

# ONKYO® SERVICE MANUAL

## SYNTHESIZED FM STEREO/AM TUNER MODEL T-4040



Black model

|      |               |
|------|---------------|
| BMDN | 120V AC, 60Hz |
|------|---------------|

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\Delta$  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.

### TABLE OF CONTENTS

|                                          |    |
|------------------------------------------|----|
| Specifications .....                     | 2  |
| Service procedures .....                 | 2  |
| Block diagram .....                      | 3  |
| Exploded view .....                      | 4  |
| Parts list .....                         | 5  |
| IC block diagrams and descriptions ..... | 6  |
| Microprocessor connection diagram .....  | 8  |
| Microprocessor descriptions .....        | 9  |
| Packing view .....                       | 10 |
| Adjustment procedures .....              | 11 |
| Schematic diagram .....                  | 13 |
| Printed circuit board view .....         | 15 |
| Printed circuit board-parts list .....   | 19 |

**ONKYO®**  
**AUDIO COMPONENTS**

## SPECIFICATIONS

### FM

|                                |                                                                  |
|--------------------------------|------------------------------------------------------------------|
| Tuning range:                  | 87.50 – 108.00 MHz<br>(50 kHz steps)                             |
| Usable sensitivity             |                                                                  |
| Mono:                          | 11.2 dBf, 1.0 $\mu$ V, 75 Ohms, IHF<br>0.9 $\mu$ V, 75 Ohms, DIN |
| Stereo:                        | 17.2 dBf, 2.0 $\mu$ V, 75 Ohms, IHF<br>20 $\mu$ V, 75 Ohms, DIN  |
| 50 dB quieting sensitivity     |                                                                  |
| Mono:                          | 16.1 dBf, 1.7 $\mu$ V, 75 Ohms                                   |
| Stereo:                        | 36.1 dBf, 17 $\mu$ V, 75 Ohms                                    |
| Capture ratio:                 | 1.5 dB                                                           |
| Image rejection ratio:         | 40 dB                                                            |
| IF rejection ratio:            | 90 dB                                                            |
| Signal-to-noise ratio          |                                                                  |
| Mono:                          | 73 dB, IHF                                                       |
| Stereo:                        | 66 dB, IHF                                                       |
| Alternate channel attenuation: | 50 dB, IHF                                                       |
| AM suppression ratio:          | 50 dB                                                            |
| Total Harmonic Distortion      |                                                                  |
| Mono:                          | 0.1%                                                             |
| Stereo:                        | 0.2%                                                             |
| Frequency response:            | 30 – 15,000 Hz ( $\pm 1.5$ dB)                                   |
| Stereo separation:             | 40 dB at 1 kHz<br>30 dB at 70 – 10,000 Hz                        |
| Output voltage:                | 0.5 V                                                            |
| Muting level:                  | 17.2 dBf, 2.0 $\mu$ V, 75 Ohms                                   |

### AM

|                            |                           |
|----------------------------|---------------------------|
| Tuning range               | 530-1710kHz (10kHz steps) |
| Usable sensitivity:        | 25 $\mu$ V                |
| Image rejection ratio:     | 40 dB                     |
| IF rejection ratio:        | 40 dB                     |
| Signal-to-noise ratio:     | 40 dB                     |
| Total Harmonic Distortion: | 0.8%                      |
| Output voltage:            | 150 mV                    |

### General

|                                       |                                                                             |
|---------------------------------------|-----------------------------------------------------------------------------|
| Dimensions (W $\times$ H $\times$ D): | 435 $\times$ 91 $\times$ 305mm<br>17-1/8" $\times$ 3-9/16" $\times$ 12-1/2" |
| Weight:                               | 3.6Kg , 7.9lbs                                                              |

Specifications and features are subject to change without notice.

## SERVICE PROCEDURES

### 1. Memroy preservation

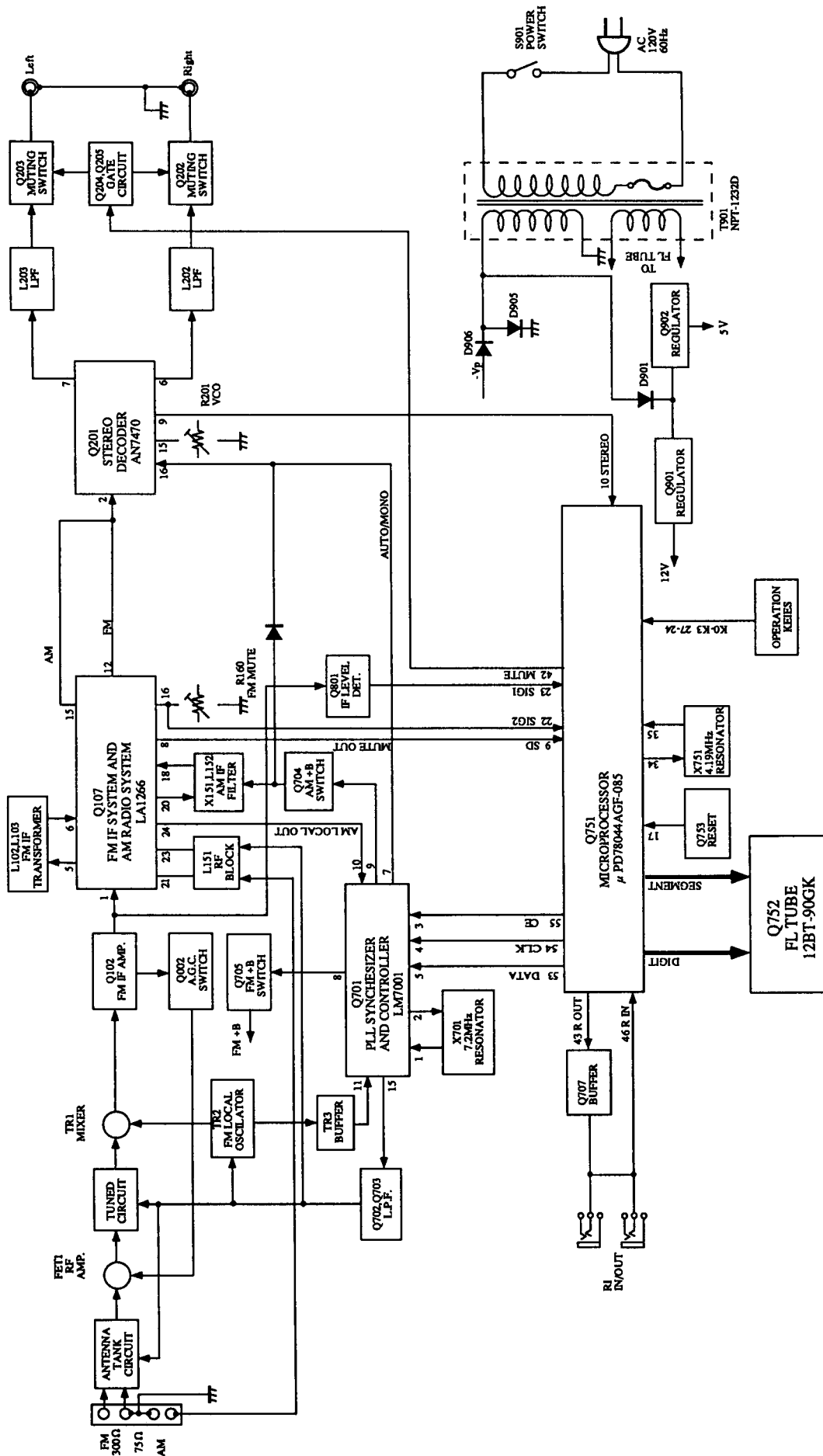
This unit does not require memory preservation batteries. Abuilt-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extermely humid climate.

