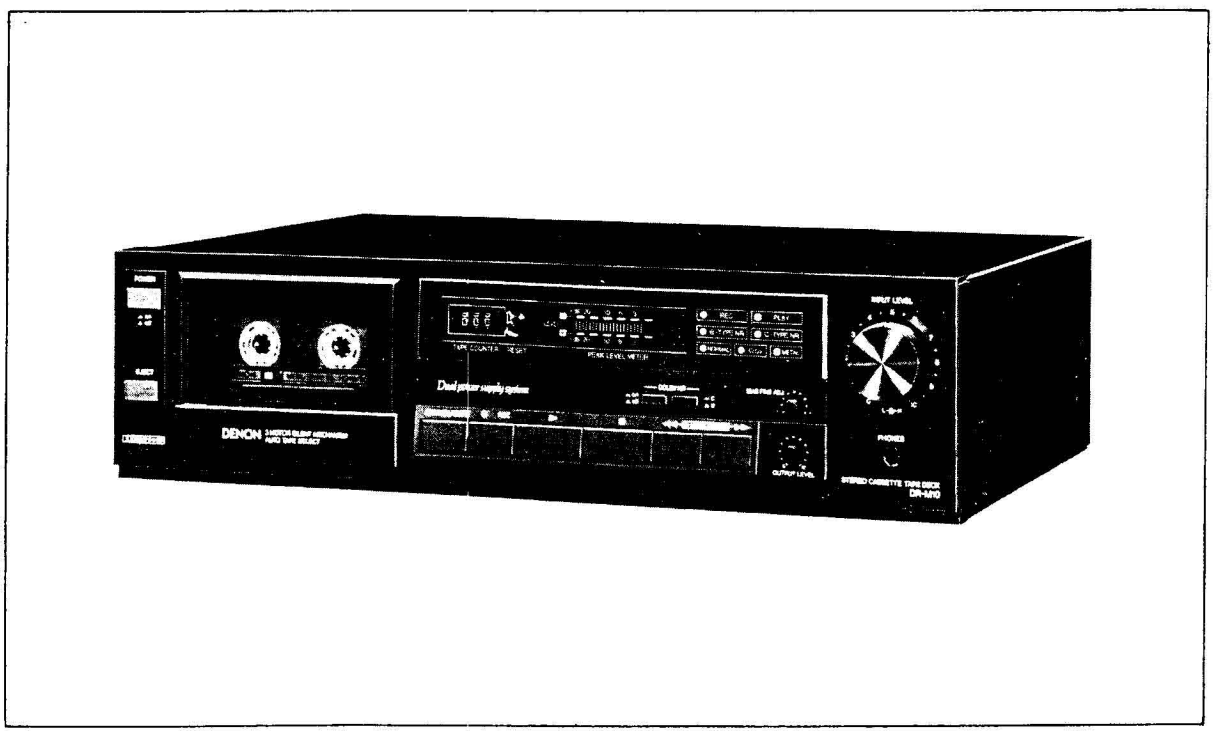
DENON

Hi-Fi Component

# SERVICE MANUAL

## STEREO CASSETTE TAPE DECK

## MODEL DR-M10



NIPPON COLUMBIA CO., LTD.

## TABLE OF CONTENTS



## FEATURES

- Computer-controlled servo technology
  - Silent, soft-touch controls provide maximum ease-of-use.
  - Computer-controlled, full-logic tape controls enable fool-proof operation.
- Music Search system
- Tape counter
- Dolby-C noise reduction systems.
- Extended range, dual-color peak meters.
- Auto tape selector.
- Bias fine adjustment.

## SPECIFICATIONS

| | |
|---|---|
| ●Type | Vertical tape loading 4-track 2-channel stereo cassette tape deck |
| ●Heads | SF Record/Playback head x 1<br>Erase head (Ferrite) x 1 |
| ●Motors | Electronic servo DC motor (for capstan) x 1<br>DC motor (for reel winding) x 1<br>DC motor (for mechanism driving) x 1 |
| ●Tape speed | 4.8 cm/sec. |
| ●Fast forward, rewind time | Approx. 100 sec. with a C-60 cassette |
| ●Recording bias | Approx. 105 kHz |
| ●Overall S/N ratio (at 3% THD level) | Dolby C NR on ... over than 70 dB (CCIR/ARM) |
| ●Overall frequency response | 35~17,000 Hz (at –20 dB METAL tape) |
| ●Channel separation | More than 40 dB (at 1 kHz) |
| ●Crosstalk | More than 65 dB (at 1 kHz) |
| ●Wow & flutter | 0.05% wrms (JIS method) |
| ●Inputs | |
| Line | 77.5m V (–20 dB) input level at maximum<br>Input impedance: 50 kohm unbalanced |
| ●Outputs | |
| Line | 775mV (0 dB) output level at maximum (with 47 kohm load, recorded level of 200 pwb/mm) |
| Headphone | 1.2 mW output level at maximum (optimum load impedance 8 ohm~1.2 kohm) |
| ●Accessories | Parallel pin cord x 2 |
| ●Power supply | 50 Hz/60 Hz compatible, voltage is shown on rating label |
| ●Power consumption | 18W |
| ●Dimensions | 434 (W) x 115 (H) x 286 (D) mm |
| ●Weight | 5 kg |

■Above specifications and design styling are subject to change for improvement.

■Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

## WARNING:

### 1. Component parts

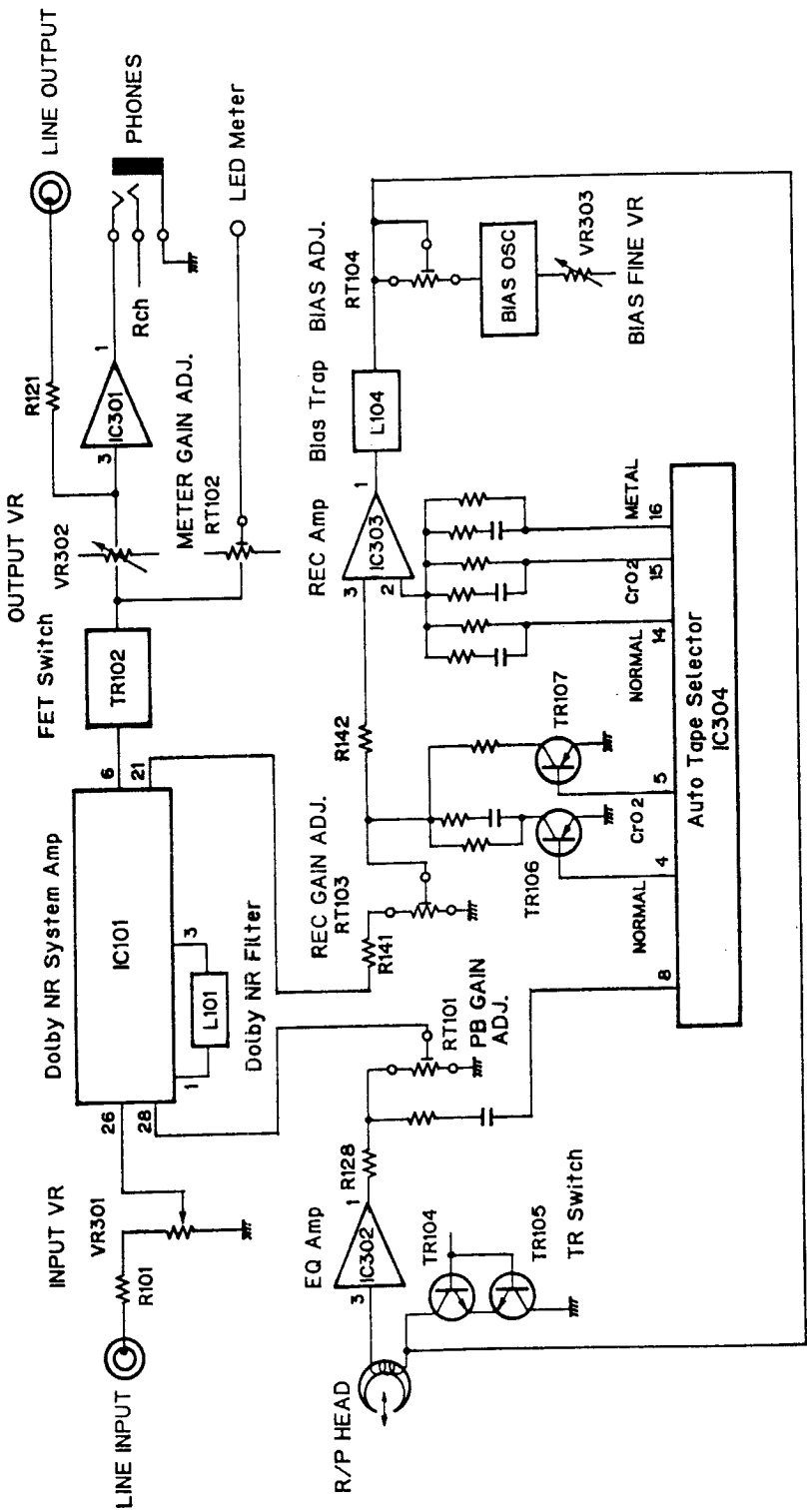
Parts marked with ⚠ and/or shading in this service manual have special characteristics important to safety. Besure to use the specified parts for replacement.

### 2. Leakage current

Before returning the appliance to customer, test the leakage current when the power plug is connected. Use a calibrated (with an error of not more than 5%) leakage current tester and measure the leakage current from any exposed metal to the earth ground. Reverse the power plug polarity and test the above again.

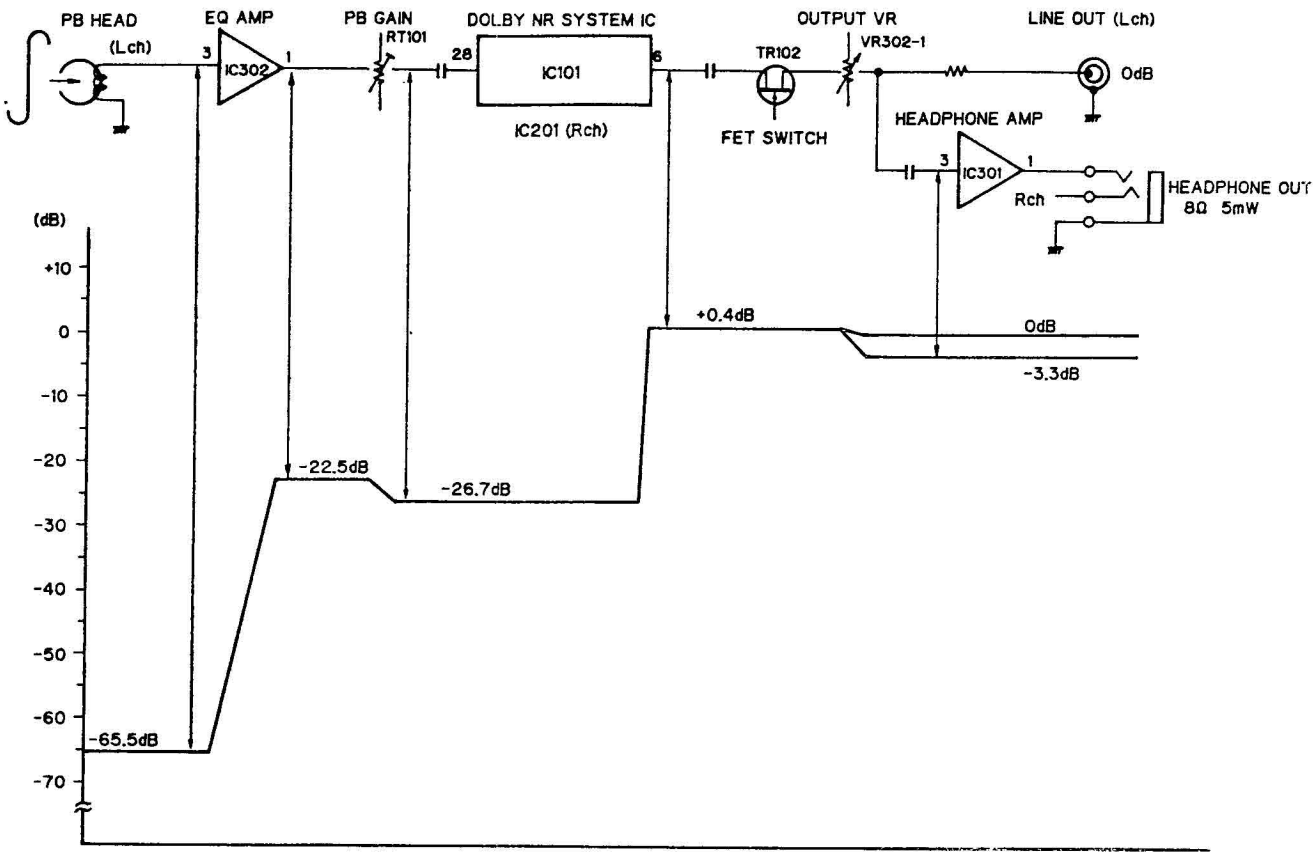
Any current measured MUST NOT EXCEED 0.5 milliamps. Corrective measure must be taken if it exceeds the limit.

## BLOCK DIAGRAM



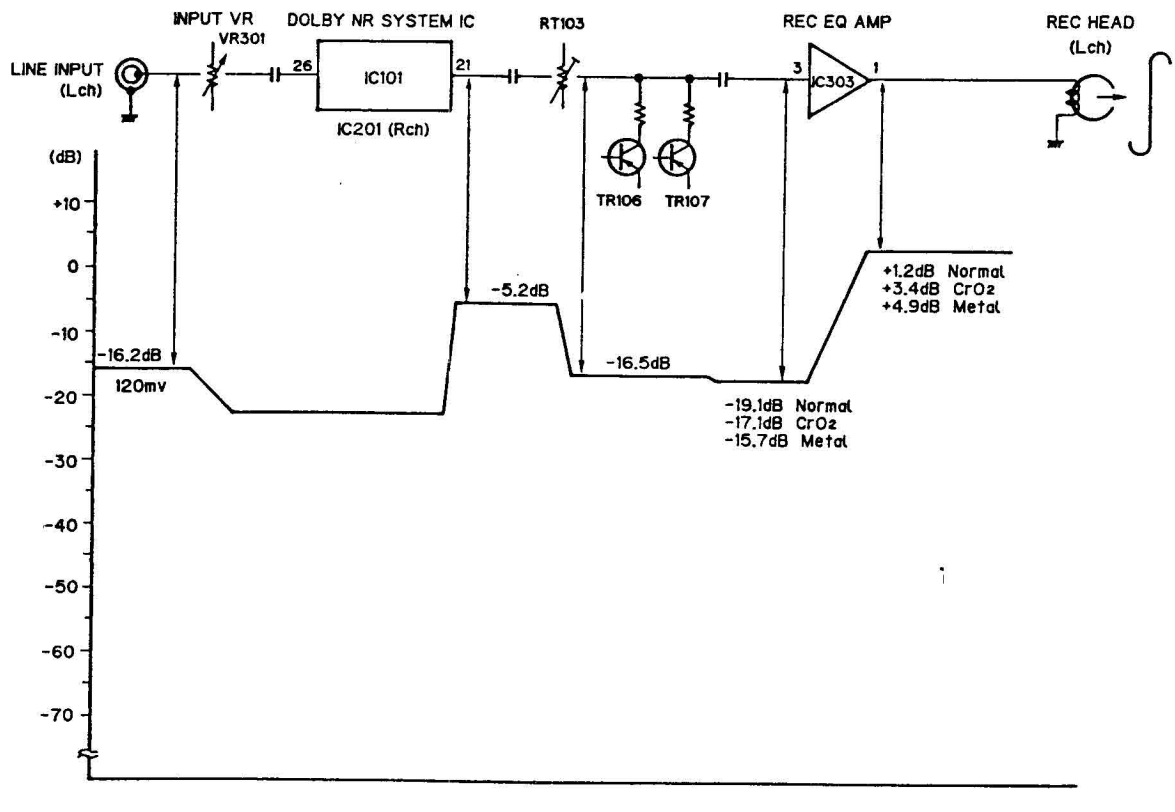
## LEVEL DIAGRAM

### PLAYBACK SYSTEM



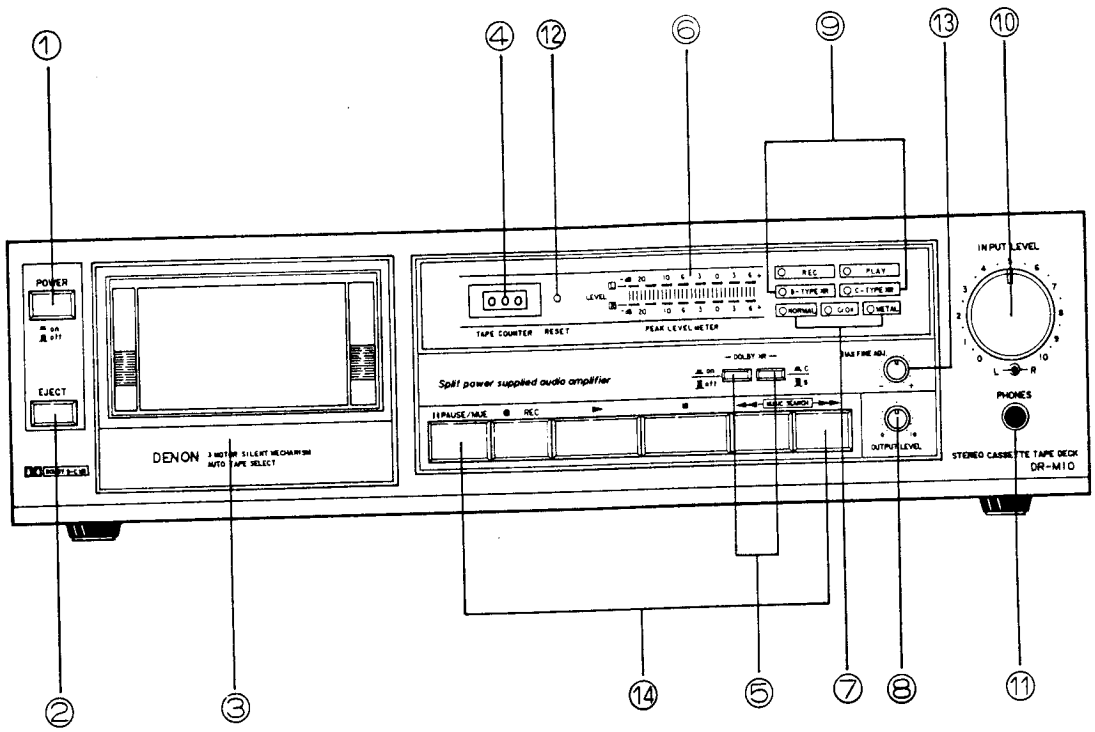

0dB : 0.775V
400Hz 200nwb/m

### RECORDING SYSTEM




0dB : 0.775V

## PART NAMES AND FUNCTIONS




### 1. POWER switch

Controls the supply of AC power to the deck. One push turns the deck on, a second push turns it off. The deck remains in a stand-by (non-operative) mode for approximately 4 seconds after it is switched on.

