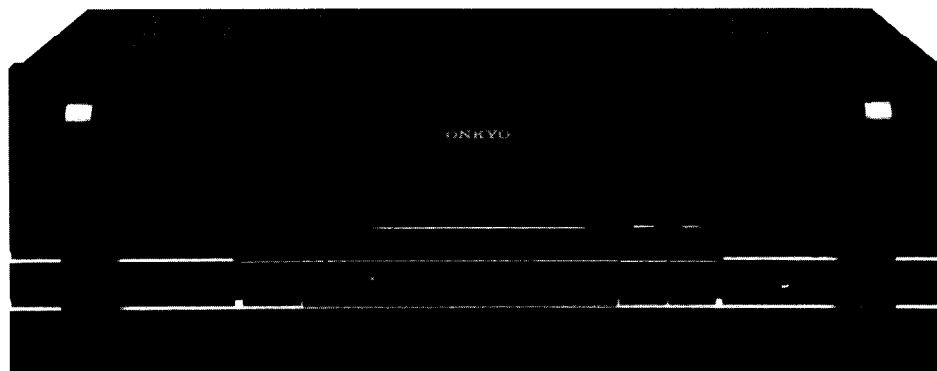


ONKYO® SERVICE MANUAL

Stereo Power Amplifier MODEL M-5200·M-5000



| | |
|----|---------------|
| UD | 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 FIRE
 AND ELECTRIC SHOCK. REPLACE THESE
 COMPONENTS WITH ONKYO 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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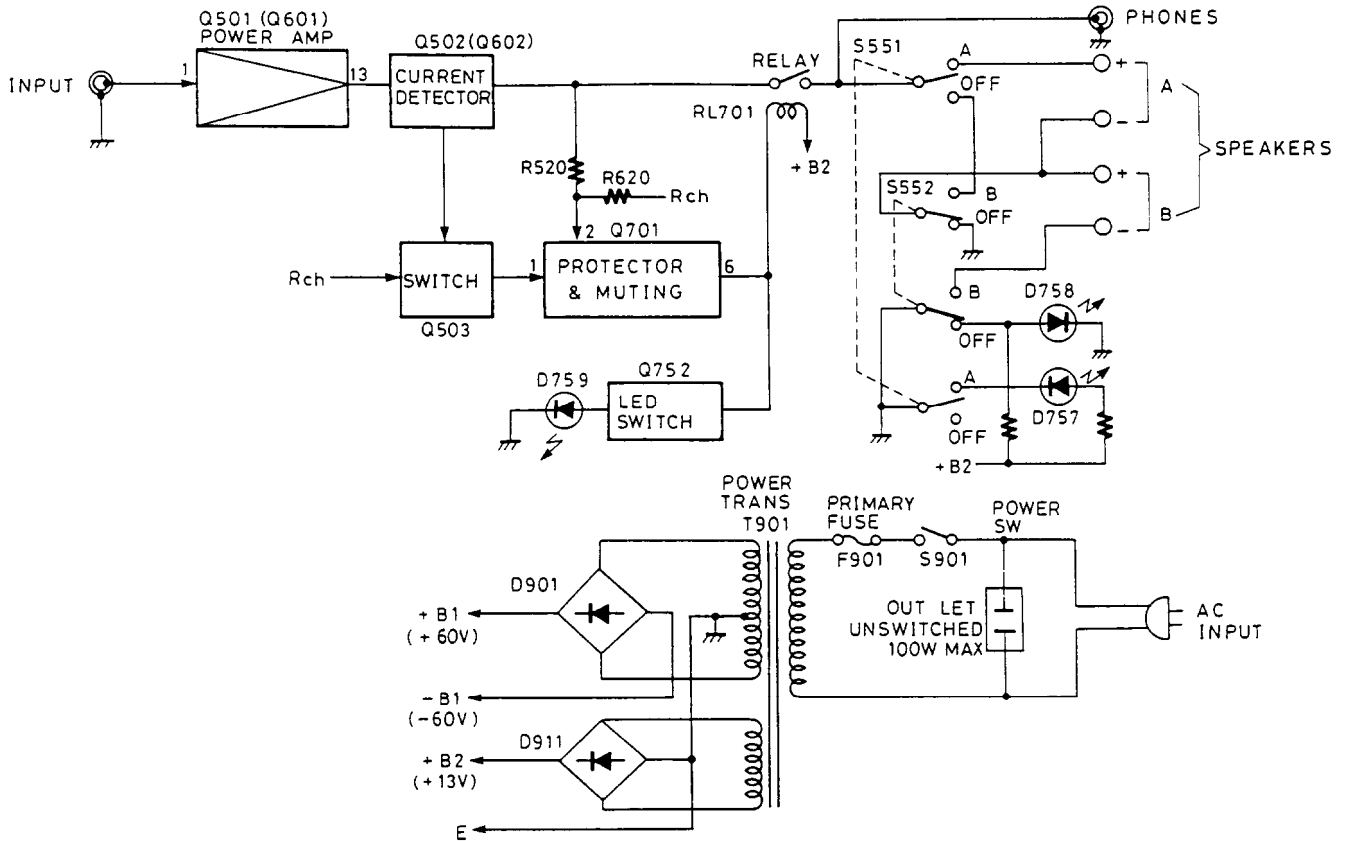


