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ONKYO® SERVICE MANUAL

Integrated Stereo Amplifier MODEL A-9310

| | |
|----|-------------------------|
| MP | 230V AC, 50Hz |
| MW | 120V/220V AC, 50Hz/60Hz |
| MD | 120V AC, 60Hz |

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF PARTS.

WHOSE PARTS 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.

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SPECIFICATIONS

| | |
|-------------------------------|--|
| Power output : | 50watts per channel, min. RMS at 8ohms, both channels driven from 20Hz to 20kHz with no more than 0.08% T.H.D. 2×80watts at 4 ohms, 1kHz (DIN) 2×60watts at 8 ohms, 1kHz (DIN) |
| Total Harmonic Distortion : | 0.08% at rated power |
| IM Distortion : | 0.08% at rated power |
| Damping Factor : | 150 at 8 ohms |
| Frequency response : | 15Hz - 50kHz, ±1dB |
| Input sensitivity/impedance : | |
| Phono : | 2.5mV/50 kohms |
| Tuner/CD/Line : | 150mV/25 kohms |
| Tape Play : | 150mV/25 kohms |
| Output sensitivity/impedance | |
| Tape Rec : | 150mV/3 kohms (phono) |
| Phono overload : | 135mV RMS at 1kHz, 0.1% T.H.D (REC) |
| Bass control : | ±8dB at 100Hz |
| Treble control : | ±8dB at 10kHz |
| Loudness control : | ±8dB at 100Hz ±8dB at 10kHz |
| Signal-to-noise ratio (IHF-A) | |
| Phono : | 80dB (5mV input) |
| Source Direct (CD) : | 102dB (0.5V input) |

General

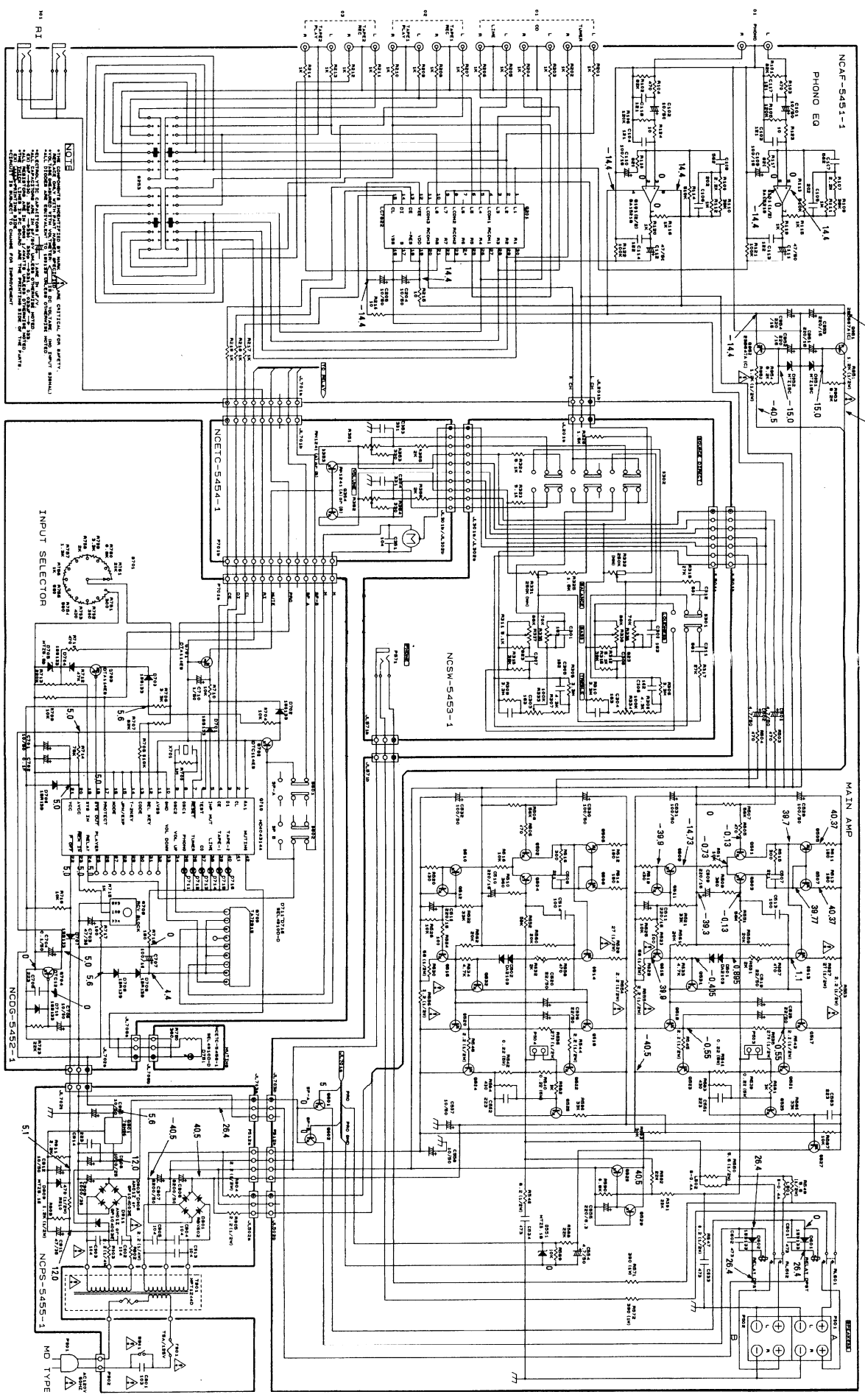
| | |
|-----------------------------|--|
| Power supply : | |
| European and | |
| Australian models : | AC 230V, 50Hz |
| U.S.A and Canadian models : | AC 230V, 60Hz |
| Worldwide models : | AC 120V and 220V switchable, 50Hz/60Hz |
| Power consumption : | 180W, 240VA |
| Dimensions : | 455 (W)×150 (H)×348 (D) mm 17-15/16"×5-7/8"×13-16/11" |
| Weight : | 7.9kg, 17.4lbs. |