### 2. Changing the band step

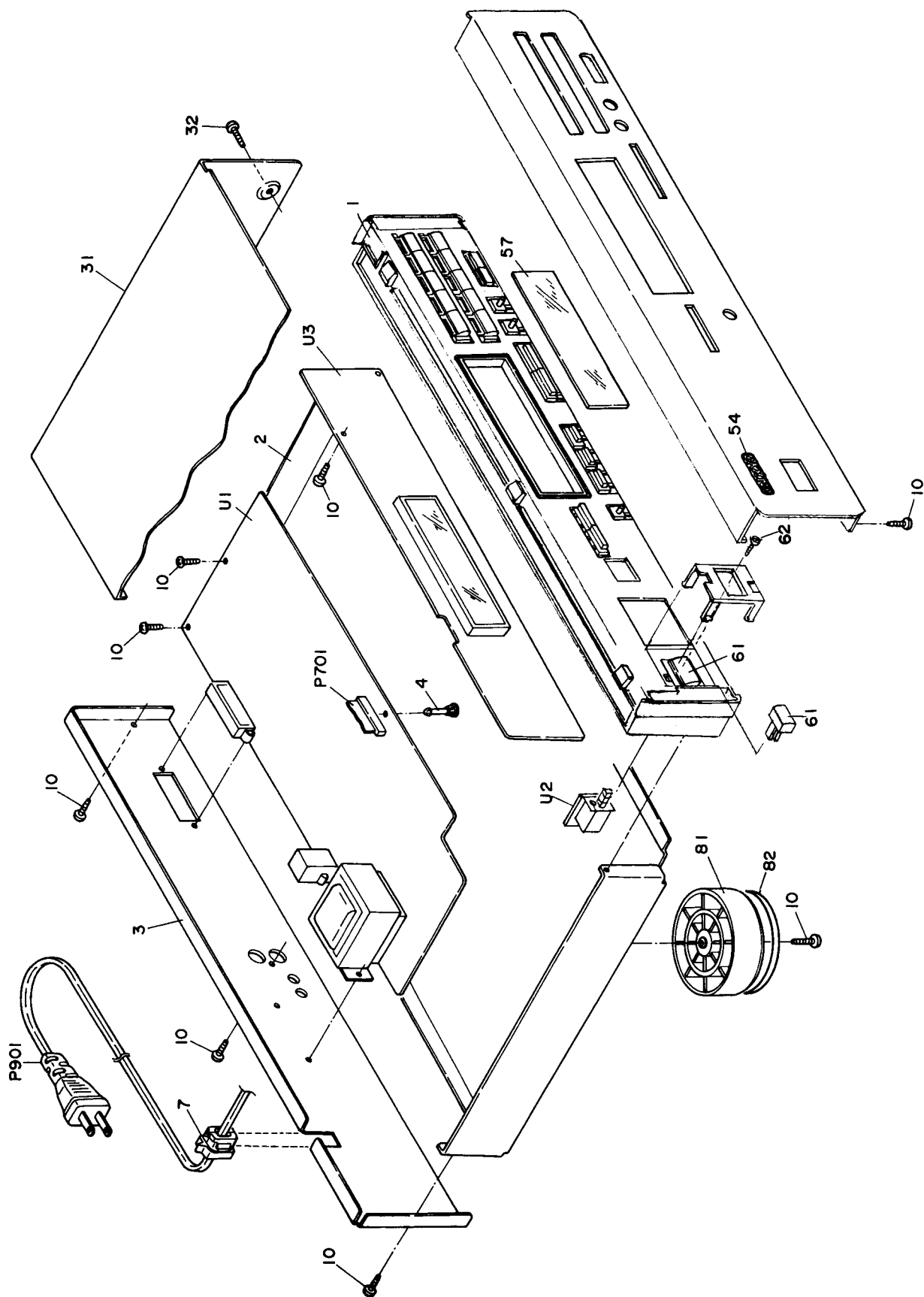
With the exception of the models below, a BAND STEP selector switch is not provided.

| BAND STEP                | J705  |
|--------------------------|-------|
| 10kHz $\rightarrow$ 9kHz | Open  |
| 9kHz $\rightarrow$ 10kHz | Short |

