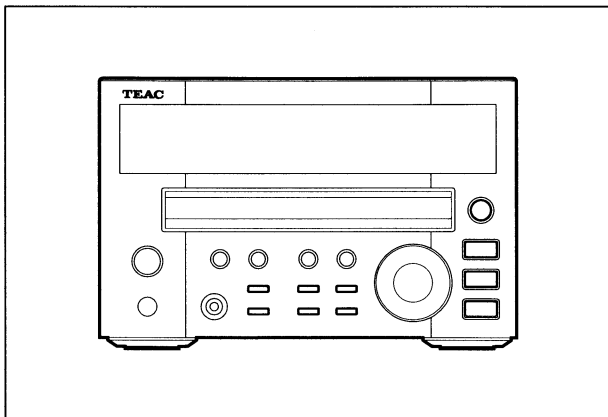




# TEAC

## SERVICE MANUAL

# CR-H100

## CD/TUNER/AMPLIFIER

### NOTES

- PC boards shown are viewed from parts side.
- The parts with no reference number or parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- ⚠ Parts marked with this sign are critical components. They must be replaced with identical components - refer to the appropriate parts list and ensure exact replacement.
- Parts of [ ] mark can be used only with the version designated.  
[J] : JAPAN    [US] : U.S.A.    [C] : CANADA  
[E] : EUROPE    [UK] : U.K.    [GE] : GENERAL EXPORT

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## Specifications

### AMP Section

|                           |                           |
|---------------------------|---------------------------|
| Power output              | : 20W + 20W (6Ω, 1 kHz)   |
| Total Harmonic Distortion | : 5% (1 kHz)              |
| S/N Ratio (Input Short)   | : 85 dB (IHF-A)           |
| Input Sensitivity         |                           |
| LINE                      | : 200 mV/22 kΩ            |
| Output level              |                           |
| Tape                      | : 180 mV/2.2 kΩ           |
| Frequency Response        | : 20 Hz to 40 kHz (-3 dB) |
| Tone control              |                           |
| Bass                      | : 9 dB (100 Hz)           |
| Treble                    | : 9 dB (10 kHz)           |
| Cross-Talk (Separation)   |                           |
| CD (Linear)               | : 50 dB (1 kHz)           |
| Other Ch.                 | : 65 dB (1 kHz)           |

### General

|                        |                                                                |
|------------------------|----------------------------------------------------------------|
| Power Consumption      | : 60W                                                          |
| Power Requirements     | : 120V, 60Hz [US]<br>: 230V, 50Hz [EUR]<br>: 100V, 50-60Hz [J] |
| Dimensions (W x H x D) | : 175 X 115 X 325 mm                                           |
| Weight (net)           | : 3.6 kg                                                       |

### Standard Accessories

|                     |     |
|---------------------|-----|
| Remote Control Unit | : 1 |
| Operator's Manual   | : 1 |
| AM Loop Antenna     | : 1 |
| FM Antenna          | : 1 |

### FM Section

|                       |                                 |
|-----------------------|---------------------------------|
| Tuning Range          | : 87.5 MHz - 108.0 MHz          |
| Usable Sensitivity    | : 11.2 dBf (2uV)<br>(30 dB S/N) |
| Distortion            |                                 |
| Mono                  | : 0.5%                          |
| Stereo                | : 1.0%                          |
| Signal-to-Noise Ratio |                                 |
| Mono                  | : 65 dB                         |
| Stereo                | : 60 dB                         |
| Frequency Response    | : 30 - 15 kHz (-3 dB)           |

### AM Section

|                       |                       |
|-----------------------|-----------------------|
| Tuning Range          | : 522 kHz - 1,620 kHz |
| AM Sensitivity        | : 600 uV/m            |
| Selectivity +/-9K     | : 25 dB               |
| Frequency Response    | : 80 - 2.3 kHz        |
| Signal-to-Noise Ratio | : 40 dB (50mV/m)      |

### CD PLAYER Section

|                       |                               |
|-----------------------|-------------------------------|
| Signal-to-Noise Ratio | : 80 dB (with IHF "A" Filter) |
| T.H.D                 | : 0.05% (1 kHz, 20 kHz LPF)   |
| Channel Separation    | : 55 dB (1 kHz)               |
| Channel Balance       | : 1 dB                        |
| Frequency Response    | : 17 Hz - 20 kHz (± 1.5 dB)   |
| Wow Flutter           | : Bellow Measurable           |

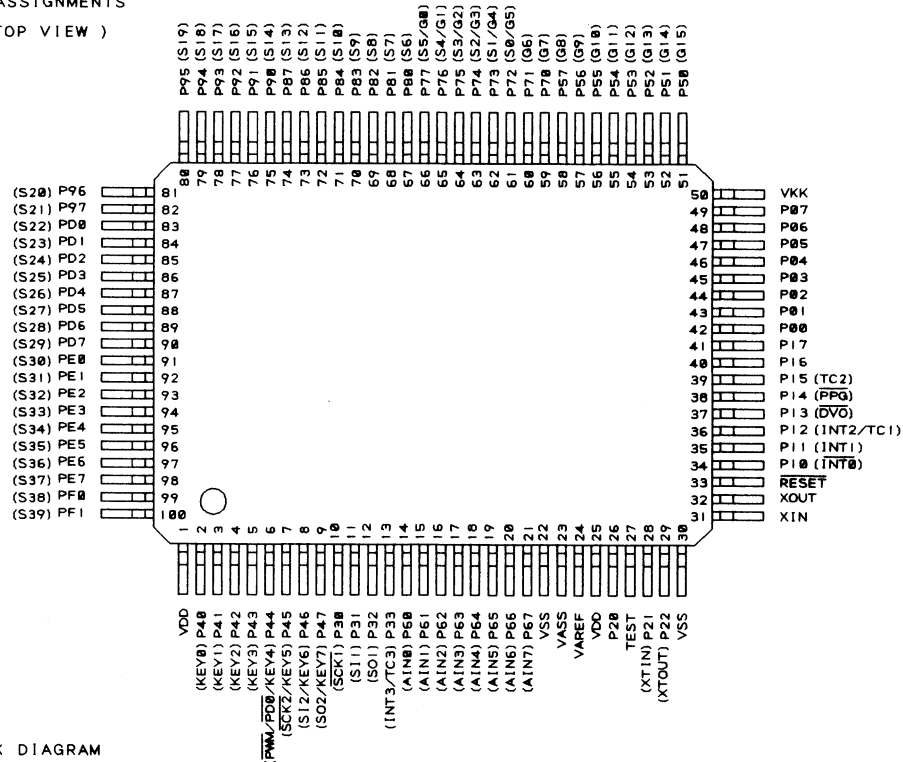
\* Improvements may result in specification or feature changes without notice.

## IC PIN FUNCTION (IC : ANAM1290ACT)

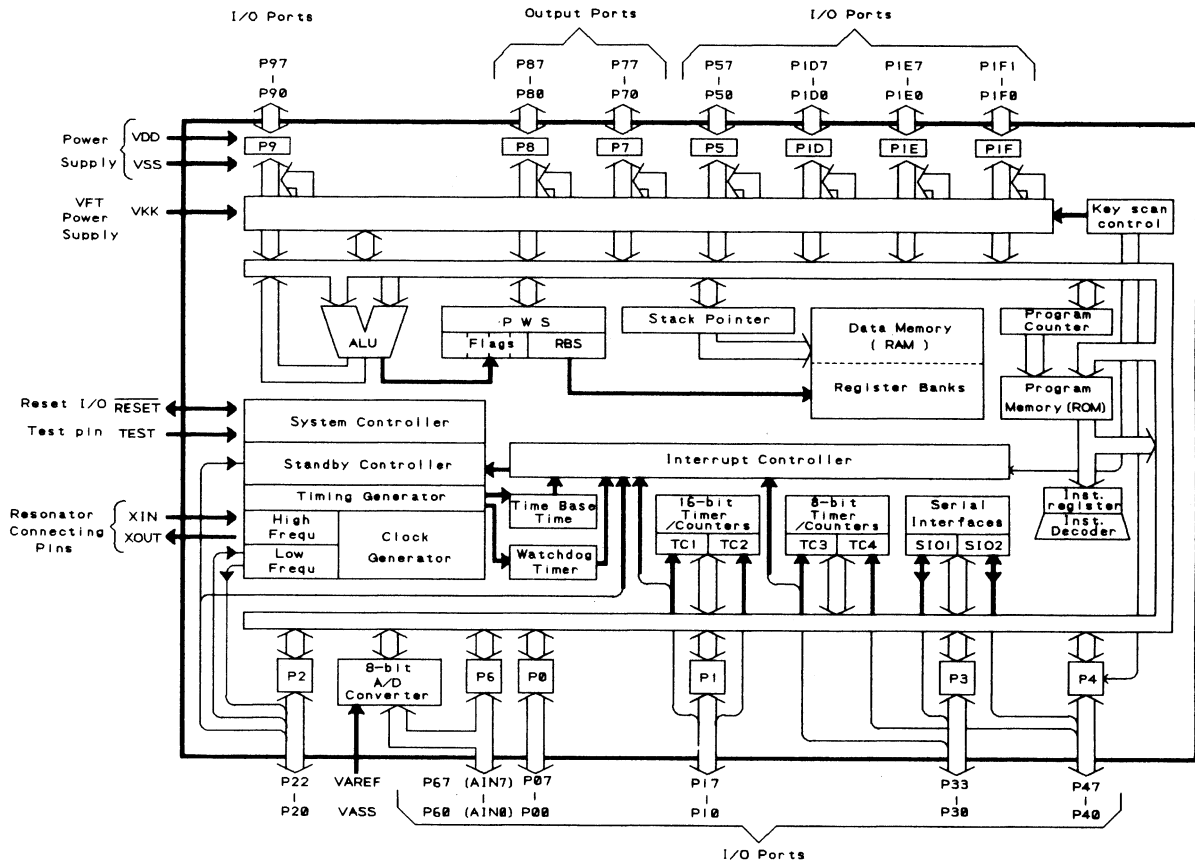
| PIN No.     | NAME         | I/O | DESCRIPTION                                   |
|-------------|--------------|-----|-----------------------------------------------|
| 1, 25       | VDD          | -   | POWER SUPPLY (+5V)                            |
| 2           | CD BUS 0     | I/O | BUS for CD DATA                               |
| 3           | CD BUS 1     | I/O | BUS for CD DATA                               |
| 4           | CD BUS 2     | I/O | BUS for CD DATA                               |
| 5           | CD BUS 3     | I/O | BUS for CD DATA                               |
| 6           | BUCK         | I/O | BUS for CD CLOCK                              |
| 7           | CCE          | I/O | BUS for CD CHIP ENABLE                        |
| 8           | RESET        | I   | RESET for CD                                  |
| 9           | MUTE         | O   | MUTE for CD SINGLE                            |
| 10          | ME-MOT OPEN  | O   | MECHA-MOTOR OPEN                              |
| 11          | ME-MOT CLOSE | O   | MECHA-MOTOR CLOSE                             |
| 12          | DATA         | O   | EUROPE VERSION RDS DATA CONTROL PORT          |
| 13          | CLOCK        | O   |                                               |
| 14          | STEREO IN    | I   | STEREO IN CONTROL INPUT                       |
| 15          | TUNED        | I   | TUNED CONTROL INPUT                           |
| 17          | PROTECTOR    | I   | PROTECTOR IN PORT                             |
| 20, 21      | KEY MATRIX   | I   | KEY MATRIX PORTS                              |
| 22,23,27,30 | VSS          | -   | GND                                           |
| 24          | VAREF        | -   | A/D CONVERTOR REFERENCE VOLTAGE               |
| 26          | BACK UP      | I   | BACK-UP MODE CONTROL INPUT                    |
| 28, 29      | X-TAL        | I   | 32.768kHz SUB CLOCK CONNECTING PORT           |
| 31          | X IN         | I   | 8MHz CRYSTAL CONNECTING TERMINAL              |
| 32          | X OUT        | O   |                                               |
| 33          | RESET        | I   | SYSTEM RESET PULSE INPUT                      |
| 34          | REMOTE IN    | I   | REMOTE CONTROL SIGNAL INPUT                   |
| 35          | BUS IN       | I   | REMOTE CONTROL SIGNAL INPUT                   |
| 36          | BUS OUT      | O   | REMOTE CONTROL SIGNAL INPUT                   |
| 38          | SPEAKER      | O   | SPEAKER ON/OFF PORT                           |
| 41          | CE           | O   | PLL DATA CONTROL PORT                         |
| 42          | DATA OUT     | O   |                                               |
| 43          | CLOCK        | O   |                                               |
| 44          | DATA IN      | I   |                                               |
| 45          | CLOCK        | O   | TDA7318D DATA CONTROL PORT                    |
| 46          | DATA         | O   |                                               |
| 47          | POWER        | O   | POWER ON/OFF                                  |
| 48          | MUTE         | O   | SIGNAL MUTE                                   |
| 50          | VFL          |     | (-33V) NEGATIVE POWER SUPPLY FOR FIP BLINKING |
| 52 ~ 60     | GRID         | O   | FIP GRID CONTROL OUTPUTS                      |
| 61 ~ 82     | SEGMENT      | O   | FIP SEGMENT CONTROL OUTPUTS                   |
| 83 ~ 87     |              | I   | AREA OPTION                                   |
| 89          | CD POWER     | O   | CD POWER ON/OFF PORT                          |
| 90          | ON/STBY LED  | O   | ON/STANDBY LED CONTROL PORT                   |
| 91          | TAPE 'H'     | O   | ON TAPE FUNCTION 'H' OUTPUT PORT              |
| 93          | MD 'H'       | O   | ON MD FUNCTION 'H' OUTPUT PORT                |
| 96, 97      | JOG CONTROL  | I   | VOL/BAL/BASS/TRE CONTROL JOG INPUT PORT       |
| 98          | CD CLOSE SW  | I   |                                               |
| 99          | CD OPEN SW   | I   | For CD MECHANISM SW                           |
| 100         | CD LIMIT SW  | I   |                                               |

# [ U-COM FUNCTION : BVIANAMI267T ]

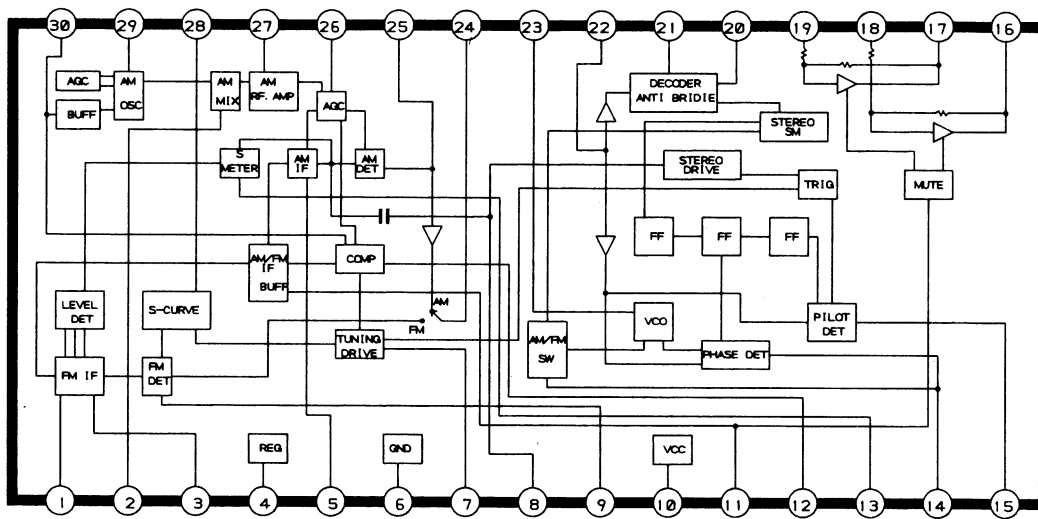
PIN ASSIGNMENTS  
( TOP VIEW )



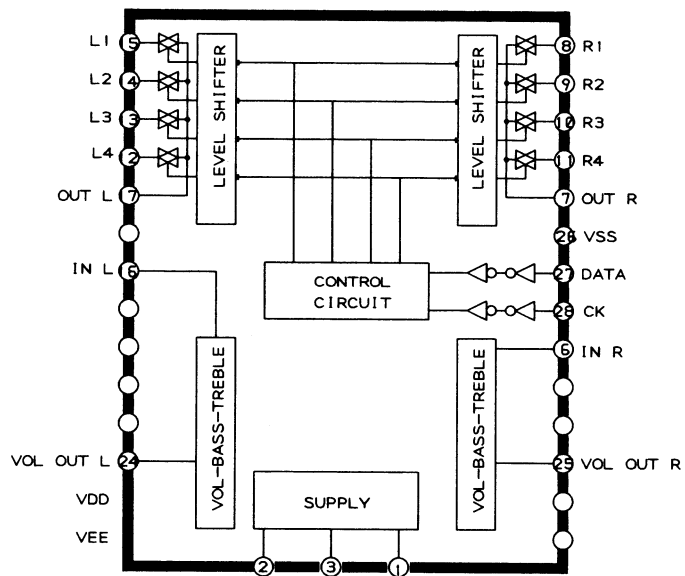
BLOCK DIAGRAM



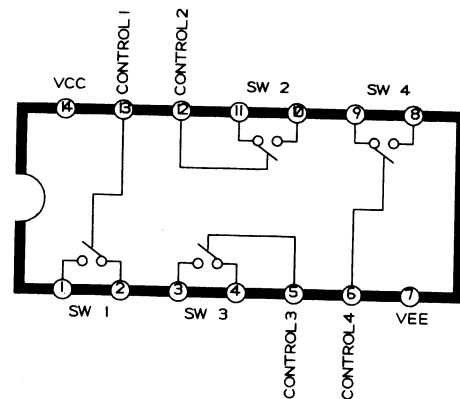
IC12 (TUNER) LA1836M BLOCK DIAGRAM



TDA 7318D



IC22 (INPUT) LC4955



## ■ ALIGNMENT INSTRUCTIONS

### EQUIPMENT NEEDED:

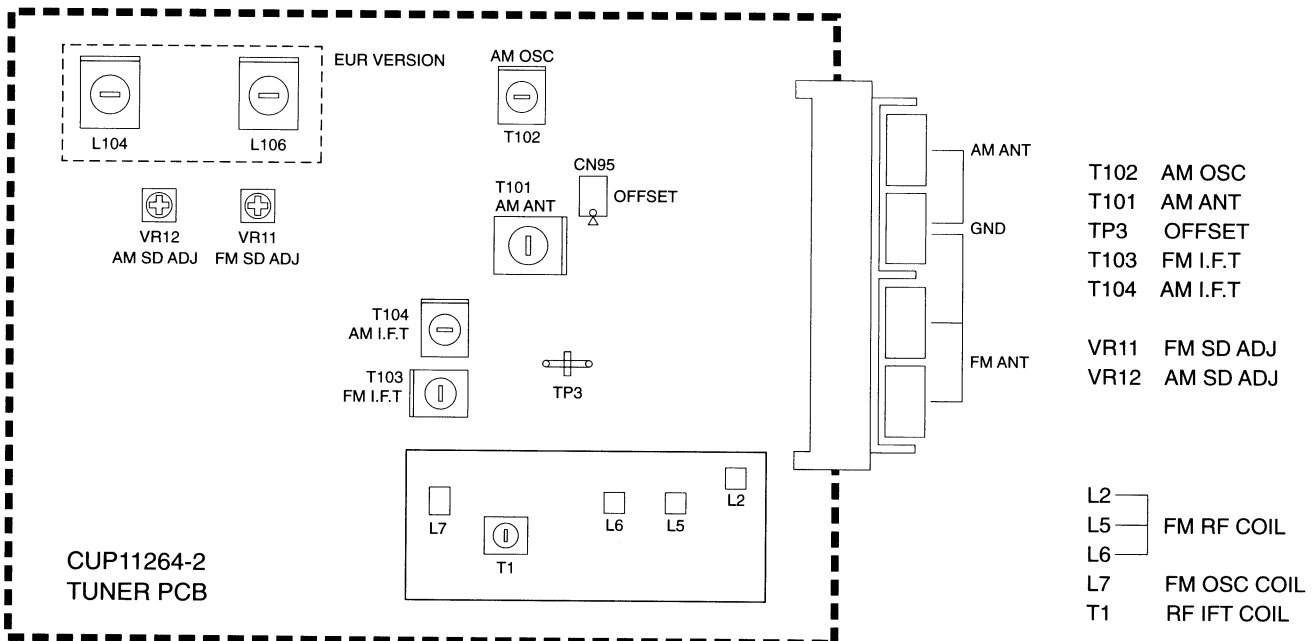
AM Signal Generator  
 FM Signal Generator  
 Oscilloscope  
 VTVM(AC, DC)  
 Test loop antenna (AW Adjustment)  
 Dummy antenna (FM Adjustment)  
 Stereo signal modulator  
 Frequency counter  
 Distortion analyser

### IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

| Band \ Item | Modulation       | Modulation frequency |
|-------------|------------------|----------------------|
| AM          | 30%              | 400Hz                |
| FM          | 100%(75KHz Dev.) | 400Hz                |

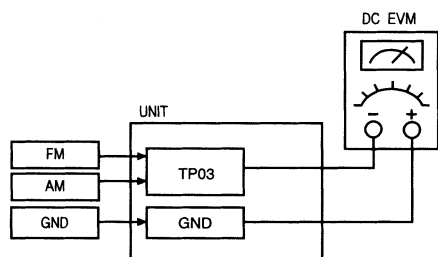
## ■ ADJUSTMENT POINT



# MEASUREMENTS AND ADJUSTMENTS

## 1. FM, AM TRACKING VOLTAGE ADJUSTMENTS

(FM, AM) DC VOLTMETER ..... CONNECT TO TEST POINT TP1 and GND



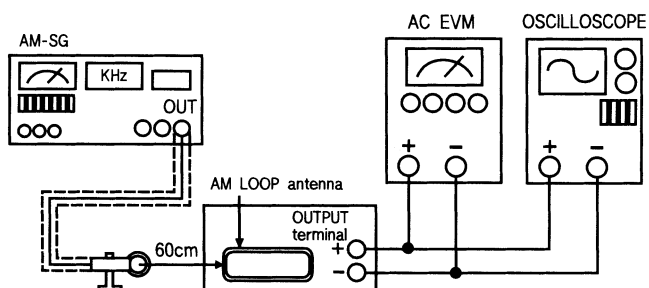
| NO. | Band | Frequency | Adjust for | Adjustment |
|-----|------|-----------|------------|------------|
| 1   | FM   | 87.50MHz  | 1.5V       | L7         |
| 2   | AM   | 522KHz    | 1V         | T702       |

## 2. AM RF ADJUSTMENT

Signal Generator ..... Connects to the AM ANT. Coil through the loop antenna.

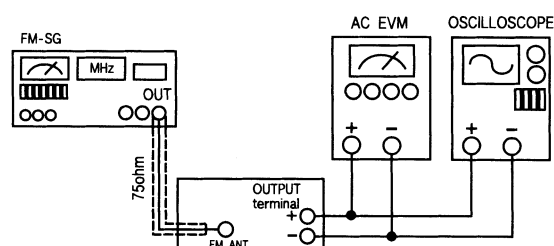
Adjust for the indication of VTVM of the wave form of scope to be maximum.

| BAND | Step | Frequency                           | Adjust for          | Adjustment |
|------|------|-------------------------------------|---------------------|------------|
| AM   | 1    | 612KHz                              | Maximum sensitivity | T101, T104 |
|      | 2    | 1512KHz                             | Maximum sensitivity | C127       |
|      | 3    | Repeat steps 1 and 2 several times. |                     |            |



## 3. FM-RF ADJUSTMENT

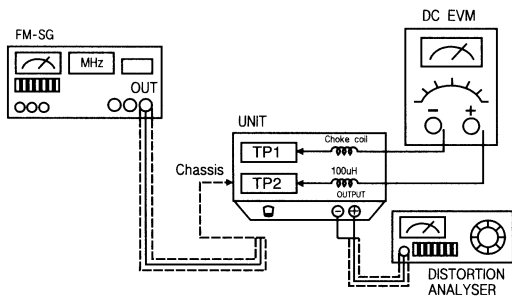
Signal Generator ..... Connect to FM ANT JACK (FM IN) through the dummy.



| NO. | Frequency                    | Adjust for          | Adjustment |
|-----|------------------------------|---------------------|------------|
| 1   | 90.10MHz                     | Maximum Sensitivity | L2, L5, L6 |
| 2   | Repeat step 1 several times. |                     |            |

#### 4. FM MONO DISTORTION ADJUSTMENT

DC VOLT METER.....Connect to TP1(-), TP2(+) Through the choke coil (100 $\mu$ H)  
 Signal Generator.....Connect to FM ANT Jack (FM IN) through the dummy.  
 Distortion Meter .....Connect to the output.



| NO. | Frequency                           | Adjust for      | Adjustment |
|-----|-------------------------------------|-----------------|------------|
| 1   | 100.10MHz                           | DC Voltmeter 0V | T103       |
| 2   | 100.10MHz                           | Minimum T.H.D   | T103       |
| 3   | Repeat steps 1 and 2 Several times. |                 |            |

#### 5. FM/AM AUTO STOP LEVEL ADJUSTMENT

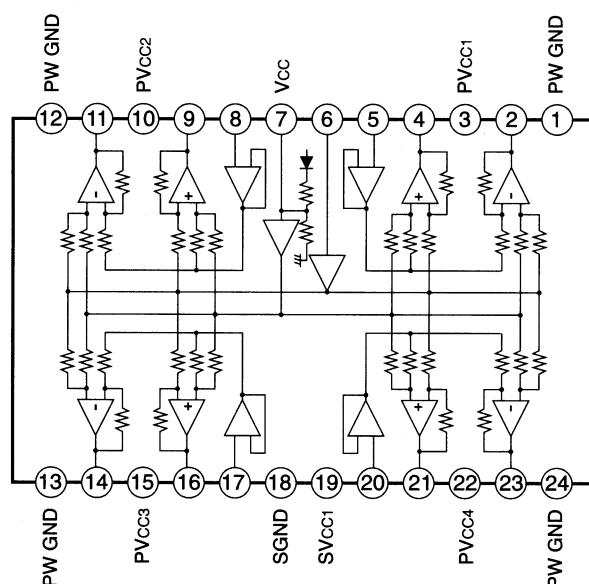
FM SIGNAL GENERATOR .....Connect to FM ANT Jack (FM IN) through the dummy  
 AM SIGNAL GENERATOR.....Connect to AM ANT, Coil through the Loop antenna

| BAND | STEP | SIGNAL GENERATOR | Adjust for                                 | Adjustment |
|------|------|------------------|--------------------------------------------|------------|
| FM   | 1    | 100.1MHz 30dB    | <input type="checkbox"/> TUNED Display OFF | VR11       |
|      | 2    | 100.1MHz 30dB    | <input type="checkbox"/> TUNED Display ON  | VR11       |
| AM   | 1    | 999KHz 80dB      | <input type="checkbox"/> TUNED Display OFF | VR12       |
|      | 2    | 999KHz 80dB      | <input type="checkbox"/> TUNED Display ON  | VR12       |

## TA2092N (POWER DRIVER)

| PIN No. | NAME      | DESCRIPTION                                                                                                                                            |
|---------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | PW GND    | Power GND<br>Connected to substrate.<br>① , ⑫ , ⑬ , ⑭ pin are connected inside.                                                                        |
| 2       | OUT (-) 1 | Inverted output for CH1                                                                                                                                |
| 3       | PVCC1     | Supply terminal of output stage for CH1<br>Supply terminal of output stage are not connected to other channel terminal.                                |
| 4       | OUT (+) 1 | Non-inverted output for CH1                                                                                                                            |
| 5       | VIN1      | Input for CH1. Not biased inside                                                                                                                       |
| 6       | VRI       | Input reference voltage<br>Under condition of $V_{RI} \leq 1.8V$ , internal bias circuit is shut off.<br>No signal input condition : $V_{RI} = V_{IN}$ |
| 7       | VCI       | Output reference voltage. $V_{OUT} = V_{CI} = (V_{CC} - V_F)/2$                                                                                        |
| 8       | VIN2      | Input for CH2                                                                                                                                          |
| 9       | OUT (+) 2 | Non-inverted output for CH2                                                                                                                            |
| 10      | PVCC2     | Supply terminal of output stage for CH2                                                                                                                |
| 11      | OUT (-) 2 | Inverted output for CH2                                                                                                                                |
| 12      | PW GND    | Power GND                                                                                                                                              |
| 13      | PW GND    | Power GND                                                                                                                                              |
| 14      | OUT (-) 3 | Inverted output for CH3                                                                                                                                |
| 15      | PVCC3     | Supply terminal of output stage for CH3                                                                                                                |
| 16      | OUT (+) 3 | Non-inverted output for CH3                                                                                                                            |
| 17      | VIN3      | Input for CH3                                                                                                                                          |
| 18      | S GND     | Supply terminal of small signal GND                                                                                                                    |
| 19      | S Vcc     | Small signal GND                                                                                                                                       |
| 20      | VIN4      | Input for CH4                                                                                                                                          |
| 21      | OUT (+) 4 | Non-inverted output for CH4                                                                                                                            |
| 22      | PVCC4     | Supply terminal of output stage for CH4                                                                                                                |
| 23      | OUT (-) 4 | Inverted output for CH4                                                                                                                                |
| 24      | PW GND    | Power GND                                                                                                                                              |

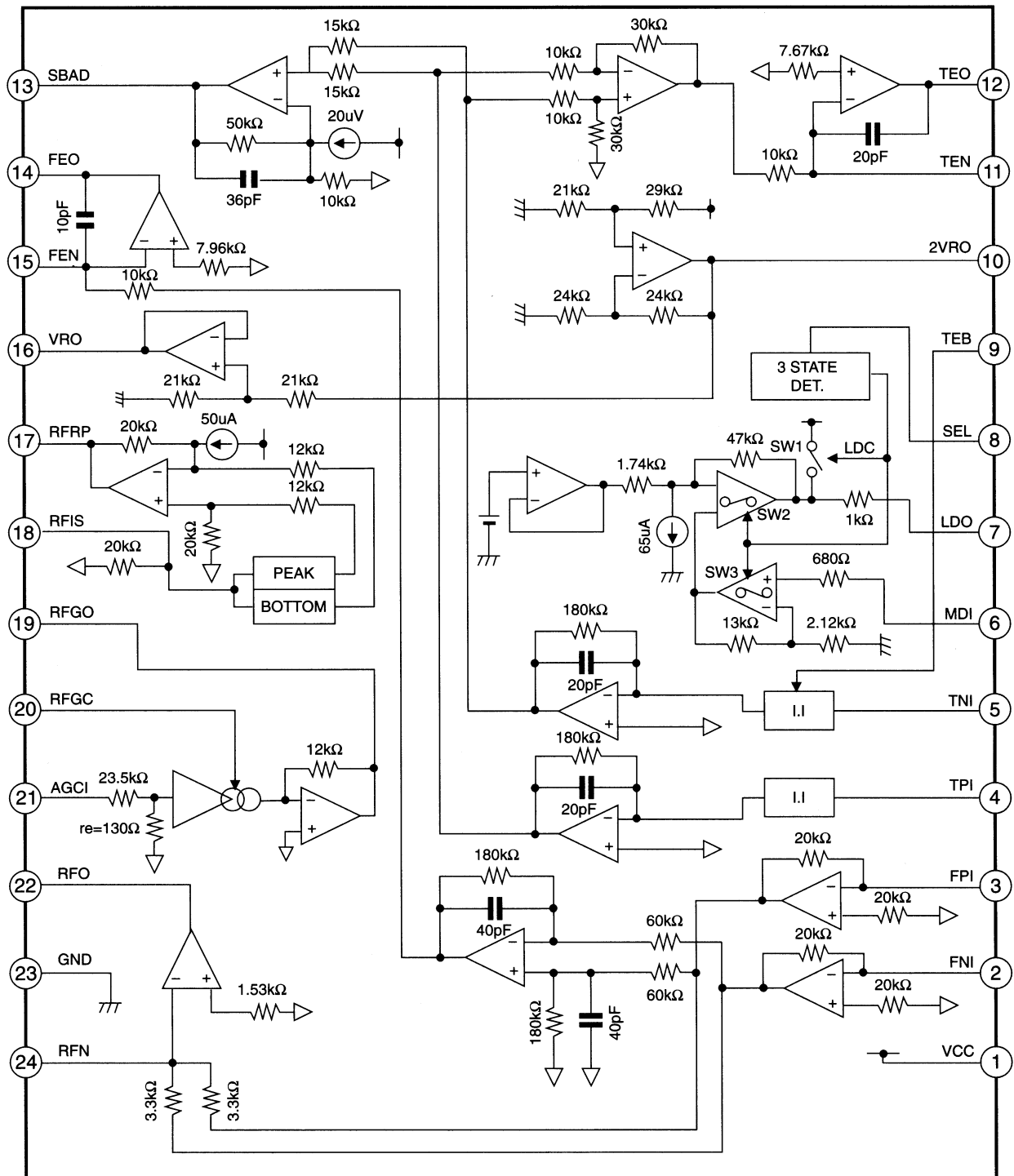
### BLOCK DIAGRAM



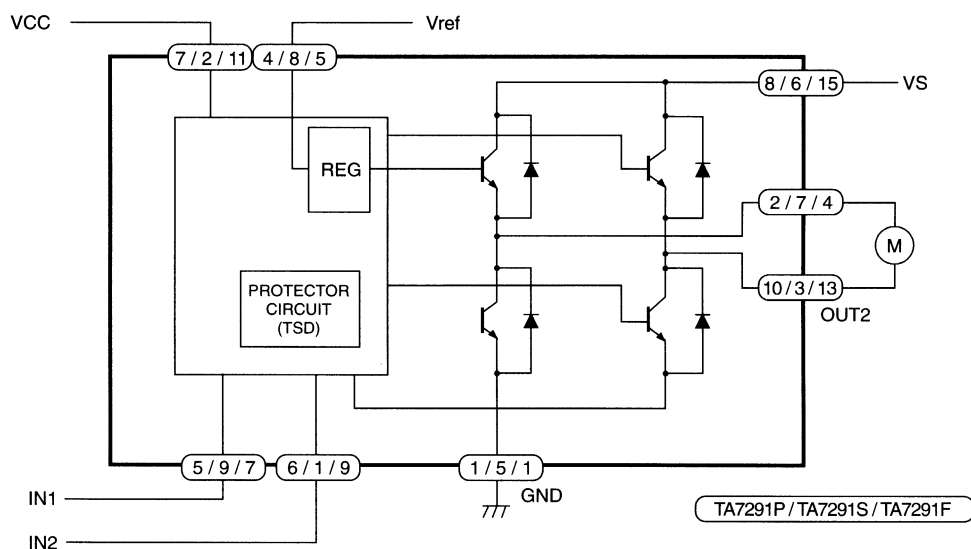
## TA2109F (RF/DIGITAL SERVOR)

| PIN No. | NAME | I/O | DESCRIPTION                                                                                                  | REMARK                                     |
|---------|------|-----|--------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| 1       | VCC  | -   | Power supply input terminal                                                                                  | -                                          |
| 2       | FNI  | I   | Main beam I-V amp input terminal                                                                             | Connected to pin diode A,C                 |
| 3       | FPI  | I   | Main beam I-V amp input terminal                                                                             | Connected to pin diode B,D                 |
| 4       | TPI  | I   | Sub beam I-V amp input terminal                                                                              | Connected to pin diode F                   |
| 5       | TNI  | I   | Sub beam I-V amp input terminal                                                                              | Connected to pin diode E                   |
| 6       | MDI  | I   | Monitor photo diode amp input terminal                                                                       | Connected to monitor photo diode           |
| 7       | LDO  | O   | Laser diode amp output terminal                                                                              | Connected to laser control circuit         |
| 8       | SEL  | I   | Laser diode control signal input terminal and APC circuit ON/OFF control signal input terminal               | 3 signal input (Vcc, Hi-Z, GND)            |
| 9       | TEB  | I   | Tracking error balance adjustment signal input terminal. Controlled by 3 PWM signal (PWM carrier = 88.2 kHz) | 3 signal input (2 VREF, VR, GND)           |
| 10      | 2VRO | O   | Reference voltage (2 VREF) output terminal<br>2 VREF = 4.2V when VCC = 5V                                    | -                                          |
| 11      | TEN  | I   | TE amp negative input terminal                                                                               | Connected to TEO through feedback register |
| 12      | TEO  | O   | TE error signal output terminal                                                                              | -                                          |
| 13      | SBAD | O   | Sub beam adder signal output terminal                                                                        | -                                          |
| 14      | FEO  | O   | Focus error signal output terminal                                                                           | -                                          |
| 15      | FEN  | I   | FE amp negative input terminal                                                                               | Connected to FEO through feedback register |
| 16      | VRO  | O   | Reference voltage (VREF) output terminal<br>VREF = 2.1V when VCC = 5V                                        | -                                          |
| 17      | RFRP | O   | Track count signal output terminal                                                                           | -                                          |
| 18      | RFIS | I   | RFRP detect circuit input terminal                                                                           | Connected to RFO through condenser         |
| 19      | RFGO | O   | RF gain signal output terminal                                                                               | -                                          |
| 20      | RFGC | I   | RF amplitude adjustment control signal input terminal. Controlled by 3 PWM signal (PWM carrier = 88.2 kHz)   | 3 signal input (2 VREF, VR, GND)           |
| 21      | AGCI | I   | RF signal amplitude adjustment amp input terminal                                                            | Connected to RFO through condenser         |
| 22      | RFO  | O   | RF signal output terminal                                                                                    | -                                          |
| 23      | GND  | -   | Ground terminal                                                                                              | -                                          |
| 24      | RFN  | I   | RF amp negative input terminal                                                                               | -                                          |

