Fig. 4-8.

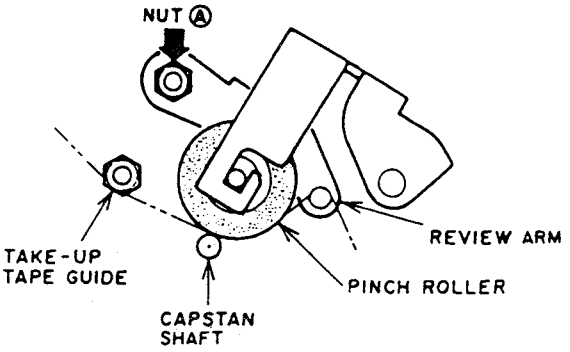


Fig. 4-6

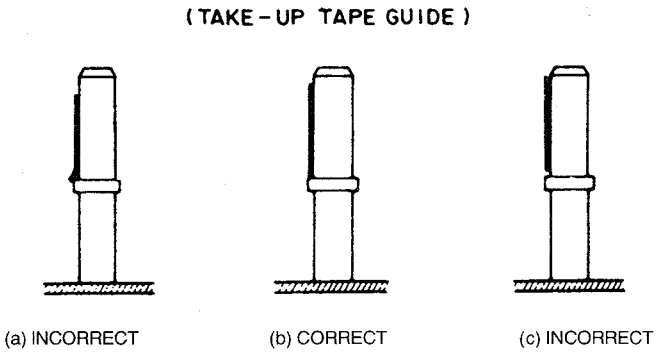


Fig. 4-7

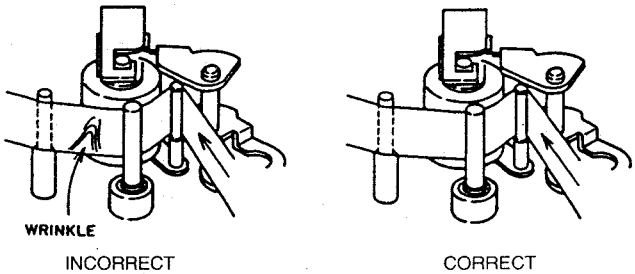


Fig. 4-8

3) Play back the beginning part of an E-240 (T-160) tape and this time set the unit in the CUE mode by pressing the F.FWD button.
4) Confirm there is no curl or wrinkle at REVIEW ARM's guide.
If curl or wrinkle of the tape has occured, slightly turn the Ⓐ nut (Shown in Fig. 4-6) until it disappears.

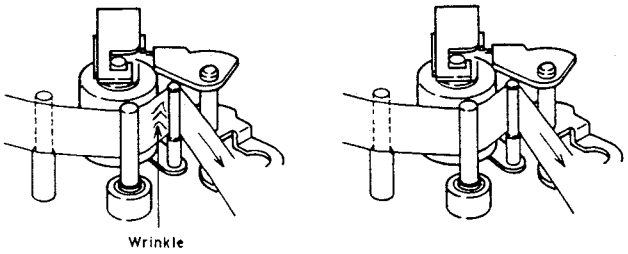


Fig. 4-9

5) Set the unit in REVIEW mode again. Then confirm that there is no curl or wrinkle at the TAKE UP TAPE GUIDE.
(A small gap may appear after this adjustment, but this is allowable)

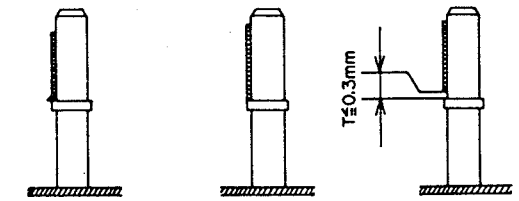


Fig. 4-10

NOTE:
1. If results are not satisfactory, repeat steps 2) to 5).
2. Always play an undamaged tape to obtain satisfactory adjustment.
3) Because an E-240 (T-160) tape can easily be damaged due of its thinness, a pre-adjustment with an E-180 (T-120) tape is recommended.

4-2-4. LOADING LEADER height adjustments

1) Slightly loosen the set screw at the lower part of the LOADING LEADERs (L), (R) so that the LOADING LEADER can be adjusted with reasonable tightness. (Refer Fig. 4-11.)
2) Play back the reference tape TF-530RFS (AT-751775).
3) Connect an oscilloscope's CH-1 to the TR154 emitter (ENVE) on the MAIN PCB and CH-2 to the TP2 (V SWP) on the PRE AMP PCB for triggering.
4) Turn the LOADING LEADER heads with a flat head (—) screw driver to obtain flat RF envelope as ideal envelope as shown in Fig. 4-12.
5) After adjustment is completed, tighten the loading leader set screws.

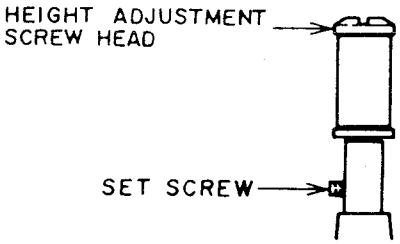


Fig. 4-11

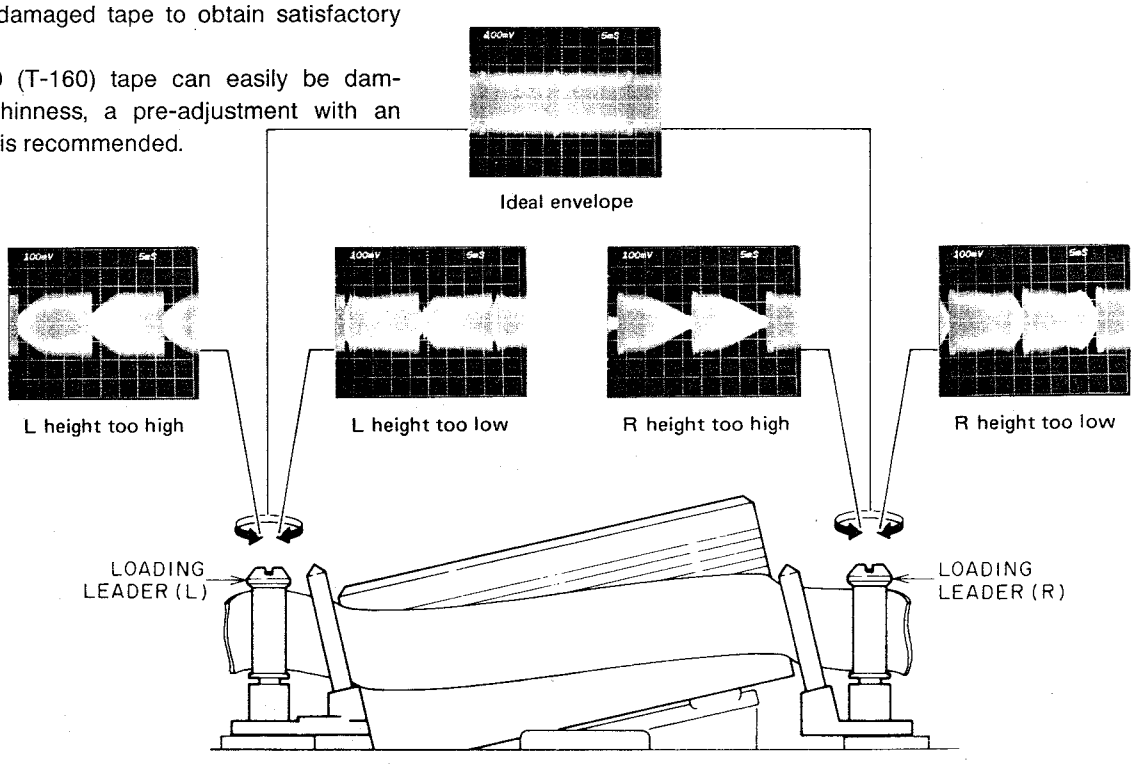


Fig. 4-12

4-3. A/C HEAD POSITION ADJUSTMENT

4-3-1. Azimuth adjustment

1) Connect an AC voltmeter or an oscilloscope to the AUDIO OUT terminal on the rear panel.
2) Play back the reference tape TF-530RFS (AT-751775).
3) Adjust the Ⓑ screw to obtain the maximum audio output.

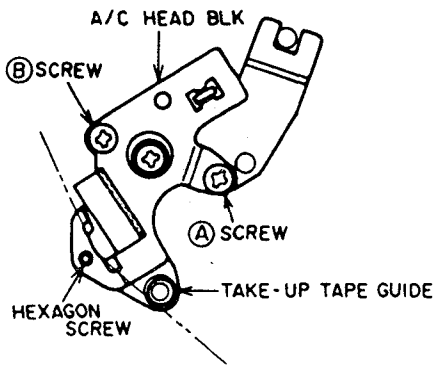


Fig. 4-13

4-3-2. Height adjustment

1) Play back the test tape TF-526HH (AT-751788).
2) Connect an oscilloscope's CH-1 to the AUDIO OUT on the rear panel and CH-2 to the TP600 (CTL OUT) on the SERVO/SYSCON PCB.
3) Turn the hexagon screw to obtain 1/2 of the output level of either CH-1 or CH-2 whichever has an output signal as shown in Fig. 4-14.
   Then set both of the oscilloscope's channels to 100 mV/div and finely adjust the hexagon screw until both signals of CH-1 and CH-2 are nearly the same level.
4) Slightly turn the Ⓐ screw until the tape edge barely touches the lower part of the TAKE UP TAPE GUIDE without any curl or wrinkle as shown in Fig. 4-3.
5) Adjust the head azimuth again. (Turning the hexagon screw or Ⓐ screw will cause head azimuth mis-alignment. Refer to 4-3-1. Azimuth adjustment.)
6) Confirm that both signals of CH-1 and CH-2 are nearly the same level (Confirm that neither of the CH-1 or CH-2 output levels exceed 100 mVp-p). If the result is not satisfactory, repeat steps 3) to 5).

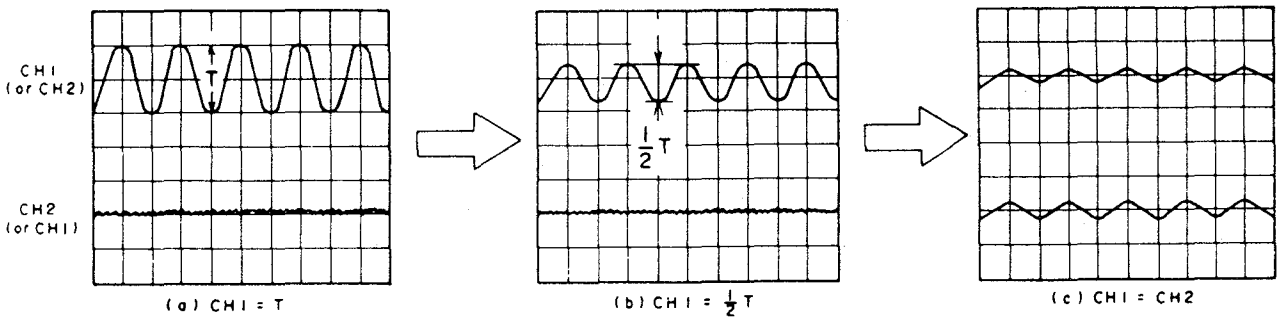


Fig. 4-14

4-3-3. Phase adjustment

1) Connect an oscilloscope's CH-1 to the TR154 emitter (ENVE) on the MAIN PCB and CH-2 to the TP2 (V SWP) on the PRE AMP PCB for triggering.
2) Play back the reference tape TF-530RFS (AT-751775).
3) Press one of the TRACKING buttons on the remote control until the "×" mark can be seen in the center position of the tracking range on the TV screen as shown in Fig. 4-15.
4) Loosen the Ⓒ screw slightly so that the A/C HEAD PLATE can be moved with reasonable tightness.
5) Insert a sharp flat head (—) screwdriver into the A/C HEAD BASE and Ⓐ hole as shown in Fig. 4-17.
6) Move the A/C HEAD BASE by moving a screwdriver in the direction of the arrow as shown in Fig. 4-17 to obtain the maximum RF output, then tighten the Ⓒ screw.

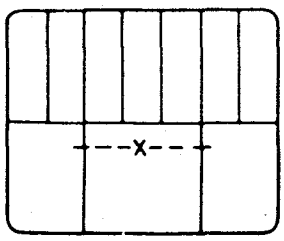


Fig. 4-15

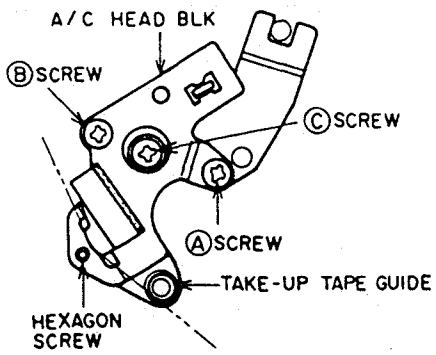


Fig. 4-16

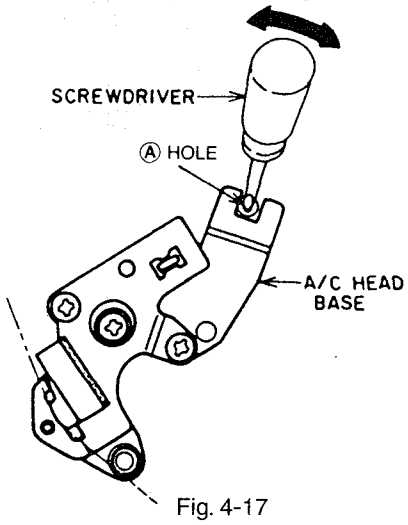


Fig. 4-17

V. ELECTRICAL ADJUSTMENT

5-1. VIDEO & SERVO CIRCUIT ADJUSTMENT

Precautionary items prior to adjustments
1. The color bar generator output should be 1.0 Vp-p.
2. The video output terminal should be terminated with 75 ohms (connect dummy load or 75 ohms input TV.)

Required following test tapes.

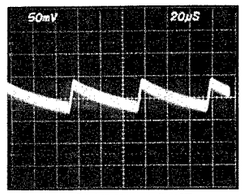
Test tape	Parts No.
TF-530RFS	AT-751775
TF-532CBS	AT-751360

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (•) & RESULT (✻)

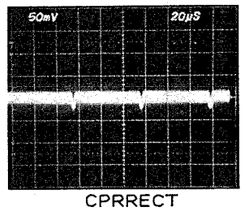
ADJ. part
Test point

2 AFC ERROR

1. "E-E"(stop mode), PAL colour bar signal
2. TP500(AFC ERROR) & VR500(AFC)
3. • Connect an oscilloscope to TP500.
   ✻Adjust the VR500 so that the waveform becomes as flat as possible.



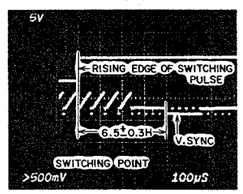
INCORRECT



CPRRECT

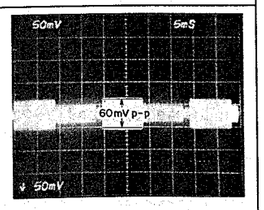
1 PB SWITCHING POINT

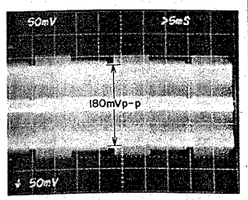
1. "PB", test tape TF-530RFS
2. TP2(V.SWP), VIDEO OUT & VR600(SW.POINT)
3. • Connect an oscilloscope's CH-1 to VIDEO OUT and CH-2 to the TP2 for triggering
   ✻Adjust VR600 so that the switching point is positioned 6.5 ± 0.3 H from the V-SYNC left edge as shown.

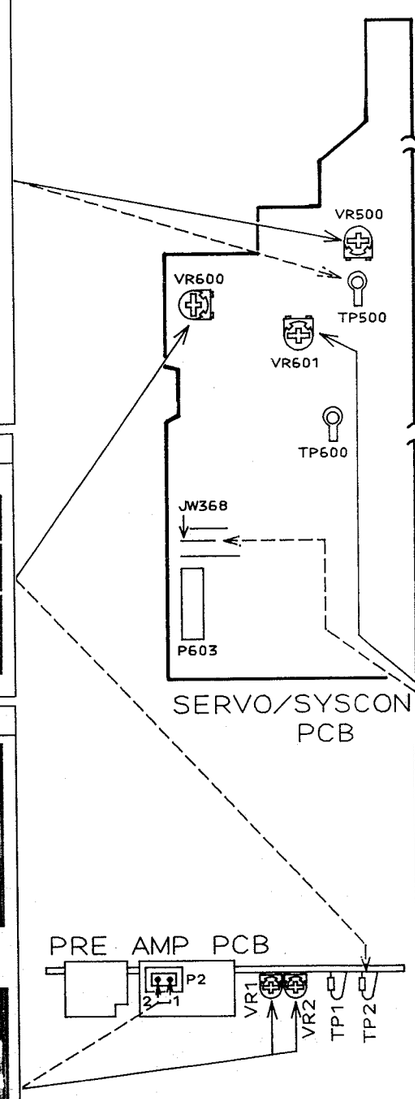


6 VIDEO REC CURRENT

1. "REC"(LP mode), PAL color bar signal
2. P2(TP REC.CURR) & VR1(REC-CHROMA), VR2(REC-Y)
3. • Connect an oscilloscope's CH-1 to P2 ① pin and CH-2 to ② pin. And set the oscilloscope' display mode to "ADD" mode and CH-2 polarity to "INVERTED".
   • Turn the VR2(REC-Y) fully counterclockwise.
   ✻Adjust VR1 so that the chroma REC current becomes 60 mVp-p at the cyan part.
   ✻Adjust VR2 so that Y REC current becomes 180 mVp-p at the V-SYNC area.

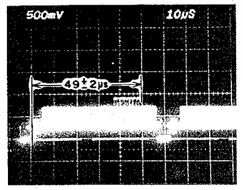






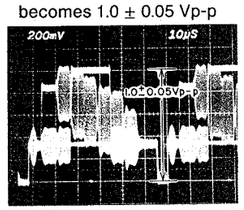
9 CHARACTER POSITION

1. "E-E"(STOP mode), No signal input
2. VIDEO OUT, TV SCREEN & C238
3. • Press "DISPLAY" button on the remote control to display elapsed tape counter.
   • Connect an oscilloscope to the VIDEO OUT.
   ✻Adjust the C238 so that right end of the IMS signal becomes 49 ± 2 μs from the H-sync as shown.



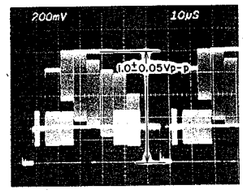
8 VIDEO PB LEVEL

1. "REC" → "PB", PAL color bar signal
2. VIDEO OUT & VR102(PB LEVEL)
3. • Connect an oscilloscope to VIDEO OUT
   • Make some recording on the tape then play it back
   ✻Adjust VR102 so that PB level becomes 1.0 ± 0.05 Vp-p



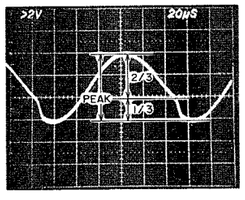
3 VIDEO E-E LEVEL

1. "E-E" (stop mode), PAL color bar signal
2. VIDEO OUT & VR101(E-E LEVEL)
3. • Connect an oscilloscope to VIDEO OUT.
   ✻1.0 ± 0.05 Vp-p



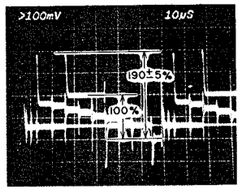
11 P/S AUTO SENSITIVITY(EOG-V ONLY)

1. "E-E"(STOP mode), SECAM colour bar signal
2. TP151(P/S SENS) & VL151(P/S SENS)
3. • Connect an oscilloscope to the TP151.
   ✻Adjust VL151 so that distorted point of the waveform becomes 1/3 from the bottom as shown.



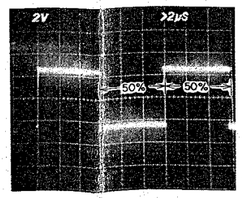
4 WHITE CLIP

1. "E-E" (stop mode), PAL color bar signal
2. TP200(W.CLIP) & VR105(W.CLIP)
3. • Connect an oscilloscope to TP101
   ✻Adjust VR105 so that white clip level becomes 190 ± 5 % as shown.



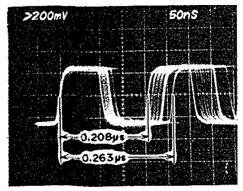
10 DRUM MOTOR DUTY

1. "REC", PAL colour bar signal
2. JW368 (DPD), VR601 (DM DUTY)
3. • Connect an oscilloscope to JW368 jumper wire.
   ✻Adjust the VR601 so that the duty of the DPD pulse is 50 % to 50 % as shown.



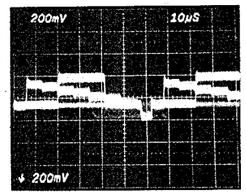
5 FREQUENCY & DEVIATION

1. "REC", PAL color bar signal
2. TP104(REC Y) & VR104(FREQ), VR103(DEV)
3. • Connect an oscilloscope to TP104
   ✻VR104(FREQ): 0.263 μs (3.8 MHz)
   ✻VR103(DEV): 0.208 μs (4.8 MHz)



7 CCD

1. "PB", test tape TF-532CBS
2. TP201(CCD),TP202(CCD) & VR211(CCD LEVEL)
3. • Connect an oscilloscope's CH-1 to TP201 and CH-2 to TP202. And set the oscilloscope's display mode to "ADD" mode and CH-2 polarity to "INVERTED".
   ✻Adjust VR211 so that waveform level on the oscilloscope becomes minimum.



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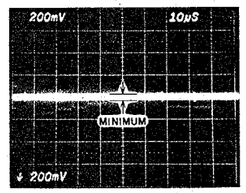


CORRECT

5-2. AUDIO CIRCUIT ADJUSTMENT

Precautionary items prior to adjustments
1. Never adjust the W.G MULTI PCB because it is adjusted precisely at the factory and the adjustment of the W.G MULTI PCB is required special testing equipments.

Required following test tapes.

Test tape	Parts No.
TF-527RFS TF-532CBS	AT-711880 AT-751360

STEP	ADJUSTMENT ITEM
1.	MODE and INPUT SIGNAL/TEST TAPE
2.	TEST POINT and ADJ part
3.	REMARKS (•) & RESULT (*)

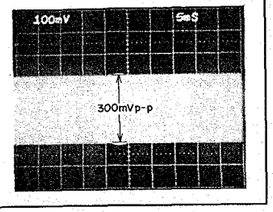
ADJ. part
Test point

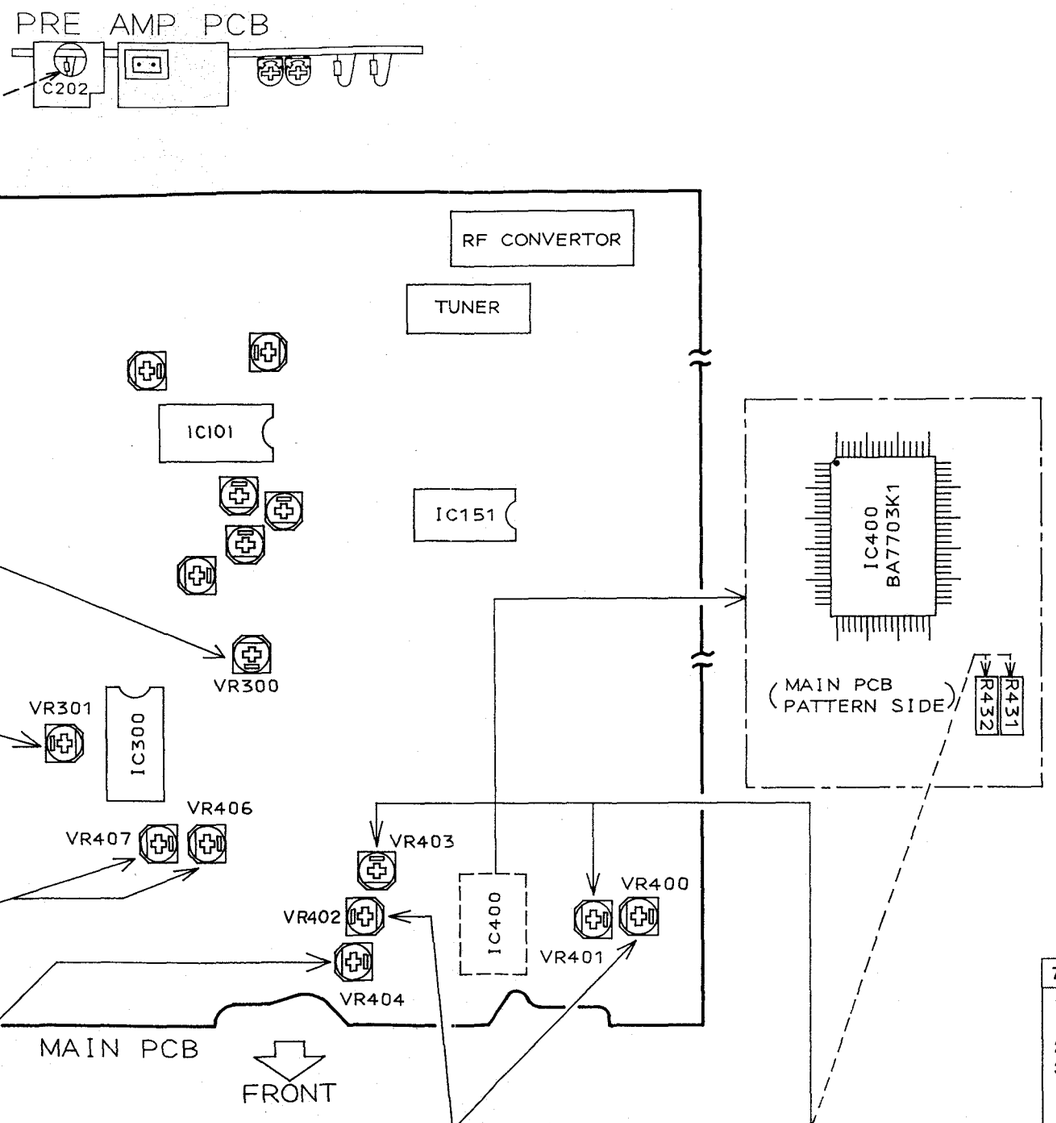
1 REC BIAS
1. "REC"(LP mode), (no signal input)
2. P300 ①, ② pin & VR300(REC BIAS)
3. • Connect an AC voltmeter to P300 ① pin and ② pin(ground).(Never connect the AC voltmeter's ground to the VCR's ground)
   *Adjust VR300 so that the reading on the AC voltmeter becomes 2.6 ± 0.1 mV.

2 LINEAR PB LEVEL
1. "PB", test tape TF-527BL
2. AUDIO OUT & VR301(LINEAR PB LEVEL)
3. • Connect an AC voltmeter to AUDIO OUT(L-CH) or (R-CH).
   *Adjust VR301 so that output level becomes -4.0 ± 0.5 dBs.

6 METER SENSITIVITY
1. "E-E", 1 kHz −6 dBs
2. AUDIO OUT & VR406(L-CH), VR407(R-CH)
3. • Connect an AC voltmeter to the AUDIO OUT.
   • Set the volume on the sub panel to the center click position. And confirm that the output level is −6 dBs. If not, adjust the volume slightly until the level becomes −6 dBs.
   *Adjust the VR406 and VR407 so that the bar meter in the FL DISPLAY rearchs 0 VU. Then change the output level of the audio signal generator slightly and confirm that the indication of the L-CH and R-CH bar meter changes simultaneously. If the result is not satisfactly, readjust the VR406 or VR407 again.

5 Hi-Fi REC CURRENT
1. "REC", no signal input
2. C202(A REC CURR) & VR404(REC CURRENT)
3. • Connect an oscilloscope to the lead of the C202.
   *Adjust VR404 so that the waveform level on the oscilloscope becomes 300 ± 10 mV p-p.

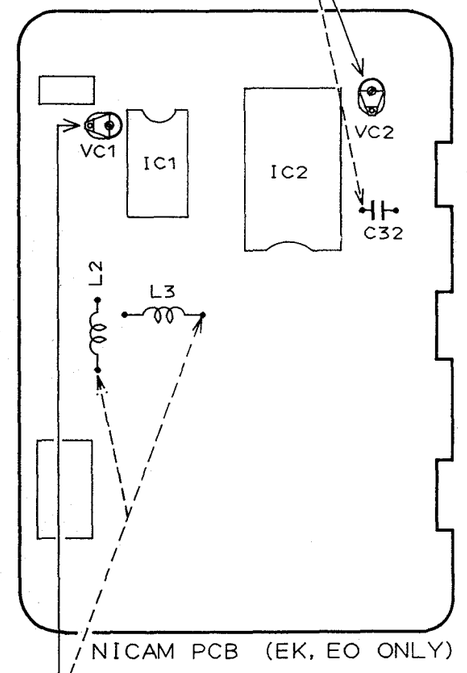




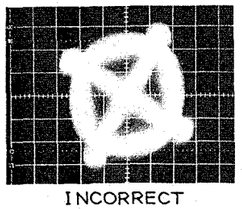
4 DEVIATION
1. "PB", test tape TF-532CBS
2. AUDIO OUT(L),(R) & VR400(L-DEV), VR402(R-DEV)
3. • Connect an AC voltmeter to the AUDIO OUT.
   *Adjust VR400 and VR402 so that the output level of both L and R channel becomes −6 ± 0.1 dBs.
   • Input 1 kHz, −6 dBs signal to AUDIO IN terminal and set a blank tape to the VCR.
   *Make some recording then play it back and confirm that the playback level is −6 ± 1.0 dBs.

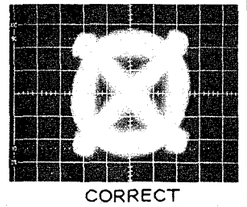
3 CARRIER FREQUENCY
1. "E-E(stop mode), no signal input
2. R431(R),R432(L) & VR403(R-fo)),VR401(L-fo)
3. • Connect a frequency counter to the lead of the R431 and ground.
   *Adjust VR403 so that the reading on the frequency counter becomes 1.8 MHz ± 10 kHZ.
   • Connect the frequency counter to the lead of the R432 and ground.
   *Adjust VR401 so that the reading on the frequency counter becomes 1.4 MHz ± 10 kHZ.

8 D/A OSC
1. "E-E" (stop mode), receive NICAM broadcast station
2. TP-OSC (C32 positive side) & VC2(D/A OSC)
3. • Connect an oscilloscope to TP-OSC and set input mode to "DC".
   *Adjust VC2 so that average DC voltage becomes 2.0 ± 0.1 V.



7 CARRIER P.L.L
1. "E-E" (stop mode), receive NICAM broadcast station
2. Lead of L3, L2 & VC1
3. • Connect an oscilloscope's CH-1 to the lead of L3 and CH-2 to the lead of L2. Then set the oscilloscope's display mode to "X-Y" mode and 20 mV/div.
   *Adjust VC1 so that the vertical line of the waveform becomes straight as shown.


INCORRECT


CORRECT

VI. PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.**
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

Ref.No.	Part No.	Description
1	BH-T2023A320A	HEAD BASE BLOCK
2	HP-H2206A010A	HEAD R/P PR4-8FU C
3	ZS-477876	PAN20×03STL CMT
4	ZS-536488	BID20×08STL CMT
5	ZG-402895	SP CS ANGLE ADJUST

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

The available PC Board Blocks are listed separately.

b) PC Board

6. MAIN PC BOARD

Ref.No.	Part No.	Description
IC1	EI-324536	IC HD14049BP
IC2	EI-336801	IC MB8841-564M
C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
C1B	EC-350949	C MMY V 223M 250DC [J]
C1C	EC-338397	C MMY V 223M 125AC [C,A]
X1	EI-318384	OSC X'TAL NC-18C

Symbols for primary destination

[A] : AAL (U.S.A) [S] : SAA (Australia)
[B] : BEAB (England) [U] : U/T (Universal Area)
[C] : CSA (Canada)
[E] : CEE (Europe) [V] : VDE (W. Germany)
[J] : JPN (Japan) [Y] : Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT.

1.RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

Ref.No.	Part No.	Description
1	AV-B1014B015E	REMOCON BLK RC-V600A-EB [F600EOH/EO]
2	AV-B1015B010A	REMOCON BLK RC-V602A-EB [F600EK]
3	AV-B1015B010B	REMOCON BLK RC-V604A-GB [F600EOG]
4	AV-B1014B016B	REMOCON BLK RC-V605A-EB [F600EA]
5	AV-B1014B015G	REMOCON BLK RC-V650A-EB [A650EOH/EO]
6	AV-B1015B010C	REMOCON BLK RC-V652A-EB [A650EK]
7	AV-B1015B010D	REMOCON BLK RC-V654A-GB [A650EOG]
8	AV-B1014B016C	REMOCON BLK RC-V655A-EB [A650EA]
9	BB-V1102A020J	MECHA DECK BLK F600EA
10	BL-V1102A140A	ARM LOADING BLK 425EA
11	BL-V1102A160A	ARM PINCH ROLLER(2)BLK 425EA
12	BL-387458J2	CAPSTAN BRAKE PART
13	BL-V1123A050A	TENSION BLK F600EA
14	BM-400682J	MOTOR DFX-67B3VWB1 [CAPSTAN MOTOR]
15	BM-394844J	MOTOR E20 EL82 [DRUM MOTOR]
16	BM-387503J	MOTOR PART [LOADING MOTOR]
17	*BT-394941J	TRANS POW V1125 EA [A650EA/EK]
18	*BT-394943J	TRANS POW V1125 EO [A650EOH/EO/EOG]
19	*BT-394952J	TRANS V1123 EA [F600EA/EK]
20	*BT-394945J	TRANS V1123 EOH [F600EOH/EO/EOG]
21	BV-V1102A150A	CASSETTE LOAD BLK 425EA
22	BV-V1102A070A	LEADER S BLK 425EA
23	BV-V1102A080A	LEADER T BLK 425EA
24	BV-V1123A410C	LOWER DRUM BLK F600EA
25	BV-387635J1	RF CONVERTER MDLK6B063B EK [EK]
26	BV-387632J1	RF CONVERTER MDLK6D063B EO [EO/EOH-E/EOH-V/EOG]
27	BV-387610J	RF CONVERTER YAA21-0453 EA [EA]
28	BV-V1123A420C	UPPER DRUM BLK F600EA
29	EC-391843J	C DOUBLE FYDOH 223Z 5.5DC
30	EC-397180J	C S-FIX H T05 VCT51C 3.0-10
31	EC-397179J	C S-FIX H T05 VCT51E 4.5-20
32	EC-356284	C S-FIX H VCT51G 7.5- 50
33	ED-397391J	D LED BR3668S RED
34	ED-397340J	D LED GL-5HY41 YELLOW
35	ED-365622	D LED GL-5PR41 RED
36	ED-394723J	D LED GL3HY44 YELLOW
37	ED-389638J	D LED GL3HY47 YELLOW
38	ED-390011J	D LED GL451 INFRARED [D1]
39	ED-390012J	D LED GL4800 INFRARED [D2][D3]
40	ED-376111	D LED SE303AC INFRARED
41	ED-360409	D PHOTO PN323B
42	ED-392779J	D SCHOTTKY 1SS198 T26
43	ED-387946J	D SCHOTTKY RB100AT-62 T05
44	ED-389296J	D SILICON BR31-B-D-80 100/3.0A [EA/EK/EOH-E/EOH-V/EO]
45	ED-386031J	D SILICON CHIP MA110-TW
46	ED-379298	D SILICON DBA20B 100/2.0A
47	ED-357037	D SILICON DBA30B 100/ 3.0A [EOG-V]
48	ED-307572	D SILICON H 1SS131 [EOH-V/EOG-V]
49	ED-624903	D SILICON H 1S2473
50	ED-511907	D SILICON 1N4002 100/1.0A
51	ED-394936J	D VARACTOR 1SV111
52	ED-364032	D ZENER H HZS10B2J F05
53	ED-396065J	D ZENER H HZS12C-1
54	ED-397319J	D ZENER H HZS15-2
55	ED-396067J	D ZENER H HZS18-1
56	ED-397289J	D ZENER H HZS20-2
57	ED-397399J	D ZENER H HZS3C3
58	ED-396062J	D ZENER H HZS36-2
59	ED-396061J	D ZENER H HZS5B3
60	ED-394924J	D ZENER H HZS5C1
61	ED-397233J	D ZENER H HZS5C3
62	ED-387919J	D ZENER H HZS6A1L F05
63	ED-378530J	D ZENER H HZS6B2L F05
64	ED-396063J	D ZENER H HZS7B-1
65	ED-387763J	D ZENER H HZS7B3L F05
66	ED-394923J	D ZENER H HZS9B2
67	ED-388368J	D ZENER H HZS9B3L F05
68	ED-387765J	D ZENER H HZS9C1L F05
69	ED-324526	D ZENER H HZ12 C1
70	ED-322046	D ZENER H HZ18 1
71	ED-329449	D ZENER H HZ18 3
72	ED-307236	D ZENER H HZ22 1
73	ED-337295	D ZENER H HZ3 C3
74	ED-346630	D ZENER H HZ36 2
75	ED-319167	D ZENER H HZ6 C3
76	ED-201581	D ZENER H HZ7 B1
77	ED-346542	D ZENER H HZ9B3L [EK/EOH/EO/EOG]
78	ED-400982J	D ZENER H MTZJ7.5B T26
79	ED-400984J	D ZENER H MTZ2.4A T26 [F600]
80	EE-387607J	TV TUNER TERB1-008A EK [EK]
81	EE-387604J1	TV TUNER TERE1-007B EOG [EOG]
82	EE-390143J1	TV TUNER TERE3-001B EOH [EO/EOH-E]
83	EE-389626J	TV TUNER TERE3-003A FTZ.EOH [EOH-V]
84	EE-387600J	TV TUNER TERS1-002A EA [EA]
85	*EF-355398	FUSE BET T 250V 2.00A [EK]
86	*EF-601301	FUSE SEMKO T 250V 2.00A [EA/EOH/EO/EOG]
87	EH-360306	COMP R RKC1/8B7 103J
88	EH-400747J	DL *V1123 (1) [EA/EK]
89	EH-400748J	DL ADL-FE2248Q [EOH-E/EOH-V/EO/EOG-V]
90	EH-725827J	FILTER CE SAF32.9MDE70Z [EK]
91	EH-725828J	FILTER CE SAF33.0MDA70Z [EO]
92	EH-373916	FILTER CE SAF36.9MZ70Z [EA]
93	EH-730625J	FILTER CE SAF38.9MZW70Z [EO/EOH/EOG]
94	EH-373917	FILTER CE SAF39.5MZ70Z [EK]
95	EH-366894	FILTER CE SFE-4.16MB 4.16MHZ [EOG-V]
96	EH-712603	FILTER CE SFT5.5MA [EO]
97	EH-394948J	FILTER CE SFT5.5MA
98	EH-394947J	FILTER CE SFT5.74MA
99	EH-725829J	FILTER CE SFT6.0MA [EK]
100	EH-368948	FILTER CE TPS5.5MW 5.5000MHZ [EA/EO/EOH/EOG]
101	EH-373919	FILTER CE TPS6.0MB [EK]
102	EH-394684J	FILTER EMI ZBF503D-00TA T05
103	EH-397511J	FILTER LC BP H316BQKS-2982QDD [EO]
104	EH-394984J	FILTER LC BP SFB41743
105	EH-382829J	FILTER LC BP TH316BQM-2110QDAF [EK]
106	EH-364045	FILTER LC FF-78P
107	EH-394858J	FILTER LC LP MYV-2V2
108	EH-402170J	FILTER LC LP SEL-5065
109	EH-732529J	FILTER SAW SAF31.4MC70Z [EA]

Ref.No.	Part No.	Description
110	EH-732528J	FILTER SAW SAF33.4MC70Z [EOH/EOG]
111	EI-394680J	IC AN3171K
112	EI-396454J	IC AN3267K
113	EI-373981J1	IC BA10393N
114	EI-367572	IC BA15218
115	EI-373980	IC BA15218N
116	EI-381575J	IC BA6121
117	EI-364896	IC BA6138
118	EI-397299J	IC BA6229-U2
119	EI-366892	IC BA7025L [EOG-V]
120	EI-393786J	IC BA7046
121	EI-387586J	IC BA7244BS
122	EI-394983J	IC BA7703K1
123	EI-397285J	IC BA7740S
124	EI-388360J	IC BA7765AS
125	EI-356457	IC BU4013B
126	EI-354640	IC BU4052B
127	EI-394937J	IC CF70124
128	EI-394949J	IC IR3P72
129	EI-349591	IC LA2730
130	EI-360586	IC LA6358S
131	EI-394839J	IC LA7332
132	EI-729997J	IC LA7575
133	EI-390053J	IC LA7910 [EA/EOH-E/EOH-V/EO/EOG-V]
134	EI-394951J	IC LB1215
135	EI-394856J	IC LC8992
136	EI-394686J	IC LH2464-12
137	EI-381838J1	IC LM1875T
138	EI-394679J	IC LVA523S-2
139	EI-389622J	IC L5631
140	EI-387019J	IC MC1377
141	EI-394981J	IC MN67520 HFX SYP1-XAT
142	EI-394999J	IC M50198P
143	EI-395000J	IC M50927HFXAUDI-230
144	EI-393324J	IC M5218AL
145	EI-393325J	IC M5218AP
146	EI-201940	IC NJM4558S
147	EI-394613J	IC S-8052ALO-LG-T1
148	EI-373955	IC S-8053ALR
149	EI-385958J	IC SAA4700
150	EI-394677J	IC SAA5190
151	EI-394938J	IC SAA7320GP
152	EI-394678J	IC SAA9041P/A
153	EI-382827J	IC TA8662N
154	EI-397123J	IC TA8703S [EK/EO]
155	EI-330391	IC TC4050BP
156	EI-310036	IC TC4066BP [F600]
157	EI-351966	IC TC9176P
158	EI-400762J	IC UPD17203GC HFXUNR2-553
159	EI-396456J	IC UPD6450CX-504
160	EI-396449J	IC UPD75217CW HFXOPP1-017
161	EI-396499J	IC UPD75217CW HFXVPT2-014
162	EI-400760J	IC UPD75306GF HFXEAR1-129 [RC-V605/V655]
163	EI-395096J	IC UPD75306GF HFXREM5-120 [RC-V600/650]
164	EI-394681J	IC X2402P
165	EI-400671J	OSC CE CHIP KBR4.00MCS-TR
166	EI-394614J	OSC CE CSA2.20MG 2.200MHZ
167	EI-395001J	OSC CE CST2.00MG 2.000MHZ
168	EI-395002J	OSC CE CST3.27MGW 3.270MHZ
169	EI-373957J1	OSC CE CST4.19MGW 4.194MHZ
170	EI-394674J	OSC X'TAL HC-49/U 13500KHZ
171	EI-394675J	OSC X'TAL HC-49/U 13875KHZ
172	EI-389974J	OSC X'TAL HC-49/U 17.734475MHZ
173	EI-389640J	OSC X'TAL HC-49/U 8000KHZ
174	EI-394673J	OSC X'TAL HC-49/U 8867.238KHZ
175	EI-368825	OSC X'TAL MX-38T 32.768KHZ
176	EI-394939J	OSC X'TAL NR-18 16.384MHZ
177	EI-382833J	OSC X'TAL NR-18 5.824MHZ
178	EI-382832J	OSC X'TAL NR-18 5.850MHZ [EO]
179	EI-382831J	OSC X'TAL NR-18 6.552MHZ [EK]
180	EI-381632J	OSC X'TAL(86686) 4.433619MHZ
181	EM-396431J	IND FL BG-811GK DOUBLE [EA/EK/EOH/EO]
182	EM-396442J	IND FL BG-812GK DOUBLE [EOG]
183	EM-390786J	IND LCD LF5293G ENGLISH
184	*EO-400980J	COIL LF FKOB160MH23 800.0UH [EOG-V]
185	EO-395035J	COIL LF PLH11C-1811R2
186	EO-388362J	COIL OSC 1 V1102 [A650]
187	EO-388363J	COIL OSC 1 V1105-1 [F600]
188	EO-388349J	COIL OSC 1 V1105-2 [F600]
189	*ER-328278	R FUSE H ERD2FC 1/4W 10R0G
190	ER-397354J	R FUSE V T05 ERD2FC 1/4W 39R0G
191	*ER-397353J	R FUSE V T05 ERD2FC 1/4W 47R0G
192	ER-397524J	R FUSE V T05 ERD2FC 1/4W 6R8J
193	*ER-397386J	R FUSE V T05 ERD2FC 1/4W 8R2J
194	*ER-400688J	R FUSE V T05 RF25SCVTP1/4WR10K
195	*ER-400728J	R FUSE V T05 RF25SCVTP1/4WR12K
196	*ER-397385J	R FUSE V T05 RF25SCVTP1/4WR20K
197	*ER-400729J	R FUSE V T05 RF25SCVTP1/4WR47K
198	*ER-400689J	R FUSE V T05 RF25SCVTP1/4WR68K
199	ES-373099	SW LEAF MTS10110MPC1
200	ES-387465J	SW MODE SELECT MMS00070ZLBO [SW1]
201	ES-397339J	SW SLIDE ESD-170252 [TAPE SELECTOR]
202	ES-373973	SW SLIDE HSW0810-010 1-01-02S [A650]
203	ES-394485J	SW SLIDE SSSS21 1-01-03N
204	ES-400670J	SW SLIDE SSSS21 2-01-04N [RC-V604/V654]
205	ES-393431J	SW TACT CHIP SKHUAB T12E
206	ES-349367	SW TACT SKHHAK003A [SYSTEM RESET]
207	ES-349474	SW TACT SKHHAM004A [VOLUME UP]
208	ET-381637J2	DETECTOR GP1U521X
209	ET-731437J	TR CHIP DTC114EK [EOH-V/EOG-V]
210	ET-713614	TR CHIP 2SA1235 E,F [EK/EO]
211	ET-725820J	TR CHIP 2SC2735J
212	ET-370819	TR CHIP 2SC3052
213	ET-393335J	TR CHIP 2SC3938-TW R,S
214	ET-356336	TR DTA114ES
215	ET-363953	TR DTA114TS
216	ET-372030	TR DTA144EF
217	ET-354415	TR DTA144ES
218	ET-373985	TR DTA144TS
219	ET-353897	TR DTC114ES
220	ET-360399	TR DTC114TS
221	ET-354371	TR DTC124ES
222	ET-375986	TR DTC124TS
223	ET-364060	TR DTC143ES
224	ET-354414	TR DTC144ES [EK/EOH-E/EOH-V/EO/EOG-V]
225	ET-370310	TR DTC144TS
226	ET-356236	TR FET 2SK363 GR,BL [EOH-E/EOH-V/EO]
227	ET-361490	TR PHOTO PN268 R,S [PTR1]
228	ET-390010J	TR PHOTO PT4800 [PTR2][PTR3]
229	ET-390009J	TR PHOTO PT493F [PTR4]
230	ET-364040	TR UN421D
231	ET-356224	TR 2SA1286 G,H,J F05
232	ET-353899	TR 2SA1317 S,T,U [EA/EK/EOG-V]
233	ET-366365	TR 2SB1185 E,F
234	ET-395084J	TR 2SB1331 R T05
235	ET-400965J	TR 2SB1357 E,F T05
236	ET-388338J	TR 2SB1425 S,E
237	ET-370038	TR 2SC2910 S,T
238	ET-375777	TR 2SC2926S P,Q
239	ET-397160J	TR 2SC3330 R,S,T,U,V
240	ET-366168	TR 2SD1292 Q,R
241	ET-380685J	TR 2SD1761 E,F,G
242	ET-366581	TR 2SD1762 E,F
243	ET-400964J	TR 2SD2034 E,F T05
244	ET-396072J	TR 2SD2159 V,W F05
245	ET-390826J	TR.CHIP 2SD1619 T,U TC T08
246	EV-394998J	VR ROTARY XVR09N8.5F B104 [INPUT BALANCE]
247	EV-396445J	VR SLIDE RS30B223J K203X2 [REC LEVEL]
248	HE-361456	HEAD E HVFMD0015B
249	HR-400939J	HEAD COMBO HVMZA1111A
250	MB-387289J	BELT CAPSTAN
251	MI-387294J	IDLLER PART
252	ML-391745J2	ARM DAMPER
253	ML-387350J1	ARM LID OPENER
254	ML-387277J3	ARM REVIEW PART
255	ML-387402J	LEVER TRIGGER
256	ML-387316J	MAIN BRAKE(S) PART
257	ML-387318J	MAIN BRAKE(T) PART
258	ML-401682J	REVIEW BRAKE(2) PART
259	ML-396018J	SLIDER BRAKE(2) PART
260	ML-387327J	SLIDER TRIGGER
261	MR-387406J	HOLDER THRUST WORM
262	MR-391968J	PULLEY TRIGGER(2)
263	MR-387286J1	ROLLER IMPEDANCE
264	MT-390954J1	DISK (2)PART
265	MZ-387298J2	DISK CLUTCH PART
266	MZ-396021J	GEAR CAM SLIDER(2)
267	MZ-387335J	GEAR EJECT
268	MZ-387333J	GEAR FRONT LOADING
269	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
270	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
271	MZ-387330J	GEAR WORM PART
272	MZ-387332J	GEAR WORM WHEEL