## BLOCK DIAGRAM



## EXPLODED VIEW

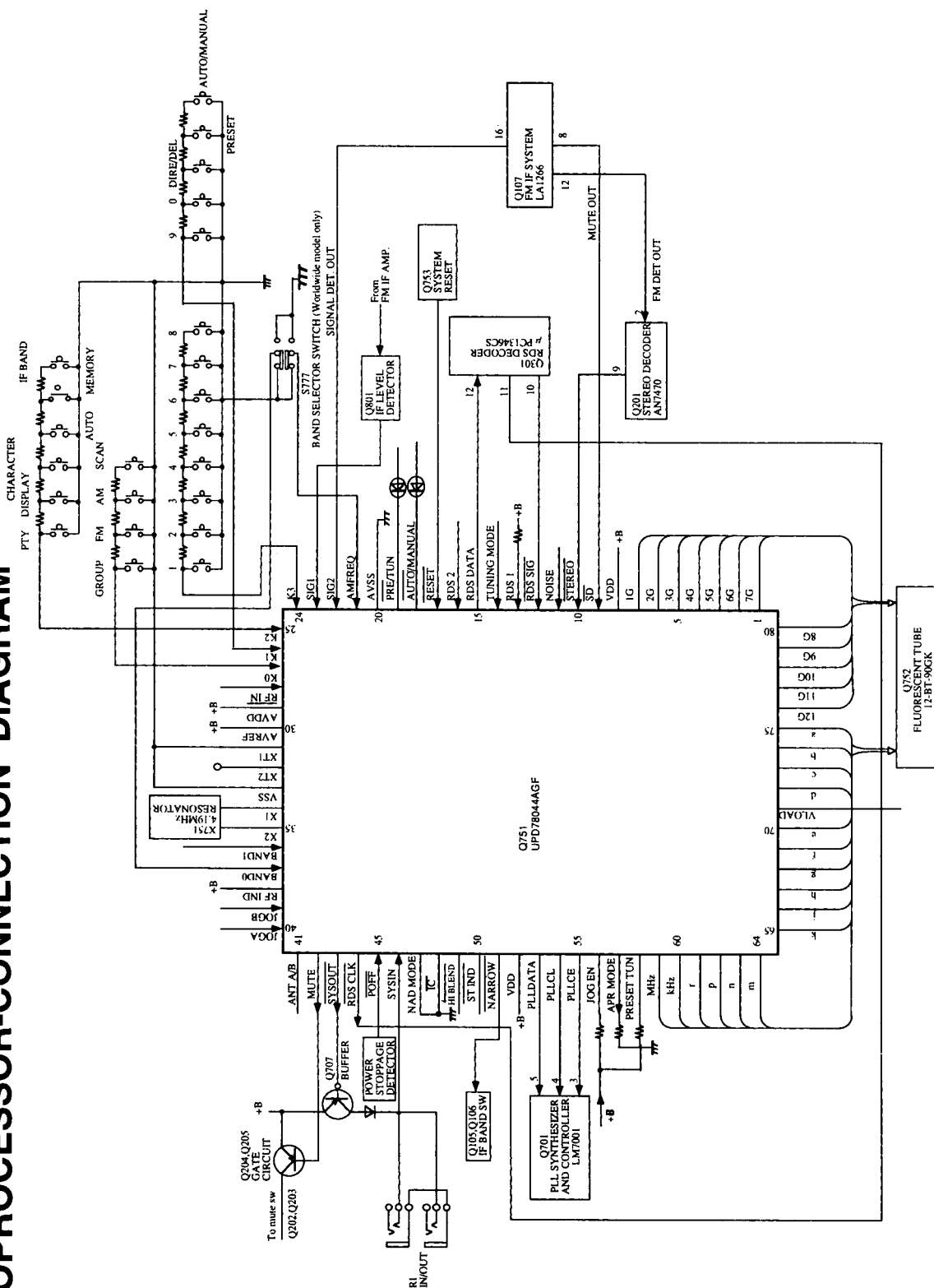


PARTS LIST

| REF.NO. | PART NO.     | DESCRIPTION                                   |
|---------|--------------|-----------------------------------------------|
| 1       | 27110993     | Front bracket                                 |
| 2       | 27100323A    | Chassis                                       |
| 3       | 27122326Y    | Rear panel                                    |
| 4       | 27190511     | KGLS-16RF, Holder                             |
| 7       | 27300750     | #2271, Bushing, cord                          |
| 10      | 838130088    | 3TTB+8B, Self-tapping screw                   |
| 31      | 28184670A    | Top cover                                     |
| 32      | 838430088    | 3TTB+8B(BC), Self-tapping screw               |
| 51      | 27211909Y    | Front panel                                   |
| 54      | 28135244Y    | Badge                                         |
| 57      | 28191779Y    | Clear plate                                   |
| 61      | 28325465Y    | Knob, power                                   |
| 62      | 838430107    | 3TTB+10S(BC), Self-tapping screw              |
| 81      | 27175316B    | Leg                                           |
| 82      | 28141332     | Cushion                                       |
| 84      | 260208       | Wire tie                                      |
| P701    | 2041254012   | NCFC1-240512, Flat cable                      |
| P901    | 253191HITY   | AS-UC-7#18 SPT-1, Power supply cord           |
| U1      | 1A738506-1AY | NARF-6006-1A, Main circuit pc board ass'y     |
| U2      | 1A738507-1AY | NASW-6007-1A, Power switch pc board ass'y     |
| U3      | 1A738508-1AY | NADIS-6008-1A, Display circuit pc board ass'y |

