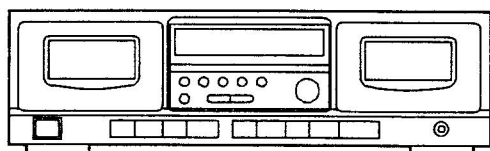


# aiwa



## AD-WX727

# MANUAL SERVICE



STEREO CASSETTE DECK

• BASIC TAPE MECHANISM: 2ZM-1 P3N(D1)  
2ZM-1 R3N(D2)

• TYPE: HE.U.EE.E.E1.K

## REVISION PUBLISHING

### SPECIFICATIONS

|                              |                                                                                                                                                                   |                                |                                                                                                                              |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Type</b>                  | Stereo cassette tape deck                                                                                                                                         | <b>Recording system</b>        | AC bias                                                                                                                      |
| <b>Track format</b>          | 4 tracks, 2 channels                                                                                                                                              | <b>Erase system</b>            | AC erase                                                                                                                     |
| <b>Power requirements</b>    | AD-WX727HE<br>AC 110-120V/220-240V switchable,<br>50Hz/60Hz<br>AD-WX727E, E1, EE<br>AC 230V, 50Hz<br>AD-WX727K<br>AC 230-240V, 50Hz<br>AD-WX727U<br>AC 120V, 60Hz | <b>Motor</b>                   | DC motor × 2                                                                                                                 |
| <b>Power consumption</b>     | 18 W                                                                                                                                                              | <b>Playback/recording head</b> | Permalloy head                                                                                                               |
| <b>Frequency response</b>    | Metal tape: 20 – 18,000Hz<br>(– 20dB Recording)<br>CrO <sub>2</sub> tape: 20 – 17,000Hz<br>(– 20dB Recording)<br>Normal tape: 20 – 16,000Hz<br>(– 20dB Recording) | <b>Erase head</b>              | Double gap Ferrite head                                                                                                      |
| <b>Signal-to-noise ratio</b> | 78 dB (Dolby C NR ON above 5 kHz,<br>metal tape, peak level)                                                                                                      | <b>Input</b>                   | REC/LINE IN: 100 mV<br>(input impedance 47 kΩ, 0 dB) *                                                                       |
| <b>Wow and flutter</b>       | 0.09 % (WRMS)                                                                                                                                                     | <b>Output</b>                  | PLAY/LINE OUT: 510 mV (0 dB)*<br>Optimum load impedance 47 kΩ or<br>more<br>PHONES: 0.25 mW (load impedance<br>32 Ω, 0 dB) * |
|                              |                                                                                                                                                                   | <b>Outer dimensions</b>        | (W × H × D)<br>430 × 140 × 326.5 mm<br>(17 × 5 5/8 × 12 7/8 in.)                                                             |
|                              |                                                                                                                                                                   | <b>Weight</b>                  | 4.9 kg (10.8 lbs.)                                                                                                           |

\* The "0 VU" of this unit is indicated as "– 4 dB" on the level meter.

- Design and specifications are subject to change without notice.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- "Dolby", the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

## CAUTION WHEN SERVICING

If the tape transport mechanisms are in the following state, an abnormal sound may be heard when the power switch is turned on and the mechanisms may not operate. In this case, turn the power switch off and then on again. The mechanisms will operate normally. (The microprocessor will be reset.)

Case : The PLAY solenoids in both decks 1 and decks 2 have drifted down from the normal positions and also the FR solenoid in one deck has drifted down from the normal position.

Case : The FR solenoids in both decks 1 and decks 2 have drifted down from the normal positions and also the PLAY solenoid in one deck has drifted down from the normal position.

## ■ ACCESSORIES / PACKAGE LIST

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

| REF. NO | PART NO.       | カリ<br>NO. | DESCRIPTION           |
|---------|----------------|-----------|-----------------------|
| 1       | 83-DW3-901-019 |           | IB, EX(S) (EXCEPT U)  |
| 2       | 83-DW3-902-019 |           | IB, U (S) (U)         |
| 3       | 83-DW3-022-019 |           | RC, RC-W102 (U, E1)   |
| 4       | 87-009-725-019 |           | PLUG, ADPTR IR40 (HE) |
| 5       | 87-034-786-019 |           | CORD PIN 189-0760     |

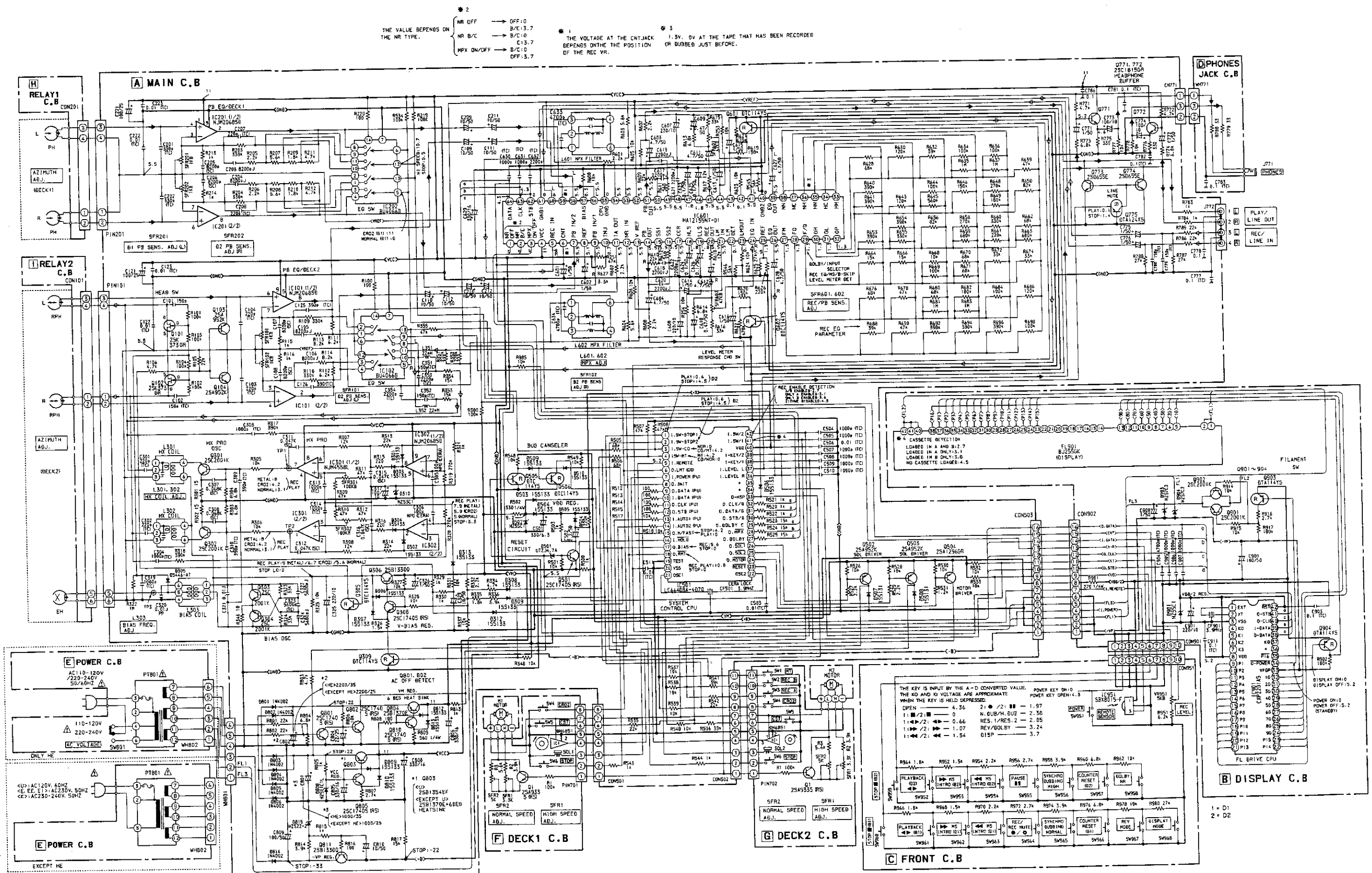
## ELECTRICAL MAIN PARTS LIST

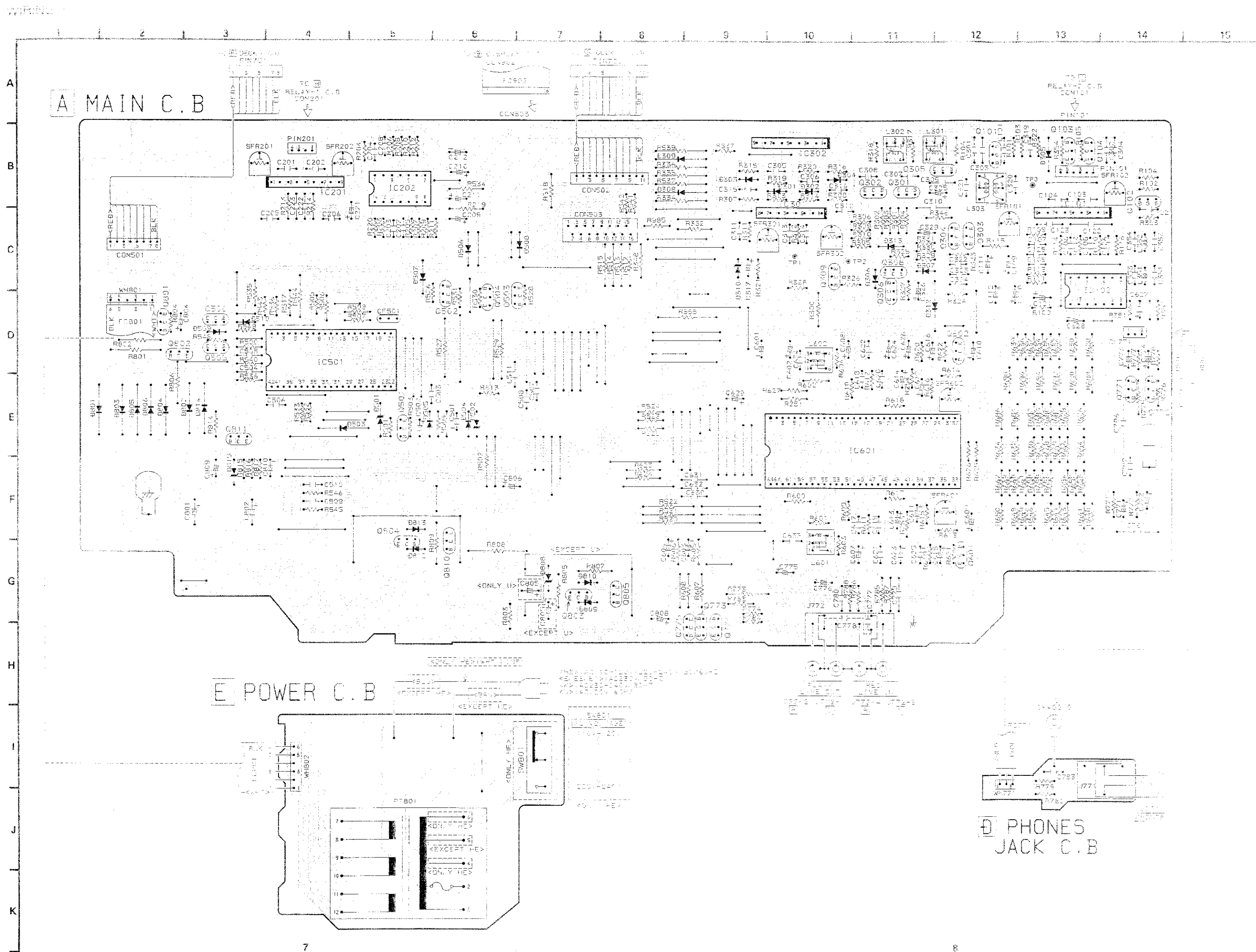
DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

