1984
No. 6375R

JVC Service Manual

THREE TUBE PROFESSIONAL COLOR VIDEO CAMERA

PROFFESSIONELLE DREIROHREN FARBVIDEO KAMERA

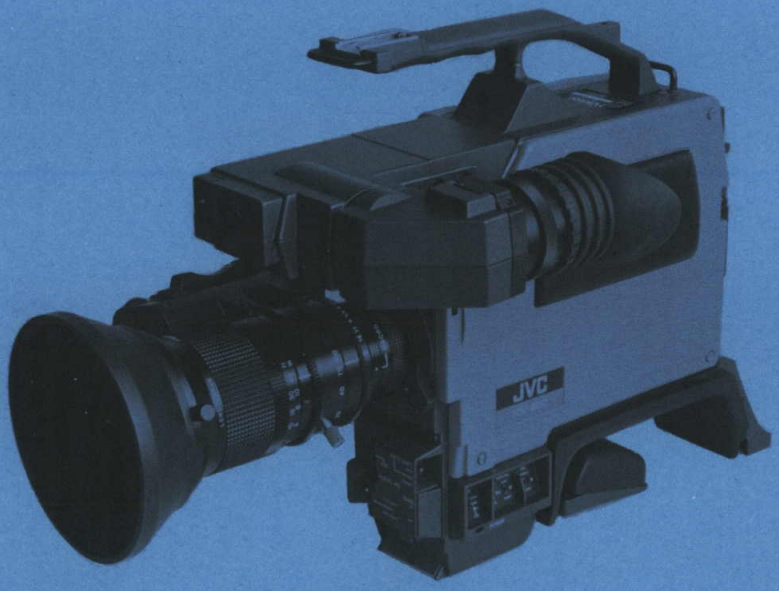
CAMERA COULEUR TRITUBES PROFESSIONNELLES

MODEL
MODELL
MODÈLE KY-210

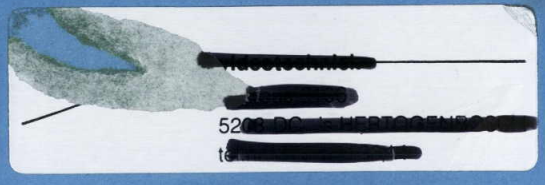
VICTOR COMPANY OF JAPAN, LIMITED

No. 6375R

JVC Service Manual



MODEL KY-210



Printed in Japan

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7. ELECTRICAL PARTS LIST

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▬) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors

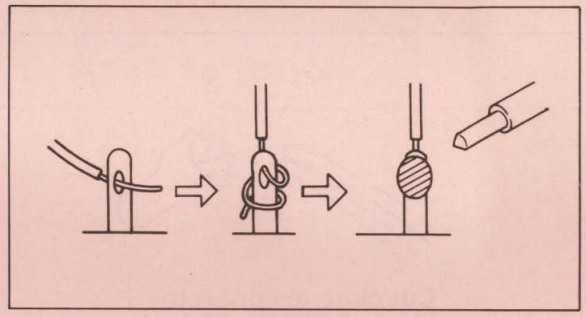


Fig. 1

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

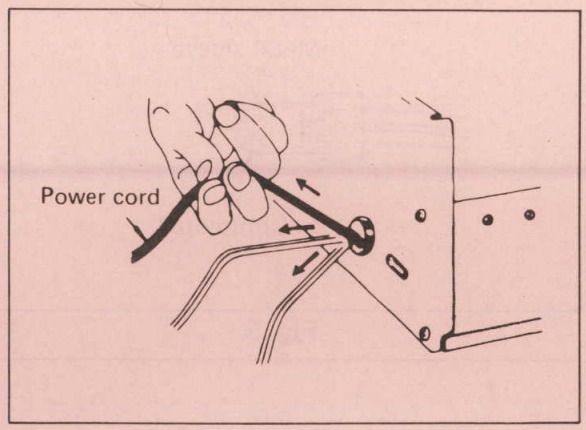


Fig. 2

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the parts specified. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

11. Crimp type wire connector

In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

1. Connector part number : E03830-001
2. Required tool : Connector crimping tool of the proper type which will not damage insulated parts.
3. Replacement procedure

   1) Remove the old connector by cutting the wires at a point close to the connector.
   Important : Do not reuse a connector (discard it).
   2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
   3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
   4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.
   5) Check the four points noted in Fig. 7.

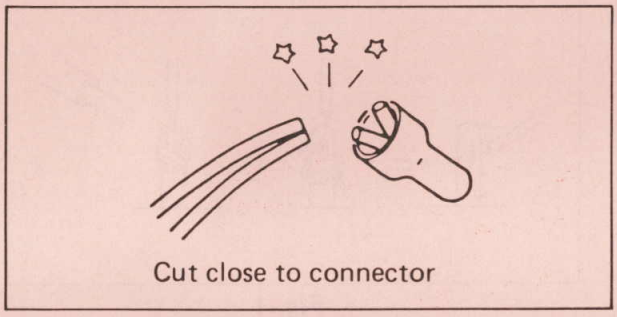


Fig. 3

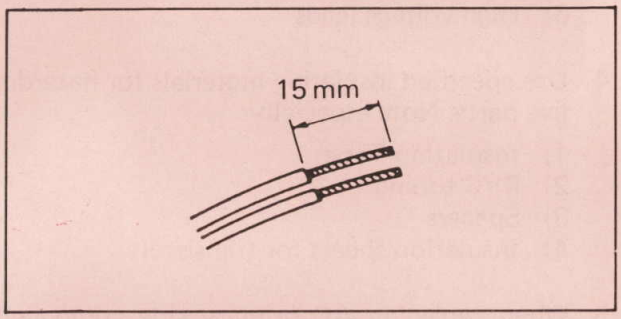


Fig. 4

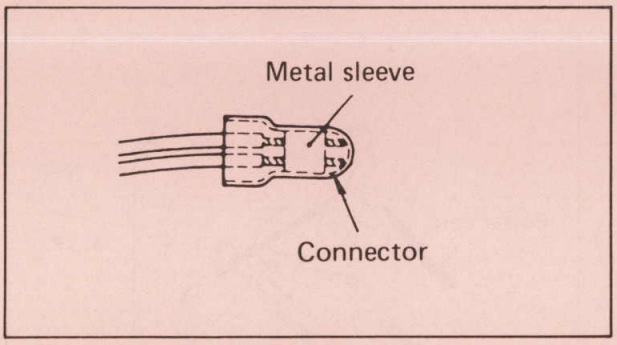


Fig. 5

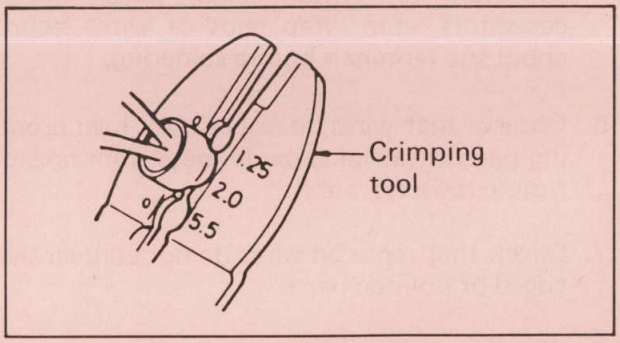


Fig. 6

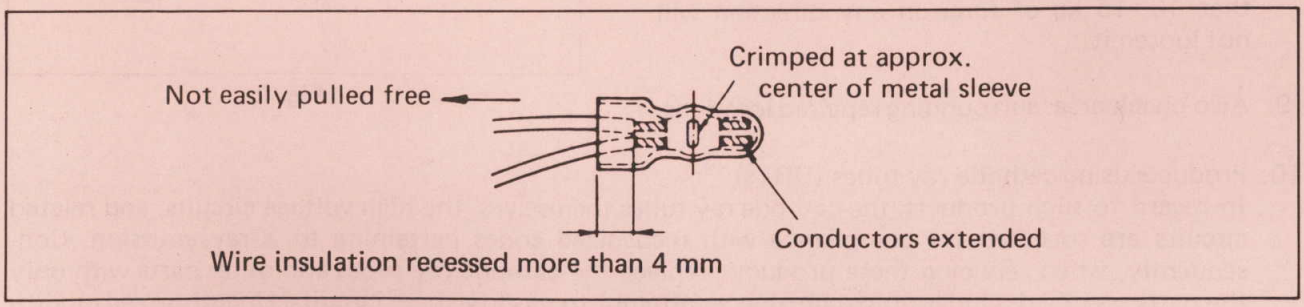


Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) See table below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d),(d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

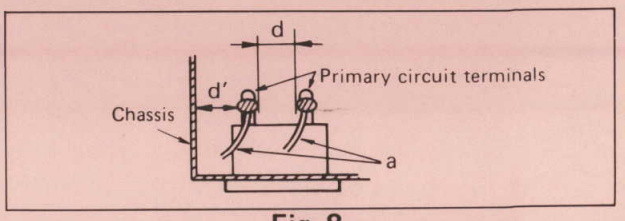


Fig. 8

Table 1: Ratings for selected areas

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance(d),(d')
100 V	Japan	≧ 1 MΩ/500 V DC	1 kV 1 minute	≧ 3 mm
110 to 130 V	USA & Canada	— — —	900 V 1 minute	≧ 3.2 mm
* 110 to 130 V 200 to 240 V	Europe Australia	≧ 10 MΩ/500 V DC	2 kV 1 minute	≧ 4 mm (d) ≧ 8 mm (d') (a: Power cord)

* Class I model only.

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

4. Leakage current test

Confirm specified or lower leakage current between B(earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)
Insert load Z between B(earth ground,power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

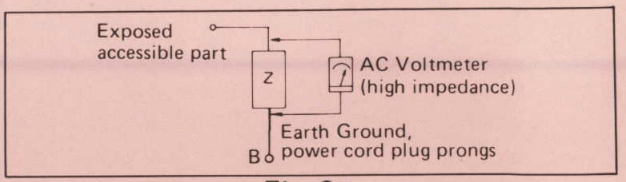


Fig. 9

Table 2: Leakage current ratings for selected areas

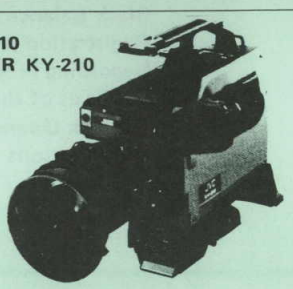
AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
100 V	Japan	1 kΩ	i ≦ 1m A rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5m A rms	Exposed accessible parts
110 to 130 V 200 to 240 V	Europe Australia	2 kΩ	i ≦ 0.7 m A peak i ≦ 2 m A dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 m A peak i ≦ 2 m A dc	Other terminals

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC Instructions

THREE-TUBE COLOUR VIDEO CAMERA KY-210

BEDIENUNGSANLEITUNG: FARBVIDEOKAMERA KY-210
MANUEL D'INSTRUCTIONS: CAMERA VIDEO COULEUR KY-210



For Customer Use:
Enter below the Serial No. which is located on the top of the body. Retain this information for future reference.

Model No. KY-210

Serial No.

The instructions are given in three languages:
English from page 1 to 29
German from page 30 to 58
French from page 59 to 87

Bedienungsanleitung in drei Sprachen:
English: Seite 1 bis 29
Deutsch: Seite 30 bis 58
Franzosisch: Seite 59 bis 87

Les explications techniques sont données en trois langues:
Anglais, pages 1 à 29
Allemand, pages 30 à 58
Français, pages 59 à 87

Due to design modifications, data given in this instruction book are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

Protection of tube face:
The tube face will be damaged by strong rays of light, therefore, do not point the camera at the sun. Also, if the deflection circuit stops accidentally, quickly turn off the power switch and cap the lens to protect the tube face from possible damage.
When the camera is not in use, be sure to fit the cap and set the filter (⓮ on page 6) to position "1".

POWER SYSTEM
This colour video camera should be used with 12 V DC only.

CAUTION:
To prevent electric shocks and fire hazards, do NOT use other than specified power source.

Thank you for purchasing the JVC KY-210 Colour Video Camera. The KY-210 is a compact, sturdy unit designed especially for portability making it suitable for a wide range of applications in the field and in the studio. Productions can be shot in a variety of situations by using this camera in combination with a portable video recorder.
To gain maximum benefit from the camera, it is suggested that you study this booklet carefully. After reading, retain it for future reference.

CONTENTS

FEATURES

- **Low cost/high performance using the same design-philosophy as broadcast cameras**
  SPG conforming to PAL-B (with colour framing pulse output), H/V variable blanking circuits, genlock circuit.
- **Compact, light and rugged diecast construction for superior mobility and operability**
  Light weight of only 3.5 kg (7.8 lbs).
- **High picture quality with f/1.4 prism optical system and three Saticon* pickup tubes**
  High resolution of 650 lines, a video S/N of 54 dB and a minimum illumination of 40 lux (3.8 fc).
- **A wide range of automated functions for easier operation and calibration**
  Auto shift registration circuit, auto white balance circuit, auto black balance circuit, auto beam control (ABC) circuit, auto black level (ABL) circuit, NAM-type servo auto iris circuit, auto iris close circuit.

The genlock circuits require a stable input source; the KY-210 will not lock to a helical scan video recorder without a time-base corrector.

* Registered trademark

PRECAUTIONS

Safety Precautions

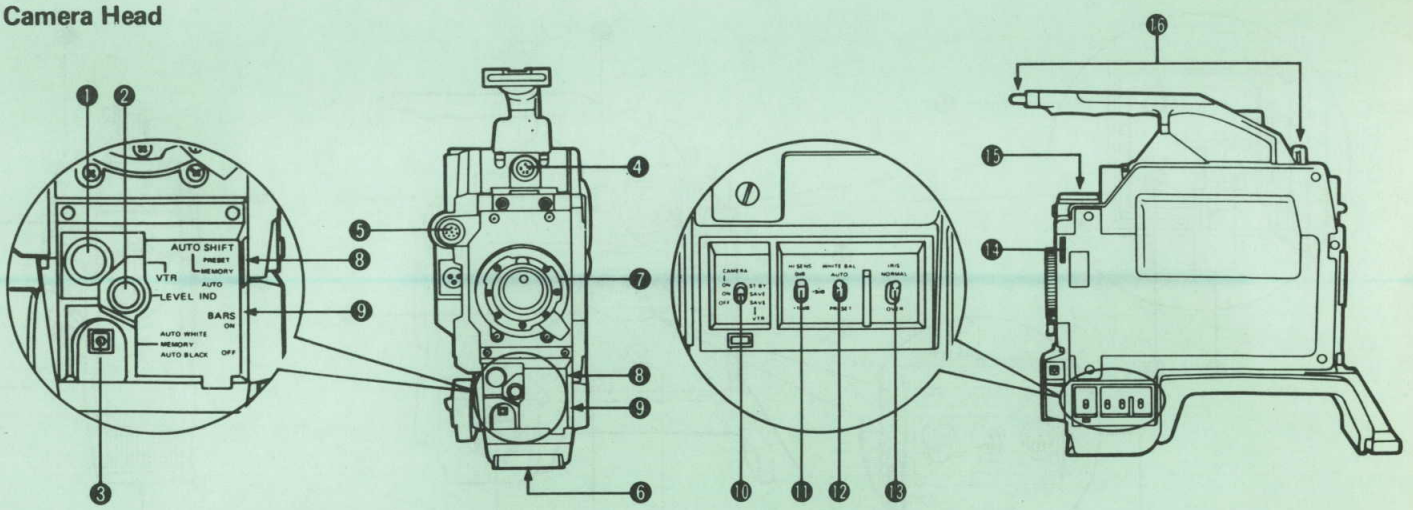
- Use only the optional DC-C50 or DC-C19 Battery Pack or the optional AA-C50 AC Power Adapter.
- Do not allow inflammable objects, water or metallic objects to get inside the unit, as it will cause damage or malfunction.
- Do not modify the unit or operate it without cover panel to prevent danger.
- When there is any abnormality (abnormal noise, smell, smoke, etc.) with the unit, immediately turn the power off and take the unit to your nearest JVC-authorized service agent.

Handling Precautions

- **Power voltage**
  Make sure that the power is between 10.5 V and 15 V DC. If the power voltage is too low, abnormal colour and increased noise could occur. Do not exceed 15 V DC in any case, or the unit could be damaged.
- **Warming up**
  The unit is stabilized sufficiently for normal use about 40 seconds after switching the power on. However, better stabilization can only be obtained after 10 minutes or more.
- **Pickup tube protection**
  Do not aim the lens to sun or other strong light sources, fluorescent lamp, reflector, etc. even when the power is switched off, to prevent damage to the pickup tubes. Be sure to keep the lens capped unless shooting or preparing to shoot.
- **Connection with portable video recorder**
  Different recorders require different start/stop triggering modes and connection cables. Before connection, carefully read "Connection to Video Recorder" on page 14.
- **Intercom headset**
  When the receiver of an intercom headset is put too near the camera, magnetism from it could affect the camera registration or colour balance. Pay attention not to place the headset on the camera.
- **Ambient temperature**
  The temperature in which the camera can be operated depends on the type of pickup tubes used. Refer to the corresponding item in the "Specifications" on page 28. However, operation near the highest temperature should be restricted to within two hours to prevent damage to the tubes.
- Where there are strong electromagnetic waves or magnetism, for example near a radio or TV transmitter, transformer, motor, etc., the picture may contain noise and the colours may be incorrect.
- When a wireless microphone or wireless microphone tuner is used near the camera, the tuner could pick up noise. In such a case, select another channel.

CONTROLS, CONNECTORS AND INDICATORS

Camera Head



❶ **Video recorder start switch (VTR)**
For start/stop triggering of the video recorder. When the standard zoom lens is used, this button functions in parallel with the VTR switch on the lens.

❷ **Level indicator switch (LEVEL IND.)** (See page 25)
For switching on/off the video level indicator in the viewfinder.

❸ **Auto White/Black balance switch**
Auto white adjustment is possible when the WHITE BAL. switch ⓬ in the switchbox is set to "AUTO".

AUTO WHITE: By flipping up the lever to this position while shooting a white subject, the white balance is adjusted automatically.

AUTO BLACK: By flipping down the lever to this side, the lens iris is closed and the black balance is adjusted automatically.

MEMORY: In this positition the above adjustments are stored in memory.

❹ **Viewfinder connector (VF)**
The connection can be made by sliding the optional view finder along the mount shoe ⓯ .

❺ **Lens connector (LENS)**
Connect with the cable from the standard lens.

❻ **Tripod base mount**

❼ **Lens mount ring**

❽ **Auto-shift switch (AUTO SHIFT)**
PRESET: For preset registration.
MEMORY: In this position the above adjustment is stored in memory.
AUTO: By flipping down the lever to this position while shooting a normal subject, the centering adjustment of registration is performed automatically.

❾ **Colour bar switch (BARS)**
By setting the switch under the cover to "ON", the colour bar signal is output from the video output.

❿ **Operation switch (CAMERA ON/ON/OFF, VTR ST-BY/SAVE/SAVE)** (See page 17)
Three positions are provided for camera power ON, OFF and video recorder "power-save" mode.

⓫ **Sensitivity select switch (HI-SENS)**
For use in low light conditions, the camera sensitivity gain can be boosted by +9 dB or +18 dB. Normally set this to "0 dB".

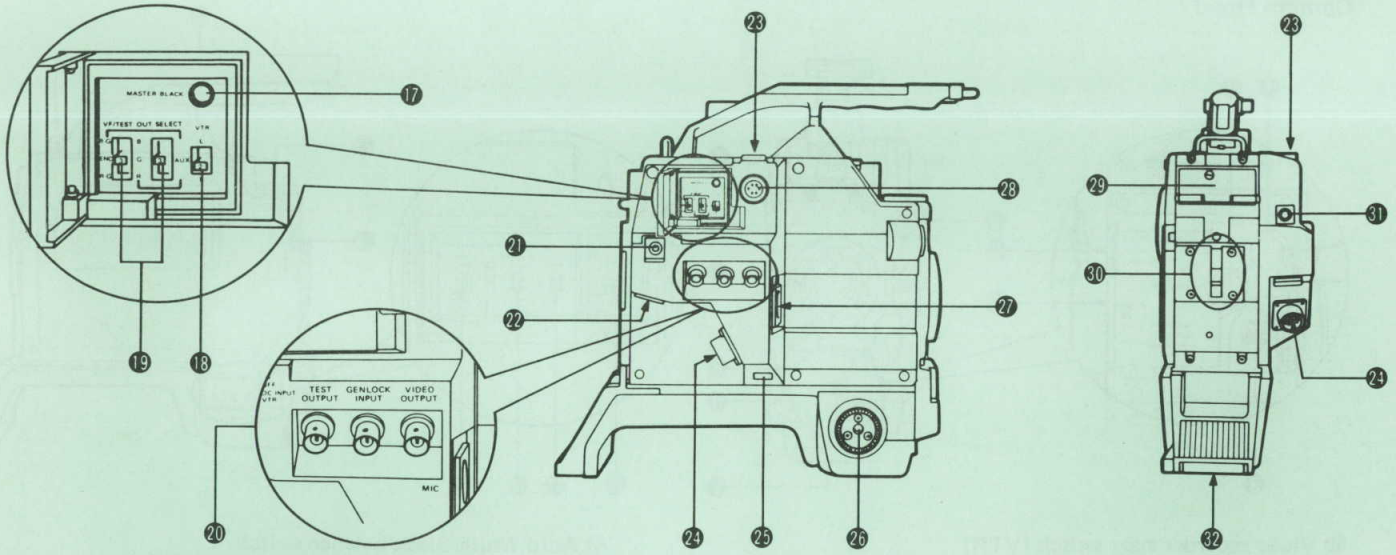
⓬ **White balance adjustment mode switch (WHITE BAL.)**
AUTO: For automatic adjustment using switch ❸ .
PRESET: Preset position for a color temperature of 3200 K.

⓭ **Iris level switch (IRIS)** (See page 18)
For varying the level set as standard for auto iris operation.

⓮ **Filter turret**
The turret for the Neutral Density and colour temperature conversion filters is provided with four positions.
1. CLOSE: Same condition as lens being capped.
2. 3200 K: For shooting indoors or outdoors with insufficient light.
3. 5600 K: For shooting outdoors.
4. 5600 K + 25 % ND: The 25 % ND filter and 5600 K colour filter are combined for shooting outdoors on a fine day.

⓯ **Viewfinder mount shoe**
For the optional VF-215 Viewfinder.

⓰ **Shoulder belt hooks**
For the shoulder belt provided.



⓱ **Master black level control (MASTER BLACK)**

⓲ **Video recorder triggering mode switch (VTR)** (See page 12)
Set according to the start/stop triggering mode of the video recorder connected.

⓳ **Viewfinder and test output signal select switches (VF/TEST OUT SELECT)** (See page 9)
For the selection of the signals output at the TEST OUTPUT connector and at the viewfinder.

⓴ **Signal connectors**
VIDEO OUTPUT: Composite video signal is output.
GENLOCK INPUT: To genlock the camera, the Composite video or BB (black burst) signal should be externally input here.
TEST OUTPUT: The test signal selected by VF/TEST OUT SELECT switch ⓳ is output.

㉑ Power select switch (POWER)
The power supply source can be selected or completely cut off using this switch.

RS: Set to this position when the optional RS-500 Remote Control Unit is used.
OFF: The power supply to the camera is completely cut off.
DC INPUT/VTR: Power is supplied via DC INPUT connector ㉒ or VTR connector ㉔ .

NOTE: Refer to the video recorder's instructions for limited output current of recorder power supply.

㉒ DC power input connector (DC INPUT)
Use this 4-pin Cannon XLR connector for supplying 12 V DC from the optional DC-C50 Battery Pack or the optional AA-C50 AC Power Adapter.

Pin No.	Function
1	EARTH
2	
3	
4	+12 V

㉓ Microphone holder mount shoe

㉔ Video recorder connector (VTR)
Use this 14-pin connector for the connection of a portable video recorder.

Pin No.	Function	Pin No.	Function
1	DC (EARTH)	8	EARTH
2	DC 12 V IN	9	RETURN VIDEO IN
3	MIC (HOT)	10	BATTERY INDICATION IN
4	MIC (COLD)	11	COLOUR FRAMING PULSE OUT
5	MIC SHIELD	12	REC/ALARM SIGNAL IN
6	VIDEO OUT/IN (HOT)	13	VTR START/STOP SIG OUT
7	VIDEO OUT/IN SHIELD	14	POWER SAVE OUT/AUDIO MONITOR IN

㉕ Microphone output level switch (MIC LEVEL)
The audio output level via the VTR connector ㉔ can be switched in two steps.
HIGH: Approx. -20 dB level.
LOW: Through-microphone output level.

㉖ Chest rest lock

㉗ Microphone input jack (MIC INPUT)
This jack is provided for the connection of microphones with a 4-pin Cannon connector. The input is parallel with the MIC connector ㉘ .

㉘ Exclusive microphone connector (MIC) (See page 13)
For the connection of the optional M-K50 Microphone. The power for the electret condenser microphone is supplied via this 6-pin socket.

㉙ Remote control unit connector
When the optional RS-500 Remote Control Unit is used, connect its Camera Adapter here. (For details, see instructions provided with the RS-500.)

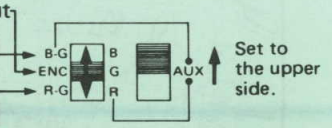
㉚ Battery holder
The optional DC-C50 or DC-C19 Battery Pack can be slid onto the rear of the camera.

㉛ Earphone jack (EARPHONE)
When the portable video recorder used is able to provide an audio signal to the camera, the playback audio signal can be monitored through this 1/8" (3.6 mm) mini jack.

㉜ Tripod base mount

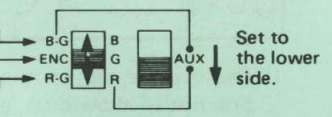
■ **Viewfinder and test output select switches (VF/TEST OUT SELECT)**
One of seven signals ① through ⑦ can be output by the viewfinder and the TEST OUTPUT connectors.

① ENC (colour encoder) output
② B-G output (used to check registration)
③ R-G output (used to check registration)



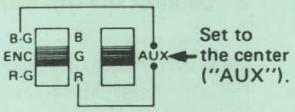
Signals from ① to ③ can be output with the setting shown above.

④ B channel signal output
⑤ G channel signal output
⑥ R channel signal output

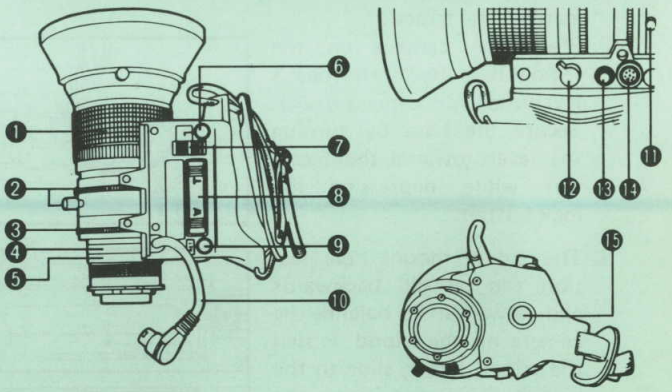


Signals from ④ to ⑥ can be output with the setting shown above.

⑦ AUX signal output
This is available with the switch setting shown on the right.



Zoom Lens (Optional HZ-510)



❶ Focus ring
❷ Zoom lever/zoom ring
For manual zooming.
❸ Iris ring
When the Iris mode switch ❼ is set to "M", the iris can be opened and closed manually using this ring.
❹ Back focus ring
For the back focus adjustment.
❺ Macro ring
❻ Momentary iris switch
Even during the manual iris operation with the Iris mode switch set to "M" (Manual), iris control can be automatic as long as this button is kept depressed.

⑦ **Iris mode switch**
A: For auto iris operation.
M: For manual iris operation.
R: For remote control operation (using the RS-500).

⑧ **Zoom servo lever**
The speed and direction of the servo zooming is controlled by this see-saw switch.

⑨ **Video signal return switch (RET)**
The return video signal from the video recorder can be monitored in the viewfinder while this switch is depressed.

⑩ **Lens cable**
Connect to the LENS connector on the camera head.

⑪ **Securing knob**
For fixing the back focus ring.

⑫ **Zooming mode switch knob (ZOOM)**
S: For servo zooming.
M: For manual zooming.

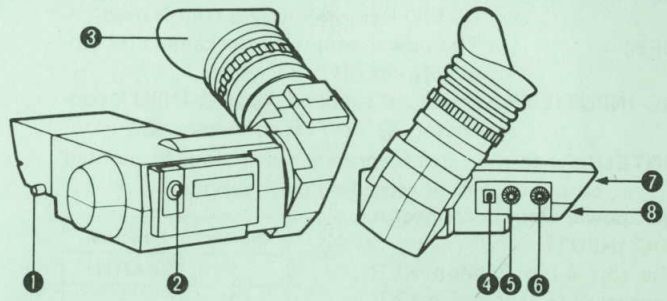
⑬ **Focus servo control connector**

⑭ **Zoom servo control connector**

⑮ **Video recorder triggering switch (VTR)**
For the start/stop operation of the video recorder.

NOTE: When a lens other than the optional HZ-510 is used, the image may sometimes contain dynamic shading at the top and the bottom: it is necessary to perform internal adjust and, in some cases, re-adjustment of back focus. For details, consult your dealer.

Viewfinder (Optional VF-215)



❶ **Fixing screw**
For fixing the viewfinder to the camera head.

❷ **Tally lamp**
When the camera is used in connection with a portable video recorder, this LED lights to indicate the record mode.

❸ **Eyepiece**
Dioptre adjustment is possible.

❹ **Peaking switch (PEAKING)**
For enhancing the picture contours so that focusing is easier.

❺ **Contrast control (CONT)**

❻ **Brightness control (BRIGHT)**

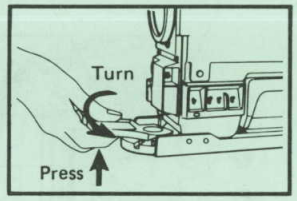
❼ **Viewfinder connector**
The connection is made by mounting the viewfinder on the camera head.

❽ **Viewfinder mount bracket**

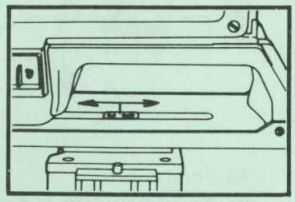
INSTALLATION

Tripod Installation (Using the KA-500 Tripod Base)

1. The tripod base has 1/4" and 3/8" holes. Use the one that matches the tripod.
2. Place the camera on the tripod base (with the base's lever under the camera front). Secure the base by turning the lever towards the fixing slot while depressing the lock button.



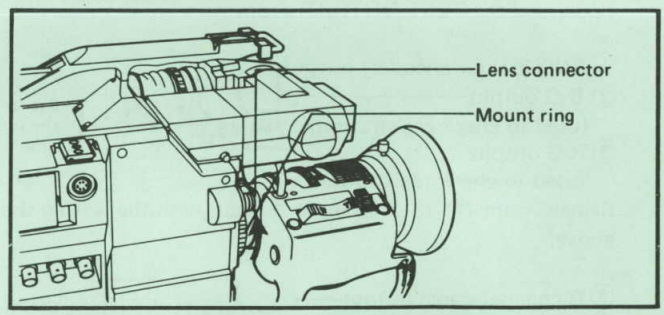
3. The tripod mount hole section can be slid backwards and forwards: To balance the camera on the tripod, loosen the tripod screw, slide to the best position and secure the tripod screw.



NOTE: When removing the camera from the tripod, do not turn the lever of tripod base too violently so that the camera does not fall or drop due to the shock. Be sure to turn the lever slowly while holding the camera with one hand.

Lens Installation (Optional HZ-510)

– Before mounting/removing the lens, set the filter turret to position "1" (CLOSE).

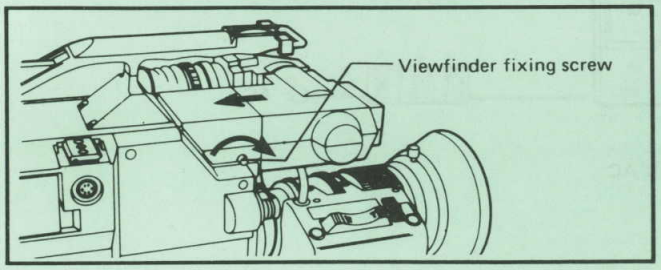


1. Remove the cap on the lens mount section, paying attention not to allow dirts, etc. to enter inside the mount.
2. Align the pin on the lens with the notch in the mount and then turn the mount ring clockwise until the lens and lens mount are secured tightly.
3. Connect the lens cable to the camera head.

NOTE: Make sure that the lens is firmly attached. Otherwise, the back focus adjustment may be incorrect.

Viewfinder Installation (Optional VF-215)

1. Insert the viewfinder from the camera front, aligning the viewfinder slot with the viewfinder mount shoe on the camera.
2. After the viewfinder has been fully inserted, secure the viewfinder fixing screw using a screwdriver.



Video Recorder Triggering Mode Selection

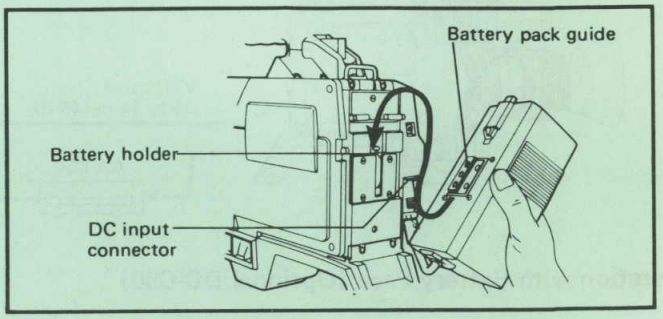
The VTR select switch allows the selection of the video recorder start/stop signal according to the recorder connected. Set the switch following the table.

Switch position	Connector of the VCR	Trigger mode
L	10-pin	Earth start
B	14-pin	+4 V start

NOTE: The VTR select switch is initially set to "B" before shipment.

Battery Pack Installation (Optional DC-C50)

1. Insert the battery pack guide into the battery holder ㉚ and press down until it locks.
2. Insert the battery pack connector into the DC INPUT connector ㉒ of camera.



Battery pack operation

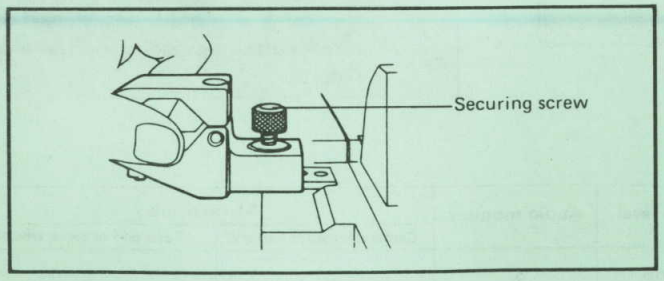
- With a fully-charged DC-C50 Battery Pack, the camera will operate for approx. 60 minutes at normal temperatures (about 25°C (77°F)).
- Be sure to charge the battery pack before recording. It is also recommended to have some spare charged battery packs ready.
- Replace the battery pack when the BATT indicator (red) in the viewfinder starts flickering.
- Use the optional AA-C50 AC Power Adapter to charge the battery pack. For the charging procedure, refer to the AA-C50's instruction manual.

Microphone Installation

Ordinary microphone

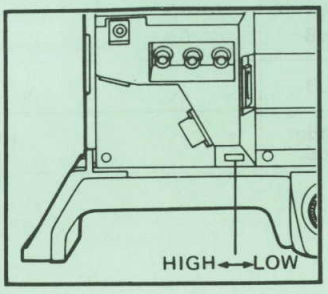
– Microphones can be installed on the camera head using the mic holder provided.

1. Insert the mic holder into the microphone holder shoe on the upper left of the camera and secure with the screw.
2. Plug the microphone output cable into the 4-pin MC INPUT connector on the camera head.



Microphone output level

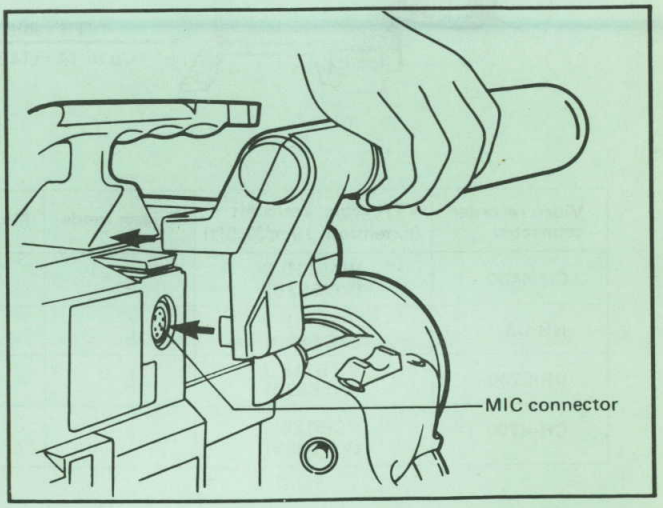
The microphone output level can be switched to "HIGH" (approx. -20 dB) and "LOW" (through-output).



Exclusive microphone (optional M-K50)

The M-K50 Microphone snaps directly onto the camera head. The exclusive 6-pin connector has the configuration shown in the table.

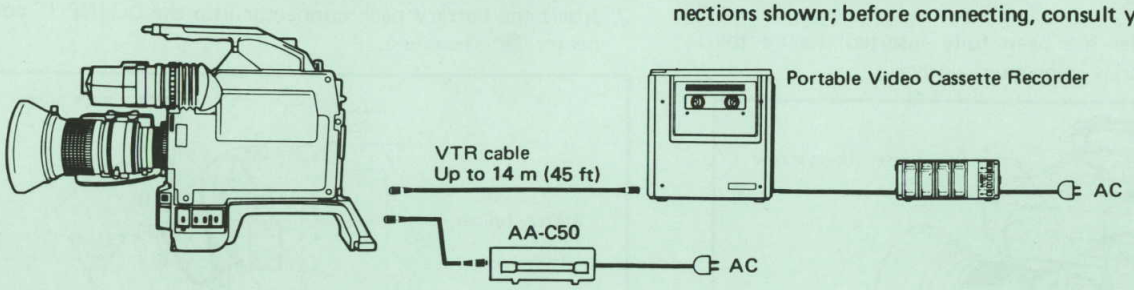
Pin No.	Function
A	NC
B	+9 V OUT
C	EARTH
D	MIC (HOT)
E	MIC (COLD)
F	EARTH (SHIELD)



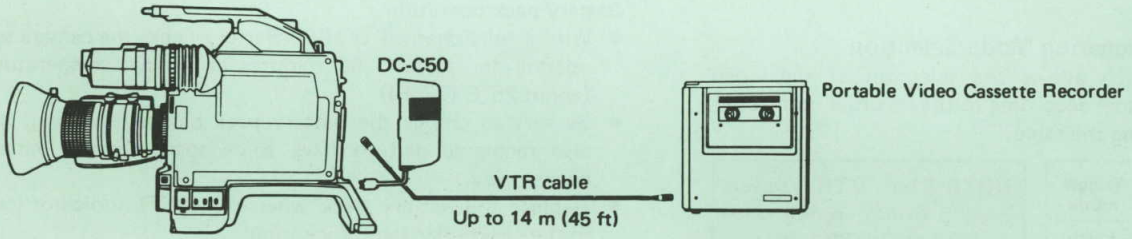
CONNECTION TO VIDEO RECORDER

Operation on AC Power Line

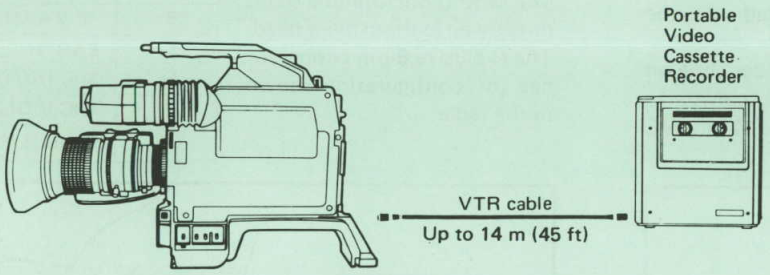
The KY-210 is designed to be ideal for use with portable video recorders manufactured by JVC. Some recorders from other manufacturers will not function correctly with the connections shown; before connecting, consult your dealer.



Operation with Battery Pack (Optional DC-C50)



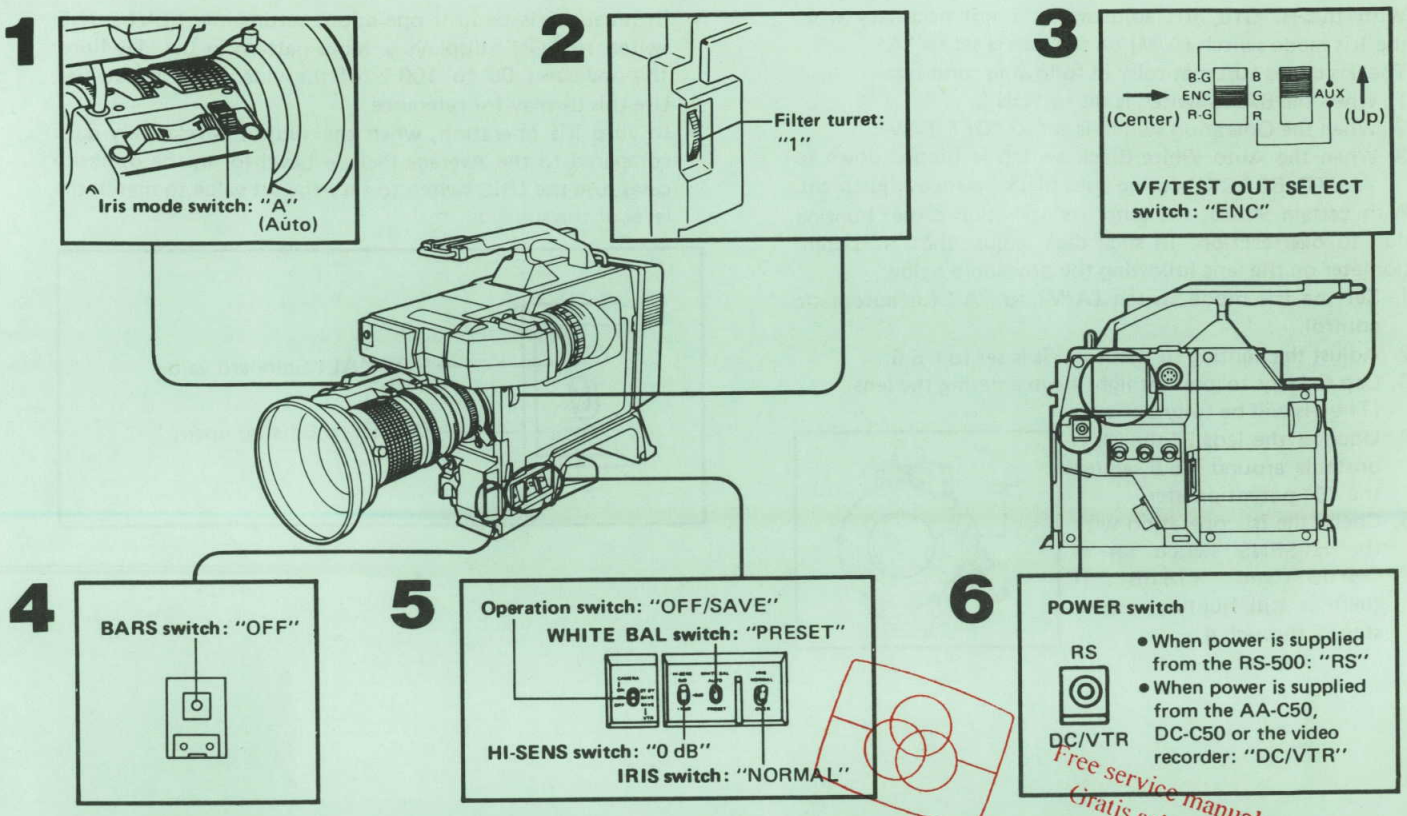
Operation on Power Supply from the Portable Video Recorder



NOTE: If the camera is operated from the battery in the portable video recorder, the unit may not operate or the battery operation time could be very short due to small capacity of the battery. The power supply to the camera should not exceed the rated current capacity of the video recorder.

Video recorder connected	VTR cable, 2m/6.5ft (extension, 10m/32.5ft)	Trigger mode	Microphone level	Audio monitor	Alarm display	
					Camera/recorder battery	Tape end or servo trouble
CR-4400	VC-511B-2 (VC-582B)	L	H: -20 dB	X	O/X	X
HR-C3	VC-511B-2 (VC-582B)	L	H: -20 dB	O	O/O	X
BR-6200	VC-511B-2 (VC-582B)	L	H: -20 dB	X	O/X	X
CR-4700	VC-512B-2 (VC-589B)	B	L: -52 dBm or H: -20 dB	O	O/O	O

O : Possible
X : Impossible



To record a clear picture with correct colours, it is necessary to adjust the white balance, black balance and registration. Before adjustment, set the switches as follows:

1. Set the Operation switch to "ON/SAVE".
   - The beam current will flow in the pickup tubes to make possible shooting. The lens iris will also open.
   - The Operation switch has the following three positions. Power of specific video recorders can be saved using the "SAVE" positions.

Switch position	Camera mode	Video recorder mode	
		14-pin recorder	10-pin recorder
ON/ST BY	On	Standby	Standby
ON/SAVE	On	Power-save	Standby
OFF/SAVE	Off	Power-save	–

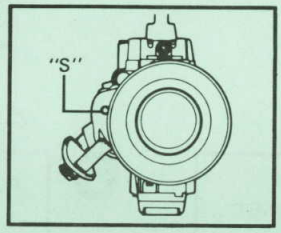
2. To obtain an image with correct colour, set the filter turret according to the illumination of the object.

Turret position	Setting	Conditions
1	CLOSE	When the camera is not used
2	3200 K	Studio lighting, sunrise or sunset outdoors
3	5600 K	Outdoors; cloudy or rainy weather
4	5600 K + 25 % ND	Outdoors; fine weater

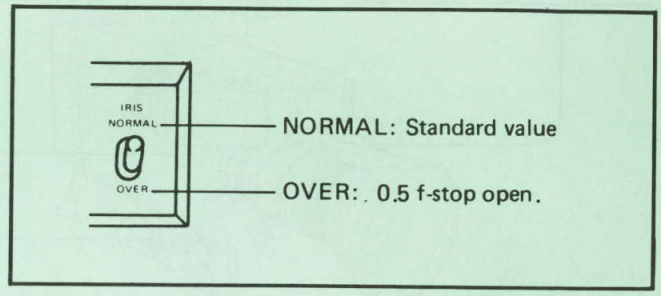
3. Point the camera to a normal object, operate the lens and monitor the picture in the viewfinder screen.
   - Adjust the BRIGHT and CONT controls of the viewfinder.
   - When the BATT indicator (red) in the viewfinder flickers, the battery pack is nearly exhausted: replace with a fully-charged battery pack.

LENS IRIS ADJUSTMENT

- With the HZ-510, iris adjustment is not necessary when the Iris mode switch (A/M) on the lens is set to "A". The iris closes automatically in following conditions:
  1) When the BARS switch is set to "ON".
  2) When the Operation switch is set to "OFF/SAVE".
  3) When the Auto White/Black switch is flipped down to "AUTO BLACK" during auto black balance adjustment.
- With certain lenses, the auto iris operation causes hunting due to overreaction. In such case, adjust the "S" potentiometer on the lens following the procedure below.
  1. Set the Iris mode switch (A/M) to "A" for automatic control.
  2. Adjust the lighting so that the iris is set to f/5.6.
  3. Cap the lens to prevent light from entering the lens. (The iris will be fully open.)
  4. Uncover the lens. If the iris is unstable around f/5.6, adjust the "S" potentiometer.
  5. Check the iris operation with the HI-SENS switch set at "+9 dB" and "+18 dB". If there is still hunting, repeat steps 2 through 4.



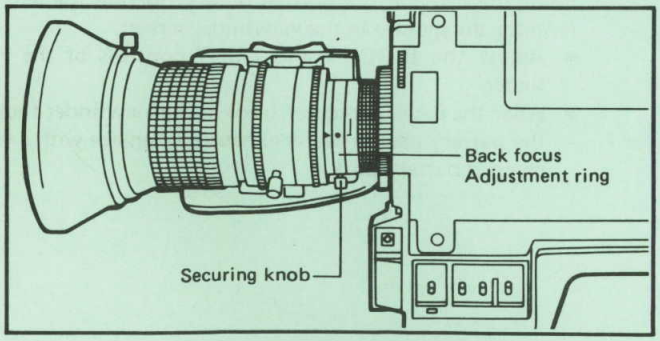
- In manual iris control operation, setting the LEVEL IND switch to "ON" displays a zebra pattern in the viewfiner; this indicates 90 to 100 % of the video level by stripes. Use this display for reference.
- In auto iris operation, when the subject is relatively dark compared to the Average Picture Level (or in the opposite case), use the IRIS switch to vary the set value to match the level of the subject.



BACK FOCUS ADJUSTMENT

With the HZ-510, the back focus can be adjusted on the lens body. Before adjustment, check that the lens is mounted securely on the camera.

1. Shoot a registration chart with the iris fully open (manual iris operation).
2. If the lighting is too strong, decrease it or change the place.
3. Watching the G signal on the viewfinder, zoom up and adjust the focus.
4. Zoom out to the wide-angle position, then turn the securing knob counterclockwise to loosen it and turn the back focus ring so that the focusing is best.

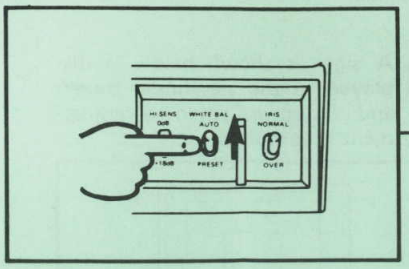


5. Repeat this a few times for fine adjustment.
6. After adjustment, tighten the securing knob.

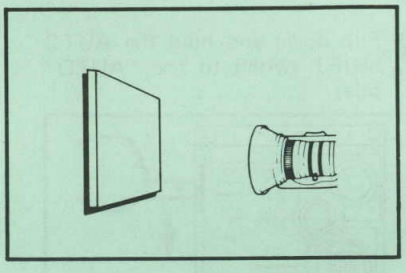
NOTE: The back focus adjustment is more accurate when the distance between the subject (chart) and camera is more than 3 m (10 ft).

WHITE BALANCE ADJUSTMENT

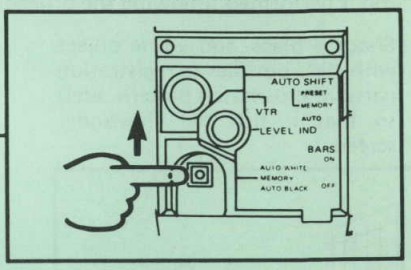
1 Set the WHITE BAL switch in the switchbox to "AUTO".

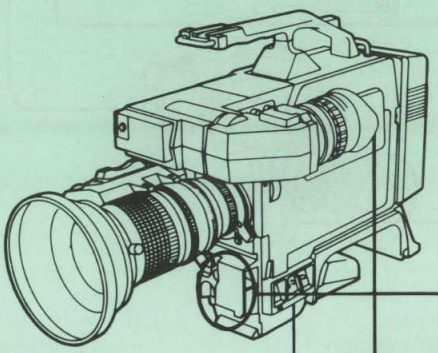


2 Shoot a white object (cloth, wall, etc.) so as to fill the viewfinder screen.

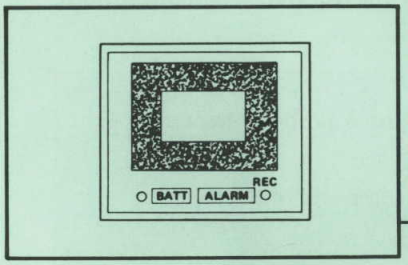


3 Flip up and hold the Auto White/Black balance switch on the "AUTO WHITE" side.

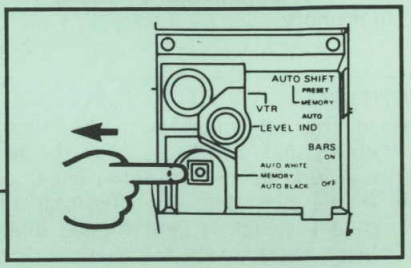




4 A white square sign is displayed in the viewfinder screen and disappears when the adjustment is complete.

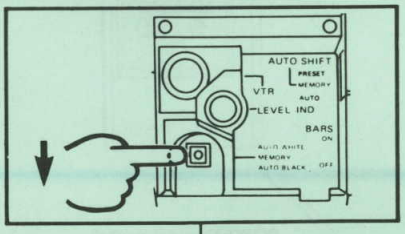


5 Now release the switch. The status obtained by auto white balance adjustment is stored in memory.

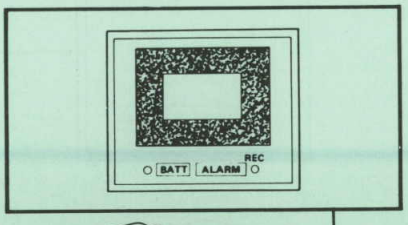


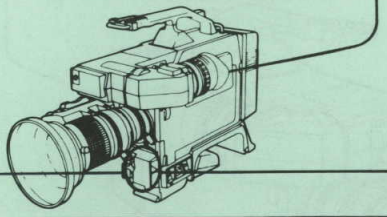
BLACK BALANCE ADJUSTMENT

1 Flip down and hold the Auto White/Black balance switch to the "AUTO BLACK" side.

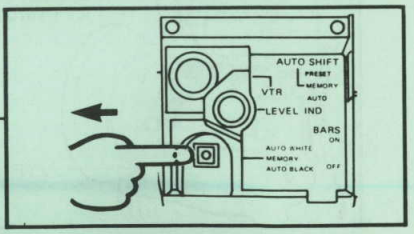


2 A white square sign is displayed in the viewfinder screen and disappears when the adjustment is complete.





3 Now release the switch lever. The status obtained is stored in memory.



4 Then repeat the white balance adjustment described on the previous page. After the adjustments of both, the white and black balances are complete.

NOTES:

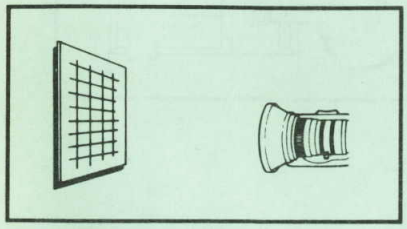
- The memory of the statuses obtained by the automatic adjustments are backed up by a small built-in battery even after the power is switched off. The memory is not lost until the battery is exhausted or it is removed for replacement. (For the replacement, consult your nearest JVC-authorized service agent.)
- Even when the Iris mode switch in the lens section is set to "MANU", the iris closes automatically during the black balance adjustment and is left closed when the black balance adjustment is over.
- If the white square does not disappear during white balance adjustment though the Auto White/Black balance switch is kept flipped up, the color temperature may be out of the adjustable range or the lighting may not be bright enough. In such a case, re-set the color filter or increase the lighting.
- When shooting under different light sources, re-set the color filter and auto white/black balance every time.

REGISTRATION ADJUSTMENT (AUTO SHIFT REGISTRATION)

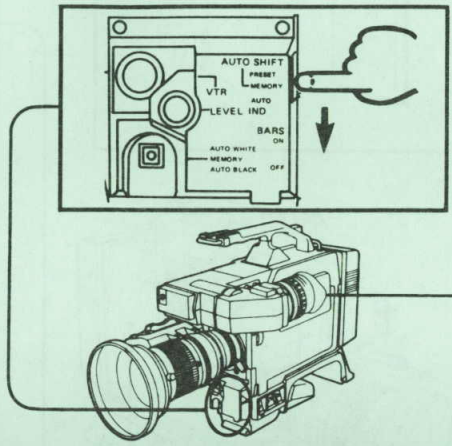
The registration circuit of the KY-210 is provided with an auto shift circuit. Registration adjustment using the auto shift function is performed following the procedure below.

Before adjustment, the white balance and black balance adjustment should have been performed.

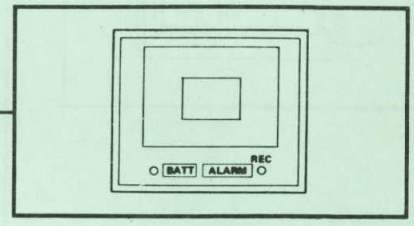
1 Shoot a black and white object with clear outlines (a registration pattern, crosshatch pattern, etc.) so that it fills the viewfinder screen.



2 Flip down and hold the AUTO SHIFT switch to the "AUTO" side.



3 A sign as shown below is displayed in the viewfinder screen and disappears when the adjustment is complete.



4 Now release the switch. The status obtained by the adjustment is automatically stored in memory.

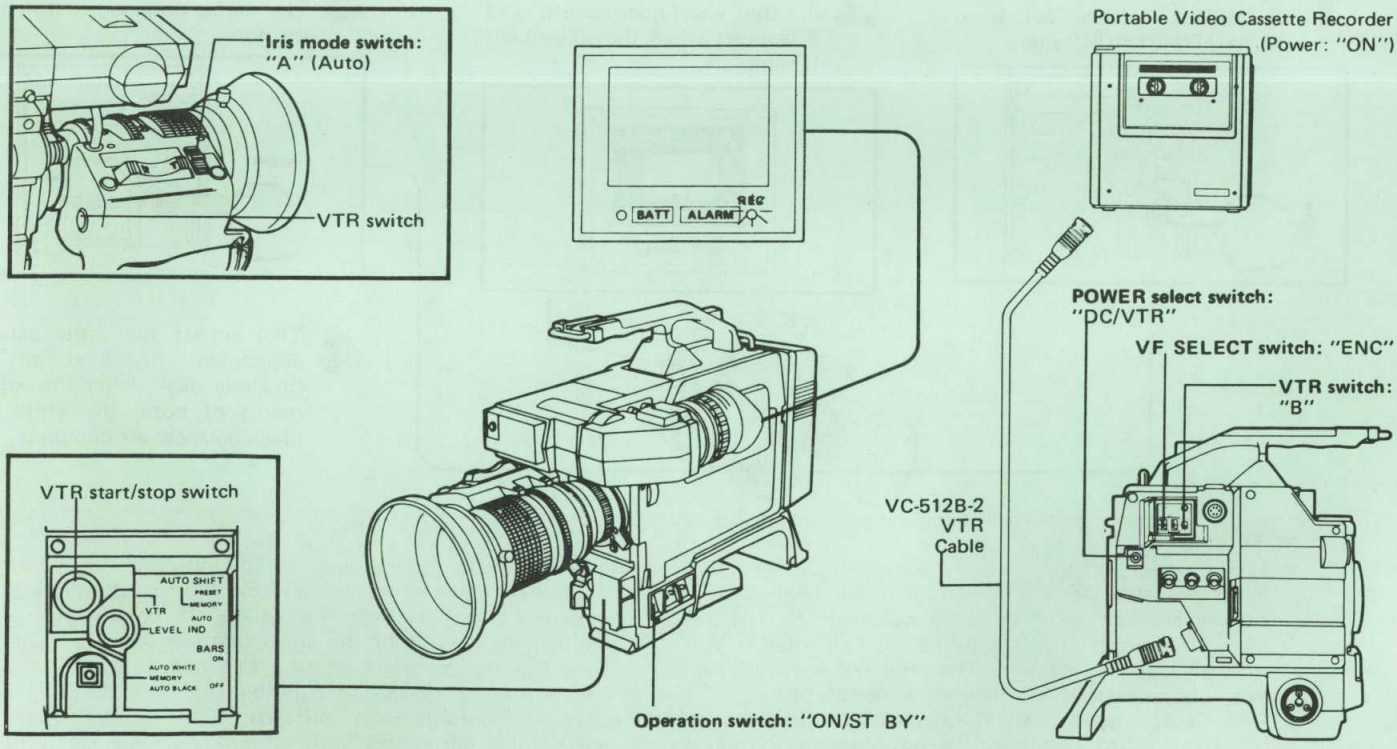
- **Object for use in adjustment**
  For correct auto shift registration, it is recommended to use the registration pattern provided.

NOTES:

- In this adjustment, set the distance between the object and camera so that the lens zoom position is around the center (not at tele or wide side).
- If the sign does not disappear though the AUTO SHIFT switch is kept flipped down, re-start adjustment, checking the following.

1) If the lens iris is adjusted properly (especially in manual iris operation).
2) If the focus is correct.
3) If the object has few edges or if it is colored.

RECORDING PROCEDURE — Using a Portable Video Recorder (JVC CR-4700) —



Before Recording

1. Connect the portable video recorder following the instruction in "Connection to Video Recorder".
2. Set the switches as indicated on the previous page.
3. Adjust the white and black balance.
4. Put the recorder in the record mode.
5. When the tape starts to tun, press the VTR switch on the lens.
   – The recorder will enter the record-pause mode.

   Now the preparations are complete.

Recording

1. Press the VTR switch on the lens to start recording.
   – The REC indicator (green) in the viewfinder will light.
2. To monitor the return video signal or video recorder playback signal in the viewfinder, press the RET switch on the lens.
   – When the camera is connected with an ordinary non-portable video recorder, the start and stop operation may have to be executed from the recorder.
3. To monitor the microphone signal, use the EARPHONE jack on the left side of the camera head.
4. The KY-210 is able to supply a colour framing pulse to the VCR via the 14-pin VTR connector only when the camera is synchronized internally. When external genlock is used, the colour framing pulse output is automatically cut off.

For the operation of the portable video recorder, see its instruction manual.

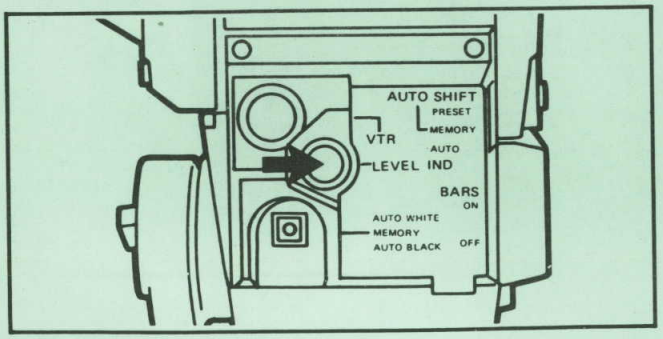
FACILITIES OF THE VF-215 VIEWFINDER

Video Level Indication

With the optional VF-215 Viewfinder, 90 to 100 % of the video signal level can be indicated by stripes. This zebra pattern is displayed only when the VF/TEST OUT SELECT switch is in the "ENC" position, and not in the "REG", "R", "G" and "B" positions.

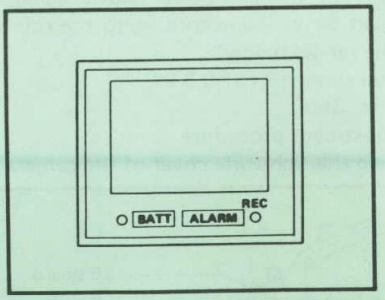
This video level indication is designed for use as the reference in manual iris control operation.

The LEVEL IND switch is an alternate switch which switches the indication on and off each time it is pressed.



Warning Indication

Two indicator LEDs are provided inside the VF-215 viewfinder to give a warning during shooting.



BATT lamp (red)

The red LED flashes when the camera battery or recorder battery (with specific recorders) is almost exhausted.

REC lamp (green)

The green LED lights during recording, interlocked with the lighting of the front tally lamp.

ALARM lamp (green)

The green LED flashes when the video recorder has servo trouble or the tape reaches its end (with specific recorders).

NOTE: The above warning functions depend on the recorder. For details of items which can be indicated, refer to the recorder's instruction manual.

Monitoring the Picture

When the camera and portable video recorder are connected via a VTR cable, the video signal from the recorder can be monitored in the viewfinder as shown below.
The playback video monitoring is especially convenient as it allows the picture to be checked immediately after recording.
The picture monitored differs according to the VF/TEST OUT SELECT switch position and the recorder used.

VCR model		Camera picture	Playback video
10-pin	CR-4400	Automatic switching when the switch is set to "ENC".	
	HR-C3		
	BR-6200		
14-pin	CR-4700	ENC	RET*

*RET: Monitoring is possible only when the RET switch on the lens is depressed. As the real-time monitoring function of the CR-4700 Portable VCR is treated the same as playback video monitoring, it is also possible only when the RET switch is depressed.

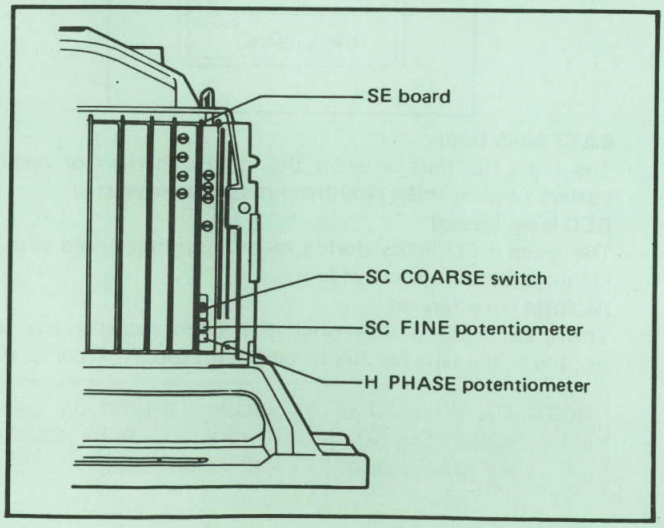
- For the video recorder playback operation, refer to the recorder's instructions.

GENLOCK OPERATION

The genlock operation is possible by applying a composite video signal (VBS) or black burst signal (BB) to the GEN-LOCK INPUT terminal.
The phase of the composite video signal output from the camera can be varied according to the reference input signal, within the ranges below.
Horizontal sync: +3 to –0.5 μs
Color sync: 360°

Phase adjustment procedure

1. Remove the right side cover of the camera.



2. Adjust the following controls on the SE board.
   H sync phase: H PHASE potentiometer
   Color sync phase: SC FINE potentiometer (±60°)
   SC COARSE switch (0°/120°/240°)

NOTE: The video recorder playback signal cannot be used for genlock operation. When the recorder playback signal has to be used as the reference signal, the signal should be corrected using a time base corrector (TBC), etc.

SPECIFICATIONS

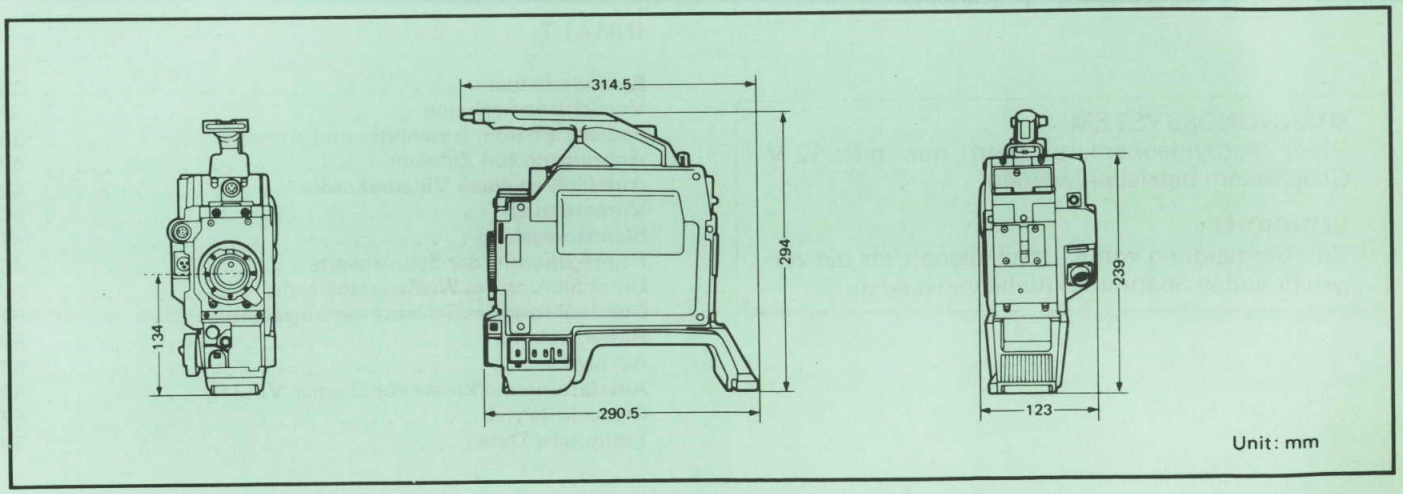
Colour Video Camera KY-210

Optical system : f/1.4 three-tube RGB prism system (with quartz filter)
Lens mount : Bayonet
Optical filter : Closed, 3200 K, 5600 K, 5600 K + 25 % ND
Pickup tubes : 2/3" Saticon* H4101
Electrostatic focus/electromagnetic deflection
Sensitivity : f/4 at 2000 lux
S/N ratio : 57 dB nominal (4.2 MHz Bandwidth -NTSC
54 dB nominal (5 MHz Bandwidth) -PAL
GAMMA; Unity
Contour corrector; OFF
Sensitivity selection : 0 dB, +9 dB, +18 dB
Minimum illumination : f/1.6, 40 lux (+18 dB switch ON)
Registration : Zone 1: Within 0.1 % (Circle 80 % of picture height)
Zone 2: Within 0.2 % (Circle of picture width)
Zone 3: Within 0.4 % (Zone outside the Zone 2)
Horizontal resolution : 650 lines (G ch center)
Contour correction : Horizontal: Dual-edged
Vertical: 2 H (with comb filter)
Encoder : NTSC (I.Q.)/PAL (U.V)
Matrix masking : Provided
Color bar generator : Provided.
Synchronizing system : Internal (built-in RS-170A SSG; NTSC/built-in PAL-B SPG; PAL) or External genlocking by composite video or black burst
Color framing pulse output provided
Blanking adjustment : Provided
Auto iris : Normal and +50 % (a half f stop) selector provided
Input signals : Return video signal: Composite video, 1 Vp-p, 75 Ω
Genlock signal: Composite video (VBS, 1 Vp-p, 75 Ω) or black burst (BB, 0.45 Vp-p, 75 Ω)
Microphone: -52 dBm, 600 Ω balanced
Output signals : Composite video signals (VBS): 1 Vp-p, 75 Ω (x 2, from BNC and 14-pin connectors)
Test signal (VS/VBS): R, G, B, R-G, B-G, ENC, AUX
Audio signal: -52 dBm, 600 Ω balanced/-20 dBs, unbalanced (switchable)
Audio monitor signal: 8 Ω, -20 dB
Video recorder control signal: Contact or +4 V supply (switchable)
Ambient temperature range : -20 to 45°C (-4 to 113°F)
Power consumption : 12 V DC, 1.5 A (NTSC)/1.55 A (PAL)
Weight : 3.5 kg (7.8 lbs)

Standard accessories : Mic holder (SCUA 30312)
Tripod base (KA-500),
Extension board,
Registration pattern (GP43078),
Dust cover,
Shoulder belt,
Chest rest (KA-111),
PWB extractor

*Registered trademark

Dimensions



Design and specifications subject to change without notice.

BEDIENUNGSANLEITUNG: FARBVIDEOKAMERA KY-210

Änderungen der in dieser Bedienungsanleitung enthaltenen Daten sind vorbehalten.

ACHTUNG:
SCHÜTZEN SIE DIESES GERÄT VOR REGEN UND FEUCHTIGKEIT, DAMIT ES NICHT IN BRAND GERÄT ODER EIN KURZSCHLUSS ENTSTEHT.

Schutz der Röhrenvorderseite
Die Röhrenvorderseite wird durch starke Lichtstrahlen beschädigt. Richten Sie deshalb die Kamera nicht direkt auf die Sonne. Wenn die Ablenkungsschaltung ausfällt, schalten Sie sofort den Netzschalter aus und bringen Sie den Objektivdeckel an, um die Röhre vor möglichen Beschädigungen zu schützen.
Ist die Kamera nicht in Gebrauch, versichern Sie sich bitte, daß der Objektivdeckel aufgesetzt und der Filter (⓮ auf Seite 36) in Stellung "1" gebracht ist.

SPANNUNGSSYSTEM
Diese Farbvideokamera kann nur mit 12 V Gleichstrom betrieben werden.

