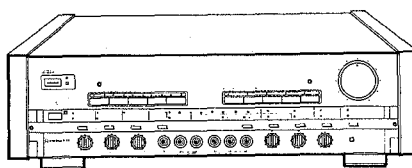


 **PIONEER®**

# Service Manual

**CIRCUIT DESCRIPTIONS  
REPAIR & ADJUSTMENTS**



**ORDER NO.  
ARP1205-A**

**STEREO CONTROL AMPLIFIER**

# C-90(BK)

- This service manual is applicable to the C-90 (BK)/S/G and KU types.
- As to the KU type please refer to page 49.
- The video circuit and remote control circuit are build in on the C-90 (BK)/KU, S/G types.

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# 1. SPECIFICATIONS

## Amplifier section

|  |                         |
|--|-------------------------|
| Rated power                                      |                         |
| 20 Hz—20 kHz, 0.01% .....                        | 8 V                     |
| Harmonic distortion                              |                         |
| 20 Hz—20 kHz, 1 V .....                          | 0.002%                  |
| Cross modulation distortion                      |                         |
| (50 Hz: 7 kHz = 4 : 1, 1 V) .....                | 0.002%                  |
| Input terminals (sensitivity/impedance)          |                         |
| PHONO MM .....                                   | 2.5 mV/50 k $\Omega$    |
| PHONO MC .....                                   | 250 $\mu$ V/40 $\Omega$ |
|  | 125 $\mu$ V/3 $\Omega$  |
| TUNER, CD, TAPE PLAY, ADAPTOR .....              | 150 mV/50 k $\Omega$    |
| Output terminals (output level/output impedance) |                         |
| TAPE REC .....                                   | 150 mV/1 k $\Omega$     |
| PRE OUT .....                                    | 1 V/600 $\Omega$        |
| Frequency response                               |                         |
| PHONO MM 20 Hz—20 kHz .....                      | $\pm$ 0.2 dB            |
| TUNER, CD, AUX, 20 Hz—20 kHz .....               | +0 dB                   |
|  | -0.1 dB                 |
| Tone control                                     |                         |
| BASS .....                                       | $\pm$ 9 dB, 100 Hz      |
| TREBLE .....                                     | $\pm$ 9 dB, 10 kHz      |
| Filter   |                         |
| LOW (SUBSONIC) .....                             | 7 Hz, 6 dB/oct          |
| HIGH .....                                       | 10 kHz, 6 dB/oct        |
| MUTING .....                                     | -20 dB                  |
| SN ratio (short-circuit, A network)              |                         |
| PHONO MM .....                                   | 96 dB                   |
| PHONO MC .....                                   | 86 dB                   |
| TUNER, CD, TAPE PLAY, ADAPTOR .....              | 109 dB                  |

## Video section

|   |                               |
|---|-------------------------------|
| Video (Base Band)                         |                               |
| Input terminals (sensitivity/impedance)   |                               |
| VDP, VCR 1, 2, 3, ADAPTOR, TV TUNER       |                               |
| .....                                     | 1 Vp-p/75 $\Omega$ unbalanced |
| Output terminals (Output level/impedance) |                               |
| VCR 1, 2, 3, ADAPTOR, REC MONITOR         |                               |
| .....                                     | 1 Vp-p/75 $\Omega$ unbalanced |
| DG .....                                  | 2%                            |
| DP .....                                  | 2°                            |
| Frequency response 10 Hz — 10 MHz .....   | +0 dB                         |
|   | -3 dB                         |
| Noise level .....                         | -60 dB or less                |
| Sharpness 2 MHz .....                     | +6 dB                         |
| Detail 0.5 MHz .....                      | $\pm$ 3dB                     |
| Maximum input level .....                 | 2 Vp-p                        |

## Power section, other

|   |                                   |
|---|-----------------------------------|
| Power requirements                              |                                   |
| U.S. model .....                                | AC 120 V, 60 Hz                   |
| Other models .....                              | $\sim$ AC 110 V/120 V/220 V/240 V |
|   | (switchable), 50/60 Hz            |
| Power consumption                               |                                   |
| U.S. model .....                                | 40 W                              |
| Other models .....                              | 40 W                              |
| AC outlets                                      |                                   |
| Power switch linked .....                       | 500 W                             |
| Power switch linked (x 2: remote control lable) |                                   |
| .....   | 500 W                             |
| External dimensions .....                       | 457(W) x 405(D) x 125(H) mm       |
|   | 18 (W) x 16 (D) x 5 (H) in        |
| Weight .....                                    | 9.7 kg                            |
|   | (21 lb 6 oz)                      |

## Accessories

|                              |   |
|------------------------------|---|
| Remote control unit .....    | 1 |
| Batteries (R03/UM-4) .....   | 2 |
| Pin-plug cord .....          | 1 |
| Operating Instructions ..... | 1 |

*The specifications and appearance noted above are subject to change without notice due to improvements.*

## 2. FRONT PANEL FACILITIES

### FRONT PANEL

#### VIDEO INPUT selector switch/indicator

Use to select the video component for playback.

[VDP]— To play back the video disc player connected to the rear panel VDP terminals.

[VCR 1]— To play back the VCR connected to the rear panel VCR 1 terminals.

[VCR 2]— To play back the VCR connected to the front panel VCR 2 terminals.

[VCR 3]— To play back the VCR connected to the rear panel VCR 3 terminals.

[TV tuner]— To use the TV tuner connected to the rear panel TV TUNER terminals.

The red indicators light during audio playback, while the green indicators light during video playback.

This switch is interlocked with the AUDIO INPUT selector.

#### MAIN POWER switch

##### STAND-BY switch/indicator

- When the power switch is in the ON position, power can be turned ON/OFF to the amplifier and to the rear panel REMOTE CONTROL power outlets.

- Power is turned ON/OFF alternately with each press of the switch; when in the OFF (stand-by) position, the indicator will light (when in the ON position, the indicator will flash, then go out).

- The accessory remote control unit can be used to turn this switch ON/OFF, with the result that the remote control unit can be used from the listening position to control power not only to the amplifier, but also to those components connected to the rear panel REMOTE CONTROL power outlets.

- When not using the amplifier for an extended period of time, be sure to set the main power switch to the OFF position.

#### REMOTE SENSOR/indicator

#### AUDIO ADAPTOR switch/indicator

Normally leave in the OFF position.

Set to ON when using the audio adaptor component connected to the rear panel adaptor terminals AUDIO IN/OUT (indicator lights).

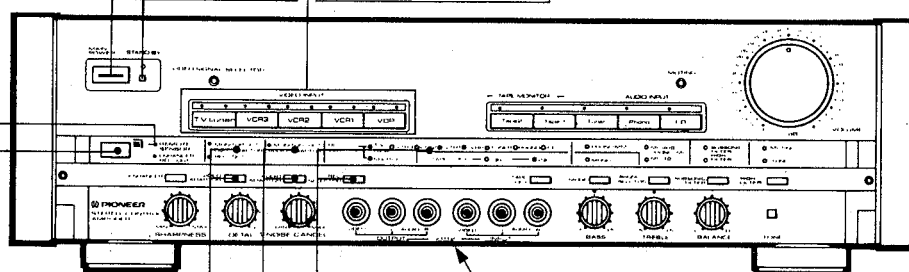
#### REC SELECTOR switch/indicator

Use to select the playback source component used when performing audio and video recording on VCR's 1, 2, and 3. The audio and video signals (in the case of a video component), or audio signals (in the case of an audio component) from the selected component will be output from the VCR 1,2,3 REC terminals. When set to SOURCE, the signals selected with the audio or video input selector switch will be output.

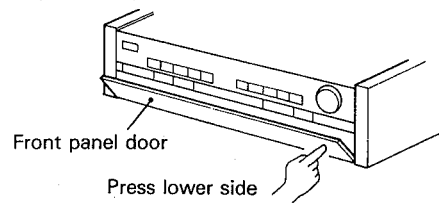
When performing video recording, the built-in enhancer function can be used to enhance the quality of the recorded video signals (see the instructions regarding the enhancer switch and picture enhancement). The enhanced picture can be monitored on the color monitor connected to the rear panel REC MONITOR terminal.

#### NOTE:

No signal is output to the REC terminal of the input component selected with the recording selector switch. For example, when REC SELECTOR is used to select VCR 1, no signal will be output to the REC terminal of VCR 1.



To open front panel door



#### VIDEO ADAPTOR switch/indicator

Set to the ON position when using the component connected to the rear panel ADAPTOR terminals VIDEO IN and OUT.

##### MONITOR OUT lights:

The image enhanced with the adaptor component can be played back on the color monitor or TV connected to the MONITOR OUT terminal or RF MODULATOR terminal.

##### REC OUT lights:

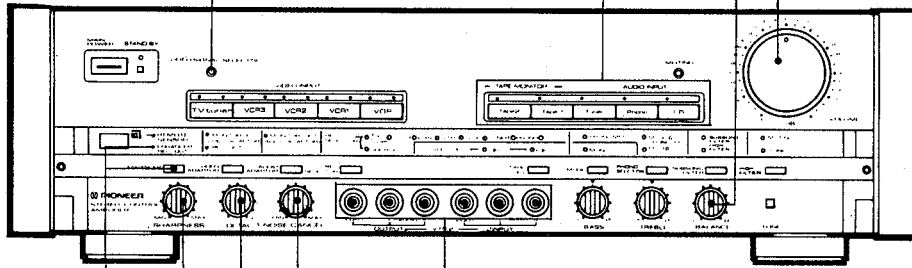
The image enhanced with the adaptor component can be played back on the color monitor connected to the REC MONITOR terminal or the VIDEO OUT terminal of VCR 1-3.

**VIDEO SIGNAL SELECTOR switch**  
 Use to switch the video component's video signal regardless of the position of the input selector switch. The video indicators (green) above the input selector switch will light in order.  
 Even when listening to an audio component (record player, tuner, etc.), this switch can be used to perform video recording and playback while continuing to listen to the audio component playback.

**BALANCE control**  
 Normally leave in the center position. Use to adjust the balance of sound from right and left channels.

**AUDIO INPUT selector switch/indicator.**  
 Use to select the audio component for playback (the indicator will light).  
 [CD]: For compact disc player.  
 [Phono]: For turntable.  
 [Tuner]: For listening to FM/AM broadcasts with a tuner.  
 [Tape 1]: To use the tape deck connected to the rear panel Tape 1 terminals.  
 [Tape 2]: To use the tape deck connected to the rear panel Tape 2 terminals.  
 The Tape 1 and Tape 2 switches go ON or OFF alternately each time they are pressed, independently of the other switches.

**VOLUME control**  
 Use to adjust the sound volume. At the [ $\infty$ ] position, sound will not be heard, while at the [0] position, sound volume will be at its maximum.



**ENHANCER switch/indicator**  
 When performing VCR recording, the built-in enhancer allows you to compensate the recorded picture quality. Press the switch so that the indicator lights, then adjust the image quality using the video compensation controls.

**VCR 2 front panel terminals**  
 Use to connect a second video cassette recorder.  
 [INPUT]  
 VIDEO: For video input (connect to VCR's video output terminal).  
 AUDIO: For audio input (connect to VCR's audio output terminals).  
 [OUTPUT]  
 VIDEO: For video output (connect to VCR's video input terminals).  
 AUDIO: For audio output (connect to VCR's input terminals).

**Video compensation controls**  
 Use these compensation controls after pressing the ENHANCER switch so that the indicator lights.  
 [SHARPNESS]: Use to sharpen hazy image contours.  
 [DETAIL]: Use to compensate for flat image detail.  
 [NOISE CANCEL]: Use to reduce noticeable video noise.  
 The video image compensated with these controls can be viewed on a TV monitor connected to the rear panel REC MONITOR or MONITOR OUT terminals.

**NOTE:**

- When using the video compensation controls, perform compensation based on the quality of the playback image. If too much compensation is applied, black and white stripes may appear in contour areas. As a result, the image should be adjusted to the optimum quality while viewing the results on a color TV monitor connected.
- To view the enhanced image on the color monitor connected to the MONITOR OUT terminal, select the playback source with the recording selector switch, and use the video input selector switch to select the component being used for video recording.

**TAPE COPY switch/indicator**

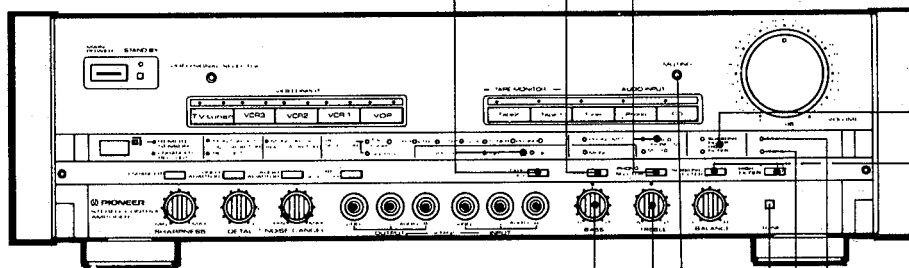
Use when performing tape copying between the tape decks connected to the TAPE 1, and TAPE 2 terminals.  
**1▶2:** To copy the Tape 1 playback onto Tape 2.  
**2▶1:** To copy the Tape 2 playback onto Tape 1.

**MODE selector switch**

Use to select the stereo or monaural audio playback mode. Normally, this switch is not used. When the monaural playback mode is selected, press this switch; the MODE MONO indicator will light.

**Cartridge selector switch/indicator (PHONO SELECTOR):**

Set in accordance with the type of cartridge used on your record player (the corresponding indicator will light).  
**[MM]** — Set here when using a moving magnet cartridge, or a high-output (1mV or more) moving coil (MC) cartridge.  
**[MC 40 Ω]** — Set here when using a moving coil cartridge with impedance of 40 ohms.  
**[MC 3 Ω]** — Set here when using a MC cartridge with impedance of 3 ohms.



**TONE switch/indicator**

**[ON]** — The TONE indicator lights, and audio inputs from all components are played back after passing through the tone control circuits. In this condition, the tone controls (BASS, TREBLE) can be used to adjust sound quality.  
**[OFF]** — The TONE indicator goes out, and signals are played back without passing through the tone control circuits.

**Tone controls**

These controls can be used only when the TONE indicator is lighted.

**[BASS]** — Use to adjust low frequency sounds. The central [0] indicates the standard (flat) position. When the control is rotated to the right, low-frequency sounds are augmented; when rotated to the left, low-frequency sounds are attenuated.

**[TREBLE]** — Use to adjust high-frequency sounds. The central [0] indicates the standard (flat) position. When the control is rotated to the right, high-frequency sounds are augmented; when rotated to the left, high-frequency sounds are attenuated.

**MUTING switch/indicator**

Use to temporarily reduce the sound volume to 1/10th normal. The muting function is on when the MUTING indicator lights. Press the switch again to turn the muting function off and return the sound volume to the normal level.

**SUBSONIC FILTER switch/indicator**

When the switch is pressed to the ON position, the indicator lights and the subsonic filter acts to cut out all frequencies below 7 Hz.

**HIGH FILTER switch/indicator**

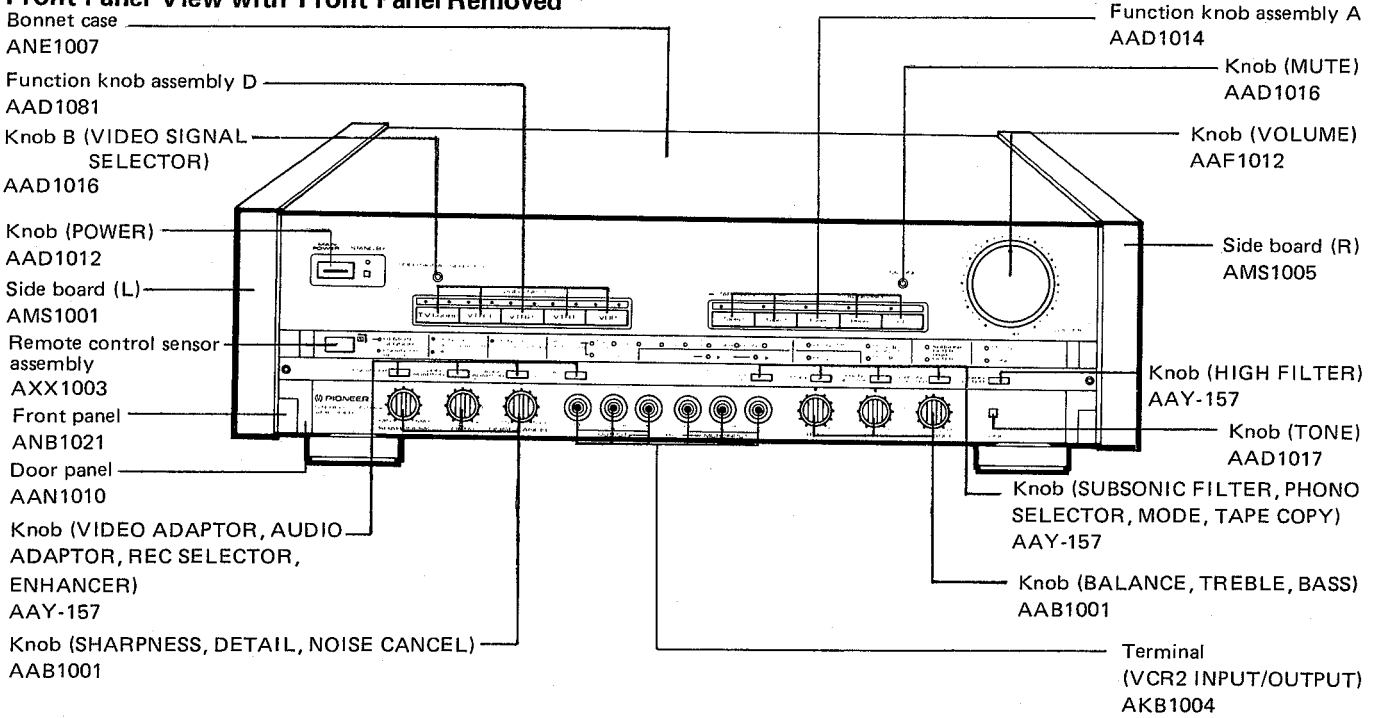
When the switch is pressed to the ON position, the indicator lights and the high-cut filter acts to eliminate all frequencies above 10 kHz.

