

# JVC

## SERVICE MANUAL

### VIDEO CASSETTE RECORDER VHS

## HR-D158MS



Regarding parts and service information other than those sections, refer to the provided in HR-D157MS service manual (No. 8432). Also, be sure to note important safety precautions provided in the service manual.

### SPECIFICATIONS

Format	: VHS standard	Horizontal resolution	: More than 250 lines (PAL), More than 240 lines (NTSC/SECAM) with picture sharpness control at centre position
Recording system	: Rotary, two-head helical scan system	Audio	
Video signal system	: PAL and SECAM colour and CCIR monochrome signal, 625 lines NTSC colour and EIA monochrome signal, 525 lines	Input	: AUDIO/VIDEO (21-pin): -3.8 dBs (CENELEC standard), more than 10 k-ohms unbalanced AUDIO (DIN 5-pin): +20 dBs more than 50 k-ohms unbalanced
Tape width	: 12.65 mm	Output level	: AUDIO/VIDEO (21-pin): -3.8 dBs (CENELEC standard), AUDIO (DIN 5-pin): +6 dBs, high impedance load
Tape speed	: 23.38 mm/sec (PAL/SECAM) 33.35 mm/sec (NTSC)	Output impedance	: Less than 1 k-ohm, unbalanced
Playing time	: 240 minutes with E-240 (PAL/SECAM)	Signal-to-noise ratio	: More than 40 dB
Temperature		Frequency range	: 70 Hz to 10,000 Hz
Operating	: 5°C to 40°C	Timer	: 14-day/4-programme timer
Storage	: -20°C to 60°C	Dimensions	: 435 mm(W) x 95 mm(H) x 376 mm(D)
Channel coverage	: VHF band I, 47 - 111 MHz VHF band III, 111 - 300 MHz UHF band IV/V, 470 - 862 MHz CHS channels 32 - 40 (Adjustable)	Weight	: 7.2 kg
Aerial output		Provided accessories	: Aerial cable, Video cassette tape, Infrared remote control unit, "R6" battery x 2
Power consumption	: 33 watts		
Power requirement	: 110 - 240 V <sub>AC</sub> , 50/60 Hz		
Video			
Input	: 0.6 to 2.0 V <sub>p-p</sub> , 75 ohms unbalanced		
Output	: 1.0 V <sub>p-p</sub> , 75 ohms unbalanced		
Signal-to-noise ratio	: 43 dB (PAL/SECAM), 45 dB (NTSC), (Rohde & Schwarz noise meter) with picture sharpness control at centre position		



*Design and specifications subject to change without notice.*

# 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

- 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.

- 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.

- Use specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

- Use specified insulating materials for hazardous live parts. Note especially:

- 1) Insulation Tape
- 2) PVC tubing
- 3) Spacers
- 4) Insulation chassis for transistors

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

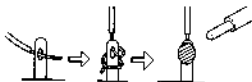


Fig. 1

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

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

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

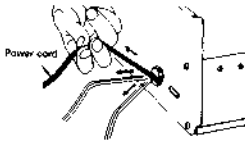


Fig. 2

- Also check areas surrounding repaired locations

- 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.

- 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).



Cut close to connector

Fig. 3

- (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.

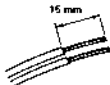


Fig. 4

- (3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

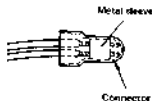


Fig. 5

- (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.

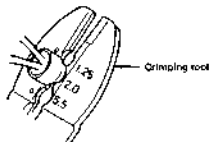


Fig. 6

- (5) Check the four points noted in Fig. 7.

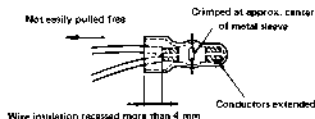


Fig. 7

## ● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe the screws, parts and what 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.

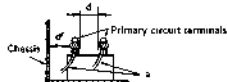


Fig. 8

### 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.

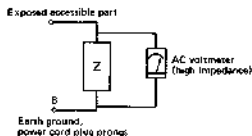


Fig. 9

AC Line Voltage	Region	Insulation Resistance	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	$\geq 1 \text{ M}\Omega/500 \text{ V DC}$	1 kV 1 minute	$\geq 3 \text{ mm}$
110 to 130 V	USA & Canada	—	900 V 1 minute	$\geq 3.2 \text{ mm}$
*110 to 130 V 200 to 240 V	Europe Australia	$\geq 10 \text{ M}\Omega/500 \text{ V DC}$	4 kV 1 minute	$\geq 5 \text{ mm (d)}$ $\geq 8 \text{ mm (d')}$ (a: Power cord)

\* Class B model only.

Table 1 Ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (a)	Earth Ground (b) to:
100 V	Japan		$i \leq 1 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	USA & Canada		$i \leq 0.5 \text{ mA rms}$	Exposed accessible parts
110 to 130 V	Europe		$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Antenna earth terminals
220 to 240 V	Australia		$i \leq 0.7 \text{ mA peak}$ $i \leq 2 \text{ mA dc}$	Other terminals

Table 2 Leakage current ratings for selected areas

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

**Handling and storage**

- Avoid using the recorder under the following conditions:
  - dusty places,
  - near appliances generating strong magnetic fields,
  - places subject to vibrations, and
  - poorly ventilated places.
- In a state of relative condensation. Avoid using the recorder immediately after moving from a cold place to a warm place or soon after leaving a room which was cold. The water vapour in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the records.
- Handle the recorder carefully.
  - Do not block the ventilation openings.
  - Do not place anything heavy on the recorder.
  - Do not place anything which might spill and cause trouble on the top cover of the recorder.
  - Use an horizontal (flat) position only.
- In case of transportation.
  - Avoid violent shocks to the recorder during packing and transportation.
  - Before packing, be sure to remove the cassette from the recorder.



Safety cap

**Video cassettes**

- The recorder employs VHS-type cassette only.
  - E-240 for 4 hours, E-180 for 3 hours, E-120 for 2 hours, E-90 for 1 hour and E-50 for 30 minutes of PAL or SECAM recording, T-150 for 2 hours and 40 minutes, T-120 for 2 hours, T-90 for 1 hour and T-30 for 30 minutes of NTSC-600-50g.
- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed. If you wish to record on a cassette whose tab has already been removed, use adhesive tape to block the hole.
- Avoid exposing the cassette to direct sunlight. Keep them away from heat.
- Avoid extreme humidity, violent vibrations or shock, strong magnetic fields (near a magnet, transformer or magnet test study plates).
- Place the cassettes in cassette case and protect carefully.

**Moisture condensation**

- If you power a cold liquid into a glass, water vapour in the air will condense on the surface of the glass. This is called relative condensation.
- Moisture condensation on the head drum, one of the most crucial parts of the recorder, will cause damage to the tape.
- Moisture in the air will condense on the recording head when you move the unit from a cold place to a warm place, after leaving a cold room or under extreme humidity conditions.
- The recorder is equipped with a moisture condensation prevention circuit which automatically heats the head drum according to the ambient temperature. The circuit operates only when the unit is plugged into an AC outlet; the rear panel MAINS POWER switch is set to ON and the front panel OPERATE switch is off.
- The moisture condensation prevention circuit consumes only a slight amount of power. However, if for some reason you are not using the recorder for a long period of time, it is advisable to remove the power cord from the AC outlet or set the rear panel MAINS POWER switch to OFF.
- Since the moisture condensation prevention circuit cannot evaporate existing moisture condensation immediately after the power cord has been plugged into the AC outlet, you must allow for about 2 hours if the recorder is to be used in an area that would develop moisture condensation.

**Operation**

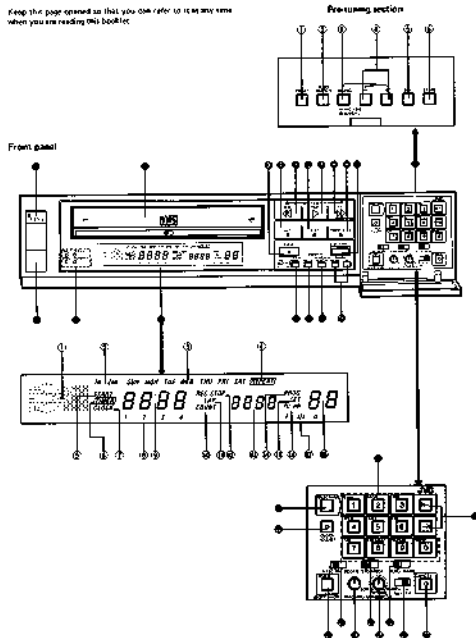
- As long as the MAINS POWER switch is set to ON, when a cassette is loaded the power is switched on automatically.
- The cassette can be unloaded even when the power is off. Pressing the EJECT button turns the power on and, after operation of the cassette, shuts it off automatically in this case.
- As long as the TIMER button is in the ON position the OPERATE and EJECT buttons have no effect and loading or unloading of a cassette is not possible. Do not force a cassette into the slot in this situation.

**Barcode label unit**

- Avoid violent shocks, especially take care not to drop the unit.
- Take care not to blow liquid or spill into the unit.
- Do not place flammable objects on the unit, especially the drinks, not to start on fire.
- Avoid leaving the unit in places subject to direct sunlight or abnormally high temperatures.

**IMPORTANT** It is possible to obtain television programmes only in the areas that third party copyrights and other signs are not violated.

Keep this page opened so that you can refer to it at any time when you are reading this booklet.



Thank you for purchasing the JVC HR-D158MS Video Cassette Recorder. Before use, read the instruction booklet carefully for obtaining the best results from your new unit.

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## SAFETY PRECAUTIONS

The safety class and the safety caution are on the rear of the unit.

### WARNING - DANGEROUS VOLTAGE INSIDE

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

**IMPORTANT** (In the United Kingdom)  
Mains Supply (240 V~, 50 Hz only)

#### IMPORTANT

Do not make any connection to the Large Terminal coded E or Green. The wires in the mains lead are coloured in accordance with following code.

Red/Brown or Blue/Brown to Live or Phase

If these colours do not correspond with the terminal identification of your plug, connect as follows:  
Blue wire to terminal coded N (Neutral) or coloured Black  
Brown wire to terminal coded L (Live) or coloured Red  
If in doubt - consult a competent electrician.

#### Note

We recommend that you should disconnect the AC cord at the main outlet.

### CAUTION

- Disconnect the main plug from the supply socket when not in use.
- When you are not using the HR-D158MS for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside: After internal servicing to qualified service personnel, to prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or serial.



Only cassettes marked "VHS" can be used with this video cassette recorder.

**FOR YOUR SAFETY** (In Australia)  
Increase any external aerial to AS 8417.1

#### MAINS POWER SWITCH

The mains switch is located on the rear control panel. Setting this switch to OFF removes all electrical power from the set including the color clock. Switching on or off the recorder section is performed with the secondary power switch, labeled OPERATE, on the front panel.

This equipment has been produced in compliance with Directive number 89/368/EEC

## FEATURES

**Auto power system**  
Meaning a cassette automatically enters the recorder on. Cassette ejection is possible with the power off.

**Shuttle switch for quick programme location**  
Adding-rewind 5 times (PAUSE/SEARCH), 7 times (FF/SC) normal speed in either direction.

**Microised front-loading system**  
The cassette loading slot is equipped with two separate door flaps, for easy identification of the presence of a cassette inside, a "cassette inserted" mark appears on the lower door flap when the cassette is inserted.

**Voltage synthesizer wide-band dual tone**  
Auto-tune tuning compliance with manual override and preset capacity of 8 SECAM L boards and 24 PAL, RGB broadcast sets full access to wide-band frequencies.

**On/Off standby and freeze buttons**

**Instant recording facility**  
Simple, one-touch recording for a preselected period of time.

**Simultaneous up/down tuning to preset channels**

**Counter search function**

**Large, multi-colour, comprehensive fluorescent display**  
As well as symbolic mode indicators, this display shows: clock time, tape counter (switchable to elapsed recording time counter), TV channel and programmed timer recording data.

**16-Step/Event programmable timer**  
Unique 16-key timer programming makes setting for unattended recording easy. Best: recording of regularly broadcast programmes is also possible.

**Picture thumbnail control**  
Sharper or softer pictures according to your preference.

**Multi-system flexibility**  
Recording and playback interchangeable to 5 systems: PAL, SECAM L, SECAM G, NTSC 3.58 and NTSC 4.43.

**Infrared remote control with 104-key remote control channel selection**

- Slim, ultra-thin profile design - 45 mm in height
- Auto-rewind at tape end
- Automatic release mechanism  
Projects tape by releasing transport mode after about 5 minutes.
- Connection for CANAL PLUS decoders (CANAL PLUS programmes are available only in France.)
- Backspace setting for smooth assembled recordings
- Built-in, quartz locked, direct-drive drum motor  
For greater reliability, start independent rapsan, side loading and cassette loading motors.
- Automatic voltage-switching to 110 - 240 V~, 50/60 Hz.



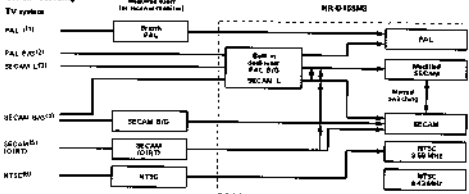


## IMPORTANT INFORMATION ON COLOUR SYSTEM SELECTION

The NR-D158MS incorporates the circuitry necessary to record or play back the PAL, SECAM or NTSC signals from the television broadcasting system in the EUROPE. To select the right colour system, there are three switches on the NR-D158MS: AUTOCAMM (master switch), SECAM/PAL/NTSC switch and STO/MODF switch. Generally, when the master switch is set

to AUTO, the appropriate system is selected according to the input signal. However, some situations require manual switching. (The circuit in operation is indicated by the 4 colour system indicators.) Please read carefully the following information to ensure correct recording and playback.

### Off-air recording



### Off-air recording

As illustrated above, the NR-D158MS incorporates 5 different recording circuits to receive PAL, modified SECAM, SECAM, NTSC 3.58 and NTSC 4.43 signals, enabling broadcasts in this country to be recorded. As built-in tuner in this recorder, you can receive PAL, SECAM L and SECAM L broadcast to record off the air in countries which transmit systems other than the PAL, SECAM L and SECAM L. It is necessary to connect a tuner for monitor/receive of the corresponding standard.

#### (1) PAL broadcast

PAL is the colour television broadcasting system frequently identified as the British PAL system and used in England, Ireland and some African countries. To record off the air in these countries, a tuner (in mono-applicable) built to the British PAL system is necessary. The setting of the system select switches is identical to that for PAL, B/G.

#### (2) PAL B/G broadcast

PAL B/G is the colour television broadcasting system used in most Continental European countries (except France, Luxembourg, and Monaco) and some members of the Middle East, Africa and Asia. The built-in tuner can be used to record off the air in these countries. Simply set the master system select switch to AUTO, use the tuner channel 9 through 12.

#### (3) SECAM L broadcast

SECAM L is the colour television broadcasting system usually identified as the French SECAM system and is employed in France and a few other countries. TV broadcasts of these countries can be recorded with the built-in tuner using the tuner channels 1 through 8. The STO/MODF switch must be set manually depending on which type of tape is to be made, even when the master system select switch is set to AUTO.

#### (4) SECAM B/G broadcast

SECAM B/G is the colour television broadcasting system employed in many countries of the Middle East and Africa and a few Eastern European countries including East Germany. Although SECAM B/G broadcasts can be recorded through a separate tuner (or monitor-receiver) built to this standard, the NR-D158MS built-in tuner functions specifically to receive these broadcasts. Depending on the setting of the STO/MODF switch, either a SECAM or modified SECAM tape can be set. Set the switch manually to the appropriate position even when the master system select switch is set to AUTO.

#### (5) SECAM (DRT) broadcast

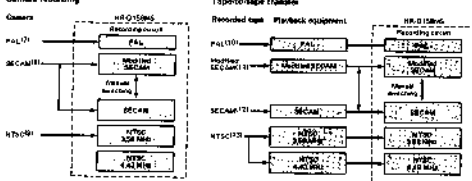
The SECAM (DRT) system is the colour television system of the majority of Eastern European countries and a few other countries such as Tahiti and Ivory Coast. To record off the air in these countries, a tuner for monitor/receive of the corresponding standard is necessary. Both modified SECAM and SECAM circuits are needed, select the appropriate position of the STO/MODF switch, even when the master system select switch is set to AUTO.

#### (6) NTSC broadcast

NTSC is the colour television broadcasting system used in the USA, Canada, Japan, several Latin American countries and a few Asian countries. To record off the air in these countries, a tuner for monitor/receive of the NTSC standard is necessary. The broadcast NTSC signal has a subcarrier frequency of 3.58 MHz. Therefore, in the AUTO mode, the NTSC 3.58 MHz circuit is automatically selected.

For further information, consult your nearest JVC dealer.

### Camera recording



### Camera recording

Video cameras are built to one of the three standards, PAL, SECAM or NTSC, and output different signals depending on the standard. To produce tapes with primarily recorded signals, use the AUTO mode or set the system select switches correctly. For instance, it is impossible to produce NTSC tapes with a PAL camera by manually selecting the NTSC circuit.

#### (1) PAL camera

Setting the master switch to AUTO is sufficient in most cases.

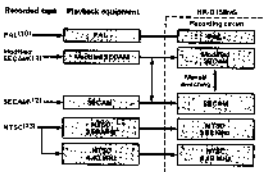
#### (2) SECAM camera

Either SECAM or modified SECAM tapes can be produced, depending on the switch position.

#### (3) NTSC camera

Engaging the AUTO mode automatically selects the NTSC 3.58 MHz circuit.

### Tape-to-tape transfer



### Tape-to-tape transfer

There are 4 different types of retained tape, depending on the signal source.

#### (100) PAL tapes

To transfer PAL tapes, a record/receiver built to the PAL standard is required to play them. Switch position is identical to those for recording PAL broadcasts and from a PAL camera.

#### (101) Modified SECAM tapes

The playback equipment which is capable of processing modified SECAM signals, depending on what type of tape is desired, either the modified SECAM or SECAM circuit of the NR-D158MS can be used. See the STO/MODF switch manually as required.

#### (102) SECAM tapes

Use playback equipment which is capable of handling SECAM signals. Depending on what type of tape is desired, either the modified SECAM or SECAM circuit of the NR-D158MS can be used. See the STO/MODF switch manually as required.

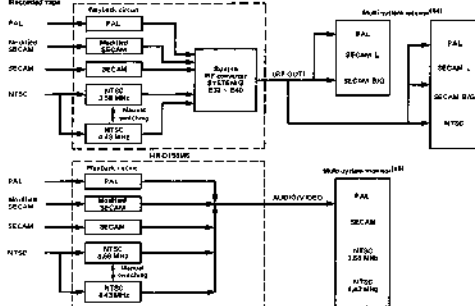
#### (103) NTSC tapes

If the playback equipment is built to the NTSC 3.58 MHz standard, the NTSC 3.58 MHz circuit is automatically selected in the AUTO mode. Likewise, if the playback equipment is built to the NTSC 4.43 MHz standard, the NTSC 4.43 MHz circuit is automatically selected in the AUTO mode.



### Playback

#### Recorded tape



### Playback

The chart for playback and monitoring is available from the chart for recording. As mentioned above, there are 4 different types of recorded tapes. To view video tapes, you may use a TV receiver, or a monitor-receiver or a video monitor. It is assumed that the perimeter of the HRD158MS joins a multi-system television set, one of those supported on the chart.

#### HRD158MS system selection

Since the built-in RF converter is built to the G system, all tapes can be seen by setting the indicator's system select switch to G and turning to the RF converter's output channel (832 - 840 adjustable). If your television set has also an NTSC signal processing circuit, NTSC tapes, too, can be seen through the built-in RF converter.

#### HRD158MR system selector

An input can be taken with either a multi-system or a lower-system monitor having PAL, SECAM and NTSC circuits.

#### CAUTION

- When the HRD158MS is connected to a multi-system television set, it may happen that no colour appear on the screen if the colour system select switch of the television set is adjusted to the AUTO position. In such a case, change the setting at the colour system select switch of the television set to an appropriate position.
- While playing back tapes which contain recording of different colour systems with the AUTOMATIC switch set to AUTO, the screen may briefly become monochrome at the switching point of the colour system. This is because a few seconds are required for the recorder to correct and adjust to a different colour system. This is normal and is not due to any defect of the unit.

### System select switches and indicators

Refer to the chart on the next page.

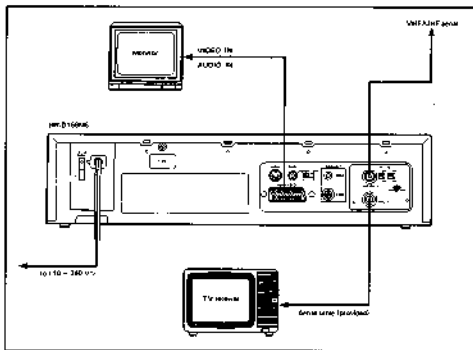
- When the master switch is set to AUTO, the HRD158MS reads the input signal (or taped signal during playback) and automatically selects the necessary circuit. For modified SECAM or SECAM only, set the STD/MODF switch as required for recording. For playback of NTSC tapes, select the correct position of the STD/MODF switch, depending on the system of the motion video.
- In the AUTO mode, the indicator corresponding to the automatically selected system lights.
- When the master switch is set to MANUAL, the selected output is activated regardless of the input signal. The indicator shows the switch position.
- While recording in the AUTO mode, if the input signal is undetectable, interrupted or interrupted, the lighted indicator starts flashing.
- If there is no input signal at the initial stage of recording in the AUTO mode, the MANUAL mode is forcibly engaged and the system corresponding to the switch position is selected, causing the corresponding indicator to flash.
- NTSC tapes recorded in the LP (Long Play) or EP (Extended Play) mode and PAL/SECAM tapes recorded in the LP mode cannot be played back on the still H playback; it is accompanied with such a tape in the AUTO mode, the set responding accordingly will flash.
- In the MANUAL mode, no indicator flashes in any situation. Playback picture is the reference.
- When a B/W signal input, or when a B/W tape is played back in the AUTO mode, the PAL indicator will light with OCIR signals and the NTSC indicator will light with EIA signals (the MODF/HD indicator will also light when the STD/MODF switch is set to MODF during playback of EIA monochrome tapes).

### System select switch positions & Indicators

Use	SOURCE	System select positions				Indicators	Remarks
		AUTO mode	MANUAL mode	STD	MODF		
Other recording	PAL						To produce modified SECAM tapes
	SECAM	MODE	MODE	STD	SECAM		To produce SECAM tapes
	NTSC	STD	*	STD	SECAM		To produce SECAM tapes
Camera recording	PAL	*	*	*	PAL		To produce modified SECAM tapes
	SECAM	MODF	*	MODF	SECAM		To produce SECAM tapes
	NTSC	STD	*	STD	SECAM		To produce SECAM tapes
Type-to-type transfer	PAL	*	*	*	PAL		To produce modified SECAM tapes
	Modified SECAM/SECAM	MODF	*	MODF	SECAM		To produce SECAM tapes
	NTSC (played on NTSC 3.58 MHz receiver)	STD	*	STD	SECAM		To produce SECAM tapes
Playback	NTSC (played on NTSC 4.43 MHz receiver)	*	*	MODF	NTSC		
	PAL	*	*	*	PAL		
	Modified SECAM	*	*	MODF	SECAM		
Remarks	SECAM	*	*	STD	SECAM		
	NTSC (to be viewed on 3.58 MHz receiver)	STD	*	STD	NTSC		
	NTSC (to be viewed on 4.43 MHz receiver)	MODE	*	MODF	NTSC		

\* The position of a switch so marked is irrelevant.

## CONNECTIONS



1. Remove the serial cable from your TV receiver and reconnect it to the HR-D158MS as illustrated. The HR-D158MS is then ready to record off-air TV programmes.
2. Connect the HR-D158MS to the TV receiver using the serial cable provided. The TV receiver is then ready to rebroadcast programmes as well as video cassette re-programmes from the HR-D158MS.
3. When you use a video monitor (as provided), connect the AUDIO/VIDEO output of the HR-D158MS to the VIDEO IN and AUDIO IN connector of the video monitor.

### Notes:

Even when you are not using the HR-D158MS, the main panel MAINS POWER switch should be set to ON in order to be able to view TV broadcast programmes with this connection.

## VIDEO CHANNEL SETTING

The built-in RF converter permits playback of video and audio recordings through a TV receiver. The signals from the RF converter are viewed through a vacant channel (not used for broadcasting in your viewing area). The optimum channel of all units is set to UHF channel 36 prior to shipment. Setting your TV receiver to UHF channel 36 may provide video playback. However, to obtain the best possible reproduction on your TV receiver, accurate adjustment to the RF converter output is required.

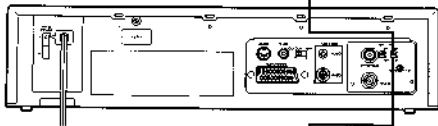
### Procedure:

1. Press the front panel OPERATE button to turn the indicator on. Turn on the TV receiver.



2. Adjust your TV receiver in the vicinity of UHF channel 36 until you bring in the two white signal bars on the screen as illustrated. The setting is now the VIDEO CHANNEL of the TV receiver so which the HR-D158MS is connected.

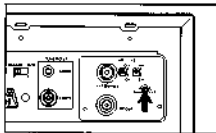
3. Reset the T.S. switch to OFF.



4. Set the T.S. switch, located on the rear panel, to ON.

### Notes:

1. When you adjust your TV receiver to channel 36 for video playback, if some interference noise is seen on the screen because of broadcasts on neighbouring channels or if your present broadcast is affected in picture quality, it is necessary to shift the RF converter output frequency from that of channel 36.

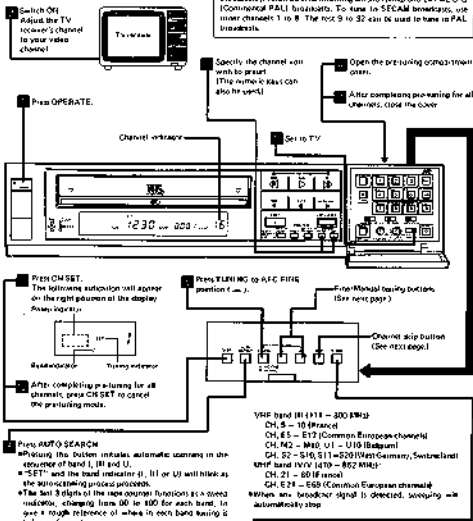


For this purpose, insert a screwdriver into a hole provided on the rear of the set and readjust the RF converter frequency adjustment screw in minute steps. Then tune the TV receiver once again until a clear picture is obtained. This adjustment requires extreme precision and must be done with the utmost care. We recommend that you consult your JVC dealer for making this adjustment.

- Be sure to set the T.S. switch to OFF after VIDEO CHANNEL tuning has been completed.
- No signal is available from the AUDIO/VIDEO socket while the test signal is being used.
- If a pre-recorded VHS cassette is available, TV adjustment for VIDEO CHANNEL is more easily made possible using it to obtain a playback picture. Insert the cassette and operate the HR-D158MS for playback of the cassette. Then tune the TV receiver to obtain clear picture and sound when monitoring the playback picture on the TV screen.
- If your TV receiver is not provided with an AFC circuit, perform fine tuning of the TV receiver when you are actually viewing video cassettes.