VORSICHT:
Zur Vermeidung von Kurzschlüssen stets die vorgeschriebene Spannungsquelle verwenden.

Vielen Dank für den Kauf der JVC-Farbvideokamera KY-210. Sie besitzen mit ihr eine äußerst kompakte und robuste Kamera, die für vielfältige Anwendungen bei Außen- und Innenaufnahmen konstruiert wurde. In Verbindung mit einem trabaren Videorekorder kann diese Kamera in nahezu jeder Aufnahmesituation verwendet werden.
Um alle Möglichkeiten dieser Kamera ausschöpfen zu können, empfehlen wir Ihnen, diese Bedienungsanleitung sorgfältig durchzulesen und bei auch später auftauchenden Fragen in dieser nachzuschlagen.

INHALT

BESONDERHEITEN

- **Hervorragendes Preis/Leistungsverhältnis mit einer Konzeption, die man bei ENG/EFP-Kameras vorfindet**
  Taktgeber nach PAL-B (mit Farbbildimpuls-Ausgang), variable H/V-Austastung, Genlock-Schaltung.
- **Kompakte, leichte und robuste Druckguß- Konstruktion für erhöhte Beweglichkeit und erleichterte Handhabung**
  Ein "Leichtgewicht" von nur 3,5 kg.
- **Hohe Bildqualität durch Prismen-Farbteiler und drei Saticon*-Aufnahmeröhren**
  Hohe Auflösung von 650 Linien, ein Videostörspannungsabstand von 54 dB und Minimalbeleuchtung von nur 40 Lux.
- **Zahlreiche automatische Funktionen zur Erleichterung der Handhabung und Kalibrierung**
  Automatische Rasterdeckung, Automatischer Weißwertabgleich, automatischer Schwarzwertabgleich, automatische Strahlstromregelung (ABC), automatische Schwarzwertregelung (ABL), automatische Servoregelung der Blende (NAM), automatischer Blendenverschluß.

Die Genlock-Schaltung erfordert eine stabile Eingangsquelle; die KY-210 kann nicht ohne Zeitfehlerausgleicher an einen Videorekorder mit Schrägspurabtastung gekoppelt werden.

* Eingetragenes Warenzeichen

VORSICHTSMASSNAHMEN

Allgemeine Sicherheitsmaßnahmen

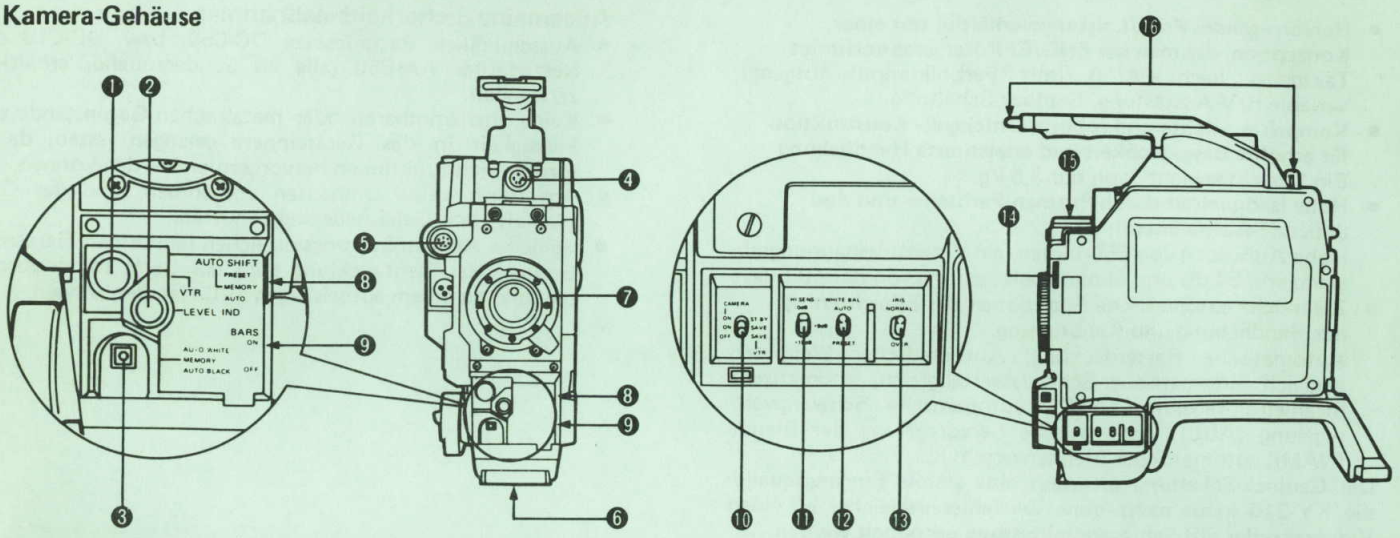
- Ausschließlich Batteriesätze DC-C50, bzw. DC-C19 oder Netzadapter AA-C50 (alle als Sonderzubehör erhältlich) verwenden.
- Keine entflammbaren oder metallischen Gegenstände oder Flüssigkeit in das Geräteinnere gelangen lassen, da ansonsten Fehlfunktionen hervorgerufen werden können.
- Am Gerät keine Umbauten vornehmen, und das Gerät niemals ohne Gehäusedeckel benutzen.
- Bei jeder Art von Störungsanzeichen (abnormale Geräusche, Geruch, Rauchentwicklung etc.) das Gerät sofort abschalten, und zu einem autorisierten JVC-Händler bringen.

Sicherheitsmaßnahmen bei Betrieb

- **Betriebsspannung**
  Sichergehen, daß die Spannungsversorgung im Bereich zwischen 10,5 V und 15 V Gleichstrom liegt. Bei zu schwacher Spannungsversorgung kommt es zu Farbverfälschungen und verstärkten Rauschstörungen. Auf keinen Fall mehr als 15 V verwenden, da ansonsten das Gerät beschädigt werden kann.
- **Vorheizen**
  Das Gerät ist ca. 40 Sekunden nach Einschalten der Spannungsversorgung für normale Betriebsbedingungen ausreichend stabilisiert. Eine besser Stabilisierung ergibt sich jedoch erst nach Ablauf von 10 Minuten und darüber.
- **Schutz der Aufnahmeröhre**
  Das Objektiv niemals direkt auf Sonnenlicht oder andere sehr helle Lichtquellen richten, auch nicht auf Leuchtstofflampen, Reflektoren etc.; dies gilt auch für die nicht eingeschaltete Kamera, um jede Beschädigung der Aufnahmeröhre zu vermeiden. Bis zu Beginn der Aufnahme, bzw. der Aufnahmevorbereitungen das Objektiv stets abgedeckt halten.
- **Anschluß an einen tragbaren Videorekorder**
  Je nach Videorekorder-Modell sind unterschiedliche Verfahren und Kabel für die Start/Stop-Steuerung erforderlich. Daher vor Anschluß bitte den Abschnitt "Anschluß an einen Videorekorder" auf Seite 44 sorgfältig durchlesen.
- **Intercom-Kopfhörer**
  Wird der Empfänger eines Intercom-Kopfhörers zu nahe bei der Kamera plaziert, kann der Magnetismus Rasterdeckung und Farbabgleich beeinträchtigen. Deshalb den Kopfhörer niemals auf der Kamera ablegen.
- **Umgebungstemperatur**
  Die Betriebstemperatur der Kamera variiert in Abhängigkeit vom verwendeten Röhrentyp. Angaben hierzu finden sich im Abschnitt "Technische Daten" auf Seite 58. Im Bereich der zulässigen Höchsttemperaturen sollte die Betriebsdauer auf maximal eine Stunde eingeschränkt werden, um Schäden der Röhren zu vermeiden.
- In der Nähe starker elektromagnetischer Wellen oder Magnetfelder, z.B. von einem Transformator, Elektromotor etc., können Bildstörungen und Farbverfälschungen auftreten.
- Wird in der Nähe der Kamera ein drahtloses Mikrofon/ein drahtloser Mikrofonempfänger verwendet, können Störgeräusche im Empfänger auftreten. In diesem Fall einen anderen Kanal wählen.

BEDIENELEMENTE, ANSCHLÜSSE UND ANZEIGEN

Kamera-Gehäuse



❶ **Videorekorder-Steuerschalter (VTR)**
Für Start/Stopschaltung des Videorekorders. Bei Verwendung des Standard-Zoomobjektivs hat diese Taste die gleiche Funktion wie die VTR-Taste am Objektiv.

❷ **Pegelanzeige -Schalter (LEVEL IND.)** (Siehe Seite 55)
Für die Ein/Ausschaltung der Videopegelanzeige im Sucher.

❸ **Schalter für automatischen Weiß- und Schwarzwertabgleich**
Automatischer Weißwertabgleich ist möglich, wenn der WHITE BAL.-Schalter ⓬ bei Aufnahme einer weißen Vorlage auf die Position "AUTO" eingestellt ist.

AUTO WHITE: Wird der Schalter in dieser Position gehalten, erfolgt der automatische Weißwertabgleich.

AUTO BLACK: Wird der Schalter in dieser Position gehalten, schließt sich die Blende, und es erfolgt der automatische Schwarzwertabgleich.

MEMORY: In dieser Schalterposition werden die oben genannten Einstellungen gespeichert.

❹ **Sucherbuchse (VF)**
Wurde der als Sonderzubehör erhältliche Sucher auf den Sucherschuh ⓯ aufgeschoben, kann hier der Anschluß an die Kamera hergestellt werden.

❺ **Objektivbuchse (LENS)**
Hier das Kabel des Standardobjektivs anschließen.

❻ **Stativanschluß**

❼ **Objektiv-Anschlußring**

❽ **Schalter für automatische Rasterdeckung (AUTO SHIFT)**
PRESET: Für voreingestellte Rasterdeckung.
MEMORY: In dieser Schalterposition wird diese Einstellung gespeichert.
AUTO: Wird der Schalter in dieser Position gehalten, erfolgt bei Aufnahme eine automatische Zentriereinstellung der Rasterdeckung.

❾ **Farbbalkenschalter (BARS)**
Wird der Schalter unter der Abdeckung auf Position "ON" gestellt, liegt am Videoausgang ein Farbbalkensignal an.

❿ **Betriebsschalter (CAMERA ON/ON/OFF, VTR ST-BY/SAVE/SAVE)** (Siehe Seite 47)
Drei Positionen stehen zur Verfügung: Ein/Ausschaltung der Kamera-Spannungsversorgung und Batteriesparschaltung für Videorekorder.

⓫ **Empfindlichkeitsschalter (HI-SENS)**
Bei schwachen Lichtverhältnissen kann die Empfindlichkeit um +9 dB oder +18 dB angehoben werden. Im Normalfall sollte die Position "0 dB" eingestellt sein.

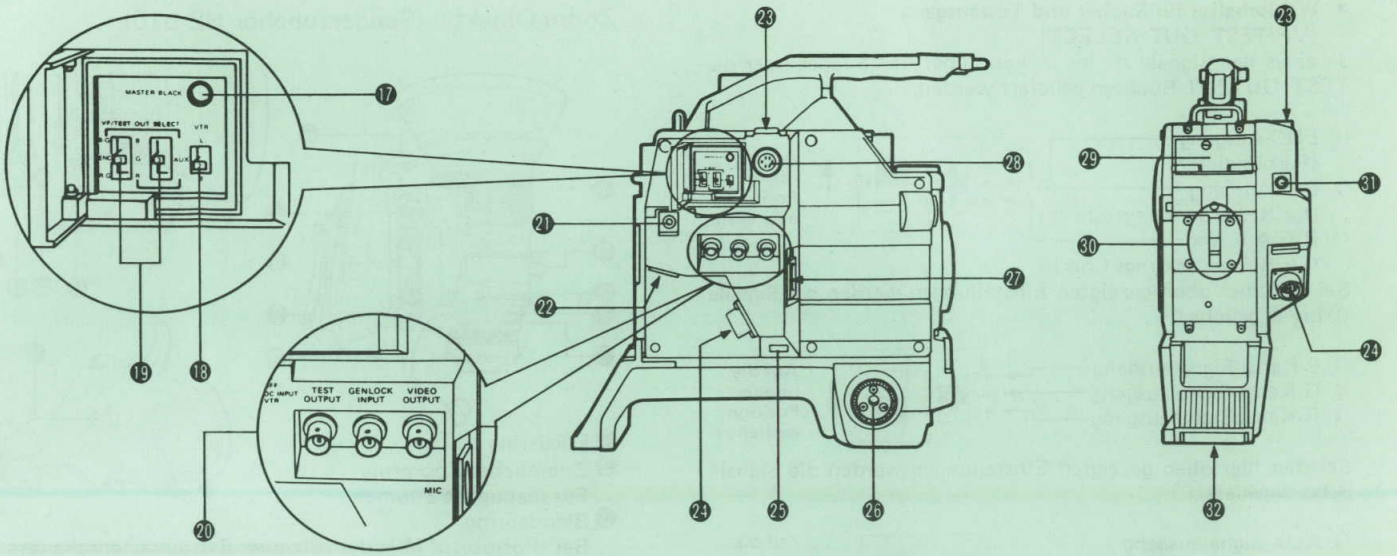
⓬ **Schalter für Weißwertabgleich-Funktion (WHITE BAL.)**
AUTO: Für automatischen Abgleich mit Schalter ❸.
PRESET: Voreingestellter Farbtemperaturwert von 3200 K.

⓭ **Blendenpegel-Schalter (IRIS)** (Siehe Seite 48)
Für die Variierung des Standardpegels bei automatischer Blendenregelung.

⓮ **Filterrad**
Das Filterrad für Neutral- und Farbtemperaturfilter besitzt 4 Positionen.
1. CLOSE: Eintspricht dem abgedeckten Objektiv.
2. 3200 K: Für Außen- und Innenaufnahmen bei schwachen Lichtverhältnissen.
3. 5600 K: Für Außenaufnahmen.
4. 5600 K +25 % ND: Eine Kombination eines Neutralfilters mit 25 % Wirkung und dem 5600-K-Farbfilter für Außenaufnahmen unter sehr hellen Lichtbedingungen.

⓯ **Sucherschuh**
Für den als Sonderzubehör erhältlichen Sucher VF-215.

⓰ **Schultergurt-Befestigungshaken**
Für den mitgelieferten Schultergurt.



⑰ Schwarzwertregler (MASTER BLACK)

⑱ VTR-Wahlschalter (VTR)
(Siehe Seite 42)
Entsprechend der Start/Stop-Steuerschaltung des angeschlossenen Videorekorders einstellen.

⑲ Sucher- und Testausgangsignal-Wahlschalter (VF/TEST OUT SELECT) (Siehe Seite 39)
Zur Wahl des Signalausgangs der TEST OUTPUT-Buchse und des Suchers.

⑳ Signalbuchsen

Videoausgang (VIDEO OUTPUT)	: Hier liegt das FBAS-Signal an.
Genlock-Eingang (GENLOCK INPUT)	: Für Genlock-Betrieb der Kamera sollte an diese Buchse das FBAS- oder Black Burst-Signal extern gelegt werden.
Testausgang (TEST OUTPUT)	: Hier liegt das über den VF/TEST OUT SELECT-Schalter ⑲ gewählte Testsignal an.

㉑ Spannungs-Wahlschalter (POWER)
Mit diesem Schalter kann die Spannungsversorgung bestimmt oder komplett abgeschaltet werden.

RS:	Bei Verwendung der als Sonderzubehör erhältlichen Fernsteuerung RS-500 auf diese Position stellen.
OFF:	Die Spannungsversorgung der Kamera ist komplett abgeschaltet.
DC INPUT/VTR:	Die Spannungsversorgung erfolgt über die DC INPUT- ㉒ oder VTR-Buchse ㉔.

HINWEIS: Angaben zur zulässigen Spannungsversorgung vom Rekorder finden sich in dessen Bedienungsanleitung.

㉒ Buchse für Gleichstromversorgung (DC INPUT)
Diese 4-pol-XLR-Buchse ist für 12 V Gleichstromversorgung von Batteriesatz DC-C50 oder Netzadapter AA-C50 (beide als Sonderzubehör erhältlich) vorgesehen.

Stift-Nr.	Funktion
1	ERDE
2	
3	
4	+12 V

㉓ Mikrofon-Schuh

㉔ Videorekorder-Buchse (VTR)
Diese 14-pol-Buchse ist für den Anschluß eines tragbaren Videorekorders vorgesehen.

Stift-Nr.	Funktion	Stift-Nr.	Funktion
1	GLEICHSTROM (ERDE)	8	ERDE
2	GLEICHSTROM 12-V-EINGANG	9	VIDEOREKORDER-SIGNAL-EING.
3	MIK. (SPANN.FÜHREND)	10	BATTERIEANZEIGE-EING.
4	MIK. (OHNE SPANN.)	11	FARBBILDIMPULS-AUSG.
5	MIK. ABSCHIRMUNG	12	AUFNAHME/WARNSIGNAL-EING.
6	VIDEO-AUSG./EING. (SPANN.FÜHREND)	13	VIDEOREKORDER-START/STOP-SIGNAL-AUSG.
7	VIDEO-AUSG./EING. ABSCHIRMUNG	14	BATTERIESPAR-AUSG./AUDIOMONITOR-EING.

㉕ Mikrofonausgangspegel-Schalter (MIC LEVEL)
Der via VTR-Buchse ㉔ laufende Audio-Ausgangspegel kann in zwei Stufen geschaltet werden.
HIGH: Ca. -20-dB-Pegel.
LOW: Mikrofonausgangspegel.

㉖ Bruststützenverriegelung

㉗ Mikrofon-Eingangsbuchse (MIC INPUT)
Diese Buchse ist für den Anschluß von Mikrofonen mit 4-pol-XLR-Stecker vorgesehen. Der Eingang läuft parallel zur MIC-Buchse ㉘.

㉘ Exklusiv-Mikrofonbuchse (MIC) (Siehe Seite 43)
Für Anschluß des als Sonderzubehör erhältlichen Mikrofons M-K50. Die Spannungsversorgung für dieses Elektret-Kondensator-Mikrofon erfolgt über diese 6-pol-Buchse.

㉙ Anschluß für Fernsteuerung
Bei Verwendung der als Sonderzubehör erhältlichen Fernsteuerung RS-500 deren Kameraadapter hier anschließen. (Detaillierte Angaben befinden sich in der Bedienungsanleitung der RS-500.)

㉚ Batterie-Halterung
Batteriesatz DC-C50 oder DC-C19 (beide als Sonderzubehör erhältlich) können auf die Kamerarückseite aufgeschoben werden.

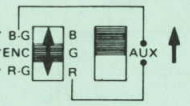
㉛ Kopfhörerbuchse (EARPHONE)
Liefert der verwendete tragbare Videorekorder ein Audiosignal zur Kamera, kann das Wiedergabe-Audiosignal über diese 3,6-mm-Minibuchse abgehört werden.

㉜ Stativanschluß

■ **Wahlschalter für Sucher und Testausgang (VF/TEST OUT SELECT)**

Je eines der Signale ① bis ⑦ kann über den Sucher oder die TEST OUTPUT-Buchsen geliefert werden.

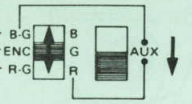
① ENC-Ausgang (Farbkodierer)
② B-G-Ausgang (für Rasterdeckungs-Check)
③ R-G-Ausgang (für Rasterdeckungs-Check)



Auf die obere Position einstellen.

Bei den hier oben gezeigten Einstellungen werden die Signale ① bis ③ geliefert.

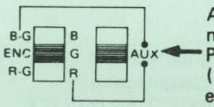
④ B-Kanal-Signalausgang
⑤ G-Kanal-Signalausgang
⑥ R-Kanal-Signalausgang



Auf die untere Position einstellen.

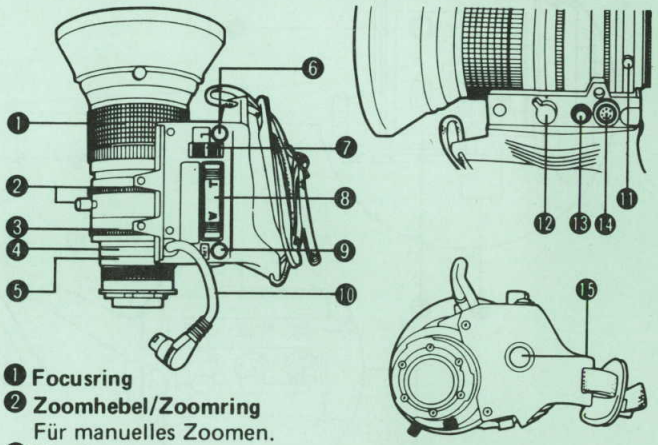
Bei den hier oben gezeigten Einstellungen werden die Signale ④ bis ⑥ geliefert.

⑦ AUX-Signalausgang
Dieses wird bei der rechts gezeigten Einstellung geliefert.



Auf die mittlere Position ("AUX") einstellen.

Zoom-Objektiv (Sonderzubehör HZ-510)

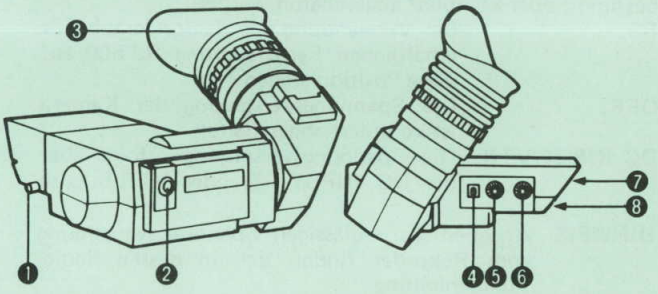


❶ **Focusring**
❷ **Zoomhebel/Zoomring**
Für manuelles Zoomen.
❸ **Blendenring**
Bei Position "M" des Blenden-Betriebsartenschalters ❼ kann die Blende mit diesem Ring manuell geöffnet und geschlossen werden.
❹ **Schnittweitenring**
Für die Justierung der Schnittweite.
❺ **Makroring**
❻ **Kurzzeit-Blendenschalter**
Auch bei manueller Blendenregelung, wenn der Blenden-Betriebsartenschalter auf Position "M" gestellt ist, kann auf automatische Blendenregelung umgeschaltet werden, solange diese Taste gedrückt gehalten wird.

❼ **Blenden-Betriebsartenschalter**
A: Für automatische Blendenregelung.
M: Für manuelle Blendenregelung.
R: Für Fernbedienbetrieb (mit Fernsteuerung RS-500)
❽ **Zoom-Servoschalter**
Mit diesem Wippschalter können Zoomrichtung und -geschwindigkeit geregelt werden.
❾ **Rekordersignal-Schalter (RET)**
Bei gedrücktem Schalter kann das vom Videorekorder kommende Videosignal im Sucher überwacht werden.
❿ **Objektivkabel**
Mit der LENS-Buchse des Kameragehäuses verbinden.
⓫ **Sicherungsknopf**
Für die Fixierung des Schnittweitenrings
⓬ **Zoom-Betriebsartschalter (ZOOM)**
S: Für Servozoomen
M: Für manuelles Zoomen.
⓭ **Anschluß für Servo-Focussteuerung**
⓮ **Anschluß für Servo-Zoomsteuerung**
⓯ **Betriebsartenschalter für die Videorekorder-Steuerung**
Für die Start/Stop-Schaltung des Videorekorders.

HINWEIS: Wird ein anderes als das als Sonderzubehör erhältliche Objektiv HZ-510 verwendet, kann das Bild am oberen und unteren Rand dynamische Abschattungen enthalten; in diesem Fall sind interne Einstellungen und eventuell eine Neu-Justierung der Schnittweite notwendig. Weitere Informationen sind bei einem Fachhändler erhältlich.

Sucher (Sonderzubehör VF-215)

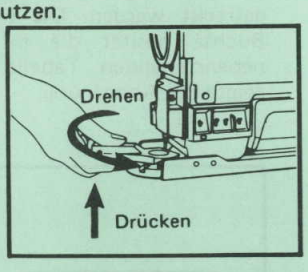


❶ **Befestigungsschraube**
Für die Anbringung des Suchers am Kameragehäuse.
❷ **Rotlicht**
Ist die Kamera an einem trabaren Videorekorder angeschlossen, gibt diese LED bei Aufnahmebetrieb ein Leuchtsignal.
❸ **Okular**
Ein Dioptrie-Ausgleich ist vorhanden.
❹ **Spitzenwert-Schalter (PEAKING)**
Für die Verstärkung der Bildkonturen, um die Schärfeeinstellung zu erleichtern.
❺ **Kontrastregler (CONTRAST)**
❻ **Helligkeitsregler (BRIGHT)**
❼ **Sucher-Anschluß**
Der Anschluß wird bei Anbringung des Suchers am Kameragehäuse hergestellt.
❽ **Sucherfuß**

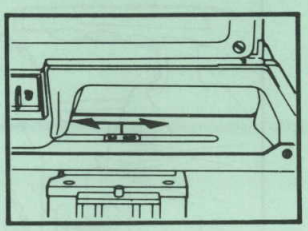
ANBRINGUNG VON ZUBEHÖR

Anbringung an einem Stativ (Mit Stativadapter KA-500)

1. Der Stativadapter besitzt 1/4"- und 3/8"-Gewindeöffnungen; die geeignete Öffnung benutzen.
2. Die Kamera am Stativadapter befestigen (wobei sich der Adapterhebel unter der Kamera-Frontseite befinden muß). Die Befestigung sichern, indem der Hebel bei gedrückt gehaltenem Verriegelungsknopf in Richtung Einrastkerbe bewegt und in dieser arretiert wird.



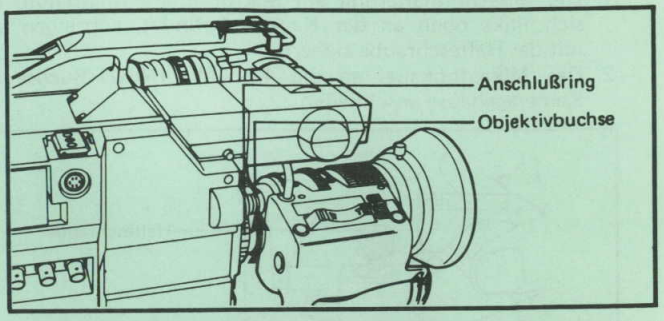
3. Die Gewindeöffnungen des Stativadapters können vor-/rückwärts verschoben werden. Zur Ausbalancierung der Kamera die Stativschraube lösen, die Kamera auf die erforderliche Position verschieben, und die Schraube wieder festziehen.



HINWEIS: Bei Abnahme der Kamera vom Stativ den Hebel des Stativadapters nicht zu heftig bewegen, damit die Kamera nicht herunterfällt. Den Hebel stets langsam umlegen, und dabei die Kamera mit der anderen Hand halten.

Anbringung des Objektivs (Sonderzubehör HZ-510)

– Vor Anbringen/Abnehmen des Objektivs das Filterrad auf Position 1 ("CLOSE") stellen.

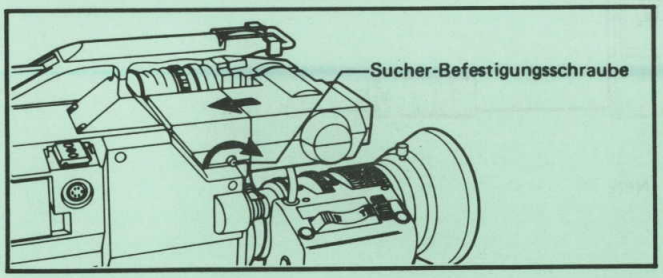


1. Die Kappe am Objektiv-Anschlußring abnehmen; dabei darauf achten, daß kein Staub etc. in die Öffnung eindringt.
2. Den Stift am Objektiv auf die Nut am Anschlußring ausrichten, und dann den Anschlußring im Uhrzeigersinn drehen, bis Objektiv und Anschlußring fest miteinander verbunden sind.
3. Das Objektivkabel am Kameragehäuse anschließen.

HINWEIS: Sichergehen, daß das Objektiv korrekt angebracht wird; andernfalls kann die Schnittweiteneinstellung ungenau sein.

Anbringung des Suchers (Sonderzubehör VF-215)

1. Den Sucher von vorne auf die Kamera-Frontseite aufschieben, wobei die Nut am Sucher auf den Sucherschuh der Kamera ausgerichtet werden muß.
2. Wenn der Sucher festen Kontakt hat, die Sucher-Befestigungsschraube mit einem Schraubenzieher festziehen.



Betriebsartensteuerung des Videorekorders

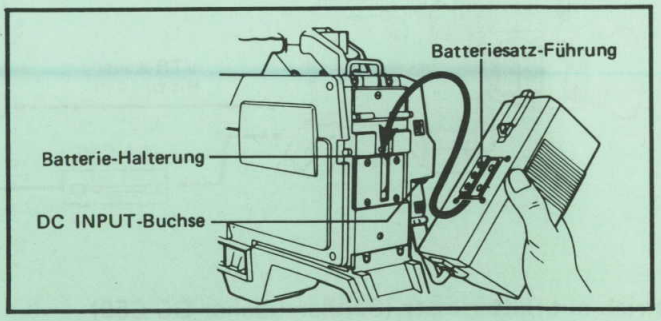
Der VTR-Wahlschalter erlaubt die Umschaltung des Videorekorder-Start/Stop-Signals, je nach Videorekorder. Den Schalter entsprechend der folgenden Tabelle einstellen.

Schalterposition	Rekorder-Buchse	Steuer-Art
L	10-pol	Erdungskontakt
B	14-pol	+4 V-Kontakt

HINWEIS: Der VTR-Wahlschalter wird ab Werk auf Position "B" eingestellt.

Anbringung des Batteriesatzes (Sonderzubehör DC-C50)

1. Die Führung des Batteriesatzes an die Batteriehalterung ㉚ andrücken und nach unten schieben, bis der Satz einrastet.
2. Den Batteriesatz-Stecker an die DC INPUT-Buchse ㉒ der Kamera anschließen.



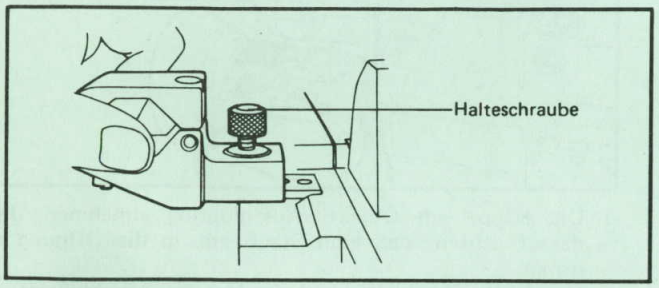
Betrieb mit Batteriesatz

- Mit einem voll aufgeladenen Batteriesatz DC-50 sind bei normalen Umgebungstemperaturen (ca. 25°C) ca. 60 Minuten Kamerabetrieb möglich.
- Sichergehen, daß der Batteriesatz vor Aufnahmebetrieb geladen wird. Es ist empfehlenswert, Ersatz-Batteriesätze bereitzuhalten.
- Wenn die BATT-Anzeige (rot) im Sucher ein Blinksignal gibt, den Batteriesatz auswechseln.
- Zum Aufladen des Batteriesatzes sollte der als Sonderzubehör erhältliche Netzadapter AA-C50 verwendet werden. Angaben zum Ladevorgang finden sich in der Bedienungsanleitung des AA-50.

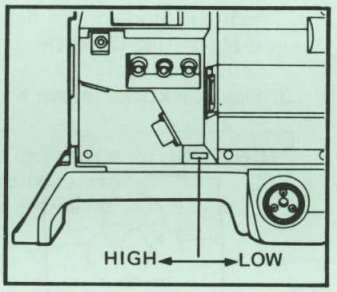
Anbringung von Mikrofonen

– Mikrofone können unter Verwendung der mitgelieferten Mikrofonhalterung am Kameragehäuse angebracht werden.

1. Die Mikrofonhalterung am Mikrofonhalterungsschuh, der sich links oben an der Kamera befindet, anbringen und mit der Halteschraube sichern.
2. Das Mikrofonkabel an die 4-pol-MC INPUT-Buchse am Kameragehäuse anschließen.

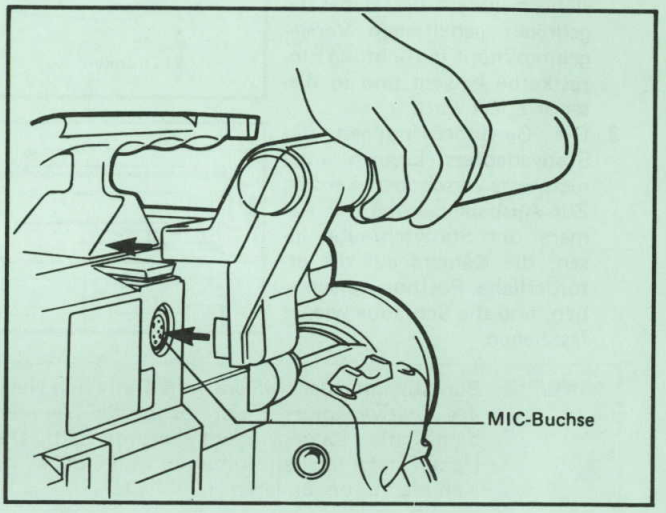


Mikrofon-Ausgangspegel
Der Mikrofon-Ausgangspegel kann auf Position "HIGH" (ca. -20 dB) und "LOW" (durchgeschalteter Ausgang).



Exklusiv-Mikrofon (Sonderzubehör M-K50)
Mikrofon M-K50 kann direkt auf das Kameragehäuse aufgesteckt werden. Die 6-pol-Buchse besitzt die in der nebenstehenden Tabelle gezeigte Pol-Anordnung.

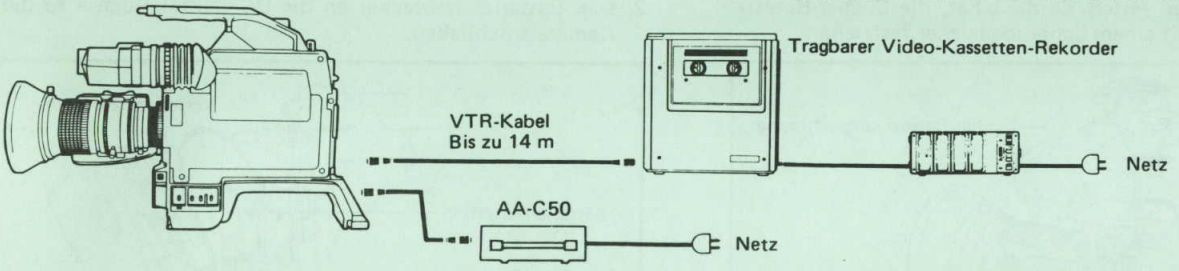
Pol-Nr.	Funktion
A	NICHT BELEGT
B	+9-V-AUSGANG
C	ERDE
D	MIK. (SPANN. FÜHR.)
E	MIK. (OHNE SPANN.)
F	ERDUNGS-ABSCHIRMUNG



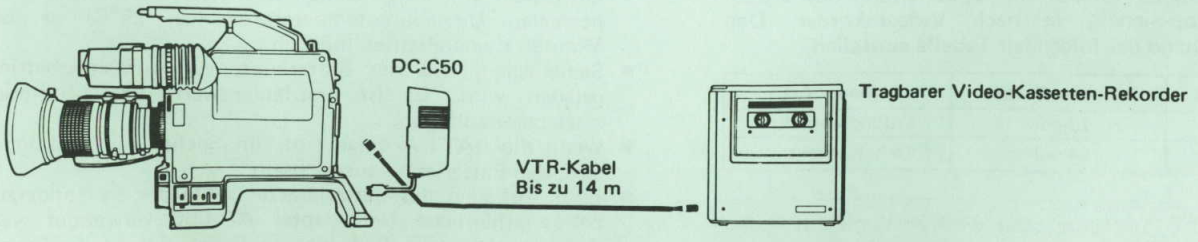
ANSCHLUSS AN EINEN VIDEOREKORDER

Betrieb bei Netzanschluß

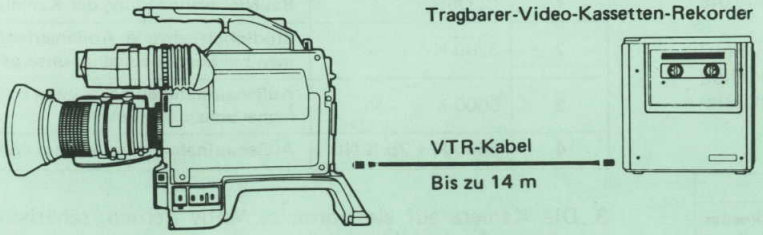
KY-210 und AA-C50 sind optimal auf den Betrieb mit tragbaren Videorekordern von JVC abgestimmt. Die unten gezeigten Anschlüsse sind bei Betrieb mit einigen Videorekordern anderer Hersteller nicht anwendbar. Vor Anschluß sollten daher Informationen bei einem Fachhändler eingeholt werden.



Betrieb mit Batteriesatz (Sonderzubehör DC-C50)



Betrieb bei Spannungsversorgung von einem tragbaren Videorekorder



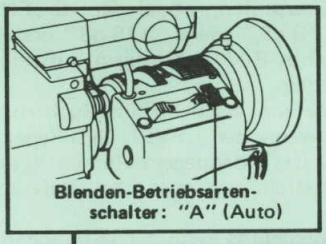
HINWEIS: Wird die Kamera über die Rekorder-Batterie gespeist, ist der Betrieb aufgrund der eingeschränkten Batterie-Kapazität möglicherweise nicht oder nur über einen sehr kurzen Zeitraum durchführbar. Die Spannungsversorgung der Kamera sollte nicht über der zulässigen Stromleistung des Rekorders liegen.

Angeschlossener Videorekorder	VTR-Kabel, 2 m (Verlängerung 10 m)	Steuerung	Mikrofonpegel	Audio-Überwachung	Warnanzeigen	
					Kamera/Rekorderbatterie	Bandende/Servostörung
CR-4400	VC-511B-2 (VC-582B)	L	H: -20 dB	X	O/X	X
HR-C3	VC-511B-2 (VC-582B)	L	H: -20 dB	O	O/O	X
BR-6200	VC-511B-2 (VC-582B)	L	H: -20 dB	X	O/X	X
CR-4700	VC-512B-2 (VC-589B)	B	L: -52 dBm o. H: -20 dB	O	O/O	O

O: Möglich
X: Nicht möglich

VORBEREITUNG

1



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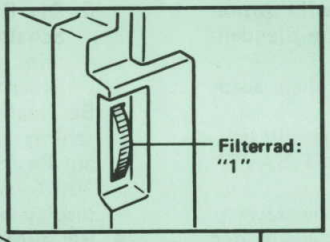

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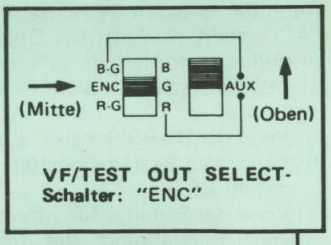
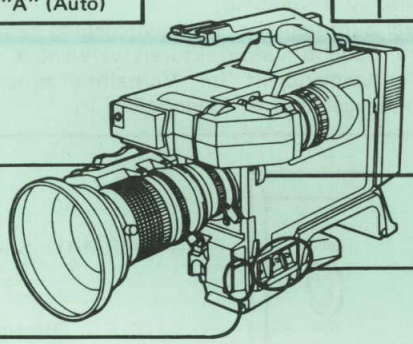
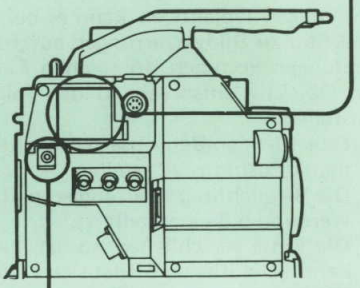


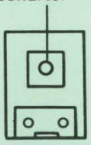
VF/TEST OUT SELECT-Schalter: "ENC"





4

BARS-Schalter: "OFF"



5

Betriebsschalter: "OFF/SAVE"
WHITE BAL-Schalter: "PRESET"

HI SENS-Schalter: 0 dB"
IRIS-Schalter: "NORMAL"

6

POWER-Schalter

- Bei Spannungsversorgung von Fernsteuerung RS-500: "RS"
- Bei Spannungsversorgung von Netzadapter AA-C50, Batteriesatz DC-50 oder vom Videorekorder: "DC/VTR"

Um ein klares Bild mit korrekter Farbwiedergabe zu erzielen, ist die Regelung von Weiß- und Schwarzwertabgleich sowie der Rasterdeckung erforderlich. Vor diesen Regelungen diese Schalter wie folgt einstellen.

1. Den OPERATE-Schalter auf "ON/SAVE" stellen.
   - Strahlstrom fließt in die Aufnahmeröhren und die Blende wird geöffnet.
   - Der OPERATE-Schalter besitzt die drei folgenden Positionen. In Verbindung mit einigen Rekordermodellen ist bei Verwendung der "SAVE"-Positionen Batteriesparbetrieb möglich.

Schalterposition	Kamerastatus	Rekorderstatus	
		14-pol-Rekorder	10-pol-Rekorder
ON/ST BY	Eingeschaltet	Betriebsbereit	Betriebsbereit
ON/SAVE	Eingeschaltet	Batteriespar.	Betriebsbereit
OFF/SAVE	Abgeschaltet	Batteriespar.	–

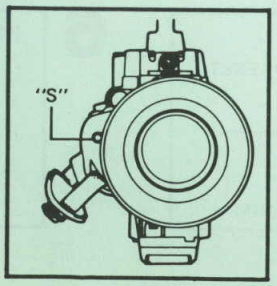
2. Zur Erzielung von farbechten Bildern das Filterrad den Beleuchtungsbedingungen entsprechend einstellen.

Radposition	Einstellung	Bedingungen
1	CLOSE	Bei Nichtverwendung der Kamera
2	3200 K	Studiobeleuchtung, Außenaufnahmen bei Sonnenaufgang/-untergang
3	5600 K	Außenaufnahmen bei trübem oder regnerischem Wetter
4	5600 K + 25 % ND	Außenaufnahmen bei klarem Wetter

3. Die Kamera auf ein normales Motiv richten, scharfstellen und das Sucherbild einstellen.
   - Die BRIGHT- und CONT-Regler des Suchers einstellen.
   - Eine blinkende BATT-Anzeige (rot) signalisiert eine nahezu erschöpfte Batterie; diese durch eine frische, voll aufgeladene ersetzen.

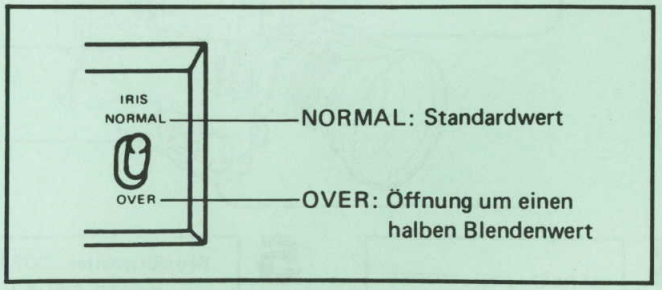
BLENDENREGELUNG

- Wenn der Blenden-Betriebsartenschalter (A/M) auf Position "A" gestellt wird, ist bei Objektiv HZ-510 keine Blendeneinstellung erforderlich.
  Die Blende schließt sich in den folgenden Fällen automatisch:
  1) Wenn der BARS-Schalter auf Position "ON" gestellt ist.
  2) Wenn der Betriebsschalter auf Position "OFF/SAVE" gestellt ist.
  3) Wenn der Schalter für automatischen Weiß/Schwarzwertabgleich während des Schwarzwertabgleichs in der Position "AUTO BLACK" gehalten wird.
- Bei einigen Objektiven kann es bei der Blendenautomatikfunktion zu Bildverzerrungen aufgrund von Über-/Unterbelichtungen kommen. In solchen Fällen Potentiometer "S" am Objektiv entsprechend den folgenden Bedienschritten einstellen.
  1. Den Blenden-Betriebsartenschalter (A/M) auf die Automatik Position "A" stellen.
  2. Die Beleuchtung so arrangieren, daß die Blende auf einen Wert von 5,6 eingestellt ist.
  3. Die Linse verschließen, so daß kein Licht mehr einfallen kann. (Die Blende öffnet sich vollständig.)
  4. Die Abdeckung wieder entfernen. Falls der Blendenwert 5,6 nicht stabil eingehalten wird, Potentiometer "S" justieren.



5. Die Blendenfunktion überprüfen, wobei der HI-SENS-Schalter auf Position "+9 dB" sowie "+18 dB" gestellt sein muß. Falls weiterhin Bildverzerrungen auftreten, Schritte 2 bis 4 wiederholen.

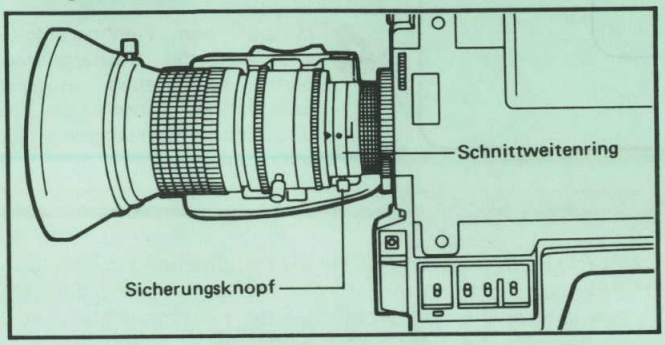
- Bei manueller Blendenregelung erscheint im Sucherbildschirm ein Zebradisplay, wenn der LEVEL IND-Schalter auf Position "ON" gestellt ist; Videopegel zwischen 90 und 100 % werden durch Streifen angezeigt. Als Referenzdisplay verwendbar.
- Bei automatischer Blendenregelung kann der IRIS-Schalter zu Belichtungskorrekturen verwendet werden, wenn das Aufnahmeobjekt im Verhältnis zum durchschnittlichen Bildpegel dunkler (oder heller) ist.



FEINREGULIERUNG DER SCHNITTWEITE

Bei Objektiv HZ-510 kann die Schnittweite am Objektivgehäuse reguliert werden. Vor der Regulierung sichergehen, daß das Objektiv fest am Kameragehäuse angebracht ist.

1. Eine Rasterdeckungs-Vorlagekarte bei voll geöffneter Blende aufnehmen (bei manueller Blendenregelung).
2. Bei zu hellen Lichtbedingungen den Lichteinfall verringern oder den Standort wechseln.
3. Bei Betrachtung des G-Signals im Sucher einzoomen und scharfstellen.
4. Auf die Weitwinkelposition auszoomen, den Sicherungsknopf durch Drehen im Gegenuhrzeigersinn lösen, und den Schnittweitenring drehen, bis die Schnittweite optimal eingestellt ist.

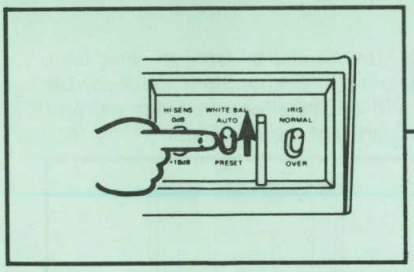


5. Diesen Vorgang zur Feinregulierung mehrmals wiederholen.
6. Nach der Justierung den Sicherungsknopf wieder festziehen.

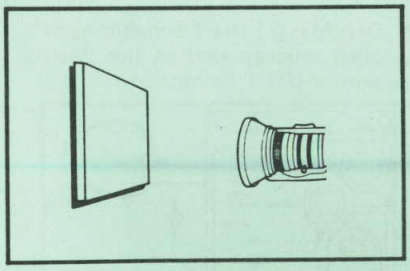
HINWEIS: Die Schnittweitenregulierung ist akkurater, wenn die Entfernung zwischen Aufnahmegegenstand (Vorlagekarte) und Kamera mehr als 3 m beträgt.

WEISSWERTABGLEICH

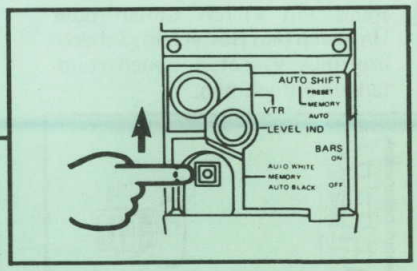
1 Den WHITE BAL-Schalter auf "AUTO" stellen.

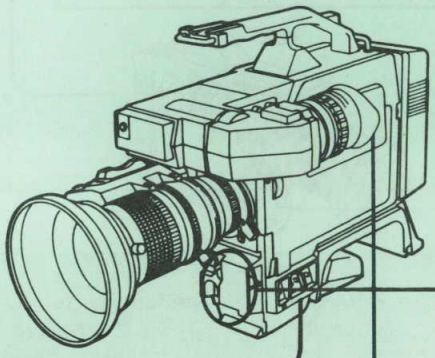


2 Eine weiße Vorlage (Stoff, Wand etc.) sucherbildfüllend aufnehmen.

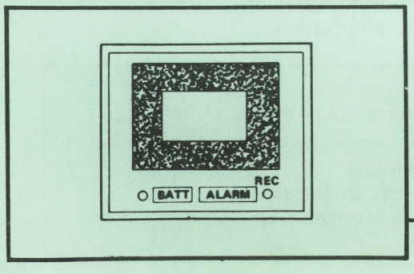


3 Den Schalter für automatischen Weiß- und Schwarzwertabgleich nach oben drücken und in der Position "AUTO WHITE" halten.

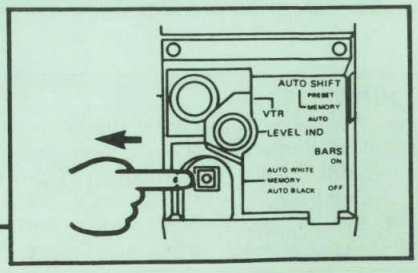




4 Im Sucherbildschirm erscheint ein weißes Viereck, bis der Abgleich beendet ist, und erlischt dann wieder.

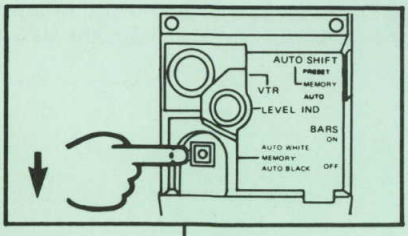


5 Den Schalter loslassen. Der mit diesem Weißwertabgleich erzielte Korrekturwert wird gespeichert.

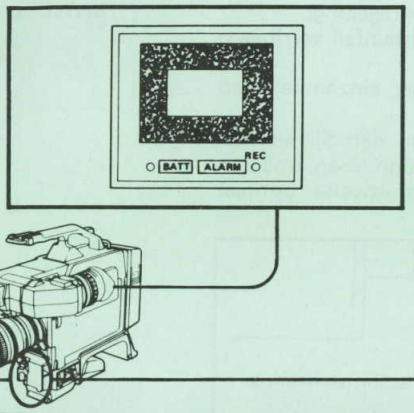


SCHWARZWERTABGLEICH

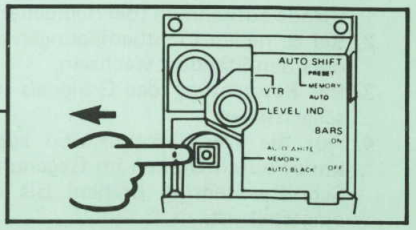
1 Den Schalter für automatischen Weiß- und Schwarzwertabgleich nach unten drücken und in der Position "AUTO BLACK" halten.



2 Im Sucherbildschirm erscheint ein weißes Viereck, bis der Abgleich beendet ist, und erlischt dann wieder.



3 Den Schalter loslassen. Der mit diesem Schwarzwertabgleich erzielte Korrekturwert wird gespeichert.



4 Hierauf den Weißwertabgleich wie auf der vorhergehenden Seite beschrieben nochmals durchführen. Damit ist der Weiß- und Schwarzwertabgleich abgeschlossen.

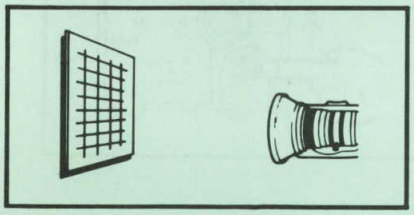
HINWEISE:

- Der Speicher für Weiß- und Schwarzwertabgleichsdaten wird von einer Knopfzelle gespeist, die von der Spannungsversorgung der Kamera unabhängig ist. Die Speicherdaten bleiben bis zur Erschöpfung oder dem Auswechseln der Batterien erhalten. (Wenden Sie sich bitte an Ihren nächsten JVC-Fachservice, wenn die Knopfzelle ausgetauscht werden muß).
- Auch wenn die Blendenregelung auf "MANU" gestellt ist, schließt sich die Blende bei Schwarzwertabgleich automatisch und bleibt auch nach Beendigung dieses Vorgangs geschlossen.
- Erlischt das weiße Viereck bei Durchführung der Weißbalance nicht, obwohl der Schalter nach oben gedrückt gehalten wird, liegt womöglich der Farbtemperaturwert außerhalb des Regelbereichs oder die Lichtverhältnisse sind nicht ausreichend. In diesem Fall den Farbfilter umstellen oder die Beleuchtung erhöhen.
- Bei Aufnahmebetrieb unter wechselnden Lichtbedingungen, Farbfilter sowie Weiß- und Schwarzwertabgleich stets neu einstellen.

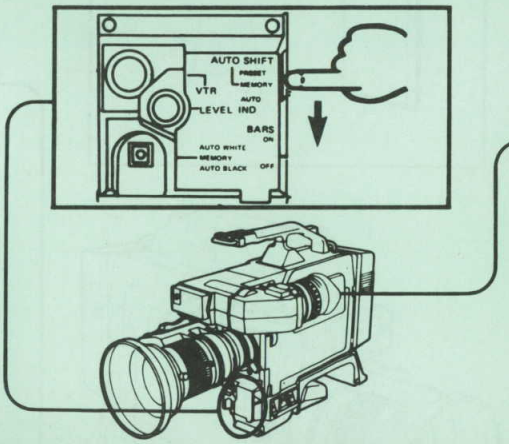
RASTERDECKUNG (AUTOMATISCHE RASTERDECKUNG)

Die Deckungs-Schaltung der KY-210 verfügt über einen Automatik-Rasterdeckungs-Schaltkreis. Die Deckungseinstellung unter Verwendung der Automatikfunktion erfolgt entsprechend den folgenden Bedienschritten. Vor dieser Einstellung sollte der Weiß- und Schwarzwertabgleich erfolgen.

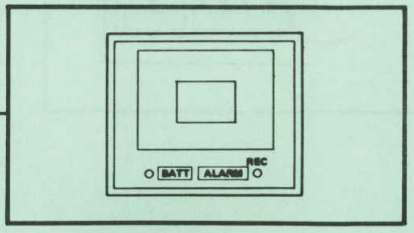
1 Einen schwarzweißen Gegenstand mit klaren Linien oder Umrissen (ein Rasterfeld, Schachbrettmuster etc.) sucherbildfüllend aufnehmen.



2 Den AUTO SHIFT-Schalter nach oben drücken und in der Position "AUTO" halten.



3 Im Sucherbildschirm erscheint das unten gezeigte Zeichen, bis die Einstellung beendet ist, und erlischt dann wieder.



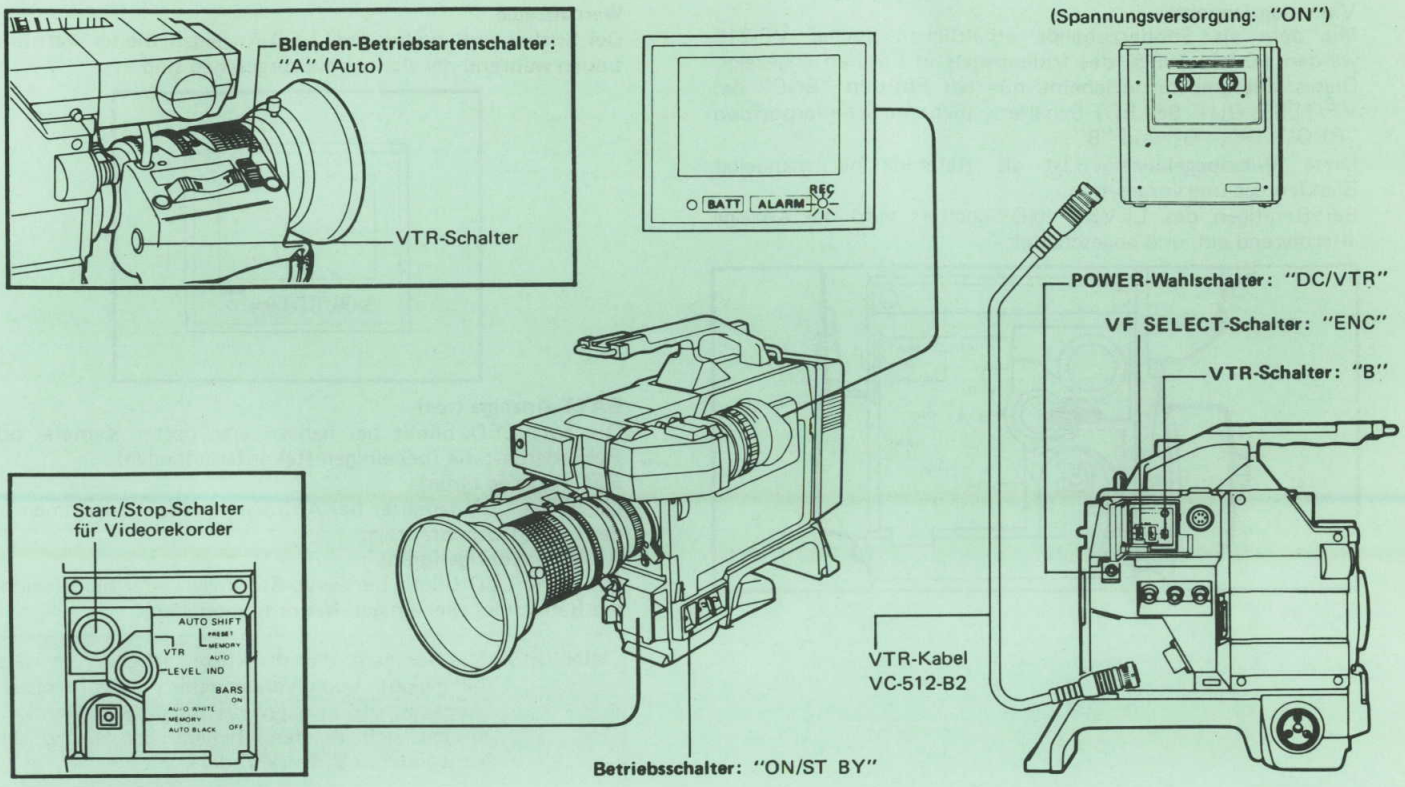
4 Den Schalter loslassen. Der mit der Einstellung erzielte Wert wird automatisch gespeichert.

- **Geeignete Vorlage**
  Um die Einstellung der Rasterdeckung korrekt durchzuführen, wird die Verwendung des mitgelieferten Vorlagemusters empfohlen.

HINWEISE:

- Bei dieser Einstellung die Entfernung zwischen Vorlage und Kamera so wählen, daß eine normale Zoomposition (keine Tele- oder Weitwinkelposition) verwendet werden kann.
- Erlischt das Zeichen nicht, obwohl der AUTO SHIFT-Schalter nach unten gedrückt gehalten wird, die Überprüfung der folgenden Punkte nochmals durchführen.
  1) Ist die Blende korrekt eingestellt (insbesonders bei manueller Blendenregelung)?
  2) Ist die Entfernung korrekt eingestellt?
  3) Besitzt die Vorlage zu wenige Kanten/Linien oder ist diese farbig?

AUFNAHME – Unter Verwendung eines tragbaren Videorekorders (JVC CR-4700) –



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Vor der Aufnahme

1. Einen Videorekorder entsprechend den Anleitungen unter Abschnitt "Anschluß an einen Videorekorder" anschließen.
2. Die betreffenden Schalter wie auf der vorherigen Seite beschrieben einstellen.
3. Den automatische Weiß- und Schwarzwertabgleich durchführen.
4. Den Videorekorder auf Aufnahmebetrieb stellen.
5. Bei Bandtransport-Start den VTR-Schalter am Objektiv drücken.
   – Damit ist der Videorekorder auf Aufnahmepause geschaltet.

   Mit diesem Bedienschritt sind die Vorbereitungen abgeschlossen.

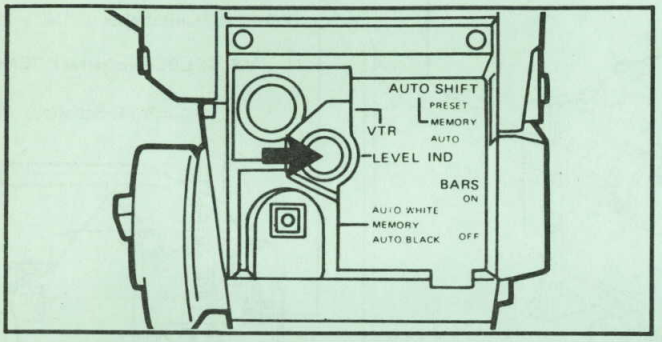
Aufnahme

1. Zum Aufnahmestart den VTR-Schalter am Objektiv betätigen.
   – Die REC-Anzeige (grün) im Sucher leuchtet.
2. Zur Überwachung des Wiedergabe-Videosignals vom Videorekorder den RET-Schalter am Objektiv betätigen.
   – Bei Anschluß der Kamera an ein stationären Videorekorder muß in einigen Fällen die Start/Stop-Funktion vom Rekorder aus gesteuert werden.
3. Zur Tonüberwachung des Mikrofonsignals die EARPHONE-Buchse an der linken Seite des Kameragehäuses benutzen.
4. Bei interner Synchronisation der Kamera kann die KY-210 einen Farbbildimpuls via 14-pol-VTR-Buchse an den Videorekorder liefern. Bei externem Genlock-Betrieb ist der Farbbildimpuls automatisch abgeschaltet.

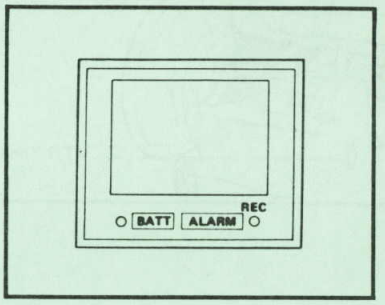
Bei Bedienung des Videorekorders die Angaben in dessen Bedienungsanleitung beachten.

AUSSTATTUNGSMERKMALE VON SUCHER VF-215

Videopegelanzeige
Mit dem als Sonderzubehör erhältlichen Sucher VF-215 werden 90 bis 100 % des Videopegels in Streifen angezeigt. Dieses Zebramuster erscheint nur bei Position "ENC" des VF/TEST OUT SELECT-Schalters, nicht in Schalterposition "REG", "R", "G" und "B".
Diese Videopegelanzeige ist als Referenz bei manueller Blendenregelung vorgesehen.
Bei Betätigen des LEVEL IND-Schalters wird die Anzeige alternierend ein- und abgeschaltet.



Warnanzeige
Der Sucher verfügt über zwei LED-Anzeigen, die für Warnfunktionen während der Aufnahme vorgesehen sind.



BATT-Anzeige (rot)
Die rote LED blinkt bei nahezu erschöpfter Kamera- oder Rekorderbatterie (bei einigen Rekordermodellen).
REC-Anzeige (grün)
Die grüne LED leuchtet bei Aufnahmebetrieb, zusammen mit der Front-Rotlichtanzeige.
ALARM-Anzeige (grün)
Die grüne LED blinkt bei Servo-Störungen oder bei Erreichen des Bandendes (bei einigen Rekordermodellen).

HINWEIS: Die obigen Warnfunktion arbeiten in Abhängigkeit vom verwendeten Videorekorder. Angaben zu den jeweils möglichen Anzeigen finden sich in den Bedienungsanleitung des verwendeten Videorekorders.

Sind Kamera und Videorekorder über ein VTR-Kabel verbunden, kann das Videosignal des Rekorders im Sucher wie unten gezeigt, überwacht werden. Die Wiedergabe-Bildüberwachung erlaubt eine sofortige Kontrolle einer gerade beendeten Aufnahme. Das überwachte Bild ist je nach Stellung des VF/TEST OUTPUT-Schalters und des verwendeten Rekordermodells unterschiedlich.

Videorekorder-Modell		Kamerabild	Rekorderwiedergabe
10-pol	CR-4400	Bei Schalterposition "ENC" erfolgt automatische Umschaltung.	
	HR-C3		
	BR-6200		
14-pol	CR-4700	ENC	RET*

* RET: Überwachung ist nur bei gedrücktem RET-Schalter möglich. Da die Hinterbandkontroll-Funktion des tragbaren Video-Kassetten-Rekorders CR-4700 wie normale Rekorderwiedergabe registriert wird, kann diese gleichfalls nur bei gedrücktem RET-Schalter erfolgen.

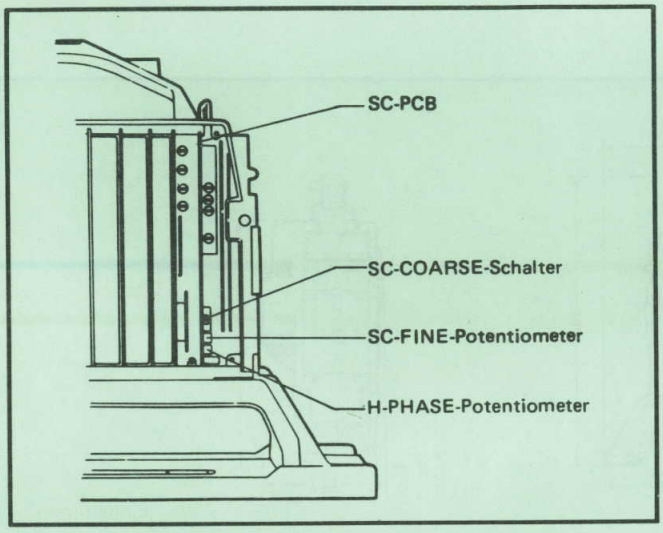
- Zu Bedienschritten für den Rekorder-Wiedergabebetrieb siehe dessen Bedienungsanleitung.

GENLOCK-BETRIEB

Genlock-Betrieb ist mit dem FBAS- oder Black Burst-Signal, das an die GENLOCK INPUT-Buchse angelegt wird, möglich. Die Phase des FBAS-Ausgangssignals der Kamera kann dem Referenz-Eingangssignal entsprechend innerhalb der im folgenden gezeigten Bereiche variiert werden.
Horizontale Sync: +3 bis –0,5 µs
Farb-Sync: 360°

Bedienschritte für die Phasenregelung

1. Die rechte Kameragehäuse-Abdeckung abnehmen.



2. Die folgenden Regler einstellen.
   Horizontal-Sync-Phase: H PHASE-Potentiometer
   Farb-Sync-Phase: SC FINE-Potentiometer (±60°)
   SC COARSE-Schalter (0°/120°/240°)

HINWEIS: Das Videorekorder-Wiedergabesignal kann nicht für Genlock-Betrieb verwendet werden. Wenn das Rekorder-Wiedergabesignal als Referenzsignal verwendet werden soll, muß das Signal mit einem Zeitfehlerausgleicher etc. korrigiert werden.

TECHNISCHE DATEN

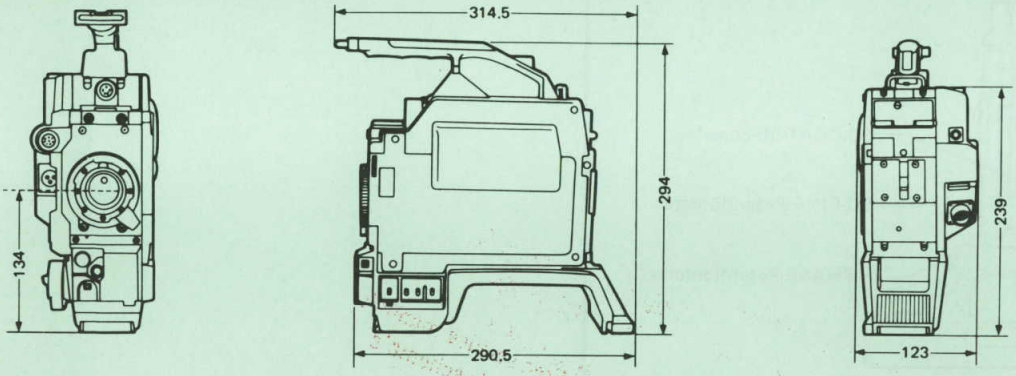
Farb-Video-Kamera KY-210

Optisches System	: f/1,4 Dreiröhren-RGB-Prismensystem (mit Quarzfilter)
Objektivanschluß	: Bajonett
Optischer Filter	: Geschlossen, 3200 K, 5600 K, 5600 K + 25 % ND
Aufnahmeröhren	: 2/3"-Saticon* H4101 Elektrostatische Fokussierung/ elektromagnetische Ablenkung
Empfindlichkeit	: f/4 bei 2000 Lux
Störspannungsabstand	: 57 dB (NTSC -4,2 MHz Bandbreite)/ 54 dB norminal (PAL -5 MHz Bandbreite) Gamma; 1 Konturkorrektur; ausgeschaltet
Empfindlichkeits-Umschaltung	: 0 dB, +9 dB, +18 dB
Minimalbeleuchtung	: f/1,6, 40 Lux (+18 dB-Schalter ON)
Rasterdeckung	: Zone 1: Innerhalb 0,1 % (Kreis 80 % der Bildhöhe) Zone 2: Innerhalb 0,2 % (Kreis Bildbreite) Zone 3: Innerhalb 0,4 % (Fläche außerhalb von Zone 2)
Horizontal-Auflösung	: 650 Linien (Mitte G-Kanal)
Konturkorrektur	: Horizontal: Beidseitig Vertikal: 2 H (mit Kammfilter)
Coder	: NTSC (I, Q)/PAL-B (U, V mod.)
Matrix-Maskierung	: Vorhanden
Farbbalkengenerator	: Vorhanden
Synchronisierung	: Intern; integrierter Taktgeber (NTSC; RS-170A/PAL; PAL-B) Extern; FBAS oder Black Burst Color Frame Ausgang vorhanden
Austastregelung	: Vorhanden
Automatik-Blende	: Normal und Einstellung auf +50 % (halber Blendenwert) möglich
Eingangssignale	: Sucher: FBAS, 1 Vs-s 75 Ω Genlock: FBAS (1 Vs-s, 75 Ω) oder Black Burst (BB, 0,45 Vs-s, 75 Ω) Mikrofon: –52 dBm, 600 Ω symmetrisch
Ausgangssignale	: FBAS (VBS): 1 Vs-s, 75 Ω (x2, von BNC- und 14-pol-Buchse) Testsignal (VS/VBS): R, G, B, R-G, B-G, ENC, AUX Audiosignal: –52 dBm, 600 Ω symmetrisch/–20 dBs, unsymmetrisch (umschaltbar) Audio-Monitorsignal: 8 Ω, –20 dB Videorekorder-Steuersignal: Kontakt oder +4 V Kontakt (umschaltbar)
Umgebungstemperatur-Bereich	: –20 bis 45°C
Leistungsaufnahme	: 12 V Gleichstrom, 1.5 A (NTSC)/1.55 A (PAL) (ohne Sucher und Objektiv)
Gewicht	: 3,5 kg

Standard-Zubehör : Mikrofonhalter (SCUA 30312)
Stativadapter (KA-500)
PCB-Adapter
Testkarte (GP43078)

Staubschutzhülle
Schultergurt
Bruststütze (KA-111)
PCB-Zieher

Abmessungen



Einheit: mm

Technische Änderungen vorbehalten.

MANUEL D'INSTRUCTIONS: CAMERA VIDEO COULEUR KY-210

A cause de certaines modifications pouvant survenir, les données de ce manuel d'instructions sont modifiables sans préavis.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

Protection des tubes:
Les tubes pouvant être endommagés par des rayons lumineux puissants, ne pas diriger la caméra vers le soleil. De même, si le circuit de déflexion s'arrête accidentellenment, couper rapidement l'alimentation et recouvrir l'objectif pour protéger Les tubes de dommages.
Quand la caméra n'est pas utilisée, fixer l'obturateur et placer le filtre (⓮, page 66) sur la position "1".