### 2. EJECT button

Press this button to eject the cassette. When the deck is operating (tape is running), press the stop ( ■ ) key first to stop the tape transport; then press the EJECT button.

### 3. CASSETTE COMPARTMENT COVER

If this compartment cover is not closed completely, the deck's transport controls will remain inoperative.

### 4. TAPE COUNTER

The number in the counter indicates the amount of tape wound up.

### 5. DOLBY NR switches

The left Dolby NR switch activates (in) or deactivates (out) the deck's Dolby noise reduction circuitry. The right switch selects between Dolby B-Type (out) or C-Type NR (in.)

### 6. PEAK METERS

These meters indicate recording or playback peak levels for each channel.

### 7. TAPE SELECT indicator

This indicator light is interlocked with the Auto Tape Select feature which automatically adjusts the deck to the type of tape in use. (NORMAL, $CrO_2$, or METAL).

### 8. OUTPUT LEVEL control

This control adjusts playback, recording monitor, and headphones output levels for the both channels simultaneously.

### 9. NR SYSTEM indicator

This indicator light is interlocked with the Dolby NR switch and informs the user that Dolby NR is in use as well as which (B or C) Type.

### 10. INPUT LEVEL controls

These controls are used to adjust recording levels for each channel. The front control is for the left channel; the rear control for the right channel.

### 11. PHONES jack;

For private music enjoyment without disturbing others, or for monitoring a recording, a set of headphones may be plugged in. Impedance should be from 8 to 1200 ohms.

### 12. RESET button

Operation of the button resets the counter to all zero.

### 13. Bias Fine ADJ. control (for NORMAL and $CrO_2$ tape)

Adjust the bias according to the tape characteristics. Standard biasing is obtained at the center click-stop position.

### 14. Tape transport controls

| | | |
|---|---|---|
| ▶ | ▶ PLAY KEY | Press to playback tape. |
| ■ | ■ STOP KEY | Press to stop tape in any mode. |
| ◀◀ | ◀◀ REW KEY | Press for fast rewind. |
| ▶▶ | ▶▶ FF KEY | Press for fast forward tape winding. |
| ● REC | ● RECORD KEY | To begin recording, press the RECORD and PLAY keys simultaneously. If only the RECORD key is pressed, the deck is placed in the REC PAUSE (record standby) mode. |
| ❙❙ PAUSE MUTE | ❙❙ PAUSE/MUTE KEY | The PAUSE key causes the tape to stop momentarily during recording or to mute the recording input to create blank (non-recorded) portions on the tape. |

## DISASSEMBLY INSTRUCTIONS

### 1. How to Remove the Front Panel

(1) Unscrew the 4 screws (110) from both sides of the top cover (36) and take off the top cover by pulling it up.

(2) Press the eject knob (16), open the cassette window (35) and take off, as shown in the diagram.

**Note:** Be careful when handling the cassette window, as it is easily scratched.

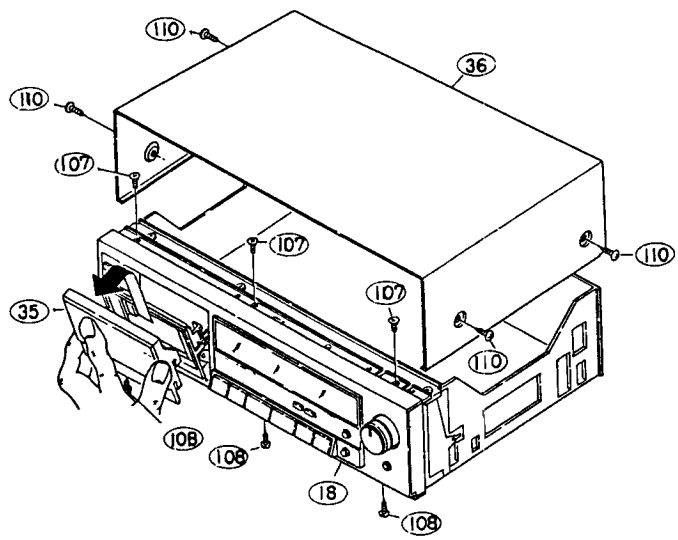
(3) Remove the connector (5P) with lead wires, which runs from the control circuit Board (3–5) to the mechanism circuit board, from the mechanism circuit board.

(4) Remove the counter belt (28).

(5) Unscrew the 3 upper screws (3x8 CFTS S tight) (107) from the front panel (18) and the 3 lower screws (3x8 CBTS P tight) (108).

(6) By pulling out the Front Panel forward and spreading out the 2 hooks holding the upper side of the Meter Circuit Board (3–4), The Meter Circuit Board can be removed and you can take out the Front Panel forward.

**Note:** When assembling, do so while checking to make sure the Button shaft (22) are matched perfectly with the extreme point of the push switch lever (27).




### 2. How to Remove the Mechanisms

(1) Remove the top cover (36) and the front panel (18). (Refer to section 1)

(2) Unscrew the 2 mechanism holding screws (3x8 CBTS S tight) (109) from the bottom surface of the chassis (1)

(3) Unscrew the 2 screws (3x6 CBTS S tight) (102) holding the angle (8) and the mechanism and the 3 screws (3x8 CBTS P tight) (101) and remove the angle.

(4) Remove the screw (3x8 CBTS P tight) (101). Holding the mechanism unit (5) to the chassis (1) from top.

(5) Remove the connectors with lead wires, which runs from the mechanism circuit board, from the circuit board. Audio circuit board side

3P connector CN302 CN303
6P connector CN301
Mechanism circuit board side
4P connector CN2
7P connector CN3

**Note:** When assembling, check to make sure the connectors are inserted correctly.

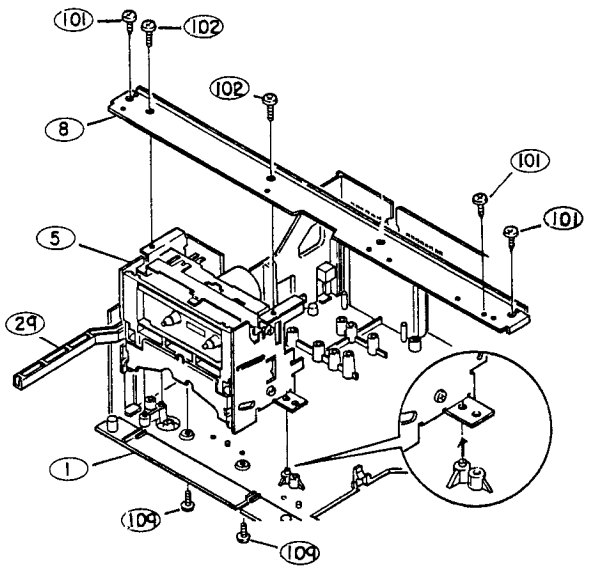
(6) Pull out the power switch lever (29) from the power switch (39).

(7) Remove the eject knob (16).

(8) The mechanism can be removed by holding the mechanism and pulling up.

**Note:** When assembling, do so after the following checking.

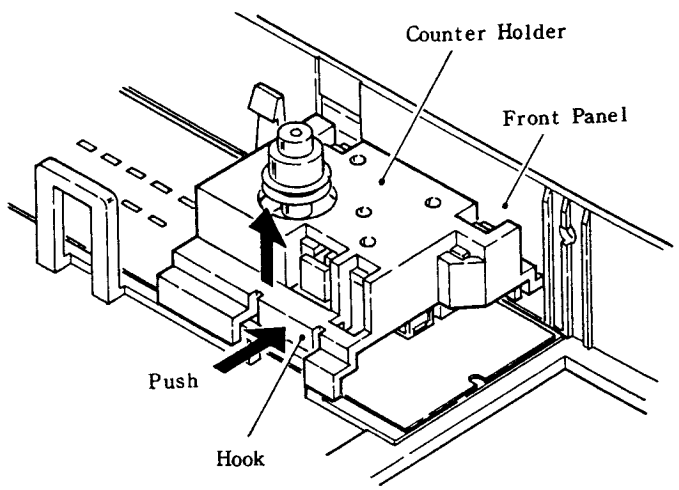
1. The 2 stay holes on the lower side of the mechanism unit are matched with the chassis protrusions.
2. The chassis guide hole are matched with the protrusion on the lower side of a stay.
3. The Head wire is not placed between mechanism unit and the chassis.



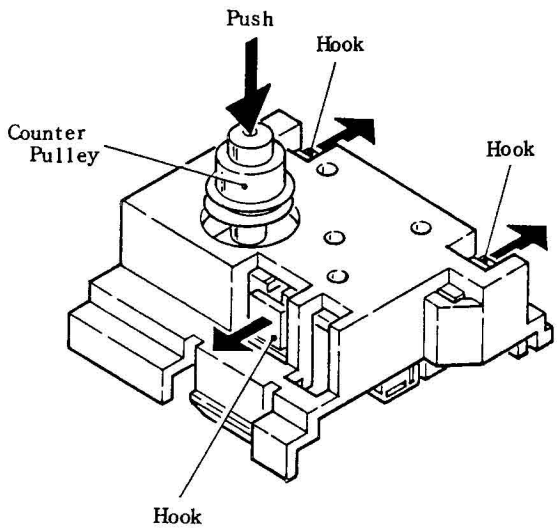

### 3. Removal of Counter

(1) Remove Top Cover (36) and Front Panel (18). (Refer to Section 1)

(2) Counter Holder (25) is fixed to the Front panel (18) by 2 hooks. By spreading out the hook on the lower side of this Counter Holder (25), you can take out the counter (26) in the built-in condition.



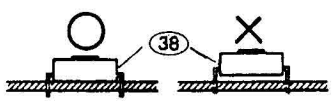
(3) Counter (26) is fixed to the Counter Holder (25) by 3 hooks.
By spreading out the 3 hooks of the Counter Holder while pushing the pulley on the bottom side of the Counter, you can take out the Counter.




## 4. How to Remove the Control Circuit Board

(1) Remove the top cover (36) and the front panel (18). (Refer to Section 1)
(2) By unscrewing 4 screw (2.6x8 CBTS P tight) (106) holding the control circuit board (3–5) and loosening the 2 screws (3x8 CBTS P tight) (101), the control circuit board and control button (19) can be removed.

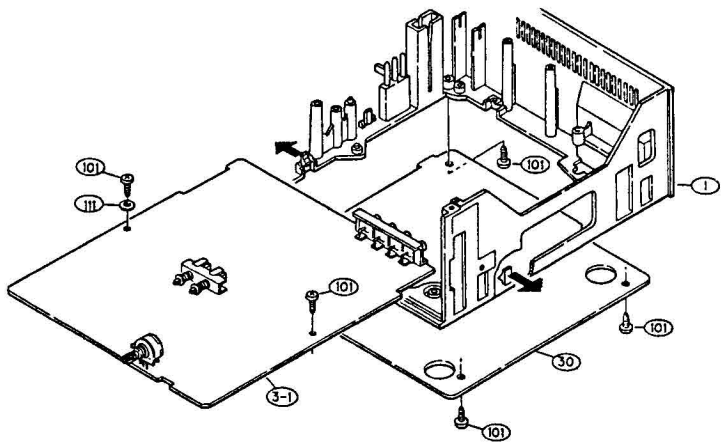
**Note:** 1) When replacing the tact switch (38), always check to make sure that it is not floating above the circuit board. If it is floating, the switch will be in the on condition when the set is assembled.
2) Please check to make sure that the tact switch is operating correctly after assembled.




## 5. How to Remove the Audio Circuit Board

(1) Remove the top cover (36) and the front panel (18). (Refer to section 1)
(2) Pull out the volume knob (A) (32), the volume knob (B) (33), and the 2 volume knobs (C) (34).
(3) Unscrew the nutsholding the input volume (3–2), the output volume (4), and the bias volume (3–6) and remove the metal fittings holding the headphone jack (3–3).
(4) By removing the 2 screws (3x6 CBS S tight) (102) holding the angle (8) and the 3 screws (3x8 CBTS P tight) (101), the angle and the volume holder (4) can be removed.
(5) Remove the various connectors from the Audio Circuit Board and the Logic Circuit Board.
(6) By removing the 2 screws (3x8 CBTS, P tight) holding the Audio Circuit Board (3–1) and washer (111) and spreading out the 2 hooks (located at right, left) on the chassis holding the audio circuit board to the direction arrow shows, the audio circuit board can be removed forward.

**Note:** Most repairs to the audio circuit board can be performed by removing the bottom cover on the chassis. Refer to the above procedure only when necessary.




## 6. How to Remove the Power Switch Circuit Board

(1) Remove the top cover (36): (Refer to section 1)
(2) Pull the power switch lever (29) out of the power switch (39).
(3) By unscrewing the 1 screw (3x8 CBTS P tight) (101) holding the bracket (15) of the power switch circuit board (3–7) the power switch circuit board can be removed upwards.

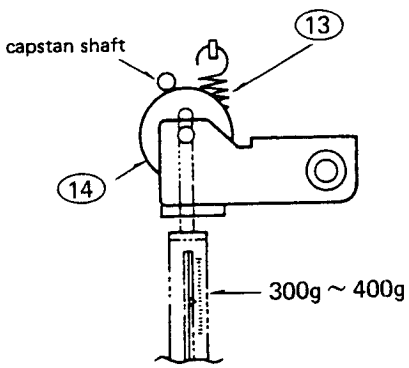
## ADJUSTING AND CHECKING THE MECHANISM SECTION

### 1. Replacing the Pinch Roller (14)

Before replacing the pinch roller, clean the tape contact surface of the pinch roller and the capstan shaft.
Most causes of poor tape transport can be traced to dirty pinch rollers and capstan shafts.
The pinch roller (14) can be removed by removing the spring (13) and the slit washer (106).
After replacing, run a padless C-90 tape to check for tape curls at the tape guide section of the head.

### 2. Checking the Pressure Force of the Pinch Roller

In the playback mode, hook a spring weight onto the bracket at the center of the pinch roller. After separating the pinch roller from the capstan shaft, allow the pinch roller to contact the capstan shaft again. Check to make sure the spring weight reads between 300 ~ 400g when the pinch roller starts to rotate. If it is not within the normal range, replace the pinch roller spring (13).

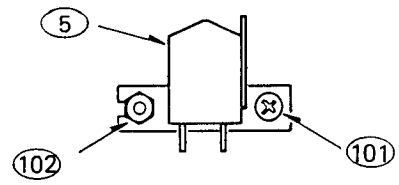


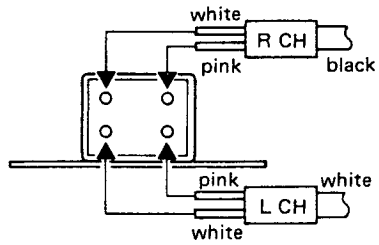

### 3. Replacing the Record/Playback Head

(1) How to remove the R/P HEAD.
  1) Remove securing screw (101) and azimuth adjusting nut (102) from the record/playback head.
  2) Remove the soldered head wire and disassemble the mechanical unit to remove the record/playback head.

