

# TC-K333ESA/K990ES

## SERVICE MANUAL

*AEP Model*  
TC-K990ES

*E Model*  
TC-K333ESA



\* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

"DOLBY", the double-D symbol  and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

### SPECIFICATIONS

Recording system 4-track 2-channel stereo  
Fast winding time Approx. 90 sec. (with Sony C-60 cassette)  
Bias AC bias  
Erasing head × 1 (S&F head)  
Recording head × 1 (LA head)  
Playback head × 1 (LA head)  
Motors Capstan motor × 1  
(direct-drive linear torque BSL motor)  
Reel motor × 1 (DC motor)

Signal-to-noise ratio (at peak level)

| Cassette<br>(Dolby NR OFF) | Type IV (Sony<br>Metal-S) | Type II<br>(Sony UX-S) | Type I<br>(Sony HF-S) |
|----------------------------|---------------------------|------------------------|-----------------------|
|                            | 61 dB                     | 59 dB                  | 57 dB                 |

Measured at peak level weighted without NR. The S/N is improved by about 15 dB at 500 Hz and by about 20 dB about 1 kHz with Dolby-C NR on, and by 5 dB at 1 kHz and by 10 dB about 5 kHz with Dolby-B NR on.

Harmonic distortion 1.3% (with Sony Metal-S 250 nWb/m, 315 Hz, 3rd H.D.)

Frequency response (Dolby NR OFF)

|                                    |                                                                        |
|------------------------------------|------------------------------------------------------------------------|
| Type IV cassette<br>(Sony Metal-S) | 15 - 22,000 Hz (±3 dB, IEC)<br>15 - 16,000 Hz [±3 dB (-4dB recording)] |
| Type II cassette<br>(Sony UX-S)    | 15 - 20,000 Hz (±3 dB, IEC)                                            |
| Type I cassette<br>(Sony HF-S)     | 15 - 18,000 Hz (±3 dB, IEC)                                            |

Wow and flutter ± 0.04% W.Peak (IEC)  
0.022% W.RMS (NAB)  
± 0.065% W.Peak (DIN)

Inputs

|                              |                 |           |
|------------------------------|-----------------|-----------|
| Line inputs<br>(phono jacks) | Sensitivity     | 0.16 V    |
|                              | Input impedance | 47 k ohms |
| CD DIRECT INPUT              | Input impedance | 47 k ohms |

|                                    |            |
|------------------------------------|------------|
| Model Name Using Similar Mechanism | TC-K333ESG |
| Tape Transport Mechanism Type      | TCM-200D10 |

Outputs

|                                   |                    |                                            |
|-----------------------------------|--------------------|--------------------------------------------|
| Line outputs<br>(phono jacks)     | Rated output level | 0.5 V at a load impedance<br>of 47 k ohms  |
|                                   | Load impedance     | Over 10 k ohms                             |
| Headphones<br>(stereo phone jack) | Output level       | 0 - 3 mW at a load<br>impedance of 32 ohms |

### General

Power requirements

AEP model:  
220 - 230 V AC, (or 240 V AC  
adjustable by Sony personnel),  
50/60 Hz

E model:  
120, 220, or 240 V AC adjustable,  
50/60 Hz

Power consumption 31 W  
Dimensions

Approx. 470 × 140 × 380 mm (w/h/d)  
(18 5/8 × 5 5/8 × 15 inches)  
including projecting parts and controls

Weight

Approx. 12.0 kg (26 lbs 8 oz)  
Model for other countries: Approx. 11.2 kg

### Supplied accessories

Audio connecting cords (2)  
Screws (8)  
Wireless remote commander (1)\*  
Sony SUM-3(NS) batteries (2)\*

\* Not supplied with model for European countries

Design and specifications are subject to change without notice.

### Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

STEREO CASSETTE DECK  
**SONY**®

## TABLE OF CONTENTS

| Section                                     | Title  | Page |
|---------------------------------------------|--------|------|
| Specifications                              | .....  | 1    |
| Servicing Note                              | .....  | 2    |
| Model Identification                        | .....  | 3    |
| <b>SECTION 1. GENERAL</b>                   | .....  | 4    |
| <b>SECTION 2. DISASSEMBLY</b>               | .....  | 8    |
| <b>SECTION 3. ADJUSTMENTS</b>               | .....  |      |
| 3-1. Mechanical Adjustments                 | .....  | 10   |
| 3-2. Electrical Adjustments                 | .....  | 12   |
| <b>SECTION 4. DIAGRAMS</b>                  | .....  |      |
| 4-1-1. IC502, 505 (CX20188) Pin Functions   | .....  | 17   |
| 4-1-2. IC601 (M50940-313SP) Pin Functions   | .....  | 18   |
| 4-1-3. IC801 (M50964-226SP) Pin Functions   | .....  | 19   |
| 4-1-4. IC881 (HD404240A31S) Pin Functions   | .....  | 20   |
| 4-2. Circuit Boards Location                | .....  | 20   |
| 4-3. IC Block Diagrams                      | .....  | 21   |
| 4-4. Semiconductor Lead Layouts             | .....  | 22   |
| 4-5. Block Diagram                          | .....  | 23   |
| 4-6. Printed Wiring Boards (Audio Section)  | ....   | 27   |
| 4-7. Schematic Diagram (Audio Section)      | .....  | 31   |
| 4-8. Schematic Diagram (Syscon Section)     | .....  | 35   |
| 4-6. Printed Wiring Boards (Syscon Section) | ... 39 |      |
| <b>SECTION 5. EXPLODED VIEWS</b>            | .....  |      |
| 5-1. Overall Section                        | .....  | 43   |
| 5-2. Front Panel Section                    | .....  | 44   |
| 5-3. Chassis Section                        | .....  | 45   |
| 5-4. Mechanism Section -1 (TCM-200D10)      | .....  | 46   |
| 5-5. Mechanism Section -2 (TCM-200D10)      | .....  | 47   |
| <b>SECTION 6. ELECTRICAL PARTS LIST</b>     | .....  | 48   |

## SERVICING NOTE

### Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

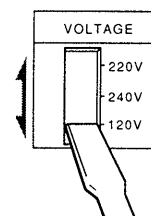
## TC-K333ESA Model

### Checking the Operating Voltage

- Before operating the unit, be sure that the operating voltage of your unit is identical with that of your local power supply.

| Where purchased    | Operating voltage                                                                                                                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| European countries | 220 - 230 V AC, 50/60 Hz                                                                                                                                                                                          |
| Other countries    | 120, 220 or 240 V AC adjustable, 50/60 Hz<br>A voltage selector is located on the rear panel. If the selector must be reset, <b>disconnect the AC power cord</b> and set the selector to the appropriate voltage. |

VOLTAGE selector



### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS 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.

**For higher quality recording/playback**

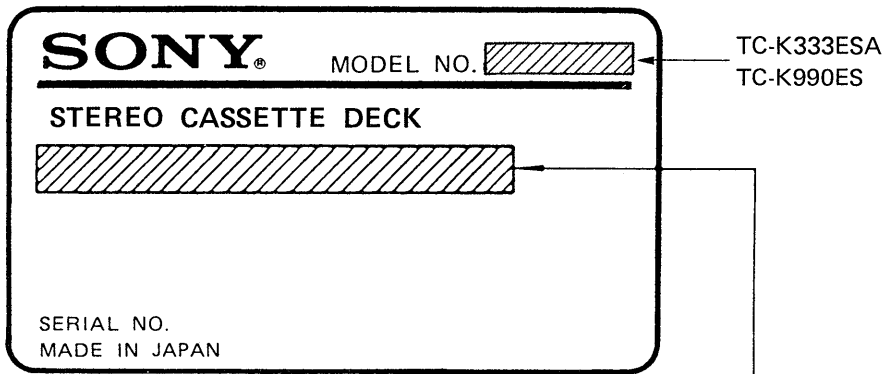
- **The Dolby HX PRO\* system** which improves the linearity of the tape's high-range response during recording.
- **Bias and recording level calibration** which ensures optimum recording conditions to bring out the best in every tape.
- **Three-head system (separate recording, playback and erase heads)** which allows you to instantly check the recorded sound while recording is in progress.
- **Ceramic cassette holder** for improved stability of tape running during playback and recording.
- **Professional-level deck design** for high mechanical stability and maximum performance.

**For your convenience**

- **The AMS and Memory Play functions** which provide easy access to a desired selection.
- **Timer-activated playback and recording** through the use of an optional timer.

**For easier operation**

- **Easy-to-read linear counter** which shows the elapsed recording or playing time.

**MODEL IDENTIFICATION***—Specification Label—*

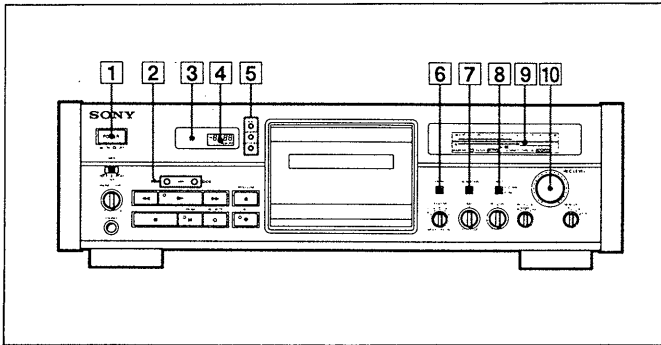
AEP, Germany Model: AC: 220–230V ~ 50/60Hz

E Model: AC: 120, 220–240V ~ 50/60Hz

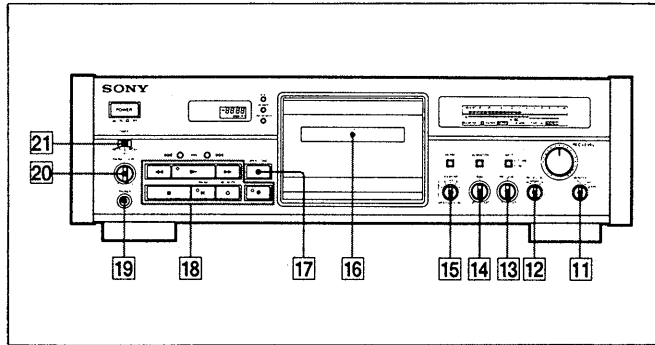
## SECTION 1 GENERAL

This section is extracted from instruction manual.

### Identifying the Parts



### Identifying the Parts



#### Front Panel

For details, refer to the page number indicated in parenthesis .

- 1 POWER switch
- 2 AMS (Automatic Music Sensor) buttons (24)
- 3 Remote control sensor  
You can remotely control this cassette deck with:  
— The supplied remote commander.  
— A remote commander that came with a Sony amplifier or receiver if it has the  mark and cassette deck control capability.  
— An optional Sony remote commander with the  mark and cassette deck control capability.
- 4 LINEAR COUNTER (28)
- 5 Counter buttons  
RESET button (28)  
MEMORY button (26, 28)  
DISPLAY MODE button (20)
- 6 Dolby HX PRO button (48)
- 7 CALIBRATION button (42)
- 8 INPUT button (30)
- 9 PEAK PROGRAM METER (34)
- 10 REC (recording) LEVEL control (30, 34)

(Continued on next page.)

#### Front Panel

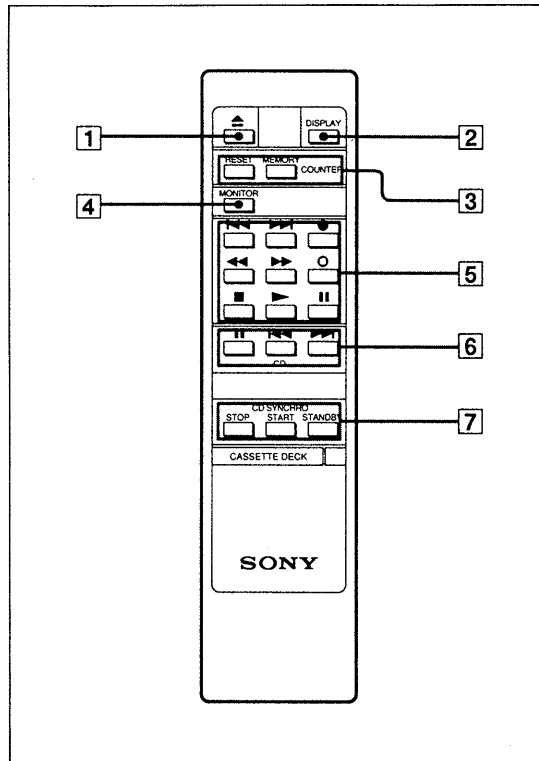
For details, refer to the page number indicated in (parenthesis) .

(Continued from previous page.)

- 11 MONITOR switch (36)
- 12 REC EQ CAL (recording equalizing calibration) switch (LOW, NORMAL, HIGH) (44)
- 13 REC (recording) LEVEL control for calibration (38, 42)
- 14 BIAS control (38, 42)
- 15 DOLBY NR (noise reduction) /MPX FILTER switch (20, 30)
- 16 Cassette holder
- 17  OPEN/CLOSE button
- 18 Tape operation buttons and indicators  
◀ (rewind) button  
■ (stop) button  
▶ (play) button and indicator  
▶▶ (fast-forward) button  
● REC (recording) button and indicator  
|| PAUSE button and indicator  
○ REC MUTE (record muting) button (50)
- 19 PHONES jack (stereo phone jack) (22)
- 20 PHONE (headphones) LEVEL control
- 21 TIMER switch (54)

## Identifying the Parts

(Except for European model)



## REMOTE Commander

The controls on the REMOTE commander are identical in function and operation to those with the same name on the main unit.

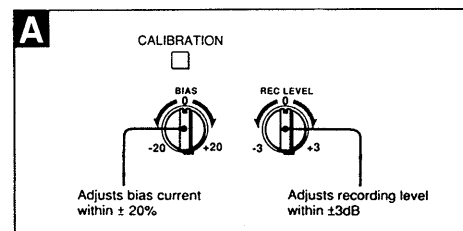
For details, refer to the page number indicated in (parenthesis).

- 1 ▲ (open/close) button
- 2 DISPLAY button
- 3 Counter buttons
- 4 MONITOR button
- 5 Tape operation buttons
- 6 CD (Compact Disc) buttons  
for controlling Sony CD players
- II (pause) button
- ◀▶ / ▶▶ buttons for locating selections sequentially
- 7 CD SYNCHRO buttons  
for synchronized recording with a Sony CD player

## Making an Optimum Recording

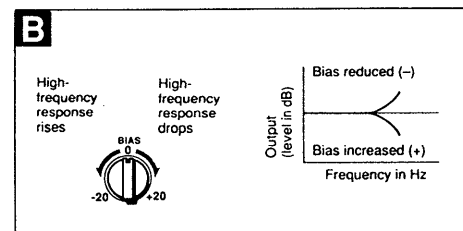
### Bias and Recording Level Calibration

There are many different types of cassettes on the market, each with varying magnetic properties. Although your unit is equipped with the ATS (Automatic Tape Selection) system which sets the appropriate equalization characteristics and bias current for each tape type, an additional calibration adjustment can often produce even better results. Use the bias current and recording level calibration function to obtain the optimum recording conditions for your tape.



### Bias calibration

Choosing the optimum bias current for a tape ensures minimum distortion and flat frequency response. Lowering the bias current boosts high-frequency response, but also results in higher distortion. Raising the bias, on the other hand, reduces distortion, but also dampens high-frequency response. Optimum bias is thus obtained when the bias current and high-frequency response are well balanced.

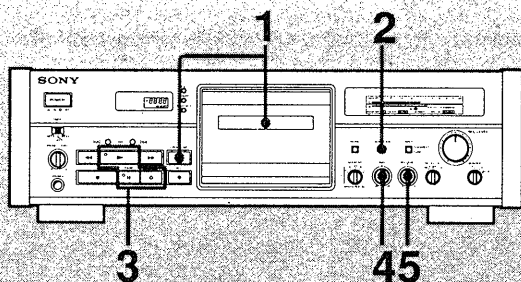


- If the bias current is higher or lower than the optimum setting for a certain tape, the frequency response changes as shown in the Chart in Fig. B. Changing the bias can thus be used to tailor the response to your liking, for example by slightly emphasizing the upper or lower end.
- The frequency response of metal tapes is much less affected by changes in the bias current than other tape types. With some tapes, the adjustment range of this deck ( $\pm 20\%$ ) may therefore not be sufficient to cover every possible requirement.

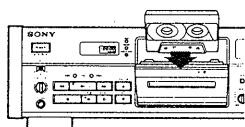
### Recording level calibration

Even when the recording level is adjusted correctly, using a tape with low sensitivity will result in a low playback level. The REC LEVEL calibration control allows you to compensate for sensitivity differences among tapes to equalize both recording and playback levels. This is especially important when using the Dolby NR system, since it is most effective when recording and playback levels are the same.

## Making an Optimum Recording



1



2

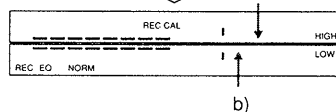
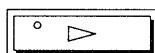
CALIBRATION



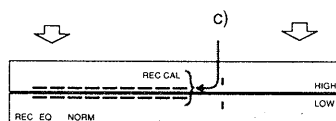
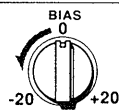
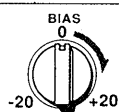
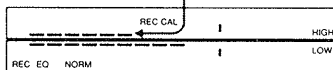
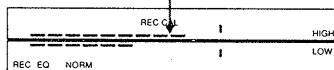
3



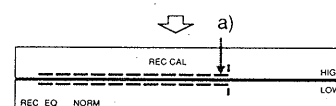
OR  
OU  
O  
OU



4



5



b)

1 Insert the cassette to be used for recording.

2 Press CALIBRATION.

3 Press ●, then || or ► to activate the recording test tone.

- a) Playback level for an 8-kHz signal
- b) Playback level for a 400-Hz signal

### Note

- The sound cannot be monitored during the calibration operation.
- It takes 2 to 3 seconds for the test tone level to stabilize.

4 Adjust BIAS until both meters indicate equal playback levels.

- a) A high reading on the upper meter indicates a low bias current.
- b) A low reading on the upper meter indicates a high bias current.
- c) An equal reading on both meters indicates the optimum bias current condition.

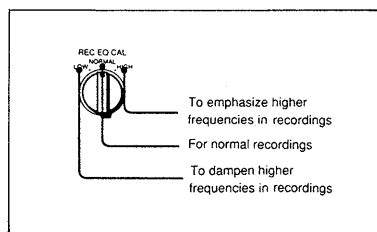
5 Adjust REC LEVEL CALIBRATION until both meters reach the recommended level (REC CAL).

- a) Recommended level
- b) The bias current is now adjusted to the optimum level and the tape sensitivity compensation has been set. Press ■, then set CALIBRATION to OFF. Rewind the tape and start the actual recording.

## Making an Optimum Recording

### Recording Equalization Calibration

Although bias current and equalization are automatically set by the Automatic Tape Selection (ATS) function for the tape being used, you can use the REC EQ CAL switch to change the recording characteristics according to the nature of the source material or to compensate for the particular characteristics of the tape.



### Bias Calibration Recording

Use the REC EQ CAL switch in conjunction with the BIAS control to modify bands of sound and record according to the tape's characteristics.

- When recording music which has strong middle and low frequencies**  
 Set the bias at flat with the REC EQ CAL switch set in the HIGH position to increase the bias current.  
 Adjust the BIAS control so that the HIGH and LOW meters indicate equal readings.
- When recording music which has strong high frequencies**  
 Set the bias at flat with the REC EQ CAL switch set in the LOW position to decrease the bias current.  
 Adjust the BIAS control so that the HIGH and LOW meters indicate equal readings.

### Note

With metal tape, because the amount of frequency characteristic modulation is not in proportion to that of the bias, the optimum bias current may not be obtained using the methods above.

### Another use of the REC EQ CAL switch

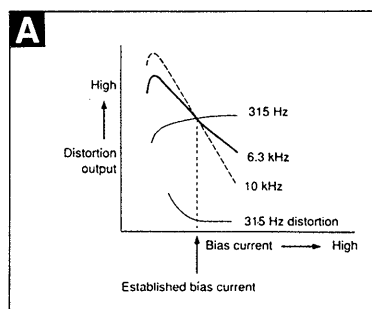
When using special tapes, adjusting the BIAS control with the REC EQ CAL switch set in the NORMAL position may not result in equal readings on the HIGH and LOW meters. If this occurs, adjust the BIAS control after setting the REC EQ CAL switch to HIGH or LOW.

## Recording

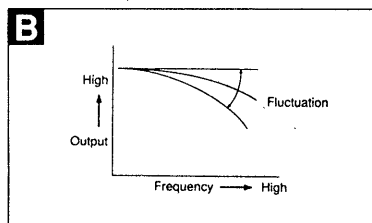
### What is the Dolby HX PRO System?

The Dolby HX PRO system provides improved linearity in high-range frequency response during recording. Tapes recorded with this system retain the same high quality even when played back on other tape decks.

As shown in Fig. A, characteristics such as output level and distortion differ widely according to the bias (high-frequency) current.



In conventional systems (see Fig. B), the bias current is susceptible to variations in certain recording signals which may cause fluctuations in frequency response, distortion, or other unwanted characteristics.

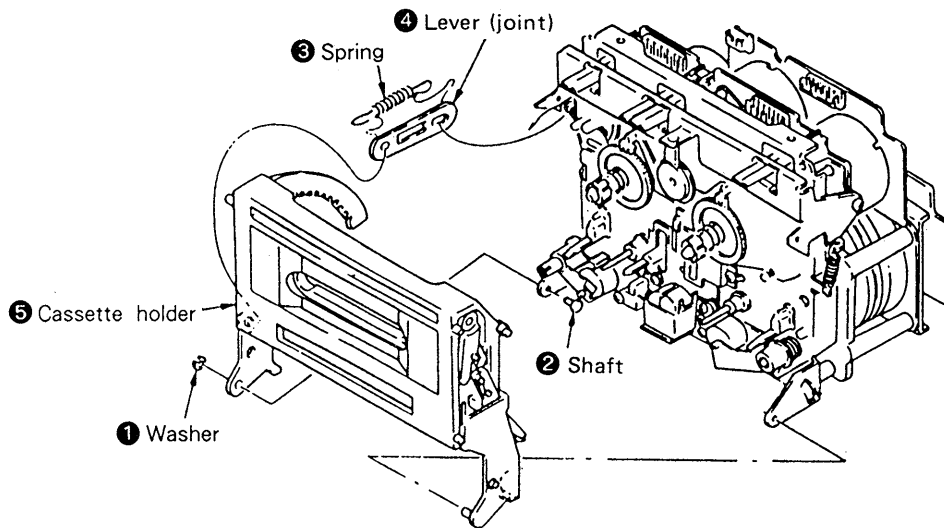


With the Dolby HX PRO system, the effective bias amount added to the bias current is controlled in millisecond units to greatly reduce distortion, improving linearity in high-range response and ensuring high-intensity recording with minimal distortion and noise.

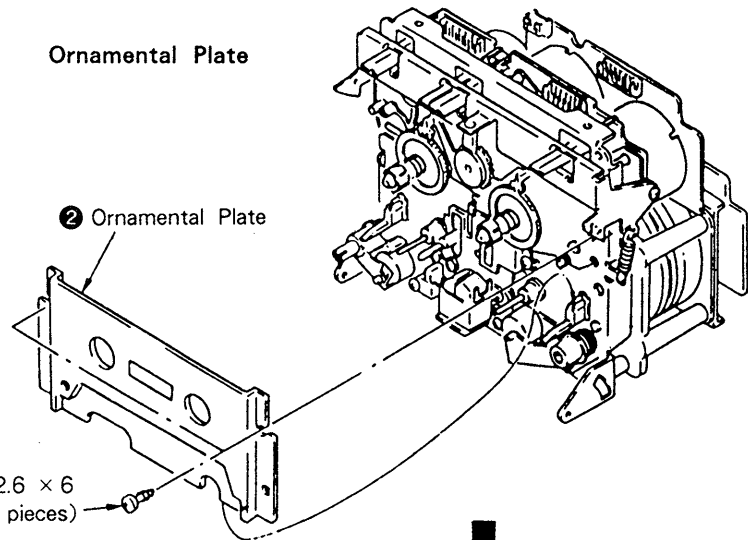
## SECTION 2 DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

### Cassette Holder

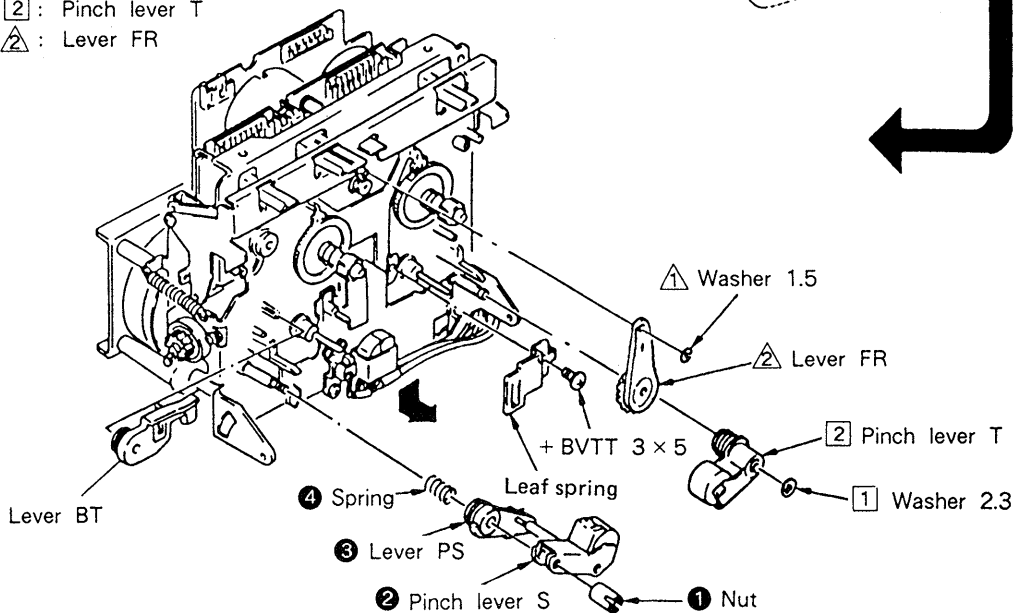


### Ornamental Plate

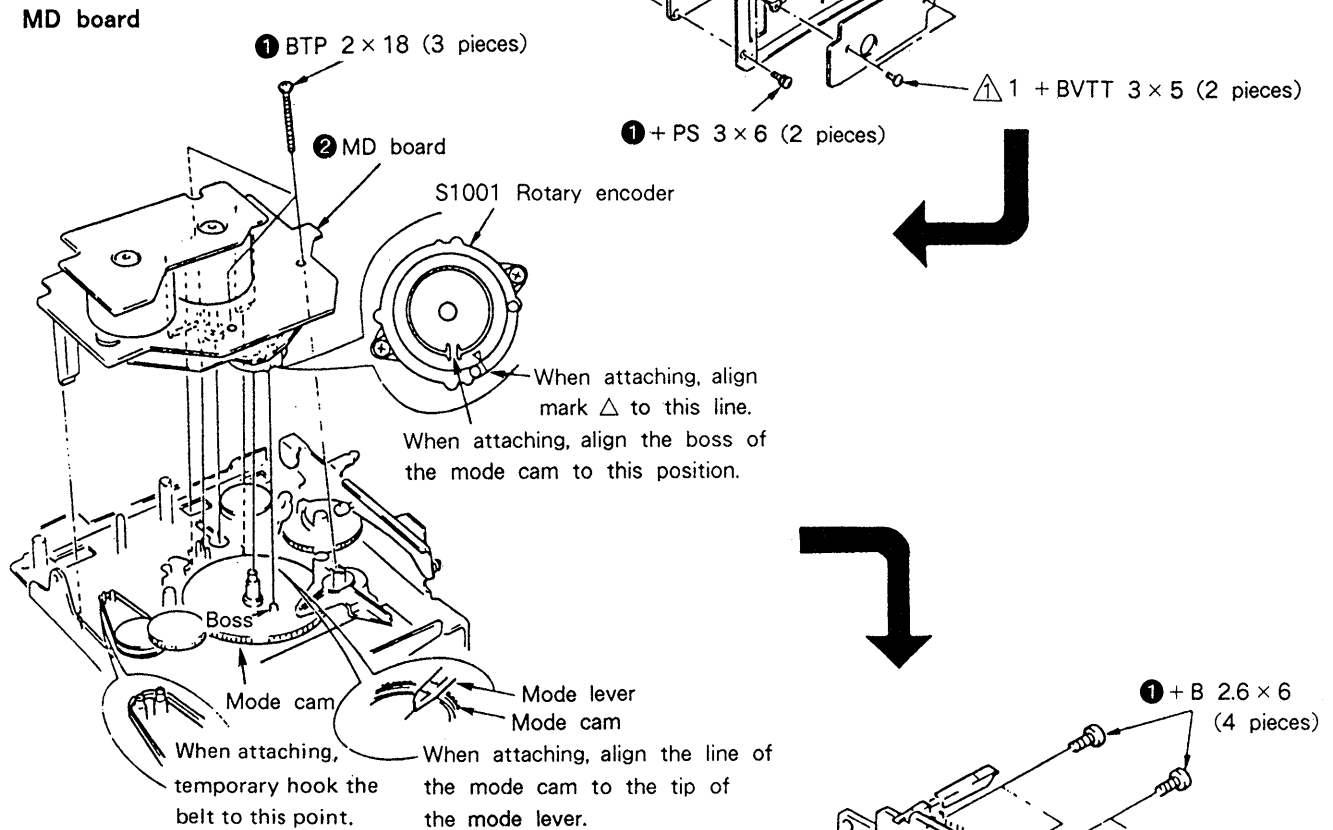
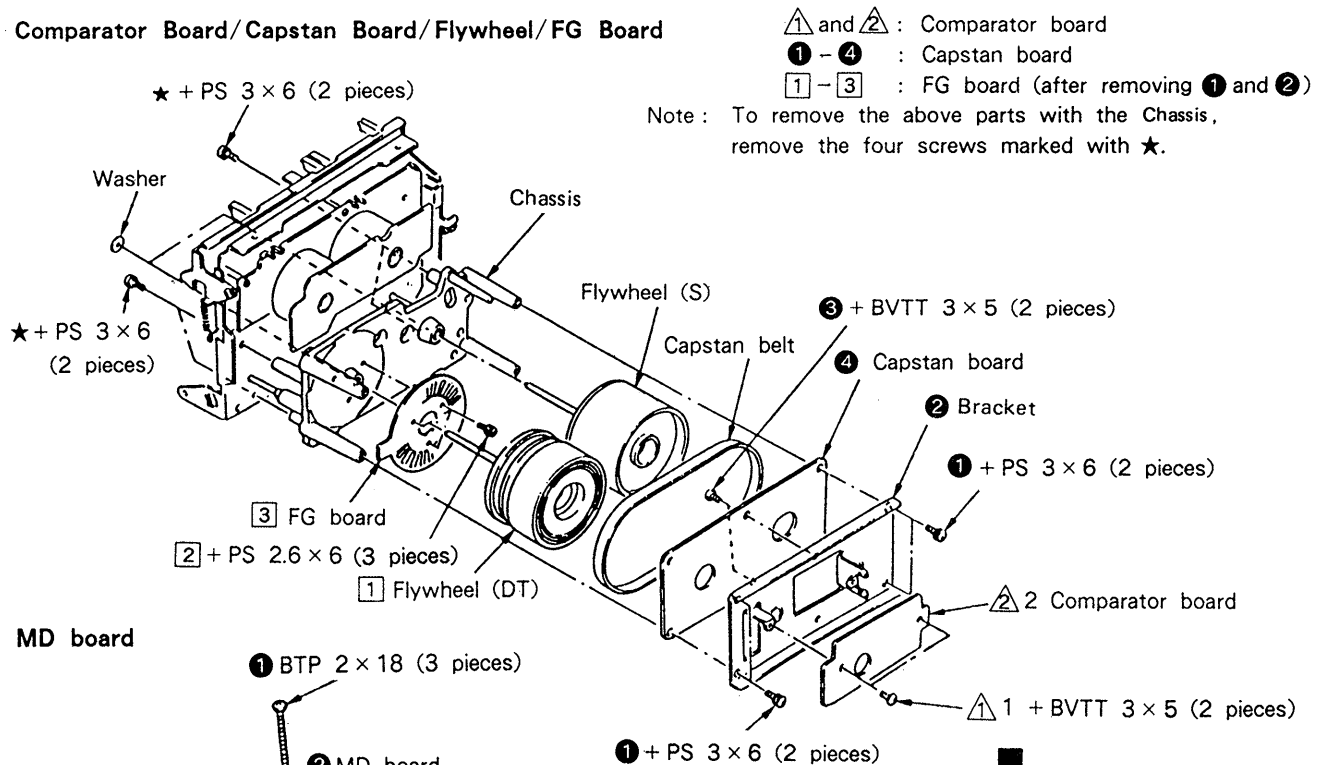


