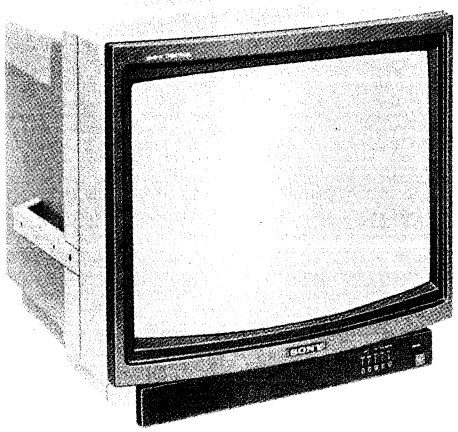
PVM-1910/1911

SERVICE MANUAL

US Model
Canadian Model



PVM-1910
Chassis No. SCC-554A-A

PVM-1911
Chassis No. SCC-556A-A

March, 1984

SPECIFICATIONS

Color system	NTSC system
Picture tube	Trinitron tube 19 inch picture measured diagonally, 100 degree deflection
Resolution	350 TV lines, 440 × 240 dots
Color temperature	6,500°K/9,300°K
Frequency response	8 MHz (–3 dB, RGB) 6 MHz (–3 dB, composite video)
Horizontal linearity	±5%
Vertical linearity	±5%
Line pull range	Horizontal ±500 Hz Vertical 8 Hz
Overscan of the picture	5%
Return loss	4 MHz, 35 dB (LINE A , LINE B)
Zooming	Within 2%
Convergence	Central area 1 mm Outside of central area 1.3 mm
Brightness	More than 50 foot-Lamberts
Inputs	TUNER : 6-pin-DIN connector VIDEO IN : BNC connector VTR : 8-pin connector (pins 2 and 6) Composite 1 V p-p ±6 dB, sync negative, 75 ohms and high impedance switchable AUDIO IN : minijack VTR : 8-pin connector (pins 1 and 5) –5 dBs high impedance EXT SYNC IN : BNC connector Composite sync 2 – 8 V p-p, negative, 75 ohms and high impedance switchable RGB IN : BNC connectors 0.7 V p-p, non composite AUDIO (RGB) IN : minijack –5 dBs high impedance
Outputs	Loop through VIDEO OUT : BNC connector AUDIO OUT : minijack EXT SYNC OUT : BNC connector RGB OUT : BNC connectors AUDIO (RGB) OUT : minijack
Audio output	1.5 W
Power requirement	120 V ac, 60 Hz
Power consumption	120 W (max.)
Dimensions	Approx. 486 × 463 × 539 mm (w/h/d) (19¼ × 18¼ × 21¼ inches)
Weight	PVM-1910 : Approx. 29 kg (63 lbs 15 oz) PVM-1911 : Approx. 30 kg (66 lbs 2 oz)
Optional accessories	Monitor stand SU-530 Monitor hood VF-500

Design and specifications subject to change without notice.

MICROFILM

TRINITRON®
COLOR VIDEO MONITOR
SONY®

MON

TABLE OF CONTENTS

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

ATTENTION AU COMPOSANT AYANT RAPPORT A LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UN TRAMÉ ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES REGLAGES DU CIRCUIT QUI SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNMENT SONT IDENTIFIÉS DANS CE MANUEL. SUIVRE LES PROCÉDURES QUAND LES COMPOSANTS CRITIQUES SONT REMPLACÉS OU LE FONCTIONNEMENT IMPROPRE EST SUSPECTÉ.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.
4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
6. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
7. Check the condition of the monopole antenna (if any).
   Make sure the end is not broken off, and has the plastic cap on it. Point out the danger of impalement on a broken antenna to the customer, and recommend the antenna's replacement.
8. Check the B+ and HV to see they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.
9. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60–100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

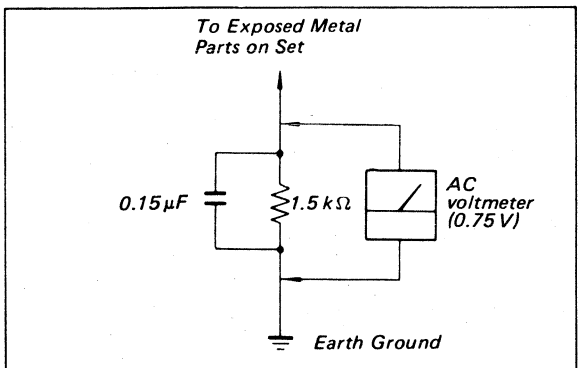


Fig. A. Using an AC voltmeter to check AC leakage.

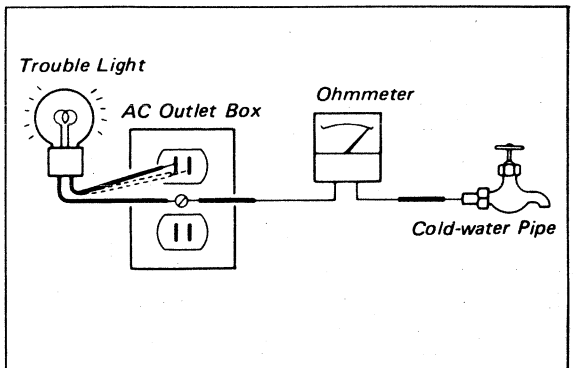


Fig. B. Checking for earth ground.

SECTION 1
GENERAL

1-1. FEATURES

PVM-1910 and PVM-1911

●Colorpure Filter: Fine picture detail without color spill or color noise can be obtained by setting the COMB FILTER select switch to COMB.
●Automatic Frequency Control: The horizontal AFC time constant is selected by setting this switch to either the fast or slow mode.
●LINE A/LINE B/VTR/RGB/CMPTR: Selects the inputs.
●TUNER: Permits connection of the special color TV tuner with a single connecting cable.
●Superimposed Picture: When utilizing the SMI-7073 superimposer (optional) and a microcomputer, the pictures from a videodisc player and a microcomputer can be superimposed.

PVM-1911

●Touch screen and controller: A screen address can be obtained by touching the desired position on the screen with a finger.

1-2. PRECAUTIONS

On safety

●Check that the operating voltage of your unit is identical with the voltage of your local power supply.
●Should any liquid or solid object fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
●Unplug the unit from the wall outlet if it is not to be used for several days.
●To disconnect the ac power cord, pull it out by the plug. Never pull the cord itself.

On installation

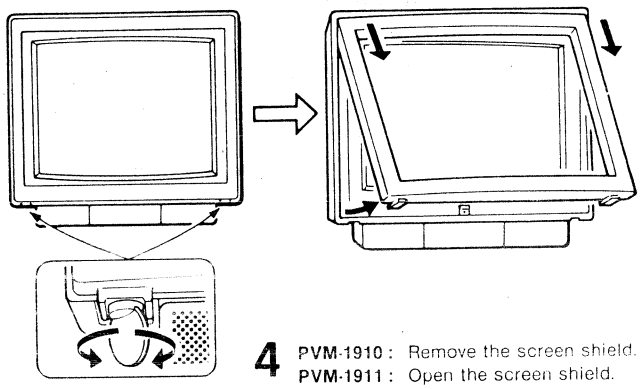
●Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.
●Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.

On cleaning

●To keep the unit looking brand-new, periodically clean it with a soft cloth. Stubborn stains may be removed with a cloth lightly dampened with a mild detergent solution. Never use strong solvents such as thinner or benzine, or abrasive cleansers since these will damage the cabinet. As a safety precaution, unplug the unit before cleaning it.
●To clean the screen, the frame and the screen shield may be removed as follows.

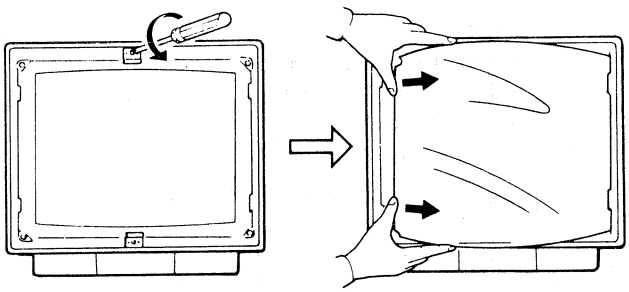
1 Remove the screws with a coin or similar object.

2 Remove the frame.



3 Remove the screws with a screwdriver.

4 PVM-1910: Remove the screen shield.
PVM-1911: Open the screen shield. Hold the shield open while cleaning the screen. Be careful not to pull out the right side of the shield because the cords connected there may be damaged.

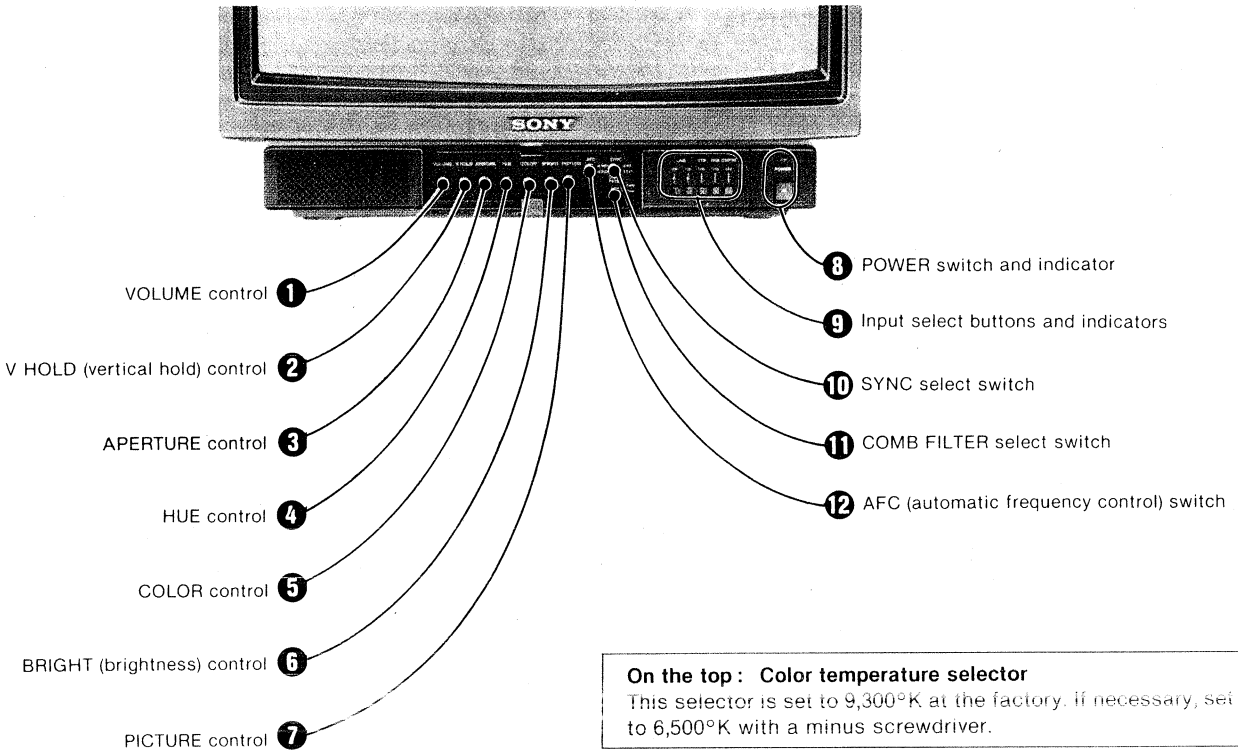


On repacking

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

If you have any questions about this unit, contact your Sony service facility.

1-3. LOCATION AND FUNCTION OF PARTS AND CONTROLS



On the top : Color temperature selector
This selector is set to 9,300°K at the factory. If necessary, set to 6,500°K with a minus screwdriver.

❶ VOLUME control
Turn this control clockwise or counterclockwise to obtain the desired volume.

❷ V HOLD (vertical hold) control
If the picture rolls vertically, correct it with this control.

❸ APERTURE control
Adjusts the sharpness of the picture.
When the control is turned all the way to the left, the picture will have normal control. If reception conditions result in a snowy picture, better results will be obtained with a softer picture.

❹ HUE control
Use to obtain the most natural skin tones. Clockwise rotation makes the skin tones greenish : counterclockwise rotation makes them purplish.

❺ COLOR control
Adjusts the color intensity of the picture. Clockwise rotation makes the picture vivid : counterclockwise rotation makes it pale.

❻ BRIGHT (brightness) control
Adjusts the brightness. Normally set this control at the center detent position.

❼ PICTURE control
Adjusts the contrast, color intensity and brightness simultaneously in the proper ratio.

❽ POWER switch and indicator
To turn the monitor on, depress the POWER switch. The indicator will light. To turn the monitor off, press the switch again.

❾ Input selector buttons and indicators
Press to select the program to be monitored.
LINE A : for a signal from the LINE A (VIDEO/AUDIO or TUNER) (TUNER) connectors.
LINE B : for a signal from the LINE B connectors.
VTR : for a signal from the 8-pin VTR connector.
RGB : for a signal from the R, G, B and AUDIO (RGB) connectors.
CMPTR : for a signal from the 25-pin CMPTR connector.

When an input select button is pressed, the indicator above the button will light up.

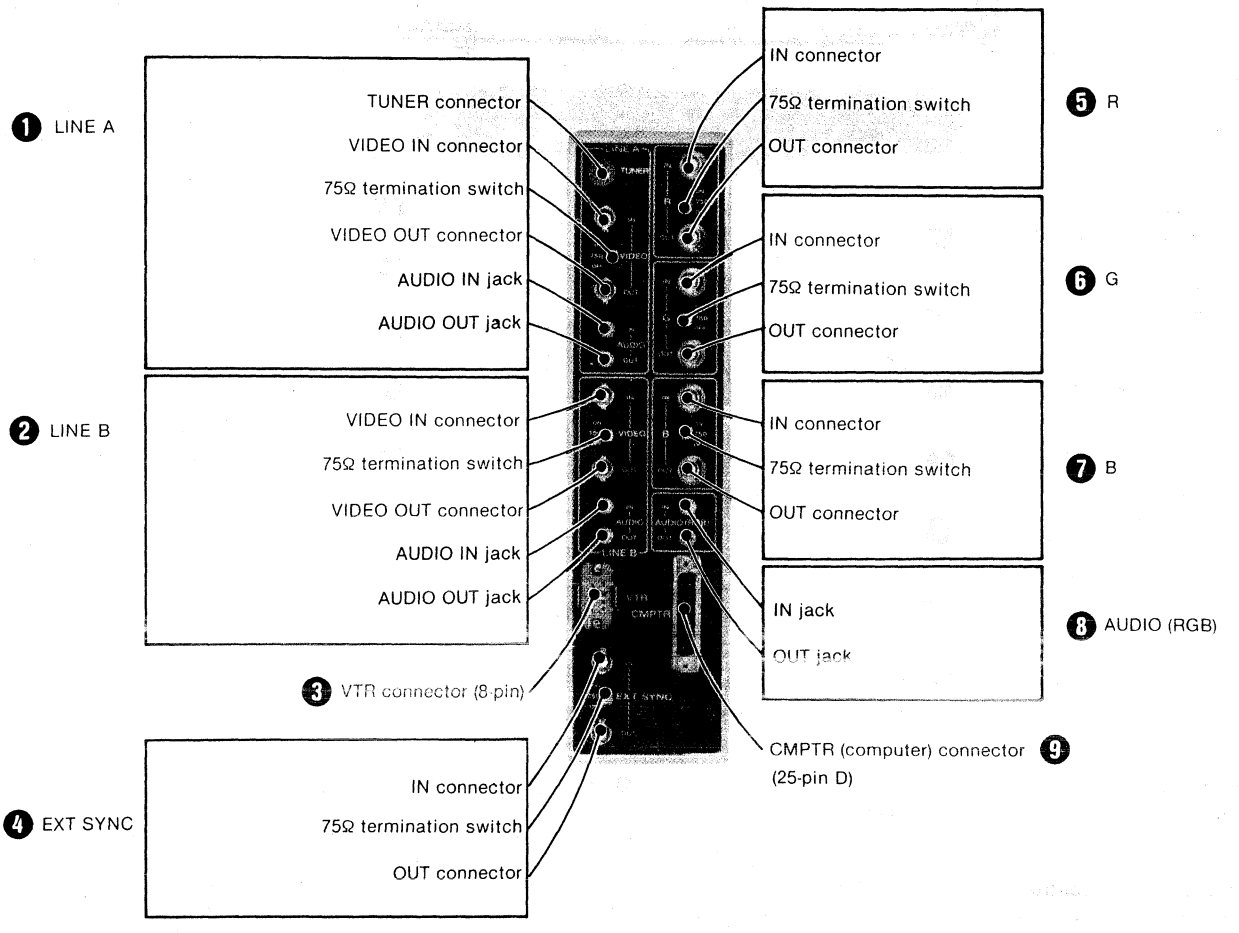
❿ SYNC select switch
Sync may be supplied from an external sync generator to the EXT SYNC IN connector on the rear panel. When an external SYNC is supplied with either composite or non-composite video input, release the SYNC SELECT SWITCH (EXT). When composite video is supplied without external sync, depress the SYNC select switch (INT).

⓫ COMB FILTER select switch
Keep this switch depressed (COMB) during normal use to obtain fine picture detail without color spill or color noise. When a microcomputer, such as the APPLE II, is connected and stripes appear, release this switch (TRAP).

⓬ AFC (automatic frequency control) switch
Select the AFC operation in the fast mode or slow mode.
FAST : incoming sync timing errors are compensated for.
SLOW : incoming sync timing errors are displayed on the screen. This mode is used to monitor the jitter from the VTR.

1-4. SYSTEM CONNECTION

CONNECTORS FOR VIDEO/AUDIO/MICROCOMPUTER



❶ LINE A ❷ LINE B
Press the LINE A or LINE B input select button to monitor the signal.

TUNER connector (BNC)
Connect to the output connector on the Special color TV tuner with the connecting cable supplied with the tuner. The video and audio signals and power can be connected simultaneously with this cable. When the tuner is connected to this connector, the VIDEO IN/OUT connectors and the AUDIO IN/OUT connectors of LINE A cannot be used. Press the LINE A input select switch to monitor the signal from a color TV tuner.

VIDEO IN connectors (BNC)
Connect to the video output of a video tape recorder or another monitor (for loop through connection), or to a color camera.

75Ω termination switches
When only one monitor is used, set the switch to ON. When several monitors are connected, set the switch of the last monitor in the looped chain to ON and set it to OFF on the other monitors.

VIDEO OUT connectors (BNC)
Connect to the video input of another monitor or a video tape recorder.

AUDIO IN jacks (minijack)
Connect to the audio output of a video tape recorder or another monitor (for loop through connection), or to a microphone using a suitable microphone amplifier.

AUDIO OUT jacks (minijack)
Connect to the audio input of another monitor or a video tape recorder.

❸ VTR connector (8-pin)
Connect to a video tape recorder equipped with an 8-pin connector. For monitoring, press the VTR input select button.
For connection, use the optional video cable, VMC-3P(3 m), -5P(5 m), -10P(10 m), -25P(25 m) or -50P(50 m).

❹ EXT SYNC
IN connector (BNC)
Connect to an external sync generator.

75Ω termination switch
When equipment is connected to the EXT SYNC OUT connector, set the switch to OFF. When nothing is connected, set to ON.

OUT connector (BNC)
Supplies the external sync signal from the external sync generator connected to the EXT SYNC IN connector.

❺ R ❻ G ❼ B
IN connectors (BNC)
Allows a character generator, microcomputer or video camera having analog RGB outputs to be connected. Press the RGB input select button to monitor the signal.

75Ω termination switches
When only one monitor is used, set the switch to ON. When several monitors are connected, set the switch of the last monitor in the looped chain to ON and set it to OFF on the other monitors.

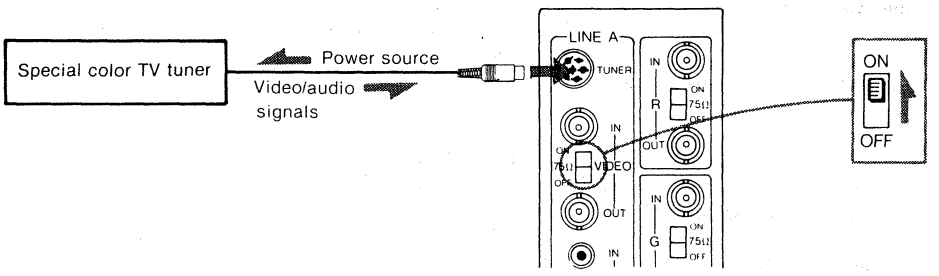
OUT connectors (BNC)
Connect to the analog RGB inputs of another monitor.

❽ AUDIO (RGB)
IN jack (minijack)
Connect to the audio output of the equipment connected to the RGB IN connectors. Press the RGB input select button to monitor the signal.

OUT jack (minijack)
Connect to the RGB audio input of another monitor.

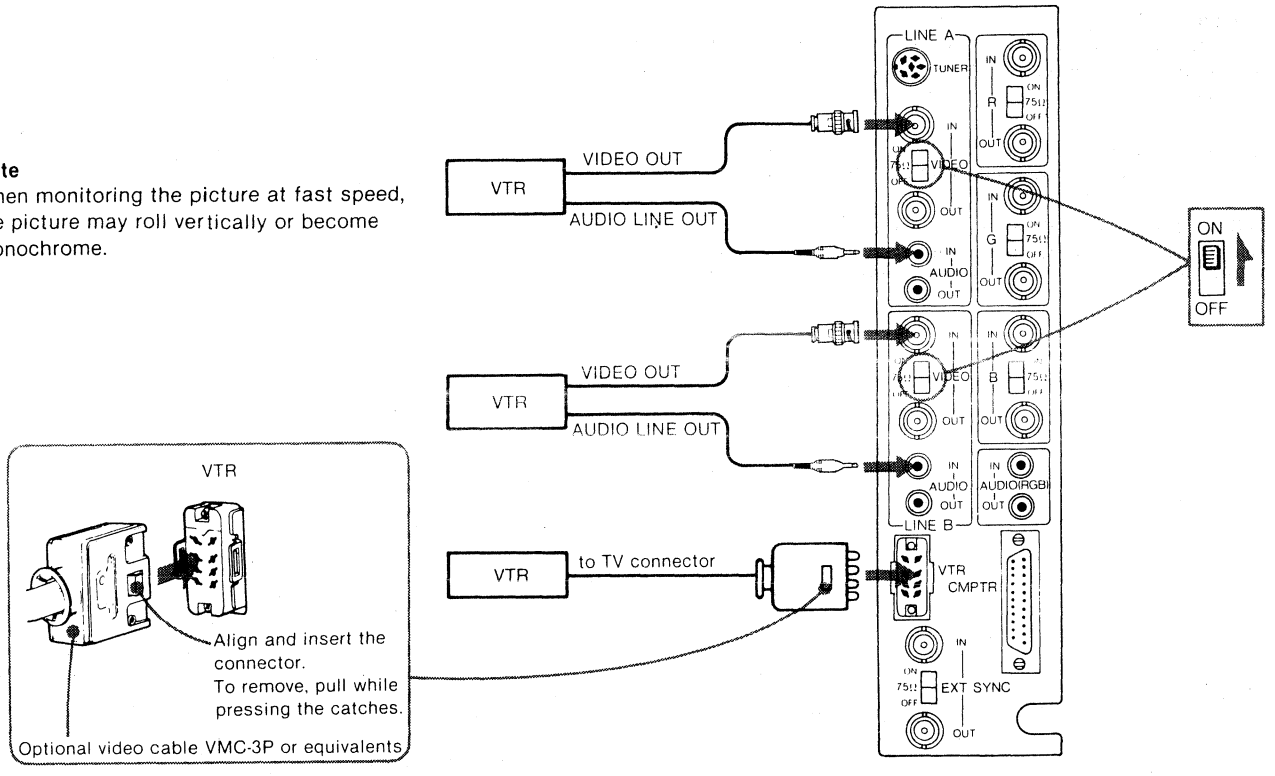
❾ CMPTR (computer) connector (25-pin D)
Connect to a microcomputer with digital or analog RGB outputs. Press the CMPTR input select button to monitor the signal.

CONNECTING A COLOR TV TUNER

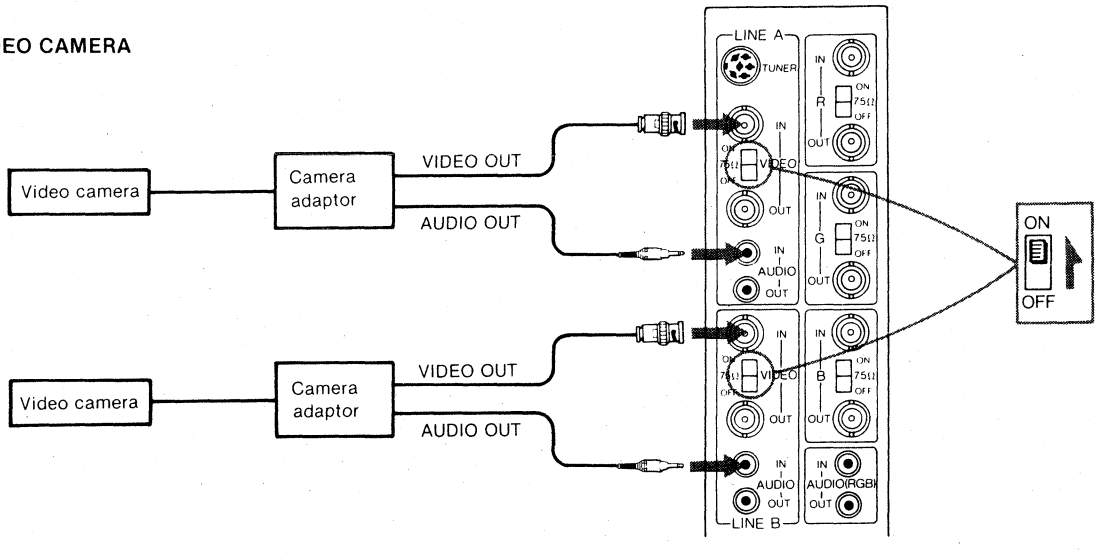


CONNECTING A VIDEO TAPE RECORDER

Note
When monitoring the picture at fast speed, the picture may roll vertically or become monochrome.



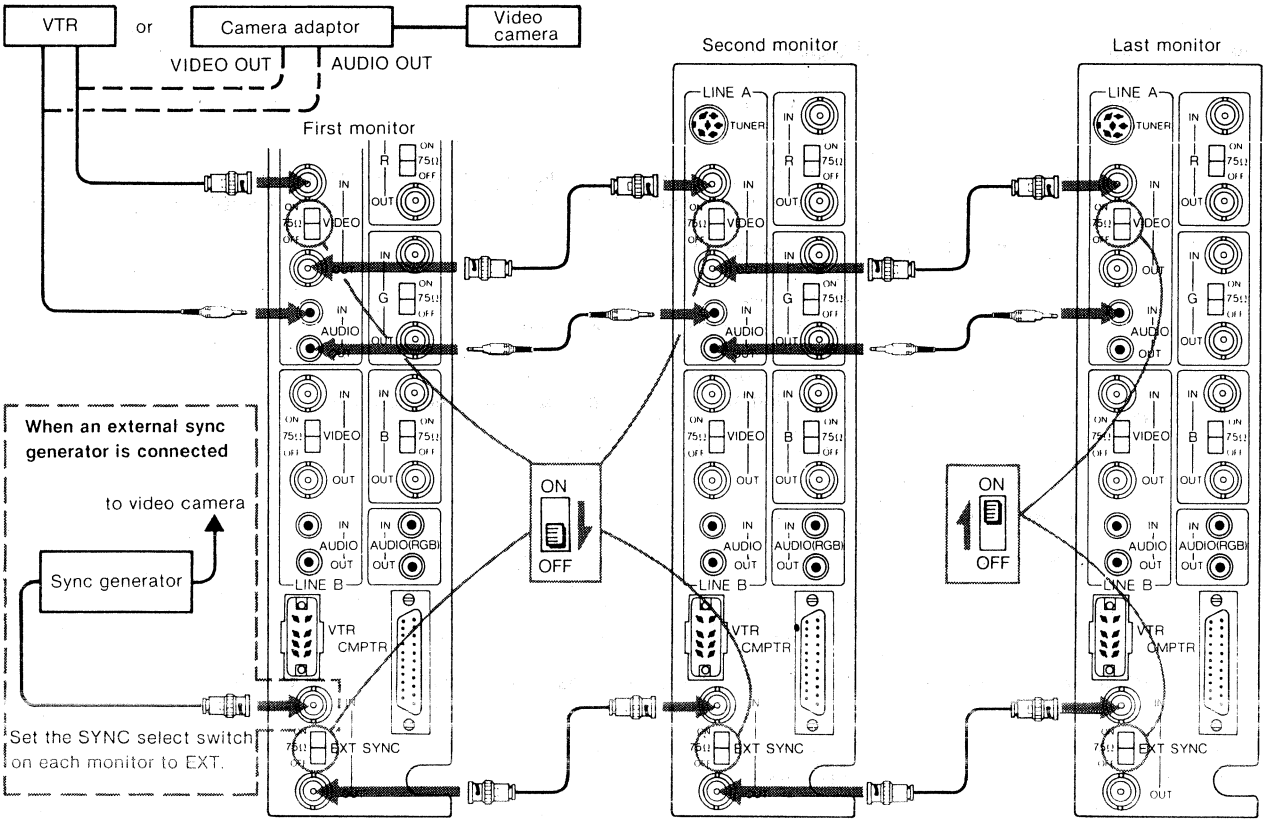
CONNECTING A VIDEO CAMERA



MULTIPLE MONITOR CONNECTION

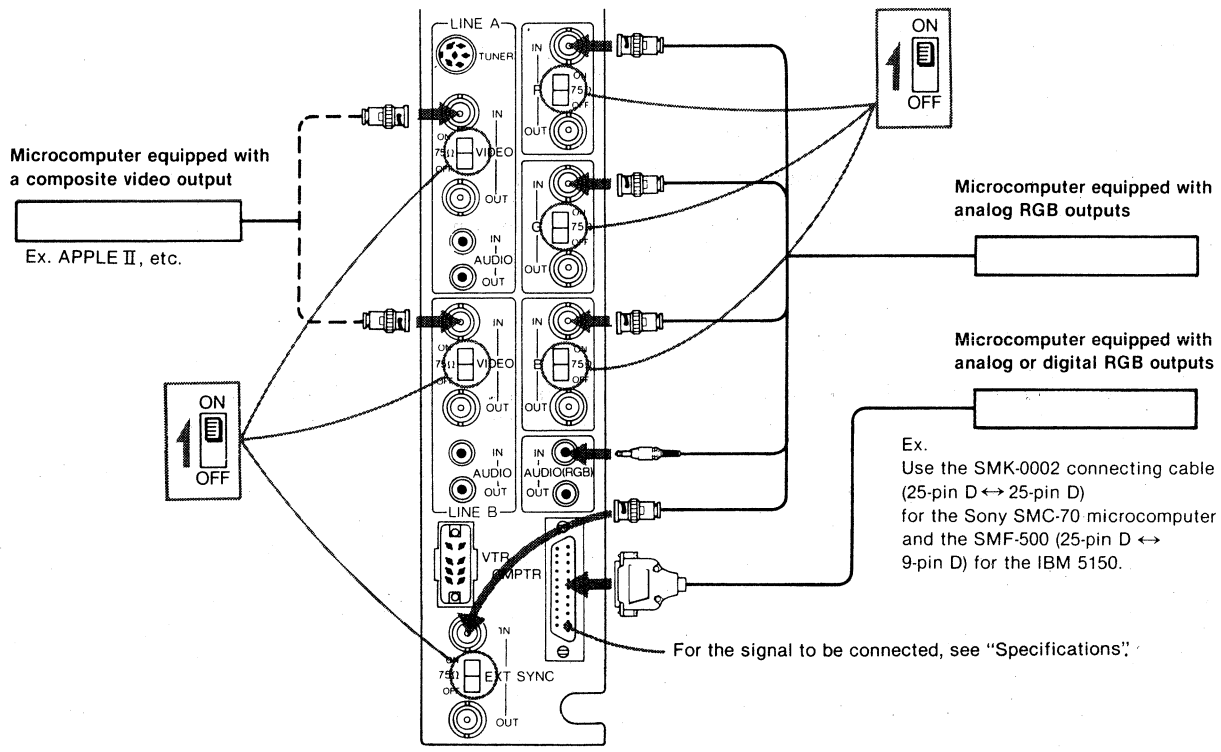
Up to 10 monitors may be connected. Set the 75Ω termination switch of the last monitor to ON and that of the other monitors to OFF.

The LINE A or LINE B input select button on each mointor should be pushed in.



CONNECTING A MICROCOMPUTER

The CMPTR connector allows a microcomputer with digital or analog RGB outputs to be connected. The R, G and B IN connectors allow a microcomputer with analog RGB outputs to be connected.



CMPTR: 25-pin D connector

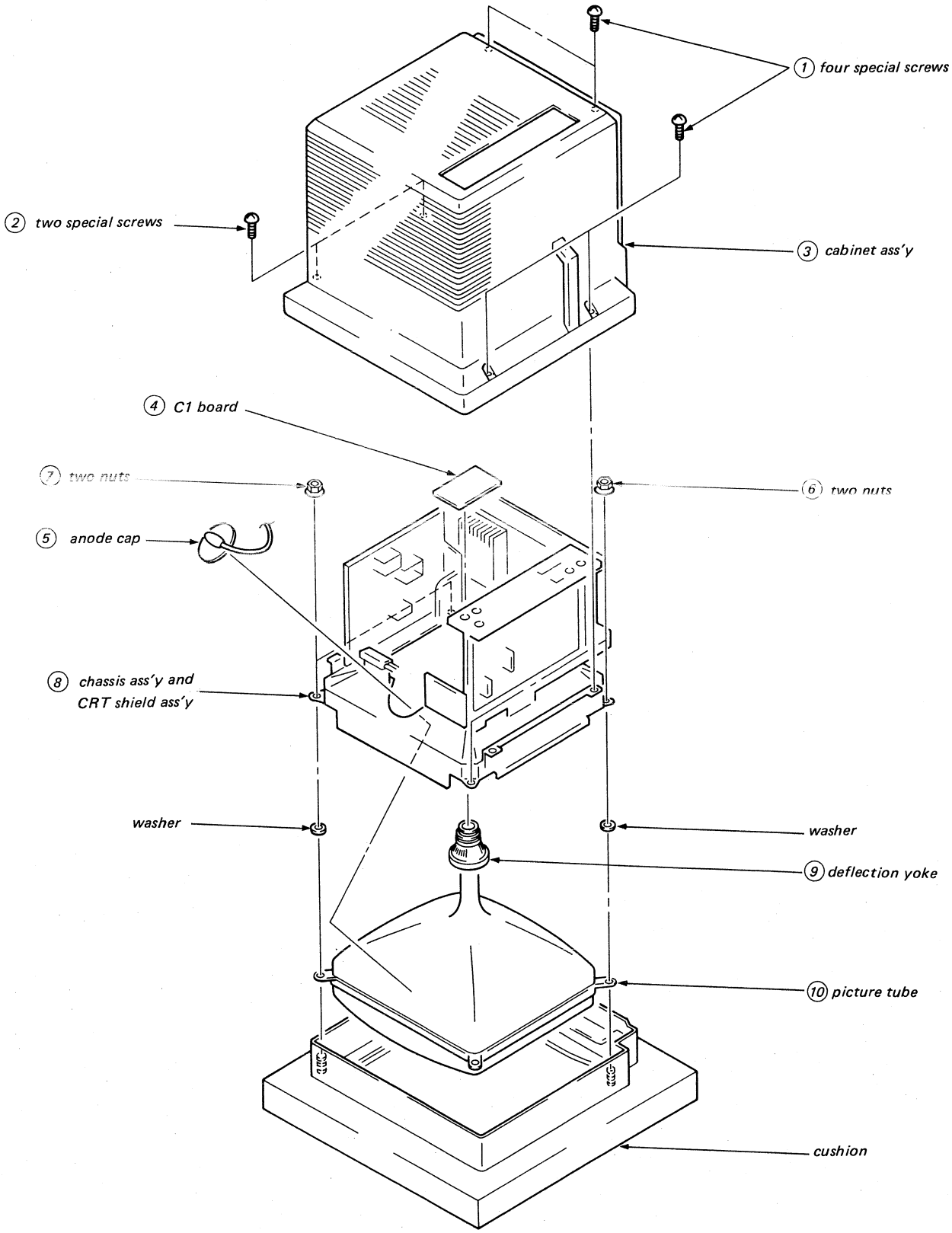
Pin No.	Signal	Signal level
1	IBM select	High state (5 V): IBM mode Low state: 3 Bit TTL
2	Audio select	High state (5 V or open): audio inputs from the CMPTR connector Low state (less than 0.4 V): audio inputs from the LINE A AUDIO IN jack
3	H. sync or composite sync	Negative polarity (1) 1 V p-p, 75Ω terminated (2) TTL level •(1) or (2) is selected by the pin 9.
4	Blue input	Positive polarity (1) Analog signal (0.7 V p-p, 75Ω terminated, non sync) (2) Digital signal (TTL level) •(1) or (2) is selected by the pin 9.
5	Green input	
6	Red input	
7	+ 12 V power supply	
8	+ 5 V power supply	
9	Analog/digital mode select	High state (open): Analog signal (0.7 V p-p) Low state (ground): Digital signal (TTL level)
10	RGB/NORMAL mode select	High state (5 V or open): RGB inputs from the microcomputer Low state (ground): composite video inputs from the LINE A VIDEO IN connector
11	V-sync	Negative polarity TTL level
12	Blanking	High state (5 V or open): video inputs from the microcomputer Low state (ground): Superimposed signal of composite video inputs from the LINE A VIDEO IN connector and the RGB inputs from the microcomuter

CMPTR: 25-pin D connector

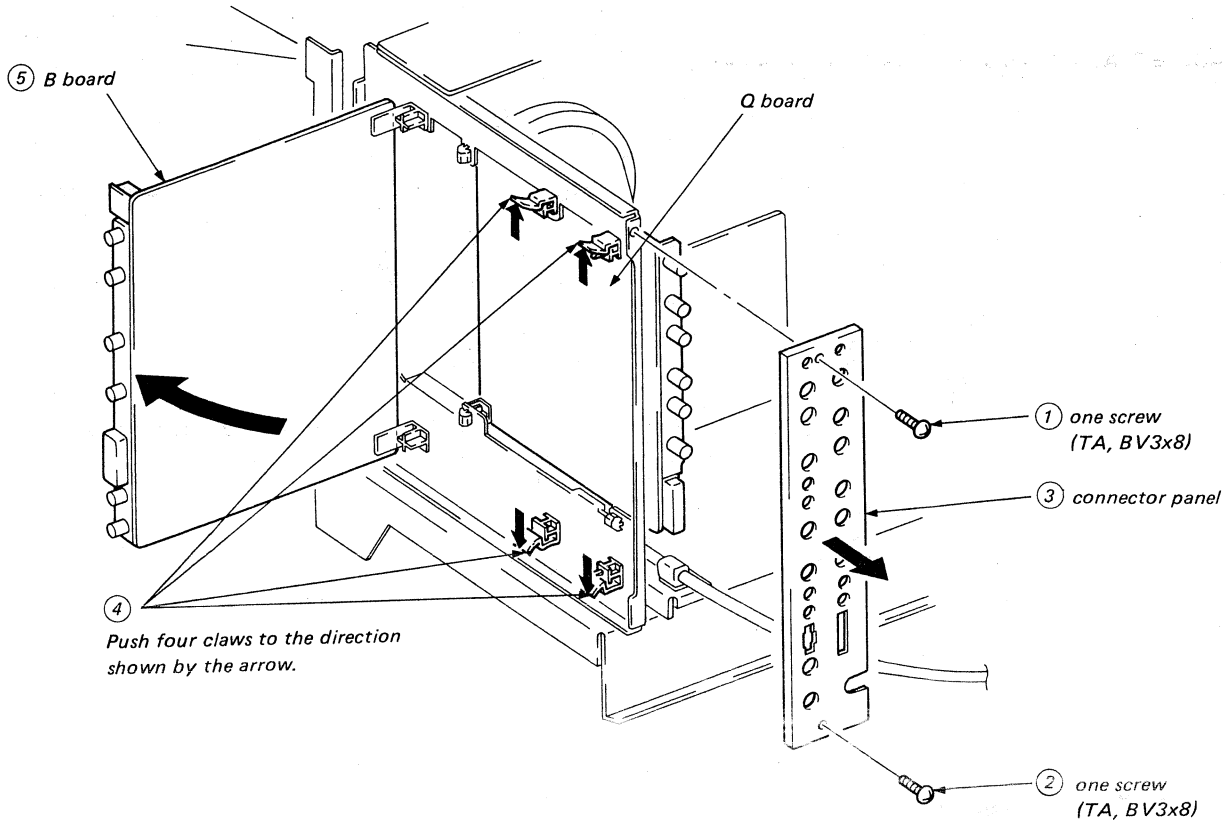
Pin No.	Signal	Signal level
13	Audio input	Input level −5 dB (100% modulation), input impedance more than 47 kΩ
14	EXT/INT mode sync switch	High state (open): microcomputer sync Low state: LINE A sync
15 I 24	ground	
25	IBM luminance signal	•Positive polarity, TTL level when the high state is selected at the pin 1. •Set to the low state (ground) when the low state is selected at the pin 1.

