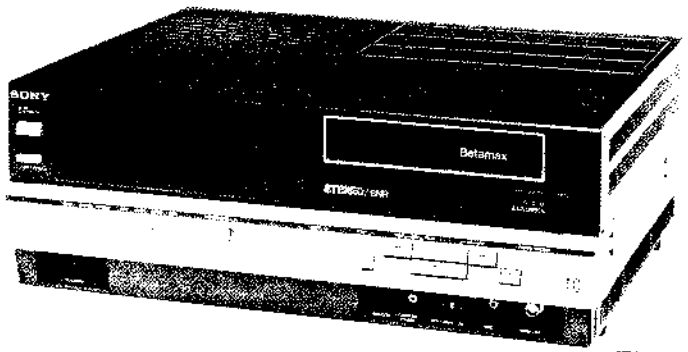
SERVICE MANUAL



710 CHASSIS

September, 1982

SPECIFICATIONS

Refer to separate operation manual, Part number 9-972-151-02.

System

Video recording system	Rotary two-head helical scanning
Video signal	CCIR standards, PAL colour
Aerial input	75-ohm, asymmetrical aerial socket
Sound system	West Germany ZWEI-TRÄGER (two carrier) system
Channel coverage	VHF : Western European channels 2 - 12 UHF : Western European channels 21 - 68 (Up to 10 channels can be preset.)
RF output signal	UHF channels 30 to 39 (variable) 75 ohms, unbalanced

Video

Input	VIDEO IN : BNC connector 1.0 V (p-p) $^{+0.5}_{-0.5}$ V (p-p) 75 ohms, unbalanced, sync negative
Output	VIDEO OUT : BNC connector 1.0 V (p-p) ±0.1 V (p-p) (Playback mode) 75 ohms, unbalanced, sync negative
Horizontal resolution	Colour : 260 lines B/W : 260 lines
Signal-to-noise ratio	Colour : Better than 40 dB B/W : Better than 43 dB

Audio

Input	AUDIO IN : phono jacks 47 kilohms, −10 dBs (0 dBs = 0.775 V rms) MIC : minijack −60 dBs, suitable for microphone with 600-ohm impedance
Output	AUDIO OUT : phono jacks Load impedance less than 10 kilohms −5 dBs with 47 kilohms load unbalanced
Frequency response	50 Hz - 10 kHz
Signal-to-noise ratio	43 dB (BNR ON)
Audio distortion	Less than 4% at 400 Hz

Video/Audio

Output	6-pin DIN connector

Tape transport

Tape speed	18.73 mm/sec
Maximum recording time	2 hours 10 min. (with Sony L-500 cassette) 3 hours 15 min. (with L-750)
Fast forward/rewind time	Within 4 min. (with L-500)

Timer

Clock	Synchronized with the power frequency
Control time	24-hour cycle
Timer setting	Only for recording 1 event/week, adjustable for any day or for all 7 days of the week

— continued on page 2 —

Beta

VIDEOCASSETTE RECORDER

SONY

MICROFILM

Consumer VIDEO

General

Power requirements	220 or 240 V ac ±10%, adjustable 50 Hz
Power consumption	55 W
Storage temperature	−20°C to +65°C (−4°F to +149°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	Approx. 460 × 168 × 383 mm (w/h/d) (18⅛ × 6⅝ × 15⅛ inches) including projecting parts and controls
Weight	Approx. 14.5 kg (32 lb)
Accessories supplied	75-ohm coaxial cable (for connecting recorder to TV) ..... 1 Channel presetting label ..... 1 Video monitor cable VMC-366 (6-pin DIN connector to 6-pin DIN connector) 1
Optional accessories	Remote control unit RM-72 Video monitor cable VMC-368 (6-pin DIN connector to 8-pin connector)

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING !!

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

TABLE OF CONTENTS

SECTION 1
GENERAL

1-1. WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

1-2. OPERATING VOLTAGE

Before connecting the unit to a power source, check that the voltage selector located at the rear is set to your local mains power voltage. The operating voltage can be set to 220V or 240V ac.
If the selector must be reset, turn the selector with a screwdriver or similar object so that the triangle points to the appropriate voltage.

1-3. PRECAUTIONS

On safety

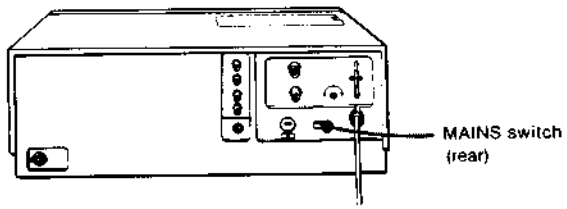
- Before connecting the unit to the power source, check that the voltage selector located at the rear is correctly set to your local power line (mains) voltage.
- Do not attempt to make any of the adjustments at the small holes in the rear of the unit. These are special adjustments to be performed only by qualified personnel.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- To disconnect the mains lead (ac power cord), pull it out by the plug. Never pull the lead itself.

On installation

- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation slots.
- Do not install the unit near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- The unit is designed for operation in a horizontal position. Do not install it in an inclined position.
- Keep the unit and cassette tapes away from equipment with strong magnets, such as an electronic oven, large loudspeakers, etc.
- Do not place any heavy object on the unit.

On operation

- This unit should not be operated for two hours after being transported from a cold to a hot environment to avoid condensation from forming on the head drum. Condensation can cause the tape to stick to the head drum, resulting in damage to the tape.
- When the unit is not to be used for a long period of time, turn the power off to conserve energy and to extend the useful life of your unit. If you turn off the MAINS switch located at the rear, the entire circuit power, including the clock section, will be shut off.



- After playing a tape, remove the cassette from the unit. Do not transport the unit with a cassette in place.

On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or soft cloth lightly moistened with mild detergent solution. Do not use any type of solvent such as alcohol or benzine which may damage the finish.

On repacking

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

On colour broadcasting systems

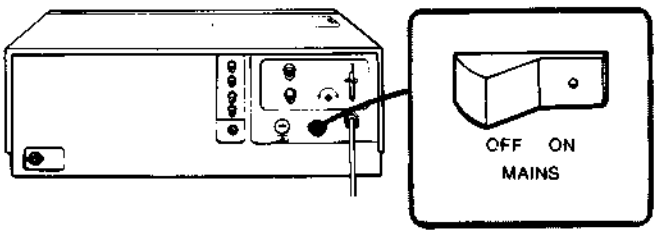
This machine is designed to record and play back using the PAL colour standard. Recording and playback of video sources based on other colour systems cannot be guaranteed.

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

1-4. SYSTEM CONNECTIONS

Cautions

- Unplug the TV from the mains outlet before making the following connections.
- Reconnect the mains lead and set the MAINS switch to ON after all the other connections of the video cassette recorder and the TV have been completed.



- Make sure the connections are secure. A loose connection may cause a noisy picture.

Notice for customers in strong signal area

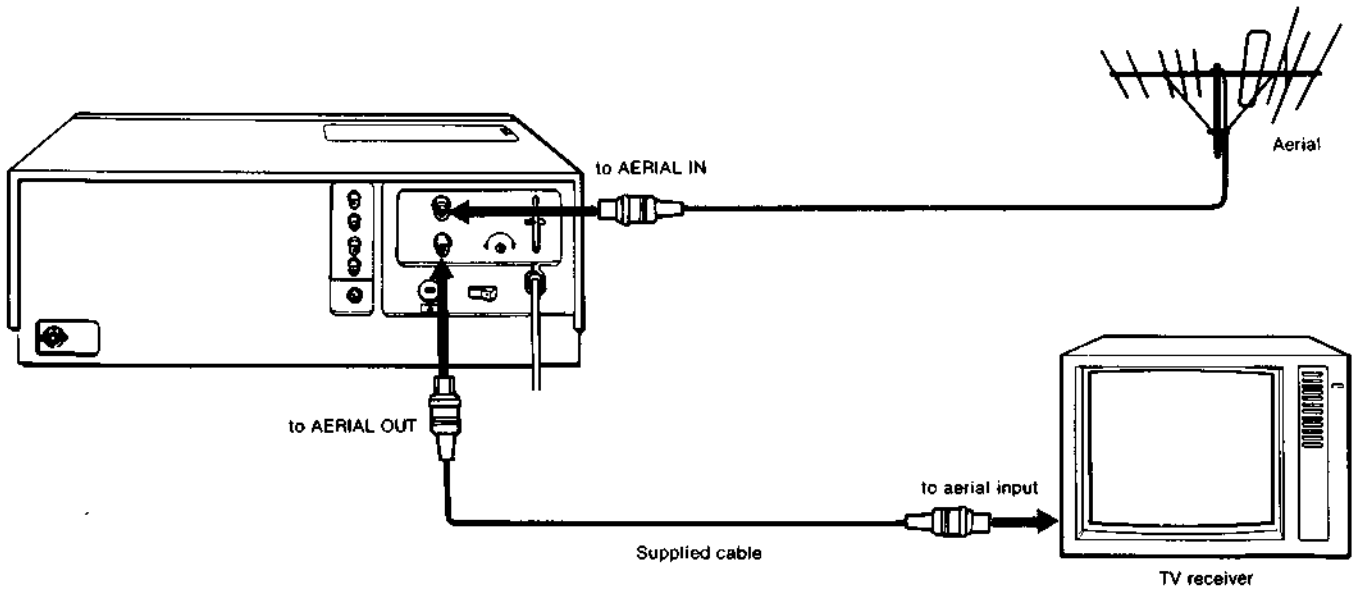
This recorder has a booster to assure stable TV reception on the recorder and on the TV. However, in areas near the TV station, where the TV signal is very strong, the picture may be affected by the booster. If this happens, connect a commercially available attenuator to the aerial lead-in wire. For details, consult your nearest Sony dealer.

CONNECTING TO THE TV

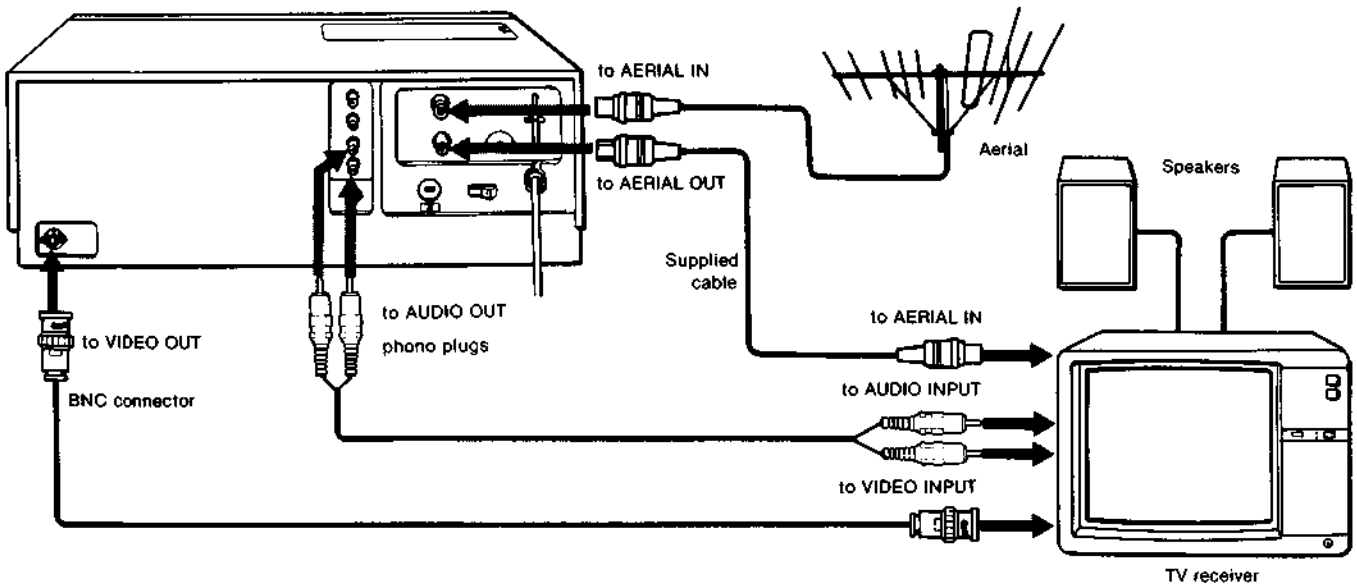
First remove the aerial cable fro.n its socket in the back of the TV and connect it to the AERIAL IN socket at the rear of the recorder. Then connect the other cords as follows.

A Connecting a conventional TV

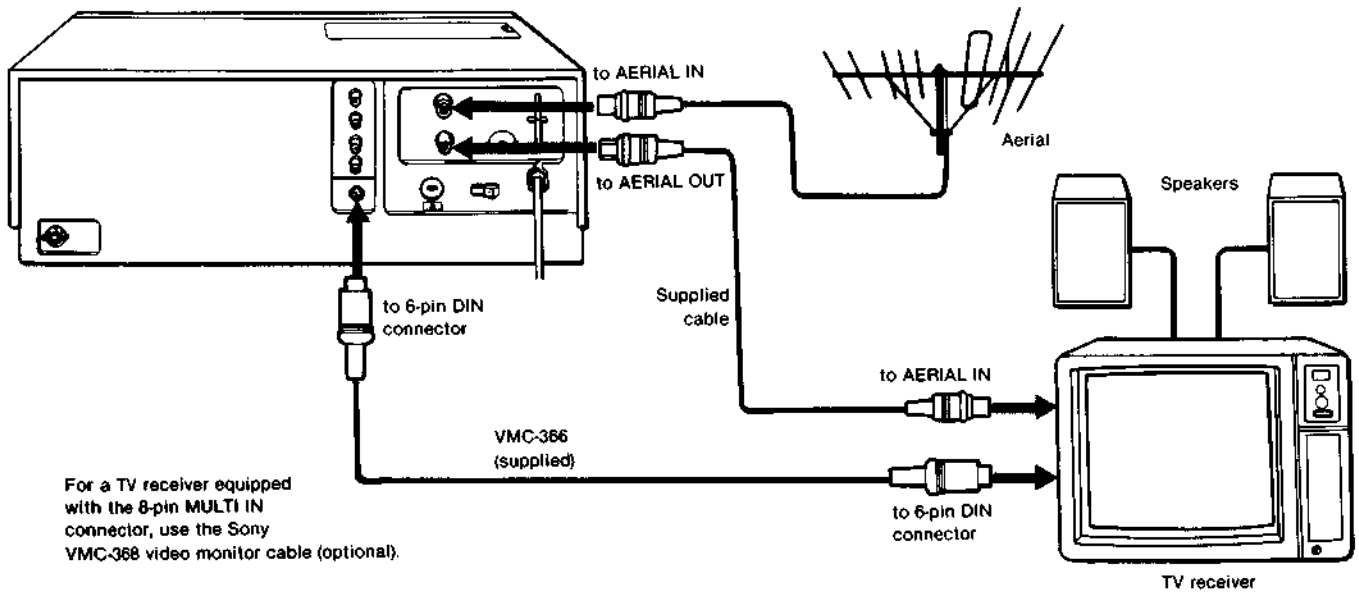
Even if you use a stereo TV, the playback of a stereo sound tape will be monaural.



B Connecting a TV equipped with AUDIO and VIDEO INPUT jacks.
You can enjoy recording and playing back of the stereo-sound or dual-sound programmes.



C Connecting a TV equipped with a multiplex connector
The video and audio signal connection to the TV can be made by a single video monitor cable. You can enjoy recording and playing back of the stereo-sound or dual-sound programmes.



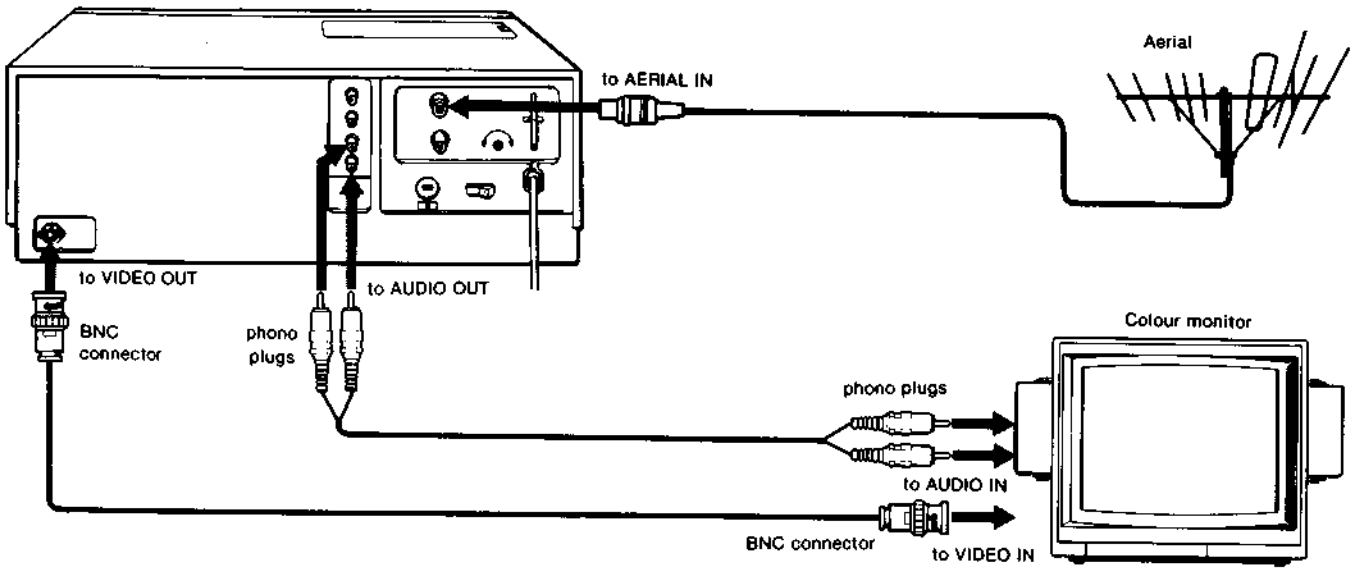
Note
Do not simultaneously make B connection and C connection.

After completing the appropriate connection, see the operation of instructions with the same mark (A , B or C) as the connection you have made.

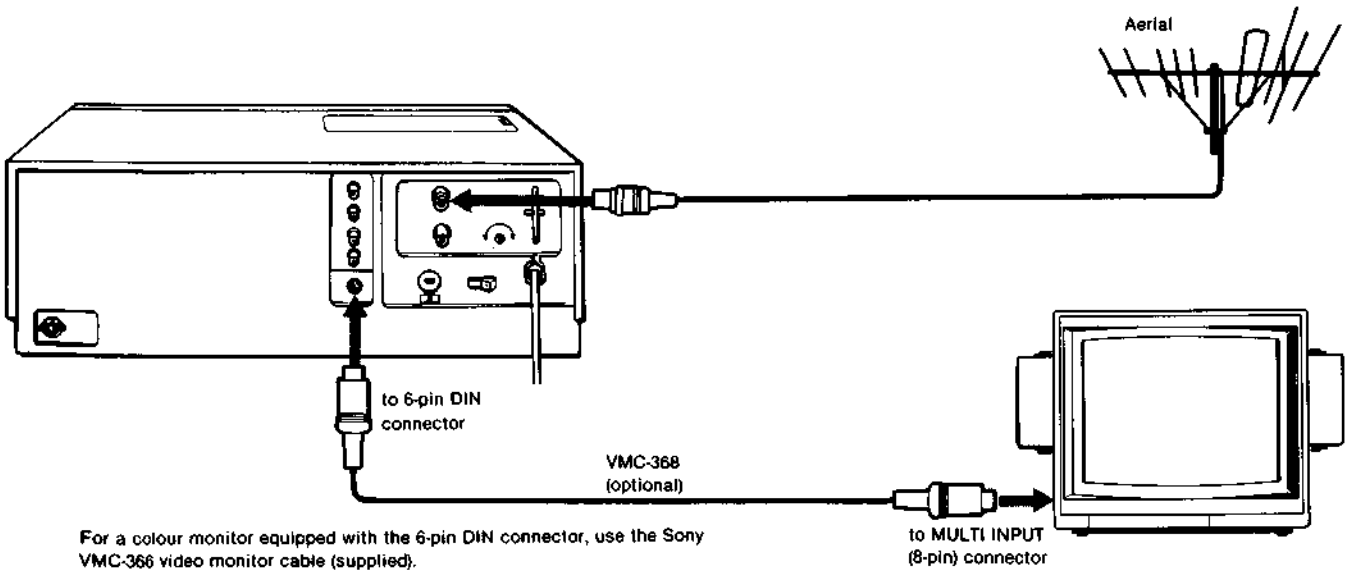
CONNECTING TO A COLOUR MONITOR

To obtain a higher-quality picture, connect the unit to a colour monitor instead of a conventional TV receiver. The aerial should be connected to the recorder in the same way as a conventional TV.

Using the AUDIO OUT jacks and VIDEO OUT connectors



Using the 6-pin DIN connector



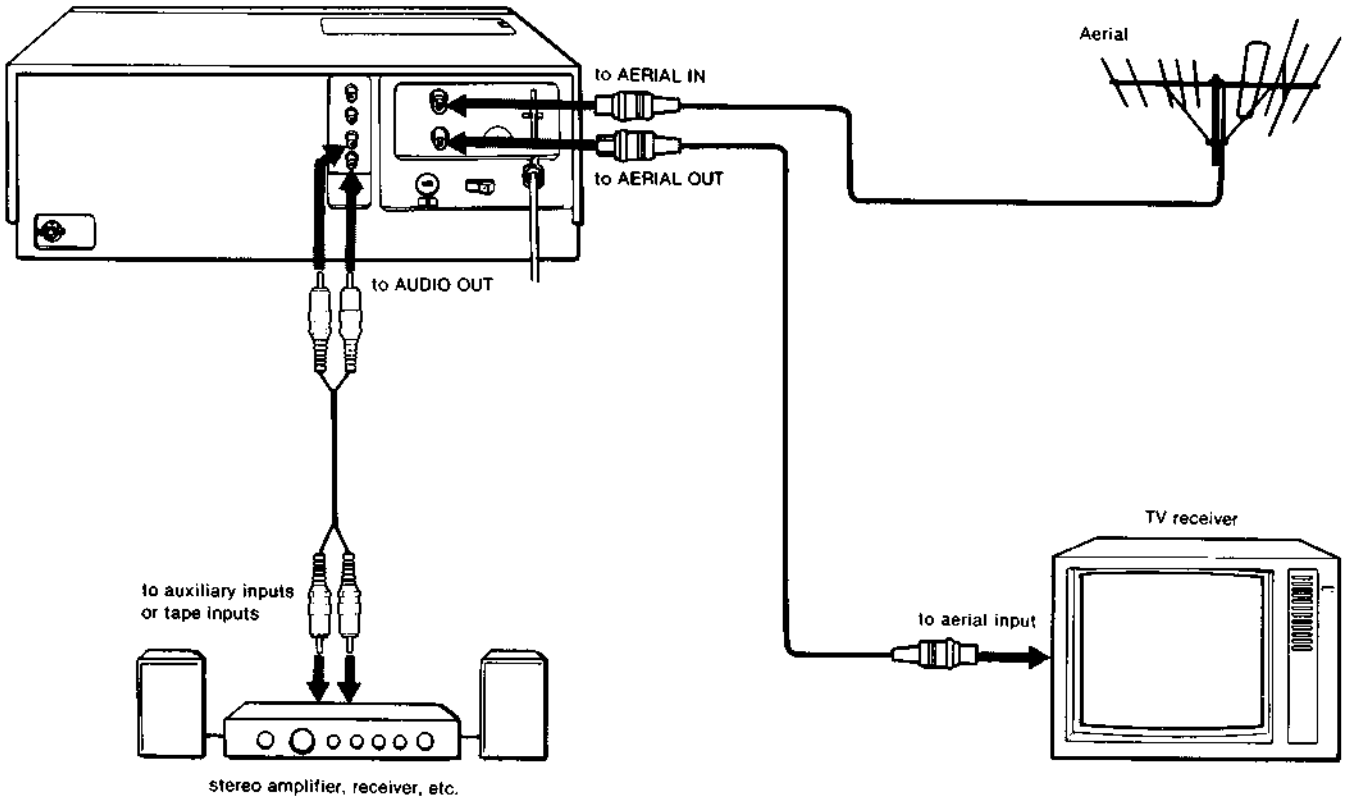
For a colour monitor equipped with the 6-pin DIN connector, use the Sony VMC-366 video monitor cable (supplied).

Notes

- Do not simultaneously make DIN cable connection and phono cord connection.
- When using a colour monitor, set the TV/VTR select button on the VTR to VTR.

CONNECTING TO AN AUDIO SYSTEM

You can enjoy the stereo sound of the video tapes through your audio system even if your TV receiver is a conventional type. Set the TV/VTR select button on the VTR to VTR.

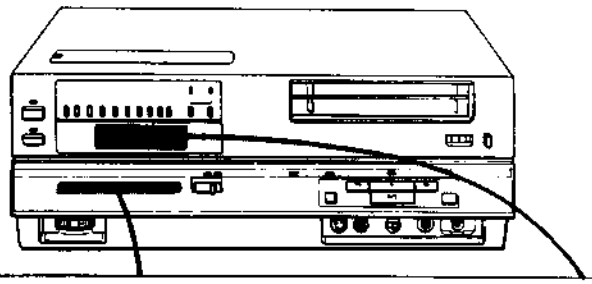


Note

Do not simultaneously make DIN cable connection and phono cord connection.

1-5. SETTING THE CLOCK

When you set the MAINS switch to ON after connecting the mains lead (ac power cord) to a wall outlet, the clock indicates "0 : 00" and blinks to show that it must be set.
To set the clock to 8 : 35 a.m. on Tuesday, for example, proceed as follows :



1 CLOCK

Keep depressed until step **5**.

Stops blinking.

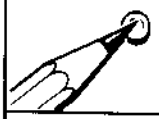
2

DAY

Set the day of the week.

The day indicators are numbered 1 to 7.
You can designate any day of the week as Day 1. If Sunday, say, is chosen as Day 1 and you are setting the time on Tuesday, press the button until "3" lights up.

3 Set the hours digit(s).

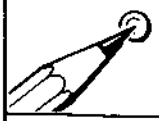


HOUR

4 Set the tens of minutes digit.

10MIN

5 Set the minutes digit.



MIN

6 With the time signal

Release.

The clock now starts operating, showing the correct time. The upper dot blinks for the first 30 seconds, and the lower dot for the last 30 seconds.

Setting the day(s), hours and minutes digits
The DAY, HOUR, 10MIN and MIN buttons can be pressed in two ways :

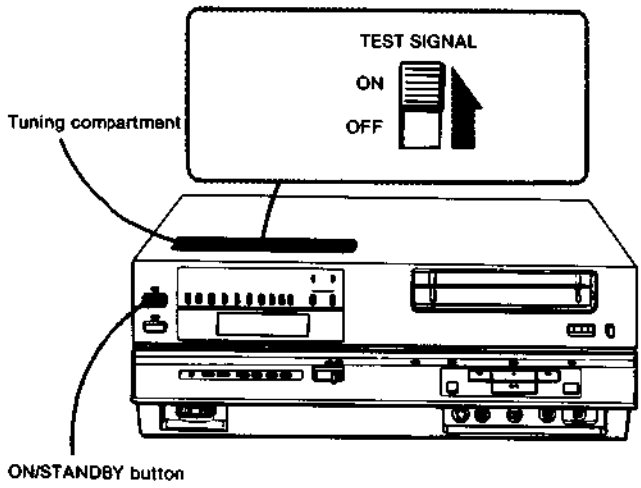
When you hold a button down, the digits will advance continuously until the button is released.

When you press and immediately release a button, the digits will advance by one.

1-6. TUNING THE TV AND THE RECORDER

TV ADJUSTMENT

❶ Press the ON/STANDBY button of the recorder to turn the recorder on.



❷ Open the tuning compartment lid and set the TEST SIGNAL switch to ON.

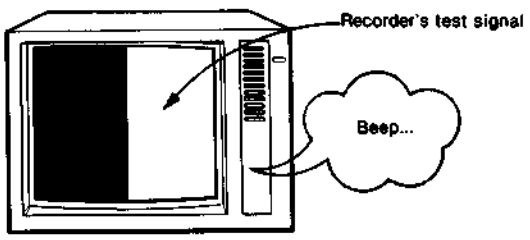
❸ [A] **When a TV is connected to the AERIAL OUT socket only**
Turn on the TV.

[B] **When using a TV equipped with AUDIO and VIDEO INPUT jacks**
Turn on the TV and set the TV/VTR (input) select button on the TV to TV.

[C] **When using a TV equipped with a multiplex connector**
Turn on the TV and set the TV/VTR select buttons on both TV and VTR to TV. (Your TV may be automatically switched to the TV mode.)

❹ Select a channel on the TV which is not used to receive a TV station. Tune the channel until you see a clear black and white pattern on the TV screen and you hear a high-pitched tone. This is the recorder's test signal.

— If all the channels on your TV are used for receiving stations, select the channel you watch least.
— If you are not sure how to tune your TV, please refer to the TV's instruction manual or consult your dealer.



❺ If the test picture is free of disturbance, set the TEST SIGNAL switch to OFF.

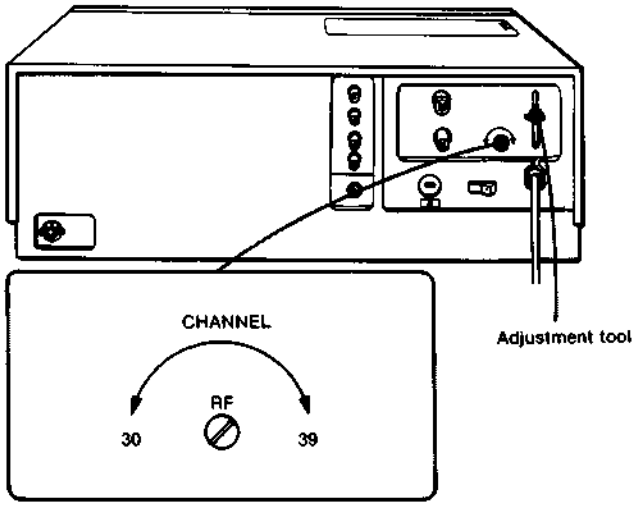
If the test picture is not free of disturbance
There might be interference. To receive the recorder's signal on your TV without interference, proceed as follows:
❶ Reset the TEST SIGNAL switch in the tuning compartment to OFF.

You will probably see interference or perhaps even a TV programme on the TV screen.

❷ Adjust the channel of the TV to a channel between UHF 30 and 39 with the tuning control or the fine tuning control on the TV, so that the TV screen shows no picture and so that a steady rustling sound or no sound is heared.
❸ Set the TEST SIGNAL switch to ON again.
❹ Slowly turn the RF CHANNEL screw on the back of the recorder until you see an undistorted test picture on the TV screen.

You can use the adjustment tool located to the right of the RF CHANNEL screw hole to turn the screw.

❺ Reset the TEST SIGNAL switch to OFF.

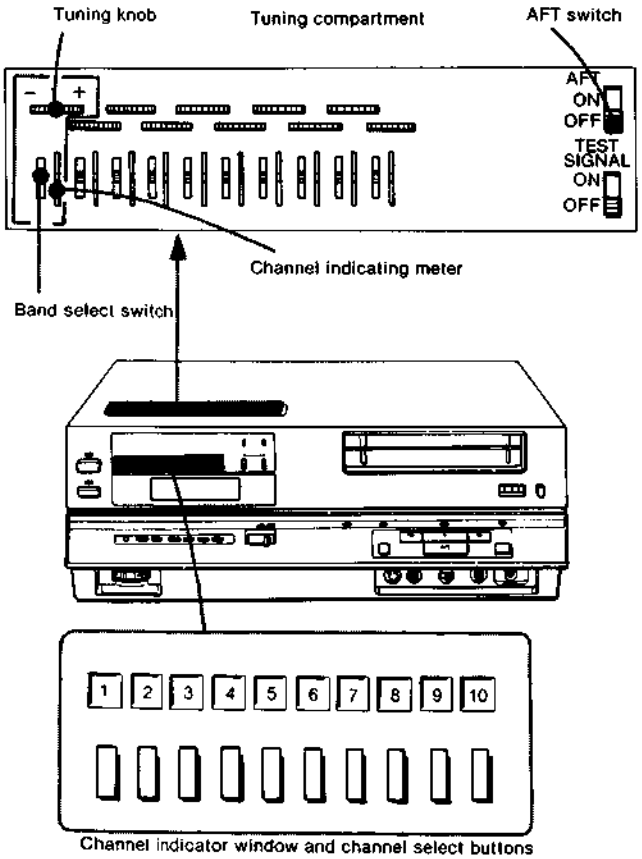


Now your TV receiver is tuned to the recorder. Whenever you use the video recorder, you should set the TV to the channel which you have chosen above.

RECORDER CHANNEL PRESETTING

Once you have tuned your TV to the recorder, the next step is to tune the recorder to all the TV stations that you can receive in your area. Up to 10 TV stations can be preset in any order.

Location of the tuning controls



Channel indicator window and channel select buttons

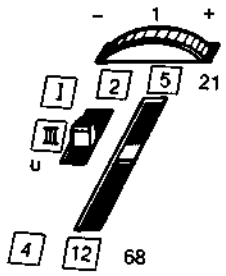
Presetting procedure

❶ [A] **When a TV is connected to the AERIAL OUT socket only**
Turn on the TV and the recorder, and select the channel on the TV for the recorder.

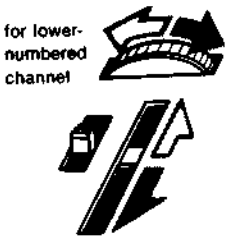
[B] **When using a TV equipped with AUDIO and VIDEO INPUT jacks**
Turn on the TV and the recorder, and set the TV/VTR select buttons on both TV and VTR to VTR.

[C] **When using a TV equipped with a multiplex connector**
Turn on the TV and the recorder, and set the TV/VTR select buttons on both TV and VTR to VTR. (Your TV may be automatically switched to the VTR mode.)

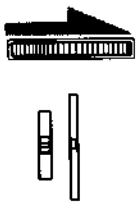
❷ Check that no lines are connected to the AUDIO IN jacks, VIDEO IN connector or MIC jack.
❸ Open the tuning compartment lid and set the AFT switch to OFF.
❹ Press the channel select button to be preset. The corresponding channel indicator lamp will light.
❺ Set the band select switch for that button to one of the three positions:
to tune in channels 2 through 4 ..... set to I
to tune in channels 5 through 12 ..... set to III
to tune in channels 21 through 68 ..... set to U



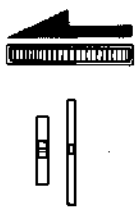
❻ Turn the tuning knob until the desired station is properly tuned in.
The channel indicating meter provides a visual indication of the approximate location of the tuning knob within the operating range of the band select switch.



When the picture appears, slowly turn the tuning knob to the right until a herringbone pattern appears in the coloured part of the picture, then turn the knob back until the picture is perfectly clear.



Turn the knob to the right until the herringbone pattern appears.



Turn it in the opposite direction until the herringbone pattern just disappears.

❼ Repeat steps ❹, ❺ and ❻ for all the other channels.
To identify the channels, consult a newspaper or TV programme guide.
❽ Set the AFT switch to ON when all the stations have been set up, then close the lid of the tuning compartment.
You can now fully utilize the recorder without ever having to touch this compartment again.

Your video system is now ready to record TV programmes and to play back recorded materials.

1-7. TURNING THE RECORDER ON AND OFF

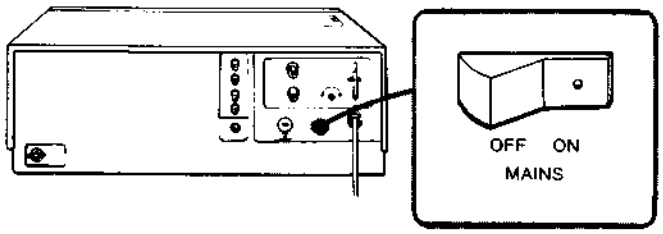
Normally, keep the MAINS switch ON and turn the recorder on and off with the ON/STANDBY button.

The MAINS switch is the mains power on/off switch.

When this switch set to OFF, the power supply to all sections in the machine, including the clock section, will be shut off and the timer memory will be erased.

The TV will not operate in this situation, because the TV signal will not be fed to the TV.

If you keep this switch set to ON, the clock section will be always powered and the other sections can be turned on and off with the ON/STANDBY button.



1-8. WATCHING TELEVISION

Before operation

- Make sure that the TIMER REC button on the recorder is not depressed.
- Make sure that the MAINS switch on the recorder is set to ON and the ON/STANDBY button is in the standby mode.

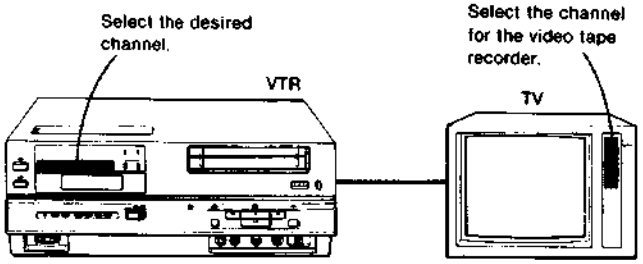
A WHEN A TV IS CONNECTED TO THE AERIAL OUT SOCKET ONLY

Channel selection on the TV

Turn on the TV and select the desired channel with the channel select button on the TV.

Channel selection on the VTR

1 Turn on the TV and select the channel for the video tape recorder.
2 Turn on the VTR and select the desired channel with the channel select buttons on the VTR.



Even if you use a stereo TV, the playback of a stereo sound tape will be monaural.

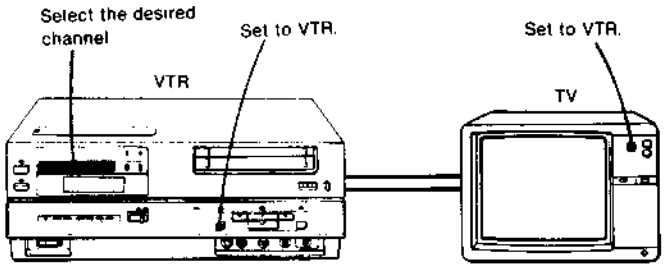
B WHEN USING A TV EQUIPPED WITH AUDIO AND VIDEO INPUT JACKS

Channel selection on the TV

1 Turn on the TV and check that the TV/VTR (input) select button on the TV is set to TV.
2 Select the desired channel with the channel select button on the TV.

Channel selection on the VTR

1 Turn on the TV and set the TV/VTR (input) select button on the TV to VTR.
2 Turn on the VTR and set the TV/VTR select button on the VTR to VTR.
3 Select the desired channel with the channel select buttons on the VTR.



You can receive stereo sound or dual sound.

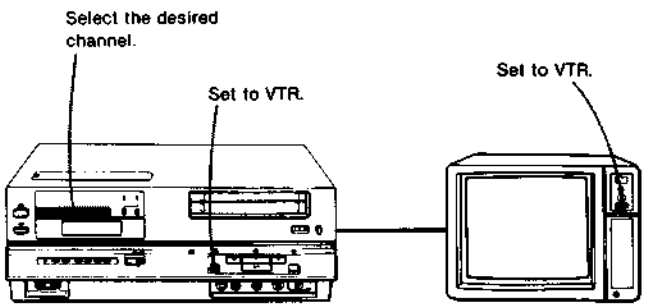
C WHEN USING A TV EQUIPPED WITH A MULTIPLEX CONNECTOR

Channel selection on the TV

1 Turn on the TV and set the TV/VTR select button on the TV to TV. (Your TV may be automatically switched to the TV mode.)
2 Turn on the VTR and set the TV/VTR select button on the VTR to TV.
3 Select the desired channel with the channel select button on the TV.

Channel selection on the VTR

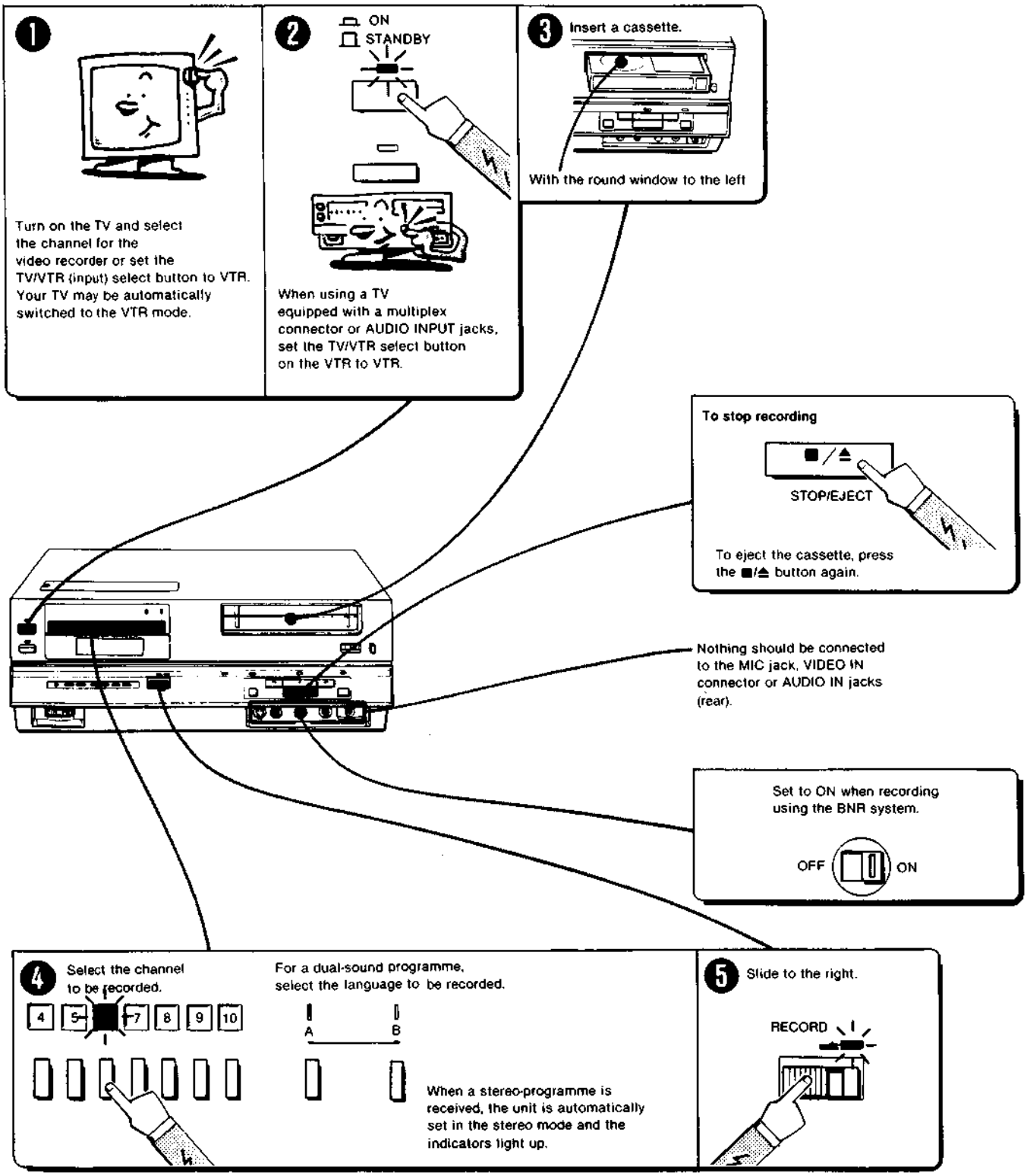
1 Turn on the TV and set the TV/VTR (input) select button on the TV to VTR. (Your TV may be automatically switched to the VTR mode.)
2 Turn on the VTR and set the TV/VTR select button on the VTR to VTR.
3 Select the desired channel with the channel select button on the VTR.



You can receive stereo sound or dual sound.

1-9. HOW TO RECORD TV PROGRAMMES

OPERATION STEP



RECORDING ONE TV PROGRAMME WHILE VIEWING ANOTHER

You can record a TV programme selected on the recorder while viewing another TV programme.

[A] When using the TV connected only to the AERIAL OUT socket

1 Start recording the desired TV programme in the usual way.
2 Select the channel you want to view on the TV.

[B] When using the TV equipped with the AUDIO and VIDEO INPUT jacks

1 Start recording the desired TV programme in the usual way.
2 Set the TV/VTR (input) select button on the TV to TV.
3 Select the channel you want to view on the TV.

[C] When using the TV equipped with the multiplex connector

1 Start recording the desired TV programme in the usual way.
2 Set the TV/VTR select button on the VTR to TV.
3 Set the TV/VTR (input) select button on the TV to TV.
(Your TV may be automatically switched to the TV mode.)
4 Select the channel you want to view on the TV.

The recorder passes all the signals it receives from the aerial to the TV, even when it is recording. This is why you can record a programme when it is being shown on the TV, or when the TV is showing another programme, or even when the TV is turned off.

To stop the tape momentarily

Press the ▮▮ PAUSE/FREEZE button. The lamp above the button will light.
The TV programme can be seen on the TV, but the picture will not be recorded.
To resume recording, press the button again.
To protect the video heads and the tape, the pause mode will be automatically released after about 8 minutes and recording will resume.

Caution

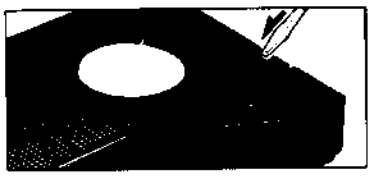
Television programmes, films, video tapes and other materials may be copyrighted.
Unauthorized recording of such material may be contrary to the provisions of the copyright laws.

TO KEEP A RECORDED PROGRAMME FROM BEING ACCIDENTALLY ERASED

When a new recording is made on a previously recorded cassette, the previous recording will be automatically erased.

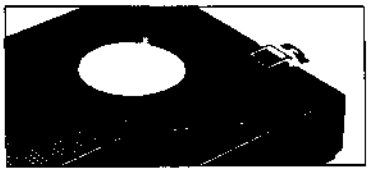
To avoid erasing a recording

Break off the safety tab using a screwdriver or similar object.

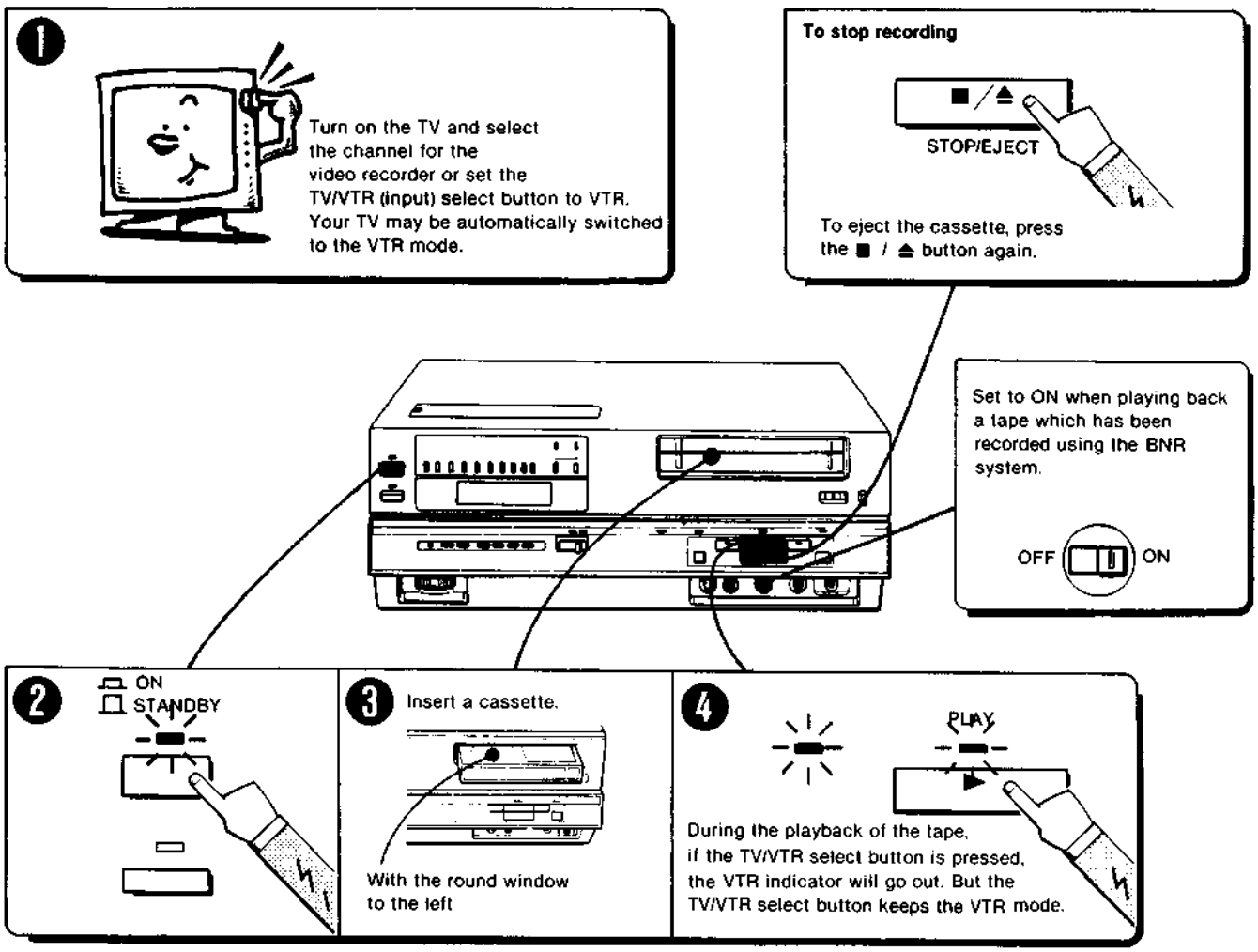


To re-record on a cassette which has had its safety tab removed

Cover the hole with a piece of plastic tape.



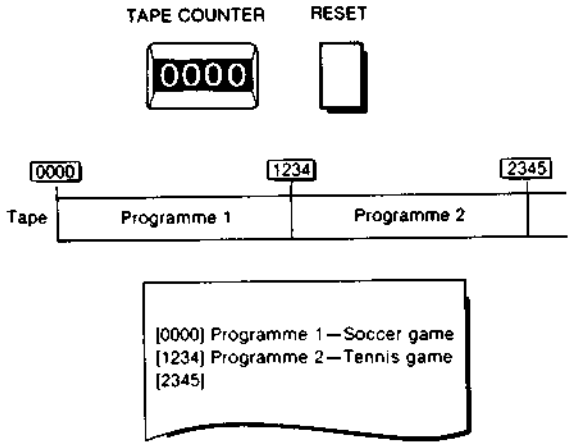
1-10. HOW TO PLAY BACK A RECORDED TAPE



1-11. HOW TO LOCATE A PARTICULAR SCENE

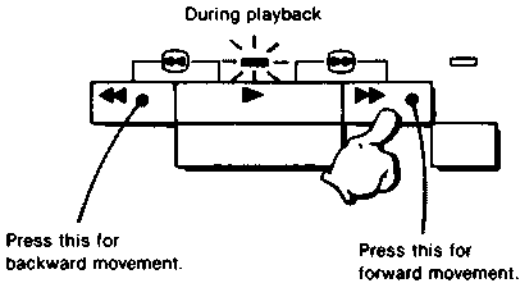
USING THE TAPE COUNTER ...To reference a recorded programme numerically

Before starting recording or playback, press the RESET button so that the TAPE COUNTER indicates "0000". The counter numbers change as the tape moves.
Note the counter reading at the points of interest. You can easily find these points later by referring to the TAPE COUNTER.

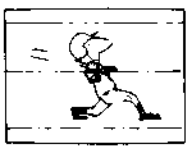


PICTURE SEARCH ...To search for a particular point while viewing the picture

For picture search operation, the recorder should be set in the playback mode.



At the desired point, release the button. The normal playback will resume.



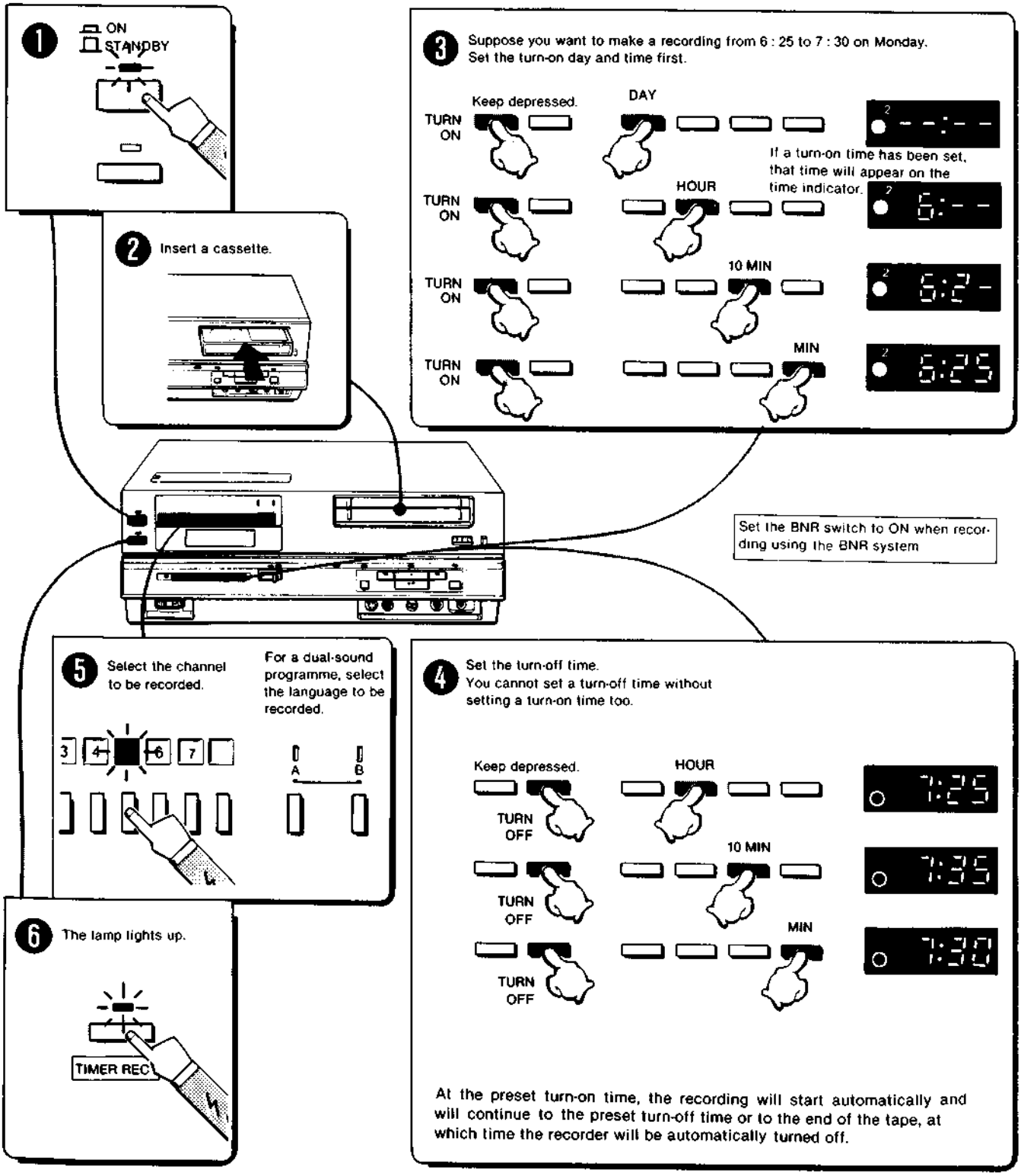
Streaks will appear during the picture search operation.

NOTE: Sound cannot be heard during the picture search operation.

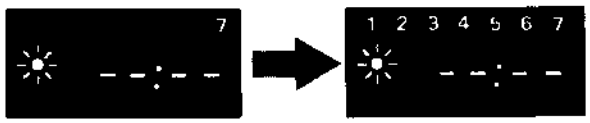
1-12. TIMER-ACTIVATED RECORDING

The timer can only be used to start and stop recording. You can set a turn-on time and a turn-off time for recording any day of the week or every day of the week.
For details how to set the timer, see page 9.

OPERATION STEP



To record a programme at the same time everyday,
press the DAY button after the last number, "7", lights so that all the indicators from 1 to 7 light. The timer-activated recording will be made everyday at the same time if you leave the TIMER REC button depressed, as long as the tape lasts.



To record to the end of the tape,
set the turn-off time to "--:--".
To set to "--:--", set the turn-off time at the same time as the preset turn-on time. "--:--" will appear on the time indicator when the TURN OFF button is pressed for checking.
Recording will continue to the end of the tape and the recorder will automatically turn off at that time.

> **NOTICE:** ONCE THE TIMER REC LAMP HAS LIT UP, NO FUNCTION OF THE RECORDER CAN BE ACTIVATED, except the timer section settings. To operate the recorder after setting the timer for recording, depress the TIMER REC button to release it.

If the TIMER REC lamp does not light when you depress the TIMER REC button, check the following.
—Did you insert a cassette?
—Does the cassette inserted have a safety tab on the bottom?
—Did you interrupt a timer-activated recording by pressing the ■/⏏ button? (See "**To stop a timer-activated recording**")

Checking the timer setting
Press the TURN ON button to check the turn-on day/time and the TURN OFF button to check the turn-off time. You can reset the turn-on day/time and turn-off time separately, if necessary.

When the timer-activated recording is finished, press the TIMER REC button to release it.
If you leave the TIMER REC button depressed, the timer recording will be activated at the same time on the same day of the next week, as long as tape remains.

To stop a timer-activated recording,
press the ■ / ⏏ button and the recorder will be turned off.
To set the recorder to make the next timer recording on the same cassette, remove the cassette and insert it again. (If this is not done, the TIMER REC lamp will not light even if the TIMER REC button is pressed.)
For other operations, first press the TIMER REC button to release it, then press the ON/STANDBY button to turn on the recorder.

WHEN A POWER INTERRUPTION OCCURS

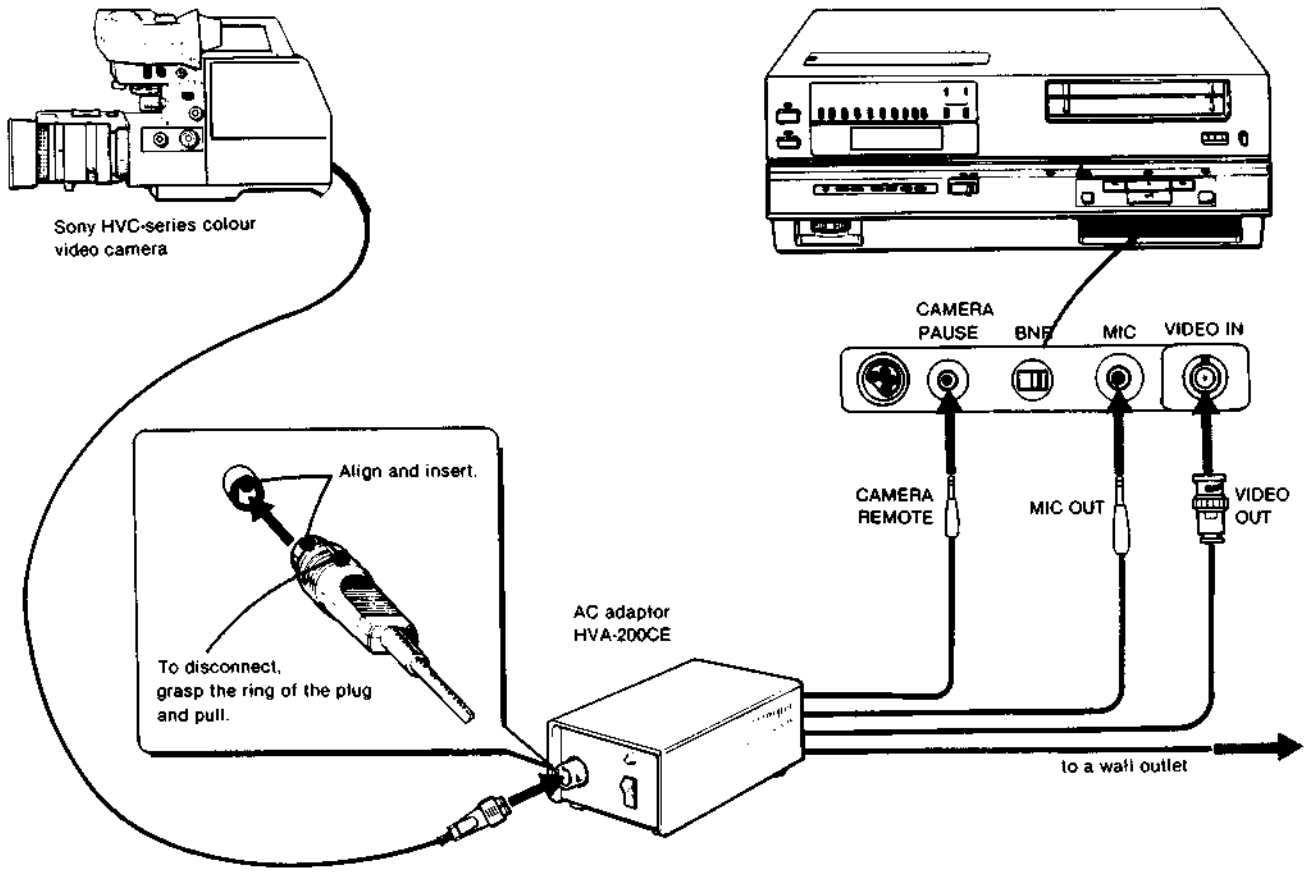
If the clock shows "0:00" and blinks
all the timer settings have been erased. Reset the clock time and the timer settings.

If the clock still shows the correct time but the dots blink
the power has been interrupted for less than 30 seconds, and the timer programmes are retained in the memory.
To stop the dots' blinking, press the CLOCK button.

1-13. CAMERA RECORDING (For producing your own programmes)

CONNECTIONS

●The camera must conform to CCIR TV standards (PAL colour).



To record the sound from a microphone

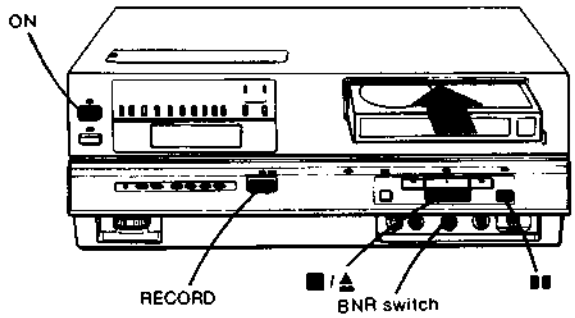
Plug a microphone into the MIC jack. If the microphone has a phone type plug, use a Sony PC-1A plug adaptor.

●When both the MIC and AUDIO IN jacks are connected, the sound from the microphone will be recorded.

To record the sound from other audio sources

Connect an audio source, such as a tape recorder, into the AUDIO IN jack.

OPERATION



❶ Press the ON/STANDBY button to turn on the recorder and insert a cassette.
❷ Turn on the power switch on the ac adaptor.
❸ Make the necessary adjustments on the camera. See the instruction manual furnished with the camera.
❹ Set the BNR switch to ON when recording using the BNR system.
❺ Slide the RECORD switch to the right. Recording will begin.
● If a camera with a tape run/stop button is used, you can momentarily stop recording and restart it using that button.
● If any other camera is used, use the ▮▮ PAUSE/FREEZE button on the recorder or on the optional remote control unit to stop the recording momentarily and restart it.

When the recording is finished, press the ■ / ⏏ button.

To view the picture being recorded on the TV screen

A When using a TV connected only to the AERIAL OUT connector

1 Turn the connected TV on.
2 Select the channel for the video recorder on the TV.
The picture being recorded will appear on the TV screen.

B When using a TV equipped with AUDIO and VIDEO INPUT jacks

1 Turn the connected TV on.
2 Set the TV/VTR select button on the VTR to VTR.
3 Set the TV/VTR (input) select button on the TV to VTR.
The picture being recorded will appear on the TV screen.

C When using a TV equipped with multiplex connector

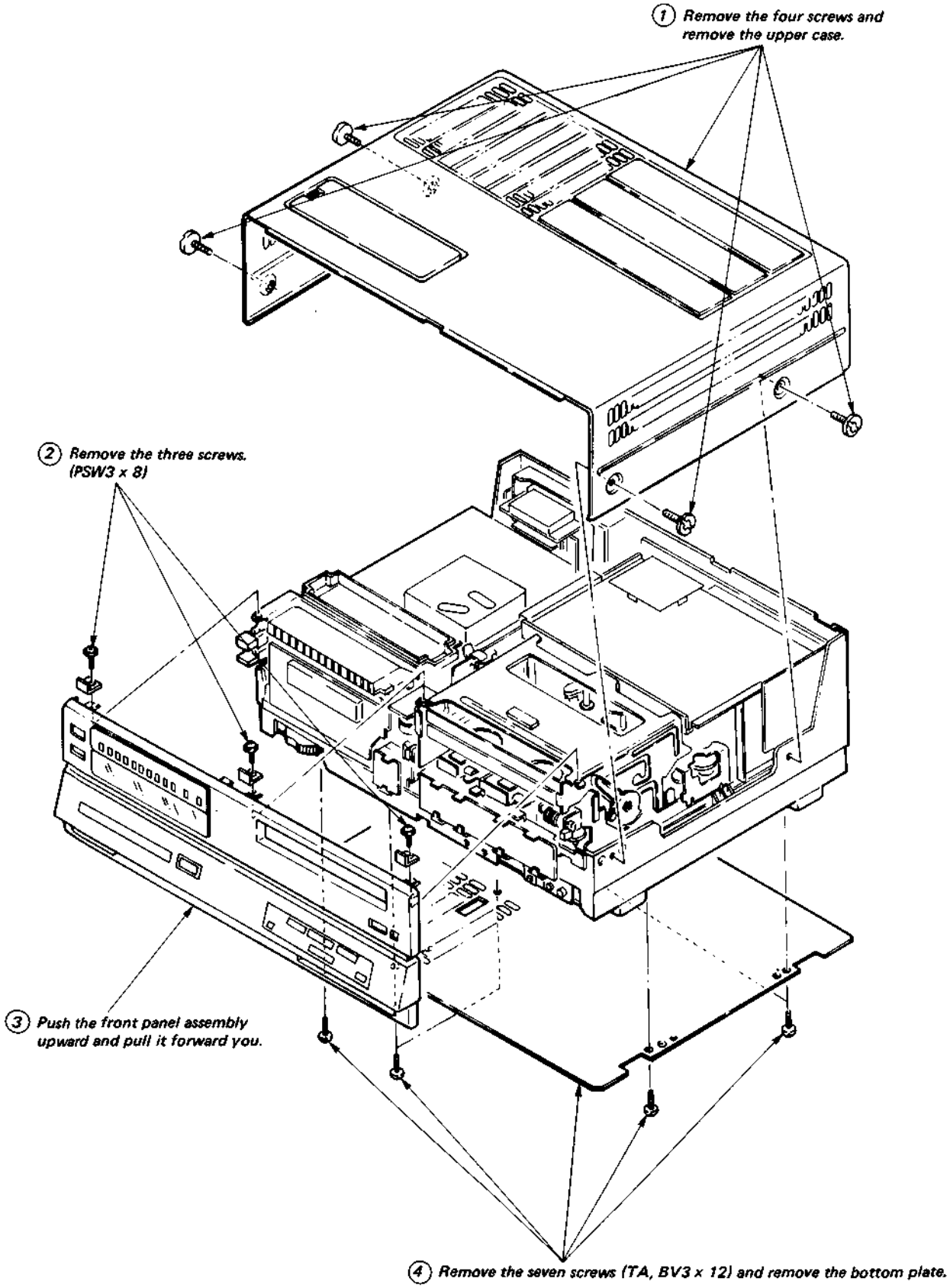
1 Turn the connected TV on.
2 Set the TV/VTR select button on the VTR to VTR.
3 Set the TV/VTR (input) select button on the TV to VTR.
(Your TV may be automatically switched to the VTR mode.)
The picture being recorded will appear on the TV screen.

● If acoustic feedback (a whistle-like sound) is heard when the microphone sound is recorded, turn the microphone (or the camera, if the microphone is built into the camera) away from the TV or turn down the TV volume.

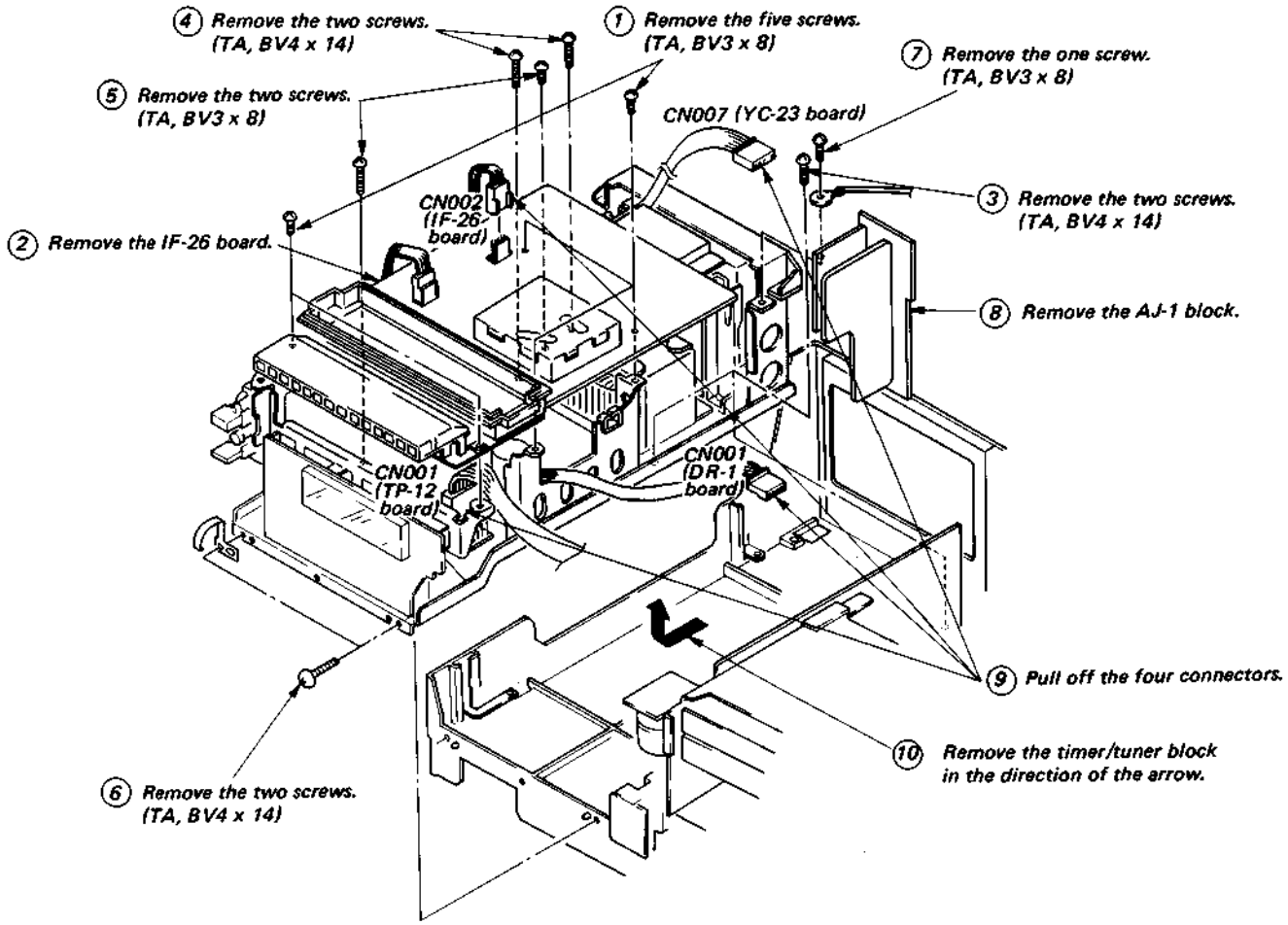
Note
If the input signal level from the VIDEO IN connector is more or less than the required level, you may see a distorted picture or hear a buzzing sound when you monitor the picture on a television or on a monitor screen during camera recording. In this case the picture will still be properly recorded and can be played back without distortion.

SECTION 2
DISASSEMBLY

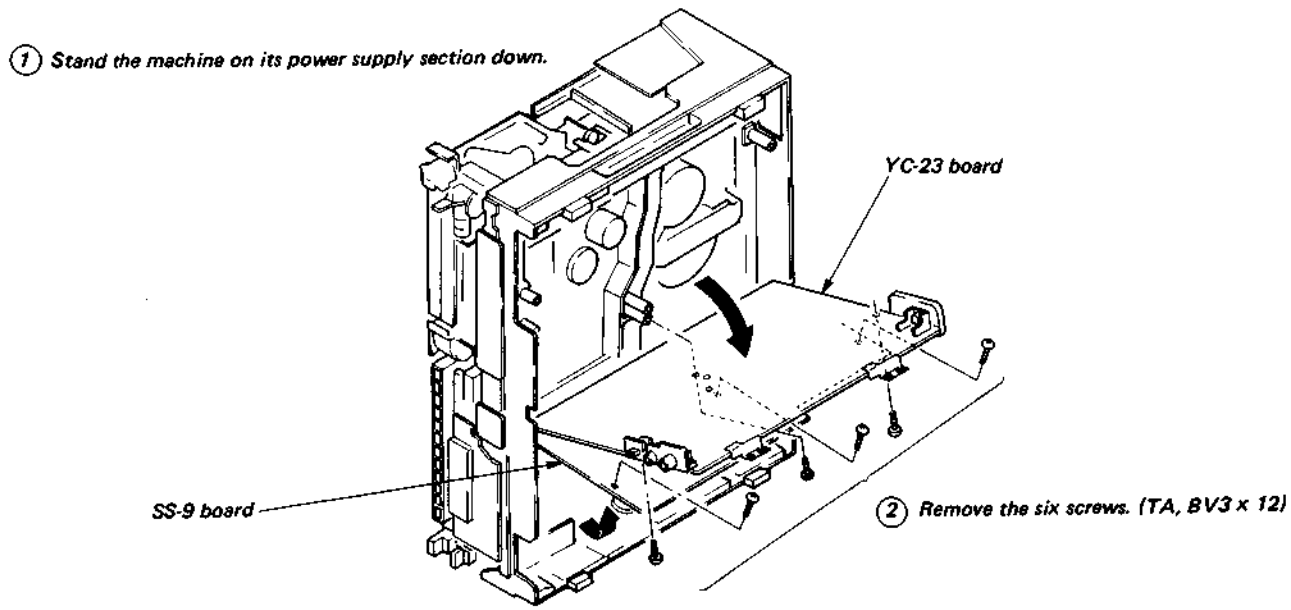
2-1. CABINET REMOVAL



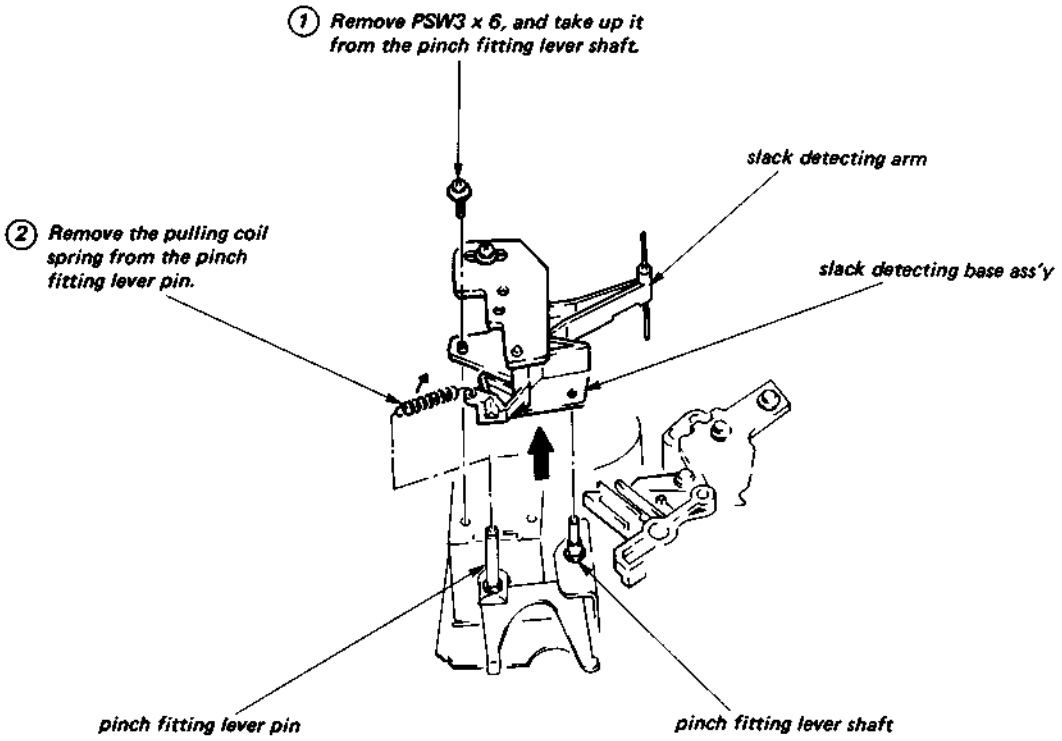
2-2. TIMER/TUNER BLOCK REMOVAL

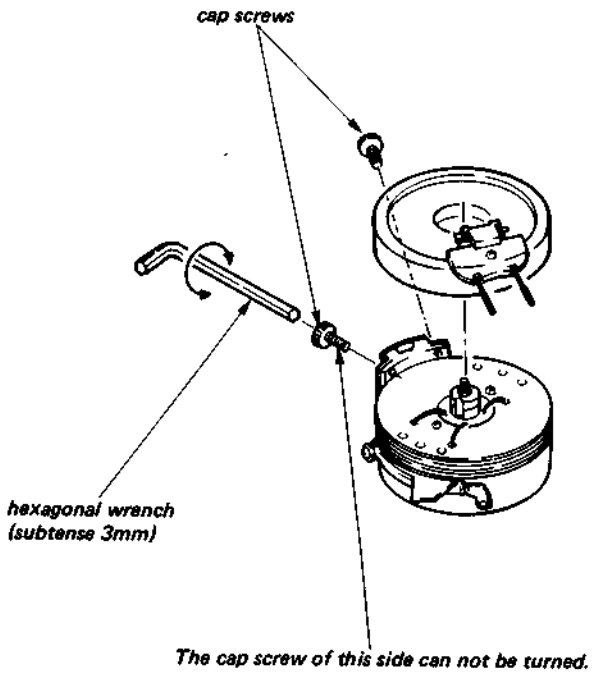


2-3. CHECK OF YC-23 AND SS-9 BOARDS

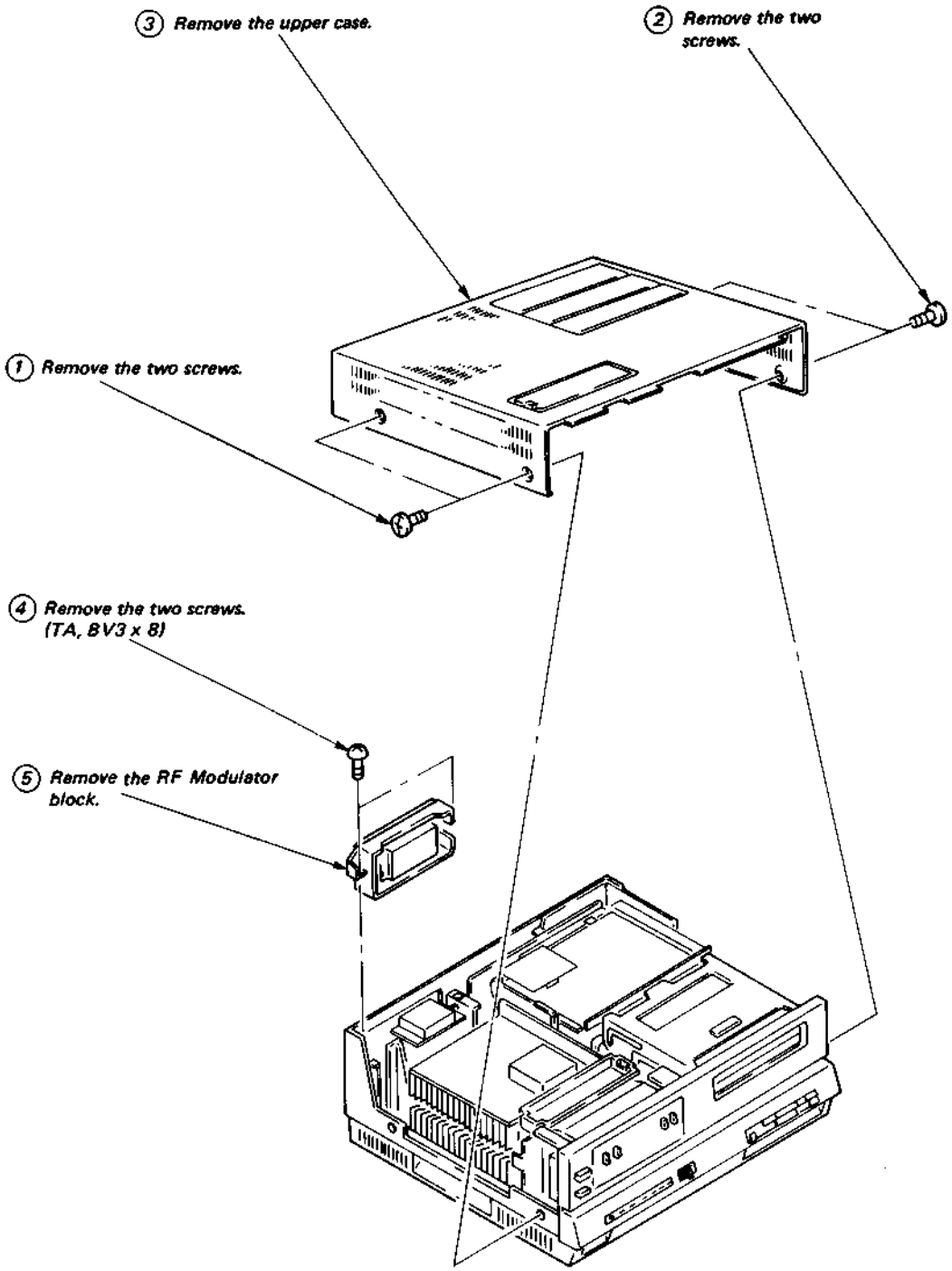


2-4. UPPER DRUM REMOVAL

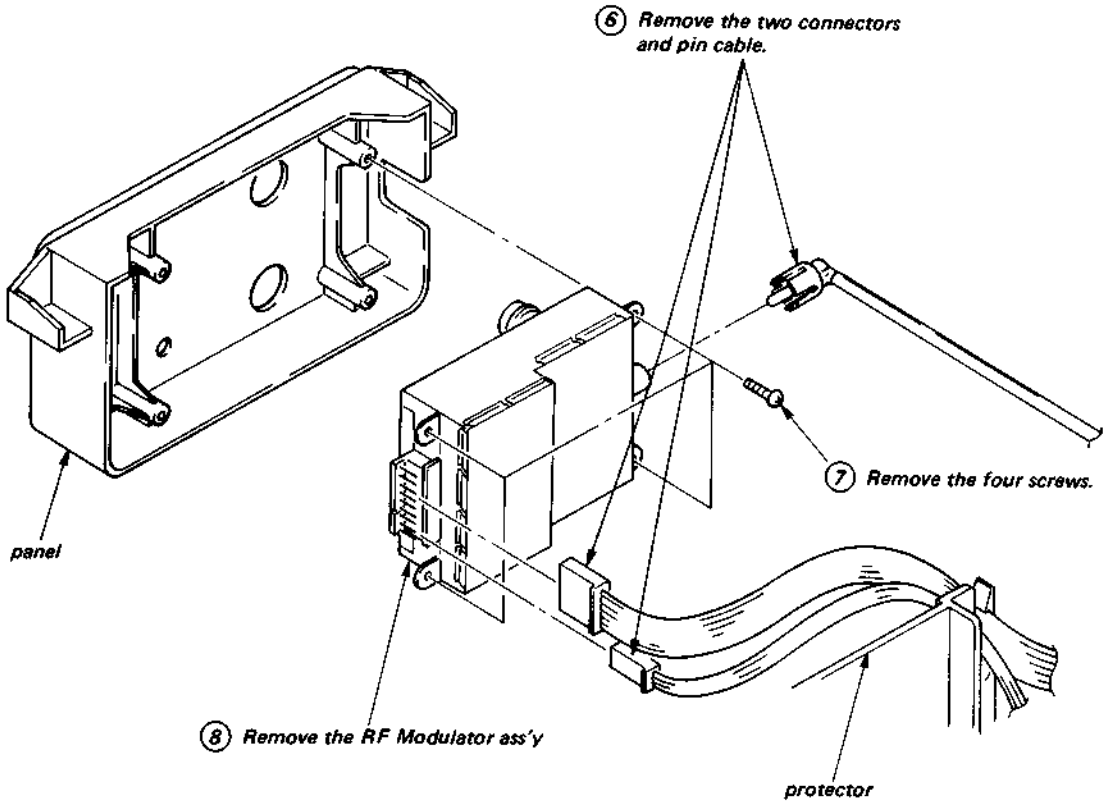




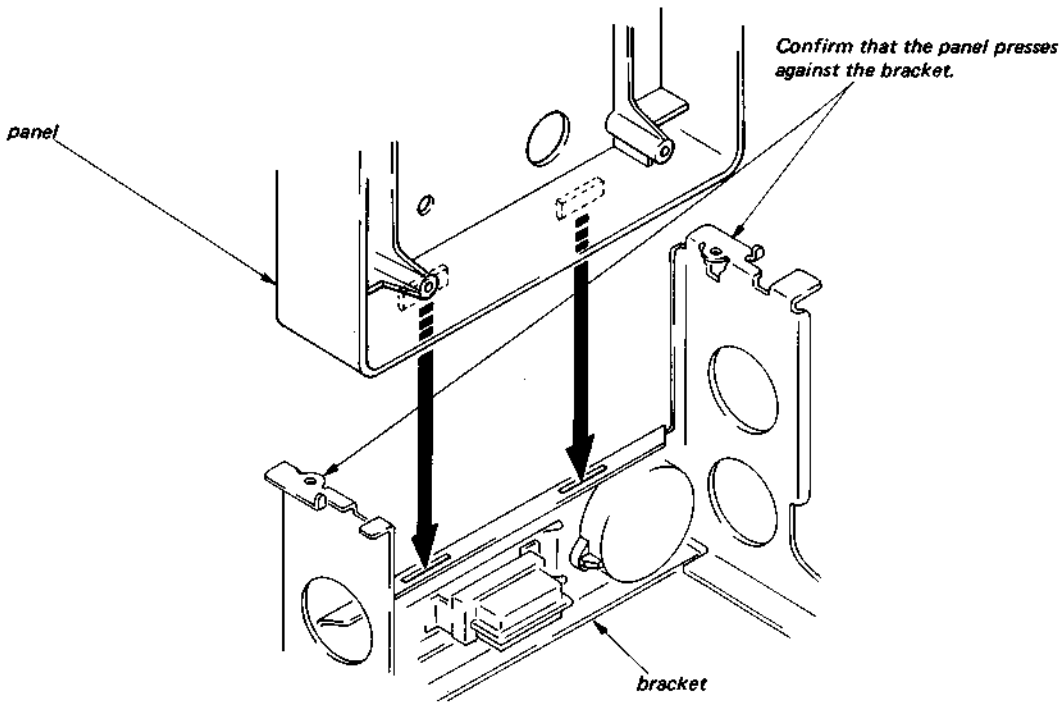
2-5. RF MODULATOR ASS'Y REMOVAL (1)



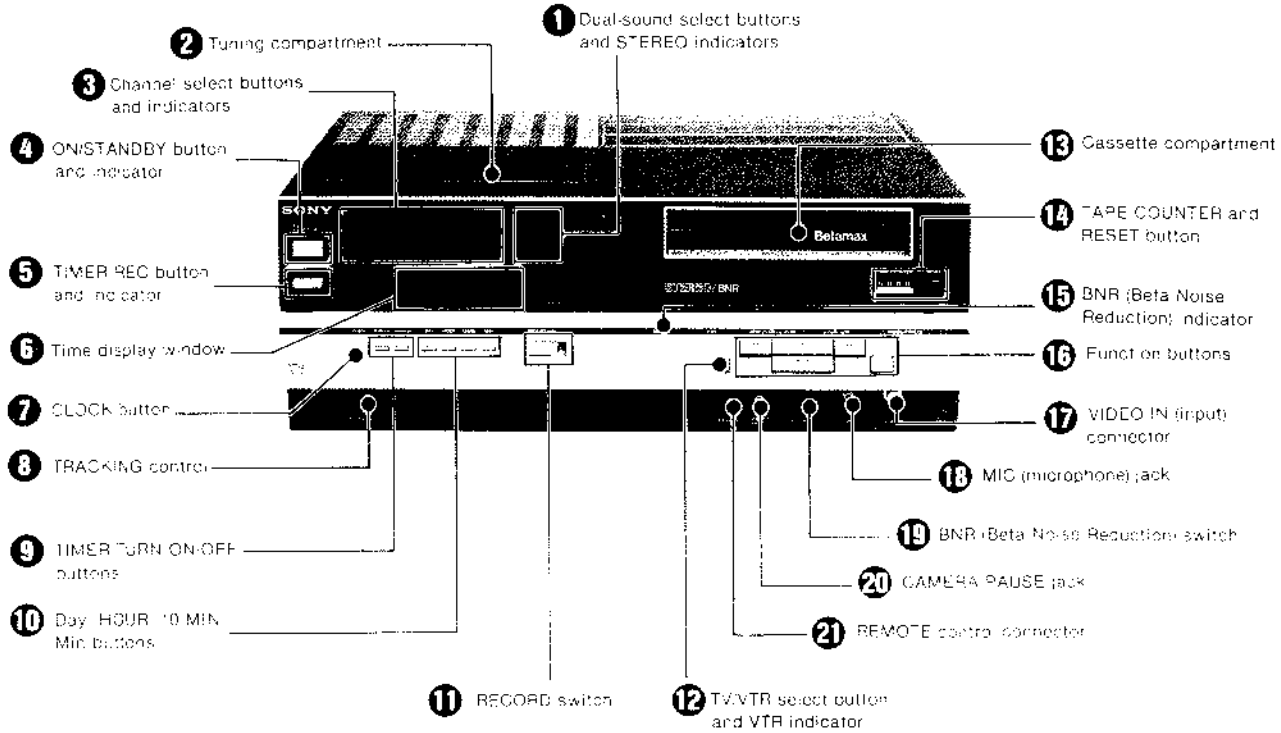
2-6. RF MODULATOR ASS'Y REMOVAL (2)



2-7. RF MODULATOR ASS'Y REMOVAL (3)



2-8. LOCATION AND FUNCTION OF CONTROLS



1 Dual-sound select buttons and STEREO indicators
When a stereo-sound programme is received, the unit automatically operates in the stereo mode and the two lamps will light.
When you receive a dual-sound (bilingual) programmes, select the local language (usually broadcast on channel A) or the original one (usually on channel B) to be recorded.
When playing back the recorded tape, you can hear the stereo sound or selected language automatically. Then, the two lamps will not illuminated.

2 Tuning compartment
All the switches and knobs for channel presetting are in this compartment.

3 Channel select buttons and indicators
Select the channel to be recorded or to be viewed with these buttons. The selected channel number will light.

4 ON/STANDBY button and indicator
Depress to turn on the recorder. While the recorder section is powered, the green lamp lights. The clock section is always powered when the button is in the released STANDBY position.

5 TIMER REC button and indicator
Depress for timer activated recording. While the timer is in operation, the red lamp lights.

6 Time display window
Normally, the actual time and the day of the week are displayed here. While the timer is being set, the setting time and day are displayed.

7 CLOCK button
Use this button in present time setting.

8 TRACKING control
If streaks or snow appear in the playback of a cassette which was recorded by another video recorder, turn this knob to obtain the best possible picture.
The centre detent position provides the correct tracking for the cassettes recorded by this recorder.

9 TIMER TURN ON/OFF buttons
Use these buttons in turn-on or turn-off time setting.

10 DAY, HOUR, 10 MIN, MIN buttons
Use these buttons in turn-on day and time or turn-off time setting while pressing the TIMER TURN ON or OFF button.

11 RECORD switch
Slide to the right to start recording. While recording is being made, the lamp above the switch lights.

12 TV/VTR select button and VTR indicator
When using a TV equipped with a multiplex connector or AUDIO INPUT jacks, or a colour monitor, you should set this button to TV or VTR.
To view a TV programme selected by a channel select button on the recorder or to monitor the picture being recorded, press this button so that the VTR indicator lights up. When the ▶ button on the recorder is pressed, the unit is automatically set in this mode. To view a TV programme in the usual manner, press this button so that the indicator goes off. When the recorder is turned off and on again, the recorder is automatically set in this mode.

13 Cassette compartment
Video cassettes are inserted into this compartment.

14 TAPE COUNTER and RESET button
The TAPE COUNTER provides a numerical reference point while recording which can be used to index a recorded cassette.
To reset the counter to zero, press the RESET button.

15 BNR (Beta Noise Reduction) indicator
When the BNR switch is set to ON, this indicator will illuminate.

⑱ **Function buttons**

▶ PLAY button: Press to play the tape back. The indicator above the button will light.

◀◀ REW button: Press to rewind the tape. Also used for the reverse picture search operation.

▶▶ FF button: Press to advance the tape rapidly. Also used for the forward picture search operation.

■/⏏ STOP/EJECT button: Press to stop the tape. Press again to eject the cassette.

❚❚PAUSE button: Press to stop the tape for a moment during recording or playback. A still picture will be seen during playback. The indicator above the button will light. Press again to release the pause mode.

⑰ **VIDEO IN (input) connector (BNC type)**
This connector accepts video signals from a camera, another video recorder, etc. When the plug is inserted in this connector, the signal from the TV tuner cannot be recorded.