2. HEAD DRUM BLOCK

Ref.No.	Part No.	Description
1	BV-V1123A410C	LOWER DRUM BLK F600EA
2	BV-V1123A420C	UPPER DRUM BLK F600EA
3	ZS-321298	BID30X08STL CMT
4	SZ-387388J	HOLDER FPC
5	ZS-379405	BID30X06STL CMT
6	MA-387474J1	BASE DRUM
7	ZS-563444	BID26X08STL CMT
8	BM-394844J	MOTOR E20 EL82 [DRUM MOTOR]
9	ZS-467796	PAN26X12STL CMT
11	ZS-379350	PAN30X06STL CMT
12	ZS-370047	DT BID30X12STL CMT
13	ML-392137J	ARM IMPEDANCE PART
14	MZ-392144J	PLATE IMPEDANCE PART
15	ZG-392143J	SP TORSION IMPEDANCE
16	ZW-392224J	SLIT W26X050X050PSL
17	ZW-392225J	PW21X044X025PSL
18	MR-364335	ROLLER IMPEDANCE
19	ZW-392226J	SLIT W16X040X050PSL
20	VT-400664J1	EARTH BRUSH PART
21	ZS-364543	DT BID30X06STL CMT

NOTE:
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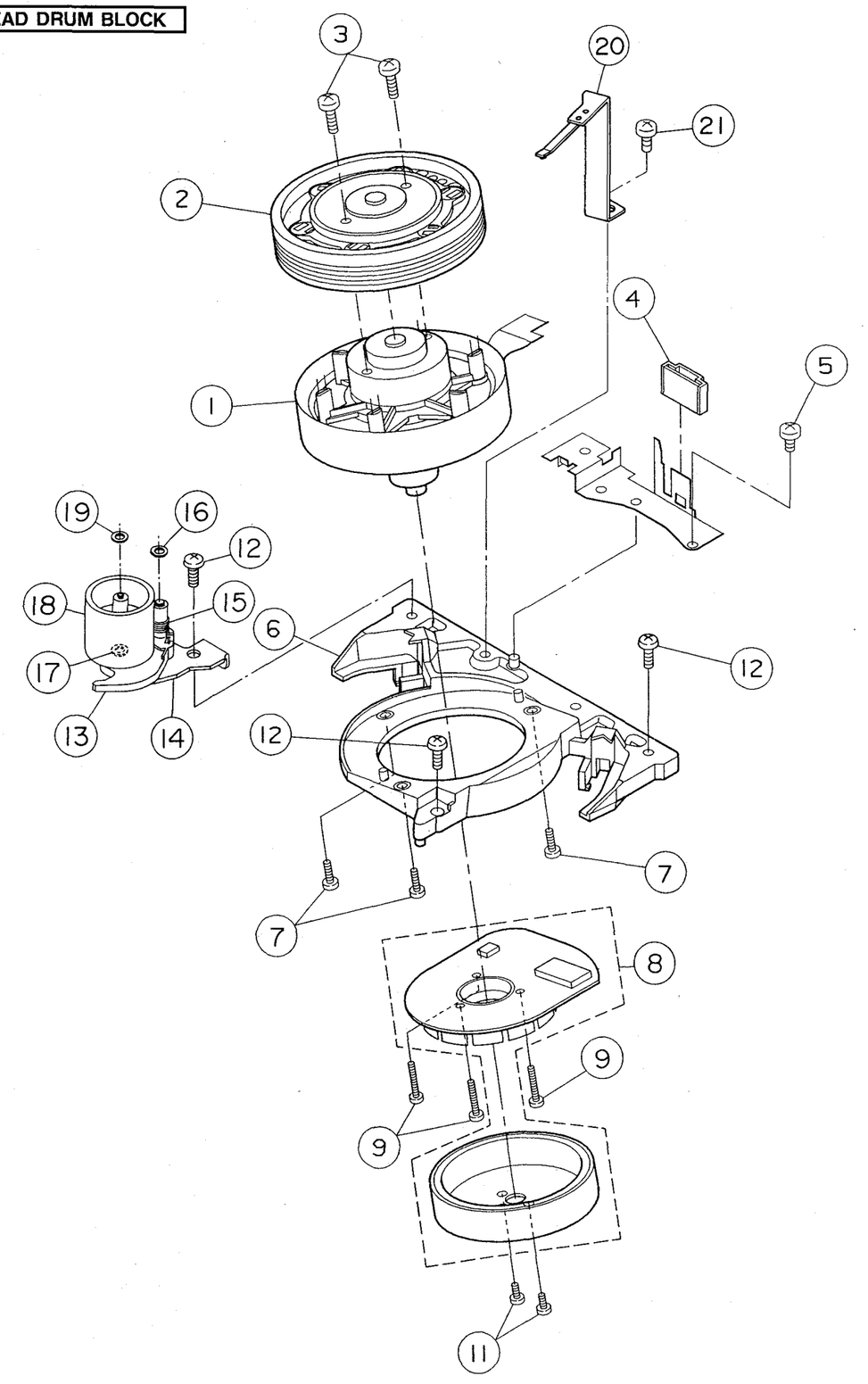
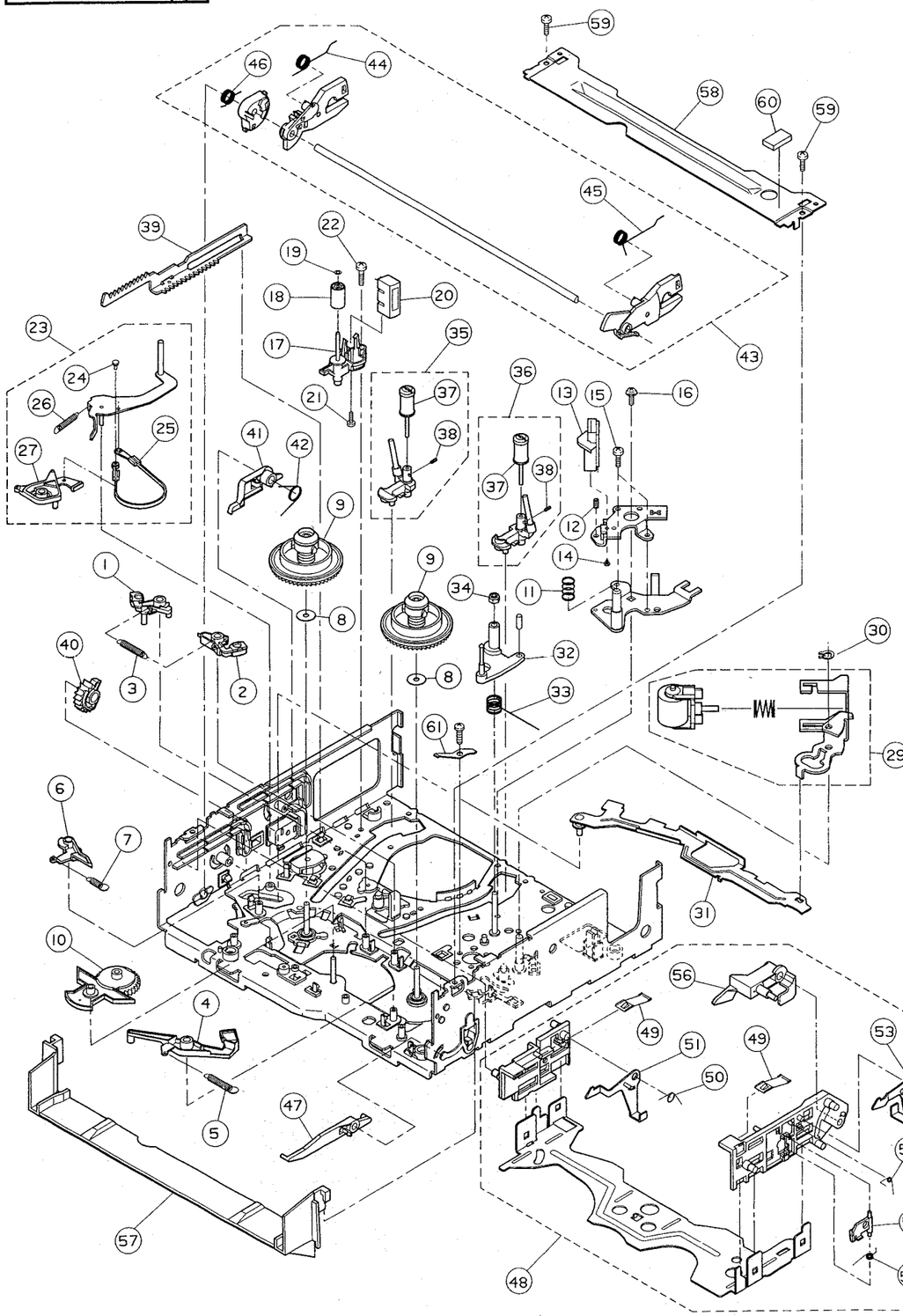
HEAD DRUM BLOCK



MECHA BLOCK (1)



3. MECHA BLOCK (1)

Ref.No.	Part No.	Description
1	ML-387316J	MAIN BRAKE(S) PART
2	ML-387318J	MAIN BRAKE(T) PART
3	ZG-387320J	SP PULL MAIN BRAKE
4	ML-401682J	REVIEW BRAKE(2) PART
5	ZG-387323J	SP PULL REVIEW BRAKE
8	ZW-389814J	PW31X110X050PSL
9	MT-390954J1	DISK (2)PART
10	MI-387294J	IDLLER PART
11	ZG-387438J	SP PUSH A/C
12	ZG-373900	6SET30X080SCM PKR CP
13	HR-400939J	HEAD COMBO HVMZA1111A
14	ZS-373899	PAN20X2.5STL BDY PS1
15	ZS-321298	BID30X08STL CMT
16	ZS-389853J	DT BID30X06STL CMT C080
17	MZ-387495J3	HOLDER FE HEAD PART
18	MR-387286J1	ROLLER IMPEDANCE
19	ZW-374445	SLIT W17X032X025PSL
20	HE-361456	HEAD E HVFMD0015B
21	ZS-460438	BID20X03STL CMT
22	ZS-370047	DT BID30X12STL CMT
23	BL-V1123A050A	TENSION BLK F600EA
24	SZ-387263J1	HOLDER LEVER TENSION
25	ML-390768J	TENSION BAND PART
26	ZG-395470J	SP PULL TENSION(2)
27	ML-395471J	TENSION BRAKE PART
29	BL-V1102A160A	ARM PINCH ROLLER(2)BLK 425EA
30	ZW-332843	RETAINING RING GRIP 380STL ACP
31	ML-387431J	SLIDER PINCH PART
32	ML-387277J3	ARM REVIEW PART
33	ZG-387282J	SP TORSION REVIEW
34	ZW-350839	N30 NYLON
35	BV-V1102A070A	LEADER S BLK 425EA
36	BV-V1102A080A	LEADER T BLK 425EA
37	VT-387394J1	GUIDE ROLLER D8 PART
38	ZS-374458	6SET20X030SCM PKR FP
39	ML-387428J	SLIDER FRONT LOADING
40	MZ-387335J	GEAR EJECT
41	ML-391745J2	ARM DAMPER
42	ZG-395567J	SP TORSION ARM DAMPER
43	BL-V1102A140A	ARM LOADING BLK 425EA
44	ZG-387417J	SP TORSION LOAD(S)
45	ZG-387418J	SP TORSION LOAD(T)
46	ZG-392831J	SP TORSION JOINT(2)
47	ML-387350J1	ARM LID OPENER
48	BV-V1102A150A	CASSETTE LOAD BLK 425EA
49	ZG-387348J1	SP PLATE HOLDER
50	ZG-387421J	SP TORSION DAMPER(S)
51	ML-387345J	LEVER DAMPER(S)
52	ZG-388290J1	SP TORSION DAMPER(T)
53	ML-387346J	LEVER DAMPER(T)
54	ML-387344J	LEVER LOCK RELEASE
55	ZG-387420J	SP TORSION RELEASE
56	ML-387349J1	ARM SHUTTER
57	SE-395554J	GUIDE FRONT(2)
58	MZ-387351J1	PLATE UPPER
59	ZS-364543	DT BID30X06STL CMT
60	SZ-401677J	CUSHION COVER
61	ZG-392294J	SP PLATE EARTH
62	BB-V1102A020J	MECHA DECK BLK F600EA

NOTE:
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4. MECHA BLOCK (2)

Ref.No.	Part No.	Description
1	ML-396018J	SLIDER BRAKE(2) PART
2	ML-387327J	SLIDER TRIGGER
3	ML-387402J	LEVER TRIGGER
4	ZG-387468J	SP PULL SLIDER
5	ZG-387403J	SP TORSION COUPLING
6	ZW-389923J	PW26X060X050PSL
7	MZ-387298J2	DISK CLUTCH PART
8	ZW-387492J	SLIT W21X040X050PSL
9	BM-400682J	MOTOR DFX-67B3VWB1 [CAPSTAN MOTOR]
10	ZS-365149	PT BID26X06STL CMT
11	MB-387289J	BELT CAPSTAN
12	EA-387496J	PC(#)SENSOR
13	ED-390011J	D LED GL451 INFRARED [D1]
14	ED-390012J	D LED GL4800 INFRARED [D2][D3]
15	EJ-387497J	SOCKET HOUSING 5062-30-10-13 [PS1]
16	EJ-381837J	SOCKET 174074-5 5P [P1]
17	ES-387465J	SW MODE SELECT MMS00070ZLBO [SW1]
18	ET-390010J	TR PHOTO PT4800 [PTR2][PTR3]
19	ET-390009J	TR PHOTO PT493F [PTR4]
20	EW-389313J	CORD FFC P1.25 L=120 13P [WP1]
21	MZ-387430J	HOLDER D-LED
22	MZ-387445J	HOLDER S SENSOR
23	MZ-387446J	HOLDER PHOTO SENSOR
24	ET-361490	TR PHOTO PN268 R,S [PTR1]
25	MZ-V1102A090A	GEAR TOGGLE (S) BLK 425EA
26	MZ-V1102A100A	GEAR TOGGLE (T) BLK 425EA
27	ZG-387413J1	SP PULL TOGGLE
28	MZ-387332J	GEAR WORM WHEEL
29	MZ-396021J	GEAR CAM SLIDER(2)
30	MZ-387333J	GEAR FRONT LOADING
31	BM-387503J	MOTOR PART [LOADING MOTOR]
32	MZ-387330J	GEAR WORM PART
33	MR-391968J	PULLEY TRIGGER(2)
34	ZG-387443J	SP TRIGGER
35	MR-387406J	HOLDER THRUST WORM
36	ZS-425981	BID30X03STL CMT
37	BL-387458J2	CAPSTAN BRAKE PART
38	ZG-387502J	SP PULL CAPSTAN BRAKE
39	ES-373099	SW LEAF MTS10110MPC1
40	ZS-389950J	PT BID26X10STL CMT
41	ZS-364543	DT BID30X06STL CMT
42	ML-387311J1	ARM COUPLING

NOTE:
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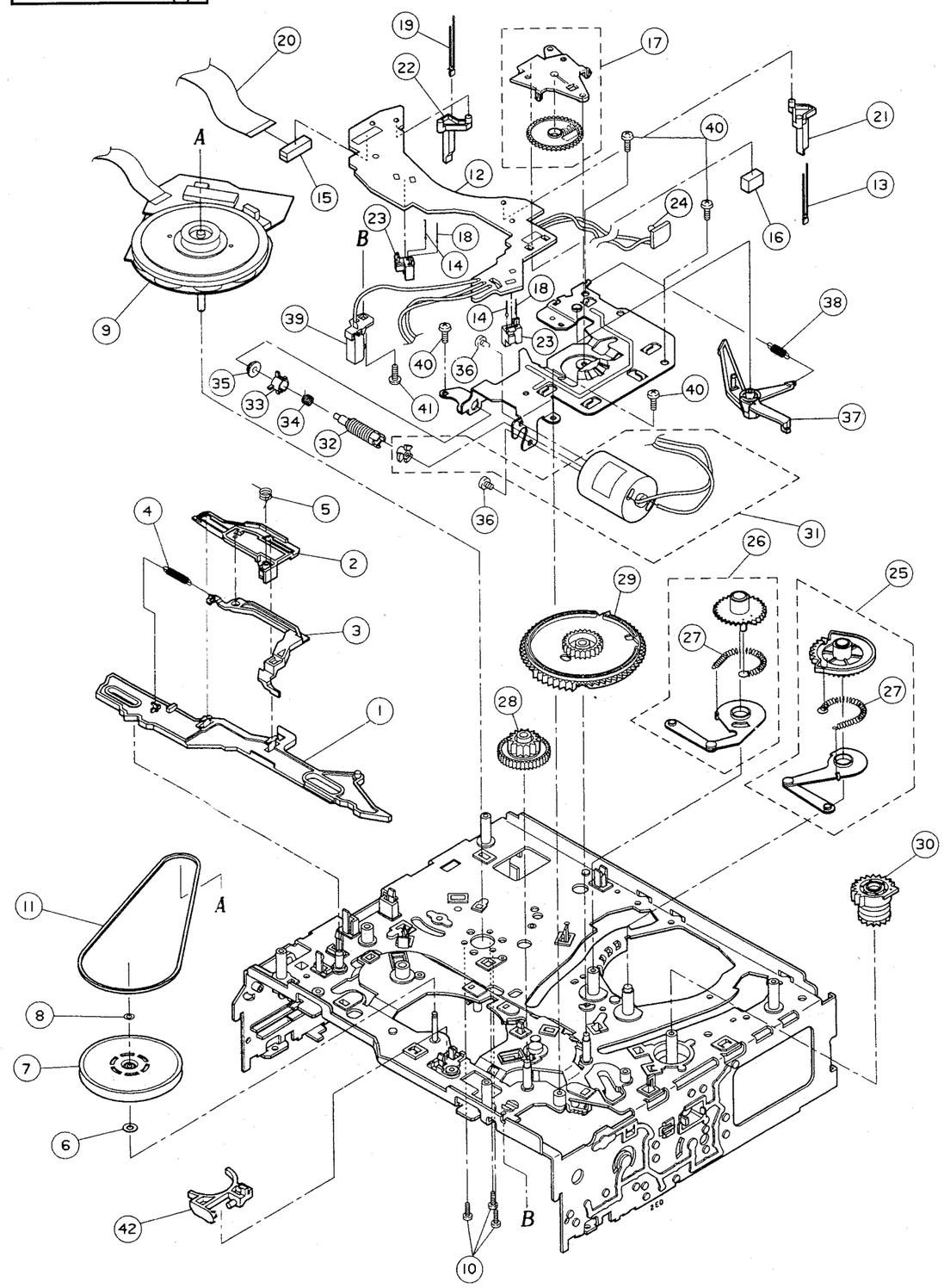
MECHA BLOCK (2)



5. P.C BOARD BLOCK

Ref.No.	Part No.	Description
1A	BA-V1123A600A	PC(#) MAIN(1) BLK F600EA [F600EA]
1B	BA-V1123A600B	PC(#) MAIN(1) BLK F600EK [F600EK]
1C	BA-V1123A600C	PC(#) MAIN(1) BLK F600EOH(E) [F600EOH-E]
1D	BA-V1123A600D	PC(#) MAIN(1) BLK F600EOH(V) [F600EOH-V]
1E	BA-V1123A600E	PC(#) MAIN(1) BLK F600EO [F600EO]
1F	BA-V1123A600F	PC(#) MAIN(1) BLK F600EOG-V [F600EOG-V]
1G	BA-V1125A600A	PC(#) MAIN(1) BLK A650EA [A650EA]
1H	BA-V1125A600B	PC(#) MAIN(1) BLK A650EK [A650EK]
1I	BA-V1125A600C	PC(#) MAIN(1) BLK A650EOH(E) [A650EOH-E]
1J	BA-V1125A600D	PC(#) MAIN(1) BLK A650EOH(V) [A650EOH-V]
1K	BA-V1125A600E	PC(#) MAIN(1) BLK A650EO [A650EO]
1L	BA-V1125A600F	PC(#) MAIN(1) BLK A650EOG-V [A650EOG-V]
2A	BA-V1123A500A	PC(#) POWER(1) BLK F600EA [F600EA]
2B	BA-V1123A500B	PC(#) POWER(1) BLK F600EK [F600EK]
2C	BA-V1123A500C	PC(#) POWER(1) BLK F600EOH(E) [F600EOH-E/EOH-V/EO]
2D	BA-V1123A500D	PC(#) POWER(1) BLK F600EOG-V [F600EOG-V]
2E	BA-V1125A500B	PC(#) POWER(2) BLK A650EA [A650EA]
2F	BA-V1125A500C	PC(#) POWER(2) BLK A650EK [A650EK]
2G	BA-V1125A500D	PC(#) POWER(2) BLK A650EOH [A650EOH-E/EOH-V]
2H	BA-V1125A500E	PC(#) POWER(2) BLK A650EOG [A650EOG-V]
3A	BA-V1123A620A	PC OPERATION(1)BLK F600EA [F600EA]
3B	BA-V1123A620B	PC OPERATION(1)BLK F600EK [F600EK]
3C	BA-V1123A620C	PC OPERATION(1)BLK F600EOH [F600EOH-E/EOH-V]
3D	BA-V1123A620D	PC OPERATION(1)BLK F600EO [F600EO]
3E	BA-V1123A620E	PC OPERATION(1)BLK F600EOG-V [F600EOG-V]
3F	BA-V1125A620A	PC OPERATION(1)BLK A650EA [A650EA]
3G	BA-V1125A620B	PC OPERATION(1)BLK A650EK [A650EK]
3H	BA-V1125A620C	PC OPERATION(1)BLK A650EOH [A650EOH-E/EOH-V]
3I	BA-V1125A620D	PC OPERATION(1)BLK A650EO [A650EO]
3J	BA-V1125A620E	PC OPERATION(1)BLK A650EOG-V [A650EOG-V]
4A	BA-V1123A630A	PC—OPERATION(2)BLK F600EA [F600EA]
4B	BA-V1123A630B	PC—OPERATION(2)BLK F600EK [F600EK]
4C	BA-V1123A630C	PC—OPERATION(2)BLK F600EOH [F600EOH-E/EOH-V]
4D	BA-V1123A630D	PC—OPERATION(2)BLK F600EO [F600EO]
4E	BA-V1123A630E	PC—OPERATION(2)BLK F600EOG-V [F600EOG-V]
4F	BA-V1125A630A	PC—OPERATION(2)BLK A650EA [A650EA]
4G	BA-V1125A630B	PC—OPERATION(2)BLK A650EK [A650EK]
4H	BA-V1125A630C	PC—OPERATION(2)BLK A650EOH [A650EOH-E/EOH-V]
4I	BA-V1125A630D	PC—OPERATION(2)BLK A650EO [A650EO]
4J	BA-V1125A630E	PC—OPERATION(2)BLK A650EOG-V [A650EOG-V]
5A	BA-V1123A610A	PC PRE AMP BLK F600EA [F600]
5B	BA-V1123A610D	PC PRE AMP BLK A650EA [A650]

PC (#) MAIN (1) BLK CONSISTS OF FOLLOWING P.C BOARD.
- MAIN (1) P.C BOARD
- SERVO/SYSCON P.C BOARD
- I/O P.C BOARD
- VIF UNIT
- I-HQ P.C BOARD

PC (#) POWER (1) BLK CONSISTS OF FOLLOWING P.C BOARD.
- POWER SUPPLY (1) P.C BOARD (F600)
- DIODE P.C BOARD (F600)

PC (#) POWER (2) BLK CONSISTS OF FOLLOWING P.C BOARD.
- POWER SUPPLY (2) P.C BOARD (A650)
- DIODE (1) P.C BOARD (A650)
- DIODE (2) P.C BOARD (A650)

PC (#) OPERATION (2) BLK CONSISTS OF FOLLOWING P.C BOARD.
- OPERATION (2) P.C BOARD
- REC VOLUME P.C BOARD

6. MAIN P.C BOARD

Ref.No.	Part No.	Description
C77	EC-391843J	C DOUBLE FYDOH 223Z 5.5DC
C238	EC-356284	C S-FIX H VCT51G 7.5- 50
DL151	EH-400747J	DL *V1123 (1) [EA/EK]
DL151A	EH-400748J	DL ADL-FE2248Q [EOH-E/EOH-V/EO/EOG-V]
D1	ED-307572	D SILICON H 1SS131 [EOH-V/EOG-V]
D2	ED-307572	D SILICON H 1SS131 [EOH-V/EOG-V]
D3	ED-307572	D SILICON H 1SS131 [EOH-E/EOH-V/EO]
D4	ED-367502	D ZENER H HZS9A1L F05 [EOH-E/EOH-V/EO]
D5	ED-307572	D SILICON H 1SS131 [EOH-V]
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131
D8	ED-307572	D SILICON H 1SS131 [EA/EOH-E/EOH-V/EO/EOG-V]
D11	ED-307572	D SILICON H 1SS131
D12	ED-387765J	D ZENER H HZS9C1L F05
D13	ED-387919J	D ZENER H HZS6A1L F05
D72	ED-397399J	D ZENER H HZS3C3
D73	ED-397233J	D ZENER H HZS5C3
D74	ED-307572	D SILICON H 1SS131
D75	ED-397289J	D ZENER H HZS20-2
D101	ED-392779J	D SCHOTTKY 1SS198 T26
D102	ED-307572	D SILICON H 1SS131
D103	ED-307572	D SILICON H 1SS131
D104	ED-378530J	D ZENER H HZS6B2L F05
D151	ED-307572	D SILICON H 1SS131
D152	ED-307572	D SILICON H 1SS131
D201	ED-307572	D SILICON H 1SS131
D210	ED-307572	D SILICON H 1SS131
D211	ED-388368J	D ZENER H HZS9B3L F05
D241	ED-307572	D SILICON H 1SS131 [EOH-E/EOH-V/EO/EOG-V]
D242	ED-307572	D SILICON H 1SS131 [EOH-E/EOH-V/EO/EOG-V]
D243	ED-307572	D SILICON H 1SS131
D244	ED-307572	D SILICON H 1SS131
D245	ED-307572	D SILICON H 1SS131
D300	ED-307572	D SILICON H 1SS131
D301	ED-388368J	D ZENER H HZS9B3L F05

Ref.No.	Part No.	Description
D302	ED-397399J	D ZENER H HZS3C3
D303	ED-337295	D ZENER H HZ3 C3
D370	ED-307572	D SILICON H 1SS131
D371	ED-307572	D SILICON H 1SS131
D372	ED-307572	D SILICON H 1SS131
D373	ED-307572	D SILICON H 1SS131
D374	ED-307572	D SILICON H 1SS131
D375	ED-307572	D SILICON H 1SS131
D401	ED-307572	D SILICON H 1SS131
D406	ED-307572	D SILICON H 1SS131
FL101	EH-402170J	FILTER LC LP SEL-5065
FL151	EH-364045	FILTER LC FF-78P
FL152	EH-366894	FILTER CE SFE-4.16MB 4.16MHZ [EOG-V]
FL211	EH-394858J	FILTER LC LP MYV-2V2
FL300	EO-388363J	COIL OSC 1 V1105-1 [F600]
FL300A	EO-388362J	COIL OSC 1 V1102 [A650]
FL400	EH-394984J	FILTER LC BP SFB41743
IC1	EI-390053J	IC LA7910 [EA/EOH-E/EOH-V/EO/EOG-V]
IC2	EI-389622J	IC L5631
IC70	EI-393324J	IC M5218AL
IC101	EI-396454J	IC AN3267K
IC151	EI-394839J	IC LA7332
IC152	EI-366892	IC BA7025L [EOG-V]
IC211	EI-394856J	IC LC8992
IC241	EI-396456J	IC UPD6450CX-504
IC300	EI-388360J	IC BA7765AS
IC400	EI-394983J	IC BA7703K1
IC401	EI-310036	IC TC4066BP [F600]
IC402	EI-364896	IC BA6138
L100	EO-354600	COIL FIX 1 LAP02 F05 101K
L101	EO-351868	COIL FIX 1 LAP02 F05 470K
L102	EO-357508	COIL FIX 1 LAP02 F05 151K
L103	EO-345880	COIL FIX 1 EL0606SKI 820J
L104	EO-360555	COIL FIX 1 LAP02 F05 180K
L105	EO-354600	COIL FIX 1 LAP02 F05 101K
L106	EO-351862	COIL FIX 1 LAP02 F05 100K
L107	EO-354600	COIL FIX 1 LAP02 F05 101K
L151	EO-345989	COIL FIX 1 EL0606RA T05 390J
L153	EO-388087J	COIL FIX 1 LF-5.0S F05 331K
L154	EO-388353J	COIL FIX 1 LF-5.0S F05 471K
L155	EO-364966	COIL FIX 1 LAP02 F05 120K [EOH-E/EOH-V/EO/EOG-V]
L156	EO-345880	COIL FIX 1 EL0606SKI 820J
L157	EO-345871	COIL FIX 1 EL0606SKI 180J
L158	EO-397359J	COIL FIX 1 EL0606SKI 1R2J
L159	EO-345880	COIL FIX 1 EL0606SKI 820J
L160	EO-397389J	COIL FIX 1 EL0606SKI 4R7J
L161	EO-345880	COIL FIX 1 EL0606SKI 820J
L162	EO-353900	COIL FIX 1 LAP02 F05 150K
L163	EO-345880	COIL FIX 1 EL0606SKI 820J [EOG-V]
L164	EO-388087J	COIL FIX 1 LF-5.0S F05 331K
L165	EO-388087J	COIL FIX 1 LF-5.0S F05 331K
L211	EO-387782J	COIL FIX 1 EL0405SKI 2R2K
L213	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L240	EO-351868	COIL FIX 1 LAP02 F05 470K
L241	EO-345880	COIL FIX 1 EL0606SKI 820J
L242	EO-376610	COIL FIX 1 LF-5.0S F05 330K
L243	EO-376606	COIL FIX 1 LF-5.0S F05 180K [EOH-E/EOH-V/EO/EOG-V]
L244	EO-376860	COIL FIX 1 LF-5.0S F05 820K [EA/EOH-E/EOH-V/EO/EOG-V]
L245	EO-345880	COIL FIX 1 EL0606SKI 820J
L271	EO-345880	COIL FIX 1 EL0606SKI 820J
L300	EO-354600	COIL FIX 1 LAP02 F05 101K
L302	EO-390717J	COIL FIX 1 LHL06TB T05 103J
L370	EO-351866	COIL FIX 1 LAP02 F05 330K
L400	EO-354600	COIL FIX 1 LAP02 F05 101K
L401	EO-354600	COIL FIX 1 LAP02 F05 101K
L402	EO-354600	COIL FIX 1 LAP02 F05 101K
MD1	BV-387610J	RF CONVERTER YAA21-0453 EA [EA]
MD1A	BV-387635J1	RF CONVERTER MDLK6B063B EK [EK]
MD1B	BV-387632J1	RF CONVERTER MDLK6D063B EO [EO/EOH-E/EOH-V/EOG]

Ref.No.	Part No.	Description
PJ101	EJ-381862J	PIN J JPJ2025-01-020 RED 1P [A650]
PJ102	EJ-381863J	PIN J JPJ2025-01-030 WHITE 1P [A650]
SW1	ES-373973	SW SLIDE HSW0810-010 1-01-02S [A650]
TM101	EJ-395047J	TERMINAL PUSH LQR0410-1007 4P [A650]
TR1	ET-353899	TR 2SA1317 S,T,U [EA/EK/EOG-V]
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-353899	TR 2SA1317 S,T,U
TR4	ET-356236	TR FET 2SK363 GR,BL [EOH-E/EOH-V/EO]
TR5	ET-375986	TR DTC124TS
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V [EOH-E/EOH-V/EO]
TR7	ET-375777	TR 2SC2926S P,Q
TR8	ET-353899	TR 2SA1317 S,T,U
TR10	ET-396072J	TR 2SD2159 V,W F05
TR11	ET-353899	TR 2SA1317 S,T,U
TR12	ET-353899	TR 2SA1317 S,T,U
TR13	ET-397160J	TR 2SC3330 R,S,T,U,V
TR14	ET-397160J	TR 2SC3330 R,S,T,U,V
TR17	ET-354414	TR DTC144ES [EK/EOH-E/EOH-V/EO/EOG-V]
TR71	ET-356336	TR DTA114ES
TR72	ET-397160J	TR 2SC3330 R,S,T,U,V
TR73	ET-366168	TR 2SD1292 Q,R
TR74	ET-366168	TR 2SD1292 Q,R
TR101	ET-354371	TR DTC124ES
TR102	ET-354414	TR DTC144ES
TR103	ET-353897	TR DTC114ES
TR105	ET-354415	TR DTA144ES
TR106	ET-354415	TR DTA144ES
TR108	ET-354414	TR DTC144ES
TR109	ET-354414	TR DTC144ES
TR110	ET-364040	TR UN421D
TR111	ET-354415	TR DTA144ES
TR112	ET-356224	TR 2SA1286 G,H,J F05
TR113	ET-370310	TR DTC144TS
TR114	ET-354414	TR DTC144ES
TR150	ET-397160J	TR 2SC3330 R,S,T,U,V
TR151	ET-397160J	TR 2SC3330 R,S,T,U,V
TR152	ET-397160J	TR 2SC3330 R,S,T,U,V
TR153	ET-353899	TR 2SA1317 S,T,U
TR154	ET-397160J	TR 2SC3330 R,S,T,U,V
TR155	ET-397160J	TR 2SC3330 R,S,T,U,V
TR156	ET-354414	TR DTC144ES [EOH-E/EOH-V/EO/EOG]
TR157	ET-354415	TR DTA144ES [EOH-E/EOH-V/EO/EOG]
TR158	ET-388338J	TR 2SB1425 S,E
TR159	ET-353899	TR 2SA1317 S,T,U
TR160	ET-353897	TR DTC114ES
TR161	ET-354414	TR DTC144ES
TR162	ET-397160J	TR 2SC3330 R,S,T,U,V
TR163	ET-353899	TR 2SA1317 S,T,U
TR164	ET-397160J	TR 2SC3330 R,S,T,U,V [EOG-V]
TR165	ET-397160J	TR 2SC3330 R,S,T,U,V [EOG-V]
TR166	ET-353897	TR DTC114ES [EOG-V]
TR167	ET-353897	TR DTC114ES [EOG-V]
TR168	ET-370310	TR DTC144TS
TR169	ET-370310	TR DTC144TS
TR170	ET-397160J	TR 2SC3330 R,S,T,U,V
TR201	ET-353899	TR 2SA1317 S,T,U
TR202	ET-353899	TR 2SA1317 S,T,U
TR211	ET-366168	TR 2SD1292 Q,R
TR212	ET-353899	TR 2SA1317 S,T,U
TR225	ET-397160J	TR 2SC3330 R,S,T,U,V
TR241	ET-356336	TR DTA114ES [EOH-E/EOH-V/EO/EOG-V]
TR242	ET-356336	TR DTA114ES [EOH-E/EOH-V/EO/EOG-V]
TR243	ET-397160J	TR 2SC3330 R,S,T,U,V [EOH-E/EOH-V/EO/EOG-V]
TR244	ET-397160J	TR 2SC3330 R,S,T,U,V
TR245	ET-353899	TR 2SA1317 S,T,U

Ref.No.	Part No.	Description
TR246	ET-354414	TR DTC144ES
TR248	ET-353899	TR 2SA1317 S,T,U
TR249	ET-397160J	TR 2SC3330 R,S,T,U,V [EA/EOH-E/EOH-V/EO/EOG-V]
TR250	ET-397160J	TR 2SC3330 R,S,T,U,V
TR271	ET-353899	TR 2SA1317 S,T,U
TR272	ET-353899	TR 2SA1317 S,T,U
TR300	ET-366168	TR 2SD1292 Q,R
TR301	ET-397160J	TR 2SC3330 R,S,T,U,V
TR310	ET-397160J	TR 2SC3330 R,S,T,U,V
TR311	ET-397160J	TR 2SC3330 R,S,T,U,V
TR312	ET-360399	TR DTC114TS
TR313	ET-360399	TR DTC114TS [EK/EO]
TR370	ET-397160J	TR 2SC3330 R,S,T,U,V
TR400	ET-397160J	TR 2SC3330 R,S,T,U,V
TR401	ET-353899	TR 2SA1317 S,T,U
TR402	ET-354414	TR DTC144ES [F600]
TR403	ET-397160J	TR 2SC3330 R,S,T,U,V
TR404	ET-397160J	TR 2SC3330 R,S,T,U,V
TR405	ET-360399	TR DTC114TS
TR406	ET-360399	TR DTC114TS
TR407	ET-354415	TR DTA144ES
TR408	ET-353897	TR DTC114ES
TR409	ET-356336	TR DTA114ES
TR410	ET-353897	TR DTC114ES
VL151	EO-366893	COIL VARI 1 21D6 8.20MH [EOG-V]
VR101	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
VR102	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
VR103	EV-389489J	R S-FIX H T05EVNDXAA03 0.1W472
VR104	EV-389482J	R S-FIX H T05EVNDXAA03 0.1W682
VR105	EV-389480J	R S-FIX H T05EVNDXAA03 0.1W332
VR211	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR300	EV-389477J	R S-FIX H T05EVNDXAA03 0.1W104
VR301	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR400	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR401	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR402	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR403	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR404	EV-389476J	R S-FIX H T05EVNDXAA03 0.1W103
VR406	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
VR407	EV-389478J	R S-FIX H T05EVNDXAA03 0.1W153
X151	EI-381632J	OSC X'TAL(86686) 4.433619MHZ
X241	EI-389974J	OSC X'TAL HC-49/U 17.734475MHZ
1	SP-396027J	PANEL REAR JACK EA [F600EA]
1A	SP-396028J	PANEL REAR JACK EK [F600EK/EO/EOH-E/EOH-V]
1B	SP-396032J	PANEL REAR JACK EOG-V [F600EOG]
1C	SP-396046J	PANEL REAR JACK EA(AMP) [A650EA]
1D	SP-396047J	PANEL REAR JACK EK(AMP) [A650EK/EO/EOH-E/EOH-V]
1E	SP-396051J	PANEL REAR JACK EOG-V(AMP) [A650EOG]
2	EE-387600J	TV TUNER TERS1-002A EA [EA]
2A	EE-387607J	TV TUNER TERB1-008A EK [EK]
2B	EE-390143J1	TV TUNER TERE3-001B EOH [EO/EOH-E]
2C	EE-389626J	TV TUNER TERE3-003A FTZ.EOH [EOH-V]
2D	EE-387604J1	TV TUNER TERE1-007B EOG [EOG]

7. SERVO/SYSCON P.C BOARD

Ref.No.	Part No.	Description
D600	ED-511907	D SILICON 1N4002 100/1.0A
D601	ED-307572	D SILICON H 1SS131
D603	ED-307572	D SILICON H 1SS131
D604	ED-307572	D SILICON H 1SS131
D605	ED-307572	D SILICON H 1SS131
D606	ED-307572	D SILICON H 1SS131
D607	ED-307572	D SILICON H 1SS131
D608	ED-307572	D SILICON H 1SS131
D609	ED-388368J	D ZENER H HZS9B3L F05
D610	ED-387763J	D ZENER H HZS7B3L F05
D611	ED-307572	D SILICON H 1SS131
D612	ED-307572	D SILICON H 1SS131
D613	ED-307572	D SILICON H 1SS131
D614	ED-624903	D SILICON H 1S2473
IC500	EI-393786J	IC BA7046
IC600	EI-373980	IC BA15218N
IC601	EI-360586	IC LA6358S
IC602	EI-397299J	IC BA6229-U2
IC603	EI-394981J	IC MN67520 HFX SYP1-XAT
IC604	EI-354640	IC BU4052B
L500	EO-354600	COIL FIX 1 LAP02 F05 101K
L600	EO-345876	COIL FIX 1 EL0606SKI 470J
L601	EO-354600	COIL FIX 1 LAP02 F05 101K
L602	EO-354600	COIL FIX 1 LAP02 F05 101K
R500	ER-397173J	R OMF V T05 FS 1W 1R0J
R601	ER-397173J	R OMF V T05 FS 1W 1R0J
R647	ER-394671J	R OMF V T05 FS 1W R47J
TR500	ET-388338J	TR 2SB1425 S,E
TR501	ET-397160J	TR 2SC3330 R,S,T,U,V
TR502	ET-353899	TR 2SA1317 S,T,U
TR600	ET-397160J	TR 2SC3330 R,S,T,U,V
TR601	ET-373985	TR DTA144TS
TR602	ET-354414	TR DTC144ES
TR603	ET-373985	TR DTA144TS
TR604	ET-354414	TR DTC144ES
TR605	ET-373985	TR DTA144TS
TR606	ET-354414	TR DTC144ES
TR607	ET-363953	TR DTA114TS
TR608	ET-397160J	TR 2SC3330 R,S,T,U,V
TR609	ET-353899	TR 2SA1317 S,T,U
TR610	ET-373985	TR DTA144TS
TR611	ET-353899	TR 2SA1317 S,T,U
VR500	EV-389481J	R S-FIX H T05EVNDXAA03 0.1W473
VR600	EV-400764J	R S-FIX V T05EVNDCAA03 0.1W303
VR601	EV-390425J1	R S-FIX H T05 RH0638C 0.1W 222
X600	EI-389640J	OSC X'TAL HC-49/U 8000KHZ

8. I/O P.C BOARD

Ref.No.	Part No.	Description
D701	ED-346542	D ZENER H HZ9B3L [EK/EOH/EO/EOG]
D702	ED-307572	D SILICON H 1SS131
IC701	EI-310036	IC TC4066BP
L701	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L702	EO-354600	COIL FIX 1 LAP02 F05 101K
PJ701	EJ-389864J	SOCKET M1817 21P [EK/EOH/EO/EOG]
PJ702	EJ-389324J	PIN J YKB11-0178 1P
PJ703	EJ-389325J	PIN J YKB11-0179 1P
PJ704	EJ-389325J	PIN J YKB11-0179 1P [EA]
PJ704A	EJ-389980J	PIN J YKB11-0176 WHITE 1P [EK/EOH/EO/EOG]
PJ705	EJ-389324J	PIN J YKB11-0178 1P [EA]
PJ705A	EJ-389979J	PIN J YKB11-0175 RED 1P [EK/EOH/EO/EOG]
PJ706	EJ-389323J	PIN J YKB11-0180 1P [EA]
PJ707	EJ-389323J	PIN J YKB11-0180 1P [EA]
TR700	ET-353899	TR 2SA1317 S,T,U
TR701	ET-397160J	TR 2SC3330 R,S,T,U,V
TR702	ET-397160J	TR 2SC3330 R,S,T,U,V
TR703	ET-356336	TR DTA114ES
TR704	ET-356336	TR DTA114ES
TR705	ET-354414	TR DTC144ES
TR706	ET-356336	TR DTA114ES
TR707	ET-354414	TR DTC144ES

9. VIF UNIT

Ref.No.	Part No.	Description
CF1	EH-373916	FILTER CE SAF36.9MZ70Z [EA]
CF1A	EH-373917	FILTER CE SAF39.5MZ70Z [EK]
CF1B	EH-730625J	FILTER CE SAF38.9MZW70Z [EO/EOH/EOG]
CF2	EH-368948	FILTER CE TPS5.5MW 5.5000MHZ [EA/EO/EOH/EOG]
CF2A	EH-373919	FILTER CE TPS6.0MB [EK]
CF3	EH-725829J	FILTER CE SFT6.0MA [EK]
CF3A	EH-712603	FILTER CE SFT5.5MA [EO]
CF4	EH-732529J	FILTER SAW SAF31.4MC70Z [EA]
CF4A	EH-725827J	FILTER CE SAF32.9MDE70Z [EK]
CF4B	EH-725828J	FILTER CE SAF33.0MDA70Z [EO]
CF4C	EH-732528J	FILTER SAW SAF33.4MC70Z [EOH/EOG]
IC1	EI-729997J	IC LA7575
IC2	EI-397123J	IC TA8703S [EK/EO]
L1	EO-725824J	COIL TRAP 6F16185A1 [EOH-V/EOG-V]
L2	EO-725825J	COIL TRAP 6F16186A1 [EOH-V/EOG-V]
L3	EO-381188J	COIL FIX 1 EL0405SKI 1R0K [EA]
L3A	EO-381187J	COIL FIX 1 EL0405SKI R68M [EK]
L3B	EO-391141J	COIL FIX 1 EL0405SKI R47M [EO/EOH-E]
L4	EO-392817J	COIL FIX 1 EL0405SKI 1R2K [EA/EOH/EOG]
L4A	EO-381188J	COIL FIX 1 EL0405SKI 1R0K [EK/EO]
L5	EO-725954J	COIL SIF DET 6F16263A3 [EK]
L5A	EO-725953J	COIL SIF DET 6F16263A2 [EO]
L6	EO-388160J	COIL FIX 1 EL0405SKI 1R8K [EA/EOH/EOG]
L7	EO-714616	COIL RF 6F16115B3 [EA]
L7A	EO-714614	COIL RF 6F16115B1 [EK/EO/EOH/EOG]
L8	EO-732526J	COIL OSC 6F16403A2 [EA]
L8A	EO-729998J	COIL OSC 6F16403A1 [EK/EO/EOH/EOG]
L9	EO-387781J	COIL FIX 1 EL0405SKI 120K
L10	EO-381196J	COIL FIX 1 EL0405SKI 470K
L11	EO-714610	COIL RF 6F16113B1 [EK/EO]
Q1	ET-725820J	TR CHIP 2SC2735J
Q2	ET-731437J	TR CHIP DTC114EK [EOH-V/EOG-V]
Q3	ET-731437J	TR CHIP DTC114EK [EOH-V/EOG-V]
Q5	ET-713614	TR CHIP 2SA1235 E,F [EK/EO]
Q6	ET-370819	TR CHIP 2SC3052
VR1	EV-729999J	R S-FIX V RVF6W01 303
VR2	EV-729999J	R S-FIX V RVF6W01 303 [EOH-V/EOG-V]
VR3	EV-367240	R S-FIX V RVF6W01 0.10W 103 [EK/EO]