Remote control RC-286S

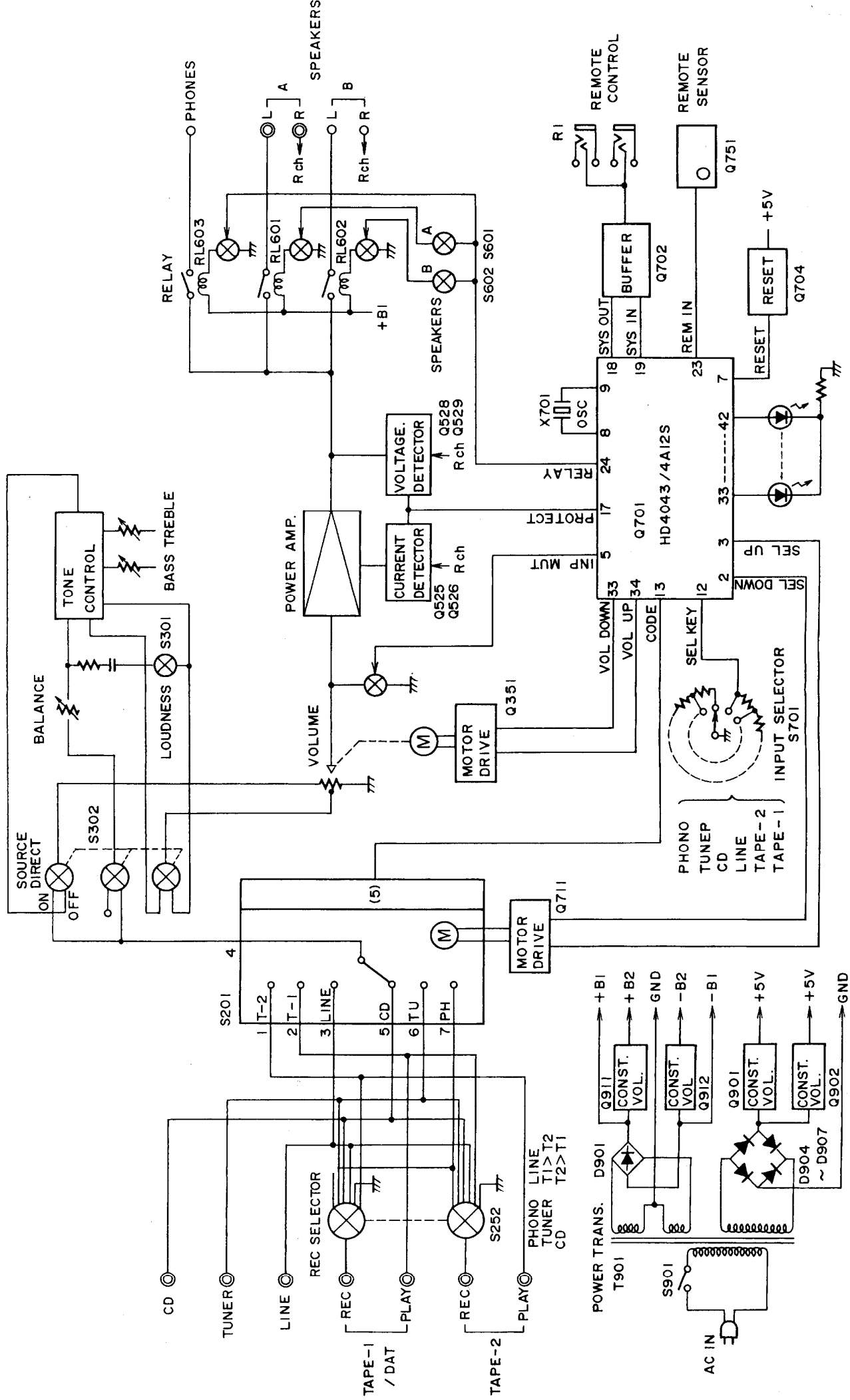
| | |
|----------------|---|
| Transmitter : | Infraared |
| Signal range : | Approx. 5 meters, 16ft |
| Power supply : | Two "AA"batteries (1.5V×2) |
| Dimintions : | 55 (W)×18 (H)×194 (D) mm 2-3/16"×11/16"×7-5/8" |
| Weight : | 100grams, 3.5oz. (including batteries) |

Specification and features are subject to change without notice.

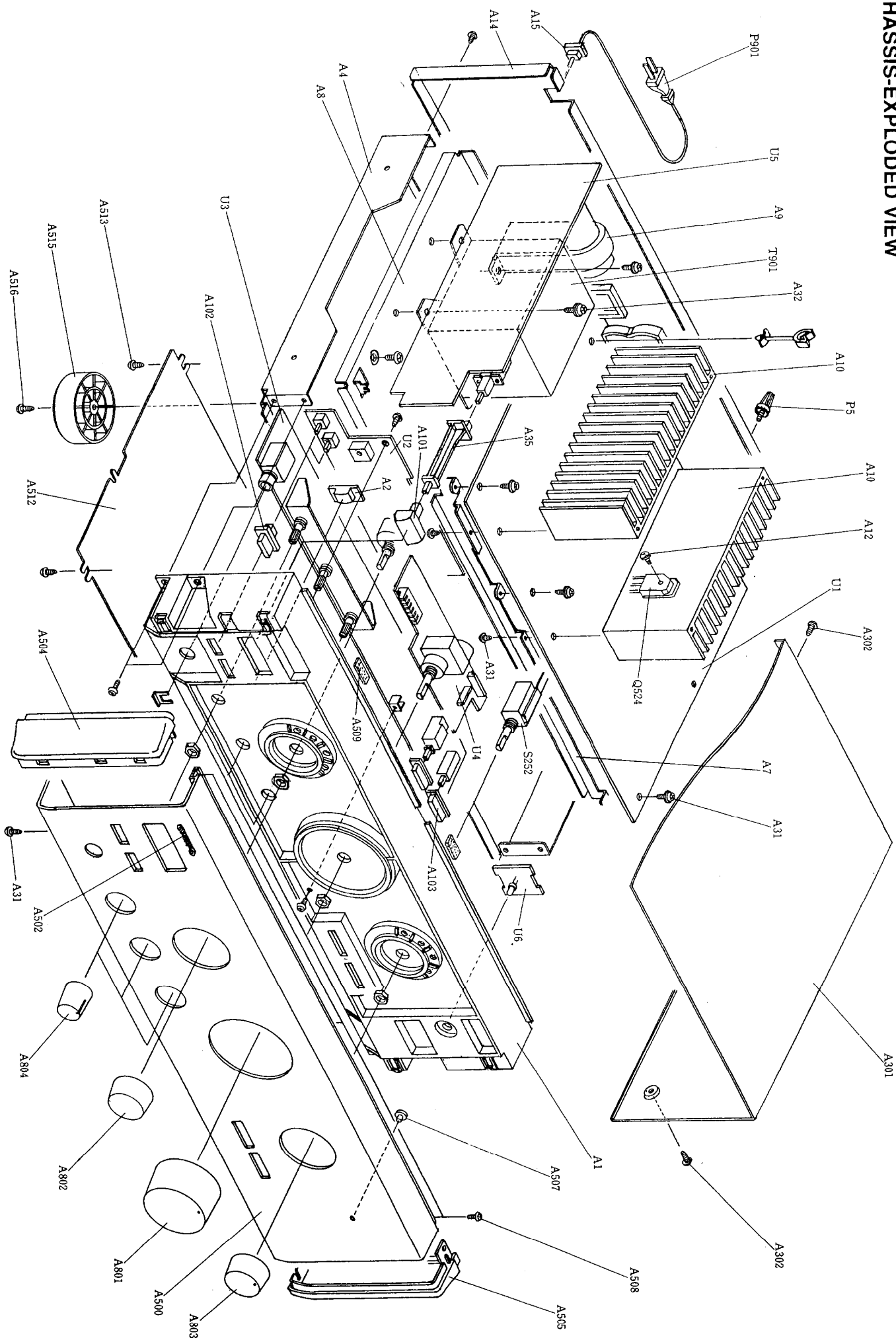
SCHEMATIC DIAGRAM (120V MODEL)