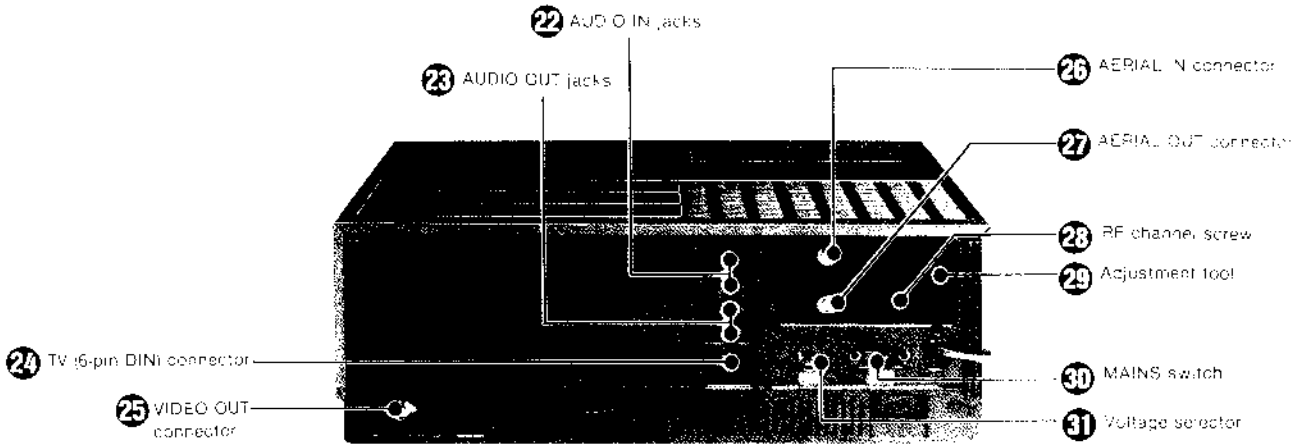
⑯ **MIC (microphone) jack (minitype)**
Connect a microphone or the MIC OUT plug of the AC adaptor here for audio recording. When a microphone is connected, the sound from the AUDIO IN jacks cannot be recorded.

⑮ **BNR (Beta Noise Reduction) switch**
The BNR system reduces tape hiss and improves the signal-to-noise ratio.
ON: To record and play back sound with the BNR system
OFF: To record and play back sound without the BNR system

⑳ **CAMERA PAUSE jack (special mini type)**
To start or stop the tape on the camera, connect the Sony HVA-200CE AC adaptor to this jack.

㉑ **REMOTE control connector (4-pin connector)**
Connect the RM-72 remote control unit (optional) to remotely control the tape transport.

㉒ **AUDIO IN (input) jacks (phono jacks)**
These jacks accept audio signals.
Connect to the audio output jacks of a cassette recorder, an audio amplifier, or another video cassette recorder.



㉓ **AUDIO OUT (output) jacks (phono jacks)**
These jacks provide audio signals of this recorder.
Connect to the audio input jacks of an audio system, a TV receiver, a video monitor, or a video cassette recorder.

㉔ **TV (6-pin) DIN connector**
This connector provides audio and video signals of this recorder.
Connect to a TV receiver equipped with the same type of connector.

㉕ **VIDEO OUT (output) connector (BNC type)**
This connector provides the video signal of this recorder.
Connect it to the video input of another video recorder, a TV receiver or a video monitor.

㉖ **AERIAL IN (input) connector**
This connector accepts signals from the TV aerial.
Connect the 75-ohm coaxial cable of your TV aerial here.

㉗ **AERIAL OUT (output) connector**
This connector provides the RF output signal of this recorder and the TV signals which are input into the AERIAL IN connector ㉖.
Connect this to the aerial input terminal of the TV receiver using the supplied 75-ohm cable.

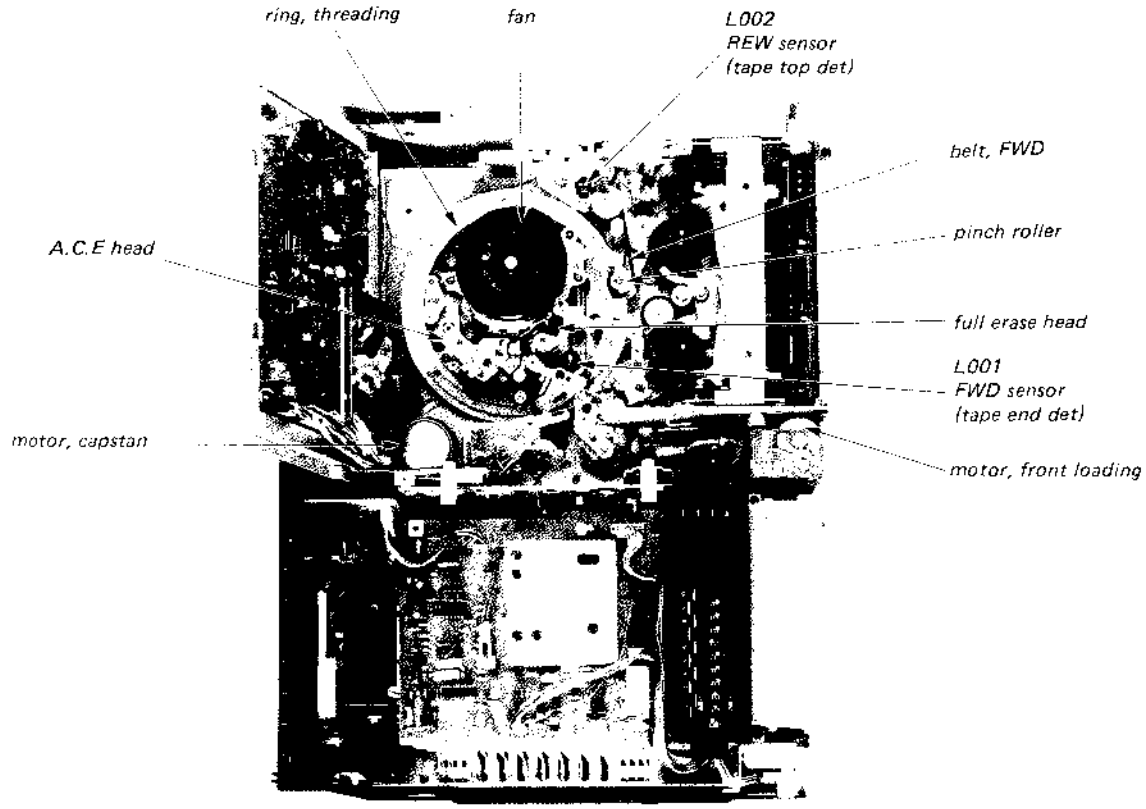
㉘ **RF CHANNEL screw**
If there is interference on the factory preset channel for RF output* and the signals of this recorder cannot be displayed clearly on the TV screen, adjust this screw with the adjustment tool ㉙.

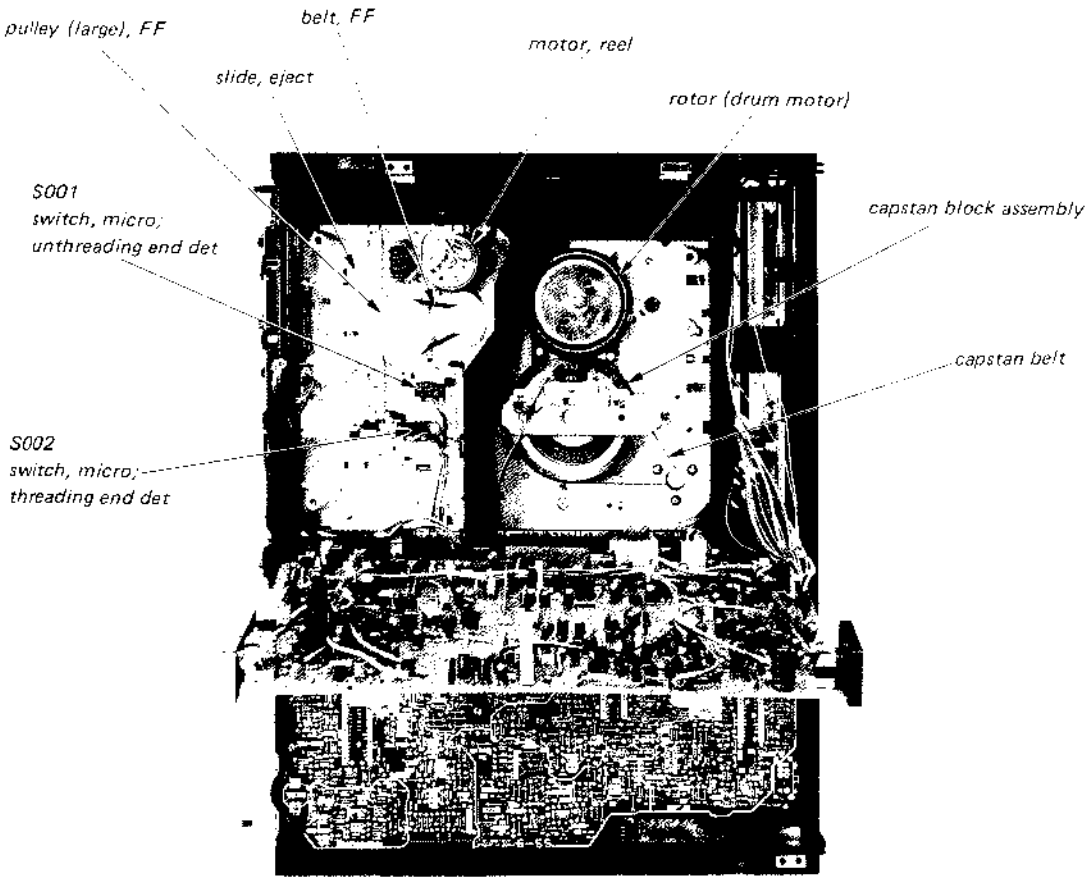
*RF (Radio Frequency) output: TV signals received by this recorder's tuner, the playback signal and the input signal from the camera are all converted into a UHF channel between 30 and 39, then supplied to the TV. This converted UHF channel signal is called the RF output signal. To obtain a picture from the recorder on the TV, the TV's channel should be set to the same UHF channel.

㉙ **Adjustment tool**
Use this tool when turning the RF CHANNEL screw.

㉚ **MAINS switch**
Normally keep this switch in the ON position. To cut off the power to the entire machine, set the switch to OFF.

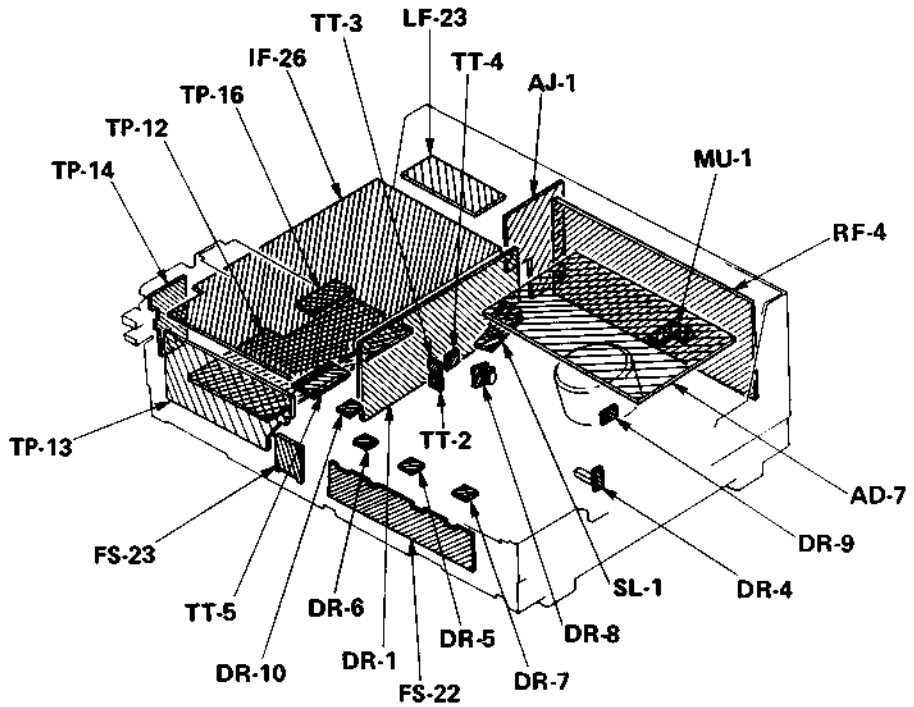
㉛ **Voltage selector**
This selector is adjustable to either 220 or 240 V ac.

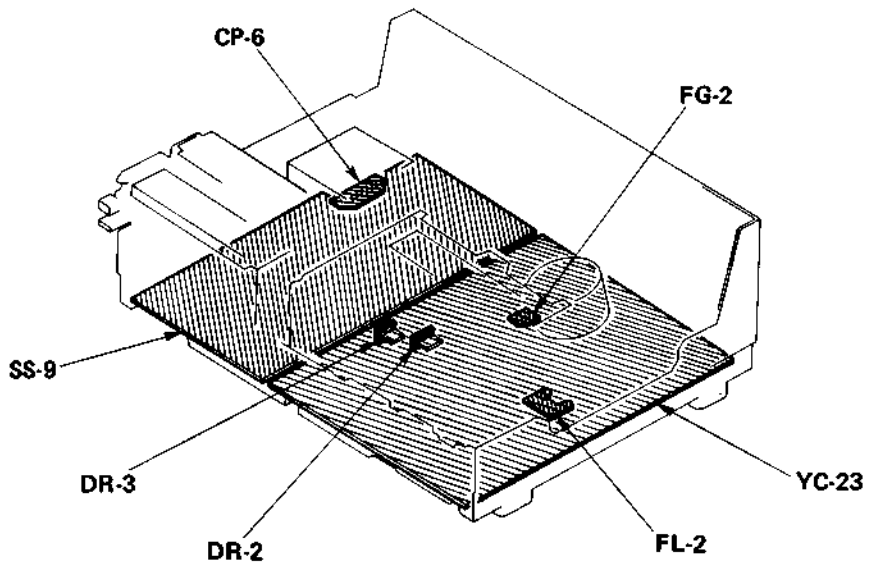

ring, threading
fan
L002
REW sensor
(tape top det)
belt, FWD
pinch roller
A.C.E head
full erase head
L001
FWD sensor
(tape end det)
motor, capstan
motor, front loading


pulley (large), FF
belt, FF
motor, reel
slide, eject
rotor (drum motor)
S001
switch, micro;
unthreading end det
capstan block assembly
capstan belt
S002
switch, micro;
threading end det

SECTION 3
DIAGRAMS

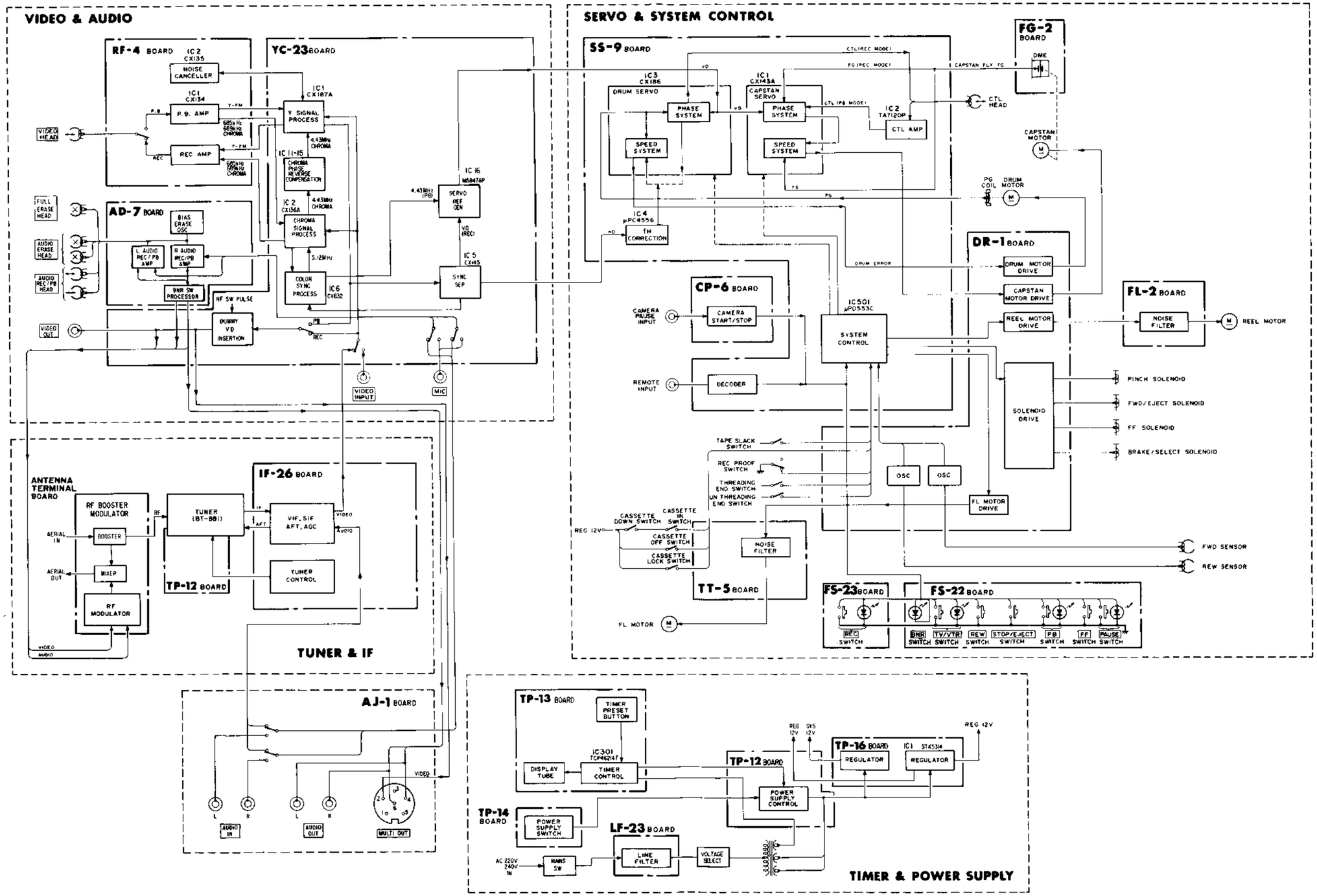
3-1. CIRCUIT BOARDS LOCATION



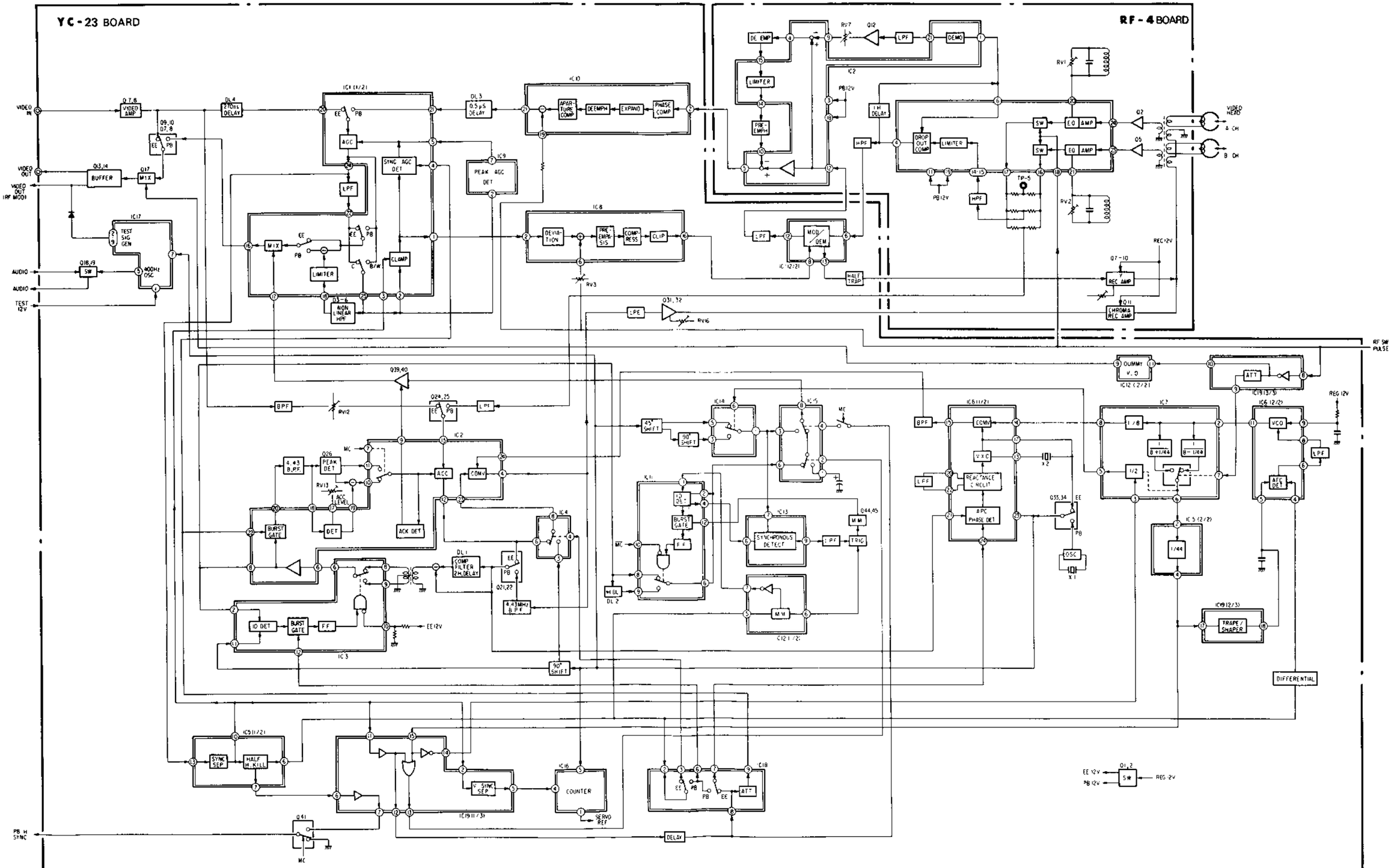


3-2. BLOCK DIAGRAMS

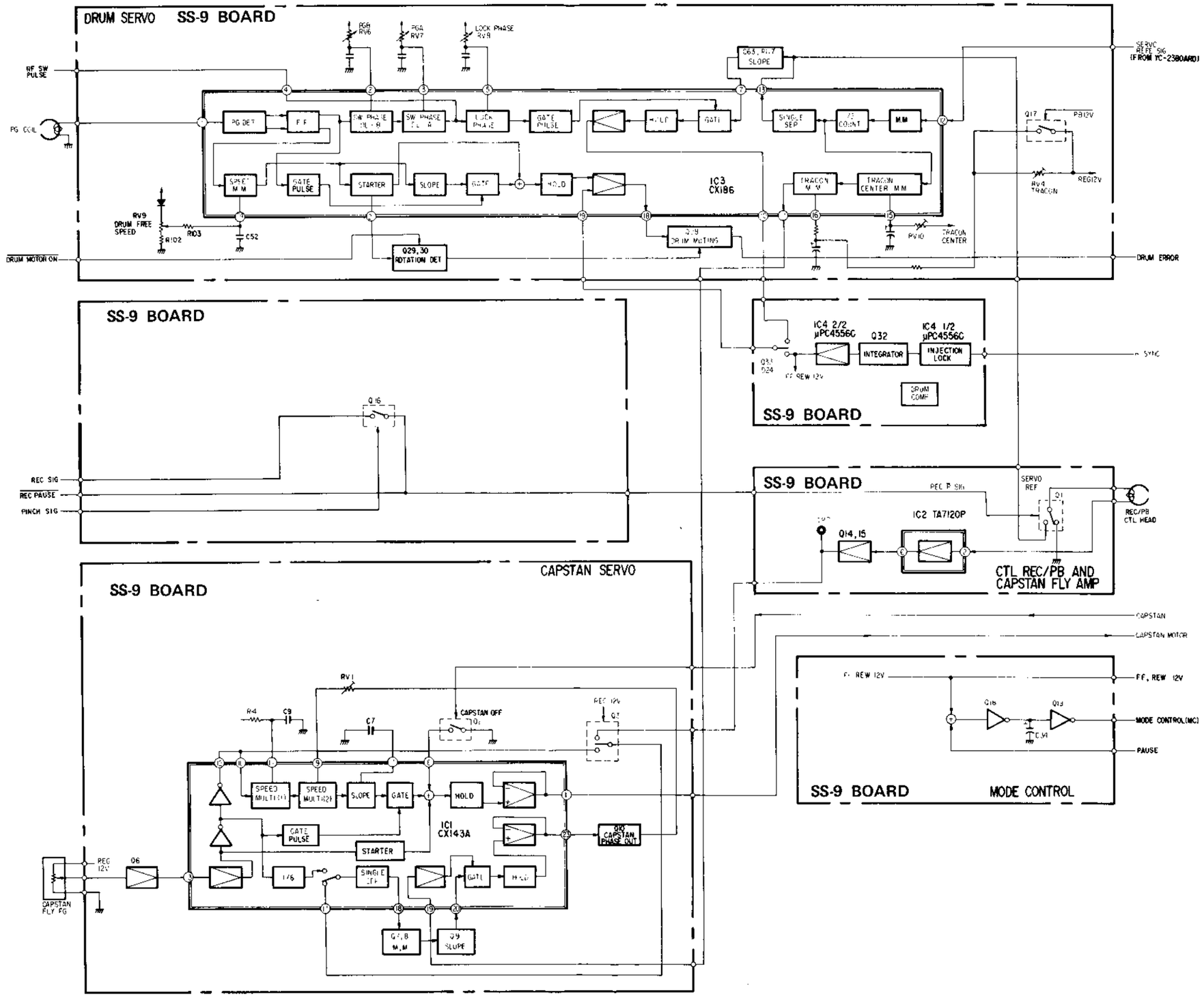
(1) OVERALL BLOCK DIAGRAM



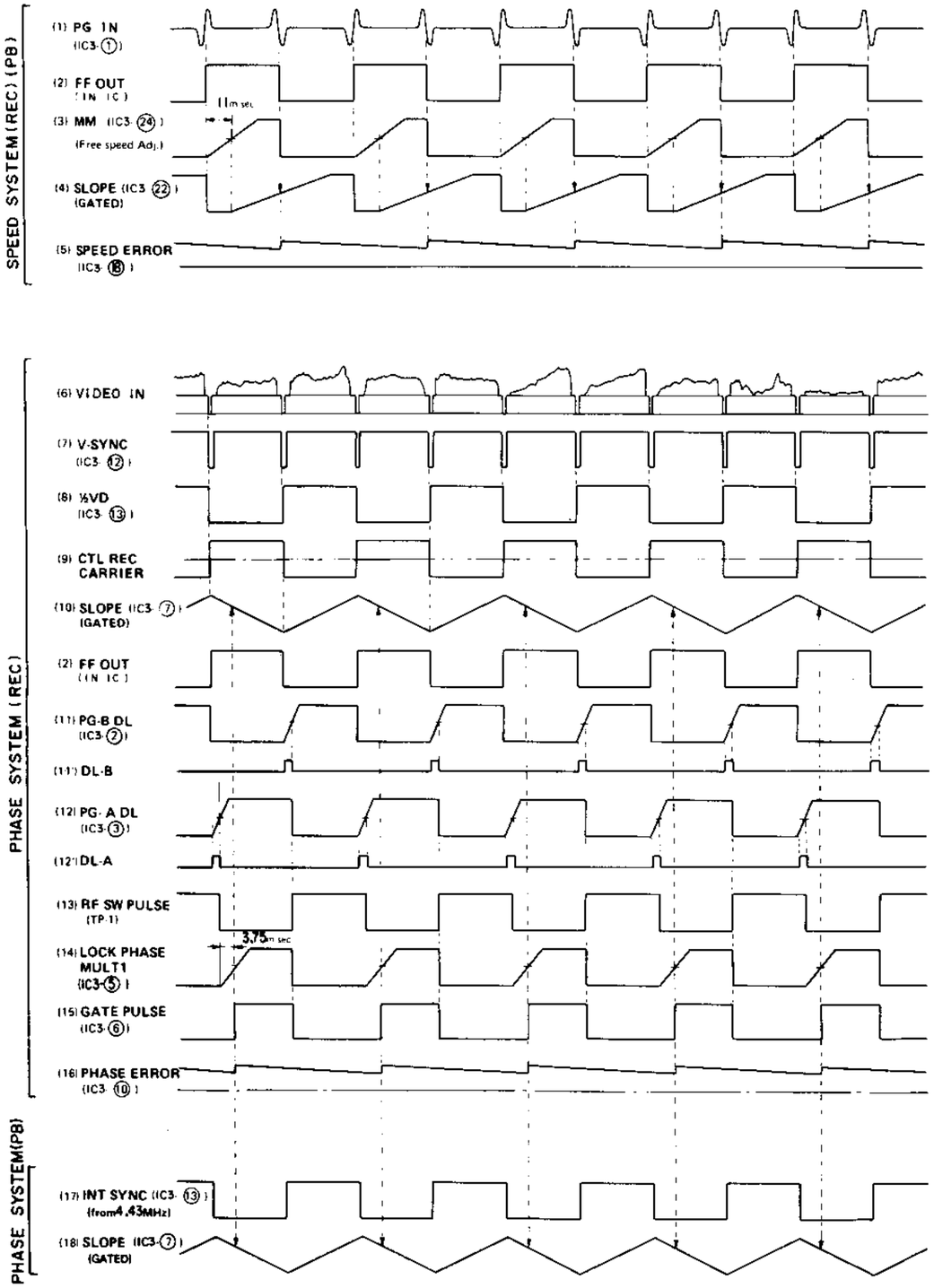
(2) VIDEO SYSTEM BLOCK DIAGRAM



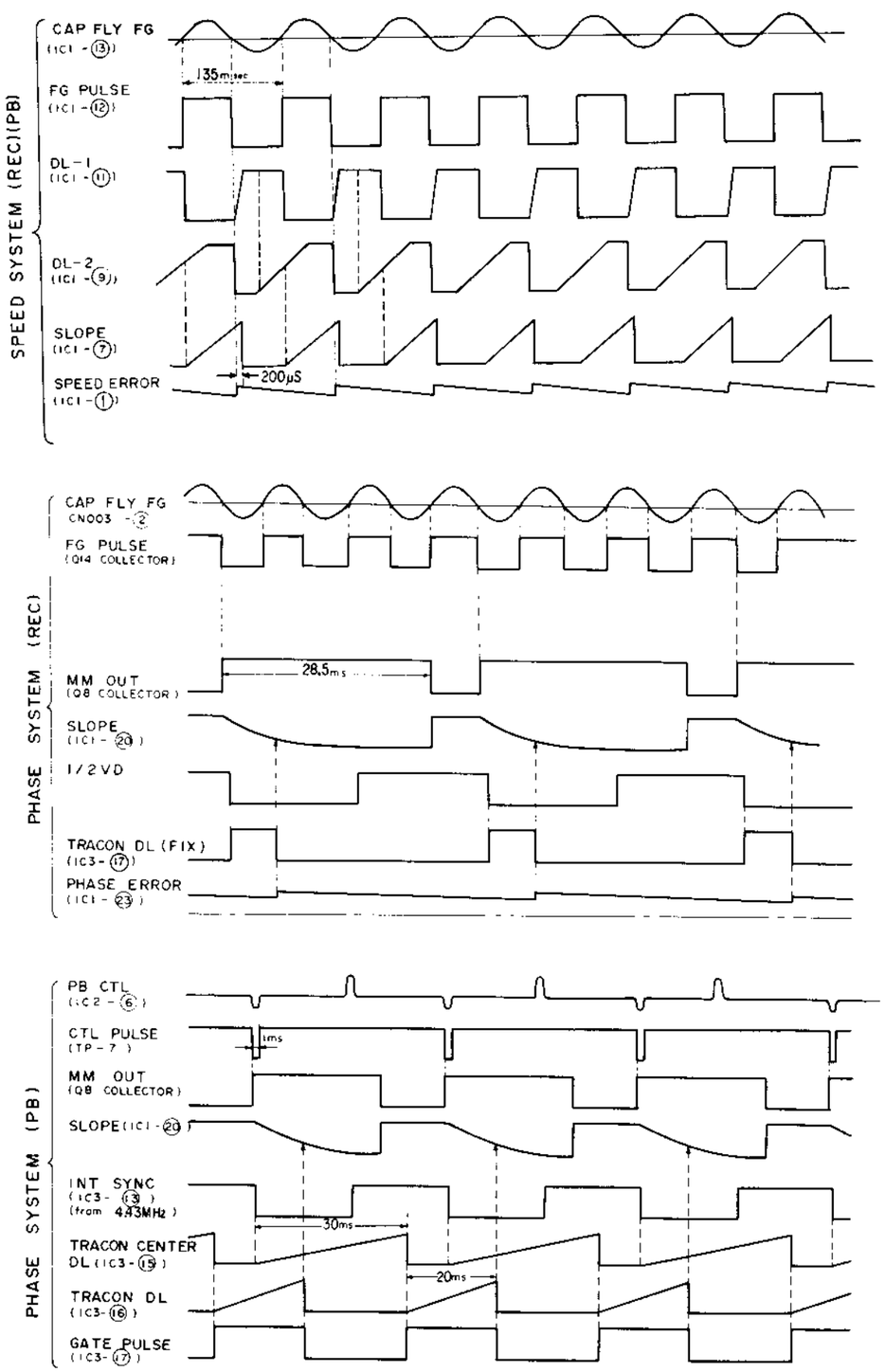
(3) SERVO SYSTEM BLOCK DIAGRAM



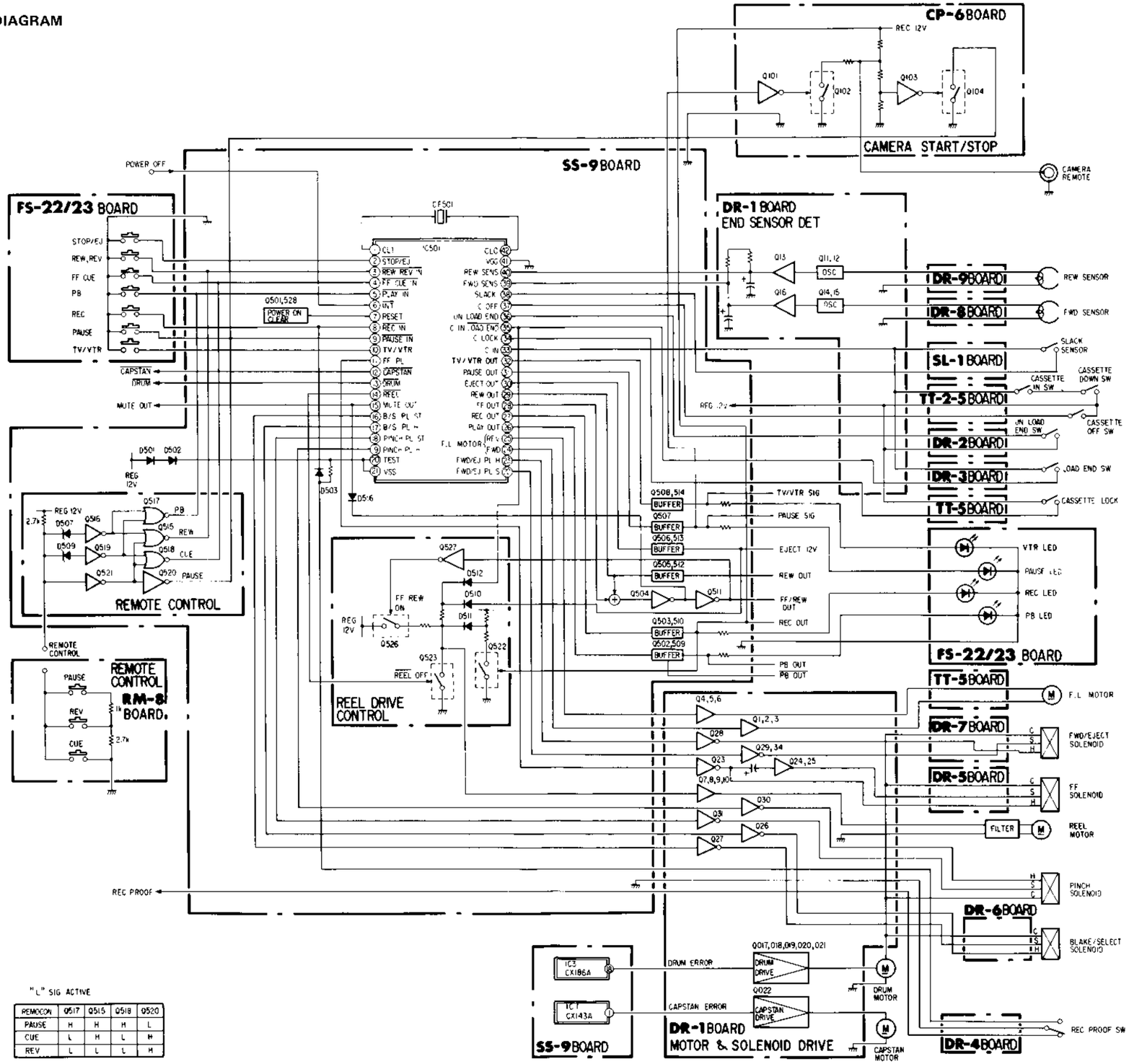
(4) DRUM SERVO TIMING CHART



(5) CAPSTAN SERVO TIMING CHART



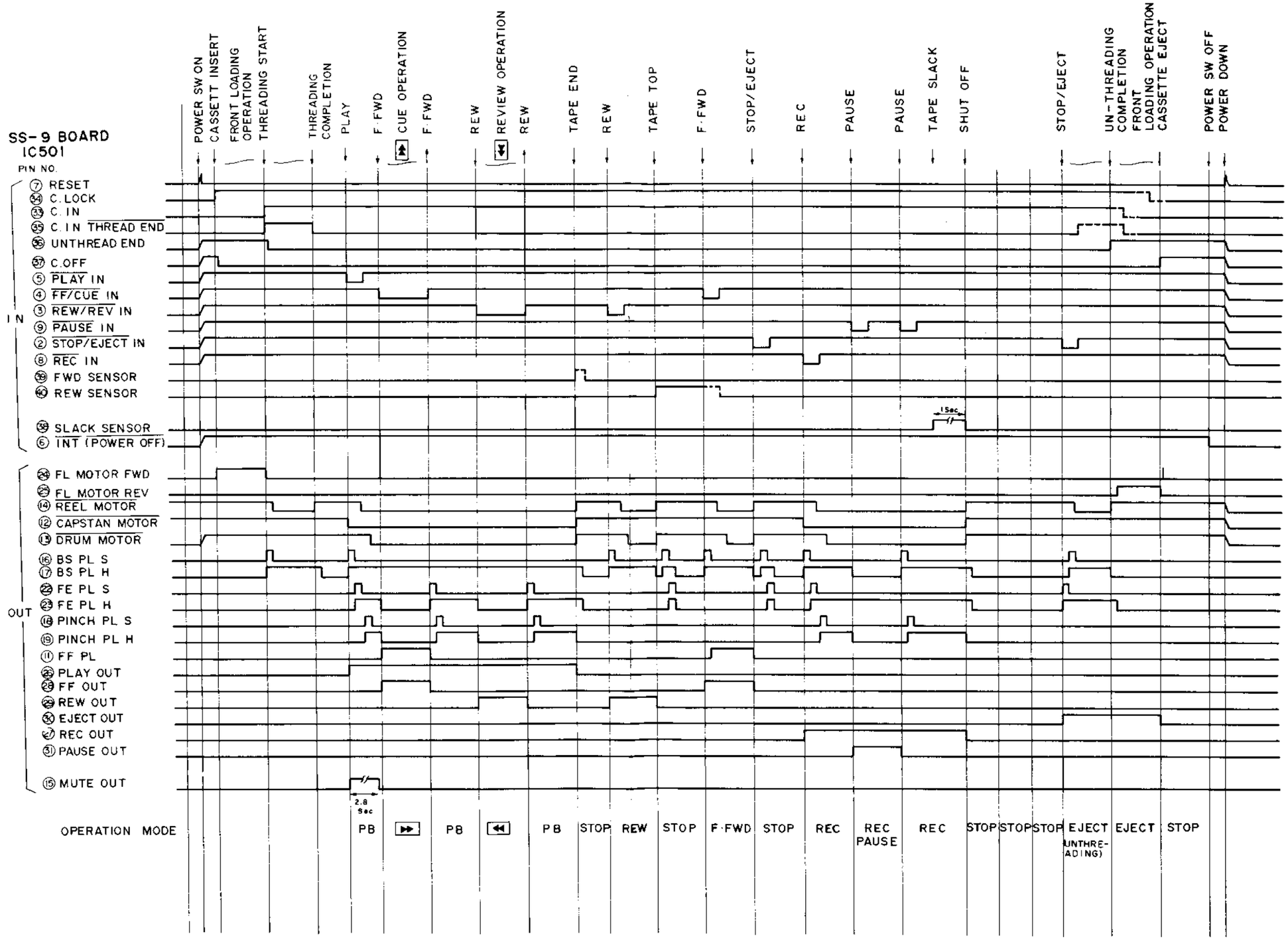
(6) SYSTEM CONTROL BLOCK DIAGRAM



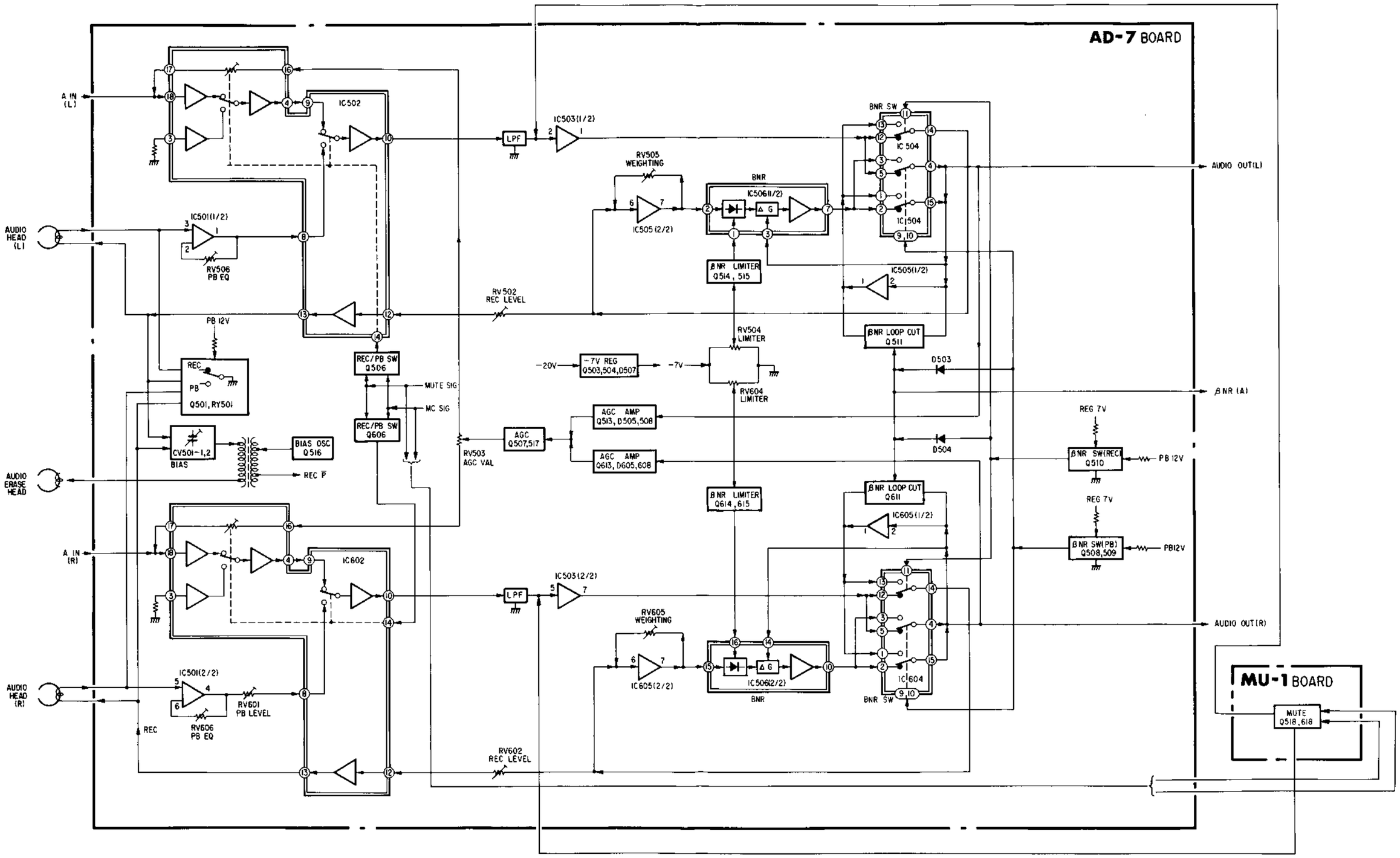
"L" SIG ACTIVE

REMOCON	Q517	Q515	Q518	Q520
PAUSE	H	H	H	L
CUE	L	H	L	H
REV	L	L	L	H

(7) SYSTEM CONTROL TIMING CHART

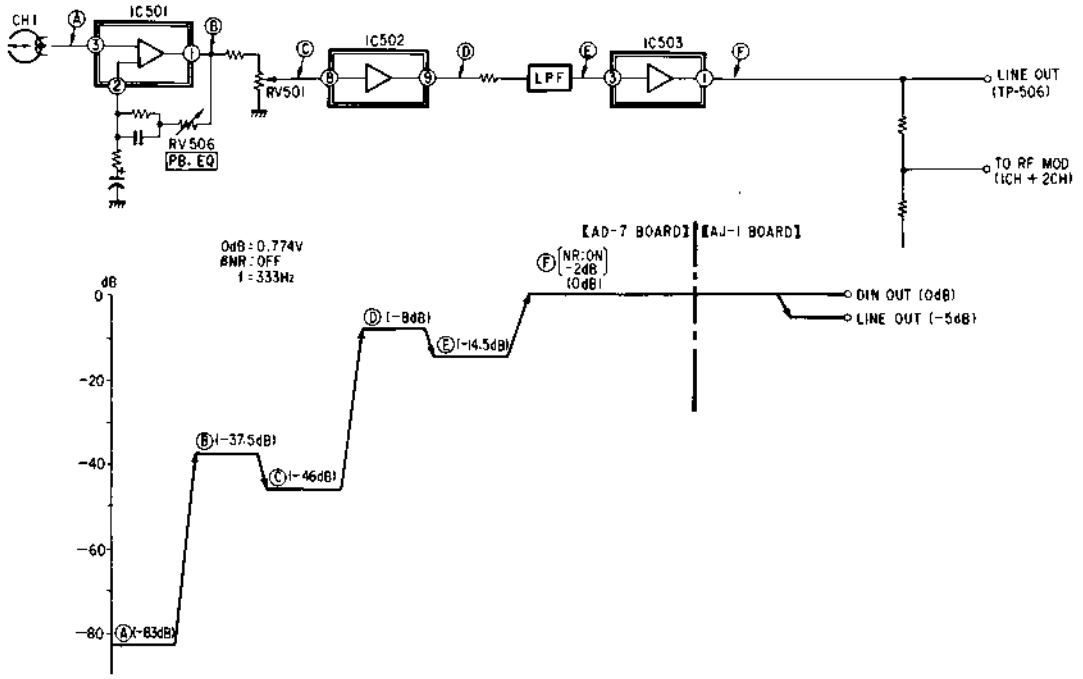


(8) AUDIO BLOCK DIAGRAM

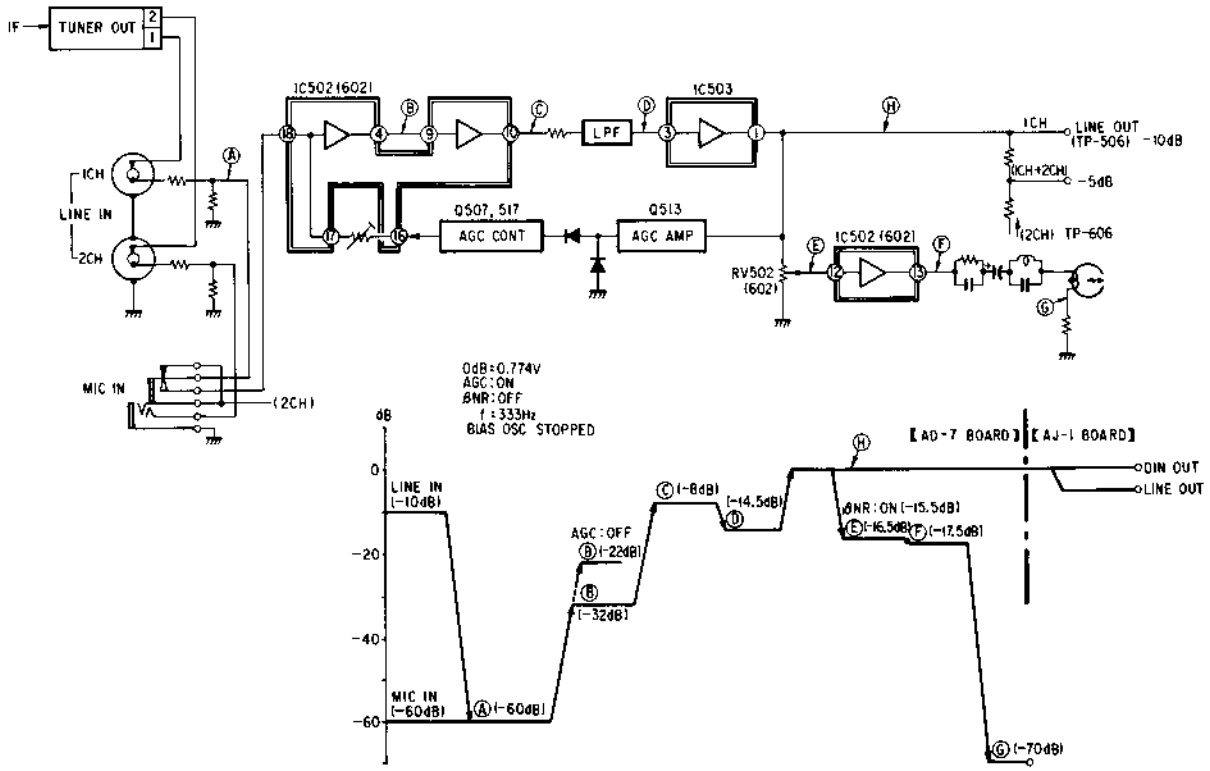


(9) AUDIO LEVEL DIAGRAM

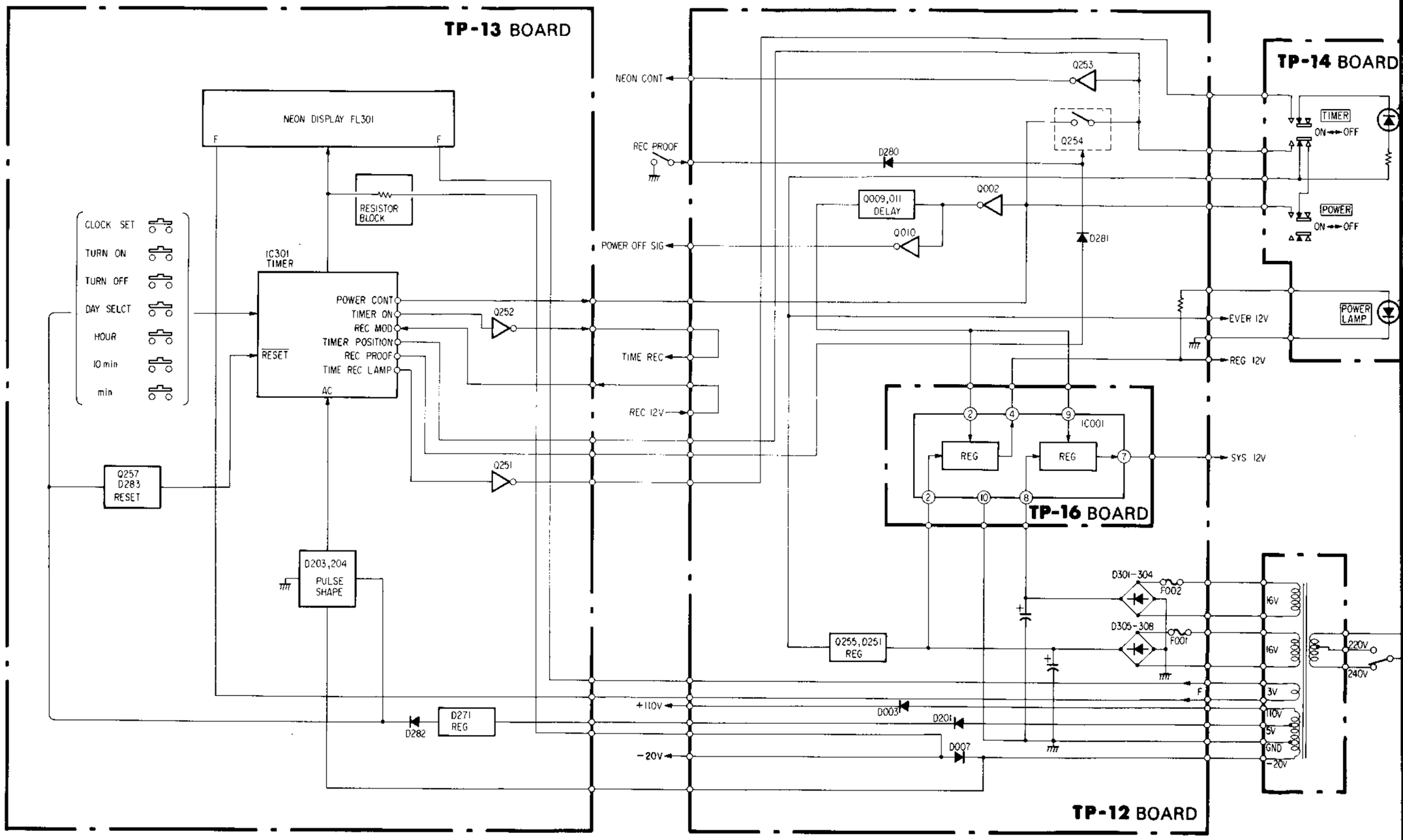
– REC MODE –

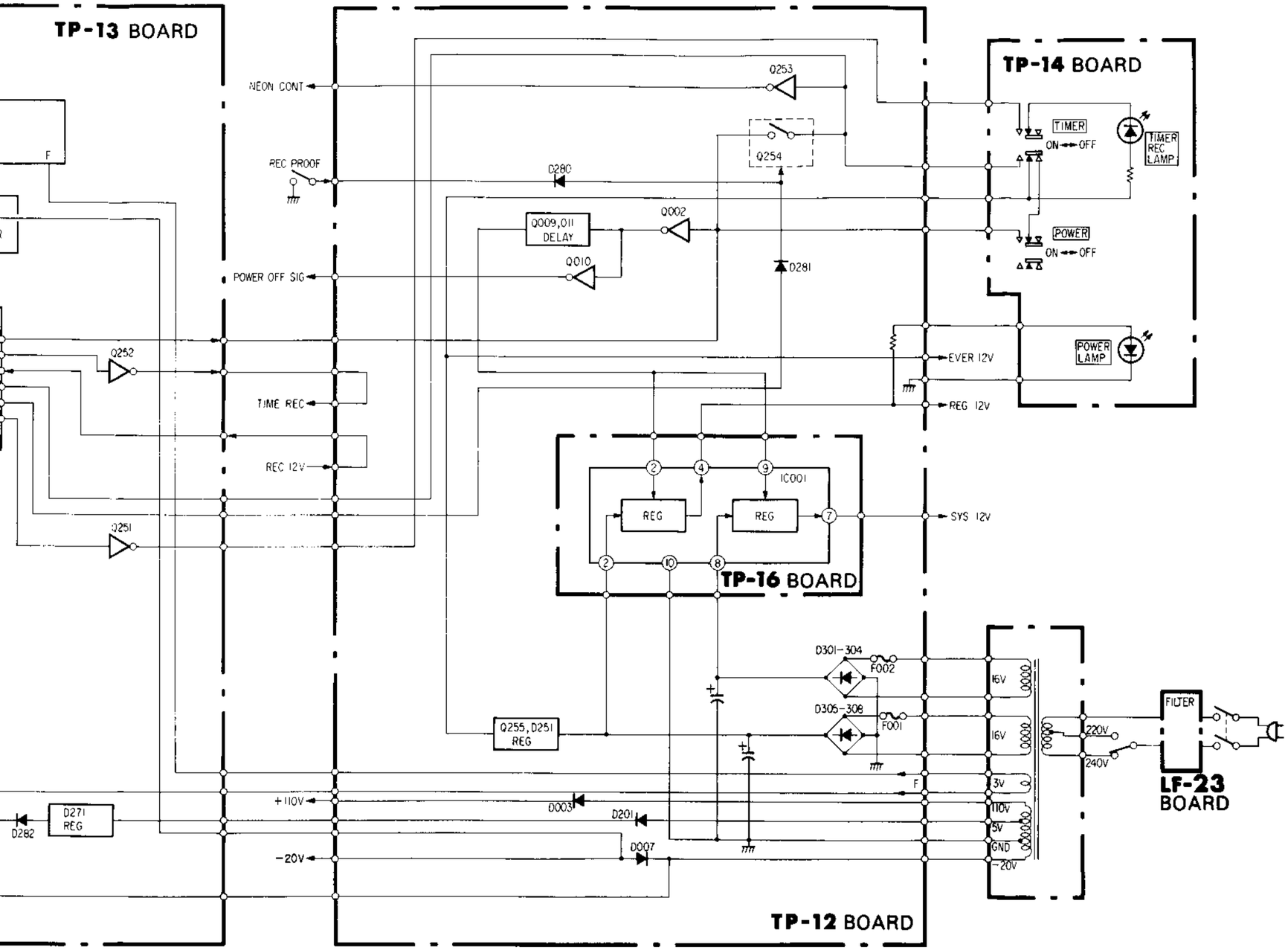


– PB MODE –

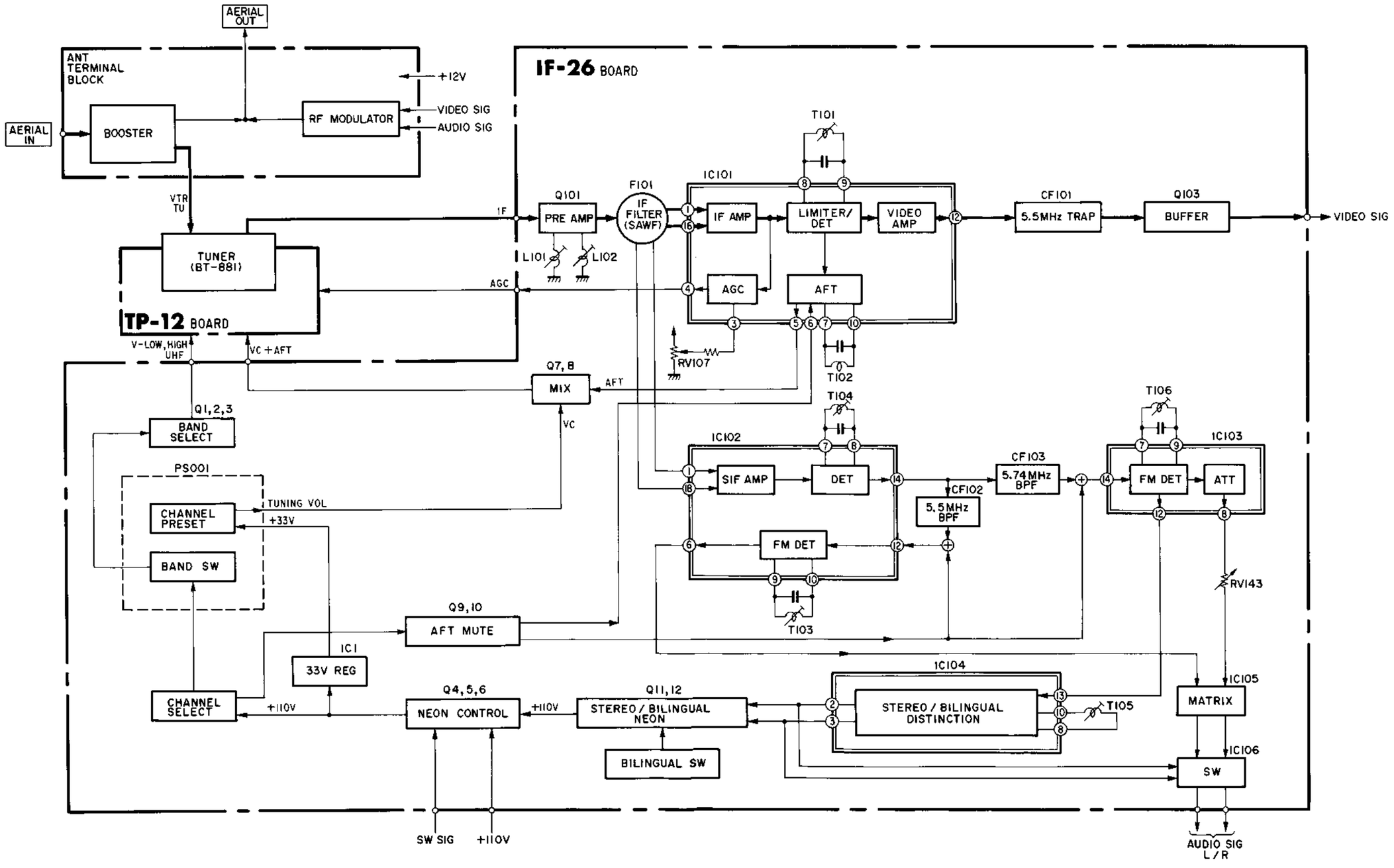


(10) TIMER & POWER SUPPLY BLOCK DIAGRAM

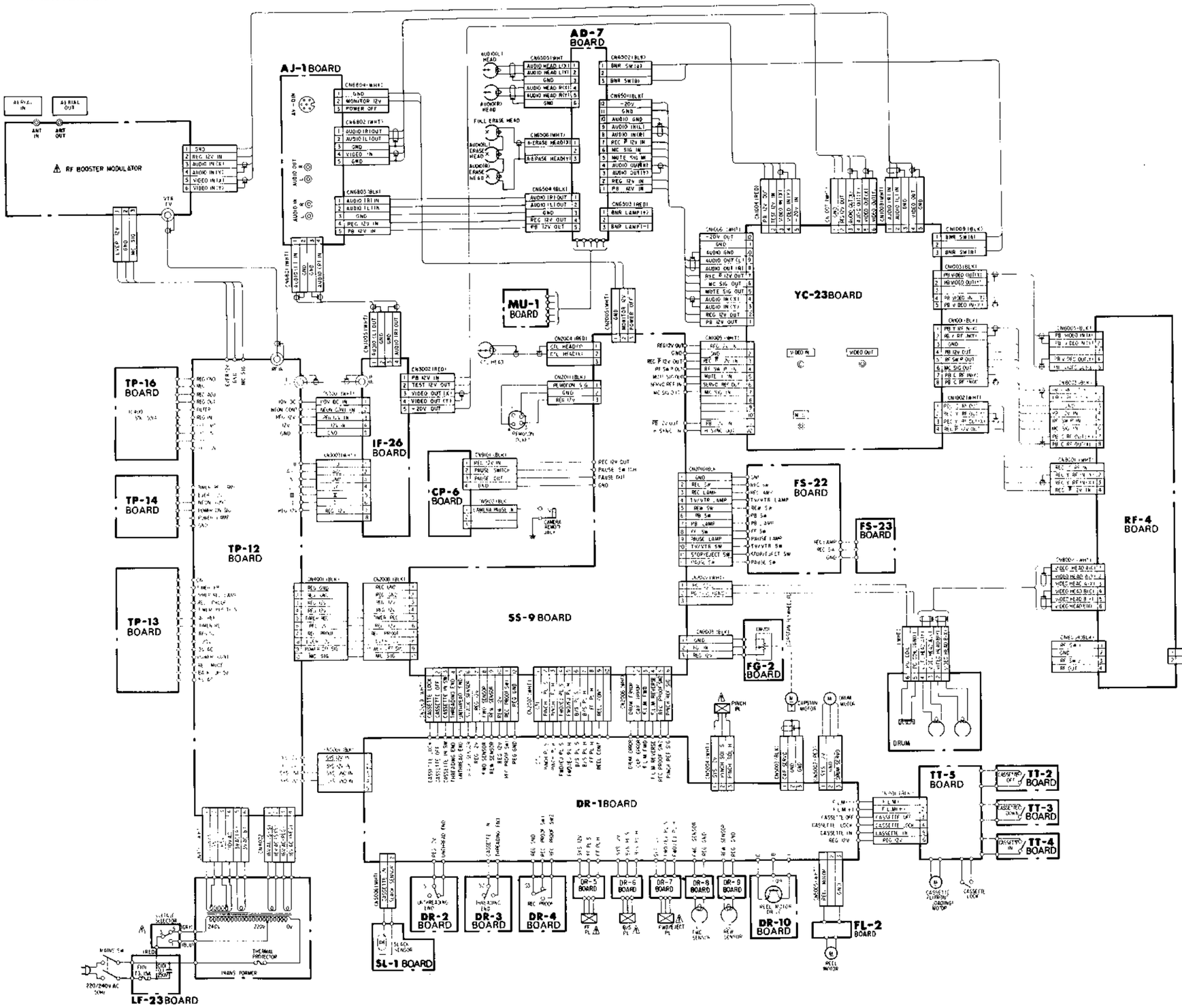



TP-13 BOARD
NEON CONT
REC PROOF
POWER OFF SIG
TIME REC
REC 12V
Q252
Q251
D271
REG
D282
+110V
-20V
Q253
Q254
D280
Q009,011
DELAY
Q002
Q010
D281
EVER 12V
REG 12V
TP-14 BOARD
TIMER
ON OFF
TIMER REC LAMP
POWER
ON OFF
POWER LAMP
IC001
REG
REG
SYS 12V
TP-16 BOARD
Q255, D251
REG
D301-304
F002
D305-308
F001
D003
D201
D007
16V
16V
3V
110V
5V
GND
-20V
FILTER
220V
240V
LF-23
BOARD
TP-12 BOARD

(11) TUNER IF BLOCK DIAGRAM

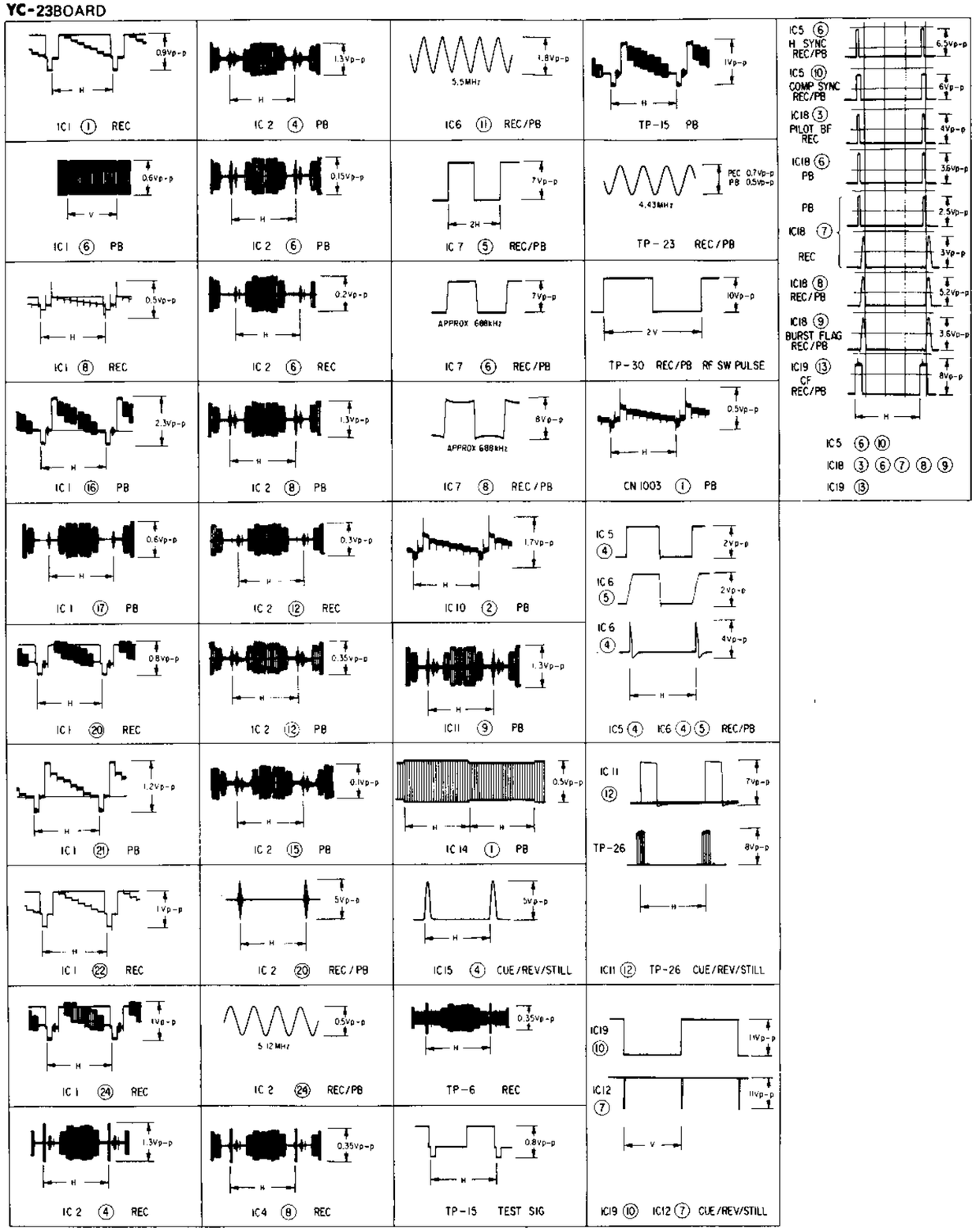


3-3. FRAME SCHEMATIC DIAGRAM

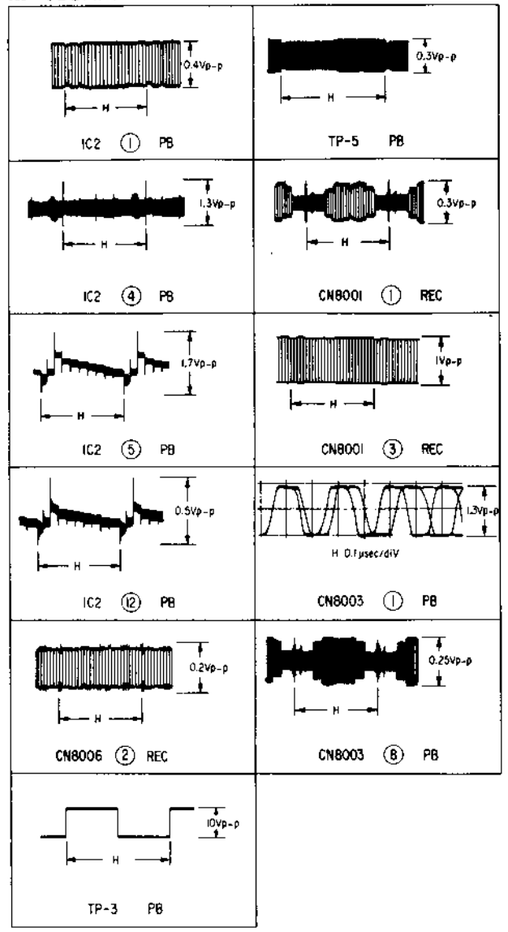


3-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

YC-23BOARD



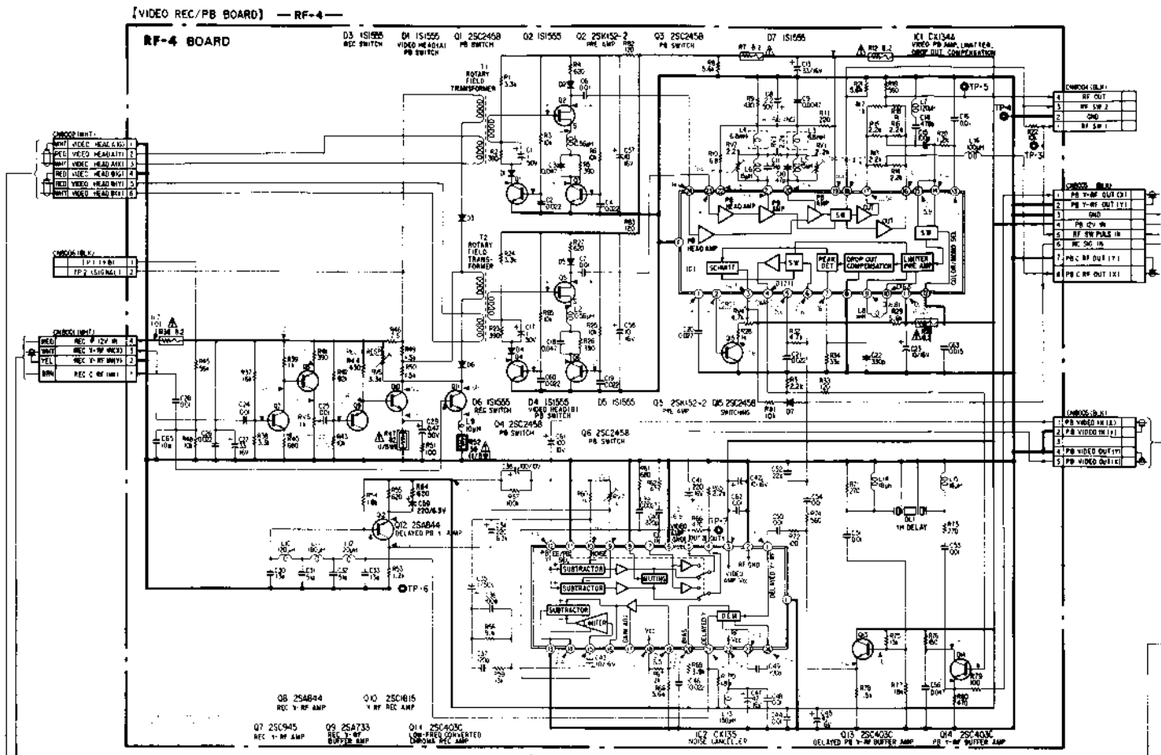
RF-4BOARD



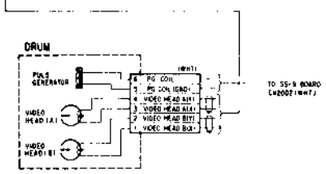
When indicating parts by reference number, please include the board name.

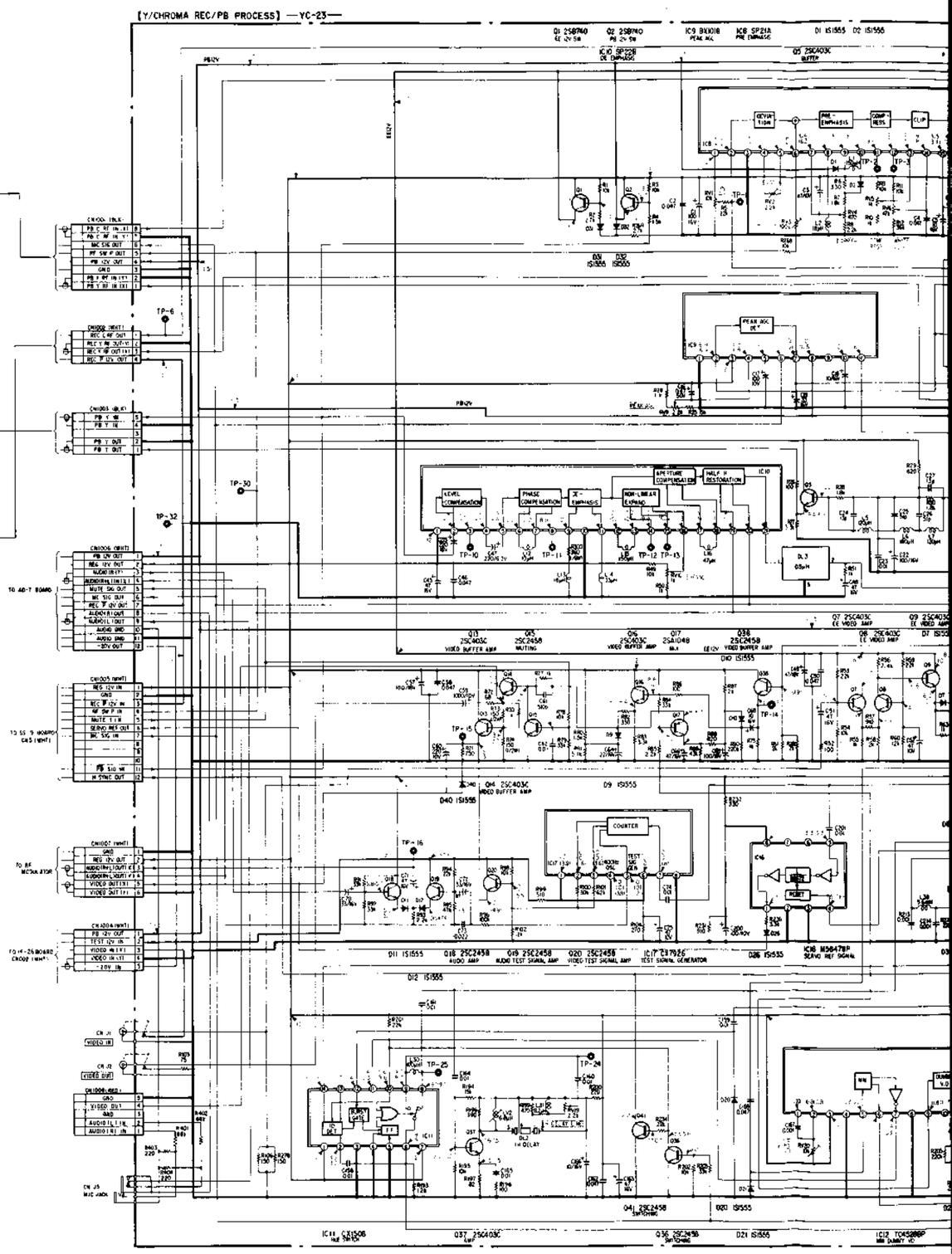
YC-23 (Y & CHROMA SIGNALS RECORD/PLAYBACK PROCESS, SERVO REFERENCE, SIGNAL GEN, HIGH SPEED GEN), RF-4 (DOWN-CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP) BOARDS SCHEMATIC DIAGRAM

– Ref. No. YC-23 BOARD : 1000 series, RF-4 BOARD : 8000 series –

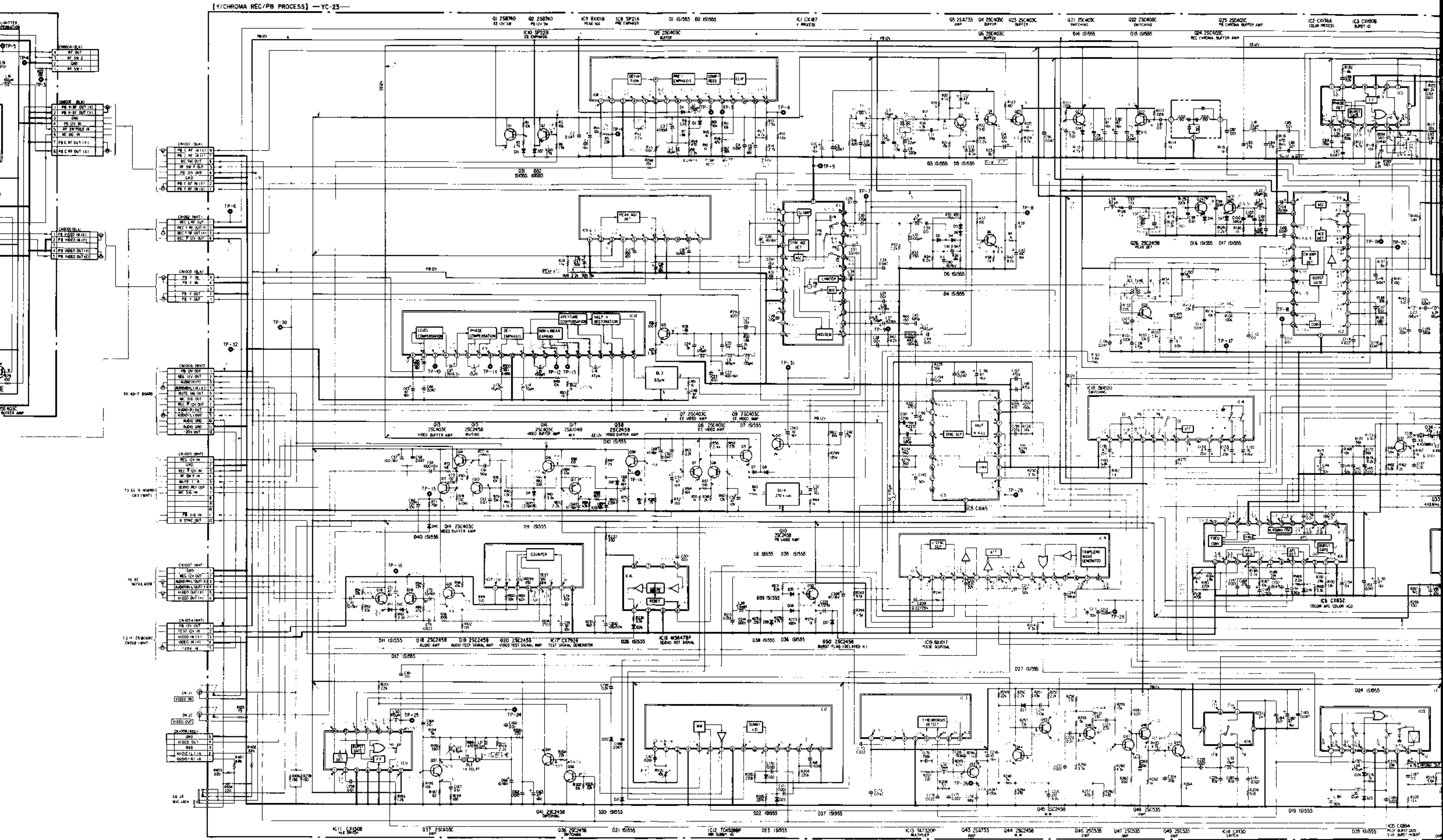


All resistors are in ohms, ¼ W unless otherwise noted.

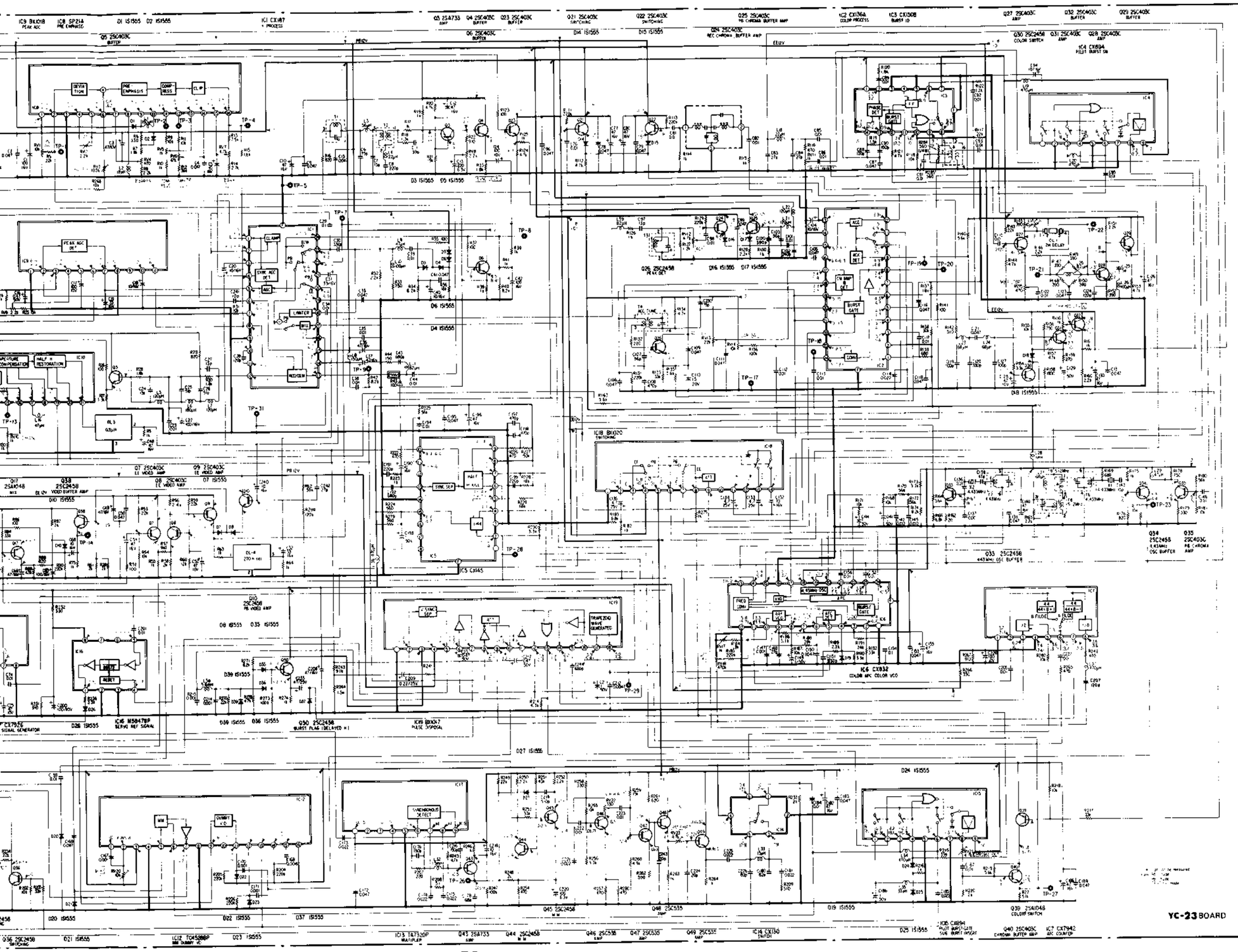




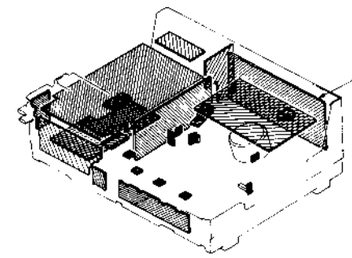
SPEED GEN), RF-4 (DOWN-CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP) BOARDS SCHEMATIC DIAGRAM

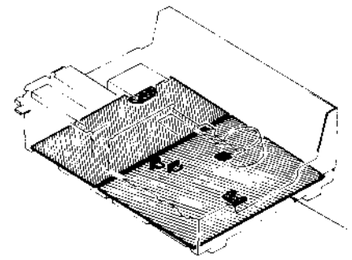


ARDS SCHEMATIC DIAGRAM



YC-23 BOARD





Note:

- All resistors are in ohms, 1/8W unless otherwise noted. kΩ : 1000 Ω, MΩ : 1000 kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⊣wvw⊢ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

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

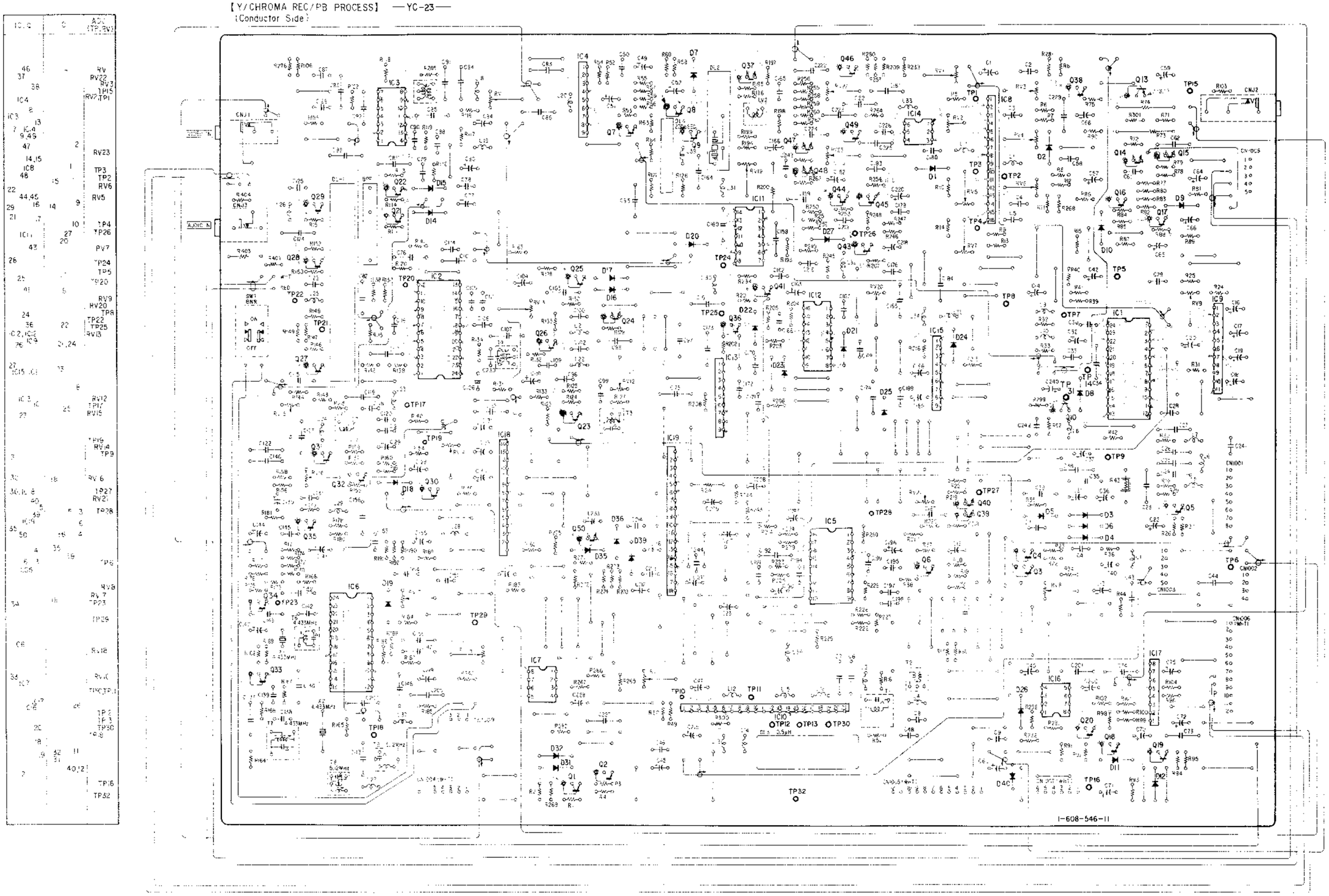
When indicating parts by reference number, please include the board name.