SECTION 2
DISASSEMBLY

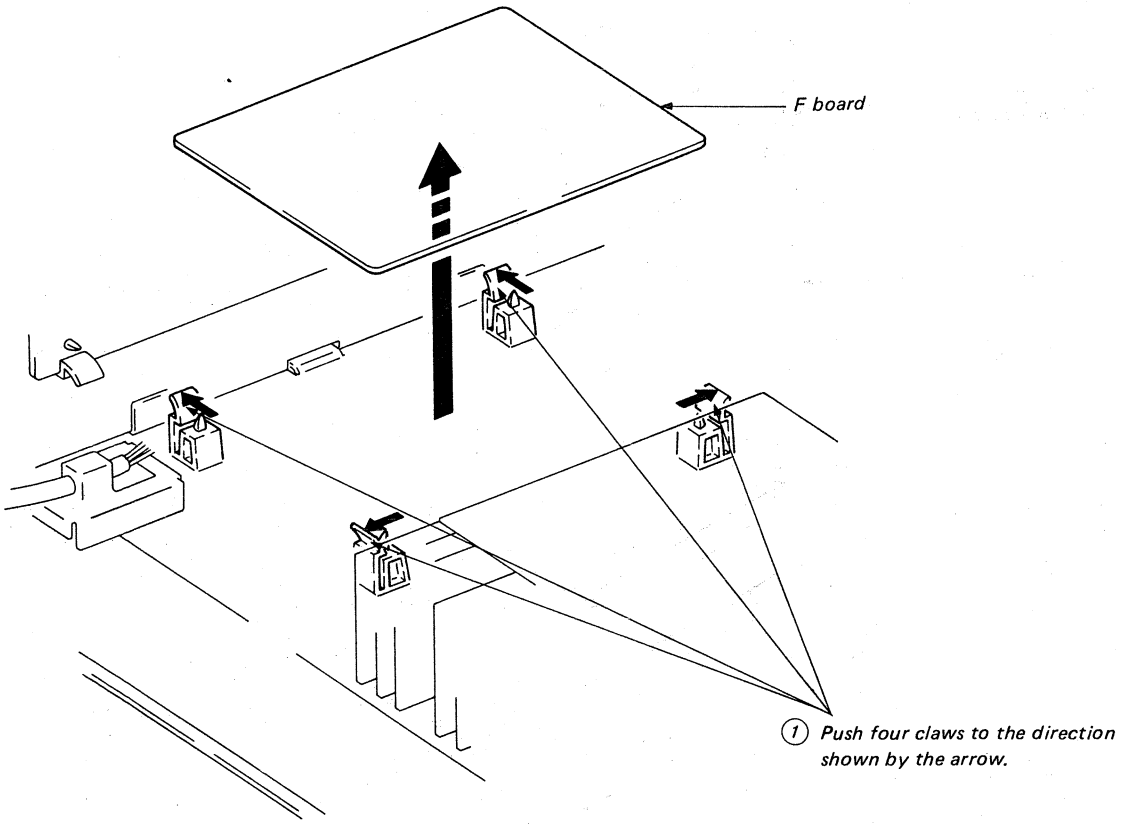
(1) CABINET ASS'Y AND PICTURE TUBE REMOVAL



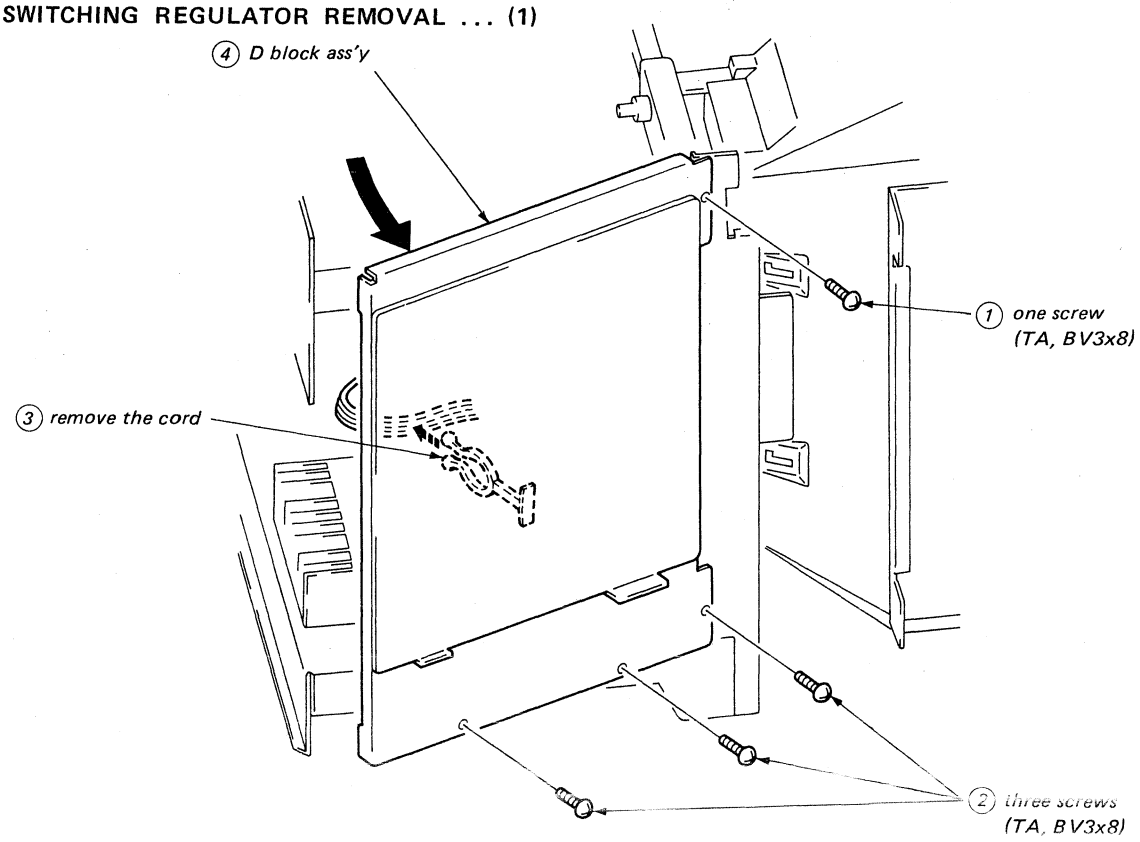
(2) FOR CHECKING B AND Q BOARD UP



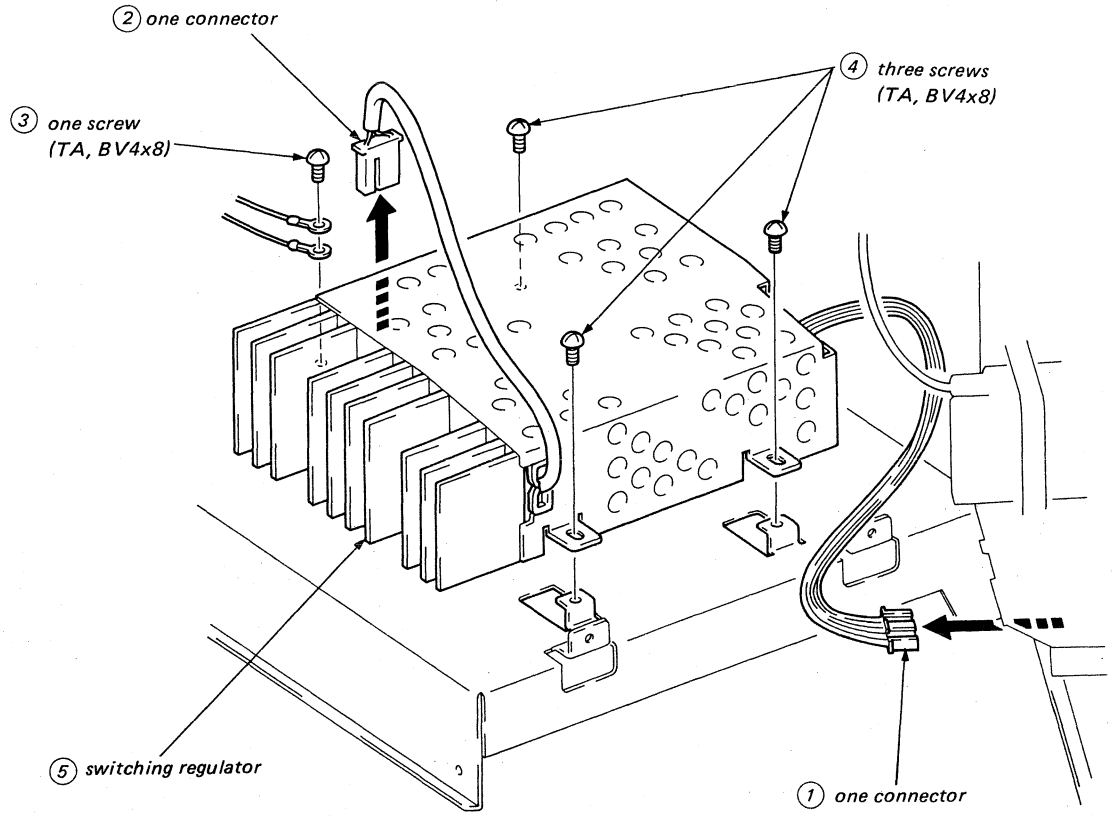
(3) F BOARD REMOVAL



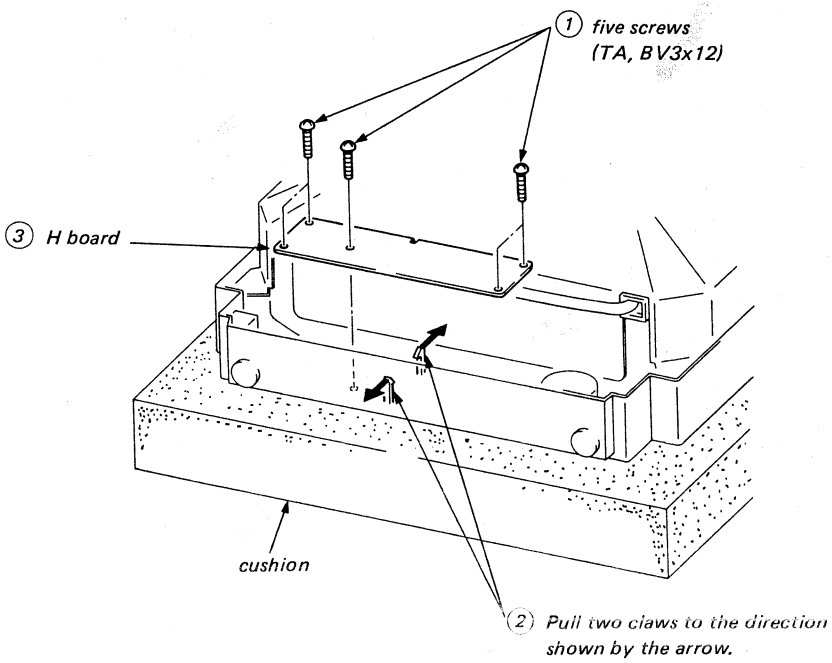
(4) SWITCHING REGULATOR REMOVAL ... (1)



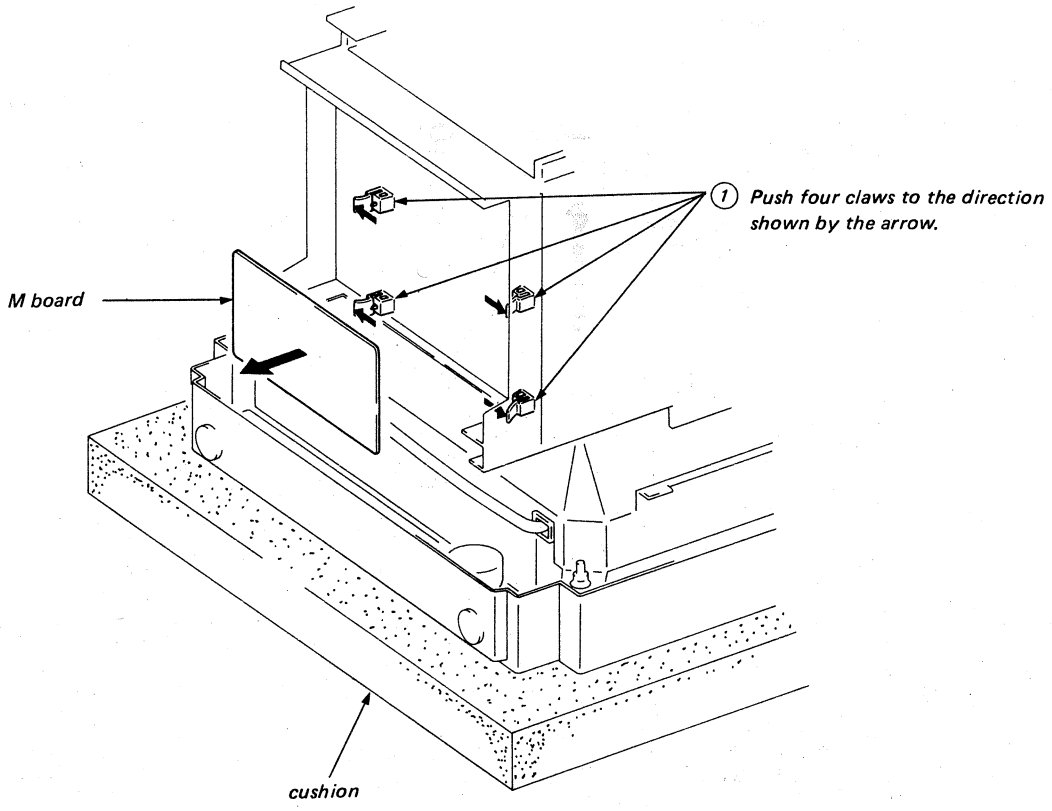
(5) SWITCHING REGULATOR REMOVAL ... (2)



(6) H BOARD REMOVAL



(7) M BOARD REMOVAL (PVM-1911 ONLY)



SECTION 3
SETUP ADJUSTMENTS

3-1. BEAM LANDING

Landing Adjustment In the case of a 6,500°K color temperature, the number of VRs to be adjusted will differ.

(1) Turn on set power supply and receive and all-white signal.
(2) Evenly degauss the entire screen.
(3) Loosen the deflection yoke mounting screw, and set the purity control to the center as shown in Fig. 1-1.
(4) Set BKG volume RV708 (G) to maximum and set RV712 (B) and RV704 (R) to minimum.
(5) Move the deflection yoke back, and adjust the purity control so that (G) is in the center and (R) and (B) are at the sides, evenly. (Fig. 1-2)
(6) Move the deflection yoke forward so that the entire screen is G.
* If the deflection yoke is pushed all the way to the CRT then moved slightly back, landing adjustment is easier.
(7) Substitute (R), then (B) for (G) in step (4) and check landing.
(8) Rotate (R), (G) and (B) once each and check landing.
(9) When landing is not right, adjust the purity control and use magnets as shown in Fig. 1-3, then repeat steps (7) and (8).
(10) When a magnet is used, be sure to perform step (2), and tighten deflection yoke mounting screw loosely.

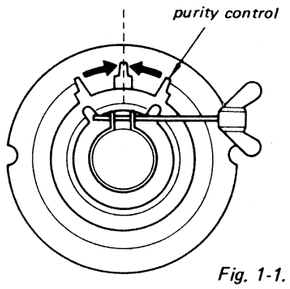


Fig. 1-1.

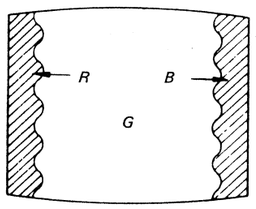


Fig. 1-2.

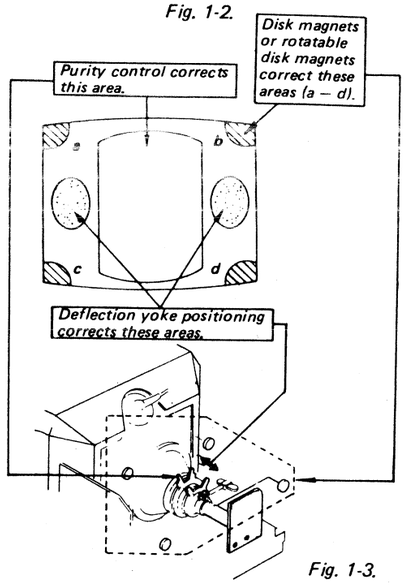
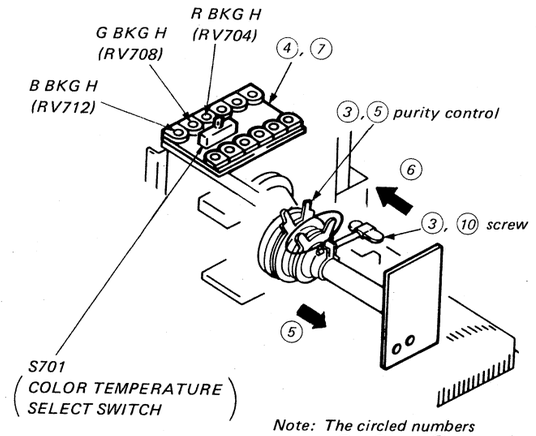


Fig. 1-3.

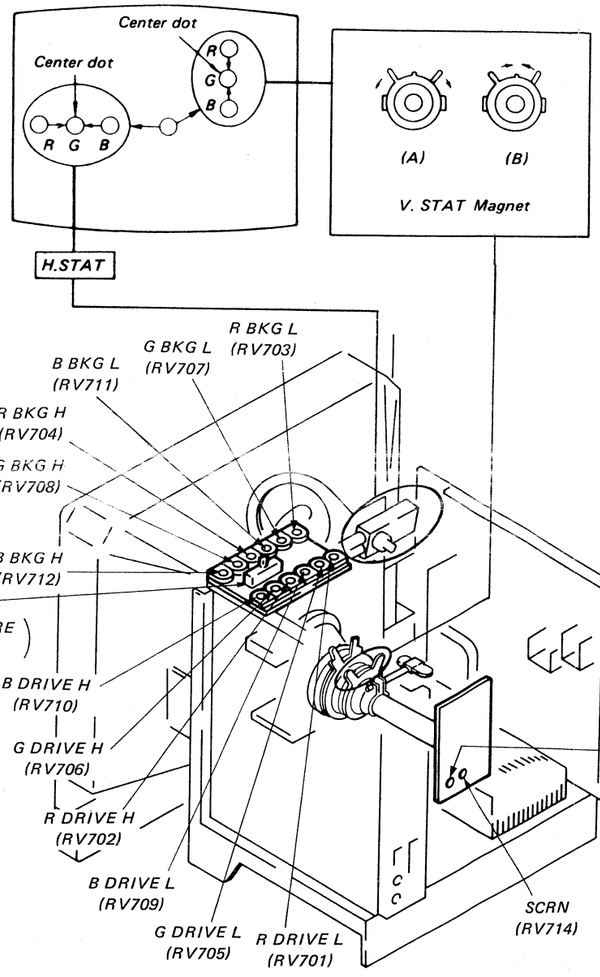


Note: The circled numbers (③–⑦ and ⑩) shown above steps.

3-2. CONVERGENCE

Preparation:

- Before starting, perform FOCUS, H.SIZE, V.SIZE and V.LIN adjustments.
- Set BRIGHTNESS control to fully counterclockwise.
- Feed in the dot pattern.

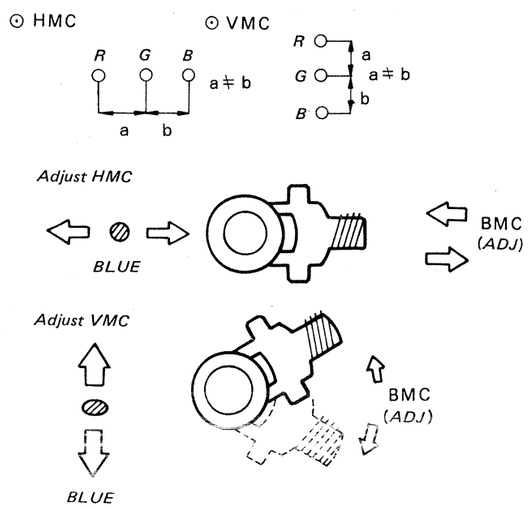


(1) Horizontal and Vertical Static Convergence

If blue dot does not coincide with red and green dots, perform following steps.

Move BMC magnet to correct insufficient H. static convergence.
Rotate BMC magnet to correct insufficient V. static convergence.

In either case, repeat Beam Landing Adjustment.



3-3. FOCUS(RV713)

(1) Feed in monoscope signal, (PICTURE: 80%, BRIGHT: 50%)
(2) Adjust RV713 for best Focus.

3-4. WHITE BALANCE

〔For 9,300° K Color Temperature:〕

(1) Receive a totally white signal from the pattern generator.
(2) Set BRIGHT at 50%, PICTURE at 80%, the various BKG VRs (RV704, 708, and 712) at 50%, and the various DRIVE VRsH (RV702, 706, and 710) at 80%.
(3) Turn all the other BKG VRs than the one for the color that started glowing first, and adjust the white balance at cut-off.
(4) Adjust the high light side white balance with drive VRs.
(5) By turning other drive VRs than the one for the color glowing the brightest of all, adjust the white balance. Repeat operating steps (3) and (4).

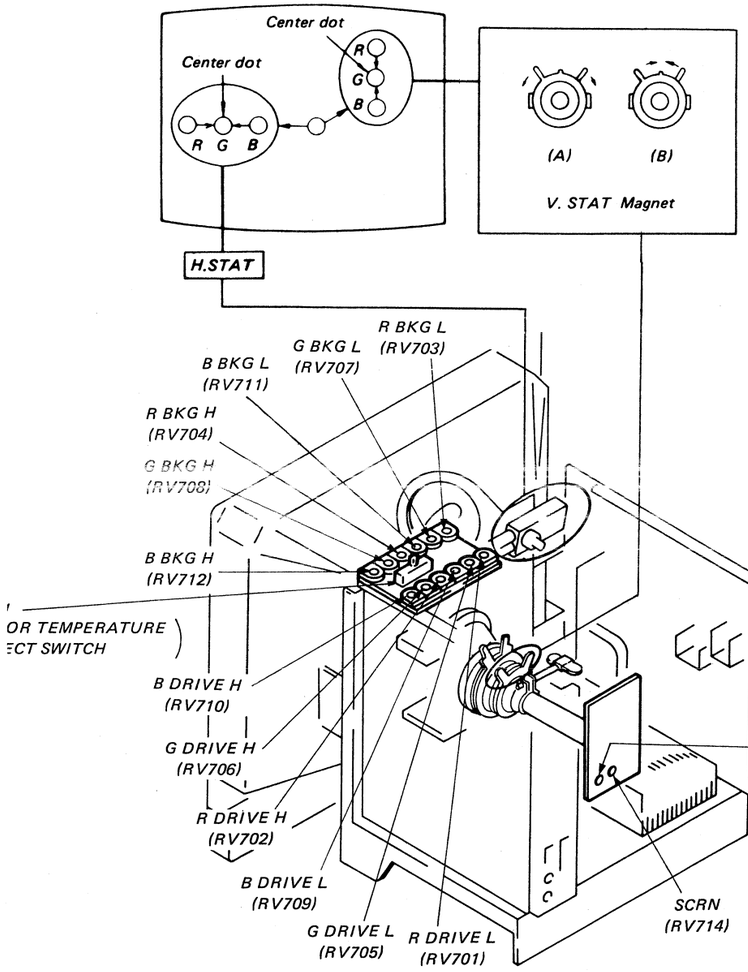
〔For 6,500° K Color Temperature:〕

(1) By turning BKG VRs (RV703, 707, and 711) and drive VRs (RV701, 705, and 709), make the same adjustment as in the 9,300° K color temperature mode.

3-2. CONVERGENCE

Preparation:

- Before starting, perform FOCUS, H.SIZE, V.SIZE and V.LIN adjustments.
- Set BRIGHTNESS control to fully counterclockwise.
- Feed in the dot pattern.

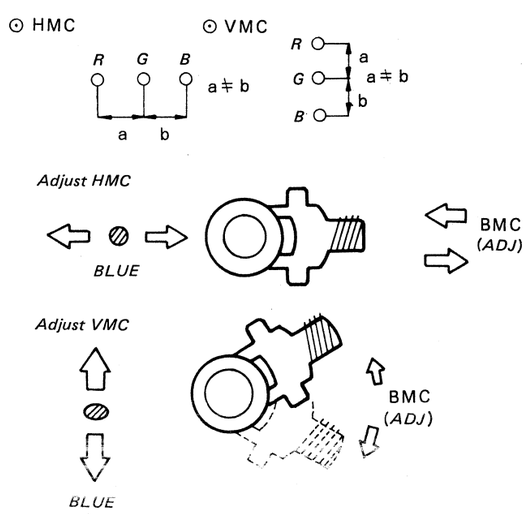


(1) Horizontal and Vertical Static Convergence

If blue dot does not coincide with red and green dots, perform following steps.

Move BMC magnet to correct insufficient H. static convergence.
Rotate BMC magnet to correct insufficient V. static convergence.

In either case, repeat Beam Landing Adjustment.



3-3. FOCUS(RV713)

(1) Feed in monoscope signal, (PICTURE: 80%, BRIGHT: 50%)

(2) Adjust RV713 for best Focus.

3-4. WHITE BALANCE

〔For 9,300° K Color Temperature:〕

(1) Receive a totally white signal from the pattern generator.
(2) Set BRIGHT at 50%, PICTURE at 80%, the various BKG VRs (RV704, 708, and 712) at 50%, and the various DRIVE VRsH (RV702, 706, and 710) at 80%.
(3) Turn all the other BKG VRs than the one for the color that started glowing first, and adjust the white balance at cut-off.
(4) Adjust the high light side white balance with drive VRs.
(5) By turning other drive VRs than the one for the color glowing the brightest of all, adjust the white balance. Repeat operating steps (3) and (4).

〔For 6,500° K Color Temperature:〕

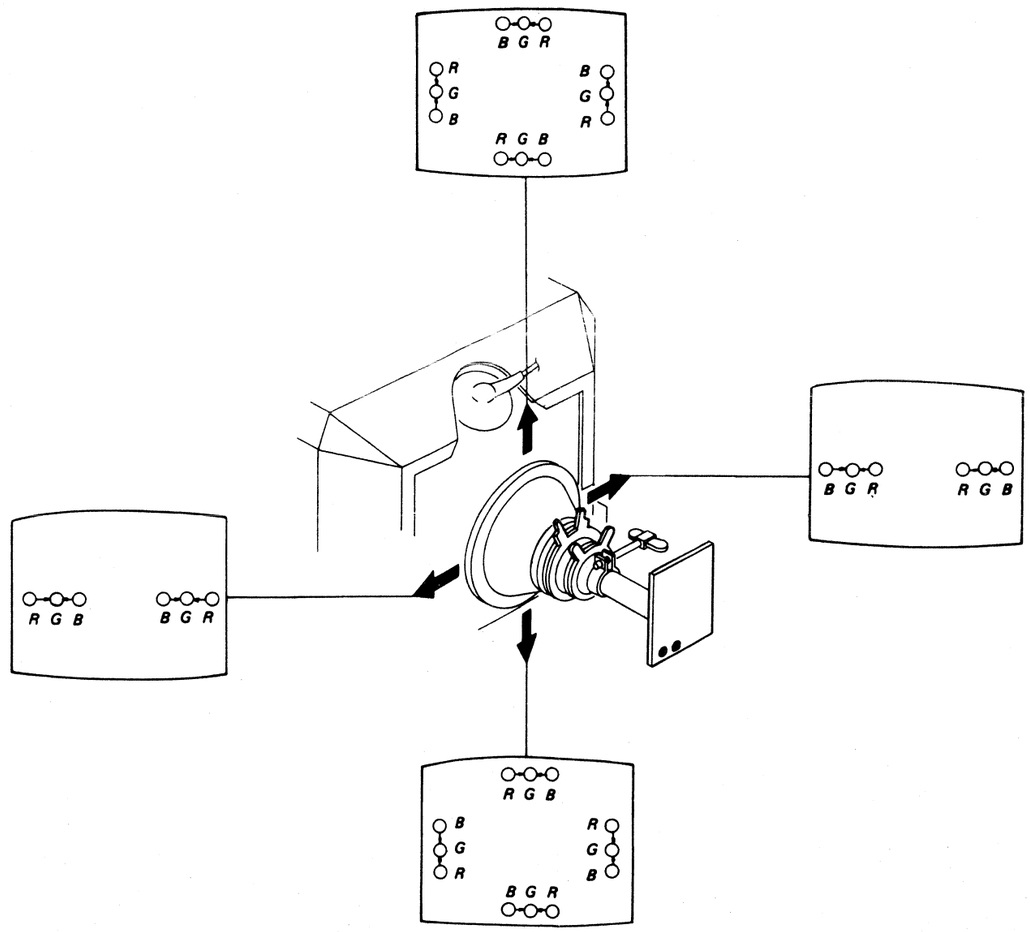
(1) By turning BKG VRs (RV703, 707, and 711) and drive VRs (RV701, 705, and 709), make the same adjustment as in the 9,300° K color temperature mode.

(2) Dynamic Convergence Adjustment

Preparation:

- Before starting, perform Horizontal and Vertical Static Convergence Adjustment.

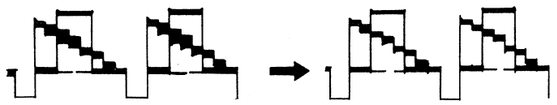
1. Loosen deflection yoke screw.
2. Remove deflection yoke spacers.
3. Move the deflection yoke for best convergence as shown below.
4. Tighten the deflection yoke screw.
5. Install the deflection yoke spacers.

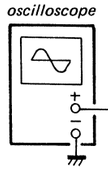


4-1. B BOARD ADJUSTMENTS

3.58 MHz Trap Adjustment

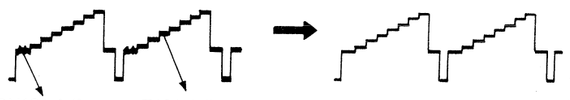
(1) Receive 3.58 MHz color bars.
(2) Observe the waveform at IC103 pin (28) with an oscilloscope, and adjust T102 for the 3,58 MHz component to be minimized.

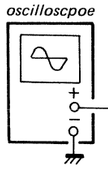




COMB FILTER Adjustment

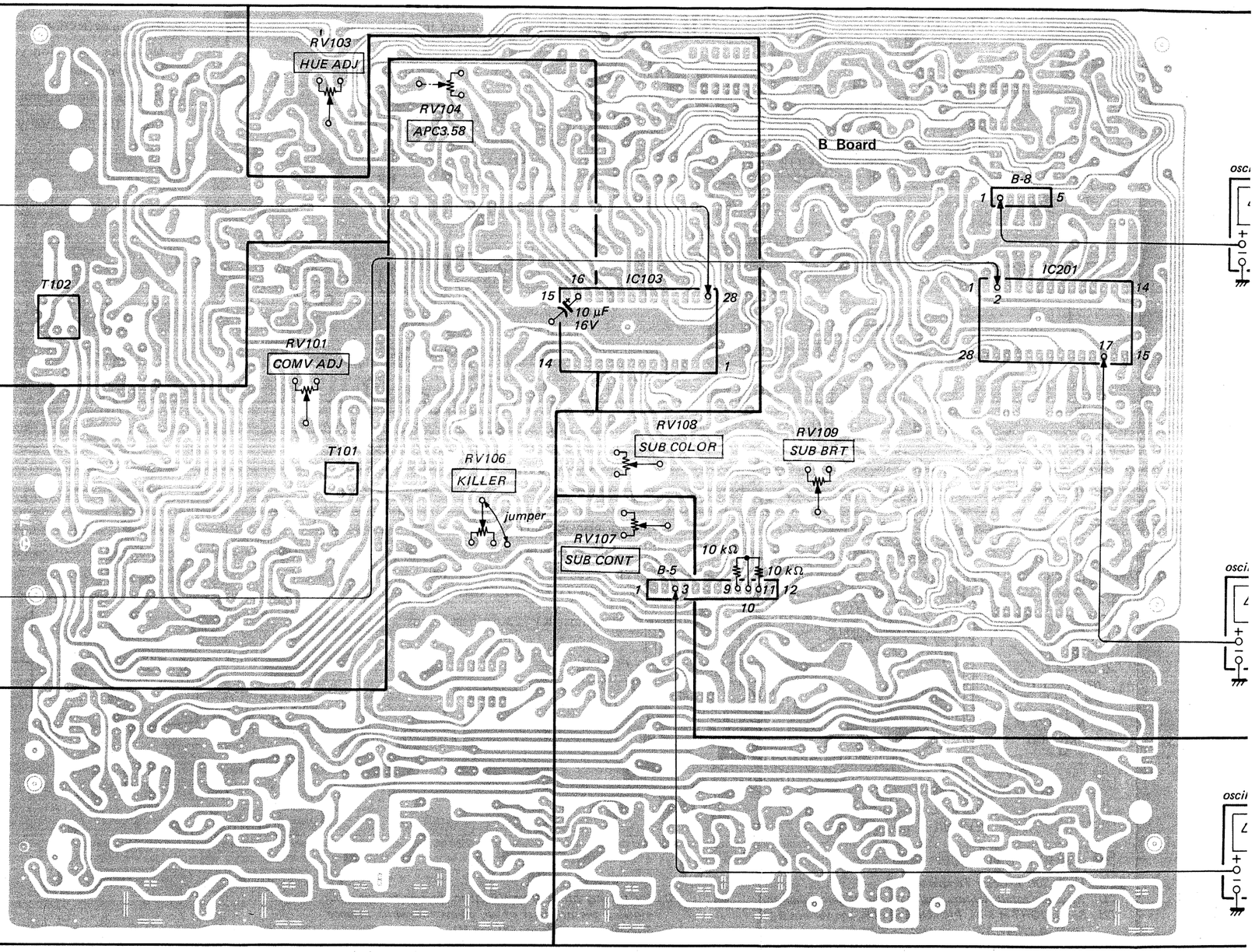
1) Input a NTSC color bar.
2) Observe the IC201 (2) pin waveform on the oscilloscope, and adjust so that the chroma component is minimum, while tracking with RV101 and T101.

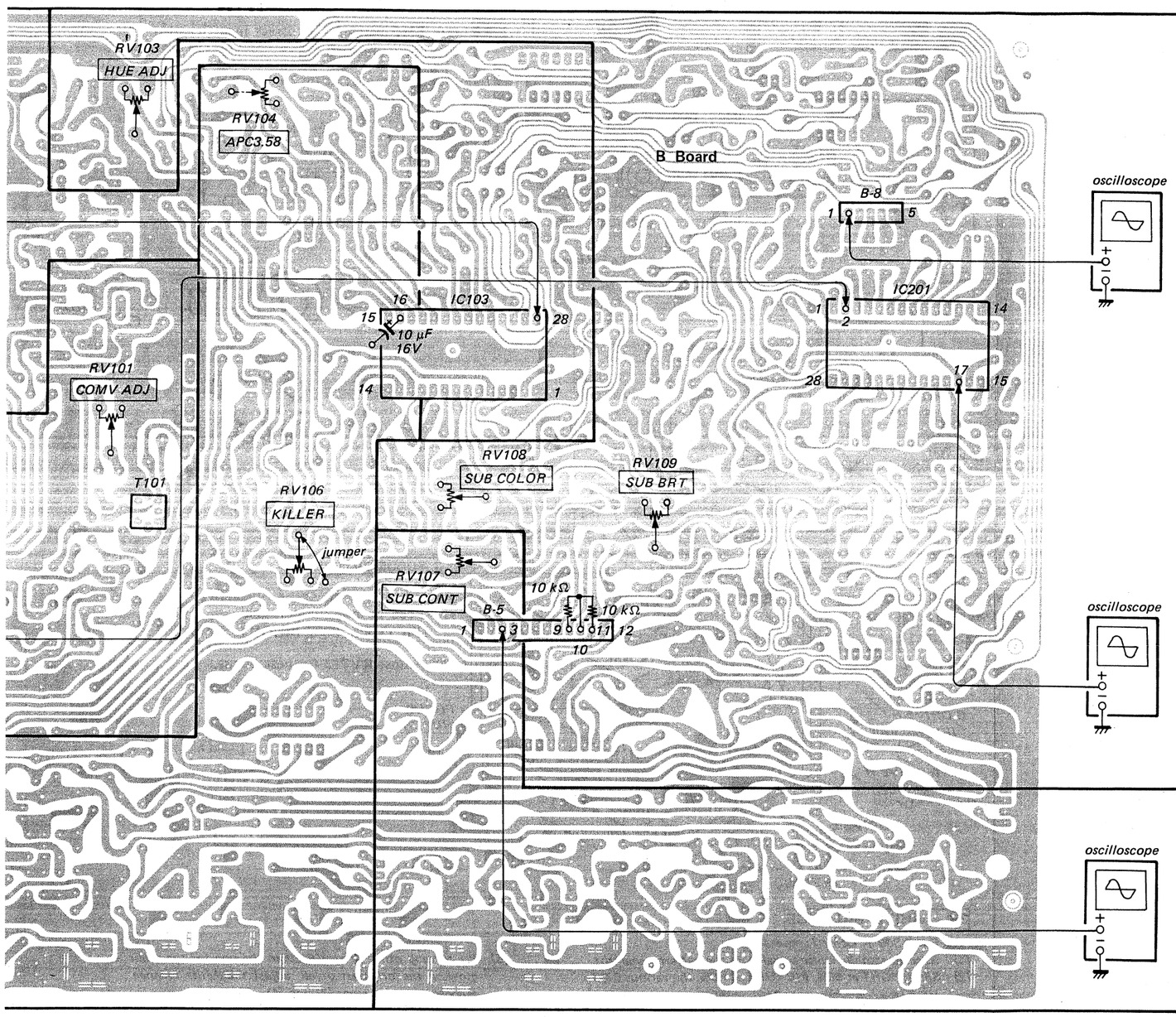




3.58 (APC-1) Adjustment

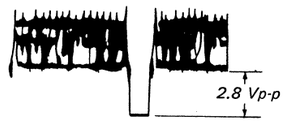
(1) Receive NTSC color bars.
(2) Ground the slider of RV106, thereby turning the color killer circuit off.
(3) Connect IC103 pin (6) via a 10 µF /16V electrolytic capacitor to the ground, thereby desynchronizing Color Sync.
(4) Adjust Color Sync with RV104.





SUB BRIGHT Adjustment

(1) Receive a monoscope signal.
(2) Set BRIGHT and PICTURE for minimum position.
(3) Observe B8 connector pin (1) (B out) on the oscilloscope, and adjust RV109 (sub-bright) so that the pedestal level is 2.8V DC.

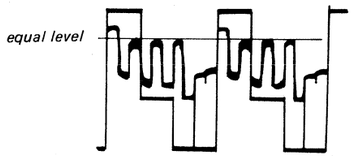


Sub-Color Adjustment

(1) Receive color bars.
(2) Adjust RV108 and RV103 for the waveform at connector B-8 (1) (B Out) to be made as illustrated.

Hue Adjustment

(1) Connect resistors to connector B5 as illustrated to the left.
(2) Receive color bars.
(3) Adjust the waveform at IC201 pin (17) (B-Y) as illustrated with RV103.



SUB CONTRAST Adjustment

(1) Receive a monoscope signal.
(2) Set PICTURE control to maximum.
(3) Observe the B-5 connector pin (3) (B out) on the oscilloscope, and adjust the subcontrast VR (RV107) so that the signal element is 2.5V.

4-2. D BOARD ADJUSTMENTS

Horizontal Oscillator Frequency Adjustment

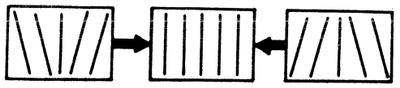
(1) Receive a monoscope signal.
(2) Set PIC VR at 80% and BRT VR at 50%, and connect for an external sync.
(3) Ground the Q502 base.
(4) Turn H FREQ VR (RV504), and adjust for the image to stop flowing.

Horizontal Deflection Block Adjustment

(1) Receive a monoscope signal.
(2) Set BRIGHT at 80% and BRIGHT at 50%.
(3) Turn H PHASE VR (RV505), verify that the H center will shift accordingly, and turn the VR to the extreme clockwise position.
(4) Turn H CENT VR (RV506), and verify that the H center will shift accordingly.
(5) Turn the HLC (L505) core for the picture size to be maximized.
(6) Adjust H SIZE VR (RV801) for the H size at screen center to be made 16 frames.

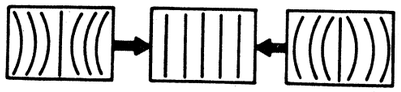
PIN PHASE ADJUSTMENT

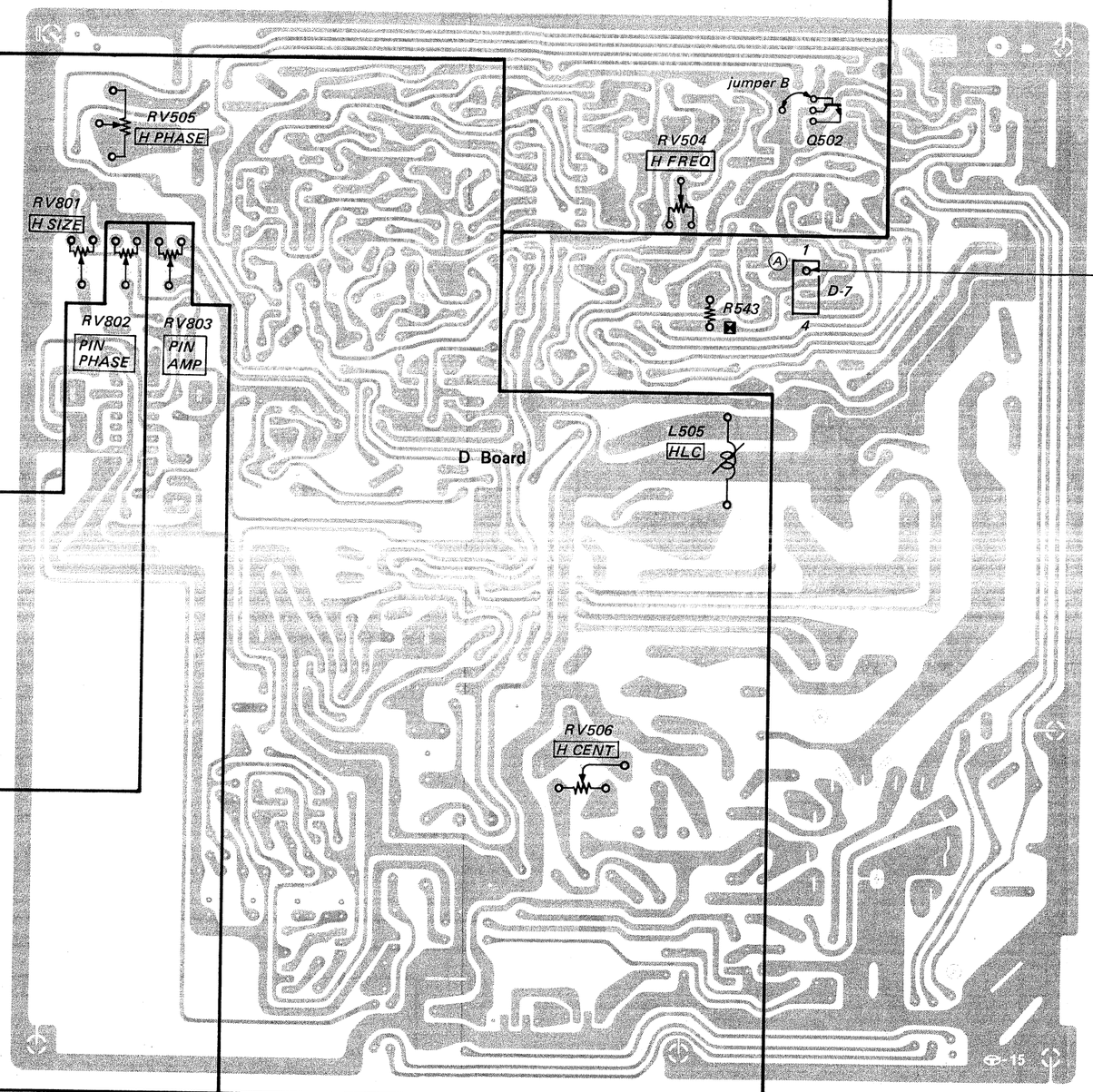
Adjust RV802 to make vertical lines straight as shown.



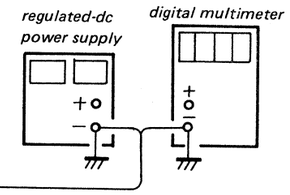
PIN AMP ADJUSTMENT

Adjust RV803 to make vertical lines straight as shown.





4-3. SAFETY RELATED ADJUSTMENTS



Hold Down Adjustment (◪ R543 Adjustment)

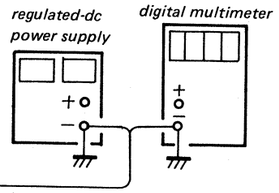
Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

D507, D508, D523, IC503, Q511, R540, R541, R542, R543, R544, R545, R590, R591, R592, R593

Note: The ① pin of D-7 connector is the hold down check point Ⓐ.

1. Feed in color-bar signal.
2. Set the BRIGHT, PICTURE & COLOR control to minimum.
3. Confirm that the HV HOLD DOWN CIRCUIT operates and the raster disappears when 18.50V DC is applied to hold down check point Ⓐ from an external DC power supply.
   Note: When raster disappears, cut input voltage and applied voltage immediately.
4. Confirm that the HV HOLD DOWN CIRCUIT does not operate when 17.65V DC is applied to hold down check point Ⓐ from an external DC power supply.
   Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut input and applied voltage.
5. Feed in an all-white signal.
6. Confirm that the HV HOLD DOWN CIRCUIT operates and the raster disappears when 17.40V DC is applied to hold down check point Ⓐ from an external DC power supply.
   Note: When raster disappears, cut input voltage and applied voltage immediately.
7. Confirm that the HV HOLD DOWN CIRCUIT does not operate when 16.30V DC is applied to hold down check point Ⓐ from an external DC power supply.
   Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut input and applied voltage.
8. Adjust R543 so that steps 3, 4, 6 and 7 are satisfied.

4-3. SAFETY RELATED ADJUSTMENTS



Hold Down Adjustment (▣R543 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

D507, D508, D523, IC503, Q511, R540, R541, R542, R543, R544, R545, R590, R591, R592, R593

Note: The ① pin of D-7 connector is the hold down check point Ⓐ.