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

## MICROPROCESSOR-CONNECTION DIAGRAM

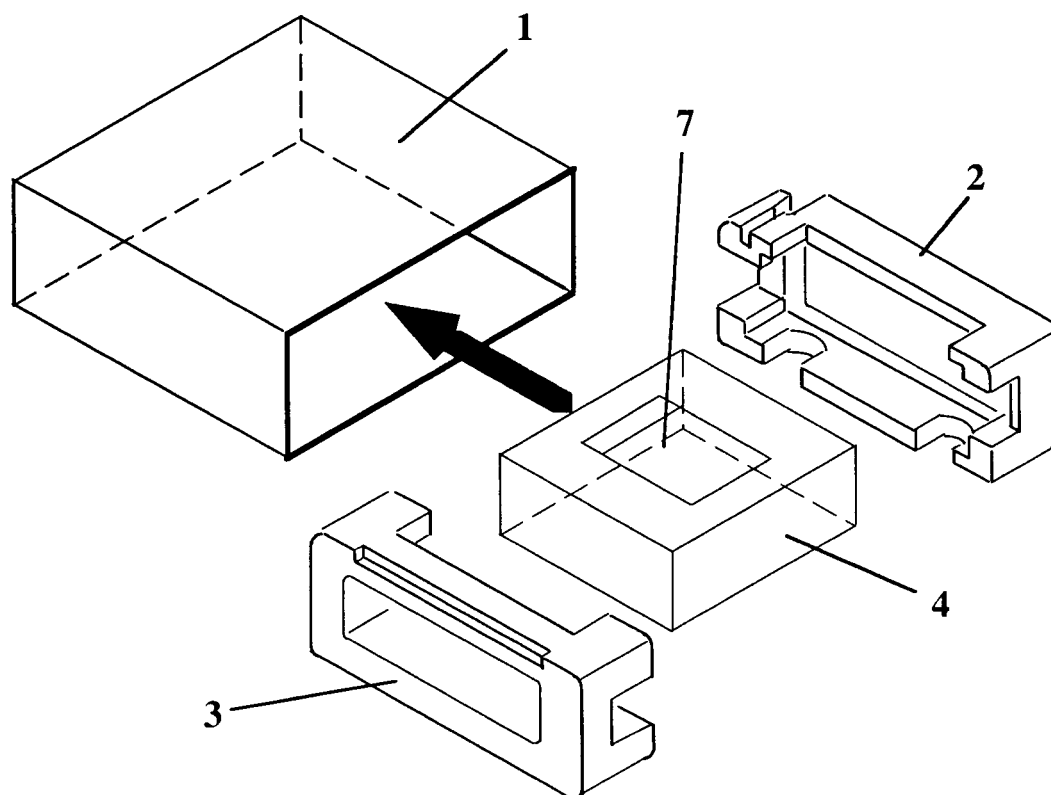


|        |        | FM      |            | AM              |          |
|--------|--------|---------|------------|-----------------|----------|
| BAND 0 | BAND 1 | AM FREQ | Region     | Frequency range | Step     |
| 0      | 1      | 0       | Europe     | 87.5~108.00MHz  | 50/25kHz |
| 1      | 0      | 0       | Worldwide  | 87.5~108.00MHz  | 50/25kHz |
| 1      | 1      | 1       | 120V model | 87.9~107.9MHz   | 50/25kHz |
| 0      | 0      | 0       | Japan      | 76.0~90.0MHz    | 100kHz   |
|        |        |         |            | 522~1611kHz     | 9kHz     |
|        |        |         |            | 531~1602kHz     | 9kHz     |
|        |        |         |            | 530~1710kHz     | 10kHz    |
|        |        |         |            | 522~1611kHz     | 9kHz     |

## MICROPROCESSOR TERMINAL DESCRIPTIONS

| Pin No. | Function    | I/O | Description                                                                | Pin No. | Function   | I/O | Description                                                         |
|---------|-------------|-----|----------------------------------------------------------------------------|---------|------------|-----|---------------------------------------------------------------------|
| 17      | 7G-1G       | O   | Grid output terminals for fluorescent tube.                                | 37      | BAND0      | I   | Initializing input for FM band step.                                |
| 8       | VDD         | -   | Power supply terminal.                                                     | 38      | RFIND      | I   | RF mode LED output. Not used.                                       |
| 9       | SD          | I   | Broadcast detection input more than the muting level.                      | 39      | JOGB       | I   | Jog dial signal B                                                   |
| 10      | STEREO      | I   | Stereo broadcast detection input                                           | 40      | JOGA       | I   | Jog dial signal A                                                   |
| 11      | NOISE       | I   | Noise detection input                                                      | 41      | ANT A/B    | O   | Ant A/B selector output. Not used.                                  |
| 12      | RDSSIG      | I   | RDS broadcast detection input                                              | 42      | MUTE       | O   | Muting control output                                               |
| 13      | RDS1        | I   | Initializing input for RDS operation                                       | 43      | SYSOUT     | O   | System code output                                                  |
| 14      | TUNING MODE | I   | Initializing input for tuning mode                                         | 44      | RDCLK      | I   | Connect to the terminal CLK of RDS data decoder.                    |
| 15      | RDSDATA     | I   | Connect to the terminal DATA of RDS data decoder IC <sub>11</sub> PC1346CS | 45      | POFF       | I   | Power stoppage detection input                                      |
| 16      | RDS2        | I   | Initializing input for RDS operation                                       | 46      | SYSIN      | I   | System code input                                                   |
| 17      | RESET       | I   | System reset terminal                                                      | 47      | NAD MODE   | I   | Initializing input for memory system                                |
| 18      | AUTO/MANU   | O   | Tuning indicator output                                                    | 48      | IC         | -   | Connect to the ground terminal                                      |
| 19      | PRE/TUN     | O   | PRESET indicator output                                                    | 49      | HI BLEND   | O   | Hi-blend control output. Not used.                                  |
| 20      | AVSS        | -   | Ground terminal of A/D converter                                           | 50      | ST INDD    | O   | Stereo LED indicator output                                         |
| 21      | AMFREQ      | I   | Initializing input for AM band step.                                       | 51      | NARROW     | O   | NARROW indicator output                                             |
| 22      | SIG2        | I   | Signal strength level input                                                | 52      | VDD        | -   | Power supply terminal                                               |
| 23      | SIG1        | I   | Signal strength level input                                                | 53      | PLLDATA    | O   | Connect to the terminal DATA of PLL IC LM7001.                      |
| 24-27   | K3-K0       | I   | Operation key connection terminals                                         | 54      | PLLCL      | O   | Connect to the terminal CL of PLL IC.                               |
| 28      | RFIN        | I   | RF mode detect terminal                                                    | 55      | PLLCE      | O   | Connect to the terminal CE of PLL IC.                               |
| 29      | AVDD        | -   | Analog power supply terminal of A/D converter                              | 56      | JOG EN     | I   | Initializing input for Jog operation.                               |
| 30      | AVREF       | I   | Reference voltage input of A/D converter                                   | 57      | APR MODE   | I   | Initializing input for APR mode.                                    |
| 31      | XT1         | I   | Resonator terminals for sub system                                         | 58      | PRESET TUN | I   | Initializing input for PRESET tuning.                               |
| 32      | XT2         | -   | Resonator terminals for sub system . Not used.                             | 59-70   | P16-P5     | O   | Segment output terminals for fluorescent tube.                      |
| 33      | VSS         | -   | Ground terminal                                                            | 71      | VLOAD      | -   | Pull-down resistor connection terminal of FL controller and driver. |
| 34      | X1          | I   | Resonator terminals for main system                                        | 72-75   | P4-P1      | O   | Segment output terminals for fluorescent tube.                      |
| 35      | X2          | -   | Connect the 4.19MHz ceramic resonator.                                     | 76-80   | I2G-8G     | O   | Grid output terminals for fluorescent tube                          |
| 36      | BAND1       | I   | Initializing input for FM band step.                                       |         |            |     |                                                                     |

## PACKING VIEW



| REF.NO. | PART NO.              | DESCRIPTION              |
|---------|-----------------------|--------------------------|
| 1       | 29053151A             | Carton box               |
| 2       | 29091693Y             | Pad (R)                  |
| 3       | 29091692Y             | Pad (L)                  |
| 4       | 29100037-1AY          | 650×500mm, Styren bag    |
| 7       | <Accessory bag ass'y> |                          |
|         | 29342430Y             | Instruction manual E     |
|         | 232140                | NMA-3057,AM loop antenna |
|         | 292111                | FM antenna               |
|         | 2010244Y              | Connection cord          |
|         | 2010200               | Remote control cord      |
|         | 29365019B             | Waranty card             |
|         | 29358002K             | Service station list     |
|         | 29100097-1Y           | 350×250mm, Styren bag    |

NOTE: <B>:Black model only  
<S>:Silver model only



# ADJUSTMENT PROCEDURES

## Preparation

### • Input

FM mono: 1kHz, 75kHz devi., 60dB/μV (65dBf)

FM stereo: 1kHz, L+R 67.5kHz devi.: Pilot signal 19kHz  
7.5kHz devi.

