

**AIWA®****AD-F370, S37  
AD-R470, R40****SERVICE  
MANUAL**

• BASIC TAPE MECHANISM : X-3

• TYPE. H, U, C, E, K, G, Z

**SPECIFICATIONS**

|                       |                                                                                                                                                                                                                                                 |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                  | Stereo cassette tape deck                                                                                                                                                                                                                       |
| Track format          | 4 tracks 2 channels                                                                                                                                                                                                                             |
| Power supply          | AD-R470 E, Z, AD-F370 E, Z<br>AC 220 V, 50/60 Hz<br>AD-R470 K, G, AD-F370 K, G<br>AC 240 V, 50/60 Hz<br>AD-R470 C, AD-R40 U<br>AD-F370 C, AD-S37 U<br>AC 120 V, 60 Hz<br>AD-R470 H, AD-F370 H<br>AC 110—120 V/220—240 V<br>switchable, 50/60 Hz |
| Power consumption     | 17 W                                                                                                                                                                                                                                            |
| Frequency response    | METAL tape: 20—18,000 Hz<br>CrO <sub>2</sub> position tape: 20—17,000 Hz<br>NORMAL tape: 20—16,000 Hz                                                                                                                                           |
| Signal-to-noise ratio | 73 dB<br>(METAL tape DOLBY C NR ON)                                                                                                                                                                                                             |
| Wow and flutter       | According to DIN 45 500 0.15%<br>0.065% (WRMS)<br>4.8 cm/sec. (1-7/8 ips)                                                                                                                                                                       |
| Tape speed            | 90 sec. (C-60)                                                                                                                                                                                                                                  |
| Rewind time           | 90 sec. (C-60)                                                                                                                                                                                                                                  |
| Fast forward time     | AC bias (frequency 85 kHz)                                                                                                                                                                                                                      |
| Recording system      | AC erase                                                                                                                                                                                                                                        |
| Erase system          | DC Servomotor × 1                                                                                                                                                                                                                               |
| Motor                 | Record/playback head × 1 (AD-F370, S37)                                                                                                                                                                                                         |
| Head                  | Erase head × 1 (AD-F370, S37)<br>Record/playback/Erase head × 1<br>(AD-R470, R40)                                                                                                                                                               |

|            |                                                                                                                                                                                                                                                                                                       |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inputs     | LINE IN maximum input<br>sensitivity: 50 mV (over 50 kΩ)<br>DIN max sensitivity (Z model only):<br>0.3 mV/kΩ (3.3 kΩ)                                                                                                                                                                                 |
| Outputs    | LINE OUT standard output level:<br>0.36 V (0 VU) (AD-R470, R40)<br>0.35 V (0 VU) (AD-F370, S37); suitable load<br>impedance: over 50 kΩ;<br>DIN standard level (Z model only):<br>0.36 V (0 VU) (AD-R470, R40)<br>0.35 V (0 VU) (AD-F370, S37)<br>Headphones: 8 Ω—1 kΩ<br>430(W)×127.5(H)×233.4(D) mm |
| Dimensions | AD-R470, R40 3.3 kg                                                                                                                                                                                                                                                                                   |
| Weight     | AD-F370, S37 3.2 kg                                                                                                                                                                                                                                                                                   |

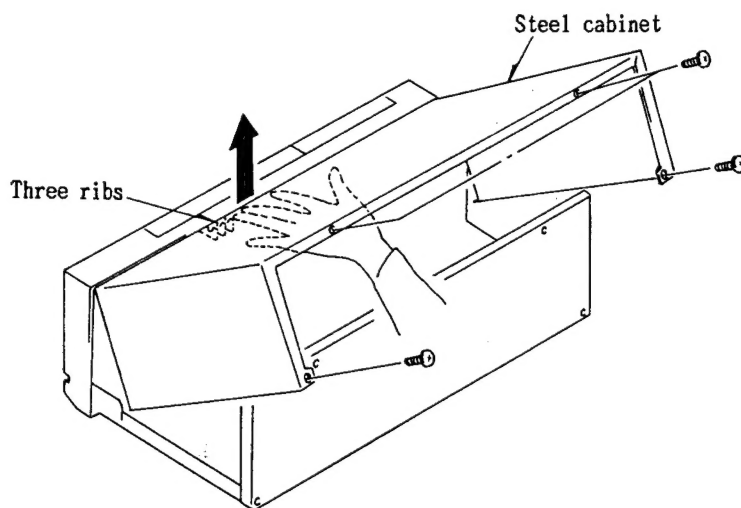
- Design and specifications are subject to change without notice.
- Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.
- "DOLBY" the double-D symbol and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

**AIWA Co., Ltd.****Tokyo Japan**

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## DISASSEMBLY INSTRUCTIONS

1. Remove the four screws and raise the steel cabinet by approx. 45° as shown in the figure.  
Insert your hand from behind and raise the steel cabinet from the three-ribs block manually in the direction indicated by arrow and remove it.



## ELECTRICAL MAIN PARTS LIST (AD-R470,R40, AD-F370,S37)

| REF.NO.          | PART NO.       | DESCRIPTION                     | REF.NO.                          | PART NO.        | DESCRIPTION                        |
|------------------|----------------|---------------------------------|----------------------------------|-----------------|------------------------------------|
| ---IC---         |                |                                 | ---MAIN CIRCUIT BOARD SECTION--- |                 |                                    |
|                  | 87-001-143-019 | IC,CX20187                      | PCB-A                            | *               | MAIN CIRCUIT BOARD                 |
|                  | 87-020-840-010 | IC,ICP-N20                      | C1                               | *87-010-389-019 | CAP,ELECT 2200-25V SME             |
|                  | 87-001-164-019 | IC,LB1408                       | C2                               | *87-010-237-019 | CAP,ELECT 1000-16V SME             |
|                  | 87-001-334-010 | IC,LB9051A                      | C3                               | *87-010-565-019 | CAP,ELECT 470-12V SME              |
|                  | 82-236-620-010 | IC,LC6543H-3715                 | C4                               | *87-010-263-019 | CAP,ELECT 100-10V                  |
|                  | 87-020-680-019 | IC,NJM2068S                     | C5                               | *87-010-644-019 | CAP,ELECT 470-16 MUSE              |
|                  | 87-020-758-019 | IC,NJM2068SD                    | C7                               | *87-010-263-019 | CAP,ELECT 100-10V                  |
|                  |                |                                 | C9                               | *87-010-384-019 | CAP,ELECT 100-25V                  |
| ---TRANSISTOR--- |                |                                 | C31                              | *87-010-405-019 | CAP,ELECT 10-50V SME               |
|                  | 89-502-235-019 | FET,2SK223E                     | C32                              | *87-010-405-019 | CAP,ELECT 10-50V SME               |
|                  | 89-110-155-019 | TRANSISTOR,2SA1015GR            | C101                             | *87-018-121-019 | CAP,CERA-SOL SS 150P               |
|                  | 89-112-965-019 | TRANSISTOR,2SA1296GR(C,E,K,G,Z) | C102                             | *87-018-121-019 | CAP,CERA-SOL SS 150P               |
|                  | 89-106-837-019 | TRANSISTOR,2SA683S(H)           | C103                             | *87-018-122-019 | CAP,CERA-SOL SS 180P(R470 E,K,G,Z) |
|                  | 89-109-521-019 | TRANSISTOR,2SA952K              | C103                             | *87-018-124-019 | CAP,CERA-SOL SS 270P(R470 H,C,R40) |
|                  | 89-318-156-019 | TRANSISTOR,2SC1815BL            | C103                             | *87-018-125-019 | CAP,CERA-SOL SS 330P(F370 H,C,S37) |
|                  | 89-318-155-019 | TRANSISTOR,2SC1815GR            | C103                             | *87-018-039-019 | CAP,CERA-SOL SS 390P(F370 E,K,G,Z) |
|                  | 89-322-405-019 | TRANSISTOR,2SC2240BL(Z)         | C104                             | *87-018-122-019 | CAP,CERA-SOL SS 180P(R470 E,K,G,Z) |
|                  | 89-331-130-019 | TRANSISTOR,2SC3113              | C104                             | *87-018-124-019 | CAP,CERA-SOL SS 270P(R470 H,C,R40) |
|                  | 89-413-023-019 | TRANSISTOR,2SD1302S             | C104                             | *87-018-125-019 | CAP,CERA-SOL SS 330P(F370 H,C,S37) |
|                  | 89-414-065-019 | TRANSISTOR,2SD1406GR            | C104                             | *87-018-039-019 | CAP,CERA-SOL SS 390P(F370 E,K,G,Z) |
| ---DIODE---      |                |                                 | C109                             | *87-018-125-019 | CAP,CERA-SOL SS 330P               |
|                  | 82-596-799-019 | DIODE,1N4002                    | C110                             | *87-018-125-019 | CAP,CERA-SOL SS 330P               |
|                  | 87-020-465-019 | DIODE,1SS133                    | C113                             | *87-010-405-019 | CAP,ELECT 10-50V SME               |
|                  | 87-020-123-019 | DIODE,DS446                     | C114                             | *87-010-405-019 | CAP,ELECT 10-50V SME               |
|                  | 87-027-686-019 | DIODE,ZENER HZ-12A1             | C115                             | *87-010-405-019 | CAP,ELECT 10-50V SME               |
|                  | 87-027-301-019 | DIODE,ZENER HZ-3A1              | C116                             | *87-010-405-019 | CAP,ELECT 10-50V SME               |
|                  | 87-027-286-019 | DIODE,ZENER HZ5C1               | C117                             | *87-010-384-019 | CAP,ELECT 100-25V                  |
|                  |                |                                 | C201                             | *87-018-121-019 | CAP,CERA-SOL SS 150P               |
|                  |                |                                 | C202                             | *87-018-121-019 | CAP,CERA-SOL SS 150P               |
|                  |                |                                 | C203                             | *87-018-132-019 | CAP,CERA-SOL SS 2200P              |
|                  |                |                                 | C204                             | *87-018-132-019 | CAP,CERA-SOL SS 2200P              |
|                  |                |                                 | C205                             | *87-010-404-019 | CAP,ELECT 4.7-50V SME              |
|                  |                |                                 | C206                             | *87-010-404-019 | CAP,ELECT 4.7-50V SME              |