SPECIFICATIONS

| | M-5200 | M-5000 |
|-----------------------------------|---|---|
| Power Output: | 150 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.09% THD | 105 watts per channel, min. RMS, at 8 ohms, both channels driven, from 20Hz to 20kHz, with no more than 0.09% THD |
| Total Harmonic Distortion: | 0.09% at 150 watts | 0.09% at 105 watts |
| IM Distortion: | 0.09% at 150 watts | 0.09% at 105 watts |
| Damping Factor: | 40 at 8 ohms | 40 at 8 ohms |
| Frequency Response: | 5 - 100KHz ±1dB | 5 - 100KHz ±1dB |
| Sensitivity and Impedance: | 1V/50kohms | 1V/50kohms |
| Signal to Noise Ratio: | 100dB (IHFA-202 1 watt output) | 100dB (IHFA-202 1 watt output) |
| | | |
| General | | |
| Power Supply: | AC120V, 60Hz | AC120V, 60Hz |
| Dimensions (W x H x D): | 435 x 158 x 289.5mm 17-1/8" x 6-3/16" x 11-13/16" | 435 x 158 x 289.5mm 17-1/8" x 6-3/16" x 11-13/16" |
| Weight: | 9.1kg, 20.1 lbs. | 7.7kg, 17.0 lbs. |

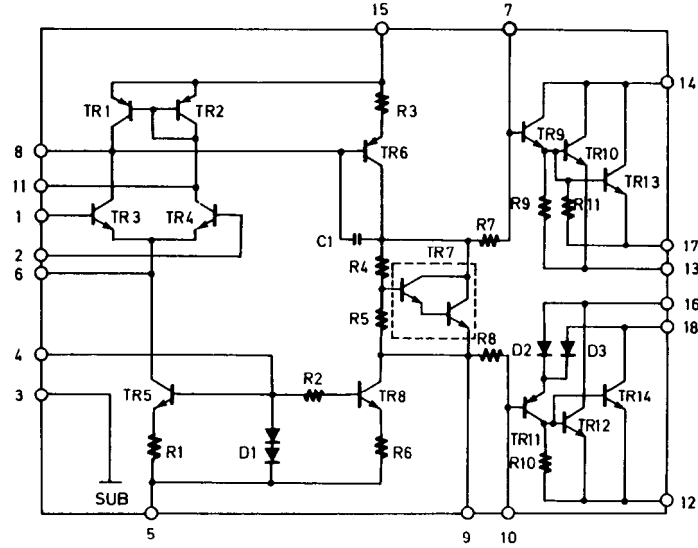
Specifications and features are subject to change without notice.

BLOCK DIAGRAM

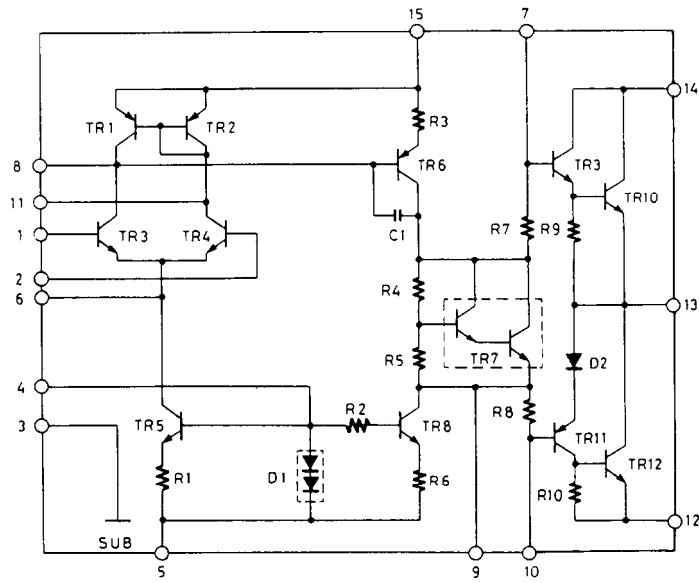


IC BLOCK DIAGRAM

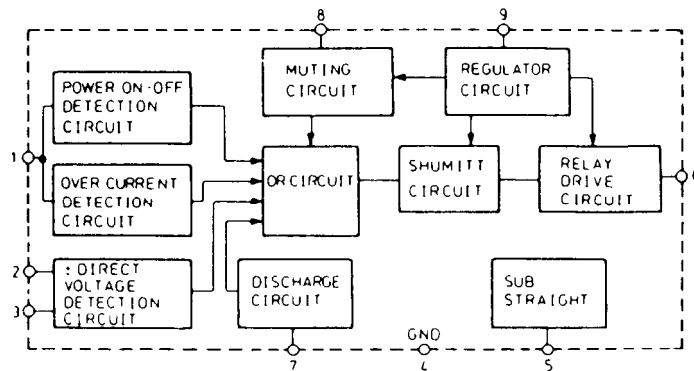
STK4048V (Power Amp.)