AM: 400Hz, 30% mod.,

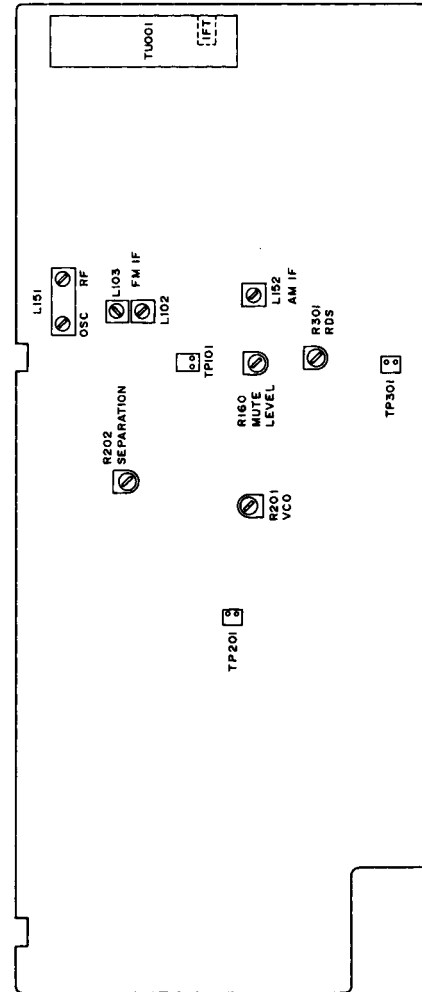
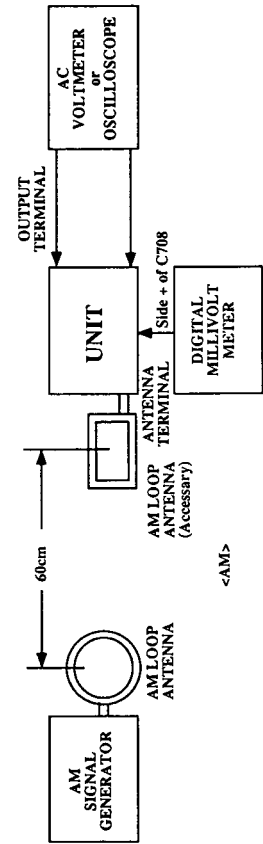
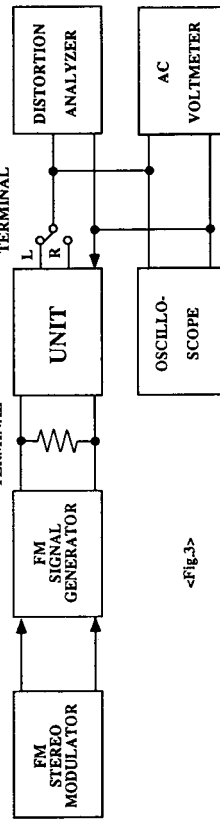
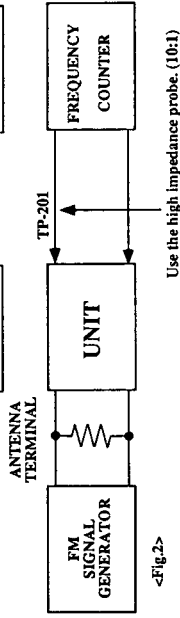
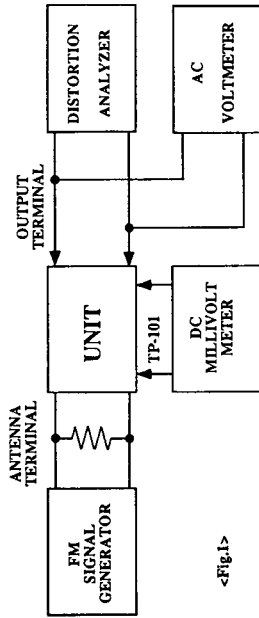
## 1. FM ADJUSTMENT

| Item              | Step | Connection of instrument | FM SG output                             | Stereo modulator output | Tuning frequency | Output indicator       | Adjustment point     | Adjust for    | Remarks                                                                                         |
|-------------------|------|--------------------------|------------------------------------------|-------------------------|------------------|------------------------|----------------------|---------------|-------------------------------------------------------------------------------------------------|
| FM IF/RF          | 1    | Fig.1                    | 99.1MHz, 1kHz 75kHz devi. 65dBf(60dB μ ) | —                       | 99.1MHz          | DC voltmeter           | L102                 | 0 ± 20mV      | FM MUTE/MODE switch:OFF/MONO Repeat the steps 1 and 3 until no further adjustment is necessary. |
|                   | 2    |                          |                                          |                         |                  | AC voltmeter           | IFT on the front end | Maximum       |                                                                                                 |
|                   | 3    |                          |                                          |                         |                  | Distortion analyzer    | L103                 | Minimum       |                                                                                                 |
| Muting Level      | 1    | Fig.1                    | 99.1MHz 1kHz 22.5kHz devi. 19.2dBf(14dB) | —                       | 99.1MHz          | Oscilloscope           | R160                 | Signal output | FM MUTE/MODE switch:ON/STEREO                                                                   |
|                   | 2    |                          |                                          |                         |                  |                        |                      | No signal     |                                                                                                 |
| VCO               | 1    | Fig.2                    | 99.1MHz 1kHz 75kHz,devi, 65dBf(60dB μ )  |                         | 99.1MHz          | Frequency counter      | R201                 | 19,000 ± 10Hz | FM MUTE/MODE switch:ON/STEREO                                                                   |
| Stereo Distortion |      | Fig.3                    | 99.1MHz Ext. mod.65dBf(60dB)             | Channel L or R 1kHz     | 99.1MHz          | Distortion analyzer    | IFT on the front end | Minimum       | FM MUTE/MODE switch:ON/STEREO Don't turn more than ± 90°                                        |
| Stereo Separation | 1    | Fig. 3                   | 99.1MHz Ext. mod.65dBf(60dB)             | Channel L 1kHz          | 99.1MHz          | Channel R AC voltmeter | R202                 | Minimum       | Maximum and same separation                                                                     |
|                   | 2    |                          |                                          | Channel R 1kHz          |                  | Channel L AC voltmeter |                      | Minimum       |                                                                                                 |