| REF.NO. | PART NO.        | DESCRIPTION                                  | REF.NO. | PART NO.        | DESCRIPTION                                     |
|---------|-----------------|----------------------------------------------|---------|-----------------|-------------------------------------------------|
| C211    | *87-018-134-019 | CAP,CERA-SOL SS 0.01(R470 H,C,R40)           | C951    | *87-018-114-089 | CAP,CERA-SOL SS 39P                             |
| C212    | *87-018-134-019 | CAP,CERA-SOL SS 0.01(R470 H,C,R40)           | C952    | *87-018-114-089 | CAP,CERA-SOL SS 39P                             |
| C213    | *87-018-197-019 | CAP,CERA-SOL SS 1800P(R470 H,C,R40,F370,S37) | C953    | *87-018-201-019 | CAP,CERA-SOL SS 5600PF                          |
| C213    | *87-018-199-019 | CAP,CERA-SOL SS 3300P(R470 E,K,G,Z)          | C991    | *87-018-131-019 | CAP,CERA-SOL SS 1000P(R470/R40)                 |
| C214    | *87-018-197-019 | CAP,CERA-SOL SS 1800P(R470 H,C,R40,F370,S37) | C992    | *87-018-134-019 | CAP,CERA-SOL SS 0.01(R470/R40)                  |
| C214    | *87-018-199-019 | CAP,CERA-SOL SS 3300P(R470 E,K,G,Z)          | △FR1    | 87-029-108-019  | RES,FUSIBLE J 1/2W 10                           |
| C219    | *87-010-404-019 | CAP,ELECT 4.7-50V SME                        | J601    | *87-009-023-019 | JACK PIN YKC21-0349(PLAY/LINE OUT, REC/LINE IN) |
| C220    | *87-010-404-019 | CAP,ELECT 4.7-50V SME                        | J651    | *87-009-026-019 | JACK DIN5P YKF51-5002(REC/PLAY)(Z)              |
| C301    | *87-018-131-019 | CAP,CERA-SOL SS 1000P                        | J991    | *87-049-630-019 | JACK 2.5(CD SYNC)(R470/R40)                     |
| C302    | *87-018-131-019 | CAP,CERA-SOL SS 1000P                        | L201    | *82-201-622-010 | COIL 22MMH                                      |
| C303    | *87-018-122-019 | CAP,CERA-SOL SS 180P                         | L202    | *82-201-622-010 | COIL 22MMH                                      |
| C304    | *87-018-122-019 | CAP,CERA-SOL SS 180P                         | L203    | *87-003-131-019 | COIL MICRO INDUCTOR 10MMH                       |
| C307    | *87-018-123-019 | CAP,CERA-SOL SS 220P                         | L204    | *87-003-131-019 | COIL MICRO INDUCTOR 10MMH                       |
| C308    | *87-018-123-019 | CAP,CERA-SOL SS 220P                         | L301    | *82-235-612-010 | COIL, HX85K                                     |
| C311    | *87-018-131-019 | CAP,CERA-SOL SS 1000P                        | L302    | *82-235-612-010 | COIL, HX85K                                     |
| C312    | *87-018-131-019 | CAP,CERA-SOL SS 1000P                        | L401    | *82-235-610-010 | COIL,BIAS,85K,R/P(R470 H,C,R40)                 |
| C313    | *87-018-134-019 | CAP,CERA-SOL SS 0.01                         | L401    | *82-235-611-010 | COIL,BIAS,85K,R/A(R470 E,K,G,Z)                 |
| C314    | *87-018-134-019 | CAP,CERA-SOL SS 0.01                         | L401    | *82-235-613-010 | COIL,BIAS,85K,S,P1A(F370,S37)                   |
| C317    | *87-010-263-019 | CAP,ELECT 100-10V                            | L501    | *82-234-624-019 | FILTER MPX 85K                                  |
| C401    | *87-018-131-019 | CAP,CERA-SOL SS 1000P                        | L502    | *82-234-624-019 | FILTER MPX 85K                                  |
| C403    | *87-014-118-019 | CAP,PP 0.015                                 | L503    | *82-201-622-010 | COIL 22MMH                                      |
| C405    | *87-018-201-019 | CAP,CERA-SOL SS 5600P                        | L504    | *82-201-622-010 | COIL 22MMH                                      |
| C409    | *87-010-384-019 | CAP,ELECT 100-25V                            | S851    | 87-031-752-019  | SLIDE SW(INPUT SELECTOR)(Z)                     |
| C410    | *87-010-384-019 | CAP,ELECT 100-25V                            | SFR101  | *87-021-738-019 | SFR 1K                                          |
| C501    | *87-010-404-019 | CAP,ELECT 4.7-50V SME                        | SFR102  | *87-021-738-019 | SFR 1K                                          |
| C502    | *87-010-404-019 | CAP,ELECT 4.7-50V SME                        | SFR201  | *87-021-739-019 | SFR 2.2K                                        |
| C503    | *87-010-405-019 | CAP,ELECT 10-50V SME                         | SFR202  | *87-021-739-019 | SFR 2.2K                                        |
| C504    | *87-010-405-019 | CAP,ELECT 10-50V SME                         | SFR301  | *87-021-747-019 | SFR220K                                         |
| C505    | *87-018-133-019 | CAP,CERA-SOL SS 4700PF                       | SFR302  | *87-021-747-019 | SFR220K                                         |
| C506    | *87-018-133-019 | CAP,CERA-SOL SS 4700PF                       | X1      | *87-030-144-019 | CERA-LOCK CSA4.00MHZ                            |
| C507    | *87-018-129-019 | CAP,CERA-SOL SS 680P                         |         |                 |                                                 |
| C508    | *87-018-129-019 | CAP,CERA-SOL SS 680P                         |         |                 |                                                 |
| C515    | *87-010-400-019 | CAP,ELECT 0.47-50V SME                       |         |                 |                                                 |
| C516    | *87-010-400-019 | CAP,ELECT 0.47-50V SME                       |         |                 |                                                 |
| C517    | *87-010-677-019 | CAP,ELECT 0.15-50V SRA                       |         |                 |                                                 |
| C518    | *87-010-677-019 | CAP,ELECT 0.15-50V SRA                       |         |                 |                                                 |
| C521    | *87-010-545-019 | CAP,ELECT 0.22-50V SME                       |         |                 |                                                 |
| C522    | *87-010-545-019 | CAP,ELECT 0.22-50V SME                       |         |                 |                                                 |
| C531    | *87-010-404-019 | CAP,ELECT 4.7-50V SME                        |         |                 |                                                 |
| C532    | *87-010-404-019 | CAP,ELECT 4.7-50V SME                        |         |                 |                                                 |
| C651    | *87-010-401-019 | CAP,ELECT 1-50V                              |         |                 |                                                 |
| C652    | *87-010-401-019 | CAP,ELECT 1-50V                              |         |                 |                                                 |
| C653    | *87-010-384-019 | CAP,ELECT 100-25V                            |         |                 |                                                 |
| C654    | *87-010-384-019 | CAP,ELECT 100-25V                            |         |                 |                                                 |
| C801    | *87-010-401-019 | CAP,ELECT 1-50V                              |         |                 |                                                 |
| C802    | *87-010-401-019 | CAP,ELECT 1-50V                              |         |                 |                                                 |
| C851    | *87-010-408-019 | CAP,ELECT 47-50VX(Z)                         |         |                 |                                                 |
| C853    | *87-018-206-019 | CAP,CERA-SOL SS 15P(Z)                       |         |                 |                                                 |
| C854    | *87-018-206-019 | CAP,CERA-SOL SS 15P(Z)                       |         |                 |                                                 |
| C855    | *87-018-127-019 | CAP,CERA-SOL SS 470P(Z)                      |         |                 |                                                 |
| C856    | *87-018-127-019 | CAP,CERA-SOL SS 470P(Z)                      |         |                 |                                                 |
| C857    | *87-010-544-019 | CAP,ELECT 0.1-50V(Z)                         |         |                 |                                                 |
| C858    | *87-010-544-019 | CAP,ELECT 0.1-50V(Z)                         |         |                 |                                                 |
| C859    | *87-010-402-019 | CAP,ELECT 2.2-50V(Z)                         |         |                 |                                                 |
| C860    | *87-010-402-019 | CAP,ELECT 2.2-50V(Z)                         |         |                 |                                                 |
| C861    | *87-018-127-019 | CAP,CERA-SOL SS 470P(Z)                      |         |                 |                                                 |
| C862    | *87-018-127-019 | CAP,CERA-SOL SS 470P(Z)                      |         |                 |                                                 |
| C911    | *87-010-565-019 | CAP,ELECT 470-12V SME                        |         |                 |                                                 |
| C921    | *87-010-565-019 | CAP,ELECT 470-12V SME                        |         |                 |                                                 |
| C931    | *87-010-402-019 | CAP,ELECT 2.2-50V(R470/R40)                  |         |                 |                                                 |
| C932    | *87-010-382-019 | CAP,ELECT 22-25V(R470/R40)                   |         |                 |                                                 |
| C941    | *87-018-113-019 | CAP,CERA-SOL SS 33PF                         |         |                 |                                                 |
| C942    | *87-018-113-019 | CAP,CERA-SOL SS 33PF                         |         |                 |                                                 |
| C943    | *87-010-401-019 | CAP,ELECT 1-50V                              |         |                 |                                                 |

---FRONT CIRCUIT BOARD SECTION---

| PCB-B | *               | FRONT CIRCUIT BOARD          |
|-------|-----------------|------------------------------|
| C631  | *87-010-401-019 | CAP,ELECT 1-50V              |
| C632  | *87-010-401-019 | CAP,ELECT 1-50V              |
| C803  | *87-010-405-019 | CAP,ELECT 10-50V SME         |
| C804  | *87-015-681-019 | CAP,ELECT 10-16V SRA         |
| C805  | *87-010-404-019 | CAP,ELECT 4.7-50V SME        |
| D801  | 87-001-123-019  | LED,SLZ 981C-2(+10)          |
| D802  | 87-001-123-019  | LED,SLZ 981C-2(+10)          |
| D803  | 87-001-123-019  | LED,SLZ 981C-2(+6)           |
| D804  | 87-001-123-019  | LED,SLZ 981C-2(+6)           |
| D805  | 87-001-123-019  | LED,SLZ 981C-2(DG+3)         |
| D806  | 87-001-123-019  | LED,SLZ 981C-2(DG+3)         |
| D807  | 87-001-124-019  | LED,SLZ 381C(0)              |
| D808  | 87-001-124-019  | LED,SLZ 381C(0)              |
| D809  | 87-001-124-019  | LED,SLZ 381C(-3)             |
| D810  | 87-001-124-019  | LED,SLZ 381C(-3)             |
| D811  | 87-001-124-019  | LED,SLZ 381C(-7)             |
| D812  | 87-001-124-019  | LED,SLZ 381C(-7)             |
| D813  | 87-001-124-019  | LED,SLZ 381C(-20)            |
| D814  | 87-001-124-019  | LED,SLZ 381C(-20)            |
| D815  | 87-001-124-019  | LED,SLZ 381C(-∞)             |
| D816  | 87-001-124-019  | LED,SLZ 381C(-∞)             |
| D831  | 87-001-123-019  | LED,SLZ 981C-2(DOLBY C NR)   |
| D832  | 87-001-124-019  | LED,SLZ 381C(DOLBY B NR)     |
| D843  | 87-001-124-019  | LED,SLZ 381C(PLAY)(R470/R40) |
| D844  | 87-001-124-019  | LED,SLZ 381C(▶)(R470/R40)    |
| D844  | 87-001-124-019  | LED,SLZ 381C(PLAY)(F370/S37) |
| D845  | 87-001-124-019  | LED,SLZ 381C(◀)(R470/R40)    |
| D846  | 87-001-123-019  | LED,SLZ 981C-2(RECORD)       |
| D847  | 87-001-294-019  | LED,SLZ 481C-2(PAUSE)        |
| D848  | 87-001-123-019  | LED,SLZ 981C-2(REC MUTE)     |

| REF.NO. | PART NO.       | DESCRIPTION                      |
|---------|----------------|----------------------------------|
| S831    | 87-036-135-019 | SLIDE SW(DOLBY B/C NR)           |
| S832    | 87-036-135-019 | SLIDE SW(REVERSE MODE)(R470/R40) |
| S833    | 87-036-135-019 | SLIDE SW(TIMER)                  |
| S835    | 87-031-893-010 | TACT SW QVDO4M(▶▶)               |
| S836    | 87-031-893-010 | TACT SW QVDO4M(▶)                |
| S837    | 87-031-893-010 | TACT SW QVDO4M(◀)(R470/R40)      |
| S838    | 87-031-893-010 | TACT SW QVDO4M(◀◀)               |
| S839    | 87-031-893-010 | TACT SW QVDO4M(⏸ PAUSE)          |
| S840    | 87-031-893-010 | TACT SW QVDO4M(● REC MUTE)       |
| S841    | 87-031-893-010 | TACT SW QVDO4M(■ STOP)           |
| S842    | 87-031-893-010 | TACT SW QVDO4M(● REC)            |
| VR451   | 87-024-151-019 | VR,250KB(BIAS FINE)              |
| VR631   | 87-024-149-019 | VR,2GANG,50KA(REC LEVEL)         |
| VR632   | 87-024-150-019 | VR,100KB(BALANCE)                |