(2) How to assemble the R/P HEAD.
  Reverse the above (1) procedures for removing the R/P HEAD.

*Solder the HEAD WIRES according to the diagrm.



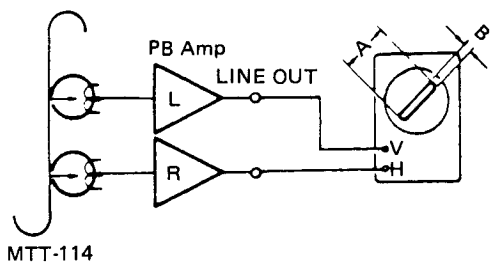



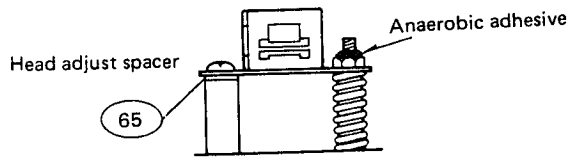

### 4. Adjusting the R/P HEAD

Azimuth adjustments
Play back the TEAC MTT-114 test tape. Turn the azimuth adjustment nut and adjust so that A of the resurge wave from is maximum and B is minimum.

* After the adjustments, apply anaerobic adhesive on the positions indicated in the diagram.

**Note:** Only the azimuth adjustment is necessary; no height adjustments are required.




**Note:** Be sure to mount the head adjust spacer.

### 5. Replacing the ERASE HEAD (6)

(1) Unscrew the erase head holding screws (103).
(2) By unsoldering the HEAD WIRES can be taken off the mechanism unit.

## 6. Checking for Axis Direction Movements of the Capstan Shaft

Hold the capstan shaft from the front of the mechanism and move it in the axis direction; check to make sure some movement exists.

## 7. Checking the Take-up Torque

Load the cassette type torque meter. Check to make sure that the torque meter average reading is within 35 ~75 g-cm during playback. If it is not within this range, check the voltage (2.5 ~ 3V) of the reel motor. If the voltage is low, the torque will be weak; if it is high, the torque will be strong. In addition, check for reel thrust movement in section 8.

## 8. Adjusting the Reel Thrust Movement

Check to make sure that the reel thrust movement is within 0.2 ~ 0.4 mm.

## 9. Checking the FF and REW Torques

* When using the cassette type torque meter.
Check to make sure the torque meter indicates more than 70 g-cm at the end of FF and REW.

* When using a modified cassette half.
Load the modified cassette half; hook the end of the dial tension meter (full scale 100–300 g) onto the triangle section. In the FF (REW) mode, feed the tape in at a rate somewhat slower than the take up speed. Check to make sure the dial tension meter reads more than 60 g-cm.

## 10. Checking the Back Tension Torque During Record/Playback

Load the cassette type torque meter; check to make sure the torque meter reads between 2~5 g-cm during playback and that there is no unevanness.
If it is not within this range, check the section on adjusting the reel thrust movement; or else replace the spring (15).

## 11. Checking the FF and REW Times

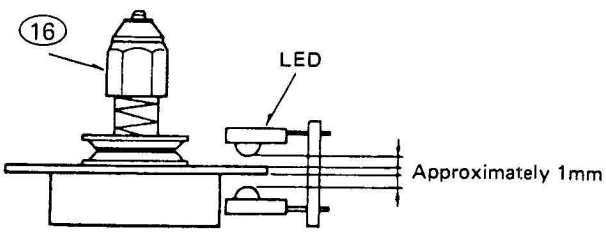
Load a C-60 cassette tape; check to make sure the tape is fast forwarded or rewound within 70–110 seconds. If it is not within this range, check sections 8 and 10.

## 12. Checking the Operation of the Erase Prevention, Metal and Chrome Switch

Confirm that the leaf switch properly detecting the tape type detection holes on the cassette housing.

## 13. Checking the Gap Between the Pulse Detection LED and the Reel Ass'y

Check to make sure the gap between the surface of the shutter section of the reel ass'y and the LEDs is approximately 1 mm.




# ADJUSTING THE ELECTRICAL SECTIONS

- **Measuring instruments necessary for adjustments**

(1) Audio signal generator
(2) Variable resistance attenuator
(3) Electronic voltmeter
(4) Oscilloscope
(5) Frequency counter
(6) Adjustment screwdriver
(7) Trap coil adjustment square stick
(8) Test tapes (TEAC MTT-111, MTT-114, MTT-150)
(A-BEX TCC-262)
(DENON HD7E/60)
(9) Transport Check cassette tape (SONY MC-112C)

- **Caution on adjusting**

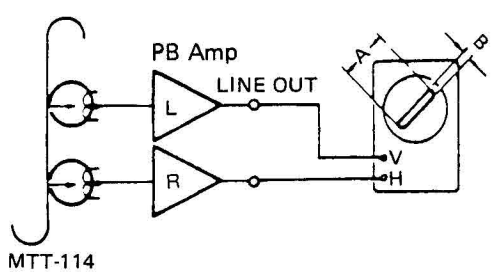
(1) Before adjusting, clean the head surface, capstan and the pinch roller with a gauze or a cotton swab moistened with alcohol.
(2) Demagnetize the R/P HEAD and the E, HEAD with a head eraser.
(3) Completely demagnetize the adjustment screwdriver.
(4) Unless instructed otherwise, set the various controls as follows:
- ○ INPUT volume . . . . . maximum
- ○ OUTPUT LEVEL volume . . . . . maximum
- ○ DOLBY NR switch . . . . . OFF
- ○ BIAS volume . . . . . Center click position

## 1. Tape Transport Check

Load the transport check cassette. In the operational mode, illuminate the fixing guides of the R/P HEAD with a lamp and check to make sure the tape edge does not come in contact with the tape guide section.
The tape transport is the most important element in determining the performance of a cassette deck.
Avoid moving the various adjustment screws, nuts, etc., as much as possible. Refer to the pages on "Adjusting and Checking the Mechanism Section" when replacing or adjusting the R/P HEAD.

## 2. Adjusting the Azimuth

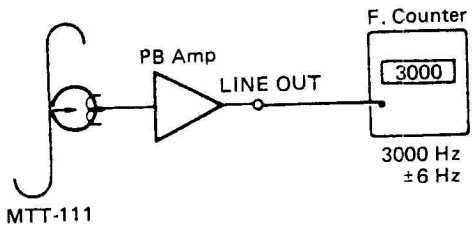
(1) After completing the tape transport check, load the test tape (TEAC MTT-114).
(2) Play back the test tape; adjust the azimuth screw so that section A of the resurge wave form is maximum and section B is minimum.

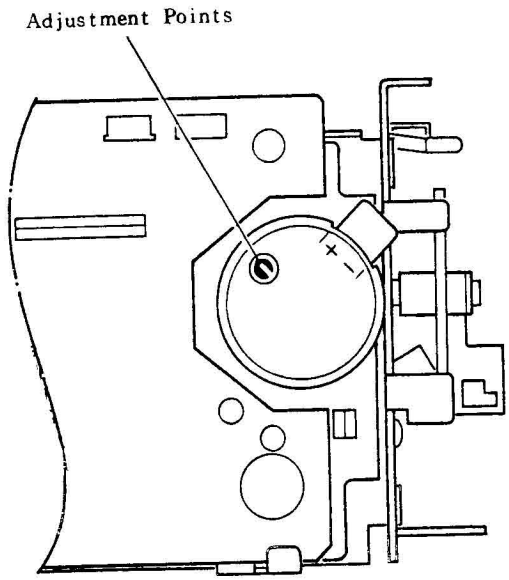


## 3. Checking and Adjusting the Tape Speed

(1) Connect the frequency counter to the LINE OUT terminal and load test tape (TEAC MTT-111).

(2) Playback a test tape. At about halfway through the tape, where the tape transport is stable, adjust the adjustment points on the back of the capstan motor so that the frequency counter will have a reading within the range of 3,000 Hz ± 6 Hz.

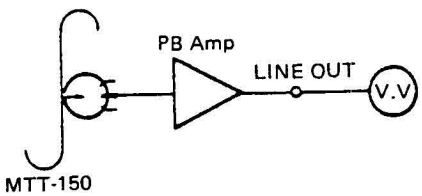


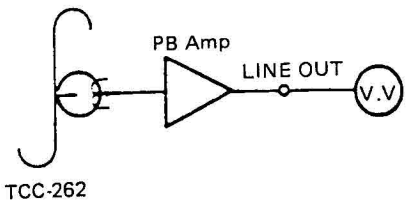




## 4. Adjusting the Playback Section

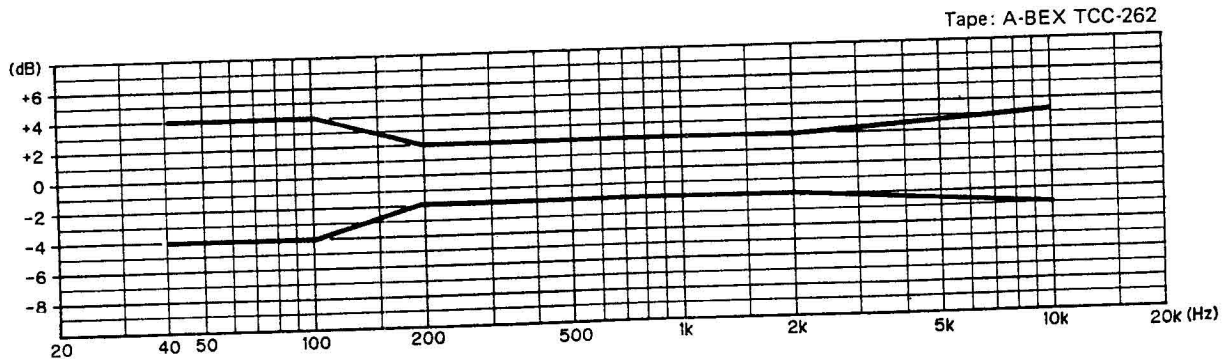
(1) Adjusting the playback level
Playback the Dolby standard level test tape (TEAC MTT-150) and adjust RT-101 (L ch), RT-201 (R ch) so that the LINE OUT voltage becomes 0 dB (0.775 V).

(2) Adjusting the playback frequency response
Playback the test tape (A. BEX TCC-262) and check to make sure that the frequency response meets the specifications in the diagram.



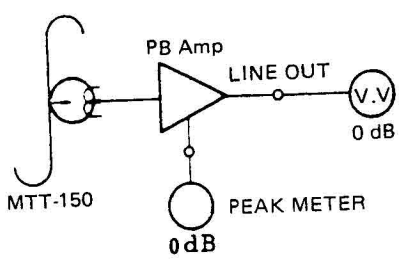




### Playback Frequency Response




## 5. Adjusting the Peak Meters

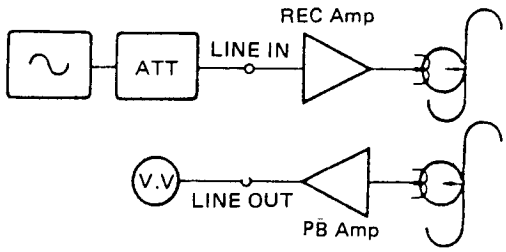
After adjusting the playback level, playback the test tape (TEAC MTT-150) and adjust RT-102 (L ch), RT-202 (R ch) so that the Peak meters indicates 0 dB when the LINE OUT terminal level is 0 dB (0.775V).



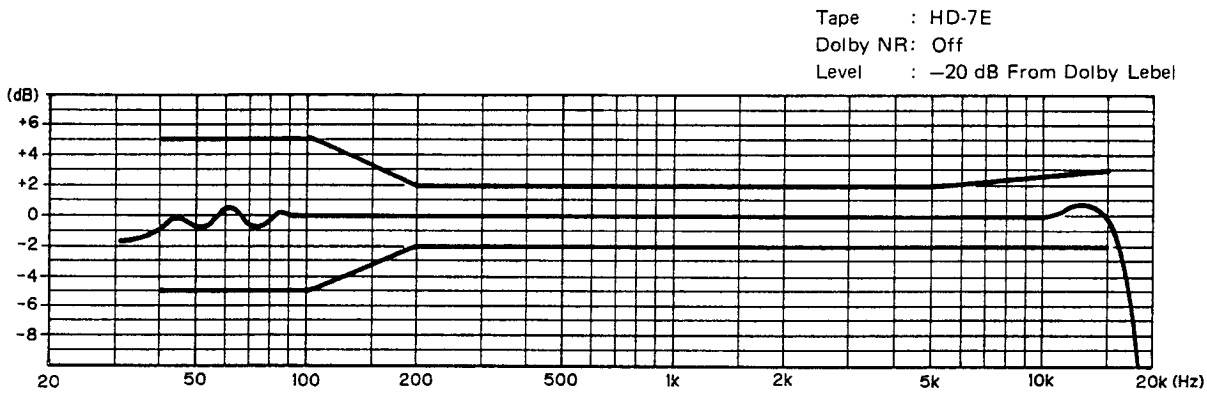
## 6. Adjusting the Recording Section

(1) Adjusting the record/playback overall frequency response. ($CrO_2$)

1) Load the test tape HD7E/60, record a signal with an input level of –40 dB, 1 kHz at the LINE IN terminal; play back this recording.
2) Change the frequency of the input signal to 10 kHz, record and playback; adjust RT-104 (L ch), RT-204 (R ch) so that the characteristic standards meet the following diagram when compared to the 1 kHz signal output level.
(The other TAPE POSITIONS will automatically be adjusted by finishing of the foregoing adjustments.)




### Record/Playback Overall Frequency Response



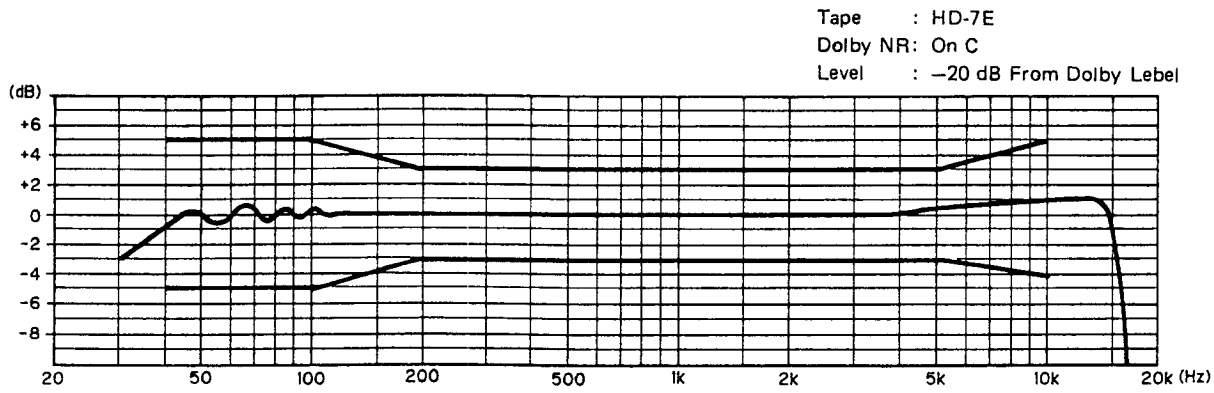

(2) Adjusting the record/playback levels ($CrO_2$)

1) Load a HD7E/60 tape and after having recorded a signal of 1 kHz (–40 dB), play it back.
2) Adjust RT-103 (L ch) and RT-203 (R ch) so that the output from the line out terminal has the same value as the output when monitoring the recording.

(3) Checking the Dolby C record/playback overall frequency response

1) Set the DOLBY NR switch to the "C" position.
2) Using the test tapes HD7E/60, perform record/playback in the same manner as 6-(1).
3) Check to make sure that the record/playback overall frequency response meets the specifications in the diagram.