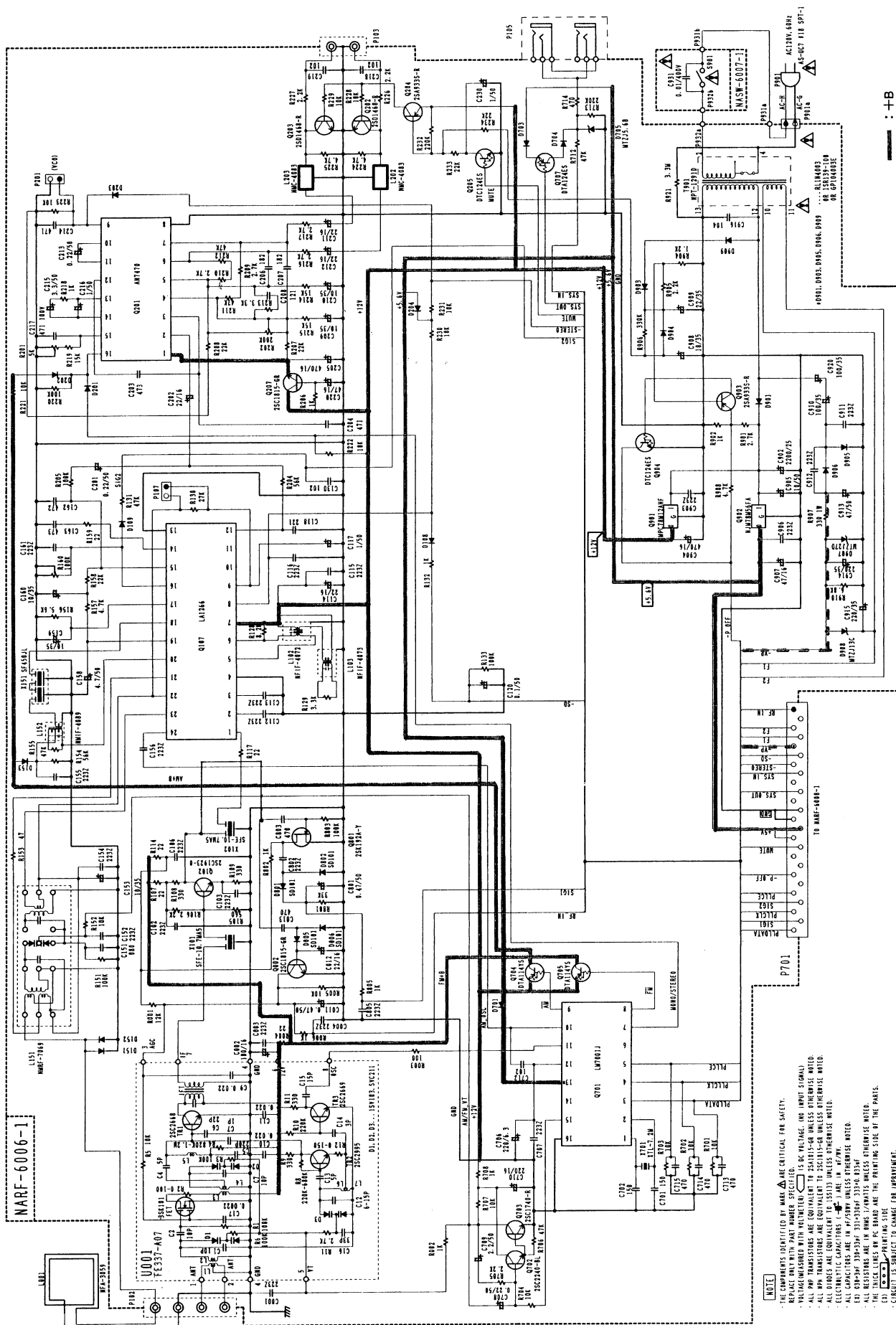
## 2. AM ADJUSTMENT

| Step | AM SG output                       | Tuning Frequency | Output Indicator     | Adjustment point          | Adjust for     |
|------|------------------------------------|------------------|----------------------|---------------------------|----------------|
| 1    |                                    | 530kHz           | Digital DC voltmeter | OSC coil on RF block L151 | $1.3 \pm 0.2V$ |
| 2    | 600kHz<br>400Hz 30% mod.<br>60dB/m | 600kHz           | AC voltmeter         | RF coil on RF block L151  | Maximum        |
| 3    | 990kHz<br>400Hz 30% mod.<br>60dB/m | 990kHz           | AC voltmeter         | L152                      | Maximum        |

Reference Specification  
 FM tuned voltage: 87.5MHz ~ 108.0MHz  
 $1.6 \pm 0.5V \sim 8.0 \pm 0.5V$   
 AM tuned voltage: 530kHz ~ 1710kHz  
 $1.3 \pm 0.5V \sim 7.4 \pm 0.5V$