1. *Feed in color-bar signal.*
2. *Set the BRIGHT, PICTURE & COLOR control to minimum.*
3. *Confirm that the HV HOLD DOWN CIRCUIT operates and the raster disappears when 18.50V DC is applied to hold down check point Ⓐ from an external DC power supply.*
   Note: When raster disappears, cut input voltage and applied voltage immediately.
4. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when 17.65V DC is applied to hold down check point Ⓐ from an external DC power supply.*
   Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut input and applied voltage.
5. *Feed in an all-white signal.*
6. *Confirm that the HV HOLD DOWN CIRCUIT operates and the raster disappears when 17.40V DC is applied to hold down check point Ⓐ from an external DC power supply.*
   Note: When raster disappears, cut input voltage and applied voltage immediately.
7. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when 16.30V DC is applied to hold down check point Ⓐ from an external DC power supply.*
   Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut input and applied voltage.
8. *Adjust R543 so that steps 3, 4, 6 and 7 are satisfied.*

+B Adjustment (▣R669 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

C654, IC651, R652, R660, R661, R669

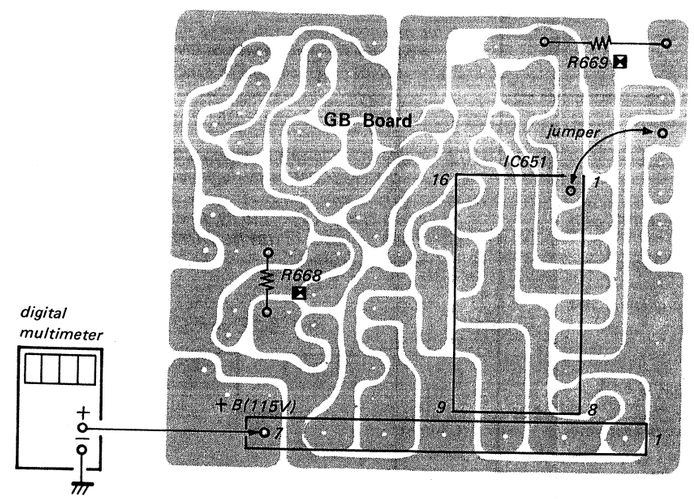
1. *Supply 120V AC with variable auto-transformer.*
2. *Adjust the resistance value of R669 so that +B voltage is 115.0V $^{+1.0}_{-2.0}$ DC.*

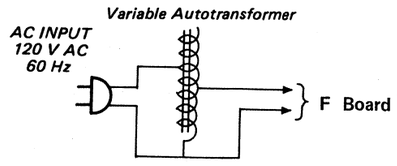
MAXIMUM +B VOLTAGE Adjustment (▣R668 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

D654, IC651, Q652, Q653, R658, R659, R666, R667, R668

1. *Connect pin ① of IC651 to the ground with a jumper wire.*
2. *Supply 130 $^{+2}_{-0}$ V AC to with variable auto-trans-within the former.*
3. *Tune in an off air signal.*
4. *Adjust the resistance value of R668 so that +B voltage is within the range of 115,0 $^{+1.0}_{-2.0}$ V DC.*





+B Adjustment (■ R669 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

C654, IC651, R652, R660, R661, R669

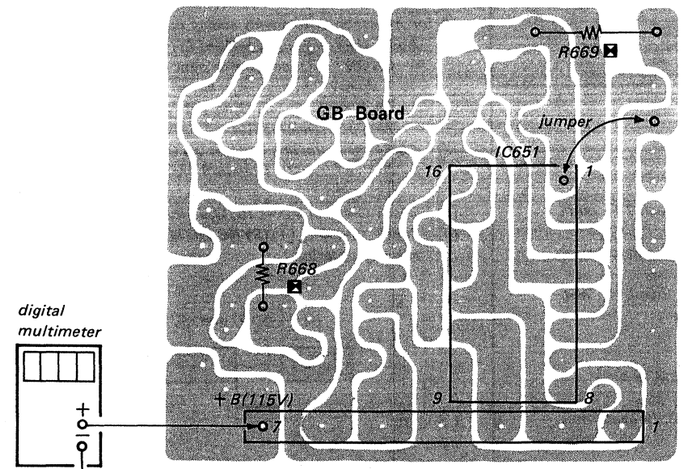
1. *Supply 120V AC with variable auto-transformer.*
2. *Adjust the resistance value of R669 so that +B voltage is 115.0V $^{+1.0V}_{-2.0V}$ DC.*

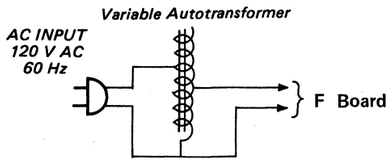
MAXIMUM +B VOLTAGE Adjustment (■ R668 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

D654, IC651, Q652, Q653, R658, R659, R666, R667, R668

1. *Connect pin ① of IC651 to the ground with a jumper wire.*
2. *Supply 130 $^{+2}_{-0}$ V AC to with variable auto-trans-within the former.*
3. *Tune in an off air signal.*
4. *Adjust the resistance value of R668 so that +B voltage is within the range of 115,0 $^{+1.0}_{-2.0}$ V DC.*





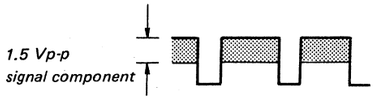
4-4. Q BOARD ADJUSTMENTS

Superimpose Operation Check

(1) Signal input setting is the same as for Overall Check (1)-(3) on page 28.
(2) Input selection: CMPTR (Q-7 ⑤:ground level, ② ③ ④: open)
(3) VIDEO SELECT
With CN407 ⑩ at ground level, check that Q-4 ②, ③, ④ (BGR) are LINE A signals.
(Video select: LINE A)
(4) AUDIO SELECT
1) CN407 ② ground level, AUDIO SELECT: LINE A.
2) Check that Q-2 ④ (AUDIO) becomes LINE A signal.
(5) SYNC SELECT
1) CN407 ⑭ : ground level, (Sync select: LINE A)
2) Check that Q-1 ① (SYNC OUT) becomes LINE A signal.
(INT SYNC mode: LINE A composite video, EXT SYNC mode: external sync signal are output.)
(6) Superimpose Operation
Apply a BLK signal to CN407 ⑫ and check that the COMPTR picture is superimposed on the LINE A picture.
(CN407 ⑩, ②, ④ (VIDEO, AUDIO, SYNC SELECT) are open, COMPTR is selected.)

COMPTR (3 Bit TTL) Check

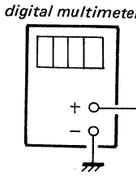
(* for normal 8 color display microputers)
(1) Apply the following signals to CN407.
1) CN407 ④:B, ⑤:G, ⑥:R (R, G, B each TTL compatible positive polarity)
2) CN407 ③:horizontal sync signal, ⑪:vertical sync signal
(Both horizontal and vertical TTL compatible neg. polarity)
㉕ ground level (I not used)
⑨ ground level (LEV-SEC TTL)
① ground level (*IBM-ID other than IBM (3 bit))
(2) Q-7 ⑤ ground level (*Select COMPTR)
(3) Check Q-4 ②, ③, ④, (B, G, R) output. (Waveform is the same as 4 CMPTR analog.)



(4) Check that Q-5 ① SYNC OUT is about 2 Vp-p negative polarity.

Power Supply Operation Check

(1) Connect the Q-3 connector and apply the following voltages.
Q-3 connector
(1) +8V
(2) +15V
(3) common ground
(2) Check the voltage at the following points.
F401: 5 ± 0.25
CN407 ⑧: 5 ± 0.25
F403 ⑫: ± 0.6
CN407 ⑦: 12 ± 0.6
Q4 ①: 12 ± 0.6

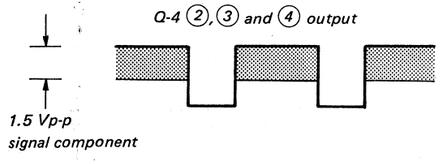


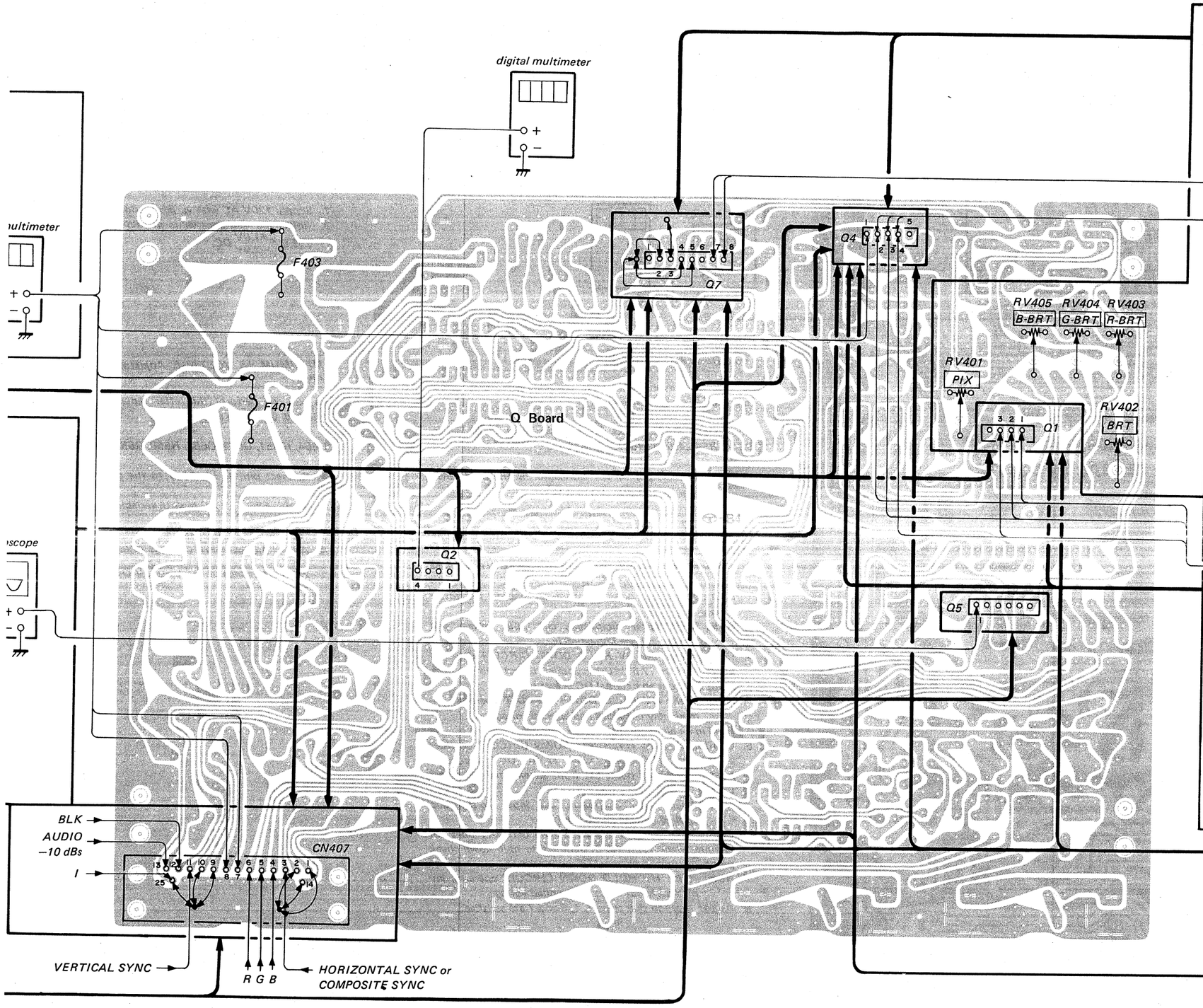
CMPTR (ANALOG) Check

(* for microcomputers with analog output such as SMC-70)
(1) Apply the following signals to CN407.
- CN407 ③: composite sync signal (COMP SYNC 1 Vp-p/75Ω negative polarity)
- CN407 ④:B, ⑤:G, ⑥:R (R, G, B each 0.7 Vp-p/75Ω positive polarity)

(2) Apply the following voltages via Q-7 connector.
- Q-7 ⑤ (COMP selection): ground, Q-7 ②, ③, ④, ⑥; open

(3) Check Q-4 ②, ③, ④, (B, G, R) outputs as shown below.
(4) Check that Q-5 ① (SYNC OUT) level is about 2 Vp-p negative polarity.





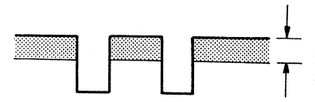
R, G, B System Operation Check and Preset

PICTURE: minimum
BRIGHT: Set at mechanical center

(1) Apply the following voltages via the Q-7 connector.
  (1) Q-7 (4) (RGB selection) : ground level
  (2) Q-7 (7) (PIC) : 4.0V DC
  (3) Q-7 (8) (BRT) : 6.0V DC

(2) Connector input
  Apply RGB signal to each of the following inputs:
  CN401 : R
  CN403 : G
  CN405 : B

(3) BRT Adjustment
  1) Set G-BRT (RV404) at mechanical center.
  2) Adjust BRT (RV402) so that Q-4 connector (3) (G output) pedestal level is 2.8V DC.



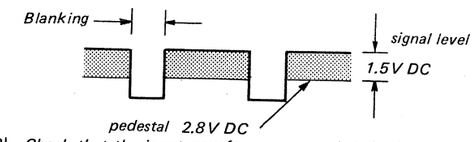
  3) Adjust B-BRT (RV405) in the same way for Q-4 connector (2) (B output).
  4) Adjust R-BRT (RV403) in the same way for Q-4 connector (4) (R output)

(4) PIC Adjustment
  PICTURE: maximum
  - Q-7 connector (7) (PIC) : 12.0V DC
  - Adjust PIC (RV401) so that Q-4 connector (3) (G output) signal component is 2.5 Vp-p.
  - Check that Q-4 connector (2) (B output) and (4) (R output) are also 2.5 Vp-p.

COMPOSITE System Operation Check

BRIGHT: mechanical center
PICTURE: center

(1) Apply the signal shown to Q-1 connector.
  (This level corresponds to the B.8 output when 1 Vp-p composite input is applied to the B board.)



(2) Check that the input waveforms are equal at the following points.
  1) B:Q-1 connector (1) Q4 connector (2)
  2) G:Q-1 connector (2) Q4 connector (3)
  3) R:Q-1 connector (3) Q4 connector (4)

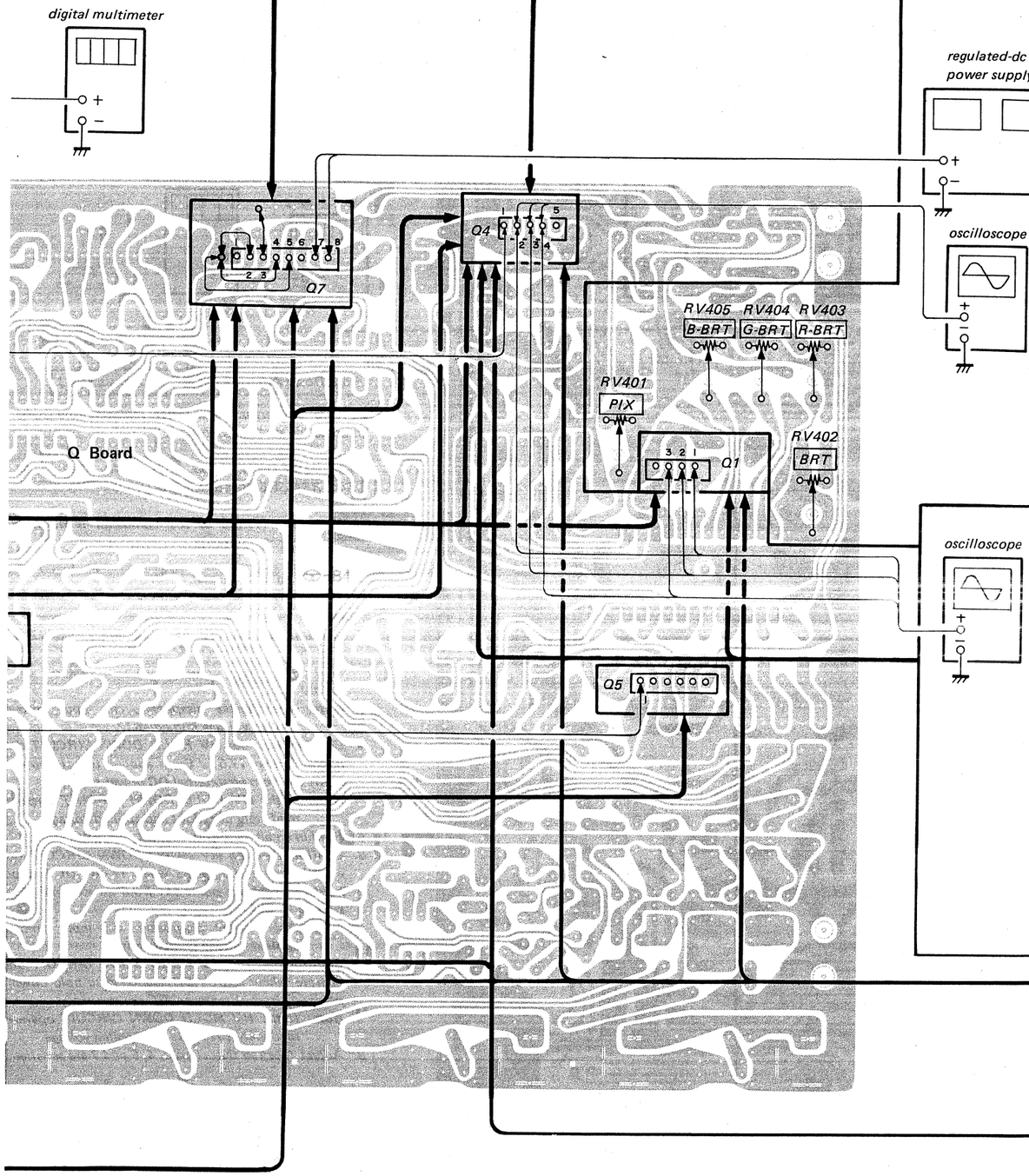
CMPTR (IBM) Check

(*IBM 5150 personal computer)

(1) Apply the following signals to CN407.
  CN407 (25) :I (4) :B (5) :G (6) :R
  All TTL compatible positive polarity
  (3) :H SYNC (11) : V SYNC
  TTL compatible positive polarity
  CN407 (9) :ground level (LEV-SEC TTL)

(2) Q-7 (5) :ground level (CMPTR select)

(3) Check Q-4 (2), (3), (4) (B, G, R) outputs. (Waveform is the same as 4 CMPTR analog.)



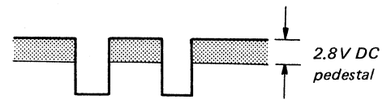
R, G, B System Operation Check and Preset

PICTURE: minimum
BRIGHT: Set at mechanical center

(1) Apply the following voltages via the Q-7 connector.
(1) Q-7 (4) (RGB selection): ground level
(2) Q-7 (7) (PIC): 4.0V DC
(3) Q-7 (8) (BRT): 6.0V DC

(2) Connector input
Apply RGB signal to each of the following inputs:
CN401 : R
CN403 : G
CN405 : B

(3) BRT Adjustment
1) Set G-BRT (RV404) at mechanical center.
2) Adjust BRT (RV402) so that Q-4 connector (3) (G output) pedestal level is 2.8V DC.



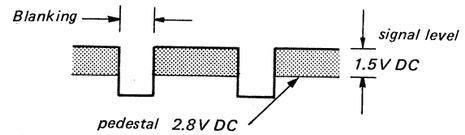
3) Adjust B-BRT (RV405) in the same way for Q-4 connector (2) (B output).
4) Adjust R-BRT (RV403) in the same way for Q-4 connector (4) (R output)

(4) PIC Adjustment
PICTURE: maximum
- *Q-7 connector (7) (PIC): 12.0V DC*
- *Adjust PIC (RV401) so that Q-4 connector (3) (G output) signal component is 2.5 Vp-p.*
- *Check that Q-4 connector (2) (B output) and (4) (R output) are also 2.5 Vp-p.*

COMPOSITE System Operation Check

BRIGHT: mechanical center
PICTURE: center

(1) Apply the signal shown to Q-1 connector.
(This level corresponds to the B.8 output when 1 Vp-p composite input is applied to the B board.)



(2) Check that the input waveforms are equal at the following points.
1) B:Q-1 connector (1) Q4 connector (2)
2) G:Q-1 connector (2) Q4 connector (3)
3) R:Q-1 connector (3) Q4 connector (4)

Overall Operation Check

(1) Connect Q1, Q2, Q3, Q4, Q5 and Q7, and B, D and H boards.

(2) Apply video and audio signals to B board A, B VTR inputs.
Also, apply a composite sync signal to the external sync input.
(video input (composite) 1 Vp-p/75Ω audio input −10 dB external sync input 4 Vp-p/75Ω negative polarity)

(3) Q Board
1) Apply these signals to R, G, B video and audio inputs. (video input (component RGB) 0.7 Vp-p/75Ω audio input −10 dBs)
2) Apply input signals to CMPTR connector.
CN407 (3) composite sync signal 1 Vp-p/75Ω (4), (5), (6), B, G, R −0.7 Vp-p/75Ω
CN407 (13) AUDIO −10 dBs

(4) LINE A Check
1) Input selection is LINE A, and sync selection is INT SYNC. (Q-7 (2), (3), (4), (5), (7) open)
2) Check that LINE A decoded RGB signal is being output at Q-4 (2), (3), (4), B, G, R.
3) Check that Q-2 (4) AUDIO is LINE A. (Level drops about −16 dBs (about 6 dB from connector input.))
4) Check that there is LINE A video at Q-1 (1) (SYNC OUT) (Level is 2 Vp-p)
5) Change sync selection to EXT SYNC. Check that at this time Q-1 (1) changes to composite sync signal from external sync connector.
(Q-7 (6) is ground level, output level about 2 Vp-p, negative polarity)

(5) LINE B Check Select LINE B. (Q-7 (2) ground level (3), (4), (5) open) Repeat steps 2)-5) for LINE A.

(6) VTR Check Select VTR. (Q-7 (3) ground level (2), (4), (5) open) Repeat steps 2)-5) for LINE A.

(7) RGB Check
1) Make input selection RGB. Sync selection is internal sync. (Q-7 (4) ground level, (2), (3), (6) open)
2) Check that signals from R, G, B are coming out on Q-4 (2), (3), (4) (R, G, B).
3) Q-2 (4) (AUDIO) signal should be from RGB.
4) Check that there is a composite sync signal from external sync connector at Q-1 (1) (SYNC OUT).
5) Make sync selection EXT SYNC and make sure that Q-1 (1) output does not change. (In RGB mode, external sync is selected regardless of INT/EXT.)

(8) COMPTR Check
1) Input selection: COMPTR, Sync selection: INT SYNC (Q-7 (5) ground level (2), (3), (4) open)
2) Check Q-4 (2), (3), (4) (B, G, R) and check Q-2 (4) (AUDIO).
3) Check that Q-1 (1) (SYNC OUT) is the signal from CN407 (3).
4) Check that Q-1 (1) does not change when changing sync selection from INT/EXT.

CMPTR (IBM) Check

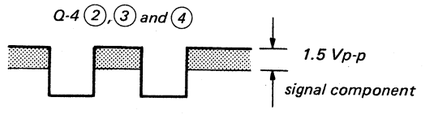
*(*IBM 5150 personal computer)*

(1) Apply the following signals to CN407.
CN407 (25): (1) (4) B (5) G (6) R
All TTL compatible positive polarity
(3): H SYNC (11): V SYNC
TTL compatible positive polarity
CN407 (9): ground level (LEV-SEC TTL)

(2) Q-7 (5): ground level (CMPTR select)

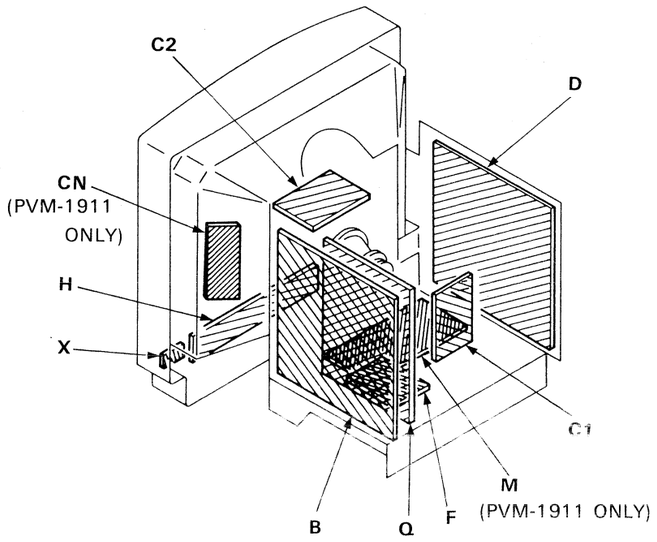
(3) Check Q-4 (2), (3), (4) (B, G, R) outputs. (Waveform is the same as 4 CMPTR analog.)

(4) Check that Q-5 (1) (SYNC OUT) is about 2 Vp-p negative polarity.

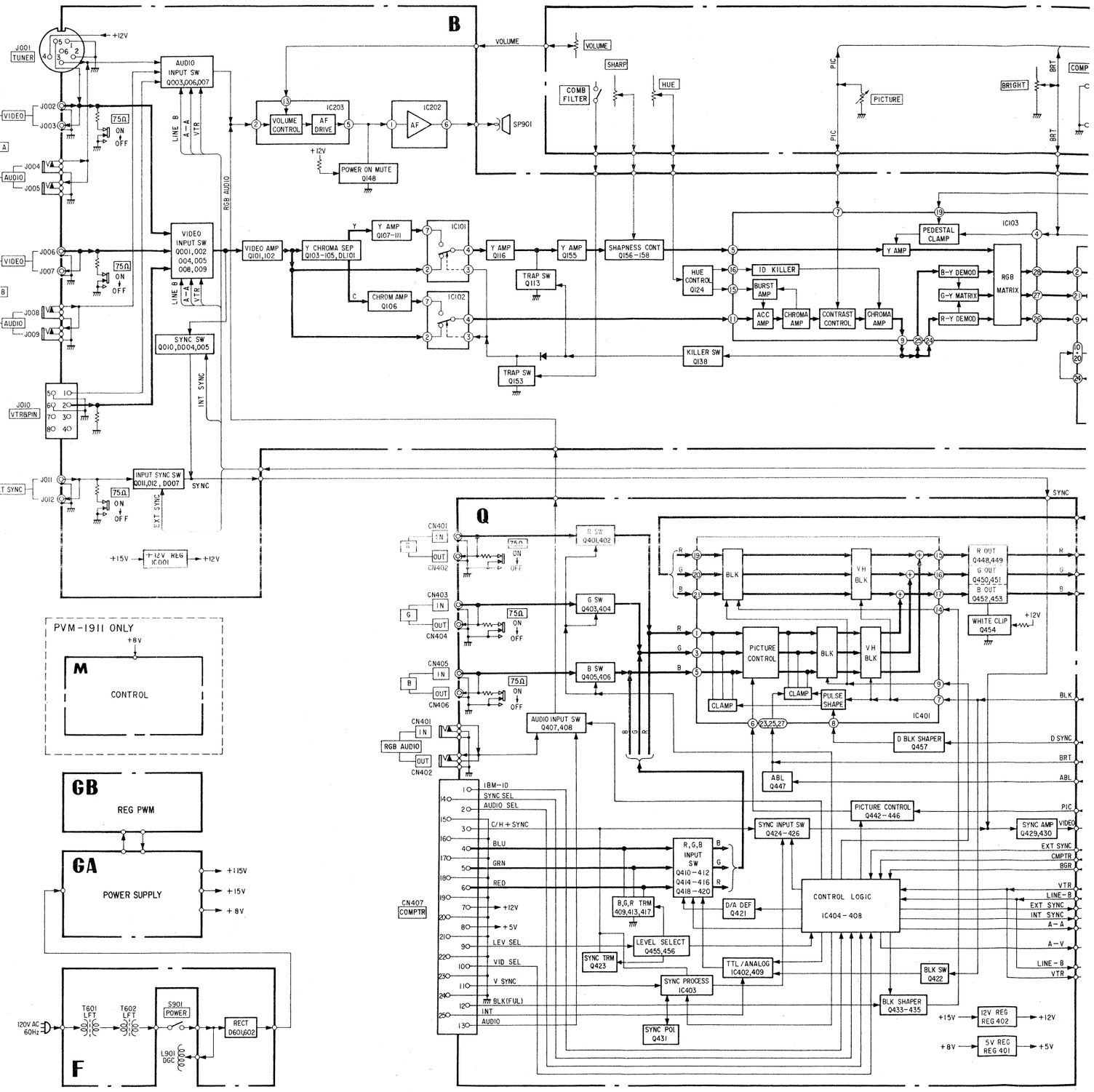


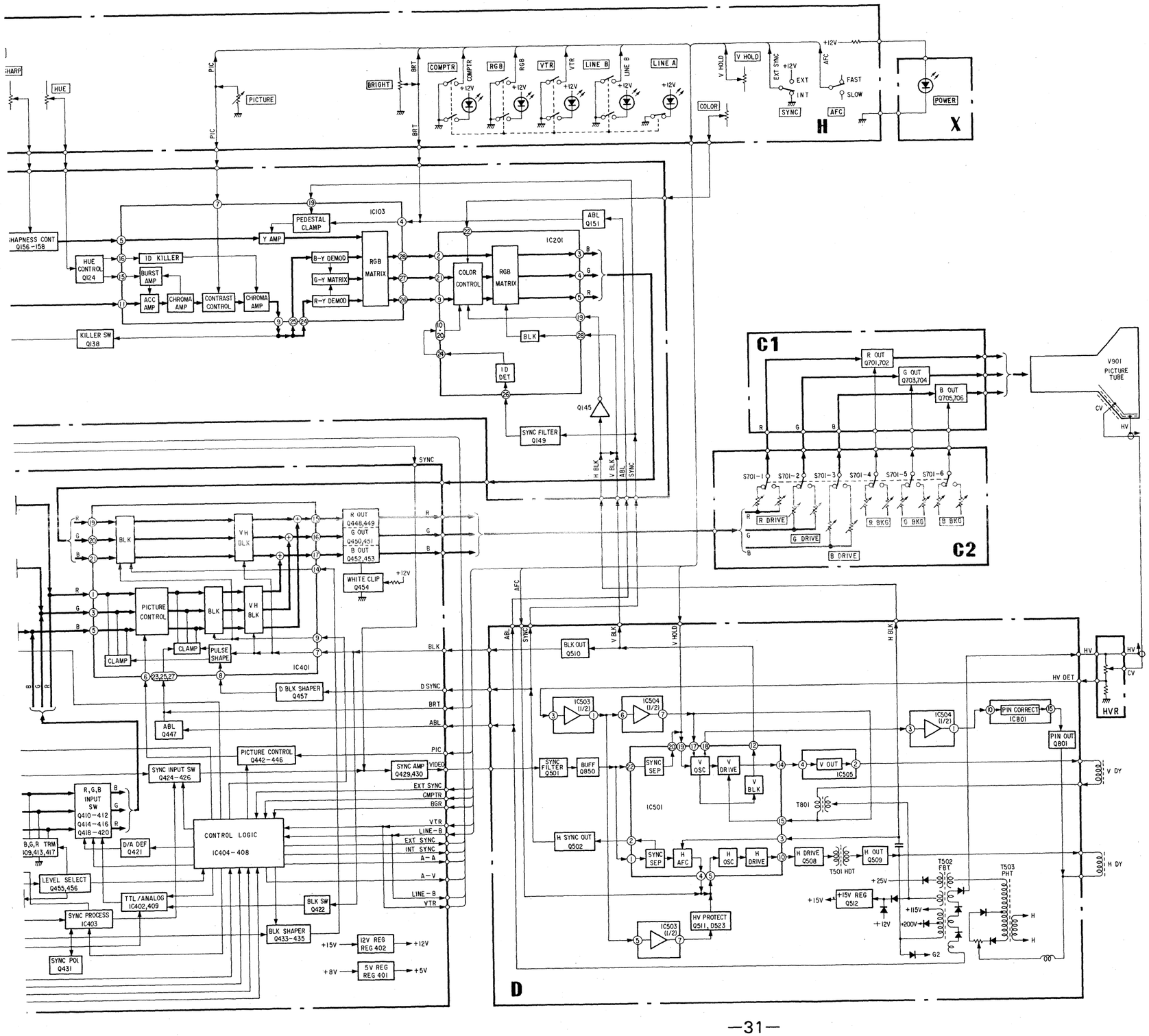
SECTION 5
DIAGRAMS

5-1. CIRCUIT BOARDS LOCATION



5-2. BLOCK DIAGRAM

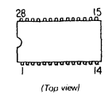




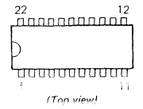
5-3. SEMICONDUCTORS

μPC1241H

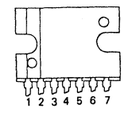
μPC1364C2
μPC1365C
CX22019



μPC1377C

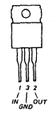


μPC1378H-L

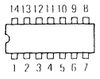


μPC4558C

μPC7805H
μPC7812H
μPC78M12H

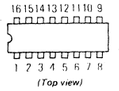


CX095E
SN74LS00N
SN74LS04N
SN74LS08N
SN74LS09N
SN74LS136N
SN74LS20N

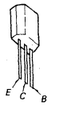


CX20061

SN74LS138N
TDA1082



2SA1026

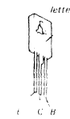


2SA1048
2SA1115
2SC2458
2SC2603
DTA124ES

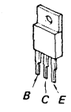
2SA1175
2SC2785

2SA733
2SA844
2SC1363
2SC1815
2SC945

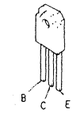
2SC2611
2SC2688



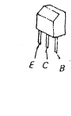
2SD1134



2SD1398



2SD774



2SK

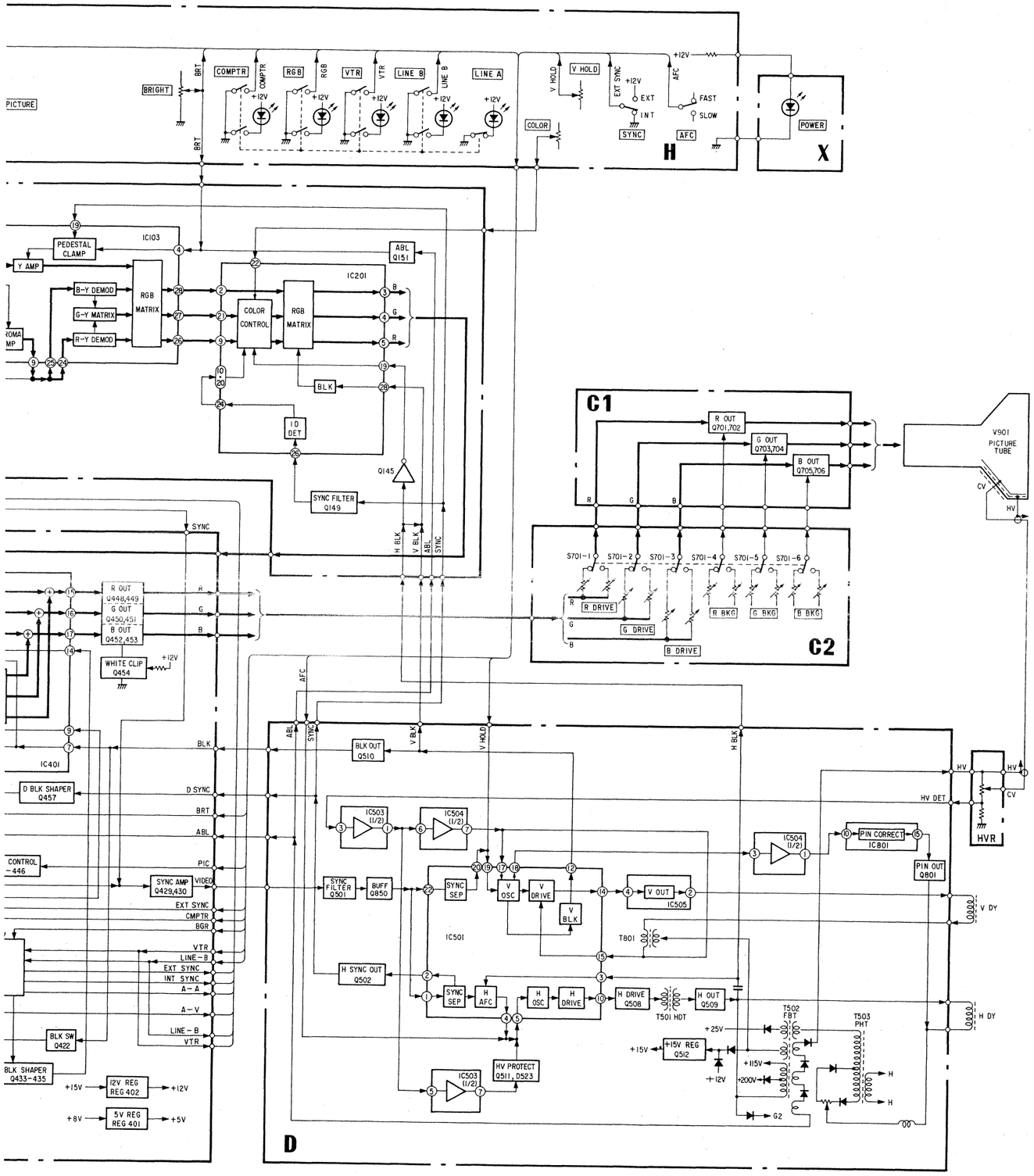
1SS1
1SS1
1SS1

EQA0
GP08

EQB0
RH1A
RH1Z
S1B01

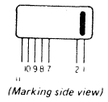
CR02

ERC2

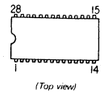


5-3. SEMICONDUCTORS

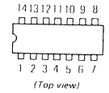
μPC1241H



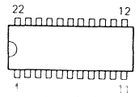
μPC1364C2
μPC1365C
CX22019



CX095E
SN74LS00N
SN74LS04N
SN74LS08N
SN74LS09N
SN74LS136N
SN74LS20N

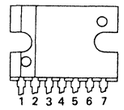


μPC1377C

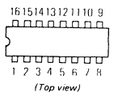


CX20061

μPC1378H-L

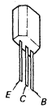


SN74LS138N
TDA1082

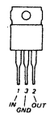


μPC4558C

2SA1026



μPC7805H
μPC7812H
μPC78M12H



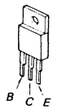
2SA1048
2SA1115
2SC2458
2SC2603
DTA124ES

2SA1175
2SC2785

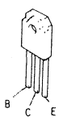
2SA733
2SA844
2SC1363
2SC1815
2SC945

2SC2611
2SC2688

2SD1134



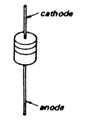
2SD1398



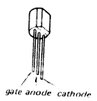
2SD774

2SK107-3

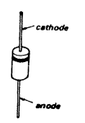
1SS119
1SS133
1SS148



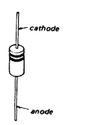
CR02AM-4



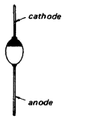
EQA01-19R
GP08D



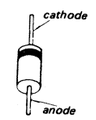
EQB01-22
RH1A
RH1Z
S1B01-02



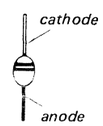
ERC26-15S



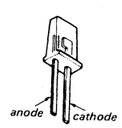
ERD28-08S
RD4.3E-B1
RD4.7E-B2
RD5.1E-N1
RD6.2E-B1
RD8.2E-N1
RD8.2E-N2



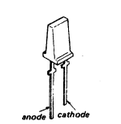
GH3F
U05G



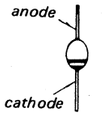
SG232D



SY432D



V19C
V19E
V30N



5-4. SCHEMATIC DIAGRAM

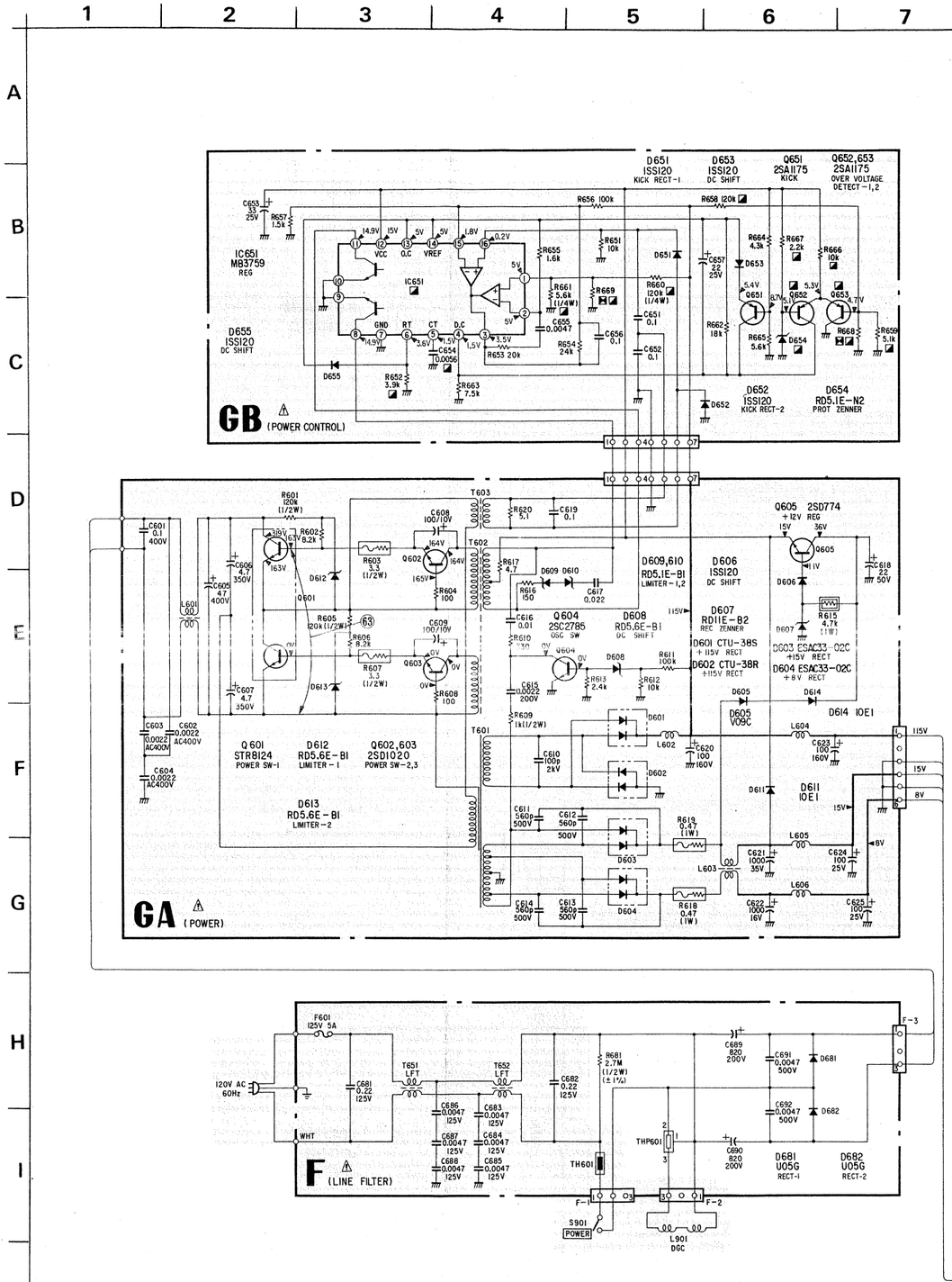
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

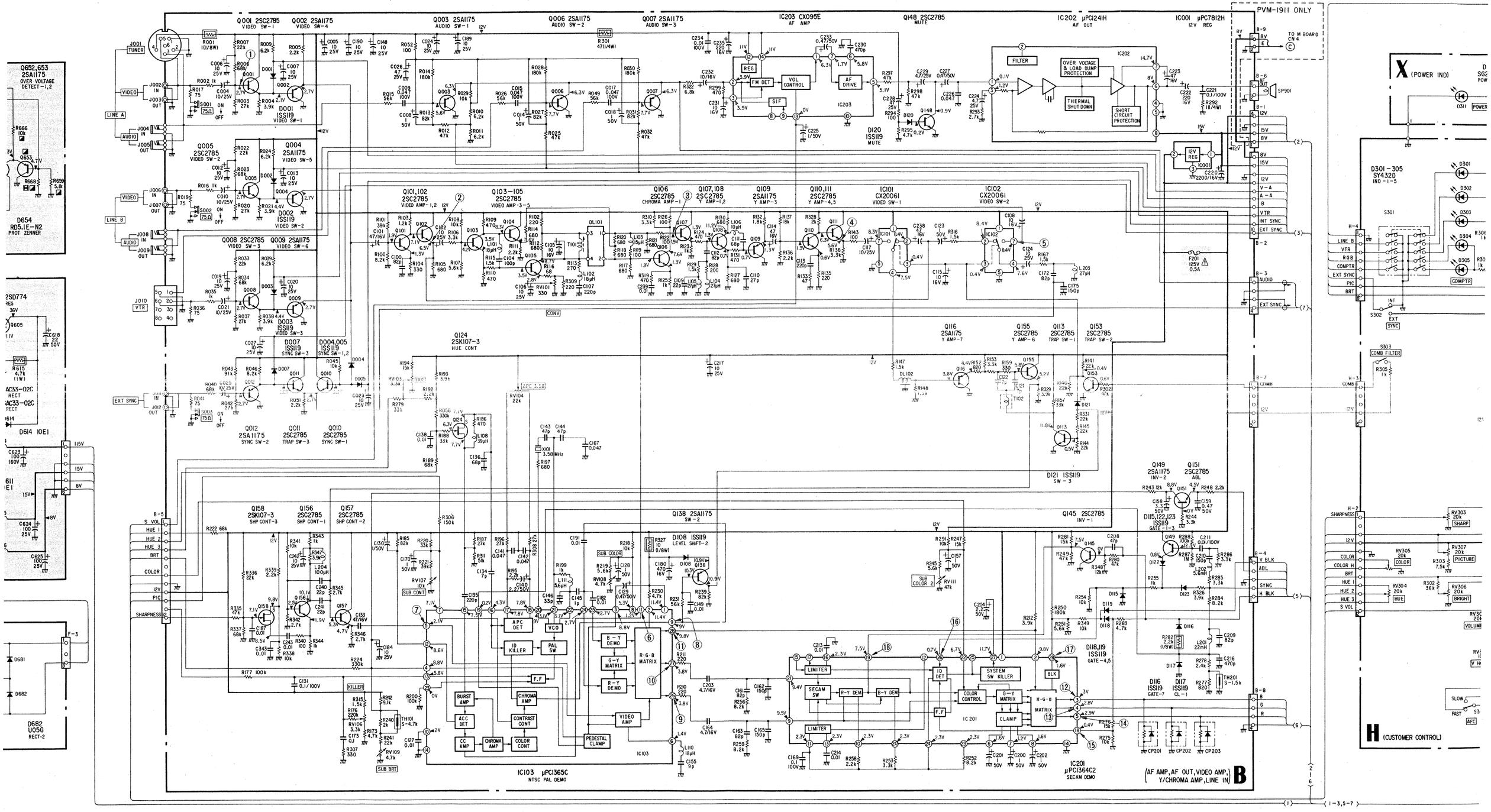
Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piece portant le numéro spécifié.