### 3. PARTS LOCATION

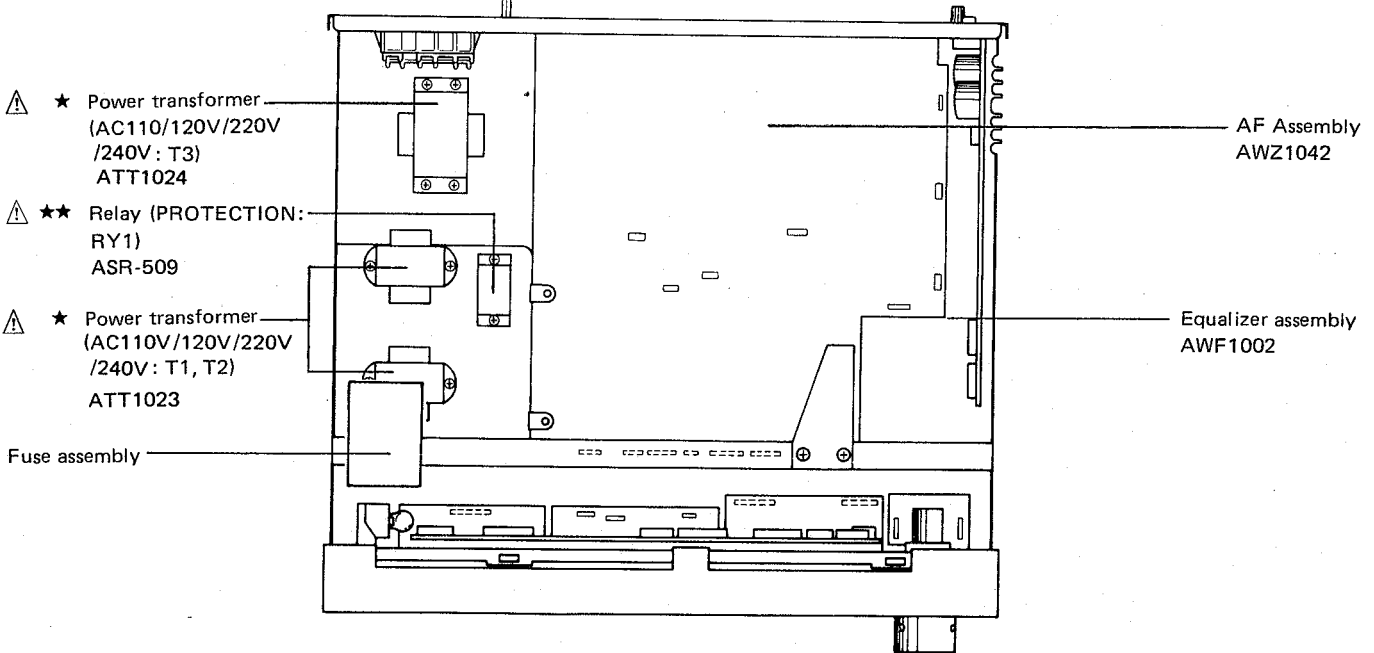
**NOTES:**

- Parts without part number cannot be supplied.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.  
**★★ GENERALLY MOVES FASTER THAN ★**  
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "  $\odot$  " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

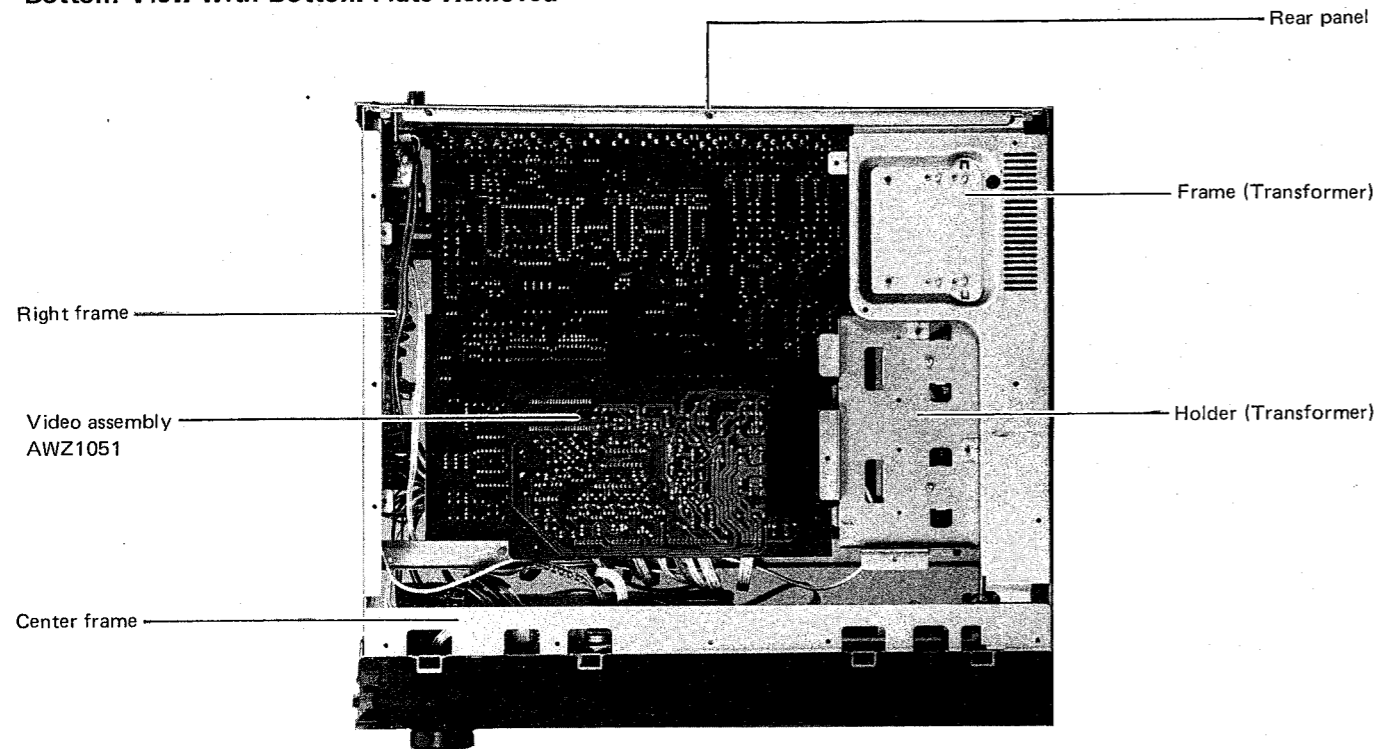
**Front Panel View with Front Panel Removed**



**Top View with Bonnet Case Removed**



Bottom View with Bottom Plate Removed

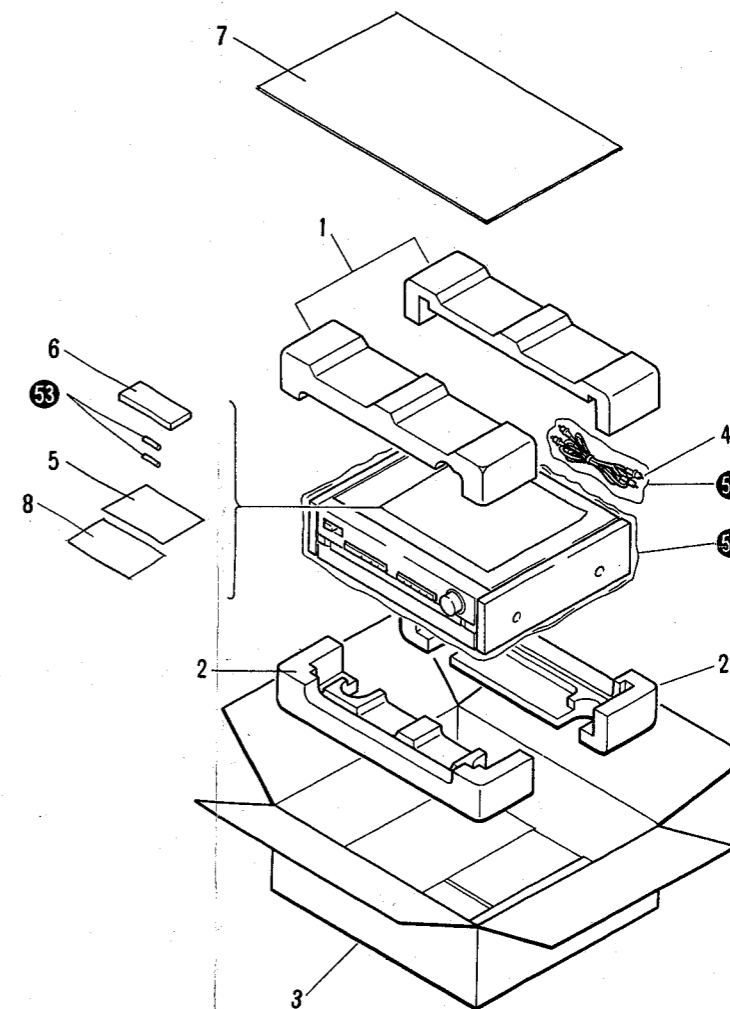
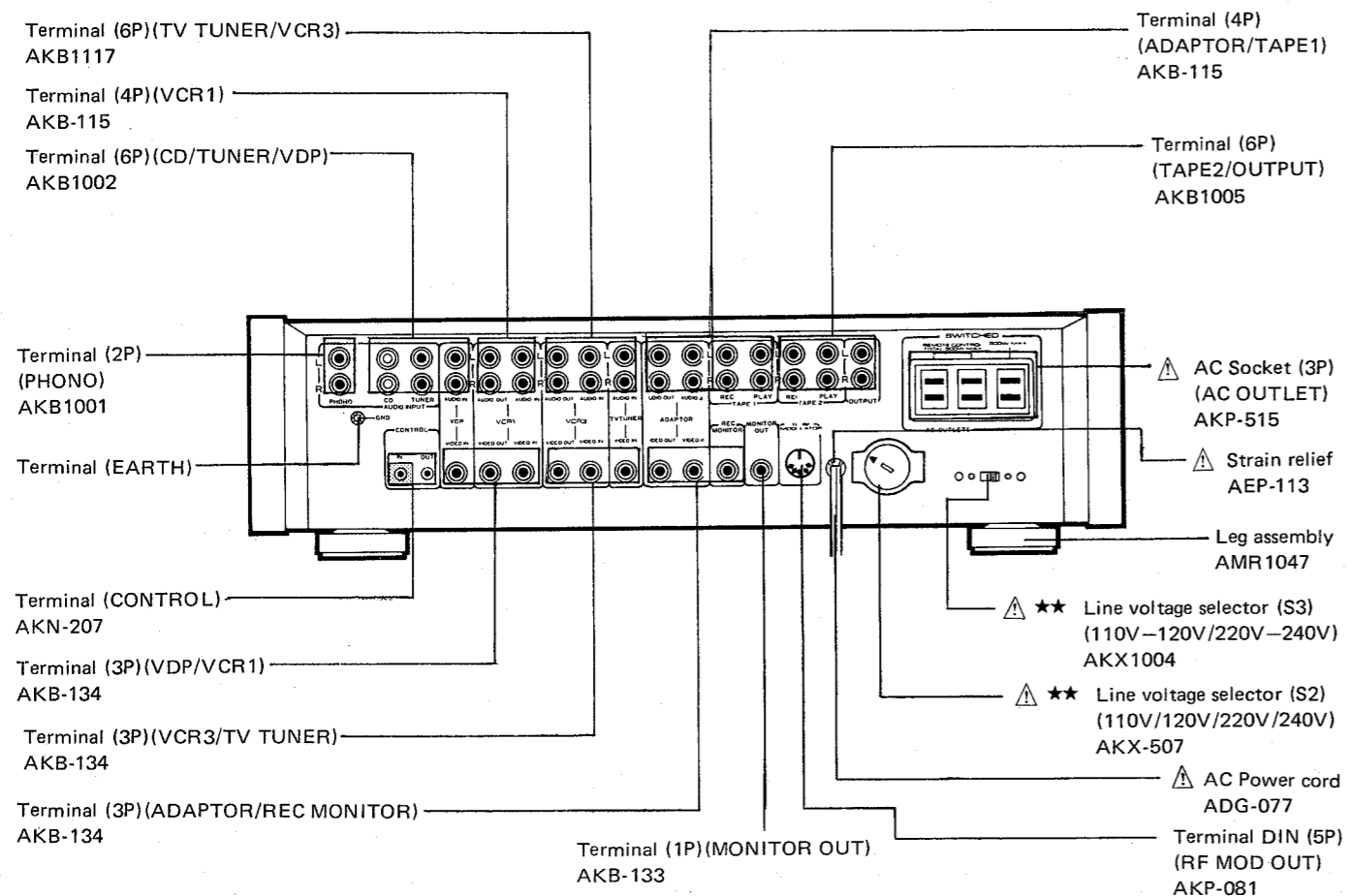


## 4. PACKING

Parts List of Packing

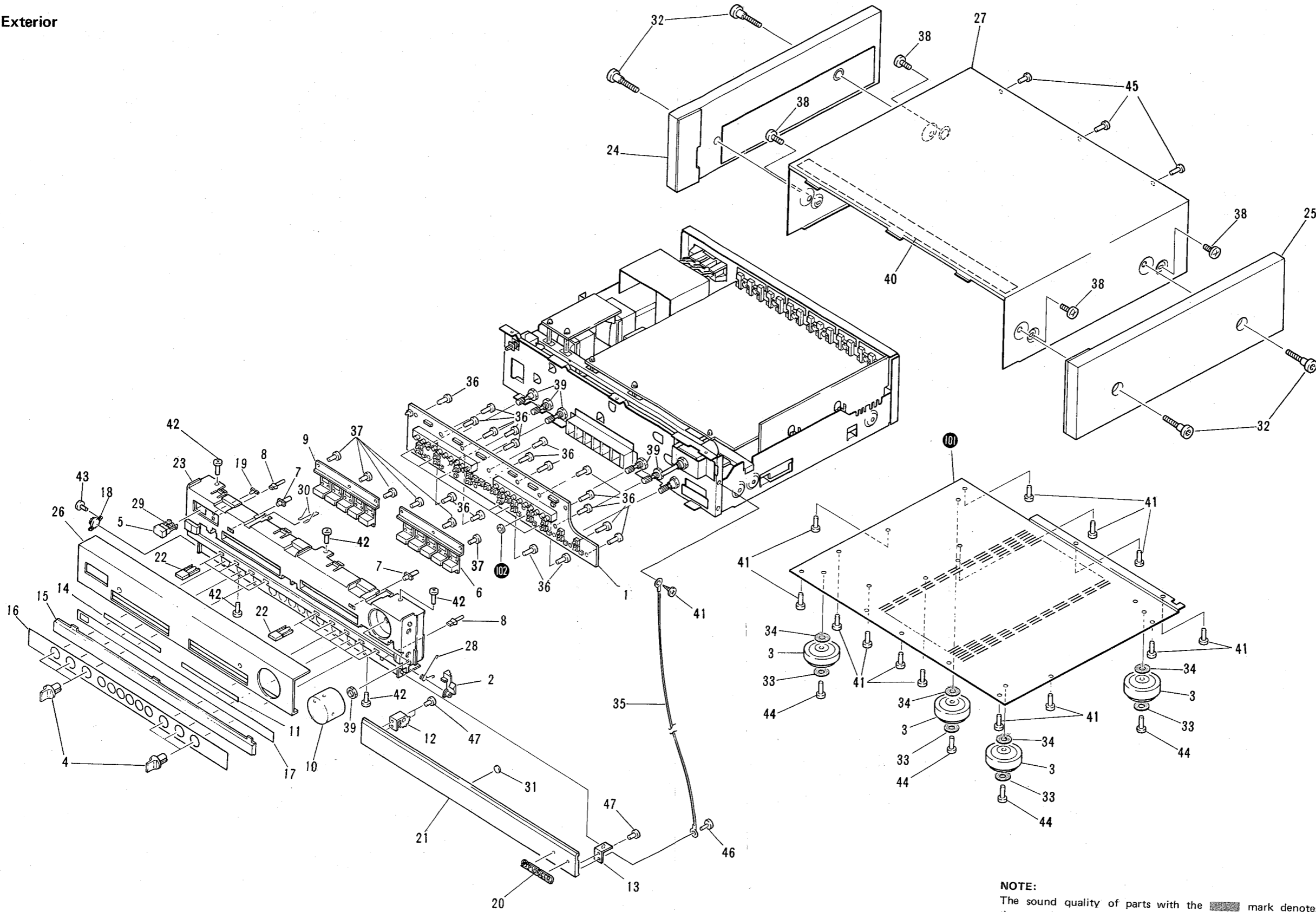
| Mark | No. | Part No. | Description               |
|------|-----|----------|---------------------------|
|      | 1   | AHA1003  | Top pad                   |
|      | 2   | AHA1004  | Bottom pad                |
|      | 3   | AHD1121  | Packing case              |
|      | 4   | ADE1013  | Connection cord with plug |
|      | 5   | ARB1034  | Operating instruction     |
|      | 6   | AXD1009  | Remote control unit       |
|      | 7   | AHB1008  | Spacer                    |
|      | 8   | ARH1030  | Note sheet                |
|      | 51  |          | Vinyl bag                 |
|      | 52  |          | Sheet                     |
|      | 53  |          | Battery                   |


Rear Panel View



# EXPLODED VIEWS AND PARTS LIST

Exterior



**NOTE:**  
 The sound quality of parts with the  mark denotes that these are failsafe parts. Be sure that the designated parts are in the positions prescribed.



List of Exterior

NOTES:

- Parts without part number cannot be supplied.
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
- **★★ GENERALLY MOVES FASTER THAN ★**  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "  $\odot$  " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

| No. | Part No. | Description   | Key | No. | Part No.     | Description  |
|-----|----------|---|-----|-----|--------------|--------------|
| 1   | AWZ1056  | Switch A assembly   |     | 36  | BBZ26P080FMC | Screw        |
| 2   | AMR1020  | Hook  |     | 37  | BBZ30P080FZK | Screw        |
| 3   | AMR1047  | Leg assembly  |     | 38  | FBT40P080FZK | Screw        |
| 4   | AAB1001  | Knob (BALANCE, TREBLE, BASS, SHARPNESS, DETAIL, NOISE CANCEL)   |     | 39  | NK90FUC      | Nut          |
|     |          |   |     | 40  | AED1007      | Sheet        |
| 5   | AAD1012  | Knob (POWER)  |     | 41  | ABA1009      | Screw        |
|     |          |   |     | 42  | ABA1011      | Screw        |
| 6   | AAD1014  | Function knob assembly (A)  |     | 43  | PTZ20P060FMC | Screw        |
| 7   | AAD1016  | Knob (MUTE, VIDEO SIGNAL SELECTOR)  |     | 44  | ABA1007      | Screw        |
|     |          |   |     | 45  | ABA1006      | Screw        |
| 8   | AAD1017  | Knob (TONE, LOUDNESS)   |     | 46  | PMZ30P060FZB | Screw        |
| 9   | AAD1081  | Function knob assembly (D)  |     | 47  | PMZ30P050FZB | Screw        |
| 10  | AAF1012  | Knob (VOLUME)   |     |     |              |              |
| 11  | AAK1023  | Indicator sheet A   |     | 101 |              | Bottom plate |
| 12  | AAK1024  | Arm L   |     | 102 |              | Spacer ring  |
| 13  | AAK1025  | Arm R   |     |     |              |              |
| 14  | AAK1061  | Indicator sheet C   |     |     |              |              |
| 15  | AAK1139  | Acrylic panel   |     |     |              |              |
| 16  | AAK1137  | Hear sheet  |     |     |              |              |
| 17  | AAK1138  | Sheet panel   |     |     |              |              |
| 18  | ANZ-255  | Dumper assembly   |     |     |              |              |
| 19  | AAK1075  | Lens  |     |     |              |              |
| 20  | AAM1001  | Name plate  |     |     |              |              |
| 21  | AAN1010  | Door panel  |     |     |              |              |
| 22  | AAZ-157  | Knob (ADAPTOR, TAPE COPY, MODE, PHONO SELECTOR, SUBSONIC FILTER, HIGH FILTER, VIDEO, AUDIO, REC SELECTOR, ENHANCER) |     |     |              |              |
| 23  | AMB1049  | Panel base  |     |     |              |              |
| 24  | AMS1001  | Side board L  |     |     |              |              |
| 25  | AMS1005  | Side board R  |     |     |              |              |
| 26  | ANB1021  | Front panel   |     |     |              |              |
| 27  | ANE1007  | Bonnet case   |     |     |              |              |
| 28  | ABH1004  | Hook spring   |     |     |              |              |
| 29  | ABH1005  | Coil spring   |     |     |              |              |
| 30  | ABH1011  | Earth spring  |     |     |              |              |
| 31  | AED1008  | Door cushion  |     |     |              |              |
| 32  | ABA1002  | Decorative screw  |     |     |              |              |
| 33  | ABE1002  | Washer  |     |     |              |              |
| 34  | ABE1005  | Washer  |     |     |              |              |
| 35  | ADH1003  | Wire (EARTH)  |     |     |              |              |