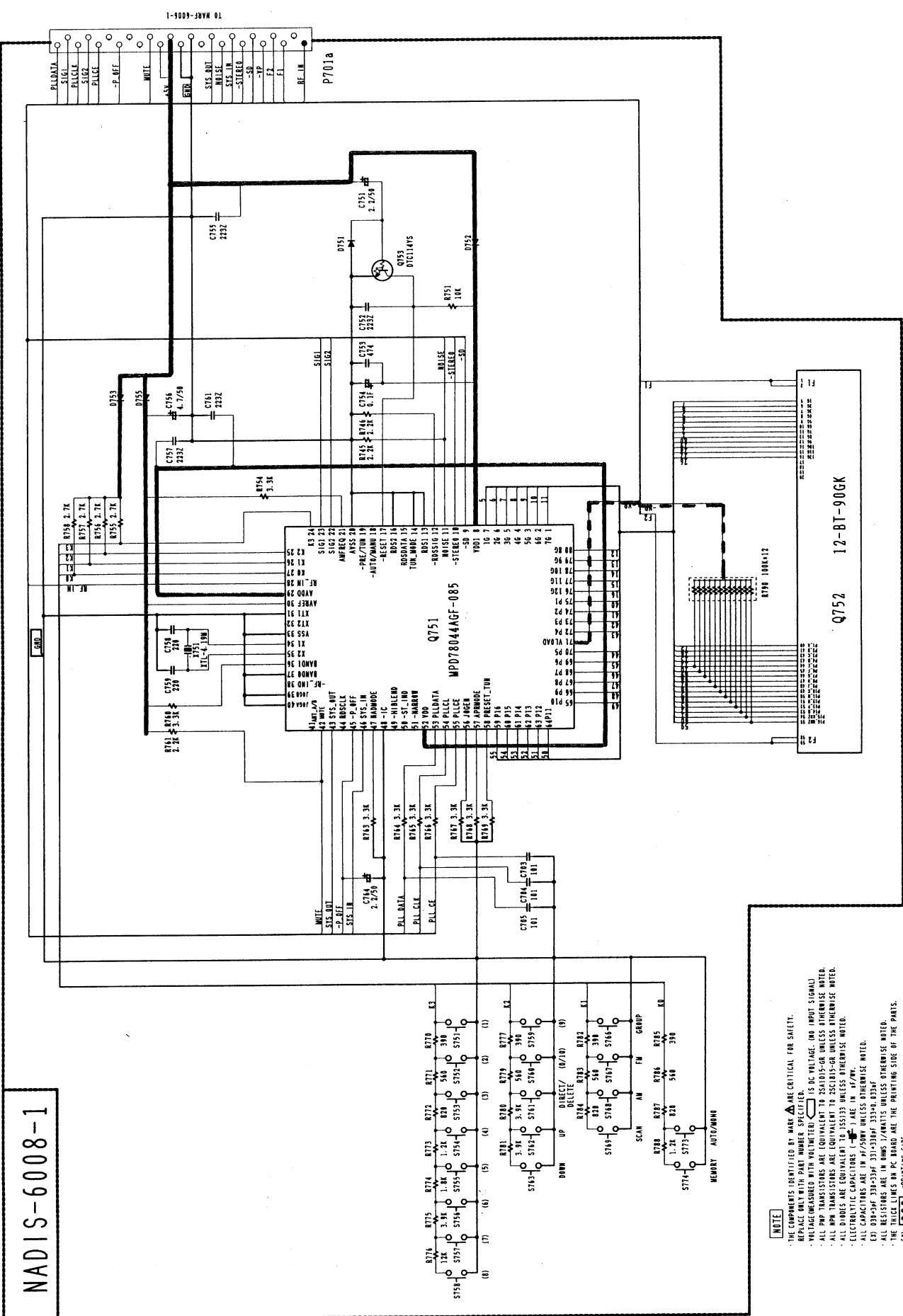


## SCHEMATIC DIAGRAM



# SCHEMATIC DIAGRAM

NADIS-6008-1



**NOTE**

- THE COMPONENTS IDENTIFIED BY MARK ARE CRITICAL FOR SAFETY. REPLACE ONLY WITH PART NUMBER SPECIFIED.
- VOLTAGE UNLESS OTHERWISE SPECIFIED IS DC VOLTAGE (NO INPUT SIGNAL).
- ALL PNP TRANSISTORS ARE EQUIVALENT TO 2SA015-GR UNLESS OTHERWISE NOTED.
- ALL NPN TRANSISTORS ARE EQUIVALENT TO 2SC015-GR UNLESS OTHERWISE NOTED.
- ALL DIODES ARE EQUIVALENT TO 1S5133 UNLESS OTHERWISE NOTED.
- ELECTROLYTIC CAPACITORS ( ) ARE IN  $\mu$ F/50V UNLESS OTHERWISE NOTED.
- ALL CAPACITORS ARE IN P/P/50V UNLESS OTHERWISE NOTED.
- ALL RESISTORS ARE IN OHMS UNLESS OTHERWISE NOTED.
- THE CIRCUIT IS SUBJECT TO CHANGE FOR IMPROVEMENT.