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, 1/6W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000kΩ
- Notice that the following boards have not a resistance wattage of 1/6W.
  GA Board ..... 1/4W (as a reference)
- ⚠ : nonflamable resistor.
- : fusible resistor
- △ : internal component.
- [ ]: panel designation.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- The components identified by ⚠ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪ mark the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⊠ and repeat the adjustment until the specified value is achieved. (Refer to R543, R668 & R669 adjustment on page 22.)
  When replacing the part in below table, be sure to perform the related adjustment.

Part replaced (◪)	Adjustment (⊠)
D507, D508, D523, IC503, Q511 R540, R541, R542, R543, R544 R545, R590, R591, R592, R593	R543
D654, IC651, Q652, Q653 R658 R659, R666, R667, R668	R668
C654, IC651, R652, R660, R661 R669	R669

- Readings are taken with a color-bar signal input to LINE A.
- Voltages are dc with respect to ground unless otherwise noted.
- The voltage of Q601 ~ Q603 is a reference value between emitter of Q601.
- Readings are taken with a 10MΩ digital multimeter.
- [ ]: adjustment for repair.
- Voltage variations may be noted due to normal production tolerances.
- ——— : B + bus.
- ①: The number indicates No. of a waveform diagram.
  For the waveform diagram, refer to pages 50 and 51.
- ✳: Not meosurable.




7
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12
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14
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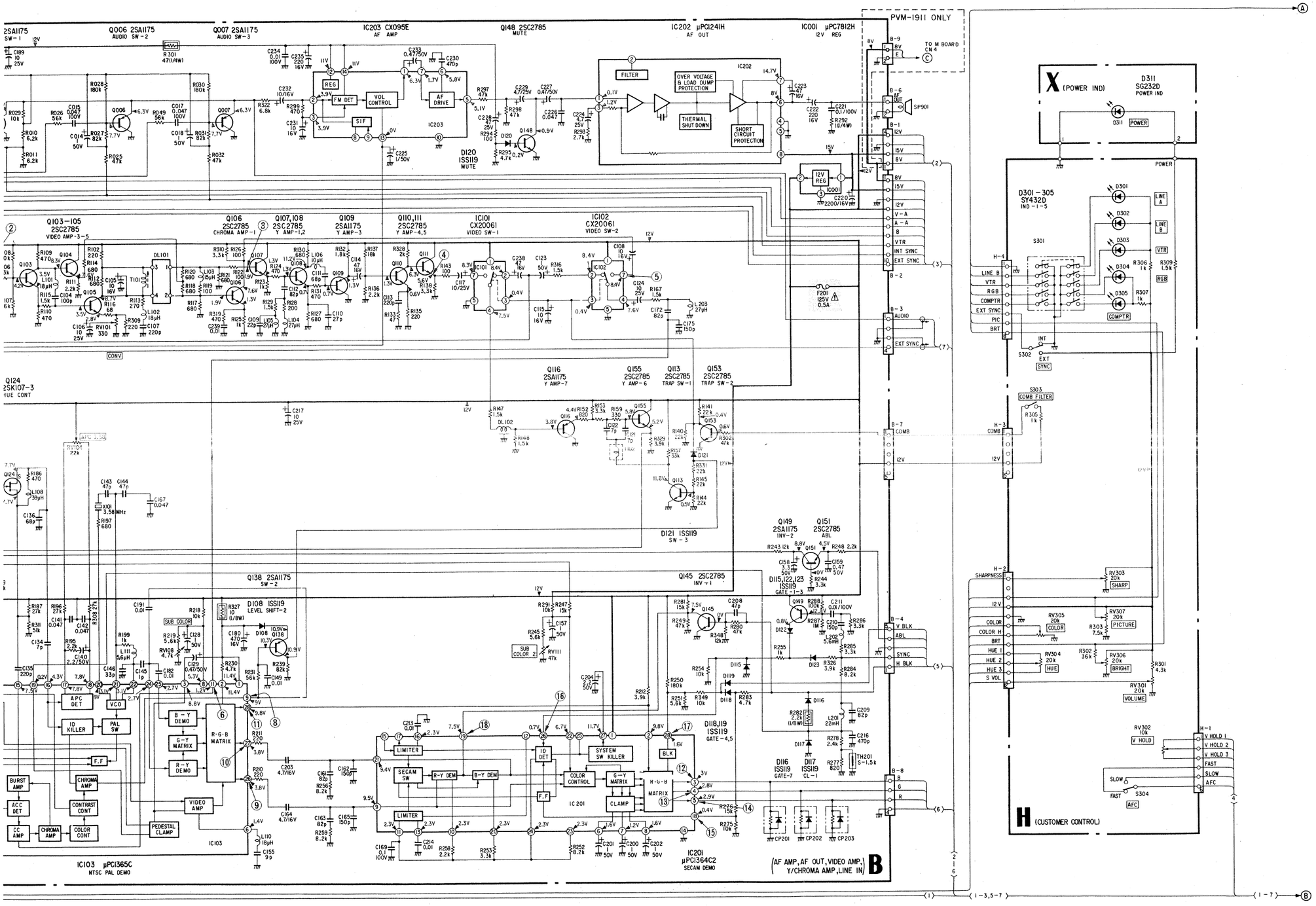
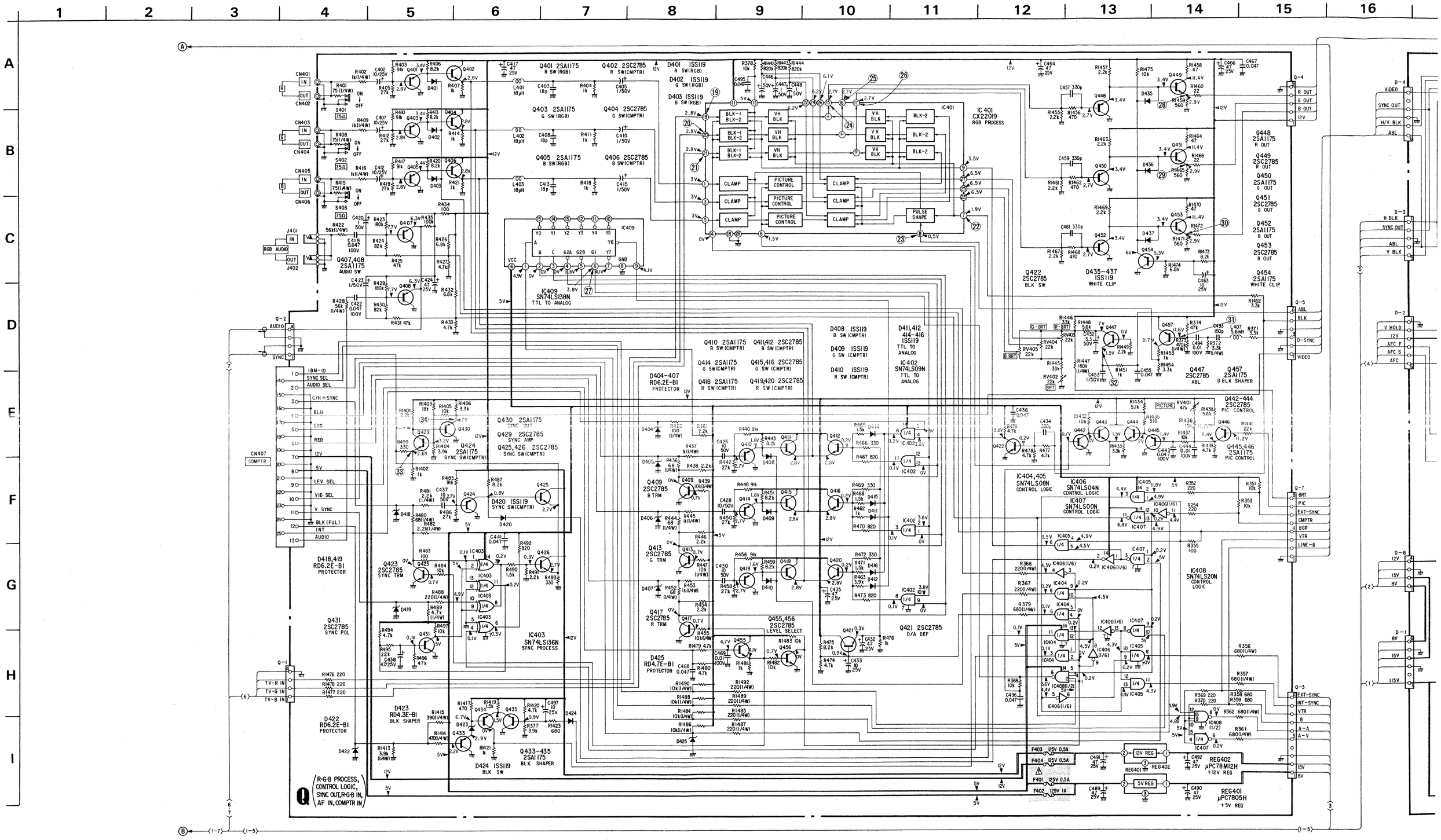
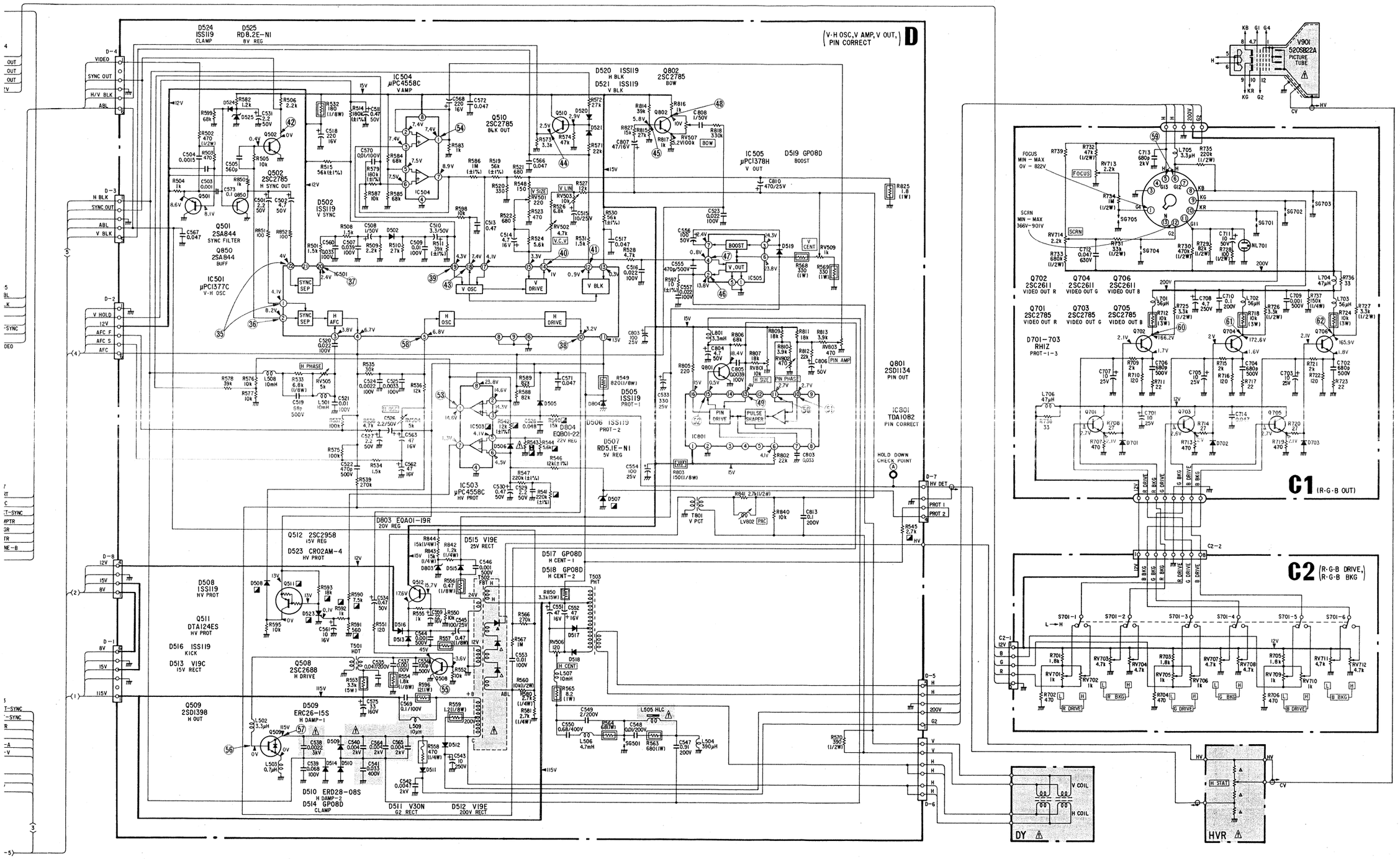
16
17
18
19
20
21
22
Q001 2SC2785 VIDEO SW-1
Q002 2SA1175 VIDEO SW-4
Q003 2SA1175 AUDIO SW-1
Q006 2SA1175 AUDIO SW-2
Q007 2SA1175 AUDIO SW-3
IC203 CX095E AF AMP
Q148 2SC2785 MUTE
IC202 μPC1241H AF OUT
IC001 μPC7812H 12V REG
PVM-1911 ONLY
TO M BOARD CN 4
J001 TUNER
J002 VIDEO IN
J003 VIDEO OUT
LINE A
J004 AUDIO IN
J005 AUDIO OUT
D001 ISS119 VIDEO SW-1
Q005 2SC2785 VIDEO SW-2
Q004 2SA1175 VIDEO SW-5
J006 VIDEO IN
J007 VIDEO OUT
LINE B
J008 AUDIO IN
J009 AUDIO OUT
D002 ISS119 VIDEO SW-2
Q008 2SC2785 VIDEO SW-3
Q009 2SA1175 VIDEO SW-6
J010 VTR
D003 ISS119 VIDEO SW-3
D007 ISS119 SYNC SW-3
D004,005 ISS119 SYNC SW-1,2
EXT SYNC
J011 IN
J012 OUT
Q012 2SA1175 SYNC SW-2
Q011 2SC2785 TRAP SW-3
Q010 2SC2785 SYNC SW-1
Q101,102 2SC2785 VIDEO AMP-1,2
Q103-105 2SC2785 VIDEO AMP-3-5
Q106 2SC2785 CHROMA AMP-1
Q107,108 2SC2785 Y AMP-1,2
Q109 2SA1175 Y AMP-3
Q110,111 2SC2785 Y AMP-4,5
IC101 CX20061 VIDEO SW-1
IC102 CX20061 VIDEO SW-2
CONV
Q124 2SK107-3 HUE CONT
Q116 2SA1175 Y AMP-7
Q155 2SC2785 Y AMP-6
Q113 2SC2785 TRAP SW-1
Q153 2SC2785 TRAP SW-2
D121 ISS119 SW-3
Q149 2SA1175 INV-2
Q151 2SC2785 ABL
D115,122,123 ISS119 GATE-1-3
Q158 2SK107-3 SHP CONT-3
Q156 2SC2785 SHP CONT-1
Q157 2SC2785 SHP CONT-2
Q138 2SA1175 SW-2
Q145 2SC2785 INV-1
D108 ISS119 LEVEL SHIFT-2
D116,117 ISS119 GATE-7
D118,119 ISS119 GATE-4,5
D116 ISS119 CL-1
IC103 μPC1365C NTSC PAL DEMO
IC201 μPC1364C2 SECAM DEMO
(AF AMP, AF OUT, VIDEO AMP, Y/CHROMA AMP, LINE IN) B
X (POWER IND)
D311 POWER
D301-305 SY4320 IND-1-5
S301
S302 EXT SYNC
S303 COMB FILTER
H (CUSTOMER CONTROL)
RV303 20k SHARP
RV307 20k PICTURE
RV305 20k COLOR
RV304 20k HUE
RV306 20k BRIGHT
SP901
Q652,653 2SA1175 OVER VOLTAGE DETECT-1,2
D654 RD5.1E-N2 PROT ZENNER
D614 10E1 RECT
D681
D682
D682 U05G RECT-2
F-3

12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27




Q401 2SA1175 R SW(RGB)
Q402 2SC2785 R SW(CMPTR)
Q403 2SA1175 G SW(RGB)
Q404 2SC2785 G SW(CMPTR)
Q405 2SA1175 B SW(RGB)
Q406 2SC2785 B SW(CMPTR)
D401 ISS119 R SW(RGB)
D402 ISS119 G SW(RGB)
D403 ISS119 B SW(RGB)
IC401 CX22019 RGB PROCESS
IC409 SN74LS138N TTL TO ANALOG
Q407,408 2SA1175 AUDIO SW
Q410 2SA1175 B SW(CMPTR)
Q411,412 2SC2785 B SW(CMPTR)
Q414 2SA1175 G SW(CMPTR)
Q415,416 2SC2785 G SW(CMPTR)
Q418 2SA1175 R SW(CMPTR)
Q419,420 2SC2785 R SW(CMPTR)
D404-407 RD6.2E-B1 PROTECTOR
D408 ISS119 B SW(CMPTR)
D409 ISS119 G SW(CMPTR)
D410 ISS119 R SW(CMPTR)
D411,412 414-416 ISS119 TTL TO ANALOG
IC402 SN74LS09N TTL TO ANALOG
Q422 2SC2785 BLK SW
Q435-437 ISS119 WHITE CLIP
Q447 2SC2785 ABL
Q457 2SA1175 D BLK SHAPER
Q442-444 2SC2785 PIC CONTROL
Q445,446 2SA1175 PIC CONTROL
IC404,405 SN74LS08N CONTROL LOGIC
IC406 SN74LS04N CONTROL LOGIC
IC407 SN74LS00N CONTROL LOGIC
IC408 SN74LS20N CONTROL LOGIC
Q448 2SA1175 R OUT
Q449 2SC2785 R OUT
Q450 2SA1175 G OUT
Q451 2SC2785 G OUT
Q452 2SA1175 B OUT
Q453 2SC2785 B OUT
Q454 2SA1175 WHITE CLIP
Q430 2SA1175 SYNC OUT
Q429 2SC2785 SYNC AMP
Q425,426 2SC2785 SYNC SW(CMPTR)
Q424 2SA1175 SYNC SW(CMPTR)
Q423 2SC2785 SYNC TRM
Q431 2SC2785 SYNC POL
IC403 SN74LS136N SYNC PROCESS
D418,419 RD6.2E-B1 PROTECTOR
D422 RD6.2E-B1 PROTECTOR
D423 RD4.3E-B1 BLK SHAPER
D424 ISS119 BLK SW
Q433-435 2SA1175 BLK SHAPER
D425 RD4.7E-B1 PROTECTOR
Q455,456 2SC2785 LEVEL SELECT
Q421 2SC2785 D/A DEF
REG402 μPC78M12H +12V REG
REG401 μPC7805H +5V REG
CN401 CN402 CN403 CN404 CN405 CN406 CN407 COMPTR
J401 J402
Q-1 Q-2 Q-3 Q-4 Q-5 Q-7
D-1 D-2 D-3 D-4 D-8
R-G-B PROCESS, CONTROL LOGIC, SYNC OUT, R-G-B IN, AF IN, COMPTR IN

16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31



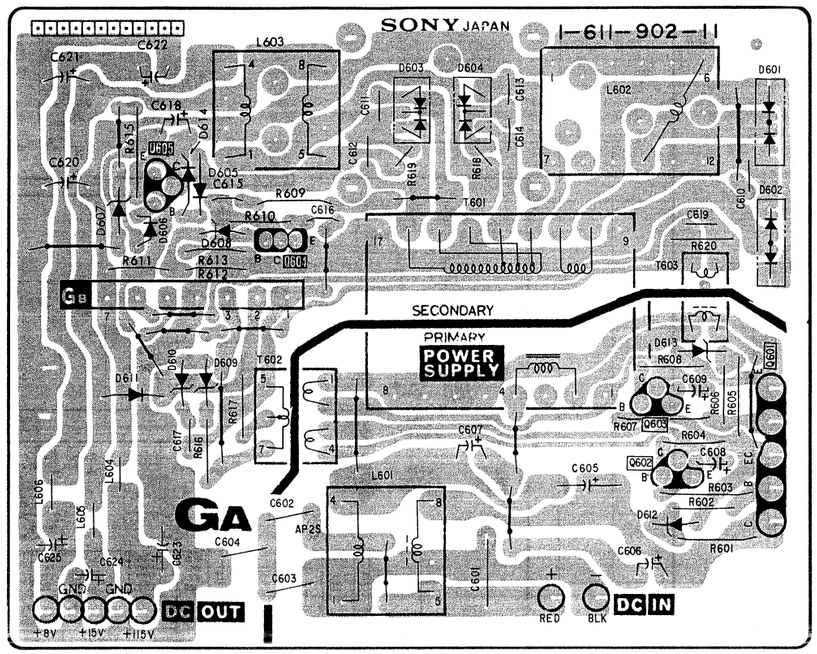
5-5. PRINTED WIRING BOARDS

GA (POWER) GB (POWER CONTROL) F (LINE FILTER) X (POWER IND) H (CUSTOMER CONTROL) E

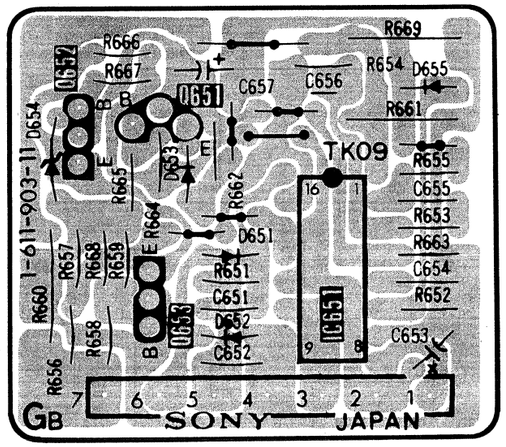
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A B C D E F G H I

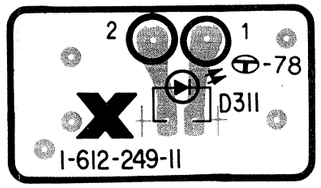
— GA Board —



— GB Board —

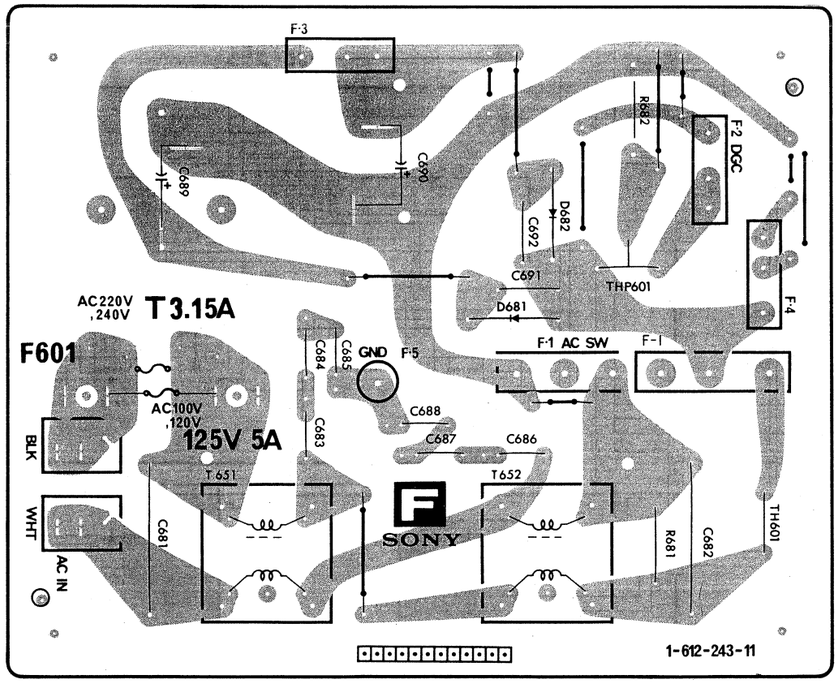


— X Board —

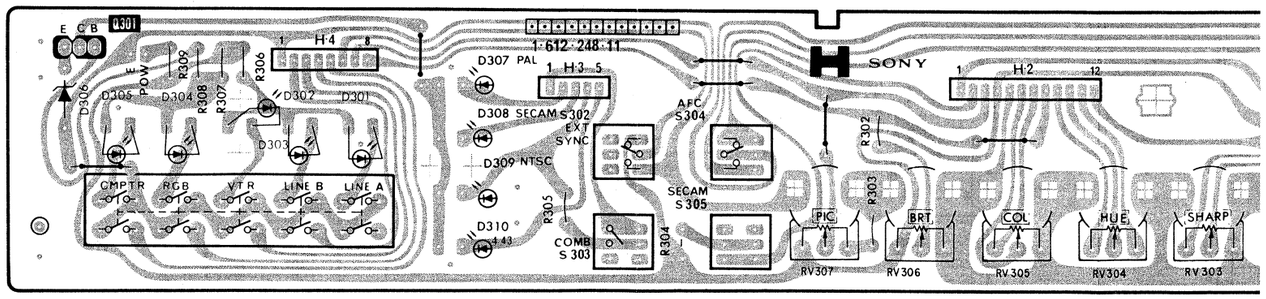


— B Boar

— F Board —



— H Board —

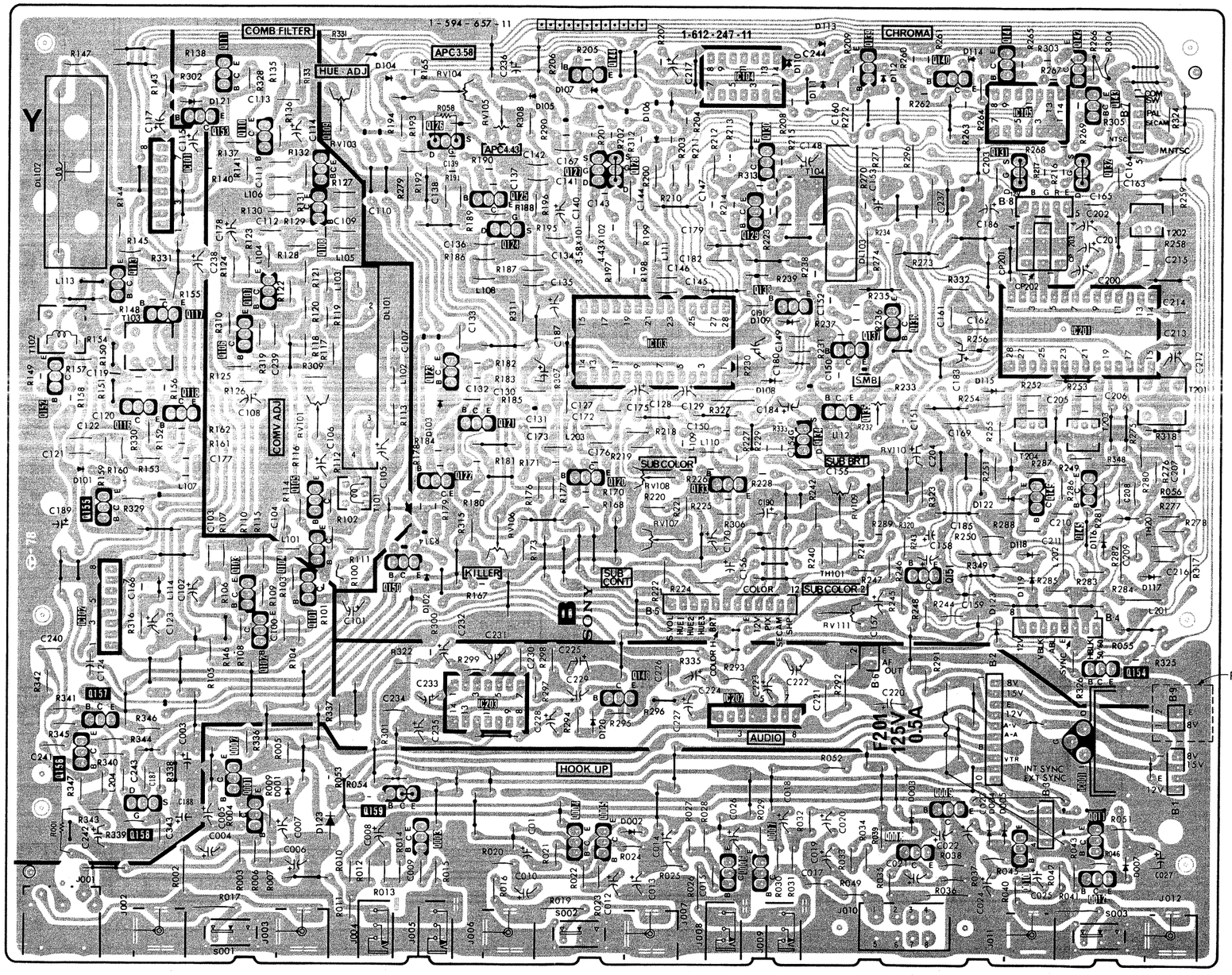


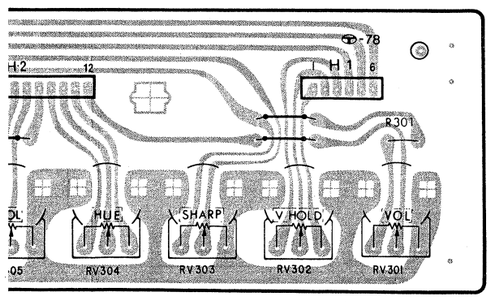
CUSTOMER CONTROL | B | AF AMP, AF OUT, VIDEO AMP, Y/CHROMA AMP, LINE IN

5 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31

— B Board —

Q, IC	IC101 IC102 IC103 IC201 IC001 IC202 IC203	Q, IC
D	D	D
ADJ	RV101 RV103 RV104 RV106 RV107 RV108 RV109 RV111	ADJ

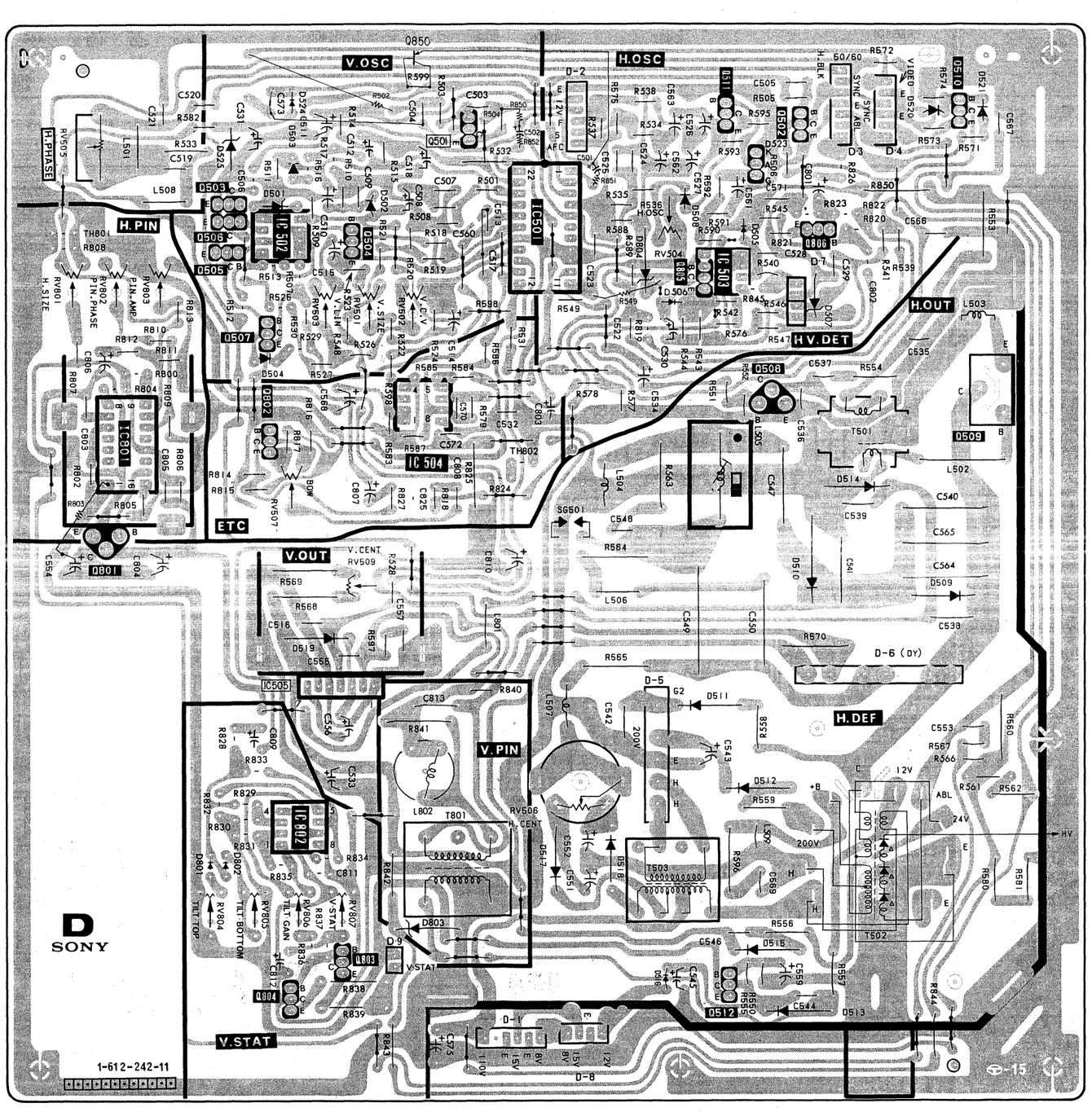




D V • H OSC, V AMP, V OUT, PIN CORRECT

— D Board —

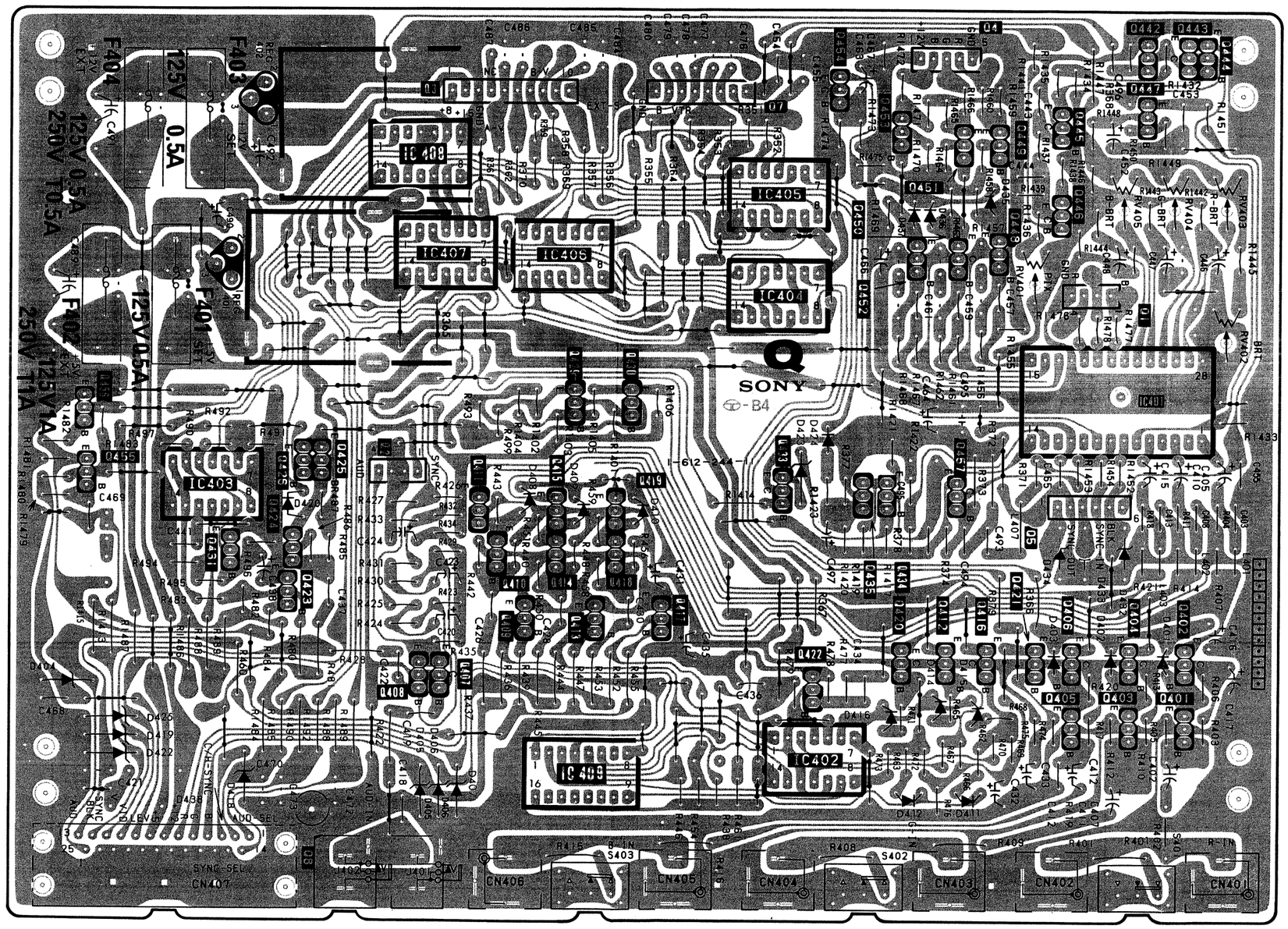
Q , IC	D	ADJ
850		
511,510	524	520
502		521
501	525	RV505
	523	
	502 508	
IC501		RV504
	505	
IC503		
	804	RV801
		RV802
	507	RV803
	506	RV503
		RV501
		RV502
509		
508		
IC504		
802		
IC801		
	514	RV507
801		
	510	RV509
	509	
	519	
IC505		
	511	
	512	RV506
	518	
	517	
	803	
	515	
512	516	
	513	



Q — R • G • B PROCESS, CONTROL LOGIC, SYNC OUT, R • G • B IN, AF IN, COMPTR IN

— Q Board —

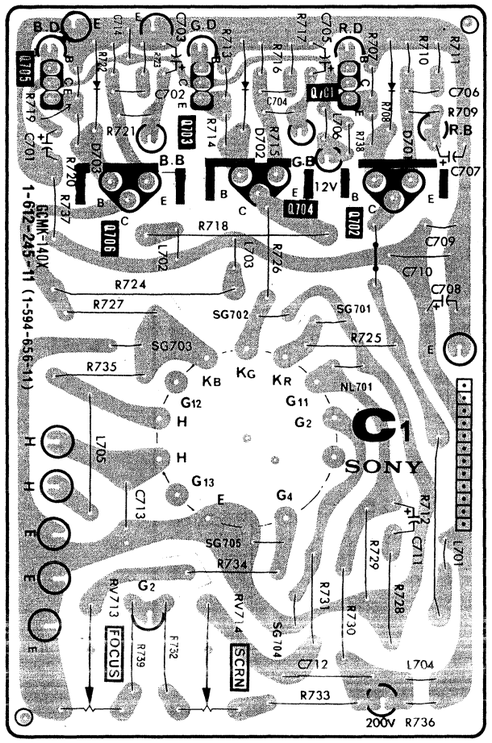
Q, IC		D		ADJ
456 455	REG402 REG401 IC403 431 424 423 426,425	404 425 419 422	420 418	
IC408 IC407 408,407 411 410 409	IC406 429 430 415 414 413 419 418 417 IC409	408 409 410	405,406,407	
IC405 IC404 433	454 453 451 449 445 446 452 450 448 IC401 435,434 457	423 424	437,436 435	RV401
422 IC402	420 412 416 421 406 405 404 403 442 447 443,444 402 401	416 412 414 411 415 403 401 402	RV405 RV404 RV403 RV402	



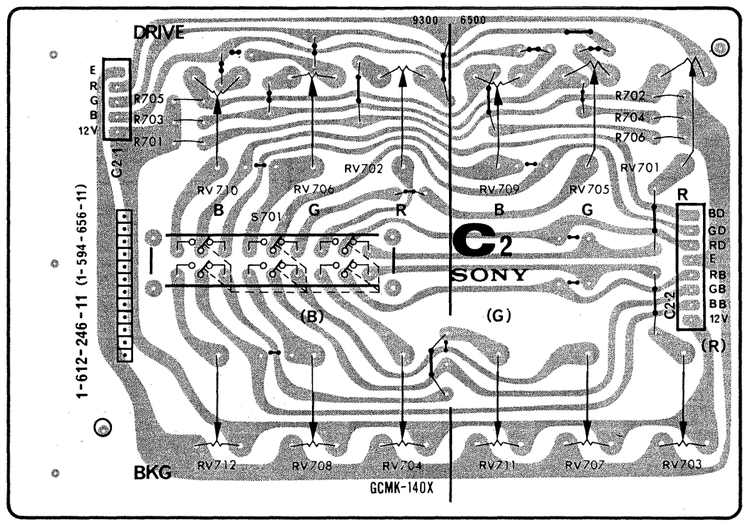
C1 (R • G • B OUT) **C2** (R • G • B DRIVE, R • G • B BKG)

