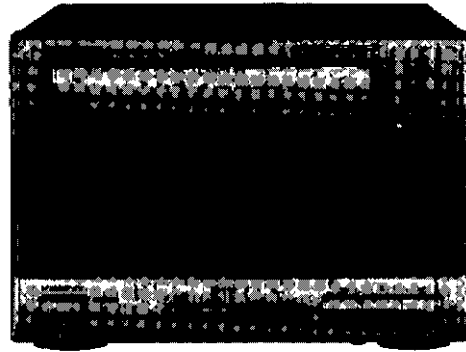


ONKYO® SERVICE MANUAL

CASSETTE TAPE DECK


MODEL K-185X



Black model

| | |
|---------|---------------|
| UP, UPT | 230V AC, 50Hz |
| UDT | 120V AC, 60Hz |

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

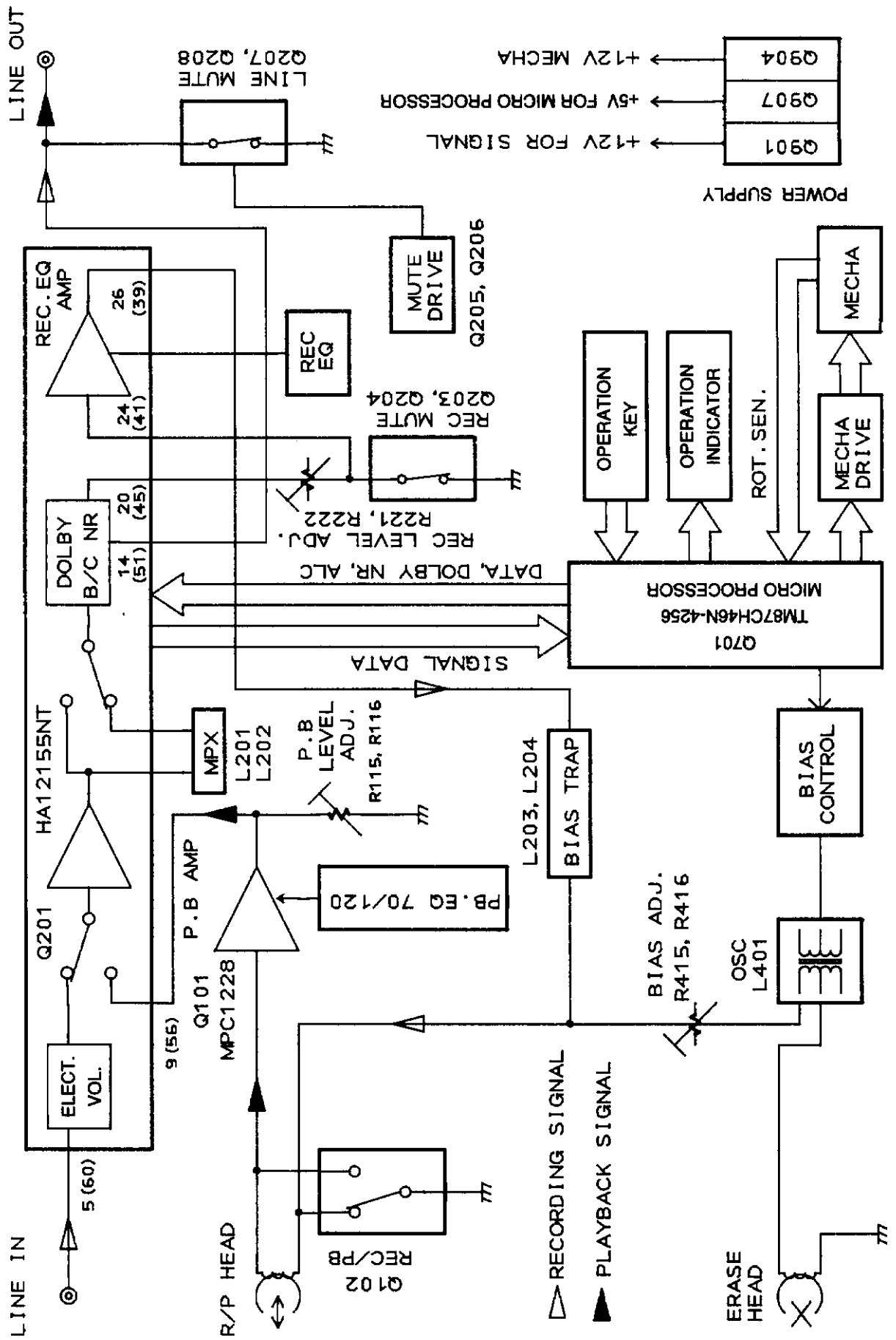
SPECIFICATIONS

| | |
|---------------------|--|
| Track Format: | 4-track, 2-channels |
| Erase System: | AC erase |
| Tape Speed: | 4.8 cm/sec. (1-7/8 i.p.s.) |
| Wow and Flutter: | 0.07 % (WRMS) |
| Frequency Response: | 20 — 15,000 Hz (Normal) (30 — 14,000 Hz ± 3 dB) 20 — 16,000 Hz (High) (30 — 15,000 Hz ± 3 dB) 20 — 17,000 Hz (Metal) (30 — 16,000 Hz ± 3 dB) |
| S/N Ratio: | Dolby NR off: 58 dB (metal position tape) A noise reduction of 10 dB above 5 kHz and 5 dB at 1 kHz is possible with Dolby B NR. A noise reduction of 20 dB at 5 kHz is possible with Dolby C NR. |
| Input Jacks: | Line IN: 2 Input sensitivity: 600 mV Input impedance: 50 kohms |
| Outputs: | Line OUT: 2 Standard output level: 500 mV (0 dB) Optimum load impedance: over 50 kohms |
| Motors: | DC servo motor > 1 |
| Heads: | REC/PB: 1 ERASE: 1 |
| Power Consumption: | 11 watts |
| Dimensions: | 185(W) × 131(H) × 294(D) mm (7 5/16" × 5-1/8" × 11-9/16") |
| Weight: | 2.9 kg. (6.4 lbs.) |

Specifications and external appearance are subject to change without notice because of product improvements.