SYSTEME D'ALIMENTATION

Cette caméra vidéo couleur ne doit être utilisée que sur courant continu de 12 V.

ATTENTION:

Pour éviter les chocs électriques et les risques d'incendie, NE PAS utiliser d'autres sources d'alimentation.

Nous vous remercions pour l'achat de la caméra vidéo couleur KY-210 JVC.
La KY-210 est une camera extrêmement compacte et robuste conçue pour de nombreuses applications, à l'intérieur et à l'extérieur. Utilisée avec un magnétoscope portable, elle s'adapte à pratiquement toutes les situations.
Pour obtenir le maximum de cette caméra, nous vous conseillons de lire ce manuel avec attention. Après la lecture, le conserver pour une référence ultérieure.

SOMMAIRE

CARACTERISTIQUES

- **Faible coût/hautes performances, d'vne conception proche des cameras "broad cast"**
  SPG conforme au normes PAL-B, circuits de suppression variable H/V, circuit de "Gen Lock".
- **Construction en aluminium, moulé compacte roboste et légere por one meilleor Fiabitité er maniabilité.**
  Ne pèse que 3,5 kg.
- **Grande qualité d'image avec le système optique à prisme f/1,4 et trois tubes analyseurs Saticon***
  Haute résolution de 650 lignes, rapport signal/bruit vidéo de 54 dB et éclairage minimum de 40 lux.
- **Large gamme de fonctions automatisées pour un fonctionnement et une calibration plus aisés**
  Circuit de calage des convergences automatique, circuit de balance des blancs automatique, circuit de balance des noirs automatique, circuit anti comête (ABC), circuit de niveau de noir automatique (ABL), circuit de diaphragme automatique servo de type NAM, circuit de fermeture de diaphragme automatique.

Le circuit de "Gen Lock" nécessitent une source d'entrée stable; la KY-210 ne se verrouillera pas sur un magnétoscope sans un correcteur de base de temps.

*Marque déposée

PRECAUTIONS A OBSERVER

Précautions pour votre sécurité

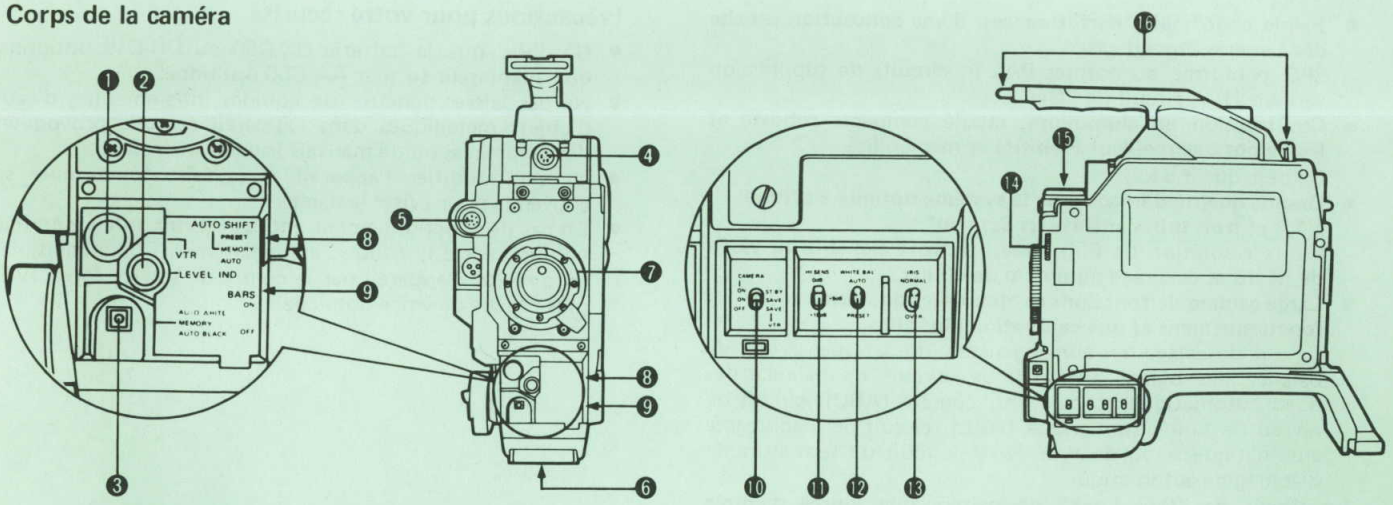
- N'utiliser que la batterie DC-C50 ou DC-C19 optionnelle ou l'adaptateur secteur AA-C50 optionnel.
- Ne pas laisser pénétrer de liquides inflammables, d'eau ni d'objets métalliques dans l'appareil car cela provoquerait des dommages ou de mauvais fonctionnements.
- Ne pas modifier l'appareil ni le faire fonctionner sans couvercle pour éviter le danger.
- En cas de fonctionnement anormal (bruit, odeur anormaux ou fumée etc.), couper immédiatement l'alimentation et faire réviser l'appareil par le centre de service agréé JVC le plus proche de votre domicile.

Précautions à observer lors de la manipulation

- **Tension d'alimentation**
  S'assurer que l'alimentation est comprise entre 10,5 V et 15 V CC. Si la tension est trop basse, des couleurs anormales et un excès de bruit risquent de se produire. Ne pas dépasser 15 V CC, dans n'importe quelle occasion sinon l'appareil sera endommagé.
- **Préchauffage**
  Cette caméra est suffisamment stabilisée environ 40 secondes après la mise en circuit. Cependant une meilleure stabilisation peut être obtenue après 10 minutes ou plus.
- **Protection du tube analyseur**
  Ne pas diriger l'objectif vers le soleil ou une source lumineuse puissante, une image fluorescente, un réflecteur etc. même si l'alimentation est coupée pour éviter l'endommagement des tubes analyseurs. S'assurer de laisser l'objectif recouvert en dehors des prises de vues ou des préparatifs de prises de vue.
- **Raccordement avec un magnétoscope portable**
  Des magnétoscopes différents exigent des modes de déclenchement marche/arrêt et des câbles de raccordement différents. Avant de raccorder, lire avec attention "Raccordement à un magnétoscope", page 74.
- **Casque d'intercommunication**
  Quand l'écouteur d'un casque d'intercommunication est placé trop près de la caméra, le magnétisme qui en provient peut affecter la convergence ou la balance des couleurs. Attention à ne pas placer le casque sur la caméra.
- **Température ambiante**
  La température sous laquelle la caméra peut être utilisée dépend du type des tubes analyseurs utilisés. Se référer au paragraphe correspondant dans les "Caractéristiques techniques", page 88. Cependant, le fonctionnement sous une température proche de la limite supérieure n'est pas recommandée pendant plus d'une heure pour éviter d'endommager les tubes.
- Quand il existe de fortes ondes électromagnétiques ou du magnétisme, par exemple par exemple pres d'um emeteur Radio TV etc., d'un transformateur, d'un moteur etc., l'image risque de contenir du bruit et les images d'être incorrectes.
- Quand un microphone sans fil ou un recepteur de microphone sans fil est utilisé près de la caméra, le recepteur risque de recueillir du bruit. Dans ce cas, sélectionner un autre canal.

COMMANDES, CONNECTEURS ET INDICATEURS

Corps de la caméra



❶ **Commutateur marche/arrêt du magnétoscope (VTR)**
Pour le déclenchement du magnétoscope. Ce commutateur fonctionne en parallèle avec le commutateur VTR de l'objectif standart.

❷ **Commutateur d'indicateur de niveau (LEVEL IND.)** (Voir page 85)
Pour mettre en marche/à l'arrêt l'indicateur de niveau vidéo dans le viseur.

❸ **Commutateur de la balance des blancs/noirs automatique**
Le réglage automatique des blancs est possible quand le commutateur WHITE BAL. ⓬ est sur "AUTO".

AUTO WHITE: En faisant basculer le levier sur cette position tout en filmant un objet blanc, la balance des blancs est automatiquement réglée.

AUTO BLACK: En faisant basculer le levier sur cette position, l'objectif est fermé et la balance des noirs est automatiquement réglée.

MEMORY: Dans cette position, les réglages ci-dessus sont mémorisés.

❹ **Connecteur de viseur (VF)**
La connexion se fait par coulissement du viseur optionnel le long du sabot de montage ⓯.

❺ **Connecteur d'objectif (LENS)**
Raccorder le câble de l'objectif standard.

❻ **Montage de l'attache rapide du trepied**

❼ **Bague de montage de l'objectif**

❽ **Commutateur de réglage des convergences automatique (AUTO SHIFT)**
PRESET: Pour un réglage préréglé.
MEMORY: Dans cette position, le réglage ci-dessous est mémorisé.
AUTO: En faisant basculer le levier sur cette position tout en filmant la mire-test, le centrage des convergences est effectué automatiquement.

❾ **Commutateur des barres de couleur (BARS)**
En le plaçant sur ON, le signal des barres de couleur est présent en sortie video.

❿ **Commutateur de fonctionnement (CAMERA ON/ON/OFF, VTR ST BY/SAVE/SAVE)** (Voir page 77)
Trois positions sont prévues pour l'alimentation ON, OFF de la caméra et le mode "économie d'énergie" du magnétoscope.

⓫ **Sélecteur de sensibilité (HI-SENS)**
Pour l'utilisation sous un éclairage faible, la sensibilité de la caméra peut être amplifié de +9 dB ou de +18 dB. Le placer normalement sur "0 dB".

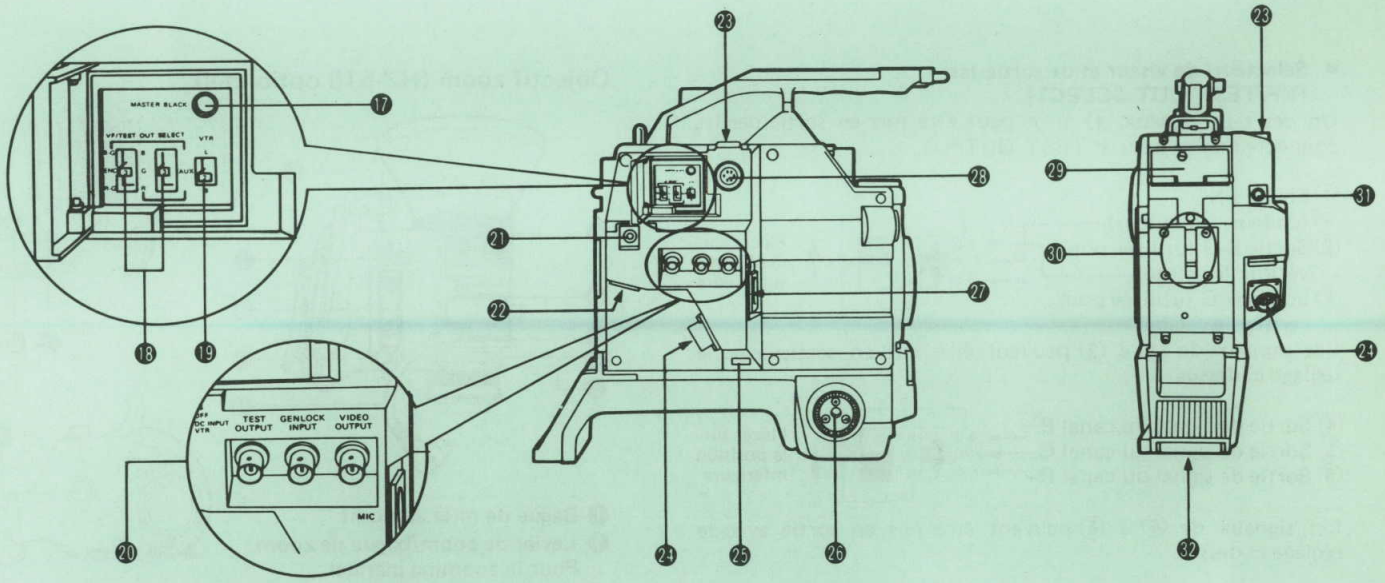
⓬ **Commutateur de mode de réglage de la balance des blancs (WHITE BAL.)**
AUTO: Pour le réglage automatique en utilisant le commutateur ❸.
PRESET: Position préréglée pour une température de couleur de 3200°K.

⓭ **Commutateur de niveau du diaphragme (IRIS)** (Voir page 78)
Pour faire varier le niveau de reference le du diaphragme automatique.

⓮ **Tourelle de filtre**
La tourelle de filtre comporte quatre positions.
1. CLOSE: Mêmes conditions que lorsque l'objectif est recouvert.
2. 3200 K: Pour les prises de vues sous eclairage artificiel.
3. 5600 K: Pour les prises du vue à l'extérieur.
4. 5600 K +25 % ND: Le filtre gris (ND) de 25 % et le filtre de couleur 5600 K sont combinés pour les prises de vues à l'extérieur par beau temps.

⓯ **Sabot de montage du viseur**
Pour le viseur optionnel VF-215.

⓰ **Crochets de la bandoulière**
Pour la bandoulière fournie.



⓱ **Commande de niveau de noir (MASTER BLACK)**

⓲ **Sélecteur de mode de déclenchement du magnétoscope (VTR)** (Voir page 72)
Le placer selon le magnétoscope raccordé.

⓳ **Sélecteurs de signal de sortie du viseur et de test (VF/TEST OUTPUT SELECT)** (Voir page 69)
Pour la sélection des signaux present sur le connecteur TEST OUTPUT et sur le viseur.

⓴ **Connecteurs de signal**
VIDEO OUTPUT: Le signal vidéo composite est mis en sortie.
GENLOCK INPUT: Pour verrouiller la caméra, le signal vidéo composite ou blackburst de la source externe.
TEST OUTPUT: Le signal de test sélectionné par les sélecteurs VF/TEST OUT SELECT ⓳ est mis en sortie.

㉑ Sélecteur d'alimentation (POWER)
La source d'alimentation peut être sélectionnée ou coupée par ce sélecteur.

RS : Choisir cette position quand la télécommande RS-500 est utilisée.
OFF : L'alimentation de la caméra est complètement coupée.
DC INPUT/VTR : L'alimentation est fournie par le connecteur DC INPUT ㉒ ou VTR ㉔.

REMARQUE: Se référer aux instructions du magnétoscope pour le courant de sortie limité de l'alimentation du magnétoscope.

㉒ Connecteur d'alimentation CC (DC INPUT)
Utiliser ce connecteur XLR Cannon à 4 broches pour fournir 12 V CC provenant de la batterie optionnelle DC-C50 ou de l'adaptateur CA AA-C50 optionnel.

Nº de broche	Fonction
1	Terre
2	
3	
4	+12 V

㉓ Sabot de montage de microphone

㉔ Connecteur de magnétoscope (VTR)
Utiliser ce connecteur à 14 broches pour raccorder un magnétoscope portable.

Nº de broche	Fonction	Nº de broche	Fonction
1	CC (TERRE)	8	TERRE
2	ENTREE CC 12 V	9	RETOUR ENTREE VIDEO
3	MIC (CHAUD)	10	ENTREE INDICATION BATTERIE
4	MIC (FROID)	11	SORTIE PULSATION IMAGE COULEUR
5	BLINDAGE MIC	12	ENTREE SIGNAL ENREGISTPEMENT/ALARME
6	SORTIE/ENTREE VIDEO (CHAUD)	13	SORTIE SIGNAL MARCHE/ARRET MAGNETOSCOPE
7	BLINDAGE SORTIE/ENTREE VIDEO	14	SORTIE ECONOMIE ENREGIE/ENTREE CONTROLE AUDIO

㉕ Commutateur de niveau de sortie de microphone (MIC LEVEL)
Le niveau de sortie audio via le connecteur VTR ㉔ peut être commuté en deux étapes.
HIGH: Asy metrique –20 dB
LOW: –52 dB symerique.

㉖ Fixation du support de poitrine

㉗ Prise d'entrée de microphone (MIC INPUT)
Elle est prévue pour le raccordement de microphones symetrique au. L'entrée est parallèle connecteur MIC ㉘.

㉘ Connecteur de microphone exclusif (MIC INPUT)
(Voir page 73)
Pour le raccordement du microphone optionnel M-K50. L'alimentation du microphone à condensateur est fournie par cette prise à 6 broches.

㉙ Connecteur de boîtier de télécommande
Quand le boîtier de télécommande RS-500 est utilisé raccorder son adaptateur de caméra. (Pour plus de détails, voir les instructions fournies avec le RS-500.)

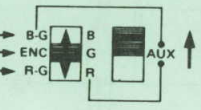
㉚ Compartiment de batterie
Pour la batterie optionnelle DC-C50 ou DC-C19.

㉛ Prise d'écouteur (EARPHONE)
Quand un magnétoscope portable est utilisé le signal audio de lecture peut être contrôlé par cette prise. (ϕ 3,6 mm)

㉜ Montage de làttache rapide du rvepied

■ **Sélecteurs de viseur et de sortie-test (VF/TEST OUT SELECT)**
Un des sept signaux ① à ⑦ peut être mis en sortie par les connecteurs de viseur et TEST OUTPUT.

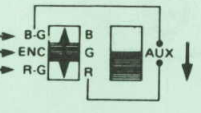
① Sortie ENC (codeur de couleur)
② Sortie B-G (utilisée pour vérifier le calage)
③ Sortie R-G (utilisée pour vérifier le calage)



Placer sur la position supérieure

Les signaux de ① à ③ peuvent être mis en sortie avec le réglage ci-dessus.

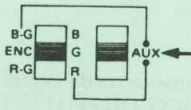
④ Sortie de signal du canal B
⑤ Sortie de signal du canal G
⑥ Sortie de signal du canal R



Placer sur la position inférieure

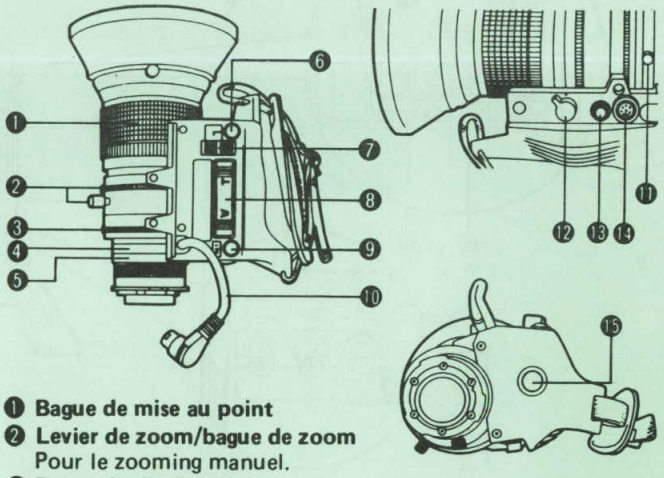
Les signaux de ④ à ⑥ peuvent être mis en sortie avec le réglage ci-dessus.

⑦ Sortie de signal AUX
⑪ est disponible avec le réglage indiqué à droite.



Placer sur la position centrale ("AUX").

Objectif zoom (HZ-510 optionnel)



❶ Bague de mise au point
❷ Levier de zoom/bague de zoom
Pour le zooming manuel.
❸ Bague de diaphragme
Quand le commutateur de mode de diaphragme ❼ est sur "M" le diaphragme peut être fermé et ouvert à la main avec cette bague.
❹ Bague de tirage optique
Pour le réglage du tirage optique.
❺ Bague macro
❻ Commutateur de diaphragme momentané
Même pendant le fonctionnement du diaphragme manuel avec le commutateur de mode de diaphragme sur "M" (manuel), le contrôle du diaphragme peut être automatique tant que ce commutateur est enfoncé.

❼ Commutateur de mode de diaphragme (IRIS)
A: Pour le fonctionnement automatique du diaphragme.
M: Pour le fonctionnement manuel du diaphragme.
R: Pour le fonctionnement par télécommande (avec le RS-500).

❽ Levier d'asservissement du zoom
La vitesse et la direction de l'asservissement du zooming sont contrôlées par ce levier basculant.

❾ Commutateur de retour de signal vidéo (RET)
Le signal vidéo de retour provenant du magnétoscope peut être contrôlé dans le viseur tant que ce commutateur est enfoncé.

❿ Câble d'objectif
Le raccorder au connecteur LENS sur la tête de caméra.

⓫ Bouton de fixation
Pour fixer la bague de firage optique.

⓬ Commutateur de mode de zooming (ZOOM)
S: Pour l'asservissement du zooming.
M Pour le zooming manuel.

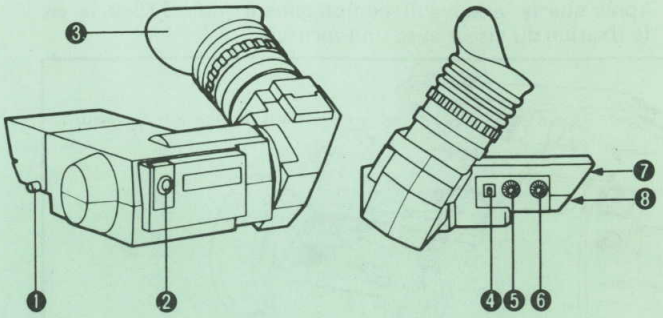
⓭ Connecteur de commande de servo mise au point

⓮ Connecteur de commande de servo zoom

⓯ Commutateur de déclenchement du magnétoscope (VTR)
Pour la mise en marche/à l'arrêt du fonctionnement du magnétoscope.

REMARQUE: Quand un objectif autre que le HZ-510 optionnel est utilisé, l'image risque parfois de contenir un ombrage dynamique dans le haut et le bas: Il est nécessaire d'effectuer un réglage interne et dans certains cas de régler à nouveau la mise au point arrière. Pour plus de détails, consulter votre revendeur.

Viseur (VF-215 optionnel)



❶ Vis de fixation
Pour fixer le viseur sur la tête de caméra.

❷ Lampe de signalisation
Quand la caméra est utilisée en connexion avec un magnétoscope portable, cette LED s'allume pour indiquer le mode d'enregistrement.

❸ Oeilleton
Un réglage de la dioptrie est possible.

❹ Commutateur de correcteur de piqué (PEAKING)
Pour mettre en valeur les contours de l'image pour une mise au point plus aisée.

❺ Commande de contraste (CONT)

❻ Commande de luminosité (BRIGHT)

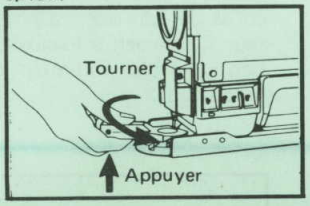
❼ Connecteur du viseur
Pour une connexion sans câble à la tête de la caméra.

❽ Collier de montage du viseur

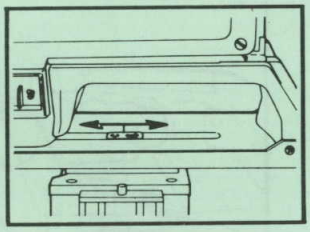
INSTALLATION

Installation sur trépied (avec pattache rapide KA-500)

1. La base de trépied est munie de trous de 1/4" et 3/8". Utiliser celui qui convient au trépied.
2. Placer la caméra sur pattache rapide (le levier à l'avant de la caméra). Fixer en tournant le levier vers l'orifice de fixation tout en enfonçant la touche de verrouillage.



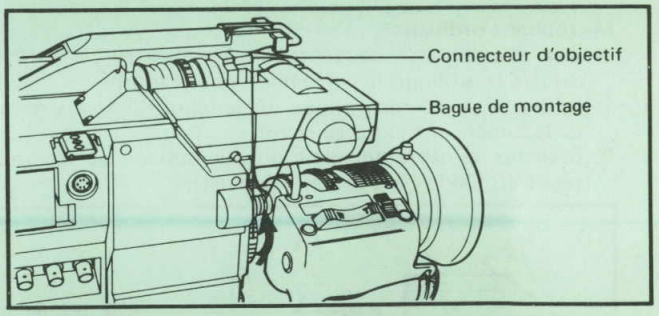
3. Le trou de montage du trépied peut être coulissée vers l'arrière et l'avant. Pour équilibrer la caméra sur le trépied, desserrer la vis du trépied, faire coulisser sur la meilleure position puis serrer la vis du trépied.



REMARQUE: Lors du retrait de la caméra du trépied, ne pas tourner le levier de la base du trépied trop violemment pour que la caméra ne tombe pas à cause du choc. Bien tourner le levier doucement tout en maintenant la caméra d'une main.

Installation de l'objectif (HZ-510 optionnel)

– Avant le montage/retrait de l'objectif, placer la tourelle du filtre sur la position "1" (CLOSE).

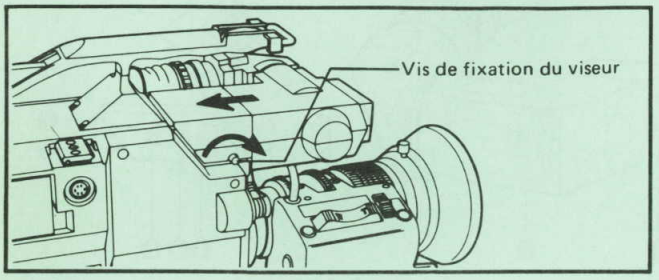


1. Retirer le couvercle arrieve de l'objectif en faisant attention à la saleté.
2. Aligner la broche de l'objectif avec l'encoche de la baillonette ette puis tourner la bague de montage dans le sens des aiguilles d'une montre jusqu'à ce que l'objectif et bjectif soient fixés fermement.
3. Raccorder le câble d'objectif à la tête de caméra.

REMARQUE: S'assurer que l'objectif est fermement fixé sinon le réglage de la mise au point arrière risque d'être incorrect.

Installation du viseur (VF-215 optionnel)

1. Insérer le viseur de par l'avant de la caméra en alignant l'encoche du viseur sur le sabot de montage du viseur sur la caméra.
2. Après que le viseur soit complètement inséré, fixer la vis de fixation du viseur avec un tournevis.



Sélection du mode de déclenchement du magnétoscope

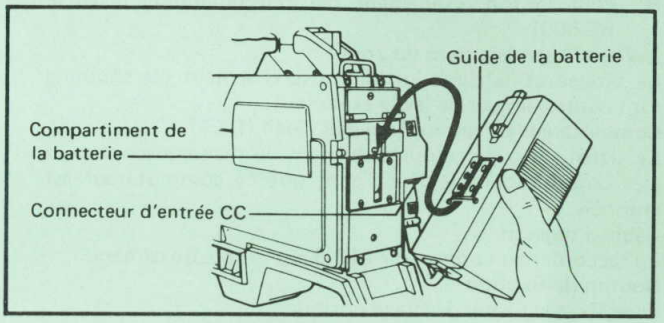
Le sélecteur VTR permet la sélection du signal de mise en marche/à l'arrêt du magnétoscope selon celui qui est raccordé. Placer le commutateur selon le tableau ci-dessous.

Position du sélecteur	Connecteur du magnétoscope	Mode de déclenchement
L	10 broches	Masse marche
B	14 broches	+4 V marche

REMARQUE: Le sélecteur VTR est initialement réglé sur "B" avant la sortie d'usine.

Installation de la batterie (DC-C50 optionnelle)

1. Insérer le guide de la batterie sur le compartiment de batterie ㉚ et appuyer pour qu'elle s'enclenche.
2. Insérer le connecteur de batterie sur le connecteur DC INPUT ㉒ de la caméra.



Fonctionnement de la batterie

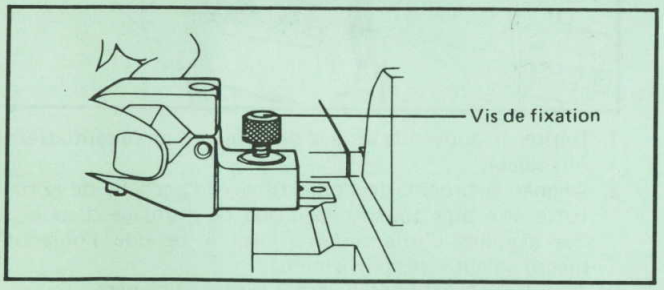
- Avec une batterie DC-C50 entièrement chargée, la caméra peut fonctionner pendant environ 60 minutes sous une température normale (environ 25°C).
- S'assurer de recharger la batterie avant l'enregistrement. Il est aussi recommandé de préparer quelques batteries chargées de rechange.
- Remplacer la batterie quand l'indicateur BATT (rouge) dans le viseur commence à clignoter.
- Utiliser l'adaptateur secteur AA-C50 optionnel pour charger la batterie. Pour le processus à suivre, se référer au manuel d'instructions du AA-C50.

Installation du microphone

Microphone ordinaire

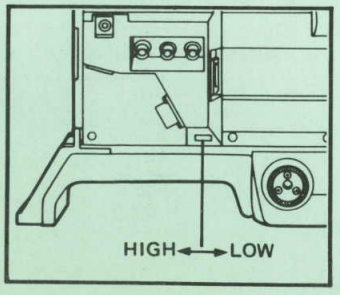
— Des microphones peuvent être installés sur le corps de caméra en utilisant le porte-microphone fourni.

1. Insérer le porte-microphone sur le sabot du dessus, gauche, de la caméra et fixer avec la vis.
2. Brancher le câble de sortie du microphone sur le connecteur MIC INPUT à 3 broches CANNON.



Niveau de sortie du microphone

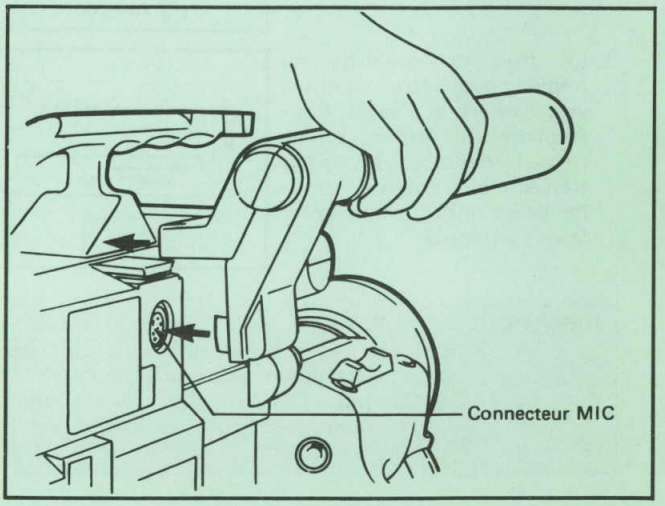
Le niveau de sortie du microphone peut être commuté sur "HIGH" (environ -20 dB) et "LOW" (−52 dB).



Microphone exclusif (M-K50 optionnel)

Le microphone M-K50 s'enclenche directement sur le corps de caméra. Le connecteur à 6 broches exclusif a la configuration indiquée dans le tableau.

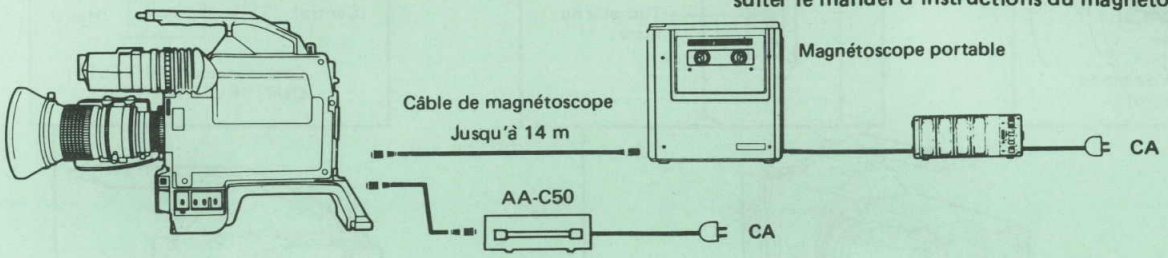
N° de broche	Fonction
A	Neutre
B	+9 V SORTIE
C	TERRE
D	MIC (CHAUD)
E	MIC (FROID)
F	TERRE (BLINDAGE)



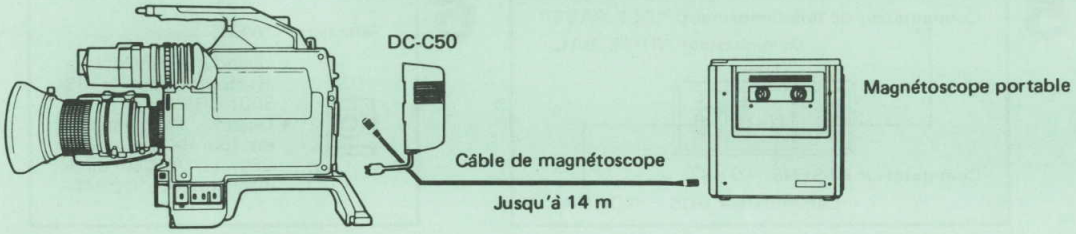
RACCORDEMENT AU MAGNETOSCOPE

Fonctionnement sur adaptateur secteur

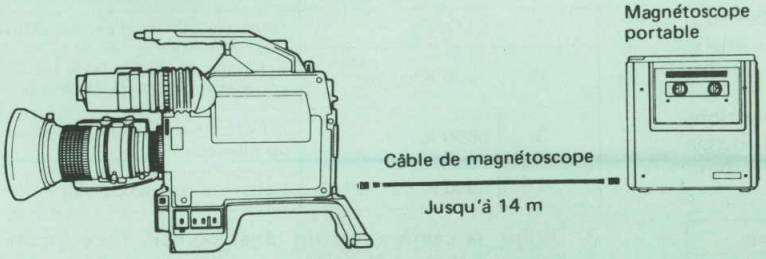
La KY-210 est conçue pour un meilleur fonctionnement avec un magnétoscope portable JVC. Certains magnétoscopes d'autres marques ne fonctionneront pas correctement avec les raccordements ci-dessous. Avant les raccordements, consulter le manuel d'instructions du magnétoscope etc.



Fonctionnement sur batterie (DC-C50 optionnelle)



Fonctionnement sur l'alimentation fournie par le magnétoscope portable

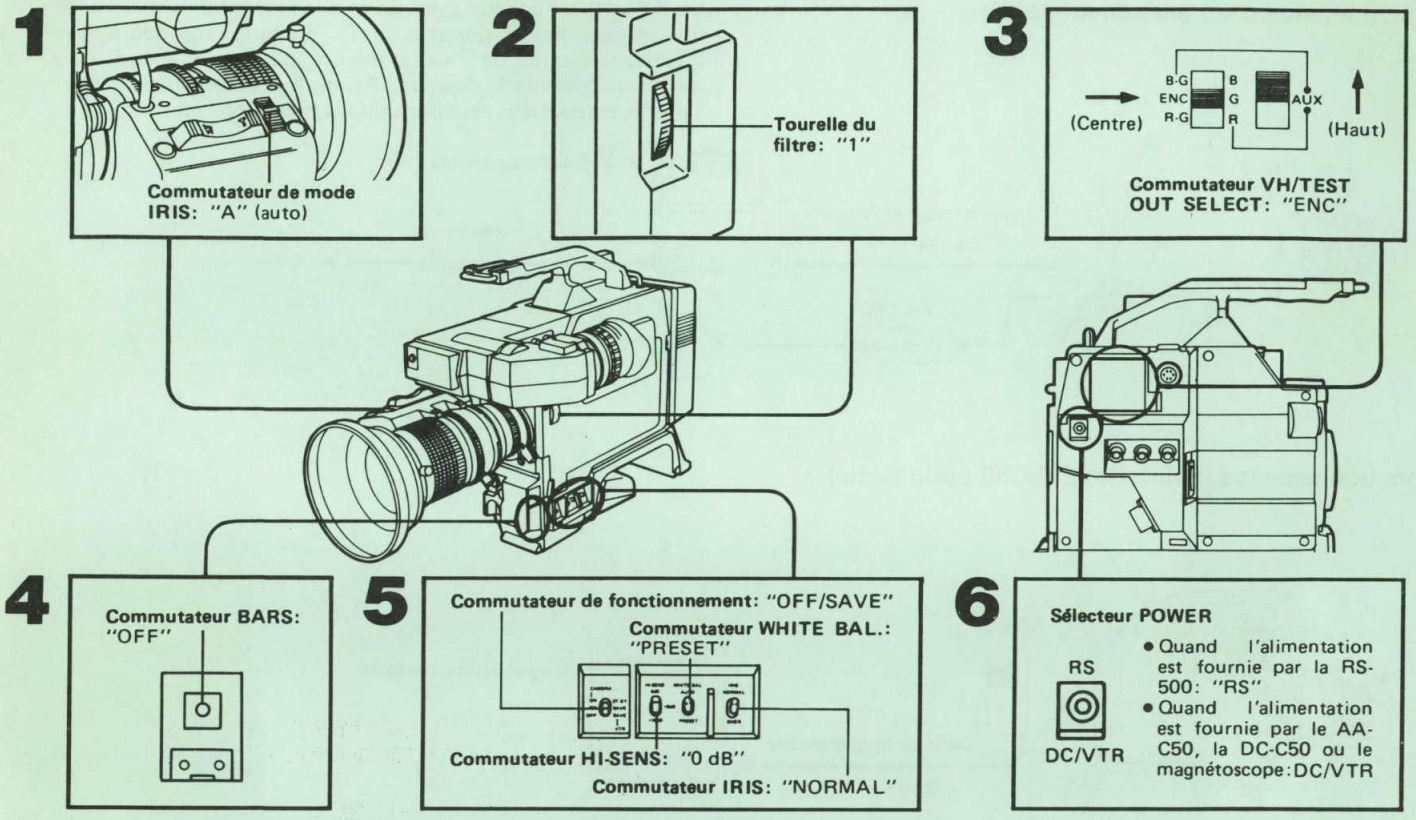


REMARQUE: Si la caméra fonctionne par la batterie du magnétoscope, l'appareil risque de ne pas fonctionner ou la durée de fonctionnement de la batterie d'être courte à cause de la faible capacité de la batterie. L'alimentation fournie à la caméra ne doit pas dépasser la capacité de courant nominale du magnétoscope.

Magnétoscope raccordé	Câble de magnétoscope, 2 m (prolongement 10 m)	Mode de déclenchement	Niveau de microphone	Contrôle audio	Affichage d'alarme	
					Batterie caméra/ magnétoscope	Fin de bande ou ennui servo
CR-4400	VC-511B-2 (VC-582B)	L	H: -20 dB	X	O/X	X
HR-C3	VC-511B-2 (VC-582B)	L	H: -20 dB	O	O/O	X
BR-6200	VC-511B-2 (VC-582B)	L	H: -20 dB	X	O/X	X
CR-4700	VC-512B-2 (VC-589B)	B	L: -52 dBm or H: -20 dB	O	O/O	O

O : Possible
X : Impossible

PREPARATIFS



Pour enregistrer une image claire avec des couleurs correctes, il est nécessaire de régler la balance des blancs, des noirs et le calage des convergences. Avant ces réglages, placer les commutateurs comme suit:

1. Placer le commutateur de fonctionnement sur "ON/SAVE".
   - Le courant du faisceau va passer dans les tubes analyseurs pour rendre les prises de vues possibles. Le diaphragme de l'objectif va aussi s'ouvrir.
   - Le commutateur de fonctionnement a les trois positions suivantes. Le fonctionnement de l'économie d'énergie est possible avec certains magnétoscopes avec la position SAVE.

Position du commutateur	Mode de la caméra	Mode du magnétoscope	
		Magnétoscope à 14 broches	Magnétoscope à 10 broches
ON/ST BY	Marche	Attente	Attente
ON/SAVE	Marche	Economie d'énergie	Attente
OFF/SAVE	Arrêt	Economie d'énergie	–

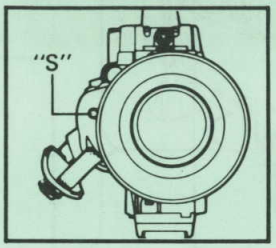
2. Pour obtenir une image avec des couleurs correctes, placer la tourelle du filtre selon l'éclairage de l'objet.

Position	Réglage	Conditions
1	CLOSE	Quand la caméra n'est pas utilisée
2	3200 K	Eclairage de studio, lever ou coucher du soleil à l'extérieur
3	5600 K	A l'extérieur, par temps nuageux ou pluvieux
4	5600 K + 25 % ND	Extérieur, par temps clair

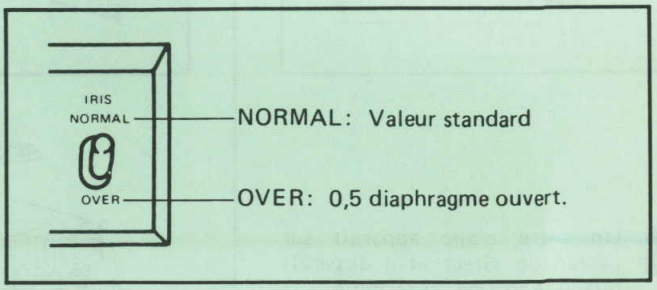
3. Diriger la caméra vers un objet normal, faire fonctionner l'objectif et contrôler l'image sur l'écran du viseur.
   - Régler les commandes BRIGHT et CONT du viseur.
   - Quand l'indicateur BATT (rouge) dans le viseur clignote, la batterie est presque déchargée; la remplacer par une qui est complètement chargée.

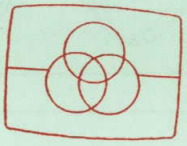
REGLAGE DU DIAPHRAGME DE L'OBJECTIF

- Avec le HZ-510, le réglage du diaphragme n'est pas nécessaire quand le commutateur de mode de diaphragme (A/M) sur l'objectif est sur "A".
  Le diaphragme se ferme automatiquement dans les conditions suivantes:
  1) Quand le commutateur BARS est sur "ON".
  2) Quand le commutateur de fonctionnement est sur "OFF/SAVE".
  3) Quand le commutateur des blancs/noirs automatique est basculé vers le bas sur "AUTO BLACK" pendant le réglage de la balance des noirs automatique.
- Avec certains objectifs, le fonctionnement du diaphragme automatique produit un oscillation dû à une surréaction. Dans ce cas, régler le potentiomètre "S" sur l'objectif selon le procédé ci-dessous.
  1. Régler le commutateur de mode de diaphragme (A/M) sur "A" pour le contrôle automatique.
  2. Régler l'éclairage pour que le diaphragme soit sur f/5,6.
  3. Obturer l'objectif pour éviter que de la lumière ne pénètre. (Le diaphragme sera complètement ouvert.)
  4. Découvrir l'objectif. Si le diaphragme est instable autour de f/5,6, régler le potentiomètre "S".
  5. Vérifier le fonctionnement du diaphragme avec le commutateur HI–SENS placé à "+9 dB" et "+18 dB". S'il y a encore un oscillation, répéter les étapes 2 à 4.



- Dans le fonctionnement du diaphragme manuel, la commutation de LEVEL IND sur "ON" provoque un forme zébrée sur le viseur; ceci indique 90 à 100 % du niveau vidéo par des bandes. Utiliser cet affichage pour votre référence.
- Dans le fonctionnement de diaphragme automatique, quand le sujet est relativement sombre comparé au niveau de l'image moyen, utiliser le commutateur IRIS pour faire varier la valeur de reference pour qu'elle convienne au niveau du sujet.

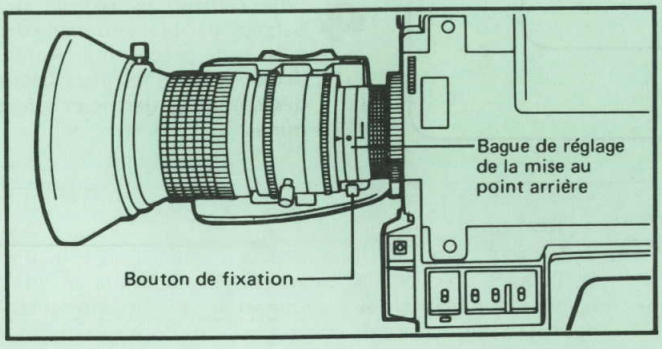




REGLAGE DU TIRAGE OPTIQUE

Avec le HZ-510, la tirage optique peut être réglée sur le corps de l'objectif. Avant le réglage, vérifier que l'objectif est bien fixé sur la caméra.

1. Viser une mire de calage avec le diaphragme entièrement ouvert (fonctionnement du diaphragme manuel).
2. Si l'éclairage est trop fort, le diminuer ou changer d'endroit.
3. Tout en observant le signal G sur le viseur, effecteur un zooming avant et régler la mise au point.
4. Effectuer un zooming arrière jusqu'à la position grand angle puis tourner le bouton de fixation dans le sens contraire des aiguilles d'une montre pour le desserrer et tourner la bague de mise au point arrière pour que la mise au point soit la meilleure possible.

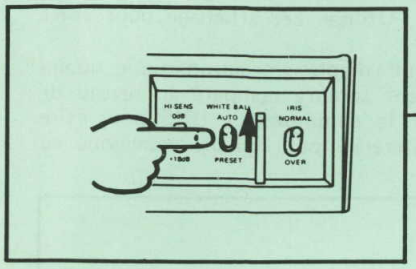


5. Répéter ces étapes plusieurs fois pour un réglage précis.
6. Après le réglage, serrer le bouton de fixation.

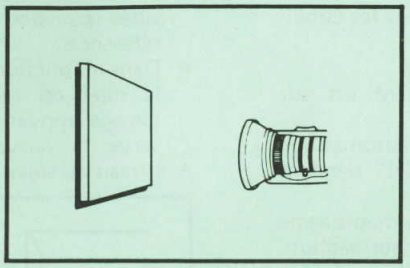
REMARQUE: Le réglage de la mise au point arrière est plus précis quand la distance entre le sujet (mire) et la caméra est de plus de 3 m.

REGLAGE DE LA BALANCE DES BLANCS

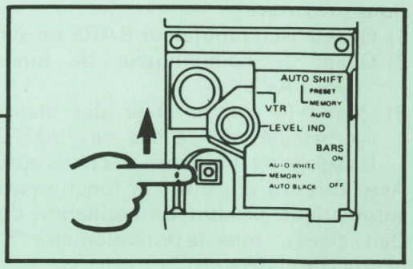
1 Placer le commutateur WHITE BAL dans la boîte des commutateurs sur "AUTO".

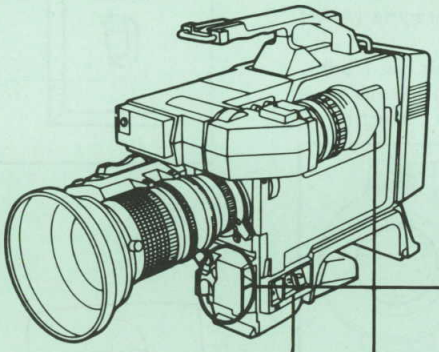


2 Diriger la caméra vers un objet blanc (tissu, mur etc.) de manière à remplir le viseur.

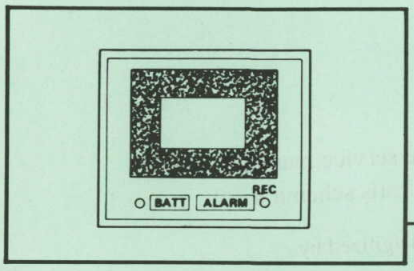


3 Faire basculer vers le haut et maintenir le commutateur AUTO WHITE/BLACK sur le côté "AUTO WHITE".

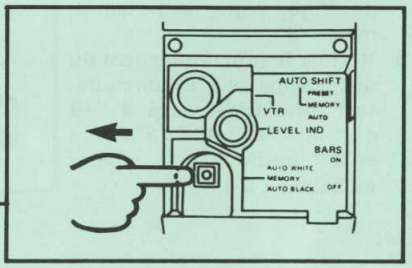




4 Un carré blanc apparaît sur l'écran du viseur et il disparaît quand le réglage est terminé.

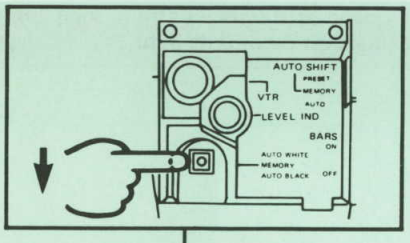


5 Relâcher alors le commutateur. L'état obtenu par le réglage de la balance des blancs est mémorisé.

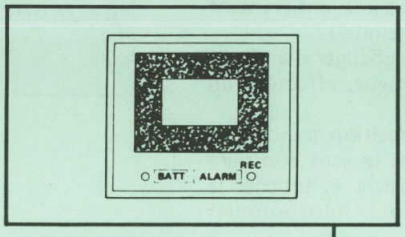


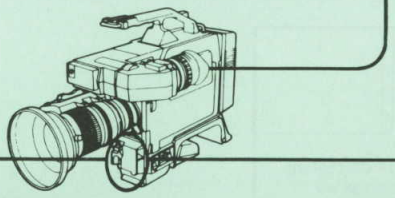
REGLAGE DES LA BALANCE DES NOIRS

1 Faire basculer vers le bas et maintenir le commutateur AUTO WHITE/BLACK sur le côté "AUTO BLACK".

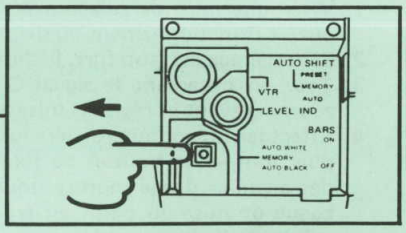


2 Un carré blanc apparaît sur l'écran du viseur et disparaît quand le réglage est terminé.





3 Relâcher alors le commutateur. L'état obtenu est maintenu en mémoire.



4 Puis répéter le réglage de la balance des blancs comme décrit à la page précédente. Après les deux réglages, les deux balances des blancs et des noirs sont terminés.

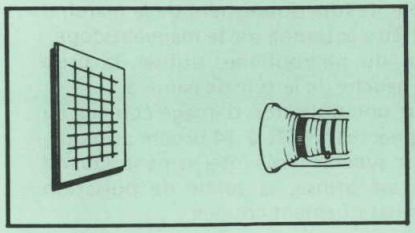
REMARQUES:

- La mémoire des états obtenus par les réglages automatiques est maintenue par une petite pile incorporée même après que l'alimentation a été coupée. Cette mémoire n'est pas effacée à moins que la pile ne soit déchargée ou qu'elle ne soit retirée pour un remplacement. (Pour le remplacement, consulter votre service JVC le plus proche).
- Même quand le commutateur de mode de diaphragme dans la section de l'objectif est sur "MANU", le diaphragme se ferme automatiquement pendant le réglage de la balance des noirs et il reste fermé quand le réglage est terminé.
- Si le carré blanc ne disparaît pas pendant le réglage de la balance des blancs bien que le commutateur de balance des blancs/noirs automatique soit maintenu en haut, la température de couleur est sans doute en dehors de la gamme réglable ou l'éclairage n'est pas suffisant. Dans ce cas, changer le filtre de couleur ou augmenter l'éclairage.
- Lors de prises de vues sous des éclairages différents, régler à nouveau le filtre de couleur et la balance des blancs/noirs automatique à chaque fois.

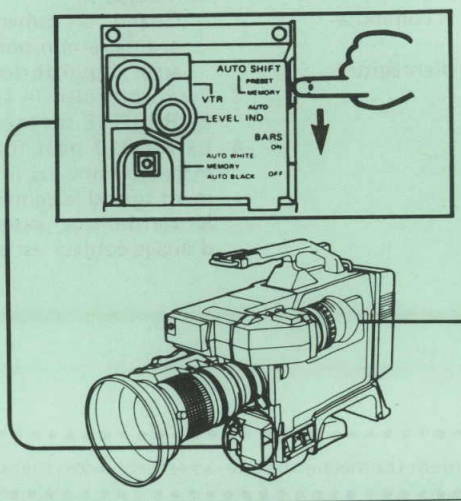
REGLAGE DU CENTRAGE DES CONVERGENCES

Le circuit de centrage des convergences de la KY-210 est muni d'un circuit de calage automatique. Le réglage de centrage qui utilise la fonction automatique est effectué selon le processus ci-dessus. Avant le réglage, le réglage de la balance des blancs et des noirs doit avoir été efectué.

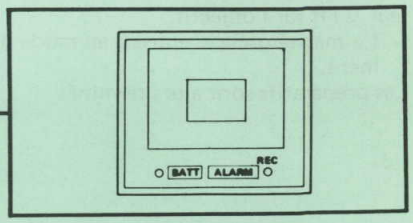
1 Viser un objet noir et blanc ayant des contours nets (une mire, un grille, etc.) pour que l'écran soit rempli.



2 Faire basculer vers le bas et maintenir le commutateur AUTO SHIFT sur le côté "AUTO".



3 Un signe comme indiqué ci-dessous est affiché sur l'écran du viseur et disparaît quand le réglage est terminé.



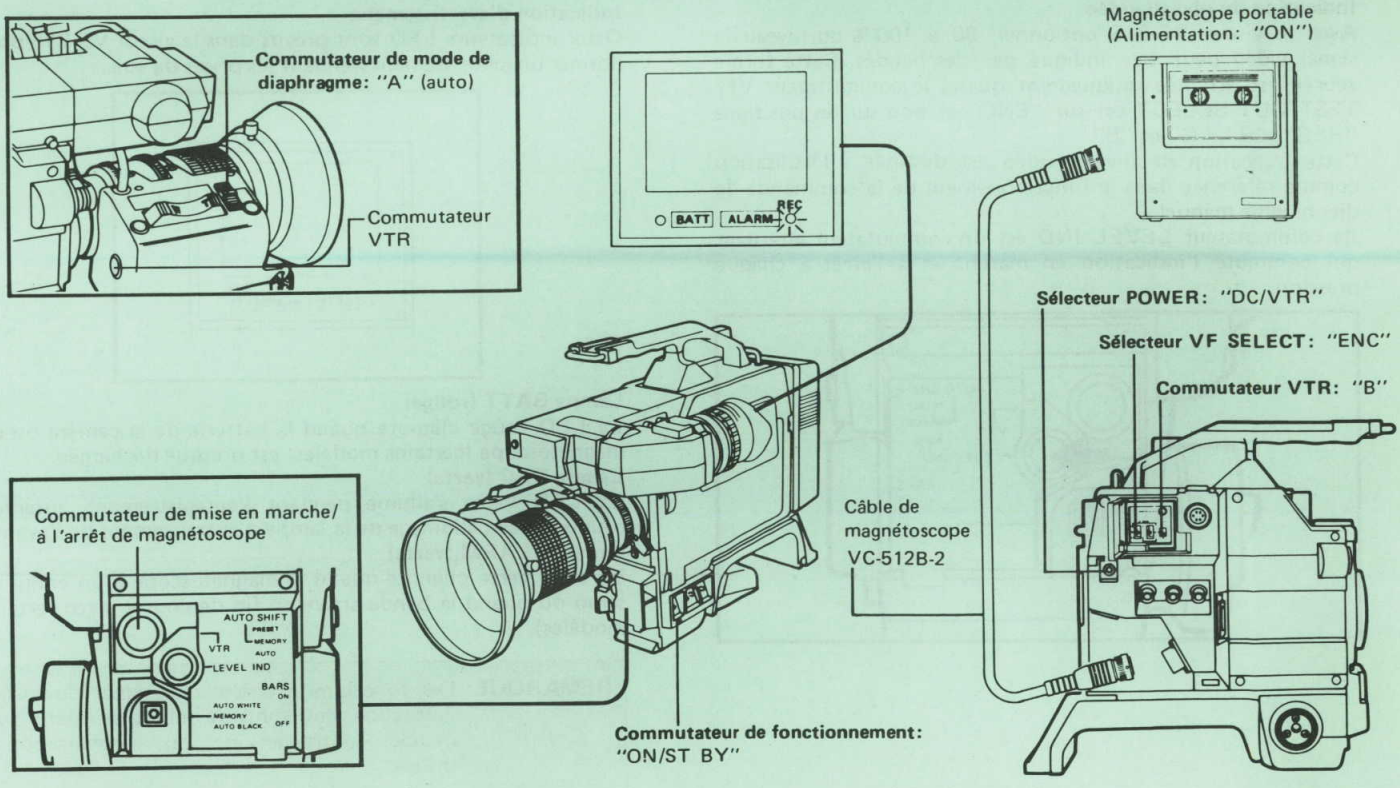
4 Relâcher alors le commutateur. L'état obtenu par ce réglage est automatiquement mémorisé.

- **Objet à utiliser pour le réglage**
  Pour un réglage correct, il est recommandé d'utiliser la mire fournie.

REMARQUES:

- Pour ce réglage, régler la distance entre l'objet et la caméra de manière à ce que la position du zoom soit aux environs du centre (et non en téléobjectif ou grand angle.)
- Si le signe ne disparaît pas bien que le commutateur AUTO SHIFT soit maintenu sur la position du bas, recommencer le réglage en vérifiant les points suivants:
  1) Le diaphragme de l'objectif est-il réglé correctement.
  2) La mise au point est-elle correcte.
  3) L'objet a peu de coins ou est coloré.

ENREGISTREMENT — Utilisation d'un magnétoscope portable (CR-4700 JVC) —



Avant l'enregistrement

1. Raccorder le magnétoscope portable selon les instructions de "Raccordement au magnétoscope".
2. Régler les commutateurs comme indiqué à la page précédente.
3. Régler les balances des blancs et des noirs.
4. Mettre le magnétoscope en mode d'enregistrement.
5. Quand la bande commence à défiler, enfoncer le commutateur VTR sur l'objectif.
   – Le magnétoscope entrera en mode de pause d'enregistrement.

   Les préparatifs sont alors terminés.

Enregistrement

1. Enfoncer le commutateur VTR de l'objectif pour commencer l'enregistrement.
   – L'indicateur REC (vert) dans le viseur s'allumera.
2. Pour contrôler le signal vidéo de retour ou le signal vidéo de lecture du magnétoscope, enfoncer le commutateur RET sur l'objectif.
   – Quand la caméra est raccordée à un magnétoscope ordinaire non portable, le fonctionnement de la marche/arrêt risque de devoir être actionné sur le magnétoscope.
3. Pour contrôler le signal du microphone, utiliser la prise EARPHONE sur le côté gauche de la tête de caméra.
4. La KY-210 peut fournir une pulsation d'image couleur au magnétoscope via le connecteur VTR à 14 broches uniquement quand la caméra est synchronisée internement. Quand le verrouillage externe est utilisé, la sortie de pulsation d'image couleur est automatiquement coupée.

En ce concerne le fonctionnement du magnétoscope, se référer à son manuel d'instructions.

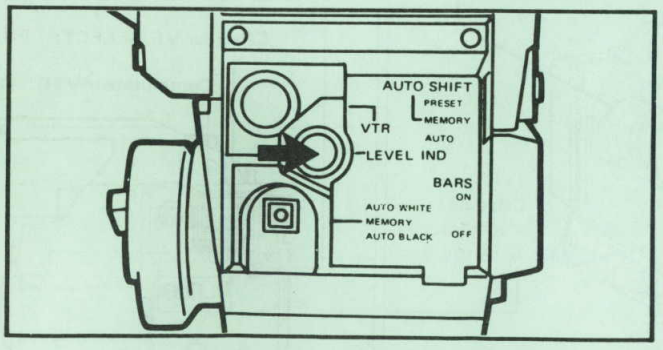
INDICATEURS DU VISEUR VF-215

Indication du niveau vidéo

Avec le viseur VF-215 optionnel, 90 à 100 % du niveau de signal vidéo peut être indiqué par des bandes. Cette forme zébrée est affichée uniquement quand le commutateur VF/TEST OUT SELECT est sur "ENC" et non sur les positions "REG", "R", "G" et "B"

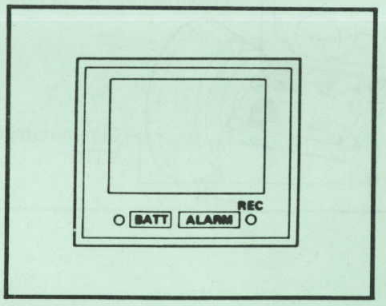
Cette indication de niveau vidéo est destinée à l'utilisation comme référence dans le fonctionnement de la commande de diaphragme manuel.

Le commutateur LEVEL IND est un commutateur alternant qui commute l'indication en marche et à l'arrêt à chaque pression.



Indication d'avertissement

Deux indicateurs LED sont prévus dans le viseur VF-215 pour donner un avertissement pendant les prises de vue.



Lampe BATT (rouge)

La LED rouge clignote quand la batterie de la caméra ou du magnétoscope (certains modèles) est presque déchargée.

Lampe REC (verte)

La LED verte s'allume pendant l'enregistrement, interverrouillée avec l'allumage de la lampe d'avertissement de l'avant.

Lampe ALARM (verte)

La LED verte clignote quand le magnétoscope a un ennui de servo ou quand la bande arrive en fin de course (avec certains modèles).

REMARQUE: Les fonctions ci-dessus dépendent du magnétoscope. Pour plus de détails, se référer au manuel d'instructions du magnétoscope utilisé.

Contrôle de l'image

Quand la caméra et le magnétoscope sont raccordés via un câble à multi-conducteurs, le signal vidéo provenant du magnétoscope peut être contrôlé dans le viseur comme indiqué ci-dessous. Le contrôle de l'image vidéo est pratique en particulier car il permet de vérifier l'image juste après l'enregistrement.
L'image contrôlée diffère selon la position du commutateur VF/TEST OUTPUT et le magnétoscope utilisé.

Modèle de magnétoscope		Image de caméra	Image vidéo
10 broches	CR-4400	Commutation automatique quand le commutateur est sur "ENC".	
	HR-C3		
	HR-2650		
	HR-2200		
	BR-6200		
14 broches	CR-4700	ENC	RET*

*RET: Le contrôle n'est possible que quand le commutateur RET sur l'objectif est enfoncé. Comme la fonction de contrôle en temps réel du magnétoscope portable CR-4700 est traité comme contrôle de l'image vidéo, elle n'est aussi possible que lorsque le commutateur RET est enfoncée.

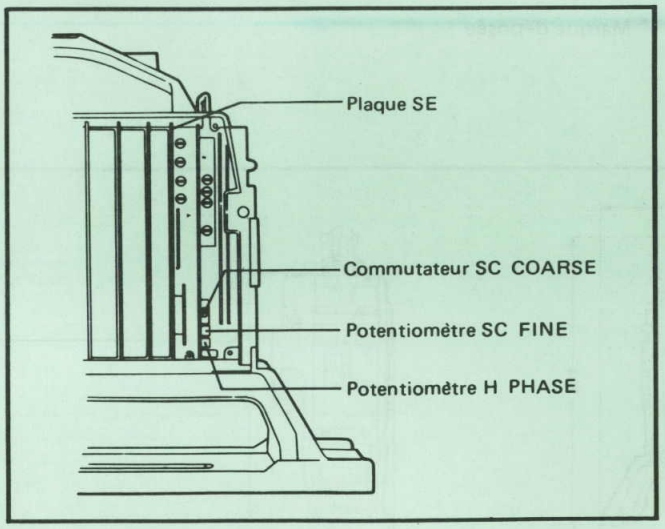
- En ce qui concerne la lecture, se référer au manuel d'instructions du magnétoscope.

FONCTIONNEMENT DU GEN LOCK

La synchronisation est possible en appliquant un signal vidéo composite (VBS) ou un signal black burst (BB) à la borne GENLOCK INPUT.
La phase de la sortie vidéo composite provenant de la caméra peut variée selon le signal d'entrée de référence.
Sync horizontale: +3 à –0,5 µs
Sync couleur: 360°

Processus de réglage de phase

1. Retirer le couvercle latéral droit de la caméra.



2. Utiliser les commandes suivantes sur la plaque SE.
   Phase de sync horizontale: potentiomètre H PHASE
   Phase de sync couleur: potentiomètre SC FINE (±60°)
   commutateur SC COARSE (0°/120°/240°)

REMARQUE: Le signal de lecture du magnétoscope ne peut pas être utilisé pour le verrouillage. Quand il est nécessaire d'utiliser le signal de lecture du magnétoscope comme signal de référence, le signal doit être corrigé avec un correcteur de base de temps (TBC), etc.

CARACTERISTIQUES TECHNIQUES

Caméra vidéo couleur KY-210

Système optique	: f/1,4, système à prisme RGB tritube (avec filtre au quartz)
Montage d'objectif	: Baïonnette
Filtre optique	: Fermé, 3200 K, 5600 K, 5600 K +25 % ND
Tubes analyseurs	: 2/3" Saticon* H4101 Mise au point électrostatique/déflection électromagnétique
Sensibilité	: f/4 à 2000 lux
Rapport signal/bruit	: 57 dB (NTSC -4,2 MHz largeur de gamme 4,2 MHz)/55 dB (largeur de gamme 5 MHz) nominal Gamma 1 (unité), Correcteur de contour sur OFF
Sélection de sensibilité	: 0 dB, +9 dB, +18 dB
Illumination minimum	: f/1,6, 40 lux (+18 dB ON)
Convergence	: Zone 1: 0,1 % maximum (cercle de 80 % de la hauteur de l'image) Zone 2: 0,2 % maximum (cercle de la largeur de l'image) Zone 3: 0,4 % maximum (région en dehors de la zone 2)
Résolution horizontale	: 650 lignes (canal V au centre)
Correction de contour	: Horizontale: à double bord Verticale: 2H (avec filtre en peigne)
Codeur	: NTSC (I,Q) PAL-B (U,V)
Masquage de matrice	: Fourni
Générateur de barres couleur	: Fourni
Système de synchronisation	: Interne (SSG incorporé RS-170A; NTSC/PAL-B; PAL) ou genlocking externe par signal vidéo composite ou blackburst Sortie en impulsion de cadrage couleur
Réglage de la suppression	: Fourni
Diaphragme automatique	: Normal et +50 % (un demi diaphragme)
Signaux d'entrée	: Signal vidéo de retour: vidéo composite, 1 Vc-c, 75 Ω Signal genlock: vidéo composite (VBS, 1 Vc-c, 75 Ω) ou black burst (BB, 0,45 Vc-c, 75 Ω) Microphone: -52 dBm, 600 Ω, symétrique
Signaux de sortie	: Signaux vidéo composite (VBS): 1 Vc-c, 75 Ω (x 2, des connecteurs BNC et à 14 broches) Signal de test (VS/VBS): R, G, B, R-G, B-G, ENC, AUX Signal audio: -52 dBm, 600 Ω symétrique, —20 dBs, asymetrique (commutable) Signal de contrôle audio: 8 Ω, -20 dB Signal de commande de magnétoscope: contact ou +4 V (commutable)
Gamme des températures ambiantes	: -20 à 45°C
Consommation	: 12 V CC, 1,5 A (NTSC)/1,55 A (PAL) (sans le viseur ni l'objectif)
Poids	: 3,5 kg

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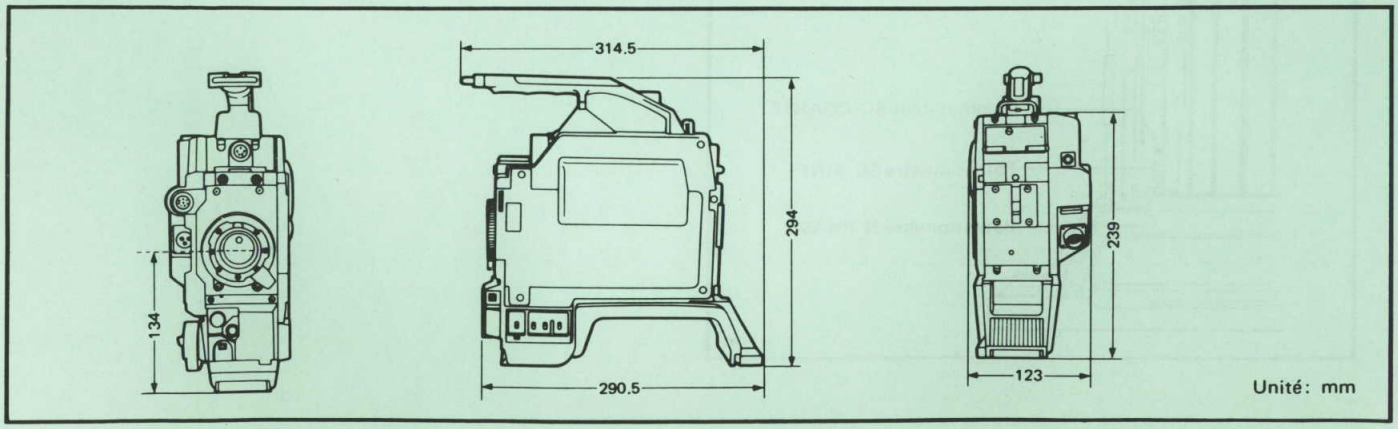
Accessoires standard	: Porte-microphone (SCUA 30312) Bas de trépied (KA-500) Plaquette d'extension Mire de convergence (GP43078) Couvercle anti-poussière Bandoulière Coussinet de poitrine (KA-111) Extracteur de plaquette

* Marque déposée

Dimensions



Présentation et caractéristiques modifiables sans préavis.

SECTION 1
DISASSEMBLY

1.1 REPLACEMENT OF PRINCIPAL PARTS

1.1.1 Fuse replacement

Before replacing a fuse, the reason why it blew should be investigated to prevent trouble from spreading. The malfunction should be repaired before replacing the fuse.

1. Before replacing the fuse, set the Power switch (1) OFF or disconnect the power cord.
2. Remove four screws (2) fixing the battery guide base.

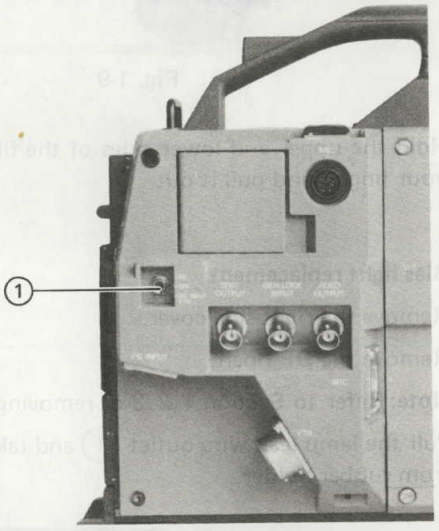


Fig. 1-1

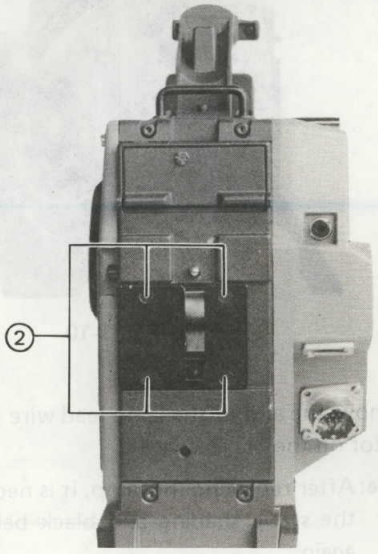


Fig. 1-2

3. Remove the battery guide base. And remove the fuse inside it with screwdriver, etc.
4. For the protection of the camera and for your safety, replace with a fuse the specified part number.

QMF51U1-3R15; 3.15 A

1.1.2 Replacement of memory battery

The memory battery (JVC : SCV0636 equivalent Lityum battery 3 V) runs two to three years as the circuit consumes a few micro amps. Replace the memory battery if the voltage drops below 2.5 V DC (with high impedance voltmeter as DTDM).

The battery is soldered in place.