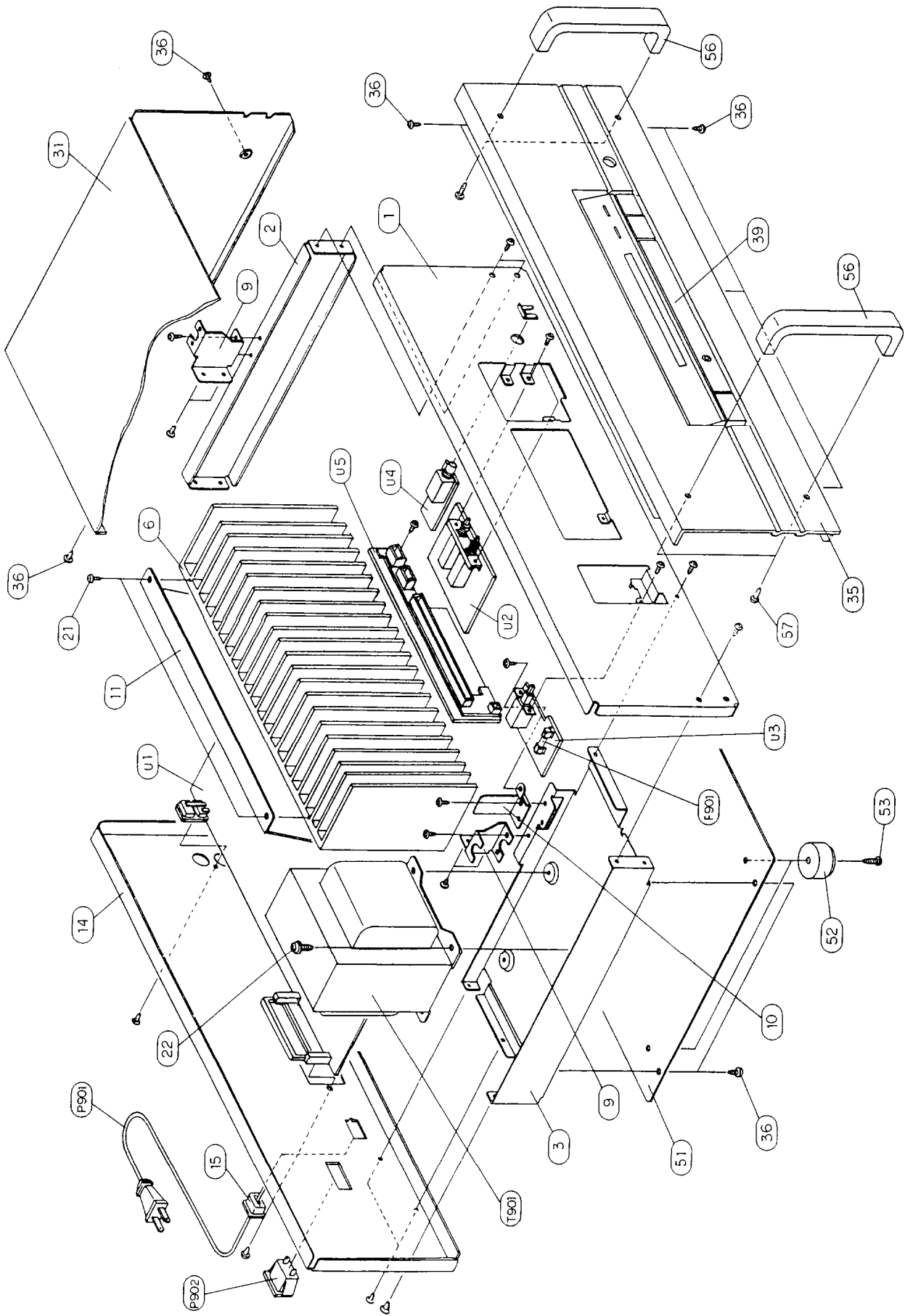
STK4044V (Power Amp.)