YC-23 (Y & CHROMA SIGNALS RECORD/PLAYBACK PROCESS, SERVO REFERENCE, SIGNAL GEN, HIGH SPEED GEN), RF-4 (DOWN-CONVERTED CHROMA & Y-FM SIGNALS, RECORD/PLAYBACK AMP) PRINTED WIRING BOARDS

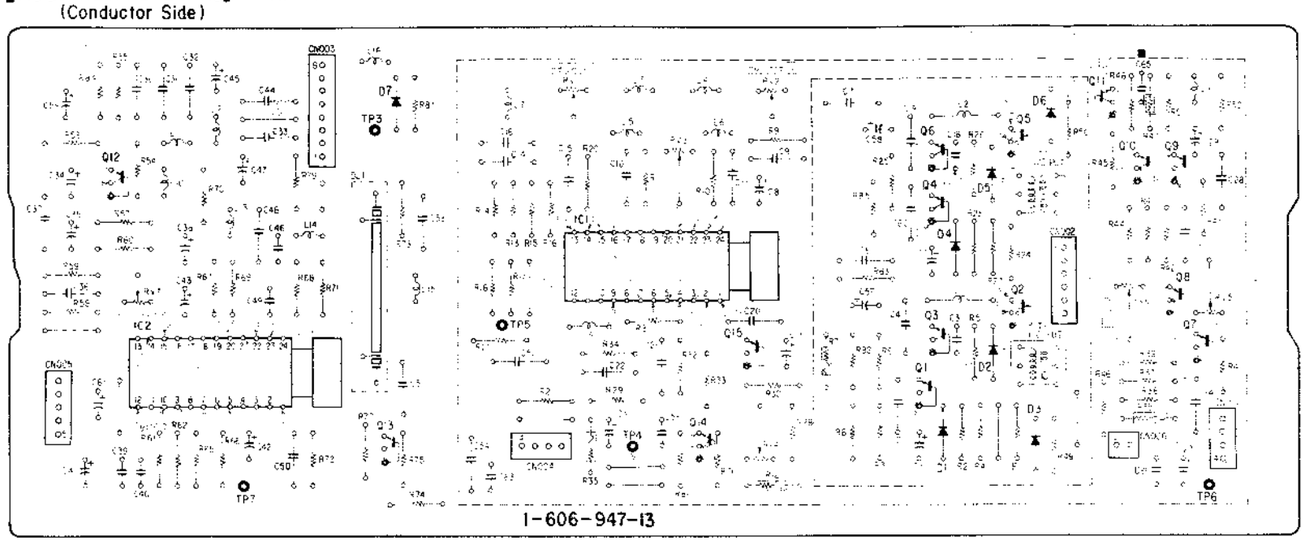
– Ref. No. YC-23 BOARD : 1000 series. RF-4 BOARD : 8000 series

【Y/CHROMA REC/PB PROCESS】 —YC-23—

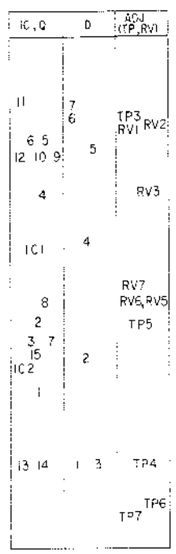
(Conductor Side)



【VIDEO REC/PB BOARD】 —RF-4—
(Conductor Side)



1-606-947-13

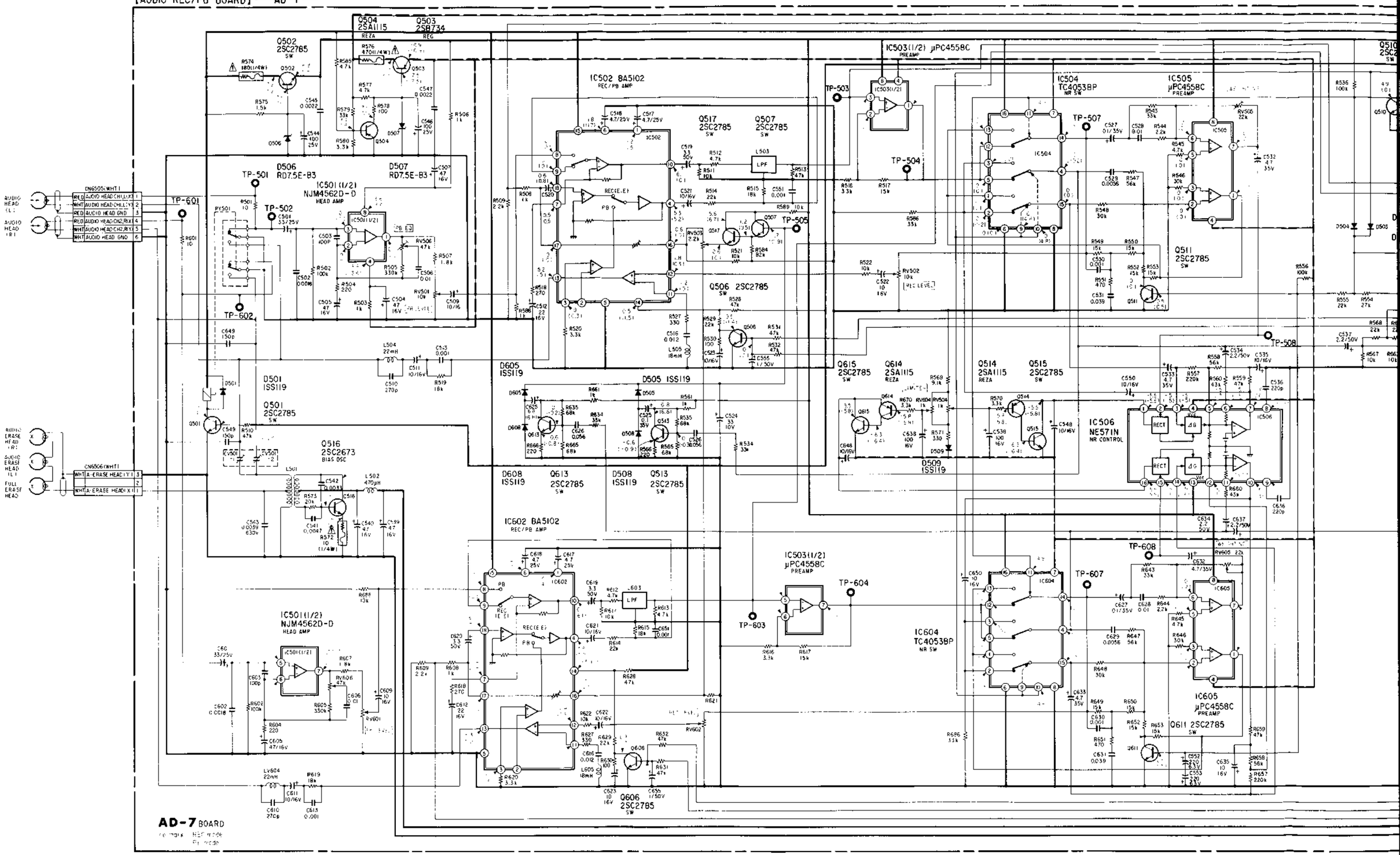


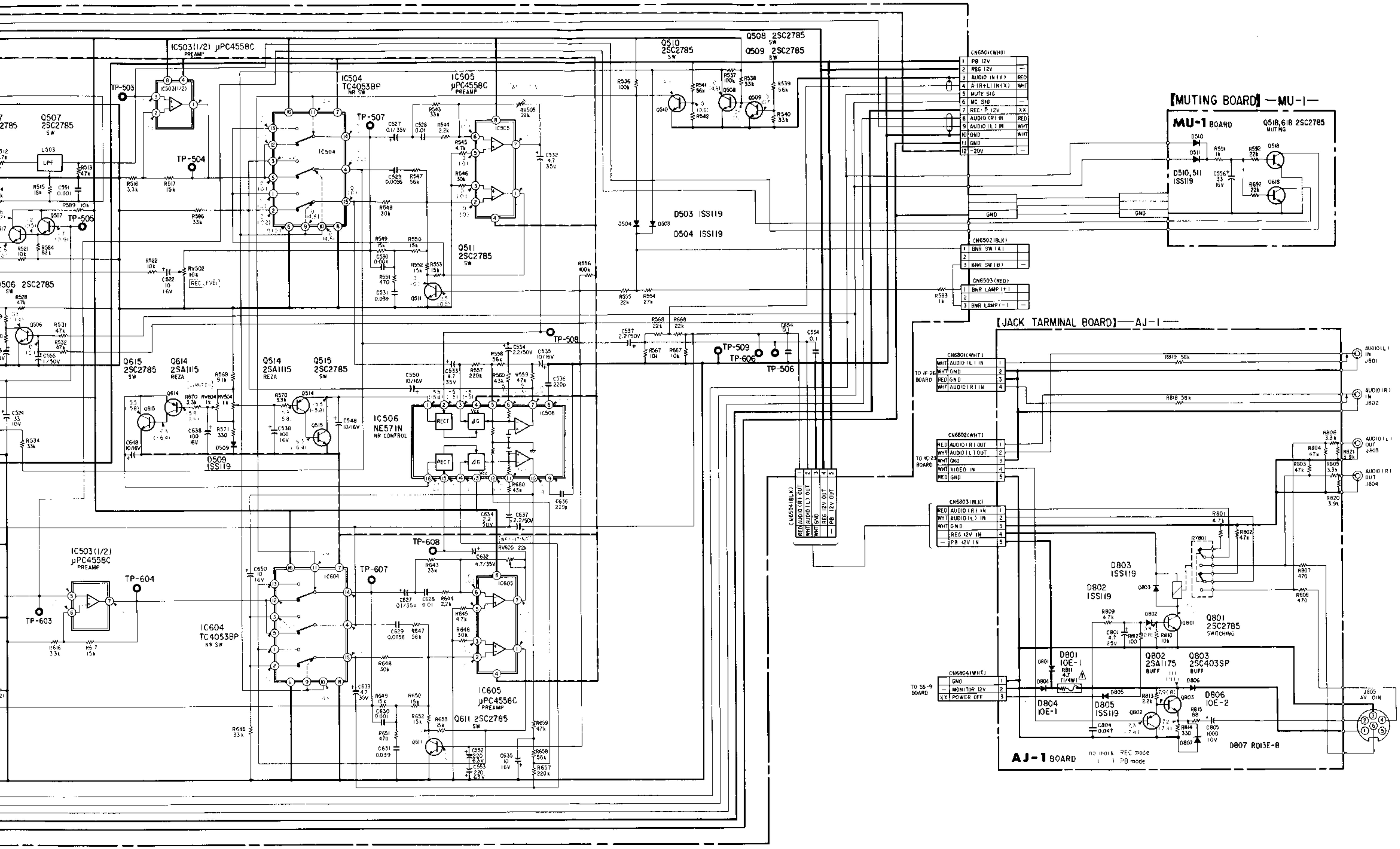
When ordering parts by reference number, please notice the below note.

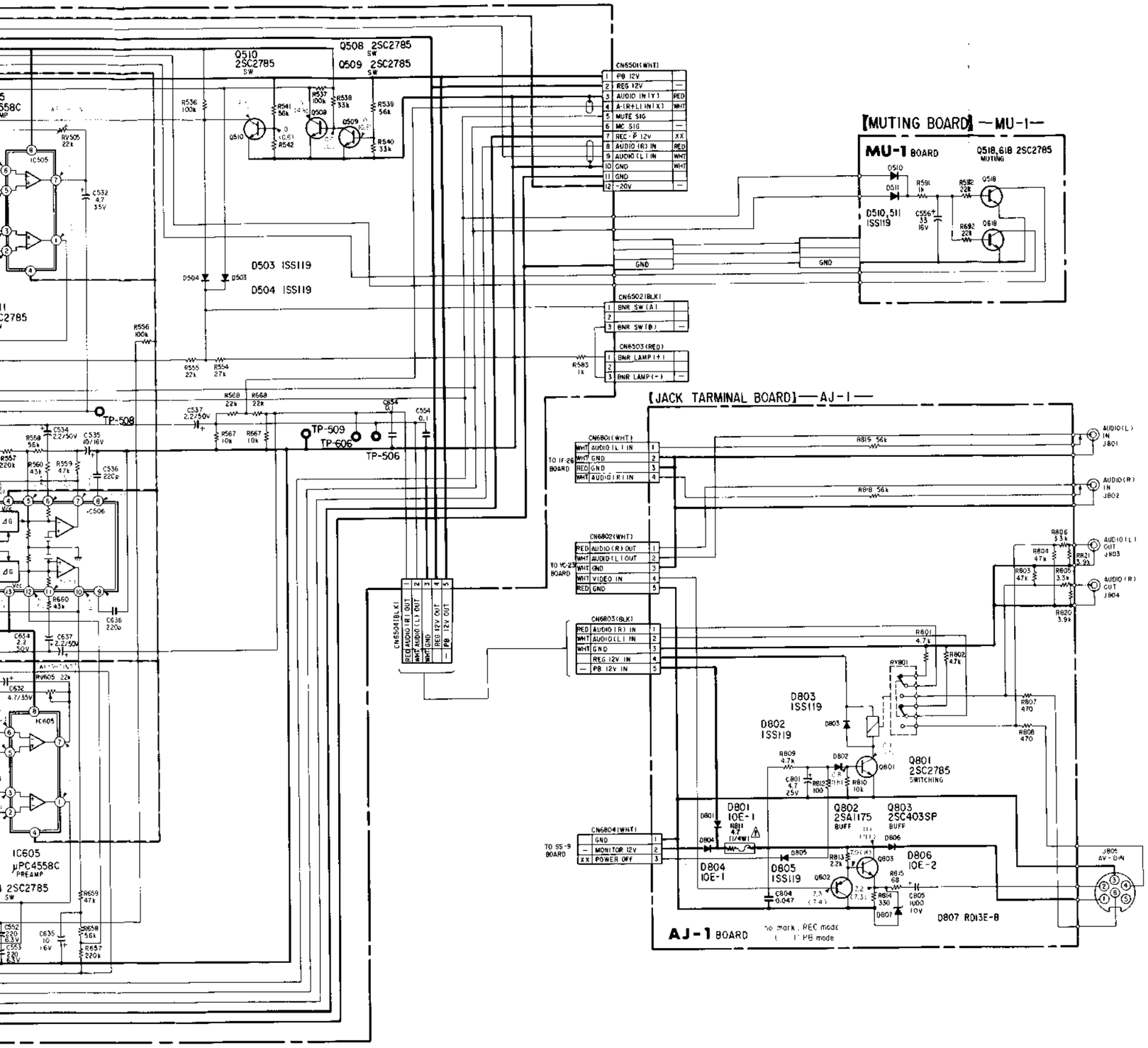
AD-7 (AUDIO RECORD/PLAYBACK AMP, BNR CONTROL), AJ-1 (AUDIO SW) ,MU-1 (MUTING) BOARDS SCHEMATIC DIAGRAM

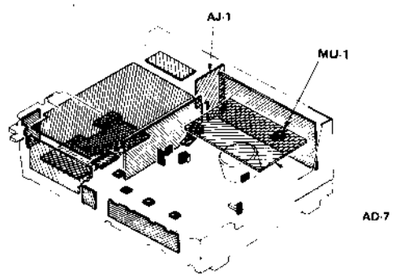
– Ref. No. AD-7 BOARD : 6000 series, AJ-1 BOARD : 6800 series , MU-1 BOARD : 3000 series –

[AUDIO REC/PB BOARD] —— AD-7 ——




IC503(1/2) μPC4558C
PREAMP
TP-503
TP-504
TP-505
Q507 2SC2785
SW
L503
LPF
R513 4.7k
R515 18k
C551 0.001
R516 3.3k
R517 15k
R589 10k
R586 33k
R521 10k
R584 82k
R522 10k
C522 10 16V
RV502 10k
REC LEVEL
Q506 2SC2785
SW
R528 47k
R531 47k
R532 47k
C555 1/50V
C524 33 10V
R534 33k
IC504
TC4053BP
NR SW
IC505
μPC4558C
PREAMP
TP-507
C527 0.1/35V
C528 0.01
R543 33k
R544 2.2k
R545 4.7k
R546 30k
C529 0.0056
R547 56k
R548 30k
RV505 22k
C532 4.7 35V
R549 15k
R550 15k
C530 0.001
R551 470
C531 0.039
R552 15k
R553 15k
Q511
2SC2785
SW
Q510
2SC2785
SW
Q508 2SC2785
SW
Q509 2SC2785
SW
R536 100k
R541 56k
R542
R537 100k
R538 33k
R539 56k
R540 33k
D503 ISS119
D504 ISS119
R556 100k
R555 22k
R554 27k
TP-508
R568 22k
R668 22k
C537 2.2/50V
R567 10k
R667 10k
C654 0.1
C554 0.1
TP-509
TP-606
TP-506
Q615
2SC2785
SW
Q614
2SA1115
REZA
Q514
2SA1115
REZA
Q515
2SC2785
SW
R569 9.1k
R670 3.3k
RV604 1k
RV504 1k
R571 330
C638 100 16V
C648 10/16V
D509
ISS119
R570 3.3k
C538 100 16V
C548 10/16V
IC506
NE571N
NR CONTROL
RECT
ΔG
Vcc
C550 10/16V
C533 4.7 35V
R557 220k
R558 56k
C534 2.2/50V
C535 10/16V
R560 43k
R559 47k
C536 220p
R660 43k
C636 220p
C634 2.2 50V
C637 2.2/50V
IC503(1/2)
μPC4558C
PREAMP
TP-603
TP-604
R616 3.3k
R617 15k
IC604
TC4053BP
NR SW
C650 10 16V
R686 33k
TP-607
TP-608
C632 4.7/35V
RV605 22k
R643 33k
C627 0.1/35V
C628 0.01
R644 2.2k
R645 4.7k
R646 30k
C629 0.0056
R647 56k
R648 30k
C633 4.7 35V
R649 15k
R650 15k
C630 0.001
R651 470
C631 0.039
R652 15k
R653 15k
IC605
μPC4558C
PREAMP
Q611 2SC2785
SW
C552 220 6.3V
C553 220 6.3V
C635 10 16V
R659 47k
R658 56k
R657 220k
CN6501(WHT)
1 PB 12V
2 REG 12V —
3 AUDIO IN (Y) RED
4 A (R+L) IN (X) WHT
5 MUTE SIG
6 MC SIG —
7 REC·P 12V XX
8 AUDIO (R) IN RED
9 AUDIO (L) IN WHT
10 GND WHT
11 GND
12 -20V —
CN6502(BLK)
1 BNR SW (A)
2
3 BNR SW (B) —
CN6503(RED)
1 BNR LAMP (+)
2
3 BNR LAMP (-) —
R583 1k
CN6504(BLK)
1 RED AUDIO (R) OUT
2 WHT AUDIO (L) OUT
3 WHT GND
4 REG 12V OUT
5 — PB 12V OUT
GND
[MUTING BOARD] —MU-1—
MU-1 BOARD
Q518,618 2SC2785
MUTING
D510
D511
D510,511
ISS119
R591 1k
C556 33 16V
R592 22k
R692 22k
Q518
Q618
[JACK TARMINAL BOARD]—AJ-1—
CN6801(WHT)
WHT AUDIO (L) IN 1
WHT GND 2
RED GND 3
WHT AUDIO (R) IN 4
TO IF-26 BOARD
R819 56k
R818 56k
AUDIO (L) IN J801
AUDIO (R) IN J802
CN6802(WHT)
RED AUDIO (R) OUT 1
WHT AUDIO (L) OUT 2
WHT GND 3
WHT VIDEO IN 4
RED GND 5
TO YC-23 BOARD
R806 3.3k
R804 47k
R821 3.9k
R803 47k
R805 3.3k
R820 3.9k
AUDIO (L) OUT J803
AUDIO (R) OUT J804
CN6803(BLK)
RED AUDIO (R) IN 1
WHT AUDIO (L) IN 2
WHT GND 3
REG 12V IN 4
— PB 12V IN 5
R801 4.7k
R802 4.7k
RY801
R807 470
R808 470
D803
ISS119
D802
ISS119
R809 4.7k
C801 4.7 25V
R812 100
R810 10k
Q801
2SC2785
SWITCHING
CN6804(WHT)
GND 1
— MONITOR 12V 2
XX POWER OFF 3
TO SS-9 BOARD
D801
IOE-1
R811 4.7 (1/4W)
D804
IOE-1
D805
ISS119
Q802
2SA1175
BUFF
Q803
2SC403SP
BUFF
D806
IOE-2
R813 2.2k
R815 68
R814 330
C804 0.047
C805 1000 10V
D807 RD13E-B
J805
AV DIN
AJ-1 BOARD
no mark REC mode
( ) PB mode





Note:

- All resistors are in ohms, 1/8W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

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

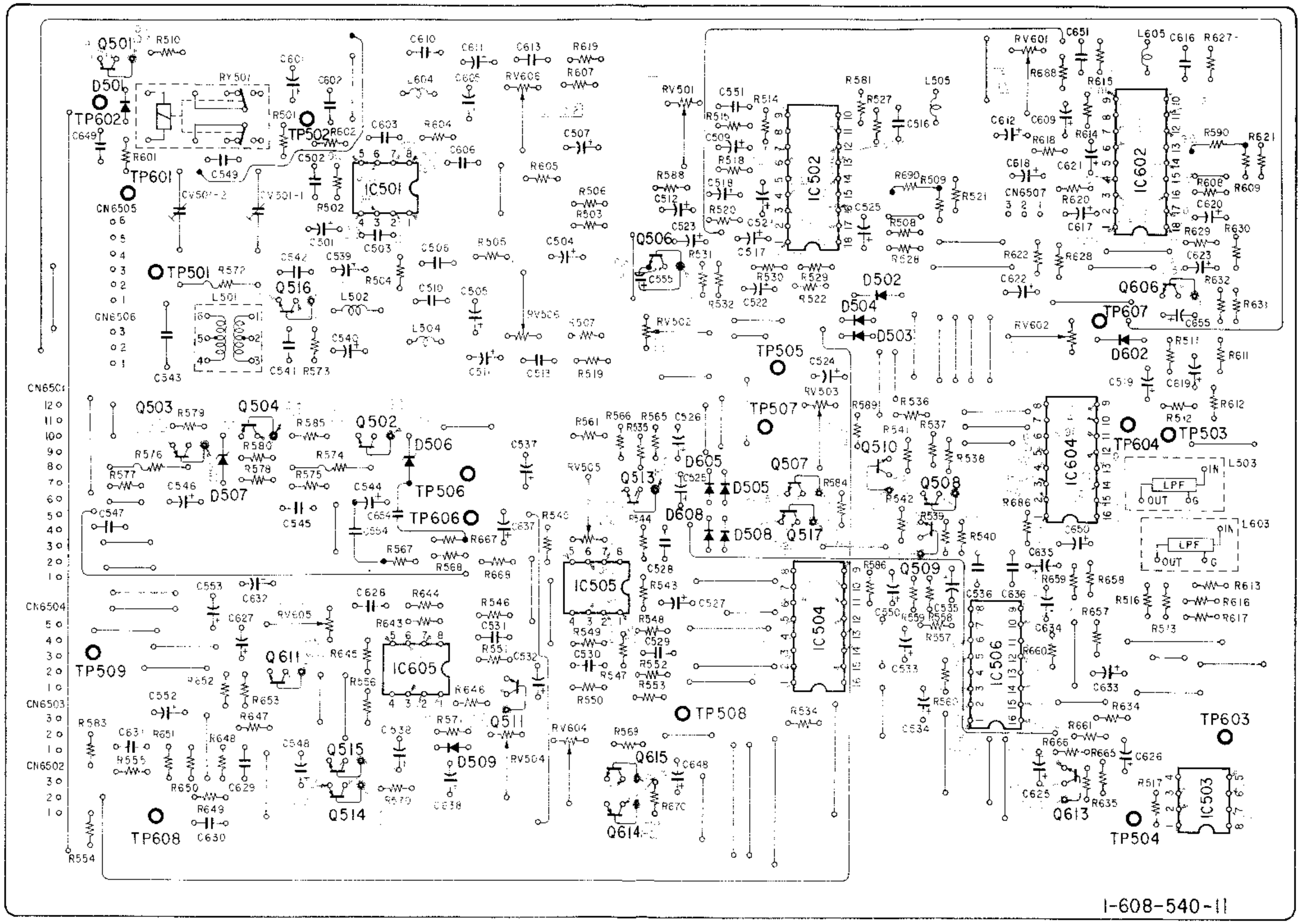
When indicating parts by reference number, please include the board name.

AD-7 (AUDIO RECORD/PLAYBACK AMP, BNR CONTROL), AJ-1 (AUDIO SW), MU-1 (MUTING) PRINTED WIRING BOARDS

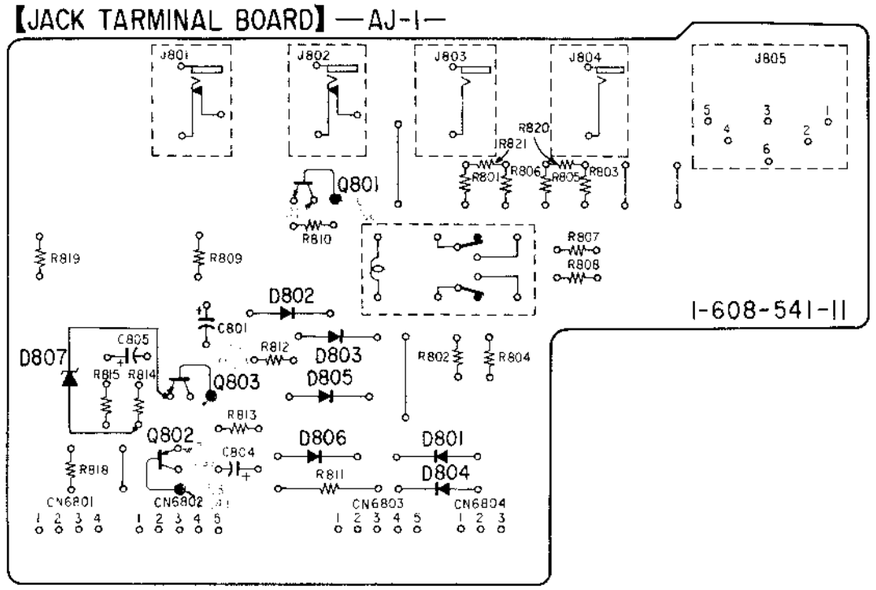
– Ref. No. AD-7 BOARD : 6000 series, AJ-1 BOARD : 6800 series, MU-1 BOARD : 3000 series –

IC,Q	501 503	504 611 516 515 514	IC501 502 IC605	511	IC505 506 513 614 615	507 517 IC502 IC504 510 509 508	IC506	IC604 613 IC602 606	IC503
D	501	507	509		608 605 505 508	502 504 503	RV601 RV602	602	
ADJ (TP,RV)	TP602 TP601 TP501 TP509 TP608	TP502 RV605	TP506 TP606	RV606 RV506 RV504 RV505 RV604	RV501 RV502 TP508	TP505 RV503 TP507		TP607 TP604 TP503 TP504	TP603

【AUDIO REC/PB BOARD】—AD-7—

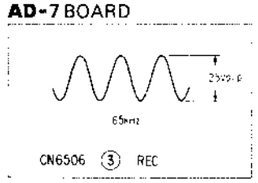


【JACK TARMINAL BOARD】—AJ-1—

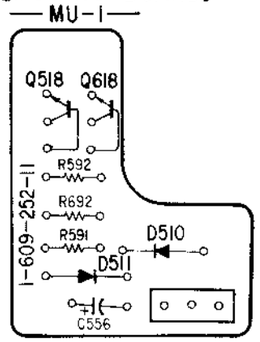


IC,Q	D	ADJ (TP,RV)
801		
	802	
	803	
	805	
	807	
802	806,801	
	804	

AD-7 BOARD



【MUTING BOARD】
—MU-1—

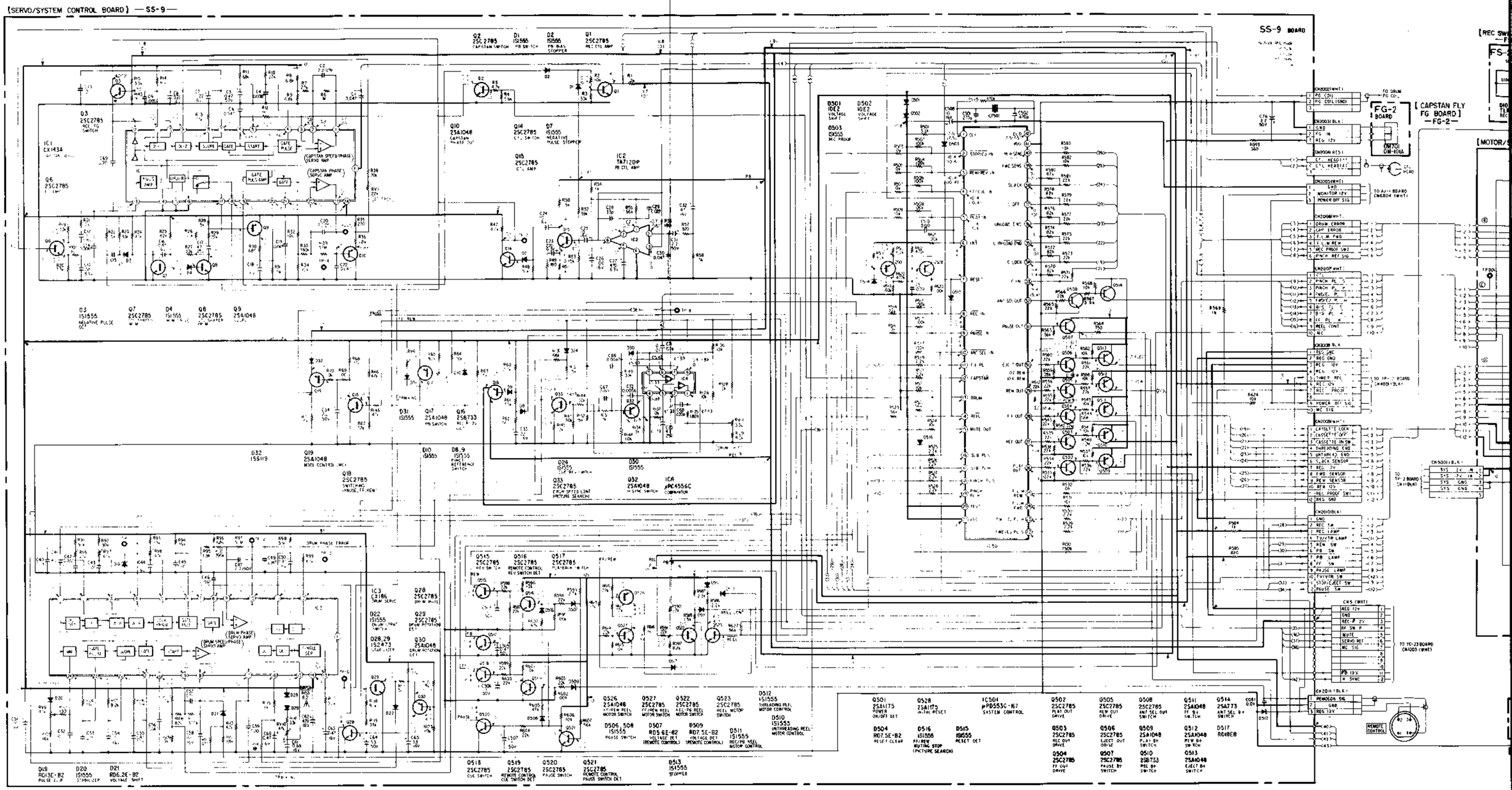


When indicating parts by reference number, please include the board name.

SERVO, SYSTEM CONTROL

SS-9 (SERVO & SYSTEM CONTROL), FG-2 (CAPSTAN FLY FG), DR-1 (MOTOR & SOLENOID DRIVE), DR-2 • DR-3 • DR-4 (SWITCH), DR-5 • DR-6 • DR-7 (SOLENOID), DR-8 • DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 • FS-23 (CASSETTE CONTROL SW), FL-2 (NOISE FILTER), TT-2 • TT-3 • TT-4 • TT-5 (CASSETTE CONPARTMENT), SL-1 (SLACK SENSOR), CP-6 (CAMERA PLAY) BOARDS SCHEMATIC DIAGRAM

– Ref. No. SS-9 BOARD : 2000 series, FG-2 BOARD : 7700 series, DR-1 – DR-10 BOARDS : 5000 series, FS-22, FS-23 BOARDS : 6000 series, FL-2 BOARD : 7000 series, TT-2 – TT-5 BOARDS : 7100 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series –



I), DR-5 • DR-6 • DR-7 (SOLENOID), DR-8 • DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 • FS-23 (CASSETTE CONTROL SWITCH),

S SCHEMATIC DIAGRAM

00 series, TT-2 – TT-5 BOARDS : 7100 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series –

Note:

- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⚠ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

Note: The components ic ⚠ are critical fo part number speci

When indicating parts by re ence number, please incl the board name.

[CASSETTE CONTROL SWITCH BOARD] —FS-22—

[REC SWITCH BOARD] —FS-23—

[REEL MOTOR DRIVE BOARD] —DR-10—

[CAPSTAN FLY FG BOARD] —FG-2—

[MOTOR/SOLENOID DRIVE BOARD] —DR-1—

[NOISE FILTER BOARD] —FL-2—

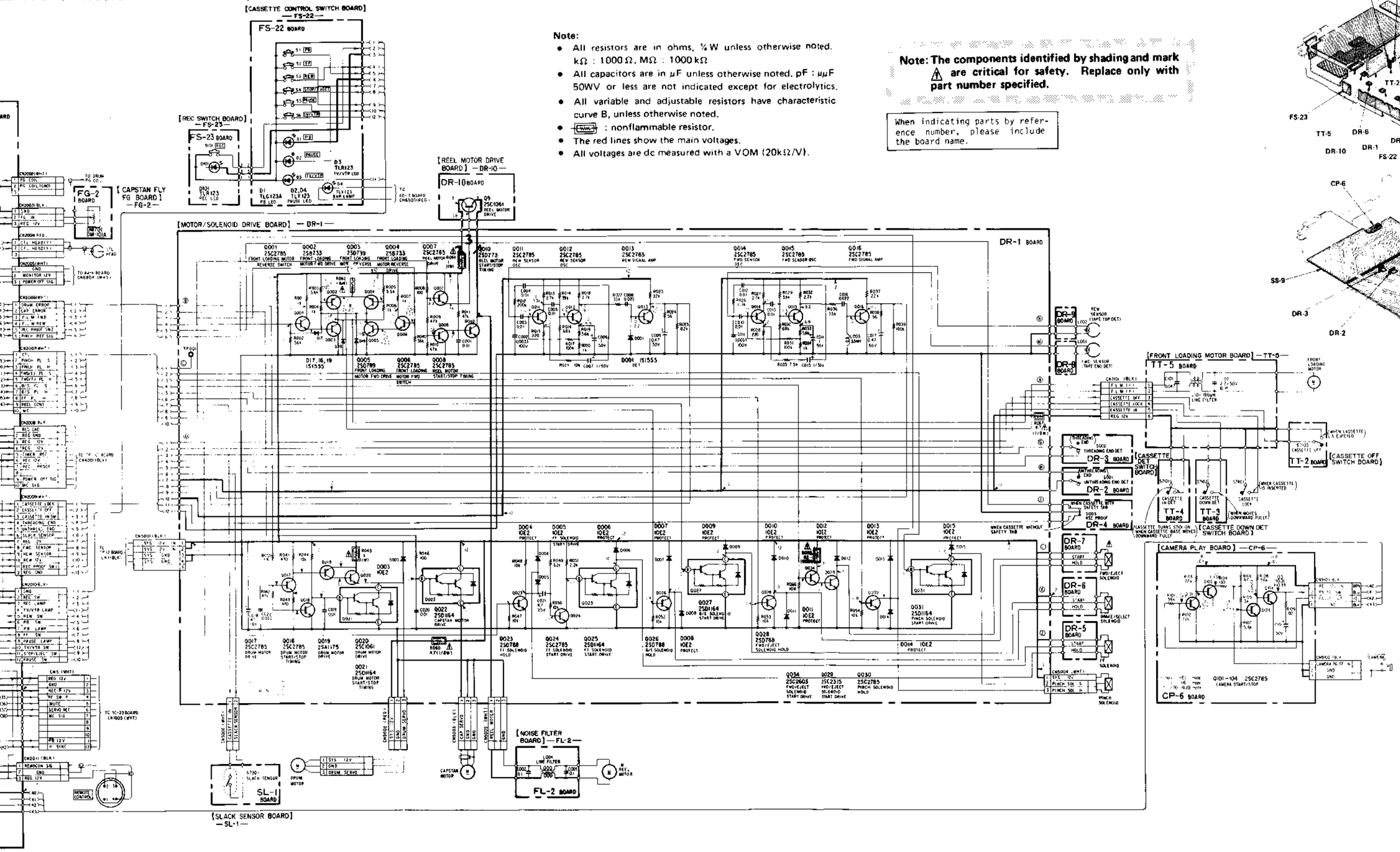
[SLACK SENSOR BOARD] —SL-1—

22 · FS-23 (CASSETTE CONTROL SWITCH),

Note:
- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

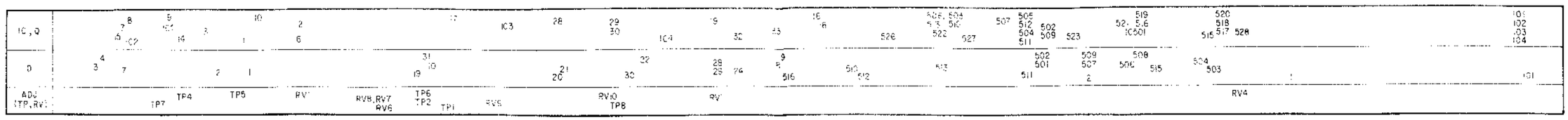
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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

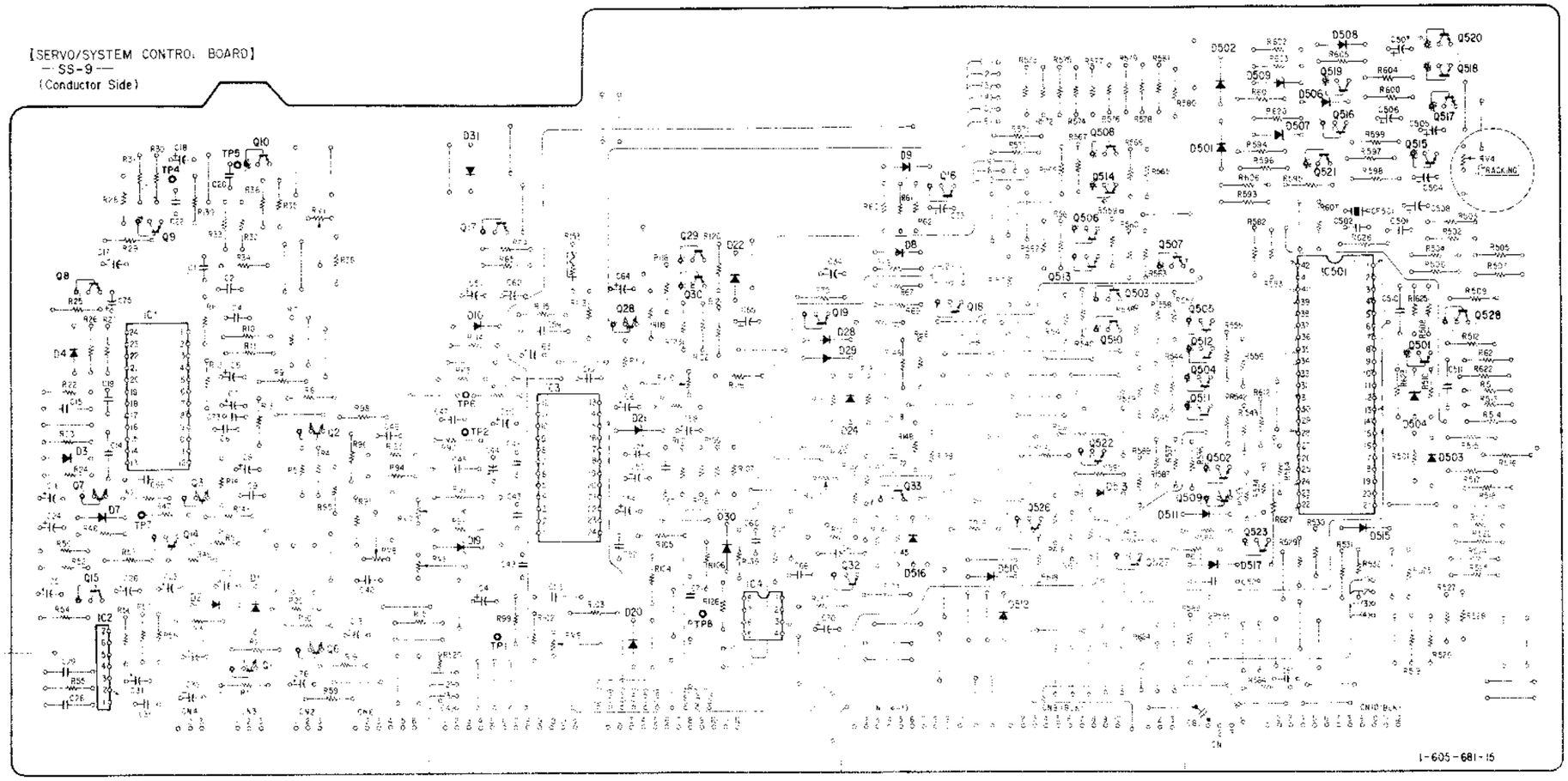


SS-9 (SERVO & SYSTEM CONTROL), FG-2 (CAPSTAN FLY FG), DR-1 (MOTOR & SOLENOID DRIVE), DR-2 · DR-3 · DR-4 (SWITCH), DR-5 · DR-6 · DR-7 (SOLENOID), DR-8 · DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 · FS-23 (CASSETTE CONTROL SWITCH
FL-2 (NOISE FILTER), TT-2 · TT-3 · TT-4 · TT-5 (CASSETTE CONPARTMENT), SL-1 (SLACK SENSOR), CP-6 (CAMERA PLAY) PRINTED WIRING BOARDS

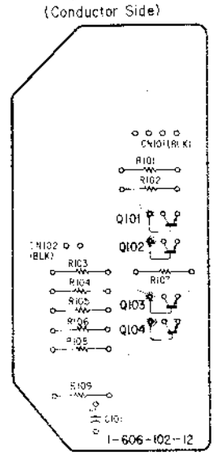
– Ref. No. SS-9 BOARD : 2000 series, FG-2 BOARD : 7700 series, DR-1 DR-10 BOARDS : 5000 series, FS-22, FS-23 BOARDS : 6000 series, FL-2 BOARD : 7000 series, TT-2 – TT-5 BOARDS : 7100 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series –



【SERVO/SYSTEM CONTROL BOARD】
— SS-9 —
(Conductor Side)

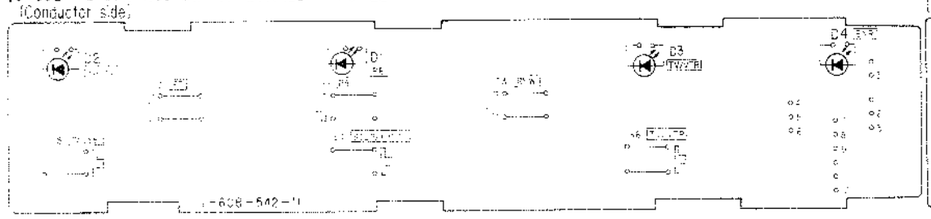


【CAMERA PLAY BOARD】
— CP-6 —
(Conductor Side)

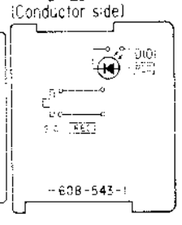


DR-1 BOARD

【CASSETTE CONTROL SWITCH BOARD】 — FS-22 —
(Conductor side)

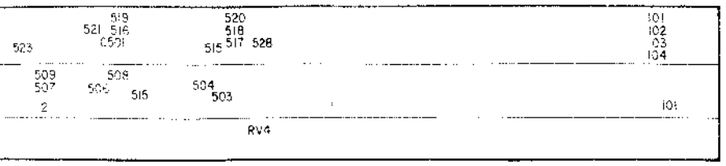


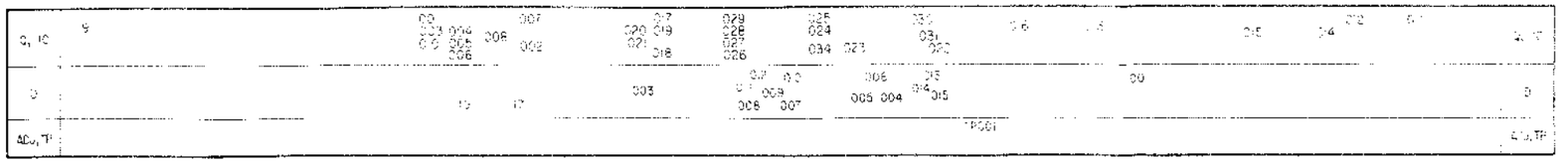
【REC SWITCH BOARD】
— FS-23 —
(Conductor side)

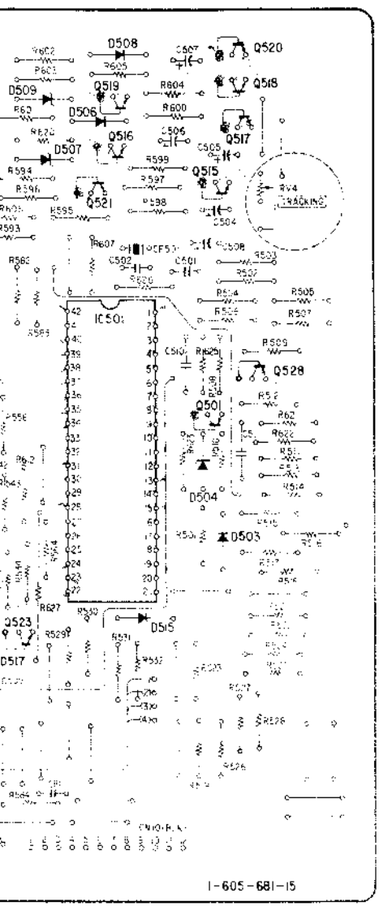


OID), DR-8 · DR-9 (SENSOR), DR-10 (MOTOR DRIVE), FS-22 · FS-23 (CASSETTE CONTROL SWITCH),

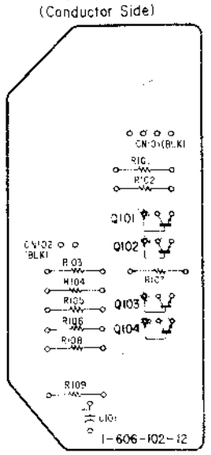
.00 series, SL-1 BOARD : 7200 series, CP-6 BOARD : 9100 series





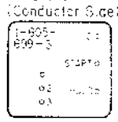


【CAMERA PLAY BOARD】
— CP-6 —
(Conductor Side)



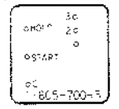
DR-1 BOARD

【BRAKE SOLENOID BOARD】
— DR-6 —
(Conductor Side)



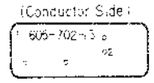
【FF SOLENOID BOARD】
— DR-5 —
(Conductor Side)

【REW SELECT SOLENOID BOARD】
— DR-7 —
(Conductor Side)

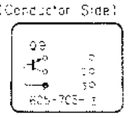


DR-8
(Conductor Side)

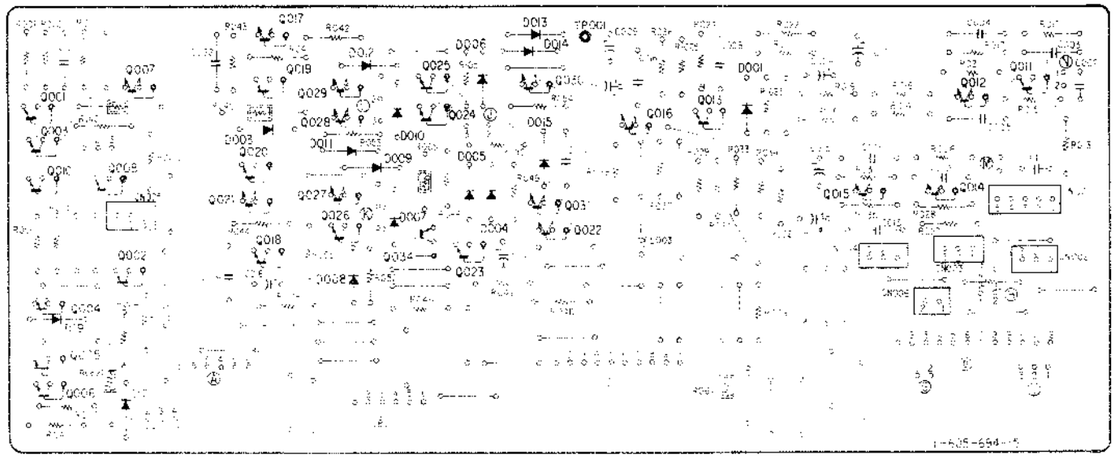
— DR-9 —
(Conductor Side)



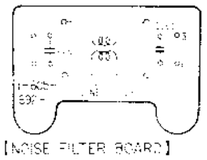
【REEL MOTOR DRIVE BOARD】
— DR-10 —
(Conductor Side)



【MOTOR/SOLENOID DRIVE BOARD】
DR-1
(Conductor Side)



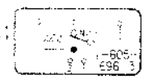
【NOISE FILTER BOARD】
— FL-2 —
(Conductor Side)



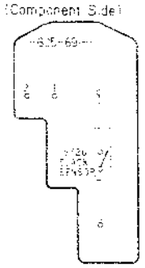
【CASSETTE DET SWITCH BOARD】
— TT-4 —
(Conductor Side)

【CASSETTE DOWN DET SWITCH BOARD】
— TT-3 —
(Conductor Side)

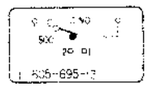
【THREADING END DET BOARD】
— DR-3 —
(Component Side)



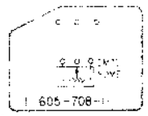
【SLACK SENSOR BOARD】
SL-1
(Component Side)



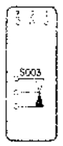
【UNTHREADING END DET BOARD】
— DR-2 —
(Component Side)



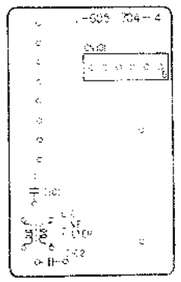
【CAPSTAN FLY FG BOARD】
— FG-2 —
(Conductor Side)



【REC PROOF SWITCH BOARD】 — DR-4 —
(Conductor Side)



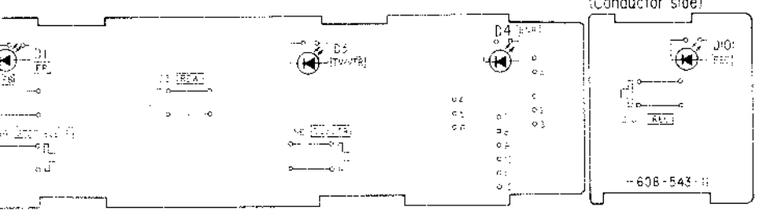
【FRONT LOADING MOTOR BOARD】 — TT-5 —
(Conductor Side)



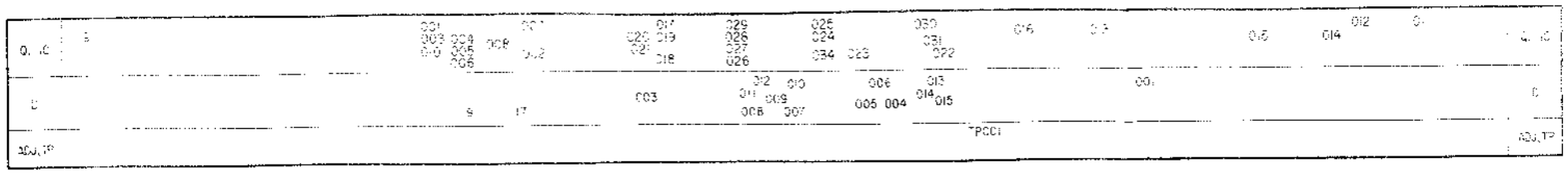
【CASSETTE DET SWITCH BOARD】
TT-2
Conductor Side)

FS-22

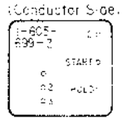
【REC SWITCH BOARD】
— FS-23 —
(Conductor side)



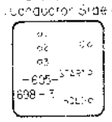
FS-23 (CASSETTE CONTROL SWITCH).



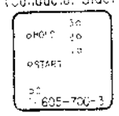
【BRAKE SOLENOID BOARD】
— DR-6 —
(Conductor Side)



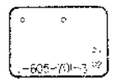
【FF SOLENOID BOARD】
— DR-5 —
(Conductor Side)



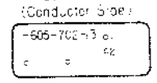
【FWD/EJECT SOLENOID BOARD】
— DR-7 —
(Conductor Side)



— DR-8 —
(Conductor Side)

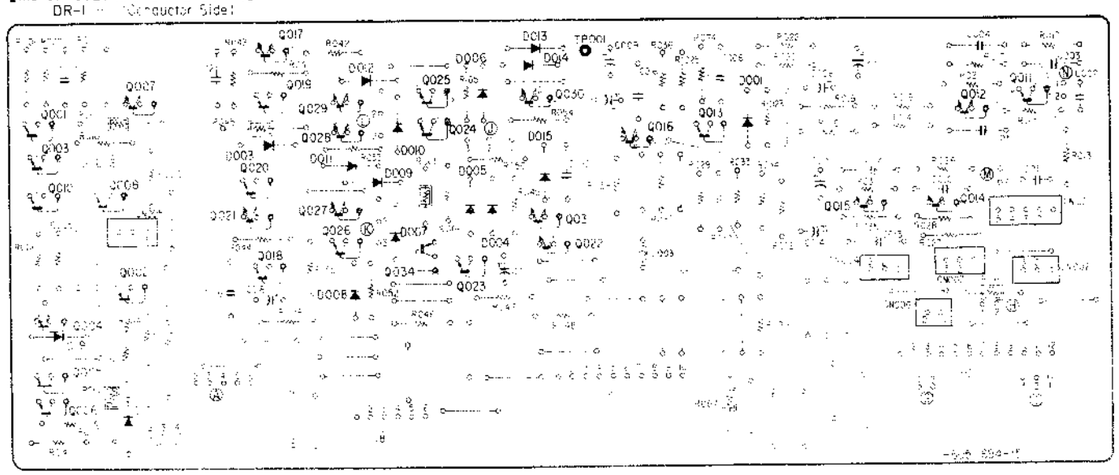


— DR-9 —
(Conductor Side)



【REEL MOTOR DRIVE BOARD】
— DR-10 —
(Conductor Side)

【MOTOR/SOLENOID DRIVE BOARD】
— DR-1 —
(Conductor Side)

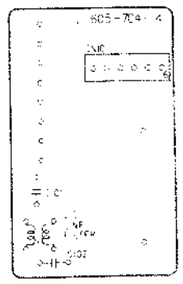


【CASSETTE DET SWITCH BOARD】 TT-4
(Conductor Side)

【CASSETTE OPEN SWITCH BOARD】
TT-3
(Conductor Side)

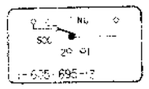
【CASSETTE OPEN SWITCH BOARD】
TT-2
(Conductor Side)

【FRONT LOADING MOTOR BOARD】 TT-5
(Conductor Side)

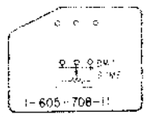


【THREADING END DET BOARD】
— DR-3
(Component Side)

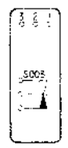
【LOADING END DET BOARD】
— DR-2 —
(Component Side)



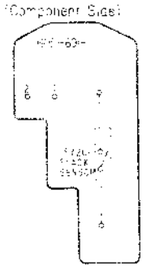
【CAPSTAN FLY FG BOARD】
— FG-2
(Conductor Side)



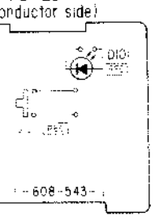
【REC PROOF SWITCH BOARD】 — DR-4 —
(Conductor Side)



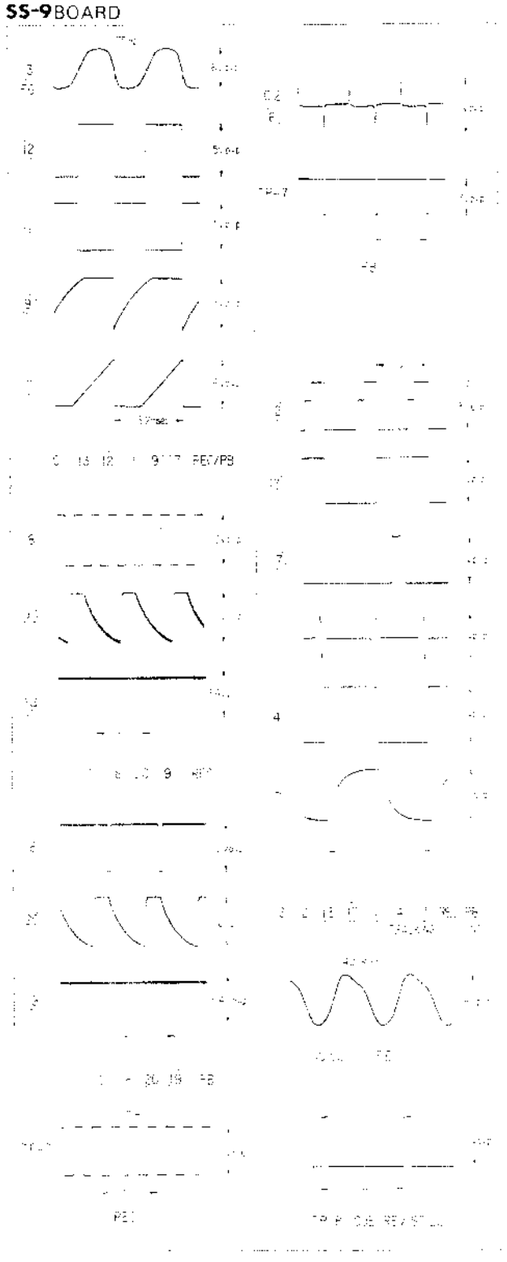
【SLACK SENSOR BOARD】
— SL-1 —
(Component Side)



【REC PROOF SWITCH BOARD】
— FS-23 —
(Conductor side)

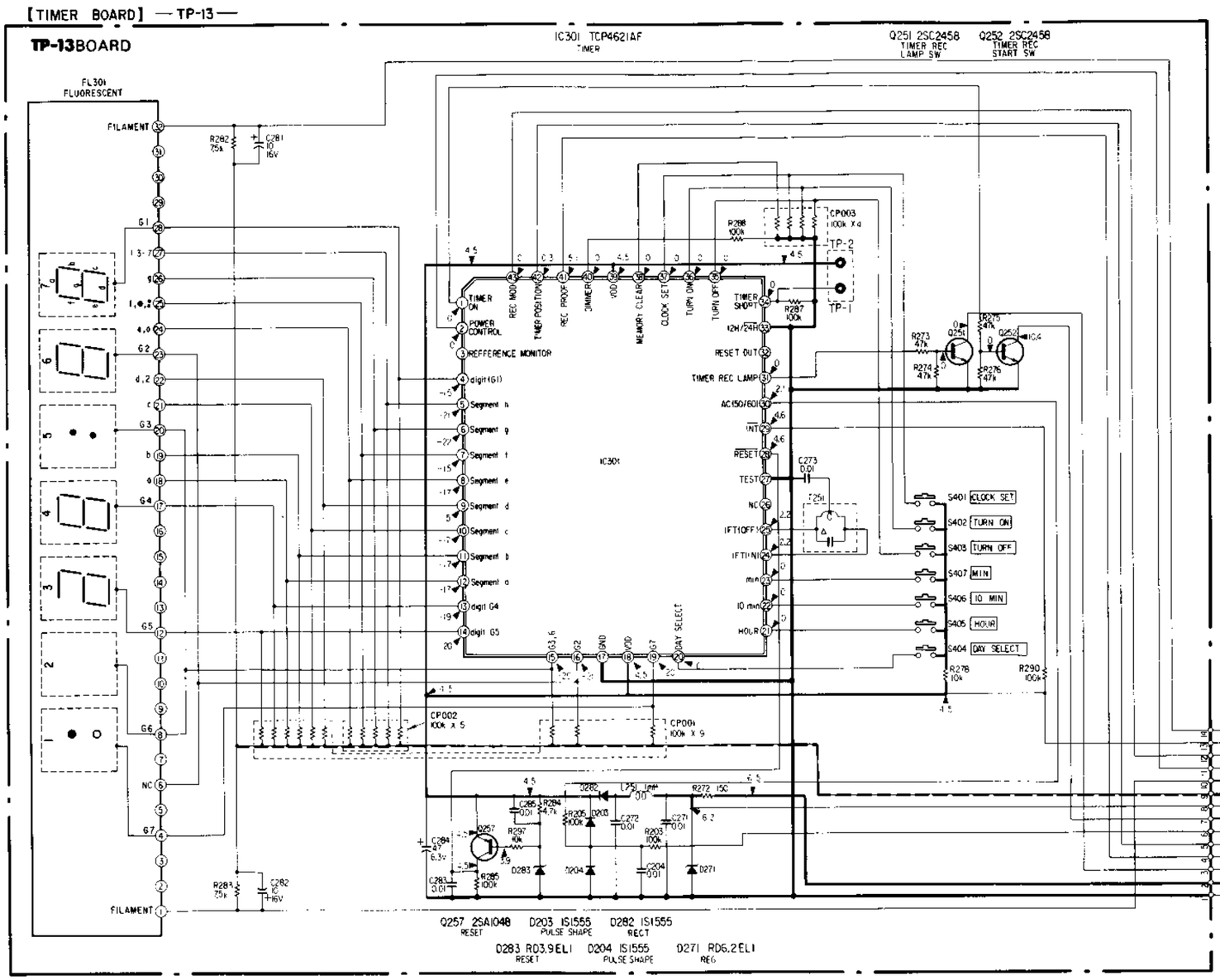


SS-9 BOARD

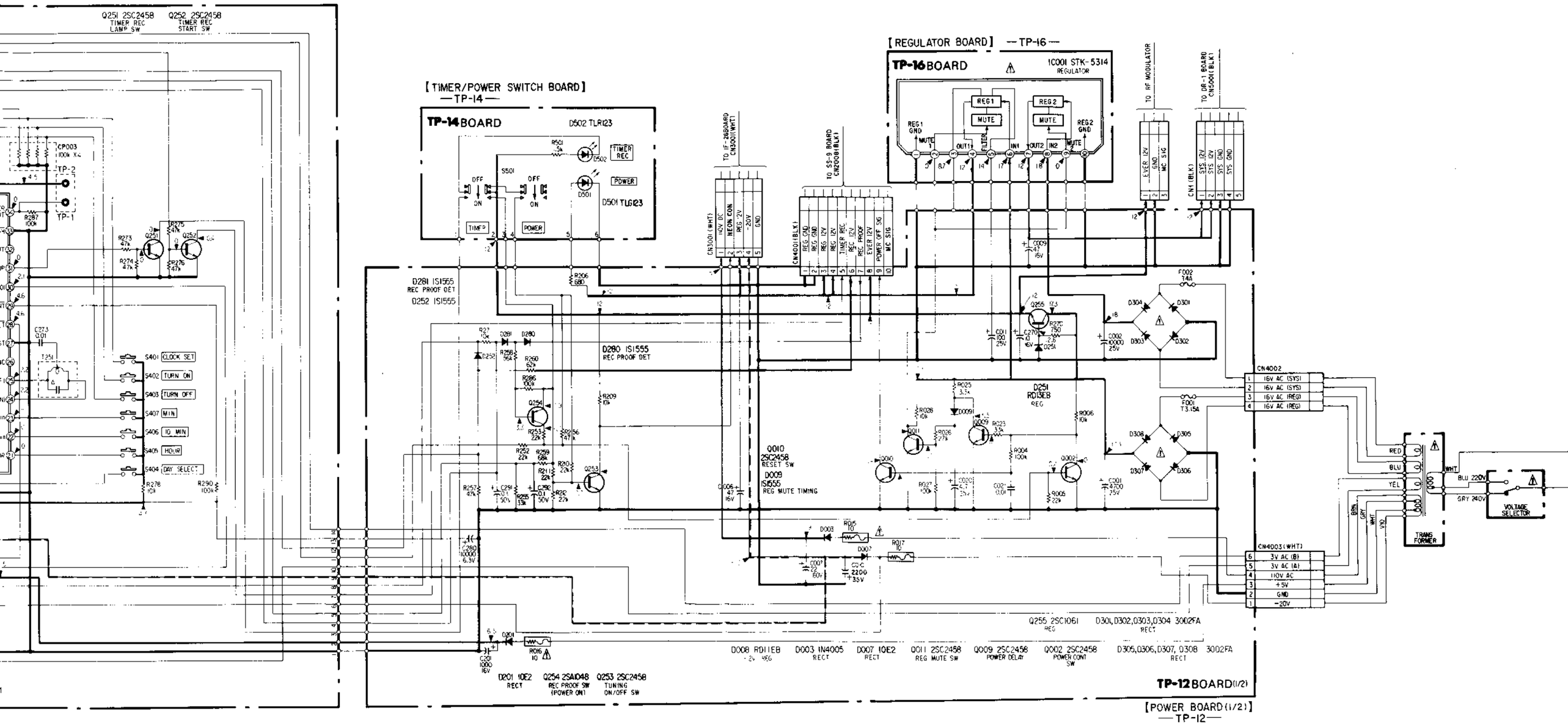


LF-23 (FUSE), TP-12 (POWER SUPPLY, TUNER), TP-13 (TIMER CONTROL, TIMER PRESET), TP-14 (TIMER & POWER SWITCH), TP-16 (REGULATOR) BOARDS SCHEMATIC DIAGRAM

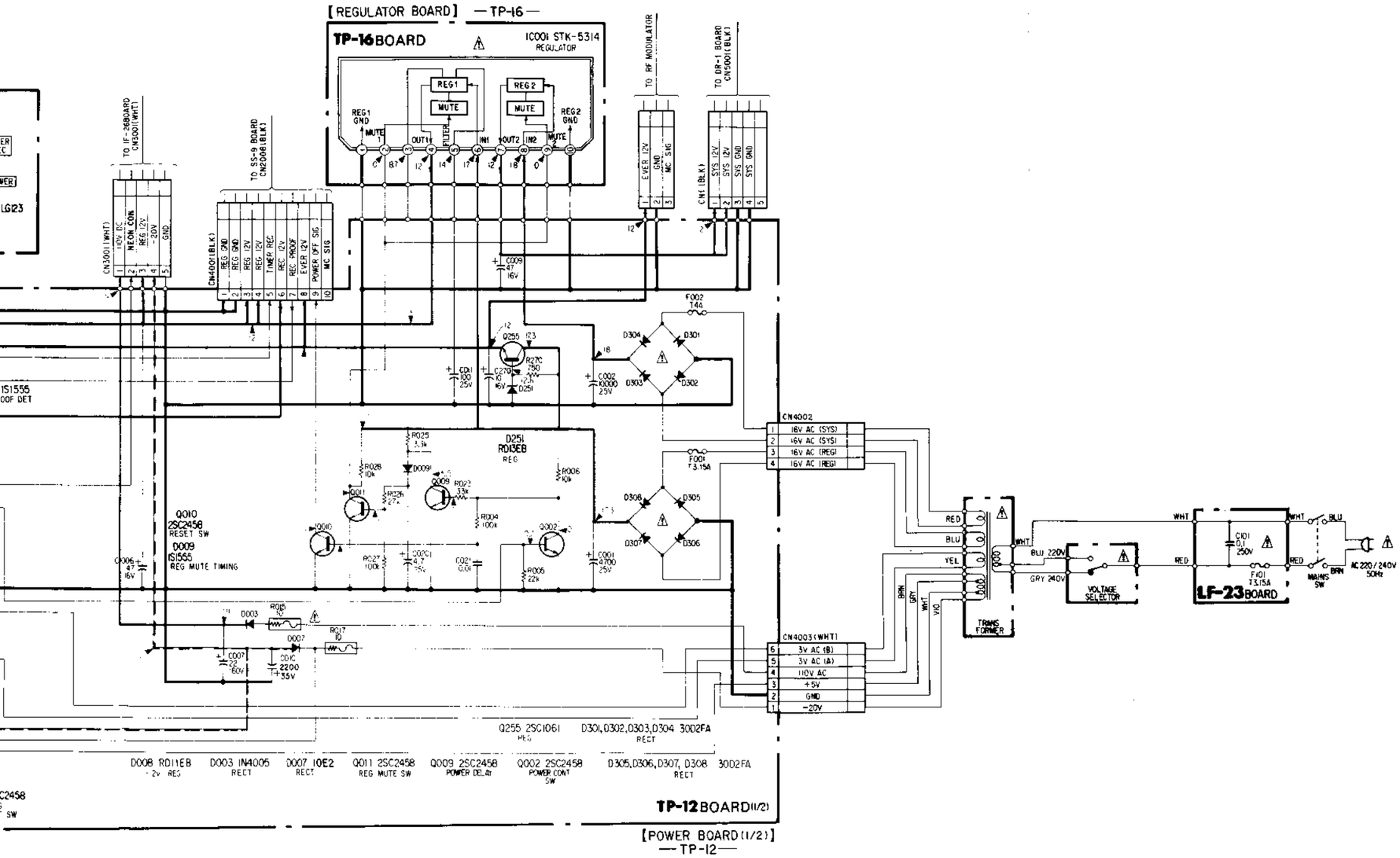
– Ref. No. LF-23 BOARD : series, TP-12 – TP-14, TP-16 BOARDS : 4000 series –

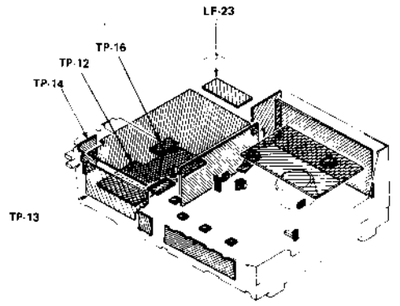


R & POWER SWITCH), TP-16 (REGULATOR) BOARDS SCHEMATIC DIAGRAM



POWER SUPPLY, TIMER





Note:

- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⚠ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V)

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

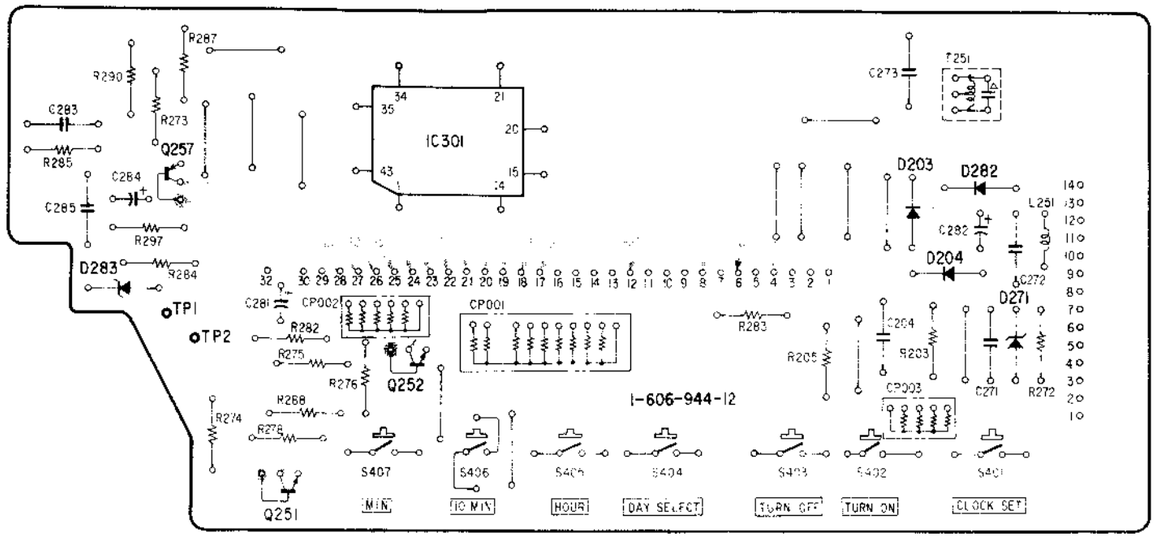
When indicating parts by reference number, please include the board name.

LF-23 (FUSE), TP-12 (POWER SUPPLY, TUNER), TP-13 (TIMER CONTROL, TIMER PRESET), TP-14 (TIMER & POWER SWITCH), TP-16 (REGULATOR) PRINTED WIRING BOARDS

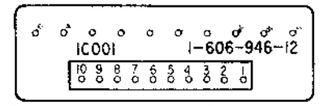
- Ref. No. LF-23 BOARD : 8100 series, TP-12 – TP-14, TP-16 BOARDS : 4000 series –

IC, Q	D	ADJ (TP, RV)
IC301		
257	282	
	203	
	204	
	283	
		TP1
252	271	TP2
251		

【TIMER BOARD】 —TP-13—
(Conductor Side)

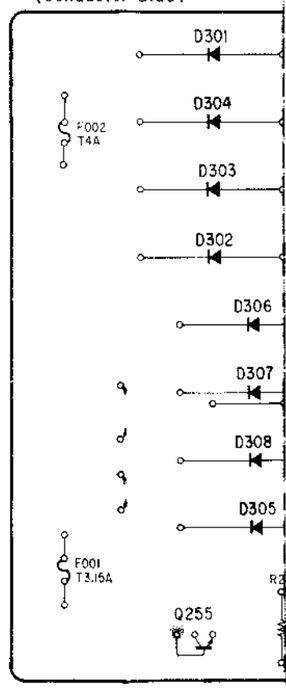


IC, Q	IC001
	255
D	301, 304, 303, 302 306, 307, 308
ADJ (TP, RV)	

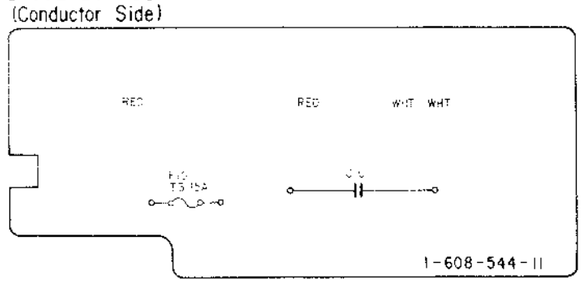


【REGULATOR BOARD】
—TP-16—
(Conductor Side)

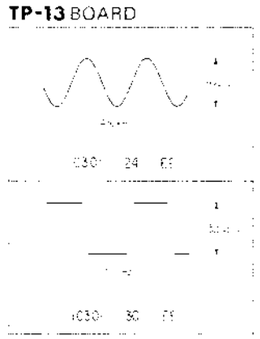
【POWER BOARD】 —TP-
(Conductor Side)



【FUSE BOARD】 — LF-23 —
(Conductor Side)

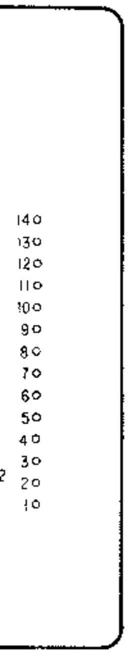


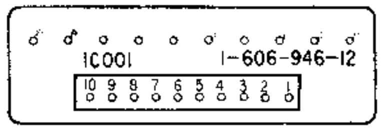
TP-13 BOARD



TOR) PRINTED WIRING BOARDS

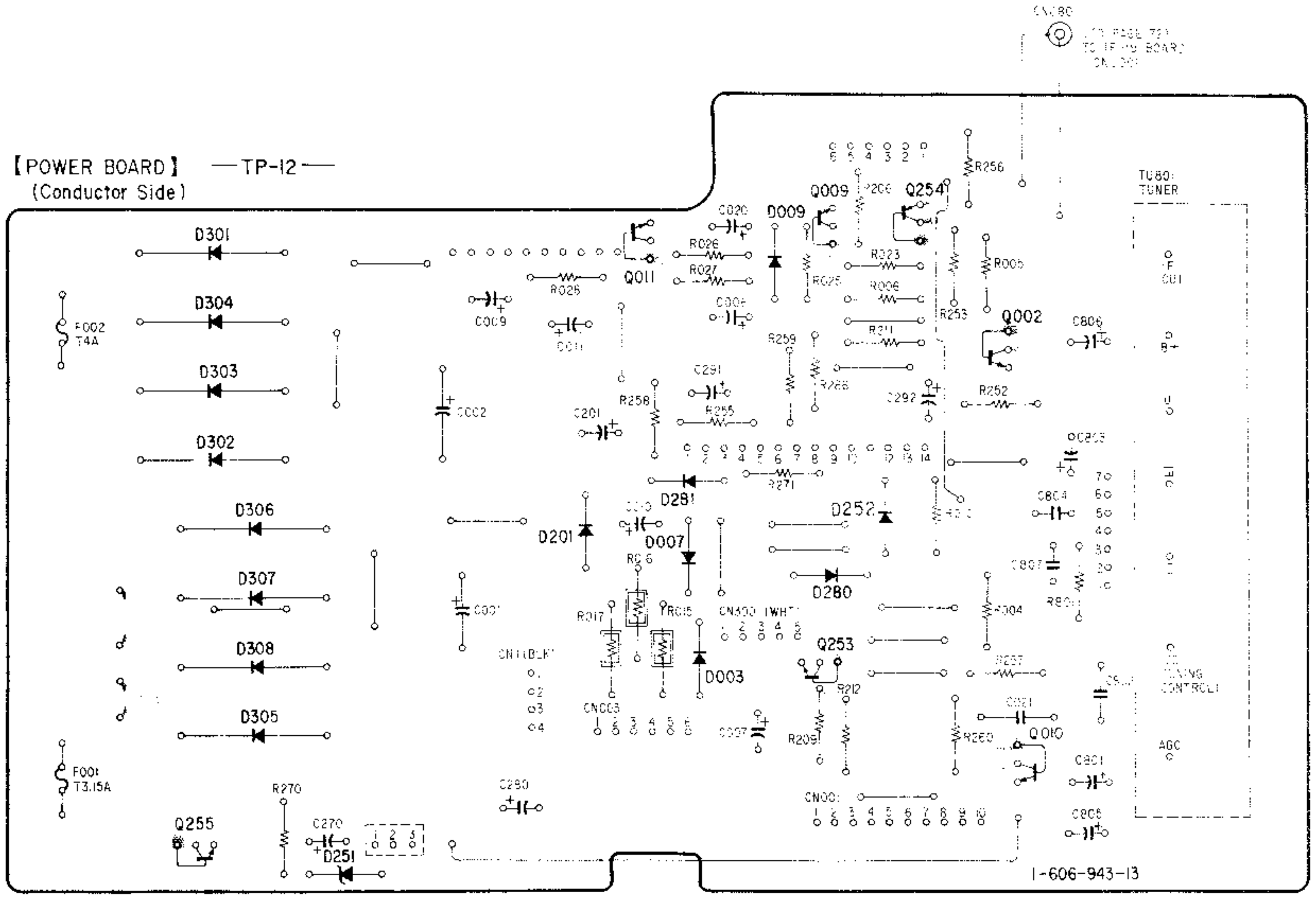
IC, Q	IC001 255 011 009 253 254 002 010
D	301, 304, 303, 302 306, 307, 308, 305 251 201 281 007 003 008 009 280 252 501 502
ADJ (TP, RV)	



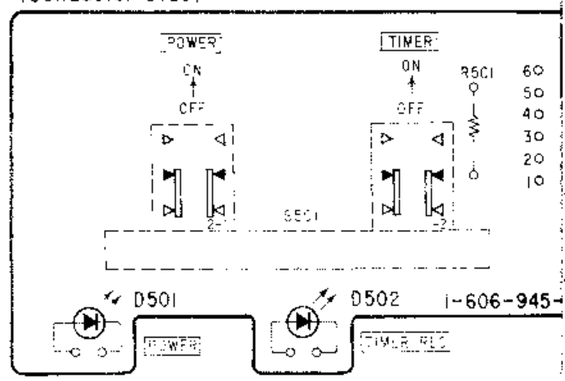


【REGULATOR BOARD】
—TP-16—
(Conductor Side)

【POWER BOARD】 —TP-12—
(Conductor Side)

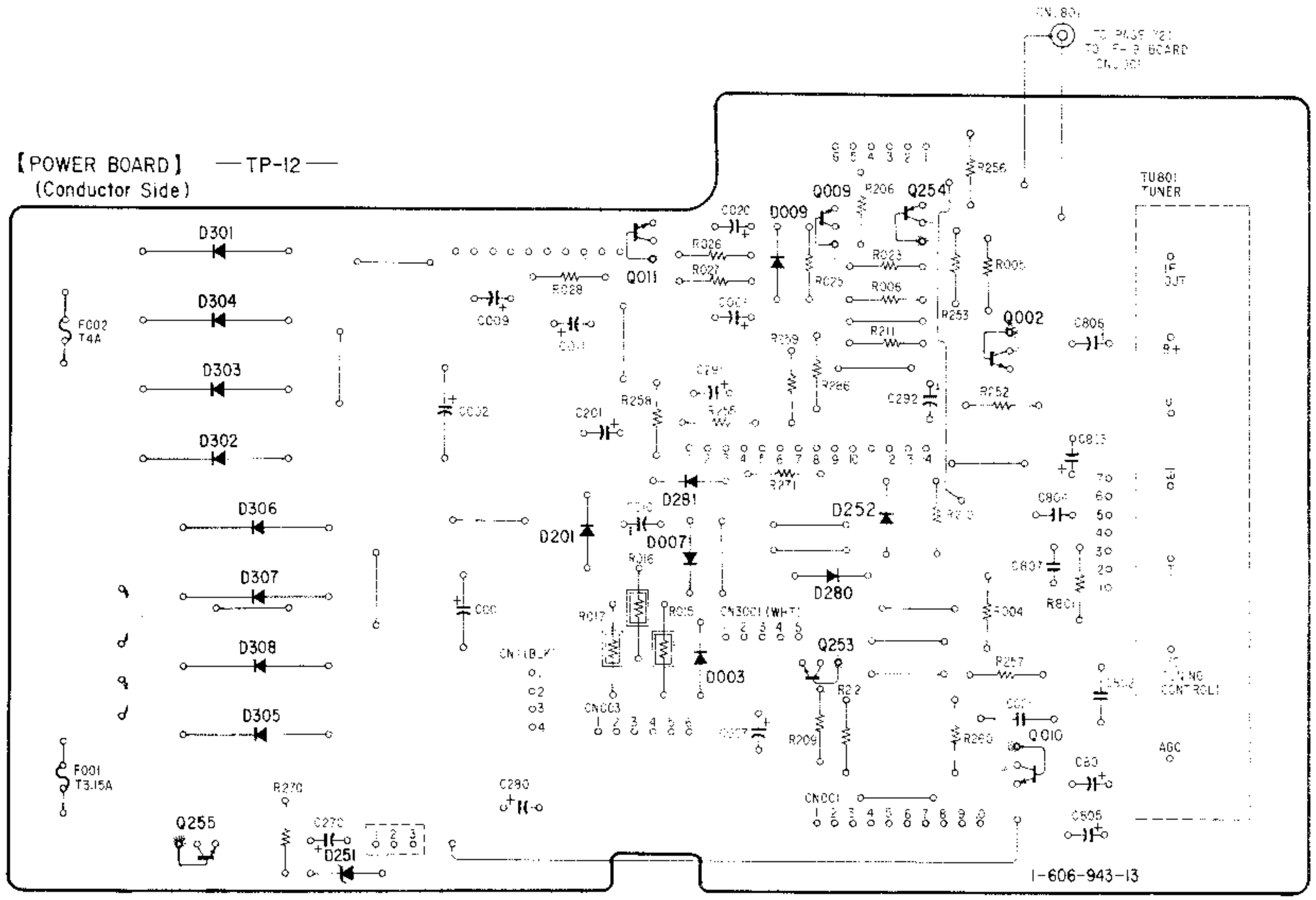


【TIMER/POWER SWITCH BOARD】 —TP-14—
(Conductor Side)

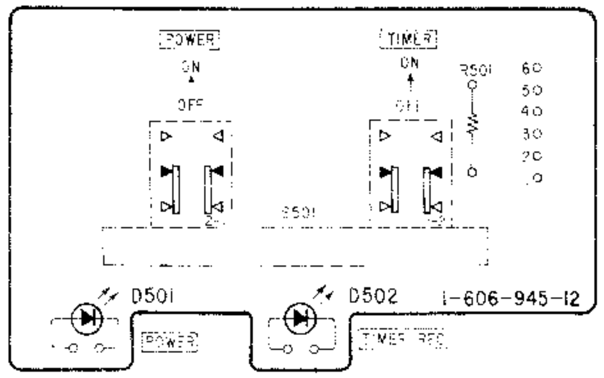


255		011		009 253	254	002 010				
301,304,303,302 306,307,308,305	251	201	281 007 003	008 009	280	252		501	502	

【POWER BOARD】 —TP-12—
(Conductor Side)



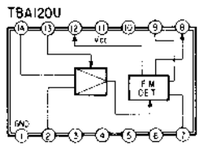
【TIMER/POWER SWITCH BOARD】 —TP-14—
(Conductor Side)



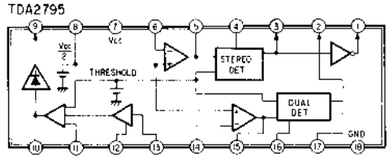
IF-26 (VIF, SIF, AFT, AGC BAND SELECTOR, ID DET, MATRIX), TP-12 (POWER SUPPLY, TUNER) BOARDS SCHEMATIC DIAGRAM

– Ref. No. IF-26 BOARD : 3000 series, TP-12 BOARD : 4000 series –

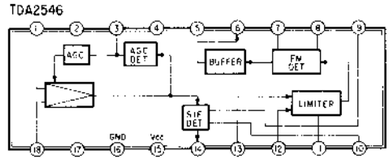
TBA120U



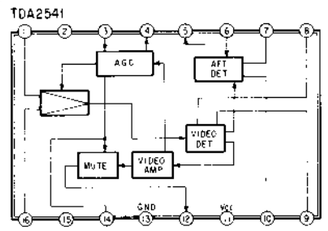
TDA2795



TDA2546



TDA2541



【VIF/SIF BOARD】—IF-26—

IF-26 BOARD

no mark : REC mode

TU801 BT-881 TUNER

RF BOOSTER MODULATOR

TP-12 BOARD (1/2)

TP-1

Q101 2SC2009 AMP

Q102 2SC2785 SWITCHING

IC101 TDA2541 VIF

Q103 2SC2230A BUFF

IC104 TDA2795 ID DET

Q104 2SC2785 SWITCHING

IC103 TBA120UB 2nd SIF

D103 1S1555

D2 1S1555

D1 1S1555

D3 1S1555

Q1 2SC2785 SWITCHING

Q2 2SC2785 SWITCHING

Q3 2SC2785 SWITCHING

IC1 μPC574 33V ZENER

D5 1S1555

D4 1S1555

Q11 2SC1890A SWITCHING

Q12 2SC1890A SWITCHING

Q4 2SC1890A SWITCHING

Q6 2SA893AE06 SWITCHING

Q5 2SC1890A SWITCHING

Q7 2SK43-2

Q8 2SC2785 SWITCHING

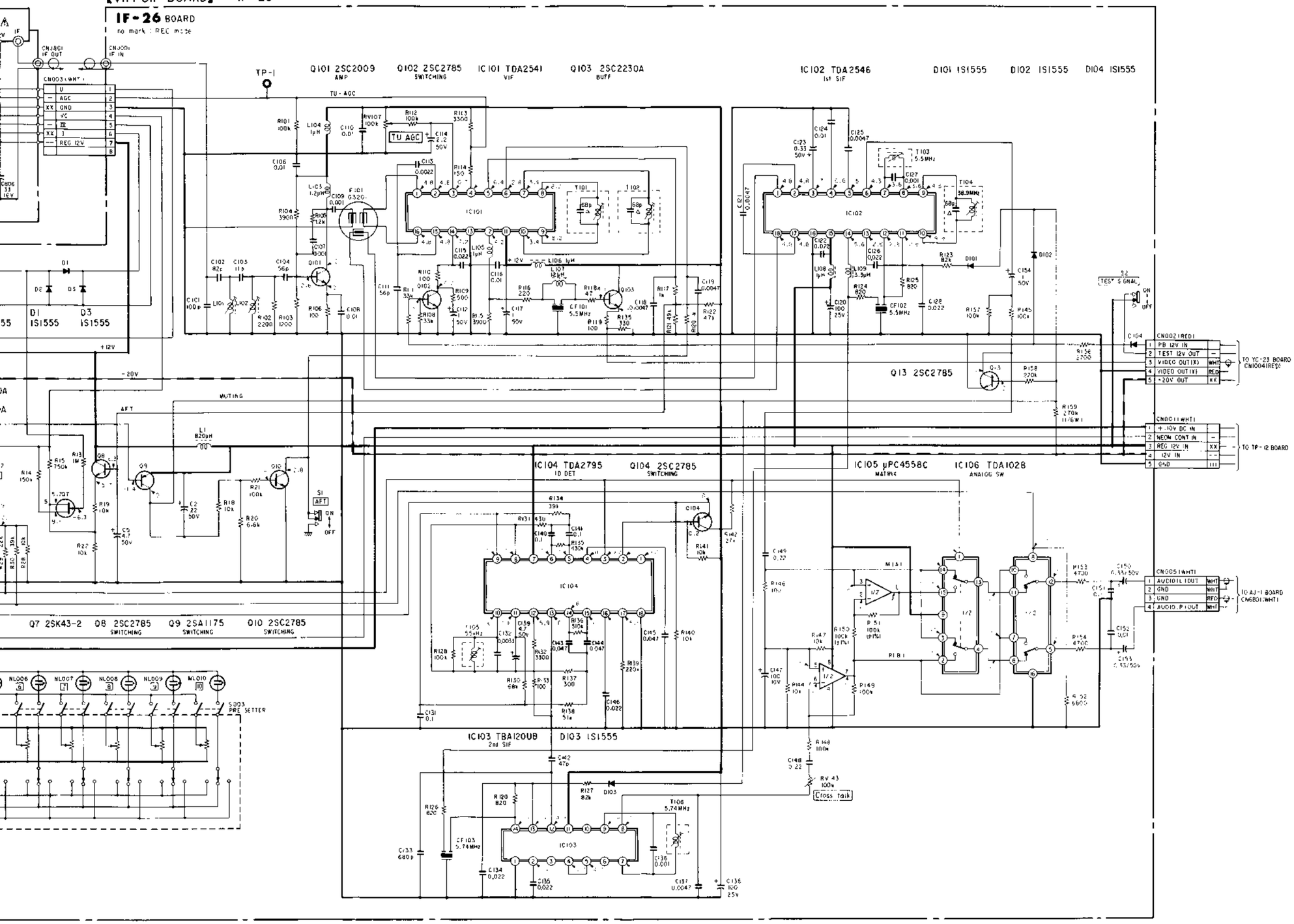
Q9 2SA1175 SWITCHING

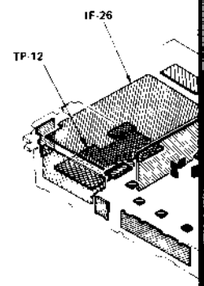
Q10 2SC2785 SWITCHING

DIAGRAM

【VIF/SIF BOARD】—IF-26—

IF-26 BOARD
no mark : REC mode



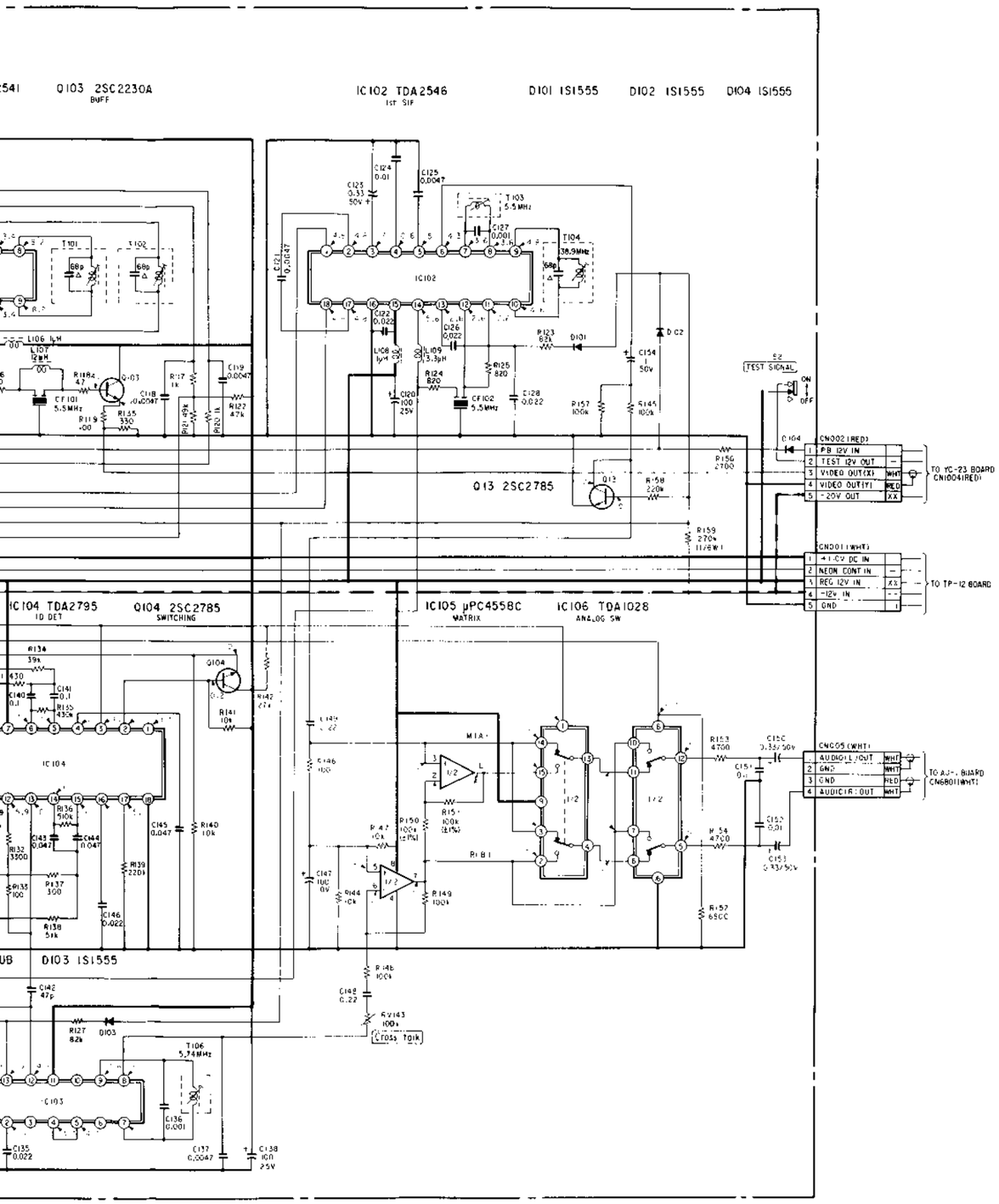


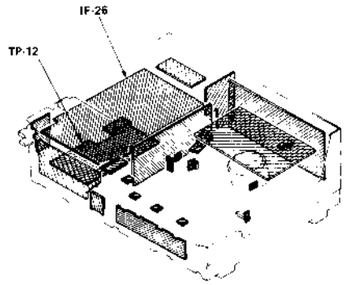
Note:

- All resistors are in ohms, ¼W
  kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless
  50WV or less are not indicate
- All variable and adjustable re
  curve B, unless otherwise noted.
- : nonflammable resistor.
- The red lines show the main volt
- All voltages are dc measured wit

Note: The components ident
⚠ are critical for sa
part number specified.

When indicating parts by refer-
ence number, please include
the board name.





Note:

- All resistors are in ohms, ¼W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⚠ : nonflammable resistor.
- The red lines show the main voltages.
- All voltages are dc measured with a VOM (20kΩ/V).