BLOCK DIAGRAM



CHASSIS-EXPLODED VIEW



ADJUSTMENT PROCEDURES

Adjustments and Checking the Protection Circuitry

1. Preparations

- 1) Place the unit on the workbench. (There should be about 15mm of space between the base plate of the unit and work surface.)
- 2) Set up the unit as follows.
 - (1) No load
 - (2) No signal
 - (3) Volume turned all the way down
 - (4) speaker switch OFF
 - (5) Power switch OFF

Note) Check the following points before making adjustments

- (1) The power switch should be OFF.
- (2) The interior of the unit should not be warm.

2. Idling current adjustment

- 1) And after 4~6 minutes of heat running, readjust R531 and R532 according to the voltage at that times; 6.0~7.0mV

3. Confirming operations.

1) Speaker relay

- (1) The speaker relay turns ON after 5 seconds when power is ON.
- (2) The speaker relay turns OFF immediately when power is OFF.

2) Over-voltage protector (Source Direct →ON)

- (1) The speaker relay is OFF immediately when D.C. +1~+1.5V is put at CD-terminal. (NO load, One channel)
- (2) The same as above when D.C. -1~-1.5V is put at CD-terminal.

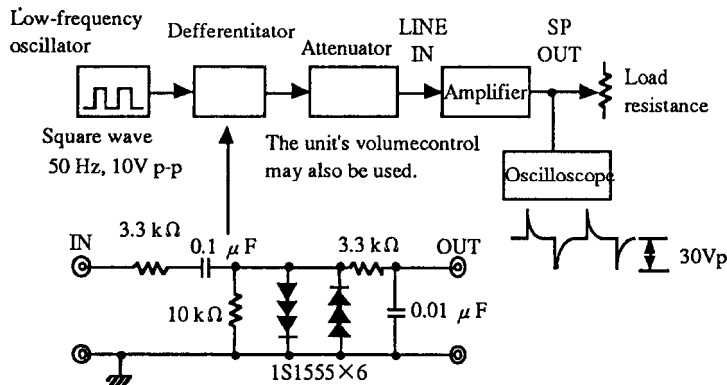
Note) Do not connect load nor short speaker terminals.

3) Over current protector

- (1) The speaker relay must hold ON when output level at 2 ohms load is under clip-point.
(clip-point=10% T.H.D. input:CD-terminal 1kHz)
- (2) The speaker relay must turn OFF immediately when 1.0 ohms load is connected at speaker terminals under the conditions that signal is put at CD-terminal by the designated circuit on 105% power supply voltage and output voltage is 30Vp-p.

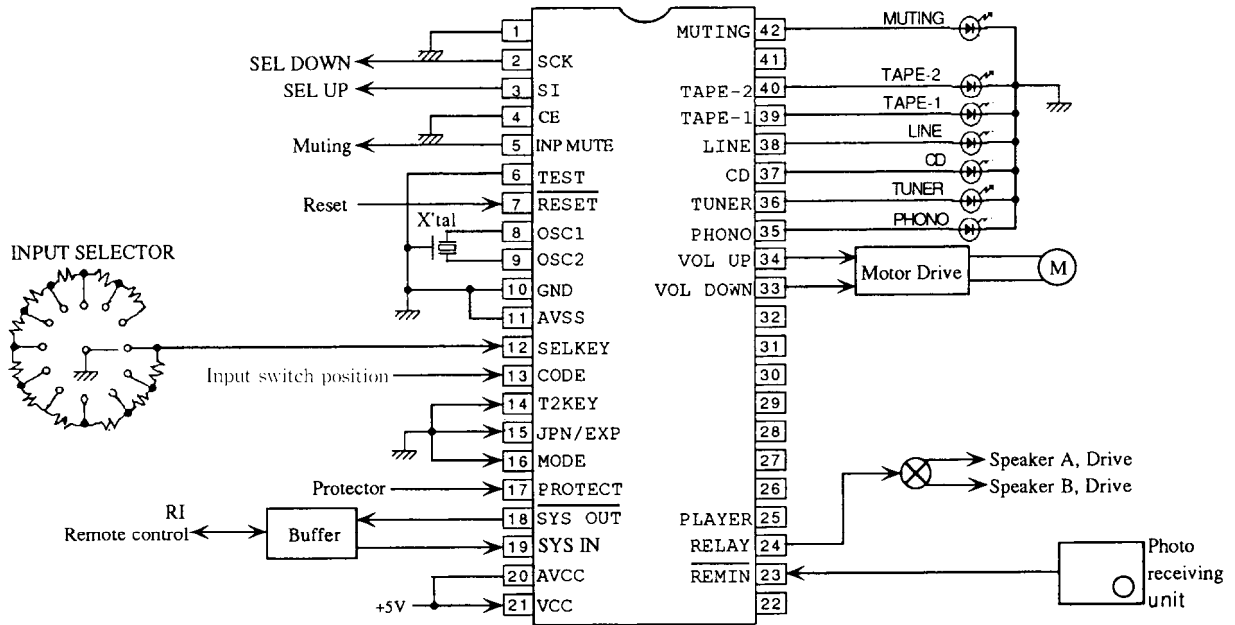
4) Remote control operation.

- (1) Each key must operate properly for the amplifier, cassette deck, and CD.



