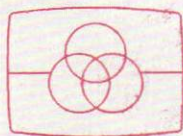


# TC-FX6

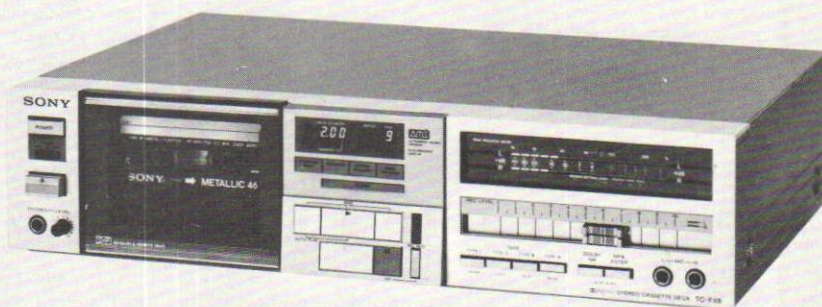


Free service manuals  
Gratis schema's

Digitized by

www.freesevicemanuals.info

*US Model  
Canadian Model  
AEP Model  
E Model  
UK Model*



'Dolby' and the double-D symbol are the trade marks of Dolby Laboratories. Noise reduction system manufactured under license from Dolby Laboratories.

## STEREO CASSETTE DECK

### SPECIFICATIONS

#### General

**Power requirements:** AEP model: 220 V ac, 50/60 Hz  
(240 V ac adjustable by authorized Sony personnel)  
UK model: 240 V ac, 50/60 Hz  
(220 V ac adjustable by authorized Sony personnel)  
E model: 110, 120, 220 or 240 V ac adjustable, 50/60 Hz  
US, Canadian model: 120V ac, 60Hz

**Power consumption:** 25 watts

**Dimensions:** Approx. 430(w) x 105(h) x 275(d) mm  
16<sup>7</sup>/<sub>8</sub> (w) x 4<sup>1</sup>/<sub>8</sub> (h) x 10<sup>3</sup>/<sub>4</sub> (d) inches  
including projecting parts and controls

**Weight:** Approx. 5.5 kg (12 lbs 3 oz)

**Recording system:** 4-track 2-channel stereo

**Fast-forward and**

**rewind time:**

Approx. 90 sec. (with C-60 cassette)

**Bias frequency:**

105 kHz

— Continued on page 2 —

#### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHEMATIQUES, LES VUES EXPLOSÉES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

#### 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.



MICROFILM

# SONY<sup>®</sup>

## SERVICE MANUAL



## Signal-to-noise ratio:

## DOLBY NR OFF

- With TYPE IV cassette (Sony METALLIC)  
59 dB at peak level (NAB)  
56 dB (DIN)

- With TYPE III cassette (Sony FeCr)  
59 dB at peak level (NAB)  
56 dB (DIN)

- With TYPE II cassette (Sony CD-α)  
57 dB at peak level (NAB)

## DOLBY NR ON

Improved by 5 dB at 1 kHz,  
10 dB above 5 kHz

## Total harmonic distortion:

1.0 % (with Sony METALLIC and FeCr cassettes)

## Frequency response:

## DOLBY NR OFF

- With TYPE IV cassette (Sony METALLIC)  
20 – 19,000 Hz  
30 – 17,000 Hz ( $\pm 3$  dB)  
30 – 13,000 Hz ( $\pm 3$  dB, 0VU recording)

- With TYPE III cassette (Sony FeCr)  
20 – 19,000 Hz  
30 – 17,000 Hz ( $\pm 3$  dB)  
30 – 17,000 Hz (DIN)

- With TYPE II cassette (Sony CD-α)  
20 – 18,000 Hz  
30 – 17,000 Hz ( $\pm 3$  dB)  
30 – 17,000 Hz (DIN)

- With TYPE I cassette (Sony BHF)  
20 – 17,000 Hz  
30 – 15,000 Hz (DIN)

## Wow and flutter:

0.04 % WRMS (NAB)  
 $\pm 0.12$  % (DIN)

## Inputs:

Microphone inputs (phone jacks)  
Sensitivity 0.25 mV ( $-70$  dB)  
For a low-impedance microphone

Line inputs (phono jacks)  
Sensitivity 77.5 mV ( $-20$  dB)  
Input impedance 50 k ohms

## Outputs:

Line outputs (phono jacks)  
Output level 0.435 V ( $-5$  dB) at load impedance 50 k $\Omega$   
Load impedance over 10 k $\Omega$   
Headphone output  
Output level 77 mV-2.5 mV ( $-20$  to  $-50$  dB) at a load impedance of 8 $\Omega$

## Record/playback jack:

(only for AEP model)

Input impedance less than 10 k $\Omega$   
Output impedance less than 10 k $\Omega$

0 dB = 0.775 V

## E model:



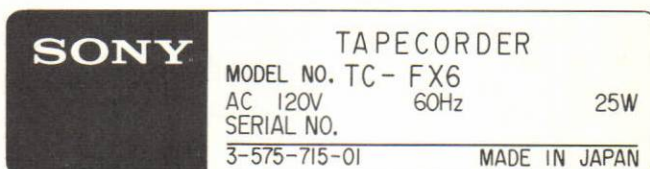
## AEP model:



## UK model:



## US, Canadian model:



## Handling Precautions for MOS ICs

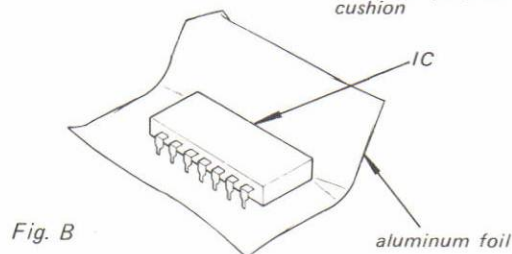
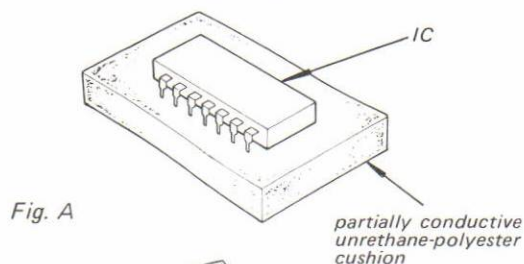
Generally, the insulation resistance of the oxide layer in MOS IC structures is very high, and the oxide layer is very thin. Because of this, it is possible that the static voltages usually present on clothes and the human body will be enough to generate a potential difference across the insulator, high enough to cause a breakdown of the insulating layer.

The following precautions should be taken while handling these ICs.

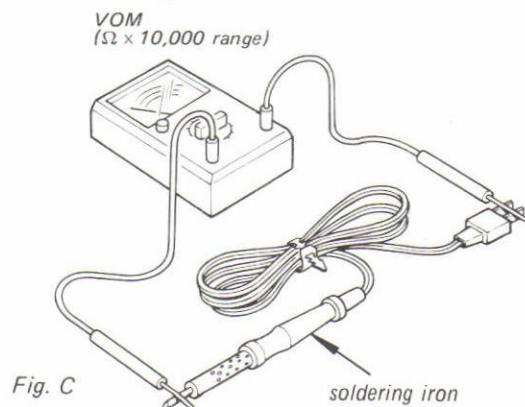
(Particular care should be taken under conditions of low humidity.)

### Precautions in Replacing MOS ICs

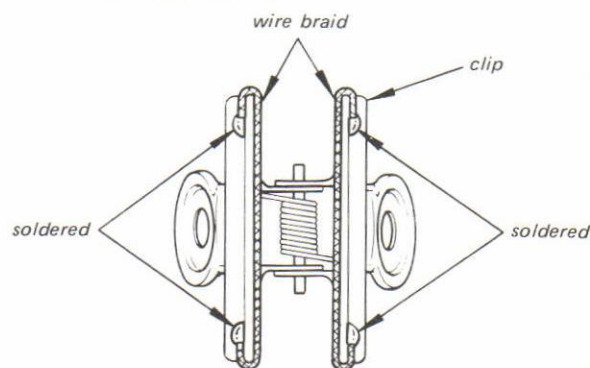
1. Store new ICs by inserting them into a urethane-polyester cushion (which is somewhat conductive), or wrapping it in aluminum foil, so that all the pins are at the same potential. (The ICs should be stored in that manner until mounted on the circuit board.)



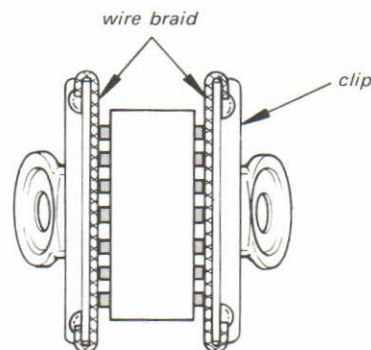
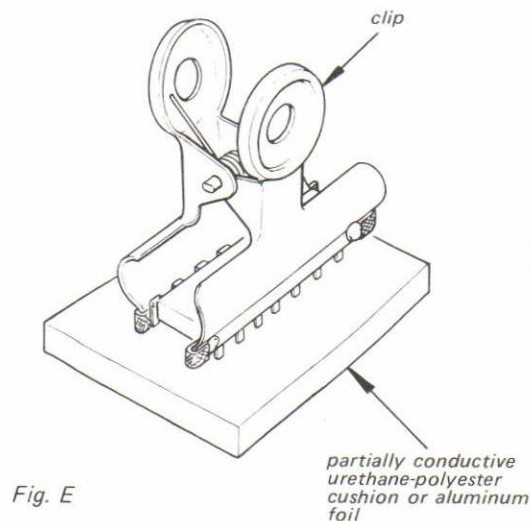
2. Check the soldering iron for possible power-line leakage current. Make sure that there is no leakage path by connecting an ohmmeter to the tip of the soldering iron and the plug as shown in Fig. C. If there is a leakage path, use some other soldering iron.



3. Equalize any potential difference between the clothes, the tools in use, the work bench, the set being worked on, and the packaged IC by touching them all in succession with the hands or a conductive wire or tool.
4. The following are effective methods for handling ICs that remove the potential difference across the oxide layer.
  - Use a paper clip modified by soldering in a wire braid insert.



Make sure that there is no solder on the inside.



Make sure that all the pins are in contact with the wire braid (all the pins will then be at the same potential.).



- Take a short length of fine bare wire and wind it around the IC so that it shorts all the pins of the IC, while it is still in the urethane-polyester cushion or aluminum foil. This ensures that all the pins are at the same potential.

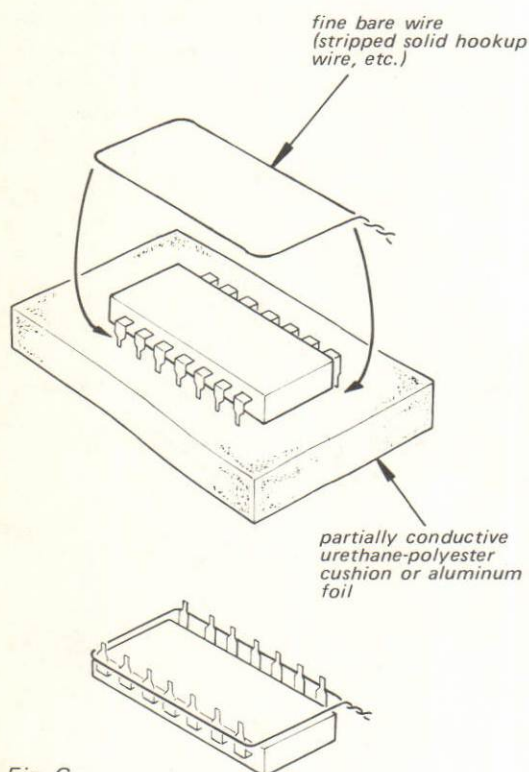


Fig. G

- When it is necessary to handle the IC with the fingers, do not touch any pin, and hold the IC at the ends of its plastic-package case as shown in Fig. H.

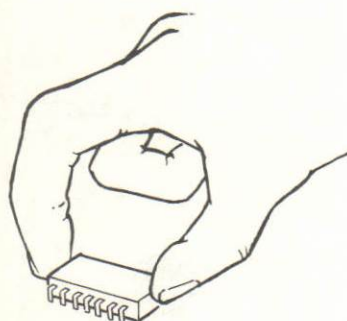


Fig. H

## 5. Method of Mounting

Insert the IC while holding it with the modified clip, and solder all the pins with the clip still shorting the pins. (Similarly, solder all the pins while the bare shorting wire is still wound around them.). Remove the clip or the bare shorting wire only after all the pins have been soldered.

## Precaution while Checking C-MOS ICs

The C-MOS ICs (Complementary MOS) are MOS ICs that have their output sections made up of N-channel and P-channel push-pull stages to increase their speed of operation. If the output terminal of these ICs comes into contact with B+ or B- voltage, then the FET which is ON at that time will either become shorted or open.

This is valid for all the output sections that are connected together by the interconnections. Even the circuits that are physically separated (and not on the same board) can be destroyed simultaneously.

### Example:

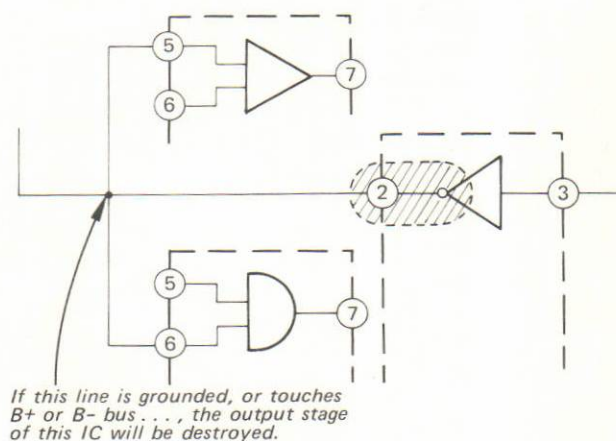
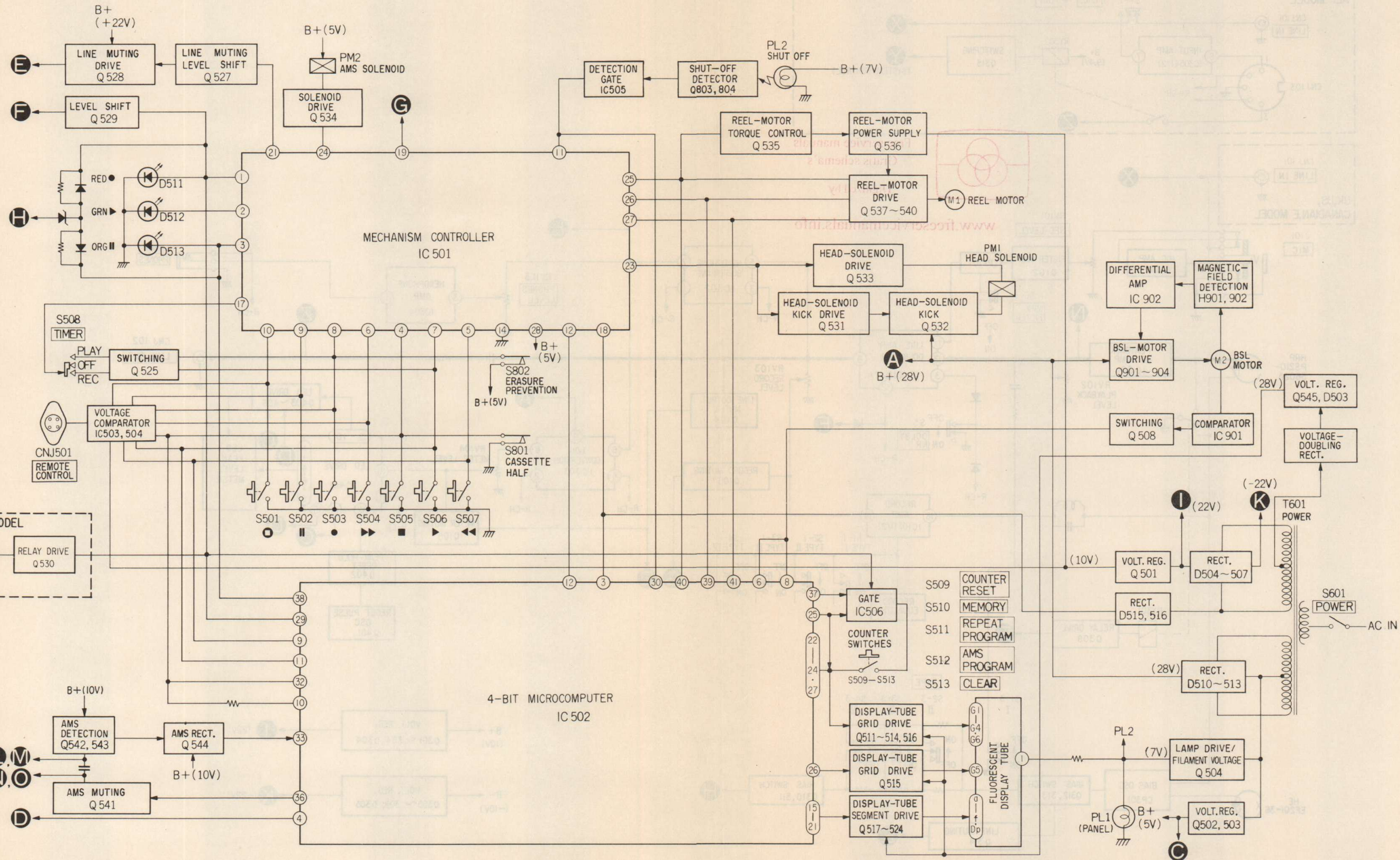


Fig. I



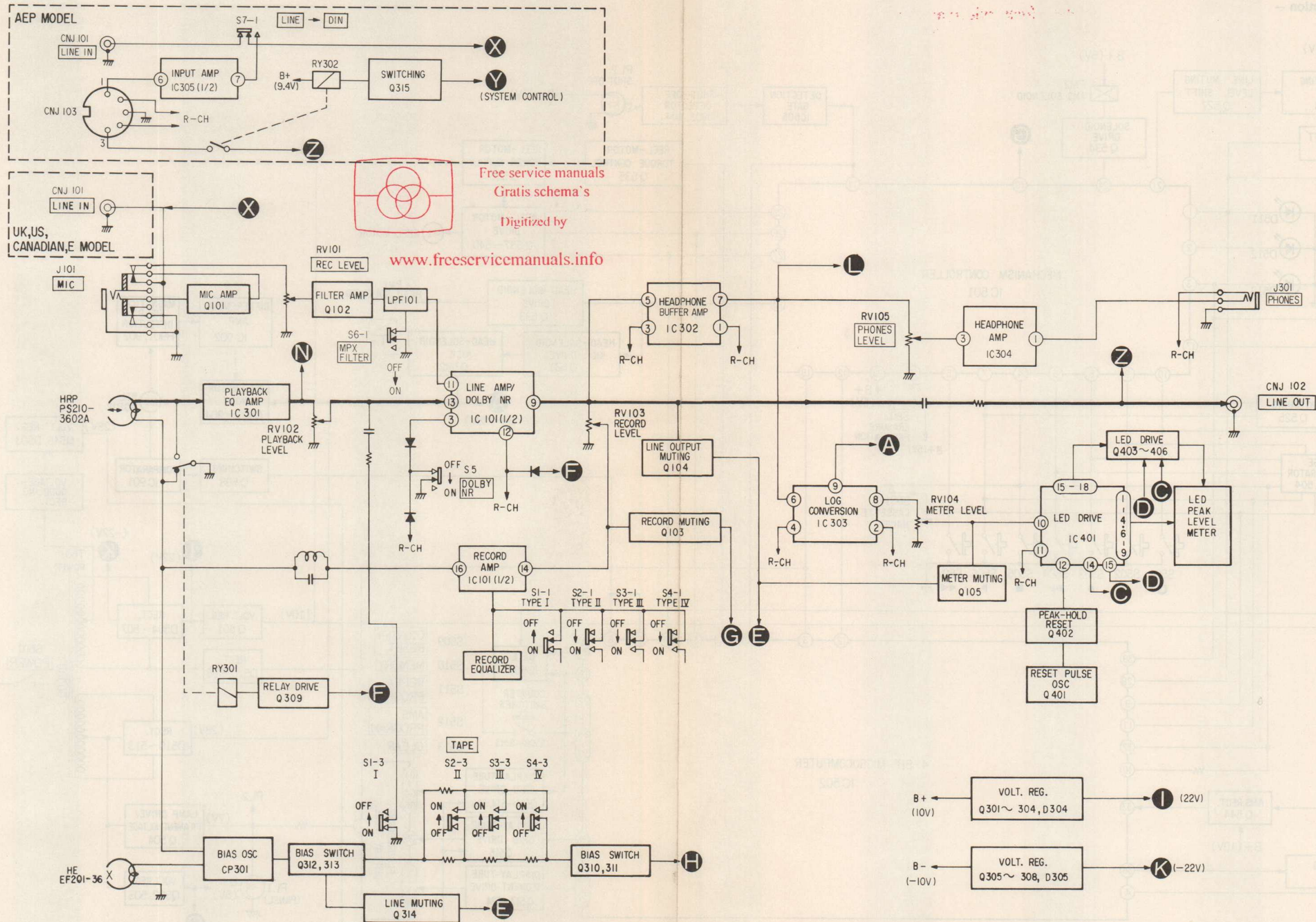
## 1-1. BLOCK DIAGRAMS

— System-Control Section —

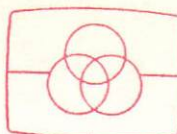




## — Audio Amp Section —







Free service manuals  
Gratis schema's

Digitized by

www.freesevicemanuals.info

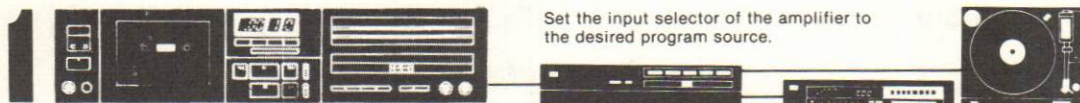
## 1-2. HOW TO OPERATE THE SET

### RECORDING

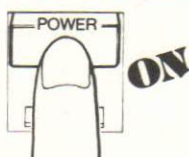
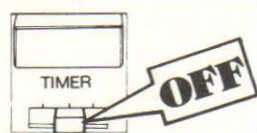
#### TO RECORD

The chart below shows how to record from the LINE IN jacks (or REC/PB jack).

Note that you cannot record from the LINE IN jacks (or REC/PB jack) when a microphone is connected to a MIC jack.

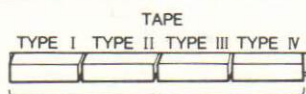
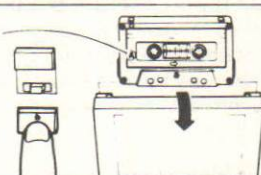


Set the input selector of the amplifier to the desired program source.

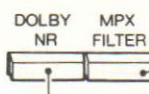


Take up the slack in the tape. Insert with the tape surface downwards.

The function buttons do not operate while the indicator is flickering (for about 4 seconds).



Depress the appropriate TAPE select button. (See the table of recommended settings on the next page.)



Depress when recording using the Dolby NR system (ON). Press again for the OFF position (OFF).

Depress when recording FM stereo broadcasts with Dolby NR process (ON). Press again for the OFF position (OFF).

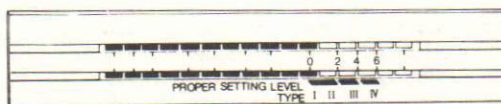
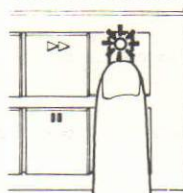


Amplifier



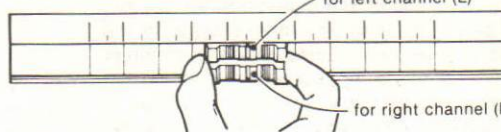
Play the program source.

Press the ● button.

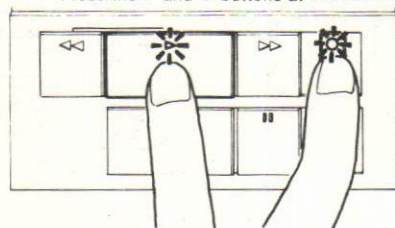


Adjust the recording level so that the meters deflect within the PROPER SETTING LEVEL range on the meter scale.

The proper setting level differs with different types of tape. For details, see "To adjust the recording level" on page 9.



Press the ► and ● buttons at the same time.



Recording will begin.

### MORE ACCURATE RECORDING STARTS

You can use the pause button [ II ] to start recording more accurately than is possible when recording is started by pressing both the record button and the forward button.

- ① After completing step 2 in the chart before, press the pause button [ II ].
- ② Hold the record button [ ● ] down and press the forward button [ ► ].
- ③ Adjust the recording level.
- ④ At the moment you wish to start recording, you need only press the pause button again.

### TO RECORD MATERIAL ONTO A SPECIFIC PORTION OF TAPE

When you want to re-record a specific portion of tape or to insert new material between two points on a tape you will find it handy to be able to change directly from the playback to the record mode by pressing the record button while holding the forward button down.

### TO ADJUST THE RECORDING LEVEL

Adjust the recording level while reading the input level of the program source to be recorded on the peak program meters.

The peak program meters instantaneously register the input signal level while conventional VU meters have a lag so that they many times do not accurately reflect a strong input of short duration.

This difference in response time is reflected in the different scales of the VU meters and the peak program meters. The -4 dB point on the peak program meter scale corresponds to the 0 VU point on a VU meter scale.

The recording level should be set as high as possible while still avoiding distortion, and this will depend on the type of tape being used.

The proper setting level for the four types of tape is indicated on the bottom of the meter scale. Simply make sure that the highest signal level of the program falls within the proper setting level range, depending on which type of tape is being used.

If the meters deflect continuously to full scale, the setting is too high and the recording will be distorted. If the meters deflect only to about -10 dB, the setting is too low and the recording will be noisy. However, when recording programs containing many strong, sharp pulses, the recording level may be too high if adjusted in this way. Since the maximum output level of any tape is lower in the higher frequencies than in the lower frequencies, tape saturation at the higher frequencies occurs at lower input levels. Consideration has to be given to the program source to be recorded, as well as to the characteristics of the cassette to be used, since each cassette, even cassettes with the same type tape, may have different characteristics.

The following table will give you a starting point in setting the recording level of various kinds of programs using Sony cassettes.

Type of tape	Sony cassettes	Low and mid freq. range programs (vocal, etc.)	Mid and high freq. range programs (piano, guitar, etc.)
TYPE I	CHF	0 dB	- 2 dB
	BHF	+ 2 dB	0 dB
	AHF	+ 3 dB	+ 1 dB
TYPE II	CD-α	+ 2 dB	+ 2 dB
TYPE III	FeCr	+ 5 dB	+ 1 dB
TYPE IV	METALLIC	+ 6 dB	+ 6 dB

### Note

The peak program meters show the input level during recording and the recorded level during playback. If the recording is distorted at high input levels, when the recording is played back the meters will indicate these distorted passages as levels lower than the actual input levels.

### RECOMMENDED SETTINGS FOR TAPE SELECT BUTTONS

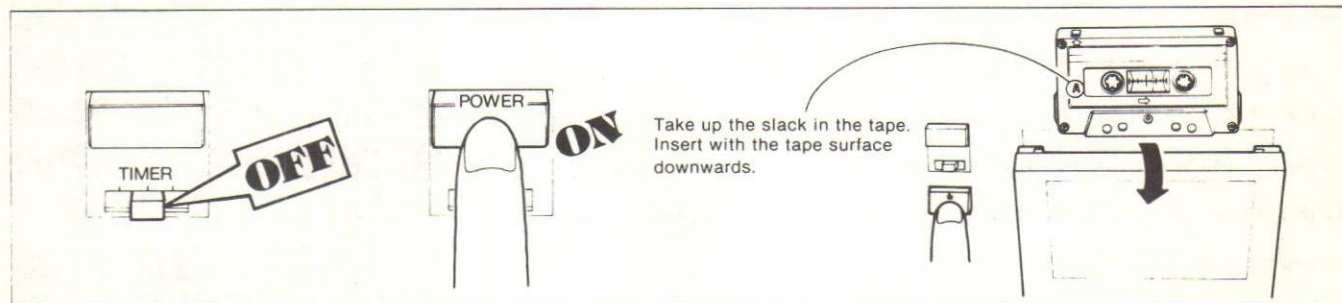
The following recommended settings have been determined by critical listening tests and measurements of the electrical characteristics of commercially available cassettes. While these settings are optimum for Sony cassettes, you may want to change these settings when using cassettes produced by other manufacturers.

Tapes (C-60 and C-90)		TAPE
SONY: AHF, BHF, CHF BASF: ferro super LH I MAXELL: UD, UD-XL I SCOTCH: MASTER I	AGFA: SUPER FERRO DYNAMIC FUJI: FX-I PHILIPS: SUPER FERRO-I TDK: SD	TYPE I (NORM)
SONY: CD-α BASF: chromdioxid MAXELL: UD-XL II SCOTCH: MASTER II	AGFA: STEREO CHROM FUJI: FX-II PHILIPS: CHROMIUM TDK: SA	TYPE II (CrO <sub>2</sub> )
SONY: FeCr BASF: ferrochrom SCOTCH: MASTER III	AGFA: CARAT PHILIPS: FERRO CHROMIUM	TYPE III (Fe-Cr)
SONY: METALLIC	Other metal tapes	TYPE IV (METAL)



## PLAYBACK

The numbers in this chart indicate the sequence to be followed.



## CHECKING THE AVAILABLE TAPING TIME

—The use of the tape counter—

The first two digits of this tape counter show the approximate recording or playback time in minutes, and the last two digits show the seconds.

### To check how much longer you can record

Stop the tape and press the COUNTER RESET button to set the counter to ".00," press the ►► button and let the tape run to the end. The digits on the counter will show the approximate remaining recording time.

To rewind the tape to the ".00" point, use the memory stop function (page 12).

### To check the available recording time on one side of a cassette

At the beginning of the tape set the counter to ".00," press the ►► button and let the tape run to the end. The digits on the counter will show the approximate available recording time.

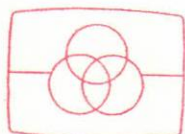
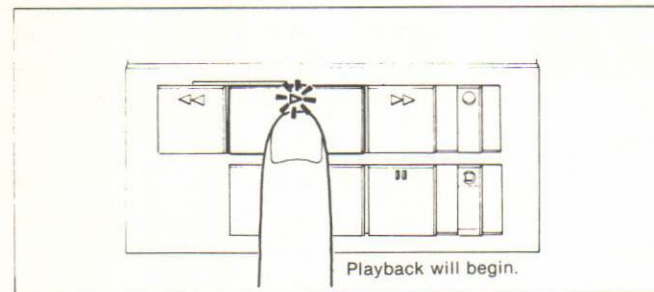
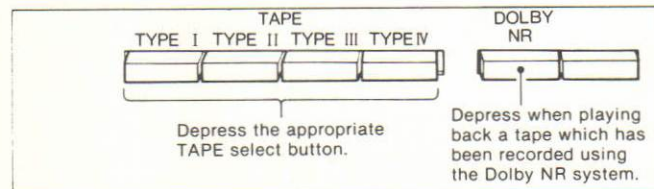
### Note

Do not turn off the power while measuring the time because the numbers will return to ".00" when the power is turned on again.

### The accuracy of the counter

This counter is not actually a digital clock, so that the displayed figures are not exactly equal to the actual time spent. The accuracy will vary depending on the type of tape being used.

This counter has been designed using C-60 cassettes as a standard. Make sure that the displayed time is greater than the required actual time when using a C-46 or C-30 cassette.



Free service manuals

Gratis schema's

Digitized by

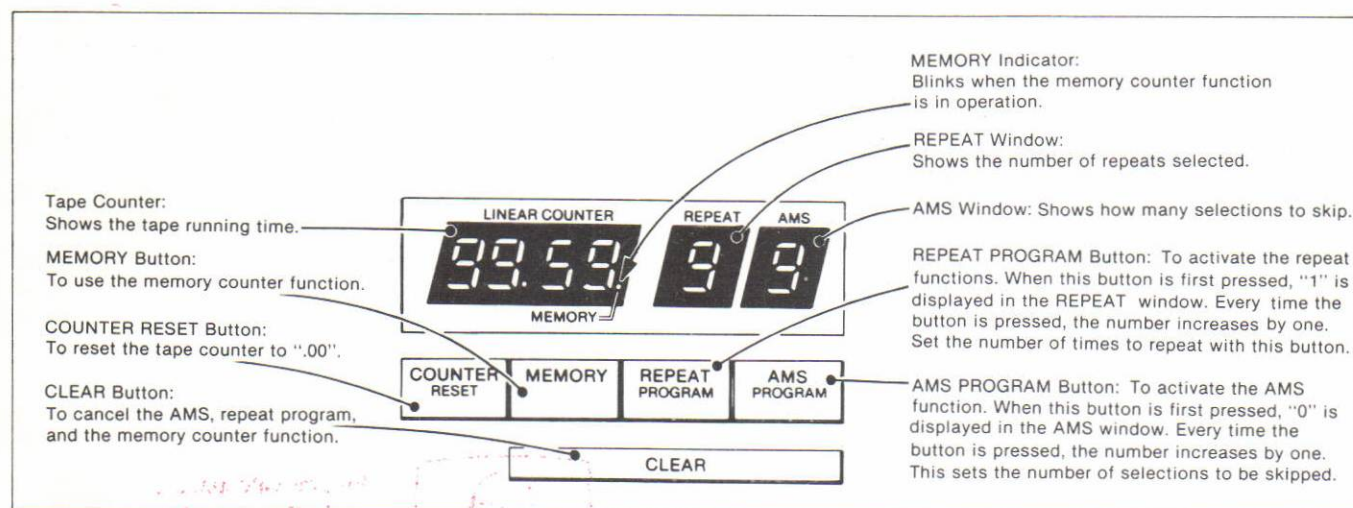
www.freesevicemanuals.info

## PROGRAMMING YOUR CASSETTE DECK

With this microcomputer controlled cassette deck, you can locate any desired point on the tape, and repeat any desired selection a number of times. Select the desired operation from the list below, then refer to the numbered section for detailed instructions.

To index the whole tape .....	<b>1 TAPE COUNTER</b>
To rewind the tape to the desired point .....	<b>2 MEMORY STOP</b>
To play from the beginning of the tape .....	<b>3 AUTO PLAY</b>
To play from a desired point .....	<b>4 MEMORY PLAY</b>
To play from the start of a desired selection .....	<b>5 AMS</b> (Automatic Music Sensor)
To repeat the playback of one side of a cassette from the beginning to the end .....	<b>6 REPEAT</b>
To repeat a favorite selection .....	<b>7 AMS + REPEAT</b>
To repeat an early part or a later part of the tape .....	<b>8 MEMORY + REPEAT</b>
To repeat an early part or a later part of a selection .....	<b>9 AMS + MEMORY + REPEAT</b>

### THE PROGRAMMING CONTROLS





## 1 TAPE COUNTER

To index the whole tape

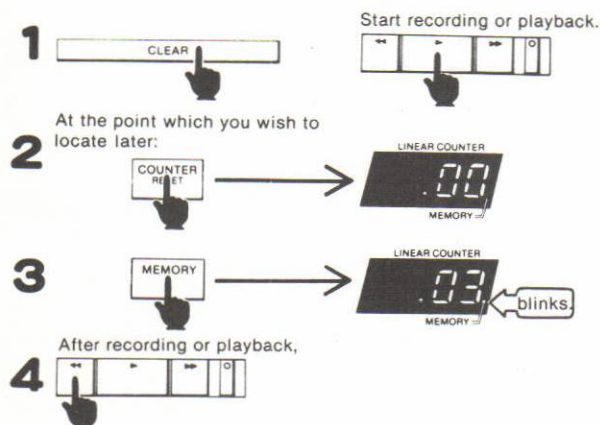
SONY		A	DATE	DOUBT	NO	COUNT	B	DATE	DOUBT	NO	COUNT
And I love her	05						Moon River				08
Michelle	2.41						My Way				3.59
Yesterday	5.32						Shadow of your smile				9.13
Let it be	7.44						Marquerade				11.28
Girl	12.05						Stardust				14.54
She loves you	14.36						Fly me to the moon				19.36
Get back	17.07						Ebb Tide				21.11
Help!	19.55						Osaka no Kagoya				23.20

Before recording or playback set the counter to ".00" by pressing the COUNTER RESET button.