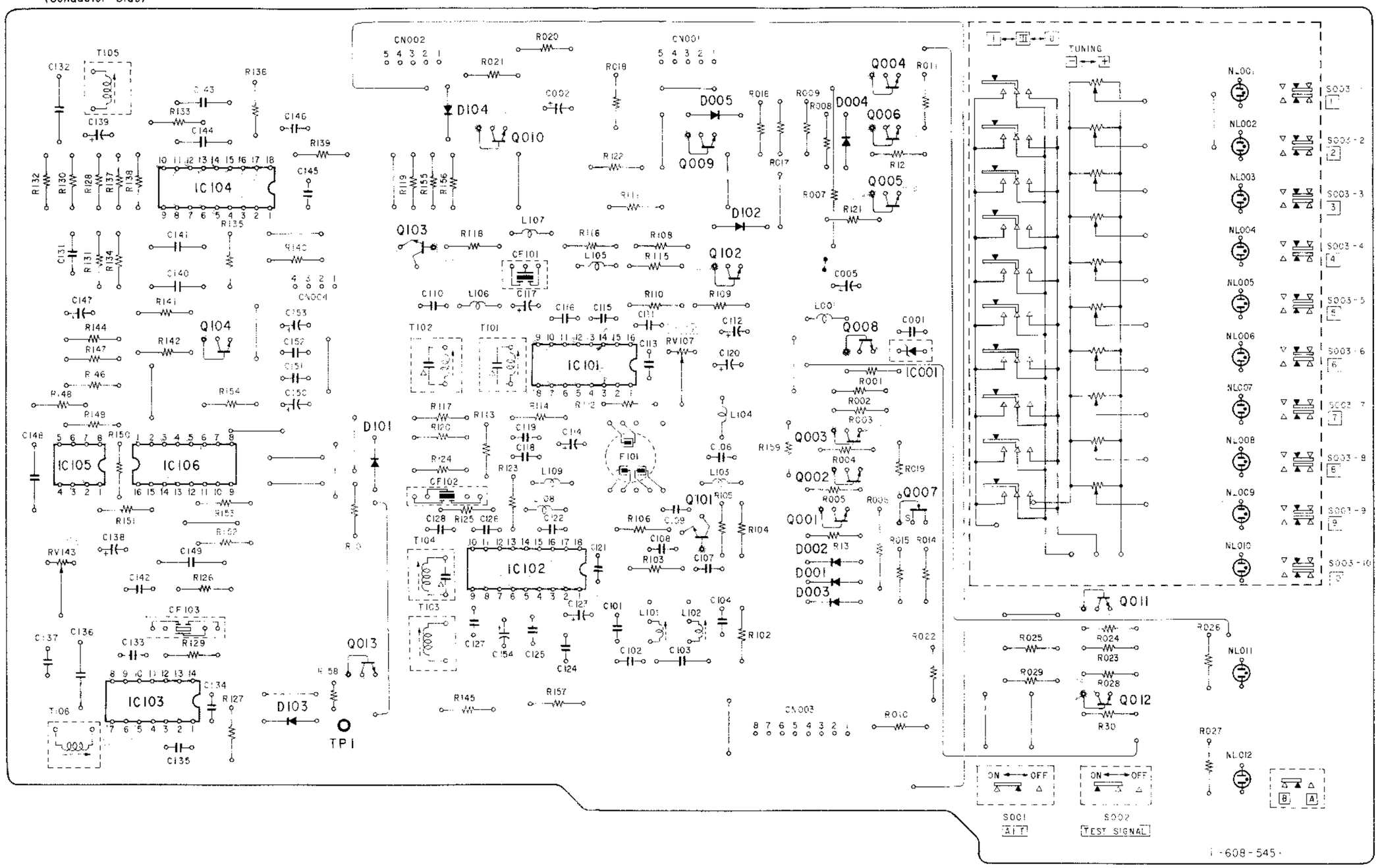
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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

IF-26 (VIF, SIF, AFT, AGC BAND SELECTOR, ID DET, MATRIX) PRINTED WIRING BOARDS

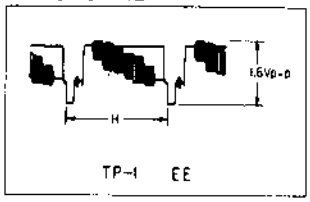
– Ref. No. IF-26 BOARD : 3000 series

【VIF/SIF BOARD】—— IF-26 ——
(Conductor Side)



IC , Q	D	ADJ(TP,RV)
004		
	104,005,004	
010,009,006		
IC104 005		
	102	
103 102		
104 008		
IC101 IC001		RV107
003		
IC105 IC106	101	
002		
007		
101 001		
IC102	002 001 003	RV143
011		
013		
IC103 012	103	TP1

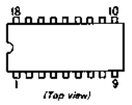
IF-26BOARD



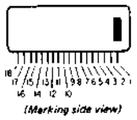
When indicating parts by reference number, please include the board name.

3-5. SEMICONDUCTORS

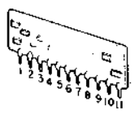
BA5102



BX1017
BX1017A



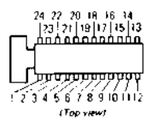
BX1018
BX1018A



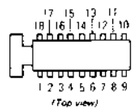
BX1020
BX1020B

CX130

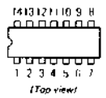
CX134A
CX135
CX136A
CX143A
CX186
CX187
CX832



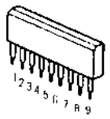
CX145



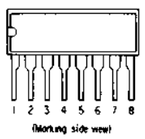
CX150B
TBA120UB



CX894

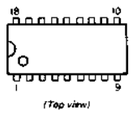


CX7926

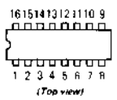


CX7942
M58478P
NJM4558D
NJM4562D
µPC4556C
µPC4558C

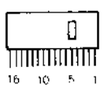
LA7040



MB84053B
NE570N
NE571N
TC4053BP
µPD4053BC
µPD4053BP

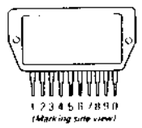


SP-21A



SP22B

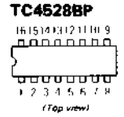
STK5314



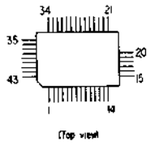
TA7120P

TA7320P

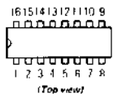
TC4528BP



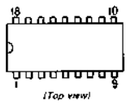
TCP4621AF
TCP4621AF6
TCP4621AF6002



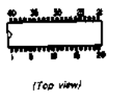
TDA2541



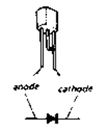
TDA2546



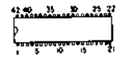
TDA2795



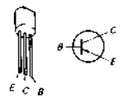
µPC574J



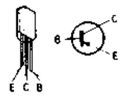
µPD553C167



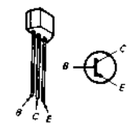
2SA733
2SA772
2SA773
2SA893AE6
2SA925
2SA1016K
2SB739



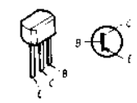
2SA844
2SB740



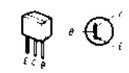
2SA1048
2SA1049BL
2SA1049GR1



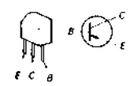
2SA1115



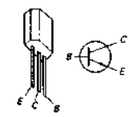
2SA1175



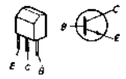
2SB733
2SB734



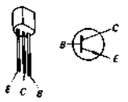
2SC403C
2SC403SP
2SC2840



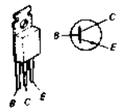
2SC535
2SD773
2SD774



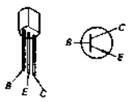
2SC945
2SC1363
2SC1364
2SC1474
2SC1475
2SC1815
2SC1890A
2SC2230A
2SC2362K
2SC2603
2SD788
JC501



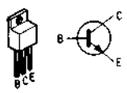
2SC1061



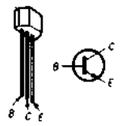
2SC2009



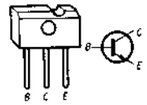
2SC2315
2SD313HP



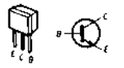
2SC2458
2SC2459BL
2SC2459GR1



2SC2673



2SC2785



2SD789

2SD1164

2SK152-2

1N4005
ERB12-02RK
GP08D

1N4148H
1S1555
1S2076
1S2473
1SS120
1SS133
1SS148
10E1
10E2
30D2FA
EM-1Z
RD13EB1
RD13EB2
RD13EB3
RD18E
RD18EC
RD3.9EL1
RD5.6EB2
RD5.6EB3
RD6.2EB2
RD6.2EB3
RD6.2EL1
RD7.5EB1
RD7.5EB2
RD7.5EB3
US1035

1SS119

DM101A

SIB01-06

TLG123A
TLR123
TLY123

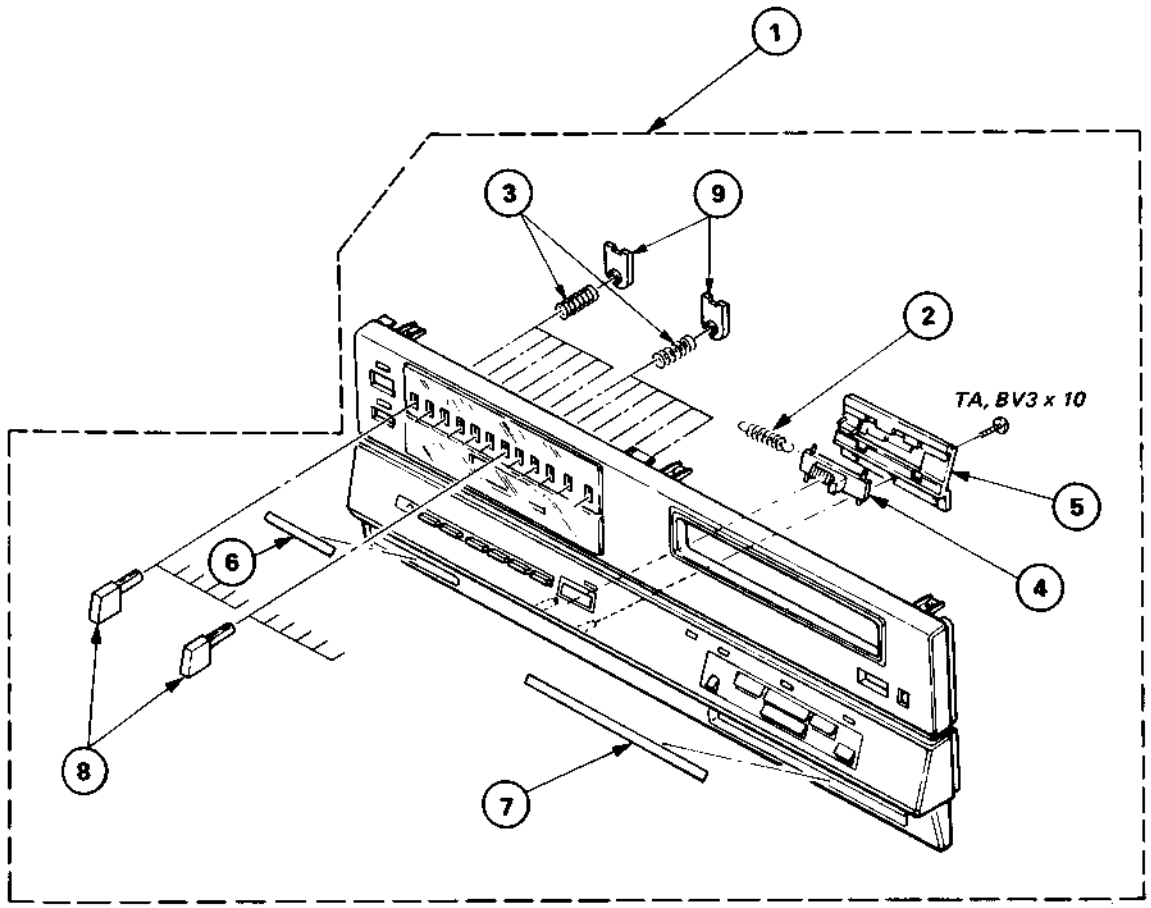
V06C
V06G
V09G

SECTION 4
EXPLODED VIEWS

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- As to the part numbered with E-, refer to the electrical parts list.
- Items marked " ♣ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

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

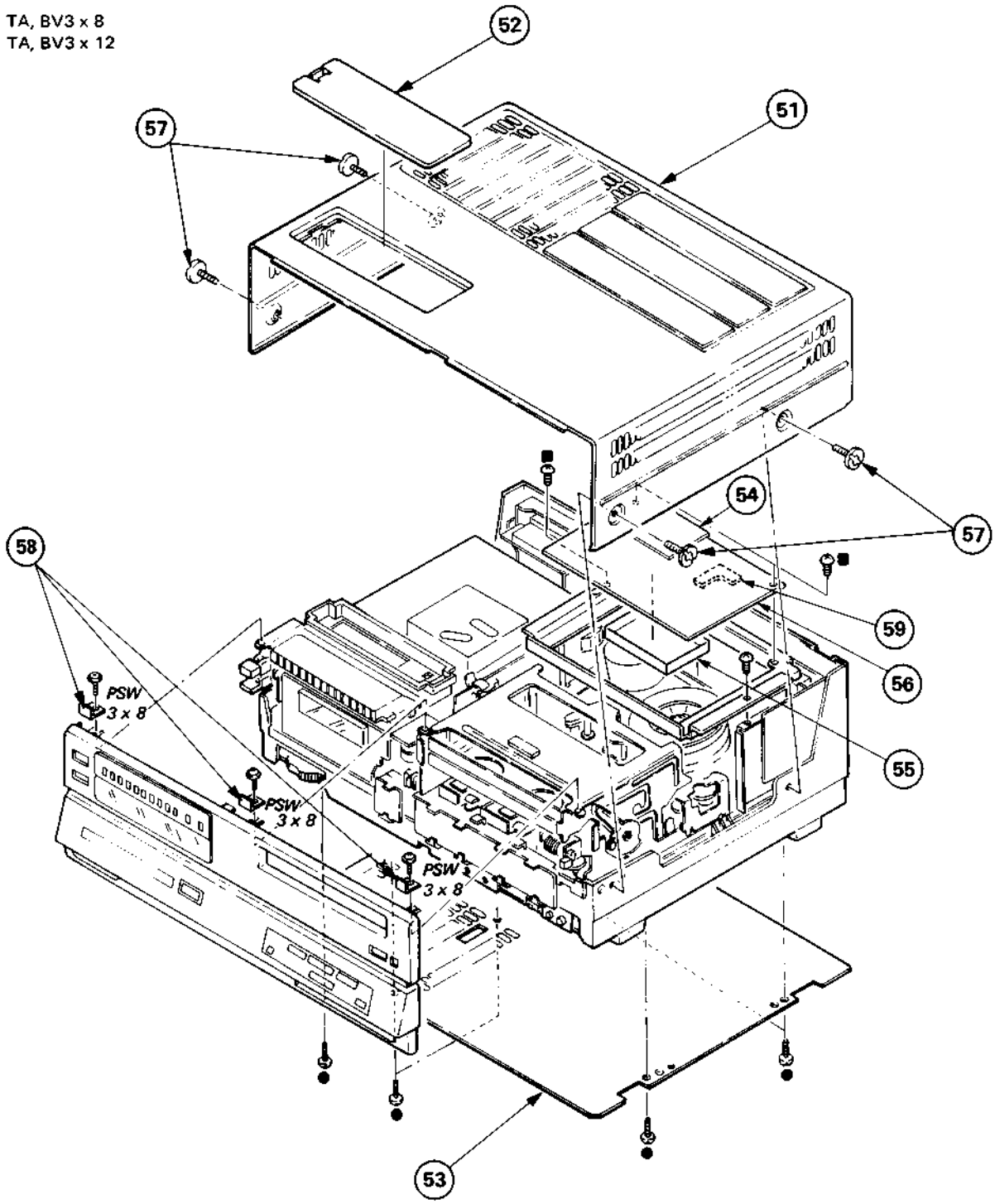
4-1. FRONT ASSEMBLY



No.	Part No.	Description	Remark
1	X-3674-132-0	PANEL (WG) ASSY, FRONT	2–9
2	3-489-099-11	SPRING, TENSION	
3	3-659-609-00	SPRING, COMPRESSION	
4	3-672-460-31	BUTTON, REC	
5	♣:3-671-111-05	RETAINER, REC BUTTON	
6	3-674-104-11	LABEL (PAL), TRACK CONTROL	
7	3-677-815-11	LABEL (ES), INPUT	
8	3-671-117-21	BUTTON, CHANNEL	
9	3-671-125-00	RETAINER, SPRING	

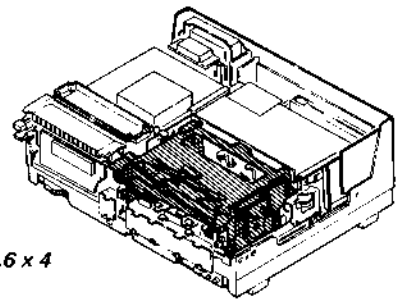
4-2. CABINET ASSEMBLY

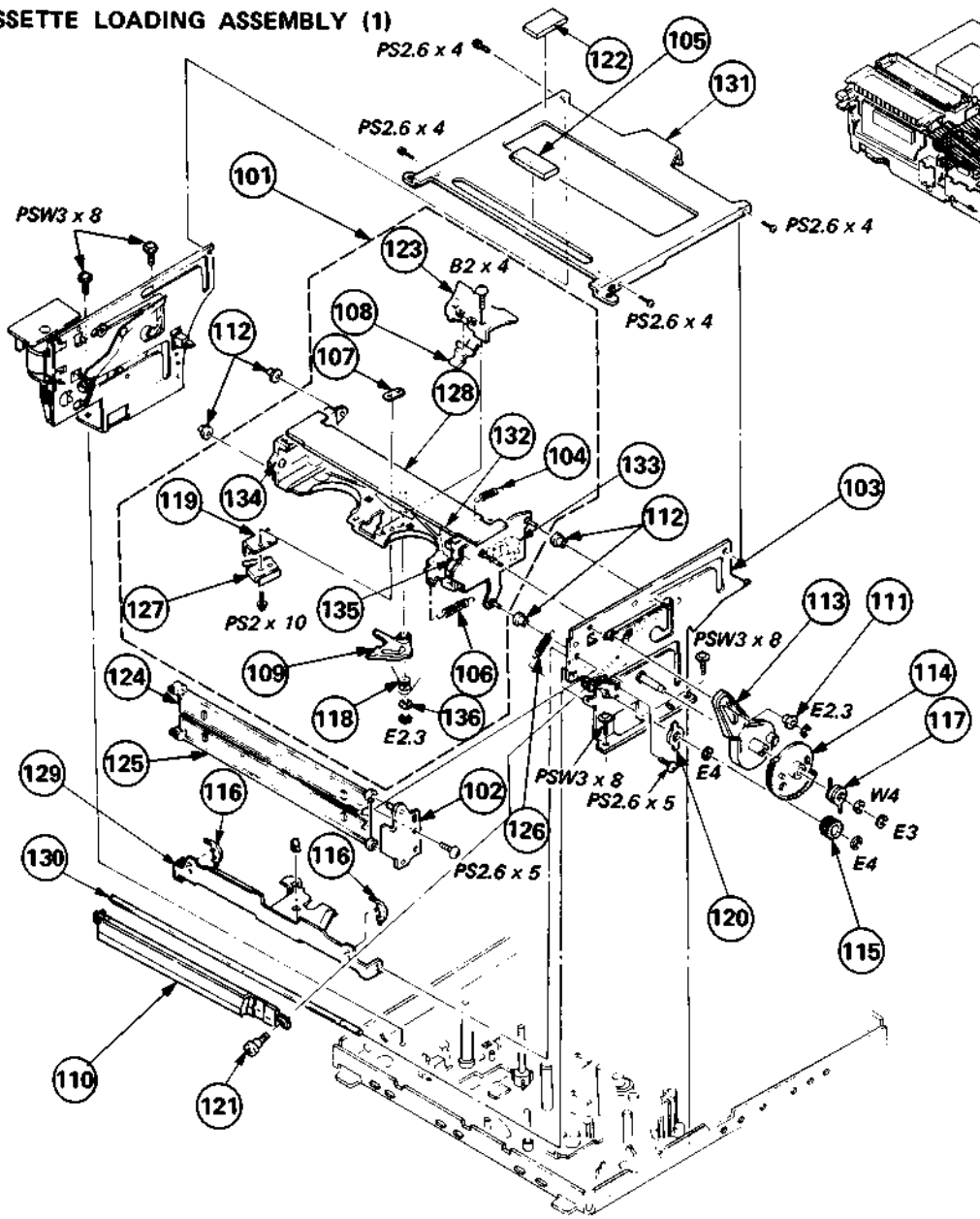
■ : TA, BV3 x 8
● : TA, BV3 x 12



No.	Part No.	Description	Remark
51	3-671-222-51	CASE	
52	X-3674-128-0	LID (ES) ASSY	
53	♦:3-671-210-00	PLATE, BOTTOM	
54	♦:X-3674-133-0	CASE ASSY, SHIELD, AD	
55	♦:3-677-803-00	LID, SHIELD CASE, AD	
56	♦:A-6728-572-A	AD-7 BOARD, COMPLETE	54
57	4-847-802-11	SCREW, CASE STOPPER	
58	♦:3-671-276-00	WASHER, TYPE L	
59	♦:1-609-252-00	MU-1 BOARD	

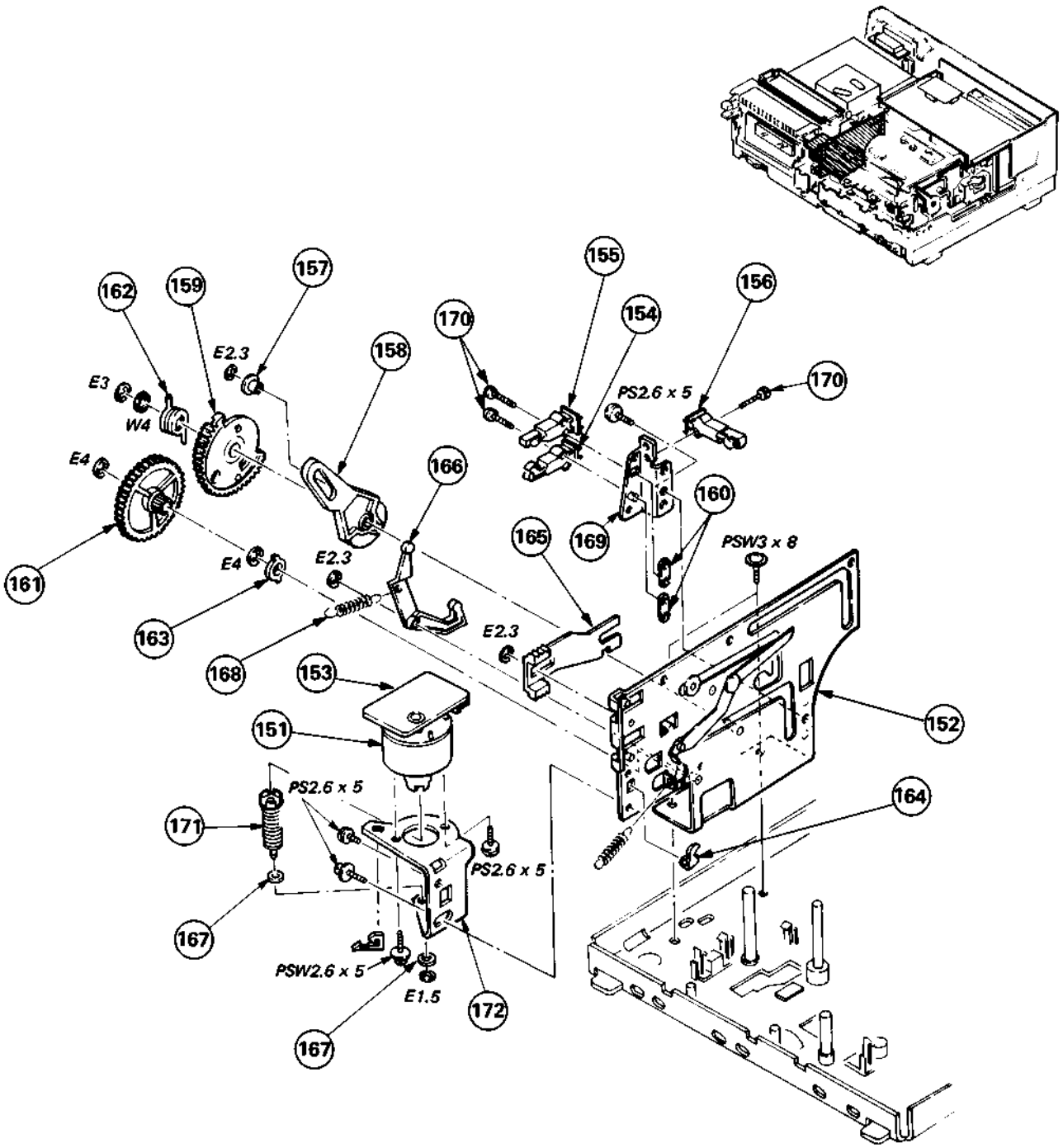
4-3. CASSETTE LOADING ASSEMBLY (1)





No.	Part No.	Description	Remark
101	A-6751-125-B	BASE BLOCK ASSY, CASSETTE	104,106-109, 118,119,123, 128,132-136
102	♣:X-3671-016-0	PLATE ASSY, FULCRUM, DOOR	
103	♣:X-3671-032-0	PLATE ASSY, SIDE, RIGHT	126
104	3-542-481-00	SPRING, TENSION	
105	9-911-815-02	CUSHION	
106	3-530-249-XX	SPRING, TENSION	
107	♣:3-646-476-00	NUT, PLATE	
108	♣:3-671-008-00	ARM, LOCK RELEASE	
109	3-671-009-03	PLATE, LOCK	
110	3-671-015-21	DOOR, INNER	
111	♣:3-671-016-00	BUSHING, MOVE ARM	
112	3-671-018-00	ROLLER (B)	
113	♣:3-671-019-00	ARM, MOVE	
114	3-671-021-00	GEAR, MOVE, RIGHT	
115	3-671-026-00	WHEEL, RIGHT	
116	♣:3-671-036-00	CHIP, CASSETTE GUIDE	
117	3-671-040-00	SPRING	
118	3-671-041-00	SPRING	
119	♣:3-671-132-00	COVER, SWITCH, MICRO	
120	♣:3-671-134-00	BEARING	
121	3-671-148-00	SCREW, INNER DOOR	
122	4-855-631-01	RUBBER (B), ABSORBENT	
123	♣:3-671-155-03	COVER, FULCRUM	
124	3-671-164-00	DOOR, UPPER	
125	3-671-165-00	DOOR, LOWER	
126	3-491-240-00	SPRING, TENSION	
127	1-552-664-00	SWITCH, MICRO	
128	♣:3-671-038-00	PLATE, TOP, BASE	
129	♣:3-671-158-00	JOINT	
130	♣:3-671-028-00	SHAFT, WHEEL	
131	♣:3-671-156-00	PLATE, TOP	
132	♣:X-3671-017-0	RETAINER ASSY, CASSETTE	
133	♣:3-671-133-00	ARM, SAFETY	
134	♣:3-671-161-00	GUIDE (L), CASSETTE	
135	♣:3-671-162-00	GUIDE (R), CASSETTE	
136	4-836-939-00	WASHER, 3.1	

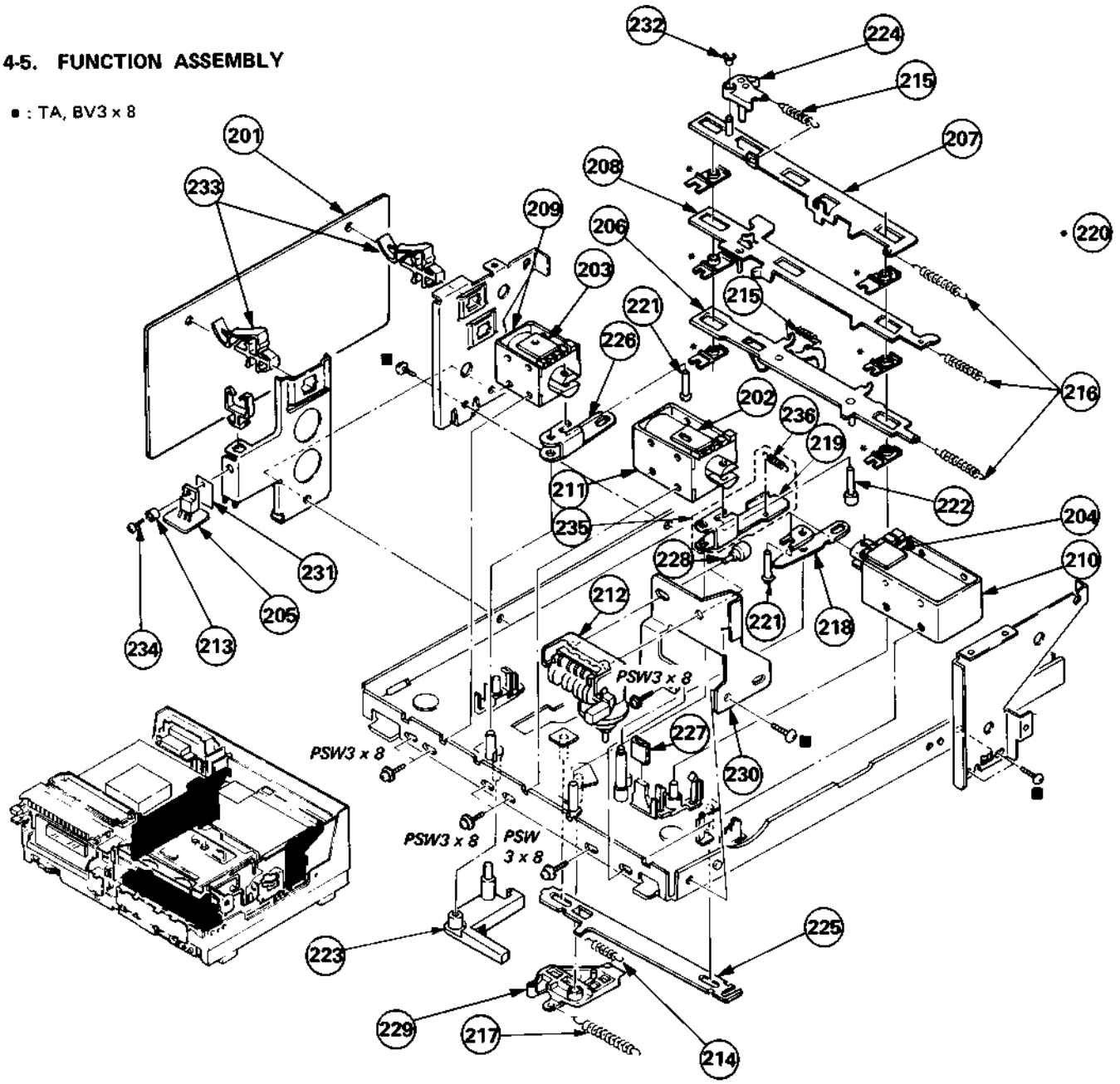
4-4. CASSETTE LOADING ASSEMBLY (2)



No.	Part No.	Description	Remark
151	A-6751-131-A	MOTOR ASSY, F.L.	
152	♣:X-3671-031-0	PLATE ASSY, SIDE, LEFT	
153	♣:1-605-704-00	TT-5 BOARD	
154	♣:1-605-705-00	TT-2 BOARD	
155	♣:1-605-706-00	TT-3 BOARD	
156	♣:1-605-707-00	TT-4 BOARD	
157	♣:3-671-016-00	BUSHING, MOVE ARM	
158	♣:3-671-019-00	ARM, MOVE	
159	3-671-020-00	GEAR, MOVE, LEFT	
160	♣:3-671-023-00	PLATE, NUT	
161	3-671-027-00	WHEEL, WORM	
162	3-671-040-00	SPRING	
163	♣:3-671-134-00	BEARING	
164	♣:3-671-150-11	CLAMP	
165	3-671-157-00	RACK, DOOR	
166	♣:3-671-035-00	ARM, SWITCHING	
167	3-701-437-11	WASHER	
168	3-672-430-00	SPRING, TENSION	
169	♣:3-671-024-00	BRACKET, SWITCH	
170	3-672-442-00	SCREW (+PSW) (2X10)	
171	♣:X-3671-018-0	WORM ASSY	
172	♣:3-671-001-03	BRACKET, F.L. MOTOR	

4-5. FUNCTION ASSEMBLY

● : TA, BV3 x 8

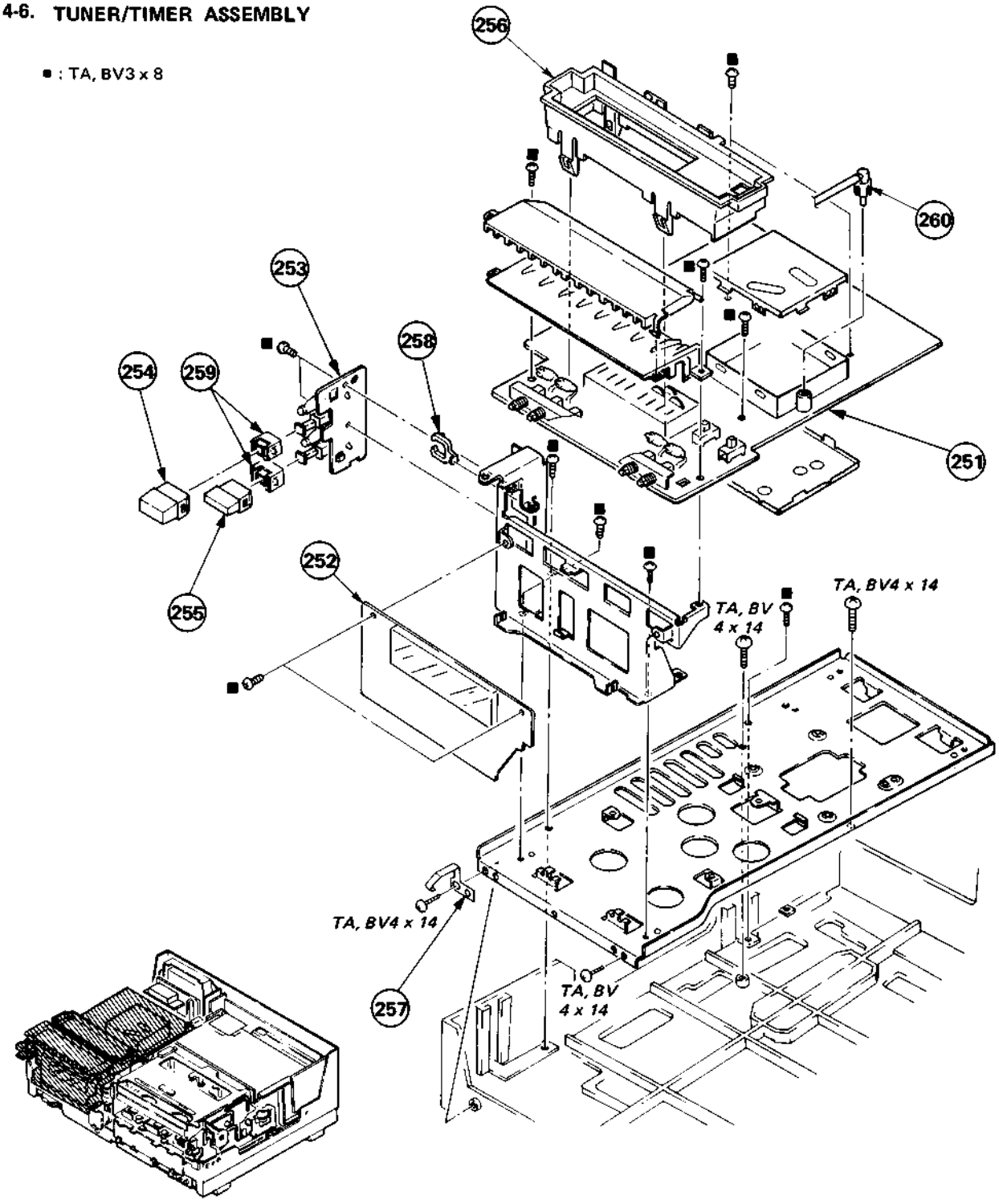


No.	Part No.	Description	Remark
201	♣:A-6728-305-A	DR-1 BOARD, COMPLETE	
202	♣:1-605-698-00	DR-5 BOARD	
203	♣:1-605-699-00	DR-6 BOARD	
204	♣:1-605-700-00	DR-7 BOARD	
205	♣:1-605-703-00	DR-10 BOARD	
206	♣:X-3671-010-0	PLATE ASSY, SLIDE, FE	
207	♣:X-3671-011-0	PLATE ASSY, SLIDE, RO	
208	♣:X-3671-012-0	PLATE ASSY, SLIDE, BS	216
209	⚠1-454-292-11	SOLENOID, PLUNGER (BS)	
210	⚠1-454-293-11	SOLENOID, PLUNGER (FE)	
211	⚠1-454-294-11	SOLENOID, PLUNGER (FF)	
212	1-548-559-00	COUNTER, TAPE	
213	2-832-007-00	BUSHING (K), INSULATING	
214	3-533-223-11	SPRING, TENSION	
215	3-642-490-00	SPRING, TENSION	
216	3-642-491-00	SPRING, TENSION	
217	3-643-345-00	SPRING, TENSION (S)	
218	♣:3-671-052-00	LEVER, FE	
219	3-671-053-00	LEVER, FF	
220	3-671-056-00	SPACER, SLIDE PLATE	
221	♣:3-671-057-00	PIN, SOLENOID	
222	♣:3-671-057-11	PIN, SOLENOID	
223	♣:3-671-079-00	LEVER, EJECT	
224	♣:3-671-082-00	ARM, RO SELECT	
225	♣:3-671-083-00	PLATE, SLIDE, EJECT	
226	♣:3-671-088-00	LEVER, BS	
227	3-671-093-00	BUSHING, MUFFLE	
228	3-671-135-00	SCREW, STEP	
229	♣:3-671-175-00	LEVER, RELAY	
230	♣:3-671-188-00	BRACKET, COUNTER	
231	3-701-754-00	PLATE, INSULATING	
232	3-703-074-00	CAP 3, SHAFT	
233	♣:3-703-141-00	HOLDER, PCB	
234	3-669-607-21	+PSW (SMALL ROUND) (2.6)	
235	♣:A-6749-074-A	LEVER ASSY, FF	219,236
236	3-646-214-00	SPRING	

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

4-6. TUNER/TIMER ASSEMBLY

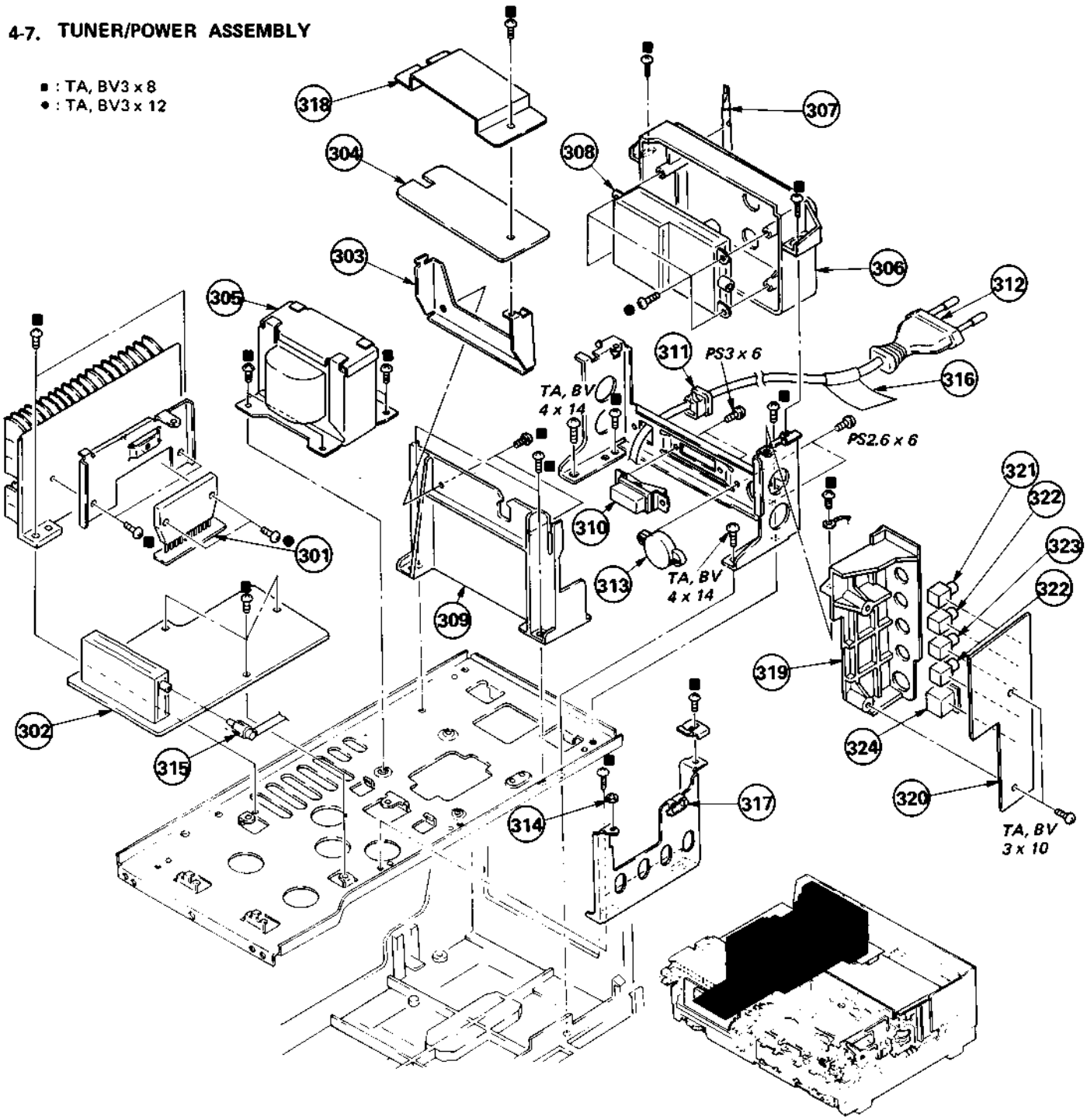
■ : TA, BV3 x 8



No.	Part No.	Description	Remark
251	♦:A-6721-148-A	IF-26 BOARD, COMPLETE	
252	♦:1-608-944-00	TP-13 BOARD	
253	♦:1-606-945-00	TP-14 BOARD	
254	3-671-115-00	BUTTON, POWER SWITCH	
255	3-671-116-00	BUTTON, SWITCH, TIMER	
256	3-674-197-00	COVER, PRESET	
257	♦:3-672-456-00	SPRING (A), LEAF	
258	♦:4-310-385-00	HOLDER, WIRE	
259	4-864-307-00	RING	
260	♦:1-555-400-00	CABLE, PIN	

4-7. TUNER/POWER ASSEMBLY

■ : TA, BV3 x 8
● : TA, BV3 x 12

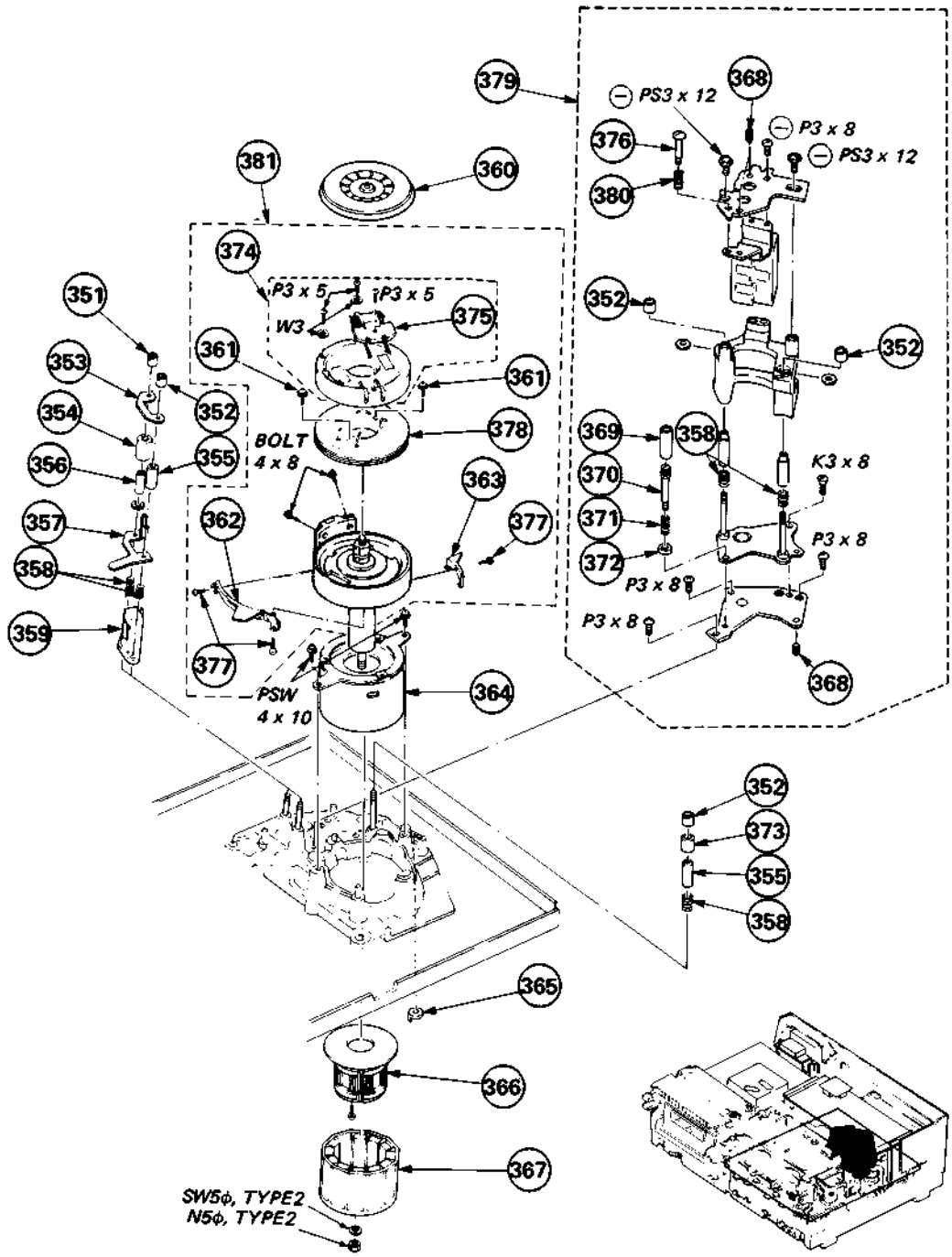


No.	Part No.	Description	Remark
301	♣:1-606-946-00	TP-16 BOARD	
302	♣:A-6728-568-A	TP-12 (ES) BOARD, COMPLETE	
303	♣:3-674-181-00	BRACKET, FUSE	
304	♣:1-608-544-00	LF-23 BOARD	
305	⚠1-447-443-00	TRANSFORMER, PWOER	
306	3-674-124-00	PANEL	
307	4-316-238-00	SCREW DRIVER, CONTROL	
308	⚠1-464-234-00	MODULATOR, RF BOOSTER(RFU-807)	
309	♣:3-674-125-02	PLATE, SHIELD	
310	⚠1-554-055-00	SWITCH, SEESAW (AC POWER)	
311	⚠3-703-244-00	BUSHING, CORD	
312	⚠1-534-817-XX	CORD, POWER	

No.	Part No.	Description	Remark
313	⚠1-554-038-00	SWITCH, POWER VOLTAGE CHANGE	
314	4-308-030-00	WASHER	
315	♣:1-555-716-41	CABLE, PIN	
316	♣:3-674-146-00	LABEL, CAUTION, AC CORD	
317	♣:4-310-385-00	HOLDER, WIRE	
318	♣:3-677-814-00	INSULATOR	
319	3-677-816-00	PANEL, JACK	
320	♣:1-608-541-00	AJ-1 BOARD	
321	♣:1-507-588-91	JACK, PIN 1P	
322	♣:1-507-588-61	JACK, PIN (1P)	
323	♣:1-507-588-51	JACK, PIN (1P)	
324	♣:1-562-121-00	CONNECTOR, DIN 6P	

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

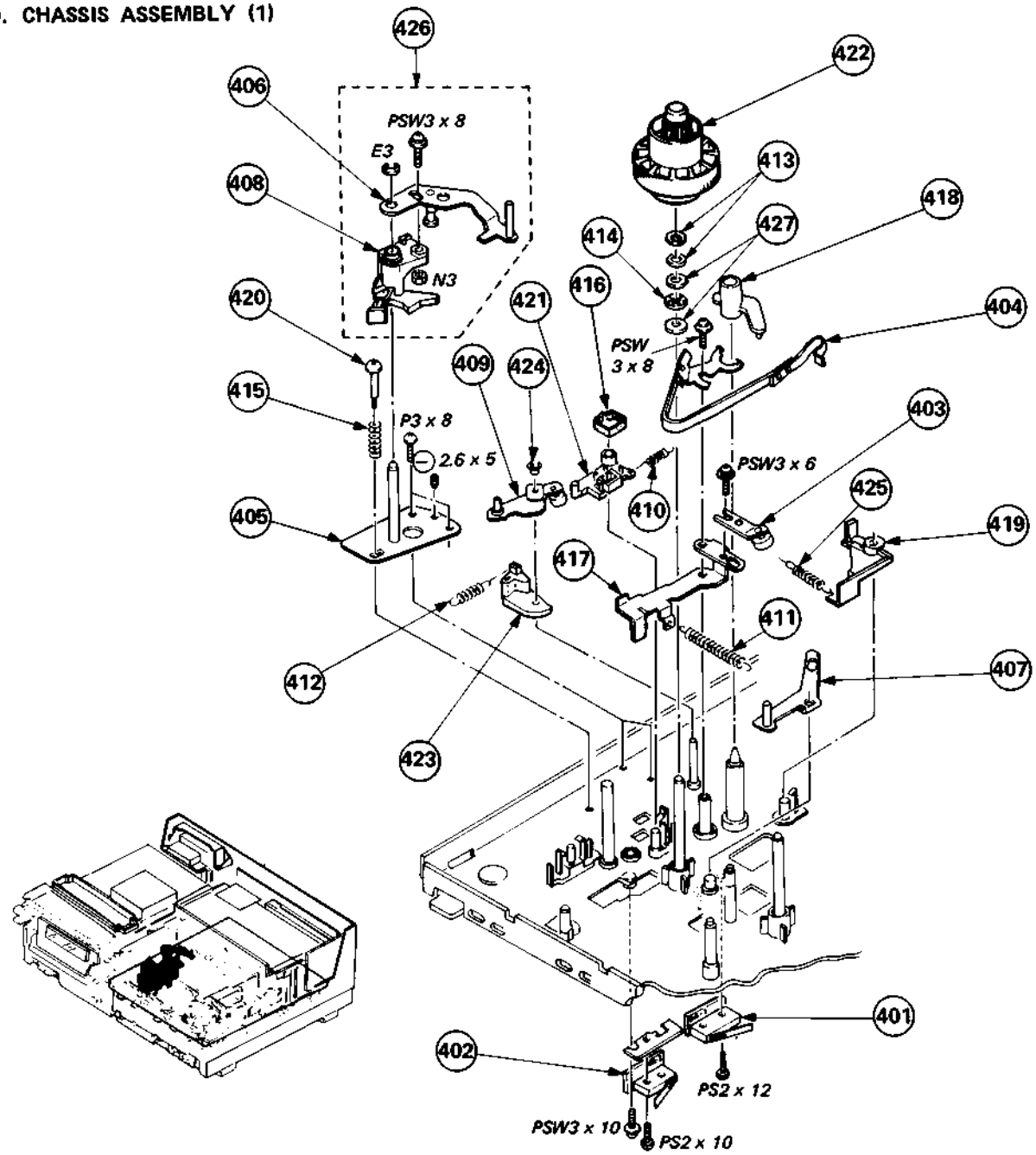
4-8. DRUM ASSEMBLY



No.	Part No.	Description	Remark
351	3-659-345-00	NUT, GUIDE, NO.1	
352	3-660-997-00	NUT (N), GUIDE ADJUSTMENT	
353	3-659-344-00	PLATE, GUIDE, ENTRANCE	
354	X-3659-304-0	ROLLER ASSY, GUIDE, NO.1	
355	3-659-342-00	SLEEVE, GUIDE, NO.2	
356	3-659-341-00	SLEEVE, GUIDE, NO.1	
357	♣:3-659-343-00	BRACKET, TAPE, ENTRANCE	
358	3-659-324-00	SPRING, COMPRESSION	
359	8-825-687-31	HEAD, FULL ERASE (EF182-21)	
360	3-658-122-00	FAN	
361	3-652-751-00	SCREW (+ P EXT TOOTH W S 3X8)	
362	3-652-741-00	BRACKET (A), TAPE	
363	3-652-728-00	BRACKET (B), TAPE	
364	♣:X-3652-713-0	CASE ASSY, SHIELD	
365	3-610-939-50	NUT, TAPE GUIDE	
366	♣:X-2619-412-0	STATOR ASSY	

No.	Part No.	Description	Remark
367	X-2619-402-0	ROTOR ASSY	
368	3-659-332-00	SCREW	
369	3-659-752-00	NUT, A.C.E ROCK	
370	3-659-751-00	SCREW, A.C.E ADJUSTMENT	
371	3-659-750-00	SPRING, COMPRESSION	
372	♣:3-671-121-00	SPACER, SCREW, ADJUSTMENT	
373	3-659-716-00	FLANGE, GUIDE	
374	A-6760-050-A	DRUM SUB ASSY, UPPER	375
375	A-6761-013-B	SPRING ASSY	
376	3-659-333-00	SCREW (3X17), STEP	
377	3-662-910-00	SCREW (IRIS) +P 3X8	
378	A-6762-038-A	DRUM ASSY, ROTARY (DSR-08)	
379	A-6761-052-A	ACE ASSY	352,358,368-372,376,380
380	3-645-513-00	SPRING, HEAD DECK ADJUSTMENT	
381	A-6050-057-A	DRUM ASSY (DSH-08A-R)	361,362,363,378

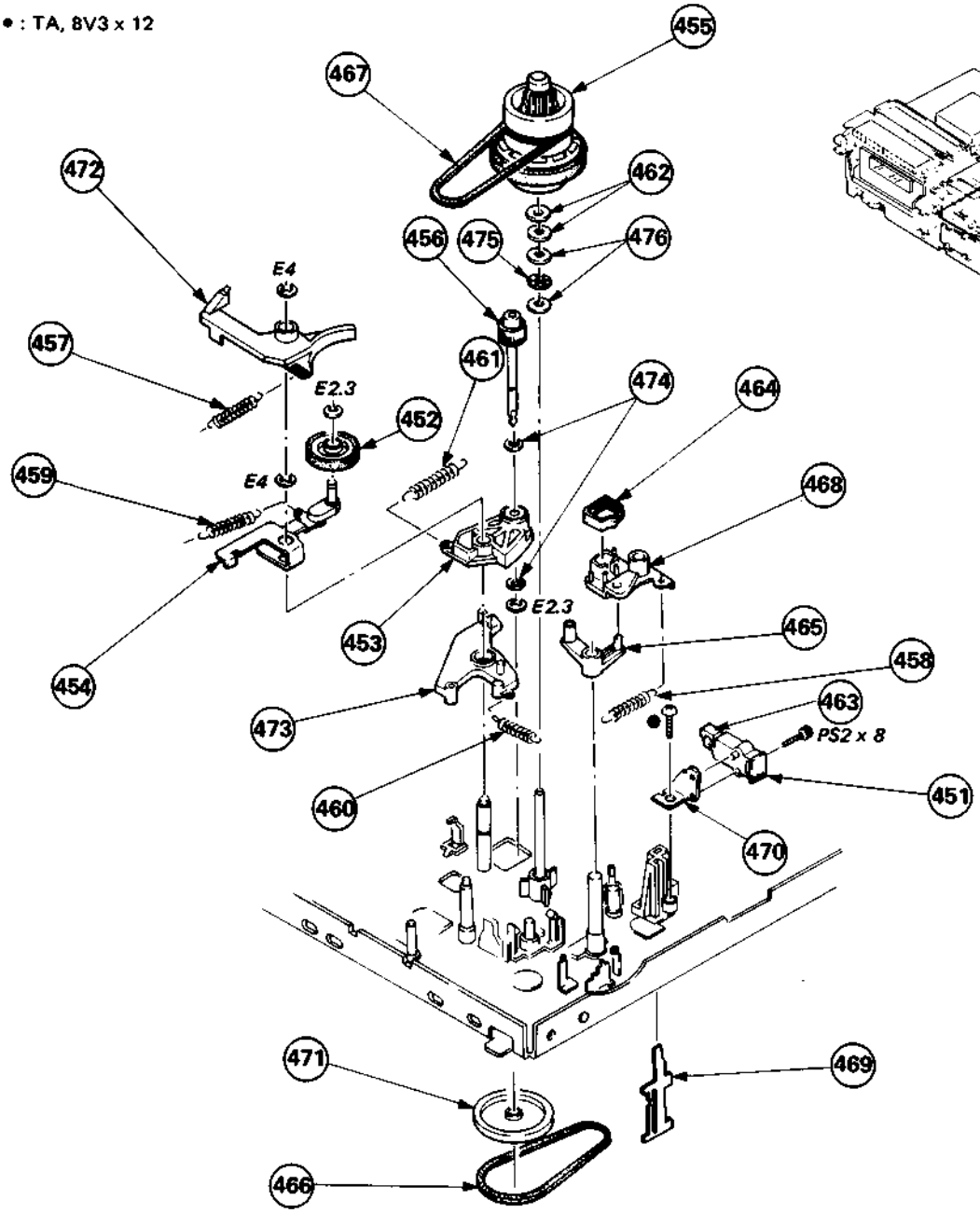
4-9. CHASSIS ASSEMBLY (1)

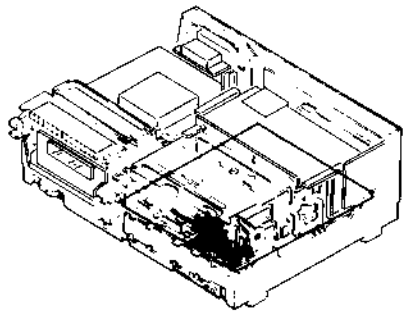


No.	Part No.	Description	Remark
401	♣:1-605-695-00	DR-2 BOARD	
402	♣:1-605-696-00	DR-3 BOARD	
403	X-3659-323-0	PLATE ASSY, ADJUSTMENT, R	
404	X-3659-328-2	BAND ASSY, TENSION REGULATOR	
405	♣:X-3671-006-0	PLATE ASSY, ADJUSTMENT	
406	♣:X-3671-007-0	PLATE ASSY, ARM	
407	♣:X-3671-021-0	LINK ASSY, FWD	
408	♣:X-3671-038-0	ARM ASSY, TENSION REGULATOR	
409	♣:X-3671-042-0	LEVER ASSY, PUSH-OUT	
410	3-534-217-00	SPRING, TENSION	
411	3-536-249-00	SPRING, TENSION	
412	3-646-138-00	SPRING	
413	3-646-184-00	SPACER	
414	3-646-185-00	BEARING	
415	3-652-413-00	SPRING, COMPRESSION	
416	3-659-446-00	LINING, BRAKE	
417	♣:3-671-062-00	ARM, RING	
418	♣:3-671-091-02	CAM, FWD	
419	♣:3-671-101-00	LEVER (E), SWITCH	
420	3-671-143-00	SCREW, ADJUSTMENT	
421	3-671-149-00	BRAKE, S	
422	X-3671-054-0	TABLE ASSY, S REEL	
423	♣:3-671-184-02	LINK, TENSION, REGULATOR	
424	3-703-074-00	CAP 3, SHAFT	
425	4-847-561-00	SPRING, TENSION	
426	♣:A-6742-040-A	UNIT SUB ASSY	406,408
427	3-646-184-11	SPACER	

4-10. CHASSIS ASSEMBLY (2)

● : TA, 8V3 x 12



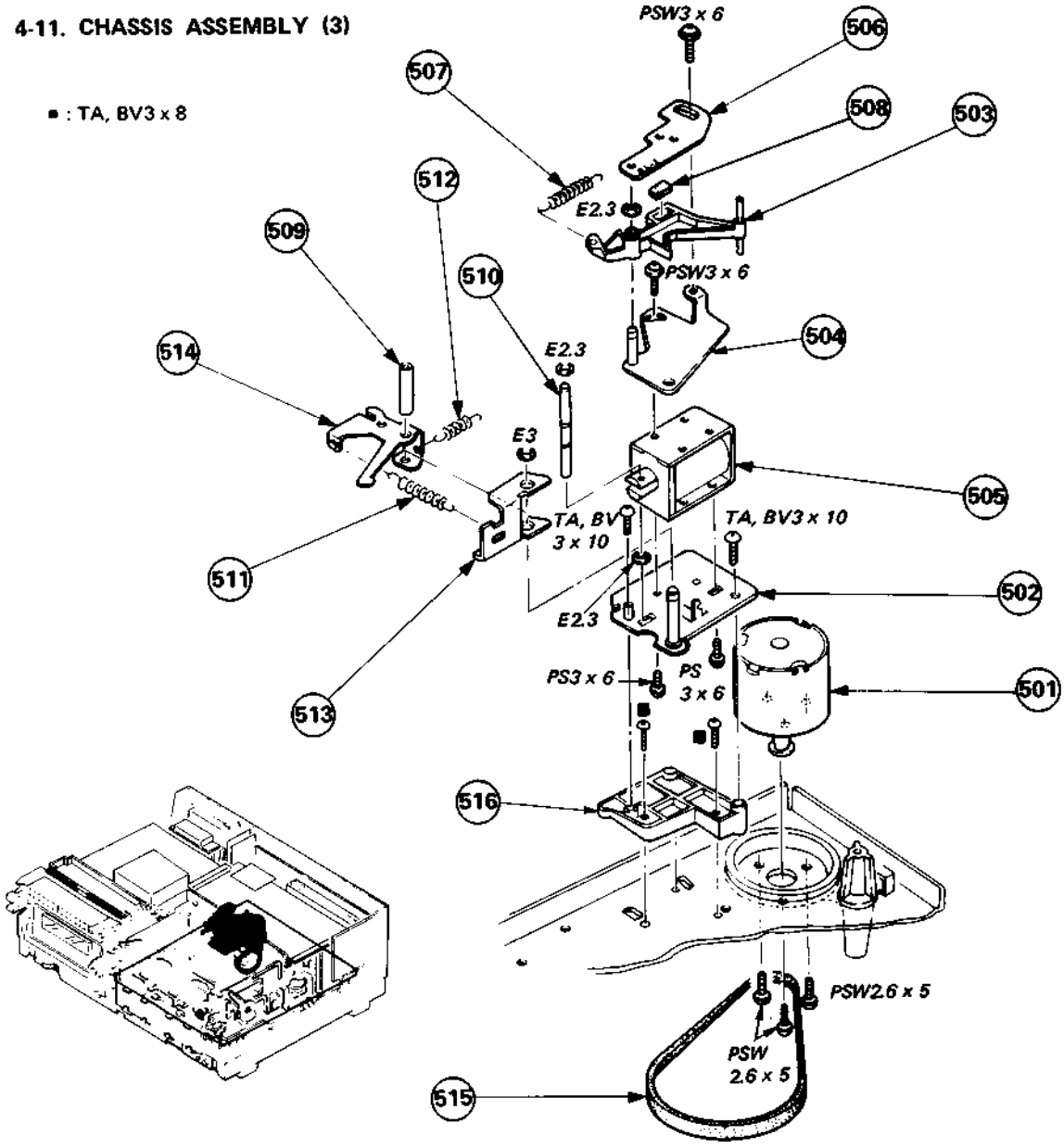


No.	Part No.	Description	Remark
451	♣:1-605-697-00	DR-4 BOARD	
452	X-3653-315-0	IDLER ASSY	
453	♣:X-3671-002-2	ARM ASSY, FF	
454	♣:X-3671-003-0	ARM ASSY, REW	
455	X-3671-053-0	TABLE ASSY, T REEL	
456	X-3671-055-0	PULLEY (A) ASSY, FF	
457	3-672-461-00	SPRING, TENSION	
458	3-534-217-00	SPRING, TENSION	
459	3-567-110-00	SPRING, TENSION	
460	3-642-633-00	SPRING, TENSION	
461	3-645-168-00	SPRING, TENSION	
462	3-646-184-00	SPACER	
463	1-553-847-00	SWITCH, LEVER	

No.	Part No.	Description	Remark
464	3-659-446-00	LINING, BRAKE	
465	♣:3-671-055-00	ARM, TB	
466	3-671-077-00	BELT, FF	
467	3-671-094-00	BELT, COUNTER	
468	3-671-102-00	BRAKE, T	
469	♣:3-671-107-00	PLATE, ERASING PROTECTION	
470	♣:3-671-108-00	BRACKET, SWITCH	
471	3-671-170-00	PULLEY (LARGE), FF	
472	♣:3-671-173-00	ARM, BRAKE, SOFT	
473	♣:3-671-179-00	ARM, LIMITER, FF	
474	3-701-439-21	WASHER	
475	3-646-185-00	BEARING	
476	3-646-184-11	SPACER	

4-11. CHASSIS ASSEMBLY (3)

■ : TA, BV3 x 8

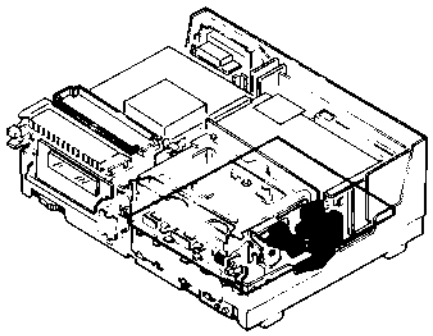


No.	Part No.	Description	Remark
501	8-835-070-11	MOTOR, DC	
502	♣:X-3671-008-0	BASE ASSY, SOLENOID, PINCH	
503	X-3659-310-4	ARM ASSY, DETECTION, SLACK	
504	X-3671-046-5	BASE ASSY, SLACK DETECTION	
505	⚠1-454-295-00	SOLENOID, PLUNGER (PINCH)	
506	♣:1-605-691-00	SL-1 BOARD	
507	3-642-490-00	SPRING, TENSION	
508	3-646-571-00	MAGNET	
509	♣:3-658-194-00	SPACER (4-25)	
510	♣:3-659-780-00	PIN, LEVER, PINCH PRESS	
511	3-659-784-00	SPRING, TENSION	
512	3-659-785-00	SPRING, TENSION	
513	♣:3-671-063-00	LEVER (A), PRESS, PINCH	
514	♣:3-671-064-00	LEVER (B), PRESS, PINCH	
515	3-671-253-00	BELT, CAPSTAN	
516	♣:3-671-186-00	BASE, SOLENOID, PINCH	

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

4-12. CHASSIS ASSEMBLY (4)

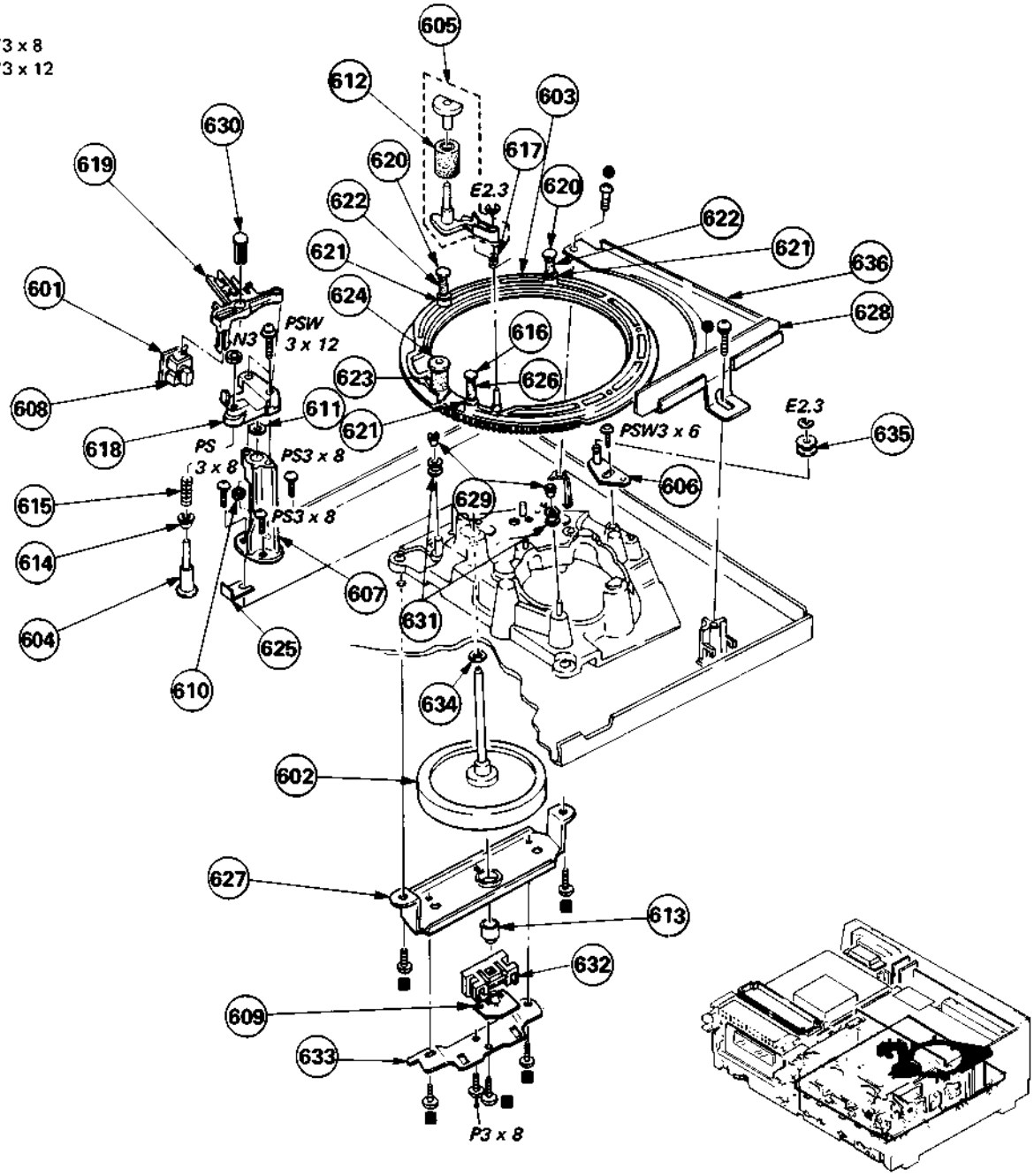
■ : TA, BV3 x 8



No.	Part No.	Description	Remark
551	♣:1-605-702-00	DR-9 BOARD	
552	A-6737-101-A	MOTOR ASSY, REEL	
553	A-6740-072-A	RIMITTER ASSY, FWD	577
554	♣:X-3671-001-0	ARM ASSY, FWD	
555	X-3671-005-0	PULLEY (LARGE) ASSY, RELAY	
556	♣:X-3671-013-0	LEVER ASSY, GEAR	
557	♣:X-3671-014-0	BASE ASSY, GEAR	
558	X-3671-015-0	PULLEY ASSY, LOADING	
559	1-543-145-00	HEAD, SENSING	
560	♣:1-605-692-00	FL-2 BOARD	
561	3-642-483-00	SPRING, TENSION	
562	♣:3-664-333-00	PLATE, SHIELD, MOTOR	
563	♣:3-671-060-00	BRACKET, MOTOR	
564	3-671-069-00	GEAR (B), THREADING	
565	3-671-070-00	GEAR (D), THREADING	
566	3-671-071-00	GEAR (E), THREADING	
567	3-671-078-00	BELT, FWD	
568	3-671-098-00	BELT, THREADING	
569	3-671-120-00	BELT, RELAY	
570	3-671-126-00	GEAR (C), THREADING	
571	3-671-127-00	GEAR (A), THREADING	
572	♣:3-671-129-00	ARM, CHANGE	
573	♣:3-671-131-00	ARM, REMOVAL, ELECTROSTATIC	
574	3-671-171-02	PULLEY (SMALL), RELAY	
575	♣:3-671-174-00	HOLDER, SENSOR, T	
576	♣:3-671-180-00	LID OPEN	
577	3-701-443-11	WASHER	
578	3-701-443-21	WASHER, 5	
579	3-703-075-00	CAP 2, SHAFT	
580	A-6740-071-A	FWD ASSY	553,554,561,579
581	3-701-439-21	WASHER	

4-13. CHASSIS ASSEMBLY (5)

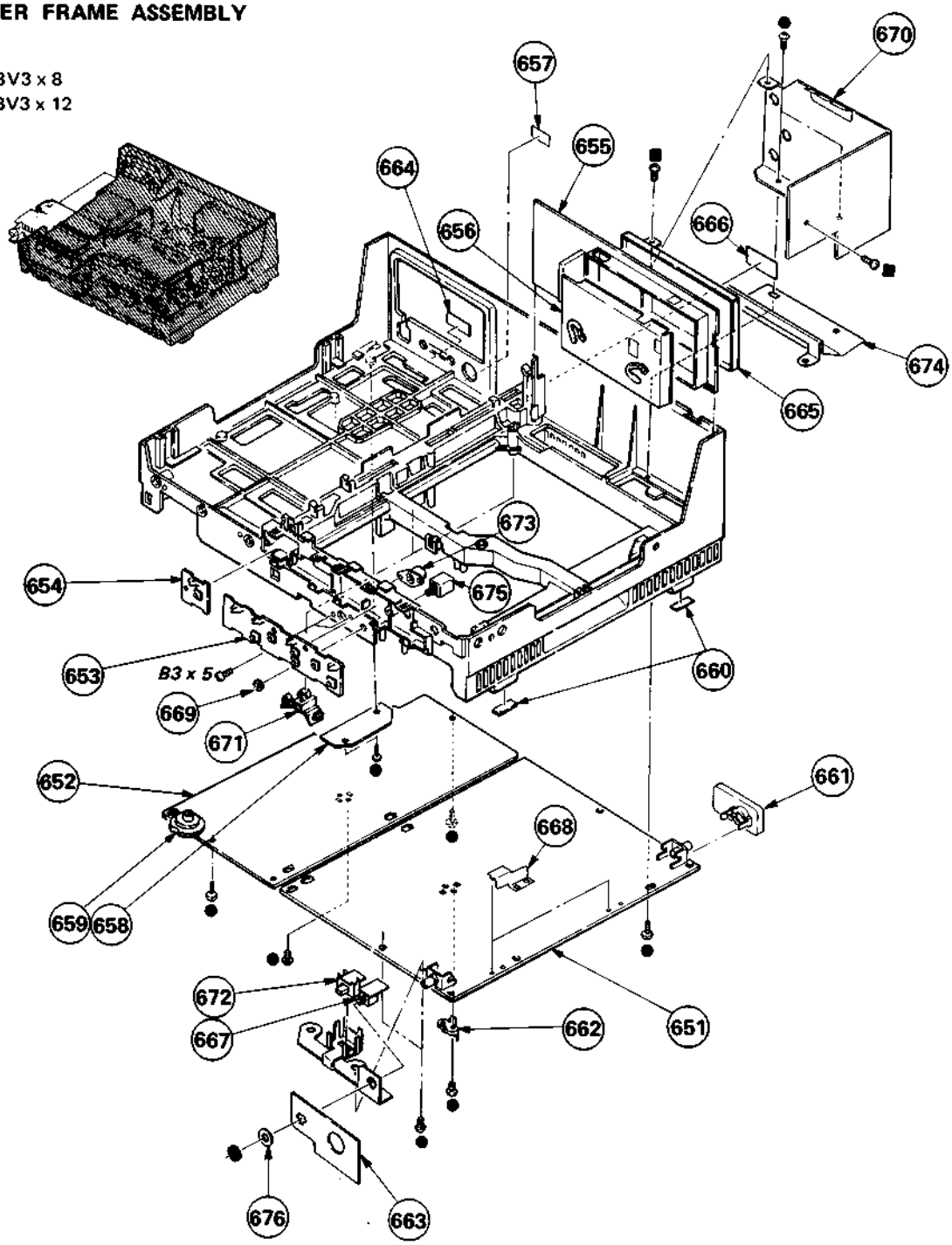
■ : TA, BV3 x 8
● : TA, BV3 x 12



No.	Part No.	Description	Remark
601	♣:1-605-701-00	DR-8 BOARD	
602	A-6737-106-A	CAPSTAN BLOCK ASSY	
603	A-6750-135-A	RING BLOCK ASSY, THREADING	605,616,617 620-624,626
604	X-3659-308-0	GUIDE ASSY, NO.0	
605	X-3659-337-0	ARM ASSY, PINCH ROLLER	612
606	♣:X-3664-337-0	SUPPORT ASSY, RING ROLLER	
607	X-3674-101-0	HOUSING ASSY, CAPSTAN	
608	1-543-145-00	HEAD, SENSING	
609	♣:1-605-708-00	FG-2 BOARD	
610	3-646-182-00	CAP, OIL	
611	3-646-183-00	ABSORBER, CAPSTAN OIL	
612	X-3652-510-3	PINCH ROLLER ASSY	
613	3-659-314-00	RETAINER, THRUST	
614	3-659-337-00	FLANGE, NO.0 GUIDE UPPER	
615	3-659-338-00	SPRING, COMPRESSION	
616	♣:3-659-385-00	CAP (LARGE), GUIDE ROLLER	
617	3-659-388-00	SPRING	
618	3-659-551-00	FRAME, GUIDE, NO.0	
619	♣:3-659-632-00	HOLDER, S SENSOR	
620	♣:3-659-643-00	CAP(SMALL)(UPPER), GUIDE ROLLER	
621	♣:3-659-644-00	CAP(SMALL)(LOWER), GUIDE ROLLER	
622	♣:3-659-645-00	ROLLER (SMALL), GUIDE	
623	♣:3-659-646-00	ROLLER (LARGE), GUIDE	
624	♣:3-659-647-00	CAP(LARGE)(UPPER), GUIDE ROLLER	
625	3-659-759-11	SPACER, CAPSTAN	
626	♣:3-660-912-00	ROLLER, PRECEDING GUIDE	
627	♣:3-671-191-00	RETAINER, CAPSTAN	
628	♣:3-672-402-00	PLATE, GUIDE	
629	3-703-074-00	CAP 3, SHAFT	
630	4-829-039-00	RIVET, NYLON	
631	3-659-391-00	ROLLER, RING	
632	3-658-161-00	HOLDER, DME	
633	♣:3-659-313-00	PLATE, ADJUSTMENT, DME	
634	3-701-441-21	WASHER	
635	3-664-498-00	ROLLER (N), RING	
636	♣:3-672-446-02	PLATE	

4-14. LOWER FRAME ASSEMBLY

■ : TA, BV3 x 8
● : TA, BV3 x 12



No.	Part No.	Description	Remark
651	♣:A-6711-378-A	YC-23 BOARD, COMPLETE	667,672,676
652	♣:A-6713-145-A	SS-9 (ES) BOARD, COMPLETE	
653	♣:1-608-542-00	FS-22 BOARD	
654	♣:1-608-543-00	FS-23 BOARD	
655	♣:A-6728-416-A	RF-4 BOARD, COMPLETE	
656	♣:X-3674-104-0	CASE (A) ASSY, SHIELD, RF	
657	3-674-105-00	LABEL, MARK	
658	♣:1-606-102-00	CP-6 BOARD	
659	3-659-528-00	KNOB, TRACK CONTROL	
660	3-659-532-00	FELT, FOOT	
661	3-674-192-00	COVER, JACK	
662	♣:3-671-145-00	STOPPER, BOTTOM PLATE	
663	3-674-184-00	PLATE, BLIND	

No.	Part No.	Description	Remark
664	3-674-101-00	LABEL, SWITCH, MAINS	
665	♣:3-674-149-00	CASE (C), SHIELD, RF	
666	♣:3-674-193-00	LABEL, MODEL NUMBER (WG)	
667	1-507-285-00	JACK	
668	♣:3-671-252-00	PLATE (D), GROUND	
669	3-671-260-00	NUT, ROUND, KNURL	
670	♣:X-3674-116-0	PLATE ASSY, SHIELD, REAR	
671	♣:3-671-187-00	CLIP, ANCHOR	
672	1-553-831-00	SWITCH, SLIDE	
673	1-933-276-00	JACK (RJ-2)	
674	♣:3-674-152-00	CASE (F), SHIELD, RF	
675	1-933-481-00	JACK (CP-4)	
676	♣:3-669-513-00	SPACER, MICROPHONE JACK	

SECTION 5
ELECTRICAL PARTS LIST

RF-4

NOTE:

- The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.
- =>: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.
- Items marked " ♣ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

CAPACITORS
- MF : μF, PF : μμF

RESISTORS
- All resistors are in ohms
- F : nonflammable

COILS
- MMH : mH, UH : μH

Ref.No.	Part No.	Description			Remark
	♣:A-6728-416-A	RF-4 BOARD, COMPLETE **********			
	♣:3-674-128-00	CASE (B), SHIELD, RF			
	♣:3-674-142-00	CASE (D), SHIELD, RF			
	♣:3-674-148-00	CASE (E), SHIELD, RF			
		CAPACITOR			
C001	1-123-380-00	ELECT	1MF	20% 50V	
C002	1-161-494-00	CERAMIC	0.022MF	30% 25V	
C003	1-101-006-00	CERAMIC	0.047MF	50V	
C004	1-161-494-00	CERAMIC	0.022MF	30% 25V	
C006	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C007	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C008	1-123-381-00	ELECT	2.2MF	20% 50V	
C009	1-161-328-51	CERAMIC	0.0047MF	30% 50V	
C010	1-161-267-00	CERAMIC	47PF	5% 50V	
C011	1-101-882-00	CERAMIC	51PF	5% 50V	
C013	1-123-318-00	ELECT	33MF	20% 16V	
C014	1-161-319-00	CERAMIC	470PF	10% 50V	
C015	1-161-271-00	CERAMIC	100PF	5% 50V	
C016	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C017	1-123-380-00	ELECT	1MF	20% 50V	
C018	1-101-006-00	CERAMIC	0.047MF	50V	
C019	1-161-494-00	CERAMIC	0.022MF	30% 25V	
C020	1-161-494-00	CERAMIC	0.022MF	30% 25V	
C021	1-161-494-00	CERAMIC	0.022MF	30% 25V	
C022	1-161-317-00	CERAMIC	330PF	10% 50V	
C023	1-131-371-00	TANTALUM	10MF	20% 16V	
C024	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C025	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C026	1-101-005-00	CERAMIC	0.022MF	50V	
C027	1-123-318-00	ELECT	33MF	20% 16V	
C028	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C029	1-123-379-00	ELECT	0.47MF	20% 50V	
C030	1-102-950-00	CERAMIC	13PF	5% 50V	
C031	1-101-882-00	CERAMIC	51PF	5% 50V	
C032	1-101-882-00	CERAMIC	51PF	5% 50V	
C033	1-102-950-00	CERAMIC	13PF	5% 50V	
C034	1-123-296-00	ELECT	220MF	20% 6.3V	
C035	1-123-380-00	ELECT	1MF	20% 50V	
C036	1-161-271-00	CERAMIC	100PF	5% 50V	
C037	1-161-272-00	CERAMIC	120PF	5% 50V	
C038	1-123-307-00	ELECT	100MF	20% 10V	
C039	1-161-006-00	CERAMIC	0.0027MF	10% 25V	
C040	1-102-117-00	CERAMIC	820PF	10% 50V	
C041	1-123-321-00	ELECT	220MF	20% 16V	
C042	1-123-356-00	ELECT	10MF	20% 16V	
C043	1-123-356-00	ELECT	10MF	20% 16V	
C044	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C045	1-123-332-00	ELECT	47MF	20% 16V	
C046	1-161-017-00	CERAMIC	0.022MF	10% 25V	
C047	1-123-332-00	ELECT	47MF	20% 16V	
C048	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C049	1-102-529-00	CERAMIC	100PF	5% 50V	
C050	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C051	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C052	1-161-263-00	CERAMIC	22PF	5% 50V	
C053	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C054	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C056	1-161-021-00	CERAMIC	0.047MF	10% 25V	
C057	1-131-371-00	TANTALUM	10MF	20% 16V	
C058	1-131-371-00	TANTALUM	10MF	20% 16V	
C059	1-123-296-00	ELECT	220MF	20% 6.3V	
C060	1-161-494-00	CERAMIC	0.022MF	30% 25V	
C061	1-123-307-00	ELECT	100MF	20% 10V	
C062	1-161-330-51	CERAMIC	0.01MF	30% 25V	
C063	1-161-015-00	CERAMIC	0.015MF	10% 25V	
C065	1-102-947-00	CERAMIC	10PF	5% 50V	
		CONNECTOR			
CN001♣	1-508-797-00	PIN, CONNECTOR 4P			
CN002♣	1-508-845-00	PIN, CONNECTOR 6P			
CN003♣	1-508-846-00	PIN, CONNECTOR 8P			
CN004♣	1-508-847-00	PIN, CONNECTOR 4P			
CN005♣	1-508-743-00	PIN, CONNECTOR 5P			
CN006♣	1-508-916-00	CONNECTOR PIN 2P			
		DIODE			
D001	8-719-815-55	DIODE 1S1555			
D002	8-719-815-55	DIODE 1S1555			
D003	8-719-815-55	DIODE 1S1555			
D004	8-719-815-55	DIODE 1S1555			
D005	8-719-815-55	DIODE 1S1555			
D006	8-719-815-55	DIODE 1S1555			
D007	8-719-815-55	DIODE 1S1555			
		DELAY LINE			
DL001	1-415-203-00	DELAY LINE			
		IC			
IC001	8-751-340-00	IC CX-134A			
IC002	8-751-350-00	IC CX-135			
		COIL			
L001	1-408-029-00	MICRO INDUCTOR 0.56UH			
L002	1-408-029-00	MICRO INDUCTOR 0.56UH			
L003	1-408-158-00	MICRO INDUCTOR 6.8MMH			
L004	1-408-158-00	MICRO INDUCTOR 6.8MMH			
L005	1-408-444-11	MICRO INDUCTOR 15UH			
L006	1-408-444-11	MICRO INDUCTOR 15UH			
L007	1-408-455-11	MICRO INDUCTOR 120UH			
L008	1-407-717-00	MICRO INDUCTOR 1MMH			

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

RF-4

Ref.No.	Part No.	Description				Remark
L009	1-408-603-00	MICRO INDUCTOR 10UH				
L010	1-408-455-11	MICRO INDUCTOR 120UH				
L011	1-408-424-00	MICRO INDUCTOR 180UH				
L012	1-408-455-11	MICRO INDUCTOR 120UH				
L013	1-408-456-11	MICRO INDUCTOR 150UH				
L014	1-408-445-11	MICRO INDUCTOR 18UH				
L015	1-408-445-11	MICRO INDUCTOR 18UH				
L016	1-408-454-00	MICRO INDUCTOR 100UH				
		TRANSISTOR				
Q001	8-729-245-83	TRANSISTOR 2SC2458				
Q002	8-765-422-00	TRANSISTOR 2SK152-2				
Q003	8-729-245-83	TRANSISTOR 2SC2458				
Q004	8-729-245-83	TRANSISTOR 2SC2458				
Q005	8-765-422-00	TRANSISTOR 2SK152-2				
Q006	8-729-245-83	TRANSISTOR 2SC2458				
Q007	=>8-729-606-33	TRANSISTOR 2SC2603-F				
Q008	=>8-765-212-20	TRANSISTOR 2SA925				
Q009	=>8-729-612-77	TRANSISTOR 2SA1027R				
Q010	=>8-729-663-47	TRANSISTOR 2SC1364				
Q011	=>8-729-603-50	TRANSISTOR 2SC403SP				
Q012	8-729-384-48	TRANSISTOR 2SA844				
Q013	=>8-729-603-50	TRANSISTOR 2SC403SP				
Q014	=>8-729-603-50	TRANSISTOR 2SC403SP				
Q015	8-729-245-83	TRANSISTOR 2SC2458				
		RESISTOR				
R001	1-246-485-00	CARBON	3.3K	5%	1/4W	
R002	1-246-463-00	CARBON	390	5%	1/4W	
R003	1-246-497-00	CARBON	10K	5%	1/4W	
R004	1-246-468-00	CARBON	620	5%	1/4W	
R005	1-246-463-00	CARBON	390	5%	1/4W	
R006	1-246-497-00	CARBON	10K	5%	1/4W	
R007	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R008	1-246-491-00	CARBON	5.6K	5%	1/4W	
R009	1-246-464-00	CARBON	430	5%	1/4W	
R010	1-246-421-00	CARBON	6.8	5%	1/4W	
R011	1-246-457-00	CARBON	220	5%	1/4W	
R012	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R013	1-246-481-00	CARBON	2.2K	5%	1/4W	
R014	1-246-481-00	CARBON	2.2K	5%	1/4W	
R015	1-246-481-00	CARBON	2.2K	5%	1/4W	
R016	1-246-481-00	CARBON	2.2K	5%	1/4W	
R017	1-246-473-00	CARBON	1K	5%	1/4W	
R018	1-246-473-00	CARBON	1K	5%	1/4W	
R019	1-246-467-00	CARBON	560	5%	1/4W	
R020	1-246-475-00	CARBON	1.2K	5%	1/4W	
R021	1-246-491-00	CARBON	5.6K	5%	1/4W	
R022	1-246-497-00	CARBON	10K	5%	1/4W	
R023	1-246-463-00	CARBON	390	5%	1/4W	
R024	1-246-485-00	CARBON	3.3K	5%	1/4W	
R025	1-246-497-00	CARBON	10K	5%	1/4W	
R026	1-246-463-00	CARBON	390	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R027	1-246-468-00	CARBON	620	5%	1/4W	
R028	1-246-473-00	CARBON	1K	5%	1/4W	
R029	1-246-491-00	CARBON	5.6K	5%	1/4W	
R030	1-246-468-00	CARBON	620	5%	1/4W	
R031	1-246-481-00	CARBON	2.2K	5%	1/4W	
R032	1-246-489-00	CARBON	4.7K	5%	1/4W	
R033	1-246-451-00	CARBON	120	5%	1/4W	
R034	1-246-509-00	CARBON	33K	5%	1/4W	
R035	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R036	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R037	1-246-502-00	CARBON	16K	5%	1/4W	
R038	1-246-485-00	CARBON	3.3K	5%	1/4W	
R039	1-246-473-00	CARBON	1K	5%	1/4W	
R040	1-246-469-00	CARBON	680	5%	1/4W	
R041	1-246-463-00	CARBON	390	5%	1/4W	
R042	1-246-519-00	CARBON	82K	5%	1/4W	
R043	1-246-497-00	CARBON	10K	5%	1/4W	
R044	1-246-464-00	CARBON	430	5%	1/4W	
R045	1-246-515-00	CARBON	56K	5%	1/4W	
R046	1-246-422-00	CARBON	7.5	5%	1/4W	
R047	⚠1-246-989-00	CARBON	82	5%	1/8W	F
R048	1-246-497-00	CARBON	10K	5%	1/4W	
R049	1-246-477-00	CARBON	1.5K	5%	1/4W	
R050	1-246-477-00	CARBON	1.5K	5%	1/4W	
R051	1-246-449-00	CARBON	100	5%	1/4W	
R052	⚠1-246-986-00	CARBON	39	5%	1/8W	F
R053	1-246-475-00	CARBON	1.2K	5%	1/4W	
R054	1-246-479-00	CARBON	1.8K	5%	1/4W	
R055	1-246-468-00	CARBON	620	5%	1/4W	
R057	1-246-521-00	CARBON	100K	5%	1/4W	
R058	1-246-496-00	CARBON	9.1K	5%	1/4W	
R059	1-246-500-00	CARBON	13K	5%	1/4W	
R060	1-246-473-00	CARBON	1K	5%	1/4W	
R061	1-246-469-00	CARBON	680	5%	1/4W	
R062	1-246-441-00	CARBON	47	5%	1/4W	
R065	1-246-481-00	CARBON	2.2K	5%	1/4W	
R066	1-246-465-00	CARBON	470	5%	1/4W	
R067	1-246-480-00	CARBON	2K	5%	1/4W	
R068	1-246-491-00	CARBON	5.6K	5%	1/4W	
R069	1-246-487-00	CARBON	3.9K	5%	1/4W	
R070	1-246-479-00	CARBON	1.8K	5%	1/4W	
R071	1-246-459-00	CARBON	270	5%	1/4W	
R072	1-246-449-00	CARBON	100	5%	1/4W	
R073	1-246-459-00	CARBON	270	5%	1/4W	
R074	1-246-467-00	CARBON	560	5%	1/4W	
R075	1-246-501-00	CARBON	15K	5%	1/4W	
R076	1-246-453-00	CARBON	150	5%	1/4W	
R077	1-246-503-00	CARBON	18K	5%	1/4W	
R078	1-246-477-00	CARBON	1.5K	5%	1/4W	
R079	1-246-449-00	CARBON	100	5%	1/4W	
R080	1-246-465-00	CARBON	470	5%	1/4W	
R081	1-246-497-00	CARBON	10K	5%	1/4W	
R082	1-246-451-00	CARBON	120	5%	1/4W	

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

NOTE:

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

Ref.No.	Part No.	Description				Remark
R083	1-246-451-00	CARBON	120	5%	1/4W	
R084	1-246-468-00	CARBON	620	5%	1/4W	
R085	1-246-497-00	CARBON	10K	5%	1/4W	
		VARIABLE RESISTOR				
RV001	1-224-250-XX	RES, ADJ, METAL GLAZE 2.2K				
RV002	1-224-250-XX	RES, ADJ, METAL GLAZE 2.2K				
RV003	1-226-848-00	RES, ADJ, CARBON 2.2K				
RV004	1-226-850-00	RES, ADJ, CARBON 4.7K				
RV005	1-226-847-00	RES, ADJ, CARBON 1K				
RV006	1-226-849-00	RES, ADJ, CARBON 3.3K				
RV007	1-224-249-XX	RES, ADJ, METAL GLAZE 1K				
		TRANSFORMER				
T001	1-427-455-00	TRANSFORMER, I/O PUT				
T002	1-427-455-00	TRANSFORMER, I/O PUT				
**********						
♣:A-6711-378-A		YC-23 BOARD, COMPLETE				
		**********				
♣:3-661-626-00		PLATE, REAR, SHIELD CASE				
♣:3-661-659-00		CASE (MAIN), SHIELD				
♣:3-669-513-00		SPACER, MICROPHONE JACK				
3-671-893-00		CLAMP (LOW TYPE)				
		FILTER				
BPF001	1-231-375-00	FILTER, BANDPASS				
		CAPACITOR				
C001	1-123-333-00	ELECT	100MF	20%	16V	
C002	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C003	1-123-306-00	ELECT	47MF	20%	10V	
C004	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C005	1-123-356-00	ELECT	10MF	20%	16V	
C006	1-161-345-00	CERAMIC	75PF	5%	50V	
C007	1-161-261-00	CERAMIC	15PF	5%	50V	
C008	1-102-978-00	CERAMIC	220PF	5%	50V	
C009	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C010	1-123-332-00	ELECT	47MF	20%	16V	
C011	1-161-266-00	CERAMIC	39PF	5%	50V	
C012	1-123-332-00	ELECT	47MF	20%	16V	
C013	1-123-296-00	ELECT	220MF	20%	6.3V	
C014	1-123-307-00	ELECT	100MF	20%	10V	
C015	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C016	1-123-379-00	ELECT	0.47MF	20%	50V	
C017	1-123-307-00	ELECT	100MF	20%	10V	
C018	1-123-356-00	ELECT	10MF	20%	16V	
C019	1-123-318-00	ELECT	33MF	20%	16V	
C020	1-123-356-00	ELECT	10MF	20%	16V	
C022	1-123-333-00	ELECT	100MF	20%	16V	
C023	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C024	1-102-950-00	CERAMIC	13PF	5%	50V	