## PRE-TUNING THE BUILT-IN TUNER

The built-in tuner conforms to the SECAM 4 and PAL-B/G systems, having a capacity of receiving 32 different channels. 8 SECAM L broadcasts (French SECAM including Corsica) and 24 PAL-B/G (Common PAL) broadcasts. To tune to SECAM broadcasts, use inner channel 1 to 8. The rest 9 to 32 can be used to tune to PAL broadcasts.



- Available channels in each band are as follows:
- VHF band 1 (42 - 41.5 MHz)  
 CH 2 - 4 (France)
- VHF band II (47 - 80.2 MHz)  
 CH 5 - E4 (Common European channels)  
 CH 51 - S3, M1 (Belgium)  
 CH X, Y, Z, S1 (Switzerland)  
 CH S21 - S23, S1 (West Germany)

## IMPORTANT INFORMATION ON PRE-TUNING

### Additional information on the tuning procedure

- If you completed it given for about 60 seconds after the CH SET button has been pressed, the channel display will return to the original with the TV PR indicator illuminated.
- When specifying the channel you wish to preset, the CHANNEL button can be pressed either repeatedly for changing the number in a single moment or continuously until for rapid automatic changing.
- When changing mode in step 6, check to see if the received broadcast is your desired one or not.
- After tuning in step 5, be sure to press the STORE button, otherwise the tuning-in condition will be lost.
- After step 5, change the channel number and repeat steps 3 and 4 to preset all necessary channels.

### Fine tuning

- When the TUNING button is at the AFC FINE position, the AFC circuit is in operation. Normally leave the button in the AFC FINE position. If, however, the picture quality is unsatisfactory due to ghosts or other noise, perform fine tuning (see step 8).
- For the purpose, press either the - or + button to fix the picture clearly up. Each time either button is pressed, the picture condition changes in a single moment (continuous changing is not possible). It corresponds with the "T" button and is identical with the "T" button.
- If the picture is not clear after all procedures, perform fine tuning on your television.
- Distorted pictures or sound will be recorded if fine tuning has not been properly performed. Exercise care with this adjustment since the recorded picture and sound cannot be adjusted later.

### Stores (tuning)

- With automatic tuning, only those stations which have a signal strength exceeding a certain level can be captured.
- To capture signals not strong enough for automatic tuning, employ manual tuning. It is recommended that the ATT switch be set to OFF.
- For the output, press the TUNING button or MANUAL (L.R.).
- Then press either the - or + button depending on the search direction. Screen scanning is performed only while the button is being pressed.
- When you capture a desired station, press the STORE button in the same manner as for automatic tuning, and the tuned-in station will be memorized.
- If the "T" or "V" button is pressed during auto-search tuning, scanning stops regardless of the position of the TUNING button.

### Skipping unwanted channels

Though 32 channels are available for pre-tuning to stored TV channels, you may not need all 32 channels. In such cases, unused channels can be skipped so that only preset channels will be called up. For this purpose, proceed as follows:

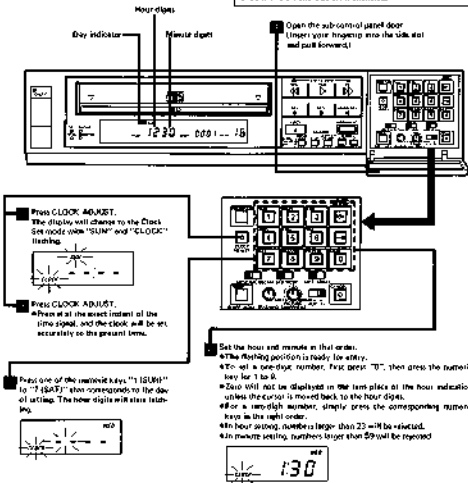
- Press the CH SET button.
- Call up the channel number that you wish to skip.
- Press the SKIP button.
  - This completes the procedure for skipping the corresponding channel number.
- Call up another channel number that you wish to skip and repeat the same procedure above.
- Press the CH SET button to disengage the mode.

### Notes

- After the mode is changed, those skipped channel numbers will not appear on the channel display any more in mode other than Channel Set (Using the numeric keys. It is possible to call up the skipped channels).
- In the Channel Set mode, all channel numbers, including skipped ones are respectively displayed when the CHANNEL buttons are pressed.
- It is possible to restore the skipped channels for pre-tuning to another TV channel whenever necessary. For this purpose, call up the corresponding channel number in the Channel Set mode and perform pre-tuning from the STORE button. Then, the new TV station channel is memorized to be called up at any time.

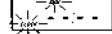
## CLOCK SETTING

Plug the MR-D (BMS) into an AC outlet and set the rear panel MAINS POWER switch to ON. The display shows a flashing 0 00 with SUN and CLOCK illuminated.



Open the sub-control panel door (insert your fingertip into the side slot and pull forward).

Press CLOCK ADJUST. The display will change to the Clock Set mode with "SUN" and "CLOCK" flashing.

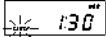


Press CLOCK ADJUST. A flash at the second digit of the time signal, and the clock will be set accurately to the present time.

Press one of the numeric keys "1 (SUN)" to "7 (SAT)" that corresponds to the day of setting. The hour digit will start flashing.



- Set the hour and minute in that order.
- When the flashing position is ready for entry:
  - To set a two-digit number, first press "0", then press the numeric key for 1 to 9.
  - Zero will not be displayed in the ten's place of the hour indication unless the cursor is moved back to the hour digit.
  - For a one-digit number, simply press the corresponding numeric key in the right order.
  - An hour setting number is larger than 23 will be rejected.
  - An minute setting number larger than 59 will be rejected.

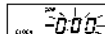


- Notes**
- If you press a wrong numeric key, you can return to the zero-zero position using the reset cursor key.
  - Once all necessary data have been entered, you can reach any position via correction using the reverse and forward cursor keys.
  - Clock setting is not possible if the TIMER button is in the ON (I) position. First check to see that it is in the OFF (II) position.

### Power failure indicator

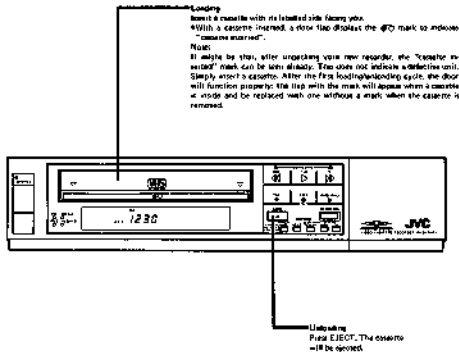
The Clock display may revert to 0 00 and SUN to Pchick. That is not a malfunctioning of the clock, but it indicates that

there has been a power failure in excess of one hour. Re-adjusting the time restores the normal condition of the clock display.



- If the period of power outage is within about 60 minutes, correct time-keeping continues when power is reappplied.
- During this 60-minute period, the built-in memory back-up capacitor maintains time-keeping and prevents error memory, though the display shows out.

## LOADING AND UNLOADING A CASSETTE



**Loading**  
Insert a cassette with its labeled side facing you.  
With a cassette inserted, a dot flag blocks the #0 mark to prevent "cassette everted".

**Notes**  
It might be that, after upgrading your new recorder, the "cassette everted" mark can be seen already. This does not indicate a defective unit. Simply insert a cassette. After the first loading/unloading cycle, the door will function properly. The flag with the mark will appear when a cassette is inside and be replaced with one without a mark when the cassette is removed.

### New mechanical loading system

- The cassette can be loaded even when the power has not been turned on. Inserting a cassette into the loading slot turns the power on automatically.
- The cassette can be unloaded even when the power has been turned off. If a cassette is inside, pressing the EJECT button turns the power on automatically and, after operation of the cassette, shuts it off automatically.

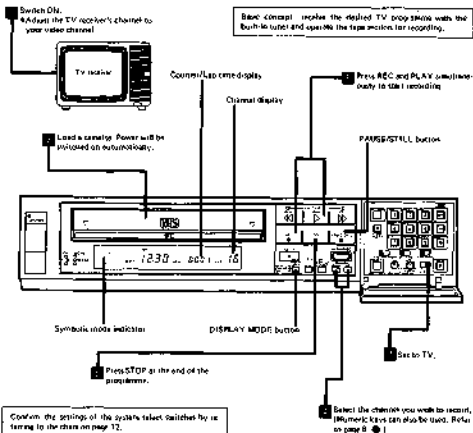
### Notes:

- Be sure to insert the cassette firmly into the slot, otherwise, it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.
- A cassette everted cannot be inserted.

### Caution

- If loading or unloading of a cassette is not possible, check to see whether the TIMER button is in the ON position. If so, press it to the OFF (II) position.
- Do not attempt to pull out the cassette once automatic loading has started.
- Do not insert fingers or any foreign object beyond the door flap of the cassette loading slot, as this could lead to injury or damage to the mechanism. Show special caution with children.

## RECORDING A TV PROGRAMME WHILE WATCHING IT



### Notes:

- If there is part of the programme you don't want to record, press the PAUSE/STILL button. To resume the Pause mode, press the PLAY button.
- If the REC button always be engaged, check to see if the cassette safety tab has been removed. (See page 3.)
- When the end of the tape is reached during recording, the tape is automatically rewound to the beginning and stops.
- Press the DISPLAY MODE button once to check how much recording time has elapsed. (For more details refer to page 27.)
- When recording is restarted from the Pause mode, e.g. when recording is performed so that the playback picture will not flicker at the split point. A few frames recorded before the picture is erased due to overlap of the new recording. This is not due to any defect of the unit.

- When the Pause mode continues for longer than about 5 minutes, the Stop mode will be entered automatically.
- The built-in tuner's automatic channel select mechanism prevents the selected channel from being stored during recording. Therefore, if you wish to change the channel while recording, first engage the Pause mode and then select a different channel.

## RECORDING A TV PROGRAMME WHILE WATCHING ANOTHER

A programme not being viewed can be recorded while you enjoy another programme. This permits the recorded programme to be played back later at your convenience. The recording procedure is exactly the same as described on the previous page. The points to be remembered are:

- Select the channel you wish to record with the recorder's channel selector.
- Select the channel you wish to view with the TV receiver's channel selector.

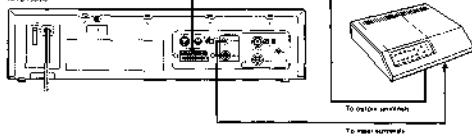
## RECORDING CANAL PLUS PROGRAMMES

The VR-D158MS is equipped for recording of CANAL PLUS programmes. For this purpose, the TUNER OUT (VIDEO, AUDIO) connectors on the rear panel deliver the video and audio signals received by the built-in tuner.

Note: CANAL PLUS programmes are available only in France.

### Connections

#### VR-D158MS



- Connect the recorder's TUNER OUT connectors to the video terminals of the decoder and the decoder's output terminals to the AUDIO/VIDEO socket of the recorder.

### Operation

- The only difference from the usual recording process is to stop  $\square$  Set the AUDIO TV switch to AUX.

### Notes

- You can simply watch the CANAL PLUS programmes with the setup without recording. In this case, it is necessary to turn on the recorder's power on by pressing the OPERATE button.
- For more details on this system, consult your JVC dealer.

## FOR A BETTER UNDERSTANDING OF THE PROGRAMMABLE TIMER

### Two-week timer

"Two-week" programming capability means that you can "repeat" recordings on any one of 14 days in advance including the day of setting.

If the current day of setting is Sunday:

SUN	MON	TUE	WED	THU	FRI	SAT
SUN	MON	TUE	WED	THU	FRI	SAT
SUN	MON	TUE	WED	THU	FRI	SAT
SUN	MON	TUE	WED	THU	FRI	SAT

- In this situation, there may be no possibility of confusion in setting the day.
- Namely, the "1st MON" is Monday of the current week and the "2nd MON" is Monday of the next week. The same applies to other week days.
- Regarding Sunday, there are two different cases, one is that you are going to set the timer to a time before the current time of setting and the other is that the preset time is a time after the current time of setting.
- In the former case, the "1st SUN" is the next Sunday and the "2nd SUN" is the Sunday after next.
- In the latter case, the "1st SUN" is the current Sunday and the "2nd SUN" is Sunday of the next week.

### 4-programme timer

"4-programme" programming capability means that you can have 4 separate programme entries which contain different programming data. Because of this capability, you can have "repeats" of different TV programmes, either on the same day or on different days. Each programme (No. 1 through No. 4) entry contains information on "TV channel number", "day", "start time", "stop time" and "other angle or event".

Example of the content of one programme entry:

Pro- gramme number	TV channel number	Day	Start time	Stop time	Other angle
2	12	Tu WED	10:30	11:30	-

If the current day of setting is Wednesday, for example:

SUN	MON	TUE	WED	THU	FRI	SAT
SUN	MON	TUE	WED	THU	FRI	SAT
SUN	MON	TUE	WED	THU	FRI	SAT
SUN	MON	TUE	WED	THU	FRI	SAT

- Remember that the "1st MON", "1st TUE" and so on, mean the first coming Tuesday, the first coming Tuesday, and so on, and not Monday of the current week.
- Similarly, the "2nd MON", "2nd TUE" and so on mean the second coming Tuesday, the second coming Tuesday, and so on, and not Monday, or Tuesday of the next week.
- If you are on Wednesday, for example, and wish to record something on Tuesday of the next week, the preset data should be "1st TUE". To record on Thursday of the next week, set "2nd THU".
- Regarding Wednesday, the same as mentioned above Sunday or the next applies.

### Various setting possibilities

Setting	Indication
One day of the 1st week	1st + Day
One day of the 2nd week	2nd + Day
One day of every week starting from the 1st week	1st + Day + REPEAT
One day of every week starting from the 2nd week	2nd + Day + REPEAT
Daily serial recording after 1st week, starting from the 1st week	All days + REPEAT <sup>1)</sup>
Daily serial recording for one week starting from the 1st week	All days <sup>2)</sup>

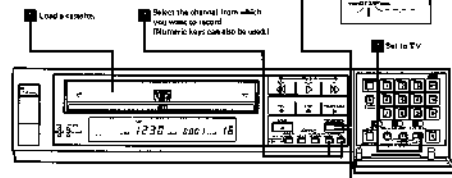
- When the DAILY (D) key is pressed, the REPEAT indicator will light automatically.
- After pressing the DAILY (D) key, press the REPEAT (R) key to cancel the REPEAT indicator.

## INSTANT RECORDING

Besides starting and stopping a recording as usual, the HRO158ME offers a more convenient possibility: setting by the push of a single button, recording will stop automatically after a certain period of time. Use this facility for starting a recording before you go to bed or leave home.

Press INSTANT REC.

- The following indicator will appear on the display, to show that the recorder is ready to start recording.
- The REC STOP indicator on the display will flash.



Press INSTANT REC. again.

- The display will begin immediately and the following indication will appear on the display, showing that recording will automatically stop and power will switch off after 30 minutes.
- The REC STOP indicator remains lit.

REC STOP 030

Each time the INSTANT REC button is pressed, recording time increases by 30 minutes up to 4 hours.

- For a more precise time setting, use the numeric keys after releasing the preset. To change both hour and minute digits, simply key in the corresponding numbers. To change only the minute digits, press the numeric key corresponding the current hour number, and the cursor will move to the minute position; thereafter the numeric keys will function to enter up to both hour and minute digits in an order. After this setting, be sure to press the INSTANT REC button again, otherwise the original preset time will be restored as a new records.

Confirm the settings of the system select switches by referring to the chart on page 12.

### Notes

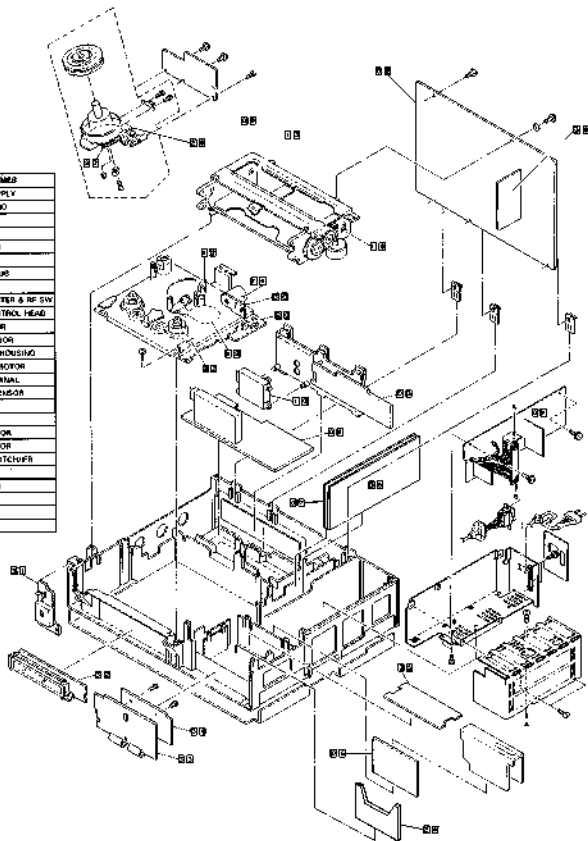
- If the INSTANT REC button is not pressed a second time within about 80 seconds after it has been pressed once, the Instant Record mode will be cancelled and the display will change back to the Counter mode.
- If you want to change the time, actions again after the INSTANT REC button has been pressed for initialization of new data, simply press INSTANT REC and redo the programming.
- While recording is in progress, the displayed time counts down. When 0:00 is reached, the Record mode is released after 10 seconds and the power is switched off.
- If you want to stop recording after having started recording in the Instant Record mode, press the STOP button.
- The freeze recording function can also be used as a stop timer. If you press the INSTANT REC button during normal recording, the REC STOP indicator will light on the display and the indication "0:30" will be obtained, showing that recording will stop automatically after 30 minutes. The time again can be adjusted in the same way as for instant recording.
- Instant recording has priority over all other modes; you can start recording from any mode using the INSTANT REC button, even from record as fast forward, or from power off (in any of the MAINS POWER switch is set to ON).
- If the INSTANT REC button is pressed with a non-recordable cassette loaded (even with its safety tab removed), the cassette will be automatically ejected.
- If you want to perform instant recording after you have set the timer and pressed the TIMER button to ON, press the INSTANT REC button as usual. Power will be started on and instant recording will start. After instant recording has been performed, the Timer mode is automatically entered and power is turned off. The preset time for instant recording has priority over the programmed counter ones. Before pressing the INSTANT REC button, make sure that the instant recording time will not eventually overlap the programmed preset time.
- If the programmed switch-on time for a timer recording should come after the switch-off time of instant recording, this timer recording will be made automatically.



## SECTION 4 CHARTS AND DIAGRAMS

### 4.1 CIRCUIT BOARD LOCATIONS

No	NAMES
01	POWER SUPPLY
02	VIDEO/AUDIO
03	TERMINAL
04	TUNING
05	MICROCOM
06	VIDEO
07	TUNING SUB
08	HEAD/MDA
09	RF CONVERTER & RF SW
10	AUDIO/CONTROL HEAD
11	END SENSOR
12	MODE SENSOR
13	CASSETTE HOUSING
14	CAPSTAN MOTOR
15	DECK TERMINAL
16	TAKE UP SENSOR
17	VIDEO SUB
18	ORIGIN FO
19	ORIGIN MOTOR
20	MODE MOTOR
21	POWER SWITCH/FR
22	DISPLAY
23	OPERATION
24	TRACK
25	PRESETTER
26	NIBC





## High Quality Circuit Outline.

HQ (High Quality) technology is included in the HR-D158MS in order to improve pulse response. This mainly involves the following two circuits.

### 1) White Clip

Maximum white clip level is 190%. This provides distinct picture edges and high image clarity.

### 2) Detail Enhancer

Small amplitude video signals, which are easily lost in play-back, are enhanced at the time of recording, thereby improving picture detail during play-back.

The basic block diagram of the detail enhancer is shown in Fig. 1. This circuit is included in the luminance signal recording system.

The equalizing amplifier corrects for time axis delay of the compensating signal produced by the highpass filter with respect to the original signal.

The highpass filter samples the edge component of the original signal, while the limiter samples only the low level edge component.

The low level edge component is added at ADD (1) in order to enhance the low level video signal.

Specified response of this circuit is as follows.

Enhancement Ratio	Less than 8 dB
Enhancement Volume	Less than 10 IRE
Operating Frequency	Above 1 MHz

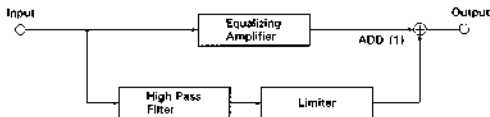
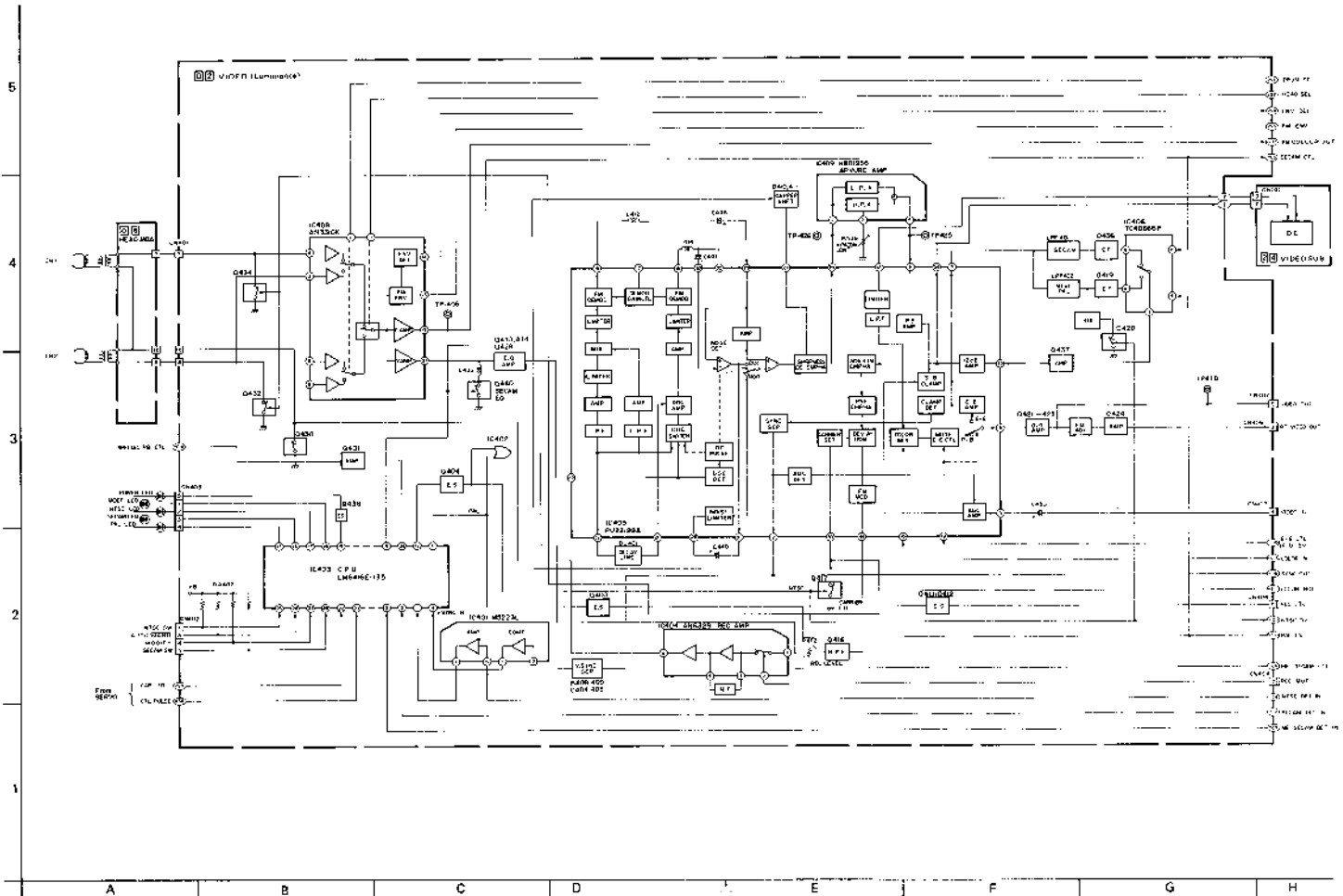


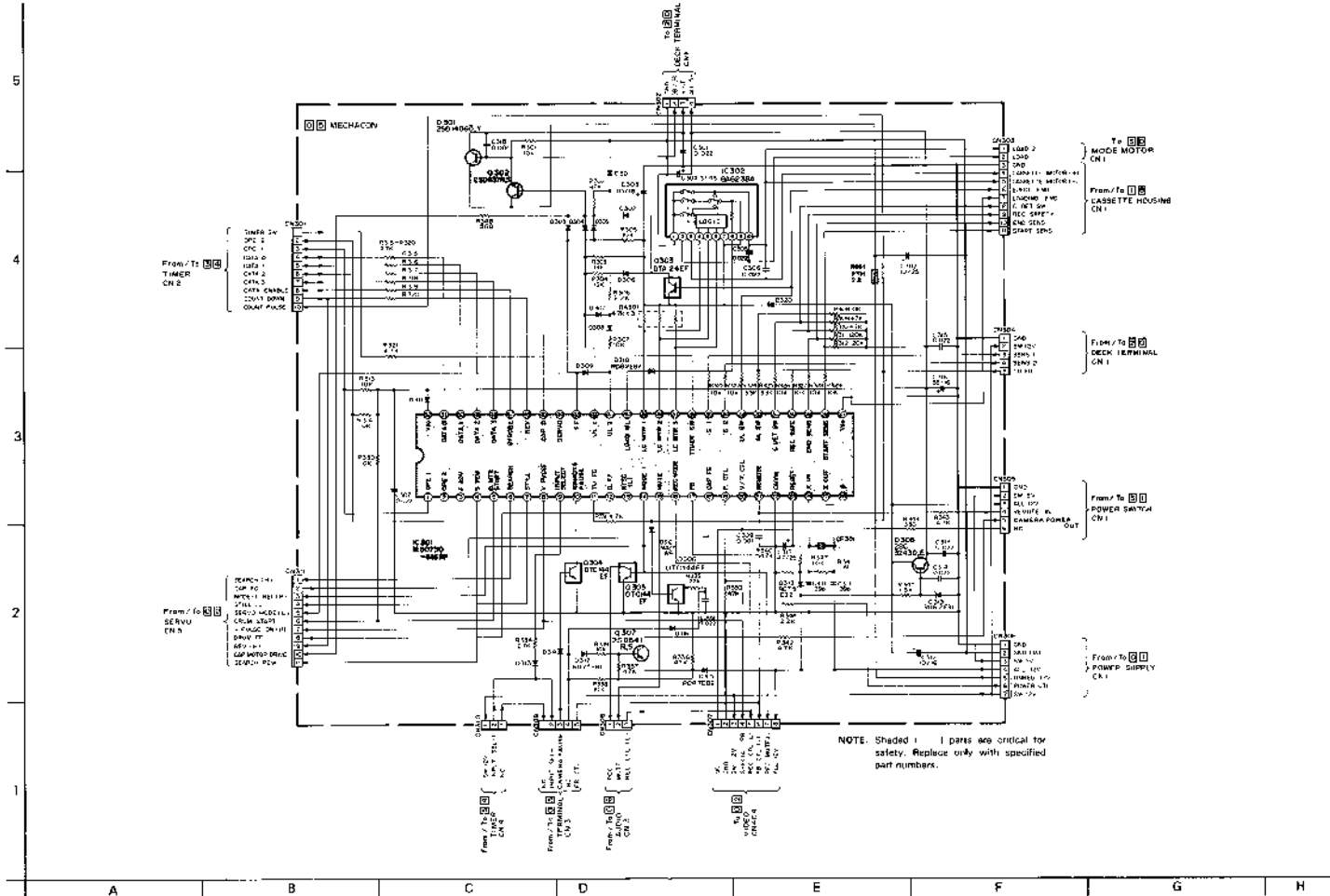
Fig. 1 Detail Enhancer Basic Block Diagram