### Pinch Lever/Lever FR

- ①-④ : Pinch lever S  
 ① and ② : Pinch lever T  
 △ and △ : Lever FR



Comparator Board/Capstan Board/Flywheel/FG Board



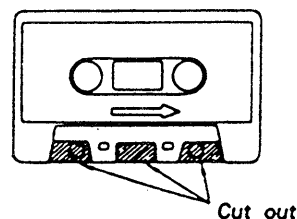
## SECTION 3 ADJUSTMENTS

### 3-1. MECHANICAL ADJUSTMENTS

#### PRECAUTION

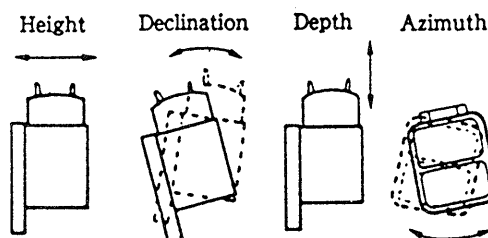
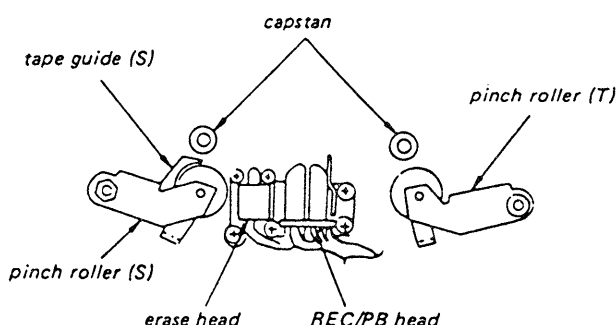
1. Clean the following parts with a denatured alcohol-moistened swab:
 

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



2. Phillips screwdriver (medium-size):  
For the head adjustment screws  
Blade-type screwdriver (large-size):  
For the supply pinch roller adjustment screws
3. Pen light
4. WS-48B(3 kHz, 0 dB)
5. P-4-A100(10kHz, -10dB)

Definition of Terms: The figures are of a record/playback head.



#### Adjustment method:

##### Supply Pinch Roller

**Note:** Only perform this adjustment when the supply pinch roller is to be replaced.

1. Insert the mirror cassette and put the unit in record/playback mode.
2. Check to see whether the tape is curling at the record/playback head guide or the pinch roller guide.  
If it is curling, remove the curl by adjusting the (A) tape curl adjustment screw. Then, check that the tape is running past the middle of the erasehead.

##### Record/playback Head

**Note:** Only perform this adjustment when the record/playback head is to be replaced.

1. Insert the mirror cassette and put the unit in record/playback mode.
2. **(Height Adjustment)** Check to see if the tape is curling at the tape guide of the head. If it is curling, tighten screws (A), (B), and (C), respectively by the same angle, moving the head so that it remains at the same angle throughout the

#### Tape Path Adjustment

•Refer to Adjustment Position on page 12.

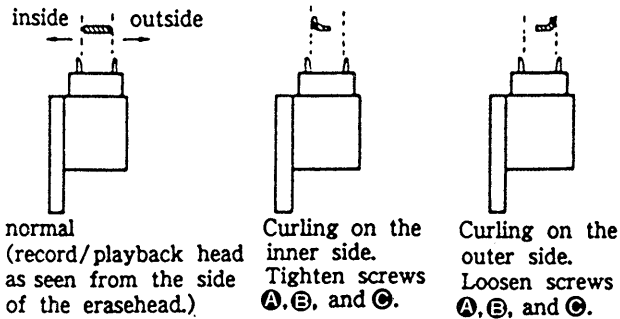
**Note:** When using the adjustment methods for other than replacement reasons, please do not tamper unnecessary with the adjustment screws or the erasehead because either the supply pinch roller guide or the record/playback head will be made the standard tape paths. Moreover, when it is necessary to adjust and replace two or more of any of the heads and/or pinch rollers, replace them one by one, completely taking out first tape path, and then replacing second one.

#### Preparation:

1. Mirror cassette CQ009C 8-909-708-01  
(or CQ012C 8-909-708-02)

If one does not have this, cut out the sections of a 120-minute cassette shell as indicated below and use that cassette.

procedure, If it curls on the bottom side of the mirror cassette (actually the inner side), tighten all the screws equally; but loosen them if the tape begins to curl on the top side(other side).



3. **(Declination Adjustment)** While in the record/playback position, set the back tension to 0 (wind the supply reel with something thin like a pencil in counterclockwise direction) and make sure there is no curling or shifting (shifting up/shifting down) at the guide of the record/playback head. Because shifting can only occur due to a difference in the width of the tape and that of the tape guides (curling will otherwise occur), it is necessary to pay close attention since it can be easily overlooked.

When there is a shift, tighten screws B and C equally and change the declination of the head. If the tape is shifting up, tighten the screws, and if it is shifting down, loosen them.

4. Repeat the adjustments in steps 2 and 3 and fine adjust the height and the declination.

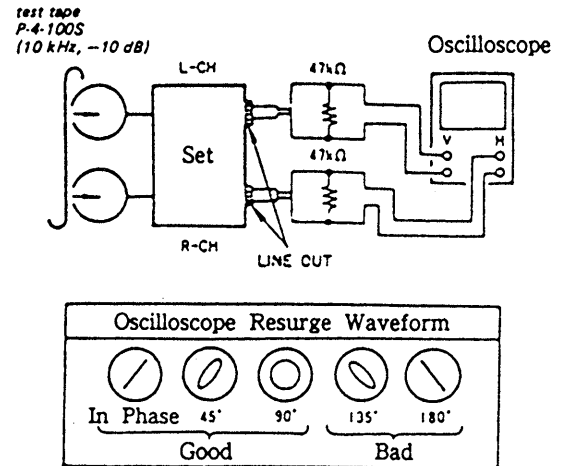
5. **(Preliminary Azimuth Adjustment)**

After demagnetizing and cleaning the adjustment head, play back WS-48B (3kHz, 0dB).

Turn screw C so that the reading on the level meter of the unit or that of the level meter connected to LINE OUT is maximized.

If the screw is turned at least half a revolution, repeat the adjustments from step 1.

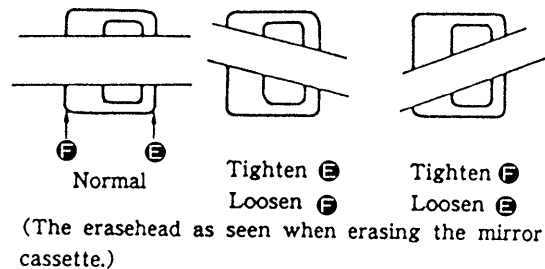
6. **(Tape Path Check)** Connect the oscilloscope to LINE OUT and play back P-4-A100 (10kHz, -10dB) to display a resurge waveform. After 20 seconds of record/playback (after the tension within the loop has been increased sufficiently), make sure the variation in the resurge is within  $\pm 90$  degrees (within  $\pm 45$  degrees is desired). If the variation is greater than this, it is because the declination and/or the height adjustment is not perfect. Repeat the adjustment from step 1.



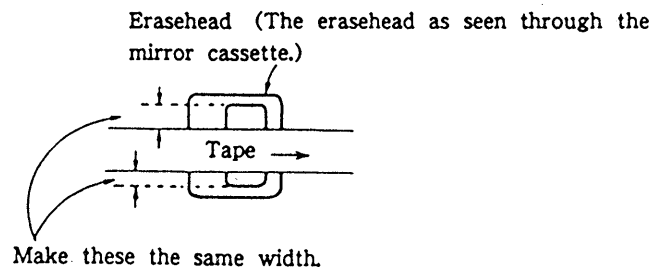
**Erasehead**

**Note:** Only perform this adjustment when the erasehead is to be replaced.

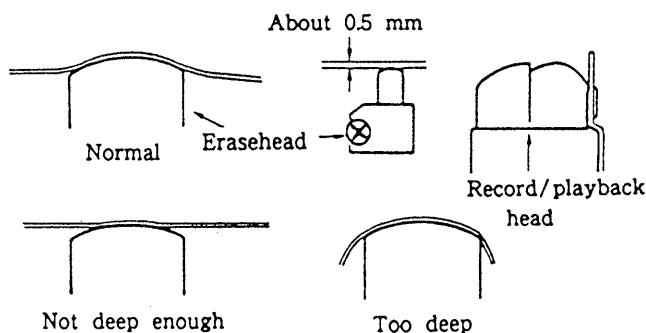
1. Insert the mirror cassette and put the unit in record/playback mode.
2. **(Azimuth Adjustment)** Adjust the azimuth of the erasehead by adjusting screws E and F so that the runs are as evenly as possible.



3. **(Height adjustment)** Turn screws D, E, and F all by the same angle so that the portions of the erasehead visible at top and bottom are nearly of equal width. If the width at the top is greater, tighten the screws; if the width at the bottom is greater, loosen the screws.



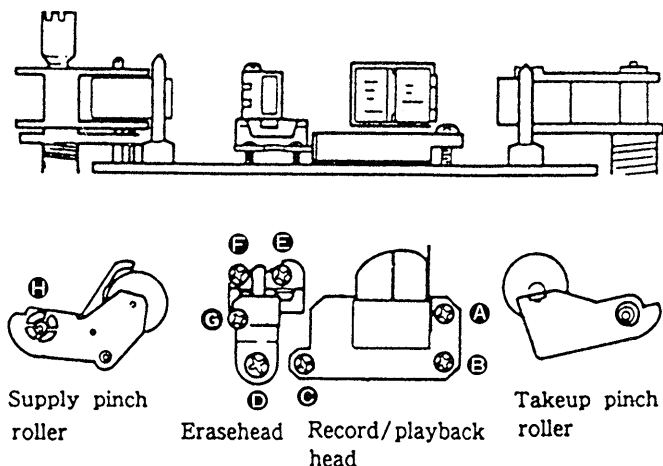
4. **(Declination Adjustment)** Leaving it in the playback position, put the back tension to 0 and make certain the erasehead part and supply pinch roller guide part do not shift. If there is a shift, turn the screw ⑤ and change the declination. Looking at it using the mirror cassette, if the tape shifts up, tighten the screw, and if it shifts down, loosen the screw.
5. Repeat the adjustments beginning with step 2 and fine adjust the height and declination. And make sure the tape does not curl up on the pinch roller guide or the guide part of the record/playback head.
6. **(Depth Adjustment)** In order to make the entire head play the tape smoothly, and to make sure the depth of the erasehead is neither too shallow nor too deep, loosen screw ⑥ a bit.



#### Check

1. Check to make sure that there are no curls or shifts throughout the whole tape path and that the tape runs smoothly.
2. Reapply the locking compound to the adjusted screws. (The locking compound should only be applied to screw ⑥ after the azimuth has been adjusted.)

**Adjustment Position:** As seen from the cassette, side (top) and MD as seen head on (bottom).



#### Pinch Roller Pressing Force Measurement

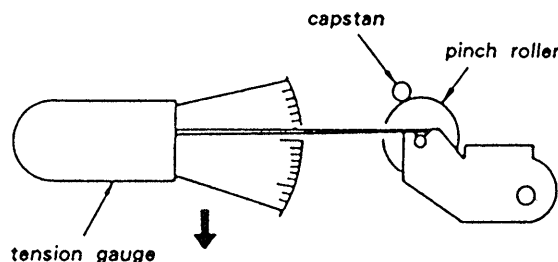
Mode: playback

Hook needle of the tension gauge to the pinch roller shaft and push back pinch roller to detach it from capstan. Then, return it gradually to capstan and read the gauge when the pinch roller begins turning.

#### Standard Limits:

Tape-up side: 270 – 350 g(9.5 – 12oz)

Supply side: 180 – 280g(6.4 – 9.9oz)



#### Torque Adjustment and Measurement

1. Insert a tape for torque measurement, CQ-102C, and put the set to PLAY mode. Adjust RV801 so that the reading of the torque meter is  $40 \pm 5$  g.cm.
2. After the adjustment, measure the back-tension and the FF/REW torque and check that the following specifications are satisfied.

| Torque              | Torque Meter | Reading                          |
|---------------------|--------------|----------------------------------|
| FWD                 | CQ102C       | 30 – 60g·cm (0.42 – 0.83oz·inch) |
| FWD<br>Back tension | CQ-102C      | 7 – 11g·cm (0.09 ± 0.015oz·inch) |
| FF/REW              | CQ-201B      | 65 – 90g·cm (0.90 – 1.25oz·inch) |

### 3-2. ELECTRICAL ADJUSTMENTS

**Note:** The adjustment should be performed in the order given in this service manual.

The adjustment should be performed for both L-CH and R-CH.

- Simultaneous REC/PB Mode:  
Input the signals to LINE IN terminal and set to REC mode. Set the monitor switch to TAPE, and monitor the recorded signal from LINE OUT terminal.
- Switch Position:  
DOLBY NR ..... OFF  
TIMER ..... OFF  
MONITOR ..... TAPE  
HX PRO ..... OFF  
CALIBRATION ..... OFF  
CD DIRECT ..... OFF  
BIAS ..... CENTER CLICK  
REC LEVEL ..... CENTER CLICK

● Standard Record:

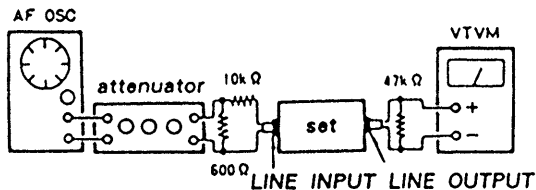
Deliver the standard input signal level to the input jack and set the REC LEVEL control to obtain the standard output signal level.

Standard Input Level

| Input Terminal   | LINE IN         |
|------------------|-----------------|
| source impedance | 10k $\Omega$    |
| input level      | 0.25 V (-10 dB) |

Standard Output Level

| Output Terminal | LINE OUT       |
|-----------------|----------------|
| load impedance  | 47k $\Omega$   |
| output level    | 0.44 V (-5 dB) |

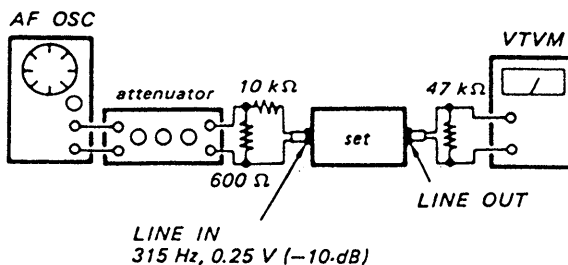


**MPX FILTER Check**

Setting: DOLBY switch: OFF  
MPX FILTER switch: OFF

Procedure:

1. Mode: stop



2. Apply 315Hz, 0.25V(-10dB)signal and adjust REC LEVEL(RV501) control so that the LINE OUT level is 0.44V(-5dB).
3. Apply 19kHz 0.25V(-10dB)signal and confirm that the LINE OUT level is 0.013V(-35dB)or less.

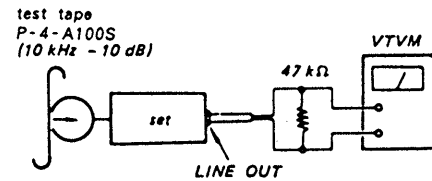
**Adjustment Limits:**

DOLBY NR switch: B or C  
MPX FILTER switch: Line output level when ON.  
315Hz: Within 0.49 to 0.39V(within -4dB to -6dB)  
19kHz: 0.013V(-35dB)or less.

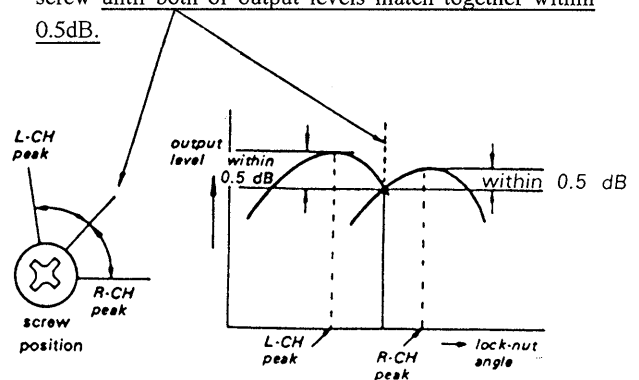
**Record/Playback Head Azimuth Adjustment**

Procedure:

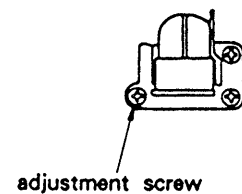
1. Mode: playback



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



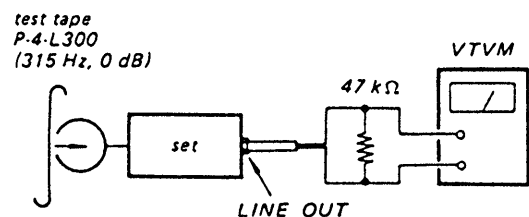
Adjustment Location:



**Playback Level Adjustment**

Procedure:

Mode: playback



Adjust RV101(L-CH)andRV201(R-CH)to obtain the specified LINE OUT level.

## Adjustment Limits:

LINE OUT level: 0.301 to 0.338V

(-8.2 to -7.2dB)

Level difference between channels:

less than 0.5dB

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

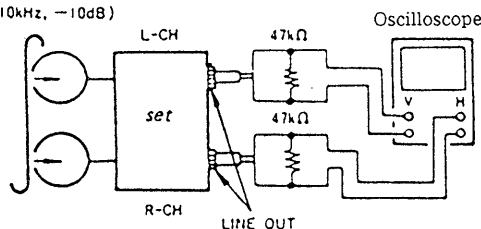
## 3. Phase check

— Play mode —

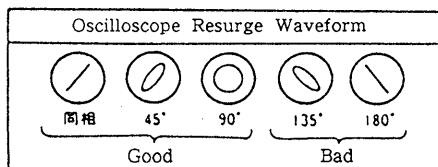
Reference tape for adjustment

P-4-A100

(10kHz, -10dB)



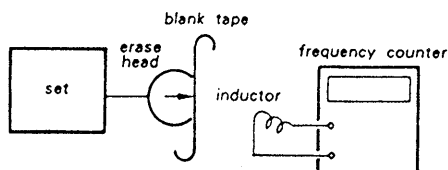
- Check that the phase difference between L-ch and R-ch is within 0 ~ ( same to 90° )



## Bias OSC Frequency Adjustment

### Procedure:

- Record mode



- Connect the frequency counter to the inductor which functions at 10mH. (When the inductor is a closed magnetic circuit, redesign the inductor to be an open magnetic circuit.)
- Remove the cassette lid, insert the cassette, and put the unit into REC mode.

- Move the inductor from the side in close to the erase head to check the value of the bias.
- Adjust CP501 so that the reading on the frequency counter is 105kHz ± 1kHz.

## Bias current adjustment

- Set the HX PRO switch to ON and insert the METAL tape.
- Set RV104, RV204, RV105, RV205, RV106, and RV206 to be in the center position.
- Connect a digital voltmeter to CNE504 (between 2-1 and 2-3) and adjust the adjustment cores of T101 and T201 so that the voltage is minimized.

## CrO<sub>2</sub> Bias and Record Level Adjustment

**Note:** This adjustment should be made before Record Bias Adjustment.

### Setting:

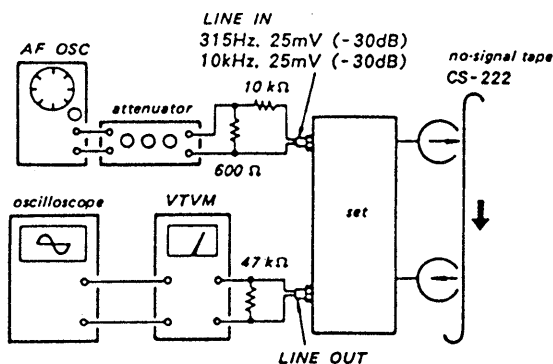
REC LEVEL knob: standard record position.

(See page 12.)

HX PRO switch: ON

### Procedure:

- Mode: simultaneous REC/PB



- Adjust RV106(L-CH) and RV206(R-CH) so that the playback output level of 10kHz signal is 0.3dB -0.3dB with respect to that 315Hz. ••• Record Bias Adjustment.
- Adjust RV102(L-CH) and RV202(R-CH) so that the playback output level of 315Hz is -25.3dB to -24.7dB. ••• Record Level Adjustment.

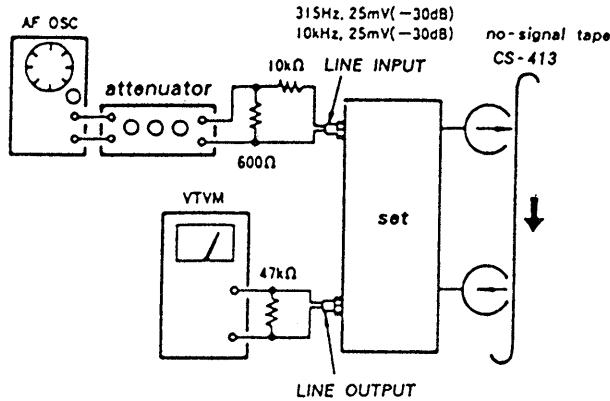
## Metal Bias Adjustment

### Setting:

REC LEVEL knob: standard record position.  
(See page 12.)

### Procedure:

1. Mode: simultaneous REC/PB



2. Adjust RV510(L-CH) and RV205(R-CH) so that the difference between the playback output at 315Hz and that of 10kHz in R-CH is within 0.5dB to -0.5dB.

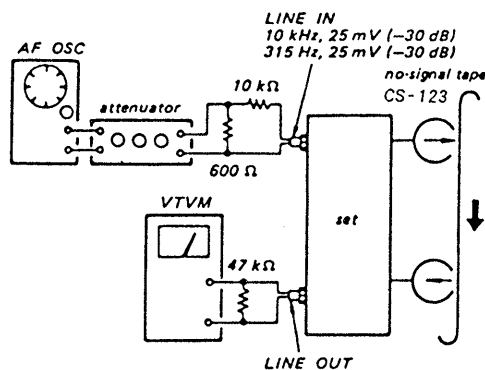
## Normal Bias Adjustment

### Setting:

REC LEVEL knob: standard record position.  
(See page 12.)

### Procedure:

1. Mode: simultaneous REC/PB



2. Set the HXPRO switch to ON.

3. Adjust RV103(L-CH) and RV203(R-CH) so that the difference between the playback output at 315Hz and that of 10kHz in R-CH is within 0.5dB to -0.5dB.

4. Set the HXPRO switch to OFF.

5. Adjust RV104(L-CH) and RV204(R-CH) so that the difference between the playback output at 10kHz when the HXPRO is ON and that of 10kHz when ON is within 0.5dB to -0.5dB.

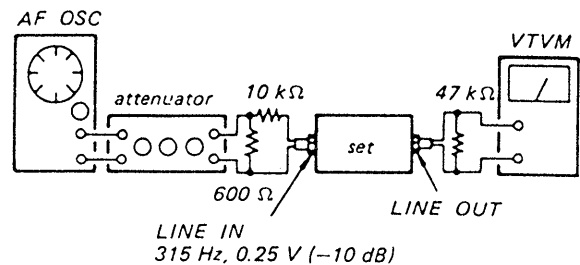
## Meter Level Adjustment

### Setting:

REC LEVEL knob: standard record position.  
(See page 12.)

### Procedure:

1. Stop mode



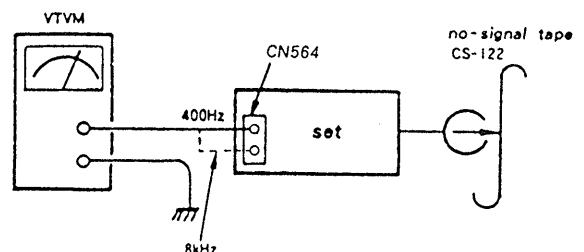
2. Adjust RV107(L-CH) and RV207(R-CH) so that a reading of the meter is set to 0VU and the lamp is lit.
3. Adjust REC level so that the LINE OUT level is set to +10dB and check that all the lamps are lit.

## Calibration OSC and Calibration Meter Adjustment

Setting: CALIBRATION switch: ON

### Procedure(OSC OUT LEVEL):

1. Mode: record(no-signal(LINE INPUT))

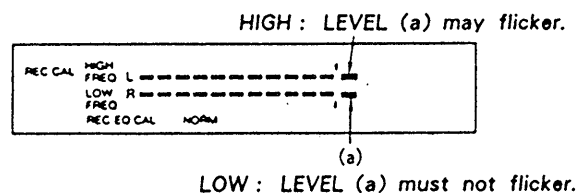


2. Adjust RV504 so that a check-point level at 400Hz is +10dB.
3. Adjust RV503 so that a check-point level at 8kHz is +10dB.