# TA2109F (RF/DIGITAL SERVOR)



## TA7291S (Bridge Driver)



| PIN No. |   |    | SYMBOL | FUNCTIONAL DESCRIPTION                  |
|---------|---|----|--------|-----------------------------------------|
| P       | S | F  |        |                                         |
| 7       | 2 | 11 | Vcc    | Supply voltage terminal for Logic       |
| 8       | 6 | 15 | Vs     | Supply voltage terminal for motor drive |
| 4       | 8 | 5  | Vref   | Supply voltage terminal for control     |
| 1       | 5 | 1  | GND    | GND terminal                            |
| 5       | 9 | 7  | IN1    | Input terminal                          |
| 6       | 1 | 9  | IN2    | Input terminal                          |
| 2       | 7 | 4  | OUT1   | Output terminal                         |
| 10      | 3 | 13 | OUT2   | Output terminal                         |

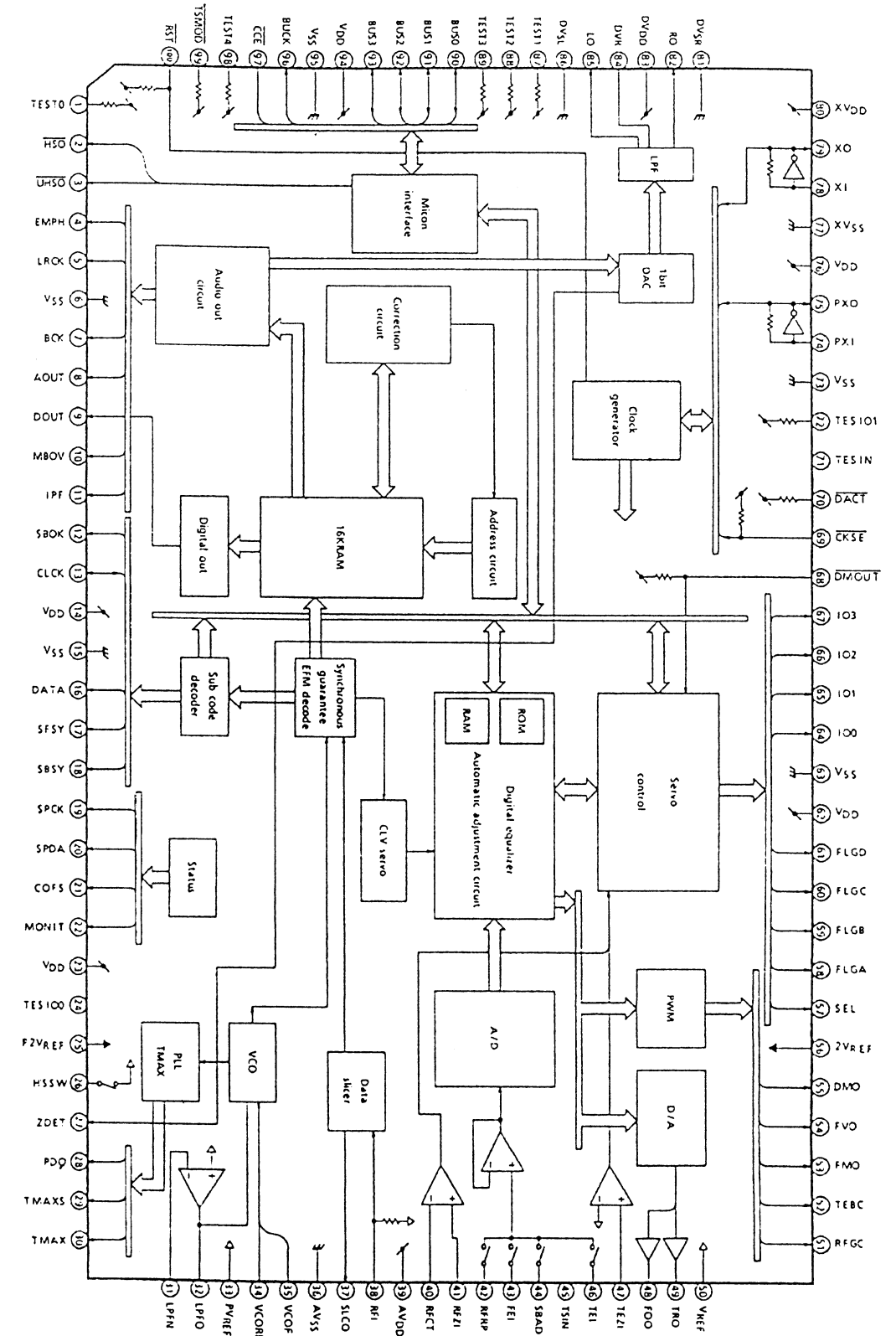
- P Type : PIN ③, ⑨ : NC
- S Type : PIN 4 : NC
- F Type : PIN ②, ③, ⑥, ⑧, ⑩, ⑫, ⑭, and ⑯ : NC
- For F Type, We recommend FIN to be connected to the GND.

# TC9432AF (Digital Signal Processor)

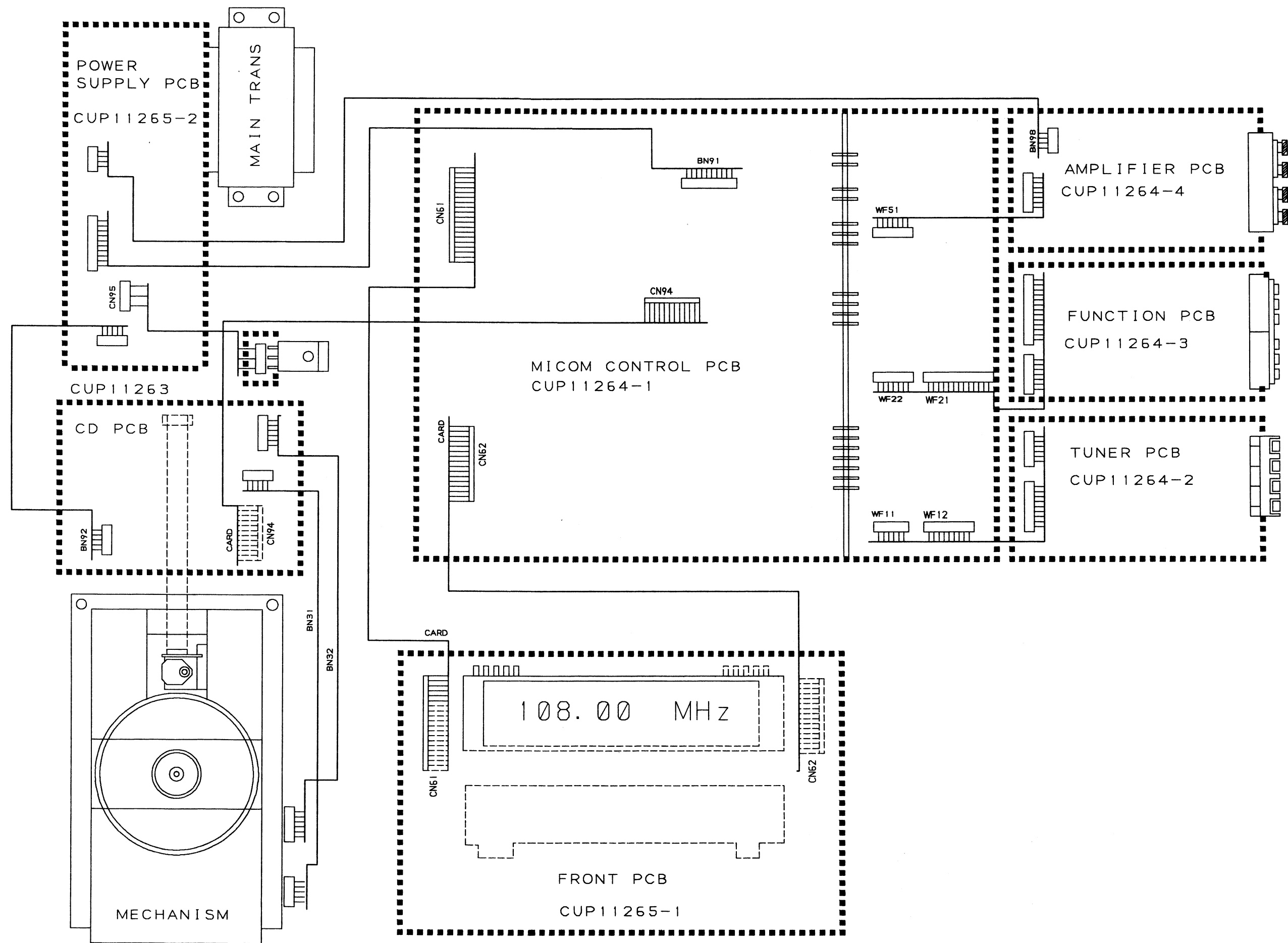
| PIN No.                  | NAME                     | I/O            | FUNCTIONAL DESCRIPTION                                                                                                                                                                                                                                                                                                                                           | REMARKS                           |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
|--------------------------|--------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------|-------------------------|----------|--------------------------|--------|------------------------|-------|---------------------------------|---|---|---------|---|---|---|---|
| 1                        | TEST0                    | -              | Test mode terminal. Normally, keep at open.                                                                                                                                                                                                                                                                                                                      | With pull-up resistor.            |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 2                        | $\overline{\text{HSO}}$  | O              | Playback speed mode flag output terminal.<br><table><tr><td><math>\overline{\text{UHSO}}</math></td><td><math>\overline{\text{HSO}}</math></td><td>PLAYBACK SPEED</td></tr><tr><td>H</td><td>H</td><td>Normal</td></tr><tr><td>H</td><td>L</td><td>2 times</td></tr><tr><td>L</td><td>H</td><td>4 times</td></tr><tr><td>L</td><td>L</td><td>-</td></tr></table> | $\overline{\text{UHSO}}$          | $\overline{\text{HSO}}$ | PLAYBACK SPEED          | H        | H                        | Normal | H                      | L     | 2 times                         | L | H | 4 times | L | L | - | - |
| $\overline{\text{UHSO}}$ | $\overline{\text{HSO}}$  | PLAYBACK SPEED |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| H                        | H                        | Normal         |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| H                        | L                        | 2 times        |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| L                        | H                        | 4 times        |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| L                        | L                        | -              |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 3                        | $\overline{\text{UHSO}}$ | O              |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 4                        | EMPH                     | O              | Subcode Q data emphasis flag output terminal. Emphasis ON at “H” level and OFF at “L” level. The output polarity can invert by command.                                                                                                                                                                                                                          | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 5                        | LRCK                     | O              | Channel clock output terminal. (44.1 kHz) L-ch at “L” level and R-ch at “H” level. The output polarity can invert by command.                                                                                                                                                                                                                                    | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 6                        | Vss                      | -              | Digital GND terminal.                                                                                                                                                                                                                                                                                                                                            | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 7                        | BCK                      | O              | Bit clock output terminal. (1.4112 MHz)                                                                                                                                                                                                                                                                                                                          | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 8                        | AOUT                     | O              | Audio data output terminal.                                                                                                                                                                                                                                                                                                                                      | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 9                        | DOUT                     | O              | Digital data output terminal.                                                                                                                                                                                                                                                                                                                                    | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 10                       | MBOV                     | O              | Buffer memory over signal output terminal. Over at “H” level.                                                                                                                                                                                                                                                                                                    | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 11                       | IPF                      | O              | Correction flag output terminal. At “H ” level, AOUT output is made to correction impossibility by C2 correction processing.                                                                                                                                                                                                                                     | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 12                       | SBOK                     | O              | Subcode Q data CRCC check adjusting result output terminal. The adjusting result is OK at “H” level.                                                                                                                                                                                                                                                             | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 13                       | CLCK                     | I/O            | Subcode P~W data readout clock input/output terminal. This terminal can select by command bit.                                                                                                                                                                                                                                                                   | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 14                       | VDD                      | -              | Digital power supply voltage terminal.                                                                                                                                                                                                                                                                                                                           | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 15                       | Vss                      | -              | Digital GND terminal.                                                                                                                                                                                                                                                                                                                                            | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 16                       | DATA                     | O              | Subcode P~W data output terminal.                                                                                                                                                                                                                                                                                                                                | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 17                       | SFSY                     | O              | Playback frame sync signal output terminal.                                                                                                                                                                                                                                                                                                                      | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 18                       | SBSY                     | O              | Subcode block sync signal output terminal.                                                                                                                                                                                                                                                                                                                       | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 19                       | SPCK                     | O              | Processor status signal readout clock output terminal.                                                                                                                                                                                                                                                                                                           | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 20                       | SPDA                     | O              | Processor status signal output terminal.                                                                                                                                                                                                                                                                                                                         | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 21                       | COFS                     | O              | Correction frame clock output terminal. (7.35 kHz)                                                                                                                                                                                                                                                                                                               | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 22                       | MONIT                    | O              | Internal signal (DSP internal flag and PLL clock) output terminal. Selected by command.                                                                                                                                                                                                                                                                          | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 23                       | VDD                      | -              | Digital power supply voltage terminal.                                                                                                                                                                                                                                                                                                                           | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 24                       | TESIO0                   | I              | Test input/output terminal. Normally, keep at “L” level.                                                                                                                                                                                                                                                                                                         | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 25                       | P2VREF                   | -              | PLL double reference voltage supply terminal.                                                                                                                                                                                                                                                                                                                    | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 26                       | HSSW                     | O              | 2/4 times speed at “VREF” voltage.                                                                                                                                                                                                                                                                                                                               | 2-state output (PVREF,HiZ)        |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 27                       | ZDET                     | O              | 1 bit DA converter zero detect flag output terminal.                                                                                                                                                                                                                                                                                                             | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 28                       | PDO                      | O              | Phase difference signal output terminal of EFM signal and PLCK signal.                                                                                                                                                                                                                                                                                           | 3-state output (P2VREF,PVREF,Vss) |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 29                       | TMAXS                    | O              | TMAX detection result output terminal. Selected by command bit (TMPS).                                                                                                                                                                                                                                                                                           | -                                 |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| 30                       | TMAX                     | O              | TMAX detection result output terminal. Selected by command bit (TMPS).<br><table><tr><td>DIFFERENCE RESULT</td><td>TMAX OUTPUT</td></tr><tr><td>Longer than fixed ferg.</td><td>“P2VREF”</td></tr><tr><td>Shorter than fixed freq.</td><td>“Vss”</td></tr><tr><td>Within the fixed freq.</td><td>“HiZ”</td></tr></table>                                         | DIFFERENCE RESULT                 | TMAX OUTPUT             | Longer than fixed ferg. | “P2VREF” | Shorter than fixed freq. | “Vss”  | Within the fixed freq. | “HiZ” | 3-state output (P2VREF,HiZ,Vss) |   |   |         |   |   |   |   |
| DIFFERENCE RESULT        | TMAX OUTPUT              |                |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| Longer than fixed ferg.  | “P2VREF”                 |                |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| Shorter than fixed freq. | “Vss”                    |                |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |
| Within the fixed freq.   | “HiZ”                    |                |                                                                                                                                                                                                                                                                                                                                                                  |                                   |                         |                         |          |                          |        |                        |       |                                 |   |   |         |   |   |   |   |