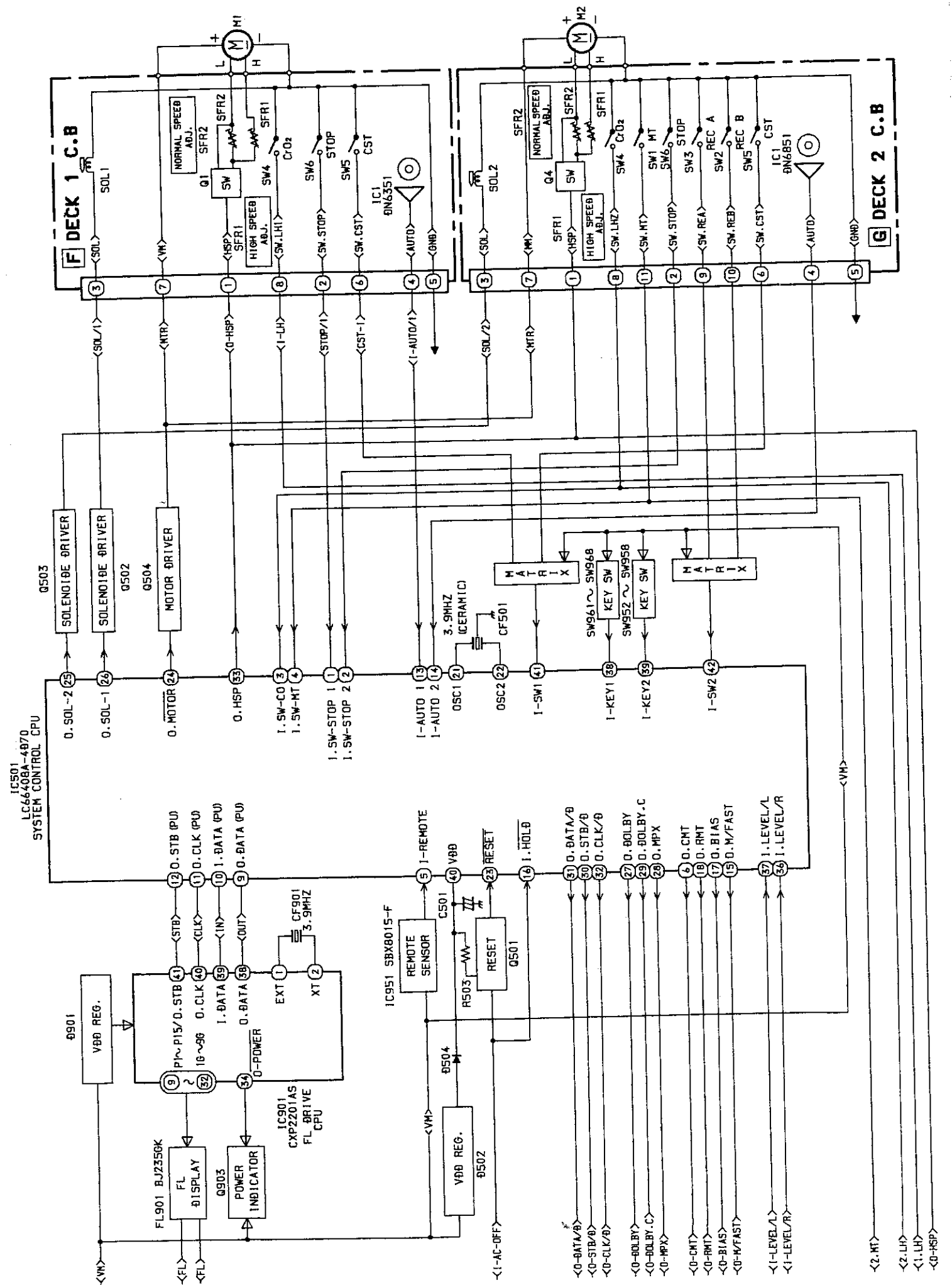
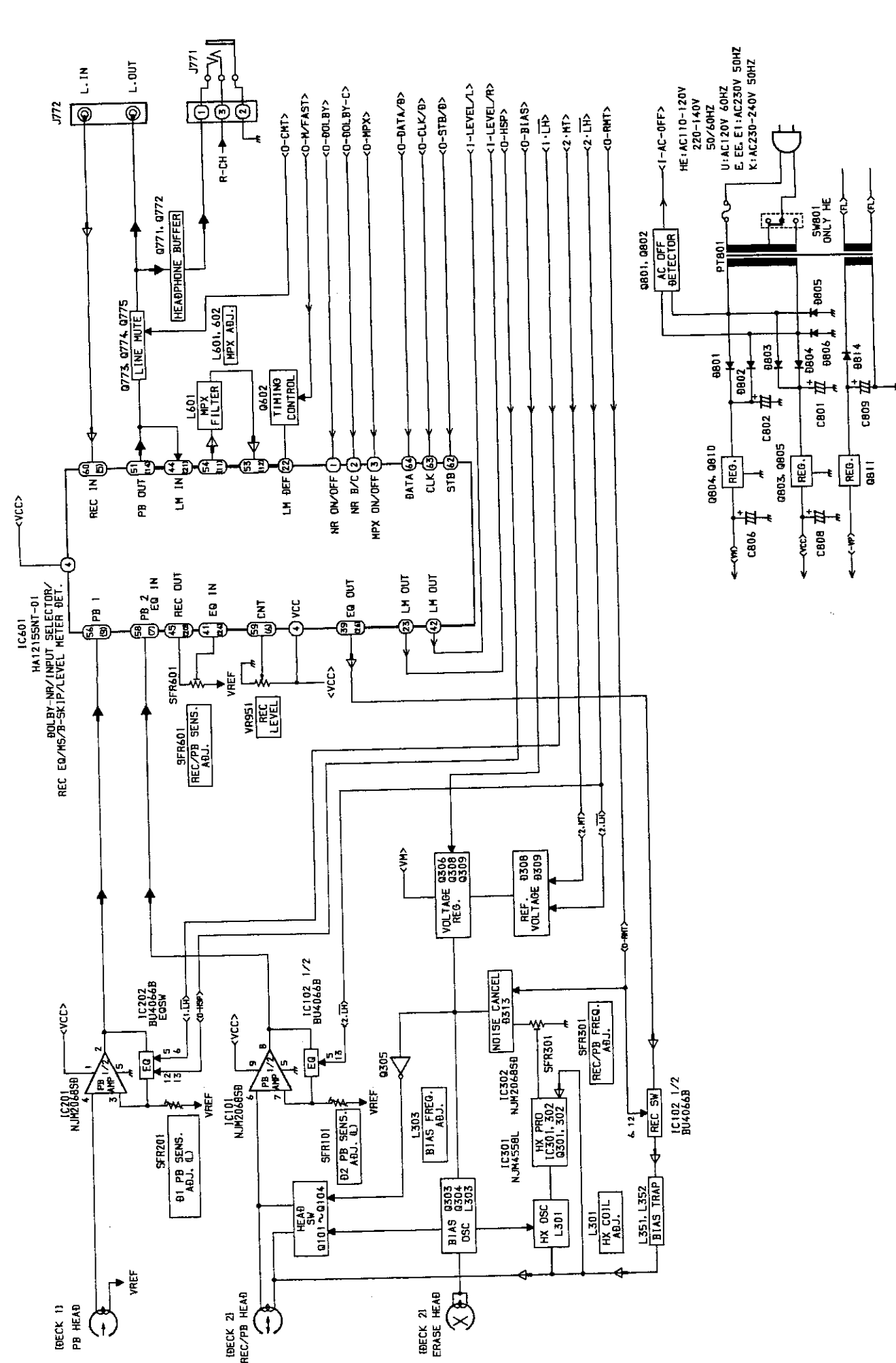
| REF. NO    | PART NO.       | カ<br>リ<br>ノ            | DESCRIPTION | REF. NO | PART NO.       | カ<br>リ<br>ノ            | DESCRIPTION |
|------------|----------------|------------------------|-------------|---------|----------------|------------------------|-------------|
| IC         |                |                        |             |         |                |                        |             |
|            | 87-020-454-010 | IC, DN6851             |             | C310    | 87-018-126-089 | CAP, TC-U 390P-50 B    |             |
|            | 87-020-758-019 | IC, NJM2068SD          |             | C313    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-002-282-019 | IC, BU4068B            |             | C314    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-002-727-019 | IC, NJM4558L           |             | C317    | 87-010-263-089 | CAP, E 100-10 SME 5X11 |             |
|            | 83-DW3-630-010 | IC, LC 66408A-4D70     |             |         |                |                        |             |
|            | 87-002-932-010 | IC, HA12155NT-01       |             | C319    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-002-861-019 | IC, CXP2201AS          |             | C320    | 87-014-081-089 | CAP, PP 0.01J          |             |
| TRANSISTOR |                |                        |             |         |                |                        |             |
|            | 87-026-463-089 | TR, 2SA933S RS         |             | C323    | 87-018-201-089 | CAP, TC-U 5600P-16 X   |             |
|            | 89-503-735-089 | FET, 2SK373GR (TPE2)   |             | C325    | 87-010-248-089 | CAP, E 220-10 SME      |             |
|            | 89-109-521-089 | TR, 2SA952K            |             | C326    | 87-010-401-089 | CAP, E 1-50 SME        |             |
|            | 89-320-011-089 | TR, 2SC2001K           |             |         |                |                        |             |
|            | 87-026-215-089 | TR, DTC114YS           |             | C329    | 87-010-405-089 | CAP, E 10-50 SME       |             |
|            | 89-213-302-089 | TR, 2SB1330Q           |             | C351    | 87-018-121-089 | CAP, TC-U 150P-50 B    |             |
|            | 87-026-462-089 | TR, 2SC1740S (RS)      |             | C352    | 87-018-121-089 | CAP, TC-U 150P-50 B    |             |
|            | 89-112-965-089 | TR, 2SA1296GR          |             | C353    | 87-018-132-089 | CAP, TC-U 2200P-16 X   |             |
|            | 89-318-155-089 | TR, 2SC1815GR          |             | C354    | 87-018-132-089 | CAP, TC-U 2200P-16 X   |             |
|            | 89-406-555-089 | TR, 2SD655E            |             |         |                |                        |             |
|            | 87-026-290-089 | TR, DTA124XS           |             | C501    | 87-010-370-089 | CAP, E 330-6.3 SME     |             |
|            | 89-213-542-389 | TR, 2SB1354EF (U)      |             | C502    | 87-010-402-089 | CAP, E 2.2-50 SME      |             |
|            | 89-213-702-019 | TR, 2SB1370E           |             | C503    | 87-018-134-089 | CAP, TC-U 0.01-16 Y    |             |
|            | 87-026-214-089 | TR, DTA114YS           |             | C504    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
| DIODE      |                |                        |             |         |                |                        |             |
|            | 87-020-465-089 | DIODE, ISS133          |             | C505    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-020-123-089 | DIODE, DS446-AT (TA)   |             |         |                |                        |             |
|            | 87-001-636-089 | ZENER, HZS3C1          |             | C506    | 87-018-134-089 | CAP, TC-U 0.01-16 Y    |             |
|            | 87-001-911-089 | ZENER, UTZJ4.7A (TAPG) |             | C507    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-017-091-089 | ZENER, HZS5C1          |             | C508    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-001-559-089 | DIODE, ISS131 (T-72)   |             | C509    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-001-783-089 | DIODE, 1N4002-T        |             | C510    | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |
|            | 87-017-178-089 | ZENER, HZS11C1L        |             |         |                |                        |             |
|            | 87-017-143-089 | ZENER, HZS22-2         |             | C511    | 87-018-134-089 | CAP, TC-U 0.01-16 Y    |             |
|            | 87-017-110-089 | ZENER, HZS7C2          |             | C601    | 87-010-401-089 | CAP, E 1-50 SME        |             |
| MAIN C. B  |                |                        |             |         |                |                        |             |
| C101       | 87-018-121-089 | CAP, TC-U 150P-50 B    |             | C602    | 87-010-401-089 | CAP, E 1-50 SME        |             |
| C102       | 87-018-121-089 | CAP, TC-U 150P-50 B    |             | C603    | 87-010-404-089 | CAP, E 4.7-50 SME      |             |
| C103       | 87-018-123-089 | CAP, TC-U 220P-50 B    |             | C604    | 87-010-404-089 | CAP, E 4.7-50 SME      |             |
| C104       | 87-018-123-089 | CAP, TC-U 220P-50 B    |             |         |                |                        |             |
| C109       | 87-010-405-089 | CAP, E 10-50 SME       |             | C607    | 87-010-248-089 | CAP, E 220-10 SME      |             |
| C110       | 87-010-405-089 | CAP, E 10-50 SME       |             | C608    | 87-010-248-089 | CAP, E 220-10 SME      |             |
| C111       | 87-010-405-089 | CAP, E 10-50 SME       |             | C609    | 87-010-400-089 | CAP, E 0.47-50 SME     |             |
| C112       | 87-010-405-089 | CAP, E 10-50 SME       |             | C610    | 87-010-400-089 | CAP, E 0.47-50 SME     |             |
| C121       | 87-010-384-089 | CAP, E 100-25 SME      |             | C611    | 87-010-404-089 | CAP, E 4.7-50 SME      |             |
| C122       | 87-018-134-089 | CAP, TC-U 0.01-16 Y    |             |         |                |                        |             |
| C123       | 87-018-134-089 | CAP, TC-U 0.01-16 Y    |             | C612    | 87-010-404-089 | CAP, E 4.7-50 SME      |             |
| C125       | 87-018-126-089 | CAP, TC-U 390P-50 B    |             | C613    | 87-010-401-089 | CAP, E 1-50 SME        |             |
| C126       | 87-018-126-089 | CAP, TC-U 390P-50 B    |             | C614    | 87-010-401-089 | CAP, E 1-50 SME        |             |
| C201       | 87-018-125-089 | CAP, TC-U 330P-50 B    |             | C615    | 87-010-401-089 | CAP, E 1-50 SME        |             |
| C202       | 87-018-125-089 | CAP, TC-U 330P-50 B    |             | C616    | 87-010-401-089 | CAP, E 1-50 SME        |             |
| C207       | 87-018-123-089 | CAP, TC-U 220P-50 B    |             |         |                |                        |             |
| C208       | 87-018-123-089 | CAP, TC-U 220P-50 B    |             | C623    | 87-010-544-089 | CAP, E 0.1-50          |             |
| C209       | 87-010-405-089 | CAP, E 10-50 SME       |             | C624    | 87-010-544-089 | CAP, E 0.1-50          |             |
| C210       | 87-010-405-089 | CAP, E 10-50 SME       |             | C625    | 87-010-544-089 | CAP, E 0.1-50          |             |
| C211       | 87-010-405-089 | CAP, E 10-50 SME       |             | C626    | 87-010-544-089 | CAP, E 0.1-50          |             |
| C212       | 87-010-405-089 | CAP, E 10-50 SME       |             | C627    | 87-010-404-089 | CAP, E 4.7-50 SME      |             |
| C221       | 87-010-384-089 | CAP, E 100-25 SME      |             |         |                |                        |             |
| C222       | 87-018-134-089 | CAP, TC-U 0.01-16 Y    |             | C628    | 87-010-404-089 | CAP, E 4.7-50 SME      |             |
| C223       | 87-018-134-089 | CAP, TC-U 0.01-16 Y    |             | C629    | 87-010-381-089 | CAP, E 330-16 SME      |             |
| C301       | 87-018-123-089 | CAP, TC-U 220P-50 B    |             | C630    | 87-018-131-089 | CAP, TC-U 1000P-50B    |             |
| C302       | 87-018-123-089 | CAP, TC-U 220P-50 B    |             | C631    | 87-018-131-089 | CAP, TC-U 1000P-50B    |             |
| C303       | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             | C632    | 87-018-132-089 | CAP, TC-U 2200P-16X    |             |
| C304       | 87-018-131-089 | CAP, TC-U 1000P-50 B   |             |         |                |                        |             |
| C309       | 87-018-126-089 | CAP, TC-U 390P-50 B    |             | C633    | 87-018-133-089 | CAP, TC-U 4700P-16 X   |             |