ONKYO®
AUDIO COMPONENTS

BLOCK DIAGRAM



ADJUSTMENT PROCEDURES

PRECAUTIONS

- Before adjustment, clean the following parts with an alcohol moistened swab.
 *recording/playback head *erase head
 *pinch roller *capstan
- Do not use magnetized screwdriver for adjustment.
- Demagnetize recording/playback head with a head demagnetizer.

TEST EQUIPMENT/TOOL REQUIRED

- Audio Oscillator
- Frequency counter
- Oscilloscope
- Attenuator
- AC voltmeter
- Non-magnetic screwdriver
- Test tapes
- TCC-153 :10kHz, -15dB
- MTT-111N :3kHz,-10dB
- MTT-150 :Dolby level calibration
400Hz, tone 200nWb/m

| Item | Connection of instrument | Line output level/freq. | Test tape | Mode | Output indicator | Adjustment point | Adjustment | Remarks |
|------|---|---------------------------|-------------|--------|-------------------|------------------------------|---|---|
| 1 | Frequency counter to P201 or LINE OUT terminal. | | MTT-111N | PB | Frequency counter | R723 | 3010Hz | |
| 2 | AC voltmeter & oscilloscope to P201 | | TCC-153 | PB | AC voltmeter | Fig.1 | Maximum level & same phase at channels L & R | Refer to Fig.2. |
| 3 | AC voltmeter to P201 | | MTT-150 | PB | AC voltmeter | R115 (L ch.) R116 (R ch.) | 300mV | |
| 4 | Fig.3 | 1kHz,35mV & 12.5kHz, 35mV | Normal tape | REC/PB | AC voltmeter | R415 (L ch.) R416 (R ch.) | Playback level of 1kHz and 12.5kHz becomes same | Repeat the recording and playback until no further adjustment is necessary. |
| 5 | Fig.3 | 1kHz,350mV | Normal tape | REC/PB | AC voltmeter | R221 (L ch.) R222 (R ch.) | The levels of recording and playback become same. | Repeat the recording and playback until no further adjustment is necessary. |
| 6 | Frequency counter to lead wire of erase head | | Normal tape | REC | Frequency counter | L401 | 107kHz | |

Blank tapes

- Normal UD- I C-90
- High UD- II C-90
- Metal XS C-60

- PLAY torque 30~70g/cm (Use the test tape TW-2231.)
- FF/REW torque 80~180g/cm (Use the test tape TW-2111.)
- Back tension 2~6g/cm (Use the test tape TW-2111.)

Head azimuth screw(REV) Head azimuth screw(FWD)