### 4.3 VIDEO (LUMINANCE) BLOCK DIAGRAM



# MECHAICON MECHAICON

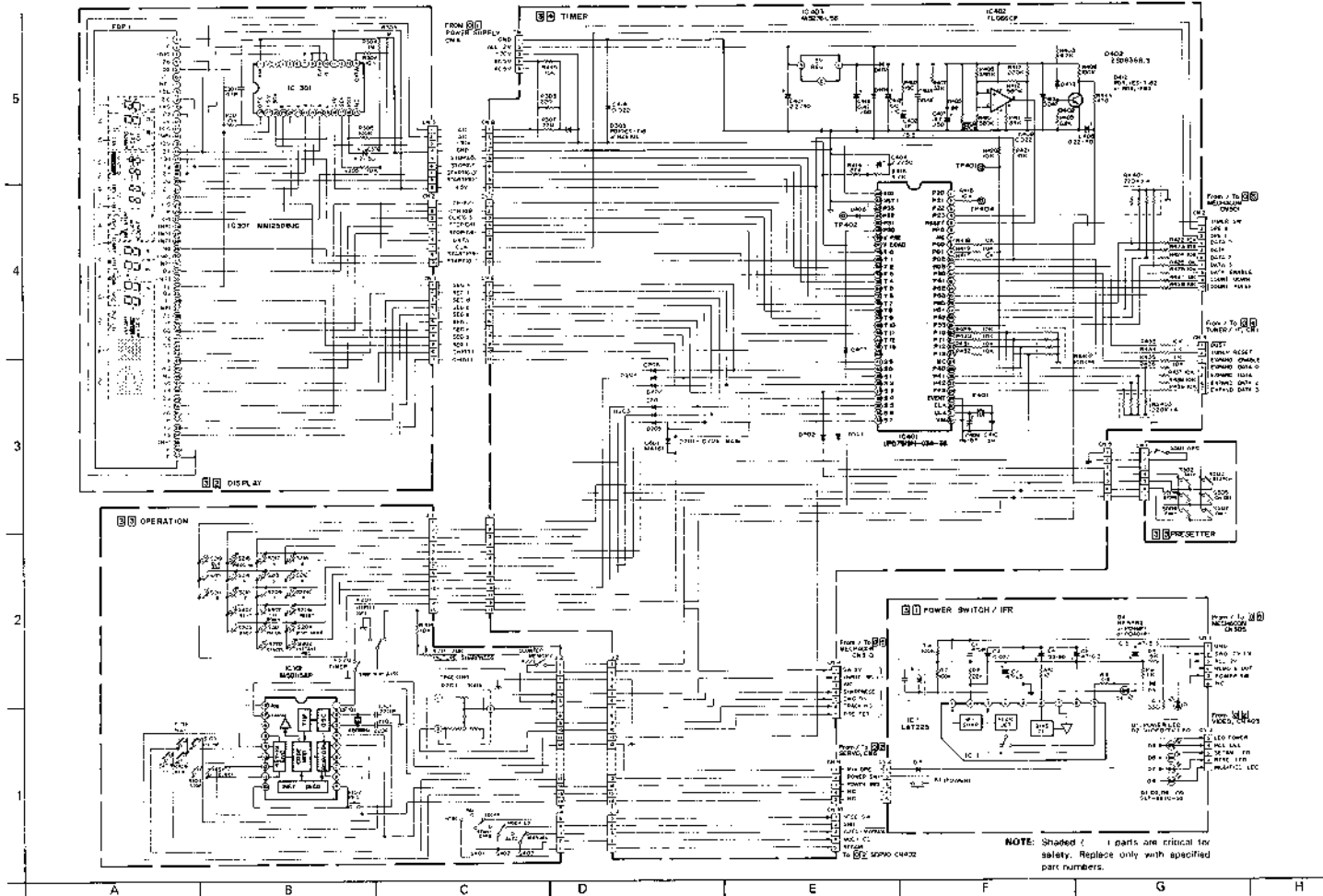
## 4.8 MECHAICON SCHEMATIC DIAGRAM





# TIMER DISPLAY

## 4.10 TIMER, DISPLAY AND POWER SWITCH SCHEMATIC DIAGRAMS

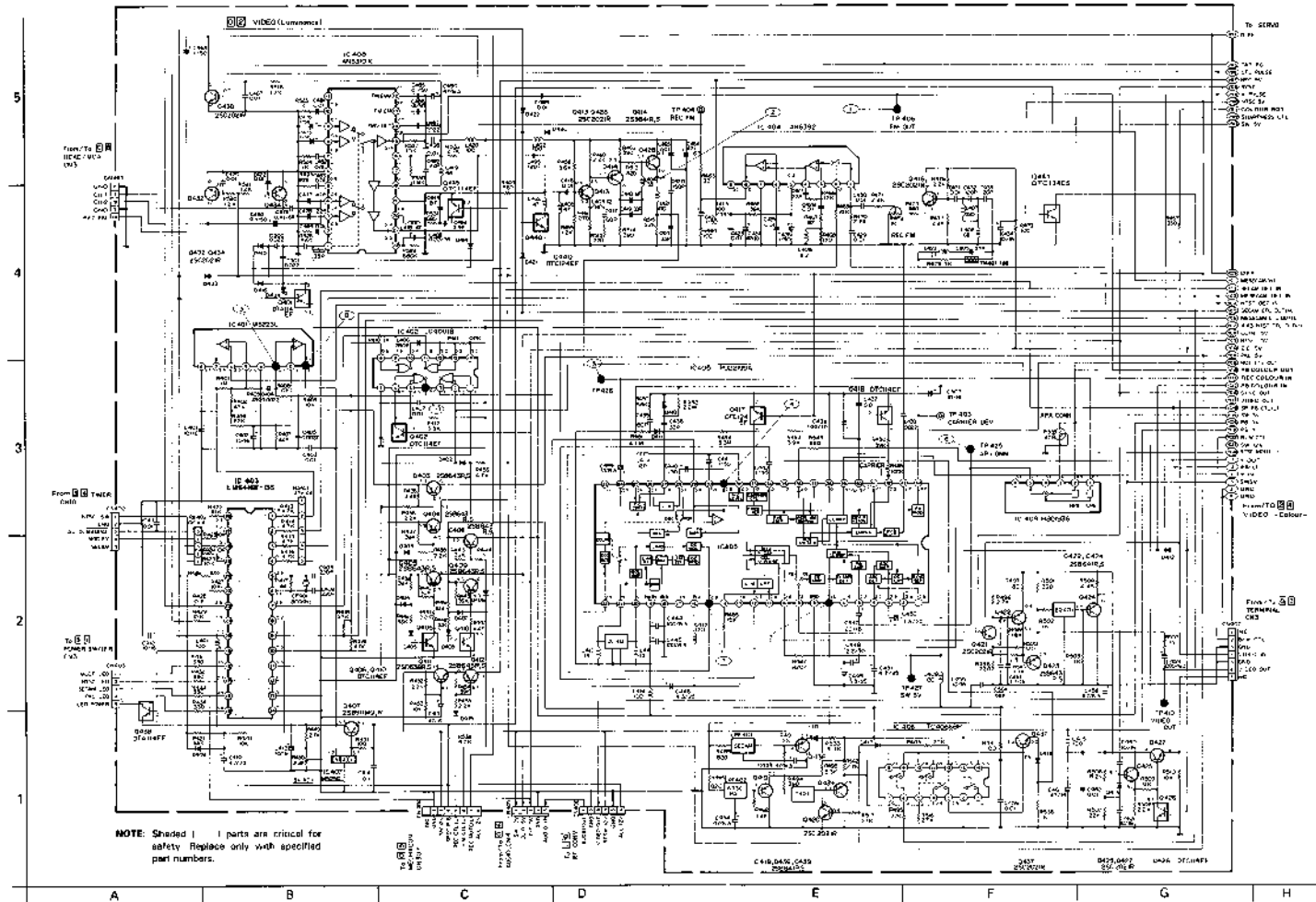


NOTE: Shaded / 1 parts are critical for safety. Replace only with specified part numbers.



# VIDEO VIDEO

## 4.12 VIDEO (LUMINANCE) SCHEMATIC DIAGRAM

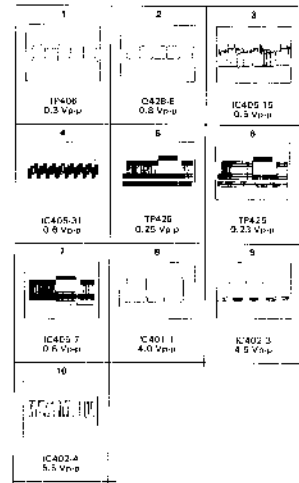


NOTE: Shaded | 1 parts are critical for safety. Replace only with specified part numbers.

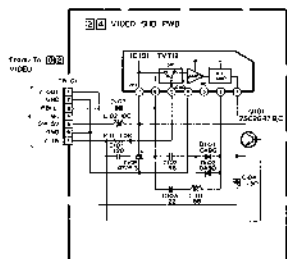
IC 400 48330X  
IC 401 M5223  
IC 402 L5448-DS  
IC 403 P4901B  
IC 404 M5223  
IC 405 P4901B  
IC 406 P4901B  
IC 407 M5223  
IC 408 M5223  
IC 409 M5223  
IC 410 M5223  
IC 411 M5223  
IC 412 M5223  
IC 413 M5223  
IC 414 M5223  
IC 415 M5223  
IC 416 M5223  
IC 417 M5223  
IC 418 M5223  
IC 419 M5223  
IC 420 M5223  
IC 421 M5223  
IC 422 M5223  
IC 423 M5223  
IC 424 M5223  
IC 425 M5223  
IC 426 M5223  
IC 427 M5223  
IC 428 M5223  
IC 429 M5223  
IC 430 M5223  
IC 431 M5223  
IC 432 M5223  
IC 433 M5223  
IC 434 M5223  
IC 435 M5223  
IC 436 M5223  
IC 437 M5223  
IC 438 M5223  
IC 439 M5223  
IC 440 M5223

C418, C419, C420 250000P  
C421, C422, C423 250000P  
C424, C425, C426 250000P  
C427, C428, C429 250000P  
C430, C431, C432 250000P  
C433, C434, C435 250000P  
C436, C437, C438 250000P  
C439, C440, C441 250000P  
C442, C443, C444 250000P  
C445, C446, C447 250000P  
C448, C449, C450 250000P  
C451, C452, C453 250000P  
C454, C455, C456 250000P  
C457, C458, C459 250000P  
C460, C461, C462 250000P  
C463, C464, C465 250000P  
C466, C467, C468 250000P  
C469, C470, C471 250000P  
C472, C473, C474 250000P  
C475, C476, C477 250000P  
C478, C479, C480 250000P  
C481, C482, C483 250000P  
C484, C485, C486 250000P  
C487, C488, C489 250000P  
C490, C491, C492 250000P  
C493, C494, C495 250000P  
C496, C497, C498 250000P  
C499, C500, C501 250000P  
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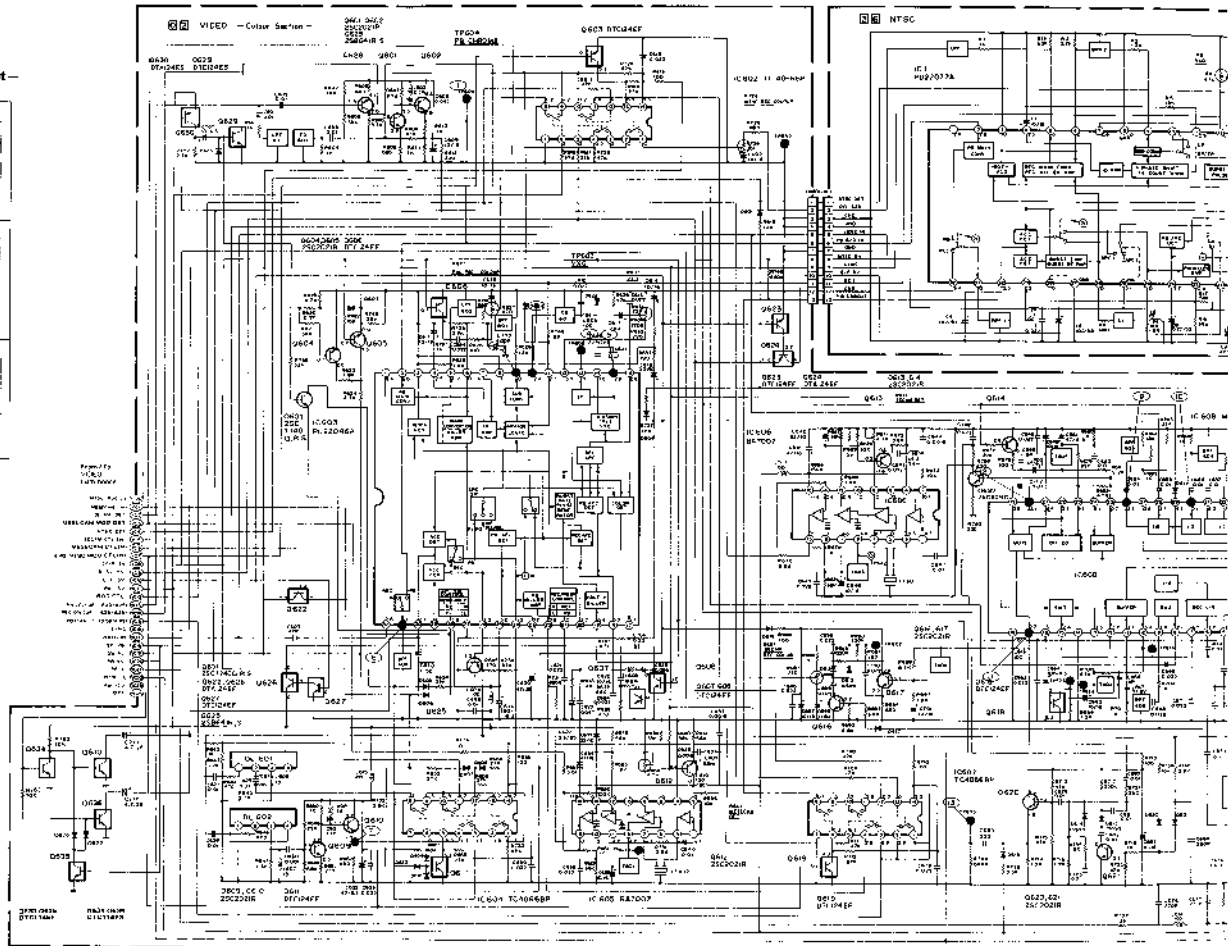
### —Waveforms of VIDEO (Luminance) circuit—



### —VIDEO SUB—



Note  
This circuit is included after 1082  
mass production.



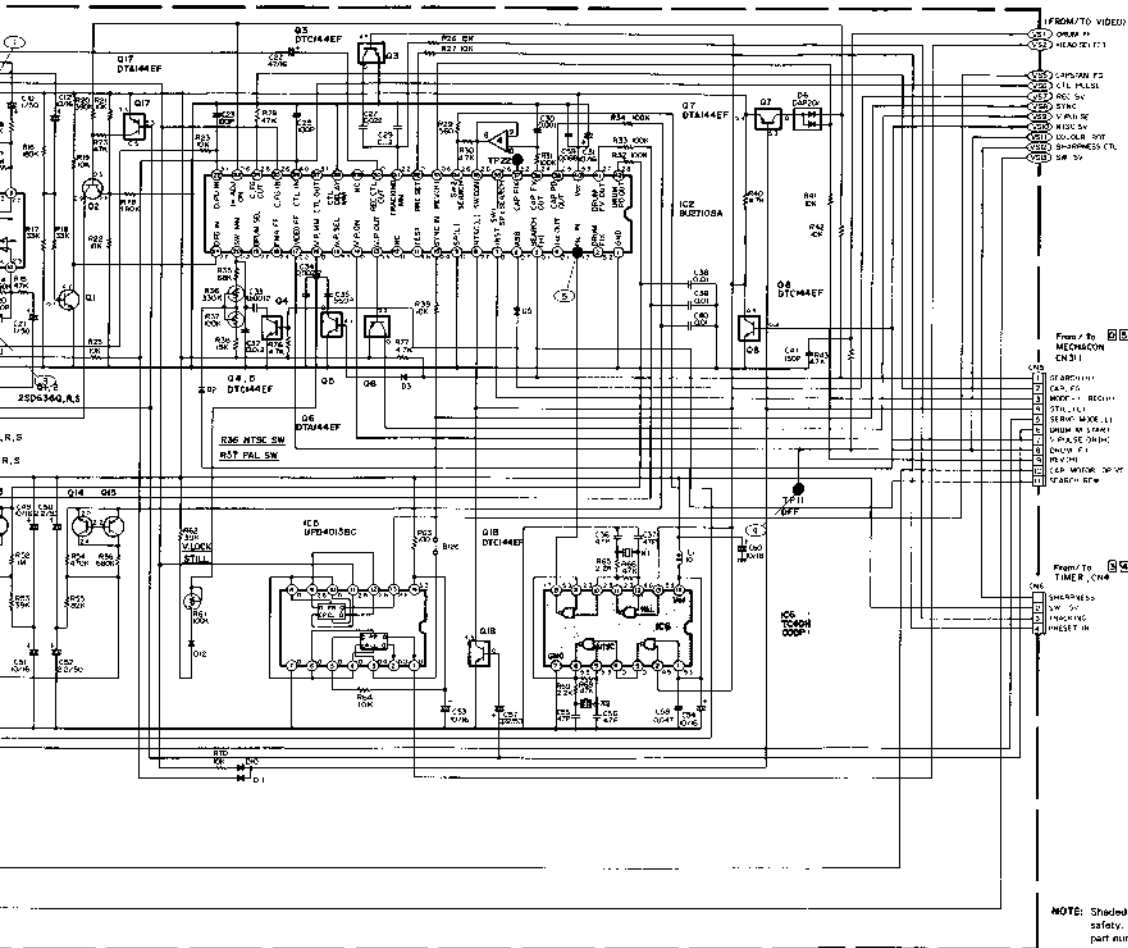
A B C D E F G H I



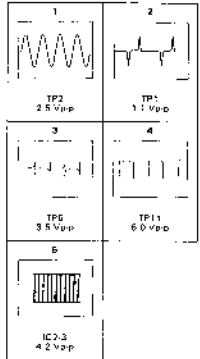




# SERVO SERVO



—Waveforms of SERVO circuit—



- From To
- 1 FROM/TO VIDEO
  - 2 ON/FF
  - 3 HEAD/REV F1
  - 4 CAP/PAV F2
  - 5 CL/PAUSE
  - 6 REC/REV
  - 7 V PAUSE
  - 8 ST/CLK
  - 9 V PAUSE
  - 10 ISO/CLR SW
  - 11 SHARPNESS CTL
  - 12 SW SW

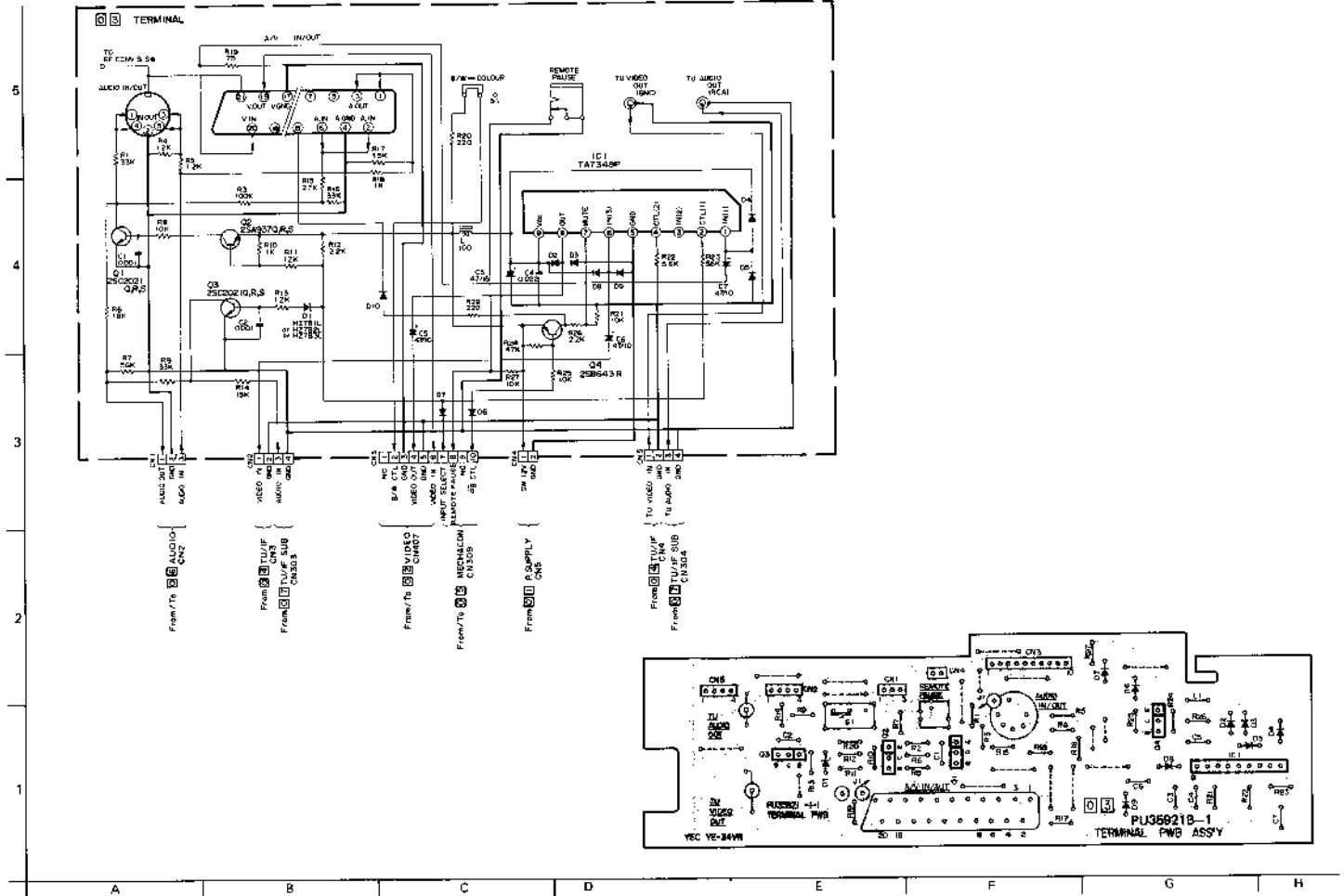
- From To
- 1 SEARCH/REV
  - 2 CAP F5
  - 3 REEF- REV
  - 4 STA/LLI
  - 5 SERVO/MAKE LI
  - 6 SHARP SW/SHARP
  - 7 V PAUSE/SHARP
  - 8 ON/FF
  - 9 REVERSE
  - 10 CAP/VIDEO SW
  - 11 SEARCH/REV

- From To
- 1 SHARPNESS
  - 2 SW SW
  - 3 TRACKING
  - 4 RESET SW

**NOTE:** Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

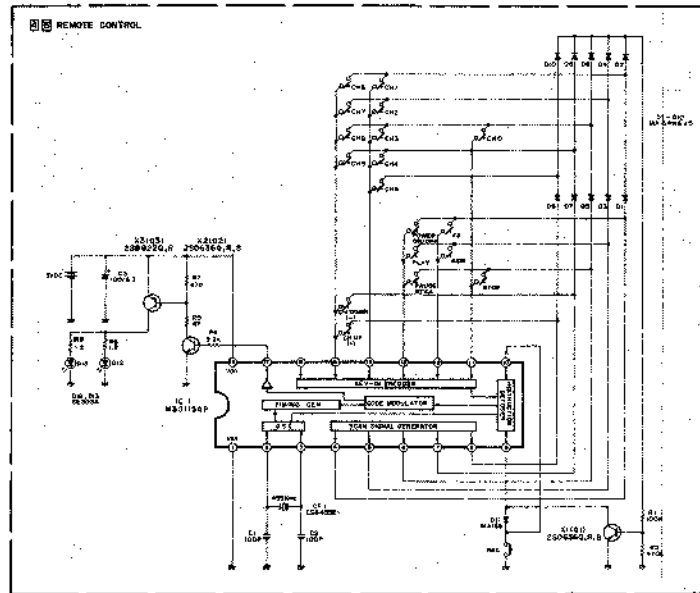
# TERMINAL TERMINAL

4.21 TERMINAL SCHEMATIC DIAGRAM & CIRCUIT BOARD



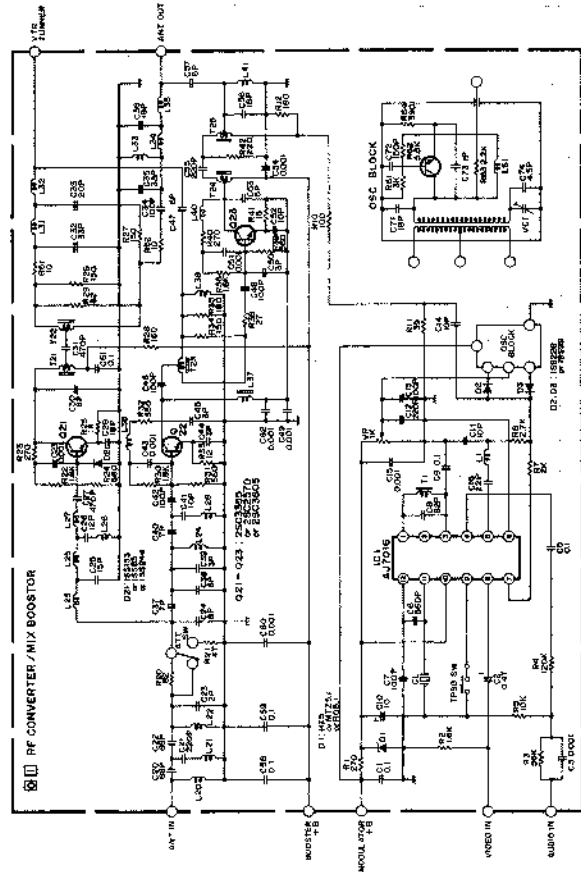
# REMOTE CONTROL RF CONVERTER

4.24 REMOTE CONTROL SCHEMATIC DIAGRAM



NOTE: Shaded ( ) parts are critical for safety. Replace only with specified part numbers.