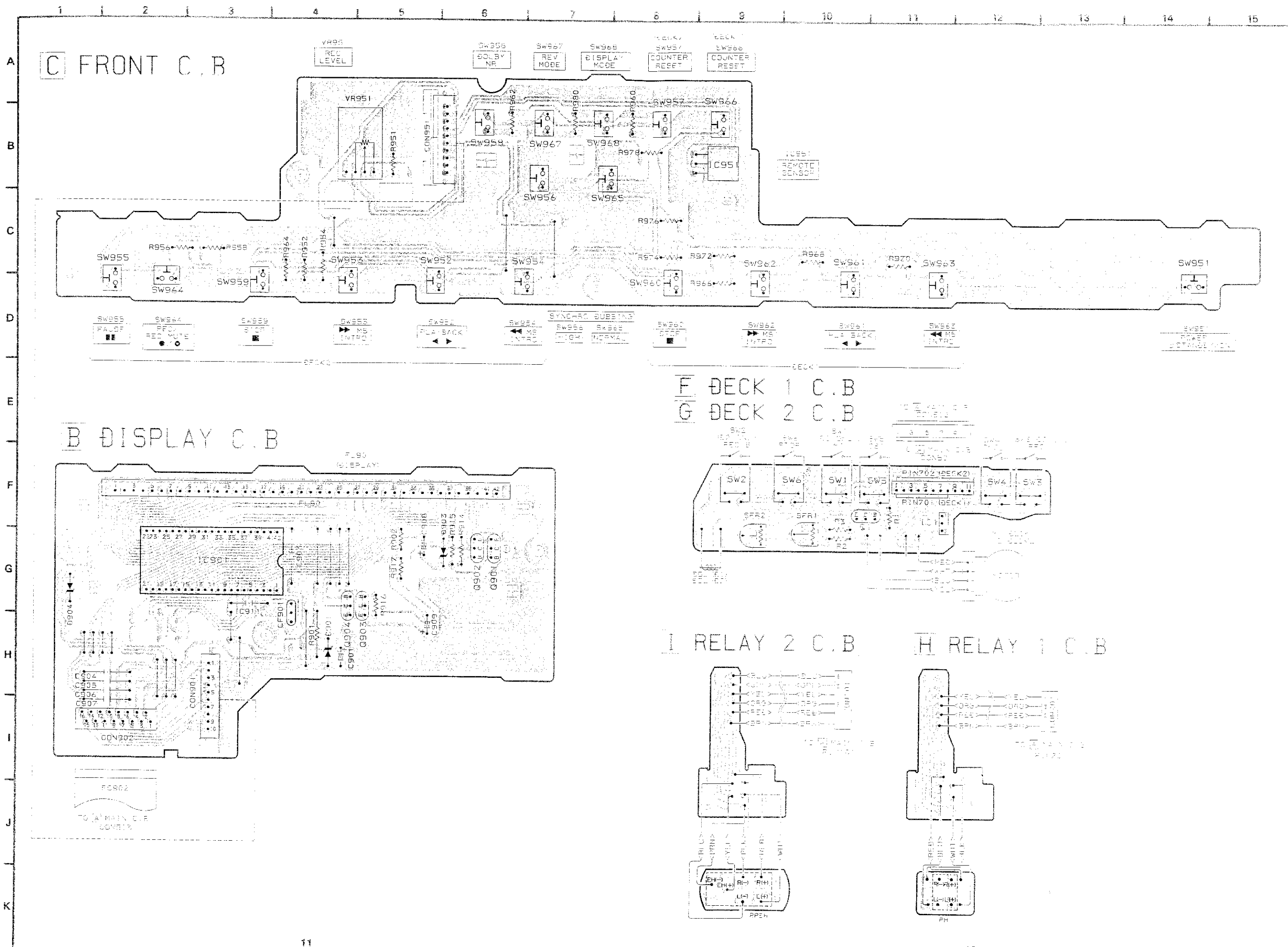
| REF. NO          | PART NO.       | カ<br>リ<br>ノ | DESCRIPTION           | REF. NO      | PART NO.       | カ<br>リ<br>ノ | DESCRIPTION          |
|------------------|----------------|-------------|-----------------------|--------------|----------------|-------------|----------------------|
| C804             | 87-010-382-089 |             | CAP, E 22-25 SME      | △PT801       | 83-DW3-624-019 |             | PT, UC (U)           |
| C805             | 87-010-381-089 |             | CAP, E 330-16 SME     | △SW801       | 87-031-780-019 |             | SW, SLIDE 1-1-2 (HE) |
| C806             | 87-010-381-089 |             | CAP, E 330-16 SME     | DECK 1 C. B  |                |             |                      |
| C808             | 87-010-381-089 |             | CAP, E 330-16 SME     | SFR1         | 87-024-581-019 |             | SFR, 3.3K DIA 6H KOA |
| C809             | 87-010-247-089 |             | CAP, E 100-50 SME     | SFR2         | 87-024-331-019 |             | SFR, 5K DIA6H KOA    |
|                  |                |             |                       | SOL1         | 87-ZM1-618-319 |             | SOL ASSY, 27         |
| C810             | 87-010-405-089 |             | CAP, E 10-50 SME      |              |                |             |                      |
| CF501            | 89-MX1-704-089 |             | CERALOCK (MU) 3.9MHZ  | SW4          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| J772             | 87-099-184-019 |             | JACK, PIN 4P 6520-37  | SW5          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| L301             | 80-DS4-618-010 |             | COIL, HX85K-4         | SW6          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| L302             | 80-DS4-618-010 |             | COIL, HX85K-4         | DECK 2 C. B  |                |             |                      |
| L303             | 80-DS4-617-010 |             | COIL, OSC 85K-4       |              |                |             |                      |
| L351             | 82-231-622-089 |             | COIL, 22MH-J          | SFR1         | 87-024-581-019 |             | SFR, 3.3K DIA 6H KOA |
| L352             | 82-231-622-089 |             | COIL, 22MH-J          | SFR2         | 87-024-331-019 |             | SFR, 5K DIA6H KOA    |
| L601             | 83-DS3-614-019 |             | FILTR, MPX 85K        | SOL2         | 82-ZM1-618-319 |             | SOL ASSY, 27         |
| L602             | 83-DS3-614-019 |             | FILTR, MPX 85K        |              |                |             |                      |
| SFR101           | 87-024-168-089 |             | SFR, 1K DIA6 V        | SW1          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| SFR102           | 87-024-168-089 |             | SFR, 1K DIA6 V        | SW2          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| SFR201           | 87-024-168-089 |             | SFR, 1K DIA6 V        | SW3          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| SFR202           | 87-024-168-089 |             | SFR, 1K DIA6 V        | SW4          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| SFR301           | 87-024-176-089 |             | SFR, 100K DIA6 V      | SW5          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| SFR302           | 87-024-176-089 |             | SFR, 100K DIA6 V      | SW6          | 87-036-110-019 |             | SW, PUSH SPPB 62     |
| SFR601           | 87-024-175-089 |             | SFR, 47K DIA6 V       | RELAY 1 C. B |                |             |                      |
| SFR602           | 87-024-175-089 |             | SFR, 47K DIA6 V       |              |                |             |                      |
| DISPLAY C. B     |                |             |                       |              |                |             |                      |
| C901             | 87-010-248-089 |             | CAP, E 220-10 SME     | CON201       | 83-DW3-619-019 |             | CONN ASSY, 4P HEAD   |
| C903             | 87-018-214-089 |             | CAP, TC-U 0.1-50F     | RELAY 2 C. B |                |             |                      |
| C904             | 87-018-133-089 |             | CAP, TC-U 4700P-16 X  |              |                |             |                      |
| C905             | 87-018-131-089 |             | CAP, TC-U 1000P-50 B  | CON101       | 83-DW3-620-019 |             | CONN ASSY, 6P HEAD   |
| C906             | 87-018-131-089 |             | CAP, TC-U 1000P-50 B  |              |                |             |                      |
| C907             | 87-018-131-089 |             | CAP, TC-U 1000P-50 B  |              |                |             |                      |
| C908             | 87-010-401-089 |             | CAP, E 1-50 SME       |              |                |             |                      |
| C909             | 87-010-247-089 |             | CAP, E 100-50 SME     |              |                |             |                      |
| C911             | 87-018-214-089 |             | CAP, TC-U 0.1-50F     |              |                |             |                      |
| CF901            | 89-MX1-704-089 |             | CERALOCK (MU) 3.9MHZ  |              |                |             |                      |
| FL901            | 83-DW3-629-119 |             | FL, BJ255GK           |              |                |             |                      |
| FRONT C. B       |                |             |                       |              |                |             |                      |
| IC951            | 87-017-725-010 |             | RC UNIT, SBX8015-F    |              |                |             |                      |
| SW951            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW952            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW953            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW954            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW955            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW956            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW957            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW958            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW959            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW960            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW961            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW962            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW963            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW964            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW965            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW966            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW967            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| SW968            | 87-036-170-089 |             | SW, TACT              |              |                |             |                      |
| VR951            | 80-SP5-622-019 |             | VR, 5K B              |              |                |             |                      |
| PHONES JACK C. B |                |             |                       |              |                |             |                      |
| C783             | 87-018-214-089 |             | CAP, TC-U 0.1-50F     |              |                |             |                      |
| J771             | 87-099-580-019 |             | JACK, 6.3 ST/SW/4609G |              |                |             |                      |
| POWER C. B       |                |             |                       |              |                |             |                      |
| △PT801           | 83-DW3-622-019 |             | PT, EZ (EE, E1, E)    |              |                |             |                      |
| △PT801           | 83-DW3-621-019 |             | PT, HE (HE)           |              |                |             |                      |
| △PT801           | 83-DW3-623-019 |             | PT, K (K)             |              |                |             |                      |