- **Serial Nos. 0295xxxx and before follow the below procedure.**
- **The battery is soldered in AT board for Serial Nos. 0395xxxx and after.**

1. Remove two screws (1) and the sholder pad (2).

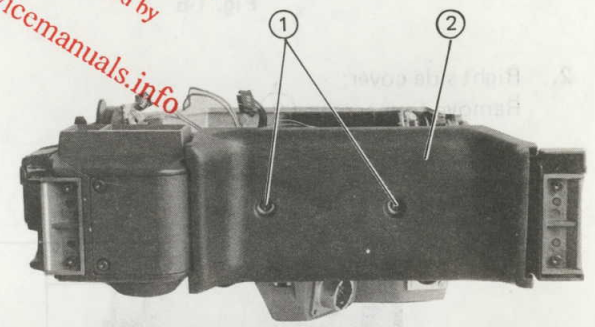


Fig. 1-3

2. Remove two screws (3) and to open the battery cover (4).

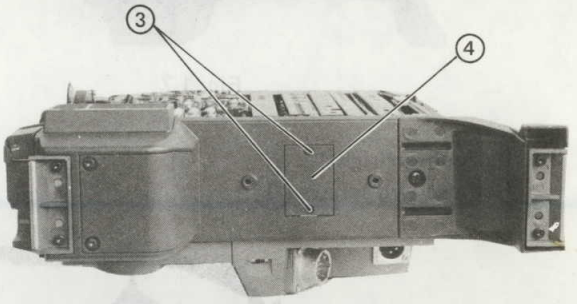


Fig. 1-4

3. When replacement of the battery, be careful of the polarity. The negative (—) polarity is the camera side.

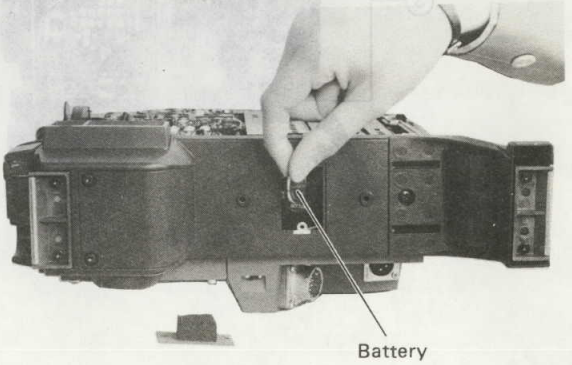


Fig. 1-5

1.1.3 Removing the side covers

1. Left side cover:
   Remove four screws (1).

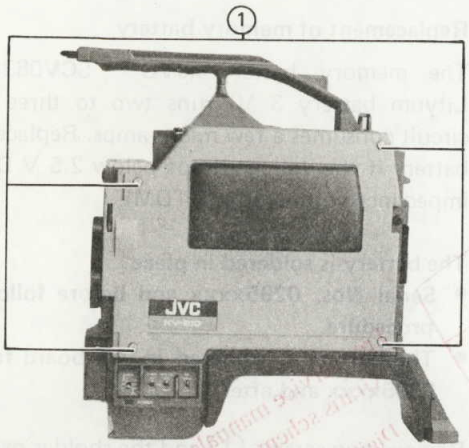


Fig. 1-6

2. Right side cover:
   Remove four screws (2).

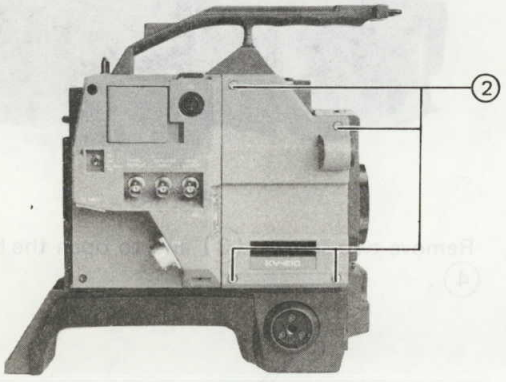


Fig. 1-7

3. Back cover (right):
   Remove two screws (3).

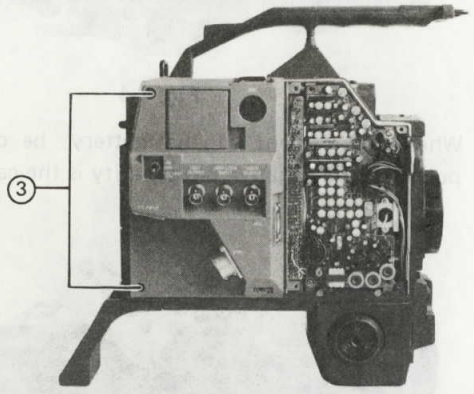


Fig. 1-8

1.1.4 Removing the optical filter disc

Close lens iris or cap the lens.

1. Turn two screws (1) counterclockwise to loosen them.

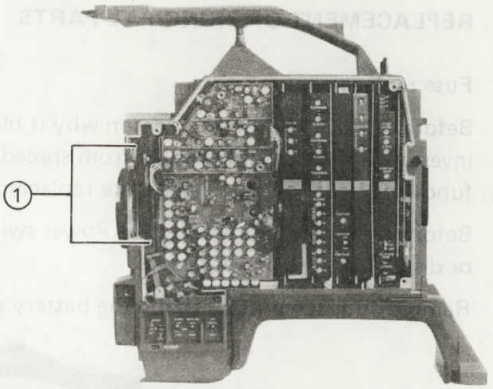


Fig. 1-9

2. Hold the upper and lower sides of the filter holder with your fingers and pull it out.

1.1.5 Bias light replacement

1. Remove the right-side cover.
2. Remove the DF board.

   Note: Refer to Section 1.2.3 of removing the DF board.
3. Pull the lamp lead wire outlet (1) and take out the lamp from rubber holder.

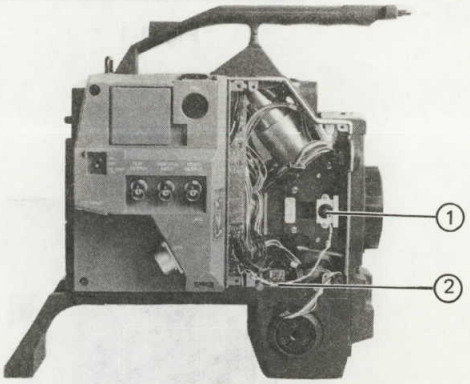


Fig. 1-10

4. Remove the end of the lamp lead wire (2) from the connector on the MT-2 board.

   Note: After replacing the lamp, it is necessary to perform the static shading and black balance adjustments again.

1.2 REMOVAL OF PRINCIPAL CIRCUIT BOARDS

1.2.1 Removing the plug-in circuit boards

The circuit boards which are numbered from 1 to 5 on the panel are to be removed using the board remover tool provided with the camera.

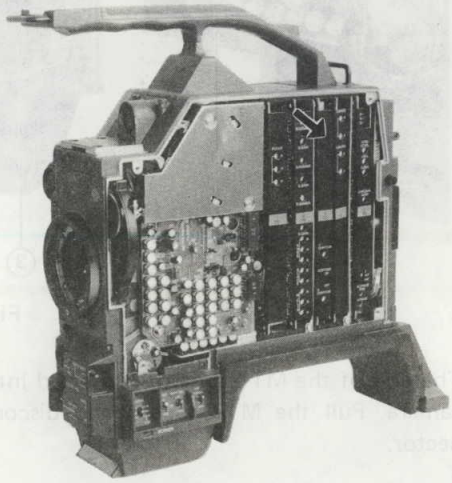


Fig. 1-11

1. Insert the pin of the extracter into the hole on the top of the circuit board and pull up the lever of the tool.
2. When the circuit board is disconnected, hold the top and bottom of the circuit board with your fingers and pull it out.

1.2.2 Removing the PA board

1. Remove two screws (1) fixing the shield cover and remove the shield cover.

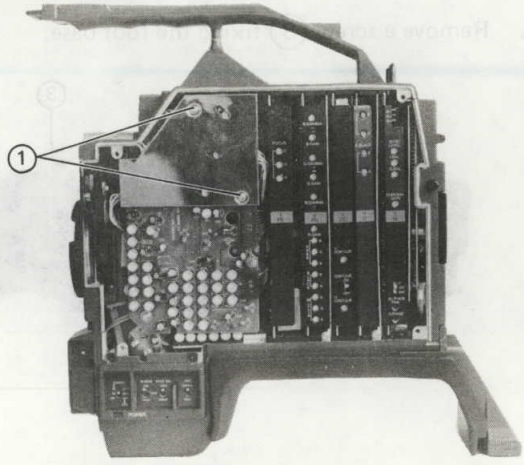


Fig. 1-12

2. Disconnect the PA board connector.
3. Remove two studs (2) and screw (3) that hold the circuit board, and take out the PA board.

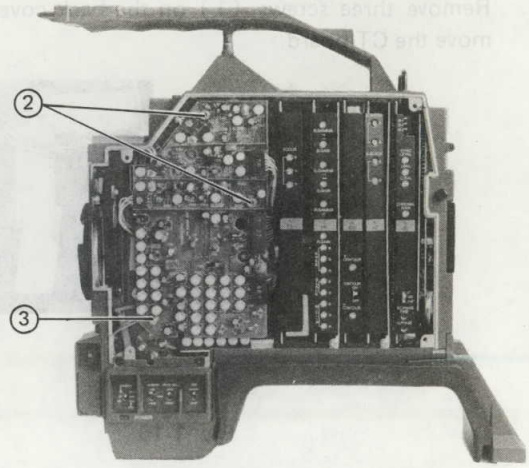


Fig. 1-13

1.2.3 Removing the DF board

1. Remove the three connectors (1)–(3) from the deflection yokes, and the connector (4) from the SE board.

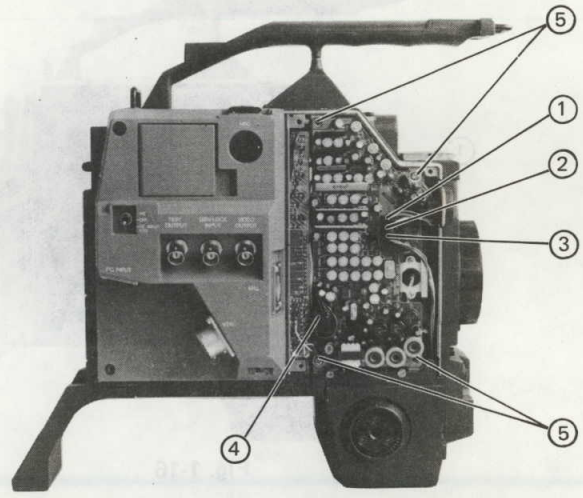


Fig. 1-14

2. Remove four screws (5) and remove the DF board.

1.2.4 Removing the CT board

1. Remove the right side cover and back cover. (Refer to Section 1.1.3.)
2. Remove three screws (1) on the back cover, then, remove the CT board.

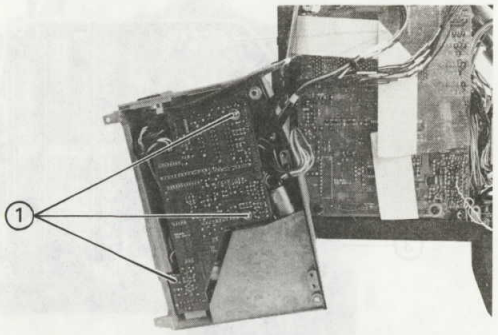


Fig. 1-15

1.2.5 Removing the MT-2 board

1. Remove the PA board. (Refer to Section 1.2.2.)
2. Remove two screws (1) behind the PA board and remove the shield cover.

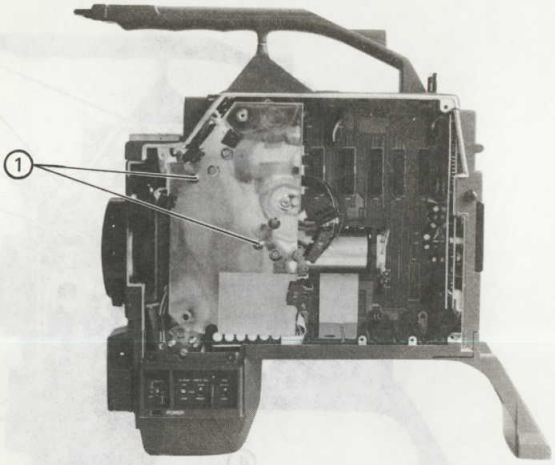


Fig. 1-16

3. Remove the DF board. (Refer to Section 1.2.3.)
4. Remove a screw (2) (PA board side) and a screw (3) (DF board side).

Fig. 1-17

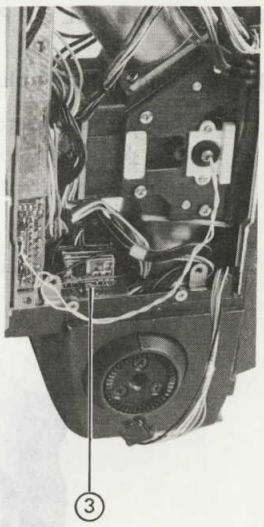


Fig. 1-18

5. The end of the MT-2 board is inserted into a slot in the camera. Pull the MT-2 board and disconnect its connector.

1.2.6 Removing the RC board

1. Remove two screws (1) and the shoulder pad (2).

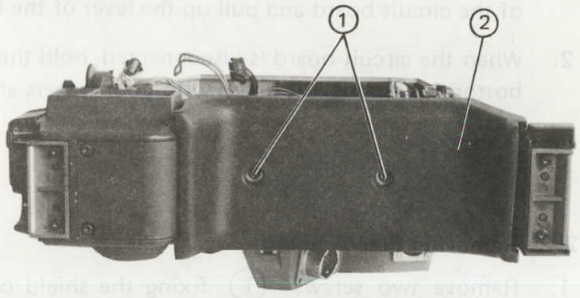


Fig. 1-19

2. Remove a screw (3) fixing the foot base.

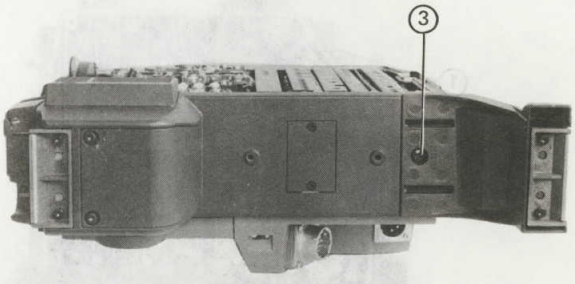


Fig. 1-20

3. Remove four screws (4) fixing the rear cover.
4. Remove the rear cover.

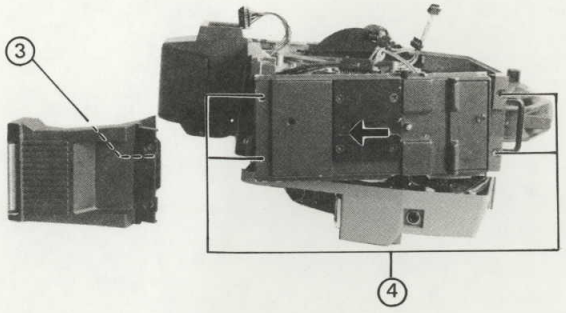


Fig. 1-21

5. Remove two screws (5) on the shield plate.

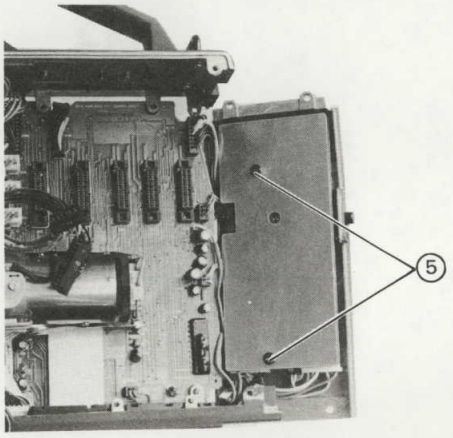


Fig. 1-22

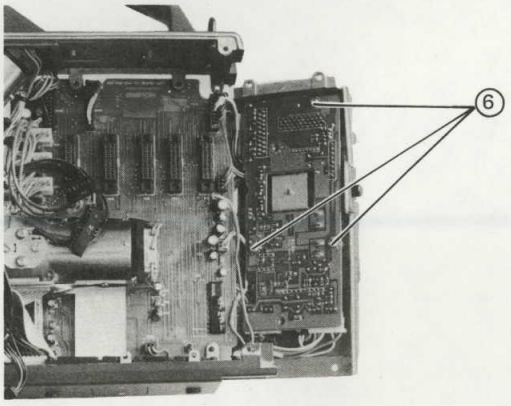


Fig. 1-23

6. Remove three screws (6) fixing the RC board.

1.2.7 Removing the SW panel

1. Remove two screws (1) fixing the SW panel.

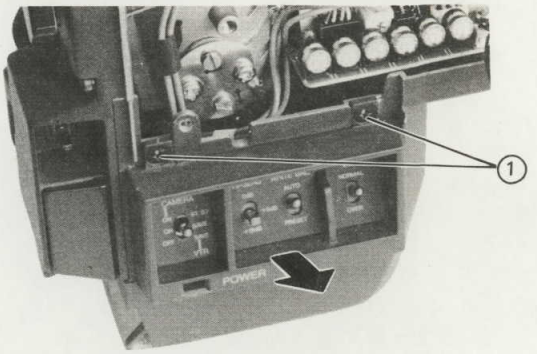


Fig. 1-24

2. The SW panel can be pulled out together with the switch and SW board.

SECTION 2
REPLACEMENT OF CAMERA TUBE

2.1 REPLACEMENT OF CAMERA TUBE

- The pickup tubes are not interchangeable with pickup tubes other than specified for each model.
- If a strong shock is applied to the pickup tube or it is dropped when replacing it, the photoelectric layer may be damaged.
- The replacement operation should be done in a clean room.
- When replacing, take care not to leave fingerprints or grease on the faceplate, target ring and body of the pickup tube. Use a mixture of 50% ethyl alcohol and 50% ethyl ether to remove dirt and grease.

2.1.1 Removing external parts

1. Remove the covers and circuit boards following the items below:
   - 1.1.3 Removing the side covers
   - 1.2.1 Removing the plug-in circuit boards
   - 1.2.2 Removing the PA board
   - 1.2.3 Removing the DF board
2. Remove two screws (1) behind the PA board and remove the shield cover.

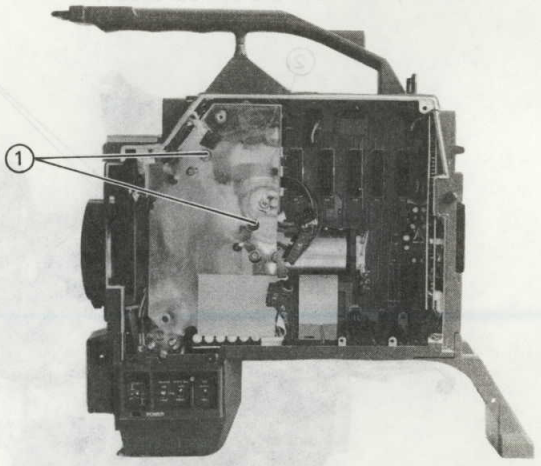


Fig. 2-1

2.1.2 Removing the deflection yoke

Note: This model does not require the deflection yoke to be removed when replacing the pickup tube. Proceed to Sec. 2.1.3 for pickup tube replacement.

1. Remove two screws (1) fixing the base bracket.

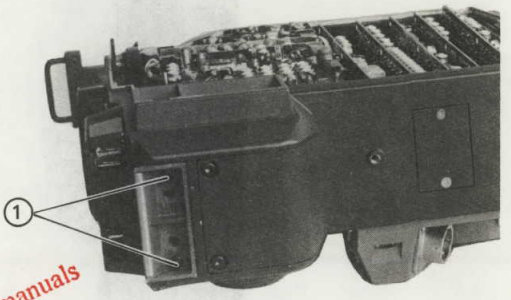


Fig. 2-2

2. Remove two screws (2) fixing the MT-1 board.

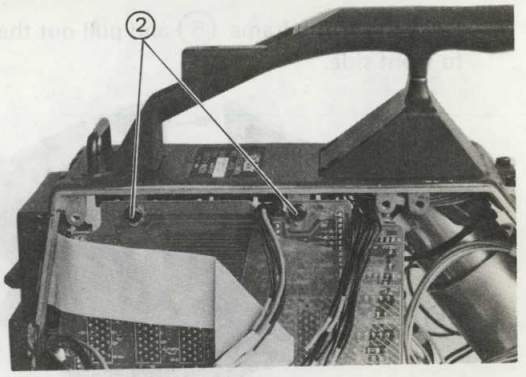


Fig. 2-3

3. Remove two screws (3) fixing the front frame.

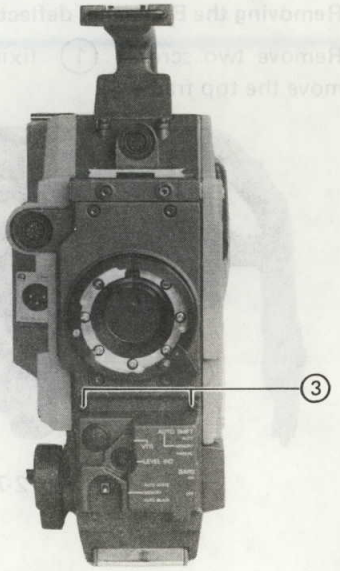


Fig. 2-4

4. Remove the SW board. (Refer to Section 1.2.7.)
5. Remove two screws (4) fixing the rear frame.

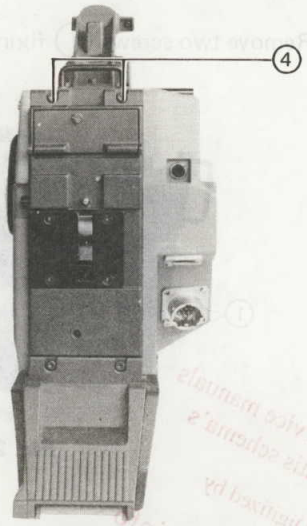


Fig. 2-5

6. Hold the front frame (5) and pull out the optical block to front side.

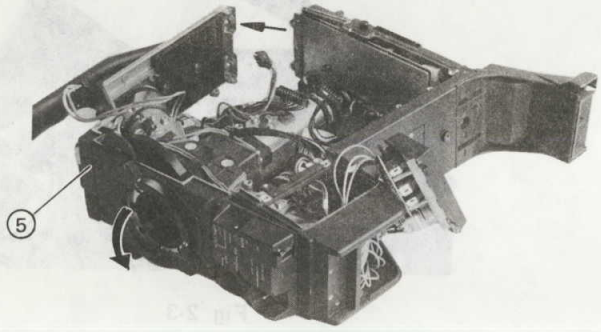


Fig. 2-6

[A] Removing the B channel deflection yoke

1. Remove two screws (1) fixing the top frame and remove the top frame.

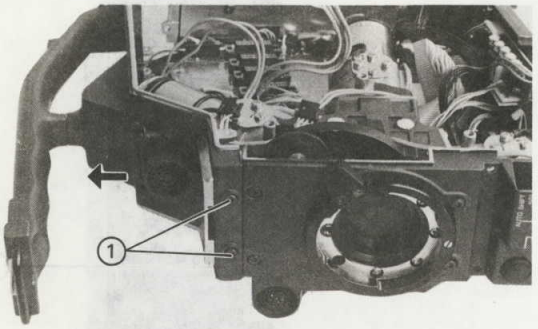


Fig. 2-7

2. Remove two screws (2) fixing the back focus and rotation adjustment mechanisms and remove the parts composing these mechanisms. The lug terminal of the ground lead wire will also be removed in this operation.
3. Loosen the yoke lock screw (3) and take out the deflection yoke from the optical block.

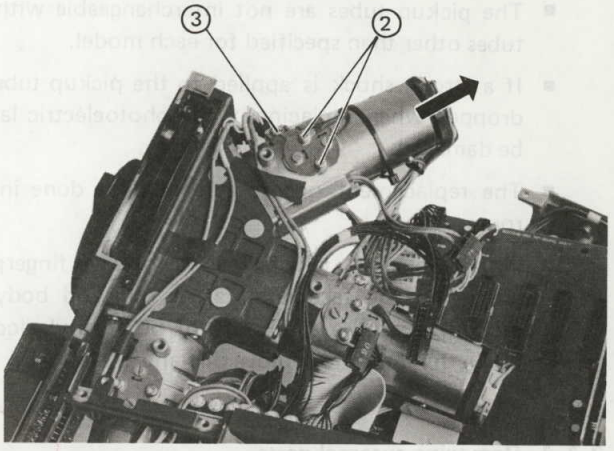


Fig. 2-8

[B] Removing the G channel deflection yoke

1. Remove the yoke shield (black).
2. Remove two screws (1) and remove the back focus and rotation adjustment mechanisms.
3. Loosen the yoke lock screw (2) and take out the deflection yoke from the optical block.

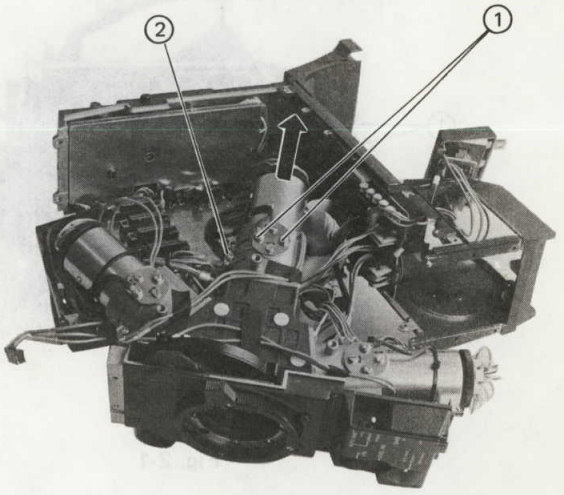


Fig. 2-9

[C] Removing the R channel deflection yoke

1. Remove two screws (1) and remove the back focus and rotation adjustment mechanisms.
2. Loosen the yoke lock screw (2) and take out the deflection yoke from the optical block.

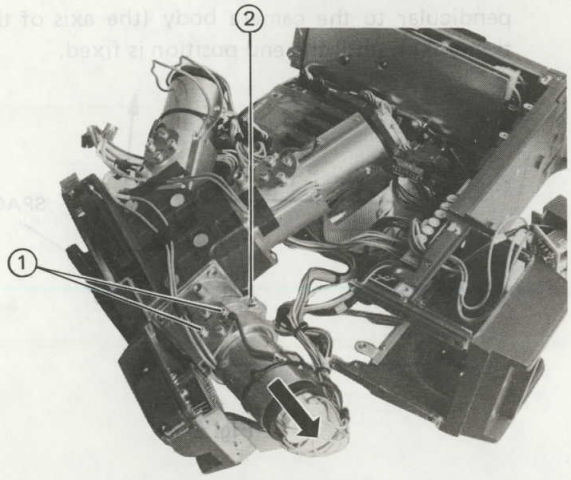


Fig. 2-10

2.1.3 Removing pickup tube

[A] B channel pickup tube

1. Remove five screws (1) fixing the top handle and remove the handle.

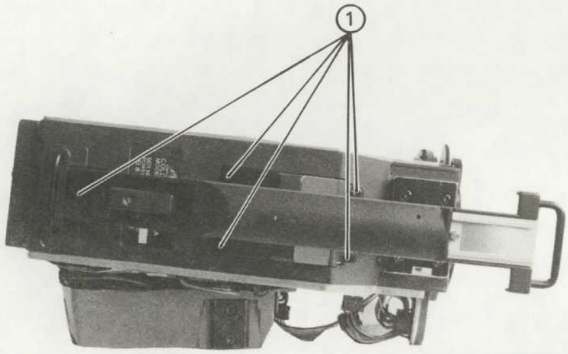


Fig. 2-11

2. Remove socket (2) gently so that no unnecessary force is applied to the electrode pins of the pickup tube.

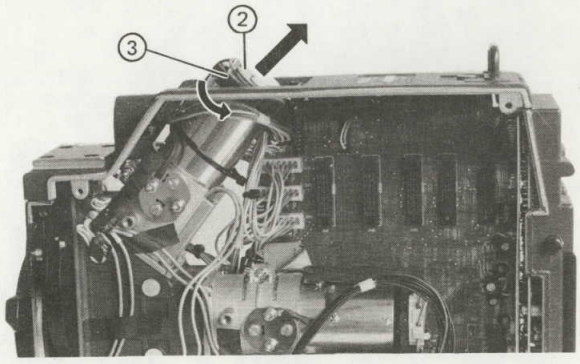


Fig. 2-12

3. Remove the pickup tube lock ring (3) by turning it counterclockwise.
4. Hold the pickup tube neck and pull it out backward.

[B] G channel pickup tube

1. Remove the rear cover.
   (Refer to Section 1.6.6 [1] to [3].)
2. Remove the yoke shield (black) from G channel yoke.
3. Remove socket (1) gently so that no unnecessary force is applied to the electrode pins of the pickup tube.

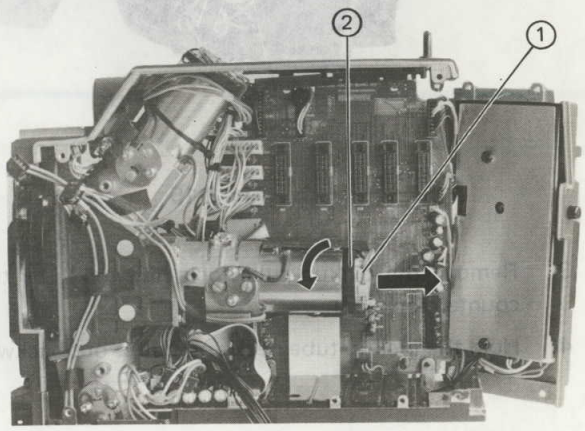


Fig. 2-13

4. Remove the pickup tube lock ring (2) by turning it counterclockwise.
   Hold the pickup tube neck and pull it out backward.

[C] R channel pickup tube

1. Remove two screws (1) from the bottom of the camera and remove the bottom panel (2).

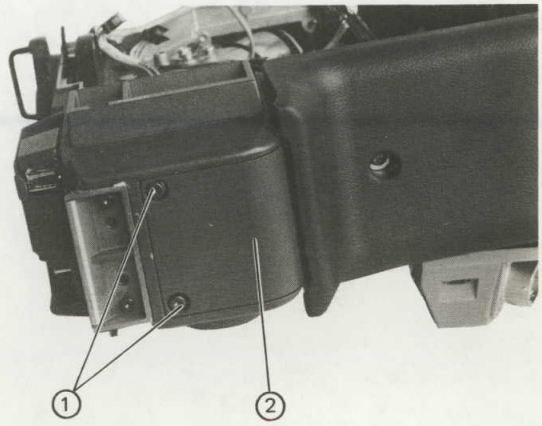


Fig. 2-14

2. Remove socket (3) gently so that no unnecessary force is applied to the electrode pins of the pickup tube.

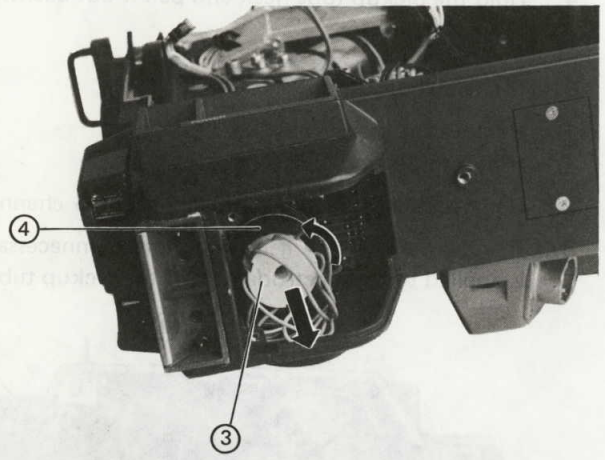


Fig. 2-15

3. Remove the pickup tube lock ring (4) by turning it counterclockwise.
4. Hold the pickup tube neck and pull it out backward.

2.2 INSERTING THE PICKUP TUBE

1. Clean the new pickup tube and check that there is no dirt on the faceplate. Also clean the target ring (metal part).
2. Insert the pickup tube so that the index space is perpendicular to the camera body (the axis of the deflection yoke), until the end position is fixed.

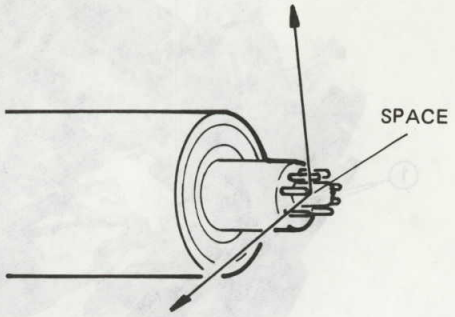
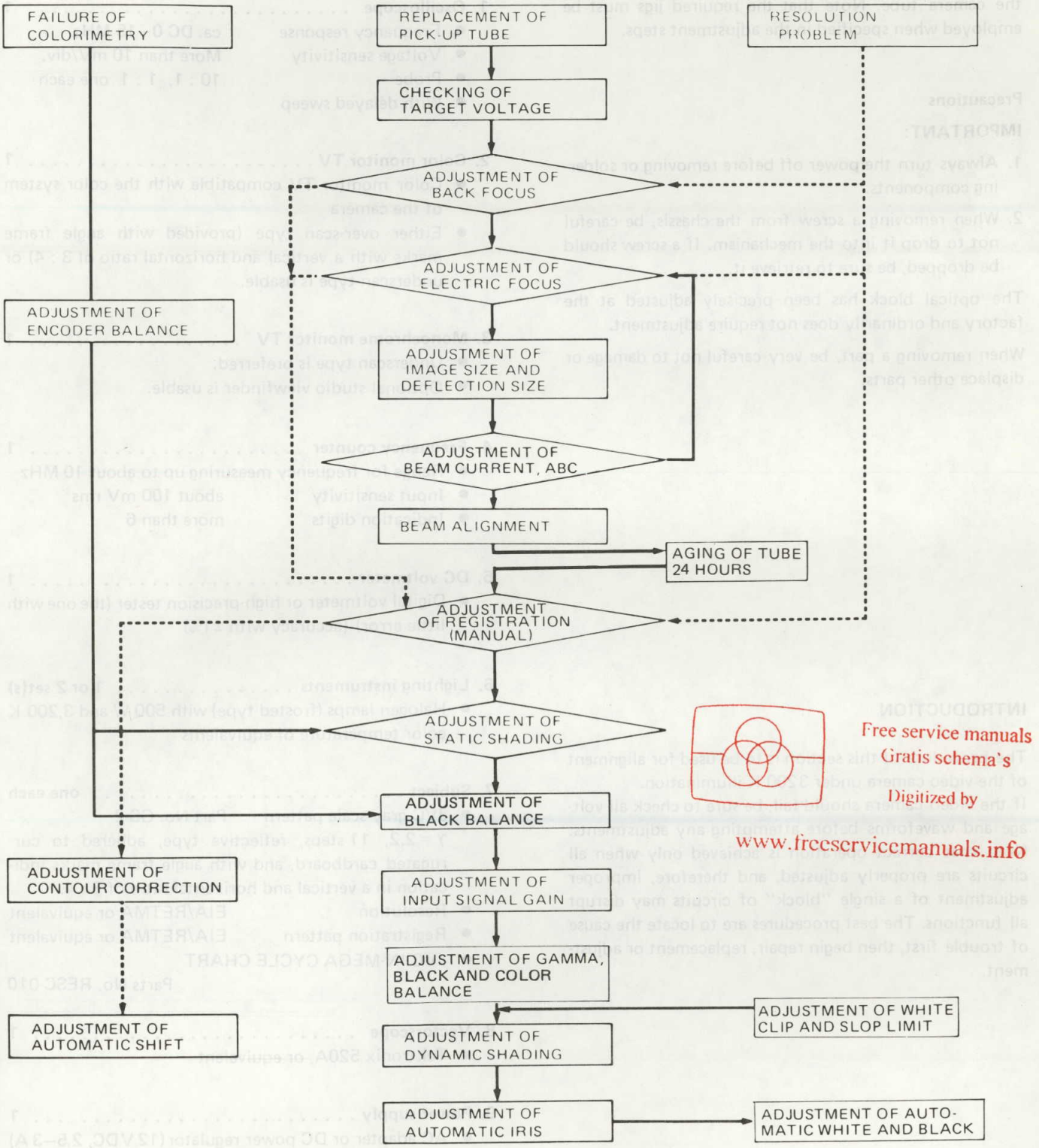


Fig. 2-16

3. Install the pickup tube lock ring and secure it.
4. Install the pickup tube socket and complete assembly.

SECTION 3
ADJUSTMENT PROCEDURE

3.1 ADJUSTMENT PROCEDURES



3.2 GENERAL

The adjustments described in this section are those which can be performed by a qualified service technician.

Proper maintenance and inspection are important both for ensuring top performance and preventing damage to the camera tube. Note that the required jigs must be employed when specified in the adjustment steps.

Precautions

IMPORTANT:

1. Always turn the power off before removing or soldering components.
2. When removing a screw from the chassis, be careful not to drop it into the mechanism. If a screw should be dropped, be sure to retrieve it.

The optical block has been precisely adjusted at the factory and ordinarily does not require adjustment.

When removing a part, be very careful not to damage or displace other parts.

3.3 INTRODUCTION

The procedure of this section is to be used for alignment of the video camera under 3200 K illumination.
If the video camera should fail, be sure to check all voltage and waveforms before attempting any adjustments. Note that correct operation is achieved only when all circuits are properly adjusted, and therefore, improper adjustment of a single "block" of circuits may disrupt all functions. The best procedures are to locate the cause of trouble first, then begin repair, replacement or adjustment.

3.4 ALIGNMENT EQUIPMENT

3.4.1 Equipment needed

The following equipment is required in order to perform the alignment.

1. Oscilloscope 1
- Frequency response — ca. DC 0—15 MHz
- Voltage sensitivity — More than 10 mV/div.
- Probe — 10 : 1, 1 : 1 one each
- With delayed sweep

2. Color monitor TV 1
- Color monitor TV compatible with the color system of the camera
- Either over-scan type (provided with angle frame marks with a vertical and horizontal ratio of 3 : 4) or underscan type is usable.

3. Monochrome monitor TV 1
- Underscan type is preferred.
- Optional studio viewfinder is usable.

4. Frequency counter 1
- Range for frequency measuring up to about 10 MHz
- Input sensitivity — about 100 mV rms
- Indication digits — more than 6

5. DC voltmeter 1
- Digital voltmeter or high-precision tester (the one with little error) (accuracy with ±1%)

6. Lighting instruments . . . . . 1 or 2 set(s)
- Halogen lamps (frosted type) with 500 W and 3,200 K color temperature of equivalents

7. Subject . . . . . one each
- JVC gray scale pattern — Part No. GS-2
  $\gamma = 2.2$, 11 steps, reflective type, adhered to currugated cardboard, and with angle frame marks indication in a vertical and horizontal ratio of 3 : 4.
- Resolution — EIA/RETMA or equivalent
- Registration pattern — EIA/RETMA or equivalent
- JVC IN-MEGA CYCLE CHART
  Parts No. RESC-010

8. Vectorscope 1
- Tektronix 520A, or equivalent

9. Power supply 1
- AC adapter or DC power regulator (12 VDC, 2.5—3 A)

3.5 GENERAL SET-UP

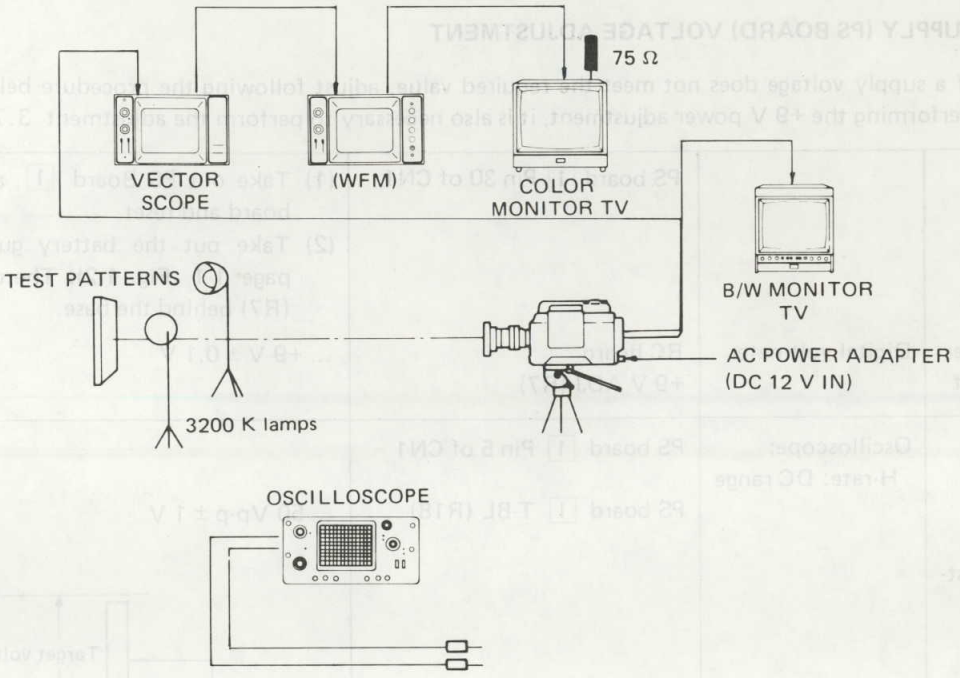


Fig. 4-1 General set-up

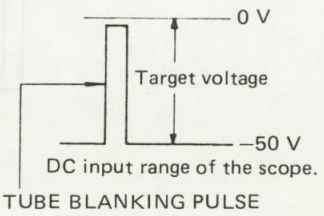
1. Lighting
   Be sure to use an illumination lamp offering 3,200 K color temperature. Also adjust illumination intensity of the pattern surface at approximately 2,500 lux (250 fc). Simultaneously adjust the distance between the camera lens and the pattern to maintain uniform illumination. In this instance, note that improper adjustment may produce a poor waveform.

2. Checking waveform of composite video signals
   Use the VIDEO OUT terminal on the TV monitor connected with a 75 Ω resistor to check the waveform of the composite video signals.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.6 POWER SUPPLY (PS BOARD) VOLTAGE ADJUSTMENT

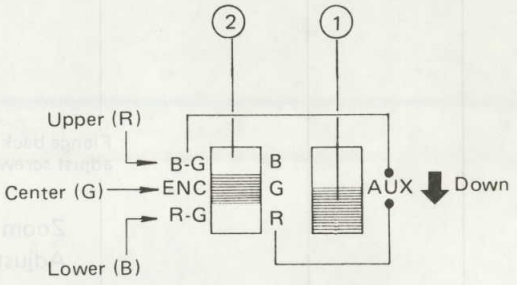
Note: • If a supply voltage does not meet the required value, adjust following the procedure below. Note that, after performing the +9 V power adjustment, it is also necessary to perform the adjustment 3.7 "Electric Focus".

			PS board [1] Pin 30 of CN1	(1) Take out PS Board [1], attach on extension board and reset. (2) Take out the battery guide base. (refer to page 1-1, Fig. 1-2). There is +9 V ADJ VR (R7) behind the base.
1	+9 V power adjustment	Digital voltmeter	RC board +9 V ADJ (R7)	... +9 V ± 0.1 V
2	Target voltage (Cathode blanking pulse adjustment)	Oscilloscope: H-rate: DC range	PS board [1] Pin 5 of CN1 PS board [1] T-BL (R18)	... 50 Vp-p ± 1 V 

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

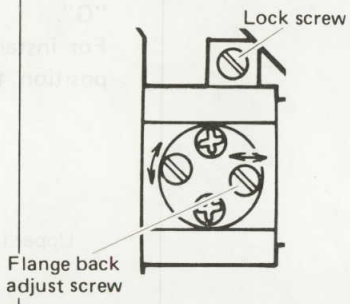
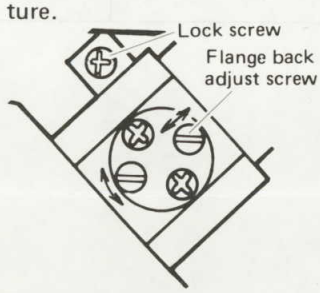
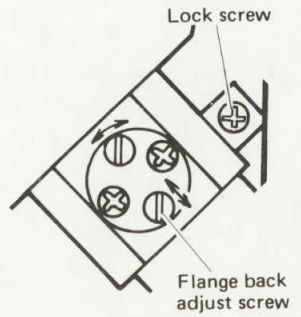
3.7 ELECTRIC FOCUS ADJUSTMENT

Note that, after the adjustment, registration adjustment is also necessary.

1	B, G, R electric-static focus adjustment	Registration chart (The distance to the camera shall be approx. 3 m.)	Connect a B/W monitor to TEST OUT. PS board [1] G FOCUS (R21) B FOCUS (R22) R FOCUS (R20)	(1) Set the VF/TEST OUT SELECT switches to "G". For instance, set (1) switch to the bottom position, then set (2) switch to the center.  VF/TEST OUT SELECT switch (2) Turn the lens focus ring to adjust the focus. (3) Adjust the best focus point. (4) Adjust the R and B focus following the same steps as (1) to (3) above.

No.	Items	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.8 FLANGE BACK ADJUSTMENT

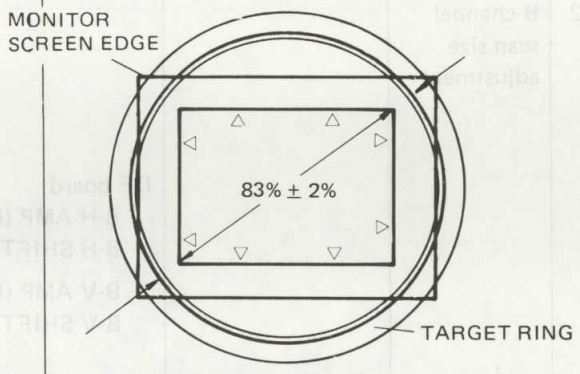
1	G channel flange back adjustment	Registration pattern	Connect a B/W monitor to TEST OUT. Monitor the G ch. video signal.  Zoom ring: TELE ↔ WIDE Adjust the focus.	(1) Reduce the illumination so that the lens aperture is fully open. (If a color temperature compensation filter or ND filter is to be used to decrease the amount of light, adjust the auto white balance before adjustment.) (2) Set the VF/TEST OUT SELECT switches to "G". (3) Set the lens F.f. adjust ring to the specified mark position. (4) Loosen the G channel yoke lock screw. (5) Set the lens zoom ring to the TELE (telephoto) position and turn the lens focus ring to adjust the focus. (6) Set the lens zoom ring to the WIDE position and turn the G channel flange back screw to adjust the focus. (7) Repeat steps (5) and (6) several times. (8) Secure the lock screw.
2	B channel flange back adjustment		Zoom ring: TELE ↔ WIDE Adjust the focus of the picture.  	(1) Set the TEST OUT select switches to "B". (2) Loosen the B ch. lock screw. (3) Adjust the focus following the same steps as (5) to (8) above.
3	R channel flange back adjustment		Zoom ring: TELE ↔ WIDE Adjust the focus of the picture.  	(1) Set the VF/TEST OUT SELECT switches to "R". (2) Loosen the R ch. lock screw. (3) Adjust the focus following the same steps as (5) to (8) above.

No.	Items	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.9 SCAN SIZE SETTING

Note: • After a long period of use, the sensitivity of the pickup tube is lowered in the used target area, and is relatively high in the unused area. If the difference (raster burn) is observed clearly, the setting becomes smaller than the standard picture size because H and V shifts are mechanically adjusted to meet the condition of the used area.

No.	Items	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
				• Check that the registration pattern is placed horizontally. • Check that the camera is placed horizontally and level. • Check that the chart and camera are positioned exactly opposite to each other. • Set the AUTO SHIFT switch to the PRESET? position.
1	G channel scan size adjustment	Registration pattern	Connect a B/W monitor to TEST OUT. Use a zoom lens.	(1) Set the VF/TEST OUT SELECT switches to "G". (2) Set the SCAN SIZE switch (S2) on DF board to "OVER". (3) So that the registration chart on the monitor screen touches the inside of the target ring, adjust the camera position, angle and lens zooming.

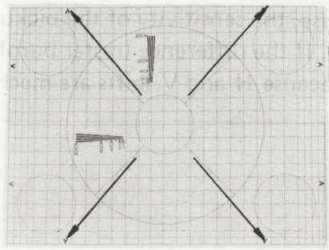
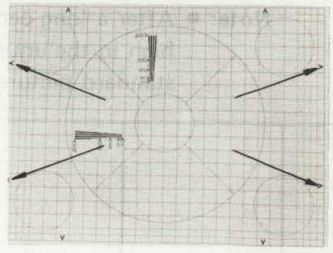
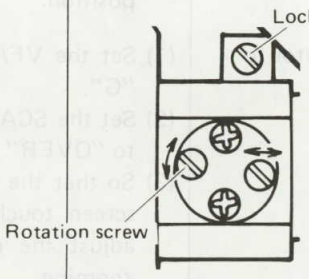


83% of target ring diagonal

(4) Ensure no eclipse is observed on the corners at "R" and "B" channels also, by selecting the VF/TEST OUT SELECT switch.
(5) If necessory, adjust the (3) procedure.
(6) Reset VF/TEST OUT select switches to "G".
(7) Set the SCAN SIZE switch (S2) on DF board to "NOR".
(8) Adjust M-V AMP (R29) and G-V SHIFT (R46) so that the "wedges" on upper and lower chart touch the inside of the raster.
(9) If necessary, adjust the yoke rotation so that the scanning line and test pattern become parallel.

Note: Hereafter until the adjustment step (9) is completed, do not move the position and angle of the camera and pattern or the position of the lens zoom ring.

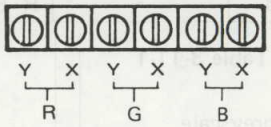
DF board
M-V AMP (R29)
G-V SHIFT (R46)

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
			  DF board M-H AMP (R81) G-H SHIFT (R43) 	(9) Adjust MASTER-H AMP (R81) and G-H SHIFT (R43) so that the "wedges" on both sides of the chart touch the inside of the raster. **Note:** Do not touch M-V-LINEARITY (R20), MASTER-H-LIN (R170), G-SKEW (R62) and G-H-LIN (R104).
2	B channel scan size adjustment		DF board B-H AMP (L6) — B-H SHIFT (R36) — Horizontal direction; B-V AMP (R38) — B-V SHIFT (R40) — Vertical direction	(10) Set the VF/TEST OUT SELECT switches to "B". (11) Adjust so that the black and white images of the chart are superimposed on the B/W monitor screen. Notice only the vertical and horizontal amplitudes. (12) If necessary, rotate the B ch. yoke paying attention only to the horizontal center line.
3	R channel scan size adjustment		DF board R-H AMP (L2) — R-H SHIFT (R48) — Horizontal direction; R-V AMP (R50) — R-V SHIFT (R52) — Vertical direction	(13) Set the VF/TEST OUT SELECT switches to "R". (14) Observing B/W monitor, adjust so that the black and white images of the chart are superimposed. Notice only the vertical and horizontal amplitudes. (15) If necessary, rotate the R ch. yoke paying attention only to the horizontal center line.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.10 ELECTRONIC BEAM ALIGNMENT

Note: • Since the beam alignment has a close relationship to the scan size, it is preferable to perform alignment after the "Scan Size Setting" above, with the same setting conditions.

1	G channel beam alignment	Registration pattern or Resolution pattern	Connect a B/W monitor to TEST OUT. Set the AUTO SHIFT switch to "MANUAL". PS board [1] G-FOCUS (R21) MT-2 board G-X ALIGN (R7) G-Y ALIGN (R10)  	• Check that the chart and camera are positioned exactly opposite to each other. (1) Set the VF/TEST OUT SELECT switches to "G". (2) Turn G-FOCUS VR (R21) of PS board quickly by 20° to the left and right, and observe variation of focus. (3) If any variation of the pattern's center (movement up & down, left & right) is observed, perform adjustment. **Note:** If it is correctly adjusted, the pattern center seems to move only towards and away from. (4) Adjust G-FOCUS (R21) VR to obtain optimum focus. **Note:** Check there is no mesh beat interference. Adjust to the position giving optimum alignment without mesh beats.
2	B channel beam alignment		PS board [1] B-FOCUS (R22) MT-2 board B-X ALIGN (R6) B-Y ALIGN (R9)	(5) Set the VF/TEST OUT SELECT switches to "B". (6) Perform alignment following the same procedures as in steps (2) through (4) above.
3	R channel beam alignment		PS board [1] R-FOCUS (R20) MT-2 board R-X ALIGN (R8) R-Y ALIGN (R11)	(7) Set the VF/TEST OUT SELECT switches to "R". (8) Perform alignment following the same procedures as in steps (2) through (4) above.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.11 BEAM CURRENT ADJUSTMENT

1 BEAM adjustment (X2 BEAM)

Measuring Instruments: Grey scale chart, Oscilloscope (H-rate: 10 : 1)

- An illumination of from 4,000 to 6,000 lux is required for the adjustment. Increase the brightness or place the light near the chart.
- Set the lens iris mode to "MANUAL".

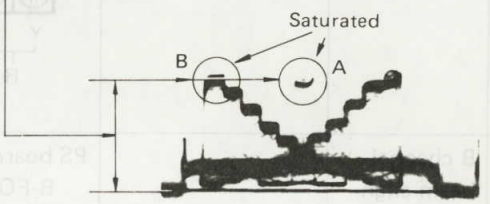
(1) Set the ABC VRs and CLIP VRs on PS board to fully clockwise.
(2) Monitor the gray scale chart on full screen and adjust the lens iris.
(3) Open the lens iris until the signal level slightly exceeds the specified value.
(4) Adjust BEAM SET VRs to the point just before the signal peak begins to be clipped.

PA board	Video signal level	VR (PS board 1)	
B TP1	0.4 V	B BEAM SET R39	ABC VRs – fully CW CLIP VRs – fully CW
G TP2	0.4 V	G BEAM SET R45	
R TP3	*	R BEAM SET R51	

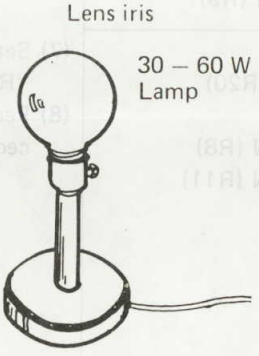
Table 3-11-1

* Adjust the R BEAM SET as same iris opening as the G BEAM SET.

A : JVC greyscale
B : EIA greyscale



2 ABC adjustment

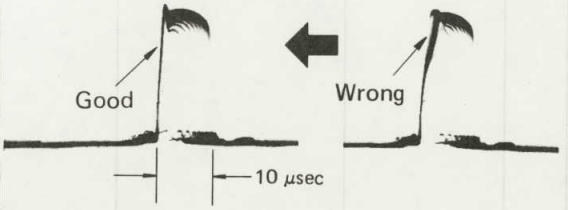


- An incandescent lamp is necessary for adjustments of step 2 and after.

(1) Turn ABC VRs of PS board fully counter clockwise. And turn CLIP VRs fully clockwise.
(2) Shoot the incandescent lamp so that the width becomes 10 μsec in horizontal period.
(3) Open the lens iris so that the signal level slightly exceeds the specified value in table 3-11-3.
(4) Slowly turn the ABC VR clockwise.
(5) Adjust to the point just before a change is observed in the rise condition of the waveform (white peak).

PA board	Video signal level	VR (PS board 1)	
B TP1	Saturated	B ABC R37	
G TP2	Saturated	G ABC R43	
R TP3	Saturated	R ABC R49	

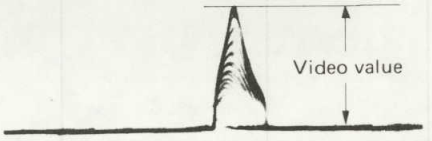
Table 3-11-2



No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
3	BEAM CLIP adjustment (X8 BEAM)	Incandescent lamp, Oscilloscope (H rate: 10 : 1)	Lens iris	**Note:** This adjustment is performed with an incandescent lamp (about 60 W) as the object. Since this may lead to burn if the lamp is shot for long a minute without correct adjustment, the operation should be done quickly. (1) Open the lens iris aperture so that the signal level slightly exceeds the specified value. (2) Adjust BEAM CLIP VRs to the points just before the signal peak begins to get clipped.

PA board		Video signal level	VR		
			PS board 1		
B	TP1	1.0 V	B	BEAM CLIP	R41
G	TP2	1.6 V	G	"	R47
R	TP3	1.2 V	R	"	R67

Table 3-11-3



No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.12 PREAMP (PA BOARD) ADJUSTMENT

- The following adjustment is unnecessary at ordinary servicing.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
1	Streaking adjustment	Grey Scale	PA board LF Trimmer capacitor	Warm up the camera for an hour in a room at a temperature of 20°C to 25°C before starting to adjust the video amplifier. (1) Prepare a large piece of black cloth with white paper glued in the middle. This serves as the test pattern (Fig. 3-12-1). (2) Illuminate the test pattern with about 3,000 lux (300 fc). (3) For the G-channel, connect an oscilloscope to TP-2 and set its time division to 20 μsec and vertical gain at 0.1—0.2 V/cm. (4) Open the lens aperture so that the signal voltage becomes about 0.16 V. (5) The waveform is normally B shown in Fig. 3-12-2. If it is not, adjust LF trimming capacitor. (6) For the R and B channels, check the waveform at each test point with the aperture set in step (4) and adjust the associated LF trimming capacitor in the preamplifier.

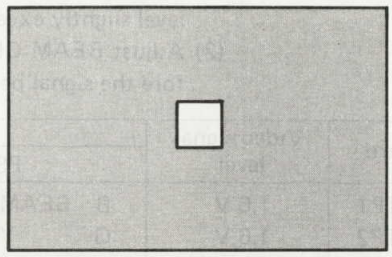


Fig. 3-12-1 Example of test pattern

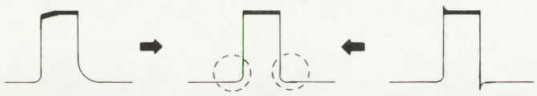


Fig. 3-12-2

Channel	Test point	Adjustment	
	PA board	PA board	
B	TP-1	B-LF	C101
G	TP-2	G-LF	C201
R	TP-3	R-LF	C301

Table 3-12-1

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.13 REGISTRATION ADJUSTMENT

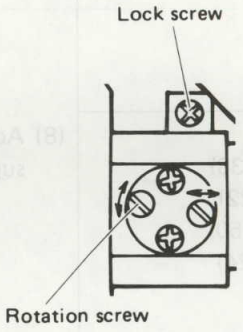
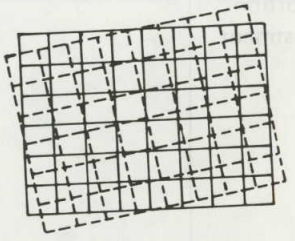
Note: 1. When the pickup tube is not replaced, this adjustment is performed using the G channel as the reference for other channels. Therefore, do not touch the controls of G channel such as the centering, skew, vertical/horizontal scan sizes and linearity control.
To obtain optimum registration, it is only necessary to adjust R and B.

2. Influence of incident light
Incident light exerts a great influence on registration. Especially if the light is bright and the background very dark, misregistration will be so large that it may be observed even on the monitor screen. And this misregistration will not be able to be adjusted by adjusting the camera.
When adjusting the registration, manually adjust the iris so that the signal level is 70% of the video output.

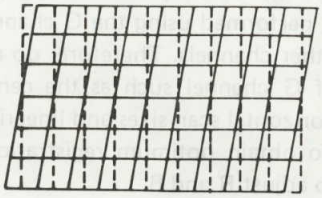
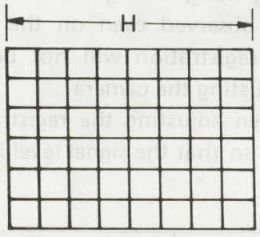
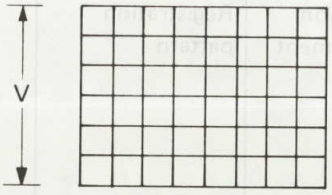
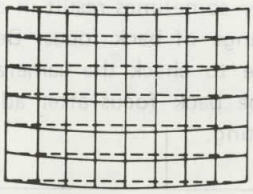
3. Removal and reinsertion of circuit board
When adjusting, it is frequently necessary to install extension boards to circuit boards. In such cases, be sure to close the optical filter and switch off the power before operation, to prevent damage to the pickup tube.

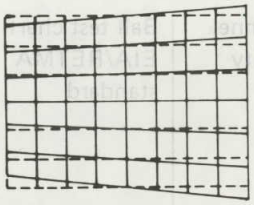
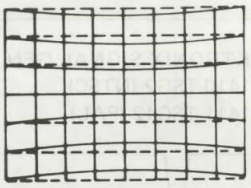
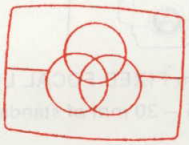
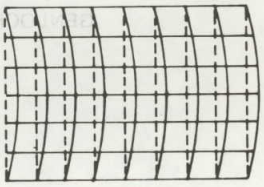
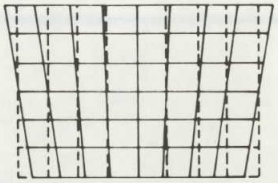
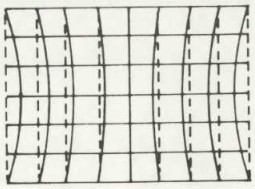
4. Zoom lens
The sizes of images on the R, G and B pickup tubes depend on the zooming of the zoom lens. If the registration pattern is displayed as full-screen size when zooming nearly in the middle between tele- and wide-angle, it means that the distance between the camera and chart are ideal.

5. Monitor
The registration adjustment is to be performed with a B/W monitor: It is not possible to use a color monitor.

1	Rotation adjustment	Registration pattern	Connect a B/W monitor to TEST OUT.  R channel ; Yoke rotation DF board — R-V SHIFT(R52) / R-H SHIFT(R48) B channel ; Yoke rotation DF board — B-V SHIFT(R40) / B-H SHIFT(R36)	• Warm up the camera with the optical filter disc at position "1" (closed) for 30 minutes. • Check that the registration pattern is placed horizontally. • Check that the camera is placed horizontally and level. • Check that the registration pattern and camera are positioned exactly opposite to each other. (1) Set the lens iris so that the video output is 70% or that the PA board TP2 (G-ch) is 0.14 Vp-p approx. (2) Set the VF/TEST OUTPUT SELECT switches to "R-G". (3) Adjust so that the horizontal center lines of the black and white images are superimposed on the B/W monitor screen.  (4) Set the VF/TEST OUTPUT SELECT switches to "B-G". (5) Adjust so that the horizontal center lines of the black and white images are superimposed on the B/W monitor screen.

• The rotation adjustment may sometimes result in a change of back focus: Be sure to check the camera tube back focus after adjusting.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
2	Skew adjustment		DF board B-SKEW (R61) R-SKEW (R63)	(6) Adjust so that the vertical center lines are superimposed on the B/W monitor screen.  **Note:** Do not touch G-SKEW (R62)
3	Horizontal amplitude & linearity adjustment		DF board B-H AMP (L6) R-H AMP (L2) B-H LIN (R93) R-H LIN (R104)	(7) Adjust so that all the vertical lines are superimposed on the B/W monitor screen.  **Note:** Since the adjustment using R/B LIN causes a variation of amplitude, it is necessary to always control the R/B SHIFT VR to align the center line during adjustment.
4	Vertical amplitude & linearity adjustment		DF board B-V AMP (R38) B-V LIN (R22) R-V AMP (R50) R-V LIN (R24)	(8) Adjust so that all the horizontal lines are superimposed on the B/W monitor screen. 
5	Vertical bow distortion adjustment		DF board B-V BOW (R146) R-V BOW (R144)	• Since bow, trapezoidal and pincushion distortions have a certain relationship, it is important to start adjustment with the most obvious distortion. Take care not to rotate the VRs too much, as over-correction may cause new distortions in different parts. (9) Observe the B/W monitor and adjust so that the solid lines below are correctly superimposed.  **V-BOW distortion**

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
6	Vertical trapezoidal distortion adjustment		DF board B-V TRAP (R119) R-V TRAP (R129)	(10) Observe the B/W monitor and adjust so that the solid lines below are correctly superimposed.  V-TRAPEZOIDAL distortion
7	Vertical pincushion distortion adjustment		DF board B-V PIN (R120) R-V PIN (R130)	(11) Observe the B/W monitor and adjust so that the solid lines below are correctly superimposed.  V-PINCUSHION distortion
8	Horizontal bow distortion adjustment		DF board B-H BOW (R5) R-H BOW (R7)	(12) Attach an extension board to H-DEF board and set. (13) Observe the B/W monitor and adjust so that the solid lines below are correctly superimposed.  H-BOW distortion
9	Horizontal trapezoidal distortion adjustment		DF board B-H TRAP (R152) R-H TRAP (R151)	(14) Observe the B/W monitor and adjust so that the solid lines below are correctly superimposed.  H-TRAPEZOIDAL distortion
10	Horizontal pincushion distortion adjustment		DF board B-H PIN (R3) R-H PIN (R1)	(15) Observe the B/W monitor and adjust so that the solid lines below are superimposed correctly.  H-PINCUSHION distortion

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
11	• **The following linearity adjustment is unnecessary at ordinary servicing since special test pattern and signal generator are required.**			
	G channel linearity	Ball test chart EIA/RETMA standard	DF board M-V AMP (R29) M-V LINEARITY (R20) M-V PIN (R112) M-H AMP (R81) M-H LINEARITY (R170) M-H PIN (R26)	• This adjustment is not a routine adjustment. (1) Hook up the camera and test equipment as follows.

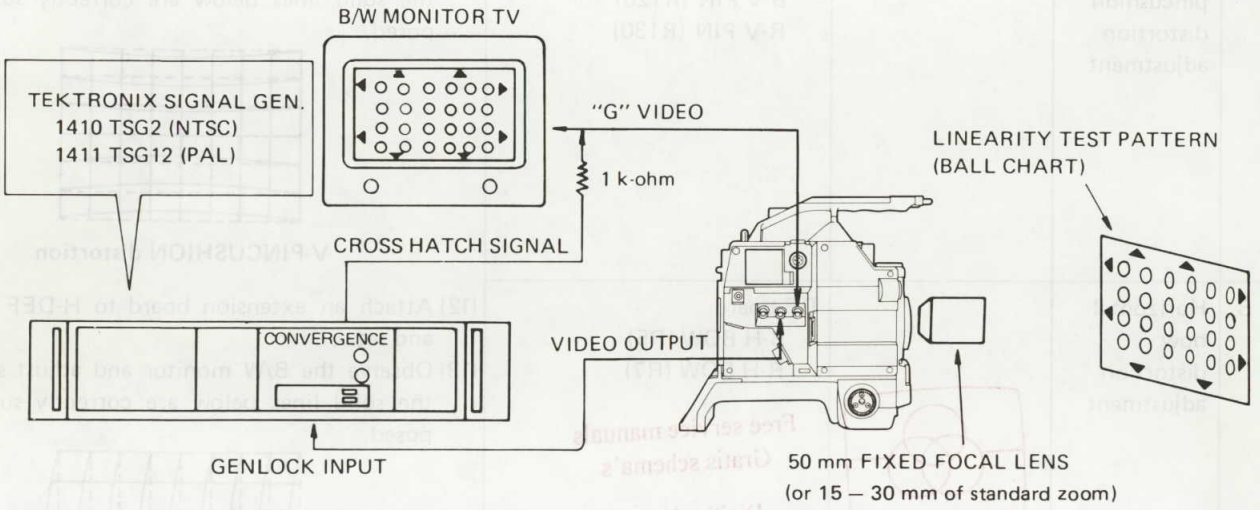


Fig. 3-12-1 Connection of test equipment

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
				(2) Superimpose the ball test chart picture and cross hatch test signal on the B/W under-scanned type professional monitor TV. (3) Adjust the camera distance and position so that the test pattern picture just fills the monitor TV screen. (4) Adjust VERTICAL POSITION and HORIZONTAL POSITION of the cross hatch generator panel so that the center of test card picture and cross hatch signal are coincide. (5) Adjust the above mentioned potentiometers if the all cross points are not within or touch the circle of the test card.

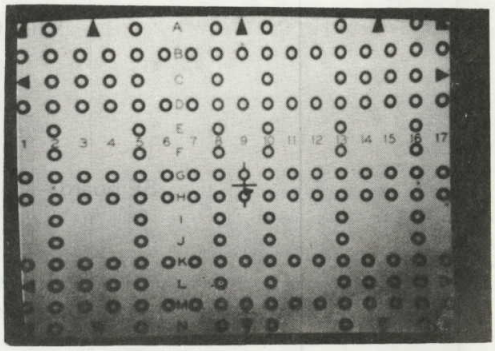


Fig. 3-12-2 Picture size

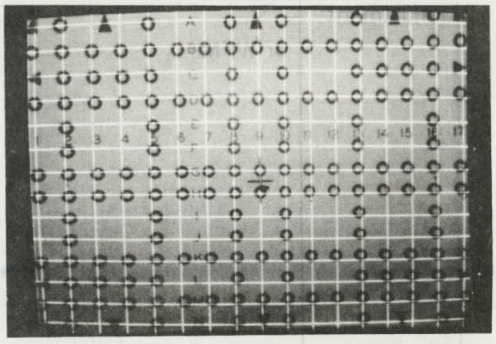


Fig. 3-12-3 Linearity test

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.14 ENCODER ADJUSTMENT (NTSC)

Note: • When a vectorscope is not used, just perform the checks and adjustments in "1. Bars level adjustment" and "2. Carrier balance adjustment", item (1) and (2).

1 Bars level adjustment

Measuring Instruments: Oscilloscope (H rate: 10 : 1) or WFM

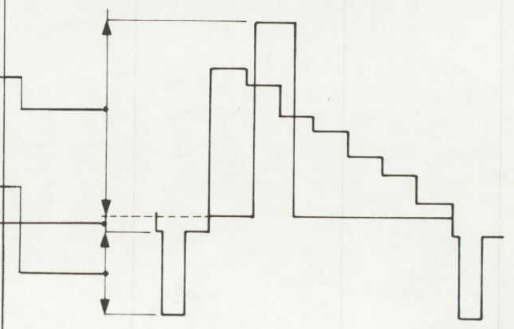
Measuring Points, Adjusting Levels & Adjusting Points:

VIDEO OUTPUT
(0.714 Vp-p)
100 IRE ± 1 IRE
Y GAIN (R188)
SE board 5
(0.286 Vp-p ± 0.01 V)
40 IRE ± 5 IRE
SYNC LEVEL (R97)
(53 mVp-p ± 7 mV)
7.51 IRE ± 1 IRE

Procedures:

- Set the filter disc to "1" (closed).
- Connect a vectorscope and WFM to the VIDEO OUTPUT terminal and terminate with a 75-ohm termination impedance.
- Set the BARS switch to "ON".

(1) Take out SE board 5, attach an extension board and reset.
(2) Set both the I-AXIS switch (S6) and Q-AXIS switch (S7) of SE board to OFF.
(3) The Y LEVEL and SYNC LEVEL are related each other; adjust them repeatedly.



2 Carrier balance adjustment

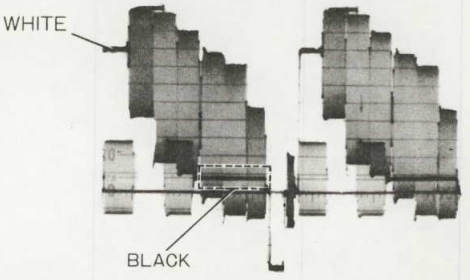
Measuring Instruments: Oscilloscope (H rate: 10 : 1) or WFM; Vectorscope

Measuring Points, Adjusting Levels & Adjusting Points:

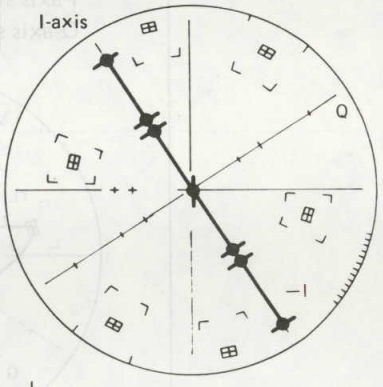
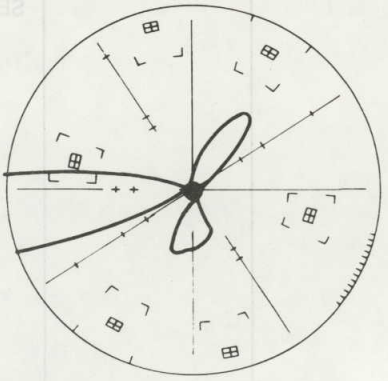
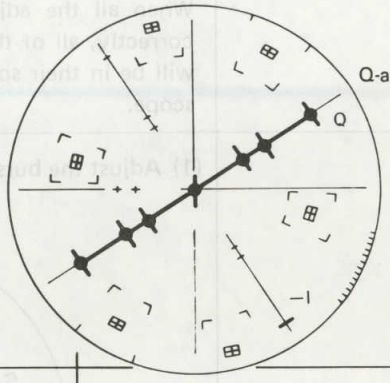
SE board 5
I CARRIER BAL (R169)
Q CARRIER BAL (R168)

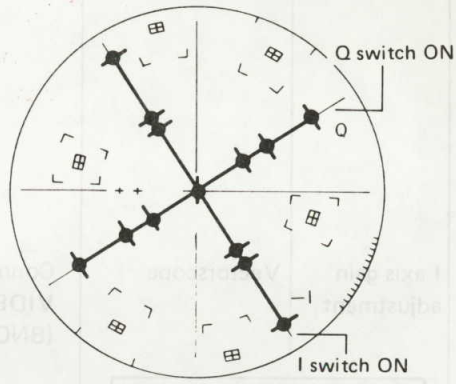
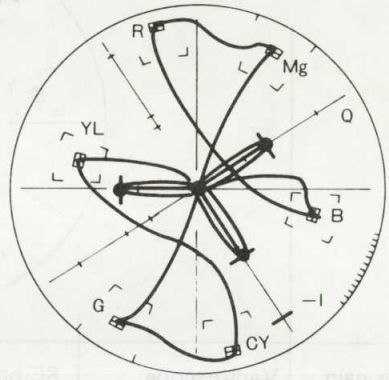
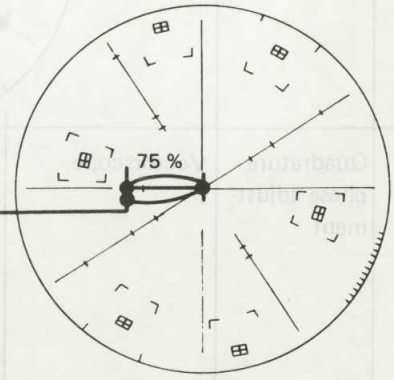
Procedures:

(1) Set both the I-AXIS switch and Q-AXIS switch to ON.
(2) Turn the VRs alternatively so that the carrier leakage of WHT and BLK is minimized. It is important to adjust alternatively and repeatedly since the two VRs are related to each other.