### Dolby C Record/Playback Overall Frequency Response



# PARTS LIST OF P.W. BOARD

## KU-5630 AUDIO AMP UNIT

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| **SEMICONDUCTOR GROUP** | | | |
| IC101 | 2630353002 | TEA0665 | |
| 201 | | | |
| IC301 | 2630189001 | M5218L | |
| 303 | | | |
| 305 | | | |
| IC302 | 2630364004 | M5219L | |
| IC304 | 2630355000 | AN6256 | |
| IC501 | 2630363005 | AN6882 | |
| 601 | | | |
| TR101 | 2730245023 | 2SC2603 (E/F) | |
| 201 | | | |
| 103 | | | |
| 203 | | | |
| 109 | | | |
| 209 | | | |
| 301 | | | |
| 302 | | | |
| TR102 | 2750043014 | 2SK381 (C/D) | |
| 202 | | | |
| TR104 | 2730178006 | 2SC1740 (R/S) | |
| 204 | | | |
| 105 | | | |
| 205 | | | |
| TR106 | 2710101022 | 1SA933 (Q/R/S) | |
| 206 | | | |
| 107 | | | |
| 207 | | | |
| TR303 | 2740036002 | 2SD468 (C) | |
| TR304 | 2730178006 | 2SC1740 (R/S) | |
| 307 | | | |
| 309 | | | |
| 352 | | | |
| TR305 | 2710101022 | 2SA933 (Q/R/S) | |
| 306 | | | |
| 308 | | | |
| TR310 | 2730178006 | 2SC1740 (R/S) | |
| TR311 | 2710101022 | 2SA933 (Q/R/S) | |
| 354 | | | |
| TR351 | 2740078031 | 2SD882 (Q/P) | |
| TR353 | 2720055029 | 2SB772 (Q/P) | |
| D301 | 2760049008 | 1S2076 | |
| ~304 | | | |
| 306 | | | |
| 307 | | | |
| 309 | | | |
| 352 | | | |
| ~354 | | | |
| D305 | 2760401002 | 1SS133 | |
| D351 | 2760246005 | RB152 | |
| D355 | 2760057003 | V06B | |
| D356 | 2760237001 | RV06 | |
| D701 | 2760401002 | 1SS133 | |
| ~706 | | | |
| ZD301 | 2760052082 | HZ11A-3 | |
| 302 | | | |
| **RESISTOR GROUP** | | | |
| VR301 | 2118075006 | V1611V--503KA | INPUT VR 50KA |
| VR302 | 2110461003 | V1620V20KA103 | OUTPUT VR10KA |
| VR303 | 2110458003 | V12V30KB501K | FINE VR 500ΩB |
| RT101 | 2116000028 | V08PB104 | PB GAIN 100K |
| 201 | | | |
| RT102 | 2116000044 | V08PB503 | METER GAIN 50K |
| 202 | | | |

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| RT103 | 2116000073 | V08PB203 | REC GAIN 20K |
| 203 | | | |
| RT104 | 2116000028 | V08PB104 | BIAS ADJ 100K |
| 204 | | | |
| R323 | 2412313082 | RD14B2E4R7JFRF | 4.7Ω 1/4W |
| ⚠R708 | 2410163001 | RD14B2H121J | 120Ω 1/2W |
| **CAPACITOR GROUP** | | | |
| C316 | 2544128006 | CE04W1A220= | 22μF 10V |
| C104 | 2544129005 | CE04W1A470= | 47μF 10V |
| 204 | | | |
| 132 | | | |
| 232 | | | |
| 301 | | | |
| 302 | | | |
| C353 | 2544130007 | CE04W1A101= | 100μF 10V |
| 356 | | | |
| C305 | 2544131006 | CE04W1A221= | 220μF 10V |
| 313 | | | |
| 314 | | | |
| C116 | 2544132005 | CE04W1C100= | 10μF 16V |
| 216 | | | |
| 306 | | | |
| 106 | | | |
| 206 | | | |
| 112 | | | |
| 212 | | | |
| 117 | | | |
| 217 | | | |
| 123 | | | |
| 223 | | | |
| 124 | | | |
| 224 | | | |
| 320 | | | |
| C318 | 2544134003 | CE04W1C330= | 33μF 16V |
| C352 | 2544135002 | CE04W1C470= | 47μF 16V |
| 355 | | | |
| C118 | 2544140000 | CE04W1V4R7 | 4.7μF 35V |
| 218 | | | |
| 303 | | | |
| 308 | | | |
| C358 | 2544141009 | CE04W1V100= | 10μF 35V |
| C102 | 2544146004 | CE04W1H010= | 1μF 50V |
| 202 | | | |
| 307 | | | |
| 101 | | | |
| 201 | | | |
| C317 | 2544148002 | CE04W1H3R3= | 3.3μF 50V |
| C359 | 2544197024 | CE04W1C472M | 4700μF 16V |
| C351 | 2544198023 | CE04W1E102M | 1000μF 25V |
| 354 | | | |
| C108 | 2549014018 | CE04W1HR22M | 0.22μF 50V |
| 208 | | | |
| 114 | | | |
| 214 | | | |
| C109 | 2549014047 | CE04W1HR68M | 0.68μF 50V |
| 209 | | | |
| 115 | | | |
| 215 | | | |
| C120 | 2533627000 | CC45SL1H101J | 100PF 50V |
| 220 | | | |
| C119 | 2533643000 | CC45SL1H471J | 470PF 50V |
| 219 | | | |
| C134 | 2531055056 | CK45B1H221K | 220PF 50V |
| 234 | | | |

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| C127 | .2531004007 | CK45B1H102K | 0.001μF 50V |
| 227 | | | |
| 136 | | | |
| 236 | | | |
| C126 | 2531061008 | CK45B1H272K | 0.0027μF 50V |
| 226 | | | |
| C125 | 2531060009 | CK45B1H182K | 0.0018μF 50V |
| 129 | | | |
| 225 | | | |
| 229 | | | |
| C315 | 2531007004 | CK45B1H332K | 0.0033μF 50V |
| C128 | 2539030044 | CK45=1E472K | 0.0047μF 25V |
| 228 | | | |
| 130 | | | |
| 230 | | | |
| C135 | 2539030060 | CK45=1E103K | 0.01μF 25V |
| 235 | | | |
| C309 | 2539030073 | CK45=1E153K | 0.015μF 25V |
| C310 | 2539035007 | CK45=1E123K | 0.012μF 25V |
| C107 | 2539031001 | CK45=1E473K | 0.047μF 25V |
| 207 | | | |
| 113 | | | |
| 213 | | | |
| C133 | 2539031014 | CK45=1E683K | 0.068μF 25V |
| 233 | | | |
| C312 | 2531024003 | CK45F1H103Z | 0.01μF 50V |
| C311 | 2554078065 | CQ93P2A472J | 0.0047μF 100V |
| C103 | 2551120068 | CQ93M1H332J | 0.0033μF 50V |
| 203 | | | |
| C105 | 2551120084 | CQ93M1H472J | 0.0047μF 50V |
| 205 | | | |
| 111 | | | |
| 211 | | | |
| 121 | | | |
| 221 | | | |
| C131 | 2551120097 | CQ93M1H562J | 0.0056μF 50V |
| 231 | | | |
| C110 | 2551121025 | CQ93M1H103J | 0.01μF 50V |
| 210 | | | |
| C122 | 2551121038 | CQ93M1H123J | 0.012μF 50V |
| 222 | | | |
| C321 | 2544132005 | CE04W1C100= | 10μF 16V |
| 322 | | | |
| C501 | 2542029000 | CE02W1E4R7= | 4.7μF 25V |
| 601 | | | |
| C701 | 2542019007 | CE02W1C330= | 33μF 16V |
| ⚠C702 | 2538010007 | CK45=2GAC103P | 0.01μF 400VAC |
| **OTHER PARTS GROUP** | | | |
| LE501 | 3939299002 | LN05302P (GN) | |
| 601 | | | |
| LE502 | 3939298003 | LN03202P (RD) | |
| 602 | | | |
| LE701 | 3939182009 | LED (GN) | |
| 703 | | | |
| ~705 | | | |
| LE702 | 3939180001 | LED (RD) | |
| LE706 | 3939181000 | LED (AB) | |
| 707 | | | |
| | 4410567207 | LED HOLDER | |
| | 4410633005 | LED GUIDE | |
| J301 | 2048109013 | HEADPHONE JACK | |
| J302 | 2048114008 | 4P PIN JACK | |
| L101 | 2320071005 | DOLBY FILTER | MPX FILTER |
| 201 | | | |

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| L102 | 2358011008 | INDUCTOR | SKEWING |
| 202 | | | |
| L103 | 2358005001 | INDUCTOR | 8.1 mH |
| 203 | | | |
| L104 | 2328044005 | BAND TRAP FILTER | BIAS TRAP |
| 204 | | | |
| L301 | 2358005043 | INDUCTOR | 680μH |
| T301 | 2318056003 | OSC COIL | |
| S301 | 2124578005 | PUSH SWITCH | DOLBY NR SW |
| S303 | 2129190103 | SLIDE SW | MPX SW |
| SW751 | 2124388004 | TACT SWITCH | |
| ~756 | | | |
| | 2129136028 | POWER SW | |
| | FEP 1287 | FUSE HOLDER | Except EC, EU |
| | 2061031032 | FUSE (0.16A) | Except Ec, Eu |
| | 5138254011 | FUSE LABEL | Except Ec, Eu |
| | 4118343202 | POWER SW BRACKET | |
| | 2061031045 | FUSE (0.25A) | E1 only |
| | 5138254024 | FUSE LABEL | E1 only |
| | 4170140207 | RADIATOR | |
| CN301 | 2035622082 | 6P MINI CONNE PIN | |
| CN302 | 2035622008 | 3P MINI CONNE PIN | |
| CN303 | 2035622008 | 3P MINI CONNE PIN | |

• The carbon resistors rated at ¼W are not listed herein.

WARNING:

Parts marked with ⚠ and/or shading have special characteristics important to safety.

Be sure to use the specified parts for replacement.

Remarks symbols in the parts list refer to the following countries and areas.

| | | | |
|---|---|---|---|
| EA: | Australia | EC: | Canada |
| E1: | Multiple voltage model | EU: | U.S.A. |
| E2: | European continent | EK: | United Kingdom |

## PARTS LIST OF EXPLODED VIEW

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| 1 | 4118341806 | CHASSIS | |
| " | 4118341819 | CHASSIS | E1 only |
| 2 | 4118383000 | SHIELD LABEL | |
| 3-1 | KU-56300 | AUDIO UNIT | |
| -2 | " 1 | INPUT VR PWB | |
| -3 | " 2 | PHONE JACK PWB | |
| -4 | " 3 | METER/ING PWB | |
| -5 | " 4 | CONTROL PWB | |
| -6 | " 5 | BIAS FINE PWB | |
| -7 | " 6 | POWER SW PWB | |
| 4 | 4410568109 | VOL. HOLDER | |
| 5 | 3380091008 | V. MECHA 15 UNIT | |
| 6 | 4118347101 | EARTH PLATE (A) | |
| 7 | 4148198100 | SHIELD BRACKET (V) | |
| 8 | 4110482006 | ANGLE | |
| ⚠ 9 | 2335511107 | POWER TRANS | E1, EA, EK |
| " | 2335512009 | " | E1 |
| " | 2335510205 | " | EU |
| " | 2335523001 | " | EC |
| 10 | 4118342517 | TRANS BRACKET | |
| " | 4118342504 | " | E1 only |
| ⚠ 11 | 2062002031 | AC CORD | E2 |
| " | 2006031026 | " | E1 |
| " | 2062031002 | " | EU, EC |
| " | 2006019310 | " | EA |
| " | 2062024006 | AC CORD WITH LABEL | EK |
| ⚠ 12 | 4450018004 | CORD BUSH | E2, EK |
| " | 4450020005 | " | EU EC |
| " | MD-3802 | " | E1 |
| " | MD-2982H | " | EA |
| 15 | 4118343202 | POWER SW BRACKET | |
| 16 | 4318102023 | EJECT KNOB | |
| 17 | 4318104102 | EJECT PLATE | |
| 18 | 1030825102 | FRONT PANEL | |
| 19 | 1138175233 | CONTROL BUTTON | |
| 20 | 4110488000 | PRESS BAR | |
| 21 | 1138179006 | PUSH BUTTON (A) | |
| 22 | 1130724006 | BUTTON SHAFT | |
| 23 | 4638623004 | SPRING | |
| 24 | 1290050209 | COLOR FILTER | |
| 25 | 4410566208 | COUNTER HOLDER | |
| 26 | 4590006002 | COUNTER | |
| 27 | 4318098108 | PUSH SW LEVER | |
| 28 | 4230040001 | COUNTER BELT | |
| 29 | 4318101024 | P.S. LEVER | |
| 30 | 1058089108 | BOTTOM COVER | |
| 31 | 4610162004 | FELT PAD | |
| 32 | 1120476102 | VOL KNOB (A) | |
| 33 | 1120477101 | VOL KNOB (B) | |
| 34 | 1128114000 | VOL KNOB (C) | |
| 35 | 1030827207 | C.WINDOW ASS'Y | |
| 36 | 1028319251 | TOP COVER (BK) | |
| " | 1028319277 | " | EA only |
| 37 | 1338085000 | REMOTE COVER LABEL | |
| 38 | 2124388004 | TACT SWITCH | |
| ⚠ 39 | 2129136028 | POWER SW | |
| 40 | 2110461003 | V1620V20KA103 | |
| ⚠ 41 | 2123315023 | VOLTAGE SELECTOR | E1 only |

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| 101 | 4737500015 | 3x8 CBTS (P)-Z | |
| 102 | 4737002005 | 3x6 CBTS (S)-Z | |
| 103 | 4737004003 | 4x8 CBTS (S)-Z | |
| 104 | 4737501001 | 3x10 CBTS (P)-Z | |
| 105 | 4713303016 | 3x6 CBTS (P)-Z | |
| 106 | 4737505007 | 2.6x8 CBTS (P)-Z | |
| 107 | 4737003004 | 3x8 CFTS (S)-Z | |
| 108 | 4737500044 | 3x8 CBTS (P)-Z | |
| 109 | 4737002018 | 3x8 CBTS (S)-Z | |
| 110 | 4737503025 | 4x8 CTTS (P) | |
| 111 | 4751106042 | WASHER | |
| 112 | 4730359014 | 3x16 CRTS (Z) | E1 only |

## ACCESSORIES GROUP

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| | 2032101001 | 2P CONNECTOR CORD | |
| | 5111332002 | INST. MANUAL | |
| | 5111333001 | " | EU only |
| ⚠ | 2033667007 | PLUG ADAPTER | E1 only |

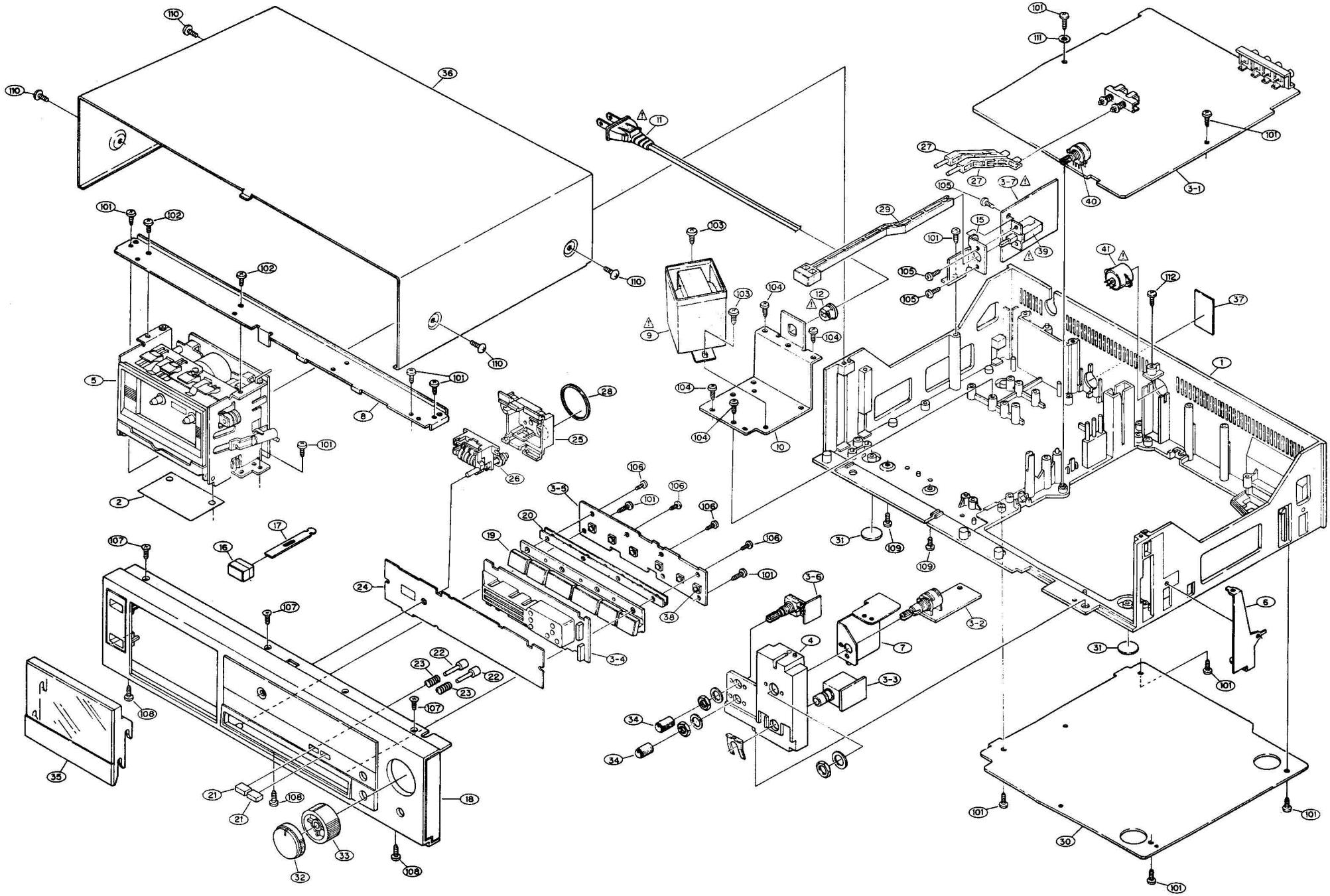
## PACKING GROUP

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| | 5011066203 | CARTON CASE | |
| | 5011103001 | " | EA only |
| | 5038054007 | PACKING | |
| | 5038049009 | SUB PACKING | EA only |
| | 5058006048 | ENVELOPE | |