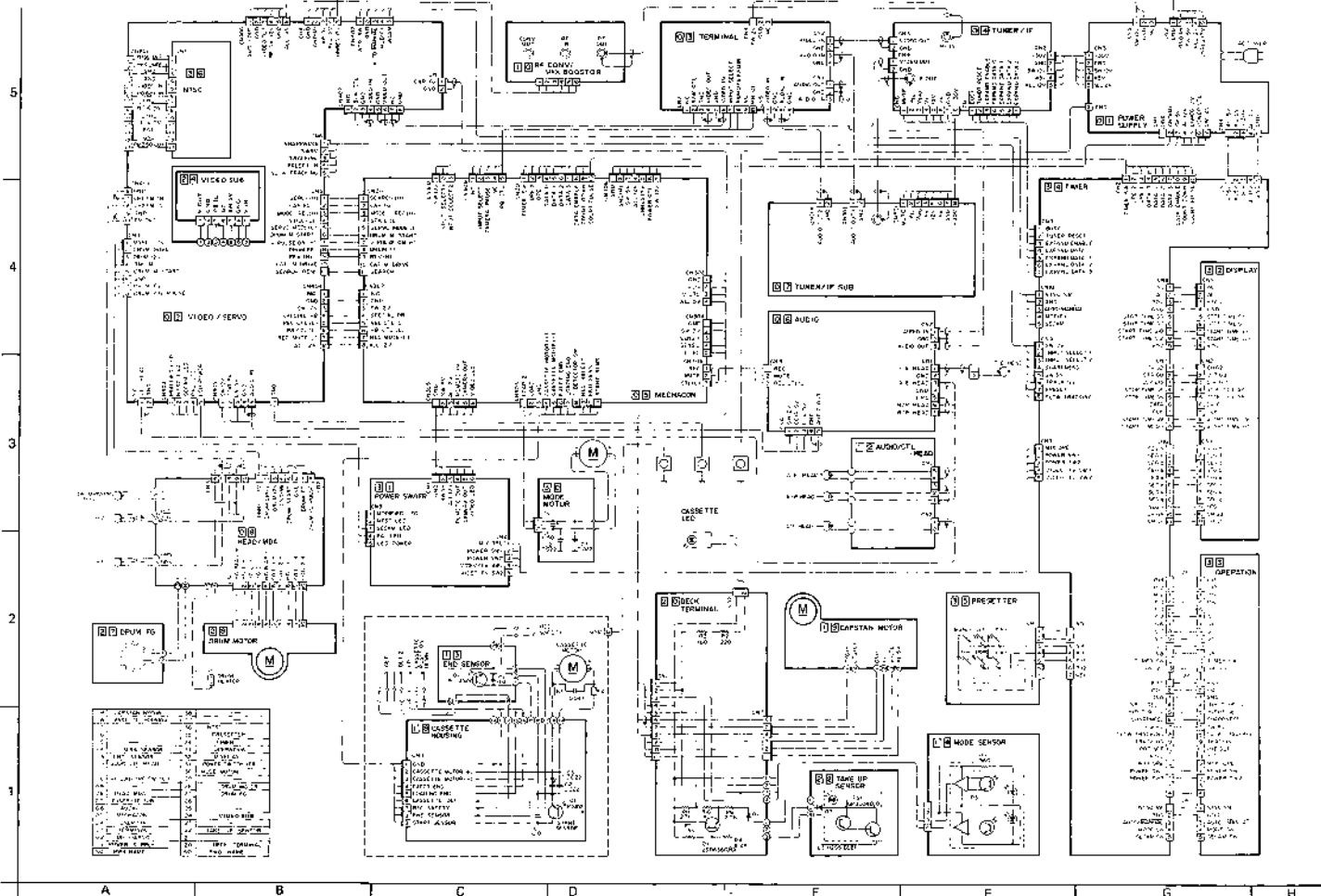
4.25 RF CONVERTER & MIX BOOSTER SCHEMATIC DIAGRAM



A B C D E F G H

# OVERALL OVERALL

## 4.26 OVERALL WIRING DIAGRAM



## SECTION 5 EXPLODED VIEWS AND PARTS LIST

### SAFETY PRECAUTION

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

### 5.1 STANDARD PART NUMBER CODING (Screw coding)

Standard screw part numbers are as follows.

Type of screw  
(in capital letters)



Shape of thread  
(in capital letters)



Type of screw (first digit)

- B Normal screws
- D Assembled screw (with plain and spring washers)
- L " " (with spring washers)
- N " " (with plain washers)
- F Feather screw
- G Washer neck tapping screws
- M Wood screws

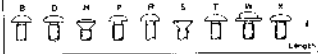
Shape of screw head (second digit)

- B Washer head
- D Burking head
- H One counterbore head
- P Pan head
- R Round head
- S Flat head
- T Trow head
- W Washer head (with chrome screw)
- X Toothed head

- Type of screw (first digit) -



- Shape of screw head (second digit) -



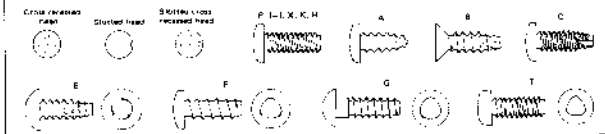
Material (third digit)

- S Steel
- N Nickel silver
- A Stainless steel
- Y Cast brass
- C Cast iron
- A Aluminum
- Q Copper
- Z Zinc alloy
- B Brass
- K Polyacetal
- P Phosphor bronze

Shape of thread (fourth digit)

- P Cross recessed head screws
- L Slotted head machine screws
- X Slotted head machine screws
- V Cross recessed head machine screws for precision equipment (type 1)
- H Cross recessed head machine screws for precision equipment (type 2)
- A Cross recessed head tapping screws (type 1)
- B Cross recessed head tapping screws (type 2)
- C Cross recessed head special tapping screws (bracket - overlight)
- E Cross recessed head special tapping screws (bracket - highlight)
- F " " (bracket - highlight)
- T " " (bracket - highlight)
- G " " (bracket - highlight)

- Shape of thread (fourth digit) -



Nominal diameter (fifth and sixth digits)

The fifth and sixth digits are numbers indicating a nominal diameter or dimension. If the dimension exceeds 10 mm, these digits are used. The number indicates a nominal diameter or dimension, given in millimeters, multiplied by ten.

Surface treatment (seventh digit)

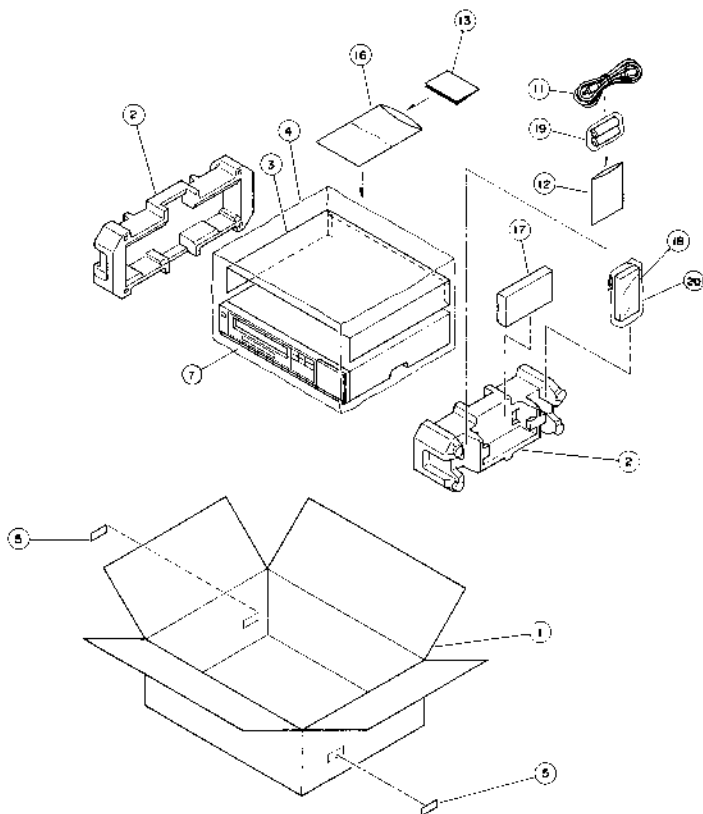
- Z Inchromium treatment after galvanizing (MFZ-2-B, C)
- N Nickel plating (MFZ-2, MFN-1)
- A Chromium plating (MBC-1, MBC-1)
- G Silver plating (SP4)
- B Black coating after plating
- F Backening of iron (FB)
- M Backening after galvanizing
- K Pickling of brass (PR2)
- P Phosphite treatment
- W Unchromite plating
- L Coating with transparent paint
- A Coating red after galvanizing (MFZ-2-B, C)
- C Coating blue after galvanizing (MFZ-2-B, C)
- T Coating green after galvanizing (MFZ-2-B, C)
- V Coating purple after galvanizing (MFZ-2-B, C)

Length (seventh and eighth digits)

The seventh and eighth digits are numbers indicating length in millimeters. The preceding figure is zero when the dimension is smaller than 10 mm. For machine screws used in precision equipment, whose length is given in units of 0.2 mm, the number indicates ten times the size of their length.

## 5.2 EXPLODED VIEWS AND PARTS LIST

### 5.2.1 Packing and accessories [M1]



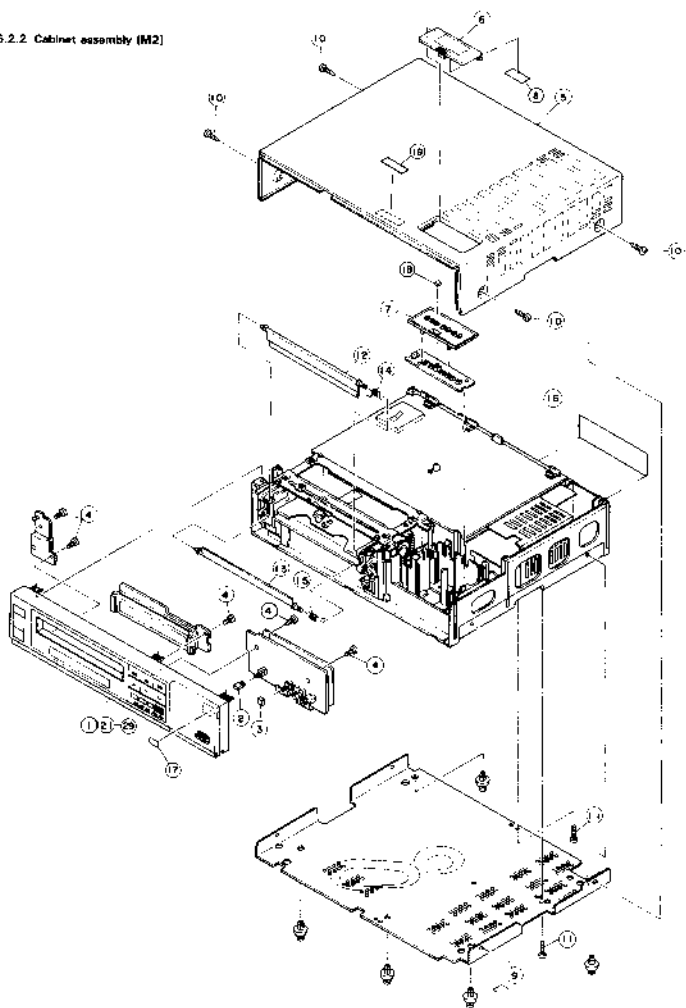


**Packing and accessories [M1]**

Ref. No.	Part No.	Part Name	Description	Qty
1	PQ30692-13	Packing Case	Right and Left	1
2	PQ30693A-5	Cushion Assembly		1
3	PQ41026-3	Protect Sheet		1
4	PQM30021-33	Poly Bag		1
5	PUP40329	Serial No. Sticker		2
6	-	-	Refer to [M2]	-
7	-	Cabinet Assembly		1
8	-	-		-
9	-	-		-
10	-	-	-	-
△ 11	PU55906	Aerial Cable Assembly		1
12	QPGA020-02003	Poly Bag		1
△ 13	PU30425-80B	Instruction Book		1
14	-	-		-
15	-	-		-
16	QPGA025-03505	Poly Bag	Refer to [M6], Incl. 20 2 Cells for 18	1
17	PTE-30-101	Cassette Tape		1
△ 18	PQ10181B-1	Remote Control Unit		1
△ 19	UM-3DJ2P	Battery		1
20	PQ10181-001	Poly Bag		1

**NOTE:** IM | indicates mechanical symbol number

## 6.2.2 Cabinet assembly (M2)



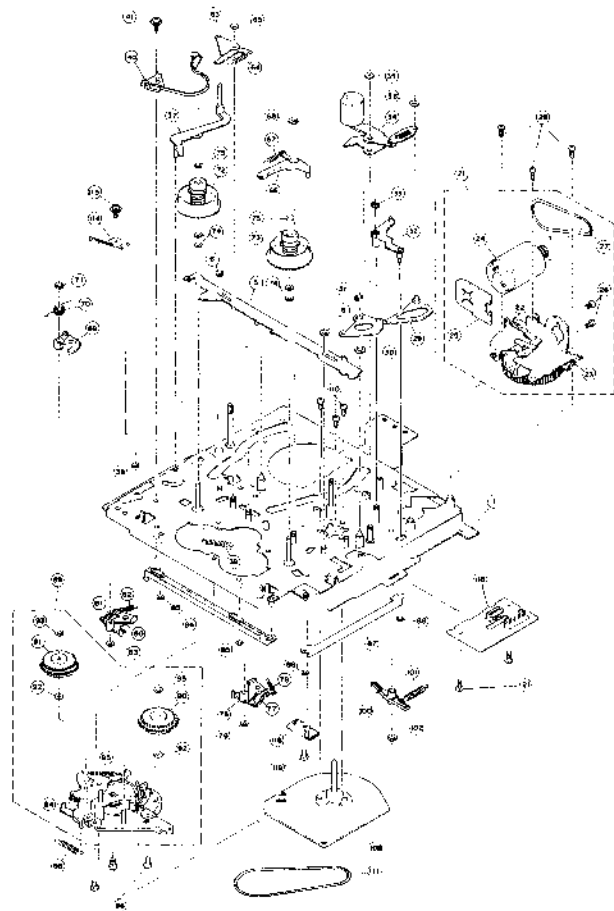
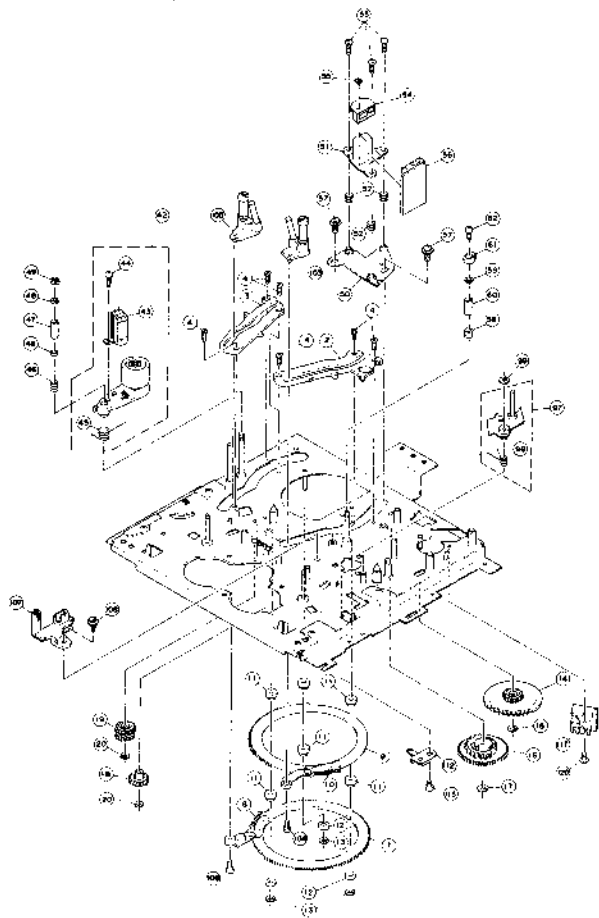
## Chassis assembly (M3)

Ref. No.	Part No.	Part Name	Description	Qty
1	—	Mechanism Assembly	Refer to (M4)	1
2	—	Drum Assembly	Refer to 21—28	1
3	—	Cassette Housing Assembly	Refer to (M5)	1
4	—	Power Supply Board Assembly	Refer to (O1)	1
5	—	VS Board Assembly	Refer to (O2)	1
6	—	Tuner/IF Board Assembly	Refer to (O4)	1
7	—	RF Converter & Mixer	Refer to (O4)	1
8	—	Presetter Board Assembly	Refer to (O5)	1
9	—	Head/MDA Board Assembly	Refer to (O8)	1
10	—	Power Switch Board Assembly	Refer to (O1)	1
11	—	IFR Board Assembly	Refer to (O1)	1
12	—	Display Board Assembly	Refer to (O2)	1
13	—	Terminal Board Assembly	Refer to (O3)	1
14	—	Timer Board Assembly	Refer to (O4)	1
15	—	Operation Board Assembly	Refer to (O3)	1
16	—	Audio Board Assembly	Refer to (O6)	1
17	—	NTSC Board Assembly	Refer to (O6)	1
18	—	Mechacon Board Assembly	Refer to (O5)	1
19	—	Tuner/IF Sub Board Assembly	Refer to (O7)	1
20	—	Video Sub Board Assembly	Refer to (O2)	1
21	PQ200168-2	Upper Drum Assembly		1
22	NDBP2608N	Screw	Upper Drum	2
23	PQ200245-22	Drum Motor Assembly	Incl 24—28	1
24	PU56202-5	Heater	or PU56202-0	1
25	SDBP2603N	Screw	Heater	2
26	PU57619	Pick-up Head	Pick-up Head	1
27	SPSH1735Z	Screw (Precision)	or PQ41596A	1
28	PU49483-3	Commutator		1
31	—	Chassis		1
32	PU57662-1-1	Foot		5
33	—	Board Hinge	Refer to (O2)	3
34	—	—		—
35	PQ41476-2-2	Earth Spring	GND	1
36	—	—		—
37	—	—		—
38	PU57677-1-3	Shield Case	Head/MDA Board	1
39	SPST3008Z	Tapping Screw	Shield Case	1
40	PQ4D413	Special Screw	Main-deck	1
41	SDSA4012Z	Tapping Screw	Main-dock	2
42	PO41396	Special Screw	Main-dock	1
43	PQ41804-1-2	Bracket		1
44	SDSA4012Z	Tapping Screw	Bracket	1
45	SDSF3012Z	Tapping Screw	Cassette Housing	4
46	SDSA4012Z	Tapping Screw		1
47	DPSP3008Z	Screw	Main Board	2
48	—	—		—
49	SDST3014Z	Tapping Screw	GND	1
50	—	Fuse	Refer to (O1)	2

Ref. No.	Part No.	Part Name	Description	Qty
51	—	—		—
52	—	—		—
53	—	—		—
54	PQ31D71	Bracket Sheet		1
55	DPSP2606Z	Screw	Head/MDA Board	2
56	LPSP2606Z	Screw	Head/MDA Board	1
57	PU41624-6	Isolation Washer	VS Board	1
58	LPSP3008Z	Screw	Drum	3
59	PQ30772C-2	Shield Assembly	Drum	1
60	SDST3006Z	Screw	Shield Cover	1
61	PQ41153	Earth Plate	Cassette Housing	1
62	PQ42200	Board Holder	Mechacon Board	1
63	SDSF3012Z	Tapping Screw	Board Holder	1
64	PQ30936	Board Holder	NTSC Board	2
65	PQ31168A-1	Shield Cover Assembly		1
Δ	PU58517C	Power Supply Unit	Incl. 4, 70—77	1
70	PU59085-32	Chassis		1
71	PU59085-34	Shield Cover		1
72	PU59085-35	Insulator		1
73	PU59085-36	Spacer		1
74	PU59085-37	Label		1
75	PU59085-58	Screw	Power Supply Board	2
76	PU59085-67	Screw	Power Switch	2
77	PU59085-58	Screw		5

NOTES: IM J indicates mechanical symbol number  
I2 digit indicates circuit board symbol number.

5.2.4 Mechanism assembly (M4)



## Mechanism assembly (M4)

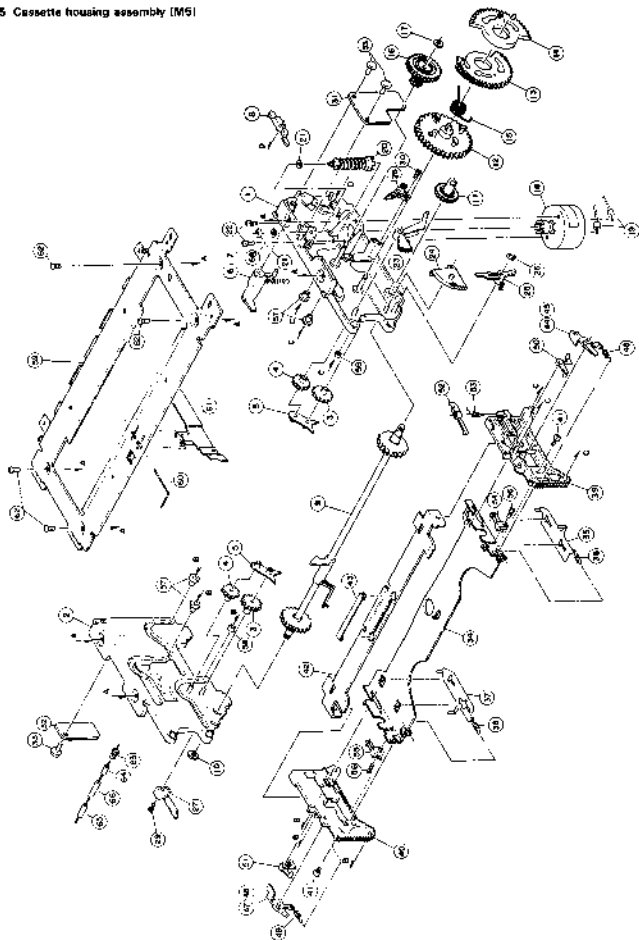
Ref. No.	Part No.	Part Name	Description	Q'ty
1		Main-deck Assembly		1
2	PQ3048B	Loading Guide (T)		1
3	PQ3048T	Loading Guide (S)		1
4	PQ4126B	Special Screw	Loading Guides	6
5	PQ30130B-3	Slide Plate Assembly		1
6	PQM30017-8	Silt Washer	Slide Plate	2
7	PQ40223B	Loading Ring Assembly (S)	Incl. 8	1
8	PQM30001-151	Spring		1
9	PQ40227B	Loading Ring Assembly (T)	Incl. 10	1
10	PQM30001-151	Spring		1
11	PQ40213	Collar		6
12	PQM30005-29	Collar		3
13	PQM30017-4	Silt Washer	Loading Rings	3
14	PQ30489	Loading Gear (1)		1
15	PQM30017-12	Silt Washer	Loading Gear (1)	1
16	PQ41354A	Loading Gear (2) Assembly		1
17	PQM30017-12	Silt Washer	Loading Gear (2)	1
18	PQ40219	Connect Gear (1)		1
19	PQ40220	Connect Gear (2)		1
20	PQM30017-8	Silt Washer	Connect Gears	2
21	PUS36689S	Drive Gear Bracket Assembly	Incl. 22-27	1
22	PQM30001-129	Spring		1
23	PQM30001-130	Spring		1
24	PQ4024A-2	Motor Assembly	Mode control	1
25	-	Motor Board Assembly	Refer to [30]	1
26	SPSP3003Z	Screw	Motor	2
27	PQM30003-14	Belt	Mode Control	1
28	SDSP2608Z	Screw	Drive Gear Bracket	3
29	PQ40248A	Lever Assembly		1
30	PQM30005-41	Collar		1
31	REE4000	E-Ring	Lever	1
32	PQ41847A	Cam Arm Assembly	Cam Arm	1
33	PQM30017-12	Silt Washer		1
34	PQ40252B-4	Pinch Roller Arm Assembly	Pinch Roller Arm	1
35	PQM30017-12	Silt Washer		1
36	PQM30017-8	Silt Washer	Pinch Roller Arm	1
37	PQ41364A	Tension Arm Assembly		1
38	PQM30017-12	Silt Washer	Tension Arm, or PQM30017-7	1
39	PQM30001-186	Spring	Back Tension	1
40	PQ41370B	Tension Band Assembly		1
41	DPSP3010Z	Screw	Tension Band	1
42	PQ41374D	Full Erase Head Arm Assembly	Incl. 43-45	1
43	PUS7641	Full Erase Head		1
44	SPSC2608Z	Tapping Screw		1
45	PQ4042Z	Spring	Full Erase Head	1
46	PQM30002-112	Spring		1
47	PUS3629-2	Tape Guide	Supply Guide Pole	1
48	PQ4075Z	Guide Flange		2
49	PQ40353	Nylon Nut	Erase Head Arm	1
50	PQ41376A-1	Head Base Assembly	Audio/Control Head	1
51	PUS8140	Audio/Control Head		1
52	PUS30080-49	Spring		3
53	SPSP2608Z	Screw	Audio/Control Head	3
54	PQ41759	Shield Cap		1
55	HPSP1710N	Screw	Shield Cap	1
56	-	Audio/Control Head Board Assembly	Refer to [12]	1
57	DPSP2608Z	Screw	Head Base	2
58	PQ41348-2	Guide Flange (T)		1
59	PQ40288-2	Guide Flange		1
60	PUS3629-2	Tape Guide	Take-up Guide Pole	1
61	PQ41346	Guide Pole Cap		1
62	SDSP2006Z	Screw	Tape Guide	1
63	PQ40274A-2	Loading Brake (S) Assembly	Incl. 64	1
64	PQM30001-175	Spring		1
65	PQM30017-12	Silt Washer	Loading Brake (S)	1

Ref. No.	Part No.	Part Name	Description	Q'ty
66	PQ40276A-2	Loading Brake (T) Assembly	Incl. 67	1
67	PQM30001-171	Spring		1
68	PQM30017-12	Silt Washer	Loading Brake (T)	1
69	PQ41379A-1	Gear Lever Assembly		1
70	PQ4116Z-12	Spring		1
71	PQM30017-13	Silt Washer	Gear Lever	1
72	PUS7644-1-1	Reel Disk (S)		1
73	PUS7645	Reel Disk (T)		1
74	Q03093-82B	Washer		4
75	PQM30017-5	Silt Washer	Reel Disks	2
76	PQ40285A	Main Brake (T) Assembly	Incl. 77 and 78	1
77	PQM30001-135	Spring		1
78	PQM30001-136	Spring		1
79	PQM30017-12	Silt Washer	Main Brake (T)	1
80	PQ40288A	Main Brake (S) Assembly	Incl. 81-82	1
81	PQM30001-135	Spring		1
82	PQM30001-136	Spring		1
83	PQM30017-12	Silt Washer	Main Brake (S)	1
84	PQ30133-1-5	Main Brake Slider		1
85	PQM30017-8	Silt Washer	Main Brake Slider	2
86	PQM30001-178	Spring		1
87	PQ40231	Push Plate		1
88	PQM30017-8	Silt Washer	Push Plate	1
89	PUS76588-4	Clutch Mechanism Assembly	Incl. 90-95	1
90	PUB6043-1-4	Clutch (T)		1
91	PUS6044-2-5	Clutch (S)		1
92	Q03093-827	Washer		2
93	PQM30017-2	Silt Washer	Clutches	2
94	PQM30001-140	Spring		1
95	PQM30001-139	Spring		1
96	SPSP3006Z	Screw	Clutch Mechanism	3
97	PQ41384A	Guide Arm Assembly	Incl. 98	1
98	PQ41405	Spring		1
99	PQM30017-8	Silt Washer	Guide Arm	1
100	PQ41389A	Motor Brake Assembly	Incl. 101	1
101	PQM30001-182	Spring		1
102	PQM30017-12	Silt Washer	Motor Brake	1
103	PQ40354E-3	Pole Base (T) Assembly		1
104	PQ40285	Flange Screw	Pole Base (T) or PQ40357A-2	1
105	PQ40357B-2	Pole Base (S) Assembly		1
106	PQ40295	Flange Screw	Pole Base (S)	1
107	PUB8528-2	LED Assembly		1
108	DPSP3008Z	Screw	LED Assembly	1
109	PUS7647V	Capstan Motor		1
110	SDSP2603Z	Screw	Capstan Motor	3
111	PQM30003-10	Belt	Reel	1
112	PUB6930-2	Brush Assembly		1
113	SPSP3003Z	Screw	Brush	1
114	PQ4128Z	Earth Plate		1
115	DPSP3005M	Screw		1
116	-	Take Up Reel Sensor Board Assembly	Refer to [22]	1
117	-	Mode Sensor Board Assembly	Refer to [14]	1
118	-	Deck Terminal Board Assembly	Refer to [20]	1
119	SPST3008Z	Tapping Screw	Take Up Reel Sensor Board	1
120	DPSP3010Z	Screw	Mode Sensor Board	1
121	SDSP2608Z	Screw	Deck Terminal Board	2

NOTES: IM | indicates mechanical symbol number

|Z | indicates circuit board symbol number.