5-6. WAVEFORMS

— C1 Board —



— C2 Board —



B BOARD

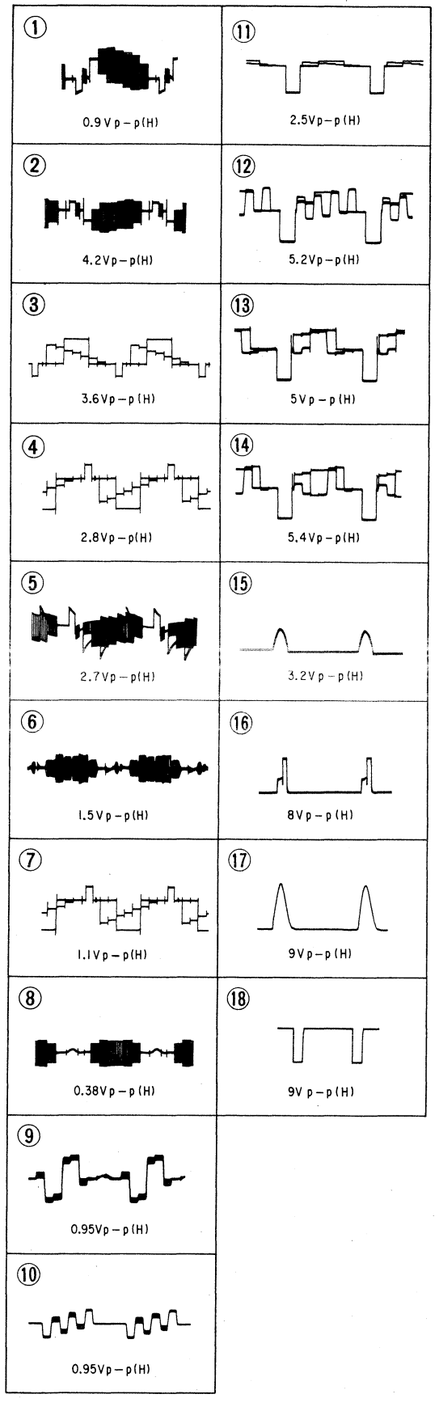
① 0.9Vp-p(H)	⑪ 2.5Vp-p(H)
② 4.2Vp-p(H)	⑫ 5.2Vp-p(H)
③ 3.6Vp-p(H)	⑬ 5Vp-p(H)
④ 2.8Vp-p(H)	⑭ 5.4Vp-p(H)
⑤ 2.7Vp-p(H)	⑮ 3.2Vp-p(H)
⑥ 1.5Vp-p(H)	⑯ 8Vp-p(H)
⑦ 1.1Vp-p(H)	⑰ 9Vp-p(H)
⑧ 0.38Vp-p(H)	⑱ 9Vp-p(H)
⑨ 0.95Vp-p(H)	
⑩ 0.95Vp-p(H)	

D BOARD

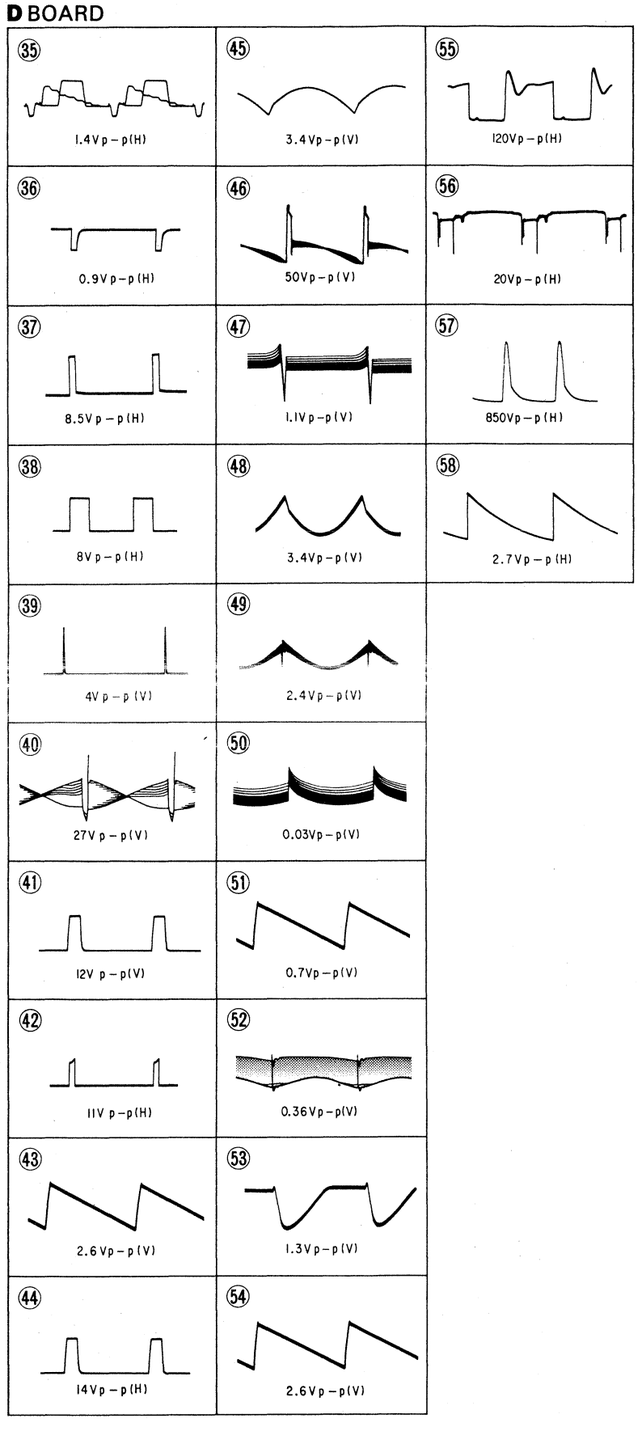
㉟ 1.4Vp-p(H)	㊺ 3.4Vp-p(V)	㊺ 120Vp-p(H)
㊱ 0.9Vp-p(H)	㊻ 50Vp-p(V)	㊻ 20Vp-p(H)
㊲ 8.5Vp-p(H)	㊼ 1.1Vp-p(V)	㊼ 850Vp-p(H)
㊳ 8Vp-p(H)	㊽ 3.4Vp-p(V)	㊽ 2.7Vp-p(H)
㊴ 4Vp-p(V)	㊾ 2.4Vp-p(V)	
㊵ 27Vp-p(V)	㊿ 0.03Vp-p(V)	
(41) 12Vp-p(V)	(51) 0.7Vp-p(V)	
(42) 11Vp-p(H)	(52) 0.36Vp-p(V)	
(43) 2.6Vp-p(V)	(53) 1.3Vp-p(V)	
(44) 14Vp-p(H)	(54) 2.6Vp-p(V)	

5-6. WAVEFORMS

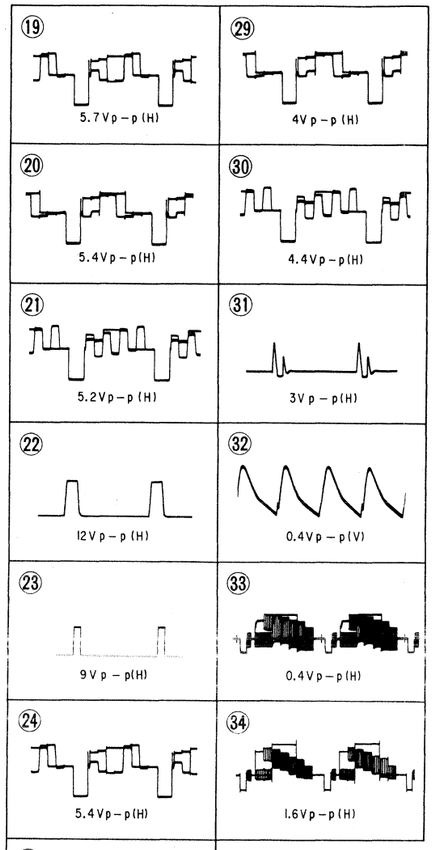
B BOARD



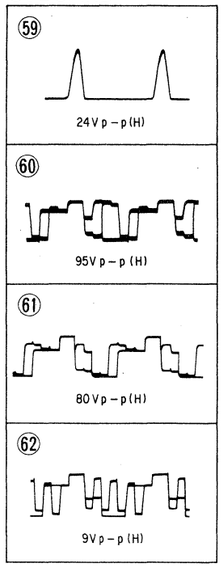
D BOARD



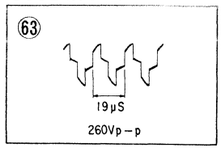
Q BOARD



C1 BOARD



GA BOARD



5-7. PRINTED WIRING BOARDS (PVM-1911 ONLY)

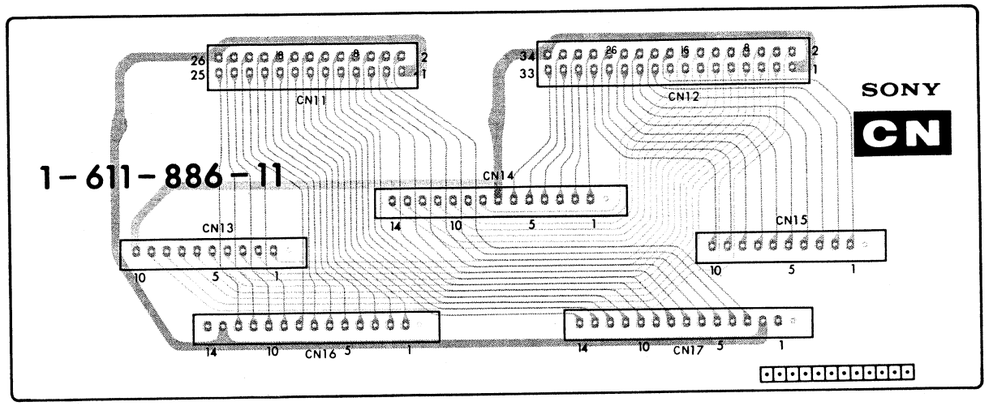
– Conductor Side –

CN **M** (CONTROL)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

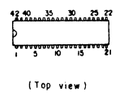
A B C D E F G H I J

– CN Board –

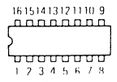


5-8. SEMICONDUCTORS (PVM-1911 ONLY)

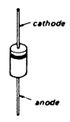
CX564



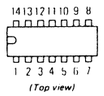
SN74LS123N



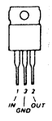
ERB12-02RK
GP08D



HD74LS154P
TL494ACN

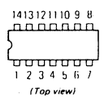


μPC78M05H

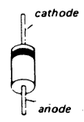


SIB01-02

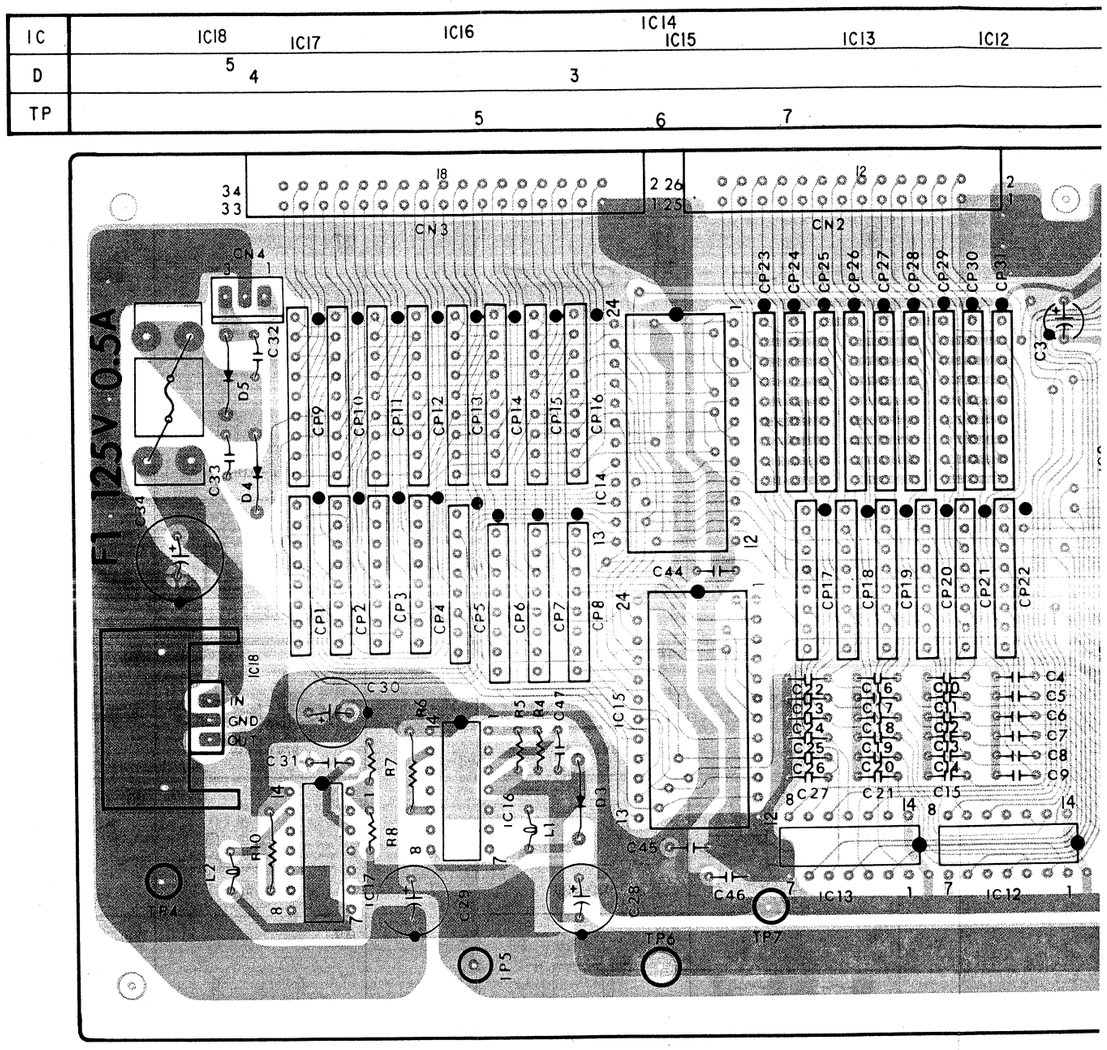
SN74LS04N
SN74LS86N
SN75188N
SN75189AN
TC40H004P
TC40H008P
TC40H032P



EM1Z



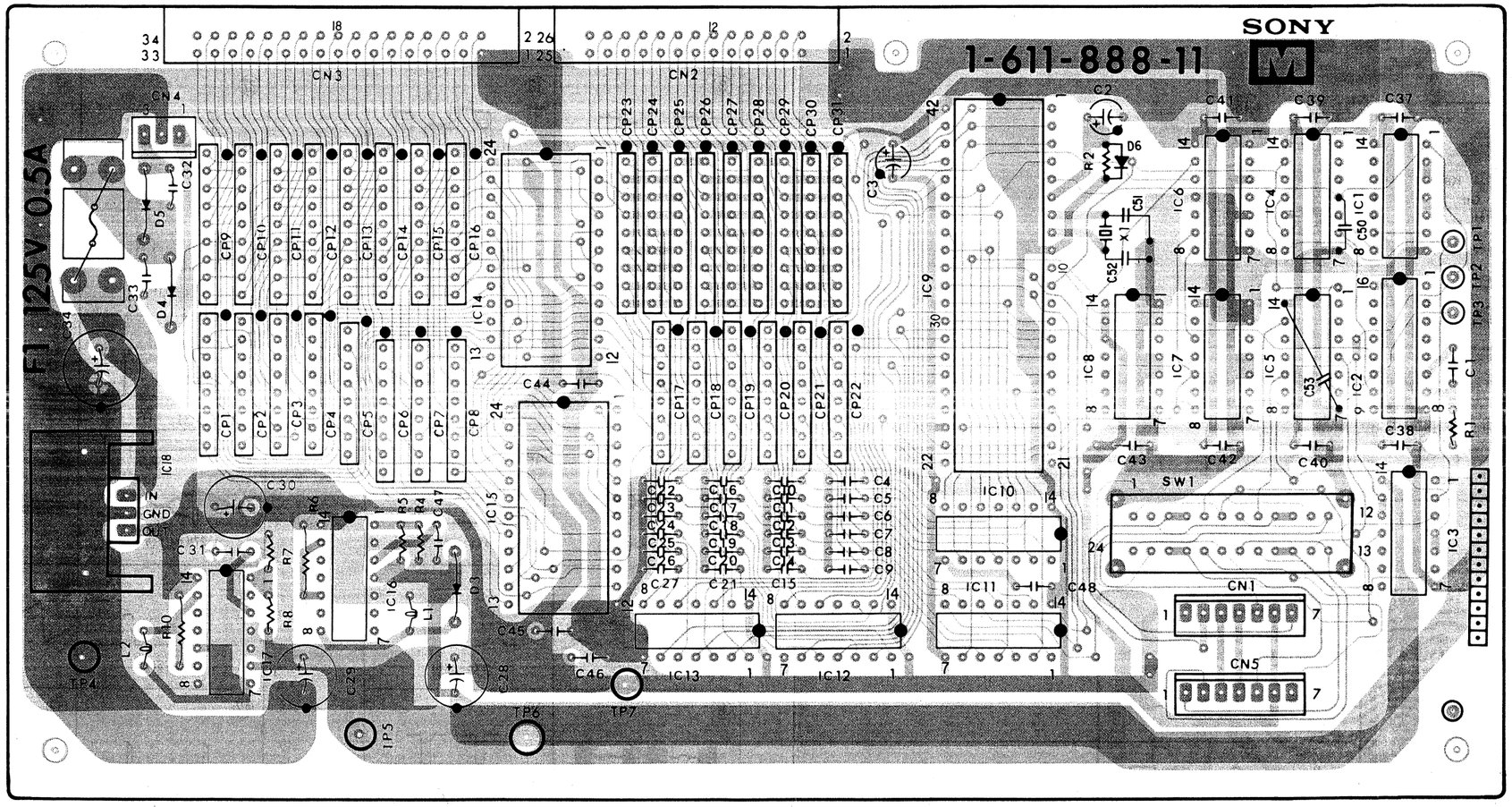
– M Board –



8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

— M Board —

IC	IC18 IC17 IC16 IC14 IC15 IC13 IC12 IC9 IC10, IC11 IC8 IC6 IC7 IC4 IC5 IC1 IC2, IC3	IC
D	5 4 3 6	D
TP	5 6 7 1, 2, 3	TP



5-9. SCHEMATIC DIAGRAM (PVM-1911 ONLY)

IC1 SN74LS04 GATE INV
IC2 SN74LS123 MONO MULTI
IC3 SN75188N DRIVER
IC4 SN74LS86N GATE EX-OR
IC5 SN75189N RECEIVER
IC6 TC40H004 GATE INV
IC7 TC40H008P GATE AND
IC8 TC40H032P GATE OR
IC9 CX564 MICRO COMPUTER
IC10 TC40H004P GATE INV
IC11 TC40H004P GATE INV
IC12 TC40H004P GATE INV
IC13 TC40H004P GATE INV
IC14 HD74LS154P DE MULTI
IC15 HD74LS154P DE MULTI
CP9-16, ISS119 PROTECTOR 1-8
CP23,24 ISS119 PROTECTOR 9,10
CP26,27 ISS119 PROTECTOR 11,12
CP29,30 ISS119 PROTECTOR 13,14
D6 ISI555 RESET

D4,5 ERB12-02RK LINE RECT

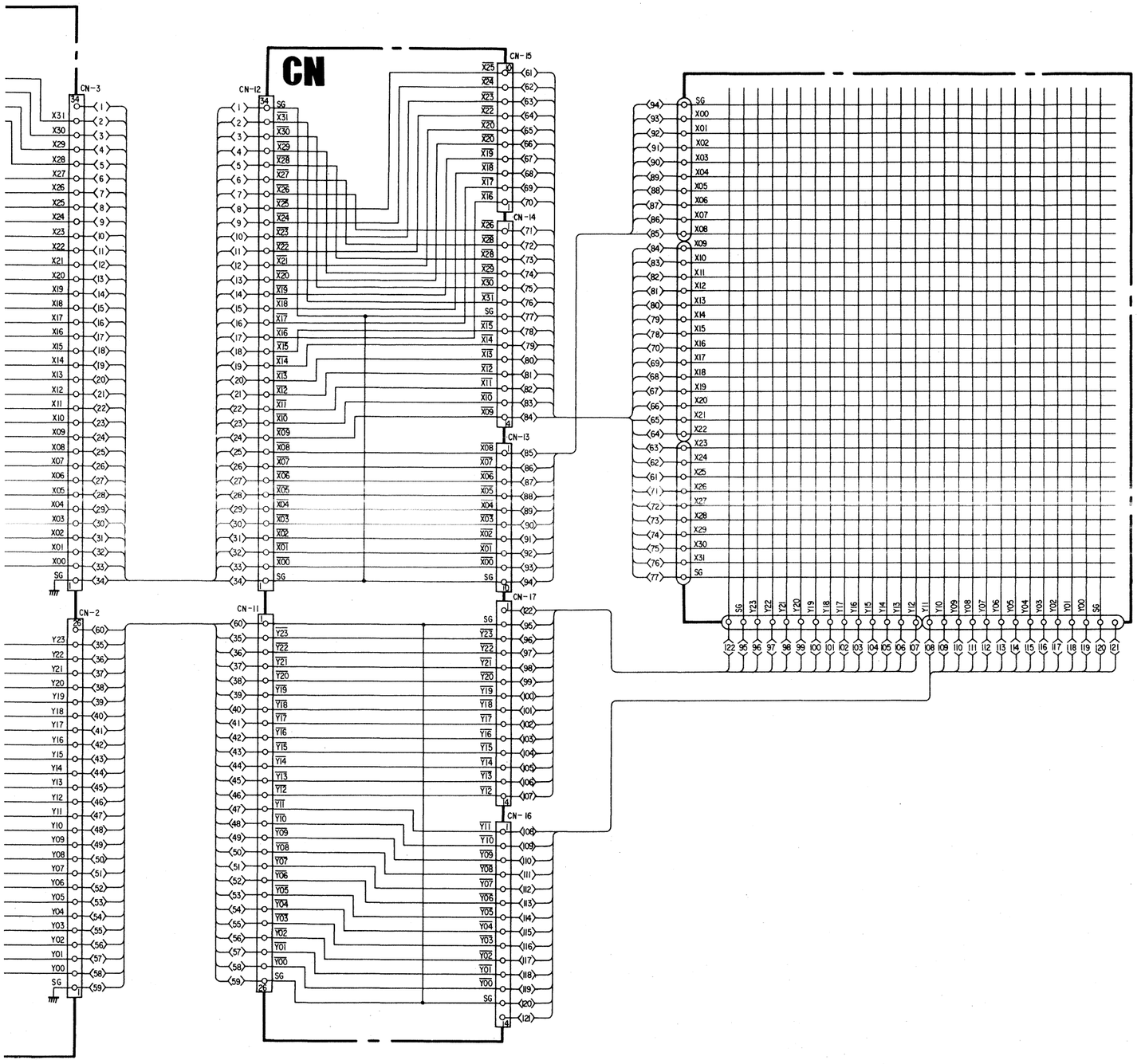
IC18 μPC78M05H 5V REG
IC16 TL794ACN -10V REG
IC17 TL794ACN +10V REG

D3 ERB12-02RK SWITCH

C4-C27 0.015 X 24

M (CONTROL)

16 17 18 19 20 21 22 23 24 25 26 27



Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Les composants identifiés par un tramé et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piece portant le numéro spécifié.

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, 1/8W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- ▭ : panel designation.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
  no mark: normal signal input.
  ( ) : Ready mode.
- Voltage variations may be noted due to normal production tolerances.
- ——— : B+ bus.
- – – – : B- bus.

SECTION 6
EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

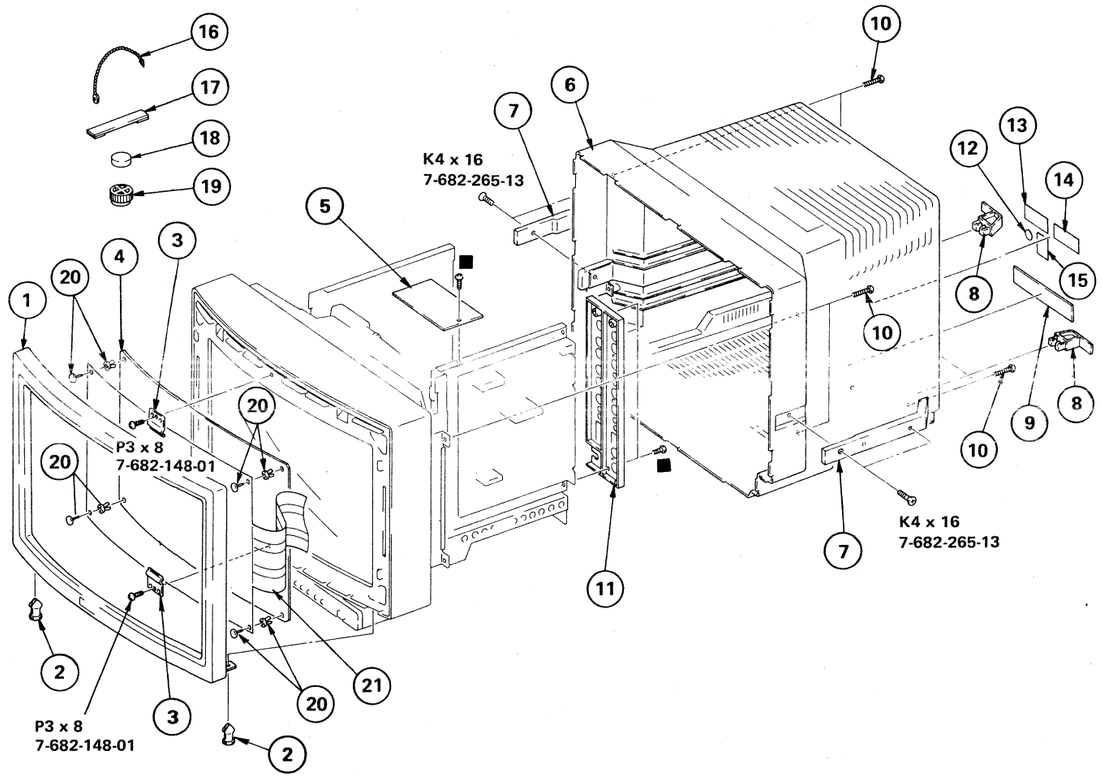
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CABINET ASS'Y

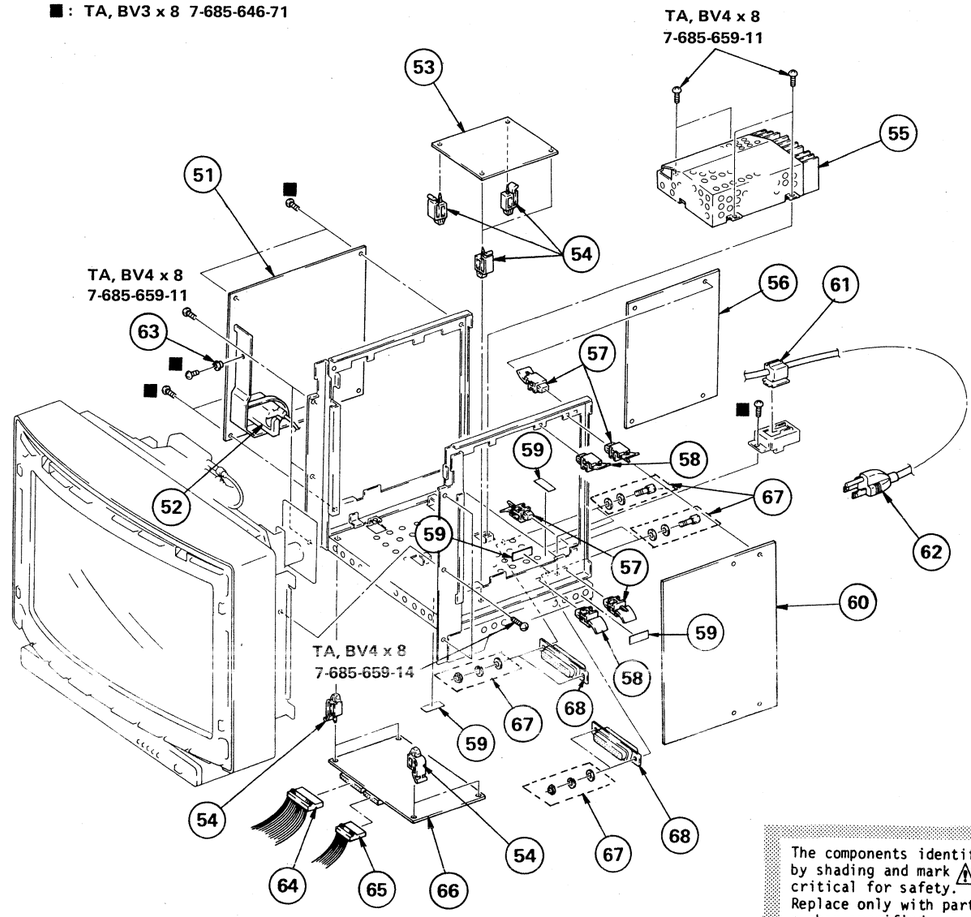
■ : TA, BV3 x 8 7-685-646-71



No.	Part No.	Description	Remark
1	X-4370-904-1	PANEL ASSY, FRONT	
2	4-370-920-01	CLIP, PANEL	
3	4-370-902-01	RETAINER, PANEL	
4	4-370-925-01	FILTER	(PVM-1910)
4	4-370-925-11	FILTER	(PVM-1911)
5	♦:1-612-246-11	C2 BOARD	
6	X-4370-905-1	CABINET ASSY (PVM-1911)	7,8
6	X-4370-903-1	CABINET ASSY (PVM-1910)	7,8,9
7	X-4370-906-1	HANDLE ASSY	
8	4-316-003-00	HOLDER, CORD	
9	4-370-907-01	SHEET (B), BLIND	(PVM-1910 ONLY)
10	4-304-494-21	SCREW, TAPPING, +PW4X16	
11	4-370-930-01	PANEL, CONNECTOR	
12	3-701-915-01	LABEL, UL	
13	3-703-228-00	LABEL, CAUTION	
14	♦:4-370-911-01	LABEL, MODEL NUMBER (CANADA)	(PVM-1910)
14	♦:4-370-936-01	LABEL, MODEL NUMBER (CANADA)	(PCM-1911)
15	4-010-023-00	LABEL, X-RAY	
16	4-308-870-00	CLIP, LEAD WIRE	
17	X-4308-815-0	PERMALLOY ASSY, CONVERGENCE	
18	1-452-032-00	MAGNET DISK; 10MM ϕ	
19	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ	
20	3-531-576-21	RIVET	(PVM-1911 ONLY)
21	1-554-847-11	PANEL, TOUCH	(PVM-1911 ONLY)

(2) CHASSIS ASS'Y

■ : TA, BV3 x 8 7-685-646-71



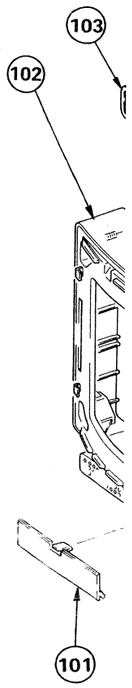
The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remark
51	♦:A-1345-456-A	D BOARD, COMPLETE	
52	⚠.1-439-322-11	TRANSFORMER ASSY, FLYBACK	
53	♦:1-612-243-11	F BAORD	
54	♦:3-659-681-00	HOLDER, PC BOARD	
55	⚠.1-413-179-11	SWITCHING REGULATOR (TK-09)	
56	♦:A-1275-049-A	Q BOARD, COMPLETE	
57	♦:3-703-141-00	HOLDER, PCB	
58	♦:4-321-929-00	HOLDER, PC BOARD	
59	3-703-044-26	LABEL, CAUTION	
60	♦:A-1135-240-A	B BOARD, COMPLETE	(PVM-1910)
60	♦:A-1135-244-A	B BOARD, COMPLETE	(PVM-1911)
61	⚠.♦:4-364-726-01	BUSHING, AC CORD	
62	⚠.1-534-517-23	AC CORD	
63	4-303-203-00	BUSHING	
64	1-557-318-11	CABLE, FLAT 34P	(PVM-1911 ONLY)
65	1-557-319-11	CABLE, FLAT 26P	(PVM-1911 ONLY)
66	♦:A-1306-304-A	M BOARD, COMPLETE	(PVM-1911 ONLY)
67	♦:4-603-275-00	LOCK, SCREW	(PVM-1911 ONLY)
68	1-557-330-11	CONNECTOR ASSY, CANON 25P	(PVM-1911 ONLY)

(3) BEZEL

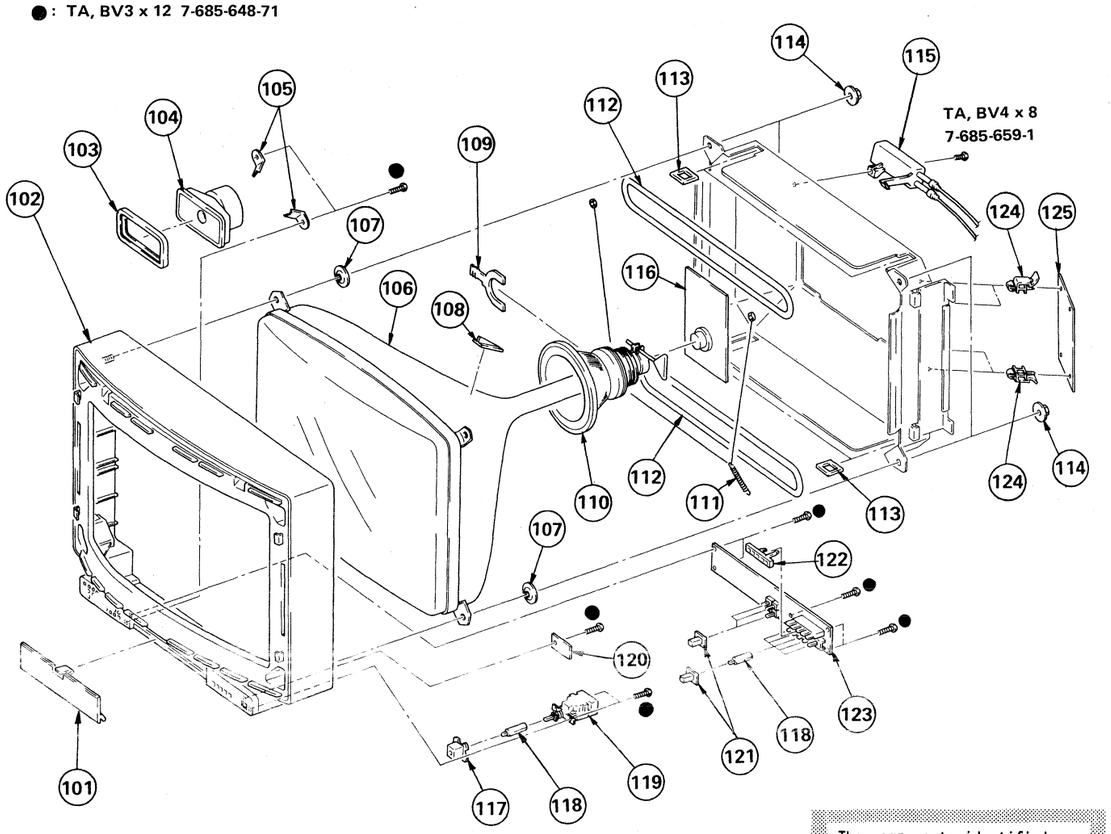
● : TA, BV



No.	Part No
101	X-4370-
102	X-4370-
103	♦:4-364-7
104	1-503-1
105	♦:4-321-6
106	⚠.8-738-7
107	4-348-5
108	3-703-0
109	1-452-1
110	⚠.1-451-2
111	4-303-7
112	⚠.1-426-0
113	♦:4-322-9

(3) BEZEL ASS'Y

●: TA, BV3 x 12 7-685-648-71



The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Remark	No.	Part No.	Description	Remark
VM-1911)	101	X-4370-907-1	DOOR ASSY	
	102	X-4370-901-1	BEZEL ASSY	103,104,105
	103	♦:4-364-741-00	CUSHION, SPEAKER	
	104	1-503-109-00	SPEAKER	
911 ONLY)	105	♦:4-321-611-00	CLAW, RETAINING, SPEAKER	
911 ONLY)	106	⚠:8-738-706-05	CRT (520SB22A)	
911 ONLY)	107	4-348-567-00	WASHER, CRT POSITION	
911 ONLY)	108	3-703-003-00	SPACER, DY	
911 ONLY)	109	1-452-146-00	MAGNET, BMC	
	110	⚠:1-451-204-61	DEFLECTION YOKE (SY-108B)	
	111	4-303-774-XX	SPRING	
	112	⚠:1-426-087-41	COIL, DEGAUSSING	
	113	♦:4-322-922-00	HOLDER, COIL, DEGAUSSER	

No.	Part No.	Description	Remark
114	4-306-034-00	FLANGE NUT, (B) 5MM	
115	⚠:1-228-482-13	RESISTOR ASSY, HIGH-VOLTAGE	
116	♦:A-1330-507-A	C1 BOARD, COMPLETE	
117	4-346-409-11	BUTTON, POWER	
118	♦:4-370-903-01	SHAFT, BUTTON	
119	⚠:1-553-584-12	SWITCH, PUSH (POWER)	
120	♦:1-612-249-11	X BOARD	
121	4-369-627-01	PUSH BUTTON	
122	♦:4-370-919-01	CAP (5 GANG), LED HOLDER	
123	♦:1-612-248-11	H BOARD	
124	♦:3-703-141-00	HOLDER, PCB	(PVM-1911 ONLY)
125	♦:1-611-886-11	CN BOARD	(PVM-1911 ONLY)

F Q

SECTION 7
ELECTRICAL PARTS LIST

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS • MF : μF, PF : μμF

COILS • MMH : mH, UH : μH

- **The components identified by ⧓ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.**

Ref.No	Part No.	Description			Remark
	♦:1-612-243-11	F BOARD			
		*******			
		CAPACITOR			
C681	⚠1-108-745-52	MYLAR	0.22MF	20% 125V	
C682	⚠1-108-745-52	MYLAR	0.22MF	20% 125V	
C683	⚠1-161-748-11	CERAMIC	0.0047MF	125V	
C684	⚠1-161-748-11	CERAMIC	0.0047MF	125V	
C685	⚠1-161-748-11	CERAMIC	0.0047MF	125V	
C686	⚠1-161-748-11	CERAMIC	0.0047MF	125V	
C687	⚠1-161-748-11	CERAMIC	0.0047MF	125V	
C688	⚠1-161-748-11	CERAMIC	0.0047MF	125V	
C689	1-125-320-00	ELECT(BLOCK)	820MF	200V	
C690	1-125-320-00	ELECT(BLOCK)	820MF	200V	
C691	1-102-085-00	CERAMIC	0.0047MF	500V	
C692	1-102-085-00	CERAMIC	0.0047MF	500V	
		DIODE			
D681	8-719-911-55	DIODE U05G			
D682	8-719-911-55	DIODE U05G			
		CONNECTOR			
F1	♦:1-506-348-XX	3P PLUG (L)			
F2	♦:1-508-765-00	3P PLUG (M)			
F3	♦:1-508-765-00	3P PLUG (M)			
		FUSE			
F601	⚠.1-532-221-11	FUSE 125V 5A			
	1-517-072-00	LAMP HOLDER, F601			
		RESISTOR			
R681	1-214-947-00	METAL	2.7M 1%	1/2W	
		TRANSFORMER			
T651	⚠1-421-556-21	TRANSFORMER, LINE FILTER (LFT)			
T652	⚠1-421-556-21	TRANSFORMER, LINE FILTER (LFT)			
		THERMISTOR			
TH601	⚠1-800-820-12	THERMISTOR, POWER			
THP601	1-806-214-00	THERMISTER, POSITIVE			
**********					
	♦:A-1275-049-A	Q BOARD, COMPLETE			
		**********			
	1-536-843-11	TERMINAL BOARD, INPUT/OUTPUT(B)			
	♦:4-603-275-00	LOCK, SCREW			
		CAPACITOR			
C402	1-123-356-00	ELECT	10MF	20% 25V	
C403	1-102-953-00	CERAMIC	18PF	5% 50V	

Ref.No	Part No.	Description			Remark
C405	1-123-380-00	ELECT	1MF	20% 50V	
C407	1-123-356-00	ELECT	10MF	20% 25V	
C408	1-102-953-00	CERAMIC	18PF	5% 50V	
C410	1-123-380-00	ELECT	1MF	20% 50V	
C412	1-123-356-00	ELECT	10MF	20% 25V	
C413	1-102-953-00	CERAMIC	18PF	5% 50V	
C415	1-123-380-00	ELECT	1MF	20% 50V	
C417	1-123-332-00	ELECT	47MF	20% 25V	
C419	1-106-212-00	MYLAR	0.047MF	10% 100V	
C420	1-123-380-00	ELECT	1MF	20% 50V	
C422	1-106-212-00	MYLAR	0.047MF	10% 100V	
C423	1-123-380-00	ELECT	1MF	20% 50V	
C424	1-123-332-00	ELECT	47MF	20% 25V	
C426	1-123-234-00	ELECT	10MF	20% 50V	
C428	1-123-234-00	ELECT	10MF	20% 50V	
C430	1-123-234-00	ELECT	10MF	20% 50V	
C432	1-123-332-00	ELECT	47MF	20% 25V	
C433	1-123-356-00	ELECT	10MF	20% 25V	
C434	1-102-773-00	CERAMIC	330PF	5% 50V	
C435	1-123-332-00	ELECT	47MF	20% 25V	
C436	1-101-006-00	CERAMIC	0.047MF	50V	
C437	1-123-234-00	ELECT	10MF	20% 50V	
C438	1-123-369-00	ELECT	4.7MF	20% 25V	
C441	1-101-006-00	CERAMIC	0.047MF	50V	
C443	1-106-212-00	MYLAR	0.047MF	10% 100V	
C444	1-108-377-00	MYLAR	0.01MF	10% 100V	
C446	1-123-380-00	ELECT	1MF	20% 50V	
C447	1-123-380-00	ELECT	1MF	20% 50V	
C448	1-123-380-00	ELECT	1MF	20% 50V	
C452	1-123-382-00	ELECT	3.3MF	20% 50V	
C453	1-123-228-00	ELECT	1MF	20% 50V	
C455	1-101-006-00	CERAMIC	0.047MF	50V	
C457	1-102-773-00	CERAMIC	330PF	5% 50V	
C459	1-102-773-00	CERAMIC	330PF	5% 50V	
C461	1-102-773-00	CERAMIC	330PF	5% 50V	
C463	1-123-356-00	ELECT	10MF	20% 25V	
C464	1-123-332-00	ELECT	47MF	20% 25V	
C466	1-123-332-00	ELECT	47MF	20% 25V	
C467	1-101-006-00	CERAMIC	0.047MF	50V	
C468	1-101-006-00	CERAMIC	0.047MF	50V	
C469	1-108-377-00	MYLAR	0.01MF	10% 100V	
C489	1-123-332-00	ELECT	47MF	20% 25V	
C490	1-123-332-00	ELECT	47MF	20% 25V	
C491	1-123-332-00	ELECT	47MF	20% 25V	
C492	1-123-332-00	ELECT	47MF	20% 25V	
C493	1-102-766-00	CERAMIC	150PF	5% 50V	
C494	1-108-377-00	MYLAR	0.01MF	10% 100V	
C495	1-101-006-00	CERAMIC	0.047MF	50V	
C497	1-123-356-00	ELECT	10MF	20% 25V	
		CONNECTOR			
CN407	♦:1-562-243-00	CONNECTOR 25P			