10. I-HQ P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
IC1	EI-201940	IC NJM4558S
IC2	EI-394951J	IC LB1215
L1	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
TR1	ET-397160J	TR 2SC3330 R,S,T,U,V
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-354414	TR DTC144ES
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V
TR8	ET-397160J	TR 2SC3330 R,S,T,U,V
TR9	ET-397160J	TR 2SC3330 R,S,T,U,V
TR10	ET-353899	TR 2SA1317 S,T,U
TR11	ET-353899	TR 2SA1317 S,T,U
TR12	ET-354414	TR DTC144ES

11. PRE-AMP P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D101	ED-400984J	D ZENER H MTZ2.4A T26 [F600]
FL101	EO-388349J	COIL OSC 1 V1105-2 [F600]
IC1	EI-387586J	IC BA7244BS
IC2	EI-356457	IC BU4013B
IC101	EI-397285J	IC BA7740S
L1	EO-376612	COIL FIX 1 LF-5.0S F05 680K
L2	EO-376857	COIL FIX 1 LF-5.0S F05 5R6K
L3	EO-381195J	COIL FIX 1 EL0405SKI 331K
L4	EO-376859	COIL FIX 1 LF-5.0S F05 8R2K
L5	EO-376606	COIL FIX 1 LF-5.0S F05 180K
L6	EO-381193J	COIL FIX 1 EL0405SKI 271K
L7	EO-376860	COIL FIX 1 LF-5.0S F05 820K
L8	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L9	EO-376614	COIL FIX 1 LF-5.0S F05 220K
L10	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L11	EO-345881	COIL FIX 1 EL0606SKI 101J
L12	EO-376607	COIL FIX 1 LF-5.0S F05 181K
L13	EO-376612	COIL FIX 1 LF-5.0S F05 680K
L14	EO-376600	COIL FIX 1 LF-5.0S F05 101K
L101	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L102	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L103	EO-390716J	COIL FIX 1 LHL06TB T05 272J [F600]
P1	EJ-373834J	SOCKET 8370-107-800 10P
PS1	EJ-373831J	SOCKET HOUSING 5062-30-10-21
TR1	ET-354414	TR DTC144ES
TR2	ET-353899	TR 2SA1317 S,T,U
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V
TR8	ET-353897	TR DTC114ES
TR9	ET-364040	TR UN421D
TR11	ET-364040	TR UN421D
TR13	ET-354414	TR DTC144ES
TR14	ET-397160J	TR 2SC3330 R,S,T,U,V
TR16	ET-353899	TR 2SA1317 S,T,U
TR17	ET-353899	TR 2SA1317 S,T,U
TR18	ET-360399	TR DTC114TS
TR19	ET-364040	TR UN421D
TR20	ET-364040	TR UN421D
TR101	ET-370310	TR DTC144TS
TR102	ET-397160J	TR 2SC3330 R,S,T,U,V [F600]
VR1	EV-390157J	R S-FIX V KVSF639A 0.10W 102
VR2	EV-390157J	R S-FIX V KVSF639A 0.10W 102
WP1	EW-396429J	CORD FFC P1.25 L=190 21P

12. OPERATION (1) P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131 [F600]
D2	ED-307572	D SILICON H 1SS131 [F600]
D3	ED-307572	D SILICON H 1SS131 [EOH/EO/EOG]
D4	ED-307572	D SILICON H 1SS131 [EOG]
D5	ED-307572	D SILICON H 1SS131 [EA]
D6	ED-307572	D SILICON H 1SS131 [EK]
D7	ED-307572	D SILICON H 1SS131 [EOH/EO]
D8	ED-307572	D SILICON H 1SS131 [EK/EO]
D10	ED-397340J	D LED GL-5HY41 YELLOW
D11	ED-365622	D LED GL-5PR41 RED
D12	ED-387765J	D ZENER H HZS9C1L F05
D13	ED-307572	D SILICON H 1SS131
FL1	EM-396431J	IND FL BG-811GK DOUBLE [EA/EK/EOH/EO]
FL1A	EM-396442J	IND FL BG-812GK DOUBLE [EOG]
IB1	EH-367912	COMP R RKM6L502F
IB2	EH-393781J	COMP R RGLE13X 103J
IB3	EH-378540J	COMP R RGLE5X 103J
IB4	EH-385846J	COMP R RGLE8X 473J
IB5	EH-386639J	COMP R RGLE4X 223J
IB6	EH-378541J	COMP R RGLE3X 473J
IB7	EH-383054J	COMP R RGLD4X473J
IC1	EI-330391	IC TC4050BP
IC2	EI-373981J1	IC BA10393N
IC3	EI-396449J	IC UPD75217CW HFXOPP1-017
IC4	EI-373955	IC S-8053ALR
IC5	EI-394681J	IC X2402P
L1	EO-354600	COIL FIX 1 LAP02 F05 101K [F600]
L2	EO-351864	COIL FIX 1 LAL02 F05 220J
L3	EO-360554	COIL FIX 1 LAP02 F05 221K
PH1	ET-381637J2	DETECTOR GP1U521X
PJ1	EJ-396453J	PIN J JPJ5022-01-030 1P [F600][FRONT AUDIO IN L]
PJ2	EJ-396452J	PIN J JPJ5022-01-020 1P [F600][FRONT AUDIO IN R]
PJ3	EJ-387623J	PIN J JPJ5022-01-040 1P [F600][FRONT VIDEO IN]
TR1	ET-397160J	TR 2SC3330 R,S,T,U,V [F600]
TR4	ET-354414	TR DTC144ES
TR5	ET-364060	TR DTC143ES
TR6	ET-364060	TR DTC143ES
TR7	ET-364060	TR DTC143ES
X1	EI-373957J1	OSC CE CST4.19MGW 4.194MHZ
X2	EI-368825	OSC X'TAL MX-38T 32.768KHZ

13. OPERATION (2) P.C BOARD

Ref.No.	Part No.	Description
D1	ED-307572	D SILICON H 1SS131
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-307572	D SILICON H 1SS131
D6	ED-307572	D SILICON H 1SS131
D7	ED-307572	D SILICON H 1SS131 [EOH/EO/EOG]
D8	ED-307572	D SILICON H 1SS131
D9	ED-307572	D SILICON H 1SS131 [EK/EO]
D10	ED-307572	D SILICON H 1SS131
D11	ED-307572	D SILICON H 1SS131
D12	ED-307572	D SILICON H 1SS131
D13	ED-307572	D SILICON H 1SS131
D14	ED-307572	D SILICON H 1SS131
SW1	ES-349367	SW TACT SKHHAK003A [SYSTEM RESET]
SW2	ES-349367	SW TACT SKHHAK003A [POWER]
SW3	ES-349367	SW TACT SKHHAK003A [TIMER]
SW4	ES-349367	SW TACT SKHHAK003A [EJECT]
SW5	ES-397339J	SW SLIDE ESD-170252 [TAPE SELECTOR]
SW6	ES-349367	SW TACT SKHHAK003A [TV/VCR]
SW7	ES-349367	SW TACT SKHHAK003A [MULTI SPEED]
SW8	ES-349367	SW TACT SKHHAK003A [REW]
SW9	ES-397339J	SW SLIDE ESD-170252 [EOH/EO/EOG][PAL/MESECAM]
SW10	ES-349367	SW TACT SKHHAK003A [REV SLOW]
SW11	ES-349367	SW TACT SKHHAK003A [STOP]
SW12	ES-397339J	SW SLIDE ESD-170252 [EOH/EO/EOG][VPS AUTO REC]
SW13	ES-349367	SW TACT SKHHAK003A [STILL]
SW14	ES-349367	SW TACT SKHHAK003A [MULTI SPEED]
SW15	ES-349367	SW TACT SKHHAK003A [PLAY]
SW16	ES-397339J	SW SLIDE ESD-170252 [EK/EO][AUTO REC EPTION]
SW17	ES-349367	SW TACT SKHHAK003A [SLOW]
SW18	ES-349367	SW TACT SKHHAK003A [F600][AUDIO DUB]
SW19	ES-349367	SW TACT SKHHAK003A [F.FWD]
SW20	ES-397339J	SW SLIDE ESD-170252 [EDIT]
SW21	ES-349367	SW TACT SKHHAK003A [SPEED]
SW22	ES-349367	SW TACT SKHHAK003A [I-HQ]
SW23	ES-349367	SW TACT SKHHAK003A [REC]
SW24	ES-397339J	SW SLIDE ESD-170252 [AUDIO SELECT]
SW25	ES-349367	SW TACT SKHHAK003A [CHANNEL DOWN]
SW26	ES-349367	SW TACT SKHHAK003A [QUICK TIMER M]
SW27	ES-349367	SW TACT SKHHAK003A [PAUSE]
SW28	ES-349367	SW TACT SKHHAK003A [CHANNEL UP]
SW29	ES-349367	SW TACT SKHHAK003A [QUICK TIMER UP]
SW30	ES-349367	SW TACT SKHHAK003A [QUICK TIMER STOP]
TR1	ET-372030	TR DTA144EF

14. REC VOLUME P.C BOARD

Ref.No.	Part No.	Description
VR1	EV-396445J	VR SLIDE RS30B223J K203X2 [REC LEVEL]

15. POWER SUPPLY (1) P.C BOARD (F600)

Ref.No.	Part No.	Description
C1	EC-363490	C EC V CUT SME 222M 16.0DC
C4	EC-363491	C EC V CUT SME 222M 25.0DC
C7	EC-363491	C EC V CUT SME 222M 25.0DC
C13	EC-367048	C EC V CUT SME 101M 63.0DC
C15	EC-367048	C EC V CUT SME 101M 63.0DC
D1	ED-511907	D SILICON 1N4002 100/1.0A
D3	ED-511907	D SILICON 1N4002 100/1.0A
D4	ED-324526	D ZENER H HZ12 C1
D6	ED-322046	D ZENER H HZ18 1
D7	ED-400982J	D ZENER H MTZJ7.5B T26
D8	ED-511907	D SILICON 1N4002 100/1.0A
D9	ED-511907	D SILICON 1N4002 100/1.0A
D10	ED-329449	D ZENER H HZ18 3
D11	ED-307236	D ZENER H HZ22 1
D12	ED-346630	D ZENER H HZ36 2
D13	ED-201581	D ZENER H HZ7 B1
D14	ED-511907	D SILICON 1N4002 100/1.0A
D15	ED-511907	D SILICON 1N4002 100/1.0A
D16	ED-511907	D SILICON 1N4002 100/1.0A
D17	ED-511907	D SILICON 1N4002 100/1.0A
D18	ED-511907	D SILICON 1N4002 100/1.0A
D19	ED-319167	D ZENER H HZ6 C3
D20	ED-511907	D SILICON 1N4002 100/1.0A
FL1	EO-395035J	COIL LF PLH11C-1811R2
FL2	*EO-400980J	COIL LF FKOB160MH23 800.0UH [EOG-V]
FR1	*ER-397385J	R FUSE V T05 RF25SCVTP1/4WR20K
FR2	*ER-400728J	R FUSE V T05 RF25SCVTP1/4WR12K
FR3	*ER-400688J	R FUSE V T05 RF25SCVTP1/4WR10K
FR4	*ER-397386J	R FUSE V T05 ERD2FC 1/4W 8R2J
FR5	*ER-328278	R FUSE H ERD2FC 1/4W 10R0G
FR6	*ER-400688J	R FUSE V T05 RF25SCVTP1/4WR10K
TR1	ET-380685J	TR 2SD1761 E,F,G
TR2	ET-380685J	TR 2SD1761 E,F,G
TR3	ET-380685J	TR 2SD1761 E,F,G
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-380685J	TR 2SD1761 E,F,G
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-380685J	TR 2SD1761 E,F,G
TR8	ET-366168	TR 2SD1292 Q,R
TR9	ET-388338J	TR 2SB1425 S,E
TR10	ET-397160J	TR 2SC3330 R,S,T,U,V
TR11	ET-397160J	TR 2SC3330 R,S,T,U,V

16. DIODE P.C BOARD (F600)

Ref.No.	Part No.	Description
D5	ED-389296J	D SILICON BR31-B-D-80 100/3.0A [EA/EK/EOH-E/EOH-V/EO]
D5A	ED-357037	D SILICON DBA30B 100/ 3.0A [EOG-V]

17. POWER SUPPLY (2) P.C BOARD (A650)

Ref.No.	Part No.	Description
C1	EC-364958	C EC V CUT SME 222M 35.0DC
C5	EC-364958	C EC V CUT SME 222M 35.0DC
C9	EC-363491	C EC V CUT SME 222M 25.0DC
C13	EC-364958	C EC V CUT SME 222M 35.0DC
D1	ED-397289J	D ZENER H HZS20-2
D2	ED-307572	D SILICON H 1SS131
D3	ED-397289J	D ZENER H HZS20-2
D4	ED-307572	D SILICON H 1SS131
D5	ED-396065J	D ZENER H HZS12C-1
D6	ED-378530J	D ZENER H HZS6B2L F05
D7	ED-387946J	D SCH0TTKY RB100AT-62 T05
D8	ED-396067J	D ZENER H HZS18-1
D9	ED-378530J	D ZENER H HZS6B2L F05
D10	ED-387946J	D SCH0TTKY RB100AT-62 T05
D11	ED-307572	D SILICON H 1SS131
D12	ED-396061J	D ZENER H HZS5B3
D13	ED-396062J	D ZENER H HZS36-2
D14	ED-307572	D SILICON H 1SS131
D15	ED-307572	D SILICON H 1SS131
D16	ED-396063J	D ZENER H HZS7B-1
D18	ED-511907	D SILICON 1N4002 100/1.0A
D20	ED-307572	D SILICON H 1SS131
D21	ED-307572	D SILICON H 1SS131
D22	ED-511907	D SILICON 1N4002 100/1.0A
D23	ED-511907	D SILICON 1N4002 100/1.0A
D24	ED-511907	D SILICON 1N4002 100/1.0A
D25	ED-307572	D SILICON H 1SS131
D26	ED-307572	D SILICON H 1SS131
FL2	EO-400980J	COIL LF FKOB160MH23 800.0UH [EOG]
FR1	*ER-400688J	R FUSE V T05 RF25SCVTP1/4WR10K
FR3	*ER-400689J	R FUSE V T05 RF25SCVTP1/4WR68K
FR4	*ER-400729J	R FUSE V T05 RF25SCVTP1/4WR47K
FR6	*ER-400688J	R FUSE V T05 RF25SCVTP1/4WR10K
FR7	*ER-328278	R FUSE H ERD2FC 1/4W 10R0G
F2	*EF-601301	FUSE SEMKO T 250V 2.00A [EA/EOH/EO/EOG]
F2A	*EF-355398	FUSE BET T 250V 2.00A [EK]
F3	*EF-601301	FUSE SEMKO T 250V 2.00A [EA/EOH/EO/EOG]
F3A	*EF-355398	FUSE BET T 250V 2.00A [EK]
F4	*EF-601301	FUSE SEMKO T 250V 2.00A (EA/EOH/EO/EOG)
F4A	*EF-355398	FUSE BET T 250V 2.00A [EK]
IC1	EI-381575J	IC BA6121
L1	EO-400963J	COIL FIX 2 PF-15 101K
L4	EO-400963J	COIL FIX 2 PF-15 101K
L6	EO-397531J	COIL FIX 2 PF10 152M
TR1	ET-380685J	TR 2SD1761 E,F,G
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-353899	TR 2SA1317 S,T,U
TR5	ET-353899	TR 2SA1317 S,T,U
TR6	ET-380685J	TR 2SD1761 E,F,G
TR7	ET-380685J	TR 2SD1761 E,F,G
TR8	ET-397160J	TR 2SC3330 R,S,T,U,V
TR9	ET-380685J	TR 2SD1761 E,F,G
TR10	ET-395084J	TR 2SB1331 R T05
TR11	ET-373985	TR DTA144TS
TR12	ET-400964J	TR 2SD2034 E,F T05
TR13	ET-397160J	TR 2SC3330 R,S,T,U,V
TR14	ET-400965J	TR 2SB1357 E,F T05
TR15	ET-373985	TR DTA144TS
TR16	ET-380685J	TR 2SD1761 E,F,G
TR17	ET-366168	TR 2SD1292 Q,R
TR18	ET-353899	TR 2SA1317 S,T,U
TR19	ET-353899	TR 2SA1317 S,T,U
TR20	ET-397160J	TR 2SC3330 R,S,T,U,V
TR21	ET-354414	TR DTC144ES
TR22	ET-353899	TR 2SA1317 S,T,U

18. DIODE (1) P.C BOARD (A650)

Ref.No.	Part No.	Description
D19	ED-379298	D SILICON DBA20B 100/2.0A

19. DIODE (2) P.C BOARD (A650)

Ref.No.	Part No.	Description
D17	ED-357037	D SILICON DBA30B 100/ 3.0A

20. NICAM P.C BOARD (EK/EO ONLY)

Ref.No.	Part No.	Description
D1	ED-394936J	D VARACTOR 1SV111
D2	ED-307572	D SILICON H 1SS131
D3	ED-307572	D SILICON H 1SS131
D4	ED-364032	D ZENER H HZS10B2J F05
FR58	*ER-397353J	R FUSE V T05 ERD2FC 1/4W 47R0G
IC1	EI-382827J	IC TA8662N
IC2	EI-394937J	IC CF70124
IC3	EI-394938J	IC SAA7320GP
IC4	EI-393325J	IC M5218AP
L1	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L2	EO-381198J	COIL FIX 1 EL0405SKI 821K
L3	EO-381198J	COIL FIX 1 EL0405SKI 821K
L4	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L5	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L6	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L7	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
L8	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
T1	EH-382829J	FILTER LC BP TH316BQM-2110QDAF [EK]
T1A	EH-397511J	FILTER LC BP H316BQKS-2982QDD [EO]
TR1	ET-397160J	TR 2SC3330 R,S,T,U,V
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR3	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-397160J	TR 2SC3330 R,S,T,U,V
TR5	ET-370310	TR DTC144TS
TR6	ET-397160J	TR 2SC3330 R,S,T,U,V
TR7	ET-397160J	TR 2SC3330 R,S,T,U,V
TR8	ET-370310	TR DTC144TS
TR9	ET-373985	TR DTA144TS
VC1	EC-397179J	C S-FIX H T05 VCT51E 4.5-20
VC2	EC-397180J	C S-FIX H T05 VCT51C 3.0-10
X1	EI-382831J	OSC X'TAL NR-18 6.552MHZ [EK]
X1A	EI-382832J	OSC X'TAL NR-18 5.850MHZ [EO]
X2	EI-382833J	OSC X'TAL NR-18 5.824MHZ
X3	EI-394939J	OSC X'TAL NR-18 16.384MHZ

21. W.G MULTI P.C BOARD (EA/EOH/EOG)

Ref.No.	Part No.	Description
D1	ED-364032	D ZENER H HZS10B2J F05
FL1	EH-394947J	FILTER CE SFT5.74MA
FL2	EH-394948J	FILTER CE SFT5.5MA
FR22	ER-397354J	R FUSE V T05 ERD2FC 1/4W 39R0G
IC1	EI-394949J	IC IR3P72
L1	EO-376179	COIL FIX 1 ALF-7.5F F05 101K
T1	EO-396464J	COIL DET 1 134-5177
T2	EO-394950J	COIL DET 1 134-5176
VR1	EV-396023J	R S-FIX H T05EVNDXAA03 0.1W222
VR2	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR3	EV-355372	R S-FIX H RH0615C 0.10W 105
VR4	EV-396024J	R S-FIX H T05EVNDXAA03 0.1W474
VR5	EV-389477J	R S-FIX H T05EVNDXAA03 0.1W104
VR6	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223
VR7	EV-389479J	R S-FIX H T05EVNDXAA03 0.1W223

22. VPT (2) P.C BOARD (EOG-V ONLY)

Ref.No.	Part No.	Description
D101	ED-307572	D SILICON H 1SS131
D401	ED-307572	D SILICON H 1SS131
D501	ED-307572	D SILICON H 1SS131
FL101	EH-394684J	FILTER EMI ZBF503D-00TA T05
IB101	EH-360306	COMP R RKC1/8B7 103J
IC101	EI-385958J	IC SAA4700
IC201	EI-396499J	IC UPD75217CW HFXVPT2-014
IC202	EI-387019J	IC MC1377
IC203	EI-394677J	IC SAA5190
IC204	EI-394678J	IC SAA9041P/A
IC205	EI-394686J	IC LH2464-12
IC206	EI-394680J	IC AN3171K
IC207	EI-394679J	IC LVA523S-2
IC208	EI-394681J	IC X2402P
IC209	EI-394681J	IC X2402P
L101	EO-345865	COIL FIX 1 EL0606SKI 100J
L102	EO-345865	COIL FIX 1 EL0606SKI 100J
L104	EO-345865	COIL FIX 1 EL0606SKI 100J
L201	EO-345865	COIL FIX 1 EL0606SKI 100J
L210	EO-345865	COIL FIX 1 EL0606SKI 100J
L301	EO-345865	COIL FIX 1 EL0606SKI 100J
L302	EO-345876	COIL FIX 1 EL0606SKI 470J
L303	EO-345999	COIL FIX 1 EL0606RA T05 181J
L304	EO-345999	COIL FIX 1 EL0606RA T05 181J
L305	EO-345994	COIL FIX 1 EL0606RA T05 820J
L401	EO-345975	COIL FIX 1 EL0606RA T05 4R7K
L402	EO-345869	COIL FIX 1 EL0606SKI 150J
L501	EO-345865	COIL FIX 1 EL0606SKI 100J
L502	EO-345874	COIL FIX 1 EL0606SKI 330J
L503	EO-345874	COIL FIX 1 EL0606SKI 330J
L504	EO-345871	COIL FIX 1 EL0606SKI 180J
L505	EO-345873	COIL FIX 1 EL0606SKI 270J
L506	EO-345989	COIL FIX 1 EL0606RA T05 390J
TR101	ET-397160J	TR 2SC3330 R,S,T,U,V
TR102	ET-364060	TR DTC143ES
TR301	ET-397160J	TR 2SC3330 R,S,T,U,V
TR302	ET-353899	TR 2SA1317 S,T,U
TR303	ET-353899	TR 2SA1317 S,T,U
TR304	ET-397160J	TR 2SC3330 R,S,T,U,V
TR305	ET-397160J	TR 2SC3330 R,S,T,U,V
TR401	ET-397160J	TR 2SC3330 R,S,T,U,V
TR402	ET-354415	TR DTA144ES
TR403	ET-353899	TR 2SA1317 S,T,U
TR501	ET-353899	TR 2SA1317 S,T,U
TR502	ET-353899	TR 2SA1317 S,T,U
TR503	ET-397160J	TR 2SC3330 R,S,T,U,V
TR504	ET-397160J	TR 2SC3330 R,S,T,U,V
TR505	ET-397160J	TR 2SC3330 R,S,T,U,V
X201	EI-373957J1	OSC CE CST4.19MGW 4.194MHZ
X203	EI-394675J	OSC X'TAL HC-49/U 13875KHZ
X204	EI-394674J	OSC X'TAL HC-49/U 13500KHZ
X301	EI-394673J	OSC X'TAL HC-49/U 8867.238KHZ

23. SUROUND P.C BOARD (A650 ONLY)

Ref.No.	Part No.	Description
D4	ED-394923J	D ZENER H HZS9B2
D5	ED-394924J	D ZENER H HZS5C1
IB1	EH-397099J	COMP R RGLE7X 473J
IB2	EH-383099J	COMP R RGLE4X 472J
IC1	EI-367572	IC BA15218
IC2	EI-367572	IC BA15218
IC3	EI-367572	IC BA15218
IC4	EI-394999J	IC M50198P
IC5	EI-349591	IC LA2730
IC6	EI-351966	IC TC9176P
IC7	EI-351966	IC TC9176P
IC8	EI-367572	IC BA15218
IC9	EI-367572	IC BA15218
IC10	EI-310036	IC TC4066BP
IC11	EI-310036	IC TC4066BP
IC12	EI-395000J	IC M50927HFXAUDI-230
TR1	ET-397160J	TR 2SC3330 R,S,T,U,V
TR2	ET-397160J	TR 2SC3330 R,S,T,U,V
TR4	ET-354415	TR DTA144ES
TR5	ET-354415	TR DTA144ES
TR6	ET-356336	TR DTA114ES
TR7	ET-356336	TR DTA114ES
TR8	ET-356336	TR DTA114ES
TR9	ET-370038	TR 2SC2910 S,T
X1	EI-395002J	OSC CE CST3.27MGW 3.270MHZ
X2	EI-395001J	OSC CE CST2.00MG 2.000MHZ

24. MAIN AMP P.C BOARD (A650 ONLY)

Ref.No.	Part No.	Description
D101	ED-397319J	D ZENER H HZS15-2
D102	ED-394923J	D ZENER H HZS9B2
FR101	ER-397524J	R FUSE V T05 ERD2FC 1/4W 6R8J
FR102	ER-397524J	R FUSE V T05 ERD2FC 1/4W 6R8J
IC101	EI-381838J1	IC LM1875T
TR101	ET-366581	TR 2SD1762 E,F
TR102	ET-366365	TR 2SB1185 E,F

25. VOLUME P.C BOARD (A650 ONLY)

Ref.No.	Part No.	Description
D201	ED-307572	D SILICON H 1SS131
D202	ED-307572	D SILICON H 1SS131
D203	ED-307572	D SILICON H 1SS131
D204	ED-394723J	D LED GL3HY44 YELLOW
D205	ED-394723J	D LED GL3HY44 YELLOW
D206	ED-389638J	D LED GL3HY47 YELLOW
TS201	ES-349474	SW TACT SKHHAM004A [VOLUME UP]
TS202	ES-349474	SW TACT SKHHAM004A [VOLUME DOWN]
TS203	ES-349474	SW TACT SKHHAM004A [DOLBY]
VR201	EV-394998J	VR ROTARY XVR09N8.5F B104 [INPUT BALANCE]

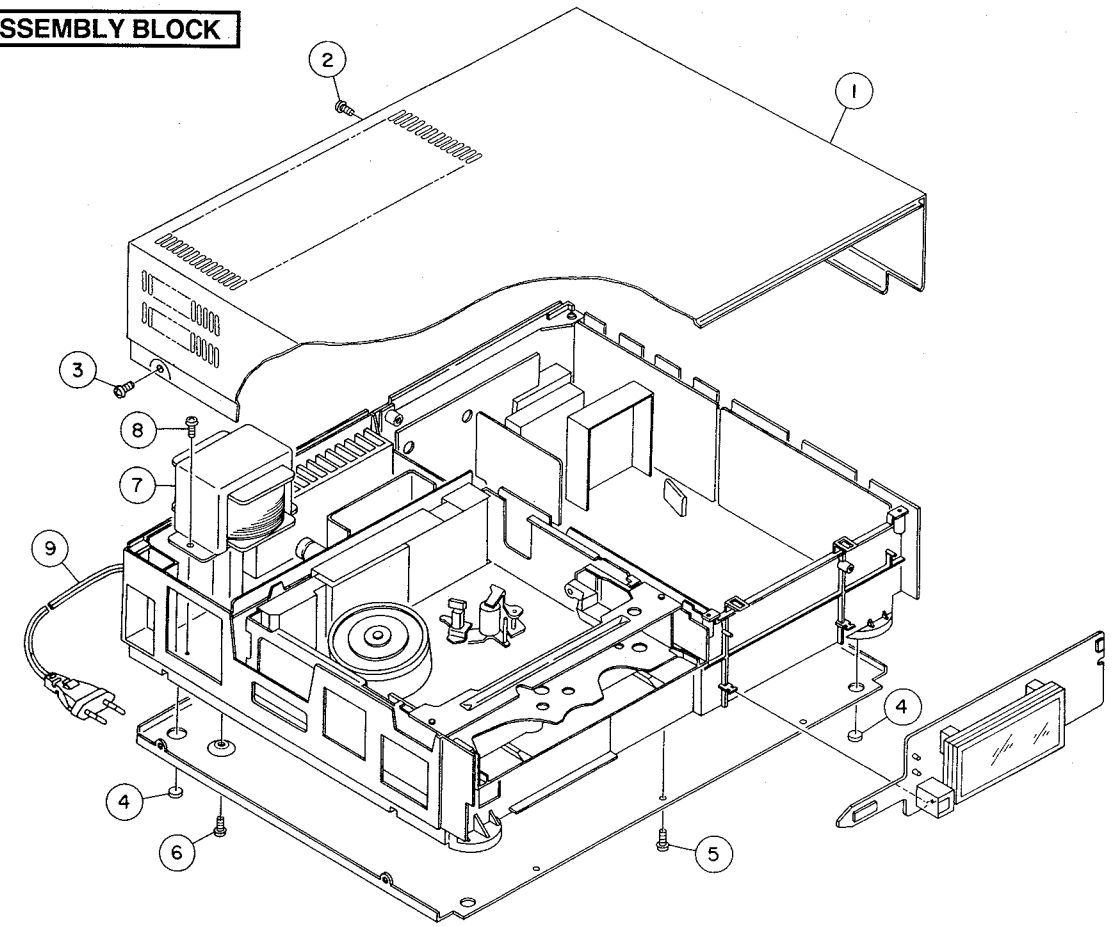
26. FINAL ASSEMBLY BLOCK

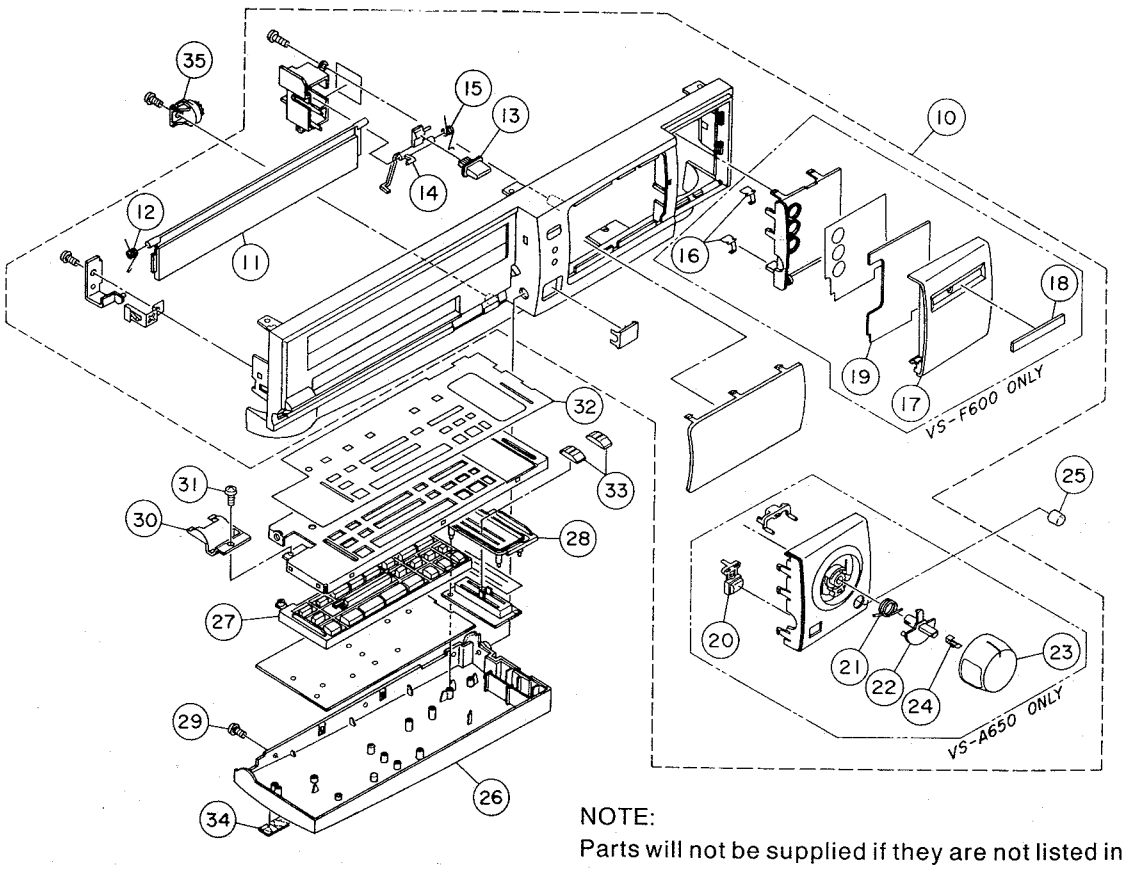
Ref.No.	Part No.	Description
1	SP-395481J	COVER UPPER
2	ZS-365702	PLX BID30X10STL BNI
3	ZS-361507	DT BID30X06STL BNI
4	SA-395476J	FOOT FRONT
5	ZS-362378	PLX BID30X10STL CMT
6	ZS-364543	DT BID30X06STL CMT
7	*BT-394952J	TRANS V1123 EA [F600EA/EK]
7A	*BT-394945J	TRANS V1123 EOH [F600EOH/EO/EOG]
7C	*BT-394941J	TRANS POW V1125 EA [A650EA/EK]
7D	*BT-394943J	TRANS POW V1125 EO [A650EOH/EO/EOG9
8	ZS-373962	PLX BID40X10STL CMT
9	*EW-385901M	AC CORD 200 SA-2 LDF B130 A S [EA]
9A	*EW-389300J	AC CORD200 NRASBS LC2 B140 A B [EK]
9B	*EW-385900M	AC CORD 200 SE-1H03VV B130 A E [EOH-E/EOH-V/EO]
9C	*EW-395097J	AC CORD200KP419JLTCE2F B140A V [EOG-V]
10	BD-V1123A310A	PANEL FRONT BLK F600EA-B [F600EA/EOH]
10A	BD-V1123A310B	PANEL FRONT BLK F600EK-B [F600EK/EO]
10B	BD-V1123A310C	PANEL FRONT BLK F600EOG-B [F600EOG-V]
10C	BD-V1125A310A	PANEL FRONT BLK A650EA-B [A650EA/EK/EO/EOH]
10D	BD-V1125A310B	PANEL FRONT BLK A650EOG-VB [A650EOG-V]
11	SE-395383J	MASK CASSETTE(C)E1-C [EA/EK/EO/EOH]
11A	SE-395384J	MASK CASSETTE(C)G1-C [EOG]
12	ZG-395386J	SP MASK(2)
13	SK-395388J	BUTTON OPEN
14	ML-395389J	LEVER LOCK
15	ZG-395390J	SP TORSION LEVER LOCK
16	ZG-386833J1	SP PLATE DOOR(D)
17	SP-395397J	DOOR(2)P1 [F600]
18	SE-395398J	PLATE DOOR(2)E1 [F600][EA/EOH/EOG]
18A	SE-395399J	PLATE DOOR(2)E2 [F600][EK/EO]
19	SE-395606J	PLATE DOOR(3)P1 [F600]
20	SK-395446J	BUTTON SR(E) [A650]
21	ZG-395448J	SP VOL [A650]
22	MZ-381351J	SHAFT VR [A650]
23	SK-395449J	KNOB VOL(2) [A650]
24	SE-386801J	PLATE KNOB [A650]
25	SK-396042J	KNOB BA [A650]
26	SP-395404J	DOOR(1)F600EA [F600EA/EK/EO/EOH]
26A	SP-395409J	DOOR(1)F600EOG-V [F600EOG]
26B	SP-395450J	DOOR(1)A650EA [A650EA/EO/EOH]
26C	SP-395451J	DOOR(1)A650EK [A650EK]
26D	SP-395455J	DOOR(1)A650EOG-V [A650EOG]
27	SK-395412J	BUTTON OP E1 [F600]
27A	SK-395456J	BUTTON OP E2 [A650]
28	SE-395631J	HOLDER VOL
29	ZS-355101	CTS26X06STL BNI
30	SZ-395414J	CUP DOOR
31	ZS-383068J	PT CTS26X10STL BNI
32	SE-395415J	PLATE DOOR(1)F600EA [F600EA]
32A	SE-395416J	PLATE DOOR(1)F600EK [F600EK]
32B	SE-395417J	PLATE DOOR(1)F600EOH [F600EOH]
32C	SE-395419J	PLATE DOOR(1)F600EO [F600EO]
32D	SE-395420J	PLATE DOOR(1)F600EOG-V [F600EOG]
32E	SE-395461J	PLATE DOOR(1)A650EA [A650EA]
32F	SE-395462J	PLATE DOOR(1)A650EK [A650EK]
32G	SE-395463J	PLATE DOOR(1)A650EOH [A650EOH]
32H	SE-395465J	PLATE DOOR(1)A650EO [A650EO]
32I	SE-395466J	PLATE DOOR(1)A650EOG-V [A650EOG]
33	SK-395423J	KNOB VOL(1)
34	MZ-395424J	NAME PLATE AKAI(M)-6S
35	MZ-389926J	DAMPER 3F96-L

27. ACCESSARY

Ref.No.	Part No.	Description
1	EW-348414	CORD PAL
2A	AV-B1014B016B	REMOCON BLK RC-V605A-EB [F600EA]
2B	AV-B1015B010A	REMOCON BLK RC-V602A-EB [F600EK]
2C	AV-B1014B015E	REMOCON BLK RC-V600A-EB [F600EOH/EO]
2D	AV-B1015B010B	REMOCON BLK RC-V604A-GB [F600EOG]
2E	AV-B1014B016C	REMOCON BLK RC-V655A-EB [A650EA]
2F	AV-B1015B010C	REMOCON BLK RC-V652A-EB [A650EK]
2G	AV-B1014B015G	REMOCON BLK RC-V650A-EB [A650EOH/EO]
2H	AV-B1015B010D	REMOCON BLK RC-V654A-GB [A650EOG]

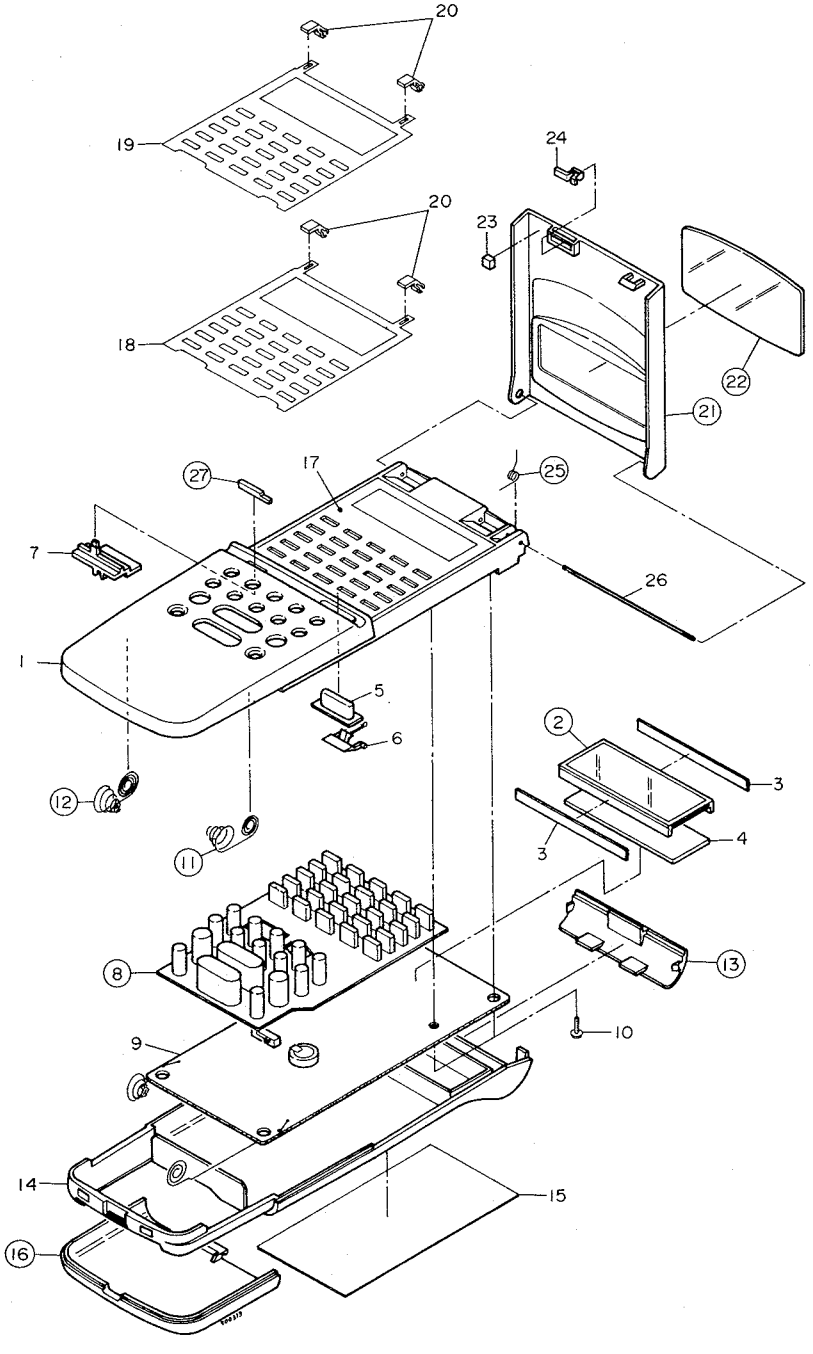
FINAL ASSEMBLY BLOCK





NOTE:
Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

REMOCON RC-V600A-EB/V605A-EB/V650A-EB/V655A



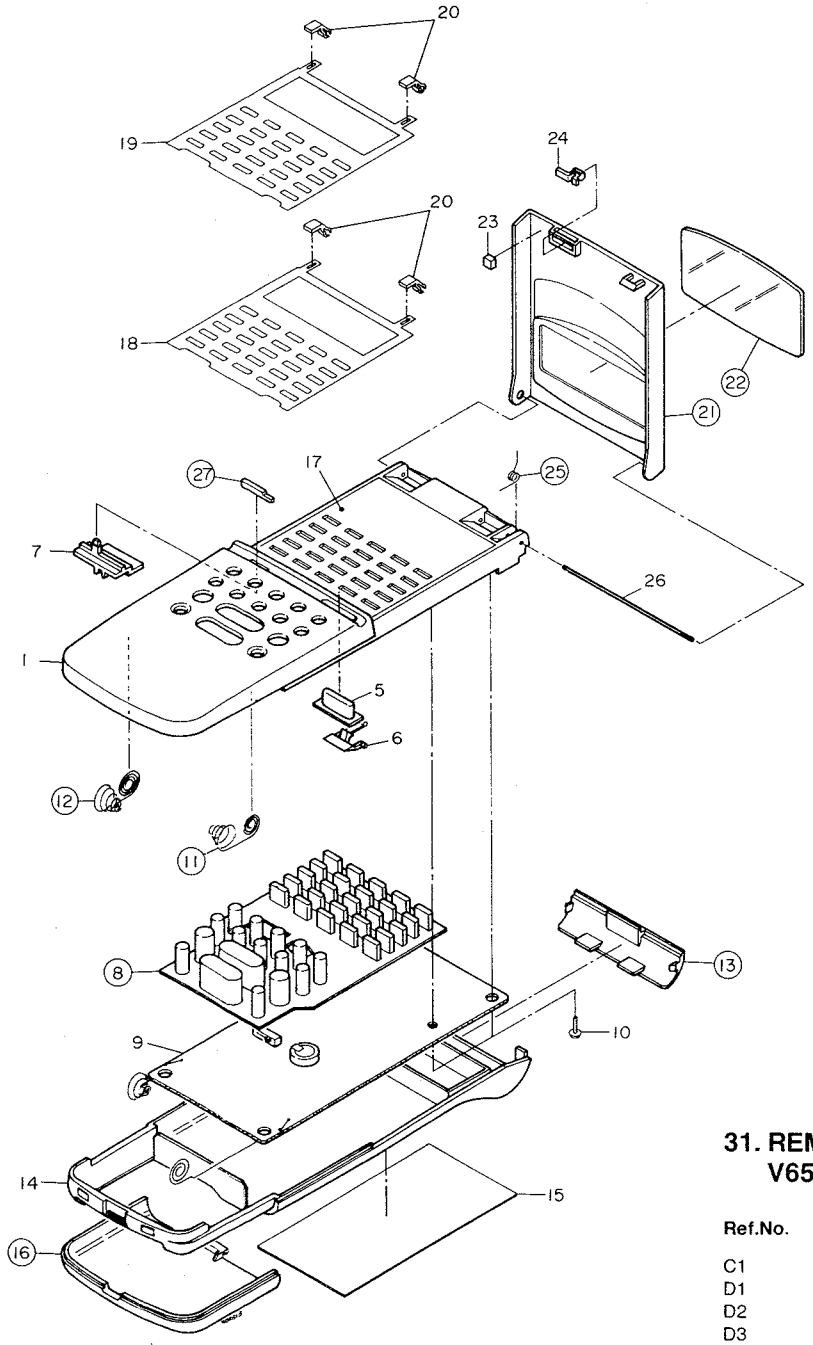
28. REMOCON RC-V600A/V605A/V650A/V655A

Ref.No.	Part No.	Description
2	EM-390786J	IND LCD LF5293G ENGLISH
8	MB-394388J	KEY RUBBER
11	ZG-394389J	TERMINAL BATTERY(Q3)
12	ZG-394381J	TERMINAL BATTERY(P3)
13	SE-394390J	FILTER
16	SC-394394J	COVER BATTERY
21	SP-395158J2	DOOR PANEL(1)-E2
22	SP-394398J2	WINDOW LCD
25	ZG-394400J	SP DOOR
27	SK-395114J1	KNOB SLIDE(1)

29. REMOCON P.C BOARD (RC-V600/605/650/655)

Ref.No.	Part No.	Description
C101	EC-400800J	C DOUBLE LAYER FYL0H473Z 5.5DC
D1	ED-376111	D LED SE303AC INFRARED
D101	ED-376111	D LED SE303AC INFRARED
D102	ED-386031J	D SILICON CHIP MA110-TW
IC1	EI-395096J	IC UPD75306GF HFXREM5-120 [RC-V600/650]
IC1A	EI-400760J	IC UPD75306GF HFXEAR1-129 [RC-V605/V655]
IC2	EI-394613J	IC S-8052ALO-LG-T1
SW1	ES-394485J	SW SLIDE SSSS21 1-01-03N
TR1	ET-393335J	TR CHIP 2SC3938-TW R,S
X1	EI-368825	OSC X'TAL MX-38T 32.768KHZ
X2	EI-394614J	OSC CE CSA2.20MG 2.200MHZ
1	ZG-394404J	TERMINAL BATTERY(Q1)
2	ZG-394405J	TERMINAL BATTERY(Q2)

REMOCON RC-V602A-EB/V604A-GB/V652A-EB/V654A-GB



30. REMOCON RC-V602A/V604A/V652A/V654A

Ref.No.	Part No.	Description
8	MB-394388J	KEY RUBBER
11	ZG-394389J	TERMINAL BATTERY(Q3)
12	ZG-394381J	TERMINAL BATTERY(P3)
13	SE-394390J	FILTER
16	SC-394394J	COVER BATTERY
21	SP-395366J	DOOR PANEL(2)-E3 [RC-V602/V652]
21A	SP-395367J	DOOR PANEL(2)-G4 [RC-V604/V654]
25	ZG-394400J	SP DOOR
27	SK-395114J	KNOB SLIDE(1)