Ref.No.	Part No.	Description				Remark
C025	1-101-882-00	CERAMIC	51PF	5%	50V	
C026	1-101-882-00	CERAMIC	51PF	5%	50V	
C027	1-102-950-00	CERAMIC	13PF	5%	50V	
C028	1-102-530-00	CERAMIC	120PF	5%	50V	
C029	1-161-063-00	CERAMIC	0.1MF	20%	25V	
C030	1-102-820-00	CERAMIC	330PF	5%	50V	
C031	1-123-318-00	ELECT	33MF	20%	16V	
C032	1-123-318-00	ELECT	33MF	20%	16V	
C033	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C034	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C035	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C036	1-123-332-00	ELECT	47MF	20%	16V	
C037	1-123-332-00	ELECT	47MF	20%	16V	
C038	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C039	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C040	1-123-356-00	ELECT	10MF	20%	16V	
C041	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C042	1-123-333-00	ELECT	100MF	20%	16V	
C043	1-161-321-00	CERAMIC	680PF	10%	50V	
C044	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C045	1-123-332-00	ELECT	47MF	20%	16V	
C046	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C047	1-123-296-00	ELECT	220MF	20%	6.3V	
C048	1-123-332-00	ELECT	47MF	20%	16V	
C049	1-123-332-00	ELECT	47MF	20%	16V	
C050	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C051	1-123-332-00	ELECT	47MF	20%	16V	
C052	1-123-306-00	ELECT	47MF	20%	10V	
C057	1-123-333-00	ELECT	100MF	20%	16V	
C058	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C059	1-123-311-00	ELECT	1000MF	20%	10V	
C060	1-123-308-00	ELECT	220MF	20%	10V	
C061	1-101-059-00	CERAMIC	510PF	5%	50V	
C062	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C064	1-123-330-00	ELECT	22MF	20%	16V	
C065	1-123-333-00	ELECT	100MF	20%	16V	
C066	1-123-332-00	ELECT	47MF	20%	16V	
C068	1-123-356-00	ELECT	10MF	20%	16V	
C070	1-123-318-00	ELECT	33MF	20%	16V	
C071	1-123-332-00	ELECT	47MF	20%	16V	
C072	1-123-318-00	ELECT	33MF	20%	16V	
C073	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C074	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C075	1-123-306-00	ELECT	47MF	20%	10V	
C076	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C077	1-123-332-00	ELECT	47MF	20%	16V	
C078	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C079	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C080	1-123-332-00	ELECT	47MF	20%	16V	
C081	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C082	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C083	1-161-264-00	CERAMIC	27PF	5%	50V	
C084	1-161-264-00	CERAMIC	27PF	5%	50V	

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

YC-23

Ref.No.	Part No.	Description				Remark
C085	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C086	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C087	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C088	1-101-361-00	CERAMIC	150PF	5%	50V	
C089	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C090	1-101-361-00	CERAMIC	150PF	5%	50V	
C091	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C092	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C093	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C094	1-123-356-00	ELECT	10MF	20%	16V	
C095	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C096	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C097	1-102-950-00	CERAMIC	13PF	5%	50V	
C098	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C099	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C100	1-102-822-00	CERAMIC	390PF	5%	50V	
C101	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C102	1-102-979-00	CERAMIC	240PF	5%	50V	
C103	1-161-268-00	CERAMIC	56PF	5%	50V	
C104	1-123-356-00	ELECT	10MF	20%	16V	
C105	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C106	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C107	1-161-268-00	CERAMIC	56PF	5%	50V	
C108	1-102-824-00	CERAMIC	430PF	5%	50V	
C109	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C110	1-131-202-00	TANTALUM	1.5MF	20%	20V	
C111	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C112	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C113	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C114	1-108-242-00	MYLAR	0.022MF	10%	50V	
C115	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C116	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C117	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C118	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C119	1-161-271-00	CERAMIC	100PF	5%	50V	
C120	1-102-820-00	CERAMIC	330PF	5%	50V	
C121	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C122	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C123	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C124	1-161-272-00	CERAMIC	120PF	5%	50V	
C125	1-102-942-00	CERAMIC	5PF	0.5PF	50V	
C126	1-123-332-00	ELECT	47MF	20%	16V	
C127	1-161-271-00	CERAMIC	100PF	5%	50V	
C128	1-123-306-00	ELECT	47MF	20%	10V	
C129	1-123-380-00	ELECT	1MF	20%	50V	
C130	1-123-319-00	ELECT	47MF	20%	16V	
C131	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C132	1-123-356-00	ELECT	10MF	20%	16V	
C133	1-123-328-00	ELECT	4.7MF	20%	25V	
C134	1-123-328-00	ELECT	4.7MF	20%	25V	
C135	1-123-328-00	ELECT	4.7MF	20%	25V	
C136	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C137	1-161-323-00	CERAMIC	0.001MF	10%	50V	
C138	1-102-852-00	CERAMIC	47PF	5%	50V	
C139	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C140	1-123-332-00	ELECT	47MF	20%	16V	
C141	1-123-380-00	ELECT	1MF	20%	50V	
C142	1-108-838-00	MYLAR	0.012MF	10%	50V	
C143	1-161-281-00	CERAMIC	15PF	5%	50V	
C144	1-123-380-00	ELECT	1MF	20%	50V	
C145	1-108-838-00	MYLAR	0.012MF	10%	50V	
C146	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C147	1-161-323-00	CERAMIC	0.001MF	10%	50V	
C148	1-161-284-00	CERAMIC	27PF	5%	50V	
C149	1-123-380-00	ELECT	1MF	20%	50V	
C150	1-161-328-51	CERAMIC	0.0047MF	30%	50V	
C151	1-102-820-00	CERAMIC	330PF	5%	50V	
C152	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C153	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C154	1-108-849-00	MYLAR	0.1MF	10%	50V	
C155	1-123-332-00	ELECT	47MF	20%	16V	
C156	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C158	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C159	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C160	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C161	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C162	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C163	1-123-332-00	ELECT	47MF	20%	16V	
C164	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C165	1-108-239-00	MYLAR	0.01MF	10%	50V	
C166	1-123-356-00	ELECT	10MF	20%	16V	
C167	1-108-555-00	MYLAR	0.001MF	5%	50V	
C168	1-108-561-00	MYLAR	0.0018MF	5%	50V	
C169	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C170	1-108-555-00	MYLAR	0.001MF	5%	50V	
C171	1-108-555-00	MYLAR	0.001MF	5%	50V	
C172	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C173	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C174	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C175	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C176	1-102-531-00	CERAMIC	150PF	5%	50V	
C178	1-102-525-00	CERAMIC	68PF	5%	50V	
C180	1-102-527-00	CERAMIC	82PF	5%	50V	
C181	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C182	1-123-332-00	ELECT	47MF	20%	16V	
C183	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C184	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C185	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C186	1-123-380-00	ELECT	1MF	20%	50V	
C187	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C188	1-123-332-00	ELECT	47MF	20%	16V	
C189	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C190	1-123-356-00	ELECT	10MF	20%	16V	
C191	1-102-978-00	CERAMIC	220PF	5%	50V	
C192	1-161-321-00	CERAMIC	680PF	10%	50V	
C193	1-123-380-00	ELECT	1MF	20%	50V	

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

Ref.No.	Part No.	Description				Remark
C194	1-102-129-00	CERAMIC	0.01MF	10%	50V	
C195	1-161-036-00	CERAMIC	0.047MF	20%	25V	
C196	1-123-332-00	ELECT	47MF	20%	16V	
C197	1-102-824-00	CERAMIC	430PF	5%	50V	
C198	1-102-824-00	CERAMIC	430PF	5%	50V	
C199	1-102-978-00	CERAMIC	220PF	5%	50V	
C200	1-123-307-00	ELECT	100MF	20%	10V	
C201	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C205	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C207	1-161-272-00	CERAMIC	120PF	5%	50V	
C208	1-123-332-00	ELECT	47MF	20%	16V	
C209	1-127-456-51	ELECT(SOLID)	0.22MF	20%	25V	
C211	1-123-380-00	ELECT	1MF	20%	50V	
C212	1-108-833-00	MYLAR	0.0047MF	10%	50V	
C213	1-108-555-00	MYLAR	0.001MF	5%	50V	
C214	1-108-555-00	MYLAR	0.001MF	5%	50V	
C215	1-123-321-00	ELECT	220MF	20%	16V	
C216	1-102-531-00	CERAMIC	150PF	5%	50V	
C217	1-123-379-00	ELECT	0.47MF	20%	50V	
C218	1-123-356-00	ELECT	10MF	20%	16V	
C219	1-101-059-00	CERAMIC	510PF	5%	50V	
C220	1-123-295-00	ELECT	100MF	20%	6.3V	
C221	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C222	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C223	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C224	1-161-351-00	CERAMIC	20PF	5%	50V	
C225	1-161-494-00	CERAMIC	0.022MF	30%	25V	
C226	1-102-527-00	CERAMIC	82PF	5%	50V	
C227	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C228	1-123-307-00	ELECT	100MF	20%	10V	
C230	1-102-859-00	CERAMIC	75PF	5%	50V	
C231	1-123-379-00	ELECT	0.47MF	20%	50V	
C233	1-123-328-00	ELECT	4.7MF	20%	25V	
C240	1-123-356-00	ELECT	10MF	20%	16V	
C241	1-102-947-00	CERAMIC	10PF	5%	50V	
C242	1-102-961-00	CERAMIC	27PF	5%	50V	
C243	1-101-974-00	CERAMIC	20PF	5%	50V	
C244	1-102-116-00	CERAMIC	680PF	10%	50V	

CONNECTOR

CN001♣:	1-508-846-00	PIN, CONNECTOR 8P	
CN002♣:	1-508-797-00	PIN, CONNECTOR 4P	
CN003♣:	1-508-743-00	PIN, CONNECTOR 5P	
CN004♣:	1-508-743-00	PIN, CONNECTOR 5P	
CN005	1-508-910-00	PIN, CONNECTOR 12P	
CN006	1-508-910-00	PIN, CONNECTOR 12P	
CN007♣:	1-508-845-00	PIN, CONNECTOR 6P	
CN008♣:	1-508-743-00	PIN, CONNECTOR 5P	
CN009♣:	1-508-742-00	PIN, CONNECTOR 3P	

JACK

CNJ001	1-560-750-21	CONNECTOR ASSY, BNC	
CNJ002	1-560-750-21	CONNECTOR ASSY, BNC	
CNJ003	1-507-285-21	JACK	

DIODE

D001	8-719-815-55	DIODE 1S1555	
D002	8-719-815-55	DIODE 1S1555	
D003	8-719-815-55	DIODE 1S1555	
D004	8-719-815-55	DIODE 1S1555	
D005	8-719-815-55	DIODE 1S1555	
D006	8-719-815-55	DIODE 1S1555	
D007	8-719-815-55	DIODE 1S1555	
D008	8-719-815-55	DIODE 1S1555	
D009	8-719-815-55	DIODE 1S1555	
D010	8-719-815-55	DIODE 1S1555	
D011	8-719-815-55	DIODE 1S1555	
D012	8-719-815-55	DIODE 1S1555	
D014	8-719-815-55	DIODE 1S1555	
D015	8-719-815-55	DIODE 1S1555	
D016	8-719-815-55	DIODE 1S1555	
D017	8-719-815-55	DIODE 1S1555	
D018	8-719-815-55	DIODE 1S1555	
D019	8-719-815-55	DIODE 1S1555	
D020	8-719-815-55	DIODE 1S1555	
D021	8-719-815-55	DIODE 1S1555	
D022	8-719-815-55	DIODE 1S1555	
D023	8-719-815-55	DIODE 1S1555	
D024	8-719-815-55	DIODE 1S1555	
D025	8-719-815-55	DIODE 1S1555	
D026	8-719-815-55	DIODE 1S1555	
D027	8-719-815-55	DIODE 1S1555	
D031	8-719-815-55	DIODE 1S1555	
D032	8-719-815-55	DIODE 1S1555	
D035	8-719-815-55	DIODE 1S1555	
D036	8-719-815-55	DIODE 1S1555	
D037	8-719-815-55	DIODE 1S1555	
D039	8-719-815-55	DIODE 1S1555	
D040	8-719-815-55	DIODE 1S1555	

DELAY LINE

DL001	1-415-223-21	DELAY LINE	
DL002	1-415-198-00	DELAY LINE (1H)	
DL003	1-415-148-51	DELAY LINE	
DL004	1-415-204-00	DELAY LINE	

IC

IC001	8-759-601-87	IC CX-187	
IC002	8-751-360-00	IC CX-136A	
IC003	8-759-600-50	IC CX-150B	
IC004	8-759-208-94	IC CX-894	
IC005	8-751-450-00	IC CX-145	
IC006	8-758-320-00	IC CX-832	
IC007	8-759-600-23	IC CX-7942	
IC008	8-749-900-01	IC SP-21A	
IC009=>	8-749-910-18	IC BX1018A	

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

YC-23

Ref.No.	Part No.	Description	Remark
IC010	8-749-900-02	IC SP-22B	
IC011	8-759-600-50	IC CX-150B	
IC012	8-759-245-28	IC TC4528BP	
IC013	8-759-273-20	IC TA7320P	
IC014	8-751-300-00	IC CX-130	
IC015	8-759-208-94	IC CX-894	
IC016	8-759-684-78	IC M58478P	
IC017	8-759-979-26	IC CX-7926	
IC018=>	8-749-910-20	IC BX1020A	
IC019=>	8-749-910-17	IC BX1017A	

COIL

L001	1-408-423-00	MICRO INDUCTOR 150UH	
L002	1-408-445-11	MICRO INDUCTOR 18UH	
L003	1-408-451-11	MICRO INDUCTOR 56UH	
L004	1-408-446-11	MICRO INDUCTOR 22UH	
L005	1-407-170-XX	MICRO INDUCTOR 120UH	
L006	1-407-172-XX	MICRO INDUCTOR 180UH	
L007	1-407-170-XX	MICRO INDUCTOR 120UH	
L008	1-408-456-11	MICRO INDUCTOR 150UH	
L009	1-408-450-11	MICRO INDUCTOR 47UH	
L010	1-408-454-00	MICRO INDUCTOR 100UH	
L011	1-408-420-00	MICRO INDUCTOR 82UH	
L012	1-408-442-11	MICRO INDUCTOR 10UH	
L013	1-408-445-11	MICRO INDUCTOR 18UH	
L014	1-408-415-00	MICRO INDUCTOR 33UH	
L015	1-408-423-00	MICRO INDUCTOR 150UH	
L016	1-408-417-00	MICRO INDUCTOR 47UH	
L018	1-408-446-11	MICRO INDUCTOR 22UH	
L019	1-408-462-11	MICRO INDUCTOR 470UH	
L020	1-408-462-11	MICRO INDUCTOR 470UH	
L021	1-408-455-11	MICRO INDUCTOR 120UH	
L022	1-408-455-11	MICRO INDUCTOR 120UH	
L023	1-408-419-00	MICRO INDUCTOR 68UH	
L024	1-408-419-00	MICRO INDUCTOR 68UH	
L025	1-408-408-00	MICRO INDUCTOR 8.2UH	
L026	1-408-454-00	MICRO INDUCTOR 100UH	
L027	1-408-419-00	MICRO INDUCTOR 68UH	
L028	1-407-195-XX	MICRO INDUCTOR 1MMH	
L029	1-408-450-11	MICRO INDUCTOR 47UH	
L030	1-408-462-11	MICRO INDUCTOR 470UH	
L031	1-408-408-00	MICRO INDUCTOR 8.2UH	
L032	1-407-494-00	MICRO INDUCTOR 1.5MMH	
L033	1-408-444-11	MICRO INDUCTOR 15UH	
L034	1-408-462-11	MICRO INDUCTOR 470UH	
L035	1-408-448-11	MICRO INDUCTOR 33UH	
L036	1-407-177-XX	MICRO INDUCTOR 470UH	
L037	1-408-462-11	MICRO INDUCTOR 470UH	
L038	1-407-501-31	MICRO INDUCTOR 5.6MMH	
L039	1-408-420-00	MICRO INDUCTOR 82UH	

VARIABLE COIL

LV001	1-408-512-00	COIL (VARIABLE)	
LV002	1-408-531-00	COIL, VARIABLE	

TRANSISTOR

Q001	8-729-374-02	TRANSISTOR 2SB740	
Q002	8-729-374-02	TRANSISTOR 2SB740	
Q003 =>*	8-729-384-48	TRANSISTOR 2SA844	
Q004 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q005 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q006 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q007 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q008 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q009 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q010	8-729-245-83	TRANSISTOR 2SC2458	
Q013 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q014 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q015	8-729-245-83	TRANSISTOR 2SC2458	
Q016 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q017 =>*	8-729-117-54	TRANSISTOR 2SA1175	
Q018	8-729-245-83	TRANSISTOR 2SC2458	
Q019	8-729-245-83	TRANSISTOR 2SC2458	
Q020	8-729-245-83	TRANSISTOR 2SC2458	
Q021 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q022 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q023 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q024 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q025 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q026	8-729-245-83	TRANSISTOR 2SC2458	
Q027 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q028 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q029 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q030	8-729-245-83	TRANSISTOR 2SC2458	
Q031 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q032 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q033	8-729-245-83	TRANSISTOR 2SC2458	
Q034	8-729-245-83	TRANSISTOR 2SC2458	
Q035 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q036	8-729-245-83	TRANSISTOR 2SC2458	
Q037 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q038	8-729-245-83	TRANSISTOR 2SC2458	
Q039 =>*	8-729-117-54	TRANSISTOR 2SA1175	
Q040 =>*	8-729-603-50	TRANSISTOR 2SC403SP	
Q041	8-729-245-83	TRANSISTOR 2SC2458	
Q043 =>*	8-729-384-48	TRANSISTOR 2SA844	
Q044	8-729-245-83	TRANSISTOR 2SC2458	
Q045	8-729-245-83	TRANSISTOR 2SC2458	
Q046	8-729-353-52	TRANSISTOR 2SC535	
Q047	8-729-353-52	TRANSISTOR 2SC535	
Q048	8-729-353-52	TRANSISTOR 2SC535	
Q049	8-729-353-52	TRANSISTOR 2SC535	
Q050	8-729-245-83	TRANSISTOR 2SC2458	

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

Ref.No.	Part No.	Description			Remark
		RESISTOR			
R001	1-246-795-00	CARBON	10K	1/8W	
R002	1-246-788-00	CARBON	2.7K	1/8W	
R003	1-246-795-00	CARBON	10K	1/8W	
R004	1-246-785-00	CARBON	1.5K	1/8W	
R005	1-246-799-00	CARBON	22K	1/8W	
R006	1-246-777-00	CARBON	330	1/8W	
R007	1-246-786-00	CARBON	1.8K	1/8W	
R008	1-246-787-00	CARBON	2.2K	1/8W	
R009	1-246-795-00	CARBON	10K	1/8W	
R010	1-246-783-00	CARBON	1K	1/8W	
R011	1-246-795-00	CARBON	10K	1/8W	
R012	1-246-862-00	CARBON	36K	1/8W	
R013	1-246-854-00	CARBON	7.5K	1/8W	
R014	1-246-788-00	CARBON	2.7K	1/8W	
R015	1-246-846-00	CARBON	1.6K	1/8W	
R016	1-246-782-00	CARBON	820	1/8W	
R017	1-246-783-00	CARBON	1K	1/8W	
R018	1-246-845-00	CARBON	1.3K	1/8W	
R019	1-246-783-00	CARBON	1K	1/8W	
R020	1-246-791-00	CARBON	4.7K	1/8W	
R021	1-246-797-00	CARBON	15K	1/8W	
R022	1-246-843-00	CARBON	910	1/8W	
R023	1-246-786-00	CARBON	1.8K	1/8W	
R024	1-246-856-00	CARBON	11K	1/8W	
R025	1-246-797-00	CARBON	15K	1/8W	
R026	1-246-771-00	CARBON	100	1/8W	
R027	1-246-789-00	CARBON	3.3K	1/8W	
R028	1-246-786-00	CARBON	1.8K	1/8W	
R029	1-246-782-00	CARBON	820	1/8W	
R030	1-246-786-00	CARBON	1.8K	1/8W	
R031	1-246-795-00	CARBON	10K	1/8W	
R032	1-246-787-00	CARBON	2.2K	1/8W	
R033	1-246-842-00	CARBON	750	1/8W	
R034	1-246-794-00	CARBON	8.2K	1/8W	
R035	1-246-839-00	CARBON	430	1/8W	
R036	1-246-798-00	CARBON	18K	1/8W	
R037	1-246-771-00	CARBON	100	1/8W	
R038	1-246-783-00	CARBON	1K	1/8W	
R039	1-246-783-00	CARBON	1K	1/8W	
R040	1-246-794-00	CARBON	8.2K	1/8W	
R041	1-246-783-00	CARBON	1K	1/8W	
R042	1-246-794-00	CARBON	8.2K	1/8W	
R043	⚠ 1-247-033-00	CARBON	100 5%	1/8W	F
R044	1-246-773-00	CARBON	150	1/8W	
R049	1-246-795-00	CARBON	10K	1/8W	
R050	1-246-783-00	CARBON	1K	1/8W	
R051	1-246-783-00	CARBON	1K	1/8W	
R052	1-246-771-00	CARBON	100	1/8W	
R053	1-246-799-00	CARBON	22K	1/8W	
R054	1-246-795-00	CARBON	10K	1/8W	
R055	1-246-783-00	CARBON	1K	1/8W	

Ref.No.	Part No.	Description			Remark
R056	1-246-848-00	CARBON	2.4K	1/8W	
R057	1-246-843-00	CARBON	910	1/8W	
R058	1-246-847-00	CARBON	2K	1/8W	
R059	1-246-799-00	CARBON	22K	1/8W	
R060	1-246-796-00	CARBON	12K	1/8W	
R061	1-246-847-00	CARBON	2K	1/8W	
R062	1-246-802-00	CARBON	39K	1/8W	
R063	1-246-783-00	CARBON	1K	1/8W	
R064	1-246-783-00	CARBON	1K	1/8W	
R071	1-246-842-00	CARBON	750	1/8W	
R072	1-246-769-00	CARBON	68	1/8W	
R073	1-244-853-00	CARBON	150 5%	1/2W	
R074	1-244-853-00	CARBON	150 5%	1/2W	
R075	1-246-783-00	CARBON	1K	1/8W	
R077	1-246-783-00	CARBON	1K	1/8W	
R078	1-246-795-00	CARBON	10K	1/8W	
R079	1-246-801-00	CARBON	33K	1/8W	
R080	1-246-785-00	CARBON	1.5K	1/8W	
R081	1-246-852-00	CARBON	5.1K	1/8W	
R082	1-246-777-00	CARBON	330	1/8W	
R083	1-246-789-00	CARBON	3.3K	1/8W	
R084	1-246-801-00	CARBON	33K	1/8W	
R085	1-246-787-00	CARBON	2.2K	1/8W	
R086	1-246-771-00	CARBON	100	1/8W	
R087	1-246-847-00	CARBON	2K	1/8W	
R088	1-246-782-00	CARBON	820	1/8W	
R089	1-246-851-00	CARBON	4.3K	1/8W	
R090	1-246-811-00	CARBON	220K	1/8W	
R091	1-246-801-00	CARBON	33K	1/8W	
R092	1-246-801-00	CARBON	33K	1/8W	
R093	1-246-787-00	CARBON	2.2K	1/8W	
R094	1-246-799-00	CARBON	22K	1/8W	
R095	1-246-803-00	CARBON	47K	1/8W	
R096	1-246-807-00	CARBON	100K	1/8W	
R098	1-246-795-00	CARBON	10K	1/8W	
R099	1-246-840-00	CARBON	510	1/8W	
R100	1-246-861-00	CARBON	30K	1/8W	
R101	1-246-865-00	CARBON	62K	1/8W	
R102	1-246-796-00	CARBON	12K	1/8W	
R103	1-246-830-00	CARBON	75	1/8W	
R104	1-246-776-00	CARBON	270	1/8W	
R106	1-246-773-00	CARBON	150	1/8W	
R111	1-246-811-00	CARBON	220K	1/8W	
R112	1-246-791-00	CARBON	4.7K	1/8W	
R113	1-246-811-00	CARBON	220K	1/8W	
R114	1-246-783-00	CARBON	1K	1/8W	
R115	1-246-783-00	CARBON	1K	1/8W	
R116	1-246-779-00	CARBON	470	1/8W	
R117	1-246-799-00	CARBON	22K	1/8W	
R118	1-246-795-00	CARBON	10K	1/8W	
R119	1-246-785-00	CARBON	1.5K	1/8W	
R120	1-246-786-00	CARBON	1.8K	1/8W	
R121	1-246-791-00	CARBON	4.7K	1/8W	

NOTE:

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

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

YC-23

Ref.No.	Part No.	Description			Remark
R122	1-246-784-00	CARBON	1.2K	1/8W	
R123	1-246-771-00	CARBON	100	1/8W	
R124	1-246-791-00	CARBON	4.7K	1/8W	
R125	1-246-783-00	CARBON	1K	1/8W	
R126	1-246-783-00	CARBON	1K	1/8W	
R127	1-246-784-00	CARBON	1.2K	1/8W	
R128	1-246-787-00	CARBON	2.2K	1/8W	
R129	1-246-811-00	CARBON	220K	1/8W	
R130	1-246-783-00	CARBON	1K	1/8W	
R131	1-246-811-00	CARBON	220K	1/8W	
R132	1-246-775-00	CARBON	220	1/8W	
R133	1-246-801-00	CARBON	33K	1/8W	
R134	1-246-791-00	CARBON	4.7K	1/8W	
R135	1-246-792-00	CARBON	5.6K	1/8W	
R136	1-246-807-00	CARBON	100K	1/8W	
R137	1-246-798-00	CARBON	18K	1/8W	
R138	1-246-861-00	CARBON	30K	1/8W	
R139	1-246-781-00	CARBON	680	1/8W	
R140	1-246-792-00	CARBON	5.6K	1/8W	
R141	1-246-771-00	CARBON	100	1/8W	
R142	1-246-840-00	CARBON	510	1/8W	
R143	1-246-799-00	CARBON	22K	1/8W	
R144	1-246-791-00	CARBON	4.7K	1/8W	
R145	1-246-778-00	CARBON	390	1/8W	
R146	1-246-787-00	CARBON	2.2K	1/8W	
R147	1-246-778-00	CARBON	390	1/8W	
R148	1-246-778-00	CARBON	390	1/8W	
R149	1-246-778-00	CARBON	390	1/8W	
R150	1-246-778-00	CARBON	390	1/8W	
R151	1-246-787-00	CARBON	2.2K	1/8W	
R152	1-246-778-00	CARBON	390	1/8W	
R153	1-246-791-00	CARBON	4.7K	1/8W	
R154	1-246-789-00	CARBON	3.3K	1/8W	
R155	1-246-795-00	CARBON	10K	1/8W	
R156	1-246-842-00	CARBON	750	1/8W	
R157	1-246-791-00	CARBON	4.7K	1/8W	
R158	1-246-786-00	CARBON	1.8K	1/8W	
R159	1-246-776-00	CARBON	270	1/8W	
R160	1-246-787-00	CARBON	2.2K	1/8W	
R161	1-246-783-00	CARBON	1K	1/8W	
R162	1-246-823-00	CARBON	20	1/8W	
R163	1-246-792-00	CARBON	5.6K	1/8W	
R164	1-246-792-00	CARBON	5.6K	1/8W	
R165	1-246-787-00	CARBON	2.2K	1/8W	
R166	1-246-793-00	CARBON	6.8K	1/8W	
R167	1-246-783-00	CARBON	1K	1/8W	
R168	1-246-795-00	CARBON	10K	1/8W	
R169	1-246-781-00	CARBON	680	1/8W	
R170	1-246-804-00	CARBON	56K	1/8W	
R171	1-246-795-00	CARBON	10K	1/8W	
R172	1-246-804-00	CARBON	56K	1/8W	
R173	1-246-789-00	CARBON	3.3K	1/8W	
R174	1-246-794-00	CARBON	8.2K	1/8W	

Ref.No.	Part No.	Description			Remark
R175	1-246-783-00	CARBON	1K	1/8W	
R176	1-246-782-00	CARBON	820	1/8W	
R177	1-246-785-00	CARBON	1.5K	1/8W	
R178	1-246-842-00	CARBON	750	1/8W	
R179	1-246-777-00	CARBON	330	1/8W	
R180	1-246-804-00	CARBON	56K	1/8W	
R181	1-246-795-00	CARBON	10K	1/8W	
R182	1-246-783-00	CARBON	1K	1/8W	
R183	1-246-793-00	CARBON	6.8K	1/8W	
R184	1-246-786-00	CARBON	1.8K	1/8W	
R185	1-246-811-00	CARBON	220K	1/8W	
R186	1-246-852-00	CARBON	5.1K	1/8W	
R187	1-246-795-00	CARBON	10K	1/8W	
R188	1-246-802-00	CARBON	39K	1/8W	
R189	1-246-787-00	CARBON	2.2K	1/8W	
R190	1-246-789-00	CARBON	3.3K	1/8W	
R191	1-246-860-00	CARBON	24K	1/8W	
R192	1-246-801-00	CARBON	33K	1/8W	
R193	1-246-784-00	CARBON	1.2K	1/8W	
R194	1-246-797-00	CARBON	15K	1/8W	
R195	1-246-795-00	CARBON	10K	1/8W	
R196	1-246-778-00	CARBON	390	1/8W	
R197	1-246-770-00	CARBON	82	1/8W	
R198	1-246-771-00	CARBON	100	1/8W	
R199	1-246-779-00	CARBON	470	1/8W	
R200	1-244-857-00	CARBON	220 5%	1/2W	
R201	1-246-799-00	CARBON	22K	1/8W	
R202	1-246-795-00	CARBON	10K	1/8W	
R203	1-246-801-00	CARBON	33K	1/8W	
R204	1-246-811-00	CARBON	220K	1/8W	
R205	1-246-811-00	CARBON	220K	1/8W	
R206	1-246-811-00	CARBON	220K	1/8W	
R207	1-246-775-00	CARBON	220	1/8W	
R208	1-246-828-00	CARBON	51	1/8W	
R209	1-246-840-00	CARBON	510	1/8W	
R214	1-246-851-00	CARBON	4.3K	1/8W	
R215	1-246-802-00	CARBON	39K	1/8W	
R216	1-246-783-00	CARBON	1K	1/8W	
R217	1-246-789-00	CARBON	3.3K	1/8W	
R218	1-246-795-00	CARBON	10K	1/8W	
R219	1-246-792-00	CARBON	5.6K	1/8W	
R220	1-246-796-00	CARBON	12K	1/8W	
R221	1-246-852-00	CARBON	5.1K	1/8W	
R222	1-246-779-00	CARBON	470	1/8W	
R223	1-246-783-00	CARBON	1K	1/8W	
R224	1-246-780-00	CARBON	560	1/8W	
R225	1-246-804-00	CARBON	56K	1/8W	
R226	1-246-779-00	CARBON	470	1/8W	
R227	1-246-809-00	CARBON	150K	1/8W	
R228	1-246-798-00	CARBON	18K	1/8W	
R229	1-246-805-00	CARBON	68K	1/8W	
R230	1-246-789-00	CARBON	3.3K	1/8W	
R231	1-246-843-00	CARBON	910	1/8W	

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

Ref.No.	Part No.	Description			Remark
R232	1-246-777-00	CARBON	330	1/8W	
R233	1-246-847-00	CARBON	2K	1/8W	
R234	1-246-799-00	CARBON	22K	1/8W	
R236	1-246-789-00	CARBON	3.3K	1/8W	
R242	1-246-779-00	CARBON	470	1/8W	
R243	1-246-855-00	CARBON	9.1K	1/8W	
R244	1-246-785-00	CARBON	1.5K	1/8W	
R245	1-246-791-00	CARBON	4.7K	1/8W	
R246	1-246-783-00	CARBON	1K	1/8W	
R247	1-246-807-00	CARBON	100K	1/8W	
R248	1-246-847-00	CARBON	2K	1/8W	
R249	1-246-799-00	CARBON	22K	1/8W	
R250	1-246-787-00	CARBON	2.2K	1/8W	
R251	1-246-863-00	CARBON	43K	1/8W	
R252	1-246-787-00	CARBON	2.2K	1/8W	
R253	1-246-801-00	CARBON	33K	1/8W	
R254	1-246-779-00	CARBON	470	1/8W	
R255	1-246-797-00	CARBON	15K	1/8W	
R256	1-246-789-00	CARBON	3.3K	1/8W	
R257	1-246-779-00	CARBON	470	1/8W	
R258	1-246-777-00	CARBON	330	1/8W	
R259	1-246-797-00	CARBON	15K	1/8W	
R260	1-246-851-00	CARBON	4.3K	1/8W	
R261	1-246-841-00	CARBON	620	1/8W	
R262	1-246-837-00	CARBON	300	1/8W	
R263	1-246-783-00	CARBON	1K	1/8W	
R264	1-246-783-00	CARBON	1K	1/8W	
R265	1-246-779-00	CARBON	470	1/8W	
R266	1-246-777-00	CARBON	330	1/8W	
R267	1-246-843-00	CARBON	910	1/8W	
R268	1-246-795-00	CARBON	10K	1/8W	
R269	1-246-788-00	CARBON	2.7K	1/8W	
R270	1-246-799-00	CARBON	22K	1/8W	
R271	1-246-794-00	CARBON	8.2K	1/8W	
R272	1-246-791-00	CARBON	4.7K	1/8W	
R273	1-246-807-00	CARBON	100K	1/8W	
R274	1-246-783-00	CARBON	1K	1/8W	
R275	1-246-783-00	CARBON	1K	1/8W	
R278	1-246-773-00	CARBON	150	1/8W	
R279	1-246-780-00	CARBON	560	1/8W	
R280	1-246-779-00	CARBON	470	1/8W	
R281	1-246-847-00	CARBON	2K	1/8W	
R282	1-246-795-00	CARBON	10K	1/8W	
R284	1-246-467-00	CARBON	560 5%	1/4W	
R285	1-246-780-00	CARBON	560	1/8W	
R299	1-246-808-00	CARBON	120K	1/8W	
R300	1-246-838-00	CARBON	360	1/8W	
R301	1-246-783-00	CARBON	1K	1/8W	
R401	1-246-805-00	CARBON	68K	1/8W	
R402	1-246-805-00	CARBON	68K	1/8W	
R403	1-246-457-00	CARBON	220 5%	1/4W	
R404	1-246-775-00	CARBON	220	1/8W	

Ref.No.	Part No.	Description	Remark
		VARIABLE RESISTOR	
RV001	1-226-851-00	RES, ADJ, CARBON 10K	
RV002	1-224-250-XX	RES, ADJ, METAL GLAZE 2.2K	
RV003	1-226-854-00	RES, ADJ, CARBON 100K	
RV004	1-226-846-00	RES, ADJ, CARBON 470	
RV005	1-226-847-00	RES, ADJ, CARBON 1K	
RV006	1-226-853-00	RES, ADJ, CARBON 47K	
RV007	1-226-850-00	RES, ADJ, CARBON 4.7K	
RV008	1-226-848-00	RES, ADJ, CARBON 2.2K	
RV009	1-226-848-00	RES, ADJ, CARBON 2.2K	
RV010	1-226-847-00	RES, ADJ, CARBON 1K	
RV011	1-226-847-00	RES, ADJ, CARBON 1K	
RV012	1-226-850-00	RES, ADJ, CARBON 4.7K	
RV013	1-226-852-00	RES, ADJ, CARBON 22K	
RV014	1-226-851-00	RES, ADJ, CARBON 10K	
RV015	1-226-846-00	RES, ADJ, CARBON 470	
RV016	1-226-847-00	RES, ADJ, CARBON 1K	
RV017	1-226-847-00	RES, ADJ, CARBON 1K	
RV018	1-226-857-00	RES, ADJ, CARBON 470K	
RV019	1-226-848-00	RES, ADJ, CARBON 2.2K	
RV020	1-226-851-00	RES, ADJ, CARBON 10K	
RV021	1-226-850-00	RES, ADJ, CARBON 4.7K	
RV022	1-226-845-31	RES, ADJ, CARBON 330	
RV023	1-226-850-00	RES, ADJ, CARBON 4.7K	
		SWITCH	
SW001	1-553-831-00	SWITCH, SLIDE	
		TRANSFORMER	
T001	1-409-321-00	COIL, TRAP	
T002	1-408-673-00	COIL, EQT	
T003	1-426-093-00	COIL, REC C BPT	
T004	1-408-672-00	COIL, BAT	
T005	1-408-671-00	COIL, PST	
T006	1-406-010-00	COIL, OSC	
T007	1-405-803-00	COIL, OSC	
T008	1-426-064-00	COIL (BPT)	
T009	1-411-110-00	COIL (TUNING-T)	
		CRYSTAL	
X001	1-527-345-00	CRYSTAL, OSC	
X002	1-527-353-00	CRYSTAL, OSC	

****

♣:A-6713-145-A	SS-9 BOARD, COMPLETE		
	**********		
♣:3-655-214-00	CLIP, CABLE		
	CAPACITOR		
C001	1-101-006-00	CERAMIC	0.047MF 50V
C002	1-123-901-00	ELECT	2.2MF 20% 50V

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

SS-9

Ref.No.	Part No.	Description			Remark
C004	1-130-474-00	MYLAR	0.0018MF	5%	50V
C005	1-123-379-00	ELECT	0.47MF	20%	50V
C006	1-101-006-00	CERAMIC	0.047MF		50V
C007	1-127-468-00	ELECT(SOLID)	0.22MF	5%	16V
C008	1-127-468-00	ELECT(SOLID)	0.22MF	5%	16V
C009	1-130-477-00	MYLAR	0.0033MF	5%	50V
C012	1-123-356-00	ELECT	10MF	20%	16V
C013	1-123-296-00	ELECT	220MF	20%	6.3V
C014	1-161-328-51	CERAMIC	0.0047MF	30%	50V
C015	1-161-328-51	CERAMIC	0.0047MF	30%	50V
C016	1-127-470-00	ELECT(SOLID)	0.47MF	5%	16V
C017	1-123-328-00	ELECT	4.7MF	20%	25V
C018	1-131-413-00	ELECT(SOLID)	1MF	10%	16V
C019	1-101-006-00	CERAMIC	0.047MF		50V
C020	1-123-901-00	ELECT	2.2MF	20%	50V
C022	1-101-006-00	CERAMIC	0.047MF		50V
C023	1-123-296-00	ELECT	220MF	20%	6.3V
C024	1-123-356-00	ELECT	10MF	20%	16V
C025	1-123-356-00	ELECT	10MF	20%	16V
C026	1-123-333-00	ELECT	100MF	20%	16V
C027	1-123-298-00	ELECT	470MF	20%	6.3V
C028	1-161-265-00	CERAMIC	33PF	5%	50V
C029	1-161-494-00	CERAMIC	0.022MF	30%	25V
C030	1-161-021-00	CERAMIC	0.047MF	10%	25V
C031	1-123-381-00	ELECT	2.2MF	20%	50V
C032	1-123-332-00	ELECT	47MF	20%	16V
C033	1-123-330-00	ELECT	22MF	20%	16V
C034	1-123-381-00	ELECT	2.2MF	20%	50V
C040	1-101-006-00	CERAMIC	0.047MF		50V
C041	1-123-356-00	ELECT	10MF	20%	16V
C042	1-130-487-00	MYLAR	0.022MF	5%	50V
C043	1-130-487-00	MYLAR	0.022MF	5%	50V
C044	1-127-433-51	ELECT(SOLID)	0.1MF	10%	16V
C045	1-161-323-00	CERAMIC	0.001MF	10%	50V
C046	1-101-006-00	CERAMIC	0.047MF		50V
C047	1-123-901-00	ELECT	2.2MF	20%	50V
C049	1-101-006-00	CERAMIC	0.047MF		50V
C050	1-127-437-51	ELECT(SOLID)	0.47MF	10%	16V
C051	1-123-333-00	ELECT	100MF	20%	16V
C052	1-130-495-00	MYLAR	0.1MF	5%	50V
C053	1-161-323-00	CERAMIC	0.001MF	10%	50V
C054	1-131-413-00	ELECT(SOLID)	1MF	10%	16V
C055	1-123-379-00	ELECT	0.47MF	20%	50V
C056	1-101-006-00	CERAMIC	0.047MF		50V
C057	1-161-330-51	CERAMIC	0.01MF	30%	25V
C058	1-161-025-00	CERAMIC	0.1MF	10%	25V
C059	1-161-323-00	CERAMIC	0.001MF	10%	50V
C060	1-127-470-00	ELECT(SOLID)	0.47MF	5%	16V
C061	1-131-415-00	ELECT(SOLID)	0.68MF	10%	16V
C062	1-123-323-00	ELECT	470MF	20%	16V
C063	1-127-437-51	ELECT(SOLID)	0.47MF	10%	16V
C064	1-123-382-00	ELECT	3.3MF	20%	50V
C065	1-123-318-00	ELECT	33MF	20%	16V
C066	1-130-026-00	FILM	0.0047MF	5%	50V
C067	1-161-323-00	CERAMIC	0.001MF	10%	50V
C068	1-102-978-00	CERAMIC	220PF	5%	50V
C069	1-161-323-00	CERAMIC	0.001MF	10%	50V
C070	1-123-328-00	ELECT	4.7MF	20%	25V
C071	1-161-313-00	CERAMIC	150PF	10%	50V
C072	1-108-573-00	MYLAR	0.0056MF	5%	50V
C073	1-161-772-11	CERAMIC	0.1MF	10%	25V
C075	1-123-332-00	ELECT	47MF	20%	16V
C076	1-123-381-00	ELECT	2.2MF	20%	50V
C081	1-101-004-00	CERAMIC	0.01MF		50V
C501	1-102-980-00	CERAMIC	270PF	5%	50V
C502	1-102-114-00	CERAMIC	470PF	10%	50V
C504	1-123-380-00	ELECT	1MF	20%	50V
C505	1-123-379-00	ELECT	0.47MF	20%	50V
C506	1-123-380-00	ELECT	1MF	20%	50V
C507	1-123-380-00	ELECT	1MF	20%	50V
C508	1-123-356-00	ELECT	10MF	20%	16V
C510	1-161-323-00	CERAMIC	0.001MF	10%	50V
C511	1-161-323-00	CERAMIC	0.001MF	10%	50V

FILTER

CF501	1-527-532-00	OSCILLATOR, CERAMIC

CONNECTOR

CN002♣	1-508-742-00	PIN, CONNECTOR 3P
CN003♣	1-508-742-00	PIN, CONNECTOR 3P
CN004♣	1-508-742-00	PIN, CONNECTOR 3P
CN005♣	1-508-742-00	PIN, CONNECTOR 3P
CN006♣	1-508-845-00	PIN, CONNECTOR 6P
CN007♣	1-508-744-00	PIN, CONNECTOR 10P
CN008♣	1-508-744-00	PIN, CONNECTOR 10P
CN009	1-508-910-00	PIN, CONNECTOR 12P
CN010♣	1-508-910-00	PIN, CONNECTOR 12P
CN011♣	1-508-742-00	PIN, CONNECTOR 3P

DIODE

D001	8-719-815-55	DIODE 1S1555
D002	8-719-815-55	DIODE 1S1555
D003	8-719-815-55	DIODE 1S1555
D004	8-719-815-55	DIODE 1S1555
D007	8-719-815-55	DIODE 1S1555
D008	8-719-815-55	DIODE 1S1555
D009	8-719-815-55	DIODE 1S1555
D010	8-719-815-55	DIODE 1S1555
D019	8-719-100-68	DIODE RD13E-B2
D020	8-719-815-55	DIODE 1S1555
D021	8-719-100-38	DIODE RD6.2E-B2
D022	8-719-815-55	DIODE 1S1555
D024	8-719-815-55	DIODE 1S1555
D028	=>8-719-815-55	DIODE 1S1555
D029	=>8-719-815-55	DIODE 1S1555
D030	8-719-815-55	DIODE 1S1555

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

Ref.No.	Part No.	Description	Remark
D031	8-719-815-55	DIODE 1S1555	
D032	8-719-815-55	DIODE 1S1555	
D501	8-719-200-02	DIODE 10E2	
D502	8-719-200-02	DIODE 10E2	
D503	8-719-815-55	DIODE 1S1555	
D504	8-719-100-44	DIODE RD7.5E-B2	
D506	8-719-815-55	DIODE 1S1555	
D507	8-719-100-35	DIODE RD5.6E-B2	
D508	8-719-815-55	DIODE 1S1555	
D509	8-719-100-44	DIODE RD7.5E-B2	
D510	8-719-815-55	DIODE 1S1555	
D511	8-719-815-55	DIODE 1S1555	
D512	8-719-815-55	DIODE 1S1555	
D513	8-719-815-55	DIODE 1S1555	
D515	8-719-815-55	DIODE 1S1555	
D516	8-719-815-55	DIODE 1S1555	
D517	8-719-118-07	DIODE RD18E-B	
		IC	
IC001	8-751-430-00	IC CX-143A	
IC002	8-759-271-20	IC TA7120P	
IC003	8-759-601-86	IC CX-186	
IC004	8-759-100-06	IC UPC4556C	
IC501	8-759-100-38	IC UPD553C-167	
		JUMPER	
JW077	1-217-587-00	RES, SHORT 0.02	
		TRANSISTOR	
Q001	=>8-729-245-83	TRANSISTOR 2SC2458	
Q002	=>8-729-245-83	TRANSISTOR 2SC2458	
Q003	=>8-729-245-83	TRANSISTOR 2SC2458	
Q006	=>8-729-245-83	TRANSISTOR 2SC2458	
Q007	=>8-729-245-83	TRANSISTOR 2SC2458	
Q008	=>8-729-245-83	TRANSISTOR 2SC2458	
Q009	=>8-729-117-54	TRANSISTOR 2SA1175	
Q010	=>8-729-117-54	TRANSISTOR 2SA1175	
Q014	=>8-729-245-83	TRANSISTOR 2SC2458	
Q015	=>8-729-245-83	TRANSISTOR 2SC2458	
Q016	8-729-113-32	TRANSISTOR 2SB733	
Q017	=>8-729-117-54	TRANSISTOR 2SA1175	
Q018	=>8-729-245-83	TRANSISTOR 2SC2458	
Q019	=>8-729-117-54	TRANSISTOR 2SA1175	
Q028	=>8-729-245-83	TRANSISTOR 2SC2458	
Q029	=>8-729-245-83	TRANSISTOR 2SC2458	
Q030	=>8-729-117-54	TRANSISTOR 2SA1175	
Q032	=>8-729-117-54	TRANSISTOR 2SA1175	
Q033	=>8-729-245-83	TRANSISTOR 2SC2458	
Q501	8-729-117-54	TRANSISTOR 2SA1175	
Q502	=>8-729-245-83	TRANSISTOR 2SC2458	
Q503	=>8-729-245-83	TRANSISTOR 2SC2458	
Q504	=>8-729-245-83	TRANSISTOR 2SC2458	
Q505	=>8-729-245-83	TRANSISTOR 2SC2458	
Q506	=>8-729-245-83	TRANSISTOR 2SC2458	
Q507	=>8-729-245-83	TRANSISTOR 2SC2458	
Q508	=>8-729-245-83	TRANSISTOR 2SC2458	
Q509	=>8-729-117-54	TRANSISTOR 2SA1175	
Q510	8-729-113-32	TRANSISTOR 2SB733	
Q511	=>8-729-117-54	TRANSISTOR 2SA1175	
Q512	=>8-729-117-54	TRANSISTOR 2SA1175	
Q513	=>8-729-117-54	TRANSISTOR 2SA1175	
Q514	=>8-729-374-02	TRANSISTOR 2SB740	
Q515	=>8-729-245-83	TRANSISTOR 2SC2458	
Q516	=>8-729-245-83	TRANSISTOR 2SC2458	
Q517	=>8-729-245-83	TRANSISTOR 2SC2458	
Q518	=>8-729-245-83	TRANSISTOR 2SC2458	
Q519	=>8-729-245-83	TRANSISTOR 2SC2458	
Q520	=>8-729-245-83	TRANSISTOR 2SC2458	
Q521	=>8-729-245-83	TRANSISTOR 2SC2458	
Q522	=>8-729-245-83	TRANSISTOR 2SC2458	
Q523	=>8-729-245-83	TRANSISTOR 2SC2458	
Q526	=>8-729-117-54	TRANSISTOR 2SA1175	
Q527	=>8-729-245-83	TRANSISTOR 2SC2458	
Q528	=>8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description			Remark
R001	1-246-475-00	CARBON	1.2K	5% 1/4W	
R002	1-246-497-00	CARBON	10K	5% 1/4W	
R003	1-246-509-00	CARBON	33K	5% 1/4W	
R004	1-246-491-00	CARBON	5.6K	5% 1/4W	
R005	1-246-489-00	CARBON	4.7K	5% 1/4W	
R006	1-246-545-00	CARBON	1M	5% 1/4W	
R007	1-246-507-00	CARBON	27K	5% 1/4W	
R008	1-246-493-00	CARBON	6.8K	5% 1/4W	
R009	1-246-493-00	CARBON	6.8K	5% 1/4W	
R010	1-246-507-00	CARBON	27K	5% 1/4W	
R011	1-246-517-00	CARBON	68K	5% 1/4W	
R012	1-246-473-00	CARBON	1K	5% 1/4W	
R013	1-246-507-00	CARBON	27K	5% 1/4W	
R014	1-246-520-00	CARBON	91K	5% 1/4W	
R015	1-246-485-00	CARBON	3.3K	5% 1/4W	
R019	1-246-485-00	CARBON	3.3K	5% 1/4W	
R020	1-246-485-00	CARBON	3.3K	5% 1/4W	
R021	1-246-497-00	CARBON	10K	5% 1/4W	
R022	1-246-501-00	CARBON	15K	5% 1/4W	
R023	1-246-509-00	CARBON	33K	5% 1/4W	
R024	1-246-489-00	CARBON	4.7K	5% 1/4W	
R025	1-246-519-00	CARBON	82K	5% 1/4W	
R026	1-246-474-00	CARBON	1.1K	5% 1/4W	
R027	1-246-509-00	CARBON	33K	5% 1/4W	
R028	1-246-501-00	CARBON	15K	5% 1/4W	
R029	1-246-505-00	CARBON	22K	5% 1/4W	
R030	1-246-469-00	CARBON	680	5% 1/4W	
R031	1-246-501-00	CARBON	15K	5% 1/4W	
R032	1-246-497-00	CARBON	10K	5% 1/4W	
R033	1-246-535-00	CARBON	390K	5% 1/4W	

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

SS-9

Ref.No.	Part No.	Description				Remark
R034	1-246-497-00	CARBON	10K	5%	1/4W	
R035	1-246-459-00	CARBON	270	5%	1/4W	
R036	1-246-479-00	CARBON	1.8K	5%	1/4W	
R038	1-246-504-00	CARBON	20K	5%	1/4W	
R047	1-246-489-00	CARBON	4.7K	5%	1/4W	
R048	1-246-514-00	CARBON	51K	5%	1/4W	
R049	1-246-455-00	CARBON	180	5%	1/4W	
R050	1-246-477-00	CARBON	1.5K	5%	1/4W	
R051	1-246-473-00	CARBON	1K	5%	1/4W	
R052	1-246-511-00	CARBON	39K	5%	1/4W	
R053	1-246-501-00	CARBON	15K	5%	1/4W	
R054	1-246-473-00	CARBON	1K	5%	1/4W	
R055	1-246-515-00	CARBON	56K	5%	1/4W	
R056	1-246-527-00	CARBON	180K	5%	1/4W	
R057	1-246-471-00	CARBON	820	5%	1/4W	
R058	1-246-477-00	CARBON	1.5K	5%	1/4W	
R059	1-246-462-00	CARBON	360	5%	1/4W	
R060	1-246-483-00	CARBON	2.7K	5%	1/4W	
R061	1-246-485-00	CARBON	3.3K	5%	1/4W	
R062	1-246-443-00	CARBON	56	5%	1/4W	
R063	1-246-501-00	CARBON	15K	5%	1/4W	
R064	1-246-521-00	CARBON	100K	5%	1/4W	
R065	1-246-495-00	CARBON	8.2K	5%	1/4W	
R066	1-246-513-00	CARBON	47K	5%	1/4W	
R067	1-246-505-00	CARBON	22K	5%	1/4W	
R068	1-246-507-00	CARBON	27K	5%	1/4W	
R069	1-246-449-00	CARBON	100	5%	1/4W	
R070	1-246-497-00	CARBON	10K	5%	1/4W	
R071	1-246-497-00	CARBON	10K	5%	1/4W	
R091	1-246-520-00	CARBON	91K	5%	1/4W	
R092	1-246-508-00	CARBON	30K	5%	1/4W	
R093	1-246-511-00	CARBON	39K	5%	1/4W	
R094	1-246-511-00	CARBON	39K	5%	1/4W	
R095	1-246-493-00	CARBON	6.8K	5%	1/4W	
R096	1-246-493-00	CARBON	6.8K	5%	1/4W	
R097	1-202-472-00	COMPOSITION	5.1M	5%	1/4W	
R098	1-246-514-00	CARBON	51K	5%	1/4W	
R099	1-246-489-00	CARBON	4.7K	5%	1/4W	
R101	1-246-425-00	CARBON	10	5%	1/4W	
R102	1-214-161-00	METAL	16K	1%	1/4W	
R103	1-246-524-00	CARBON	130K	5%	1/4W	
R104	1-246-509-00	CARBON	33K	5%	1/4W	
R105	1-246-495-00	CARBON	8.2K	5%	1/4W	
R106	1-246-523-00	CARBON	120K	5%	1/4W	
R107	1-246-497-00	CARBON	10K	5%	1/4W	
R108	1-246-519-00	CARBON	82K	5%	1/4W	
R109	1-246-501-00	CARBON	15K	5%	1/4W	
R110	1-246-532-00	CARBON	300K	5%	1/4W	
R111	1-246-465-00	CARBON	470	5%	1/4W	
R112	1-246-479-00	CARBON	1.8K	5%	1/4W	
R113	1-246-489-00	CARBON	4.7K	5%	1/4W	
R114	1-246-503-00	CARBON	18K	5%	1/4W	
R115	1-246-473-00	CARBON	1K	5%	1/4W	
R116	1-246-509-00	CARBON	33K	5%	1/4W	
R117	1-246-496-00	CARBON	9.1K	5%	1/4W	
R118	1-246-496-00	CARBON	9.1K	5%	1/4W	
R119	1-246-509-00	CARBON	33K	5%	1/4W	
R120	1-246-442-00	CARBON	51	5%	1/4W	
R121	1-246-509-00	CARBON	33K	5%	1/4W	
R122	1-246-503-00	CARBON	18K	5%	1/4W	
R123	1-246-497-00	CARBON	10K	5%	1/4W	
R125	1-246-527-00	CARBON	180K	5%	1/4W	
R126	1-246-497-00	CARBON	10K	5%	1/4W	
R128	1-246-499-00	CARBON	12K	5%	1/4W	
R129	1-246-495-00	CARBON	8.2K	5%	1/4W	
R130	1-246-517-00	CARBON	68K	5%	1/4W	
R131	1-246-501-00	CARBON	15K	5%	1/4W	
R132	1-246-501-00	CARBON	15K	5%	1/4W	
R134	1-246-477-00	CARBON	1.5K	5%	1/4W	
R135	1-246-535-00	CARBON	390K	5%	1/4W	
R136	1-246-497-00	CARBON	10K	5%	1/4W	
R137	1-246-497-00	CARBON	10K	5%	1/4W	
R139	1-202-472-00	COMPOSITION	5.1M	5%	1/4W	
R143	1-246-473-00	CARBON	1K	5%	1/4W	
R144	1-246-521-00	CARBON	100K	5%	1/4W	
R145	1-246-499-00	CARBON	12K	5%	1/4W	
R146	1-246-513-00	CARBON	47K	5%	1/4W	
R147	1-246-527-00	CARBON	180K	5%	1/4W	
R148	1-246-497-00	CARBON	10K	5%	1/4W	
R149	1-246-509-00	CARBON	33K	5%	1/4W	
R150	1-246-542-00	CARBON	750K	5%	1/4W	
R151	1-246-473-00	CARBON	1K	5%	1/4W	
R153	⚠1-212-855-00	FUSIBLE	8.2	5%	1/4W	F
R501	1-246-485-00	CARBON	3.3K	5%	1/4W	
R502	1-246-521-00	CARBON	100K	5%	1/4W	
R503	1-246-497-00	CARBON	10K	5%	1/4W	
R504	1-246-521-00	CARBON	100K	5%	1/4W	
R505	1-246-497-00	CARBON	10K	5%	1/4W	
R506	1-246-521-00	CARBON	100K	5%	1/4W	
R507	1-246-497-00	CARBON	10K	5%	1/4W	
R508	1-246-521-00	CARBON	100K	5%	1/4W	
R509	1-246-497-00	CARBON	10K	5%	1/4W	
R510	1-246-521-00	CARBON	100K	5%	1/4W	
R511	1-246-495-00	CARBON	8.2K	5%	1/4W	
R512	1-246-492-00	CARBON	6.2K	5%	1/4W	
R513	1-246-521-00	CARBON	100K	5%	1/4W	
R514	1-246-505-00	CARBON	22K	5%	1/4W	
R515	1-246-521-00	CARBON	100K	5%	1/4W	
R516	1-246-497-00	CARBON	10K	5%	1/4W	
R517	1-246-521-00	CARBON	100K	5%	1/4W	
R518	1-246-497-00	CARBON	10K	5%	1/4W	
R519	1-246-481-00	CARBON	2.2K	5%	1/4W	
R520	1-246-481-00	CARBON	2.2K	5%	1/4W	
R521	1-246-497-00	CARBON	10K	5%	1/4W	
R522	1-246-515-00	CARBON	56K	5%	1/4W	
R523	1-246-515-00	CARBON	56K	5%	1/4W	

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

NOTE:

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

Ref.No.	Part No.	Description				Remark
R524	1-246-497-00	CARBON	10K	5%	1/4W	
R525	1-246-481-00	CARBON	2.2K	5%	1/4W	
R526	1-246-481-00	CARBON	2.2K	5%	1/4W	
R527	1-246-481-00	CARBON	2.2K	5%	1/4W	
R528	1-246-481-00	CARBON	2.2K	5%	1/4W	
R529	1-246-481-00	CARBON	2.2K	5%	1/4W	
R530	1-246-481-00	CARBON	2.2K	5%	1/4W	
R531	1-246-497-00	CARBON	10K	5%	1/4W	
R532	1-246-497-00	CARBON	10K	5%	1/4W	
R533	1-246-505-00	CARBON	22K	5%	1/4W	
R534	1-246-505-00	CARBON	22K	5%	1/4W	
R536	1-246-505-00	CARBON	22K	5%	1/4W	
R537	1-246-497-00	CARBON	10K	5%	1/4W	
R538	1-246-505-00	CARBON	22K	5%	1/4W	
R539	1-246-505-00	CARBON	22K	5%	1/4W	
R540	1-246-475-00	CARBON	1.2K	5%	1/4W	
R541	1-246-497-00	CARBON	10K	5%	1/4W	
R542	1-246-505-00	CARBON	22K	5%	1/4W	
R543	1-246-505-00	CARBON	22K	5%	1/4W	
R544	1-246-491-00	CARBON	5.6K	5%	1/4W	
R545	1-246-497-00	CARBON	10K	5%	1/4W	
R555	1-246-505-00	CARBON	22K	5%	1/4W	
R556	1-246-505-00	CARBON	22K	5%	1/4W	
R557	1-246-505-00	CARBON	22K	5%	1/4W	
R558	1-246-497-00	CARBON	10K	5%	1/4W	
R559	1-246-505-00	CARBON	22K	5%	1/4W	
R560	1-246-505-00	CARBON	22K	5%	1/4W	
R561	1-246-505-00	CARBON	22K	5%	1/4W	
R562	1-246-497-00	CARBON	10K	5%	1/4W	
R563	1-246-515-00	CARBON	56K	5%	1/4W	
R564	1-246-470-00	CARBON	750	5%	1/4W	
R565	1-246-505-00	CARBON	22K	5%	1/4W	
R566	1-246-505-00	CARBON	22K	5%	1/4W	
R567	1-246-487-00	CARBON	3.9K	5%	1/4W	
R568	1-246-497-00	CARBON	10K	5%	1/4W	
R569	1-246-473-00	CARBON	1K	5%	1/4W	
R570	1-246-519-00	CARBON	82K	5%	1/4W	
R571	1-246-505-00	CARBON	22K	5%	1/4W	
R572	1-246-519-00	CARBON	82K	5%	1/4W	
R573	1-246-505-00	CARBON	22K	5%	1/4W	
R574	1-246-519-00	CARBON	82K	5%	1/4W	
R575	1-246-505-00	CARBON	22K	5%	1/4W	
R576	1-246-519-00	CARBON	82K	5%	1/4W	
R577	1-246-505-00	CARBON	22K	5%	1/4W	
R578	1-246-519-00	CARBON	82K	5%	1/4W	
R579	1-246-505-00	CARBON	22K	5%	1/4W	
R580	1-246-519-00	CARBON	82K	5%	1/4W	
R581	1-246-505-00	CARBON	22K	5%	1/4W	
R582	1-246-497-00	CARBON	10K	5%	1/4W	
R583	1-246-497-00	CARBON	10K	5%	1/4W	
R584	1-246-473-00	CARBON	1K	5%	1/4W	
R585	1-246-471-00	CARBON	820	5%	1/4W	
R586	1-246-481-00	CARBON	2.2K	5%	1/4W	
R587	1-246-481-00	CARBON	2.2K	5%	1/4W	
R589	1-246-477-00	CARBON	1.5K	5%	1/4W	
R590	1-246-505-00	CARBON	22K	5%	1/4W	
R591	1-246-505-00	CARBON	22K	5%	1/4W	
R592	1-246-495-00	CARBON	8.2K	5%	1/4W	
R593	1-246-483-00	CARBON	2.7K	5%	1/4W	
R594	1-246-505-00	CARBON	22K	5%	1/4W	
R595	1-246-521-00	CARBON	100K	5%	1/4W	
R596	1-246-497-00	CARBON	10K	5%	1/4W	
R597	1-246-505-00	CARBON	22K	5%	1/4W	
R598	1-246-505-00	CARBON	22K	5%	1/4W	
R599	1-246-505-00	CARBON	22K	5%	1/4W	
R600	1-246-505-00	CARBON	22K	5%	1/4W	
R601	1-246-497-00	CARBON	10K	5%	1/4W	
R602	1-246-521-00	CARBON	100K	5%	1/4W	
R603	1-246-505-00	CARBON	22K	5%	1/4W	
R604	1-246-505-00	CARBON	22K	5%	1/4W	
R605	1-246-513-00	CARBON	47K	5%	1/4W	
R606	1-246-497-00	CARBON	10K	5%	1/4W	
R607	1-246-515-00	CARBON	56K	5%	1/4W	
R612	1-246-505-00	CARBON	22K	5%	1/4W	
R613	1-246-505-00	CARBON	22K	5%	1/4W	
R614	1-246-505-00	CARBON	22K	5%	1/4W	
R615	1-246-497-00	CARBON	10K	5%	1/4W	
R616	1-246-505-00	CARBON	22K	5%	1/4W	
R617	1-246-505-00	CARBON	22K	5%	1/4W	
R618	1-246-473-00	CARBON	1K	5%	1/4W	
R620	1-246-513-00	CARBON	47K	5%	1/4W	
R621	1-246-537-00	CARBON	470K	5%	1/4W	
R622	1-246-537-00	CARBON	470K	5%	1/4W	
R623	1-246-521-00	CARBON	100K	5%	1/4W	
R624	1-246-497-00	CARBON	10K	5%	1/4W	
R625	1-246-521-00	CARBON	100K	5%	1/4W	
R626	1-246-537-00	CARBON	470K	5%	1/4W	
R627	1-246-515-00	CARBON	56K	5%	1/4W	

VARIABLE RESISTOR

RV001	1-226-852-00	RES, ADJ, CARBON 22K
RV004	1-226-497-00	RES, VAR, CARBON 100K
RV006	1-226-853-00	RES, ADJ, CARBON 47K
RV007	1-226-853-00	RES, ADJ, CARBON 47K
RV008	1-226-853-00	RES, ADJ, CARBON 47K
RV009	1-228-630-00	RES, ADJ, METAL GLAZE 4.7K
RV010	1-226-853-00	RES, ADJ, CARBON 47K
RV011	1-226-849-00	RES, ADJ, CARBON 3.3K

****

♣:A-6728-572-A	AD-7 BOARD, COMPLETE	
	**********	
♣:3-671-898-00	CASE (MAIN) (1), SHIELD, VA-A	
♣:3-674-186-00	LID, REAR, SHIELD CASE, AD	
♣:3-677-817-00	INSULATOR (AD)	

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

AD-7

Ref.No.	Part No.	Description			Remark
		CAPACITOR			
C501	1-123-044-51	ELECT	33MF	20%	25V
C502	1-130-474-00	MYLAR	0.0018MF	5%	50V
C503	1-102-106-00	CERAMIC	100PF	10%	50V
C504	1-123-332-00	ELECT	47MF	20%	16V
C505	1-123-332-00	ELECT	47MF	20%	16V
C506	1-130-483-51	MYLAR	0.01MF	5%	50V
C507	1-123-332-00	ELECT	47MF	20%	16V
C509	1-123-617-00	ELECT	10MF	20%	16V
C510	1-102-111-00	CERAMIC	270PF	10%	50V
C511	1-123-617-00	ELECT	10MF	20%	16V
C512	1-123-330-00	ELECT	22MF	20%	16V
C513	1-130-471-00	MYLAR	0.01MF	5%	50V
C516	1-130-484-00	MYLAR	0.012MF	5%	50V
C517	1-123-328-00	ELECT	4.7MF	20%	25V
C518	1-123-328-00	ELECT	4.7MF	20%	25V
C519	1-123-382-00	ELECT	3.3MF	20%	50V
C520	1-123-382-00	ELECT	3.3MF	20%	50V
C521	1-123-617-00	ELECT	10MF	20%	16V
C522	1-123-617-00	ELECT	10MF	20%	16V
C523	1-123-617-00	ELECT	10MF	20%	16V
C524	1-123-645-00	ELECT	33MF	20%	10V
C525	1-123-607-00	ELECT	0.1MF	20%	50V
C526	1-130-492-51	MYLAR	0.056MF	5%	50V
C527	1-123-607-00	ELECT	0.1MF	20%	50V
C528	1-130-483-51	MYLAR	0.01MF	5%	50V
C529	1-130-480-00	MYLAR	0.0056MF	5%	50V
C530	1-130-471-00	MYLAR	0.01MF	5%	50V
C531	1-130-627-00	MYLAR	0.039MF	5%	50V
C532	1-123-340-00	ELECT	4.7MF	20%	35V
C533	1-123-340-00	ELECT	4.7MF	20%	35V
C534	1-123-612-00	ELECT	2.2MF	20%	50V
C535	1-123-617-00	ELECT	10MF	20%	16V
C536	1-102-110-00	CERAMIC	220PF	10%	50V
C537	1-123-612-00	ELECT	2.2MF	20%	50V
C538	1-123-333-00	ELECT	100MF	20%	16V
C539	1-123-332-00	ELECT	47MF	20%	16V
C540	1-123-332-00	ELECT	47MF	20%	16V
C541	1-130-479-00	MYLAR	0.0047MF	5%	50V
C542	1-130-477-00	MYLAR	0.0033MF	5%	50V
C543	1-129-709-00	FILM	0.0039MF	10%	630V
C544	1-123-333-00	ELECT	100MF	20%	25V
C545	1-161-005-00	CERAMIC	0.0022MF	10%	25V
C546	1-123-333-00	ELECT	100MF	20%	25V
C547	1-161-005-00	CERAMIC	0.0022MF	10%	25V
C548	1-123-617-00	ELECT	10MF	20%	16V
C549	1-101-361-00	CERAMIC	150PF	5%	50V
C550	1-123-617-00	ELECT	10MF	20%	16V
C551	1-130-471-00	MYLAR	0.01MF	5%	50V
C554	1-161-025-00	CERAMIC	0.1MF	10%	25V
C555	1-123-611-00	ELECT	1MF	20%	50V
C601	1-123-044-51	ELECT	33MF	20%	25V

Ref.No.	Part No.	Description			Remark
C602	1-130-474-00	MYLAR	0.0018MF	5%	50V
C603	1-102-106-00	CERAMIC	100PF	10%	50V
C605	1-123-332-00	ELECT	47MF	20%	16V
C606	1-130-483-51	MYLAR	0.01MF	5%	50V
C609	1-123-617-00	ELECT	10MF	20%	16V
C610	1-102-111-00	CERAMIC	270PF	10%	50V
C611	1-123-617-00	ELECT	10MF	20%	16V
C612	1-123-330-00	ELECT	22MF	20%	16V
C613	1-130-471-00	MYLAR	0.01MF	5%	50V
C616	1-130-484-00	MYLAR	0.012MF	5%	50V
C617	1-123-328-00	ELECT	4.7MF	20%	25V
C618	1-123-328-00	ELECT	4.7MF	20%	25V
C619	1-123-382-00	ELECT	3.3MF	20%	50V
C620	1-123-382-00	ELECT	3.3MF	20%	50V
C621	1-123-617-00	ELECT	10MF	20%	16V
C622	1-123-617-00	ELECT	10MF	20%	16V
C623	1-123-617-00	ELECT	10MF	20%	16V
C625	1-123-607-00	ELECT	0.1MF	20%	50V
C626	1-130-492-51	MYLAR	0.056MF	5%	50V
C627	1-123-607-00	ELECT	0.1MF	20%	50V
C628	1-130-483-51	MYLAR	0.01MF	5%	50V
C629	1-130-480-00	MYLAR	0.0056MF	5%	50V
C630	1-130-471-00	MYLAR	0.01MF	5%	50V
C631	1-130-627-00	MYLAR	0.039MF	5%	50V
C632	1-123-340-00	ELECT	4.7MF	20%	35V
C633	1-123-340-00	ELECT	4.7MF	20%	35V
C634	1-123-612-00	ELECT	2.2MF	20%	50V
C635	1-123-617-00	ELECT	10MF	20%	16V
C636	1-102-110-00	CERAMIC	220PF	10%	50V
C637	1-123-612-00	ELECT	2.2MF	20%	50V
C638	1-123-333-00	ELECT	100MF	20%	16V
C648	1-123-617-00	ELECT	10MF	20%	16V
C649	1-101-361-00	CERAMIC	150PF	5%	50V
C650	1-123-617-00	ELECT	10MF	20%	16V
C651	1-130-471-00	MYLAR	0.01MF	5%	50V
C654	1-161-025-00	CERAMIC	0.1MF	10%	25V
C655	1-123-611-00	ELECT	1MF	20%	50V

CONNECTOR

CN501	1-508-910-00	PIN, CONNECTOR 12P
CN502♣	1-508-742-00	PIN, CONNECTOR 3P
CN503♣	1-508-742-00	PIN, CONNECTOR 3P
CN504♣	1-508-743-00	PIN, CONNECTOR 5P
CN505♣	1-508-845-00	PIN, CONNECTOR 6P
CN506♣	1-508-742-00	PIN, CONNECTOR 3P

TRIMMER

CV501	1-141-225-00	CAP, TUNING, TRIMMER

DIODE

D501	8-719-911-19	DIODE 1SS119
D503	8-719-911-19	DIODE 1SS119

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

Ref.No.	Part No.	Description	Remark
D504	8-719-911-19	DIODE 1SS119	
D505	8-719-911-19	DIODE 1SS119	
D506	8-719-100-46	DIODE RD7.5E-B3	
D507	8-719-100-46	DIODE RD7.5E-B3	
D508	8-719-911-19	DIODE 1SS119	
D509	8-719-911-19	DIODE 1SS119	
D605	8-719-911-19	DIODE 1SS119	
D608	8-719-911-19	DIODE 1SS119	
		IC	
IC501	8-759-705-62	IC NJM4562D-D	
IC502	8-759-951-02	IC BA5102	
IC503	8-759-145-58	IC UPC4558C	
IC504	8-759-240-53	IC TC4053BP	
IC505	8-759-145-58	IC UPC4558C	
IC506	8-759-905-71	IC NE571N	
IC602	8-759-951-02	IC BA5102	
IC604	8-759-240-53	IC TC4053BP	
IC605	8-759-145-58	IC UPC4558C	
		COIL	
L501	1-433-237-00	TRANSFORMER, OSCILLATOR	
L502	1-408-462-21	MICRO INDUCTOR 470UH	
L503	1-231-726-00	FILTER, LOWPASS	
L504	1-408-221-00	MICRO INDUCTOR 22MMH	
L505	1-408-220-00	MICRO INDUCTOR 18MMH	
L603	1-231-726-00	FILTER, LOWPASS	
L604	1-408-221-00	MICRO INDUCTOR 22MMH	
L605	1-408-220-00	MICRO INDUCTOR 18MMH	
		TRANSISTOR	
Q501	8-729-178-54	TRANSISTOR 2SC2785	
Q502	8-729-178-54	TRANSISTOR 2SC2785	
Q503	=>8-729-374-02	TRANSISTOR 2SB740	
Q504	=>8-729-117-54	TRANSISTOR 2SA1175	
Q506	8-729-178-54	TRANSISTOR 2SC2785	
Q507	8-729-178-54	TRANSISTOR 2SC2785	
Q508	8-729-178-54	TRANSISTOR 2SC2785	
Q509	8-729-178-54	TRANSISTOR 2SC2785	
Q510	8-729-178-54	TRANSISTOR 2SC2785	
Q511	8-729-178-54	TRANSISTOR 2SC2785	
Q513	8-729-178-54	TRANSISTOR 2SC2785	
Q514	=>8-729-117-54	TRANSISTOR 2SA1175	
Q515	8-729-178-54	TRANSISTOR 2SC2785	
Q516	8-729-967-32	TRANSISTOR 2SC2673	
Q517	8-729-178-54	TRANSISTOR 2SC2785	
Q606	8-729-178-54	TRANSISTOR 2SC2785	
Q611	8-729-178-54	TRANSISTOR 2SC2785	
Q613	8-729-178-54	TRANSISTOR 2SC2785	
Q614	=>8-729-117-54	TRANSISTOR 2SA1175	
Q615	8-729-178-54	TRANSISTOR 2SC2785	

Ref.No.	Part No.	Description			Remark
		RESISTOR			
R501	1-246-759-00	CARBON	10	1/8W	
R502	1-246-807-00	CARBON	100K	1/8W	
R503	1-246-783-00	CARBON	1K	1/8W	
R504	1-246-775-00	CARBON	220	1/8W	
R505	1-247-047-00	CARBON	330K	1/8W	
R506	1-246-783-00	CARBON	1K	1/8W	
R507	1-246-786-00	CARBON	1.8K	1/8W	
R508	1-246-783-00	CARBON	1K	1/8W	
R509	1-246-787-00	CARBON	2.2K	1/8W	
R510	1-246-803-00	CARBON	47K	1/8W	
R511	1-246-795-00	CARBON	10K	1/8W	
R512	1-246-791-00	CARBON	4.7K	1/8W	
R513	1-246-791-00	CARBON	4.7K	1/8W	
R514	1-246-799-00	CARBON	22K	1/8W	
R515	1-246-798-00	CARBON	18K	1/8W	
R516	1-246-789-00	CARBON	3.3K	1/8W	
R517	1-246-797-00	CARBON	15K	1/8W	
R518	1-246-776-00	CARBON	270	1/8W	
R519	1-246-798-00	CARBON	18K	1/8W	
R520	1-246-789-00	CARBON	3.3K	1/8W	
R521	1-246-795-00	CARBON	10K	1/8W	
R522	1-246-795-00	CARBON	10K	1/8W	
R527	1-246-777-00	CARBON	330	1/8W	
R528	1-246-803-00	CARBON	47K	1/8W	
R529	1-246-799-00	CARBON	22K	1/8W	
R530	1-246-771-00	CARBON	100	1/8W	
R531	1-246-803-00	CARBON	47K	1/8W	
R532	1-246-803-00	CARBON	47K	1/8W	
R533	1-246-785-00	CARBON	1.5K	1/8W	
R534	1-246-801-00	CARBON	33K	1/8W	
R535	1-246-805-00	CARBON	68K	1/8W	
R536	1-246-807-00	CARBON	100K	1/8W	
R537	1-246-807-00	CARBON	100K	1/8W	
R538	1-246-801-00	CARBON	33K	1/8W	
R539	1-246-804-00	CARBON	56K	1/8W	
R540	1-246-801-00	CARBON	33K	1/8W	
R541	1-246-804-00	CARBON	56K	1/8W	
R542	1-246-801-00	CARBON	33K	1/8W	
R543	1-246-801-00	CARBON	33K	1/8W	
R544	1-246-787-00	CARBON	2.2K	1/8W	
R545	1-246-791-00	CARBON	4.7K	1/8W	
R546	1-246-861-00	CARBON	30K	1/8W	
R547	1-214-174-00	METAL	56K 1%	1/4W	
R548	1-214-167-00	METAL	30K 1%	1/4W	
R549	1-214-160-00	METAL	15K 1%	1/4W	
R550	1-214-160-00	METAL	15K 1%	1/4W	
R551	1-214-124-00	METAL	470 1%	1/4W	
R552	1-246-797-00	CARBON	15K	1/8W	
R553	1-246-797-00	CARBON	15K	1/8W	
R554	1-246-800-00	CARBON	27K	1/8W	
R555	1-246-799-00	CARBON	22K	1/8W	

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

AD-7 IF-26

Ref.No.	Part No.	Description				Remark
R556	1-246-807-00	CARBON	100K		1/8W	
R557	1-246-811-00	CARBON	220K		1/8W	
R558	1-246-804-00	CARBON	56K		1/8W	
R559	1-246-803-00	CARBON	47K		1/8W	
R560	1-246-863-00	CARBON	43K		1/8W	
R561	1-246-783-00	CARBON	1K		1/8W	
R565	1-246-805-00	CARBON	68K		1/8W	
R566	1-246-775-00	CARBON	220		1/8W	
R567	1-246-795-00	CARBON	10K		1/8W	
R568	1-246-799-00	CARBON	22K		1/8W	
R569	1-246-855-00	CARBON	9.1K		1/8W	
R570	1-246-789-00	CARBON	3.3K		1/8W	
R571	1-246-777-00	CARBON	330		1/8W	
R572	⚠1-212-867-00	FUSIBLE	10	5%	1/4W	F
R573	1-246-859-00	CARBON	20K		1/8W	
R574	⚠1-212-887-00	FUSIBLE	180	5%	1/4W	F
R575	1-246-785-00	CARBON	1.5K		1/8W	
R576	⚠1-212-897-00	FUSIBLE	470	5%	1/4W	F
R577	1-246-791-00	CARBON	4.7K		1/8W	
R578	1-246-771-00	CARBON	100		1/8W	
R579	1-246-801-00	CARBON	33K		1/8W	
R580	1-246-789-00	CARBON	3.3K		1/8W	
R583	1-246-783-00	CARBON	1K		1/8W	
R584	1-246-806-00	CARBON	82K		1/8W	
R585	1-246-791-00	CARBON	4.7K		1/8W	
R586	1-246-801-00	CARBON	33K		1/8W	
R588	1-246-795-00	CARBON	10K		1/8W	
R589	1-246-795-00	CARBON	10K		1/8W	
R590	1-246-787-00	CARBON	2.2K		1/8W	
R601	1-246-759-00	CARBON	10		1/8W	
R602	1-246-807-00	CARBON	100K		1/8W	
R604	1-246-775-00	CARBON	220		1/8W	
R605	1-247-047-00	CARBON	330K		1/8W	
R607	1-246-786-00	CARBON	1.8K		1/8W	
R608	1-246-783-00	CARBON	1K		1/8W	
R609	1-246-787-00	CARBON	2.2K		1/8W	
R611	1-246-795-00	CARBON	10K		1/8W	
R612	1-246-791-00	CARBON	4.7K		1/8W	
R613	1-246-791-00	CARBON	4.7K		1/8W	
R614	1-246-799-00	CARBON	22K		1/8W	
R615	1-246-798-00	CARBON	18K		1/8W	
R616	1-246-789-00	CARBON	3.3K		1/8W	
R617	1-246-797-00	CARBON	15K		1/8W	
R618	1-246-776-00	CARBON	270		1/8W	
R619	1-246-798-00	CARBON	18K		1/8W	
R620	1-246-789-00	CARBON	3.3K		1/8W	
R621	1-246-795-00	CARBON	10K		1/8W	
R622	1-246-795-00	CARBON	10K		1/8W	
R627	1-246-777-00	CARBON	330		1/8W	
R628	1-246-803-00	CARBON	47K		1/8W	
R629	1-246-799-00	CARBON	22K		1/8W	
R630	1-246-771-00	CARBON	100		1/8W	
R631	1-246-803-00	CARBON	47K		1/8W	
R632	1-246-803-00	CARBON	47K		1/8W	
R633	1-246-785-00	CARBON	1.5K		1/8W	
R634	1-246-801-00	CARBON	33K		1/8W	
R635	1-246-805-00	CARBON	68K		1/8W	
R643	1-246-801-00	CARBON	33K		1/8W	
R644	1-246-787-00	CARBON	2.2K		1/8W	
R645	1-246-791-00	CARBON	4.7K		1/8W	
R646	1-246-861-00	CARBON	30K		1/8W	
R647	1-214-174-00	METAL	56K	1%	1/4W	
R648	1-214-167-00	METAL	30K	1%	1/4W	
R649	1-214-160-00	METAL	15K	1%	1/4W	
R650	1-214-160-00	METAL	15K	1%	1/4W	
R651	1-214-124-00	METAL	470	1%	1/4W	
R652	1-246-797-00	CARBON	15K		1/8W	
R653	1-246-797-00	CARBON	15K		1/8W	
R657	1-246-811-00	CARBON	220K		1/8W	
R658	1-246-804-00	CARBON	56K		1/8W	
R659	1-246-803-00	CARBON	47K		1/8W	
R660	1-246-863-00	CARBON	43K		1/8W	
R661	1-246-783-00	CARBON	1K		1/8W	
R665	1-246-805-00	CARBON	68K		1/8W	
R666	1-246-775-00	CARBON	220		1/8W	
R667	1-246-795-00	CARBON	10K		1/8W	
R668	1-246-799-00	CARBON	22K		1/8W	
R670	1-246-789-00	CARBON	3.3K		1/8W	
R686	1-246-801-00	CARBON	33K		1/8W	
R688	1-246-795-00	CARBON	10K		1/8W	
R690	1-246-787-00	CARBON	2.2K		1/8W	

VARIABLE RESISTOR

RV501	1-226-851-00	RES, ADJ, CARBON 10K
RV502	1-226-851-00	RES, ADJ, CARBON 10K
RV503	1-226-848-00	RES, ADJ, CARBON 2.2K
RV504	1-226-847-00	RES, ADJ, CARBON 1K
RV505	1-226-852-00	RES, ADJ, CARBON 22K
RV506	1-226-853-00	RES, ADJ, CARBON 47K
RV601	1-226-851-00	RES, ADJ, CARBON 10K
RV602	1-226-851-00	RES, ADJ, CARBON 10K
RV604	1-226-847-00	RES, ADJ, CARBON 1K
RV605	1-226-852-00	RES, ADJ, CARBON 22K
RV606	1-226-853-00	RES, ADJ, CARBON 47K

RELAY

RY501	1-515-323-00	RELAY

****

♦:A-6721-148-A	IF-26 BOARD, COMPLETE	
	**********	
♦:3-671-198-00	HOLDER, LAMP	
♦:3-671-199-00	COVER, HOLDER, LAMP	
♦:3-674-188-00	CASE (UPPER), SHIELD, IF	
♦:3-674-189-00	CASE (LOWER), SHIELD, IF	

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

NOTE:

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

Ref.No.	Part No.	Description			Remark
♣:	4-350-807-00	CASE (MAIN), SHIELD, VIF			
		CAPACITOR			
C001	1-108-377-00	MYLAR	0.01MF	10%	100V
C002	1-123-357-00	ELECT	22MF	20%	50V
C005	1-123-369-00	ELECT	4.7MF	20%	50V
C101	1-102-529-00	CERAMIC	100PF	5%	50V
C102	1-102-653-00	CERAMIC	82PF	5%	50V
C103	1-161-335-51	CERAMIC	11PF	5%	50V
C104	1-102-523-00	CERAMIC	56PF	5%	50V
C106	1-101-004-00	CERAMIC	0.01MF		50V
C107	1-102-074-00	CERAMIC	0.001MF	10%	50V
C108	1-101-004-00	CERAMIC	0.01MF		50V
C109	1-102-074-00	CERAMIC	0.001MF	10%	50V
C110	1-101-004-00	CERAMIC	0.01MF		50V
C111	1-102-523-00	CERAMIC	56PF	5%	50V
C112	1-123-380-00	ELECT	1MF	20%	50V
C113	1-101-002-00	CERAMIC	0.0022MF		50V
C114	1-123-381-00	ELECT	2.2MF	20%	50V
C115	1-161-017-00	CERAMIC	0.022MF	10%	25V
C116	1-101-004-00	CERAMIC	0.01MF		50V
C117	1-123-380-00	ELECT	1MF	20%	50V
C118	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C119	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C120	1-123-333-00	ELECT	100MF	20%	25V
C121	1-102-125-00	CERAMIC	0.0047MF	10%	50V
C122	1-101-005-00	CERAMIC	0.022MF		50V
C123	1-123-286-00	ELECT	0.33MF	20%	50V
C124	1-101-004-00	CERAMIC	0.01MF		50V
C125	1-108-373-00	MYLAR	0.0047MF	10%	100V
C126	1-101-005-00	CERAMIC	0.022MF		50V
C127	1-103-725-00	POLYSTYRENE	0.001MF	5%	50V
C128	1-101-005-00	CERAMIC	0.022MF		50V
C131	1-108-389-00	MYLAR	0.1MF	10%	100V
C132	1-103-737-00	POLYSTYRENE	0.0033MF	5%	50V
C133	1-102-116-00	CERAMIC	680PF	10%	50V
C134	1-101-005-00	CERAMIC	0.022MF		50V
C135	1-101-005-00	CERAMIC	0.022MF		50V
C136	1-103-725-00	POLYSTYRENE	0.001MF	5%	50V
C137	1-108-373-00	MYLAR	0.0047MF	10%	100V
C138	1-123-333-00	ELECT	100MF	20%	25V
C139	1-123-369-00	ELECT	4.7MF	20%	50V
C140	1-130-723-00	FILM	0.1MF	2%	50V
C141	1-130-723-00	FILM	0.1MF	2%	50V
C142	1-101-880-00	CERAMIC	47PF	5%	50V
C143	1-130-722-00	FILM	0.047MF	2%	50V
C144	1-130-722-00	FILM	0.047MF	2%	50V
C145	1-108-385-00	MYLAR	0.047MF	10%	100V
C146	1-108-381-00	MYLAR	0.022MF	10%	100V
C147	1-123-307-00	ELECT	100MF	20%	10V
C148	1-108-393-00	MYLAR	0.22MF	10%	100V
C149	1-108-393-00	MYLAR	0.22MF	10%	100V
C150	1-123-286-00	ELECT	0.33MF	20%	50V
C151	1-108-377-00	MYLAR	0.01MF	10%	100V
C152	1-108-377-00	MYLAR	0.01MF	10%	100V
C153	1-123-286-00	ELECT	0.33MF	20%	50V
C154	1-123-380-00	ELECT	1MF	20%	50V
		FILTER			
CF101	1-404-134-00	TRAP, CERAMIC (5.5MHZ)			
CF102	1-527-840-00	FILTER, CERAMIC			
CF103	1-527-839-00	FILTER, CERAMIC			
		CONNECTOR			
CN001♣:	1-508-743-00	PIN, CONNECTOR 5P			
CN002♣:	1-508-743-00	PIN, CONNECTOR 5P			
CN003♣:	1-508-846-00	PIN, CONNECTOR 8P			
CN004♣:	1-508-797-00	PIN, CONNECTOR 4P			
		JACK			
CNJ001♣:	1-526-575-00	SOCKET, PLUG			
		DIODE			
D001	8-719-815-55	DIODE 1S1555			
D002	8-719-815-55	DIODE 1S1555			
D003	8-719-815-55	DIODE 1S1555			
D004	8-719-815-55	DIODE 1S1555			
D005	8-719-815-55	DIODE 1S1555			
D101	8-719-815-55	DIODE 1S1555			
D102	8-719-815-55	DIODE 1S1555			
D103	8-719-815-55	DIODE 1S1555			
D104	8-719-815-55	DIODE 1S1555			
		FILTER			
F101	1-404-438-00	FILTER, SAW			
F101	6-078-017-40	FILTER (G3201), SAW			
		IC			
IC001	8-759-157-40	IC UPC574J			
IC101	6-066-719-10	IC TDA2541			
IC102	6-066-720-40	IC TDA2546			
IC103	8-759-001-20	IC TBA120UB			
IC104	6-066-719-50	IC TDA2795			
IC104	8-759-927-95	IC TDA2795			
IC105	8-759-145-58	IC UPC4558C			
IC106	6-066-719-70	IC TDA1028			
		COIL			
L001	1-407-716-00	MICRO INDUCTOR 820UH			
L101	1-404-068-00	COIL, VIF			
L102	1-404-068-00	COIL, VIF			
L103	1-407-682-00	MICRO INDUCTOR 1.2UH			
L104	1-407-681-00	MICRO INDUCTOR 1UH			
L105	1-407-681-00	MICRO INDUCTOR 1UH			
L106	1-407-681-00	MICRO INDUCTOR 1UH			
L107	1-407-694-00	MICRO INDUCTOR 12UH			

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

IF-26

Ref.No.	Part No.	Description	Remark
L109	1-407-687-00	MICRO INDUCTOR 3.3UH	
		NEON LAMP	
NL001	1-519-154-61	LAMP, NEON	
NL002	1-519-154-61	LAMP, NEON	
NL003	1-519-154-61	LAMP, NEON	
NL004	1-519-154-61	LAMP, NEON	
NL005	1-519-154-61	LAMP, NEON	
NL006	1-519-154-61	LAMP, NEON	
NL007	1-519-154-61	LAMP, NEON	
NL008	1-519-154-61	LAMP, NEON	
NL009	1-519-154-61	LAMP, NEON	
NL010	1-519-154-61	LAMP, NEON	
NL011	1-519-108-71	LAMP ASSY, NEON	
NL012	1-519-108-71	LAMP ASSY, NEON	
		TUNING BLOCK	
PS001	1-464-230-00	TUNING BLOCK (10CH)	
		TRANSISTOR	
Q001	=>8-729-245-83	TRANSISTOR 2SC2458	
Q002	=>8-729-245-83	TRANSISTOR 2SC2458	
Q003	=>8-729-245-83	TRANSISTOR 2SC2458	
Q004	8-729-309-06	TRANSISTOR 2SC1890A	
Q005	8-729-309-06	TRANSISTOR 2SC1890A	
Q006	8-729-309-30	TRANSISTOR 2SA893A-E06	
Q007	8-769-192-00	TRANSISTOR 2SK43-2	
Q008	=>8-729-245-83	TRANSISTOR 2SC2458	
Q009	8-729-117-54	TRANSISTOR 2SA1175	
Q010	=>8-729-245-83	TRANSISTOR 2SC2458	
Q011	8-729-309-06	TRANSISTOR 2SC1890A	
Q012	8-729-309-06	TRANSISTOR 2SC1890A	
Q013	=>8-729-245-83	TRANSISTOR 2SC2458	
Q101	8-765-300-00	TRANSISTOR 2SC2009	
Q102	=>8-729-245-83	TRANSISTOR 2SC2458	
Q103	8-729-213-11	TRANSISTOR 2SC2230A-G1	
Q104	=>8-729-245-83	TRANSISTOR 2SC2458	
		RESISTOR	
R001	1-246-497-00	CARBON 10K 5% 1/4W	
R002	1-246-497-00	CARBON 10K 5% 1/4W	
R003	1-246-497-00	CARBON 10K 5% 1/4W	
R004	1-246-497-00	CARBON 10K 5% 1/4W	
R005	1-246-525-00	CARBON 150K 5% 1/4W	
R006	1-202-735-00	COMPOSITION 22M 10% 1/2W	
R007	⚠ 1-206-749-00	METAL 10K 5% 3W	F
R008	1-246-521-00	CARBON 100K 5% 1/4W	
R009	1-246-497-00	CARBON 10K 5% 1/4W	
R010	1-246-513-00	CARBON 47K 5% 1/4W	
R011	1-246-501-00	CARBON 15K 5% 1/4W	
R012	1-246-525-00	CARBON 150K 5% 1/4W	
R013	1-246-545-00	CARBON 1M 5% 1/4W	
R014	1-246-525-00	CARBON 150K 5% 1/4W	
R015	1-246-542-00	CARBON 750K 5% 1/4W	
R016	1-246-525-00	CARBON 150K 5% 1/4W	
R017	1-246-507-00	CARBON 27K 5% 1/4W	
R018	1-246-497-00	CARBON 10K 5% 1/4W	
R019	1-246-497-00	CARBON 10K 5% 1/4W	
R020	1-246-493-00	CARBON 6.8K 5% 1/4W	
R021	1-246-521-00	CARBON 100K 5% 1/4W	
R022	1-246-497-00	CARBON 10K 5% 1/4W	
R023	1-246-497-00	CARBON 10K 5% 1/4W	
R024	1-246-511-00	CARBON 39K 5% 1/4W	
R025	1-246-505-00	CARBON 22K 5% 1/4W	
R026	1-246-509-00	CARBON 33K 5% 1/4W	
R027	1-246-509-00	CARBON 33K 5% 1/4W	
R028	1-246-497-00	CARBON 10K 5% 1/4W	
R029	1-246-505-00	CARBON 22K 5% 1/4W	
R030	1-246-511-00	CARBON 39K 5% 1/4W	
R101	1-246-497-00	CARBON 10K 5% 1/4W	
R102	1-246-481-00	CARBON 2.2K 5% 1/4W	
R103	1-246-475-00	CARBON 1.2K 5% 1/4W	
R104	1-246-487-00	CARBON 3.9K 5% 1/4W	
R105	1-246-475-00	CARBON 1.2K 5% 1/4W	
R106	1-246-449-00	CARBON 100 5% 1/4W	
R108	1-246-509-00	CARBON 33K 5% 1/4W	
R109	1-246-477-00	CARBON 1.5K 5% 1/4W	
R110	1-246-449-00	CARBON 100 5% 1/4W	
R111	1-246-509-00	CARBON 33K 5% 1/4W	
R112	1-246-521-00	CARBON 100K 5% 1/4W	
R113	1-246-485-00	CARBON 3.3K 5% 1/4W	
R114	1-246-453-00	CARBON 150 5% 1/4W	
R115	1-246-487-00	CARBON 3.9K 5% 1/4W	
R116	1-246-457-00	CARBON 220 5% 1/4W	
R117	1-246-473-00	CARBON 1K 5% 1/4W	
R118	1-246-441-00	CARBON 47 5% 1/4W	
R119	1-246-449-00	CARBON 100 5% 1/4W	
R120	1-246-473-00	CARBON 1K 5% 1/4W	
R121	1-246-513-00	CARBON 47K 5% 1/4W	
R122	1-246-513-00	CARBON 47K 5% 1/4W	
R123	1-246-519-00	CARBON 82K 5% 1/4W	
R124	1-246-471-00	CARBON 820 5% 1/4W	
R125	1-246-471-00	CARBON 820 5% 1/4W	
R126	1-246-471-00	CARBON 820 5% 1/4W	
R127	1-246-519-00	CARBON 82K 5% 1/4W	
R128	1-246-521-00	CARBON 100K 5% 1/4W	
R129	1-246-471-00	CARBON 820 5% 1/4W	
R130	1-246-517-00	CARBON 68K 5% 1/4W	
R131	1-214-720-00	METAL 430 1% 1/4W	
R132	1-246-485-00	CARBON 3.3K 5% 1/4W	
R133	1-246-521-00	CARBON 100K 5% 1/4W	
R134	1-214-767-00	METAL 39K 1% 1/4W	
R135	1-214-955-51	METAL 430K 1% 1/4W	
R136	1-214-957-00	METAL 510K 1% 1/4W	
R137	1-214-716-00	METAL 300 1% 1/4W	