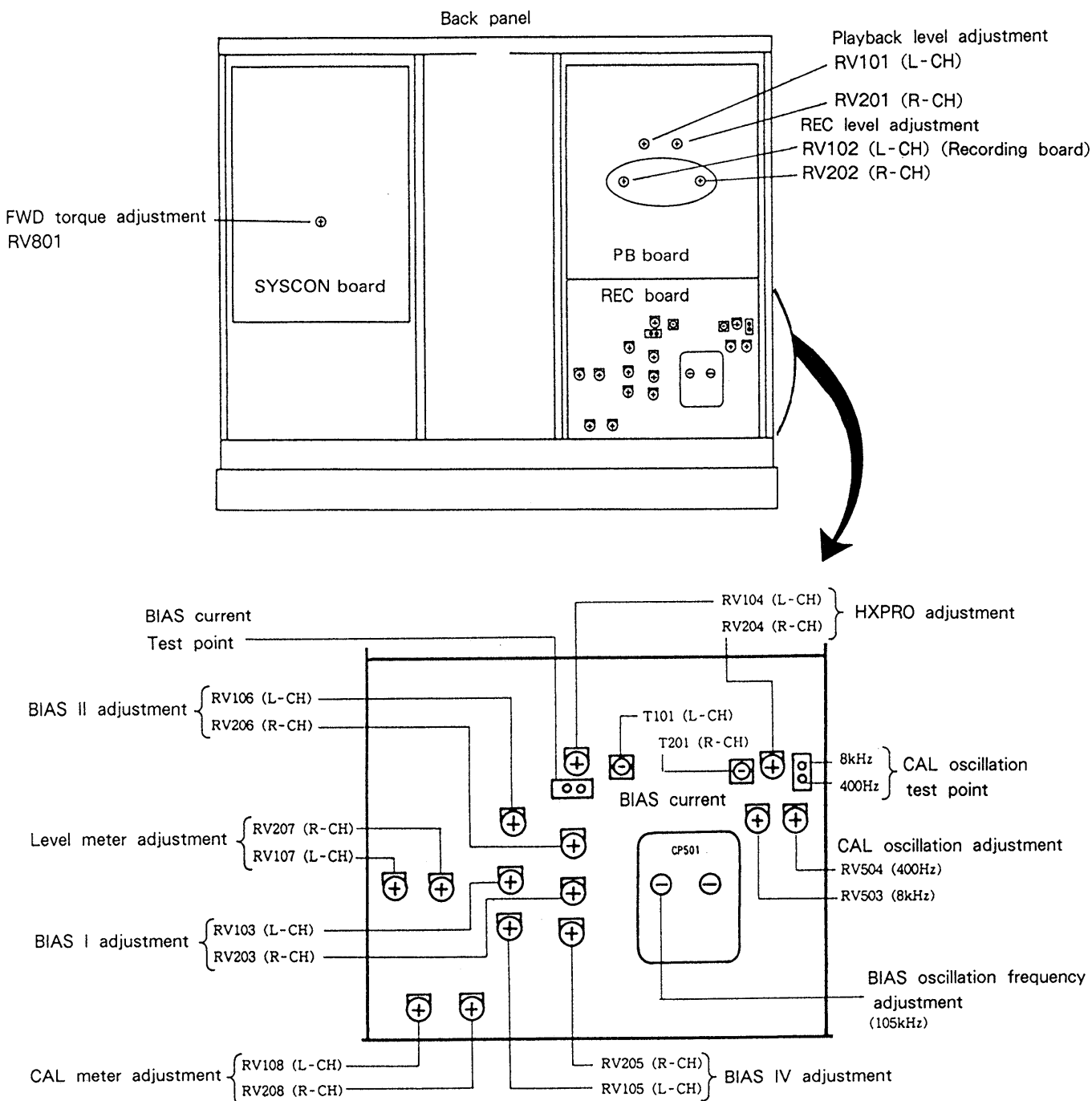
## Procedure(CAL METER ADJ):

1. Put the set in record mode and adjust RV208(HIGH)so that HIGH FREQ segments in the CAL LEVEL meter light thoroughly up to 0VU as shown in the figure below. Segment(a)may flicker.

2. Preset RV108(LOW)so that segment(a)in LOW FREQ CAL LEVEL meter lights. Then adjust RV204 to the point where segment (a)goes out.



## Location Diagram of the Adjustment Parts



## SECTION 4 DIAGRAMS

### 4-1-1. IC502, 505 (CX20188) PIN FUNCTIONS

An electronic switch circuit for the operation mode control is included. Controls are performed by adding direct current voltages VH, VM, and VL to Dolby OFF/B/C and calibration/REC/Playback terminals.

| CX20188 | Pin name   | Description                                    |
|---------|------------|------------------------------------------------|
| Pin No. |            |                                                |
| 1.      | Vcc        | Positive power supply terminal.                |
| 2, 41.  | REC IN     | Recording input terminal.                      |
| 3.      | I REF      | Reference current input terminal.              |
| 4, 39.  | PB IN      | Playback input terminal.                       |
| 5.      | CAL/REC/PB | Calibration/recording/playback select terminal |
| 6, 37.  | PB FB      | Playback feedback terminal.                    |
| 7, 36.  | REC FB     | Recording feedback terminal.                   |
| 8, 35.  | GND        | GND terminal.                                  |
| 9, 34.  | LINE OUT   | Line output (decode output) terminal.          |
| 10, 33. | SSK        | Spectral skewing switch terminal.              |
| 11, 32. | VF IN      | Encode circuit input terminal.                 |
| 12, 31. | HPF H      | HLS high-pass filter terminal.                 |
| 13, 30. | TCH 2      | HLS detector time constant terminal 2.         |
| 14, 29. | TCH 1      | HLS detector time constant terminal 1.         |
| 15, 28. | WT H       | HLS encoder error reduction terminal.          |
| 16, 27. | TCL 2      | LLS detector time constant terminal 2.         |
| 17, 26. | TCL 1      | LLS detector time constant terminal 1.         |
| 18, 25. | WT L       | LLS encoder error reduction terminal.          |
| 19, 24. | HPF L      | LLS high-pass filter terminal.                 |
| 20, 23. | ANT S      | Anti-saturation terminal.                      |
| 21, 22. | REC OUT    | Recording output (encode output) terminal.     |
| 38.     | OFF/B/C    | Dolby NR off/B type/C type select terminal.    |
| 40.     | CAL IN     | Calibration input terminal.                    |
| 42.     | Vee        | Negative power supply terminal.                |

| MODE | VOLT         |
|------|--------------|
| VH   | 3 to 9.9V    |
| VH   | -0.7 to 0.7V |
| VL   | -9.9 to -3   |

**4-1-2. IC601 (M50940-313SP) PIN FUNCTIONS**

Level meter display of 24-segment fluorescent display, etc., are performed by receiving direction from the master microcomputer (IC801).

| Pin No. | Pin name                                 | I/O | Description                                                                                       |
|---------|------------------------------------------|-----|---------------------------------------------------------------------------------------------------|
| 1.      | Vref                                     | I   | A/D input-port reference voltage input(+5V)                                                       |
| 2.      | $\phi L$                                 | I   | Not used. (Connected to +5V)                                                                      |
| 3.      | $\phi R$                                 | I   | Not used. (Connected to +5V)                                                                      |
| 4.      | DATA                                     | I   | Data input from the master microcomputer(IC801)(analog)                                           |
| 5.~6.   | ADE1~ADRO                                | I   | Data input from the master microcomputer(IC801)(analog)                                           |
| 7.      | KEY                                      | I   | Not used. (Connected to +5V)                                                                      |
| 8.      | LEVEL L                                  | I   | Level meter L-CH input(analog) from the meter amplifier(IC514)                                    |
| 9.      | LEVEL R                                  | I   | Level meter R-CH input(analog) from the meter amplifier(IC514)                                    |
| 10.~13. | $\overline{GRID6} \sim \overline{GRID3}$ | 0   | Not used.                                                                                         |
| 14.~15. | $\overline{GRID2} \sim \overline{GRID1}$ | 0   | Fluorescent display grid output                                                                   |
| 16.     | $\overline{COO}$                         | 0   | Not used.                                                                                         |
| 17.     | $\overline{PLAY}$                        | 0   | Not used. (Connected to pin ⑩.)                                                                   |
| 18.     | $\overline{PLAY}$                        | 0   | Not used.                                                                                         |
| 19.     | $\overline{PAUSE}$                       | 0   | Not used.                                                                                         |
| 20.     | $\overline{REC}$                         | 0   | Not used.                                                                                         |
| 21.     | $\overline{TAPE}$                        | 0   | Fluorescent display segment output("TAPE" displayed). "L": TAPE displayed. "H": SOURCE displayed. |
| 22.     | $\overline{OVER LEVEL}$                  | 0   | Fluorescent display segment output("OVER LEVEL" displayed). It is displayed when "L".             |
| 23.     | $\overline{TYPE I}$                      | 0   | Fluorescent display segment output("TYPE I" displayed). It is displayed when "L".                 |
| 24.     | $\overline{TYPE II}$                     | 0   | Fluorescent display segment output("TYPE II" displayed). It is displayed when "L".                |
| 25.     | $\overline{TYPE IV}$                     | 0   | Fluorescent display segment output("TYPE III" displayed). It is displayed when "L".               |
| 26.     | CNVss                                    | -   | Power supply terminal(GND)                                                                        |
| 27.     | $\overline{RESET}$                       | I   | Reset input                                                                                       |
| 28.     | XIN                                      | I   | Clock input(4MHz)                                                                                 |
| 29.     | XOUT                                     | 0   | Clock outupt.                                                                                     |
| 30.     | XCIN                                     | -   | Not used. (Connected to GND)                                                                      |
| 31.     | XCOUT                                    | -   | Not used.                                                                                         |
| 32.     | Vss                                      | -   | Power supply terminal(GND)                                                                        |
| 33.     | $\Phi$                                   | 0   | Not used.                                                                                         |
| 34.     | VER                                      | I   | Version switching input(Always set to "L")                                                        |
| 35.     | $\overline{TEST}$                        | I   | Test mode input. "L": All the lamps of the meter are lit.                                         |
| 36.     | CAL                                      | I   | Calibration switch(S602) input. "L": CAL mode. "H": Normal mode.                                  |
| 37.     | IN                                       | I   | Not used. (Connected to GND.)                                                                     |
| 38.     | VP                                       | I   | Fluorescent display segment output's pull-down power supply terminal(-22V)                        |
| 39.~62. | S23~S0                                   | 0   | Fluorescent display segment output(meter display)                                                 |
| 63.     | AVcc                                     | -   | Power supply terminal(+5V)                                                                        |
| 64.     | Vcc                                      | -   | Power supply terminal(+5V)                                                                        |

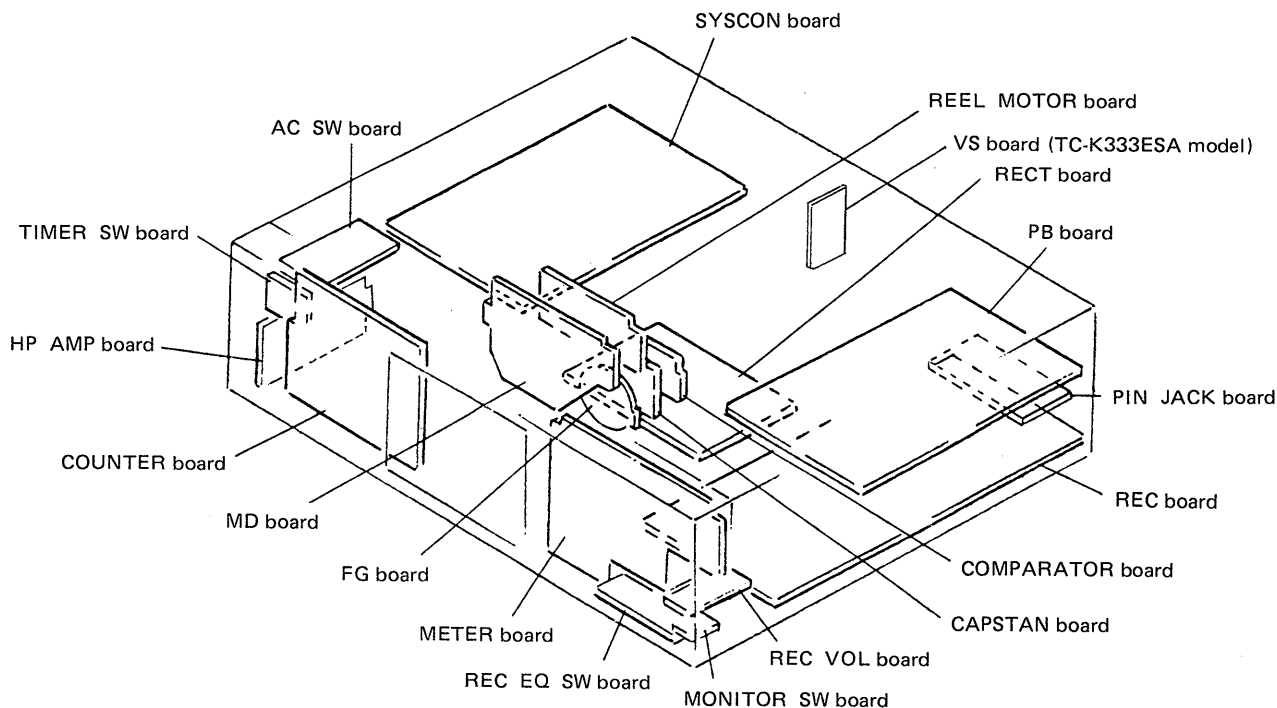
## 4-1-3. IC801 (M50964-226SP) PIN FUNCTIONS

| Pin No. | Pin name           | I/O | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|--------------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.      | VCC                | -   | Power supply: +5V.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2.      | AV <sub>ss</sub>   | -   | Power supply: GND.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 3.      | Vref               | I   | A/D port reference voltage input.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 4.      | DATA               | O   | Data output (Analog) to Display Microcomputer.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5.      | PWM                | -   | Not used for this model.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 6.      | ADDRO              | O   | Data output to Display Microcomputer (IC601).                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 7.      | REC                | O   | REC LED output.                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 8.      | PAUSE              | O   | PAUSE LED output.                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 9.      | PLAY               | O   | PLAY LED output.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 10.     | AD7                | I   | Key input. 0V=  , 1V=  , 2V=  , 3V=  , 4V=  |
| 11.     | AD6                | I   | Key input. 0V=  , 1V=  , 2V=  , 3V=  , 4V=  |
| 12.     | AD5                | I   | Key input. 0V=RESET, 1V=MEMORY, 2V=DISPLAY MODE                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 13.     | TIMER SW           | I   | Timer switch input (Analog). 0V=REC, 1V=PLAY, 2V=OFF.                                                                                                                                                                                                                                                                                                                                                                                                            |
| 14.     | T-PULS             | I   | Take-up reel base sensor input.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 15.     | S-PULS             | I   | Supply reel base sensor input.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 16.     | COUNT 0            | I   | Not used for this model (Connected to GND).                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 17.     | —                  | -   | Not used for this model (Connected to GND).                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 18.     | RSTOUT             | O   | Reset output to counter Microcomputer (IC881).                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 19.     | S-CLOCK            | O   | Shift clock output (250kHz) to Counter Microcomputer (IC881).                                                                                                                                                                                                                                                                                                                                                                                                    |
| 20.     | S-OUT              | O   | Serial data output to Counter Microcomputer (IC881).                                                                                                                                                                                                                                                                                                                                                                                                             |
| 21.     | S-IN               | I   | Not used for this model (Connected to S-OUT).                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 22.     | SIRCS-L            | I   | SIRCS phase input.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 23.     | SIRCS-E            | I   | SIRCS negative phase input.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 24.     | POW-OUT            | O   | Not used for this model (Connected to GND).                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 25.     | POWER IN           | I   | Power down detection input.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 26.     | INT1               | I   | Power down detection input.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 27.     | CN V <sub>ss</sub> | -   | Power supply: GND.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 28.     | RESET              | I   | Reset input.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 29.     | XIN                | I   | Clock input (4MHz).                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 30.     | XOUT               | O   | Clock output (4MHz).                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 31.     | φ OUT              | -   | Not used for this model.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 32.     | V <sub>ss</sub>    | -   | Power supply: GND.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 33.     | PAT3               | I   | Rotary encoder input to detect the position of the head base of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                            |
| 34.     | PAT2               | I   | Rotary encoder input to detect the position of the head base of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                            |
| 35.     | PAT1               | I   | Rotary encoder input to detect the position of the head base of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                            |
| 36.     | PAT0               | I   | Rotary encoder input to detect the position of the head base of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                            |
| 37.     | OPEN SW            | I   | OPEN switch input of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 38.     | CLOSE SW           | I   | CLOSE switch input of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 39.     | DOOR SW            | I   | DOOR switch input of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 40.     | REC SW             | I   | REC switch input of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 41.     | 70 μ SW            | I   | 70 μ switch input of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 42.     | HALF SW            | I   | HALF switch.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 43.     | METAL SW           | I   | METAL switch.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 44.     | —                  | -   | Not used for this model (Connected to GND).                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 45.     | CAM DOWN           | O   | Head base DOWN output of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 46.     | CAM UP             | O   | Head base UP output of the mechanical block.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 47.     | M-FWD              | O   | Reel motor rotate with FWD.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 48.     | M-REV              | O   | Reel motor rotate with REV.                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 49.     | M-PLAY             | O   | Reel motor rotate at PLAY speed.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 50.     | M-FAST             | O   | Reel motor rotate at FF/REW speed.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 51.     | BIAS               | O   | Bias oscillation on and off control.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 52.     | REC MUTE           | O   | REC MUTE control output.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 53.     | MONITOR OUT        | O   | MONITOR switch output.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 54.     | LINE MUTE          | O   | Line mute control output.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 55.     | —                  | -   | Not used for this model (Connected to GND).                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 56.     | AMS MODE           | O   | AMS switch output.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 57.     | TYPE I             | O   | REC equalizer change output.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 58.     | TYPE II            | O   | REC equalizer change output.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 59.     | TYPE IV            | O   | REC equalizer change output.                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 60.     | AMS SIG            | I   | AMS signal input. No song detected=Low. Song detected=High.                                                                                                                                                                                                                                                                                                                                                                                                      |
| 61.     | SOURCE SW          | I   | MONITOR switch input.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 62.     | TAPE SW            | I   | MONITOR switch input.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 63.     | CAL SW             | I   | CALIBRATION switch input.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 64.     | ADDR1              | O   | Data output to Display Microcomputer.                                                                                                                                                                                                                                                                                                                                                                                                                            |

**4-1-4. IC881 (HD404240A31S) PIN FUNCTIONS**

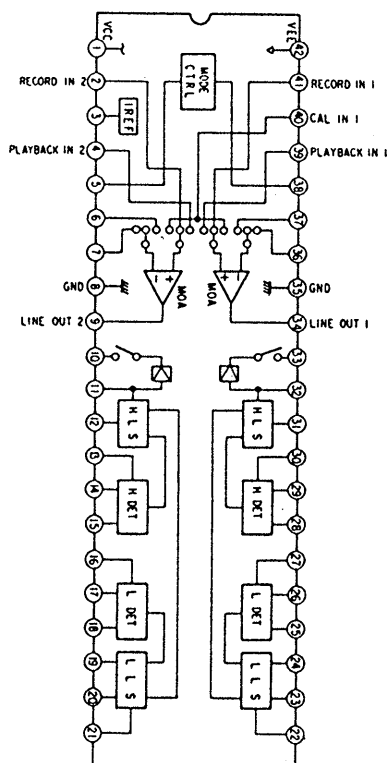
Fluorescent dynamic display is performed by receiving count data from the master microcomputer (IC801)

| Pin No.  | Pin name  | I/O | Description                                                                                                    |
|----------|-----------|-----|----------------------------------------------------------------------------------------------------------------|
| 1.       | G3        | O   | Fluorescent display grid output                                                                                |
| 2.       | G4        | O   | Fluorescent display grid output                                                                                |
| 3.       | dot       | O   | Fluorescent display segment output                                                                             |
| 4.       | P DWN     | I   | Pull-down power supply terminal for fluorescent display segment output (-22V)                                  |
| 5. ~11.  | g~a       | O   | Fluorescent display segment output                                                                             |
| 12.      | -         | -   | Not used.                                                                                                      |
| 13. ~16. | DIM1~DIM4 | I   | Dimmer input (Pins ⑭ and ⑯ are "H". Others are opened and fixed: Blanking time 550usec; grid ON time 450usec.) |
| 17. ~20. | -         | -   | Not used.                                                                                                      |
| 21.      | Vcc       | -   | Power supply terminal (+5V)                                                                                    |
| 22.      | SCK       | I   | Shift clock input (250kHz) from the master microcomputer (IC801)                                               |
| 23.      | SI        | I   | Serial data input (Data are sent by 1 byte every 6msec.) from the master microcomputer (IC801)                 |
| 24. ~25. | -         | -   | Not used.                                                                                                      |
| 26.      | RESET     | I   | Reset input from the master microcomputer (IC801). Reset when "H".                                             |
| 27.      | TEST      | I   | Connected to +5V.                                                                                              |
| 28.      | OSC1      | I   | Clock input (4MHz)                                                                                             |
| 29.      | OSC2      | I   | Clock input (4MHz)                                                                                             |
| 30.      | GND       | -   | Power supply terminal (GND)                                                                                    |
| 31. ~34. | -         | -   | Not used.                                                                                                      |
| 35.      | MLED      | O   | Not used. (Connected to +5V)                                                                                   |
| 36. ~40. | -         | -   | Not used.                                                                                                      |
| 41.      | G2        | O   | Fluorescent display grid output                                                                                |
| 42.      | G1        | O   | Fluorescent display grid output                                                                                |

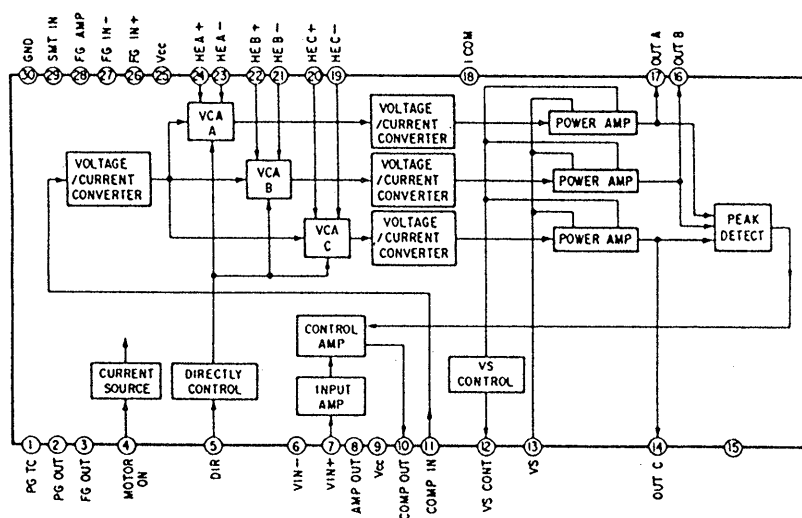
**4-2. CIRCUIT BOARDS LOCATION**


### 4-3. IC BLOCK DIAGRAMS

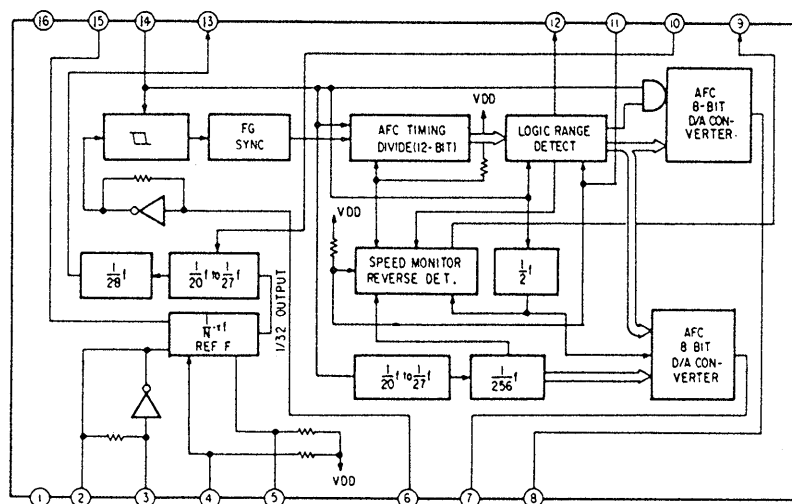
IC502, 505 CX20188



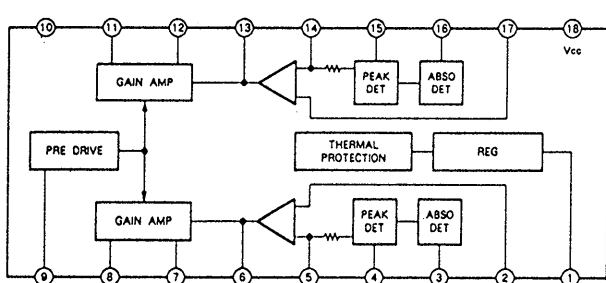
IC902 CX20174



IC952 TC9142P

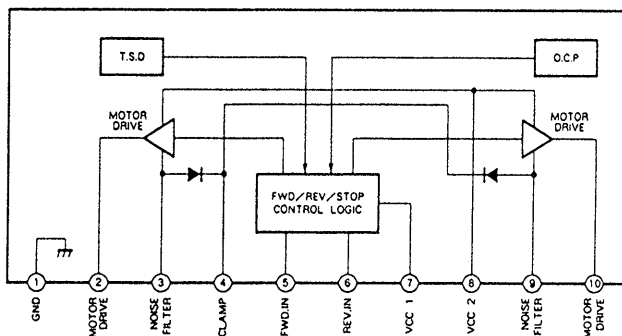


IC508  $\mu$ PC1297CA



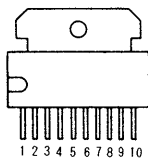
IC802 BA6219B

IC803 LB1641

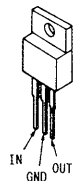


4-4. SEMICONDUCTOR LEAD LAYOUTS

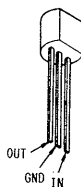
BA6219B  
LB1641



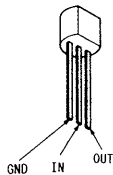
M5F7807



M5F7907



NJM79L12A



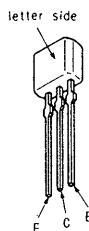
RC78L12L



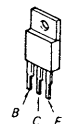
DTA114ES  
DTA144ES  
DTC114ES  
DTC124ES  
DTC143TS  
2SC2603-EF



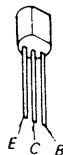
DTC144ES  
2SA1175-HFE  
2SC3623A-LK  
2SD1020-HFE



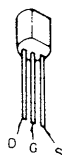
2SA985A  
2SB1094-LK  
2SC2275A  
2SD2012



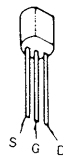
2SB646C  
2SB1116A-L  
2SC945-P  
2SC1815-GR  
2SD756



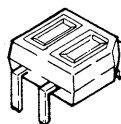
2SK170



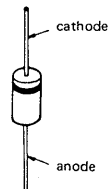
2SK246-GR2



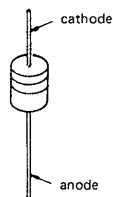
GP2S22B



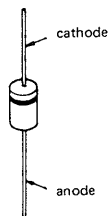
HZ6B2L  
HZ12B2L  
1N4148M  
10E2N



RD5.1JS-B1  
HZS6C1L  
HZS6C3L  
UZL-6M2  
UZL-24L  
1SS202-1



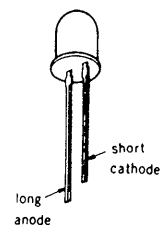
30DF2



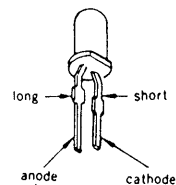
SEL4214S



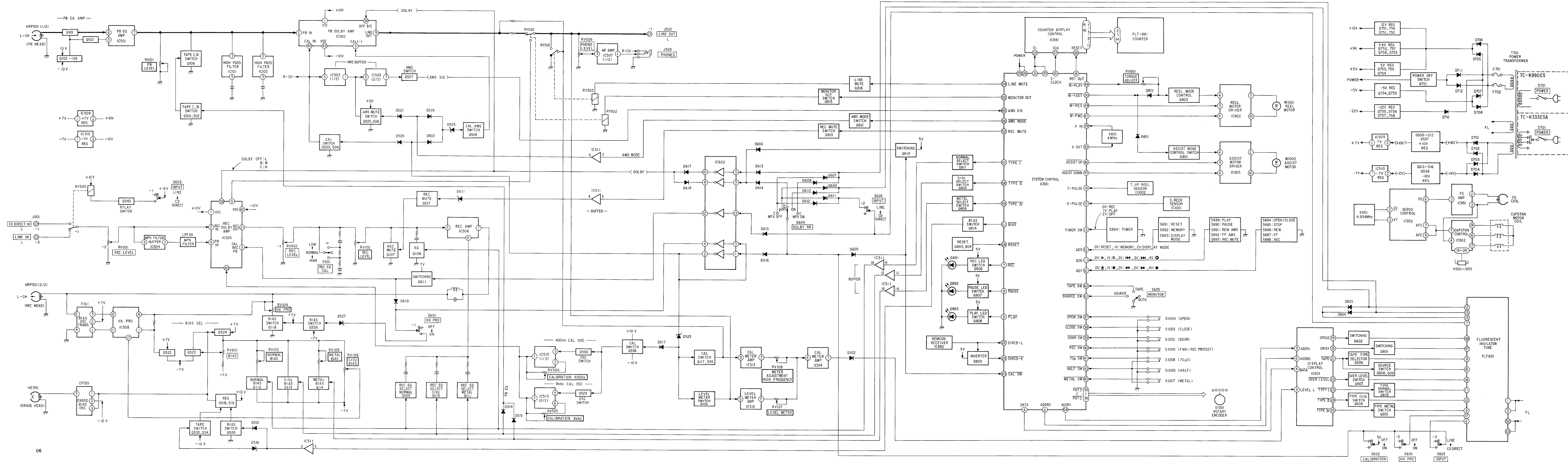
SEL4414E-C

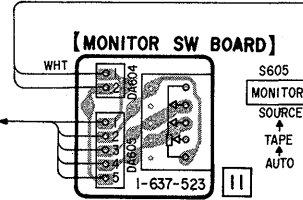


SEL4814A-CD



#### 4-5. BLOCK DIAGRAM

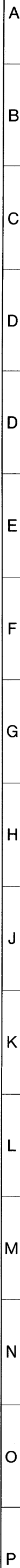




**Note on Mounting Diagram:**

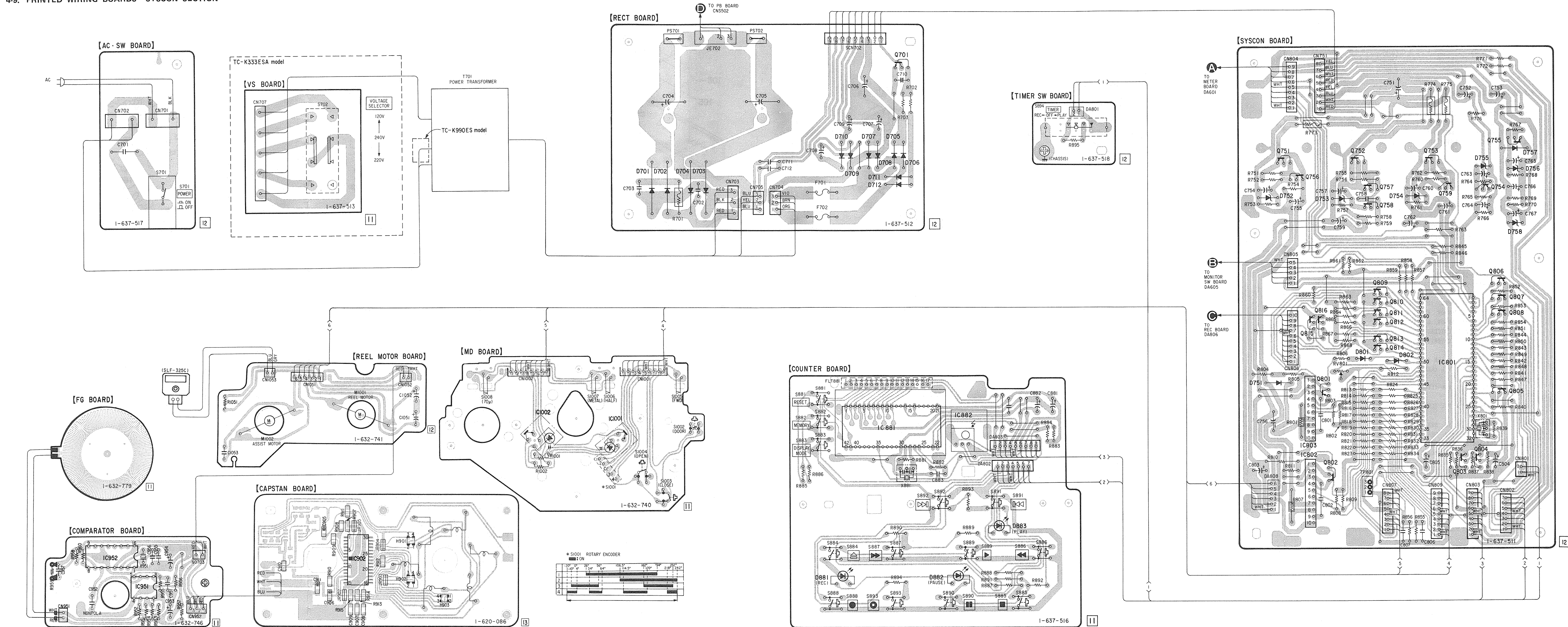
- ○ — : parts extracted from the component side