31. REMOCON P.C BOARD (RC-V602/V604/V652/V654)

Ref.No.	Part No.	Description
C1	EC-368823	C DBL LAYER EECS5R5H 473Z5.5DC
D1	ED-376111	D LED SE303AC INFRARED
D2	ED-376111	D LED SE303AC INFRARED
D3	ED-360409	D PHOTO PN323B
D4	ED-397391J	D LED BR3668S RED
D5	ED-397391J	D LED BR3668S RED
D6	ED-386031J	D SILICON CHIP MA110-TW
D7	ED-386031J	D SILICON CHIP MA110-TW
D8	ED-386031J	D SILICON CHIP MA110-TW
D9	ED-386031J	D SILICON CHIP MA110-TW
D10	ED-386031J	D SILICON CHIP MA110-TW
IC1	EI-400762J	IC UPD17203GC HFXUNR2-553
IC2	EI-400672J	IC S-8052ALB-LE
IC3	EI-394613J	IC S-8052ALO-LG-T1
SW1	ES-394485J	SW SLIDE SSSS21 1-01-03N [RC-V602/V652]
SW1A	ES-400670J	SW SLIDE SSSS21 2-01-04N [RC-V604/V654]
SW2	ES-393431J	SW TACT CHIP SKHUAB T12E
TR1	ET-390826J	TR.CHIP 2SD1619 T,U TC T08
X1	EI-400671J	OSC CE CHIP KBR4.00MCS-TR
1	ZG-394404J	TERMINAL BATTERY(Q1)
2	ZG-394405J	TERMINAL BATTERY(Q2)

MEMO

ABBREVIATIONS (VIDEO)

ABBREVIATION	EXPLANATION
A	Audio or Analogue
AC	Alternating Current
ACC	Automatic Color Control
A/C	Audio and Control
ADJ	ADJust (ment)
AFC	Automatic Frequency Control
AFT	Automatic Fine Tuning
AGC	Automatic Gain Control
AH	Audio Head
AL	ALways (voltage)
ALC	Automatic Level Control
A-SW.P	Audio SWitching Pulse
A-MUTE	Audio MUTE
ANT	ANTenna
APC	Automatic Phase Control
ASSY	ASSemblY
BAL	BALance
B DOWN	Break DOWN
BGP	Burst Gate Pulse
BLK	BLocK or BLacK
BPF	Band Pass Filter
BU	Back Up (voltage)
B/W	Black and White
C	Chroma or Color
CCD	Charge Coupled Device
CCIR	Comité Consultatif International des Radio communications
CH (ch)	CHannel (channel)
CLK	CLocK
CM	Capstan Motor
CN	CoNnector
COMP	COMParator
CSW	Cassette SWitch
CSYNC	Composite SYNC
CTL	ConTrol
CUE	CUE
DAC	Digital to Analog Converter
DC	Direct Current
DEMOD	DEMODulator
DET	DETetct (DETector)
DL	Delay Line
DM	Drum Motor
DOC	Drop Out Compensator
D.P.E	Drum Phase Error
D.PG	Drum Pulse Generator
EE	Electronic to Electronic
EF	Emitter Follower
EMPHA	EMPHAsis
ENV	ENVelope
EP	Extended Play
EP ROM	Erasable Programmable ROM
EQ	EQualizer
FE	Full track Erase
FF	Flip-Flop or Fast Foward
FG	Frequency Generator
Fig	Figure
FLD	FLuorescent Display
FM	Frequency Modulation
Fo	resonance Frequency
FREQ	FREQuency
GND	GrouND
H	Horizontal
HP	Horizontal (sync) pulse
HPF	High Pass Filter
HQ	High Quality System
IC	Integrated Circuit
ID	IDentification
IDL	IDLe (Voltage)
IMS	Interactive Monitor System
INS	INSert
INV	INVerter
L	Left
LED	Light Emitting Diode
LIM	LIMitter
LM	Loading Motor
LM STP	Loading Motor STop
LP	Long Play
LPF	Low Pass Filter
ME-SECAM	Middle East SECAM
MI-COM	MIcro COMputer
MM	Mono-stayble Multi

ABBREVIATION	EXPLANATION
MOD	MODulator
MRS	Motor ReverSe
NG	Noise Gate
NICAM	Near Instanteneous Compand Audio Multiplex
NON-LIN	NON-LINear
N.T.S.C.	National Television System Committee
OSC	OSCillator
PAL	Phase Alternation by Line
PB	Play Back
PCB (P.C.B)	Printed Circuit Board
P-COM	Phase-COMparator
P DOWN	Power DOWN
PG	Pulse Generator
P.I.P	Picture In Picture
PL, PLG	PLunger (PLunGer)
PRG (PGM)	PRoGram (ProGraM)
PU	Pick UP (head, pulse)
PWR	PoWeR
Q	Quality factor
R	Right
RAM	Random Access Memory
REC	RECord
REF	REFerence
REF-V	REFerence Vertical signal
REG	REGulator
REV (REVW)	REView (REVieW)
REW	REWind
RF	Radio Frequency
ROM	Read Only Memory
R.S SW	Record-Safety SWitch
RST (RES)	ReSet (RESet)
RVS	ReVerSe
S	Sensor, Shield
SAW	Surface Acoustic Wave
SC	SimulCast
S CLK	Serial CLocK
SECAM	SÉquentiel Couleur À Mémoire
S & H	Sample and Hold
SLP	Super Long Play
SP	Standard Play
SPD	SPeeD
SRP	Supply Reel Pulse
SRV	SeRVo
SOW	Sync On Word
STBY	STandBY
S.VHS	Super VHS
SW	SWitch
SW'NG	SWitchiNG
SWP	SWitching Pulse
SYNC	SYNChronize
T-AUDIO	Tuner AUDIO
TPZ (TRAPE)	TraPeZoid (TRAPEzoid)
TRK	TRacKing
TRP	Take up Reel Pulse
T/U	Take Up
TV	TeleVision
UHF	Ultra High Frequency
UNR	UNRegulated (voltage)
V	Vertical or Video
VASS	Video Address Search System
VCO	Voltage Controlled Oscillator
VH	Video Head
VHF	Very High Frequency
VHS	Video Home System
VIF	Video Intermediate Frequency
VISS	Video Index Search System
VJ	Video Judge
VM	Voltage for Memory
VOB	Video On Blank
VOW	Video On Word
VP	Vertical (sync) Pulse
VPS	Video Program System
VPT	Video Programming by video Text
VT	Voltage for Tuning
WHT	WHiTe
Y	Luminance
2H	2 Hour (SP)
4H	4 Hour (LP)
6H	6 Hour (SLP/EP)

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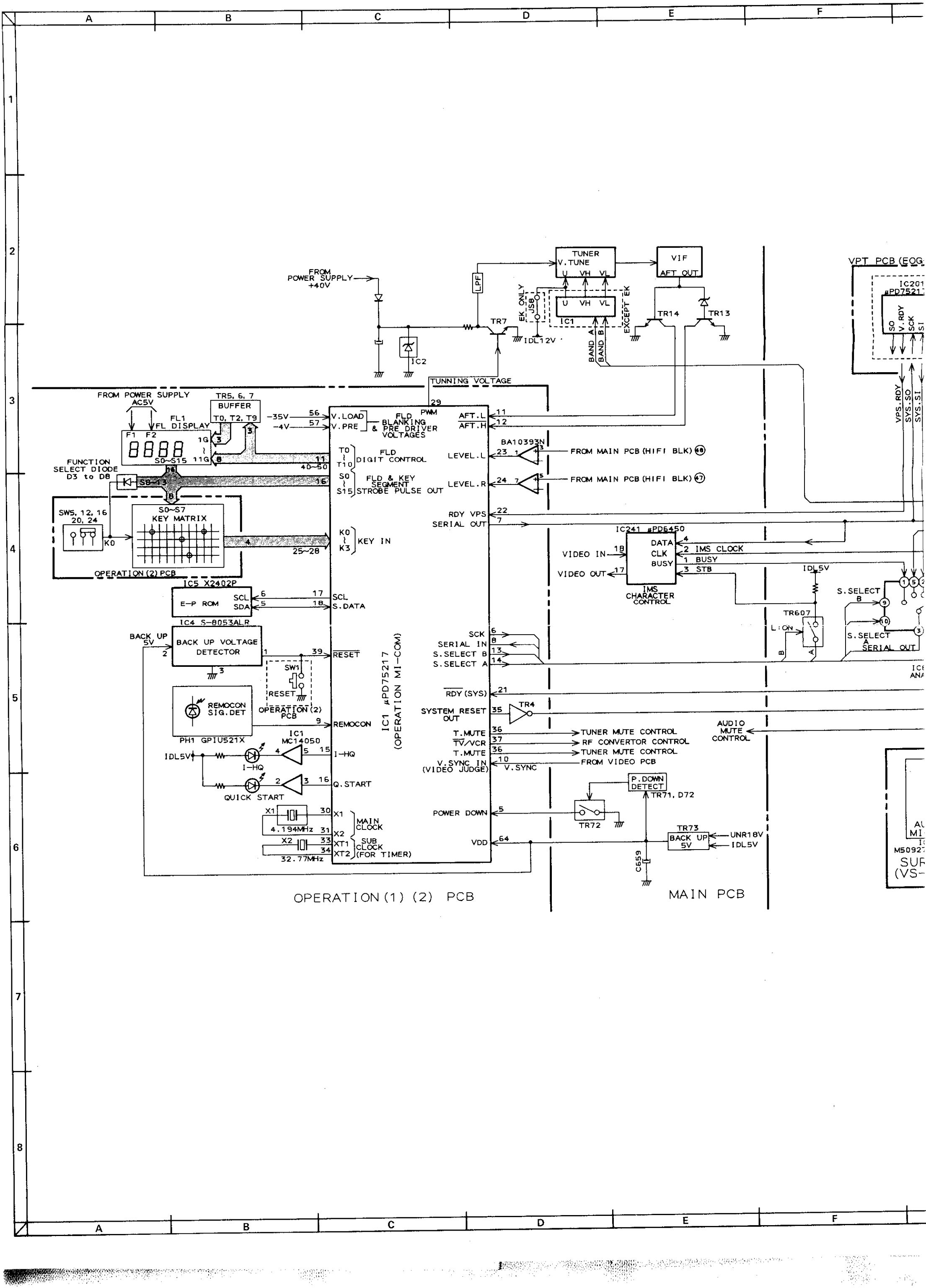
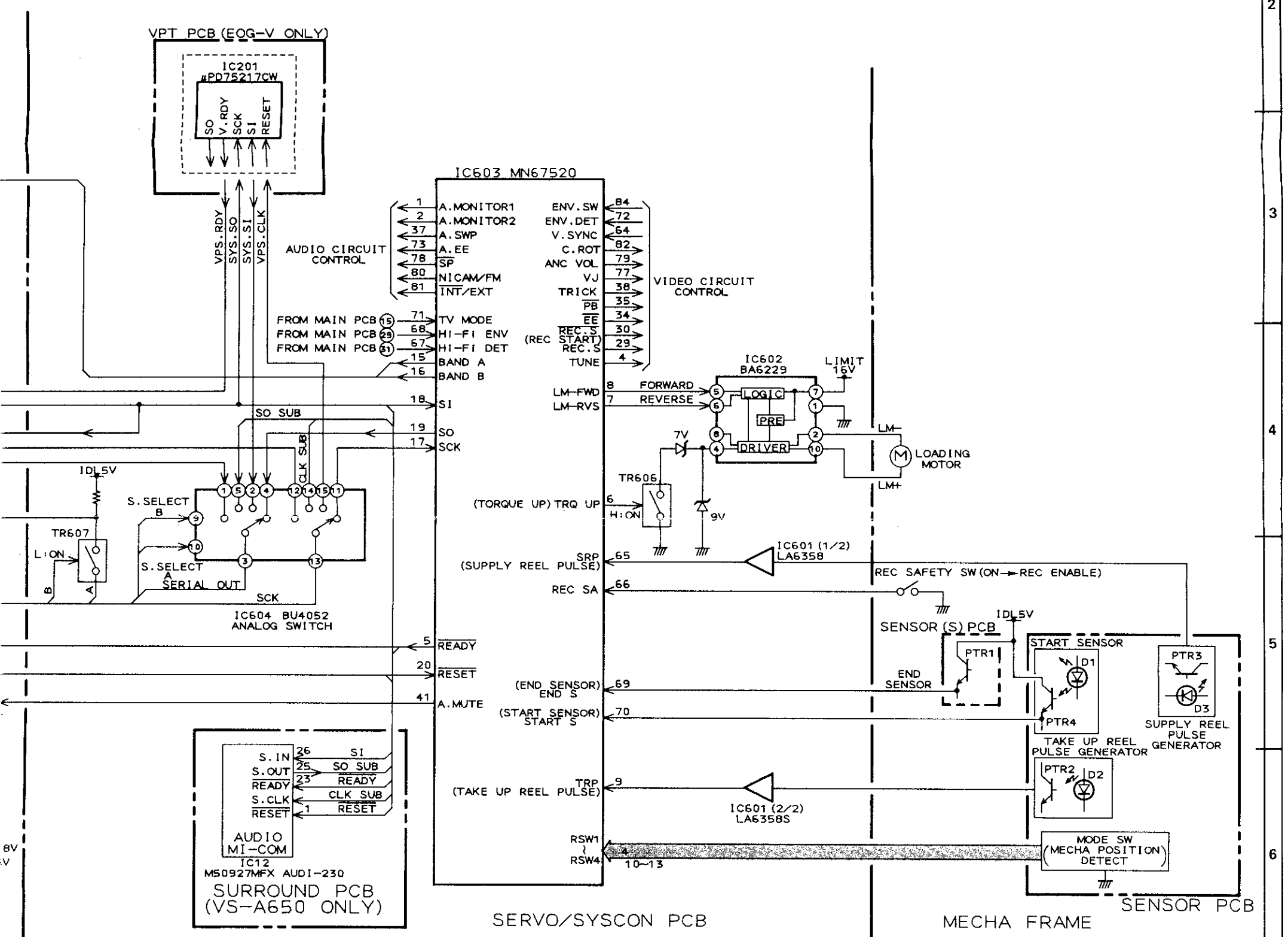
MODEL VS-F600EA/EK/EO/EOH/EOG-V

MODEL VS-A650EA/EK/EO/EOH/EOG-V

SCHEMATIC DIAGRAMS AND PC BOARDS

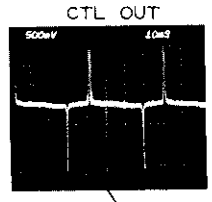
TABLE OF CONTENTS


FROM POWER SUPPLY +40V
LPF
TUNER V.TUNE U VH VL
VIF AFT OUT
EK ONLY
USB
EXCEPT EK
IC1
TR7
TR14
TR13
IDL12V
IC2
BAND A
BAND B
TUNNING VOLTAGE
VPT PCB (EOG
IC201
SO
V.RDY
SCK
VPS.RDY
SYS.SO
FROM POWER SUPPLY AC5V
FL1
FL DISPLAY
F1 F2
S0~S15
1G
11G
TR5, 6, 7
BUFFER
T0, T2, T9
-35V
-4V
V.LOAD
V.PRE
FLD PWM BLANKING & PRE DRIVER VOLTAGES
AFT.L
AFT.H
BA10393N
FROM MAIN PCB (HIFI BLK) 68
FROM MAIN PCB (HIFI BLK) 67
FUNCTION SELECT DIODE D3 to D8
S8~13
T0 ~ T10 FLD DIGIT CONTROL
S0 ~ S15 FLD & KEY SEGMENT STROBE PULSE OUT
LEVEL.L
LEVEL.R
SW5, 12, 16 20, 24
S0~S7 KEY MATRIX
K0
K0 ~ K3 KEY IN
25~28
OPERATION (2) PCB
RDY VPS
SERIAL OUT
IC241 μPD6450
DATA
CLK
BUSY
STB
VIDEO IN
VIDEO OUT
IMS CHARACTER CONTROL
IMS CLOCK
IDL5V
S.SELECT B
S.SELECT A
SERIAL OUT
TR607
L : ON
IC5 X2402P
E-P ROM
SCL
SDA
S.DATA
IC4 S-8053ALR
BACK UP 5V
BACK UP VOLTAGE DETECTOR
RESET
SW1
REMOCON SIG.DET
PH1 GPIU521X
REMOCON
IC1 MC14050
I-HQ
Q.START
QUICK START
IC1 μPD75217 (OPERATION MI-COM)
SCK
SERIAL IN
S.SELECT B
S.SELECT A
RDY (SYS)
SYSTEM RESET OUT
TR4
T.MUTE
TV/VCR
RF CONVERTOR CONTROL
TUNER MUTE CONTROL
V.SYNC IN (VIDEO JUDGE)
FROM VIDEO PCB
V.SYNC
AUDIO MUTE CONTROL
P.DOWN DETECT
TR71, D72
POWER DOWN
TR72
TR73
BACK UP 5V
UNR18V
IDL5V
VDD
C659
X1
4.194MHz
X2
32.77MHz
MAIN CLOCK
SUB CLOCK (FOR TIMER)
OPERATION (1) (2) PCB
MAIN PCB



VS-F600/A650
EA · EK · EO · EOH · EOG-V
OPERATION & SYSCON
BLOCK DIAGRAM
NO.5-1 V112351M

CTL OUT



C4
0.047μ/50V

HY-101
VHG-411A

HW HV HU

LB1807

LIM GSENS FC GND HW− HW+ HV− HV+ HU− HU+ NC U V W

BK!HB CTL FSR REF FG GND FG OUT FG IN+ FG IN−1 FG IN−2 VCC VS RF NC NC

R3
2.7Ω

C5
0.1μ
/25V

EZMP1440N

C1 to C3
0.22μ/50V

C1 C2 C3

IDL5V

P602

1	FWD/REV	1
2	FG	2
3	CONT	3
4	LIMIT	4
5	VCC	5
6	GND	6
7	CM. POWER	7
8	P. GND	8

M. GND

R1
R2
R1, 2
1.6Ω

CAPSTAN MOTOR

CAPSTAN MOTOR SPEED & PHASE CONTROL

WP300

CONTROL HEAD

1	CTL+	1
2	CTL−	2

M56732L

TSD REG CONTROL AMP

DM DRIVE AMP

RECTIFIER

MPX (1)

MPX (2)

H1 H2

FG

PG

TR608

AMP

P601

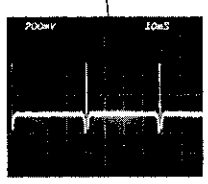
6	CONT	6
5	MOTOR−	5
4	MOTOR+	4
3	DM FG	3
2	GND	2
1	DM PG	1

M. GND

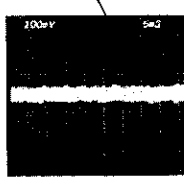
DRUM MOTOR SPEED & PHASE CONTROL

DRUM MOTOR

DM SPEED CONTROL LINE
DM PHASE CONTROL LINE
CM SPEED CONTROL LINE
CM PHASE CONTROL LINE

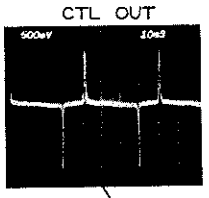


DM PG IN



DM CONT OUT

CTL OUT



FROM MAIN PCB VIDEO BLK (VIDEO OUT)

FROM MAIN PCB VIDEO BLK (SYNC SEPARATOR)

FROM MAIN PCB AUDIO BLK

FROM PRE AMP PCB

TO MAIN PCB VIDEO BLOCK

CM 16V

TR502

CURR DET

1Ω

L:ON

TR500

IC500 SYNC SEPA WITH AFC

V. SYNC

JS600

EA ONLY

EXCEPT EA

TR600

H:ON

MOTOR 12V

D600

IDL5V

TR609

L:ON

TR501

V.SYNC

AUDIO ENV.

VIDEO ENV.

CHROMA ROTARY (V.SWP WHEN TRICK MODE)

CM POWER SELECT

M.GND

CAPSTAN MOTOR SPEED & PHASE CONTROL

IC603 MN67520

64	VSYN	1	A.MON 1
65	SRP	2	A.MON 2
66	REC SAF	3	V.SYNC DET
67	HIFI DC	4	TUNE
68	HIFI ENV	5	READY (SYS)
69	ES	6	TRQ UP
70	SS	7	LM.R
71	TV MODE	8	LM.F
72	ENV.DET	9	TRP
73	A.EE	10	RSW4
74	V_{DD}	11	RSW3
75	PICTU	12	RSW2
76	A.REC.S	13	RSW1
77	VJ	14	CM.POW
78	SP	15	BAND A
79	NC.VOL	16	BAND B
80	NICAM/FM	17	SCK (SYS)
81	INT/EXT	18	SO (OP) /SI (SYS)
82	C.ROT	19	SI (OP) /SO (SYS)
83	HA SW	20	RESET
84	ENV.SW	21	GND
63	AVDD		
62	CO		
61	AGC		
60	CTLG		
59	CTLA		
58	CTLH		
57	CTLS		
56	R CTL.P		
55	R CTL.N		
54	TPZ		
53	CIF		
52	CIR		
51	VRI		
50	VRO		
49	AVSS		
48	YPG		
47	YFG		
46	AFG		
45	FGF		
44	FGI		
43	PGMM		

42	AVMM	41	A.MUTE	40	DM STOP	39	F/R	38	TRICK	37	A.SWP	36	CMP.ON	35	PB	34	EE	33	GND	32	OSC1
31	OSC2	30	REC	29	REC.S	28	CM STOP	27	DFV	26	DPD	25	CFV	24	CPD	23	VP	22	V.SWP		

IDL5V

VR600 SWP ADJ

TR608 AMP

TO TR101

X600

IC600 2/2 BA15218N

VR601 DM DUTY

DRUM MOTOR SPEED & PHASE CONTROL

DRUM ERR AMP

D603

DM SPEED ERROR

DM PHASE ERROR

LPF

TR601

CM TORQUE UP (WHEN START)

IC600 1/2

CAPSTAN ERR AMP

CM SPEED ERROR

CM PHASE ERROR

NFB

TR603

TR605

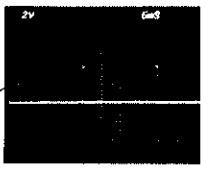
TR604

CM STOP:ON

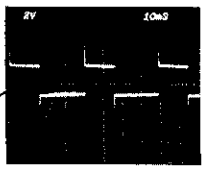
L:ON

SERVO/SYSCON PCB

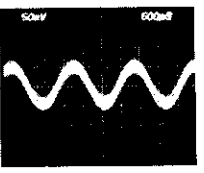
V.SYNC



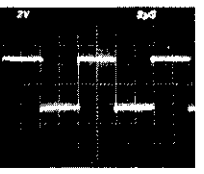
REC CTL SIGNAL



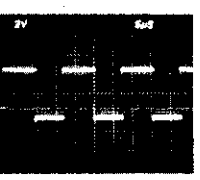
DM FG IN
f=599.79Hz



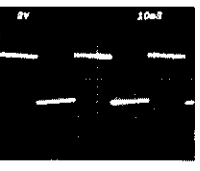
DM SPEED ERROR PULSE



DM PHASE ERROR PULSE

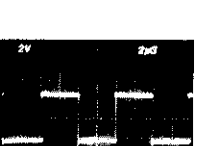


VIDEO SWITCHING PULSE

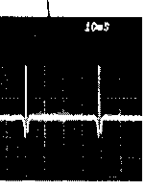


CM PHASE ERROR PULSE

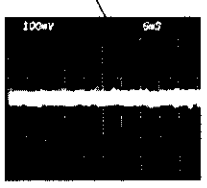
CM SPEED ERROR PULSE



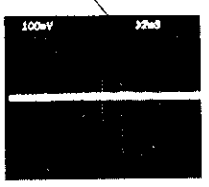
DM PG IN



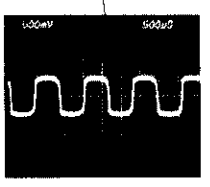
DM CONT OUT



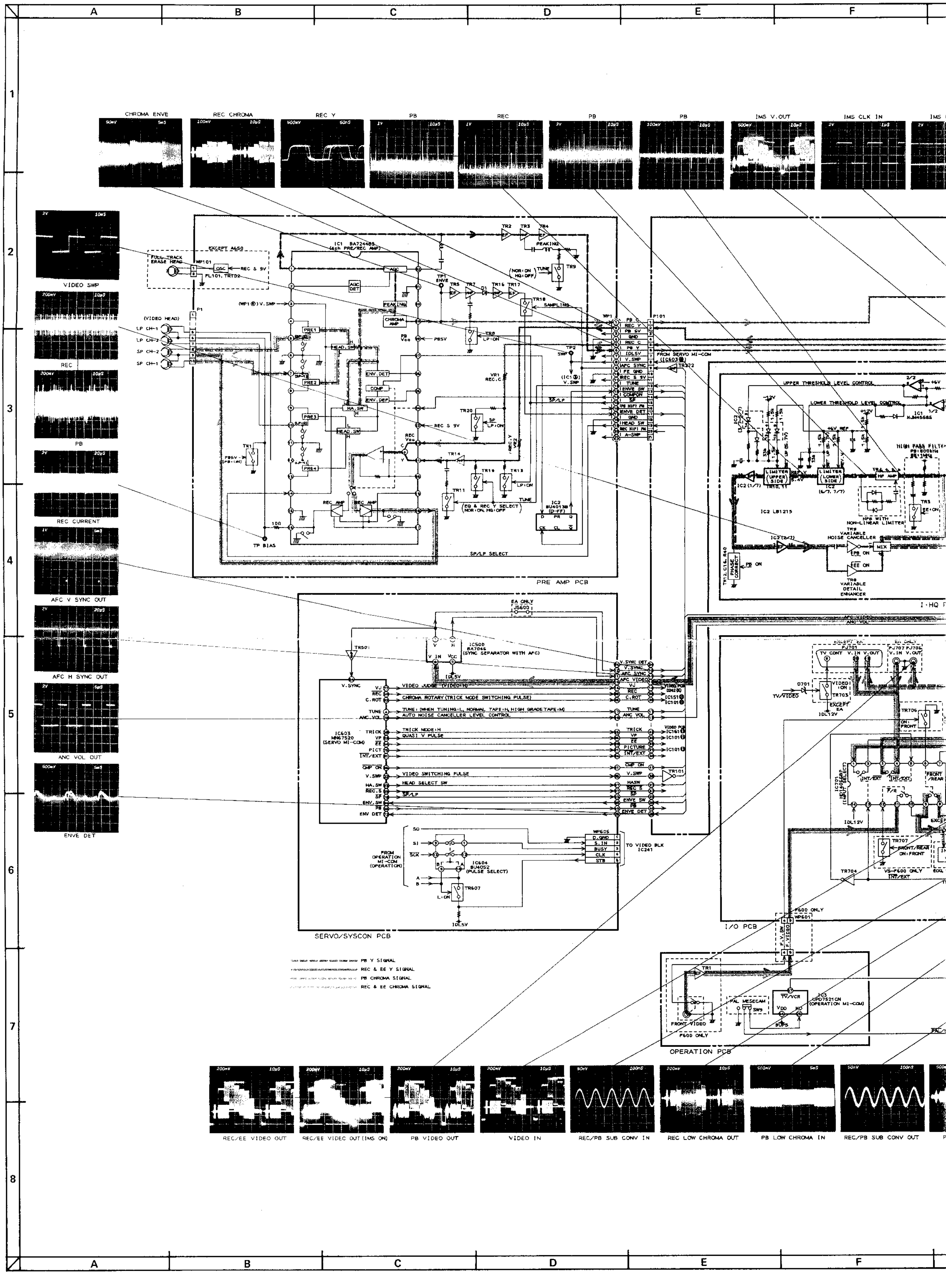
CM CONT OUT



CM FG IN

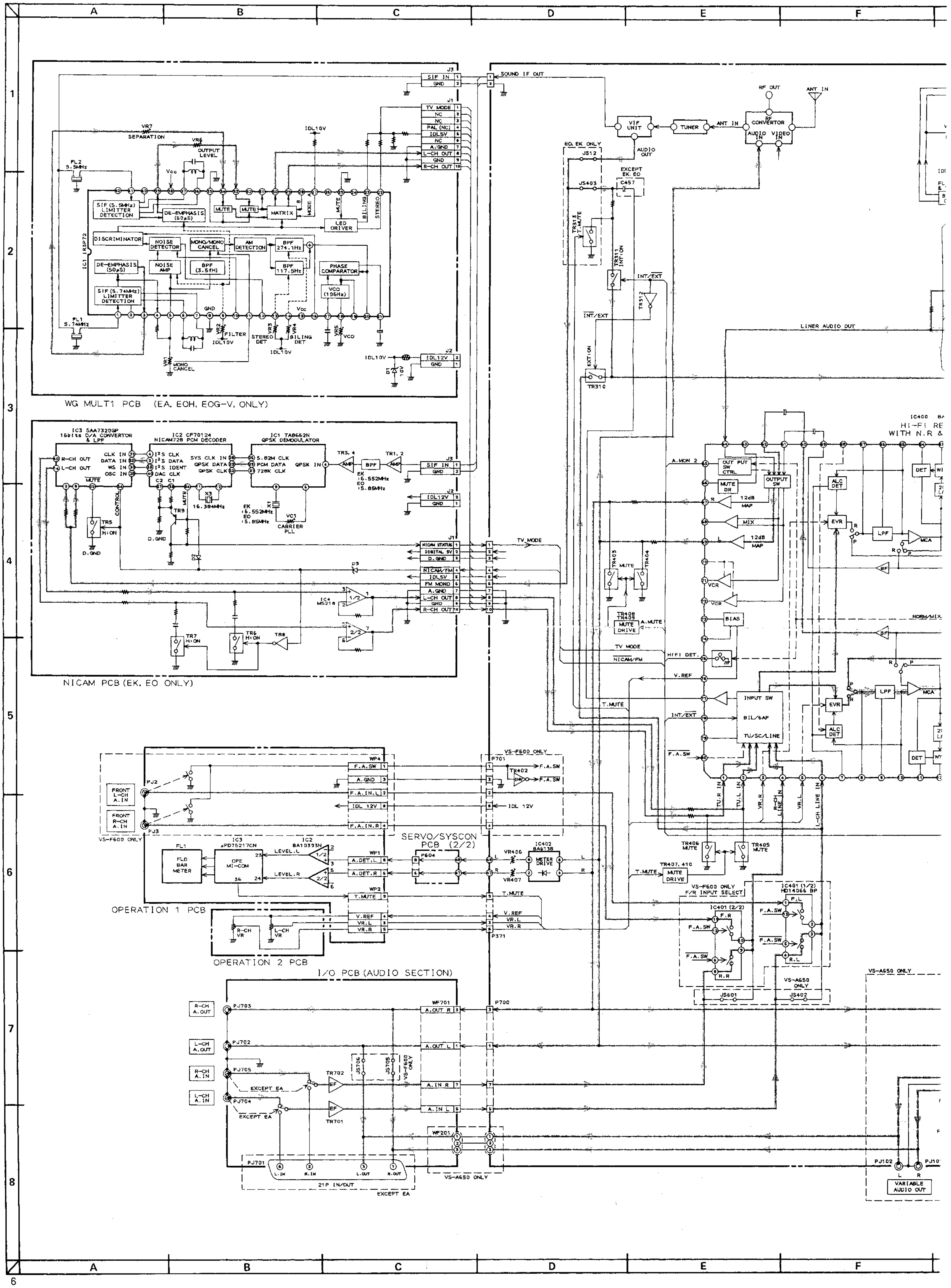


VS-F600/A650
EA·EK·EO·EOH·EOG-V
SERVO
BLOCK DIAGRAM
NO.5-2 V112352M



CHROMA ENVE
REC CHROMA
REC Y
PB
REC
PB
PB
IMS V.OUT
IMS CLK IN
VIDEO SWP
REC
PB
REC CURRENT
AFC V SYNC OUT
AFC H SYNC OUT
ANC VOL OUT
ENVE DET
EXCEPT A650
FULL TRACK ERASE HEAD
IC1 BA7244BS (4ch PRE/REC AMP)
(VIDEO HEAD)
LP CH-1
LP CH-2
SP CH-2
SP CH-1
TP BIAS
SP/LP SELECT
PRE AMP PCB
FROM SERVO MI-COM
IC2 BU4013B (D-FF)
EQ & REC Y SELECT (NOR:ON, HQ:OFF)
EA ONLY
IC500 BA7046 (SYNC SEPARATOR WITH AFC)
IC603 MN67520 (SERVO MI-COM)
VIDEO JUDGE (VIDEO H)
CHROMA ROTARY (TRICK MODE SWITCHING PULSE)
TUNE: (WHEN TUNING:L, NORMAL TAPE:H, HIGH GRADE TAPE:M)
AUTO NOISE CANCELLER LEVEL CONTROL
TRICK MODE:H
QUASI V PULSE
VIDEO SWITCHING PULSE
HEAD SELECT SW
FROM OPERATION MI-COM (OPERATION)
IC604 BU4052 (PULSE SELECT)
TO VIDEO BLK IC241
SERVO/SYSCON PCB
PB Y SIGNAL
REC & EE Y SIGNAL
PB CHROMA SIGNAL
REC & EE CHROMA SIGNAL
UPPER THRESHOLD LEVEL CONTROL
LOWER THRESHOLD LEVEL CONTROL
IC1 NJM4558S
HIGH PASS FILTER
IC2 LB1215
NPB WITH NON-LINEAR LIMITER
TR9 VARIABLE NOISE CANCELLER
TR8 VARIABLE DETAIL ENHANCER
PHASE CORRECT
I/O PCB
IC3 UPD7521CN (OPERATION MI-COM)
FRONT VIDEO
P600 ONLY
PAL MESECAM
OPERATION PCB
REC/EE VIDEO OUT
REC/EE VIDEO OUT (IMS ON)
PB VIDEO OUT
VIDEO IN
REC/PB SUB CONV IN
REC LOW CHROMA OUT
PB LOW CHROMA IN
REC/PB SUB CONV OUT

VS-F600/A650
EA·EK·EO·EOH·EOG-V
VIDEO
BLOCK DIAGRAM
NO.5-3 V112353M



WG MULT1 PCB (EA, EOH, EOG-V, ONLY)
NICAM PCB (EK, EO ONLY)
SERVO/SYSCON PCB (2/2)
OPERATION 1 PCB
OPERATION 2 PCB
I/O PCB (AUDIO SECTION)
VS-F600 ONLY
VS-A650 ONLY
EO, EK ONLY
EXCEPT EA
21P IN/OUT
VARIABLE AUDIO OUT
LINER AUDIO OUT
SOUND IF OUT
IC1 IR3P72
IC3 SAA7320GP 16bits D/A CONVERTOR & LPF
IC2 CF70124 NICAM728 PCM DECODER
IC1 TA8662N QPSK DEMODULATOR
IC400 BA
HI-FI RE
WITH N.R &
IC401 (1/2) HD14066 BP
IC401 (2/2)
F/R INPUT SELECT
IC402 BA6138
IC3 µPD75217CN
IC2 BA10393N
FL1 FLD BAR METER
OPE MI-COM
VIF UNIT
TUNER
RF CONVERTOR
ANT IN
RF OUT
AUDIO OUT

F G H I J K

RF OUT
ANT IN
RF CONVERTOR
AUDIO VIDEO IN

LINEAR AUDIO REC/PB AMP
IC300 BA7765AS
VR300 BIAS
REC
VREQ
VCC
IDL12V
FL300 & TR301 BIAS OSC
REC CTRL
A.REC.S
REC EQ
EQ1
EQ2
SP
EQ1 EQ1+EQ2
A.MUTE
MUTE
ALC
TWIN T fH TRAP
PB EQ
VR301 PB LEVEL
A.EE
LINER AUDIO OUT

VS-A650 ONLY
WP350
FULL ERASE 1
GND 2
FULL TRACK ERASE HEAD
WP800
SIDE ERASE 1
SIDE TRACK ERASE HEAD
A.REC 4
A.PB 2
GND 3
LINEAR AUDIO REC/PB HEAD

VS-F600 ONLY
FL101 & TR102
ERASE OSC
WP101
FE 1
GND 2
FULL TRACK ERASE HEAD

IC101 BA7740S
P101
REC 9V 11
WP1
REC/PB
100Ω
PB ON
REC HIFI FM 20
SP/LP
TUNING MUTE
TUNE 12
TR101
VCC
PB HIFI FM 16
AGC DET
IDL5V 7
SP 15
A.SWP 21
EP
REC ON
P1
AUDIO CH2 1
AUDIO COM 2
AUDIO CH1 3
AUDIO HIFI HEAD

PRE AMP PCB (AUDIO SECTION)

VR404 REC CURR
TR401
IDL5V
VR405 1.8MHz f0
VR402 DEV.R
IC400 BA7703K1.A
Hi-Fi REC/PB AMP WITH N.R & SELECT SW
OUTPUT SW
ALC DET
EVR
DET
WING
20K LPF
ATT
LPF
MCA
CCA
EMPH AMP
HOLD2
HOLD1
AUDIO LIM
VCO
FM LPF
FM LIM
P.D.
H.P. SHIFT
HOLD PULSE
HOLD P.MM
NOR/HIFI
A.MON 1
FL400 (1/2) 1.8M BPF
FL400 (2/2) 1.4M BPF
Rch
Lch
PB/REC CTRL
NORM/MIX/HIFI
FM DET
O.D. DET.
CARR DET
OFF
ENVE
BF
AMP
11K
6.2K
VR400 DEV.L
VR401 1.4MHz f0
IDL5V
TR370 TR400
ENV DETECT

IC603 MN67520
SERVO/SYSCON MI-COM
X600
A.REC.S 22 → 76
A.EE 15 → 73
TUNE 17 → TUNING L 4
SP 23 → SP/LP 78
A.SWP 42 → 37
A.MON1 32 → 1
HI-FI ENV 29 → 68
A.MUTE 45 → 41
HI-FI DET 31 → HI-FI/NOR 67
INT/EXT 24 → 81
NTCAM/FM 18 → 80
TV MODE 15 → BILINGUAL 71
A.MON.2 33 → 2

MAIN PCB
SERVO/SYSCON PCB (1/2)

IC401 (1/2) HD14066 BP
F.L
F.A.SW
R.L
VS-A650 ONLY
JS402

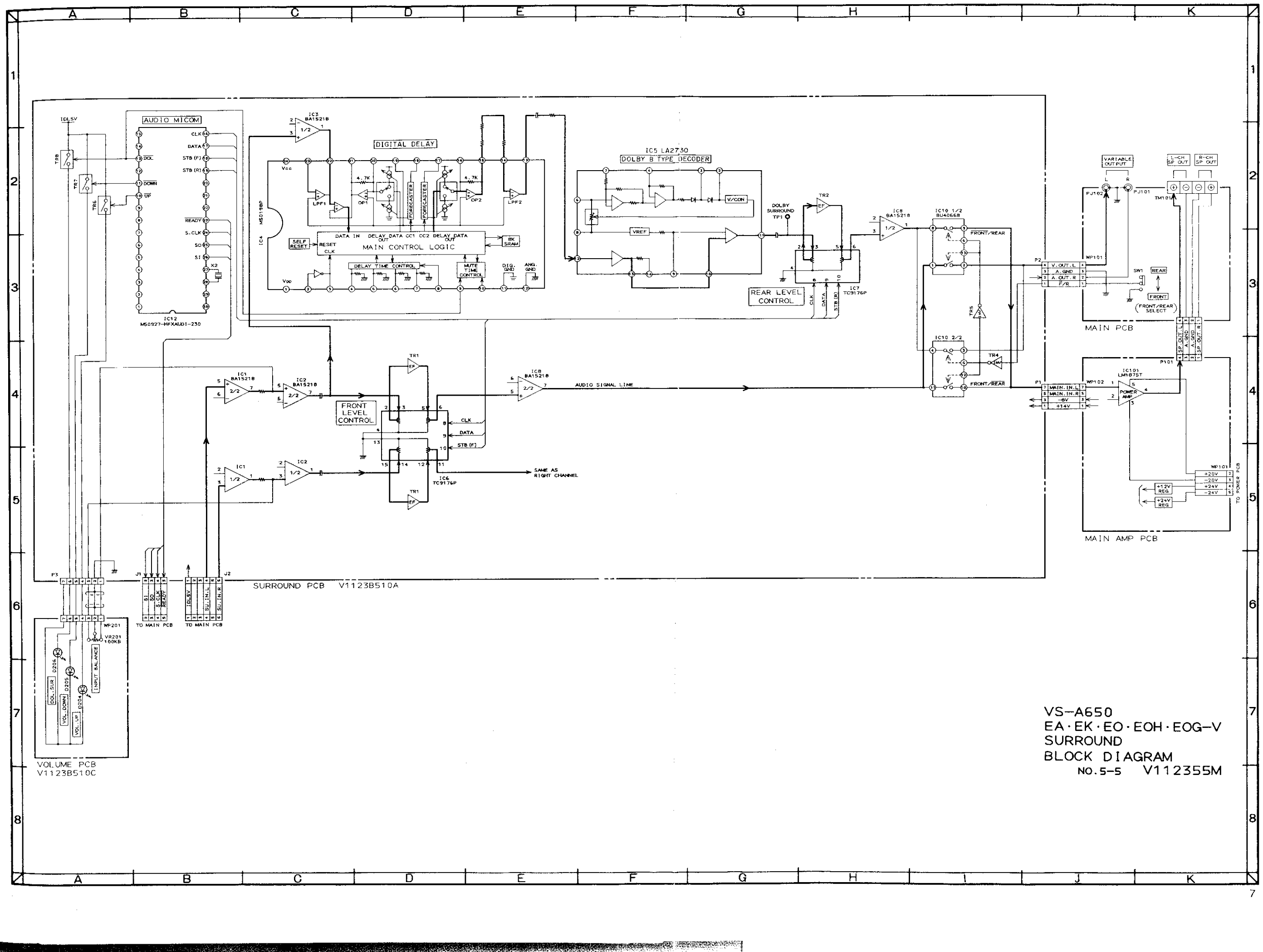
VS-A650 ONLY
P702
NC 1
SUR.IN.R 2
GND 3
J2
SUR.IN.L 4
IDL 5V 5
GND 6
WP291
SUR.OUT L 4
A.GND 3
SUR.OUT R 2
F/R SW 1
P2
SURROUND PCB
P1
+14V 7
GND 6
-8V 5
PROTECT 4
MAIN.IN.R 3
A.GND 2
MAIN.IN.L 1
WP102
MAIN AMP PCB
P101
WP290
SP.OUT.L 4
GND 3
GND 2
SP.OUT.R 1
REAR
FRONT
SW1
PJ102
PJ101
L
R
VARIABLE AUDIO OUT
TM101
L-CH
R-CH
SP OUT