Ref.No	Part No.	Description	Remark
		DIODE	
D401	8-719-911-19	DIODE 1SS119	
D402	8-719-911-19	DIODE 1SS119	
D403	8-719-911-19	DIODE 1SS119	
D404	8-719-100-37	DIODE RD6.2E-B1	
D405	8-719-100-37	DIODE RD6.2E-B1	
D406	8-719-100-37	DIODE RD6.2E-B1	
D407	8-719-100-37	DIODE RD6.2E-B1	
D408	8-719-911-19	DIODE 1SS119	
D409	8-719-911-19	DIODE 1SS119	
D410	8-719-911-19	DIODE 1SS119	
D411	8-719-911-19	DIODE 1SS119	
D412	8-719-911-19	DIODE 1SS119	
D414	8-719-911-19	DIODE 1SS119	
D415	8-719-911-19	DIODE 1SS119	
D416	8-719-911-19	DIODE 1SS119	
D418	8-719-100-37	DIODE RD6.2E-B1	
D419	8-719-100-37	DIODE RD6.2E-B1	
D420	8-719-911-19	DIODE 1SS119	
D422	8-719-100-37	DIODE RD6.2E-B1	
D423	8-719-100-22	DIODE RD4.3E-B1	
D424	8-719-911-19	DIODE 1SS119	
D425	8-719-100-26	DIODE RD4.7E-B1	
D435	8-719-911-19	DIODE 1SS119	
D436	8-719-911-19	DIODE 1SS119	
D437	8-719-911-19	DIODE 1SS119	
		FUSE	
F401 ⚠	1-532-580-00	FUSE, GLASS TUBE 125V 0.5A	
F402 ⚠	1-532-536-00	FUSE, GLASS-TUBE 125V 1A	
F403 ⚠	1-532-580-00	FUSE, GLASS TUBE 125V 0.5A	
F404 ⚠	1-532-580-00	FUSE, GLASS TUBE 125V 0.5A	
	1-533-087-00	HOLDER, FUSE, F401, F402, F403, F404	
		IC	
IC401	8-752-201-90	IC CX22019	
IC402	8-759-900-09	IC SN74LS09N	
IC403	8-759-901-36	IC SN74LS136N	
IC404	8-759-900-08	IC SN74LS08N	
IC405	8-759-900-08	IC SN74LS08N	
IC406	8-759-900-04	IC SN74LS04N	
IC407	8-759-900-00	IC SN74LS00N	
IC408	8-759-900-20	IC SN74LS20N	
IC409	8-759-901-38	IC SN74LS138N	
		COIL	
L401	1-408-412-00	MICRO INDUCTOR 18UH	
L402	1-408-412-00	MICRO INDUCTOR 18UH	
L403	1-408-412-00	MICRO INDUCTOR 18UH	
L407	1-408-163-00	MICRO INDUCTOR 5.6MMH	
		CONNECTOR	
Q1	♣:1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P	
Q2	♣:1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P	
Q3	♣:1-560-224-00	PLUG, CONNECTOR (2.5MM) 10P	
Q4	♣:1-560-125-00	PLUG, CONNECTOR (2.5MM) 5P	
Q5	♣:1-560-126-00	PLUG, CONNECTOR (2.5MM) 6P	
Q7	♣:1-560-128-00	PLUG, CONNECTOR (2.5MM PITCH)	
		TRANSISTOR	
Q401	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q402	8-729-245-83	TRANSISTOR 2SC2458	
Q403	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q404	8-729-245-83	TRANSISTOR 2SC2458	
Q405	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q406	8-729-245-83	TRANSISTOR 2SC2458	
Q407	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q408	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q409	8-729-245-83	TRANSISTOR 2SC2458	
Q410	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q411	8-729-245-83	TRANSISTOR 2SC2458	
Q412	8-729-245-83	TRANSISTOR 2SC2458	
Q413	8-729-245-83	TRANSISTOR 2SC2458	
Q414	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q415	8-729-245-83	TRANSISTOR 2SC2458	
Q416	8-729-245-83	TRANSISTOR 2SC2458	
Q417	8-729-245-83	TRANSISTOR 2SC2458	
Q418	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q419	8-729-245-83	TRANSISTOR 2SC2458	
Q420	8-729-245-83	TRANSISTOR 2SC2458	
Q421	8-729-245-83	TRANSISTOR 2SC2458	
Q422	8-729-245-83	TRANSISTOR 2SC2458	
Q423	8-729-245-83	TRANSISTOR 2SC2458	
Q424	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q425	8-729-245-83	TRANSISTOR 2SC2458	
Q426	8-729-245-83	TRANSISTOR 2SC2458	
Q429	8-729-245-83	TRANSISTOR 2SC2458	
Q430	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q431	8-729-245-83	TRANSISTOR 2SC2458	
Q433	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q434	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q435	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q442	8-729-245-83	TRANSISTOR 2SC2458	
Q443	8-729-245-83	TRANSISTOR 2SC2458	
Q444	8-729-245-83	TRANSISTOR 2SC2458	
Q445	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q446	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q447	8-729-245-83	TRANSISTOR 2SC2458	
Q448	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q449	8-729-245-83	TRANSISTOR 2SC2458	
Q450	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q451	8-729-245-83	TRANSISTOR 2SC2458	
Q452	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q453	8-729-245-83	TRANSISTOR 2SC2458	
Q454	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q455	8-729-245-83	TRANSISTOR 2SC2458	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Q

Ref.No	Part No.	Description				Remark
Q456	8-729-245-83	TRANSISTOR 2SC2458				
Q457	8-729-204-83	TRANSISTOR 2SA1048-GR				
		RESISTOR				
R351	1-247-855-00	CARBON	10K	5%	1/6W	
R352	1-247-815-00	CARBON	220	5%	1/6W	
R353	1-247-855-00	CARBON	10K	5%	1/6W	
R354	1-247-815-00	CARBON	220	5%	1/6W	
R355	1-247-807-00	CARBON	100	5%	1/6W	
R356	1-246-469-00	CARBON	680	5%	1/4W	
R357	1-246-469-00	CARBON	680	5%	1/4W	
R358	1-247-827-00	CARBON	680	5%	1/6W	
R359	1-247-827-00	CARBON	680	5%	1/6W	
R361	1-246-469-00	CARBON	680	5%	1/4W	
R362	1-246-469-00	CARBON	680	5%	1/4W	
R364	1-247-827-00	CARBON	680	5%	1/6W	
R365	1-246-469-00	CARBON	680	5%	1/4W	
R366	1-246-457-00	CARBON	220	5%	1/4W	
R367	1-246-457-00	CARBON	220	5%	1/4W	
R368	1-247-855-00	CARBON	10K	5%	1/6W	
R369	1-247-815-00	CARBON	220	5%	1/6W	
R370	1-247-815-00	CARBON	220	5%	1/6W	
R371	1-247-843-00	CARBON	3.3K	5%	1/6W	
R372	1-246-485-00	CARBON	3.3K	5%	1/4W	
R373	1-246-537-00	CARBON	470K	5%	1/4W	
R374	1-247-871-00	CARBON	47K	5%	1/6W	
R377	1-247-845-00	CARBON	3.9K	5%	1/6W	
R378	1-247-855-00	CARBON	10K	5%	1/6W	
R379	1-246-469-00	CARBON	680	5%	1/4W	
R401	1-247-104-00	CARBON	75	5%	1/4W	
R402	1-246-473-00	CARBON	1K	5%	1/4W	
R403	1-247-878-00	CARBON	91K	5%	1/6W	
R404	1-247-831-00	CARBON	1K	5%	1/6W	
R405	1-247-865-00	CARBON	27K	5%	1/6W	
R406	1-247-853-00	CARBON	8.2K	5%	1/6W	
R407	1-247-831-00	CARBON	1K	5%	1/6W	
R408	1-247-104-00	CARBON	75	5%	1/4W	
R409	1-246-473-00	CARBON	1K	5%	1/4W	
R410	1-247-878-00	CARBON	91K	5%	1/6W	
R411	1-247-831-00	CARBON	1K	5%	1/6W	
R412	1-247-865-00	CARBON	27K	5%	1/6W	
R413	1-247-853-00	CARBON	8.2K	5%	1/6W	
R414	1-247-831-00	CARBON	1K	5%	1/6W	
R415	1-247-104-00	CARBON	75	5%	1/4W	
R416	1-246-473-00	CARBON	1K	5%	1/4W	
R417	1-247-878-00	CARBON	91K	5%	1/6W	
R418	1-247-831-00	CARBON	1K	5%	1/6W	
R419	1-247-865-00	CARBON	27K	5%	1/6W	
R420	1-247-853-00	CARBON	8.2K	5%	1/6W	
R421	1-247-831-00	CARBON	1K	5%	1/6W	
R422	1-246-515-00	CARBON	56K	5%	1/4W	
R423	1-247-885-00	CARBON	180K	5%	1/6W	
R424	1-247-877-00	CARBON	82K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R425	1-247-871-00	CARBON	47K	5%	1/6W	
R426	1-247-851-00	CARBON	6.8K	5%	1/6W	
R427	1-247-847-00	CARBON	4.7K	5%	1/6W	
R428	1-246-515-00	CARBON	56K	5%	1/4W	
R429	1-247-885-00	CARBON	180K	5%	1/6W	
R430	1-247-877-00	CARBON	82K	5%	1/6W	
R431	1-247-871-00	CARBON	47K	5%	1/6W	
R432	1-247-851-00	CARBON	6.8K	5%	1/6W	
R433	1-247-847-00	CARBON	4.7K	5%	1/6W	
R434	1-247-807-00	CARBON	100	5%	1/6W	
R435	1-247-879-00	CARBON	100K	5%	1/6W	
R436	1-247-103-00	CARBON	68	5%	1/4W	
R437	1-246-473-00	CARBON	1K	5%	1/4W	
R438	1-247-839-00	CARBON	2.2K	5%	1/6W	
R439	1-246-497-00	CARBON	10K	5%	1/4W	
R440	1-247-878-00	CARBON	91K	5%	1/6W	
R442	1-247-865-00	CARBON	27K	5%	1/6W	
R443	1-247-853-00	CARBON	8.2K	5%	1/6W	
R444	1-247-103-00	CARBON	68	5%	1/4W	
R445	1-246-473-00	CARBON	1K	5%	1/4W	
R446	1-247-839-00	CARBON	2.2K	5%	1/6W	
R447	1-246-497-00	CARBON	10K	5%	1/4W	
R448	1-247-878-00	CARBON	91K	5%	1/6W	
R450	1-247-865-00	CARBON	27K	5%	1/6W	
R451	1-247-853-00	CARBON	8.2K	5%	1/6W	
R452	1-247-103-00	CARBON	68	5%	1/4W	
R453	1-246-473-00	CARBON	1K	5%	1/4W	
R454	1-247-839-00	CARBON	2.2K	5%	1/6W	
R455	1-246-497-00	CARBON	10K	5%	1/4W	
R456	1-247-878-00	CARBON	91K	5%	1/6W	
R458	1-247-865-00	CARBON	27K	5%	1/6W	
R459	1-247-853-00	CARBON	8.2K	5%	1/6W	
R460	1-247-107-00	CARBON	100	5%	1/4W	
R461	1-247-839-00	CARBON	2.2K	5%	1/6W	
R462	1-247-831-00	CARBON	1K	5%	1/6W	
R462	1-247-845-00	CARBON	3.9K	5%	1/6W	
R465	1-247-835-00	CARBON	1.5K	5%	1/6W	
R466	1-247-819-00	CARBON	330	5%	1/6W	
R467	1-247-829-00	CARBON	820	5%	1/6W	
R468	1-247-835-00	CARBON	1.5K	5%	1/6W	
R469	1-247-819-00	CARBON	330	5%	1/6W	
R470	1-247-829-00	CARBON	820	5%	1/6W	
R471	1-247-835-00	CARBON	1.5K	5%	1/6W	
R472	1-247-819-00	CARBON	330	5%	1/6W	
R473	1-247-829-00	CARBON	820	5%	1/6W	
R474	1-247-847-00	CARBON	4.7K	5%	1/6W	
R475	1-247-853-00	CARBON	8.2K	5%	1/6W	
R476	1-247-831-00	CARBON	1K	5%	1/6W	
R477	1-247-847-00	CARBON	4.7K	5%	1/6W	
R478	1-247-847-00	CARBON	4.7K	5%	1/6W	
R479	1-247-847-00	CARBON	4.7K	5%	1/6W	
R480	1-247-103-00	CARBON	68	5%	1/4W	
R481	1-246-481-00	CARBON	2.2K	5%	1/4W	

Ref.No	Part No.	Description				Remark
R482	1-247-839-00	CARBON	2.2K	5%	1/6W	
R483	1-247-807-00	CARBON	100	5%	1/6W	
R484	1-247-855-00	CARBON	10K	5%	1/6W	
R485	1-247-878-00	CARBON	91K	5%	1/6W	
R486	1-247-865-00	CARBON	27K	5%	1/6W	
R487	1-247-853-00	CARBON	8.2K	5%	1/6W	
R488	1-246-457-00	CARBON	220	5%	1/4W	
R489	1-246-489-00	CARBON	4.7K	5%	1/4W	
R490	1-247-835-00	CARBON	1.5K	5%	1/6W	
R491	1-247-839-00	CARBON	2.2K	5%	1/6W	
R492	1-247-829-00	CARBON	820	5%	1/6W	
R493	1-247-819-00	CARBON	330	5%	1/6W	
R494	1-247-847-00	CARBON	4.7K	5%	1/6W	
R495	1-247-863-00	CARBON	22K	5%	1/6W	
R496	1-247-871-00	CARBON	47K	5%	1/6W	
R497	1-247-855-00	CARBON	10K	5%	1/6W	
R499	1-247-819-00	CARBON	330	5%	1/6W	
R1401	1-247-839-00	CARBON	2.2K	5%	1/6W	
R1402	1-247-831-00	CARBON	1K	5%	1/6W	
R1403	1-247-861-00	CARBON	18K	5%	1/6W	
R1404	1-247-845-00	CARBON	3.9K	5%	1/6W	
R1405	1-247-855-00	CARBON	10K	5%	1/6W	
R1406	1-247-843-00	CARBON	3.3K	5%	1/6W	
R1413	1-246-487-00	CARBON	3.9K	5%	1/4W	
R1414	1-246-465-00	CARBON	470	5%	1/4W	
R1415	1-246-491-00	CARBON	5.6K	5%	1/4W	
R1417	1-247-823-00	CARBON	470	5%	1/6W	
R1419	1-247-835-00	CARBON	1.5K	5%	1/6W	
R1420	1-247-847-00	CARBON	4.7K	5%	1/6W	
R1421	1-247-831-00	CARBON	1K	5%	1/6W	
R1423	1-247-827-00	CARBON	680	5%	1/6W	
R1432	1-247-855-00	CARBON	10K	5%	1/6W	
R1433	1-247-843-00	CARBON	3.3K	5%	1/6W	
R1434	1-247-848-00	CARBON	5.1K	5%	1/6W	
R1435	1-246-833-00	CARBON	130	5%	1/8W	
R1435	1-247-833-00	CARBON	1.2K	5%	1/6W	
R1436	1-247-859-00	CARBON	15K	5%	1/6W	
R1437	1-247-855-00	CARBON	10K	5%	1/6W	
R1438	1-247-849-00	CARBON	5.6K	5%	1/6W	
R1439	1-247-847-00	CARBON	4.7K	5%	1/6W	
R1441	1-247-863-00	CARBON	22K	5%	1/6W	
R1442	1-247-901-00	CARBON	820K	5%	1/6W	
R1443	1-247-901-00	CARBON	820K	5%	1/6W	
R1444	1-247-901-00	CARBON	820K	5%	1/6W	
R1445	1-247-867-00	CARBON	33K	5%	1/6W	
R1446	1-247-867-00	CARBON	33K	5%	1/6W	
R1447	1-246-527-00	CARBON	180K	5%	1/4W	
R1448	1-247-849-00	CARBON	5.6K	5%	1/6W	
R1449	1-247-839-00	CARBON	2.2K	5%	1/6W	
R1451	1-247-831-00	CARBON	1K	5%	1/6W	
R1452	1-247-843-00	CARBON	3.3K	5%	1/6W	
R1453	1-247-831-00	CARBON	1K	5%	1/6W	
R1454	1-247-843-00	CARBON	3.3K	5%	1/6W	
R1455	1-247-839-00	CARBON	2.2K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R1456	1-247-823-00	CARBON	470	5%	1/6W	
R1457	1-247-839-00	CARBON	2.2K	5%	1/6W	
R1458	1-247-799-00	CARBON	47	5%	1/6W	
R1459	1-247-825-00	CARBON	560	5%	1/6W	
R1460	1-247-791-00	CARBON	22	5%	1/6W	
R1461	1-247-839-00	CARBON	2.2K	5%	1/6W	
R1462	1-247-823-00	CARBON	470	5%	1/6W	
R1463	1-247-839-00	CARBON	2.2K	5%	1/6W	
R1464	1-247-799-00	CARBON	47	5%	1/6W	
R1465	1-247-825-00	CARBON	560	5%	1/6W	
R1466	1-247-791-00	CARBON	22	5%	1/6W	
R1467	1-247-839-00	CARBON	2.2K	5%	1/6W	
R1468	1-247-823-00	CARBON	470	5%	1/6W	
R1469	1-247-839-00	CARBON	2.2K	5%	1/6W	
R1470	1-247-799-00	CARBON	47	5%	1/6W	
R1471	1-247-825-00	CARBON	560	5%	1/6W	
R1472	1-247-791-00	CARBON	22	5%	1/6W	
R1473	1-247-853-00	CARBON	8.2K	5%	1/6W	
R1474	1-247-851-00	CARBON	6.8K	5%	1/6W	
R1475	1-247-855-00	CARBON	10K	5%	1/6W	
R1476	1-247-815-00	CARBON	220	5%	1/6W	
R1477	1-247-815-00	CARBON	220	5%	1/6W	
R1478	1-247-815-00	CARBON	220	5%	1/6W	
R1479	1-247-847-00	CARBON	4.7K	5%	1/6W	
R1480	1-247-847-00	CARBON	4.7K	5%	1/6W	
R1481	1-247-831-00	CARBON	1K	5%	1/6W	
R1482	1-247-855-00	CARBON	10K	5%	1/6W	
R1483	1-247-855-00	CARBON	10K	5%	1/6W	
R1484	1-246-497-00	CARBON	10K	5%	1/4W	
R1485	1-246-457-00	CARBON	220	5%	1/4W	
R1486	1-246-497-00	CARBON	10K	5%	1/4W	
R1487	1-246-457-00	CARBON	220	5%	1/4W	
R1488	1-246-497-00	CARBON	10K	5%	1/4W	
R1489	1-246-457-00	CARBON	220	5%	1/4W	
R1490	1-246-497-00	CARBON	10K	5%	1/4W	
R1492	1-246-457-00	CARBON	220	5%	1/4W	

IC

REG401	8-759-171-05	IC UPC7805H
REG402	8-759-171-12	IC UPC7812H

VARIABLE RESISTOR

RV401	1-226-853-00	RES, ADJ, CARBON 47K
RV402	1-226-852-00	RES, ADJ, CARBON 22K
RV403	1-226-852-00	RES, ADJ, CARBON 22K
RV404	1-226-852-00	RES, ADJ, CARBON 22K
RV405	1-226-852-00	RES, ADJ, CARBON 22K

SWITCH

S401	1-553-725-00	SWITCH, SLIDE
S402	1-553-725-00	SWITCH, SLIDE
S403	1-553-725-00	SWITCH, SLIDE

C1 C2

Ref.No	Part No.	Description				Remark
♦:A-1330-507-A		C1 BOARD, COMPLETE **********				
	1-526-616-00	SOCKET, CRT				
		CAPACITOR				
C701	1-123-356-00	ELECT	10MF	20%	25V	
C702	1-102-002-00	CERAMIC	680PF	10%	500V	
C703	1-123-356-00	ELECT	10MF	20%	25V	
C704	1-102-002-00	CERAMIC	680PF	10%	500V	
C705	1-123-356-00	ELECT	10MF	20%	25V	
C706	1-102-002-00	CERAMIC	680PF	10%	500V	
C707	1-123-356-00	ELECT	10MF	20%	25V	
C708	1-121-759-00	ELECT	4.7MF		250V	
C709	1-102-038-00	CERAMIC	0.001MF		500V	
C710	1-108-433-00	MYLAR	0.1MF	10%	200V	
C711	1-123-356-00	ELECT	10MF	20%	50V	
C712	1-129-737-00	FILM	0.047MF	20%	630V	
C713	1-102-249-00	CERAMIC	680PF	20%	2KV	
C714	1-108-595-00	MYLAR	0.047MF	5%	50V	
		DIODE				
D701	8-719-300-76	DIODE RH-1A				
D702	8-719-300-76	DIODE RH-1A				
D703	8-719-300-76	DIODE RH-1A				
		COIL				
L701	1-408-418-00	MICRO INDUCTOR 56UH				
L702	1-408-418-00	MICRO INDUCTOR 56UH				
L703	1-408-418-00	MICRO INDUCTOR 56UH				
L704	1-408-417-00	MICRO INDUCTOR 47UH				
L705	1-407-780-00	COIL, SPOOK CHOKE				
L706	1-408-417-00	MICRO INDUCTOR 47UH				
		NEON LAMP				
NL701	1-519-108-XX	LAMP, NEON ASSY				
		TRANSISTOR				
Q701	8-729-245-83	TRANSISTOR 2SC2458				
Q702	8-729-326-11	TRANSISTOR 2SC2611				
Q703	8-729-245-83	TRANSISTOR 2SC2458				
Q704	8-729-326-11	TRANSISTOR 2SC2611				
Q705	8-729-245-83	TRANSISTOR 2SC2458				
Q706	8-729-326-11	TRANSISTOR 2SC2611				
♦:4-347-706-00		HEAT SINK (TR), Q702, Q704, Q706				
		RESISTOR				
R707	1-247-823-00	CARBON	470	5%	1/6W	
R708	1-247-793-00	CARBON	27	5%	1/6W	
R709	1-247-838-00	CARBON	2K	5%	1/6W	
R710	1-247-815-00	CARBON	220	5%	1/6W	
R711	1-247-791-00	CARBON	22	5%	1/6W	
R712	1-206-749-00	METAL OXIDE	10K	5%	3W	F
R713	1-247-823-00	CARBON	470	5%	1/6W	
R714	1-247-793-00	CARBON	27	5%	1/6W	
R715	1-247-838-00	CARBON	2K	5%	1/6W	
R716	1-247-815-00	CARBON	220	5%	1/6W	
R717	1-247-791-00	CARBON	22	5%	1/6W	
R718	1-206-749-00	METAL OXIDE	10K	5%	3W	F
R719	1-247-823-00	CARBON	470	5%	1/6W	
R720	1-247-793-00	CARBON	27	5%	1/6W	
R721	1-247-838-00	CARBON	2K	5%	1/6W	
R722	1-247-815-00	CARBON	220	5%	1/6W	
R723	1-247-791-00	CARBON	22	5%	1/6W	
R724	1-206-749-00	METAL OXIDE	10K	5%	3W	F
R725	1-202-824-00	SOLID	3.3K		1/2W	
R726	1-202-824-00	SOLID	3.3K		1/2W	
R727	1-202-824-00	SOLID	3.3K		1/2W	
R728	1-202-549-00	SOLID	100	10%	1/2W	
R729	1-202-837-00	SOLID	82K		1/2W	
R730	1-202-846-00	SOLID	470K		1/2W	
R731	1-202-609-00	SOLID	33K		1/2W	
R732	1-202-613-00	SOLID	47K		1/2W	
R733	1-202-846-00	SOLID	470K		1/2W	
R734	1-202-719-00	SOLID	1M	10%	1/2W	
R735	1-202-629-00	SOLID	220K		1/2W	
R736	1-247-795-00	CARBON	33	5%	1/6W	
R737	1-246-525-00	CARBON	150K	5%	1/4W	
R738	1-247-795-00	CARBON	33	5%	1/6W	
R739	1-202-844-00	SOLID	330K		1/2W	
		VARIABLE RESISTOR				
RV713	1-226-114-00	RES, ADJ, METAL GLAZE 2.2M				
RV714	1-226-063-00	RES, ADJ, CARBON 2.2M				
		SPARK GAP				
SG701	1-519-063-XX	DISCHARGING GAP				
SG702	1-519-063-XX	DISCHARGING GAP				
SG703	1-519-063-XX	DISCHARGING GAP				
SG704	1-519-063-XX	DISCHARGING GAP				
SG705	1-519-063-XX	DISCHARGING GAP				
**********						
♦:1-612-246-11		C2 BOARD ********				
♦:1-560-278-00		PLUG, CONNECTOR 8P				
		RESISTOR				
R701	1-247-839-00	CARBON	2.2K	5%	1/6W	
R702	1-247-823-00	CARBON	470	5%	1/6W	
R703	1-247-839-00	CARBON	2.2K	5%	1/6W	
R704	1-247-823-00	CARBON	470	5%	1/6W	
R705	1-247-839-00	CARBON	2.2K	5%	1/6W	
R706	1-247-823-00	CARBON	470	5%	1/6W	

Ref.No	Part No.	Description			Remark
		VARIABLE RESISTOR			
RV701	1-226-819-00	RES, ADJ, CARBON 1K			
RV702	1-226-819-00	RES, ADJ, CARBON 1K			
RV703	1-226-921-00	RES, ADJ, CARBON 4.7K			
RV704	1-226-921-00	RES, ADJ, CARBON 4.7K			
RV705	1-226-819-00	RES, ADJ, CARBON 1K			
RV706	1-226-819-00	RES, ADJ, CARBON 1K			
RV707	1-226-921-00	RES, ADJ, CARBON 4.7K			
RV708	1-226-921-00	RES, ADJ, CARBON 4.7K			
RV709	1-226-819-00	RES, ADJ, CARBON 1K			
RV710	1-226-819-00	RES, ADJ, CARBON 1K			
RV711	1-226-921-00	RES, ADJ, CARBON 4.7K			
RV712	1-226-921-00	RES, ADJ, CARBON 4.7K			
		SWITCH			
S701	1-516-503-00	SLIDE SWITCH			
**********					
♣:A-1345-456-A		D BOARD, COMPLETE **********			
♣:4-367-226-00		HOLDER, H OUT			
		CAPACITOR			
C501	1-123-381-00	ELECT	2.2MF	20% 50V	
C502	1-123-369-00	ELECT	4.7MF	20% 50V	
C503	1-108-555-00	MYLAR	0.001MF	5% 50V	
C504	1-108-559-00	MYLAR	0.0015MF	5% 50V	
C505	1-102-115-00	CERAMIC	560PF	10% 50V	
C507	1-108-384-00	MYLAR	0.039MF	10% 100V	
C508	1-123-380-00	ELECT	1MF	20% 50V	
C509	1-108-377-00	MYLAR	0.01MF	10% 100V	
C510	1-123-382-00	ELECT	3.3MF	20% 50V	
C511	1-123-379-00	ELECT	0.47MF	20% 50V	
C513	1-130-640-00	FILM	0.47MF	5% 50V	
C514	1-131-369-00	TANTALUM	4.7MF	20% 16V	
C515	1-123-356-00	ELECT	10MF	20% 25V	
C516	1-106-204-00	MYLAR	0.022MF	10% 100V	
C517	1-108-595-00	MYLAR	0.047MF	5% 50V	
C518	1-123-321-00	ELECT	220MF	20% 16V	
C519	1-102-989-00	CERAMIC	68PF	5% 500V	
C520	1-106-204-00	MYLAR	0.022MF	10% 100V	
C521	1-108-377-00	MYLAR	0.01MF	10% 100V	
C523	1-106-204-00	MYLAR	0.022MF	10% 100V	
C524	1-106-180-00	MYLAR	0.0022MF	5% 100V	
C525	1-129-794-00	FILM	0.0033MF	5% 100V	
C526	1-123-381-00	ELECT	2.2MF	20% 50V	
C527	1-123-381-00	ELECT	2.2MF	20% 50V	
C528	1-101-006-00	CERAMIC	0.047MF	50V	
C529	1-123-230-00	ELECT	2.2MF	20% 50V	
C530	1-123-379-00	ELECT	0.47MF	20% 50V	
C531	1-123-381-00	ELECT	2.2MF	20% 50V	

Ref.No	Part No.	Description			Remark
C533	1-123-335-00	ELECT	330MF	20% 25V	
C534	1-123-379-00	ELECT	0.47MF	20% 50V	
C535	1-108-429-00	MYLAR	0.047MF	10% 200V	
C536	1-101-810-00	CERAMIC	100PF	5% 500V	
C537	1-108-365-00	MYLAR	0.001MF	10% 100V	
C538	⚠1-161-961-11	CERAMIC	0.0022MF	10% 3KV	
C539	1-108-387-00	MYLAR	0.068MF	10% 100V	
C540	⚠1-136-069-11	FILM	0.0044MF	3% 2KV	
C541	⚠1-129-745-51	FILM	0.033MF	10% 400V	
C542	1-102-223-00	CERAMIC	0.0047MF	10% 2KV	
C543	1-123-254-00	ELECT	10MF	250V	
C544	1-102-038-00	CERAMIC	0.001MF	500V	
C545	1-123-333-00	ELECT	100MF	20% 25V	
C546	1-102-038-00	CERAMIC	0.001MF	500V	
C547	1-136-110-00	FILM	0.91MF	5% 200V	
C548	1-108-421-00	MYLAR	0.01MF	10% 200V	
C549	1-136-113-00	FILM	2MF	5% 200V	
C550	1-129-943-00	FILM	0.68MF	10% 400V	
C551	1-123-332-00	ELECT	47MF	20% 16V	
C552	1-123-332-00	ELECT	47MF	20% 16V	
C553	1-108-377-00	MYLAR	0.01MF	10% 100V	
C554	1-123-333-00	ELECT	100MF	20% 25V	
C555	1-102-228-00	CERAMIC	470PF	10% 500V	
C556	1-123-360-00	ELECT	100MF	20% 50V	
C557	1-106-204-00	MYLAR	0.022MF	10% 100V	
C559	1-123-330-00	ELECT	22MF	20% 16V	
C560	1-108-383-00	MYLAR	0.033MF	10% 100V	
C561	1-123-356-00	ELECT	10MF	20% 16V	
C562	1-123-332-00	ELECT	47MF	20% 16V	
C563	1-123-332-00	ELECT	47MF	20% 16V	
C564	⚠1-136-068-11	FILM	0.004MF	3% 2KV	
C565	⚠1-136-068-11	FILM	0.004MF	3% 2KV	
C566	1-101-006-00	CERAMIC	0.047MF	50V	
C567	1-101-006-00	CERAMIC	0.047MF	50V	
C568	1-123-321-00	ELECT	220MF	20% 16V	
C569	1-108-377-00	MYLAR	0.01MF	10% 100V	
C570	1-108-377-00	MYLAR	0.01MF	10% 100V	
C571	1-101-006-00	CERAMIC	0.047MF	50V	
C572	1-101-006-00	CERAMIC	0.047MF	50V	
C573	1-108-816-00	FILM	0.1MF	50V	
C575	1-123-024-00	ELECT	33MF	160V	
C801	1-123-369-00	ELECT	4.7MF	20% 50V	
C802	1-123-369-00	ELECT	4.7MF	20% 50V	
C803	1-108-591-00	MYLAR	0.033MF	5% 50V	
C803	1-123-333-00	ELECT	100MF	20% 25V	
C804	1-124-192-00	ELECT	4.7MF	20% 50V	
C805	1-108-372-00	MYLAR	0.0039MF	10% 100V	
C806	1-123-380-00	ELECT	1MF	20% 50V	
C807	1-123-332-00	ELECT	47MF	20% 16V	
C808	1-123-228-00	ELECT	1MF	20% 50V	
C810	1-123-336-00	ELECT	470MF	20% 25V	
C813	1-108-433-00	MYLAR	0.1MF	10% 200V	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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D

Ref.No	Part No.	Description	Remark
		CONNECTOR	
D1	♦:1-560-126-00	PLUG, CONNECTOR (2.5MM) 6P	
D2	♦:1-560-126-00	PLUG, CONNECTOR (2.5MM) 6P	
D3	♦:1-560-126-00	PLUG, CONNECTOR (2.5MM) 6P	
D4	♦:1-560-126-00	PLUG, CONNECTOR (2.5MM) 6P	
D5	♦:1-508-767-00	5P PLUG	
D6	♦:1-564-038-00	CONNECTOR PLUG, DY (MINI) 6P	
D7	♦:1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P	
D8	♦:1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P	
		DIODE	
D502	8-719-911-19	DIODE 1SS119	
D505	8-719-911-19	DIODE 1SS119	
D506	8-719-911-19	DIODE 1SS119	
D507	8-719-102-67	DIODE RD5.1E-N1	
D508	8-719-911-19	DIODE 1SS119	
D509	8-719-305-15	DIODE GH-3F	
D510	8-719-928-08	DIODE ERD28-08S	
D511	8-719-903-09	DIODE V30N	
D512	8-719-901-93	DIODE V19E	
D513	8-719-901-93	DIODE V19E	
D514	8-719-911-55	DIODE U05G	
D515	8-719-901-93	DIODE V19E	
D516	8-719-911-19	DIODE 1SS119	
D517	8-719-911-55	DIODE U05G	
D518	8-719-911-55	DIODE U05G	
D519	8-719-911-55	DIODE U05G	
D520	8-719-911-19	DIODE 1SS119	
D521	8-719-911-19	DIODE 1SS119	
D523	8-719-000-24	THYRISTOR CR02AM-4	
D524	8-719-911-19	DIODE 1SS119	
D525	8-719-102-84	DIODE RD8.2E-N2	
D803	8-719-936-19	DIODE EQA01-19R	
D804	8-719-931-22	DIODE EQB01-22	
		IC	
IC501	8-759-100-60	IC UPC1377C	
IC503	8-759-145-58	IC UPC4558C	
IC504	8-759-145-58	IC UPC4558C	
IC505	8-759-113-78	IC UPC1378H-L	
IC801	8-759-905-39	IC TDA1082	
		COIL	
L501	1-408-242-00	MICRO INDUCTOR 10MMH	
L502	1-407-780-00	COIL, SPOOK CHOKE	
L503	1-407-365-00	COIL, CHOKE	
L504	1-459-390-00	COIL (WITH CORE)	
L505	⚠1-421-368-11	COIL, VAR FERRITE (HLC)	
L506	1-408-239-00	MICRO INDUCTOR 4.7MMH	
L507	1-459-104-00	COIL, DUST CORE	
L508	1-408-242-00	MICRO INDUCTOR 10MMH	
L509	⚠1-421-329-31	COIL, CHOKE	
L801	1-459-075-00	COIL, DYNAMIC CONVERSION CHOKE	
L802	1-459-338-00	COIL, VAR, FERRITE (PAC)	
		TRANSISTOR	
Q501	8-729-384-48	TRANSISTOR 2SA844	
Q502	8-729-245-83	TRANSISTOR 2SC2458	
Q508	8-729-168-82	TRANSISTOR 2SC2688	
Q509	8-729-800-87	TRANSISTOR 2SD1398-CA	
Q510	8-729-245-83	TRANSISTOR 2SC2458	
Q511	8-729-900-63	TRANSISTOR DTA124ES	
Q512	8-729-177-43	TRANSISTOR 2SD774	
Q801	8-729-313-42	TRANSISTOR 2SD1134	
Q802	8-729-245-83	TRANSISTOR 2SC2458	
Q851	8-729-384-48	TRANSISTOR 2SA844	
		RESISTOR	
R501	1-247-835-00	CARBON 1.5K 5% 1/6W	
R502	1-244-865-00	CARBON 470 1/2W	
R503	1-247-823-00	CARBON 470 5% 1/6W	
R504	1-247-831-00	CARBON 1K 5% 1/6W	
R505	1-247-855-00	CARBON 10K 5% 1/6W	
R506	1-247-839-00	CARBON 2.2K 5% 1/6W	
R508	1-247-835-00	CARBON 1.5K 5% 1/6W	
R509	1-247-839-00	CARBON 2.2K 5% 1/6W	
R510	1-247-865-00	CARBON 27K 5% 1/6W	
R511	1-215-459-00	METAL 39K 1% 1/6W	
R514	1-215-475-00	METAL 180K 1% 1/6W	
R515	1-215-463-00	METAL 56K 1% 1/6W	
R519	1-215-463-00	METAL 56K 1% 1/6W	
R520	1-247-819-00	CARBON 330 5% 1/6W	
R521	1-247-827-00	CARBON 680 5% 1/6W	
R522	1-247-827-00	CARBON 680 5% 1/6W	
R523	1-247-823-00	CARBON 470 5% 1/6W	
R524	1-247-849-00	CARBON 5.6K 5% 1/6W	
R526	1-247-851-00	CARBON 6.8K 5% 1/6W	
R527	1-247-857-00	CARBON 12K 5% 1/6W	
R528	1-247-847-00	CARBON 4.7K 5% 1/6W	
R530	1-215-459-00	METAL 39K 1% 1/6W	
R531	1-247-835-00	CARBON 1.5K 5% 1/6W	
R532	1-246-992-00	CARBON 180 5% 1/8W	F
R533	1-247-851-00	CARBON 6.8K 5% 1/8W	
R534	1-247-835-00	CARBON 1.5K 5% 1/6W	
R535	1-215-456-00	METAL 30K 1% 1/6W	
R536	1-247-857-00	CARBON 12K 5% 1/6W	
R537	1-247-879-00	CARBON 100K 5% 1/6W	
R538	1-247-847-00	CARBON 4.7K 5% 1/6W	
R540	1-247-859-00	CARBON 15K 5% 1/6W	
R541	1-215-477-00	METAL 220K 1% 1/6W	
R542	1-215-447-00	METAL 12K 1% 1/6W	
⊠R543	⚠	CARBON 1/6W	
R544	1-247-849-00	CARBON 5.6K 5% 1/6W	
R545	1-247-841-00	CARBON 2.7K 5% 1/6W	
R546	1-215-447-00	METAL 12K 1% 1/6W	
R547	1-215-477-00	METAL 220K 1% 1/6W	
R548	1-247-813-00	CARBON 180 5% 1/6W	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- The components identified by ⊠ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

Ref.No	Part No.	Description				Remark
R549	1-211-449-00	CARBON	820	5%	1/8W	F
R550	1-247-855-00	CARBON	10K	5%	1/6W	
R551	1-247-809-00	CARBON	120	5%	1/6W	
R552	1-247-855-00	CARBON	10K	5%	1/6W	
R553	1-205-642-00	CEMENTED	3.3K	10%	5W	
R554	1-247-837-00	CARBON	1.8K	5%	1/8W	F
R555	1-247-831-00	CARBON	1K	5%	1/6W	
R556	1-247-636-00	CARBON	0.47	5%	1/8W	F
R557	1-247-636-00	CARBON	0.47	5%	1/8W	F
R558	1-217-407-00	FUSIBLE	470		1/4W	F
R559	1-210-859-00	CARBON	1.2	5%	1/8W	F
R560	1-202-597-00	SOLID	10K	10%	1/2W	
R563	1-213-141-00	METAL OXIDE	680	5%	1W	F
R564	1-213-129-00	METAL OXIDE	68	5%	1W	F
R565	1-212-371-00	METAL OXIDE	8.2	5%	1W	F
R566	1-247-889-00	CARBON	270K	5%	1/6W	
R567	1-247-903-00	CARBON	1M	5%	1/6W	
R568	1-213-137-00	METAL OXIDE	330	5%	1W	F
R569	1-213-137-00	METAL OXIDE	330	5%	1W	F
R570	1-247-230-00	CARBON	390	5%	1/2W	
R571	1-247-863-00	CARBON	22K	5%	1/6W	
R572	1-247-865-00	CARBON	27K	5%	1/6W	
R573	1-247-843-00	CARBON	3.3K	5%	1/6W	
R574	1-247-871-00	CARBON	47K	5%	1/6W	
R575	1-247-879-00	CARBON	100K	5%	1/6W	
R576	1-247-855-00	CARBON	10K	5%	1/6W	
R577	1-247-855-00	CARBON	10K	5%	1/6W	
R578	1-247-869-00	CARBON	39K	5%	1/6W	
R579	1-215-475-00	METAL	180K	1%	1/6W	
R580	1-246-483-00	CARBON	2.7K	5%	1/4W	
R581	1-246-483-00	CARBON	2.7K	5%	1/4W	
R582	1-247-833-00	CARBON	1.2K	5%	1/6W	
R583	1-247-831-00	CARBON	1K	5%	1/6W	
R584	1-247-875-00	CARBON	68K	5%	1/6W	
R585	1-247-875-00	CARBON	68K	5%	1/6W	
R586	1-215-493-00	METAL	1M	1%	1/6W	
R587	1-247-855-00	CARBON	10K	5%	1/6W	
R588	1-247-877-00	CARBON	82K	5%	1/6W	
R589	1-247-877-00	CARBON	82K	5%	1/6W	
R590	1-247-852-00	CARBON	7.5K	5%	1/6W	
R591	1-247-825-00	CARBON	560	5%	1/6W	
R592	1-247-831-00	CARBON	1K	5%	1/6W	
R593	1-247-837-00	CARBON	1.8K	5%	1/6W	
R595	1-247-855-00	CARBON	10K	5%	1/6W	
R596	1-212-373-00	METAL OXIDE	12	5%	1W	F
R597	1-215-373-31	METAL	10	1%	1/6W	
R598	1-247-855-00	CARBON	10K	5%	1/6W	
R599	1-247-865-00	CARBON	27K	5%	1/6W	
R801	1-247-857-00	CARBON	12K	5%	1/6W	
R802	1-247-863-00	CARBON	22K	5%	1/6W	
R803	1-211-431-00	CARBON	150	5%	1/8W	F
R805	1-247-815-00	CARBON	220	5%	1/6W	
R806	1-247-875-00	CARBON	68K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R807	1-247-861-00	CARBON	18K	5%	1/6W	
R809	1-247-867-00	CARBON	33K	5%	1/6W	
R810	1-247-845-00	CARBON	3.9K	5%	1/6W	
R811	1-247-867-00	CARBON	33K	5%	1/6W	
R812	1-247-863-00	CARBON	22K	5%	1/6W	
R813	1-247-845-00	CARBON	3.9K	5%	1/6W	
R814	1-247-869-00	CARBON	39K	5%	1/6W	
R815	1-247-865-00	CARBON	27K	5%	1/6W	
R816	1-247-831-00	CARBON	1K	5%	1/6W	
R817	1-247-831-00	CARBON	1K	5%	1/6W	
R818	1-247-891-00	CARBON	330K	5%	1/6W	
R825	1-212-363-00	METAL OXIDE	1.8	5%	1W	F
R827	1-247-859-00	CARBON	15K	5%	1/6W	
R840	1-247-855-00	CARBON	10K	5%	1/6W	
R841	1-244-883-00	CARBON	2.7K	5%	1/2W	
R842	1-246-475-00	CARBON	1.2K	5%	1/4W	
R843	1-246-501-00	CARBON	15K	5%	1/4W	
R844	1-246-501-00	CARBON	15K	5%	1/4W	
R850	1-247-831-00	CARBON	1k	5%	1/6W	
R851	1-247-807-00	CARBON	100	5%	1/6W	
R852	1-247-807-00	CARBON	100	5%	1/6W	

VARIABLE RESISTOR

RV501	1-228-577-00	RES, ADJ, CARBON 220
RV502	1-226-850-00	RES, ADJ, CARBON 4.7K
RV503	1-226-851-00	RES, ADJ, CARBON 10K
RV504	1-228-160-11	RES, ADJ, METAL GLAZE 5K
RV505	1-222-344-00	RES, ADJ, CARBON 5K
RV506	1-223-102-00	RES, ADJ, WIREWOUND 120
RV507	1-226-854-00	RES, ADJ, CARBON 100K
RV509	1-224-249-XX	RES, ADJ, METAL GLAZE 1K
RV801	1-226-851-00	RES, ADJ, CARBON 10K
RV802	1-226-847-00	RES, ADJ, CARBON 1K
RV803	1-226-847-00	RES, ADJ, CARBON 1K

SPARK GAP

SG501	1-519-063-XX	DISCHARGING GAP

TRANSFORMER

T501	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE
T503	1-421-520-00	TRANSFORMER, FERRITE (PHT)
T801	1-421-245-11	TRANSFOMER, PZN CUSHION