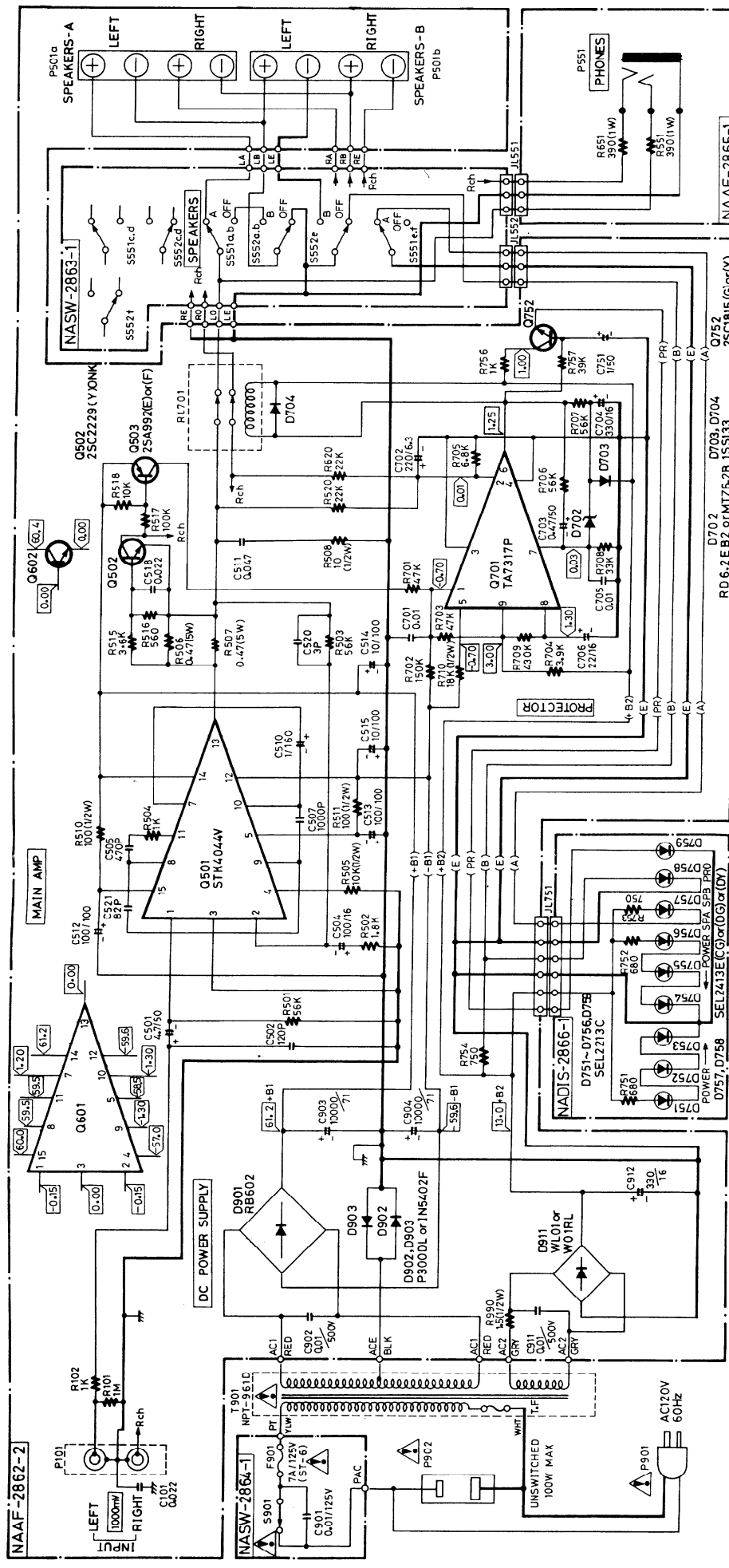
TA7317P (Protective Circuit)



CHASSIS-EXPLODED VIEW



SCHEMATIC DIAGRAM
MODEL M-5000



| NO | FUNCTION | POSITION |
|------|------------|----------|
| S901 | POWER | OFF ON |
| S551 | SPEAKERS A | OFF A |
| S552 | SPEAKERS B | OFF B |