WARNING:
Parts marked with ⚠ and/or shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.
Remarks symbols in the parts list refer to the following countries and areas.

| | | | |
|---|---|---|---|
| EA: | Australia | EC: | Canada |
| E1: | Multiple voltage model | EU: | U.S.A. |
| E2: | European continent | EK: | United Kingdom |

## EXPLODED VIEW OF CABINET AND CHASSIS GROUP



## KU-5700 MECHA PWB UNIT

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| **SEMICONDUCTOR GROUP** | | | |
| IC1 | 2620617004 | μPD7506C-066 | |
| IC2, 3 | 2620447009 | BA6109U1 | |
| TR1, 2 | 2690015005 | DTC124XS | 22K–47K |
| TR5, 6 | 2711010022 | 2SA933 (Q/R/S) | |
| TR7 | 2730178019 | 2SC1740 (R/S) | |
| D1~8 | 2760049008 | 1S2076 | |
| D9, 10 | 2760401002 | 1SS133 | |
| ZD1 | 2760218046 | HZ9B1 | |
| ZD3 | 2760173084 | HZ6C-1 | |
| ZD4 | 2760185056 | HZ4C-3 | |
| ZD5 | 2760185027 | HZ4B-2 | |
| ZD6 | 2760303003 | HZ6C2 | |
| ZD2 | 2760173071 | HZ6C3 | |
| **RESISTOR GROUP** | | | |
| R6 | 2440082026 | RS14B3D470JNBF | 47Ω 2W |
| RB1 | 2462010092 | RK99=2B104MP4 | 100KΩ 1/8W |
| VR1 | 2124555002 | ROTARY ENCODER | |
| **CAPACITOR GROUP** | | | |
| C1, 3, 12 14, 17 | 2531025002 | CK45F1H223Z | 0.022μF 50V |
| C2, 4 | 2531024003 | CK45F1H103Z | 0.01μF 50V |
| C5 | 2539014002 | CK45=1E683M | 0.068μF 25V |
| C10, 11 | 2544146004 | CE04W1H010= | 1μF 50V |
| C13 | 2544224007 | CE04W0J222M | 2200μF 6.3V |
| C15, 16 | 2544147003 | CE04W1H2R2= | 2.2μF 50V |
| CB1 | 2531164002 | CK99B1H102MP6 | 0.001μF 50V |
| **OTHER PARTS GROUP** | | | |
| LE10 | 3939178000 | LN25RCP | |
| TR10 | 3939026013 | PN150C | |
| CN1, 2 5 | 2035622024 | 4P MINI CONNE PIN | |
| CN3 | 2035622037 | 8P MINI CONNE PIN | |
| CN4 | 2035622008 | 3P MINI CONNE PIN | |
| CN6 | 2035622066 | 5P MINI CONNE PIN | |
| W005 | 2090110034 | TERMINAL WIRE | |

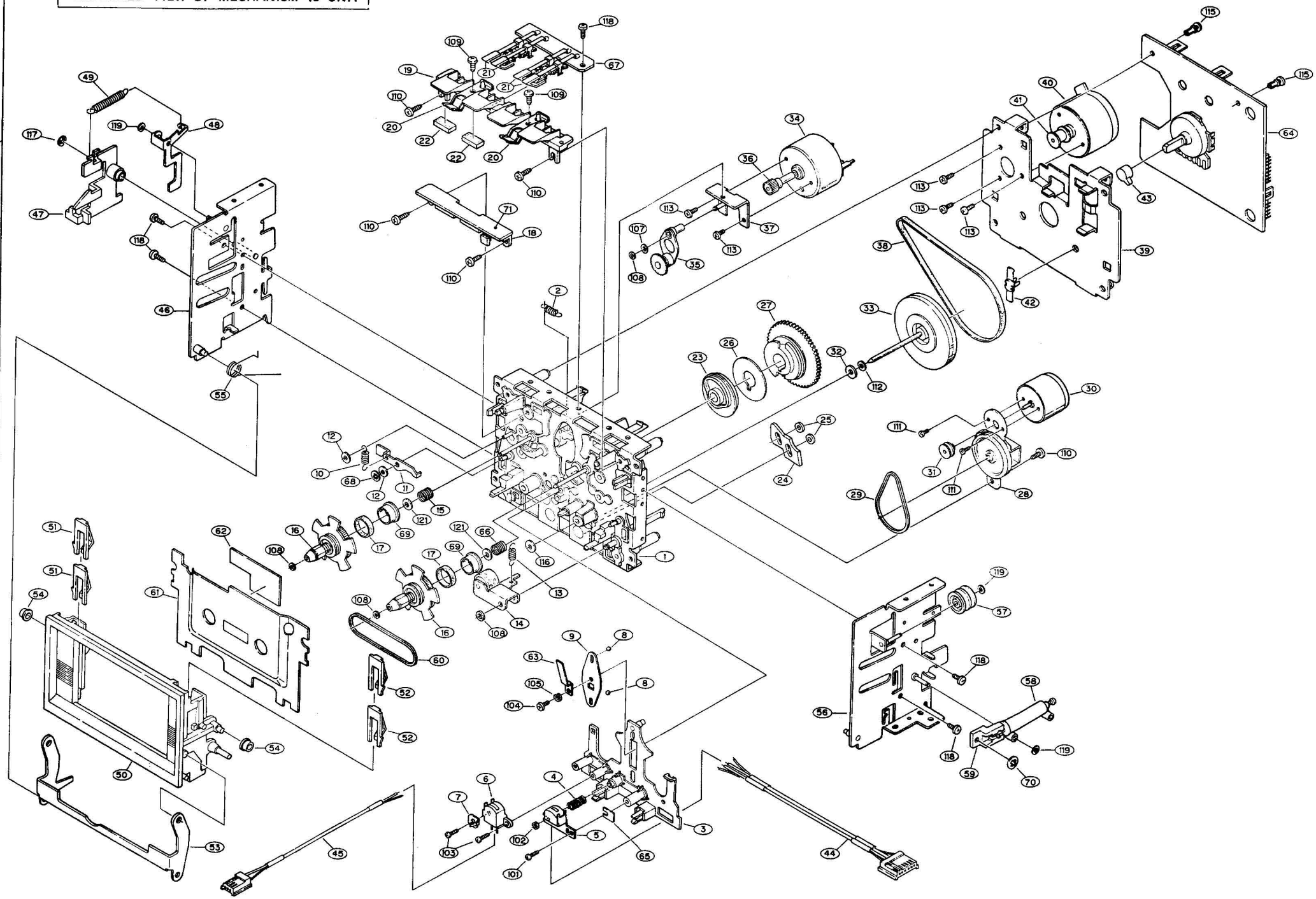
• The carbon resistors rated at ¼W are not listed herein.

## PARTS LIST OF MECHANISM 15 UNIT

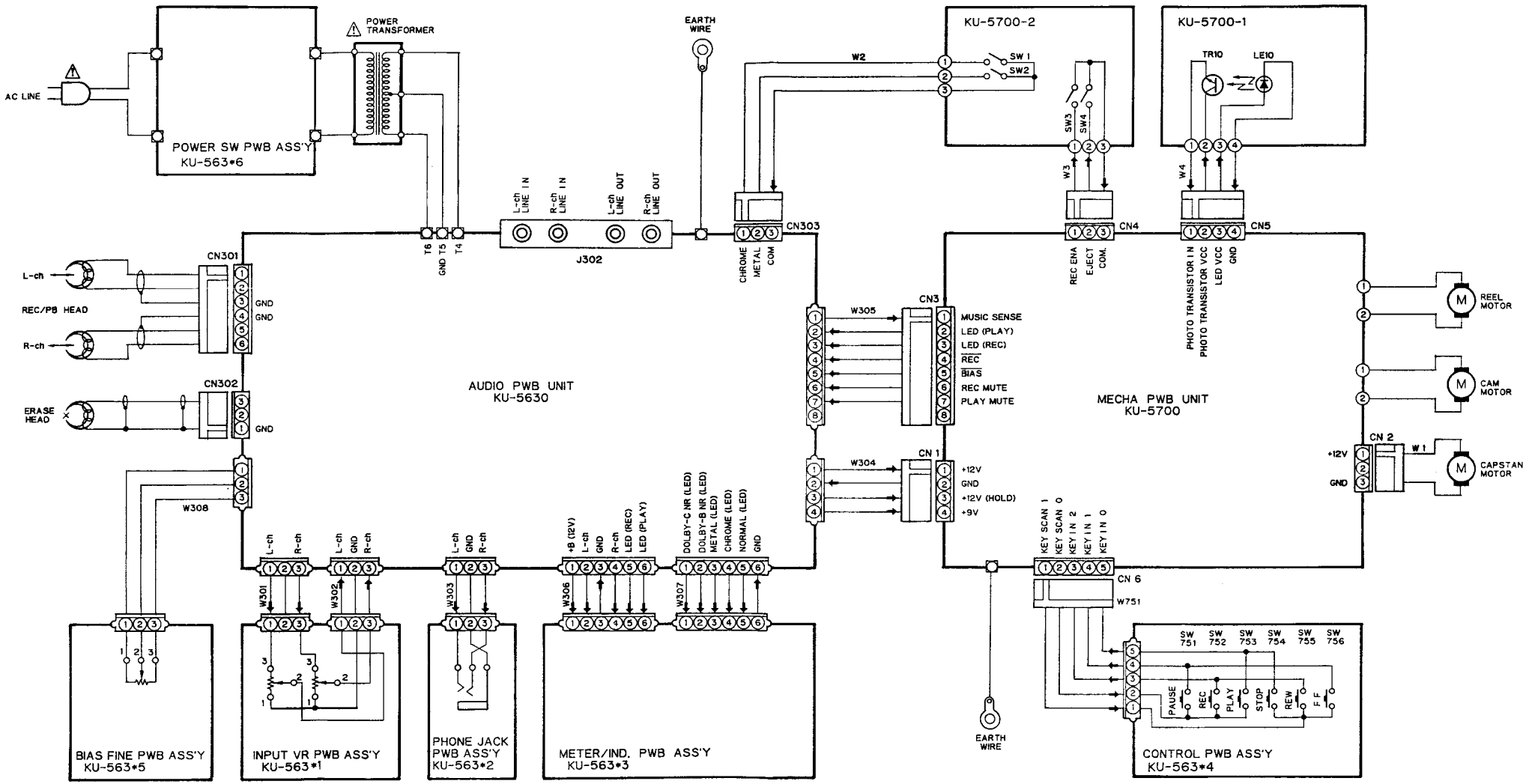
| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| 1 | 4110469207 | MECHA BASE ASS'Y | |
| 2 | 4630420001 | SPRING | |
| 3 | 4310181204 | HEAD PLATE ASS'Y | |
| 4 | 4630428003 | SPRING | |
| 5 | 3910068003 | R/P HEAD | |
| 6 | 3910069002 | E HEAD | |
| 7 | 4630451009 | E HEAD EARTH | |
| 8 | 4250177006 | STEEL BALL D3.5 | |
| 9 | 4630418204 | HEAD PLATE SPRING | |
| 10 | 4630453104 | RETURN SPRING | |
| 11 | 4330425102 | STOPPER | |
| 12 | 4430426001 | SPEED NUT | |
| 13 | 4630456004 | SPRING | |
| 14 | 4330451008 | P ROLLER ARM ASS'Y | |
| 15 | 4638261000 | SPRING | |
| 16 | 4210331002 | REEL ASS'Y | |
| 17 | 4230042009 | BRAKE RING | |
| 18 | 4410546309 | SENSOR HOLDER | |
| 19 | 4110471208 | SWITCH HOLDER | |
| 20 | 4630422203 | CASSETTE SPRING | |
| 21 | 2124577307 | LEAF SWITCH | |
| 22 | 4610265008 | CUSHION | |
| 23 | 4240080103 | CAM (2) | |
| 24 | 4310180302 | PINCH LEVER | |
| 25 | 4430426001 | SPEED NUT | |
| 26 | 4121853006 | SEPARATER | |
| 27 | 4240079101 | CAM (1) | |
| 28 | 4410580006 | PULLEY GEAR ASS'Y | |
| 29 | 4230037001 | BELT | |
| 30 | 2170133009 | CAM MOTOR | |
| 31 | 4210319105 | PULLEY (1) | |
| 32 | 4258058004 | WASHER | |
| 33 | 4210328206 | FLYWHEEL ASS'Y | |
| 34 | 2170134008 | REEL MOTOR | |
| 35 | 4240109107 | DIRECTION GEAR ASS'Y | |
| 36 | 4240102104 | MOTOR GEAR ASS'Y | |
| 37 | 4410612107 | MOTOR PLATE ASS'Y | |
| 38 | 4230038000 | BELT | |
| 39 | 4121841102 | BACK PLATE | |
| 40 | 2170132000 | CAPSTAN MOTOR | |
| 41 | 4210327100 | PULLEY | |
| 42 | 4610246108 | THRUST STOPPER | |
| 43 | 4350094102 | CONNECTING PIECE | |
| 44 | 2041637003 | 6P EI CON SHIELD | |
| 45 | 2034291003 | 3P " | |
| 46 | 4410550104 | LEFT STAY ASS'Y | |
| 47 | 4338269409 | HOOK | |
| 48 | 4310197007 | SWITCH LEVER | |
| 49 | 4630457003 | SPRING | |
| 50 | 1038242305 | C. BOX (A) | |
| 51 | 1038243304 | CASSETTE SUPPORT (L) | |
| 52 | 1038243317 | " (R) | |
| 53 | 4338270511 | CASSETTE BOX (B) | |
| 54 | 4318097002 | COLLAR | |
| 55 | 4638236116 | BOX SPRING | |
| 56 | 4410548006 | RIGHT STAY ASS'Y | |
| 57 | 4210332001 | COUNTER PULLEY | |
| 58 | 4698013104 | AIR DUMPER | |
| 59 | 4338271400 | DAMPER GUIDE | |
| 60 | 4230039009 | BELT (A) | |
| 61 | 1441351100 | ESC PLATE | |
| 62 | 4610276107 | DAMP SHEET | |
| 63 | 4630452008 | ESC EARTH | |
| 64 | KU-5700 | MECHA PWB UNIT | |
| 65 | 4428126009 | HEAD ADJUST SPACER | |

| Ref. No. | Part No. | Part Name | Remarks |
|---|---|---|---|
| 66 | 4630462001 | SPRING | |
| 67 | KU-5700-2 | HOLE SENS. PWB | |
| 68 | 4770266002 | CS WASHER | |
| 69 | 4210374001 | BUSH | |
| 70 | 4770266015 | CS WASHER | |
| 71 | KU-5700-1 | REEL PULSE PWB | |
| 101 | 4713812002 | 2x8 CBS-B | |
| 102 | 4756020000 | 2N | |
| 103 | 4737507005 | 2x8 CBTS (P)-B | |
| 104 | 4713204018 | 2.6x8 CBS-Z | |
| 105 | 4752002006 | 2.6 SW | |
| 106 | 4751121108 | SLIT WASHER | |
| 107 | 4770090003 | WASHER | |
| 108 | 4751119107 | SLIT WASHER | |
| 109 | 4737500002 | 3x6 CBTS (P) Z | |
| 110 | 4737500015 | 3x8 CBTS (P) Z | |
| 111 | 4719004005 | M1.7 x 2 #0 | |
| 112 | 4770090016 | WASHER | |
| 113 | 4713802012 | 2.6x3 CBS-Z | |
| 115 | 4770096007 | PUSH RIVET | |
| 116 | 4770090074 | WASHER | |
| 117 | 4761003009 | 3E RING | |
| 118 | 4713202010 | 2.6x5 CBS | |
| 119 | 4751120109 | SLIT WASHER | |
| 120 | 4751121111 | SLIT WASHER | |
| 121 | 4770265016 | WASHER | |