—35—

## 4-9. PRINTED WIRING BOARDS—SYSCON SECTION—



## Semiconductor Location

| Ref. No. | Location |
|----------|----------|
| D701     | D-11     |
| D702     | D-11     |
| D703     | D-12     |
| D704     | D-11     |
| D705     | C-15     |
| D706     | C-15     |
| D707     | C-14     |
| D708     | C-14     |
| D709     | C-14     |
| D710     | C-14     |
| D711     | C-15     |
| D712     | D-15     |
| D751     | G-20     |
| D752     | D-20     |
| D753     | D-22     |
| D754     | D-23     |
| D755     | C-24     |
| D756     | C-24     |
| D757     | C-24     |
| D758     | D-24     |
| D801     | F-22     |
| D802     | F-22     |
| D881     | J-14     |
| D882     | J-15     |
| D883     | I-16     |
| IC801    | F-23     |
| IC802    | H-21     |
| IC803    | G-21     |
| IC881    | G-14     |
| IC882    | G-16     |
| IC902    | I-6      |
| IC951    | J-3      |
| IC952    | I-2      |
| IC1001   | G-10     |
| IC1002   | G-9      |
| Q701     | B-15     |
| Q751     | C-21     |
| Q752     | C-22     |
| Q753     | C-23     |
| Q754     | D-24     |
| Q755     | C-24     |
| Q756     | C-21     |
| Q757     | D-22     |
| Q758     | D-22     |
| Q759     | D-23     |
| Q801     | G-21     |
| Q802     | H-21     |
| Q803     | H-23     |
| Q804     | H-24     |
| Q805     | G-24     |
| Q806     | E-24     |
| Q807     | E-24     |
| Q808     | F-24     |
| Q809     | E-22     |
| Q810     | E-22     |
| Q811     | F-22     |
| Q812     | F-22     |
| Q813     | F-22     |
| Q814     | F-22     |
| Q815     | F-21     |
| Q816     | F-21     |

## Note on Mounting Diagram:

• : parts extracted from the component side.

## SECTION 5 EXPLODED VIEWS

### NOTE:

- -XX,-X mean standardized parts, so they may have some difference from original one.

- Color indication of Appearance Parts.

Example:

KNOB,BALANCE (WHITE) ... (RED)

↑      ↑  
Parts    Cabinet's  
Color    Color

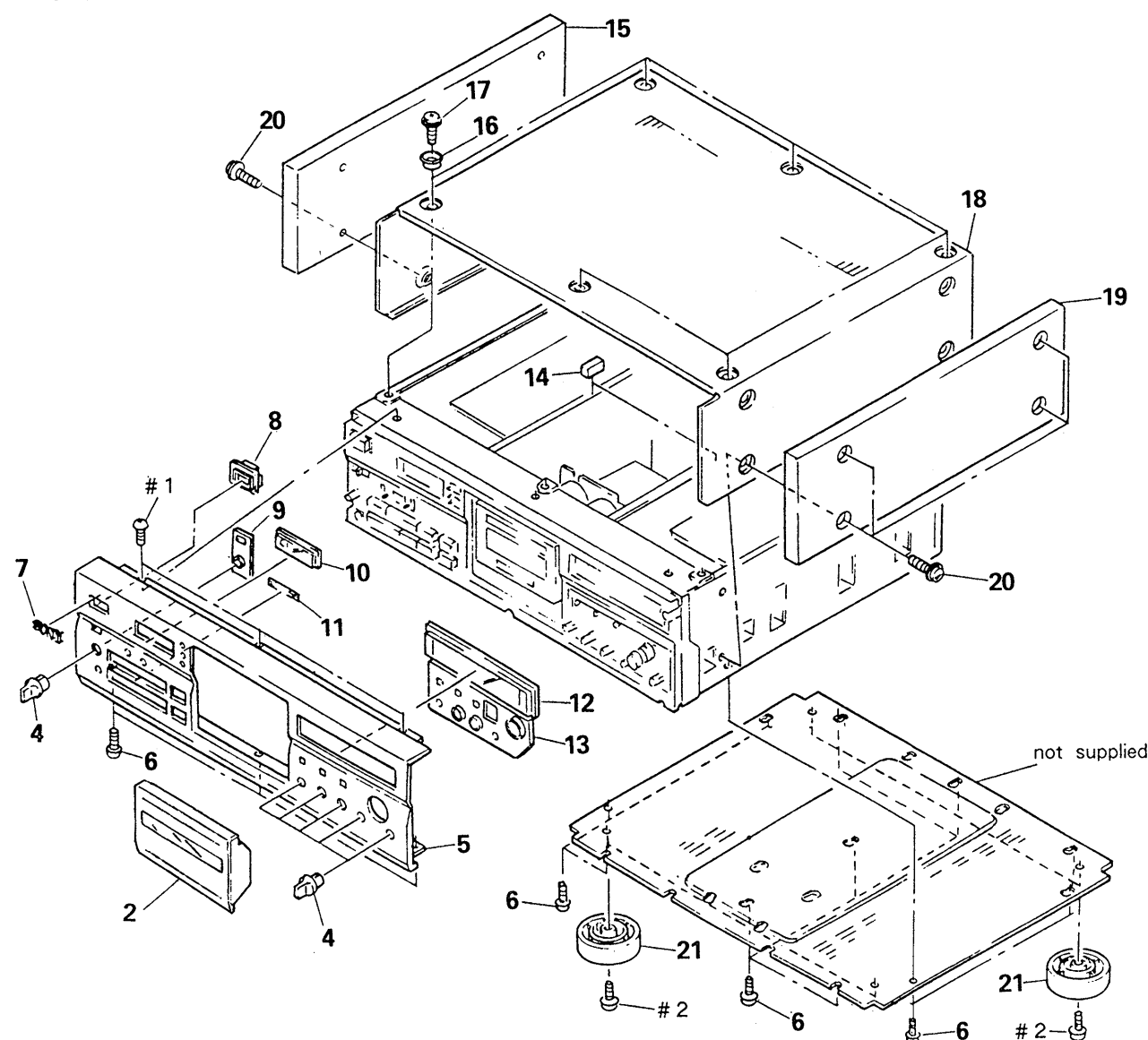
- Items marked " \*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.

- Hardware ( # mark ) list is given in the last of this parts list.

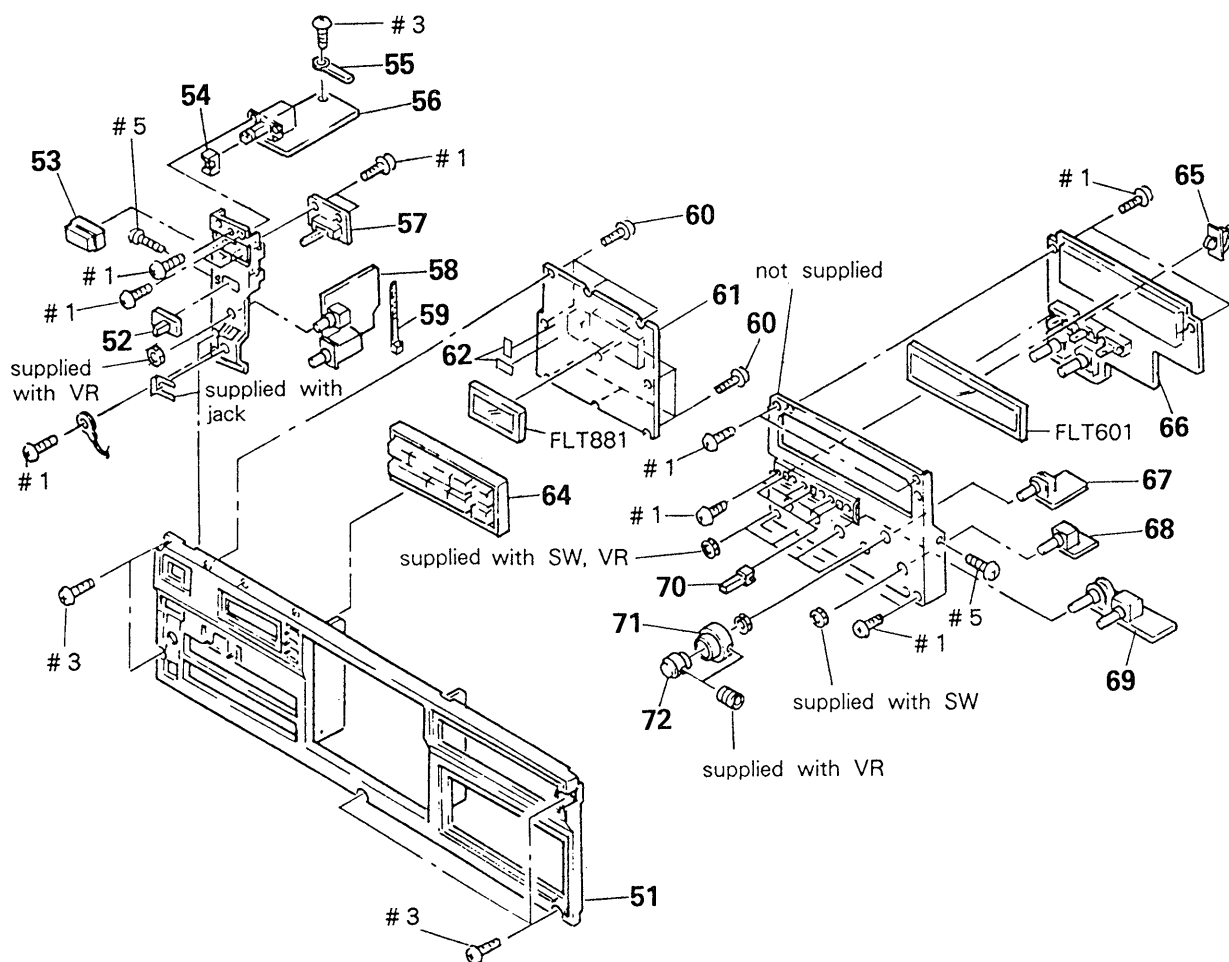
The components identified by mark  or dotted line with mark  are critical for safety.  
Replace only with part number specified.

### 5-1. OVERALL SECTION



| Ref. No. | Part No.     | Description                                         | Remark |
|----------|--------------|-----------------------------------------------------|--------|
| 2        | X-3363-875-1 | LID ASSY (A), CASSETTE (K333)                       |        |
| 2        | X-3365-081-1 | LID ASSY, CASSETTE (K990ES:BLACK)                   |        |
| 2        | X-3365-082-1 | LID ASSY, CASSETTE (K990ES:GOLD)                    |        |
| 4        | X-3362-818-1 | KNOB (DIA. 12) ASSY (B), FLAT (BLACK)               |        |
| 4        | X-3363-490-1 | KNOB (DIA. 12) ASSY (B), FLAT (GOLD)                |        |
| 5        | 3-373-923-01 | PANEL, FRONT (K333)                                 |        |
| 5        | 3-373-923-41 | PANEL, FRONT (K990ES:GOLD)                          |        |
| 5        | 3-373-923-51 | PANEL, FRONT (K990ES:BLACK)                         |        |
| 6        | 3-703-685-21 | SCREW (+BV 3X8)                                     |        |
| 7        | 4-908-848-01 | EMBLEM, SONY (BLACK)                                |        |
| 7        | 4-908-848-21 | EMBLEM, SONY (GOLD)                                 |        |
| 8        | 4-908-044-11 | ESCUTCHEON, POWER KNOB (BLACK)                      |        |
| 8        | 4-908-044-21 | ESCUTCHEON, POWER KNOB (GOLD)                       |        |
| 9        | 3-364-444-01 | ESCUTCHEON (L) (BLACK)                              |        |
| 9        | 3-364-444-11 | ESCUTCHEON (L) (GOLD)                               |        |
| 10       | 3-364-442-01 | WINDOW, COUNTER (K333)                              |        |
| 10       | 3-364-442-11 | WINDOW, COUNTER (K990ES:BLACK)                      |        |
| 10       | 3-364-442-21 | WINDOW, COUNTER (K990ES:GOLD)                       |        |
| 11       | 3-831-441-XX | PAPER, INTERCEPTION                                 |        |
| 12       | 3-364-443-01 | WINDOW, METER (BLACK)                               |        |
| 12       | 3-364-443-11 | WINDOW, METER (GOLD)                                |        |
| 13       | 3-364-447-01 | ESCUTCHEON (R) (BLACK)                              |        |
| 13       | 3-364-447-11 | ESCUTCHEON (R) (GOLD)                               |        |
| 14       | 9-911-842-XX | CUSHION (S)                                         |        |
| 15       | X-3304-959-1 | PANEL (LEFT) ASSY, SIDE<br>(K333/K990ES:AEP:BLACK)  |        |
| 15       | X-3304-969-1 | PANEL (LEFT) ASSY, SIDE<br>(K990ES:Germany:BLACK)   |        |
| 15       | X-3363-492-2 | PANEL (LEFT) ASSY, SIDE (K990ES:GOLD)               |        |
| 16       | 4-923-474-01 | RING, ORNAMENTAL (BLACK)                            |        |
| 16       | 4-923-474-11 | RING, ORNAMENTAL (GOLD)                             |        |
| 17       | 3-704-366-01 | SCREW (CASE) (M3X8) (BLACK)                         |        |
| 17       | 3-704-366-11 | SCREW (CASE) (M3X8) (GOLD)                          |        |
| * 18     | 3-350-489-11 | CASE (BLACK)                                        |        |
| * 18     | 3-350-489-21 | CASE (GOLD)                                         |        |
| 19       | X-3304-960-1 | PANEL (RIGHT) ASSY, SIDE<br>(K333/K990ES:AEP:BLACK) |        |
| 19       | X-3304-970-1 | PANEL (RIGHT) ASSY, SIDE<br>(K990ES:Germany:BLACK)  |        |
| 19       | X-3363-493-2 | PANEL (RIGHT) ASSY, SIDE (K990ES:GOLD)              |        |
| 20       | 4-885-979-11 | SCREW (4X25)                                        |        |
| 21       | X-3304-944-1 | FOOT ASSY (BLACK)                                   |        |
| 21       | X-3363-489-1 | FOOT ASSY (GOLD)                                    |        |

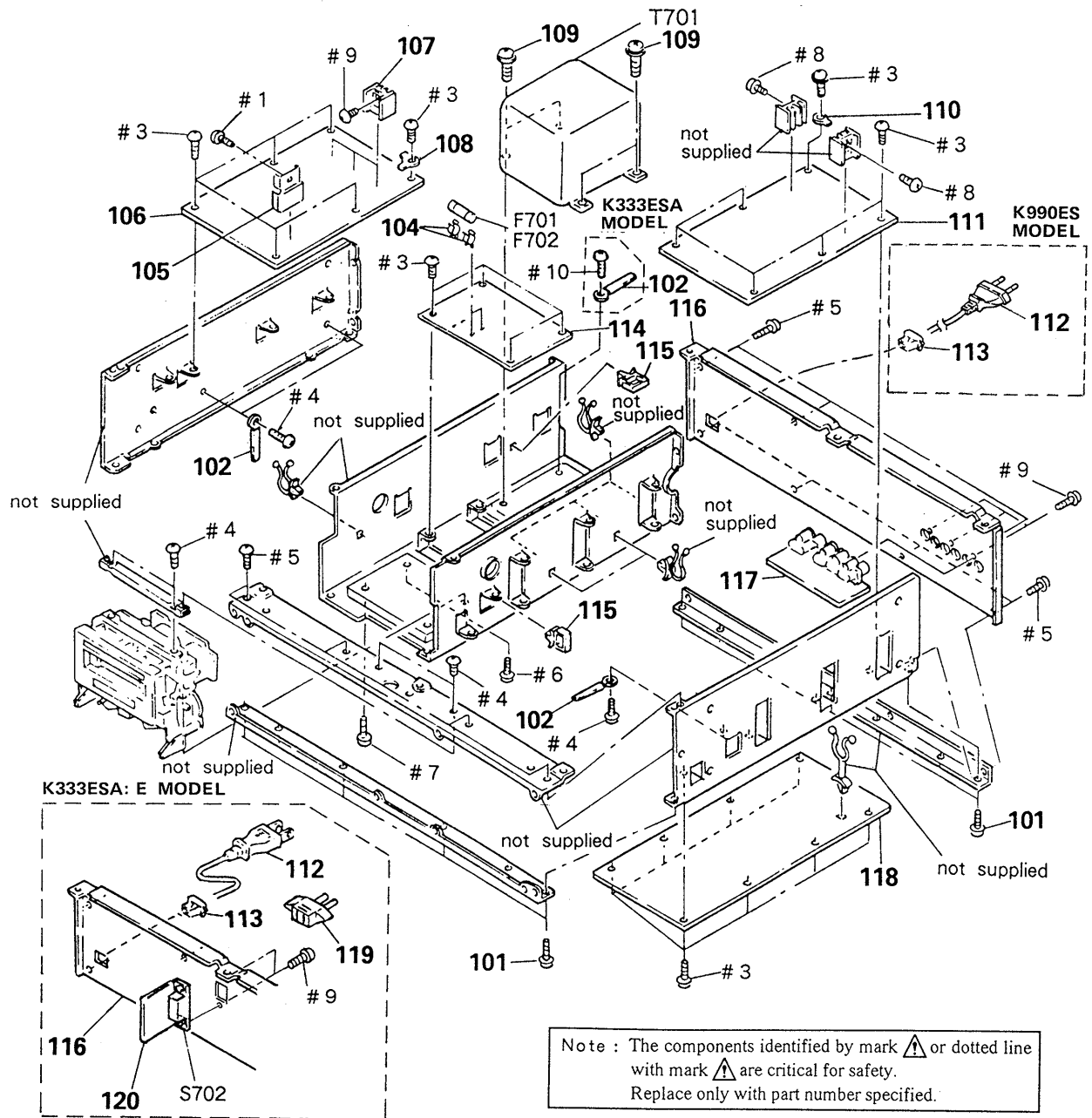
## 5-2. FRONT PANEL SECTION



| Ref.No. | Part No.       | Description                | Remark |
|---------|----------------|----------------------------|--------|
| * 51    | 3-364-474-01   | PANEL (BASE) (BLACK)       |        |
| 51      | 3-364-474-12   | PANEL (BASE) (GOLD)        |        |
| 52      | 4-922-518-11   | KNOB (TIMER) (BLACK)       |        |
| 52      | 4-922-518-62   | KNOB (TIMER) (GOLD)        |        |
| 53      | 4-908-046-01   | KNOB, SQUARE (BLACK)       |        |
| 53      | 4-908-046-81   | KNOB, SQUARE (GOLD)        |        |
| 54      | 4-864-307-00   | RING                       |        |
| 55      | 3-703-150-11   | STOPPER, WIRING            |        |
| * 56    | 1-637-517-11   | AC SW BOARD                |        |
| * 57    | 1-637-518-11   | TIMER SW BOARD             |        |
| * 58    | 1-637-521-11   | H.P. AMP BOARD             |        |
| 59      | 3-655-653-21   | BAND (TAITON), BINDING     |        |
| 60      | 4-928-635-01   | SCREW, +BV (2.6X8) TAPPING |        |
| 61      | * 1-637-516-11 | COUNTER BOARD              |        |
| 62      | 3-831-441-XX   | PAPER, INTERCEPTION        |        |

| Ref.No. | Part No.     | Description                 | Remark |
|---------|--------------|-----------------------------|--------|
| 64      | X-3362-327-1 | BUTTON ASSY (BLACK)         |        |
| 64      | X-3363-491-1 | BUTTON ASSY (GOLD)          |        |
| 65      | 2-132-434-01 | CLIP, WIRE                  |        |
| * 66    | A-2006-652-A | METER BOARD, COMPLETE       |        |
| * 67    | 1-637-519-11 | REC VOL BOARD               |        |
| * 68    | 1-637-523-11 | MONITOR SW BOARD            |        |
| * 69    | 1-637-520-11 | REC EQ SW BOARD             |        |
| 70      | 3-364-441-01 | BUTTON (BLACK)              |        |
| 70      | 3-364-441-11 | BUTTON (GOLD)               |        |
| 71      | 3-364-440-01 | KNOB (L) (BLACK)            |        |
| 71      | 3-364-440-11 | KNOB (L) (GOLD)             |        |
| 72      | 3-364-439-01 | KNOB (R) (BLACK)            |        |
| 72      | 3-364-439-11 | KNOB (R) (GOLD)             |        |
| FLT601  | 1-519-629-11 | INDICATOR TUBE, FLUORESCENT |        |
| FLT881  | 1-519-630-11 | INDICATOR TUBE, FLUORESCENT |        |

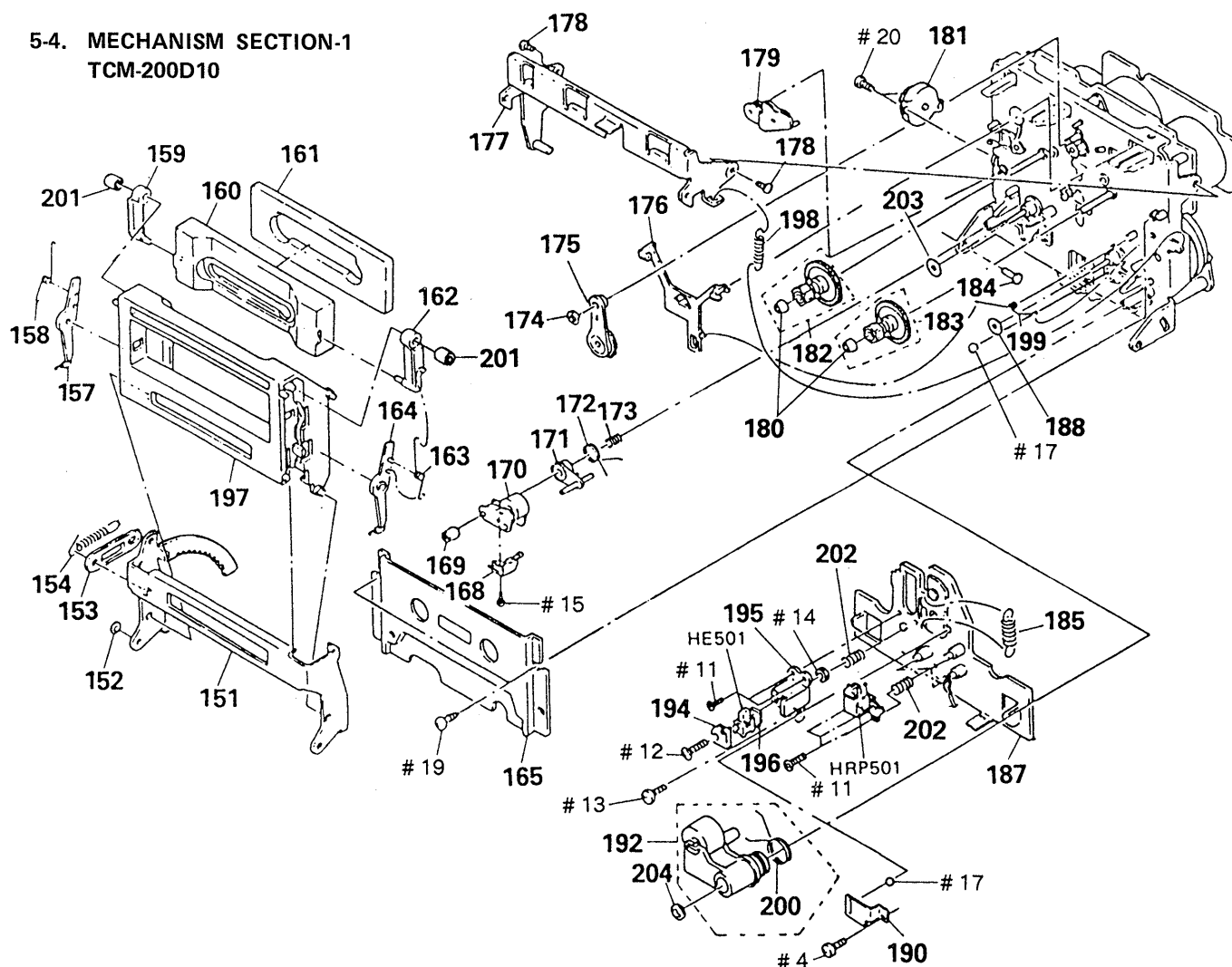
### 5-3. CHASSIS SECTION



Note : The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

| Ref.No.                                                                                 | Part No.     | Description                          | Remark | Ref.No.                                                                                  | Part No.     | Description                          | Remark |
|-----------------------------------------------------------------------------------------|--------------|--------------------------------------|--------|------------------------------------------------------------------------------------------|--------------|--------------------------------------|--------|
| 101                                                                                     | 3-703-685-21 | SCREW (+BV 3X8)                      |        | * 114                                                                                    | 1-637-512-11 | RECT. BOARD                          |        |
| 102                                                                                     | 3-703-150-11 | STOPPER, WIRING                      |        | * 115                                                                                    | 3-329-937-02 | CLIP, WIRE                           |        |
| * 104                                                                                   | 1-533-213-31 | HOLDER, FUSE                         |        | * 116                                                                                    | 3-350-482-51 | PANEL, BACK (K990ES:BLACK)           |        |
| * 105                                                                                   | 3-356-925-01 | HEAT SINK                            |        | * 116                                                                                    | 3-350-482-63 | PANEL, BACK (K333ESA)                |        |
| * 106                                                                                   | A-2006-650-A | SYSCON BOARD, COMPLETE               |        | * 116                                                                                    | 3-350-482-71 | PANEL, BACK (K990ES:GOLD)            |        |
| * 107                                                                                   | 4-363-146-21 | HEAT SINK, V. OUT                    |        | * 117                                                                                    | 1-637-522-11 | PIN JACK BOARD                       |        |
| * 108                                                                                   | 3-346-266-12 | PLATE, GROUND                        |        | * 118                                                                                    | A-2006-640-A | REC BOARD, COMPLETE                  |        |
| 109                                                                                     | 4-820-330-31 | SCREW (K990ES)                       |        |  119  | 1-569-007-11 | ADAPTER, CONVERSION 2P (K333ESA)     |        |
| 109                                                                                     | 4-886-821-11 | SCREW, S TIGHT, +PTTWH 3X6 (K333ESA) |        |  F701 | 1-532-286-00 | FUSE, TIME-LAG (2.5A)                |        |
| * 110                                                                                   | 3-346-266-21 | PLATE, GROUND                        |        |  F702 | 1-532-286-00 | FUSE, TIME-LAG (2.5A)                |        |
| * 111                                                                                   | A-2006-641-A | PB BOARD, COMPLETE                   |        |  S702 | 1-572-009-11 | SELECTOR, VOLTAGE (VOLTAGE SELECTOR) |        |
|  112 | 1-559-297-31 | CORD, POWER (K333ESA)                |        |                                                                                          |              |                                      |        |
|  112 | 1-574-383-11 | CORD, POWER (K990ES)                 |        |  T701 | 1-450-451-11 | TRANSFORMER, POWER (K990ES)          |        |
| * 113                                                                                   | 3-703-244-00 | BUSHING (2104), CORD (K990ES)        |        |  T701 | 1-450-453-11 | TRANSFORMER, POWER (K333ESA)         |        |
| 113                                                                                     | 4-916-783-01 | BUSHING, CORD (K333ESA)              |        |                                                                                          |              |                                      |        |