Parts List of Interior

| Mark     | No. | Part No. | Description  | Mark   | No. | Part No. | Description        |
|----------|-----|----------|--------------|--|-----|----------|--------------------|
|          |     | 1        | AWZ1042      | AF assembly  |     | 101      | VR A assembly      |
|          |     | 2        | AWZ1051      | VIDEO assembly                                     |     | 102      | VR B assembly      |
|          |     | 3        | AWZ1055      | Control assembly                                   |     | 103      | Fuse assembly      |
| $\Delta$ |     | 4        | ACG-502      | Capacitor (C1~C3) (POWER, 0.01/400V)               |     | 104      | Terminal assembly  |
| $\Delta$ | ★   | 5        | ATT1023      | Power transformer (T1, T2) (AC110V/120V/220V/240V) |     | 105      | VR assembly        |
|          |     |          |              |  |     | 106      | SW B assembly      |
|          |     |          |              |  |     | 107      | Cushion rubber     |
| $\Delta$ | ★   | 6        | ATT1024      | Power transformer (T3) (AC110/120V/220V/240V)      |     | 108      | Terminal (EARTH)   |
|          |     |          |              |  |     | 109      | Transformer frame  |
|          |     | 7        | AKM-050      | Short pin plug                                     |     | 110      | Right frame        |
| $\Delta$ |     | 8        | AKP-515      | AC socket (AC OUTLET, 3P)                          |     |          |                    |
| $\Delta$ | ★★  | 9        | ASG-553      | Switch (POWER, S1)                                 |     | 111      | Rear panel         |
| $\Delta$ | ★★  | 10       | ASR-509      | Relay (RY1, PROTECTION)                            |     | 112      | Panel stay         |
|          |     |          |              |  |     | 113      | P.C.B. holder      |
|          |     | 11       | AXX1003      | Remote control sensor assembly                     |     | 114      | Transformer holder |
|          |     | 12       | .....        | .....  |     | 115      | Volume holder      |
| $\Delta$ |     | 13       | AEP-113      | Strain relief                                      |     |          |                    |
|          |     | 14       | AWF1002      | Equalizer assembly                                 |     | 116      | Lead wire          |
|          |     | 15       | AAK1071      | Blind sheet  |     | 117      | Center frame       |
|          |     |          |              |  |     | 118      | Shield cover       |
|          |     | 16       | ABA1004      | Screw  |     | 119      | Damper plate A     |
|          |     | 17       | ABA1006      | Screw  |     | 120      | Damper plate B     |
|          |     | 18       | .....        | .....  |     |          |                    |
|          |     | 19       | ABA1009      | Screw  |     | 121      | P.C.B. holder B    |
|          |     | 20       | .....        | .....  |     | 122      | Cushion rubber     |
|          |     |          |              |  |     | 123      | P.C.B. support     |
|          |     | 21       | ABE1001      | Washer   |     | 124      | Pin grommet        |
|          |     | 22       | .....        | .....  |     | 125      | P.C.B. support     |
|          |     | 23       | ABN-028      | Nut  |     |          |                    |
|          |     | 24       | ABN-050      | Boss   |     | 126      | P.C.B. holder C    |
| $\Delta$ |     | 25       | ADG-077      | AC power cord                                      |     |          |                    |
|          |     | 26       | .....        | .....  |     |          |                    |
|          |     | 27       | .....        | .....  |     |          |                    |
|          |     | 28       | .....        | .....  |     |          |                    |
|          |     | 29       | NK70FUC      | Nut  |     |          |                    |
|          |     | 30       | NK90FUC      | Nut  |     |          |                    |
|          |     | 31       | .....        | .....  |     |          |                    |
|          |     | 32       | .....        | .....  |     |          |                    |
|          |     | 33       | .....        | .....  |     |          |                    |
|          |     | 34       | VMZ30P060FCU | Screw  |     |          |                    |
|          |     | 35       | WA33F120K050 | Washer   |     |          |                    |
|          |     | 36       | WG70FUC      | Washer   |     |          |                    |
| $\Delta$ | ★★  | 37       | AKX-507      | Line voltage selector (S2) (110V/120V/220V/240V)   |     |          |                    |
| $\Delta$ | ★★  | 38       | AKX1004      | Line voltage selector (S3) (110V-120V/220V-240V)   |     |          |                    |
|          |     | 39       | ANG1077      | Terminal holder                                    |     |          |                    |
|          |     | 40       | ACN1010      | Wire wound resistor (R1, 56 $\Omega$ /10W)         |     |          |                    |
|          | ★   | 41       | S5566        | Diode (D1)   |     |          |                    |

A

B

C

D

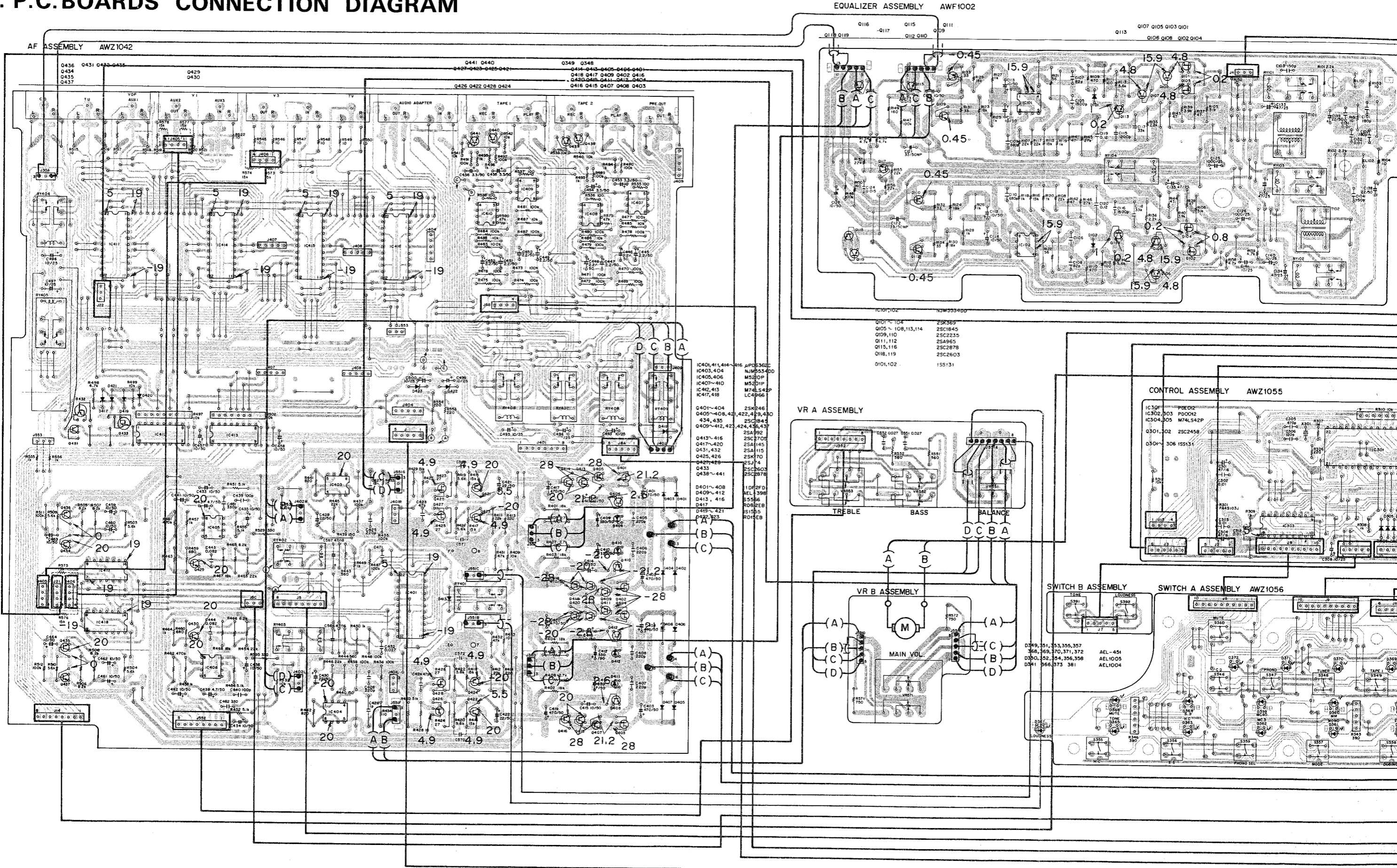
# 6. P.C. BOARDS CONNECTION DIAGRAM

A

B

C

D

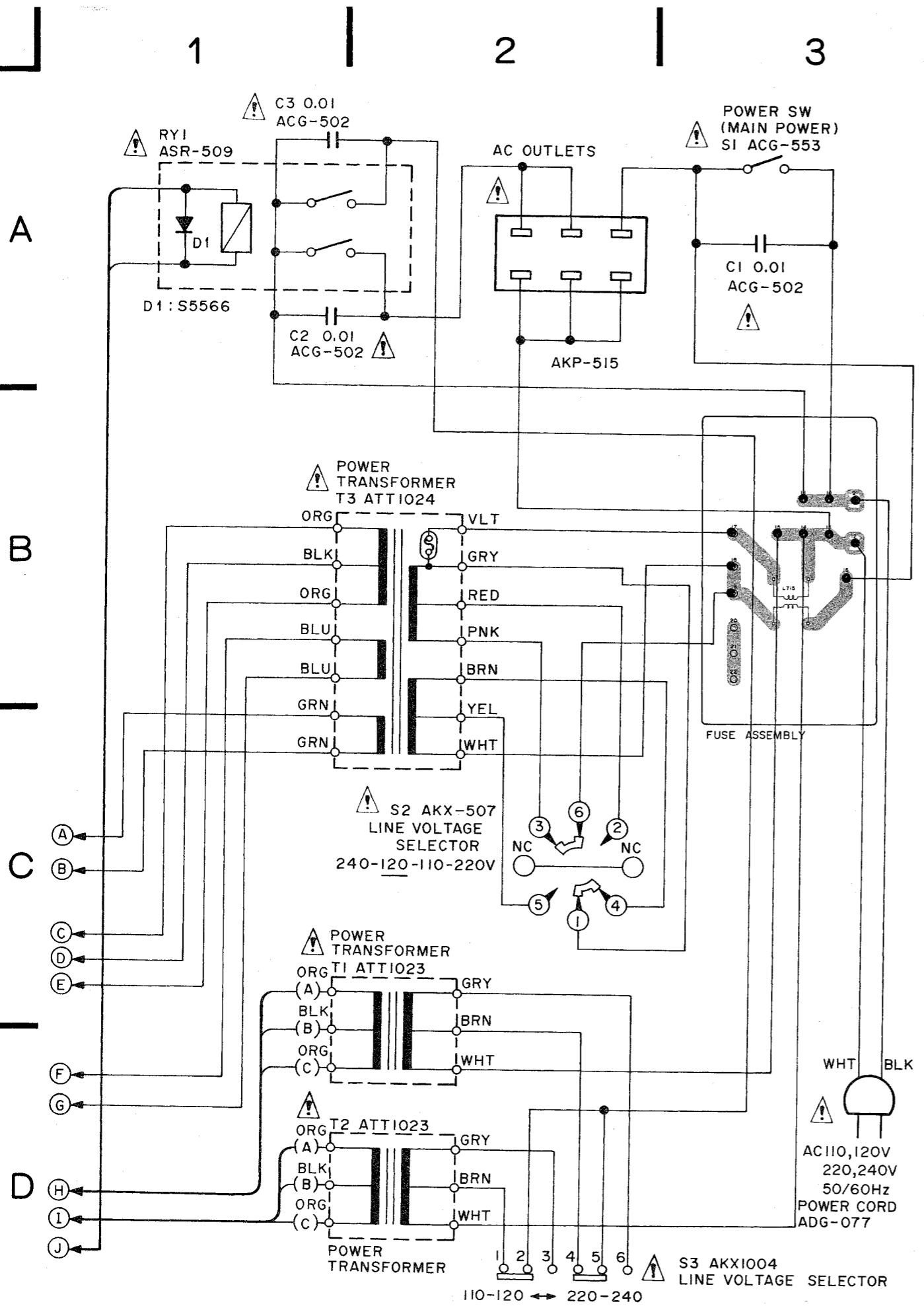


- IC401,411,414~416 JPD53622
- IC403,404 NJM553400
- IC405,406 M520P
- IC407~410 M520P
- IC412,413 M74LS42P
- IC417,418 LC4966
- Q401~404 25K369
- Q405~408,42,422,423,430 25C1845
- 434,435 25C2235
- Q409~412,42,424,435,437 25A965
- Q413~415 25A992
- Q417~420 25C3702
- Q431,432 25A115
- Q425,426 25K170
- Q427~428 25J14
- Q433 25C2603
- Q438~441 25C2878
- D401~408 10P2FD
- D409~412 AEL1398
- D413,416 S5566
- D417 R082EB
- D419~421 S1525
- D422 R01EB

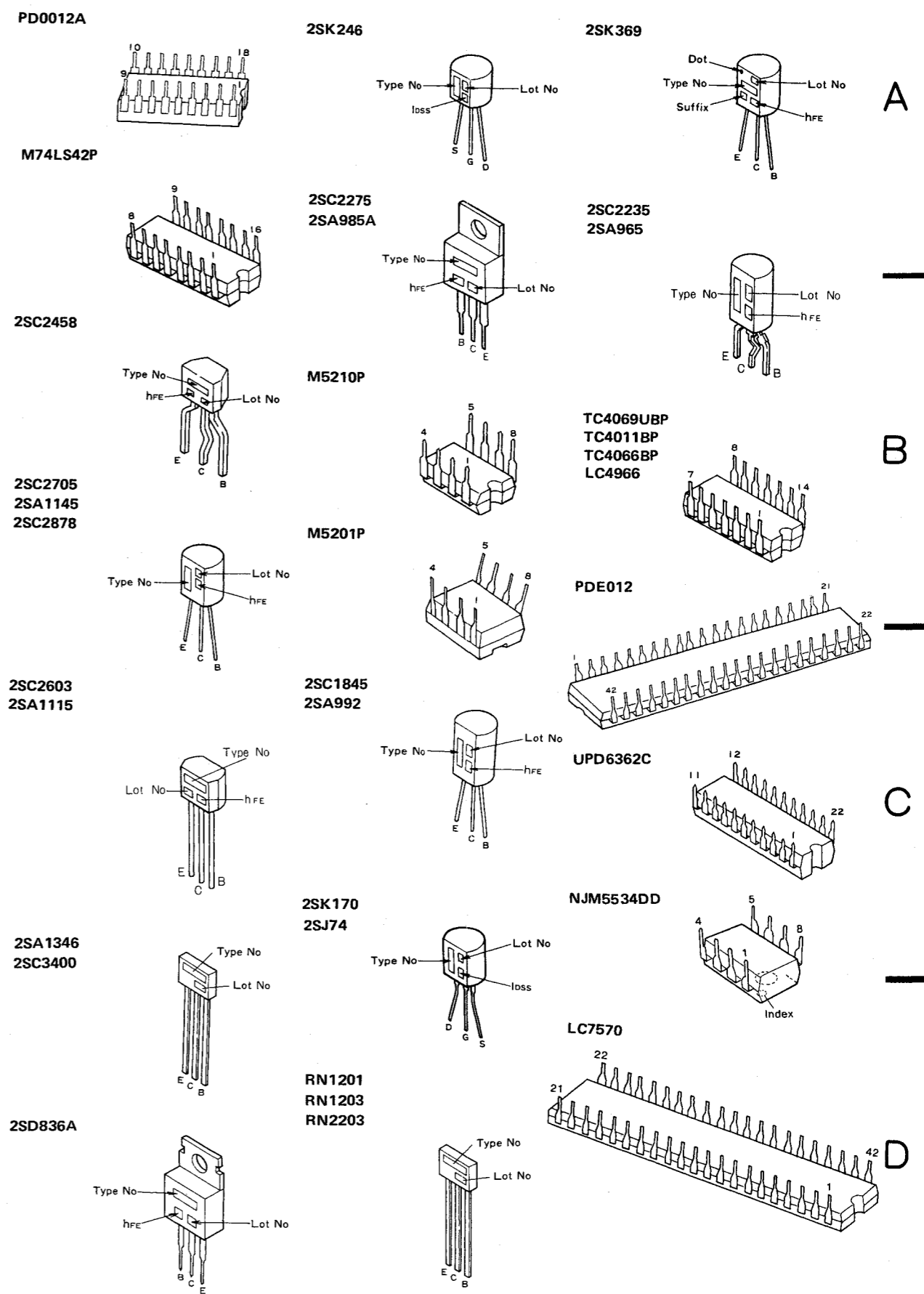
- Q101~104 25K369
- Q105~109,113,114 25C1845
- Q109,110 25C2235
- Q111,112 25A965
- Q115,116 25C2878
- Q118,119 25C2603
- D101,102 15S131