IC BLOCK DIAGRAM

HD404314A12S

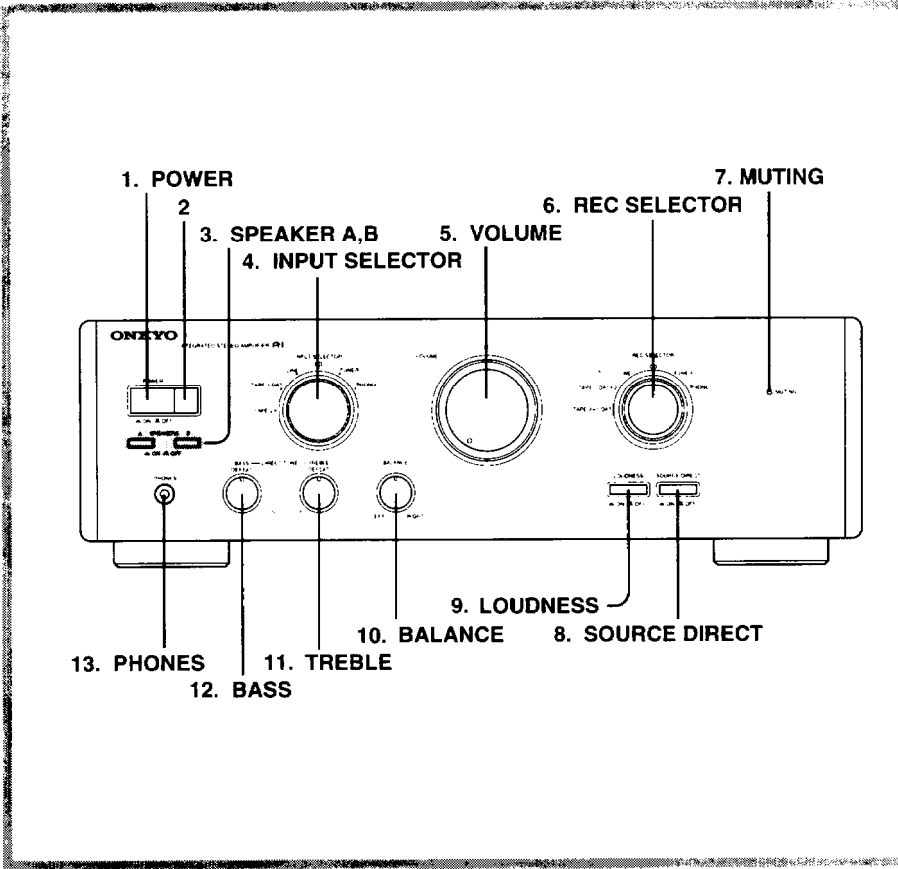


HD404314

| Pin No. | CODE | FUNCTION | I/O | DESCRIPTION | | | | | | | | | | | | |
|-----------|-----------|---------------|------|--|-----------|--------|----------|------|---|---|----|---|---|------|---|---|
| 1 | RA1/Vdisp | ----- | ---- | Not used, To be connected with GND. | | | | | | | | | | | | |
| 2 | R00/SCK | SEL DOWN / CL | OUT | <table border="1"> <thead> <tr> <th>OPERATION</th> <th>SEL UP</th> <th>SEL DOWN</th> </tr> </thead> <tbody> <tr> <td>STOP</td> <td>H</td> <td>H</td> </tr> <tr> <td>UP</td> <td>H</td> <td>L</td> </tr> <tr> <td>DOWN</td> <td>L</td> <td>H</td> </tr> </tbody> </table> | OPERATION | SEL UP | SEL DOWN | STOP | H | H | UP | H | L | DOWN | L | H |
| OPERATION | SEL UP | SEL DOWN | | | | | | | | | | | | | | |
| STOP | H | H | | | | | | | | | | | | | | |
| UP | H | L | | | | | | | | | | | | | | |
| DOWN | L | H | | | | | | | | | | | | | | |
| 3 | R01/SI | SEL UP / D1 | | | | | | | | | | | | | | |
| 4 | R02/SO | CE | ---- | | | | | | | | | | | | | |
| 5 | R03/TOC | INP MUT | OUT | Muting output terminal. Active "H". | | | | | | | | | | | | |
| 6 | TEST | TEST | ---- | Shipment Test. To be connected with GND. | | | | | | | | | | | | |
| 7 | RESET | RESET | IN | Input terminal for Reset signal. Active "L" | | | | | | | | | | | | |
| 8 | OSC1 | Xtal | ---- | Terminal for connecting with Ceramic oscillator (4MHz) | | | | | | | | | | | | |
| 9 | OSC2 | Xtal | ---- | | | | | | | | | | | | | |
| 10 | GND | GND | ---- | Ground terminal | | | | | | | | | | | | |
| 11 | AVss | AVss | ---- | Ground terminal of A/D converter | | | | | | | | | | | | |
| 12 | R30/AN0 | SELKEY | IN | Input terminal for when changing over Input Selector. Through A/D conversion, the selector will be detector on its right or left rotation. | | | | | | | | | | | | |
| 13 | R31/AN1 | CODE | IN | Code input terminal for detecting position of Rotary switch of Motor drive. | | | | | | | | | | | | |
| 14 | R32/AN2 | T-2KEY | IN | Tape-2 Key entry terminal. | | | | | | | | | | | | |
| • 15 | R33/AN3 | JPN/EXP | IN | Input terminal for change-over between Japan model and Export model. | | | | | | | | | | | | |