: PB SIGNAL LINE
: REC SIGNAL LINE

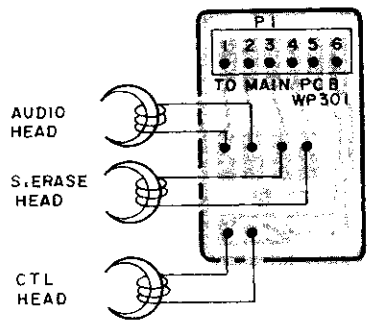
VS-F600/A650
EA・EK・EO・EOH・EOG-V
AUDIO
BLOCK DIAGRAM
NO.5-4 V112354M

F G H I J K

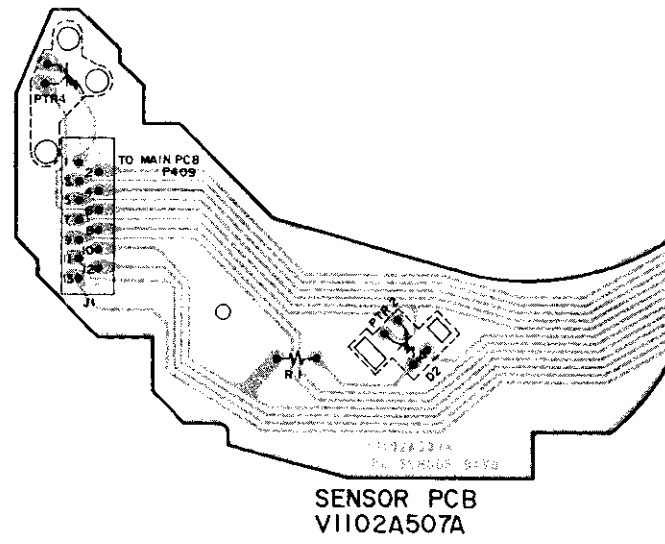
1 2 3 4



VS-A650
EA·EK·EO·EOH·EOG-V
SURROUND
BLOCK DIAGRAM
NO.5-5 V112355M

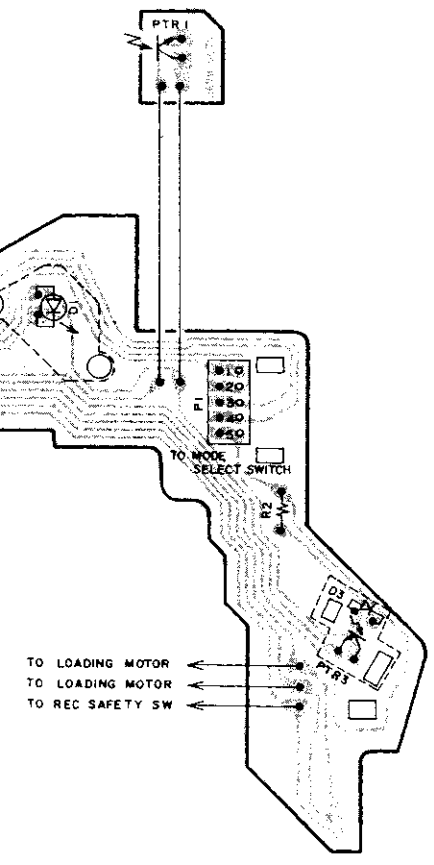


A/C HEAD PCB
V1102B5120J1

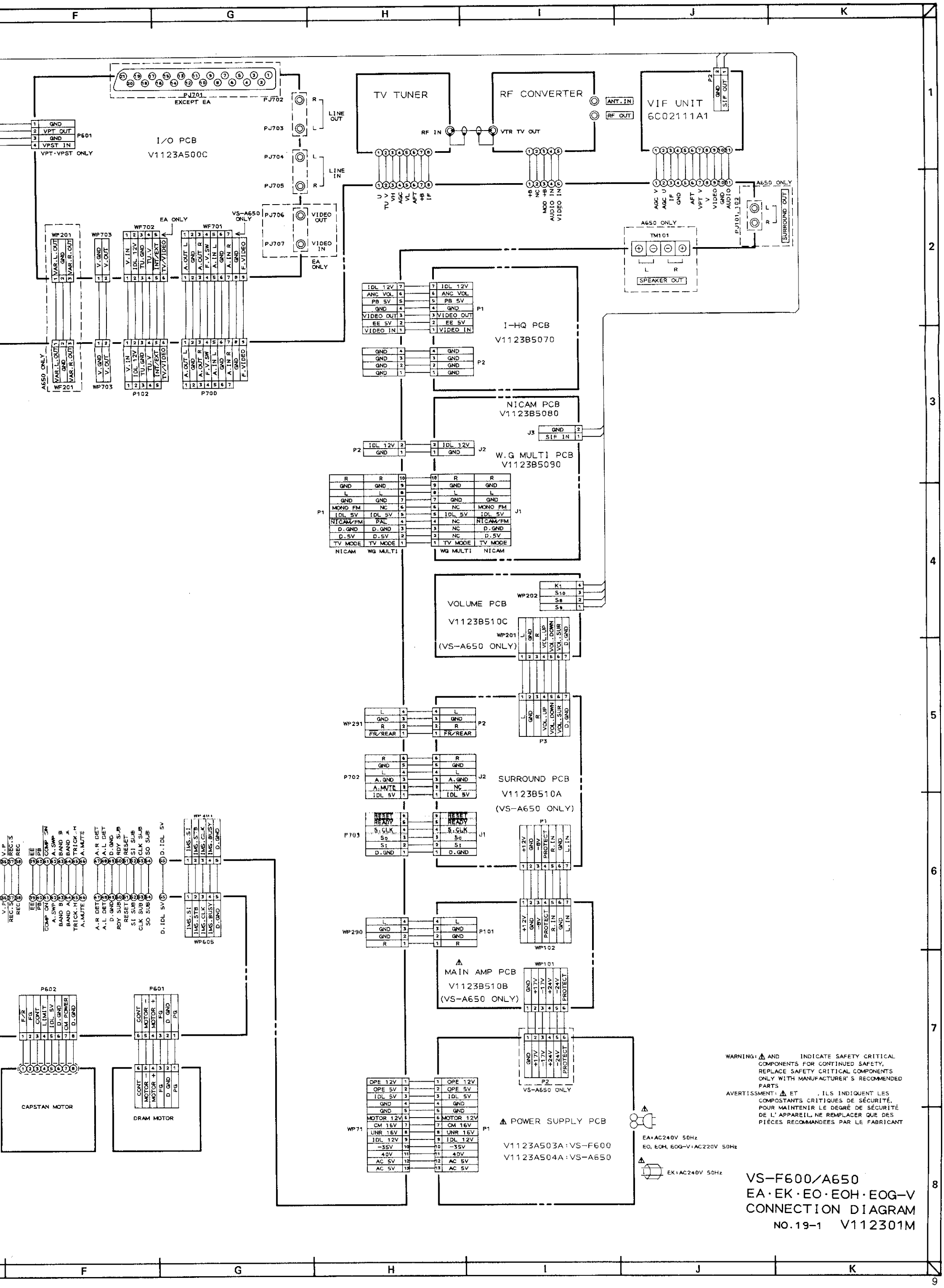


SENSOR PCB
V1102A507A

SENSOR(S) PCB
V1102A507B



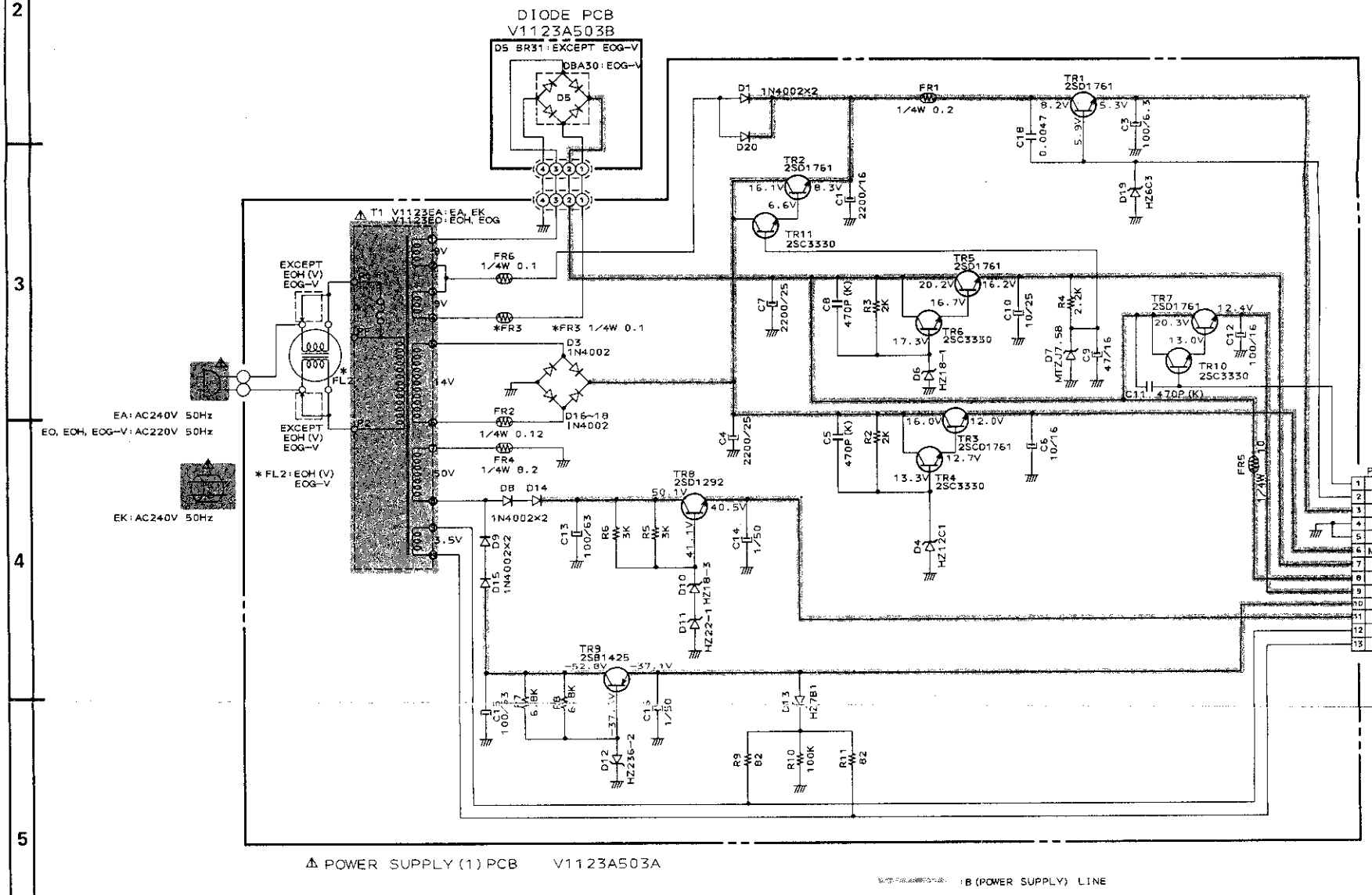
OPERATION (2) PCB
V1123A506A
OPERATION (1) PCB
V1123A505A
VPT PCB
V1117A5060
(EOG-V ONLY)
REC VOLUME PCB
V1123A506B
PRE AMP PCB
V1123A5020
MAIN PCB
V1123A500A
A/C HEAD PCB
V1102B5120
SERVO/SYSCON PCB
V1123A500B
SENSOR PCB V1102A507A
SENSOR (S) PCB
V1102A507B
CAPSTAN MOTOR
MODE SELECT SW
REC SAFETY SW
LOADING MOTOR
RF-370C15370
FULL ERASE HEAD
VS-F600 ONLY
VS-A650 ONLY
VPT·VPST ONLY
A650 ONLY
FRONT AUDIO IN
FRONT VIDEO IN



WARNING: ⚠ AND INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET , ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

VS-F600/A650
EA·EK·EO·EOH·EOG-V
CONNECTION DIAGRAM
NO.19-1 V112301M

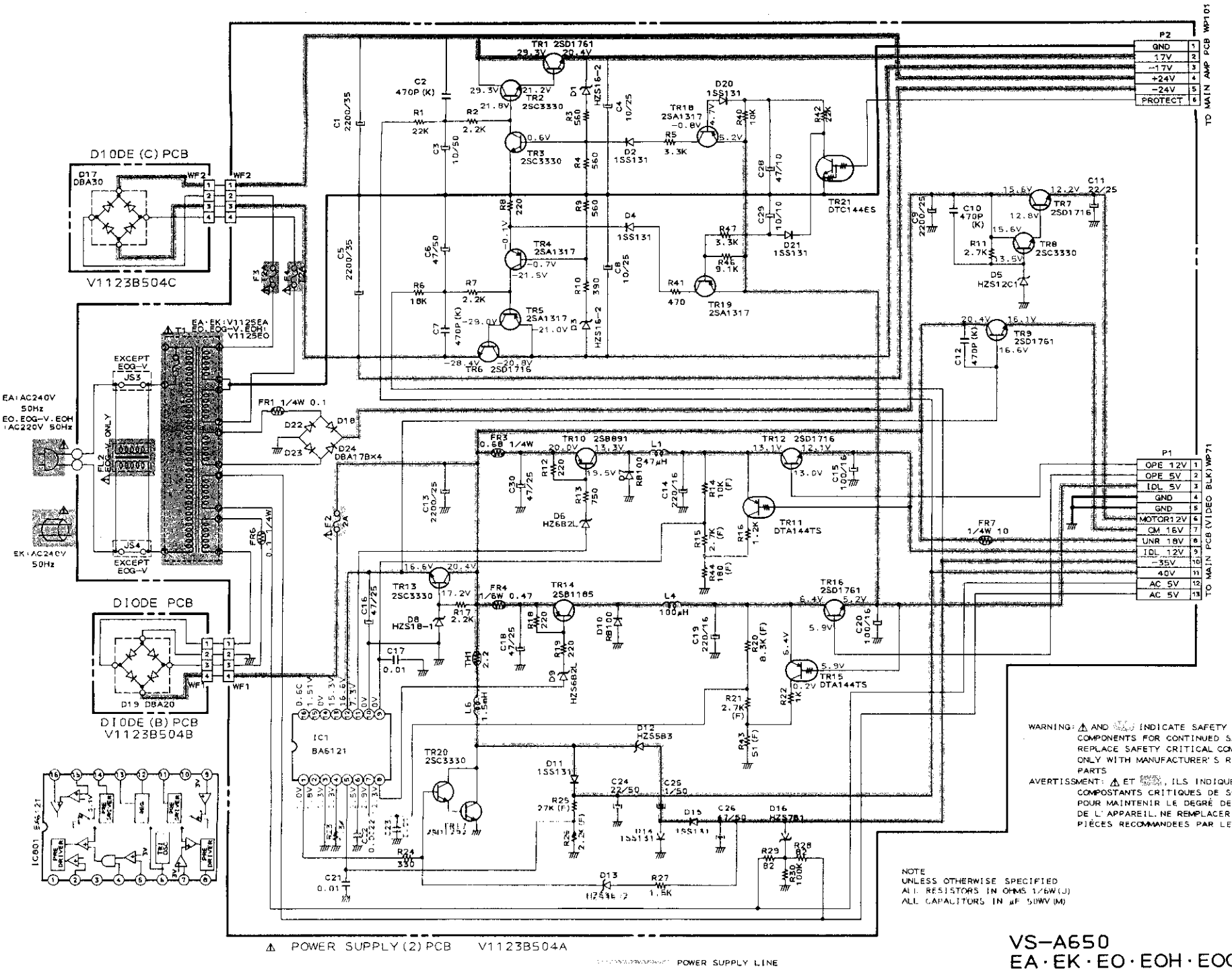


WARNING: ⚠ AND ▨ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ▨, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ, POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W (J)
ALL CAPACITORS IN μF 50WV (M)

VS-F600
EA · EK · EO · EOH · EOG-V
POWER SUPPLY (1)
SCHEMATIC DIAGRAM
NO.19-2 V112302M



WARNING: ⚠ AND ⚠ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSMENT: ⚠ ET ⚠, ILS INDIQUENT LES COMPOSTANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

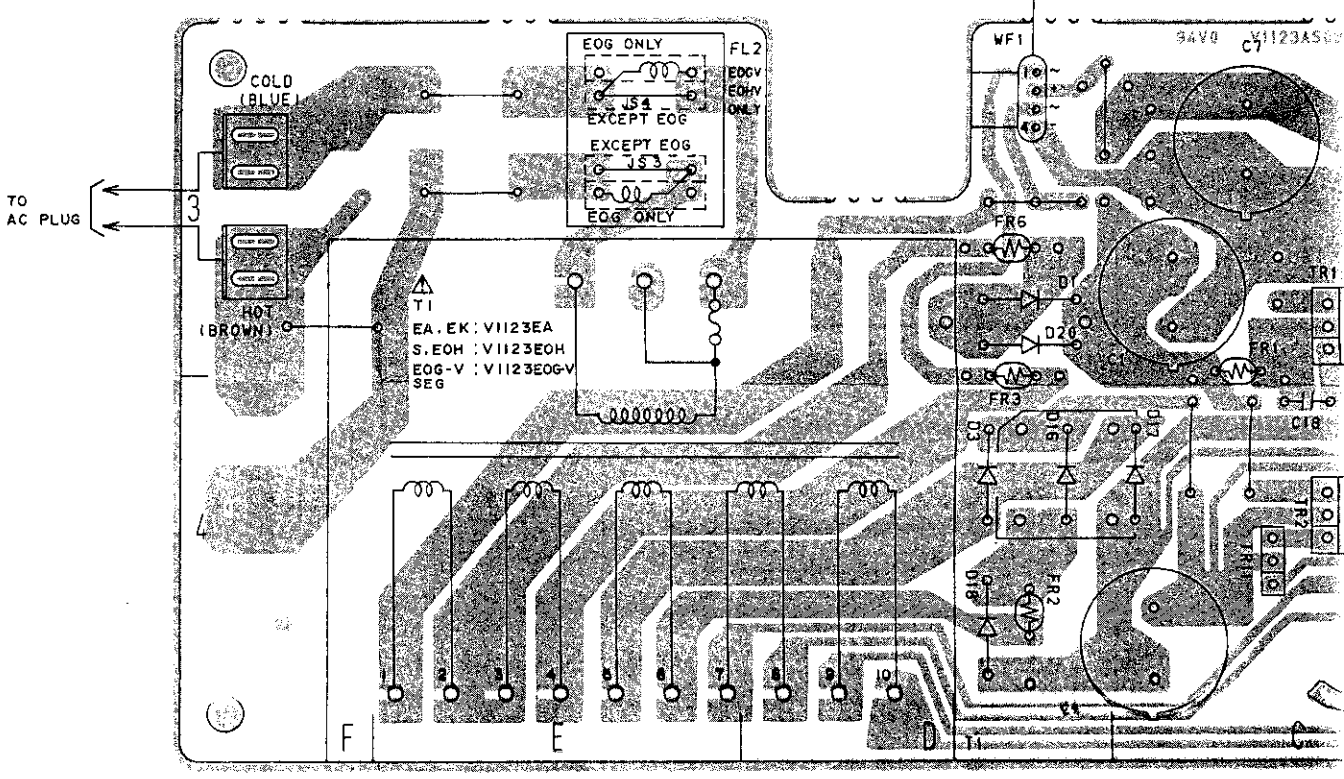
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 50WV (M)

⚠ POWER SUPPLY (2) PCB V1123B504A

POWER SUPPLY LINE

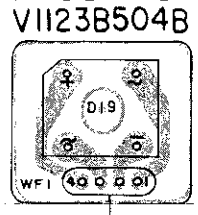
VS-A650
EA · EK · EO · EOH · EOG-V
POWER SUPPLY (2)
SCHEMATIC DIAGRAM
NO.19-3 V112303M

DIODE PCB
V1123A503B



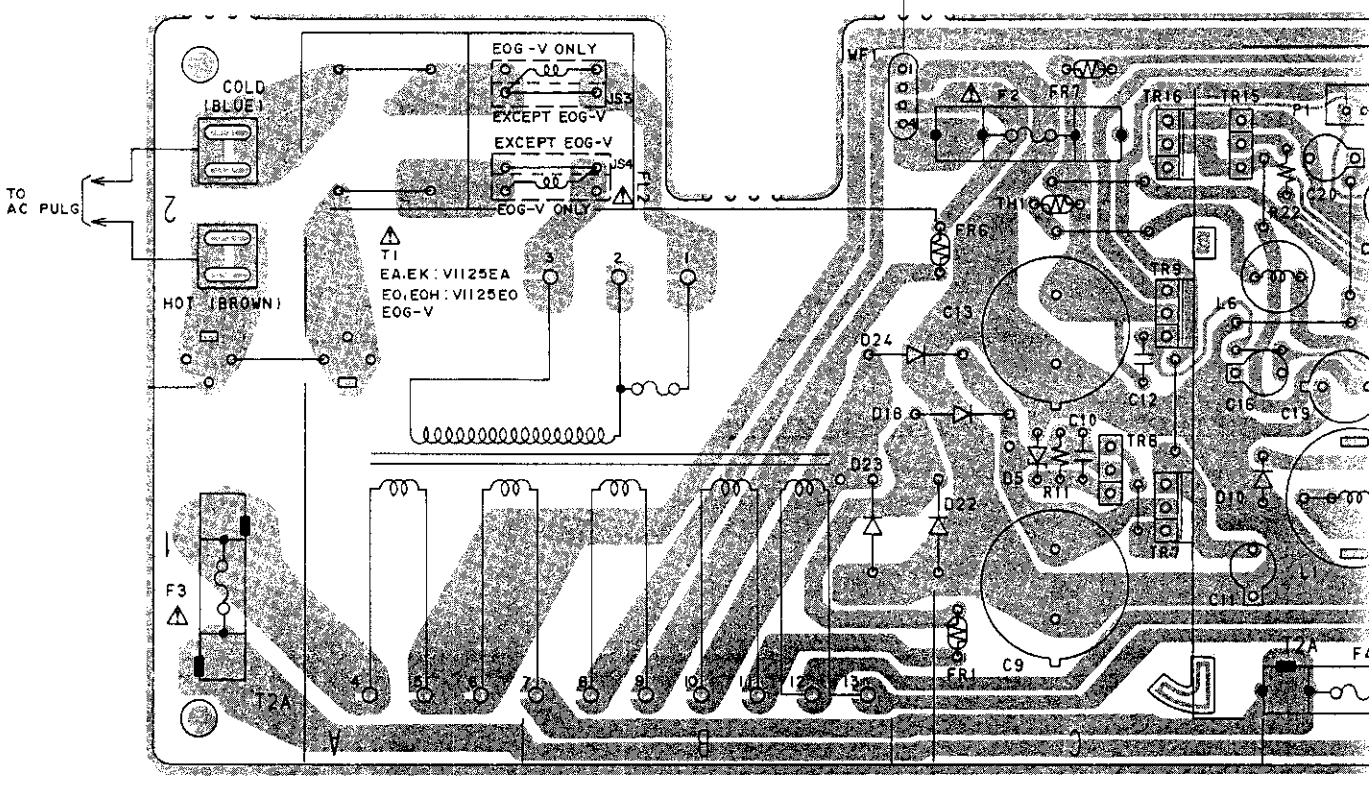
POWER SUPPLY (1) PCB V1123

DIODE PCB
V1123B504B



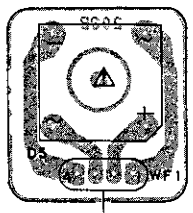
WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

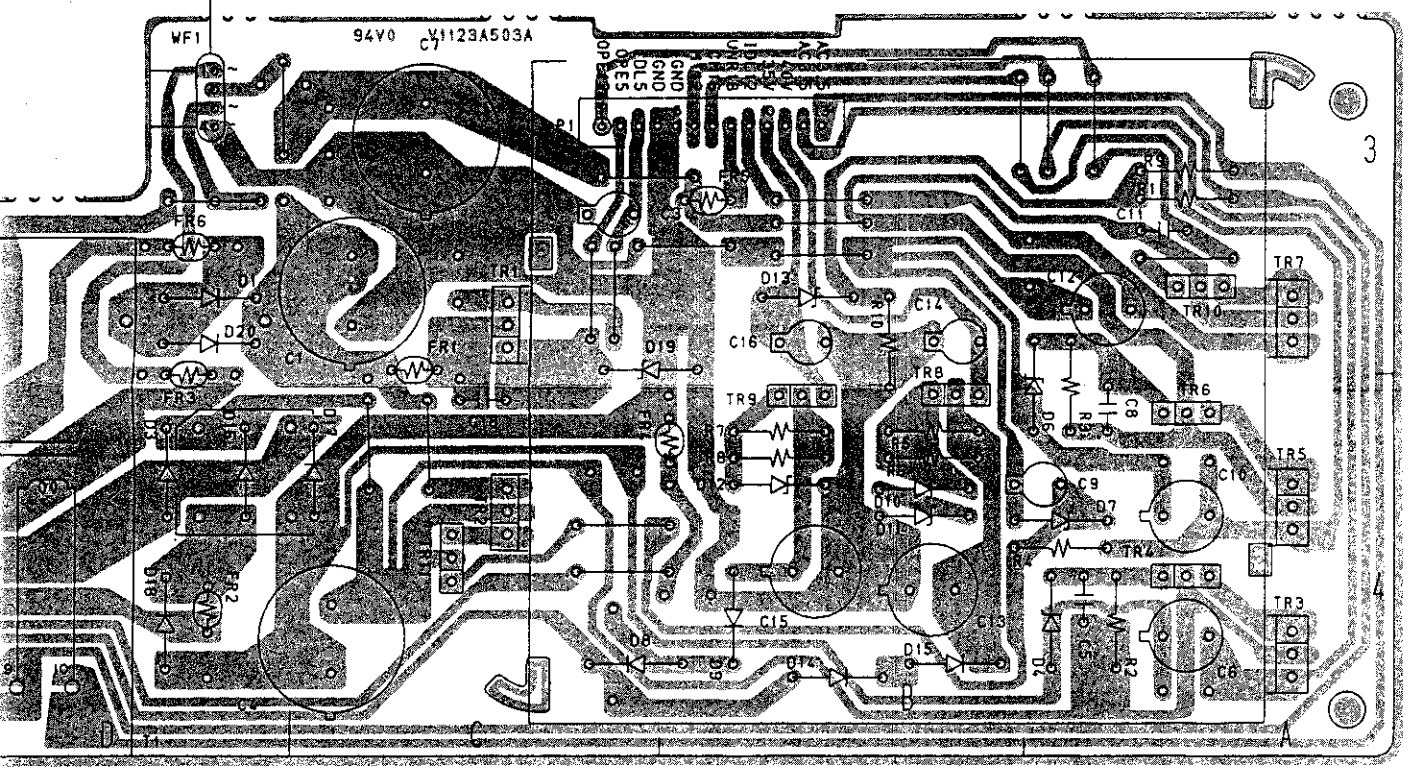
AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.



POWER SUPPLY (2) PCB V1123B504

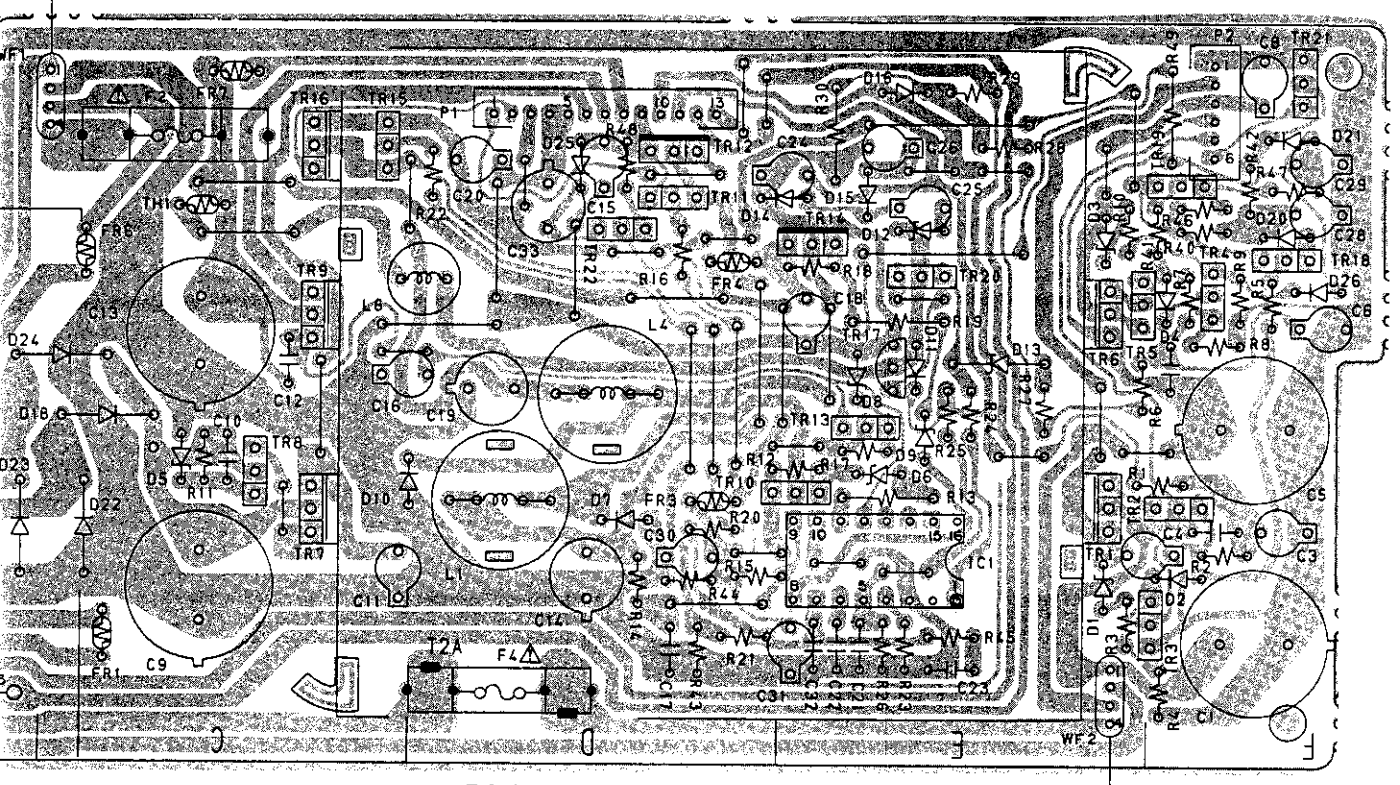
DIODE PCB
V1123A503B



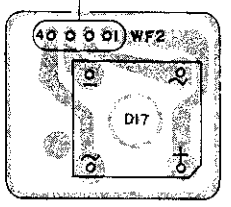


POWER SUPPLY (1) PCB V1123A503A

DIODE PCB
V1123B504B



POWER SUPPLY (2) PCB V1123B504A



DIODE PCB
V1123B504C

TO SERVO/SYSCON PCB
GND GND GND GND D.1DL5V CM16V MOTOR12V IDL12V V.SYNC BU.5V
TO OPERATION (1) PCB WP3
P70 P.DOWN V.SYNC BUP 5V AC 5V AC 5V -35V
TO POWER PCB P1
WP71 OPE.12 OPE.5 IDL 5V GND GND MOTOR 12V CM 16V UNR 18V IDL 12V -35V +40V AC 5V AC 5V
WP72 N.C. A.GND
EOG-V
TO VP P1
P85V
PB-C
SECAM
IDL 12V
IDL 5V
PB 5V
TUNE
TR154 2SC3330
TR155 2SC3330
TR156 DTC144ES
TR157 DTA144ES
TR168 DTC144TS
TR169 DTC144TS
EOH/EO/EOG ONLY
EK/EA ONLY
*FL151 FF-78P
*FL151 1/3 5.06MHz
*FL151 2/3 1.6MHz
*FL151 3/3 4.43MHz
TR153 2SA1317
TR150 2SC3330
TR151 2SC3330
TR152 2SC3330
TR160 DTC114ES
TR161 DTC114ES
D151
D152
IC151 LA7332
X151 4.433619MHz
TR162 2SC3330
TR163 2SA1317
TR170 2SC3330
TRICK
IC152 BA7025L
S.W
DET
COMP1
COMP2
REG
FL152 SFE-4.16MB
TP151 P/S
TR164 2SC3330
TR165 2SC3330
TR166 DTC114ES
TR167 DTC114ES
DL151 ADL FE2247Q EFDJF 124A13J
TR71 DTA114ES
TR72 2SC3330
TR73 2SD1292
D72 HZS3C3
D73 HZS5C3
D74
JS71 A650 ONLY
IC70 M5218AL
TP211 CCD LEVEL
TR212 2SA1317
VR211 10K
FL211 MYV-2V2
IC211 LC8992
TR211 2SD1292
D211 D210 HZS983L
TP101 W.C
TP104 REC Y
VR103 DEV
VR104 FREQ
VR105 W.C.
TR11 DTA144ES
IC101
REC
TR109 DTC144ES
TR110 UN421D
TR112
TR113 DTC144TS
TR114 DTC144ES
TR108 DTC144ES
TR101 DTC124ES
TR158 2SB1425
TR159 2SA1317
TR201 2SA1317
TR202 2SA1317
D103 D201
EDIT
EOG-V ONLY
EQ. EOH ONLY
JS163
EXCEPT EA
TR225 2SC3330
P101 PB C REC Y PB 5V VIDEO GND REC C PB Y IDL 5V V.SWP AFC SYNC FE GND REC S 12V TUNE ENVE SW COMP ON SP PB FM ENVE DET AUDIO GND HEAD SW REC FM A.SWP
TO PRE AMP PCB WP1
TO AUDIO BLO
REC FM AUDIO GND PB FM A.SWP EE IDL 5V SP
POWER SUPPLY (AL.IDL) LINE
REC CHROMA SIGNAL LINE
PB CHROMA SIGNAL LINE
REC Y SIGNAL LINE
PB Y SIGNAL LINE
INDICATED VOLTAGES ARE MEASURED IN PB (SP) MODE
MAIN PCB 1/3 (VIDEO BLK) V1123A500A

VS-F600/A650
EA·EK·EO·EOH·EOG-V
MAIN 1/3 (VIDEO BLK)
SCHEMATIC DIAGRAM
NO.19-4 V112304M

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W(J)
ALL CAPACITORS IN μF 16WV(M)

TO SERVO/SYSCON PCB

TO MAIN PCB VIDEO BLK

TO A/C HEAD

TO I/O PCB WP701

IC300 BS7765AS

INDICATED VOLTAGES ARE MEA
(PLAYING BACK HIFI PRE REC

B (POWER SUPPLY) LINE
REC SIGNAL LINE
PB SIGNAL LINE

*	EA EOH EOG-V	EK EO
R445	15K	3.3K
R446	2.7K	47K
R447	15K	3.3K
R448	2.7K	47K

VS-F600/A650
EA·EK·EO·EOH·EOG-V
MAIN 2/3 (AUDIO BLK)
SCHEMATIC DIAGRAM
NO.19-5 V112305M

*	EA	EK	EOH (E)	EOH (V)	EO	EOG-V
TU1	TERS1-002A E59-14-009	TERB1-008A E59-14-015	TERE3-001B E59-14-018	TERE3-003A E59-14-020	TERE3-001B E59-14-018	TERE1-007A E59-14-013
IF1	E59-12-044	E59-12-045	E59-12-046	E59-12-047	E59-12-048	E59-12-047
MD1	YAA21-0453 E59-11-013	MDLK6B063B E59-11-018	MDLK6D063B E59-11-016	→	→	→

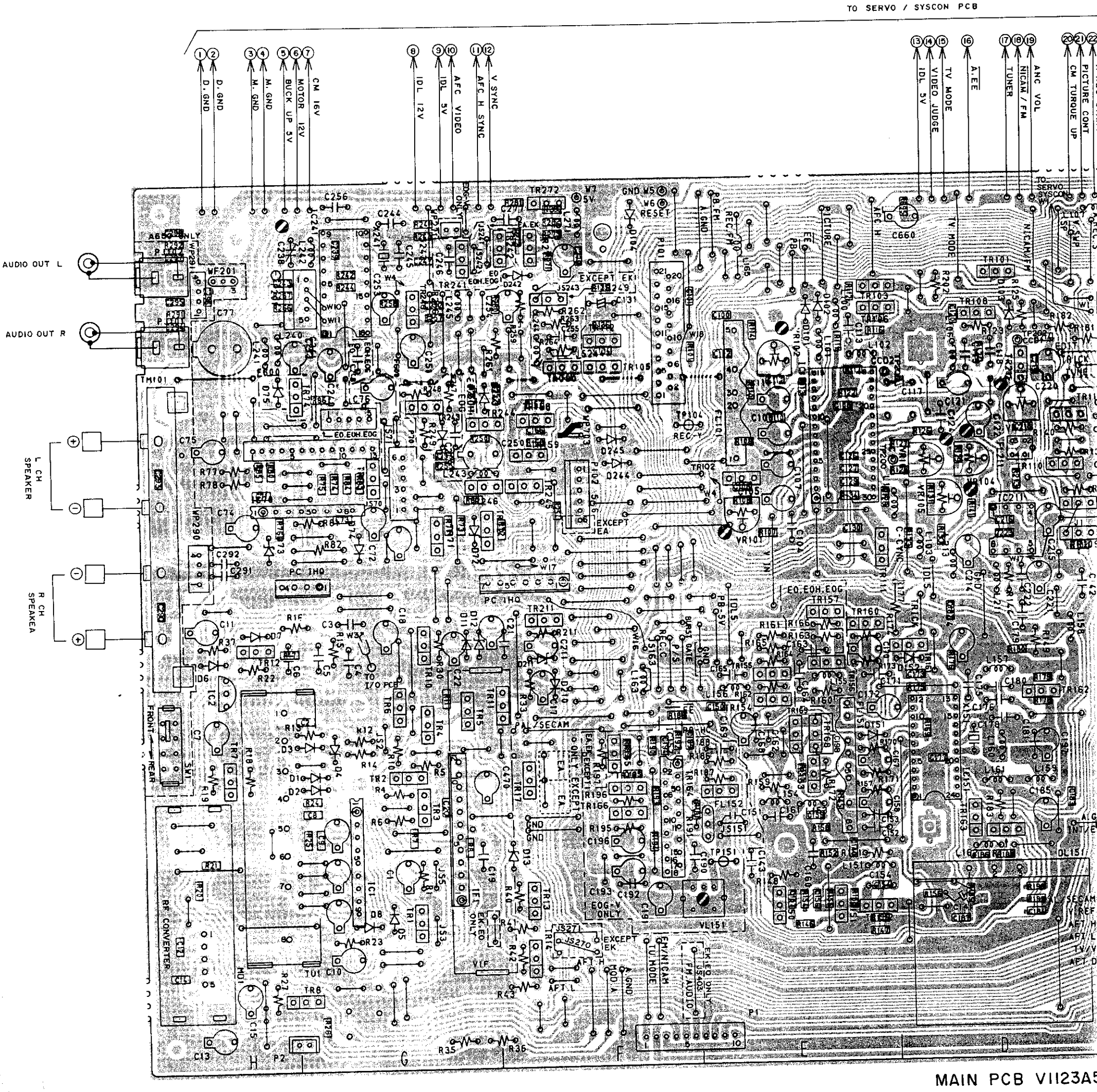
*	EA	EK	EOH (E)	EOH (V)	EO	EOG-V
C3, 4	0.047	0.047	0.1	0.1	0.1	0.082
R15	47K	47K	22K	22K	22K	27K
R16	22K	22K	10K	10K	10K	12K
R35		3.9K			3.9K	
R36	330	3.9K	330	330	3.9K	330

B (POWER SUPPLY) LINE
VIDEO IN (REC, E-E) SIGNAL LINE
VIDEO OUT (PB, E-E) SIGNAL LINE
AUDIO IN (REC, E-E) SIGNAL LINE
AUDIO OUT (PB, E-E) SIGNAL LINE

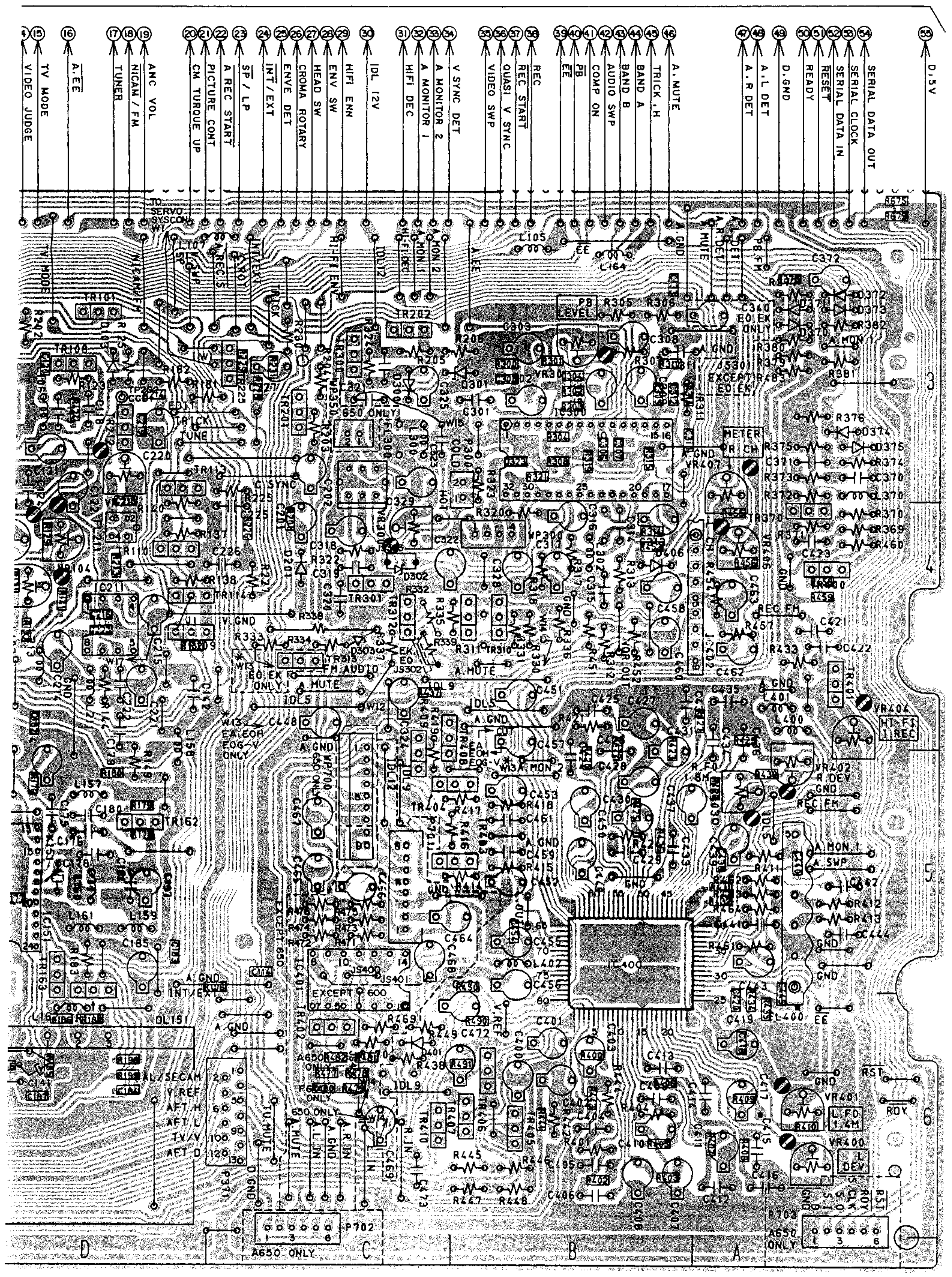
MAIN PCB 3/3 (RF BLOCK) V1123A500A

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 16WV (M)

VS-F600/A650
EA · EK · EO · EOH · EOG-V
MAIN 3/3 (RF BLK)
SCHEMATIC DIAGRAM
NO.19-6 V112306M


TO SERVO / SYSCON PCB
D. GND
D. GND
M. GND
M. GND
BUCK UP 5V
MOTOR 12V
CM 16V
IDL 12V
IDL 5V
AFC VIDEO
AFC H SYNC
V SYNC
IDL 5V
VIDEO JUDGE
TV MODE
A.EE
TUNER
NICAM / FM
ANC VOL
CM TURQUE UP
PICTURE CONT
TO SERVO SYSCON
AUDIO OUT L
AUDIO OUT R
L CH SPEAKER
R CH SPEAKEA
FRONT
REAR
TO I/O PCB
RF CONVERTER
MAIN PCB V1123A5

SYSCON PCB



MAIN PCB V1123A500A

PRINCIPAL PARTS LOCATION

ICS

IC1.........G5,6
IC70........G,H4
IC101.......E3,4
IC151.......D5
IC152.......F5,6
IC221.......D4
IC241.......G3
IC300.......B3
IC400.......B5,6
IC401.......C5,6
IC402.......A,B4

WP

WP71........G,H4
WP72........G3
WP271.......G3
WP290.......H4
WP291.......H3
WP300.......B4
WP350.......C3

CONNECTORS

P1..........E,F6
P2..........G,H6
P70.........G4
P101........F3
P102........F4
P201........G,H3
P300........B,C3,4
P371........C6
P700........C5
P701........C5
P702........C6
P703........A6

TRANSISTORS

TR1.........G6
TR2.........G5
TR3.........G5
TR4.........G5
TR5.........G5
TR6.........G5
TR7.........H5
TR8.........G,H6
TR10........G4,5
TR11........F5
TR12........H5
TR13........F6
TR14........F6
TR17........F5
TR71........G4
TR72........G4
TR73........G4
TR74........G4
Tr101.......D3
TR102.......E4
TR103.......D,E3
TR105.......F3
TR106.......D,E3
TR108.......D3
TR109.......D4
TR110.......D4
TR111.......E4
TR112.......F3
TR113.......D3
TR114.......D4
TR150.......E6
TR151.......E6
TR152.......E6
TR153.......E5
TR154.......E5
TR155.......E5
TR156.......E5
TR157.......E4
TR158.......F3
TR159.......F4
TR160.......E4
TR161.......D,E5
TR162.......D5
TR163.......D5,6
TR164.......E5
TR165.......F5
TR166.......F5
TR167.......F5
TR168.......E5
TR169.......E5
TR170.......D5,6
TR201.......C3
TR202.......C3
TR211.......F4
TR212.......D3
TR225.......C3
TR241.......G3
TR242.......F3
TR243.......G3
TR244.......F,G3
TR245.......F4
TR246.......F,G4
TR248.......G3
TR249.......F3
TR250.......F3
TR271.......F3
TR272.......F3
TR300.......C3
TR301.......C4
TR310.......B4
TR311.......B4
TR312.......C4
TR313.......C4
TR370.......A4
TR400.......A4
TR401.......A4
TR402.......C6
TR403.......B,C6
TR404.......B,C5
TR405.......B6
TR407.......B6
TR408.......B,C4,5
TR409.......C4,5
TR410.......C6

TO MAIN PCB
AFC VIDEO
AFC SYNC
V SYNC
IDL 12V
MOTOR 12V
CM 16V
GND
BAND A
BAND B
A.SWP
A.MUTE
A.EE
A.ENV
HIFI.DEC
TUNE
IDL 5V
EA ONLY
JS600
D·IDL 5V
IC500
BA7046
TR608
2SC3330
TR501
2SC3330
TR602
DTC144ES
TR500
2SB1425
TR502
2SA1317T
TR601
DTA144TS
TR603
DTA144TS
TR605
DTA144TS
TR610
DTA 144TS
TR604
DTC144ES
TR607
DTA114TS
IC600 (1/2)
BA15218N
IC600 (2/2)
IC604
BU4052B
DM DUTY
TP500
AFC
D600
1N4002
TO DRUM MOTOR
P601
PG
D.GND
FG
MOTOR +
MOTOR −
CONT
TO CAPSTAN MOTOR
P602
F/R
FG
CONT
LIMIT
D·IDLSV
D·GND
CM·POW
P·GND
TO OPERATION PCB WP1
P604
SCK
RDY VPS
SO.OPE
IDL 5V
SI OPE
AR.DET
B
A.L.DET
A
RESET
RDY SUB
GND
RDY.SYS
*R635 10K
*R636 10K
*R637 10K
*R638 10K
*R635toR638 1/8W
SERVO/SYSCON PCB
V1123A500B
WP605
SI IMS
STB
CLK IMS
BUSY
D.GND
TO MAIN PCB
WP201
(VIDEO BLK)
IDL 5V
SO SUB
CLK SUB
SI SUB
RESET
RDY SUB
D.GND
A.L.DET
A.R.DET
TO MAIN PCB
WP602
CLK VPS
SI VPS
SO VPS
RDY VPS
RESET
EOG-V ONLY
TO VPT PCB
P104
P603
SS
POS 1
POS 2
POS 3
POS 4
D.IDL 5V
TRP
ES
SRP
D.GND
LM +
LM −
REC SAF
TO MECHA BLK
B (POWER SUPPLY) LINE
CAPSTAN MOTOR SPEED
CAPSTAN MOTOR PHASE
DRUM MOTOR SPEED
DRUM MOTOR PHASE

B (POWER SUPPLY) LINE
CAPSTAN MOTOR SPEED
CAPSTAN MOTOR PHASE
DRUM MOTOR SPEED
DRUM MOTOR PHASE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL DIODES ARE 1SS131T