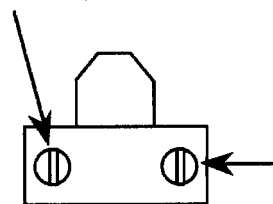


Fig.1 R/P Head

ADJUSTMENT POINT

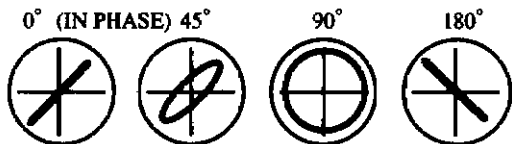
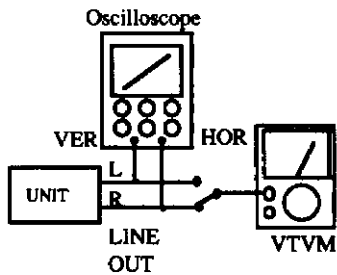
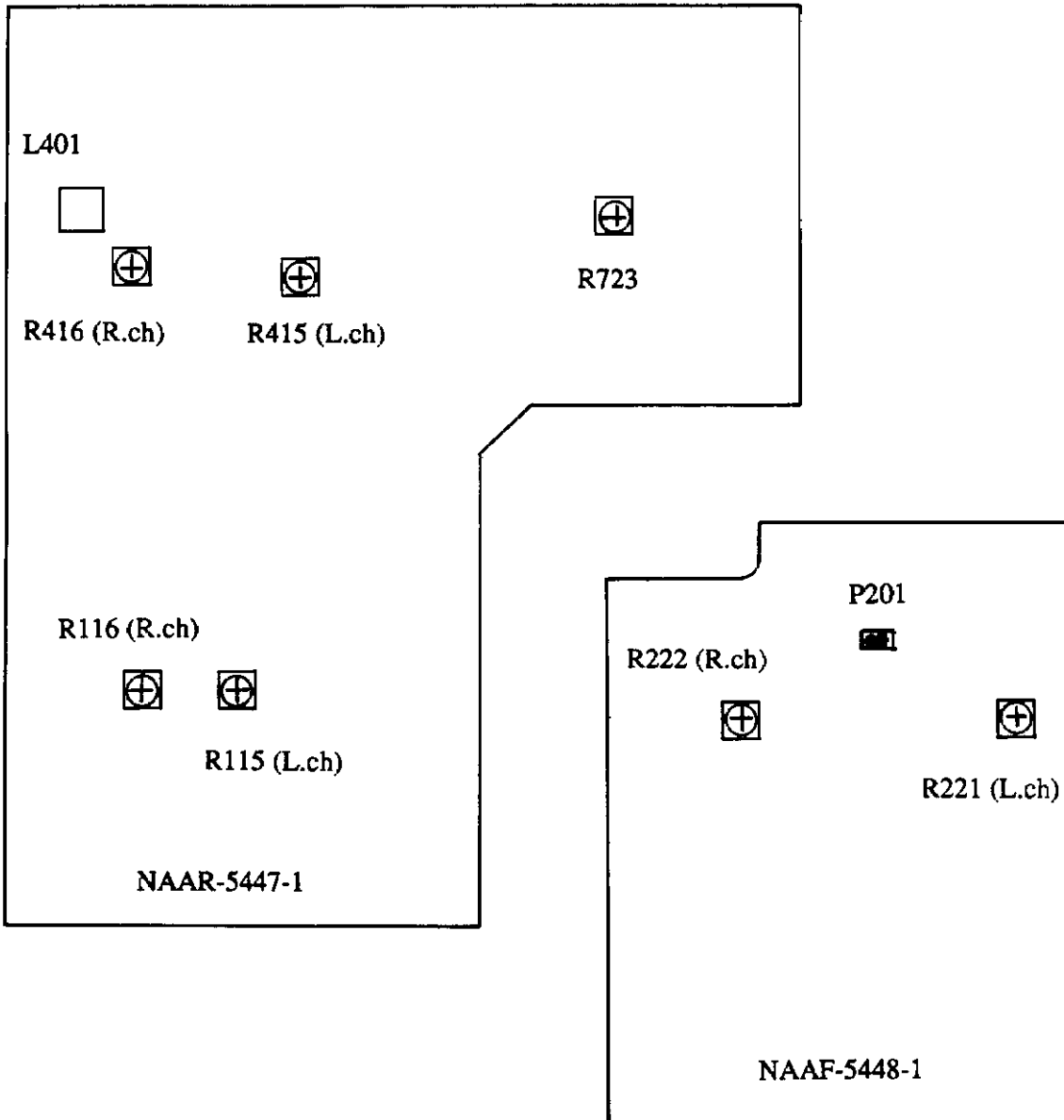


Fig.2 Confirming phase relationship

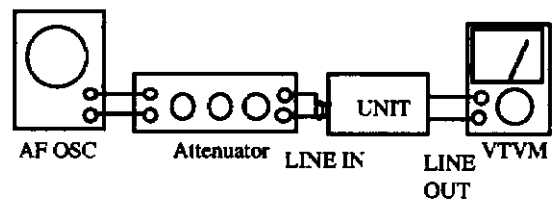
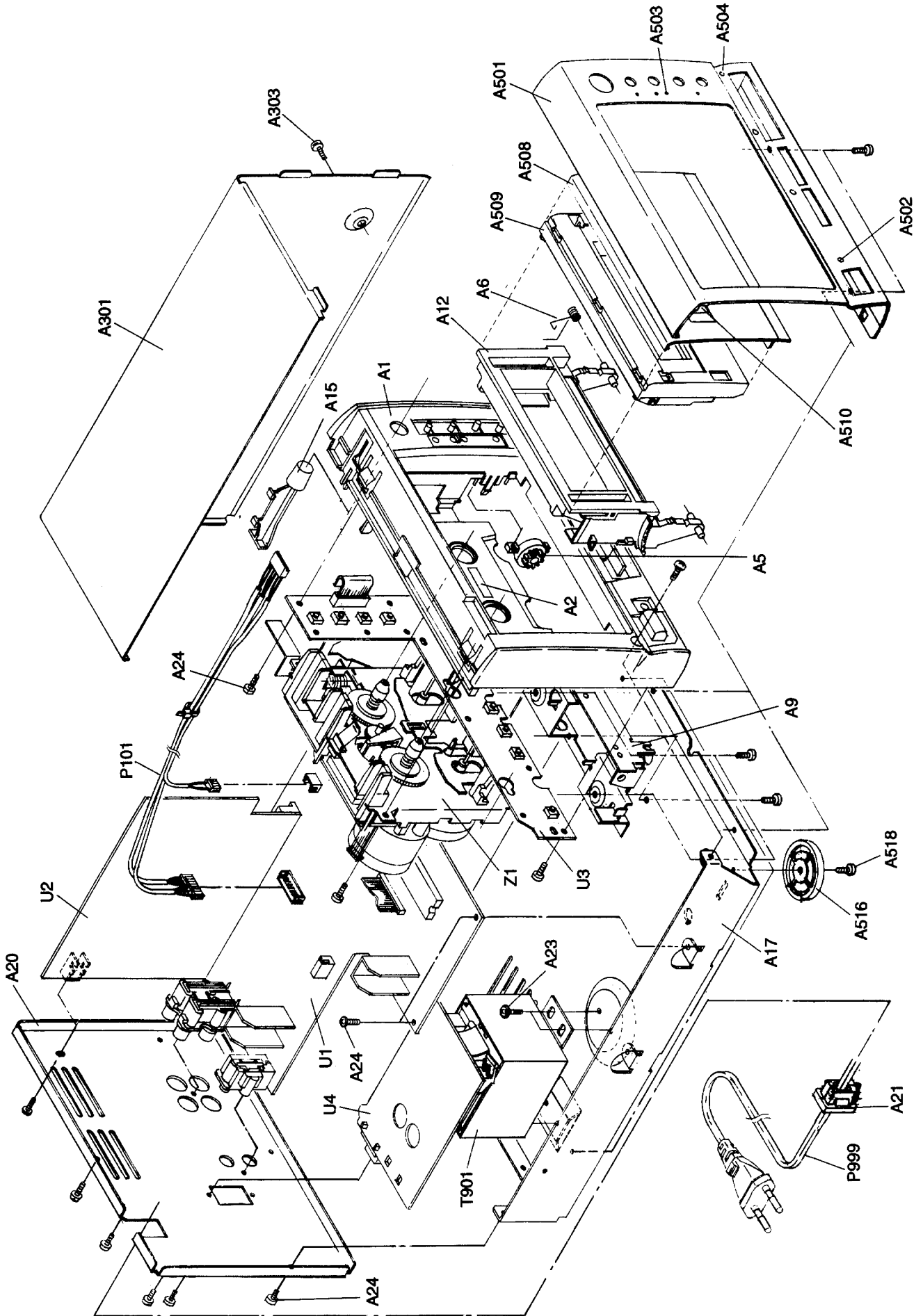