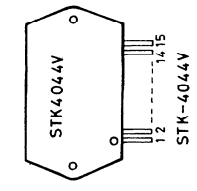
25C1815
25C2229
25A992



TA7317P

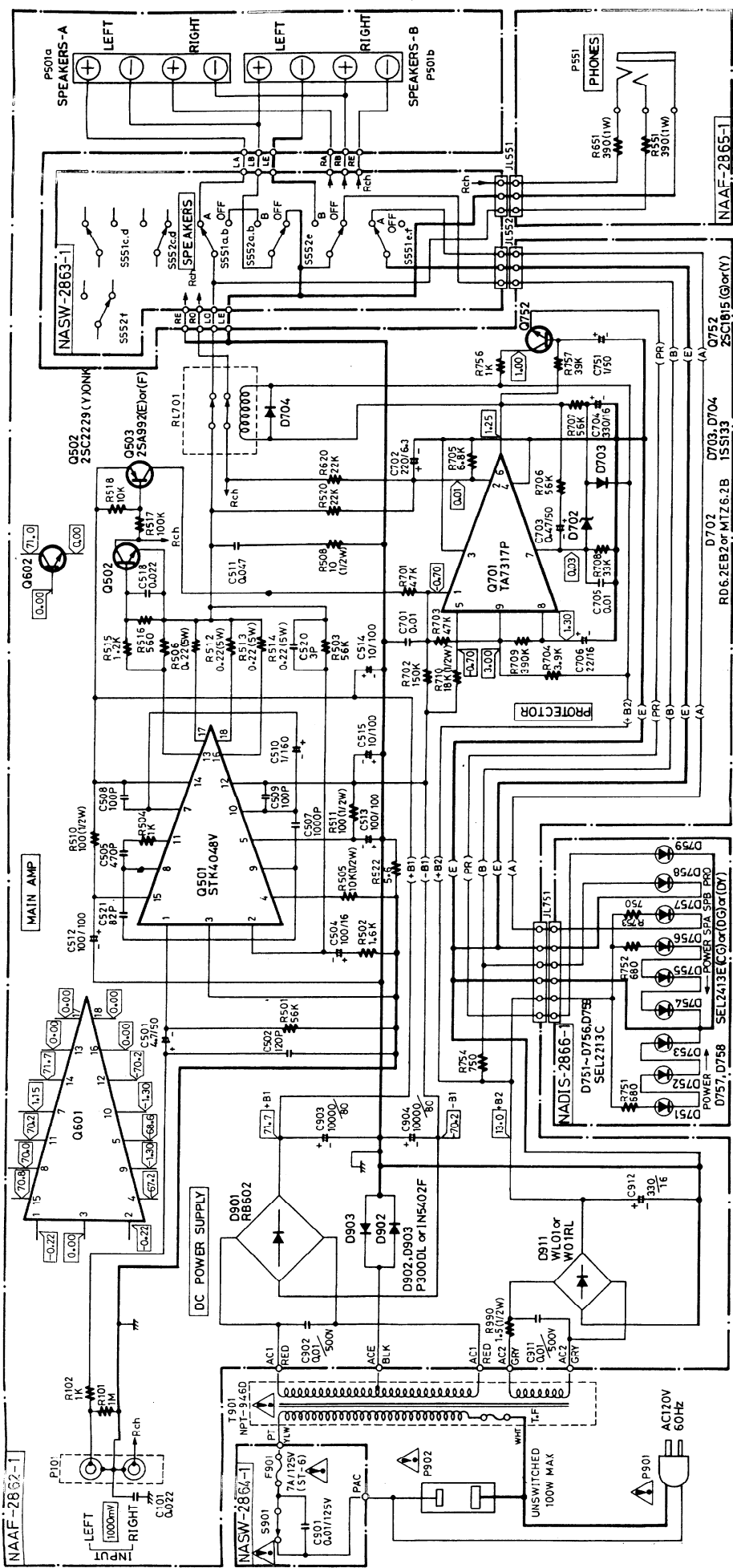


STK4044V



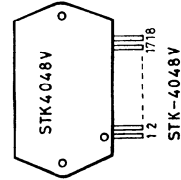
- NOTES**
- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/6WATTS UNLESS OTHERWISE NOTED.
 - ALL CAPACITORS ARE IN μ F/50V UNLESS OTHERWISE NOTED.
 - ELECTROLYTIC CAPACITORS (-E) ARE IN μ F/W.
 - ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
 - VOLTAGE (MEASURED WITH V.T.V.M) IS DC VOLTAGE, (NO INPUT SIGNAL).
 - THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
 - CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

SCHEMATIC DIAGRAM
MODEL M-5200



| NO | FUNCTION | POSITION |
|------|------------|----------|
| S901 | POWER | OFF ON |
| S551 | SPEAKERS A | OFF A |
| S552 | SPEAKERS B | OFF B |





EC B
S2C1815
S2C2229
S2A992







- NOTES**
- ALL RESISTORS ARE IN OHMS 1/4WATTS or 1/6WATTS UNLESS OTHERWISE NOTED.
 - ALL CAPACITORS ARE IN μ F/500V UNLESS OTHERWISE NOTED.
 - ELECTROLYTIC CAPACITORS (E) ARE IN μ F/W.
 - ALL DIODES ARE 1SS133 UNLESS OTHERWISE NOTED.
 - VOLTAGE (MEASURED WITH V.T.V.M) IS DC VOLTAGE. (NO INPUT SIGNAL)
 - THE COMPONENTS IDENTIFIED BY MARK Δ ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
 - CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.