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

NOTE:

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

Ref.No.	Part No.	Description				Remark
R138	1-214-770-00	METAL	51K	1%	1/4W	
R139	1-246-529-00	CARBON	220K	5%	1/4W	
R140	1-246-497-00	CARBON	10K	5%	1/4W	
R141	1-246-497-00	CARBON	10K	5%	1/4W	
R142	1-246-507-00	CARBON	27K	5%	1/4W	
R144	1-246-497-00	CARBON	10K	5%	1/4W	
R145	1-246-521-00	CARBON	100K	5%	1/4W	
R146	1-246-521-00	CARBON	100K	5%	1/4W	
R147	1-246-497-00	CARBON	10K	5%	1/4W	
R148	1-246-521-00	CARBON	100K	5%	1/4W	
R149	1-246-521-00	CARBON	100K	5%	1/4W	
R150	1-214-777-00	METAL	100K	1%	1/4W	
R151	1-214-777-00	METAL	100K	1%	1/4W	
R152	1-246-493-00	CARBON	6.8K	5%	1/4W	
R153	1-246-489-00	CARBON	4.7K	5%	1/4W	
R154	1-246-489-00	CARBON	4.7K	5%	1/4W	
R155	1-246-461-00	CARBON	330	5%	1/4W	
R156	1-246-483-00	CARBON	2.7K	5%	1/4W	
R157	1-246-521-00	CARBON	100K	5%	1/4W	
R158	1-246-811-00	CARBON	220K		1/8W	
R159	1-246-531-00	CARBON	270K	5%	1/4W	

VARIABLE RESISTOR

RV107	1-226-854-00	RES, ADJ, CARBON 100K	
RV143	1-226-854-00	RES, ADJ, CARBON 100K	

SWITCH

S001	1-516-226-00	SLIDE SWITCH	
S002	1-516-226-00	SLIDE SWITCH	
S003	1-554-300-00	SWITCH, PUSH (12 KEY)	

TRANSFORMER

T101	1-404-378-00	I.F.T	
T102	1-404-378-00	I.F.T	
T103	1-404-135-00	COIL, SIF DISCRI	
T104	1-404-378-00	I.F.T	
T105	1-404-343-00	COIL, IF	
T106	1-404-135-00	COIL, SIF DISCRI	

****

♣:1-608-541-00 AJ-1 BOARD
****

CAPACITOR

C801	1-123-340-00	ELECT	4.7MF	20%	35V
C804	1-161-021-00	CERAMIC	0.047MF	10%	25V
C805	1-123-311-00	ELECT	1000MF	20%	10V

CONNECTOR

C801	♣:1-508-797-00	PIN, CONNECTOR 4P
C802	♣:1-508-743-00	PIN, CONNECTOR 5P
C803	♣:1-508-743-00	PIN, CONNECTOR 5P

Ref.No.	Part No.	Description	Remark
C804	♣:1-508-742-00	PIN, CONNECTOR 3P	

DIODE

D801	=>8-719-200-02	DIODE 10E2	
D802	8-719-911-19	DIODE 1SS119	
D803	8-719-911-19	DIODE 1SS119	
D804	*>8-719-200-02	DIODE 10E2	
D805	8-719-911-19	DIODE 1SS119	
D806	8-719-200-02	DIODE 10E2	
D807	8-719-113-07	DIODE RD13E-B	

JACK

J801	♣:1-507-588-91	JACK, PIN 1P	
J802	1-507-588-61	JACK, PIN (1P)	
J803	1-507-588-51	JACK, PIN (1P)	
J804	1-507-588-61	JACK, PIN (1P)	
J805	1-562-121-00	CONNECTOR, DIN 6P	

TRANSISTOR

Q801	8-729-178-54	TRANSISTOR 2SC2785
Q802	8-729-117-54	TRANSISTOR 2SA1175
Q803	8-729-603-50	TRANSISTOR 2SC403SP

RESISTOR

R801	1-246-791-00	CARBON	4.7K		1/8W	
R802	1-246-791-00	CARBON	4.7K		1/8W	
R803	1-246-803-00	CARBON	47K		1/8W	
R804	1-246-803-00	CARBON	47K		1/8W	
R805	1-246-789-00	CARBON	3.3K		1/8W	
R806	1-246-789-00	CARBON	3.3K		1/8W	
R807	1-246-779-00	CARBON	470		1/8W	
R808	1-246-779-00	CARBON	470		1/8W	
R809	1-246-791-00	CARBON	4.7K		1/8W	
R810	1-246-795-00	CARBON	10K		1/8W	
R811	⚠1-212-849-00	FUSIBLE	4.7	5%	1/4W	F
R812	1-246-771-00	CARBON	100		1/8W	
R813	1-246-787-00	CARBON	2.2K		1/8W	
R814	1-246-461-00	CARBON	330	5%	1/4W	
R815	1-246-769-00	CARBON	68		1/8W	
R818	1-246-804-00	CARBON	56K		1/8W	
R819	1-246-804-00	CARBON	56K		1/8W	
R820	1-246-790-00	CARBON	3.9K		1/8W	
R821	1-246-790-00	CARBON	3.9K		1/8W	

RELAY

RY801	1-515-323-00	RELAY	

****

♣:1-605-704-00 TT-5 BOARD
****

CAPACITOR

C101	1-161-021-00	CERAMIC	0.047MF	10%	25V

NOTE:

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

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

TT-5 TT-2 TT-3 TT-4 SL-1 DR-1

Ref.No.	Part No.	Description			Remark
C102	1-123-901-00	ELECT	2.2MF	20%	50V
		CONNECTOR			
CN101♣	1-508-848-00	PIN, CONNECTOR 6P			
		COIL			
L101	1-408-538-00	COIL, NOISE FILTER			
**********					
♣	1-605-705-00	TT-2 BOARD			
		**********			
		SWITCH			
S7103	1-554-241-00	SWITCH, LEVER			
**********					
♣	1-605-706-00	TT-3 BOARD			
		**********			
		SWITCH			
S7102	1-554-241-00	SWITCH, LEVER (Cassette-dowm)			
**********					
♣	1-605-707-00	TT-4 BOARD			
		**********			
		SWITCH			
S7101	1-554-241-00	SWITCH, LWVER (Cassette-in)			
**********					
♣	1-605-691-00	SL-1 BOARD			
		**********			
♣	3-659-359-00	PLATE, BOOST, REED SWITCH			
		SWITCH			
S7201	1-552-180-00	SWITCH, REED			
**********					
♣	A-6728-305-A	DR-1 BOARD, COMPLETE			
		**********			
		CAPACITOR			
C001	1-161-330-51	CERAMIC	0.01MF	30%	25V
C002	1-129-794-00	FILM	0.0033MF	5%	100V
C003	1-161-330-51	CERAMIC	0.01MF	30%	25V
C004	1-161-330-51	CERAMIC	0.01MF	30%	25V
C005	1-161-330-51	CERAMIC	0.01MF	30%	25V
C006	1-123-380-00	ELECT	1MF	20%	50V
C007	1-123-380-00	ELECT	1MF	20%	50V

Ref.No.	Part No.	Description			Remark
C008	1-161-494-00	CERAMIC	0.022MF	30%	25V
C009	1-123-379-00	ELECT	0.47MF	20%	50V
C010	1-161-330-51	CERAMIC	0.01MF	30%	25V
C011	1-129-794-00	FILM	0.0033MF	5%	100V
C012	1-161-330-51	CERAMIC	0.01MF	30%	25V
C013	1-161-330-51	CERAMIC	0.01MF	30%	25V
C014	1-123-380-00	ELECT	1MF	20%	50V
C015	1-123-380-00	ELECT	1MF	20%	50V
C016	1-161-494-00	CERAMIC	0.022MF	30%	25V
C017	1-123-379-00	ELECT	0.47MF	20%	50V
C018	1-123-332-00	ELECT	47MF	20%	16V
C019	1-161-330-51	CERAMIC	0.01MF	30%	25V
C020	1-161-330-51	CERAMIC	0.01MF	30%	25V
C021	1-123-328-00	ELECT	4.7MF	20%	25V
C022	1-161-494-00	CERAMIC	0.022MF	30%	25V
		CONNECTOR			
CN001♣	1-508-743-00	PIN, CONNECTOR 5P			
CN002♣	1-508-742-00	PIN, CONNECTOR 3P			
CN003♣	1-508-742-00	PIN, CONNECTOR 3P			
CN004♣	1-508-742-00	PIN, CONNECTOR 3P			
CN005♣	1-508-742-00	PIN, CONNECTOR 3P			
CN006♣	1-508-796-00	PIN, CONNECTOR 2P			
		DIODE			
D001	8-719-815-55	DIODE 1S1555			
D003	8-719-200-02	DIODE 10E2			
D004	8-719-200-02	DIODE 10E2			
D005	8-719-200-02	DIODE 10E2			
D006	8-719-200-02	DIODE 10E2			
D007	8-719-200-02	DIODE 10E2			
D008	8-719-200-02	DIODE 10E2			
D009	8-719-200-02	DIODE 10E2			
D010	8-719-200-02	DIODE 10E2			
D011	8-719-200-02	DIODE 10E2			
D012	8-719-200-02	DIODE 10E2			
D013	8-719-200-02	DIODE 10E2			
D014	8-719-200-02	DIODE 10E2			
D015	8-719-200-02	DIODE 10E2			
D017	8-719-815-55	DIODE 1S1555			
D018	8-719-815-55	DIODE 1S1555			
D019	8-719-815-55	DIODE 1S1555			
		COIL			
L003	1-407-212-XX	MICRO INDUCTOR 33MMH			
		TRANSISTOR			
Q001	8-729-178-54	TRANSISTOR 2SC2785			
Q002	8-729-113-32	TRANSISTOR 2SB733			
Q003	=>8-729-177-43	TRANSISTOR 2SD774			
Q004	8-729-113-32	TRANSISTOR 2SB733			
Q005	=>8-729-177-43	TRANSISTOR 2SD774			
Q006	8-729-178-54	TRANSISTOR 2SC2785			

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

Ref.No.	Part No.	Description	Remark
Q007	8-729-178-54	TRANSISTOR 2SC2785	
Q008	8-729-178-54	TRANSISTOR 2SC2785	
Q010	=>8-729-177-32	TRANSISTOR 2SD773	
Q011	8-729-178-54	TRANSISTOR 2SC2785	
Q012	8-729-178-54	TRANSISTOR 2SC2785	
Q013	8-729-178-54	TRANSISTOR 2SC2785	
Q014	8-729-178-54	TRANSISTOR 2SC2785	
Q015	8-729-178-54	TRANSISTOR 2SC2785	
Q016	8-729-178-54	TRANSISTOR 2SC2785	
Q017	8-729-178-54	TRANSISTOR 2SC2785	
Q018	8-729-178-54	TRANSISTOR 2SC2785	
Q019	8-729-117-54	TRANSISTOR 2SA1175	
Q020	=>8-729-831-33	TRANSISTOR 2SD313HP	
Q021	8-729-116-42	TRANSISTOR 2SD1164	
Q022	8-729-116-42	TRANSISTOR 2SD1164	
Q023	=>8-729-177-43	TRANSISTOR 2SD774	
Q024	8-729-178-54	TRANSISTOR 2SC2785	
Q025	8-729-116-42	TRANSISTOR 2SD1164	
Q026	=>8-729-177-43	TRANSISTOR 2SD774	
Q027	8-729-116-42	TRANSISTOR 2SD1164	
Q028	=>8-729-177-43	TRANSISTOR 2SD774	
Q029	8-729-331-53	TRANSISTOR 2SC2315	
Q030	8-729-178-54	TRANSISTOR 2SC2785	
Q031	8-729-116-42	TRANSISTOR 2SD1164	
Q034	8-729-606-32	TRANSISTOR 2SC2603	

RESISTOR

R001	1-246-473-00	CARBON	1K	5%	1/4W
R002	1-246-515-00	CARBON	56K	5%	1/4W
R003	1-246-491-00	CARBON	5.6K	5%	1/4W
R004	1-246-473-00	CARBON	1K	5%	1/4W
R005	1-246-491-00	CARBON	5.6K	5%	1/4W
R006	1-246-473-00	CARBON	1K	5%	1/4W
R007	1-246-473-00	CARBON	1K	5%	1/4W
R008	1-246-449-00	CARBON	100	5%	1/4W
R009	1-246-513-00	CARBON	47K	5%	1/4W
R010	1-246-513-00	CARBON	47K	5%	1/4W
R011	1-246-513-00	CARBON	47K	5%	1/4W
R012	1-246-528-00	CARBON	200K	5%	1/4W
R013	1-246-483-00	CARBON	2.7K	5%	1/4W
R014	1-246-511-00	CARBON	39K	5%	1/4W
R015	1-246-457-00	CARBON	220	5%	1/4W
R016	1-246-517-00	CARBON	68K	5%	1/4W
R017	1-246-521-00	CARBON	100K	5%	1/4W
R018	1-246-483-00	CARBON	2.7K	5%	1/4W
R019	1-246-491-00	CARBON	5.6K	5%	1/4W
R020	1-246-473-00	CARBON	1K	5%	1/4W
R021	1-246-494-00	CARBON	7.5K	5%	1/4W
R022	1-246-509-00	CARBON	33K	5%	1/4W
R023	1-246-505-00	CARBON	22K	5%	1/4W
R024	1-246-443-00	CARBON	56	5%	1/4W
R025	1-246-521-00	CARBON	100K	5%	1/4W
R026	1-246-528-00	CARBON	200K	5%	1/4W

Ref.No.	Part No.	Description				Remark
R027	1-246-483-00	CARBON	2.7K	5%	1/4W	
R028	1-246-457-00	CARBON	220	5%	1/4W	
R029	1-246-511-00	CARBON	39K	5%	1/4W	
R030	1-246-517-00	CARBON	68K	5%	1/4W	
R031	1-246-521-00	CARBON	100K	5%	1/4W	
R032	1-246-483-00	CARBON	2.7K	5%	1/4W	
R033	1-246-491-00	CARBON	5.6K	5%	1/4W	
R034	1-246-473-00	CARBON	1K	5%	1/4W	
R035	1-246-494-00	CARBON	7.5K	5%	1/4W	
R036	1-246-509-00	CARBON	33K	5%	1/4W	
R037	1-246-505-00	CARBON	22K	5%	1/4W	
R038	1-246-443-00	CARBON	56	5%	1/4W	
R039	1-246-521-00	CARBON	100K	5%	1/4W	
R040	1-246-515-00	CARBON	56K	5%	1/4W	
R041	1-246-465-00	CARBON	470	5%	1/4W	
R042	1-246-513-00	CARBON	47K	5%	1/4W	
R043	1-246-465-00	CARBON	470	5%	1/4W	
R044	1-246-497-00	CARBON	10K	5%	1/4W	
R045	⚠1-212-360-00	METAL	1	5%	1W	F
R046	1-246-449-00	CARBON	100	5%	1/4W	
R047	1-246-497-00	CARBON	10K	5%	1/4W	
R048	1-246-497-00	CARBON	10K	5%	1/4W	
R049	1-246-516-00	CARBON	62K	5%	1/4W	
R050	1-246-497-00	CARBON	10K	5%	1/4W	
R051	1-246-481-00	CARBON	2.2K	5%	1/4W	
R052	1-246-497-00	CARBON	10K	5%	1/4W	
R053	1-246-497-00	CARBON	10K	5%	1/4W	
R054	1-246-497-00	CARBON	10K	5%	1/4W	
R055	1-246-473-00	CARBON	1K	5%	1/4W	
R060	⚠1-246-981-00	CARBON	4.7	5%	1/8W	F
R061	⚠1-212-360-00	METAL	1	5%	1W	F
R062	⚠1-217-375-00	FUSIBLE	1	5%	1/4W	F
R065	⚠1-246-989-00	CARBON	82	5%	1/8W	F
R066	1-246-497-00	CARBON	10K	5%	1/4W	
R067	⚠1-246-981-00	CARBON	4.7	5%	1/8W	F

****

♣:1-605-695-00 DR-2 BOARD
****

SWITCH

S001 1-552-664-00 SWITCH, MICRO

****

♣:1-605-696-00 DR-3 BOARD
****

♣:3-671-128-00 BRACKET (L), SWITCH

SWITCH

S002 1-552-664-00 SWITCH, MICRO

NOTE:

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

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

DR-4 DR-5 DR-6 DR-7 DR-8 DR-9 DR-10
FG-2 FL-2 CP-6 TP-13

Ref.No.	Part No.	Description	Remark
▲:	1-605-697-14	DR-4 BOARD **********	
		SWITCH	
S003	1-553-847-00	SWITCH, LEVER	
**********			
▲:	1-605-698-00	DR-5 BOARD **********	
**********			
▲:	1-605-699-00	DR-6 BOARD **********	
**********			
▲:	1-605-700-00	DR-7 BOARD **********	
**********			
▲:	1-605-701-00	DR-8 BOARD **********	
		COIL	
L001	1-543-145-00	HEAD, SENSING	
**********			
▲:	1-605-702-00	DR-9 BOARD **********	
		COIL	
L002	1-543-145-00	HEAD, SENSING	
**********			
▲:	1-605-703-00	DR-10 BOARD **********	
		TRANSISTOR	
Q009	=>8-729-831-33	TRANSISTOR 2SD313HP	
**********			
▲:	1-605-708-00	FG-2 BOARD **********	
	3-658-161-03	HOLDER, DME	
▲:	3-659-313-00	PLATE, ADJUSTMENT, DME	
		SEMICONDUCTOR	
DM701	8-749-011-01	DM-101A	

Ref.No.	Part No.	Description			Remark
▲:	1-605-692-00	FL-2 BOARD **********			
		CAPACITOR			
C001	1-161-076-00	CERAMIC	0.1MF	20%	50V
C002	1-161-076-00	CERAMIC	0.1MF	20%	50V
		COIL			
L001	1-421-225-00	COIL, LINE FILTER			
**********					
▲:	1-606-102-00	CP-6 BOARD **********			
		CAPACITOR			
C101	1-123-380-00	ELECT	1MF	20%	50V
		CONNECTOR			
CN101	▲: 1-508-847-00	PIN, CONNECTOR 4P			
CN102	▲: 1-508-734-00	PIN, CONNECTOR 3P			
		TRANSISTOR			
Q101	8-729-178-54	TRANSISTOR 2SC2785			
Q102	8-729-178-54	TRANSISTOR 2SC2785			
Q103	8-729-178-54	TRANSISTOR 2SC2785			
Q104	8-729-178-54	TRANSISTOR 2SC2785			
		RESISTOR			
R101	1-246-515-00	CARBON	56K	5%	1/4W
R102	1-246-505-00	CARBON	22K	5%	1/4W
R103	1-246-505-00	CARBON	22K	5%	1/4W
R104	1-246-452-00	CARBON	130	5%	1/4W
R105	1-246-484-00	CARBON	3K	5%	1/4W
R106	1-246-472-00	CARBON	910	5%	1/4W
R107	1-246-491-00	CARBON	5.6K	5%	1/4W
R108	1-246-515-00	CARBON	56K	5%	1/4W
R109	1-246-449-00	CARBON	100	5%	1/4W
**********					
▲:	1-606-944-00	TP-13 BOARD **********			
		CAPACITOR			
C204	1-161-330-51	CERAMIC	0.01MF	30%	25V
C271	1-161-330-51	CERAMIC	0.01MF	30%	25V
C272	1-161-330-51	CERAMIC	0.01MF	30%	25V
C273	1-161-330-51	CERAMIC	0.01MF	30%	25V
C281	1-123-617-00	ELECT	10MF	20%	16V
C282	1-123-617-00	ELECT	10MF	20%	16V
C283	1-161-330-51	CERAMIC	0.01MF	30%	25V
C284	1-123-647-00	ELECT	47MF	20%	6.3V
C285	1-161-330-51	CERAMIC	0.01MF	30%	25V

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

TP-13 TP-14 TP-16 TP-12

Ref.No.	Part No.	Description				Remark
		DIODE				
D203	8-719-815-55	DIODE 1S1555				
D204	8-719-815-55	DIODE 1S1555				
D271	8-719-101-60	DIODE RD6.2E-L1				
D282	8-719-815-55	DIODE 1S1555				
D283	8-719-101-40	DIODE RD3.9E-L1				
		INDICATOR TUBE				
FL301	1-519-253-00	INDICATOR TUBE, FLUORESCENT				
		IC				
IC301	=>8-759-200-93	IC TCP4621AF-6002				
		COIL				
L251	1-407-717-00	MICRO INDUCTOR 1MMH				
		TRANSISTOR				
Q251	8-729-245-83	TRANSISTOR 2SC2458				
Q252	8-729-245-83	TRANSISTOR 2SC2458				
Q257	=>8-729-117-54	TRANSISTOR 2SA1175				
		RESISTOR				
R203	1-246-521-00	CARBON	100K	5%	1/4W	
R205	1-246-521-00	CARBON	100K	5%	1/4W	
R272	1-246-453-00	CARBON	150	5%	1/4W	
R273	1-246-513-00	CARBON	47K	5%	1/4W	
R274	1-246-513-00	CARBON	47K	5%	1/4W	
R275	1-246-513-00	CARBON	47K	5%	1/4W	
R276	1-246-513-00	CARBON	47K	5%	1/4W	
R278	1-246-497-00	CARBON	10K	5%	1/4W	
R282	1-246-494-00	CARBON	7.5K	5%	1/4W	
R283	1-246-494-00	CARBON	7.5K	5%	1/4W	
R284	1-246-489-00	CARBON	4.7K	5%	1/4W	
R285	1-246-521-00	CARBON	100K	5%	1/4W	
R287	1-246-521-00	CARBON	100K	5%	1/4W	
R288	1-246-521-00	CARBON	100K	5%	1/4W	
R290	1-246-521-00	CARBON	100K	5%	1/4W	
R297	1-246-497-00	CARBON	10K	5%	1/4W	
		SWITCH				
S401	1-552-774-00	SWITCH, PUSH				
S402	1-552-774-00	SWITCH, PUSH				
S403	1-552-774-00	SWITCH, PUSH				
S404	1-552-774-00	SWITCH, PUSH				
S405	1-552-774-00	SWITCH, PUSH				
S406	1-552-774-00	SWITCH, PUSH				
S407	1-552-774-00	SWITCH, PUSH				

Ref.No.	Part No.	Description				Remark
		TRANSFORMER				
T251	1-404-394-00	TRANSFORMER, IFT				
		**********				
	⚠:1-606-945-00	TP-14 BOARD				
		**********				
	⚠:3-671-208-00	HOLDER, SWITCH, POWER				
		DIODE				
D501	8-719-812-33	DIODE TLG123A				
D502	8-719-812-31	DIODE TLR123				
		RESISTOR				
R501	1-246-477-00	CARBON	1.5K	5%	1/4W	
		SWITCH				
S501	1-553-846-00	SWITCH, PUSH (2 KEY)				
		**********				
	⚠:1-606-946-00	TP-16 BOARD				
		**********				
		IC				
IC001	⚠:8-749-953-14	IC STK-5314				
		**********				
	⚠:A-6728-568-A	TP-12 BOARD, COMPLETE				
		**********				
	1-533-162-00	HOLDER, FUSE				
	⚠:3-674-134-00	HEAT SINK				
		CAPACITOR				
C001	1-123-403-00	ELECT	4700MF		25V	
C002	1-123-404-00	ELECT	10000MF		25V	
C006	1-123-332-00	ELECT	47MF	20%	16V	
C007	1-123-253-00	ELECT	22MF		160V	
C009	1-123-332-00	ELECT	47MF	20%	16V	
C010	1-123-350-00	ELECT	2200MF	20%	35V	
C011	1-123-333-00	ELECT	100MF	20%	25V	
C020	1-123-328-00	ELECT	4.7MF	20%	25V	
C021	1-161-330-51	CERAMIC	0.01MF	30%	25V	
C022	1-102-125-00	CERAMIC	0.0047MF	10%	50V	
C201	1-123-324-00	ELECT	1000MF	20%	16V	
C270	1-123-356-00	ELECT	10MF	20%	16V	
C280	1-123-304-00	ELECT	10000MF	20%	6.3V	
C291	1-123-607-00	ELECT	0.1MF	20%	50V	
C292	1-123-607-00	ELECT	0.1MF	20%	50V	
C801	1-123-330-00	ELECT	22MF	20%	16V	
C802	1-108-389-00	MYLAR	0.1MF	10%	100V	

NOTE:

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

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

TP-12 LF-23 FS-22

Ref.No.	Part No.	Description				Remark
C803	1-123-356-00	ELECT	10MF	20%	16V	
C804	1-108-377-00	MYLAR	0.01MF	10%	100V	
C805	1-123-356-00	ELECT	10MF	20%	16V	
C806	1-123-318-00	ELECT	33MF	20%	16V	
C807	1-161-051-00	CERAMIC	0.01MF	10%	50V	
		CONNECTOR				
CN001	♣:1-508-744-00	PIN, CONNECTOR 10P				
CN002	♣:1-560-136-00	PLUG, CONNECTOR 4P				
CN003	♣:1-508-845-00	PIN, CONNECTOR 6P				
		JACK				
CNJ801	♣:1-526-575-00	SOCKET, PLUG				
		DIODE				
D003	=>8-719-900-95	DIODE V09G				
D007	8-719-200-02	DIODE 10E2				
D009	8-719-815-55	DIODE 1S1555				
D201	8-719-200-02	DIODE 10E2				
D251	8-719-100-67	DIODE RD13E-B1				
D252	8-719-815-55	DIODE 1S1555				
D280	8-719-815-55	DIODE 1S1555				
D281	8-719-815-55	DIODE 1S1555				
D301	⚠8-719-200-07	DIODE 30D2FA				
D302	⚠8-719-200-07	DIODE 30D2FA				
D303	⚠8-719-200-07	DIODE 30D2FA				
D304	⚠8-719-200-07	DIODE 30D2FA				
D305	⚠8-719-200-07	DIODE 30D2FA				
D306	⚠8-719-200-07	DIODE 30D2FA				
D307	⚠8-719-200-07	DIODE 30D2FA				
D308	⚠8-719-200-07	DIODE 30D2FA				
		FUSE				
F001	⚠1-532-237-00	FUSE, TIME-LAG				
F002	⚠1-532-350-00	FUSE, TIME-LAG				
		TRANSISTOR				
Q002	8-729-245-83	TRANSISTOR 2SC2458				
Q009	8-729-245-83	TRANSISTOR 2SC2458				
Q010	8-729-245-83	TRANSISTOR 2SC2458				
Q011	8-729-245-83	TRANSISTOR 2SC2458				
Q253	8-729-245-83	TRANSISTOR 2SC2458				
Q254	=>8-729-117-54	TRANSISTOR 2SA1175				
Q255	8-729-316-16	TRANSISTOR 2SC1061				
		RESISTOR				
R004	1-246-521-00	CARBON	100K	5%	1/4W	
R005	1-246-505-00	CARBON	22K	5%	1/4W	
R006	1-246-497-00	CARBON	10K	5%	1/4W	
R015	⚠1-212-857-00	FUSIBLE	10	5%	1/4W	F
R016	⚠1-212-857-00	FUSIBLE	10	5%	1/4W	F
R017	⚠1-212-857-00	FUSIBLE	10	5%	1/4W	F

Ref.No.	Part No.	Description				Remark
R023	1-246-509-00	CARBON	33K	5%	1/4W	
R025	1-246-485-00	CARBON	3.3K	5%	1/4W	
R026	1-246-507-00	CARBON	27K	5%	1/4W	
R027	1-246-521-00	CARBON	100K	5%	1/4W	
R028	1-246-497-00	CARBON	10K	5%	1/4W	
R206	1-246-469-00	CARBON	680	5%	1/4W	
R209	1-246-497-00	CARBON	10K	5%	1/4W	
R210	1-246-505-00	CARBON	22K	5%	1/4W	
R211	1-246-505-00	CARBON	22K	5%	1/4W	
R212	1-246-505-00	CARBON	22K	5%	1/4W	
R252	1-246-505-00	CARBON	22K	5%	1/4W	
R253	1-246-505-00	CARBON	22K	5%	1/4W	
R255	1-246-509-00	CARBON	33K	5%	1/4W	
R256	1-246-513-00	CARBON	47K	5%	1/4W	
R257	1-246-513-00	CARBON	47K	5%	1/4W	
R258	1-246-515-00	CARBON	56K	5%	1/4W	
R259	1-246-517-00	CARBON	68K	5%	1/4W	
R260	1-246-516-00	CARBON	62K	5%	1/4W	
R270	1-246-470-00	CARBON	750	5%	1/4W	
R271	1-246-497-00	CARBON	10K	5%	1/4W	
R286	1-246-521-00	CARBON	100K	5%	1/4W	
R801	1-246-509-00	CARBON	33K	5%	1/4W	
		TUNER				
TU801	⚠1-463-350-00	TUNER (BT-881)				

****

	♣:1-608-544-00	LF-23 BOARD **********				
	1-533-162-00	HOLDER, FUSE				
		CAPACITOR				
C101	⚠1-130-710-00	FILM	0.1MF	20%	250V	
		FUSE				
F101	⚠1-532-237-00	FUSE, TIME-LAG				

****

	♣:1-608-542-00	FS-22 BOARD **********				
	♣:3-661-516-00	HOLDER, LED				
		DIODE				
D001	8-719-812-33	DIODE TLG123A				
D002	8-719-812-32	DIODE TLY123				
D003	8-719-812-31	DIODE TLR123				
D004	8-719-812-32	DIODE TLY123				
		SWITCH				
S001	1-553-766-00	SWITCH, KEY BOARD				

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

NOTE:

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

Ref.No.	Part No.	Description	Remark
S002	1-553-766-00	SWITCH, KEY BOARD	
S003	1-553-766-00	SWITCH, KEY BOARD	
S004	1-553-766-00	SWITCH, KEY BOARD	
S005	1-553-766-00	SWITCH, KEY BOARD	
S006	1-553-766-00	SWITCH, KEY BOARD	

****

♦	1-608-543-00	FS-23 BOARD **********	
♦	3-661-516-00	HOLDER, LED	
		DIODE	
D101	8-719-812-31	DIODE TLR123	
		SWITCH	
S101	1-553-766-00	SWITCH, KEY BOARD	

****

♦	1-609-252-00	MU-1 BOARD **********	
		CAPACITOR	
C556	1-123-318-00	ELECT 33MF 20% 16V	
		DIODE	
D510	8-719-911-19	DIODE 1SS119	
D511	8-719-911-19	DIODE 1SS119	
		TRANSISTOR	
Q518	8-729-178-54	TRANSISTOR 2SC2785	
Q618	8-729-178-54	TRANSISTOR 2SC2785	
		RESISTOR	
R591	1-246-783-00	CARBON 1K 1/8W	
R592	1-246-799-00	CARBON 22K 1/8W	
R692	1-246-799-00	CARBON 22K 1/8W	

****

MISCELLANEOUS
****

⚠	1-447-443-00	TRANSFORMER, POWER	
⚠	1-454-292-11	SOLENOID, PLUNGER (BS)	
⚠	1-454-293-11	SOLENOID, PLUNGER (FE)	
⚠	1-454-294-11	SOLENOID, PLUNGER (FF)	
⚠	1-454-295-00	SOLENOID, PLUNGER (PINCH)	
⚠	1-464-234-00	MODULATOR, RF BOOSTER(RFU-807)	
⚠	1-534-817-XX	CORD, POWER	
	1-548-559-00	COUNTER, TAPE	
	1-552-664-00	SWITCH, MICRO	
⚠	1-554-038-00	SWITCH, POWER VOLTAGE CHANGE	
⚠	1-554-055-00	SWITCH, SEESAW (MAIN SW)	
♦	1-555-400-00	CABLE, PIN	
♦	1-555-716-41	CABLE, PIN	
	1-933-276-00	JACK (RJ-2)	
	1-933-481-00	JACK (CP-4)	
	8-825-687-31	HEAD, FULL ERASE (EF182-21)	
	8-835-070-11	MOTOR, DC	

****

ACCESSORIES AND PACKING MATERIALS
****

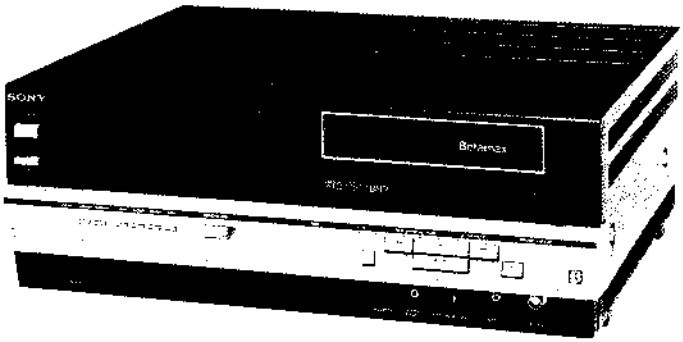
Part No.	Description	Remark
X-3674-127-2	LABEL ASSY, INSTRUCTION, PRESET	
1-551-513-00	CABLE, COAXAL ASSY	
3-660-986-00	SHEET, PROTECTION	
3-662-364-00	BAG, PROTECTION	
3-670-804-00	CUSHION (REAR LOWER)	
3-670-805-00	CUSHION (FRONT LOWER)	
3-670-806-00	CUSHION (RIGHT UPPER)	
3-670-807-00	CUSHION (LEFT UPPER)	
3-672-428-00	BAG, PROTECTION	
3-674-198-00	INDIVIDUAL CARTON	
3-701-007-00	BAND, BINDING	
3-773-229-11	MANUAL, INSTRUCTION	

NOTE:

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

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

ADJUSTMENT MANUAL



September, 1982

710 CHASSIS

Beta

VIDEO CASSETTE RECORDER

SONY

TABLE OF CONTENTS

SECTION 1

PREPARATION FOR MECHANICAL SECTION CHECK, ADJUSTMENT AND REPLACEMENT

1-1. DISASSEMBLY

1. Cabinet Removal
   1) Remove the four screws (1).
   2) Remove the upper case (2).
   3) Remove the three screws (3).
   4) Push the front panel assembly (4) upward and pull it forward you.
   5) Remove the seven screws (5) and remove the bottom plate (6).

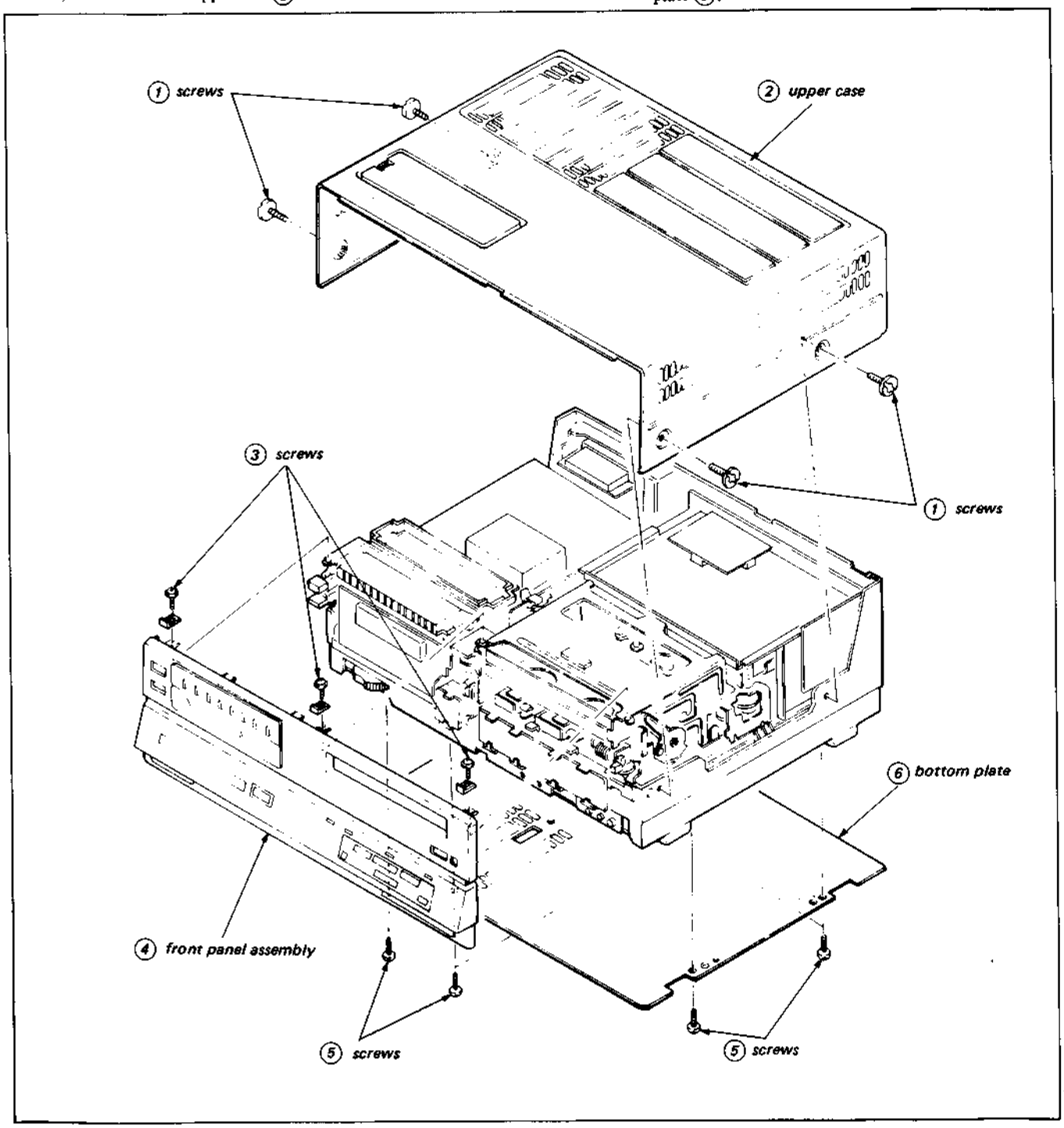


Fig. 1-1. Cabinet removal

2. Tuner Block Removal (See Fig. 1-2)

1) Remove the five screws(1).

2) Pull off connectors (4P, 5P, 5P, 8P).

3) Remove pin cable(2).

4) Remove the tuner block by pulling up in the direction of arrow (A) or (A)'.

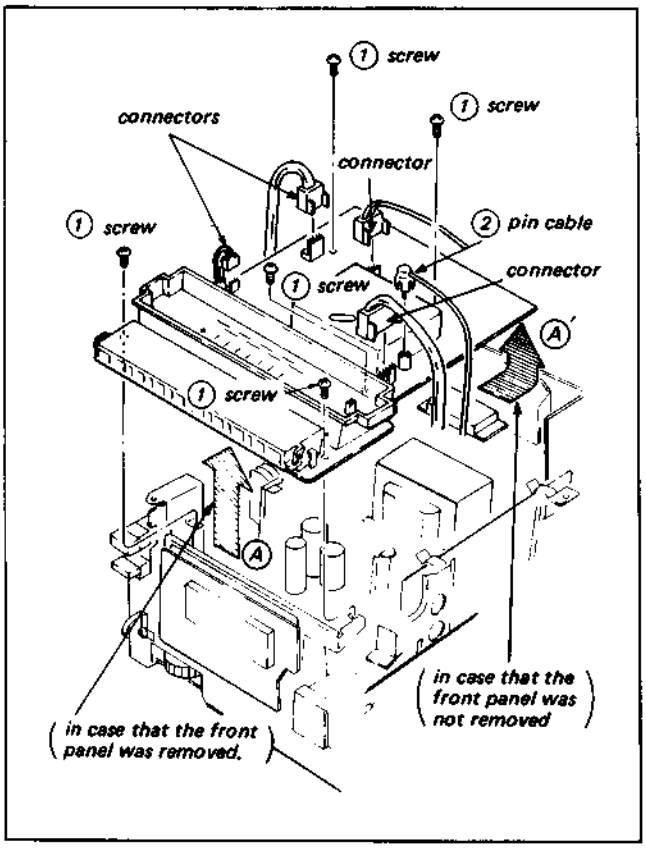


Fig. 1-2. Tuner block removal

3. Timer Tuner Unit Removal (See Fig. 1-3)

1) Remove the three screws(1).

2) Remove the six screws(2).

3) Pull off connector(3)(5P) from DR-1 board.

4) Pull off connector(4)(6P) from YC-23 board.

5) Pull off connector(5)(10P) on SS-9 board.

6) Remove T/T unit block by lifting up in the direction of the arrow.

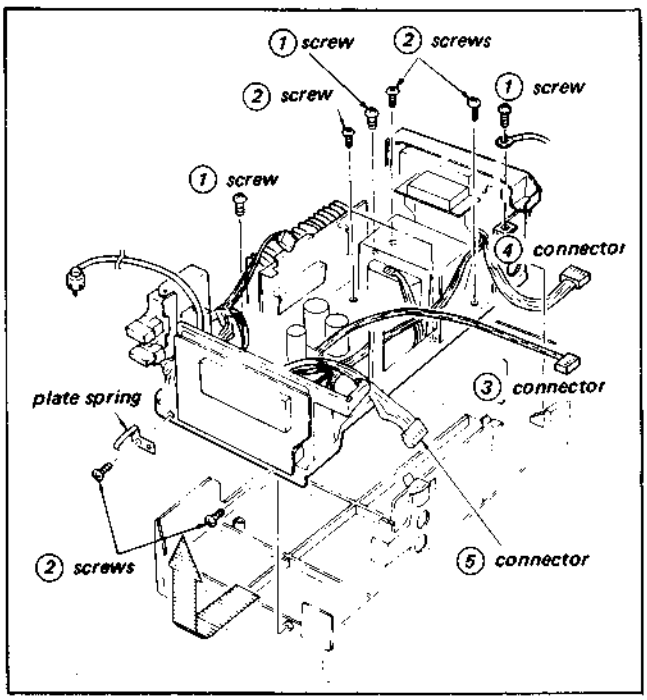


Fig. 1-3. Timer tuner unit removal

4. YC-23 Board Removal (See Fig. 1-4a)

1) Place the set with the power supply side down.

2) Remove the four screws (1) (the center screw includes a damper).

3) Remove the three hooks (2).

4) As shown in the illustration, using the cassette as a support, lean the YC-23 board in the direction of the arrow.

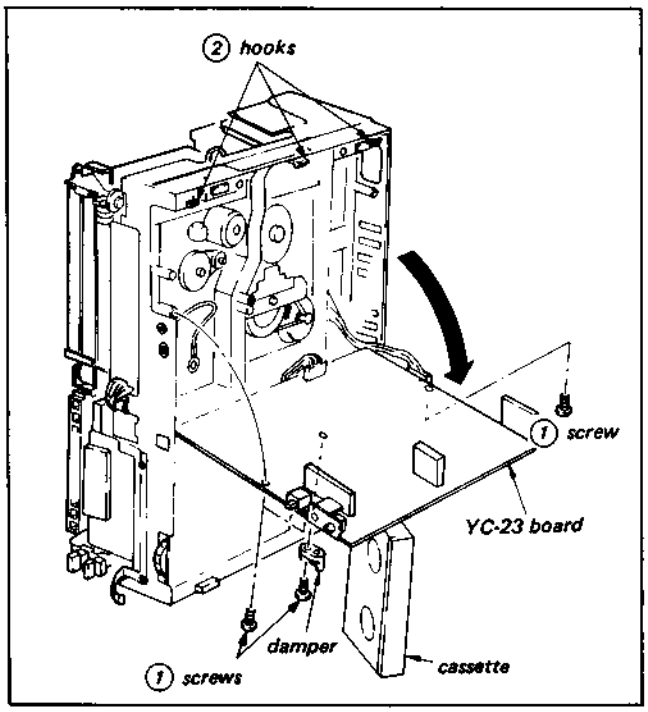


Fig. 1-4a. YC-23 board removal

5. SS-9 Board Removal (See Fig. 1-4b)

1) Place the set with the power supply side up.

2) Remove the three screws (1).

3) Remove the three hooks (2) and lean the SS-9 board in the direction of the arrow.

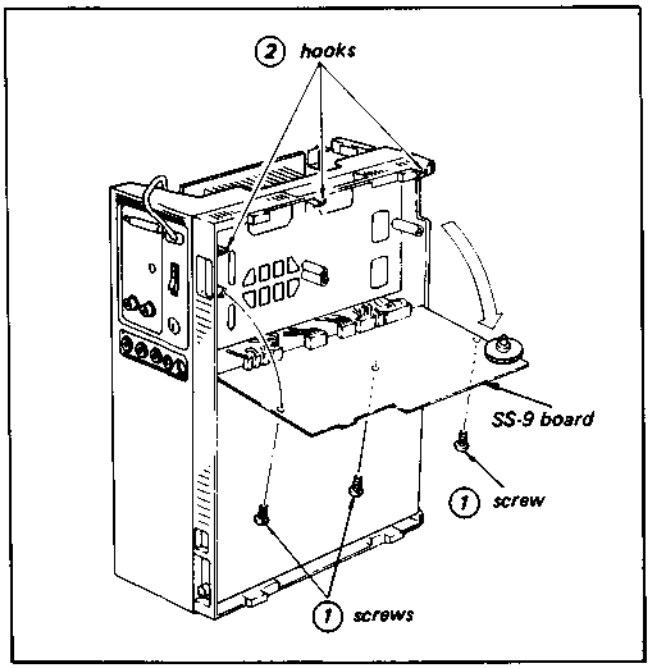


Fig. 1-4b. SS-9 board removal

6. AD-7 Board Removal (See Fig. 1-4c)

1) Remove the two screws (1).

2) Open the AD-7 board in the direction of the arrow (2).

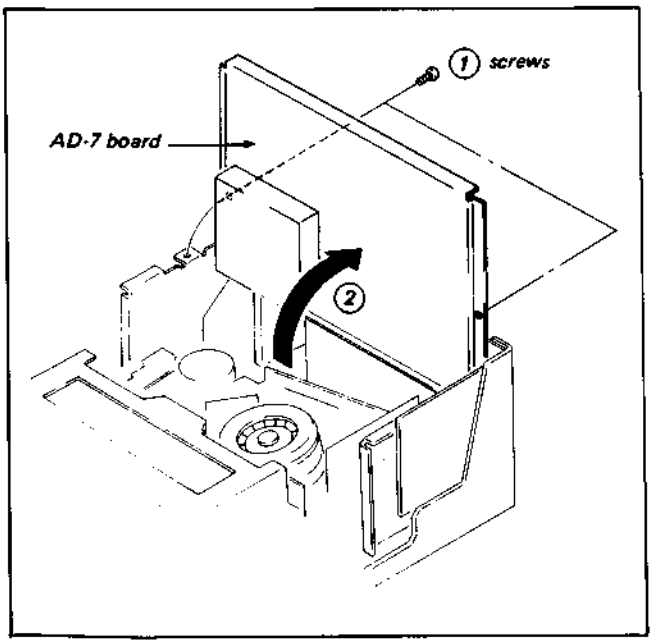


Fig. 1-4c. AD-7 board removal

1-2. NOTES ON SERVICING

1. Never place the machine upside down when the upper case has been removed, with the fan (black) attached to the drum assembly. (Since the fan projects from the chassis, excessive force applied to the drum could have an undesirable effect on tape transportation and tape interchangeability.)

2. Be sure to install the fan on the drum prior to tape playback check or electrical system alignment. If this is not done, the picture on the monitor may bend, as shown in Fig. 1-5.

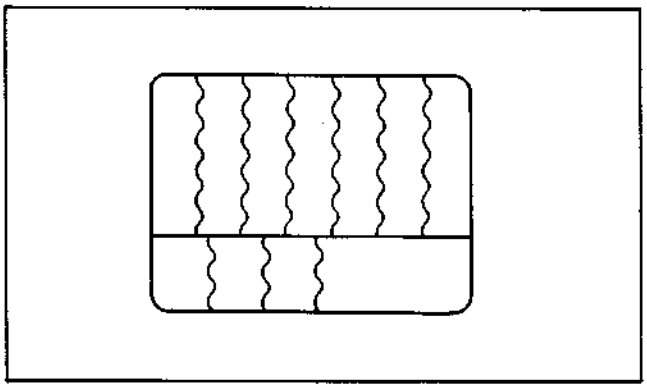


Fig. 1-5. Notes on servicing

1-3. OPERATING RECORDER WITHOUT CASSETTE INSTALLED

Note: When operating the machine without a cassette, the S- and T-side reel tables will float up during each function operation, generating noise when they rub against the soft brake arm, etc. This is mechanically undesirable, so when this operation must be performed for service, be sure to follow the procedures below exactly.

1. To set up threading completion state without cassette installed. (This state is called "STOP condition" in this guide.)

   A. With front loading (cassette lift) assembly installed (See Fig. 1-6a)

      (i) The front loading (cassette lift) assembly begins to drop when the TT-5 board CN101 pin ④ and pin ⑥ are shorted with tweezers. (See Fig. 1-6b)

      (ii) With the front loading assembly completely lowered, short the TT-5 board CN101 pin ⑤ and ⑥ until threading ring rotation stops.

      Note: Be careful not to touch any other pins when shorting the ones mentioned.

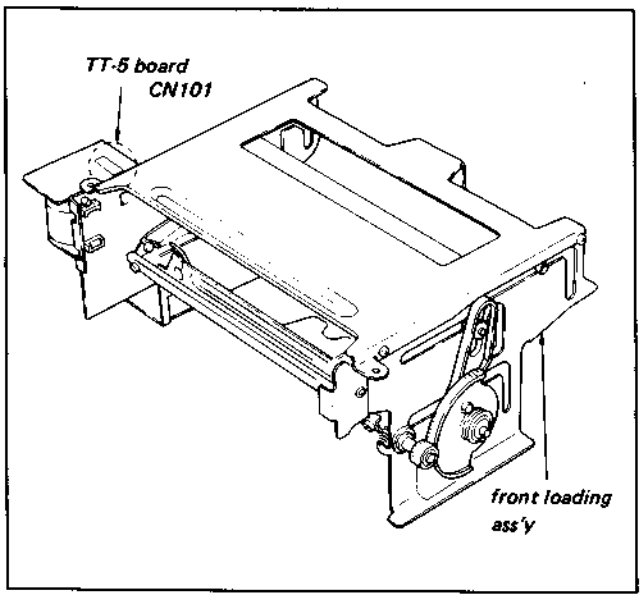


Fig. 1-6a. Operation without cassette

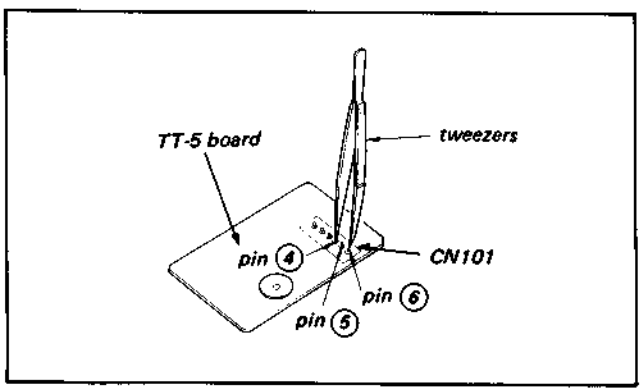


Fig. 1-6b. Operation without cassette

   B. With front loading (cassette lift) assembly removed (See Fig. 1-7)

      (i) Turn the STAND BY SW off.

      (ii) Short 5 and 6 on the harness (DR-6) from the DR-1 board to the cassette lift with a wire.

      (iii) When the STAND BY SW is turned on, the set will thread automatically.

      Note: Mains switch is located on the behind.

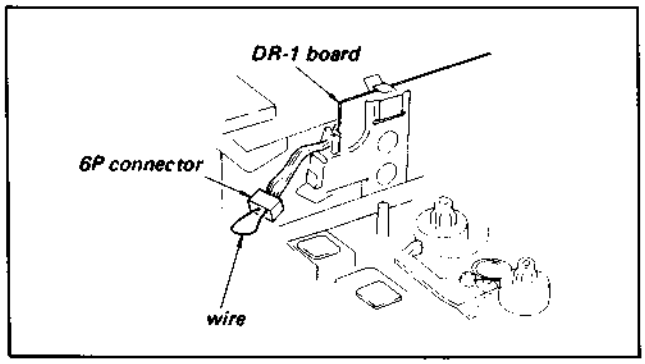


Fig. 1-7.

2. To set up PLAY, FAST FWD, REW states without a cassette installed

   A. With the front loading assembly installed

      The desired mode can be achieved by pressing the appropriate function button.

   B. With cassette lift assembly removed

      1) Stop slack sensor operation as shown in Fig. 1-9, section 1-4.

      2) Press the button for the desired mode.

      Note: Noise may be caused by the reel table and cassette lift or soft brake arm rubbing against each other, so do not continue this state any longer than necessary.

3. To set up EJECT mode without cassette installed

   • Pressing the EJECT button will cause unthreading, and the cassette lift will rise.

4. To set up RECORD mode without cassette installed (Fig. 1-8)

   1) Switch push the erase proof plate ① until the erase proof goes ON (a click noise will be heard).

   2) When the cassette lift assembly is removed, stop slack sensor operation following the procedure in item 1-4. (Fig. 1-9)

   3) Press RECORD button.

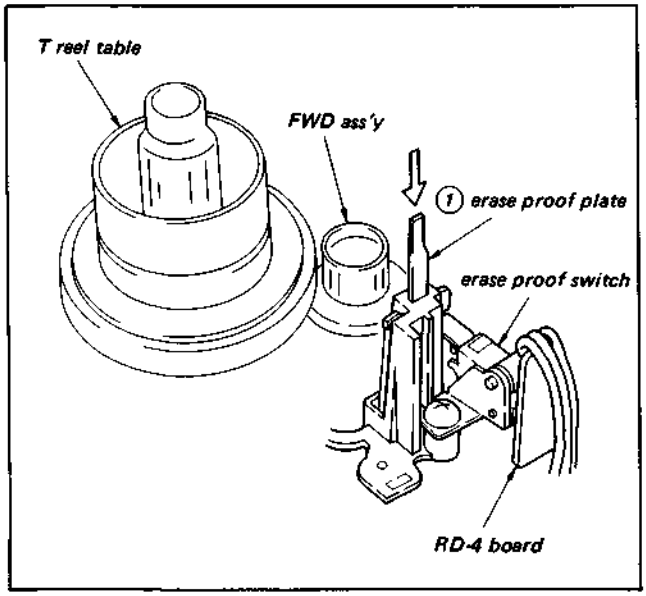


Fig. 1-8. Setting up RECORD mode without cassette

1-4. STOPPING SLACK SENSOR OPERATION

- As shown in Fig. 1-9, insert a toothpick, or matchstick with a sharpened end, into the hole on the SL-1 board to stop the movement of the slack sensor arm.

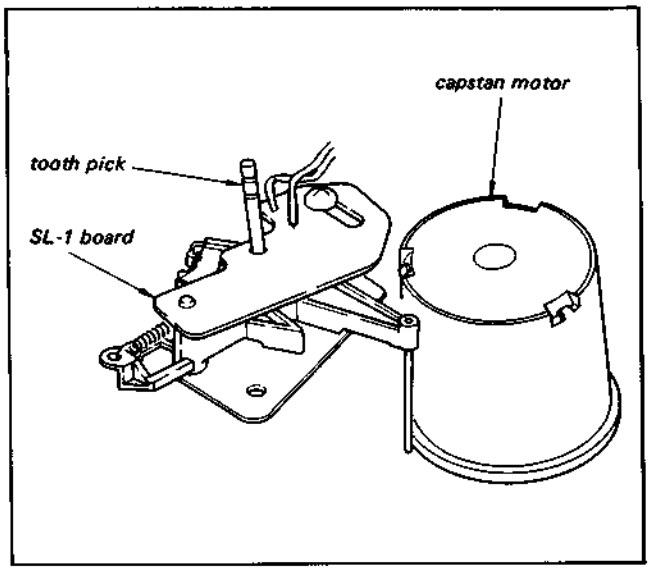
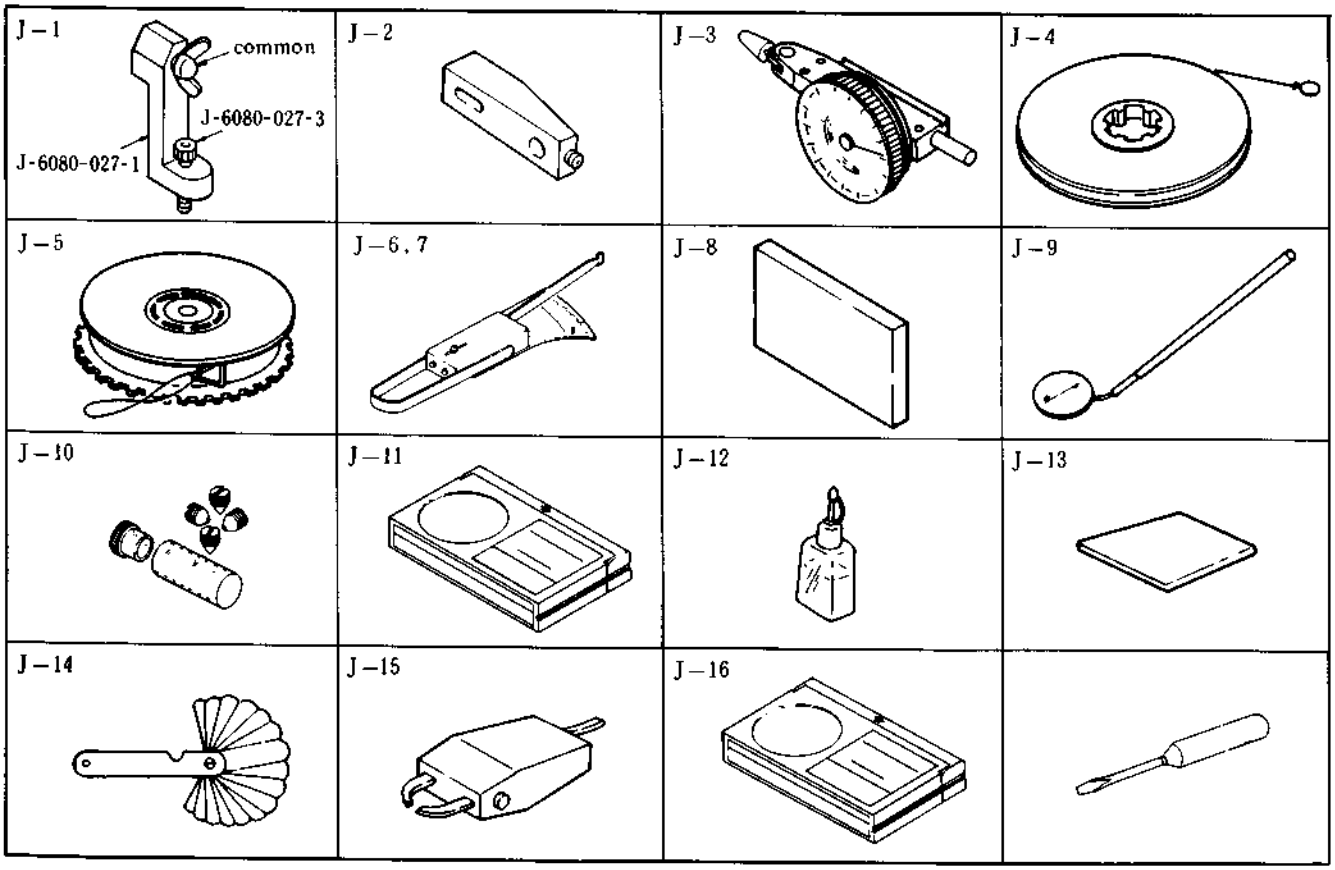


Fig. 1-9. Stopping slack sensor operation

1-5. TOOLS AND FIXTURES REQUIRED

Ref. No.	Name	Part Code	Carved Jig No.	Use and Remarks
J-1	Upper Drum Eccentricity Adjustment Jig	J-6080-027-1 J-6080-027-3	SL-0027	Used for video head disc eccentricity adjustment (J2, J3 are each one portion of SL-0012)
J-2	Upper Drum Eccentricity Adjustment Jig	J-6080-012-A	SL-0012	
J-3	Upper Drum Eccentricity Adjustment Jig			
J-4	Reel Table Tension Gauge	J-6080-011-A	SL-0011	torque measurement
J-5	FWD Back Tension Measurement Jig	J-6080-002-A	SL-0002	FWD Back Tension Measurement
J-6	Sector Type Gauge (50g)	7-732-050-20	———	Back Tension and Torque Measurement
J-7	Sector Type Gauge (100g)	7-732-050-30	———	
J-8	Parallel Plate	J-608-657-0A	SL-0657	audio/CTL head lateral adj.
J-9	Dental Mirror (handle)	7-723-902-01	———	tape path, tape travelling adj. check. (always order the two together)
	Dental Mirror (mirror)	7-723-902-11	———	
J-10	Dihedral Adjustment Screw	J-6080-013-1	SL-0013	video dihedral adjustment
J-11	Alignment Tape (KR5-2H)	8-969-995-52	———	tracking, overall adj. of picture quality, etc.
J-12	Cleaning Fluid	Y-2031-001-0	———	cleaning
J-13	Chamois cloth	2-034-697-00	———	cleaning
J-14	Thickness gauge	9-911-053-00	———	thickness check
J-15	Head Demagnetizer		———	
J-16	Cleaning Cassette Tape	8-888-004-00	———	video head cleaning
J-17	Adjusting blade-tip screwdriver	7-700-731-0		variable resistor adjustment

Notes: 1. When ordering the Jig Nos. J-1 and J-2, be sure to place the order for these together as a set.
2. Alignment tape KR5-1H is also available, but when ordering new alignment tape, be sure to order KR5-2H.



SECTION 2
PERIODIC CHECK AND MAINTENANCE

- It is recommended that the following periodic checks and maintenance be performed in order to obtain full function and performance of the machine and to extend tape and machine life.

2-1. POST-REPAIR MAINTENANCE

The following maintenance must be performed after repair, regardless of the operating hours of the machine.

1) Cleaning of video head disc assembly

- Press chamois (Ref. No. J-13) saturated with cleaning fluid (Ref. No. J-12) lightly again the assembly and turn the fan on the drum slowly by hand to clean. (Never try to clean the assembly with the motor running.)
- Also, never move the chamois vertically against the head tips, or they will be damaged.

2) Cleaning of the tape movement system

- Clean the surfaces which the tape contacts during its movement (tape guides, drum assembly, capstan, pinch roller) with chamois saturated with cleaning fluid.

3) Cleaning of the driving system

- Clean the driving elements (belts, idlers, reel table surfaces) with a piece of cloth saturated with cleaning fluid.

2-2. PERIODIC CHECK ITEMS

Perform the maintenance and check listed on the table below, according to user's operating hours.

○ Cleaning ◎ Lubrication ★ Replacement ☆ Confirmation

	Maintenance & Check	Replacement Part No.	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	Remarks
Tape Movement System	Cleaning of tape movement system	———	○	○	○	○	○	○	○	○	○	○	This cleaning must be done whenever a repair is made.
	Cleaning & degaussing of ACE ass'y	———	○	○	○	○	○	○	○	○	○	○	
	Cleaning & degaussing of video head disk ass'y	A-6762-038-A	○	○	○	○	○	○	○	○	○	○	The life of a head varies, depending on operational conditions and methods.
Driving System	Lubrication of thrust retainer	———	–	◎	–	◎	–	◎	–	◎	–	◎	Apply a drop of oil (such as sewing machine oil) on each of upper and lower bearings.
	Lubrication of thrust bearing (under reel table)	———	–	–	◎	–	–	◎	–	–	◎	–	Remove reel table and apply a drop of oil (such as sewing machine oil) on thrust bearing.
	Cleaning & replacement of capstan belt	3-671-253-01	○	○	★	○	○	★	○	○	★	○	• Cleaning must be done whenever repair is made. • Replacement must be done depending on operating hours on the table, or every two years.
	Cleaning & replacement of belts other than capstan belt	———	○	○	○	○	○	○	○	★	○	○	
	FF belt	3-671-077-00	–	☆	–	★	–	☆	–	★	–	☆	
	Replacement of FWD limiter	A-6740-072-A	–	☆	–	★	–	☆	–	★	–	☆	
	Cleaning of iron core and opening of solenoid	———	–	–	–	○	–	–	–	○	–	–	Wipe iron core and opening of solenoids with a dry cloth.
Performance Confirmation	Abnormal sound	———	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Adjust or replace the section which makes abnormal sound.
	Measurement of FWD back tension	———	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to Section 3-17. Specified value: 35 ~ 45g. (when measured with jig tape)
	Confirmation of brake system	———	–	☆	–	☆	–	☆	–	☆	–	☆	Confirmation must be made according to Section 3-16.
	Confirmation of record & playback functions	———	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	Perform the confirmation whenever repair is made.

- Belts other than capstan belt

FWD belt	:	3-671-078-00
Threading belt	:	3-671-098-00
Counter belt	:	3-671-094-00
Relay belt	:	3-671-120-00

(Note on Overhaul)

Part replacement must be done in the overhaul operation, referring to the listed items. The replacement periods of the motor and the head which are not included in the chart items are as follows.

Full erase head . . . . . about 4,000 operating hours
Capstan motor . . . . . about 2,000 operating hours

2-3. OTHERS

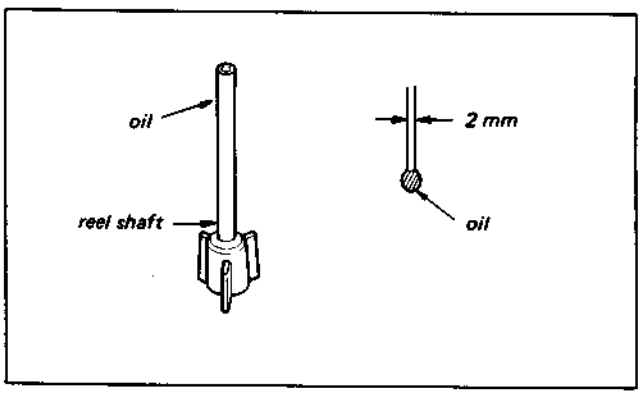
Lubricating Oil

- Be sure to use SONY oil (or equivalent) for lubrication. (A different viscosity oil may cause problems.)

  SONY Oil: Part No. 7-661-018-01

- When lubricating bearings, make sure there is no dust or other foreign material in the oil. (Dust, etc. may cause friction or burning of the bearing.)

- The quantity of "a drop of oil" is the amount which will stick to the tip of a 2 mm. diameter stick, as shown in the illustration.



SECTION 3
CHECK, ADJUSTMENT AND REPLACEMENT PROCEDURES

3-1. REPLACEMENT OF VIDEO HEAD DISC ASSEMBLY AND ECCENTRICITY ADJUSTMENT

1) Remove the video head disc assembly following steps 1–6, shown in Fig. 3-1.

Note:
- To remove fan (1), press (6) down and move in the direction of the arrow.
- Never loosen the two setscrews that fasten the lower flange to the drum shaft.
- Never loosen the lower two screws of the drum support.
- Prior to installing the video head disc assembly (6), clean surfaces A and B with a piece of cloth saturated with methanol or isopropyl alcohol.

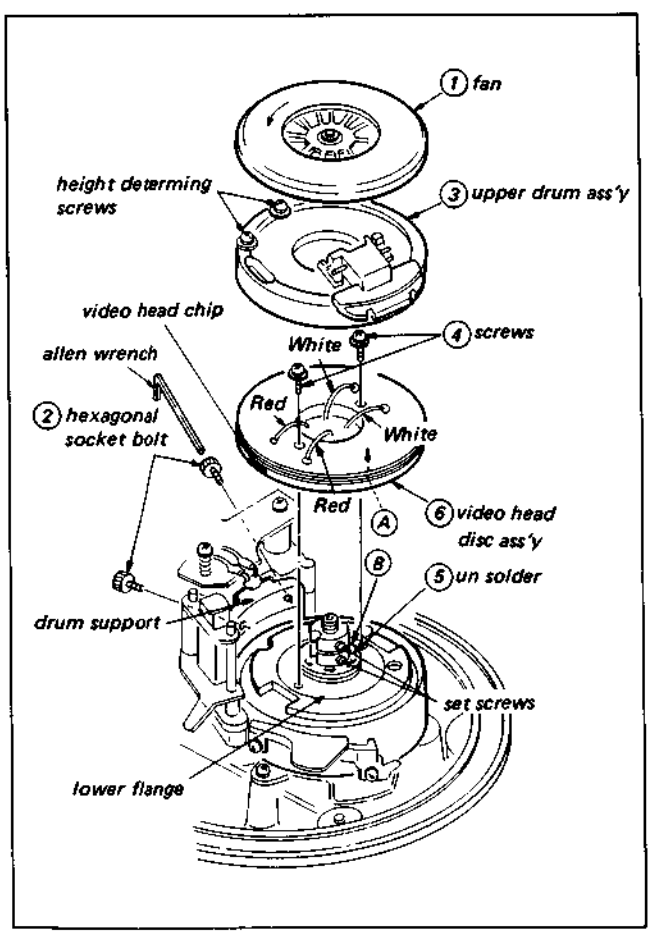


Fig. 3-1. Replacement of video head disc assembly

2) Tentatively install the video head disc assembly and perform the eccentricity adjustment.

(i) Combine adjusting jig parts (1), (2) and (3) as shown in Fig. 3-2. Set the eccentricity gauge assembly on the machine by mounting it in the adjustment hole, as shown.

(ii) Turn the shaft of the drum counterclockwise slowly with the fingers and adjust the video head disc position so that the variation in the reading of the drum eccentricity adjusting gauge is within 5 μm during each turn of the drum, by very gently tapping a screwdriver wrapped in cloth against the outer circumference of the video head disc assembly (4).

Note: Be careful not to damage video head tip.

(iii) Tighten the screws (5) that secure the video head disc assembly (4) alternately and gradually after the eccentricity adjustment is completed. (tightening torque; more than 10 kg./cm.)

(iv) After the screws are tightened, confirm again that the eccentricity deflection is within 5 μm.

(v) Solder the four leads of the head and remount the upper drum assembly while pressing down the upper drum height determining screws. (See Fig. 3-1)

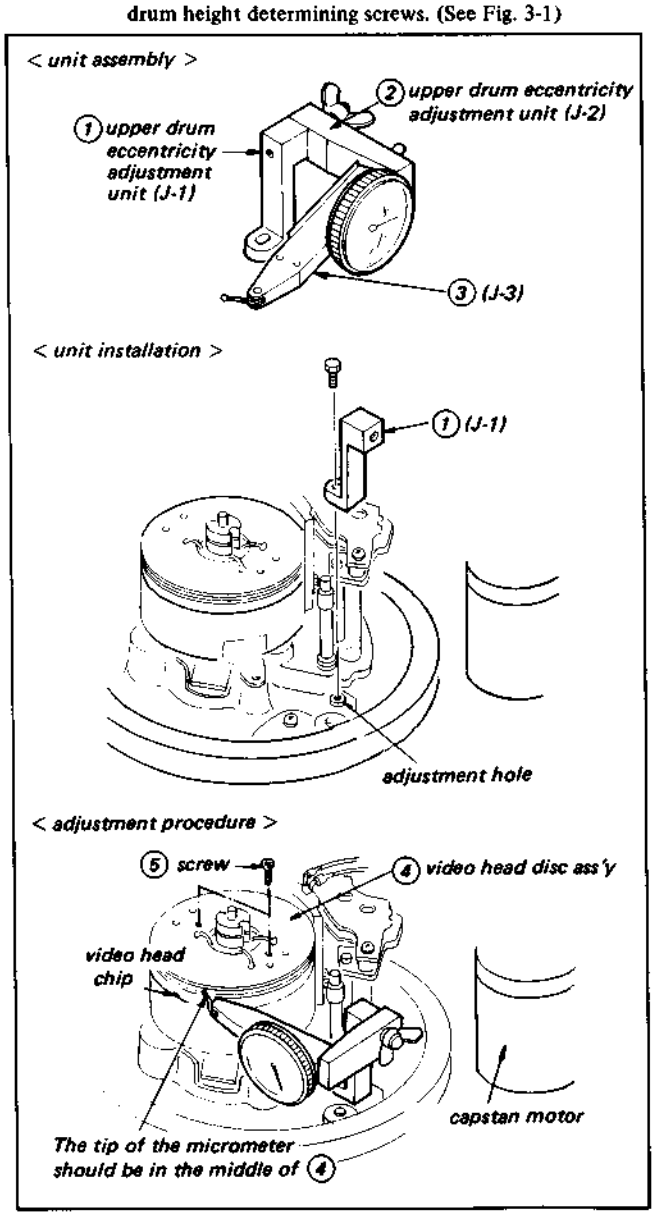


Fig. 3-2. Video head disc assembly eccentricity adjustment

3) Perform the following adjustments after replacement of the video head disc assembly.

3-18-1. tape path adjustment
3-18-4. ACE assembly position adjustment
3-18-5. video head dihedral adjustment
4-3-1.(2) RF switching position adjustment
4-3-1.(3) REC mode servo lock phase adjustment
4-4. Video system alignment

3-2. REPLACEMENT OF DRUM ASSEMBLY

1) Remove the two screws ① and connectors ② and ③ shown in Fig. 3-3. The drum assembly can then be removed.

2) As shown in Fig. 3-4, remove the rotor assembly by inserting longnose pliers or a screwdriver into the rotor hole, remove N5φ nut and SW5φ washer, then pull off the rotor assembly.

3) Remove the screw in Fig. 3-4 and pull off the stator assembly.

4) Install the rotor and stator assemblies removed in steps 4 and 5 on the new drum assembly.

Note: Install the stator assembly so that the 3P connector fits into the slot of the shield case assembly.

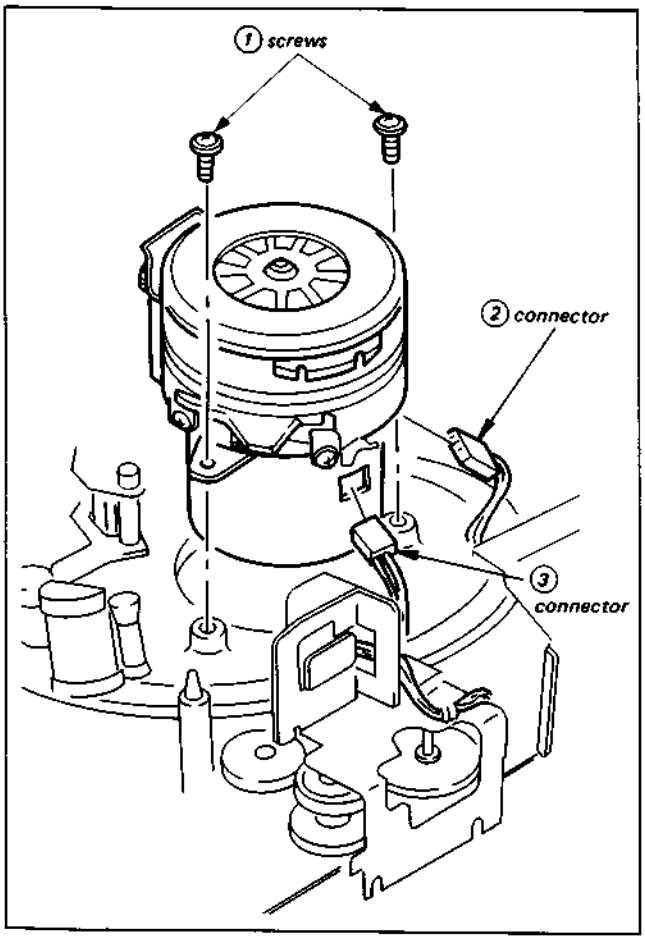


Fig. 3-3. Replacement of drum ass'y (1)

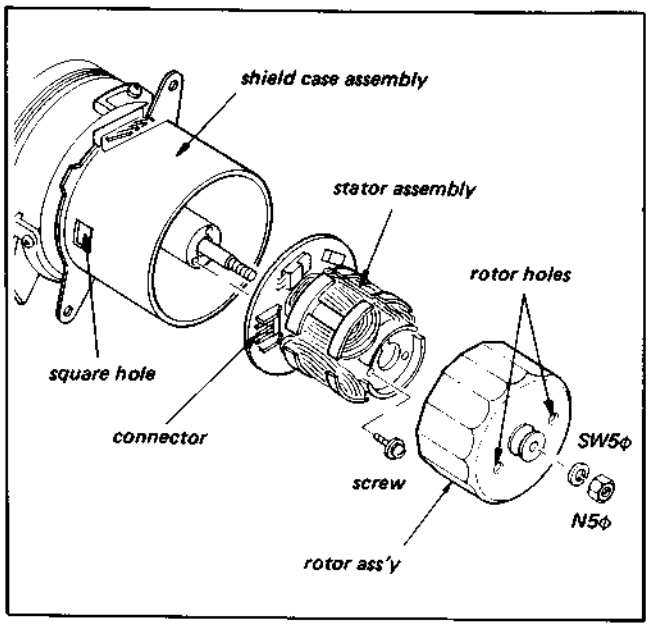


Fig. 3-4. Replacement of drum ass'y (2)

5) Installing connectors
As shown in Fig. 3-5, pull the connectors in the direction of the arrow so that the leads do not touch threading gear (B).

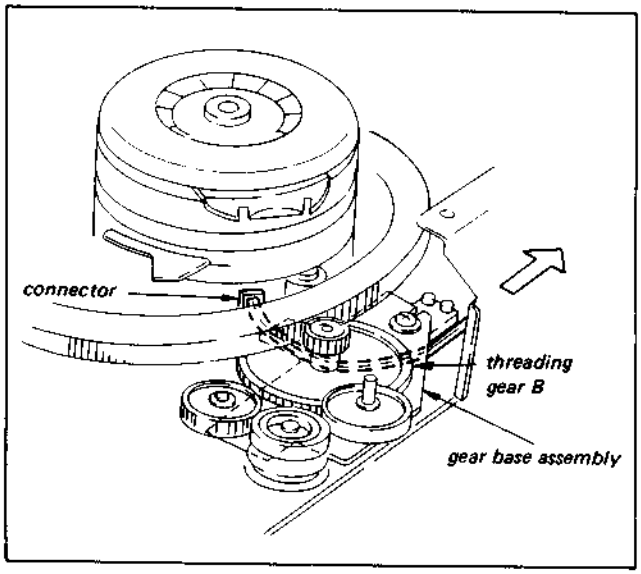


Fig. 3-5. Replacement of drum ass'y (3)

6) Perform the following adjustments after replacement

3-18-1. Tape path adjustment
3-18-4. ACE assembly position adjustment
4-3-1. Drum servo system adjustment
4-4. Video system alignment

3-3. REPLACEMENT OF CAPSTAN DC MOTOR

1. Stand the machine on its left side. Open the YC-18 board.
2. As shown in Fig. 3-6, remove the three screws (1) and remove capstan belt (2).
3. Remove the DC motor from the drum base.
4. As shown in Fig. 3-7, pull out connector (1) from the DR board, and remove connecting band (2).

   Note: The capstan motor should be in parts code A condition (A-6737-103- , pulley inserted).
5. After replacement, perform capstan free speed adjustment, 4-3-2(1).

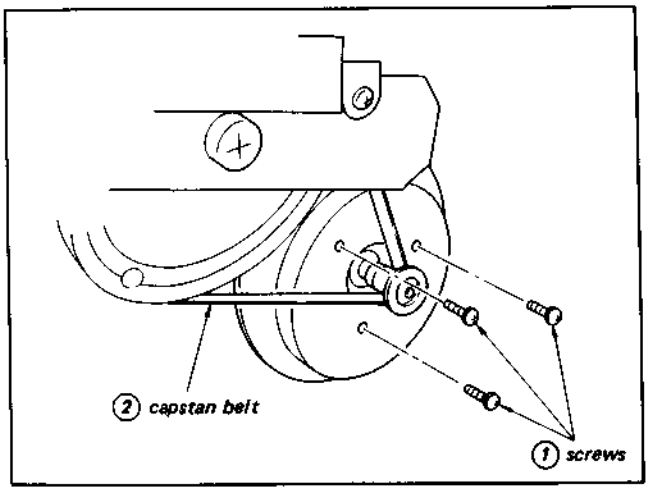


Fig. 3-6. Replacement of capstan DC motor (1)

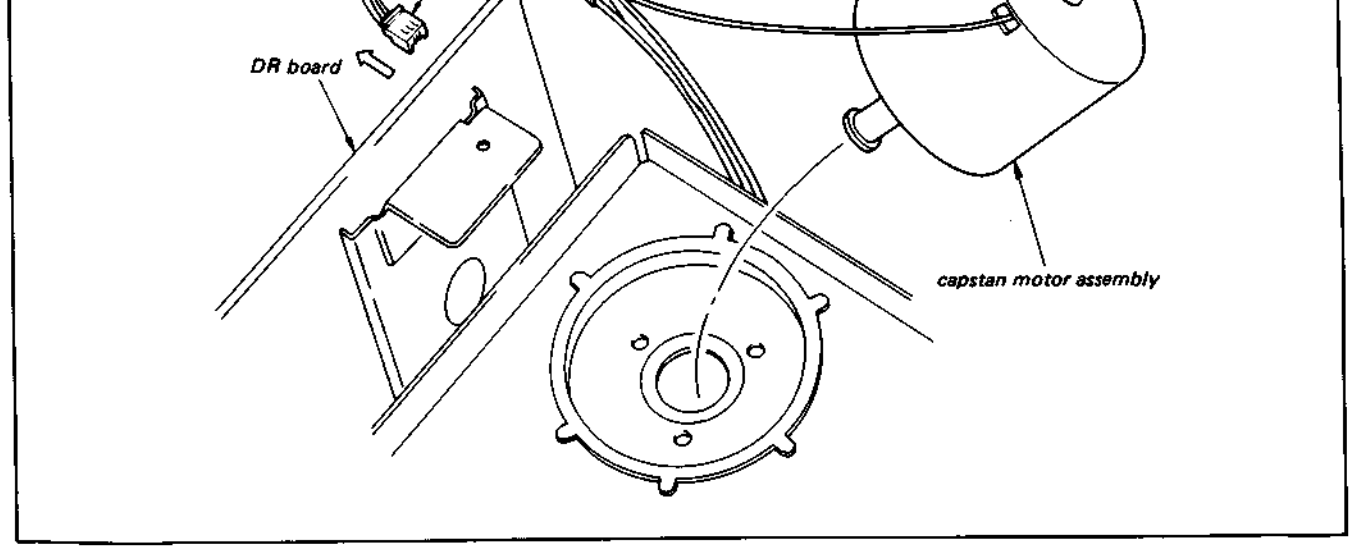


Fig. 3-7. Replacement of capstan DC motor (2)

3-4. REPLACEMENT AND ADJUSTMENT OF TENSION REGULATOR ARM PLATE AND TENSION REGULATOR BAND ASSEMBLY

The tension regulator arm replacement must be done carefully, following the procedure below, because tape interchangeability is affected by the tension regulator arm operation.

3-4-1. When Brake Band Assembly is Replaced:

1) The brake band

1) The brake band assembly can be removed after removing fook ⑥, screw ④ shown in Fig. 3-8 Ⓑ.

2) Perform tension regulator FWD position adjustment described below after the replacement.

   (i) Place the machine into STOP mode without cassette installed. (Refer to Section 1-3)

   (ii) Set up the PLAY mode.

   (iii) Move the brake band ⑤ in the direction of the arrow as shown in Fig. 3-8Ⓑ, so that it is positioned as shown in section Ⓐ in Fig. 3-8. Then tighten screw ④.

   (iv) Perform the FWD back tension adjustment, section 3-17, after the replacement.

3-4-2. When Tension Regulator Arm Plate is Replaced:

1) The tension regulator arm plate is removed by removing screw ①, stop ring ② and the hook side of the brake band assembly ③. (See Fig. 3-8 Ⓑ)

2) After replacement, perform tension regulator stop position adjustment and forward position adjustment as follows:

   (i) Set up STOP condition, without cassette installed.

   (ii) As shown in Fig. 3-8, loosen screw ① which holds the tension regulator arm assembly, insert a bladetip screwdriver into section Ⓔ and adjust until the condition shown in Ⓒ in Fig. 3-8 is obtained. Tighten screw ①.

   (iii) Set up PLAY mode.

   (iv) As shown in Fig. 3-8, loosen screw ④, and move the brake band ③ in the direction of the arrow. Tighten screw ④ when the condition shown in Ⓐ is obtained.

   Note: Confirm that the clearance at section Ⓓ is more than 0.2 mm.

   (v) Repeat steps (i)–(iv) again and confirm that the adjustment has been properly performed within the specifications.

   (vi) After installing, perform FWD back tension adjustment, 3-17.

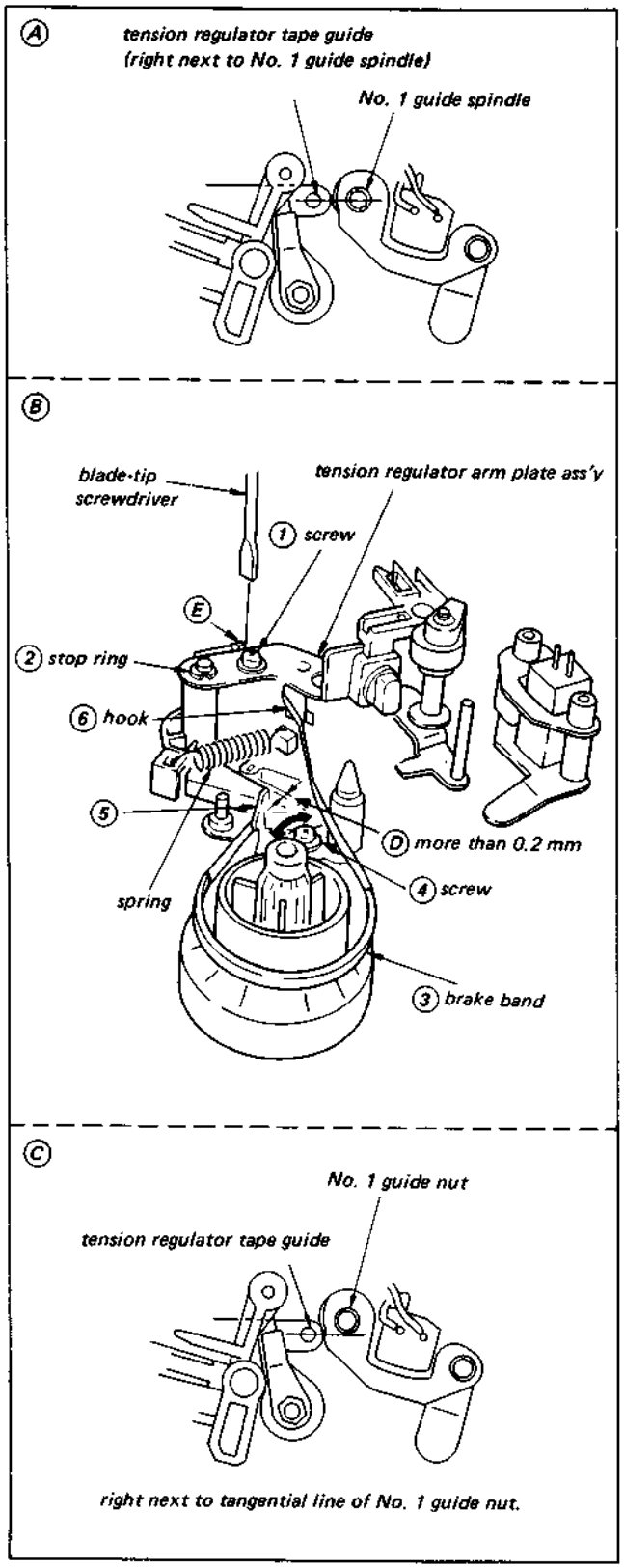


Fig. 3-8. Replacement and adjustment of tension regulator arm plate ass'y and brake band ass'y

3) Play back the TRACKING segment of the alignment tape (KR5-1H or 2H). Loosen the lock screw and adjust screw "a" in Fig. 3-9 so that the RF waveform becomes flat (see the waveform in tape path adjustment, section 3-18-1) when the TRACKING knob is turned right and left from the center detent position, and so that the tape does not separate from the flanges of guides ①, ② and ③ shown in Fig. 3-9, and so that a large curl does not appear at the guides.

Note: Do not turn screw "a" more than 90° in either direction from its initial position.

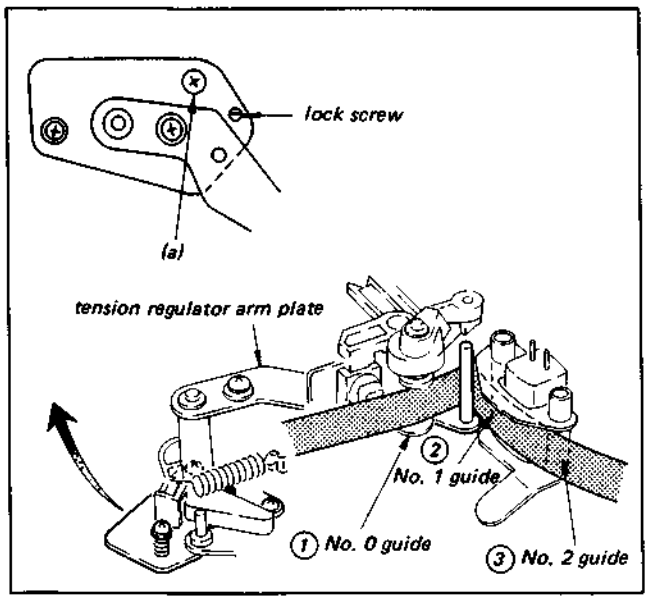


Fig. 3-9. Replacement and adjustment of tension regulator arm plate (1)

4) Confirm that there is not a large bending of the tape at the tension regulator guide pin section and the No. 0 guide section shown in Fig. 3-10 after the completion of the adjustment. If bending appears, repeat step 3.

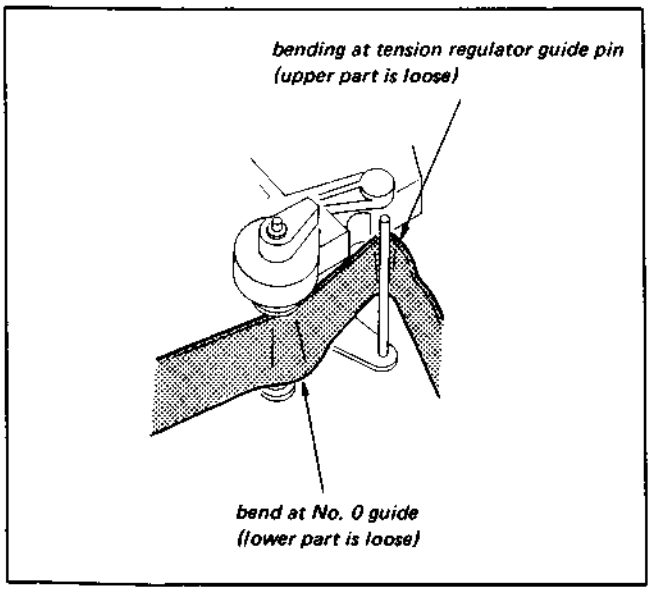


Fig. 3-10 Replacement and adjustment of tension regulator arm plate (2)

3-5. REPLACEMENT OF FRONT LOADING ASSEMBLY (CASSETTE LIFT ASSEMBLY)

1) Set the cassette lift in the unthreading condition.

2) Remove the connector (black, 6P) between the DR board and the TT-5 board CN101.

3) Remove the wires from the skeleton switch to the TT-5 board from the wiring holder ① and remove the four screws ②.

4) See Fig. 3-11 for re-installation of the front loading.

Note: Make sure that the three wires between the TT-5 board and the skeleton do not touch the gears or any other moving parts.