#### Combination circuit board A 82-235-601-019

PCB-A 82-235-602-019

PCB-B 82-235-603-019

PCB-C 82-235-604-019

PCB-D 82-235-605-019

#### Combination circuit board B 86-535-628-019

PCB-E 86-535-629-019

PCB-F 86-535-630-019

#### ===JACK CIRCUIT BOARD SECTION===

|       |                 |                       |
|-------|-----------------|-----------------------|
| PCB-C | *               | JACK CIRCUIT BOARD    |
| △C8   | *87-019-113-019 | CAP,SPARK-GAP 0.0022E |
| J661  | *87-009-043-010 | JACK 6.3(PHONES)      |
| △S1   | 87-036-015-019  | AC SW SDDLDI(POWER)   |

#### ===POWER CIRCUIT BOARD SECTION===

|        |                |                                        |
|--------|----------------|----------------------------------------|
| △PCB-D | *              | POWER,CIRCUIT BOARD                    |
| △PT1   | 82-236-603-019 | POWER TRANSFORMER(E,Z)                 |
| △PT1   | 82-236-601-019 | POWER TRANSFORMER(H)                   |
| △PT1   | 82-236-604-019 | POWER TRANSFORMER(K,G)                 |
| △PT1   | 82-236-602-019 | POWER TRANSFORMER(R470C,R40/F370C,S37) |
| △S2    | 87-031-780-019 | SLIDE SW(AC VOLTAGE)(H)                |

#### ===DECK CIRCUIT BOARD SECTION===

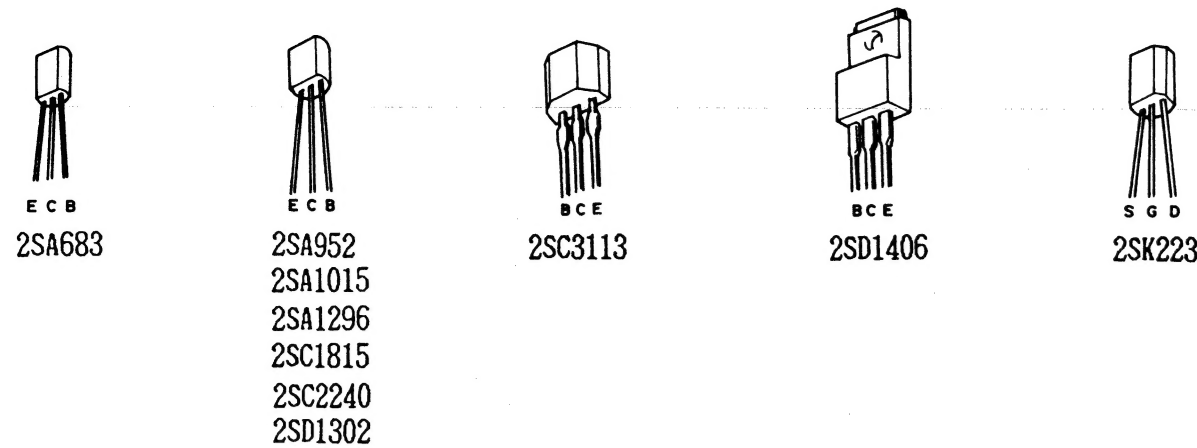
|        |                 |                        |
|--------|-----------------|------------------------|
| PCB-E  | *               | DECK CIRCUIT BOARD     |
| SFR921 | *87-021-966-019 | SFR 4.7K(F370,S37)     |
| SOL921 | 86-535-611-110  | SOLENOID,X-3,PL(PLAY)  |
| SOL922 | 86-535-612-110  | SOLENOID,X-3,FR(FR)    |
| SW921  | 87-036-110-010  | PUSH SW(CR02)          |
| SW922  | 87-036-040-010  | PUSH SW(CST)           |
| SW923  | 87-036-110-010  | PUSH SW(DIR)(R470/R40) |
| SW951  | 87-036-110-010  | PUSH SW(REA)           |
| SW952  | 87-036-109-010  | PUSH SW(MT)            |
| SW953  | 87-036-109-010  | PUSH SW(REB)(R470/R40) |

#### ===SENSOR CIRCUIT BOARD SECTION===

|       |                |                                     |
|-------|----------------|-------------------------------------|
| PCB-F | *              | SENSOR CIRCUIT BOARD(R470/R40)      |
| CP951 | 87-001-367-019 | PHOTO SENSOR STI-315-05CD(R470/R40) |

#### ===MISCELLANEOUS===

|      |                 |                              |
|------|-----------------|------------------------------|
| △    | *82-187-797-019 | AC CORD(E,Z)                 |
| △    | *82-187-795-019 | AC CORD(G)                   |
| △    | *87-034-749-019 | AC CORD(H)                   |
| △    | *82-187-796-019 | AC CORD(K)                   |
| △    | *87-034-583-019 | AC CORD(R470C,R40/F370C,S37) |
| △    | *87-085-199-010 | CORD BUSHING 2271            |
| EH   | 87-046-196-019  | E.HEAD(F370/S37)             |
| M921 | 87-045-296-019  | MOTOR                        |
| RPEH | 87-046-324-019  | RPEH(R470 H,C,R40)           |
| RPEH | 87-046-289-019  | RPEH(R470 E,K,G,Z)           |
| RPH  | 87-046-322-019  | RPH(F370 H,C,S37)            |
| RPH  | 87-046-323-019  | RPH(F370 E,K,G,Z)            |



## IC DESCRIPTION

IC, LC6543H-3715

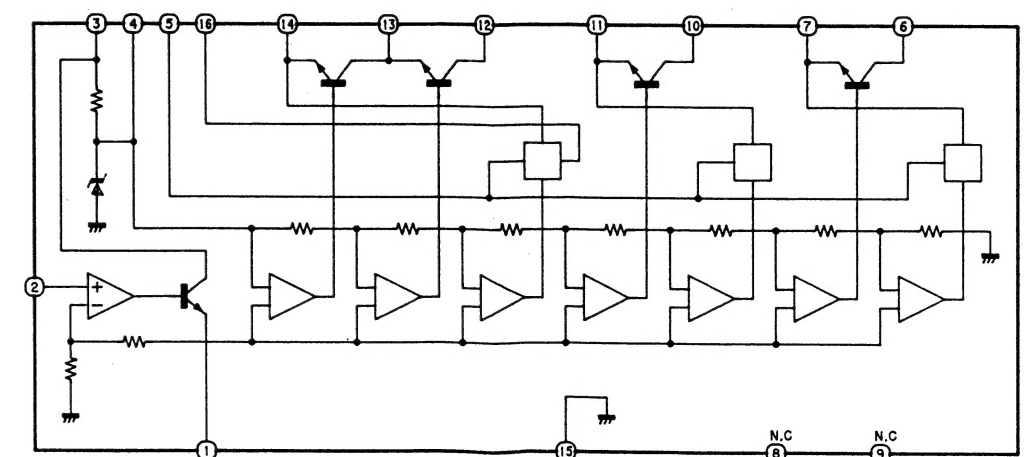
| Pin No. | Pin name | Description                                                                                 |
|---------|----------|---------------------------------------------------------------------------------------------|
| 1       | I-DIRECT | Head direction detection SW input: Low at side A.                                           |
| 2       | VDD      | Power: 4.5 to 5.5V                                                                          |
| 3       | KS1      | Data 0 to 5:<br>KEY MATRIX<br>SCAN output                                                   |
| 4       | KSO      |                                                                                             |
| 5       | DATA5    |                                                                                             |
| 6       | DATA4    |                                                                                             |
| 7       | DATA3    |                                                                                             |
| 8       | DATA2    | MATRIX SCAN<br>input and<br>output                                                          |
| 9       | DATA1    |                                                                                             |
| 10      | DATA0    |                                                                                             |
| 11      | DISP     | Data 0 to 5:<br>LED SCAN<br>output                                                          |
| 12      | O-LMT    | LINE MUTE control: Goes low in PLAY, CUE, REV, REC, REC & PLAY, REC & PAUSE, and RMT modes. |
| 13      | O-BIAS   | Bias oscillation control: Oscillated in low. Goes low in REC mode and high in reverse mode. |

| KS1="L" | KSO="L"               | DISP="L" lights in low |
|---------|-----------------------|------------------------|
| key ►►  | key STOP              | LED PLAY               |
| key ►   | key REC               | LED ►                  |
| key ◀   | key Timer Rec         | LED ◀                  |
| key ◀◀  | key Repeat Timer PLAY | LED REC                |
| key     | key                   | LED                    |
| key RMT | key                   | LED RMT                |

Indicates a CD sync in reverse mode for AD-R470/R40.