| Pin No. | CODE | FUNCTION | I/O | DESCRIPTION | | | | | | | | | | | | | | | |
|-----------|----------|-----------------------------|------|--|-----------|--------|----------|------|---|---|--------|---|---|----------|---|---|-----------|---|---|
| 16 | R40/AN4 | MODE | IN | Input terminal for initialization to change over operation mode. | | | | | | | | | | | | | | | |
| 17 | R41/AN5 | PROTECT | IN | Input terminal for detecting protect operation. | | | | | | | | | | | | | | | |
| 18 | R42/AN6 | $\overline{\text{SYS OUT}}$ | OUT | Output terminal for System Code. | | | | | | | | | | | | | | | |
| 19 | R43/AN7 | SYS IN | IN | Input terminal for System Code. | | | | | | | | | | | | | | | |
| 20 | AVcc | AVcc | ---- | Analog reference voltage for A/D conversion. | | | | | | | | | | | | | | | |
| 21 | Vcc | +5V | ---- | Power(+5V) terminal . | | | | | | | | | | | | | | | |
| 22 | D0/INT0 | $\overline{\text{POFF}}$ | IN | Input terminal for Detecting Power suspension. However, "L" 100 μ S or under shall be ignored. | | | | | | | | | | | | | | | |
| 23 | D1/INT1 | $\overline{\text{REMIN}}$ | IN | Remote control signal input terminal | | | | | | | | | | | | | | | |
| 24 | D2/EVENB | RELAY | OUT | Output terminal for controlling relay. "H" when ON. | | | | | | | | | | | | | | | |
| 25 | D3/BUZZ | PLAYER | OUT | Output terminal for Player control. "H" will be output for 200mS if input PLAY/REJECT code for Remote control and set Input selector for PHONO. | | | | | | | | | | | | | | | |
| 26 | D4/STOPC | ----- | ---- | Not used | | | | | | | | | | | | | | | |
| 27 | D5 | | | | | | | | | | | | | | | | | | |
| 28 | D6 | | | | | | | | | | | | | | | | | | |
| 29 | D7 | | | | | | | | | | | | | | | | | | |
| 30 | D8 | | | | | | | | | | | | | | | | | | |
| 31 | R80 | | | | | | | | | | | | | | | | | | |
| 32 | R81 | | | | | | | | | | | | | | | | | | |
| 33 | R81 | VOL DOWN | OUT | UP / DOWN output terminal for Volume. Active "H". | | | | | | | | | | | | | | | |
| 34 | R83 | VOL UP | | | | | | | | | | | | | | | | | |
| | | | | <table border="1"> <thead> <tr> <th>OPERATION</th> <th>VOL UP</th> <th>VOL DOWN</th> </tr> </thead> <tbody> <tr> <td>STOP</td> <td>H</td> <td>H</td> </tr> <tr> <td>VOL UP</td> <td>H</td> <td>L</td> </tr> <tr> <td>VOL DOWN</td> <td>L</td> <td>H</td> </tr> <tr> <td>POWER OFF</td> <td>L</td> <td>L</td> </tr> </tbody> </table> | OPERATION | VOL UP | VOL DOWN | STOP | H | H | VOL UP | H | L | VOL DOWN | L | H | POWER OFF | L | L |
| OPERATION | VOL UP | VOL DOWN | | | | | | | | | | | | | | | | | |
| STOP | H | H | | | | | | | | | | | | | | | | | |
| VOL UP | H | L | | | | | | | | | | | | | | | | | |
| VOL DOWN | L | H | | | | | | | | | | | | | | | | | |
| POWER OFF | L | L | | | | | | | | | | | | | | | | | |
| 35 | R10 | PHONO | OUT | Output terminal for Input selector LED. Active "H". | | | | | | | | | | | | | | | |
| 36 | R11 | TUNER | | | | | | | | | | | | | | | | | |
| 37 | R12 | CD | | | | | | | | | | | | | | | | | |
| 38 | R13 | LINE | | | | | | | | | | | | | | | | | |
| 39 | R20 | TAPE-1 | | | | | | | | | | | | | | | | | |
| 40 | R21 | TAPE-2 | | | | | | | | | | | | | | | | | |
| 41 | R22 | ----- | ---- | Not used | | | | | | | | | | | | | | | |
| 42 | R23 | MUTING | OUT | Output terminal for Audio muting LED, Remote control | | | | | | | | | | | | | | | |

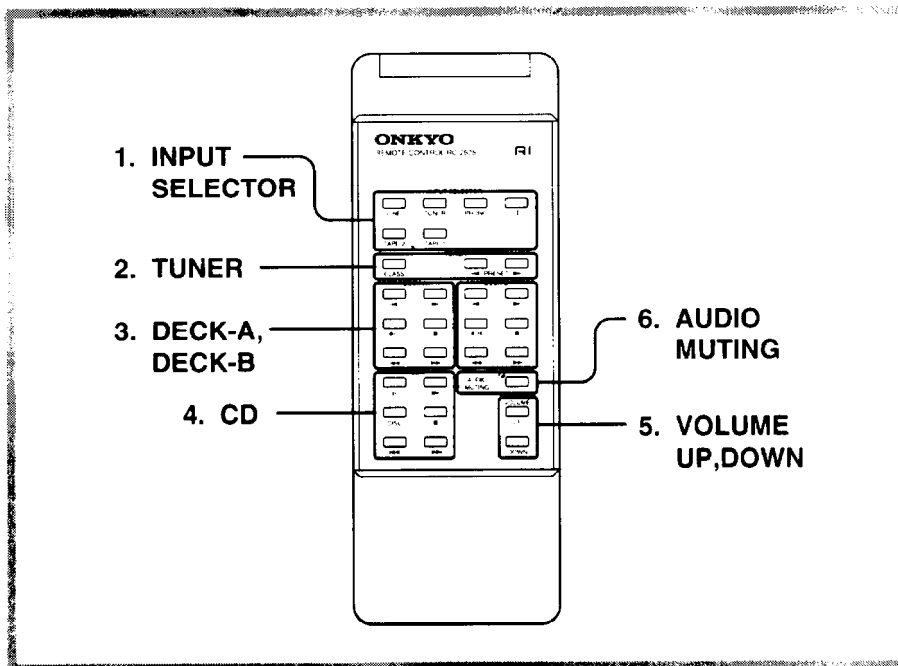
FRONT PANEL



Front panel

1. Power button
2. Remote control sensor
3. Speaker selector buttons
4. Input selector knob and indicator
5. Volume control knob
6. Recording selector knob
7. Muting indicator
8. Source Direct button
9. Loudness button
10. Balance control knob
11. Treble control knob
12. Bass control knob
13. Headphone jack

REMOTE CONTROL



Remote control

1. Input selector buttons
2. Tuner operation buttons
 CLASS : Class selector button
 PRESET : Preset memory down/up
3. Tape operation buttons
 ◀ : Reverse play button
 ▶ : Forward play button
 ⏮ : Fast rewind button
 ⏭ : Fast forward button
 ■ : Stop button
 ●/|| : Record/pause button
4. CD operation buttons
 || : Pause button
 ▶ : Play button
 DISC : Disc button for CD changer
 ⏮ : Down button
 ⏭ : Up button
5. Volume control buttons
6. Audio muting button