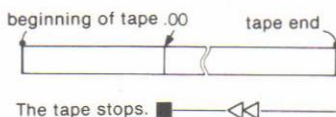
As the tape runs, the figures of the counter change. Note the numbers and the program being recorded or played back. A desired portion of the tape can thus be readily located later by reference to these numbers.

## 2 MEMORY STOP

To rewind the tape up to the desired point



The tape begins to rewind and stops at the ".00" automatically.



**Why does the tape stops around "99.57"?**

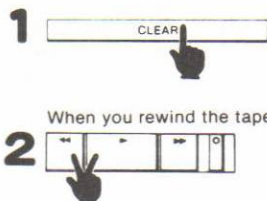
—In order to avoid cutting off the starting point.

**How does one rewind the tape further than ".00"?**

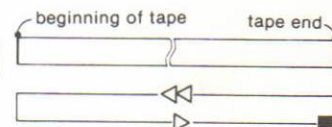
—Press the ◀ button again.

## 3 AUTO PLAY

To play from the beginning of the tape

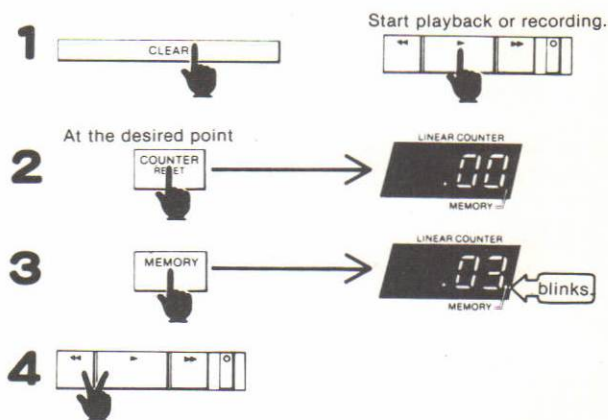


After the tape is completely rewound, the tape will automatically replay.

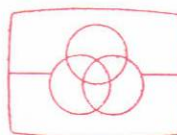
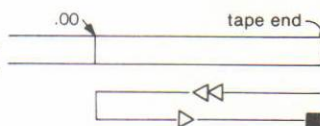


## 4 MEMORY PLAY

To play from a desired point



The tape will replay automatically after rewinding up to the ".00" point.



Free service manuals  
Gratis schema's

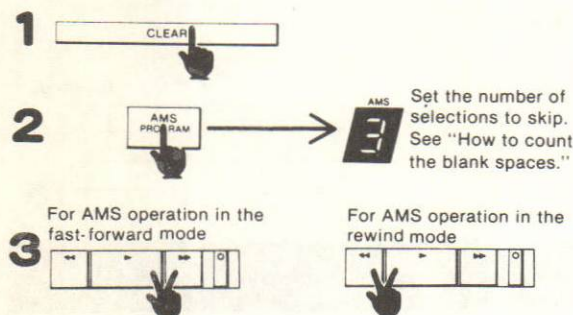
Digitized by

www.freesevicemanuals.info

## 5 AUTOMATIC MUSIC SENSOR (AMS) To play from the beginning of your desired selection

The Automatic Music Sensor locates the program selection you desire by skipping ahead (in the fast-forward mode) or going back past others (in the rewind mode), and plays back the selection automatically.

The AMS works by counting the blank spaces between selections.

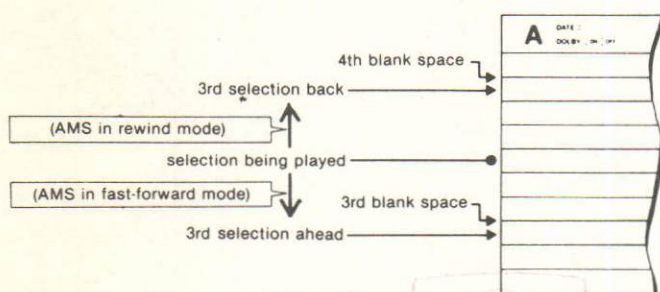


The AMS can locate a selection as far ahead as 9 selections or as far back as 8 selections. You can increase this capacity even further by pressing the AMS PROGRAM button when the AMS is in midsearch and has already passed a number of selections.

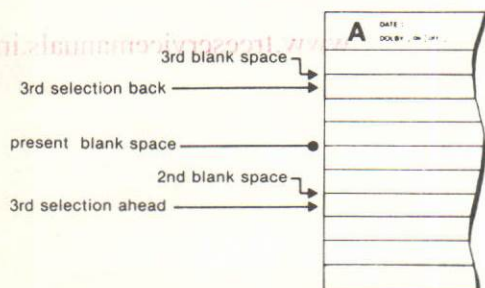
### How to count the blank spaces

The number to be set in the display window by pressing the AMS PROGRAM button is the number of blanks from the present position to the blank preceding the desired selection.

To locate the 3rd selection ahead from the selection being played, for example, set the number "3" in the display window so that the AMS finds the 3rd blank space. To locate the 3rd selection back, set "4," so that the AMS finds the 4th blank space.



If the present tape position is at one of the blank spaces, that blank space should not be counted when you set the AMS program.



### "0" display

When you start AMS operation with "0" in the display window, playback starts from the beginning of the selection detected first. Set to "0" to quickly locate the beginning of the next selection from the blank space in the fast-forward mode.

### To assure AMS operation on recorded tape

Since AMS works by searching out the blank spaces on a tape, it may not operate if there is noise in the space between selections, or if the space is too short to be detected.

The record muting facility of this tape deck can make a four second blank space that will assure AMS operation on any recorded tape.

### Note on AMS operation

If the recorded music includes a long pause, or if it continues for a time at sufficiently low volume, as may happen for instance with classical music, the AMS will treat this space as a blank.

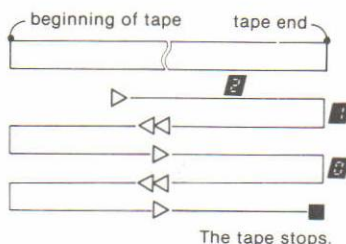


## 6 REPEAT

To repeat the playback of one side of a cassette from the beginning to the end

- 1
- 2 → Set to the number of times you wish it to repeat.
- 3 Play back. or Rewind.

When the tape reaches its end after playing back, it stops, then rewinds automatically to the beginning and starts playback again. The tape repeats this cycle the number of times you have set with the REPEAT PROGRAM button, then it stops.

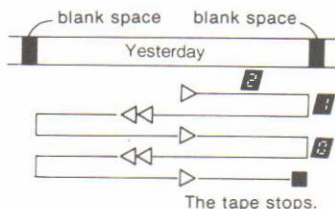


## 7 AMS + REPEAT

To repeat a favorite selection

- 1
- 2 To repeat the selection now being played back: → To skip up to the desired selection and repeat it: →
- 3 or
- 4 → Set to the number of times you wish it to repeat.

When the playback of that selection ends, the tape rewinds back to the beginning of the selection, then repeats playback. The tape repeats this cycle the number of times you have set with the REPEAT PROGRAM button, then it stops.

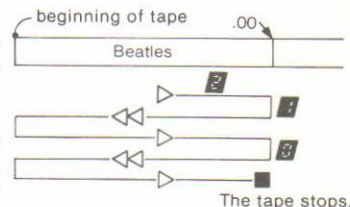


## 8 MEMORY + REPEAT

To repeat an early part of the tape from the beginning

- 1 Start playback.
- 2 When the tape reaches the end of the part you wish to repeat stop the tape, and ... →
- 3 →
- 4 → Set to the number of times you wish it to repeat.
- 5 Rewind.

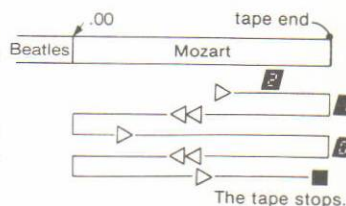
When the tape is played back up to the ".00" point, the tape rewinds to its beginning, then playback resumes. The tape repeats this cycle the number of times you have set with the REPEAT PROGRAM button, then it stops.



### To repeat from a later part of the tape to the end

- 1 Start playback.
- 2 When the tape reaches the point you wish to start repeat play →
- 3 →
- 4 Before the tape reaches to the tape end → Set to the number of times you wish it to repeat.

When the tape is played back up to the end, the tape rewinds to the ".00" point, then playback resumes. The tape repeats this cycle the number of times you have set with the REPEAT PROGRAM button, then it stops.





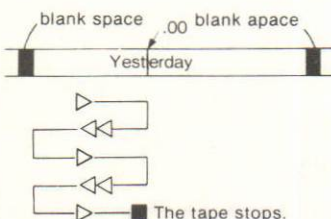
## 9 AMS + MEMORY + REPEAT

To repeat an early part of a selection

- 1 Start playback.
- 2 When the tape reaches the end of the part you wish to repeat  
stop the tape, and ...
- 3
- 4   
REPEAT Set to the number of times you wish it to repeat.
- 5   
AMS Set to "0"
- 6 Start AMS operation in the rewind mode.

When the tape is played back up to the ".00" point, the tape rewinds to the beginning of the selection, then playback resumes.

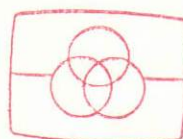
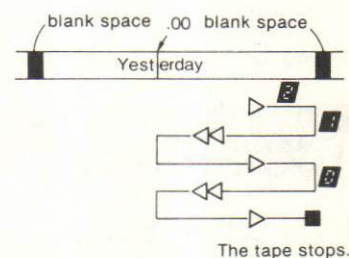
The tape repeats this cycle the number of times you have set with the REPEAT PROGRAM button, then it stops.



## To repeat a later part of a selection

- 1 Start playback.
- 2 When the tape reaches the point where you wish to start repeat play
- 3
- 4   
AMS Set to "0"
- 5   
REPEAT Set to the number of times you wish it to repeat.

When the tape is played back up to the end of the selection, the tape rewinds to the ".00" point, then playback resumes. The tape repeats this cycle the number of times you have set with the REPEAT PROGRAM button, then it stops.



Free service manuals  
Gratis schema's

Digitized by

www.freemovecmanuall.info



ERASING

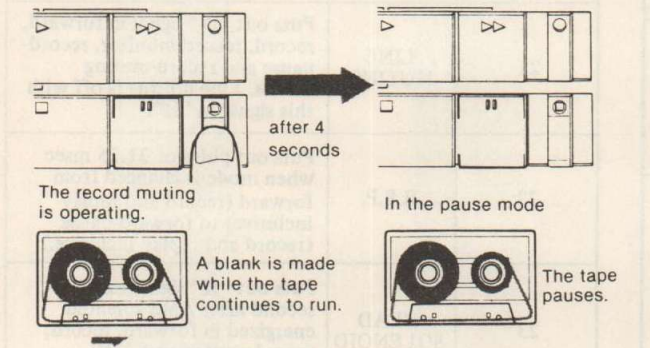
When the tape deck functions in recording mode, the erase head automatically erases any previously recorded material. To erase without recording:

- 1 Make sure that the safety tab of the cassette is in place, or that the tab slot is covered with plastic tape.
- 2 Set the REC LEVEL controls fully to "0". (Disconnecting all inputs will result in a more complete erasure.)
- 3 Press the appropriate TAPE button according to the type of tape to be erased. (The TYPE IV button assures good erasing for any type of tape.)
- 4 Depress the record [●] and forward [▶] buttons simultaneously.

RECORD MUTING

By pressing the REC MUTE button during recording, four seconds interspacing is provided automatically, eliminating unwanted program material such as broadcasting commercials. While the record muting is operating, the incoming signal is not recorded on the tape but it continues to register on the meters and feed to the monitor so that you know exactly what is going on.

- 1 Press the REC MUTE button when the segment you do not want to record begins. The indicator of the pause button [⏏] will blink, and the tape path will pause automatically after four seconds.



2 When you want to resume recording, press the pause button.

**To insert a blank less than four seconds long**  
Press the REC MUTE button to mute recording. Press the pause button when you want to resume recording.

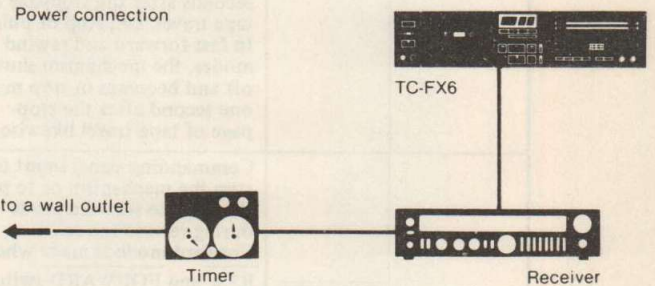
**To insert a blank over four seconds long**  
Hold down the REC MUTE button for as long as you want the blank segment on the tape to be. After four seconds, the indicator of the pause button will blink more rapidly. When you release the REC MUTE button, the tape deck will be in the pause mode. When you want to resume recording, press the pause button to release the pause mode.

TIMER-ACTIVATED RECORDING AND PLAYBACK

By connecting any commercially available timer to the tape deck, the deck can be set to play back or record automatically at any desired time. As timers work in different ways, be sure to read the timer's instruction manual carefully.

To record a broadcast using a timer

- 1 Connect the tape back, receiver and timer. Set the timer so that power is supplied to the connected equipment.



- 2 Turn on the receiver and tune in the station which will broadcast the program you want to record.
- 3 Set the tape deck's TIMER switch to OFF.
- 4 Insert a cassette. Make sure that the tab is intact or that plastic tape covers the tab slot.
- 5 Turn on the tape deck and adjust the recording level.
- 6 Set the timer for the desired time. (At this point power to the connected equipment will be cut off.)
- 7 Set the tape deck's timer switch to REC. The tape deck is now ready to start recording at the time set on the timer.

To play back using a timer

The connections between equipment are the same as for recording using a timer.

- 1 Set the tape deck's TIMER switch to OFF.
- 2 Turn on the receiver and set the appropriate switches for playback.
- 3 Turn on the tape deck and insert the recorded cassette.
- 4 Set the timer for the desired time. (At this point power to the connected equipment will be cut off.)
- 5 Set the tape deck's timer switch to PLAY. The tape deck is now ready to start playback at the time set on the timer.

Note

The tape deck's timer switch will function properly only if the tape deck is turned on **after** the switch is set to REC or PLAY. Do not change the setting of the timer switch during the four second stand-by period immediately after the power is turned on. If you want to change the setting of the switch, turn the power off first.

1-3. CIRCUIT DESCRIPTION

1-3-1. Peak-Program Meter

This set uses a peak-program meter utilizing LEDs and the input- or output-signal levels are indicated in the form of horizontal bar graphs.

a. Input Circuit:

The input signal **A** is applied to the log converter IC303 as shown in Figs. 1 and 2. IC303 converts the input signal **A** to **B** by the internal logarithmic compression together with the square characteristics of diode. This signal **B** is then peak detected by the holding circuit and is further smoothed and a dc voltage **C** is obtained at the output terminals 2 and 8. These dc voltages now rout to terminals 10 and 11 of the LED driver IC401 through the meter-level controls RV104 and RV204. Q105 and Q205 act as meter-muting circuits and they control the current to be applied to the input of the LED driver IC401.

b. LED Indication Circuit:

The LEDs light when the cathode signals shown by **H** through **O** and anode signals shown by **D** through **G** become in the same level. When the LINE OUT level is +3db, the portions a and c in the waveform of the anode signal **H** through **O** become in a low level at the low-level portions of the anode signals **D** and **F**, and the eight elements 1 through 8 of both channels light as can be understood from Table 1.

Table 1. LED Indication Matrix

ANODE SIGNAL SIGNAL CATHODE	L-CH		R-CH	
	D	E	F	G
H	element 1 (leftmost)	9	element 1 (leftmost)	9
I	2	10	2	10
J	3	11	3	11
K	4	12	4	12
L	5	13	5	13
M	6	14	6	14
N	7	15	7	15
O	8	element 16 (rightmost)	8	element 16 (rightmost)

**Note:** When both the anode and cathode signals become in low level, all of the LED elements up to that specific element number light. For example, all of twelve elements light when the anode signal **E** is low and cathode signal **K** is low.

c. Peak-Hold Reset Circuit:

Q401 is a PUT (Programmable Unijunction Transistor) and generates a reset-trigger pulse. This reset pulse is applied to the base of the peak-hold transistor Q402 and a reset signal of 2.25-second repetition rate is then applied to terminal 12 of the LED driver IC401 and the peak level is reset.

Measuring Condition

LINE IN : 1kHz, 0.25V (-10dB)

LINE OUT : 1.1V (+3dB)

Mode : record/forward

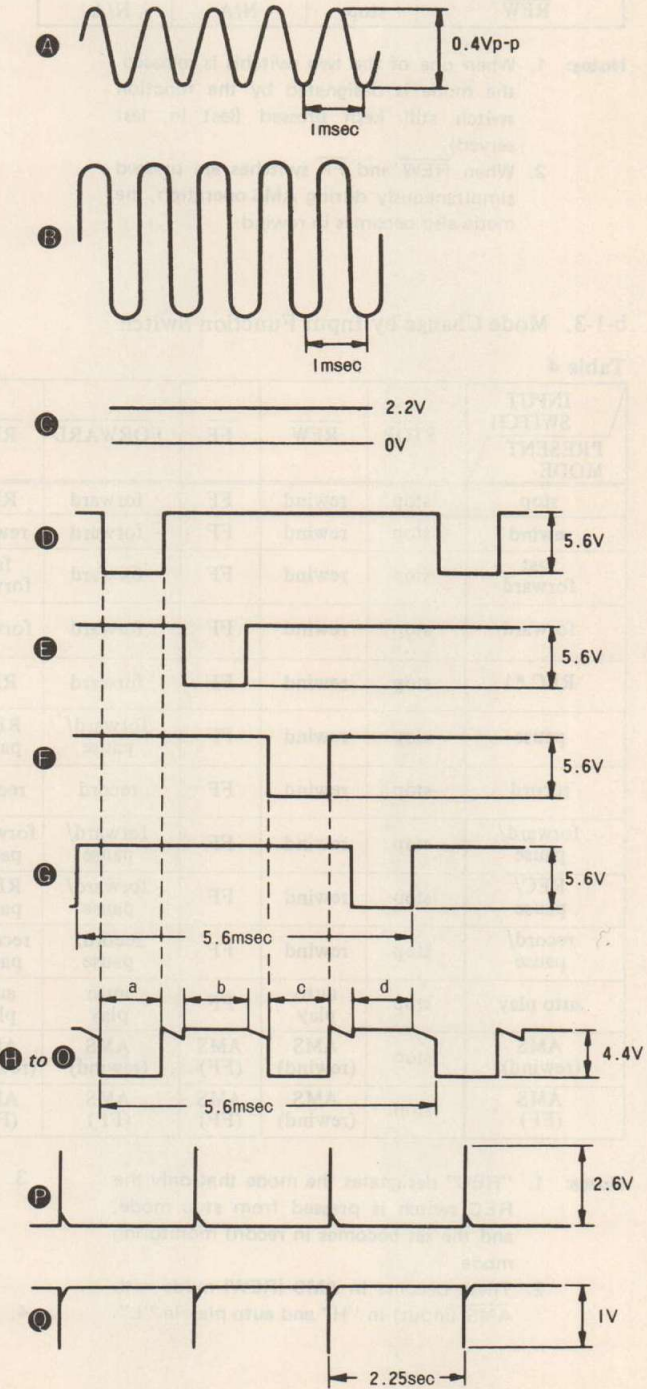


Fig. 1

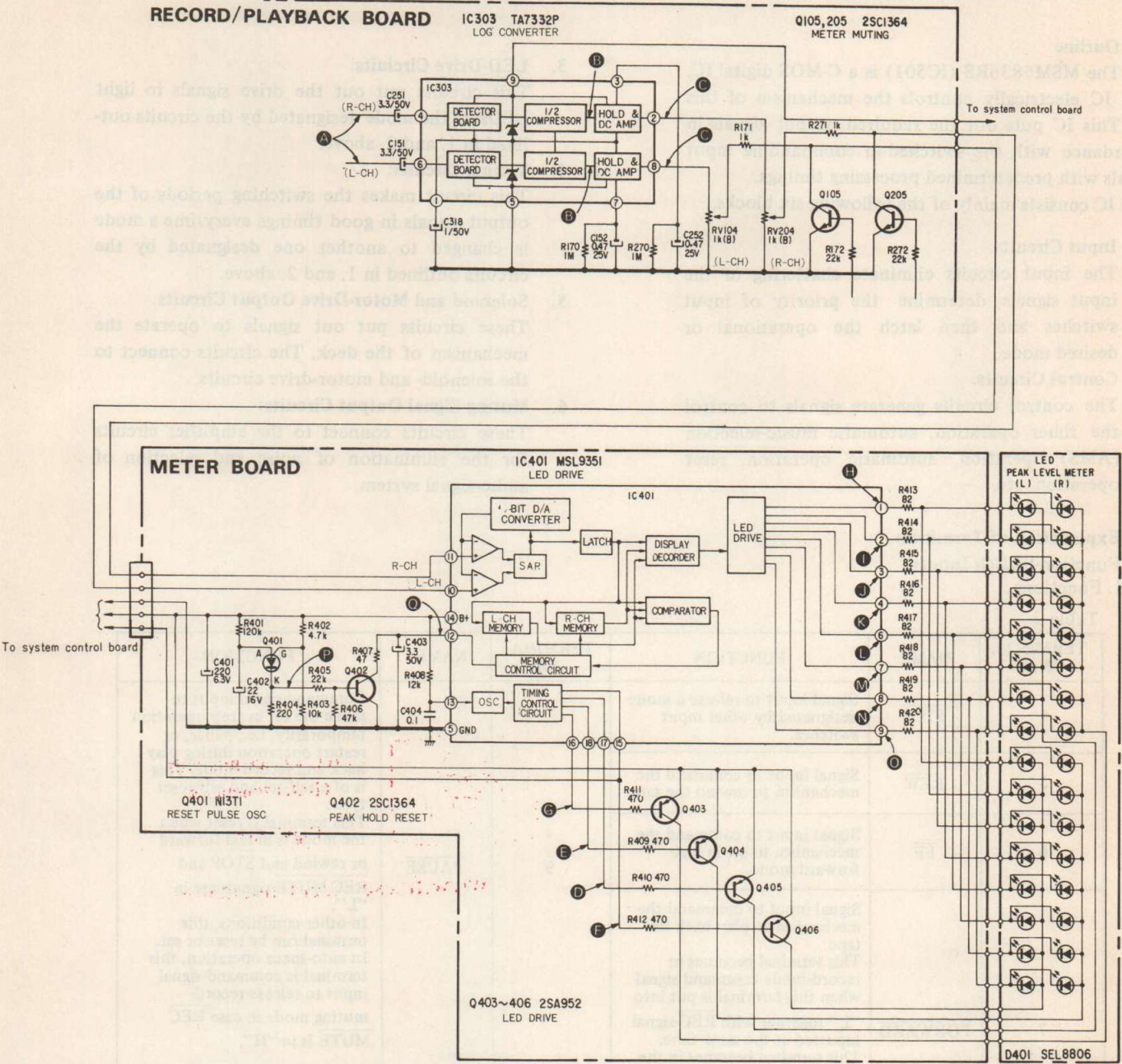


Fig. 2



1-3-2. ON THE C-MOS MECHANISM-CONTROL IC MSM5836RS (IC501)

a) Outline

The MSM5836RS (IC501) is a C-MOS digital IC. This IC electrically controls the mechanism of this set. This IC puts out the required output signals in accordance with the switched-in commanding input signals with predetermined processing timings. This IC consists mainly of the following six blocks.

1. Input Circuits:

The input circuits eliminate chattering of the input signals, determine the priority of input switches and then latch the operational or desired mode.

2. Control Circuits:

The control circuits generate signals to control the timer operation, automatic music-selection (AMS) operation, automatic operation, reset operation, etc.

3. LED-Drive Circuits:

This circuits put out the drive signals to light LEDs of the mode designated by the circuits outlined in 1. and 2. above.

4. Timing Circuits:

This circuit makes the switching periods of the output signals in good timings everytime a mode is changed to another one designated by the circuits outlined in 1. and 2. above.

5. Solenoid and Motor-Drive Output Circuits:

These circuits put out signals to operate the mechanism of the deck. The circuits connect to the solenoid- and motor-drive circuits.

6. Muting Signal Output Circuits:

These circuits connect to the amplifier circuits for the elimination of noise and selection of audio-signal system.

b) Explanation of Terminals

b-1. Function-Switch Inputs:

b-1-1. Functions

Table 2

TERMINAL No.	NAME	FUNCTION	TERMINAL No.	NAME	FUNCTION
4	STOP	Signal input to release a mode designated by other input switches.	9	PAUSE	Command-signal input to make the set in stop operation temporarily, i.e., pause, or restart operation during play-back and record mode. This is of a self-set and self-reset type. This terminal is reset when the mode is in fast-forward or rewind and STOP and REC MUTE signals are in "L". In other conditions, this terminal can be reset or set. In auto-space operation, this terminal is command-signal input to release record-muting mode in case REC MUTE is in "H".
5	REW	Signal input to command the mechanism to rewind the tape.			
6	FF	Signal input to command the mechanism to set in fast-forward mode.			
7	FORWARD	Signal input to command the mechanism to play back the tape. This terminal becomes in record-mode command signal when this terminal is put into "L" together with REC-signal inputted at the same time. This terminal becomes in the commanding signal to put the set in AMS and auto play, as outlined later, when this terminal becomes in "L" together with FF or REW signal inputted at the same time.	10	REC MUTE	Command-signal input to mute record signal and effective only in record and record-pause modes. When this signal is in "L", pause operation is reset. Muting operation is maintained for four seconds after disappearance of this signal (auto-space operation). Auto-space operation is released on receipt of PAUSE input in "L" when this input is in "H".
8	REC	Signal input to command the set to become in record-monitor mode. This input is disabled when the set is in fast-forward or rewind and STOP input is in "L".			

**Note:** REW is REWIND  
FF is FAST FORWARD  
REC is RECORD

b-1-2. Mode Determination when Two Function Switches are Pressed Duplicately at the Same Time:

Table 3

INPUT "B" INPUT "A"	STOP	REW	FF
FORWARD (AMS input is "H")	stop	auto forward	fast forward
FORWARD (AMS input is "L")	stop	AMS (rewind)	AMS (fast forward)
FF	stop	rewind	N/A
REW	stop	N/A	N/A

**Notes:** 1. When one of the two switch is released the mode is designated by the function switch still kept pressed (last in, last served).  
2. When REW and FF switches are pressed simultaneously during AMS operation, the mode also becomes in rewind.

b-1-3. Mode Change by Input Function Switch

Table 4

INPUT SWITCH PRESENT MODE	STOP	REW	FF	FORWARD	REC	PAUSE	REC FORWARD	REW FORWARD	FF FORWARD
stop	stop	rewind	FF	forward	REC	pause	record	*2	*3
rewind	stop	rewind	FF	forward	rewind	rewind	record	*2	*3
fast forward	stop	rewind	FF	forward	fast forward	fast forward	record	*2	*3
forward	stop	rewind	FF	forward	forward	forward/pause	record	*2	*3
REC *1	stop	rewind	FF	forward	REC	REC/pause	record	*2	*3
pause	stop	rewind	FF	forward/pause	REC/pause	stop	record/pause	*2	*3
record	stop	rewind	FF	record	record	record/pause	record	*2	*3
forward/pause	stop	rewind	FF	forward/pause	forward/pause	forward	record/pause	*2	*3
REC/pause	stop	rewind	FF	forward/pause	REC/pause	REC	record/pause	*2	*3
record/pause	stop	rewind	FF	record/pause	record/pause	record	record/pause	*2	*3
auto play	stop	auto play	FF	auto play	auto play	auto play	auto play	auto play	fast forward
AMS (rewind)	stop	AMS (rewind)	AMS (FF)	AMS (rewind)	AMS (rewind)	AMS (rewind)	AMS (rewind)	AMS (rewind)	AMS (FF)
AMS (FF)	stop	AMS (rewind)	AMS (FF)	AMS (FF)	AMS (FF)	AMS (FF)	AMS (rewind)	AMS (rewind)	AMS (FF)

**Notes:** 1. "REC" designates the mode that only the REC switch is pressed from stop mode, and the set becomes in record monitoring mode.  
2. These become in AMS (REW) mode with AMS (input) in "H" and auto play in "L".  
3. These become in fast-forward mode with AMS (input) in "H" or in AMS (FF) with AMS (input) in "L" in the same way as the mode determination shown in b-1-2 above.  
4. FF is fast forward.

b-2. Control Inputs:

b-2-1. Function of Control Inputs

Table 5

TERMINAL No.	NAME	FUNCTION
11	SHUT OFF	Input of tape-travel detection. Pulse signal is put into this terminal during forward, fast forward, rewind and record modes. In forward and record modes, the mechanism shuts off and becomes in stop mode in two seconds after the stoppage of tape travel, i.e., stop of pulse. In fast-forward and rewind modes, the mechanism shuts off and becomes in stop mode one second after the stop-page of tape travel likewise.
		Commanding-signal input to stop the mechanism or to put the set into forward mode during rewind mode. Forward mode is made when REW and FORWARD switches are pressed at the same time. In other modes than rewind, this signal is not accepted. Also this signal is not accepted even in rewind mode when REW switch is kept pressed.
12	COUNTER	REW and FORWARD switches are pressed at the same time. In other modes than rewind, this signal is not accepted. Also this signal is not accepted even in rewind mode when REW switch is kept pressed.
15	AMS signal	Input of music-detection signal. This signal is in "H" during a music, and in "L" during a blank inbetween musics. This signal is accepted only in AMS-mode operation.
		Signal input to put the set into AMS operation. AMS mode is made when this signal is in "L".
18	RESET	Signal input to put all of the operation of the set into the initial state.

b-3. Output Signals

Table 6

TERMINAL No.	NAME	FUNCTION
1	RECORD LAMP	Puts out "H" signal in record-monitor, record, record-pause, and record-muting modes.
2	FORWARD LAMP	Puts out "H" signal in forward, forward pause, record, record-pause, auto play, and AMS modes.
3	PAUSE LAMP	Puts out "H" signal in pause mode. Puts out "H" and "L" signals alternately during record muting (for four seconds at the start, 4 Hz after 2 Hz) and during reset mode (for four seconds - 1 Hz).
17	TIMER	Puts out "L" signal for only 0.5 second after four-second resetting.
19	RECORD MUTING	Puts out "H" signal only in record and record-muting modes.
20	BIAS	Puts out "H" signal in record and record-muting modes.
21	LINE MUTING	Puts out "H" signal in forward, record, record-monitor, record-pause and record-muting modes. Line muting is off with this signal in "H".
22	R.P.P.	Puts out pulse of 31.25 msec when mode is changed from forward (record and replay inclusive) to forward-pause (record and replay inclusive.)
23	HEAD SOLENOID	Puts out "H" signal for 0.25 second after AMS solenoid energized in forward, record, record-muting and AMS modes.
24	AMS SOLENOID	Puts out "H" signal for 0.25 second after forward motor started turning and in forward and AMS modes.
25	FORWARD MOTOR	Puts out "H" signal in forward, record and record-muting modes.
26	FAST-FORWARD MOTOR	Puts out "H" signal in fast-forward and AMS (fast forward) modes.
27	REWIND MOTOR	Puts out "H" signal in rewind, auto play, AMS (rewind) and AMS (fast forward) modes.

**Notes:** 1. AMS (fast forward) designates the mode in which the forward and fast-forward switches are pressed simultaneously with AMS input signal in "L".  
2. AMS (rewind) designates the mode in which the forward and rewind switches are pressed simultaneously with AMS signal in "L".



### c) Description of Operation

In the following time charts, timings are shown by symbols as shown below.

Table 7

SYMBOL	DURATION
a	4 seconds (128t)
b	2 seconds (64t)
c	1 second (32t)
d	0.75 second (24t)
e	0.5 second (16t)
f	0.375 second (12t)
g	0.25 second (8t)
h	0.125 second (4t)
i	62.5 milliseconds (2t)
j	31.25 milliseconds (1t)

$$t = \frac{4}{f_{osc}} \text{ second}$$

$$f_{osc} = 128\text{Hz (i.e., } t = 31.25 \text{ milliseconds)}$$

Refer to b-1-3 for the mode-changing operation. These outputs not shown are the same as that in stop mode.

Switch input and output signals are sampled by synchronizing with the clock signal, and a delay time  $\alpha$  exists between the input and output signals as shown below.

$$\alpha_{min.} = \frac{t}{2}$$

$$\alpha_{max.} = \frac{t}{2} + t + \beta$$

$\beta$ : chattering duration of switched-in input signal

#### c-1. When the POWER is Turned ON:

Refer to Fig. 3.

For four seconds after the POWER switch is turned ON (i.e., after  $\overline{\text{RESET}}$  input signal became in "H"), the pause lamp repeats going on and off in one-second repetition rate. The reset signal is effective during this four second period and the function-switch inputs are rejected, i.e., the set is in the stop mode.

The TIMER output signal becomes in "L" state for 0.5 second just after the four second mentioned above, and this signal stays in "H" state thereafter until the POWER switch is turned off. During the four second mentioned above, REC MUTE output signal is in "H" state, and other output signals except for the pause-lamp and TIMER signals are in "L" states.

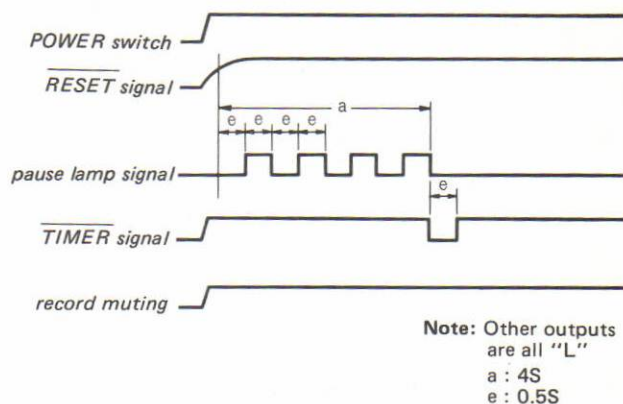


Fig. 3

#### c-2. Stop Mode:

The stop mode is made whenever the  $\overline{\text{STOP}}$  switch is pressed regardless of the mode. In stop mode,  $\overline{\text{TIMER}}$  and  $\overline{\text{REC MUTING}}$  signals are in "H" states and all other signals are in "L" states as shown below.