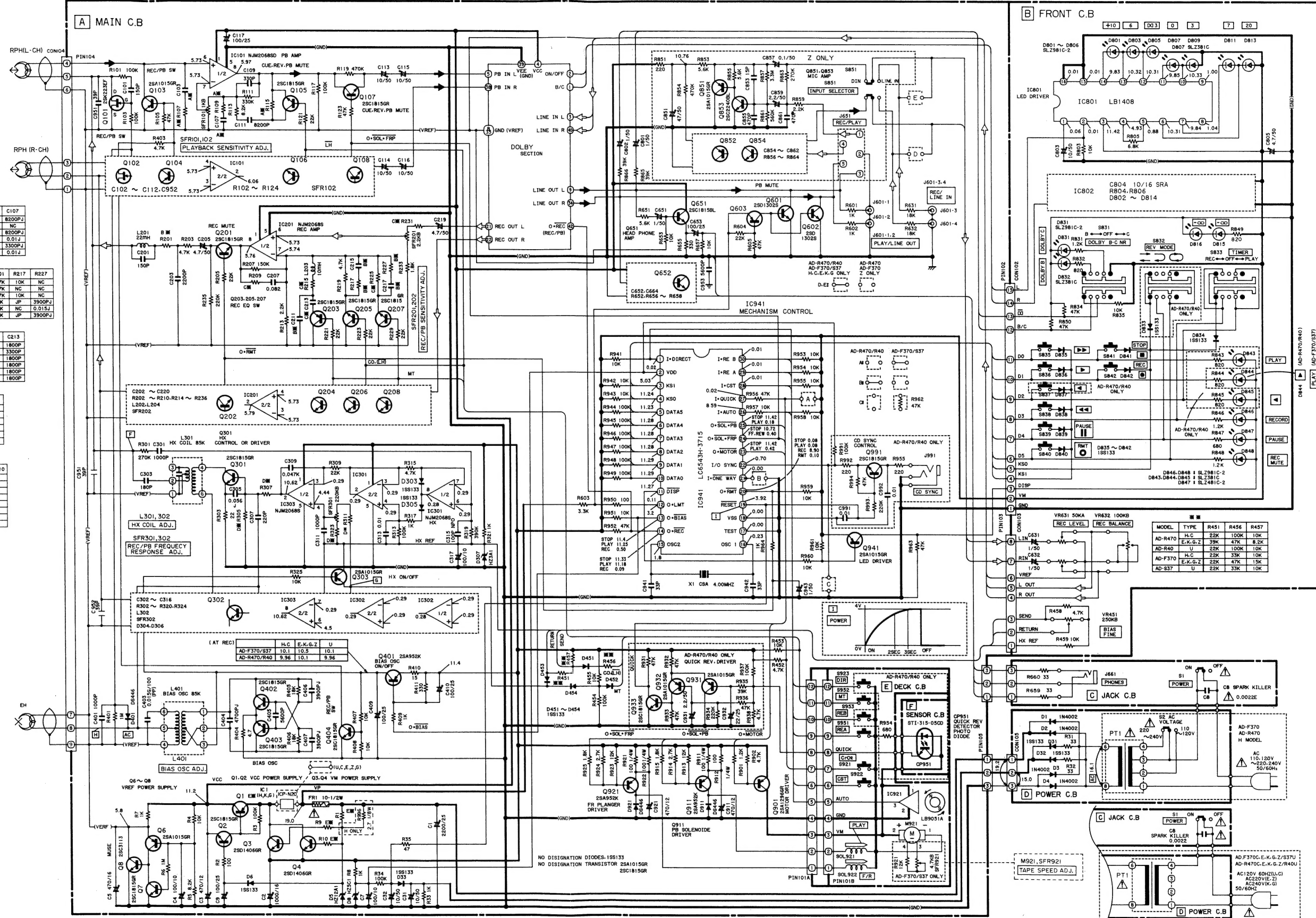
| Pin No. | Pin name  | Description                                                                                                                                                                                                               |
|---------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14      | O-REC     | Dolby IC REC/PB selection: Enters the REC mode in low.                                                                                                                                                                    |
| 15      | OSC-2     | Clock input                                                                                                                                                                                                               |
| 16      | OSC-1     | Clock input                                                                                                                                                                                                               |
| 17      | TEST      | Test pin: 0V                                                                                                                                                                                                              |
| 18      | VSS       | Power: 0V                                                                                                                                                                                                                 |
| 19      | RESET     | Reset control                                                                                                                                                                                                             |
| 20      | O-RMT     | REC MUTE control: Goes high in REC & PLAY mode and low in reverse mode.                                                                                                                                                   |
| 21      | I-ONE WAY | MODE selection: Low using AD-R470/R40 Open/high using AD-F370/S37.                                                                                                                                                        |
| 22      | I/O SYNC  | CD SYNC input and output: CD SYNC with CBRS. A low signal is output in REC's QUICK REV mode. When recording is started in low, the set is put into the PAUSE mode.                                                        |
| 23      | O-MOTOR   | Mechanism power control: A motor is rotated in low. Mechanical switch, quick sensor, and auto stop sensor are then activated.                                                                                             |
| 24      | O-SOL·FRP | FRP solenoid control: Controlled in low                                                                                                                                                                                   |
| 25      | O-SOL·PB  | PB solenoid control: Controlled in low                                                                                                                                                                                    |
| 26      | I-AUTO    | Reel pulse input: Two pulses are input when a take-up reel (at side A) is rotated once. When the input is not changed for more than 4 seconds in PLAY mode and for 0.5 seconds in FF/REW/CUE/REV mode, auto stop is done. |
| 27      | I-QUICK   | Quick sensor input: Quickened in high. Eight-second input after the mode is changed from FWD PLAY to REV PLAY or PLAY to PAUSE requires no adjustment.                                                                    |
| 28      | I-CST     | Cassette detection SW input: Goes low during cassette insertion.                                                                                                                                                          |
| 29      | I-RE A    | Accidental erasure protection SW input (at side A): Can be recorded in low.                                                                                                                                               |
| 30      | I-RE B    | Accidental erasure protection SW input (at side B): Can be recorded in low.                                                                                                                                               |

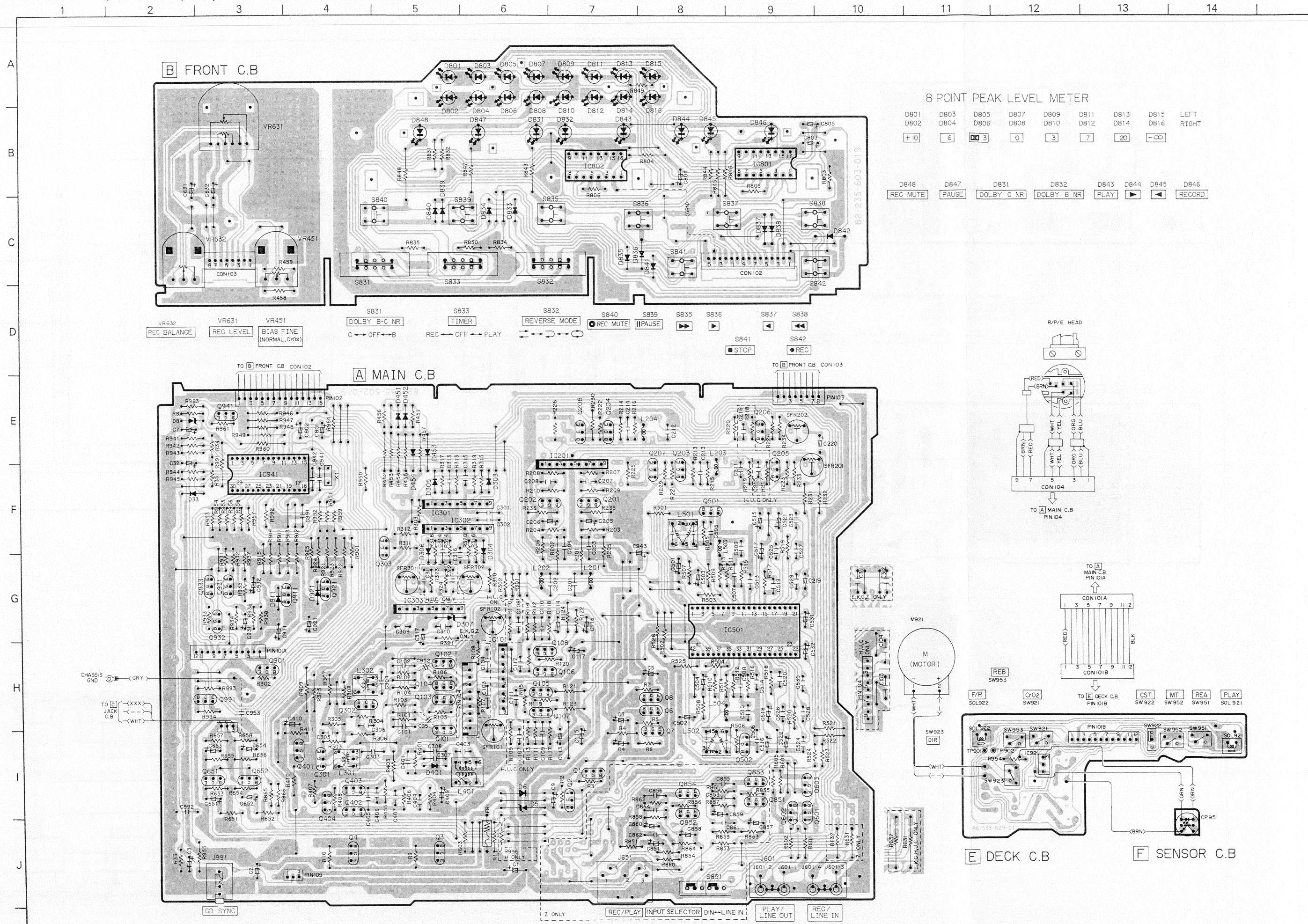
IC BLOCK DIAGRAM-1 IC, LB1408



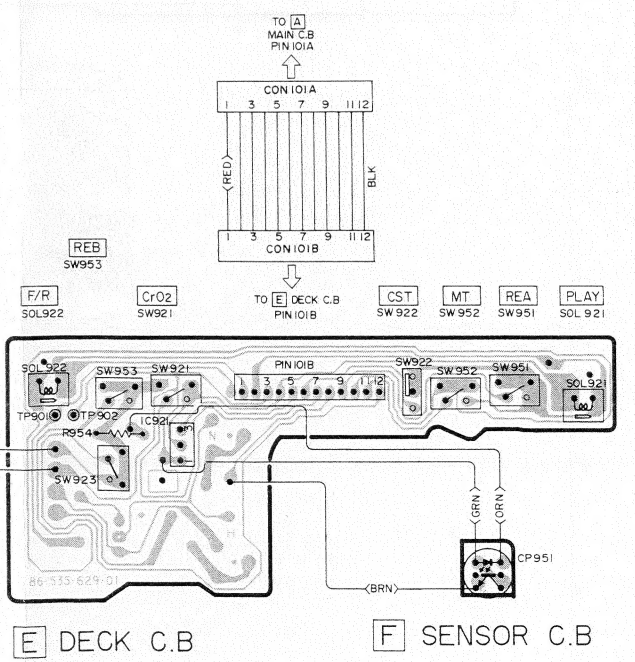
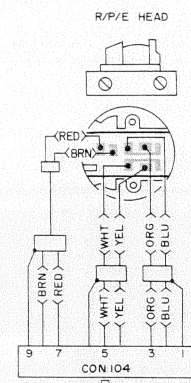
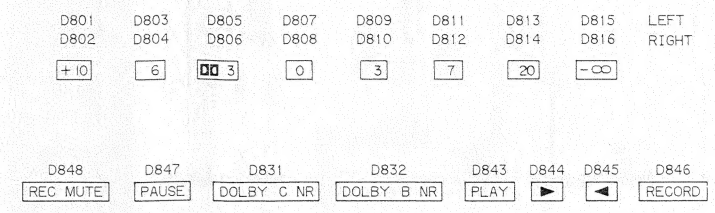
SCHEMATIC DIAGRAM-1 (AD-R470,R40, AD-F370,S37)

Table with component specifications and values for various models (AD-R470, AD-R40, AD-F370, AD-S37) across different sections (A, B, C, D, E, F, G, H).