- D319,351,353,356,357 368,369,370,371,372
- D350,352,354,356,358 366,373,381
- AEL-454
- AEL1005
- AEL1004





External Appearance of Transistors and ICs



# 7. SCHEMATIC DIAGRAM

A

A

B

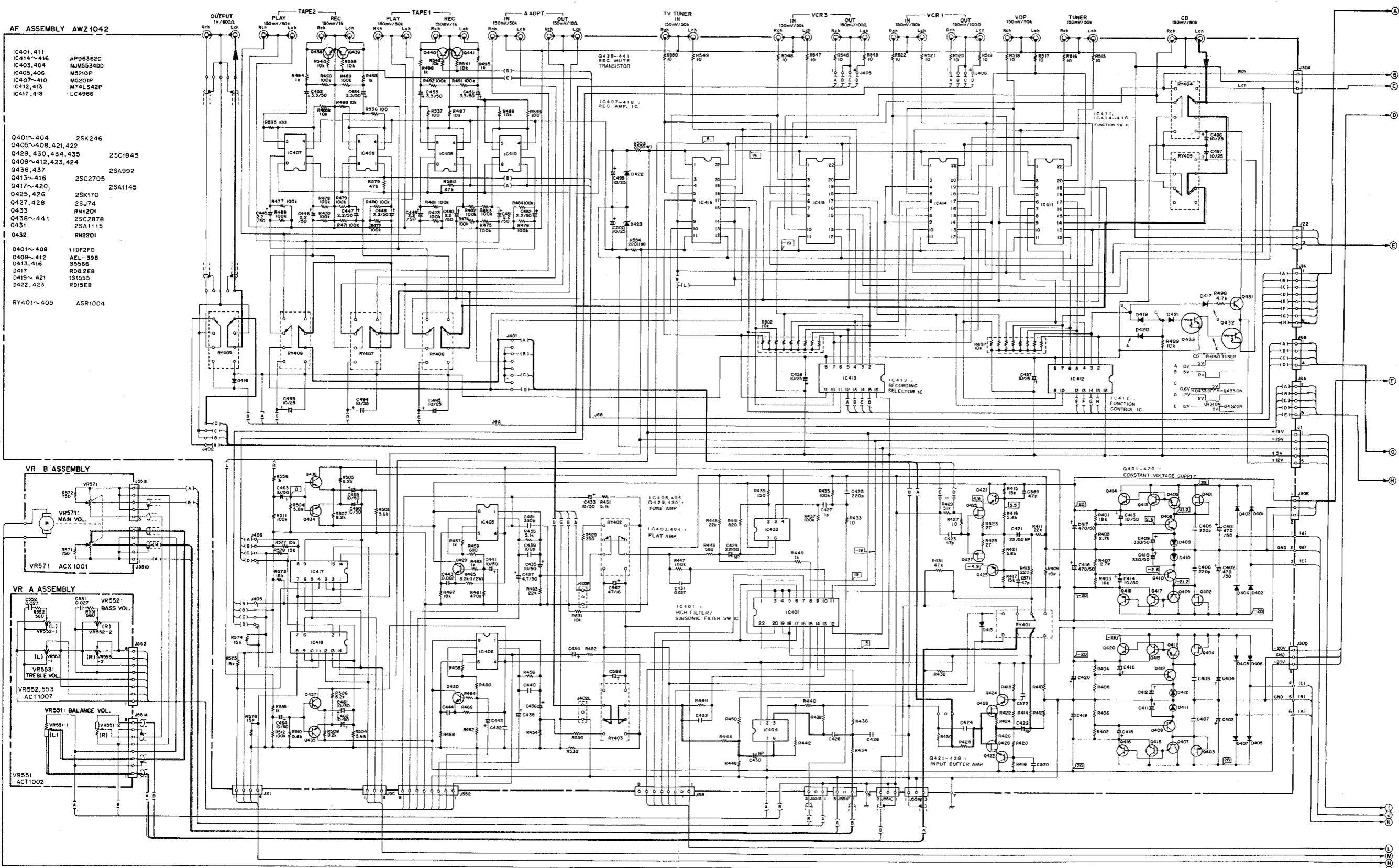
B

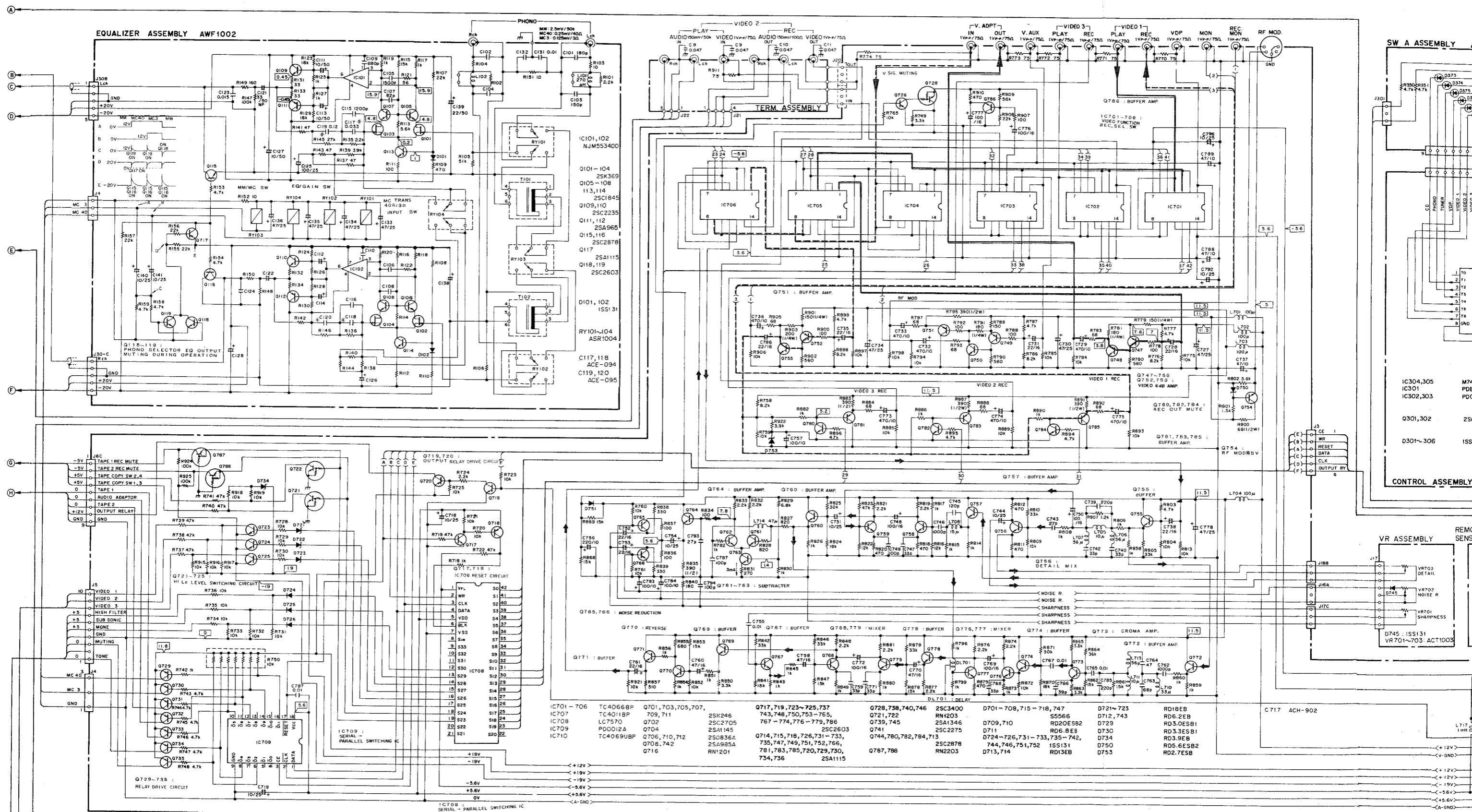
C

C

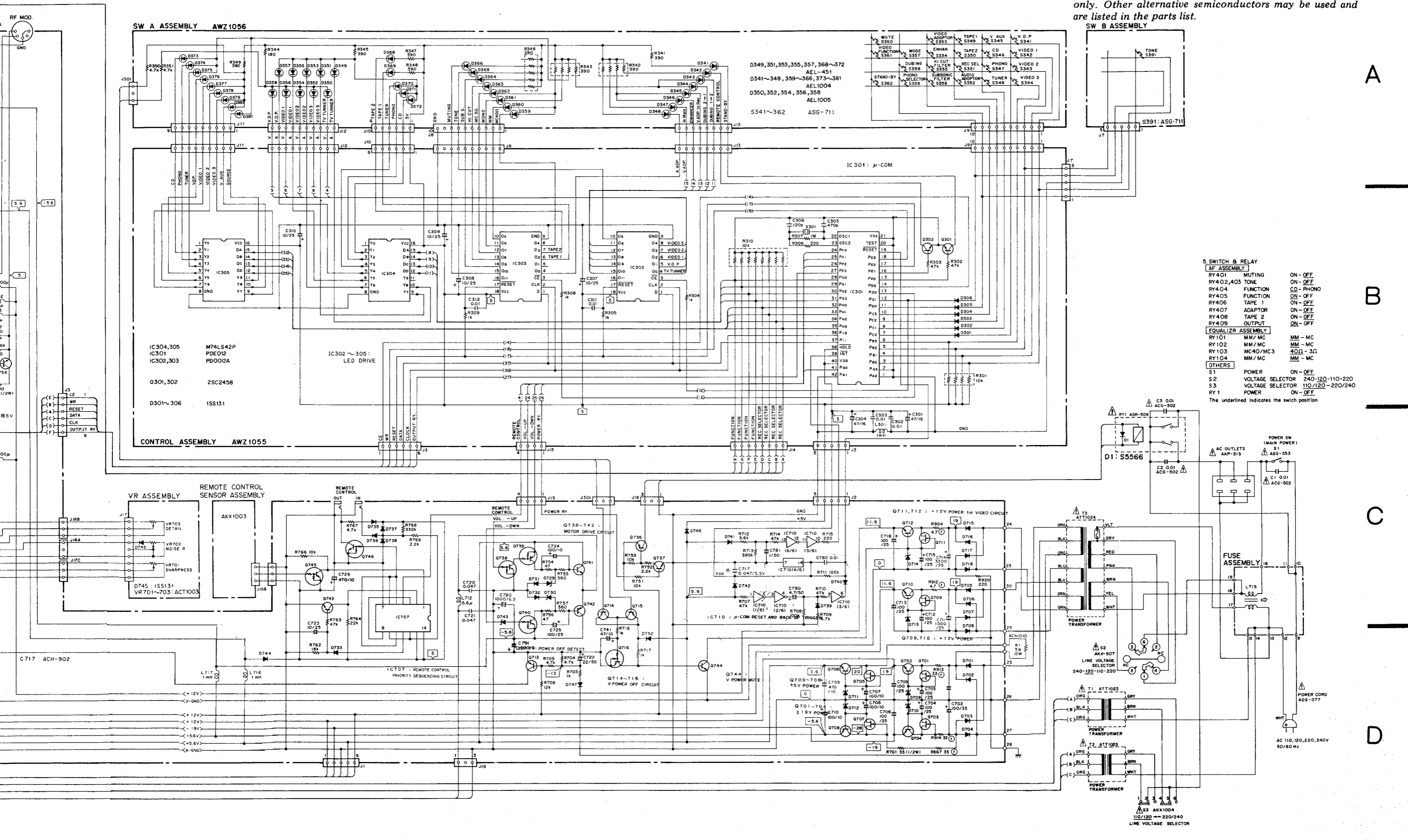
D

D





**NOTE:**  
 The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



- SW B ASSEMBLY**
- 5. SWITCH & RELAY**
- [AF ASSEMBLY]**
- RY401 MUTING ON - OFF
  - RY402,403 TONE ON - OFF
  - RY404 FUNCTION CD - PHONO
  - RY405 FUNCTION ON - OFF
  - RY407 TAPE 1 ON - OFF
  - RY408 TAPE 2 ON - OFF
  - RY409 OUTPUT ON - OFF
- EQUALIZER ASSEMBLY**
- RY101 MM/MC MM - MC
  - RY102 MM/MC MM - MC
  - RY103 MC40/MC3 40Ω - 3Ω
  - RY104 MM/MC MM - MC
- OTHERS**
- S1 POWER ON - OFF
  - S2 VOLTAGE SELECTOR 240-120-110-220
  - S3 VOLTAGE SELECTOR 110/120 - 220/240
  - RY1 POWER ON - OFF
- The underlined indicates the switch position

A

B

C

D

## 8. ELECTRICAL PARTS LIST

**NOTES:**

- When ordering resistors, first convert resistance values into code form as shown in the following examples.
  - Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
 

|      |                      |     |       |   |   |   |   |
|------|----------------------|-----|-------|---|---|---|---|
| 560Ω | 56 × 10 <sup>1</sup> | 561 | RD4PS | 5 | 6 | 1 | J |
| 47kΩ | 47 × 10 <sup>3</sup> | 473 | RD4PS | 4 | 7 | 3 | J |
| 0.5Ω | 0R5                  |     | RN2H  | 0 | 5 |   | K |
| 1Ω   | 010                  |     | RS1P  | 0 | 1 | 0 | K |
  - Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
 

|        |                       |      |       |   |   |   |   |   |
|--------|-----------------------|------|-------|---|---|---|---|---|
| 5.62kΩ | 562 × 10 <sup>1</sup> | 5621 | RN4SR | 5 | 6 | 2 | 1 | F |
|--------|-----------------------|------|-------|---|---|---|---|---|
- The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.  
**★★ GENERALLY MOVES FASTER THAN ★**  
This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by “ $\odot$ ” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

**Miscellaneous Parts**

**P.C. BOARD ASSEMBLIES**

| Mark | Symbol & Description | Part No.   |
|------|----------------------|------------|
|      | Equalizer assembly   | AWF1002    |
|      | AF assembly          | AWZ1042    |
|      | Video assembly       | AWZ1051    |
|      | Control assembly     | AWZ1055    |
|      | Switch A assembly    | AWZ1056    |
|      | VR A assembly        | Non supply |
|      | VR B assembly        | Non supply |
|      | Fuse assembly        | Non supply |
|      | Terminal assembly    | Non supply |
|      | VR assembly          | Non supply |
|      | Switch B assembly    | Non supply |

**OTHERS**

| Mark                  | Symbol & Description  | Part No.    |
|-----------------------|---|-------------|
| $\triangle$           | C1, C2, C3 Power capacitor (0.01μF/400V)                        | ACG-502     |
| $\triangle$ <b>★★</b> | S1 Push switch (POWER)  | ASG-553     |
| $\triangle$ <b>★★</b> | RY1 Relay (PROTECTION)  | ASR-509     |
| $\triangle$ <b>★</b>  | T1, T2 Power transformer (AC110V/120V/220V/240V)                | ATT1023     |
| $\triangle$ <b>★</b>  | T3 Power transformer (AC110V/120V/220V/240V)                    | ATT1024     |
| $\triangle$ <b>★★</b> | S2 Line voltage selector (AC110V/120V/220V/240V)                | AKX-507     |
| $\triangle$ <b>★★</b> | S3 Line voltage selector (AC110V-120V/220V-240V) Short pin plug | AKM-050     |
| $\triangle$           | AC socket (3P) (AC OUTLETS)                                     | AKP-515     |
|                       | Remote control sensor assembly                                  | AXX1003     |
| $\triangle$           | AC power cord   | ADG-077     |
| $\triangle$           | Strain relief   | AEP-113     |
|                       | R1 Wire wound resistor (56Ω/10W)                                | ACN1010     |
| <b>★</b>              | D1 Diode  | S5566       |
| <b>27</b>             | C8-C11  | CKDYF473Z50 |

**EQUALIZER Assembly (AWF1002)**

**SEMICONDUCTORS**

| Mark      | Symbol & Description  | Part No.  |
|-----------|-----------------------|-----------|
| <b>★★</b> | IC101, IC102          | NJM5534DD |
| <b>★★</b> | Q101-Q104             | 2SK369    |
| <b>★★</b> | Q105-Q108, Q113, Q114 | 2SC1845   |
| <b>★★</b> | Q109, Q110            | 2SC2235   |
| <b>★★</b> | Q111, Q112            | 2SA965    |
| <b>★★</b> | Q115, Q116            | 2SC2878   |
| <b>★★</b> | Q117                  | 2SA1115   |
| <b>★★</b> | Q118, Q119            | 2SC2603   |
| <b>★</b>  | D101, D102            | 1SS131    |

**COILS AND TRANSFORMERS**

| Mark | Symbol & Description        | Part No. |
|------|-----------------------------|----------|
|      | L101, L102 Inductor (270μH) | ATH-132  |
|      | T101, T102 MC Transformer   | ATV1002  |

**RELAIES**

| Mark      | Symbol & Description                | Part No. |
|-----------|-------------------------------------|----------|
| <b>★★</b> | RY101-RY104 Relay (MM/MC, MC40Ω/3Ω) | ASR1004  |

**CAPACITORS**

| Mark | Symbol & Description | Part No.     |
|------|----------------------|--------------|
|      | C101, C102           | CMA181J500   |
|      | C103, C104           | CMA151J500   |
|      | C105, C106           | CQSXA152J160 |
|      | C107, C108           | CMA820J500   |
|      | C109, C110           | CQSXA681J160 |

| Mark | Symbol & Description     | Part No.     |
|------|--------------------------|--------------|
|      | C111-C114, C127, C128    | CEYA100M50   |
|      | C115, C116               | CQSXA122J160 |
|      | C117, C118 (0.03μF/100V) | ACE-094      |
|      | C119, C120 (0.12μF/100V) | ACE-095      |
|      | C121, C122               | CEYANP330M50 |
|      | C123, C124               | CQMXA153J100 |
|      | C125, C126               | CEXA102M25   |
|      | C131, C132               | CKCYF103Z50  |
|      | C133-C136                | CEAS470M25   |
|      | C138, C139               | CEYA220M50   |
|      | C140, C141               | CEAS100M25   |

**RESISTORS**

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

| Mark | Symbol & Description                    | Part No.     |
|------|---|--------------|
|      | R135, R136-R138, R141, R142, R145, R146 | RDR1/2PM□□□J |
|      | R151, R152                              | RD1/4PM100J  |
|      | R153-R159                               | RD1/8PM□□□J  |
|      | Other resistors                         | RDR1/4PM□□□J |

**OTHERS**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
|      | Terminal 2P (PHONO)  | AKB1001  |

**AF Assembly (AWZ1042)**

**SEMICONDUCTORS**

| Mark      | Symbol & Description                          | Part No.  |
|-----------|---|-----------|
| <b>★★</b> | IC417, IC418 E-SW IC                          | LC4966    |
| <b>★★</b> | IC407-IC410 OP-AMP IC                         | M5201P    |
| <b>★★</b> | IC405, IC406 OP-AMP IC                        | M5210P    |
| <b>★★</b> | IC412, IC413 LOGIC IC                         | M74LS42P  |
| <b>★★</b> | IC403, IC404                                  | NJM5534DD |
| <b>★★</b> | IC401, IC411, IC414-IC416 E-SW IC             | μPD6362C  |
| <b>★★</b> | Q417-Q420                                     | 2SA1145   |
| <b>★★</b> | Q409-Q412, Q423, Q424, Q436, Q437             | 2SA992    |
| <b>★★</b> | Q405-Q408, Q421, Q422, Q429, Q430, Q434, Q435 | 2SC1845   |
| <b>★★</b> | Q413-Q416                                     | 2SC2705   |
| <b>★★</b> | Q438  | 2SC2878   |
| <b>★★</b> | Q427, Q428                                    | 2SJ74     |
| <b>★★</b> | Q425, Q426                                    | 2SK170    |
| <b>★★</b> | Q401-Q404                                     | 2SK246    |
| <b>★★</b> | Q431  | 2SA1115   |
| <b>★★</b> | Q432  | RN2201    |
| <b>★★</b> | Q433  | RN1201    |

| Mark     | Symbol & Description | Part No. |
|----------|----------------------|----------|
| <b>★</b> | D409-D412 LED        | AEL-398  |
| <b>★</b> | D422, D423           | RD15EB   |
| <b>★</b> | D417, D418           | RD8.2EB  |
| <b>★</b> | D413, D416           | S5566    |
| <b>★</b> | D419-D421            | 1S1555   |
| <b>★</b> | D401-D408            | 11DF2FD  |

**RELAIES**

| Mark      | Symbol & Description  | Part No. |
|-----------|---|----------|
| <b>★★</b> | RY401-RY409 Relay (MUTING, TONE, INPUT, CD, PHONO, TAPE1, ADAPTOR, TAPE2, OUTPUT) | ASR1004  |

**CAPACITORS**

| Mark | Symbol & Description                          | Part No.     |
|------|---|--------------|
|      | C427, C428 (1μF)                              | ACE-217      |
|      | C496, C497, C457, C458, C493-C495, C499, C500 | CEAS100M25   |
|      | C409-C412                                     | CEXA331M50   |
|      | C401-C404, C417-C420                          | CEXA471M50   |
|      | C421, C422, C429, C430                        | CEYANP220M50 |
|      | C413-C416, C433-C436, C441, C442, C459-C464   | CEAY100M50   |
|      | C445-C452                                     | CEYA2R2M50   |
|      | C453-C456                                     | CEYA3R3M50   |
|      | C437, C438                                    | CEYA4R7M50   |
|      | C481, C482                                    | CKDYB331K50  |
|      | C439, C440                                    | CMA101J500   |
|      | C405-C408, C425, C426                         | CMA221J500   |
|      | C569-C572                                     | CMA470J500   |
|      | C423, C424                                    | CMA470J500   |
|      | C443, C444                                    | CQMA823J50   |
|      | C431, C432                                    | CQMXA273J100 |
|      | C567, C568                                    | CEAS470M16   |
|      | C415-C418                                     | CMA470J500   |

**RESISTORS**

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

| Mark | Symbol & Description   | Part No.     |
|------|--|--------------|
|      | R497 Resistor array  | RA8S103J     |
|      | R502 Resistor array  | RA9S103J     |
|      | R465, R466   | RD1/2PM822J  |
|      | R535-R538, R493-R496, R485-R488, R499, R500, R539-R542, R469-R484, R489-R492, R498, R501, R579, R580 | RD1/8PM□□□J  |
|      | R555, R556   | RD1/4PM102J  |
|      | R553, R554   | RS1LMF221J   |
|      | Other resistors  | RDR1/4PM□□□J |

**OTHERS**

| Mark | Symbol &   |
|------|------------|
|      | Terminal 4 |
|      | Terminal 6 |
|      | Terminal 6 |
|      | Terminal 6 |

**VIDEO Assemb**

**SEMICONDUCTO**

| Mark      | Symbol &  |
|-----------|-----------|
| <b>★★</b> | IC708 FI  |
| <b>★★</b> | IC709 OI  |
| <b>★★</b> | IC707 LC  |
| <b>★★</b> | IC701-IC  |
| <b>★★</b> | IC710 LC  |
| <b>★★</b> | Q714, Q71 |
| <b>★★</b> | Q733, Q73 |
| <b>★★</b> | Q751, Q75 |
| <b>★★</b> | Q720, Q72 |

|           |           |
|-----------|-----------|
| <b>★★</b> | Q739, Q74 |
| <b>★★</b> | Q708, Q74 |
| <b>★★</b> | Q741      |
| <b>★★</b> | Q704      |
| <b>★★</b> | Q717, Q71 |
| <b>★★</b> | Q743, Q74 |
| <b>★★</b> | Q761-Q76  |
| <b>★★</b> | Q774, Q77 |
| <b>★★</b> | Q702      |
| <b>★★</b> | Q744, Q78 |
| <b>★★</b> | Q728, Q73 |
| <b>★★</b> | Q706, Q71 |
| <b>★★</b> | Q701, Q70 |
| <b>★★</b> | Q711      |
| <b>★★</b> | Q721, Q72 |
| <b>★★</b> | Q716      |
| <b>★★</b> | Q787, Q78 |
| <b>★</b>  | D713, D71 |
| <b>★</b>  | D721-D72  |
| <b>★</b>  | D709, D71 |
| <b>★</b>  | D729      |
| <b>★</b>  | D730      |

|          |           |
|----------|-----------|
| <b>★</b> | D750      |
| <b>★</b> | D712, D74 |
| <b>★</b> | D711      |
| <b>★</b> | D701-D70  |
| <b>★</b> | D718, D74 |

|          |           |
|----------|-----------|
| <b>★</b> | D724-D72  |
| <b>★</b> | D738, D73 |
| <b>★</b> | D751, D75 |
| <b>★</b> | D734      |
| <b>★</b> | D752      |



**OTHERS**

| Mark | Symbol & Description             | Part No. |
|------|----------------------------------|----------|
|      | Terminal 4P (VCR1/ADAPTOR/TAPE1) | AKB-115  |
|      | Terminal 6P (TV TUNER/VCR3)      | AKB-117  |
|      | Terminal 6P (CD/TUNER/VDP)       | AKB1002  |
|      | Terminal 6P (TAPE2/OUTPUT)       | AKB1005  |