CHASSIS-EXPLODED VIEW PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION | CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-------------|--------------------------------|-------------|----------------|-----------------------------------|
| A1 | 27110785DY | Front bracket | F901 | △ 252164 | 5A-UL/T-237, Fuse <W> |
| A2 | 28191593-1 | Clear plate | F901 | △ 252164 | 5A-UL/T-237, Fuse <D> |
| A4 | 27100274 | Chassis | F902 | △ 252074 | 2A-SE-EAK, Fuse |
| A7 | 27130724 | Bracket(C) | P5 | 25060044 | GND terminal |
| A8 | 27130749 | Bracket(PT) | P901 | △ 253193HIT or | AS-CEE, AC Cord |
| A9 | 27190940 | Holder(CH) | | △ 253192HIT or | AS-UC-6#18, (SPT-2), AC CORD or |
| A10 | 27160334AY | Heat sink | | △ 253194MAR | AS-UC-6#18, AC CORD <D> |
| A11 | 223021 | TBM-51W, 9043, Isolation sheet | Q521,Q522 | 2201704 or | 2SC3855-Y, Transistor or |
| A12 | 801433 | 3SMS8W.SW+14B(BC), Screw | | 2201706 | 2SC3855-P, Transistor |
| A13 | 838130088 | 3TTB+8B, Screw | Q523,Q524 | 2201694 or | 2SA1491-Y, Transistor or |
| A14 | 27122070 | Rear panel <P> | | 2201696 | 2SA1491-P, Transistor |
| | 27122071 | Rear panel <W> | S252 | 25030369A | NRSF-106-, 20BU, Rotary switch |
| | 27122110 | Rear panel <D> | T901 | △ 2301116 | NPT-1244P, Power transformer |
| A15 | 27300750 | Cord bushing | | △ 2301117 | NPT-1244DG, Power transformer <W> |
| A30 | 82143006 | 3P+6FN(BC), Screw | | △ 2301115 | NPT-1244D, Power transformer <D> |
| A31 | 838130088 | 3TTB+8B, Screw | U1 | 1A587551-1Y | NAAF-5451-1, AF-AS |
| A32 | 830440089 | 4TTC+8C(BC), Screw | | 1A587551-1BY | NAAF-5451-1B, AF-AS <D> |
| A35 | 27273155 | Joint(POW) | U2 | 1A587552-1Y | NADG-5452-1, DG-AS |
| A101 | 28324140 | Knob(POW) | U3 | 1A587553-1Y | NASW-5453-1, SW-AS |
| A102 | 28324882 | Knob(SP) | U4 | 1A587554-1Y | NAETC-5454-1, ETC-AS |
| A103 | 28324886 | Knob(D) | U5 | 1A587555-1Y | NAPS-5455-1, PS-AS |
| A301 | 28184561Y | Top cover | | 1A587555-1AY | NAPS-5455-1A, PS-AS <W> |
| A302 | 838430088 | 3TTB+8B(BC), Screw | | 1A587552-1BY | NAPS-5455-1B, PS-AS <D> |
| A501 | 27211721 | Front panel | U6 | 1A587556-1Y | NAETC-5456-1, ETC-AS |
| A502 | 28135199 | Badge | U7 | 1A587557-1Y | NASW-5457-1, SW-AS <W> |
| A503 | 8910301 | CS-3(SUS), CS ring | | | |
| A504 | 28125255-6Y | End cap(L) | | | |
| A505 | 28125256-6Y | End cap(R) | | | |
| A506 | 28198798Y | Facet(SEL) | | | |
| A507 | 28198778 | Facet | | | |
| A508 | 838130088 | 3TTB+8B, Screw | | | |
| A509 | 28141288 | Cushion | | | |
| A510 | 29110029 | W=3, DF Tape | | | |
| A512 | 28153118 | Bottom board | | | |
| A513 | 838130088 | 3TTB+8B, Screw | | | |
| A515 | 27175300Y | Leg AS | | | |
| A516 | 838130088 | 3TTB+8B, Screw | | | |
| A801 | 28324883 | Knob(VOL) | | | |
| A802 | 28324884A | KnobSEL) | | | |
| A803 | 28324885A | Knob(REC) | | | |
| A804 | 28324887A | Knob(TONE) | | | |

NOTE: <P> : 230V model only
 <W> : Worldwide 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