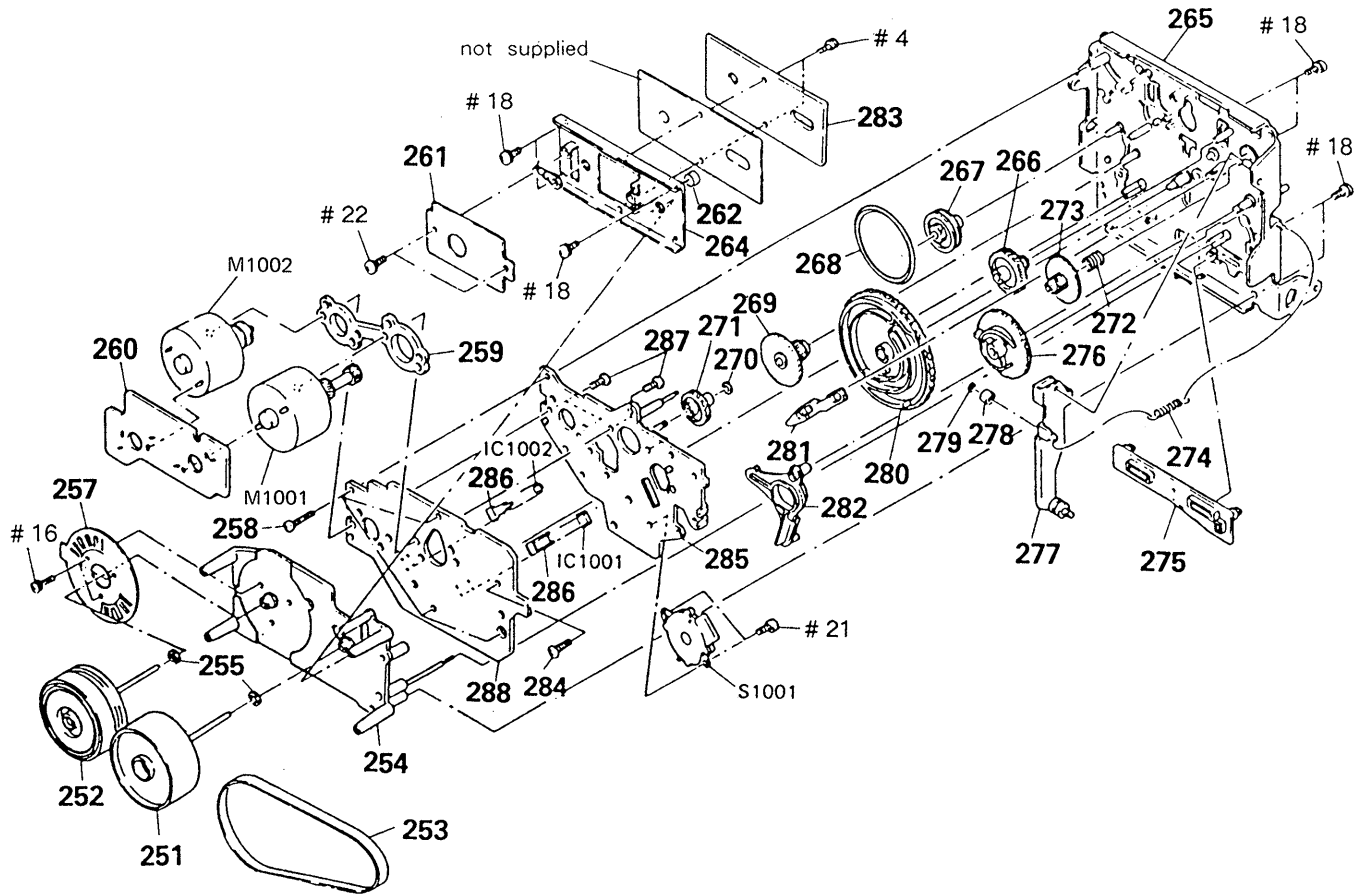
5-4. MECHANISM SECTION-1  
TCM-200D10



| Ref. No. | Part No.     | Description                     | Remark |
|----------|--------------|---------------------------------|--------|
| 151      | X-3362-671-1 | HOLDER (BG) ASSY, CASSETTE      |        |
| 152      | 3-558-708-21 | WASHER, STOPPER                 |        |
| * 153    | 3-356-717-01 | LEVER (JOINT)                   |        |
| 154      | 3-356-626-01 | SPRING, TENSION                 |        |
| 157      | 3-356-932-01 | LEVER (LA)                      |        |
| 158      | 3-356-927-01 | SPRING (LEFT), TORSION          |        |
| 159      | 3-356-933-01 | LEVER (LB)                      |        |
| 160      | 3-356-928-01 | PLATE (A), ORNAMENTAL           |        |
| * 161    | 3-356-929-01 | ABSORBENT, VIBRATION            |        |
| 162      | 3-356-931-01 | LEVER (RB)                      |        |
| 163      | 3-356-926-01 | SPRING (RIGHT), TORSION         |        |
| 164      | 3-356-930-01 | LEVER (RA)                      |        |
| 165      | X-3356-613-1 | PLATE ASSY, ORNAMENTAL          |        |
| 168      | 3-564-138-00 | GUIDE (S), TAPE                 |        |
| 169      | 3-356-652-01 | NUT (PINCH LEVER S)             |        |
| 170      | X-3356-621-1 | LEVER (PINCH LEVER S) ASSY      |        |
| 171      | 3-356-660-01 | LEVER (PS)                      |        |
| 172      | 3-356-661-01 | SPRING (PINCH LEVER S), TORSION |        |
| 173      | 3-356-657-01 | SPRING (PS), COMPRESSION        |        |
| 174      | 3-669-465-00 | WASHER (1.5), STOPPER           |        |
| 175      | X-3356-641-1 | LEVER (FR2) ASSY                |        |
| 176      | 3-356-614-01 | SLIDER (BRAKE)                  |        |
| * 177    | X-3356-608-1 | LEVER (LIFTER) ASSY             |        |
| 178      | 3-356-601-11 | SCREW, STEP                     |        |

| Ref. No. | Part No.     | Description                     | Remark |
|----------|--------------|---------------------------------|--------|
| 179      | X-3356-623-1 | LEVER (BT) ASSY                 |        |
| 180      | 3-362-308-01 | CAP (REEL)                      |        |
| 181      | 3-319-224-41 | DAMPER, SMALL                   |        |
| 182      | X-3356-629-1 | GEAR (S) ASSY                   |        |
| 183      | X-3356-627-1 | GEAR (T) ASSY                   |        |
| 184      | 3-356-710-01 | SHAFT (LEFT) (CASSETTE HOLDER)  |        |
| 185      | 3-356-658-01 | SPRING (LIMITER H), TENSION     |        |
| * 187    | X-3362-199-1 | SLIDER (HEAD CHASSIS D) ASSY    |        |
| 188      | 3-332-763-01 | RING, OIL RESERVOIR             |        |
| 190      | 3-356-656-01 | SPRING (HEAD PC BOARD), LEAF    |        |
| 192      | X-3356-620-1 | LEVER (PINCH LEVER T) ASSY      |        |
| 194      | 3-318-433-01 | SPRING                          |        |
| * 195    | 3-576-977-00 | BRACKET, E. HEAD                |        |
| * 196    | 1-608-268-00 | PC BOARD, ERASE HEAD            |        |
| 197      | X-3365-065-1 | HOLDER ASSY, CASSETTE           |        |
| 198      | 3-376-854-01 | SPRING, TENSION                 |        |
| 199      | 3-356-619-01 | SPRING (B), TORSION             |        |
| 200      | 3-356-672-01 | SPRING (PINCH LEVER T), TORSION |        |
| 201      | 3-356-946-01 | BUSHING                         |        |
| 202      | 3-564-121-00 | SPRING, COMPRESSION             |        |
| 203      | 3-356-713-01 | WASHER                          |        |
| 204      | 3-669-596-00 | WASHER (2.3), STOPPER           |        |
| HE501    | 1-543-836-11 | HEAD, MAGNETIC (ERASE)          |        |
| HRP501   | 1-543-684-21 | HEAD, MAGNETIC (REC/PB)         |        |

5-5. MECHANISM SECTION-2  
TCM-200D10



| Ref.No. | Part No.     | Description                    | Remark |
|---------|--------------|--------------------------------|--------|
| 251     | X-3362-284-1 | FLYWHEEL (S2.3) ASSY           |        |
| 252     | X-3356-619-1 | FLYWHEEL (DT) ASSY             |        |
| 253     | 3-364-600-01 | BELT (CAPSTAN)                 |        |
| 254     | X-3362-281-1 | CHASSIS ASSY                   |        |
| 255     | 3-356-705-31 | WASHER (CAPSTAN)               |        |
| 257     | 1-632-779-11 | PC BOARD, FG                   |        |
| 258     | 3-355-801-01 | SCREW (BTP 2X18)               |        |
| * 259   | 3-356-628-01 | SPACER (MOTOR)                 |        |
| * 260   | 1-632-741-11 | REEL MOTOR BOARD               |        |
| * 261   | 1-632-746-11 | COMPARATOR BOARD               |        |
| 262     | 3-364-135-01 | RETAINER (S), THRUST           |        |
| * 264   | X-3362-282-1 | BRACKET (THRUST RETAINER) ASSY |        |
| 265     | X-3356-622-1 | CHASSIS (C) ASSY, MECHANICAL   |        |
| 266     | 3-356-703-01 | GEAR (COMMUNICATION C)         |        |
| 267     | 3-356-607-01 | PULLEY (MODE)                  |        |
| 268     | 3-356-603-01 | BELT (MODE)                    |        |
| 269     | 3-356-606-01 | GEAR (MODE)                    |        |
| 270     | 3-669-465-11 | WASHER (1.5), STOPPER          |        |
| 271     | 3-356-702-01 | GEAR (COMMUNICATION B)         |        |
| 272     | 3-356-605-01 | SPRING, COMPRESSION            |        |
| 273     | 3-356-609-01 | GEAR (LOADING)                 |        |

| Ref.No. | Part No.     | Description             | Remark |
|---------|--------------|-------------------------|--------|
| 274     | 3-356-625-01 | SPRING, TENSION         |        |
| 275     | 3-356-653-01 | SLIDER (PAUSE)          |        |
| 276     | 3-356-616-01 | GEAR (LOADING CAM)      |        |
| * 277   | X-3356-606-1 | LEVER (LOADING) ASSY    |        |
| 278     | 3-356-630-01 | ROLLER (LOADING)        |        |
| 279     | 3-558-708-11 | WASHER, STOPPER         |        |
| 280     | 3-356-654-01 | GEAR (MODE CAM C)       |        |
| 281     | 3-356-617-01 | LEVER (SELECTION)       |        |
| 282     | 3-356-613-01 | LEVER (MODE)            |        |
| 283     | A-2006-154-A | CAPSTAN BOARD, COMPLETE |        |
| 284     | 3-356-707-01 | SCREW (+PTPWH 2X25)     |        |
| * 285   | X-3356-616-1 | BRACKET (MOTOR D) ASSY  |        |
| 286     | 3-356-631-01 | HOLDER (SENSOR)         |        |
| 287     | 3-363-804-01 | SCREW (+P 2.6X6.5)      |        |
| * 288   | 1-632-740-11 | MD BOARD                |        |
| IC1001  | 8-749-920-97 | IC PHOTO GP2S22B        |        |
| IC1002  | 8-749-920-97 | IC PHOTO GP2S22B        |        |
| M1001   | X-3356-638-1 | MOTOR (REEL R) ASSY     |        |
| M1002   | X-3356-604-1 | MOTOR (ASSIST) ASSY     |        |
| S1001   | 1-466-238-11 | ENCODER, ROTARY         |        |

## SECTION 6 ELECTRICAL PARTS LIST

## NOTE:

- Due to standardization, replacements in the parts list may be different from the part specified in the diagrams or the components used on the set.
- -XX,-X mean standardized parts, so they may have some difference from original one.
- RESISTORS  
All resistors are in ohms  
METAL : Metal-film resistor  
METAL OXIDE : Metal Oxide-film resistor  
F : nonflammable

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u :  $\mu$ , for example :  
uA... :  $\mu$ A..., uPA... :  $\mu$ PA...,  
uPB... :  $\mu$ PB..., uPC... :  $\mu$ PC...,  
uPD... :  $\mu$ PD...
- CAPACITORS  
uF :  $\mu$ F
- COILS  
uH :  $\mu$ H

The components identified by mark

⚠ or dotted line with mark ⚠ are critical for safety.

Replace only with part number specified.

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

| Ref.No. | Part No.     | Description                             | Remark |     |  |
|---------|--------------|-----------------------------------------|--------|-----|--|
| *       | 1-637-517-11 | AC SW BOARD<br>*****                    |        |     |  |
|         |              | < CAPACITOR >                           |        |     |  |
| • C701  | 1-161-744-00 | CERAMIC 0.01uF                          | 400V   |     |  |
|         |              | < CONNECTOR >                           |        |     |  |
| * CN701 | 1-564-321-00 | PIN, CONNECTOR 2P                       |        |     |  |
| * CN702 | 1-564-321-00 | PIN, CONNECTOR 2P                       |        |     |  |
|         |              | < SWITCH >                              |        |     |  |
| • S701  | 1-572-267-21 | SWITCH, PUSH (AC POWER) (1 KEY) (POWER) |        |     |  |
| *****   |              |                                         |        |     |  |
|         | A-2006-154-A | CAPSTAN BOARD, COMPLETE<br>*****        |        |     |  |
|         |              | < CAPACITOR >                           |        |     |  |
| C905    | 1-124-779-00 | ELECT CHIP 10uF                         | 20%    | 16V |  |
| C906    | 1-135-091-00 | TANTALUM CHIP 1uF                       | 20%    | 16V |  |
| C907    | 1-163-077-00 | CERAMIC CHIP 0.1uF                      | 10%    | 25V |  |
| C908    | 1-163-077-00 | CERAMIC CHIP 0.1uF                      | 10%    | 25V |  |
| C909    | 1-163-077-00 | CERAMIC CHIP 0.1uF                      | 10%    | 25V |  |
| C910    | 1-163-205-00 | CERAMIC CHIP 0.001uF                    | 5%     | 50V |  |
| C911    | 1-124-779-00 | ELECT CHIP 10uF                         | 20%    | 16V |  |
|         |              | < HOLE ELEMENT >                        |        |     |  |
| H901    | 8-719-403-79 | DIODE OH009                             |        |     |  |
| H902    | 8-719-403-79 | DIODE OH009                             |        |     |  |
| H903    | 8-719-403-79 | DIODE OH009                             |        |     |  |
|         |              | < IC >                                  |        |     |  |
| IC902   | 8-752-017-40 | IC CX20174                              |        |     |  |
|         |              | < RESISTOR >                            |        |     |  |
| R907    | 1-216-242-00 | METAL GLAZE 68K 5%                      | 1/8W   |     |  |
| R908    | 1-216-246-00 | METAL GLAZE 100K 5%                     | 1/8W   |     |  |
| R909    | 1-216-246-00 | METAL GLAZE 100K 5%                     | 1/8W   |     |  |

| Ref.No. | Part No.     | Description                    | Remark |     |  |
|---------|--------------|--------------------------------|--------|-----|--|
| R910    | 1-216-238-00 | METAL GLAZE 47K 5%             | 1/8W   |     |  |
| R911    | 1-216-182-00 | METAL GLAZE 220 5%             | 1/8W   |     |  |
| R912    | 1-216-182-00 | METAL GLAZE 220 5%             | 1/8W   |     |  |
| R913    | 1-216-150-00 | METAL GLAZE 10 5%              | 1/8W   |     |  |
| R914    | 1-216-150-00 | METAL GLAZE 10 5%              | 1/8W   |     |  |
| R915    | 1-216-150-00 | METAL GLAZE 10 5%              | 1/8W   |     |  |
| *****   |              |                                |        |     |  |
| *       | 1-632-746-11 | COMPARATOR BOARD<br>*****      |        |     |  |
|         |              | < CAPACITOR >                  |        |     |  |
| C951    | 1-136-157-00 | FILM 0.022uF                   | 5%     | 50V |  |
| C952    | 1-124-282-00 | ELECT (N.P.) 22uF              | 20%    | 25V |  |
| C953    | 1-124-478-11 | ELECT 100uF                    | 20%    | 25V |  |
| C954    | 1-124-477-11 | ELECT 47uF                     | 20%    | 25V |  |
| C955    | 1-162-203-31 | CERAMIC 15PF                   | 5%     | 50V |  |
| C956    | 1-162-203-31 | CERAMIC 15PF                   | 5%     | 50V |  |
| C957    | 1-136-159-00 | FILM 0.033uF                   | 5%     | 50V |  |
|         |              | < CONNECTOR >                  |        |     |  |
| * CN951 | 1-564-718-11 | PIN, CONNECTOR (SMALL TYPE) 2P |        |     |  |
| * CN952 | 1-564-518-11 | PLUG, CONNECTOR 3P             |        |     |  |
|         |              | < IC >                         |        |     |  |
| IC951   | 8-759-945-58 | IC RC4558P                     |        |     |  |
| IC952   | 8-759-201-58 | IC TC9142P                     |        |     |  |
|         |              | < RESISTOR >                   |        |     |  |
| R951    | 1-249-413-11 | CARBON 470 5%                  | 1/4W   |     |  |
| R952    | 1-249-413-11 | CARBON 470 5%                  | 1/4W   |     |  |
| R953    | 1-247-881-00 | CARBON 120K 5%                 | 1/4W   |     |  |
| R954    | 1-247-881-00 | CARBON 120K 5%                 | 1/4W   |     |  |
| R955    | 1-249-429-11 | CARBON 10K 5%                  | 1/4W   |     |  |
| R956    | 1-249-417-11 | CARBON 1K 5%                   | 1/4W   |     |  |
| R957    | 1-249-417-11 | CARBON 1K 5%                   | 1/4W   |     |  |
| R958    | 1-247-891-00 | CARBON 330K 5%                 | 1/4W   |     |  |
| R959    | 1-247-901-11 | CARBON 820K 5%                 | 1/4W   |     |  |
| R960    | 1-249-441-11 | CARBON 100K 5%                 | 1/4W   |     |  |

# COMPARATOR

# COUNTER

# HP AMP

# MD

| Ref.No. | Part No.     | Description                    | Remark |
|---------|--------------|--------------------------------|--------|
|         |              | < VIBRATOR >                   |        |
| X951    | 1-577-615-11 | VIBRATOR, CRYSTAL (4.934MHz)   |        |
| *****   |              |                                |        |
| *       | 1-637-516-11 | COUNTER BOARD                  |        |
|         |              | *****                          |        |
|         |              | < CAPACITOR >                  |        |
| C881    | 1-124-234-00 | ELECT 22uF 20% 16V             |        |
| C882    | 1-126-096-11 | ELECT 10uF 20% 35V             |        |
| C883    | 1-164-159-11 | CERAMIC 0.1uF 50V              |        |
|         |              | < DIODE >                      |        |
| D881    | 8-719-304-32 | LED SEL4214S                   |        |
| D882    | 8-719-312-65 | LED SEL4814A-CD                |        |
| D883    | 8-719-304-37 | LED SEL4414E-C                 |        |
|         |              | < FLUORESCENT INDICATOR >      |        |
| FLT881  | 1-519-630-11 | INDICATOR TUBE, FLUORESCENT    |        |
|         |              | < IC >                         |        |
| IC881   | 8-759-322-98 | IC HD404240A31S                |        |
| IC882   | 8-741-100-48 | IC SBX1610-59                  |        |
|         |              | < RESISTOR >                   |        |
| R881    | 1-247-903-00 | CARBON 1M 5% 1/4W              |        |
| R882    | 1-249-433-11 | CARBON 22K 5% 1/4W             |        |
| R883    | 1-249-425-11 | CARBON 4.7K 5% 1/4W            |        |
| R884    | 1-249-425-11 | CARBON 4.7K 5% 1/4W            |        |
| R885    | 1-249-422-11 | CARBON 2.7K 5% 1/4W            |        |
| R886    | 1-249-424-11 | CARBON 3.9K 5% 1/4W            |        |
| R887    | 1-249-422-11 | CARBON 2.7K 5% 1/4W            |        |
| R888    | 1-249-424-11 | CARBON 3.9K 5% 1/4W            |        |
| R889    | 1-249-428-11 | CARBON 8.2K 5% 1/4W            |        |
| R890    | 1-249-434-11 | CARBON 27K 5% 1/4W             |        |
| R891    | 1-249-422-11 | CARBON 2.7K 5% 1/4W            |        |
| R892    | 1-249-424-11 | CARBON 3.9K 5% 1/4W            |        |
| R893    | 1-249-428-11 | CARBON 8.2K 5% 1/4W            |        |
| R894    | 1-249-434-11 | CARBON 27K 5% 1/4W             |        |
|         |              | < SWITCH >                     |        |
| S881    | 1-554-303-21 | SWITCH, TACTILE (RESET)        |        |
| S882    | 1-554-303-21 | SWITCH, TACTILE (MEMORY)       |        |
| S883    | 1-554-303-21 | SWITCH, TACTILE (DISPLAY MODE) |        |
| S884    | 1-554-303-21 | SWITCH, TACTILE (OPEN/CLOSE)   |        |
| S885    | 1-554-303-21 | SWITCH, TACTILE (■)            |        |
| S886    | 1-554-303-21 | SWITCH, TACTILE (◀)            |        |
| S887    | 1-554-303-21 | SWITCH, TACTILE (▶)            |        |

| Ref.No. | Part No.     | Description                | Remark |
|---------|--------------|----------------------------|--------|
| S888    | 1-554-303-21 | SWITCH, TACTILE (REC)      |        |
| S889    | 1-554-303-21 | SWITCH, TACTILE (▶)        |        |
| S890    | 1-554-303-21 | SWITCH, TACTILE (PAUSE)    |        |
| S891    | 1-554-303-21 | SWITCH, TACTILE (AMS ◀)    |        |
| S892    | 1-554-303-21 | SWITCH, TACTILE (AMS ▶)    |        |
| S893    | 1-554-303-21 | SWITCH, TACTILE (REC MUTE) |        |
|         |              | < VIBRATOR >               |        |
| X881    | 1-577-358-21 | VIBRATOR, CERAMIC (4MHz)   |        |
| *****   |              |                            |        |
| *       | 1-637-521-11 | H. P. AMP BOARD            |        |
|         |              | *****                      |        |
|         |              | < CAPACITOR >              |        |
| C158    | 1-124-767-00 | ELECT 2.2uF 20% 50V        |        |
| C258    | 1-124-767-00 | ELECT 2.2uF 20% 50V        |        |
| C518    | 1-124-122-11 | ELECT 100uF 20% 50V        |        |
| C519    | 1-124-122-11 | ELECT 100uF 20% 50V        |        |
|         |              | < IC >                     |        |
| IC507   | 8-759-981-96 | IC RC4560D                 |        |
|         |              | < JACK >                   |        |
| J503    | 1-507-796-71 | JACK (PHONES)              |        |
|         |              | < RESISTOR >               |        |
| R181    | 1-247-725-11 | CARBON 10K 5% 1/4W         |        |
| R182    | 1-249-461-11 | CARBON 18K 5% 1/4W         |        |
| R183    | 1-249-603-11 | CARBON 130K 5% 1/4W        |        |
| R184    | 1-247-704-11 | CARBON 220 5% 1/4W         |        |
| R281    | 1-247-725-11 | CARBON 10K 5% 1/4W         |        |
| R282    | 1-249-461-11 | CARBON 18K 5% 1/4W         |        |
| R283    | 1-249-603-11 | CARBON 130K 5% 1/4W        |        |
| R284    | 1-247-704-11 | CARBON 220 5% 1/4W         |        |
| R581    | 1-247-700-11 | CARBON 100 5% 1/4W         |        |
| R582    | 1-247-700-11 | CARBON 100 5% 1/4W         |        |
| *****   |              |                            |        |
| *       | 1-632-740-11 | MD BOARD                   |        |
|         |              | *****                      |        |
|         | 3-356-631-01 | HOLDER (SENSOR)            |        |
|         |              | < CONNECTOR >              |        |
| CN1001  | 1-506-615-11 | PIN, CONNECTOR 9P          |        |
| CN1002  | 1-564-501-11 | PIN, CONNECTOR 8P          |        |

**MD****METER**

| Ref.No.                       | Part No.              | Description                  | Remark |         |  |
|-------------------------------|-----------------------|------------------------------|--------|---------|--|
| < IC >                        |                       |                              |        |         |  |
| IC1001                        | 8-749-920-97          | IC PHOTO GP2S22B             |        |         |  |
| IC1002                        | 8-749-920-97          | IC PHOTO GP2S22B             |        |         |  |
| < RESISTOR >                  |                       |                              |        |         |  |
| R1001                         | 1-249-408-11          | CARBON                       | 180    | 5% 1/4W |  |
| R1002                         | 1-249-408-11          | CARBON                       | 180    | 5% 1/4W |  |
| < SWITCH >                    |                       |                              |        |         |  |
| S1001                         | 1-466-238-11          | ENCODER, ROTARY              |        |         |  |
| S1002                         | 1-570-953-11          | SWITCH, PUSH (1 KEY) (DOOR)  |        |         |  |
| S1003                         | 1-571-958-11          | SWITCH, PUSH (1 KEY) (CLOSE) |        |         |  |
| S1004                         | 1-572-126-11          | SWITCH, PUSH (1 KEY) (OPEN)  |        |         |  |
| S1005                         | 1-572-125-11          | SWITCH, LEAF (FWD)           |        |         |  |
| S1006                         | 1-572-202-11          | SWITCH, LEAF (HALF)          |        |         |  |
| S1007                         | 1-572-125-11          | SWITCH, LEAF (METAL)         |        |         |  |
| S1008                         | 1-572-125-11          | SWITCH, LEAF (70u)           |        |         |  |
| < TERMINAL >                  |                       |                              |        |         |  |
| * TB1001                      | 1-694-018-11          | TERMINAL (5P)                |        |         |  |
| *****                         |                       |                              |        |         |  |
| * A-2006-652-A                | METER BOARD, COMPLETE |                              |        |         |  |
| *****                         |                       |                              |        |         |  |
| < CAPACITOR >                 |                       |                              |        |         |  |
| C601                          | 1-131-368-00          | TANTALUM                     | 3.3uF  | 10% 16V |  |
| C603                          | 1-164-159-11          | CERAMIC                      | 0.1uF  | 50V     |  |
| C604                          | 1-164-159-11          | CERAMIC                      | 0.1uF  | 50V     |  |
| C606                          | 1-164-159-11          | CERAMIC                      | 0.1uF  | 50V     |  |
| C607                          | 1-164-159-11          | CERAMIC                      | 0.1uF  | 50V     |  |
| < COMPOSITION CIRCUIT BLOCK > |                       |                              |        |         |  |
| CP601                         | 1-232-881-11          | COMPOSITION CIRCUIT BLOCK    |        |         |  |
| CP602                         | 1-236-985-11          | COMPOSITION CIRCUIT BLOCK    |        |         |  |
| < DIODE >                     |                       |                              |        |         |  |
| D601                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D602                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D603                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D604                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D605                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D606                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D607                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D608                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D609                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D610                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |
| D611                          | 8-719-987-63          | DIODE 1N4148M                |        |         |  |

| Ref.No.                   | Part No.     | Description                 | Remark |
|---------------------------|--------------|-----------------------------|--------|
| D612                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D613                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D614                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D615                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D616                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D617                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D618                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D619                      | 8-719-987-63 | DIODE 1N4148M               |        |
| D620                      | 8-719-987-63 | DIODE 1N4148M               |        |
| < FLUORESCENT INDICATOR > |              |                             |        |
| FLT601                    | 1-519-629-11 | INDICATOR TUBE, FLUORESCENT |        |
| < IC >                    |              |                             |        |
| IC601                     | 8-759-635-68 | IC M50940-313SP             |        |
| IC602                     | 8-759-240-69 | IC TC4069UBP                |        |
| < TRANSISTOR >            |              |                             |        |
| Q601                      | 8-729-900-61 | TRANSISTOR DTA114ES         |        |
| Q602                      | 8-729-900-61 | TRANSISTOR DTA114ES         |        |
| Q603                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| Q604                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| Q605                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| Q606                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| Q607                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| Q608                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| Q609                      | 8-729-900-89 | TRANSISTOR DTC144ES         |        |
| Q610                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| Q611                      | 8-729-900-65 | TRANSISTOR DTA144ES         |        |
| < RESISTOR >              |              |                             |        |
| R601                      | 1-249-441-11 | CARBON 100K 5%              | 1/4W   |
| R602                      | 1-249-441-11 | CARBON 100K 5%              | 1/4W   |
| R603                      | 1-249-425-11 | CARBON 4.7K 5%              | 1/4W   |
| R604                      | 1-247-903-00 | CARBON 1M 5%                | 1/4W   |
| R605                      | 1-247-895-00 | CARBON 470K 5%              | 1/4W   |
| R606                      | 1-249-433-11 | CARBON 22K 5%               | 1/4W   |
| R607                      | 1-249-433-11 | CARBON 22K 5%               | 1/4W   |
| R608                      | 1-249-437-11 | CARBON 47K 5%               | 1/4W   |
| R609                      | 1-249-437-11 | CARBON 47K 5%               | 1/4W   |
| R610                      | 1-249-437-11 | CARBON 47K 5%               | 1/4W   |
| R611                      | 1-249-437-11 | CARBON 47K 5%               | 1/4W   |
| R612                      | 1-249-437-11 | CARBON 47K 5%               | 1/4W   |
| R613                      | 1-249-437-11 | CARBON 47K 5%               | 1/4W   |
| R614                      | 1-249-421-11 | CARBON 2.2K 5%              | 1/4W   |
| R615                      | 1-249-421-11 | CARBON 2.2K 5%              | 1/4W   |
| R616                      | 1-249-429-11 | CARBON 10K 5%               | 1/4W   |
| R617                      | 1-249-437-11 | CARBON 47K 5%               | 1/4W   |