### 5.2.5 Cassette housing assembly [M5]



### Cassette housing assembly [M5]

Ref. No.	Part No.	Part Name	Description	Qty
—	PUS26805U	Cassette Housing Assembly	Incl. 1—68	1
1	PQ30033D-4	Guide Stay (R) Assembly		1
2	PQ30278B-3	Guide Stay (L) Assembly		1
3	PQ40059	Gear (1)	Left and Right	2
4	PQ40060	Gear (2)	Left and Right	2
5	PQ40061	Double Cap		2
6	PQ401D2A-1	Door Guide Assembly	Incl. 7, Guide Stay (R)	1
7	PUM30001-111	Spring		1
8	PQ40063	Guide Lever	Guide Stay (R)	1
9	PQ40103A	Connect Gear Assembly		1
10	PUM30017-11	Slit Washer	Connect Gear Assembly	1
11	PQ40065	Cam Gear (2)	Guide Stay (R)	1
12	PQ30028	Cam Gear (1)		1
13	PQ40065-1-2	Loading Slide Gear		1
14	PQ40087-1-2	UL Slide Gear	Unloading	1
15	PQ40068-2	Limiter Spring	Cam Gear (1)	1
16	PQ40484	Worm Wheel		1
17	PUM30017-4	Slit Washer	Worm Assembly	1
18	PQ40090A	Motor Assembly	Cassette Motor	1
19	PU45811	Flange Beads	Motor Assembly	2
20	PQ40091B	Worm Assembly		1
21	Q03093-830	Washer	Worm Assembly	1
22	SPSP2004Z	Screw	Motor Assembly	2
23	PQ40074	Upper Door Opener		1
24	PQ40075-1-5	Lower Door Opener		1
25	PQ40076-2	Hold Lever	Lower Door Opener	1
26	REE2500X	E-Flang	Hold Lever	1
27	PU51259-3	Leaf Switch	Rec Safety, Guide Stay (L)	1
28	PU55377-2	End Switch	Cassette Load End/Eject End	1
29	SPSP2010Z	Screw	Leaf Switch	1
30	SBSE2610Z	Tapping Screw	End Switch	1
31	—	Cassette Housing Board	Refer to [18]	1
32	—	End Sensor Board	Refer to [13]	1
33	PU48973-3	Stopper	Cassette Housing/End Sensor Boards	3
34	PQ30031-1-3	Cassette Holder		1
35	PQ40106B-1	Slide Plate (R) Assembly	Incl. 36	1
36	PUM30001-210	Spring		1
37	PQ40107B-1	Slide Plate (L) Assembly	Incl. 38	1
38	PUM30001-210	Spring		1
39	PQ10009-1-4	Bracket (Right)		1
40	PQ10009-2-3	Bracket (Left)		1
41	SPSP2003Z	Screw	Bracket (Right/Left)	2
42	PQ30208	Reinforcement		1
43	PQ40478	Guard	Reinforcement	1
44	PQ40106B-3	Lock Lever (R) Assembly	Incl. 45, 46	1
45	PQM30019-10	Pad	Lock Lever (R)	1
46	PUM30001-110	Spring		1
47	PQ40106B-3	Lock Lever (L) Assembly	Incl. 48, 49	1
48	PQM30019-10	Pad		1
49	PUM30001-110	Spring		1
50	PQ40081A	Switch Lever (R) Assembly	Insert Switch (R)	1
51	PQ40081B	Switch Lever (L) Assembly	Insert Switch (L)	1
52	PQ40083-1-4	Lid Opener	Bracket (R)	1
53	PQ40084-1-2	Torsion Spring	Lid Opener	1
54	PU55378	Insert Switch (Right)	Cassette in Detector, or PU55378-1	1
55	PU55378-2	Insert Switch (Left)	Cassette in Detector, or PU55378-2-1	1

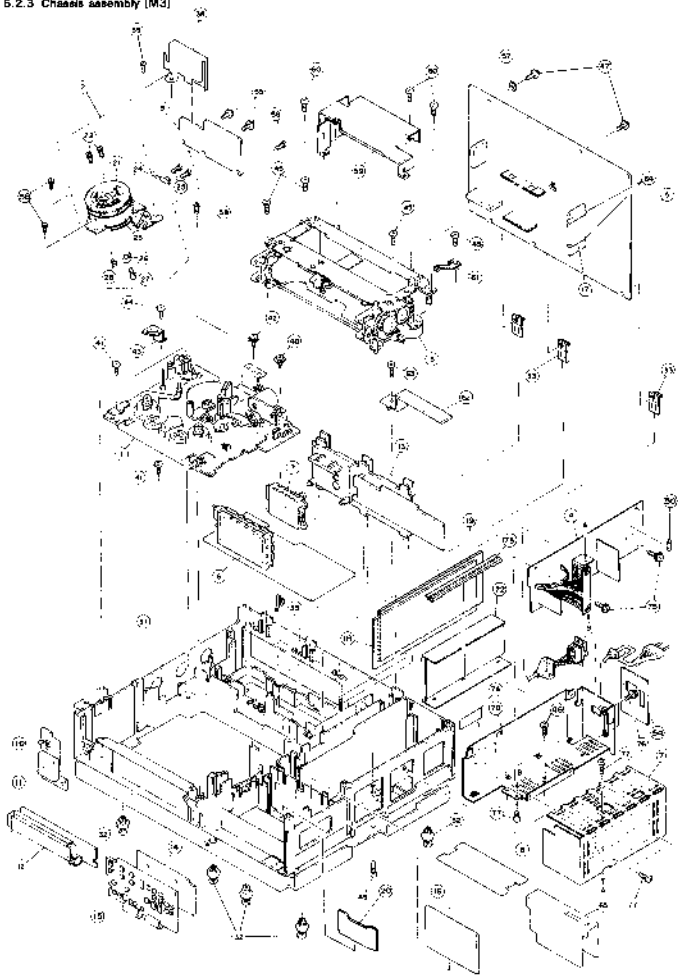
## Cabinet assembly (M2)

Ref. No.	Part No.	Part Name	Description	Qty
Δ 1	PQ10163G-17	Front Panel Assembly	Incl. 21 - 29	1
2	PQ30590	Button	MEMORY	1
3	PQ41554-1-4	Button	TIMER	1
4	SDSF3008Z	Tapping Screw	P. SW. DISPLAY, OPERATION boards	5
Δ 5	PQ10148-1-4	Top Cover		1
6	PU35584-1-3	Channel Cover		1
7	PQ30784B	Button Assembly	Channel Set	1
8	PQ42435-2	Preset Label		1
Δ 9	PQ10122-1-6	Bottom Cover		1
10	SDSA4014R	Tapping Screw	Top Cover	4
11	SDSF3012Z	Tapping Screw	Bottom Cover	2
12	PQ30107ET	Upper Door Assembly		1
13	PQ30030-B-15	Lower Door		1
14	PQ40104-2	Spring	Upper Door	1
15	PQ40472	Spring	Lower Door	1
16		Rating Label		1
17	PU59176-2	HQ Label		1
18	PQ41268	Button		1
19	PQ42588	Caution Sticker		1

## - Front panel components -

21	PQ41555B	Button Assembly	POWER ON-OFF	1
22	PQ30596	IFR Window	Infrared	1
23	PQ30587	Button	EJECT	1
24	PQ30601	Button	INSTANT RECORD	1
25	PQ30582-23	Door	Program	1
26	PU35597-2	Program Label		1
27	PQ30584-13	Program Plate		1
28	PQ41501	Mark	JVC	1
29	PQM30002-99	Spring	POWER Button	1

### 5.2.3 Chassis assembly [M3]

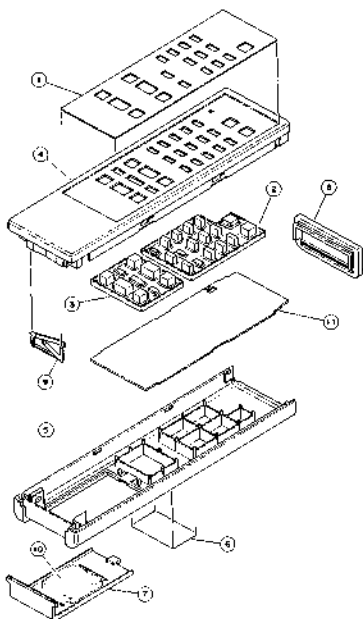




Ref. No.	Part No.	Part Name	Description	Qty
56	SPSP17042	Screw	Insert Switch (Right/Left)	2
57	PQ40066	Roller	Guide Stay (Right/Left)	4
58	PQ40067-2	Mini Roller	Guide Stay (Right/Left)	2
59	PQ20043	Roof Plate		1
60	PQ40440-1-1	Rod	Roof Plate	1
61	PQ40478-1-3	Upper Door Stopper		1
62	SBSE2808Z	Tapping Screw	Roof Plate	4
63	PQ40299	Wire Cap	Guide Stay (L)	1
64	QXT629H-015	UL Tube		1
65	QXT329H-035	UL Tube		1
66	QXTF253-040	UL Tube		1
67	PUM30017	Silt Washer	Worm Assembly	1
68	Q03093-838	Washer	Worm Assembly	1

NOTES: [M ] indicates mechanical symbol number.  
[2 digits] indicates circuit board symbol number.

### 5.2.6 Remote control unit (M6)



Remote control unit (M6)

Ref. No.	Part No.	Part Name	Description	Q'ty
1	—	Remote Control Unit	Refer to (M1), Incl. 1—11	1
2	PU35602-2-2	Top Panel		1
3	PU35603	Button (1)		1
4	PU35604	Button (2)		1
5	PU35601	Top Case		1
5	PU35423	Bottom Case		1
6	PU35432	Remote Label		1
7	PU35422	Battery Cap	Excepting Sponge	1
8	PQ10181-004	Smoked Board	Infrared Window	1
9	PQ10181-006	Battery Terminal	Top Case	1
10	PQ10181-007	Damper	Battery Cap	1
11	—	Remote Control Board Assembly	Refer to (M5)	1

NOTES: (M ) indicates mechanical symbol number.  
(2 digits) indicates circuit board symbol number.

## SECTION 6 ELECTRICAL PARTS LIST

### SAFETY PRECAUTION

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

### ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS:

**RESISTORS**—All resistance values are in ohms ( $\Omega$ ), unless otherwise indicated.

k : 1,000 (Kilo)  
M : 1,000,000 (Mega)

Chip R : Chip Resistor  
Chip VR : Chip Variable Resistor  
Comp. R : Composition Resistor  
CR : Carbon Film Resistor  
FR : Fusible Resistor  
MFR : Metal Film Resistor  
MPR : Metal Plate Resistor  
OMR : Oxide Metal Film Resistor  
PMR : Precision Metal Film Resistor  
UFR : Unflamable Resistor  
VR : Variable Resistor (Potentiometer)  
WR : Wire Wound Resistor

**CAPACITORS**—All capacitance values are in  $\mu$ F, unless otherwise indicated.  
pF :  $\mu$ F (Pico farad)

C Cap : Ceramic Capacitor  
Chip Cap : Chip Capacitor  
Chip T Cap : Chip Tantalum Capacitor  
E Cap : Electrolytic Capacitor  
FM Cap : Film Mica Capacitor  
LL Cap : Low Leak Current Electrolytic Capacitor  
MM Cap : Metallized Mylar Capacitor  
MP Cap : Metallized Paper Capacitor  
MY Cap : Mylar Capacitor  
NP Cap : Non-polar Capacitor  
PC Cap : Polycarbonate Capacitor  
PP Cap : Polypropylene Capacitor  
PS Cap : Polystyrol Capacitor  
T Cap : Tantalum Capacitor  
TF Cap : Thin Film Capacitor  
TR Cap : Trimmer Capacitor

**NOTE:** 12 digits indicate circuit board symbol number.

## 6.2.1 Power supply board assembly [01]

..... Δ PUS9085-00

Symbol No.	Part No.	Part Name	Description
IC701	M6236L	Integrated Circuit	
Q01	2SC3506	Transistor	
Q02	2SC1885 or 2SC1740	Transistor	
Q03	2SA564A	Transistor	
Q04	2SC1579B	Transistor	
Q05	2SD966 or 2SC1318	Transistor	
Q06	2SC1318	Transistor	
Q07	2SD966 or 2SC1318	Transistor	
Q101	2SD1266A	Transistor	
Q601	2SB941A	Transistor	
Q602	2SA564A	Transistor	
Q603	2SA564A	Transistor	
Q701	2SD1266A	Transistor	
Q702	2SC1885 or 2SC1740	Transistor	
CR1	NT101	PUT	
D01	D3S860	Diode Stack	
D02	ERC250	Diode	
D03	MA162	Diode	
D04	MC931	Diode Array	
D05	MC931	Diode Array	
D06	MA161	Diode	
D07	ERA21-06	Diode	
D08	MA162	Diode	
D101	ERA21-06	Diode	
D102	MA161	Diode	
D201	ERA21-06	Diode	
D301	ERA21-06	Diode	
D401	MA649HD	Diode	
D501	SH1A02	Diode	
D601	MA649HD	Diode	
D701	ERC2506	Diode	
ZD01	RD68EB3	Zener Diode	
ZD02	RD62EB2	Zener Diode	
ZD03	RD75EB3	Zener Diode	
ZD04	RD18EB3	Zener Diode	
ZD05	RD12EB3	Zener Diode	
ZD101	RD68EB3	Zener Diode	
ZD701	RD62EB2	Zener Diode	
ZD702	RD75EB3	Zener Diode	
ZD703	RD18EB3	Zener Diode	
ZD704	RD12EB3	Zener Diode	
R01	GRD121J-105	CR	
R02	PUS9085-19	CR	56K
R03	GRD14AJ-474	CR	
R04	GRD14AJ-474	CR	
R08	GRD121J-223	CR	
R06	GRD121J-223	CR	
R07	GRD121J-273	CR	
R08	GRD121J-273	CR	
R09	GRD14AJ-105	CR	
R10	GRD14AJ-882	CR	
R11	GRD121J-221	CR	
R12	GRD121J-221	CR	
R13	GRD14AJ-102	CR	
R14	GRD14AJ-391	CR	
R15	PUS9085	CR	20KΩ
R16	GRD14AJ-221	CR	
R17	GRD14AJ-223	CR	
R18	GRD14AJ-562	CR	
R19	PUS9517-006	OMR	470Ω
R20	GRD121J-161	CR	
R21	GRD121J-161	CR	
R22	GRD14AJ-162	CR	
R23	GRD14AJ-103	CR	
R24	GRD14AJ-282	CR	
R25	GRD14AJ-321	CR	
R26	GRD14AJ-472	CR	
R27	GRD14AJ-101	CR	
R28	GRD14AJ-272	CR	
R29	GRG026J-221	OMR	
R30	GRG026J-221	OMR	
R31	GRD14AJ-471	CR	
R101	PUS9085-20	FR	0.56Ω
R102	GRD14AJ-472	CR	
R201	PUS9085-22	FR	4.7Ω
R301	PUS9085-22	FR	4.7Ω
R401	PUS9085-20	FR	0.58Ω
R501	PUS9085-20	FR	0.58Ω
R601	GRD14AJ-152	CR	
R602	GRD14AJ-221	CR	
R603	GRD14AJ-692	CR	
R604	GRD14AJ-103	CR	
R701	-	-	
R702	GRD14AJ-163	CR	
R703	-	-	
R704	GRD14AJ-103	CR	

Symbol No.	Part No.	Part Name	Description
R705	QRD14AJ-122	CR	
R706	QRD14AJ-224	CR	
R707	QRD14AJ-161	CR	
R708	QRD14AJ-181	CR	
R709	QRD14AJ-662	CR	
R710	QRD14AJ-163	CR	
R711	QRD14AJ-332	CR	
R712	QRD14AJ-223	CR	
VR02	FV59085-27	VR	1 kΩ
VR01	FV59085-26	VR	10 kΩ
TH01	FV59088-26	Thermistor	8.8Ω
C01	QF26022-473	Film Cap	
C02	FU59085-1 or FU59085-2	C Cap	0.0022 <sub>μ</sub>
C03	FU59085-1 or FU59085-2	C Cap	0.0022 <sub>μ</sub>
C04	FU59085-1 or FU59085-2	C Cap	0.0022 <sub>μ</sub>
C05	FU59085-1 or FU59085-2	C Cap	0.0022 <sub>μ</sub>
C06	QF29022-104	Film Cap	
C07	FU59085-3	E Cap	150 <sub>μ</sub> /400V
C08	FU59085-4 or FU59085-6	C Cap	100P
C09	FU59085-6	Film Cap	0.01 <sub>μ</sub> /630V
C10	QETC11M-476 or QET41HM-476	E Cap	47 <sub>μ</sub> /25V
C11	QFM41HK-102	Film Cap	
C12	QFM41HK-104	Film Cap	
C13	QETA11M-225 or QET41HM-225	E Cap	
C14	-	-	-
C15	FU59085-7 or FV59085-6	C Cap	0.001 <sub>μ</sub>
C16	FU59085-7 or FV59085-6	C Cap	0.001 <sub>μ</sub>
C17	FV59085-6 or FV59085-10	C Cap	330P
C18	FV59085-9 or FV59085-10	C Cap	330P
C19	FV59085-1 or FV59085-2	C Cap	0.0022 <sub>μ</sub>
C20	FV59085-1 or FV59085-2	C Cap	0.0022 <sub>μ</sub>
C21	FV59085-1 or FV59085-2	C Cap	0.0022 <sub>μ</sub>
C22	FV59085-1 or FV59085-2	C Cap	0.0022 <sub>μ</sub>
C201	QETC11M-107 or QET41HM-107	E Cap	

Symbol No.	Part No.	Part Name	Description
C202	QETC11M-108 or QET41HM-108	E Cap	
C301	QETC11M-478	E Cap	
C401	FV59085-11	E Cap	100 <sub>μ</sub> /25V
C501	QETC11M-106	E Cap	
C601	FV59085-12	E Cap	2200 <sub>μ</sub> /16V
C602	FV59085-13	E Cap	47 <sub>μ</sub> /25V
C701	FV59085-14	E Cap	
C702	QETC11M-106	E Cap	
C703	QETC11M-227	E Cap	
T01	FV59086-23	Mean Trans	
T02	FV59086-24	Current Trans	
L01	FV59086-17	Choke Coil	
L201	FV59086-18	Peaking Coil	
L801	FV59086-18	Peaking Coil	
L701	FV59086-18	Peaking Coil	
F01	QMF51E2-3R15	Fuse	
F02	FJ59085-16 FV59085-16	Thermal Fuse Fuse Holder	
S1	FV59086-26 QMP390P-200 FV59085-52 FV59085-31 FV59085-15 QHS3771-108 FV59085-30 FV59085-33	Switch Power Cord Switch Cover Fuse Holder Ring Core Stream Relief Heat Sink Heat Sink	for Q01 for Q101,601 701,801
	FV59085-56 FV59086-60 FV59086-63 FV59085-64 FV59110	Screw Screw Cover Cover Spacer	Heat Sink Fuse Holder Lange Shield

## 6.2.2 Video/servo board assembly (02) ..... PU11319F

—Servo section—

Symbol No	Part No.	Part Name	Description	Symbol No	Part No.	Part Name	Description
IC1	M51795P	Integrated Circuit		R18	QRD161J-333	CR	
IC2	BU27105A	Integrated Circuit		R19	QRD161J-103	CR	
IC3	M6236L	Integrated Circuit		R20	QRD161J-294	CR	
IC4	IR3702	Integrated Circuit		R21	QRD161J-103	CR	
	or UFC324C	Integrated Circuit		R22	QRD162J-100	CR	
IC5	UFD40136C	Integrated Circuit		R23	QRD161J-100	CR	
ΔIC6	TC40H000P	Integrated Circuit		R24	—	—	
				R25	QRD161J-100	CR	
				R26	QRD161J-153	CR	
				R27	QRD161J-103	CR	
				R28	—	—	
Q1	2SD6360,R,S	Transistor		R29	QRD161J-581	CR	
Q2	2SD6360,R,S	Transistor		R30	QRD161J-472	CR	
Q3	DTC144EF	D Transistor		R31	QRD161J-104	CR	
Q4	DTC144EF	D Transistor		R32	QRD161J-104	CR	
Q5	DTC144EF	D Transistor		R33	QRD161J-104	CR	
Q6	DTA1446F	D Transistor		R34	QRD161J-104	CR	
Q7	DTA1446F	D Transistor		R35	QRD161J-683	CR	
Q8	DTC144EF	D Transistor		R36	QV295E8-324	VR	
Q9	UM4112	D Transistor		R37	QV295E8-104	VR	
Q10	2SD6360,R,S	Transistor		R38	QRD161J-153	CR	
				R39	QRD161J-100	CR	
				R40	QRD161J-472	CR	
Q11	2SB6410,R,S	Transistor		R41	QRD161J-100	CR	
Q12	2SD6360,R,S	Transistor		R42	QRD161J-103	CR	
Q13	2SB6410,R,S	Transistor		R48	QRD161J-472	CR	
Q14	2SD6360,R,S	Transistor		R44	QRD161J-101	DR	
Q18	2SB6410,R,S	Transistor		R45	QRD161J-393	CR	
Q16	2SD6360,R,S	Transistor		R46	QRD161J-100	CR	
Q17	DTA1446F	D Transistor		R47	QRD161J-392	CR	
Q18	DTC144EF	D Transistor		R48	QRD161J-683	CR	
Q19	DTC144EF	D Transistor		R49	QRD161J-106	CR	
				R50	QRD161J-223	CR	
D1	04208	Diode Array		R51	QRD161J-584	DR	
D2	1SS132	Diode		R52	QRD161J-100	CR	
D3	1SS132	Diode		R53	QRD161J-393	CR	
D4	—	—		R54	QRD161J-474	CR	
D5	1SS138	Diode		R55	QRD161J-829	CR	
D6	0AP201	Diode Array		R56	QRD161J-684	CR	
D7	RD51EB3	Zener Diode		R57	QRD161J-472	CR	
D8	RD12B2	Zener Diode		R58	QRD161J-393	CR	
D9	1SS133	Diode		R59	QRD161J-100	CR	
D10	MA150	Diode		R60	QRD161J-103	CR	
D11	1SS133	Diode		R61	QV23521-104	VR	
D12	1SS132	Diode		R62	QRD161J-393	CR	
				R63	QRD161J-101	CR	
R1	QRD161J-102	CR		R64	QRD161J-100	CR	
R2	QRD161J-292	CR		R65	QRD161J-222	CR	
R3	QRD161J-564	CR		R66	QRD161J-473	CR	
R4	QRD161J-583	CR		R67	—	—	
R5	QRD161J-100	CR		R68	QRD161J-473	CR	
R6	QRD161J-153	CR		R69	QRD161J-222	CR	
R7	QRD161J-106	CR		R70	QRD161J-103	CR	
R8	QRD161J-102	CR					
R9	QRD161J-102	CR					
R10	QRD161J-471	CR		R71	—	—	
				ΔR72	PUS2108-1R0	Resistor	
R11	QRD161J-474	CR		R73	QRD161J-473	CR	
R12	QRD161J-392	CR		R74	QRD161J-223	CR	
R13	QRD161J-104	CR		R75	QRD161J-103	CR	
R14	QRD161J-504	CR		R76	QRD161J-472	CR	
R16	QRD161J-473	CR		R77	QRD161J-472	CR	
R18	QRD161J-184	CR		R78	QRD161J-154	CR	
R17	QRD161J-383	CR		R79	QRD161J-473	CR	

NTSC SW  
PAL SW

V LOCK STILL

(Servo)

Symbol No.	Part No.	Part Name	Description
C1	QCF31HP-102	C Cap	
C2	QCF31HP-102	C Cap	
C3	QCS31HJ-221	C Cap	
C4	QFN31HK-393	MY Cap	
C5	QEK61CM-106	E Cap	
C6	QCS31HJ-101	C Cap	
C7	QET61CM-106	E Cap	
C8	QET61CM-476	E Cap	
C9	QCS31HJ-681	C Cap	
C10	QEK61HM-106	E Cap	
C11	-	-	
C12	QER61CM-106	E Cap	
C13	QCF31HP-102	C Cap	
C14	QCF31HP-102	C Cap	
C15	QER61CM-106	E Cap	
C16	QER61CM-336	E Cap	
C17	-	-	
C18	QCE31HP-102	C Cap	
C19	QFN31HK-223	MY Cap	
C20	QCS31HJ-191	C Cap	
C21	QET61HM-105	E Cap	
C22	QET61CM-476	E Cap	
C23	QCS31HJ-101	C Cap	
C24	-	-	
C25	QCS31HJ-101	C Cap	
C26	-	-	
C27	QFN31HJ-223	MY Cap	
C28	-	-	
C29	QFN31HJ-124	MY Cap	
C30	QCF31HP-102	C Cap	
C31	QEK61CM-106	E Cap	
C32	QFN31HJ-123	MY Cap	
C33	QFN31HJ-122	MY Cap	
C34	QFN31HJ-222	MY Cap	
C35	QCS31HJ-561	C Cap	
C36	QCS31HJ-470	C Cap	
C37	QCS31HJ-470	C Cap	
C38	QCF31HP-103	C Cap	
C39	QCF31HP-103	C Cap	
C40	QCF31HP-103	C Cap	
C41	QCS31HJ-151	C Cap	
C42	QFN31HK-304	MY Cap	
C43	QET61CM-106	E Cap	
C44	QEK61CM-106	E Cap	
C45	QEN61HM-475	NP Cap	
C46	QFN31HK-184	MY Cap	
C47	QFN31HK-472	MY Cap	
C48	QEP61HM-105	NP Cap	
C49	QET61CM-106	E Cap	
C50	QET61HM-225	E Cap	
C51	QET61CM-105	E Cap	
C52	QET61HM-226	E Cap	
C53	QET61CM-106	E Cap	
C54	QET61CM-106	E Cap	
C55	QCS31HJ-470	C Cap	
C56	QCS31HJ-470	C Cap	
C57	QET61HM-224	E Cap	
C58	QFN31HK-473	MY Cap	
C59	QFN31HK-683	MY Cap	
C60	QEK61CM-106	E Cap	