****

♦	1-612-248-11	H BOARD
		*******
♦	4-370-916-01	HOLDER (5 GANG), LED

DIODE

D301	8-719-114-34	DIODE SY432D
D302	8-719-114-34	DIODE SY432D
D303	8-719-114-34	DIODE SY432D
D304	8-719-114-34	DIODE SY432D
D305	8-719-114-34	DIODE SY432D

H X B

Ref.No	Part No.	Description				Remark
		RESISTOR				
R301	1-247-846-00	CARBON	4.3K	5%	1/6W	
R302	1-247-868-00	CARBON	36K	5%	1/6W	
R303	1-247-852-00	CARBON	7.5K	5%	1/6W	
R305	1-247-831-00	CARBON	1K	5%	1/6W	
R306	1-247-831-00	CARBON	1K	5%	1/6W	
R307	1-247-831-00	CARBON	1K	5%	1/6W	
R309	1-247-835-00	CARBON	1.5K	5%	1/6W	
		VARIABLE RESISTOR				
RV301	1-228-938-00	RES, VAR, CARBON 20K				
RV302	1-228-936-00	RES, VAR, CARBON 10K				
RV303	1-228-938-00	RES, VAR, CARBON 20K				
RV304	1-228-938-00	RES, VAR, CARBON 20K				
RV305	1-228-937-00	RES, VAR, CARBON 20K				
RV306	1-228-937-00	RES, VAR, CARBON 20K				
RV307	1-228-938-00	RES, VAR, CARBON 20K				
		SWITCH				
S301	1-554-405-00	SWITCH, PUSH (5 KEY)				
S302	1-554-118-00	SWITCH, PUSH				
S303	1-554-118-00	SWITCH, PUSH				
S304	1-554-118-00	SWITCH, PUSH				
**********						
♦	1-612-249-11	X BOARD *******				
♦	4-345-701-00	HOLDER, LED				
		DIODE				
D311	8-719-102-34	DIODE SG232D				
**********						
♦	A-1135-240-A	B BOARD, COMPLETE (PVM-1910)				
♦	A-1135-244-A	B BOARD, COMPLETE (PVM-1911) **********				
♦	4-323-833-00	HEAT SINK, PIN OUT				
		CONNECTOR				
B1	♦1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P				
B2	♦1-560-224-00	PLUG, CONNECTOR (2.5MM) 10P				
B3	♦1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P				
B4	♦1-560-125-00	PLUG, CONNECTOR (2.5MM) 5P				
B5	♦1-560-156-00	PLUG, CONNECTOR (2.5MM PITCH)				
B6	♦1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)				
B7	♦1-560-125-00	PLUG, CONNECTOR (2.5MM) 5P				
B8	♦1-560-124-00	PLUG, CONNECTOR (2.5MM) 4P				
B9	♦1-560-290-00	PLUG, CONNECTOR (2.5MM) (PVM-1911 ONLY)				

Ref.No	Part No.	Description			Remark
		CAPACITOR			
C004	1-123-356-00	ELECT	10MF	20%	25V
C005	1-123-356-00	ELECT	10MF	20%	25V
C006	1-123-356-00	ELECT	10MF	20%	25V
C007	1-123-356-00	ELECT	10MF	20%	25V
C008	1-123-380-00	ELECT	1MF	20%	50V
C009	1-106-212-00	MYLAR	0.047MF	10%	100V
C010	1-123-356-00	ELECT	10MF	20%	25V
C011	1-123-356-00	ELECT	10MF	20%	25V
C012	1-123-356-00	ELECT	10MF	20%	25V
C013	1-123-356-00	ELECT	10MF	20%	25V
C014	1-123-380-00	ELECT	1MF	20%	50V
C015	1-106-212-00	MYLAR	0.047MF	10%	100V
C017	1-106-212-00	MYLAR	0.047MF	10%	100V
C018	1-123-380-00	ELECT	1MF	20%	50V
C019	1-123-356-00	ELECT	10MF	20%	25V
C020	1-123-356-00	ELECT	10MF	20%	25V
C021	1-123-356-00	ELECT	10MF	20%	25V
C022	1-123-356-00	ELECT	10MF	20%	25V
C023	1-123-356-00	ELECT	10MF	20%	25V
C024	1-123-356-00	ELECT	10MF	20%	25V
C025	1-123-356-00	ELECT	10MF	20%	25V
C026	1-123-332-00	ELECT	47MF	20%	25V
C027	1-123-356-00	ELECT	10MF	20%	25V
C100	1-102-971-00	CERAMIC	82PF	5%	50V
C101	1-123-332-00	ELECT	47MF	20%	16V
C102	1-123-356-00	ELECT	10MF	20%	25V
C104	1-102-973-00	CERAMIC	100PF	5%	50V
C105	1-123-356-00	ELECT	10MF	20%	16V
C106	1-123-356-00	ELECT	10MF	20%	25V
C107	1-102-978-00	CERAMIC	220PF	5%	50V
C108	1-123-356-00	ELECT	10MF	20%	16V
C109	1-102-959-00	CERAMIC	22PF	5%	50V
C110	1-102-961-00	CERAMIC	27PF	5%	50V
C111	1-101-888-00	CERAMIC	68PF	5%	50V
C112	1-102-971-00	CERAMIC	82PF	5%	50V
C113	1-102-978-00	CERAMIC	220PF	5%	50V
C114	1-123-332-00	ELECT	47MF	20%	16V
C115	1-123-356-00	ELECT	10MF	20%	16V
C117	1-123-356-00	ELECT	10MF	20%	25V
C121	1-102-944-00	CERAMIC	7PF	0.5PF	50V
C122	1-102-944-00	CERAMIC	7PF	0.5PF	50V
C123	1-123-380-00	ELECT	1MF	20%	50V
C124	1-123-356-00	ELECT	10MF	20%	25V
C127	1-101-004-00	CERAMIC	0.01MF		50V
C128	1-123-380-00	ELECT	1MF	20%	50V
C129	1-123-379-00	ELECT	0.47MF	20%	50V
C130	1-123-380-00	ELECT	1MF	20%	50V
C131	1-108-389-00	MYLAR	0.1MF	10%	100V
C133	1-123-332-00	ELECT	47MF		16V
C134	1-102-944-00	CERAMIC	7PF	0.5PF	50V
C135	1-102-978-00	CERAMIC	220PF	5%	50V

Ref.No	Part No.	Description			Remark
C136	1-101-888-00	CERAMIC	68PF	5%	50V
C138	1-101-004-00	CERAMIC	0.01MF		50V
C140	1-123-381-00	ELECT	2.2MF	20%	50V
C141	1-101-006-00	CERAMIC	0.047MF		50V
C142	1-101-006-00	CERAMIC	0.047MF		50V
C143	1-101-880-00	CERAMIC	47PF	5%	50V
C144	1-101-880-00	CERAMIC	47PF	5%	50V
C145	1-102-934-00	CERAMIC	1PF	0.25PF	50V
C146	1-102-963-00	CERAMIC	33PF	5%	50V
C148	1-123-356-00	ELECT	10MF	20%	25V
C149	1-161-330-00	CERAMIC	0.01MF	30%	25V
C155	1-102-946-00	CERAMIC	9PF	0.5PF	50V
C157	1-123-380-00	ELECT	1MF	20%	50V
C158	1-123-382-00	ELECT	3.3MF	20%	50V
C159	1-124-049-00	ELECT	0.47MF	20%	50V
C161	1-102-971-00	CERAMIC	82PF	5%	50V
C162	1-101-361-00	CERAMIC	150PF	5%	50V
C163	1-102-971-00	CERAMIC	82PF	5%	50V
C164	1-121-257-00	ELECT	4.7MF		16V
C165	1-101-361-00	CERAMIC	150PF	5%	50V
C167	1-101-006-00	CERAMIC	0.047MF		50V
C169	1-108-389-00	MYLAR	0.1MF	10%	100V
C170	1-123-380-00	ELECT	1MF	20%	50V
C173	1-123-607-00	ELECT	0.1MF	20%	50V
C175	1-101-361-00	CERAMIC	150PF	5%	50V
C178	1-123-356-00	ELECT	10MF	20%	25V
C180	1-123-323-00	ELECT	470MF	20%	16V
C182	1-101-004-00	CERAMIC	0.01MF		50V
C183	1-123-356-00	ELECT	10MF	20%	25V
C184	1-123-356-00	ELECT	10MF	20%	25V
C186	1-123-356-00	ELECT	10MF	20%	25V
C187	1-101-004-00	CERAMIC	0.01MF		50V
C188	1-123-356-00	ELECT	10MF	20%	25V
C189	1-123-356-00	ELECT	10MF	20%	25V
C190	1-123-356-00	ELECT	10MF	20%	25V
C191	1-101-004-00	CERAMIC	0.01MF		50V
C200	1-123-607-00	ELECT	0.1MF	20%	50V
C201	1-123-607-00	ELECT	0.1MF	20%	50V
C202	1-123-607-00	ELECT	0.1MF	20%	50V
C203	1-121-257-00	ELECT	4.7MF		16V
C204	1-123-381-00	ELECT	2.2MF	20%	50V
C208	1-101-880-00	CERAMIC	47PF	5%	50V
C209	1-102-971-00	CERAMIC	82PF	5%	50V
C210	1-101-361-00	CERAMIC	150PF	5%	50V
C211	1-108-377-00	MYLAR	0.01MF	10%	100V
C213	1-101-004-00	CERAMIC	0.01MF		50V
C214	1-108-579-00	MYLAR	0.01MF	5%	50V
C216	1-102-824-00	CERAMIC	470PF	5%	50V
C217	1-123-356-00	ELECT	10MF	20%	25V

Ref.No	Part No.	Description			Remark
C220	1-123-325-00	ELECT	2200MF	20%	16V
C221	1-108-389-00	MYLAR	0.1MF	10%	100V
C222	1-123-321-00	ELECT	220MF	20%	16V
C223	1-123-332-00	ELECT	47MF	20%	16V
C224	1-123-369-00	ELECT	4.7MF	20%	25V
C225	1-123-380-00	ELECT	1MF	20%	50V
C226	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C227	1-123-379-00	ELECT	0.47MF	20%	50V
C228	1-123-332-00	ELECT	47MF	20%	25V
C229	1-123-369-00	ELECT	4.7MF	20%	25V
C230	1-102-824-00	CERAMIC	470PF	5%	50V
C231	1-123-356-00	ELECT	10MF	20%	16V
C232	1-123-356-00	ELECT	10MF	20%	16V
C233	1-123-379-00	ELECT	0.47MF	20%	50V
C234	1-108-377-00	MYLAR	0.01MF	10%	100V
C235	1-123-321-00	ELECT	220MF	20%	16V
C238	1-123-332-00	ELECT	47MF	20%	16V
C239	1-101-004-00	CERAMIC	0.01MF		50V
C240	1-102-959-00	CERAMIC	22PF	5%	50V
C241	1-102-959-00	CERAMIC	22PF	5%	50V
C242	1-123-356-00	ELECT	10MF	20%	25V
C243	1-101-004-00	CERAMIC	0.01MF		50V
C244	1-101-004-00	CERAMIC	0.01MF		50V
C343	1-101-004-00	CERAMIC	0.01MF		50V

DIODE

D001	8-719-911-19	DIODE 1SS119
D002	8-719-911-19	DIODE 1SS119
D003	8-719-911-19	DIODE 1SS119
D004	8-719-911-19	DIODE 1SS119
D005	8-719-911-19	DIODE 1SS119
D007	8-719-911-19	DIODE 1SS119
D108	8-719-911-19	DIODE 1SS119
D115	8-719-911-19	DIODE 1SS119
D116	8-719-911-19	DIODE 1SS119
D117	8-719-911-19	DIODE 1SS119
D118	8-719-911-19	DIODE 1SS119
D119	8-719-911-19	DIODE 1SS119
D120	8-719-911-19	DIODE 1SS119
D121	8-719-911-19	DIODE 1SS119
D122	8-719-911-19	DIODE 1SS119
D123	8-719-911-19	DIODE 1SS119
D124	8-719-100-37	DIODE RD6.2E-B1

DELAY LINE

DL101	1-415-207-21	DELAY LINE (1H)
DL102	1-415-188-00	DELAY LINE

FUSE

F201	1-532-624-11	FUSE, GLASS TUBE

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

B

Ref.No	Part No.	Description	Remark
		IC	
IC001	8-759-700-06	IC UPC7812H	
IC101	8-752-006-10	IC CX20061	
IC102	8-752-006-10	IC CX20061	
IC103	8-759-113-65	IC UPC1365C	
IC201	8-759-100-15	IC UPC1364C2	
IC202	8-759-101-77	IC UPC1241H	
IC203	8-759-610-95	IC CX095E	
		CONNECTOR	
J1	1-562-121-00	CONNECTOR, DIN 6P	
J2	1-536-842-11	TERMINAL BOARD, INPUT/OUTPUT(A)	
		COIL	
L101	1-408-412-00	MICRO INDUCTOR 18UH	
L102	1-408-412-00	MICRO INDUCTOR 18UH	
L103	1-408-411-00	MICRO INDUCTOR 15UH	
L104	1-408-414-00	MICRO INDUCTOR 27UH	
L105	1-408-414-00	MICRO INDUCTOR 27UH	
L106	1-408-409-00	MICRO INDUCTOR 10UH	
L108	1-408-416-00	MICRO INDUCTOR 39UH	
L110	1-408-412-00	MICRO INDUCTOR 18UH	
L111	1-408-406-00	MICRO INDUCTOR 5.6UH	
L201	1-408-245-00	MICRO INDUCTOR 22MMH	
L202	1-408-163-00	MICRO INDUCTOR 5.6MMH	
L203	1-408-414-00	MICRO INDUCTOR 27UH	
L204	1-408-421-00	MICRO INDUCTOR 100UH	
		TRANSISTOR	
Q001	8-729-245-83	TRANSISTOR 2SC2458	
Q002	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q003	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q004	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q005	8-729-245-83	TRANSISTOR 2SC2458	
Q006	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q007	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q008	8-729-245-83	TRANSISTOR 2SC2458	
Q009	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q010	8-729-245-83	TRANSISTOR 2SC2458	
Q011	8-729-245-83	TRANSISTOR 2SC2458	
Q012	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q101	8-729-245-83	TRANSISTOR 2SC2458	
Q102	8-729-245-83	TRANSISTOR 2SC2458	
Q103	8-729-245-83	TRANSISTOR 2SC2458	
Q104	8-729-245-83	TRANSISTOR 2SC2458	
Q105	8-729-245-83	TRANSISTOR 2SC2458	
Q106	8-729-245-83	TRANSISTOR 2SC2458	
Q107	8-729-245-83	TRANSISTOR 2SC2458	
Q108	8-729-245-83	TRANSISTOR 2SC2458	
Q109	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q110	8-729-245-83	TRANSISTOR 2SC2458	
Q111	8-729-245-83	TRANSISTOR 2SC2458	
Q113	8-729-245-83	TRANSISTOR 2SC2458	
Q116	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q124	8-769-200-30	TRANSISTOR 2SK107-3	
Q138	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q145	8-729-245-83	TRANSISTOR 2SC2458	
Q148	8-729-245-83	TRANSISTOR 2SC2458	
Q149	8-729-204-83	TRANSISTOR 2SA1048-GR	
Q151	8-729-245-83	TRANSISTOR 2SC2458	
Q153	8-729-245-83	TRANSISTOR 2SC2458	
Q155	8-729-245-83	TRANSISTOR 2SC2458	
Q156	8-729-245-83	TRANSISTOR 2SC2458	
Q157	8-729-245-83	TRANSISTOR 2SC2458	
Q158	8-769-200-30	TRANSISTOR 2SK107-3	
Q159	8-729-204-83	TRANSISTOR 2SA1048-GR	
		RESISTOR	
R002	1-247-831-00	CARBON 1K 5% 1/6W	
R003	1-247-865-00	CARBON 27K 5% 1/6W	
R004	1-247-845-00	CARBON 3.9K 5% 1/6W	
R005	1-247-839-00	CARBON 2.2K 5% 1/6W	
R006	1-247-875-00	CARBON 68K 5% 1/6W	
R007	1-247-863-00	CARBON 22K 5% 1/6W	
R009	1-247-850-00	CARBON 6.2K 5% 1/6W	
R010	1-247-850-00	CARBON 6.2K 5% 1/6W	
R011	1-247-850-00	CARBON 6.2K 5% 1/6W	
R012	1-247-871-00	CARBON 47K 5% 1/6W	
R013	1-247-877-00	CARBON 82K 5% 1/6W	
R014	1-247-885-00	CARBON 180K 5% 1/6W	
R015	1-247-873-00	CARBON 56K 5% 1/6W	
R016	1-247-831-00	CARBON 1K 5% 1/6W	
R017	1-247-804-00	CARBON 75 5% 1/6W	
R019	1-247-804-00	CARBON 75 5% 1/6W	
R020	1-247-865-00	CARBON 27K 5% 1/6W	
R021	1-247-845-00	CARBON 3.9K 5% 1/6W	
R022	1-247-863-00	CARBON 22K 5% 1/6W	
R023	1-247-875-00	CARBON 68K 5% 1/6W	
R024	1-247-850-00	CARBON 6.2K 5% 1/6W	
R025	1-247-871-00	CARBON 47K 5% 1/6W	
R026	1-247-873-00	CARBON 56K 5% 1/6W	
R027	1-247-877-00	CARBON 82K 5% 1/6W	
R028	1-247-885-00	CARBON 180K 5% 1/6W	
R029	1-247-855-00	CARBON 10K 5% 1/6W	
R030	1-247-885-00	CARBON 180K 5% 1/6W	
R031	1-247-877-00	CARBON 82K 5% 1/6W	
R032	1-247-871-00	CARBON 47K 5% 1/6W	
R033	1-247-863-00	CARBON 22K 5% 1/6W	
R034	1-247-875-00	CARBON 68K 5% 1/6W	
R035	1-247-831-00	CARBON 1K 5% 1/6W	
R036	1-247-804-00	CARBON 75 5% 1/6W	
R037	1-247-865-00	CARBON 27K 5% 1/6W	
R038	1-247-845-00	CARBON 3.9K 5% 1/6W	
R039	1-247-850-00	CARBON 6.2K 5% 1/6W	
R040	1-247-875-00	CARBON 68K 5% 1/6W	

Ref.No	Part No.	Description				Remark
R041	1-247-804-00	CARBON	75	5%	1/6W	
R042	1-247-865-00	CARBON	27K	5%	1/6W	
R043	1-247-878-00	CARBON	91K	5%	1/6W	
R045	1-247-855-00	CARBON	10K	5%	1/6W	
R046	1-247-853-00	CARBON	8.2K	5%	1/6W	
R049	1-247-873-00	CARBON	56K	5%	1/6W	
R051	1-247-839-00	CARBON	2.2K	5%	1/6W	
R052	1-247-807-00	CARBON	100	5%	1/6W	
R053	1-247-871-00	CARBON	47K	5%	1/6W	
R054	1-247-871-00	CARBON	47K	5%	1/6W	
R100	1-247-853-00	CARBON	8.2K	5%	1/6W	
R101	1-247-869-00	CARBON	39K	5%	1/6W	
R102	1-247-815-00	CARBON	220	5%	1/6W	
R103	1-247-833-00	CARBON	1.2K	5%	1/6W	
R104	1-247-819-00	CARBON	330	5%	1/6W	
R105	1-247-827-00	CARBON	680	5%	1/6W	
R106	1-247-843-00	CARBON	3.3K	5%	1/6W	
R107	1-247-849-00	CARBON	5.6K	5%	1/6W	
R108	1-247-855-00	CARBON	10K	5%	1/6W	
R109	1-247-823-00	CARBON	470	5%	1/6W	
R110	1-247-823-00	CARBON	470	5%	1/6W	
R111	1-247-839-00	CARBON	2.2K	5%	1/6W	
R112	1-247-827-00	CARBON	680	5%	1/6W	
R113	1-247-817-00	CARBON	270	5%	1/6W	
R114	1-247-827-00	CARBON	680	5%	1/6W	
R115	1-247-835-00	CARBON	1.5K	5%	1/6W	
R116	1-247-803-00	CARBON	68	5%	1/6W	
R117	1-247-827-00	CARBON	680	5%	1/6W	
R118	1-247-827-00	CARBON	680	5%	1/6W	
R119	1-247-807-00	CARBON	100	5%	1/6W	
R120	1-247-827-00	CARBON	680	5%	1/6W	
R121	1-247-827-00	CARBON	680	5%	1/6W	
R122	1-247-807-00	CARBON	100	5%	1/6W	
R123	1-247-831-00	CARBON	1K	5%	1/6W	
R124	1-247-823-00	CARBON	470	5%	1/6W	
R125	1-247-831-00	CARBON	1K	5%	1/6W	
R126	1-247-807-00	CARBON	100	5%	1/6W	
R127	1-247-827-00	CARBON	680	5%	1/6W	
R128	1-247-814-00	CARBON	200	5%	1/6W	
R129	1-247-835-00	CARBON	1.5K	5%	1/6W	
R130	1-247-827-00	CARBON	680	5%	1/6W	
R131	1-247-823-00	CARBON	470	5%	1/6W	
R132	1-247-837-00	CARBON	1.8K	5%	1/6W	
R133	1-247-799-00	CARBON	47	5%	1/6W	
R135	1-247-815-00	CARBON	220	5%	1/6W	
R136	1-247-839-00	CARBON	2.2K	5%	1/6W	
R137	1-247-861-00	CARBON	18K	5%	1/6W	
R138	1-247-843-00	CARBON	3.3K	5%	1/6W	
R140	1-247-863-00	CARBON	22K	5%	1/6W	
R141	1-247-863-00	CARBON	22K	5%	1/6W	
R143	1-247-807-00	CARBON	100	5%	1/6W	
R144	1-247-863-00	CARBON	22K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R145	1-247-863-00	CARBON	22K	5%	1/6W	
R147	1-247-835-00	CARBON	1.5K	5%	1/6W	
R148	1-247-835-00	CARBON	1.5K	5%	1/6W	
R152	1-247-829-00	CARBON	820	5%	1/6W	
R153	1-247-843-00	CARBON	3.3K	5%	1/6W	
R157	1-247-867-00	CARBON	33K	5%	1/6W	
R159	1-247-819-00	CARBON	330	5%	1/6W	
R167	1-247-835-00	CARBON	1.5K	5%	1/6W	
R173	1-247-847-00	CARBON	4.7K	5%	1/6W	
R176	1-247-887-00	CARBON	220K	5%	1/6W	
R177	1-247-879-00	CARBON	100K	5%	1/6W	
R185	1-247-877-00	CARBON	82K	5%	1/6W	
R186	1-247-823-00	CARBON	470	5%	1/6W	
R187	1-247-865-00	CARBON	27K	5%	1/6W	
R188	1-247-867-00	CARBON	33K	5%	1/6W	
R189	1-247-875-00	CARBON	68K	5%	1/6W	
R192	1-247-891-00	CARBON	330K	5%	1/6W	
R193	1-247-845-00	CARBON	3.9K	5%	1/6W	
R194	1-247-859-00	CARBON	15K	5%	1/6W	
R195	1-247-839-00	CARBON	2.2K	5%	1/6W	
R196	1-247-865-00	CARBON	27K	5%	1/6W	
R197	1-247-827-00	CARBON	680	5%	1/6W	
R199	1-247-831-00	CARBON	1K	5%	1/6W	
R200	1-247-879-00	CARBON	100K	5%	1/6W	
R210	1-247-815-00	CARBON	220	5%	1/6W	
R211	1-247-815-00	CARBON	220	5%	1/6W	
R212	1-247-845-00	CARBON	3.9K	5%	1/6W	
R218	1-247-855-00	CARBON	10K	5%	1/6W	
R219	1-247-849-00	CARBON	5.6K	5%	1/6W	
R220	1-247-867-00	CARBON	33K	5%	1/6W	
R221	1-247-869-00	CARBON	39K	5%	1/6W	
R222	1-247-875-00	CARBON	68K	5%	1/6W	
R224	1-247-891-00	CARBON	330K	5%	1/6W	
R227	1-247-839-00	CARBON	2.2K	5%	1/6W	
R230	1-247-847-00	CARBON	4.7K	5%	1/6W	
R231	1-247-873-00	CARBON	56K	5%	1/6W	
R239	1-247-877-00	CARBON	82K	5%	1/6W	
R240	1-247-838-00	CARBON	2K	5%	1/6W	
R241	1-247-863-00	CARBON	22K	5%	1/6W	
R242	1-247-854-00	CARBON	9.1K	5%	1/6W	
R243	1-247-857-00	CARBON	12K	5%	1/6W	
R244	1-247-843-00	CARBON	3.3K	5%	1/6W	
R245	1-247-849-00	CARBON	5.6K	5%	1/6W	
R246	1-247-855-00	CARBON	10K	5%	1/6W	
R247	1-247-859-00	CARBON	15K	5%	1/6W	
R248	1-247-839-00	CARBON	2.2K	5%	1/6W	
R249	1-247-871-00	CARBON	47K	5%	1/6W	
R250	1-247-885-00	CARBON	180K	5%	1/6W	
R251	1-247-849-00	CARBON	5.6K	5%	1/6W	
R252	1-247-853-00	CARBON	8.2K	5%	1/6W	
R253	1-247-843-00	CARBON	3.3K	5%	1/6W	
R254	1-247-855-00	CARBON	10K	5%	1/6W	
R255	1-247-831-00	CARBON	1K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R256	1-247-853-00	CARBON	8.2K	5%	1/6W	
R258	1-247-839-00	CARBON	2.2K	5%	1/6W	
R259	1-247-853-00	CARBON	8.2K	5%	1/6W	
R273	1-246-545-00	CARBON	1M	5%	1/4W	
R275	1-247-855-00	CARBON	10K	5%	1/6W	
R276	1-247-859-00	CARBON	15K	5%	1/6W	
R277	1-247-829-00	CARBON	820	5%	1/6W	
R278	1-247-840-00	CARBON	2.4K	5%	1/6W	
R279	1-246-509-00	CARBON	33K	5%	1/4W	
R280	1-247-871-00	CARBON	47K	5%	1/6W	
R281	1-247-859-00	CARBON	15K	5%	1/6W	
R282	1-247-839-00	CARBON	2.2K	5%	1/8W	F
R283	1-247-847-00	CARBON	4.7K	5%	1/6W	
R284	1-247-853-00	CARBON	8.2K	5%	1/6W	
R285	1-247-843-00	CARBON	3.3K	5%	1/6W	
R286	1-247-843-00	CARBON	3.3K	5%	1/6W	
R287	1-247-903-00	CARBON	1M	5%	1/6W	
R288	1-247-879-00	CARBON	100K	5%	1/6W	
R291	1-247-855-00	CARBON	10K	5%	1/6W	
R292	1-246-401-00	CARBON	1	5%	1/4W	
R293	1-247-841-00	CARBON	2.7K	5%	1/6W	
R294	1-247-807-00	CARBON	100	5%	1/6W	
R295	1-247-847-00	CARBON	4.7K	5%	1/6W	
R297	1-247-871-00	CARBON	47K	5%	1/6W	
R298	1-247-871-00	CARBON	47K	5%	1/6W	
R299	1-247-823-00	CARBON	470	5%	1/6W	
R301	1-247-658-00	CARBON	47	5%	1/4W	F
R302	1-247-871-00	CARBON	47K	5%	1/6W	
R306	1-247-883-00	CARBON	150K	5%	1/6W	
R307	1-247-819-00	CARBON	330	5%	1/6W	
R308	1-247-865-00	CARBON	27K	5%	1/6W	
R309	1-247-815-00	CARBON	220	5%	1/6W	
R310	1-247-843-00	CARBON	3.3K	5%	1/6W	
R311	1-247-872-00	CARBON	51K	5%	1/6W	
R315	1-247-835-00	CARBON	1.5K	5%	1/6W	
R316	1-247-835-00	CARBON	1.5K	5%	1/6W	
R319	1-247-823-00	CARBON	470	5%	1/6W	
R322	1-247-851-00	CARBON	6.8K	5%	1/6W	
R326	1-247-845-00	CARBON	3.9K	5%	1/6W	
R327	1-247-783-00	CARBON	10	5%	1/8W	F
R328	1-247-838-00	CARBON	2K	5%	1/6W	
R329	1-247-845-00	CARBON	3.9K	5%	1/6W	
R330	1-247-831-00	CARBON	1K	5%	1/6W	
R331	1-247-863-00	CARBON	22K	5%	1/6W	
R335	1-247-871-00	CARBON	47K	5%	1/6W	
R336	1-247-863-00	CARBON	22K	5%	1/6W	
R337	1-247-875-00	CARBON	68K	5%	1/6W	
R338	1-247-855-00	CARBON	10K	5%	1/6W	
R339	1-247-839-00	CARBON	2.2K	5%	1/6W	
R340	1-247-815-00	CARBON	220	5%	1/6W	
R341	1-247-855-00	CARBON	10K	5%	1/6W	
R342	1-247-841-00	CARBON	2.7K	5%	1/6W	
R343	1-247-831-00	CARBON	1K	5%	1/6W	

Ref.No	Part No.	Description				Remark
R344	1-247-831-00	CARBON	1K	5%	1/6W	
R345	1-247-841-00	CARBON	2.7K	5%	1/6W	
R346	1-247-841-00	CARBON	2.7K	5%	1/6W	
R347	1-247-845-00	CARBON	3.9K	5%	1/6W	
R348	1-247-857-00	CARBON	12K	5%	1/6W	
R349	1-247-855-00	CARBON	10K	5%	1/6W	

VARIABLE RESISTOR

RV101	1-228-718-00	RES, ADJ, CERAMIC CARBON	330
RV103	1-228-722-00	RES, ADJ, CERAMIC CARBON	3.3K
RV104	1-228-725-00	RES, ADJ, CERAMIC CARBON	22K
RV106	1-228-722-00	RES, ADJ, CERAMIC CARBON	3.3K
RV107	1-228-724-00	RES, ADJ, CERAMIC CARBON	10K
RV108	1-228-723-00	RES, ADJ, CERAMIC CARBON	4.7K
RV109	1-228-723-00	RES, ADJ, CERAMIC CARBON	4.7K
RV111	1-228-727-00	RES, ADJ, CERAMIC CARBON	47K

SWITCH

S1	1-553-725-00	SWITCH, SLIDE
S2	1-553-725-00	SWITCH, SLIDE
S3	1-553-725-00	SWITCH, SLIDE

TRANSFORMER

T101	1-408-513-00	COIL (VARIABLE)
T102	1-409-193-00	COIL 3.58MHZ TRAP

THERMISTOR

TH101	1-800-070-XX	THERMISTOR TH-4700
TH201	1-800-626-00	THERMISTOR

CRYSTAL

X101	1-527-396-00	CRYSTAL, OSC

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⚠ 1-413-179-11 SWITCHING REGULATOR (TK-09)
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♣	1-611-903-11	TK-09GB BOARD
	2-430-308-01	INSULATOR (TK-03), TR
♣	2-430-742-00	BRACKET-RIGHT (SR-12), L
♣	2-430-743-00	BRACKET-LEFT (SR-12)
	2-430-773-01	+PSW 3X6
♣	2-430-947-00	PLATE, GROUND
	2-434-060-01	+PSW 3X18
	3-671-893-00	CLAMP (LOW TYPE)
♣	4-310-385-00	HOLDER, WIRE
♣	4-323-833-00	HEAT SINK, PIN OUT

CAPACITOR

C601	⚠ 1-130-806-21	FILM	0.10MF	10%	400V	
C602	⚠ 1-161-742-12	CERAMIC	2200PF	20%	400V	F
C603	⚠ 1-161-742-12	CERAMIC	2200PF	20%	400V	F
C604	⚠ 1-161-742-12	CERAMIC	2200PF	20%	400V	F

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description			Remark
C605	⚠.1-125-268-11	ELECT			
C606	⚠.1-124-023-51	ELECT	4.7MF		350V
C607	⚠.1-124-023-41	ELECT	4.7MF		350V
C610	⚠.1-161-963-11	CERAMIC	100PF	20%	2V
C611	⚠.1-161-912-11	CERAMIC	560PF	10%	500V
C612	⚠.1-161-912-11	CERAMIC	560PF	10%	500V
C613	⚠.1-161-912-11	CERAMIC	560PF	10%	500V
C614	⚠.1-161-912-11	CERAMIC	560PF	10%	500V
C615	⚠.1-161-989-11	CERAMIC	2200PF	10%	500V
C616	⚠.1-130-516-51	FILM	0.01MF	10%	50V
C617	⚠.1-130-520-51	FILM	0.022MF	10%	50V
C618	⚠.1-123-357-51	ELECT	22MF	20%	50V
C619	⚠.1-130-528-51	FILM	0.1MF	10%	50V
C620	⚠.1-123-575-51	ELECT	100MF		160V
C621	⚠.1-123-349-51	ELECT	1000MF	20%	35V
C622	⚠.1-123-324-51	ELECT	1000MF	20%	16V
C623	⚠.1-123-575-51	ELECT	100MF		160V
C624	⚠.1-123-333-51	ELECT	100MF	20%	25V
C625	⚠.1-123-333-51	ELECT	100MF	20%	25V
C651	⚠.1-130-528-51	FILM	0.1MF	10%	50V
C652	⚠.1-130-528-51	FILM	0.1MF	10%	50V
C653	⚠.1-124-265-11	ELECT	33MF		50V
C654	⚠.1-130-027-51	FILM	0.0056MF	5%	50V
C655	⚠.1-130-512-51	FILM	0.0047MF	10%	50V
C656	⚠.1-130-528-51	FILM	0.1MF	10%	50V
C657	⚠.1-123-330-51	ELECT	22MF	20%	25V

CONNECTOR

CN651	♦:1-564-164-11	PIN, CONNECTOR 7P

DIODE

D601	⚠.8-719-300-53	DIODE CTU-38S
D602	⚠.8-719-300-52	DIODE CTU-38R
D603	⚠.8-719-903-02	DIODE ESAC33-02C
D604	⚠.8-719-903-02	DIODE ESAC33-02C
D605	⚠.8-719-900-93	DIODE V09E
D606	⚠.8-719-911-19	DIODE 1SS119
D607	⚠.8-719-100-61	DIODE RD11E-B2
D608	⚠.8-719-100-34	DIODE RD5.6E-B1
D609	⚠.8-719-100-29	DIODE RD5.1E-B1
D610	⚠.8-719-100-29	DIODE RD5.1E-B1
D611	⚠.8-719-200-02	DIODE 10E2
D612	⚠.8-719-100-34	DIODE RD5.6E-B1
D613	⚠.8-719-100-34	DIODE RD5.6E-B1
D651	⚠.8-719-911-19	DIODE 1SS119
D652	⚠.8-719-911-19	DIODE 1SS119
D653	⚠.8-719-911-19	DIODE 1SS119
D654	⚠.8-719-100-34	DIODE RD5.6E-B1

IC

IC651	⚠.8-759-906-22	IC MB3759PF

Ref.No	Part No.	Description	Remark

COIL

L601	⚠.1-421-606-11	TRANSFORMER, LINE FILTER
L602	⚠.1-410-052-11	COIL, CHOKE (MAIN)
L603	⚠.1-410-053-11	COIL, CHOKE
L604	⚠.1-408-933-11	COIL, CHOKE
L605	⚠.1-408-933-11	COIL, CHOKE
L606	⚠.1-408-933-11	COIL, CHOKE

TRANSISTOR

Q601	⚠.8-729-300-95	TRANSISTOR STR8124
Q602	⚠.8-729-102-03	TRANSISTOR 2SD1020
Q603	⚠.8-729-102-03	TRANSISTOR 2SD1020
Q604	⚠.8-729-178-54	TRANSISTOR 2SC2785
Q605	.8-729-177-43	TRANSISTOR 2SD774
Q651	⚠.8-729-117-54	TRANSISTOR 2SA1175
Q652	⚠.8-729-178-54	TRANSISTOR 2SC2785

RESISTOR

R601	⚠.1-244-921-11	CARBON	100K	5%	1/2W
R602	⚠.1-246-497-25	CARBON	10K	5%	1/4W
R603	⚠.1-212-946-51	FUSE	3.3	5%	1/2W
R604	⚠.1-246-449-25	CARBON	100	5%	1/4W
R605	⚠.1-244-921-11	CARBON	100K	5%	1/2W
R606	⚠.1-246-497-25	CARBON	10K	5%	1/4W
R607	⚠.1-212-946-51	FUSE	3.3	5%	1/2W
R608	⚠.1-246-449-25	CARBON	100	5%	1/4W
R609	⚠.1-244-873-11	CARBON	1K	5%	1/2W
R610	⚠.1-246-461-25	CARBON	330	5%	1/4W
R611	⚠.1-246-521-25	CARBON	100K	5%	1/4W
R612	⚠.1-246-497-25	CARBON	10K	5%	1/4W
R613	⚠.1-246-482-25	CARBON	2.4K	5%	1/4W
R615	⚠.1-213-151-61	METAL	4.7K	5%	1W
R616	⚠.1-246-453-25	CARBON	150	5%	1/4W
R617	⚠.1-246-417-25	CARBON	4.7	5%	1/4W
R618	⚠.1-217-465-21	FUSE	0.47	10%	1W
R619	⚠.1-217-465-21	FUSE	0.47	10%	1W
R620	⚠.1-246-418-25	CARBON	5.1	5%	1/4W
R651	⚠.1-247-855-41	CARBON	10K	5%	1/6W
R652	⚠.1-247-845-41	CARBON	3.9K	5%	1/6W
R653	⚠.1-247-862-41	CARBON	20K	5%	1/6W
R654	⚠.1-247-864-41	CARBON	24K	5%	1/6W
R655	⚠.1-247-836-41	CARBON	1.6K	5%	1/6W
R656	⚠.1-247-879-41	CARBON	100K	5%	1/6W
R657	⚠.1-247-835-41	CARBON	1.5K	5%	1/6W
R658	⚠.1-247-881-41	CARBON	120K	5%	1/6W
R659	⚠.1-247-854-41	CARBON	9.1K	5%	1/6W
R660	⚠.1-214-777-51	METAL	100K	1%	1/4W
R661	⚠.1-214-744-51	METAL	4.3K	1%	1/4W
R662	⚠.1-247-861-41	CARBON	18K	5%	1/6W
R663	⚠.1-247-852-41	CARBON	7.5K	5%	1/6W
R664	⚠.1-247-846-41	CARBON	4.3K	5%	1/6W
R665	⚠.1-247-849-41	CARBON	5.6K	5%	1/6W

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Ref.No	Part No.	Description			Remark
R666	⚠1-247-831-41	CARBON	1.0K 5%	1/6W	
R667	⚠1-247-837-41	CARBON	1.8K 5%	1/6W	
		VARIABLE RESISTOR			
RV651	⚠1-228-141-11	RES, VAR 500			
		TRANSFORMER			
T601	⚠1-447-764-11	TRANSFORMER, CONVERTER			
T602	⚠1-437-102-12	TRANSFORMER, DRIVE			
T603	⚠1-421-460-11	TRANSFORMER, CURRENT			

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♦	A-1306-304-A	M BOARD, COMPLETE (PVM-1911 ONLY) **********			
♦	4-363-146-00	HEAT SINK, V.OUT			
		CAPACITOR			
C1	1-161-051-00	CERAMIC	0.01MF	10%	50V
C2	1-123-356-00	ELECT	10MF	20%	16V
C3	1-123-669-51	ELECT	33MF	20%	16V
C4	1-161-053-00	CERAMIC	0.015MF	10%	50V
C5	1-161-053-00	CERAMIC	0.015MF	10%	50V
C6	1-161-053-00	CERAMIC	0.015MF	10%	50V
C7	1-161-053-00	CERAMIC	0.015MF	10%	50V
C8	1-161-053-00	CERAMIC	0.015MF	10%	50V
C9	1-161-053-00	CERAMIC	0.015MF	10%	50V
C10	1-161-053-00	CERAMIC	0.015MF	10%	50V
C11	1-161-053-00	CERAMIC	0.015MF	10%	50V
C12	1-161-053-00	CERAMIC	0.015MF	10%	50V
C13	1-161-053-00	CERAMIC	0.015MF	10%	50V
C14	1-161-053-00	CERAMIC	0.015MF	10%	50V
C15	1-161-053-00	CERAMIC	0.015MF	10%	50V
C16	1-161-053-00	CERAMIC	0.015MF	10%	50V
C17	1-161-053-00	CERAMIC	0.015MF	10%	50V
C18	1-161-053-00	CERAMIC	0.015MF	10%	50V
C19	1-161-053-00	CERAMIC	0.015MF	10%	50V
C20	1-161-053-00	CERAMIC	0.015MF	10%	50V
C21	1-161-053-00	CERAMIC	0.015MF	10%	50V
C22	1-161-053-00	CERAMIC	0.015MF	10%	50V
C23	1-161-053-00	CERAMIC	0.015MF	10%	50V
C24	1-161-053-00	CERAMIC	0.015MF	10%	50V
C25	1-161-053-00	CERAMIC	0.015MF	10%	50V
C26	1-161-053-00	CERAMIC	0.015MF	10%	50V
C27	1-161-053-00	CERAMIC	0.015MF	10%	50V
C28	1-123-322-00	ELECT	330MF	20%	16V
C29	1-123-322-00	ELECT	330MF	20%	16V
C30	1-123-321-00	ELECT	220MF	20%	16V
C31	1-102-820-00	CERAMIC	330PF	5%	50V
C34	1-123-356-00	ELECT	10MF	20%	16V
C37	1-161-025-00	CERAMIC	0.1MF		12V
C38	1-161-025-00	CERAMIC	0.1MF		12V
C39	1-161-025-00	CERAMIC	0.1MF		12V
C40	1-161-025-00	CERAMIC	0.1MF		12V
C41	1-161-025-00	CERAMIC	0.1MF		12V
C42	1-161-025-00	CERAMIC	0.1MF		12V
C43	1-161-025-00	CERAMIC	0.1MF		12V
C44	1-161-025-00	CERAMIC	0.1MF		12V
C45	1-161-025-00	CERAMIC	0.1MF		12V
C46	1-161-025-00	CERAMIC	0.1MF		12V
C47	1-102-820-00	CERAMIC	330PF	5%	50V
C48	1-161-025-00	CERAMIC	0.1MF		12V
C49	1-161-051-00	CERAMIC	0.01MF	10%	50V
C52	1-161-051-00	CERAMIC	0.01MF	10%	50V
C050	1-102-957-00	CERAMIC	18PF	10%	50V
C051	1-102-957-00	CERAMIC	18PF	10%	50V
		CONNECTOR			
CN1	♦1-560-295-00	PIN, CONNECTOR 7P			
CN2	♦1-564-467-11	CONNECTOR (FLAT CABLE) 26P			
CN3	♦1-564-466-11	CONNECTOR (FLAT CABLE) 34P			
CN4	♦1-560-290-00	PLUG, CONNECTOR (2.5MM PITCH)			
CN5	♦1-560-295-00	PIN, CONNECTOR 7P			
		DIODE			
D3	8-719-920-04	DIODE ERB12-02RK			
D6	8-719-911-19	DIODE 1SS119			
		FUSE			
F1	⚠1-532-580-11	FUSE, GLASS TUBE			
	♦1-533-146-00	HOLDER, FUSE, F1			
		IC			
IC1	8-759-900-04	IC SN74LS04N			
IC2	8-759-901-23	IC SN74LS123N			
IC3	8-759-951-88	IC SN75188N			
IC4	8-759-900-86	IC SN74LS86N			
IC5	8-759-951-89	IC SN75189AN			
IC6	8-759-220-04	IC TC40H004P			
IC7	8-759-200-05	IC TC40H008P			
IC8	8-759-220-32	IC TC40H032P			
IC9	8-759-640-80	IC CX564-080			
IC10	8-759-220-04	IC TC40H004P			
IC11	8-759-220-04	IC TC40H004P			
IC12	8-759-220-04	IC TC40H004P			
IC13	8-759-220-04	IC TC40H004P			
IC14	8-759-371-54	IC HD74LS154P			
IC15	8-759-371-54	IC HD74LS154P			
IC16	8-759-904-97	IC TL497ACN			
IC17	8-759-904-97	IC TL497ACN			
IC18	8-759-170-05	IC UPC78M05H			
		COIL			
L1	1-408-423-00	MICRO INDUCTOR 150UH			
L2	1-408-428-00	MICRO INDUCTOR 390UH			

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

PVM-1910/1911

SONY®
SERVICE MANUAL

US Model
Canadian Model

PVM-1910
Chassis No. SCC-554A-A

PVM-1911
Chassis No. SCC-556A-A

SUPPLEMENT -1

File this supplement-1 with the service manual.