CHASSIS-EXPLODED VIEW-PARTS LIST

M-5200

| REF.NO. | PART NO. | DESCRIPTION |
|--|---|--|
| 1 | 27110331A | FRONT BRACKET |
| 2 | 27115221 | SIDE BRACKET |
| 3 | 27130404-2B | BRACKET (PT) |
| 6 | 27160200A | HEATSINK |
| 9 | 27141020C | BRACKET (HE) |
| 10 | 27141114B | BRACKET (S) |
| 11 | 27141115B | BRACKET (L) |
| 14 | 27121221 | BACK PANEL |
| 15 | 27300750 | BUSHING (CORD) |
| 21 | 831130088 | TAP-TIGHT SCREW 3TTW+8B |
| 22 | 830440089 | TAP-TIGHT SCREW 4TTC+8CBC |
| 31 | 28184353A | TOP COVER |
| 35 | 27211064 | FRONT PANEL |
| 36 | 834430088 | TAP-TIGHT SCREW 3TTS+8BBC |
| 39 | 28323621 | KNOB AS, GUID |
| 51 | 27170238A | BOTTOM BOARD |
| 52 | 27175221A | LEG |
| 53 | 834430088 | TAP-TIGHT SCREW 3TTS+8BBC |
| 56 | 28158035 | HANDLE |
| 57 | 830440109 | TAP-TIGHT SCREW 4TTC+10CBC |
|  T901 | 2300174A | POWER TRANSFORMER NPT-946D |
|  P901 | 253123 or 253136 or 253140 or 253146 | POWER SUPPLY CABLE AS-UC-6#18 |
|  P902 | 25050290 | AC OUTLET NSCT-2P118T |
|  F901 | 252052 | FUSE 7A (ST-6) |
| U1 | 1A044562-1 | NAAF-2862-1, POWER AMP. PC BOARD ASS'Y |
| U2 | 1A044563-1 | NASW-2863-1, SPEAKERS SWITCH PC BOARD ASS'Y |
| U3 | 1A044564-1 | NASW-2864-1, POWER SWITCH PC BOARD ASS'Y |
| U4 | 1A044565-1 | NAAF-2865-1, PHONES PC BOARD ASS'Y |
| U5 | 1A044566-1 | NADIS-2866-1, DISPLAY PC BOARD ASS'Y |
| U6 | 1A044567-1 | NAETC-2867-1, PC TERMINAL PC BOARD ASS'Y |

M-5000

| REF.NO. | PART NO. | DESCRIPTION |
|---|---|--|
| 1 | 27110331A | FRONT BRACKET |
| 2 | 27115221 | SIDE BRACKET |
| 3 | 27130404-2B | BRACKET (PT) |
| 6 | 27160207A | HEATSINK |
| 9 | 27141020C | BRACKET (HE) |
| 10 | 27141114B | BRACKET (S) |
| 11 | 27141137A | BRACKET (L) |
| 14 | 27121222 | BACK PANEL |
| 15 | 27300750 | BUSHING (CORD) |
| 21 | 831130088 | TAP-TIGHT SCREW 3TTW+8B |
| 22 | 830440089 | TAP-TIGHT SCREW 4TTC+8CBC |
| 31 | 28184353A | TOP COVER |
| 35 | 27211065 | FRONT PANEL |
| 36 | 834430088 | TAP-TIGHT SCREW 3TTS+8BBC |
| 39 | 28323621 | KNOB AS, GUID |
| 51 | 27170238A | BOTTOM BOARD |
| 52 | 27175221A | LEG |
| 53 | 834430088 | TAP-TIGHT SCREW 3TTS+8BBC |
| 56 | 28158035 | HANDLE |
| 57 | 830440109 | TAP-TIGHT SCREW 4TTC+10CBC |
|  T901 | 2300226 | POWER TRANSFORMER NPT-941D |
|  P901 | 253123 or 253136 or 253140 or 253146 | POWER SUPPLY CABLE AS-UC-6#18 |
|  P902 | 25050290 | AC OUTLET NSCT-2P118T |
|  F901 | 252052 | FUSE 7A (ST-6) |
| U1 | 1A045562-2 | NAAF-2862-2, POWER AMP. PC BOARD ASS'Y |
| U2 | 1A045563-2 | NASW-2863-2, SPEAKERS SWITCH PC BOARD ASS'Y |
| U3 | 1A044564-1 | FNASW-2864-1, POWER SWITCH PC BOARD ASS'Y |
| U4 | 1A044565-1 | NAAF-2865-1, PHONES PC BOARD ASS'Y |
| U5 | 1A044566-1 | NADIS-2866-1, DISPLAY PC BOARD ASS'Y |
| U6 | 1A045567-2 | NAETC-2867-2, PC TERMINAL PC BOARD ASS'Y |