SCHEMATIC DIAGRAM

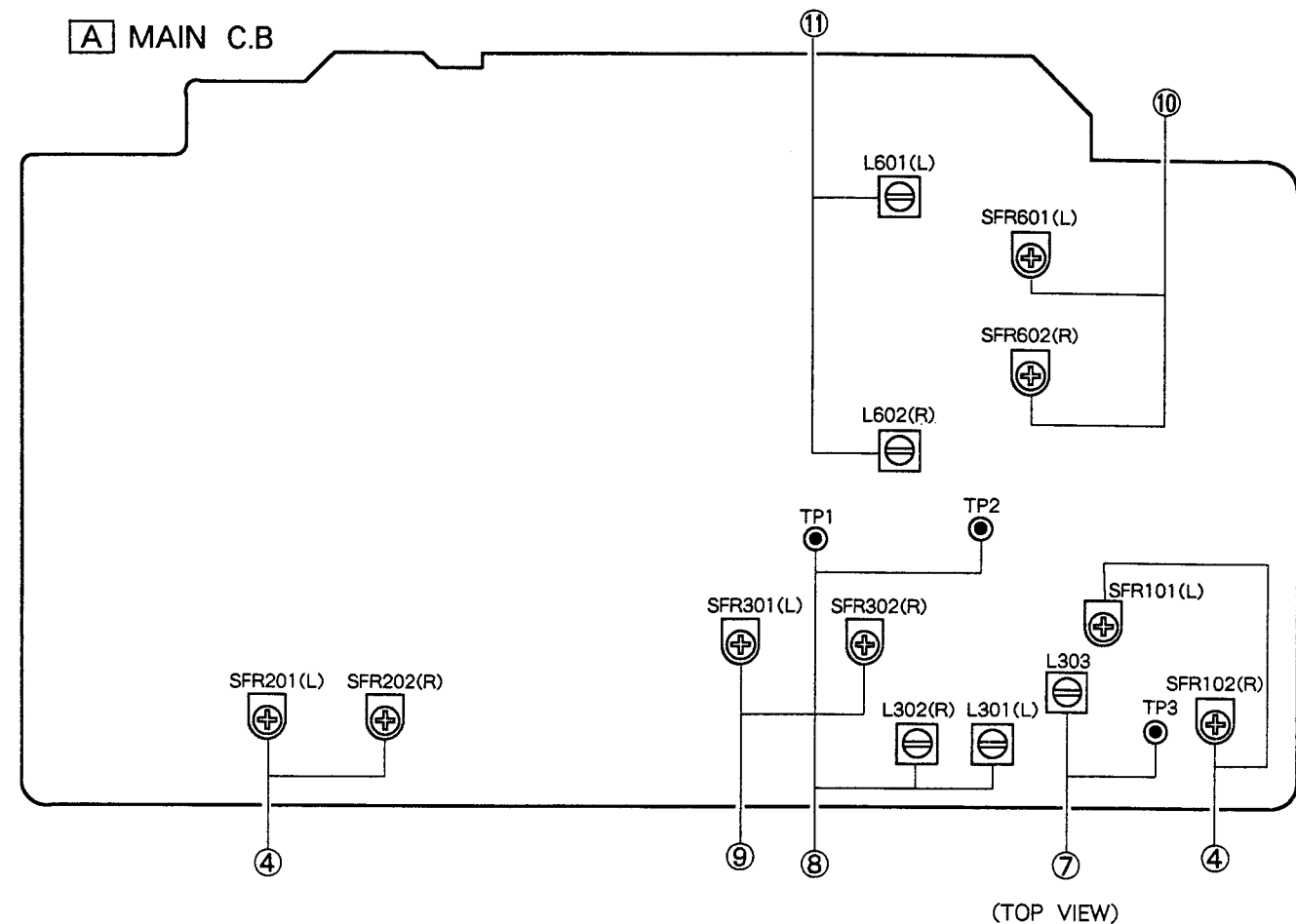




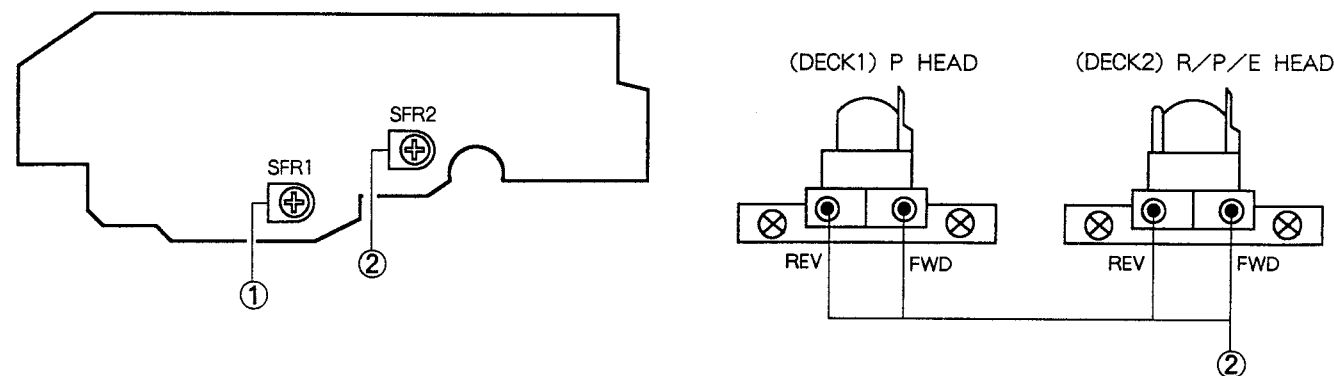




## ADJUSTMENT



**F DECK 1 C.B.**  
**G DECK 2 C.B.**



### 1. High Speed Adjustment (DECK1, DECK2)

- Settings : • Test tape : TTA - 100 (TTA - 111S)  
• Test point : LINE OUT (PIN JACK)  
• Adjustment Location : SFR1 (DECK1)  
SFR1 (DECK2)

When doesn't put cassette tape in DECK2, make FWD switch of prevent recording lever to on, then turn Power SW on.  
(hold the pushed lever more than 3 sec.)  
(into TEST MODE)

Method : Play back the test tape, then push H - DUBB key and adjust SFRs for  $6000\text{Hz} \pm 20\text{Hz}$ .

### 2. Normal Speed Adjustment (DECK1, DECK2)

- Settings : • Test tape : TTA - 100 (TTA - 111S)  
• Test point : LINE OUT (PIN JACK)  
• Adjustment Location : SFR2 (DECK1)  
SFR2 (DECK2)

Method : Play back the test tape, adjust SFRs for  $3000\text{Hz} \pm 10\text{Hz}$ .

### 3. Head Azimuth Adjustment (DECK1, DECK2)

- Settings : • Test tape : TTA - 310 (TTA - 317E)  
• Test point : LINE OUT (PIN JACK)  
• Adjustment Location : Head azimuth adjustment screw.

Method : Play back the 10kHz signal of test tape and adjust screw so that the output is maximum and the waveforms in the lissajours are in phase.

### 4. PB Sensitivity Adjustment (DECK1, DECK2)

- Settings : • Test tape : TTA - 200 (TTA - 161)  
• Test point : LINE OUT (PIN JACK)  
• Adjustment Location : SFR201 (DECK1, Lch)  
SFR202 (DECK1, Rch)  
SFR101 (DECK2, Lch)  
SFR102 (DECK2, Rch)

Method : Play back the test tape, and adjust SFRs so that the output level of the test point becomes 460mV.

### 5. PB Frequency Response Check (DECK1, DECK2)

- Settings : • Test tape : TTA - 310 (TTA - 317E)  
• Test point : LINE OUT (PIN JACK)

Method : Play back the 315Hz and 10kHz signals of the test tape and check the output of the 10kHz signals  $0\text{dB} \pm 2\text{dB}$  with respect to that of the 315Hz signal.

### 6. Level Meter Check (DECK1, DECK2)

- Settings : • Test tape : TTA - 601

Method : Record set to make 510mV at LINE OUT.

Check the reading of the level meter.

- FL light on 0dB
- FL light off + 2dB

### 7. Bias Frequency Adjustment (DECK2)

- Settings : • Test tape : TTA - 630  
• Test point : TP3  
• Adjustment Location : L303

Method : Set to the record mode, and adjust L303 so that the frequency counter of the test point reads  $86\text{kHz} \pm 1\text{kHz}$ .

### 8. HX Coil Adjustment (DECK1, DECK2)

- Settings : • Test tape : TTA - 630  
• Test point : TP1, TP2  
• Adjustment Location : L301 (Lch)  
L302 (Rch)

Method : Adjust L301, L302 so that the DC voltage at the test points is minimum at the record mode.

### 9. REC/PB Frequency Adjustment (DECK2)

- Settings : • Test tape : TTA - 601 (TTA - 630)  
• Test point : LINE OUT (PIN JACK)  
• Adjustment Location : (DECK2)

SFR301 (Lch)

SFR302 (Rch)

Method : Apply a 1kHz signal and adjust REC LEVEL VR attenuator so that the output level at the LINE OUT jack becomes 32mV.

Record and playback the 1kHz and 10kHz signals and adjust SFRs so that the output of the 10kHz signal becomes  $0\text{dB} \pm 0.5\text{dB}$  with respect to that of the 1kHz signal.

### 10. REC/PB Sensitivity Adjustment (DECK2)

- Settings : • Test tape : TTA - 601 (TTA - 630)  
• Test point : LINE OUT (PIN JACK)  
• Adjustment Location : (DECK2)

SFR601 (Lch)

SFR602 (Rch)

Method : Apply a 1kHz signal and adjust REC LEVEL VR so that the output level at the LINE OUT becomes 32mV.

Record and playback the 1kHz signal and adjust SFRs so that the output becomes  $32\text{mV} \pm 0.5\text{dB}$ .

### 11. MPX Adjustment (DECK2)

- Settings : • Input signal :  $19000\text{Hz} \pm 50\text{Hz}$  510mV 0dB  
• Test point : LINE OUT (PIN JACK)  
• Adjustment Location : (DECK2)

L601 (Lch)

L602 (Rch)

Method : Apply a 19kHz signal and adjust Ls so that the output level at the LINE OUT becomes more than -30dB in DOLBY NR (B/C) on.