Fig. 3

CHASSIS-EXPLODED VIEW



CHASSIS-EXPLODED VIEW PARTS LIST

| REF. NO. | PART NO. | DESCRIPTION | REF. NO. | PART NO. | DESCRIPTION |
|----------|-------------|--------------------------------|----------|-------------|---|
| A1 | 27110979B | Front bracket | F901A | 252075 | △ 2.5A-SE-EAK,Fuse <P/T> |
| A2 | 27262519 | Plate T-1 | P101A | 2009990315 | NSAS-14P0449,Socket |
| A5 | 28400282 | Damper | P101B | 260208 | Wire tie |
| A6 | 27180477A | Spring | P901A | 253193HIT | △ AS-CEE, Power supply cord <P/T> |
| A9 | 27130748A | Bracket F | | 253192HIT | △ AS-UC-6#18(SPT-2),Power supply cord <D> |
| A12 | 27301792A | Cassette frame | T901 | 2301104 | △ NPT-1239P, Power transformer <P/T> |
| A13 | 27180272A | Spring | | 2301153 | △ NPT-1239D,Power transformer <D> |
| A15 | 28325129 | Knob, Eject | U1 | 1N277547-2B | NAAR-5447-2B, Main circuit PC board ass'y <P/T> |
| A17 | 27100299 | Chassis | | 1N277547-2A | NAAR-5447-2A, Main circuit PC board ass'y <D> |
| A20 | 27122514 | Rear panel <P/T> | U2 | 1N277548-2A | NAAF-5448-2A,Dolby circuit PC board ass'y <D> |
| A20 | 27122513 | Rear panel <D> | | 1N277548-2B | NAAF-5448-2B,Dolby circuit PC board ass'y <P/T> |
| A21 | 27300750 | △ Bushing, cord | U3 | 1N277549-2A | NASW-5449-2A,Switch PC board ass'y <D> |
| A23 | 830440089 | 4TTC+8C(BC),Self-tapping screw | U4 | 1N277549-2B | NASW-5449-2B,Switch PC board ass'y <P/T> |
| A24 | 838130088 | 3TTB+8B,Self-tapping screw | Z1 | 244246 | NDM-196,Deck mechanism ass'y |
| A301 | 28184592A | Top cover | | | |
| A303 | 838230088 | 3TTB+8B(ND),Nickel screw | | | |
| A501 | 27212042 | Front panel | | | |
| A502 | 28198817 | Facet, Power | | | |
| A503 | 28198818 | Facet, Dolby | | | |
| A504 | 28198819 | Facet, Play | | | |
| A506 | 28135247Y | Badge | | | |
| A508 | 27301868A-1 | Cassette lid | | | |
| A509 | 27301870 | Cassette lid, base | | | |
| A510 | 28191716A | Clear plate | | | |
| A516 | 27175252-1B | Leg | | | |
| A518 | 838130088 | 3TTB+8B,Self-tapping screw | | | |

NOTE: <P>: European model only
<T>: Asian model only
<D>: 120V model only

NOTE: THE COMPONENTS IDENTIFIED BY MARK △ ARE
CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK.
REPLACE ONLY WITH PART NUMBER SPECIFIED.

A

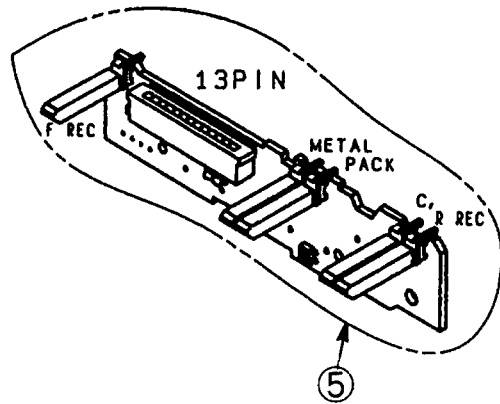
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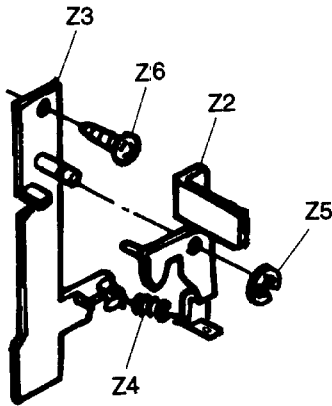
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TAPE MECHANISM-EXPLODED VIEW