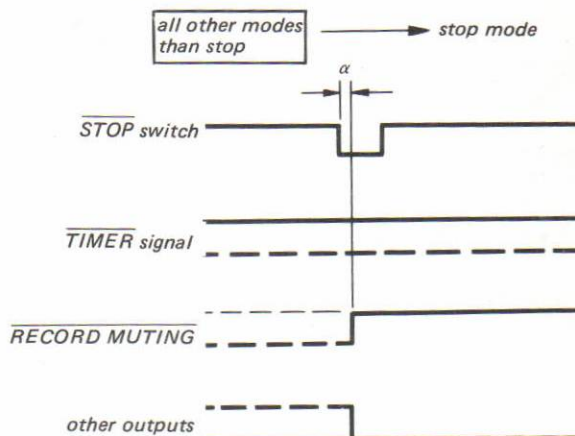


Fig. 4

### c-3. Output Disabling:

The above-mentioned STOP, TIMER and RECORD MUTING signals are disabled and become in "L" state for 0.25 second from trailing edges of the rewind motor, fast-forward motor and forward-motor signals.

### c-4. Shut-Off Mode:

When the rewind-motor or fast-forward motor or forward-motor signal becomes in "H" state, the shut-off operation starts 0.5 second later the leading edge of the motor signal. This condition stays as long as the motor signal is in "H". When the tape stops traveling and the shut-off signal disappears, the mode changes to stop mode one second later when the rewind-motor or fast-forward-motor signal is in "H", or two second later when the forward-motor signal is in "H". In the auto-play operation, the mode changes from rewind to forward. This will be described later in the auto-play paragraphs.

The usable input-frequency range for the shut-off signal is;

in forward mode:  $f_{s.off} < 64 \text{ Hz}$

in fast-forward

and rewind modes:  $f_{s.off} < 256 \text{ Hz}$

where,  $f_{s.off}$  = shut-off signal frequency

$f_{osc} = 128 \text{ Hz}$

### c-5. Rewind and Fast-Forward Modes:

Refer to Figs. 5 and 6.

The rewind mode is made, whenever the REW switch is pressed, from any present mode except for the AMS and auto-play operations.

Likewise, the fast-forward mode is made whenever the FF switch is pressed from any present mode except for the AMS mode.

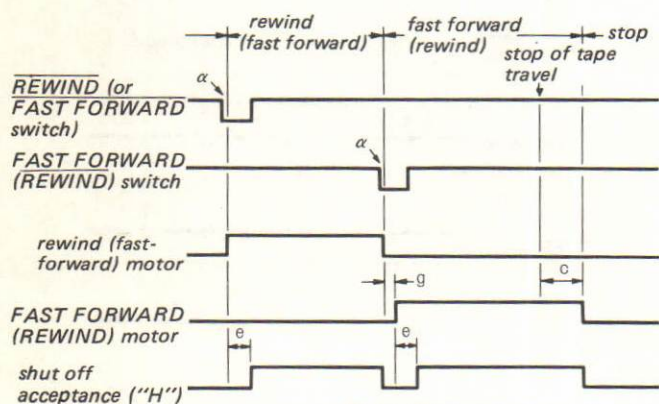


Fig. 5

Note: Other outputs are the same as in stop mode

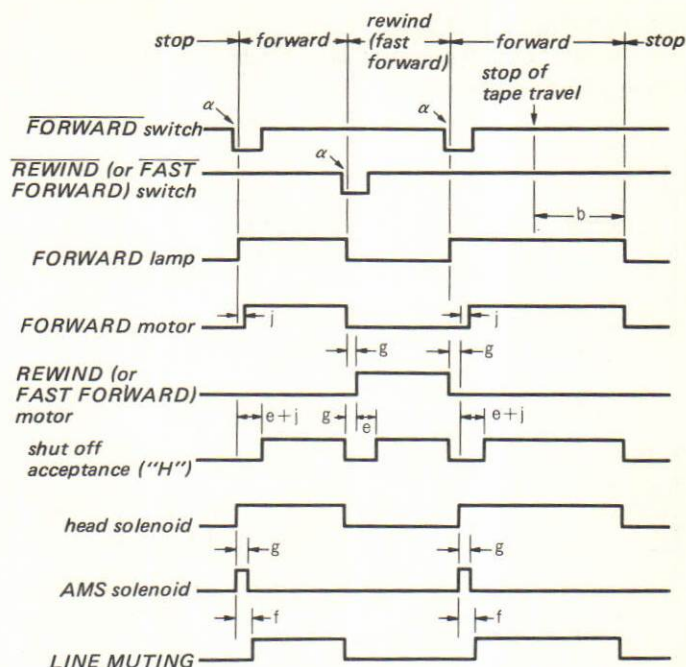


Fig. 6

Note: b : 2S  
c : 1S  
e : 0.5S  
f : 0.375S  
g : 0.25S  
j : 31.25mS

### c-6. Memory-Stop Mode (auto operation):

During the tape rewinding, the stop mode is made immediately after the COUNTER input becomes in "L" state except for the auto-play mode. This mode, however, is not made when the REW switch has been kept pressed.



### c-7. Memory-Forward Mode (auto operation):

When the REW and FORWARD switches are pressed simultaneously, the forward-lamp output becomes in "H" state and the set becomes in the rewind mode. When the counter input changes from "H" to "L" during the above operation, the mode changes to the forward mode. This operation, however, is not made when the REW switch is pressed.

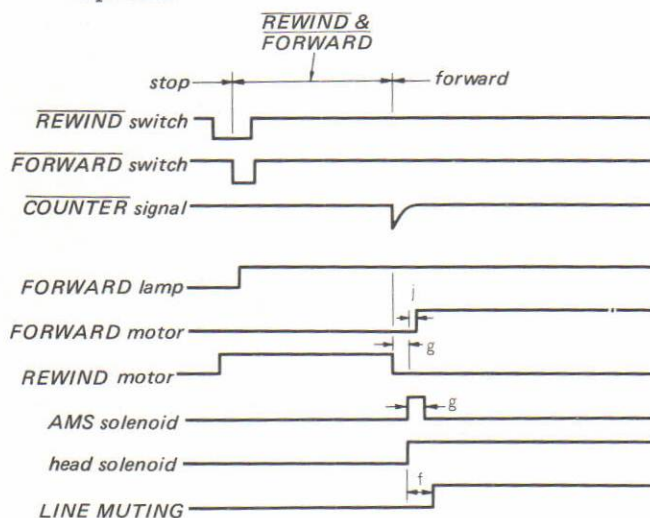


Fig. 7 Note: f : 0.375S J : 31.25mS  
g : 0.25S

### c-8. Auto-Forward Mode (auto operation):

When the tape comes to the tape beginning and stops traveling during the operation mentioned in c-7 with both the REW and FORWARD switches are pressed simultaneously, the set becomes in the forward mode immediately after the shut-off operation.

### c-9. Rewind-AMS Mode:

When the AMS input signal is in "L", the rewind-AMS mode is made with the REW and FORWARD switches are pressed simultaneously. At the instance of the AMS-rewind operation, the forward-lamp output becomes in "H" and the set is put into the rewind mode.

At this moment, the rewind-AMS mode completes at the trailing edge of the AMS-signal input (from "H" to "L") and the mode changes into forward.

When the counter-input signal falls from "H" to "L" in the AMS operation, the mode becomes in memory forward as outlined in c-7 above. And when the tape stops traveling at the tape beginning, the mode becomes in auto forward as outlined in c-8 above.

When the FAST FORWARD switch is pressed during the rewind-AMS mode, the mode changes into the Fast-Forward AMS as shown in b-1-3.

### c-10. Fast-Forward AMS Mode:

When the AMS signal is in "L", the fast-forward AMS mode is made with the FAST FORWARD and FORWARD switches are pressed simultaneously. The fast-forward AMS mode completes 0.5 second right after the trailing edge of the AMS-signal input (from "H" to "L") and the mode changes into the Rewind-AMS. Thereafter, the operation is the same as the rewind-AMS mode outlined in c-9 above.

When the REWIND switch is pressed during the fast-forward AMS mode, the mode changes into the Rewind AMS as shown in b-1-3.

\*When the REWIND (or FAST FORWARD) switch is pressed prior to the FORWARD switch:

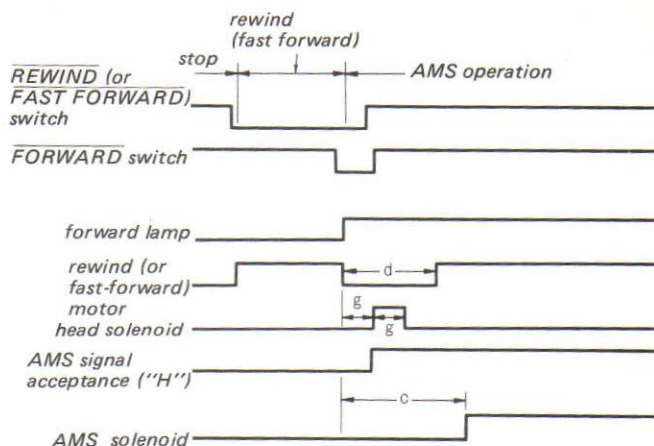
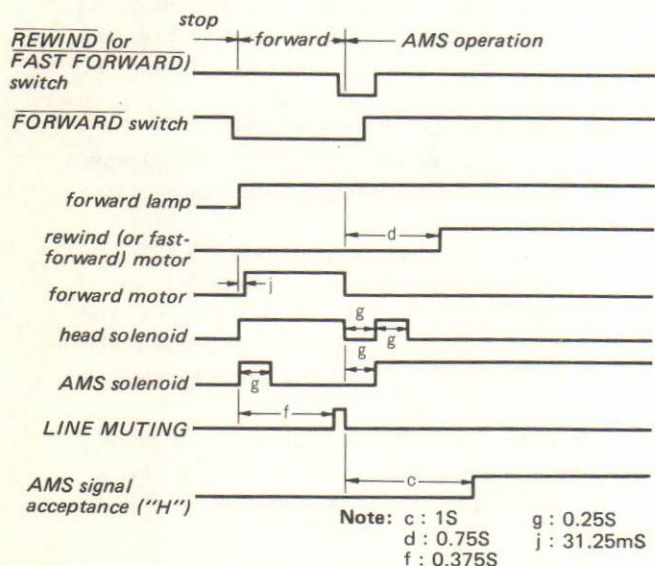


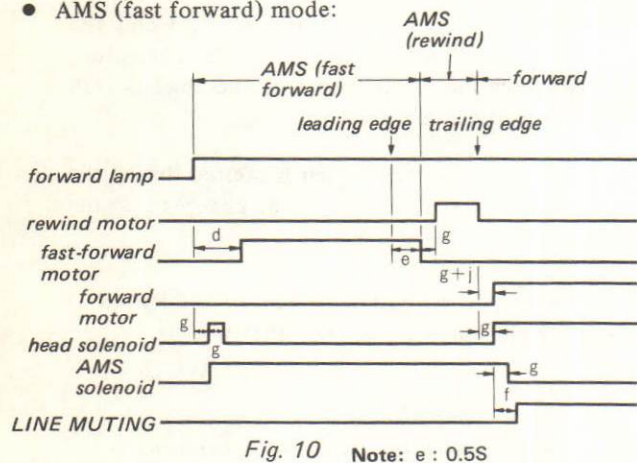
Fig. 8

\*When the FORWARD switch is pressed prior to the REWIND (or FAST FORWARD) switch:



\*Fast-Forward AMS Mode:

- AMS (fast forward) mode:



### c-11. Auto-Space Mode:

In the record and record-pause modes, a not-recorded portion is made in the tape when the RECORD MUTING switch is pressed (record-muting signal becomes in "L").

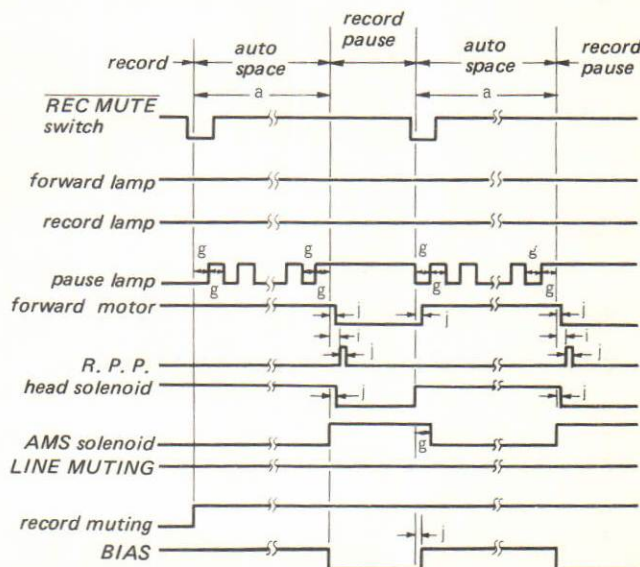
Immediately after the record-muting mode started, the pause-lamp output goes on and off (i.e., pause-lamp output signal goes "H" and "L" alternately) for four seconds in a 0.5 second repetition rate. And when the RECORD MUTING switch is turned off, i.e., released or the record-muting signal is in "H", the mode becomes in the record pause, and the auto-space operation completes.

When the RECORD MUTING switch has been kept pressed for more than four seconds, the on-off repetition rate of the pause-lamp output signal now becomes in 0.25 second after the first four seconds to make a continuous non-recorded portion in the tape. And when the RECORD MUTING switch is released under this condition, the mode also becomes in the record pause, and the auto-space operation completes.

When the PAUSE switch is pressed within the first four seconds, the mode becomes in the record mode and the auto-space operation completes. When the RECORD MUTING switch has been kept pressed in this condition, however, the auto-space mode continues.

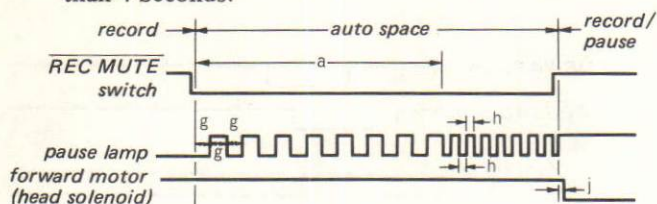
In the auto-space mode, the line-muting output signal is in "H" state and the record-monitoring is made possible.

- From Record or Record Mode to Auto-Space Mode:





- When REC MUTE Switch is Kept Pressed for more than 4 Seconds:

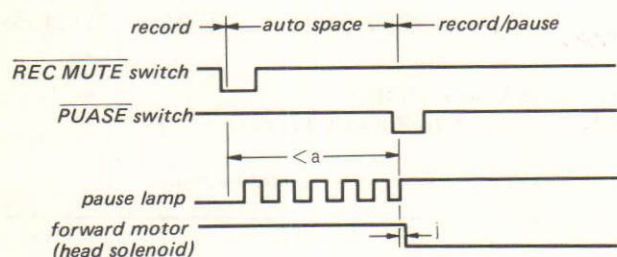


Note: Other outputs are the same as prior chart.

a : 4S      i : 62.5mS  
g : 0.25S    j : 31.25mS  
h : 0.125S

Fig. 12

- When PAUSE Switch is Pressed Within the 4 Seconds of Auto Spacing:



Note: Other outputs are the same as prior chart.

Fig. 13

## C-12. Other Timings

### a) Mode Change from Stop

#### a-1) From Stop to Pause Mode:

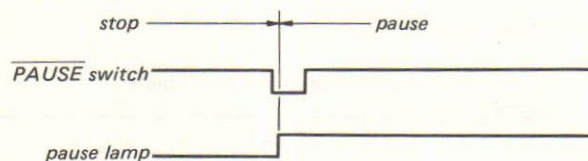


Fig. 14

#### a-2) From Stop to Record or Record-Monitor Mode:

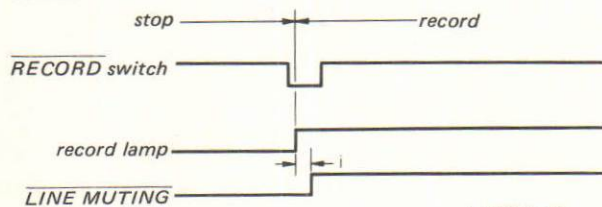


Fig. 15

#### a-3) From Stop to Record:

##### a-3-1.

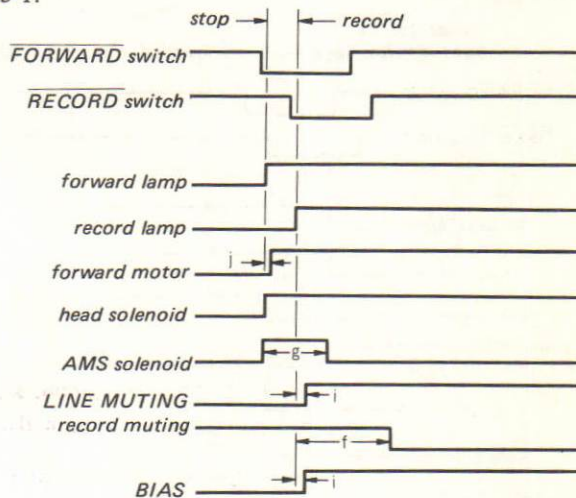
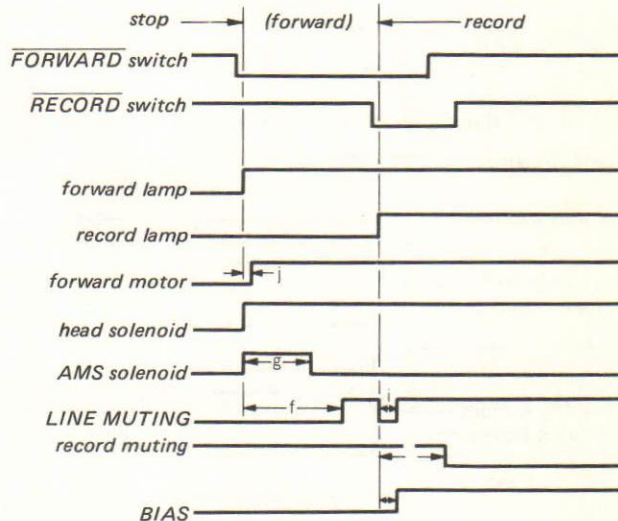


Fig. 16

##### a-3-2. When RECORD Switch is Pressed 0.25 Second Later FORWARD Switch is Pressed:



Note: l : 0.375S    i : 62.5mS  
g : 0.25S        j : 31.25mS

Fig. 17

b) Mode Change From Rewind or Fast Forward to Record:

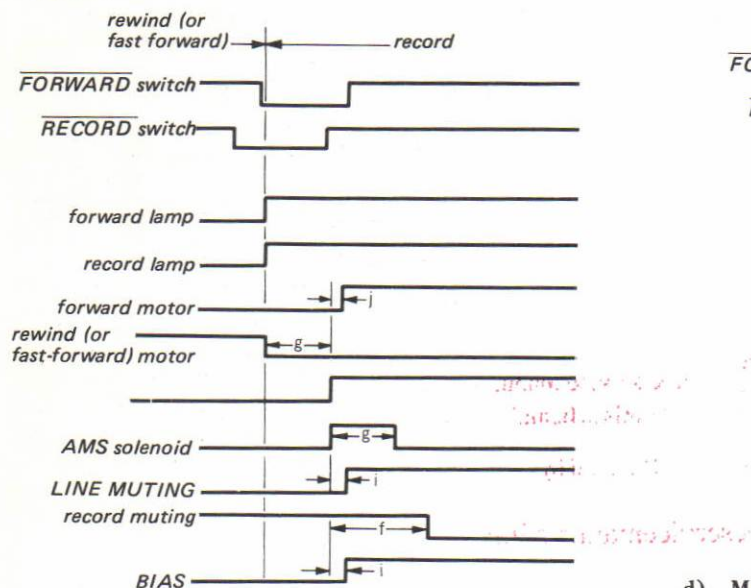


Fig. 18

c) Mode Changes from Forward

c-1. From Forward to Forward-Pause Mode:

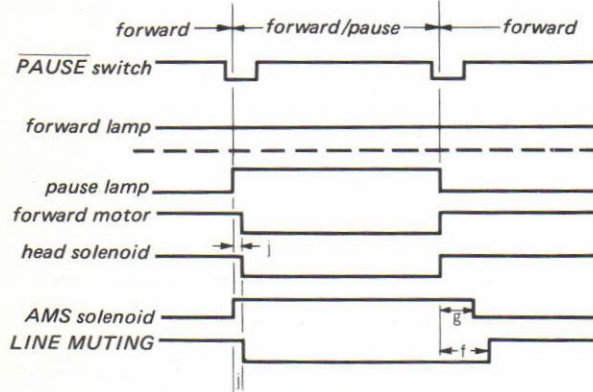


Fig. 19

c-2. Forward ↔ Record

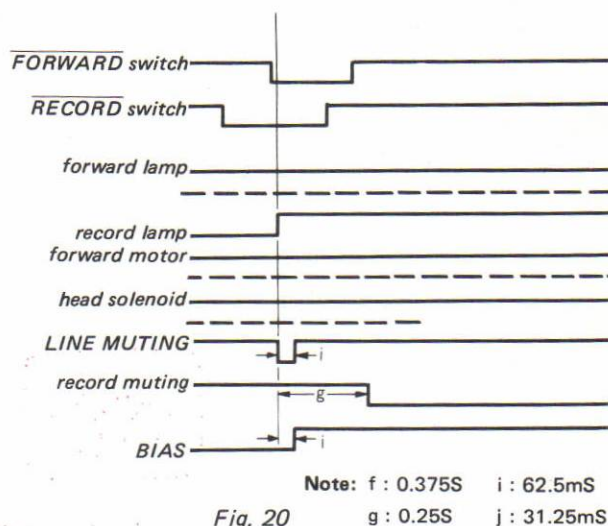


Fig. 20

Note: f : 0.375S i : 62.5mS  
g : 0.25S j : 31.25mS

d) Mode Changes from Pause

d-1. From Pause to Forward Pause

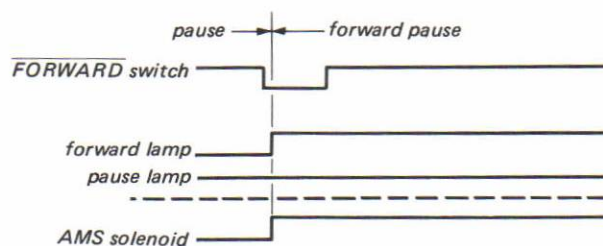


Fig. 21

d-2. From Pause to Record Pause

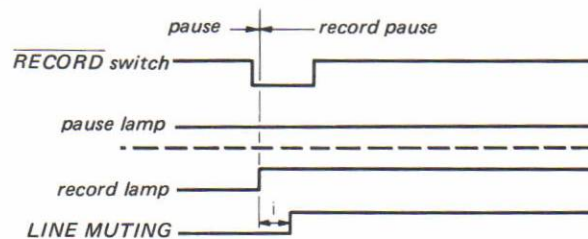


Fig. 22



## d-3. From Pause to Record Pause

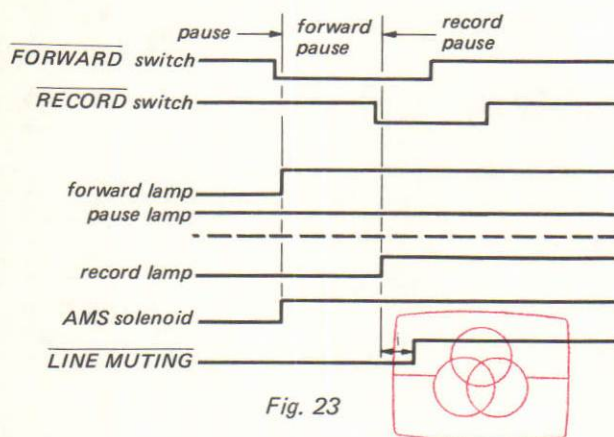


Fig. 23

## e) Mode Changes from Record

## e-1. From Record to Forward

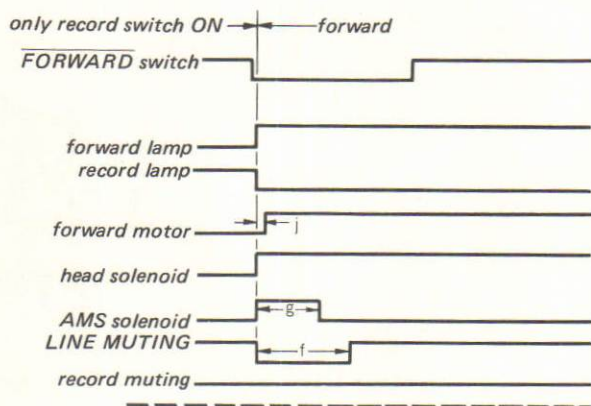
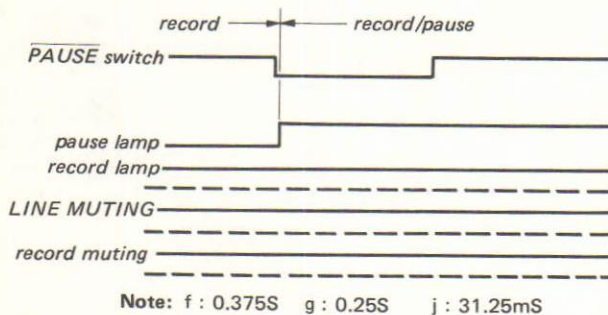


Fig. 24

## e-2. Only Record Button Pressed

## → Record and Pause Buttons Pressed



Note: f : 0.375S g : 0.25S j : 31.25mS

Fig. 25

## e-3. Only Record Button Pressed → Record Mode

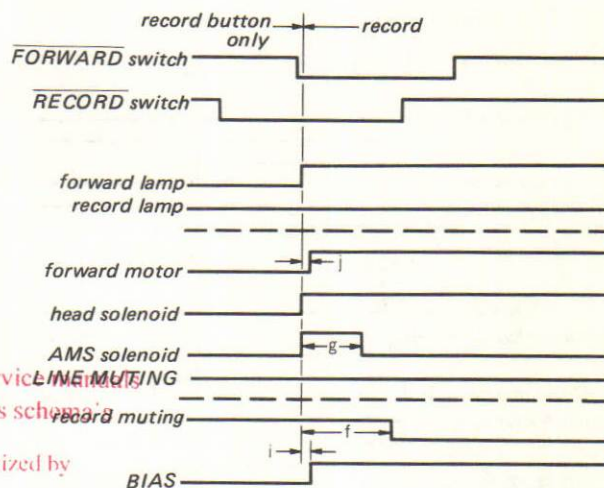


Fig. 26

## f) From Forward Pause Mode to Record Pause Mode

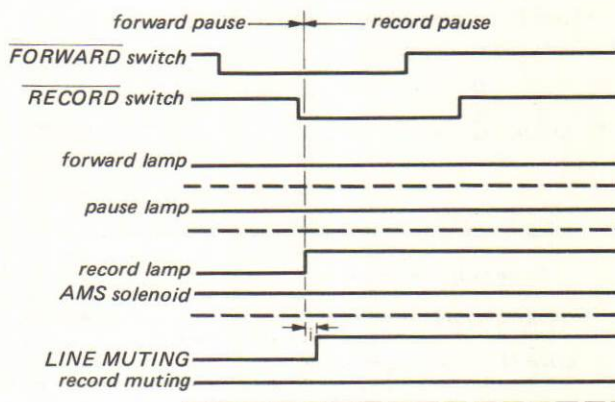
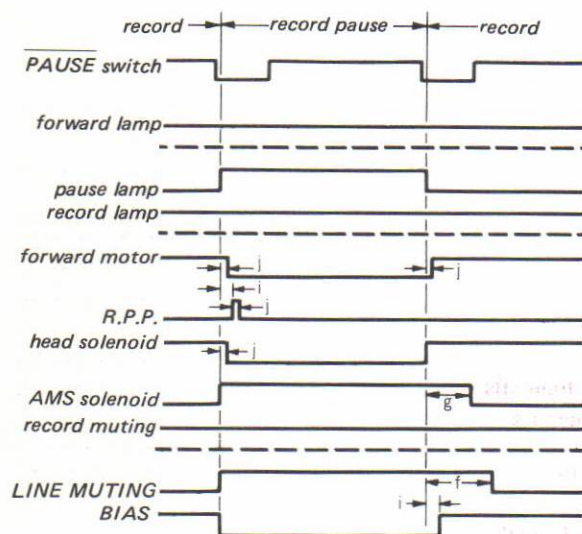


Fig. 27



g) From Record to Record Pause



Note: f : 0.375S      i : 62.5mS  
g : 0.25S      j : 31.25mS

Fig. 28

h) From Record and Pause Buttons ON to Other Modes

h-1. To Forward Pause

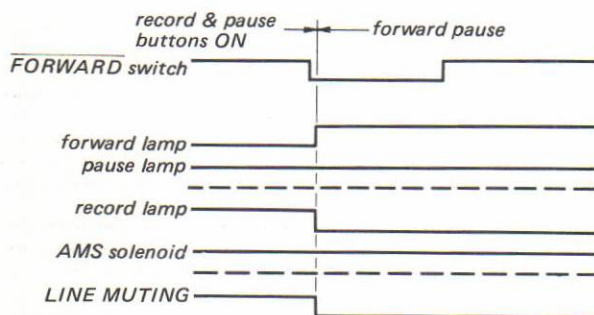


Fig. 29

h-2. To Record Pause

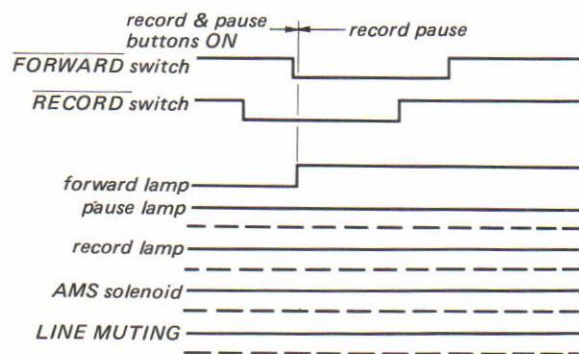
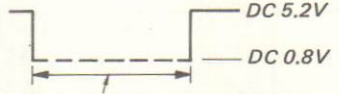
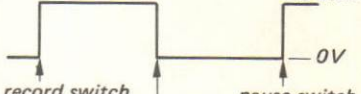
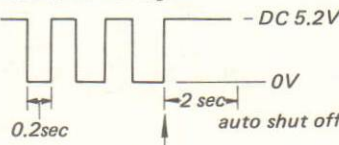
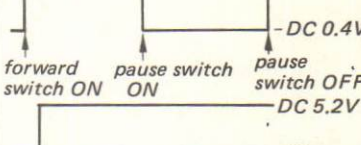
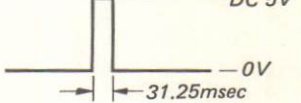
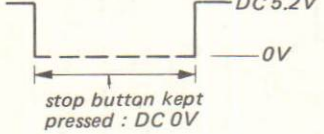

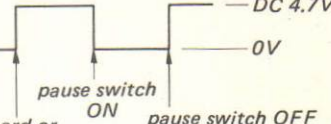
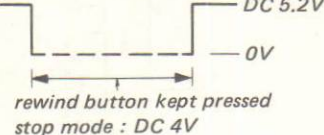
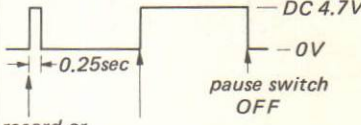
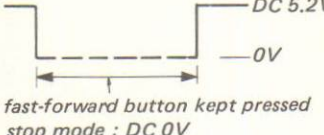
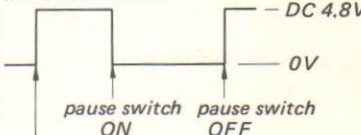
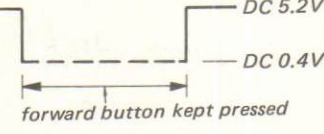
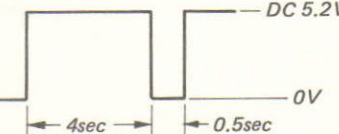
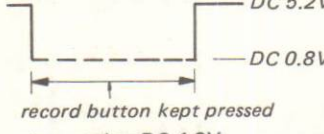
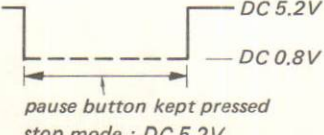
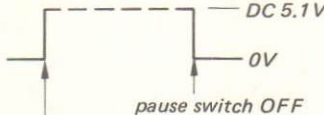


Fig. 30



Table 8. IC501's TERMINAL NAME, WAVEFORM AND/OR VOLTAGES

PIN No.	WAVEFORM AND/OR VOLTAGES	PIN No.	WAVEFORM AND/OR VOLTAGES	PIN No.	WAVEFORM AND/OR VOLTAGES
①	● lamp drive record mode : DC 4.5V stop mode : DC 0V	⑩	■ switch input (RECORD MUTING)  REC MUTE button kept pressed stop mode : DC 5.2V	⑲	Bias Signal (not used in this set) 
②	► lamp drive record and forward modes : DC 4.5V stop mode : DC 0V	⑪	Auto Shut-Off Signal  becomes in stop mode at tape end in forward mode (may become in 0V according to the position of take-up reel spindle)	⑳	Line-Muting Signal 
③	■ lamp drive pause mode : DC 4.6V stop mode : DC 0V	⑫	tape counter "999" input (COUNTER) DC 4.8V	㉑	R.P.P. Signal (not used in this set) 
④	■ switch input (STOP)  stop button kept pressed : DC 0V	⑬	Clock Signal DC 1.6V 	㉒	Head-Solenoid Drive Signal 
⑤	◀◀ switch input (REWIND)  rewind button kept pressed stop mode : DC 4V	⑭	GND (ground)	㉓	AMS-Solenoid Drive Signal 
⑥	►► switch input (FAST FORWARD)  fast-forward button kept pressed stop mode : DC 0V	⑮	AMS signal DC 4.7V	㉔	Reel-Motor Drive Signal in Forward Mode 
⑦	► switch input (FORWARD)  forward button kept pressed	⑯	Timer Signal (TIMER)  POWER Switch ON (regardless of position of TIMER switch)	㉕	Reel-Motor Drive Signal in Fast-Forward Mode fast-forward mode: DC 4.8V record and forward modes : DC 0.3V stop and pause modes : DC 0V
⑧	● switch input (RECORD)  record button kept pressed stop mode : DC 4.6V	⑰	Reset Signal (RESET) DC 4V	㉖	Reel-Motor Drive Signal in Rewind Mode rewind mode : DC 4.8V stop mode : DC 0V
⑨	■ switch input (PAUSE)  pause button kept pressed stop mode : DC 5.2V	⑱	Record-Muting Signal  pause switch OFF REC MUTE switch ON in record mode	㉗	B+ Supply Voltage DC 5.2V