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

PRECAUTIONS

1. Replacing the fuses

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

| CIRCUIT NO. | PARTS NO. | DESCRIPTION |
|-------------|-----------|-------------------------|
| F901 | 252052 | 7A (ST-6), Primary fuse |

2. Insulation resistance measurement

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

PACKING PARTS LIST

| REF.NO. | PART NO. | DESCRIPTION |
|---------|-----------|---------------------------|
| A851 | 29051862 | MASTER CARTON BOX [M5200] |
| A851 | 29051864 | MASTER CARTON BOX [M5000] |
| A852 | 29091152B | PAD, LEFT |
| A853 | 29091153B | PAD, RIGHT |
| A855 | 29100033A | 750×500mm, POLY-VINYL BAG |
| A856 | 282301 | SEALING HOOK |
| A857 | 260012 | DAMPLON TAPE |
| A858 | 261504 | PAPER TAPE |
| A868 | 29360778 | LABEL (FLASH) [N] |

ACCESSORY BAG ASS'Y

| | | |
|------|-----------|--|
| A901 | 29341377 | INSTRUCTION MANUAL |
| A902 | 2010098A | CONNECTION CABLE |
| A903 | 29100006A | 350×250mm, POLY-VINYL BAG FOR ACCESSARY |
| A904 | 29365019 | WARRANTY CARD [N] |
| A905 | 29358002F | SERVICE STATION LIST [N] |

NOTE

[N]: ONLY U.S.A. MODELS
[M5200]: ONLY M-5200 MODELS
[M5000]: ONLY M-5000 MODELS

PRINTED CIRCUIT BOARD PARTS LIST

M-5200

POWER AMP. CIRCUIT PC BOARD (NAAF-2862-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|--|---|--|
| ICs | | |
| Q501, Q601 Q701 | 222059 222584 | STK4048V TA7317P |
| Transistors | | |
| Q502, Q602 Q503 | 2211639 2211792 or 2211793 | 2SC2229Y (ONK) 2SA992E or 2SA992F |
| Q752 | 2211255 or 2211254 | 2SC1815GR or 2SC1815Y |
| Diodes | | |
| D702 | 2239492 or 2243162 | RD6.2EB2 or MTZ6.2B |
| D703, D704 D901 | 223163 223898F | 1SS133 RB602 |
| D902, D903 | 223897F or 22380003F | P300DL or 1N5402F |
| D911 | 223862 or 223890 | WL01 or W01RL |
| Capacitors | | |
| C501, C601 C504, C604 C510, C610 C511, C611 C512, C513 C612, C613 C514, C515 C614, C615 C702 C703 C704 C706 C751 C903, C904 C912 | 3500093 354741019 354700109 371124734 354791019 354791009 354722219 354784799 354743319 354742209 354780109 3504204 354743319 | 4.7 μ F, 50V, Elect. 100 μ F, 16V, Elect. 1 μ F, 160V, Elect. 0.047 μ F, 50V, Mylar 100 μ F, 100V, Elect. 10 μ F, 100V, Elect. 220 μ F, 6.3V, Elect. 0.47 μ F, 50V, Elect. 330 μ F, 16V, Elect. 22 μ F, 16V, Elect. 1 μ F, 50V, Elect. 10000 μ F, 80V, Elect. 330 μ F, 16V, Elect. |
| Resistors | | |
| R505, R605 R506, R507 R606, R607 R508, R608 R510, R511 R610, R611 R512~R514 R612~R614 R710 R990 | 442521034 F 4000076 441521004 F 442521014 F 4000076 442521834 F 442520154 F | 10k Ω , 1/2W, Metal oxide film 0.22 Ω , 5W, Metal plate 10 Ω , 1/2W, Metal oxide film 100 Ω , 1/2W, Metal oxide film 0.22 Ω , 5W, Metal plate 18k Ω , 1/2W, Metal oxide film 1.5 Ω , 1/2W, Metal oxide film |
| Relay | | |
| RL701 | 25065275 | NRL-2P5A-DC12-38 |
| Terminals | | |
| P101 P501 | 25045211 25060093 | NPJ-2PDBL91, Input NTM-8PDML34, Output |
| Bracket | | |
| | 27141059 | Washer |

SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2863-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-----------------|----------|--------------|
| Switches | | |
| S551, (S552) | 25035549 | NPS-262-L511 |

POWER SWITCH CIRCUIT PC BOARD (NASW-2864-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|---------------------|----------|-------------------------------|
| Capacitor | | |
| C901 | 3500065A | 0.01 μ F, AC400V/125V, IS |
| Switch | | |
| S901 | 25035550 | NPS-111-1512P |
| Fuse holders | | |
| | 250113 | SN5051 |

PHONES CIRCUIT PC BOARD (NAAF-2865-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|------------------|-----------|-------------------------------------|
| Resistors | | |
| R551, R651 | 441623914 | 390 Ω , 1W, Metal oxide film |
| Jack | | |
| P551 | 25045187 | HLJ-0541-01-010 |