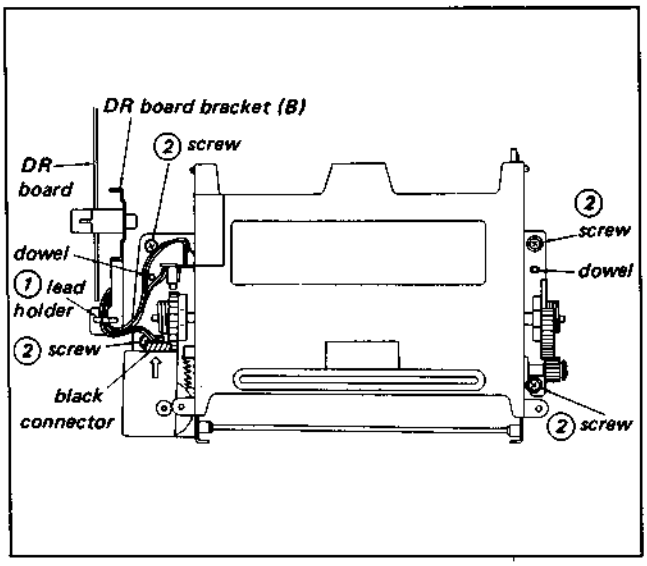


Fig. 3-11. Replacement of front loading ass'y (cassette lift ass'y)

5) After re-installation, turn the stand by switch ON, insert a cassette, and confirm that threading, unthreading EJECT functions all operate properly.

6) Raise the cassette lift and adjust the lid opener position as explained in section 3-9.

3-6. ADJUSTMENT OF REEL TABLE HEIGHT

- Since the reel table height serves as the reference for the tape movement system, the height must be adjusted carefully after reel table replacement.

1) Measure the height of the reel table with a slide caliper prior to the removal of the old reel table. (See Fig. 3-12)

2) Position a new reel table, measure its height, and adjust the height by adding or removing the adjusting spacer so that the difference in the heights of the former and new reel tables is within 0.1 mm. (See Fig. 3-12)

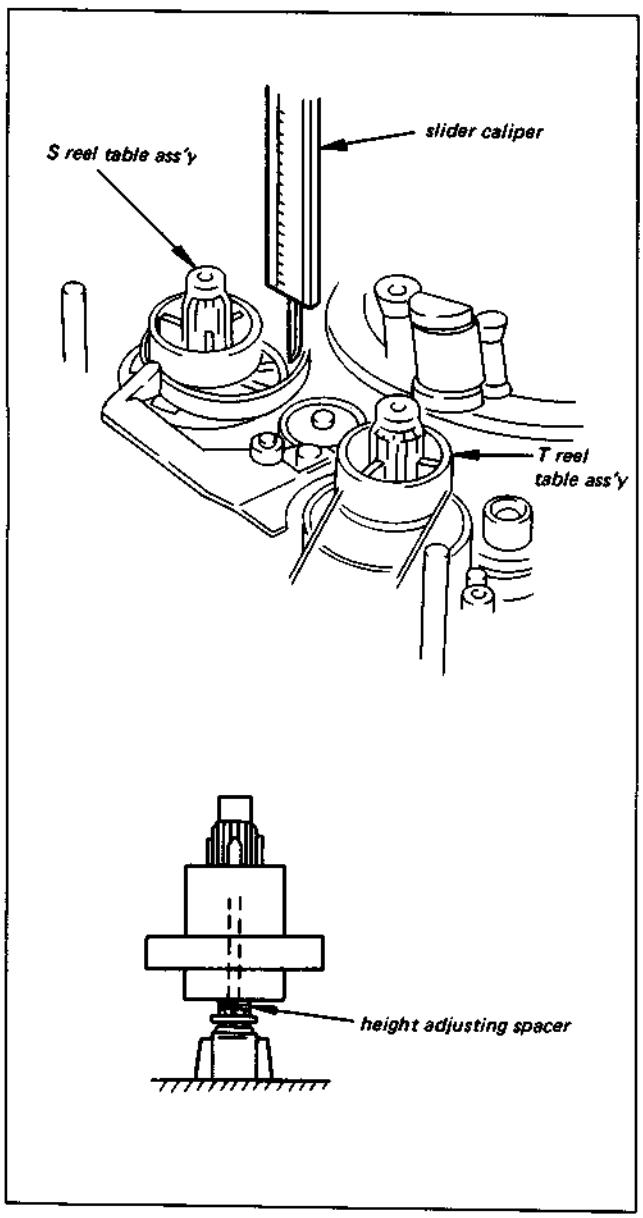


Fig. 3-12. Adjustment of reel table height

3-7. FUNCTION SOLENOID POSITION ADJUSTMENT

BS: Bracket & Select
FF: Fast Forward
FE: Forward & Eject

3-7-1. BS, FF, FE Solenoid Position Adjustment

As shown in Fig. 3-13, these three solenoids activate each function, and the adjustment must be performed very carefully.

1) Set up the STOP condition without cassette installed.

2) As shown in Fig. 3-13, remove the four hooks (1) holding the FS-22 board and open it in the direction of arrow (A).

3) Confirm that each solenoid operates as follows for Play, Fast Forward, Rewind. (Pause, threading and eject functions)

- Playback: FE solenoid activates after BS solenoid activates
- Fast Forward: FF solenoid activates after BS solenoid activates
- Rewind: Only the BS solenoid activates
- Eject: BS solenoid activates after the FE solenoid
- Threading: Only the BS solenoid activates
- Pause: from playback state, BS solenoid stops

4) Perform confirmation adjustment for each solenoid position.

This adjustment is performed with a blade-tip screwdriver, at the front and back of each solenoid, at the bent-up portion of the chassis to which each one is attached.

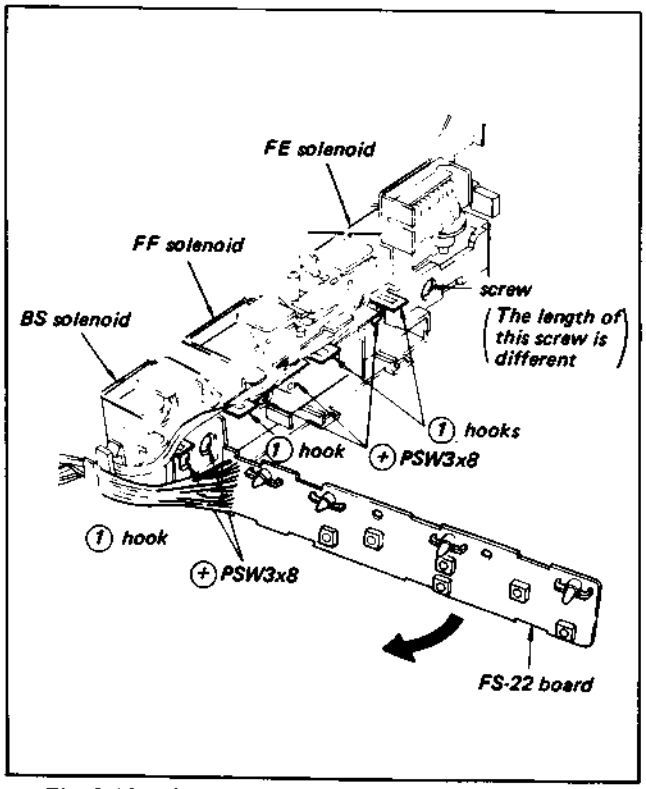


Fig. 3-13. Function solenoid position adjustment

(i) BS Solenoid Adjustment (REW mode)

- As shown in Fig. 3-14a, adjust the solenoid so that there is 0 – 0.1 mm clearance between the BS slide plate ① and the end of the RO slide plate ②.

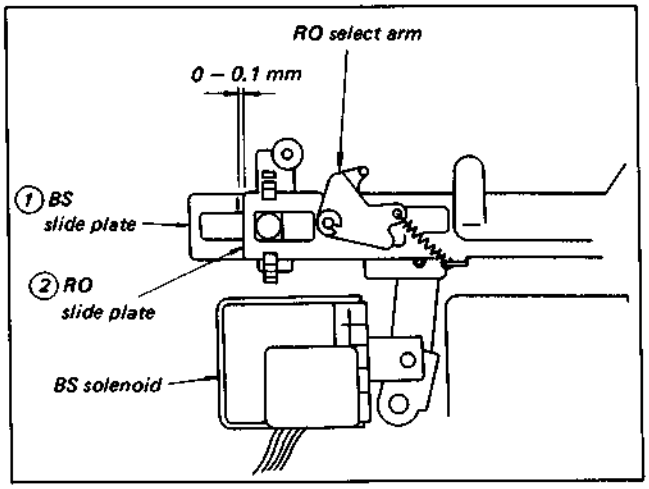


Fig. 3-14a. BS solenoid adjustment

(ii) FF Solenoid Adjustment (FF mode)

- As shown in Fig. 3-14b, adjust the solenoid so that there is 1 mm – 0.2 mm clearance between the BS slide plate ① and the end of RO slide plate ② when viewed from directly above.

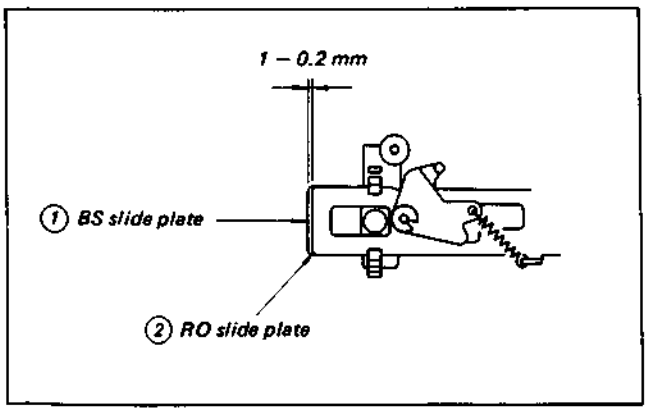


Fig. 3-14b. FF solenoid adjustment

(iii) FE Solenoid Adjustment (PLAY mode)

- As shown in Fig. 3-14c, adjust the solenoid so that there is 0 – 0.1 mm clearance between the FE slide plate ① and the end of the BS slide plate ② when viewed from directly above.

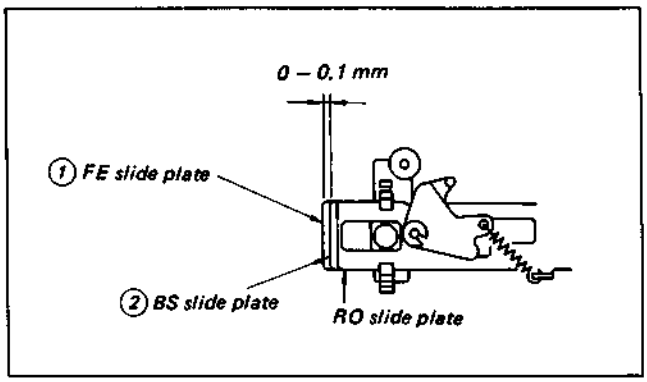


Fig. 3-14c. FE solenoid adjustment

3-8. ADJUSTMENT OF THREADING AND UNTHREADING

3-8-1. Position Adjustment of Threading Drive Section Assembly

Note: Confirm that section 3-10, step 7-(v) ring roller unit position adjustment, has been performed before starting this adjustment.

1) Set up unthreading completion state without an inserted cassette and turn off the stand by switch.

2) Loosen the two screws(1), shown in Fig. 3-15, 90° ~ 180°, insert a blade-tip screwdriver into section (A), and adjust the gear base assembly(4) so that there is about 0.4 mm of play between threading ring (2) and threading gear (3), then tighten screws(1).

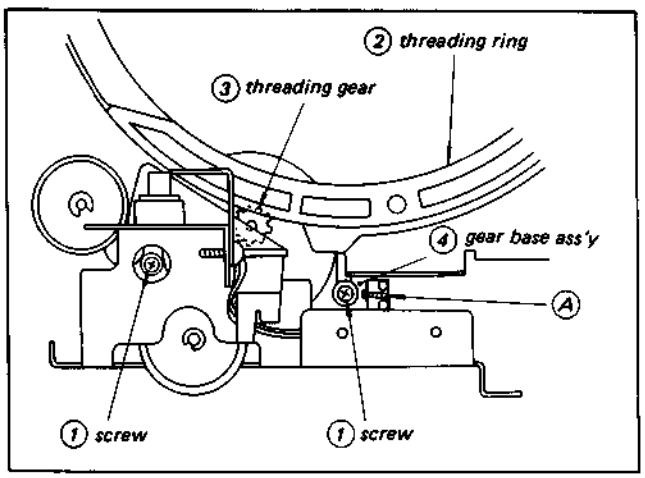


Fig. 3-15. Threading/unthreading adjustment

3-8-2. Adjustment of Pinch Control Plate

Note: Confirm that section 3-10, step 7-(v), ring roller unit position adjustment, has been performed before starting this adjustment.

1) Set up the unthreading completion state without a cassette inserted and turn off the power.

2) As shown in Fig. 3-16, loosen the two screws(1), and adjust so that there is a space of 0.5 mm all around between the threading ring(2) and the pinch control plate(3), then tighten the screws(1).

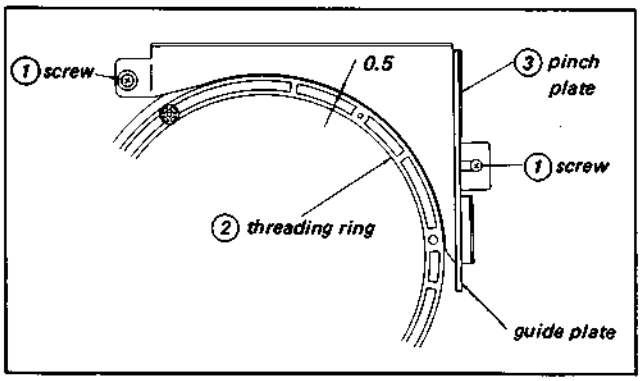


Fig. 3-16. Pinch control plate adjustment

3-8-3. Clearance Adjustment of Ring Arm

Note: Complete section 3-8-1, Position Adjustment of Threading Drive Section Assembly, before starting this adjustment procedure.

If the ring arm is not adjusted properly, there is a danger of the following problems occurring, so perform this adjustment very carefully:

- During PLAY, FF, REC and other modes, the threading ring may move from the threading completion position.
- Even after threading completion, the threading drive section assembly idler may not move, thus the reel motor cannot rotate.
- The REW idler may be drawn into the S-side reel, and threading cannot be performed.

1) Set up the STOP mode without cassette installed.

2) As shown in Fig. 3-17, loosen screw (1) and adjust so that there is a space of 0–0.2 mm between the threading ring(2) and the roller(3).

3) During step 2, by pushing the neck of R adjust plate assembly (4) in the direction of the arrow, the space between the threading pulley assembly (5) and the threading gear (D) (6) in Fig. 3-18 will be gently pushed in the direction of arrow (A), and tighten screw (1) until the space is 0.2–0.5 mm.

4) Set up the unthreading completion state and turn off the stand by switch. At this time, confirm that the space in section (A) of Fig. 3-17 is more than 0.2 mm. If there is no space, repeat the procedure from step 1.

5) Set up STOP mode again without a cassette. Confirm that the roller (3) in Fig. 3-17 drops into the threading ring (2) cam and that the threading gear D(6) in Fig. 3-18 moves away from the threading pulley assembly(5).

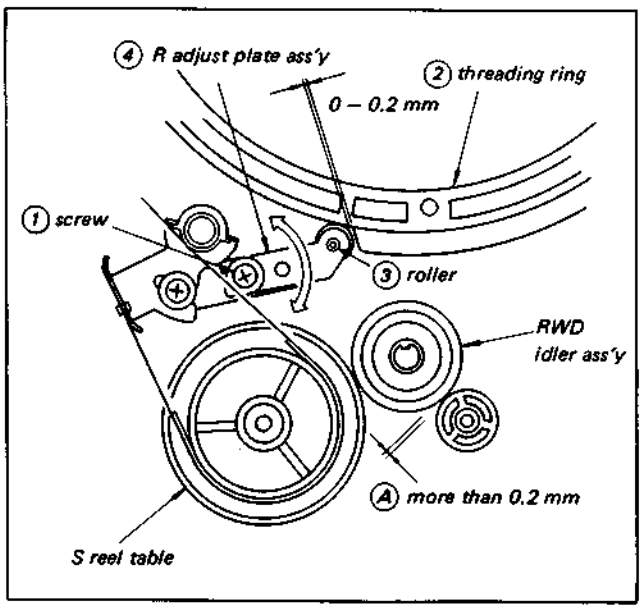


Fig. 3-17. Ring arm clearance adjustment (1)

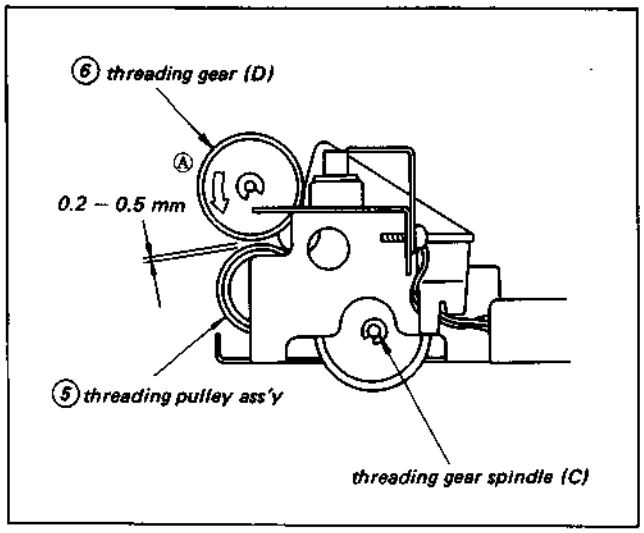


Fig. 3-18. Ring arm clearance adjustment (2)

3-8-4. Check of Unthreading Completion

1) Set up the STOP condition without cassette. (Refer to section 1-3)

2) Set up the EJECT mode to complete the unthreading.

3) Confirm that the tension regulator arm plate assembly is in contact with the boss of the cassette position-determining post. (See Fig. 3-19)

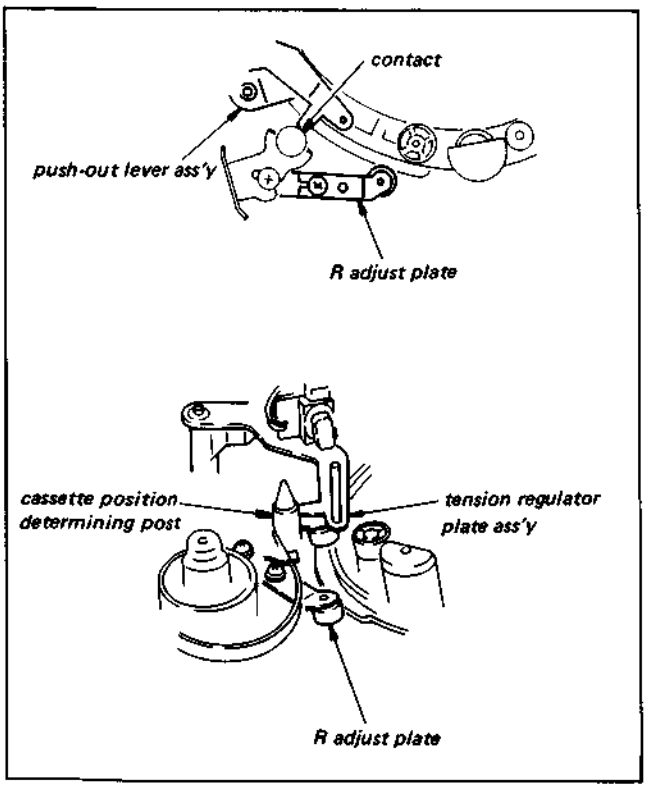


Fig. 3-19. Ring arm clearance adjustment

3-9. POSITION ADJUSTMENT OF LID OPENER

1) Remove front loading section assembly. (See section 3-5)

2) Bend the lower section of the cassette lid opener bracket so that the cassette lid opener bracket positions itself almost at the center of the space marked by asterisk (※) in Fig. 3-20, when the cassette is placed on the four position determining posts. The cassette lid should be pushed in the direction of the arrow at this time.

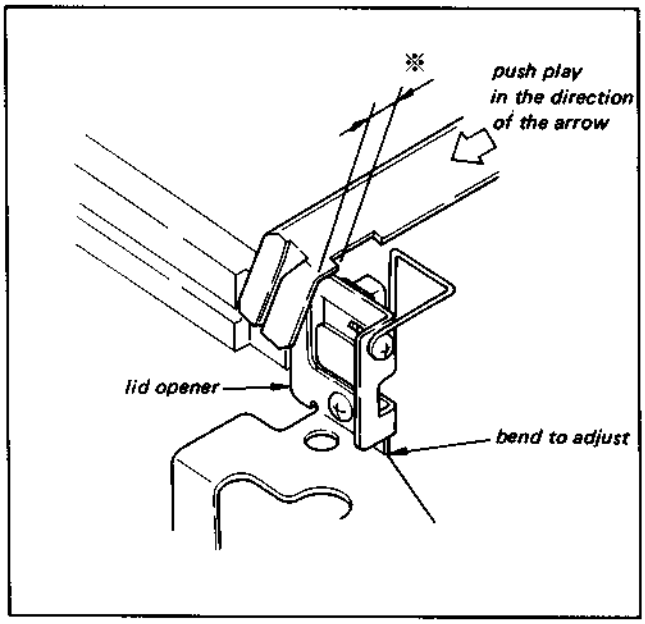


Fig. 3-20. Position adjustment of lid opener

3-10. REPLACEMENT AND ADJUSTMENT OF THREADING RING ASSEMBLY

1) Turn the threading ring to the point immediately before the threading completion position.

2) As shown in Fig. 3-21, remove the pinch control plate (1), lid opener assembly (2), R adjust plate (3), No. 0 guide assembly (4), tension regulator lever assembly (5), and slack sensor unit assembly (6).

3) Loosen the ring roller unit assembly screw (7). (See Fig. 3-22)

4) Loosen screw (1) shown in 3-8-1, Fig. 3-15, and move the threading drive assembly (8), shown in Fig. 3-21, fully away from the threading ring.

5) Loosen the two screws (10) holding the pinch press solenoid (9) (Fig. 3-23) and move it fully in the direction of the arrow.

6) Remove the threading ring.

7) Perform the following adjustments after replacement.

   (i) Pinch control plate adjustment (Refer to 3-8-2)

   (ii) R adjust plate adjustment (Refer to 3-8-3)

   (iii) No. 0 guide adjustment (Perform step 9)

   (iv) Slack sensor unit adjustment (Refer to 3-11-2)

   (v) Ring roller unit adjustment (See Fig. 3-22)

   (vi) Threading Drive Section Assembly Adjustment (Refer to 3-8-1)

   (vii) Adjustment Pinch Roller Press Solenoid (Refer to 3-11-1)

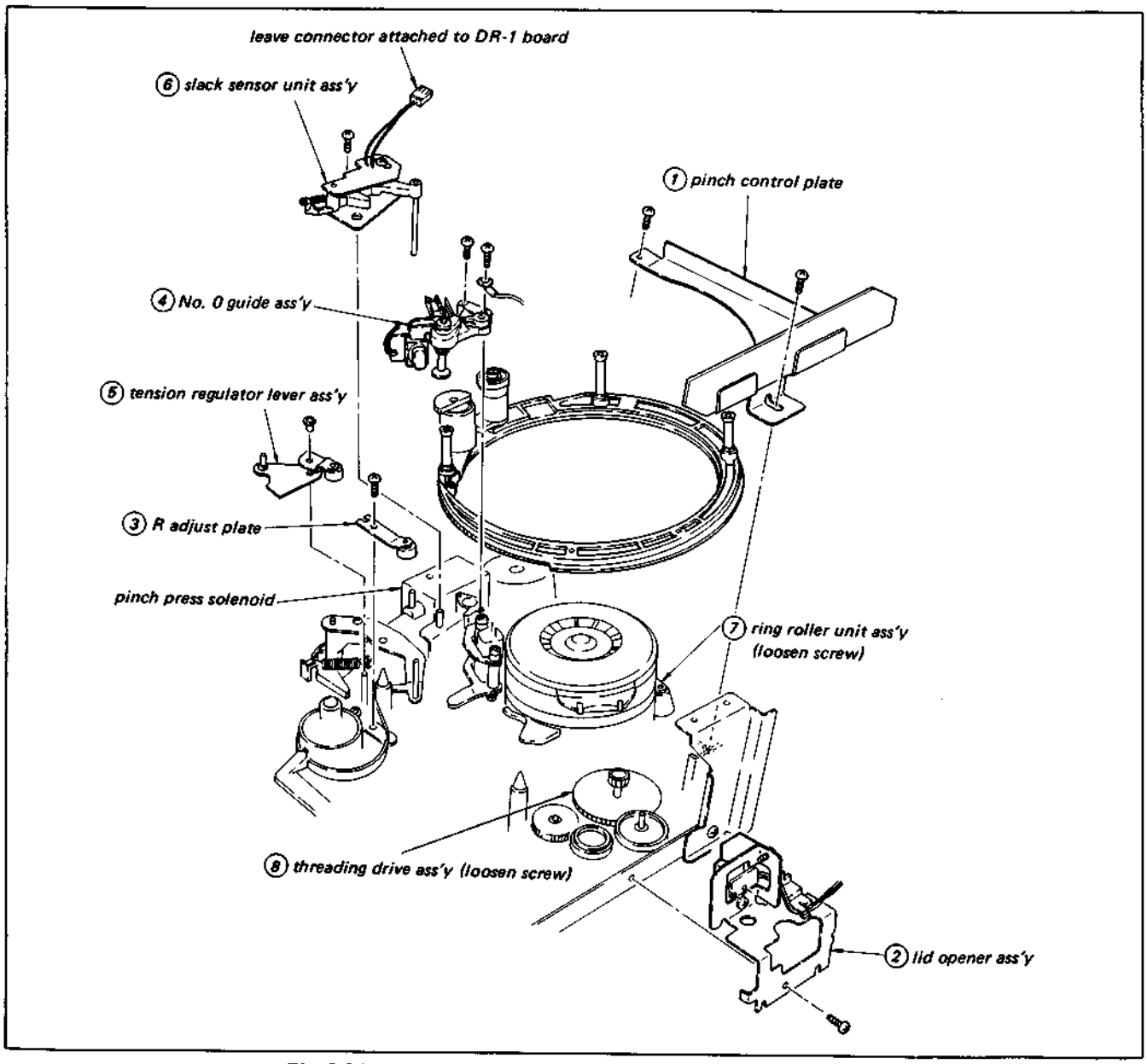


Fig. 3-21. Replacement and adjustment of threading ring ass'y

8) Perform threading and unthreading several times and confirm the smooth movement of the threading ring.

9) Adjustment after mounting No. 0 guide section assembly

(i) Playback the TRACKING segment of the alignment tape (KR5-1H or 2H)

(ii) Turn the TRACKING control knob so that the RF waveform is 2/3 of its maximum level. (See Fig. 3-24)

(iii) Turn the No. 0 guide fully counterclockwise, then clockwise until the point where the RF waveform at the entry side becomes flat with minimal fluctuations. (See Fig. 3-24) Tighten the mounting screws at this point.

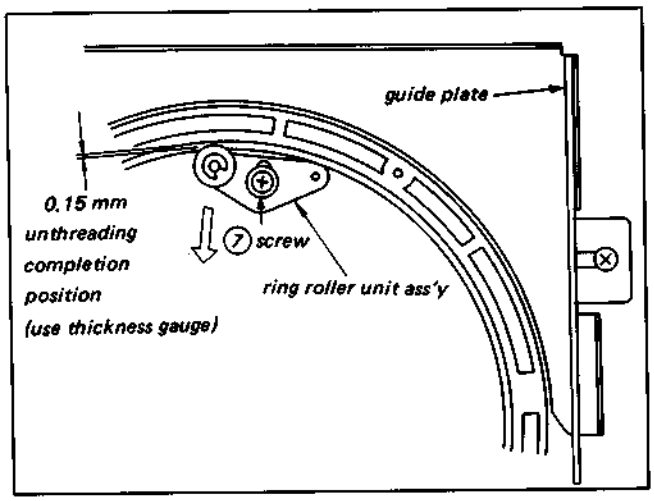


Fig. 3-22. Replacement and adjustment of threading ring ass'y

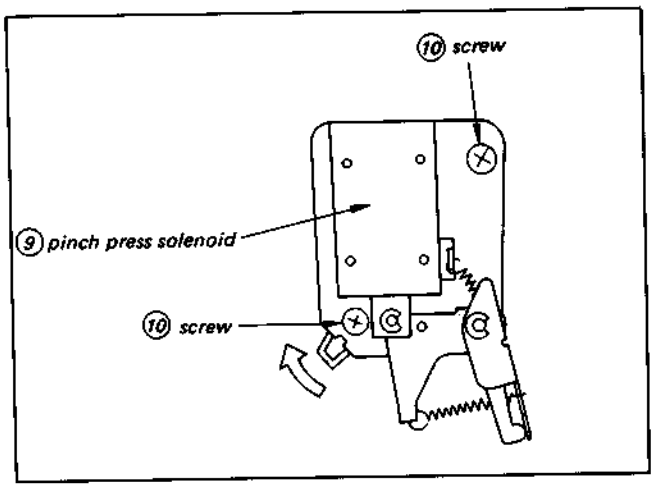


Fig. 3-23.

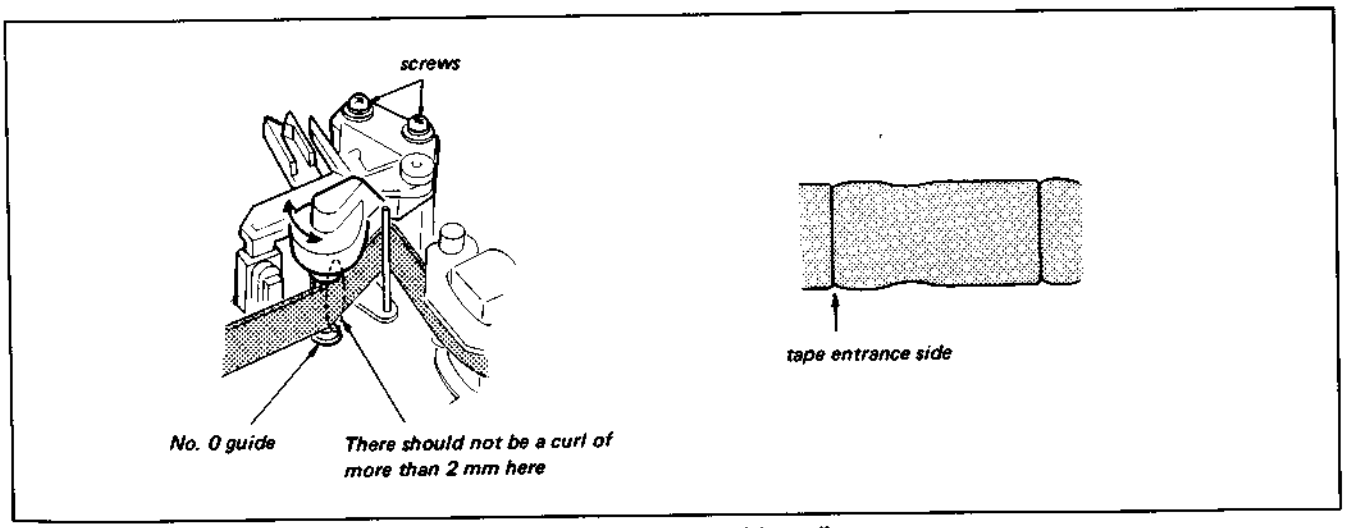


Fig. 3-24. No. 0 guide position adjustment

3-11. ADJUSTMENT OF PINCH PRESS MECHANISM

3-11-1. Position Adjustment of Pinch Roller Press Solenoid

1) Set up STOP condition without a cassette.

2) Turn the two screws(1), shown in Fig. 3-25, 1/2–1/3 turn to loosen.

3) Set up playback mode.

4) Insert a blade-tip screwdriver into the position indicated in the figure, move the pinch solenoid base (2) in the direction of the arrow, and adjust so that the clearance at section (A) is 0.6–1 mm. Tighten screws(1).

Note: Be careful not to let the screwdriver come in contact with the DR-1 board.

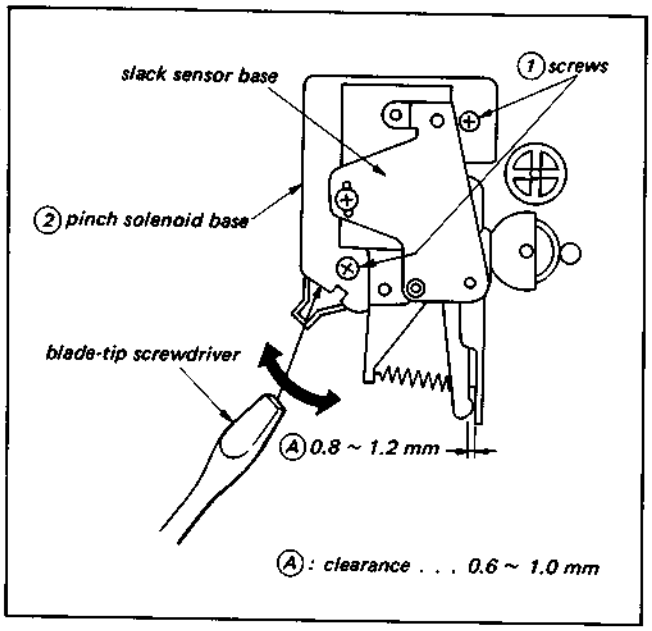


Fig. 3-25. Position adjustment of pinch solenoid operation

3-11-2. Position Adjustment of Slack Sensor Operation

1) Set up STOP mode without a cassette.

2) Loosen the screw(3) shown in Fig. 3-25.

3) Adjust the position of SL-1 board so that the specification in Fig. 3-26.

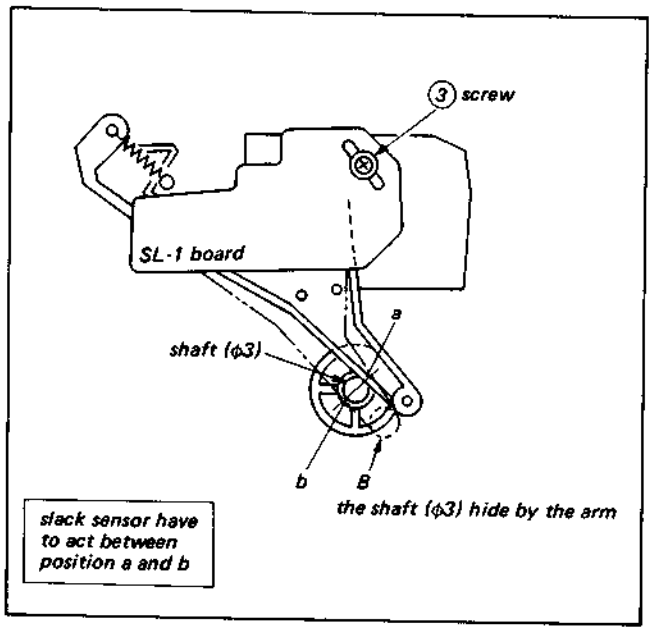


Fig. 3-26. Position adjustment of slack sensor operation

3-12. POSITION ADJUSTMENT OF MICROSWITCH

3-12-1. Installation and Check of Erase Proof Switch

1) Insert dowel ① into hole ②, as shown in Fig. 3-27, pull in the direction of arrow Ⓐ, and tighten screw ③.

2) Place a cassette with unbroken erase proof hooks on the ④ cassette guide spindles and confirm that the erase proof switch goes on.

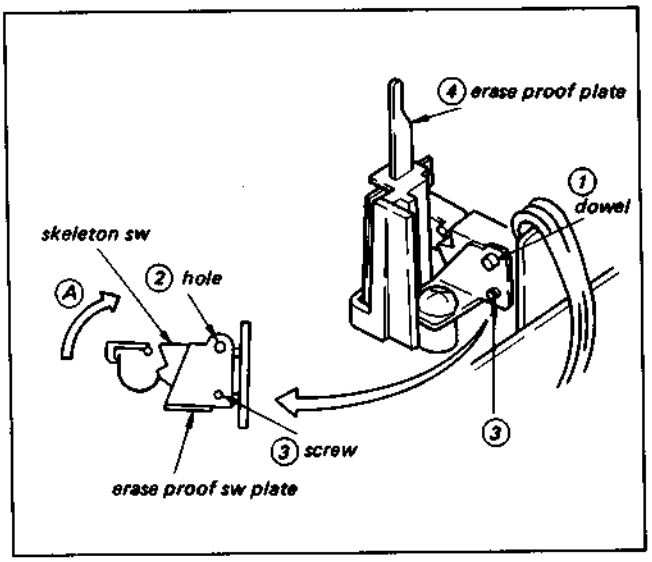


Fig. 3-27. Position adjustment of microswitch (1)

3-12-2. Position Adjustment of Threading End Switch and Operation Confirmation of Unthreading End Switch

Note: Before performing these adjustments, confirm that adjustments 3-8-1 and 3-8-3 have been completed. (Threading Drive Section Assembly Adjustment and Ring Arm Clearance Position Adjustment)

1) Set up unthreading completion state and turn the power off.

2) Position the set with the tuner side down.

3) Remove the bottom plate, and remove YC-18 board.

4) Loosen screw ① and adjust bracket ② so that the clearance at section Ⓐ is 0.3 mm, and tighten screw ①. (See Fig. 3-28)

5) Turn the threading ring slowly by hand until it reaches threading completion state. Confirm that the clearance at section Ⓐ is not lost, and that the threading end switch ③ goes on when threading completion state is reached.

6) In the event that the clearance at section Ⓐ is lost while threading, loosen screw ①, and adjust the bracket ② so that the clearance is maintained, then tighten screw ①.

7) At the threading completion state, confirm that the unthreading end switch ④ is on.

8) Turn the threading ring slowly by hand until the unthreading completion state is reached, and confirm that the unthreading end switch ④ is released for the first time just before unthreading completion.

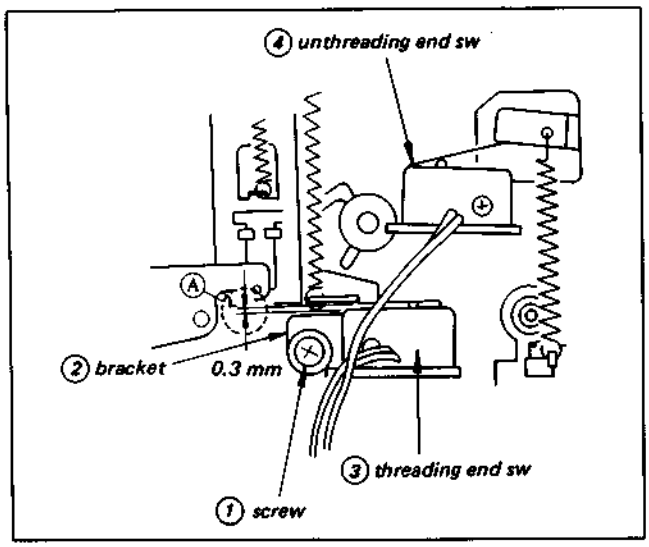


Fig. 3-28. Position adjustment of microswitch (2)

3-13. REPLACEMENT OF REEL MOTOR

3-13-1. Removal of Reel Motor

1) Remove YC-18 board.

2) As shown in Fig. 3-29, unsolder the harness and remove.

3) Remove the two screws (1).

4) Remove the two screws (2) and the reel motor assembly (3). (See Fig. 3-30)

5) Peel off the tape and pull out the shield plate (4) claw to remove the reel motor assembly. (See Fig. 3-31)

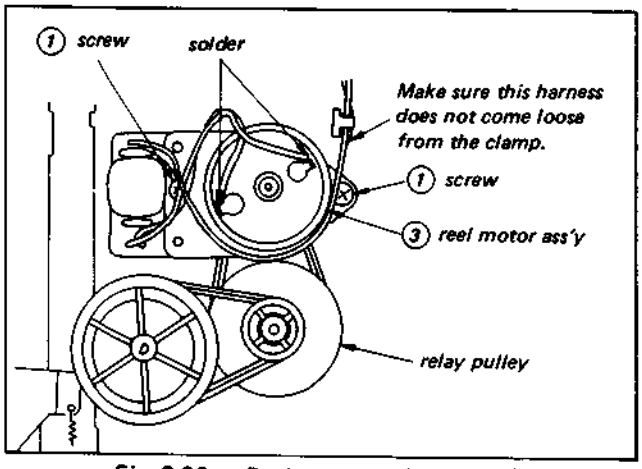


Fig. 3-29. Reel motor replacement (1)

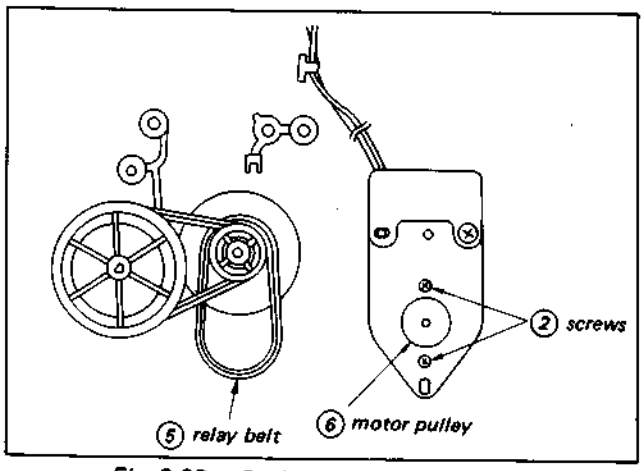


Fig. 3-30. Reel motor replacement (2)

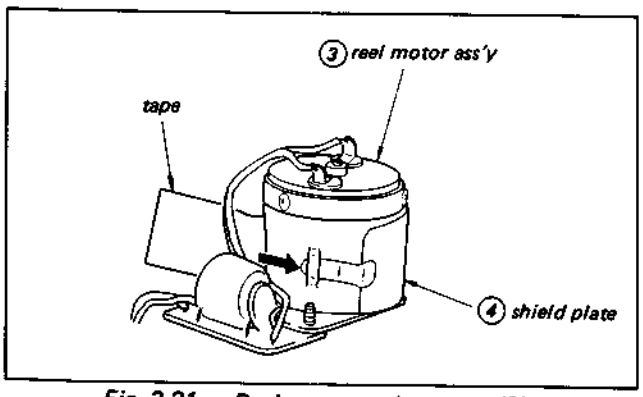


Fig. 3-31. Reel motor replacement (3)

3-13-2. Re-installation of Reel Motor

1) Perform steps 4 and 5 of 3-13-1 in reverse.

2) Hook the relay belt (5) to the motor pulley (6) as shown in Fig. 3-30, and tighten the two screws (1) as shown in Fig. 3-29.

Note: Confirm that the relay belt (5) does not separate from the motor pulley (6). (See Fig. 3-32)

3) Solder the harness as shown in Fig. 3-33.

4) Set the harness as shown in Fig. 3-29.

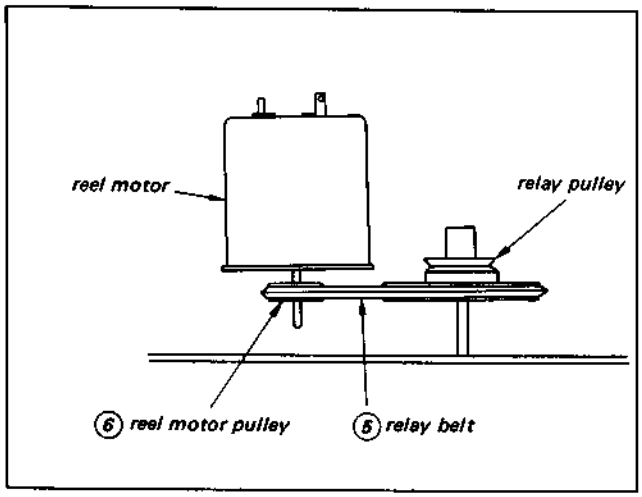


Fig. 3-32. Reel motor replacement (4)

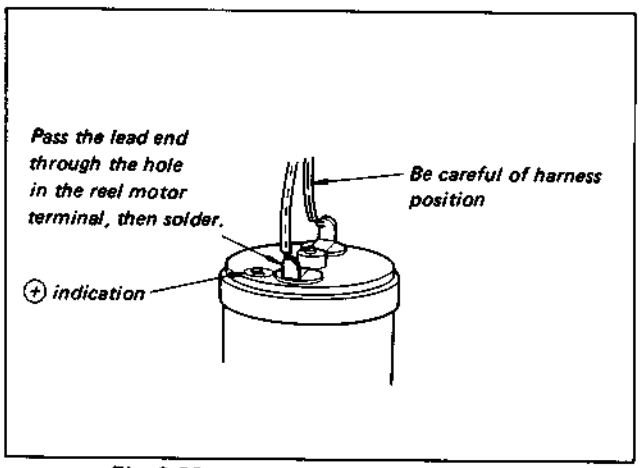


Fig. 3-33. Reel motor replacement (5)

3-14. REPLACEMENT AND ADJUSTMENT OF FRONT LOADING (CASSETTE LIFT) ASSEMBLY

3-14-1. Replacement of Front Loading (Cassette Lift) Upper and Lower Doors

1) Remove screw (1) on the door hinge bracket assembly shown in Fig. 3-34.

2) Replace the upper and lower doors.
At this time, as shown in Fig. 3-35, engage the gears so that the edge of the door rack is in the same plane with the curved portion of the left plate.

3) Fix the door hinge bracket assembly in place with screw (1).

4) Push both doors by hand to make sure they open and close smoothly.

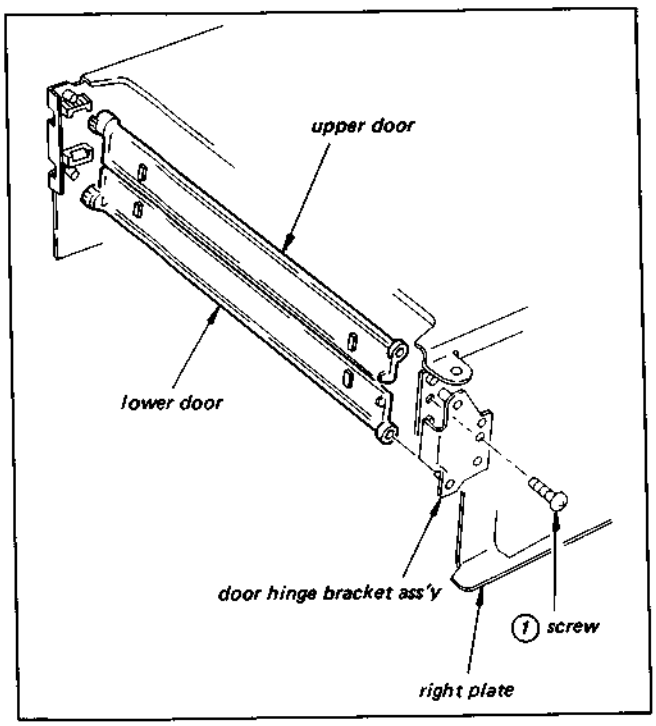


Fig. 3-34. Upper/lower door replacement (1)

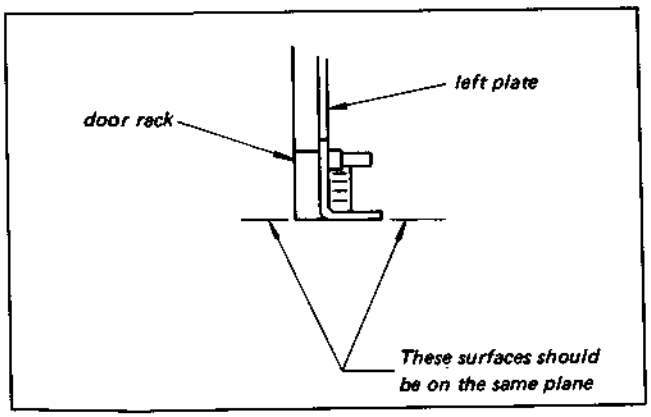


Fig. 3-35. Upper/lower door replacement (2)

3-14-2. Replacement of Skeleton Switches (See Fig. 3-36)

1) Remove the screw (2) from the switch holder and remove the holder.

2) Remove screw (3) and the switch to be replaced.

3) Install the switch and tentatively tighten screw (3). (When replacing C-IN, there is no need for tentatively tightening the screw; it can be completely tightened/tightening torque; 3 – 4 kg·cm)

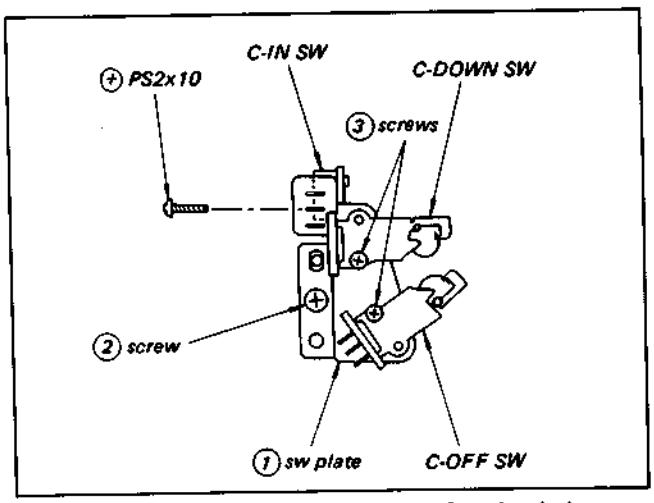


Fig. 3-36. Replacement of Rec. Proof switch

Adjustment Procedure

(i) Adjustment of C-OFF switch (See Fig. 3-37)
At the point where the cassette lift is completely returned, tighten screw (1) so that the switch goes ON and the space (A) between the switch section guard and the pin is 0 – 0.2 mm.
(tightening torque; 3 – 4 kg·cm)

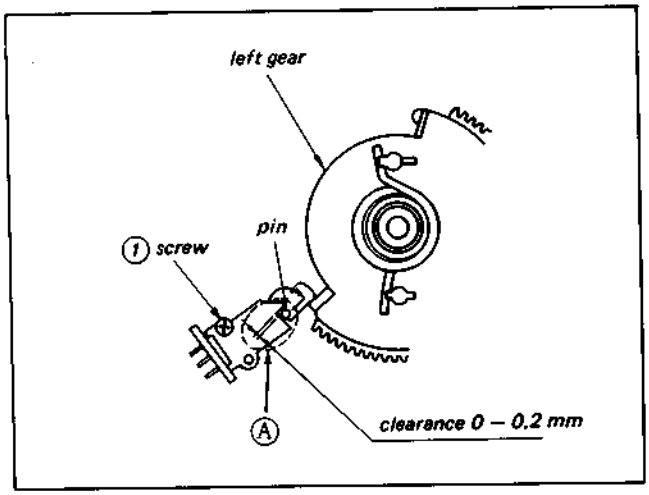


Fig. 3-37. C-OFF switch adjustment

(ii) Adjustment of C-DOWN switch (See Fig. 3-38)

1. Turn the worm gear by hand and move the roller to the end of the guide.
2. Turn the worm gear further until the space between the roller and the end of the guide is 4–5 mm when the cassette lift is pushed all the way up by hand.
3. At this time, adjust so that the switch goes ON at the R section of the left gear.
(tightening torque; 3 – 4 kg·cm)

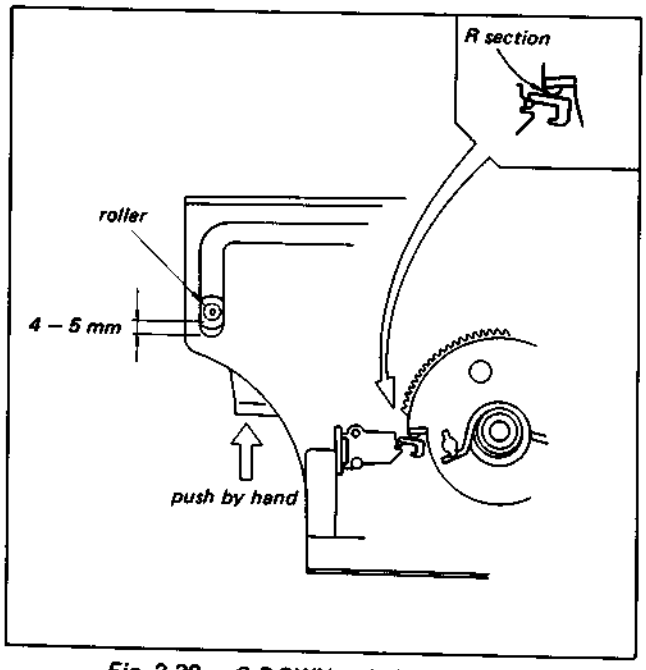


Fig. 3-38. C-DOWN switch adjustment

3-14-3. Replacement of Microswitch (See Fig 3-39)

1) Turn the worm gear by hand and lower the cassette lift to the bottom.
2) Remove microswitch screws(1).
3) Unsolder the switch and replace it.
4) Match the nut plate between the cassette lift and hinge bracket cover to the hole for the cassette lift microswitch.
5) Put on the microswitch cover and tentatively position the microswitch.

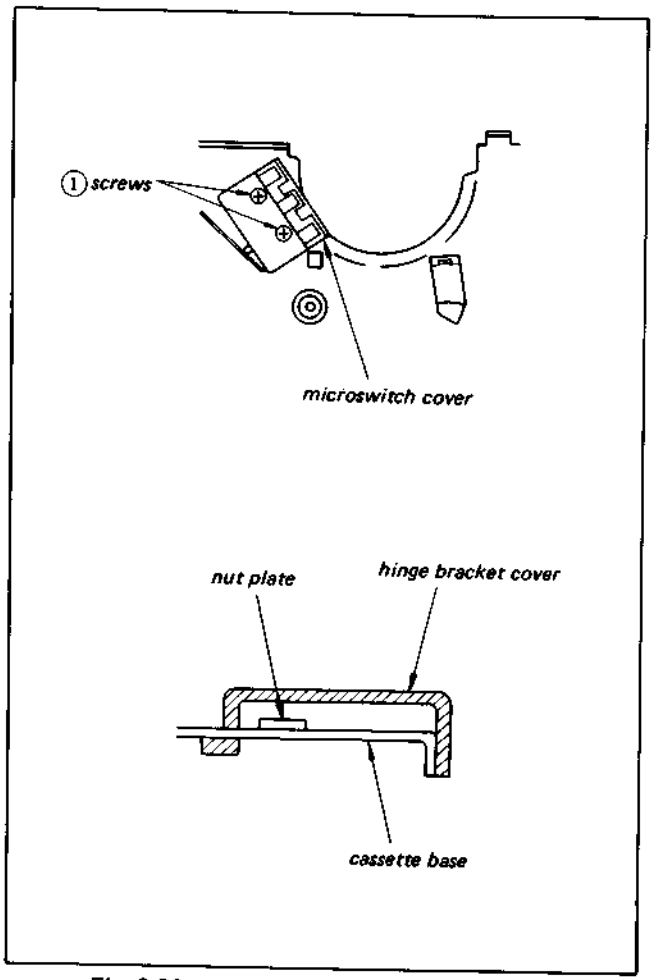


Fig. 3-39. Replacement of microswitch (1)

Switch Adjustment (See Fig. 3-40)

Release the safety arm stopper by hand, and push lock plate ① by hand to lock it. At this time, adjust so that the switch goes ON and the space between the actuator and the outside of the switch is 0.8–1 mm, and tighten.
(tightening torque; 3 – 4 kg·cm)

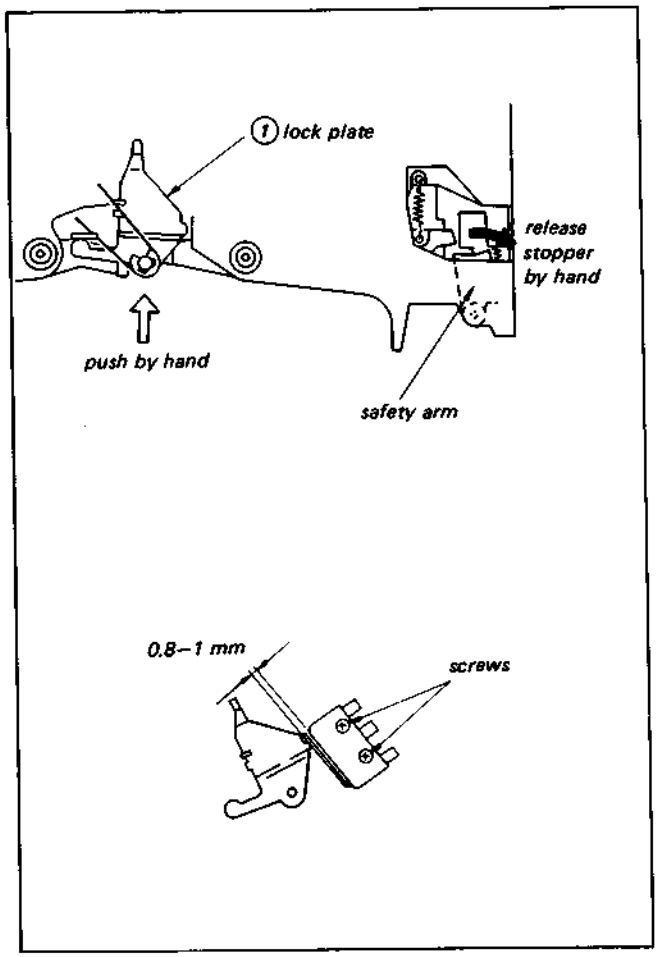


Fig. 3-40. Replacement of microswitch (2)

3-14-4. Replacement of Front Loading Motor (See Fig. 3-41) (See item 3-5 for removal of front loading assembly)

1) Unsolder the motor and remove the board.

2) Remove the two screws ② from the motor holder ① and remove the motor assembly.

3) Install so that the worm gear ③ and motor pulley ④ are engaged, and so that the lettering on top of the motor is on the inside. At this time also tighten the lead holder ⑤ so that it cannot be seen outside the motor when viewed from the front.

4) Solder the PC board.

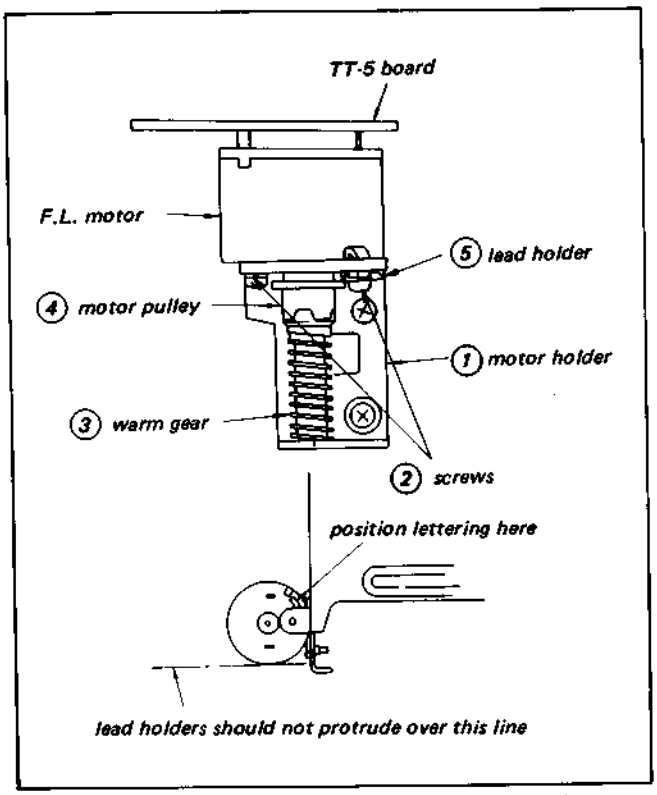


Fig. 3-41. Replacement of F.L. motor (1)

5) Check that the worm gear and worm wheel are engaged. (See Fig. 3-42)

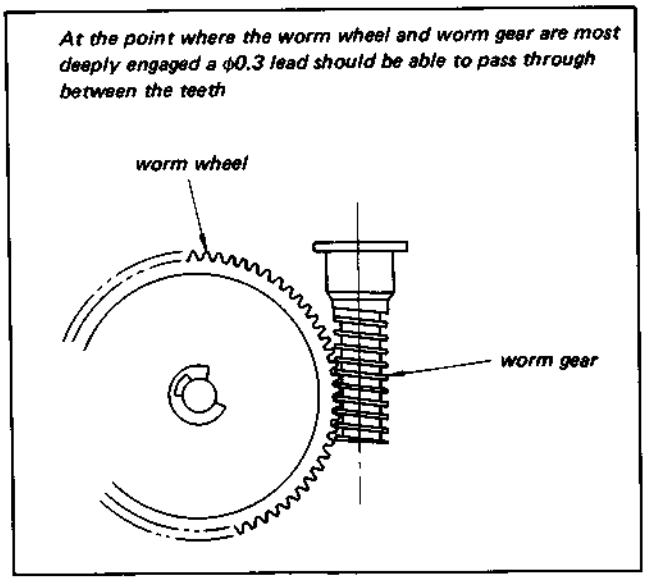


Fig. 3-42. Replacement of F.L. motor (2)

When replacing the left or right drive gears, worm wheel or right wheel, when all parts are in place, turn the worm gear and move the cassette lift forward. (See Fig. 3-43) At this time, view the cassette lift through the hole in the cover and confirm that the left side moves forward a little faster than or at the same time as the right side. However, the right side should not be more than 2 mm slower.

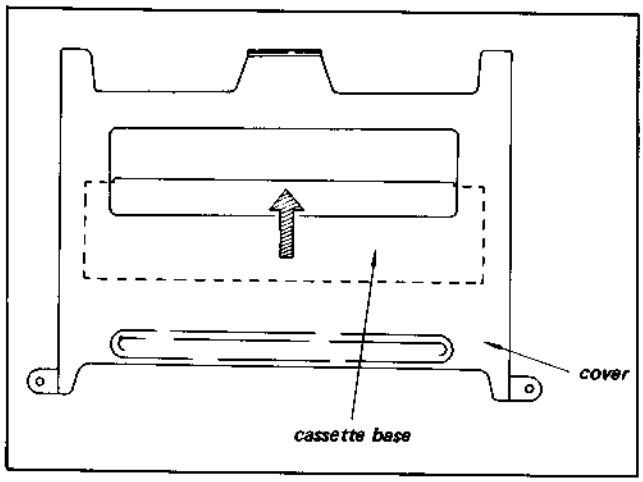


Fig. 3-43. Replacement of F.L. motor (3)

3-15. TAKE-UP TORQUE CHECK

Since sufficient take-up torque cannot be obtained at the last section of the tape if the take-up torque is below the specified value, tape slackness is caused at the capstan shaft point and sometimes the slack sensor operates.

1) Rewind the tape a little and set up the PLAY mode (for play-back of the very last section of the tape) after the auto-stop at the tape end in the FAST FWD mode. Confirm that the tape runs without any slackness at the capstan shaft area. If the tape slackens, perform the following adjustments.

2) Clean the tape-up reel table assembly, the FWD limiter assembly, and the FWD belt with a piece of cloth dampened with methanol.

3) Stop the operation of the slack sensor. (Refer to section 1-4.)

4) Attach the reel table tension gauge (Ref. No. J-4) on the take-up reel table as shown in Fig. 3-44.

5) Pull out the string from the reel table tension gauge about 30 cm (12 inches) and hook the sector type tension gauge (50g full scale, Ref. No. Jig 6) on the end of the string.

6) Set up the PLAY Mode.

7) Bring the sector type gauge toward the take-up reel table at a speed of approximately 2 cm/sec. as show in Fig. 3-44. Confirm that the gauge reading is within the specification. If not, replace the FWD limiter assembly (A-6740-072-0) and make the check again.

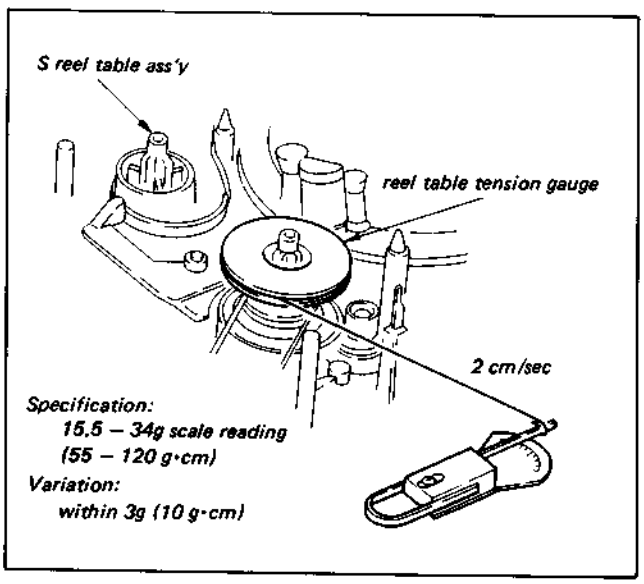


Fig. 3-44. Take-up torque check

3-16. BRAKE TORQUE CHECK

This machine has a supply brake, take-up brake, and soft brake. These brakes operate as follows.

Reel table assembly / Mode	Supply Side	Take-up Side
Cassette EJECT mode	Supply & soft brakes are ON.	Take-up brake is ON.
Threading mode	Only soft brake is ON. (The supply reel rotates a little, supplying tape.) Soft brake torque: 8 – 12 g·cm. Reel table rotates clockwise.	Free (tape supplied from take-up side)
STOP mode REW idler is pressed and must be released when measuring	Supply and soft brakes are ON. Reel table rotates clockwise: 100 – 500 g·cm. Reel table rotates counterclockwise: 40 – 130 g·cm.	Take-up brake is ON. Reel table rotates clockwise: 20 – 100 g·cm. Reel table rotates counterclockwise: 60 – 500 g·cm.
FF mode	Only soft brake is ON.	Free (Tape is taken up to take-up side.)
REW mode	Only soft brake is ON.	Free (Tape is taken up to supply side.)
PLAY mode	Only FWD back tension brake band is ON.	Free (Tape is taken up to take-up side.)
REC PAUSE mode	Supply brake, soft brake and FWD back tension brake band are ON.	Take-up brake is ON.
Unthreading mode	Only soft brake is ON. (Supply reel rotates a little, supplying tape.)	Free (Tape is taken up to take-up side.)

3-16-1. Check of Supply and Take-up Brake Operations

- When the tape slackens when the mode is changed from STOP to FF and to STOP from REW, perform check and adjustment, following the steps below.
- Since the slackness tends to occur when the wound diameter of the tape on the reel table is small, the check must be made in this state.

1) Insert a cassette and set up the initial state of taking-up of the tape. (Rewind the tape and cue its beginning.)

2) Repeat the operation, changing the mode from FF to STOP two or three times and confirm that there is no tape slackness. If the tape slackens, perform steps 5 and 6 for adjustment.

3) Set up the condition where the tape is about to be completely wound on the take-up reel. (Fast forward the tape and stop the tape movement at the end section.)

4) Repeat the operation, changing the mode from REW to STOP two or three times and confirm that there is no tape slackness. If the tape slackens, perform steps 5 and 6 for adjustment.

5) Remove the reel table assembly and clean the surface of the assembly and the brake linings with a piece of cloth dampened with methanol.

6) As shown in Fig. 3-45, slightly change the position of the supply and take-up brake linings and install. If the tape still slackens, replace the supply brake (A-6741-039-0) and the take-up brake (A-6741-040-0), and perform the check again.

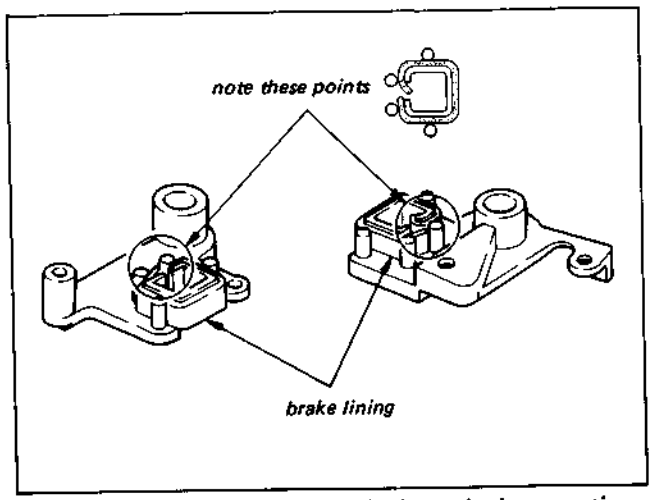


Fig. 3-45. Check of supply and take-up brake operations

3-16-2. Check of Supply and Take-up Brake Torque

1) Set up the unthreading completion state without a cassette.

2) Attach the reel table tension gauge (Ref. No. J-4) to the take-up reel table as shown in Fig. 3-46 and hook the sector type gauge (100g full scale, Ref. No. J-7) to the end of the string. Pull the sector type gauge at a speed of approximately 2 cm/sec and read the gauge value.

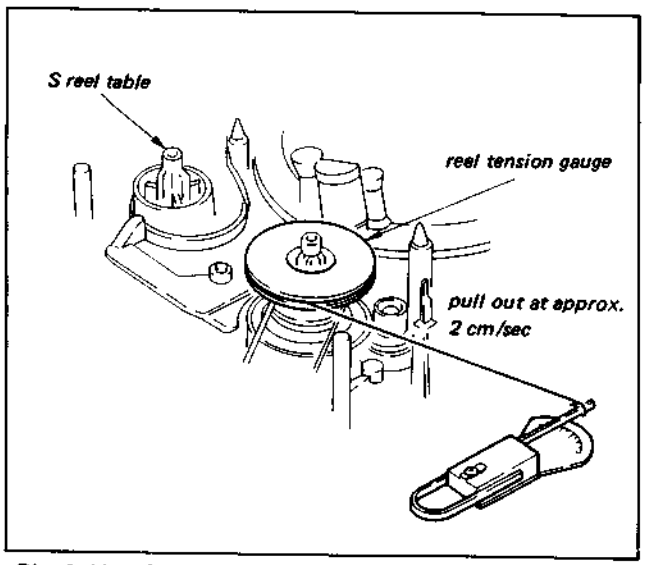


Fig. 3-46. Check of supply and take-up brake torque (1)

3) Set the reel table tension gauge as shown in Fig. 3-47.

4) Push the REW aram ① in the directon of the arrow by hand, and separate the REW idler assembly ② from the supply reel table.

5) Hook the sector type gauge onto the end of the reel table tension gauge string and pull it at a speed of approximately 2 cm/sec and confirm that the reading is within the specifications.

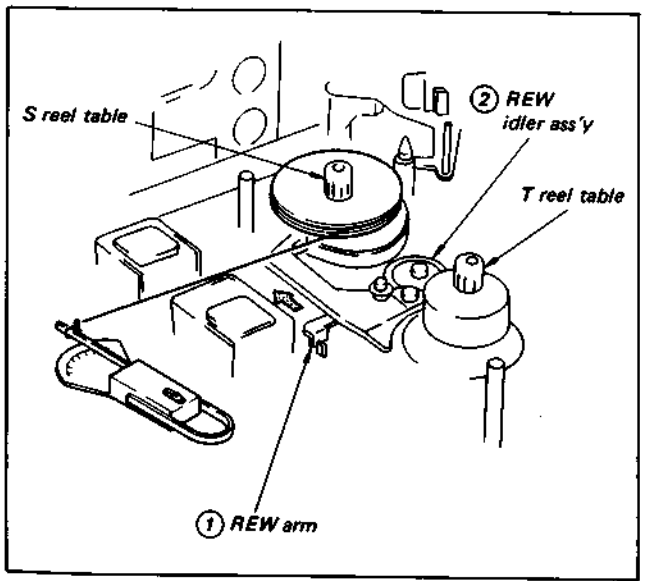


Fig. 3-47. Check of supply and take-up brake torque (2)

Specifications:

- When supply reel table assembly rotates clockwise (↻): 100 – 500 g·cm (scale value is 29 – 143g.)
- When supply reel table assembly rotates counterclockwise (↺): 40 – 130 g·cm (scale value is 11 – 37g.)
- When take-up reel table assembly rotates clockwise (↻): 20 – 60 g·cm (scale value is 6 – 17g.)
- When take-up reel table assembly rotates counterclockwise (↺): 60 – 500 g·cm (scale value is 17 – 143g.)

3-16-3. Check and Adjustment of Soft Brake Torque

1) Set up STOP mode without a cassette.

2) Mount the reel table tension gauge (Jig Ref. No. J-4) as shown in Fig. 3-47, and hook the sector type gauge (50g full scale, Ref. No. J-6) to the end of the string.

3) Put the set into FF mode.

4) Pull the sector type gauge at a speed of approximately 2 cm/sec and confirm that the value is within the specifications (scale reading: 2.5–4.5g – 8–12 g.cm)

5) If the specifications are not met, change the position of the spring on the soft brake arm to adjust, and perform steps 2, 3, and 4 again. (See Fig. 3-48) (One change of the spring's position will change the cause a change of about 2 g.cm.)

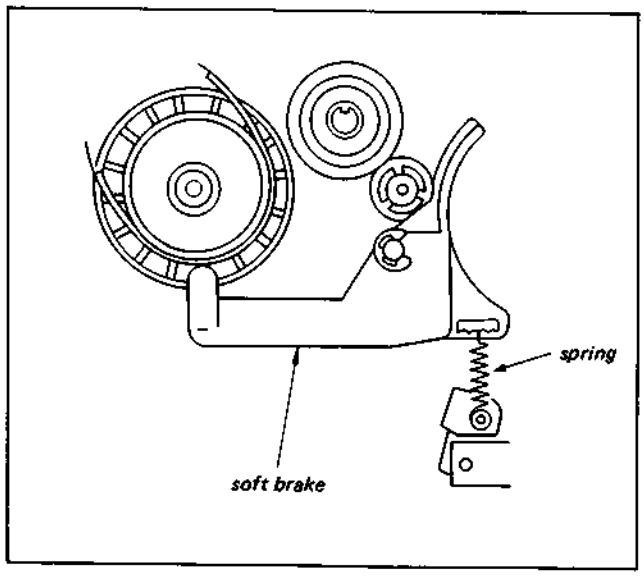


Fig. 3-48. Check and adjustment of soft brake torque

3-17. FWD BACK TENSION ADJUSTMENT

- The ideal measurement of FWD back tension is to measure it under the same conditions as during the actual tape running state. The simple measurement procedure of FWD back tension is described here. Measurement error due to difference in measurement procedure is corrected in the specification.

1) Set up the STOP mode without cassette. (Refer to section 1-3.)

2) Place the FWD back tension jig (Ref. No. J-5) on the supply reel table assembly and thread the tape as shown in Fig. 3-49. Hook the sector type gauge (100g full scale, Ref. No. J-7) to the end of the tape.

3) Put the set into PLAY mode.

4) Pull the sector type gauge at a speed of approximately 2 cm/sec. and confirm that the gauge reading is within the specification. If not, perform steps 5 and 6.

5) As shown in Fig. 3-50, move the position of the spring on the tension regulator arm to the position shown in the enlarged illustration to adjust.

6) Perform steps 2, 3 and 4 to check again.

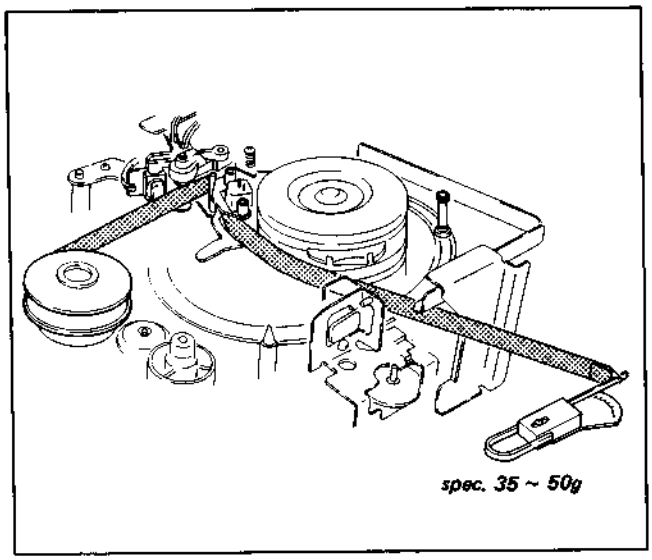


Fig. 3-49. FWD back tension adjustment (1)

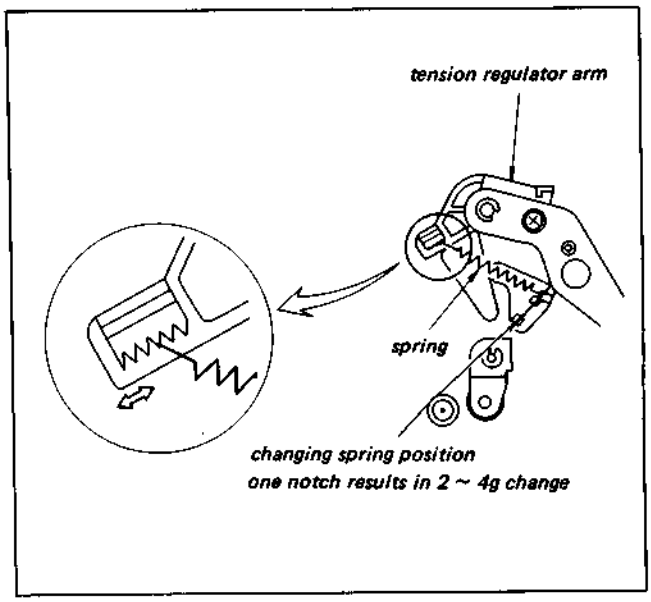


Fig. 3-50. FWD back tension adjustment (2)

3-18. TRACKING ADJUSTMENT

3-18-1. Adjustment of Tape Path

- Perform this adjustment carefully because poor adjustment reduces tape interchangeability and picture quality.

1) Clean the tape movement faces (the tape guide, drum, capstan and pinch roller) with chamois dampened with methanol or isopropyl alcohol.

2) Connect the oscilloscope to TP-5 on the RF-4 board and the external trigger to TP-3.

3) Play back the TRACKING segment of the alignment tape (KR5-1H or 2H).

4) Confirm that the RF output waveform envelope on the oscilloscope screen increases and decreases, while remaining flat, when the TRACKING control knob is turned to the left and the right from its center detent position. If the RF waveform does not increase and decrease while remaining flat, perform Step 6 for the adjustment.

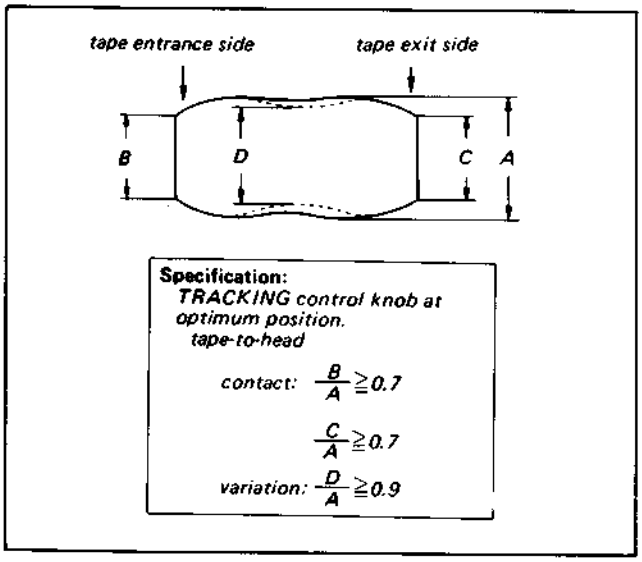


Fig. 3-51. Adjustment of tape path

5) Confirm that the fluctuation and the tape-to-head contact satisfy the specification shown in Fig. 3-51. If they do not, perform Step 6 for the adjustment.

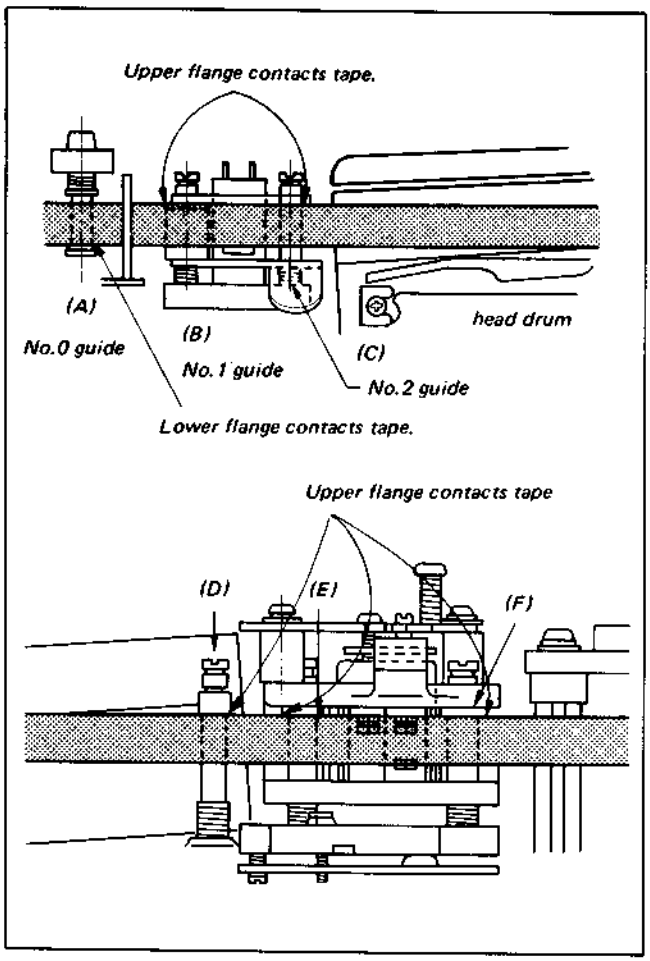


Fig. 3-53. Adjustment of tape path

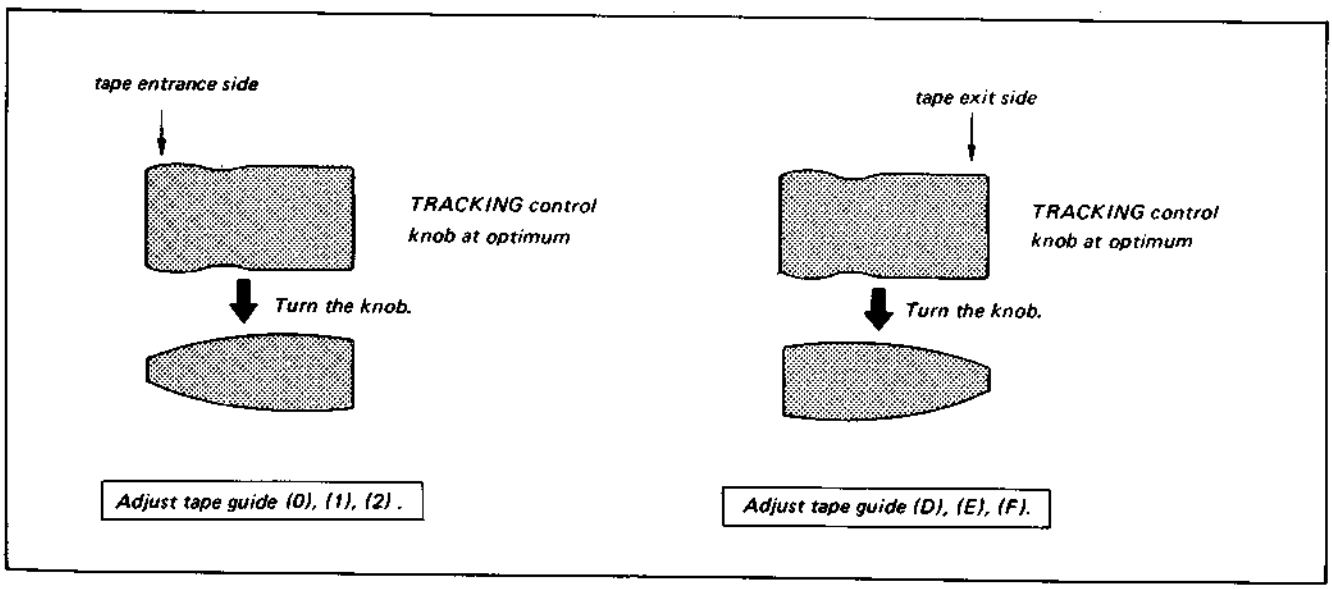


Fig. 3-52. Adjustment of tape path

6) When the waveform at the tape entrance side is not flat as shown in Fig. 3-52 for the clockwise and counterclockwise turning of the TRACKING control knob from center detent position, adjust the heights of tape guides (0), (1), and (2). When the waveform at the tape exit side is not flat, adjust the heights of tape guides (D), (E), and (F). The height adjustment must be performed so that the tape contacts the drum heads, and there is a minimum curl (not more than 2 mm) at the flange of each tape guide, the upper or lower flanges contact the tape as shown in Fig. 3-53 and the RF waveform is flat.

Note: The construction of the ACE assembly enables the assembly to be adjusted so that its top plate is perpendicular to the face of the moving tape as a whole, but this "Zenith" adjustment is not necessary except after ACE assembly replacement.
Since tape guide (D) regulates the movement of the tape around the drum exit, raise tape guide (D) about 0.5 mm before the adjustment of the tape path on the exit side. Then lower tape guide (D) to the point immediately before the RF waveform varies, and with less than 2 mm curl after the tape path adjustment.

3-18-2. Adjustment of Exit Side Tracking after ACE Assembly Replacement

1) The ACE assembly can be removed if the three screws shown in Fig. 3-54 are removed.

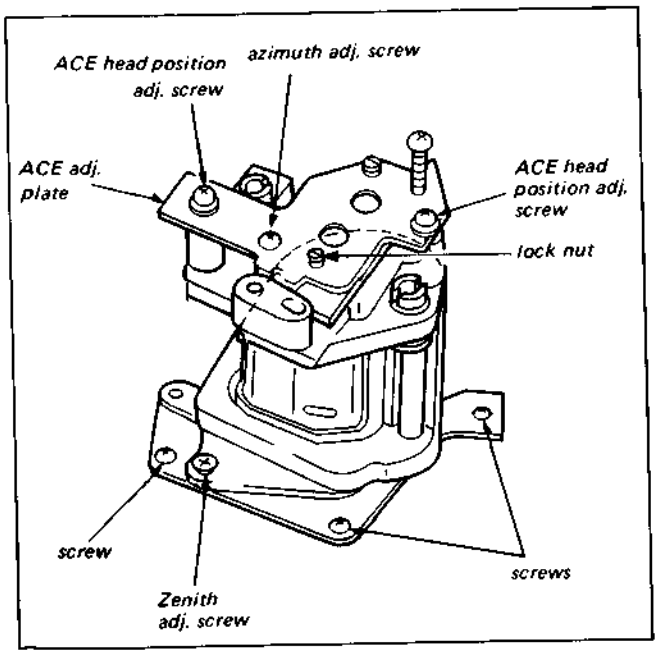


Fig. 3-54. Removal of ACE assembly

2) Perform the adjustment following Step 3 after the completion of the replacement.

3) Raise the tape guide (D) shown in Fig. 3-53 by 0.5 mm. (Turn the nut one turn.)

4) Play back the TRACKING segment of the alignment tape (KR5-1H or 2H). Confirm that the RF wave output (see Fig. 3-51) satisfies the specification and there is a minimum curl (not more than 2 mm) on the tape edge contacting the tape guide. Confirm that the RF waveform varied from the flat state when the tape guides (E) and (F) are raised and adjust the heights of the tape guides so that the waveform output becomes flat. (See Fig. 3-55)

5) When the waveform does not vary if the tape guides (E) and (F) are raised in Step 4 or when the waveform does not become flat if the tape guides are lowered, perform the adjustment, following the procedure below.

(i) Loosen the lock nut shown in Fig. 3-54.

(ii) Turn the zenith adjusting screw counterclockwise (↺) a little more than 30 degrees and turn it clockwise (↻) until the screw returns to the point 30 degrees counterclockwise from its original point.

(iii) Perform Step 4 again. If the specification is not satisfied, perform Step 5 again. Since the ACE assembly was adjusted perpendicularly when assembled at the factory, do not turn the zenith adjusting screw more than 60 degrees to the right and left from the original position.

(iv) After the adjustment, tighten the lock nut until a slight resistance is felt and confirm that the specification in Step 4 is satisfied.

6) When there is an edge curl at the tape contacting the tape guide in Step 4, perform the adjustment, following the procedure below.

(i) Loosen the lock nut shown in Fig. 3-54.

(ii) Tighten the zenith adjusting screw clockwise only 15 degrees.

(iii) Perform Step 4 again. If the specification is not satisfied, perform Steps 5 and 6 again, but do not turn the zenith adjusting screw to the right and left more than 60 degrees from its original position.

(iv) Tighten the lock nut until a slight resistance is felt after the adjustment. Confirm that the specification in Step 4 is satisfied.

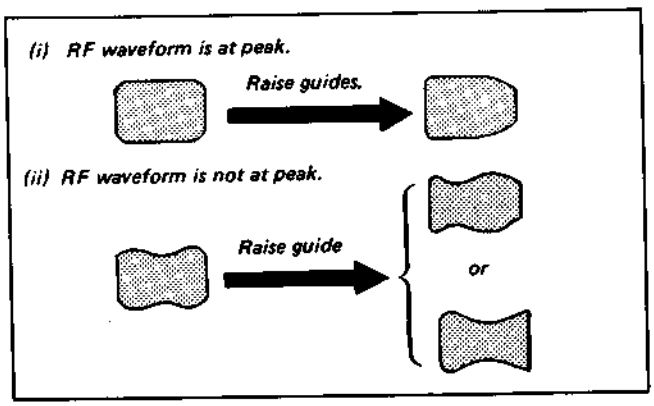


Fig. 3-55. Adjustment of exit side tracking after ACE assembly replacement

3-18-3. Audio Head Azimuth Adjustment

[Connection of Equipment]

The connections of the equipment to the input/output terminals are shown in Fig. 3-56.

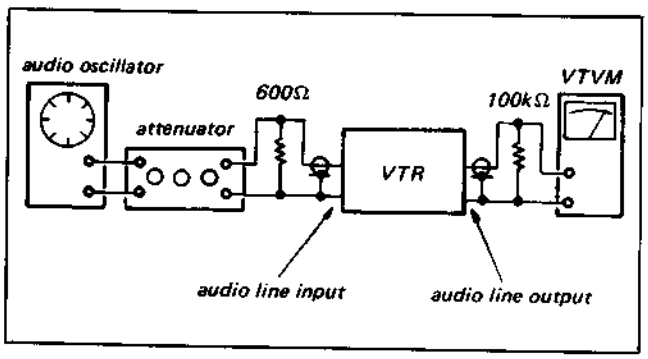


Fig. 3-56. Connections

1) Terminate the audio line output terminal with a 100 kΩ resistor and connect a VTVM.

2) Play back the 5 kHz signal segment of the alignment tape.

3) Adjust the azimuth adjustment screw on the audio head for a maximum VTVM reading. (See Fig. 3-56).

Note: Loosen azimuth adjustment screw before the adjustment and tighten it after the completion.

3-18-4. Position Adjustment of ACE Assembly

- This adjustment includes the mechanical head mounting position adjustment and the electrical tracking control center adjustment.
- The adjustment sequence is to perform the tracking control center adjustment and then the mechanical adjustment of the head mounting position. If this sequence is reversed, poor tracking occurs.

1) Connect a dual-trace oscilloscope as follows.

CH-1 . . . . . TP-5 (RF-4 board)
CH-2 . . . . . TP-506 (AD-7 board)
Ext trigger . . . . . TP-3 (RF-4 board)

2) Play back the TRACKING segment of alignment tape KR5-1H or 2H (See Fig. 3-57).

3) Set the tracking control to the center detent position and confirm that the output waveform level is maximum and the 0 level point of the audio signal appears at the Bch waveform point as shown in Fig. 3-57. If the specification is not satisfied, perform the following Step 4.

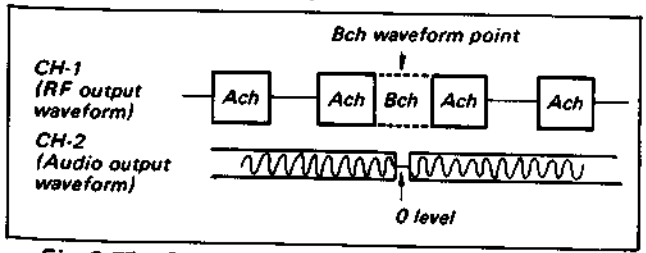


Fig. 3-57. Position adjustment of ACE assembly (1)

4) Perform the tracking control center adjustment. [Refer to section 4-3-2(2)].

5) Set the TRACKING control knob to its center detent point and play back the TRACKING segment of the alignment tape (KR5-1H or 2H).

6) Loosen the two position adjusting screws of the ACE head and adjust the cut-out section of section A for maximum RF output waveform and a 0 level of audio signal at the Bch waveform point. (See Fig. 3-57.)

Note: Perform the adjustment so that the center of the cut-out section of the A section will almost match the center of the round hole.

7) Play back the TRACKING segment of the alignment tape and confirm the proper picture appearance.

8) Tighten the position adjusting screw of the ACE head.

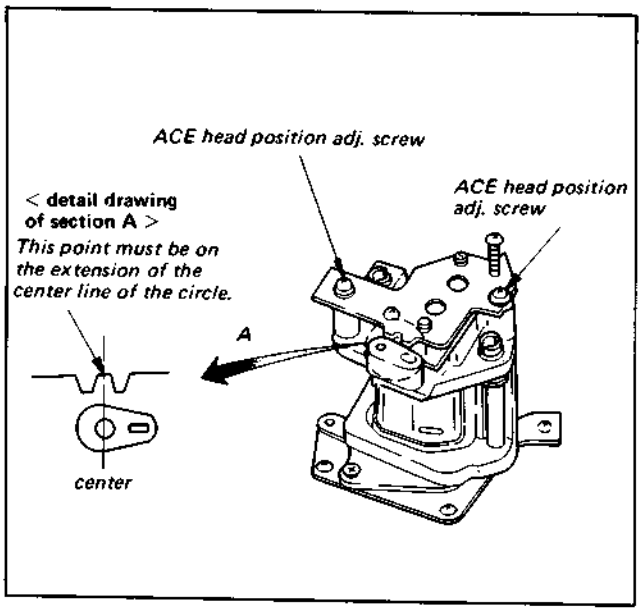


Fig. 3-58. Position adjustment of ACE assembly (2)

3-18-5. Video Head Dihedral Adjustment

- Generally this adjustment is not necessary except after video head disc replacement.

Note: The dihedron of a video head disc for replacement purposes was adjusted precisely with a microscope at the factory and the readjustment is usually not necessary.