### 1-3-3. ON THE N-MOS CPU MB8843 (IC502)

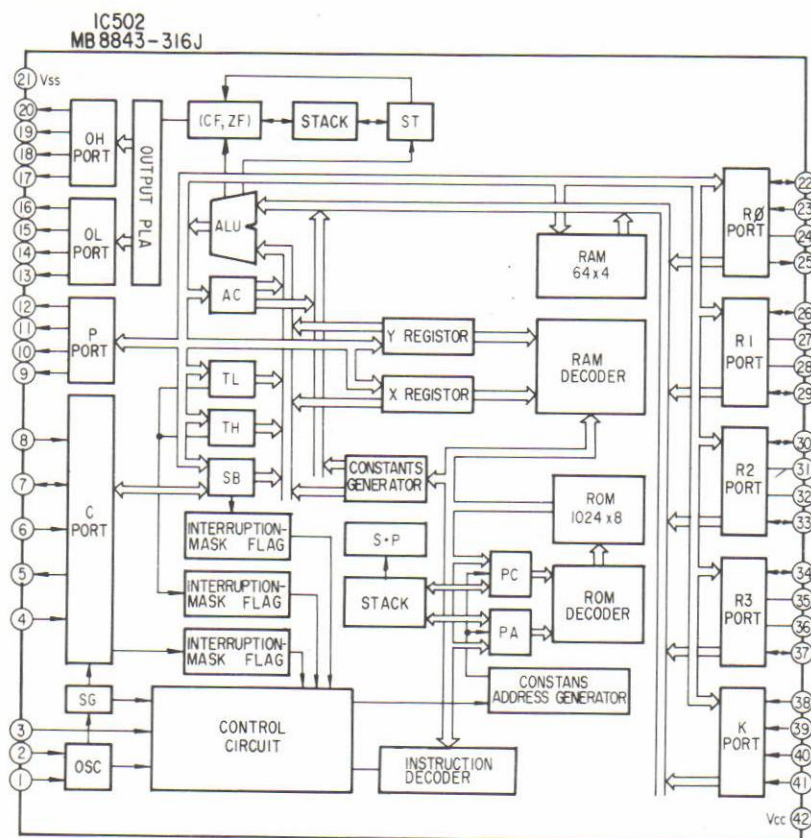


Fig. 31

### CHECKING THE GRID-DRIVE FOR FLUORESCENT DISPLAY TUBE

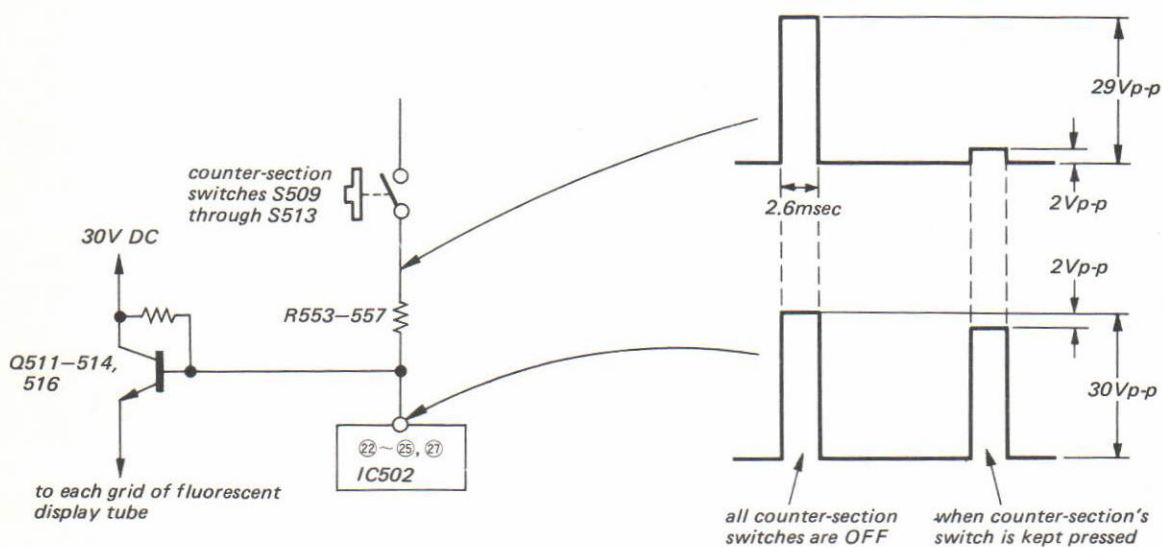


Fig. 32



Table 9. IC502's TERMINAL NAME, WAVEFORM AND/OR VOLTAGES

PIN No.	WAVEFORM AND/OR VOLTAGES	PIN No.	WAVEFORM AND/OR VOLTAGES	PIN No.	WAVEFORM AND/OR VOLTAGES
①	<p><i>EXtal</i> Signal</p> <p>DC 1.85V</p>	⑦	(Not used in this set)	②②	<p>Drive Signal for Grids G1 Through G9 of Fluorescent Display Tube</p> <p>When all counter switches are OFF:</p> <p>DC 4.4V</p>
②	<p><i>Xtal</i></p> <p>DC 1.75V</p>	⑧	<p>120Hz Timing Signal</p> <p>DC 1.8V</p>	②③	
③	<p>RESET Signal DC 4.6V</p>	⑨	<p>Switch Input (REWIND)</p> <p>rewind mode DC 4.8V</p> <p>rewind switch kept pressed 0V</p> <p>DC 4.0V</p>	②④	
④	<p>1.5kHz Clock Signal</p> <p>DC 4.0V</p>	⑩	<p>Switch Input (STOP)</p> <p>stop mode : DC 4.8V</p> <p>stop switch kept pressed : 0V</p>	②⑤	
⑤	(Not used in this set) DC 5.1V	⑪	<p>Switch Input (FORWARD)</p> <p>forward mode : DC 4.8V</p> <p>forward switch kept pressed : 0V</p>	②⑥	
⑥	B+ Supply Voltage Vcc 5.2V	⑫	counter "0" output DC 4.8V	②⑦	
⑬	<p>Drive Signal for "a" Segment of Fluorescent Display Tube</p> <p>1) In case of all "a" segments are not lit, i.e., all of the six digits are "1" or "4", or AMS PROGRAM and REPEAT PROGRAM digits are CLEARed and all of the four digits of COUNTER section are "1" or "4".</p> <p>2) In case of only one out of six "a" segments lit, i.e., one of the six digits is "0", "2", "3", "5", "6", "7", "8" or "9" and all others are "1" or "4".</p> <p>3) In case of only two out of six "a" segments lit as in the case of 2) above.</p> <p>4) In case of only three out of six "a" segments lit as in the case of 2) above.</p> <p>5) In case of all of the six "a" segments lit likewise.</p>	⑬		②⑧	<p>Switch 1 Signal</p> <p>When one of AMS, REPEAT, MEMORY, COUNTER or CLEAR switches is kept pressed:</p> <p>when all switches are OFF: 0V DC 0V</p>
⑭	Drive Signal for "b" Segments of Fluorescent Display Tube Same as pin 13 for "a" segments.	⑰	Drive for "d" Segments of Fluorescent Display Tube Same as pin 13 for segment "a".	②⑨	<p>Lamp Drive stop mode : 0V record mode : DC 4.5V</p>
⑮	Drive Signal for "c" Segments of Fluorescent Display Tube Same as pin 13 for "a" segments.	⑱	Drive for Segment "e" of Fluorescent Display Tube Same as pin 13 for segment "a".	③①	<p>φ1 or φ2-Signal Input from Photo Transistors</p> <p>fast forward and rewind modes</p>
⑯	<p>Drive Signal "Dp" Segment (dot) of Fluorescent Display Tube</p> <p>left-side dot (always ON)</p> <p>on and off of memory dot (right-side dot) (one second repetition rate)</p>	⑲	Drive for Segment "f" of Fluorescent Display Tube Same as pin 13 for segment "a".	③②	<p>Cassette Half Detection Signal</p> <p>with cassette : DC 4.7V</p> <p>without cassette : DC 0V</p>
⑰		⑲		③③	AMS-Signal Input (stop mode: DC 0V)
⑱		⑲		③④	AMS-Signal Output stop mode : DC 4.7V
⑲		⑲		③⑤	AMS-Mode Signal Input stop mode : DC 3.4V
⑲		⑲		③⑥	AMS-Muting Signal Input stop mode DC 0.6V
⑲		⑲		③⑦	stop mode : DC 0V
⑲		⑲		③⑧	Lamp Drive pause mode: DC 4.6V stop mode: DC 0V
⑲		⑲		③⑨	Reel-Motor Drive Signal in Fast-Forward Mode fast-forward mode: DC 4.8V record and forward modes: DC 0.3V stop and pause modes : DC 0V
⑲		⑲		④①	Reel-Motor Drive Signal in Rewind Mode rewind mode : DC 4.8V stop mode : DC 0V
⑲		⑲		④②	B+ Supply Voltage



### 1-3-4. ON THE FLUORESCENT TUBE

- The fluorescent display tube is one of the glass-type electron tubes. Be careful not to damage the tube during the repair with the front panel removed.
- This tube is filament-type one and the standard filament current is 14 mA. The hot-side terminal of the filament is placed at the left-most terminal, i.e., terminal 1 when viewed from the front face.
- When all of the segments of the tube do not light and the two pilot lamps PL1 on the right-hand side of the tube and PL2 in the mechanical deck section do light up, check for the conductivity of the filament, waveforms of the segment-drive output signal at terminals 13 through 20 of the microcomputer IC502 (refer to Table below), the segment-drive transistors Q517 through Q524, grid-drive output signals at terminals 22 through 27 of the microcomputer IC502, and for around the grid-drive transistors Q511 through Q516.
- When the pilot lamps PL1 on the right-hand side of the fluorescent tube and PL2 in the mechanical deck section and all the segments of the fluorescent tube do not light up, the +7V dc power-supply voltage for them is defective. In this case, check for the circuit around Q504.
- In this set, only six digits out of full nine digits of the fluorescent tube are used. Note that the second, fourth and fifth digits are open and are not used.

### 1-3-5. ON THE BSL MOTOR AND SERVO CIRCUIT

- The FG signal is derived from the junction of the emitters of Q901 and Q902, i.e., the voltage generated in the motor coil  $\phi 1$ , and this voltage is applied to terminal 3 of the comparator IC901, and its waveform is shown in Fig.33 below. The waveform generated in the coil  $\phi 2$  is as shown in Fig.34.

#### $\phi 1$ Coil Voltage

standard voltage:  $8Vp-p \pm 1.0p-p$  (offset component)

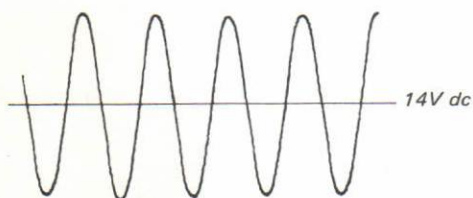


Fig. 33

#### $\phi 2$ Coil Voltage

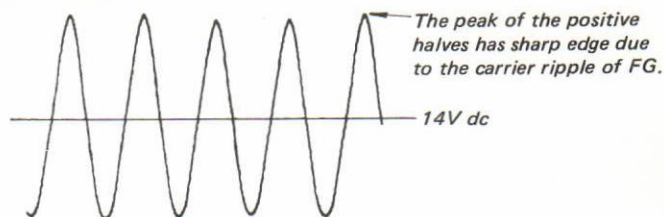


Fig. 34

#### Waveform at Terminal 3 of IC901 (FG input)

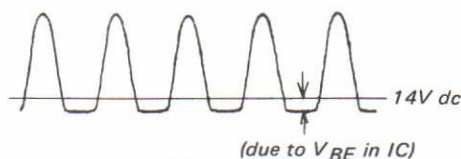


Fig. 35

- The overall gain of the BSL motor is kept constant by driving the two hall devices H901 and H902 in the form of a constant-voltage driving, and by maintaining the gain of the differential amplifier IC902 constant using 1%-tolerance resistors for R905, R908, R912 and R914. The offset of the motor is also maintained constant by using an offset-selected NJM4558D-FA for IC902. As a result of this circuit design, the motor-gain and motor-offset adjustments are not necessary.
- Adjustment patterns are provided around R911 and R914 on the servo printed-circuit board. These patterns are provided for the case of other hall devices than F1411, and neglect these patterns as far as F1411's are used in this set.
- The hall devices F1411's may be damaged when a current of more than 10 mA flows across the terminals. When one of the two hall devices is defective, the BSL motor operates in a single-phase form and four dead points are made in one motor revolution, and generally, the motor stops turning. Should the motor turned, severe vibration is made. When the both hall devices are defective, the BSL motor does not turn, and the transistor Q901 through Q904 and the coil of the motor generate excessive heat. Or, in another case, the motor may turn without speed control, i.e., free turning.
- The BSL motor coil may not be damaged even when it generates excessive heat. It may be damaged mechanically, however, by some snapped-off excess lengths of component leads or screws entered into the motor case through its opening. The motor coil may also be damaged by the rotor's magnet when the magnet separates from the rotor and touches to the coil.



- f) The motor casing has a +14V dc potential. Be careful not to touch other circuits or chassis with the casing. When the rubber foot is defective, change it with a good or new one immediately to separate the motor casing from the mechanical-deck's chassis which is in the ground potential.

### 1-3-6. Shut-Off Detection and Notes

This set uses an optical system for the shut-off detection. Each reel spindle has five small fan-shaped holes at an equal separation in it.

The pilot lamp PL2 places at the top center and just behind the ornament of the deck mechanism. When the POWER is turned on, this pilot lamp lights and its light propagates from the top to bottom through the plastic light-propagating plate. This light-propagating plate has two tips which locate right in front of the five holes of the two reel spindles. In the modes other than the stop, in which case the reel spindles are turning, the light radiated from the tip now intermittently reaches to the two photo transistors Q803 and Q804 which are located on the photo transistor circuit board located right behind the reel spindles and on the deck-mechanism chassis.

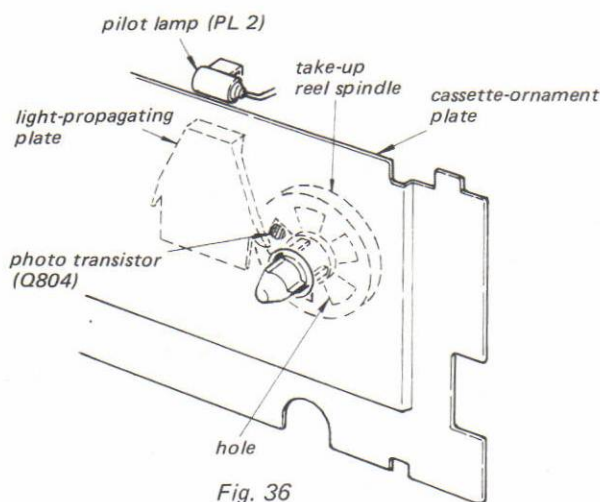


Fig. 36

The photo transistors Q803 and Q804 generate a pulse signal on receipt of the intermittent light through the holes on the reel spindles. This pulse signal is then applied to the mechanism controller IC501 and the CPU IC502 through the gate/amplifier IC505.

When a maintenance/repair is to be made with the ornament plate removed, temporarily connect an audio signal to each of the input terminals 5 and 8 or to terminals 1 and 2 or CNP801 on the switch-circuit board as shown in Fig. 37 to disable the shut-off operation.

### Checking the Reel-Spindle Turning:

1. Put a tape cassette in the set.
2. Turn POWER on and put the set into the fast-forward or rewind mode.
3. Connect an oscilloscope to terminal 2 or 1 of CNP801 on the switch-circuit board. Terminal 2 is the output from Q803 and terminal 1 is the output from Q804.
4. The waveforms should be those as shown in Fig. 38 below.

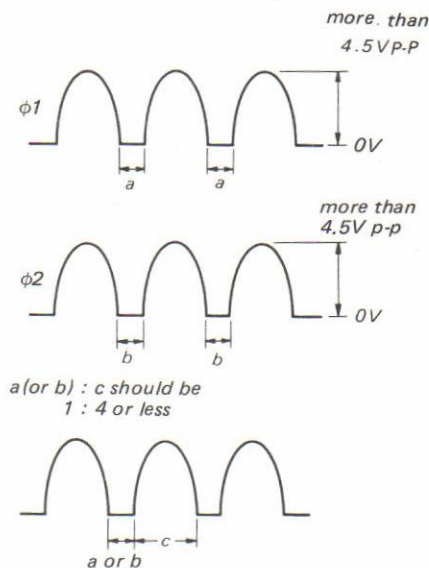


Fig. 38

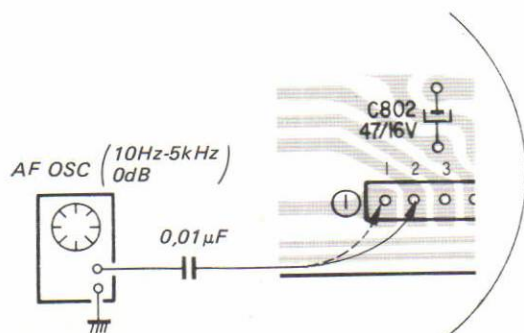
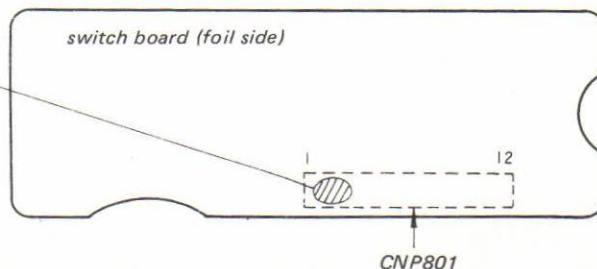


Fig. 37





### 1-3-7. ON THE LINEAR COUNTER

This set uses a new-type electrical tape counter, instead of the conventional belt-driven mechanical tape counter, by adopting a microcomputer. This tape counter displays the tape-travelling time almost linearly in actual time in continuous record and playback modes. The tape-travelling time is calculated and determined by the microcomputer IC502 by determining the rotational speeds of the reel spindles by detecting the various factors such as the diameters of the remaining and wound tapes in the supply and take-up reel spindles, diameter of fully-wound tape, diameter of the reel hub, and the tape-travelling speed. And this linear tape counter is intended for the tape cassettes C-60, C-90 and C-120. The tape counter can not be used with the tape cassettes C-46 and C-30. However the display of the counter also runs linearly in the uses of tape cassettes C-30 and C-46.

As shown in Fig. 36 and the photographs, both reel spindles have five fan-shaped holes arranged in an even separation. In the modes in which the reel spindles rotate, the photo transistors Q803 at the supply side and Q804 at the take-up side generate five pulsive signals per revolution of the spindle.

The pulsive signals are applied to the NOR gates IC505 and are shaped. The shaped pulse outputs from terminals 11 and 3 then route to terminals 31 and 30 of the microcomputer IC502. In IC502, the microcomputer counts the input pulses and processes the

arithmetic equational operation to an approximate value involving the difference of the rotational speed of both reel spindles. IC502 also processes and corrects the operation to make the pulse counting for one count per second, processes carry and decarry operations. IC502 finally processes the lower two digits to become in the 60-minutes system. One signal route for the segments go through the output PLA (Programmable Logic Array) to the OH and OL ports and each segment-drive signal is obtained. Other signal routes for the grids go through R0 and R1 ports to the output terminals, thus the grid-drive signals for the fluorescent display tube are obtained. These drive pulse outputs are applied through the segment-drive transistors Q517 through Q524 and grid-drive transistors Q513 through Q516 to the fluorescent display tube. And thus the display tube displays four-digit digital minutes/seconds figures in a linear (time-wise) manner.

When the display of the linear counter is supposed to be wrong, check each pulse-drive transistors and IC502 referring to Tables 8 and 9 on pages 31 and 33 and Fig. 32 on page 32. When the check is normal, check for the fluorescent display tube. When both checks are normal, IC502 (MB8843) is defective. The maximum ratings  $V_{cc}$  and  $V_{in}$  of the MB8843 are both from minus (–) 0.3V to plus (+) 7.0V, and it seldom becomes defective.

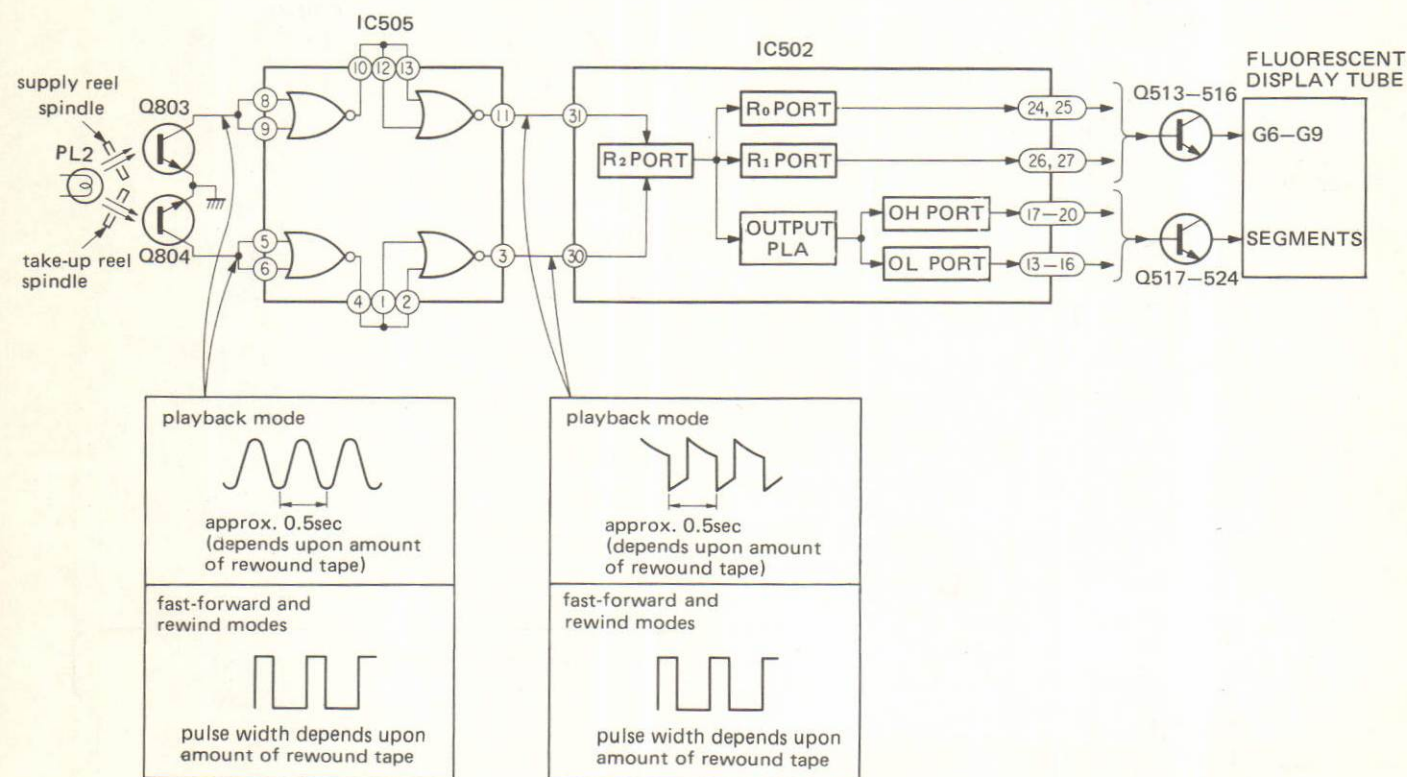


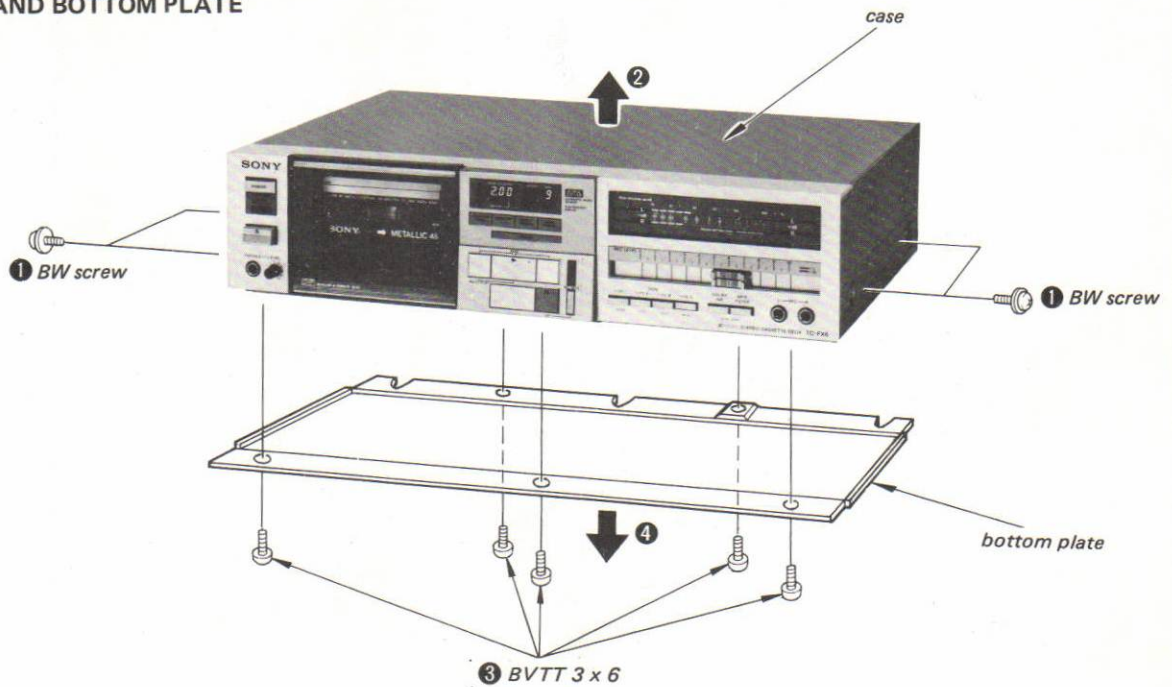
Fig. 39



## SECTION 2 DISASSEMBLY

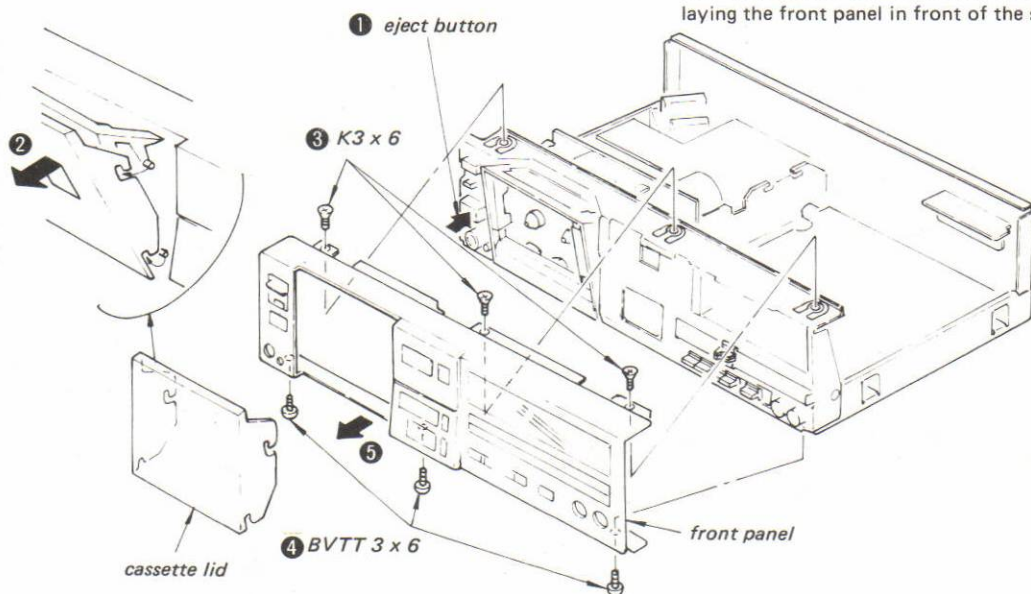
- Follow the disassembly procedure in the numerical order given.

### CASE AND BOTTOM PLATE



### FRONT PANEL

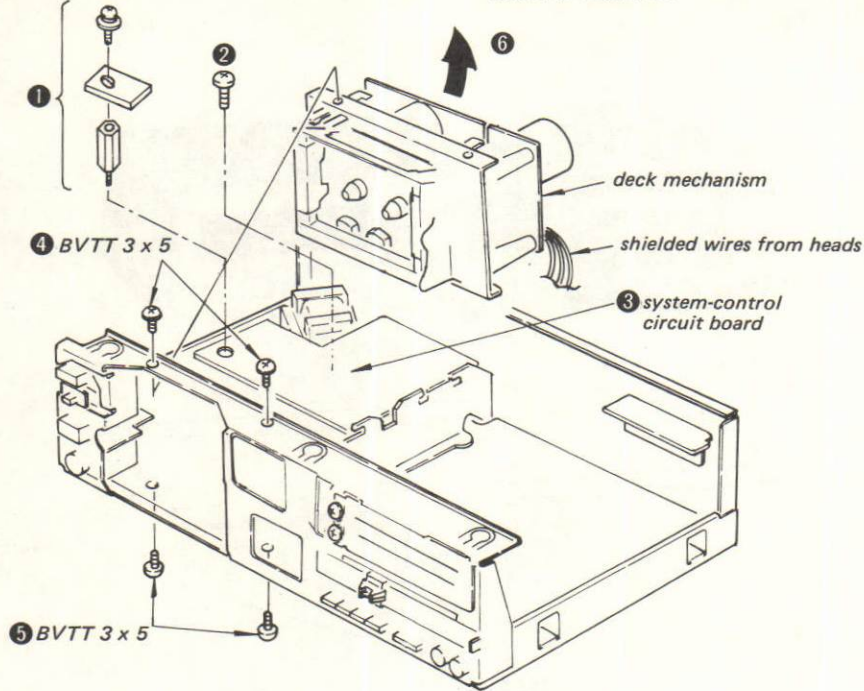
**Note:** When the front panel is removed, the set can be operated by drawing the lead wires of the function and counter switches fully forward and by laying the front panel in front of the set.



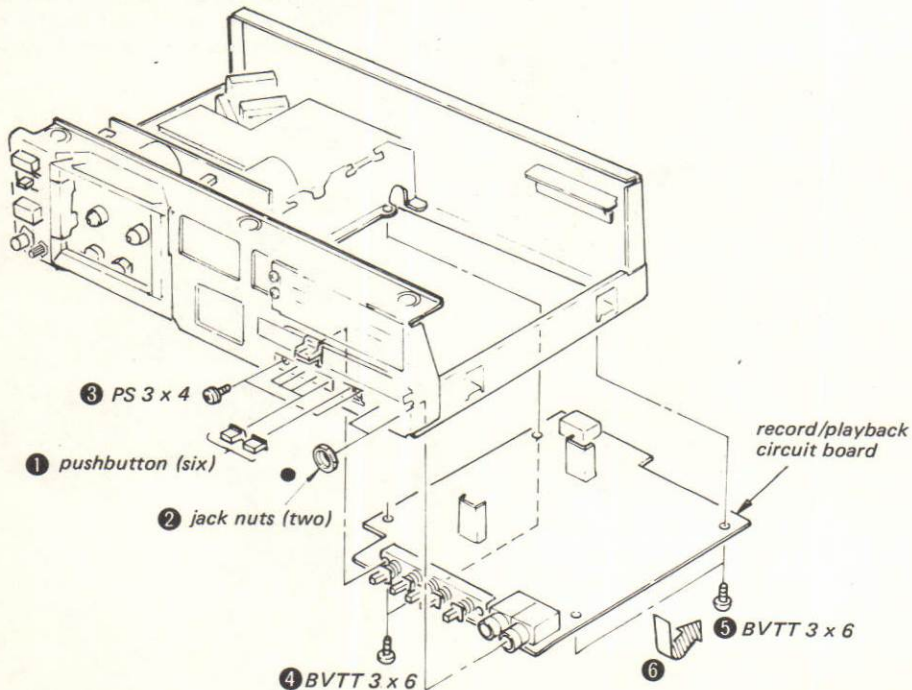


## DECK MECHANISM

Note: Also refer to photographs on pages 41 through 48 and to Section 5.

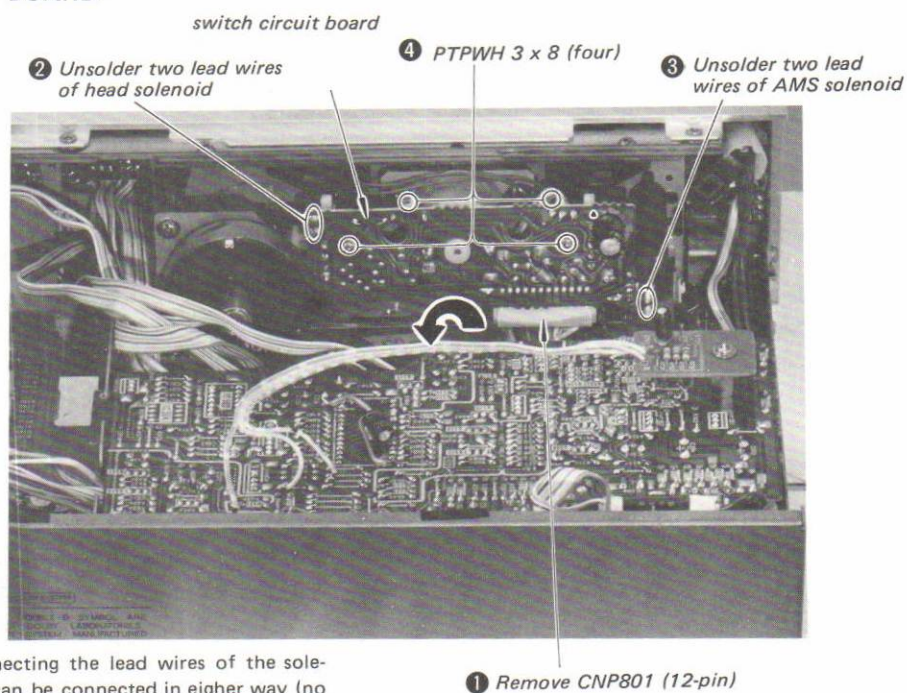


## RECORD/PLAYBACK CIRCUIT BOARD

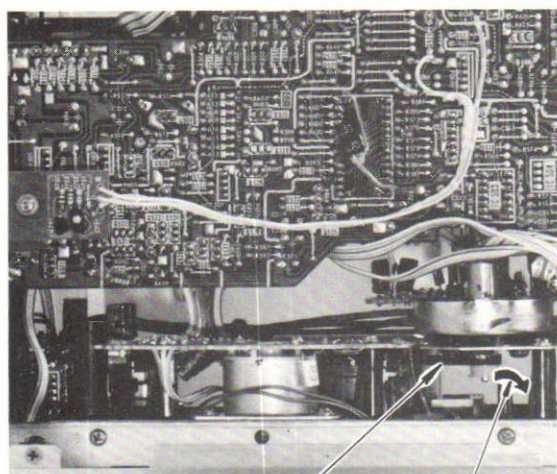




## SWITCH CIRCUIT BOARD



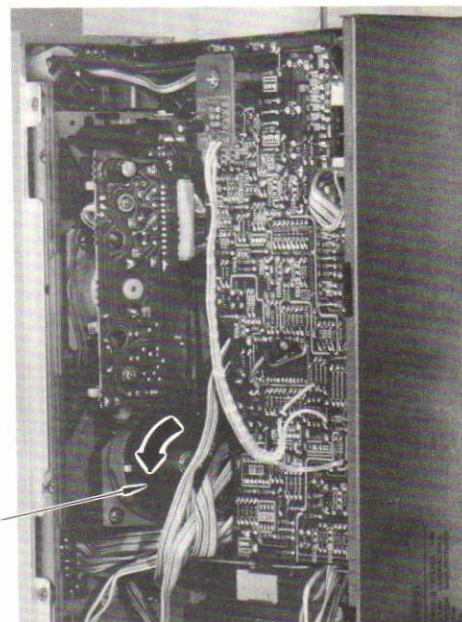
## BSL SERVO MOTOR



- ① From the top side of the set, remove the drive belt and hang it on the mold protrusion on the mechanism chassis.

- ② Position the set right side up or left side up as shown. Grasp the case of the motor and turn the BSL motor to release its rubber feet from the bracket.