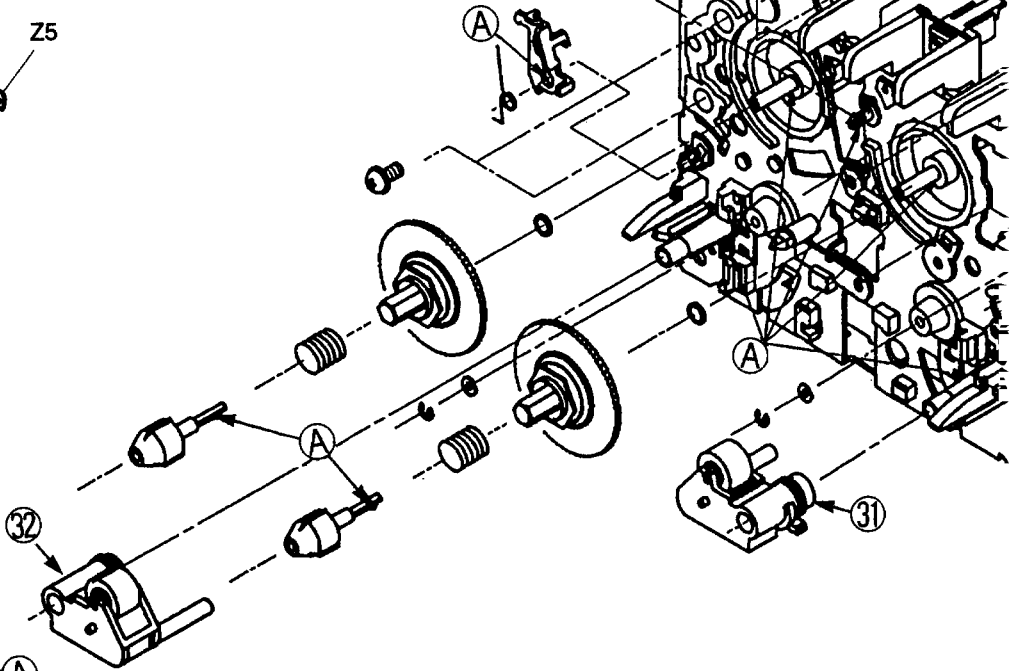
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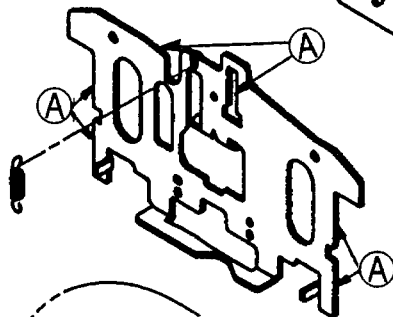
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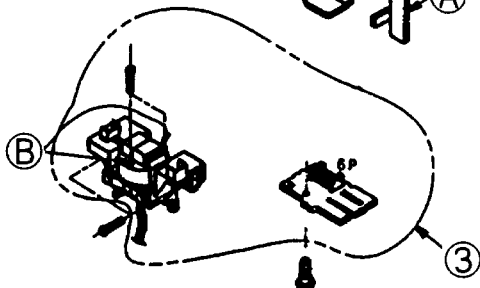
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REF.

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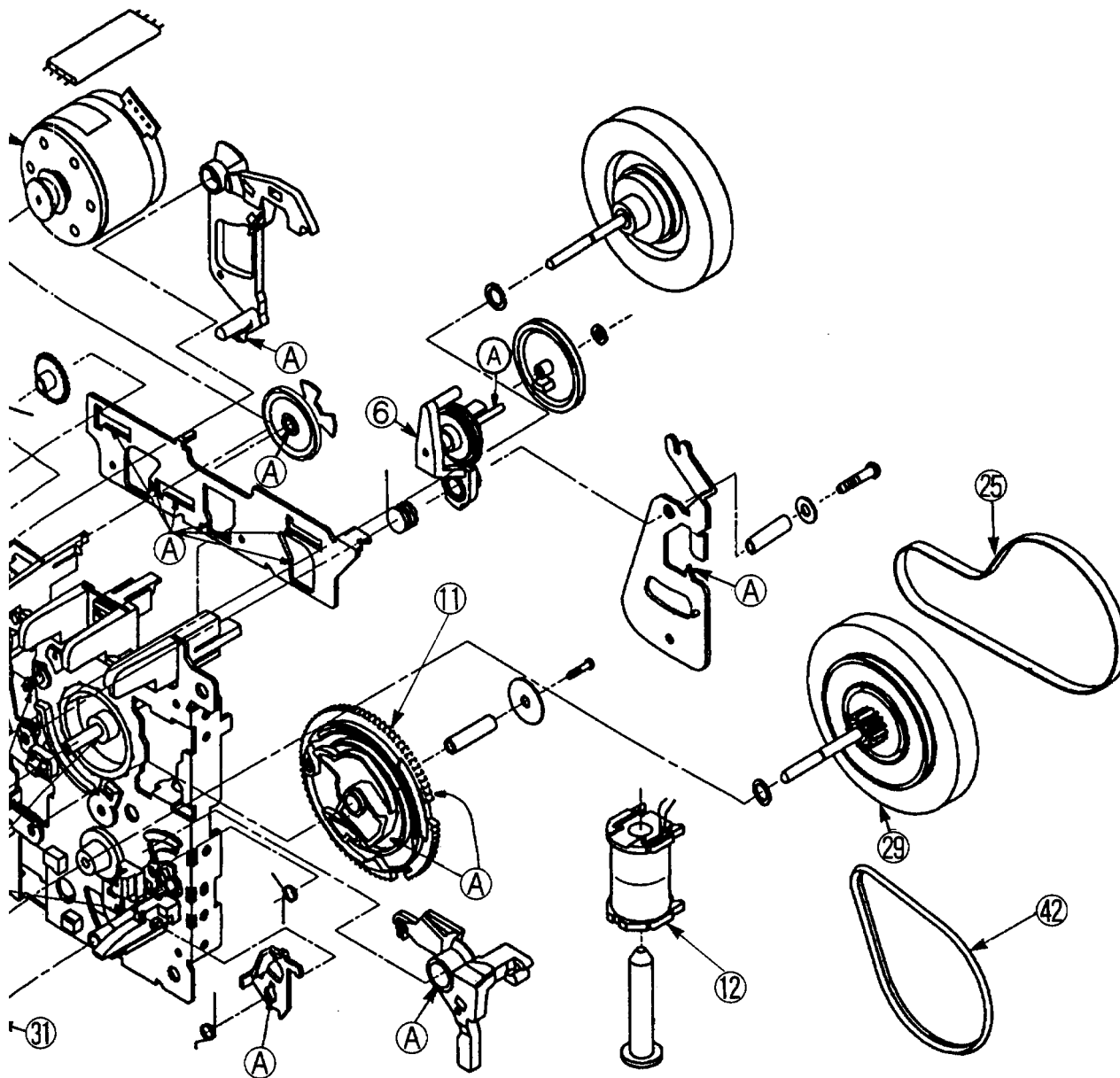
42