**VIDEO Assembly (AWZ1051)**

**SEMICONDUCTORS**

| Mark | Symbol & Description  | Part No.  |
|------|---|-----------|
| ★★   | IC708 FL STATIC DRIVER IC   | LC7570    |
| ★★   | IC709 OUTPUT EXPANDER IC  | PD0012A   |
| ★★   | IC707 LOGIC   | TC4011BP  |
| ★★   | IC701-IC706 LOGIC IC  | TC4066BP  |
| ★★   | IC710 LOGIC IC  | TC4069UBP |
| ★★   | Q714, Q715, Q718, Q726, Q731-Q733, Q735, Q747, Q749, Q785, Q751, Q752, Q766, Q781, Q783, Q720, Q729, Q730, Q734, Q736 | 2SA1115   |
| ★★   | Q739, Q745  | 2SA1346   |
| ★★   | Q708, Q742  | 2SA985A   |
| ★★   | Q741  | 2SC2275   |
| ★★   | Q704  | 2SA1145   |
| ★★   | Q717, Q719, Q723-Q725, Q737, Q743, Q748, Q750, Q753-Q760, Q761-Q765, Q767-Q771, Q772-Q774, Q776-Q779, Q786            | 2SC2603   |
| ★★   | Q702  | 2SC2705   |
| ★★   | Q744, Q780, Q782, Q784, Q713  | 2SC2878   |
| ★★   | Q728, Q738, Q740, Q746  | 2SC3400   |
| ★★   | Q706, Q710, Q712  | 2SD836A   |
| ★★   | Q701, Q703, Q705, Q707, Q709, Q711  | 2SK246    |
| ★★   | Q721, Q722  | RN1203    |
| ★★   | Q716  | RN1201    |
| ★★   | Q787, Q788  | RN2203    |
| ★    | D713, D714  | RD13EB    |
| ★    | D721-D723   | RD18EB    |
| ★    | D709, D710  | RD20ESB2  |
| ★    | D729  | RD3.0ESB1 |
| ★    | D730  | RD3.3ESB1 |
| ★    | D750  | RD5.6ESB2 |
| ★    | D712, D743  | RD6.2EB   |
| ★    | D711  | RD6.8EB   |
| ★    | D701-D708, D715, D716, D717, D718, D747   | S5566     |
| ★    | D724-D726, D731-D733, D735-D738, D739-D742, D744, D746, D751, D752  | 1SS131    |
|      | D734  | RD3.9EB   |
|      | D752  | RD2.7ESB  |

**COIL**

| Mark | Symbol & Description             | Part No. |
|------|----------------------------------|----------|
|      | L701-L704 Inductor (100μH)       | ATH-050  |
|      | L712 Inductor (5.6μH)            | ATH-065  |
|      | L708 Inductor (15μH)             | ATH-075  |
|      | L705, L711 Inductor (10μH)       | ATH-078  |
|      | L714 Inductor (47μH)             | ATH-082  |
|      | L710 Inductor (33μH)             | ATH-100  |
|      | L706, L707, L713 Inductor (56μH) | ATH-104  |
|      | L716, L717 Inductor (1mH)        | ATH-098  |

**CAPACITORS**

| Mark | Symbol & Description                           | Part No.    |
|------|--|-------------|
|      | C717 (0.047F/5.5V)                             | ACH-902     |
|      | C745   | CCCCH121J50 |
|      | C740, C742                                     | CCCCH330J50 |
|      | C764   | CCCCH470J50 |
|      | C763   | CCCCH680J50 |
|      | C749, C787                                     | CCCSL101J50 |
|      | C739, C785                                     | CCCSL221J50 |
|      | C747, C759, C768, C771                         | CCCSL330J50 |
|      | C766   | CCCSL390J50 |
|      | C743   | CCCSL270J50 |
|      | C781   | CEAS010M50  |
|      | C718, C719, C723, C744, C751, C754, C792, C796 | CEAS100M25  |
|      | C708-C710, C724, C725, C757, C783, C784, C756  | CEAS101M10  |
|      | C748, C750, C769, C772, C776, C777             | CEAS101M16  |
|      | C703-C706, C712, C713                          | CEAS101M25  |
|      | C711   | CEAS102M25  |
|      | C728, C731, C735, C738, C752, C753, C761, C786 | CEAS220M16  |
|      | C722   | CEAS220M50  |
|      | C780   | CEAS4R7M50  |
|      | C737, C741, C788, C789                         | CEAS470M10  |
|      | C758, C760, C770                               | CEAS470M16  |
|      | C727, C730, C734, C778                         | CEAS470M25  |
|      | C729, C732, C733, C736, C773, C774, C775, C726 | CEAS471M10  |
|      | C701, C702                                     | CEAS471M35  |
|      | C746, C762, C790                               | CKDYF102Z50 |
|      | C797   | CKDYF103Z50 |
|      | C755, C765, C767, C782                         | CKCYF103Z50 |
|      | C720, C721                                     | CKCYF473Z50 |
|      | C714   | CEAS332M25  |
|      | C709   | CEAS471M10  |
|      | C791   | CEAS102M6   |
|      | C707   | CEHAQ101M10 |
|      | C715, C716                                     | CEHAQ101M25 |
|      | C793   | CCCSL270J50 |
|      | C794   | CCCSL101J50 |

**RESISTORS**

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

| Mark | Symbol & Description                     | Part No.     |
|------|--|--------------|
|      | R750 Resistor array                      | RA7S103J     |
|      | R701, R795, R883, R887, R891, R800, R835 | RD1/2PM□□□J  |
|      | R779, R789, R901, R781, R791, R903       | RD1/4PM□□□J  |
|      | R867, R913, R914                         | RFA1/4PS330J |
|      | R912, R904                               | RFA1/4PS4R7J |
|      | Other resistors                          | RD1/8PM□□□J  |

**OTHERS**

| Mark | Symbol & Description                                     | Part No. |
|------|--|----------|
|      | Terminal 1P (MONITOR OUT)                                | AKB-133  |
|      | Terminal 3P (VDP/VCR1/VCR3/TV TUNER/ADAPTOR/REC MONITOR) | AKB-134  |
|      | Terminal mini (CONTROL)                                  | AKN-207  |
|      | Terminal DIN 5P (RF MOD OUT)                             | AKP-081  |
|      | D701 Delay line  | ATL-034  |

**Control Assembly (AWZ1055)**

**SEMICONDUCTORS**

| Mark | Symbol & Description            | Part No. |
|------|---------------------------------|----------|
| ★★   | IC304, IC305 LOGIC IC           | M74LS42P |
| ★★   | IC301                           | PDE012   |
| ★★   | IC302, IC303 OUTPUT EXPANDER IC | PD0012A  |
| ★★   | Q301, Q302                      | 2SC2458  |
| ★    | D301-D306                       | 1SS131   |

**COIL**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
|      | L301 Inductor (1mH)  | ATH-098  |

**CAPACITORS**

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | C306                 | CCDCH121J50 |
|      | C301, C304           | CEANL470M16 |
|      | C307-C310            | CEAS100M25  |
|      | C302, C303           | CKDYB103K50 |
|      | C305                 | CKDYB471K50 |
|      | C311, C312           | CKDYF103Z50 |

**RESISTORS**

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | R301 Resistor array  | RA4S103J    |
|      | R310 Resistor array  | RA8S103J    |
|      | Other resistors      | RD1/8PM□□□J |

**OTHERS**

| Mark | Symbol & Description            | Part No. |
|------|---------------------------------|----------|
| ★    | X301 Ceramic resonator (400kHz) | ASS-046  |

**Switch A Assembly (AWZ1056)**

**SEMICONDUCTORS**

| Mark | Symbol & Description   | Part No. |
|------|--|----------|
| ★    | D349, C351, D353, D355, D357, D368-D372 LED (TV-TUNER, VCR2, VDP, VCR1, TAPE2, TAPE1 TUNER, PHONO, CD, VCR3)   | AEL-451  |
| ★    | D341-D348, D359-D366, D373-D381 LED (MC, MM, MONO, HIGH CUT FILTER, SUBSONIC FILTER, TONE, MUTE, STAND-BY, REMOTE, TAPE COPY, V-ADAPTER, ENHANCER, CD, TUNER, PHONO, VDP, VCR1, 2, 3, V-AUX; SOURCE) | AEL1004  |
| ★    | D350, D352, D354, D356, D358 LED (TV TUNER, VCR1, VCR2, VCR3, VDP)   | AEL1005  |

**SWITCHES**

| Mark | Symbol & Description  | Part No. |
|------|---|----------|
| ★★   | S341-S362 Tact switch (INPUT, TAPE MONITOR, ADAPTOR, HIGH CUT FILTER SUBSONIC FILTER, MODE, TAPE COPY, PHONO SEL, MUTE, STAND-BY) | ASG-711  |

**RESISTORS**

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

| Mark | Symbol & Description        | Part No.    |
|------|-----------------------------|-------------|
|      | R342, R343 Resistor array   | RA4S391J    |
|      | R346 Resistor array         | RA5S391J    |
|      | R341, R344, R345, R347-R351 | RD1/8PM□□□J |

### VR A Assembly

#### CAPACITORS

| Mark | Symbol & Description | Part No.     |
|------|----------------------|--------------|
|      | C551, C552           | CQMXA273J100 |

#### RESISTORS

| Mark | Symbol & Description                                | Part No.     |
|------|---|--------------|
| ★    | VR551 Variable resistor (50kΩB) (BALANCE)           | ACT1002      |
| ★    | VR552, VR553 Variable resistor (10kΩ)(BASS, TREBLE) | ACT1007      |
|      | R551, R552  | RDR1/4PM561J |

### VR B Assembly

#### RESISTORS

| Mark | Symbol & Description                         | Part No.     |
|------|--|--------------|
| ★    | VR571 Variable resistor (15kΩ) (MAIN VOLUME) | ACX1001      |
|      | R571, R572                                   | RDR1/4PM751J |

### FUSE Assembly

#### COIL

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
|      | L715 Line filter     | ATF-163  |

### Terminal Assembly

#### RESISTOR

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | R911                 | RD1/8PM750J |

#### OTHERS

| Mark | Symbol & Description            | Part No. |
|------|---------------------------------|----------|
|      | Terminal 1P (VCR2 INPUT/OUTPUT) | AKB1004  |

### VR Assembly

#### SEMICONDUCTOR

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★    | D745                 | 1SS131   |

#### RESISTORS

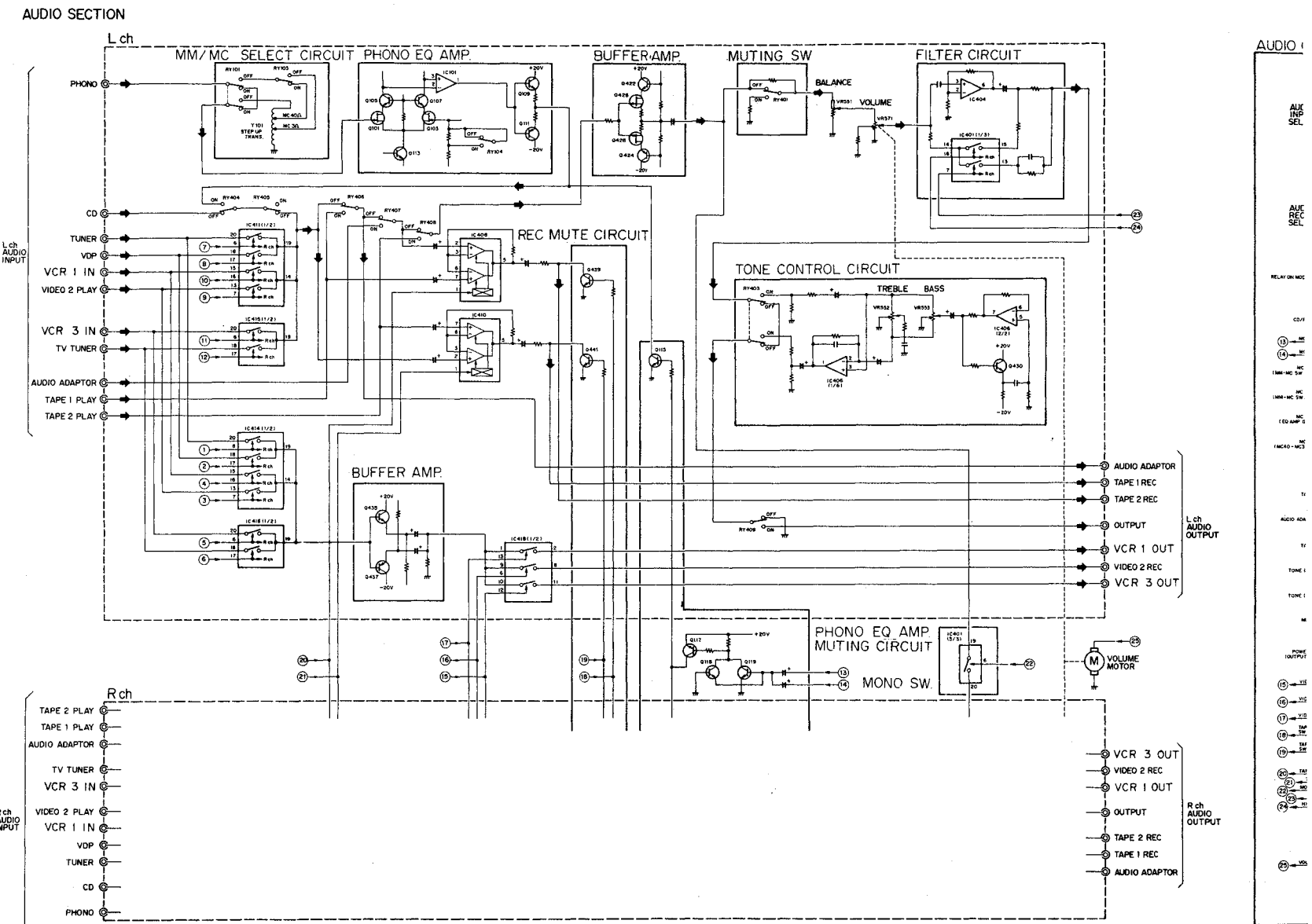
| Mark | Symbol & Description   | Part No. |
|------|--|----------|
| ★    | VR701, VR702, VR703 Variable resistor (1kΩB) (SHARPNESS, DETAIL, NOISE CANCEL) | ACT1003  |

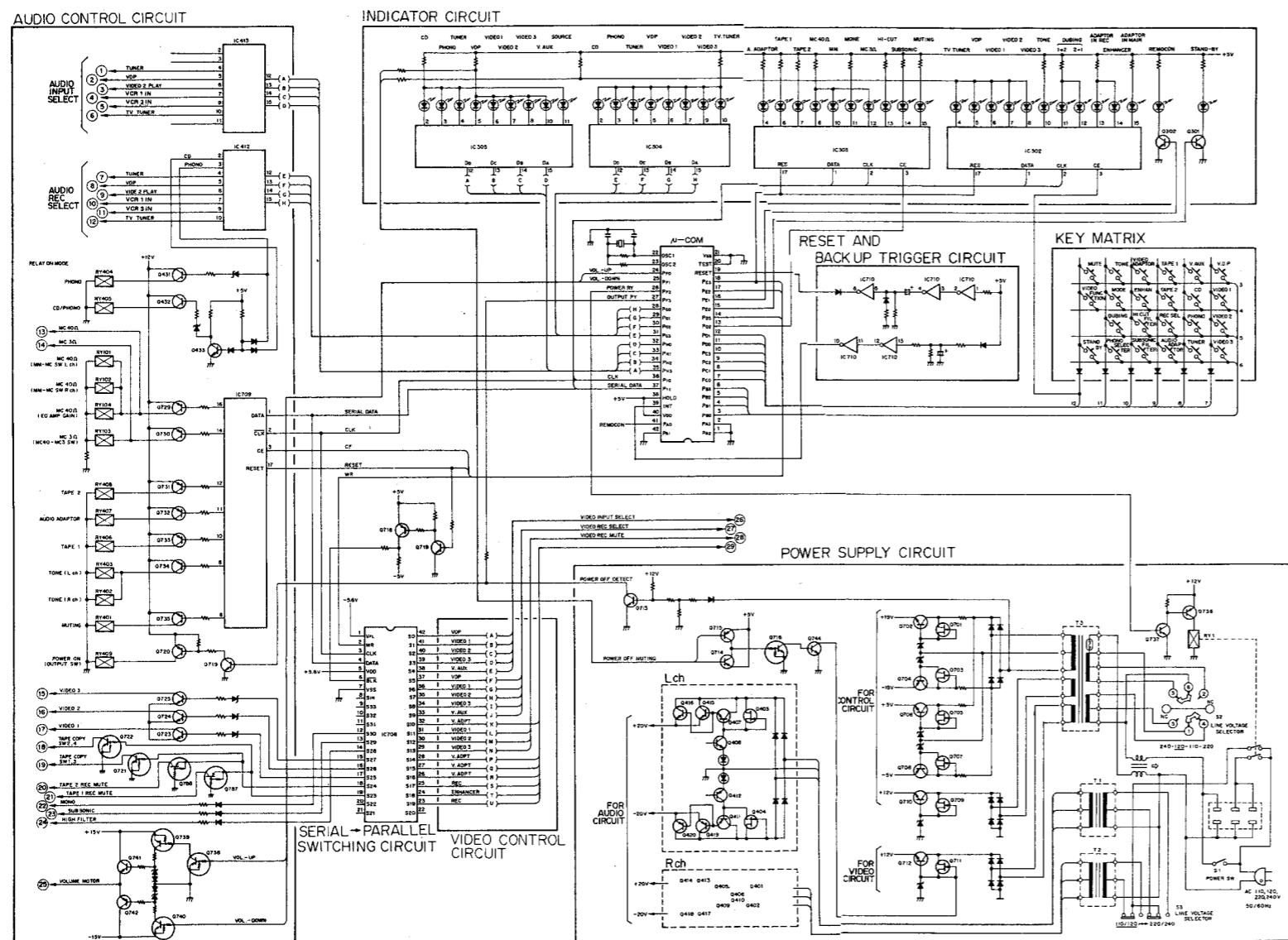
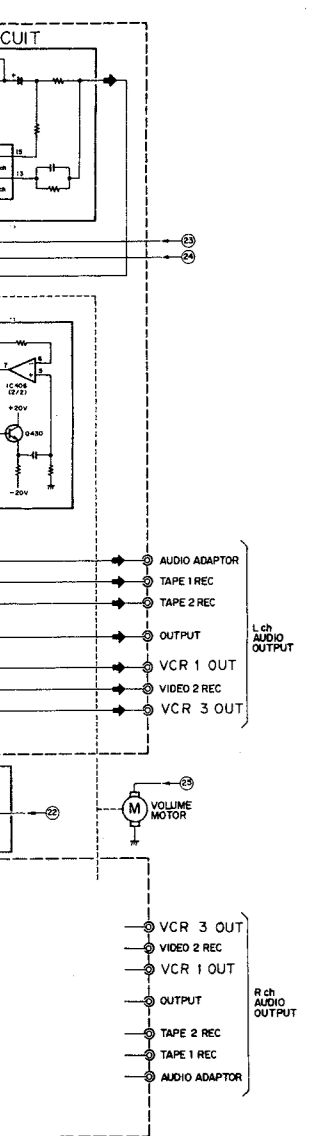
### Switch B Assembly