BSL servo motor



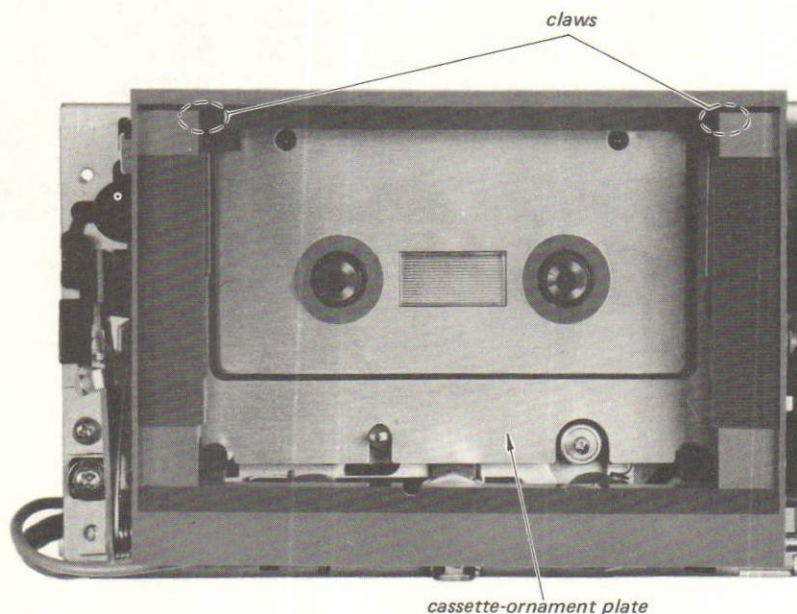


## CASSETTE-ORNAMENT PLATE

**Note:** This set uses a newly-developed cassette-ornament plate. This plate does not need screws to be installed. So no care is exercised about the screws in this plate-mounting system.

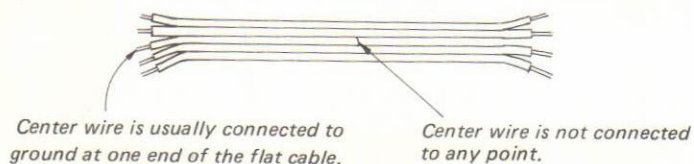
- ① Press the ejection button and open the cassette lid.
- ② Remove the cassette lid. Remove the tape cassette from the cassette holder if any.

- ③ Release the two claws from the cassette-ornament plate at both the top corners.
- ④ Depress the two slide-switch levers at the inside of the set and remove the cassette-ornament plate.  
(Alternatively, push the two slide-switch levers up from inside of the cassette compartment, and remove the cassette-ornament plate.)
- ⑤ When reinstalling the cassette-ornament plate, perform the steps in a reverse manner.



## NOTE ON THE FLAT CABLES

This set uses many flat cables for the interconnections. When replacing the flat cables used for the signal lines, be sure to follow the arrangement as is, otherwise the signal-to-noise and crosstalk ratios degrade, i.e., do not use a four-wire flat cable in the following case.

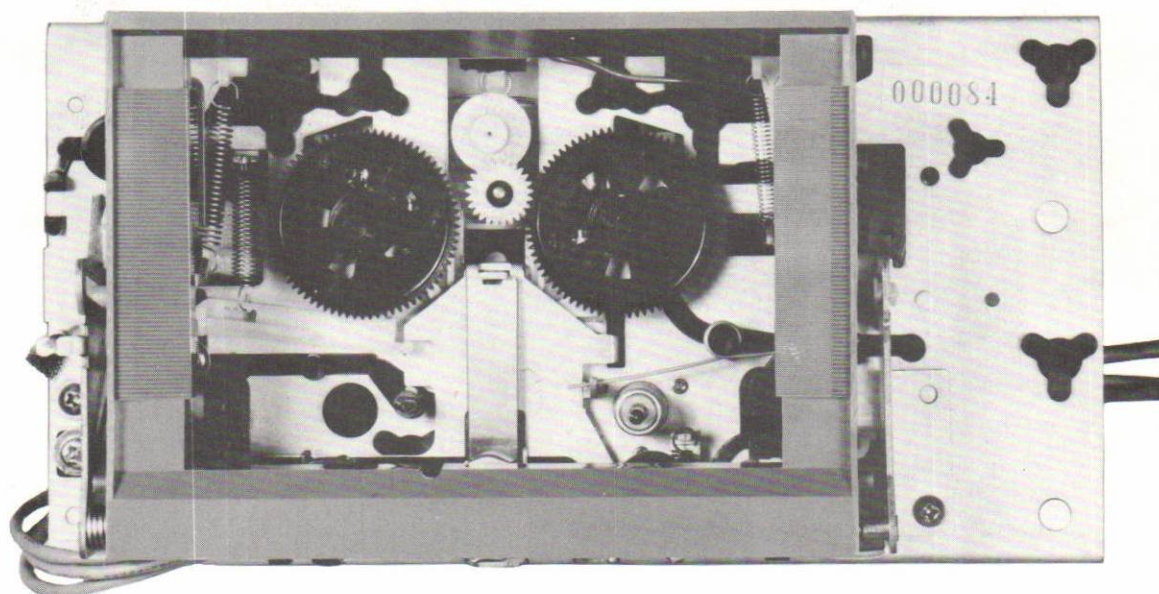




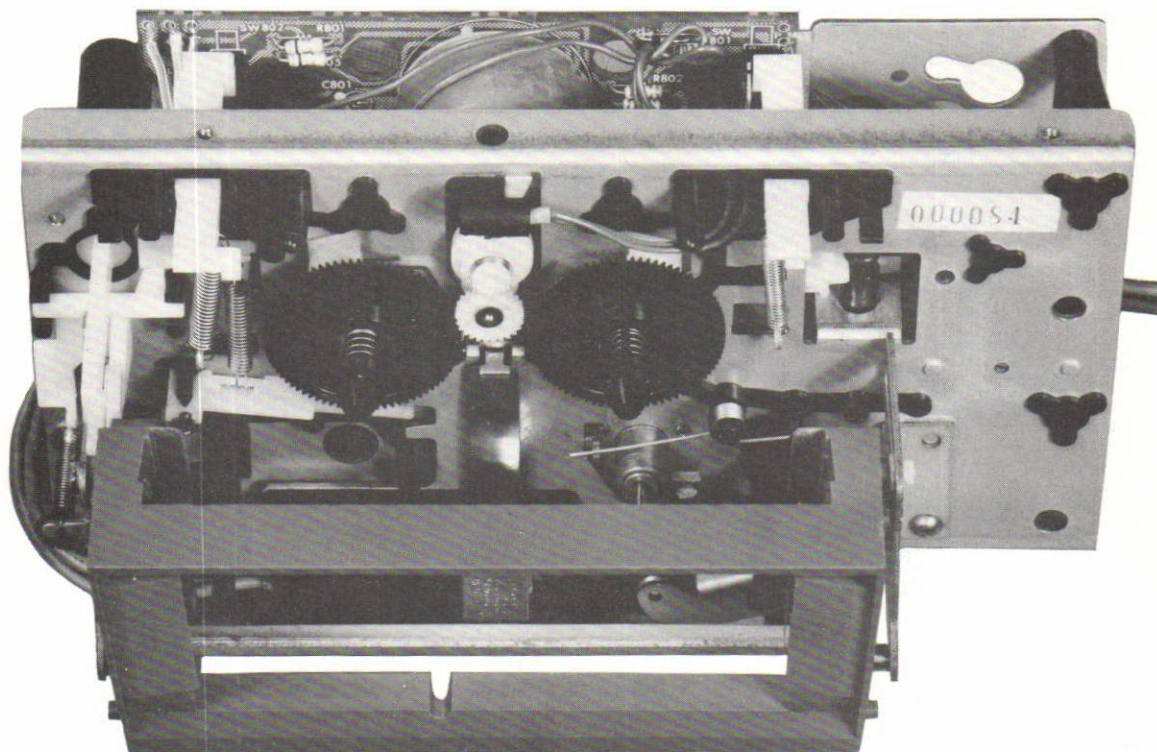
# DECK-MECHANISM'S PHOTOGRAPHS

NORMAL PARTS PLACEMENTS ARE SHOWN  
FOR CONVENIENCE

1. Front View with Cassette Lid and Cassette-Ornament Plate Removed:

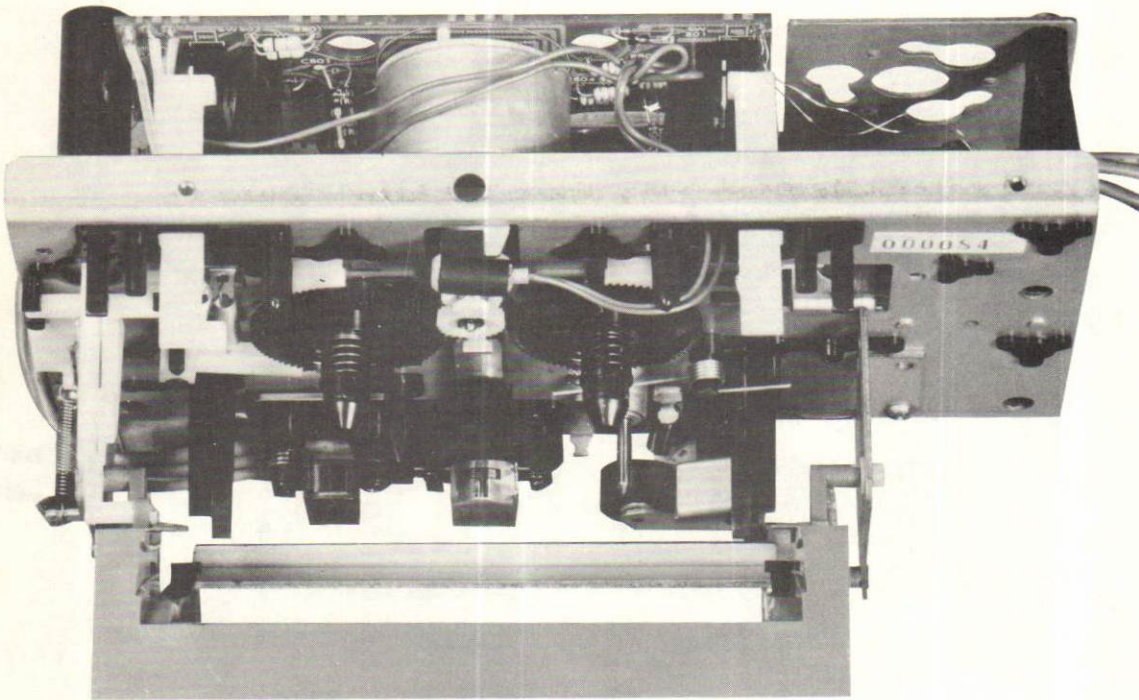


2. Front View with Cassette Holder Opened:

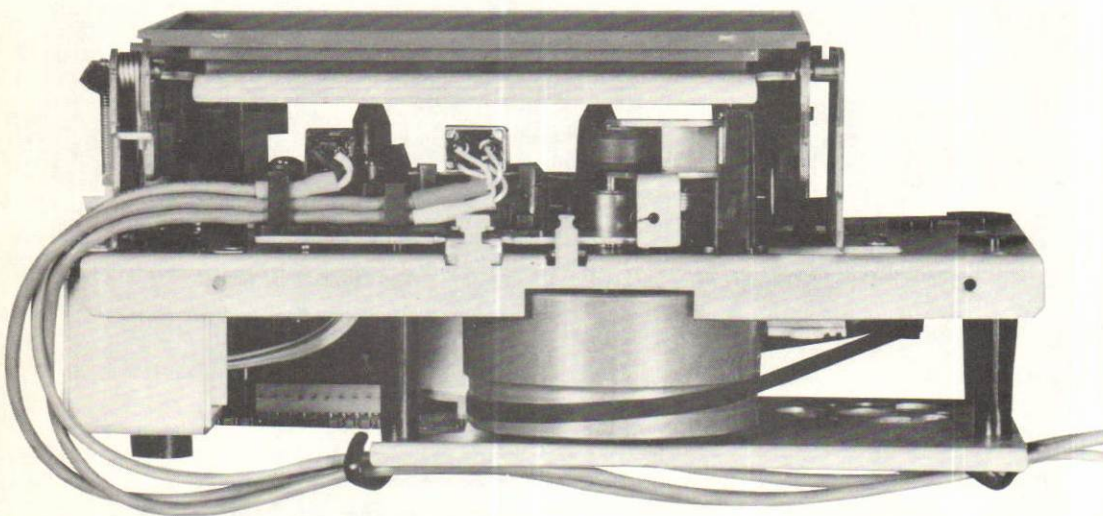




3. Front-Top View with Cassette Holder Removed:

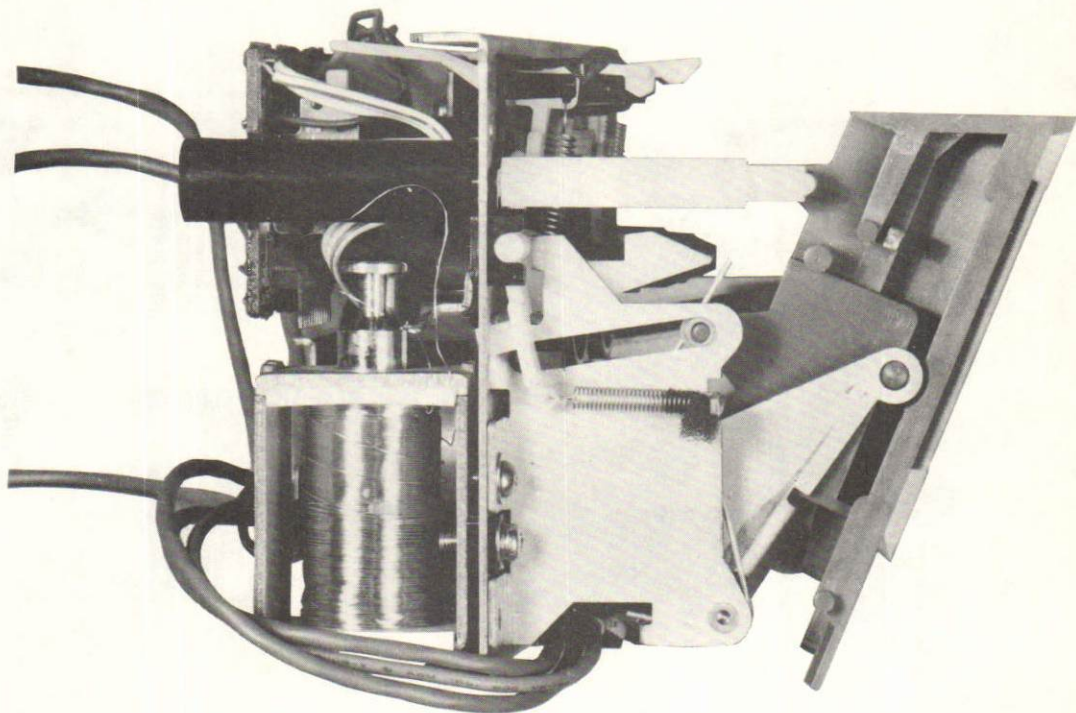


4. Bottom View:

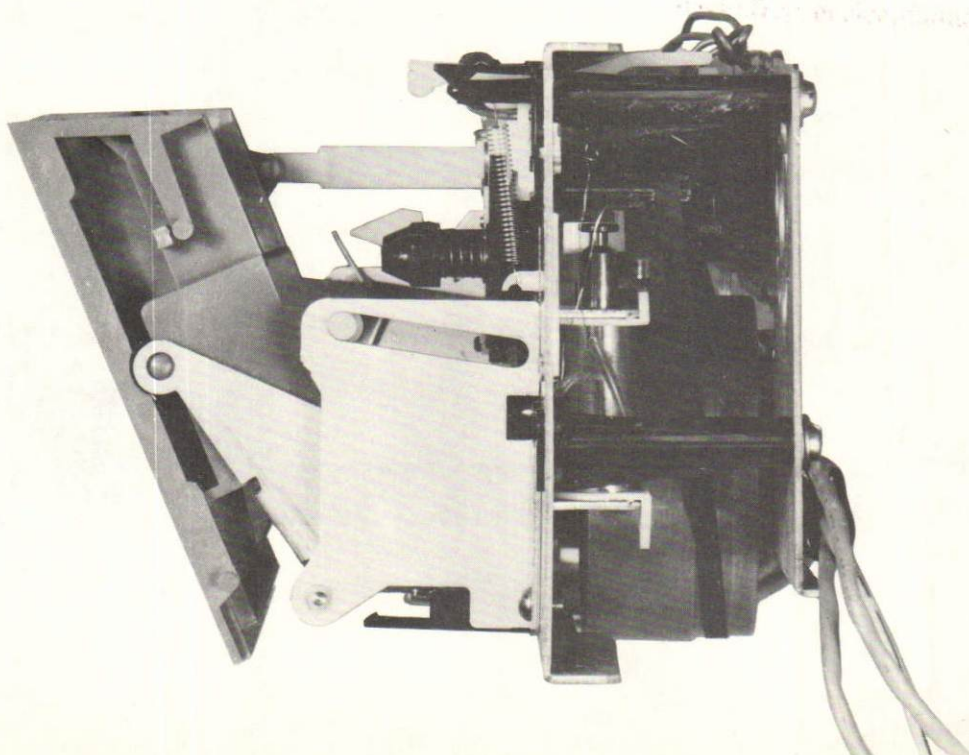




5. Leftside View with Cassette Holder Opened:

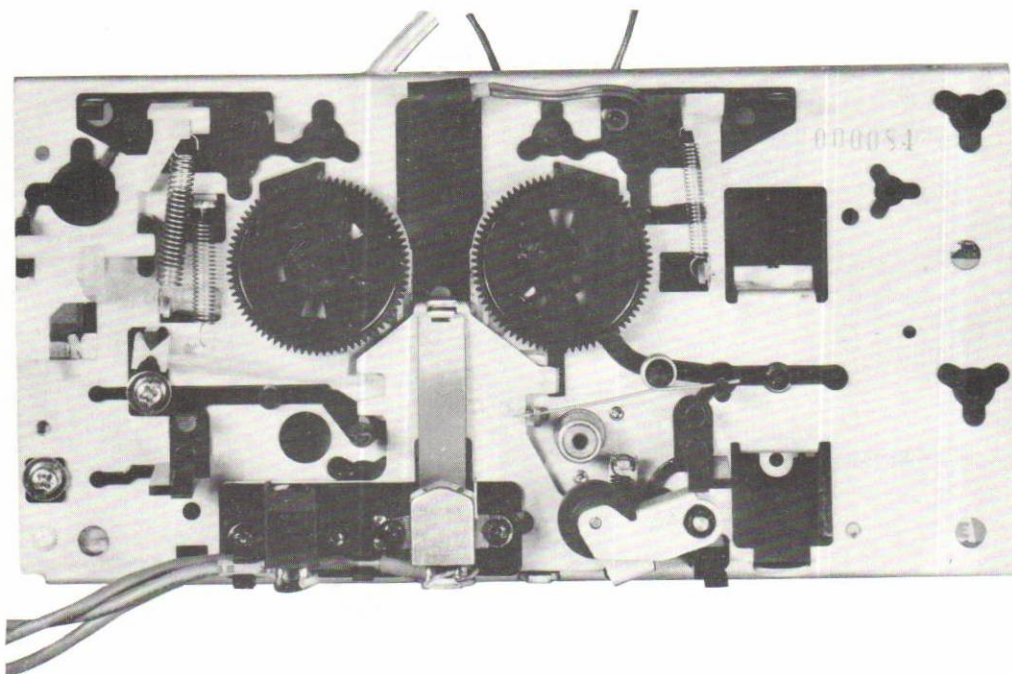


6. Rightside View with Cassette Holder Opened:

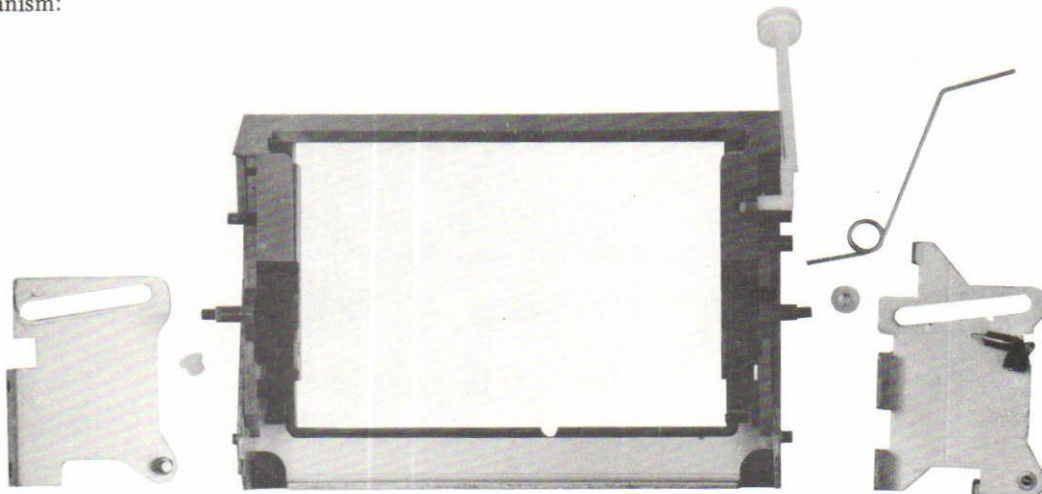




7. Front View with Cassette Holder Removed:

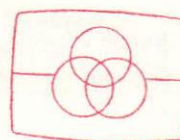
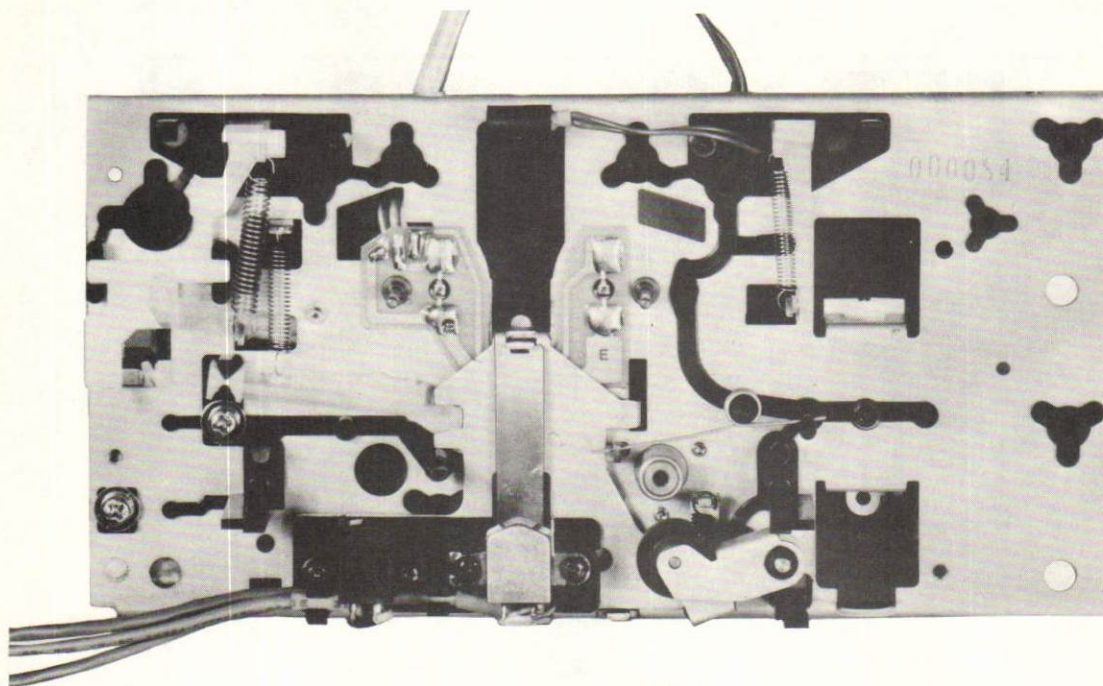


8. Cassette Holder Ass'y, Cassette-Holder Brackets, Spring, Piston, and Rollers Removed from Deck Mechanism:





9. Front View with Reel Spindles Removed:  
Photo transistors are clearly visible.

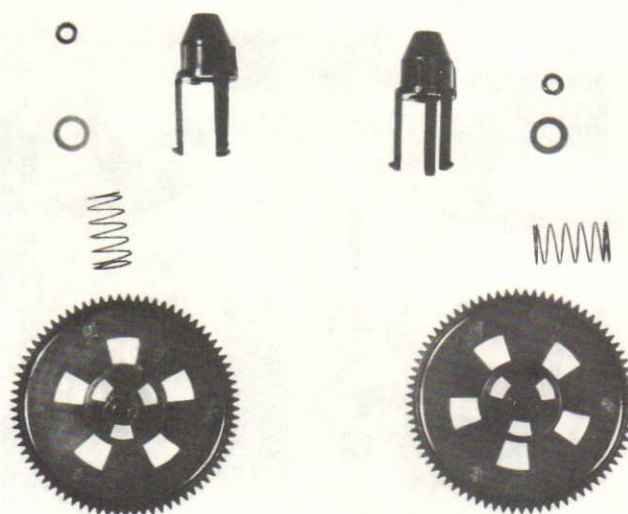


Free service manuals  
Gratis schema's

Digitized by

www.freeservicemanuals.info

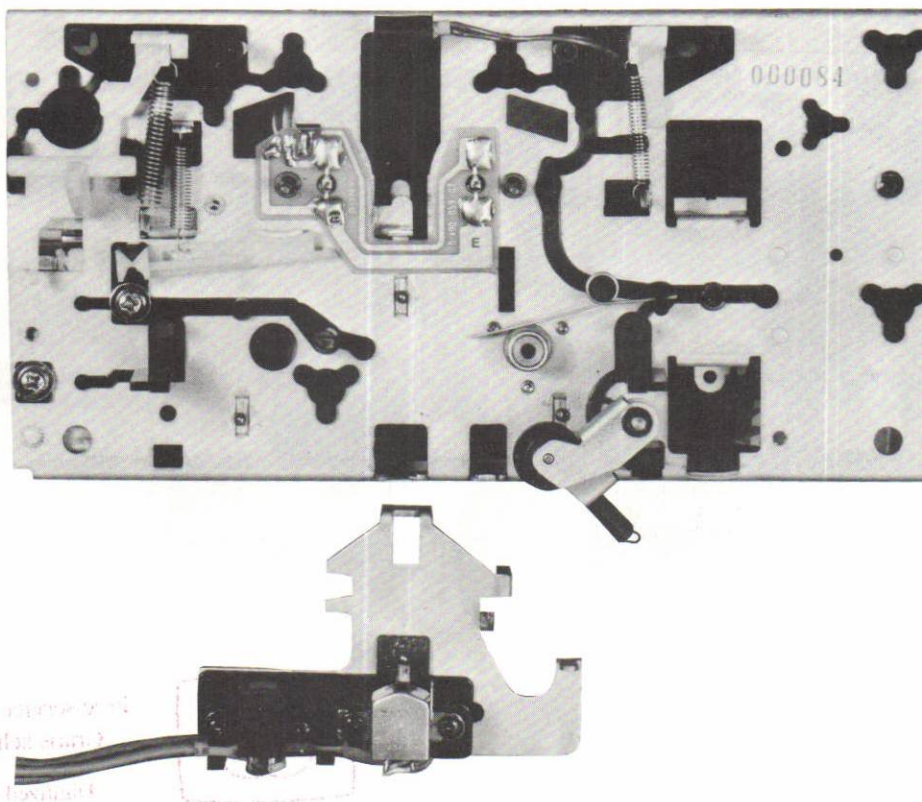
10. Reel Spindles, Springs, Claws and Washers Removed from Deck Mechanism:



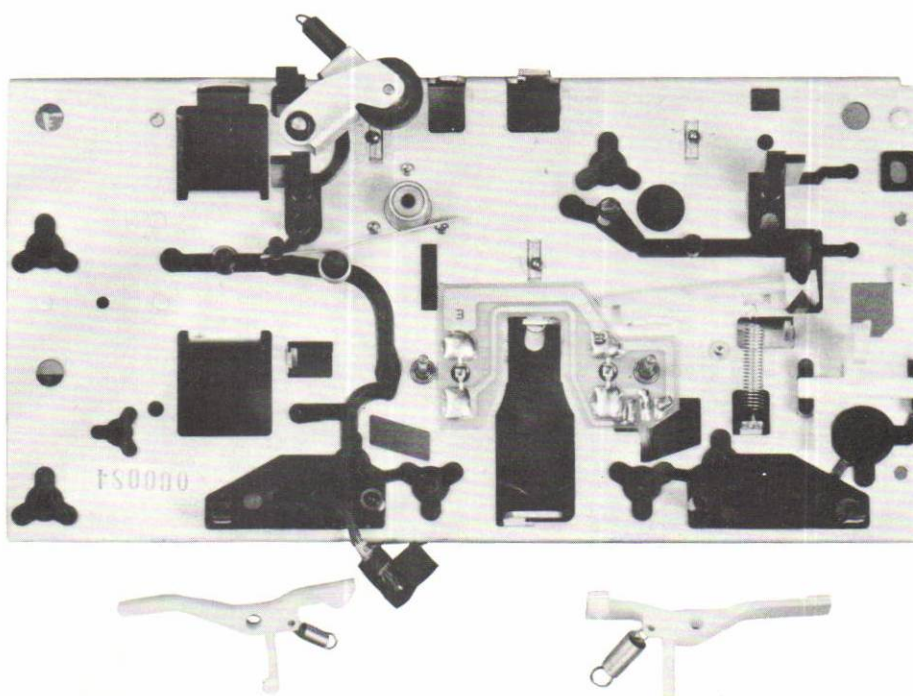


11. Front View with Head Base and Head-Base Spring Removed:

Photo-transistor circuit board is fully visible.  
Four ball bearings are also visible.

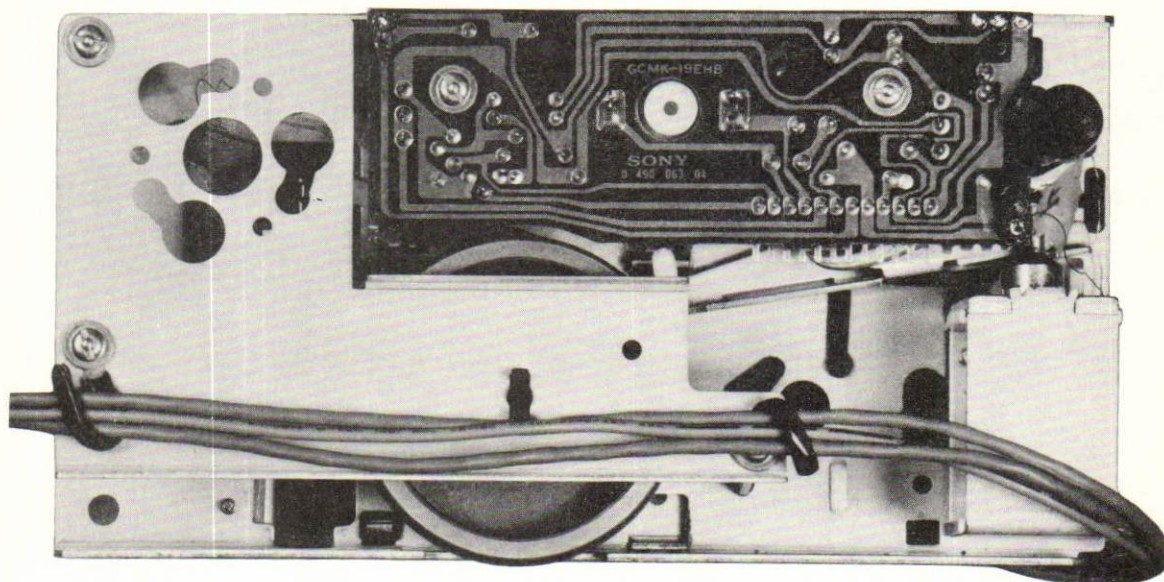


12. Front View with Switch Levers and Their Springs  
Pilot Lamp PL2 and Its Holder Removed:

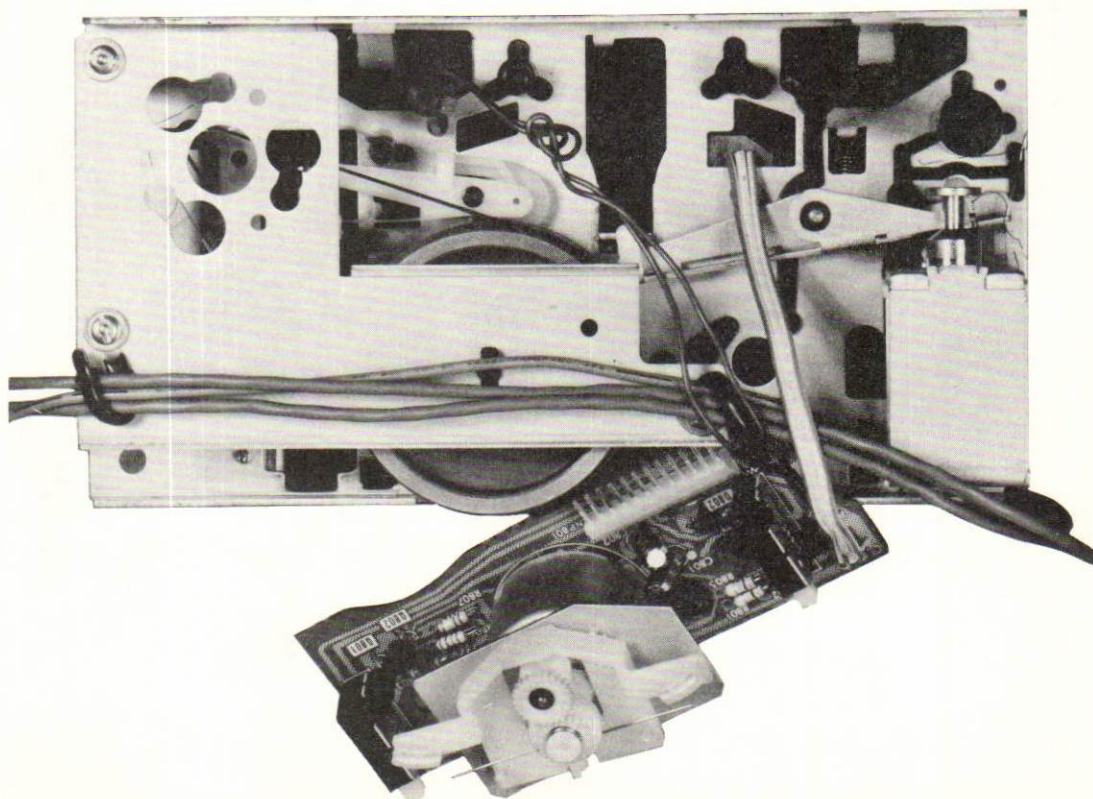




13. Rear View with BSL Servo Motor Removed:



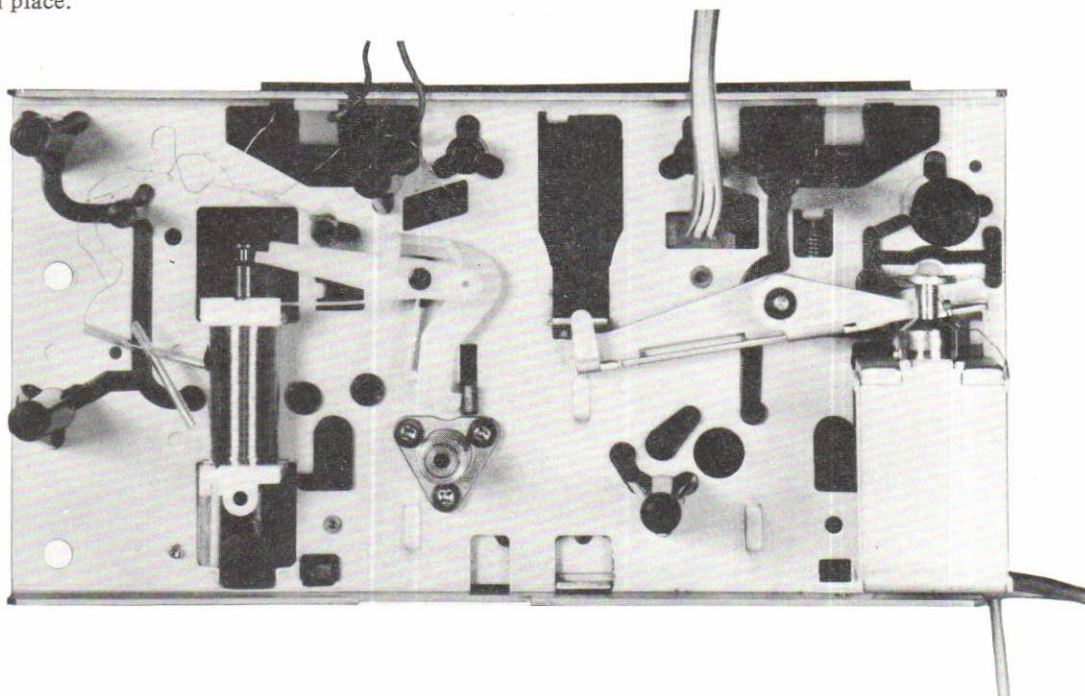
14. Rear View with Switch Board Removed:



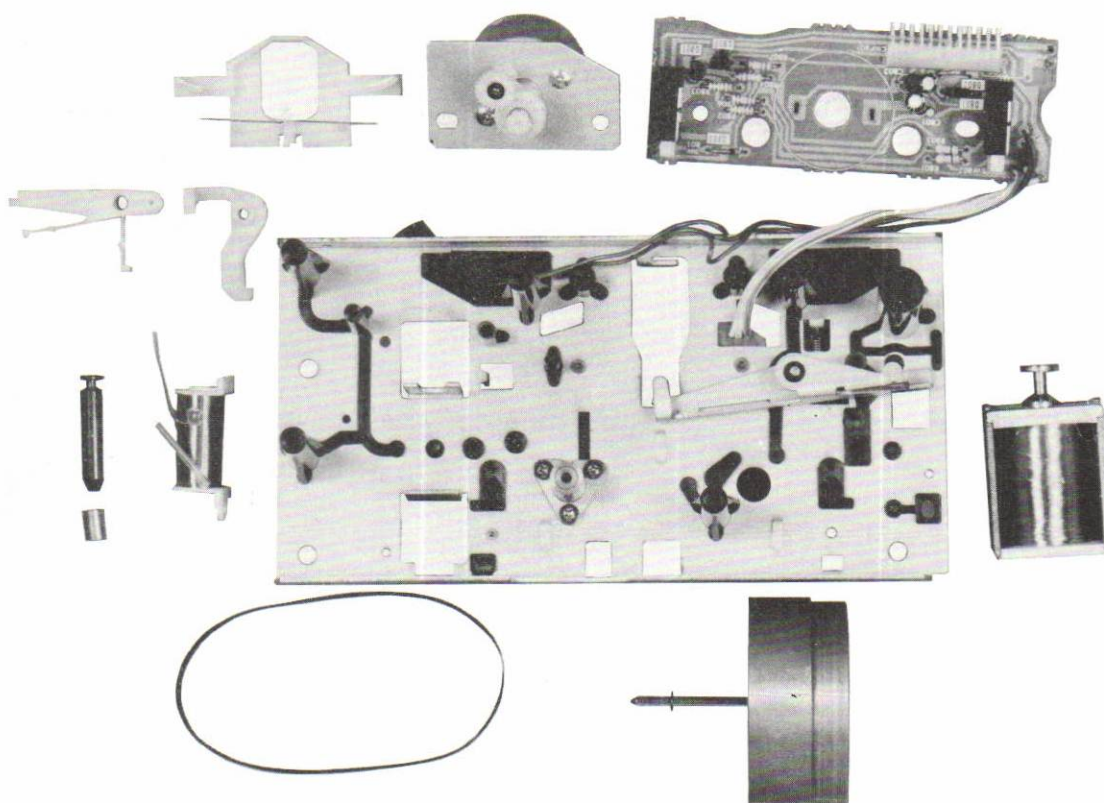


15. Rear View with Flywheel Holder, Flywheel and Drive Belt Removed:

Music-selection and music-selection lock levers are in place.