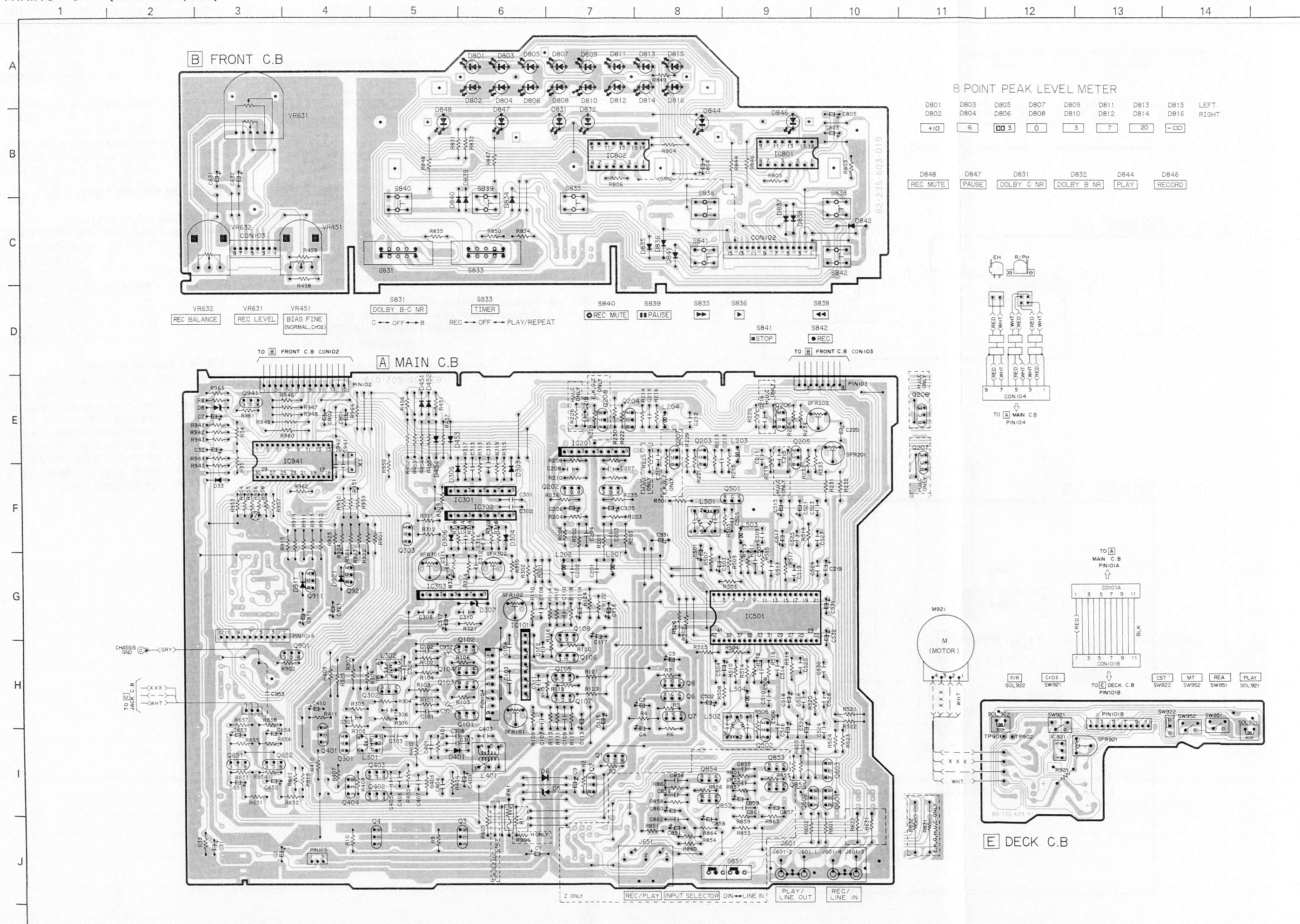




8 POINT PEAK LEVEL METER



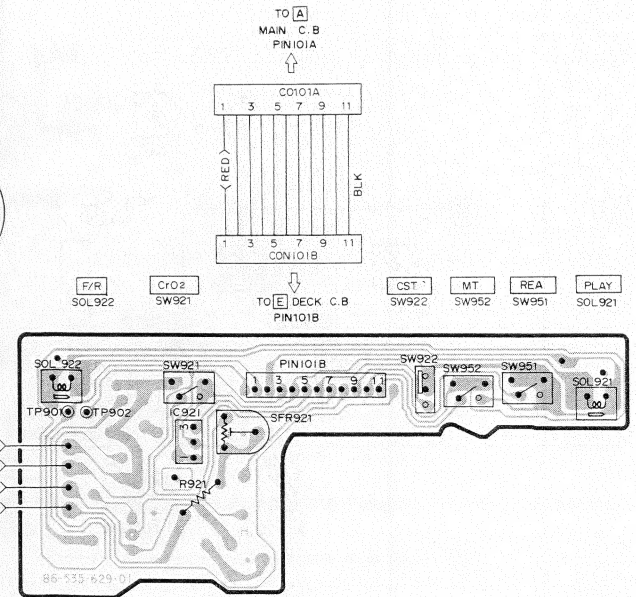
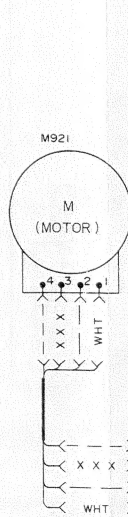
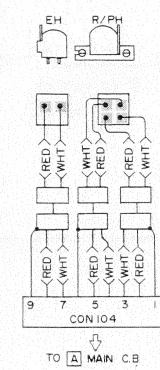




### 8 POINT PEAK LEVEL METER

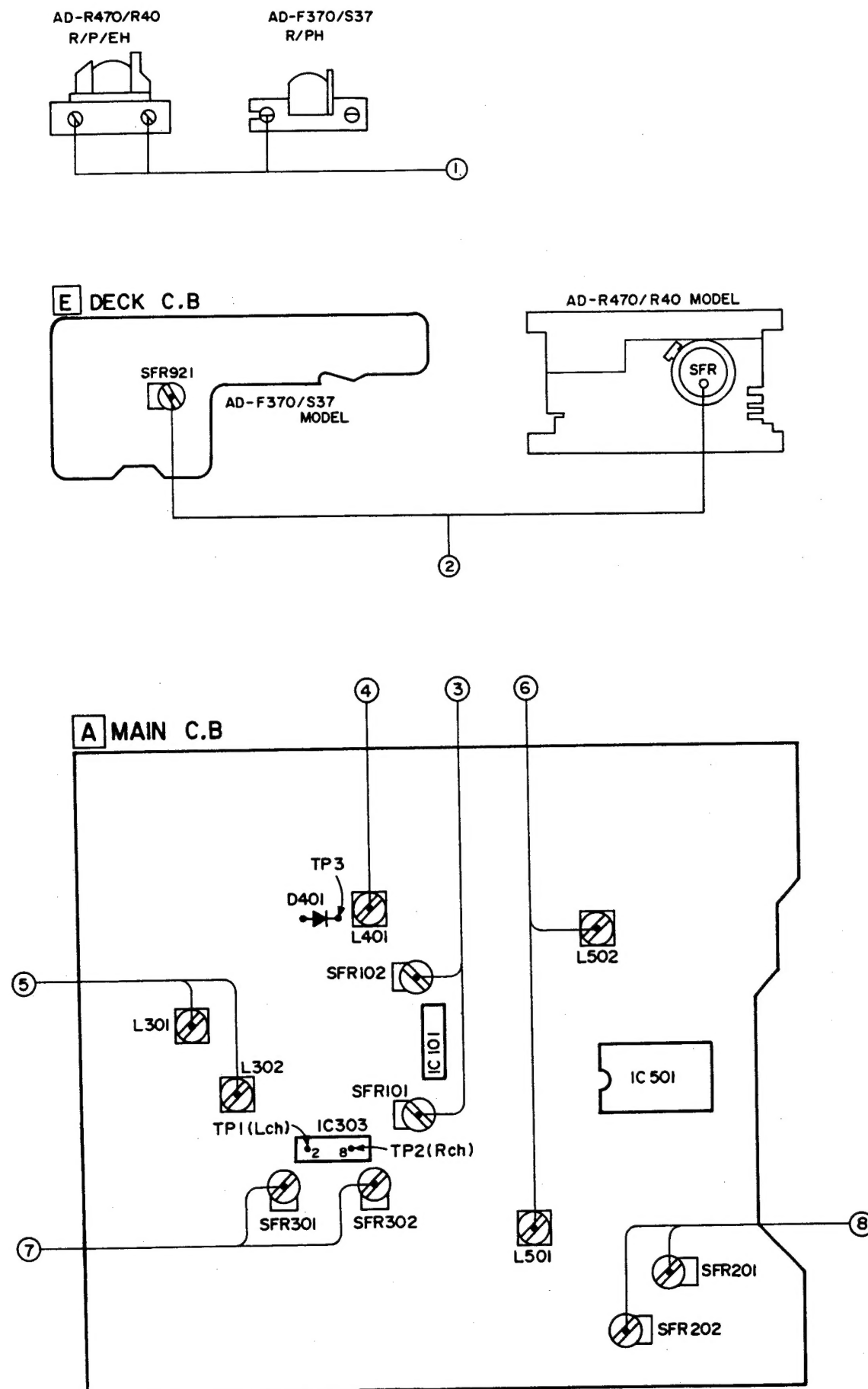
|              |              |              |              |              |              |              |              |               |
|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| D801<br>D802 | D803<br>D804 | D805<br>D806 | D807<br>D808 | D809<br>D810 | D811<br>D812 | D813<br>D814 | D815<br>D816 | LEFT<br>RIGHT |
| +10          | 6            | 00 3         | 0            | 3            | 7            | 20           | -∞           |               |

|                  |               |                    |                    |              |                |
|------------------|---------------|--------------------|--------------------|--------------|----------------|
| D848<br>REC MUTE | D847<br>PAUSE | D831<br>DOLBY C NR | D832<br>DOLBY B NR | D844<br>PLAY | D846<br>RECORD |
|------------------|---------------|--------------------|--------------------|--------------|----------------|



### E DECK C.B.

## ADJUSTMENT (AD-R470,R40, AD-F370,S37)



### 1. Azimuth Adjustment

Settings : • Test tape : TTS-310 (TTA-317E)

- Test point : LINE OUT (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY)
- DIN OUT (AD-F370/R470 Z ONLY)
- Adjustment location : Azimuth adjustment screw

Method : Playback the 10kHz signals of the test tape, and adjust the screw for maximum output.

### 2. Tape Speed Adjustment

Settings : • Test tape : TTA-100 (TTA-111S)

- Test point : LINE OUT (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY)
- DIN OUT (AD-F370/R470 Z ONLY)
- Adjustment location : SFR921 (AD-F370/S37) MOTOR SFR (AD-R470/R40)

Method : Playback the test tape and adjust the SFR for frequency of 3,000Hz.

### 3. Playback Sensitivity Adjustment

Settings : • Test tape : TTS-200 (TTA-161, TCC-130)

- Test point : LINE OUT (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY)
- J601-1 (L-CH)
- J601-2 (R-CH)
- DIN OUT (AD-F370/R470 Z ONLY)
- J651

- DOLBY NR SW : OFF
- Adjustment location : SFR101 (L-CH) SFR102 (R-CH)

Method : Playback the test tape and adjust so that output is  $490 \pm 1\%$  mV.

### 4. Bias OSC. Coil Adjustment

Settings : • Test tape : TTA-620 (TTA-119MP)

- Test point : TP3
- Adjustment location : L401
- DOLBY NR SW : OFF

Method : Adjust so that the frequency at the test points is  $85\text{kHz} \pm 200\text{Hz}$ .

### 5. HX Coil Adjustment

Settings : • Test tape : TTA-600 (TTA-119K)

- Test point : IC303 (HX comparator), pin 2.8
- Adjustment location : L301 (L-CH) L302 (R-CH)

Method : Adjust so that the DC voltage at the test point is minimized in the REC STANDBY mode.

### 6. MPX Filter Adjustment

Settings : • Test tape : Blank tape

- Input signal : 19kHz signal at LINE IN
- Test point : LINE OUT
- Adjustment location : L501 (L-CH) L502 (R-CH)

Method : Record the test tape, and adjust so that the output DOLBY B/C SW ON becomes up to 27dB for the output at DOLBY B/C SW OFF.