INDICATED VOLTAGES ARE MEASURED IN PB (SP) MODE

VS-F600/A650
EA · EK · EO · EOH · EOG-V
SERVO/SYSCON
SCHEMATIC DIAGRAM
NO.19-7 V112307M

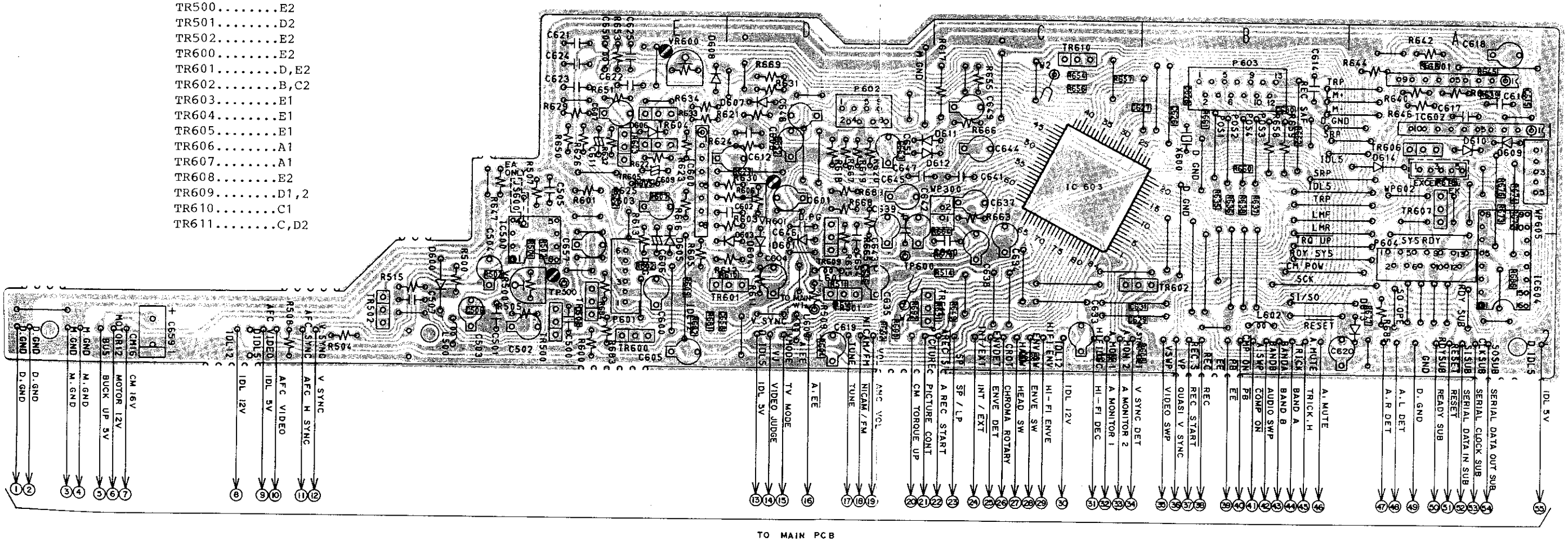
PRINCIPAL PARTS LOCATION

ICS
IC500.....E1,2
IC600.....E1,2
IC601.....A1
IC602.....A1
IC603.....B,C1,2
IC604.....A1,2

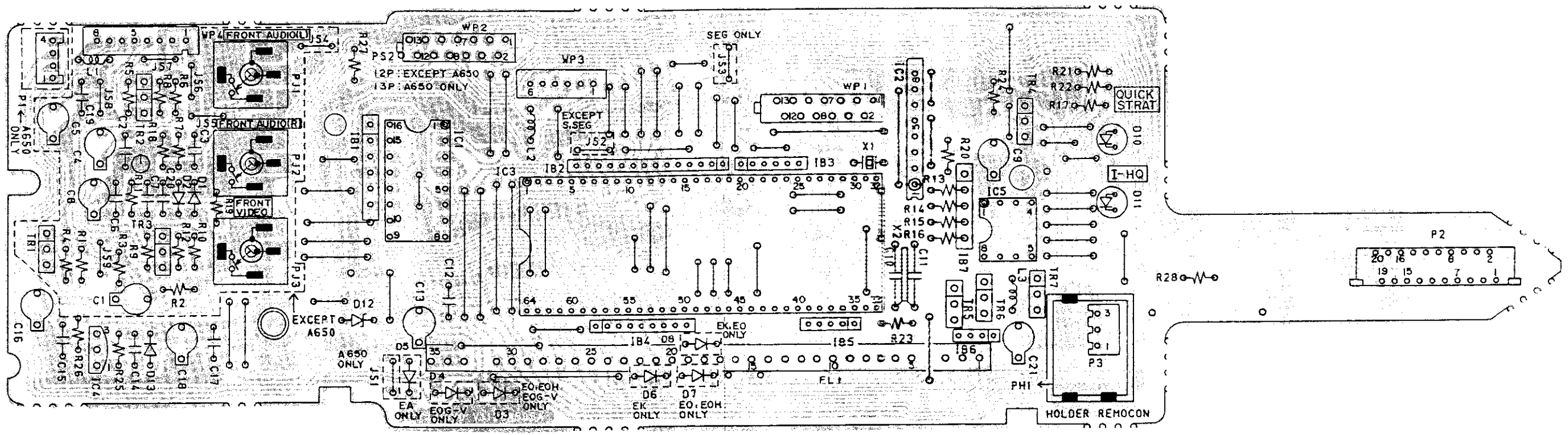
WP
WP602.....A1
WP605.....A1

CONNECTORS
P601.....E2
P602.....D1
P603.....B1
P604.....A2

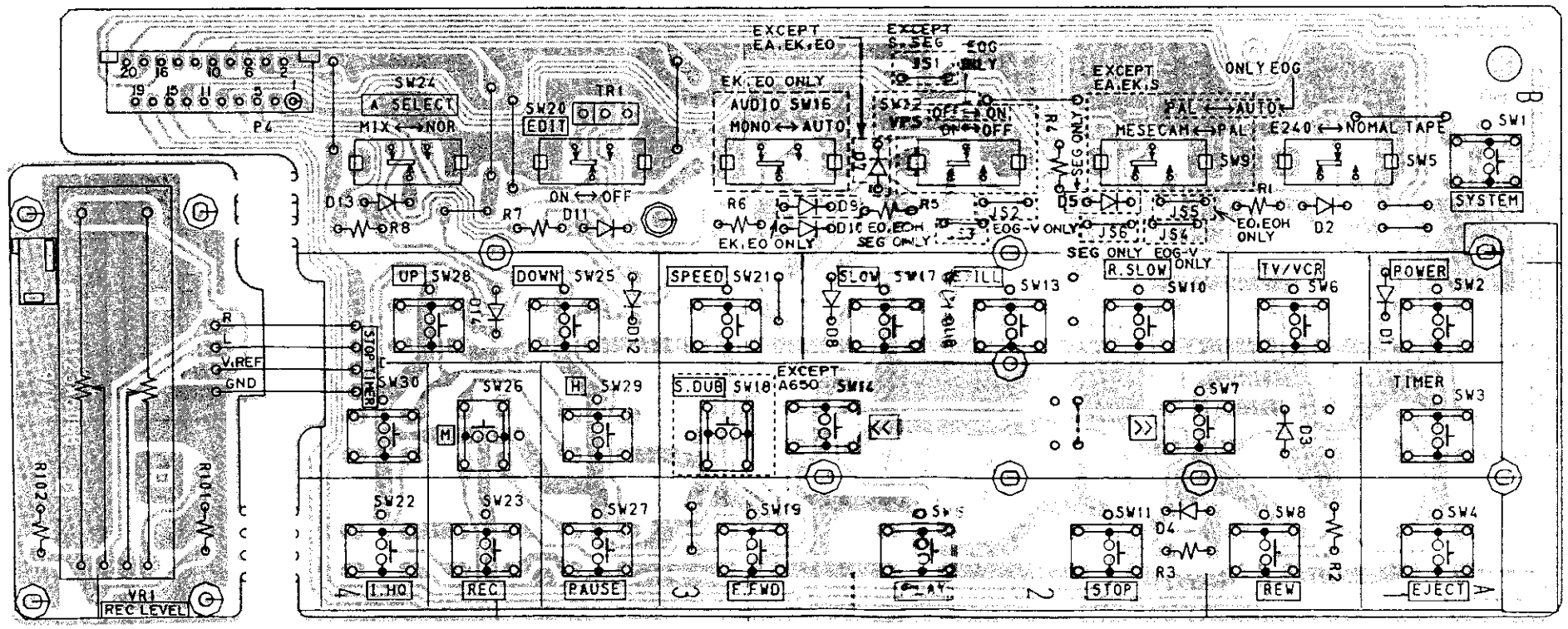
TRANSISTORS
TR500.....E2
TR501.....D2
TR502.....E2
TR600.....E2
TR601.....D,E2
TR602.....B,C2
TR603.....E1
TR604.....E1
TR605.....E1
TR606.....A1
TR607.....A1
TR608.....E2
TR609.....D1,2
TR610.....C1
TR611.....C,D2



SERVO / SYSCON PCB V1123A500B



OPERATION (1) PCB V1123A505A



REC VOLUME PCB
V1123A506BJ1

OPERATION (2) PCB V1123A506AJ1

TO SERVO/SYSCON PCB P604

WP1: SCK, RDY (VPS), S. OUT, IDL5V, S. IN, A. R DET, B, A. L DET, A, RESET, RDY (SUB), D. GND, RDY (SYS)

TO MAIN PCB P70

WP3: P. DOWN, AFC. V SYNC, BUP5V, AC5V, AC5V, -35V

*D3: EO, EOH, EOG-V ONLY
*D4: EOG-V ONLY
*D5: EA ONLY
*D6: EK ONLY
*D7: EO, EOH ONLY
*D8: EK, EO ONLY

TO VOLUME PCB WP202

PJ: S9, B9, S10, K1

VS-A650 ONLY

JS1

P2: A. GND, D. GND, S0, VR. R, S1, VR. L, S2, EDIT, S3, PAL/SECAM, S4, V REF, S5, K0, S6, K1, RESET, K2, S7, K3

*D3 S8, *D4 S9, *D5 S10, *D6 S11, *D7 S12, *D8 S13

R16 10K, R15 10K, R14 10K, R13 10K

IB7 47K×4

C9 100/6.3, R17 47

LIMITER, BPF, OEM OD, COMP

PH1 GP1U521X

IC1 MC14050B

R22 270, D11 GL-5PR41 1-HQ

D10 R21 220 GL-5HY41

QUICK START

5.1V, 0.8V, 0V, 0.7V, 1V, 0V, K0 4.6V, K3 0V, 0.1V, 0V, K2 0V, 0V, 4.8V, K1 4.6V, 0.1V, 0V

IB1 RKM6L 502F

IC2 BA10393N

1.1V, 0.7V, 0.7V AL DET, 0.7V AR DET, 0.7V, 1.1V, 5.1V

R20 3.9K

IC3 μPD75217CW HFXOPP1-017

-25.3V S3, -28.4V S2, -19.2V S1, -18.0V S0, 0V P. DOWN, 4.6V SCK, 1.7V S. OUT, 2.1V S. IN, 5.0V REM, 3.6V V. SYNC, 0V AFT. L, 5.1V AFT. H, 2.9V B, 1.6V A, 0V ANC, 0V Q. START, 0V SCL, 5.1V SDA, 4.6V VPSCLK (PAL), 1.1V AUDREADY (SECAM), 1.3V SYSREADY, 0.7V VPS READY (MESECAM), 1.7V LEVEL. L, 1.1V LEVEL. R, 4.7V DA0/K10, 0V DA1/K11, 4.6V DA2/K12, 0V DA3/K13, 3.3V PWM, 2.2V X1, 2.4V X2, 0V Vss

IB2 10K×13

IB3 10K×5

R27 4.7K

VDD 4.9V, S4 -19.4V, S5 -16.1V, S6 -19.4V, S7 -21.2V, S8 -25.3V, S9 -22.2V, V PRE -4.1V, V. LOAD -31.8V, S10 -25.8V, S11 -22.0V, S12 -22.0V, S13 -16.0V, S14 -25.0V, T10 -29.0V, T9 -29.0V, T8 -29.0V, T7 -29.0V, T6 -29.0V, T5 -29.0V, T4 -29.0V, T3 -29.0V, T2 -29.0V, T1 -29.0V, T0 -29.0V, RESET 4.9V, AFT 0V, TV/VCR 4.9V, T. MUTE 0V, RSTOUT 0V, XT2 2.4V, XT1 1.4V

IB4 47K×8

IB5 22K×4

R23 330K

X2 32.768K

X1 CST4.19MGW 4.194MHz

C10 180P/50 (J), C11 180P/50 (J)

D12 HZS9C1L

TR4 DTC

L2 22μH

C22 0.022 (Z)

PAL ONLY JS2

VS-F600 ONLY

C20 0.1/50 (K), D2, D1

TO MAIN PCB P701

WP4: F. A. SW, F. AUDIO. L, A. GND, F. AUDIO. R, V. GND, F. VIDEO, F. V. SW, IDL 12V

JS6, JS7, JS8, JS9

L1 100μH, C19 0.01, C5 47/16

TR1 2SC3330 12.5V 3.4V

R1 3.3K, R4 68K, R2 33K, C1 47/16, R3 75

JS5, JS12, JS10, JS13, JS11

C2 100P/50 (K), C3 100P/50 (K), C6 100P/50 (K), C7 100P/50 (K)

R7 33Ω, R11 33Ω

R18 220K, R19 220K

JS4

PJ3 FRONT VIDEO IN, PJ1 FRONT AUDIO L IN, PJ2 FRONT AUDIO R IN

OPERATION (1) PCB
V1123A505A

P4: K3, S7, K2, RESET, K1, S6, K0, S5, V REF, S4, PAL/SECAM, S3, EDIT, S2, VR. L, S1, VR. R, S0, D GND, A GND

52089-2020

TAPE SELECT, NORMAL → E240

EO, EOH ONLY JS5

EXCEPT EA, EK, S P/S

MESE PAL → CAM

SEG ONLY JS6

SW1 SYSTEM RESET, SW5, SW9

EXCEPT K0 S. SEG JS1

D2

S3 R1 4.7K SEG ONLY D1, S7 R2 4.7K D3, S6 R3 4.7K D4

SW2 POWER, SW6 TV/VCR

SW3 TIMER, SW7 MULTI SPEED

SW4 EJECT, SW8 REW

K3, K2, K1

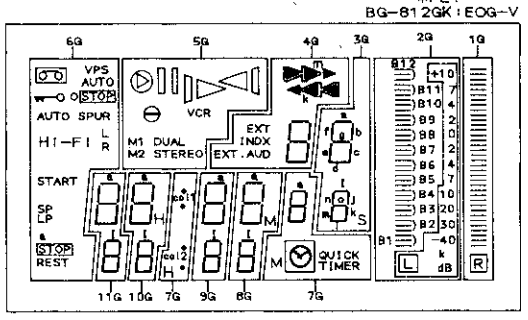
OPERATION (2) PCB V1123A506A

INDICATED VOLTAGES ARE MEASURED IN PB (SP) MODE

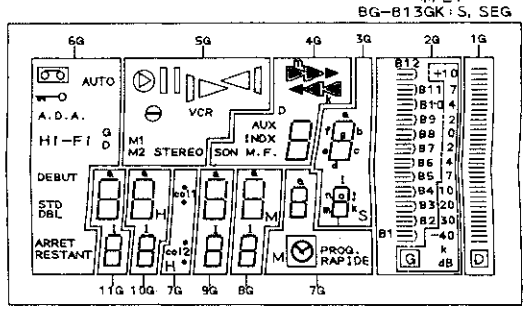
TO MAIN PCB P371

WP2: EDIT, PAL/SECAM, VR.L, V REF, VR.R, AFT.H, D.GND, AFT.L, T.MUTE, TV/VIDEO, PWM, AFT.D, A.GND (A650 ONLY)

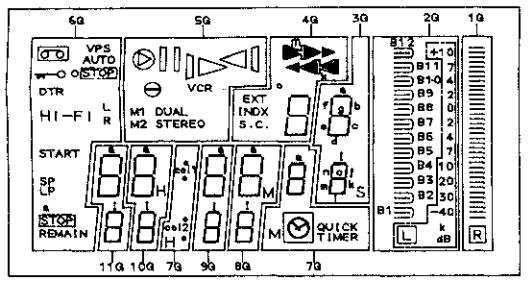
*FL1 BG-812GK : EOG-V



*FL1 BG-813GK : S, SEG



*FL1 BG-811GK : EA, EX, EO, EOH



FXOPP1-017

IB4 47K×8 — IB5 22K×4 — R24 22K — R23 330K — R26 10 — R25 10K — R28 1K

X2 32.768K — L2 22μH — L3 220μH

D12 HZS9C1L — D13

TR4 DTC144ES — TR5 TR6 TR7 DTC143ES

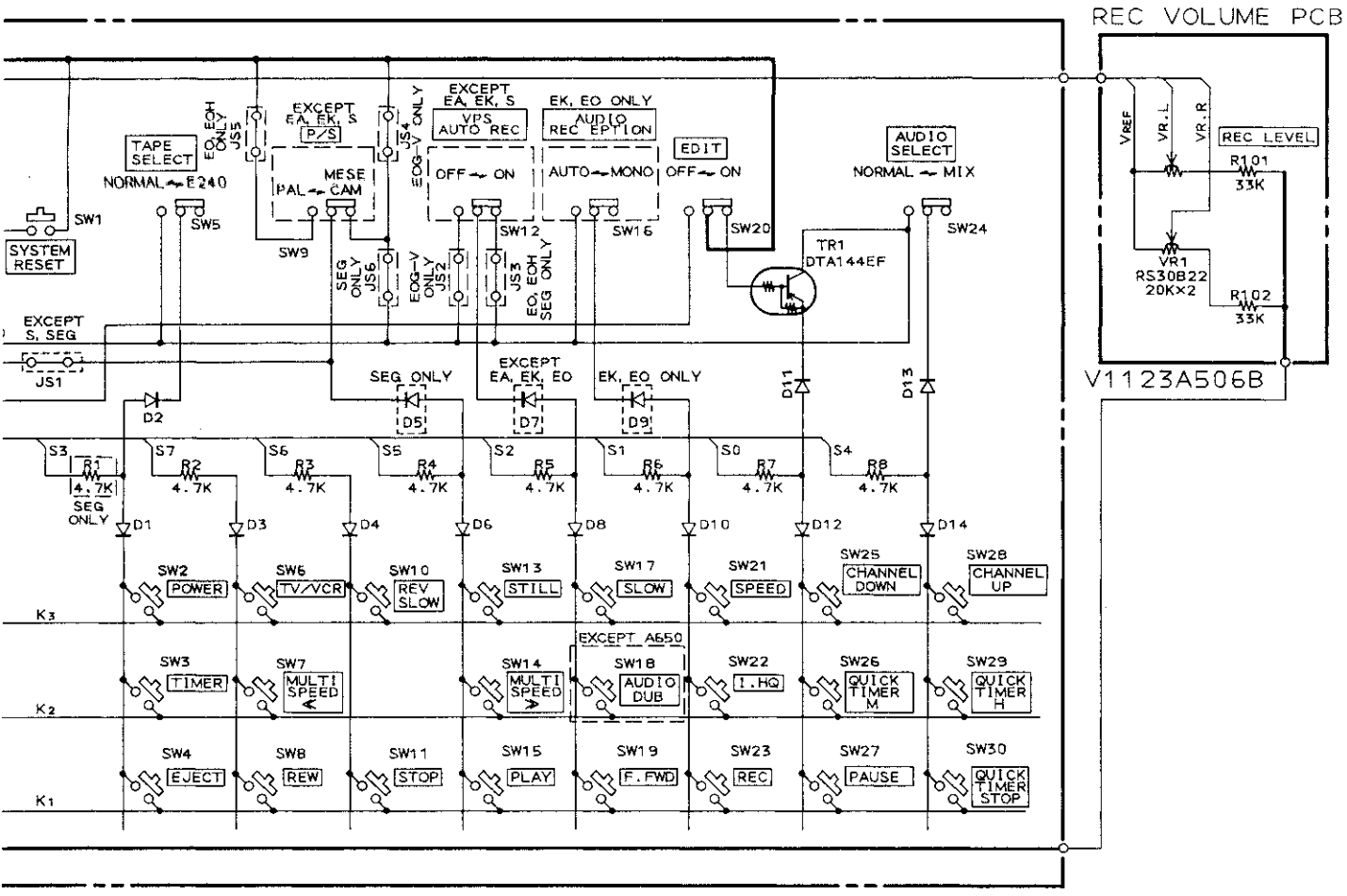
TR5toTR7 DTC143ES

IB6 47K

IC4 S-8053ALR-Z — IC5 X2402P

C10 180P/50 (J) — C11 180P/50 (J) — C12 0.01 (N) — C13 100/6.3 — C14 0.01 (N) — C15 0.01 (N) — C16 100/6.3 — C17 0.01 (N) — C18 100/6.3 — C21 100/6.3

REC VOLUME PCB



PCB V1123A506A

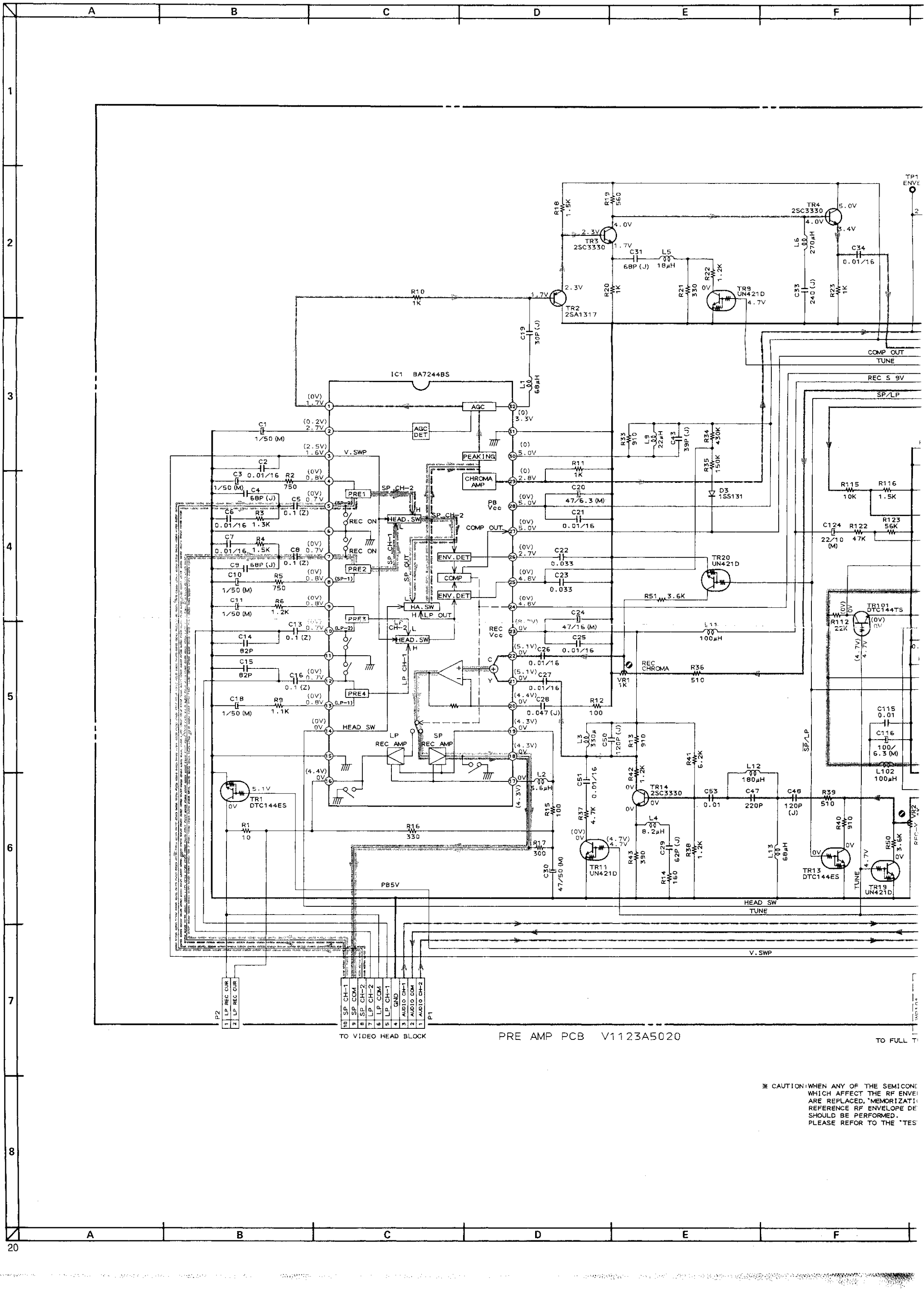
V1123A506B

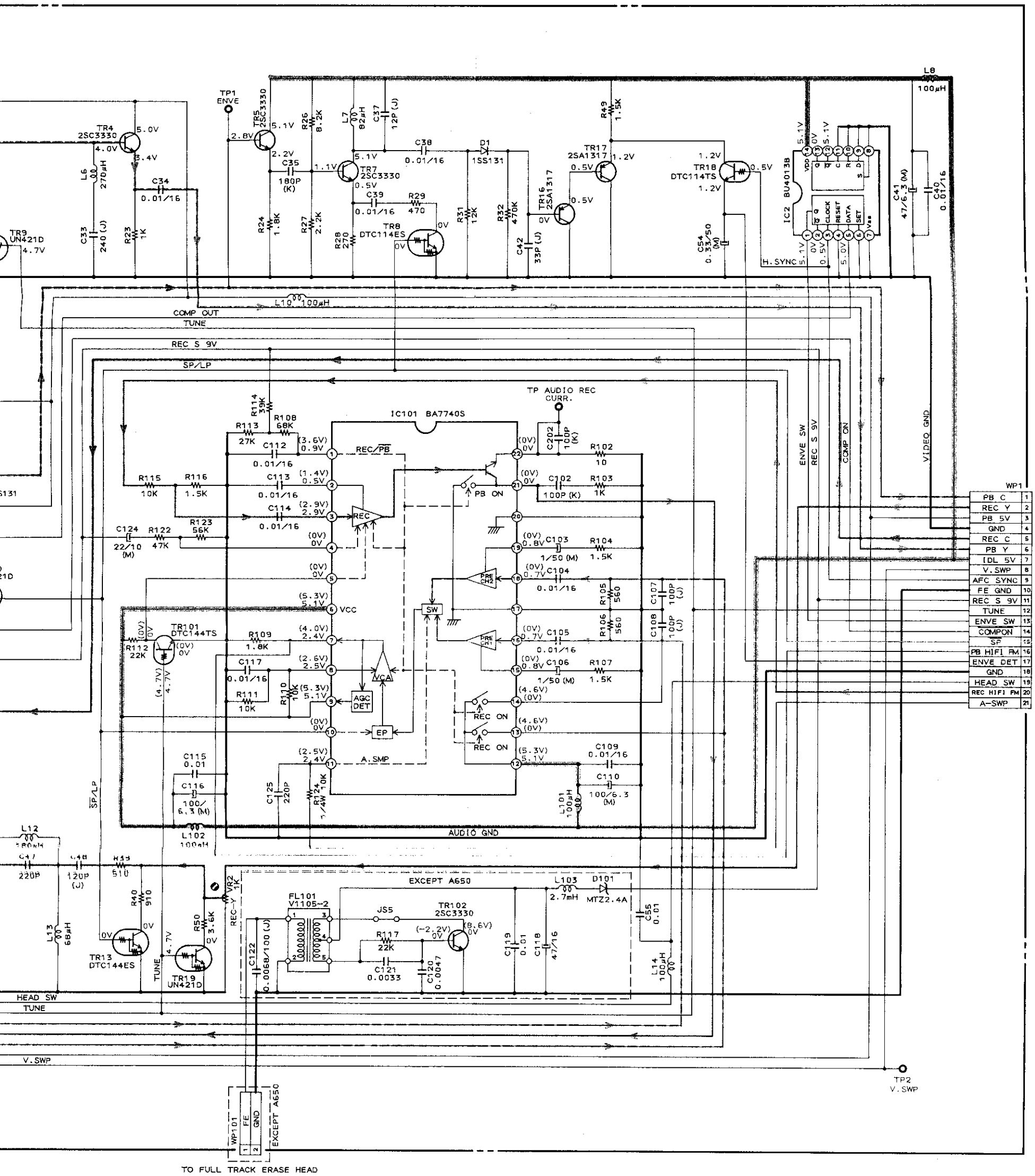
:POWER SUPPLY LINE
:VIDEO IN (REC) SIGNAL LINE
:AUDIO SIGNAL LINE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL DIODES ARE 1SS131T

※CAUTION
WHEN THE IC5 IS REPLACED,
"MEMORIZATION OF THE REFERENCE
RF ENVELOPE DETECT VOLTAGE"
SHOULD BE PERFORMED.
PLEASE REFER TO THE "TEST MODE" SECTION.

VS-F600/A650
EA·EK·EO·EOH·EOG-V
OPERATION
SCHEMATIC DIAGRAM
NO.19-8 V112308M


IC1 BA7244BS
AGC
AGC DET
PEAKING
CHROMA AMP
PB Vcc
COMP OUT
ENV. DET
COMP
ENV. DET
HA. SW
REC Vcc
PRE1
PRE2
PRE3
PRE4
HEAD. SW
REC ON
V. SWP
SP CH-2
SP CH-1
SP OUT
LP OUT
LP CH-2
LP CH-1
HEAD SW
LP REC AMP
SP REC AMP
TR1 DTC144ES
TR2 2SA1317
TR3 2SC3330
TR4 2SC3330
TR9 UN421D
TR11 UN421D
TR13 DTC144ES
TR14 2SC3330
TR19 UN421D
TR20 UN421D
TR101 DTC144TS
D3 1SS131
VR1 1K
VR2
REC CHROMA
COMP OUT
TUNE
REC S 9V
SP/LP
HEAD SW
TUNE
V. SWP
PB5V
P2
P1
1 LP REC CUR
2 LP REC CUR
10 SP CH-1
9 SP COM
8 SP CH-2
7 LP COM
6 LP CH-1
5 GND
4
3 AUDIO CH-1
2 AUDIO COM
1 AUDIO CH-2
TO VIDEO HEAD BLOCK
PRE AMP PCB V1123A5020
TO FULL T
※ CAUTION: WHEN ANY OF THE SEMICOND
WHICH AFFECT THE RF ENVE
ARE REPLACED, 'MEMORIZATI
REFERENCE RF ENVELOPE DE
SHOULD BE PERFORMED.
PLEASE REFOR TO THE 'TES



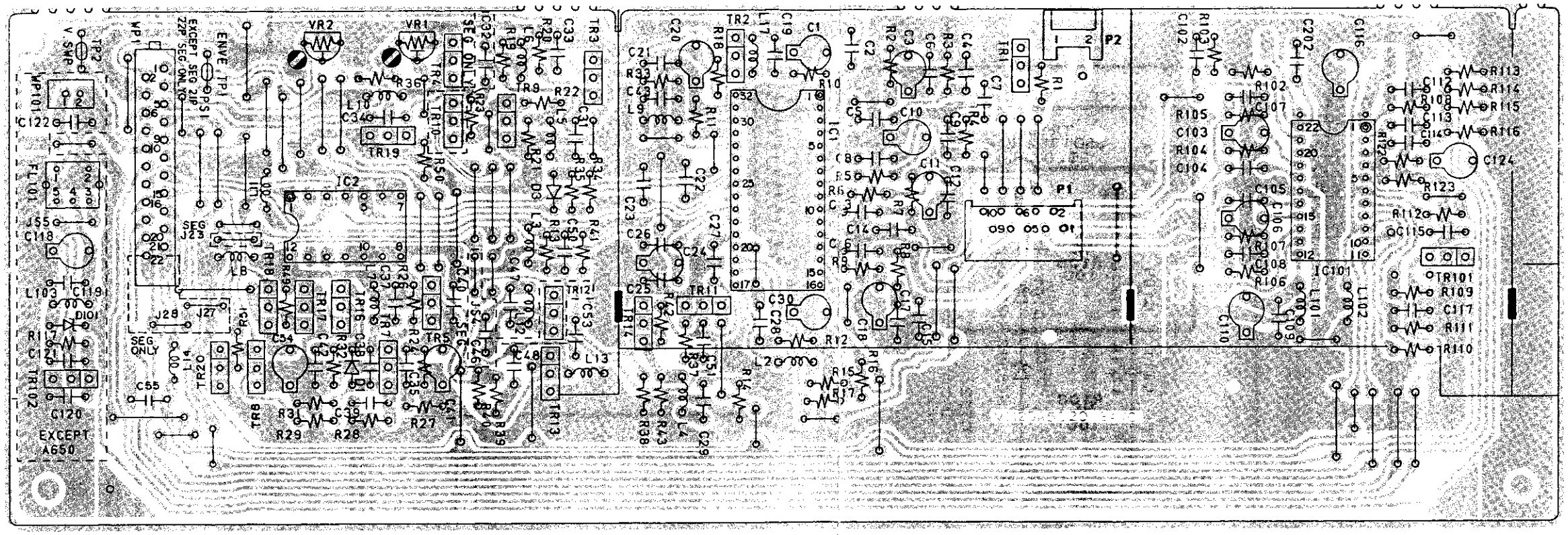
: POWER SUPPLY LINE
: REC AUDIO SIGNAL LINE
: PB AUDIO SIGNAL LINE
: REC Y SIGNAL LINE
: PB Y SIGNAL LINE
: REC CHROMA SIGNAL LINE
: PB CHROMA SIGNAL LINE

※ CAUTION: WHEN ANY OF THE SEMICONDUCTORS WHICH AFFECT THE RF ENVELOPE LEVEL ARE REPLACED, "MEMORIZATION OF THE REFERENCE RF ENVELOPE DETECT VOLTAGE" SHOULD BE PERFORMED. PLEASE REFOR TO THE "TEST MODE" SECTION.

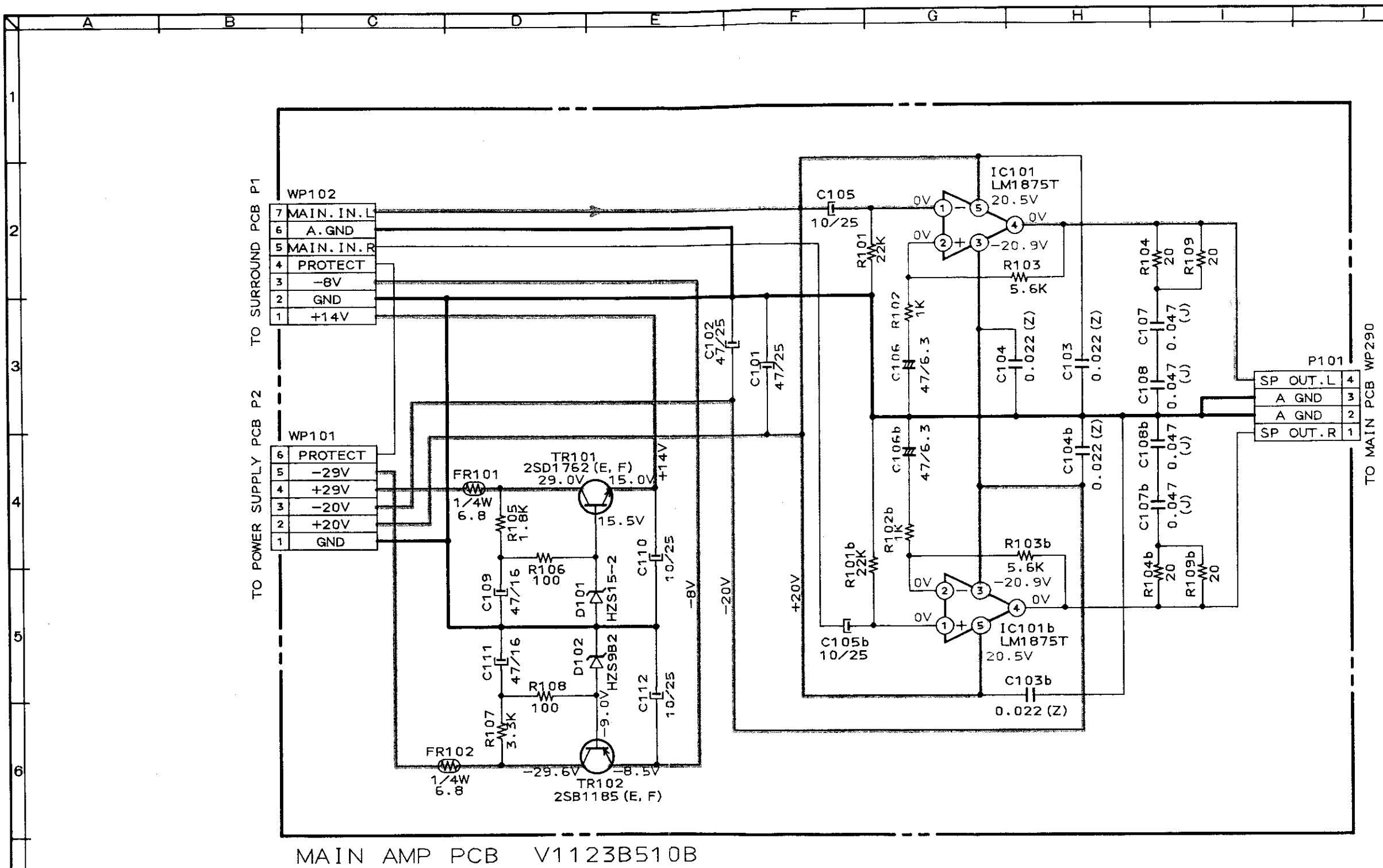
INDICATED VOLTAGES ARE MEASURED IN PB MODE (SP)
( ) REC MODE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/5W (J)
ALL CAPACITORS IN μF 50WV (N)

VS-F600/A650
EA · EK · EO · EOH · EOG-V
PRE AMP
SCHEMATIC DIAGRAM
NO.19-9 V112309M



PRE AMP PCB VII23A5020

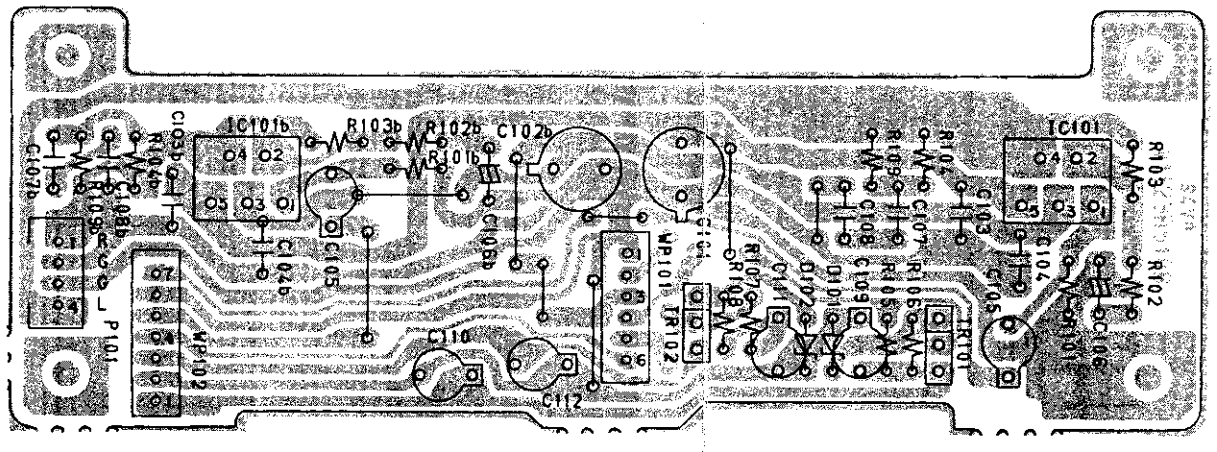


MAIN AMP PCB V1123B510B

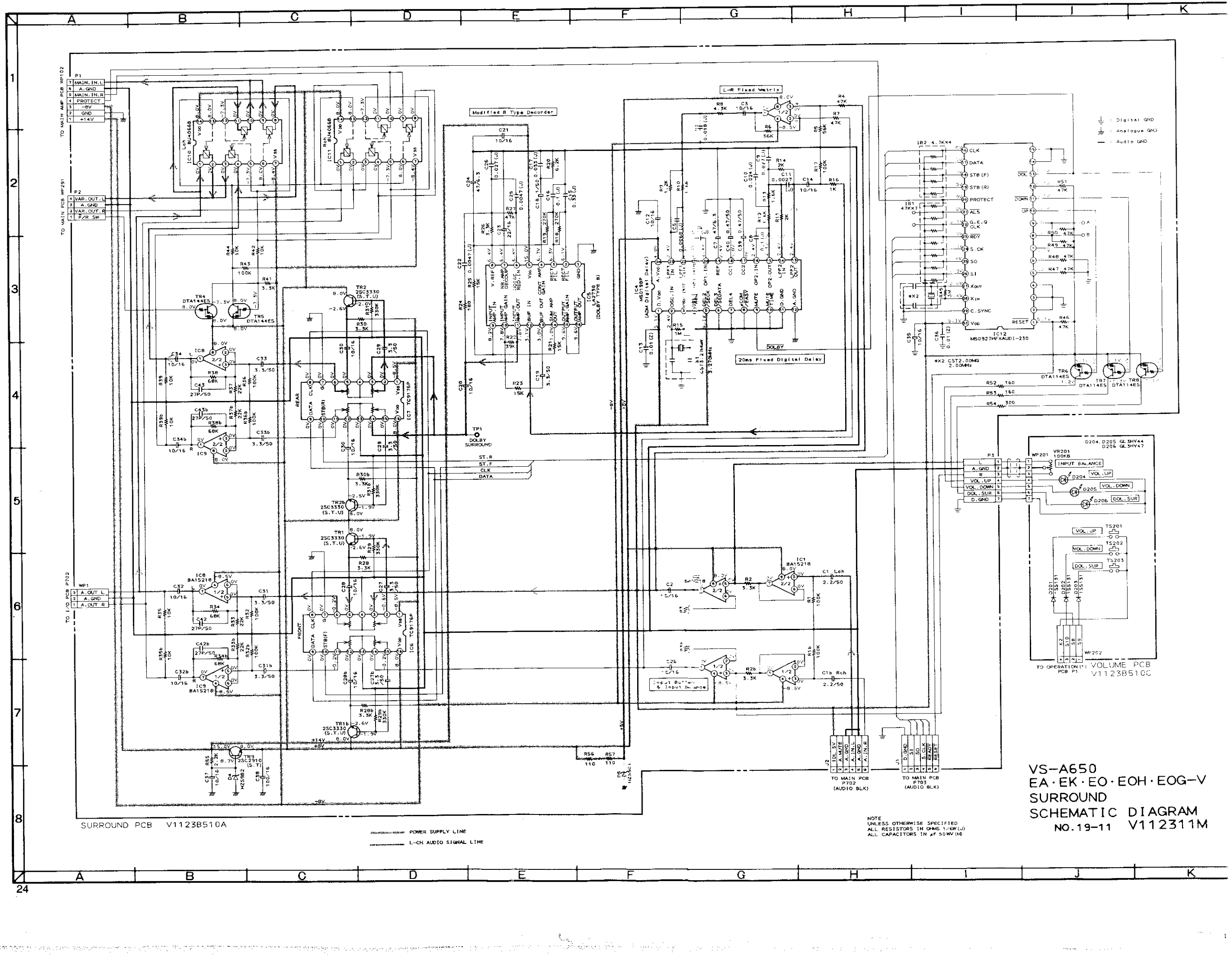
:B (POWER SUPPLY) LINE
:AUDIO SIGNAL LINE

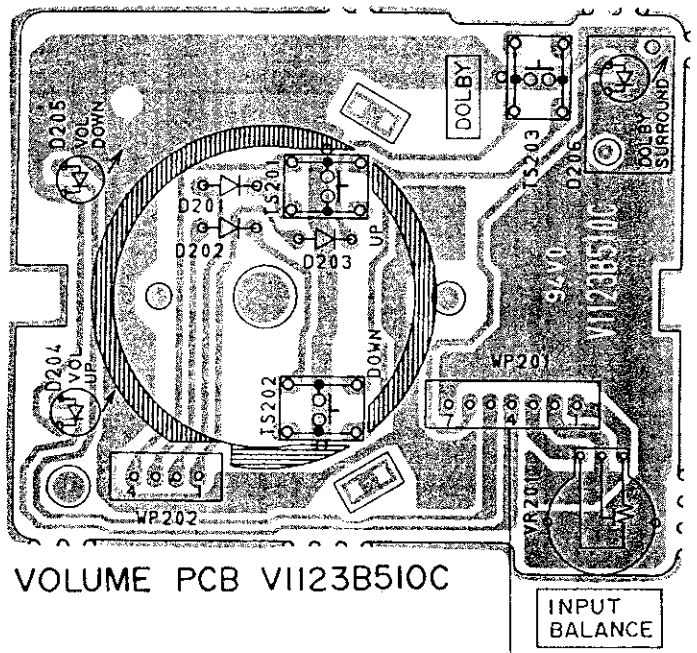
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 50WV (M)

VS-F600/A650
EA·EK·EO·EOH·EOG-V
MAIN AMP
SCHEMATIC DIAGRAM
NO.19-10 V1123 10M



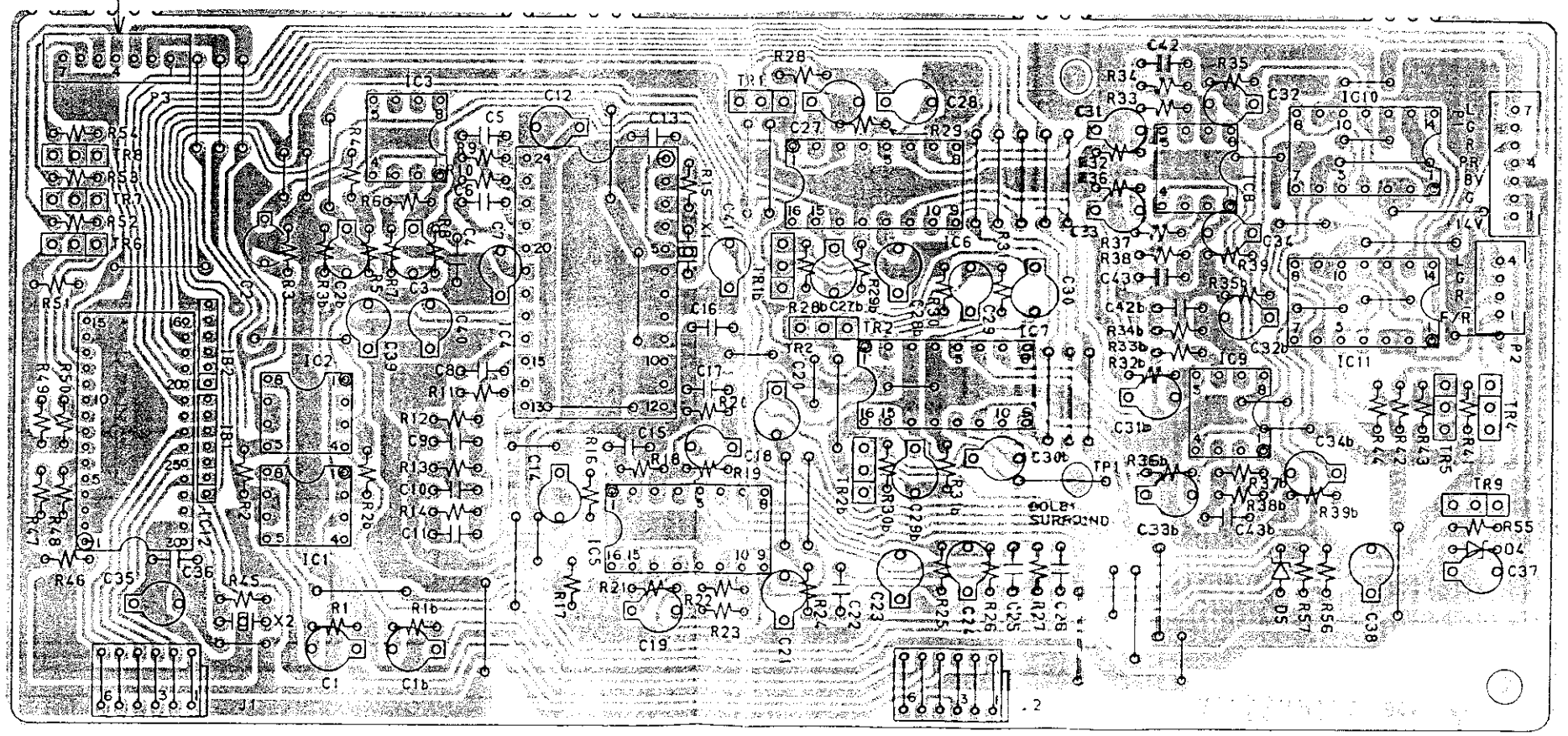
MAIN AMP PCB V1123B510B


P1
MAIN. IN. L
A. GND
MAIN. IN. R
PROTECT
-8V
GND
+14V
TO MAIN AMP PCB WP102
P2
VAR. OUT. L
A. GND
VAR. OUT. R
F/R SW
TO MAIN PCB WP291
Modified B Type Decorder
L-R Fixed Matrix
20ms Fixed Digital Delay
Digital GND
Analogue GND
Audio GND
TP1
DOLBY SURROUND
ST. R
ST. F
CLK
DATA
VOLUME PCB V1123B510C
TO OPERATION P1 PCB P1
VS-A650
EA · EK · EO · EOH · EOG-V
SURROUND
SCHEMATIC DIAGRAM
NO.19-11 V112311M
SURROUND PCB V1123B510A
TO I/O PCB P702
TO MAIN PCB P702 (AUDIO BLK)
TO MAIN PCB P703 (AUDIO BLK)
POWER SUPPLY LINE
L-CH AUDIO SIGNAL LINE
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 50WV (M)