16. Rear View with Head Solenoid, AMS Solenoid, Music-Section Lever, Music-Selection Lock Lever and Others Removed:





## SECTION 3 ADJUSTMENTS

### 3-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

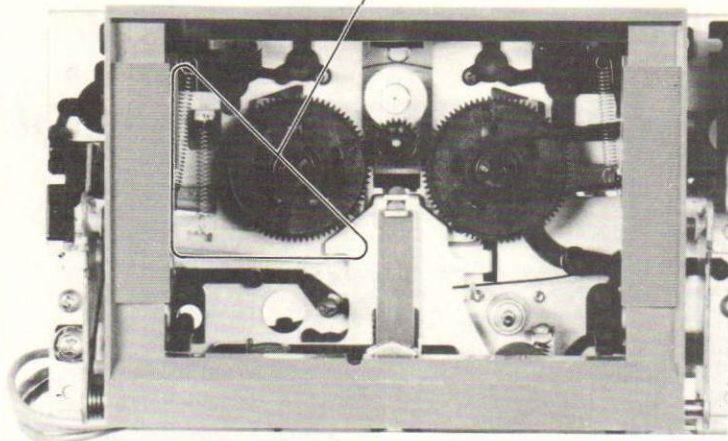
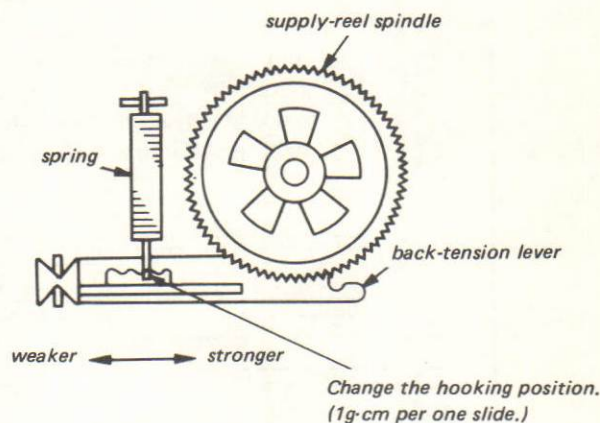
- Clean the following parts with a denatured-alcohol-moistened swab:
 

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers
- Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
- Do not use a magnetized screwdriver for the adjustments.
- After the adjustments, apply suitable locking compound to the parts adjusted.
- The adjustments should be performed with the rated power supply voltage unless otherwise noted.

#### Torque Measurement and Back Tension Torque Adjustment

- | Torque       | Torque meter | Meter reading                       |
|--------------|--------------|-------------------------------------|
| Forward      | CQ-102C      | 35–55 g·cm<br>(0.48–0.76 oz·inch)   |
| Back tension | CQ-102C      | 2.5–4.5 g·cm<br>(0.04–0.06 oz·inch) |

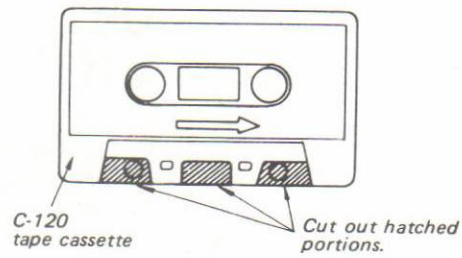
- If the specified back-tension torque is not obtained, change the hooking position of the spring.



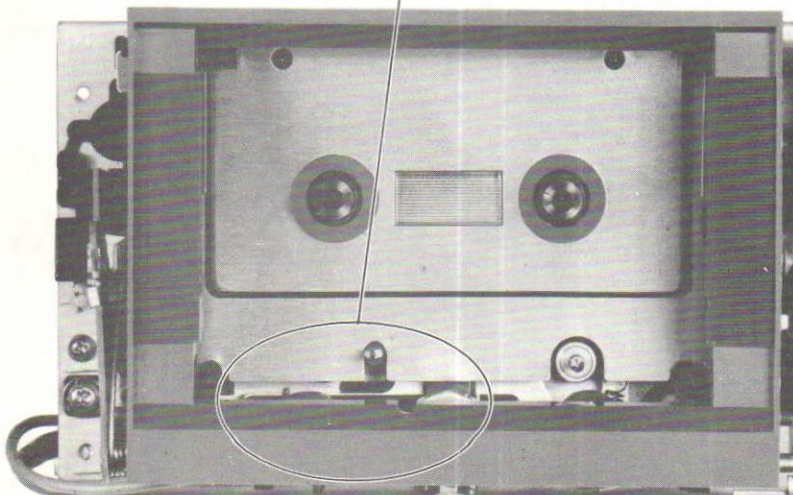
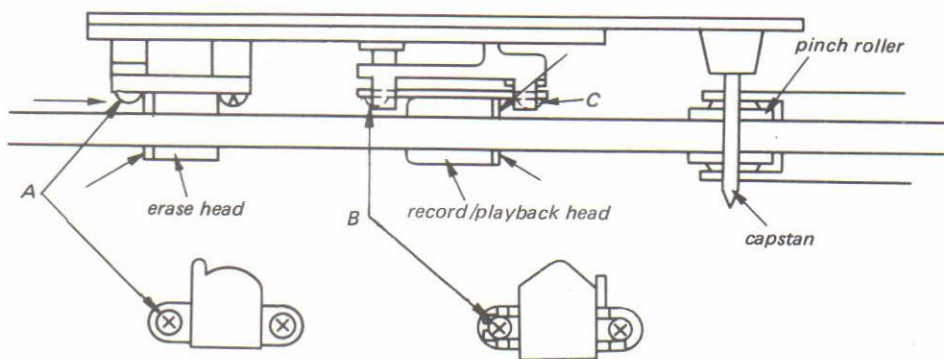


## Head Height Adjustment

1. Prepare an adjustment cassette as shown below.



2. In playback mode and viewing from the front, adjust the head heights by using the adjustment screw A, B, C, to eliminate tape curl and tape twist at portions shown by arrow.





### 3-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

- Set the TAPE switches according to the tape as follows.

Tape	TAPE switch
CS-10	TYPE I
CS-20	TYPE II
CS-30	TYPE III
CS-40	TYPE IV

- Switches and controls should be set as follows unless otherwise specified.

DOLBY NR switch : OFF  
TAPE switch : TYPE I  
TIMER switch: OFF

- Standard Record :

Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

#### Standard Input Level

	MIC	LINE IN
source impedance	300 $\Omega$	10k $\Omega$
input level	0.77mV (-60dB)	0.25V (-10dB)

#### Standard Output Level

	PHONES	LINE OUT
load impedance	8 $\Omega$	47k $\Omega$
output level	39mV (-26dB)	0.44V (-5dB)

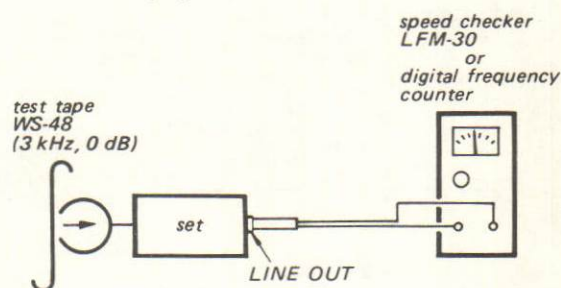
#### Tape Speed Adjustment

##### Setting:

PHONES LEVEL control: mechanical mid

##### Procedure:

Mode: playback

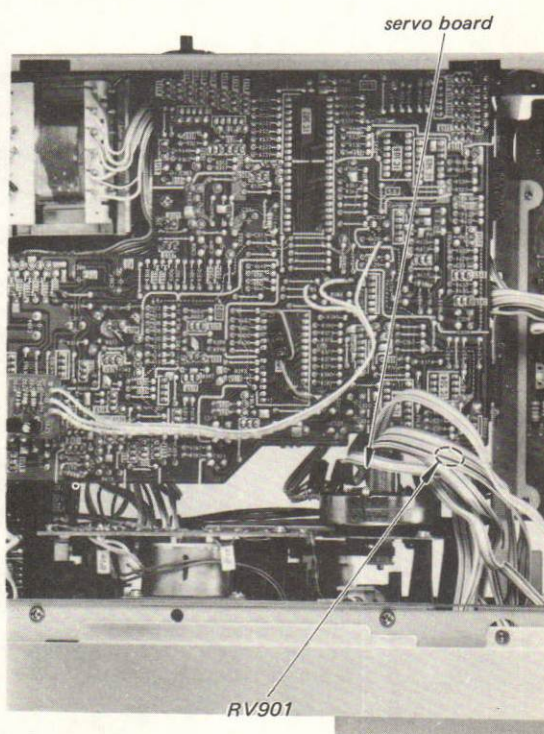


##### Specification:

Speed checker	Digital frequency counter
-0.17 ~ +0.17%	2.995 ~ 3.005Hz

Frequency difference between the beginning and the end of the tape should be within 0.34% (10Hz).

##### Adjustment Location:





## Reel Motor Adjustment

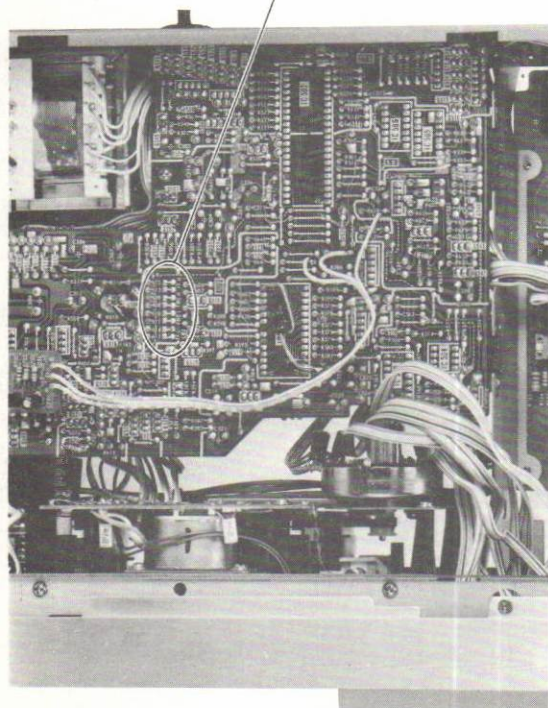
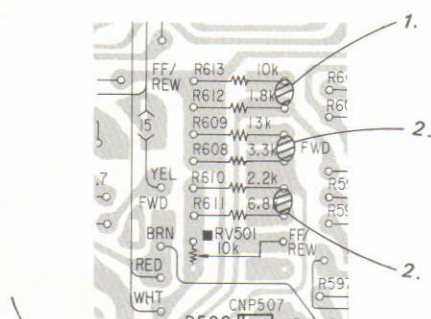
### Procedure:

Install the fast-forward and rewind torque meter (CQ-201B) and bridge the patterns to obtain the specified torque value in fast-forward or rewind mode.

Specification: 110–165 g·cm (1.48–2.20 oz. inch)

### Adjustment Location:

Pattern connection	Torque
1 · 2 open	low
2 bridge	↑
1 bridge	↓
1 · 2 bridge	high

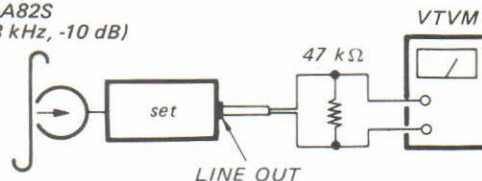


## Record/playback Head Azimuth Adjustment

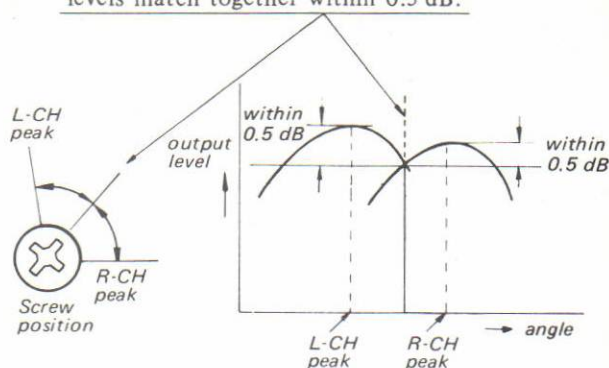
### Procedure:

1. Mode: playback

test tape  
P-4-A82S  
(6.3 kHz, -10 dB)

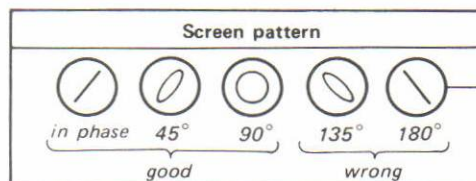
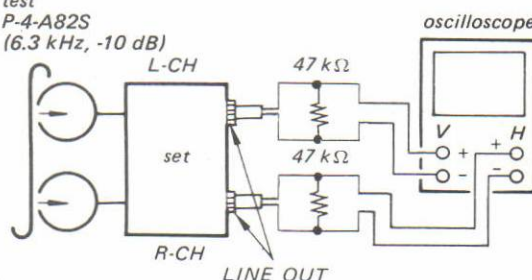


2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw where both of output levels match together within 0.5 dB.

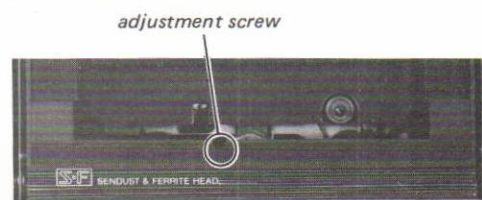


3. Phase Check  
Mode: playback

test  
P-4-A82S  
(6.3 kHz, -10 dB)



### Adjustment Location:

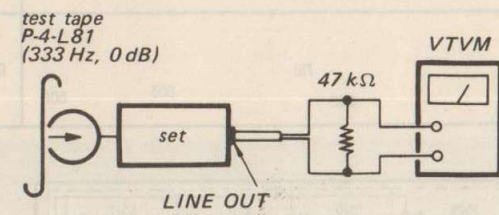




## Playback Level Adjustment

## Procedure:

Mode : playback



## Specification:

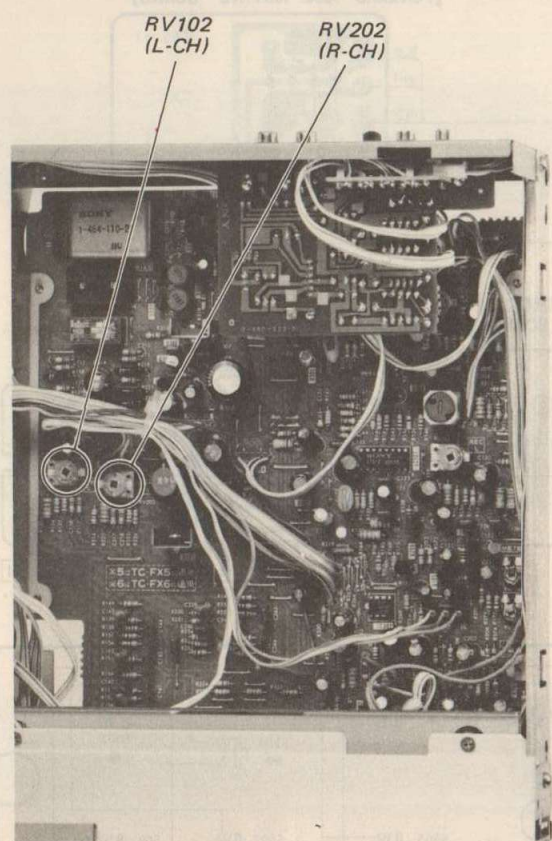
LINE OUT level : 0.52 ~ 0.59 V  
(-3.5 ~ -2.5 dB)

Level difference between channels :  
less than 0.5 dB

Check that the LINE OUT level does not change in playback mode while changing the mode from playback to stop several times.

## Adjustment Location:

- record/playback board -



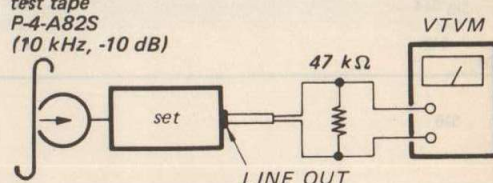
(AEP model shown)

## Playback Equalizer Adjustment

## Procedure:

Mode: playback

test tape  
P-4-A82S  
(10 kHz, -10 dB)



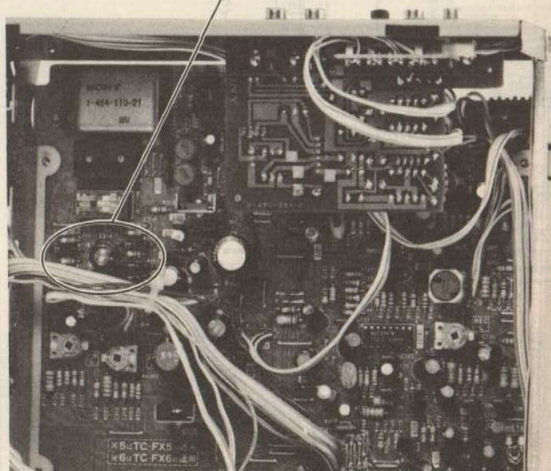
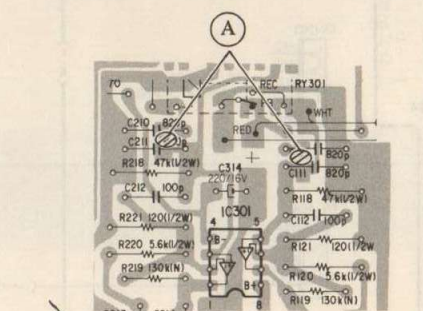
## Specification:

LINE OUT level (TYPE I) :  
0.12 ~ 0.25 V (-16 ~ -10dB)  
LINE OUT level (TYPE II, III, IV) :  
0.08 ~ 0.15 V (-20 ~ -14 dB)  
Level difference between channels :  
less than 3 dB

## Adjustment Location:

- record/playback board -

Pattern connection	LINE OUT level
open	↑ up
A	↓ down



(AEP model shown)

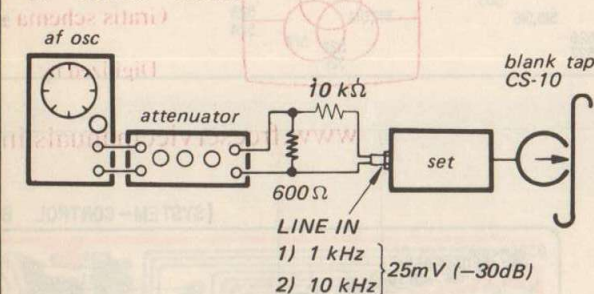
## Record Bias Adjustment

## Setting:

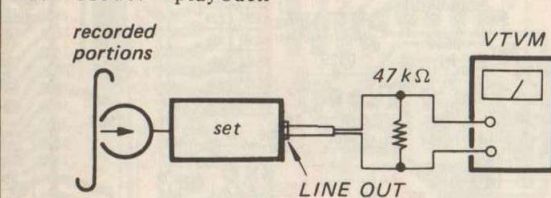
REC LEVEL control: standard record  
(See page 51)

## Procedure:

1. Mode: record

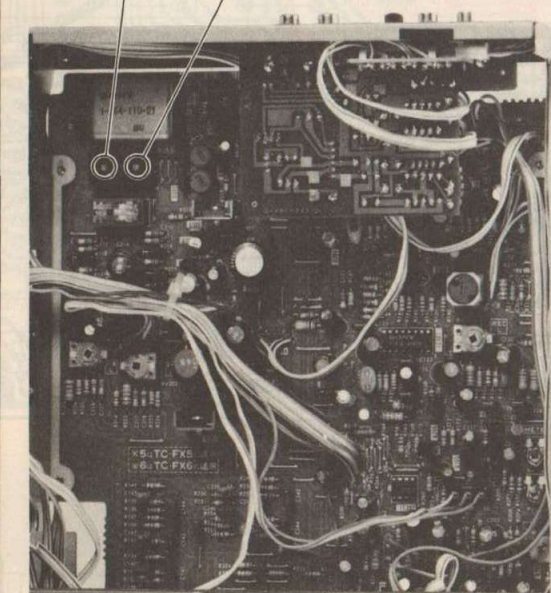


2. Mode: playback



Adjust CT101 (L-CH) and CT201 (R-CH) so that the LINE OUT level of 10 kHz signal is 0 dB relative to that of 1 kHz.

CT101 (L-CH)  
CT201 (R-CH)



(AEP model shown)

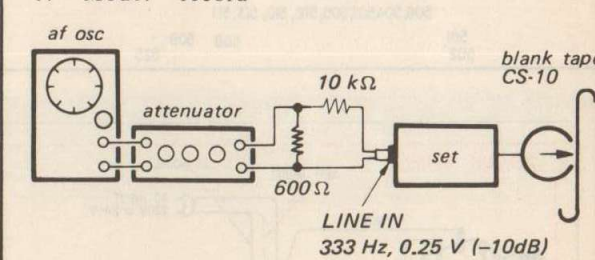
## Record Level Adjustment

## Setting:

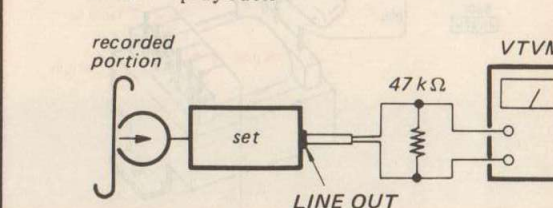
REC LEVEL control: standard record  
(See page 51)

## Procedure:

1. Mode: record



2. Mode: playback

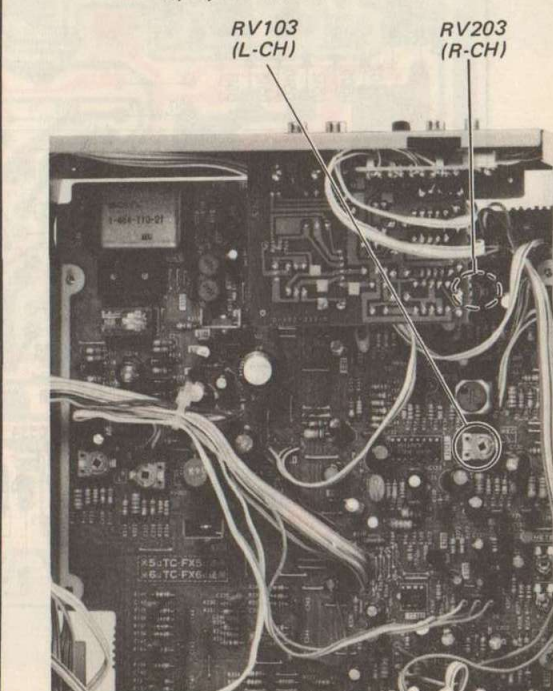


## Specification:

LINE OUT level : 0.41 ~ 0.46 V  
(-5.5 ~ -4.5 dB)

## Adjustment Location:

- record/playback board -

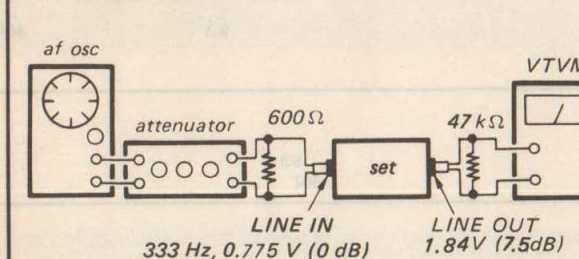


(AEP model shown)

## Level Meter Calibration

## Procedure:

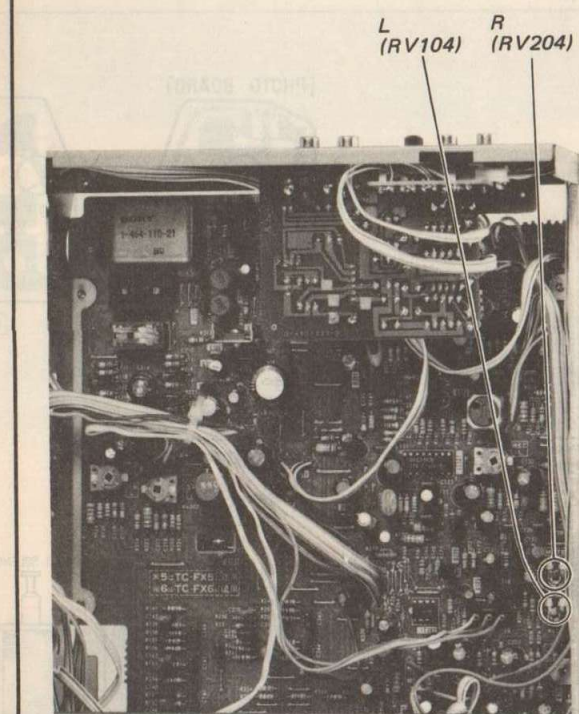
1. Mode : record



- Set the REC LEVEL control so that the LINE OUT level is +7.5 dB.
- Adjust RV104 (L-CH) and RV204 (R-CH) so that the LEDs including 8 dB (right-most element) light up.
- Set the REC LEVEL control so that the LINE OUT level is 5 dB. Make sure that LED meter indicates -4 dB (0 VU) in this time.  
Note: Slide the REC LEVEL control rightward slowly.  
(Be careful to peakhold indication)

## Adjustment Location:

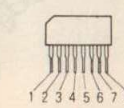
- record/playback board -



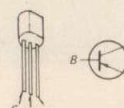
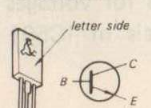
(AEP model shown)

## Semiconductor Lead Layouts

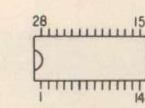
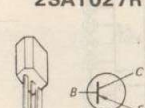
CX069A



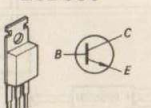
2SA952

2SD809  
2SD862

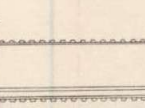
MSM5836

2SA1026  
2SA1027R

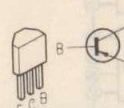
2SD880



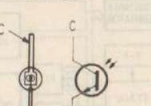
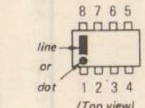
MB8843



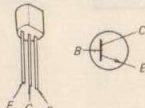
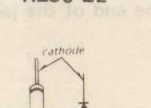
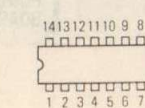
2SB734



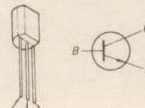
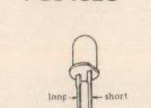
PH102

NJM2903D  
NJM4558D

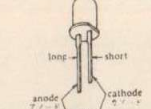
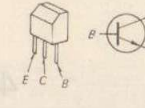
2SC1364

1S1555  
10E2  
RD4.7E  
HZ6C3L  
HZ11B1L  
HZ30-2LTC4001  
μPC339C

2SC2001

AA3432S  
AR3432S  
PG3432S

2SD774





**TC-FX6 TC-FX6**

— 60 —



# 4-2. SCHEMATIC DIAGRAM — System Control Section —

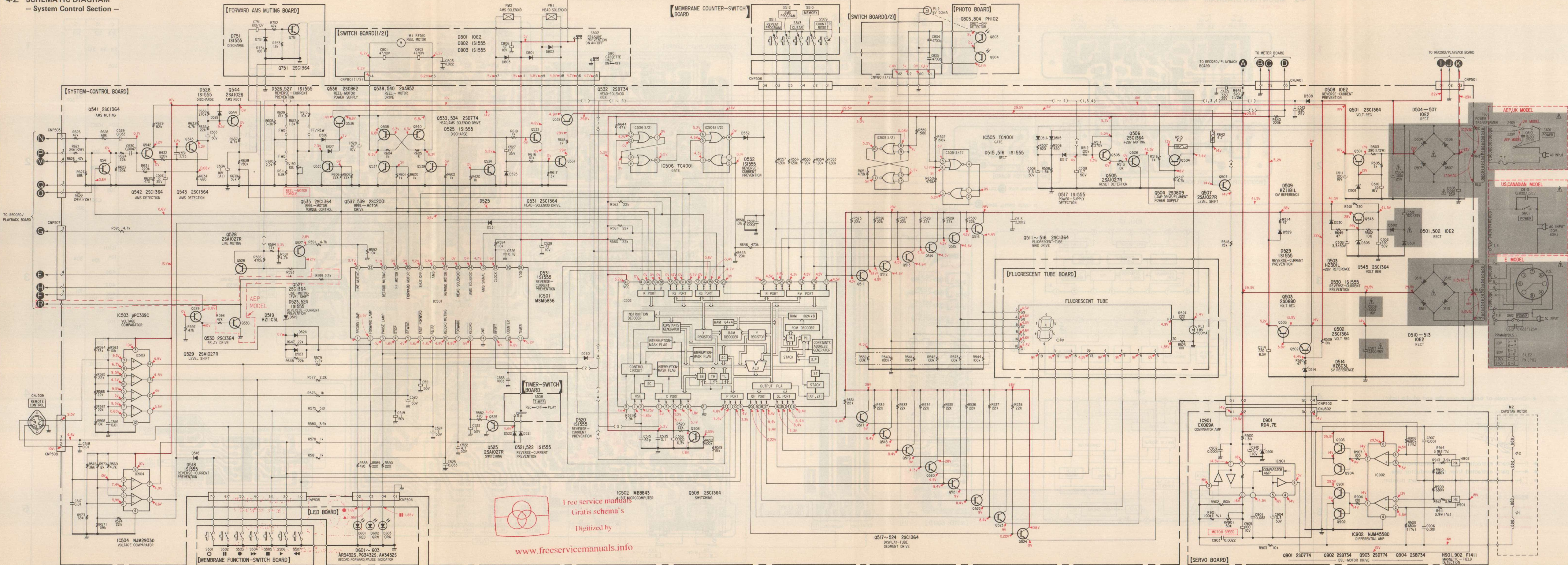
1

2

3

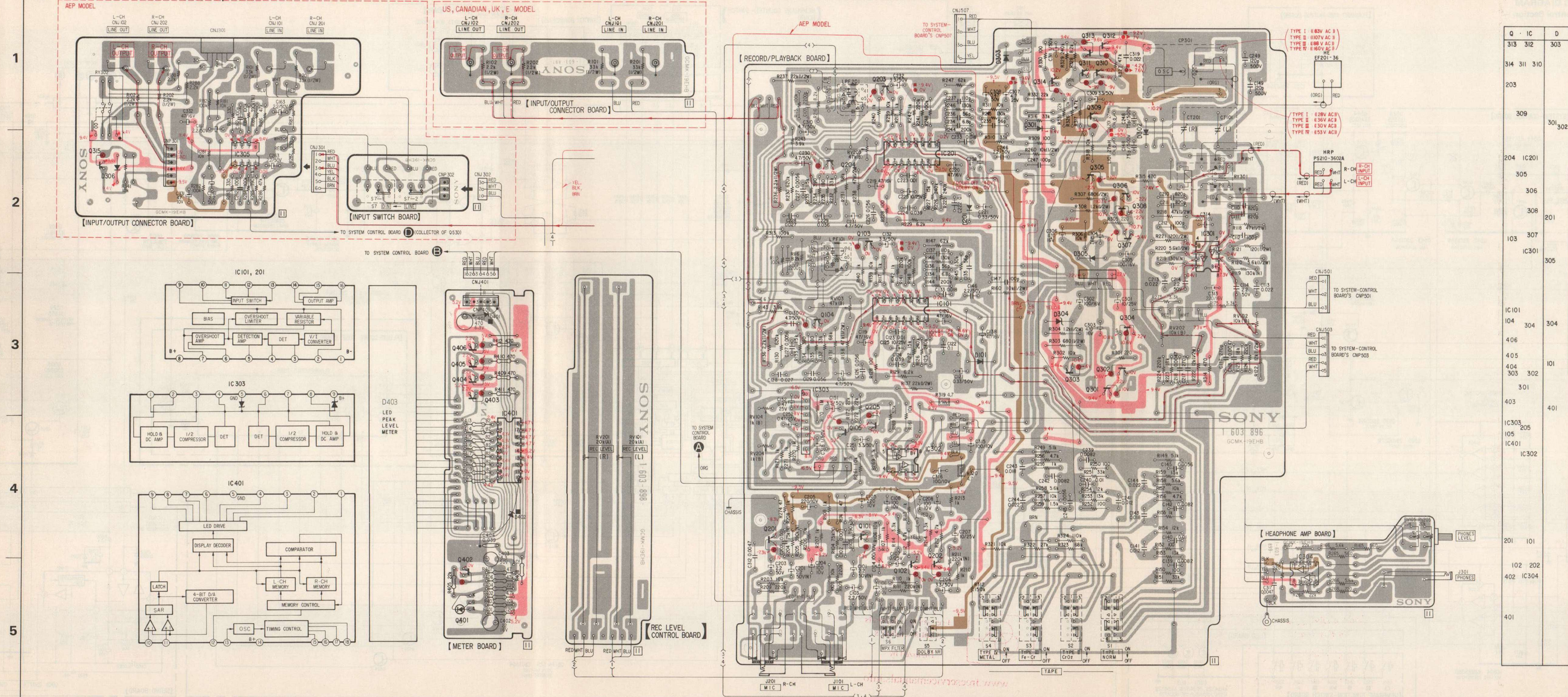
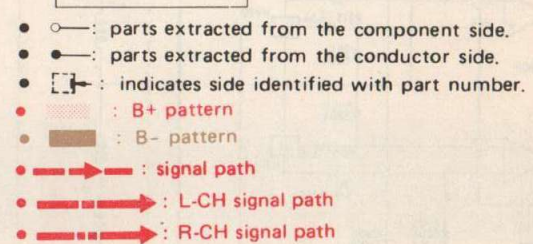
4