(3) When using a vectorscope, set the gain of vectorscope at maximum then set so that the spot comes to the center and minimize the circle.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
3	I axis gain adjustment **Always perform the I-axis gain adjustment first, and then the Q-axis gain adjustment.**	Vectorscope	Connect a vectorscope to the VIDEO OUTPUT connector (BNC). SE board [5] CHROMA LEVEL (R142) 	 (1) Set as follows: I-axis switch (S6) → ON Q-axis switch (S7) → OFF (2) Set the gain of the vectorscope to CAL or to 75% (preset position). (3) Adjust the PHASE of the vectorscope so that the I-axis signal is superposed on the I-axis line. (4) Adjust CHROMA LEVEL so that the six spots of I-axis signal are positioned correctly indide the six spot marks of the I-axis.
4	Q-axis gain adjustment	Vectorscope	SE board [5] Q-GAIN (R156) 	(1) Set as follows: I-axis switch (S6) → OFF Q-axis switch (S7) → ON (2) Adjust Q-GAIN so that six Q-axis spots come exactly on the spot marks of the Q-axis.
5	Quadrature phase adjustment	Vectorscope	SE board [5]	(1) Set as follows: I-axis switch (S6) → OFF Q-axis switch (S7) → ON (2) Adjust the PHASE control of vectorscope so that the Q-axis signal is superimposed on the Q-axis. (3) Set as follows: I-axis switch (S6) → ON Q-axis switch (S7) → OFF

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
			SE board [5] QUADRATURE (R116)	(4) Adjust the QUADRATURE VR so that the I-axis signal is superimposed on the I-axis. (5) Repeat items (1) through (4) so that the axis cross each other exactly perpendicularly.  (6) Set as follows: I-axis switch (S6) → ON Q-axis switch (S7) → ON  When all the adjustments above are performed correctly, all of the spots (R, G, B, M_G, C_Y, Y_L,) will be in their specified positions on the vectorscope.
6	Burst phase & burst level adjustment	Vectorscope	SE board [5] BURST PHASE (R160) BURST LEVEL (R150)	(1) Adjust the burst phase and level. 

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.14-P ENCODER ADJUSTMENT (PAL)

Note: ● When a vectorscope is not used, just perform the checks and adjustments in "1. Bars level adjustment" and "2. Carrier balance adjustment", item (1) and (2).

1 Bars level adjustment

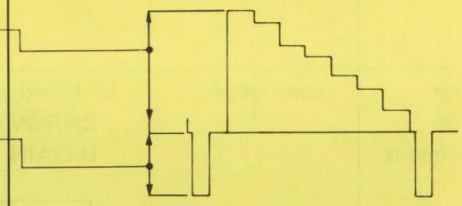
Oscilloscope (H rate: 10 : 1)

VIDEO OUTPUT

SE board [5]
- 0.7 V Y GAIN (R102)
- 0.3 V SYNC LEVEL (R109)

- Set the filter disc to "1" (closed).
- Connect a vectorscope and WFM to the VIDEO OUTPUT terminal and terminate with a 75-ohm termination impedance.
- Set the BARS switch to "ON".

(1) Take out SE board [5], attach an extension board and reset.
(2) Set both the U-AXIS switch (S6) and V-AXIS switch (S5) of SE board to OFF.
(3) Adjust Y GAIN and SYNC.

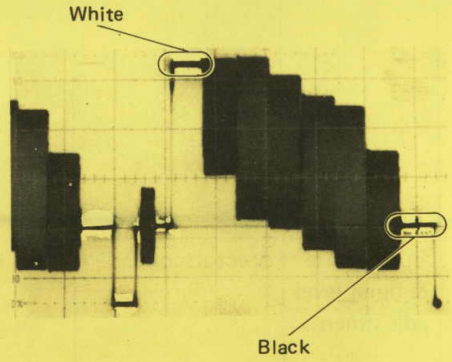


2 Carrier balance adjustment

Oscilloscope (H-rate; 10 : 1) or WFM

SE board [5]
CARRIER BAL (R172)
CARRIER BAL (R173)
CARRIER BAL (R174)

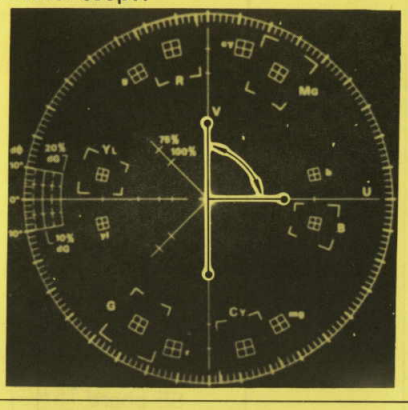
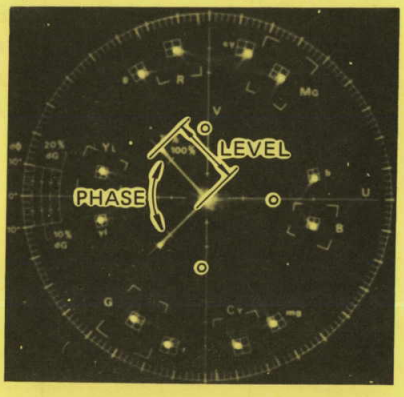
(1) Set both the U-AXIS switch and V-AXIS switch to ON.
(2) Set R174 mechanicla center, then, turn the VRs R172 and R173 alternatively so that the carrier leakage of Black is minimized. It is important to adjust alternatively and repeatedly since the two VRs are related to each other.



Vectorscope

SE board [5]
W. BAL 1 (R135)
W. BAL 2 (R151)

(3) Adjust R135 and R151 alternatively to minimize the carrier leakage of white.
(4) Adjust the R174 to minimize carrier leakage of each lines. The R174 minimize the carrier leakage of V-axis.

No.	Item	Measuring Insturments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
3	Quadrature phase adjustment	Vectorscope	SE board [5] QUAD PHASE (R128)	(1) Set as follows: V-axis switch (S5) ON U-axis switch (S6) ON (2) Adjust the QUAD PHASE R128 so that the U-axis signal perpendicular to the V-axis on the vector scope. 
4	Colour vector adjustment	Vectorscope	SE baord [5] CHROMA LEVEL (R188) U-GAIN (R159) **Always perform the CHROMA LEVEL adjustment first, and the U-axis gain adjustment.**	(1) Adjust CHROMAL LEVEL (R188) and U-GAIN (R159) VRs so that all of the colour dots are in their spefied positions on the vectorscope. (2) Readjust QUAD PHASE (R128) if necessory. 
5	Burst phase & burst level adjustment	Vectorscope	SE board [5] BURST PHASE (R181) BURST LEVEL (R162)	(1) Adjust the burst phase and level (0.3 V). 

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.15 BIAS LIGHT

1	Bias light	Oscilloscope	PA board: R — TP1 — 3–6 mVp-p; G — TP2 — 5–10 mVp-p; B — TP3 — 4–10 mVp-p (*Video level) * Use 1 to 1 probe.	• Set the filter disc to "1" (closed). (1) It is not necessary to adjust anything, but only check at the measuring points. 

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

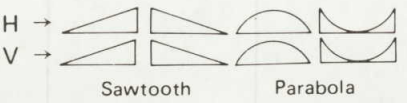
3.16 STATIC SHADING ADJUSTMENT

1	Static shading adjustment	Oscilloscope: H-rate: V-rate:	Connect a vectorscope to the TEST OUTPUT.	• Close the lens cap or set the filter disc to "1" (closed). • Set the WHITE BAL. (white balance) switch on the side of camera to PRESET. • Set the AT board [5] AUTO BLK switch (S1) to OFF. • Set the HI-SENS. switch to "+18 dB". • Set the AUTO SHIFT switch on the front of the camera to MANUAL. • Adjust the MASTER BLACK VR so that black level up to 140 mV.

	Test point	VR: PA board
B	Test output	STATIC-SH
G	"	VRs
R	"	

(1) Select the R, G, B channels respectively to use VF/TEST OUT SELECT switch.

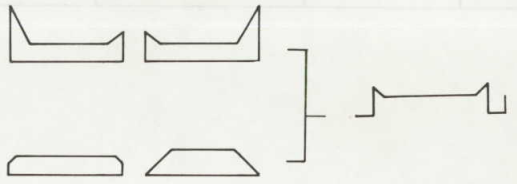
(2) If static shading is observed, correct by advancing the VRs of the corresponding channels shown below.



(3) Find the channel with most obvious framing shading (▬) (for both H and V) by means of TEST output.

(4) Adjust the FRAME BAL (frame balance) and CLIP of the largest channel to minimize the edge shading.
Separate adjustment VRs are not provided for each of the R, G and B channels.

H FRAM
BAL (R72)
CLIP (R84)
V FRAM
BAL (R75)
CLIP (R81)



(5) Adjust the H FRAME and V FRAME of each channel to minimize the edge shading.

B-H FRAME (R152)
G-H FRAME (R252)
R-H FRAME (R352)

B-V FRAME (R150)
G-V FRAME (R250)
R-V FRAME (R350)

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

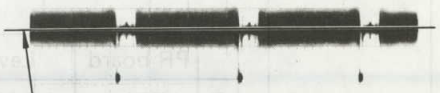
3.17 BLACK BALANCE ADJUSTMENTS

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
1	Black balance	Oscilloscope: (H-rate: 10 : 1) DC range		• Close the lens cap or set the filter disc to "1" (closed). • Set the WHITE BAL. switch on the side of the camera to PRESET. • Set the PR board AUTO BLK switch (S1) to OFF. (1) Connect an oscilloscope to TEST OUTPUT with 75-ohm termination. (2) Set the HI-SENS switch to "0 dB". (3) Select VF/TEST OUTPUT SELECT switches to G channel. (4) Adjust MASTER BLACK VR of the Test output select box so that noise in the image scanning period is clipped at the center. (Refer to 3.19 VIDEO OUTPUT GAIN AND BLACK LEVEL ADJ, No. 1 G channel black level adjustment).

	Test point	VR: PA board
B	TEST output B	BLACK BAL B (R130)
G	TEST output G	BLACK BAL G (R230)
R	TEST output R	BLACK BAL R (R330)

Auto BLACK SW position : Auto BLACK

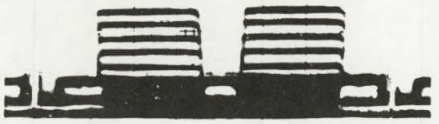
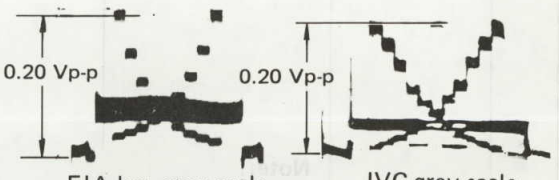
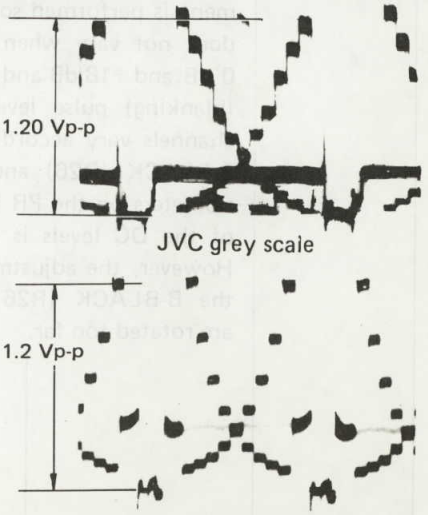
(5) Select VF/TEST OUTPUT SELECT switches to respective channel.
(6) Adjust the VRs while depressing the Auto white/Auto black switch to Auto BLACK side.
(7) Switch the HI-SENS switch alternately between "0 dB" and "+18 dB" positions and adjust so that the noise center does not move in the way DC level does.



Note:
This adjustment is related to "3.19 BLACK LEVEL ADJUSTMENT". Black balance adjustment is performed so that the noise level center does not vary when gain is switched between 0 dB and +18 dB and is not adjusted with the BL (blanking) pulse level. The DC levels between channels vary according to the positions of the B-BLACK (R26) and R-BLACK (R31) potentiometers on the PR board [2]. The adjustment of the DC levels is described in section 3.19. However, the adjustment may not be possible if the B-BLACK (R26) and or R-BLACK (R31) are rotated too far.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.18 INPUT GAIN ADJUSTMENT (INPUT LEVEL SETTING)

1	Input gain adjustment	Grey scale chart Oscilloscope: (H-rate: 10 : 1)	3200 K illumination	• Set the WHITE BAL. switch on the side of the camera to PRESET. • Set the AT board switches AUTO BLK (S1) to PRESET. • Set the HI-SENS switch to "0 dB". • Check that the camera and grey scale chart are positioned exactly opposite each other. • Check that the lighting is uniform. Connect an oscilloscope to the PR board test point TP1 (B ch.), observe with V-rated period and adjust the lighting so that the video signal becomes flat (average).  • Set the lens iris mode to MANUAL. (1) Adjust the lens iris aperture to obtain the specified signal level (100%). **Note:** Do not touch the lens iris control from now on until B and R gain settings are completed.  EIA log. grey scale JVC grey scale (2) Check that the signal levels are as specified.  JVC grey scale EIA log. grecy scale

	PA board	Level
G	TP2	0.20 Vp-p

	PR board	Level	VR: PA board
B	TP1	1.2 Vp-p	B-IN GAIN (R112)
G	TP2	1.2 Vp-p	G-IN GAIN (R212)
R	TP3	1.2 Vp-p	R-IN GAIN (R312)

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.19 VIDEO OUTPUT GAIN AND BLACK LEVEL ADJUSTMENT

1 G channel black level adjustment

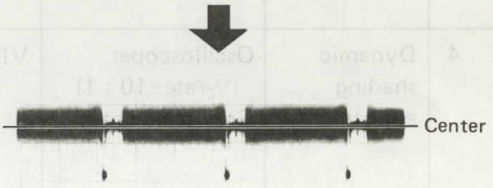
Lens capped
Oscilloscope: (H-rate: 10 : 1)

SE board [5] TP9
MASTER BLACK

- Set the WHITE BAL. switch on the side of the camera to PRESET.
- Set the AT board [4] switches AUTO BLK (S1) to PRESET.
- Set the HI-SENS switch to "0 dB".
- Set the CC board [3] CONTOUR switch to OFF.
- Check that the adjustments of "3.14 ENCODER ADJUSTMENTS" are correct.

(1) Set the optical filter to "1" (closed).
(2) Connect an oscilloscope to SE board test point TP9. (Time axis: 10 μs)
(3) Adjust the M-BLACK VR while depressing the AUTO WHITE/BLACK switch under the camera to the AUTO BLACK side.
(4) Adjust M-BLK VR so that the center of noise in the image scanning period coincides with T. BL pulse.

Auto black SW position : MEMORY

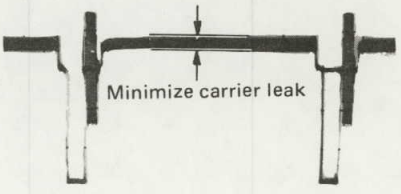


Auto black SW position : AUTO BLACK

2 R and B black level adjustments

	Test point	Level	VR: PR board [2]
R	VIDEO output (75 Ω Termination)	Noise minimized	R BLACK (R31)
B			B BLACK (R26)

(5) Connect an Oscilloscope to VIDEO OUTPUT with 75-ohm termination.
(6) Turn B- and R-BLACK VRs (R31, R26) alternately until the image scanning period carrier is minimized.



(7) For each channel, switch the HI SENS switch between 0 dB and +18 dB, and check that the DC value of the noise center does not vary. If any variation is observed, perform "3.17 BLACK BALANCE ADJUSTMENT" again.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

Position the grey scale pattern exactly opposite the camera.
Illuminate the chart with 3200 K color temperature lighting to obtain approx. 3000 lux uniform light.
Turn the PR board VRs of W-CLIP and KNEE fully counterclockwise to clear.

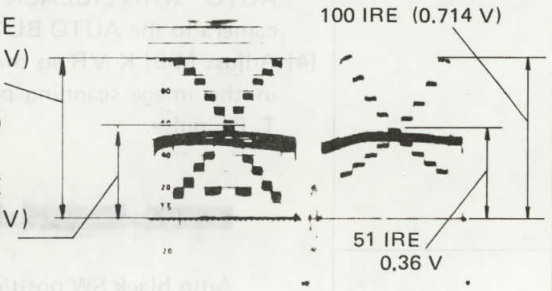
3 Gain and gamma adjustments

Grey scale 3200 K illumination
Oscilloscope: (H-rate: 10 : 1)

(1) Set the filter disc switch to "2" (3200 K).
(2) Display the grey scale chart in full-screen.
(3) Adjust the lens iris aperture so that the PR board TP2 outputs 1.2 V.

		PR board	VIDEO level	VR: PR board
		TP2	VIDEO OUT	G-GAIN (R231) G-GAMMA (R228)
WHITE	NTSC	1.2 V	0.714 V (100 IRE)	R-GAIN (R331)
	PAL		0.7 V (100%)	B-GAIN (R131)
CROSS POINT	NTSC		0.414 V (58 IRE)	R-GAMMA (R128)
	PAL		0.4 V (58%)	B-GAMMA (R328)

NTSC : 100 IRE (0.714 V)
PAL : 100% (0.7 V)
NTSC : 58 IRE (0.414 V)
PAL : 58% (0.4 V)



JVC grey scale EIA log grey scale (NTSC only)

(4) Turn the VRs one after another that the carrier leak is minimized in video signal of white and cross point.
(5) Note that the video signal levels are within the specified levels and that the carrier leakage is minimized.

Note: If the levels do not correspond, slightly turn PR board G-GAIN VR (R231) then R-GAIN (R331) and B-GAIN (R131) alternately, so that the carrier leak is minimized.

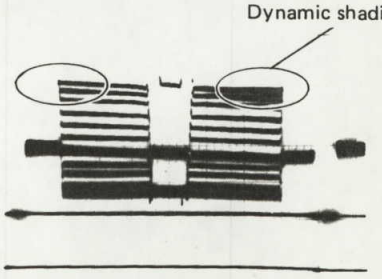
4 Dynamic shading adjustment

Oscilloscope: (V-rate: 10 : 1)
Grey scale chart

VIDEO OUTPUT

PA board
G-DYNAMIC (R226)
R-DYNAMIC (R326)
G-DYNAMIC (R228)
R-DYNAMIC (R328)

(1) Adjust the lens iris so that the white level of VIDEO OUT is 0.7 Vp-p.
The grey scale chart should be illuminated so that f/4 to 5.6 is convenient.
(2) If dynamic shading is observed at the white grey scale pattern signal, adjust at the PR board as follows.



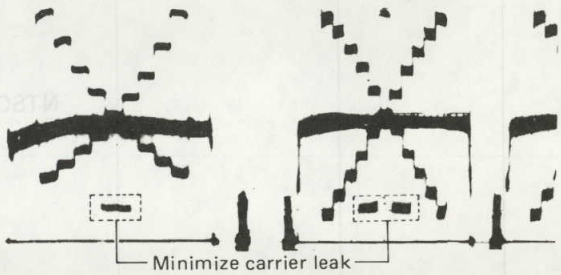
(3) Adjust the above VRs alternately until the dynamic shading is minimized.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
5	Flare compensation	Grey scale chart		• Take out PR board, attach an extension board and reset. • Turn the PR board VR R-FLARE (R38) fully counterclockwise. • Set the lens iris switch to MANUAL. (1) Adjust the lens iris so that the PR board TP2 outputs 1.2 Vp-p. This adjustment should be done between f/4 and 5.6 (2) Set the filter disc to "1" (closed). (3) Connect an oscilloscope to VIDEO OUTPUT. (4) Check that the black balance is adjusted correctly. (5) Set the filter disc to "2" (3200 K). (6) Adjust so that the carrier leak is minimized on the black chip of the grey scale pattern.

	Level	PR board [2]
G	1.2 V	TP2

VIDEO OUTPUT

PR board [2]
R-FLARE (R38)



EIA grey scale JVC grey scale

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.20 KNEE SLOPE AND WHITE CLIPPING ADJUSTMENTS

- This adjustment should be performed after the gamma, output gain and black balance have been adjusted correctly.
- Terminate the VIDEO OUTPUT terminal or WFM using a 75-ohm termination resistance.
- Turn the PR board VRs R/G/B KNEE (R116, 216, 316) and R/G/B CLIP (R138, 238, 338) fully counterclockwise (off).

1 Knee slope adjustment

Grey scale
Oscilloscope:
(H-rate: 10 : 1)

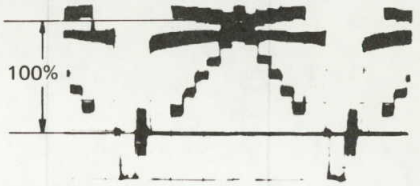
VIDEO OUTPUT

(1) Adjust the lens iris manually so that the white level of video output is 100%.
(2) Adjust G-KNEE (R216) from 100% to the point where carrier leakage is about to occur.

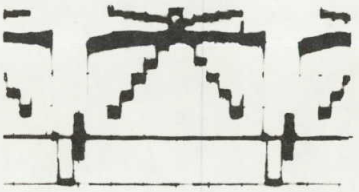
	Test Point	Level	VR: PR board 2
NTSC	VIDEO OUTPUT (75-ohm terminated)	0.714 V (100 IRE)	G-KNEE (R116) B-KNEE (R216) R-KNEE (R316)
PAL		0.7 V (100%)	

NTSC : 100 IRE ± 5 IRE

(3) Set the HI-SENS switch at +9 dB.



(4) Alternately turn R- and B-VRs to minimize the carrier leak in the white part.

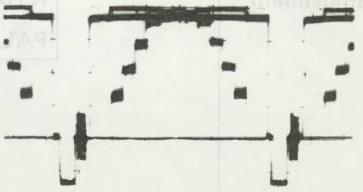


2 White clipping adjustment

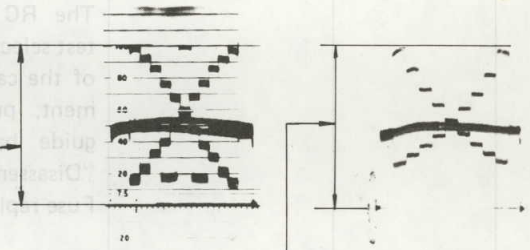
VIDEO OUTPUT

(1) Set the HI-SENS switch to +18 dB.
(2) Adjust G-W CLIP so that the lower limit of carrier leakage is 110%.

	Test Point	Level	VR: PR board 2
NTSC	VIDEO OUTPUT	0.785 V (110 IRE)	G-W CLIP (R238) B-W CLIP (R138) R-W CLIP (R338)
PAL		0.77 V (110%)	

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
				(3) Next, alternately turn R- and B-W CLIP VRs so that the carrier leakage is minimized.  (4) If the video signal clipping level is not 110% after the above adjustment, repeat steps (2) and (3) to adjust to 110%. (5) After the adjustment is done correctly, reset the sensitivity select switch back to "0 dB".

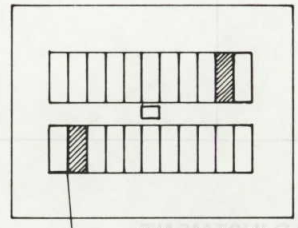
3.21 IRIS ADJUSTMENT

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
1	Iris adjustment	Grey scale chart Oscilloscope	Test Point: VIDEO OUTPUT; Level: Refer below.; VR: PA board: IRIS LEVEL (R51) JVC grey scale — NTSC : 100 IRE ±5 IRE (0.714 V ± 40 mV); PAL : 100% ± 5% (0.7 V ± 35 mV) EIA log. grey scale — NTSC : 90 – 100 IRE (0.65 – 0.714 V)	• Set the IRIS switch (NOR/OVER) to NOR (normal). • Connect a 75-ohm termination to VIDEO OUTPUT connector or connect this to a monitor via WFM.  JVC grey scale EIA grey scale (1) Set the Iris mode switch on the lens to AUTO. (2) Adjust the auto iris level to the specified value. (3) Switch the HI-SENS switch from 0 dB → +9 dB → +18 dB and check that the level is approximately 100%. (4) Reset the HI-SENS switch back to "0 dB". (5) Set the IRIS switch to NOR, then to OVER.

IRIS switch		Test Point	Level	VR: PA board
NORMAL	NTSC PAL	VIDEO OUTPUT	0.714 V (100 IRE) 0.7 V (100%)	IRIS LEVEL (R51)
OVER			0.74–0.8 V	None

(6) Reset the HI-SENS switch back to "0 dB".

• In normal operation, the auto iris closes when:
(1) BAR switch ON,
(2) AUTO BLK ON,
(3) Camera power STANDBY.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
2	Video level indicator adjustment			(1) Set the lens iris switch to MANU and adjust the iris manually so that the VIDEO OUTPUT connector is 100%. (2) Set the TEST OUT SELECT switches to "ENC". (3) In the VF-215 Viewfinder, check that the stripes are displayed as shown below. If the correct display is not observed, press the LEVEL INDICATOR switch on the front of the camera in case of the switch off.  Zebra indication at 2nd white chip. **Standard display** (4) Adjust ZEBRA SET (R11) so that the stripe pattern is displayed in the second step from the white position.

	Test Point	Level
NTSC	VIDEO OUTPUT	0.714 V
PAL		0.7 V

Viewfinder screen

Note:
Zebra indicating part is between 85 to 95% of nominal video amplitude. Eusure the iris opening to get the specified value at video output with oscilloscope if EIA log. grey scale is used.

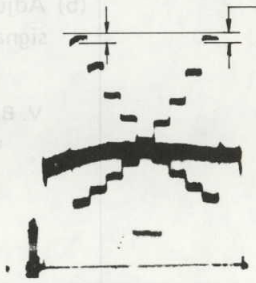
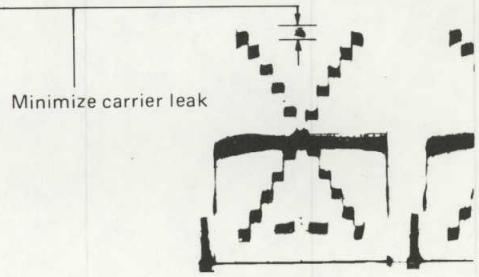
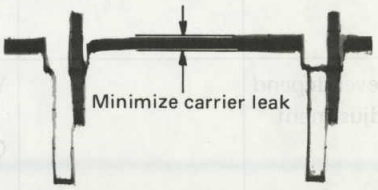
RC board
ZEBRA SET (R11)

Note:
The RC board is inside the test select section on the back of the camera. Before adjustment, pull out the battery guide base as described in "Disassembly" section 1.1.1 Fuse replacement.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.22 AUTO WHITE AND AUTO BLACK BALANCE ADJUSTMENTS

Since the auto white balance and auto black balance are related each other, these adjustments should be performed repeatedly.

1	Auto white adjustment	Grey scale pattern	VIDEO OUTPUT AT board [4] B-A WHITE (R1) R-A WHITE (R18)	(1) Set the filter disc switch to "2" (3200 K). (2) Set the WHITE BAL. switch to AUTO. (3) If the auto iris level is adjusted and operating normally, set the lens switch to AUTO. (4) Adjust the VRs while depressing the AUTO WHITE/AUTO BLACK switch under the camera to the AUTO WHITE side. (5) Adjust the VRs alternately so that the carrier leakage of the white part is minimized.  EIA grey scale  JVC grey scale
2	Auto black adjustment		AT board [4] B-BLACK (R2) R-BLACK (R14)	(1) Turn the AUTO BLACK switch (S1) on PR board to "ON". (2) Adjust the VRs while depressing the AUTO WHITE/AUTO BLACK switch under the camera to the AUTO BLACK side. (The lens is automatically closed.)  (3) Adjust the VRs alternately so that the carrier leakage of black is minimized.

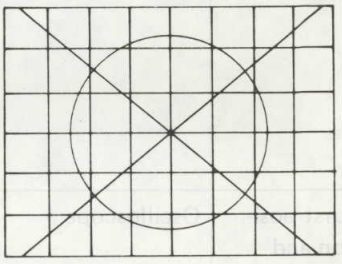
No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.23 CONTOUR CORRECTOR ADJUSTMENT

1	V-zero balance adjustment	Grey scale pattern Oscilloscope (V-rate: 10 : 1)	 CC board [3] TP3 V-BAL (R112)	• Set the WHITE BAL. switch to PRESET. • Set the HI-SENS switch to "0 dB". • Take out CC board, attach an extension board and reset. (1) Set the filter disc switch to "2" (3200 K). (2) Display the grey scale pattern full-screen, with the lens setting at AUTO IRIS. (3) Set the CC board CONTOUR switch (S1) to ON. (4) Turn the CC board V-LEVEL VR (R119) fully clockwise. (5) Adjust V-BAL VR (R112) so that no video signal leakage is observed. V. BAL no good  V. BAL good 
2	Noise slice adjustment	Oscilloscope (H-rate: 10 : 1)	CC board [3] TP5 NOISE SLICE (R162)	(1) Turn the CC board H-LEVEL VR (R132) and V-LEVEL VR (R119) to the mechanical center. (2) Adjust so that the noise level is the half of the maximum value.
3	Level depend adjustment		VIDEO OUTPUT CC board LEVEL DEPEND (R151)	(1) Turn the H-LEVEL VR (R132) fully clockwise. (2) Adjust LEVEL DEPEND (R151) so that the contour spike of the lowest step of the grey scale pattern disappears.
4	Contour level adjustment		CC board [3] V-LEVEL (R119) H-LEVEL (R132)	(1) Standard adjustment is made by setting to the rotation angle shown below. Rotation angle V-LEVEL (R119): a half of rotation H-LEVEL (R132): * " **Note:** If contour levels are not insufficient, slightly turn the H- and V-LEVEL VRs clockwise. *70% modulation depth at 5 MHz if in-mega cycle test chart is used.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.24 AUTO SHIFT ADJUSTMENT

				• Warm up the camera for 30 minutes, with the filter disc setting at "1" (closed). • Check that the registration adjustment has been performed with the switch on the camera front set to MANUAL, and also verify there is less misregistration. (See 3.13.) • Check that the CC board has been adjusted and it operates normally. • Set the LENS IRIS switch to MANUAL.
1	Auto shift adjustment	Registration chart B/W monitor	70% video level TEST OUTPUT	(1) Take out AT board, attach an extention board and reset. (2) Display the registration pattern to fill the monitor screen, and adjust the lens focus.  (4) Adjust the lens iris so that the PA board TP2 (G ch.) outputs 0.14 Vp-p (or 70 IRE, if a WFM is connected to the VIDEO OUTPUT terminal). (5) Set the VF/TEST OUTPUT SELECT switches to "B-G". (6) When the AUTO SHIFT switch is switched ON, the black image is shifted. Switch on repeatedly and adjust the VRs so that the black and white images are superimposed on the center. AT board [4] B-V SHIFT (R20) ⟶ Vertical direction B-H SHIFT (R19) ⟶ Horizontal direction (7) Set the VF/TEST OUTPUT SELECT switches to "R-G". (8) The black image is shifted when the AUTO SHIFT switch is switched ON. Switch on repeatedly and adjust the VRs so that the black and white images are superimposed on the center. AT board [4] R-V SHIFT (R22) ⟶ Vertical direction R-H SHIFT (R23) ⟶ Horizontal direction

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.25 SSG ADJUSTMENT (NTSC)

1 — SC frequency adjustment

Measuring Instruments: Frequency counter

Measuring Points, Adjusting Levels & Adjusting Points: SE board [5]

- Warm up the camera for more than 15 minutes, with the filter disc switch set to "1" (closed).
- The frequency counter is:
  1) The 8 digits or more display is preferable.
  2) Required of an accuracy of more than 0.1 ppm, or 1×10^{-7}, at 0°C to 40°C.
- Set the SE board C-BARS switch (S3) to FULL.
- Do not touch INT SC PHASE COARSE (S4) and FINE (R60).

(1) Take out SE board, attach an extention board and reset.
(2) Connect a frequency counter to and adjust the trimmer capacitor.

	Signal	Test Point	SE board
SC Frequency	3.579545 MHz	SE board [5] TP1	SC FREQ. C3
SC Output	Maximum Amplitude		SC Trans. T1

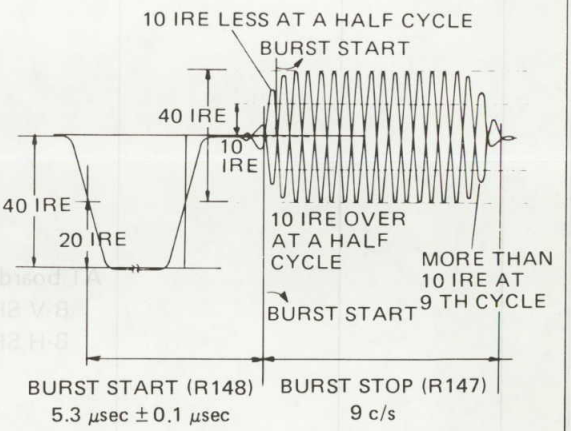
2 — Burst position and pulse width adjustment

Measuring Instruments: Oscilloscope

Measuring Points, Adjusting Levels & Adjusting Points: VIDEO OUTPUT

Test Point	VR
VIDEO OUTPUT	BURST START (R148)
	BURST STOP (R147)

(1) Connect an oscilloscope to VIDEO OUTPUT connector.
(2) Magnify the H-sync and burst portion.
(3) Adjust as follows:

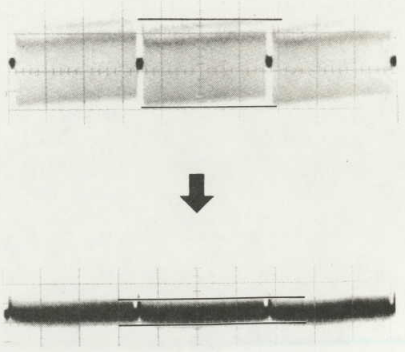
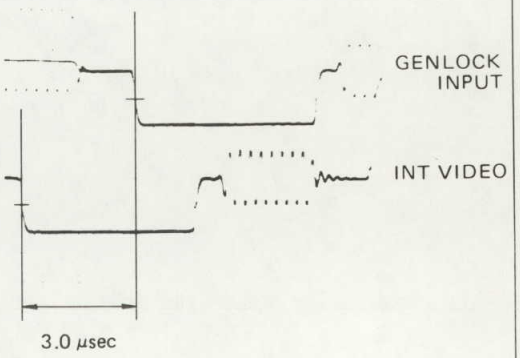


3 — SC LOCK adjustment

Measuring Instruments: Digital voltmeter; Oscilloscope (V-rate: 10 : 1)

Measuring Points, Adjusting Levels & Adjusting Points: SE board [5] TP7 SC LOCK (R73)

(1) Apply composite video or black burst signal from a sync pulse generator to the GENLOCK INPUT terminal of the camera.
(2) Connect an oscilloscope to SE board TP7.
(3) Adjust R73 to be symmetrical waveform at upper and lower sides as shown.

No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
3		Oscilloscope (V-rate: 10 : 1)		 (4) Set the vectorscope, if used, to EXT. LOCK, and adjust SC LOCK (R73) so that the jitter is minimized.
4	H. AFC adjustment	Digital voltmeter	SE board 5 TP2 H. AFC (C13)	. . . +5 V ± 0.2 V
5	H PHASE adjustment	Oscilloscope (H-rate: 10 : 1)	GENLOCK INPUT VIDEO OUTPUT SE baord 5 H-PHASE (R28)	(1) Apply composite video or black burst signal from a sync pulse generator to the GENLOCK INPUT terminal of the camera. (2) Connect A channel of a dual-trace oscilloscope to GENLOCK input. (3) Connect the other B input channel of the oscilloscope to VIDEO OUTPUT. (4) Observe the two inputs simultaneously on the oscilloscope and compare their phases. (5) Adjust the SE board H-PHASE (R28) so that the internal video (VIDEO OUTPUT) sync is coincide to external video sync (GENLOCK INPUT). 

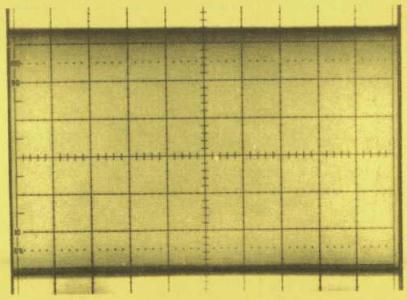
No.	Item	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures

3.25-P SSG ADJUSTMENT (PAL)

				• Warm up the camera for more than 15 minutes, with the filter disc switch set to "1" (closed). • The frequency counter is: 1) The 8 digits or more display is preferable. 2) Required of an accuracy of more than 0.1 ppm, or 1×10^{-7}, at 0°C to 40°C. • Do not touch INT SC PHASE COARSE (S1) and FINE (R17) if provided.
1	SC frequency adjustment	Frequency counter	SE board [5]	(1) Take out SE board [5], attach an extention board and reset. (2) Connect a frequency counter to TP3 and adjust the trimmer capacitor and trans.

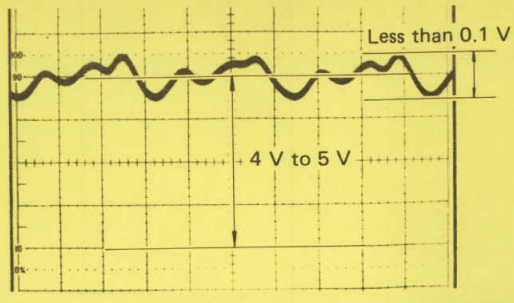
	Signal	Test Point	SE board
SC Frequency	4.433619 MHz	SE board [5]	SC FREQ. C57
SC Output	Maximum Amplitude	TP3	SC Trans. T1

2	Internal fsc-25Hz lock adjustment	Oscilloscope	SE board [5] fsc-25 Hz (T2) 282 fh LOCK (C60)	(1) Connect an oscilloscope to TP5 with H-rate time division. (2) Adjust core of transformer (T2) so that maximum output amplitude.



H-rate

(3) Connect an oscilloscope to TP4 with V-rate time division.
(4) Adjust trimmer capacitor (C60) so that averaged DC level of waveform is 4 V to 5 V and minimum ripple are observed.

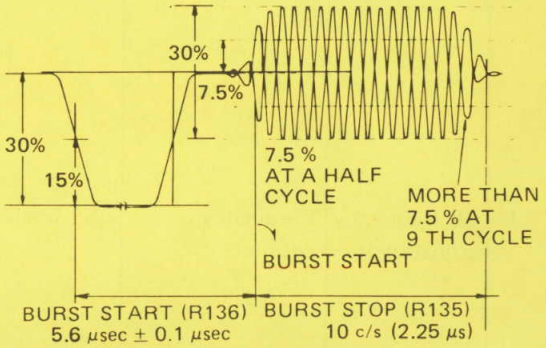


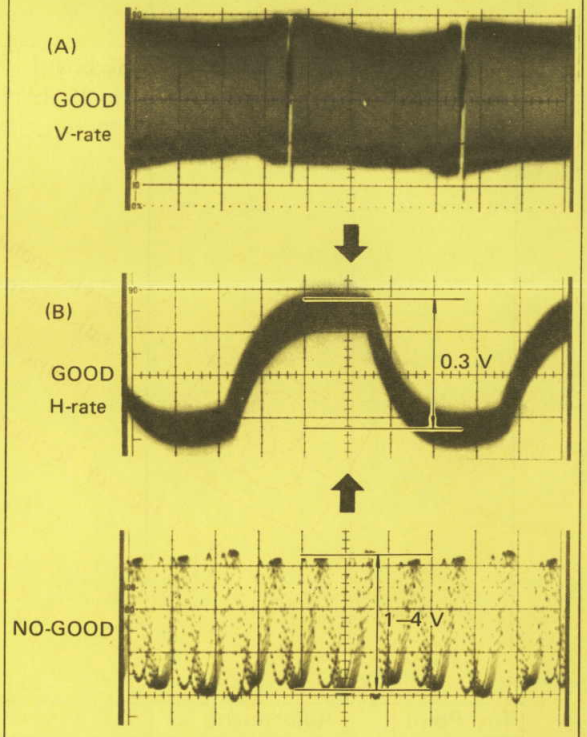
V-rate

Test Point	Adjustment	
TP5	fsc-25 Hz (T2) Transformer	Maximum Output (3 Vp-p or more)
TP4	CK FREQ (C60) Trimmer capacifor	Ripple : Less than 0.1 V Average DC : 4 to 5 V

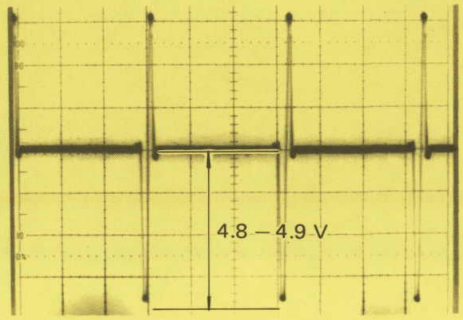
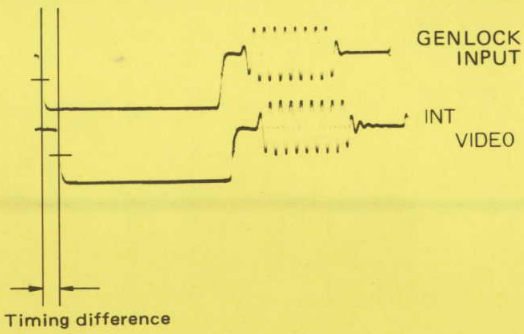
<table>
<tr><th>No.</th><th>Items</th><th>Measuring Instruments</th><th>Measuring Points, Adjusting Levels & Adjusting Points</th><th>Procedures</th></tr>
<tr><td>3</td><td>Burst position and pulse width adjustment</td><td>Oscilloscope</td><td>VIDEO OUTPUT

SE BOARD [5]

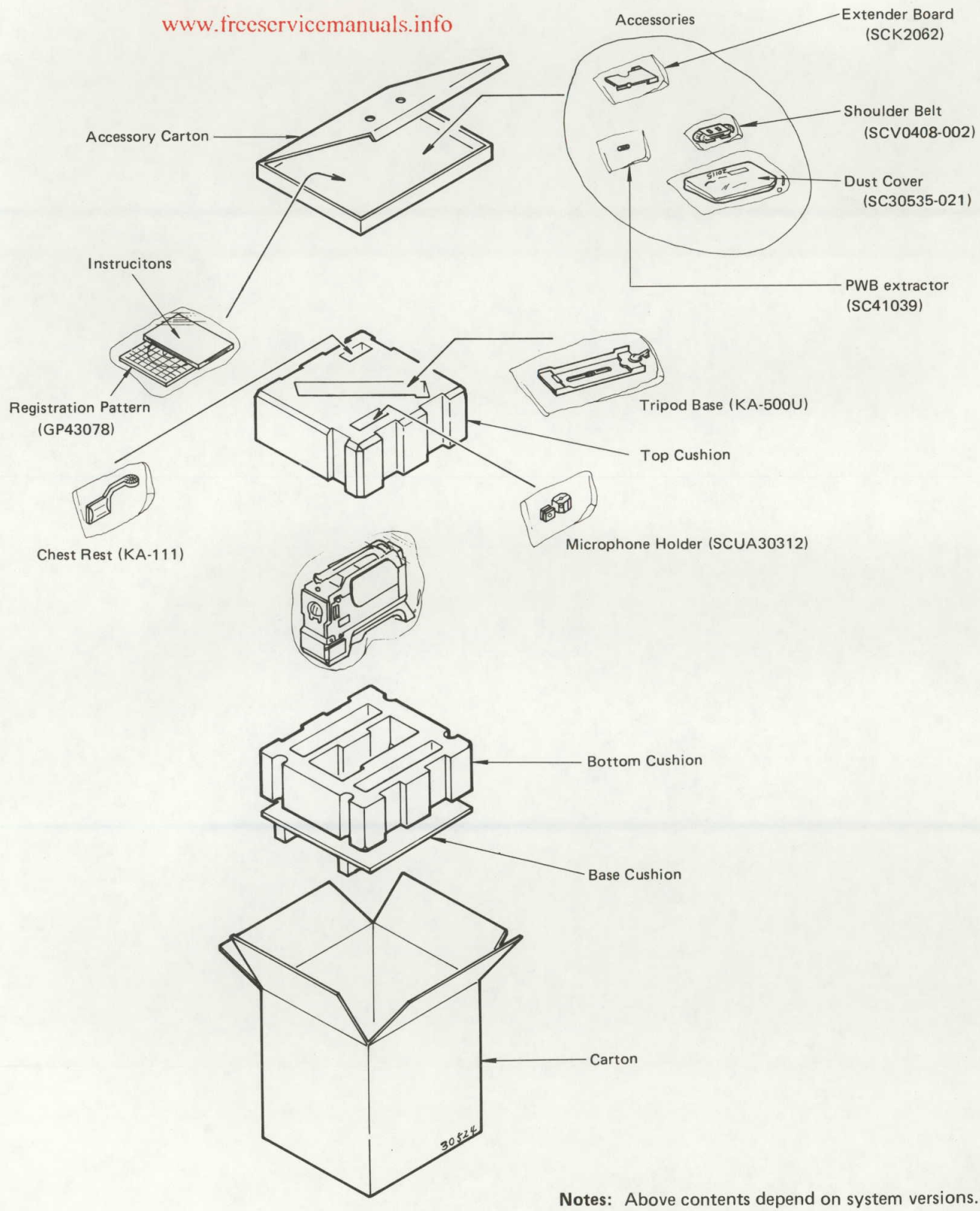
<table><tr><th>Test Point</th><th>VR</th></tr><tr><td>VIDEO OUTPUT</td><td>BURST START (R179)</td></tr><tr><td>(75-ohm Terminated)</td><td>BURST STOP (R178)</td></tr></table></td><td>(1) Connect an oscilloscope to VIDEO OUTPUT with a 75 ohm termination plug.
(2) Magnify the H-sync and burst portion.
(3) Adjust as follows:
 
</td></tr>
<tr><td>4</td><td>SC LOCK adjustment</td><td>Digital voltmeter

Oscilloscope
(V-rate: 10 : 1)</td><td>SE board [5]
TP1 : 4 V
SC LOCK (R51)</td><td>(1) Apply composite video or black burst signal from a sync pulse generator to the GENLOCK INPUT terminal of the camera.
(2) Connect an oscilloscope to SE board [5] TP1.
(3) Adjust R51 to be symmetrical waveform at upper and lower sides as shown A and B.
 

(4) Set the vectorscope, if used, to EXT LOCK, and adjust SC LOCK (R51) so that the jitter is minimized.</td></tr>
</table>

No.	Items	Measuring Instruments	Measuring Points, Adjusting Levels & Adjusting Points	Procedures
5	H-LOCK adjustment	Oscilloscope (H-rate: 10 : 1)	SE board [5] H-LOCK (C60) TP4	(1) Apply composite video or black burst signal from a sync pulse generator to the GENLOCK INPUT terminal of the camera. (2) Connect an oscilloscope to TP4 of SE board. (3) Adjust H-LOCK (C60) trimmer core so that the TP4 DC level (average) is 4.8 – 4.9 V. 
6	H-PHASE adjustment	Oscilloscope (H-rate: 10 : 1)	GENLOCK INPUT VIDEO OUTPUT SE board [5] H-PHASE (R33)	(1) Apply composite video or black burst signal from a sync pulse generator to the GENLOCK INPUT terminal of the camera. (2) Connect A channel of a dual-trace oscilloscope to GENLOCK INPUT. (3) Connect the other B input channel of the oscilloscope to VIDEO OUTPUT. (4) Observe the two inputs simultaneously on hte oscilloscope and compare their phases. (5) Adjust the SE board H-PHASE (R33) so that the internal video (VIDEO OUTPUT) sync is coincide to external video sync (GENLOCK INPUT). 

SECTION 4
REPACKING



Notes: Above contents depend on system versions.

SECTION 5
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

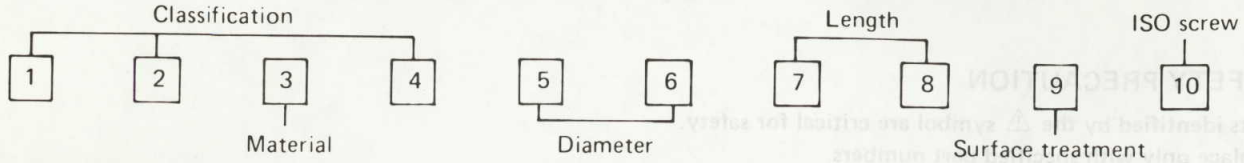
Parts identified by the ⚠ symbol are critical for safety.
Replace only with specified part numbers.

CONTENTS

Note: Chest rest (model KA-111), Tripod base (model KA-500) and Microphone holder are common with KY-950/900/310 series three tube color video camera accessory (or optional).

5.1 STANDARD PART NUMBER CODING

5.1.1 Screw coding



Classification (first digit)

Symbol Letter	Name
S	Normal screw
N	Assembly screw
L	"
D	"
M	Wood screw
F	Feather screw
T	Set screw
Y	"
B	Bolt
N	Nut
W	Washer
R	E-ring
E	Eyelet
P	Spring
G	Washer head screw

Material (third digit)

Symbol Letter	Material
S	Steel
E	Stainless steel
C	Cast iron
U	Bronze
B	Brass
P	Phosphor bronze
N	German silver
Y	Brass
A	Aluminum
Z	Zinc alloy
K	Polycarbonate

Shape of Screw Head (second digit)

Symbol Letter		Shape of Screw Head
P		Pan head
S		Flat countersunk head
H		Oval countersunk head
D		Binding head
R		Round head
B		Round head
T		Truss head

Type of Screw (fourth digit)

Symbol Letter	Type of Screw
P	Cross-Recessed head screw
A	Tapping screw
B	Special tapping screw
T	Thread rolling tapping screw
E	Special tapping screw
F	Special tapping screw

Diameter and Length of Screw (fifth – eighth digit)

– Example –

S P B P 3 0 0 6 Z S

(Diameter x 10) (Length)

Diameter : 3 mm

Length : 6 mm

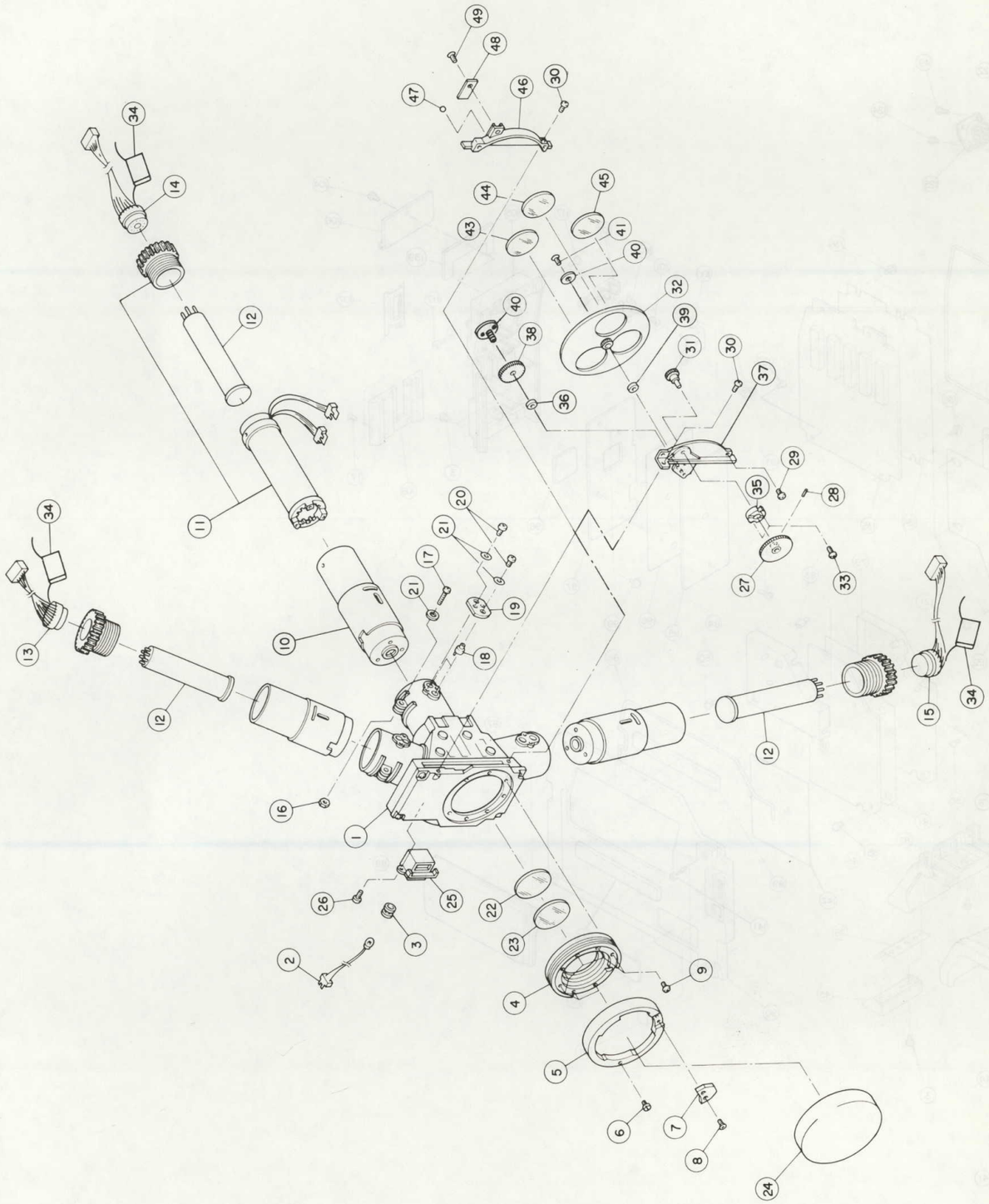
Surface Treatment (ninth digit)

Symbol Letter	Surface Treatment
Z	Galvanization, dichromic acid treatment (MFZn2-C)
N	Nickel plating (MFNi2, MFNil)
R	Chrome plating (MBCr2, MBCr1)
G	Silver plating (SP4)
W	Nichrome platings
P	Phosphite treatment
B	Bronze plating

Symbol letter	Surface treatment
M	Black coloring after galvanization
A	Red coloring after galvanization
C	Blue coloring after galvanization
T	Green coloring after galvanization
V	Violet coloring after galvanization
F	Iron with black coloring

5.2 EXPLODED VIEWS AND PARTS LIST

5.2.1 Optical block assembly

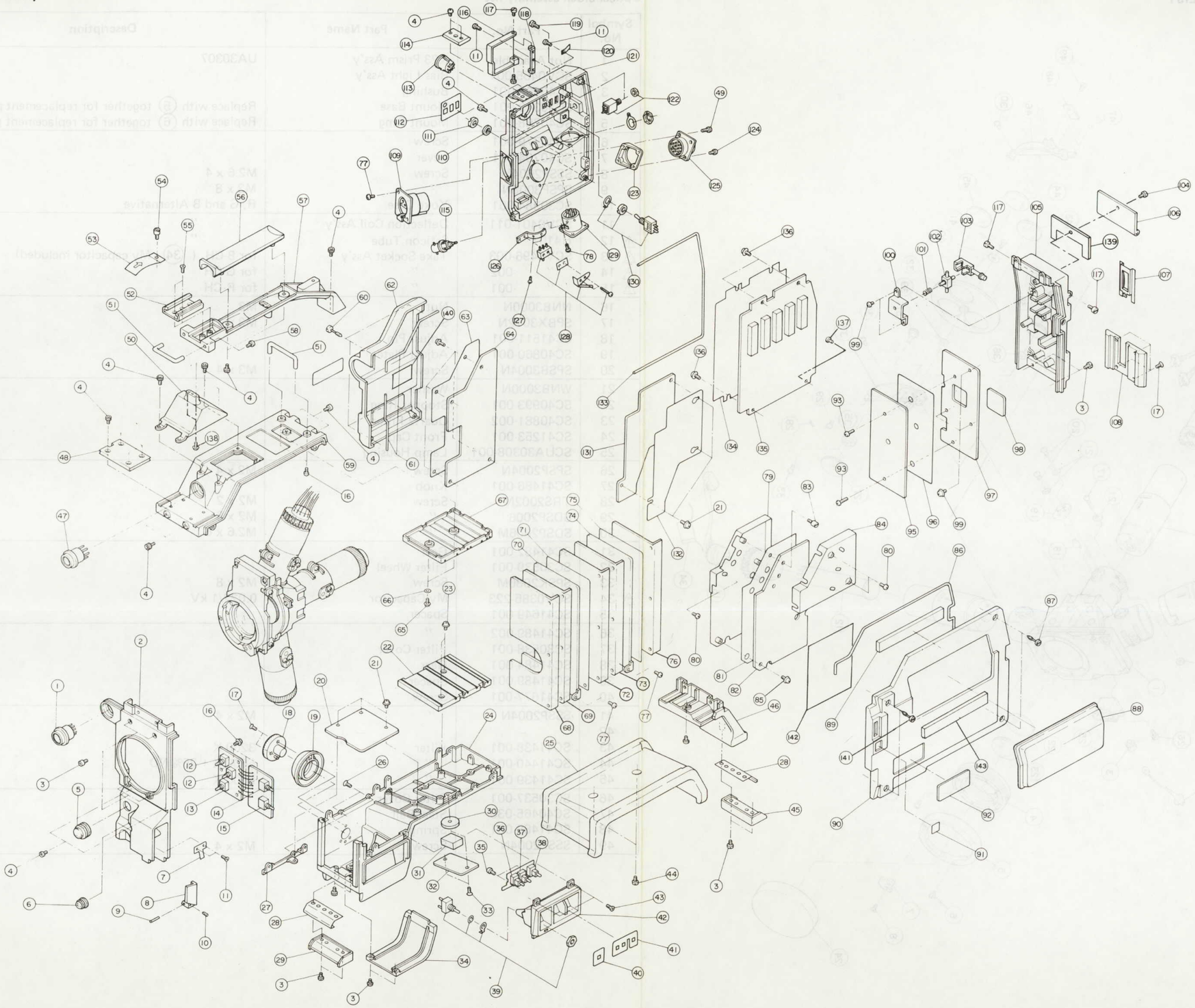


Optical block assembly list

Symbol No.	Part No.	Part Name	Description
1	Not Available	K23 Prism Ass'y	UA30307
2	SCV0455-001	Bias Light Ass'y	
3	SC40938-001	Bushing	
4	SC30343-001	Mount Base	Replace with (5) together for replacement purpose
5	SC40788-001	Mount Ring	Replace with (6) together for replacement purpose
6	SC40779-001	Screw	
7	SC40794-001	Lever	
8	SSSP2604M	Screw	M2.6 x 4
9	SPSP3008N	"	M3 x 8
10	SC30384-001	Yoke Case	R, G and B Alternative
11	SCV0401-011	Deflection Coil Ass'y	"
⚠ 12	H4101	Saticon Tube	"
⚠ 13	SCV0496-003	Take Socket Ass'y	for B-CH ((34) My capacitor included)
⚠ 14	" -002	"	for G-CH
⚠ 15	" -001	"	for R-CH
16	NNB3000N	Nut	M3
17	SPBX3012N	Screw	M3 x 12
18	SC41511-001	Adjust Pin	
19	SC40860-001	Adjust Plate	
20	SPSB3004N	Screw	M3 x 4
21	WNB3000N	Washer	
22	SC40993-001	Stopper Ring	
23	SC40881-002	Quartz Filter	
24	SC41253-001	Front Cap	
25	SCUA30308-001	Lamp Housing	
26	SPSP2004N	Screw	M2 x 4
27	SC41486-001	Knob	
28	TRS2002N	Screw	M2 x 2
29	SDSP2006	"	M2 x 6
30	SDSP2606M	"	M2.6 x 6
31	SC41482-001	Gear	
32	SC30539-001	Filter Wheel	
33	SPSK2080M	Screw	M2 x 8
⚠ 34	SCV0385-223	My Capacitor	0.022/1 kV
35	SC41649-001	Spacer	
36	SC41489-002	"	
37	SC30538-001	Filter Cover	
38	SC41484-001	Gear	
39	SC41489-001	Spacer	
40	SC41677-001	Screw	
41	SSSP2004N	"	M2 x 4
42	—	—	
43	SC41438-001	Filter	3200 K
44	SC41440-001	"	5600 K + 25% ND
45	SC41439-001	"	5600 K
46	SC30537-001	Filter Cover	
47	SC40465-030	Steel Ball	
48	SC41488-001	Spring	
49	SSSP2004N	Screw	M2 x 4

5-3

5.2.2 Body assembly



Body assembly list

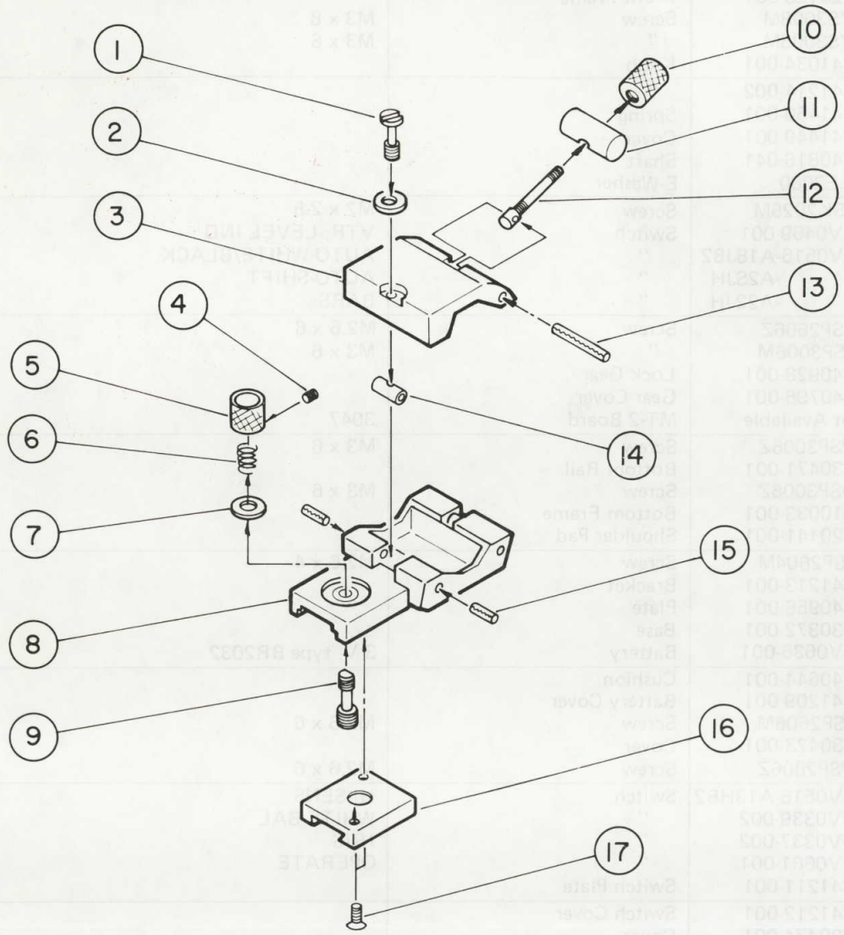
Symbol No.	Part No.	Part Name	Description
⚠ 1	SCV0238-08S	Lens Connector	LENS 8 P
2	SC20123-001	Front Frame	
3	BYS3008M	Screw	M3 x 8
4	BYS3005M	"	M3 x 6
5	SC41034-001	Knob	
6	SC41214-002	"	
7	SC41450-001	Spring	
8	SC41449-001	Cover	
9	SC40816-041	Shaft	
10	REE2000	E-Washer	
11	SPSK2025M	Screw	M2 x 2.5
12	SCV0469-001	Switch	VTR, LEVEL IND
13	SCV0516-A18JB2	"	AUTO-WHITE/BLACK
14	" -A2SJH	"	AUTO-SHIFT
15	" -A22JH	"	BARS
16	LPSP2606Z	Screw	M2.6 x 6
17	SSSP3006M	"	M3 x 6
18	SC40928-001	Lock Gear	
19	SC40796-001	Gear Cover	
⚠ 20	Not Available	MT-2 Board	3047
21	DPSP3006Z	Screw	M3 x 6
22	SC30471-001	Bottom Rail	
23	SDSP3006Z	Screw	M3 x 6
24	SC10033-001	Bottom Frame	
25	SC20141-001	Shoulder Pad	
26	SSSP2604M	Screw	M2.6 x 4
27	SC41213-001	Bracket	
28	SC40956-001	Plate	
29	SC30372-001	Base	
⚠ 30	SCV0636-001	Battery	3 V, type BR2032
31	SC40644-001	Cushion	
32	SC41209-001	Battery Cover	
33	SSSP2606M	Screw	M2.6 x 6
34	SC30473-001	Cover	
35	DPSP2606Z	Screw	M2.6 x 6
36	SCV0516-A13HB2	Switch	HI-SENS
37	SCV0339-002	"	WHITE BAL
38	SCV0337-002	"	IRIS
⚠ 39	SCV0661-001	"	OPERATE
40	SC41211-001	Switch Plate	
41	SC41212-001	Switch Cover	
42	SC30474-001	Cover	
43	SSSP3005M	Screw	M3 x 5
44	SDSP4008M	"	M4 x 8
45	SC30372-001	Base	
46	SC20168-001	Foot Base	
⚠ 47	SCV0238-06S	Connector	
48	SC41469-001	VF Bracket	
49	SPSP2612N	Screw	M2.6 x 12
50	SC40478-001	Top Cover	
51	SC40759-002	Guide	
52	SC40886-001	Bracket	
53	C40936	Spring	
54	C40970	Screw	
55	SSSP3006N	"	M3 x 6
56	SC30477-001	Cover	
57	SC20170-001	Handle	
58	SDSP2606M	Screw	M2.6 x 6
59	SC20122-001	Top Frame	
60	SC41220-005	Screw	
61	SC30481-002	Rubber	
62	SC20125-00B	Side Cover	
63	SC41684-001	Sheet	
⚠ 64	Not Available	DF Board	205 P
65	SPSP2604Z	Screw	M2.6 x 4
66	Q03091-138	Washer	
67	SC30472-001	Upper Rail	
68	SC30591-001	PS board Panel	2054
69	" -021	PR board Panel	2055
70	SC41471-002	Plate	

Symbol No.	Part No.	Part Name	Description
⚠ 71	SC41472-002	Insulator	
72	SC30591-031	CC board Panel	2056
73	" -041	AT board Panel	2057
74	SC41471-001	Plate	
⚠ 75	SC41472-001	Insulator	
76	SC30591-051	SE board Panel	2058
77	SPSP2604N	Screw	M2.6 x 4
78	SPSP2606N	"	M2.6 x 6
79	SC30479-001	Plate	
80	SPBP3006B	Screw	M3 x 6B]
⚠ 81	SC41647-001	Insulator	
82	Not Available	PA Board	2059
83	SC40760-031	Stud	
84	SC40380-001	PA Cover	
85	DPBP3010N	Screw	M3 x 10
86	SC30481-003	Rubber	
87	SC41220-003	Screw	
88	SC30482-001	Pad	
89	SC40162-001	Cushion	
90	SC20126-00B	Side Cover	
91	SC40899-002	Mark	
92	SC41225-002	JVC Logo Mark	
93	SPSP3012R	Screw	M3 x 12
94	DPSP3012Z	"	M3 x 12
95	SC41456-001	Plate	
⚠ 96	SC41457-001	Insulator	
97	Not Available	RC Board	
⚠ 98	SC40597-004	MICA Insulator	
99	LPSP3006Z	Screw	M3 x 6
100	SC41229-001	Bracket	
101	SC41230-001	Spring	
102	SC41228-001	Stopper	
103	SC41227-001	Knob	
104	SC40883-001	Screw	
105	SC20124-001	Rear Frame	
106	SC40773-001	Guide	
107	SC41455-001	Spring	
108	SC40776-003	Slide Base	
109	SCV0316-03P	Connector	MIC 3 PIN
110	SC40618-001	Spacer	
111	SC40916-002	Nut	
112	SC41221-001	Panel	
113	SCV0238-06S	Connector	MIC 6 PIN
114	SC30374-021	Bracket	
115	SCV0178-001	BNC Connector	VIDEO, TEST, GENLOCK
116	SC41222-001	SW Cover	
117	SC41033-001	Screw	
118	SC41223-001	Base	
119	BYS3015M	Screw	M3 x 15
120	SC40797-001	Spring	
121	SC20127-001	Cover	
122	QMS3501-013	Jack	EARPHONE
123	SC41547-001	Bracket	
124	SPSP2608N	Screw	M2.6 x 8
⚠ 125	SCV0230-00P	C. Connector	
126	SC40752-003	Bracket	
127	SPBP2003N	Screw	M2 x 3
128	SCV0399-001	Actuater	
⚠ 129	SCV0462-04P	XLR Connector	4 PIN
⚠ 130	SCV0052-001	Switch	POWER
⚠ 131	Not Available	CT Board	2060
⚠ 132	SC41478-001	Insulator	
133	SC30481-001	Packing	
⚠ 134	SC41224-001	Insulator	
⚠ 135	Not Available	MT-1 Board	1216

5-5

Symbol No.	Part No.	Part Name	Description
136	SDSP3006M	Screw	M3 x 6
137	SDSP2606R	"	M2.6 x 6
138	SPSP3012N	"	M3 x 12
139	SC40897-002	Rubber	Glued to 105
140	SC41732-001	VR Location Label	for DEF BOARD
141	SC41220-004	Screw	
142	SC41731-001	VR Location Label	for PA BOARD
143	SC41226-001	Cushion	

5.2.3 Microphone holder assembly



Microphone holder assembly list

Symbol No.	Part No.	Part Name	Description
1	SC41005-001	Screw	
2	SC40297-041	Spacer	
3	SC30397-001	Upper Holder	
4	YFS2604	Set Screw	M2.6 x 4
5	SC41007-001	Knob	
6	SC41008-001	Spring	
7	SC40297-051	Spacer	
8	SC30398-001	Lower Holder	
9	SC41009-001	Screw	
10	SC41004-001	Nut	
11	GC44933-001	Pin	
12	SC41006-001	Bolt	
13	PRE3028	Spring Pin	3 x 28
14	GC44936-001	Nut	
15	PRE3016	Spring Pin	3 x 16
16	SC30373-031	Holder	
17	SSSP3006M	Screw	M3 x 6B

: UA30312

SECTION 6
CHARTS AND DIAGRAMS

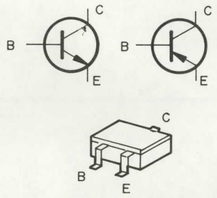
6.1 SCHEMATIC DIAGRAM NOTES

6.1.1 Schematic safety precaution

parts are safety related parts.
When replacing them, be sure to use the specified parts.