## METER

## MONITOR SW

## PB

| Ref.No.               | Part No.     | Description                        | Remark   |     |      |
|-----------------------|--------------|------------------------------------|----------|-----|------|
| R618                  | 1-247-842-11 | CARBON                             | 3K       | 5%  | 1/4W |
| R619                  | 1-249-426-11 | CARBON                             | 5.6K     | 5%  | 1/4W |
| R620                  | 1-249-437-11 | CARBON                             | 47K      | 5%  | 1/4W |
| < VARIABLE RESISTOR > |              |                                    |          |     |      |
| RV601                 | 1-241-335-11 | RES, VAR , CARBON 5K (BIAS)        |          |     |      |
| < SWITCH >            |              |                                    |          |     |      |
| S601                  | 1-572-339-11 | SWITCH, PUSH (1 KEY) (HX PRO)      |          |     |      |
| S602                  | 1-572-339-11 | SWITCH, PUSH (1 KEY) (CALIBRATION) |          |     |      |
| S603                  | 1-554-833-11 | SWITCH, PUSH (1 KEY) (INPUT)       |          |     |      |
| S604                  | 1-572-588-11 | SWITCH, ROTARY (DOLBY NR)          |          |     |      |
| < VIBRATOR >          |              |                                    |          |     |      |
| X601                  | 1-577-358-21 | VIBRATOR, CERAMIC (4MHz)           |          |     |      |
| *****                 |              |                                    |          |     |      |
| *                     | 1-637-523-11 | MONITOR SW BOARD                   |          |     |      |
| *****                 |              |                                    |          |     |      |
| < SWITCH >            |              |                                    |          |     |      |
| S605                  | 1-572-590-11 | SWITCH, ROTARY (MONITOR)           |          |     |      |
| *****                 |              |                                    |          |     |      |
| *                     | A-2006-641-A | PB BOARD, COMPLETE                 |          |     |      |
| *****                 |              |                                    |          |     |      |
| *                     | 3-346-266-21 | PLATE, GROUND                      |          |     |      |
| < CAPACITOR >         |              |                                    |          |     |      |
| C101                  | 1-136-252-00 | FILM                               | 0.0015uF | 5%  | 100V |
| C102                  | 1-107-169-00 | MICA                               | 100PF    | 5%  | 500V |
| C103                  | 1-130-893-00 | FILM                               | 0.027uF  | 3%  | 100V |
| C104                  | 1-124-130-00 | ELECT                              | 100uF    | 20% | 63V  |
| C105                  | 1-124-929-11 | ELECT                              | 22uF     | 20% | 100V |
| C106                  | 1-124-929-11 | ELECT                              | 22uF     | 20% | 100V |
| C107                  | 1-136-169-00 | FILM                               | 0.22uF   | 5%  | 50V  |
| C108                  | 1-136-230-00 | FILM                               | 0.0022uF | 5%  | 100V |
| C109                  | 1-136-230-00 | FILM                               | 0.0022uF | 5%  | 100V |
| C110                  | 1-136-230-00 | FILM                               | 0.0022uF | 5%  | 100V |
| C111                  | 1-136-230-00 | FILM                               | 0.0022uF | 5%  | 100V |
| C112                  | 1-136-230-00 | FILM                               | 0.0022uF | 5%  | 100V |
| C113                  | 1-130-475-00 | MYLAR                              | 0.0022uF | 5%  | 50V  |
| C114                  | 1-130-475-00 | MYLAR                              | 0.0022uF | 5%  | 50V  |
| C115                  | 1-130-478-00 | MYLAR                              | 0.0039uF | 5%  | 50V  |
| C116                  | 1-136-173-00 | FILM                               | 0.47uF   | 5%  | 50V  |
| C117                  | 1-136-167-00 | FILM                               | 0.15uF   | 5%  | 50V  |

| Ref.No. | Part No.     | Description | Remark   |     |      |
|---------|--------------|-------------|----------|-----|------|
| C118    | 1-136-155-00 | FILM        | 0.015uF  | 5%  | 50V  |
| C119    | 1-123-380-00 | ELECT       | 1uF      | 20% | 50V  |
| C120    | 1-136-169-00 | FILM        | 0.22uF   | 5%  | 50V  |
| C121    | 1-136-163-00 | FILM        | 0.068uF  | 5%  | 50V  |
| C122    | 1-136-162-00 | FILM        | 0.056uF  | 5%  | 50V  |
| C123    | 1-123-380-00 | ELECT       | 1uF      | 20% | 50V  |
| C124    | 1-130-480-00 | MYLAR       | 0.0056uF | 5%  | 50V  |
| C125    | 1-136-153-00 | FILM        | 0.01uF   | 5%  | 50V  |
| C126    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |
| C127    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |
| C175    | 1-123-369-00 | ELECT       | 4.7uF    | 20% | 63V  |
| C176    | 1-123-369-00 | ELECT       | 4.7uF    | 20% | 63V  |
| C201    | 1-136-252-00 | FILM        | 0.0015uF | 5%  | 100V |
| C202    | 1-107-169-00 | MICA        | 100PF    | 5%  | 500V |
| C203    | 1-130-893-00 | FILM        | 0.027uF  | 3%  | 100V |
| C204    | 1-124-130-00 | ELECT       | 100uF    | 20% | 63V  |
| C205    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |
| C206    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |
| C207    | 1-136-169-00 | FILM        | 0.22uF   | 5%  | 50V  |
| C208    | 1-136-230-00 | FILM        | 0.0022uF | 5%  | 100V |
| C209    | 1-136-230-00 | FILM        | 0.0022uF | 5%  | 100V |
| C210    | 1-136-230-00 | FILM        | 0.0022uF | 5%  | 100V |
| C211    | 1-136-230-00 | FILM        | 0.0022uF | 5%  | 100V |
| C212    | 1-136-230-00 | FILM        | 0.0022uF | 5%  | 100V |
| C213    | 1-130-475-00 | MYLAR       | 0.0022uF | 5%  | 50V  |
| C214    | 1-130-475-00 | MYLAR       | 0.0022uF | 5%  | 50V  |
| C215    | 1-130-478-00 | MYLAR       | 0.0039uF | 5%  | 50V  |
| C216    | 1-136-173-00 | FILM        | 0.47uF   | 5%  | 50V  |
| C217    | 1-136-167-00 | FILM        | 0.15uF   | 5%  | 50V  |
| C218    | 1-136-155-00 | FILM        | 0.015uF  | 5%  | 50V  |
| C219    | 1-123-380-00 | ELECT       | 1uF      | 20% | 50V  |
| C220    | 1-136-169-00 | FILM        | 0.22uF   | 5%  | 50V  |
| C221    | 1-136-163-00 | FILM        | 0.068uF  | 5%  | 50V  |
| C222    | 1-136-162-00 | FILM        | 0.056uF  | 5%  | 50V  |
| C223    | 1-123-380-00 | ELECT       | 1uF      | 20% | 50V  |
| C224    | 1-130-480-00 | MYLAR       | 0.0056uF | 5%  | 50V  |
| C225    | 1-136-153-00 | FILM        | 0.01uF   | 5%  | 50V  |
| C226    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |
| C227    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |
| C275    | 1-123-369-00 | ELECT       | 4.7uF    | 20% | 63V  |
| C276    | 1-123-369-00 | ELECT       | 4.7uF    | 20% | 63V  |
| C501    | 1-124-927-11 | ELECT       | 4.7uF    | 20% | 100V |
| C502    | 1-136-165-00 | FILM        | 0.1uF    | 5%  | 50V  |
| C503    | 1-162-284-31 | CERAMIC     | 150PF    | 10% | 50V  |
| C504    | 1-130-478-00 | MYLAR       | 0.0039uF | 5%  | 50V  |
| C505    | 1-124-902-00 | ELECT       | 0.47uF   | 20% | 50V  |
| C506    | 1-124-927-11 | ELECT       | 4.7uF    | 20% | 100V |
| C507    | 1-124-922-11 | ELECT       | 1000uF   | 20% | 63V  |
| C508    | 1-107-159-00 | MICA        | 33PF     | 5%  | 500V |

PB

| Ref.No. | Part No.     | Description  | Remark  |
|---------|--------------|--------------|---------|
| C509    | 1-126-066-11 | ELECT 470uF  | 20% 63V |
| C510    | 1-124-122-11 | ELECT 100uF  | 20% 50V |
| C511    | 1-124-922-11 | ELECT 1000uF | 20% 63V |
| C512    | 1-107-159-00 | MICA 33PF    | 5% 500V |
| C513    | 1-126-066-11 | ELECT 470uF  | 20% 63V |

|      |              |       |       |     |     |
|------|--------------|-------|-------|-----|-----|
| C514 | 1-124-122-11 | ELECT | 100uF | 20% | 50V |
|------|--------------|-------|-------|-----|-----|

## &lt; CONNECTOR &gt;

|          |              |                    |
|----------|--------------|--------------------|
| CNE501   | 1-564-507-11 | PLUG, CONNECTOR 4P |
| * CNN501 | 1-560-062-00 | PIN, CONNECTOR 4P  |
| * CNN502 | 1-560-062-00 | PIN, CONNECTOR 4P  |
| * CNN503 | 1-560-062-00 | PIN, CONNECTOR 4P  |
| * CNN504 | 1-560-065-00 | PIN, CONNECTOR 8P  |

|        |              |                   |
|--------|--------------|-------------------|
| CNS501 | 1-564-104-00 | PIN, CONNECTOR 3P |
| CNS502 | 1-564-104-00 | PIN, CONNECTOR 3P |

## &lt; DIODE &gt;

|      |              |                  |
|------|--------------|------------------|
| D501 | 8-719-987-63 | DIODE 1N4148M    |
| D502 | 8-719-987-63 | DIODE 1N4148M    |
| D503 | 8-719-114-29 | DIODE RD5.1JS-B1 |
| D509 | 8-719-910-65 | DIODE HZ6B2L     |
| D510 | 8-719-910-65 | DIODE HZ6B2L     |
| D519 | 8-719-987-63 | DIODE 1N4148M    |
| D520 | 8-719-987-63 | DIODE 1N4148M    |
| D521 | 8-719-987-63 | DIODE 1N4148M    |

## &lt; IC &gt;

|       |              |            |
|-------|--------------|------------|
| IC101 | 8-759-900-72 | IC NE5532P |
| IC102 | 8-759-900-72 | IC NE5532P |
| IC201 | 8-759-900-72 | IC NE5532P |
| IC202 | 8-759-900-72 | IC NE5532P |
| IC501 | 8-759-900-72 | IC NE5532P |

|       |              |            |
|-------|--------------|------------|
| IC502 | 8-752-018-80 | IC CX20188 |
| IC503 | 8-759-945-58 | IC RC4558P |

## &lt; TRANSISTOR &gt;

|      |              |                        |
|------|--------------|------------------------|
| Q101 | 8-729-217-03 | TRANSISTOR 2SK170      |
| Q102 | 8-729-217-03 | TRANSISTOR 2SK170      |
| Q103 | 8-729-375-61 | TRANSISTOR 2SD756      |
| Q104 | 8-729-201-56 | TRANSISTOR 2SK246-GR2  |
| Q105 | 8-729-194-57 | TRANSISTOR 2SC945-P    |
| Q106 | 8-729-141-30 | TRANSISTOR 2SC3623A-LK |
| Q201 | 8-729-217-03 | TRANSISTOR 2SK170      |
| Q202 | 8-729-217-03 | TRANSISTOR 2SK170      |
| Q203 | 8-729-375-61 | TRANSISTOR 2SD756      |
| Q204 | 8-729-201-56 | TRANSISTOR 2SK246-GR2  |
| Q205 | 8-729-194-57 | TRANSISTOR 2SC945-P    |
| Q206 | 8-729-141-30 | TRANSISTOR 2SC3623A-LK |

| Ref.No. | Part No.     | Description           | Remark |
|---------|--------------|-----------------------|--------|
| Q501    | 8-729-900-61 | TRANSISTOR DTA114ES   |        |
| Q502    | 8-729-900-89 | TRANSISTOR DTC144ES   |        |
| Q503    | 8-729-900-74 | TRANSISTOR DTC143TS   |        |
| Q504    | 8-729-620-05 | TRANSISTOR 2SC2603-EF |        |
| Q505    | 8-729-900-74 | TRANSISTOR DTC143TS   |        |

|      |              |            |             |
|------|--------------|------------|-------------|
| Q506 | 8-729-900-89 | TRANSISTOR | DTC144ES    |
| Q507 | 8-729-119-76 | TRANSISTOR | 2SA1175-HFE |
| Q508 | 8-729-900-89 | TRANSISTOR | DTC144ES    |
| Q509 | 8-729-107-53 | TRANSISTOR | 2SC2275A    |
| Q510 | 8-729-375-61 | TRANSISTOR | 2SD756      |

|      |              |            |            |
|------|--------------|------------|------------|
| Q511 | 8-729-375-61 | TRANSISTOR | 2SD756     |
| Q512 | 8-729-201-56 | TRANSISTOR | 2SK246-GR2 |
| Q513 | 8-729-141-10 | TRANSISTOR | 2SA985A    |
| Q514 | 8-729-364-62 | TRANSISTOR | 2SB646C    |
| Q515 | 8-729-364-62 | TRANSISTOR | 2SB646C    |

|      |              |            |            |
|------|--------------|------------|------------|
| Q516 | 8-729-201-56 | TRANSISTOR | 2SK246-GR2 |
| Q537 | 8-729-364-62 | TRANSISTOR | 2SB646C    |
| Q538 | 8-729-375-61 | TRANSISTOR | 2SD756     |

## &lt; RESISTOR &gt;

|      |              |        |     |    |      |
|------|--------------|--------|-----|----|------|
| R101 | 1-249-844-11 | CARBON | 56K | 5% | 1/2W |
| R102 | 1-247-128-00 | CARBON | 750 | 5% | 1/4W |
| R103 | 1-247-128-00 | CARBON | 750 | 5% | 1/4W |
| R104 | 1-249-504-11 | CARBON | 10  | 5% | 1/4W |
| R105 | 1-247-708-11 | CARBON | 470 | 5% | 1/4W |

|      |              |        |      |    |      |
|------|--------------|--------|------|----|------|
| R106 | 1-249-518-11 | CARBON | 39   | 5% | 1/4W |
| R107 | 1-247-721-11 | CARBON | 4.7K | 5% | 1/4W |
| R108 | 1-247-704-11 | CARBON | 220  | 5% | 1/4W |
| R109 | 1-249-723-11 | CARBON | 120K | 5% | 1/2W |
| R110 | 1-247-255-00 | CARBON | 4.3K | 5% | 1/2W |

|      |              |        |     |    |      |
|------|--------------|--------|-----|----|------|
| R111 | 1-249-462-11 | CARBON | 22K | 5% | 1/4W |
| R112 | 1-247-740-11 | CARBON | 120 | 5% | 1/2W |
| R113 | 1-249-658-11 | CARBON | 240 | 5% | 1/2W |
| R114 | 1-214-851-00 | METAL  | 300 | 1% | 1/2W |
| R115 | 1-247-764-11 | CARBON | 10K | 5% | 1/2W |

|      |              |        |      |    |      |
|------|--------------|--------|------|----|------|
| R116 | 1-249-429-11 | CARBON | 10K  | 5% | 1/4W |
| R117 | 1-247-720-11 | CARBON | 3.9K | 5% | 1/4W |
| R118 | 1-247-718-11 | CARBON | 2.7K | 5% | 1/4W |
| R119 | 1-247-718-11 | CARBON | 2.7K | 5% | 1/4W |
| R120 | 1-247-721-11 | CARBON | 4.7K | 5% | 1/4W |

|      |              |        |      |    |      |
|------|--------------|--------|------|----|------|
| R121 | 1-247-146-00 | CARBON | 4.3K | 5% | 1/4W |
| R122 | 1-247-718-11 | CARBON | 2.7K | 5% | 1/4W |
| R123 | 1-247-718-11 | CARBON | 2.7K | 5% | 1/4W |
| R124 | 1-247-719-11 | CARBON | 3.3K | 5% | 1/4W |
| R125 | 1-249-926-11 | CARBON | 1.3K | 5% | 1/4W |

|      |              |        |      |    |      |
|------|--------------|--------|------|----|------|
| R126 | 1-247-891-00 | CARBON | 330K | 5% | 1/4W |
| R127 | 1-247-749-11 | CARBON | 560  | 5% | 1/2W |
| R128 | 1-247-764-11 | CARBON | 10K  | 5% | 1/2W |
| R129 | 1-247-142-00 | CARBON | 3K   | 5% | 1/4W |

PB

PIN JACK

| Ref.No. | Part No.     | Description | Remark |    |      |
|---------|--------------|-------------|--------|----|------|
| R130    | 1-249-565-11 | CARBON      | 3.6K   | 5% | 1/4W |
| R131    | 1-247-710-11 | CARBON      | 560    | 5% | 1/4W |
| R132    | 1-246-545-00 | CARBON      | 1M     | 5% | 1/4W |
| R133    | 1-249-462-11 | CARBON      | 22K    | 5% | 1/4W |
| R134    | 1-247-152-00 | CARBON      | 7.5K   | 5% | 1/4W |
|         |              |             |        |    |      |
| R135    | 1-247-711-11 | CARBON      | 680    | 5% | 1/4W |
| R136    | 1-247-154-00 | CARBON      | 9.1K   | 5% | 1/4W |
| R137    | 1-249-465-11 | CARBON      | 47K    | 5% | 1/4W |
| R196    | 1-215-472-00 | METAL       | 130K   | 1% | 1/6W |
| R201    | 1-249-844-11 | CARBON      | 56K    | 5% | 1/2W |
|         |              |             |        |    |      |
| R202    | 1-247-128-00 | CARBON      | 750    | 5% | 1/4W |
| R203    | 1-247-128-00 | CARBON      | 750    | 5% | 1/4W |
| R204    | 1-249-504-11 | CARBON      | 10     | 5% | 1/4W |
| R205    | 1-247-708-11 | CARBON      | 470    | 5% | 1/4W |
| R206    | 1-249-518-11 | CARBON      | 39     | 5% | 1/4W |
|         |              |             |        |    |      |
| R207    | 1-247-721-11 | CARBON      | 4.7K   | 5% | 1/4W |
| R208    | 1-247-704-11 | CARBON      | 220    | 5% | 1/4W |
| R209    | 1-249-723-11 | CARBON      | 120K   | 5% | 1/2W |
| R210    | 1-247-255-00 | CARBON      | 4.3K   | 5% | 1/2W |
| R211    | 1-249-462-11 | CARBON      | 22K    | 5% | 1/4W |
|         |              |             |        |    |      |
| R212    | 1-247-740-11 | CARBON      | 120    | 5% | 1/2W |
| R213    | 1-249-658-11 | CARBON      | 240    | 5% | 1/2W |
| R214    | 1-214-851-00 | METAL       | 300    | 1% | 1/2W |
| R215    | 1-247-764-11 | CARBON      | 10K    | 5% | 1/2W |
| R216    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
|         |              |             |        |    |      |
| R217    | 1-247-720-11 | CARBON      | 3.9K   | 5% | 1/4W |
| R218    | 1-247-718-11 | CARBON      | 2.7K   | 5% | 1/4W |
| R219    | 1-247-718-11 | CARBON      | 2.7K   | 5% | 1/4W |
| R220    | 1-247-721-11 | CARBON      | 4.7K   | 5% | 1/4W |
| R221    | 1-247-146-00 | CARBON      | 4.3K   | 5% | 1/4W |
|         |              |             |        |    |      |
| R222    | 1-247-718-11 | CARBON      | 2.7K   | 5% | 1/4W |
| R223    | 1-247-718-11 | CARBON      | 2.7K   | 5% | 1/4W |
| R224    | 1-247-719-11 | CARBON      | 3.3K   | 5% | 1/4W |
| R225    | 1-249-926-11 | CARBON      | 1.3K   | 5% | 1/4W |
| R226    | 1-247-891-00 | CARBON      | 330K   | 5% | 1/4W |
|         |              |             |        |    |      |
| R227    | 1-247-749-11 | CARBON      | 560    | 5% | 1/2W |
| R228    | 1-247-764-11 | CARBON      | 10K    | 5% | 1/2W |
| R229    | 1-247-142-00 | CARBON      | 3K     | 5% | 1/4W |
| R230    | 1-249-565-11 | CARBON      | 3.6K   | 5% | 1/4W |
| R231    | 1-247-710-11 | CARBON      | 560    | 5% | 1/4W |
|         |              |             |        |    |      |
| R232    | 1-246-545-00 | CARBON      | 1.0M   | 5% | 1/4W |
| R233    | 1-249-462-11 | CARBON      | 22K    | 5% | 1/4W |
| R234    | 1-247-152-00 | CARBON      | 7.5K   | 5% | 1/4W |
| R235    | 1-247-711-11 | CARBON      | 680    | 5% | 1/4W |
| R236    | 1-247-154-00 | CARBON      | 9.1K   | 5% | 1/4W |
|         |              |             |        |    |      |
| R237    | 1-249-465-11 | CARBON      | 47K    | 5% | 1/4W |
| R501    | 1-249-434-11 | CARBON      | 27K    | 5% | 1/4W |
| R502    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
| R503    | 1-249-425-11 | CARBON      | 4.7K   | 5% | 1/4W |

| Ref.No. | Part No.     | Description | Remark |    |      |
|---------|--------------|-------------|--------|----|------|
| R504    | 1-249-433-11 | CARBON      | 22K    | 5% | 1/4W |
| R506    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
| R507    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W |
| R508    | 1-249-435-11 | CARBON      | 33K    | 5% | 1/4W |
| R509    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
|         |              |             |        |    |      |
| R510    | 1-249-425-11 | CARBON      | 4.7K   | 5% | 1/4W |
| R511    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W |
| R512    | 1-249-434-11 | CARBON      | 27K    | 5% | 1/4W |
| R513    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
| R514    | 1-249-441-11 | CARBON      | 100K   | 5% | 1/4W |
|         |              |             |        |    |      |
| R515    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W |
| R516    | 1-249-433-11 | CARBON      | 22K    | 5% | 1/4W |
| R517    | 1-249-431-11 | CARBON      | 15K    | 5% | 1/4W |
| R521    | 1-247-749-11 | CARBON      | 560    | 5% | 1/2W |
| R522    | 1-249-673-11 | CARBON      | 1K     | 5% | 1/2W |
|         |              |             |        |    |      |
| R523    | 1-247-719-11 | CARBON      | 3.3K   | 5% | 1/4W |
| R524    | 1-249-547-11 | CARBON      | 620    | 5% | 1/4W |
| R525    | 1-249-466-11 | CARBON      | 56K    | 5% | 1/4W |
| R526    | 1-249-673-11 | CARBON      | 1K     | 5% | 1/2W |
| R527    | 1-247-749-11 | CARBON      | 560    | 5% | 1/2W |
|         |              |             |        |    |      |
| R528    | 1-247-719-11 | CARBON      | 3.3K   | 5% | 1/4W |
| R529    | 1-249-547-11 | CARBON      | 620    | 5% | 1/4W |
| R530    | 1-249-466-11 | CARBON      | 56K    | 5% | 1/4W |
| R570    | 1-249-433-11 | CARBON      | 22K    | 5% | 1/4W |
| R571    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
|         |              |             |        |    |      |
| R574    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
| R577    | 1-247-714-11 | CARBON      | 1.2K   | 5% | 1/4W |
| R578    | 1-247-704-11 | CARBON      | 220    | 5% | 1/4W |
| R579    | 1-247-714-11 | CARBON      | 1.2K   | 5% | 1/4W |
| R580    | 1-247-704-11 | CARBON      | 220    | 5% | 1/4W |
|         |              |             |        |    |      |
| R518    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W |
| R519    | 1-249-433-11 | CARBON      | 22K    | 5% | 1/4W |

&lt; VARIABLE RESISTOR &gt;

RV101 1-224-550-21 RES, ADJ, METAL GLAZE 220

RV201 1-224-550-21 RES, ADJ, METAL GLAZE 220

\*\*\*\*\*

\* 1-637-522-11 PIN JACK BOARD

\*\*\*\*\*

&lt; CONNECTOR &gt;

\* CNE502 1-564-511-11 PLUG, CONNECTOR 8P

\* CNE503 1-564-509-11 PLUG, CONNECTOR 6P

\* CNE504 1-564-507-11 PLUG, CONNECTOR 4P

\* CNE505 1-564-506-11 PLUG, CONNECTOR 3P

&lt; DIODE &gt;