5



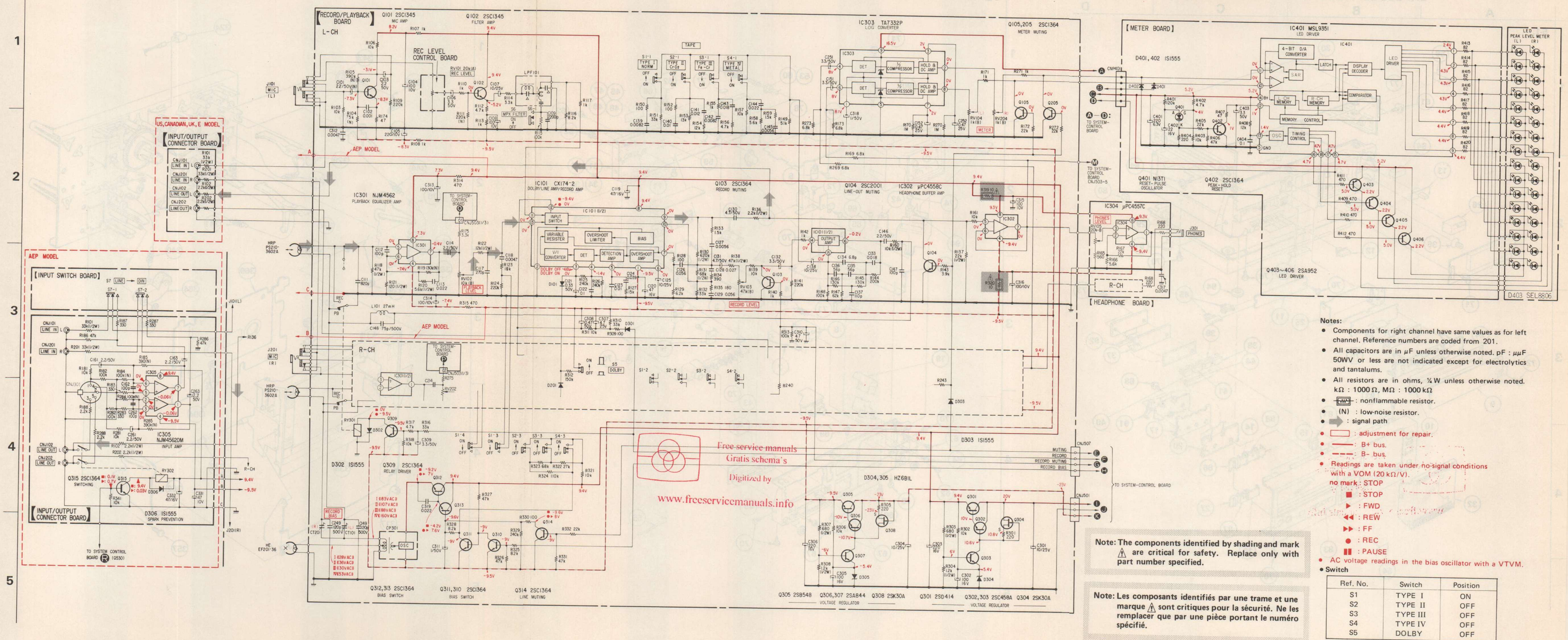


### 4-3. MOUNTING DIAGRAM – Audio Amp Section –

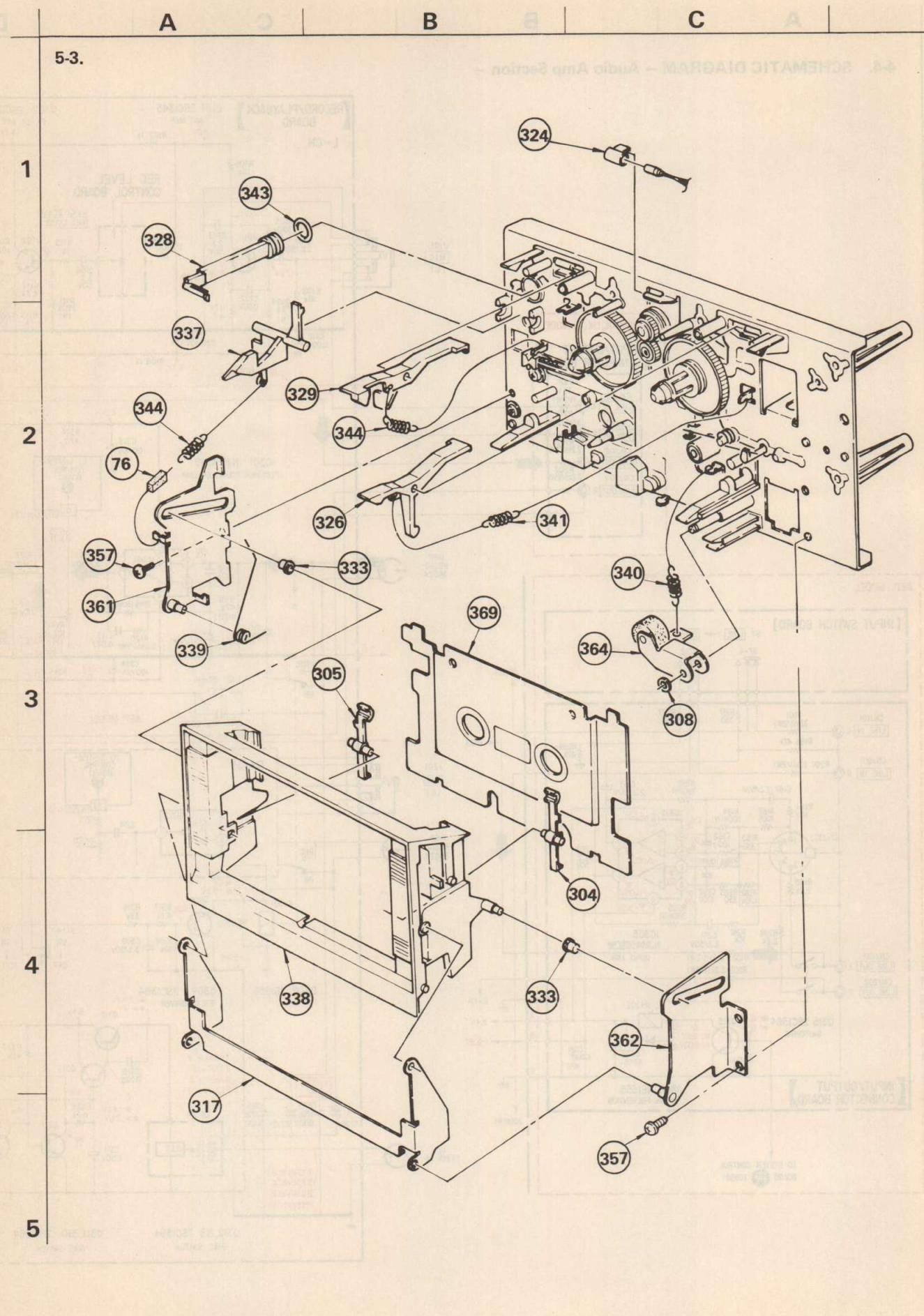
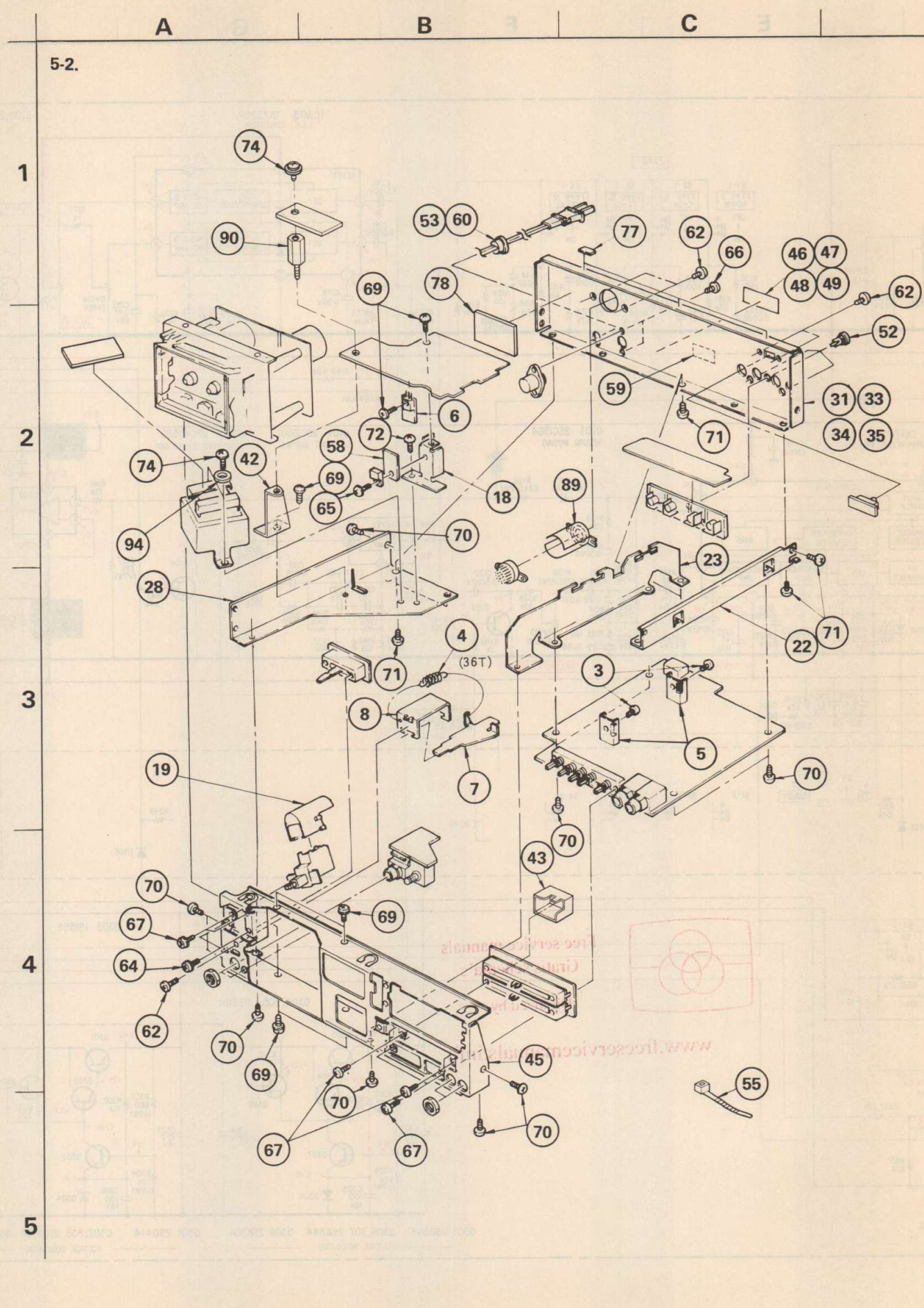
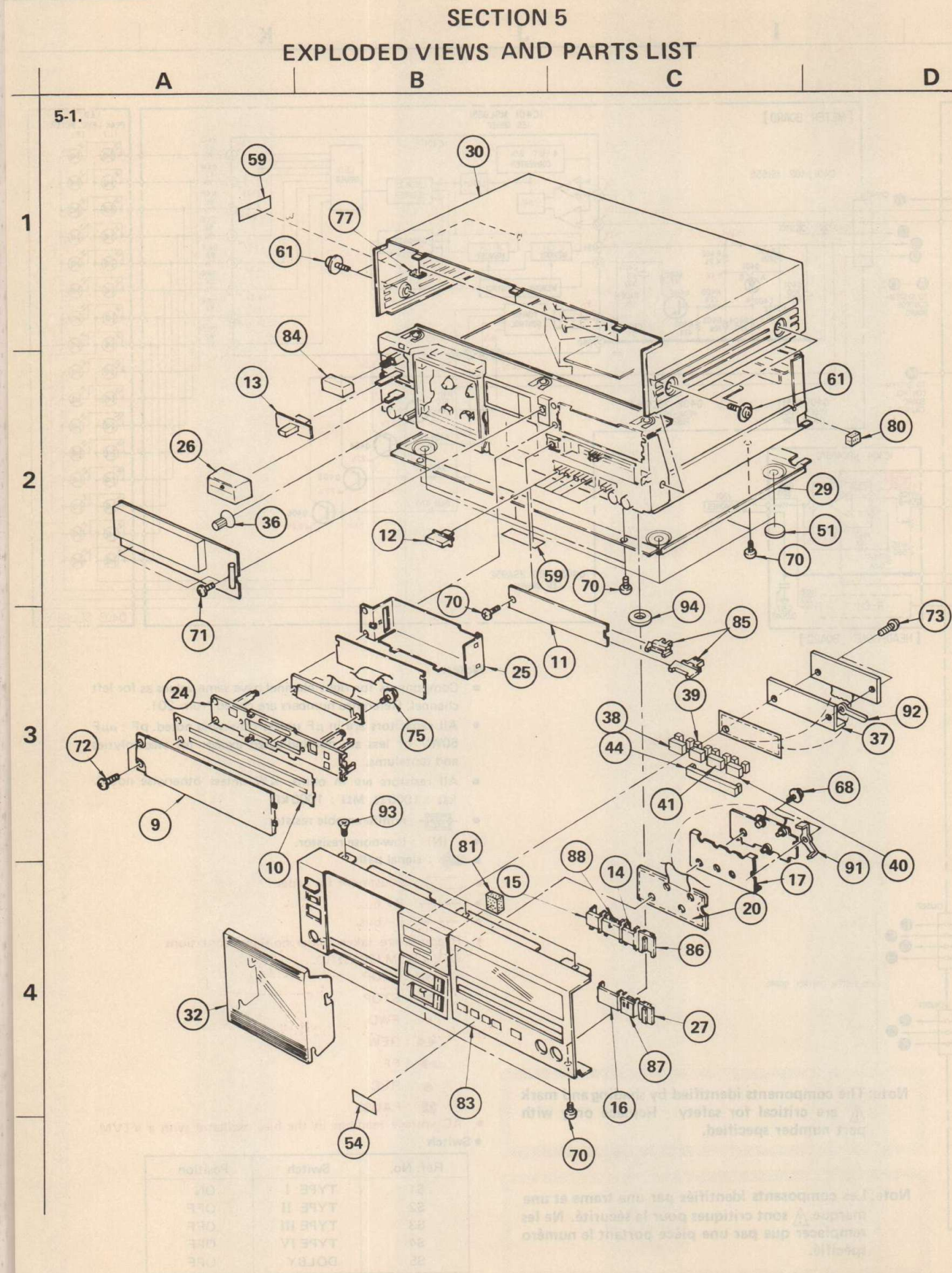




4-4. SCHEMATIC DIAGRAM — Audio Amp Section —









5-4.

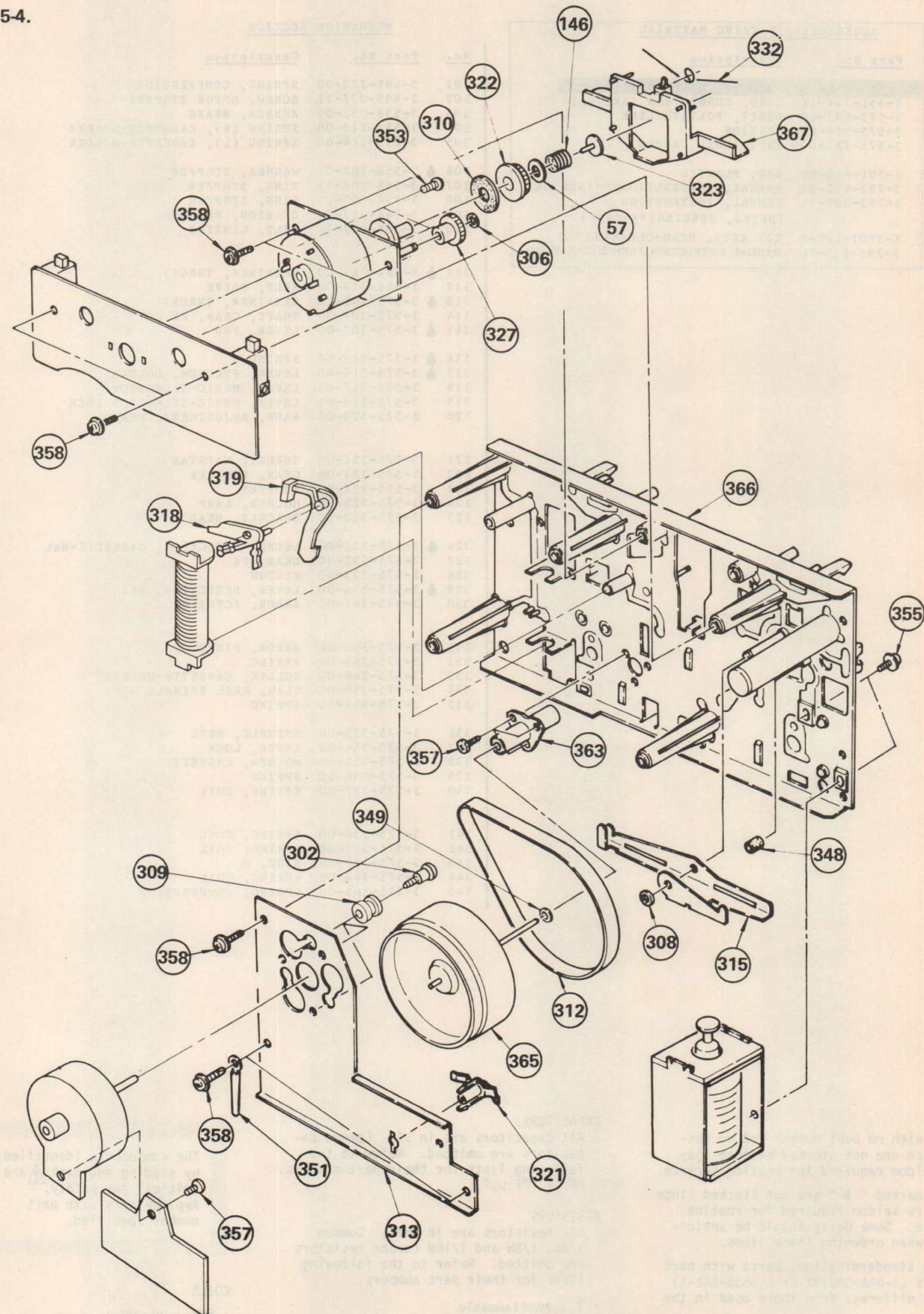
1

2

3

4

5



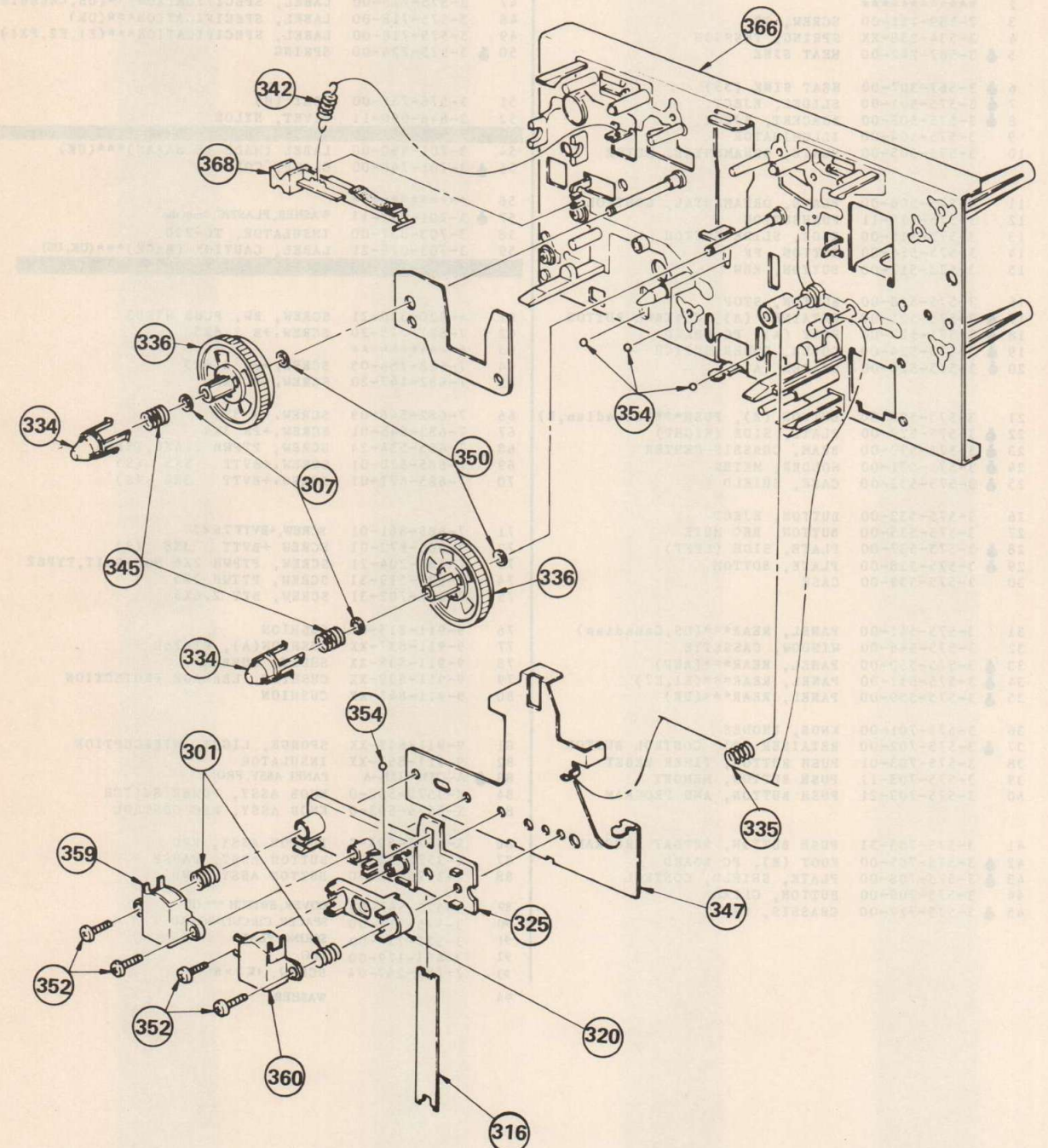
5-5.

1

2

3

4





## GENERAL SECTION

No.	Part No.	Description
1	*****	
2	*****	
3	2-259-121-00	SCREW, TR
4	3-534-238-XX	SPRING, TENSION
5	3-567-242-00	HEAT SINK
6	3-567-307-00	HEAT SINK (35)
7	3-575-501-00	SLIDER, EJECT
8	3-575-502-00	BRACKET, EJECT
9	3-575-504-00	ILLUMINATOR
10	3-575-505-00	PLATE, ORNAMENTAL, METER
11	3-575-506-00	PLATE, ORNAMENTAL, CONTROL
12	3-575-514-11	PUSHBUTTON
13	3-575-515-00	KNOB, SLIDE SWITCH
14	3-575-516-00	BUTTON, FF
15	3-575-517-00	BUTTON, REW
16	3-575-518-00	BUTTON, STOP
17	3-575-521-00	RETAINER (A), CONTROL BUTTON
18	3-575-523-00	FOOT (A), PC BOARD
19	3-575-524-00	COVER, POWER SWITCH
20	3-575-526-00	SPACER (A)
21	3-575-528-00	BUTTON (B), PUSH*** (Canadian, E)
22	3-575-529-00	PLATE, SIDE (RIGHT)
23	3-575-530-00	BEAM, CHASSIS-CENTER
24	3-575-531-00	HOLDER, METER
25	3-575-532-00	CASE, SHIELD
26	3-575-533-00	BUTTON, EJECT
27	3-575-535-00	BUTTON, REC MUTE
28	3-575-537-00	PLATE, SIDE (LEFT)
29	3-575-538-00	PLATE, BOTTOM
30	3-575-539-00	CASE
31	3-575-541-00	PANEL, REAR*** (US, Canadian)
32	3-575-546-00	WINDOW, CASSETTE
33	3-575-550-00	PANEL, REAR*** (AEP)
34	3-575-551-00	PANEL, REAR*** (E1, E2)
35	3-575-559-00	PANEL, REAR*** (UK)
36	3-575-701-00	KNOB, PHONES
37	3-575-702-00	RETAINER (B), CONTROL BUTTON
38	3-575-703-01	PUSH BUTTON, TIMER RESET
39	3-575-703-11	PUSH BUTTON, MEMORY
40	3-575-703-21	PUSH BUTTON, AMS PROGRAM
41	3-575-703-31	PUSH BUTTON, REPEAT PROGRAM
42	3-575-705-00	FOOT (B), PC BOARD
43	3-575-708-00	PLATE, SHIELD, CONTROL
44	3-575-709-00	BUTTON, CLEAR
45	3-575-712-00	CHASSIS, FRONT

## GENERAL SECTION

No.	Part No.	Description
46	3-575-714-00	LABEL, SPECIFICATION*** (AEP)
47	3-575-715-00	LABEL, SPECIFICATION*** (US, Canadian)
48	3-575-716-00	LABEL, SPECIFICATION*** (UK)
49	3-575-718-00	LABEL, SPECIFICATION*** (E1, E2, PX1)
50	3-575-724-00	SPRING
51	3-576-731-00	FELT (H)
52	3-646-090-11	RIVET, NYLON
53	3-701-682-00	HOLDER, POWER-CORD*** (US, Canadian)
54	3-701-690-00	LABEL (MADE IN JAPAN)*** (UK)
55	3-701-748-00	CLAMP, CORD
56	*****	
57	3-701-441-11	WASHER, PLASTIC; 4mm dia.
58	3-703-037-00	INSULATOR, TO-220
59	3-703-079-21	LABEL, CAUTION (BACK)*** (UK, US)
60	3-703-244-00	HOLDER, POWER-CORD*** (AEP, UK, E)
61	4-820-330-21	SCREW, BW, PLUS MINUS
62	7-621-775-20	SCREW, +B 2.6X5
63	*****	
64	7-628-254-05	SCREW, +PS 2.6X5
65	7-682-147-20	SCREW, +P 3X6
66	7-682-546-09	SCREW, +B 3X5
67	7-682-645-01	SCREW, +PS 3X4
68	7-685-534-24	SCREW, PTPWH 2.6X8, TYPE2
69	7-685-870-01	SCREW, +BVTT 3X5 (S)
70	7-685-871-01	SCREW, +BVTT 3X6 (S)
71	7-685-861-01	SCREW, +BVTT 2.6X5
72	7-685-872-01	SCREW, +BVTT 3X8 (S)
73	7-687-204-21	SCREW, PTPWH 2X6 NON-SLIT, TYPE2
74	7-687-519-31	SCREW, PTTWH 3X5
75	7-687-702-31	SCREW, BTT 2.6X5
76	9-911-815-02	CUSHION
77	9-911-837-XX	CUSHION(A), FILTER
78	9-911-838-XX	SHEET, RUBBER
79	9-911-839-XX	CUSHION, LEAKAGE PROTECTION
80	9-911-841-XX	CUSHION
81	9-911-842-XX	SPONGE, LIGHT INTERCEPTION
82	9-911-863-XX	INSULATOR
83	A-2310-151-A	PANEL ASSY, FRONT
84	X-3575-502-0	KNOB ASSY, POWER SWITCH
85	X-3575-503-0	KNOB ASSY, REC CONTROL
86	X-3575-504-2	BUTTON ASSY, REC
87	X-3575-505-0	BUTTON ASSY, PAUSE
88	X-3575-506-0	BUTTON ASSY, FWD
89	3-575-567-00	COVER, SWITCH*** (E)
90	3-575-714-00	SPACER, CIRCUIT-BOARD
91	3-575-724-00	SPRING, PLATE
92	3-401-179-00	LUG
93	7-682-247-04	SCREW, +K 3x6
94		WASHER

## ACCESSORY &amp; PACKING MATERIAL

Part No.	Description
A-1-526-565-00	ADAPTER, AC PLUG*** (E1, E2)
1-551-734-11	CORD, CONNECTION (RK-74A)
3-573-625-00	SHEET, POLYETHYLENE
3-575-564-00	CUSHION
3-575-723-00	INDIVIDUAL CARTON
3-701-630-00	BAG, PLASTIC
3-783-402-01	MANUAL, INSTRUCTION*** (AEP, UK)
3-795-082-11	MANUAL, INSTRUCTION (DUTCH, SWEDISH)*** (AEP)
X-3701-105-0	TIP ASSY, HEAD-CLEANING
3-795-125-31	MANUAL, INSTRUCTION; FRENCH (CANADIAN)

## MECHANISM SECTION

No.	Part No.	Description
301	3-481-272-00	SPRING, COMPRESSION
302	3-489-077-21	SCREW, MOTOR STOPPER
303	3-538-051-00	RUBBER, BRAKE
304	3-555-113-00	SPRING (R), CASSETTE-HOLDER
305	3-555-114-00	SPRING (L), CASSETTE-HOLDER
306	3-558-708-01	WASHER, STOPPER
307	3-558-708-11	RING, STOPPER
308	3-558-708-21	RING, STOPPER
309	3-564-017-00	CUSHION, RUBBER
310	3-564-027-11	FELT, LIMITER
311	3-564-067-00	RETAINER, THRUST
312	3-564-319-00	BELT, DRIVE
313	3-575-302-00	RETAINER, THRUST
314	3-575-304-00	SHAFT, GEAR, FR
315	3-575-307-00	LEVER, FWD
316	3-575-312-00	SPRING
317	3-575-314-00	LEVER, FULCRUM, HOLDER
318	3-575-317-00	LEVER, MUSIC-SELECTION
319	3-575-318-00	LEVER, MUSIC-SELECTION LOCK
320	3-575-320-00	BASE, ADJUSTMENT, HEAD
321	3-575-321-00	THRUST, CAPSTAN
322	3-575-324-00	GEAR, LIMITER
323	3-575-327-00	STOPPER
324	3-575-328-00	HOLDER, LAMP
325	3-575-330-00	BRACKET, HEAD
326	3-575-331-00	LEVER, DETECTION, CASSETTE-HAL
327	3-575-332-00	GEAR, FR
328	3-575-333-00	PISTON
329	3-575-334-00	LEVER, DETECTION, REC
330	3-575-341-00	ARBOR, ACTUATOR
331	3-575-342-00	ARBOR, FIXED
332	3-575-345-00	SPRING
333	3-575-348-00	ROLLER, CASSETTE-HOLDER
334	3-575-350-00	CLAW, REEL SPINDLE
335	3-575-351-00	SPRING
336	3-575-353-00	SPINDLE, REEL
337	3-575-354-00	LEVER, LOCK
338	3-575-355-00	HOLDER, CASSETTE
339	3-575-356-00	SPRING
340	3-575-357-00	SPRING, COIL
341	3-575-358-00	SPRING, COIL
342	3-575-359-00	SPRING, COIL
343	3-575-360-00	RING, O
344	3-575-364-00	SPRING, COIL
345	3-575-365-00	SPRING, COMPRESSION

## NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

## CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.  
MF: μF, PF: μμF.

## RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

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

## COILS

- MMH : mH, UH : μH

## NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

## CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers.  
MF: μF, PF: μμF.

## RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

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

## COILS

- MMH : mH, UH : μH



ELECTRICAL PARTS

MECHANISM SECTION

No.	Part No.	Description
346	3-575-368-00	SPRING, COMPRESSION
347	3-575-383-00	CHASSIS, HEAD
348	3-652-612-11	CUSHION (B)
349	3-701-438-21	WASHER
350	3-701-439-21	WASHER
351	3-701-822-00	HOLDER, WIRE
352	7-621-772-70	SCREW +B 2X14
353	7-621-775-10	SCREW +B 2.6X4
354	7-671-112-11	BALL, STEEL:2.5mm DIA.
355	7-682-949-01	SCREW +PSW 3X10
356	7-685-533-11	SCREW +BTP 2.6X6 TYPE2 N-S
357	7-685-861-01	SCREW +BVTT 2.6X5 (S)
358	7-687-246-21	SCREW, PTPWH 3X8,TYPE2
359	8-825-724-00	HEAD, ERASE: EF-201-36
360	8-825-732-00	HEAD, REC/PB: PS210-3602A
361	X-3575-301-0	PLATE (A) ASSY, HOLDER FULCRUM
362	X-3575-302-0	PLATE (B) ASSY, HOLDER FULCRUM
363	X-3575-303-0	BEARING ASSY, CAPSTAN
364	X-3575-304-0	PINCH ROLLER (T) ASSY
365	X-3575-305-0	FLYWHEEL (T) ASSY
366	X-3575-306-0	CHASSIS ASSY, MECHANISM
367	X-3575-309-0	PLATE ASSY, BRAKE
368	X-3575-310-0	LEVER ASSY, TENSION, BACK
369	X-3575-314-0	PLATE ASSY, ORNAMENTAL