Voltage and waveform measurements.
Voltage: Measured with digital voltmeter in DC range; iris closed.
Waveform: Grey scale illuminated at more than 4000 lux at 3200 K lighting.

Chip transistor



Chip diode

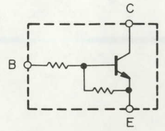
MA152WK

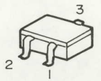
MA152WA

MA153

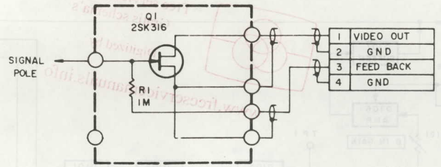
MA152A

DTC124K

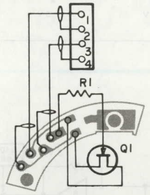




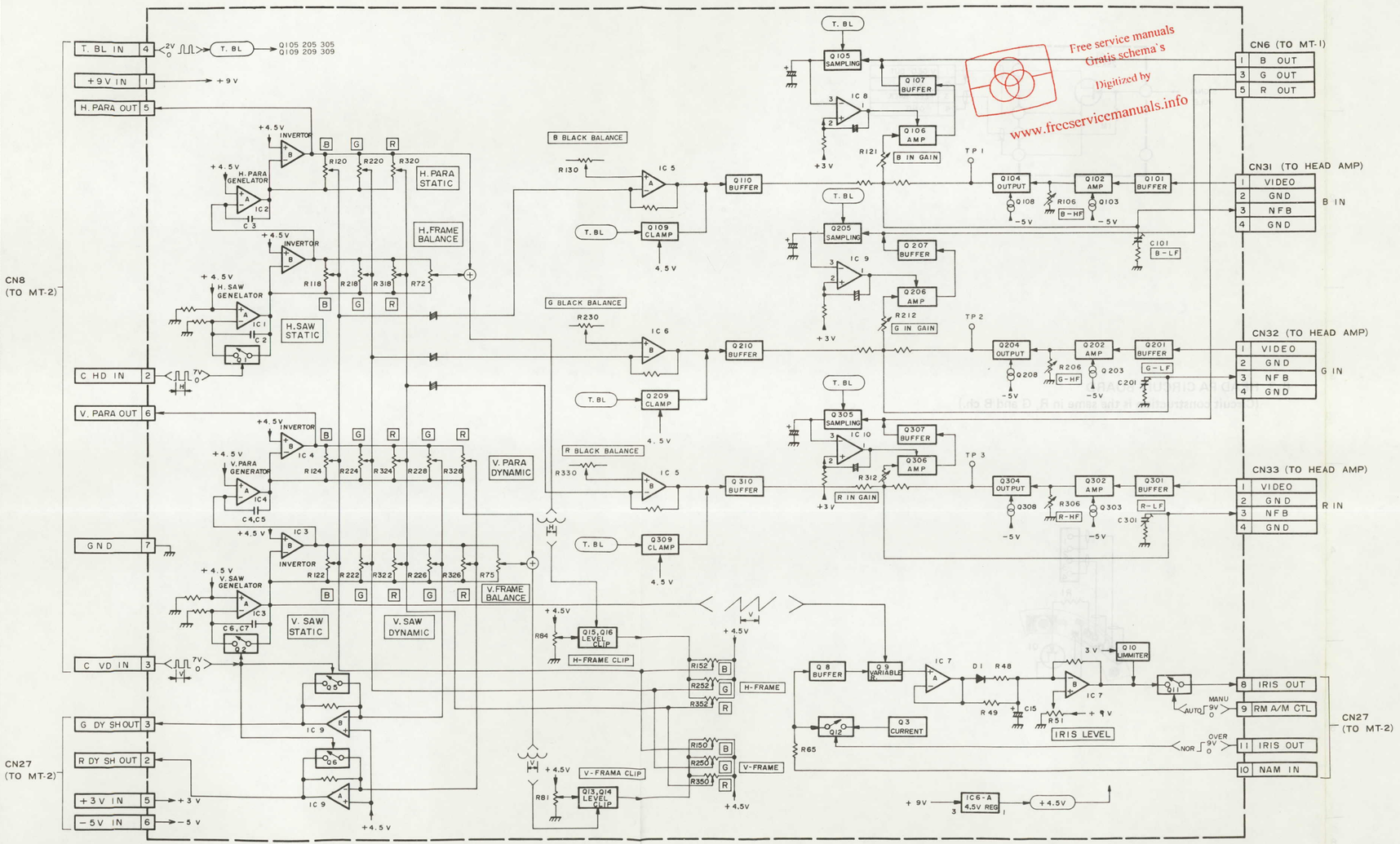
6.2 HEAD PA BOARD SCHEMATIC DIAGRAM
(Circuit construction is the same in R, G and B ch.)



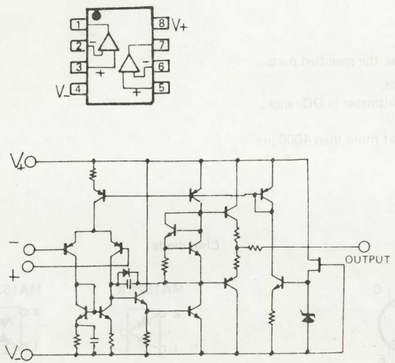
6.3 HEAD PA CIRCUIT BOARD
(Circuit construction is the same in R, G and B ch.)



6.4 PRE-AMPLIFIER BLOCK DIAGRAM (PA BOARD)



NJM4558M (Dual Op. Amp) [JRC]

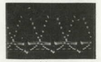


PRE-AMPLIFER BLOCK (HEAD PA SCHEMATIC & BOARD) 6-2

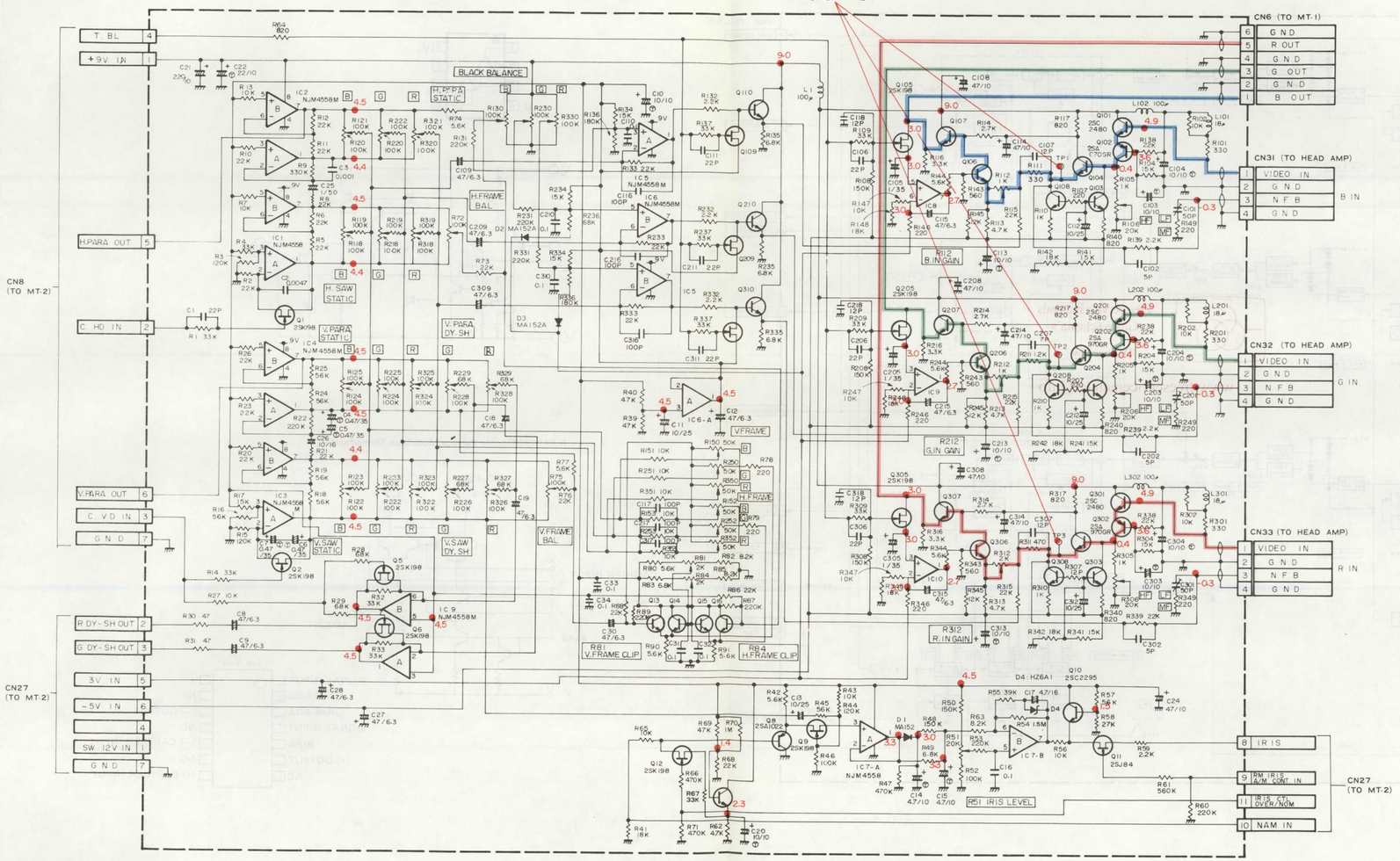
6-2 PRE-AMPLIFER BLOCK (HEAD PA SCHEMATIC & BOARD)

6.5 PA BOARD SCHEMATIC DIAGRAM

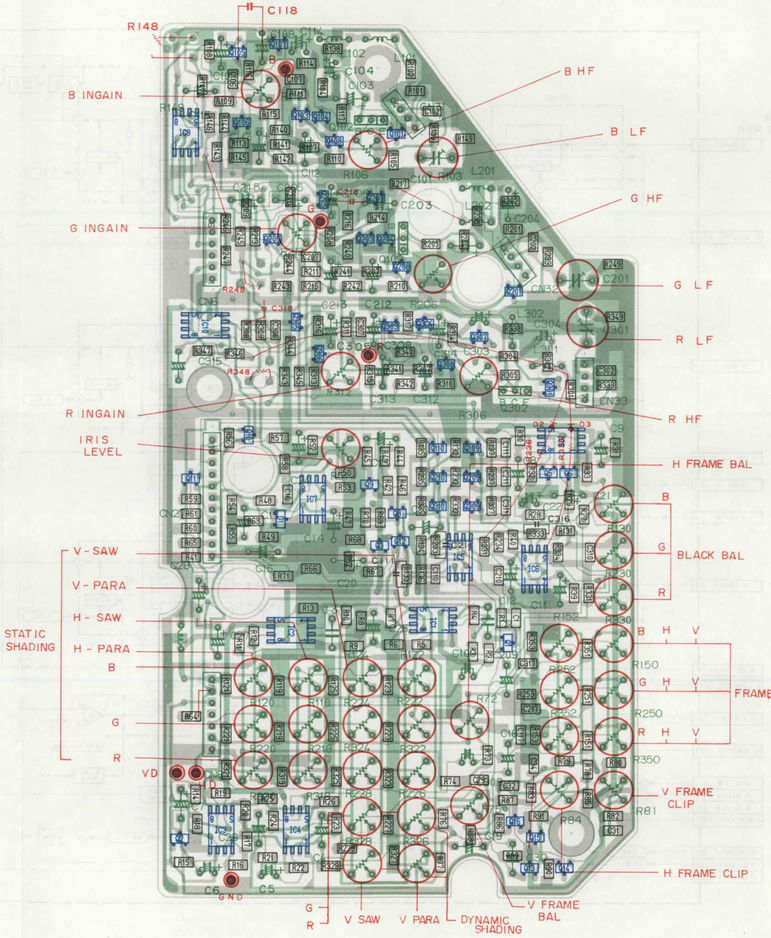
GRAY SCALE



H-rate
B: 0.06 V–0.12 V
G: 0.2 V
R: 0.08 V–0.2 V



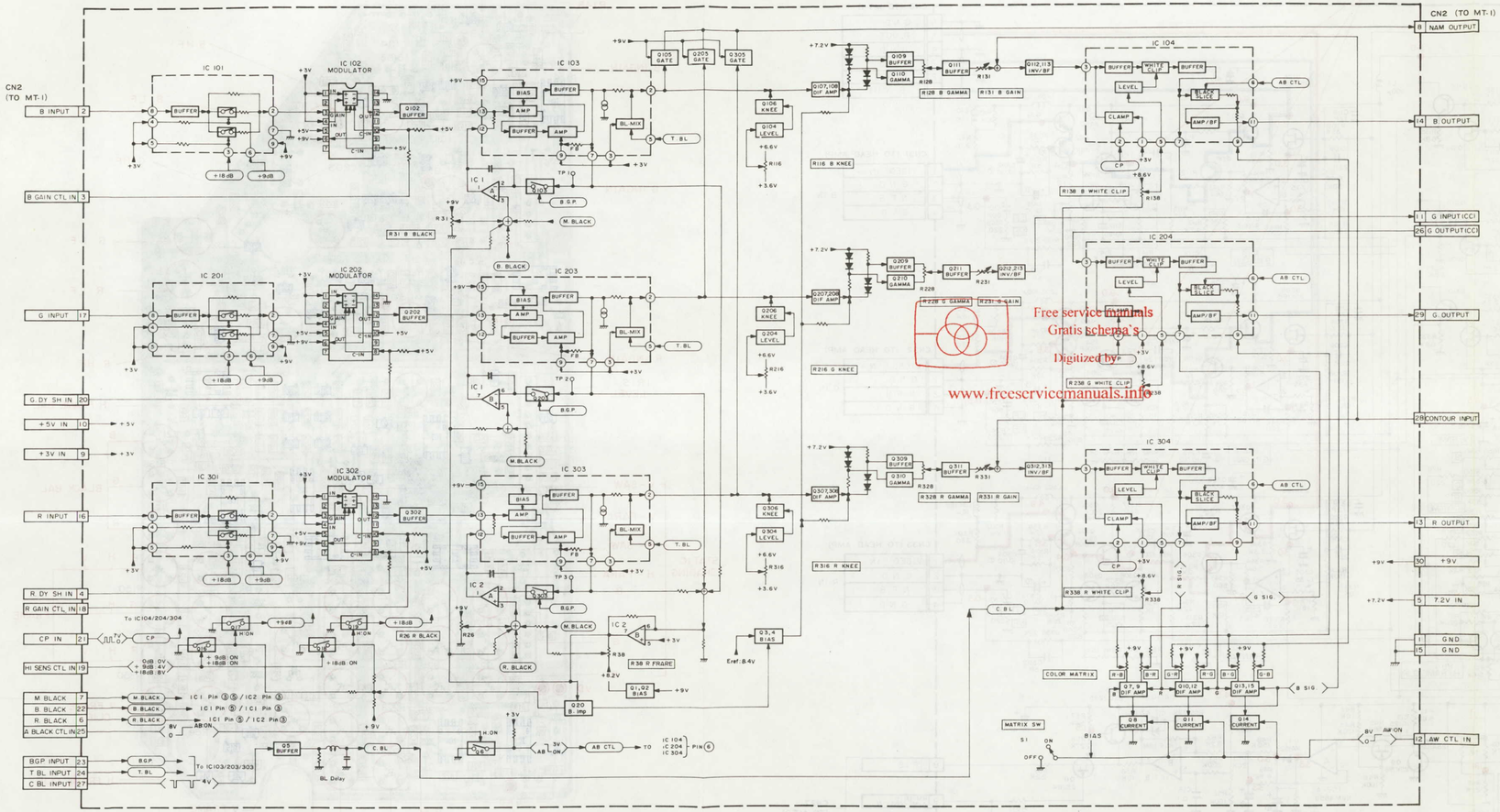
6.6 PA CIRCUIT BOARD



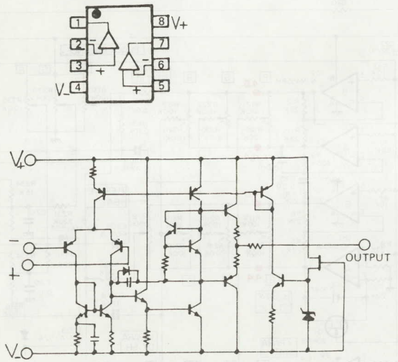
6-3 PA SCHEMATIC & BOARD (VIDEO PROCESS BLOCK)

PA SCHEMATIC & BOARD (VIDEO PROCESS BLOCK) 6-3

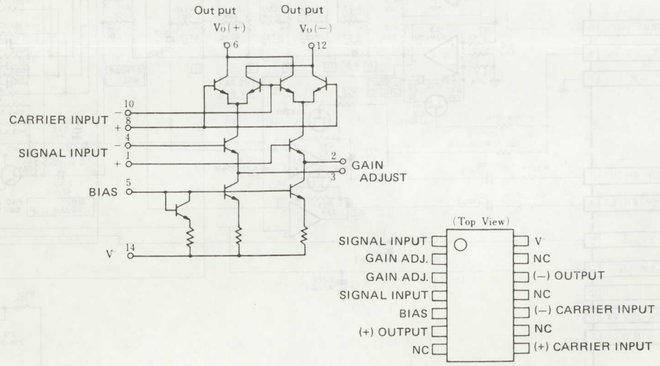
6.7 VIDEO PROCESS BLOCK DIAGRAM (PR BOARD)



NJM4558M (Dual Op. Amp) [JRC]



NJM1496(Double Balance Modulator/Demodulator)



VIDEO PROCESS BLOCK (PA SCHEMATIC & BOARD) 6-4

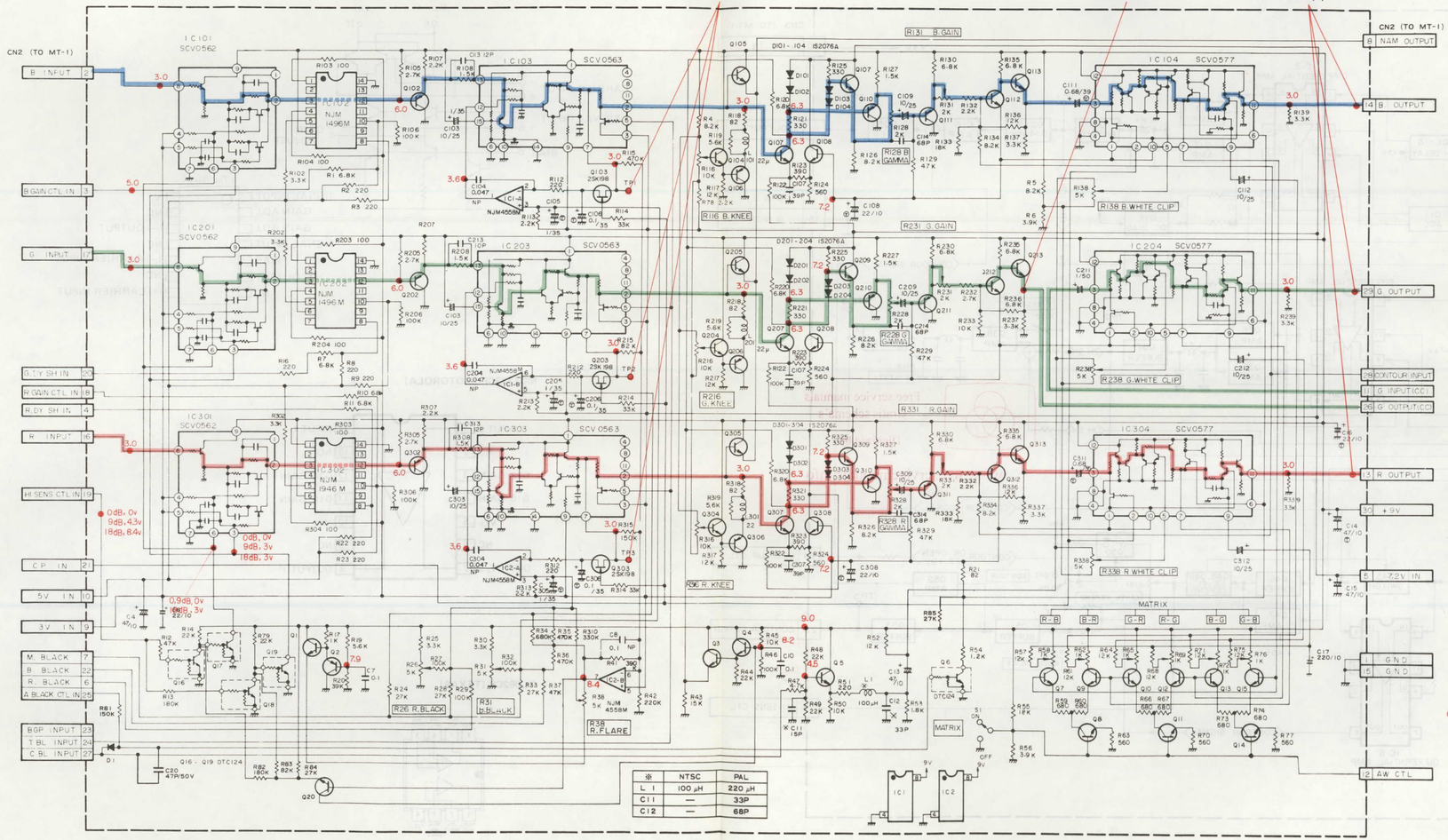
6-4 VIDEO PROCESS BLOCK (PA SCHEMATIC & BOARD)

6.8 PR BOARD SCHEMATIC DIAGRAM

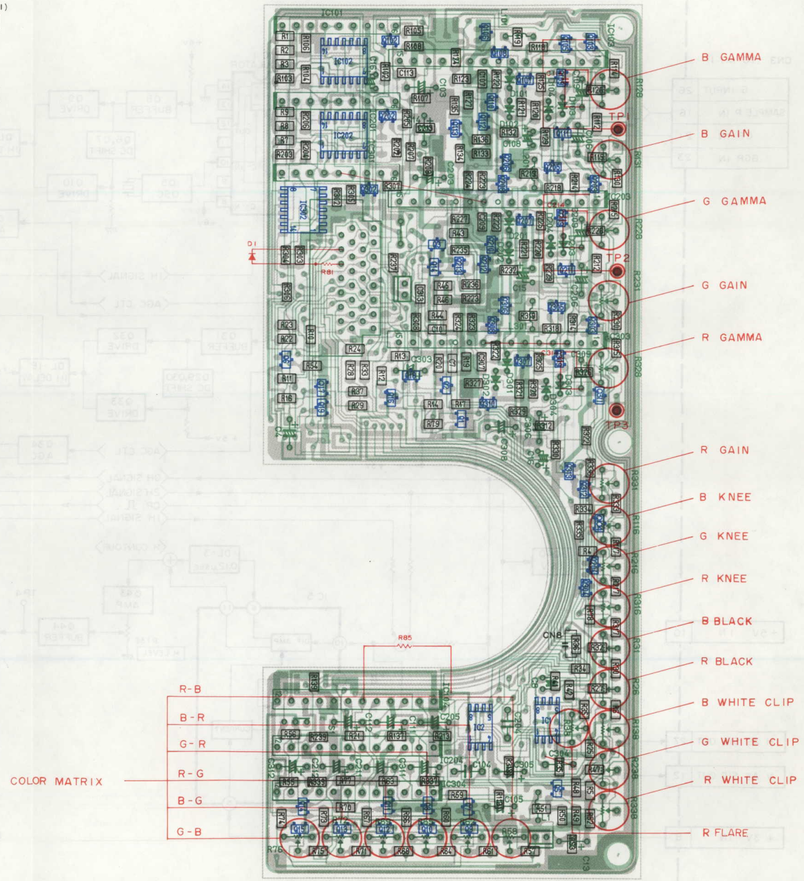
GRAY SCALE
H-rate
1.2 Vp-p

GRAY SCALE
H-rate
0.8 Vp-p

GRAY SCALE
H-rate
1.4 Vp-p



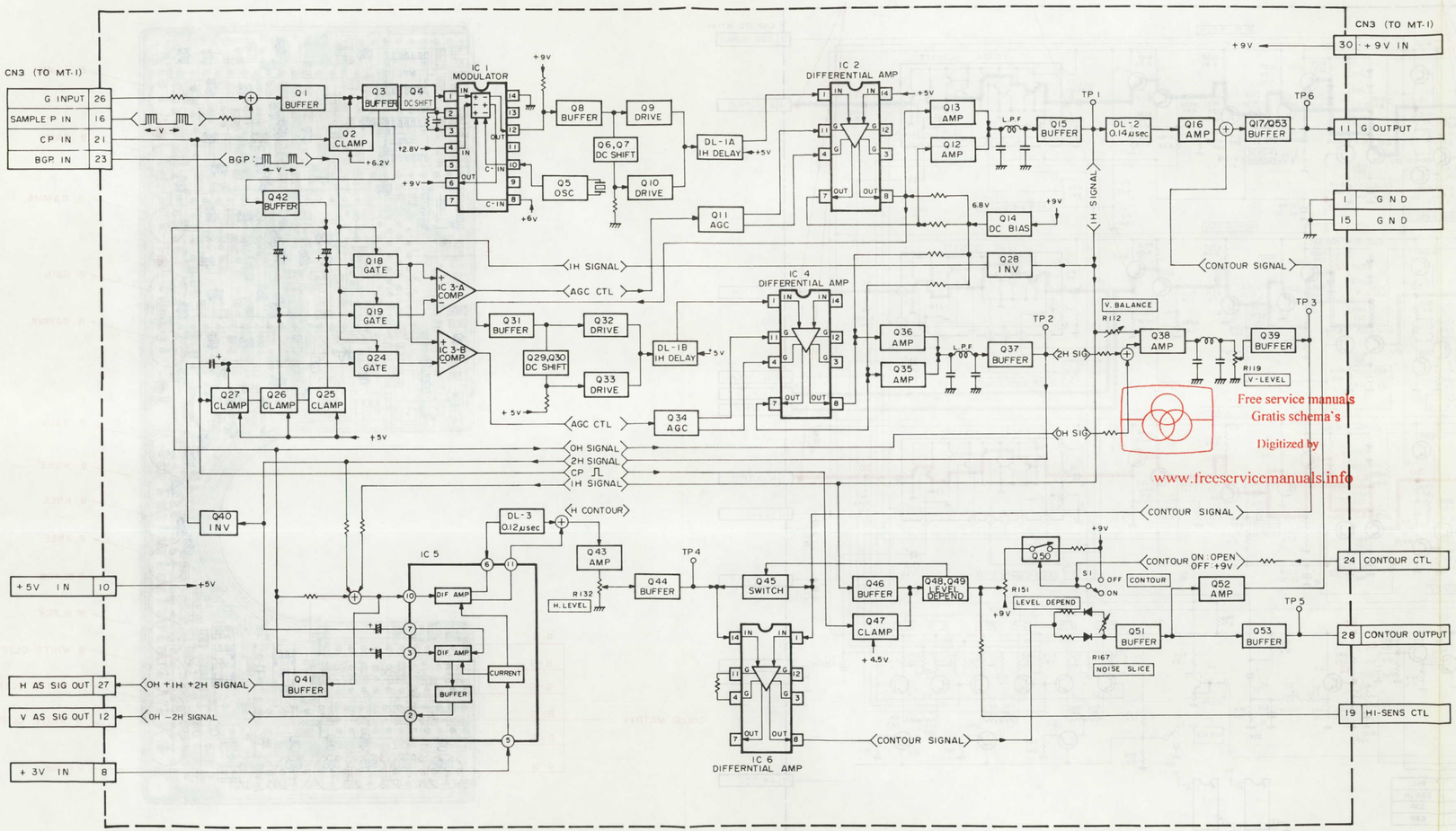
6.9 PR CIRCUIT BOARD



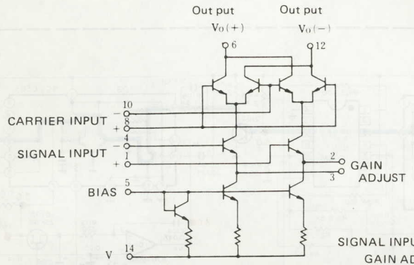
6-5 PR SCHEMATIC & BOARD (CONTOUR CORRECTOR BLOCK)

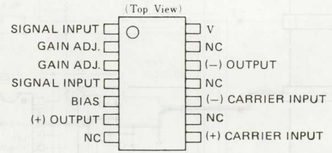
PR SCHEMATIC & BOARD (CONTOUR CORRECTOR BLOCK) 6-5

6.10 CONTOUR CORRECTOR BLOCK DIAGRAM (CC BOARD)

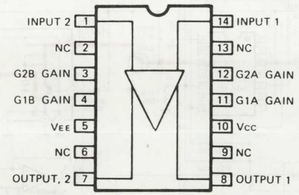


NJM1496(Double Balance Modulator/Demodulator)

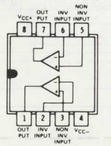




MC1733CP [MOTOROLA]

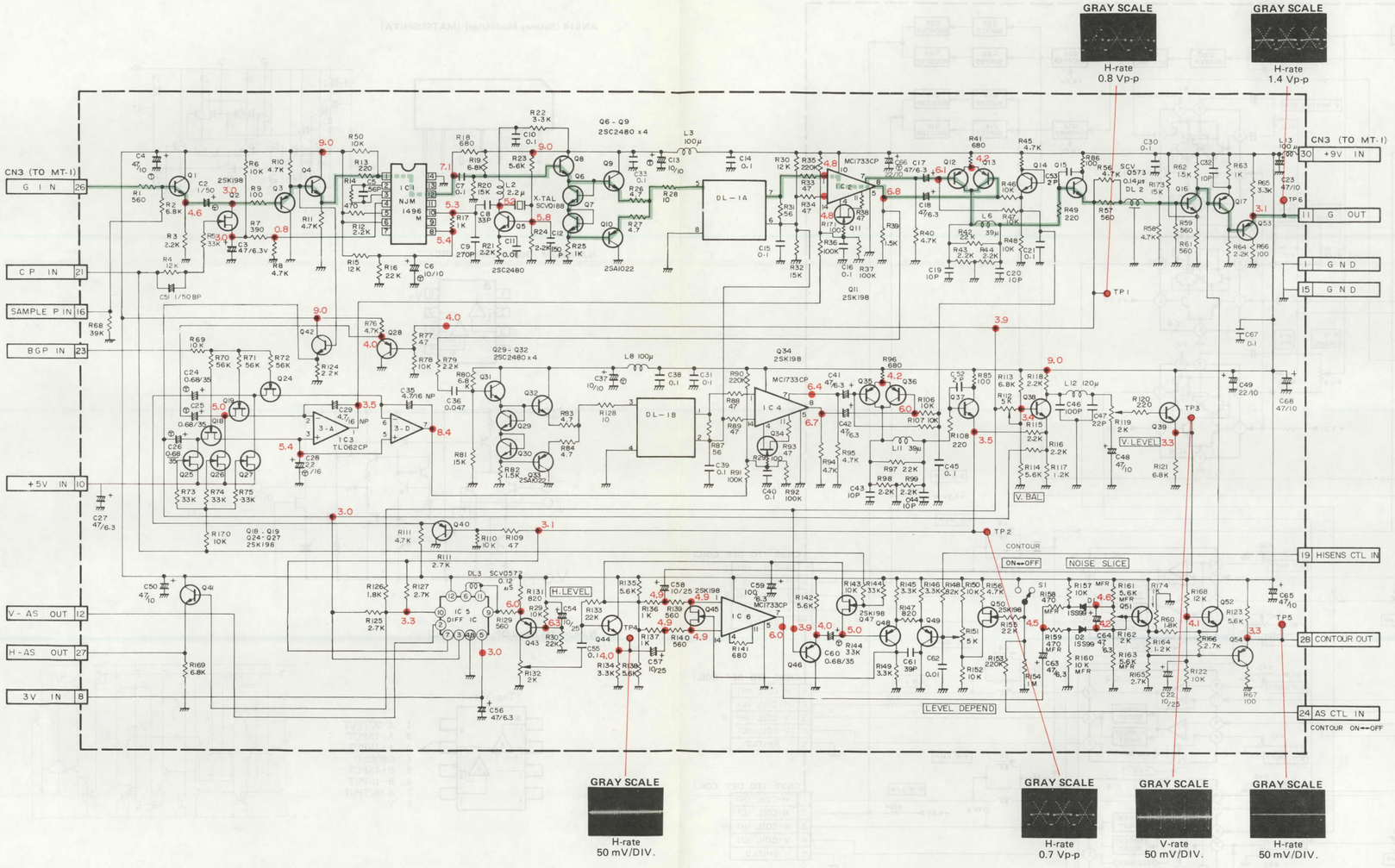


TL062CP [TEXAS]

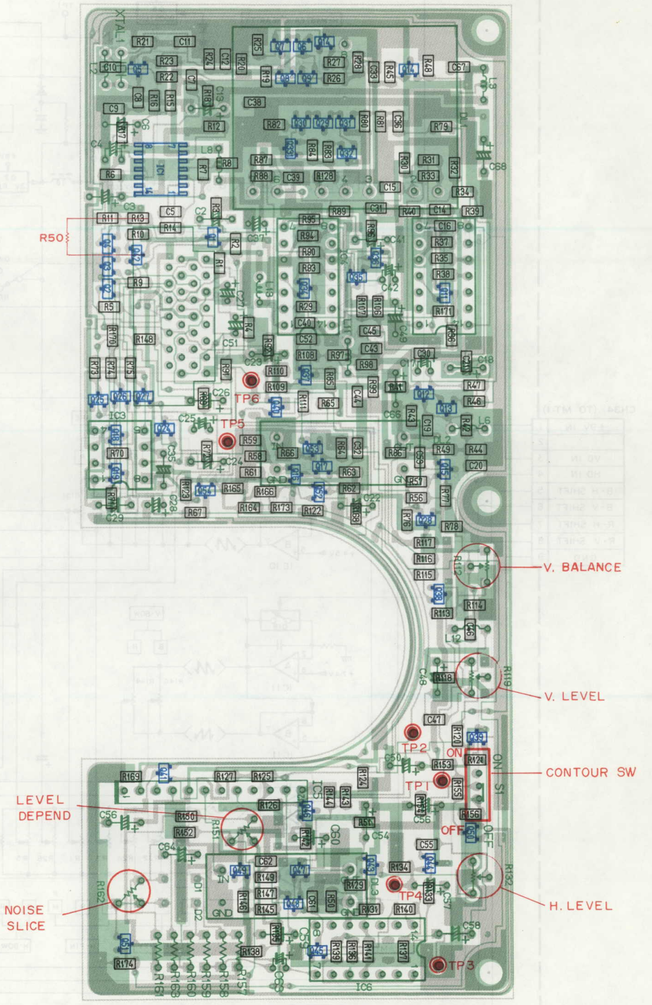


CONTOUR CORRECTOR BLOCK (PR SCHEMATIC & BOARD) 6-6
6-6 CONTOUR CORRECTOR BLOCK (PR SCHEMATIC & BOARD)

6.11 CC BOARD SCHEMATIC DIAGRAM



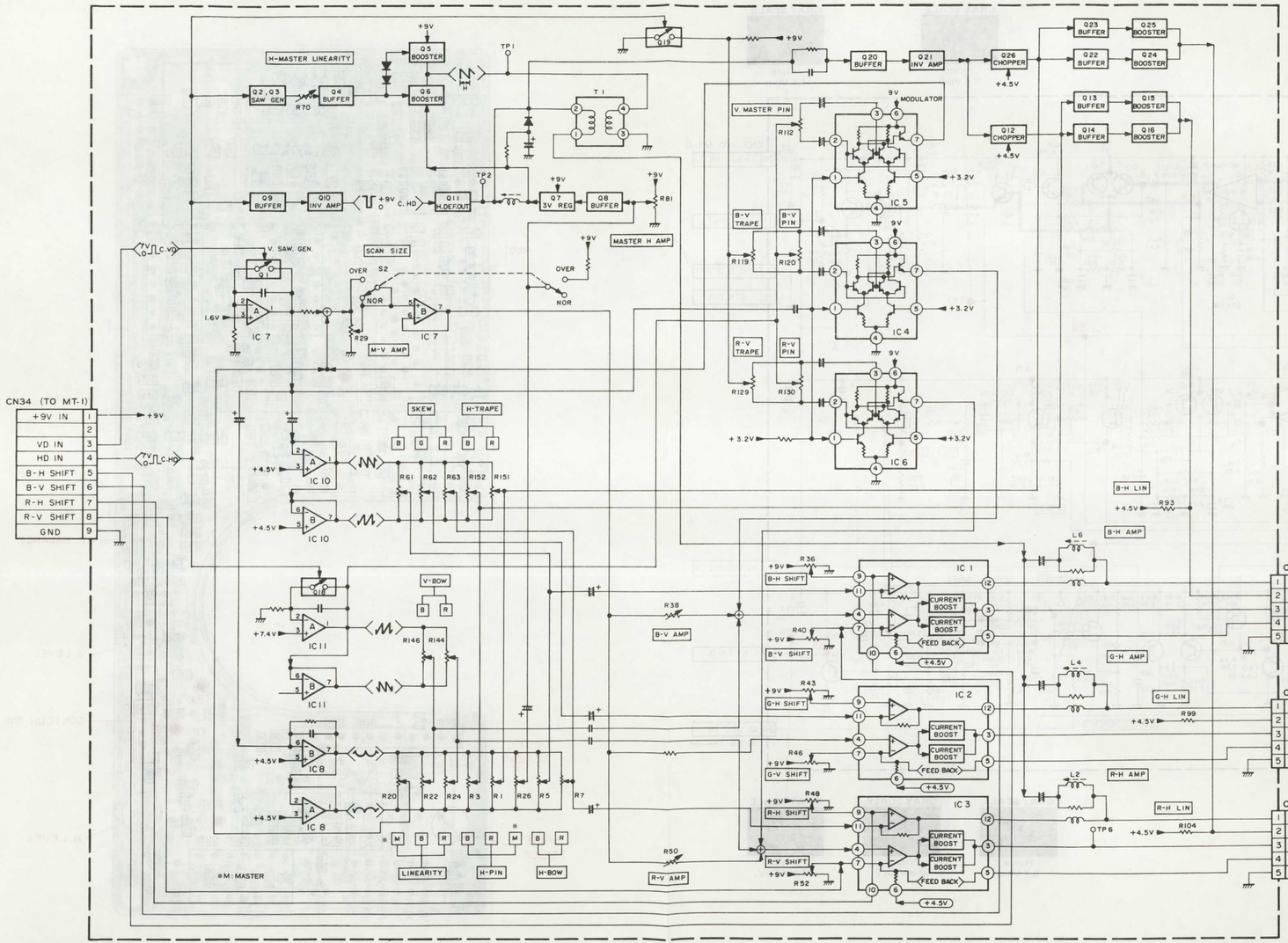
6.12 CC CIRCUIT BOARD



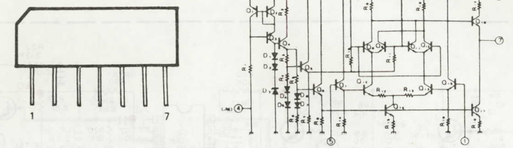
6-7 CC SCHEMATIC & BOARD (DEFLECTION BLOCK)

CC SCHEMATIC & BOARD (DEFLECTION BLOCK) 6-7

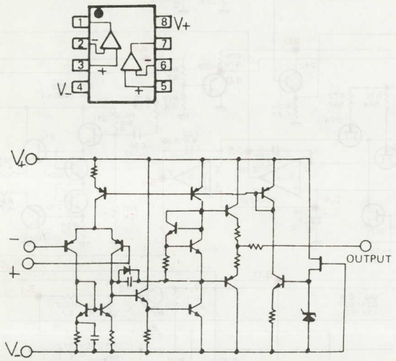
6.13 DEFLECTION BLOCK DIAGRAM (DF BOARD)



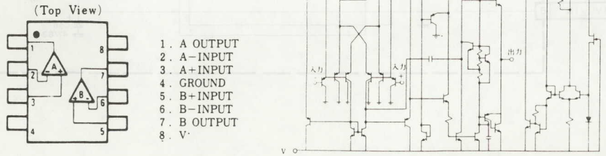
AN614 (Balance Modulator) [MATSUSHITA]



NJM4558M (Dual Op. Amp) [JRC]



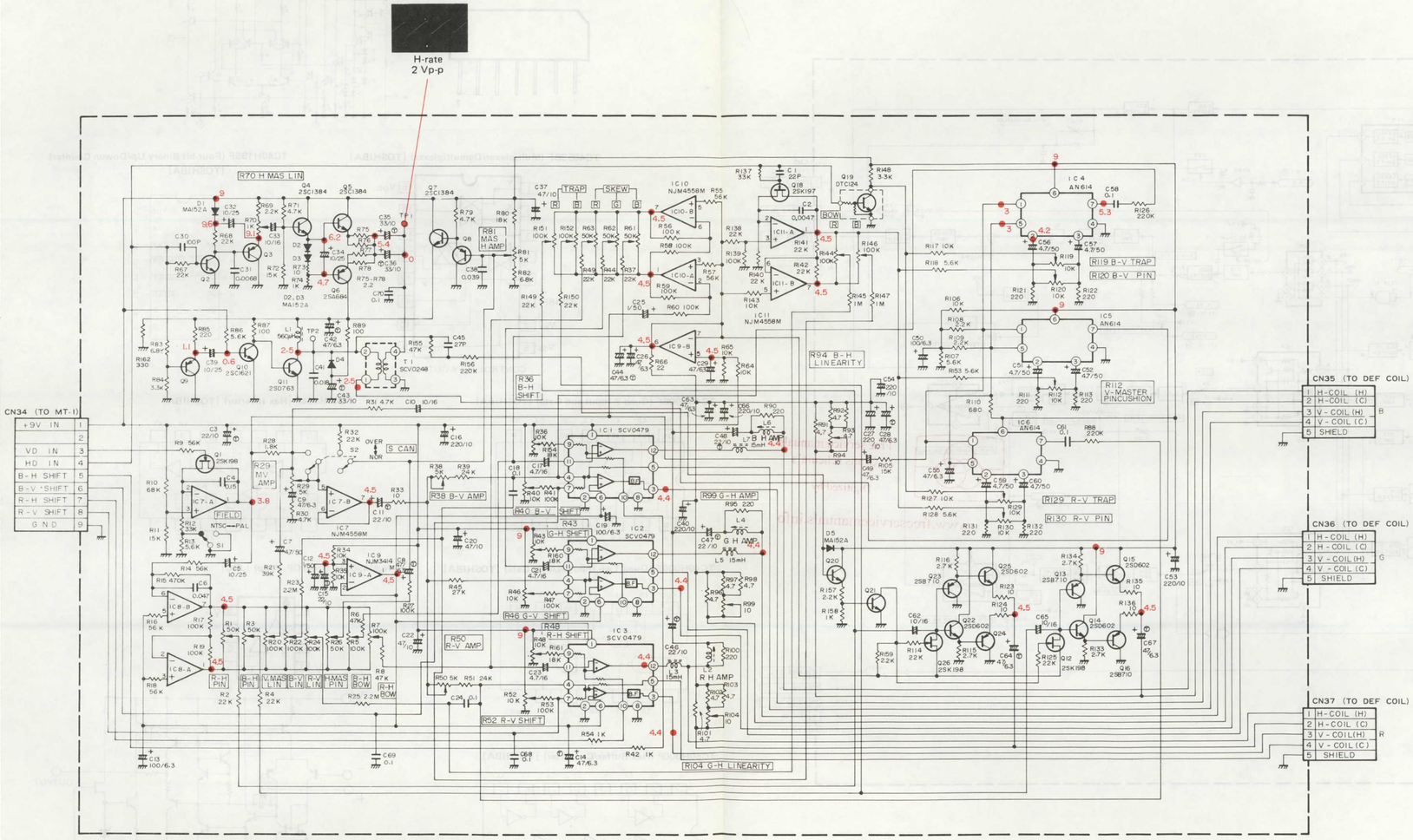
NJM3414M (Dual OP. Amp.) [JRC]



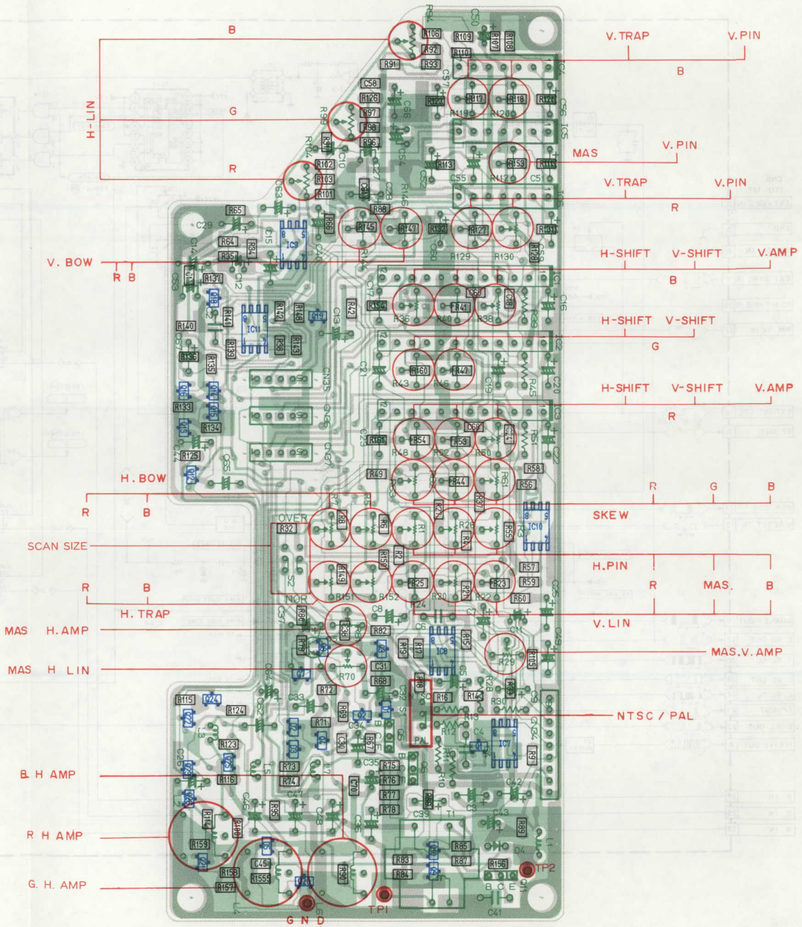
DEFLECTION BLOCK (CC SCHEMATIC & BOARD) 6-8

6-8 DEFLECTION BLOCK (CC SCHEMATIC & BOARD)

6.14 DF BOARD SCHEMATIC DIAGRAM



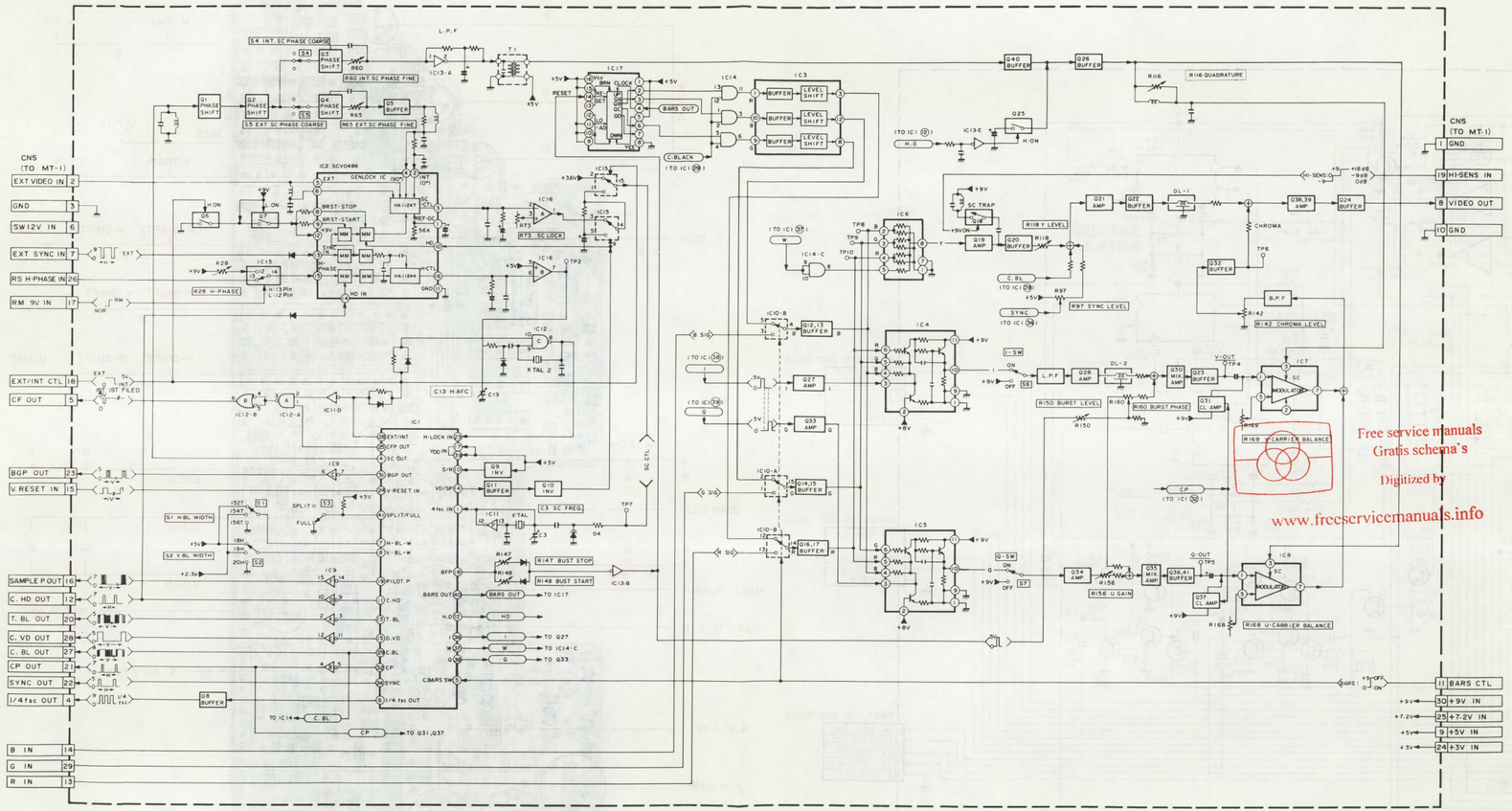
6.15 DF CIRCUIT BOARD



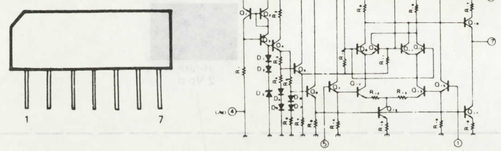
6-9 DF SCHEMATIC & BOARD (COLOR ENCODER & SSG BLOCK)

DF SCHEMATIC & BOARD (COLOR ENCODER & SSG BLOCK) 6-9

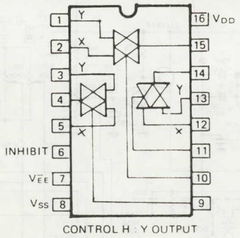
6.16-N COLOR ENCODER AND SSG BLOCK DIAGRAM (SE BOARD) -NTSC



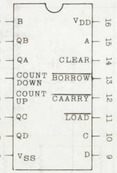
AN614 (Balance Modulator) [MATSUSHITA]



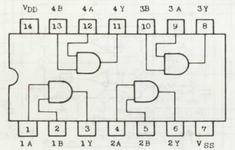
TC4053BF (Multiplexer/Demultiplexer) [TOSHIBA]



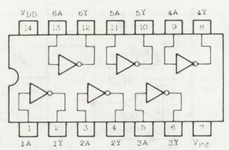
TC40H193F (Four-bit Binary Up/Dowun Counter) [TOSHIBA]



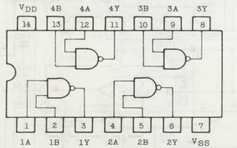
TC40H008F (Quad 2-Input and Gate) [TOSHIBA]



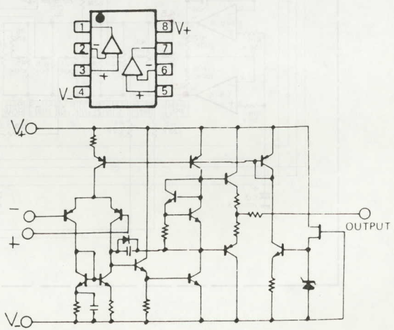
TC40H004F (Hex Invertor) [TOSHIBA]



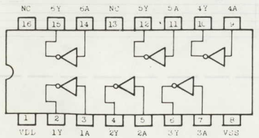
TC40H000F (Quad Two Input NAND Gate) [TOSHIBA]



NJM4560M (Dual OP. Amp) [JRC]



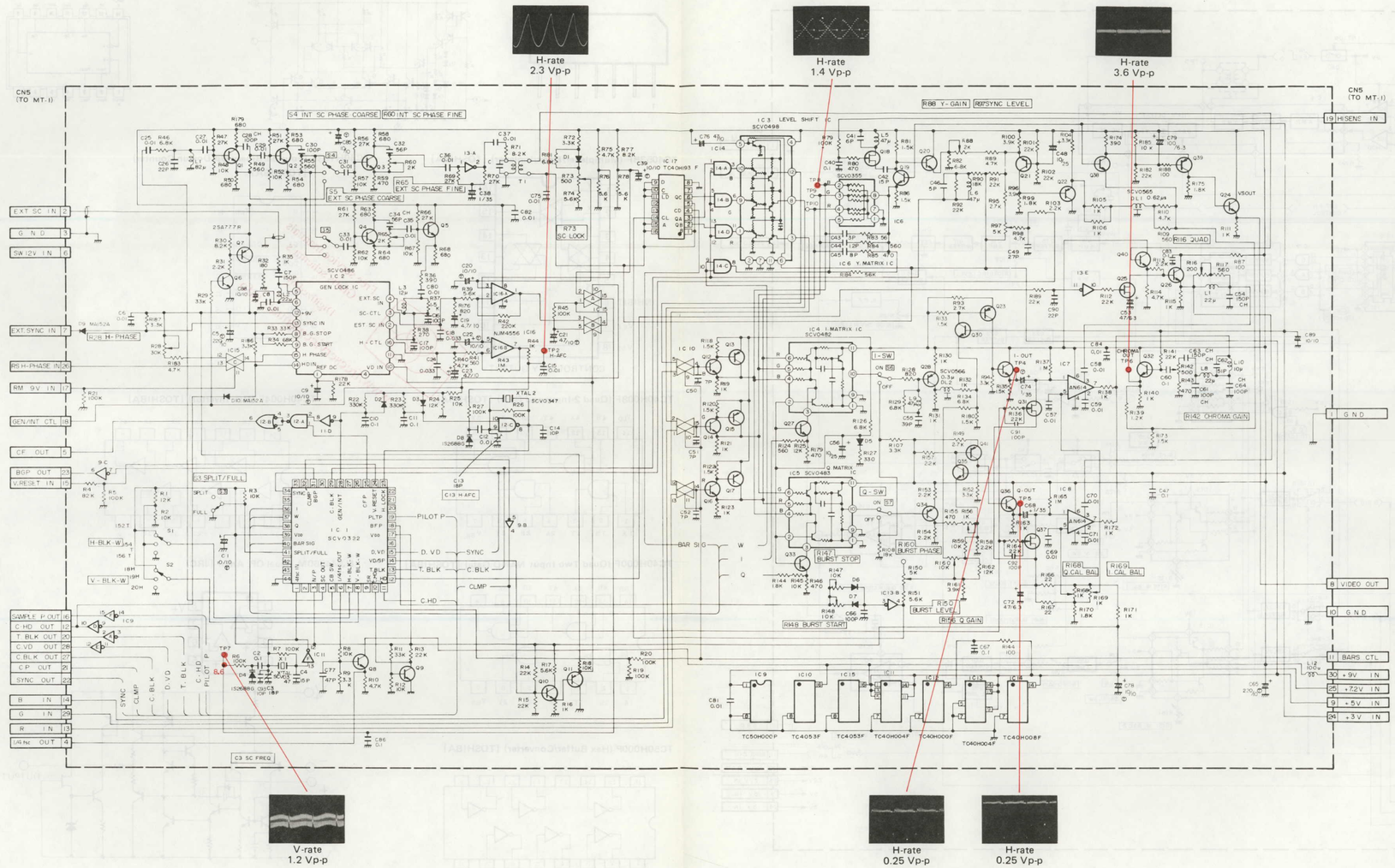
TC50H000P (Hex Buffer/Converter) [TOSHIBA]



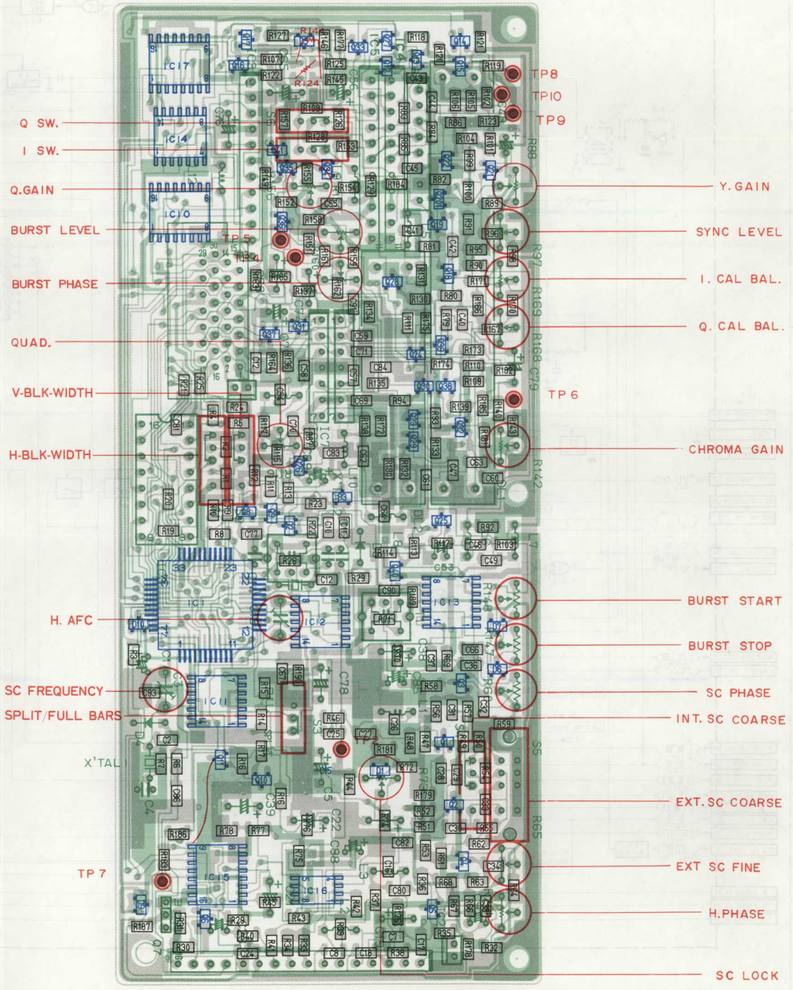
COLOR ENCODER & SSG BLOCK (DF SCHEMATIC & BOARD) 6-10

6-10 COLOR ENCODER & SSG BLOCK (DF SCHEMATIC & BOARD)

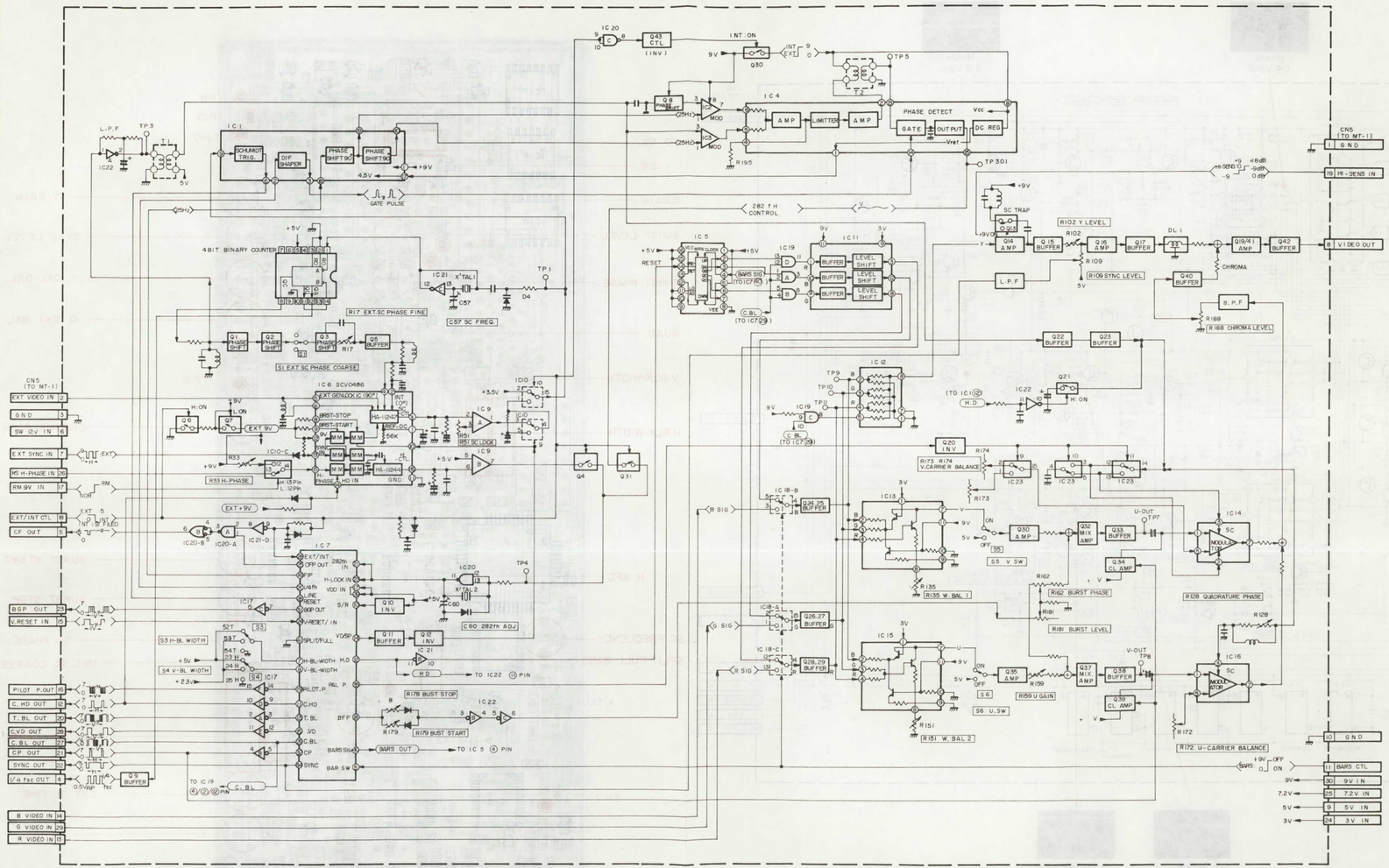
6.17-N SE BOARD SCHEMATIC DIAGRAM -NTSC



6.18-N SE CIRCUIT BOARD -NTSC

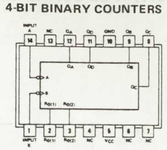


6.16-P COLOR ENCODER AND SSG BLOCK DIAGRAM (SE BOARD) -PAL

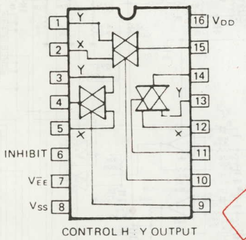


AN614 (Balance Modulator) [MATSUSHITA]

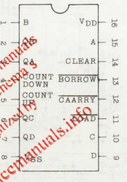
SN74LS93 4-BIT BINARY COUNTERS



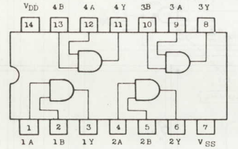
TC4053BF (Multiplexer/Demultiplexer) [TOSHIBA]



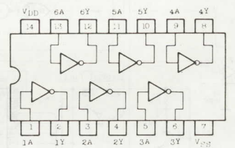
TC40H193F (Four-bit Binary Up/Dowun Counter) [TOSHIBA]



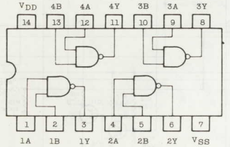
TC40H008F (Quad 2-Input and Gate) [TOSHIBA]



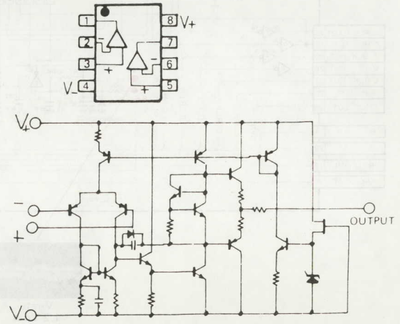
TC40H004F (Hex Invertor) [TOSHIBA]



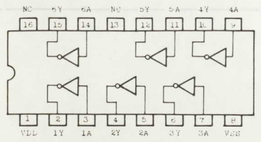
TC40H000F (Quad Two Input NAND Gate) [TOSHIBA]



NJM4560M (Dual OP. Amp) [JRC]



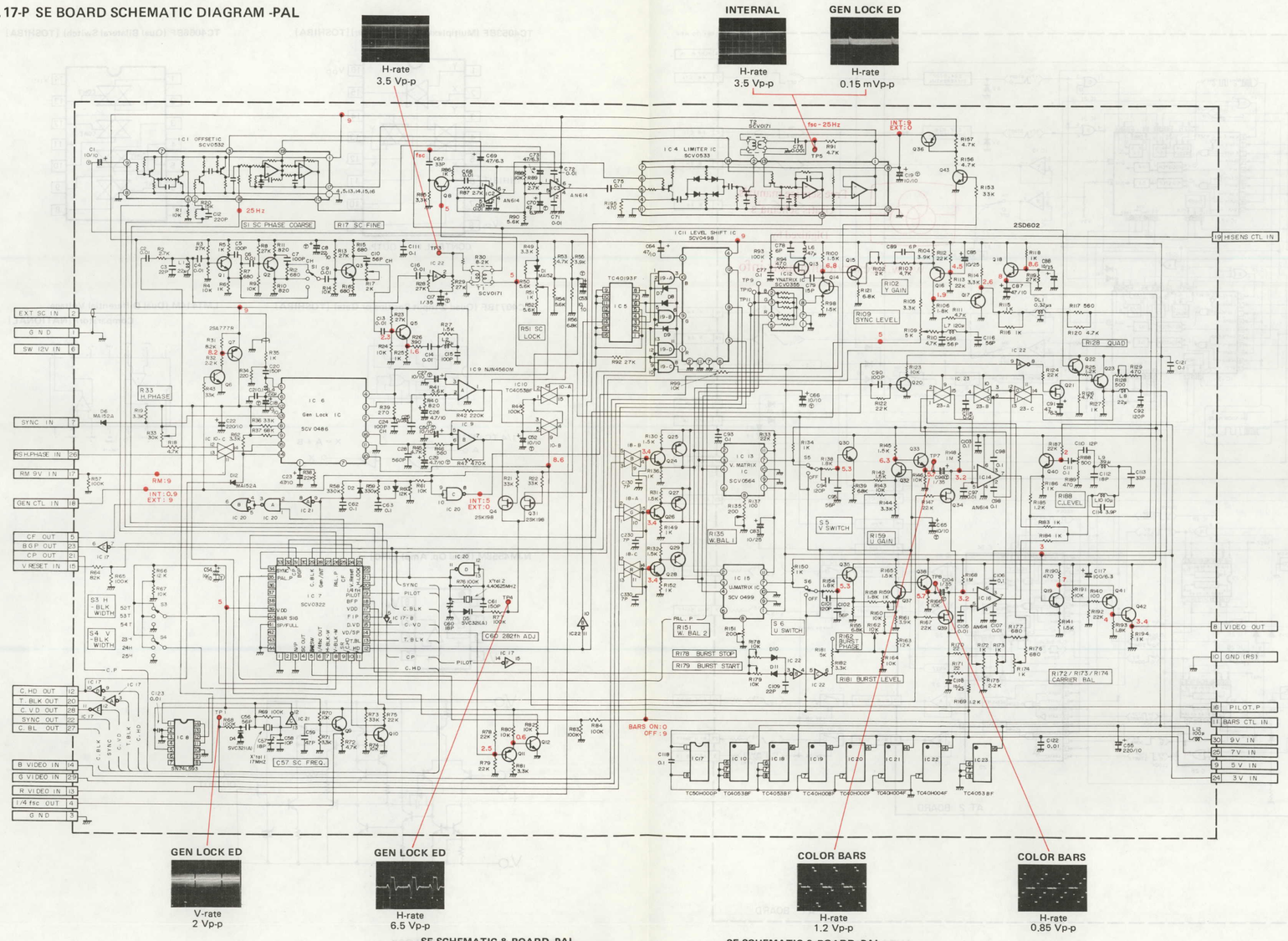
TC50H000P (Hex Buffer/Converter) [TOSHIBA]



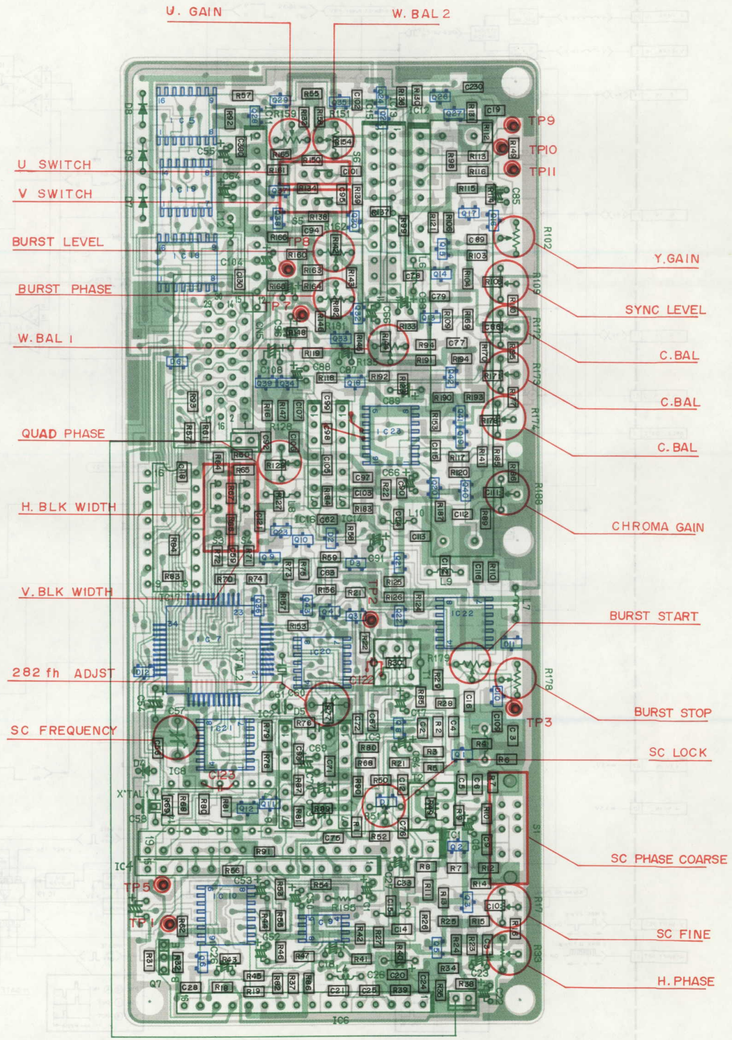
COLOUR ENCODER & SSG BLOCK -PAL (SE SCHEMATIC & BOARD -NTSC) 6-10-P

6-10-P COLOUR ENCODER & SSG BLOCK -PAL (SE SCHEMATIC & BOARD -NTSC)