## EXPLODED VIEW OF MECHANISM 15 UNIT

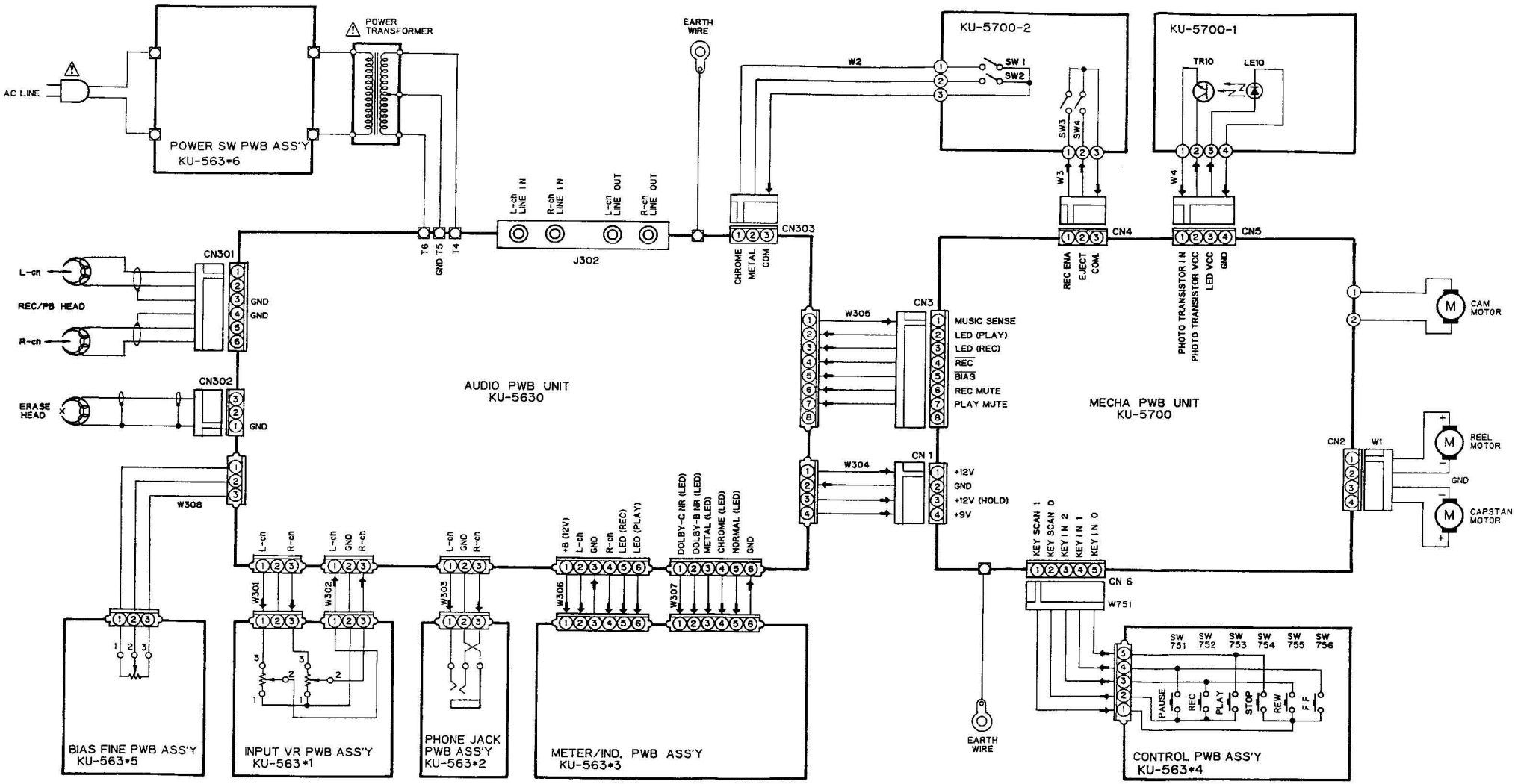


(Before alteration)

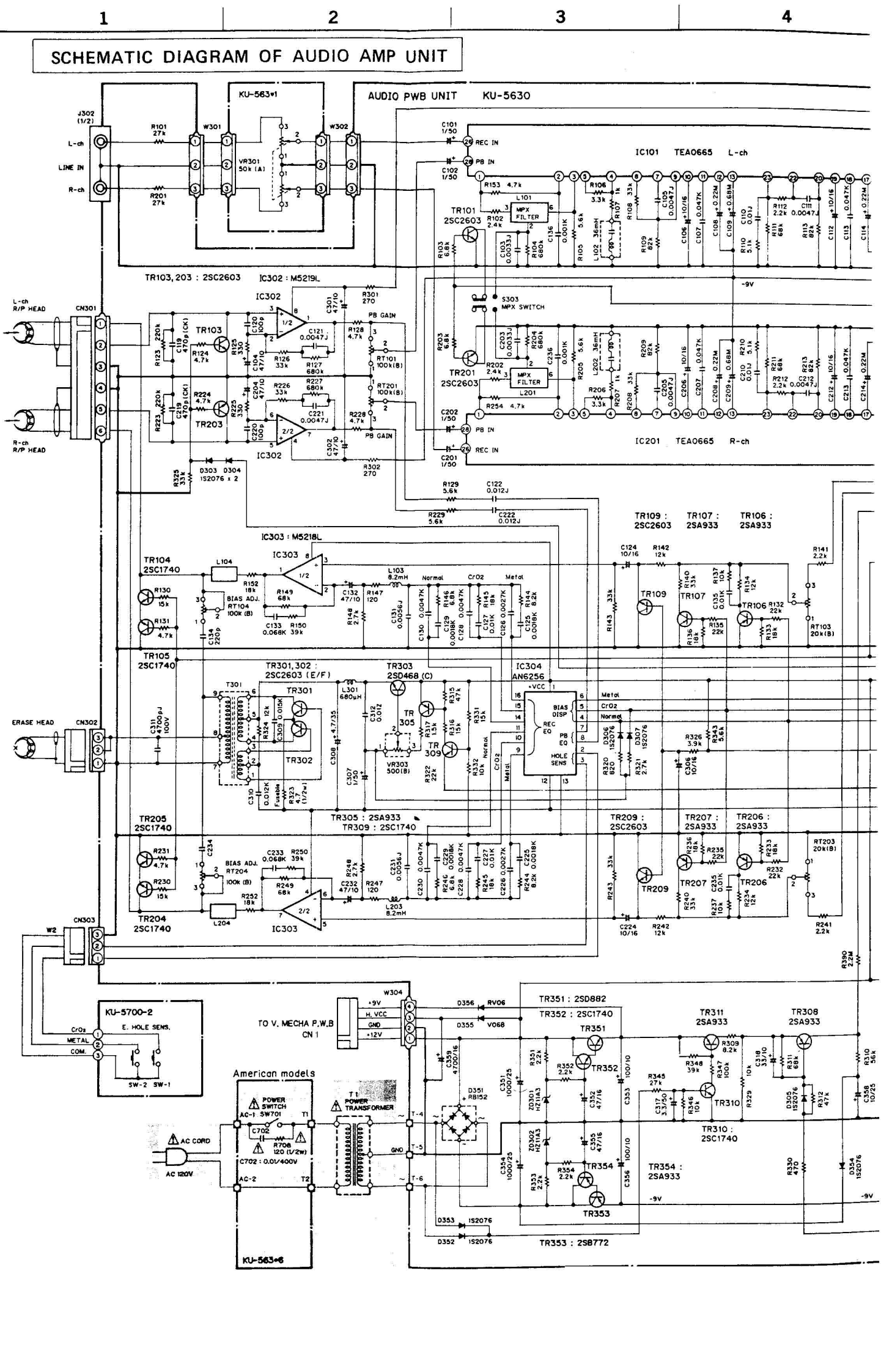


## WIRING DIAGRAM

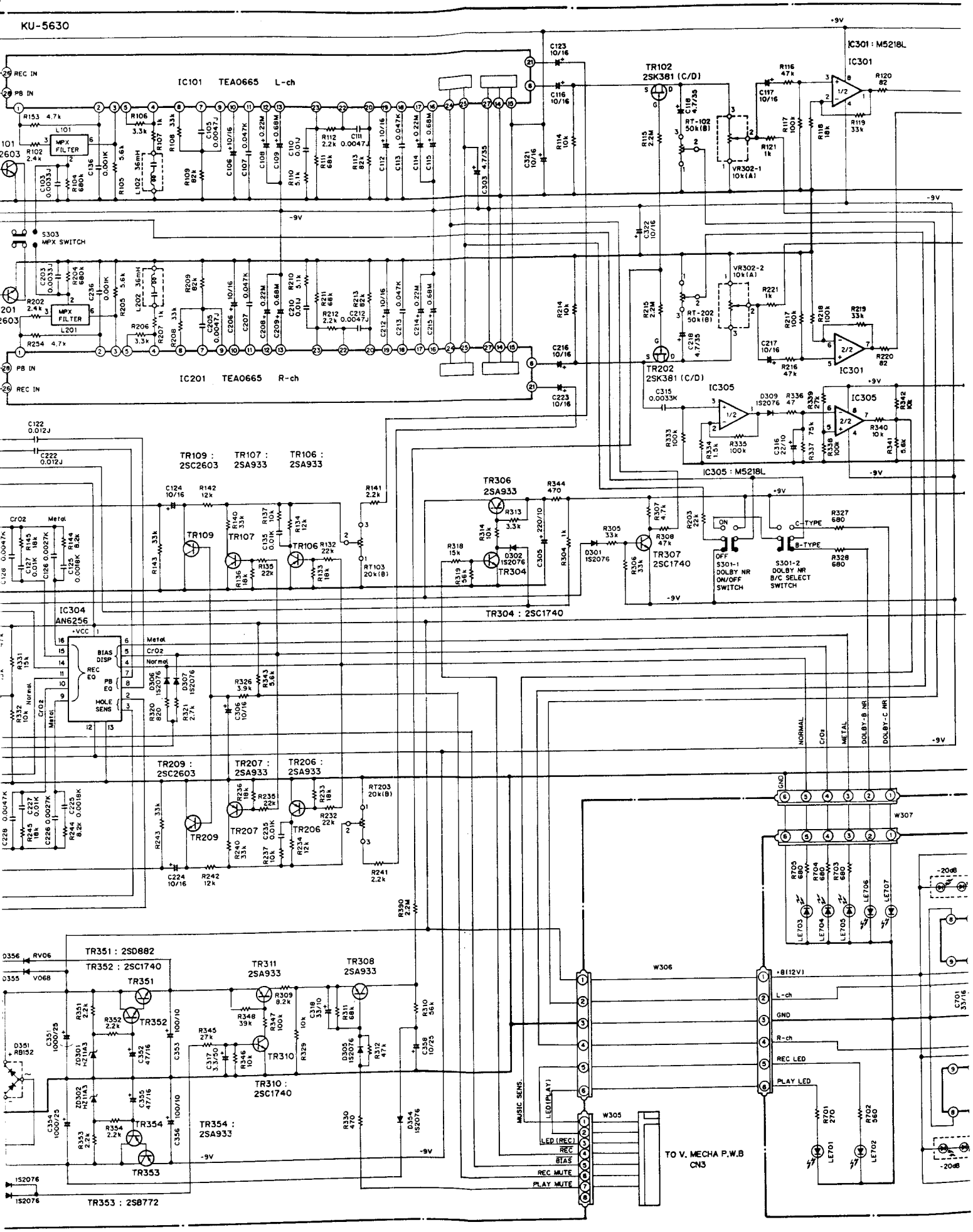
(After alteration)



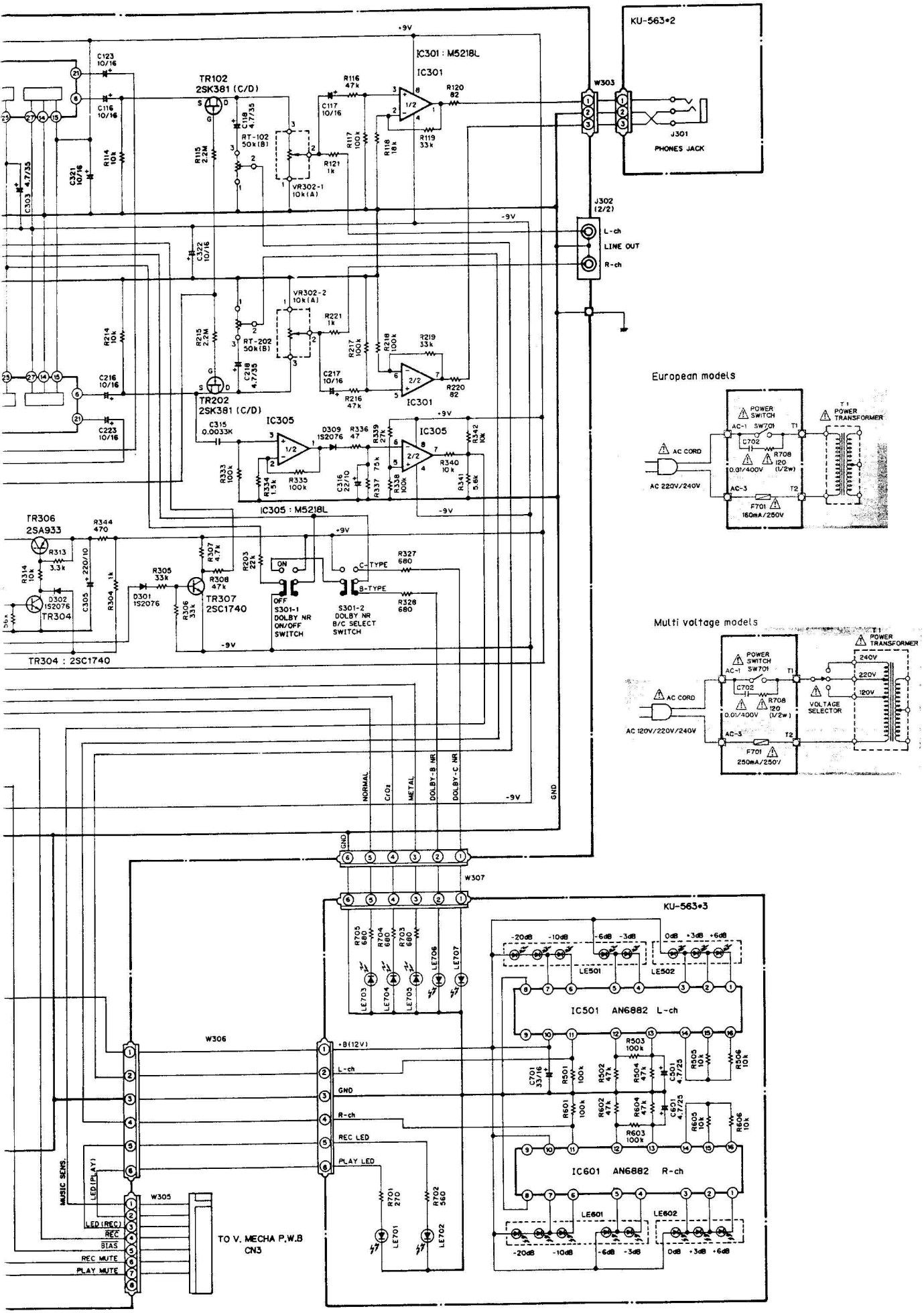
# SCHEMATIC DIAGRAM OF AUDIO AMP UNIT



KU-5630



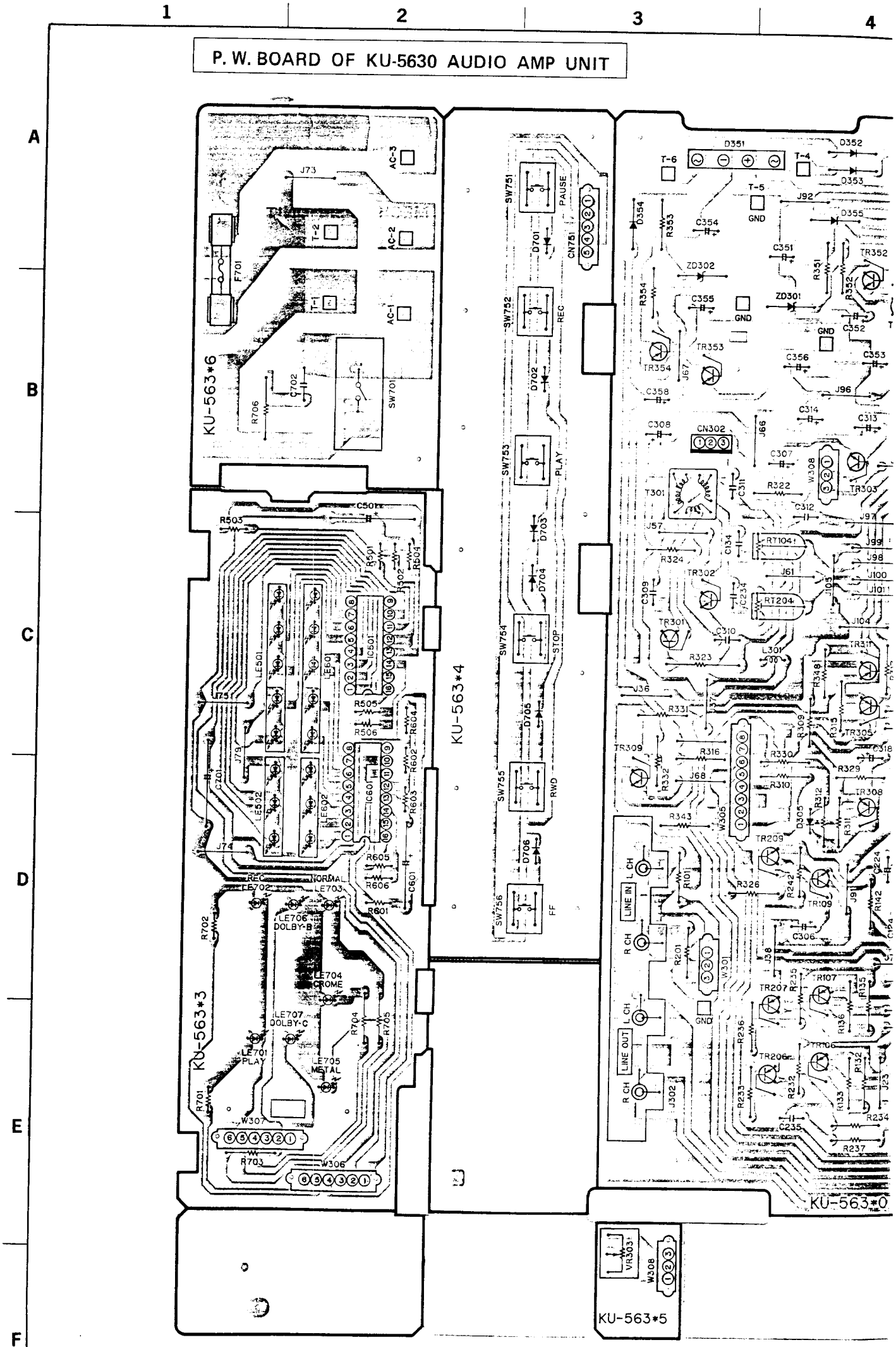

**Note:**
- Resistance shall be 1/4W unless otherwise specified and the unit is Ω..
- The unit of capacitor is μF, P is pF unless otherwise specified.