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

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

COILS

- MMH : mH, UH : μH

ELECTRICAL PARTS

Ref.No.	Part No.	Description
	1-519-219-00	INDICATOR TUBE, FLUORESCENT
▲.1-534-817-XX		CORD, POWER*** (AEP)
1-535-116-00		TERMINAL
1-535-139-00		BASE POST 19MM (10MM PITCH)
▲.1-551-473-31		CORD, POWER*** (E1, E2)
▲.1-551-505-00		CORD, POWER*** (US, Canadian)
▲.1-551-884-00		CORD, POWER*** (UK)
1-603-843-00		PC BOARD, SYSTEM CONTROL
1-603-844-00		PC BOARD, INDICATOR TUBE
1-603-845-00		PC BOARD, TIMER SWITCH
1-603-896-00		PC BOARD, REC/PB AMP
1-603-897-00		PC BOARD, JACK*** (US, Canadian, UK, E)
1-603-898-00		PC BOARD, REC CONTROL
1-603-899-00		PC BOARD, HEADPHONE JACK
1-603-905-00		PC BOARD, METER
1-604-178-00		PC BOARD, DIN INPUT SWITCH*** (AEP)
1-604-179-00		PC BOARD, DIN CONNECTOR*** (AEP)
1-604-292-00		PC BOARD, AMS MUTE
1-604-559-00		PC BOARD, POWER-TRANSFORMER*** (E)
A-2019-127-A		MOUNTED PCB, SYSTEM CONTROL*** (UK, E)
C113	1-130-305-00	FILM 0.022MF 5% 100V
C213	1-130-305-00	FILM 0.022MF 5% 100V
C252	1-127-451-00	ELECT (SOLID) 0.47MF 10% 25V
C501	▲.1-123-333-00	ELECT 100MF 20% 25V
C504	▲.1-121-657-00	ELECT 1000MF 20% 25V
C505	▲.1-121-657-00	ELECT 1000MF 20% 25V
C506	▲.1-123-324-00	ELECT 1000MF 20% 16V
C507	▲.1-123-326-00	ELECT 3300MF 20% 16V
C534	1-131-413-00	ELECT (SOLID) 1MF 10% 16V
C610	▲.1-130-098-00	CAPACITOR, FILM 0.022MF, 150V*** (Canadian)
C610	▲.1-130-232-00	CAPACITOR, FILM 0.022MF, 150V*** (US)
C610	▲.1-130-455-00	CAPACITOR, FILM 0.01MF, 250V*** (E1, E2)
C610	▲.1-130-456-00	CAPACITOR, FILM 0.022MF, 250V*** (AEP, UK)
CNJ101	1-536-501-21	JACK, 4P*** (AEP)
CNJ102	1-536-501-21	JACK, 4P*** (AEP)
CNJ201	1-536-501-21	JACK, 4P*** (AEP)
CNJ202	1-536-501-21	JACK, 4P*** (AEP)
CNJ101	1-537-531-00	JACK, 4P*** (Canadian, UK, US, E)
CNJ102	1-537-531-00	JACK, 4P*** (Canadian, UK, US, E)
CNJ201	1-537-531-00	JACK, 4P*** (Canadian, UK, US, E)
CNJ202	1-537-531-00	JACK, 4P*** (Canadian, UK, US, E)
CNJ301	1-536-501-21	JACK, 4P*** (AEP)
CNJ501	1-561-598-00	SOCKET 4P, REMOTE CONTROL
▲CNP301	1-560-064-00	PIN, CONNECTOR 6P*** (AEP)
▲CNP302	1-508-878-00	BASE POST
▲CNP401	1-560-070-00	BASE POST
▲CNP501	1-560-061-00	PIN, CONNECTOR 3P
▲CNP502	1-560-062-00	PIN, CONNECTOR 4P

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.
- F : nonflammable

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

COILS

- MMH : mH, UH : μH



ELECTRICAL PARTS

Ref.No.	Part No.	Description
D530	8-719-815-55	DIODE 1S1555
D531	8-719-815-55	DIODE 1S1555
D532	8-719-815-55	DIODE 1S1555
D601	8-719-934-32	DIODE AR3432S
D602	8-719-914-32	DIODE PG3432SX
D603	8-719-934-34	DIODE AA3432S
D751	8-719-815-55	DIODE 1S1555
IC101	8-759-101-74	IC CX174
IC201	8-759-101-74	IC CX174
IC301	8-759-705-62	IC NJM4562D-M
IC302	8-759-145-58	IC UPC4558C
IC303	8-759-273-32	IC TA7332P
IC304	8-759-145-57	IC UPC4557C
IC305	8-759-705-62	IC NJM4562D-M*** (AEP)
IC401	8-759-993-51	IC MSL9351
IC501	8-759-948-36	IC MSM5836
IC502	8-759-983-16	IC MB8843-316
IC503	8-759-133-90	IC UPC339C
IC504	8-759-729-03	IC NJM2903D
IC505	8-759-240-01	IC TC4001BP
IC506	8-759-240-01	IC TC4001BP
J101	1-507-648-00	JACK, MIC
J201	1-507-648-00	JACK, MIC
J301	1-507-659-00	JACK, PHONES
L101	1-408-262-00	MICRO INDUCTOR 27MMH
L201	1-408-262-00	MICRO INDUCTOR 27MMH
LPF101	1-231-388-00	FILTER, LOWPASS
LPF102	1-231-388-00	FILTER, LOWPASS
PL1	1-518-351-00	LAMP, PILOT; 8V 100mA
Q101	8-729-334-58	TRANSISTOR 2SC1345
Q102	8-729-334-58	TRANSISTOR 2SC1345
Q103	8-729-663-47	TRANSISTOR 2SC1364
Q104	8-729-100-13	TRANSISTOR 2SC2001
Q105	8-729-663-47	TRANSISTOR 2SC1364
Q201	8-729-334-58	TRANSISTOR 2SC1345
Q202	8-729-334-58	TRANSISTOR 2SC1345
Q203	8-729-663-47	TRANSISTOR 2SC1364
Q204	8-729-100-13	TRANSISTOR 2SC2001
Q205	8-729-663-47	TRANSISTOR 2SC1364
Q301	8-729-141-43	TRANSISTOR 2SD414
Q302	8-729-300-37	TRANSISTOR 2SC458A
Q303	8-729-300-37	TRANSISTOR 2SC458A
Q304	8-729-203-02	TRANSISTOR 2SK30A
Q305	8-729-154-83	TRANSISTOR 2SB548
Q306	8-729-384-48	TRANSISTOR 2SA1027R
Q307	8-729-384-48	TRANSISTOR 2SA1027R
Q308	8-729-203-02	TRANSISTOR 2SK30A
Q309	8-729-663-47	TRANSISTOR 2SC1364
Q310	8-729-663-47	TRANSISTOR 2SC1364

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q311	8-729-663-47	TRANSISTOR 2SC1364
Q312	8-729-663-47	TRANSISTOR 2SC1364
Q313	8-729-663-47	TRANSISTOR 2SC1364
Q314	8-729-663-47	TRANSISTOR 2SC1364
Q315	8-729-663-47	TRANSISTOR 2SC1364*** (AEP)
Q401	8-729-101-31	TRANSISTOR N13T1
Q402	8-729-663-47	TRANSISTOR 2SC1364
Q403	8-729-195-23	TRANSISTOR 2SA952
Q404	8-729-195-23	TRANSISTOR 2SA952
Q405	8-729-195-23	TRANSISTOR 2SA952
Q406	8-729-195-23	TRANSISTOR 2SA952
Q501	8-729-663-47	TRANSISTOR 2SC1364
Q502	8-729-663-47	TRANSISTOR 2SC1364
Q503	8-729-288-02	TRANSISTOR 2SD880
Q504	8-729-186-23	TRANSISTOR 2SD862
Q505	8-729-384-47	TRANSISTOR 2SA844
Q506	8-729-663-47	TRANSISTOR 2SC1364
Q507	8-729-384-47	TRANSISTOR 2SA844
Q508	8-729-663-47	TRANSISTOR 2SC1364
Q511	8-729-663-47	TRANSISTOR 2SC1364
Q512	8-729-663-47	TRANSISTOR 2SC1364
Q513	8-729-663-47	TRANSISTOR 2SC1364
Q514	8-729-663-47	TRANSISTOR 2SC1364
Q515	8-729-663-47	TRANSISTOR 2SC1364
Q516	8-729-663-47	TRANSISTOR 2SC1364
Q517	8-729-663-47	TRANSISTOR 2SC1364
Q518	8-729-663-47	TRANSISTOR 2SC1364
Q519	8-729-663-47	TRANSISTOR 2SC1364
Q520	8-729-663-47	TRANSISTOR 2SC1364
Q521	8-729-663-47	TRANSISTOR 2SC1364
Q522	8-729-663-47	TRANSISTOR 2SC1364
Q523	8-729-663-47	TRANSISTOR 2SC1364
Q524	8-729-663-47	TRANSISTOR 2SC1364
Q525	8-729-384-47	TRANSISTOR 2SA844
Q527	8-729-663-47	TRANSISTOR 2SC1364
Q528	8-729-384-47	TRANSISTOR 2SA844
Q529	8-729-384-47	TRANSISTOR 2SA844
Q530	8-729-663-47	TRANSISTOR 2SC1364*** (AEP)
Q531	8-729-663-47	TRANSISTOR 2SC1364
Q532	8-729-103-43	TRANSISTOR 2SB734
Q533	8-729-177-43	TRANSISTOR 2SD774
Q534	8-729-177-43	TRANSISTOR 2SD774
Q535	8-729-663-47	TRANSISTOR 2SC1364
Q536	8-729-186-23	TRANSISTOR 2SD862
Q537	8-729-100-13	TRANSISTOR 2SC2001
Q538	8-729-195-23	TRANSISTOR 2SA952
Q539	8-729-100-13	TRANSISTOR 2SC2001
Q540	8-729-195-23	TRANSISTOR 2SA952
Q541	8-729-663-47	TRANSISTOR 2SC1364
Q542	8-729-663-47	TRANSISTOR 2SC1364

ELECTRICAL PARTS

Ref.No.	Part No.	Description
Q543	8-729-663-47	TRANSISTOR 2SC1364
Q544	8-729-612-77	TRANSISTOR 2SA1027R
Q545	8-729-663-47	TRANSISTOR 2SC1364
Q751	8-729-663-47	TRANSISTOR 2SC1364
R101	1-244-909-00	CARBON 33K 5% 1/2W
R102	1-244-881-00	CARBON 2.2K 5% 1/2W
R114	1-244-885-00	CARBON 3.3K 5% 1/2W
R116	1-244-895-00	CARBON 8.2K 5% 1/2W
R118	1-214-905-00	METAL 47K 1% 1/2W
R120	1-214-882-00	METAL 7.5K 1% 1/2W
R121	1-214-842-00	METAL 120 1% 1/2W
R122	1-244-899-00	CARBON 12K 5% 1/2W
R129	1-244-892-00	CARBON 6.2K 5% 1/2W
R130	1-244-940-00	CARBON 620K 5% 1/2W
R131	1-244-917-00	CARBON 68K 5% 1/2W
R136	1-244-881-00	CARBON 2.2K 5% 1/2W
R137	1-244-905-00	CARBON 22K 5% 1/2W
R138	1-244-913-00	CARBON 47K 5% 1/2W
R160	1-244-897-00	CARBON 10K 5% 1/2W
R201	1-244-909-00	CARBON 33K 5% 1/2W
R202	1-244-881-00	CARBON 2.2K 5% 1/2W
R214	1-244-885-00	CARBON 3.3K 5% 1/2W
R216	1-244-895-00	CARBON 8.2K 5% 1/2W
R218	1-214-905-00	METAL 47K 1% 1/2W
R220	1-214-882-00	METAL 7.5K 1% 1/2W
R221	1-214-842-00	METAL 120 1% 1/2W
R222	1-244-899-00	CARBON 12K 5% 1/2W
R229	1-244-892-00	CARBON 6.2K 5% 1/2W
R230	1-244-940-00	CARBON 620K 5% 1/2W
R231	1-244-917-00	CARBON 68K 5% 1/2W
R236	1-244-881-00	CARBON 2.2K 5% 1/2W
R237	1-244-905-00	CARBON 22K 5% 1/2W
R238	1-244-913-00	CARBON 47K 5% 1/2W
R260	1-244-897-00	CARBON 10K 5% 1/2W
R303	1-214-860-00	METAL 680 1% 1/2W
R304	1-214-866-00	METAL 1.2K 1% 1/2W
R307	1-214-860-00	METAL 680 1% 1/2W
R308	1-214-866-00	METAL 1.2K 1% 1/2W
R319	1-212-849-00	FUSIBLE 4.7 5% 1/4W F
R320	1-212-849-00	FUSIBLE 4.7 5% 1/4W F
R503	1-244-863-00	CARBON 390 5% 1/2W
R515	1-212-849-00	FUSIBLE 4.7 5% 1/4W F
R539	1-231-849-00	COMPOSITION CIRCUIT BLOCK
R540	1-231-849-00	COMPOSITION CIRCUIT BLOCK
R541	1-231-849-00	COMPOSITION CIRCUIT BLOCK
R542	1-231-849-00	COMPOSITION CIRCUIT BLOCK
R543	1-231-849-00	COMPOSITION CIRCUIT BLOCK
R544	1-231-849-00	COMPOSITION CIRCUIT BLOCK

ELECTRICAL PARTS

Ref.No.	Part No.	Description
R621	1-244-906-00	CARBON 24K 5% 1/2W
R622	1-244-906-00	CARBON 24K 5% 1/2W
R641	1-244-868-00	CARBON 620 5% 1/2W
R642	1-212-849-00	FUSIBLE 4.7 5% 1/4W F
RV101	1-226-991-00	RES, VAR, SLIDE 20K
RV102	1-224-645-XX	RES, ADJ, CARBON 10K
RV103	1-224-647-XX	RES, ADJ, CARBON 47K
RV104	1-226-233-00	RES, ADJ, CARBON 1K
RV105	1-226-980-00	RES, VAR, CARBON 20K/20K
RV201	1-226-991-00	RES, VAR, SLIDE 20K
RV202	1-224-645-XX	RES, ADJ, CARBON 10K
RV203	1-224-647-XX	RES, ADJ, CARBON 47K
RV204	1-226-233-00	RES, ADJ, CARBON 1K
RV205	1-226-980-00	RES, VAR, CARBON 20K/20K
RV501	1-226-236-00	RES, ADJ, CARBON 10K
RY301	1-515-323-00	RELAY
RY302	1-515-297-00	RELAY, LEAD
S1-6	1-553-544-00	SWITCH, PUSH
S7	1-553-638-00	SWITCH, SLIDE*** (AEP)
S508	1-552-809-00	SWITCH, SLIDE;TIMER
S601	1-553-319-00	SWITCH,PUSH; POWER*** (US,Canadian)
S601	1-553-318-00	SWITCH, PUSH; POWER*** (AEP,UK,E1,E2)
T601	1-446-350-00	TRANSFORMER, POWER*** (US,Canadian)
T601	1-446-518-00	TRANSFORMER, POWER*** (E1,E2)
T601	1-446-834-00	TRANSFORMER, POWER*** (AEP,UK)
VS	1-526-576-31	SELECTOR, POWER VOLTAGE*** (E1,E2)
A-2010-184-A		MOUNTED PCB, RECORD/PLAYBACK
A-2019-133-A		MOUNTED PCB, SYSTEM CONTROL
A-2095-359-A		PC BOARD ASSY,SHEET,KEY BOARD
A-2140-036-A		SHEET ASSY, KEY BOARD, COUNTER

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

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

COILS

- MMH : mH, UH : μH

NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked "▲" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.

CAPACITORS:

- All capacitors are in μF. Common capacitors are omitted. Refer to the following lists for their part numbers. MF:μF, PF:μμF.

RESISTORS

- All resistors are in ohms. Common 1/4W, 1/8W and 1/16W carbon resistors are omitted. Refer to the following lists for their part numbers.

- F : nonflammable

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

COILS

- MMH : mH, UH : μH



## SONY—STANDARD CAPACITORS, RESISTORS AND SCREWS

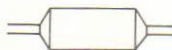
## MYLAR CAPACITORS

CAP. (μF)	50 VOLT.			CAP. (μF)	RATING			CAP. (μF)	50 VOLT.		
	PART No.	PART No.	PART No.		50 VOLT.	100 VOLT.	200 VOLT.		PART No.	PART No.	PART No.
0.001	1-108-227-00	1-108-365-00	1-108-409-00	0.01	1-108-239-00	1-108-377-00	1-108-421-00	0.1	1-108-251-00	1-108-389-00	1-108-433-00
0.0012	1-108-351-00	1-108-366-00	1-108-410-00	0.012	1-108-357-00	1-108-378-00	1-108-422-00	0.12	1-108-363-00	1-108-390-00	1-108-434-00
0.0015	1-108-228-00	1-108-367-00	1-108-411-00	0.015	1-108-240-00	1-108-379-00	1-108-423-00	0.15	1-108-252-00	1-108-391-00	1-108-435-00
0.0018	1-108-352-00	1-108-368-00	1-108-412-00	0.018	1-108-358-00	1-108-380-00	1-108-424-00	0.18	1-108-364-00	1-108-392-00	1-108-436-00
0.0022	1-108-230-00	1-108-369-00	1-108-413-00	0.022	1-108-242-00	1-108-381-00	1-108-425-00	0.22	1-108-254-00	1-108-393-00	1-108-437-00
0.0027	1-108-353-00	1-108-370-00	1-108-414-00	0.027	1-108-359-00	1-108-382-00	1-108-426-00	0.27	1-108-854-00	—	—
0.0033	1-108-232-00	1-108-371-00	1-108-415-00	0.033	1-108-244-00	1-108-383-00	1-108-427-00	0.33	1-108-855-00	—	—
0.0039	1-108-354-00	1-108-372-00	1-108-416-00	0.039	1-108-360-00	1-108-384-00	1-108-428-00	0.39	1-108-856-00	—	—
0.0047	1-108-234-00	1-108-373-00	1-108-417-00	0.047	1-108-246-00	1-108-385-00	1-108-429-00	0.47	1-108-857-00	—	—
0.0056	1-108-355-00	1-108-374-00	1-108-418-00	0.056	1-108-361-00	1-108-386-00	1-108-430-00				
0.0068	1-108-237-00	1-108-375-00	1-108-419-00	0.068	1-108-249-00	1-108-387-00	1-108-431-00				
0.0082	1-108-356-00	1-108-376-00	1-108-420-00	0.082	1-108-362-00	1-108-388-00	1-108-432-00				



## TANTALUM CAPACITORS

CAP. (μF)	RATING						PART No.
	3.15 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	25 VOLT.	
0.01					→	→	1-131-396-00
0.015						→	1-131-397-00
0.022						→	1-131-398-00
0.033						→	1-131-399-00
0.047						→	1-131-400-00
0.068					→	→	1-131-401-00
0.1					→	→	1-131-402-00
0.15					→	→	1-131-403-00
0.22					→	→	1-131-404-00
0.33					→	1-131-409-00	1-131-405-00
0.47	—	—	—	—	1-131-412-00	→	1-131-406-00
0.68	—	—	—	1-131-415-00	→	1-131-410-00	1-131-407-00
1.0	—	—	1-131-418-00	—	1-131-413-00	→	1-131-408-00
1.5	—	1-131-421-00	—	1-131-416-00	→	1-131-411-00	1-131-348-00
2.2	1-131-424-00	—	1-131-419-00	—	1-131-414-00	1-131-355-00	1-131-349-00
3.3	—	1-131-422-00	—	1-131-417-00	1-131-362-00	1-131-356-00	1-131-350-00
4.7	1-131-425-00	—	1-131-420-00	1-131-369-00	1-131-363-00	1-131-357-00	1-131-351-00
6.8	—	1-131-423-00	1-131-376-00	1-131-370-00	1-131-364-00	1-131-358-00	1-131-352-00
10	1-131-426-00	1-131-383-00	1-131-377-00	1-131-371-00	1-131-365-00	1-131-359-00	1-131-353-00
15	1-131-390-00	1-131-384-00	1-131-378-00	1-131-372-00	1-131-366-00	1-131-360-00	—
22	1-131-391-00	1-131-385-00	1-131-379-00	1-131-373-00	1-131-367-00		
33	1-131-392-00	1-131-386-00	1-131-380-00	1-131-374-00			
47	1-131-393-00	1-131-387-00	1-131-381-00				
68	1-131-394-00	1-131-388-00					
100	1-131-395-00	—	—	—			



## TANTALUM CAPACITORS

CAP. (μF)	RATING						PART No.
	3 VOLT.	6.3 VOLT.	10 VOLT.	16 VOLT.	20 VOLT.	35 VOLT.	
0.033							1-131-273-00
0.047							1-131-274-00
0.068							1-131-275-00
0.1							1-131-276-00
0.15							1-131-277-00
0.22			—	—	1-131-262-00	1-131-278-00	
0.33			—	—	1-131-263-00	1-131-279-00	
0.47			1-131-169-00	—	1-131-264-00	1-131-280-00	
0.68			—	1-131-258-00	1-131-265-00	1-131-281-00	
1.0			1-131-254-00	—	1-131-266-00	1-131-282-00	
1.5		1-131-250-00	—	—	1-131-267-00	1-131-283-00	
2.2		—	—	1-131-259-00	1-131-268-00	1-131-284-00	
3.3		—	1-131-255-00	—	1-131-269-00	—	
4.7		1-131-251-00	1-131-171-00	—	1-131-270-00	—	
6.8		—	—	1-131-260-00	1-131-271-00	—	
10	—	—	1-131-256-00	—	1-131-272-00	—	
15	—	1-131-252-00	—	1-131-261-00			
22	—	—	1-131-257-00	—			
33	1-131-176-00	1-131-253-00	1-131-173-00	—			
47	1-131-288-00	1-131-174-00	—	—			
100	1-131-177-00	—	—	—			



## ELECTROLYTIC CAPACITORS

CAP. (μF)	RATING					
	6.3 VOLT.	10 VOLT.	16 VOLT.	25 VOLT.	35 VOLT.	50 VOLT.
	PART No.	PART No.	PART No.	PART No.	PART No.	PART No.
0.47					→	1-121-726-00
1.0					→	1-121-391-00
2.2					→	1-121-450-00
3.3	→	→	→	1-121-392-00	→	1-121-393-00
4.7	→	→	→	1-121-395-00	→	1-121-396-00
10	→	→	1-121-651-00	1-121-398-00	→	1-121-738-00
22	→	→	1-121-479-00	1-121-480-00	1-121-662-00	1-121-152-00
33	→	→	1-121-403-00	1-121-404-00	1-121-652-00	1-121-405-00
47	→	1-121-352-00	1-121-409-00	1-121-410-00	1-121-653-00	1-121-411-00
100	→	1-121-414-00	1-121-415-00	1-121-416-00	1-121-357-00	1-121-417-00
220	1-121-419-00	1-121-420-00	1-121-421-00	1-121-422-00	1-121-261-00	1-121-423-00
330	1-121-751-00	1-121-805-00	1-121-521-00	1-121-654-00	1-121-655-00	1-121-656-00
470	1-121-424-00	1-121-425-00	1-121-426-00	1-121-733-00	1-121-361-00	1-121-810-00
1000	—	1-121-736-00	1-121-245-00	1-121-657-00	1-121-388-00	1-123-061-00
2200	1-121-658-00	1-121-659-00	1-121-660-00	1-123-067-00	1-121-984-00	—
3300	1-121-661-00	1-123-075-00	1-123-071-00	—	—	—

CAP. (μF)	100 VOLT.	160 VOLT.	250 VOLT.	350 VOLT.
	PART No.	PART No.	PART No.	PART No.
0.47	—	—	—	—
1.0	1-123-249-00	1-123-252-00	1-123-003-00	1-121-168-00
2.2	1-123-250-00	1-123-026-00	—	1-123-028-00
3.3	1-121-995-00	—	1-123-004-00	1-123-006-00
4.7	1-123-255-00	1-121-246-00	1-121-759-00	1-123-007-00
10	1-121-126-00	1-121-999-00	1-123-254-00	1-123-008-00
22	1-121-996-00	1-123-253-00	1-123-005-00	1-123-022-00
33	1-121-997-00	1-121-757-00	—	—
47	1-123-251-00	1-121-919-00	—	—
100	1-123-084-00	—	—	—

## CERAMIC CAPACITORS

RATING							
CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (pF)	50 VOLT.	CAP. (μF)	50 VOLT.
	PART No.		PART No.		PART No.		PART No.
0.5	1-101-837-00	22	1-102-959-00	150	1-101-361-00	0.001	1-102-074-00
0.75	1-101-586-00	24	1-102-960-00	160	1-101-367-00	0.0012	1-102-118-00
1.0	1-102-934-00	27	1-102-961-00	180	1-102-976-00	0.0015	1-102-119-00
1.5	1-101-576-00	30	1-102-962-00	200	1-102-977-00	0.0018	1-102-120-00
2.0	1-102-935-00	33	1-102-963-00	220	1-102-978-00	0.0022	1-102-121-00
3	1-102-936-00	36	1-102-964-00	240	1-102-979-00	0.0027	1-102-122-00
4	1-102-937-00	39	1-102-965-00	270	1-102-980-00	0.0033	1-102-123-00
5	1-102-942-00	43	1-102-966-00	300	1-102-981-00	0.0039	1-102-124-00
6	1-102-943-00	47	1-101-880-00	330	1-102-820-00	0.0047	1-102-125-00
7	1-102-944-00	51	1-101-882-00	360	1-102-821-00	0.0056	1-102-126-00
8	1-102-945-00	56	1-101-884-00	390	1-102-822-00	0.0068	1-102-127-00
9	1-102-946-00	62	1-101-886-00	430	1-102-823-00	0.0082	1-102-128-00
10	1-102-947-00	68	1-101-888-00	470	1-102-824-00	0.01	1-102-129-00
11	1-102-948-00	75	1-101-890-00	510	1-101-059-00	0.022	1-101-005-00
12	1-102-949-00	82	1-102-971-00	560	1-102-115-00	0.047	1-101-006-00
13	1-102-950-00	91	1-102-972-00	680	1-102-116-00		
15	1-102-951-00	100	1-102-973-00	820	1-102-117-00		
16	1-102-952-00	110	1-102-815-00				
18	1-102-953-00	120	1-102-816-00				
20	1-102-958-00	130	1-101-081-00				

0.001μF = 1,000pF

## CERAMIC (SEMICONDUCTOR) CAPACITORS

RATING → : Use the high voltage rated one.					
CAP. (μF)	25 VOLT.	50 VOLT.	CAP. (μF)	25 VOLT.	50 VOLT.
	PART No.	PART No.		PART No.	PART No.
0.001	→	1-161-039-00	0.018	1-161-016-00	1-161-054-00
0.0012	→	1-161-040-00	0.022	1-161-017-00	1-161-055-00
0.0015		1-161-041-00	0.027	1-161-018-00	1-161-056-00
0.0018		1-161-042-00	0.033	1-161-019-00	1-161-057-00
0.0022		1-161-043-00	0.039	1-161-010-00	1-161-058-00
0.0027	→	1-161-044-00	0.047	1-161-021-00	1-161-059-00
0.0033	→	1-161-045-00	0.056	→	1-161-060-00
0.0039	→	1-161-046-00	0.068	→	1-161-061-00
0.0047	→	1-161-047-00	0.082	1-161-024-00	1-161-062-00
0.0056	→	1-161-048-00	0.1	1-161-025-00	1-161-063-00
0.0068	→	1-161-049-00			
0.0082	1-161-012-00	1-161-050-00			
0.01	1-161-013-00	1-161-051-00			
0.012	→	1-161-052-00			
0.015	1-161-015-00	1-161-053-00			



1/16 WATT CARBON RESISTOR

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
2.0	—	13	—	91	1-210-354-00	620	1-210-367-00	4.3k	1-209-772-00	30k	1-210-380-00	200k	1-210-839-00
2.2	—	15	—	100	1-210-355-00	680	1-210-106-00	4.7k	1-209-773-00	33k	1-210-381-00	220k	1-210-840-00
2.4	—	16	—	110	1-210-356-00	750	1-210-107-00	5.1k	1-209-774-00	36k	1-210-394-00	240k	—
2.7	—	18	1-211-688-00	120	1-210-357-00	820	1-210-108-00	5.6k	1-209-775-00	39k	1-210-382-00	270k	1-210-841-00
3.0	—	20	—	130	1-210-358-00	910	1-210-368-00	6.2k	1-209-776-00	43k	1-210-383-00	300k	—
3.3	—	22	—	150	1-210-102-00	1.0k	1-204-122-00	6.8k	1-209-777-00	47k	1-210-384-00	330k	1-210-842-00
3.6	—	24	—	160	1-210-359-00	1.1k	1-210-369-00	7.5k	1-209-778-00	51k	1-210-385-00	360k	—
3.9	—	27	—	180	1-210-360-00	1.2k	1-209-765-00	8.2k	1-209-779-00	56k	1-210-386-00	390k	1-210-843-00
4.3	—	30	1-210-845-00	200	1-210-361-00	1.3k	1-210-370-00	9.1k	1-209-780-00	62k	1-210-387-00	430k	—
4.7	—	33	1-210-846-00	220	1-210-362-00	1.5k	1-209-766-00	10k	1-209-781-00	68k	1-210-388-00	470k	1-210-844-00
5.1	—	36	1-210-847-00	240	1-209-762-00	1.6k	1-210-371-00	11k	1-210-374-00	75k	1-210-389-00	510k	—
5.6	—	39	1-210-848-00	270	1-210-363-00	1.8k	1-209-878-00	12k	1-210-111-00	82k	1-210-390-00	560k	1-211-695-00
6.2	—	43	1-210-849-00	300	1-210-364-00	2.0k	1-209-767-00	13k	1-210-375-00	91k	1-210-391-00	620k	—
6.8	—	47	1-210-395-00	330	1-209-763-00	2.2k	1-209-768-00	15k	1-210-112-00	100k	1-210-115-00	680k	1-211-696-00
7.5	—	51	1-210-101-00	360	1-210-103-00	2.4k	1-209-769-00	16k	1-210-376-00	110k	—	750k	—
8.2	—	56	1-210-351-00	390	1-210-365-00	2.7k	1-209-770-00	18k	1-210-113-00	120k	1-210-836-00	820k	1-211-698-00
9.1	—	62	1-210-352-00	430	1-210-366-00	3.0k	1-210-372-00	20k	1-210-377-00	130k	—	910k	—
10	—	68	1-210-353-00	470	1-209-764-00	3.3k	1-204-123-00	22k	1-210-114-00	150k	1-210-837-00	1 M	—
11	—	75	1-210-392-00	510	1-210-104-00	3.6k	1-210-373-00	24k	1-210-378-00	160k	—	—	—
12	—	82	1-210-393-00	560	1-210-105-00	3.9k	1-209-771-00	27k	1-210-379-00	180k	1-210-838-00	—	—

1/8 WATT CARBON RESISTOR

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
2.0	—	13	1-246-821-00	91	1-246-831-00	620	1-246-841-00	4.3k	1-246-851-00	30k	1-246-861-00	200k	1-246-871-00
2.2	1-246-751-00	15	1-246-761-00	100	1-246-771-00	680	1-246-781-00	4.7k	1-246-791-00	33k	1-246-801-00	220k	1-246-811-00
2.4	—	16	1-246-822-00	110	1-246-832-00	750	1-246-842-00	5.1k	1-246-852-00	36k	1-246-862-00	240k	1-247-054-00
2.7	1-246-752-00	18	1-246-762-00	120	1-246-772-00	820	1-246-782-00	5.6k	1-246-792-00	39k	1-246-802-00	270k	1-247-046-00
3.0	—	20	1-246-823-00	130	1-246-833-33	910	1-246-843-00	6.2k	1-246-853-00	43k	1-246-863-00	300k	1-247-055-00
3.3	1-246-753-00	22	1-246-763-00	150	1-246-773-00	1.0k	1-246-783-00	6.8k	1-246-793-00	47k	1-246-803-00	330k	1-247-047-00
3.6	—	24	1-246-824-00	160	1-246-834-00	1.1k	1-246-844-00	7.5k	1-246-854-00	51k	1-246-864-00	360k	1-247-056-00
3.9	1-246-754-00	27	1-246-764-00	180	1-246-774-00	1.2k	1-246-784-00	8.2k	1-246-794-00	56k	1-246-804-00	390k	1-247-048-00
4.3	—	30	1-246-825-00	200	1-246-835-00	1.3k	1-246-845-00	9.1k	1-246-855-00	62k	1-246-865-00	430k	1-247-057-00
4.7	1-246-755-00	33	1-246-765-00	220	1-246-775-00	1.5k	1-246-785-00	10k	1-246-795-00	68k	1-246-805-00	470k	1-247-049-00
5.1	—	36	1-246-826-00	240	1-246-836-00	1.6k	1-246-846-00	11k	1-246-856-00	75k	1-246-866-00	510k	1-247-058-00
5.6	1-246-756-00	39	1-246-766-00	270	1-246-776-00	1.8k	1-246-786-00	12k	1-246-796-00	82k	1-246-806-00	560k	1-247-050-00
6.2	—	43	1-246-827-00	300	1-246-837-00	2.0k	1-246-847-00	13k	1-246-857-00	91k	1-246-867-00	620k	1-247-059-00
6.8	1-246-757-00	47	1-246-767-00	330	1-246-777-00	2.2k	1-246-787-00	15k	1-246-797-00	100k	1-246-807-00	680k	1-247-051-00
7.5	1-246-818-00	51	1-246-828-00	360	1-246-838-00	2.4k	1-246-848-00	16k	1-246-858-00	110k	1-246-868-00	750k	1-247-060-00
8.2	1-246-758-00	56	1-246-768-00	390	1-246-778-00	2.7k	1-246-788-00	18k	1-246-798-00	120k	1-246-808-00	820k	1-247-052-00
9.1	1-246-819-00	62	1-246-829-00	430	1-246-839-00	3.0k	1-246-849-00	20k	1-246-859-00	130k	1-246-869-00	910k	1-247-061-00
10	1-246-759-00	68	1-246-769-00	470	1-246-779-00	3.3k	1-246-789-00	22k	1-246-799-00	150k	1-246-809-00	1 M	1-247-053-00
11	1-246-820-00	75	1-246-830-00	510	1-246-840-00	3.6k	1-246-850-00	24k	1-246-860-00	160k	1-246-870-00	—	—
12	1-246-760-00	82	1-246-770-00	560	1-246-780-00	3.9k	1-246-790-00	27k	1-246-800-00	180k	1-246-810-00	—	—

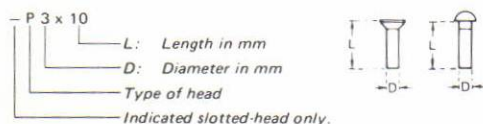


## 1/4 WATT CARBON RESISTORS

$\Omega$	Part No.	$\Omega$	Part No.	$\Omega$	Part No.	$\Omega$	Part No.	$\Omega$	Part No.	$\Omega$	Part No.	$\Omega$	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-476-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-477-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-478-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-479-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-480-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-481-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-482-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-483-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-484-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-485-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-486-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-487-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-488-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

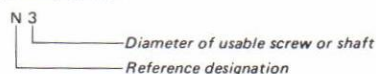
## HARDWARE NOMENCLATURE

Screw:



Unless otherwise indicated, it means cross-recessed head (Phillips type).

Nut, Washer, Retaining ring:



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

Reference Designation	Shape	Description	Remarks
<b>SELF-TAPPING SCREWS</b>			
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self-tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
<b>SET SCREWS</b>			
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
<b>NUT</b>			
N		nut	
<b>WASHERS</b>			
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
<b>RETAINING RINGS</b>			
E		retaining ring	
G		grip-type retaining ring	

Sony Corporation

© 1981



**SONY****Service Bulletin**

Date 22.02.91	Ref. No. TC-00891	Model TC-FX6, TC-FX1010, TC-K555, TC-K555ES	CN
Subject New Motor Does Not Work			Code 610

**SYMPTOM**

After completing motor assembly (part number X-3575-308-0) replacement, the motor does not turn.

**CAUSE**

This is caused by a missing solder bridge on the replacement motor assembly.

**SOLUTION**

Putting the solder bridge back in will solve the problem.