D524 8-719-987-63 DIODE 1N4148M

## PIN JACK

## REC

| Ref.No.       | Part No.     | Description                         | Remark   |     |      |  |
|---------------|--------------|-------------------------------------|----------|-----|------|--|
| < JACK >      |              |                                     |          |     |      |  |
| * J501        | 1-569-186-11 | JACK, PIN 4P (CD DIRECT IN/LINE IN) |          |     |      |  |
| * J502        | 1-568-250-21 | JACK, PIN 2P (LINE OUT)             |          |     |      |  |
| < RESISTOR >  |              |                                     |          |     |      |  |
| R190          | 1-247-749-11 | CARBON                              | 560      | 5%  | 1/2W |  |
| R191          | 1-246-545-00 | CARBON                              | 1M       | 5%  | 1/4W |  |
| R192          | 1-246-545-00 | CARBON                              | 1M       | 5%  | 1/4W |  |
| R193          | 1-249-490-11 | CARBON                              | 27K      | 5%  | 1/2W |  |
| R290          | 1-247-749-11 | CARBON                              | 560      | 5%  | 1/2W |  |
| R291          | 1-246-545-00 | CARBON                              | 1.0M     | 5%  | 1/4W |  |
| R292          | 1-246-545-00 | CARBON                              | 1.0M     | 5%  | 1/4W |  |
| R293          | 1-249-490-11 | CARBON                              | 27K      | 5%  | 1/2W |  |
| R323          | 1-259-436-11 | CARBON                              | 2.2K     | 5%  | 1/6W |  |
| R423          | 1-259-436-11 | CARBON                              | 2.2K     | 5%  | 1/6W |  |
| < RELAY >     |              |                                     |          |     |      |  |
| RY503         | 1-515-803-11 | RELAY                               |          |     |      |  |
| *****         |              |                                     |          |     |      |  |
| *             | A-2006-640-A | REC BOARD, COMPLETE                 |          |     |      |  |
| *****         |              |                                     |          |     |      |  |
| < CAPACITOR > |              |                                     |          |     |      |  |
| C128          | 1-123-369-00 | ELECT                               | 4.7uF    | 20% | 63V  |  |
| C129          | 1-123-369-00 | ELECT                               | 4.7uF    | 20% | 63V  |  |
| C130          | 1-124-767-00 | ELECT                               | 2.2uF    | 20% | 50V  |  |
| C131          | 1-107-159-00 | MICA                                | 33PF     | 5%  | 500V |  |
| C132          | 1-107-159-00 | MICA                                | 33PF     | 5%  | 500V |  |
| C133          | 1-130-475-00 | MYLAR                               | 0.0022uF | 5%  | 50V  |  |
| C134          | 1-130-475-00 | MYLAR                               | 0.0022uF | 5%  | 50V  |  |
| C135          | 1-130-478-00 | MYLAR                               | 0.0039uF | 5%  | 50V  |  |
| C136          | 1-136-173-00 | FILM                                | 0.47uF   | 5%  | 50V  |  |
| C137          | 1-136-167-00 | FILM                                | 0.15uF   | 5%  | 50V  |  |
| C138          | 1-136-155-00 | FILM                                | 0.015uF  | 5%  | 50V  |  |
| C139          | 1-123-380-00 | ELECT                               | 1uF      | 20% | 50V  |  |
| C140          | 1-136-169-00 | FILM                                | 0.22uF   | 5%  | 50V  |  |
| C141          | 1-136-163-00 | FILM                                | 0.068uF  | 5%  | 50V  |  |
| C142          | 1-136-162-00 | FILM                                | 0.056uF  | 5%  | 50V  |  |
| C143          | 1-123-380-00 | ELECT                               | 1uF      | 20% | 50V  |  |
| C144          | 1-130-480-00 | MYLAR                               | 0.0056uF | 5%  | 50V  |  |
| C145          | 1-136-153-00 | FILM                                | 0.01uF   | 5%  | 50V  |  |
| C146          | 1-124-929-11 | ELECT                               | 22uF     | 20% | 100V |  |
| C147          | 1-124-929-11 | ELECT                               | 22uF     | 20% | 100V |  |
| C150          | 1-136-252-00 | FILM                                | 0.0015uF | 5%  | 100V |  |
| C151          | 1-124-915-11 | ELECT                               | 10uF     | 20% | 63V  |  |
| C152          | 1-136-163-00 | FILM                                | 0.068uF  | 5%  | 50V  |  |
| C153          | 1-130-485-00 | MYLAR                               | 0.015uF  | 5%  | 50V  |  |
| C154          | 1-136-160-00 | FILM                                | 0.039uF  | 5%  | 50V  |  |

| Ref.No. | Part No.     | Description | Remark   |     |      |  |
|---------|--------------|-------------|----------|-----|------|--|
| C155    | 1-130-485-00 | MYLAR       | 0.015uF  | 5%  | 50V  |  |
| C156    | 1-136-160-00 | FILM        | 0.039uF  | 5%  | 50V  |  |
| C157    | 1-130-486-00 | MYLAR       | 0.018uF  | 10% | 50V  |  |
| C159    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |  |
| C160    | 1-136-252-00 | FILM        | 0.0015uF | 5%  | 100V |  |
| C161    | 1-107-157-00 | MICA        | 27PF     | 5%  | 500V |  |
| C162    | 1-107-159-00 | MICA        | 33PF     | 5%  | 500V |  |
| C163    | 1-107-169-00 | MICA        | 100PF    | 5%  | 500V |  |
| C164    | 1-109-627-00 | MICA        | 150PF    | 2%  | 500V |  |
| C165    | 1-109-621-00 | MICA        | 220PF    | 1%  | 500V |  |
| C166    | 1-136-153-00 | FILM        | 0.01uF   | 5%  | 50V  |  |
| C167    | 1-136-163-00 | FILM        | 0.068uF  | 5%  | 50V  |  |
| C168    | 1-136-157-00 | FILM        | 0.022uF  | 5%  | 50V  |  |
| C170    | 1-124-925-11 | ELECT       | 2.2uF    | 20% | 100V |  |
| C171    | 1-123-382-00 | ELECT       | 3.3uF    | 20% | 100V |  |
| C173    | 1-124-925-11 | ELECT       | 2.2uF    | 20% | 100V |  |
| C174    | 1-136-165-00 | FILM        | 0.1uF    | 5%  | 50V  |  |
| C228    | 1-123-369-00 | ELECT       | 4.7uF    | 20% | 63V  |  |
| C229    | 1-123-369-00 | ELECT       | 4.7uF    | 20% | 63V  |  |
| C230    | 1-124-767-00 | ELECT       | 2.2uF    | 20% | 50V  |  |
| C231    | 1-107-159-00 | MICA        | 33PF     | 5%  | 500V |  |
| C232    | 1-107-159-00 | MICA        | 33PF     | 5%  | 500V |  |
| C233    | 1-130-475-00 | MYLAR       | 0.0022uF | 5%  | 50V  |  |
| C234    | 1-130-475-00 | MYLAR       | 0.0022uF | 5%  | 50V  |  |
| C235    | 1-130-478-00 | MYLAR       | 0.0039uF | 5%  | 50V  |  |
| C236    | 1-136-173-00 | FILM        | 0.47uF   | 5%  | 50V  |  |
| C237    | 1-136-167-00 | FILM        | 0.15uF   | 5%  | 50V  |  |
| C238    | 1-136-155-00 | FILM        | 0.015uF  | 5%  | 50V  |  |
| C239    | 1-123-380-00 | ELECT       | 1uF      | 20% | 50V  |  |
| C240    | 1-136-169-00 | FILM        | 0.22uF   | 5%  | 50V  |  |
| C241    | 1-136-163-00 | FILM        | 0.068uF  | 5%  | 50V  |  |
| C242    | 1-136-162-00 | FILM        | 0.056uF  | 5%  | 50V  |  |
| C243    | 1-123-380-00 | ELECT       | 1uF      | 20% | 50V  |  |
| C244    | 1-130-480-00 | MYLAR       | 0.0056uF | 5%  | 50V  |  |
| C245    | 1-136-153-00 | FILM        | 0.01uF   | 5%  | 50V  |  |
| C246    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |  |
| C247    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |  |
| C250    | 1-136-252-00 | FILM        | 0.0015uF | 5%  | 100V |  |
| C251    | 1-124-915-11 | ELECT       | 10uF     | 20% | 63V  |  |
| C252    | 1-136-163-00 | FILM        | 0.068uF  | 5%  | 50V  |  |
| C253    | 1-130-485-00 | MYLAR       | 0.015uF  | 5%  | 50V  |  |
| C254    | 1-136-160-00 | FILM        | 0.039uF  | 5%  | 50V  |  |
| C255    | 1-130-485-00 | MYLAR       | 0.015uF  | 5%  | 50V  |  |
| C256    | 1-136-160-00 | FILM        | 0.039uF  | 5%  | 50V  |  |
| C257    | 1-130-486-00 | MYLAR       | 0.018uF  | 10% | 50V  |  |
| C259    | 1-124-929-11 | ELECT       | 22uF     | 20% | 100V |  |
| C260    | 1-136-252-00 | FILM        | 0.0015uF | 5%  | 100V |  |
| C261    | 1-107-157-00 | MICA        | 27PF     | 5%  | 500V |  |
| C262    | 1-107-159-00 | MICA        | 33PF     | 5%  | 500V |  |

REC

| Ref.No.       | Part No.     | Description        | Remark   |     | Ref.No. | Part No.     | Description                   | Remark                 |
|---------------|--------------|--------------------|----------|-----|---------|--------------|-------------------------------|------------------------|
| C263          | 1-107-169-00 | MICA               | 100PF    | 5%  | 500V    |              | < CONPOSITION CIRCUIT BLOCK > |                        |
| C264          | 1-109-627-00 | MICA               | 150PF    | 2%  | 500V    |              |                               |                        |
| C265          | 1-109-621-00 | MICA               | 220PF    | 1%  | 500V    | CP501        | 1-466-252-11                  | OSCILLATION UNIT, BIAS |
| C266          | 1-136-153-00 | FILM               | 0.01uF   | 5%  | 50V     |              |                               |                        |
| C267          | 1-136-163-00 | FILM               | 0.068uF  | 5%  | 50V     |              | < DIODE >                     |                        |
| C268          | 1-136-157-00 | FILM               | 0.022uF  | 5%  | 50V     | D101         | 8-719-000-60                  | DIODE UZL-6M2          |
| C270          | 1-124-925-11 | ELECT              | 2.2uF    | 20% | 100V    | D102         | 8-719-987-63                  | DIODE 1N4148M          |
| C271          | 1-123-382-00 | ELECT              | 3.3uF    | 20% | 100V    | D103         | 8-719-987-63                  | DIODE 1N4148M          |
| C272          | 1-161-375-00 | CERAMIC            | 0.0022uF | 20% | 50V     | D201         | 8-719-000-60                  | DIODE UZL-6M2          |
| C273          | 1-124-925-11 | ELECT              | 2.2uF    | 20% | 100V    | D202         | 8-719-987-63                  | DIODE 1N4148M          |
| C515          | 1-124-907-11 | ELECT              | 10uF     | 20% | 50V     | D203         | 8-719-987-63                  | DIODE 1N4148M          |
| C516          | 1-123-369-00 | ELECT              | 4.7uF    | 20% | 63V     | D511         | 8-719-114-29                  | DIODE RD5.1JS-B1       |
| C517          | 1-123-369-00 | ELECT              | 4.7uF    | 20% | 63V     | D512         | 8-719-987-63                  | DIODE 1N4148M          |
| C520          | 1-123-369-00 | ELECT              | 4.7uF    | 20% | 63V     | D514         | 8-719-987-63                  | DIODE 1N4148M          |
| C521          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     | D515         | 8-719-987-63                  | DIODE 1N4148M          |
| C522          | 1-123-369-00 | ELECT              | 4.7uF    | 20% | 63V     | D516         | 8-719-114-29                  | DIODE RD5.1JS-B1       |
| C523          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     | D517         | 8-719-987-63                  | DIODE 1N4148M          |
| C524          | 1-124-903-11 | ELECT              | 1uF      | 20% | 50V     | D522         | 8-719-987-63                  | DIODE 1N4148M          |
| C525          | 1-124-907-11 | ELECT              | 10uF     | 20% | 50V     | D523         | 8-719-933-41                  | DIODE HZS6C3L          |
| C528          | 1-107-026-00 | MICA               | 5.1PF    |     | 500V    | D525         | 8-719-987-63                  | DIODE 1N4148M          |
| C529          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     | D526         | 8-719-987-63                  | DIODE 1N4148M          |
| C530          | 1-124-925-11 | ELECT              | 2.2uF    | 20% | 100V    | D527         | 8-719-114-29                  | DIODE RD5.1JS-B1       |
| C531          | 1-124-915-11 | ELECT              | 10uF     | 20% | 63V     |              | < IC >                        |                        |
| C532          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     | IC504        | 8-759-602-83                  | IC M5238P              |
| C533          | 1-124-915-11 | ELECT              | 10uF     | 20% | 63V     | IC505        | 8-752-018-80                  | IC CX20188             |
| C534          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     | IC506        | 8-759-900-72                  | IC NE5532P             |
| C535          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     | IC508        | 8-759-106-56                  | IC uPC1297CA           |
| C536          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     | IC509        | 8-759-604-86                  | IC M5F7807             |
| C537          | 1-130-474-00 | MYLAR              | 0.0018uF | 5%  | 50V     | IC510        | 8-759-604-90                  | IC M5F7907             |
| C538          | 1-130-474-00 | MYLAR              | 0.0018uF | 5%  | 50V     | IC511        | 8-759-240-50                  | IC TC4050BP            |
| C539          | 1-136-157-00 | FILM               | 0.022uF  | 5%  | 50V     | IC512        | 8-759-602-83                  | IC M5238P              |
| C540          | 1-136-157-00 | FILM               | 0.022uF  | 5%  | 50V     | IC513        | 8-759-945-58                  | IC RC4558P             |
| C541          | 1-124-907-11 | ELECT              | 10uF     | 20% | 50V     | IC514        | 8-759-634-51                  | IC M5218AP             |
| C542          | 1-126-233-11 | ELECT              | 22uF     | 20% | 50V     | IC515        | 8-759-945-58                  | IC RC4558P             |
| C543          | 1-162-217-31 | CERAMIC            | 56PF     | 5%  | 50V     | IC518        | 8-759-982-26                  | IC RC78L12A            |
| C544          | 1-162-217-31 | CERAMIC            | 56PF     | 5%  | 50V     | IC519        | 8-759-982-48                  | IC NJM79L12A           |
| C545          | 1-124-477-11 | ELECT              | 47uF     | 20% | 25V     |              | < COIL >                      |                        |
| C546          | 1-164-159-11 | CERAMIC            | 0.1uF    |     | 50V     | L101         | 1-408-920-00                  | INDUCTOR 4.7mH         |
| < CONNECTOR > |              |                    |          |     | L102    | 1-408-918-11 | INDUCTOR 3.3mH                |                        |
| * CND501      | 1-564-340-00 | PIN, CONNECTOR 6P  |          |     | L103    | 1-408-916-11 | INDUCTOR 2.2mH                |                        |
| * CND502      | 1-564-341-11 | PIN, CONNECTOR 7P  |          |     | L104    | 1-408-925-11 | INDUCTOR 12mH                 |                        |
| CNE101        | 1-564-507-11 | PLUG, CONNECTOR 4P |          |     | L105    | 1-408-916-11 | INDUCTOR 2.2mH                |                        |
| * CNE201      | 1-564-507-11 | PLUG, CONNECTOR 4P |          |     | L201    | 1-408-920-00 | INDUCTOR 4.7mH                |                        |
| * CNN505      | 1-560-062-00 | PIN, CONNECTOR 4P  |          |     | L202    | 1-408-918-11 | INDUCTOR 3.3mH                |                        |
| * CNN506      | 1-560-061-00 | PIN, CONNECTOR 3P  |          |     | L203    | 1-408-916-11 | INDUCTOR 2.2mH                |                        |
|               |              |                    |          |     | L204    | 1-408-925-11 | INDUCTOR 12mH                 |                        |
|               |              |                    |          |     | L205    | 1-408-916-11 | INDUCTOR 2.2mH                |                        |

REC

| Ref.No. | Part No.     | Description      | Remark      | Ref.No. | Part No.     | Description  | Remark       |
|---------|--------------|------------------|-------------|---------|--------------|--------------|--------------|
| L501    | 1-410-525-11 | INDUCTOR         | 220uH       | Q539    | 8-729-900-36 | TRANSISTOR   | DTC124ES     |
| L502    | 1-410-525-11 | INDUCTOR         | 220uH       | Q540    | 8-729-620-05 | TRANSISTOR   | 2SC2603-EF   |
| L503    | 1-410-525-11 | INDUCTOR         | 220uH       |         |              |              |              |
|         |              | < FILTER >       |             |         |              | < RESISTOR > |              |
| LPF101  | 1-236-087-11 | FILTER, LOW PASS |             | R138    | 1-249-469-11 | CARBON       | 100K 5% 1/4W |
| LPF201  | 1-236-087-11 | FILTER, LOW PASS |             | R139    | 1-247-723-11 | CARBON       | 6.8K 5% 1/4W |
|         |              | < PILOT LAMP >   |             | R140    | 1-247-720-11 | CARBON       | 3.9K 5% 1/4W |
| PL501   | 1-518-471-31 | LAMP, PILOT      |             | R141    | 1-247-719-11 | CARBON       | 3.3K 5% 1/4W |
| PL502   | 1-518-471-31 | LAMP, PILOT      |             | R142    | 1-247-152-00 | CARBON       | 7.5K 5% 1/4W |
|         |              | < TRANSISTOR >   |             | R143    | 1-249-469-11 | CARBON       | 100K 5% 1/4W |
| Q107    | 8-729-142-25 | TRANSISTOR       | 2SD1020-HFE | R144    | 1-249-799-11 | CARBON       | 750 5% 1/2W  |
| Q108    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R145    | 1-247-764-11 | CARBON       | 10K 5% 1/2W  |
| Q109    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R146    | 1-247-142-00 | CARBON       | 3K 5% 1/4W   |
| Q110    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R147    | 1-249-565-11 | CARBON       | 3.6K 5% 1/4W |
| Q111    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK |         |              |              |              |
| Q112    | 8-729-900-80 | TRANSISTOR       | DTC114ES    | R148    | 1-247-710-11 | CARBON       | 560 5% 1/4W  |
| Q113    | 8-729-900-80 | TRANSISTOR       | DTC114ES    | R149    | 1-246-545-00 | CARBON       | 1M 5% 1/4W   |
| Q114    | 8-729-900-80 | TRANSISTOR       | DTC114ES    | R150    | 1-249-462-11 | CARBON       | 22K 5% 1/4W  |
| Q116    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R151    | 1-247-152-00 | CARBON       | 7.5K 5% 1/4W |
| Q117    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R152    | 1-247-711-11 | CARBON       | 680 5% 1/4W  |
| Q118    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK |         |              |              |              |
| Q207    | 8-729-142-25 | TRANSISTOR       | 2SD1020-HFE | R153    | 1-247-154-00 | CARBON       | 9.1K 5% 1/4W |
| Q208    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R154    | 1-249-465-11 | CARBON       | 47K 5% 1/4W  |
| Q209    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R161    | 1-247-719-11 | CARBON       | 3.3K 5% 1/4W |
| Q210    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R162    | 1-247-723-11 | CARBON       | 6.8K 5% 1/4W |
| Q211    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R163    | 1-249-590-11 | CARBON       | 39K 5% 1/4W  |
| Q212    | 8-729-900-80 | TRANSISTOR       | DTC114ES    | R164    | 1-249-425-11 | CARBON       | 4.7K 5% 1/4W |
| Q213    | 8-729-900-80 | TRANSISTOR       | DTC114ES    | R165    | 1-249-429-11 | CARBON       | 10K 5% 1/4W  |
| Q214    | 8-729-900-80 | TRANSISTOR       | DTC114ES    | R166    | 1-249-465-11 | CARBON       | 47K 5% 1/4W  |
| Q216    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R167    | 1-247-716-11 | CARBON       | 1.8K 5% 1/4W |
| Q217    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R168    | 1-249-598-11 | CARBON       | 82K 5% 1/4W  |
| Q218    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK |         |              |              |              |
| Q517    | 8-729-900-61 | TRANSISTOR       | DTA114ES    | R169    | 1-259-467-11 | CARBON       | 43K 5% 1/4W  |
| Q518    | 8-729-281-53 | TRANSISTOR       | 2SC1815-GR  | R170    | 1-247-702-11 | CARBON       | 150 5% 1/4W  |
| Q519    | 8-729-119-76 | TRANSISTOR       | 2SA1175-HFE | R171    | 1-247-154-00 | CARBON       | 9.1K 5% 1/4W |
| Q520    | 8-729-900-36 | TRANSISTOR       | DTC124ES    | R172    | 1-249-429-11 | CARBON       | 10K 5% 1/4W  |
| Q522    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R173    | 1-247-701-11 | CARBON       | 120 5% 1/4W  |
| Q523    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK |         |              |              |              |
| Q524    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R174    | 1-247-142-00 | CARBON       | 3K 5% 1/4W   |
| Q529    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R175    | 1-247-721-11 | CARBON       | 4.7K 5% 1/4W |
| Q530    | 8-729-141-30 | TRANSISTOR       | 2SC3623A-LK | R176    | 1-249-429-11 | CARBON       | 10K 5% 1/4W  |
| Q533    | 8-729-900-36 | TRANSISTOR       | DTC124ES    | R177    | 1-247-700-11 | CARBON       | 100 5% 1/4W  |
| Q534    | 8-729-900-74 | TRANSISTOR       | DTC143TS    | R178    | 1-247-719-11 | CARBON       | 3.3K 5% 1/4W |
| Q535    | 8-729-900-36 | TRANSISTOR       | DTC124ES    |         |              |              |              |
| Q536    | 8-729-900-36 | TRANSISTOR       | DTC124ES    | R179    | 1-247-719-11 | CARBON       | 3.3K 5% 1/4W |
|         |              |                  |             | R180    | 1-249-429-11 | CARBON       | 10K 5% 1/4W  |
|         |              |                  |             | R185    | 1-247-718-11 | CARBON       | 2.7K 5% 1/4W |
|         |              |                  |             | R186    | 1-247-883-00 | CARBON       | 150K 5% 1/4W |
|         |              |                  |             | R187    | 1-247-714-11 | CARBON       | 1.2K 5% 1/4W |
|         |              |                  |             |         |              |              |              |
|         |              |                  |             | R188    | 1-247-714-11 | CARBON       | 1.2K 5% 1/4W |
|         |              |                  |             | R189    | 1-249-425-11 | CARBON       | 4.7K 5% 1/4W |
|         |              |                  |             | R194    | 1-247-883-00 | CARBON       | 150K 5% 1/4W |
|         |              |                  |             | R195    | 1-249-417-11 | CARBON       | 1K 5% 1/4W   |
|         |              |                  |             | R197    | 1-249-408-11 | CARBON       | 180 5% 1/4W  |

REC

| Ref.No. | Part No.     | Description | Remark |    |      | Ref.No. | Part No.     | Description | Remark |    |        |
|---------|--------------|-------------|--------|----|------|---------|--------------|-------------|--------|----|--------|
| R198    | 1-249-414-11 | CARBON      | 560    | 5% | 1/4W | R299    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W   |
| R199    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W | R301    | 1-249-428-11 | CARBON      | 8.2K   | 5% | 1/4W   |
| R238    | 1-249-469-11 | CARBON      | 100K   | 5% | 1/4W | R302    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W   |
| R239    | 1-247-723-11 | CARBON      | 6.8K   | 5% | 1/4W | R303    | 1-247-725-11 | CARBON      | 10K    | 5% | 1/4W   |
| R240    | 1-247-720-11 | CARBON      | 3.9K   | 5% | 1/4W | R304    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |
| R241    | 1-247-719-11 | CARBON      | 3.3K   | 5% | 1/4W | R305    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |
| R242    | 1-247-152-00 | CARBON      | 7.5K   | 5% | 1/4W | R306    | 1-249-415-11 | CARBON      | 680    | 5% | 1/4W   |
| R243    | 1-249-469-11 | CARBON      | 100K   | 5% | 1/4W | R307    | 1-249-437-11 | CARBON      | 47K    | 5% | 1/4W   |
| R244    | 1-249-799-11 | CARBON      | 750    | 5% | 1/2W | R308    | 1-215-465-00 | METAL       | 68K    | 1% | 1/6W   |
| R245    | 1-247-764-11 | CARBON      | 10K    | 5% | 1/2W | R309    | 1-215-474-00 | METAL       | 160K   | 1% | 1/6W   |
| R246    | 1-247-142-00 | CARBON      | 3K     | 5% | 1/4W | R310    | 1-215-448-00 | METAL       | 13K    | 1% | 1/6W   |
| R247    | 1-249-565-11 | CARBON      | 3.6K   | 5% | 1/4W | R311    | 1-249-408-11 | CARBON      | 180    | 5% | 1/4W   |
| R248    | 1-247-710-11 | CARBON      | 560    | 5% | 1/4W | R312    | 1-247-883-00 | CARBON      | 150K   | 5% | 1/4W   |
| R249    | 1-246-545-00 | CARBON      | 1.0M   | 5% | 1/4W | R314    | 1-249-423-11 | CARBON      | 3.3K   | 5% | 1/4W   |
| R250    | 1-249-462-11 | CARBON      | 22K    | 5% | 1/4W | R316    | 1-249-425-11 | CARBON      | 4.7K   | 5% | 1/4W   |
| R251    | 1-247-152-00 | CARBON      | 7.5K   | 5% | 1/4W | R317    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |
| R252    | 1-247-711-11 | CARBON      | 680    | 5% | 1/4W | R318    | 1-249-616-11 | CARBON      | 470K   | 5% | 1/4W   |
| R253    | 1-247-154-00 | CARBON      | 9.1K   | 5% | 1/4W | △ R319  | 1-212-857-00 | FUSIBLE     | 10     | 5% | 1/4W F |
| R254    | 1-249-465-11 | CARBON      | 47K    | 5% | 1/4W | R320    | 1-249-465-11 | CARBON      | 47K    | 5% | 1/4W   |
| R261    | 1-247-719-11 | CARBON      | 3.3K   | 5% | 1/4W | R401    | 1-249-428-11 | CARBON      | 8.2K   | 5% | 1/4W   |
| R262    | 1-247-723-11 | CARBON      | 6.8K   | 5% | 1/4W | R402    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W   |
| R263    | 1-249-590-11 | CARBON      | 39K    | 5% | 1/4W | R403    | 1-247-725-11 | CARBON      | 10K    | 5% | 1/4W   |
| R264    | 1-249-425-11 | CARBON      | 4.7K   | 5% | 1/4W | R404    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |
| R265    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W | R405    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |
| R266    | 1-249-465-11 | CARBON      | 47K    | 5% | 1/4W | R406    | 1-249-415-11 | CARBON      | 680    | 5% | 1/4W   |
| R267    | 1-247-716-11 | CARBON      | 1.8K   | 5% | 1/4W | R407    | 1-249-437-11 | CARBON      | 47K    | 5% | 1/4W   |
| R268    | 1-249-598-11 | CARBON      | 82K    | 5% | 1/4W | R408    | 1-215-465-00 | METAL       | 68K    | 1% | 1/6W   |
| R269    | 1-259-467-11 | CARBON      | 43K    | 5% | 1/4W | R409    | 1-215-474-00 | METAL       | 160K   | 1% | 1/6W   |
| R270    | 1-247-702-11 | CARBON      | 150    | 5% | 1/4W | R410    | 1-215-448-00 | METAL       | 13K    | 1% | 1/6W   |
| R271    | 1-247-154-00 | CARBON      | 9.1K   | 5% | 1/4W | R411    | 1-249-408-11 | CARBON      | 180    | 5% | 1/4W   |
| R272    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W | R412    | 1-247-883-00 | CARBON      | 150K   | 5% | 1/4W   |
| R273    | 1-247-701-11 | CARBON      | 120    | 5% | 1/4W | R414    | 1-249-423-11 | CARBON      | 3.3K   | 5% | 1/4W   |
| R274    | 1-247-142-00 | CARBON      | 3K     | 5% | 1/4W | R416    | 1-249-425-11 | CARBON      | 4.7K   | 5% | 1/4W   |
| R275    | 1-247-721-11 | CARBON      | 4.7K   | 5% | 1/4W | R417    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |
| R276    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W | R418    | 1-249-616-11 | CARBON      | 470K   | 5% | 1/4W   |
| R277    | 1-247-700-11 | CARBON      | 100    | 5% | 1/4W | △ R419  | 1-212-857-00 | FUSIBLE     | 10     | 5% | 1/4W F |
| R278    | 1-247-719-11 | CARBON      | 3.3K   | 5% | 1/4W | R420    | 1-249-465-11 | CARBON      | 47K    | 5% | 1/4W   |
| R279    | 1-247-719-11 | CARBON      | 3.3K   | 5% | 1/4W | R531    | 1-249-438-11 | CARBON      | 56K    | 5% | 1/4W   |
| R280    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W | R532    | 1-249-433-11 | CARBON      | 22K    | 5% | 1/4W   |
| R285    | 1-247-718-11 | CARBON      | 2.7K   | 5% | 1/4W | R533    | 1-249-421-11 | CARBON      | 2.2K   | 5% | 1/4W   |
| R286    | 1-247-883-00 | CARBON      | 150K   | 5% | 1/4W | R537    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W   |
| R287    | 1-247-714-11 | CARBON      | 1.2K   | 5% | 1/4W | R538    | 1-249-425-11 | CARBON      | 4.7K   | 5% | 1/4W   |
| R288    | 1-247-714-11 | CARBON      | 1.2K   | 5% | 1/4W | R539    | 1-249-437-11 | CARBON      | 47K    | 5% | 1/4W   |
| R289    | 1-249-425-11 | CARBON      | 4.7K   | 5% | 1/4W | R540    | 1-249-433-11 | CARBON      | 22K    | 5% | 1/4W   |
| R294    | 1-247-883-00 | CARBON      | 150K   | 5% | 1/4W | R542    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |
| R295    | 1-249-417-11 | CARBON      | 1K     | 5% | 1/4W | R543    | 1-249-424-11 | CARBON      | 3.9K   | 5% | 1/4W   |
| R296    | 1-215-472-00 | METAL       | 130K   | 1% | 1/6W | R544    | 1-249-418-11 | CARBON      | 1.2K   | 5% | 1/4W   |
| R297    | 1-249-408-11 | CARBON      | 180    | 5% | 1/4W | R545    | 1-249-428-11 | CARBON      | 8.2K   | 5% | 1/4W   |
| R298    | 1-249-414-11 | CARBON      | 560    | 5% | 1/4W | R546    | 1-249-429-11 | CARBON      | 10K    | 5% | 1/4W   |