| PIN No. | NAME   | I/O | FUNCTIONAL DESCRIPTION                                                                                                                                                                                                                  | REMARKS                                                                      |
|---------|--------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 31      | LPFN   | I   | LPF amplifier inverting input terminal for PLL.                                                                                                                                                                                         | Analog input.                                                                |
| 32      | LPFO   | O   | LPF amplifier output terminal for PLL.                                                                                                                                                                                                  | Analog output.                                                               |
| 33      | PVREF  | -   | PLL reference voltage supply terminal.                                                                                                                                                                                                  | -                                                                            |
| 34      | VCOREF | I   | VCO center frequency reference level terminal.<br>Normally, keep at "PVREF" level.                                                                                                                                                      | -                                                                            |
| 35      | VCOF   | O   | VCO filter terminal.                                                                                                                                                                                                                    | Analog output.                                                               |
| 36      | AVSS   | -   | Analog GND terminal.                                                                                                                                                                                                                    | -                                                                            |
| 37      | SLCO   | O   | Data slice level output terminal.                                                                                                                                                                                                       | Analog output.                                                               |
| 38      | RFI    | I   | RF signal input terminal.                                                                                                                                                                                                               | Analog input (Zin : selected by command)                                     |
| 39      | AVDD   | -   | Analog power supply voltage terminal.                                                                                                                                                                                                   | -                                                                            |
| 40      | RFCT   | I   | RFRP signal center level input terminal.                                                                                                                                                                                                | Analog input (Zin : 50kΩ)                                                    |
| 41      | RFZI   | I   | RFRP zero cross input terminal.                                                                                                                                                                                                         | Analog input.                                                                |
| 42      | RFRP   | I   | RF ripple signal input terminal.                                                                                                                                                                                                        | Analog input.                                                                |
| 43      | FEI    | I   | Focus error signal input terminal.                                                                                                                                                                                                      | Analog input.                                                                |
| 44      | SBAD   | I   | Sub-beam adder signal input terminal.                                                                                                                                                                                                   | Analog input.                                                                |
| 45      | TSIN   | I   | Test input terminal. Normally, keep at "VREF" level.                                                                                                                                                                                    | Analog input.                                                                |
| 46      | TEI    | I   | Tracking error signal input terminal.<br>Track in at tracking servo on.                                                                                                                                                                 | Analog input.                                                                |
| 47      | TEZI   | I   | Tracking error zero cross input terminal.                                                                                                                                                                                               | Analog input (Zin : 10kΩ)                                                    |
| 48      | FOO    | O   | Focus servo equalizer output terminal.                                                                                                                                                                                                  | Analog output (2VREF~AVSS)                                                   |
| 49      | TRO    | O   | Tracking servo equalizer output terminal.                                                                                                                                                                                               |                                                                              |
| 50      | VREF   | -   | Analog reference voltage supply terminal.                                                                                                                                                                                               | -                                                                            |
| 51      | RFGC   | O   | RF amplitude adjustment control signal output terminal.                                                                                                                                                                                 | 3-state PWM signal output.<br>(2VREF, VREF, VSS)<br>(PWM carrier = 88.2 kHz) |
| 52      | TEBC   | O   | Tracking balance control signal output terminal.                                                                                                                                                                                        |                                                                              |
| 53      | TEBC   | O   | Feed equalizer output terminal.                                                                                                                                                                                                         |                                                                              |
| 54      | TEBC   | O   | Speed error signal or feed search equalizer output terminal.                                                                                                                                                                            | 3-state PWM signal output.<br>(2VREF, VREF, VSS)                             |
| 55      | DMO    | O   | Disk equalizer output terminal. (PWM carrier = 88.2 kHz for DSP, Synchronize to PXO)                                                                                                                                                    |                                                                              |
| 56      | 2VREF  | -   | Analog double reference voltage supply terminal.                                                                                                                                                                                        | -                                                                            |
| 57      | SEL    | O   | APC circuit ON/OFF indication signal output terminal.<br>At the laser on time, UHF = L at "HiZ" level and UHF = H at "H" level.                                                                                                         | -                                                                            |
| 58      | FLGA   | O   | External flag output terminal for internal signal.<br>Can select signal from TEZC, FOON, FOK and RFZC by command.                                                                                                                       | -                                                                            |
| 59      | FLGB   | O   | External flag output terminal for internal signal.<br>Can select signal from DECT, FOON, FMON and RFZC by command.                                                                                                                      | -                                                                            |
| 60      | FLGC   | O   | External flag output terminal for internal signal.<br>Can select signal from TRON, TRSR, FOK and SRCH by command.                                                                                                                       | -                                                                            |
| 61      | FLGD   | O   | External flag output terminal for internal signal.<br>Can select signal from TRON, DMON, HYS and SHC by command.                                                                                                                        | -                                                                            |
| 62      | VDD    | -   | Digital power supply voltage terminal.                                                                                                                                                                                                  | -                                                                            |
| 63      | VSS    | -   | Digital GND terminal.                                                                                                                                                                                                                   | -                                                                            |
| 64      | IO0    | I/O | General I/O terminal. Can change over input port or output port by command. At the input mode time can readout a state of terminal (H/L) by read command. At the output mode time can control a state of terminal (H/L/HiZ) by command. | -                                                                            |
| 65      | IO1    |     |                                                                                                                                                                                                                                         |                                                                              |
| 66      | IO2    |     |                                                                                                                                                                                                                                         |                                                                              |
| 67      | IO3    |     |                                                                                                                                                                                                                                         |                                                                              |

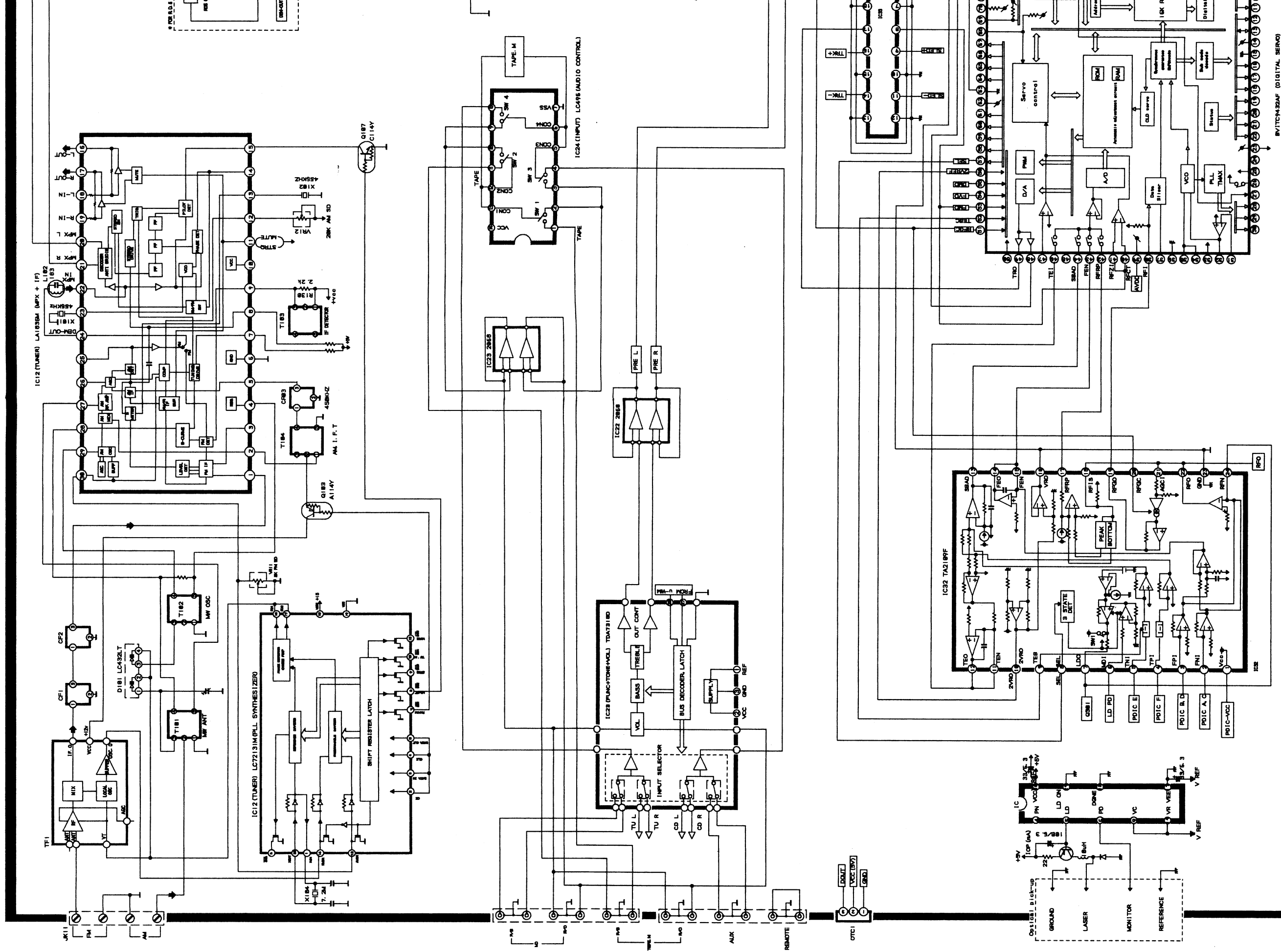
| PIN No. | NAME   | I/O | FUNCTIONAL DESCRIPTION                                                                                                                                           | REMARKS                                 |
|---------|--------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| 68      | DMOUT  | I   | This terminal controls IO0~IO3 terminal.<br>At "L" level time, IO0, 1 out feed equalizer signal of 2-state PWM. IO2, 3 out disk equalizer signal of 2-state PWM. | With pull-up resistor.                  |
| 69      | CKSE   | I   | Normally, keep at open.                                                                                                                                          | With pull-up resistor.                  |
| 70      | DACT   | I   | DAC test mode terminal. Normally, keep at open.                                                                                                                  | With pull-up resistor.                  |
| 71      | TESIN  | I   | Test input terminal. Normally, keep at "L" level.                                                                                                                | Analog input.                           |
| 72      | TESIO1 | I   | Test input/output terminal. Normally, keep at "L" level.                                                                                                         | Analog input.                           |
| 73      | Vss    | -   | Digital GND terminal.                                                                                                                                            | -                                       |
| 74      | PXI    | I   | Crystal oscillator connecting input terminal for DSP.                                                                                                            | -                                       |
| 75      | PXO    | O   | Crystal oscillator connecting output terminal for DSP.                                                                                                           |                                         |
| 76      | VDD    | -   | Digital power supply voltage terminal.                                                                                                                           | -                                       |
| 77      | XVss   | -   | Oscillator GND terminal for system clock.                                                                                                                        | -                                       |
| 78      | XI     | I   | Crystal oscillator connecting input terminal for system clock.                                                                                                   | -                                       |
| 79      | XO     | O   | Crystal oscillator connecting output terminal for system clock.                                                                                                  | -                                       |
| 80      | XVDD   | -   | Oscillator power supply voltage terminal for system clock.                                                                                                       | -                                       |
| 81      | DVSR   | -   | Analog GND terminal for DA converter. (R-ch)                                                                                                                     | -                                       |
| 82      | RO     | O   | R channel data forward output terminal.                                                                                                                          | -                                       |
| 83      | DVDD   | -   | Analog supply voltage terminal for DA converter.                                                                                                                 | -                                       |
| 84      | DVR    | -   | Reference voltage terminal for DA converter.                                                                                                                     | -                                       |
| 85      | LO     | O   | L channel data forward output terminal.                                                                                                                          | -                                       |
| 86      | DVSL   | -   | Analog GND terminal for DA converter. (L-ch)                                                                                                                     | -                                       |
| 87      | TEST1  | I   | Test mode terminal. Normal, keep at open.                                                                                                                        | With pull-up resistor.                  |
| 88      | TEST2  | I   | Test mode terminal. Normal, keep at open.                                                                                                                        | With pull-up resistor.                  |
| 89      | TEST3  | I   | Test mode terminal. Normal, keep at open.                                                                                                                        | With pull-up resistor.                  |
| 90      | BUS0   | I/O | Micom interface data input/output terminal.                                                                                                                      | Schmit input.<br>With pull-up resistor. |
| 91      | BUS1   | I/O |                                                                                                                                                                  |                                         |
| 92      | BUS2   | I/O |                                                                                                                                                                  |                                         |
| 93      | BUS3   | I/O |                                                                                                                                                                  |                                         |
| 94      | VDD    | -   | Digital Ppower supply voltage terminal.                                                                                                                          | -                                       |
| 95      | Vss    | -   | Digital GND terminal.                                                                                                                                            | -                                       |
| 96      | BUCK   | I   | Micom interface clock input terminal.                                                                                                                            | Schmit input.                           |
| 97      | CCE    | I   | Command and data sending/receiving chip enable signal input terminal.<br>The bus line becomes active at "L" level.                                               | Schmit input.                           |
| 98      | TEST4  | I   | Test mode terminal. Normal, keep at open.                                                                                                                        | With pull-up resistor.                  |
| 99      | TSMOD  | I   | Local test mode selection terminal.                                                                                                                              | With pull-up resistor.                  |
| 100     | RST    | I   | Reset signal input terminal. Reset at "L" level.                                                                                                                 | With pull-up resistor.                  |