Notice : How to release TEST mode.

Turn Power SW off.

## PRACTICAL SERVICE FIGURE

|                                                       |                                                                                                                                                     |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Playback output Level<br>(TTA-200) (TTA-161, TCC-130) | : 460mV $\pm$ 0.5dB<br>(LINE OUT)                                                                                                                   |
| REC/PB output<br>(TTA-601)                            | : 320mV $\pm$ 1dB<br>(LINE OUT)                                                                                                                     |
| REC/PB distortion                                     | : Less than 2.0 %<br>(NORM., CrO <sub>2</sub> , MT)                                                                                                 |
| Playback noise                                        | : Less than 4.0/3.5mV<br>(120 $\mu$ s/70 $\mu$ s, DOLBY NR<br>OFF)<br>Less than 1.8/1.5mV<br>(120 $\mu$ s/70 $\mu$ s,<br>DOLBY NR B, C)             |
| Erase ratio (125Hz)                                   | : (DECK2)<br>More than 58dB                                                                                                                         |
| Crosstalk                                             | : More than 60dB                                                                                                                                    |
| Channel separation                                    | : More than 30dB                                                                                                                                    |
| Level drift<br>(10kHz, TTA-300)                       | : Within 1dB                                                                                                                                        |
| DOLBY effect<br>(TTA-610)                             | : More than 8.5dB<br>(DOLBY NR B)<br>: More than 17dB<br>(DOLBY NR C)                                                                               |
| REC/PB S/N ratio<br>(LINEAR)                          | : Less than 4.0/3.5mV<br>(DOLBY NR OFF NORM./<br>MT, CrO <sub>2</sub> )<br>: Less than 1.8/1.5mV<br>(DOLBY NR B, C NORM./<br>MT, CrO <sub>2</sub> ) |
| Recoding bias frequency                               | : (DECK2)<br>85kHz                                                                                                                                  |
| Tape speed                                            | : 3kHz $\pm$ 1.5 %                                                                                                                                  |
| Wow & flutter<br>(W.R.M.S)                            | : Less than 0.18 %<br>(DECK1, 2)                                                                                                                    |
| Take-up torque                                        | : 30~55g-cm (DECK 1, 2)                                                                                                                             |
| Fast forward torque                                   | : 75~160g-cm (DECK 1, 2)                                                                                                                            |
| Rewind torque                                         | : 75~160g-cm (DECK 1, 2)                                                                                                                            |
| Back-tension                                          | : 2~6g-cm (DECK 1, 2)                                                                                                                               |
| Test tape                                             | : METAL TTA-630<br>CrO <sub>2</sub> TTA-610<br>(TTA-119H)<br>NORMAL TTA-601                                                                         |

# IC DESCRIPTION

## IC, LC66408-4D70

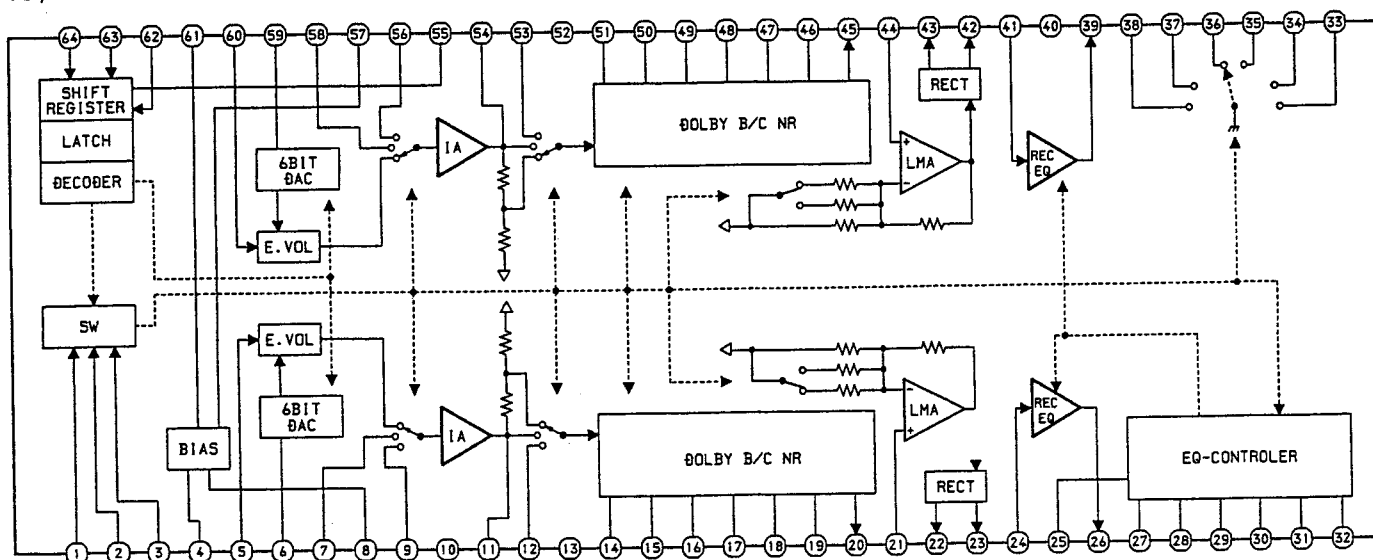
| Pin No. | Pin Name   | I/O | Description                                                                             |
|---------|------------|-----|-----------------------------------------------------------------------------------------|
| 1       | SW-STOP1   | I   | STOP SW signal input of DECK1.                                                          |
| 2       | SW-STOP2   | I   | STOP SW signal input of DECK2.                                                          |
| 3       | SW-CO      | I   | CrO <sub>2</sub> SW signal input of DECK2.                                              |
| 4       | SW-MT      | I   | Metal SW signal input of DECK2.                                                         |
| 5       | REMOTE     | I   | Serial data input terminal of remote controller.                                        |
| 6       | LMT (OD)   | O   | Output terminal for record/playback monitor output signal muting. "H" at muting.        |
| 7       | POWER      | I   | POWER SW signal input.                                                                  |
| 8       | INIT       | O   | Initial port.                                                                           |
| 9       | DATA (PU)  | O   | Serial data output terminal for CXP-2201 (FL display).                                  |
| 10      | DATA (PU)  | I   | Serial data input terminal for CXP-2201 (FL display).                                   |
| 11      | CLK (PU)   | O   | Serial data clock signal for CXP-2201 (FL display).                                     |
| 12*     | STB (PU)   | O   | Strobe signal for CXP-2201 (FL display).                                                |
| 13      | AUTO1 (PU) | I   | Reel pulse input terminal of DECK1.                                                     |
| 14      | AUTO2 (PU) | I   | Reel pulse input terminal of DECK2.                                                     |
| 15      | M/FAST     | O   | Release timing control output of level meter.                                           |
| 16      | HOLD       | I   | "L" when AC power turns off. Then the microcomputer is held.                            |
| 17      | BIAS       | O   | Bias oscillation output terminal for DECK2. "H" at recording/dubbing. "L" at resetting. |
| 18      | RMT        | O   | Muting output terminal for record input. "L" at record mute.                            |
| 19      | TEST       | I   | MPU test terminal. Connected to VSS.                                                    |
| 20      | VSS        | -   | Common terminal for MPU. (GND)                                                          |
| 21      | OSC1       | -   | 3.9MHz Oscillation terminal.                                                            |
| 22      | OSC2       | -   | 3.9MHz Oscillation terminal.                                                            |
| 23      | RESET      | I   | Reset input terminal. Active "L".                                                       |
| 24      | MOTOR      | O   | Main motor control output terminal for DECK1 and DECK2. "H" with both decks at STOP.    |
| 25      | SOL2       | O   | Solenoid drive output terminal for DECK2. Active "L".                                   |
| 26      | SOL1       | O   | Solenoid drive output terminal for DECK1. Active "L".                                   |
| 27      | DOLBY      | O   | DOLBY NR ON/OFF switching output terminal. "H" at DOLBY NR ON.                          |
| 28      | MPX        | O   | Multiplex filter ON/OFF switching output terminal. "L" at MPX filter ON.                |
| 29      | DOLBY C    | O   | DOLBY NR B/C switching output terminal. "H" at DOLBY NR C.                              |
| 30      | STB/D      | O   | Strobe signal for HA12155NT-01 (Dolby IC).                                              |
| 31      | DATA/D     | O   | Serial data output terminal for HA12155NT-01 (Dolby IC).                                |
| 32      | CLK/D      | O   | Serial data clock signal for HA12155NT-01 (Dolby IC).                                   |
| 33      | HSP        | O   | High-speed control output terminal for DECK1 and DECK2. "H" at HIGH SPEED DUBBING.      |
| 34      | -          | -   | Not used.                                                                               |
| 35      | -          | -   | Not used.                                                                               |
| 36      | LEVEL R    | I   | R ch. music signal level input terminal.                                                |
| 37      | LEVEL L    | I   | L ch. music signal level input terminal.                                                |
| 38      | KEY/1      | I   | Key function control input terminal.                                                    |
| 39      | KEY/2      | I   | Key function control input terminal.                                                    |
| 40      | VDD        | -   | Power terminal. (+5V)                                                                   |
| 41      | SW/1       | I   | Mechanism switch control input terminal.                                                |
| 42      | SW/2       | I   | Mechanism switch control input terminal.                                                |

# IC, CXP2201AS

| Pin No.       | Pin Name       | I/O | Description                                                        |
|---------------|----------------|-----|--------------------------------------------------------------------|
| 1             | EXT            | I   | Ceramic connector for system clock oscillator use.                 |
| 2             | XT             | O   |                                                                    |
| 3             | VSS            | -   | Connect to VSS.                                                    |
| 4<br>5<br>7   | NC             | -   | Not used.                                                          |
| 8             | VDD            | -   | Connect to VDD. (+5.2V)                                            |
| 9<br>5<br>23  | P1<br>5<br>P15 | O   | Exclusive segment output (with built-in pull-down resistor).       |
| 24<br>5<br>32 | 9G<br>5<br>1G  | O   | Exclusive timing output (with built-in pull-down resistor).        |
| 33            | VFDP           | -   | Load power supply for FDP.                                         |
| 34            | POWER          | O   | FL power ON/OFF switching output terminal. "L" at power ON.        |
| 35            | P16            | O   | Display ON/OFF switching output terminal. "L" at display ON.       |
| 36,37         | NC             | -   | Not used.                                                          |
| 38            | DATA           | O   | Serial data output.                                                |
| 39            | DATA           | I   | Serial data input.                                                 |
| 40            | CLK            | O   | Shift clock output.                                                |
| 41            | STB            | O   | Strobe signal output.                                              |
| 42            | RST            | I   | Reset (with built-in pull-up resistor and power-on reset circuit). |