### 7. REC/PB Frequency Response Adjustment

Settings : • Test tape : TTA-600 (TTA-119K)

- Test point : LINE OUT (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY)
- J601-1 (L-CH)
- J601-2 (R-CH)
- DIN OUT (AD-F370/R470 Z ONLY)
- J651

- Adjustment location : SFR301 (L-CH) SFR302 (R-CH)

- DOLBY NR SW : OFF

Method : Record and playback the 1kHz and 10kHz signals and adjust so the output difference becomes  $+0.5 \pm 0.5\text{dB}$  (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY)

$-3 \pm 3\text{dB}$  (AD-F370/R470 Z ONLY)

### 8. REC/PB Sensitivity Adjustment

Settings : • Test tape : TTA-600 (TTA-119K) (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY)

TTA-610 (TTA-119H) (AD-F370/R470 Z ONLY)

- Test point : LINE OUT (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY)
- J601-1 (L-CH)
- J601-2 (R-CH)
- DIN OUT (AD-F370/R470 Z ONLY)
- J651

- DOLBY NR SW : OFF
- Adjustment location : SFR201 (L-CH) SFR202 (R-CH)

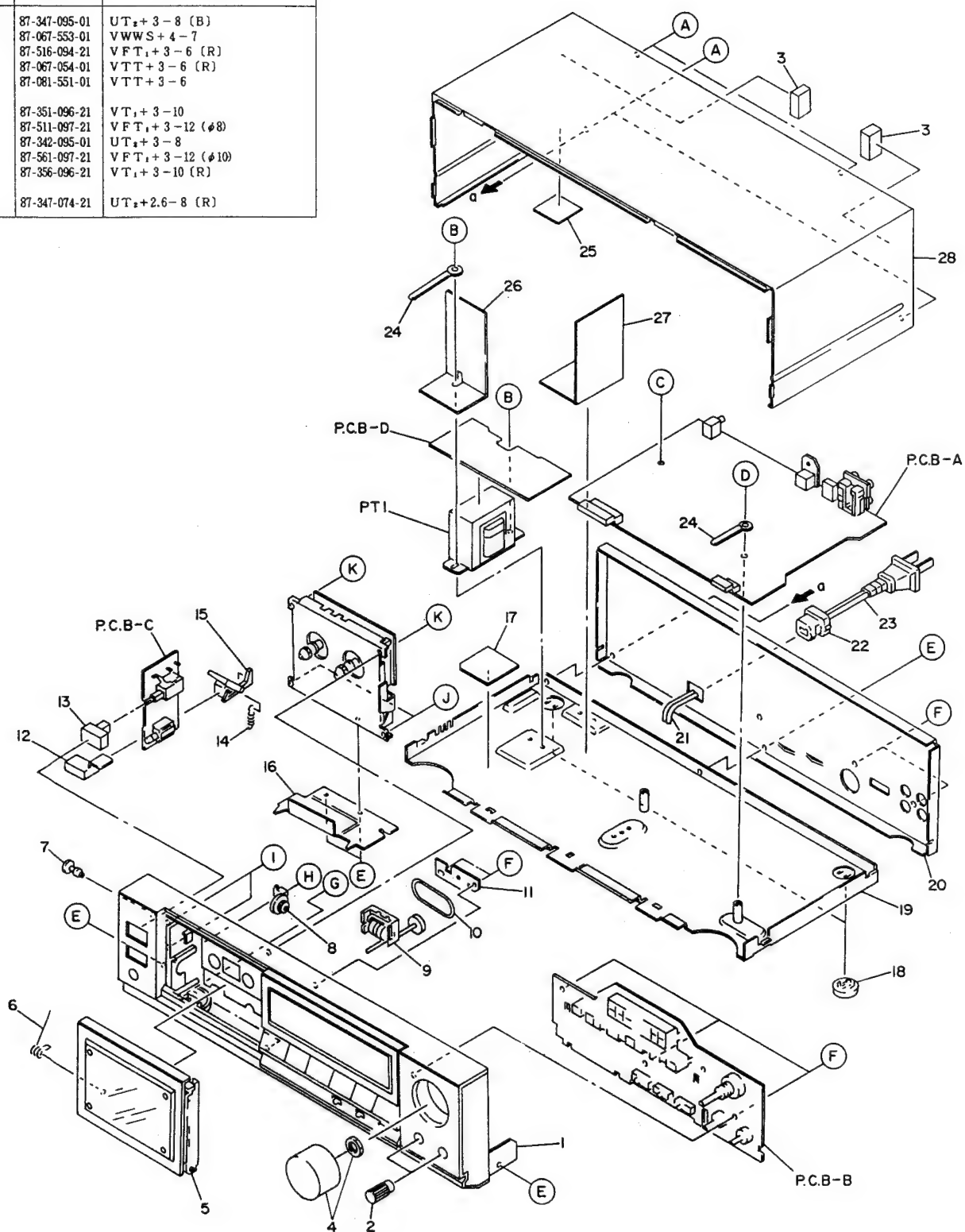
Method : Record and Playback a 1kHz (AD-F370/S37, AD-R470/R47, H, C, E, K, G ONLY), 400Hz (AD-F370/R470 Z ONLY) signal and adjust so that the LINE, DIN output difference became  $0 \pm 0.3\text{dB}$  (AD-F370/S37, AD-R470/R40 H, C, E, K, G ONLY),  $355 \pm 50\text{mV}$  (AD-F370/R470 Z ONLY)

# PRACTICAL SERVICE FIGURE (AD-R470,R40, AD-F370,S37)

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                              |                                                                                                                                                                                                                         |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Playback output:<br>(TTS-200(TTA-161, TCC-130)) | EXCEPT Z<br>470 $\pm$ 50mV (LINE OUT)<br>Z ONLY<br>490 $\pm$ 50mV (DIN OUT)                                                                                                                                                                                                                                                                                                                                                                                                                | (Weighted)                                                                                                                   | More than 44/52/62dB<br>(DOLBY-NR OFF/B/C<br>with NORM. tape)<br>More than 46/54/64dB<br>(DOLBY-NR OFF/B/C<br>with CrO <sub>2</sub> , MT. tapes)                                                                        |
| PB/REC output:<br>(TTA-600(TTA-119K))           | EXCEPT Z<br>340mV $\pm$ 1.5dB<br>(LINE OUT)<br>Z ONLY<br>340mV $\pm$ 1.5dB<br>(DIN OUT)                                                                                                                                                                                                                                                                                                                                                                                                    | Recording bias frequency:<br><br>Tape speed:<br>(TTA-100(TTA-111S))                                                          | 85kHz<br><br>3kHz $\pm$ 1.5%                                                                                                                                                                                            |
| PB/REC distortion:                              | AD-R470, R40<br>AD-F370, S37<br>Less than 2.0%<br>(NORM)<br>AD-R470, R40<br>Less than 2.2%<br>(CrO <sub>2</sub> )<br>AD-F370, S37<br>Less than 2.0%<br>(CrO <sub>2</sub> )<br>AD-R470, R40<br>AD-F370, S37<br>Less than 2.0%<br>(MT)                                                                                                                                                                                                                                                       | Wow & flutter:<br>(W. R. M. S)<br><br>Take-up torque:<br><br>Fast forward torque:<br><br>Rewind torque:<br><br>Back-tension: | Less than 0.065%<br><br>45 $\pm$ 10g-cm<br>(0.44 $\pm$ 0.1mN · m)<br><br>120 $\pm$ 30g-cm<br>(1.18 $\pm$ 0.29mN · m)<br><br>120 $\pm$ 30g-cm<br>(1.18 $\pm$ 0.29mN · m)<br><br>3 $\pm$ 7g-cm<br>(0.03 $\pm$ 0.02mN · m) |
| Playback noise:                                 | AD-R470, R40<br>AD-F370, S37<br>Less than 4.0mV<br>(DOLBY-B NR OFF,<br>with NORM. tape)<br>AD-R470, R40<br>AD-F370, S37<br>Less than 3.0mV<br>(DOLBY-B NR OFF,<br>with CrO <sub>2</sub> tape)<br>AD-R470, R40<br>Less than 2.0/1.8mV<br>(DOLBY-B/C NR ON,<br>with NORM. tape)<br>AD-F370, S37<br>Less than 2.2/2.0mV<br>(DOLBY-B/C NR ON,<br>with NORM. tape)<br>AD-R470, R40<br>AD-F370, S37<br>Less than 2.0/1.8mV<br>(DOLBY-B/C NR ON,<br>with CrO <sub>2</sub> tape)<br>More than 60dB | Test tape:                                                                                                                   | METAL TTA-620(TTA-119MP)<br>CrO <sub>2</sub> TTA-610(TTA-119H)<br>NORMAL TTA-600(TTA-119K)                                                                                                                              |
| Erase ratio:<br>(125Hz)                         | More than 60dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                              |                                                                                                                                                                                                                         |
| PB/REC SN ratio:<br>(Unweighted)                | More than 38/44/44dB<br>(DOLBY-NR OFF/B/C<br>with NORM. tape)<br>More than 40/46/46dB<br>(DOLBY-NR OFF/B/C<br>with CrO <sub>2</sub> , MT. tapes)                                                                                                                                                                                                                                                                                                                                           |                                                                                                                              |                                                                                                                                                                                                                         |

# EXPLODED VIEW-1

| REF. NO. | PART NO.      | DESCRIPTION                  |
|----------|---------------|------------------------------|
| A        | 87-347-095-01 | UT <sub>2</sub> +3-8 (B)     |
| B        | 87-067-553-01 | VWWS+4-7                     |
| C        | 87-516-094-21 | VFT <sub>1</sub> +3-6 (R)    |
| D        | 87-067-054-01 | VTT+3-6 (R)                  |
| E        | 87-081-551-01 | VTT+3-6                      |
| F        | 87-351-096-21 | VT <sub>1</sub> +3-10        |
| G        | 87-511-097-21 | VFT <sub>1</sub> +3-12 (φ8)  |
| H        | 87-342-095-01 | UT <sub>2</sub> +3-8         |
| I        | 87-561-097-21 | VFT <sub>1</sub> +3-12 (φ10) |
| J        | 87-356-096-21 | VT <sub>1</sub> +3-10 (R)    |
| K        | 87-347-074-21 | UT <sub>2</sub> +2.6-8 (R)   |