#### SWITCH

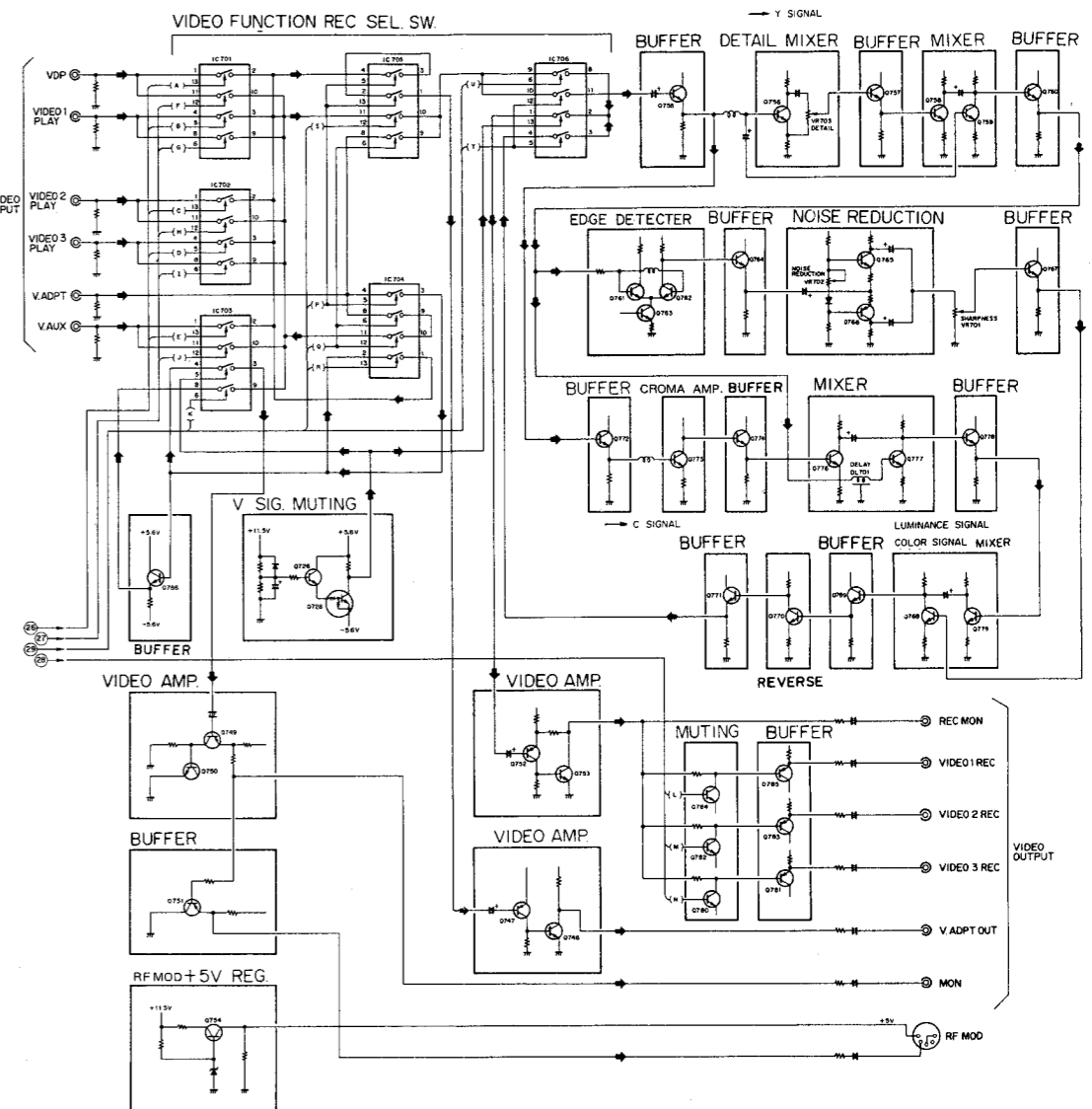
| Mark | Symbol & Description    | Part No. |
|------|-------------------------|----------|
| ★★   | S391 Tact switch (TONE) | ASG-711  |

## 9. BLOCK DIAGRAM

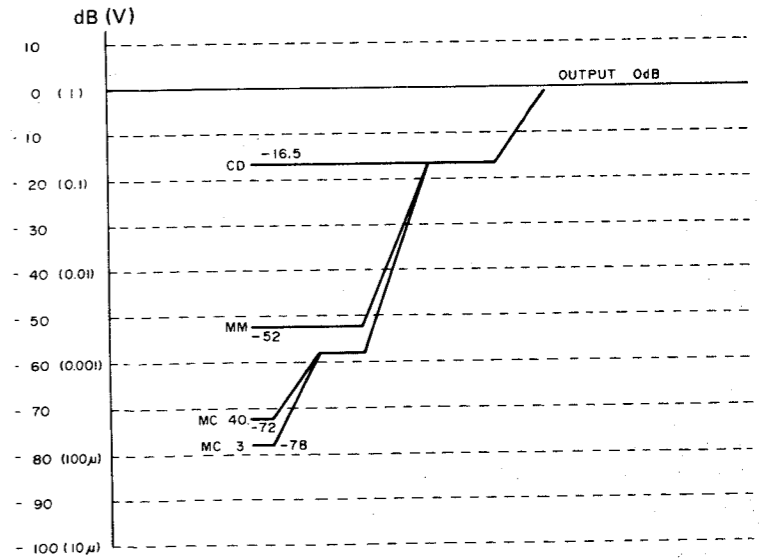
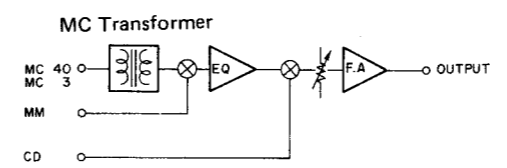




VIDEO SECTION



Level Diagram (Frequency: 1kHz. Voltage level display for each stage)



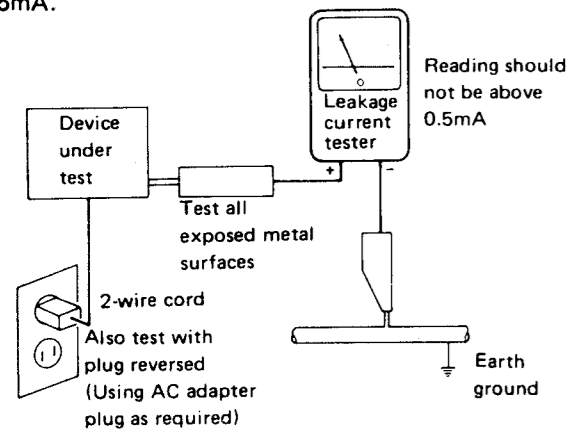
# 10. SAFETY INFORMATION

## SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### PACKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

# 11. CIRCUIT DESCRIPTIONS

## 11.1 BLOCK DIAGRAM EXPLANATION

- A step up transformer is installed in the previous stage as the EQ amp section for MC response.
- The INPUT SELECTOR enables recording on TAPE 2 of signals routed through the AUDIO ADAPTER between TAPE 1 and 2.
- Due to aciton of the BUFFER amp which receives signals at high impedance and outputs at low impedance there is no effect transmitted to the connecting BAL VOL, MAIN VOL of the next stage.
- MUTING is fixed at -20dB (Resistance divider system).
- The FLAT amp has an input sensitivity of 150 mV and output GAIN is 16.5dB. The amp is a DC couple type DC amp (output is C couple).
- The SUBSONIC and HIGH FILTER are each set for 6dB/OCT according to the CR.  $f_c$  is 10 Hz and 10kHz respectively.
- TONE has a 100Hz, 10kHz turnover frequency. It is a positive phase amp of 0dB GAIN.
- OUTPUT MUTING switches off the output at the time of power ON/OFF.

## 11.2 EQ AMP SECTION

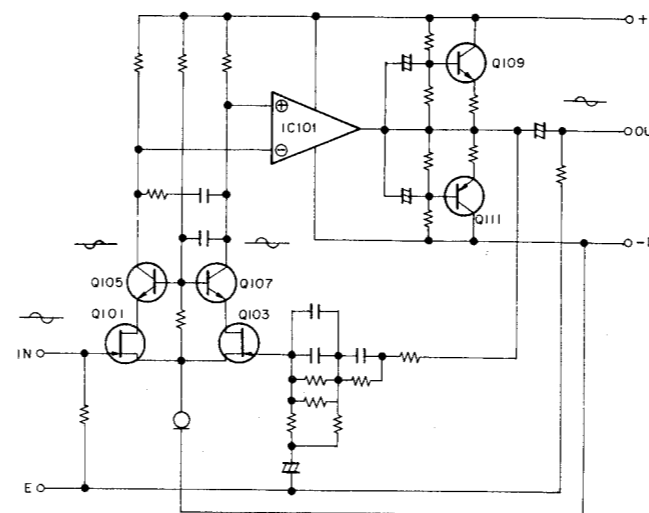


Fig. 11-1 EQ Amp Section

The EQ amp section comprises the differential FET input section, the OP amp voltage amplifier section, the SEPP output section and the feedback circuit (RIAA) of CR.

The FET differential input section receives signals directly by DC couple. Reverse output from the input section is transmitted to the reverse input of the OP amp. The non-reversible output is applied to non-reverse input, amplified and applied to the SEPP output section. The output stage contains class A circuitry to drive the low impedance feedback circuit and give low distortion output.

## 11.3 FLAT AMP.

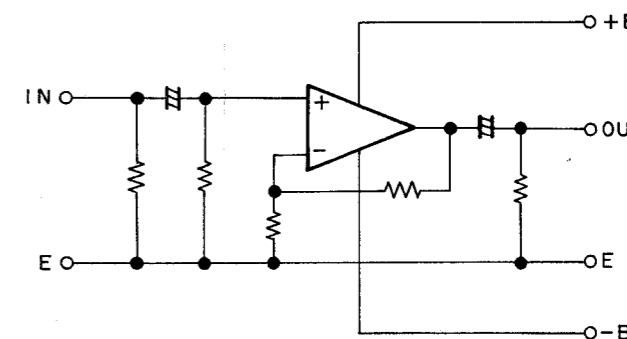


Fig. 11-2 FLAT Amp Section

The FLAT amp is basically the same as the EQ amp. Differences are due to there being no SEPP output and no differential FET input. The resistance value of the feedback circuit is also different. The resistance of the FLAT amp feedback circuit isn't of the same low value as for the EQ amp so it has sufficient drive for the OP amp and gives low distortion. The FLAT amp is a DC construction.

## 11.4 TONE AMP SECTION

The TONE amp section is the same as the A-150D.

# 12. IC DES

## μPD6362C (C MO) Electron Switch

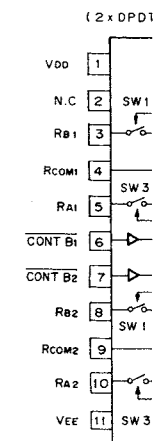


Fig. 12-1 μPD6362C distrib

## Chart 12-1 μPD6362C

| Control Input |   |
|---------------|---|
| CONT A        | H |
|               | L |
| CONT B        | H |
|               | L |

(Note)  
H : High level.  
L : Low level.

## ■ NJM5534DD (Open

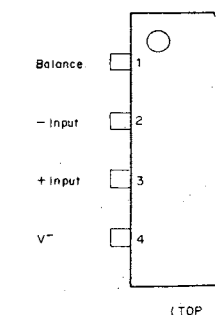


Fig. 12-2 Pin distri

# 12. IC DESCRIPTIONS

## μPD6362C (C MOS) Electron Switch

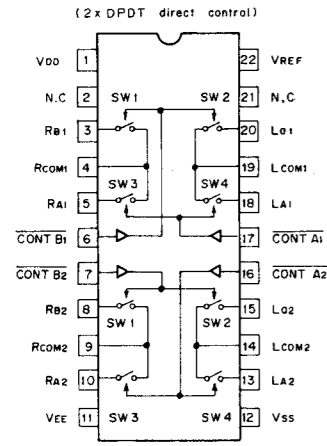


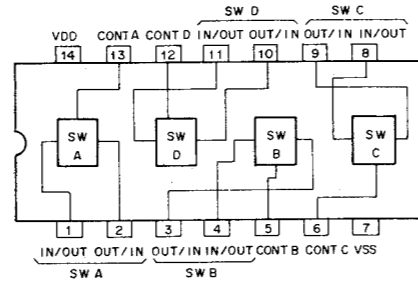
Fig. 12-1 μPD6362C Block diagram with pin distribution

Chart 12-1 μPD6362C Truth Value Chart

| Control Input |   | SW1, SW2 | SW3, SW4 |
|---------------|---|----------|----------|
| CONT A        | H | —        | OFF      |
|               | L | —        | ON       |
| CONT B        | H | OFF      | —        |
|               | L | ON       | —        |

(Note)  
H : High level.  
L : Low level.

## LC4966 (C MOS) Logic bilateral switch



Control input for the switch is ON with H levels.

Fig. 12-3 LC4966 Block diagram

## LC7570 (C MOS) Display storage tube static driver

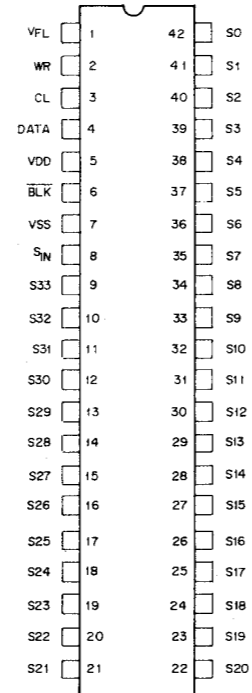


Fig. 12-4 LC7570 Pin distribution chart

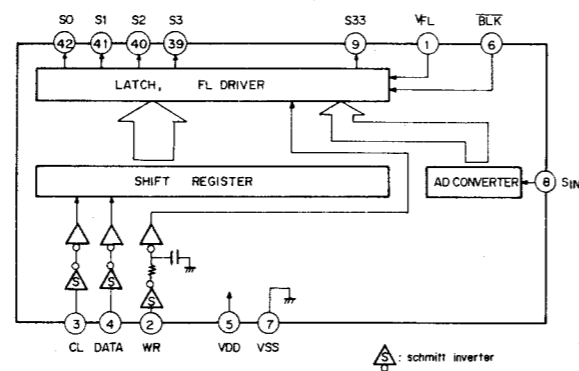


Fig. 12-5 LC7570 Block diagram

## NJM5534DD (Operation amp IC)

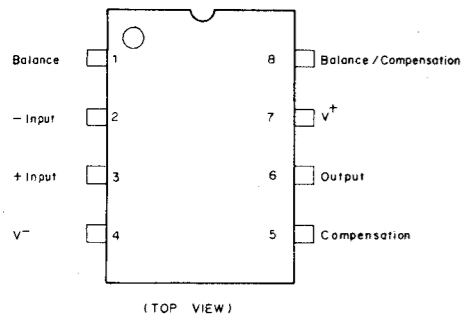


Fig. 12-2 Pin distribution chart for NJM5534DD

## PD0012A Output Expander

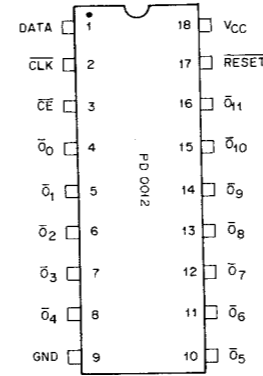


Fig. 12-6 PD0012A Pin distribution chart

Chart 12-2 Pin Names for PD0012A

| No. | Code           | Function            | No. | Code            | Function          |
|-----|----------------|---------------------|-----|-----------------|-------------------|
| 1   | DATA           | Data Input          | 10  | O <sub>5</sub>  | Data Output       |
| 2   | CLK            | Clock Input         | 11  | O <sub>6</sub>  | Data Output       |
| 3   | CE             | Counter Reset Input | 12  | O <sub>7</sub>  | Data Output       |
| 4   | O <sub>0</sub> | Data Output         | 13  | O <sub>8</sub>  | Data Output       |
| 5   | O <sub>1</sub> | Data Output         | 14  | O <sub>9</sub>  | Data Output       |
| 6   | O <sub>2</sub> | Data Output         | 15  | O <sub>10</sub> | Data Output       |
| 7   | O <sub>3</sub> | Data Output         | 16  | O <sub>11</sub> | Data Output       |
| 8   | O <sub>4</sub> | Data Output         | 17  | RESET           | Latch Reset Input |
| 9   | GND            | Earth Terminal      | 18  | VCC             | Power Terminal    |

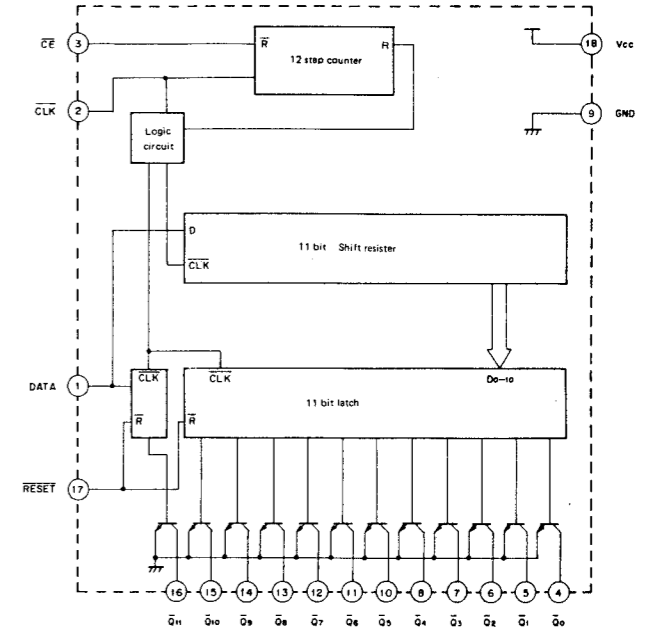


Fig. 12-7 PD0012A Block diagram

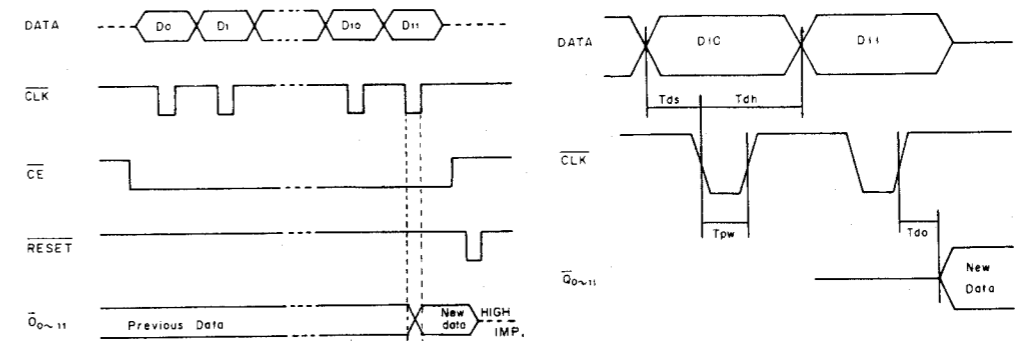


Fig. 12-8 Input data timing chart

■ PD5039  
(Remote Control IC)

1. Terminal Functions

Chart 12-3 PD5039 Terminal functions

| NO. | Terminal Designation | I/O | Function                                  | NO. | Terminal        | I/O | Function                      |
|-----|----------------------|-----|---|-----|-----------------|-----|-------------------------------|
| 1   | Vss                  | --  | Connection to GND.                        | 17  | NC              | --  |                               |
| 2   | TEST                 | I   | Test pin Vss connection.                  | 18  | E <sub>3</sub>  | I   | KEY SCAN return INPUT.        |
| 3   | AC                   | I   | Reset pin Routed to Vss via C.            | 19  | E <sub>2</sub>  | I   |                               |
| 4   | OSC IN               | I   | Connection to ceramic vibrator.<br>480kHz | 20  | E <sub>1</sub>  | I   |                               |
| 5   | OSC OUT              | O   |   | 21  | E <sub>0</sub>  | I   |                               |
| 6   | D <sub>0</sub>       | I   | A/V switching port.                       | 22  | F <sub>7</sub>  | O   | KEY SCAN OUTPUT.              |
| 7   | D <sub>1</sub>       | I   | *Version switching port.                  | 23  | F <sub>6</sub>  | O   |                               |
| 8   | H <sub>0</sub>       | I   | KEY SCAN return INPUT.                    | 24  | F <sub>5</sub>  | O   |                               |
| 9   | H <sub>1</sub>       | I   |   | 25  | F <sub>4</sub>  | O   |                               |
| 10  | H <sub>2</sub>       | I   |   | 26  | F <sub>3</sub>  | O   |                               |
| 11  | H <sub>3</sub>       | I   |   | 27  | F <sub>2</sub>  | O   |                               |
| 12  | G <sub>0</sub>       | I   |   | 28  | F <sub>1</sub>  | O   |                               |
| 13  | G <sub>1</sub>       | I   |   | 29  | F <sub>0</sub>  | O   |                               |
| 14  | G <sub>2</sub>       | I   |   | 30  | J               | O   |                               |
| 15  | G <sub>3</sub>       | I   |   | 31  | C               | O   | Remote control signal OUTPUT. |
| 16  | NC                   | --  |   | 32  | V <sub>DD</sub> | --  | +3V connection.               |

\* D1 port (PD5039 No. 7 pin) is L (GND) for the C-90 (BK).