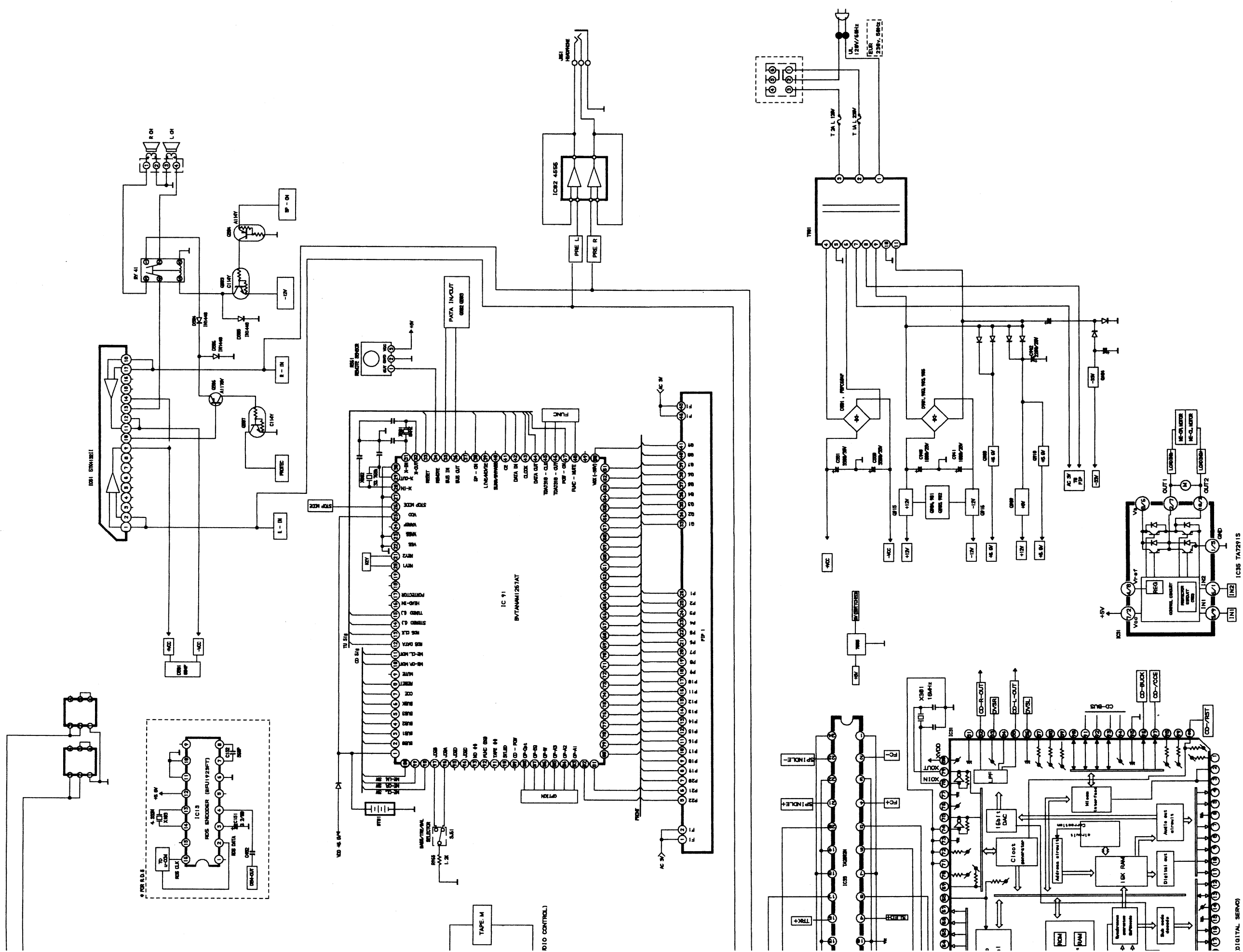


WIRING DIAGRAM

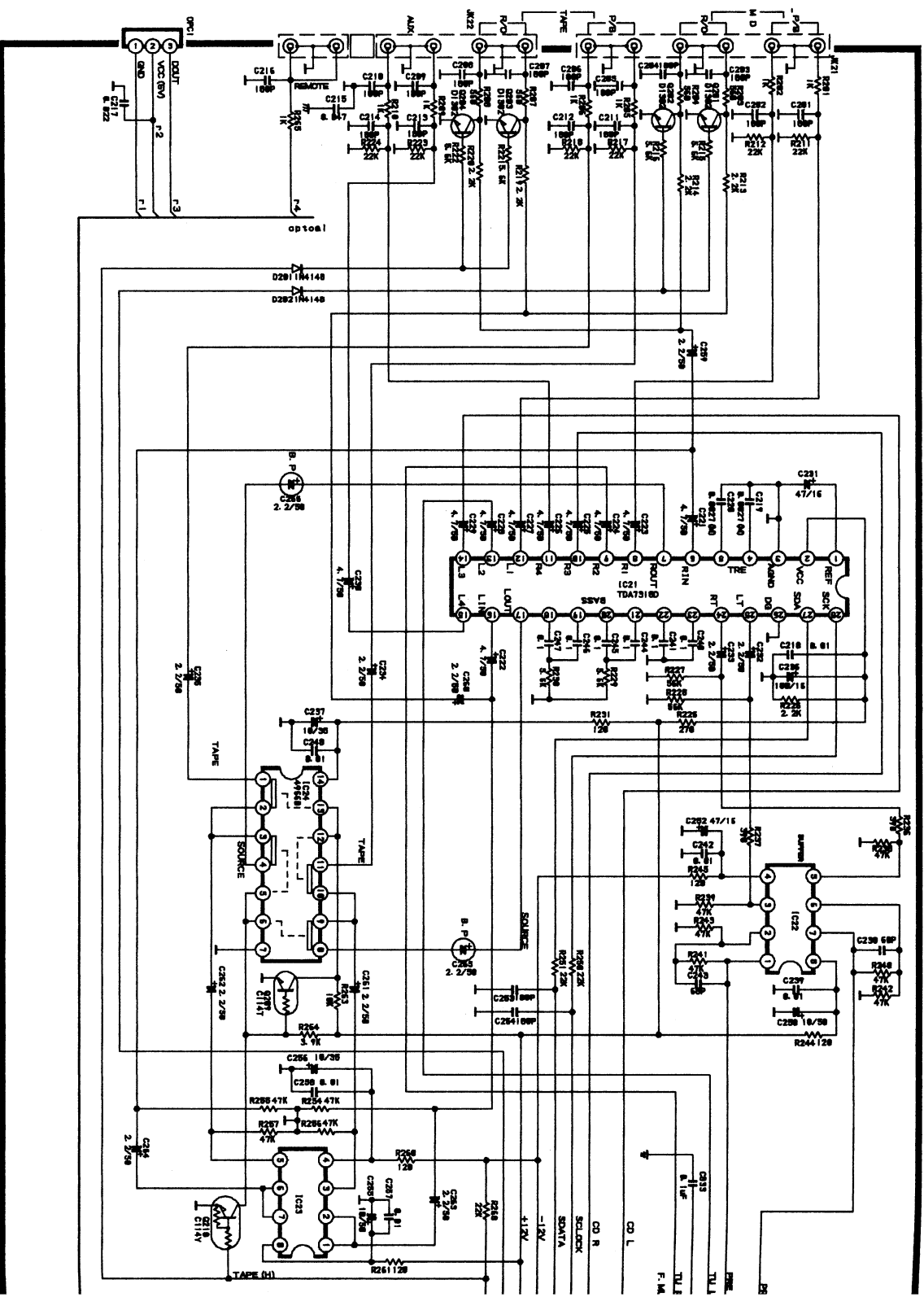
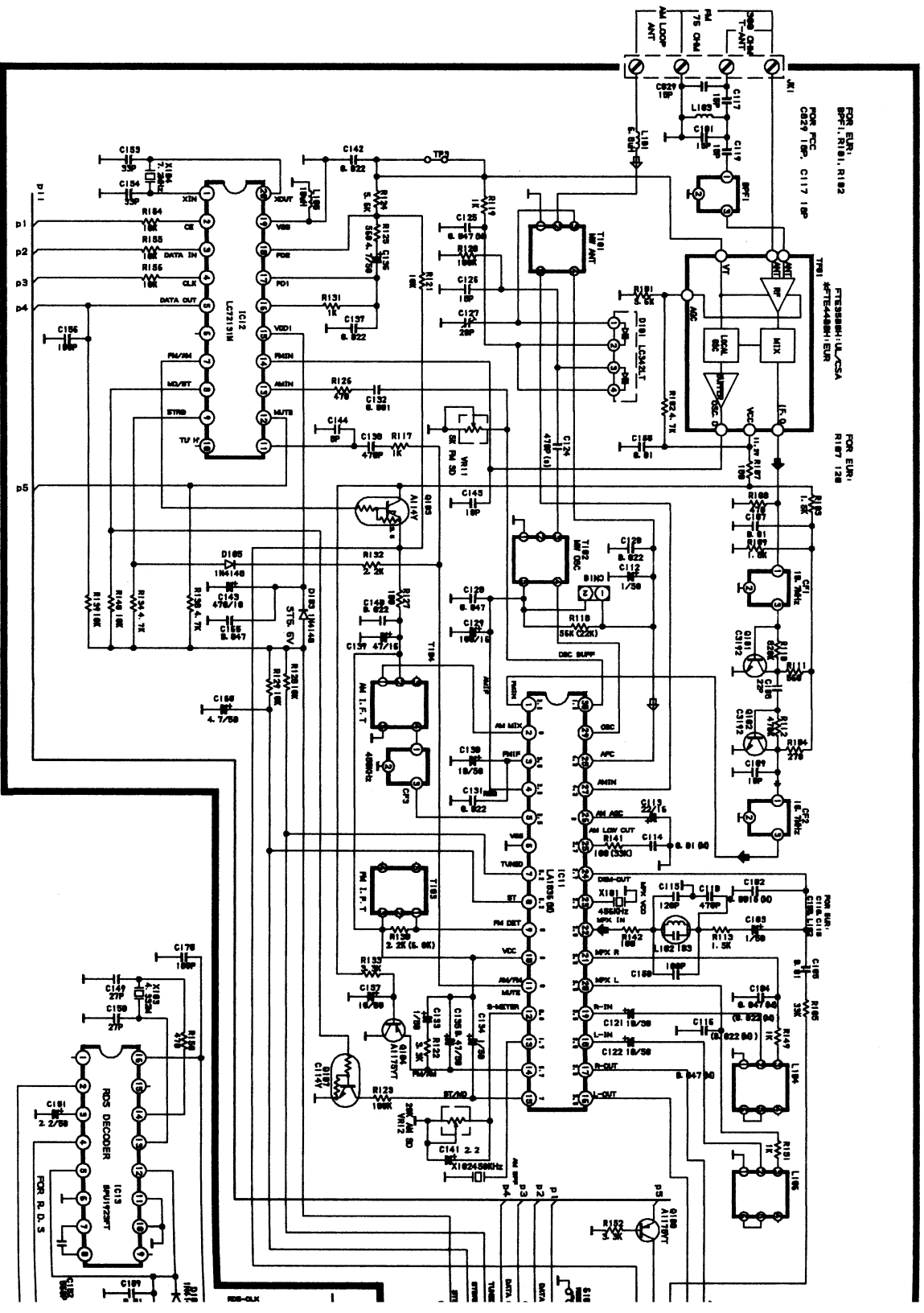


# BLOCK DIAGRAM

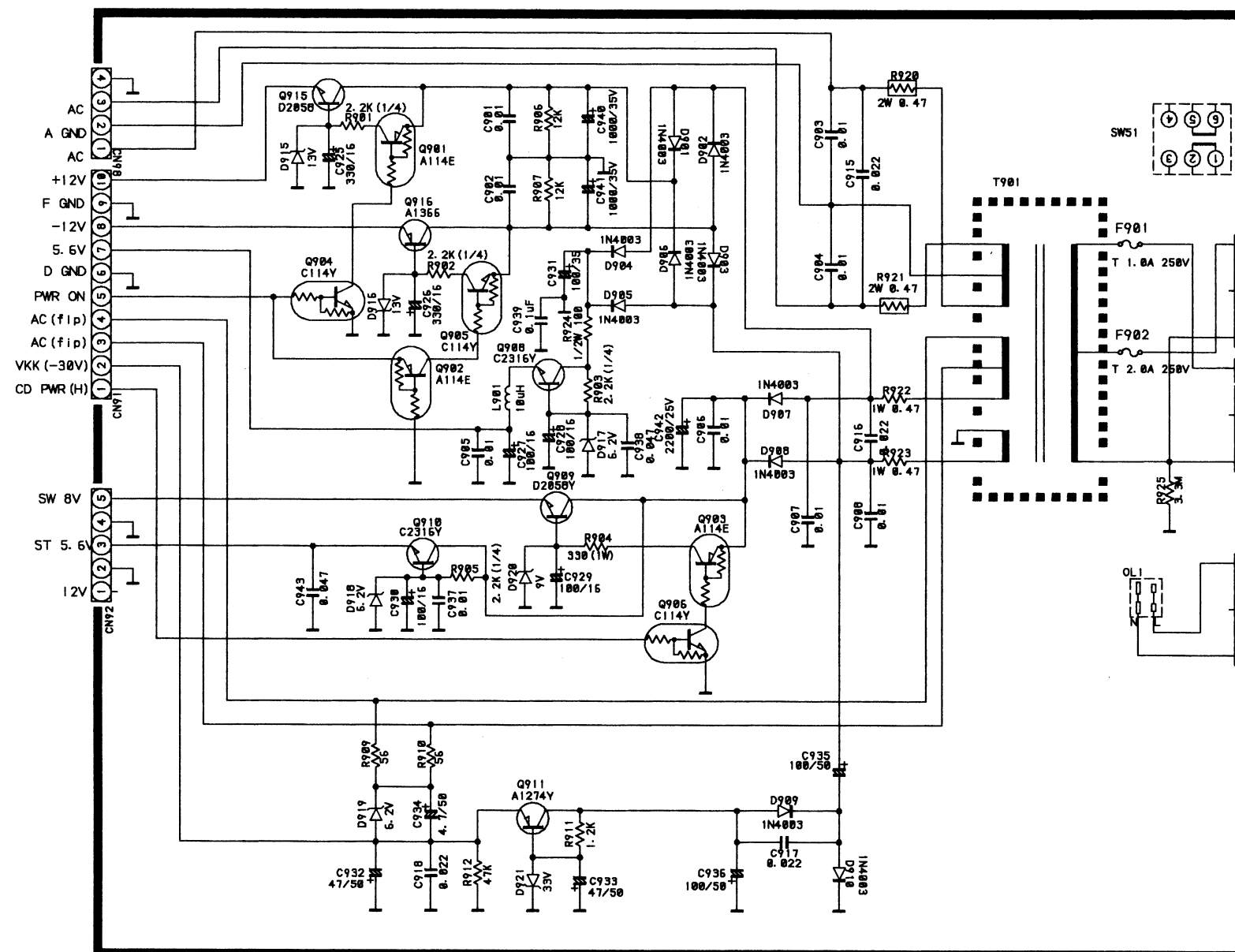
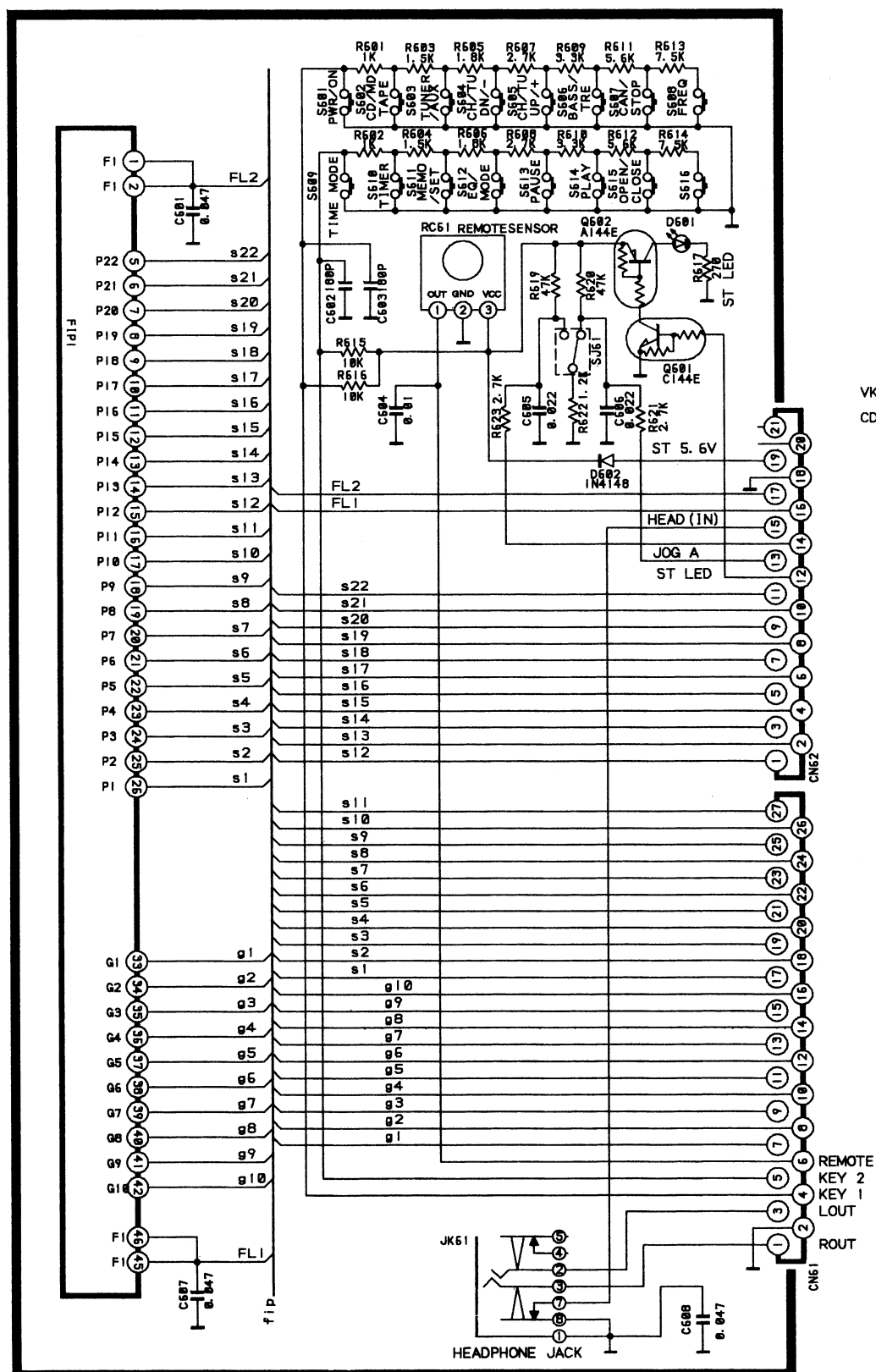




## SCHEMATIC DIAGRAM







**\* IMPORTANT SAFETY NOTICE :**

COMPONENTS IDENTIFIED BY  MARK HAVE SPECIAL CHARACTERISTICS.

IMPORTANT FOR SAFETY, WHEN REPLACING ANY OF THESE COMPONENTS USE ONLY MANUFACTURER'S SPECIFIED PART.

\* THE UNIT OF RESISTANCE IS OHM, K=1000 OHM, M=1000 KOHM.

\* THE CAPACITANCE IS MICROFARAD P=PICO FARAD

\* THIS SCHEMATIC DIAGRAM MAY BE MODIFIED AT ANY TIME WITH THE IMPROVEMENT OF PERFORMANCE.

\* ALL VOLTAGE ARE MEASURED WITH GROUND.