Symbol No	Part No	Part Name	Description
L1	FU48B30-100J	Peaking Coil	
Δ X1	PUS6217-4	Crystal	
Δ X2	PUS6217	Crystal	
CN1	PM48215-2	Cap Housing	
CN2	PM48215-2	Cap Housing	
CN3	PM48215-4	Cap Housing	
CN4	PM48215-5	Cap Housing	
CN5	PM48215-111	Cap Housing	
CN6	PM48215-4	Cap Housing	
TP	PM57545	Test Pin	TP1,2,6,11,22

- Video (Luminance) section -

Symbol No.	Part No	Part Name	Description
K401	ME223L	Integrated Circuit	
K402	LC4001B	Integrated Circuit	
Δ K403	LM5416E-135	Integrated Circuit	
K404	AN5392	Integrated Circuit	
K405	FU22199A	Y Mod. PWB Ass'y	
K406	TC4085BP	Integrated Circuit	
K407	MS236L	Integrated Circuit	
K408	AN3310K	Integrated Circuit	
K409	H8D1936	Integrated Circuit	
Q401	DYA114EF	D Transistor	
Q402	DTC114EF	D Transistor	
Q403	2SB643R,S	Transistor	
Q404	2SB643R,S	Transistor	
Q405	2SB643R,S	Transistor	
Q406	DTC114EF	D Transistor	
Q407	2SB911MQ,R	Transistor	
Q408	2SB643R,S	Transistor	
Q409	2SB643R,S	Transistor	
Q410	DTC114EF	D Transistor	
Q411	2SB638R,S	Transistor	
Q412	2SB643R,S	Transistor	
Q413	2SC2021R	Transistor	
Q414	2SB641R,S	Transistor	
Q415	-	-	
Q416	2SC2021R	Transistor	
Q417	DTC124EF	D Transistor	
Q418	DTC114EF	D Transistor	
Q419	2SB641R,S	Transistor	
Q420	2SC2021R	Transistor	
Q421	2SC2021R	Transistor	
Q422	2SB641R,S	Transistor	
Q423	2SB643R,S	Transistor	
Q424	2SB641R,S	Transistor	
Q425	2SC2021R	Transistor	
Q426	DTC114EF	D Transistor	
Q427	2SC2021R	Transistor	
Q428	2SC2021R	Transistor	
Q429	-	-	
Q430	2SC2021R	Transistor	
Q431	-	-	
Q432	2SC2021R	Transistor	
Q433	-	-	
Q434	2SC2021R	Transistor	
Q435	DTC114EF	D Transistor	
Q436	2SB641R,S	Transistor	
Q437	2SC2021R	Transistor	
Q438	DYA114EF	D Transistor	
Q439	2SB641R,S	Transistor	
Q440	DTC124EF	D Transistor	
Q441	DTC124ES	D Transistor	
D401	15S133	Diode	
D402	15S133	Diode	
D403	15S133	Diode	
D404	15S133	Diode	
D405	15S133	Diode	
D406	MA150	Diode	

Symbol No.	Part No.	Part Name	Description
D407	15S133	Diode	
D408	15S133	Diode	
D409	15S133	Diode	
D410	15S133	Diode	
D411	15S133	Diode	
D412	15S133	Diode	
D413	15S133	Diode	
D414	15S133	Diode	
D415	MA150	Diode	
D416	15S133	Diode	
D417	15S133	Diode	
D418	15S133	Diode	
D419	15S133	Diode	
D420	15S133	Diode	
D421	15S133	Diode	
D422	15S133	Diode	
D423	15S133	Diode	
D424	15S133	Diode	
R401	GRD161J-105	CR	
R402	GRD161J-473	CR	
R403	GRD161J-273	CR	
R404	GRD161J-981	CR	
R405	GRD161J-473	CR	
R406	GRD161J-823	CR	
R407	GRD161J-223	CR	
R408	GRD161J-103	CR	
R409	GRD161J-103	CR	
R410	GRD161J-102	CR	
R411	GRD161J-104	CR	
R412	GRD161J-382	CR	
R413	GRD161J-472	CR	
R414	GRD161J-472	CR	
R415	GRD161J-472	CR	
R416	GRD161J-472	CR	
R417	GRD161J-105	CR	
R418	GRD161J-472	CR	
R419	GRD161J-472	CR	
R420	GRD161J-103	CR	
R421	GRD161J-333	CR	
R422	GRD161J-103	CR	
R423	GRD161J-103	CR	
R424	GRD161J-103	CR	
R425	GRD161J-103	CR	
R426	GRD161J-103	CR	
R427	GRD161J-103	CR	
R428	GRD161J-103	CR	
R429	GRD161J-103	CR	
R430	GRD161J-330	CR	
R431	GRD161J-331	CR	
R432	GRD161J-331	CR	
R433	GRD161J-331	CR	
R434	GRD161J-331	CR	
R435	GRD161J-333	CR	
R436	GRD161J-222	CR	
R437	GRD161J-333	CR	
R438	GRD161J-333	CR	
R440	GRD161J-103	CR	
R441	GRD161J-222	CR	
R442	GRD161J-333	CR	



(Video-Y)

Symbol No.	Part No.	Part Name	Description
R443	QRD161J-389	CR	
R444	QRD161J-102	CR	
R445	QRD161J-393	CR	
R446	QRD161J-109	CR	
R447	QRD161J-222	CR	
R448	QRD161J-338	CR	
R449	QRD161J-272	CR	
R450	QV23618-222	VR	5V ADJ
R451	QRD161J-101	CR	
R452	QRD161J-222	CR	
R453	QRD161J-109	CR	
R454	QRD161J-393	CR	
R455	QRD161J-222	CR	
R456	QRD161J-472	CR	
R457	QRD161J-331	CR	
R458	QRD161J-562	CR	
R459	QRD161J-122	CR	
R460	QRD161J-222	CR	
R461	QRD161J-271	CR	
R462	QRD161J-891	CR	
R463	QRD161J-330	CR	
R464	QRD161J-101	CR	
R465	QRD161J-393	CR	
R466	QRD161J-122	CR	
R467	QRD161J-820	CR	
R468	QRD161J-121	CR	
R469	QRD161J-222	CR	
R470	QRD161J-222	CR	
R471	QRD161J-222	CR	
R472	QV23618-102	VR	REC FM
R473	QRD161J-681	CR	
R474	--	--	
R475	--	--	
R476	QRD161J-222	CR	
R477	QRD161J-222	CR	
R478	QRD161J-102	CR	
R479	QRD161J-101	CR	
R480	QRD161J-592	CR	
R481	QRD161J-475	CR	
R482	QRD161J-225	CR	
R483	QRD161J-392	CR	
R484	QRD161J-335	CR	
R485	QV23618-104	VR	CARRIER
R486	QRD161J-153	CR	
R487	QRD161J-824	CR	
R488	--	--	
R489	QRD161J-821	CR	
R490	QRD161J-821	CR	
R491	QRD161J-122	CR	
R492	QRD161J-122	CR	
R493	QRD161J-332	CR	
R494	QRD161J-391	CR	
R495	QRD161J-273	CR	
R496	QRD161J-272	CR	
R497	QRD161J-181	CR	
R498	QRD161J-221	CR	
R499	QRD161J-182	CR	
R500	QRD161J-331	CR	
R501	QRD161J-391	CR	
R502	QRD161J-102	CR	
R503	QRD161J-102	CR	

Symbol No.	Part No.	Part Name	Description
R504	QRD161J-222	CR	
R505	QRD161J-750	CR	
R506	QRD161J-622	CR	
R507	QRD161J-223	CR	
R508	QRD161J-222	CR	
R509	QRD162J-103	CR	
R510	QRD161J-103	CR	
R511	--	--	
R512	QRD161J-221	CR	
R513	QRD161J-821	CR	
R514	QRD161J-391	CR	
R515	QRD161J-222	CR	
R516	QRD161J-278	CR	
R517	QRD161J-273	CR	
R518	QRD161J-122	CR	
R519	--	--	
R520	QRD161J-122	CR	
R521	QRD161J-122	CR	
R522	--	--	
R523	QRD161J-102	CR	
R524	QRD161J-102	CR	
R525	QRD161J-821	CR	
R526	QRD162J-661	CR	
R527	QRD161J-152	CR	
R528	--	--	
R529	QRD161J-684	CR	
R530	QRD161J-182	CR	
R531	QRD161J-681	CR	
R532	QRD161J-272	CR	
R533	QRD161J-332	CR	
R534	--	--	
R535	--	--	
R536	QRD161J-102	CR	
R537	--	--	
R538	QRD161J-472	CR	
R539	QV23618-473	VR	APA CONN
R540	--	--	
R541	QRD161J-101	CR	
R542	QRD161J-272	CR	
R543	QRD161J-332	CR	
R544	--	--	
R545	QRD161J-680	CR	
TH401	ERT-D2FGL-1018	Thermistor	
RA401	EXB-P84472M	Resistor Array	
RA402	EXB-P84103M	Resistor Array	
C401	QET61CM-106	E Cap	
C402	QET61CM-106	E Cap	
C403	QFN31HJ-108	MY Cap	
C404	QFN31HJ-222	MY Cap	
C405	QFN31HJ-222	MY Cap	
C406	QCS31HJ-391	C Cap	
C407	QCVB10M-106	C Cap	
C408	QCS31HJ-221	C Cap	
C409	QOBB1HJ-221	C Cap	
C410	QET61EM-475	E Cap	
C411	QCVB10M-103	C Cap	
C412	QET61CM-106	E Cap	

## [Video-Y]

Symbol No.	Part No.	Part Name	Description
C412	QER61CM-106	E Cap	
C414	QFN31HJ-104	MY Cap	
C415	QER61CM-476	E Cap	
C416	QCF31HP-103	C Cap	
C417	QCS31HJ-680	C Cap	
C418	QCS31HJ-120	C Cap	
C419	QCS31HJ-390	C Cap	
C420	QCS31HJ-161	C Cap	
C421	QCS31HJ-390	C Cap	
C422	QET61HM-106	E Cap	
C423	QCF31HP-103	C Cap	
C424	QER61AM-476	E Cap	
C425	QCF31HP-103	C Cap	
C426	QET61HM-106	E Cap	
C427	QCS31HJ-220	C Cap	
C428	QCF31HP-103	C Cap	
C429	QCF31HP-103	C Cap	
C430	QCF31HP-103	C Cap	
C431	QCF31HP-103	C Cap	
C432	QCS31HJ-121	C Cap	
C433	QCS31HJ-121	C Cap	
C434	QET61HM-106	E Cap	
C435	QCS31HJ-151	C Cap	
C436	QCS31HJ-390	C Cap	
C437	QCVB1CN-103	C Cap	
C438	QEM51AK-107	E Cap	
C439	QCF31HP-223	C Cap	
C440	QET61HM-106	E Cap	
C441	QET61HM-106	E Cap	
C442	QET61HM-106	E Cap	
C443	-	-	
C444	QET60JM-107	E Cap	
C445	QET60JM-107	E Cap	
C446	QER61EM-396	E Cap	
C447	QER61CM-226	E Cap	
C448	QER61HM-226	E Cap	
C449	QER61EM-396	E Cap	
C450	QER61EM-396	E Cap	
C451	QER61EM-476	E Cap	
C452	-	-	
C453	QER60JM-476	E Cap	
C454	QER60JM-476	E Cap	
C455	QER61CM-106	E Cap	
C456	QCF31HP-103	C Cap	
C457	QET61EM-476	E Cap	
C458	QET60JM-476	E Cap	
C459	QET40JM-108	E Cap	
C460	QET91CM-106	E Cap	
C461	QET61CM-476	E Cap	
C462	QCF31HP-103	C Cap	
C463	QET61CM-106	E Cap	
C464	QET60JM-476	E Cap	
C465	QCF31HP-103	C Cap	
C466	-	-	
C467	QCF31HP-103	C Cap	
C468	QER61HM-106	E Cap	
C469	-	-	
C470	QCF31HP-103	C Cap	
C471	-	-	
C472	QCF31HP-103	C Cap	
C473	-	-	

Symbol No.	Part No.	Part Name	Description
C474	-	-	
C475	QEK61HM-106	E Cap	
C476	QEK61HM-106	E Cap	
C477	QCS31HJ-470	C Cap	
C478	QCS31HJ-220	C Cap	
C479	QEK61HM-474	E Cap	
C480	QEK61HM-104	E Cap	
C481	QCF31HP-103	C Cap	
C482	QCF31HP-103	C Cap	
C483	QCF31HP-103	C Cap	
C484	QCVB1CN-103	C Cap	
C485	QEK61HM-104	E Cap	
C486	QEK41HM-104	E Cap	
C487	QCF31HP-223	C Cap	
C488	QES51VM-224	T Cap	
C489	QCF31HP-103	C Cap	
C490	QEK60JM-476	E Cap	
C491	-	-	
C492	QCS31HJ-220	C Cap	
C493	QCS31HJ-180	C Cap	
C494	QCS31HJ-390K	C Cap	
C495	QCS31HJ-121	C Cap	
C496	-	-	
C497	-	-	
C498	QCF31HP-103	C Cap	
C499	QET60JM-396	E Cap	
C500	QCF31HP-223	C Cap	
C601	QCF31HP-223	C Cap	
C602	QCS31HJ-390	C Cap	
C603	QET61CM-106	E Cap	
C604	QCS11HJ-680	C Cap	
C605	QCS11HJ-270	C Cap	
L401	PJ48530-101J	Peaking Coil	
L402	PJ48530-101J	Peaking Coil	
L403	PJ48530-120J	Peaking Coil	
L404	PJ48530-390J	Peaking Coil	
L405	PJ48530-470J	Peaking Coil	
L406	PJ48530-682J	Peaking Coil	
L407	PJ48530-221J	Peaking Coil	
L408	PJ48530-680J	Peaking Coil	
L409	PJ48530-101J	Peaking Coil	
L410	PJ48530-180J	Peaking Coil	
L411	PJ48530-180J	Peaking Coil	
L412	PJ48530-121J	Peaking Coil	
L413	PJ48530-101J	Peaking Coil	
L414	PJ48530-121J	Peaking Coil	
L415	PJ48530-101J	Peaking Coil	
L416	PJ48530-101J	Peaking Coil	
L417	-	-	
L418	PJ48530-470J	Peaking Coil	
L419	PJ48530-680J	Peaking Coil	
L420	PJ48530-101J	Peaking Coil	
L421	PJ48530-471J	Peaking Coil	
L422	PJ48530-470J	Peaking Coil	
L423	PJ48530-270J	Peaking Coil	
T401	PJ48005	Trap	

-Video (Colour) section-

Symbol No.	Part No.	Part Name	Description
CF401	PUS4060	Ceramic Filter	
LPF401	PUS880B	Low Pass Filter	
LPF402	PUS8807-2	Low Pass Filter	
DL401	PS200148	IH Delay Line	
EQ401	PUS4838	Equalizer	
CN403	-	-	
CN402	PJ48216-6	Cap Housing	
CN403	-	-	
CN404	PJ49215-B	Cap Housing	
CN405	PJ49215-B	Cap Housing	
CN406	PJ48216-B	Cap Housing	
CN407	PJ49216-7	Cap Housing	
TP	PUS7545	Test Pin	TP403,404,408 410,426-427

Symbol No.	Part No.	Part Name	Description
IC601	-	-	
IC602	TC4066BP	Integrated Circuit	
IC603	FU22046A	C Mod. PWB Assy	
IC604	TC4067BP	Integrated Circuit	
IC605	BA7007	Integrated Circuit	
IC606	BA7007	Integrated Circuit	
IC607	TC4068BP	Integrated Circuit	
IC608	MS1645P	Integrated Circuit	
IC609	AN606P	Integrated Circuit	
Q601	2SC2021R	Transistor	
Q602	2SC2021R	Transistor	
Q603	07C124EF	D Transistor	
Q604	2SC2021R	Transistor	
Q605	2SC2021R	Transistor	
Q606	07C124EF	D Transistor	
Q607	DTC124EF	D Transistor	
Q608	DTC124EF	D Transistor	
Q609	2SC2021R	Transistor	
Q610	2SC2021R	Transistor	
Q611	DTC124EF	D Transistor	
Q612	2SC2021R	Transistor	
Q613	2SC2021R	Transistor	
Q614	2SC2021R	Transistor	
Q615	DTC124EF	D Transistor	
Q616	2SC2021R	Transistor	
Q617	2SC2021R	Transistor	
Q618	DTC124EF	D Transistor	
Q619	DTC124EF	D Transistor	
Q620	2SC2021R	Transistor	
Q621	2SC2021R	Transistor	
Q622	DTA124EF	D Transistor	
Q623	DTC124EF	D Transistor	
Q624	DTA124EF	D Transistor	
Q625	2SB841R,S	Transistor	
Q626	DTA124EF	D Transistor	
Q627	07C124EF	D Transistor	
Q628	2SB841R,S	Transistor	
Q629	DTC124EF	D Transistor	
Q630	DTA124EF	D Transistor	
Q631	2SC1740Q,R,S	Transistor	
Q632	2SC929C	Transistor	
Q633	DTC114EF	D Transistor	
Q634	DTC114EF	D Transistor	
Q635	DTC114EF	D Transistor	
Q636	DTC114EF	D Transistor	
Q601	1SS133	Diode	
Q602	-	-	
Q603	1SS133	Diode	
Q604	MA150	Diode	
Q605	1SS133	Diode	
Q606	1SS133	Diode	
Q607	1SS133	Diode	
Q608	1SS133	Diode	
Q609	1SS133	Diode	
Q610	1SS133	Diode	
Q611	MA150	Diode	
Q612	1SS99	Diode	
Q613	1SS99	Diode	

## (Video-C)

Symbol No.	Part No.	Part Name	Description	Symbol No.	Part No.	Part Name	Description
D614	1SS99	Diode		R648	QRD161J-223	CR	
D615	1SS99	Diode		R649	QRD101J-892	CR	
D616	1SS133	Diode		R650	QRD161J-102	CR	
D617	1SS133	Diode					
D618	-	-		R651	QRD161J-271	CR	
D619	1SS133	Diode		R652	QRD161J-681	CR	
D620	1SS133	Diode		R653	QRD101J-273	CR	
				R654	QRD161J-273	CR	
D621	1SS133	Diode		R655	QRD161J-101	CR	
D622	1SS133	Diode		R656	QRD161J-273	CR	
D623	1SS133	Diode		R657	QRD161J-103	CR	
D624	1SS133	Diode		R658	QRD161J-273	CR	
D625	1SS133	Diode		R659	QRD161J-582	CR	
D626	1SS133	Diode		R660	QRD161J-194	CR	
D627	1SS133	Diode					
				R661	QRD161J-102	CR	
R601	QRD161J-102	CR		R662	QRD161J-393	CR	
R602	QRD161J-103	CR		R663	QRD161J-182	CR	
R603	QRD161J-681	CR		R664	QVZ3518-472	VR	MESOCAM DET
R604	QRD161J-102	CR		R665	QRD161J-103	CR	
R605	QRD161J-332	CR		R666	QRD161J-104	CR	
R606	QRD161J-333	CR		R667	QRD161J-563	CR	
R607	QRD161J-272	CR		R668	QRD161J-182	CR	
R608	QRD161J-681	CR		R669	QRD161J-103	CR	
R609	QRD161J-473	CR		R670	QRD161J-333	CR	
R610	QRD161J-102	CR					
				R671	QVZ3518-472	VR	SECAM DET
R611	QRD161J-102	CR		R672	QRD161J-562	CR	
R612	QRD161J-221	CR		R673	QRD161J-103	CR	
R613	QRD161J-273	CR		R674	QRD161J-102	CR	
R614	QRD161J-273	CR		R675	QRD161J-892	CR	
R615	QRD161J-101	CR		R676	QRD161J-353	CR	
R616	QRD161J-273	CR		R677	QRD161J-223	CR	
R617	QRD161J-273	CR		R678	QRD161J-331	CR	
R618	QRD161J-103	CR		R679	QRD161J-821	CR	
R619	QRD161J-472	CR		R680	QRD161J-102	CR	
R620	QRD161J-222	CR					
				R681	QRD161J-222	CR	
R621	QRD161J-383	CR		R682	QRD161J-472	CR	
R622	QRD161J-103	CR		R683	QRD162J-102	CR	
R623	QRD161J-182	CR		R684	QRD161J-102	CR	
R624	QRD161J-272	CR		R685	QRD161J-102	CR	
R625	QRD161J-182	CR		R686	QRD161J-101	CR	
R626	QRD101J-101	CR		R687	QVZ3518-221	VR	SECAM REC COLOUR
R627	QVZ3518-471	VR	PAL REC COL				
R628	QRD161J-122	CR		R688	QRD161J-102	CR	
R629	QRD161J-472	CR		R689	QRD161J-224	CR	
R630	QRD161J-274	CR		R690	QRD161J-224	CR	
R631	QVZ3518-223	VR	VXO	R691	QRD161J-221	CR	
R632	QRD161J-221	CR		R692	QRD161J-682	CR	
R633	QRD161J-391	CR		R693	QRD161J-392	CR	
R634	QRD161J-393	CR		R694	QRD161J-681	CR	
R635	QRD161J-122	CR		R695	QRD161J-271	CR	
R636	QRD161J-471	CR		R696	-	-	
R637	QRD161J-561	CR		R697	QRD161J-122	CR	
R638	QRD161J-563	CR		R698	QRD161J-822	CR	
R639	QRD161J-333	CR		R699	QRD161J-122	CR	
R640	QRD161J-393	CR		R700	QRD161J-822	CR	
R641	QRD161J-582	CR		R701	QRD161J-102	CR	
R642	QRD161J-102	CR		R702	QRD161J-102	CR	
R643	QRD161J-122	CR		R703	QRD161J-203	CR	
R644	QRD161J-471	CR		R704	QRD161J-274	CR	
R645	QRD161J-272	CR		R705	QRD161J-472	CR	
R646	QRD161J-471	CR		R706	QRD161J-472	CR	
R647	QRD161J-152	CR		R707	QRD161J-122	CR	

Symbol No.	Part No.	Part Name	Description
R708	QRD161J-681	CR	
R709	QRD161J-273	CR	
R710	QRD161J-401	CR	
R711	QRD161J-273	CR	
R712	QRD161J-273	CR	
R713	QRD161J-473	CR	
R714	QRD161J-152	CR	
R715	QRD161J-473	CR	
R716	QRD161J-474	CR	
R717	QRD161J-224	CR	
R718	QRD161J-101	CR	
R719	QRD161J-102	CR	
R720	QRD161J-473	CR	
R721	QRD161J-391	CR	
R722	QRD161J-109	CR	
R723	QRD161J-473	CR	
R724	QRD161J-823	CR	
R725	QRD161J-681	CR	
R726	QV23518-331	VR	NTSC REC GDL
R727	QRD161J-102	CR	
R728	-	-	
R729	-	-	
R730	-	-	
R731	QRD161J-684	CR	
R732	QRD161J-382	CR	
R733	QRD162J-473	CR	
R734	QRD161J-823	CR	
R735	-	-	
R736	QRD161J-103	CR	
R737	-	-	
R738	QRD161J-232	CR	
R739	QRD161J-222	CR	
R740	QRD161J-392	CR	
R741	QRD161J-681	CR	
R742	-	-	
R743	QRD161J-333	CR	
R744	QRD161J-333	CR	
R745	QRD161J-393	CR	
R746	QRD161J-183	CR	
R747	QRD161J-472	CR	
R748	QRD161J-273	CR	
R749	QRD161J-684	CR	
R750	-	-	
R751	QRD161J-392	CR	
R752	-	-	
R753	-	-	
R754	QRD161J-684	CR	
R755	QRD161J-182	CR	
R756	-	-	
R757	QRD161J-272	CR	
R758	QRD161J-223	CR	
R759	QRD161J-821	CR	
R760	QRD161J-391	CR	
R761	QRD161J-103	CR	
R762	QRD161J-103	CR	
R763	QRD161J-108	CR	
R764	QRD161J-060	CR	
C801	QCF31HP-103	C Cap	
C802	QCF31HP-103	C Cap	
C803	QCS31HJ-470	C Cap	
C804	-	-	
C805	QCF31HJ-103	C Cap	

Symbol No.	Part No.	Part Name	Description
C806	-	-	
C807	-	-	
C808	QFN31HJ-473	MY Cap	
C809	QEK81CM-108	E Cap	
C810	QCF31HP-223	C Cap	
C811	QET61CM-106	E Cap	
C812	QCF31HP-223	C Cap	
C813	QFN31HJ-223	MY Cap	
C814	QER61CM-106	E Cap	
C815	-	-	
C816	QET61HM-126	E Cap	
C817	QET61HM-106	E Cap	
C818	QET61HM-108	E Cap	
C819	QET60JM-107	E Cap	
C820	QET61EM-476	E Cap	
C821	QCF31HP-223	C Cap	
C822	QET61EM-335	E Cap	
C823	QFN31HJ-473	MY Cap	
C824	QFN31HJ-332	MY Cap	
C825	QET61CM-106	E Cap	
C826	QFN31HJ-563	MY Cap	
C827	QCF31HP-103	C Cap	
C828	QCF31HP-103	C Cap	
C829	QCF31HP-103	C Cap	
C830	QCF31HP-102	C Cap	
C831	QCS31HJ-100	C Cap	
C832	QET60JM-476	E Cap	
C833	QCF31HP-223	C Cap	
C834	QET61CM-476	E Cap	
C835	QET61AM-336	E Cap	
C836	QFN31HJ-182	MY Cap	
C837	QFN31HJ-182	MY Cap	
C838	QFN31HJ-223	MY Cap	
C839	QET61CM-106	E Cap	
C840	QCV81CN-103	C Cap	
C841	QET61CM-476	E Cap	
C842	QET61AM-336	E Cap	
C843	QFN31HJ-272	MY Cap	
C844	QFN31HJ-182	MY Cap	
C845	QFN31HJ-223	MY Cap	
C846	QET61CM-106	E Cap	
C847	QCF31HP-103	C Cap	
C848	QCF31HP-223	C Cap	
C849	QET61CM-106	E Cap	
C850	QET60JM-476	E Cap	
C851	QET60JM-476	E Cap	
C852	QCF31HP-103	C Cap	
C853	QCF31HP-103	C Cap	
C854	QCF31HP-103	C Cap	
C855	-	-	
C856	QCF31HP-103	C Cap	
C857	QCF31HP-103	C Cap	
C858	QCT26CM-220	C Cap	
C859	QCF31HP-223	C Cap	
C860	QCF31HP-223	C Cap	
C861	QFN31HJ-222	MY Cap	
C862	QCF31HP-223	C Cap	
C863	QCF31HP-223	C Cap	
C864	QET60JM-107	E Cap	
C865	QET61CM-108	E Cap	
C866	QET61CM-107	E Cap	
C867	QCS31HJ-470	C Cap	