SUBJECT: ADDITION OF INSTRUCTIONS.

This supplement adds the instruction of PVM-1911.

SPECIFICATIONS

Number of switches	768 [32 (horizontal) × 24 (vertical)]
Pressure requirement	20 g to 180 g
Controller LSI	CX-564-080 (ROM 4 Kbyte)
Communication protocol	Baud rate: 1200 bauds to 4800 bauds Character length: 8 bits Stop bits: any bits Parity check: no
Dimensions of screen	352 × 264 mm (w/h) (13⅞ × 10½ inches)

Design and specifications subject to change without notice.

MICROFILM

MON

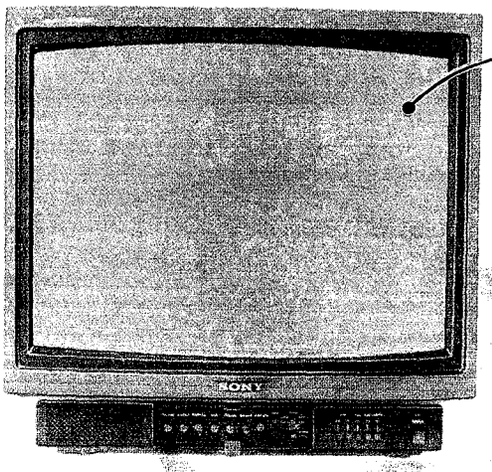
English

The touch screen is used to obtain a screen address by placing your finger at the desired position on the display screen. It provides a variety of interactive uses of a computer.

TABLE OF CONTENTS

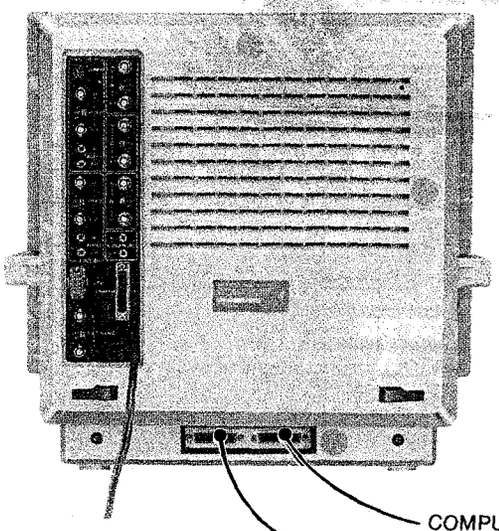
PARTS IDENTIFICATION

Front panel



Touch screen
To obtain a screen address, place your finger at the desired position on the displayed screen.

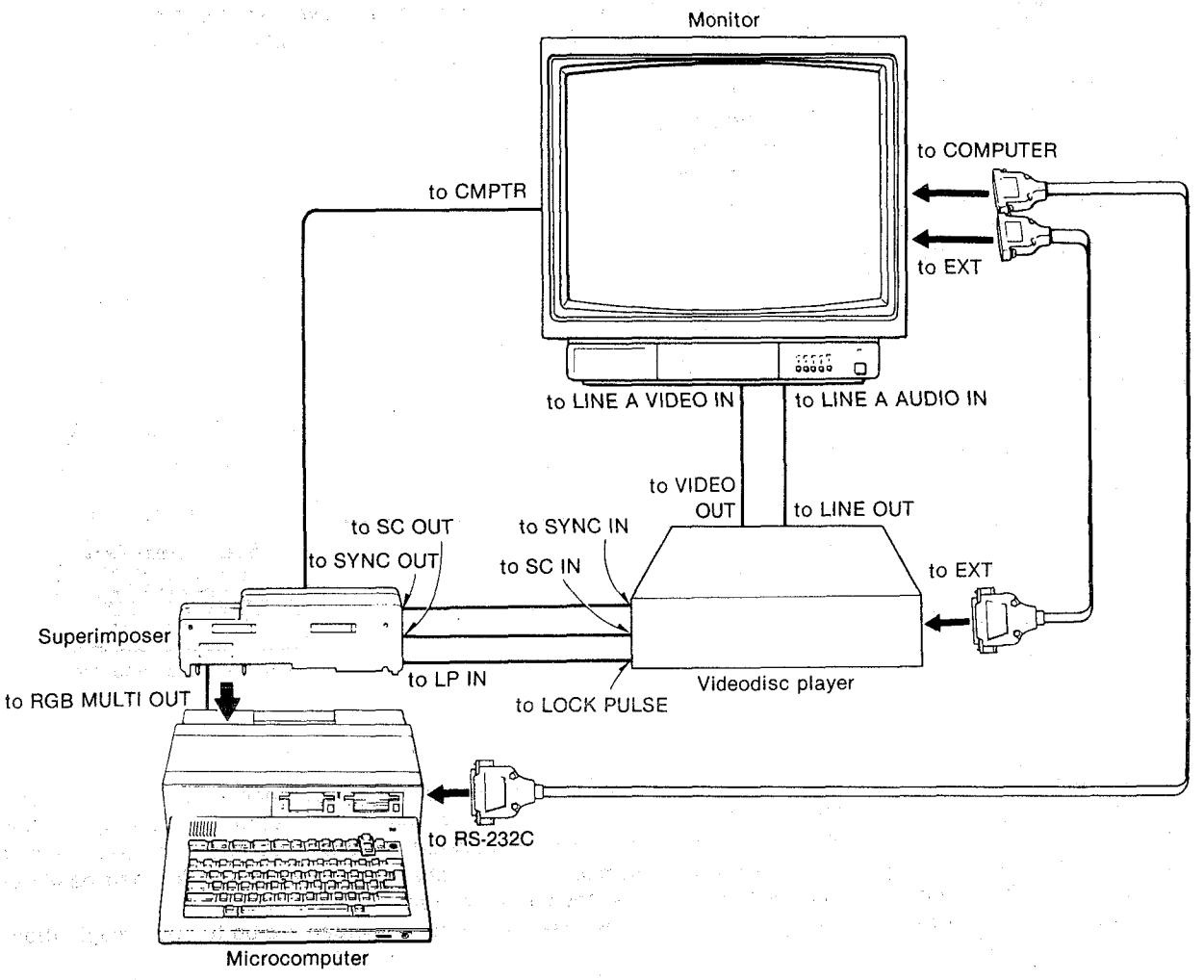
Rear panel



COMPUTER connector (RS-232C)
EXT connector (RS-232C)

For signal arrangement, see "Pin assignment" on page 9.

SYSTEM CONNECTION



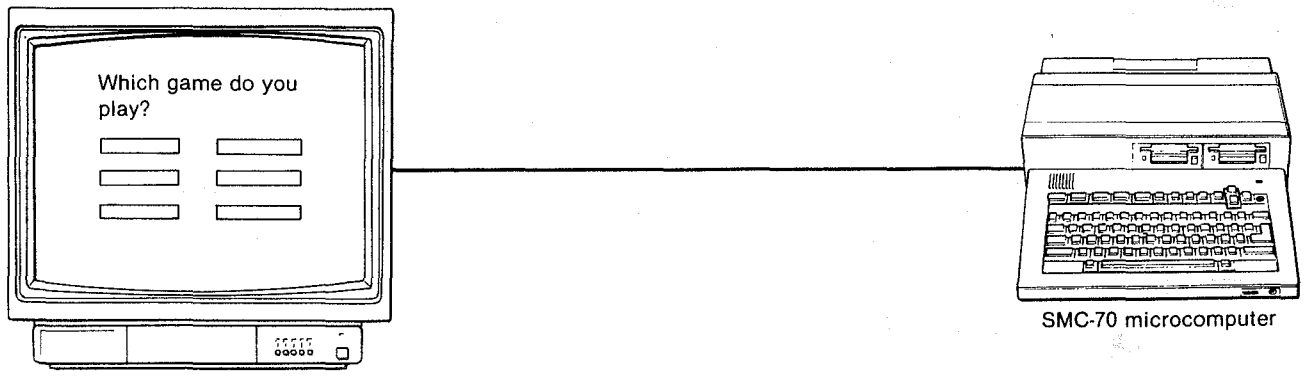
Notes

- The SMC-70/70G has an internal switch to select the direction of signal flow. When connecting the monitor to the SMC-70/70G, the switch should be set to TO TRMNL. Use the SMK-0031 RS-232C interface cable to connect the monitor to the SMC-70/70G.
- When a superimposer is used, connect a videodisc player to the **LINE A** VIDEO IN connector and the **LINE A** AUDIO IN jack of the monitor.
- For details on connecting a superimposer and a microcomputer, please refer to each manual.

USAGE EXAMPLES

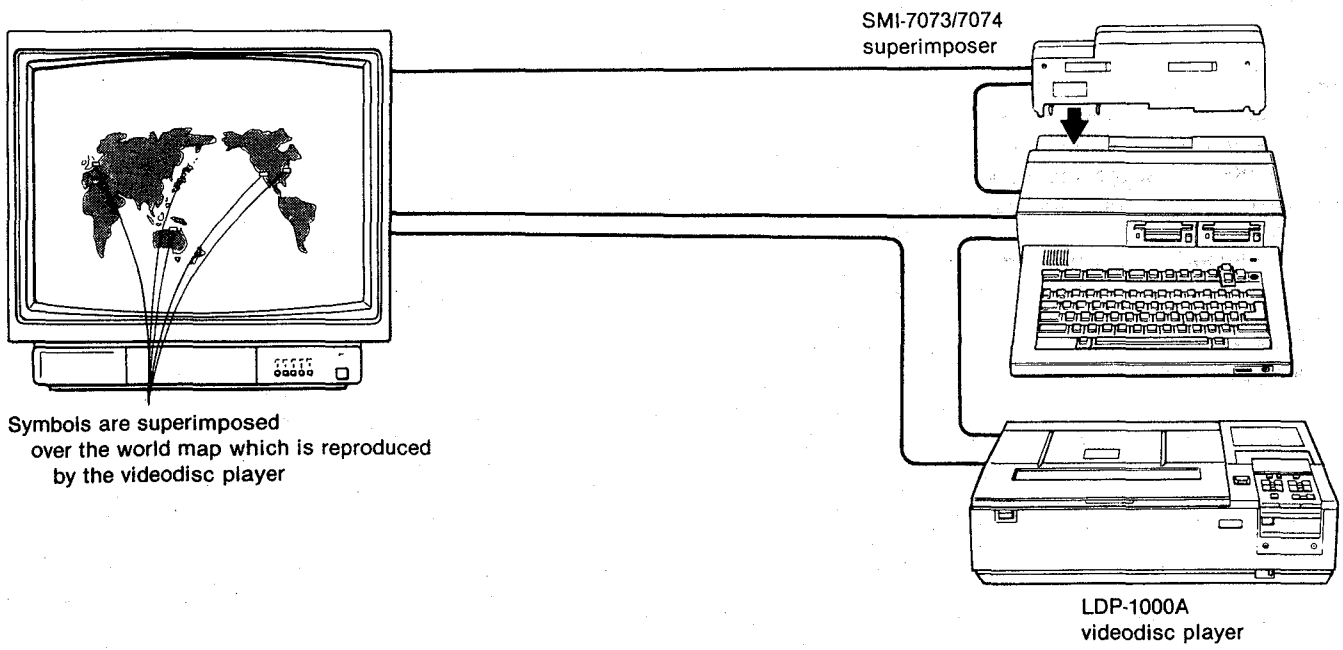
The touch screen is used to make selections by simply placing your finger on an item displayed on the screen. A variety of uses is possible in combination with a computer and other equipment such as a videodisc player.

The touch screen, which is controlled by the host computer through the RS-232C interface, can be used in a variety of ways. For example, you would like to play one of your computer games. First, execute the program that will display the names of the games available on the screen. Then, simply touch the name of the game you want to play and will be set up. You do not need to use the computer keyboard to order up the game.



SMC-70 microcomputer

Another use of the touch screen would be in conjunction with Sony's LDP-1000A videodisc player and the SMI-7073/7074 superimposer. The three units are controlled by a host computer such as the SMC-70 micro computer. Suppose you would like to check the weather in cities around the world. First, have the computer command the videodisc player to display a world map. Then superimpose some symbols over the cities. Next execute on the computer the program that will give you the weather data of the city when you touch its symbol. You can check the weather quickly and easily by just touching the screen.
Other uses of the touch screen are up to your imagination.



Symbols are superimposed over the world map which is reproduced by the videodisc player

LDP-1000A
videodisc player

THE PRINCIPLE OF OPERATION

The touch screen is composed of 32 (horizontal)×24 (vertical) matrix of electronic switches. These switches are vertically scanned beginning from the upper left corner. The controller built in the monitor checks whether a switch is pressed, and stores up to eight pairs of coordinate data (X, Y) of the switch pressed in its internal buffer, irrespective of whether the host computer reads the data or not.
The host computer can obtain a screen address by reading the data stored in the controller through the RS-232C interface: Before reading each coordinate value, X and Y, output a pair of 55H and FFH data, which functions as the command to read data. The first data transferred from the controller is the Y data, and second one is the X. Coordinate data are represented in binary numbers.

HOW TO CONTROL

All of the connected units are controlled by the host computer. For control of units other than the touch screen, please refer to your computer manual.

PROTOCOL

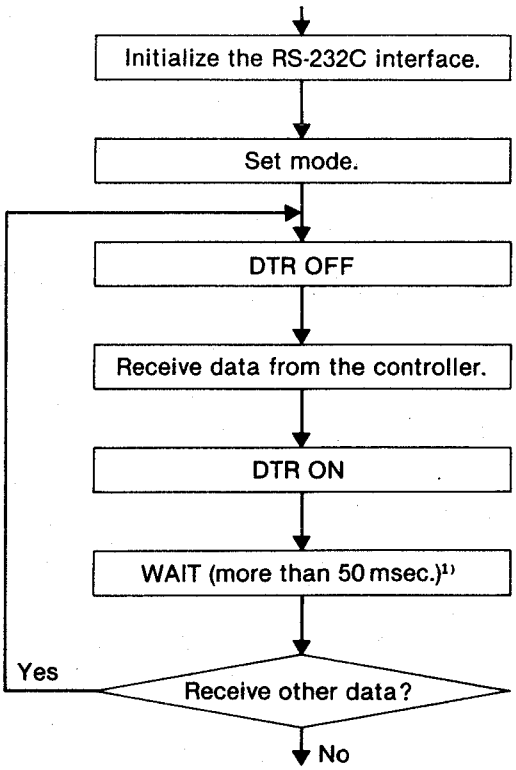
When you use the touch screen, set the protocol of the communication interface of the host computer as follows.

Number of stop bits	Any bits
Parity check	No parity
Character length	8 bits
Baud rate	1200 bauds to 4800 bauds
Operating mode	Asynchronous mode

For details on initializing the RS-232C port, refer to your computer manual.

FLOW CHART

Communication between the controller and the host computer should proceed after initializing the RS-232C interface and displaying the necessary pattern for data input. The flow chart of data communication is shown below.



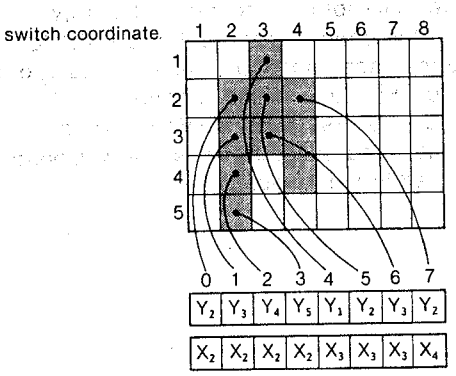
1) It takes about 30 msec to scan the entire screen once. To receive other data, more than 50 msec interval is necessary so that the controller becomes ready for sending data.

MODE SETTING

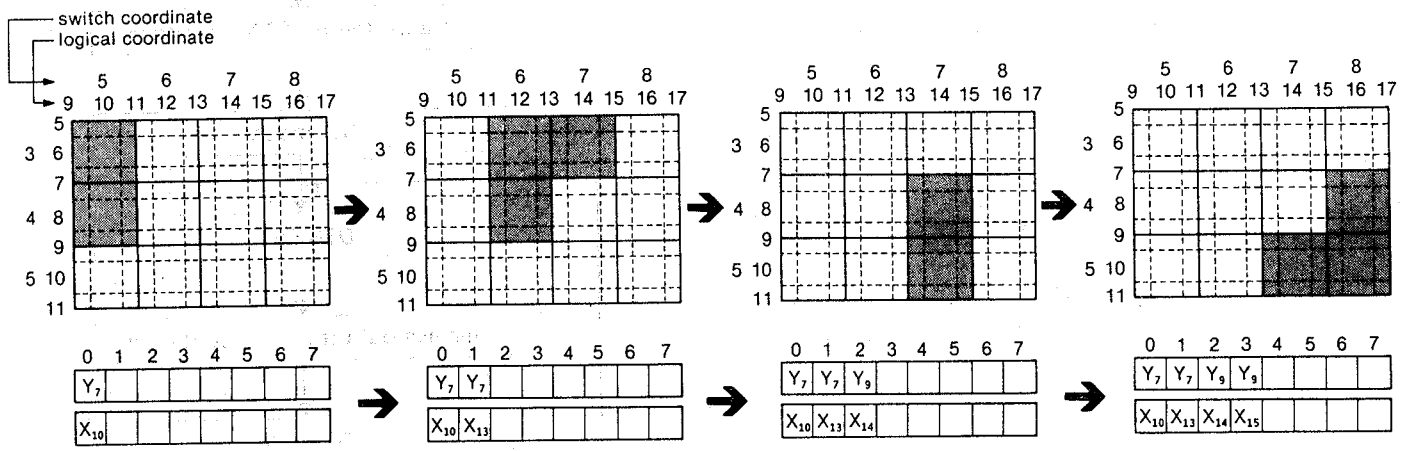
There are two modes of operation: mode 0 and mode 1. They are selected by the host computer. Use mode 0 to obtain the coordinates of a particular position and mode 1 to obtain the coordinates of a series of positions.

Mode 0: The coordinates of the switch pressed on the screen are stored directly in the buffer. When several switches are pressed simultaneously, up to eight pairs of coordinates (up to three rows of switches vertically) can be stored in the buffer. The data of these coordinates will be updated each time the screen is scanned.

For example, when you put your finger tip on the shaded area in the right illustration, eight pairs of coordinates shown are stored in the buffer.



Mode 1 (double precision mode): One pair of coordinate data is stored at each scan. In this mode, the coordinate data is doubled logically and stored in the buffer as if there are 64×48 switches. When several switches are pressed simultaneously, the average value is stored. Up to eight pairs of coordinates data will be held in the buffer, if different positions are pressed in sequence. When the buffer storage is filled, additional new positions pressed will cause the new coordinates to be written over the previous coordinate data in the buffer, in sequence starting with the first pair.

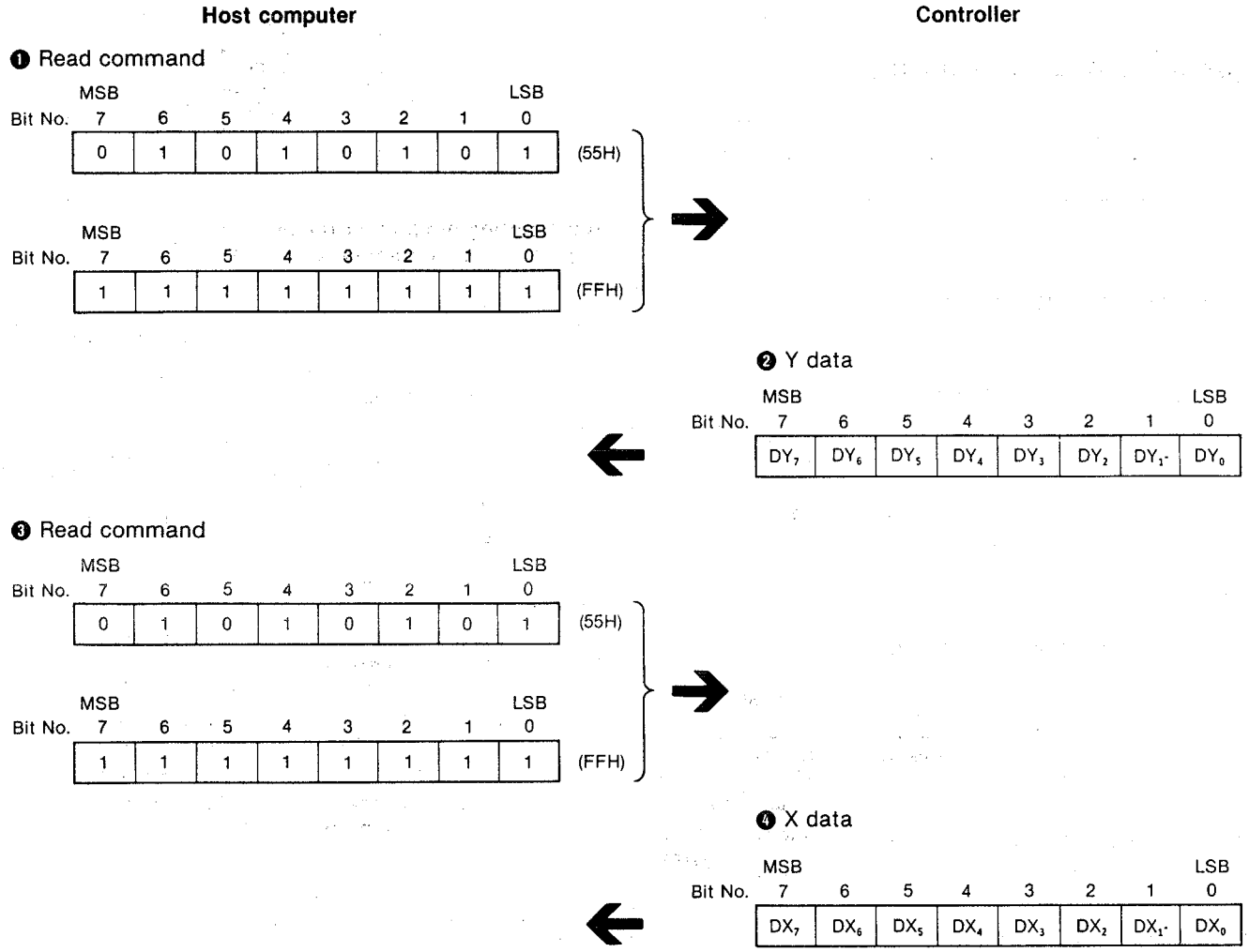


(The arrow signifies passage of time.)

How to set the mode: To set to mode 0 of the touch screen, output a pair of 55H and FFH data repeatedly twenty times without reading the coordinate data, and twenty-two times for mode 1.

RECEIVING DATA

Following chart shows the data flow and its bit assignment.



Note
If no switch is pressed in writing read command, the buffer is filled with FFH instead of the coordinate (X, Y) data.

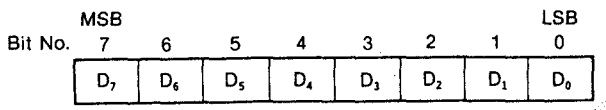
RESET

If the controller is turned off and then turned on again, it is automatically reset to the initial state: the operating mode is set to mode 0 and the data in the buffer are all cleared. Once the controller is reset, it must be initialized before reading the data. The controller is reset by short power interruptions, which do not reset the host computer. In order to show that this has happened, the framing error flag is effective. (In the SMC-70, this flag is assigned to bit 5 of the status data read through the RS-232C port.) When this flag is set, be sure to initialize the RS-232C interface of the controller. If necessary, reset the controller to the previous mode.

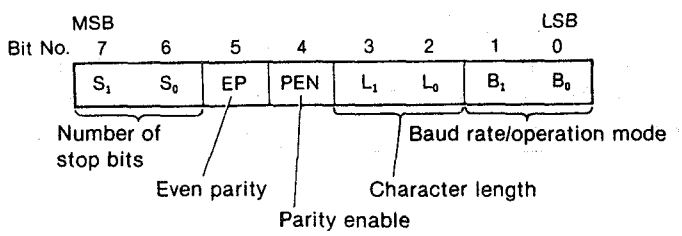
PROGRAM EXAMPLES

In the following program examples, the SMC-70 is used as the host computer. In the SMC-70 the RS-232C interface is controlled by the 8251A which is assigned to ports 26H and 27H. For details on the RS-232C interface control, please refer to "the SMC-70 Hardware: Reference Manual" (SML-7004).

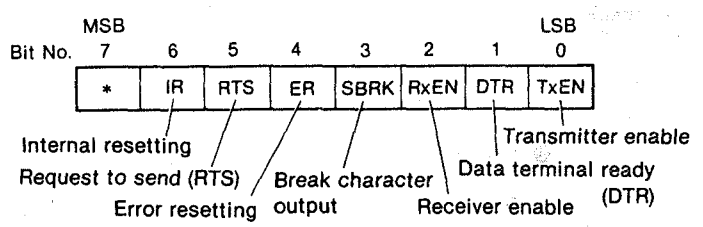
Transmitted/received data: Port 26H



Mode setting: Port 27H (Writing)

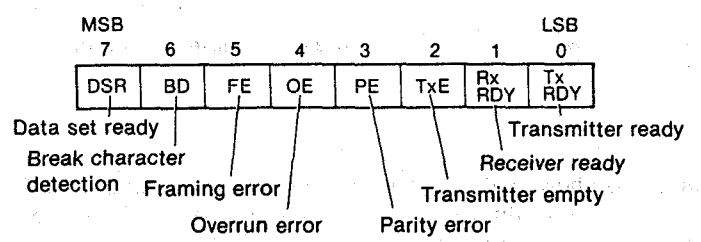


Control instruction: Port 27H (Writing)



(Normally, the data value is 37H = 00110111H.)

Status data: Port 27H (Reading)



Initialization program example

```
        LD      A,8FH
        OUT     (27H),A
        LD      A,8FH
        OUT     (27H),A
        LD      A,40H
        OUT     (27H),A
        LD      A,4EH
        OUT     (27H),A
        LD      A,37H
        OUT     (27H),A
```

Mode setting program example

The following program sets mode 0.

```
PANELDELAY:
        LD      E,20            ; set counter
;
        LD      A,35H           ; DTR OFF
        OUT     (27H),A
LOOP:
        LD      A,55H
        OUT     (26H),A         ; send 55H
WAIT1:
        IN      A,(27H)
        BIT     0,A             ; TxREADY ?
        JR      Z,WAIT1
        LD      A,0FFH
        OUT     (26H),A         ; send 0FFH
WAIT2:
        IN      A,(27H)
        BIT     2,A             ; TxEMPTY ?
        JR      Z,WAIT2
        IN      A,(26H)         ; get data
;
        DEC     E               ; decliment counter
        JR      NZ,LOOP         ; if counter is not 0
;                                 then goto LOOP.
        LD      A,37H           ; DTR ON
        OUT     (27H),A
```

Data receiving program example

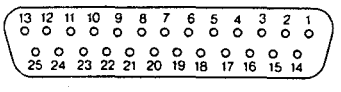
In this program, X data is to be stored in the address which DE register indicates, and Y data in the address HL register does.

```
        LD      B,8             ; set read counter
        LD      A,35H           ; DTR OFF
        OUT     (27H),A
LOOP:
        LD      A,55H
        OUT     (26H),A         ; send 55H
WAIT_Y:
        IN      A,(27H)
        BIT     0,A             ; TxREADY ?
        JR      Z,WAIT_Y
        LD      A,0FFH
        OUT     (26H),A         ; send 0FFH
READ_Y:
        IN      A,(27H)
        BIT     2,A             ; TxEMPTY ?
        JR      Z,READY
        IN      A,(26H)         ; read Y position
        LD      (HL),A          ; set data
:
        LD      A,55H
        OUT     (26H),A         ; send 55H
WAIT_X:
        IN      A,(27H)
        BIT     0,A             ; TxREADY ?
        JR      Z,WAIT_X
        LD      A,0FFH
        OUT     (26H),A         ; send 0FFH
READ_X:
        IN      A,(27H)
        BIT     2,A             ; TxEMPTY ?
        JR      Z,READ_X
        IN      A,(26H)         ; read X position
        LD      (DE),A          ; set data
:
        LD      A,00H
        INC     HL
        INC     DE
        LD      (HL),A
        LD      (DE),A
        INC     HL              ; pointer up
        INC     DE              ; pointer up
        DJNZ    LOOP            ; if counter is not 0
:                                 then goto LOOP.
        LD      A,37H           ; DTR ON
        OUT     (27H),A
```

PIN ASSIGNMENT

The signal ratings conform to RS-232-C specifications.
(Output level ON: +9V, OFF: −9V)

RS-232C



Top view

Mode / Pin No.	Signal	Signal direction	
		CMPTR	EXT
1	Unused		
2	TxD	PVM-1911→	PVM-1911←
3	RxD	PVM-1911←	PVM-1911→
4	RTS	PVM-1911→	PVM-1911←
5	CTS	PVM-1911←	PVM-1911→
6	DSR	PVM-1911←	PVM-1911→
7	GND		
8—19	Unused		
20	DTR	PVM-1911→	PVM-1911←
21—25	Unused		

PVM-1910/1911

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US Model
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PVM-1910
Chassis No. SCC-554A-A

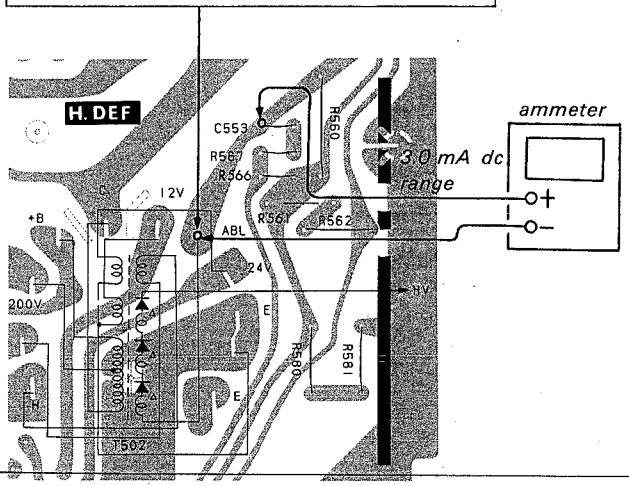
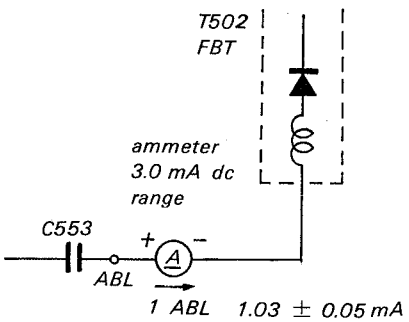
PVM-1911
Chassis No. SCC-556A-A

July, 1984
No. 2

CORRECTION

Correct the CORRECTION NO. 1 as shown below.

☛ :indicates corrected portions

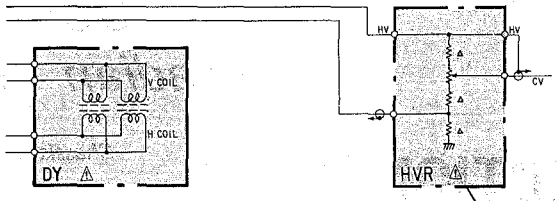
Page	Incorrect	Correct
22	*Hold Down Adjustment (◪R543 Adjustment)* *Be sure to perform this after replacing the parts below (marked ◪ on the schematic).* *D507, D508, D523, IC503, Q511, R540, R541, R542, R543, R544, R545, R590, R591, R592, R593* *Note: The ① pin of D-7 connector is the hold down check point Ⓐ.*	*SAFETY CIRCUIT Adjustment (◪R543 Adjustment)* *Be sure to perform this after replacing the parts below (marked ◪ on the schematic.)* *D507, D508, D523, IC503, Q511, R540, R541, R542, R543, R544, R545, R590, R591, R592, R593, R546, R547* *Note: The ① pin of D-7 connector is the hold down check point Ⓐ.* *Disengage ABL terminal of FBT from the foil and connect the ammeter as shown to measure the ABL terminal current.*
	Disengage the ABL terminal of FBT from the foil by un-soldering and connect negative probe to the ABL PIN of FBT. 	
22	5. *Feed in an all-white signal.* 8. *Adjust R543 so that steps 3, 4, 6 and 7 are satisfied.*	5. *Feed in an all-white signal and adjust ABL current to 1.03 ± 0.05 mA with PICTURE, BRIGHT, etc. VRs.* 8. *Adjust R543 so that steps 3, 4, 6 and 7 are satisfied.* 9. *Set the ABL terminal back to its original position.* 10. *Confirm that the voltage on pin ① of D-7 connector is 12 — 16V DC at the normal condition.*

MICROFILM

MON

Eliminate No. 8 of the O'VER VOLTAGE Protector Adjustment (■R668 Adjustment) contained in CORRECTION No. 1, and add the following sentence.

23



CHECKING AFTER H.V.R. REPLACEMENT

*After replacing H.V.R., *comfirm that there is more than 12.0V — 16.0V on Safety Circuit Check point (A).*

** This check is to be performed when H.V.R. only is replaced, and has no relation to the HV Safety Circuit readjustment for replacement of parts marked ■ .*

CAUTION

When replacing HVR, be sure to check the HOLD DOWN check point voltage value. Refer to the safety related adjustments Section of the Service Manual.

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PVM-1910/1911

SONY®
SERVICE MANUAL

US Model
Canadian Model

PVM-1910
Chassis No. SCC-554A-A

PVM-1911
Chassis No. SCC-556A-A

June, 1984

No. 1

CORRECTION

Correct the service manual as shown below.

☛ :indicates corrected portions

Page	Incorrect	Correct
22	*Hold Down Adjustment (■R543 Adjustment)* *Be sure to perform this after replacing the parts below (marked ◪ on the schematic).* *D507, D508, D523, IC503, Q511, R540, R541, R542, R543, R544, R545, R590, R591, R592, R593* *Note: The ① pin of D-7 connector is the hold down check point Ⓐ.* 1. *Feed in color-bar signal.* 2. *Set the BRIGHT, PICTURE & COLOR control to minimum.* 3. *Confirm that the HV HOLD DOWN CIRCUIT operates and the raster disappears when 18.50V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: When raster disappears, cut input voltage and applied voltage immediately.* 4. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when 17.65V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut input and applied voltage.* 5. *Feed in an all-white signal.* 6. *Confirm that the HV HOLD DOWN CIRCUIT operates and the raster disappears when 17.40V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: When raster disappears, cut input voltage and applied voltage immediately.* 7. *Confirm that the HV HOLD DOWN CIRCUIT does not operate when 16.30V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: If the HV HOLD DOWN CIRCUIT operates, immediately cut input and applied voltage.* 8. *Adjust R543 so that steps 3, 4, 6 and 7 are satisfied.*	☛ *SAFETY CIRCUIT Adjustment (■R543 Adjustment)* *Be sure to perform this after replacing the parts below (marked ◪ on the schematic.)* *D507, D508, D523, IC503, Q511, R540, R541, R542, R543, R544, R545, R590, R591, R592, R593* *Note: The ① pin of D-7 connector is the hold down check point Ⓐ.* 1. *Feed in color-bar signal.* 2. *Set the BRIGHT, PICTURE & COLOR control to minimum.* 3. *Confirm that the HV SAFETY CIRCUIT operates and the raster disappears when 18.50V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: When the picture is out of syncronize, turn off the set and cut the opplied voltage immediately.* 4. *Confirm that the HV SAFETY CIRCUIT does not operate when 17.65V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: If the HV SAFETY CIRCUIT operates, immediately cut input and applied voltage.* 5. *Feed in an all-white signal.* 6. *Confirm that the HV SAFETY CIRCUIT operates and the raster disappears when 17.40V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: When raster disappears, cut input voltage and applied voltage immediately.* 7. *Confirm that the HV SAFETY CIRCUIT does not operate when 16.30V DC is applied to hold down check point Ⓐ from an external DC power supply.* *Note: If the HV SAFETY CIRCUIT operates, immediately cut input and applied voltage.* 8. *Adjust R543 so that steps 3, 4, 6 and 7 are satisfied.*

MICROFILM

MON

☛ :indicates corrected portions

<table>
<tr><th>Page</th><th>Incorrect</th><th>Correct</th></tr>
<tr><td>23</td><td>

+B Adjustment (▣R669 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

C654, IC651, R652, R660, R661, R669

1. *Supply 120V AC with variable auto-transformer.*
2. *Adjust the resistance value of R669 so that +B voltage is 115.0V $^{+1.0V}_{-2.0V}$ DC.*

MAXIMUM +B VOLTAGE Adjustment (▣R668 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

D654, IC651, Q652, Q653, R658, R659, R666, R667, R668

1. *Connect pin ① of IC651 to the ground with a jumper wire.*
2. *Supply 130 $^{+2}_{-0}$ V AC to with variable auto-trans-within the former.*
3. *Tune in an off air signal.*
4. *Adjust the resistance value of R668 so that +B voltage is within the range of 115,0 $^{+1.0}_{-2.0}$ V DC.*

</td><td>

MAXIMUM +B VOLTAGE Adjustment (▣R669 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic).

C654, IC651, R652, R660, R661, R669

1. *Supply 130 $^{+2.0}_{-0}$ V AC with variable auto-transformer.*
2. *Set BRIGHT and PICTURE controls minimum position and feed in an off air signal with a tuner.*
3. *Adjust the resistance value of R669 so that +B voltage is 115.0V $^{+1.0V}_{-2.0V}$ DC.*

O'VER VOLTAGE Protector Adjustment (▣R668 Adjustment)

Be sure to perform this after replacing the parts below (marked ◪ on the schematic.)

D654, IC651, Q652, Q653, R658, R659, R666, R667, R668

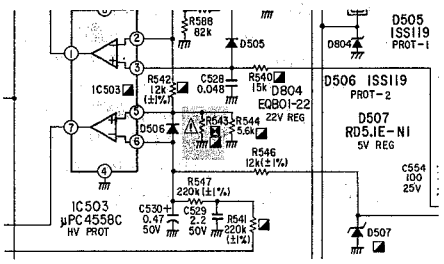
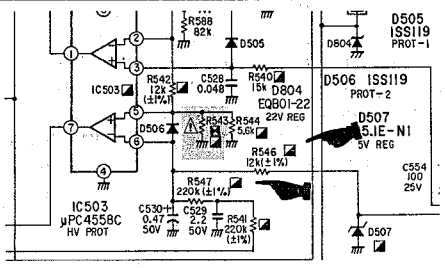
1. *Connect pin ① of IC651 to the ground with a jumper wire.*
2. *Supply 130 $^{+2}_{-0}$ V AC to with varialble auto transformer.*
3. *Feed in an off air signal with a tuner and set the BRIGHT, PICTURE & COLOR controls to minimum position.*
4. *Adjust the resistance value of R668 so that +B voltage is within the 117.0 — 132.0V DC.*
5. *Turn the power off and disconnect the jumper.*
6. *Supply 120V AC to with variable auto-transformer.*
7. *Confirm that the +B voltage is 115.0 $^{+1.0}_{-2.0}$ DC.*
8. *Confirm that the voltage on pin ① of D-7 connector is 12 — 16V DC at the normal condition.*

</td></tr>
<tr><td>33</td><td>

Part replaced (◪)	Adjustment (▣)
D507, D508, D523, IC503, Q511 R540, R541, R542, R543, R544 R545, R590, R591, R592, R593	R543
D654, IC651, Q652, Q653 R658 R659, R666, R667, R668	R668
C654, IC651, R652, R660, R661 R669	R669

</td><td>

Part replaced (◪)	Adjustment (▣)
D507, D508, D523, IC503, Q511 R540, R541, R542, R543, R544 R545, R546, R547, R590, R591 R592, R593	R543
D654, IC651, Q652, Q653 R658 R659, R666, R667, R668	R668
C654, IC651, R652, R660, R661 R669	R669

</td></tr>
<tr><td>39</td><td> 
</td><td> 
</td></tr>
</table>

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Ref.No	Part No.	Description				Remark
		RESISTOR				
R1	1-246-861-00	CARBON	30K	5%	1/8W	
R2	1-246-807-00	CARBON	100K	5%	1/8W	
R4	1-246-794-00	CARBON	8.2K	5%	1/8W	
R5	1-246-784-00	CARBON	1.2K	5%	1/8W	
R6	1-246-401-00	CARBON	1	5%	1/8W	
R7	1-246-784-00	CARBON	1.2K	5%	1/8W	
R8	1-246-794-00	CARBON	8.2K	5%	1/8W	
R10	1-246-401-00	CARBON	1	5%	1/8W	
		SWITCH				
SW1	1-554-786-11	SWITCH, SLIDE				
		CRYSTAL				
X1	1-527-827-00	OSCILLATOR, CRYSTAL				
	♦:1-611-886-11	CN BOARD (PVM-1911 ONLY)				
		********				
		CONNECTOR				
CN11	♦:1-564-467-11	CONNECTOR (FLAT CABLE) 26P				
CN12	♦:1-564-466-11	CONNECTOR (FLAT CABLE) 34P				
CN13	♦:1-561-854-00	SOCKET, CONNECTOR 10P				
CN14	♦:1-562-457-11	SOCKET, CONNECTOR 14P				
CN15	♦:1-561-854-00	SOCKET, CONNECTOR 10P				
CN16	♦:1-562-457-11	SOCKET, CONNECTOR 14P				
CN17	♦:1-562-457-11	SOCKET, CONNECTOR 14P				
		MISCELLANEOUS				
		**********				
	⚠.1-228-482-13	RESISTOR ASSY, HIGH-VOLTAGE				
	⚠.1-451-204-61	DEFLECTION YOKE (SY-108B)				
	1-452-032-00	MAGNET DISK; 10MM ϕ				
	1-452-094-00	MAGNET, ROTATABLE DISK; 15MM ϕ				
	⚠.1-534-517-23	AC CORD				
	1-554-847-11	PANEL, TOUCH				(PVM-1911 ONLY)
	1-557-318-11	CABLE, FLAT 34P				(PVM-1911 ONLY)
	1-557-319-11	CABLE, FLAT 26P				(PVM-1911 ONLY)
	1-557-330-11	CONNECTOR ASSY, CANON 25P				(PVM-1911 ONLY)
L901	⚠.1-426-087-42	COIL, DEGAUSSING				
S901	⚠.1-553-584-12	SWITCH, PUSH (POWER)				
SP901	1-503-109-00	SPEAKER				
T502	⚠.1-439-322-11	TRANSFORMER ASSY, FLYBACK				
V901	⚠.8-738-706-05	CRT 520SB22A				

ACCESSORIES AND PACKING MATERIALS

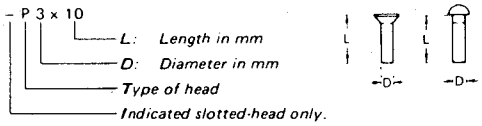
Part No.	Description	Remark
4-309-537-00	BAG, PROTECTION	
4-370-943-01	CUSHION (UPPER) (ASSY)	
4-370-944-01	CUSHION (LOWER) (ASSY)	
4-370-945-01	INDIVIDUAL CARTON	
4-493-915-21	MANUAL, INSTRUCTION	

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

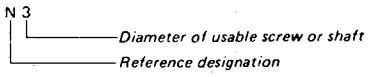
Les composants identifiés par une trame et une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

HARDWARE NOMENCLATURE

Screw:



Nut, Washer, Retaining ring:



Reference Designation	Shape	Description	Remarks
SCREWS			
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
SET SCREWS			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2 6 x 4, hexagon socket
NUT			
N		nut	
WASHERS			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
RETAINING RINGS			
E		retaining ring	
G		grip-type retaining ring	

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