- The ACE assembly positjon adjustment has been completed prior to this dihedral adjustment.
- The judgment of the video head dihedron must be performed in the condition that the monoscope signal segment of the alignment tape (KR5-1H or 2H) is played back and the TRACKING control knob is set to the center detent position. (See Fig. 3-59.)

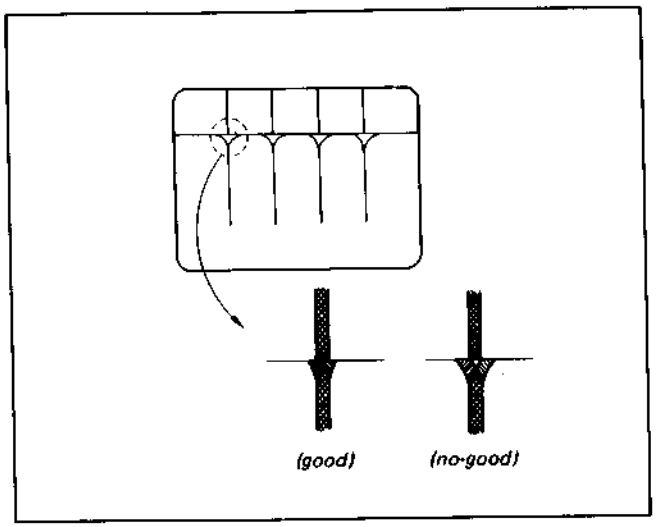


Fig. 3-59.

- When the dihedron is no-good, the preparation of the video head dihedral adjustment is to install two dihedral adjusting screws in the holes close to the small mark (•) shown in Fig. 3-60 and tighten them until the screw heads are level with the top surface of the video head disc. (If the screws are not tightened until their heads become level with the surface, the upper drum of the video head disc is caught by the adjusting screw heads and the video head disc cannot rotate. If the screws are tightened excessively, the head base is moved and the dihedral distortion becomes larger.)

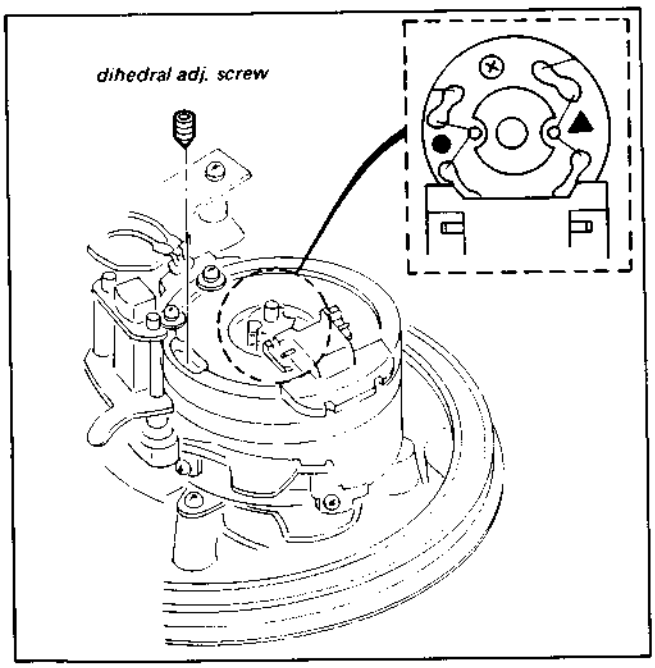


Fig. 3-60.

When the dihedron is no-good;

1) When the split becomes small for the clockwise turn of the TRACKING control knob, the B head shifts by C in the arrow direction as shown in Fig. 3-61 and traces the magnetic pattern on the tape. The adjusting screw in adjustment hole E shown in the figure must be tightened further to shift the B head in the left direction until the good dihedron shown in Fig. 3-59 is obtained.
Set the TRACKING control knob to the center detent point.

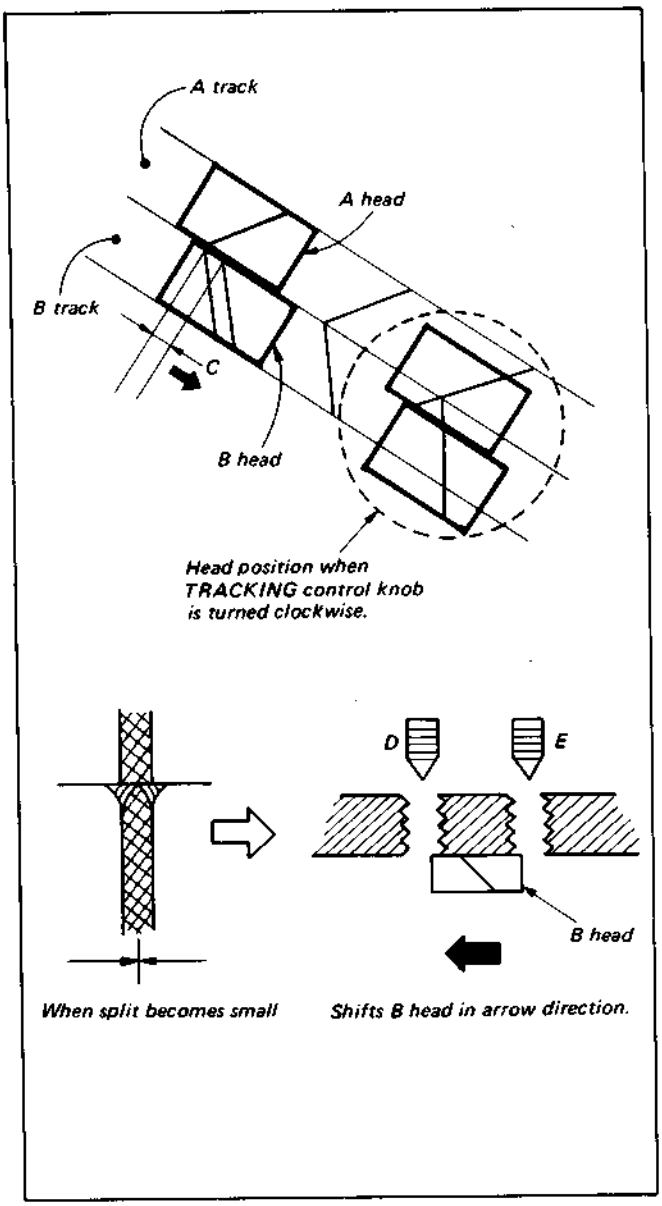


Fig. 3-61.

2) When the split becomes large for the clockwise turn of the TRACKING control knob, the B head shifts by C in the attow direction as shown in Fig. 3-62 and traces the magnetic pattern. The adjusting screw in adjustment hole D shown in the figure must be tightened further to shift the B head in the right direction until the good dihedron shown in Fig. 3-59 is obtained.
Set the TRACKING control knob to the center detent point.

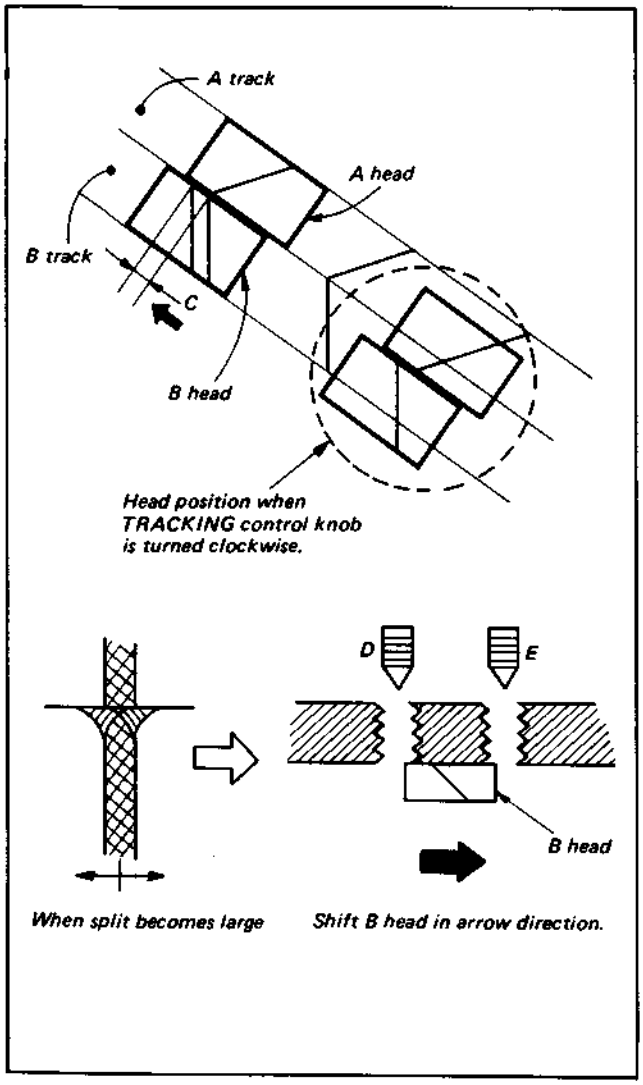


Fig. 3-62.

3) Remove the adjusting screws after the completion of the adjustment and check the dihedron again.

SECTION 4
ELECTRICAL ALIGNMENT

All the electrical alignment can be performed by using the equipment mentioned below, the alignment tape, and the PAL colour bar signal (100%).

[Equipment Required]

(1) Colour Monitor TV

(2) Oscilloscope, Dual-trace, Bandwidth. . . more than 10 MHz with delay mode

(3) Frequency Counter

(4) PAL Colour-Bar Generator

(5) Digital voltmeter

(6) VOM (20 KΩ/V)

(7) Audio Signal Generator

(8) Vectorscope

(9) Attenuator

(10) Alignment Tape, type: KR5-2H, Code No. 8-969-995-52

(11) Spectrum analyzer

(12) Television Multiplex Modulator

(13) Alignment Tool (Adjusting screwdriver for semi-fixed resistors and coils)
Jig. No. SL-0001, Code No. J-6080-001-A

[Setup for Alignment]

The antenna should be connected correctly to the antenna input terminal of the videocassette recorder.

It is important that the video output signal satisfies the specification because the telecast signal received by the incorporated tuner of the videocassette recorder is utilized as the adjustment signal of the machine. The incorporated tuner should be set to the channel with the best reception. The video signal should be checked with an oscilloscope connected to VIDEO OUT (BNC connector). Virify that the sync signal amplitude is approx. 0.3 Vp-p aand the video signal amplitude is approx. 0.7 Vp-p at peak. Adjust the fine tuning while observing the signal and the TV screen so that the burst signal amplitude becomes approx. 0.3 V ± 0.1 Vp-p. Also confirm that there is no spikes observed at the sync signal portion. (See Fig. 4-1.)

The video (colour bar) signal for the alignment is shown in Fig. 4-1.

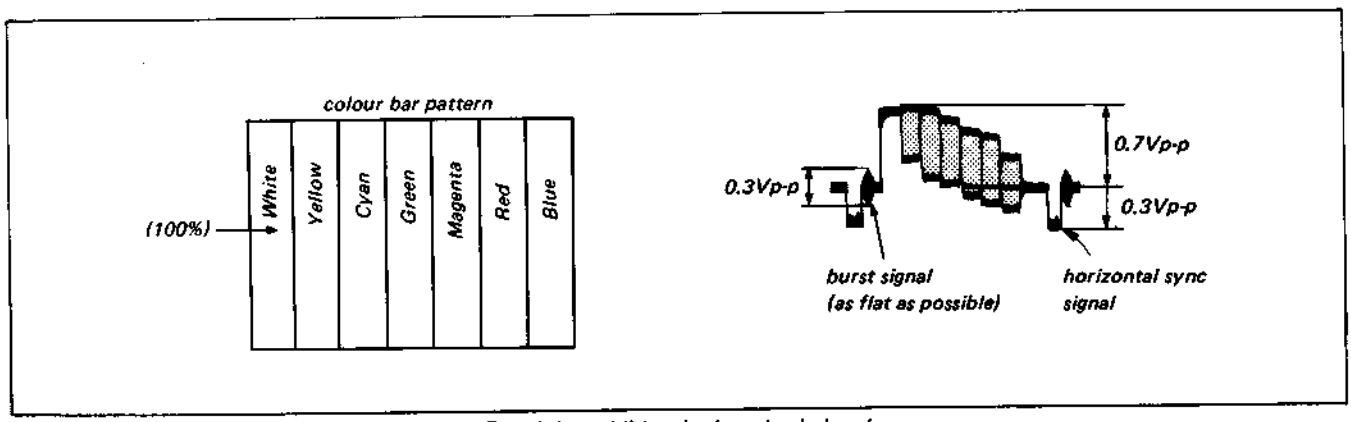


Fig. 4-1. Video (colour bar) signal

[Alignment Tape]

KR5-2H

	Video signal	Audio signal	Playing time	Use for
1.	Colour bars	3 kHz – 5 dB	5 min	General performance, tape speed checks, switching position adjustment.
2.	Monoscope	333 Hz – 25 dB	5 min	Video head dihedral, audio level adjustment.
3.	RF sweep	5 kHz – 25 dB	5 min	Video, audio frequency characteristics, audio azimuth adjustment marker: 1, 2, 3.58, 4.5, 5.2 MHz
4.	Tracking 1 MHz (CH-A) *1 (Channel B is inserted in every 3 frames.)	1 kHz – 5 dB *2 (Signal is dropped out in the positions where channel B is inserted.)	5 min	Tracking, Audio height adjustments CTL Position check (Check if *1 and *2 are the same position.)

Note: Use KR5-2H for alignment tape.
KR5-1H, however, is also usable KR5-2H has the improved characteristics.

[Alignment Tool for Semi-fixed Variable Resistors and Coils]

Semi-fixed variable resistors and inductances should be adjusted with the alignment tool exclusively prepared for the adjustment of the components. A common screwdriver is too large for adjusting the components from the conductor side of a printed circuit board.

The metal blade of the alignment tool is used for variable resistors and trimmer capacitors and the plastic tip is used for variable inductances.

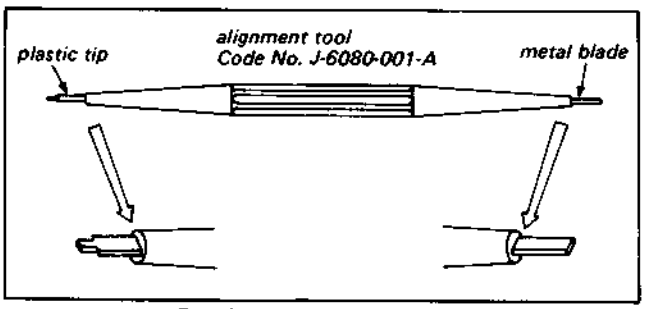


Fig. 4-2. Alignment tool

[Required Levels and Impedances of Input and Output]

VIDEO

Input . . . . . VIDEO IN: BNC connector
1.0 Vp-p, 75 ohms
unbalanced, sync negative

Output . . . . . VIDEO OUT: BNC connector
1.0 Vp-p, 75 ohms
unbalanced, sync negative

AUDIO

Input . . . . . AUDIO IN: Phono connector,
47 kohms, −10 dB
MIC: mini jack, −60 dB, suitable for microphone with 600-ohm impedance

Output . . . . . AUDIO OUT: Phono connector, Less than 10 kohms, −5 dB (47 kohm load), unbalanced

[Colour Bar Signal]

The 100% colour bar signal recorded on the Alignment tape is shown in Fig. 4-3.

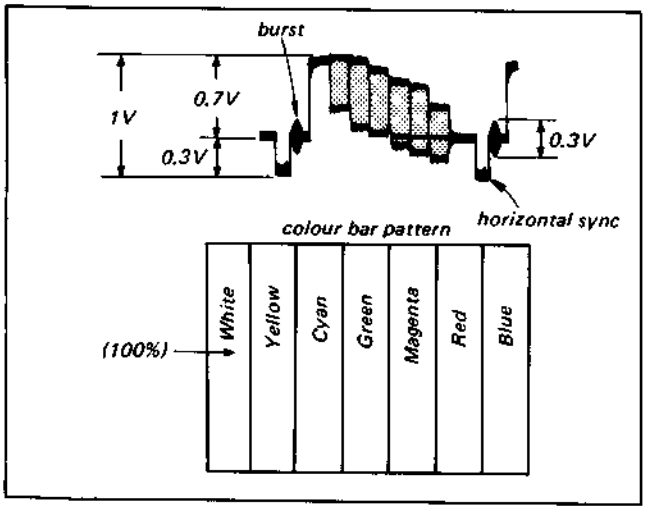


Fig. 4-3. Colour bar signal recorded on the alignment tape

[Adjustment procedure]

Adjust in the order given below.

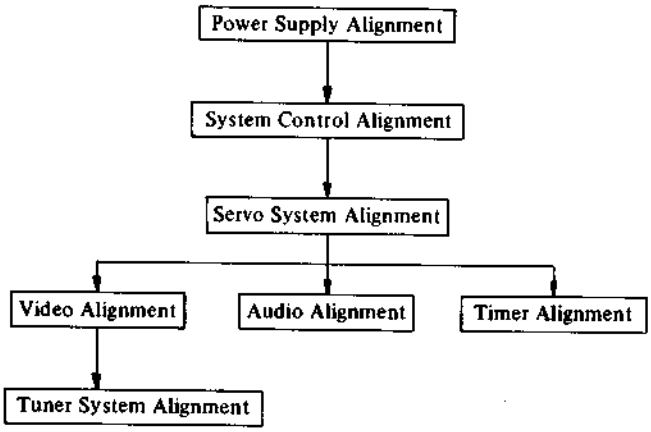


Fig. 4-4.

4-1. POWER SUPPLY CHECK (TP-12, TP-16 boards)

1. **REG 12V Check**
   (1) Check that the input voltage is 220/240V ac ±10%.
   (2) Connect the VOM to 4 pin of IC001/TP16 board.
   (3) Check that the reading is 12V ± 0.1V.
2. **SYS 12V Check**
   (1) Connect the VOM to 7 pin of IC001/TP16 board.
   (2) Check that the reading is 12V ±1V.
3. **EVER 12V Check**
   (1) Connect the VOM to 8 pin of CN001.
   (2) Check that the reading is 12V ± 0.5V.

4-2. CHECK OF THE SYSTEM CONTROL SECTION (SS-9 board)

1. **Clock Frequency Check**
   (1) Connect a frequency counter to IC501 pin 42.
   (2) Check that the frequency counter reads 400 kHz ± 20 kHz.
   Follow the steps below to check the clock frequency with an oscilloscope

   (1) Connect the Oscilloscope to IC501 pin 42.
   (2) Check that the sine wave appearing on the oscilloscope has a period of 2,380 to 2,630 microseconds.
2. **Loading and Threading Check**
   (1) Mount a cassette tape.
   (2) Loading and threading must be performed properly
   Threading time: approx. 5 seconds
3. **Unthreading and Unloading Check**
   When the eject button has been depressed, the recorder should perform unthreading then unloading; eject the cassette; and complete EJECT mode.
   Unthreading and loading time: approx. 5 seconds

4. **PLAY Mode Check**

Depress the PLAY button and check the following.

(1) The PLAY lamp turns on.
(2) The B/S (Brake/Select) and F/E (Forward/Eject) solenoid are energized.
(3) The reel motor starts to run.
(4) The drum motor starts to run.
(5) The pinch roller solenoid is energized.

Note: Pinch roller solenoid delay time = approx. 0.5 second

5. **RECORD Mode Check**

Depress the RECORD button and check the following.

(1) The REC lamp turns on.
(See 4 above for the other items.)

6. **FAST-FORWARD Mode Check**

(1) Depress the FAST-FORWARD button.
(2) Check that the B/S and FF solenoids get energized and the reel and drum motors run.

7. **REWIND Mode Check**

(1) Depress the REWIND button.
(2) Check that the B/S solenoid gets energized and the reel and drum motors run.

8. **PICTURE SEARCH Mode Check**

(1) Put the recorder in PLAY mode.
(2) Keeping the FAST-FORWARD button depressed, check that the pinch roller and F/E solenoids get de-energized and the FF solenoid is energized.
(3) Release the FAST-FORWARD button and, when PLAY mode has been entered, check that the FF solenoid is de-energized and the F/E and pinch roller solenoids energized.
(4) Keeping the REWIND button depressed, check that the pinch roller and F/E solenoids are de-energized.
(5) Release the REWIND button and, when PLAY mode has been entered, check that the F/E and pinch roller solenoids get energized again.
(6) Operating the Remote Commander, repeat steps (1) through (5) above.

9. **Tape Slack Sensor Check**

(1) Run the tape loose intentionally during PLAY or RECORD mode and check that the recorder enters STOP mode automatically.
(2) Repeat step (1) above once more. Check that the recorder enters no mode but EJECT after step (1) has been performed twice.
(3) When the cassette has been ejected, load it back and check that the recorder operates properly in every mode.

10. **PAUSE Mode Check**

(1) When the PAUSE button is depressed, check that the PAUSE lamp is on; the pinch roller and B/S solenoids are de-energized; and the reel disks are stationary.
(2) When the PAUSE button has been depressed next time, check that the pinch roller and B/S solenoids are energized and the reel disks start to run.
(3) Operating the Remote Commander, repeat steps (1) and (2) above.

11. **Auto Stop Check**

(1) Check that the recorder enters STOP mode at the end portion of tape.
(2) When something like a screwdriver is brought close to the FWD sensor head during PLAY, FAST- FORWARD, or RECORD mode or to the REW sensor head during REWIND mode, check that the recorder enters STOP mode with the associated mode button released.

4-3. ADJUSTMENT OF THE SERVO SYSTEM

1. **Drum Free Speed Adjustment (SS-9 board)**

(1) Load a cassette tape and put the recorder in play back mode.
(2) Connect the oscilloscope to TP2. (pin 10 of IC003)
Input: DC range
(3) Adjust the DC level to 5.2V ± 0.3V with RV9 (see Fig. 4-5).

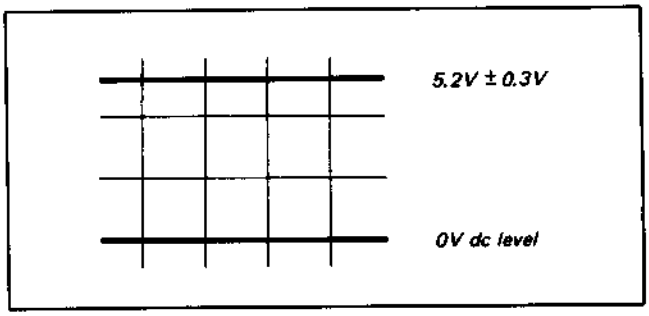


Fig. 4-5. Drum free speed adjustment

2. **Capstan Free Speed Adjustment (SS-9 board)**

(1) Connect an oscilloscope to TP5 (pin 23 of IC001)
(2) Record broadcast signal and adjust DC level to 5.5V ± 0.3V with RV1 (see Fig. 4-6).

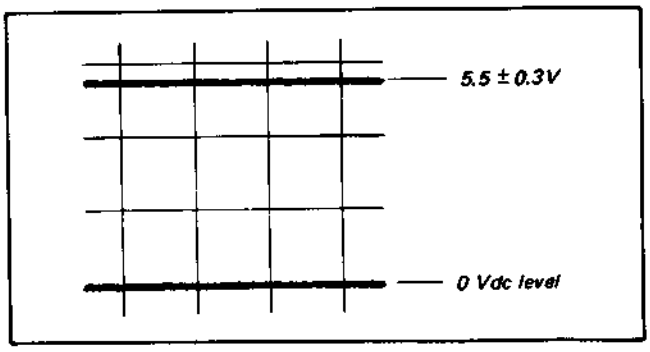


Fig. 4-6. Capstan free speed adjustment

3. **Tracking Control Center Adjustment (SS-9 board)**
   (1) Set the tracking control at the center clickstop.
   (2) Playback the alignment tape.
   (3) Connect CH-1 of an oscilloscope to TP7 (Pin 17 of IC001) and CH-2 to TP6. (Pin 13 of IC003)
   (4) Adjust RV010 so that the negative going of the CH-1 waveform is in phase with that of CH-2 (see Fig. 4-7).

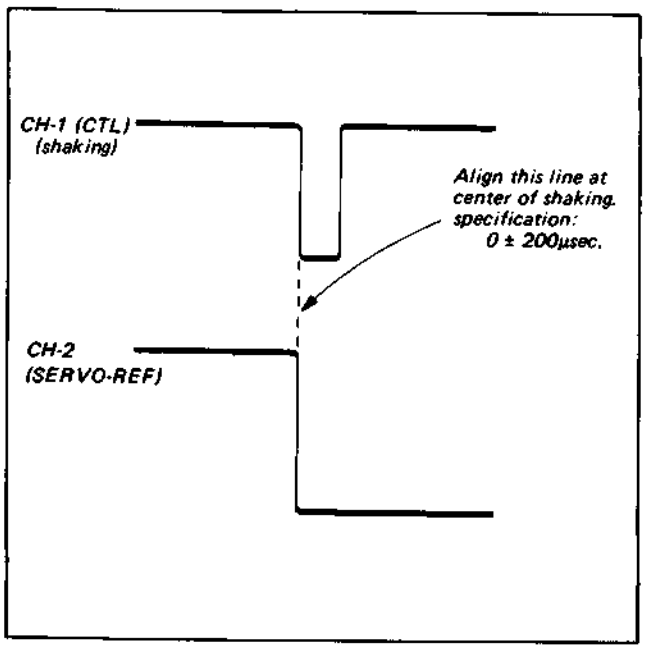


Fig. 4-7. Tracking control center adjustment

4. **RF Switching Position Adjustment (YC-23, RF-4, and SS-9 boards)**
   (1) Playback the colour bar of the alignment tape.
   (2) Connect an oscilloscope to TP5 on the RF-4 board.
   (3) Adjust the tracking control so as to maximize the waveform amplitude (see Fig. 4-8).

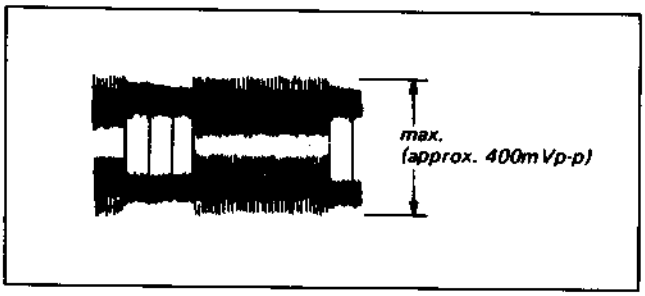


Fig. 4-8. RF output waveform

   (4) Connect CH-1 of the oscilloscope to TP1 (Pin 4 of IC003) on the SS-9 board and CH-2 to VIDEO OUT jack (CNJ 2) on the YC-23 board.
   (5) Adjust RV7 on the SS-9 board so that the time interval between the decay of CH-1's waveform and the vertical sync signal of CH-2's video signal become 7H ± 1H lines (see Fig. 4-9).

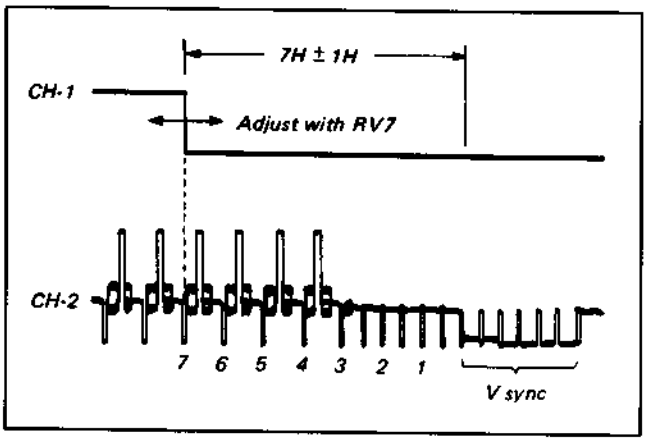


Fig. 4-9. RF switching position adjustment (1)

   (6) Adjust RV6 on the SS-9 board so that the time interval between the rise of CH-1's waveform and the vertical sync signal of CH-2's video signal become 7H ± 1H lines (see Fig. 4-10).

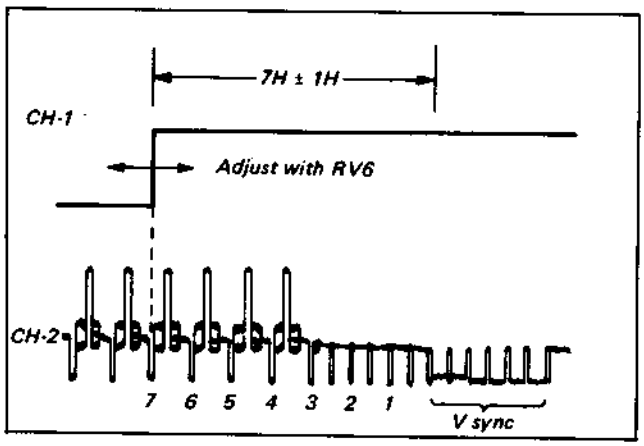


Fig. 4-10. RF switching position adjustment (2)

   (7) After adjustment, position the tracking control at the center clickstop.

5. **RECORD Mode Servo Lock Phase Adjustment (YC-23 and SS-9 boards)**
   (1) Supply colour bar signal and record.
   (2) Connect CH-1 of an oscilloscope to TP1 (IC003 Pin 4) on the SS-9 board and CH-2 to VIDEO OUT jack (CNJ 2) on the YC-23 board.
   (3) Adjust RV8 on the SS-9 board so that the time interval between the decay of CH-1's waveform and the vertical sync signal of CH-2's video signal become 7H ±2H lines (see Fig. 4-11).

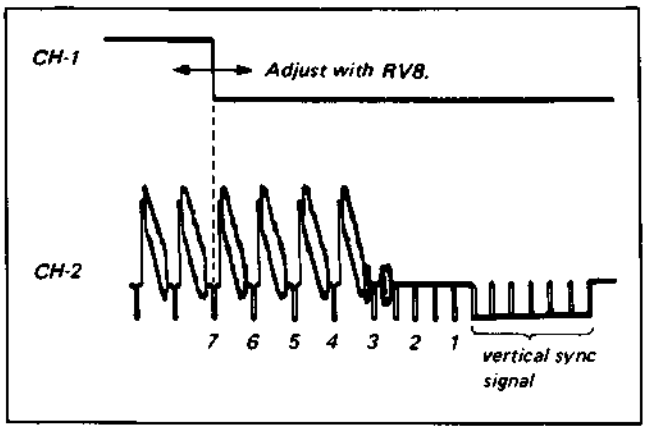


Fig. 4-11. Record-servo lock phase adjustment

6. Adjustment of Drum Speed Compensation During Picture Search (CUE/REVIEW)

(1) Receive broadcast signal.
(2) Record the broadcast signal at the middle of an L-750 cassette tape (where tape length is equal on the T-reel and the S-reel).
(3) Connect an oscilloscope to TP28 on the YC-23 board.
(4) Playback the recorded signal.
(5) Position the rise of the waveform at the middle of the horizontal axis on the oscilloscope screen (see Fig. 4-12).
(6) Press the FF button.
(7) Adjust RV11 on SS-9 Board so that the deviation of the rising edge from the scale center is 0 ± 0.2 μsec.

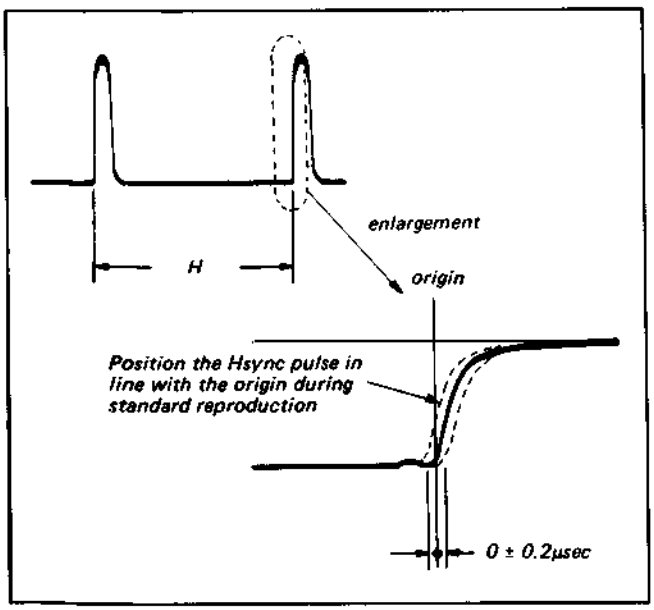


Fig. 4-12. Adjustment of drum speed compensation during beta scan (CUE/REVIEW)

4-4. VIDEO SYSTEM ALIGNMENT (YC-23 and RF-4 boards)

The adjustment sequence for each circuit board is shown below. The colour video signal used for the video system alignment should satisfy the specification shown in the {Setup for Alignment}.

[YC-23 Board]

1. SYNC AGC PRESET Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP8 (pin 24 of IC1).
TRIG: EXT {TP28 (pin 6 of IC5)}

Note: The voltage at TP27 (pin 17 of IC1) is approximately 0 Vdc.

(3) Adjust RV9 so that the colour bar signal is maximum.
(4) Adjust RV1 so that the sync signal level is 340 mV ± 20 mVp-p. (See Fig. 4-13).

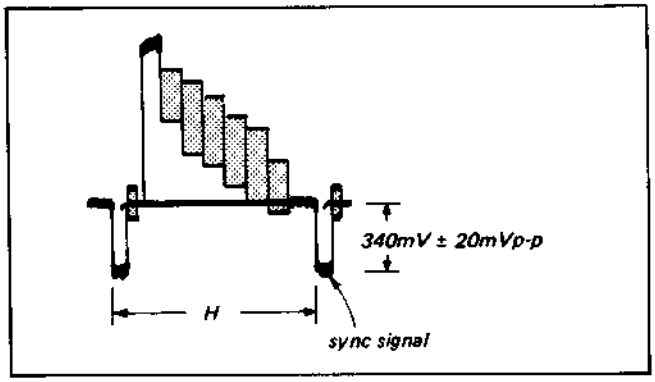


Fig. 4-13.

2. Colour E-E Level Adjustment

(1) supply the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP7 (pin 22 of IC1).
TRIG: EXT {TP28 (pin 6 of IC5)}
(3) Adjust RV8 for the sync signal level of 340 mV ± 20 mVp-p. (see. Fig. 4-14).

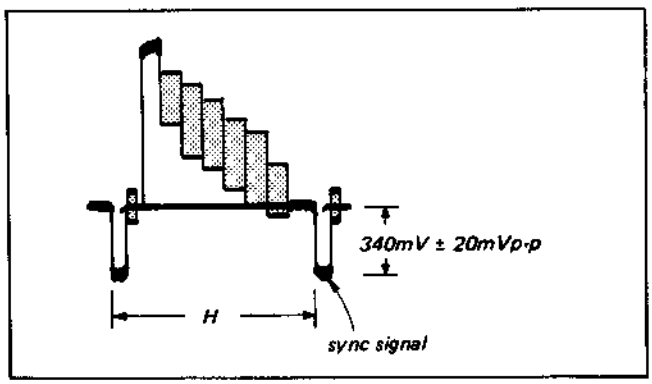


Fig. 4-14.

3. **Peak AGC (E-E Video Output Level) Adjustment**
   (1) Supply the VTR with the colour bar signal and set up the E-E mode.
   (2) Connect the oscilloscope to TP8 (pin 24 of IC1).
   (3) Adjust RV1 for maximum output level of the video signal and then adjust RV9 so that the output level of the video signal becomes 1.15V ± 0.05 Vp-p. (See Fig. 4-15).

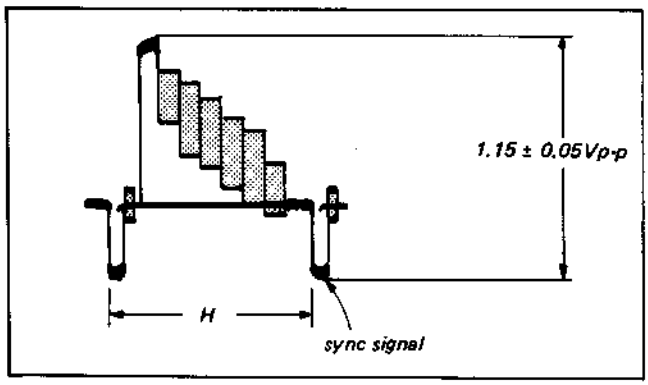


Fig. 4-15.

   (4) Perform SYNC AGC adjustment (RV1) after adjustment was finished.

4. **SYNC AGC Adjustment**
   (1) Supply the VTR with the colour bar signal and set up the E-E mode.
   (2) Connect the oscilloscope to TP8 (pin 24 of IC1).
   TRIG: EXT { TP28 (pin 6 of IC5) }

   Note: The voltage at TP27 (pin 17 of IC1) is approximately 0 Vdc.

   (3) Adjust RV9 so that the colour bar signal is maximum.
   (4) Adjust RV1 so that the sync signal level is 340 mV ± 20 mVp-p. (See Fig. 4-16.)

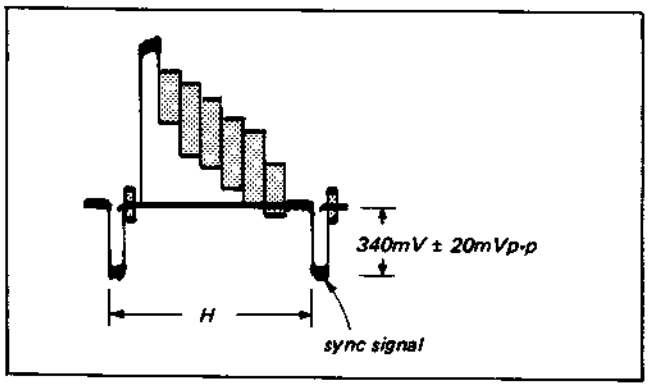


Fig. 4-16.

5. **Rec Emphasis preset Adjustment (YC-23 board)**

   Note: • Confirm that the voltage at TP27 (pin 17 of IC001) is approximately 7.5Vdc and TP8 (pin 24 of IC001) is approximately 0.34Vp-p.

   (1) Supply the VTR with the colour bar signal and set up the E-E mode.
   (2) Connect the oscilloscope to TP4 (pin 16 of IC8)
   TRIG: EXT { TP28 (pin 6 of IC5) }
   (3) Preset RV4, RV6 and RV7 to the level at which the upper and lower video waveforms are not being clipped.

   Note: 1. Connect the oscilloscope to TP1.
   2. Confirm that the sync level of the monoscope is equal to the one of the colour bar.
   3. If the above step is not satisfied, adjust RV-8.

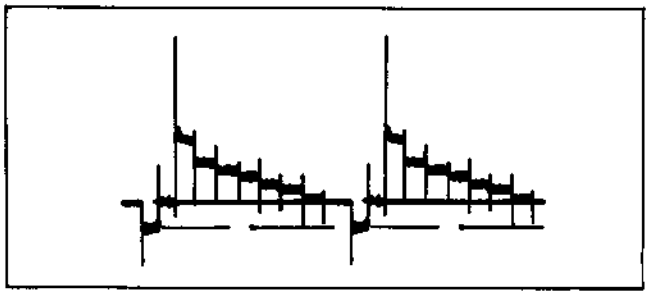


Fig. 4-17.

6. **Compress Adjustment**
   (1) Supply the VTR with colour bar signal and set up the E-E mode.
   (2) Connect the digital voltmeter to the points shown in Fig. 4-18.
   (3) Adjust RV5 for 0.310 ± 0.004 V dc.

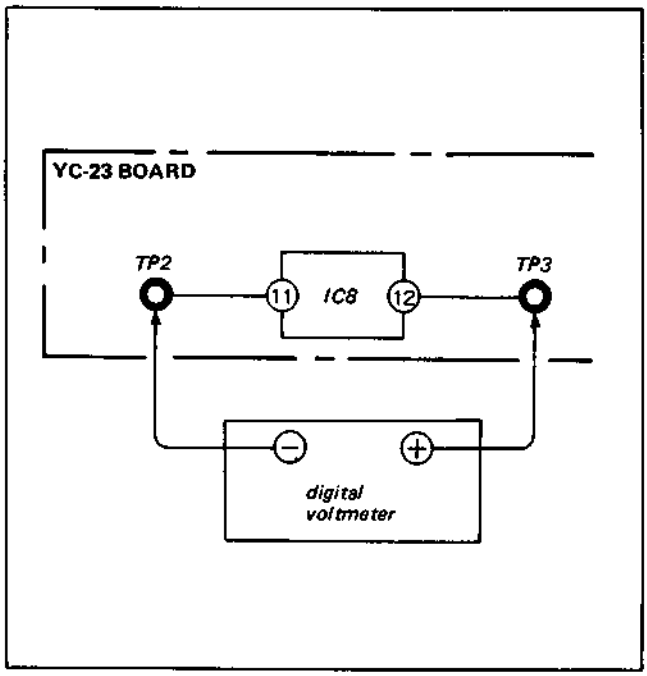


Fig. 4-18. Measurement points

7. **Deviation & Car Set Adjustment**
   (1) Supply the VTR with colour bar signal and set up the E-E mode.
   (2) Connect the spectrum analyzer to TP9 (pin 13 of IC1)
   (3) Adjust the deviation to 1.4 MHz ± 0.05 MHz with RV2.
   (4) Adjust the sync tip section to 3.8 MHz ± 0.04 MHz with RV4.
   (5) The adjustment of RV2 may be disturbed by rotating RV4, so if necessary, repeat the adjustment of RV2, RV4 alternately, two or three times.

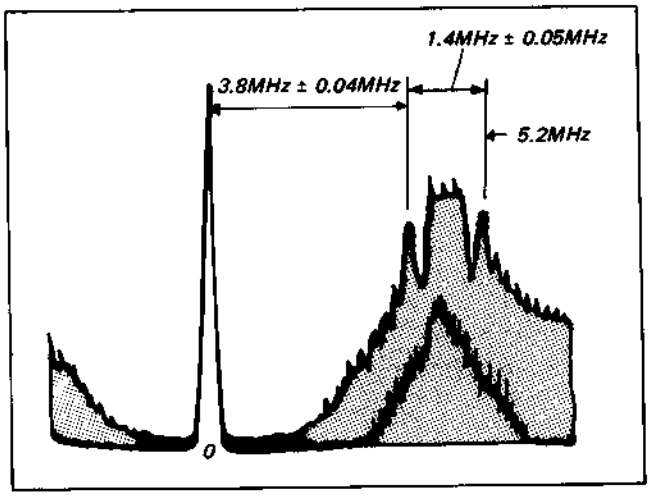


Fig. 4-19.

8. **White Clip Adjustment**
   (1) Supply the VTR with the colour bar signal and set up the E-E mode.
   (2) Connect the oscilloscope to TP4 (pin 16 of IC8).
   TRIG: EXT {TP28 (pin 6 of IC5)}
   (3) Adjust RV6 so that the signal tip (white peak) is 220% $^{+0}_{-5}$%. (See Fig. 4-20.)

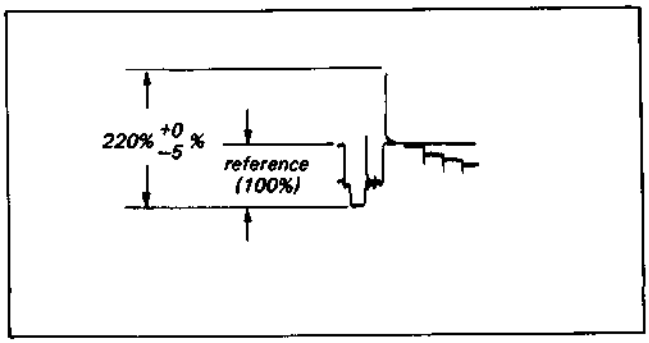


Fig. 4-20. White clip adjustment

9 **Dark Clip Adjustment**
   (1) Supply the VTR with the colour bar signal and set up the E-E mode.
   (2) Connect the oscilloscope to TP4 (pin 16 of IC8).
   TRIG: EXT {TP28 (pin 6 of IC5)}
   (3) Adjust RV7 so that the signal tip (dark peak) is 170% $^{+0}_{-3}$%. (See Fig. 4-21).

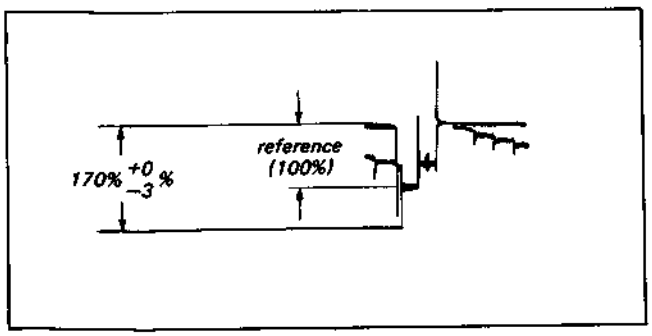


Fig. 4-21. Dark clip adjustment

10. **½f_H Shift (RV-7 board)**
   (1) Do not supply the VTR with any signal and set up the RECORD mode.
   (2) Connect the spectrum analyzer to TP9 (pin 13 of IC1).
   (3) Adjust RV3 so that the fluctuation of frequency is 7.81 kHz ± 2 kHz.

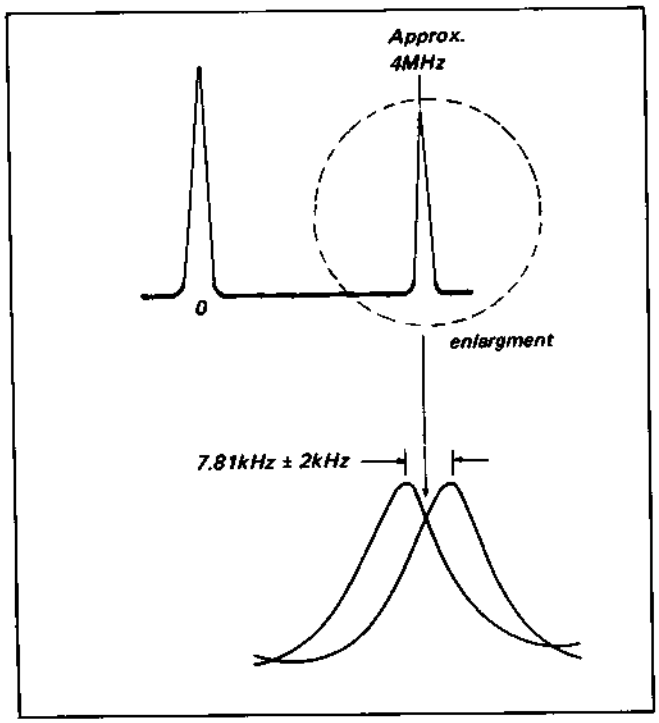


Fig. 4-22.

11. **Expand Adjustment**
   (1) Do not supply the VTR with any signal and set up the E-E mode.
   (2) Connect the digital voltmeter to the points shown in Fig. 4-23.
   (3) Adjust RV10 for 0.448 ± 0.01 V dc.

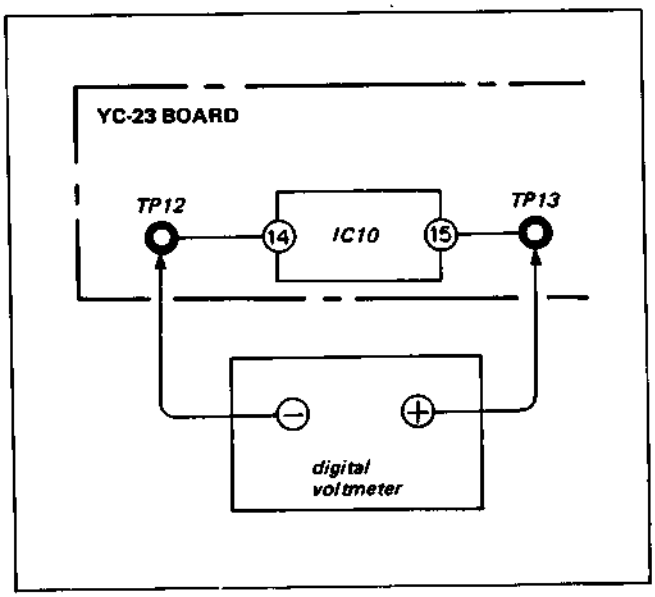


Fig. 4-23. Measurement points

12. AFC Adjustment

(1) Supply the VTR with a colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP29 (pin 5 of IC6).
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV17 so that the lock point is 3.5/8 from the trapezoidal waveform bottom (Fig. 4-24).

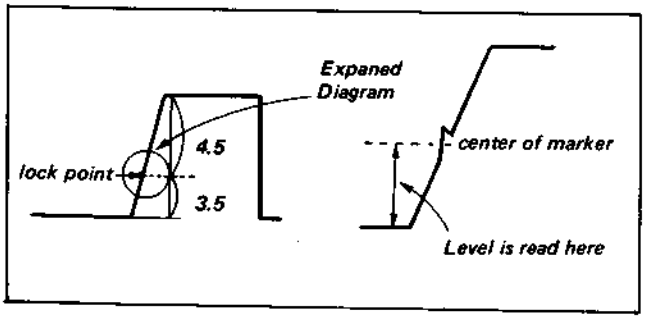


Fig. 4-24. AFC adjustment

13. AFC Offset Adjustment

(1) Supply the VTR with the colour bar signal and set up the RECORD mode.

(2) Connect the oscilloscope to TP29 (pin 5 of IC6).
TRIG: EXT (TP30, RF SW PULSE)

(3) Adjust RV18 so that the lock points of the A-CH and the B-CH are at the points shown in Fig. 4-25.

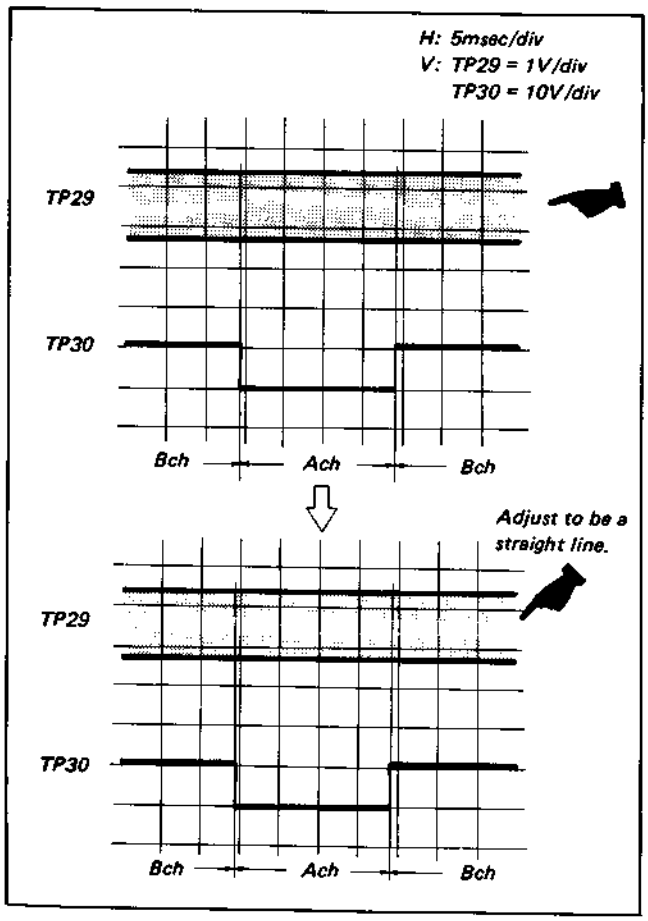


Fig. 4-25. AFC offset adjustment

14. Comb Filter Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Check that the chroma signal levle at TP20 (pin 8 of IC2) is approximately 1.5 Vp-p. (See Fig. 4-26).
TRIG: EXT {TP28 (pin 6 of IC5)}

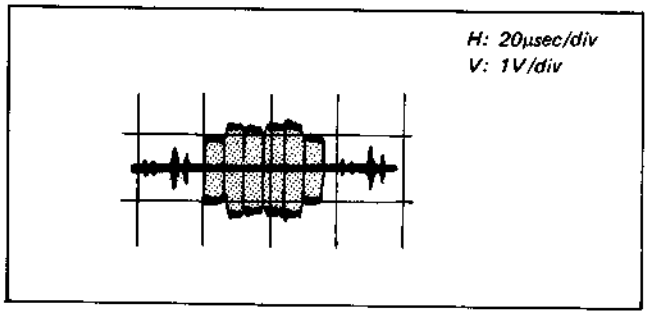


Fig. 4-26. Level check of chroma signal

(3) Connect the oscilloscope to TP21 (junction of R147 and R148).

(4) Adjust LV1 and RV15 alternately for minimum level of the chroma signal. (See Fig. 4-27).

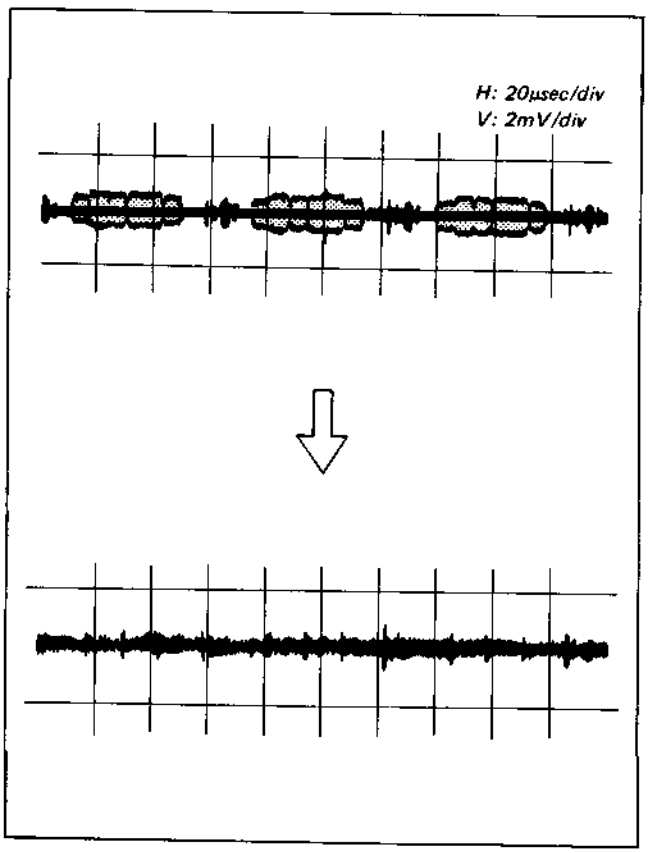


Fig. 4-27. Comb filter adjustment

(5) Check that the difference in the signal levels at TP20 and TP21 is more than 26 dB after the adjustment.

15. ACC Adjustment

(1) supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP20 (pin 8 of IC2).
TRIG: EXT {TP28 (pin 6 of IC5)}
(3) Adjust T4 for minimum output level.
(4) Adjust RV13 for 1.5V ± 0.1 Vp-p. (See Fig. 4-28).

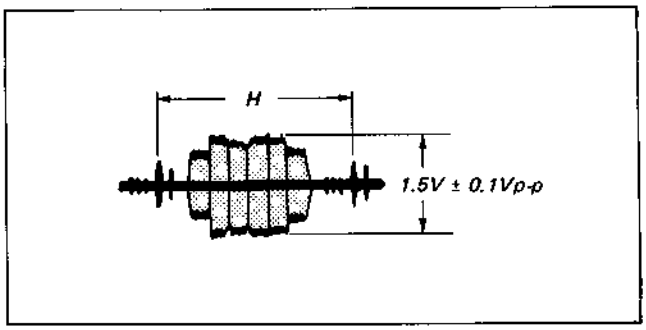


Fig. 4-28. ACC adjustment

16. ACK Set Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope TP19 (pin 9 of IC2)
Input range: DC
(3) When the signal (1 Vp-p) is changed from −17 dB to −18 dB by attenuater, check that the voltage at TP19 (pin 9 of JC2) is become from 4.0V to 0V.
If not, adjust RV12 (See Fig. 4-29).

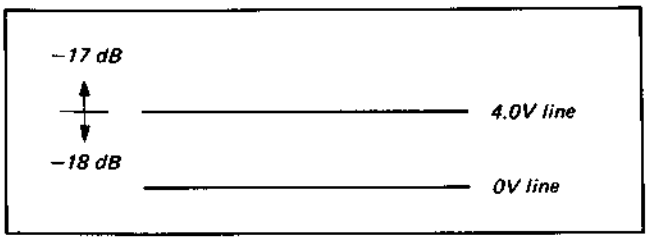


Fig. 4-29. ACK set adjustment

17. X'tal Oscillation Adjustment

(1) Set up the PLAY mode.
(2) Connect the frequency counter to TP23 (emitter of Q34).
(3) Adjust T6 for an oscillating frequency of 4.433619 MHz ± 5 Hz.
(4) Check that the output level is 0.5V ± 0.2 Vp-p (See Fig. 4-30).

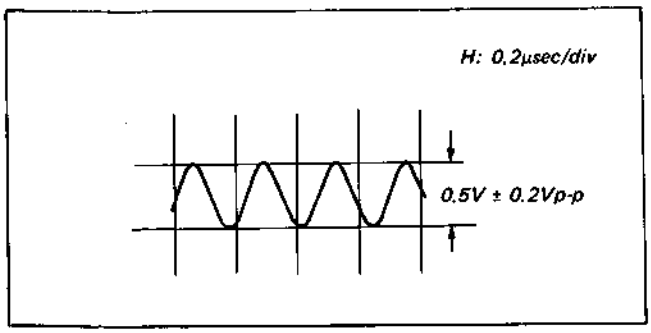


Fig. 4-30. Output level check

18. VXO Oscillating Frequency Adjustment

(1) Do not supply the VTR with any signal and set up the E-E mode.
(2) Connect the frequency counter to TP23 (emitter of Q34).
(3) Adjust T7 so that the oscillating frequency is 4.433619 MHz ± 5 Hz.
(4) Check that the output level is 0.7V ± 0.2 Vp-p. (See Fig. 4-31).

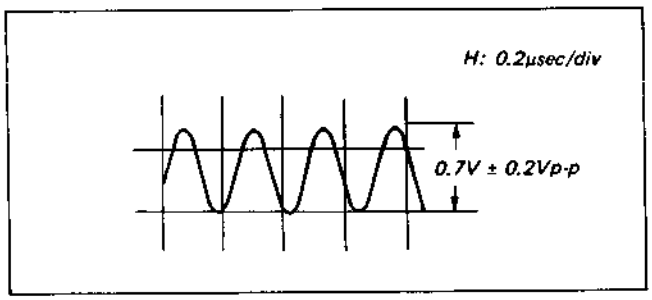


Fig. 4-31. Output level check

19. Carrier Filter Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP18 (pin 24 of IC2).
(3) Adjust T8 and T9 for maximum signal level. (Fig. 4-32).

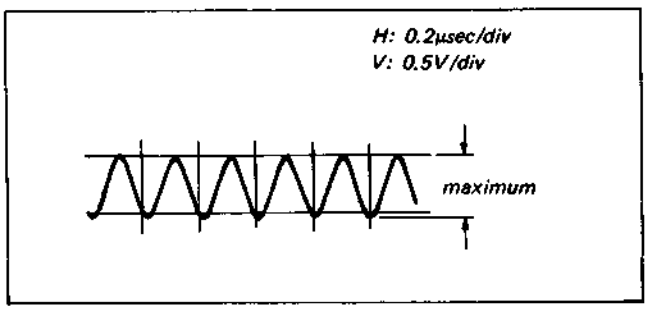


Fig. 4-32. Carrier filter adjustment

20. Pilot Burst Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.
(2) Connect the oscilloscope to TP6.
TRIG: EXT {TP28 (pin 6 of IC5)}
(3) Adjust RV11 so that the level of the chroma signal becomes equal to the one of the burst signal. (See Fig. 4-33).

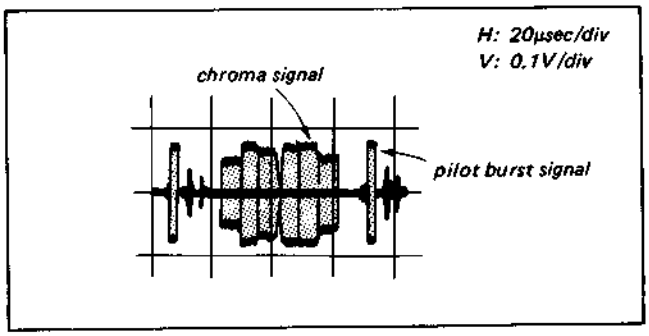


Fig. 4-33. Pilot burst adjustment

21. Chroma Record Current Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP6.
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV16 for a chroma signal level of 0.28V ± 0.02 Vp-p. (see Fig. 4-34).

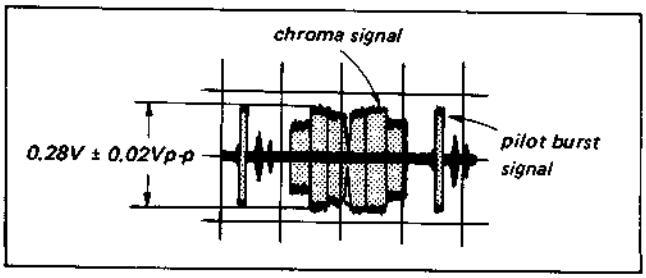


Fig. 4-34. Chroma record current adjustment

(4) Check that the level of the pilot burst signal is 0.28V ± 0.02 Vp-p. If not, adjust RV11. (see Fig. 4-34).

22. Chroma Level Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the oscilloscope to TP27 (emitter of Q40).
TRIG: EXT {TP28 (pin 6 of IC5)}

(3) Adjust RV21 for a chroma signal level of 0.85 Vp-p. (Fig. 4-35).

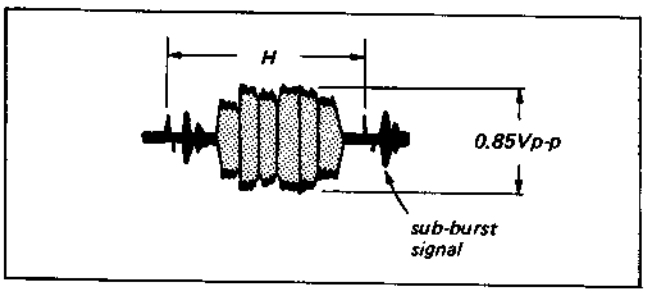


Fig. 4-35. Chroma level adjustment

23. Carrier Balance Adjustment (RV-7 board)

(1) Supply the colour bar signal and set up the E-E mode.

(2) Connect the spectrum analyzer to pin 4 of IC2.

(3) Adjust RV14 for minimum level of carrier lead section (5.12MHz). (see Fig. 4-36).

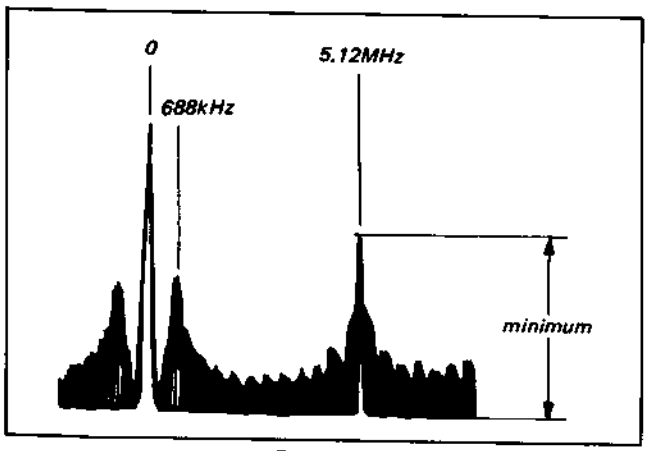


Fig. 4-36.

24. 1H Delay Adjustment

(1) Supply the VTR with the colour bar signal and set up the E-E mode.

(2) Connect the vectorscope to TP25 (pin 8 of IC11.)
TRIG: EXT {TP23 (emitter of Q35)}

(3) Adjust the PHASE knob of the vectorscope for matching the burst signal phase. (see Fig. 4-37).

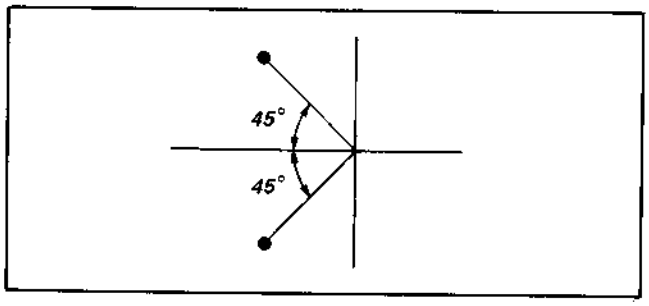


Fig. 4-37. Vectorscope adjustment

(4) Connect the vectorscope to TP24 (pin 9 of IC11).

(5) Adjust LV2 so that the burst signal phase matches the phase of TP25. (see Fig. 4-38).

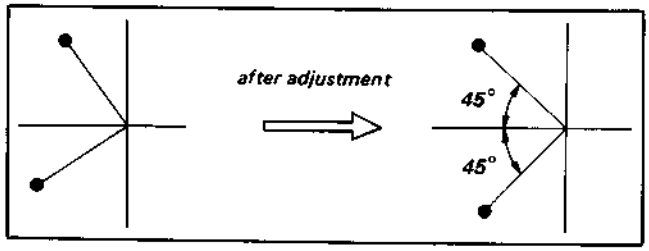


Fig. 4-38. 1H delay adjustment

(6) Connect the oscilloscope as follows.
CH-1 . . . . . TP25 (pin 8 of IC11)
CH-2 . . . . . TP24 (pin 9 of IC11)
TRIG: EXT {TP28 (pin 6 of IC5)}

(7) Adjust RV19 so that the signal level of the CH-1 is equal to the one of the CH-2. (see Fig. 4-39).

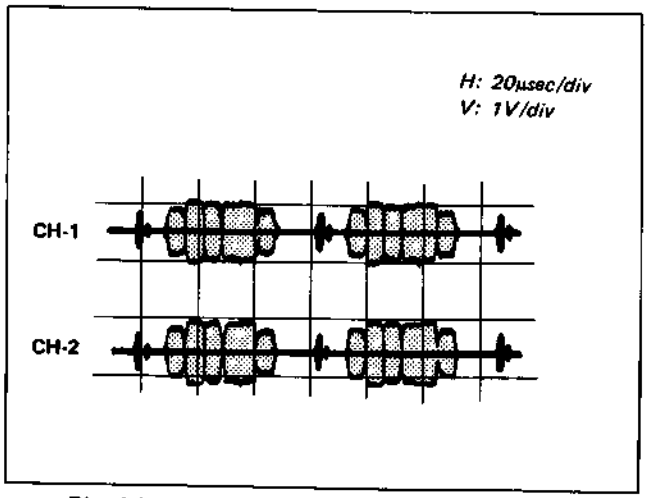


Fig. 4-39. Balance adjustment of chroma signal

(8) The adjustment of LV2 may be disturbed by rotating RV19, so if necessary repeat the adjustment of LV2, RV19 alternately, two or three times.

25. Sub-Burst Adjustment

(1) Record the colour bar signal and play back the recorded segment.

(2) Connect the vectorscope to TP27 (emitter of Q40).

(3) In playback mode, adjust the PHASE knob on the vectorscope so that the burst signal is positioned properly. (see Fig. 4-40).

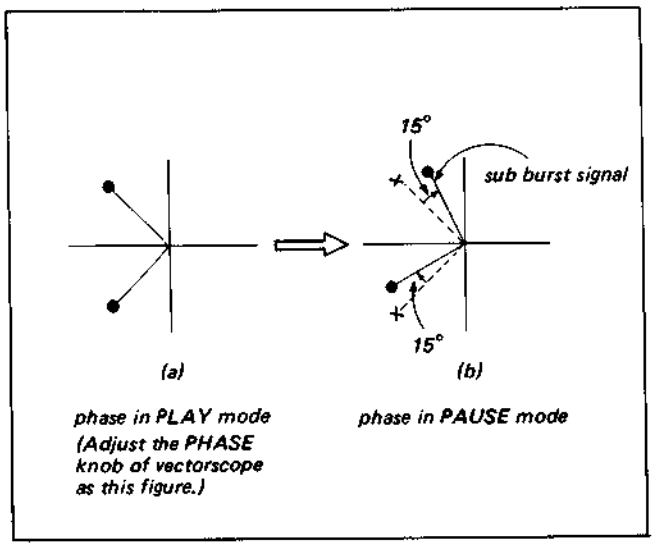


Fig. 4-40. Playback phase and sub-burst adjustments

(4) Set up the PAUSE mode.

(5) Adjust RV23 so that the sub-burst signal is 15° delayed. (see Fig. 4-40).

(6) Connect the oscilloscope to TP27.
TRIG: EXT { TP28 (pin 6 of IC5)}

(7) Adjust RV22 for the sub-burst signal level of 0.27 Vp-p. (Fig. 4-41).

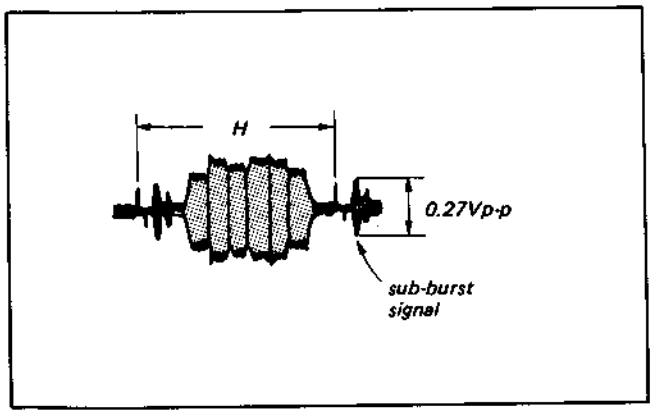


Fig. 4-41. Level adjustment of sub-burst signal

(8) The adjustment of RV23 may be disturbed by rotating RV22, so if necessary, repeat the adjustment of RV22, RV23 alternately, two or three times.

26. Burst Gate Adjustment

(1) Record the colour bar signal and play back the recorded segment.

(2) Connect the oscilloscope to TP26 (collector of Q43).
TRIG: EXT { TP28 (pin 6 of IC5)}

(3) The waveform shown in Fig. 4-42 or Fig. 4-43 should appear on the oscilloscope. If the waveform is as shown in Fig. 4-42, no adjustment is required. If the waveform is the one in Fig. 4-43, repeat PAUSE and PAUSE release until the waveform in Fig. 4-42 appears.

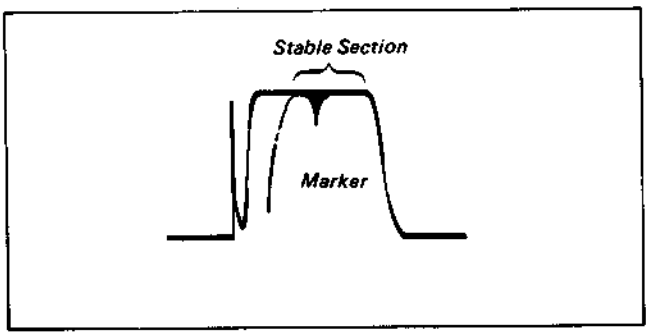


Fig. 4-42.

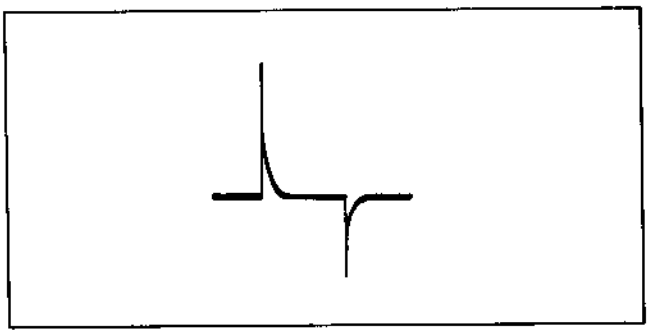


Fig. 4-43.

(4) The trpezoidal wave in Fig. 4-42 is unstable at both sides and overlapping lines are visible. In the stable section where lines do no overlap, there is a marker. Adjust RV20 so that the marker is in the center of the stable section. (see Fig. 4-44).

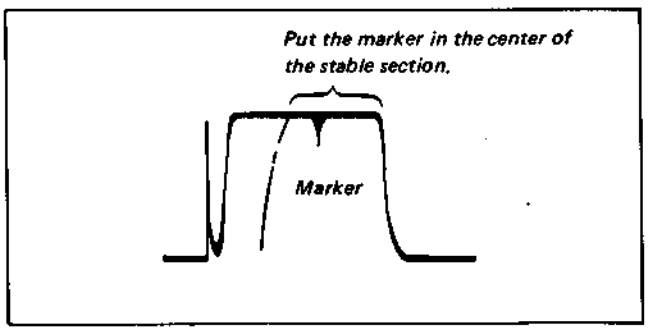


Fig. 4-44.

[RF-4 Board]

1. **Playback Amplifier Frequency Characteristic Adjustment**
   (1) Play back the RF sweep signal segment of the alignment tape.
   (2) Connect the oscilloscope to TP5.
   TRIG: EXT (TP3, RF SW PULSE)
   (3) Adjust the TRACKING knob for maximum signal level.
   (4) Make the signal level from 3.58 MHz to 5.2 MHz flat.
   A-CH RV1
   B-CH RV2
   (see Fig. 4-45).

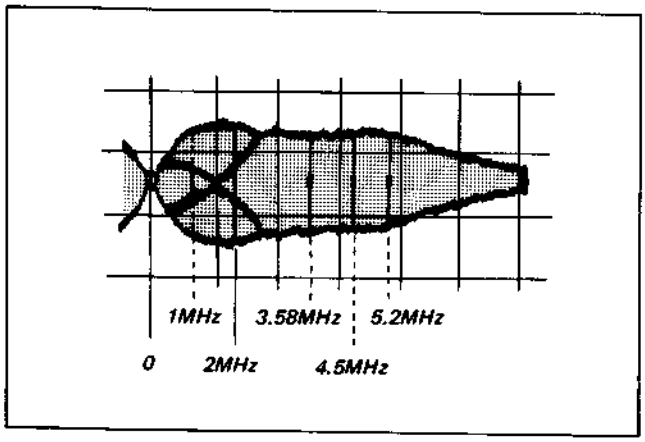


Fig. 4-45. Playback amplifier frequency characteristic adjustment

2. **PB AMP CH Balance Adjustment**
   (1) Play back the RF sweep segment of the alignment tape.
   (2) Connect the oscilloscope to TP5.
   TRIG: EXT (TP3, RF SW PULSE)
   (3) Adjust RV3 so that the 1 ~ 2 MHz levels of Ach and Bch are equal.

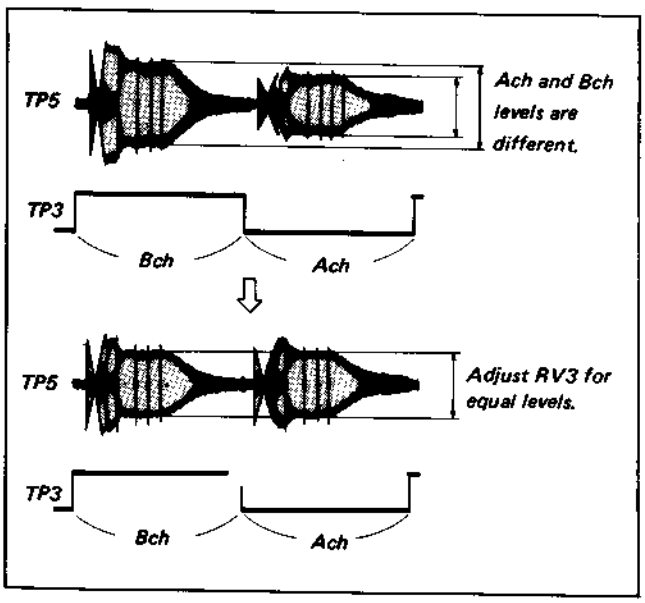


Fig. 4-46.

3. **Dropout Compensator Sensitivity Adjustment**
   (1) Playback recorded tapes selecting portions containing many dropouts.
   (2) Turn RV4 fully clockwise, as viewed from the printed side of the board.
   (3) Turn RV4 slowly counter-clockwise until dropouts becomes invisible.
   (4) Rewind the tape, and play it back again. Check the dropouts appearing before for compensation.

4. **Noise Canceller II Adjustment**
   (1) Record the colour bar signal and play back the recorded segment.
   (2) Connect the oscilloscope to TP7.
   TRIG: EXT (TP28 of YC-23 board)
   (3) Adjust RV7 until the output is a minimum.

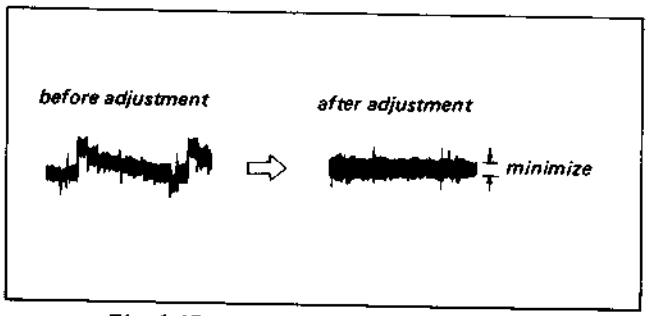


Fig. 4-47. Noise cenceller II adjustment

5. **Record Current Frequency Characteristic Adjustment**
   (1) Set up the no-signal input state and set up the RECORD mode.
   (2) Connect the oscilloscope to pin 2 of CN8006 (Signal) and the GND probe to pin 1 of CN8006 (REC 12V).
   (3) Adjust RV5 for a signal level of 140 mVp-p. (See Fig. 4-48).

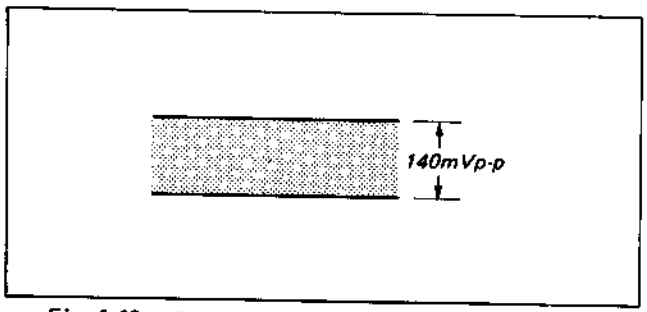


Fig. 4-48. Record current frequency characteristic adjustment

4-5. ADJUSTMENT OF THE AUDIO SECTION

[Connection]

Fig. 4-49 shows how the video tape recorder and measuring instruments should be connected.

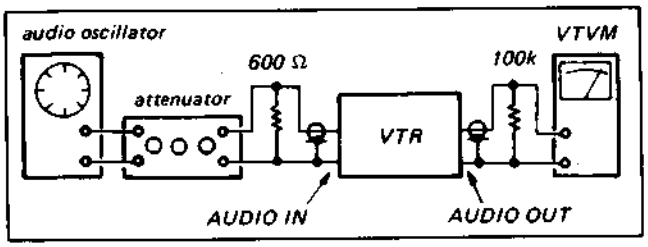


Fig. 4-49. Connection of audio test equipment

[Sequence of adjustments]

(1) Azimuth adjustment
(2) Playback output level adjustment
(3) Playback frequency response adjustment
(4) AGC balance
(5) Recording bias adjustment

Note: Part names enclosed with parentheses are adjustment of CH2. CH1=L (CH2=R). Set the BNR switch to OFF during adjustment of audio system. (except for BNR adjustment)

1. Azimuth Adjustment

(1) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(2) Reproduce the 5 kHz audio signal of the alignment tape.
(3) Maximize the output level with the azimuth adjusting screw provided on the audio head (see Fig. 4-50).

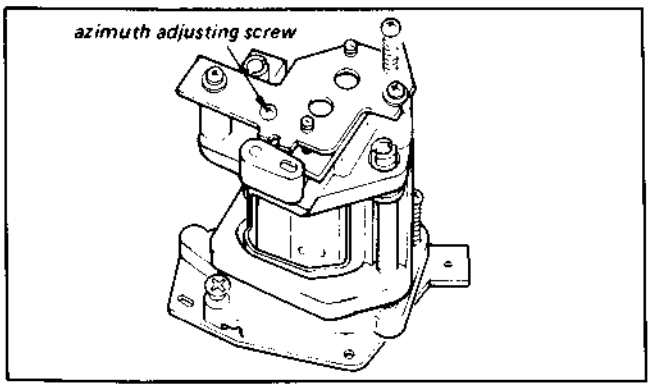


Fig. 4-50. Azimuth adjustment

2. Playback Output Level Adjustment (AD-7 board)

(1) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(2) Playback the 333 Hz audio signal of the alignment tape.
(3) Adjust RV501 (RV601) to read −25 ± 0.3 dB.

3. Playback Frequency Response Adjustment (AD-7 board)

(1) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(2) Reproduce the 333 Hz signal of the alignment tape and write down the output level.
(3) Reproduce the 5 kHz signal of the alignment tape.
(4) Adjust RV506 (RV606) so that the playback output level of the 5 kHz signal become 0 ± 0.5 dB with reference to the playback output level of the 333 Hz signal.

Note: The 3 kHz and 5 kHz audio signals are recorded at −25 dB on the alignment tape.

4. AGC Balance

(1) Apply 333 Hz signal of 0 dB to Audio input of Ch-1 and CH-2.
(2) Set up the E-E mode.
(3) Adjust RV503 so that the level difference between the output level of CH-1 and the one of CH-2 is within 0 ± 0.5 dB.

5. Recording Bias Adjustment (AD-7 board)

Check that playback frequency response adjustment is completed.

(1) Short TP505 and GND with a jumper and turn off AGC.
(2) Apply 333 Hz −40 dBs audio signal to AUDIO IN.
(3) Terminate the AUDIO OUT terminal with 100 kohms and connect a VTVM.
(4) Depress the RECORD button and record until the counter reading advances 5 or so.
(5) Apply 7 kHz −40 dBs audio signal to AUDIO IN and record it until the counter reading advance 5 or so.
(6) Playback the signals recorded in steps (4) and (5). Measure the playback output level of the 333 Hz signal.
(7) Check that the playback output level of 7 kHz is within +2 ± 0.5 dB of that of 333 Hz. If this level is not read, adjust the bias current with CV501-1 (CV501-2) steps (2) through (7) until the required level is obtained.
(8) After adjustment, remove the jumper connected to TP505.

4-6. ADJUSTMENT OF THE TUNER BLOCK (IF-26 BOARD)

1. Tuner AGC Adjustment

(1) Maximizing contrast, received TV broadcast signal.
(2) Turn RV107 so that snow noise appears on the monitor TV screen.
(3) Turn RV107 slowly in the opposite direction and stop turning it when snow noise has just disappeared.
(4) Receiving a signal on every channel, check that pictures are properly reproduced without being affected by beating due to intermodulation, snow noise, etc.

2. AFC Adjustment

(1) Receive any TV broadcast signal.
(2) Turn off the AFC switch.
(3) Turn PRESET VR so that 1.07 MHz beating appears. Then turn it in the opposite direction and set it so that the 1.07 MHz beating just disappears.
(4) Turn on the AFC switch.
(5) Adjust T102 if 1.07 MHz beating appears or colours are lost.

3. QPT Adjustment

(1) Receive the colour bar signal.
(2) Connect the oscilloscope to CP3.
(3) Adjust T104 so that the leakage of the video signal is minimized. (see Fig. 4-51).

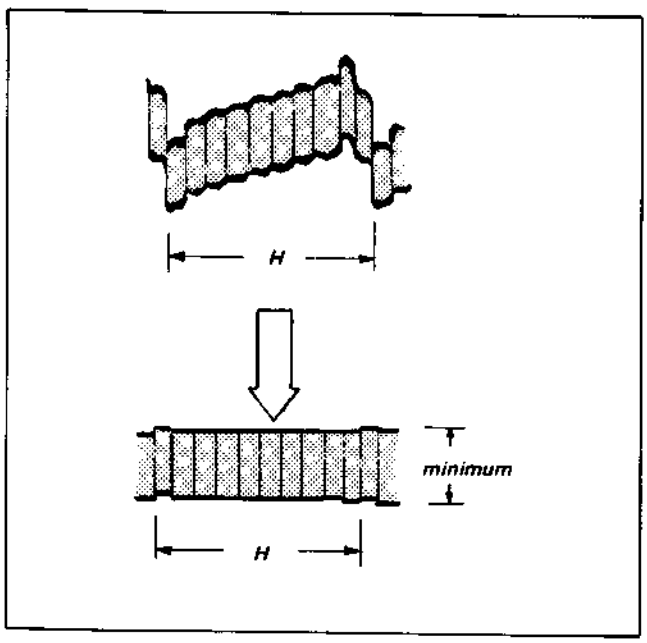


Fig. 4-51.

4. 5.5MHz SIF Adjustment.

(1) Using the A-CH botton, receive the bilingual signal from a television multiplex modulator. (Press the A-CH botton.)
(2) Set RV147 to the mechanical center position.
(3) Connect the oscilloscope to CP9.
(4) Adjust T103 so that the audio signal level of CP9 is maximized.

5. 5.742MHz SIF Adjustment

(1) Receive the bilingual signal from a television multiplex modulator.
(2) Connect the oscilloscope to CP4.
(3) Adjust T106 so that the audio signal level of CP4 is maximized.

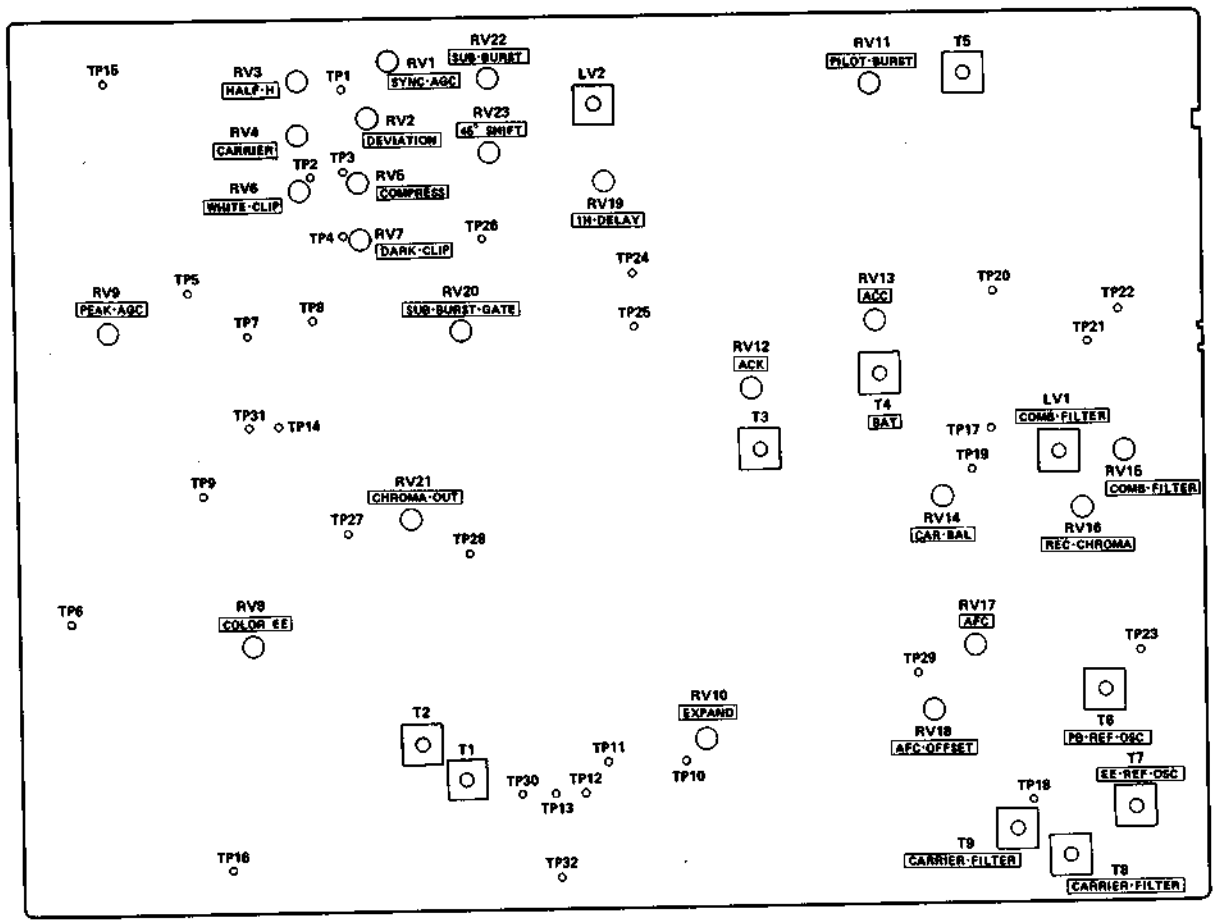
6. Pilot Transformer Adjustment

(1) Receive the bilingual signal from a television multiplex modulator.
(2) Connect the oscilloscope to CP2.
(3) Adjust T105 so that the pilot signal level of CP2 (274.1Hz) is maximized.

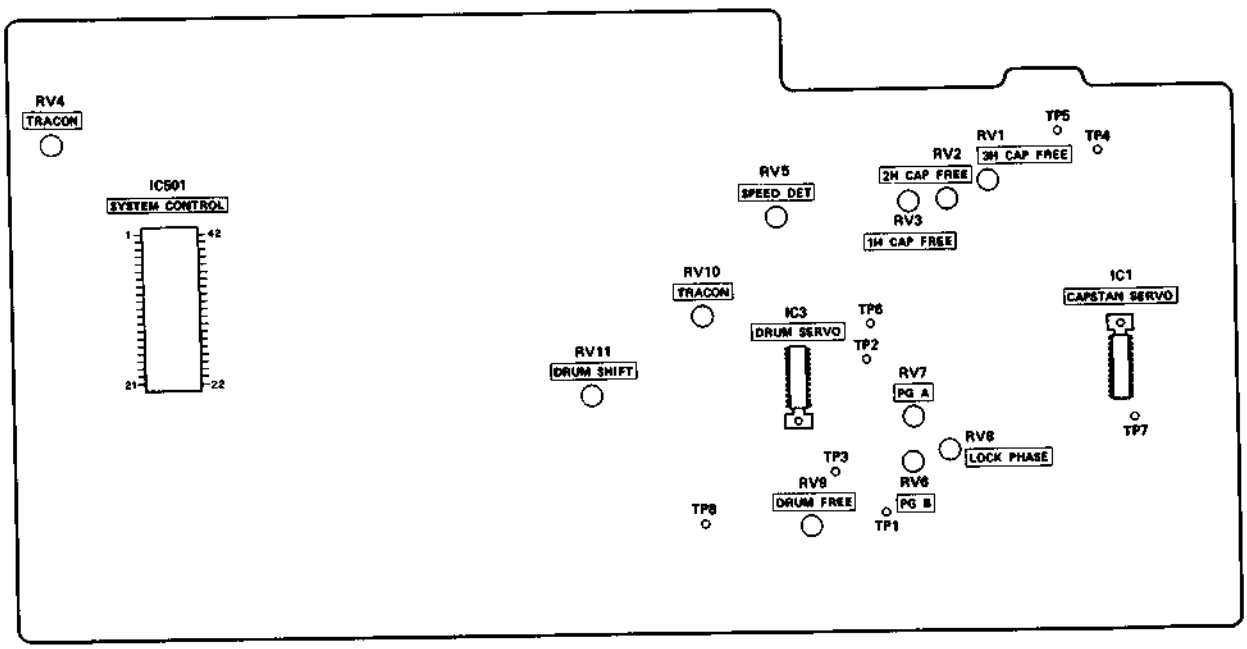
7. Crosstalk Adjustment

(1) Receive the stereophonic signal from a television multiplex modulator.
(2) Connect the oscilloscope to CP9. (CP9: L-CH)
(3) Adjust RV143 so that the crosstalk from R-CH to L-CH is minimized.

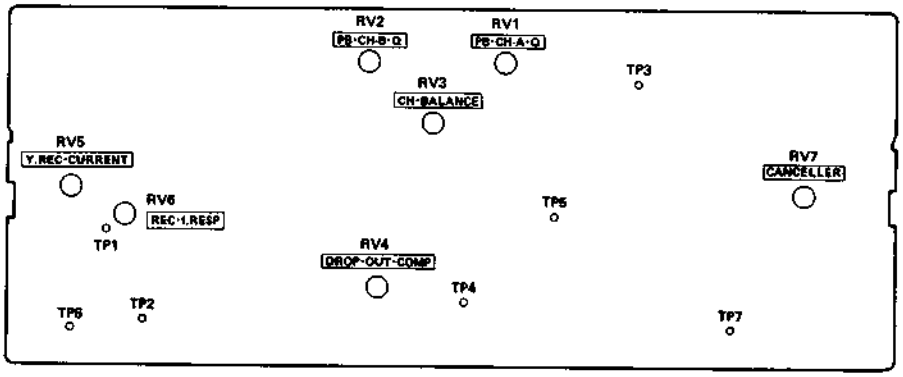
YC-23 BOARD ADJUSTMENT LOCATION



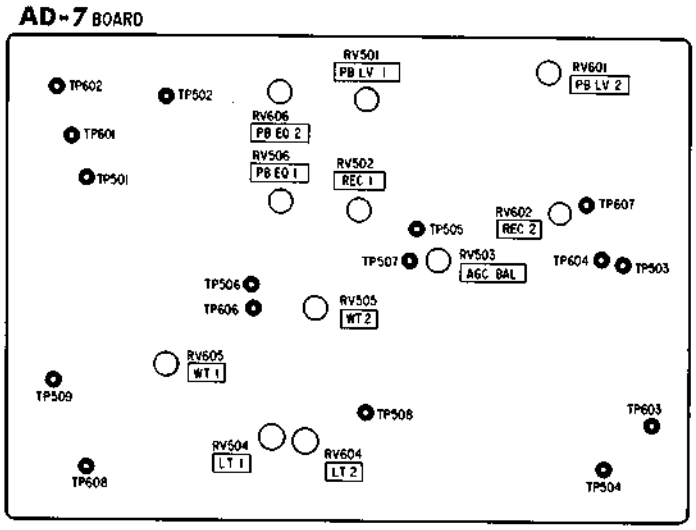
SS-9 BOARD ADJUSTMENT LOCATION



RF-4 BOARD ADJUSTMENT LOCATION



AD-7 BOARD ADJUSTMENT LOCATION



IF-26 BOARD ADJUSTMENT LOCATION