DC: VALUES WITH NO SIGNAL  
AC: RMS

6

5

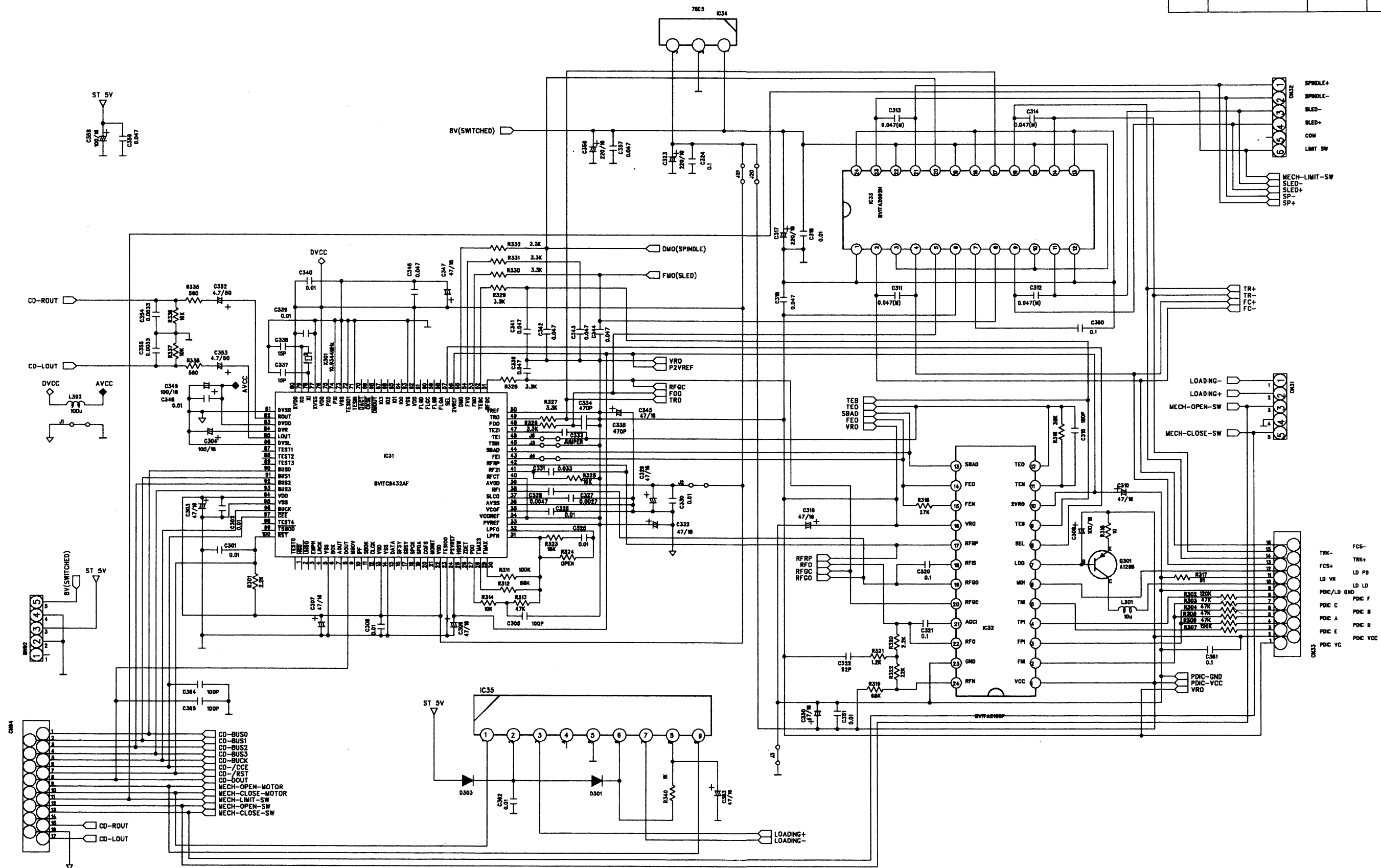
4

3

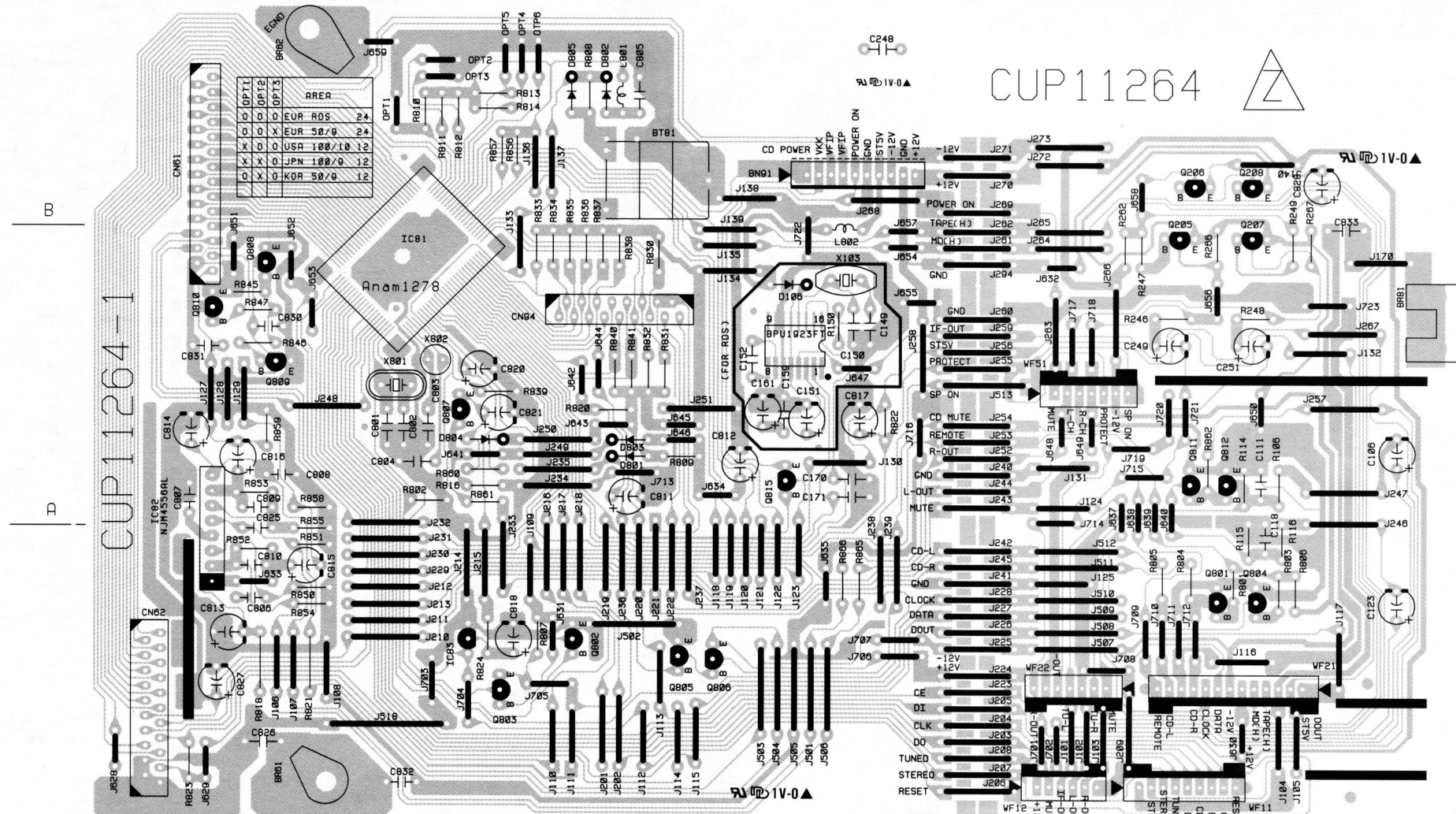
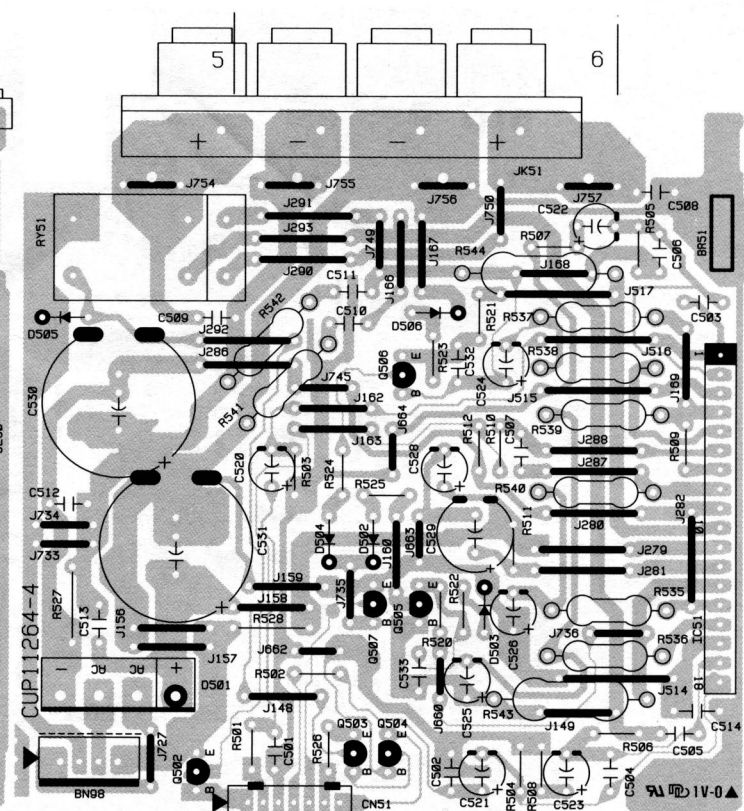
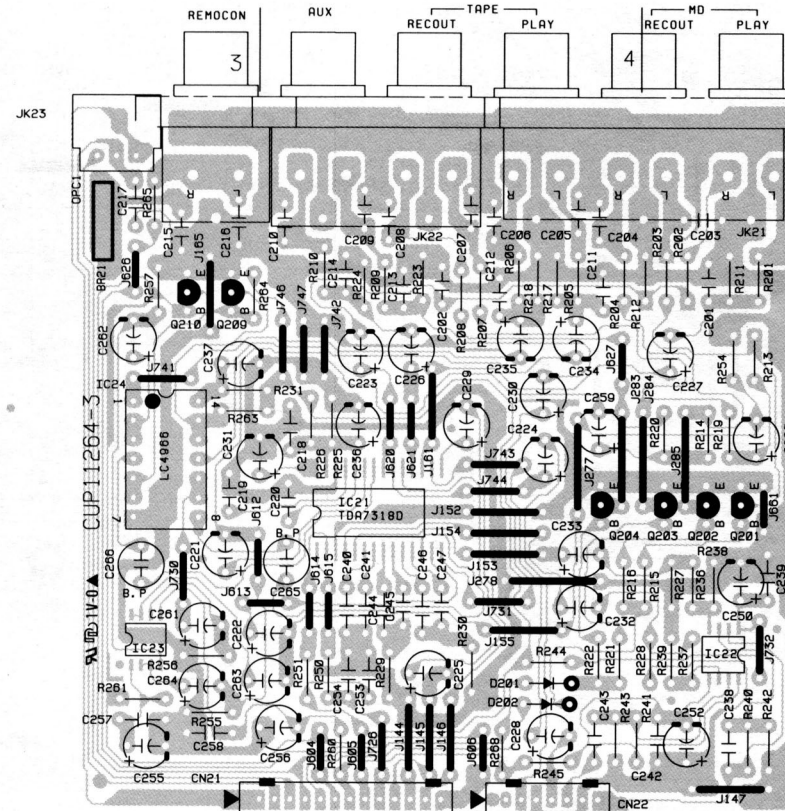
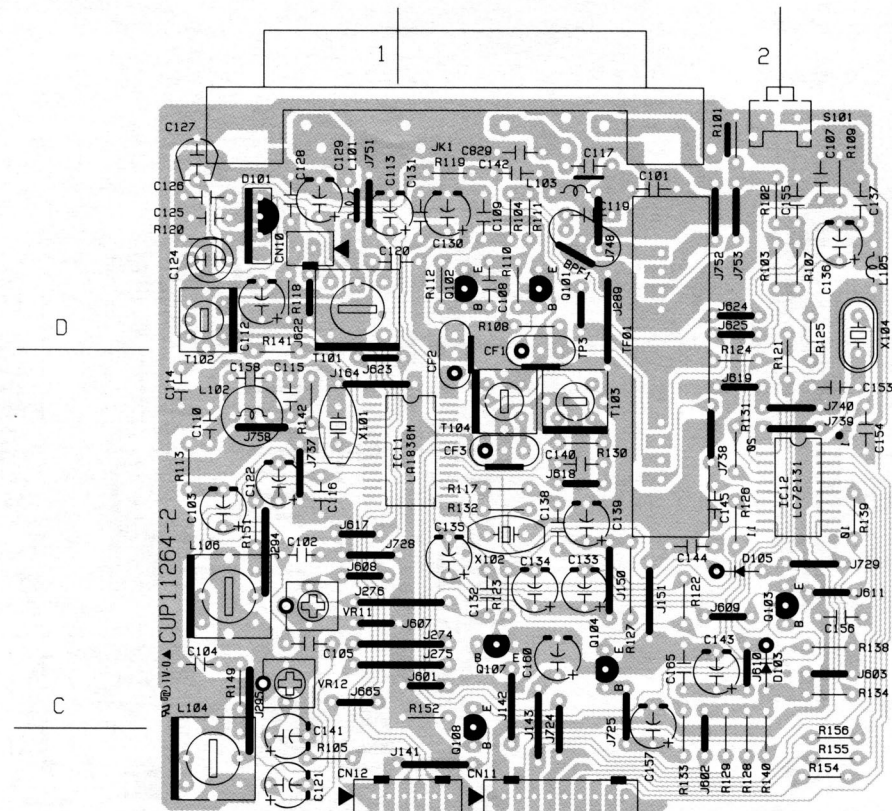
2

1

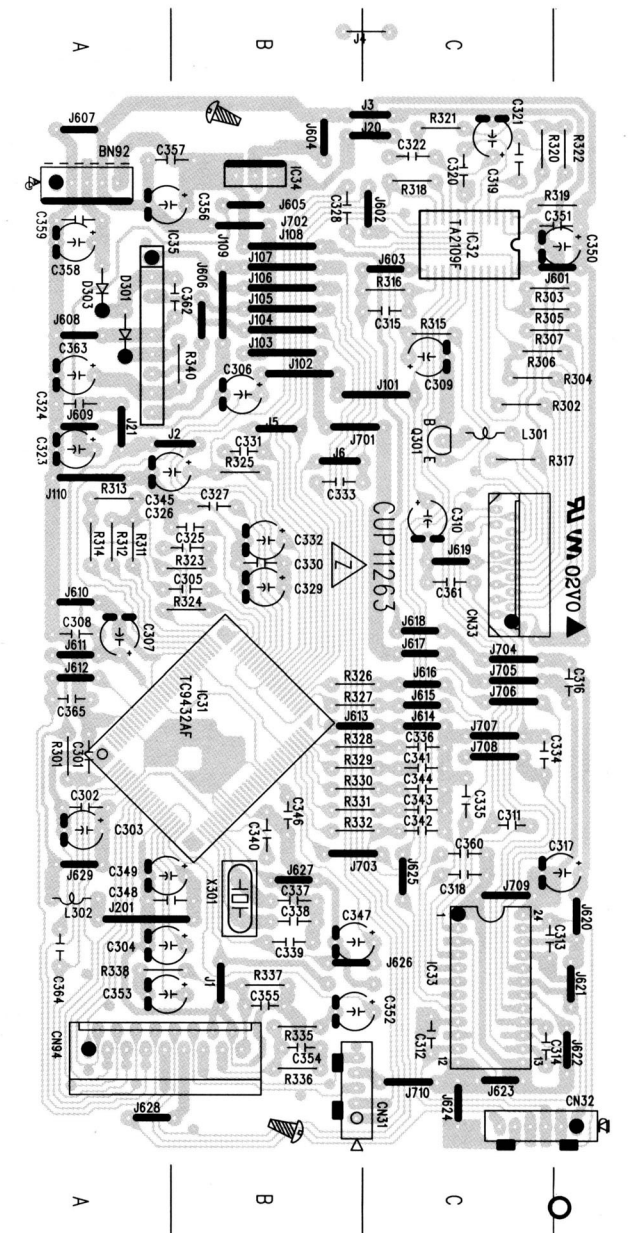
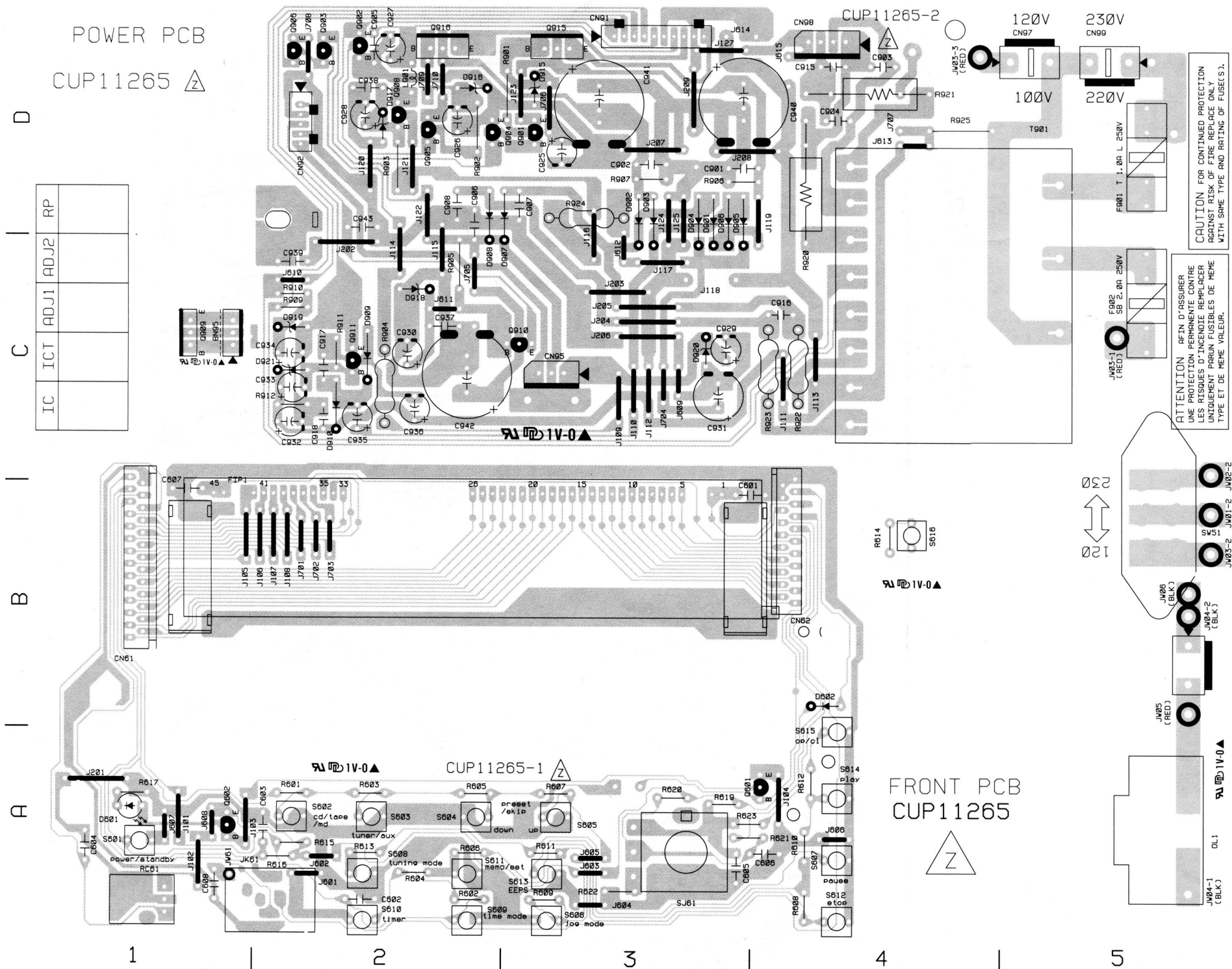
| REVISION RECORD |          |                |       |
|-----------------|----------|----------------|-------|
| LTR             | ECO NO:  | APPROVED:      | DATE: |
|                 | C311-314 | 0.1---0.047(M) | 3/10  |
|                 |          |                |       |
|                 |          |                |       |