6.17-P SE BOARD SCHEMATIC DIAGRAM -PAL



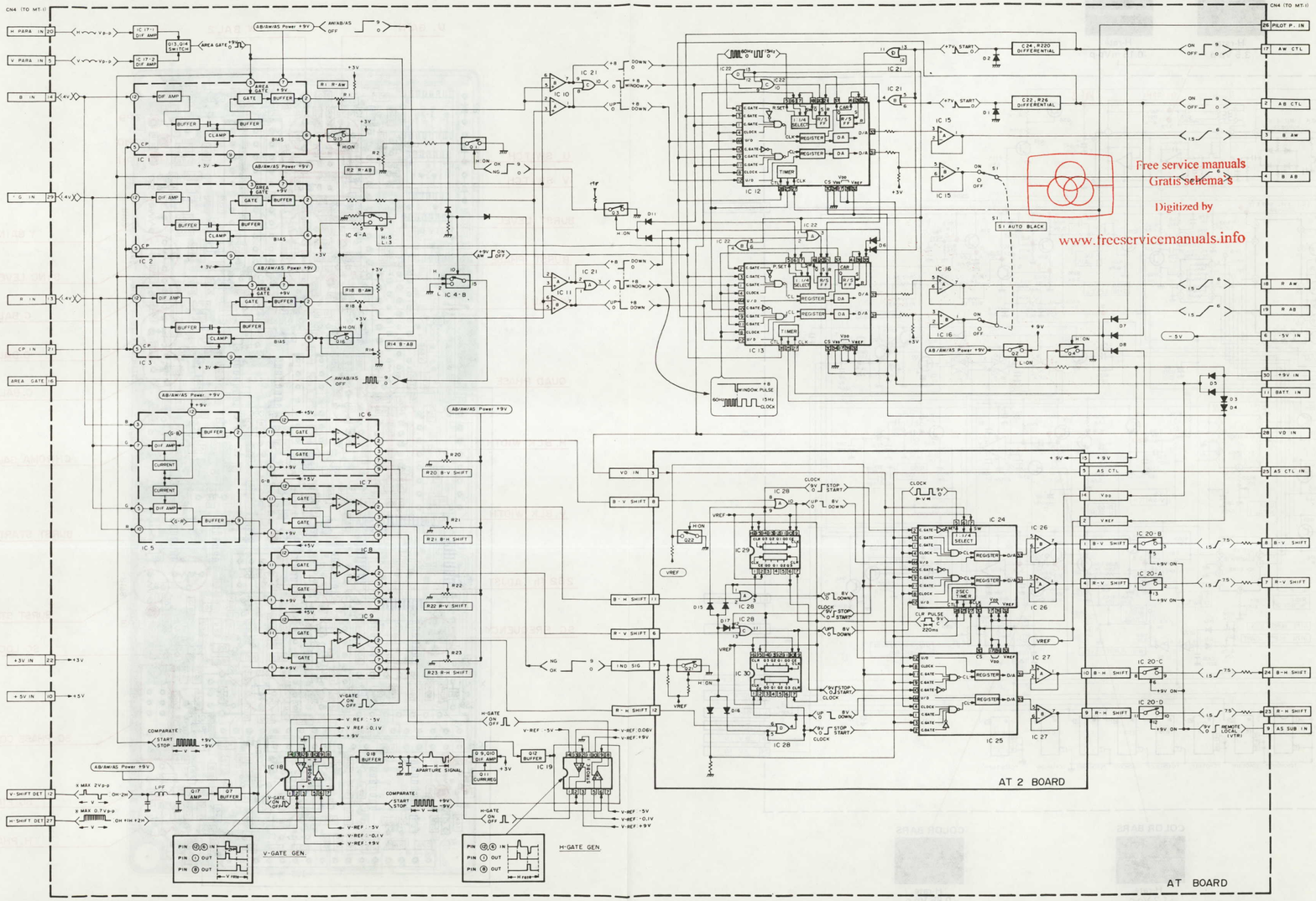
6.18-P SE CIRCUIT BOARD -PAL



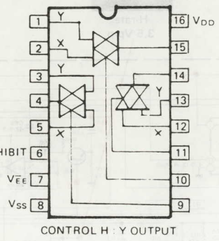
6-11-P SE SCHEMATIC & BOARD -PAL
(AUTO SHIFT, BLACK, WHITE BLOCK)

SE SCHEMATIC & BOARD -PAL
(AUTO SHIFT, BLACK, WHITE BLOCK) 6-11-P

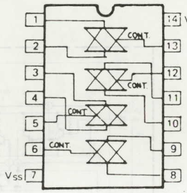
6.19 AUTO SHIFT/AUTO BLACK/AUTO WHITE BLOCK DIAGRAM (AT-1/AT-2 BOARDS)



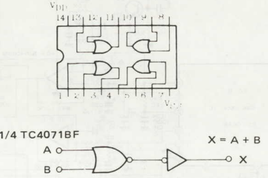
TC4053BF (Multiplexer/Demultiplexer) [TOSHIBA]



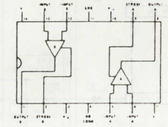
TC4066BF (Qual Bilateral Switch) [TOSHIBA]



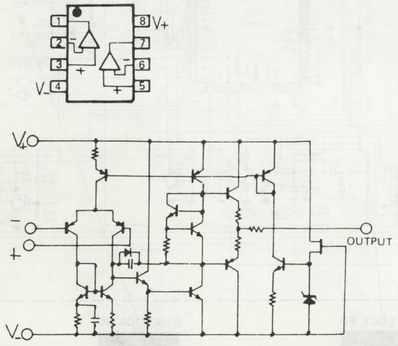
TC4071BF (Quad 2-Input Positine or Gate) [TOSHIBA]



LM1414M (Dual Differential Voltage Comparator) [NATIONAL]

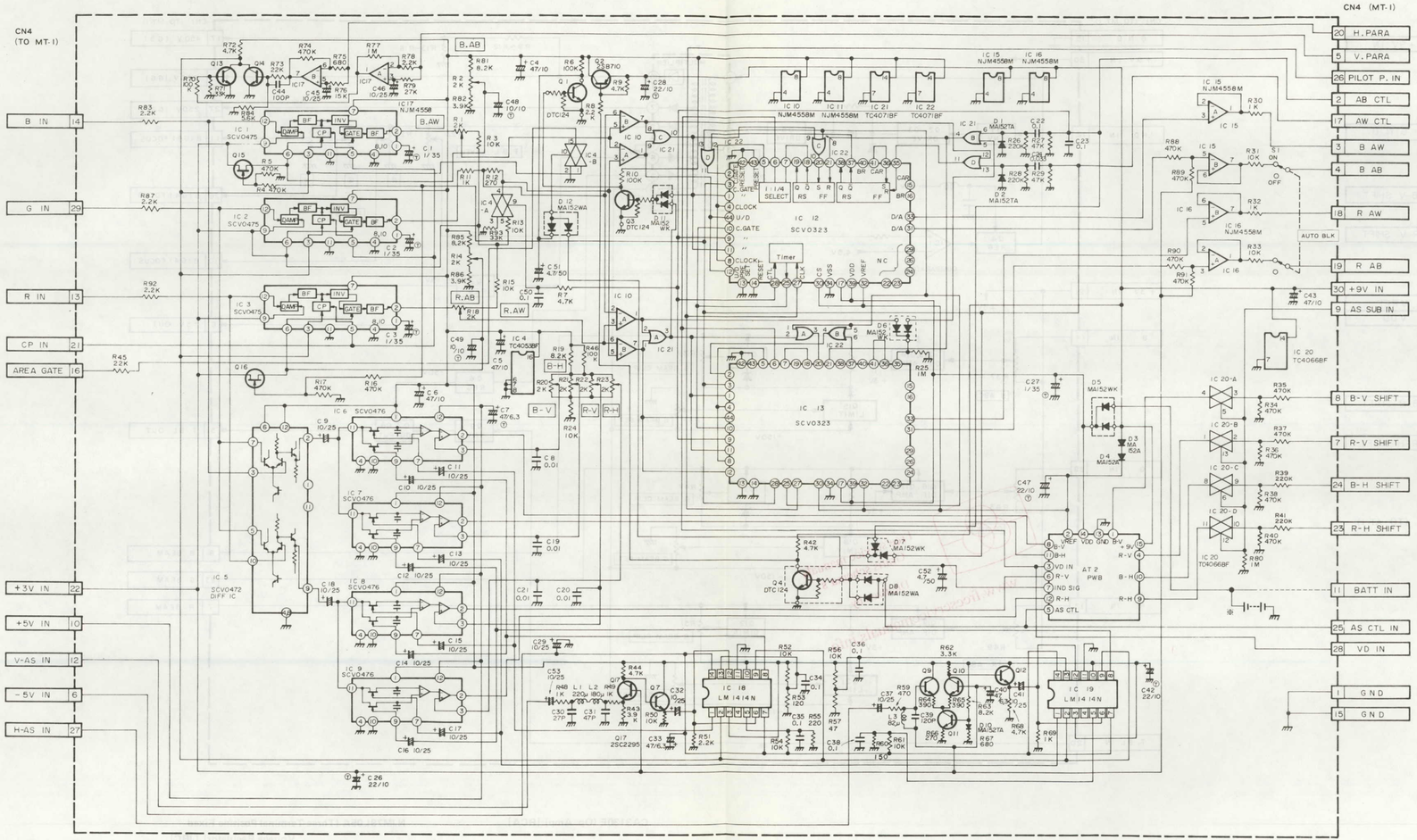


NJM4558M (Dual Op. Amp) [JRC]



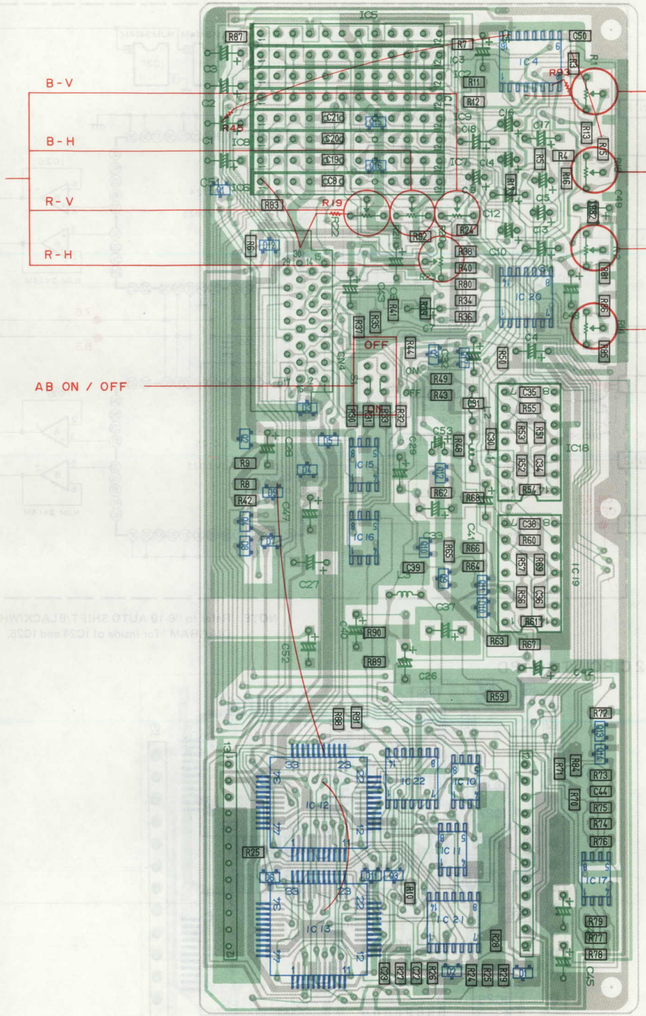
AUTO SHIFT, BLACK, WHITE BLOCK (SE SCHEMATIC & BOARD ,PAL) 6-12

6.20 AT-1 BOARD SCHEMATIC DIAGRAM



※ **NOTE:** Memory battery is include in this AT-1 BOARD for Serial Nos. 0395xxxx and after.

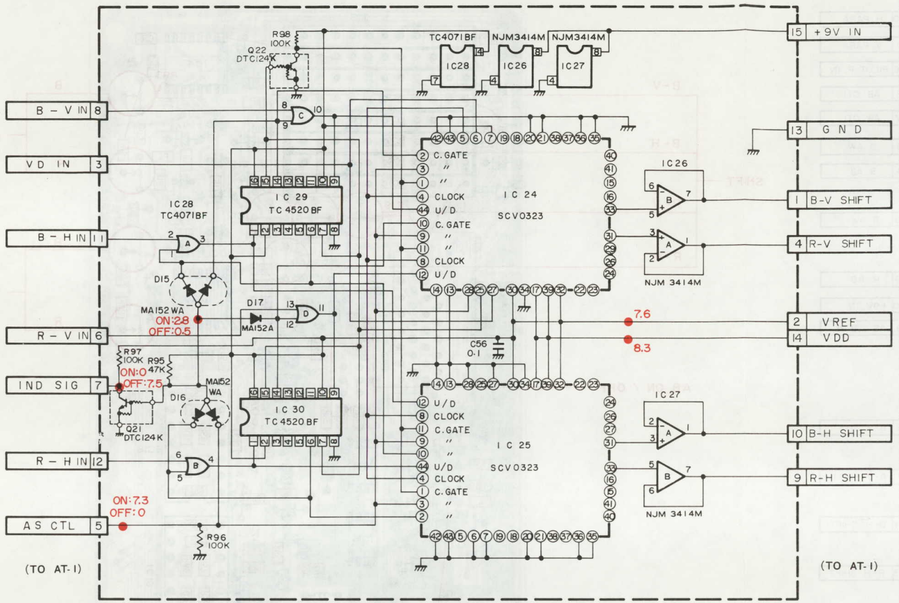
6.21 AT-1 CIRCUIT BOARD



6-13 AT-1 SCHEMATIC & BOARD (AT-2 SCHEMATIC/BOARD & POWER SUPPLY BLOCK)

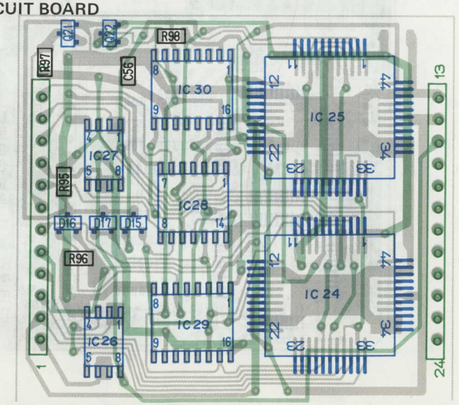
AT-1 SCHEMATIC & BOARD (AT-2 SCHEMATIC/BOARD & POWER SUPPLY BLOCK) 6-13

6.22 AT-2 BOARD SCHEMATIC DIAGRAM

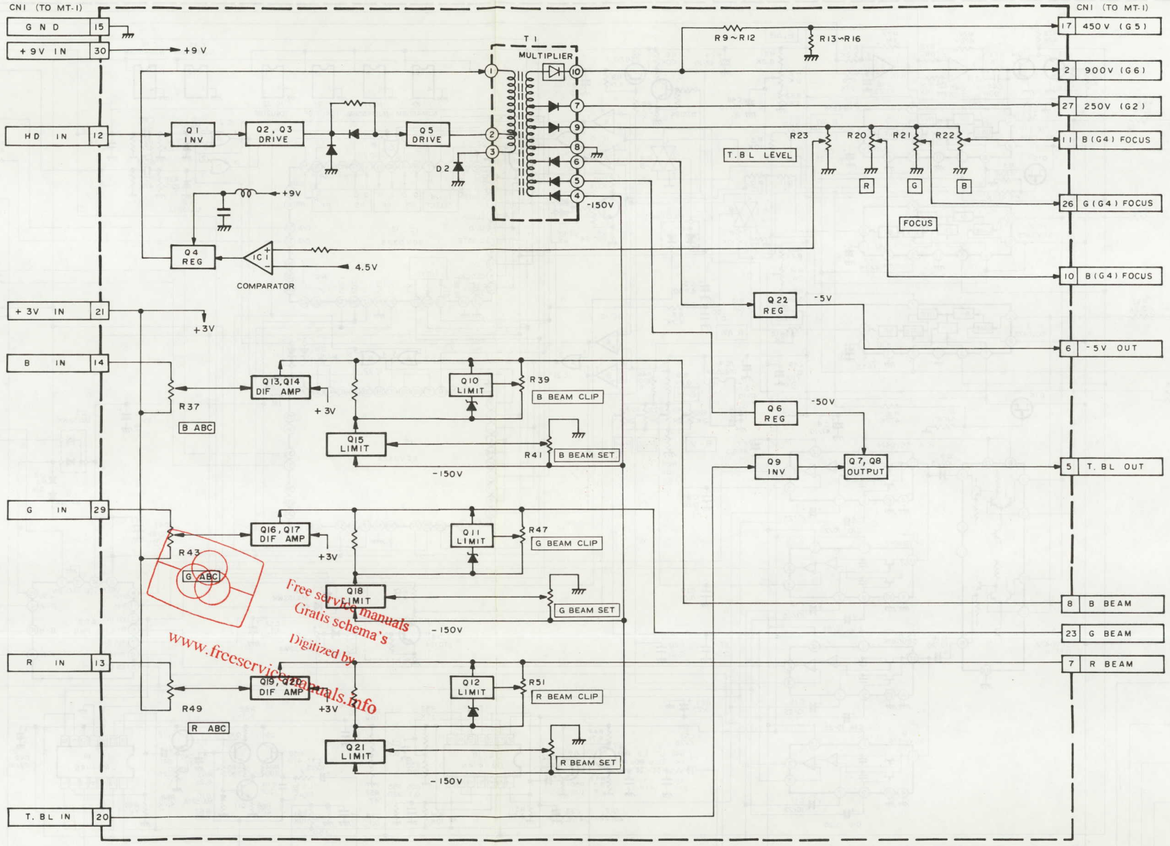


NOTE: Refer to "6-19 AUTO SHIFT/BLACK/WHITE BLOCK DIAGRAM" for inside of IC24 and IC25.

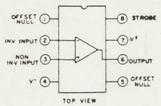
6.23 AT-2 CIRCUIT BOARD



6.24 POWER SUPPLY BLOCK DIAGRAM (PS BOARD)



CA3130E (Op. Amp) [RCA]

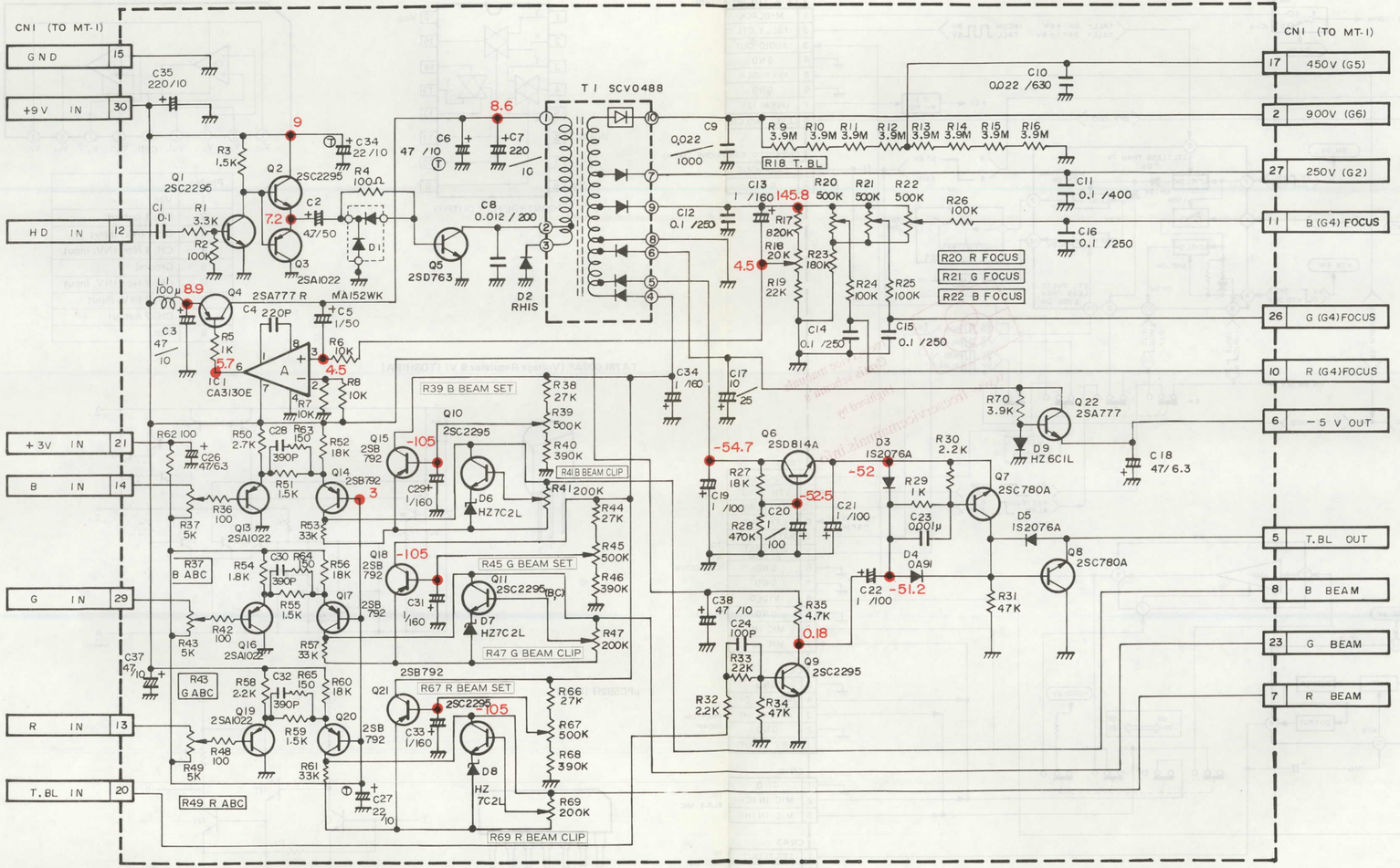


NJM79L05A (Three Terminal Positive Fixed Voltage Regulator) [JRC]

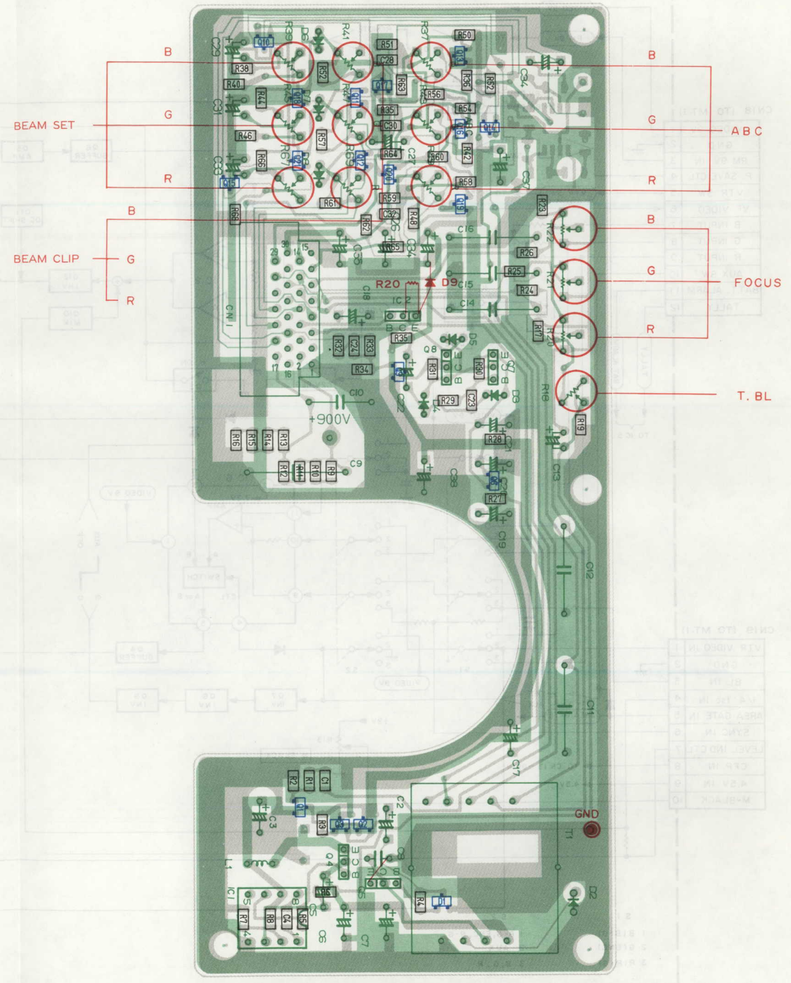
1. INPUT
2. OUTPUT
3. GND

6-14 AT-2 SCHEMATIC/BOARD & POWER SUPPLY BLOCK (AT-1 SCHEMATIC & BOARD)

6.25 PS BOARD SCHEMATIC DIAGRAM



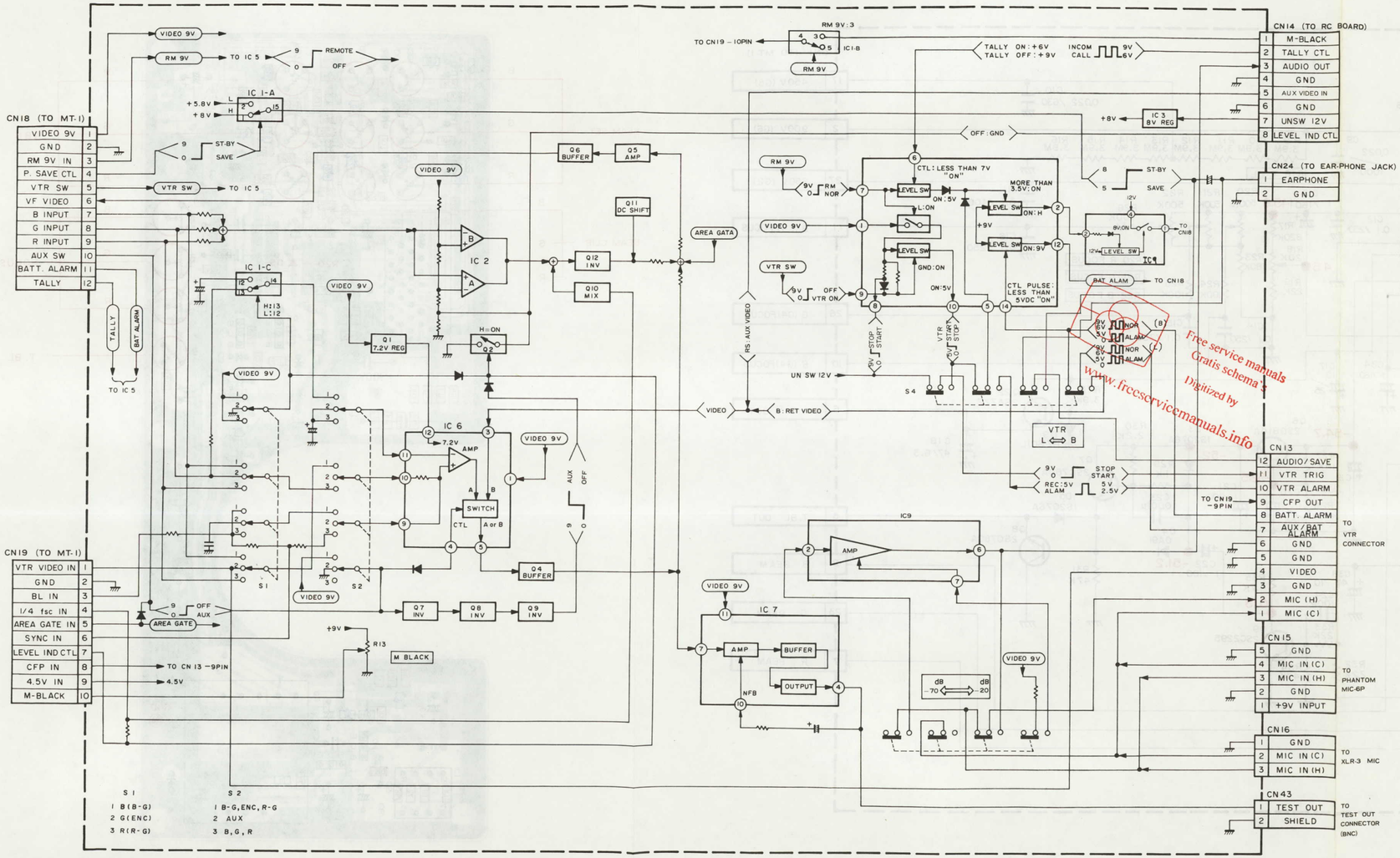
6.26 PS CIRCUIT BOARD



6-15 PS SCHEMATIC & BOARD (CONTROL & MIC AMP BLOCK)

PS SCHEMATIC & BOARD (CONTROL & MIC AMP BLOCK) 6-15

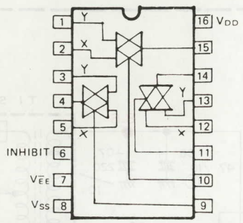
6.27 CONTROLS AND MIC AMP BLOCK DIAGRAM (CT BOARD)



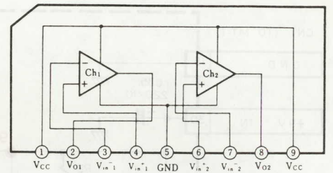
S1
1 B(B-G)
2 G(ENC)
3 R(R-G)

S2
1 B-G,ENC,R-G
2 AUX
3 B,G,R

TC4053BF (Multiplexer/Demultiplexer) [TOSHIBA]

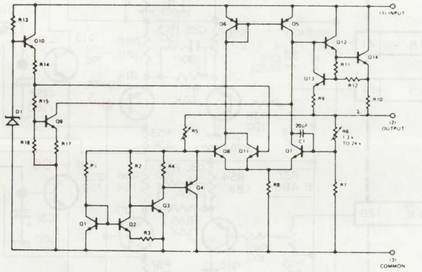


AM6913 (Dual Comparator) [MATSUSHITA]

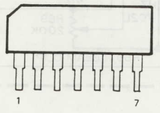


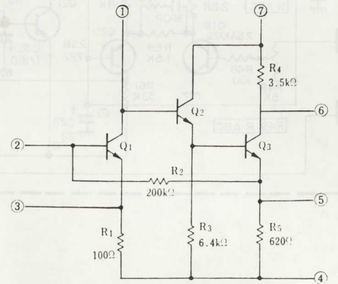
Pin No.	
1	Vcc
2	CH. 1 output
3	CH.1 INV. input
4	CH. 1 Non INV. input
5	Ground
6	CH. 2 Non INV. input
7	CH. 2 INV. input
8	CH. 2 output
9	Vcc

TA78L009AP (Voltage Regulator 9 V) [TOSHIBA]



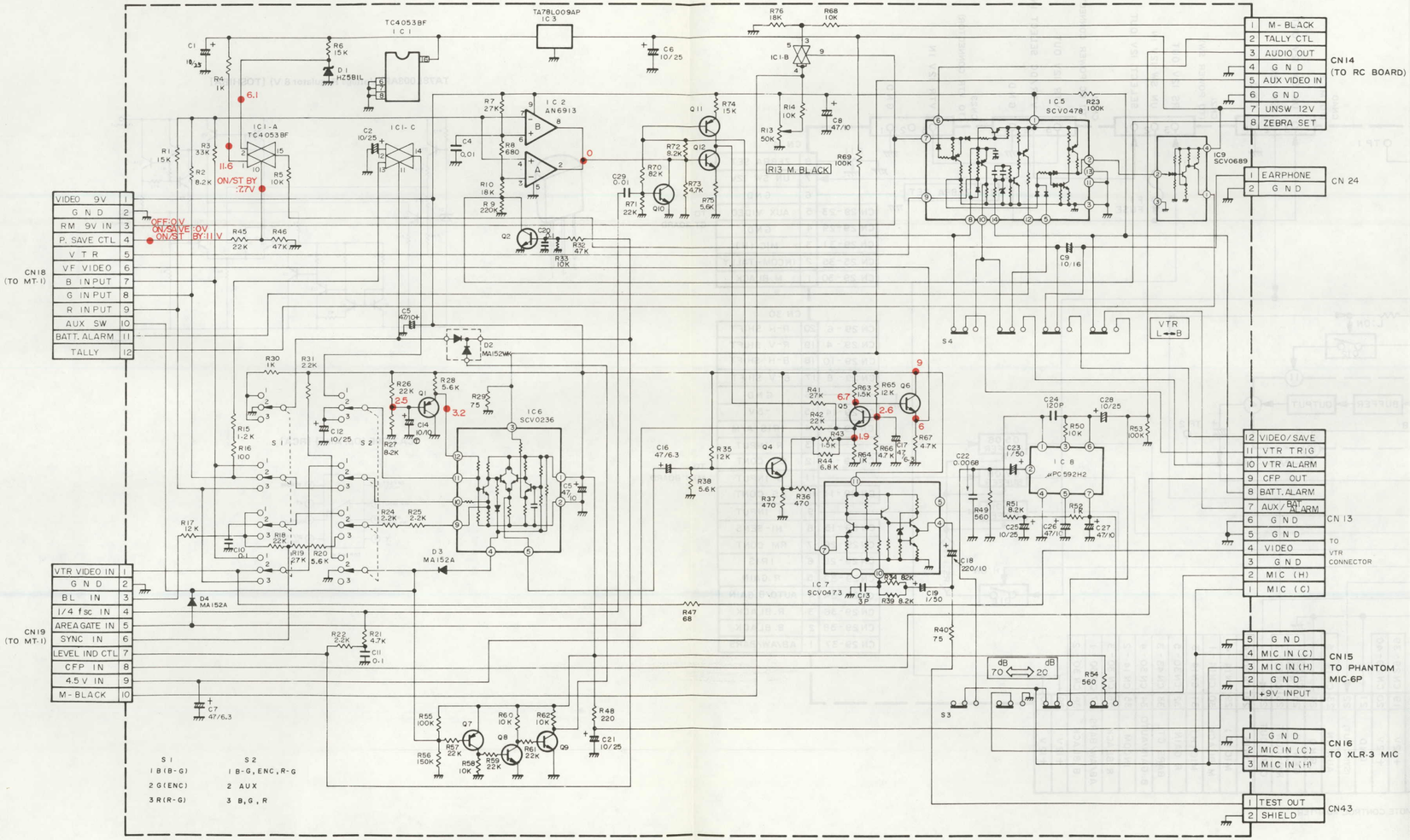
μPC592H [NEC]



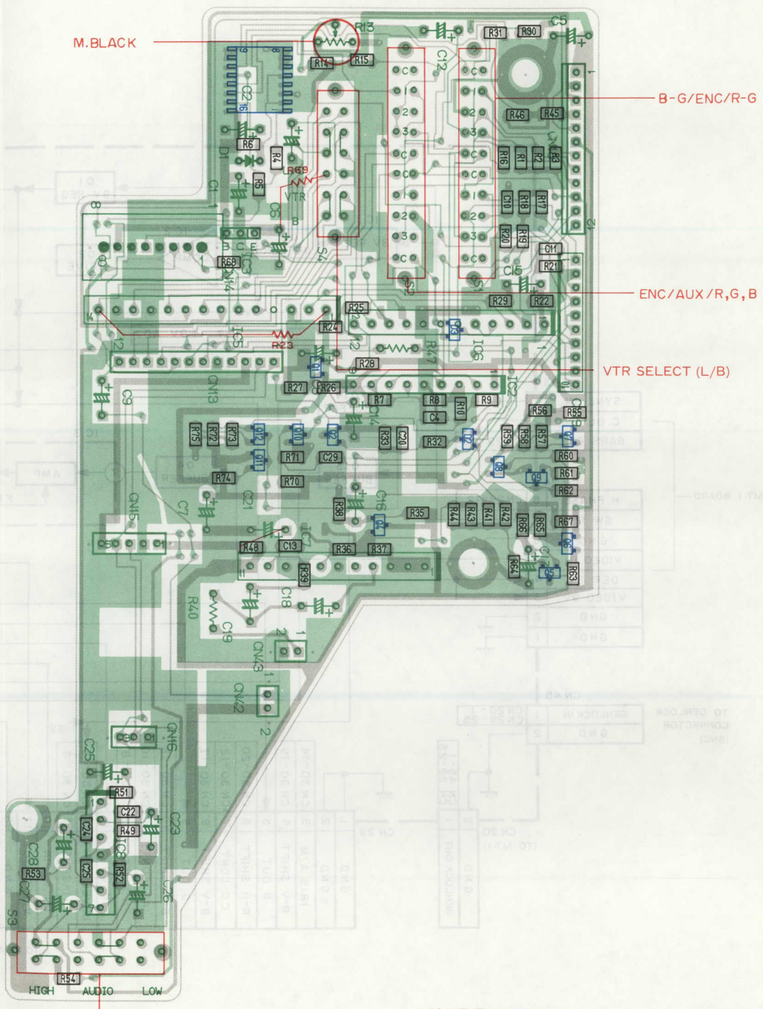


6-16 CONTROL & MIC AMP BLOCK (PS SCHEMATIC & BOARD)

6.28 CT BOARD SCHEMATIC DIAGRAM



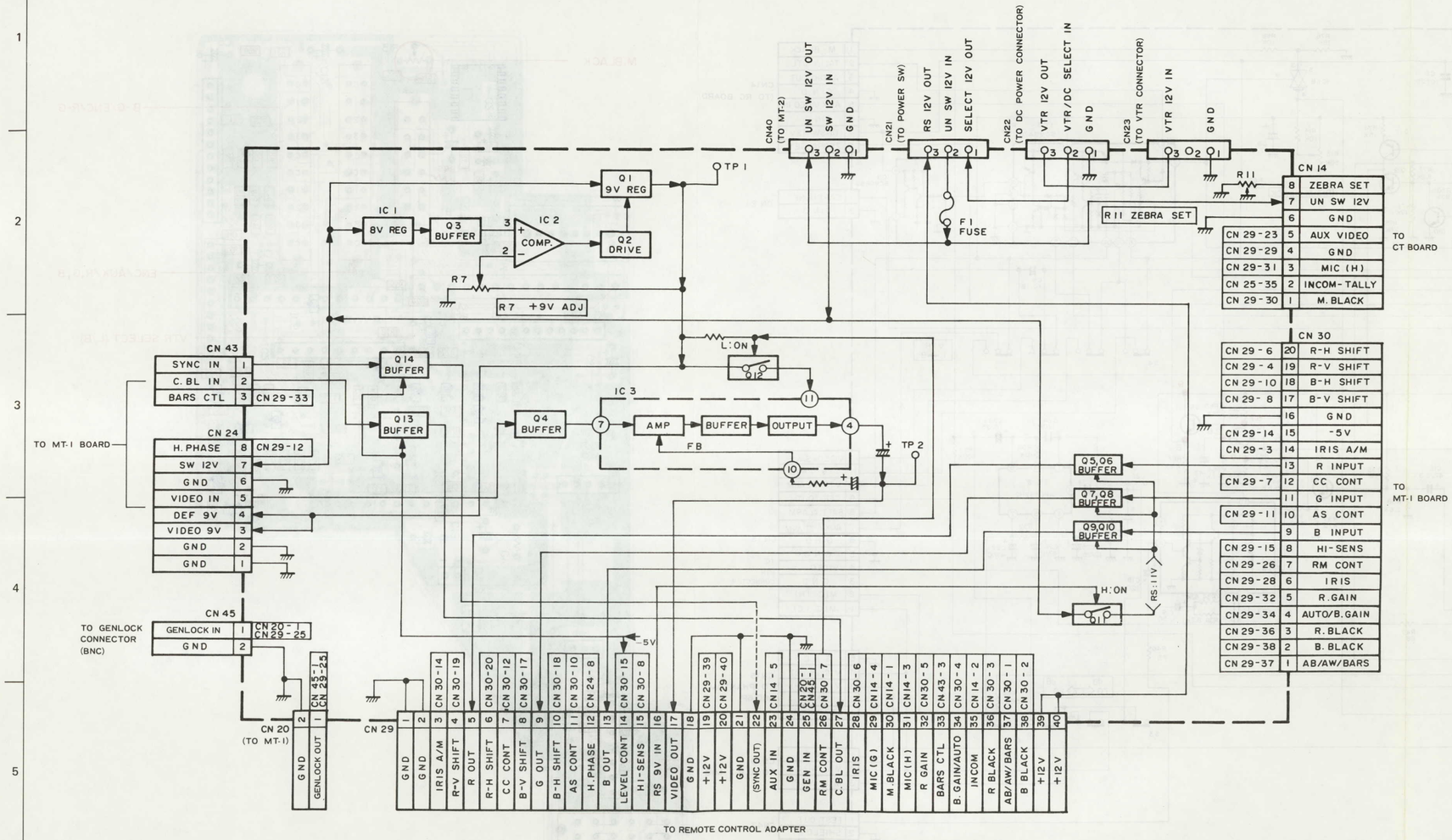
6.29 CT CIRCUIT BOARD



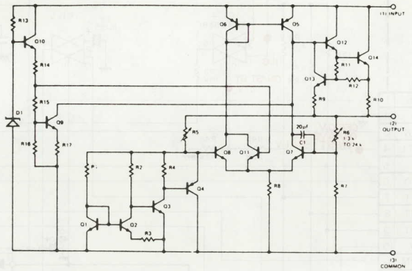
6-17 CT SCHEMATIC & BOARD (REAR CONTROL BLOCK)

CT SCHEMATIC & BOARD (REAR CONTROL BLOCK) 6-17

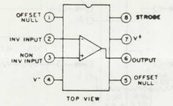
6.30 REAR CONTROL PANEL BLOCK DIAGRAM (RC BOARD)



TA78L008AP (Voltage Regulator 8 V) [TOSHIBA]



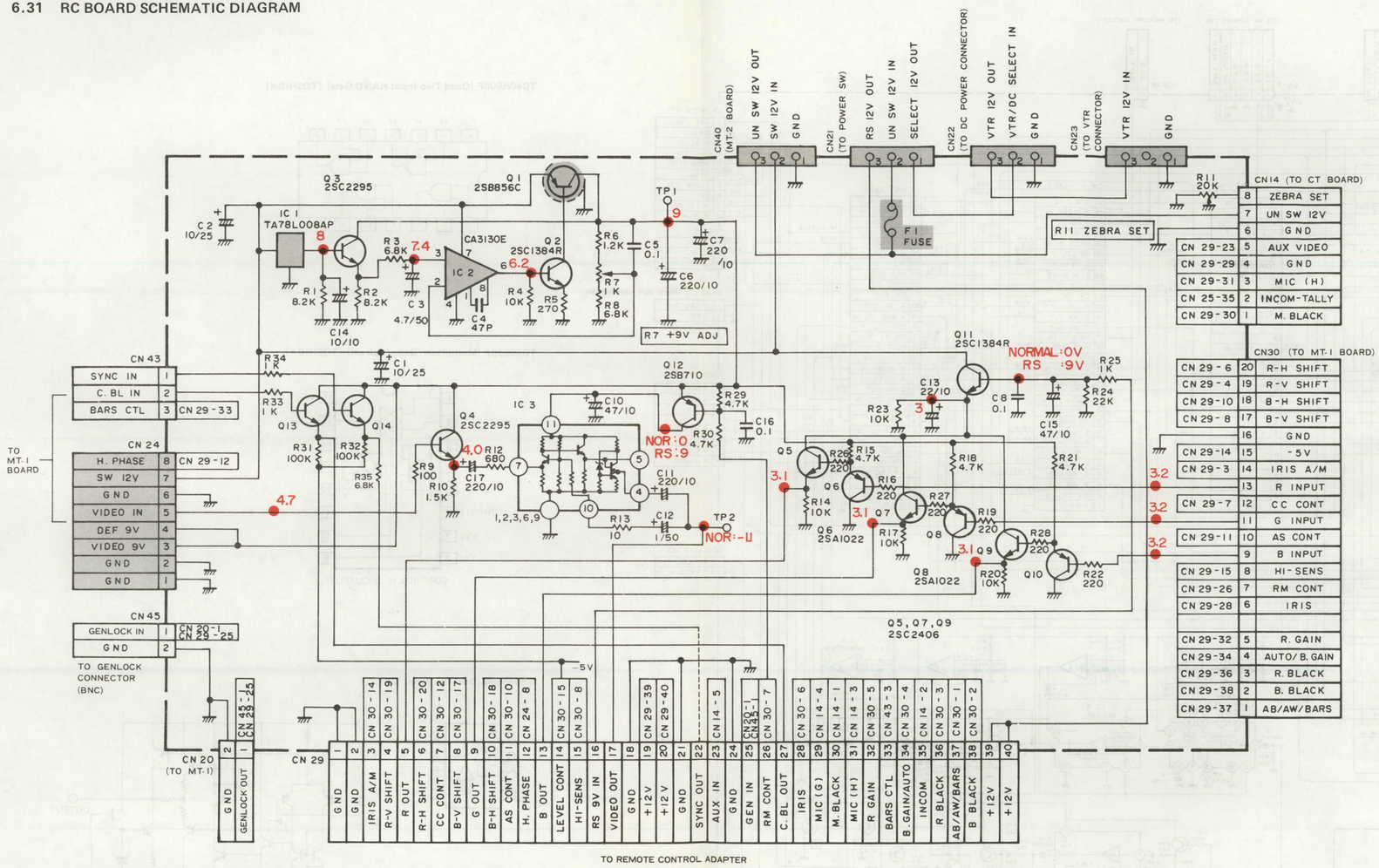
CA3130E (Op. Amp) [RCA]



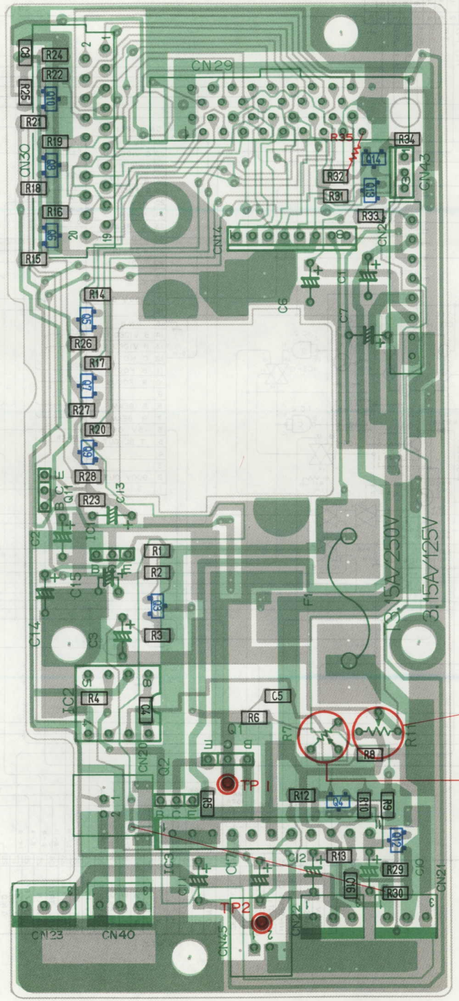
REAR CONTROL BLOCK (CT SCHEMATIC & BOARD) 6-18

6-18 REAR CONTROL BLOCK (CT SCHEMATIC & BOARD)

6.31 RC BOARD SCHEMATIC DIAGRAM



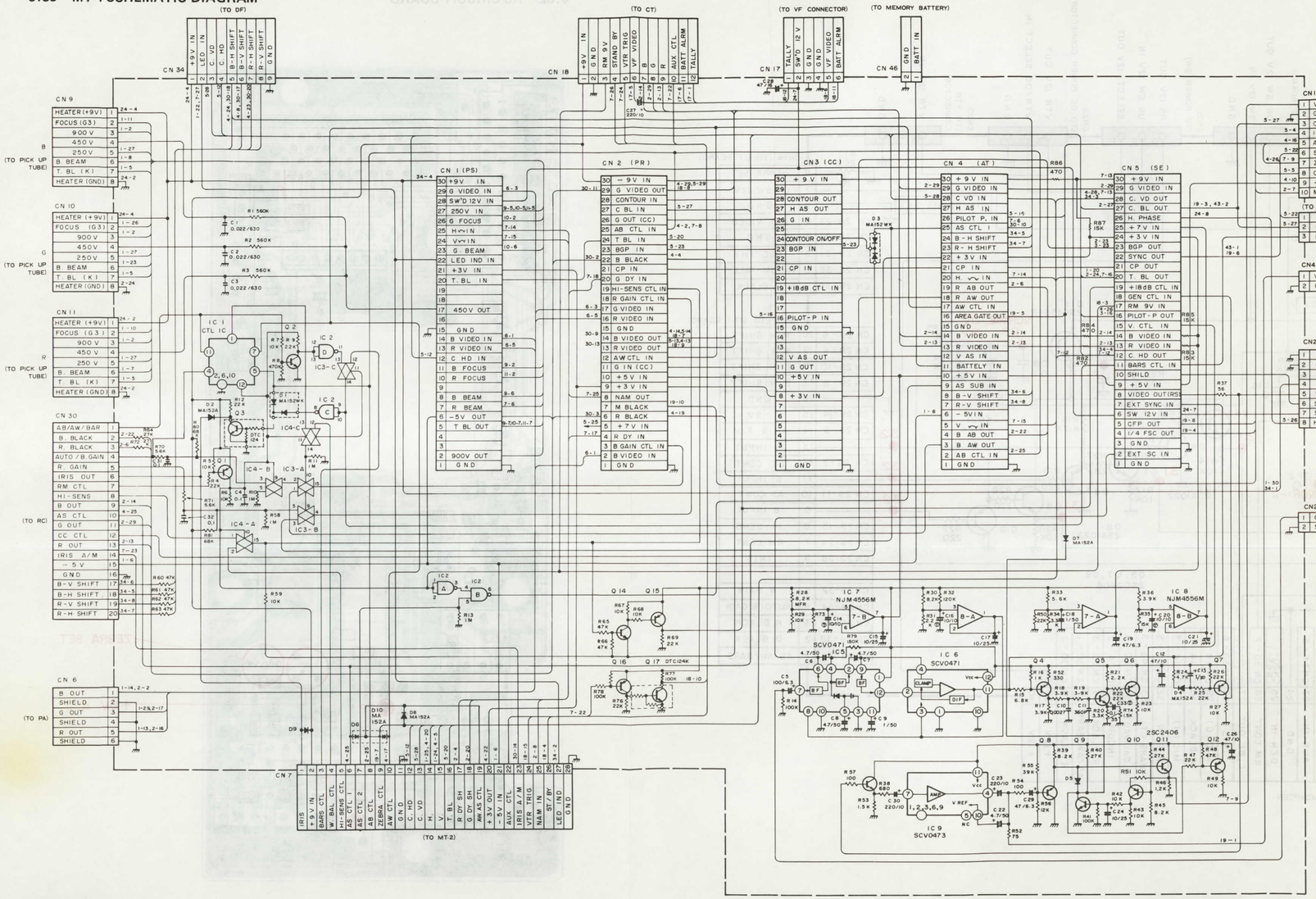
6.32 RC CIRCUIT BOARD



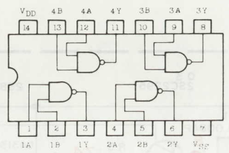
6-19 RC SCHEMATIC & BOARD (MT-1 SCHEMATIC)

RC SCHEMATIC & BOARD (MT-1 SCHEMATIC) 6-19

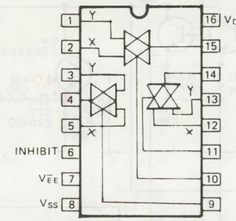
6.33 MT-1 SCHEMATIC DIAGRAM



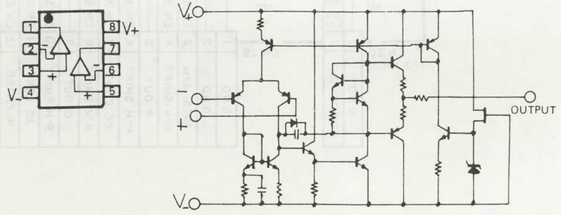
TC40H000F (Quad Two Input HAND Gate) [TOSHIBA]



TC4053BF (Multiplexer/Demultiplexer) [TOSHIBA]

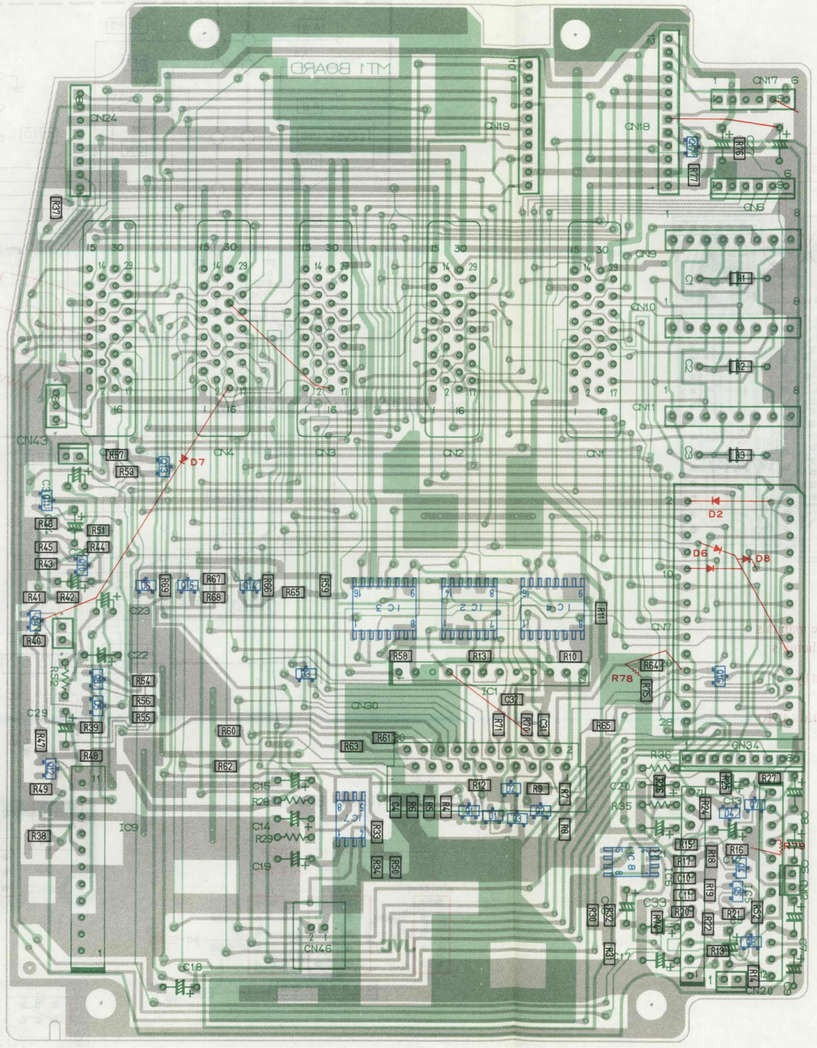


NJM4556M(Dual Op. Amp) [JRC]



MT-1 SCHEMATIC (RC SCHEMATIC & BOARD) 6-20
6-20 MT-1 SCHEMATIC (RC SCHEMATIC & BOARD)

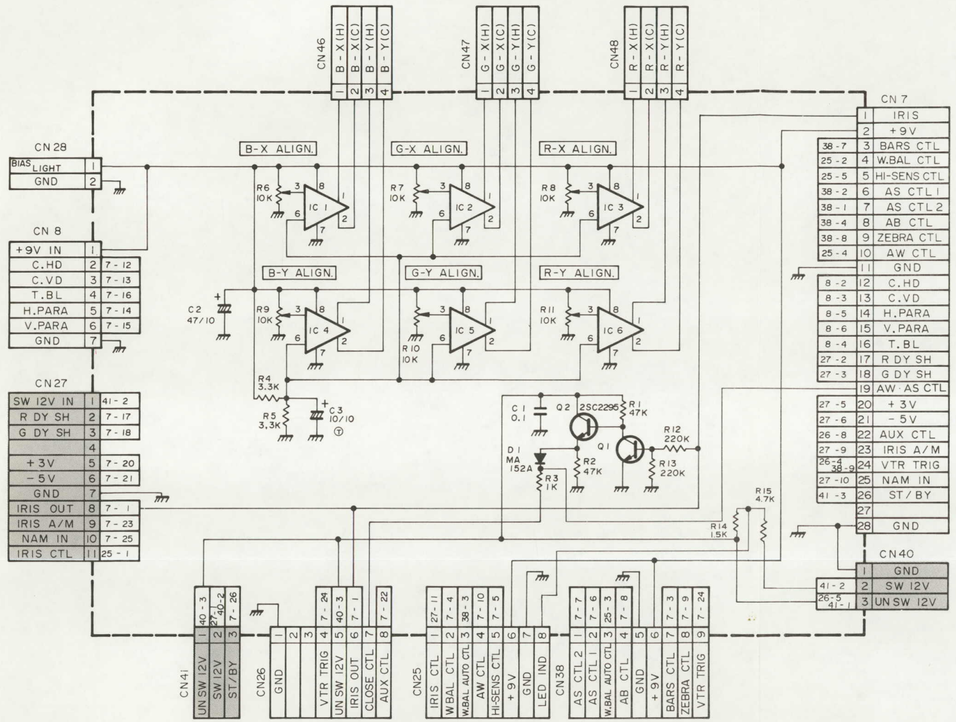
6.34 MT-1 CIRCUIT BOARD



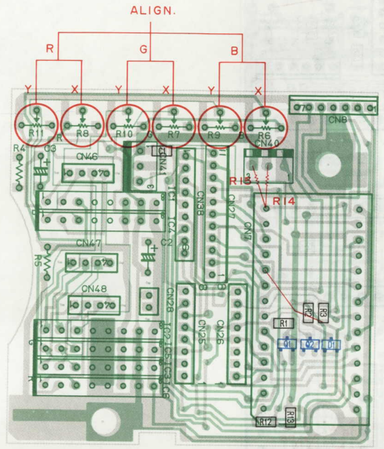
6-21 MT-1 BOARD (MT-2 SW SCHEMATIC & BOARD)

MT-1 BOARD (MT-2 SW SCHEMATIC & BOARD) 6-21

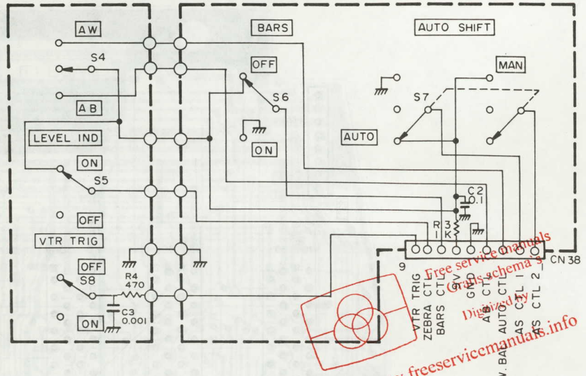
6.35 MT-2 SCHEMATIC DIAGRAM



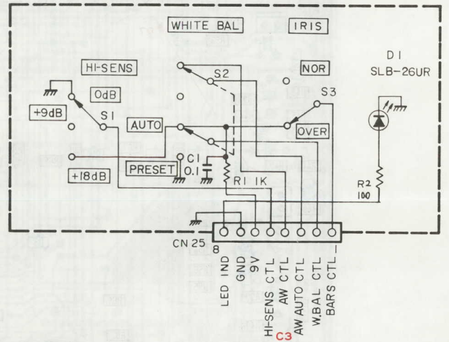
6.36 MT-2 CIRCUIT BOARD



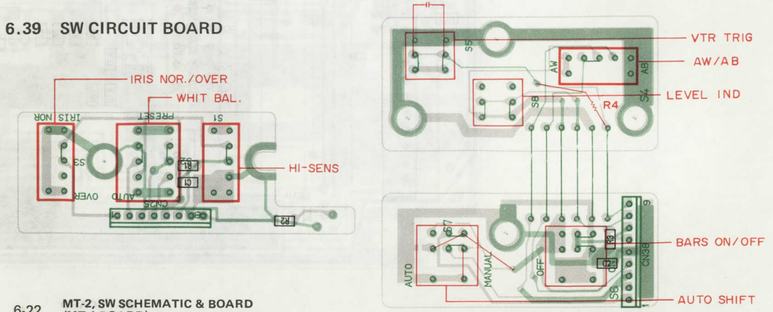
6.37 SW BLOCK DIAGRAM



6.38 SW SCHEMATIC DIAGRAM

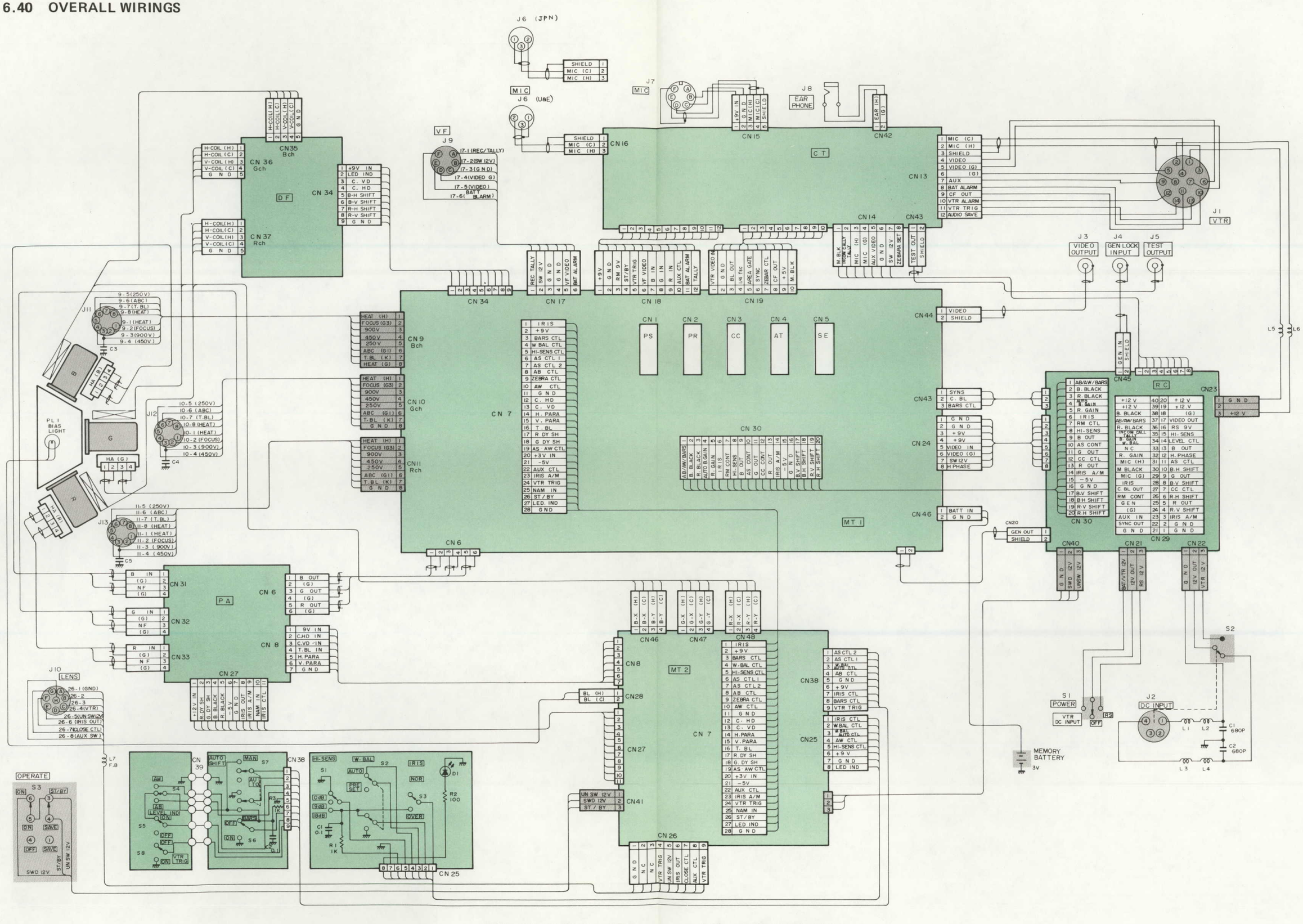


6.39 SW CIRCUIT BOARD

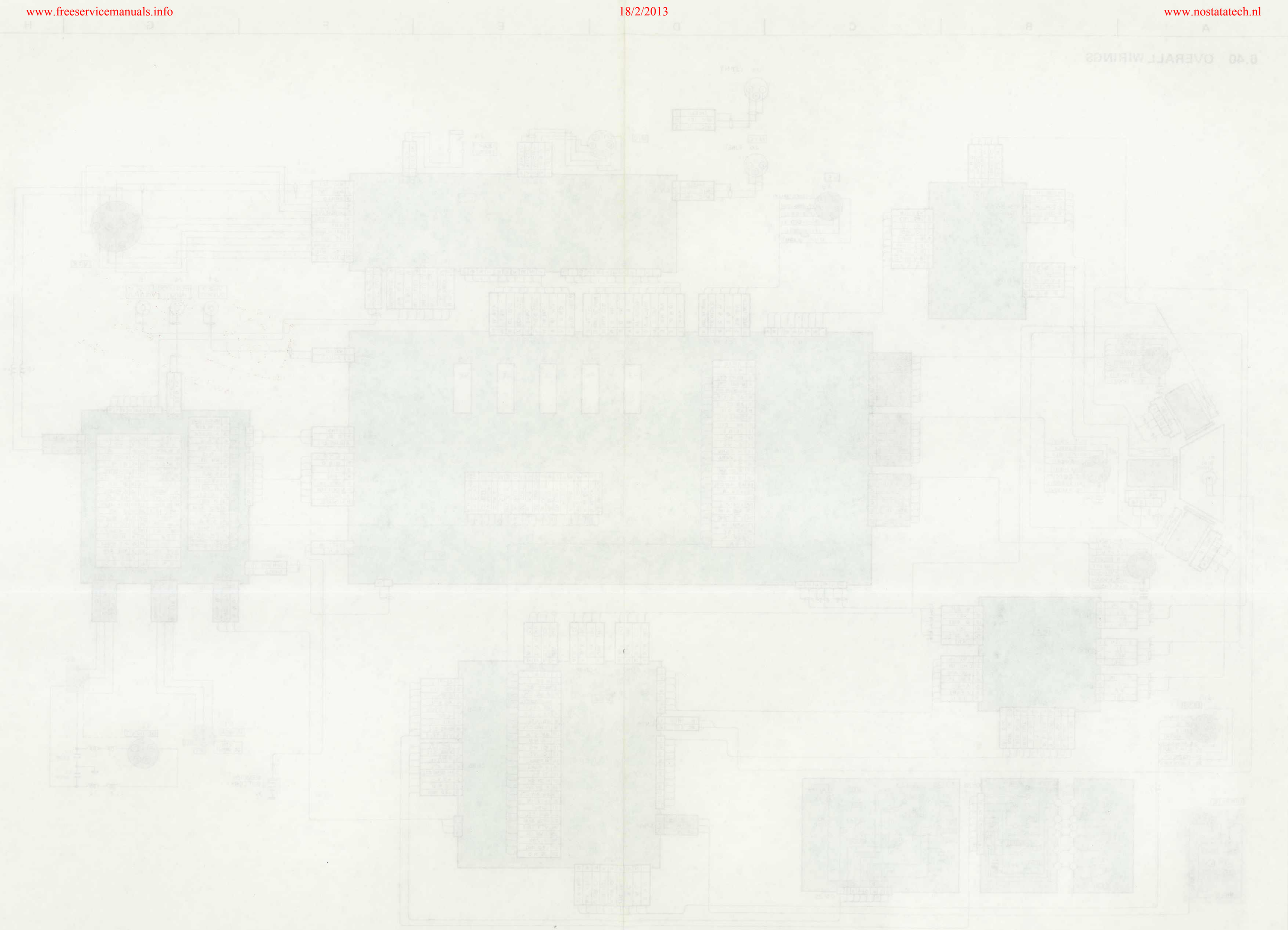


6.22 MT-2, SW SCHEMATIC & BOARD

6.40 OVERALL WIRINGS



6-23 OVERALL WIRINGS



6-24 (OVERALL WIRINGS)

SECTION 7
ELECTRICAL PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers. For maximum reliability and performance, all other replacement parts should be identical to those specified.

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

RESISTORS – All resistance values are in ohms (Ω).

K	:	1 000
M	:	1 000 000
CR	:	Carbon Resistor
Comp. R	:	Composition Resistor
WR	:	Wire Wound Resistor
OMR	:	Oxide Metal Film Resistor
VR	:	Variable Resistor (Potentiometer)
MFR	:	Metal Film Resistor
FR	:	Fusible Resistor

CAPACITORS – All capacitance values are in μF, unless otherwise indicated.

P	:	μμF
C Cap	:	Ceramic Capacitor
E Cap	:	Electrolytic Capacitor
FM Cap	:	Film Mica Capacitor
MM Cap	:	Metalized Mylar Capacitor
MP Cap	:	Metalized Paper Capacitor
MY Cap	:	Mylar Capacitor
NP Cap	:	Non-polar Capacitor
PC Cap	:	Polycarbonate Capacitor
PP Cap	:	Poly Pro Capacitor
PS Cap	:	Polystyrol Capacitor
T Cap	:	Tantalum Capacitor
TR Cap	:	Trimmer Capacitor

7.1 STANDARD PART NUMBER CODING

7.1.1 Chip Resistors (Metal Glaze Resistor)

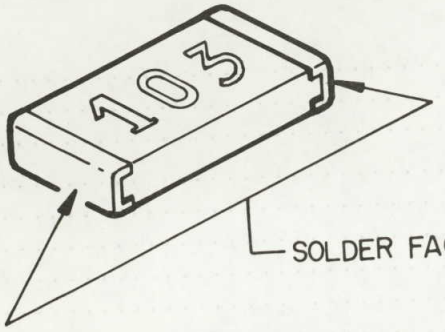


Fig. 7-1

- Resistance values are indicated in code on the side opposite to that facing the PC board. Since resistance values are not indicated in the parts list, use this coding table to identify them.
- Parts are supplied in packs of 5 units.
- Alternative method of replacement is to substitute chip resistors with ordinary carbon resistors type QRD167J.
- Rated wattage is 1/8 W.

QRS188 J - □□□

1/8W Chip Resistor Code — Tolerance — Resistance Value

Symbol	Tolerance	
J	± 5 %	⇨ Standard
K	± 10 %	
M	± 20 %	

Examples:

R47	.....	0.47 Ω
4R7	.....	4.7 Ω
470	.....	47 Ω
471	.....	470 Ω
472	.....	4.7 kΩ
473	.....	47 kΩ
474	.....	470 kΩ
475	.....	4.7 MΩ

7.1.2 Chip Capacitors (Ceramic Capacitor)

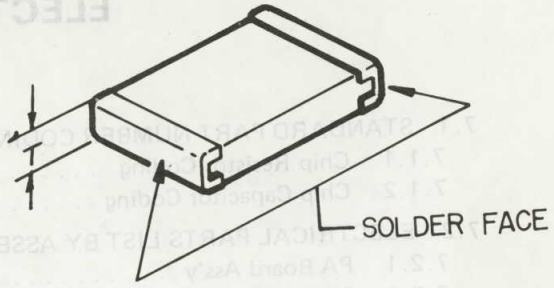
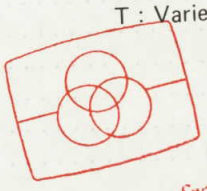


Fig. 7-2

- Capacitance values are not indicated on parts. Refer to schematic diagrams or parts list for capacitance.
- Parts are supplied in packs of 5 units.
- Rated voltage is 50 V.

T : Varies depending on capacitance values.