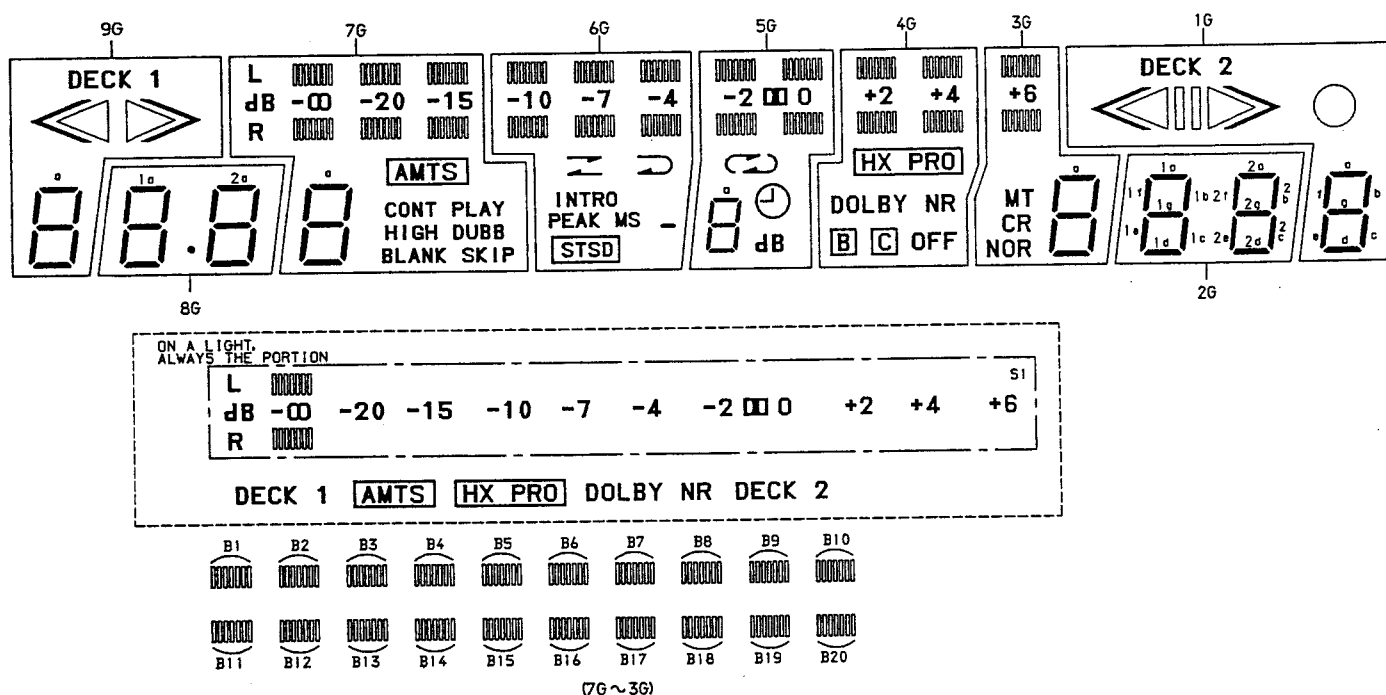
# IC BLOCK DIAGRAM/FL (DISPLAY)

IC, HA12155NT - 01



FL901 (DISPLAY)

BJ255GK



# ANODE CONNECTION

|     | 9G     | 8G | 7G         | 6G    | 5G  | 4G           | 3G  | 2G | 1G     |
|-----|--------|----|------------|-------|-----|--------------|-----|----|--------|
| P1  | a      | 1a | a          | PEAK  | a   | —            | a   | 1a | a      |
| P2  | b      | 1b | b          | MS    | b   | —            | b   | 1b | b      |
| P3  | f      | 1f | f          | —     | f   | —            | f   | 1f | f      |
| P4  | g      | 1g | g          | —     | g   | —            | g   | 1g | g      |
| P5  | c      | 1c | c          | STSD  | c   | —            | c   | 1c | c      |
| P6  | e      | 1e | e          | INTRO | e   | —            | e   | 1e | e      |
| P7  | d      | 1d | d          | —     | d   | —            | d   | 1d | d      |
| P8  | ◀      | o  | B1         | B3    | B6  | B8           | B10 | o  | ▶      |
| P9  | ◀      | 2a | B2         | B4    | B7  | B9           | B20 | 2a | ▶      |
| P10 | —      | 2b | B11        | B5    | B16 | B18          | MT  | 2b | ▢      |
| P11 | ▶      | 2c | B12        | B13   | B17 | B19          | CR  | 2c | ◀      |
| P12 | ▶      | 2d | BLANK SKIP | B14   | dB  | ▢            | NOR | 2d | ▶      |
| P13 | —      | 2e | HIGH       | B15   | ⊙   | ▢            | —   | 2e | ○      |
| P14 | —      | 2f | DUBB       | —     | —   | OFF          | —   | 2f | —      |
| P15 | —      | 2g | CONT PLAY  | —     | —   | —            | —   | 2g | —      |
| P16 | DECK 1 | —  | S1 AMTS    | S1    | S1  | S1 DOLBY BNR | S1  | —  | DECK 2 |