## PRINTED CIRCUIT BOARDS

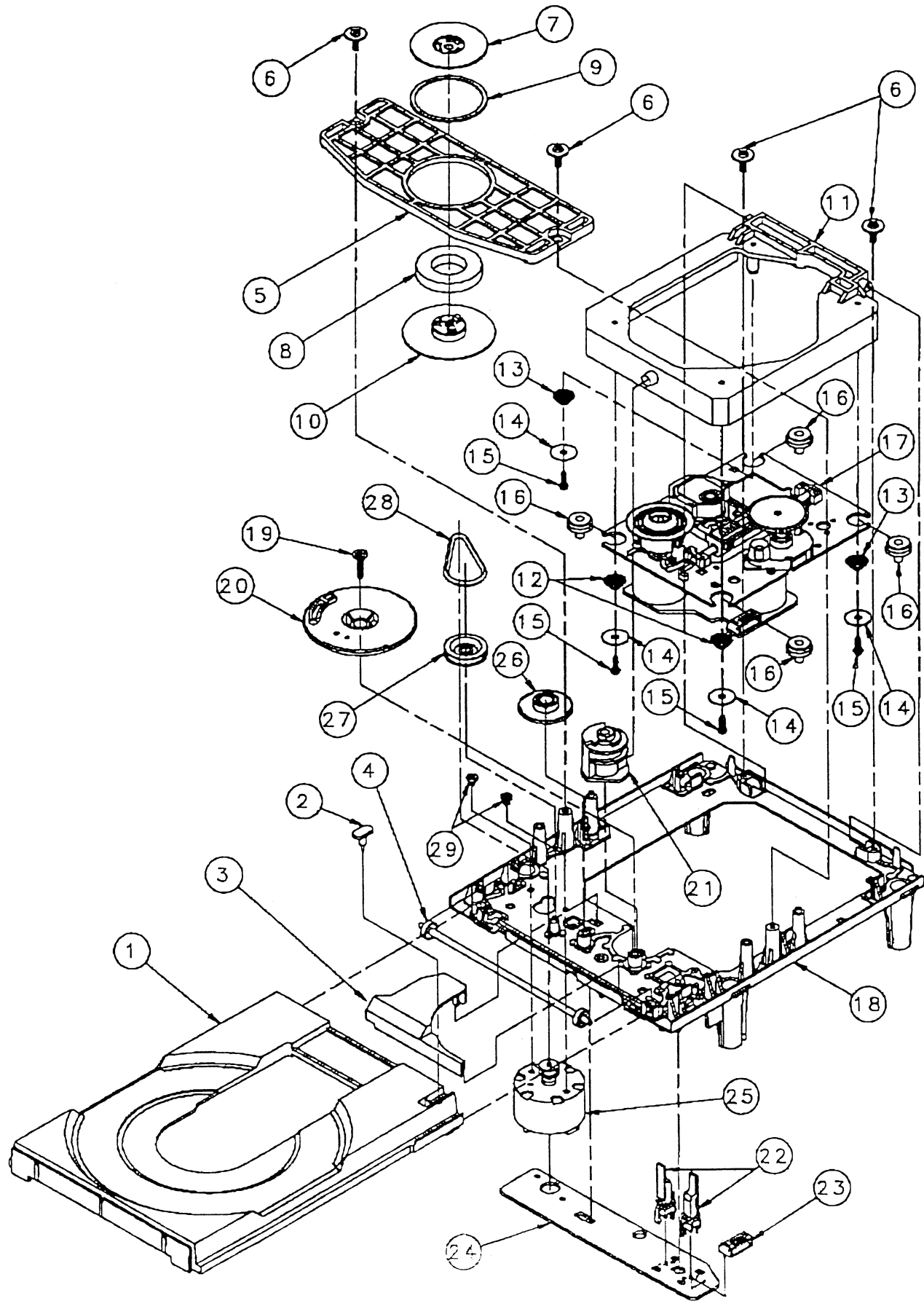


| IC | ICT | ADJ1 | ADJ2 | RP |
|----|-----|------|------|----|
|    |     |      |      |    |



MECHANISM ASS'Y

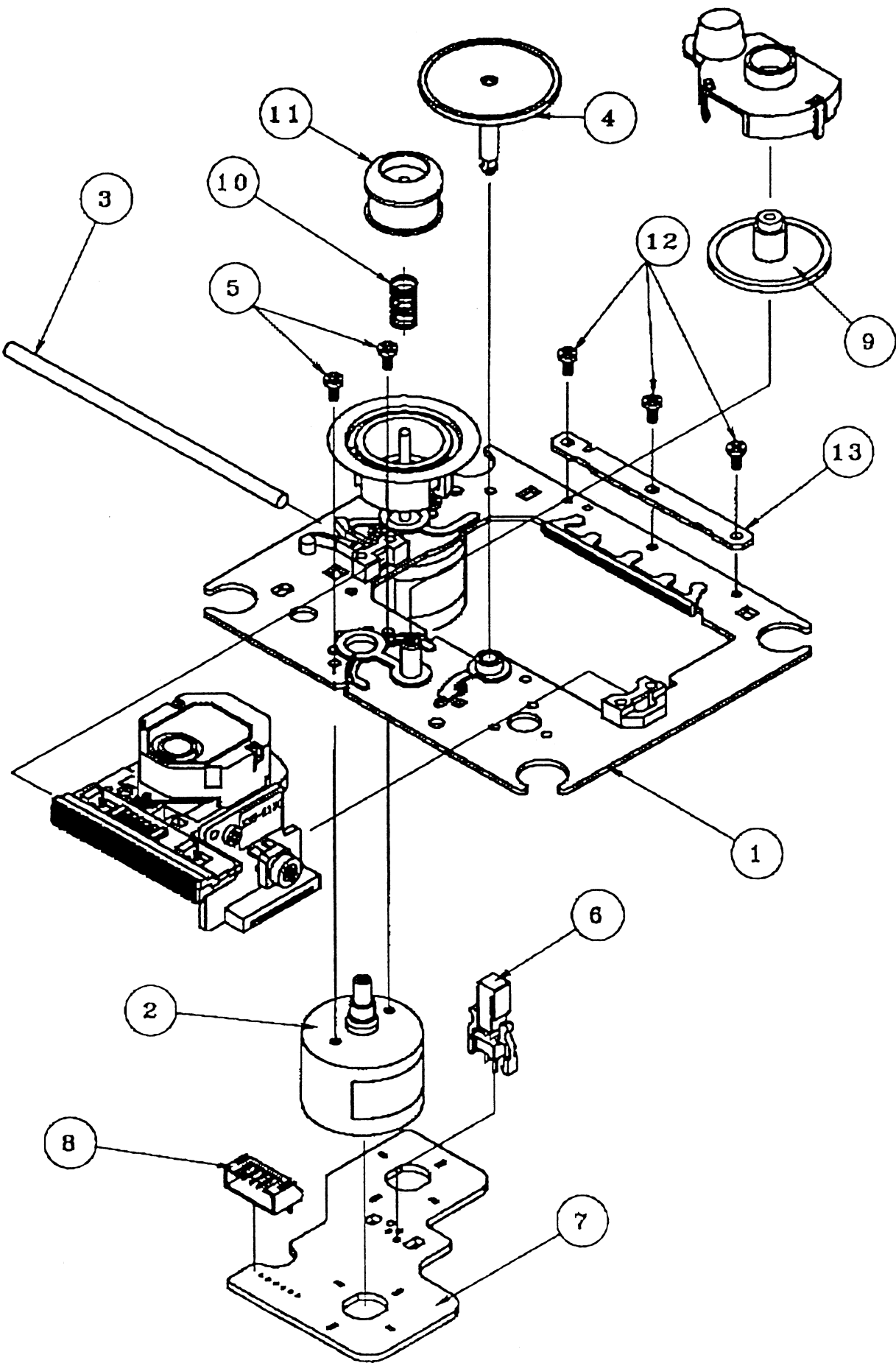
KSL-2130CCM 分解図  
Disassembly Drawing



MECHANISM KSL2130CCM VIEW-1

| REF. NO. | PARTS NO.  | DESCRIPTION              | REMARKS      |
|----------|------------|--------------------------|--------------|
| 1- 1     | 9A07979600 | TRAY (C)<br>VACANT       | 2-646-290-01 |
| 1- 3     | 9A07979700 | GEAR COVER (S)           | 2-625-544-01 |
| 1- 4     | 9A07268500 | TRAY GEAR (S)            | 2-625-535-01 |
| 1- 5     | 9A07268900 | CHUCKING PLATE           | 2-625-546-01 |
| 1- 6     | 9A07269900 | +PTPWH 2.6*7             | 2-626-294-01 |
| 1- 7     | 9A06965300 | YOKE (S), CHUCKING       | 2-625-537-01 |
| 1- 8     | 9A06965400 | MAGNET                   | 1-452-493-21 |
| 1- 9     | 9A07268700 | DAMPA                    | 2-625-541-02 |
| 1-10     | 9A07979800 | CHUCKING PULLEY          | 2-625-548-01 |
| 1-11     | 9A07979900 | SUB CHASSIS 2130         | 2-646-288-01 |
| 1-12     | 9A07980000 | COIL SPRING (FRONT)      | 2-627-236-01 |
| 1-13     | 9A07980100 | COIL SPRING (BACK)       | 2-627-235-01 |
| 1-14     | 9A07980200 | WASHER 2130              | 2-646-289-01 |
| 1-15     | 9A07980300 | SCREW +P2.6*10           | 7-685-135-11 |
| 1-16     | 9A07980400 | INSULATOR                | 2-627-234-01 |
| 1-17     | 9A07980500 | MD ASS'Y                 | A-4912-186-A |
| 1-18     | 9A07980600 | OUTSERT MAIN CHASSIS (S) | 2-625-552-06 |
| 1-19     | 9A06966200 | SCREW + PTPWH 2.6X16     | 3-319-501-51 |
| 1-20     | 9A07980700 | DRIVE GEAR (S)           | 2-625-547-01 |
| 1-21     | 9A07269000 | CONTROL CAM (S)          | 2-625-545-04 |
| 1-22     | 9A07268000 | LEAF SW                  | 1-692-667-11 |
| 1-23     | 9A06966600 | PIN, CONNECTOR 5P        | 1-564-721-11 |
| 1-24     | 9A06966700 | PC BOARD, LOADING        | 1-640-523-11 |
| 1-25     | 9A06966800 | MOTOR ASSY, LOADING      | X-2625-117-1 |
| 1-26     | 9A07980800 | MIDWAY GEAR (S)          | 2-625-274-02 |
| 1-27     | 9A07268600 | LOADING PULLEY           | 2-625-536-02 |
| 1-28     | 9A07980900 | LM BELT                  | 3-653-387-00 |
| 1-29     | 9A06967200 | SCREW +B2.6X2.5          | 2-625-279-01 |

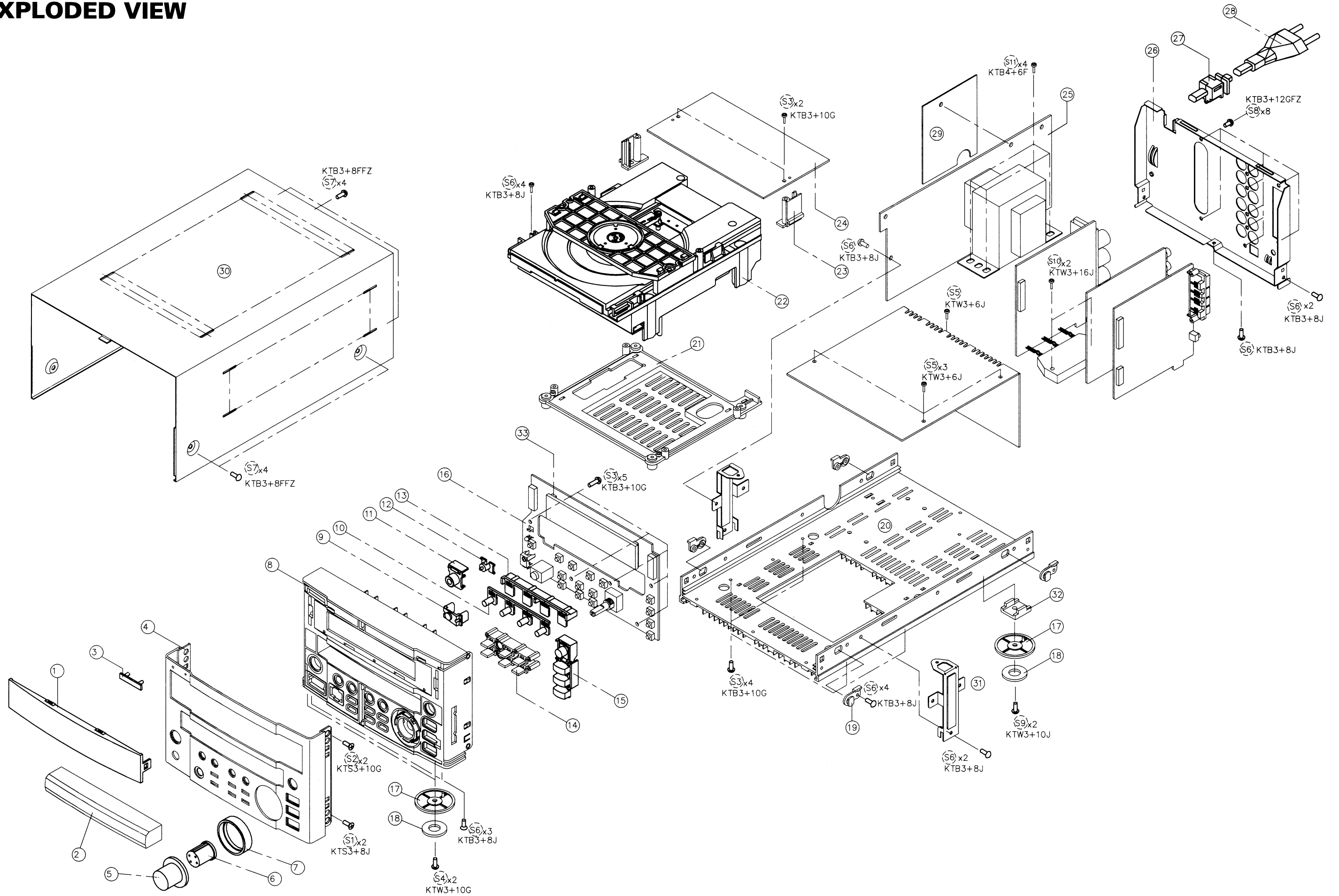
KSM-213CCM 分解図  
Disassembly Drawing



MECHANISM KSL2130CCM VIEW-2

| REF. NO. | PARTS NO.  | DESCRIPTION              | REMARKS      |
|----------|------------|--------------------------|--------------|
| 2- 1     | 9A07981000 | MOTOR CHASSIS ASS'Y (MB) | X-2625-984-1 |
| 2- 2     | 9A07981100 | MOTOR GEAR ASS'Y         | X-2625-769-1 |
| 2- 3     | 9A07269800 | SLED SHAFT (S)           | 2-626-908-01 |
| 2- 4     | 9A07981200 | GEAR (A)(S)              | 2-625-188-02 |
| 2- 5     | 9A06968600 | SCREW +P2X3              | 7-621-255-15 |
| 2- 6     | 9A07981300 | LEAF SWITCH              | 1-572-085-11 |
| 2- 7     | 9A06968300 | PC BOARD MOTOR (6P) (S)  | 1-639-678-12 |
| 2- 8     | 9A06968500 | PIN, CONNECTOR 6P        | 1-564-722-11 |
| 2- 9     | 9A07981400 | GEAR (B)(RP)             | 2-627-003-02 |
| 2-10     | 9A07981500 | SPRING (S),COMPRESSION   | 2-625-191-01 |
| 2-11     | 9A06967800 | RING (LO)(S),CENTER      | 2-625-477-01 |
| 2-12     | 9A06967500 | SCREW (2X5), TAPPING (S) | 2-641-386-01 |
| 2-13     | 9A06967600 | REINFORCEMENT(S)         | 2-625-625-01 |

## EXPLODED VIEW



| EXPLODED VIEW |              |                           |                |
|---------------|--------------|---------------------------|----------------|
| REF. NO.      | PARTS NO.    | DESCRIPTION               | REMARKS        |
| 1             | 9A07871900   | WINDOW , FIP              | CGU1A210Z      |
| 2             | 9A07871800   | DOOR , ORNAMENT           | CGR1A166M9ZK80 |
| 3             | 9A07889100   | BADGE , TEAC H100         | KGB1A080       |
| 4             | 9A07891400   | PANEL , FRONT(AL)         | KKM1A088ZC11   |
| 5             | 9A07889200   | CAP , KNOB                | KGX1A270C11    |
| 6             | 9A07888800   | KNOB , ROTARY             | KBN2A108       |
| 7             | 9A07889400   | HOUSING , ORNAMENT        | KGX1A271C12    |
| 8             | 9A07872200   | PANEL , SUB               | CGW1A258M9K80  |
| 9             | 9A07872000   | WINDOW , SENSOR           | CGU1A211       |
| 10            | 9A07871300   | KNOB , POWER              | CBT1A637M9K80  |
| 11            | 9A07888900   | KNOB , FUNCTION(A)        | KBT1A638M9C13  |
| 12            | 9A07871700   | INDICATOR , POWER         | CGL1A169       |
| 13            | 9A07871400   | KNOB , FUNCTION(B)        | CBT1A639M9     |
| 14            | 9A07871600   | KNOB , TACT(A)            | CBT1A644M9K80  |
| 15            | 9A07871500   | KNOB , PLAY               | CBT1A642M9ZK80 |
| 16            |              | PCB , SUB                 |                |
| 17            | 9A07872900   | FOOT                      | CKL1A059M9K63  |
| 18            | 9A07889500   | CUSHION , FOOT            | KHG1A165       |
| 19            | 9A07873500   | LOCKER , TOP              | CMH1A088       |
| 20            | 9A07878700   | CHASSIS , BOTTOM          | CUA1A175       |
| 21            | 9A07873600   | SUPPORT , MECHA           | CMH1A091       |
| 22            | 9A07870900   | MECHANISM KSL2130CCM      | BJDKSL2130CCM  |
| 23            | 9A07891600   | SUPPORT , PCB             | KMH1A092       |
| 24            |              | PCB , CD                  |                |
| 25            |              | PCB, POWER                |                |
| 26            | 9A07891300   | PANEL , REAR              | KKF1A177Z      |
| 27            | △ 9A06754900 | BUSHING,AC CORD           | KHR1A028       |
| 28            | △ 9A07872600 | CORD , POWER              | CJA523FBY      |
|               | △ 9A07916700 | CORD,POWER 2.5A 250V [E]  | CJA2B043Z      |
|               | △ 9A07916800 | CORD,POWER 2.5A 250V [UK] | CJA2E045Z      |
| 29            | 9A07891700   | SHEET , INSULATOR         | KMX1A094       |
| 30            | 9A07891200   | CABINET , TOP             | KKC2B100S21    |
| 31            | 9A07891500   | BRACKET , PCB             | KMD1A396       |
| 32            | 9A07873600   | SUPPORT FOOT              | CMH1A091-1     |
| 33            | 9A07290000   | BRACKET, FLT              | KMD1A374       |
| S1            | 9A01397400   | SCREW, KTS3+8J            | KTS3+8J        |
| S2            | 9A06871400   | SCREW, KTS3+10G           | KTS3+10G       |
| S3            | 9A01420500   | SCREW, KTB3+8G            | KTB3+8G        |
| S4            | 9A05985100   | SCREW, KTW3+10G           | KTW3+10G       |
| S5            | 9A05966100   | SCREW, KTW3+6J            | KTW3+6J        |
| S6            | 9A01535800   | SCREW, KTB3+8J            | KTB3+8J        |
| S7            | 9A07873600   | SCREW, KTB3+8FFZ          | KTB3+8FFZ      |
| S8            | 9A01397800   | SCREW, KYB3+12JFZ         | KYB3+12JFZ     |
| S9            | 9A06700000   | SCREW, KTW3+10J           | KTW3+10J       |
| S10           | 9A06028100   | SCREW, KTW3+16J           | KTW3+16J       |
| S11           | 9A05338800   | SCREW, KTB4+6F            | KTB4+6F        |
|               | 9A07888700   | FUSE, 2A 250V             | KBA2C2000TLU   |
|               | 9A07918300   | FUSE, 1A 250V             | KBA2C1000TLE   |

| INCLUDED ACCESSORIES |            |                           |                 |
|----------------------|------------|---------------------------|-----------------|
| REF. NO.             | PARTS NO.  | DESCRIPTION               | REMARKS         |
|                      | 9A06261200 | ANT,FM T                  | KSA1A010Z       |
|                      | 9A07509200 | OWNER'S MNLE/F CR-H100    | CQX1A528Z       |
|                      | 9A07871200 | REMOCON TRANSMITTER ASS'Y | CARTCR-H100TCCC |
|                      | 9A07892300 | LOOP , ANT ASS'Y CR-H100T | KSA1A011Z       |
|                      | 9A05936000 | CORD,PIN                  | KJS4N001Y       |

■ RESISTORS AND CAPACITORS

- Notes :** • Part numbers are indicated for most mechanical parts.  
Please use this part number for parts order.
- **IMPORTANT SAFETY NOTICE.**  
Components identified by △ mark have special characteristics important for safety.  
When replacing any of these components, use only manufacture's specified parts.
  - The unit of resistance is OHM(Ω)  
K=1000(Ω), M=1000(KΩ)
  - The unit of capacitance is MICROFARED(μF)  
P=10<sup>-6</sup>μF

■ Numbering System of Resistor

Example

|      |         |       |           |       |
|------|---------|-------|-----------|-------|
| CRD  | 25      | F     | J         | 101   |
| Type | Wattage | Shape | Tolerance | Value |

| Resistor Type    | Wattage | Tolerance |
|------------------|---------|-----------|
| CRD: Carbon      | 20:1/5W | F:= ±1%   |
| CRG: Metal Oxide | 25:1/4W | J:= ±5%   |
|                  | 50:1/2W | K:= ±10%  |
|                  | 1:1W    |           |
| CRF:Metal Cement | 2:2W    |           |
|                  | 3:3W    |           |

■ Numbering System of Capacitor

Example

|      |         |       |           |             |
|------|---------|-------|-----------|-------------|
| HCKR | 1H      | 101   | K         | B           |
| Type | Voltage | Value | Tolerance | Peculiarity |

| Capacitor Type     | Voltage   |            | Tolerance     |
|--------------------|-----------|------------|---------------|
|                    | ECEA Type | Other      |               |
| HCB:Ceramic        | 0J:6.3V   | 1H:50V DC  | C: ±0.25pF    |
| HCC:Ceramic        | 1A:10V    | 1:125V DC  | G: ±2%        |
| HCK:Ceramic        | 1C:16V    | KC:400V AC | J: ±5%        |
| HCQI:Polyester     | 1E:25V    |            | K: ±10%       |
| HCQP:Polypropylene | 1H:50V    |            | Z: +80%, -20% |
| HCQS:Polystyrol    | 1V:35V    |            |               |