## (Video-C)

Symbol No.	Part No.	Part Name	Description
C667	QCF31HP-223	C Cap	
C668	QCF31HP-223	C Cap	
C669	QCF31HP-223	C Cap	
C670	QCVB1CN-103	C Cap	
C671	QCF31HP-223	C Cap	
C672	QCF31HP-223	C Cap	
C673	QFN31HU-104	MY Cap	
C674	QET61CM-106	E Cap	
C675	QET61CM-106	E Cap	
C676	QCS31HU-271	C Cap	
C677	QCS31HU-271	C Cap	
C678	QCF31HP-223	C Cap	
C679	QCVB1CN-103	C Cap	
C680	QCVB1CN-103	C Cap	
C681	QCVB1CN-103	C Cap	
C682	QCVB1CN-103	C Cap	
C683	QET61CM-106	E Cap	
C684	QCF11HP-223	C Cap	
C685	QET61CM-106	E Cap	
C686	QCF31HP-223	C Cap	
C687	QET61CM-106	E Cap	
C688	QCS31HU-391	C Cap	
C689	QCT25CH-220	C Cap	
C690	QCF31HP-223	C Cap	
C691	QCS11HU-221	C Cap	
C692	QET61CM-106	E Cap	
C693	QCS31HU-160	C Cap	
C694	-	-	
C695	QCF31HP-223	C Cap	
C696	QET61HM-106	E Cap	
C697	-	-	
C698	QCF31HP-103	C Cap	
C699	QCF31HP-223	C Cap	
C700	QCF31HP-223	C Cap	
C701	QET61CM-106	E Cap	
C702	QCF31HP-103	C Cap	
C703	QCF11HP-223	C Cap	
C704	QFN41HU-102	MY Cap	
C705	QCF11HP-103	C Cap	
C706	QF29011-224	M Cap	
C707	QEK45UM-326	E Cap	
C708	QCF11HP-223	C Cap	
C709	QCS11HU-271	C Cap	
C710	QET41EM-475	E Cap	
C711	QET61EM-475	E Cap	
C712	QCS11HU-101	C Cap	
L601	-	-	
L602	PU48530-222J	Peaking Coil	
L603	PU48530-101J	Peaking Coil	
L604	PU48530-101J	Peaking Coil	
L605	PU47051-822	Coil	
L606	PU48530-150J	Peaking Coil	
L607	PU48530-150J	Peaking Coil	
L608	PU48530-660J	Peaking Coil	
L609	PU47051-862	Coil	
L610	PU48530-101J	Peaking Coil	
L611	PU48530-101J	Peaking Coil	
L612	PU47051-862	Coil	

Symbol No.	Part No.	Part Name	Description
L613	PU48530-101J	Peaking Coil	
L614	PU48530-101J	Peaking Coil	
L615	PU48530-101J	Peaking Coil	
T601	PU49057	Trap Coil	
T602	PU57640	Coil	
T603	PU49057	Trap Coil	
T604	PU54439	Coil	
T605	PU64438	Coil	
Δ X601	PU31449-4K	Crystal	
XB001	PU68023	Crystal Block	
CF001	PU56083	Ceramic Filter	
CF002	PU56083	Ceramic Filter	
DL001	PU58905	Delay Line	
DL002	PU58971	2H Delay Line	
LPF001	PU58022	Low Pass Filter	
LPF002	PU54988	Low Pass Filter	
BPF001	PU54430-2	Band Pass Filter	
BPF002	PU57072	Band Pass Filter	
BPF003	PU54437-2	Band Pass Filter	
BPF004	PU54421-2	Band Pass Filter	
BPF005	PU54420-2	Band Pass Filter	
DL001	PU56605	Delay Line	
DL002	PU58971	2H Delay Line	
EQ001	PU63501-4	Equalizer	
CH001	PU49218-13	Cap Housing	
TP	PU57545	Test Pin	TP801-605 621,622 GND
HNG1	PO58018-1-2	Board Hinge	
TAB1	A74017	Tab	
SC1	PU58665	Pre Amp Shield (1)	
SC2	PU58665-1-7	Pre Amp Shield (2)	
SC3	PU58667	Pre Amp Shield (3)	
MC1	PU55379	Mini Clamp	
SPC1	PU57215-2	Spacer	
CSN1	PD42226	Cushion	
CSN2	PD41594-2	Cushion	

### 6.2.3 Terminal board assembly (03) ..... PU35821B-1

Symbol No.	Part No.	Part Name	Description
K1	TA7848P	Integrated Circuit	
Q1	2SC2021D,R,S	Transistor	
Q2	2SA937Q,R,S	Transistor	
Q3	2SC2021D,R,S	Transistor	
Q4	2SB943R	P Transistor	
D1	HZ781L or HZ782L or HZ785L	Zener Diode Zener Diode Zener Diode	
D2	MA165	Diode	
D3	MA165 or 1S5133	Diode Diode	
D4	MA165 or 1S5133	Diode Diode	
D5	MA165	Diode	
D6	MA185 or 1S5133	Diode Diode	
D7	MA165 or 1S5133	Diode Diode	
D8	MA165	Diode	
D9	MA165 or 1S5133	Diode Diode	
D10	MA165 or 1S5133	Diode Diode	
R1	ORD161J-388	CR	
R2	-	-	
R3	ORD161J-104	CR	
R4	ORD161J-122	CR	
R5	ORD161J-122	CR	
R6	ORD161J-188	CR	
R7	ORD161J-563	CR	
R8	ORD161J-103	CR	
R9	ORD161J-333	CR	
R10	ORD161J-902	CR	
R11	ORD161J-123	CR	
R12	ORD161J-222	CR	
R13	ORD161J-122	CR	
R14	ORD161J-153	CR	
R15	ORD161J-273	CR	
R16	ORD161J-333	CR	
R17	ORD161J-152	CR	
R18	ORD161J-102	CR	
R19	ORD161J-760	CR	
R20	ORD161J-221	CR	
R21	ORD161J-103	CR	
R22	ORD161J-562	CR	
R23	ORD161J-562	CR	
R24	ORD161J-473	CR	
R25	ORD161J-103	CR	
R26	ORD161J-222	CR	
R27	ORD161J-103	CR	
R28	ORD161J-221	CR	
C1	OCF319P-102	C Cap	

Symbol No.	Part No.	Part Name	Description
C2	OCF319P-102	C Cap	
C3	OK61CM-476	E Cap	
C4	OCF319P-223	C Cap	
C5	OK61AM-476	E Cap	
D6	OK61AM-476	E Cap	
C7	OK61AM-476	E Cap	
L1	FU48530-101K	Peeking Coil	
S1	PU5795P	Slide Switch	B/W COLOUR
	PU69013-3	Terminal Board Assy	

## 6.2.4 Tuner/IF board assembly (04) ..... PU11900B1.3

Symbol No.	Part No.	Part Name	Description
Δ TNR1	PU34219-B-4	Tuner	
IC1	M8187P	Integrated Circuit	
IC2	M50161-3945P	Integrated Circuit	
IC3	M59653P	Integrated Circuit	
IC4	LA7913	Integrated Circuit	
IC5	LB1214	Integrated Circuit	
IC6	LM339M	Integrated Circuit	
IC7	M5223L	Integrated Circuit	
IC8	H80N1932B	Integrated Circuit	
IC9	H80N1935B	Integrated Circuit	
IC10	H80N1938B	Integrated Circuit	
IC11	H80N1938A	Integrated Circuit	
IC12	H80N1929	Integrated Circuit	
IC13	H801931B	Integrated Circuit	
IC14	H801949	Integrated Circuit	
IC15	H801830	Integrated Circuit	
IC16	H801928	Integrated Circuit	
IC17	H801929	Integrated Circuit	
IC18	LA7016	Integrated Circuit	
IC19	H801909	Integrated Circuit	
IC20	LB1214	Integrated Circuit	
IC21	M5223L	Integrated Circuit	
IC22	H80N1929	Integrated Circuit	
Q1	2SC2636T	Transistor	
Q2	2SC2636T	Transistor	
Q3	2SC2636T	Transistor	
Q4	2SC2636T	Transistor	
Q5	-	-	
Q6	-	-	
Q7	2SC2647C	Transistor	
Q8	2SC2647C	Transistor	
Q9	2SC2647B	Transistor	
Q10	2SC2647C	Transistor	
Q11	2SC2647C	Transistor	
Q12	2SA1254B	Transistor	
Q13	DTC1146F	D Transistor	
Q14	2SD1330S	Transistor	
Q15	2SA1254B	Transistor	
Q16	2SC2647B	Transistor	
Q17	2SD1330S	Transistor	
Q18	2SD638S	Transistor	
Q19	2SB641R	Transistor	
Q20	2SD637R	Transistor	
Q21	2SD637S	Transistor	
Q22	2SC3327A	Transistor	
Q23	2SB641H	Transistor	
Q24	DTC1146F	D Transistor	
Q25	2SB610H-J	Transistor	
Q26	2SB641S	Transistor	
Q27	2SB641Q-R	Transistor	
D1	15V124	Diode	
D2	15V124	Diode	
D3	-	-	
D4	-	-	

Symbol No.	Part No.	Part Name	Description
D5	15V124	Diode	
D6	15V136	Diode	
D7	15S132	Diode	
D8	15S133	Diode	
D9	-	-	
D10	MAB40V1	Diode	
D11	15S133	Diode	
D12	MAB40V1	Diode	
D13	15S132	Diode	
D14	15S132	Diode	
D15	LT2-R15	LED	
D16	-	-	
D17	15S133	Diode	
D18	15S133	Diode	
D19	15S133	Diode	
D20	-	-	
D21	-	-	
Q22	H2T43-02	Diode	
Q23	LT2-R15	LED	
Q24	15S133	Diode	
Q25	GAN201	Diode Array	
Q26	-	-	
Q27	-	-	
Q28	15S133	Diode	
Q29	15S133	Diode	
R1	QRD161J-760	CR	
R2	QRD161J-472	CR	
R3	QRD161J-222	CR	
R4	QRD161J-221	CR	
R5	QRD161J-221	CR	
R6	QRD161J-151	CR	
R7	QRD161J-101	CR	
R8	QRD161J-220	CR	
R9	QRD161J-151	CR	
R10	QRD161J-361	CR	
R11	-	-	
R12	-	-	
R13	-	-	
R14	QRD161J-751	CR	
Δ R15	QRD161J-301	CR	
R16	-	-	
R17	-	-	
R18	-	-	
R19	QRD161J-272	CR	
Δ R20	QRD161J-391	CR	
R21	QRD161J-661	CR	
R22	QRD161J-101	CR	
R23	QRD161J-101	CR	
R24	QVZ3531-153	VR	
R25	QVZ3531-183	VR	
R26	QVZ3531-223	VR	
R27	QVZ3531-228	VR	
R28	-	-	
R29	-	-	
R30	-	-	
R31	QRD161J-103	CR	
R32	QRD161J-333	CR	
R33	QRD161J-223	CR	

SECAM S TRAP  
SECAM S TRAP  
PAL S TRAP  
PAL S TRAP



## (Tuner/IF)

Symbol No.	Part No.	Part Name	Description
R34	QRD161J-103	CR	
R35	QRD161J-124	CR	
R36	QRD161J-224	CR	
R37	-	-	
R38	QRD161J-333	CR	
R39	QRD161J-478	CR	
R40	QRD161J-862	CR	
R41	-	-	
R42	-	-	
R43	QRD161J-332	CR	
R44	QRD161J-332	CR	
R45	QRZ0054-100	FR	
R46	QRD161J-338	CR	
R47	QVZ3531-154	VR	SECAM LOW AFC
R48	QRD161J-862	CR	
R49	QRD161J-472	CR	
R50	QVZ3531-333	VR	SECAM LOW LLD
R51	-	-	
R52	QVZ3531-332	VR	SECAM RF AGC
R53	QRD161J-103	CR	
R54	QRD161J-471	CR	
R55	QRD161J-561	CR	
R56	QRD161J-152	CR	
R57	QRD161J-102	CR	
R58	QVZ3531-332	VR	SECAM Y LEVEL
R59	QRD161J-222	CR	
R60	QVZ3531-103	VR	PAL Y LEVEL
R61	QRD161J-271	CR	
R62	QRD161J-382	CR	
R63	-	-	
R64	QRD161J-292	CR	
R65	QVZ3531-103	VR	PAL RF AGC
R66	-	-	
R67	QRD161J-512	CR	
R68	QRD161J-102	CR	
R69	QRD161J-224	CR	
R70	-	-	
R71	QRD161J-821	CR	
R72	QRD161J-681	CR	
R73	QRD161J-302	CR	
R74	QVZ3531-152	VR	SECAM COL LEV
R75	QRD161J-104	CR	
R76	QVZ3531-472	VR	SECAM SYNC LEV
R77	QRD161J-102	CR	
R78	QRD161J-681	CR	
R79	QRD161J-472	CR	
R80	QVZ3531-103	VR	PAL COL LEV
R81	QRD161J-473	CR	
R82	QVZ3531-472	VR	PAL SYNC LEV
R83	QRD161J-102	CR	
R84	QRD161J-102	CR	
R85	QRD161J-223	CR	
R86	-	-	
R87	QRD161J-243	CR	
R88	QRD161J-393	CR	
R89	QRD161J-470	CR	
R90	QRD161J-511	CR	
R91	QRD161J-391	CR	
R92	QRD161J-391	CR	
R93	QRD161J-242	CR	
R94	QRD161J-102	CR	

Symbol No.	Part No.	Part Name	Description
R95	QRD161J-103	CR	
R96	-	-	
R97	QRD161J-103	CR	
R98	QRD161J-181	CR	
R99	QRD161J-181	CR	
R100	QRD161J-750	CR	
R101	QRD161J-472	CR	
R102	QRD161J-561	CR	
R103	QRD161J-473	CR	
R104	QRD161J-473	CR	
R105	QRD161J-332	CR	
R106	QRD161J-103	CR	
R107	QRD161J-102	CR	
R108	QRD161J-103	CR	
R109	QRD161J-103	CR	
R110	QRD161J-104	CR	
R111	QRD161J-104	CR	
R112	QRD161J-224	CR	
R113	QRD161J-224	CR	
R114	QRD161J-224	CR	
R115	QRD161J-472	CR	
R116	QRD161J-472	CR	
R117	QRD161J-103	CR	
R118	QRD161J-683	CR	
R119	QRD161J-474	CR	
R120	QRD161J-224	CR	
R121	QRD161J-124	CR	
R122	QRD161J-474	CR	
R123	QRD161J-222	CR	
R124	QRD161J-582	CR	
R125	QRD161J-792	CR	
R126	QRD161J-224	CR	
R127	QRD161J-224	CR	
R128	QRD161J-474	CR	
R129	QRD161J-104	CR	
R130	QRD161J-223	CR	
R131	QRD161J-332	CR	
R132	QRD161J-103	CR	
R133	-	-	
R134	-	-	
R135	-	-	
R136	QRD161J-103	CR	
R137	QRD161J-103	CR	
R138	QRD161J-472	CR	
R139	QRD161J-472	CR	
R140	QRD161J-472	CR	
R141	QRD161J-472	CR	
R142	QRD161J-383	CR	
R143	QRD161J-103	CR	
R144	QRD161J-103	CR	
R145	QRD161J-332	CR	
R146	QRD161J-470	CR	
R147	QRD161J-470	CR	
R148	QRD161J-470	CR	
R149	QRD161J-103	CR	
R150	QRD161J-333	CR	
R151	QRD161J-560	CR	
R152	QRD161J-102	CR	
R153	QRD161J-472	CR	
R154	QRD161J-224	CR	
R155	QRD161J-103	CR	

## (Tuner/IF)

Symbol No.	Part No.	Part Name	Description
R156	QRD161J-104	CR	
R157	QRD161J-104	CR	
R158	PU52106-467	Resistor	
R159	QRD161J-393	CR	
R160	QRD161J-183	CR	
R181	QRD161J-392	CR	
R182	-	-	
R163	QRD161J-184	CR	
R184	QRD161J-104	CR	
R165	QRD161J-684	CR	
R166	QRD161J-124	CR	
R167	QRD161J-474	CR	
R168	QRD161J-333	CR	
R169	QRD161J-158	CR	
R170	QRD161J-102	CR	
R171	QRD161J-221	CR	
R172	QRD161J-752	CR	
R173	QRD161J-273	CR	
R174	QRD161J-122	CR	
R175	QRD161J-109	CR	
R176	QRD161J-224	CR	
R177	QRD161J-390	CR	
R178	QRD161J-223	CR	
R179	QRD161J-222	CR	
R180	QRD161J-104	CR	
R181	-	-	
R182	-	-	
R183	-	-	
R184	-	-	
R185	QRD161J-471	CR	
RA1	RNBH5A224	R Network	
RA2	RNBH6A108	Resistor Array	
RA3	RNBH4A333	Resistor Array	
C1	QCY31HK-222	C Cap	
C2	QCF31HP-472	C Cap	
C3	QCY31HK-222	C Cap	
C4	QCY31HK-222	C Cap	
C5	QCF31HP-472	C Cap	
C6	QCT25CH-380	C Cap	
C7	QCT25CH-380	C Cap	
C8	-	-	
C9	-	-	
C10	QCF31HP-472	C Cap	
C11	QCT25CH-380	C Cap	
C12	QCT25CH-380	C Cap	
C13	-	-	
C14	-	-	
C15	QCY31HK-222	C Cap	
C16	QCF31HP-472	C Cap	
C17	QCY31HK-222	C Cap	
C18	QCB1HM-222	C Cap	
C19	QCY31HK-222	C Cap	
C20	QCS31HJ-471	C Cap	
C21	QCT25CH-380	C Cap	
C22	-	-	
C23	QCY31HK-222	C Cap	

Symbol No.	Part No.	Part Name	Description
C24	QCT25HK-101	C Cap	
C25	QCY31HK-222	C Cap	
C26	QCT25HK-380	C Cap	
C27	QET61HM-474	E Cap	
C28	QET61EM-108	E Cap	
C29	QCS31HJ-470	C Cap	
C30	QCY31HK-222	C Cap	
C31	QCT25CH-120	C Cap	
C32	QET61AM-476	E Cap	
C33	QCY31HK-222	C Cap	
C34	QCY31HK-222	C Cap	
C35	QET61CM-337	E Cap	
C36	QEE41EM-475	T Cap	
C37	QFN31HJ-222	MY Cap	
C38	QET61EM-106	E Cap	
C39	QCS31HJ-680	C Cap	
C40	QET61HM-475	E Cap	
C41	QCS31HJ-270	C Cap	
C42	QET61AM-476	E Cap	
C43	QCS31HJ-470	C Cap	
C44	QCS31HJ-880	C Cap	
C45	QET61HM-475	E Cap	
C46	QET61AM-476	E Cap	
C47	QETA1CM-337	E Cap	
C48	QCC11EM-473	C Cap	
C49	-	-	
C50	QET61AM-475	E Cap	
C51	QCS31HJ-180	C Cap	
C52	QCS31HJ-620	C Cap	
C53	QET61AM-476	E Cap	
C54	QET61AM-470	E Cap	
C55	PU54890-6		
C56	QET61HM-105	E Cap	
C57	QET61HM-106	E Cap	
C58	QCS31HJ-271	C Cap	
C59	QET61HM-105	E Cap	
C60	QET61HM-106	E Cap	
C61	QCC11EM-473	C Cap	
C62	QCS31HJ-220	C Cap	
C63	QET61HM-106	E Cap	
C64	QET61HM-105	E Cap	
C65	QET61HM-105	E Cap	
C66	QCS31HJ-330	C Cap	
C67	QCS31HJ-330	C Cap	
C68	QCF31HP-223	C Cap	
C69	QCX11EM-103	C Cap	
C70	QET61CM-107	E Cap	
C71	QET61CM-336	E Cap	
C72	QETA1CM-337	E Cap	
C73	QET61AM-476	E Cap	
C74	QET61HM-106	E Cap	
C75	QET61CM-106	E Cap	
C76	QET61HM-105	E Cap	
C77	QET61CM-106	E Cap	
C78	QEE41CM-585	LL Cap	
C79	QET61CM-106	E Cap	
C80	QCB1CM-106	E Cap	
C81	QET61CM-339	E Cap	
C82	-	-	
C83	QET61CM-336	E Cap	
C84	QCX11EM-153	C Cap	

## 6.2.5 Mechanism control assembly (IOS)

..... PU22178D-1

Symbol No.	Part No.	Part Name	Description
C85	QET61CM-107	E Cap	
C86	QET60JM-470	E Cap	
C87	—	—	
C88	QET61CM-336	E Cap	
C89	QET61CM-336	E Cap	
C90	QET61MM-225	E Cap	
C98	QCF11MF-473	C Cap	
L1	—	—	
L2	PU48530-1R0	Peaking Coil	
L3	—	—	
L4	PU48530-1R0	Peaking Coil	
L5	PU57717-2R3	Peaking Coil	
L6	—	—	
L7	PU57717-100J	Peaking Coil	
L8	—	—	
L9	—	—	
L10	PU48530-2R0J	Peaking Coil	
L11	PU48530-2R0J	Peaking Coil	
L12	PU48530-470J	Peaking Coil	
L13	PU53616-R22 or PU53223-R22	Peaking Coil Peaking Coil	
T1	PU58768-8	IF Transformer	S. TRAP 1
T2	PU58763-3	IF Transformer	S. TRAP 2
T3	PU58768	IF Transformer	SAW MATCH
T4	PU58766	IF Transformer	PF
T5	PU51344	IF Transformer	AFC
T6	PU58788	IF Transformer	AFC
T7	PU58769	IF Transformer	SYNC DET
CF1	PU58812	Ceramic Filter	
SAW1	PU34106-2	SAW Filter	
CA1	PU49215-7	Cap Housing	
CA2	PU49215-5	Cap Housing	
CA3	PU49215-2	Cap Housing	
CA4	PU49215-2Y	Cap Housing	
CA5	QMC0131-002	Jack Assembly	
CA6	PU49215-8	Cap Housing	
Δ RF1	PU590245	RF Converter & Max Booster	
	PU5891A PU36063-1-1	Shield Case Assy (1) Shield Case Assy (2)	

Symbol No.	Part No.	Part Name	Description
Δ IC301 IC302	M60790-9165P B46238A	Integrated Circuit Integrated Circuit	
Q301	2SD1406J,Y	Transistor	
Δ Q302	2SD637R,S	Transistor	
Q303	DTA124EF	O Transistor	
Q304	DTC144BF	D Transistor	
Q305	DTC144BF	D Transistor	
Q306	DTC144BF	D Transistor	
Q307	2SB641R,S	Transistor	
Q308	2SC3243D,E	Transistor	
D301	15S133	Diode	
D302	15S133	Diode	
D303	15S133	Diode	
D304	15S133	Diode	
D305	15S133	Diode	
D306	15S133	Diode	
D307	15S133	Diode	
D308	15S133	Diode	
D309	15S133	Diode	
D310	RD8-2EB2	Zener Diode	
D311	15S133	Diode	
D312	MA27WA	Diode	
D313	15S133	Diode	
D314	15S133	Diode	
D315	RD4,7EB2	Zener Diode	
D316	15S133	Diode	
D317	RD7,5EB1	Zener Diode	
D318	RD7,5EB2	Zener Diode	
D319	RD6,2EB1	Zener Diode	
D320	15S133	Diode	
R301	QRD161J-103	CR	
R302	QRD161J-473	CR	
R303	QRD161J-183	CR	
R304	QRD161J-123	CR	
R305	QRD161J-103	CR	
R306	QRD161J-822	CR	
R307	QRD161J-103	CR	
R308	QRD161J-103	CR	
R309	QRD161J-472	CR	
R310	QRD161J-472	CR	
R311	QRD161J-124	CR	
R312	QRD161J-124	CR	
R313	QRD161J-103	CR	
R314	QRD161J-103	CR	
R315	QRD161J-472	CR	
R316	QRD161J-472	CR	
R317	QRD161J-472	CR	
R318	QRD161J-472	CR	
R319	QRD161J-472	CR	
R320	QRD161J-472	CR	
R321	QRD161J-472	CR	
R322	QRD161J-103	CR	
R323	QRD161J-103	CR	
R324	QRD161J-332	CR	
R325	QRD161J-332	CR	
R326	QRD161J-103	CR	

## (Mechanics)

Symbol No.	Part No.	Part Name	Description
R327	QRD161J-103	CR	
R328	QRD161J-103	CR	
R329	QRD161J-103	CR	
R330	QRD161J-103	CR	
R331	QRD161J-472	CR	
R332	-	-	
R333	-	-	
R334	QRD161J-272	CR	
R335	QRD161J-223	CR	
R336	QRD161J-473	CR	
R337	QRD161J-473	CR	
R338	QRD161J-103	CR	
R339	QRD161J-103	CR	
R340	QRD161J-472	CR	
R341	QRD161J-106	CR	
R342	QRD161J-472	CR	
R343	QRD161J-472	CR	
R344	QRD161J-381	CR	
R345	QRD161J-152	CR	
R346	QRD161J-222	CR	
R347	QRD161J-100	CR	
R348	QRD161J-561	CR	
R349	-	-	
R350	QRD161J-473	CR	
ΔR351	FUS2100-100	Fusistor	
RA301	EXB-P32472M	Resistor Array	
C301	QCF11HP-223	C Cap	
C302	QET61CM-106	E Cap	
C303	QET61CM-106	E Cap	
C304	QET61CM-338	E Cap	
C305	QCF31HP-223	C Cap	
C306	QCF31HP-223	C Cap	
C307	QCF31HP-223	C Cap	
C308	QCF31HP-223	C Cap	
C309	QCF31HP-102	C Cap	
C310	QCF31HJ-390	C Cap	
C311	QCS31HJ-390	C Cap	
C312	QET61CM-106	E Cap	
C313	QCF31HP-223	C Cap	
C314	QCF31HP-223	C Cap	
C315	QCF31HP-223	C Cap	
C316	QET61CM-330	E Cap	
C317	QET61EM-475	E Cap	
C318	QCF11HP-102	C Cap	
ΔCF301	FUS5292	Ceramic Filter	
CN301	FU49215-10	Cap Housing	
CN302	FU49215-4	Cap Housing	
CN303	FU49215-11	Cap Housing	
CN304	FU49215-5	Cap Housing	
CN305	FU49215-8	Cap Housing	

Symbol No.	Part No.	Part Name	Description
CN306	FU49215-7	Cap Housing	
CN307	FU49215-9	Cap Housing	
CN308	FU49215-3	Cap Housing	
CN309	FU49215-5	Cap Housing	
CN310	FU49215-3	Cap Housing	
CN311	FU49215-11	Cap Housing	
ΔHS301	FUS8776	Heat Sink	(to Q30)
WSR301	G020B3-501	Washer	
SCR301	DPSP30062	Screw	