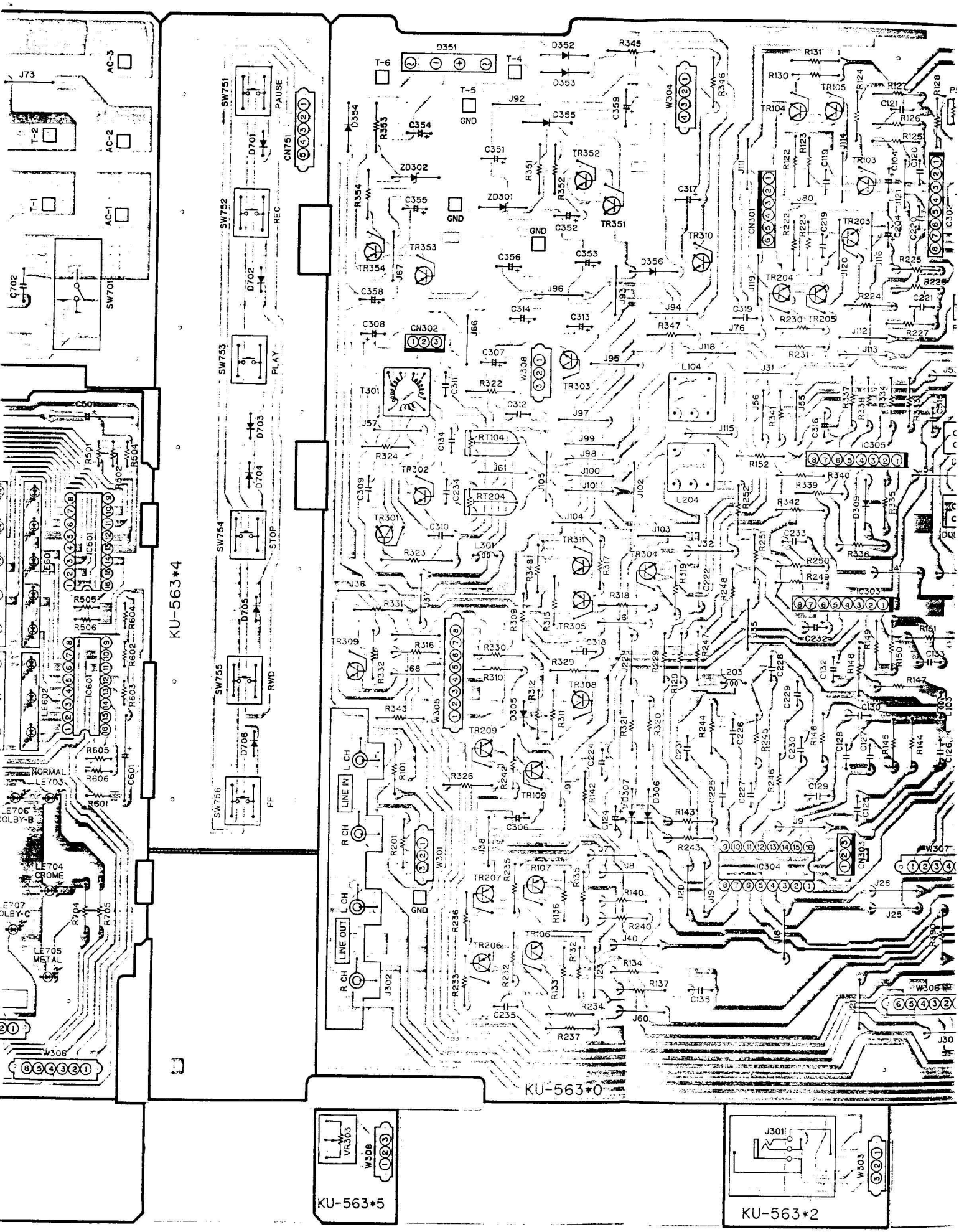

**Note:**

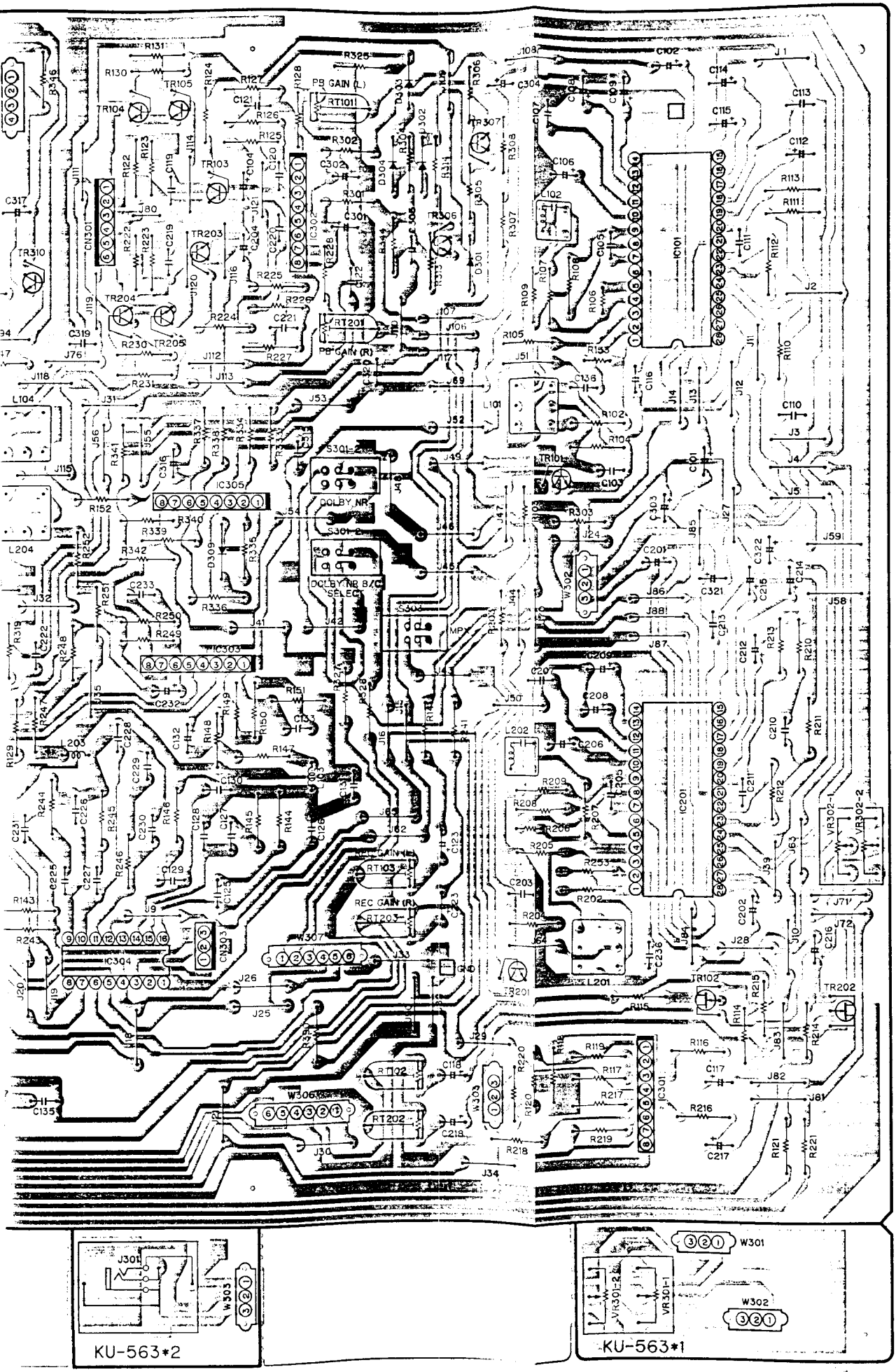
- Resistance shall be 1/4W unless otherwise specified and the unit is Ω..
- The unit of capacitor is μF, P is pF unless otherwise specified.
- Parts marked with ⚠ are of importance in respect to the safety, use the specified type without fail.
- This circuit diagram shows the basic circuit. It is subject to change for the purpose of improvement.

# P. W. BOARD OF KU-5630 AUDIO AMP UNIT



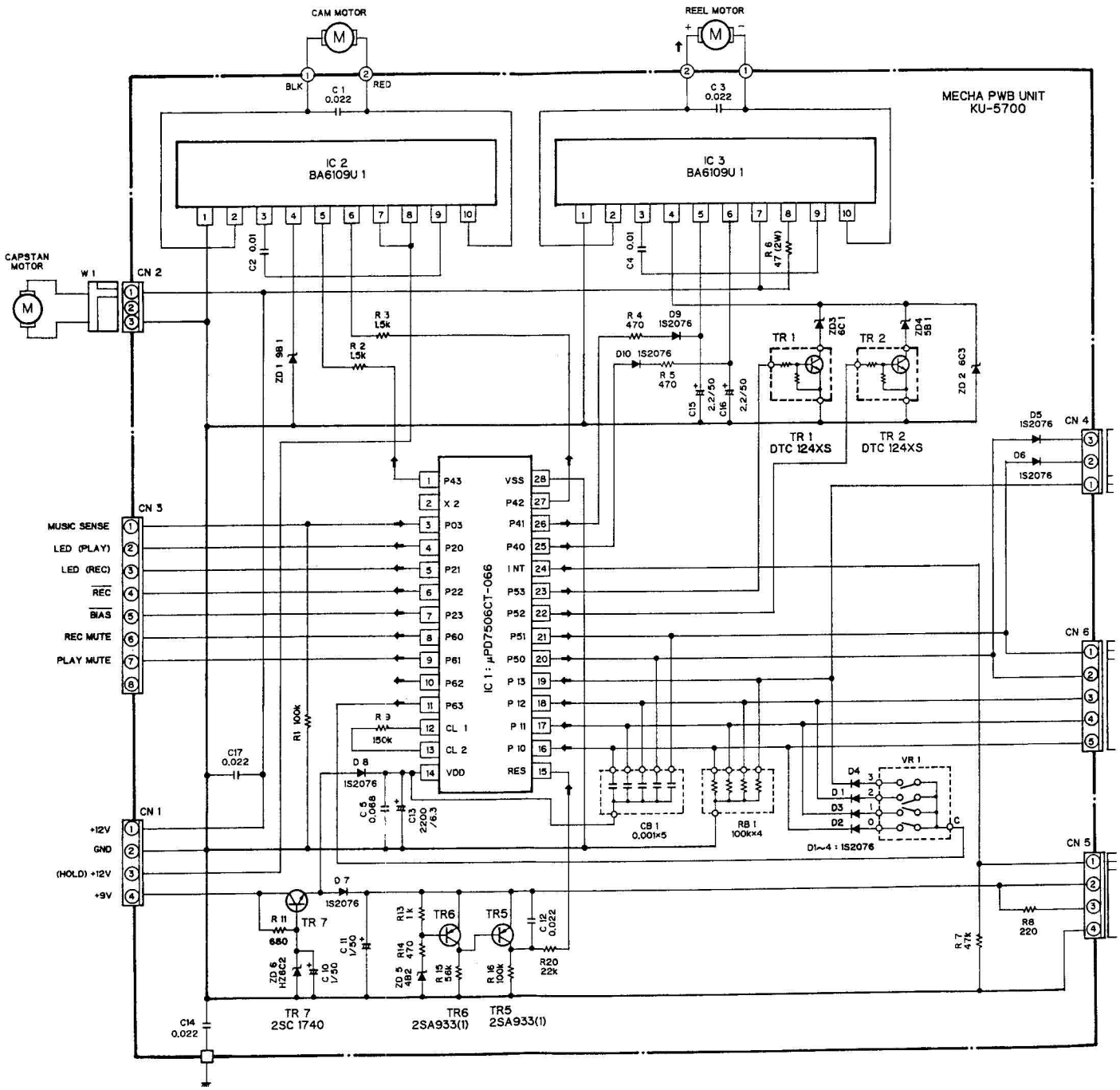
# ARD OF KU-5630 AUDIO AMP UNIT




PB GAIN (L)
PB GAIN (R)
DOLBY NR
DOLBY NR B/C SELECT
MPX
REC GAIN (L)
REC GAIN (R)
KU-563*2
KU-563*1

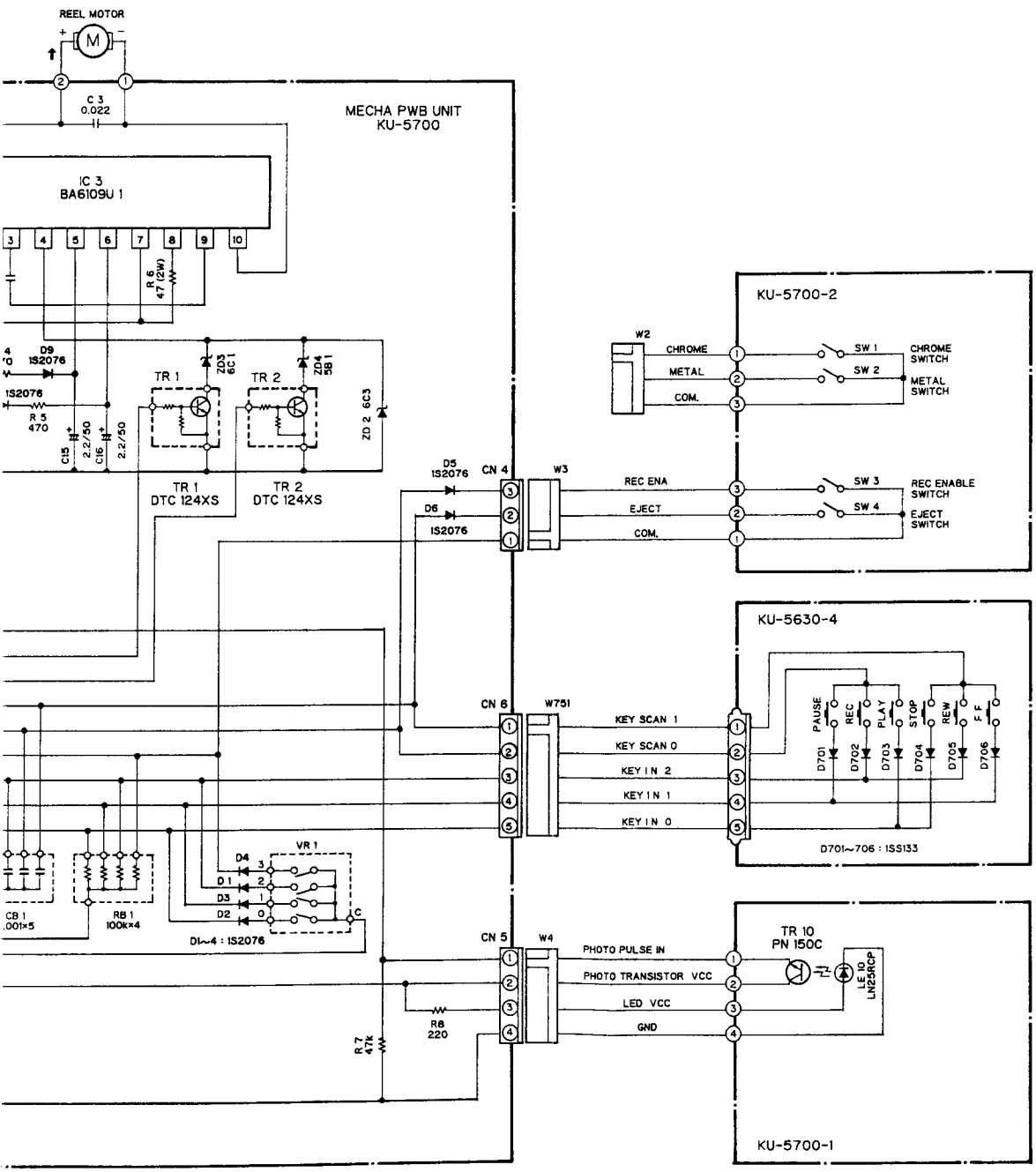
# SCHEMATIC DIAGRAM OF MECHANISM UNIT

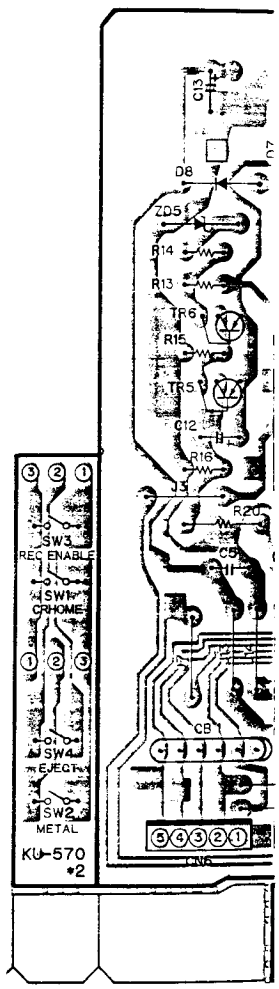
(Before alteration)




**Note:**

- Resistance shall be 1/4W unless otherwise specified and the unit is Ω.
- The unit of capacitor is μF, P is pF unless otherwise specified.
- This circuit diagram shows the basic circuit. It is subject to change for the purpose of improvement.