7.2 ELECTRICAL PARTS LIST BY ASSEMBLIES

7.2.1 PA Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	NJM4558M	IC (M)	JRC
IC 2	"	"	"
IC 3	"	"	"
IC 4	"	"	"
IC 5	"	"	"
IC 6	"	"	"
IC 7	"	"	"
IC 8	"	"	"
IC 9	"	"	"
IC10	"	"	"
D 1	MA152A	Diode	MATSUSHITA
D 2	"	"	"
D 3	"	"	"
D 4	HZ6A1	Z. Diode	6 V HITACHI
Q 1	2SK198(Q)	FET	MATSUSHITA
Q 2	"	"	"
Q 3	2SC2295(B)	Transistor	"
Q 4	—	—	
Q 5	2SK198(Q)	FET	MATSUSHITA
Q 6	"	"	"
Q 7	—	—	
Q 8	2SA1022(B)	Transistor	MATSUSHITA
Q 9	2SK198(Q)	FET	"
Q10	2SC2295(B)	Transistor	"
Q11	2SJ84(Q)	FET	"
Q12	2SK198(Q)	"	"
Q13	2SC2295(B)	Transistor	"
Q14	"	"	"
Q15	"	"	"
Q16	"	"	"
Q101	2SC2480(S)	Transistor	MATSUSHITA
Q102	2SA970(BL)	"	"
Q103	2SC2295(B)	"	"
Q104	"	"	"
Q105	2SK198(Q)	FET	"
Q106	2SC2295(B)	Transistor	"
Q107	"	"	"
Q108	"	"	"
Q109	2SK198(Q)	FET	"
Q110	2SC2295(B)	Transistor	"
Q201	2SC2480(C)	Transistor	MATSUSHITA
Q202	2SA970(BL)	"	"
Q203	2SC2295(B)	"	"
Q204	"	"	"
Q205	2SK198(Q)	FET	"
Q206	2SC2295(B)	Transistor	"
Q207	"	"	"
Q208	"	"	"
Q209	2SK198(Q)	FET	"
Q210	2SC2295(B)	Transistor	"
Q301	2SC2480(S)	Transistor	MATSUSHITA
Q302	2SA970(BL)	"	"
Q303	2SC2295(B)	"	"
Q304	"	"	"
Q305	2SK198(Q)	FET	"
Q306	2SC2295(B)	Transistor	"
Q307	"	"	"
Q308	2SC2295(B)	Transistor	MATSUSHITA
Q309	2SK198(Q)	FET	"
Q310	2SC2295(B)	Transistor	"
R51	SCV0491-204	VR	200K IRES LEVEL
R72	" -104	"	100K H FRAME BAL
R75	" -104	"	100K V FRAME BAL
R81	" -202	"	2K V FRAME CLIP
R84	" -202	"	2K H FRAME CLIP
R106	" -203	"	20K B HF
R112	" -102	"	1K B IN GAIN
R118	" -104	"	100K B-H SAW STATIC
R120	" -104	"	100K B-H PARA STATIC
R122	" -104	"	100K B-V SAW STATIC
R124	" -104	"	100K B-V PARA STATIC
R130	" -104	"	100K B BLK BAL
R150	" -503	"	50K B-V FRAME
R152	" -503	"	50K B-H FRAME
R206	" -203	"	20K G HF
R212	" -102	"	1K G IN GAIN
R218	" -104	"	100K G-H SAW STATIC
R220	" -104	"	100K G-H PARA STATIC
R222	" -104	"	100K G-V SAW STATIC
R224	" -104	"	100K G-V PARA STATIC
R226	" -104	"	100K G-V SAW DY. SH.
R228	" -104	"	100K G-V PARA DY. SH.
R230	" -104	"	100K G BLK BAL
R250	" -503	"	50K G-V FRAME
R252	" -503	"	50K G-H FRAME
R306	" -203	"	20K G HF
R312	" -202	"	2K R IN GAIN
R318	" -104	"	100K R-H SAW STATIC
R320	" -104	"	100K R-H PARA STATIC
R322	" -104	"	100K R-V SAW STATIC
R324	" -104	"	100K R-V PARA STATIC
R326	" -104	"	100K R-V SAW DY. SH.
R328	" -104	"	100 R-V PARA DY. SH.
R330	" -104	"	100K R BLK BAL

Symbol No.	Part No.	Part Name	Description
R350	SCV0491-503	VR	50K R-V FRAME
R352	" -503	"	50K R-H FRAME
C 1	QCS81HJ-220	C Cap	22 P 50 V J
C 2	QFM81HM-472	MY Cap	0.0047 "
C 3	" -102	"	0.001 "
C 4	QEJ41VM-474	T Cap	0.47 35 V
C 5	QEE41VM-474	"	0.47 "
C 6	" -474	"	0.47 "
C 7	QEJ41VM-474	"	0.47 "
C 8	QEPC0JM-476	NP Cap	47 6.3 V
C 9	" -476	"	47 "
C10	QEJ41AM-106	T Cap	10 10 V
C11	QER41EM-106	E Cap	10 25 V
C12	QER40JM-476	"	47 6.3 V
C13	QER41EM-106	"	10 25 V
C14	QEJ41AM-475	T Cap	4.7 10 V
C15	" -475	"	4.7 "
C16	QCF81HZ-104	C Cap	0.1 50 V
C17	QEPC1CM-475	NP Cap	4.7 16 V
C18	QEPC0JM-476	"	47 10 V
C19	" -476	"	47 "
C20	QEJ41AM-106	T Cap	10 "
C21	QETC1AM-227	E Cap	220 "
C22	QEE41AM-226	T Cap	22 "
C23	QER40JM-476	E Cap	47 6.3 V
C24	QER41AM-476	"	47 10 V
C25	QEPC1HM-105	BP Cap	1 50 V
C26	" -106	"	10 "
C27	QER40JM-476	E Cap	47 6.3 V
C28	" -476	"	47 "
C29	QFC81HZ-104	C Cap	0.1 50 V
C30	QEPC0JM-476	NP Cap	47 10 V
C31	QFC81HZ-104	C Cap	0.1 50 V
C32	" -104	"	0.1 "
C33	" -104	"	0.1 "
C34	" -104	"	0.1 "
C101	QAT3001-054	TR Cap	18 P
C102	QCS81HJ-5R0	C Cap	5 P 50 V J
C103	QEJ41AM-106	T Cap	10 10 V
C104	QEE41AM-106	"	10 "
C105	QEJ41VM-105	"	1 35 V
C106	QCS81HJ-220	C Cap	22 P 50 V J
C107	" -120	"	12 P " "
C108	QER41AM-476	E Cap	47 6.3 V
C109	QEPA0JM-476	NP Cap	47
C110	QCF81HZ-104	C Cap	0.1 50 V
C111	QCS81HJ-220	"	22 P " J
C112	QER41EM-106	E Cap	10 25 V
C113	QEJ41AM-106	T Cap	10 10 V
C114	QER41AM-476	E Cap	47 "
C115	QEPC0JM-476	NP Cap	47 "
C116	QCS81HJ-101	C Cap	100 P 50 V J
C117	" -101	"	100 P " "
C118	" -120	"	12 P " "
C201	QAT3001-054	TR Cap	18 P
C202	QCS81HJ-5R0	C Cap	5 P 50 V J
C203	QEJ41AM-106	T Cap	10 10 V
C204	QEJ41AM-106	"	10 "

Symbol No.	Part No.	Part Name	Description
C205	QEJ41VM-105	T Cap	1 35 V
C206	QCS81HJ-220	C Cap	22 P 50 V J
C207	" -7R0	"	7 P " "
C208	QER41AM-476	E Cap	47 6.3 V
C209	QEPC0JM-476	NP Cap	47 "
C210	QCF81HZ-104	C Cap	0.1 50 V
C211	QCS81HJ-220	"	22 P "
C212	QER41EM-106	E Cap	10 25 V
C213	QEJ41AM-106	T Cap	10 10 V
C214	QER41AM-476	E Cap	47 "
C215	QEPC0JM-476	NP Cap	47 "
C216	QCS81HJ-101	C Cap	100 P 50 V J
C217	" -101	"	100 P " "
C218	" -120	"	12 P " "
C301	QAT3001-054	TR Cap	18 P
C302	QCS81HJ-5R0	C Cap	5 P 50 V
C303	QEE41AM-106	T Cap	10 10 V
C304	QEJ41AM-106	"	10 "
C305	QET41VM-105	"	1 35 V
C306	QCS81HJ-220	C Cap	22 P 50 V J
C307	" -120	"	12 P " "
C308	QER41AM-476	E Cap	47 10 V
C309	" -476	"	47 "
C310	QCF81HZ-104	C Cap	0.1 50 V
C311	QCS81HJ-220	"	22 P " J
C312	QER41EM-106	E Cap	10 25 V
C313	QEJ41AM-106	T Cap	10 10 V
C314	QER41AM-476	E Cap	47 "
C315	QEPC0JM-476	NP Cap	47 6.3 V
C316	QCS81HJ-101	C Cap	100 P 50 V J
C317	" -101	"	100 P " "
C318	" -120	"	12 P " "
L 1	SA40318-001	Coil	
L101	SCV0331-180	Peaking Coil	18 μH
L102	" -101	"	100 μH
L201	SCV0331-180	Peaking Coil	18 μH
L202	" -101	"	100 μH
L301	SCV0331-180	Peaking Coil	18 μH
L302	" -101	"	100 μH
CN 6	SCV0441-006	Connector	
CN 8	SCV0441-007	"	
CN27	SCV0441-011	"	
CN31	SCV0441-004	"	
CN32	" -004	"	
CN33	" -004	"	
	SC41587-001	Shield Plate	
	" -002	"	

7.2.2 PR Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	NJM4558M	IC (M)	JRC
IC 2	"	"	"
IC101	SCV0562-001	Function Module (H)	JVC
IC102	NJM1496M	IC (M)	JRC
IC103	SCV0563-001	Function Module (H)	JVC
IC104	SCV0577-001	"	"
IC201	SCV0562-001	Function Module (H)	JVC
IC202	NJM1496M	IC (M)	JRC
IC203	SCV0563-001	Function Module (H)	JVC
IC204	SCV0577-001	"	"
IC301	SCV0562-001	Function Module (H)	JVC
IC302	NJM1496M	IC (M)	JRC
IC303	SCV0563-001	Function Module (H)	JVC
IC304	SCV0577-001	"	"
Q 1	2SC2295(B)	Transistor	MATSUSHITA
Q 2	2SA1022(B)	"	"
Q 3	2SC2295(B)	"	"
Q 4	"	"	"
Q 5	"	"	"
Q 6	DTC124K	"	ROHM
Q 7	2SC2295(B)	"	MATSUSHITA
Q 8	"	"	"
Q 9	"	"	"
Q10	"	"	"
Q11	"	"	"
Q12	"	"	"
Q13	"	"	"
Q14	"	"	"
Q15	"	"	"
Q16	DTC124K	"	ROHM
Q17	"	"	"
Q18	"	"	"
Q19	"	"	"
Q20	2SC2295(B)	"	MATSUSHITA
Q101	–	–	
Q102	2SA1022(B)	Transistor	MATSUSHITA
Q103	2SK198(Q)	FET	"
Q104	2SC2295(B)	Transistor	"
Q105	"	"	"
Q106	2SA1022(B)	"	"
Q107	2SC2295(B)	"	"
Q108	"	"	"
Q109	"	"	"
Q110	2SA1022(B)	"	"
Q111	"	"	"
Q112	2SC2295(B)	"	"
Q113	"	"	"
Q201	–	–	
Q202	2SA1022(B)	Transistor	MATSUSHITA
Q203	2SK198(Q)	FET	"
Q204	2SC2295(B)	Transistor	"
Q205	"	"	"
Q206	2SA1022(B)	"	"
Q207	2SC2295(B)	Transistor	MATSUSHITA
Q208	"	"	"
Q209	"	"	"
Q210	2SA1022(B)	"	"
Q211	"	"	"
Q212	2SC2295(B)	"	"
Q213	"	"	"
Q301	–	–	
Q302	2SA1022(B)	Transistor	MATSUSHITA
Q303	2SK198(Q)	FET	"
Q304	2SC2295(B)	Transistor	"
Q305	"	"	"
Q306	2SA1022(B)	"	"
Q307	2SC2295(B)	"	"
Q308	"	"	"
Q309	"	"	"
Q310	2SA1022(B)	"	"
Q311	"	"	"
Q312	2SC2295(B)	"	"
Q313	"	"	"
D 1	MA152A	Diode	MATSUSHITA
D101	1S2076A	Si Diode	
D102	"	"	
D103	"	"	
D104	"	"	
D201	1S2076A	Si Diode	
D202	"	"	
D203	"	"	
D204	"	"	
D301	1S2076A	Si Diode	
D302	"	"	
D303	"	"	
D304	"	"	
R26	SCV0601-502	VR	5K R BLK
R31	SCV0601-502	VR	5K B BLK
R38	SCV0600-502	VR	5K R FLARE
R58	SCV0600-102	VR	1K R-B MTX
R62	SCV0600-102	VR	1K B-R MTX
R65	SCV0600-102	VR	1K G-R MTX

Symbol No.	Part No.	Part Name	Description
R69	SCV0600-102	VR	1K R-G MTX
R72	SCV0600-102	VR	1K B-G MTX
R76	SCV0600-102	VR	1K G-B MTX
R116	SCV0601-103	VR	10K B KNEE
R128	SCV0601-202	VR	2K B GAMMA
R131	SCV0601-202	VR	2K B GAIN
R138	SCV0601-502	VR	5K B W CLIP
R216	SCV0601-103	VR	10K G KNEE
R228	SCV0601-202	VR	2K G GAMMA
R231	SCV0601-202	VR	2K G GAIN
R238	SCV0601-502	VR	5K G W CLIP
R316	SCV0601-103	VR	10K R KNEE
R328	SCV0601-202	VR	2K R GAMMA
R331	SCV0601-202	VR	2K R GAIN
R338	SCV0601-502	VR	5K R W CLIP
C 1	–	–	
C 2	–	–	
C 3	–	–	
C 4	QER41AM-106	E Cap	10 10 V
C 5	–	–	
C 6	QEE41AM-226	T Cap	22 10 V
C 7	QCF81HZ-104	C Cap	0.1 50 V
C 8	" -104	"	0.1 "
C 9	–	–	
C10	QCF81HZ-104	C Cap	0.1 50 V
C11	QCT81CH-150	"	15 P "
C12	" -330	"	33 P "
C13	QER41AM-476	E Cap	47 10 V
C14	QEJ41AM-226	T Cap	22 "
C15	QER41AM-476	E Cap	47 "
C16	QEE41AM-226	T Cap	22 "
C17	QETC1AM-227	E Cap	220 "
C20	QCS81HJ-470	C Cap	47 P 50 V
C101	–	–	
C102	–	–	
C103	QER41EM-106	E Cap	10 25 V
C104	QFV81HJ-473	NP Cap	0.047 50 V
C105	QEJ41VM-105	T Cap	1 35 V

Symbol No.	Part No.	Part Name	Description
C106	QEJ41VM-106	T Cap	10 35 V
C107	QCS81HJ-390	C Cap	39 P 50 V J
C108	QEE41AM-226	T Cap	22 10 V
C109	QER41EM-106	E Cap	10 25 V
C110	–	–	
C111	QEJ41VM-684	T Cap	0.68 35 V
C112	QER41EM-106	E Cap	10 25 V
C113	QCS81HJ-120	C Cap	12 P 50 V J
C114	" -680	"	68 P " "
C201	QEJ41VM-105	T Cap	1 35 V
C202	–	–	
C203	QER41EM-106	E Cap	10 25 V
C204	QFV81HJ-473	NP Cap	0.047 50 V
C205	QEJ41VM-105	T Cap	1 35 V
C206	" -106	"	10 "
C207	QCS81HJ-390	C Cap	39 P 50 V J
C208	–	–	
C209	QER41EM-106	E Cap	10 25 V
C210	–	–	
C211	QEPC1HM-105	NP Cap	1 50 V
C212	QER41EM-106	E Cap	10 25 V
C213	QCS81HJ-100	C Cap	10 P 50 V J
C214	" -680	"	68 P " "
C301	–	–	
C302	–	–	
C303	QER41EM-106	E Cap	10 25 V
C304	QFV81HJ-473	NP Cap	0.047 50 V
C305	QEJ41VM-105	T Cap	1 35 V
C306	" -106	"	10 "
C307	QCS81HJ-390	C Cap	39 P 50 V J
C308	QEJ41AM-226	T Cap	22 10 V
C309	QER41EM-106	E Cap	10 25 V
C310	–	–	
C311	QEJ41VM-684	T Cap	0.68 35 V J
C312	QER41EM-106	E Cap	10 25 V
C313	QCS81HJ-120	C Cap	12 P 50 V J
C314	" -680	"	68 P " "
L 1	SCV0331-101	Peaking Coil	100 μH
L101	SCV0331-220	Peaking Coil	22 μH
L201	SCV0331-220	Peaking Coil	22 μH
L301	SCV0331-220	Peaking Coil	22 μH
S 1	SCV0403-001	Slide Switch	MATRIX
	SCV0501-001	30-P Connector	

7.2.3 CC Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	NJM1496M	IC (M)	JRC
IC 2	MC1733CP	"	MOTOROLA
IC 3	TL062CP	"	TEXAS
IC 4	MC1733CP	"	MOTOROLA
IC 5	SCV0472-001	Function Module (H)	JVC
IC 6	MC1733CP	IC (M)	MOTOROLA
Q 1	2SC2295(B)	Transistor	MATSUSHITA
Q 2	2SK198(Q)	FET	"
Q 3	2SA1022(B)	Transistor	"
Q 4	2SC2295(B)	"	"
Q 5	2SC2480(S)	"	"
Q 6	"	"	"
Q 7	"	"	"
Q 8	"	"	"
Q 9	"	"	"
Q10	2SA1022(B)	"	"
Q11	2SK198(Q)	FET	"
Q12	2SA1022(B)	Transistor	"
Q13	"	"	"
Q14	2SC2295(B)	"	"
Q15	"	"	"
Q16	"	"	"
Q17	2SA1022(B)	"	"
Q18	2SK198(Q)	FET	"
Q19	"	"	"
Q20	—	—	
Q21	—	—	
Q22	—	—	
Q23	—	—	
Q24	2SK198(Q)	FET	MATSUSHITA
Q25	"	"	"
Q26	"	"	"
Q27	"	"	"
Q28	2SA1022(B)	Transistor	"
Q29	2SC2480(S)	"	"
Q30	"	"	"
Q31	"	"	"
Q32	"	"	"
Q33	2SA1022(B)	"	"
Q34	2SK198(Q)	FET	"
Q35	2SA1022(B)	Transistor	"
Q36	"	"	"
Q37	2SC2295(B)	"	"
Q38	"	"	"
Q39	"	"	"
Q40	2SA1022(B)	"	"
Q41	2SC2295(B)	"	"
Q42	"	"	"
Q43	2SA1022(B)	"	"
Q44	2SC2295(B)	"	"
Q45	2SK198(Q)	FET	"
Q46	2SA1022(B)	Transistor	"
Q47	2SK198(Q)	FET	"
Q48	2SA1022(B)	Transistor	"
Q49	"	"	"
Q50	2SK198(Q)	FET	"
Q51	2SC2295(B)	Transistor	"
Q52	"	"	"
Q53	2SA1022(B)	"	"
Q54	"	"	"

Symbol No.	Part No.	Part Name	Description
D 1	1SS99	Si Diode	
D 2	"	"	
DL 1	SCV0368-001	Delay Line	(NTSC)
	SCV0369-001	"	(PAL)
DL 2	SCV0573-001	"	
DL 3	SCV0572-001	"	
R112	SCV0600-502	VR	5K V. BAL
R119	SCV0601-202	VR	2K V. LEVEL
R132	SCV0601-202	VR	2K H. LEVEL
R151	SCV0600-502	VR	5K LEVEL DEPEND
R162	SCV0600-202	VR	2K NOISE SLICE
C 1	QER41EM-106	E Cap	10 25 V
C 2	QEPC1HM-105	NP Cap	1 50 V
C 3	QER40JM-476	E Cap	47 6.3 V
C 4	QER41AM-476	"	47 10 V
C 5	QCS81HJ-560	C Cap	56 P 50 V J
C 6	QEJ41AM-106	T Cap	10 10 V
C 7	QCF81HZ-104	C Cap	0.1 50 V
C 8	QCS81HJ-330	"	33 P " J
C 9	" -271	"	270 P " "
C10	QCF81HZ-104	"	0.1 "
C11	QCY81HK-103	"	0.01 "
C12	QCS81HJ-151	"	150 P " J
C13	QEJ41AM-106	T Cap	10 10 V
C14	QCF81HZ-104	C Cap	0.1 50 V
C15	" -104	"	0.1 "
C16	" -104	"	0.1 "
C17	QER40JM-476	E Cap	47 6.3 V
C18	" -476	"	47 "
C19	QCS81HJ-100	C Cap	10 P 50 V J
C20	" -100	"	10 P " "
C21	QCF81HZ-104	"	0.1 "
C22	QER41EM-106	E Cap	10 25 V
C23	QER41AM-476	"	47 10 V
C24	QEJ41VM-684	T Cap	0.68 35 V
C25	QEE41VM-684	"	0.68 "
C26	QEJ41VM-684	"	0.68 "
C27	QER40JM-476	E Cap	47 6.3 V
C28	QEJ41CM-225	T Cap	2.2 16 V
C29	QEPC1CM-475	NP Cap	4.7 16 V
C30	QCF81HZ-104	C Cap	0.1 50 V
C31	" -104	"	0.1 "

Symbol No.	Part No.	Part Name	Description
C32	QCS81HJ-100	C Cap	10 P 50 V
C33	QCF81HZ-104	"	0.1 "
C34	–	–	
C35	QEPC1CM-475	NP Cap	4.5 16 V
C36	QCY81HK-473	C Cap	0.0047 50 V
C37	QEJ41AM-106	T Cap	10 10 V
C38	QCF81HZ-104	C Cap	0.1 50 V
C39	" -104	"	0.1 "
C40	" -104	"	0.1 "
C41	QER40JM-476	E Cap	47 6.3 V
C42	" -476	"	47 "
C43	QCS81HJ-100	C Cap	10 P 50 V
C44	" -100	"	10 P "
C45	QCF81HZ-104	"	0.1 "
C46	QCS81HJ-101	"	100 P " J
C47	" -220	"	22 P " "
C48	QER41AM-476	E Cap	47 10 V
C49	QEJ41AM-226	T Cap	22 "
C50	" -476	"	47 "
C51	QEPA1HM-105	BP Cap	1 50 V
C52	QCS81HJ-2R0	C Cap	2 P " J
C53	" -2R0	"	2 P " "
C54	QER41EM-106	E Cap	1 25 V
C55	QCF81HZ-104	C Cap	0.1 50 V
C56	QER40JM-476	E Cap	47 6.3 V
C57	QER41EM-106	"	10 25 V
C58	QER41EM-106	"	1 25 V
C59	QER40JM-107	"	10 6.3 V
C60	QEJ41VM-684	T Cap	0.68 35 V
C61	QCS81HJ-390	C Cap	39 P 50 V J
C62	QCY81HK-103	"	0.001 "
C63	QER40JM-476	E Cap	47 6.3 V
C64	" -476	"	47 "
C65	QER41AM-476	"	47 10 V
C66	QEJ41AM-226	T Cap	22 "
C67	QCF81HZ-104	C Cap	0.1 50 V
C68	QER41AM-476	E Cap	47 10 V
L 1	SCV0331-2R2	Peaking Coil	2.2 μH
L 2	" -2R2	"	2.2 μH
L 3	" -101	"	100 μH
L 4	–	–	
L 5	–	–	
L 6	SCV0331-390	Peaking Coil	39 μH
L 7	" -220	"	22 μH
L 8	" -101	"	100 μH
L 9	–	–	
L10	–	–	
L11	SCV0331-390	Peaking Coil	39 μH
L12	" -121	"	120 μH
L13	SA40318-00A	Choke Coil	
S 1	SCV0403-001	Slide Switch	CONTOUR SW.
	SCV0188-001	OSC	
	SCV0501-001	30-P Connector	

7.2.4 DF Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	SCV0479-001	Function Module (H)	JVC
IC 2	" -001	"	"
IC 3	" -001	"	"
IC 4	AN614	IC (M)	MATSUSHITA
IC 5	"	"	"
IC 6	"	"	"
IC 7	NJM4558M	"	JRC
IC 8	"	"	"
IC 9	NJM3414M	"	"
IC10	NJM4558M	"	"
IC11	"	"	"
Q 1	2SK198(Q)	FET	MATSUSHITA
Q 2	2SC2295(B)	Transistor	"
Q 3	2SA1022(B)	"	"
Q 4	2SD602(Q)	"	"
Q 5	2SC1384(R)	"	"
Q 6	2SA684(R)	"	"
Q 7	2SC1384(R)	"	"
Q 8	2SA1022(B)	"	"
Q 9	"	"	"
Q10	2SC1621(B)	"	"
Q11	2SD763	"	"
Q12	2SK198(Q)	FET	"
Q13	2SB710(Q)	Transistor	"
Q14	2SD602(Q)	"	"
Q15	"	"	"
Q16	2SB710(Q)	"	"
Q17	–	–	
Q18	2SK198(Q)	FET	MATSUSHITA
Q19	DTC124K	Transistor	ROHM
Q20	2SC2295(B)	"	MATSUSHITA
Q21	"	"	"
Q22	2SD602(Q)	"	"
Q23	2SB710(Q)	"	"
Q24	"	"	"
Q25	2SD602(Q)	"	"
Q26	2SK198(Q)	FET	"
D 1	MA152A	Si Diode	MATSUSHITA
D 2	"	"	"
D 3	"	"	"
D 4	1S2076A	"	
D 5	MA152A	"	MATSUSHITA

Symbol No.	Part No.	Part Name	Description
R 1	SCV0600-503	VR	50K R-H PIN
R 3	SCV0600-503	VR	50K B-H PIN
R 5	SCV0600-104	VR	100K B-H BOW
R 7	SCV0600-104	VR	100K R-H BOW
R20	SCV0600-503	VR	50K M-V LIN
R22	SCV0600-104	VR	100K B-V LIN
R24	SCV0600-104	VR	100K R-V LIN
R26	SCV0600-503	VR	50K M-H PIN
R29	SCV0600-502	VR	50K M-V AMP
R36	SCV0600-103	VR	10K B-H SHIFT
R38	SCV0600-502	VR	5K B-V AMP
R40	SCV0600-103	VR	10K B-V SHIFT
R43	SCV0600-103	VR	10K G-H SHIFT
R46	SCV0600-103	VR	10K G-V SHIFT
R48	SCV0600-103	VR	10K R-H SHIFT
R50	SCV0600-502	VR	5K R-V AMP
R52	SCV0600-103	VR	10K R-V SHIFT
R61	SCV0600-503	VR	50K B SKEW
R62	" -503	"	50K G SKEW
R63	" -503	"	50K R SKEW
R70	SCV0600-102	VR	1K M-H LIN
R81	SCV0600-502	VR	5K M-H AMP
R94	GC31875-100C	VR	10 B-H LIN
R99	GC31875-100C	VR	10 G-H AMP
R104	GC31875-100C	VR	10 R-H LIN
R112	SCV0600-103	VR	1K M-V PIN
R119	SCV0600-103	VR	1K B-V TRAP
R120	" -103	"	1K B-V PIN
R129	SCV0600-103	VR	1K R-V TRAP
R130	" -103	"	1K R-V PIN
R144	SCV0600-104	VR	100K R-V BOW
R146	SCV0600-104	VR	100K B-V BOW
R151	SCV0600-104	VR	100K R-H TRAP
R152	" -104	"	100K B-H TRAP

Symbol No.	Part No.	Part Name	Description
C 1	QCS81HJ-220	C Cap	22 P 50 V J
C 2	QFM41HM-472	MY Cap	0.0047 "
C 3	QEJ41AM-226	T Cap	22 10 V
C 4	QFV81HJ-154	MY Cap	0.15 50 V
C 5	QER41EM-106	E Cap	10 25 V
C 6	QFV81HJ-473	MY Cap	0.047 50 V
C 7	QER41HM-475	E Cap	4.7 "
C 8	QEJ40JM-476	T Cap	47 6.3 V
C 9	QER40JM-476	E Cap	47 "
C10	QEPC1CM-106	NP Cap	10 16 V
C11	QEE41AM-226	T Cap	22 10 V
C12	QER41HM-105	E Cap	1 50 V
C13	QER40JM-107	"	100 6.3 V
C14	QEJ40JM-476	T Cap	47 "
C15	QEJ41AM-226	"	22 10 V
C16	QETC1AM-227	E Cap	220 "
C17	QEPC1CM-475	NP Cap	4.7 16 V
C18	QCF81HZ-104	C Cap	0.1 50 V
C19	QER40JM-107	E Cap	100 6.3 V
C20	QER41AM-476	"	47 10 V
C21	QEPC1CM-475	NP Cap	4.7 16 V
C22	QER41AM-476	E Cap	47 10 V
C23	QEPC1CM-475	NP Cap	4.7 16 V
C24	QCF81HZ-104	C Cap	0.1 50 V
C25	QER41HM-105	E Cap	1 "
C26	QER40JM-476	"	47 6.3 V
C27	QETC1AM-227	"	220 10 V
C28	QEJ40JM-476	T Cap	47 6.3 V
C29	QER40JM-476	E Cap	47 "
C30	QCS81HJ-101	C Cap	100 P 50 V J
C31	QCY81HK-682	"	0.0068 " K
C32	QER41EM-106	E Cap	10 25 V
C33	QEPC1CM-106	NP Cap	10 16 V
C34	QER41EM-106	E Cap	10 25 V
C35	QEE41AM-336	"	33 10 V
C36	QEJ41AM-336	T Cap	33 "
C37	QER41AM-476	E Cap	47 "
C38	QCY81HK-393	C Cap	0.039 50 V K
C39	QER41EM-106	E Cap	10 25 V
C40	QETC1AM-227	"	220 10 V
C41	QFM41HM-183	MY Cap	0.018 50 V
C42	QEJ40JM-476	T Cap	47 6.3 V
C43	QEJ41AM-336	"	33 10 V
C44	QEJ40JM-476	"	47 6.3 V
C45	QCS81HJ-270	C Cap	27 P 50 V J
C46	QEJ41AM-226	T Cap	22 10 V
C47	" -226	"	22 "
C48	" -226	"	22 "
C49	QER40JM-476	E Cap	47 6.3 V
C50	" -107	"	100 "
C51	QER41HM-475	"	4.7 50 V
C52	" -475	"	4.7 "
C53	QETA1AM-227	"	220 10 V
C54	QETC1AM-227	"	220 "
C55	QER40JM-476	"	47 6.3 V
C56	QER41HM-475	"	4.7 50 V
C57	" -475	"	4.7 "
C58	QCF81HZ-104	C Cap	0.1 "
C59	QER41HM-475	E Cap	4.7 "
C60	" -475	"	4.7 "
C61	QCF81HZ-104	C Cap	0.1 "
C62	QEPC1CM-106	E Cap	10 16 V
C63	QER40JM-476	"	47 6.3 V
C64	QEE40JM-476	T Cap	47 "
C65	QEPC1CM-106	E Cap	10 16 V

Symbol No.	Part No.	Part Name	Description
C66	QETC1AM-227	E Cap	220 10 V
C67	QEJ40JM-476	T Cap	47 "
C68	QCF81HZ-104	C Cap	0.1 50 V
C69	" -104	"	0.1 "
C70	" -104	"	0.1 "
L 1	GP42267-561	Choke Coil	560 μH
L 2	SCV0170-001	Coil	
L 3	SCV0395-153	Choke Coil	1.5 mH
L 4	SCV0170-001	Coil	
L 5	SCV0395-153	Choke Coil	1.5 mH
L 6	SCV0170-001	Coil	
L 7	SCV0395-153	Choke Coil	1.5 mH
S 1	SCV0403-001	Slide Switch	NTSC–PAL
S 2	SCV0490-001	"	OVER SCAN
T 1	SCV0248-001	LIN. Trans.	
CN34	SCV0440-009	Connector	9-pin
CN35	" -005	"	5-pin
CN36	" -005	"	"
CN37	" -005	"	"

7.2.5 SE Board Ass'y (NTSC) . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	SCV0322-002	Function Module (H)	JVC
IC 2	SCV0486-001	"	"
IC 3	SCV0498-001	"	"
IC 4	SCV0482-001	"	"
IC 5	SCV0483-001	"	"
IC 6	SCV0355-001	"	"
IC 7	AN614	IC (M)	MATSUSHITA
IC 8	"	"	"
IC 9	TC50H000P	"	TOSHIBA
IC10	TC4053BF	"	"
IC11	TC40H004F	"	"
IC12	TC40H000F	"	"
IC13	TC40H004F	"	"
IC14	TC40H008F	"	"
IC15	TC4053BF	"	"
IC16	NJM4560M	"	JRC
IC17	TC40H193F	"	TOSHIBA
Q 1	2SC2295(B)	Transistor	MATSUSHITA
Q 2	"	"	"
Q 3	"	"	"
Q 4	"	"	"
Q 5	"	"	"
Q 6	"	"	"
Q 7	2SA777(R)	"	"
Q 8	2SC2295(B)	"	"
Q 9	"	"	"
Q10	"	"	"
Q11	2SA1022(B)	"	"
Q12	2SC2295(B)	"	"
Q13	2SA1022(B)	"	"
Q14	2SC2295(B)	"	"
Q15	2SA1022(B)	"	"
Q16	2SC2295(B)	"	"
Q17	2SA1022(B)	"	"
Q18	2SK198(Q)	FET	"
Q19	2SC2295(B)	Transistor	"
Q20	"	"	"
Q21	2SA1022(B)	"	"
Q22	"	"	"
Q23	"	"	"
Q24	2SC2295(B)	"	"
Q25	2SK198(Q)	FET	"
Q26	2SC2295(B)	Transistor	"
Q27	"	"	"
Q28	2SA1022(B)	"	"
Q29	2SC2295(B)	"	"
Q30	"	"	"
Q31	2SK198(Q)	FET	"
Q32	2SC2295(B)	Transistor	"
Q33	"	"	"
Q34	2SA1022(B)	"	"
Q35	2SC2295(B)	"	"
Q36	"	"	"
Q37	2SK198(Q)	FET	"
Q38	2SC2295(B)	Transistor	"
Q39	2SA1022(B)	"	"
Q40	2SC2295(B)	"	"
Q41	2SA1022(B)	"	"

Symbol No.	Part No.	Part Name	Description
D 1	MA152A	Si Diode	MATSUSHITA
D 2	"	"	"
D 3	"	"	"
D 4	1S2688G	Vari. Cap Diode	
D 5	MA152A	Si Diode	MATSUSHITA
D 6	"	"	"
D 7	"	"	"
D 8	1S2688G	Vari. Cap Diode	
D 9	MA152A	Si Diode	MATSUSHITA
D10	"	"	"
R28	SCV0380-303	VR	30K H PHASE
R60	SCV0600-202	VR	2K INT. SC FINE
R65	SCV0380-202	VR	2K EXT. SC FINE
R73	SCV0600-501	VR	500 SC LOCK
R88	SCV0600-202	VR	2K Y GAIN
R97	SCV0601-502	VR	5K SYNC LEVEL
R116	SCV0600-201	VR	200 QUAD.
R142	SCV0601-501	VR	500 CHROMA GAIN
R147	SCV0600-103	VR	10K BURST STOP
R148	" -103	"	10K BURST START
R150	SCV0600-502	VR	5K BURST LEVEL
R156	SCV0600-102	VR	1K Q GAIN
R160	SCV0600-103	VR	10K BURST PHASE
R168	SCV0601-102	VR	1K Q CAL BAL
R169	" -102	"	1K I CAL BAL
C 1	QEE41AM-106	T Cap	10 10 V
C 2	QCY81HK-103	C Cap	0.01 50 V K
C 3	QAT3001-011	TR Cap	18 P
C 4	QCT05CH-150	C Cap	15 P 50 V
C 5	QETC1AM-227	E Cap	220 10 V
C 6	QCY81HK-103	C Cap	0.01 50 V K
C 7	QCT81CH-151	"	150 P "
C 8	QCY81HK-103	"	0.01 50 V K
C 9	QEE41AM-106	T Cap	10 10 V
C10	QCF81HZ-104	C Cap	0.1 50 V

Symbol No.	Part No.	Part Name	Description
C11	QCF81HZ-104	C Cap	0.1 50 V
C12	QCY81HK-103	"	0.01 " K
C13	QAT3001-011	TR Cap	18 P
C14	QCT05CH-100	C Cap	10 P 50 V
C15	QCY81HK-103	"	0.01 " K
C16	QCT81CH-101	"	100 P "
C17	" -101	"	100 P "
C18	QCY81HK-333	C Cap	0.033 " K
C19	QEJ41AM-475	T Cap	4.7 10 V
C20	" -106	"	10 "
C21	" -475	"	4.7 "
C22	" -106	"	10 "
C23	QEE41AM-475	"	4.7 "
C24	QCY81HK-333	C Cap	0.033 50 V K
C25	" -103	"	0.001 " "
C26	QCT81CH-220	"	22 P "
C27	QCY81HK-103	"	0.01 " K
C28	QCT81CH-101	"	100 P "
C29	QCY81HK-103	"	0.01 "
C30	QCT81CH-101	"	100 P "
C31	QCY81HK-103	"	0.01 "
C32	QCT81CH-560	"	56 P "
C33	QCY81HK-103	"	0.01 "
C34	QCT81CH-560	"	56 P "
C35	QCY81HK-103	"	0.01 "
C36	" -103	"	0.01 "
C37	" -103	"	0.01 "
C38	QEJ41VM-105	T Cap	1 35 V
C39	QEJ41AM-106	"	10 10 V
C40	QCF81HZ-104	C Cap	0.1 50 V
C41	QCS81HJ-6R0	"	6 P " J
C42	" -150	"	15 P " "
C43	" -3R0	"	3 P " "
C44	" -120	"	12 P " "
C45	" -8R0	"	8 P " "
C46	" -5R0	"	5 P " "
C47	QCF81HZ-104	"	0.1 "
C48	QER41EM-106	E Cap	10 25 V
C49	QCS81HJ-120	C Cap	12 P 50 V J
C50	QCS81HJ-7R0	"	7 P " "
C51	" -7R0	"	7 P " "
C52	" -7R0	"	7 P " "
C53	QER40JM-476	E Cap	47 6.3 V
C54	QCT81CH-151	C Cap	150 P 50 V
C55	QCS81HJ-390	"	39 P " J
C56	QER41EM-106	E Cap	10 25 V
C57	QCY81HK-103	C Cap	0.01 50 V K
C58	" -103	"	0.01 " "
C59	" -103	"	0.01 " "
C60	QCF81HZ-104	"	0.1 "
C61	QCT81CH-101	"	100 P "
C62	" -510	"	51 P "
C63	" -151	"	150 P "
C64	" -101	"	100 P "
C65	QETC1AM-227	E Cap	220 10 V
C66	QCT81CH-101	C Cap	100 P 50 V
C67	QCF81HJ-104	"	0.1 " J
C68	QEJ41VM-105	T Cap	1 35 V
C69	QCY81HK-103	C Cap	0.01 50 V K
C70	" -103	"	0.01 " "
C71	" -103	"	0.01 " "
C72	QER40JM-476	E Cap	47 6.3 V
C73	—	—	
C74	QEJ41VM-105	T Cap	1 35 V
C75	QCY81HK-103	C Cap	0.01 50 V K

Symbol No.	Part No.	Part Name	Description
C76	QER41AM-476	E Cap	47 10 V
C77	QCS81HJ-470	C Cap	47 P 50 V J
C78	QEJ41AM-106	T Cap	10 10 V
C79	QER40JM-107	E Cap	100 "
C80	QCY81HK-103	C Cap	0.01 50 V K
C81	" -103	"	0.01 " "
C82	" -103	"	0.01 " "
C83	QCF81HZ-104	"	0.1 "
C84	QCY81HK-103	"	0.01 " K
C85	QEE41AM-106	T Cap	10 10 V
C86	QCF81HZ-104	C Cap	0.1 50 V
C87	—	—	
C88	QEE41AM-106	T Cap	10 10 V
C89	" -106	"	10 "
C90	QCS81HJ-220	C Cap	22 P 50 V J
C91	QCS81HZ-101	"	100 P "
C92	" -101	"	100 P "
C93	QCT81CH-100	"	10 P "
L 1	SCV0331-820	Peaking Coil	82 μH
L 2	" -220	"	22 μH
L 3	" -120	"	12 μH
L 4	—	—	
L 5	SCV0331-470	Peaking Coil	47 μH
L 6	" -470	"	47 μH
L 7	" -121	"	120 μH
L 8	" -220	"	22 μH
L 9	" -470	"	47 μH
L10	" -100	"	10 μH
L11	" -220	"	22 μH
L12	SA40318-00A	Choke Coil	
DL 1	SCV0565-001	Delay Line	
DL 2	SCV0566-001	"	
X 1	SCV0347-002	Crystal	
X 2	" -002	"	
T 1	GC44286-001	Trans.	
S 1	SCV0389-001	Slide Switch	H. BLK SW.
S 2	" -001	"	V. BLK SW.
S 3	SCV0403-001	"	SPLIT—FULL
S 4	SCV0389-001	"	INT. SC COARSE
S 5	SCV0370-001	"	EXT SC COARSE
S 6	SCV0403-001	"	I SW.
S 7	" -001	"	Q SW.
CN 5	SCV0501-001	30-P Connector	

7.2.6 AT Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	SCV0475-001	Function Module (H)	JVC
IC 2	" -001	"	"
IC 3	" -001	"	"
IC 4	TC4053BF	IC (M)	TOSHIBA
IC 5	SCV0472-001	Function Module (H)	JVC
IC 6	SCV0476-001	"	"
IC 7	" -001	"	"
IC 8	" -001	"	"
IC 9	" -001	"	"
IC10	NJM4558M	IC (M)	JRC
IC11	"	"	"
IC12	SCV0323-002	Function Module (H)	JVC
IC13	" -002	"	"
IC14	—	—	
IC15	NJM4558M	IC (M)	JRC
IC16	"	"	"
IC17	"	"	"
IC18	LM1414N	"	MATSUSHITA
IC19	"	"	"
IC20	TC4066BF	"	TOSHIBA
IC21	TC4071BF	"	"
IC22	"	"	"
Q 1	DTC124K	Transistor	ROHM
Q 2	2SB710(Q)	"	MATSUSHITA
Q 3	DTC124K	"	ROHM
Q 4	"	"	"
Q 5	—	—	
Q 6	—	—	
Q 7	2SC2295(B)	Transistor	MATSUSHITA
Q 8	"	"	"
Q 9	"	"	"
Q10	"	"	"
Q11	"	"	"
Q12	"	"	"
Q13	"	"	"
Q14	"	"	"
Q15	2SK198(Q)	FET	"
Q16	"	"	"
Q17	2SC2295(B)	Transistor	"
D 1	MA152A	Si Diode	MATSUSHITA
D 2	—	—	
D 3	MA152A	Si Diode	MATSUSHITA
D 4	"	"	"
D 5	MA152WK	"	"
D 6	"	"	"
D 7	"	"	"
D 8	MA152 WA	"	"
D 9	—	—	
D10	MA152A	Si Diode	MATSUSHITA
D11	MA152WK	"	"
D12	MA152WA	"	"

Symbol No.	Part No.	Part Name	Description
R 1	SCV0492-202	VR	2K B AW
R 2	" -202	"	2K B AB
R14	SCV0492-202	VR	2K R AB
R18	SCV0492-202	VR	2K R AW
R20	SCV0600-202	VR	2K B-V SHIFT
R21	" -202	"	2K B-H SHIFT
R22	" -202	"	2K R-V SHIFT
R23	" -202	"	2K R-H SHIFT
C 1	QEJ41VM-105	T Cap	1 35 V
C 2	" -105	"	1 "
C 3	" -105	"	1 "
C 4	QER41AM-476	E Cap	47 10 V
C 5	" -476	"	47 "
C 6	" -476	"	47 "
C 7	QEJ40JM-476	T Cap	47 6.3 V
C 8	QCY81HK-103	C Cap	0.01 50 V K
C 9	QER41EM-106	E Cap	10 25 V
C10	" -106	"	10 "
C11	" -106	"	10 "
C12	" -106	"	10 "
C13	" -106	"	10 "
C14	" -106	"	10 "
C15	" -106	"	10 "
C16	" -106	"	10 "
C17	" -106	"	10 "
C18	" -106	"	10 "
C19	QCY81HK-103	C Cap	0.01 50 V K
C20	" -103	"	0.01 " "
C21	" -103	"	0.01 " "
C22	QCF81HZ-104	"	0.1 "
C23	" -104	"	0.1 "
C24	QCY81HK-333	"	0.033 " K
C25	—	—	
C26	QEJ41AM-226	T Cap	22 10 V
C27	QEJ41VM-105	"	1 35 V
C28	QEJ41AM-226	"	22 10 V
C29	QER41EM-106	E Cap	10 25 V
C30	QCS81HJ-270	C Cap	27 P 50 V J
C31	" -470	"	47 P " "
C32	QER41EM-106	E Cap	10 25 V
C33	QER40JM-476	"	47 6.3 V
C34	QCF81HZ-104	C Cap	0.1 50 V
C35	" -104	"	0.1 "
C36	" -104	"	0.1 "
C37	QER41EM-106	E Cap	10 25 V
C38	QCF81HZ-104	C Cap	0.1 50 V
C39	QCS81HJ-121	"	120 P " J
C40	QER40JM-476	E Cap	47 6.3 V
C41	QER41EM-106	"	10 25 V
C42	QEJ41AM-226	T Cap	22 10 V
C43	QER41AM-476	E Cap	47 10 V
C44	QCS81HJ-101	C Cap	100 P 50 V J
C45	QER41EM-106	E Cap	10 25 V

Symbol No.	Part No.	Part Name	Description
C46	QER41EM-106	E Cap	10 25 V
C47	QEJ41AM-226	T Cap	22 10 V
C48	" -106	"	10 "
C49	" -106	"	10 "
C50	QCF81HZ-104	C Cap	0.1 50 V
C51	QER41HM-475	E Cap	4.7 "
C52	" -476	"	4.7 "
C53	QER41EM-106	"	10 25 V
L 1	SCV0331-221	Peaking Coil	220 μH
L 2	PU48530-181	"	180 μH
L 3	SCV0331-820	"	82 μH
S 1	SCV0490-001	Slide Switch	AUTO BLK.
CN 4	SCV0501-001	Connector	30 pin
	SCV0494-012	"	
	SCV0495-012	"	

[AT-2 BOARD]

IC24	SCV0323-002	Function Module (H) JVC	
IC25	" -002	"	"
IC26	NJM3414M	IC (M)	JRC
IC27	"	"	"
IC28	TC4071BF	"	TOSHIBA
IC29	TC4520BF	"	"
IC30	"	"	"
Q21	DTC124K	Transistor	ROHM
Q22	"	"	"
D15	MA152WA	Si Diode	MATSUSHITA
D16	"	"	"
D17	MA152A	"	"
C56	QCF41HZ-104	C Cap	0.1 50 V
	SCV0494-012	Connector	12-pin
	SCV0495-012	"	"

7.2.7 PS Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	CA3130E	IC (M)	RCA
Q 1	2SC2295(B)	Transistor	MATSU SHITA
Q 2	"	"	"
Q 3	2SA1022(B)	"	"
Q 4	2SA777(R)	"	"
Q 5	2SD763-01	"	"
Q 6	2SD814A(Q)	"	"
Q 7	2SC780AG(Y)	"	"
Q 8	"	"	"
Q 9	2SC2295(B)	"	"
Q10	"	"	"
Q11	"	"	"
Q12	"	"	"
Q13	2SA1022(B)	"	"
Q14	2SB792(R)	"	"
Q15	"	"	"
Q16	2SA1022(B)	"	"
Q17	2SB792(R)	"	"
Q18	"	"	"
Q19	2SA1022(B)	"	"
Q20	2SB792(R)	"	"
Q21	"	"	"
Q22	2SA777(R)	"	"
D 1	MA152WK	Si Diode	MATSUSHITA
D 2	RH1S	"	
D 3	1S2076A	"	
D 4	OA91	"	
D 5	1S2076A	"	
D 6	HZ7C2L	Z Diode	7 V HITACHI
D 7	"	"	7 V "
D 8	"	"	7 V "
D 9	HZ6C1L	"	6 V "
R18	SCV0491-203	VR	20K T.BL
R20	SCV0492-504	VR	500K R FOCUS
R21	" -504	"	500K G FOCUS
R22	" -504	"	500K B FOCUS
R37	SCV0491-502	VR	5K B ABC
R39	SCV0491-504	VR	500K B BEAM SET
R41	SCV0491-204	VR	100K B BEAM CLIP
R43	SCV0491-502	VR	5K G ABC
R45	SCV0491-504	VR	500K G BEAM SET
R47	SCV0491-204	VR	200K G BEAM CLIP
R49	SCV0491-502	VR	5K R ABC
R67	SCV0491-504	VR	500K R BEAM SET
R69	SCV0491-204	VR	200K R BEAM CLIP

Symbol No.	Part No.	Part Name	Description
C 1	QCF81HZ-104	C Cap	0.047 50 V
C 2	QER41HM-475	E Cap	4.7 "
C 3	QER41AM-476	"	47 10 V
C 4	QCS81HJ-221	C Cap	220 P 50 V J
C 5	QER41HM-105	E Cap	1 "
C 6	QEJ41AM-476	T Cap	47 10 V
C 7	QETC1AM-227	E Cap	220 "
C 8	QFM42DK-123	PP Cap	0.012 200 V
C 9	SCV0385-223	"	0.022 1 kV
⚠ C10	QFH42JM-223	"	0.022 630 V
⚠ C11	SCV0058-104	"	0.1 400 V
⚠ C12	SCV0181-104	"	0.1 250 V
C13	QET42CR-105	E Cap	1 160 V
⚠ C14	SCV0181-104	PP Cap	0.1 250 V
⚠ C15	" -104	"	0.1 "
⚠ C16	" -104	"	0.1 "
C17	QER41EM-106	E Cap	10 25 V
C18	QER40JM-476	"	47 6.3 V
C19	QETC2AM-105	"	1 100 V
C20	" -105	"	1 100 V
C21	" -105	"	1 100 V
C22	" -105	"	1 100 V
C23	QCS81HJ-102	C Cap	1000 P 50 V J
C24	QCS81HJ-101	"	100 P " J
C25	QER41EM-106	E Cap	10 10 V
C26	QER40JM-476	"	47 6.3 V
C27	QEJ41AM-226	T Cap	22 10 V
C28	QCS81HJ-391	C Cap	390 P 50 V J
C29	QET42CR-105	E Cap	1 160 V
C30	QCS81HJ-391	C Cap	390 P 50 V J
C31	QET42CR-105	E Cap	1 160 V
C32	QCS81HJ-391	C Cap	390 P 50 V J
C33	QET42CR-105	E Cap	1 160 V
C34	QEJ41AM-226	T Cap	22 10 V
C35	QETC1AM-227	E Cap	220 "
C36	" -227	"	220 "
C37	QER41AM-476	"	47 "
C38	" -476	"	47 "
L 1	SA40318-00A	Choke Coil	
⚠ T 1	SCV0488-001	F.B. Trans.	
⚠ CN 1	SCV0501-001	Connector	30-pin

7.2.8 CT Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	TC4053BF	IC (M)	TOSHIBA
IC 2	AN6913	"	MATSUSHITA
IC 3	TA78L009AP	"	9 V TOSHIBA
IC 4	–	–	
IC 5	SCV0478-001	Function Module (H)	JVC
IC 6	SCV0236-001	"	"
IC 7	SCV0473-001	"	"
IC 8	μPC592H	IC (M)	NEC
Q 1	2SA1022(B)	Transistor	MATSUSHITA
Q 2	2SC2295(B)	"	"
Q 3	–	–	
Q 4	2SC2295(B)	Transistor	MATSUSHITA
Q 5	"	"	"
Q 6	"	"	"
Q 7	2SA1022(B)	"	"
Q 8	2SC2295(B)	"	"
Q 9	"	"	"
Q10	"	"	"
Q11	2SA1022(B)	"	"
Q12	2SC2295(B)	"	"
D 1	HZ5B1	Z. Diode	5 V HITACHI
D 2	MA152WK	Si Diode	MATSUSHITA
D 3	MA152A	"	"
D 4	"	"	"
R13	SCV0379-503	VR	50K M BLK
C 1	QER41EM-106	E Cap	10 10 V
C 2	QER41EM-106	"	10 25 V
C 3	–	–	
C 4	QCY81HK-103	C Cap	0.01 50 V K
C 5	QER41AM-476	E Cap	47 10 V
C 6	QER41EM-106	"	10 25 V
C 7	QER40JM-476	"	10 35 V
C 8	QER41AM-476	"	47 10 V
C 9	QEPC1CM-106	"	10 16 V
C10	QCF81HZ-104	C Cap	0.01 50 V
C11	" -104	"	0.01 "
C12	QER41EM-106	E Cap	10 25 V
C13	QCS41HJ-3R0	C Cap	3 P 50 V J
C14	QEJ41AM-106	T Cap	10 10 V
C15	QER41AM-476	E Cap	47 "
C16	QER40JM-476	"	47 6.3 V
C17	QER40JM-476	"	47 35 V
C18	QETC1AM-227	"	220 10 V

Symbol No.	Part No.	Part Name	Description
C19	QER41HM-105	E Cap	4.7 50 V
C20	QCF81HZ-104	C Cap	0.01 "
C21	QER41EM-106	E Cap	10 25 V
C22	QCY81HK-682	C Cap	0.0068 50 V K
C23	QER41HM-105	E Cap	1 "
C24	QCS81HJ-121	C Cap	120 P " J
C25	QER41EM-106	E Cap	10 25 V
C26	QER41AM-476	"	47 10 V
C27	" -476	"	47 "
C28	QER41EM-106	"	10 25 V
C29	QCY81HK-103	C Cap	0.1 50 V K
S 1	SCV0493-043	Slide Switch	VF SELECT SW
S 2	" -043	"	"
S 3	SCV0497-342	"	MIC LEVEL
S 4	SCV0493-042	"	VTR L/B
⚠ CN13	SCV0440-012	Connector	12-pin
⚠ CN14	SCV0441-008	"	8-pin
⚠ CN15	SCV0440-005	"	5-pin
⚠ CN16	" -003	"	3-pin
⚠ CN42	SCV0440-002	Connector	2-pin
⚠ CN43	" -002	"	"

7.2.9 RC Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	TA78L008AP	IC (M)	TOSHIBA
IC 2	CA3130E	"	RCA
IC 3	SCV0473-001	Function Module (H)	JVC
Q 1	2SB856(C)	Transistor	MATSUSHITA
Q 2	2SC1384(R)	"	"
Q 3	2SC2295(B)	"	"
Q 4	"	"	"
Q 5	2SC2406(S)	"	"
Q 6	2SA1022(B)	"	"
Q 7	2SC2406(S)	"	"
Q 8	2SA1022(B)	"	"
Q 9	2SC2406(S)	"	"
Q10	2SA1022(B)	"	"
Q11	2SC1384(R)	"	"
R 7	SCV0491-102	VR	1K +9 V ADJ
R11	SCV0600-203	VR	20K ZEBRA SET
C 1	QER41EM-106	E Cap	10 25 V
C 2	" -106	"	10 "
C 3	QER41HM-475	"	4.7 50 V
C 4	QCS81HJ-470	C Cap	47 P " J
C 5	QCF81HZ-104	"	0.1 "
C 6	QETC1AM-227	E Cap	220 10 V
C 7	" -227	"	220 "
C 8	QCF81HZ-104	C Cap	0.1 50 V
C 9	—	"	68 P "
C10	QER41AM-476	E Cap	47 10 V
C11	QETC1AM-227	"	220
C12	QER41HM-475	"	4.7 50 V
C13	QEJ41AM-226	T Cap	22 10 V
C14	" -106	"	10 "
C15	QER41AM-476	E Cap	47 "
C16	QCF81HZ-104	C Cap	0.1 50 V
C17	QETC1AM-227	E Cap	220 10 V
⚠ CN20	SCV0441-002	Connector	2-pin
⚠ CN21	SS30662-003	"	
⚠ CN22	" -003	"	
⚠ CN23	" -003	"	
⚠ CN29	SCV0525-001	Connector	40-pin
⚠ CN30	SS31053-020	"	20-pin
⚠ CN40	SS30662-003	Connector	
⚠ CN45	SCV0441-002	Connector	2-pin

7.2.10 SW Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
C 1	QCF81HZ-104	C Cap	0.1 50 V
C 2	" -104	"	0.1 "
C 3	QCY81HK-103	"	0.01 " K
S 1	SCV0516-A13HB2	Toggle Switch	HI SENS
S 2	SCV0339-002	"	WHITE BAL.
S 3	SCV0337-002	"	IRIS
S 4	SCV0516-A18JB2	"	AW/AB
S 5	SCV0469-001	Push Switch	LEVEL IND.
S 6	SCV0516-A22JH	Toggle Switch	BARS
S 7	" -A2SJH	"	AUTO SHIFT
S 8	SCV0469-001	Push Switch	VTR TRIG.
	SLB-26UR50-154	LED	

7.2.11 MT-1 Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	SCV0484-001	Function Module (H)	JVC
IC 2	TC40H000F	IC (M)	TOSHIBA
IC 3	TC4053BF	"	"
IC 4	"	"	"
IC 5	SCV0471-001	Function Module (H)	JVC
IC 6	" -011	"	"
IC 7	NJM4556M	IC (M)	JRC
IC 8	"	"	"
IC 9	SCV0473-011	Function Module (H)	JVC
Q 1	2SA1022(B)	Transistor	MATSUSHITA
Q 2	2SC2295(B)	"	"
Q 3	DTC124K	"	ROHM
Q 4	2SA1022(B)	"	MATSUSHITA
Q 5	2SC2295(B)	"	"
Q 6	2SA1022(B)	"	"
Q 7	"	"	"
Q 8	"	"	"
Q 9	2SC2295(B)	"	"
Q10	2SA1022(B)	"	"
Q11	2SC2406(S)	"	"
Q12	2SA1022(B)	"	"
Q13	2SC2295(B)	"	"
Q14	"	"	"
Q15	2SA1022(B)	"	"
Q16	"	"	"
Q17	DTC124K	"	ROHM
D 1	MA152WK	Si Diode	MATSUSHITA
D 2	MA152A	"	"
D 3	MA152WK	"	"
D 4	MA152A	"	"
D 5	"	"	"
D 6	MA152A	"	"
D 7	"	"	"
D 8	"	"	"
D 9	"	"	"
D10	"	"	"
C 1	QFH42JM-223	P Cap	0.022 630 V
C 2	" -223	"	0.022 "
C 3	" -223	"	0.022 "
C 4	QCF81HZ-104	C Cap	0.1 50 V
C 5	QER40JM-107	E Cap	100 6.3 V
C 6	QER41HM-475	"	4.7 50 V
C 7	" -475	"	4.7 "
C 8	" -475	"	4.7 "
C 9	" -105	"	1 "
C10	QCY81HK-272	C Cap	0.0027 " K
C11	QCS81HJ-561	"	560 P "
C12	QER41AM-476	E Cap	47 10 V
C13	QER41HM-105	"	1 50 V
C14	QER41AM-106	T Cap	10 10 V
C15	QER41EM-106	E Cap	10 25 V
C16	QEJ41AM-106	T Cap	10 10 V
C17	QER41EM-106	E Cap	10 25 V
C18	QER41HM-105	"	1 50 V
C19	QER40JM-476	"	4.7 6.3 V

Symbol No.	Part No.	Part Name	Description
C20	QEJ41AM-106	T Cap	10 10 V
C21	QER41EM-106	E Cap	10 25 V
C22	QER41HM-105	"	1 50 V
C23	QETA1AM-227	"	220 10 V
C24	QER41EM-106	"	10 25 V
C25	—	—	
C26	QER41AM-476	E Cap	47 10 V
C27	QETC1AM-227	"	220
C28	QER41CM-476	"	47 16 V
C29	QER40JM-476	"	47 6.3 V
C30	QETA1AM-221	"	220 10 V
C31	QCF81HZ-104	C Cap	0.1 50 V
C32	" -104	"	0.1 "
C33	QEJ41VM-104	T Cap	0.1 35 V
⚠ CN 1	SCV0500-001	30-P Connector	
⚠ CN 2	" -001	"	
⚠ CN 3	" -001	"	
⚠ CN 4	" -001	"	
⚠ CN 5	" -001	"	
⚠ CN 6	—	—	
⚠ CN 7	SC30060-005	Flat Cable Ass'y	
⚠ CN 8	—	—	
⚠ CN 9	SS30644-008	Connector	
⚠ CN10	" -008	"	
⚠ CN11	" -008	"	
⚠ CN17	SCV0440-006	Connector	6-pin
⚠ CN18	" -012	"	12-pin
⚠ CN19	" -010	"	10-pin
⚠ CN24	SCV0440-008	Connector	8-pin
⚠ CN30	SS31053-020	Card Fit R.	
⚠ CN43	SCV0440-003	Connector	3 pin
⚠ CN44	SCV0440-002	"	2 pin
⚠ CN46	SCV0441-002	Connector	2 pin

7.2.12 MT-2 Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	SCV0489-001	Function Module (H) JVC	
IC 2	" -001	"	"
IC 3	" -001	"	"
IC 4	" -001	"	"
IC 5	" -001	"	"
IC 6	" -001	"	"
Q 1	2SC2295(B)	Transistor	MATSUSHITA
Q 2	"	"	"
D 1	MA152A	Si Diode	MATSUSHITA
R 6	SCV0601-103	VR	10K B-X ALIGN
R 7	" -103	"	10K G-X ALIGN
R 8	" -103	"	10K R-X ALIGN
R 9	SCV0492-103	"	10K B-Y ALIGN
R10	" -103	"	10K G-Y ALIGN
R11	" -103	"	10K R-Y ALIGN
C 1	QCF81HZ-104	C Cap	0.1 50 V
C 2	QER41AM-476	E Cap	47 10 V
C 3	QEJ41AM-106	T Cap	10 "
⚠ CN25	SCV0440-008	Connector	8-pin
⚠ CN26	" -008	"	"
⚠ CN28	SCV0440-002	Connector	2-pin
⚠ CN38	SCV0440-009	Connector	9-pin
⚠ CN41	SS30644-003	Connector	3-pin
⚠ CN46	SCV0440-004	Connector	4-pin
⚠ CN47	" -004	"	"
⚠ CN48	" -004	"	"

7.2.5-P SE Board Ass'y . . . . . Not Available

Symbol No.	Part No.	Part Name	Description
IC 1	SCV0532-001	Function Module (H)	JVC
IC 2	AN614	Integrated Circuit (M)	MATSUSHITA
IC 3	"	"	"
IC 4	SCV0533-001	Function Module (H)	JVC
IC 5	TC40H193F	Integrated Circuit (M)	TOSHIBA
IC 6	SCV0486-001	Function Module (H)	JVC
IC 7	SCV0322-002	" (M)	"
IC 8	SN74LS93	Integrated Circuit (M)	
IC 9	NJM4560M	" (M)	
IC10	TC4053BF	" (M)	
IC11	SCV0498-001	Function Module (H)	
IC12	SCV0355-001	" (H)	
IC13	SCV0564-001	" (H)	
IC14	AN614	Integrated Circuit (M)	
IC15	SCV0499-001	Function Module (H)	
IC16	AN614	Integrated Circuit (M)	
IC17	TC50H000P	" (M)	
IC18	TC4053BF	" (M)	
IC19	TC40H008F	" (M)	
IC20	TC40H000F	" (M)	
IC21	TC40H004F	" (M)	
IC22	"	" (M)	
IC23	TC4053BF	" (M)	
Q 1	2SC2295(B)	Si. Transistor	
Q 2	"	"	
Q 3	"	"	
Q 4	2SJ84(Q)	"	
Q 5	2SC2295(B)	"	
Q 6	"	"	
Q 7	2SA777(R)	"	
Q 8	2SC2295(B)	"	
Q 9	"	"	
Q10	"	"	
Q11	2SA1022(B)	"	
Q12	"	"	
Q13	2SK198(Q)	FET	
Q14	2SC2295(B)	Si Transistor	
Q15	"	"	
Q16	2SA1022(B)	"	
Q17	"	"	
Q18	2SD602(Q)	"	
Q19	2SC2295(B)	"	
Q20	"	"	
Q21	2SK198(Q)	FET	
Q22	2SC2295(B)	Si Transistor	
Q23	"	"	
Q24	"	"	
Q25	2SA1022(B)	"	
Q26	2SC2295(B)	"	
Q27	2SA1022(B)	"	
Q28	2SC2295(B)	"	
Q29	2SA1022(B)	"	
Q30	2SC2295(B)	"	
Q31	2SK198(Q)	"	
Q32	2SC2295(B)	"	
Q33	"	"	
Q34	2SK198(Q)	FET	
Q35	2SC2295(B)	Si. Transistor	

Symbol No.	Part No.	Part Name	Description
Q36	2SA1022(B)	Si. Transistor	
Q37	2SC2295(B)	"	
Q38	"	"	
Q39	2SK198(Q)	F.E.T	
Q40	2SC2295(B)	Si. Transistor	
Q41	2SA1022(B)	"	
Q42	2SC2295(B)	"	
Q43	"	"	
D 1	MA152A	Si. Diode	
D 2	"	"	
D 3	"	"	
D 4	SVC321(A)	"	
D 5	"	"	
D 6	MA152A	"	
D 7	1S2076A	"	
D 8	"	"	
D 9	"	"	
D10	MA152A	"	
D11	"	"	
D12	"	"	
R17	SCV0380-202	VR	2 K SC FINE
R33	SCV0380-303	VR	30 K H. PHASE
R51	SCV0600-102	VR	1 K SC LOCK
R102	SCV0600-202	VR	2 K Y GAIN
R109	SCV0601-502	VR	5 K SYNC LEVEL
R128	SCV0600-501	VR	500 QUAD PHASE
R135	SCV0600-201	VR	200 W BAL. 1
R151	SCV0600-201	VR	200 W. BAL. 2
R159	SCV0600-102	VR	1 K U GAIN
R162	SCV0600-103	VR	10 K BURST LEVEL
R172	SCV0601-102	VR	1 K C. BAL
R173	" -102	"	1 K C. BAL
R174	SCV0600-102	"	1 K C. BAL
R178	SCV0600-103	VR	10 K BURST START
R179	" -103	"	10 K BURST STOP
R181	SCV0600-502	VR	5 K BURST PHASE
R188	SCV0601-501	VR	500 CHROMA GAIN

Symbol No.	Part No.	Part Name	Description	
C 1	QEE41AM-106	T Cap	10	10 V
C 2	QCY81HK-103	C Cap	0.01	50 V
C 3	QCT41CH-220	"	22 P	16 V
C 4	QCY81HK-103	"	0.01	50 V
C 5	QCT81CH-101	"	100 P	16 V
C 6	QCY81HK-103	"	0.01	50 V
C 7	QCT81CH-101	"	100 P	16 V
C 8	QEE41AM-226	T. Cap	22	10 V
C 9	QCY81HK-103	"	0.01	"
C10	QCT41CH-560	"	56 P	16 V
C11	QCF81HZ-104	C Cap	0.1	50 V
C12	QCS81HJ-221	"	220 P	50 V
C13	QCY81HK-103	"	0.01	50 V
C14	" -103	"	0.01	"
C15	QCT81CH-101	"	100 P	16 V
C16	QCY81HK-103	"	0.01	50 V
C17	QEE41VM-105	E Cap	1	35 V
C18	–	–		
C19	QCF81HZ-103	C Cap	0.01	50 V
C20	QCT81CH-151	"	150 P	16 V
C21	QCF81HZ-104	"	0.1	50 V
C22	QETA1AM-227	E Cap	220	10 V
C23	QER41AM-476	"	47	"
C24	QCT81CH-101	C Cap	100 P	16 V
C25	QCY81HK-333	"	0.033	50 V
C26	QEE41AM-475	T Cap	4.7	10 V
C27	–	–		
C28	QCS81HJ-561	C Cap	560 P	50 V
C29	QEE41AM-475	T Cap	4.7	10 V
C30	–	–		
C31	–	–		
C32	–	–		
C33	–	–		
C34	–	–		
C35	–	–		
C36	–	–		
C37	–	–		
C38	–	–		
C39	–	–		
C40	–	–		
C41	–	–		
C42	–	–		
C43	–	–		
C44	–	–		
C45	–	–		
C46	–	–		
C47	–	–		
C48	–	–		
C49	–	–		
C50	QEE41AM-106	T Cap	10	10 V
C51	QCY41HK-103	C Cap	0.01	50 V
C52	QEE41AM-106	T Cap	10	10 V
C53	" -106	"	10	"
C54	QEJ61AM-106	"	10	"
C55	QETA1AM-227	"	220	10 V
C56	QCT81CT-560	C Cap	56 P	16 V
C57	QAT3001-011	TR Cap	SC FREQ	
C58	QCT05UJ-100	C Cap	10 P	
C59	QCS81HJ-470	"	47 P	50 V
C60	QAT3001-011	TR Cap	282 fh ADJ.	
C61	QCT05CH-151	C Cap	150 P	
C62	QCF81HZ-104	"	0.1	50 V
C63	" -104	"	0.1	"
C64	QER41AM-476	E Cap	47	10 V
C65	QEE41AM-106	T Cap	10	"

Symbol No.	Part No.	Part Name	Description	
C66	QEE41AM-106	T Cap	10	10 V
C67	QCS81HJ-330	"	33 P	50 V
C68	QCY81HK-103	"	0.01	"
C69	QER40JM-476	E Cap	47	6.3 V
C70	QEE40JM-476	T Cap	47	"
C71	QCY81HK-103	C Cap	0.01	50 V
C72	" -103	"	0.01	"
C73	QER40JM-476	E Cap	47	6.3 V
C74	QCT81CH-101	C Cap	100 P	16 V
C75	QCY81HZ-104	"	0.1	50 V
C76	" -102	"	0.1	"
C77	QCF81HZ-104	"	0.1	"
C78	QCS81HJ-6R0	"	6 P	"
C79	" -150	"	15 P	"
C80	–	–		
C81	–	–		
C82	–	–		
C83	QEJ41EM-106	E Cap	10	25 V
C84	QEE41AM-106	T Cap	10	10 V
C85	QER41EM-106	E Cap	10	25 V
C86	QCS81HJ-560	C Cap	56	50 V
C87	QER41AM-476	E Cap	47	10 V
C88	QER41EM-105	"	10	25 V
C89	QCS81HJ-6R0	"	6 P	50 V
C90	QCS81HJ-101	C Cap	100 P	"
C91	QER40JM-476	E Cap	47	6.3 V
C92	QCT81CH-121	C Cap	120 P	16 V
C93	QCY81HK-103	"	0.01	50 V
C94	QCT81CH-121	"	12 P	16 V
C95	" -560	"	56 P	"
C96	QEJ41VM-105	T Cap	1	35 V
C97	QCY81HK-103	C Cap	0.01	50 V
C98	QCF81HZ-104	"	0.01	"
C99	" -104	"	0.01	"
C100	–	–		
C101	QCF81HZ-104	"	120 P	16 V
C102	" -560	"	56 P	"
C103	QCF81HZ-104	C Cap	0.1	50 V
C104	QEE41VM-105	T Cap	1	35 V
C105	QCY81HK-103	C Cap	0.01	50 V
C106	QCF81HZ-104	"	0.01	"
C107	QCY81HK-103	"	0.01	"
C108	QER41EM-106	E Cap	10	25 V
C109	QCT81CH-220	"	22 P	16 V
C110	" -120	C Cap	10	"
C111	QCF81HZ-104	"	10	"
C112	QCT81CH-180	"	18 P	"
C113	" -330	"	33 P	"
C114	" -390	"	39 P	"
C115	QCY81HK-103	"	0.01	50 V
C116	QCF81HZ-560	"	56	"
C117	QER60JM-107	E Cap	10	6.3 V
C118	QCF81HZ-104	C Cap	0.1	50 V
C121	QCF81HZ-104	C Cap	0.1	50 V
C130	QCS81HJ-7R0	C Cap	7 P	50 V
C230	" -7R0	"	7 P	"
C330	" -7R0	"	7 P	"
C122	QCY81HK-103	C Cap	0.01	50 V
C123	" -103	"	0.01	"

Symbol No.	Part No.	Part Name	Description
L 1	SCV0331-820	Peaking Coil	
L 2	" -120	"	
L 3	" -120	"	
L 4	" -220	"	
L 5	SCV0100-001	Osc. Coil	
L 6	SCV0331-470	Peaking Coil	
L 7	" -121	"	
L 8	" -220	"	
L 9	" -390	"	
L10	" -110	"	
L12	SA40318-00A	C. Coil	
X 1	SCV0348-002	Crystal	17 MHz
X 2	SCV0349-002	"	4.40625 MHz
DL 1	SCV0574-001	D. Line	
T 1	SCV0171-001	SC Trans.	
T 2	" -001	"	
S 1	SCV0370-001	Slide Switch	SC PHASE COARSE
S 2	—	—	
S 3	SCV0389-001	Slide Switch	H. BLK. WIDTH
S 4	" -001	"	V. BLK. WIDTH
S 5	SCV0403-001	"	V. SWITCH
S 6	" -001	"	U. SWITCH
CN 5	SCV0501-001	30-P Connector	