PRINTED CIRCUIT BOARD – PARTS LIST

Main circuit PC board Parts list (NAAF-5451-1/1B)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------------------------------|--|
| Q101 | 22240111 | BA15218 |
| Q201 | 22240270 | LC7822N |
| | Transistors | |
| Q501,Q503 | 2213677 or 2213678 | 2SC3067-G or 2SC3067-H |
| Q505,Q506 | 2212125 or 2213355 | 2SA1048-GR or 2SA933S-S |
| Q507,Q508 | 2212125 2213355 | 2SA1048-GR 2SA933S-S |
| Q509,Q510 | 2211732 or 2211733 | 2SC1845-F or 2SC1845-E |
| Q511,Q512 | 2212115 or 2213284 or | 2SC2458-GR or 2SC1740S-R or |
| Q513,Q514 | 2211353 or 2211354 | 2SA949-O or 2SA949-Y |
| Q515,Q516 | 2211633 or 2211634 | 2SC2229-O or 2SC2229-Y |
| Q517,Q518 | 2212653 or 2212654 | 2SC3421-O or 2SC3421-Y |
| Q519,Q520 | 2212643 or 2212644 | 2SA1358-O or 2SA1358-Y |
| Q525,Q526 | 2211732 or 2211733 | 2SC1845-F or 2SC1845-E |
| Q527 | 2211792 or 2211793 | 2SA992-F or 2SA992-E |
| Q528,Q529 | 2211732 or 2211733 | 2SC1845-F or 2SC1845-E |
| Q531,Q532 | 2212115 or 2213284 | 2SC2458-GR or 2SC1740S-R |
| Q601,Q602 | 2213650 | DTD113ZS |
| Q951,Q952 | 2215163 | 2SD667A-C |
| | Diodes | |
| D501,D502 | 223168 | DA210S |
| D551 | 224450512 | MTZ5.1B, Zener |
| D601,D602 | 223163 or 223205 or 223222 | 1SS133 or 1SS270A or WG713A |
| D951,D952 | 224451503 | MTZ15C, Zener |
| | Coils | |
| L501,L502 | 231209 | S-0.4A, S Coil |
| | Capacitors | |
| C101,C102 | 354781009 | CE04W50V, 10M, ELECT C |
| C103,C104 | 374723915 374721215 | ECQ-B50V, 391K, TF C <P,W> ECQ-B50V, 121K, TF C <D> |
| C105,C106 | 374722024 | ECQ-B50V, 202J, TF C |
| C107,C108 | 374725624 | ECQ-B50V, 562J, TF C |
| C109,C110 | 354741019 | CE04W16V, 100M, ELECT C |
| C111,C112 | 354784709 | CE04W50V, 47M, ELECT C |
| C113,C114 | 374721224 | ECQ-B50V, 122J, TF C |
| C117,C118 | 374721215 | ECQ-B50V, 121K, TF C |
| C119,C120 | 374722215 | ECQ-B50V, 221K, TF C <P,W> |
| C204,C205 | 354781009 | CE04W50V, 10M, ELECT C |
| C501,C502 | 354780479 | CE04W50V, 4.7M, ELECT C |
| C505,C506 | 374721015 | ECQ-B50V, 101K, TF C |
| C507,C508 | 374722215 | ECQ-B50V, 221K, TF C |
| C509-C512 | 354742219 | CE04W16V, 220M, ELECT C |
| C519-C526 | 354782209 | CE04W50V, 22M, ELECT C |
| C529-C532 | 354781019 | CE04W50V, 100M, ELECT C |
| C533,C534 | 374724734 | ECQ-V50V, 473J, TF C |
| C541-C544 | 374721524 | ECQ-B50V, 152J, TF C <P,W> |
| C545,C546 | 374721015 | ECQ-B50V, 101K, TF C <P,W> |
| C554 | 354780479 | CE04W50V, 4.7M, ELECT C |
| C555 | 354722219 | CE04W6.3V, 220M, ELECT C |
| C557,C558 | 354781009 | CE04W50V, 10M, ELECT C |
| C561,C562 | 374721024 | ECQ-B50V, 102J, TF C <P,W> |
| C563,C564 | 374721024 | ECQ-B50V, 102J, TF C <P,W> |
| C601,C602 | 374724734 | ECQ-V50V, 473J, TF C |
| C951-C954 | 354742219 | CE04W16V, 220M, ELECT C |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------------------|---|
| | Resistors | |
| R527,R528 | 443522704 | RS1/2WBJ, 27, METAL O R |
| R529,R530 | 443526804 | RS1/2WBJ, 68, METAL O R |
| R531,R532 | 5210259 | N06HR, 2KBC, TRIM R |
| R535,R536 | 443522714 | RS1/2WBJ, 270, METAL O R |
| R539-R542 | 4000076 | MPC74-5WK, 0.22, METAL P R |
| R543-R546 | 453530224 | RNU1/2WCJ, 2.2, METAL R |
| R547,R548 | 453530824 | RNU1/2WCJ, 8.2, METAL R |
| R549,R550 | 453530564 | RNU1/2WCJ, 5.6, METAL R |
| R553-R556 | 453530224 | RNU1/2WCJ, 2.2, METAL R |
| R571,R572 | 443623914 | RS1WBJ, 390, METAL O R |
| R951,R952 | 443521224 | RS1/2WBJ, 1.2K, METAL O R |
| | Switch | |
| S253 | 25065079 | NSS-4643, Slide |
| | Relays | |
| RL601,RL602 | 25065339 | NRL-2P5A, -DC24-046, Relay |
| | Plugs, Jacks | |
| P503 | 25055038 | NPLG-2P29, Pin plug |
| P504 | 25055038 | NPLG-2P29, Pin plug |
| P101 | 25045401 | NPJ-2PDBL226, Pin jack |
| P201 | 25045411 | NPJ-6PDBL236, Pin jack |
| P202 | 25045410 | NPJ-4PDBL235, Pin jack |
| P203 | 25045410 | NPJ-4PDBL235, Pin jack |
| P801 | 25045330 | NPJ-2PDBL184, Pin jack |
| P501 | 25060125 | NTM-8PDMN058, Trimmer |
| P512b | 25055167 27141059 | NPLG-4P151, Pin plug End plate |
| | Holders | |
| JL701a | 25051113 27301779 | NSCT-9P900, Wire holder HL-38-0, Clamp |

Microprocessor PC board Parts list (NADG-5452-1)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|------------------------------|-------------------------|
| | Remote control sensor | |
| Q709 | 24130010 | HC-312 |
| | ICs | |
| Q708 | 22240239 | TA7291S |
| Q710 | 22240899 | HD404314A99S |
| | Transistors | |
| Q701-Q704 | 2213510 | DTA114ES |
| | Diodes | |
| D701-D704 | 223163 | 1SS133 |
| D705 | 224450562 | MTZ5.6B, Zener |
| D706 | 22380032 | 1SR139-100 |
| D707,D710 | 223163 | 1SS133 |
| D708,D709 | 22380032 | 1SR139-100 |
| D711-D716 | 225291D | SEL4910D-D, LED |
| | Resonator | |
| X701 | 3010150 | CST4.00MGW |
| | Capacitors | |
| C701,C706 | 354781009 | CE04W50V, 10M, ELECT C |
| C702 | 3000076 | ECCS5R5T104, EDL C |
| C703 | 354764709 | CE04W35V, 47M, ELECT C |
| C704 | 354781099 | CE04W50V, 0.1M, ELECT C |
| C705 | 374722234 | ECQ-B50V, 223J, TF C |
| C707 | 354741019 | CE04W16V, 100M, ELECT C |
| C710 | 354780109 | CE04W50V, 1M, ELECT C |
| | Switches | |
| S601 | 25035653 | NPS-122-L605 |
| S602 | 25035653 | NPS-122-L605 |
| S701 | 25030359 | NRSF-112, -20RM, Rotary |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|--------------------|-------------------------|
| | Plug, Wire holders | |
| P701a | 25055660 | NPLG-13P616, Pin plug |
| JL706a | 25051107 | NSCT-3P894, Wire holder |
| JL702a | 25051107 | NSCT-3P894, Wire holder |

Tone control circuit PC board Parts list (NADG-5453-1)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------------|-------------------------------|
| | Capacitors | |
| C301-C304 | 374721634Y | ECQ-B50V, 163J, TF C |
| C305,C306 | 374721824Y | ECQ-B50V, 182J, TF C |
| C307,C308 | 374728234Y | ECQ-V50V, 823J, TF C |
| C311,C312 | 374726814Y | ECQ-B50V, 681J, TF C |
| | Resistors | |
| R331,R332 | 5148107AY | N16RGM, 250KM25, Variable |
| R333,R334 | 5142002Y | N16RGM11C, 100K25, Variable |
| R335,R336 | 5144011Y | N16RQM11C, 70K88K25, Variable |
| | Switches, Jack | |
| S301 | 25035407Y | NPS-122-L371 |
| S302 | 25035654AY | NPS-162-L606 |
| | 25065425 | SCREW TRMM3 |
| P571 | 25045164 | HLJ4317, -01-3020, Jack |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|---------------|--------------|--------------------------|
| | Wire holders | |
| JL201a,JL571a | 25051107 | NSCT-3P894, Wire holder |
| JL501a | 25051111 | NSCT-7P898, Wire holder |
| JL301a,JL302a | 25051114 | NSCT-10P901, Wire holder |