**2. PD5039 OUTPUT Format**

**Chart 12-4 PD5039 OUTPUT Format**

| AUDIO/VIDEO SELECTOR SW A (AUDIO) |                |          |                      | AUDIO/VIDEO SELECTOR SW V(VIDEO) |                |          |                      |
|-----------------------------------|----------------|----------|----------------------|----------------------------------|----------------|----------|----------------------|
| KEY NO.                           | Component code | HEX CODE | Designation          | KEY NO.                          | Component code | HEX CODE | Designation          |
| K1                                | A5             | 1C       | POWER ON/OFF (AMP)   | K1                               | A5             | 1C       | POWER ON/OFF (AMP)   |
| K2                                | —              | —        | —                    | K2                               | —              | —        | —                    |
| K3                                | AB             | 1C       | POWER ON/OFF (VCR)   | K3                               | AB             | 1C       | POWER ON/OFF (VCR)   |
| K4                                | AA             | 1C       | POWER ON/OFF (TV)    | K4                               | AA             | 1C       | POWER ON/OFF (TV)    |
| K5                                | A5             | 0D       | VDP (AMP)            | K5                               | A5             | 0D       | VDP (AMP)            |
| K6                                | A5             | 4C       | CD (AMP)             | K6                               | A5             | 4C       | CD (AMP)             |
| K7                                | A5             | 4E       | TAPE 1 (AMP)         | K7                               | A5             | 4E       | TAPE 1 (AMP)         |
| K8                                | A5             | 1D       | TAPE 2 (AMP)         | K8                               | A5             | 1D       | TAPE 2 (AMP)         |
| K9                                | A5             | 0F       | VCR 1 (AMP)          | K9                               | A5             | 0F       | VCR 1 (AMP)          |
| K10                               | A5             | 4D       | PHONO (AMP)          | K10                              | A5             | 4D       | PHONO (AMP)          |
| K11                               | A5             | 54       | VIDEO SELECTOR (AMP) | K11                              | A5             | 54       | VIDEO SELECTOR (AMP) |
| K12                               | A5             | 54       | VIDEO SELECTOR (AMP) | K12                              | A5             | 54       | VIDEO SELECTOR (AMP) |
| K13                               | A5             | 0E       | VCR 2 (AMP)          | K13                              | A5             | 0E       | VCR 2 (AMP)          |
| K14                               | A5             | 47       | TUNER (AMP)          | K14                              | A5             | 47       | TUNER (AMP)          |
| K15                               | A5             | 12       | MUTING (AMP)         | K15                              | A5             | 12       | MUTING (AMP)         |
| K16                               | A5             | 12       | MUTING (AMP)         | K16                              | A5             | 12       | MUTING (AMP)         |
| K17                               | A5             | 46       | VCR 3 (AMP)          | K17                              | A5             | 46       | VCR 3 (AMP)          |
| K18                               | A5             | 0C       | TV TUNER (AMP)       | K18                              | A5             | 0C       | TV TUNER (AMP)       |
| K19                               | A5             | 0B       | VOLUME - (AMP)       | K19                              | A5             | 0B       | VOLUME - (AMP)       |
| K20                               | A5             | 0A       | VOLUME + (AMP)       | K20                              | A5             | 0A       | VOLUME + (AMP)       |
| K21                               | A4             | 13       | TUNER BAND (TUNER)   | K21                              | A4             | 13       | TUNER BAND (TUNER)   |
| K22                               | A4             | 1E       | TUNER MPX (TUNER)    | K22                              | AA             | 1E       | TV MPX (TV)          |
| K23                               | A4             | 11       | TUNER CH - (TUNER)   | K23                              | AA             | 11       | TV CH - (TV)         |
| K24                               | A4             | 10       | TUNER CH + (TUNER)   | K24                              | AA             | 10       | TV CH + (TV)         |
| K25                               | AA             | 0D       | VDP (TV)             | K25                              | AA             | 0D       | VDP (TV)             |
| K26                               | AA             | 0C       | TV (TV)              | K26                              | AA             | 0C       | TV (TV)              |
| K27                               | AA             | 0B       | VOLUME - (TV)        | K27                              | AA             | 0B       | VOLUME - (TV)        |
| K28                               | AA             | 0A       | VOLUME + (TV)        | K28                              | AA             | 0A       | VOLUME + (TV)        |
| K29                               | A3             | 16       | ■ (STOP) (PL)        | K29                              | A3             | 16       | ■ (STOP) (PL)        |
| K30                               | A3             | 17       | ▶ (PLAY) (PL)        | K30                              | A3             | 17       | ▶ (PLAY) (PL)        |
| K31                               | A2             | 11       | ⏮ (CD)               | K31                              | A8             | 11       | ⏮ (VDP)              |
| K32                               | A2             | 10       | ⏭ (CD)               | K32                              | A8             | 10       | ⏭ (VDP)              |
| K33                               | A2             | 16       | ■ (STOP) (CD)        | K33                              | A8             | 16       | ■ (STOP) (VDP)       |
| K34                               | A2             | 18       | ⏸ (PAUSE) (CD)       | K34                              | A8             | 18       | ⏸ (VDP)              |
| K35                               | —              | —        | —                    | K35                              | —              | —        | —                    |
| K36                               | A2             | 17       | ▶ (PLAY) (CD)        | K36                              | A8             | 17       | ▶ (PLAY) (VDP)       |
| K37                               | A1             | 14       | ● (REC) (CD)         | K37                              | AB             | 14       | ● (REC) (VCR)        |
| K38                               | A1             | 12       | ○ (REC MUTE) (CT)    | K38                              | AB             | 12       |                      |
| K39                               | A1             | 11       | ⏮ (REW) (CT)         | K39                              | AB             | 11       | ⏮ (REW) (VCR)        |
| K40                               | A1             | 10       | ⏭ (FF) (CT)          | K40                              | AB             | 10       | ⏭ (FF) (VCR)         |
| K41                               | A1             | 16       | ■ (STOP) (CT)        | K41                              | AB             | 16       | ■ (STOP) (VCR)       |
| K42                               | A1             | 18       | ⏸ (PAUSE) (CT)       | K42                              | AB             | 18       | ⏸ (PAUSE) (VCR)      |
| K43                               | A1             | 15       | ◀ (REV) (CT)         | K43                              | AB             | 15       |                      |
| K44                               | A1             | 17       | ▶ (FWD) (CT)         | K44                              | AB             | 17       | ▶ (PLAY) (VCR)       |

■ PDE012 (Microprocessor)

1. Terminal Functions

Chart 12-5 PDE012 Terminal Functions

| Pin No. | Terminal        | Function   | I/O | Act. |
|---------|-----------------|--|-----|------|
| 40      | V <sub>DD</sub> | +5V application terminal.  | —   | —    |
| 39      | INT             | Interrupt (Mains power ON/OFF detection).  | I   | L    |
| 38      | HOLD            | Hold (Holds on V <sub>DD</sub> ).  | I   | L    |
| 19      | REST            | Reset signal INPUT.  | I   | L    |
| 20      | TEST            | LSI test terminal (GND).   | I   | —    |
| 21      | V <sub>SS</sub> | GND  | —   | —    |
| 41      | PA <sub>0</sub> | Remote control INPUT terminal.   | I   | —    |
| 42      | PA <sub>1</sub> | DISCRIMINATION set terminal; H → C-90 L → C90 (with V) (L → Model with V);<br>Used on overseas models. | I   | —    |
| 1       | PA <sub>2</sub> | Vacant terminal GND.   | I   | —    |
| 2       | PA <sub>3</sub> |  |     |      |
| 3       | PB <sub>0</sub> | KEY SCAN INPUT terminal.   | I   | —    |
| 4       | PB <sub>1</sub> |  |     |      |
| 5       | PB <sub>2</sub> |  |     |      |
| 6       | PB <sub>3</sub> |  |     |      |
| 7       | PC <sub>0</sub> | KEY SCAN OUTPUT terminal.  | O   | L    |
| 8       | PC <sub>1</sub> |  |     |      |
| 9       | PC <sub>2</sub> |  |     |      |
| 10      | PC <sub>3</sub> |  |     |      |
| 11      | PD <sub>0</sub> |  |     |      |
| 12      | PD <sub>1</sub> | For use with EXPANDER CE Terminal (LED display No. 1).   |     |      |
| 13      | PD <sub>2</sub> | EXPANDER CE Terminal (LED display No. 2).  | O   | L    |
| 14      | PD <sub>3</sub> | EXPANDER CE Terminal (Ry drive).   | O   | L    |
| 15      | PE <sub>0</sub> | Standby LED flash terminal.  | O   | H    |
| 16      | PE <sub>1</sub> | Remote control flashing indicator terminal.  | O   | H    |
| 17      | PE <sub>2</sub> | Peripheral IC RESET terminal.  | O   | L    |
| 18      | PE <sub>3</sub> | FL DRIVER WR terminal.   | O   | H    |
| 24      | PF <sub>0</sub> | VOLUME UP terminal.  | O   | H    |
| 25      | PF <sub>1</sub> | VOLUME DOWN terminal.  | O   | H    |
| 26      | PF <sub>2</sub> | MAIN POWER Ry drive terminal.  | O   | H    |
| 27      | PF <sub>3</sub> | OUTPUT Ry drive terminal.  | O   | H    |
| 28      | PG <sub>0</sub> | TTL IC INPUT terminal For function switching.  | O   | H    |
| 29      | PG <sub>1</sub> |  |     |      |
| 30      | PG <sub>2</sub> |  |     |      |
| 31      | PG <sub>3</sub> |  |     |      |
| 32      | PH <sub>0</sub> | TTL IC INPUT terminal For Rec. Sel. switching.   |     |      |
| 33      | PH <sub>1</sub> |  |     |      |
| 34      | PH <sub>2</sub> |  |     |      |
| 35      | PH <sub>3</sub> |  |     |      |
| 36      | PI <sub>0</sub> | Serial DATA transmission CLOCK OUTPUT terminal.  | O   | I    |
| 37      | PI <sub>1</sub> | Serial DATA OUTPUT terminal.   | O   | H    |
| 22      | OSC1            | 400kHz Seller's Lock connection terminal.  | —   | —    |
| 23      | OSC2            |  |     |      |



2. Key Matrix

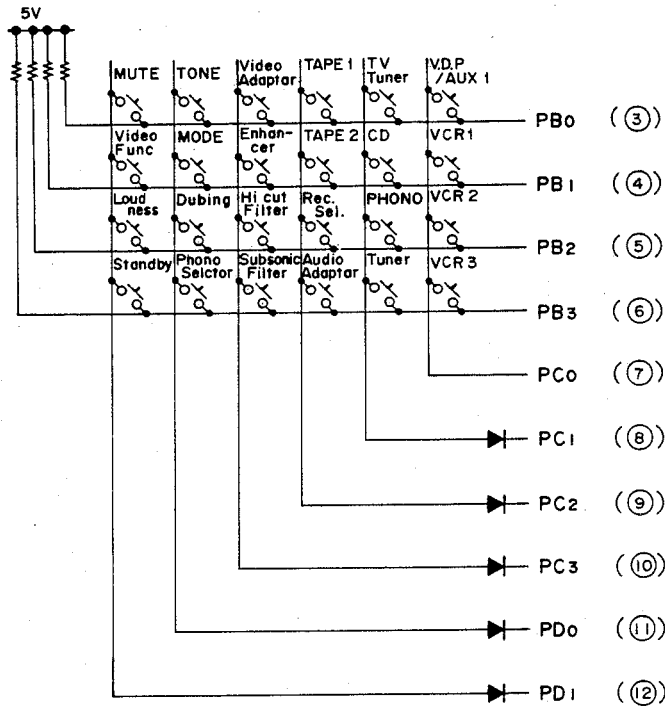


Fig. 12-9 Key Matrix

Chart 12-6 Key Matrix

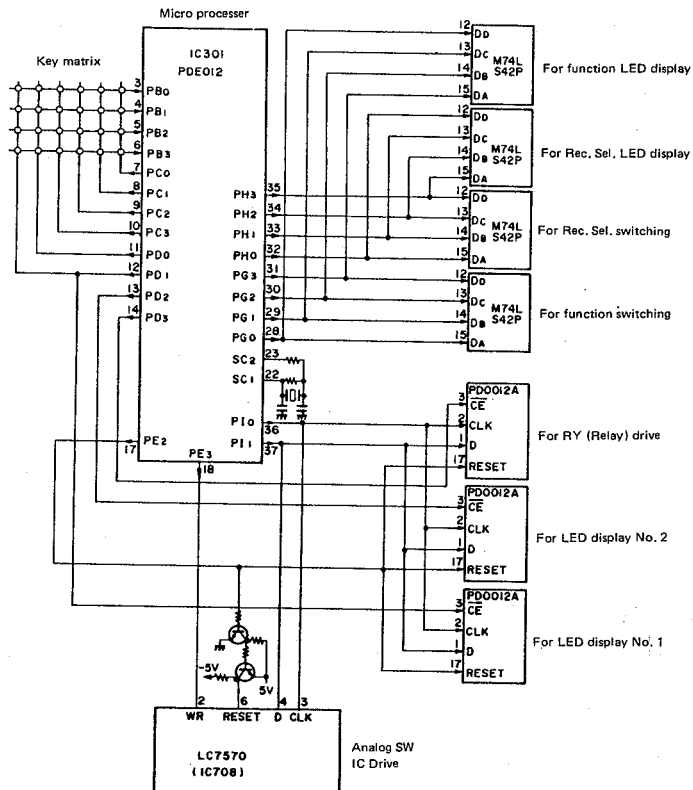
| Designation     | Operation   |  |
|-----------------|---|--|
| VDP/AUX 1       | PG terminal PG terminal 0100 (B) OUTPUT.  | The video signal is switched through LC7570.     |
| VCR 1/AUX 2     | PG terminal PG terminal 0101 (B) OUTPUT.  | The video signal is switched through LC7570.     |
| VCR 2/AUX 3     | PG terminal PG terminal 0110 (B) OUTPUT.  | The video signal is switched through LC7570.     |
| VCR 3           | PG terminal PG terminal 0111 (B) OUTPUT.  | The video signal is switched through LC7570.     |
| TV-TUNER        | PG terminal PG terminal 1000 (B) OUTPUT.  | The video signal is switched through LC7570.     |
| CD              | PG terminal PG terminal 0011 (B) OUTPUT.  | The video signal is switched off through LC7570. |
| Phono           | PG terminal PG terminal 0001 (B) OUTPUT.  | The video signal is switched off through LC7570. |
| Tuner           | PG terminal PG terminal 0010 (B) OUTPUT.  | The video signal is switched off through LC7570. |
| Tape 1          | Each key pressed uses PD0012A, RY (Relay), switches LED OFF/ON.   |  |
| Tape 2          |   |  |
| Rec. Sel.       | Increments for 0001~1001 (B) to PH terminal and their output.<br>The video signal is switched through LC7570. |  |
| Audio Adaptor   | OFF/ON switching at PD0012A.  |  |
| Video Adaptor   | Sequential switching of OFF/IN MAIN/IN REC through LC7570.  |  |
| Enhancer        | Sequential switching of OFF/IN REC through LC7570.  |  |
| Hicut Filter    | Sequential switching of OFF/ON through LC7570.  |  |
| Subsonic Filter | Sequential switching of OFF/ON through LC7570.  |  |
| Tone            | Sequential switching of OFF/ON through PD0012A.   |  |
| Mode            | Sequential switching of STEREO/MONO through LC7570.   |  |
| Dubing          | Sequential switching of OFF/1 → 2/2 → 1 through LC7570.   |  |
| Phono Selector  | Sequential switching of MM/MC40Ω/MC3Ω through PD0012A.  |  |
| Mute            | Sequential switching of OFF/ON through PD0012A.   |  |
| Video Function  | Sequential transmission of the Video signal only through LC7570.  |  |
| Loudness        | Sequential switching of OFF/ON through PD0012A.   |  |
| Stand-by        | Output of 1(B) ↔ 0(B) each time PF2 is pressed.   |  |

**3. Remote Control KEY CODE Functions**

**Chart 12-7 Remote Control KEY CODE Functions**

| KEY Function | HEX Code | Operation  |
|--------------|----------|--|
| VOL+         | A5 0A    | OUTPUT of 1(B) to PF0.   |
| VOL-         | A5 0B    | OUTPUT of 1(B) to PF1.   |
| T V          | A5 0C    | OUTPUT of 1000(B) to PG.   |
| V.D.P.       | A5 0D    | OUTPUT of 0100(B) to PG.   |
| VCR 2        | A5 0E    | OUTPUT of 0100(B) to PG.   |
| VCR 1        | A5 0F    | OUTPUT of 0101(B) to PG.   |
| MUTE         | A5 12    | Switching OFF/ON of MUTE through PD0012A.                                      |
| ON           | A5 1A    | OUTPUT of 1(B) to PF2.   |
| OFF          | A5 1B    | OUTPUT of 0(B) to PF2.   |
| ON/OFF       | A5 1C    | OUTPUT OF 1(2) ↔ 0(2) to PF2 each time the key is pressed.                     |
| TAPE 2       | A5 1D    | Switching OFF/ON of Tape 2 through PD0012A.                                    |
| VCR 3        | A5 46    | OUTPUT of 0111(B) to PG.   |
| TUNER        | A5 47    | OUTPUT of 0011(B) to PG.   |
| CD           | A5 4C    | OUTPUT of 0001(B) to PG.   |
| PHONO        | A5 4D    | OUTPUT of 0010(B) to PG.   |
| TAPE 1       | A5 46    | Switching OFF/ON of TAPE 1 through PD0012A.                                    |
| MUTE ON      | A5 57    | Switching ON of MUTE through PD0012A.  |
| MUTE OFF     | A5 5C    | Switching OFF of MUTE through PD0012A.   |
| V. FUNC      | A5 5D    | Transmission of the Video signal only, each time the key is pressed.           |
| A. FUNC      | A5 5E    | Increments and output of 0001(B) ~ 1000(B) to PG each time the key is pressed. |

**4. Peripheral IC Connections Chart**



**Fig. 12-10 PDE012 Peripheral IC Connections Chart**

**5. Peripheral IC DATA Transmission Format  
PD0012A (Output Expander IC)**

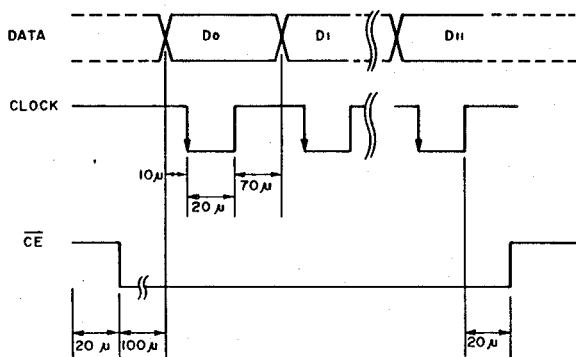
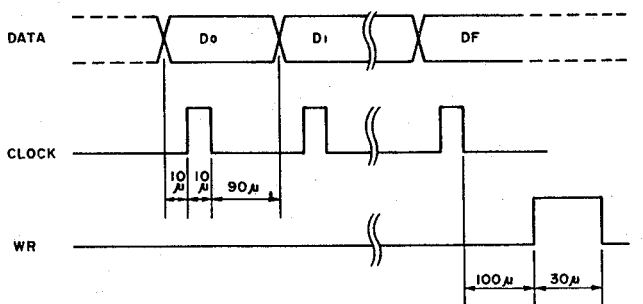


Fig. 12-11 PD0012A DATA Transmission Format

**LC7570 (Analog switch IC drive)**



Unit SEC. Values shown in MIN

Fig. 12-12 LC7570 DATA Transmission Format

**6. Peripheral IC OUTPUT Connections Chart (Chart 12-8)**

**PD0012A**

**LED Display No. 1**

| Terminal | Connection                           |
|----------|--------------------------------------|
| 4        | O <sub>0</sub> TV. TUNER LED         |
| 5        | O <sub>1</sub> V.D.P. LED            |
| 6        | O <sub>2</sub> VCR 1 LED             |
| 7        | O <sub>3</sub> VCR 2 LED             |
| 8        | O <sub>4</sub> VCR 3 LED             |
| 10       | O <sub>5</sub> TONE LED              |
| 11       | O <sub>6</sub> Dubing 1→2 LED        |
| 12       | O <sub>7</sub> Dubing 2→1 LED        |
| 13       | O <sub>8</sub> V Adp. in Rec LED     |
| 14       | O <sub>9</sub> Enhancer LED          |
| 15       | O <sub>1,0</sub> V. Adp. in Main LED |
| 16       | O <sub>1,1</sub> _____               |