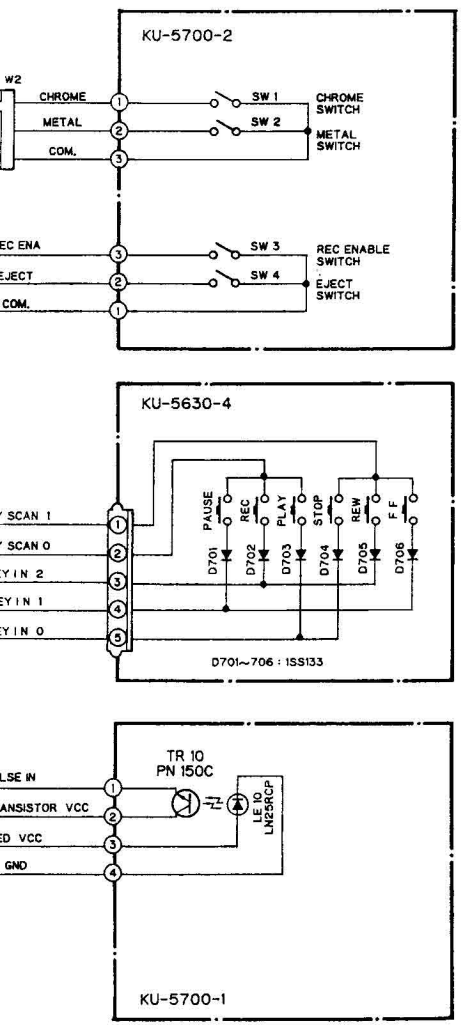


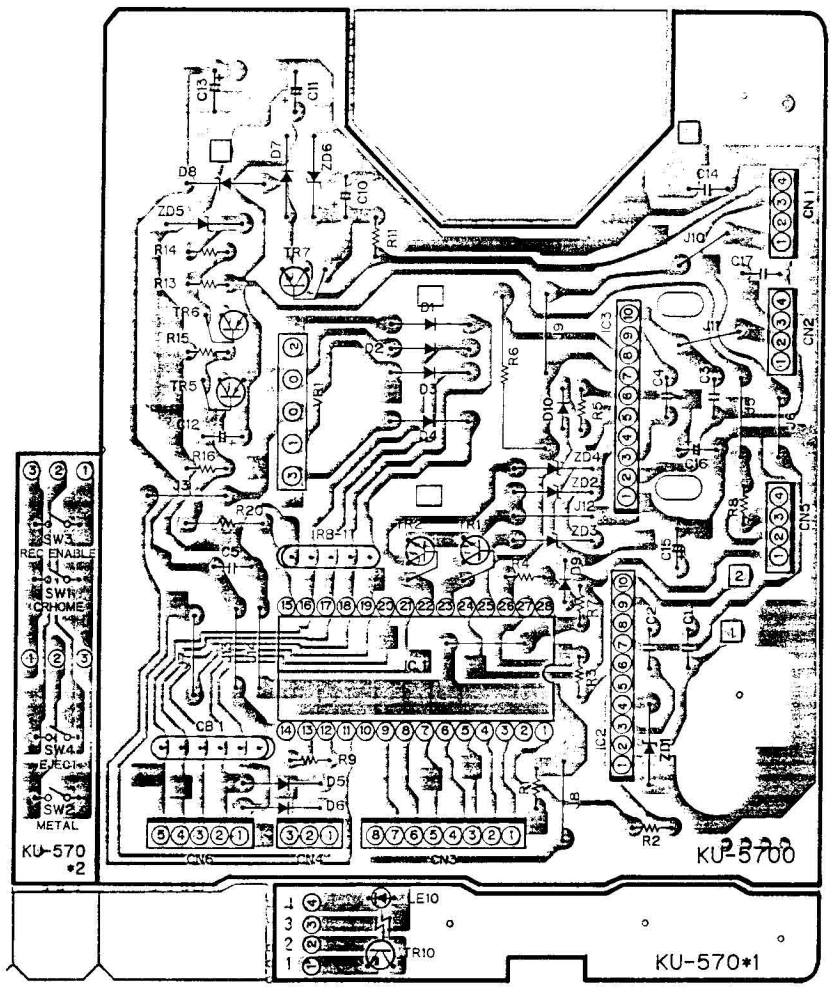




ed and the

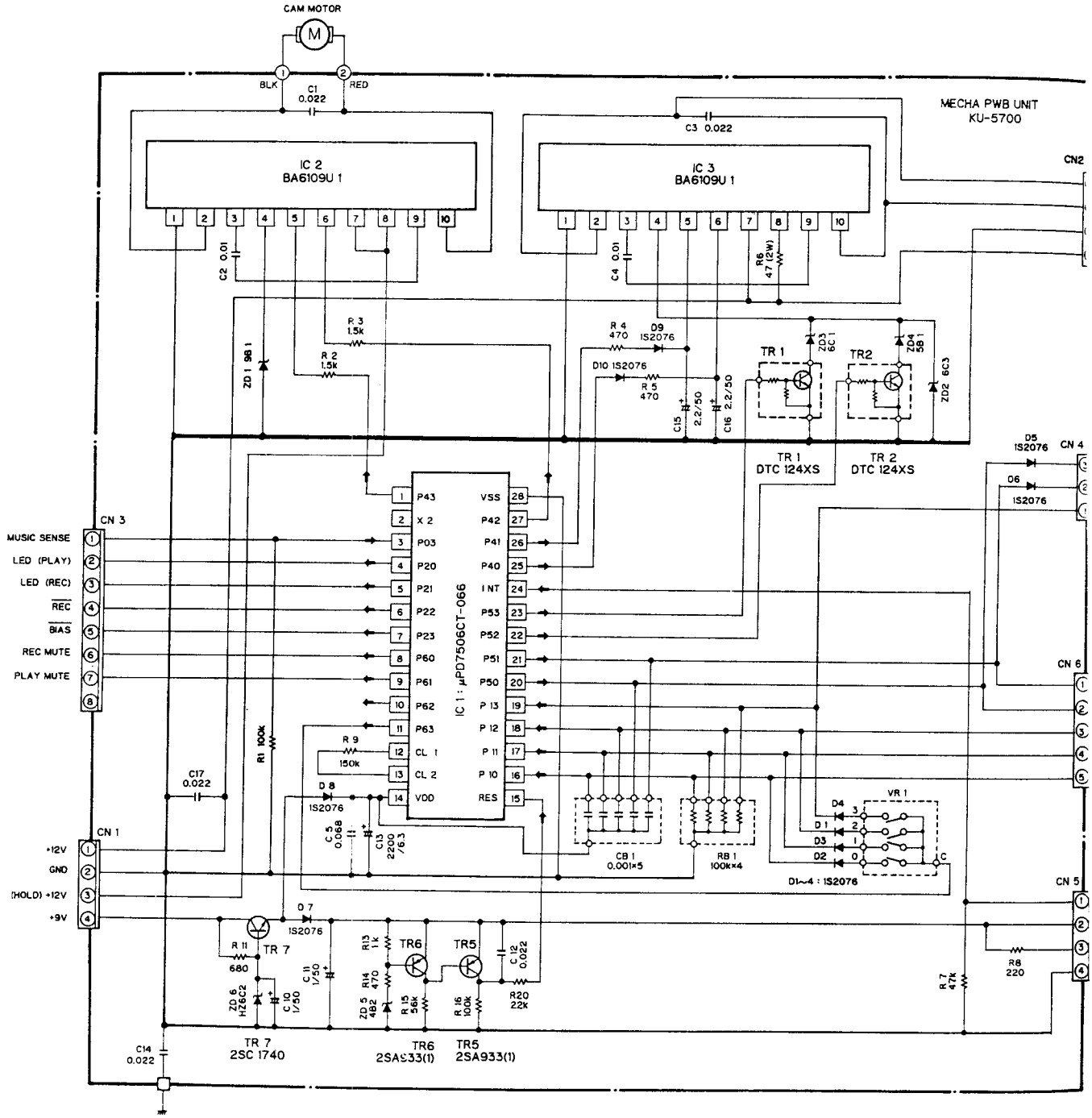
e specified.
subject to

# KU-5700 MECHANISM UNIT



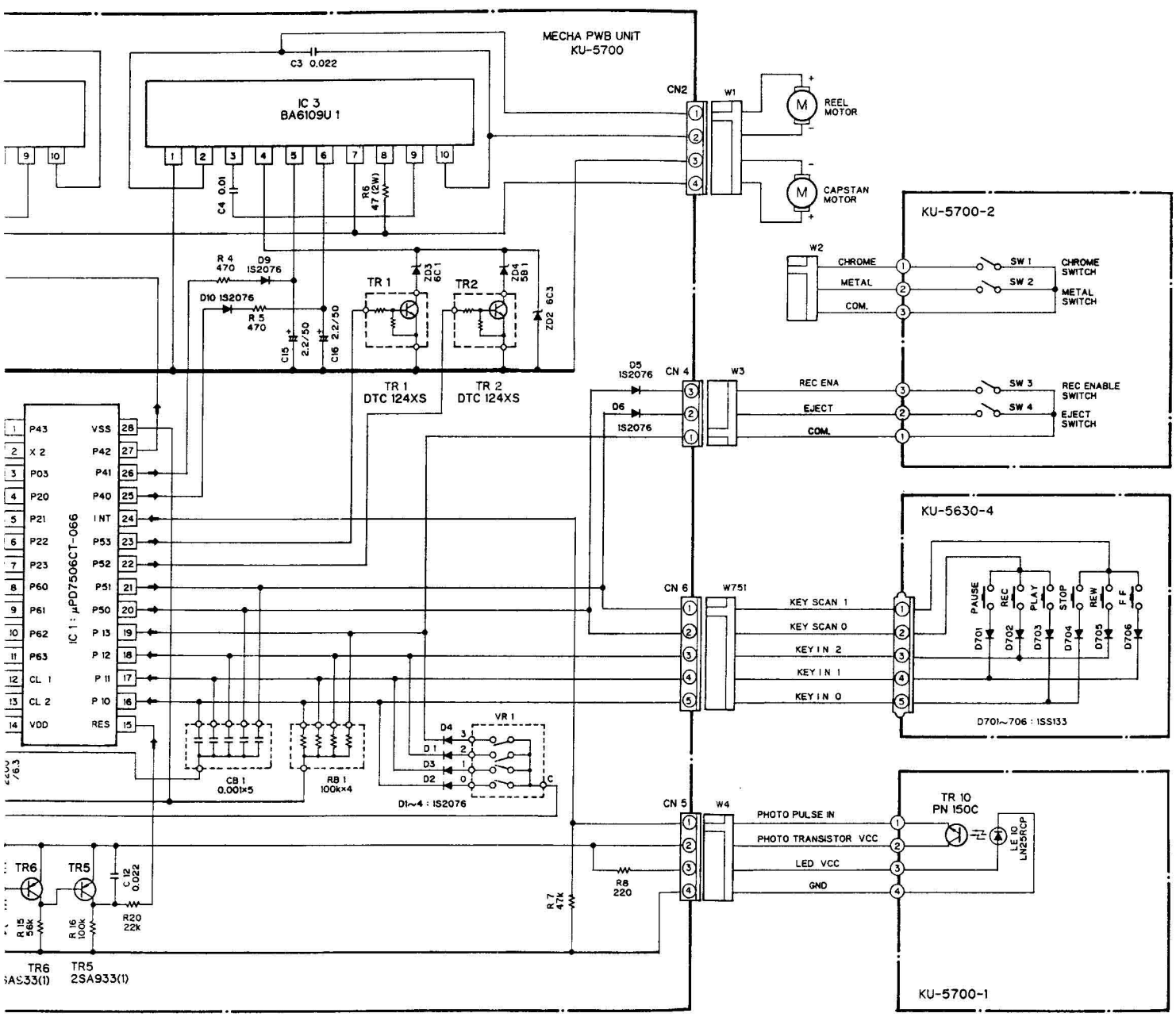



(After alteration)




**Note:**

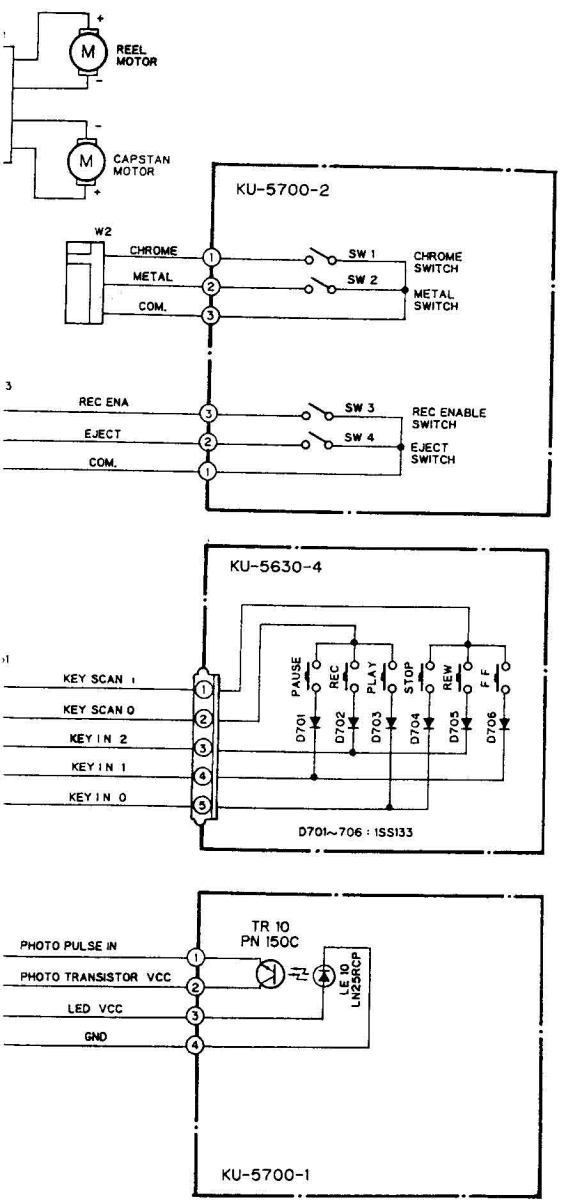
- Resistance shall be 1/4W unless otherwise specified and the unit is Ω.
- The unit of capacitor is μF, P is pF unless otherwise specified.
- This circuit diagram shows the basic circuit. It is subject to change for the purpose of improvement.

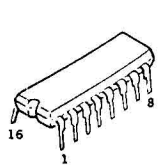



be 1/4W unless otherwise specified and the

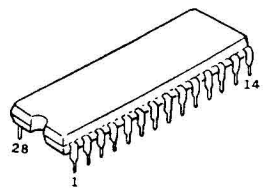
itor is μF, P is pF unless otherwise specified.
am shows the basic circuit. It is subject to
pose of improvement.

# SEMICONDUCTORS

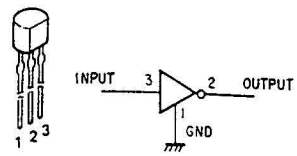


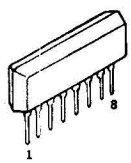
AN6256
AN6882

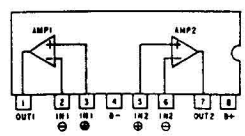


μPD7506C-066
TEA0665

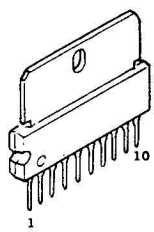


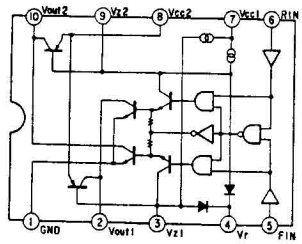

DTC124XS





M5218L
M5219L






BA6109

RV06

V06B

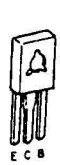
1S2076

HZ4B2
HZ4C3
HZ6C1
HZ6C2
HZ6C3
HZ9B1
HZ11A3

1SS133


2SA933
2SC1740
2SC2060
2SC2603
2SD468

2SK381




2SB772
2SD882

RB152