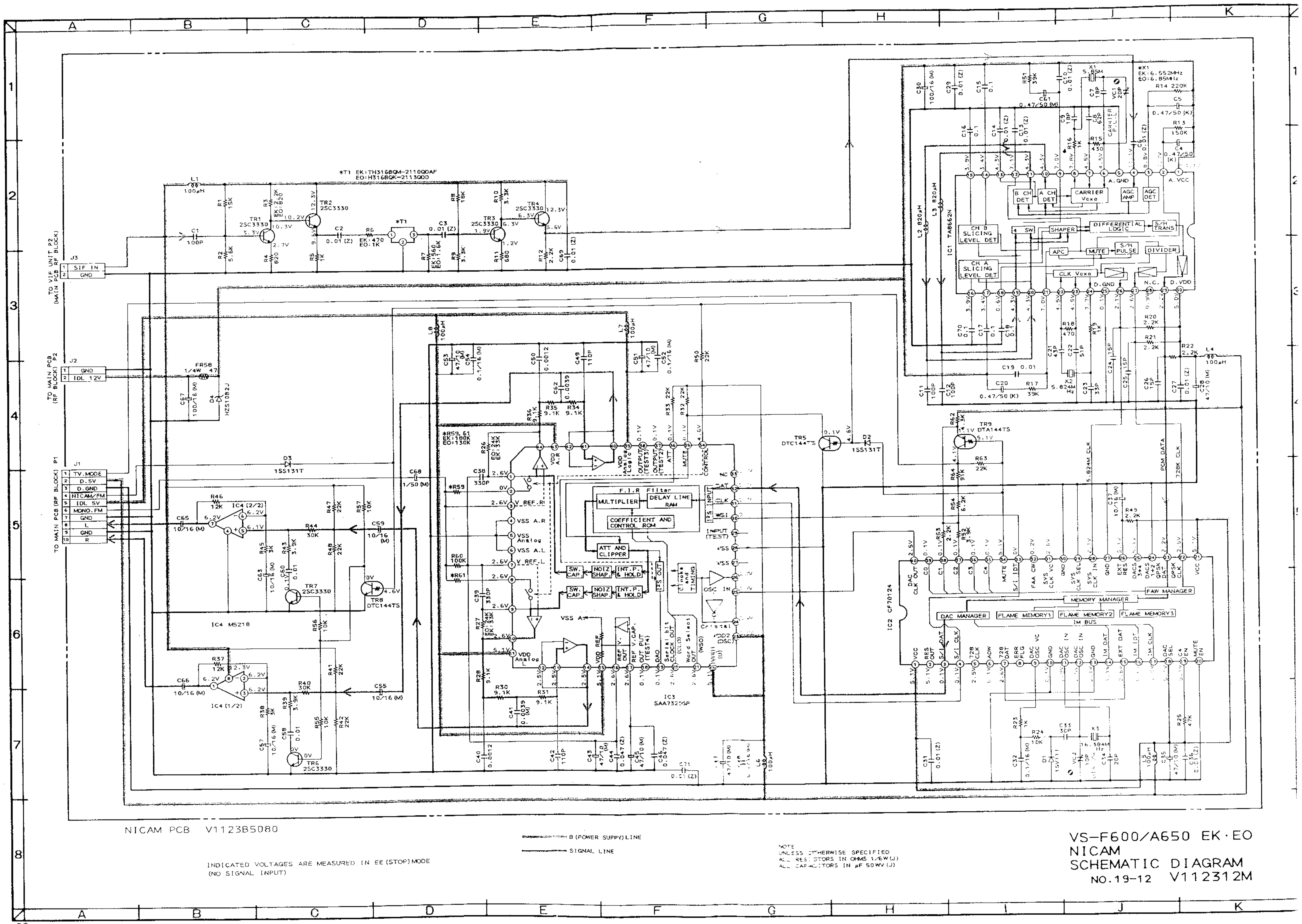


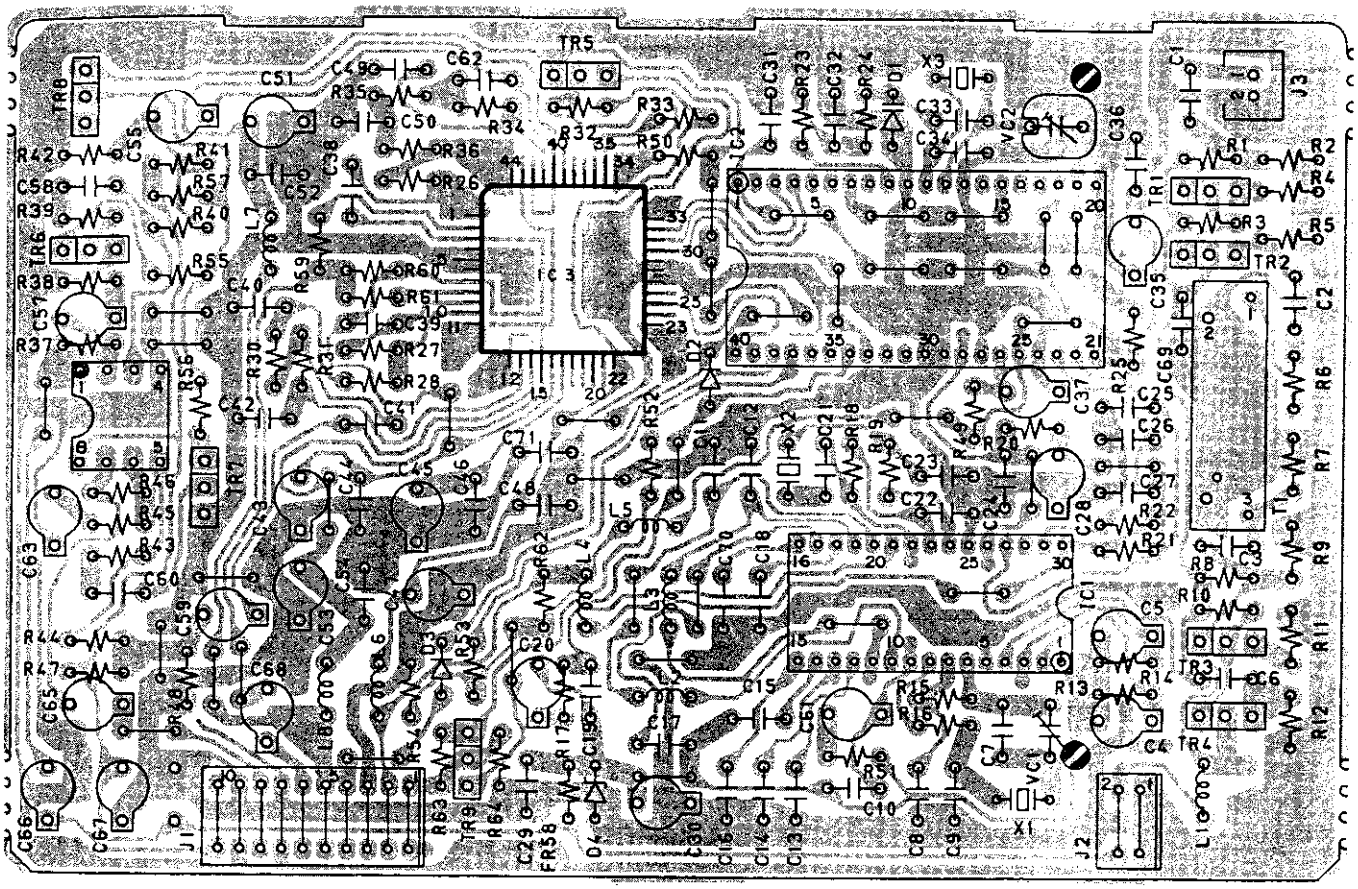
VOLUME PCB VI123B510C

INPUT BALANCE

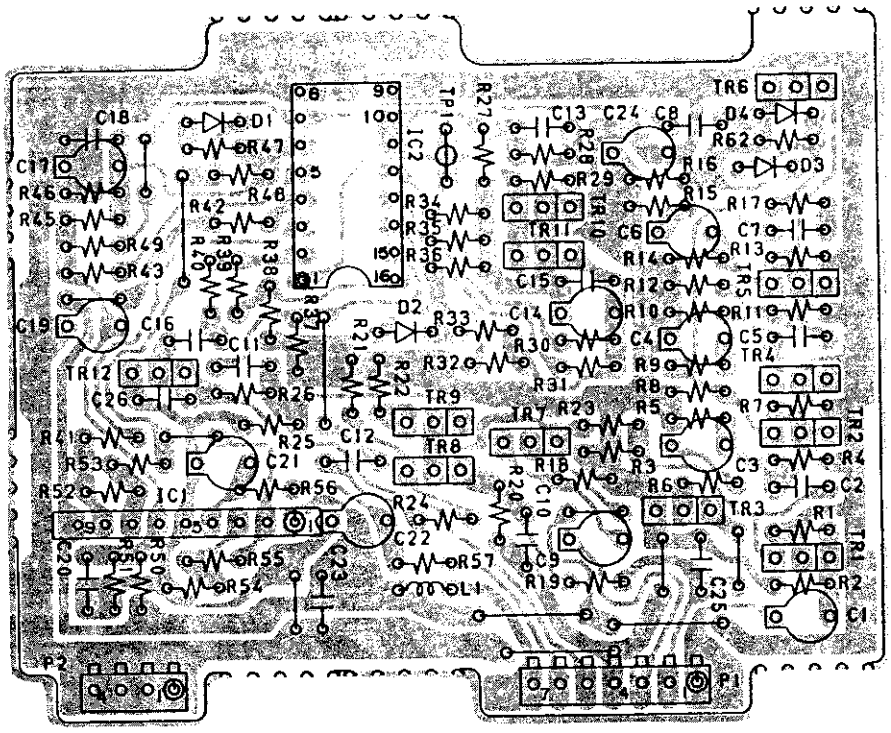


SURROUND PCB VI123B510A

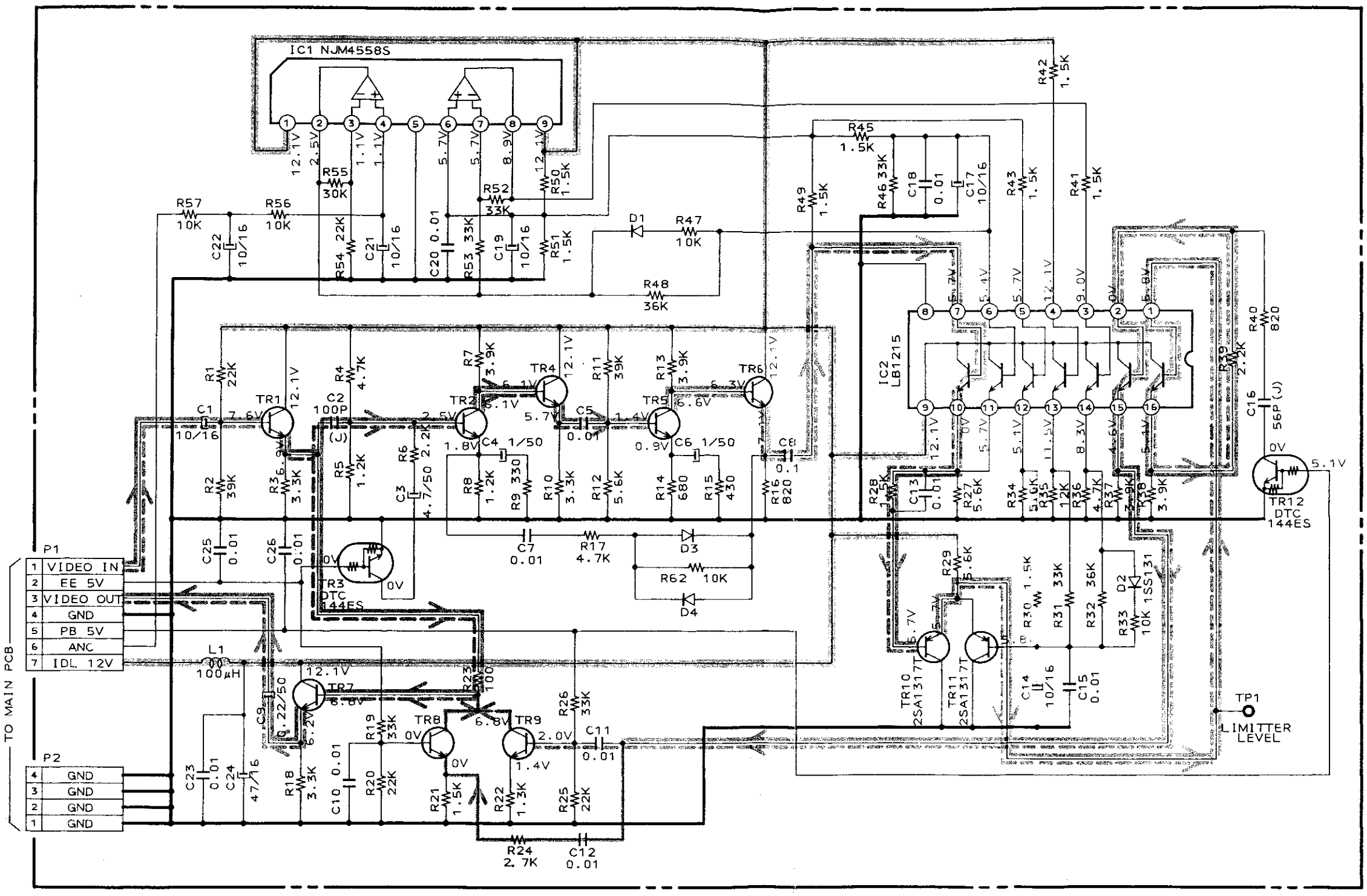

NICAM PCB V1123B5080
INDICATED VOLTAGES ARE MEASURED IN EE (STOP) MODE
(NO SIGNAL INPUT)
B (POWER SUPPY) LINE
SIGNAL LINE
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/6W (J)
ALL CAPACITORS IN μF 50WV (J)
VS-F600/A650 EK·EO
NICAM
SCHEMATIC DIAGRAM
NO.19-12 V112312M
TO VIF UNIT P2 (MAIN PCB RF BLOCK)
TO MAIN PCB P2 (RF BLOCK)
TO MAIN PCB (RF BLOCK) P1
IC1 TA8662N
IC2 CF70124
IC3 SAA7320P
IC4 M5218



NICAM PCB VII23B5080



I.HQ PCB VII23B5070



I-HQ PCB V1123B5070

POWER SUPPLY LINE

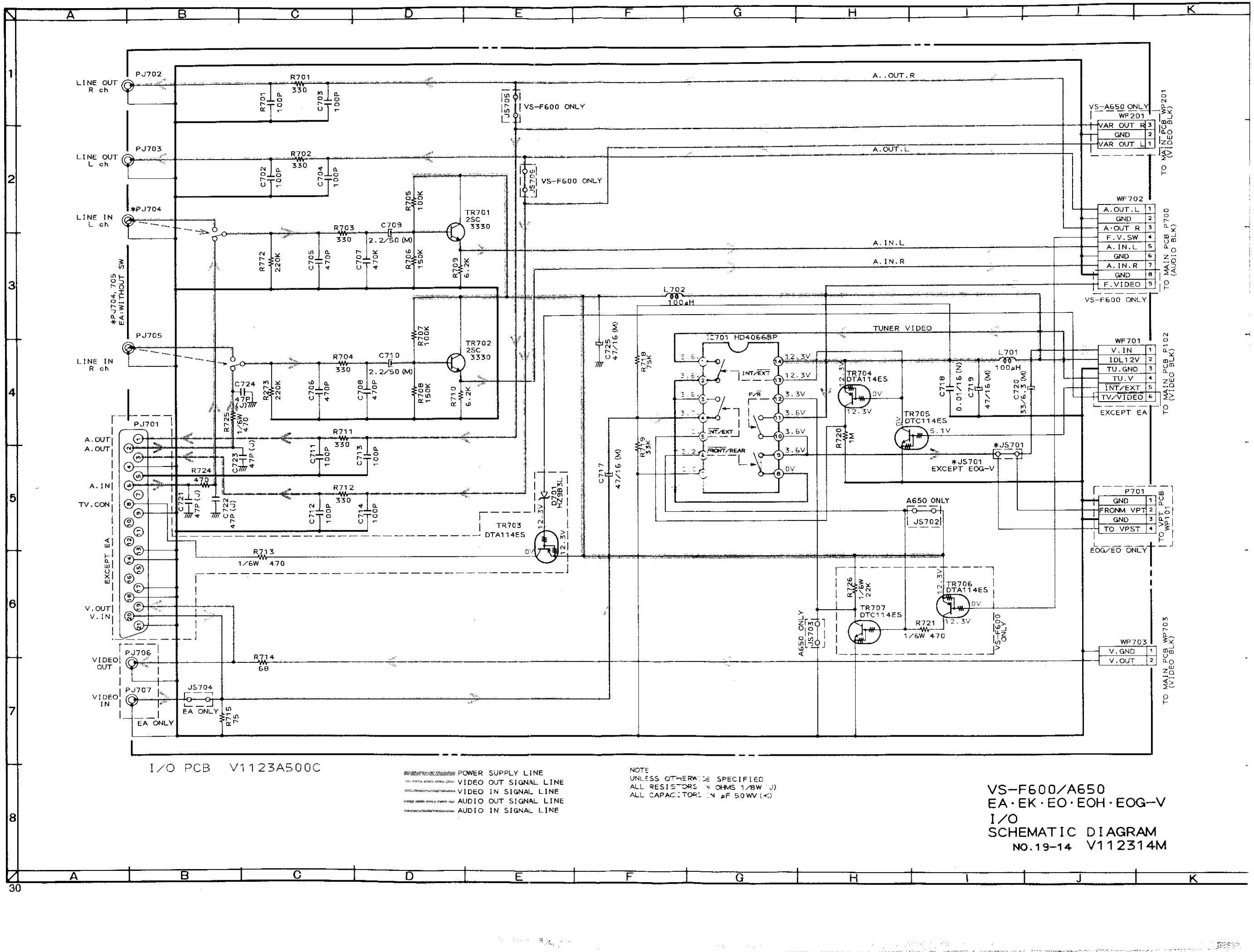
REC Y SIGNAL LINE

PB Y SIGNAL LINE

INDICATED VOLTAGES ARE MEASURED IN PB MODE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/5W (J)
ALL CAPACITORS IN μF 16WV (N)
ALL TRANSISTORS ARE 2SC3330
ALL DIODES ARE 1SS131

VS-F600/A650
EA·EK·EO·EOH·EOG-V
I-HQ
SCHEMATIC DIAGRAM
NO.19-13 V112313M



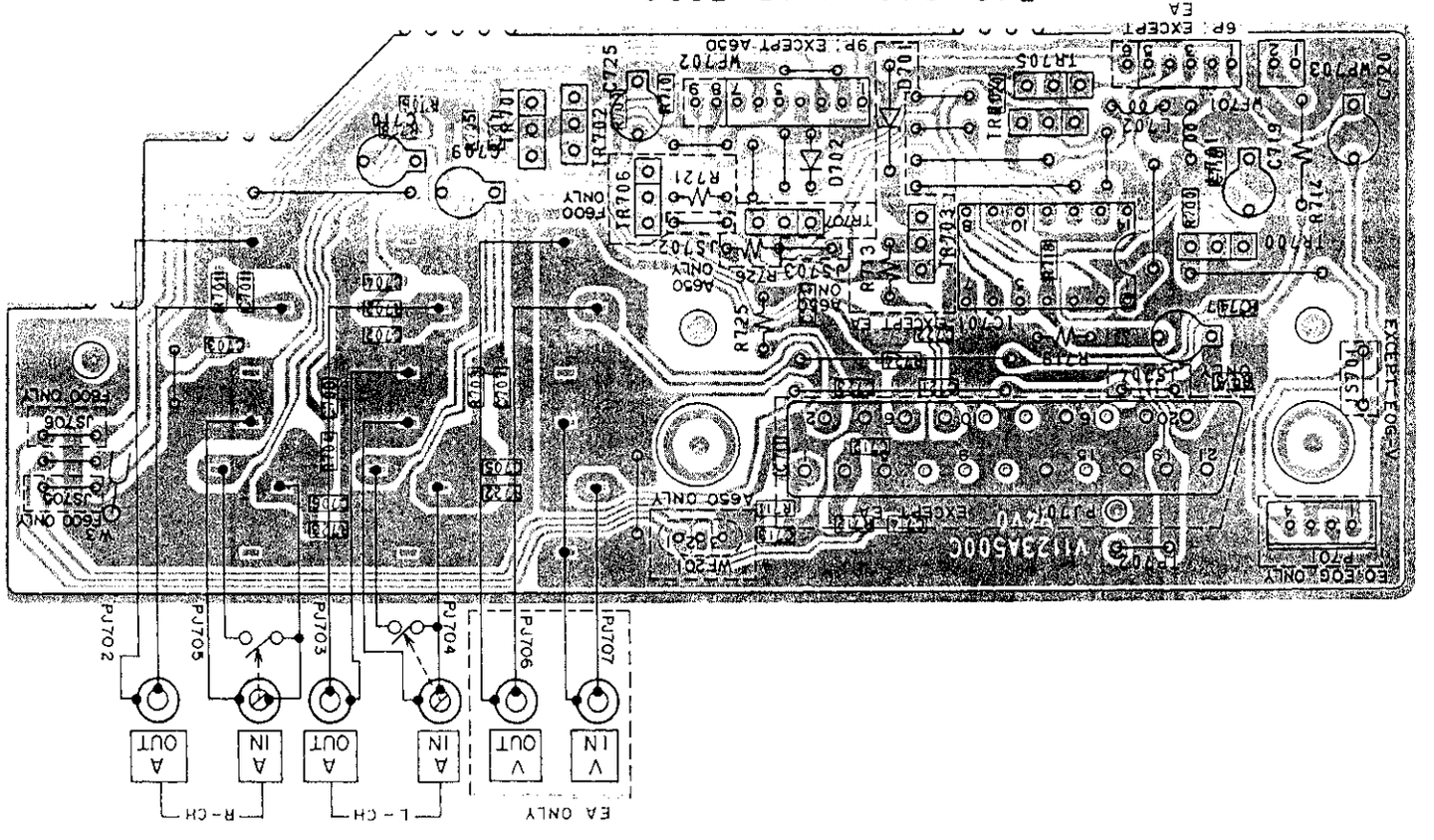
I/O PCB V1123A500C

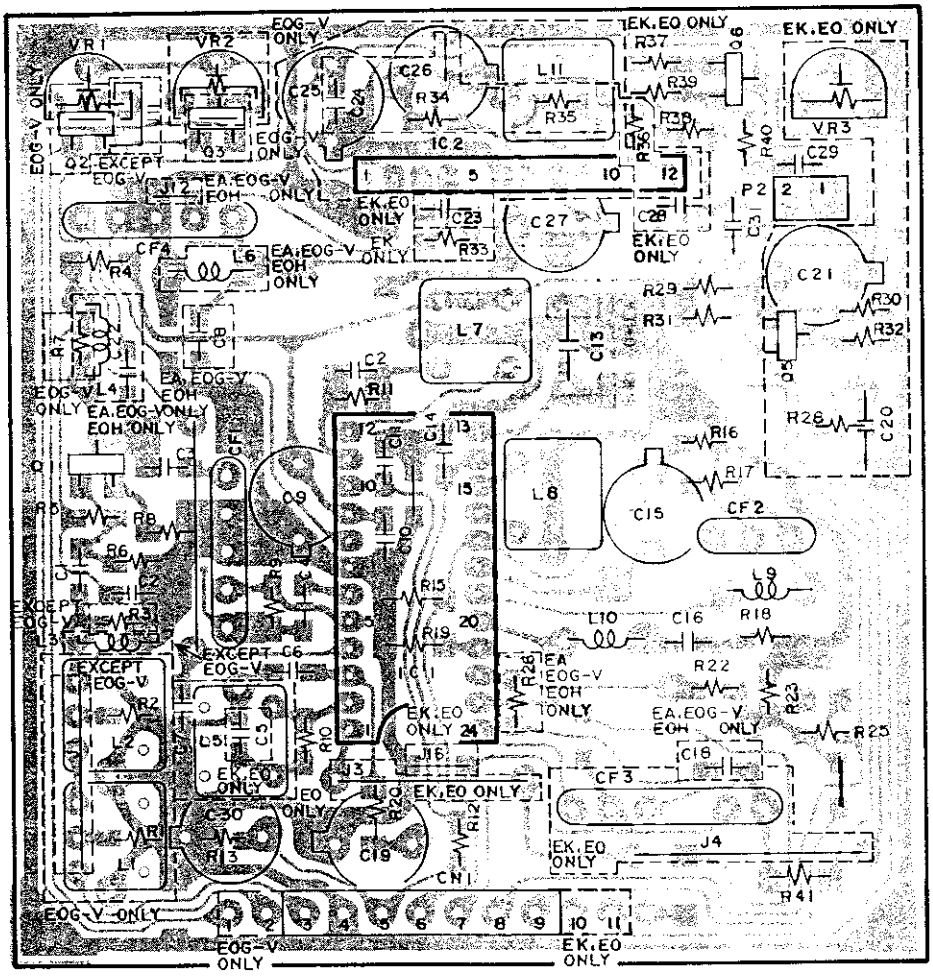
POWER SUPPLY LINE
VIDEO OUT SIGNAL LINE
VIDEO IN SIGNAL LINE
AUDIO OUT SIGNAL LINE
AUDIO IN SIGNAL LINE

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 50WV (K)

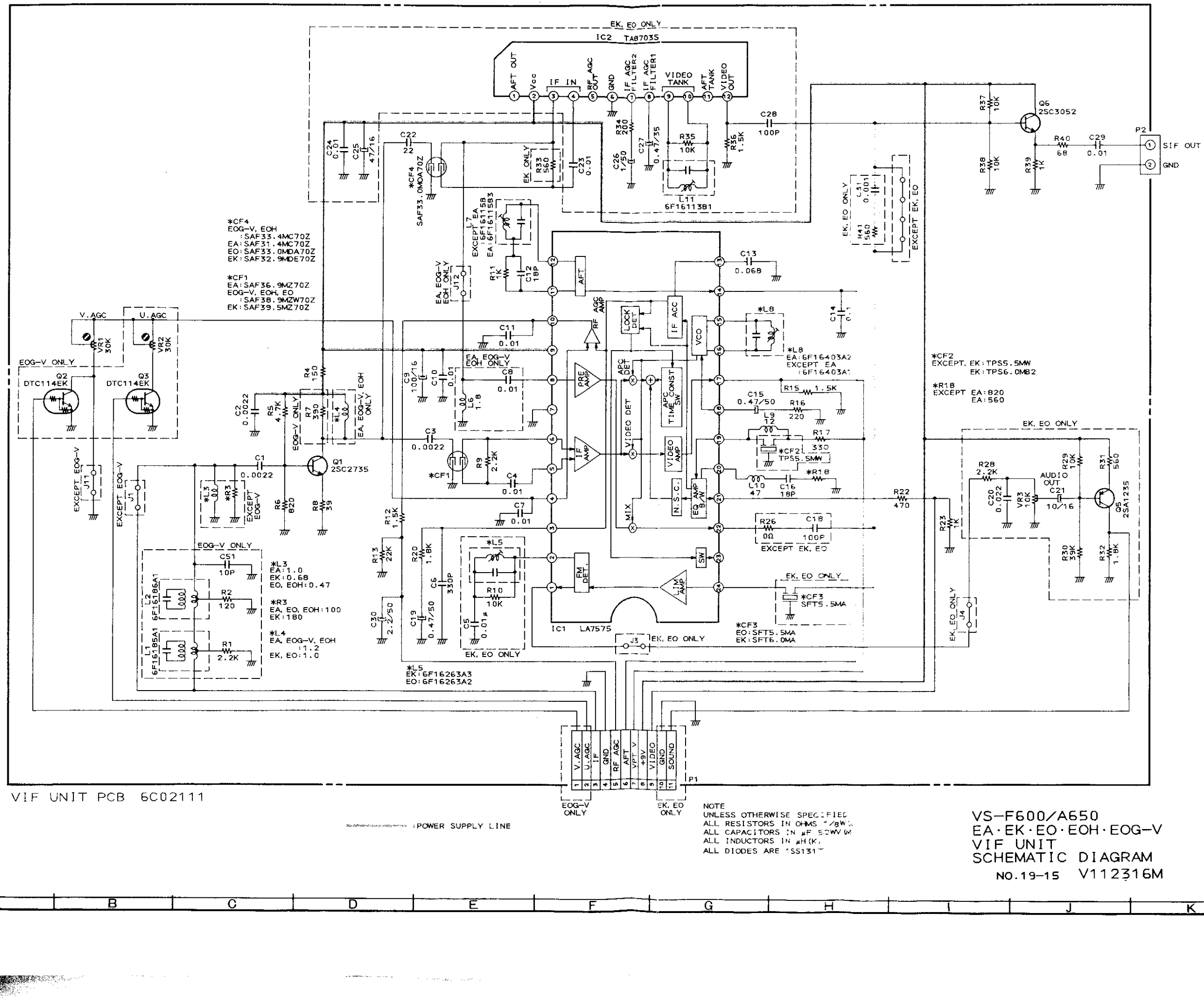
VS-F600/A650
EA·EK·EO·EOH·EOG-V
I/O
SCHEMATIC DIAGRAM
NO.19-14 V112314M

I/O PCB VII23A500C





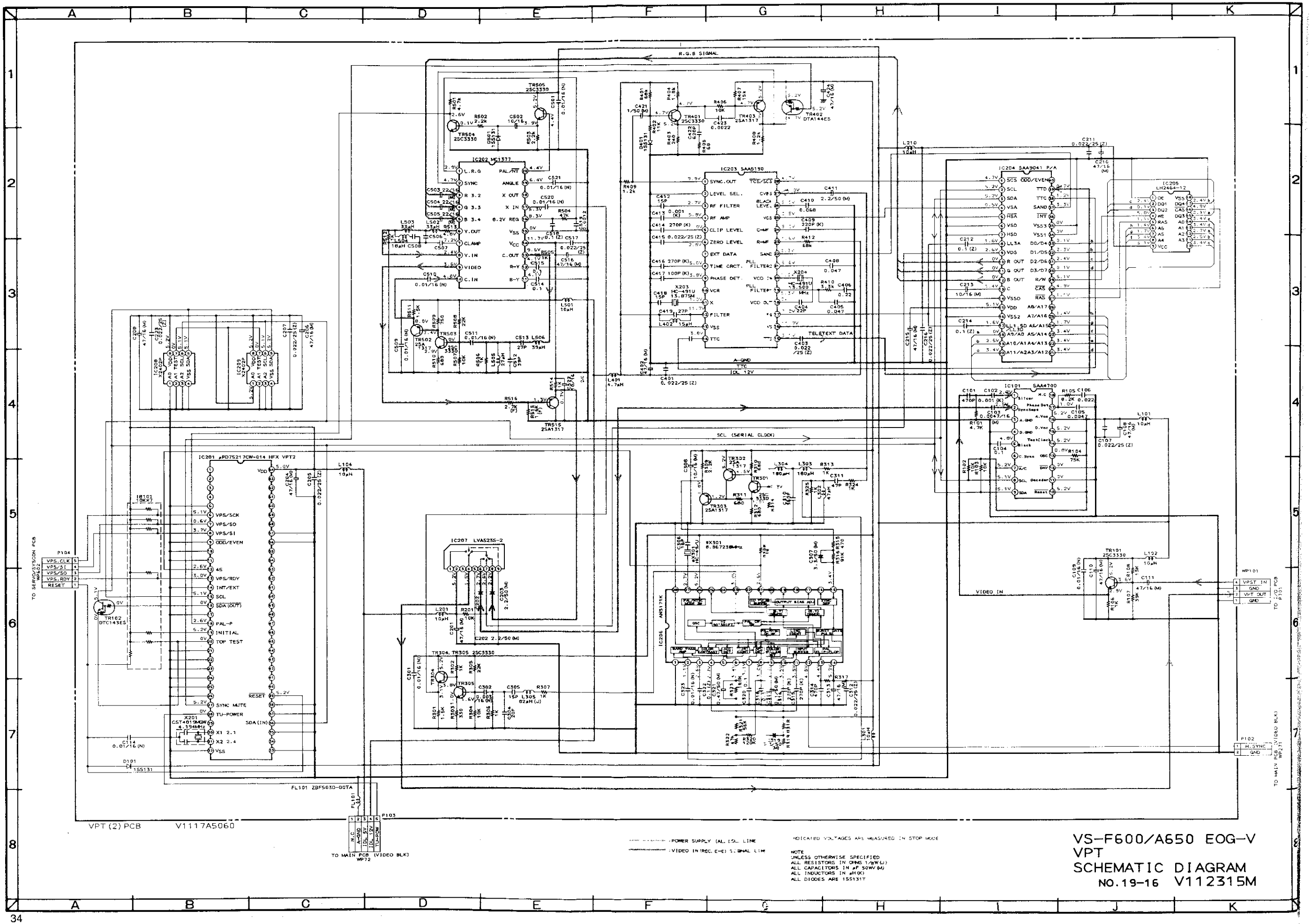
VIF UNIT 6C0211IA1

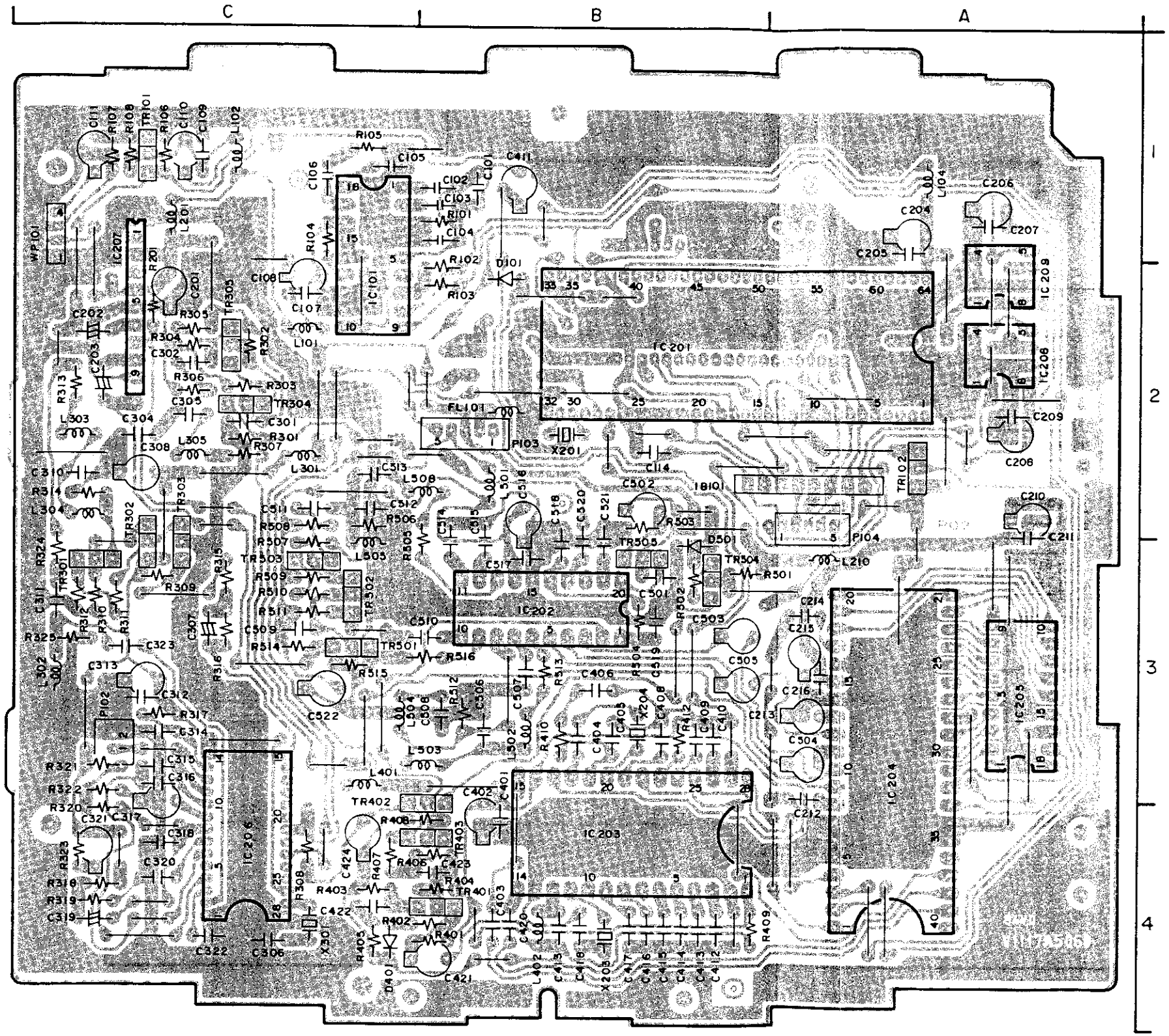


VIF UNIT PCB 6C02111

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W
ALL CAPACITORS IN μF 50WV
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131

VS-F600/A650
EA·EK·EO·EOH·EOG-V
VIF UNIT
SCHEMATIC DIAGRAM
NO.19-15 V112316M


R.G.B SIGNAL
SCL (SERIAL CLOCK)
VIDEO IN
VPT (2) PCB
V1117A5060
TO SERVO/SYSCON PCB
TO MAIN PCB (VIDEO BLK) WP72
TO I/O PCB P131
TO MAIN PCB (VIDEO BLK) WP271
POWER SUPPLY (ALL SIGNAL LINE
VIDEO IN(REC, E-E) SIGNAL LINE
INDICATED VOLTAGES ARE MEASURED IN STOP MODE
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W(J)
ALL CAPACITORS IN μF 50WV(K)
ALL INDUCTORS IN μH(K)
ALL DIODES ARE 1SS131T
VS-F600/A650 EOG-V
VPT
SCHEMATIC DIAGRAM
NO.19-16 V112315M

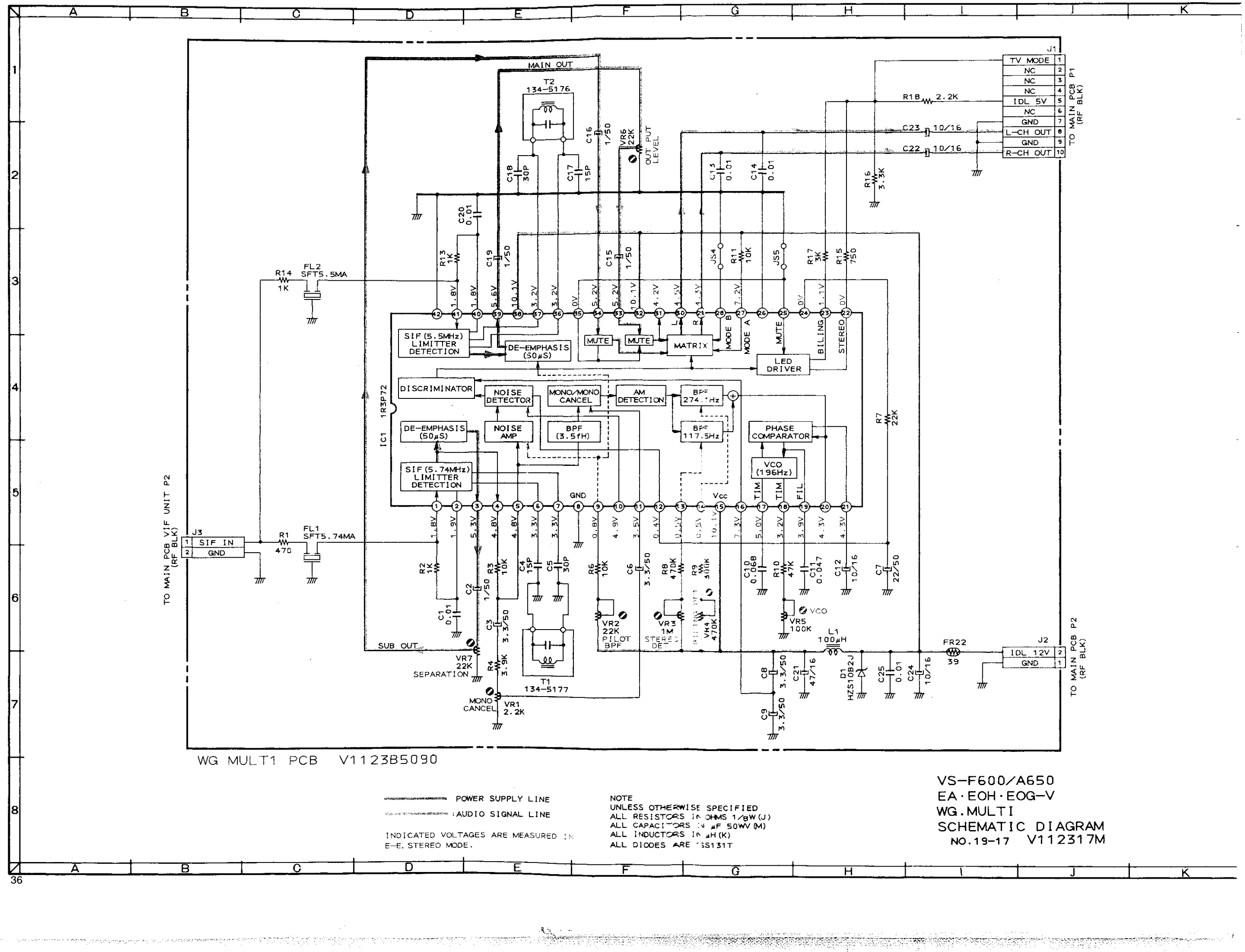


PRINCIPAL PARTS LOCATION

ICS
IC202.....A,B2
IC202.....B3
IC203.....B4
IC204.....A3,4
IC205.....A3
IC206.....C3,4
IC207.....C1,2
IC208.....A2
IC209.....A2

TRANSISTORS
TR101.....C1
TR102.....A2
TR301.....C3
TR302.....C2,3
TR303.....C2,3
TR304.....C2
TR305.....C2
TR401.....B4
TR402.....B4
TR403.....B4
TR501.....C3
TR502.....C3
TR503.....C3
TR504.....B3
TR505.....B3

CONNECTORS & WIRES
WP101.....C1
P102.....C3
P103.....B2
P104.....A2,3



WG MULT1 PCB V1123B5090

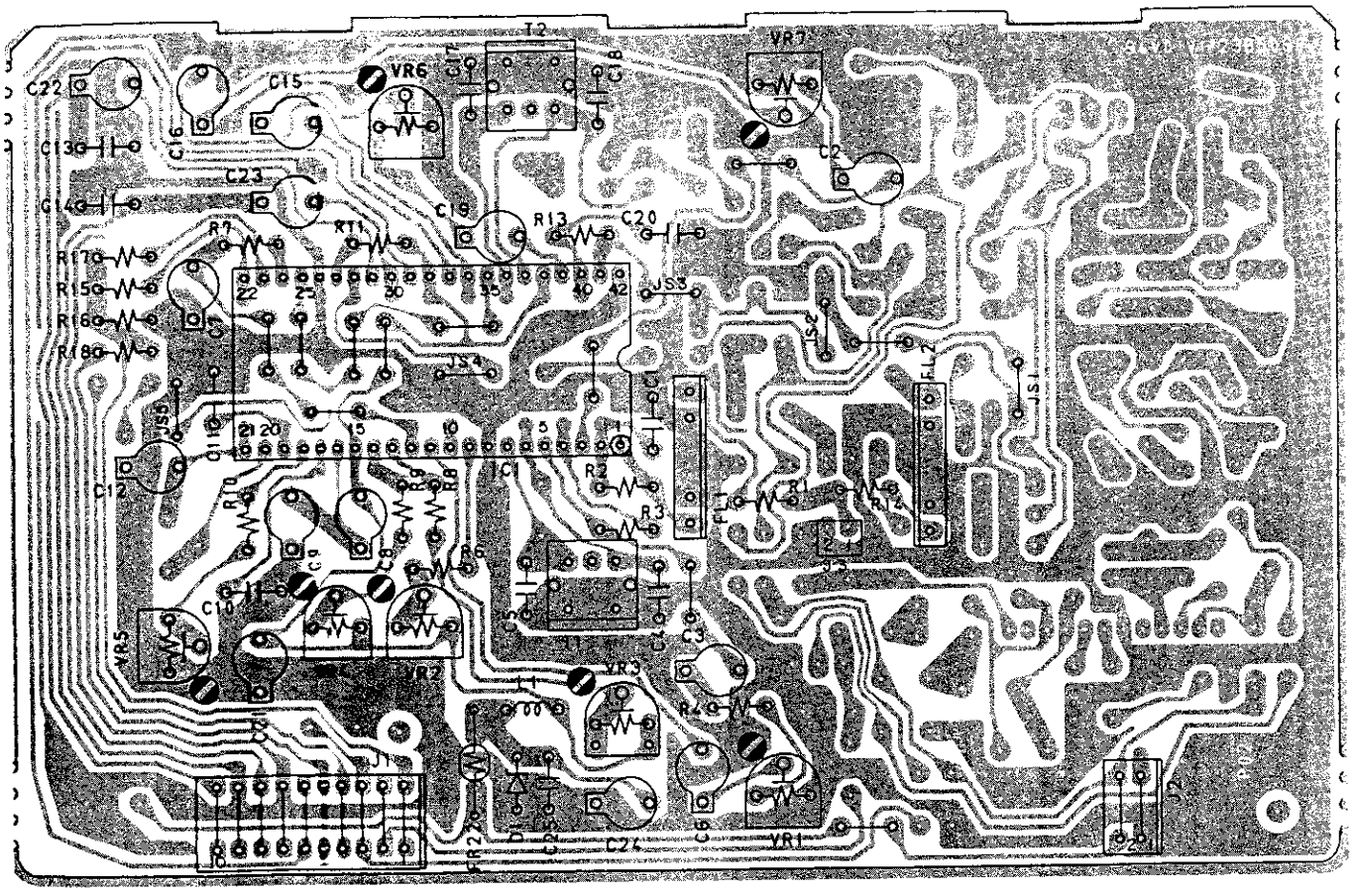
POWER SUPPLY LINE

:AUDIO SIGNAL LINE

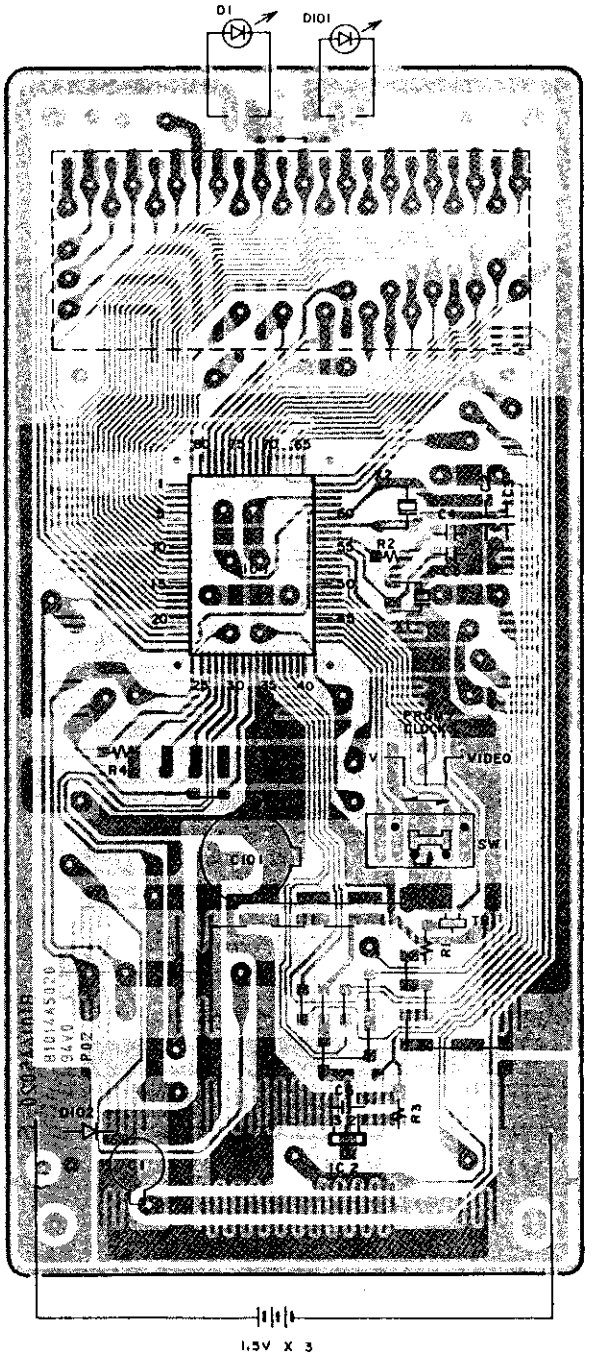
INDICATED VOLTAGES ARE MEASURED IN E-E, STEREO MODE.