## TRANSISTOR ILLUSTRATION



ECB

2SA952  
2SA1296  
2SC1815  
2SC2001  
2SD655



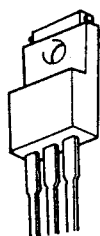
SGD

2SK373



BCE

2SA933  
2SC1740  
DTA114YS  
DTA124XS  
DTC114YS



BCE

2SB1370

Printed side



ECB

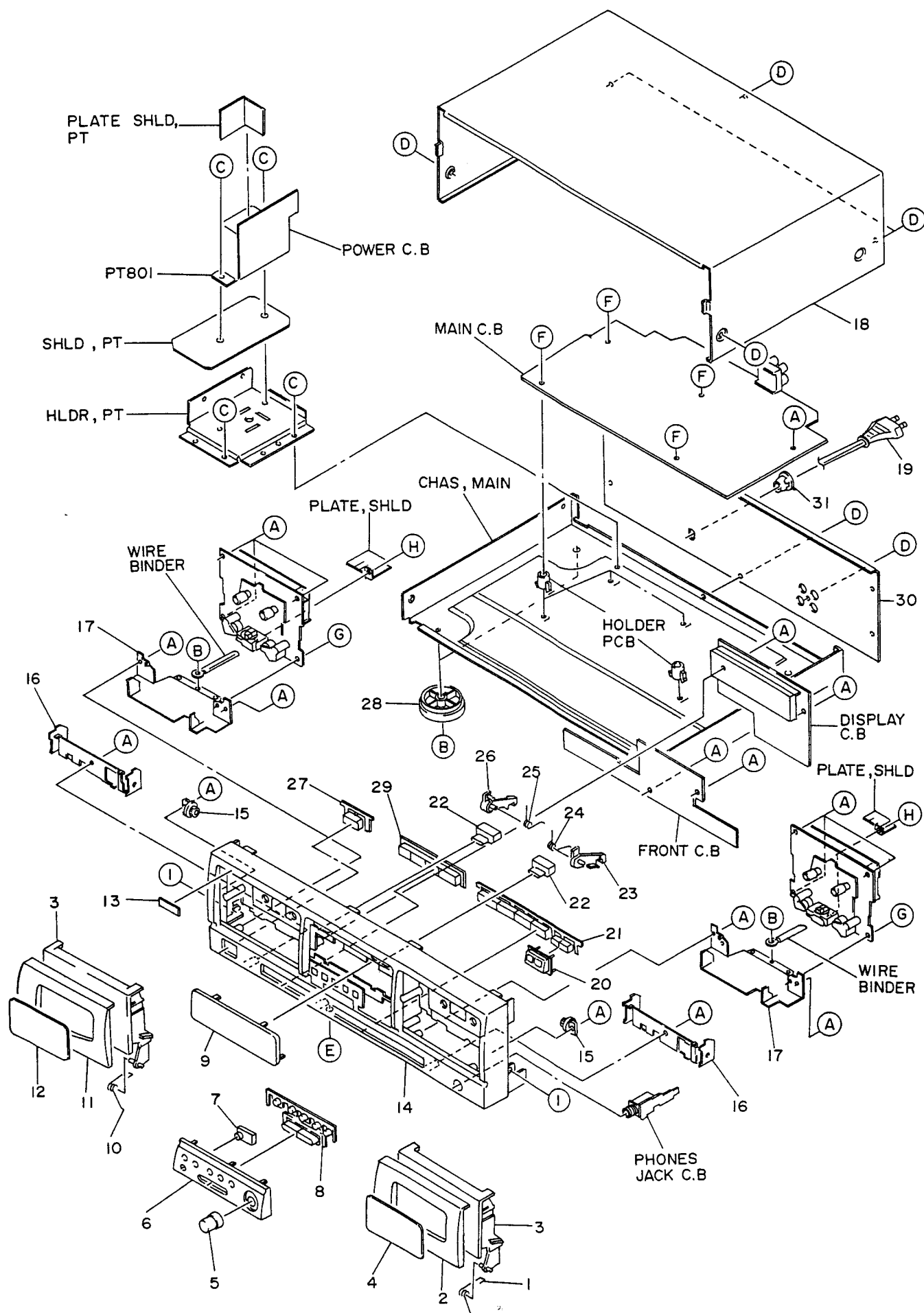
2SB1330



BCE

2SB1354

# MECHANICAL EXPLODED VIEW 1/1

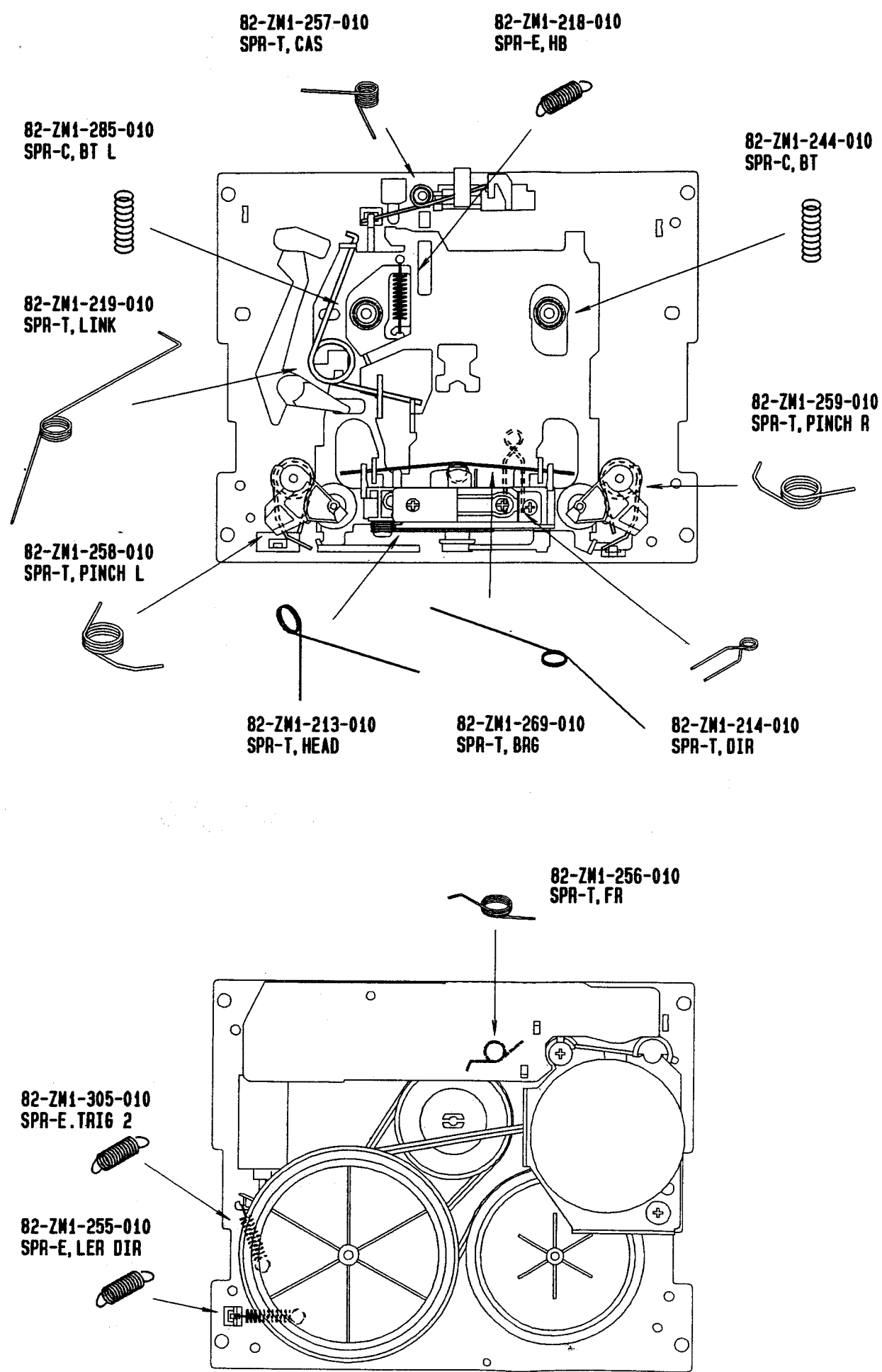


MECHANICAL PARTS LIST 1/1

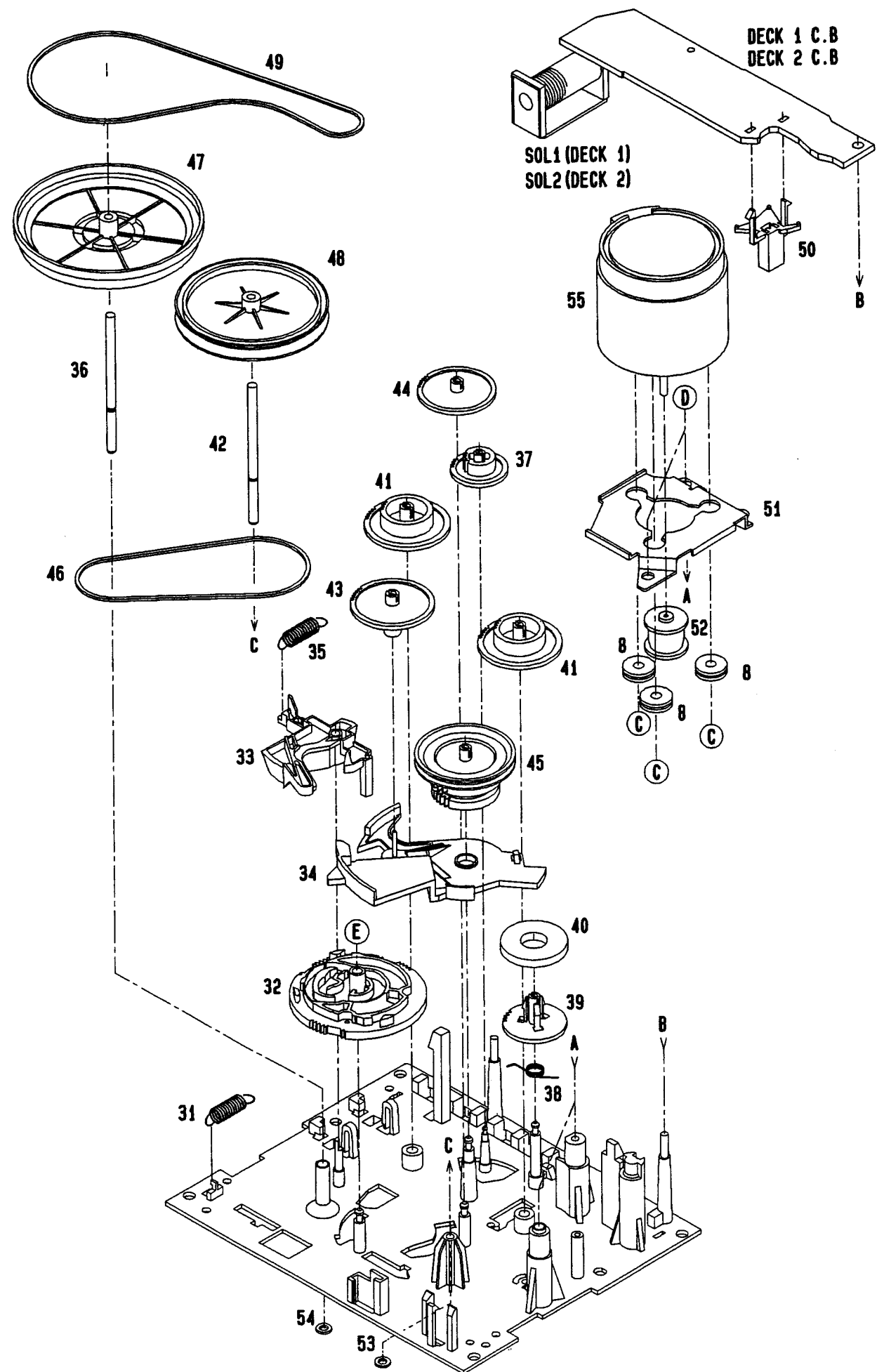
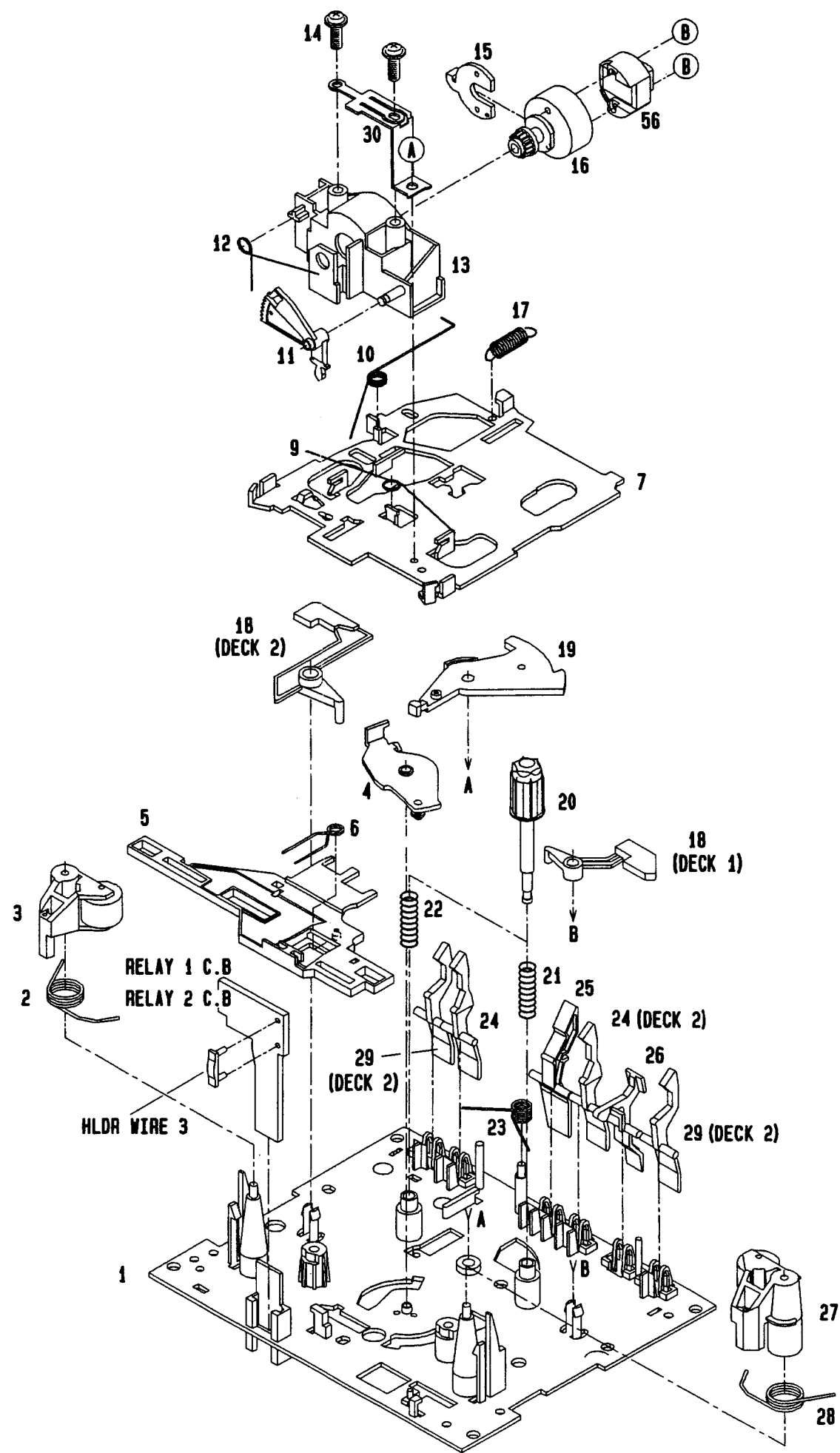
DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

| REF. NO. | PART NO.       | カリ<br>NO. | DESCRIPTION                    |
|----------|----------------|-----------|--------------------------------|
| 1        | 83-DW3-212-019 |           | SPR-T, EJECT R                 |
| 2        | 83-DW3-003-019 |           | PANEL, CASS R                  |
| 3        | 09-047-508-010 |           | CASS. BOX 1 2 ASSY<EXCEPT U>   |
| 3        | 09-047-509-010 |           | CASS. BOX 1 2 ASSY<U>          |
| 4        | 83-DW3-019-019 |           | WINDOW, CASS R                 |
| 5        | 83-DW3-011-019 |           | KNOB, LEVEL                    |
| 6        | 83-DW3-017-019 |           | DUMMY, FR                      |
| 7        | 82-DW1-015-019 |           | WINDOW SENSOR                  |
| 8        | 83-DW3-006-019 |           | KEY, DUBB                      |
| 9        | 83-DW3-004-019 |           | WINDOW, DISP                   |
| 10       | 83-DW3-211-019 |           | SPR-T, EJECT L                 |
| 11       | 83-DW3-002-019 |           | PANEL, CASS L                  |
| 12       | 83-DW3-005-019 |           | WINDOW, CASS L                 |
| 13       | 81-DS1-011-019 |           | BADGE, AIWA N                  |
| 14       | 83-DW3-001-019 |           | CAB, FR<EXCEPT U>              |
| 14       | 83-DW3-020-019 |           | CAB, FR<U>                     |
| 15       | 87-063-143-010 |           | OIL-DMPR 75                    |
| 16       | 83-DW3-201-019 |           | HLD, BOX                       |
| 17       | 83-DW3-202-019 |           | HLD, MECHA                     |
| 18       | 82-DW1-002-019 |           | CAB, STEEL                     |
| △19      | 87-050-032-019 |           | AC CORD ASSY K 3P S<K>         |
| △19      | 87-050-034-019 |           | AC CORD ASSY, E<HE, EE, E1, E> |
| △19      | 87-050-053-019 |           | AC CORD ASSY, U-2<U>           |
| 20       | 83-DW3-018-019 |           | DUMMY, KEY                     |
| 21       | 83-DW3-009-019 |           | KEY, DECK R                    |
| 22       | 83-DW3-012-019 |           | BTN, OPEN                      |
| 23       | 83-DW3-206-019 |           | LVR, OPEN (R)                  |
| 24       | 83-DW3-210-019 |           | SPR, OPEN (R)                  |
| 25       | 83-DW3-207-019 |           | SPR, OPEN (L)                  |
| 26       | 83-DW3-205-019 |           | LVR, OPEN (L)                  |
| 27       | 83-DW3-007-019 |           | KEY, POWER                     |
| 28       | 82-AA1-029-119 |           | FOOT (SG)                      |
| 29       | 83-DW3-008-019 |           | KEY, DECK L                    |
| 30       | 83-DW3-013-019 |           | PANEL, REAR EBN<EE, E1, E>     |
| 30       | 83-DW3-016-019 |           | PANEL, REAR HE, JBN<HE>        |
| 30       | 83-DW3-014-019 |           | PANEL, REAR KBN<K>             |
| 30       | 83-DW3-021-019 |           | PANEL, REAR UBN<U>             |
| 31       | 87-085-185-010 |           | BUSHING, AC CORD E<EXCEPT U>   |
| 31       | 87-085-189-010 |           | BUSHING, CORD U<U>             |
| A        | 87-067-579-019 |           | BVT 2+3-8 W/O SLOT             |
| B        | 87-067-584-019 |           | BVT2+3-6 W/O SLOT              |
| C        | 87-067-585-019 |           | BVTT +4-6                      |
| D        | 87-067-660-019 |           | BVT2+3-8 W/O SLOT BLK          |
| E        | 87-067-673-019 |           | BVTT +3-8 BLK                  |
| F        | 87-067-698-019 |           | BVT 2+3-18 W/O SLOT            |
| G        | 87-251-094-419 |           | U+3-6                          |
| H        | 87-571-032-419 |           | VIT+2-3                        |
| I        | 87-591-094-419 |           | QIT+3-6 GOLD                   |