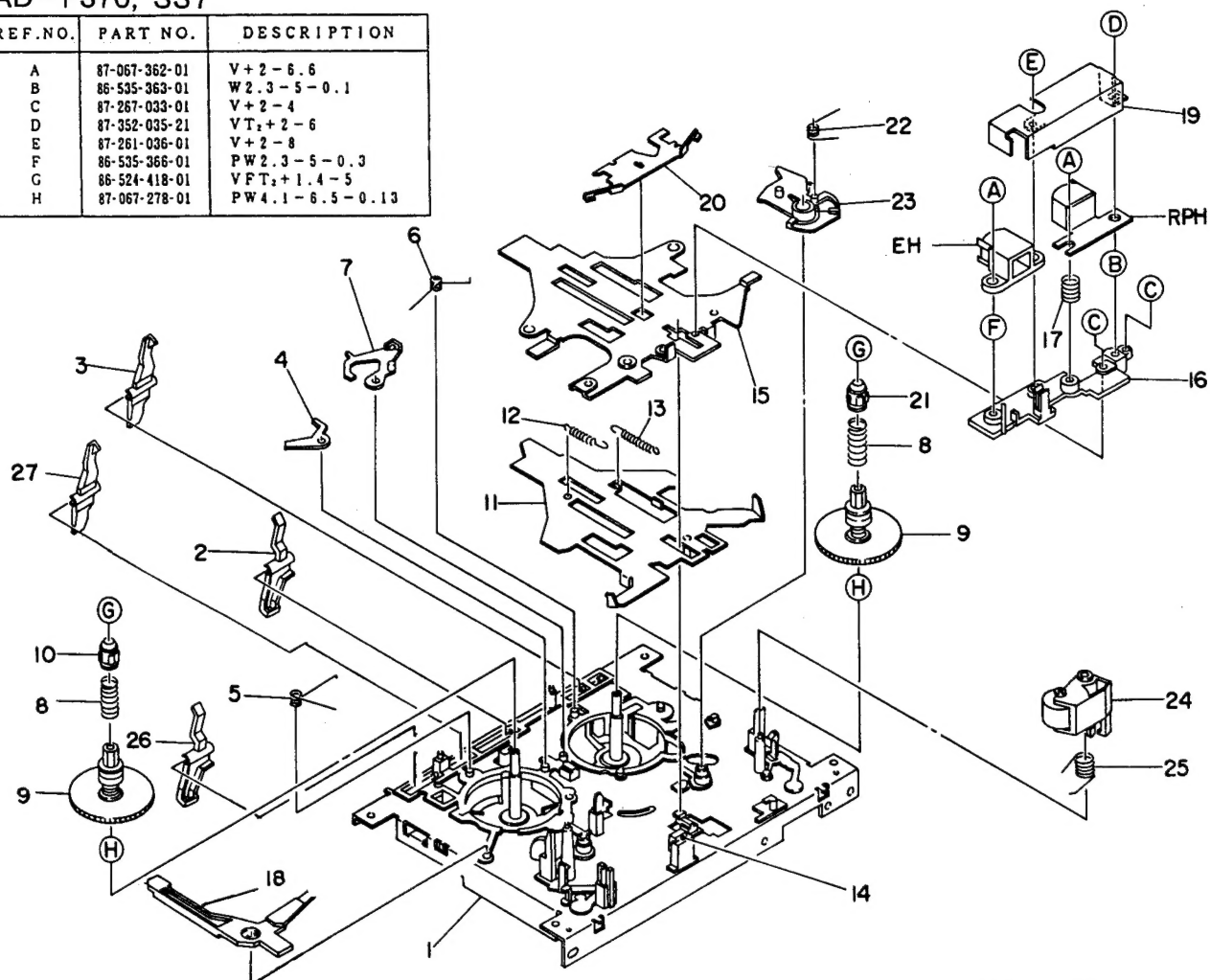


# MECHANICAL PARTS LIST

| PART NO.<br>CHANGED TO | REF. NO. | PART NO.        | DESCRIPTION                                   | COMMON<br>MODEL | Q'TY |
|------------------------|----------|-----------------|-----------------------------------------------|-----------------|------|
|                        | 1-1      | ★09-047-383-010 | CABINET FRONT ASSY (F370)                     | ※               | 1    |
|                        | 1-1      | ★09-047-384-010 | CABINET FRONT ASSY (S37)                      | ※               | 1    |
|                        | 1-1      | ★09-047-398-010 | CABINET FRONT ASSY (R470)                     | ※               | 1    |
|                        | 1-1      | ★09-047-399-010 | CABINET FRONT ASSY (R40)                      | ※               | 1    |
|                        | 1-2      | ★82-234-018-010 | KNOB, BIAS                                    |                 | 2    |
|                        | 1-3      | ★84-711-306-019 | G CUSHION 10-5-5                              |                 | 2    |
|                        | 1-4      | ★82-235-014-019 | KNOB, REC                                     | ※               | 1    |
|                        | 1-5      | 09-047-385-010  | CASSETTE BOX ASSY (H, C ONLY) (F370)          | ※               | 1    |
|                        | 1-5      | 09-047-387-010  | CASSETTE BOX ASSY (U ONLY) (S37)              | ※               | 1    |
|                        | 1-5      | 09-047-386-010  | CASSETTE BOX ASSY<br>(E, K, G, Z ONLY) (F370) | ※               | 1    |
|                        | 1-5      | 09-047-395-010  | CASSETTE BOX ASSY (H, C ONLY) (R470)          | ※               | 1    |
|                        | 1-5      | 09-047-397-010  | CASSETTE BOX ASSY (U ONLY) (R40)              | ※               | 1    |
|                        | 1-5      | 09-047-396-010  | CASSETTE BOX ASSY<br>(E, K, G, Z ONLY) (R470) | ※               | 1    |
|                        | 1-6      | ★82-235-208-019 | T-SPRING, EJECT                               | ※               | 1    |
|                        | 1-7      | ★87-084-077-019 | NYLON RIVET 3.5-4.5                           |                 | 1    |
|                        | 1-8      | ★87-063-143-010 | OIL DAMPER 75                                 |                 | 1    |
|                        | 1-9      | ★87-040-194-010 | COUNTER                                       |                 | 1    |
|                        | 1-10     | ★82-235-207-010 | BELT, COUNTER                                 | ※               | 1    |
|                        | 1-11     | ★82-205-208-010 | HOLDER, COUNTER                               |                 | 1    |
|                        | 1-12     | ★82-234-015-010 | PUSH-KEY, EJECT                               |                 | 1    |
|                        | 1-13     | ★84-721-023-010 | PUSH-BUTTON, POWER                            |                 | 1    |
|                        | 1-14     | ★82-235-206-019 | E-SPRING, EJECT                               | ※               | 1    |
|                        | 1-15     | ★82-235-202-019 | LEVER, EJECT                                  | ※               | 1    |
|                        | 1-16     | ★82-235-209-010 | PLATE, SHIELD HEAD (R470, R40)                | ※               | 1    |
|                        | 1-17     | ★82-231-615-010 | SILICON STEEL 43-43 (F370, S37)               |                 | 1    |
|                        | 1-18     | ★87-055-059-010 | FOOT B                                        |                 | 2    |
|                        | 1-19     | ---             | CHASSIS, AMP.                                 |                 | 1    |
|                        | 1-20     | ★82-236-005-019 | PANEL, REAR (H ONLY) (F370)                   | ※               | 1    |
|                        | 1-20     | ★82-236-006-019 | PANEL, REAR (U ONLY) (S37)                    | ※               | 1    |
|                        | 1-20     | ★82-236-007-019 | PANEL, REAR (C ONLY) (F370)                   | ※               | 1    |
|                        | 1-20     | ★82-236-008-019 | PANEL, REAR (E ONLY) (F370)                   | ※               | 1    |
|                        | 1-20     | ★82-236-009-019 | PANEL, REAR (K ONLY) (F370)                   | ※               | 1    |
|                        | 1-20     | ★82-236-010-019 | PANEL, REAR (G ONLY) (F370)                   | ※               | 1    |
|                        | 1-20     | ★82-236-011-019 | PANEL, REAR (Z ONLY) (F370)                   | ※               | 1    |
|                        | 1-20     | ★82-235-016-019 | CHASSIS, REAR (H ONLY) (R470)                 | ※               | 1    |
|                        | 1-20     | ★82-235-018-019 | CHASSIS, REAR (U ONLY) (R40)                  | ※               | 1    |
|                        | 1-20     | ★82-235-019-019 | CHASSIS, REAR (C ONLY) (R470)                 | ※               | 1    |
|                        | 1-20     | ★82-235-020-019 | CHASSIS, REAR (E ONLY) (R470)                 | ※               | 1    |
|                        | 1-20     | ★82-235-021-019 | CHASSIS, REAR (K ONLY) (R470)                 | ※               | 1    |
|                        | 1-20     | ★82-235-022-019 | CHASSIS, REAR (G ONLY) (R470)                 | ※               | 1    |
|                        | 1-20     | ★82-235-024-019 | CHASSIS, REAR (Z ONLY) (R470)                 | ※               | 1    |
|                        | 1-21     | ★87-830-814-019 | TUBE UL 8φ-140mm (H, U, C ONLY)               |                 | 1    |
|                        | 1-22     | ★87-085-199-010 | CORD BUSHING                                  |                 | 1    |
|                        | 1-23     | ★87-034-749-019 | AC CORD (H ONLY) (F370, R470)                 |                 | 1    |
|                        | 1-23     | ★87-034-583-019 | AC CORD (U, C ONLY) (F370, S37, R470, R40)    |                 | 1    |
|                        | 1-23     | ★82-187-797-019 | AC CORD (E, Z ONLY) (F370, R470)              |                 | 1    |
|                        | 1-23     | ★82-187-796-019 | AC CORD (K ONLY) (F370, R470)                 |                 | 1    |
|                        | 1-23     | ★82-187-795-019 | AC CORD (G ONLY) (F370, R470)                 |                 | 1    |
|                        | 1-24     | ---             | WIRE BINDER                                   |                 | 2    |
|                        | 1-25     | ★82-226-274-010 | DUMPER 80-60-3 (E, K, Z ONLY)                 |                 | 1    |
|                        | 1-26     | ★82-235-620-010 | SILICON BOARD A2 (R470, R40)                  | ※               | 1    |
|                        | 1-27     | ★82-104-212-010 | SILICON BOARD A (R470, R40)                   |                 | 1    |
|                        | 1-28     | ★82-235-002-019 | CABINET, STEEL                                | ※               | 1    |

EXPLODED VIEW-2 (X-3 SR1UN, SR2UN)  
AD-F370, S37

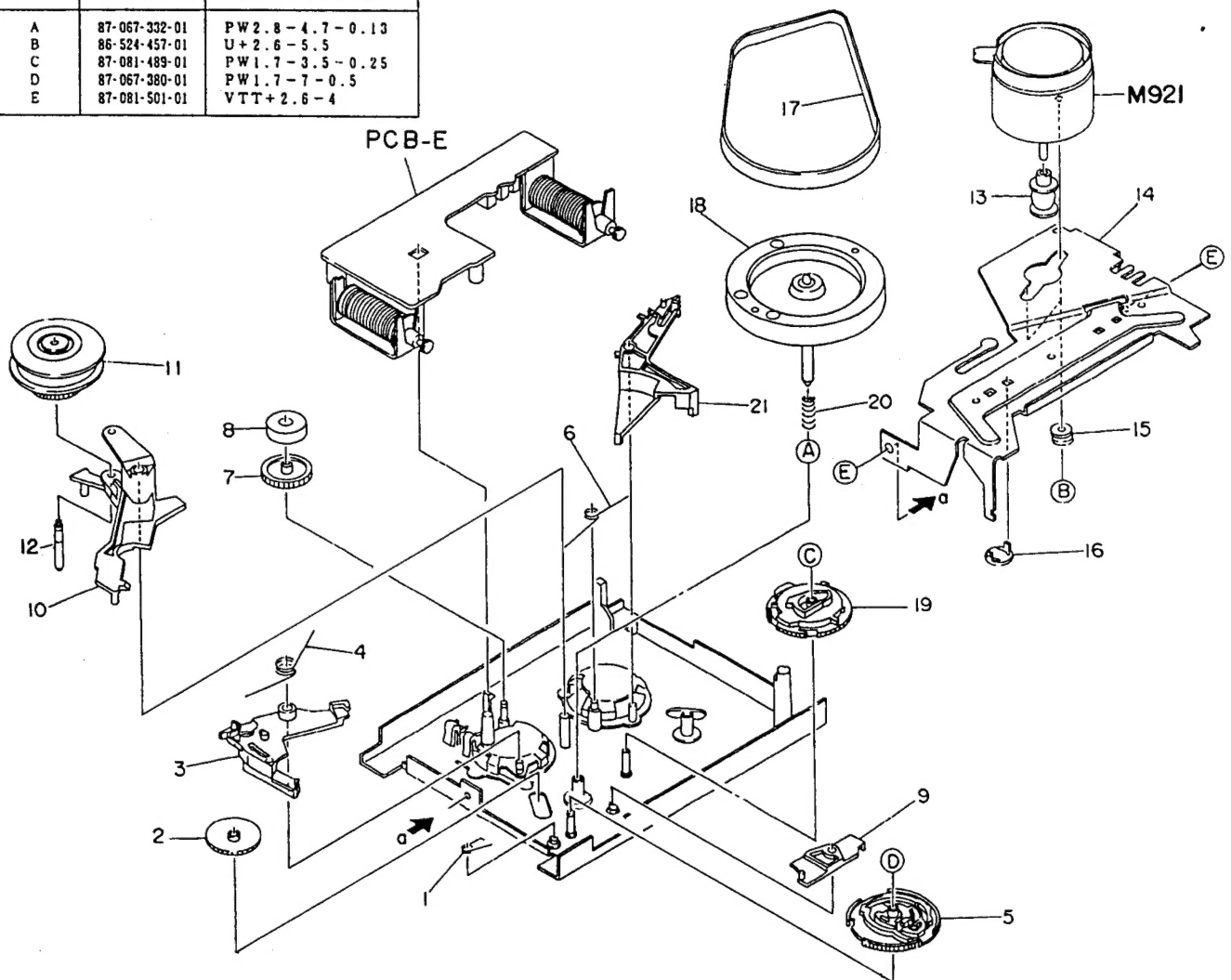
| REF.NO. | PART NO.      | DESCRIPTION             |
|---------|---------------|-------------------------|
| A       | 87-067-362-01 | V+2-6.6                 |
| B       | 86-535-363-01 | W2.3-5-0.1              |
| C       | 87-267-033-01 | V+2-4                   |
| D       | 87-352-035-21 | VT <sub>2</sub> +2-6    |
| E       | 87-261-036-01 | V+2-8                   |
| F       | 86-535-368-01 | PW2.3-5-0.3             |
| G       | 86-524-418-01 | VFT <sub>2</sub> +1.4-5 |
| H       | 87-067-278-01 | PW4.1-6.5-0.13          |