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 50WV (M)
ALL INDUCTORS IN μH (K)
ALL DIODES ARE 1SS131T

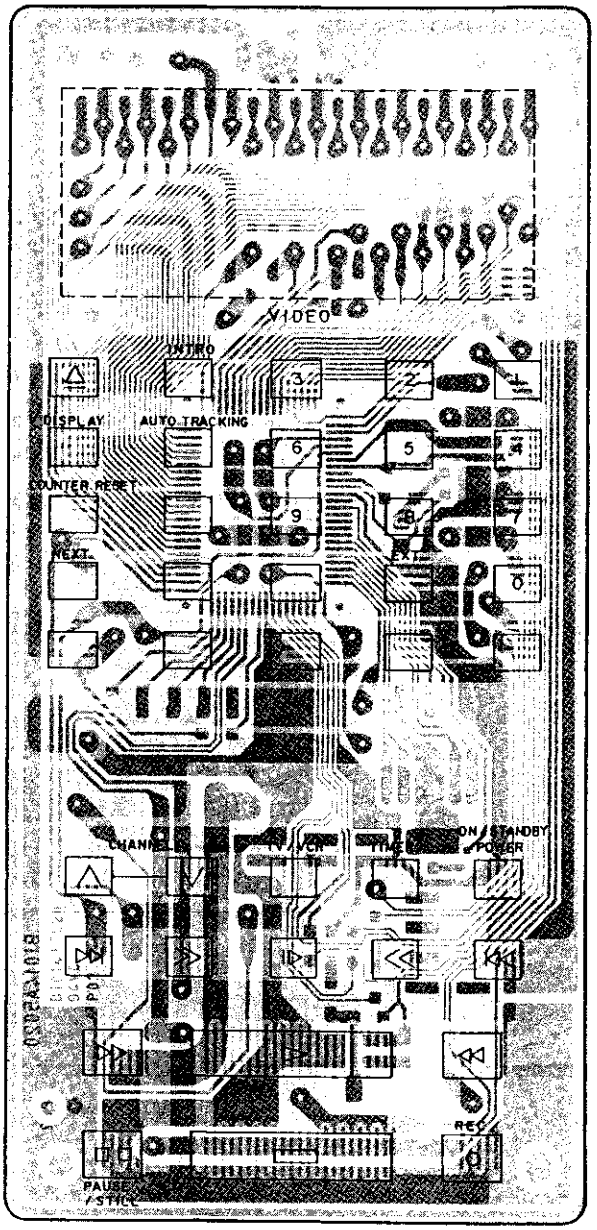
VS-F600/A650
EA · EOH · EOG-V
WG. MULTI
SCHEMATIC DIAGRAM
NO.19-17 V112317M



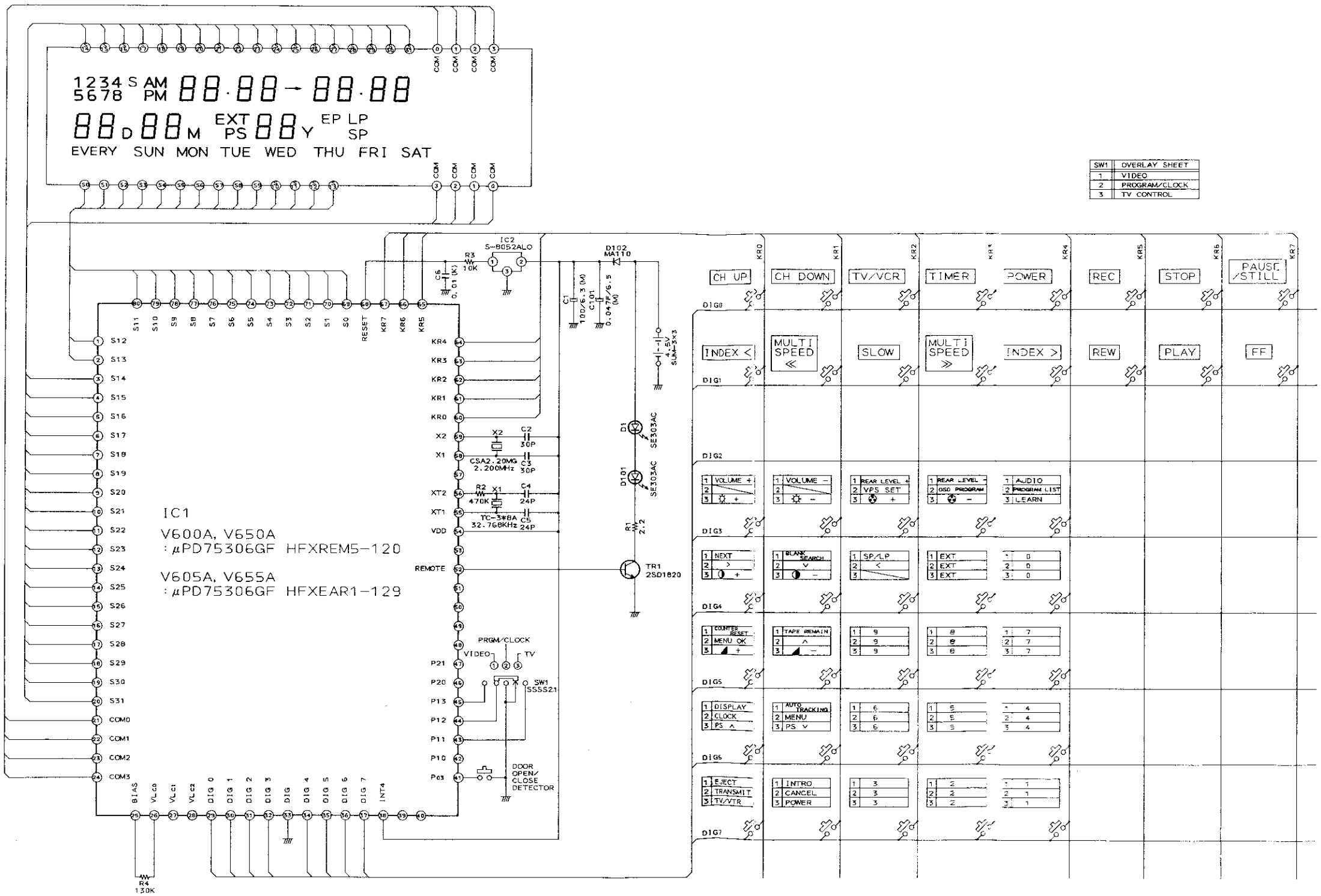
WG MULTI PCB V1123B5090



REMO-CON PCB BI014A5020J2
(PARTS VIEW)



REMO-CON PCB BI014A5020J2
(SWITCH LOCATION)



SW1	OVERLAY SHEET
1	VIDEO
2	PROGRAM/CLOCK
3	TV CONTROL

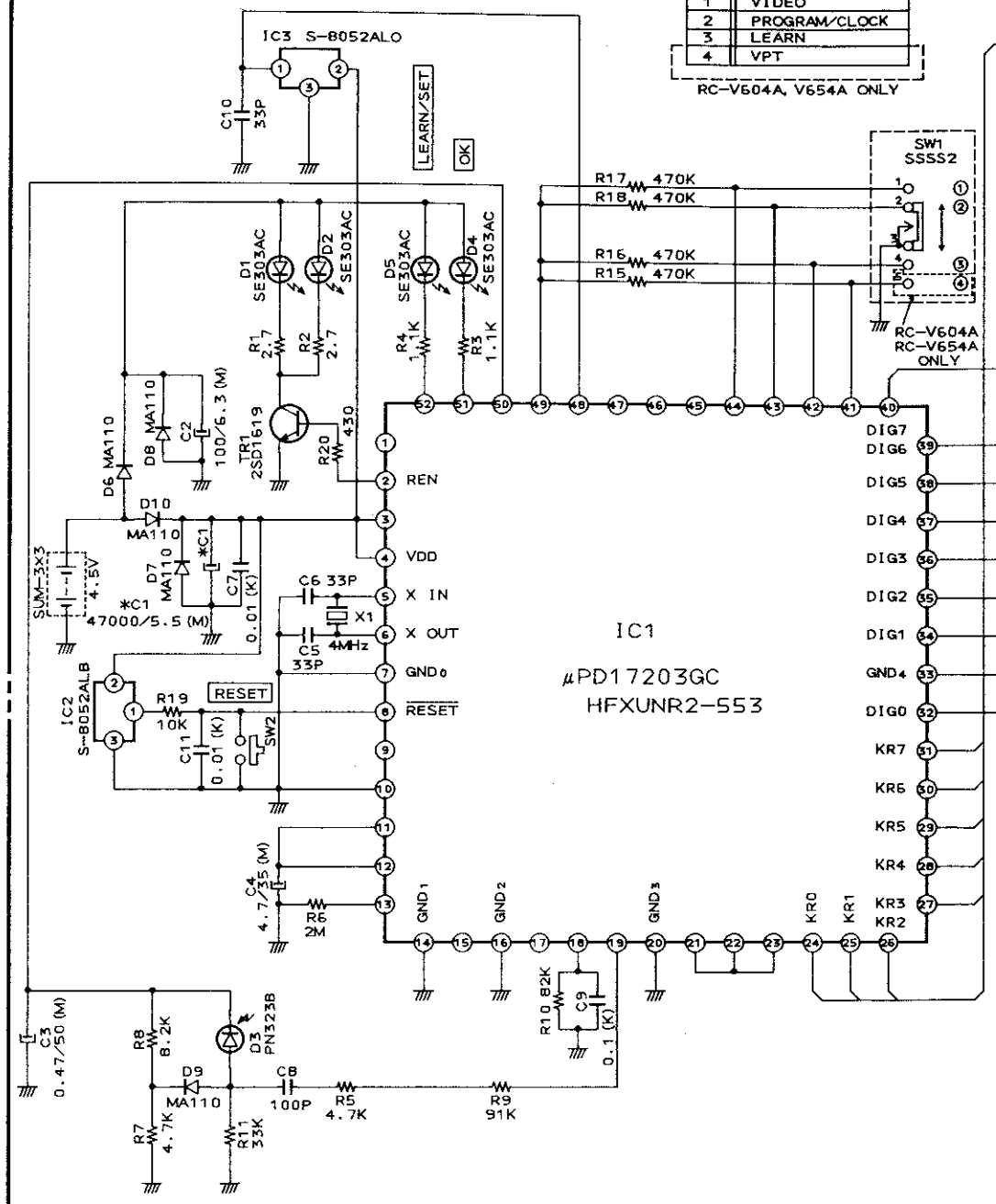
REMO-CON PCB B1014A5020

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W (J)
ALL CAPACITORS IN μF 50WV (J)

RC-V600A/V605A
RC-V650A/V655A
REMOTE CONTROL UNIT
SCHEMATIC DIAGRAM
NO.19-18 B101404M

SW1	OVERLAY SHEET
1	VIDEO
2	PROGRAM/CLOCK
3	LEARN
4	VPT

RC-V604A, V654A ONLY



IC1

μPD17203GC

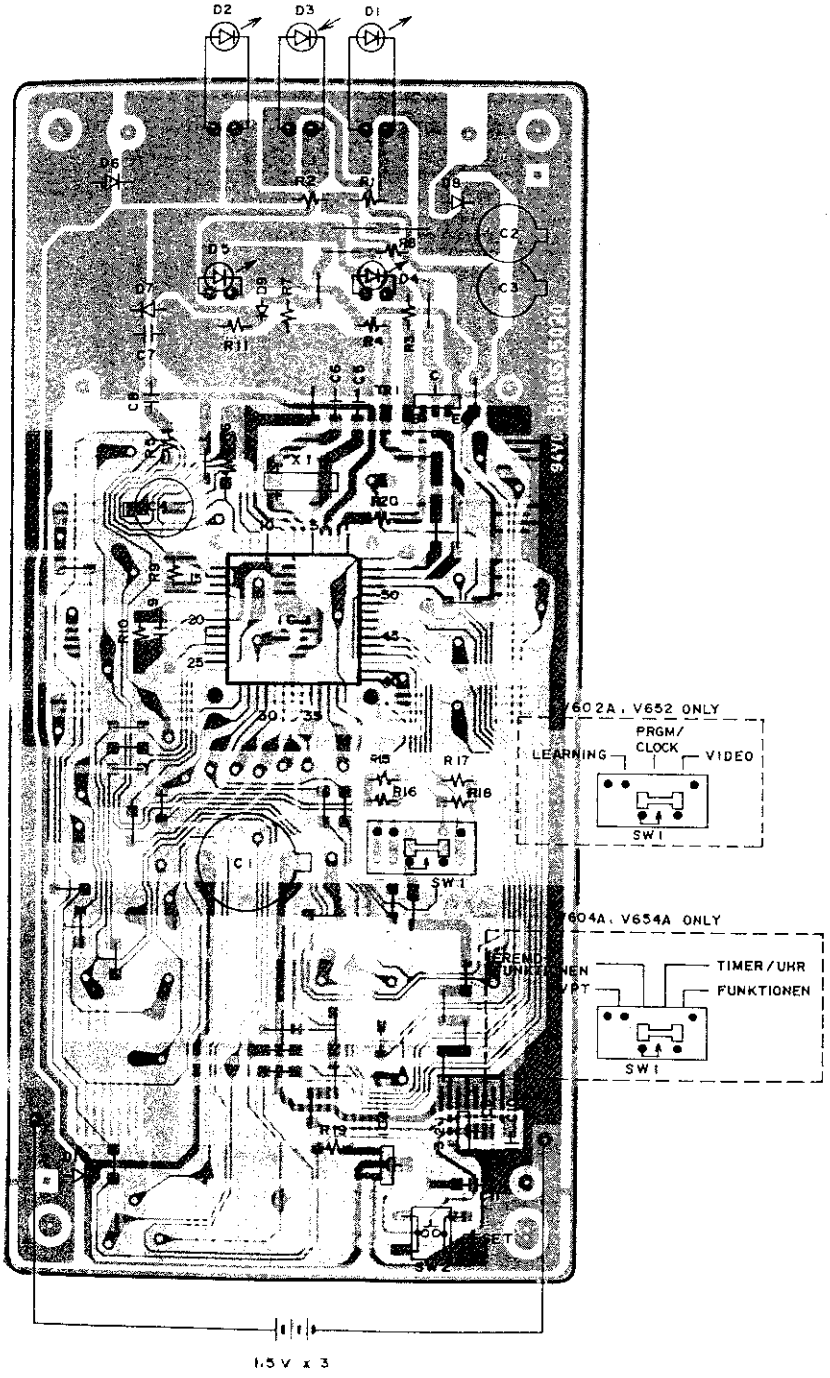
HFXUNR2-553

KR0	KR1	KR2	KR3	KR4	KR5	KR6	KR7
FF	INDEX >	STOP	PLAY	INDEX <	MULTI SPEED ≪	SLOW	MULTI SPEED ≫
PAUSE /STILL	CH UP	REC	REW	POWER	TIMER	TV/VCR	CH DOWN
	1 1 2 1 3 1 4 1	1 4 2 4 3 4 4 4	1 7 2 7 3 7 4 7	1 0 2 0 3 0 4 0		1 AUDIO MONITOR 2 3 LEARN 4 RED	
	1 3 2 3 3 3 4 3	1 2 2 2 3 2 4 2	1 5 2 5 3 5 4 5	1 6 2 6 3 6 4 6			
1 COUNTER RESET 2 OK 3 ◢ + 4 OK		1 REMAIN 2 SHIFT∧ 3 ◢ − 4 SHIFT∧		1 AUTO TRACKING 2 MENU 3 PS ∨ 4 INDEX	1 BLANK SEARCH 2 SHIFT∨ 3 ◑ − 4 SHIFT∨	1 MASTER VOLUME − 2 xx xx 3 ☼ − 4 CYAN	1 DISPLAY 2 CLOCK 3 PS ∧ 4 BANK
	1 9 2 9 3 9 4 9	1 8 2 8 3 8 4 8	1 EXT 2 EXT 3 ✱ 4 DOUBLE HEIGHT	1 SP/LP 2 SHIFT < 3 4 SHIFT <	1 MUTE 2 VTC EINSTELLUNG 3 ◑ + 4 YELLOW		
1 MASTER VOLUME + 2 3 ☼ + 4 STOP/□			1 INTRO 2 S/W CANCEL 3 POWER 4 TEXT/TV	1 NEXT 2 SHIFT > 3 ◑ + 4 SHIFT >	1 DOLBY SURROUND 2 3 ◑ − 4 GREEN	1 EJECT 2 PRGM 3 4 VPT	

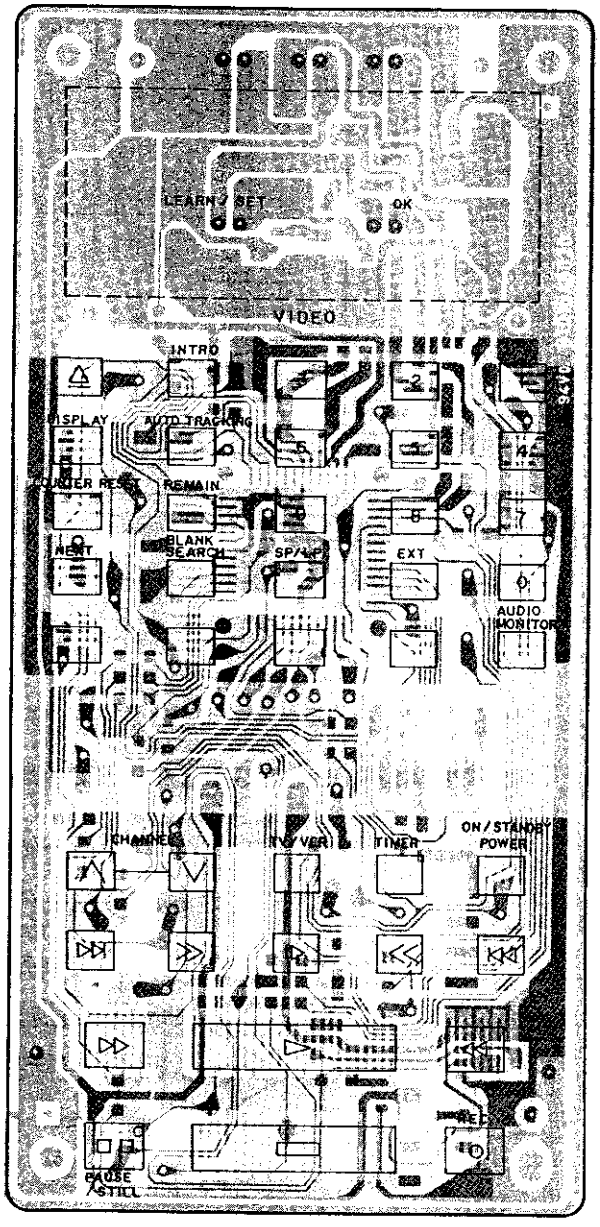
REMO-CON PCB B1015A5020

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W(J)
ALL CAPACITORS IN μF 50WV(J)

RC-V602/V604A
RC-V652/V654A
REMOTE CONTROL UNIT
SCHEMATIC DIAGRAM
NO.19-19 B101501M

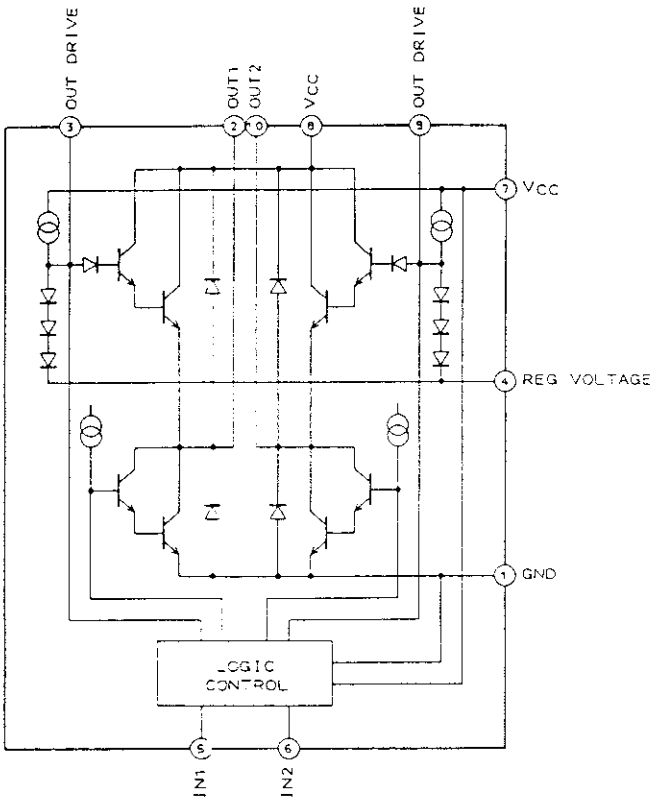


REMO-CON PCB 31015A5020
(PARTS VIEW)



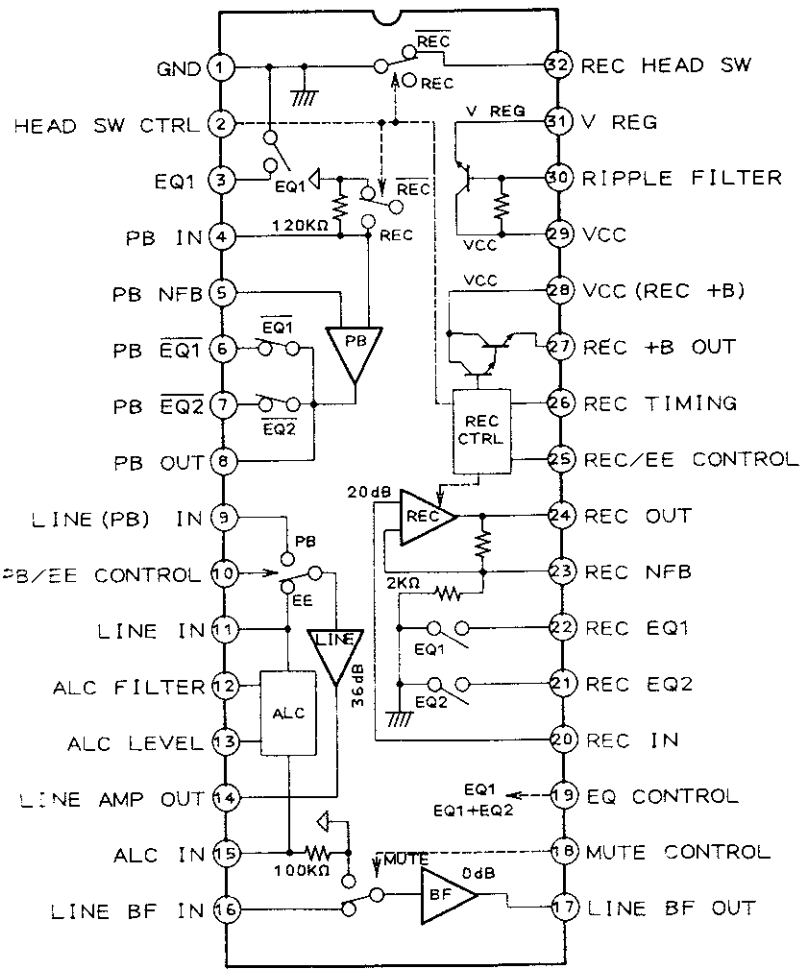
REMO-CON PCB 31015A5020
(SWITCH LOCATION)

BA6229 (BI-DIRECTIONAL MOTOR DRIVE)

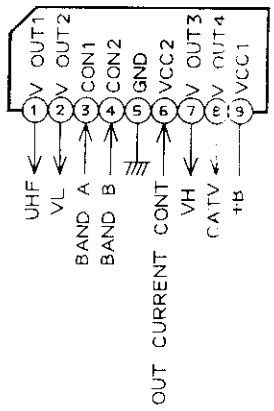


INPUT		OUTPUT		MODE
⑤	⑥	②	⑩	
H	H	L	L	BRAKE
L	H	L	H	CASSETTE & TAPE LOADING
H	L	H	L	CASSETTE & TAPE UNLOADING
L	L	OPEN	OPEN	STOP

BA7765AS (AUDIO SIGNAL REC/PB AMPLIFIER)



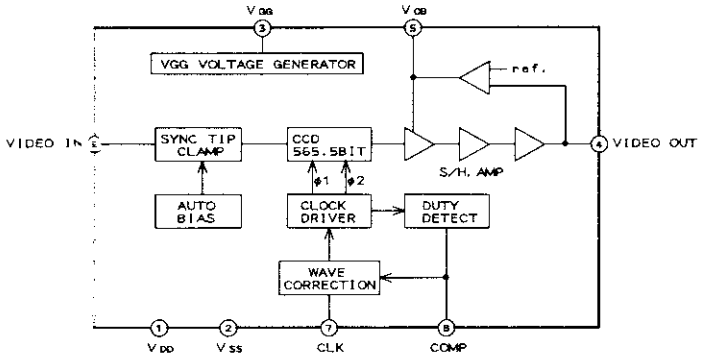
LA7910 (TUNER BAND SELECTOR)



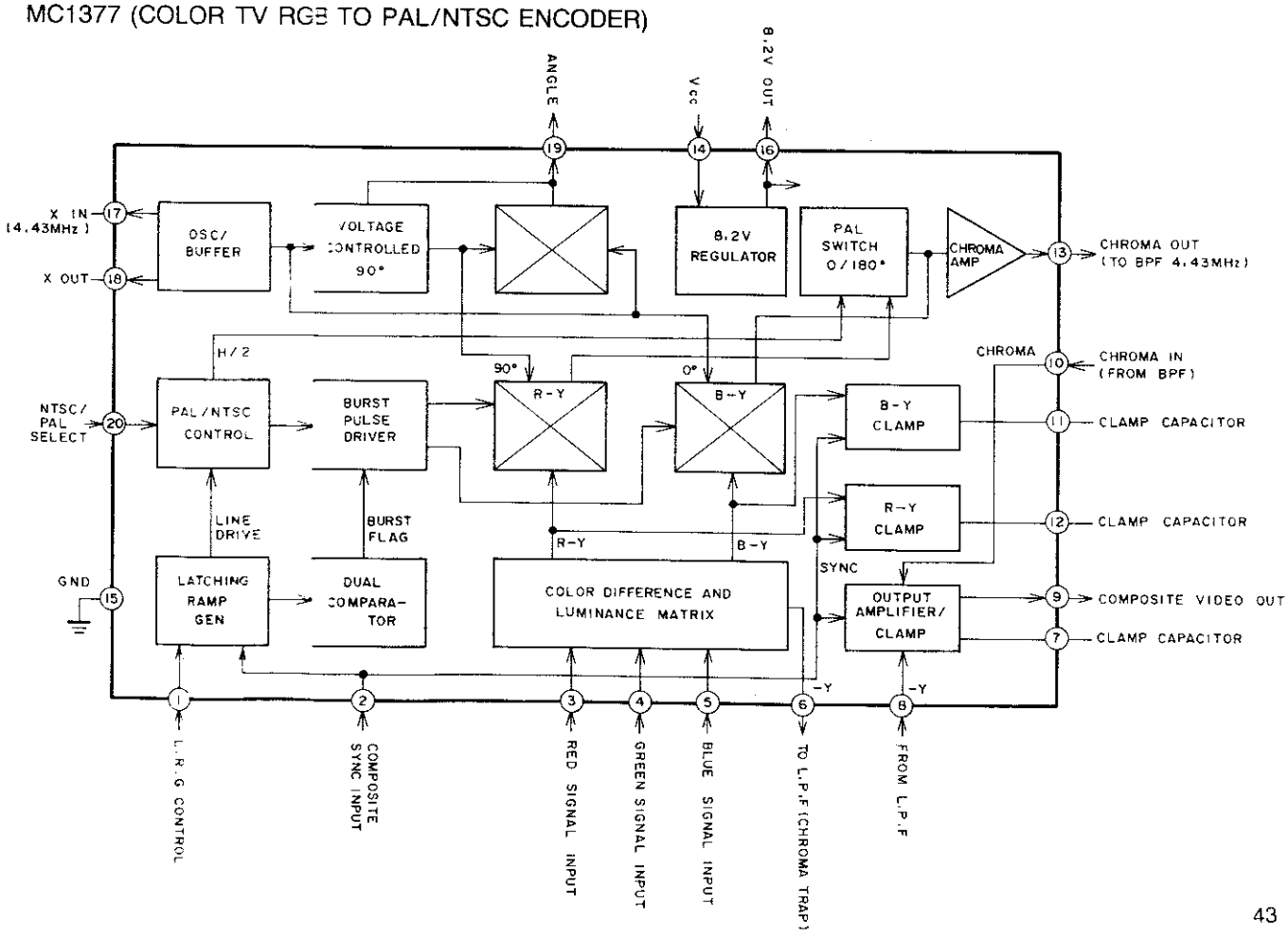
INPUT		OUTPUT			
CON1	CON2	V OUT1	V OUT2	V OUT3	V OUT4
L	L	H	Z	Z	Z
H	L	Z	H	Z	Z
L	H	Z	Z	H	Z
H	H	Z	Z	Z	H

Z : HIGH IMPEDANCE

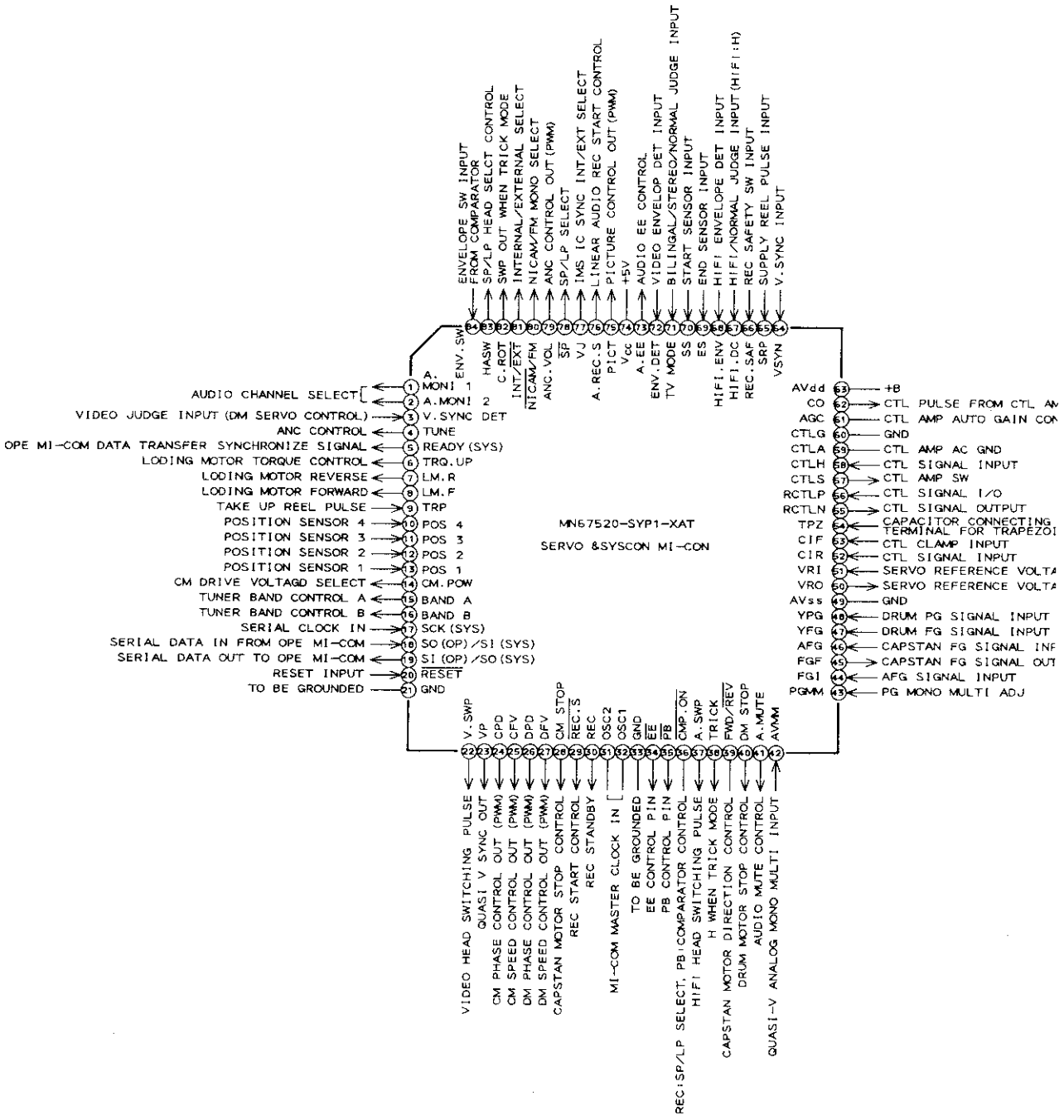
LC8992 (CCD 1H DELAY LINE)



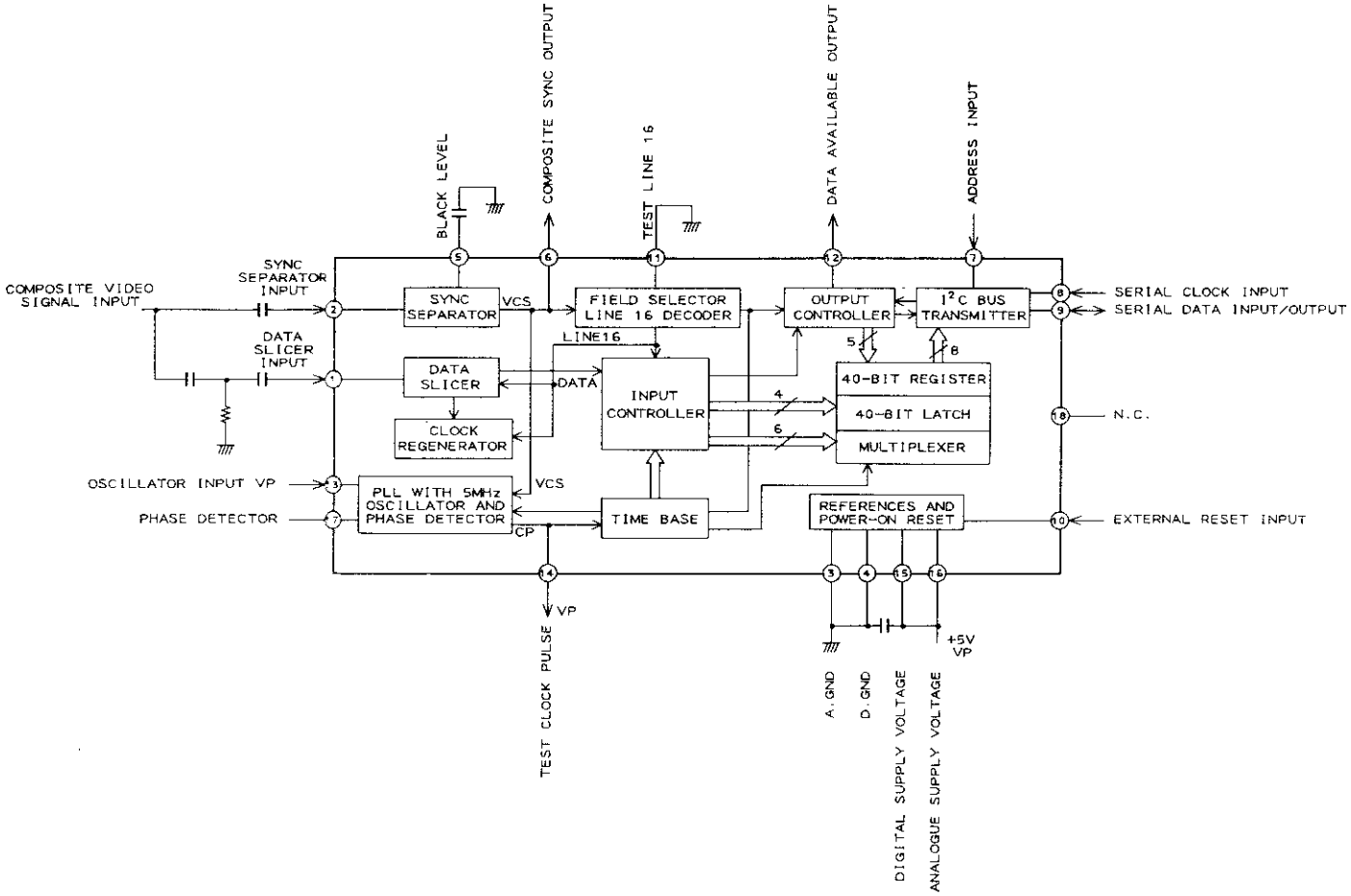
MC1377 (COLOR TV RGB TO PAL/NTSC ENCODER)



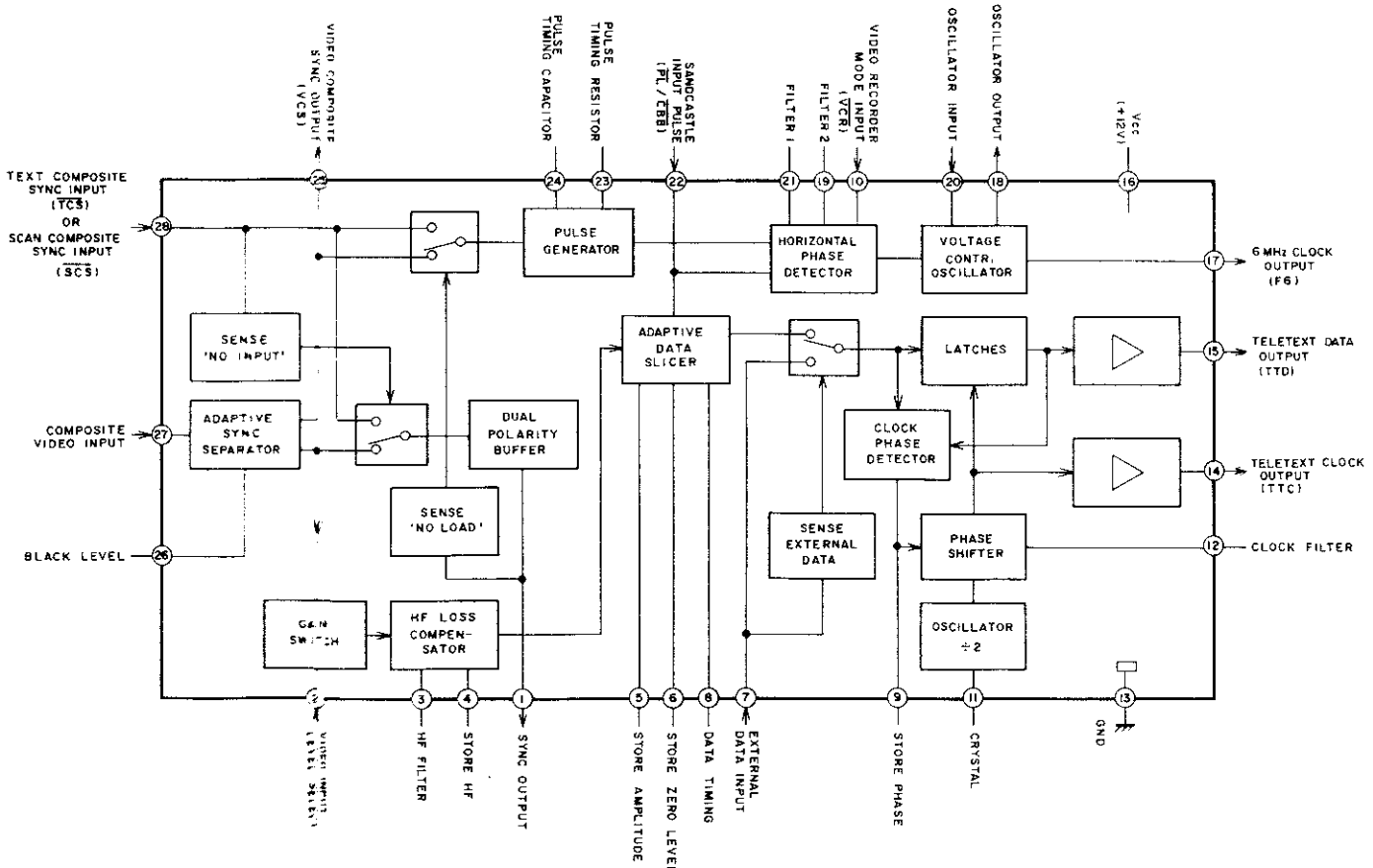
MN67520 HFX SYP1 (SERVO/SYSCON MI-COM)



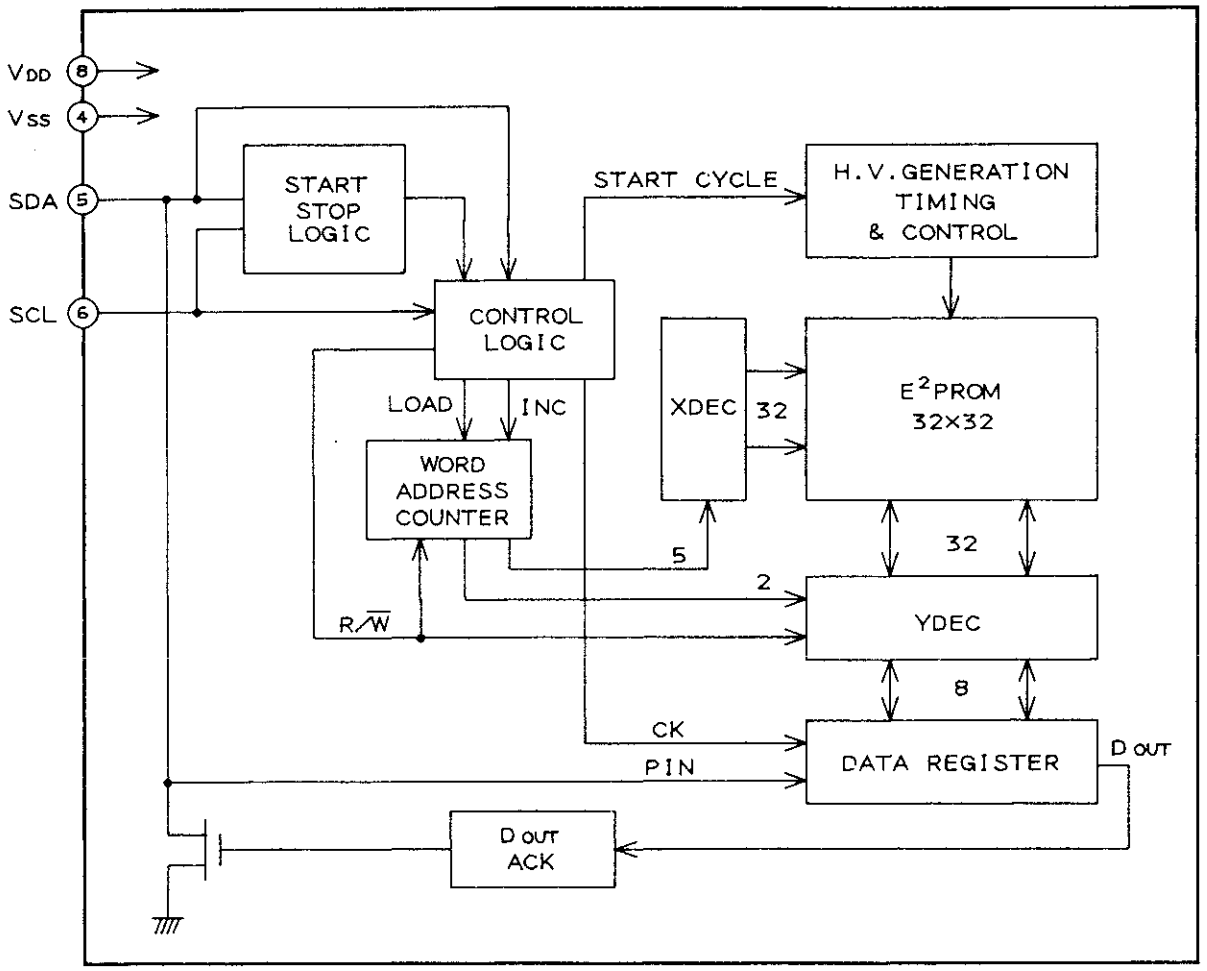
SAA4700 (VPS DATALINE PROCESSOR)



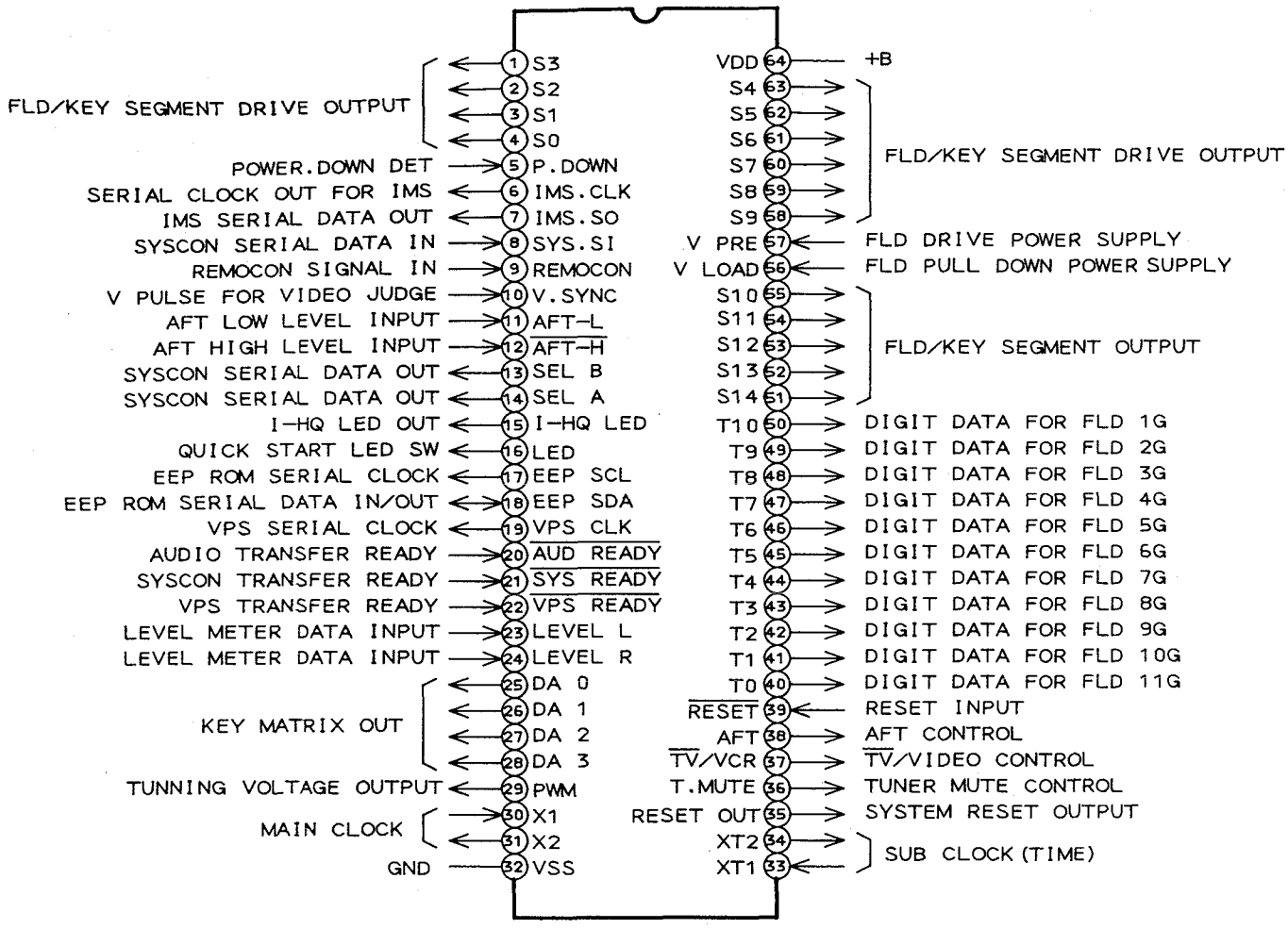
SAA5190 (TELETEXT VIDEO PROCESSOR)



X2402P (128 × 8 BIT SERIAL TYPE EEP ROM)



μPD75217 HFX OPP1 (OPERATION MI-COM)



μPD6450 (CHARACTER GENERATOR)