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

REC

REC EQ SW

| Ref.No.               | Part No.     | Description           | Remark |    |      |
|-----------------------|--------------|-----------------------|--------|----|------|
| R547                  | 1-249-405-11 | CARBON                | 100    | 5% | 1/4W |
| R548                  | 1-249-405-11 | CARBON                | 100    | 5% | 1/4W |
| R549                  | 1-249-405-11 | CARBON                | 100    | 5% | 1/4W |
| R550                  | 1-249-405-11 | CARBON                | 100    | 5% | 1/4W |
| R551                  | 1-249-405-11 | CARBON                | 100    | 5% | 1/4W |
| R552                  | 1-249-405-11 | CARBON                | 100    | 5% | 1/4W |
| R553                  | 1-249-429-11 | CARBON                | 10K    | 5% | 1/4W |
| R554                  | 1-249-429-11 | CARBON                | 10K    | 5% | 1/4W |
| R556                  | 1-249-428-11 | CARBON                | 8.2K   | 5% | 1/4W |
| R557                  | 1-247-856-00 | CARBON                | 11K    | 5% | 1/4W |
| R558                  | 1-249-397-11 | CARBON                | 22     | 5% | 1/4W |
| R559                  | 1-249-407-11 | CARBON                | 150    | 5% | 1/4W |
| R560                  | 1-247-856-00 | CARBON                | 11K    | 5% | 1/4W |
| R561                  | 1-249-428-11 | CARBON                | 8.2K   | 5% | 1/4W |
| R562                  | 1-249-432-11 | CARBON                | 18K    | 5% | 1/4W |
| R563                  | 1-249-397-11 | CARBON                | 22     | 5% | 1/4W |
| R564                  | 1-249-407-11 | CARBON                | 150    | 5% | 1/4W |
| R565                  | 1-249-432-11 | CARBON                | 18K    | 5% | 1/4W |
| R566                  | 1-247-887-00 | CARBON                | 220K   | 5% | 1/4W |
| R567                  | 1-247-887-00 | CARBON                | 220K   | 5% | 1/4W |
| R568                  | 1-249-407-11 | CARBON                | 150    | 5% | 1/4W |
| R569                  | 1-249-422-11 | CARBON                | 2.7K   | 5% | 1/4W |
| R572                  | 1-249-429-11 | CARBON                | 10K    | 5% | 1/4W |
| R573                  | 1-249-439-11 | CARBON                | 68K    | 5% | 1/4W |
| R575                  | 1-249-429-11 | CARBON                | 10K    | 5% | 1/4W |
| R576                  | 1-249-429-11 | CARBON                | 10K    | 5% | 1/4W |
| R583                  | 1-249-417-11 | CARBON                | 1K     | 5% | 1/4W |
| R584                  | 1-249-437-11 | CARBON                | 47K    | 5% | 1/4W |
| R587                  | 1-249-437-11 | CARBON                | 47K    | 5% | 1/4W |
| < VARIABLE RESISTOR > |              |                       |        |    |      |
| RV102                 | 1-224-251-XX | RES, ADJ, METAL GLAZE | 4.7K   |    |      |
| RV103                 | 1-238-011-11 | RES, ADJ, CARBON      | 470    |    |      |
| RV104                 | 1-238-597-11 | RES, ADJ, CARBON      | 1K     |    |      |
| RV105                 | 1-238-600-11 | RES, ADJ, CARBON      | 10K    |    |      |
| RV106                 | 1-238-600-11 | RES, ADJ, CARBON      | 10K    |    |      |
| RV107                 | 1-238-600-11 | RES, ADJ, CARBON      | 10K    |    |      |
| RV108                 | 1-238-601-11 | RES, ADJ, CARBON      | 22K    |    |      |
| RV202                 | 1-224-251-XX | RES, ADJ, METAL GLAZE | 4.7K   |    |      |
| RV203                 | 1-238-011-11 | RES, ADJ, CARBON      | 470    |    |      |
| RV204                 | 1-238-597-11 | RES, ADJ, CARBON      | 1K     |    |      |
| RV205                 | 1-238-600-11 | RES, ADJ, CARBON      | 10K    |    |      |
| RV206                 | 1-238-600-11 | RES, ADJ, CARBON      | 10K    |    |      |
| RV207                 | 1-238-600-11 | RES, ADJ, CARBON      | 10K    |    |      |
| RV208                 | 1-238-601-11 | RES, ADJ, CARBON      | 22K    |    |      |
| RV503                 | 1-241-231-11 | RES, ADJ, CARBON      | 100    |    |      |
| RV504                 | 1-241-231-11 | RES, ADJ, CARBON      | 100    |    |      |

| Ref.No.               | Part No.     | Description                        | Remark |    |      |
|-----------------------|--------------|------------------------------------|--------|----|------|
| < RELAY >             |              |                                    |        |    |      |
| RY502                 | 1-515-803-11 | RELAY                              |        |    |      |
| RY503                 | 1-515-614-11 | RELAY                              |        |    |      |
| < TRANSFORMER >       |              |                                    |        |    |      |
| T101                  | 1-433-361-11 | TRANSFORMER, BIAS OSCILLATION      |        |    |      |
| T201                  | 1-433-361-11 | TRANSFORMER, BIAS OSCILLATION      |        |    |      |
| < THERMISTOR >        |              |                                    |        |    |      |
| TH501                 | 1-202-855-00 | THERMISTOR, POSITIVE               |        |    |      |
| < TEST PIN >          |              |                                    |        |    |      |
| * TP1                 | 1-535-115-00 | TERMINAL                           |        |    |      |
| *****                 |              |                                    |        |    |      |
| *                     | 1-637-520-11 | REC EQ SW BOARD                    |        |    |      |
| *****                 |              |                                    |        |    |      |
| < CAPACITOR >         |              |                                    |        |    |      |
| C148                  | 1-106-347-00 | MYLAR                              | 1500PF | 5% | 200V |
| C149                  | 1-106-343-00 | MYLAR                              | 1000PF | 5% | 200V |
| C248                  | 1-106-347-00 | MYLAR                              | 1500PF | 5% | 200V |
| C249                  | 1-106-343-00 | MYLAR                              | 1000PF | 5% | 200V |
| < RESISTOR >          |              |                                    |        |    |      |
| R155                  | 1-247-721-11 | CARBON                             | 4.7K   | 5% | 1/4W |
| R156                  | 1-247-152-00 | CARBON                             | 8.2K   | 5% | 1/4W |
| R157                  | 1-247-725-11 | CARBON                             | 10K    | 5% | 1/4W |
| R158                  | 1-247-721-11 | CARBON                             | 4.7K   | 5% | 1/4W |
| R159                  | 1-259-500-11 | CARBON                             | 1M     | 5% | 1/6W |
| R160                  | 1-249-462-11 | CARBON                             | 22K    | 5% | 1/4W |
| R255                  | 1-247-721-11 | CARBON                             | 4.7K   | 5% | 1/4W |
| R256                  | 1-247-152-00 | CARBON                             | 8.2K   | 5% | 1/4W |
| R257                  | 1-247-725-11 | CARBON                             | 10K    | 5% | 1/4W |
| R258                  | 1-247-721-11 | CARBON                             | 4.7K   | 5% | 1/4W |
| R259                  | 1-259-500-11 | CARBON                             | 1M     | 5% | 1/6W |
| R260                  | 1-249-462-11 | CARBON                             | 22K    | 5% | 1/4W |
| R322                  | 1-259-500-11 | CARBON                             | 1M     | 5% | 1/6W |
| R422                  | 1-259-500-11 | CARBON                             | 1M     | 5% | 1/6W |
| < VARIABLE RESISTOR > |              |                                    |        |    |      |
| RV502                 | 1-238-840-11 | RES, VAR, CARBON 5K/5K (REC LEVEL) |        |    |      |
| < SWITCH >            |              |                                    |        |    |      |
| S501                  | 1-572-589-11 | SWITCH, ROTARY (REC EQ CAL)        |        |    |      |

## REC VOL

## RECT

## REEL MOTOR

## SYSCON

| Ref.No. | Part No.     | Description                          | Remark  |     |      |
|---------|--------------|--------------------------------------|---------|-----|------|
| *       | 1-637-519-11 | REC VOL BOARD                        | *****   |     |      |
|         |              | < RESISTOR >                         |         |     |      |
| R321    | 1-249-824-11 | CARBON                               | 8.2K    | 5%  | 1/2W |
| R421    | 1-249-824-11 | CARBON                               | 8.2K    | 5%  | 1/2W |
|         |              | < VARIABLE RESISTOR >                |         |     |      |
| RV501   | 1-241-336-11 | RES, VAR, CARBON 20K/20K (REC LEVEL) | *****   |     |      |
| *       | 1-637-512-11 | RECT. BOARD                          | *****   |     |      |
|         |              | < CAPACITOR >                        |         |     |      |
| C702    | 1-136-165-00 | FILM                                 | 0.1uF   | 5%  | 50V  |
| C703    | 1-136-177-00 | FILM                                 | 1uF     | 5%  | 50V  |
| C704    | 1-126-982-11 | ELECT                                | 5600uF  | 20% | 35V  |
| C705    | 1-126-982-11 | ELECT                                | 5600uF  | 20% | 35V  |
| C706    | 1-124-636-00 | ELECT                                | 3300uF  | 20% | 25V  |
| C707    | 1-124-120-11 | ELECT                                | 220uF   | 20% | 25V  |
| C708    | 1-124-479-11 | ELECT                                | 330uF   | 20% | 25V  |
| C709    | 1-124-911-11 | ELECT                                | 220uF   | 20% | 50V  |
| C710    | 1-124-767-00 | ELECT                                | 2.2uF   | 20% | 50V  |
| C711    | 1-162-294-31 | CERAMIC                              | 0.001uF | 10% | 50V  |
| C712    | 1-162-294-31 | CERAMIC                              | 0.001uF | 10% | 50V  |
|         |              | < CONNECTOR >                        |         |     |      |
| * CN703 | 1-564-104-00 | PIN, CONNECTOR (B3P-VH) 3P           |         |     |      |
| * CN704 | 1-564-506-11 | PLUG, CONNECTOR 3P                   |         |     |      |
| * CN705 | 1-564-506-11 | PLUG, CONNECTOR 3P                   |         |     |      |
|         |              | < DIODE >                            |         |     |      |
| D701    | 8-719-230-02 | DIODE 30DF2                          |         |     |      |
| D702    | 8-719-230-02 | DIODE 30DF2                          |         |     |      |
| D703    | 8-719-230-02 | DIODE 30DF2                          |         |     |      |
| D704    | 8-719-230-02 | DIODE 30DF2                          |         |     |      |
| D705    | 8-719-200-77 | DIODE 10E2N                          |         |     |      |
| D706    | 8-719-200-77 | DIODE 10E2N                          |         |     |      |
| D707    | 8-719-200-77 | DIODE 10E2N                          |         |     |      |
| D708    | 8-719-200-77 | DIODE 10E2N                          |         |     |      |
| D709    | 8-719-200-77 | DIODE 10E2N                          |         |     |      |
| D710    | 8-719-200-77 | DIODE 10E2N                          |         |     |      |
| D711    | 8-719-987-63 | DIODE 1N4148M                        |         |     |      |
| D712    | 8-719-987-63 | DIODE 1N4148M                        |         |     |      |
|         |              | < IC LINK >                          |         |     |      |
| △ PS701 | 1-532-685-00 | LINK, IC                             |         |     |      |

| Ref.No.  | Part No.     | Description                    | Remark |     |        |
|----------|--------------|--------------------------------|--------|-----|--------|
| △ PS702  | 1-532-685-00 | LINK, IC                       |        |     |        |
|          |              | < TRANSISTOR >                 |        |     |        |
| Q701     | 8-729-620-05 | TRANSISTOR 2SC2603-EF          |        |     |        |
|          |              | < RESISTOR >                   |        |     |        |
| R701     | 1-212-861-11 | FUSIBLE                        | 15     | 5%  | 1/4W F |
| R702     | 1-249-436-11 | CARBON                         | 39K    | 5%  | 1/4W   |
| R703     | 1-249-439-11 | CARBON                         | 68K    | 5%  | 1/4W   |
|          |              | *****                          |        |     |        |
| *        | 1-632-741-11 | REEL MOTOR BOARD               | *****  |     |        |
|          |              | < CAPACITOR >                  |        |     |        |
| C1051    | 1-124-907-11 | ELECT                          | 10uF   | 20% | 50V    |
| C1052    | 1-124-907-11 | ELECT                          | 10uF   | 20% | 50V    |
| C1053    | 1-164-159-11 | CERAMIC                        | 0.1uF  |     | 50V    |
|          |              | < CONNECTOR >                  |        |     |        |
| * CN1051 | 1-564-499-11 | PIN, CONNECTOR 6P              |        |     |        |
| * CN1052 | 1-564-718-11 | PIN, CONNECTOR (SMALL TYPE) 2P |        |     |        |
| * CN1053 | 1-564-718-11 | PIN, CONNECTOR (SMALL TYPE) 2P |        |     |        |
|          |              | < RESISTOR >                   |        |     |        |
| R1051    | 1-249-412-11 | CARBON                         | 390    | 5%  | 1/4W   |
|          |              | *****                          |        |     |        |
| *        | A-2006-650-A | SYSCON BOARD, COMPLETE         | *****  |     |        |
|          |              | < CAPACITOR >                  |        |     |        |
| C751     | 1-124-636-00 | ELECT                          | 3300uF | 20% | 25V    |
| C752     | 1-124-907-11 | ELECT                          | 10uF   | 20% | 50V    |
| C753     | 1-124-122-11 | ELECT                          | 100uF  | 20% | 50V    |
| C754     | 1-124-927-11 | ELECT                          | 4.7uF  | 20% | 100V   |
| C755     | 1-126-101-11 | ELECT                          | 100uF  | 20% | 16V    |
| C756     | 1-124-898-11 | ELECT                          | 4700uF | 20% | 16V    |
| C757     | 1-124-907-11 | ELECT                          | 10uF   | 20% | 50V    |
| C758     | 1-162-211-31 | CERAMIC                        | 33PF   | 5%  | 50V    |
| C759     | 1-124-472-11 | ELECT                          | 470uF  | 20% | 10V    |
| C760     | 1-124-903-11 | ELECT                          | 1uF    | 20% | 50V    |
| C761     | 1-124-471-00 | ELECT                          | 1000uF | 20% | 6.3V   |
| C762     | 1-124-903-11 | ELECT                          | 1uF    | 20% | 50V    |
| C763     | 1-124-903-11 | ELECT                          | 1uF    | 20% | 50V    |
| C764     | 1-124-443-00 | ELECT                          | 100uF  | 20% | 10V    |
| C765     | 1-124-907-11 | ELECT                          | 10uF   | 20% | 50V    |
| C766     | 1-124-122-11 | ELECT                          | 100uF  | 20% | 50V    |
| C767     | 1-124-443-00 | ELECT                          | 100uF  | 20% | 10V    |

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

## SYSCON

| Ref.No.        | Part No.     | Description     | Remark          | Ref.No.      | Part No.     | Description | Remark        |
|----------------|--------------|-----------------|-----------------|--------------|--------------|-------------|---------------|
| C801           | 1-164-159-11 | CERAMIC         | 0.1uF 50V       | Q804         | 8-729-620-05 | TRANSISTOR  | 2SC2603-EF    |
| C802           | 1-164-159-11 | CERAMIC         | 0.1uF 50V       | Q805         | 8-729-900-61 | TRANSISTOR  | DTA114ES      |
| C803           | 1-124-477-11 | ELECT           | 47uF 20% 25V    | Q806         | 8-729-900-61 | TRANSISTOR  | DTA114ES      |
| C804           | 1-124-907-11 | ELECT           | 10uF 20% 50V    | Q807         | 8-729-900-61 | TRANSISTOR  | DTA114ES      |
| C805           | 1-124-443-00 | ELECT           | 100uF 20% 10V   | Q808         | 8-729-900-61 | TRANSISTOR  | DTA114ES      |
| C806           | 1-162-294-31 | CERAMIC         | 0.001uF 10% 50V | Q809         | 8-729-900-65 | TRANSISTOR  | DTA144ES      |
| C807           | 1-162-294-31 | CERAMIC         | 0.001uF 10% 50V | Q810         | 8-729-900-65 | TRANSISTOR  | DTA144ES      |
| < CONNECTOR >  |              |                 |                 | Q811         | 8-729-900-65 | TRANSISTOR  | DTA144ES      |
| * CN751        | 1-564-511-11 | PLUG, CONNECTOR | 8P              | Q812         | 8-729-900-65 | TRANSISTOR  | DTA144ES      |
| * CN801        | 1-564-336-00 | PIN, CONNECTOR  | 2P              | Q813         | 8-729-900-65 | TRANSISTOR  | DTA144ES      |
| * CN802        | 1-564-341-11 | PIN, CONNECTOR  | 7P              | Q814         | 8-729-900-65 | TRANSISTOR  | DTA144ES      |
| * CN803        | 1-506-503-71 | PIN, CONNECTOR  | 9P              | Q815         | 8-729-900-61 | TRANSISTOR  | DTA114ES      |
| * CN804        | 1-506-503-11 | PIN, CONNECTOR  | 9P              | Q816         | 8-729-900-61 | TRANSISTOR  | DTA114ES      |
| * CN805        | 1-564-339-00 | PIN, CONNECTOR  | 5P              | < RESISTOR > |              |             |               |
| * CN806        | 1-564-666-11 | PIN, CONNECTOR  | 10P             | R751         | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W  |
| * CN807        | 1-564-342-61 | PIN, CONNECTOR  | 8P              | R752         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |
| * CN809        | 1-506-503-11 | PIN, CONNECTOR  | 9P              | R753         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| < DIODE >      |              |                 |                 | R754         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| D751           | 8-719-200-77 | DIODE           | 10E2N           | R755         | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W  |
| D752           | 8-719-910-25 | DIODE           | HZ12B2L         | R756         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |
| D753           | 8-719-933-39 | DIODE           | HZS6C1L         | R757         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| D754           | 8-719-933-41 | DIODE           | HZS6C3L         | R758         | 1-249-422-11 | CARBON      | 2.7K 5% 1/4W  |
| D755           | 8-719-933-39 | DIODE           | HZS6C1L         | R759         | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W  |
| D756           | 8-719-002-33 | DIODE           | UZL-24L         | R760         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |
| D757           | 8-719-200-77 | DIODE           | 10E2N           | R761         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| D758           | 8-719-933-39 | DIODE           | HZS6C1L         | R762         | 1-249-421-11 | CARBON      | 2.2K 5% 1/4W  |
| D801           | 8-719-987-63 | DIODE           | 1N4148M         | R763         | 1-249-441-11 | CARBON      | 100K 5% 1/4W  |
| D802           | 8-719-987-63 | DIODE           | 1N4148M         | R764         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |
| < IC >         |              |                 |                 | R765         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| IC801          | 8-759-635-69 | IC              | M50964-226SP    | R766         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| IC802          | 8-759-973-95 | IC              | BA6219B         | R767         | 1-249-429-11 | CARBON      | 10K 5% 1/4W   |
| IC803          | 8-759-822-09 | IC              | LB1641          | R768         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| < TRANSISTOR > |              |                 |                 | R769         | 1-249-437-11 | CARBON      | 47K 5% 1/4W   |
| Q751           | 8-729-141-83 | TRANSISTOR      | 2SB1094-LK      | R770         | 1-249-433-11 | CARBON      | 22K 5% 1/4W   |
| Q752           | 8-729-141-83 | TRANSISTOR      | 2SB1094-LK      | R771         | 1-249-395-11 | CARBON      | 15 5% 1/4W    |
| Q753           | 8-729-209-15 | TRANSISTOR      | 2SD2012         | R772         | 1-249-395-11 | CARBON      | 15 5% 1/4W    |
| Q754           | 8-729-119-76 | TRANSISTOR      | 2SA1175-HFE     | ⚠ R773       | 1-219-136-11 | FUSIBLE     | 0.22 10% 1/4W |
| Q755           | 8-729-140-04 | TRANSISTOR      | 2SB1116A-L      | ⚠ R774       | 1-219-136-11 | FUSIBLE     | 0.22 10% 1/4W |
| Q756           | 8-729-620-05 | TRANSISTOR      | 2SC2603-EF      | ⚠ R775       | 1-219-136-11 | FUSIBLE     | 0.22 10% 1/4W |
| Q757           | 8-729-620-05 | TRANSISTOR      | 2SC2603-EF      | R776         | 1-249-413-11 | CARBON      | 470 5% 1/4W   |
| Q758           | 8-729-620-05 | TRANSISTOR      | 2SC2603-EF      | ⚠ R801       | 1-249-482-11 | CARBON      | 4.7 5% 1/2W F |
| Q759           | 8-729-620-05 | TRANSISTOR      | 2SC2603-EF      | R802         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |
| Q801           | 8-729-119-76 | TRANSISTOR      | 2SA1175-HFE     | R803         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |
| Q802           | 8-729-119-76 | TRANSISTOR      | 2SA1175-HFE     | R804         | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W  |
| Q803           | 8-729-620-05 | TRANSISTOR      | 2SC2603-EF      | R805         | 1-247-856-00 | CARBON      | 11K 5% 1/4W   |
|                |              |                 |                 | R806         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |
|                |              |                 |                 | ⚠ R807       | 1-249-482-11 | CARBON      | 4.7 5% 1/2W F |
|                |              |                 |                 | R808         | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W  |

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.  
Replace only with part number specified.

**SYSCON****TIMER SW****VS**

| Ref.No. | Part No.     | Description | Remark       | Ref.No.               | Part No.            | Description                          | Remark       |
|---------|--------------|-------------|--------------|-----------------------|---------------------|--------------------------------------|--------------|
| R809    | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | R858                  | 1-249-405-11        | CARBON                               | 100 5% 1/4W  |
| R810    | 1-249-426-11 | CARBON      | 5.6K 5% 1/4W | R859                  | 1-249-405-11        | CARBON                               | 100 5% 1/4W  |
| R811    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R860                  | 1-249-405-11        | CARBON                               | 100 5% 1/4W  |
| R812    | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | R861                  | 1-249-429-11        | CARBON                               | 10K 5% 1/4W  |
| R813    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R862                  | 1-249-429-11        | CARBON                               | 10K 5% 1/4W  |
| R814    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R863                  | 1-249-441-11        | CARBON                               | 100K 5% 1/4W |
| R815    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R864                  | 1-249-441-11        | CARBON                               | 100K 5% 1/4W |
| R816    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R865                  | 1-249-441-11        | CARBON                               | 100K 5% 1/4W |
| R817    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R866                  | 1-249-441-11        | CARBON                               | 100K 5% 1/4W |
| R818    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R867                  | 1-249-441-11        | CARBON                               | 100K 5% 1/4W |
| R819    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | R868                  | 1-249-441-11        | CARBON                               | 100K 5% 1/4W |
| R820    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | < VARIABLE RESISTOR > |                     |                                      |              |
| R821    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | RV801                 | 1-238-598-11        | RES, ADJ, CARBON 2.2K                |              |
| R822    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | < TEST PIN >          |                     |                                      |              |
| R823    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | * TP801               | 1-564-337-00        | PIN, CONNECTOR 3P (TEST POINT)       |              |
| R824    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | < VIBRATOR >          |                     |                                      |              |
| R825    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | X801                  | 1-577-358-21        | VIBRATOR, CERAMIC (4MHz)             |              |
| R826    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | *****                 |                     |                                      |              |
| R827    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | * 1-637-518-11        | TIMER SW BOARD      |                                      |              |
| R828    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | *****                 |                     |                                      |              |
| R829    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | < RESISTOR >          |                     |                                      |              |
| R830    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | R895                  | 1-249-424-11        | CARBON 3.9K 5% 1/4W                  |              |
| R831    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | < SWITCH >            |                     |                                      |              |
| R832    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | S894                  | 1-570-903-11        | SWITCH, SLIDE (TIMER)                |              |
| R833    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | *****                 |                     |                                      |              |
| R834    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | * 1-637-513-11        | VS. BOARD (K333ESA) |                                      |              |
| R835    | 1-249-425-11 | CARBON      | 4.7K 5% 1/4W | *****                 |                     |                                      |              |
| R836    | 1-249-417-11 | CARBON      | 1K 5% 1/4W   | < CONNECTOR >         |                     |                                      |              |
| R837    | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | * CN707               | 1-580-618-11        | PIN, CONNECTOR 5P (K333ESA)          |              |
| R838    | 1-249-435-11 | CARBON      | 33K 5% 1/4W  | < SWITCH >            |                     |                                      |              |
| R839    | 1-247-903-00 | CARBON      | 1M 5% 1/4W   | △ S702                | 1-572-009-11        | SELECTOR, VOLTAGE (VOLTAGE SELECTOR) |              |
| R840    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | (K333ESA)             |                     |                                      |              |
| R841    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | *****                 |                     |                                      |              |
| R842    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | MISCELLANEOUS         |                     |                                      |              |
| R843    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | *****                 |                     |                                      |              |
| R844    | 1-249-405-11 | CARBON      | 100 5% 1/4W  | * 104                 | 1-533-213-31        | HOLDER, FUSE                         |              |
| R845    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | △ 112                 | 1-559-297-31        | CORD, POWER (K333ESA)                |              |
| R846    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  | △ 112                 | 1-574-383-11        | CORD, POWER (K990ES)                 |              |
| R847    | 1-249-427-11 | CARBON      | 6.8K 5% 1/4W |                       |                     |                                      |              |
| R848    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |                       |                     |                                      |              |
| R849    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |                       |                     |                                      |              |
| R850    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |                       |                     |                                      |              |
| R851    | 1-249-429-11 | CARBON      | 10K 5% 1/4W  |                       |                     |                                      |              |
| R852    | 1-249-413-11 | CARBON      | 470 5% 1/4W  |                       |                     |                                      |              |
| R853    | 1-249-412-11 | CARBON      | 390 5% 1/4W  |                       |                     |                                      |              |
| R854    | 1-249-410-11 | CARBON      | 270 5% 1/4W  |                       |                     |                                      |              |
| R855    | 1-249-436-11 | CARBON      | 39K 5% 1/4W  |                       |                     |                                      |              |
| R856    | 1-249-436-11 | CARBON      | 39K 5% 1/4W  |                       |                     |                                      |              |
| R857    | 1-249-405-11 | CARBON      | 100 5% 1/4W  |                       |                     |                                      |              |

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.

| Ref.No. | Part No.     | Description                      | Remark |
|---------|--------------|----------------------------------|--------|
| △ 119   | 1-569-007-11 | ADAPTER, CONVERSION 2P (K333ESA) |        |
| * 196   | 1-608-268-00 | PC BOARD, ERASE HEAD             |        |
| 257     | 1-632-779-11 | PC BOARD, FG                     |        |
| △ F701  | 1-532-286-00 | FUSE, TIME-LAG (2.5A)            |        |
| △ F702  | 1-532-286-00 | FUSE, TIME-LAG (2.5A)            |        |
| HE501   | 1-543-836-11 | HEAD, MAGNETIC (ERASE)           |        |
| HRP501  | 1-543-684-21 | HEAD, MAGNETIC (REC/PB)          |        |
| △ T701  | 1-450-451-11 | TRANSFORMER, POWER (K990ES)      |        |
| △ T701  | 1-450-453-11 | TRANSFORMER, POWER (K333ESA)     |        |
| M1001   | X-3356-638-1 | MOTOR (REEL R) ASSY              |        |
| M1002   | X-3356-604-1 | MOTOR (ASSIST) ASSY              |        |

\*\*\*\*\*

## ACCESSORIES & PACKING MATERIALS

\*\*\*\*\*

|   |              |                                                                                    |
|---|--------------|------------------------------------------------------------------------------------|
|   | 1-465-314-11 | REMOTE COMMANDER (RM-J701) (K333ESA)                                               |
|   | 1-558-271-11 | CORD, CONNECTION                                                                   |
|   | 1-558-271-11 | CORD, CONNECTION                                                                   |
|   | 2-181-754-01 | COVER, BATTERY (RM-J701) (K333ESA)                                                 |
| * | 3-350-465-01 | CUSHION                                                                            |
| * | 3-376-444-01 | INDIVIDUAL CARTON (K990ES)                                                         |
| * | 3-376-445-01 | INDIVIDUAL CARTON (K333ESA)                                                        |
|   | 3-754-180-11 | MANUAL, INSTRUCTION (K333ESA/K990ES:AEP)<br>(ENGLISH, FRENCH, SPANISH, PORTUGUESE) |
|   | 3-754-180-41 | MANUAL, INSTRUCTION (K990ES)<br>(GERMAN, DUTCH, SWEDISH, ITALIAN)                  |
|   | 3-793-481-13 | INSTRUCTION                                                                        |
|   | 4-847-802-00 | SCREW                                                                              |

\*\*\*\*\*

\*\*\*\*\*

## HARDWARE LIST

\*\*\*\*\*

|     |              |                 |                |
|-----|--------------|-----------------|----------------|
| #1  | 7-682-547-04 | SCREW +BVTT     | 3X6 (S)        |
| #2  | 7-682-562-09 | SCREW +BVTT     | 4X10 (S)       |
| #3  | 7-682-548-04 | SCREW, TIGHT, S |                |
| #4  | 7-685-870-01 | SCREW +BVTT     | 3X5 (S)        |
| #5  | 7-682-547-09 | SCREW +BV       | 3X6, S TIGHT   |
| #6  | 7-685-645-79 | SCREW +BVTP     | 3X6 TYPE2 SLIT |
| #7  | 7-682-549-04 | SCREW +BVTT     | 3X10 (S)       |
| #8  | 7-682-147-15 | SCREW, TR       |                |
| #9  | 7-685-647-79 | SCREW +BVTP     | 3X10 TYPE2 N-S |
| #10 | 7-682-560-04 | SCREW +BVTT     | 4X6 (S)        |

| Ref.No. | Part No.     | Description   | Remark          |
|---------|--------------|---------------|-----------------|
| #11     | 7-621-772-10 | SCREW +B      | 2X4             |
| #12     | 7-621-772-70 | SCREW +B      | 2X14            |
| #13     | 7-621-775-10 | SCREW +B      | 2.6X4           |
| #14     | 7-622-205-05 | NUT M2        | TYPE2           |
| #15     | 7-628-253-00 | SCREW +PS     | 2X4             |
| #16     | 7-628-254-10 | SCREW +PS     | 2.6X6           |
| #17     | 7-671-154-01 | STENLESS BALL |                 |
| #18     | 7-682-648-09 | SCREW +PS     | 3X8             |
| #19     | 7-685-133-19 | SCREW +BTP    | 2.6X6 TYPE2 N-S |
| #20     | 7-621-255-20 | SCREW +BVTT   | 2X4 (S)         |
| #21     | 7-621-255-35 | SCREW +BVTT   | 2X5 (S)         |
| #22     | 7-685-646-79 | SCREW +BVTP   | 3X8 TYPE2 IT-3  |

Note : The components identified by mark △ or dotted line with mark △ are critical for safety.  
Replace only with part number specified.