Volume control circuit PC board Parts list (NAETC-5454-1)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|--------------------|-----------------------------------|
| | Transistors | |
| Q353,Q354 | 2213631 or 2213632 | RN1241-A or RN1241-B |
| | Capacitors | |
| C351 | 374721044Y | ECQ-V50V, 104J, TF C |
| C353,C254 | 374723315Y | ECQ-B50V, 331K, TF C |
| | Resistors | |
| R351,R352 | 5104329AY | N16RGM, 50KBT25F, Variable |
| | Sockets | |
| P701b | 25051047Y | NSCT-13P834, Socket |
| JL301b | 25050274Y | NSCT-10P102, 2.5mm TOP, Wire trap |
| JL701b | 25050273Y | NSCT-9P101, 2.5mm TOP, Wire trap |
| JL302b | 25050274Y | NSCT-10P102, Wire trap |
| | 25065425 | SCREW TRMM3 |

Power supply circuit PC board Parts list (NAPS-5455-1)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------------------|--------------------|
| | IC | |
| Q901 | 222780565JRC | 78M56 |
| | Diodes | |
| D901 | 22380038F | RBV602 |
| D903 | 22380046 or 22380035 | AM01Z or GP104003E |
| D904-D906 | 22380046 or 22380035 | AM01Z or GP104003E |
| D909 | 224450512Y | MTZ5.1B, Zener |
| D911 | 22380046 or 22380035 | AM01Z or GP104003E |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|--------------------|--|
| | Capacitors | |
| C901 | △ 3500065AY | DE7150FZ103P, AC400V/125V, IS C |
| C902,C903 | 374721044Y | ECQ-V50V, 104J, TF C |
| C904,C905 | 374731044Y | ECQ-V100V, 104J, TF C |
| C906,C907 | 3504279 or 3504245 | CE92W50V, 8200M, ELECT C or CE62W50V, 8200M, ELECT C |
| C908,C909 | 354751029Y | CE04W25V, 1000M, ELECT C |
| C910,C912 | 354781009Y | CE04W50V, 10M, ELECT C |
| C911 | 354784709Y | CE04W50V, 47M, ELECT C |
| C913 | 374731044Y | ECQ-V100V, 104J, TF C |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|------------|---------------------------|
| | Resistors | |
| R902,R903 | 4500055 | RNU1/4WJ, 2.2, METAL R |
| R904,R905 | 453530224Y | RNU1/2WCJ, 2.2, METAL R |
| R909 | 443521224Y | RS1/2WBJ, 1.2K, METAL O R |
| R910 | 443524714Y | RS1/2WBJ, 470, METAL O R |

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|---------------|--------------|---------------------------------|
| | Switch | |
| S901 | △ 25035550Y | NPS-111, -L512P |
| F901a | △ 25050065Y | YSH403T, Fuse holder <D> |
| F902a | △ 25050065Y | YSH403T, Fuse holder <P,W> |
| P902 | △ 25055675Y | NPLG-2P631, Pin plug |
| JL502a,JL703a | 25051107 | NSCT-3P894, Wire holder |
| JL702b | 25050267Y | NSCT-3P95, 2.5mm TOP, Wire trap |
| P512a | 2009990301AY | NSAS-4P0435, Socket AS |
| | 838130088Y | 3TTB+8B, Screw |

Muting indicator circuit PC board Parts list (NAETC-5456-1)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-------------|-------------------------|
| | Diode | |
| D751 | 225291D | SEL4910D-D |
| | Resistor | |
| R750 | 417342614Y | R16J360 |
| | Wire holder | |
| JL706b | 25051107 | NSCT-3P894, Wire holder |

Voltage selector switch PC board Parts list (NASW-5457-1)

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|-------------|-------------------|
| | Switch | |
| S902 | △ 25065437Y | NSS-22157P, Slide |

NOTE: <P> : 230V model only
<W> : Worldwide 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

PRECAUTIONS

1 . Replacing the fuses

For continued protection against risk fire, replace only with same type and same rating fuse.

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|----------|--------------------------------------|
| F901 | 252164 | 5A-UL/T-237, Fuse (120V/220V models) |
| F902 | 252074 | 2A-SE-EAK, Fuse |

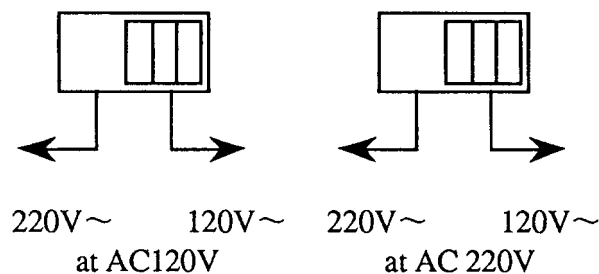
2 . Insulation resistance measurement (Only U.S.A model)

Connect the insulating-resistance tester between the plug of power supply cable and terminal GND on the back panel. Specifications; More than 10M Ω at 500V.

3 . Voltage Selector (Rear Panel)

Worldwide models are equipped with a voltage selector to conform to local power supplies. Be sure to set this switch to match the voltage of the power supply in your area before plugging in the unit. Models without a voltage selector can only be used in areas where the power supply is the same as that of the unit.

VOLTAGE SELECTOR



Setting the voltage selector

- 1 . Determine the proper for voltage for your area: 220V or 120V.
- 2 . If the preset voltage is not proper for your area, insert a screwdriver into the groove in the switch. Slide the switch all the way to the right (120V) or to the left (220V), which-ever is proper.

PARTS LIST OF PACKING

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------|---------------------|-----------------------------|
| 1 | 29052881Y | Carton |
| 2 | 29091651BY | Pad(L) |
| 3 | 29091652CY | Pad(R) |
| | 29360404 | SN Sheet |
| 4 | 29100034-1Y | 850 × 650, Poly bag |
| | 261504 | W=30, Paper tape |
| 5 | 282321 | Staple |
| | 282301 | Staple |
| 6 | 29110071 | W=50, PP Tape |
| | 29110098 | W=50, PP Tape |
| 7 | Accessory bag ass'y | |
| | 24140286Y | RC-286S, Remote control |
| | 3010194 | UM-3, Battery |
| | 2010200 | 3.5Mini plug, Cord AS |
| | 29342141Y | Instruction manual(E) |
| | 29342142Y | Instruction manual(U7) |
| | 29342144Y | Instruction manual(U3) <W> |
| | 29100097-1Y | 350 × 250, Poly bag |
| | 29365019B | Wranty card(E) <N> |
| | 25055040 | CV-K-2, Conversion plug <W> |
| | 29361786 | Label <W> |
| | 29358002K | SS List <N> |
| | 29361894 | UPC Label <N> |
| | 29360778 | Label flash <N> |

NOTE: <P> : 230V model only
 <W> : Worldwide model only
 <D> : 120V model only
 <N> : U.S.A. model only

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