| PART NO.<br>CHANGED TO | REF. NO. | PART NO.        | DESCRIPTION              | COMMON<br>MODEL | Q'TY |
|------------------------|----------|-----------------|--------------------------|-----------------|------|
|                        | 2-1      | ★86-535-339-310 | MECHANISM CHASSIS ASSY S |                 | 1    |
|                        | 2-2      | ★86-535-249-110 | LEVER, CASSETTE S        |                 | 1    |
|                        | 2-3      | ★86-535-254-110 | LEVER, CHROME            |                 | 1    |
|                        | 2-4      | ★86-535-252-210 | LEVER, BRAKE R           |                 | 1    |
|                        | 2-5      | ★86-535-371-019 | T-SPRING, BRAKE R        |                 | 1    |
|                        | 2-6      | ★86-535-370-019 | T-SPRING, BRAKE F        |                 | 1    |
|                        | 2-7      | ★86-535-251-010 | LEVER, BRAKE F           |                 | 1    |
|                        | 2-8      | ★86-535-293-019 | C-SPRING, REEL PLATFORM  |                 | 2    |
|                        | 2-9      | 86-535-240-110  | REEL PLATFORM A ASSY     |                 | 2    |
|                        | 2-10     | ★86-524-218-119 | STOPPER S, REEL PLATFORM |                 | 1    |
|                        | 2-11     | ★86-535-385-210 | SLIDE PLATE S ASSY       |                 | 1    |
|                        | 2-12     | ★86-535-285-019 | E-SPRING, SLIDE          |                 | 1    |
|                        | 2-13     | ★86-535-286-019 | E-SPRING, ACTUATING      |                 | 1    |
|                        | 2-14     | ★86-535-353-010 | FELT 5-4-2               |                 | 1    |
|                        | 2-15     | ★86-535-311-310 | ACTUATING CHASSIS S      |                 | 1    |
|                        | 2-16     | ★86-535-314-010 | BASE, HEAD               |                 | 1    |
|                        | 2-17     | ★86-535-359-010 | C-SPRING, AZIMUTH S      |                 | 1    |
|                        | 2-18     | ★82-235-204-010 | LEVER, PROTECT           |                 | 1    |
|                        | 2-19     | ★86-535-362-010 | PLATE, HEAD SHIELD       |                 | 1    |
|                        | 2-20     | ★86-535-289-010 | P-SPRING, ACTUATING      |                 | 1    |
|                        | 2-21     | ★86-524-233-119 | STOPPER T, REEL PLATFORM |                 | 1    |
|                        | 2-22     | ★86-535-282-019 | T-SPRING, PLAT GEAR F    |                 | 1    |
|                        | 2-23     | ★86-535-238-110 | LEVER, PLAY F            |                 | 1    |
|                        | 2-24     | 86-535-226-110  | PINCH LEVER F ASSY       |                 | 1    |
|                        | 2-25     | ★86-535-312-010 | T-SPRING, PINCH S        |                 | 1    |
|                        | 2-26     | ★86-535-247-210 | LEVER, REC A             |                 | 1    |
|                        | 2-27     | ★86-535-250-010 | LEVER, METAL             |                 | 1    |

EXPLODED VIEW-3 (X-3 SR1UN, SR2UN)  
AD-F370, S37

| REF.NO. | PART NO.      | DESCRIPTION    |
|---------|---------------|----------------|
| A       | 87-067-332-01 | PW2.8-4.7-0.13 |
| B       | 86-524-457-01 | U+2.6-5.5      |
| C       | 87-081-489-01 | PW1.7-3.5-0.25 |
| D       | 87-067-380-01 | PW1.7-7-0.5    |
| E       | 87-081-501-01 | VTT+2.6-4      |



| PART NO.<br>CHANGED TO | REF. NO. | PART NO.        | DESCRIPTION         | COMMON<br>MODEL | Q'TY |
|------------------------|----------|-----------------|---------------------|-----------------|------|
|                        | 3-1      | ★86-535-291-110 | T-SPRING, FR CAM    |                 | 1    |
|                        | 3-2      | 86-535-259-310  | GEAR, PLAY          |                 | 1    |
|                        | 3-3      | ★86-535-230-210 | LEVER, TRIGGER FR   |                 | 1    |
|                        | 3-4      | ★86-535-278-019 | T-SPRING, FR        |                 | 1    |
|                        | 3-5      | ★86-535-261-310 | CAM, FR P           |                 | 1    |
|                        | 3-6      | ★86-535-279-010 | T-SPRING, MAIN      |                 | 1    |
|                        | 3-7      | 86-535-258-310  | GEAR, IDLER         |                 | 1    |
|                        | 3-8      | ★86-535-614-010 | RING, MAGNET (4P)   |                 | 1    |
|                        | 3-9      | ★86-535-223-310 | LEVER, PAUSE        |                 | 1    |
|                        | 3-10     | ★86-535-233-010 | LEVER, FR           |                 | 1    |
|                        | 3-11     | ★86-535-301-010 | SLIPDISC ASSY       |                 | 1    |
|                        | 3-12     | ★86-535-235-010 | SHAFT, FR           |                 | 1    |
|                        | 3-13     | ★86-535-389-110 | PULLEY, MOTOR C     |                 | 1    |
|                        | 3-14     | ---             | HOLDER, MOTOR       |                 | 1    |
|                        | 3-15     | ★86-513-441-110 | COLLAR              |                 | 2    |
|                        | 3-16     | ★86-535-255-010 | FLYWHEEL TABLE      |                 | 1    |
|                        | 3-17     | 86-535-391-110  | BELT SC             |                 | 1    |
|                        | 3-18     | 86-535-264-010  | FLYWHEEL F ASSY     |                 | 1    |
|                        | 3-19     | ★86-535-260-310 | CAM, MAIN           |                 | 1    |
|                        | 3-20     | ★86-535-288-019 | C-SPRING, FLYWHEEL  |                 | 1    |
|                        | 3-21     | ★86-535-231-210 | LEVER, TRIGGER PLAY |                 | 1    |

See the X-3 Mechanism Guide (Supplement of Service Manual) for the exploded views.  
The following parts have been changed for this model.

## AD-R470,R40 ALTERATION PARTS LIST

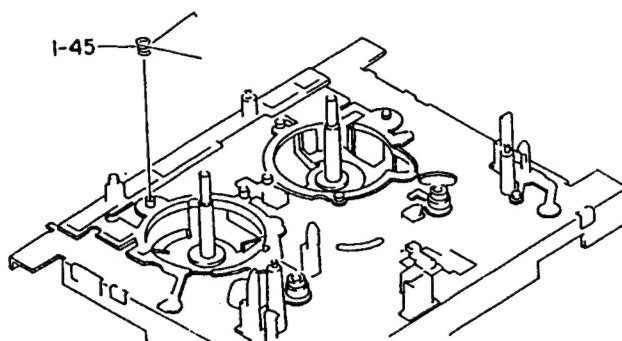
| PART NO.<br>CHANGED TO | REF. NO. | PART NO.        | DESCRIPTION          | COMMON<br>MODEL | Q'TY |
|------------------------|----------|-----------------|----------------------|-----------------|------|
|                        | 1-11     | ★86-535-370-019 | T-SPRING, BRAKE F    |                 | 1    |
|                        | 1-20     | ★86-535-351-310 | HEAD CHASSIS PH ASSY |                 | 1    |
|                        | 1-23     | ★86-535-356-010 | HEAD HOUSING PH ASSY |                 | 1    |
|                        | 1-44     | ★86-535-353-010 | FELT SQ 5-4-2        |                 | 1    |
|                        | 2-13     | ★86-535-389-010 | PULLEY MOTOR C 1     |                 | 1    |
|                        | 2-17     | 86-535-390-010  | BELT RC              |                 | 1    |

The following REF. NOS are not used in this model.  
1-4, 1-35, 2-9

## ADDITIONAL PARTS LIST

| PART NO.<br>CHANGED TO | REF. NO. | PART NO.        | DESCRIPTION       | COMMON<br>MODEL | Q'TY |
|------------------------|----------|-----------------|-------------------|-----------------|------|
|                        | 1-45     | ★86-535-371-019 | T-SPRING, BRAKE R |                 | 1    |

## EXPLODED VIEW



## ■ ACCESSORIES/PACKAGE LIST

### AD-F370,S37

| PART NO.<br>CHANGED TO | REF. NO. | PART NO.        | DESCRIPTION           | COMMON<br>MODEL | Q'TY |
|------------------------|----------|-----------------|-----------------------|-----------------|------|
|                        | 1        | ★82-236-904-019 | INSTRUCTION BOOKLET   | ※               | 1    |
|                        | 2        | ★87-032-845-019 | SIEMENS PLUG (H ONLY) |                 | 1    |
|                        | 3        | ★87-034-773-010 | CORD PIN, R-237W-1M   |                 | 2    |

### AD-R470,R40

| PART NO.<br>CHANGED TO | REF. NO. | PART NO.        | DESCRIPTION           | COMMON<br>MODEL | Q'TY |
|------------------------|----------|-----------------|-----------------------|-----------------|------|
|                        | 1        | ★82-235-904-019 | INSTRUCTION BOOKLET   | ※               | 1    |
|                        | 2        | ★87-032-845-019 | SIEMENS PLUG (H ONLY) |                 | 1    |
|                        | 3        | ★87-034-773-010 | CORD PIN, R-237W-1M   |                 | 2    |