**LED Display No. 2**

| Terminal | Connection                         |
|----------|------------------------------------|
| 4        | O <sub>0</sub> A. Adp LED          |
| 5        | O <sub>1</sub> _____               |
| 6        | O <sub>2</sub> TAPE 1 LED          |
| 7        | O <sub>3</sub> TAPE 2 LED          |
| 8        | O <sub>4</sub> MC 40Ω LED          |
| 9        | O <sub>5</sub> MM LED              |
| 10       | O <sub>6</sub> MONO LED            |
| 11       | O <sub>7</sub> MC 3Ω LED           |
| 12       | O <sub>8</sub> Hicut Filter LED    |
| 13       | O <sub>9</sub> Subsonic Filter LED |
| 14       | O <sub>1,0</sub> Mute LED          |
| 15       | O <sub>1,1</sub> Loudness LED      |

**RY Driver**

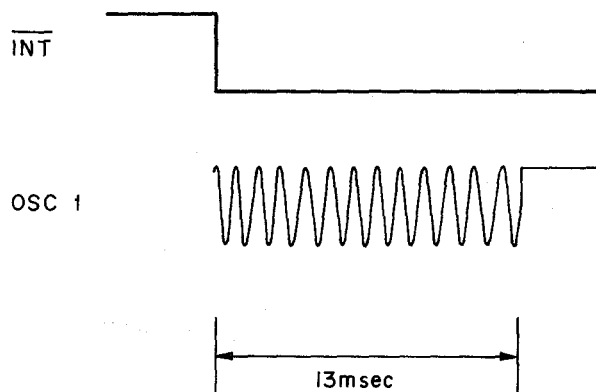
| Terminal | Connection                 |
|----------|----------------------------|
| 4        | O <sub>0</sub> _____       |
| 5        | O <sub>1</sub> _____       |
| 6        | O <sub>2</sub> MUTE Ry     |
| 7        | O <sub>3</sub> LOUDNESS Ry |
| 8        | O <sub>4</sub> TONE Ry     |
| 10       | O <sub>5</sub> TAPE 1 Ry   |
| 11       | O <sub>6</sub> A. Adp. Ry  |
| 12       | O <sub>7</sub> TAPE 2 Ry   |
| 13       | O <sub>8</sub> _____       |
| 14       | O <sub>9,0</sub> MC 3Ω Ry  |
| 15       | O <sub>1,0</sub> _____     |
| 16       | O <sub>1,1</sub> MC 40Ω Ry |

Chart 12-9 LC7570

| Terminal | Connection                                   |
|----------|--|
| 42       | S <sub>0</sub> VDP Video signal switch.      |
| 41       | S <sub>1</sub> VCR 1 Video signal switch.    |
| 40       | S <sub>2</sub> VCR 2 Video signal switch.    |
| 39       | S <sub>3</sub> VCR 3 Video signal switch.    |
| 38       | S <sub>4</sub> TV TUNER Video signal switch. |
| 37       | S <sub>5</sub> V. Rec. Sel. VDP switch.      |
| 36       | S <sub>6</sub> V. Rec. Sel. VCR 1 switch.    |
| 35       | S <sub>7</sub> V. Rec. Sel. VCR 2 switch.    |
| 34       | S <sub>8</sub> V. Rec. Sel. VCR 3 switch.    |
| 33       | S <sub>9</sub> V. Rec. Sel. TV TUNER switch. |
| 32       | S <sub>10</sub> V. Rec. Sel. Source switch.  |
| 31       | S <sub>11</sub> VCR 1 V LOOP CUT switch.     |
| 30       | S <sub>12</sub> VCR 2 V LOOP CUT switch.     |
| 29       | S <sub>13</sub> VCR 3 V LOOP CUT switch.     |
| 28       | S <sub>14</sub> V Adp SW1 switch.            |
| 27       | S <sub>15</sub> V Adp SW2 switch.            |
| 26       | S <sub>16</sub> V Adp SW3 switch.            |

| Terminal | Connection                                  |
|----------|---|
| 25       | S <sub>17</sub> V Adp SW4 switch.           |
| 24       | S <sub>18</sub> Enhancer SW1 switch.        |
| 23       | S <sub>19</sub> Enhancer SW2 switch.        |
| 22       | S <sub>20</sub> Enhancer SW3 switch.        |
| 21       | S <sub>21</sub> Dubbing SW1 switch.         |
| 20       | S <sub>22</sub> Dubbing SW2 switch.         |
| 19       | S <sub>23</sub> Dubbing SW3 switch.         |
| 18       | S <sub>24</sub> Dubbing SW4 switch.         |
| 17       | S <sub>25</sub> VCR 1 A LOOP CUT SW switch. |
| 16       | S <sub>26</sub> VCR 2 A LOOP CUT SW switch. |
| 15       | S <sub>27</sub> VCR 3 A LOOP CUT SW switch. |
| 14       | S <sub>28</sub> High-cut Filter SW switch.  |
| 13       | S <sub>29</sub> Subsonic Filter SW switch.  |
| 12       | S <sub>30</sub> Mode SW switch.             |
| 11       | S <sub>31</sub> _____                       |
| 10       | S <sub>32</sub> _____                       |
| 9        | S <sub>33</sub> _____                       |

7. Back-up



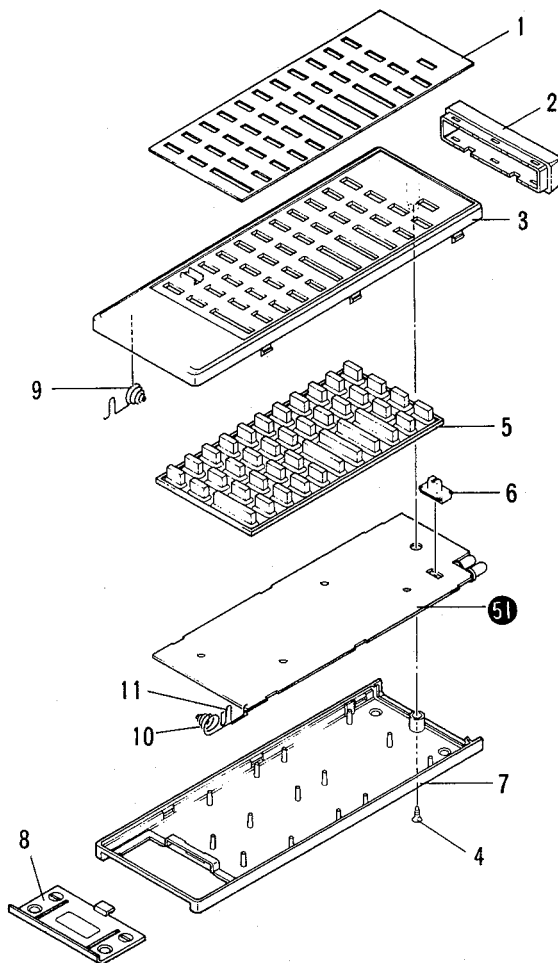
# 13. REMOTE CONTROL SECTION

## 13.1 EXPLODED VIEWS AND PARTS LIST

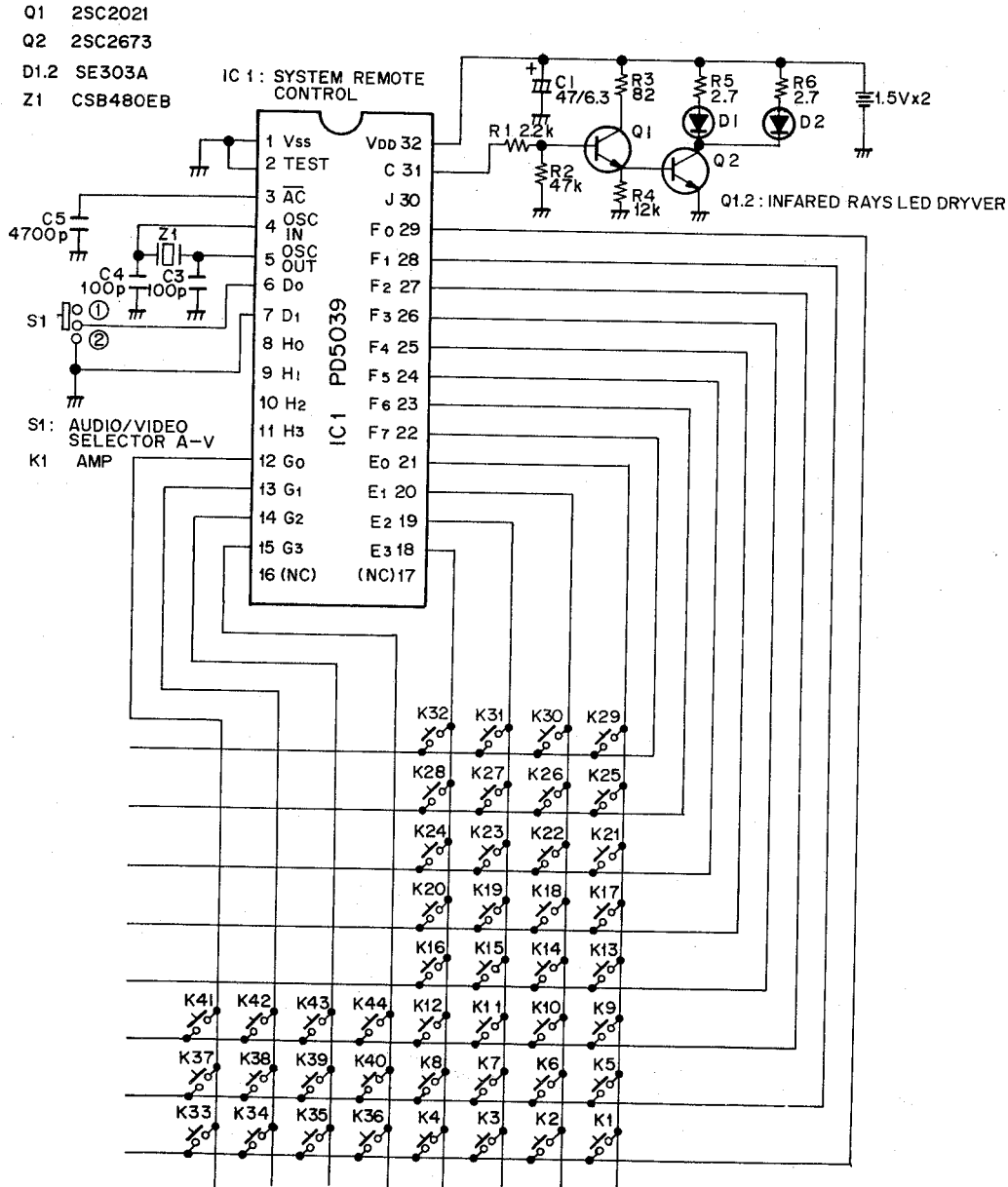
**NOTES:**

- Parts without part number cannot be supplied.
- The  $\triangle$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.  
**★★ GENERALLY MOVES FASTER THAN ★**  
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by "  $\odot$  " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

| Mark | No. | Part No. | Description                |
|------|-----|----------|----------------------------|
|      | 1   | AZA1035  | Plate                      |
|      | 2   | AZN1200  | Filter                     |
|      | 3   | AZH1018  | Upper case A               |
|      | 4   | AZB1057  | Screw                      |
|      | 5   | AZA1033  | Rubber switch              |
|      | 6   | AZS1021  | Slide knob                 |
|      | 7   | AZH1016  | Under case B (Bottom case) |
|      | 8   | AZH1017  | Battery case C             |
|      | 9   | AZK1022  | Battery spring (A)         |
|      | 10  | AZK1023  | Battery spring (B)         |
|      | 11  | AZK1021  | Battery terminal           |
| 51   |     |          | P.C. Board assembly        |



13.2 SCHEMATIC DIAGRAM

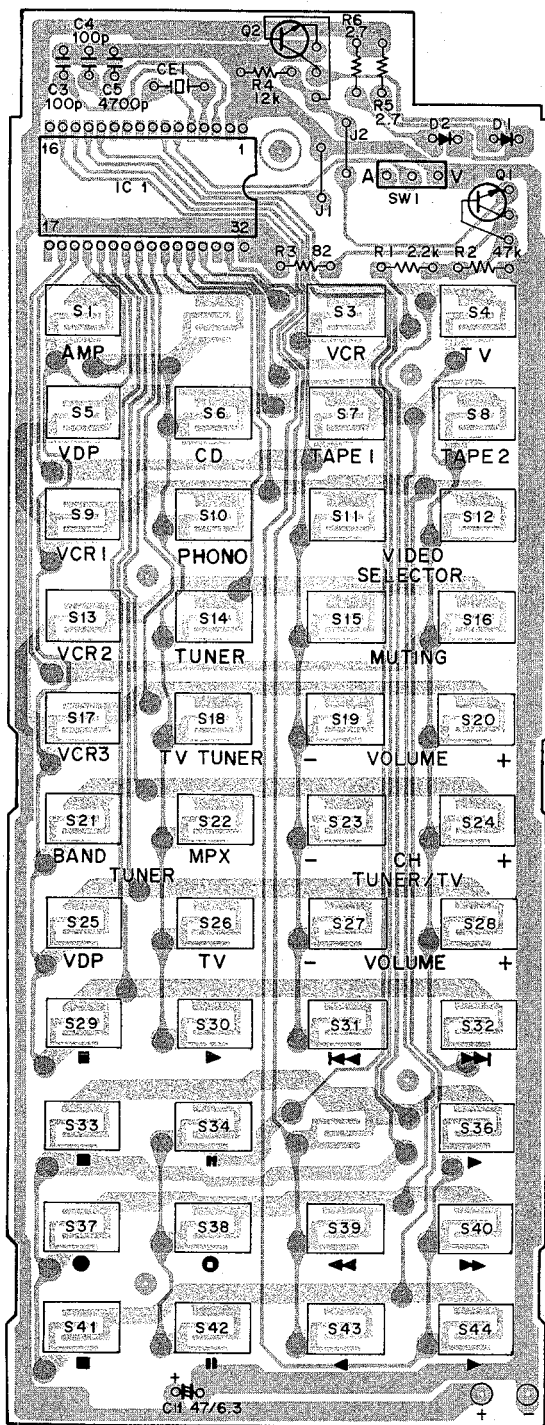


- RESISTORS:**  
 Indicated in  $\Omega$ , 1/4W, and 1/8W,  $\pm 5\%$  tolerance unless otherwise noted k; k $\Omega$ , M; M $\Omega$ , (F);  $\pm 1\%$ , (G);  $\pm 2\%$ , (K);  $\pm 10\%$ , (M);  $\pm 20\%$  tolerance
- CAPACITORS:**  
 Indicated in capacity ( $\mu$ F)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.
- VOLTAGE, CURRENT:**  
 : Signal voltage at 250 W + 250 W, 8 $\Omega$  output (1 kHz)  
 : DC voltage (V) at no input signal Value in ( ) is DC voltage at rated power.
- OTHERS:**  
 : Signal route.  
 : Adjusting point.  
 The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.  
 \* marked capacitors and resistors have parts numbers.  
 The underlined indicates the switch position.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

THE UNDERLINED INDICATES THE SWITCH POSITION

13.3 P.C. BOARD PATTERNS



**13.4 ELECTRICAL PARTS LISTS**

**NOTES:**

- When ordering resistors, first convert resistance values into code form as shown in the following examples.  
*Ex. 1* When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).  

|      |                      |     |       |   |   |   |   |
|------|----------------------|-----|-------|---|---|---|---|
| 560Ω | 56 × 10 <sup>1</sup> | 561 | RD¼PS | 5 | 6 | 1 | J |
| 47kΩ | 47 × 10 <sup>3</sup> | 473 | RD¼PS | 4 | 7 | 3 | J |
| 0.5Ω | 0R5                  |     | RN2H  | 0 | R | 5 | K |
| 1Ω   | 010                  |     | RS1P  | 0 | 1 | 0 | K |

  
*Ex. 2* When there are 3 effective digits (such as in high precision metal film resistors).  

|        |                       |      |       |   |   |   |   |   |
|--------|-----------------------|------|-------|---|---|---|---|---|
| 5.62kΩ | 562 × 10 <sup>1</sup> | 5621 | RN¼SR | 5 | 6 | 2 | 1 | F |
|--------|-----------------------|------|-------|---|---|---|---|---|
- The **△** mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.  
**★★ GENERALLY MOVES FASTER THAN ★**  
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by “ **⊙** ” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

**P.C. Board Assembly**

**SEMICONDUCTOR**

| Mark | Symbol & Description      | Part No. |
|------|---------------------------|----------|
| ★★   | IC1                       | PD5039   |
| ★★   | Q1                        | 2SC2021  |
| ★★   | Q2                        | 2SC2673  |
| ★    | D1, D2 LED (INFARED RAYS) | SE303A   |

**SWITCH**

| Mark | Symbol & Description           | Part No.   |
|------|--------------------------------|------------|
| ★★   | SW1 Slide switch (VIDEO/AUDIO) | SSSS21507A |

**CAPACITOR**

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | C1                   | CEJA470M6   |
|      | C3, C4               | CCDSL101J50 |
|      | C5                   | CKDYB472K50 |

**RESISTORS**

*Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.*

| Mark | Symbol & Description | Part No.    |
|------|----------------------|-------------|
|      | R1-R6                | RD1/8PM□□□J |

**OTHERS**

| Mark | Symbol & Description | Part No. |
|------|----------------------|----------|
| ★    | X1 Ceramic resonator | CSB480EB |



# 14. FOR KU TYPE

**NOTES:**

- When ordering resistors, first convert resistance values into code form as shown in the following examples.
  - Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).
 

|      |                      |     |       |   |   |   |   |
|------|----------------------|-----|-------|---|---|---|---|
| 560Ω | 56 × 10 <sup>1</sup> | 561 | RD¼PS | 5 | 6 | 1 | J |
| 47kΩ | 47 × 10 <sup>3</sup> | 473 | RD¼PS | 4 | 7 | 3 | J |
| 0.5Ω | 0R5                  |     | RN2H  | 0 | R | 5 | K |
| 1Ω   | 010                  |     | RS1P  | 0 | 1 | 0 | K |
  - Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
 

|        |                       |      |       |   |   |   |   |   |
|--------|-----------------------|------|-------|---|---|---|---|---|
| 5.62kΩ | 562 × 10 <sup>1</sup> | 5621 | RN¼SR | 5 | 6 | 2 | 1 | F |
|--------|-----------------------|------|-------|---|---|---|---|---|
- The **⚠** mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.  
**★★ GENERALLY MOVES FASTER THAN ★**  
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts marked by “ **⊗** ” are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The C-90 [BK]/KU type is the same as the C-90 [BK]/S/G type with the exception of the following sections.

| Mark | Symbol & Description                             | Part No.           |                   | Remarks |
|------|--|--------------------|-------------------|---------|
|      |  | C-90 [BK]/S/G type | C-90 [BK]/KU type |         |
| ⚠ ★  | T1, T2 Power transformer (AC110V/120V/220V/240V) | ATT1023            | .....             |         |
| ⚠ ★  | T1, T2 Power transformer (AC120V)                | .....              | ATT1025           |         |
| ⚠ ★  | T3 Power transformer (AC110/120V/220V/240V)      | ATT1024            | .....             |         |
| ⚠ ★  | T3 Power transformer (AC120V)                    | .....              | ATT1026           |         |
| ⚠ ★★ | S2 Line voltage selector (AC110V/120V/220V/240V) | AKX-507            | .....             |         |
| ⚠ ★★ | S3 Line voltage selector (AC110V-120V/220V-240V) | AKX1004            | .....             |         |
|      | Terminal (2P)                                    | .....              | Non supply        |         |
|      | Packing case                                     | AHD1121            | AHD1151           |         |
|      | Spacer (for packing)                             | AHB1008            | .....             |         |
|      | R1 Wire wound resistor (56Ω/10W)                 | ACN1010            | .....             |         |
|      | Side board                                       | AMS1005            | AMS1002           |         |
|      | Note sheet                                       | ARH1030            | .....             |         |
|      | Washer   | ABE-053            | .....             |         |

• Schematic Diagram