Z2

E

F

G



| REF. NO. | PART NO. | DESCRIPTION | | | |
|----------|-----------|------------------|----|-----------|-------------------------------|
| 2 | 24611607 | Chassis | Z3 | 24611593A | Retainer |
| 3 | 24611609 | Head plate | Z4 | 24605798 | Spring |
| 4 | 24601282 | Main motor | Z5 | 8930301S | ES-3S, Circlip |
| 5 | 24606531 | Control PC board | Z6 | 833326047 | 2.6TTP+4S, Self-tapping screw |
| 6 | F522-037 | Clutch | A | | Molikote X5, Grease |
| 11 | FD52Y | Cam gear | B | | Bond |
| 12 | F765-277 | Solenoid coil | | | |
| 25 | 24602551 | Main belt | | | |
| 29 | F522-031 | Flywheel | | | |
| 31 | 24602595 | Pinch roller | | | |
| 32 | 24602594 | Pinch roller | | | |
| 42 | 24602596 | F/R belt | | | |
| Z2 | 24603404A | Lever, Eject | | | |

PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE

MAIN CIRCUIT PC BOARD (NAAR-5447-2A/2B)

| CIRCUIT NO. | PART NO. | DESCRIPTION | CIRCUIT NO. | PART NO. | DESCRIPTION |
|--------------------|-------------------------|-----------------------------------|-------------------|-----------|--|
| ICs | | | Capacitors | | |
| Q101 | 222905 | MPC1228HA | C405 | 354744709 | 47 μ F,16V,Elect. |
| Q102 | 22240147 | MPC1330HA | C406 | 370138224 | 8200pF \pm 5%,100V,Plastic |
| Q407 | 222959 | MPC1297CA | C408 | 354741019 | 100 μ F,16V,Elect. |
| Q701 | 22240887 | TMP87CH46N-4256 | C409,C410 | 370131514 | 150pF \pm 5%,100V,Plastic |
| Transistors | | | C411,C412 | 370131014 | 100pF \pm 5%,100V,Plastic |
| Q103,Q104 | 221299 or 2213600 | DTC114TS or RN1211 | C413-C416 | 371122734 | 0.027 μ F \pm 5%,50V,Mylar |
| Q205,Q206 | 2213090 or | DTA114YS or | C417,C418 | 371121034 | 0.01 μ F \pm 5%,50V,Mylar |
| Q702,Q704 | 2213590 | RN2207 | C421,C422 | 354741009 | 10 μ F,16V,Elect. |
| Q207,Q208 | 2211705 or 2211706 | 2SD655-E or 2SD655-F | C703,C708 | 354741009 | 10 μ F,16V,Elect. |
| Q401 | 2211504 | 2SA950-Y | C707 | 354780109 | 1 μ F,50V,Elect. |
| Q402,Q405 | 221281 or | DTC114YS or | C709 | 354780479 | 4.7 μ F,50V,Elect. |
| Q406,Q703 | 2213570 | RN1207 | C710,C905 | 354741009 | 10 μ F,16V,Elect. |
| Q403,Q404 | 2201883 | 2SC1213-C | C904 | 393354727 | 4700 μ F,25V,Elect. |
| Q705,Q707 | 221281 or | DTC114YS or | C906,C922 | 393342217 | 220 μ F,16V,Elect. |
| Q710,Q711 | 2213570 | RN1207 | C907,C923 | 393341027 | 1000 μ F,16V,Elect. |
| Q706,Q708 | 2212853 or 2212855 | 2SB1068-K or 2SB1068-U | C909 | 393324717 | 470 μ F,6.3V,Elect. |
| Q709 | 2213354 or 2213355 | 2SA933S-R or 2SA933S-S | Resistors | | |
| Q901,Q904 | 2202724 or 2202725 | 2SB1569A-D or 2SB1569A-E | R115,R116 | 5210265 | N06HR50KBC,Trimming |
| Q902,Q905 | 2213284 or 2213285 | 2SC1740S-R or 2SC1740S-S | R117 | 443521214 | 120 Ω \pm 5%,1/2W,Metal oxide |
| Q907 | 2202705 or 2202706 | 2SD2394-E or 2SD2394-F | R403,R404 | 453530824 | 8.2 Ω \pm 5%,1/2W,Metal |
| Diodes | | | R415,R416 | 5210262 | N06HR10KBC,Trimming |
| D701,D703 | 223163, | 1SS133, | R723 | 5210258 | N06HR1KBC,Trimming |
| D704,D905 | 223205 or | 1SS270A or | R911,R912 | 453534794 | 0.47 Ω \pm 5%,1/2W,Metal |
| D906 | 223222 | WG713A | Terminals | | |
| D901,D902 | 22380035 or 22380260 | GP104003E or RL1N4003 | P701 | 25045330 | NPJ-2PDBL184,IN/OUT |
| D907,D909 | 224470562 | MTZJ5.6B,Zener | P202 | 25045338 | NPJ-4PDBL189,RI |
| D908,D910 | 224471203 | MTZJ12C,Zener | Sockets | | |
| Oscillator | | | JL704B | 25051129 | NSCT-13P916 |
| X701 | 3010190 | CST8.00MTW,Ceramic | JL906A | 25050267 | NSCT-3P95 |
| Coils | | | Plugs | | |
| L401 | 231223 | NLO-2064 | JL705A | 25055633 | NPLG-12P595 |
| L403,L404 | 231218 | NCH-4453 | P101 | 25055136 | NPLG-6P120 |
| Capacitors | | | P102B | 25055709 | NPLG-13P665 |
| C101,C102 | 374726814 | 680pF \pm 5%,50V,Plastic | P103B | 25055772 | NPLG-10P728 |
| C103,C104 | 393380227 | 2.2 μ F,50V,Elect. | P201 | 25055038 | NPLG-2P29 |
| C105,C106 | 393341017 | 100 μ F,16V,Elect. | P401 | 25055132 | NPLG-2P116 |
| C107,C108 | 374728224 | 8200pF \pm 5%,50V,Plastic | Radiators | | |
| C109,C110 | 393341007 | 10 μ F,16V,Elect. | Q901A,Q904A | 27160211 | RAD-68 |
| C111,C112 | 374721834 | 0.18 μ F \pm 5%,50V,Plastic | Screws | | |
| C113 | 393341027 | 1000 μ F,16V,Elect. | Q901B,Q904B | 838430107 | 3TTB+10S(BC) |
| C401,C910 | 393322217 | 220 μ F,6.3V,Elect. | | | |
| C402 | 371121034 | 0.01 μ F \pm 5%,50V,Mylar | | | |
| C403,C404 | 371123324 | 3300pF \pm 5%,50V,Mylar | | | |

DOLBY CIRCUIT PC BOARD (NAAF-5448-2A/2B)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|--------------------------------|----------------------------------|
| | IC | |
| Q201 | 22240544 | HA12155NT |
| | Transistors | |
| Q203,Q204 | 221299 or 2213600 | DTC114TS or RN1211 |
| | Diodes | |
| D201,D202 | 223163, 223205 or 223222 | 1SS133, 1SS270A or WG713A |
| | Coils | |
| L201,L202 | 233436 | NMC-6081 |
| | 233436 | NMC-6081 |
| L203,L204 | 231085 231085 | NCH-2133 NCH-2133 |
| | Capacitors | |
| C201-C204 | 393380227 | 2.2 μ F,50V,Elect. |
| C205-C207 | 393380107 | 1 μ F,50V,Elect. |
| C209-C214 | 374722224 | 2200pF \pm 5%,50V,Plastic |
| C215-C218 | 374721044 | 0.1 μ F \pm 5%,50V,Plastic |
| C219,C220 | 393341007 | 10 μ F,16V,Elect. |
| C221,C222 | 393380107 | 1 μ F,50V,Elect. |
| C223,C224 | 374721044 | 0.1 μ F \pm 5%,50V,Plastic |
| C225,C226 | 354782299 | 0.22 μ F,50V,Elect. |
| C227,C228 | 393380227 | 2.2 μ F,50V,Elect. |
| C229,C230 | 393341007 | 10 μ F,16V,Elect. |
| C233,C234 | 393341007 | 10 μ F,16V,Elect. |
| C238 | 391944717 | 470 μ F,16V,Elect. |
| | Resistors | |
| R221,R222 | 5210263 | N06HR20KBC,Trimming |
| | Sockets | |
| P102A | 25051238 | NSCT-13P1028 |
| P103A | 25051415 | NSCT-10P1202 |

DOLBY CIRCUIT PC BOARD (NAAF-5448-2A/2B)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------------------|--------------|
| | LEDs | |
| D705-D709 | 225320 | SLR-342YY |
| D710,D712 | 225321 | SLR-342VR |
| D711 | 225320 | SLR-342YY |
| | Push switches | |
| S701-S712 | 25035652 | NPS-111-S604 |
| | Socket | |
| JL705B | 25051096 | NSCT-12P883 |