SPRING APPLICATION POSITION



TAPE MECHANISM EXPLODED VIEW 1/1



# TAPE MECHANISM PARTS LIST 1/1

DESCRIPTIONで判断できない物は“REFERENCE NAME LIST”を参照してください。  
If can't understand for Description please kindly refer to “REFERENCE NAME LIST”.

| REF. NO | PART NO.       | カンリ<br>NO. | DESCRIPTION           | REF. NO | PART NO.       | カンリ<br>NO. | DESCRIPTION                  |
|---------|----------------|------------|-----------------------|---------|----------------|------------|------------------------------|
| 1       | 82-ZM1-299-010 |            | CHAS ASSY, R          | 35      | 82-ZM1-305-010 |            | SPR-E, TRIG 2                |
| 2       | 82-ZM1-258-010 |            | SPR-T, PINCH L        | 36      | 82-ZM1-239-010 |            | CAPSTAN 2.2-41.7             |
| 3       | 82-ZM1-248-110 |            | LVR ASSY, PINCH L     | 37      | 82-ZM1-223-010 |            | GEAR, PLAY                   |
| 4       | 82-ZM1-295-210 |            | PLATE ASSY, LINK      | 38      | 82-ZM1-256-110 |            | SPR-T, FR                    |
| 5       | 82-ZM1-266-010 |            | LVR, DIR              | 39      | 82-ZM1-220-110 |            | GEAR, IDLER                  |
| 6       | 82-ZM1-214-010 |            | SPR-T, DIR            | 40      | 82-ZM1-316-010 |            | RING MAGNET 3                |
| 7       | 82-ZM1-206-210 |            | CHAS, HEAD            | 41      | 82-ZM1-216-210 |            | GEAR, REEL                   |
| 8       | 82-ZM1-308-019 |            | CUSH-G, DIA3.7-9-3.2  | 42      | 82-ZM1-236-010 |            | CAPSTAN 2-41.5               |
| 9       | 82-ZM1-269-010 |            | SPR-T, BRG            | 43      | 82-ZM1-225-010 |            | GEAR, FR                     |
| 10      | 82-ZM1-219-010 |            | SPR-T, LINK           | 44      | 82-ZM1-226-010 |            | GEAR, REW                    |
| 11      | 82-ZM1-210-010 |            | GEAR, H T             | 45      | 82-ZM1-228-210 |            | SLIP DISK ASSY               |
| 12      | 82-ZM1-213-010 |            | SPR-T, HEAD           | 46      | 82-ZM1-328-010 |            | BELT, FR 2                   |
| 13      | 82-ZM1-325-110 |            | GUIDE, TAPE H         | 47      | 82-ZM1-304-01K |            | FLY-WHL, RH                  |
| 14      | 82-ZM1-283-310 |            | S-SCREW, AZIMUTH      | 48      | 82-ZM1-303-01K |            | FLY-WHL, LH                  |
| 15      | 82-ZM1-314-119 |            | PLATE, HEAD           | 49      | 86-575-415-010 |            | BELT, FLAT 0.55-217          |
| 16      | 82-ZM1-326-010 |            | HLDR, HEAD H          | 50      | 82-ZM1-245-210 |            | HLDR, IC                     |
| 17      | 82-ZM1-218-010 |            | SPR-E, HB             | 51      | 82-ZM1-321-01K |            | HLDR, MOTOR H                |
| 18      | 83-DW3-203-010 |            | LVR, EJECT L (DECK 1) | 52      | 82-ZM1-323-010 |            | PULLEY, MOTOR H              |
| 18      | 83-DW3-204-010 |            | LVR, EJECT R (DECK 2) | 53      | 82-ZM1-288-010 |            | SH, 1.63-3.2-0.5 SLT         |
| 19      | 82-ZM1-222-010 |            | LVR, PLAY             | 54      | 80-ZM6-243-010 |            | SH, 1.75-3.6-0.5 SLT         |
| 20      | 82-ZM1-217-110 |            | REEL, TABLE           | 55      | 87-045-348-010 |            | MOT, SHW 2L 70(M1, M2)       |
| 21      | 82-ZM1-244-110 |            | SPR-C, BT             | 56      | 87-046-355-019 |            | HEAD, PH HADKH2529 (PH)      |
| 22      | 82-ZM1-285-110 |            | SPR-C, BT L           | 56      | 87-046-390-019 |            | HEAD, RPEH HADKH5597A (RPEH) |
| 23      | 82-ZM1-257-010 |            | SPR-T, CAS            | A       | 82-ZM1-315-010 |            | S-SCREW, GUIDE TAPE          |
| 24      | 82-ZM1-241-110 |            | LVR, MC               | B       | 80-ZM6-207-010 |            | V+1.6-7                      |
| 25      | 82-ZM1-242-010 |            | LVR, CAS              | C       | 82-ZM1-309-010 |            | S-SCREW, MOTOR               |
| 26      | 82-ZM1-243-010 |            | LVR, STOP             | D       | 87-741-073-410 |            | UT2+2.6-6 GLD                |
| 27      | 82-ZM1-253-110 |            | LVR ASSY, PINCH R     | E       | 87-067-932-010 |            | PW, 2.15-6.8-0.5 SLT         |
| 28      | 82-ZM1-259-010 |            | SPR-T, PINCH R        |         |                |            |                              |
| 29      | 82-ZM1-240-110 |            | LVR, REC (DECK 2)     |         |                |            |                              |
| 30      | 82-ZM1-298-010 |            | SPR-P, EARTH          |         |                |            |                              |
| 31      | 82-ZM1-255-110 |            | SPR-E, LVR DIR        |         |                |            |                              |
| 32      | 82-ZM1-221-110 |            | GEAR, CAM             |         |                |            |                              |
| 33      | 82-ZM1-227-110 |            | LVR, TRIG             |         |                |            |                              |
| 34      | 82-ZM1-224-110 |            | LVR, FR               |         |                |            |                              |

# REFERENCE NAME LIST

## ELECTRICAL SECTION

| DESCRIPTION | REFERENCE NAME     |
|-------------|--------------------|
| ANT         | ANTENNAS           |
| C-          | CHIP               |
| C-CAP       | CAP, CHIP          |
| C-CAP TN    | CAP, CHIP TANTALUM |
| C-COIL      | COIL, CHIP         |
| C-DI        | DIODE, CHIP        |
| C-DIODE     | DIODE, CHIP        |
| C-FET       | FET, CHIP          |
| C-FOTR      | FILTER, CHIP       |
| C-JACK      | JACK, CHIP         |
| C-LED       | LED, CHIP          |
| C-RES       | RES, CHIP          |
| C-SFR       | SFR, CHIP          |
| C-SLIDE SW  | SLIDE SWITCH, CHIP |
| C-SW        | SWITCH, CHIP       |
| C-TR        | TRANSISTOR, CHIP   |
| C-VR        | VOLUME, CHIP       |
| C-ZENER     | ZENER, CHIP        |
| CAP, CER    | CAP, CERA-SOL      |
| CAP, E      | CAP, ELECT         |
| CAP, M/F    | CAP, FILM          |
| CAP, TC     | CAP, CERA-SOL      |
| CAP, TC-U   | CAP, CERA-SOL SS   |
| CAP, TN     | CAP, TANTALUM      |
| CERA FIL    | FILTER, CERAMIC    |
| CF          | FILTER, CERAMIC    |
| DL          | DELAY LINE         |
| E/CAP       | CAP, ELECT         |
| FILT        | FILTER             |
| FLTR        | FILTER             |
| FUSE RES    | RES, FUSE          |
| MOT         | MOTOR              |
| P-DIODE     | PHOTO DIODE        |
| P-SNSR      | PHOTO SENSER       |
| P-TR        | PHOTO TRANSISTOR   |
| POLY VARI   | VARIABLE CAPACITOR |
| PPCAP       | CAP, PP            |
| PT          | POWER TRANSFORMER  |
| PTR, RES    | PTR, MELF          |
| RC          | REMOTE CONTROLLER  |
| RES NF      | RES, NON-FLAMMABLE |
| RESO        | RESONATOR          |
| SHLD        | SHIELD             |
| SOL         | SOLENOID           |
| SPKR        | SPEAKER            |
| SW, LVR     | SWITCH, LEVER      |
| SW, RTRY    | SWITCH, ROTARY     |
| SW, SL      | SWITCH, SLIDE      |
| TC CAP      | CAP, CERA-SOL      |
| THMS        | THERMISTOR         |
| TR          | TRANSISTOR         |
| TRIMMER     | CAP, TRIMMER       |
| TUN-CAP     | VARIABLE CAPACITOR |
| VIB, CER    | RESONATOR, CERAMIC |
| VIB, XTAL   | RESONATOR, CRYSTAL |
| VR          | VOLUME             |
| ZENER       | DIODE, ZENER       |
| サーヂブレッサ     | SERGESUPPRESSOR    |
| セラコン        | CAP, CERA          |

## MECHANICAL SECTION

| DESCRIPTION    | REFERENCE NAME       |
|----------------|----------------------|
| ADHESHIVE      | SHEET ADHESHIVE      |
| AZ             | AZIMUTH              |
| BAR-ANT        | BAR-ANTENNA          |
| BAT            | BATTERY              |
| BATT           | BATTERY              |
| BRG            | BEARING              |
| BTN            | BUTTON               |
| CAB            | CABINET              |
| CASS           | CASSETTE             |
| CHAS           | CHASSIS              |
| CLR            | COLLAR               |
| CONT           | CONTROL              |
| CRSR           | CURSOR               |
| CU             | CUSHION              |
| CUSH           | CUSHION              |
| DIR            | DIRECTION            |
| DUBB           | DUBBING              |
| FL             | FRONT LOADING        |
| FLY-WHL        | FLYWHEEL             |
| FR             | FRONT                |
| FUN            | FUNCTION             |
| G-CU           | G-CUSHION            |
| HDL            | HANDOL               |
| HIMERON        | CLOTH                |
| HINGE, BAT     | HINGE, BATTERY       |
| HLD            | HOLDER               |
| HT-SINK        | HEAT SINK            |
| IB             | INSTRUCTION BOOKLET  |
| IDLE           | IDLER                |
| IND, L-R       | INDICATOR, L-R       |
| KEY, CONT      | KEY, CONTROL         |
| KEY, PRGM      | KEY, PROGRAM         |
| KNOB, SL       | KNOB, SLIDE          |
| LBL            | LABEL                |
| LID, BATT      | LID, BATTERY         |
| LID, CASS      | LID, CASSETTE        |
| LVR            | LEVER                |
| P-SP           | P-SPRING             |
| PANEL, CONT    | PANEL, CONTORL       |
| PANEL, FR      | PANEL, FRONT         |
| PRGM           | PROGRAM              |
| PULLY, LOAD MO | PULLY, LOADING MOTOR |
| RBN            | RIBBON               |
| S-             | SPECIAL              |
| SEG            | SEGMENT              |
| SH             | SHEET                |
| SHLD-SH        | SHIELD-SHEET         |
| SL             | SLIDE                |
| SP             | SPRING               |
| SP-SCREW       | SPECIAL-SCREW        |
| SPACER, BAT    | SPACER, BATTERY      |
| SPR            | SPRING               |
| SPR-P          | P-SPRING             |
| SPR-PC-PUSH    | P-SPRING, C-PUSH     |
| T-SP           | T-SPRING             |
| TERM           | TERMINAL             |
| TRIG           | TRIGGER              |
| TUN            | TUNING               |
| VOL            | VOLUME               |
| W              | WASHER               |
| WHL            | WHEEL                |
| WORM-WHL       | WORM-WHEEL           |
| ジグ-ム           | ARM, SHAFT           |
| ジグガイド          | GUIDE, SHAFT         |
| ストラップ          | STRAP                |
| トクバ            | S-SCRW               |
| ピン             | HINGE                |
| ピンジビス          | S-SCRW               |
| エキレート          | SCRW, SERRART        |

| サービス技術ニュース |      |
|------------|------|
| 番号         | 連絡内容 |
| G -        | -    |
| G -        | -    |
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