## 6.2.6 Audio board assembly [06] ..... PU22179A-2

Symbol No.	Part No.	Part Name	Description
IC1	AN399IK	Integrated Circuit	
IC2	TA7361AP	Integrated Circuit	
Q1	2SD630Q,R,S	Transistor	
Q2	DTC124BF	D Transistor	
Q3	2SB643Q,R,S	Transistor	
Q4	2SD630Q,R,S	Transistor	
Q5	2SB643Q,R,S	Transistor	
Q6	-	-	
Q7	DTC124BF	D Transistor	
D1	MA165 or 1SS133	Diode	
D2	MA165 or 1SS133	Diode	
D3	MA165 or 1SS133	Diode	
D4	MA165 or 1SS133	Diode	
D5	MA165 or 1SS133	Diode	
D6	MA165 or 1SS133	Diode	
D7	MA165 or 1SS133	Diode	
D8	MA165 or 1SS133	Diode	
R1	QRD161J-333	CR	
R2	QRD161J-271	CR	
R3	QRD161J-229	CR	
R4	QRD161J-822	CR	
R5	QVZ3821-222	VR	FB LEVEL
R6	QRD161J-103	CR	
R7	QRD161J-162	CR	
R8	QRD161J-122	CR	
R9	QRD161J-581	CR	
R10	QRD161J-100	CR	
R11	QRD161J-278	CR	
R12	QRD161J-122	CR	
R13	QRD161J-272	CR	
R14	QRD161J-395	CR	
R15	QRD161J-229	CR	
R16	QRD161J-103	CR	
R17	QRD161J-279	CR	
R18	QRD161J-103	CR	
R19	QRD161J-103	CR	
R20	QRD161J-1R0	CR	
R21	QVZ3821-222	VR	BIAS LEVEL
R22	QRD101J-273	CR	
R23	QRG126J-100 or QRG129J-100	QMR	
R24	QRD161J-272	CR	
R25	QRD161A-383	CR	
R26	QRD161J-222	CR	
△ R27	PU52108-888 or PU52108-100	Posistor	
△ R28	QRD161J-182	CR	
R29	QRD161J-182	CR	

Symbol No.	Part No.	Part Name	Description
R30	QRD161J-182	CR	
R31	-	-	
R32	-	-	
R33	QRD161J-272	CR	
R34	QRD161J-383	CR	
R35	QRD161J-153	CR	
R36	QRD161J-660	CR	
R37	QRD161J-272	CR	
C1	QET61AM-476	E Cap	
C2	QCS31HJ-561	C Cap	
C3	QBL61HM-105	E Cap	
C4	QBB61CM-686	LL Cap	
C5	QFN31HJ-153	MY Cap	
C6	QET61EM-475	E Cap	
C7	QET61EM-475	E Cap	
C8	QFN31HJ-473	MY Cap	
C9	QET61HM-105	E Cap	
C10	QCS31HJ-561	C Cap	
C11	QET61CM-336	E Cap	
C12	QET61HM-105	E Cap	
C13	QFN31HJ-123	MY Cap	
C14	QET61AM-226	E Cap	
C15	QET61HM-474	E Cap	
C16	QET61EM-106	E Cap	
C17	QET61AM-336	E Cap	
C18	QET61EM-475	E Cap	
C19	QFN31HJ-102	MY Cap	
C20	QFN31HJ-102	MY Cap	
C21	QFP32AJ-333	PP Cap	
C22	QET61CM-336	E Cap	
C23	QFN31HJ-182	MY Cap	
C24	QFN31HF-822	MY Cap	
C25	QET61CM-336	E Cap	
C26	QCF11HP-162	C Cap	
C27	QFN31HJ-233	MY Cap	
C28	QCF31HP-473	C Cap	
C29	QFN31HJ-562	MY Cap	
C30	QFN31HJ-124	MY Cap	
L1	PU48306-272J	Coil	
L2	PU48330-961K	Peaking Coil	
L3	PU48330-271J	Coil	
T1	PU58109-2	OSC Coil	
CH1	PU49215-7	Cap Housing	
CH2	PU49215-3	Cap Housing	
CH3	PU49215-3	Cap Housing	
CH4	PU49215-5	Cap Housing	
	PQ42318	Contact	
TP	PU67645	Test Pin	TP 1, 31, 32, 35

## 6.2.7 Tuner/IF Sub-board assembly [07] PU11360A2-3

Symbol No	Part No.	Part Name	Description	Symbol No	Part No.	Part Name	Description
IC301	LA7710	Integrated Circuit		R324	QRD161J-392	CR	
IC302	UPC1391H	Integrated Circuit		R325	QRD161J-473	CR	
IC303	LB1214	Integrated Circuit		R326	QRD161J-108	CR	
IC304	LA7016	Integrated Circuit		R327	QRD161J-472	CR	
IC305	HSD1969	Integrated Circuit		R328	QRD161J-681	CR	
IC306	HSDM1933B	Integrated Circuit		R329	QRD161J-681	CR	
IC307	HSD1969	Integrated Circuit		R330	QRD161J-222	CR	
IC308	HSDM1933B	Integrated Circuit		R331	QRD162J-821	CR	
IC309	HSD1969	Integrated Circuit		R332	QRD161J-821	CR	
IC310	HSDM1933B	Integrated Circuit		R333	QRD161J-271	CR	
Q301	25C2626T	Transistor		R334	QRD161J-291	CR	
Q302	25C2836T	Transistor		ΔR335	QRD0064-479	FR	
Q303	25C2636T	Transistor		R336	QRD161J-272	CR	
Q304	-	-		R337	QR73531-223	VR	PAL SOUND LEV
Q305	UN321E	Transistor		R338	QRD161J-752	CR	
Q306	25K361C	F.E. Transistor		R339	QRD161J-223	CR	
Q307	DTC1144EP	D Transistor		R340	QRD161J-103	CR	
Q308	25D6373	Transistor		R341	QRD161J-472	CR	
Q309	DTC1144EP	D Transistor		R342	QRD161J-472	CR	
Q310	25C2847G	Transistor		R343	QRD161J-108	CR	
Q311	DTC1144EP	D Transistor		R344	QRD161J-472	CR	
Q312	25D13395	Transistor		R345	QRD161J-470	CR	
D301	15S152	Diode		R346	QRD161J-470	CR	
D302	15S152	Diode		R347	QRD161J-470	CR	
D303	15S152	Diode		R348	QRD161J-861	CR	
D304	15V136	Diode		R349	QRD161J-392	CR	
D305	15V136	Diode		ΔR350	QRD123J-151	CR	
D306	-	-		R351	-	-	
D307	15S152	Diode		R352	-	-	
D308	15V136	Diode		R353	QRD161J-220	CR	PAL S BPF
D309	DAN201	Diode Array		R354	QVZ3531-473	VR	PAL S BPF
D310	DAN201	Diode Array		R355	QVZ3531-473	VR	SECAM S BPF
R901	QRD161J-750	CR		R356	QRD163J-333	CR	SECAM S BPF
R902	QRD161J-561	CR		R357	QVZ3531-473	VR	SECAM S BPF
R903	QRD161J-392	CR		R358	QVZ3531-473	VR	SECAM S BPF
R904	QRD161J-820	CR		R359	QVZ3531-473	VR	SECAM HU LLD
R905	QRD161J-152	CR		R360	QRD161J-221	CR	
R906	QRD161J-101	CR		C301	OCV31HK-222	C Cap	
R907	-	-		C302	OCV31HK-222	C Cap	
R908	QRD161J-332	CR		C303	OCF31HP-472	C Cap	
R909	QRD161J-103	CR		C304	-	-	
R910	QRD161J-561	CR		C305	OCV31HK-222	C Cap	
R911	QRD161J-392	CR		C306	OCV31HK-222	C Cap	
R912	QRD161J-680	CR		C307	OCV31HK-222	C Cap	
R913	QRD161J-151	CR		C308	OCF31HP-472	C Cap	
R914	QRD161J-473	CR		C309	OCV31HK-222	C Cap	
R915	QRD161J-473	CR		C310	OCT295H-220	C Cap	
R916	-	-		C311	OCV31HK-222	C Cap	
R917	-	-		C312	OCT295H-220	C Cap	
R918	QVZ3531-473	VR	PAL SOUND LEV	C313	QET61HM-106	E Cap	
R919	QRD161J-331	CR		C314	QET61HM-108	E Cap	
R920	QRD161J-471	CR		C315	QET61HM-108	E Cap	
R921	QRD161J-103	CR		C316	OCV31HK-222	C Cap	
R922	QVZ3531-472	VR	SECAM SOUND LEV	C317	OCT25RH-300	C Cap	
R923	QRD161J-108	CR		C318	QET61HM-106	E Cap	
				C319	QET61AM-476	E Cap	
				C320	PJ57601-108KE	OS Cap	
				C321	QFN31HK-222	MY Cap	
				C322	QET61HM-108	E Cap	
				C323	QET61CM-336	E Cap	
				C324	QFN31HK-222	MY Cap	

## 6.2.5 Head/MDA board assembly [08] .... PU36589C-5

Symbol No.	Part No.	Part Name	Description
C325	QET61CM-107	E Cap	
C326	QCC11EK-473	C Cap	
C327	QCC11EK-473	C Cap	
C328	QFN31HJ-223	MY Cap	
C329	QCC11EM-163	C Cap	
C330	QGS31HJ-220	C Cap	
C331	QET61HM-226	E Cap	
C332	QET61CM-107	E Cap	
C333	-	-	
C334	-	-	
C336	QET61HM-474	E Cap	
C336	QET61HM-474	E Cap	
C337	QCC11EM-163	C Cap	
C338	QET61CM-107	E Cap	
C339	QET61EM-476	E Cap	
C340	QET61HM-225	E Cap	
C341	QCV31HK-222	C Cap	
C342	QCV31HK-222	C Cap	
C343	-	-	
C344	QCT25CH-5R0	C Cap	
C345	QCV31HK-472	C Cap	
C346	-	-	
C347	-	-	
C348	QCT25CH-5R0	C Cap	
L301	PU4883D-1R0	Peeking Coil	
L302	PU57717-1R0	Peeking Coil	
L303	PU57837	Low Pass Filter	
CF801	PU8555B-2	Ceramic Filter	
CF302	PU48295-2	Ceramic Filter	
CF303	PU32891-2	Ceramic Filter	
SAW801	PU35976	Saw Filter	38.9 MHz
T301	PU58770	IF Transformer	PAL SAW
T302	PU58771	IF Transformer	SECAM BPF
T303	PU58771	IF Transformer	SECAM BPF
T304	PU58773	IF Transformer	LLD DET
CN301	PU49215-B	Cap Housing	
CN302	-	-	
CN303	PU49215-2	Cap Housing	
CN304	PU49215-2R	Cap Housing	
CN305	Q4MC0131-002	Jack Assembly	
J1	-	-	
J2	PU36069-001	Flat Wire	
J3	PU36069-002	Flat Wire	
J4	PU36069-003	Flat Wire	
J5	PU36069-004	Flat Wire	
J6	PU36069-005	Flat Wire	
SC1	PU36064	Shield Case 131	
SC2	PU68997-1-2	Shield Plate 131	
SC3	PU36067	Shield Cover 131	

Symbol No.	Part No.	Part Name	Description
IC1	AA8671K	Integrated Circuit	
Q1	2SB1052 or 2SB941P-Q	Transistor Transistor	
D1	RD5.1ES-11B or PD5.1EP or MTZ6.1T-77	Zener Diode Zener Diode Zener Diode	
R1	QRD161J-592	CR	
R2	QRD161J-123	CR	
R3	QRD161J-582	CR	
R4	QRD161J-222	CR	
R5	QRD161J-223	CR	
R6	QRD161J-223	CR	
R7	QRD161J-103	CR	
R8	QRD161J-222	CR	
R9	QRD161J-123	CR	
R10	QRD161J-151	CR	
R11	QRD161J-151	CR	
R12	QRD161J-471	CR	
R13	QRD161J-551	CR	
R14	QRD161J-291	CR	
R15	QRD161J-330	CR	
R16	QRD161J-552	CR	
R17	QRD161J-223	CR	
R18	QRD161J-222	CR	
R19	QRD161J-222	CR	
R20	QAX016J-R68 or QRG016J-R68S	QMR QMR	
R21	QRD181J-222	CR	
C1	QFN31HK-473	MY Cap	
C2	QFN31HK-333	MY Cap	
C3	QFN31HK-473	MY Cap	
C4	QET61HM-225	E Cap	
C5	QET61HM-225	E Cap	
C6	QET61HM-226	E Cap	
C7	QET61HM-225	E Cap	
C8	QFN31HK-152	MY Cap	
C9	QF29011-104 or QFJ41HK-104	MY Cap MY Cap	
C10	QFN31HK-104	MY Cap	
C11	QFN31HK-104	MY Cap	
C12	QET61EM-105	E Cap	
CN1	PU87603-10	Conn Wafer Assy	
CN2	PU49215-10B	Cap Housing	
CN3	PU49215-10S	Cap Housing	
CN4	PU49215-10Z	Cap Housing	

### 6.2.9 Audio/control head board [12]

Symbol No.	Part No.	Part Name	Description
	PU58168	A/CTL Head PWB	
CN1	PU54537-5	Cap Housing	
CN2	PU54537-2	Cap Housing	
BRT1	PQ41648	Bracket	
SCR1	SPSH1740	Hex Screw	

### 6.2.10 End sensor board [13]

Symbol No.	Part No.	Part Name	Description
	PU59111	End SENS PWB	
Q1	PT-352V or PN2025R	Photo Transistor Photo Transistor	
C1	QCF11HP-103A	C Cap	

### 6.2.11 Mode sensor board assembly [14]

..... PU35632A3

Symbol No.	Part No.	Part Name	Description
PS1	PU57650-1-1	Photo Sensor	
R1	QRD161J-551	CR	

### 6.2.12 Cassette housing board [18]

Symbol No.	Part No.	Part Name	Description
	PU56460-1-2	Cassette Housing Board	
Q1	PT-352V or PN2025R	Photo Transistor Photo Transistor	START SENSOR
C1	QCF11HP-103A	C Cap	
C2	QCF11EP-223A	C Cap	
C3	QCF11HP-223A	C Cap	
CN1	PU49215-106	Cap Housing	

### 6.2.13 Deck terminal board assembly [20]

..... PU35632A1

Symbol No.	Part No.	Part Name	Description
Q1	2SD6360,R,S	Transistor	
D1	1SS123	Diode	
R1	—	—	
R2	QRD161J-221	CR	
R3	QRD161J-181	CR	
R4	QRD161J-822	CR	
R5	QRD161J-152	CR	
R6	QRD161J-272	CR	
R10	QRD161J-102	CR	
R11	QRD161J-272	CR	
CN1	PU43351-11	Cap Housing	
CN2	PU43215-2	Cap Housing	
CN3	PU51260-6	Cap Housing	
J1	PU57747-080	Jump Wire	

### 6.2.14 Take-up reel sensor board assembly [22]

..... PU35632A2

Symbol No.	Part No.	Part Name	Description
PS1	GP2L048.D	Photo Sensor	
D3	M2S5 8681	Zener diode	
HD1	PQ41391	Sensor Holder	

### 6.2.15 Video sub board assembly [24] ... PU36125A

Symbol No.	Part No.	Part Name	Description
IC101	TVT12	Integrated Circuit	
Q101	2SC2647B,C	Transistor	
D101	OAB0	Diode	
D102	OAB0	Diode	
D103	1A1165 or 1SS133	Diode Diode	
R101	QRD161J-182	CR	
C101	QCS91HJ-121	C Cap	
C102	QCS91HJ-590	C Cap	
C103	QCS91HJ-220	C Cap	
C104	QET61M1A-105	E Cap	
C105	QET60MM-478	E Cap	
L101	PU45830-560J	Peaking Coil	
L102	PU45630-101K	Peaking Coil	
CN101	PU49215-107	Cap Housing	



## 6.2.16 Mode motor board (30)

Symbol No.	Part No.	Part Name	Description
	PU57725-1-2	Motor Board	
C1	QEN81HM-105	NP Cap	
C2	QCF11HP-223	C Cap	
C3	QCF11HP-223	C Cap	
CR1	PU4B215-102	Cap Housing	
LU1	PQ41430	Earth Lug	

## 6.2.17 Power switch/FR board assembly (31)

..... PU35793A-1

Symbol No.	Part No.	Part Name	Description
D1	SLP-981C-80	LED	
D2	—	—	
D3	MA195 or 1S5133	Diode	
D4	—	—	
D5	MA166 or 1S5133	Diode	
D6	SLP-981C-50	LED	
D7	SLP-981C-50	LED	
D8	SLP-981C-90	LED	
D9	SLP-981C-50	LED	
R1	QRD161J-331	CR	
R2	—	—	
R3	—	—	
R4	QRD161J-104	CR	
R5	QRD161J-152	CR	
R6	QRD161J-223	CR	
R7	—	—	
R8	QRD161J-103	CR	
R9	—	—	
R10	QRD161J-120	CR	
C1	QCY21HK-471	C Cap	
C2	QEK81EM-475	E Cap	
C3	QCF11HP-273	MY Cap	
C4	QEK81HM-225	E Cap	
C5	—	—	
C6	QEK80JM-475	E Cap	
S1	PU57550	Tact Switch	Power
SC1	PQ30658-2	Shield Case	
SC2	PQ30845-2	Shield Plate	
HD1	PU56940	LED Holder	for D1, D2 D6—D9
	PU66729-2	Wax Clamp	
	PU59005A	FR Board Assy	
The following parts are included in PU59005A			
IC1	LA7225	Integrated Circuit	
D4	HP-SFR2 or PD48P or PD481PI	Pin Photo Diode Pin Photo Diode Pin Photo Diode	
R7	QRD162J-104	CR	
R8	—	—	
R9	QRD162J-102	CR	
C5	QET50JM-479	E Cap	
L1	PU57831	Trip Coil	

## 6.2.18 Display board assembly [32] ..... PU22137A

Symbol No.	Part No.	Part Name	Description
K301	MN1280BJC	Integrated Circuit	
R301	QRD161J-158	CR	
R302	QRD161J-103	CR	
R303	QRD161J-109	CR	
R304	QRD161J-105	CR	
R305	QRD161J-103	CR	
R306	QRD161J-104	CR	
C301	QCS31M4-470	C Cap	
C302	QEN61M4-475	E Cap	
CM1	PU51260-11	Cap Housing	
CM2	PU51260-9	Cap Housing	
CM3	PU51260-9	Cap Housing	
FDP1	PU47989	FDP	
HD1	PU35843	Display Holder	
	PU56729	Wire Clamp	

## 6.2.19 Operation board assembly [33] .. PU11332A2-1

Symbol No.	Part No.	Part Name	Description
ΔIC101	M80115AP	Integrated Circuit	
R201	PU58370	VR	P. SHARPNESS
R202	-	-	
R203	PU58374	VR	TRACKING
R204	QRD162J-103	CR	
C101	QCS31M4-221	C Cap	
C102	QCS31M4-221	C Cap	
S101	PU57551	Tact Switch	STOP
S102	PU57551	Tact Switch	REC
S103	PU57551	Tact Switch	FF
S104	PU57551	Tact Switch	REW
S105	PU57551	Tact Switch	PAUSE
S106	PU57551	Tact Switch	PLAY
S107	PU57551	Tact Switch	EJECT
S201	PU57858	Slide Switch	INPUT SEL
S202	PU57551	Tact Switch	INSTANT REC
S203	PU57550	Tact Switch	CANCEL
S204	PU57551	Tact Switch	DEEP MODE
S205	PU57550	Tact Switch	BACK
S206	PU57551	Tact Switch	RESET
S207	PU57550	Tact Switch	NEXT
S208	PU57550	Tact Switch	0
S209	PU57550	Tact Switch	1
S210	PU57550	Tact Switch	2
S211	PU57550	Tact Switch	3
S212	PU57550	Tact Switch	4
S213	PU57550	Tact Switch	5
S214	PU57550	Tact Switch	6
S215	PU57550	Tact Switch	7
S216	PU57550	Tact Switch	8
S217	PU57550	Tact Switch	9
S218	PU57550	Tact Switch	PROG NO.
S219	PU57550	Tact Switch	CLK.ADJ.
S220	PU52621	Push Switch	TIMER
S221	PU52621	Push Switch	MEMORY
S301	PU57551	Tact Switch	CH UP
S302	PU57551	Tact Switch	CH DOWN
S401	PU57857	Slide Switch	NT-PAL/S
S402	PU57858	Slide Switch	STD-MODE
S403	PU57858	Slide Switch	AUTO-MANU
ΔCF101	PU49487	Ceramic Filter	
SUP401	PU65353	Seabote	
J1	PU68753-13	Flat Wire	
J2	PU68753-16	Flat Wire	
J3	-	-	
J4	PU68753-05	Flat Wire	

## 6.2.20 Timer board assembly [34] ..... PU11332A-1

Symbol No.	Part No.	Part Name	Description
Δ IC401	UPD7519H-034-38	Integrated Circuit	
IC402	TL068CP	Integrated Circuit	
IC408	MS278L56	Integrated Circuit	
Q401	-	-	
Q402	2SD636R,S	Transistor	
D201	MA181	Diode	
D202	MA181	Diode	
D209	MA161	Diode	
D204	MA161	Diode	
D205	MA161	Diode	
D206	MA161	Diode	
Q303	RD108S-T1B or H25 10E	Zener Diode Zener Diode	
D401	-	-	
D402	-	-	
D403	11E2	Diode	
D404	11E2	Diode	
D408	MA150	Diode	
	or 1S5133	Diode	
D406	MA150	Diode	
	or 1S5133	Diode	
D407	MA150	Diode	
	or 1S5133	Diode	
D408	-	-	
D409	-	-	
D410	-	-	
D411	-	-	
D412	RD9 1E5-T1B2 or RD9 1EB2	Zener Diode Zener Diode	
D501	1S5131	Diode	
D502	1S5131	Diode	
R307	QRD181J-221	CR	
R308	QRD181J-221	CR	
R401	-	-	
R402	QRD181J-151	CR	
R403	QRD181J-472	CR	
R404	-	-	
R405	QRD181J-892	CR	
R406	QRD181J-104	CR	
R407	QRD181J-332	CR	
R408	QRD181J-594	CR	
R409	QRD181J-474	CR	
R410	QRD181J-694	CR	
R411	QRD181J-332	CR	
R412	QRD181J-694	CR	
R413	QRD181J-224	CR	
R414	QRD181J-273	CR	
R415	QRD181J-472	CR	

Symbol No.	Part No.	Part Name	Description
R416	QRD181J-103	CR	
R417	QRD181J-103	CR	
R418	QRD181J-103	CR	
R419	QRD181J-103	CR	
R420	QRD181J-103	CR	
R421	QRD181J-108	CR	
R422	QRD181J-103	CR	
R423	QRD181J-103	CR	
R424	QRD181J-103	CR	
R425	QRD181J-103	CR	
R426	QRD181J-103	CR	
R427	QRD181J-103	CR	
R428	QRD181J-103	CR	
R429	QRD181J-103	CR	
R430	QRD181J-103	CR	
R431	QRD181J-103	CR	
R432	QRD181J-103	CR	
R433	QRD181J-103	CR	
R434	QRD181J-102	CR	
R435	QRD181J-102	CR	
R436	QRD181J-103	CR	
R437	QRD181J-103	CR	
R438	QRD181J-103	CR	
R439	QRD181J-103	CR	
R440	-	-	
R441	-	-	
R442	-	-	
R443	QRD181J-471	CR	
R444	-	-	
R445	QRD181J-103	CR	
RA401	EXB-P84224M	Resistor Array	
RA402	EXB-P84104M	Resistor Array	
RA408	EXB-P84224M	Resistor Array	
C401	QET61HM-225	E Cap	
C402	PUS298	E Cap	1F/5.5V
C403	OCF31HP-223	C Cap	
C404	QET61HM-225	E Cap	
C405	-	-	
C406	QK61HM-224	E Cap	
C407	QET61HM-475	E Cap	
C408	OCF31HP-223	C Cap	
C409	QAT3061-011	TR Cap	18pF, CLOCK
C410	QC33HLJ-5R0	C Cap	
C411	-	-	
C412	CR661AM-107	E Cap	
C413	OCF11HP-473	C Cap	
C414	OCF31HP-223	C Cap	
C415	-	-	
C416	QET61HM-474	E Cap	
Δ X401	PU58076	Crystal	v8 t20
GM1	-	-	

Symbol No.	Part No.	Part Name	Description
CN2	PU49215-10	Cap Housing	
CN3	PU49215-7	Cap Housing	
CN4	PU49215-7	Cap Housing	
CN9	PU49215-5	Cap Housing	
TP	PU45008-3	Test Pin	TP401, 402, 404

### 6.2.21 Presetter board assembly [36] ..... PU35618A

Symbol No.	Part No.	Part Name	Description
S501	PU52621	Push Switch	BTIAFC
S602	PU57650	Tact Switch	SK#
S903	PU57550	Tact Switch	SEARCH
S504	PU57550	Tact Switch	STORE
S606	PU57550	Tact Switch	CH SEP
S508	PU57550	Tact Switch	FINE +
S607	PU57550	Tact Switch	FINE -
CN1	PU49215-7	Cap Housing	

### 6.2.22 NTSC board assembly [36] ..... PU56886A

Symbol No.	Part No.	Part Name	Description
IC1	PU22077A	C Mod. PWB Assy	
D1	155103	Diode	
R1	ORD161J-102	CR	
R2	ORD161J-222	CR	
R3	ORD161J-122	CR	
R4	-	-	
R6	ORD161J-183	CR	
R6	QVZ3531-473	VR	VxO
R7	ORD161J-474	CR	
R8	ORD161J-222	CR	
R9	ORD161J-681	CR	
R10	ORD161J-182	CR	
R11	ORD161J-122	CR	
R12	ORD161J-221	CR	
R13	ORD161J-331	CR	
R14	ORD161J-393	CR	
R15	ORD161J-332	CR	
R16	ORD161J-563	CR	
R17	ORD161J-563	CR	
C1	QET61CM-106	E Cap	
C2	OC126CM-220	C Cap	
C3	QET61CM-106	E Cap	
C4	OPN31HJ-473	MY Cap	
C5	DEK61HM-474	E Cap	
C6	QER60UM-107	E Cap	
C7	DCR31HP-223	C Cap	
C8	QEK61HM-224	E Cap	
C9	QER61EM-476	E Cap	
C10	OPN31HJ-476	MY Cap	
C11	QET61AM-470	E Cap	
C12	QET61EM-475	E Cap	
C13	OPN31HJ-332	MY Cap	
C14	QET61HM-225	E Cap	
L1	PU48530-101J	Peaking Coil	
L2	PU48530-150J	Peaking Coil	
X1	PU47931-2	Crystal	
LPF1	PU59808	Low Pass Filter	
BP1	PU59549	Band Pass Filter	
BP2	PU52648-2	Band Pass Filter	
DL1	PU57400	Comb Filter	
CN1	PU49217-13	Connector	
TP1	PU48908-3	Test Pin	TP1

## 6.2.23 Remote control board assembly [48]

..... Δ PQ10181-002

Symbol No.	Part No.	Part Name	Description
K1	M80116AP	Integrated Circuit	
X1Q11	2SQ636Q.R.S	Transistor	
X2Q21	2SC836Q.R.S	Transistor	
X3Q31	2SB220.R	Transistor	
D1,D2	MA154WA	Diode	
D3,D4	MA154WA	Diode	
D5,D6	MA154WA	Diode	
D7,D8	MA154WA	Diode	
D9,D10	MA154WA	Diode	
D11	MA154WA	Diode	
D12	SE303A	LED	
D13	SE303A	LED	
R1	QRD181J-104	CR	
R2	QRD181J-474	CR	
R3	-	-	
R4	QRD181J-222	CR	
R5	QRD181J-470	CR	
R6	QRD181J-1R2	CR	
R7	QRD181J-471	CR	
R8	QRD181J-1R2	CR	
C1	QCF11HP-101	C Cap	
C2	QCF11HP-101	C Cap	
C3	QET40JM-107	E Cap	
CF1	CSB055E1 PQ10181-005	Ceramic Filter Battery Terminal	Not included in the board ass'y.