POWER SUPPLY PC BOARD (NAPS-5450-2A/2B)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|--------------------|----------------------------------|
| | Capacitor | |
| C901 | 374721044 | 0.1 μ F \pm 5%,50V,Plastic |
| | Fuse | |
| F901A | 252075 Δ | 2.5A-SE-EAK <P/T> |
| | Fuse holder | |
| F901 | 25050065 Δ | YSH403T <P/T> |
| | Plug | |
| P901 | 25055676 | NPLG-2P632 |
| | Socket | |
| JL906B | 25051107 | NSCT-3P894 |
| | AC outlet | |
| P902 | 25050684 Δ | NSCT-2P488 <D> |
| P903 | 25050410 Δ | NSCT-2P235 <P/T> |

NOTE: <P>: European model only

<T>: Asian model only

<D>: 120V model only

| |
|---|
| NOTE: THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED. |
|---|

A

B

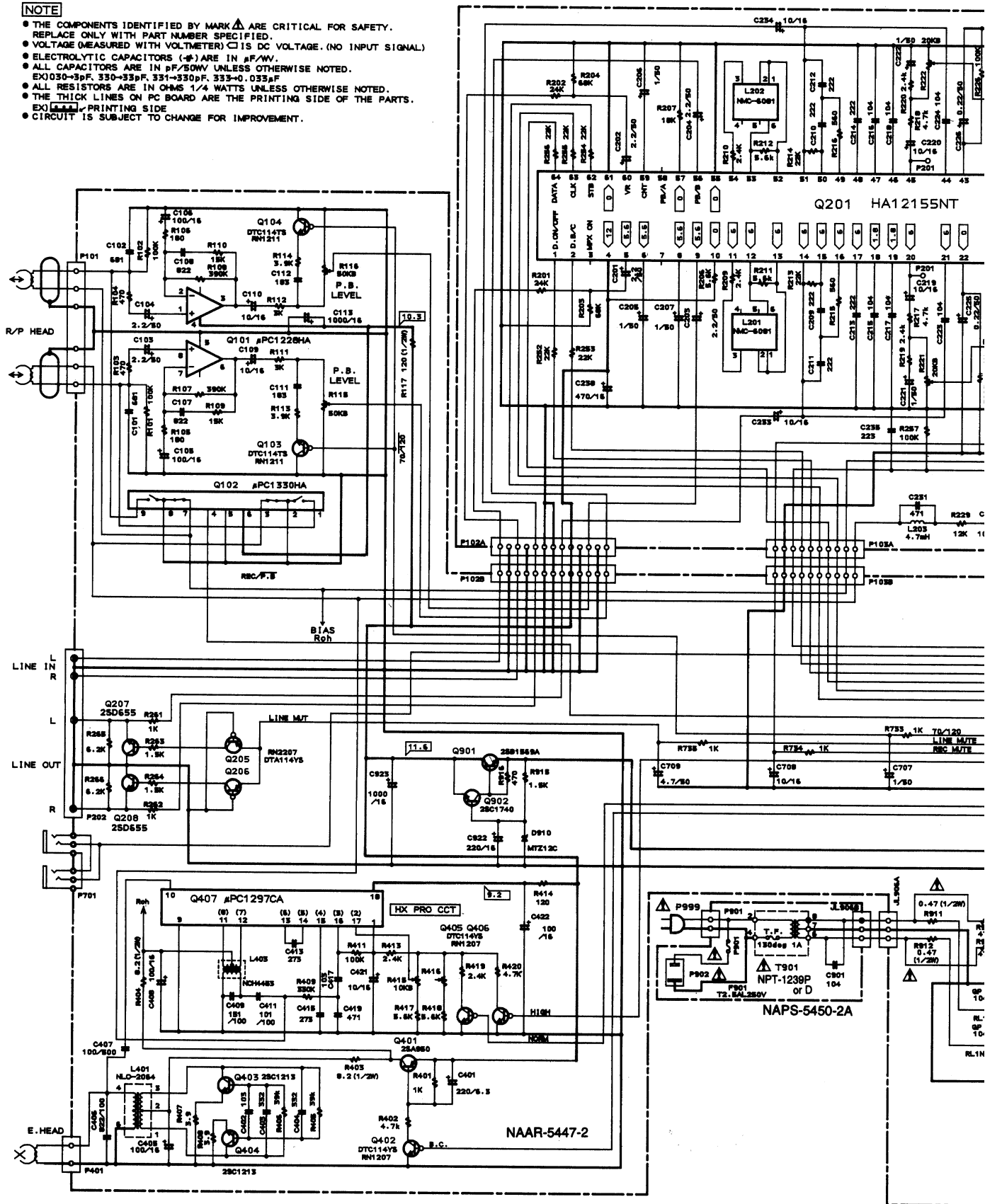
C

D

SCHEMATIC DIAGRAM

NOTE

- THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE (MEASURED WITH VOLTMETER) \square IS DC VOLTAGE. (NO INPUT SIGNAL)
- ELECTROLYTIC CAPACITORS (-F) ARE IN $\mu\text{F}/\text{V}$.
- ALL CAPACITORS ARE IN $\text{pF}/50\text{V}$ UNLESS OTHERWISE NOTED.
- EX1030-39F, 330-339F, 331-339F, 333-0.033 μF
- ALL RESISTORS ARE IN OHMS 1/4 WATTS UNLESS OTHERWISE NOTED.
- THE THICK LINES ON PC BOARD ARE THE PRINTING SIDE OF THE PARTS.
- EX1030-10 PRINTING SIDE
- CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.



E

F

G