DISPLAY CIRCUIT PC BOARD (NADIS-2866-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-------------------|--|--|
| Diodes | | |
| D751~D756 D759 | 225141 | SEL2213C |
| D757, D758 | 225137CG or 225137DG or 225137DY | SEL2413ECG SEL2413EDG SEL2413EDY |
| Holder | | |
| | 27190510A | (LED) |

PRINTED CIRCUIT BOARD PARTS LIST

M-5000

POWER AMP. CIRCUIT PC BOARD (NAAF-2862-2)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|--------------------|-------------------------|---------------------------------------|
| ICs | | |
| Q501, Q601 | 222051 | STK4044V |
| Q701 | 222584 | TA7317P |
| Transistors | | |
| Q502, Q602 | 2211639 | 2SC2229Y(ONK) |
| Q503 | 2211792 or 2211793 | 2SA992E or 2SA992F |
| Q752 | 2211255 or 2211254 | 2SC1815GR or 2SC1815Y |
| Diodes | | |
| D702 | 2239492 or 2243162 | RD6.2EB2 or MTZ6.2B |
| D703, D704 | 223163 | 1SS133 |
| D901 | 223898F | RB602 |
| D902, D903 | 223897F or 22380003F | P300DL or 1N5402F |
| D911 | 223862 or 223890 | WL01 or W01RL |
| Capacitors | | |
| C501, C601 | 3500093 | 4.7 μ F, 50V, Elect. |
| C504, C604 | 354741019 | 100 μ F, 16V, Elect. |
| C510, C610 | 354700109 | 1 μ F, 160V, Elect. |
| C511, C611 | 371124734 | 0.047 μ F, 50V, Mylar |
| C512, C513 | 354791019 | 100 μ F, 100V, Elect. |
| C612, C613 | | |
| C514, C515 | 354791009 | 10 μ F, 100V, Elect. |
| C614, C615 | | |
| C702 | 354722219 | 220 μ F, 6.3V, Elect. |
| C703 | 354784799 | 0.47 μ F, 50V, Elect. |
| C704 | 354743319 | 330 μ F, 16V, Elect. |
| C706 | 354742209 | 22 μ F, 16V, Elect. |
| C751 | 354780109 | 1 μ F, 50V, Elect. |
| C903, C904 | 3504191 | 10000 μ F, 71V, Elect. |
| C912 | 354743319 | 330 μ F, 16V, Elect. |
| Resistors | | |
| R505, R605 | 442521034F | 10k Ω , 1/2W, Metal oxide film |
| R506, R507 | 4000080 | 0.47 Ω , 5W, Metal plate |
| R606, R607 | | |
| R508, R608 | 441521004F | 10 Ω , 1/2W, Metal oxide film |
| R510, R511 | 442521014F | 100 Ω , 1/2W, Metal oxide film |
| R610, R611 | | |
| R710 | 442521834F | 18k Ω , 1/2W, Metal oxide film |
| R990 | 442520154F | 1.5 Ω , 1/2W, Metal oxide film |
| Relay | | |
| RL701 | 25065275 | NRL-2P5A-DC12-38 |
| Terminals | | |
| PI01 | 25045211 | NPJ-2PDBL91, Input |
| PS01 | 25060093 | NTM-8PDML34, Output |
| Bracket | | |
| | 27141059 | Washer |

SPEAKER SWITCH CIRCUIT PC BOARD (NASW-2863-2)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|-----------------|----------|--------------|
| Switches | | |
| S551, (S552) | 25035549 | NPS-262-L511 |

POWER SWITCH CIRCUIT PC BOARD (NASW-2864-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|---------------------|----------|-------------------------------|
| Capacitor | | |
| C901 | 3500065A | 0.01 μ F, AC400V/125V, IS |
| Switch | | |
| S901 | 25035550 | NPS-111-1512P |
| Fuse holders | | |
| | 250113 | SN5051 |

PHONES CIRCUIT PC BOARD (NAAF-2865-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|------------------|-----------|-------------------------------------|
| Resistors | | |
| R551, R651 | 441623914 | 390 Ω , 1W, Metal oxide film |
| Jack | | |
| P551 | 25045187 | HLJ-0541-01-010 |

DISPLAY CIRCUIT PC BOARD (NADIS-2866-1)-PARTS LIST

| CIRCUIT NO. | PART NO. | DESCRIPTION |
|---------------|--|--|
| Diodes | | |
| D751~D756 | 225141 | SEL2213C |
| D759 | | |
| D757, D758 | 225137CG or 225137DG or 225137DY | SEL2413ECG SEL2413EDG SEL2413EDY |
| Holder | | |
| | 27190510A | (LED) |