**MAIN PCB ASS'Y**

| REF. NO.   | PARTS NO.    | DESCRIPTION               | REMARKS         |
|------------|--------------|---------------------------|-----------------|
|            | 9A07873800   | MAIN PCB ASS'Y [US ,C]    | COP11264B       |
|            | 9A07873810   | MAIN PCB ASS'Y [E]        | COP11264C       |
|            | 9A07873820   | MAIN PCB ASS'Y [UK]       | COP11264UK      |
|            | 9A06544600   | CERAMIC, FILTER           | BVFE107MSHAT    |
|            | 9A06544600   | CERAMIC, FILTER           | BVFE107MSHAT    |
|            | 9A07879800   | WIRE ASS'Y [US , C]       | CWE8202040AA    |
|            | 9A07880000   | WIRE ASS'Y [US , C]       | CWZNT20001      |
| BN91       | 9A07879200   | WIRE ASS'Y 10P , 50MM     | CWB1C010050EN   |
| BN98       | 9A07879400   | WIRE ASS'Y 4P , 100MM     | CWB1D004100BM   |
| BT81       | △ 9A06477400 | BATTERY, GP35BVT3A3H      | BABGP35BVT3A3H  |
| C 530 ,531 | △ 9A07883600 | CAP , ELECT 3300/50V      | HCEA1HH332E     |
| C 820      | △ 9A07882100 | CAP , ELECT 1000/6.3V     | HCEA0JH102T     |
| CF03       | 9A07006300   | FILTER CERAMIC            | BVFPFB450JR3    |
| CN10       | 9A06250600   | WAFER                     | KJP02GA19ZM     |
| CN11       | 9A07890200   | CONNECTOR MOLEX35237-0910 | KJP09GB99ZM     |
| CN12       | 9A07889800   | CONNECTOR MOLEX35237-0610 | KJP06GB99ZM     |
| CN21       | 9A07890400   | CONNECTOR MOLEX35237-1310 | KJP13GB99ZM     |
| CN22 ,51   | 9A07890000   | CONNECTOR MOLEX35237-0710 | KJP07GB99ZM     |
| CN61       | 9A07891000   | WAFER, CARD CABLE GF120-2 | KJP27GA115ZG    |
| CN62       | 9A07890800   | WAFER, CARD CABLE GF120-2 | KJP21GA115ZG    |
| CN94       | 9A07890600   | WAFER, CARD CABLE GF120-1 | KJP17GA115ZG    |
| D 101      | 9A06767400   | D, SVC342LT               | BVDSVC342LT     |
| D 103 ,105 | 9A07887200   | DIODE 1SS131M             | HVD1SS131MT     |
| D 201 ,202 | 9A07887200   | DIODE 1SS131M             | HVD1SS131MT     |
| D 501      | △ 9A06224900 | DIODE, BRIDGE PBU604F     | BVDPBU604F      |
| D 502 ,503 | 9A07887200   | DIODE 1SS131M             | HVD1SS131MT     |
| D 504 ,505 | 9A07887200   | DIODE 1SS131M             | HVD1SS131MT     |
| D 506 ,801 | 9A07887200   | DIODE 1SS131M             | HVD1SS131MT     |
| D 802 ,803 | 9A07887200   | DIODE 1SS131M             | HVD1SS131MT     |
| D 804 ,805 | 9A07887200   | DIODE 1SS131M             | HVD1SS131MT     |
| IC11       | △ 9A06767500 | IC, LA1836M               | BVILA1836M      |
| IC12       | 9A07326300   | IC, PLL                   | BVILC72131M     |
| IC21       | 9A05425000   | IC, (VOLUME+FUNCTION)     | BVITDA7318D     |
| IC22 ,23   | 9A07343300   | IC, OP AMP NJM2068MDTE1   | BVINLM2068MDTE1 |
| IC24       | 9A05971200   | IC, LC4966                | BVILC4966       |
| IC51       | 9A05424900   | IC, AMP STK4132(2)        | BVISTK4132(2)   |
| IC81       | 9A07871000   | IC, MICOM TMP87PM78F      | BVIANAM1290ACT  |
| IC82       | 9A06760100   | IC, NJM4556AL             | BVINJM4556AL    |
| IC83       | 9A06878400   | VOLTAGE DETECTOR          | BVIRE5VL30CARZ  |
| JK01       | 9A07371900   | TERMINAL, ANT [US , C]    | KJJ3G011Z       |
| JK01       | 9A07491300   | TERMINAL, ANT [E , UK]    | KJJ3G0092       |
| JK21       | 9A07872700   | TERMINAL, IN/OUT          | CJJ4R012Z       |
| JK22       | 9A07889600   | JACK, PIN BOARD JK06009   | KJJ4R018Z       |
| JK51       | 9A07872800   | TERMINAL, S.P (SCREW)     | CJJ5P016Z       |
| L 101      | 9A07502100   | WIRE, COPPER [US , C]     | K3A206          |
| L 105      | 9A07886600   | COIL , AXAIL 10UH         | HLQ02C100KT     |
| L 801      | 9A07886700   | COIL , AXAIL 100UH        | HLQ02C101JT     |
| L 802      | 9A07886600   | COIL , AXAIL 10UH         | HLQ02C100KT     |
| OP1        | 9A06239100   | MODULE , OPTICAL          | BJS9L001Z       |
| Q 101 ,102 | 9A07888400   | T.R KTC31920              | HVTKTC31920T    |
| Q 103      | 9A07887700   | T.R DTA114YS              | HVTDTA114YST    |
| Q 104      | 9A03745100   | T.R, KSA1175-YTA          | KVTKSA1175YT    |
| Q 107      | 9A07887800   | T.R DTC114YS              | HVTDTC114YST    |
| Q 108      | 9A03745100   | T.R, KSA1175-YTA          | KVTKSA1175YT    |
| Q 201 ,202 | 9A07888500   | T.R KTD1302               | HVTKTD1302T     |

**MAIN PCB ASS'Y**

| REF. NO.     | PARTS NO.  | DESCRIPTION                       | REMARKS       |
|--------------|------------|-----------------------------------|---------------|
| Q 203 ,204   | 9A07888500 | T.R KTD1302                       | HVTKTD1302T   |
| Q 205        | 9A07888500 | T.R KTD1302                       | HVTKTD1302T   |
| Q 206        | 9A07887700 | T.R DTA114YS                      | HVTDTA114YST  |
| Q 207        | 9A07888500 | T.R KTD1302                       | HVTKTD1302T   |
| Q 208 ,209   | 9A07887800 | T.R DTC114YS                      | HVTDTC114YST  |
| Q 210 ,502   | 9A07887800 | T.R DTC114YS                      | HVTDTC114YST  |
| Q 503        | 9A07887800 | T.R DTC114YS                      | HVTDTC114YST  |
| Q 504        | 9A07887700 | T.R DTA114YS                      | HVTDTA114YST  |
| Q 505 ,506   | 9A03745100 | T.R, KSA1175-YTA                  | KVTKSA1175YT  |
| Q 507        | 9A07887800 | T.R DTC114YS                      | HVTDTC114YST  |
| Q 801        | 9A07888500 | T.R KTD1302                       | HVTKTD1302T   |
| Q 802        | 9A07887800 | T.R DTC114YS                      | HVTDTC114YST  |
| Q 803        | 9A07887700 | T.R DTA114YS                      | HVTDTA114YST  |
| Q 804        | 9A07888500 | T.R KTD1302                       | HVTKTD1302T   |
| Q 805        | 9A07887800 | T.R DTC114YS                      | HVTDTC114YST  |
| Q 806        | 9A07887700 | T.R DTA114YS                      | HVTDTA114YST  |
| Q 807        | 9A07887900 | T.R KSB811Y                       | HVTKSB811YT   |
| Q 808        | 9A03745100 | T.R KSA1175-YTA                   | KVTKSA1175YT  |
| Q 809 ,810   | 9A07888500 | T.R KTD1302                       | HVTKTD1302T   |
| Q 811 ,812   | 9A01388800 | T.R KSC945-YTA                    | KVTKSC945CYT  |
| Q 815        | 9A01388800 | T.R KSC945-YTA                    | KVTKSC945CYT  |
| R 541 ,542 △ | 9A05338000 | R, METAL OXIDE FILM 1W 10         | KRG1ANJ100H   |
| R 543 ,544 △ | 9A06062000 | R, CEMENT 0.27 2W                 | KRF2CJR27H    |
| RY51         | 9A07326100 | RELAY                             | BSL4A010ZU    |
| S 101        | 9A04882400 | SW,TACT                           | KST1A010Z     |
| T 101        | 9A07873000 | COIL , AM ANT2                    | CLA2C005      |
| T 102        | 9A07873300 | COIL , AM OSC                     | CLO2B008Z     |
| T 103        | 9A07873200 | I.F.T , FM                        | CLI3B028Z     |
| T 104        | 9A07873100 | I.F.T , AM                        | CLI2B103-G    |
| TF01         | 9A07886800 | FRONT-END (UL) FTE3508T [US , C]  | HNVFTE3508T   |
| TF01         | 9A07918200 | FRONT-END (EUR) FTE4400T [E , UK] | HNVFTE4400T   |
| VR11         | 9A05940500 | R, SEMI FIXED EVNDJAA03B53        | BVN1PA502B01T |
| VR12         | 9A05317700 | VR, SEMI FIX EVNDJAA03B24         | BVN1PA203B01T |
| WF11         | 9A07890100 | WAFER MOLEX35336-0910             | KJP09GA98ZM   |
| WF12         | 9A07889700 | WAFER MOLEX35336-0610             | KJP06GA98ZM   |
| WF21         | 9A07890300 | WAFER MOLEX35336-1310             | KJP13GA98ZM   |
| WF22 ,51     | 9A07889900 | WAFER MOLEX35336-0710             | KJP07GA98ZM   |
| X 101        | 9A07491700 | RESONATOR, CERAMIC                | HVFZTB456F11  |
| X 102        | 9A07491800 | FILTER, CERAMIC                   | HVFLZU450C4N  |
| X 104        | 9A04874300 | CRYSTAL                           | KOX07200A200C |
| X 801        | 9A05193000 | CRYSTAL, 08000E160C               | KOX08000E160C |
| X 802        | 9A05188800 | CRYSTAL, 32,768KHZ DT-38          | BOX00032A120C |

**SUB PCB ASS'Y**

| REF. NO.   | PARTS NO.  | DESCRIPTION                 | REMARKS         |
|------------|------------|-----------------------------|-----------------|
|            | 9A07873900 | SUB PCB ASS'Y [US, C]       | COP11265B       |
|            | 9A07873910 | SUB PCB ASS'Y [E]           | COP11265C       |
|            | 9A07873920 | SUB PCB ASS'Y [UK]          | COP11265UK      |
|            | 9A07879000 | PCB , SUB                   | CUP11265Z       |
| BN95       | 9A07879300 | WIRE ASS'Y                  | CWB1C903100BM   |
| C 925 ,926 | 9A07882700 | CAP , ELECT 330/16V         | HCEA1CH331T     |
| C 927 ,928 | 9A07882400 | CAP , ELECT 100/16V         | HCEA1CH101T     |
| C 929 ,930 | 9A07882400 | CAP , ELECT 100/16V         | HCEA1CH101T     |
| C 931      | 9A07884100 | CAP , ELECT 100/35V         | HCEA1VH101T     |
| C 935 ,936 | 9A07883400 | CAP , ELECT 100/50V         | HCEA1HH101T     |
| C 940 ,941 | 9A07884200 | CAP , ELECT 1000/35V        | HCEA1VH102E     |
| C 942      | 9A07884300 | CAP , ELECT 2200/35V        | HCEA1VH222E     |
| CN61       | 9A07891100 | WAFER , CARD CAGF120-27S-L  | KJP27GB116ZG    |
| CN62       | 9A07890900 | WAFER , CARD CAGF120-21S-L  | KJP21GB116ZG    |
| CN91       | 9A05330700 | WAFER MOLEX 53014-1010      | KJP10GA19ZM     |
| CN92       | 9A05356400 | WAFER MOLEX53014-0510       | KJP05GA19ZM     |
| CN95       | 9A05329100 | WAFER MOLEX 5267-03A        | KJP03GA01ZM     |
| CN97       | 9A06674400 | WAFER [US C ]               | KJP02KA060ZY    |
| CN98       | 9A05329300 | WAFER MOLEX 5267-04A        | KJP04GA01ZM     |
| CN99       | 9A06674400 | WAFER [E , UK]              | KJP02KA060ZY    |
| D 601      | 9A05195000 | LED , RED SLR342VCF02       | KVD342VCF02T085 |
| D 602      | 9A07887200 | DIODE , 1SS131M             | HVD1SS131MT     |
| D 901-910  | 9A05194700 | DIODE , 1N4003ST            | KVD1N4003ST     |
| D 915 ,916 | 9A07886900 | DIODE , ZENER 13V ZENER     | HVDMTZJ13BT     |
| D 917 -919 | 9A07887100 | DIODE , ZENER 6.2V ZENER    | HVDMTZJ6.2BT    |
| D 920      | 9A07892400 | DIODE , ZENER 9.1V 1/2W     | KVDUJ9.1BMT     |
| D 921      | 9A07887000 | DIODE , ZENER 33V ZENER     | HVDMTZJ33BT     |
| F 902      | 9A05328200 | HOLDER , FUSE KJCF5S        | KJCF5S          |
| F11        | 9A07889000 | F.I.P SVA10MM17             | KFLSVA10MM17    |
| JK61       | 9A07886500 | JACK , HANDPHONE            | HJJ2D003Z       |
| JW03       | 9A07879700 | WIRE [US ,C]                | CWEP202110VV    |
| JW61       | 9A07879900 | WIRE ASS'Y                  | CWZAMC660JW52   |
| L 901      | 9A07886600 | COIL , AXAIL 10UH           | HLQ02C100KT     |
| Q 601      | 9A07887800 | T.R DTC114YS                | HVTDTC114YST    |
| Q 602 ,901 | 9A07887700 | T.R DTA114YS                | HVTDTA114YST    |
| Q 902 ,903 | 9A07887700 | T.R DTA114YS                | HVTDTA114YST    |
| Q 904 ,905 | 9A07887800 | T.R DTC114YS                | HVTDTC114YST    |
| Q 906      | 9A07887800 | T.R DTC114YS                | HVTDTC114YST    |
| Q 908 ,910 | 9A07888000 | T.R KSC2316Y                | HVTKSC2316YT    |
| Q 909 ,915 | 9A07888600 | T.R KTD2058                 | HVTKTD2058Y     |
| Q 911      | 9A07888200 | T.R KTA1274Y                | HVTKTA1274YT    |
| Q 916      | 9A07888300 | T.R KTB1366Y                | HVTKTB1366Y     |
| R 904      | 9A07892200 | RES , METAL OXIDE FILM 33   | KRG1ANJ331H     |
| R 920 ,921 | 9A06062000 | R , CEMENT 0.27 2W          | KRF2CJR27H      |
| R 922 ,923 | 9A06760900 | R , FUSE 0.47 J 1W          | KRQ1AJR47H      |
| R 924      | 9A05890500 | R , CARBON 1/2W 100         | KRD50FJ101T     |
| R 925      | 9A06761000 | R , CARBON 3.3M K 1/2W      | BRDERC12UGK335T |
| RC61       | 9A06757900 | IC , PNA4612M00HB           | BRVPNA4612M00HB |
| S 601-615  | 9A07878500 | SW , TACT                   | CST1A012ZT      |
| SJ61       | 9A07326200 | VR , ENCODOR                | BSR2A004Z       |
| T 901      | 9A07873400 | TRANS , POWER[MAIN] [US ,C] | CLT5P037ZU      |
| T 901      | 9A07917300 | TRANS , POWER [E , UK]      | CTL5P037ZE      |

**CD PCB ASS'Y**

| REF. NO.   | PARTS NO.    | DESCRIPTION                 | REMARKS       |
|------------|--------------|-----------------------------|---------------|
|            | 9A07873700   | CD PCB ASS'Y [US , C]       | COP11263B     |
|            | 9A07873710   | CD PCB ASS'Y [E , UK]       | COP11263C     |
|            | 9A07878800   | PCB , CD                    | CUP11263Z     |
| BN92       | 9A07879100   | WIRE ASS'Y 5P , 50MM        | CWB1C005050EN |
| C 317      | △ 9A07882600 | CAP , ELECT 220/16V         | HCEA1CH221T   |
| C 323      | △ 9A07882600 | CAP , ELECT 220/16V         | HCEA1CH221T   |
| C 356      | △ 9A07882600 | CAP , ELECT 220/16V         | HCEA1CH221T   |
| CN31       | 9A05356400   | WAFER , MOLEX53014-0510     | KJP05GA19ZM   |
| CN32       | 9A05329700   | WAFER , MOLEX53014-0610     | KJP06GA19ZM   |
| CN33       | 9A07890500   | WAFER , CARD CABLE 16P 1    | KJP16GB113ZG  |
| CN94       | 9A07890700   | WAFER , CARD CABLE(ANGLE)G  | KJP17GB116ZG  |
| D 301 ,303 | 9A07887200   | DIODE , 1SS131M             | HVD1SS131MT   |
| IC31       | 9A07887600   | I.C , DIGITAL SERVO TC9432A | HVITC9432AF   |
| IC32       | 9A07887400   | I.C , RF DIGI SERVO TA2109F | HVITA2109F    |
| IC33       | △ 9A07887300 | I.C , POWER DRIVER TA2092N  | HVITA2092N    |
| IC34       | △ 9A07871100 | I.C , NJM7805FA             | BVINJM7805FA  |
| IC35       | △ 9A07887500 | I.C , TA7291S               | HVITA7291S    |
| L 301      | 9A07886600   | COIL , AXAIL 10UH           | HLQ02C100KT   |
| L 302      | 9A07886700   | COIL , AXAIL 100UH          | HLQ02C101JT   |
| Q 301      | 9A07888100   | T.R , TKTA1266YT            | HVTKTA1266YT  |
| X 301      | 9A05193100   | CRYSTAL, 16934A120C         | KOX16934A120C |