# PARTS LIST

## MAIN CIRCUIT PC BOARD (NARF-5170-1)

| CIRCUIT NO.      | PART NO.                        | DESCRIPTION                  | CIRCUIT NO.            | PART NO.          | DESCRIPTION                        |
|------------------|---------------------------------|------------------------------|------------------------|-------------------|------------------------------------|
| <b>Front end</b> |                                 |                              | <b>Ceramic filters</b> |                   |                                    |
| TU001            | 240089                          | FE415-G11                    | X101,X102              | 3010137           | SFE-10.7MMK                        |
|                  | <b>ICs</b>                      |                              | X104                   | 3010137           | SFE-10.7MMK                        |
| Q107             | 22240039                        | LA1266                       | X151                   | 3010123           | SFZ450JL                           |
| Q201             | 22240242                        | AN7470                       |                        | <b>X'tal</b>      |                                    |
| Q301             | 22240679                        | $\mu$ PC1346CS               | X701                   | 3010158 or        | XTL-7.2M                           |
| Q701             | 22240090                        | LM7001                       |                        | 3010141           |                                    |
| Q901             | 222780125NEC                    | 78M12HF                      |                        | <b>Capacitors</b> |                                    |
| Q902             | 222780565JRC                    | 78M56                        | C002                   | 354741019         | 100 $\mu$ F,16V,Elect.             |
|                  | <b>Transistors</b>              |                              | C011                   | 354784799         | 0.47 $\mu$ F,50V,Elect.            |
| Q002,Q207        | 2211255 or                      | 2SC1815-GR or                | C012,C114              | 354742209         | 22 $\mu$ F,16V,Elect.              |
| Q802             | 2214915                         | 2PC1815-GR                   | C117                   | 354780109         | 1 $\mu$ F,50V,Elect.               |
| Q102,Q103        | 2211723                         | 2SC1923-O                    | C120                   | 354781099         | 0.1 $\mu$ F,50V,Elect.             |
| Q202,Q203        | 2212794                         | 2SD1468-R                    | C153                   | 354761009         | 10 $\mu$ F,35V,Elect.              |
| Q204             | 2213074                         | 2SA933-R                     | C158                   | 354780479         | 4.7 $\mu$ F,50V,Elect.             |
| Q205             | 2213160                         | DTC124ES                     | C159,C160              | 354761009         | 10 $\mu$ F,35V,Elect.              |
| Q702             | 2211406                         | 2SC2240-BL                   | C162                   | 374724724         | 4700pF $\pm$ 5%,50V,Plastic        |
| Q703             | 2211183                         | 2SC1740-R                    | C163                   | 374724734         | 0.047 $\mu$ F $\pm$ 5%,50V,Plastic |
| Q704,Q705        | 2213090                         | DTA114YS                     | C201,C213              | 354782299         | 0.22 $\mu$ F,50V,Elect.            |
| Q707             | 2212600                         | DTA124ES                     | C202                   | 354742209         | 22 $\mu$ F,16V,Elect.              |
| Q801             | 2212274                         | 2SK192A-Y                    | C203                   | 374724734         | 0.047 $\mu$ F $\pm$ 5%,50V,Plastic |
| Q903             | 2213074                         | 2SA933-R                     | C205                   | 354744719         | 470 $\mu$ F,16V,Elect.             |
| Q904             | 2213160                         | DTC124ES                     | C206,C207              | 374721024         | 1000pF $\pm$ 5%,50V,Plastic        |
|                  | <b>Diodes</b>                   |                              | C209,C210              | 354761009         | 10 $\mu$ F,35V,Elect.              |
| D005,D006        | 223191                          | SD101                        | C211,C212              | 354742209         | 22 $\mu$ F,16V,Elect.              |
| D108,D109        | 223163 or                       | 1SS133 or                    | C215                   | 354780339         | 3.3 $\mu$ F,50V,Elect.             |
| D151-D153        | 223205                          | 1SS270A                      | C216,C230              | 354780109         | 1 $\mu$ F,50V,Elect.               |
| D201-D204        | 223163 or                       | 1SS133 or                    | C217                   | 370134714         | 470pF $\pm$ 5%,100V,Plastic        |
| D301             | 223205                          | 1SS270A                      | C220                   | 354744709         | 47 $\mu$ F,16V,Elect.              |
| D701-D704        | 223163 or                       | 1SS133 or                    | C303,C309              | 374724724         | 4700pF $\pm$ 5%,50V,Plastic        |
| D904             | 223205                          | 1SS270A                      | C304                   | 374722234         | 0.022 $\mu$ F $\pm$ 5%,50V,Plastic |
| D705             | 224450562                       | MTZ5.6B                      | C305                   | 374724734         | 0.047 $\mu$ F $\pm$ 5%,50V,Plastic |
| D801,D802        | 223191                          | SD101                        | C306                   | 354780229         | 2.2 $\mu$ F,50V,Elect.             |
| D901,D903        | 22380032                        | 1SR139-100                   | C307,C308              | 374723324         | 3300pF $\pm$ 5%,50V,Plastic        |
| D905,D906        | 22380032                        | 1SR139-100                   | C310                   | 354741009         | 10 $\mu$ F,16V,Elect.              |
| D907             | 224452704                       | MTZ27D                       | C706                   | 354722219         | 220 $\mu$ F,6.3V,Elect.            |
| D908             | 224450753                       | MTZ7.5C                      | C708                   | 354782299         | 0.22 $\mu$ F,50V,Elect.            |
| D909             | 22380032                        | 1SR139-100                   | C709                   | 354780229         | 2.2 $\mu$ F,50V,Elect.             |
|                  | <b>Coils &amp; Transformers</b> |                              | C710                   | 354742219         | 220 $\mu$ F,16V,Elect.             |
| L102             | 233469Y                         | NFIF-4087                    | C801                   | 354784799         | 0.47 $\mu$ F,50V,Elect.            |
| L103             | 233470Y                         | NFIF-4088                    | C902                   | 354752229         | 2200 $\mu$ F,25V,Elect.            |
| L151             | 231226Y                         | NMRF-7069                    | C904                   | 354744719         | 470 $\mu$ F,16V,Elect.             |
| L152             | 232166Y                         | NMIF-4089                    | C905                   | 354781009         | 10 $\mu$ F,50V,Elect.              |
| L201             | 232164Y                         | NMC-4082                     | C907                   | 354744709         | 47 $\mu$ F,16V,Elect.              |
| L202,L203        | 232165Y                         | NMC-4083                     | C908                   | 354761009         | 10 $\mu$ F,35V,Elect.              |
| △ T901           | 2301076Y                        | NPT-1232P, Power transformer | C909                   | 354762209         | 22 $\mu$ F,35V,Elect.              |
|                  |                                 |                              | C910,C920              | 354761019         | 100 $\mu$ F,35V,Elect.             |
|                  |                                 |                              | C913                   | 354784709         | 47 $\mu$ F,50V,Elect.              |
|                  |                                 |                              | C914,C915              | 354762219         | 220 $\mu$ F,35V,Elect.             |
|                  |                                 |                              | C916                   | 374721044         | 0.1 $\mu$ F $\pm$ 5%,50V,Plastic   |

| CIRCUIT NO. PART NO. DESCRIPTION |                                            |                                       | DISPLAY CIRCUIT PC BOARD (NADIS-5172-1) |                    |                                       |
|----------------------------------|--------------------------------------------|---------------------------------------|-----------------------------------------|--------------------|---------------------------------------|
|                                  | <b>Resistors</b>                           |                                       |                                         | <b>IC</b>          |                                       |
| R160                             | 5210266                                    | N06HR 100KBC, Semi-fixed              |                                         | 22240842           | $\mu$ PD78044AGF-085                  |
| R201                             | 5210261                                    | N06HR 5KBC, Semi-fixed                | Q751                                    | <b>FL tube</b>     |                                       |
| R202                             | 5210267                                    | N06HR 200KBC, Semi-fixed              |                                         | 212140A or         | 12-BT-90GK, FL TUBE                   |
| R301                             | 5210265                                    | N06HR 50KBC, Semi-fixed               | Q752                                    | 212140             |                                       |
| R907                             | 443623314                                  | 330ohm $\pm$ 5%, 1W, Metal oxide film |                                         | <b>Transistor</b>  |                                       |
|                                  | <b>Terminals</b>                           |                                       | Q753                                    | 221281             | DTC114YS                              |
| P101                             | 25060117                                   | NTM-2PDML051                          |                                         | <b>Diodes</b>      |                                       |
| P103                             | 25045333                                   | NPJ-2PDBL185                          | D751-D753                               | 223163 or          | 1SS133 or                             |
| P105,P106                        | 25045439Y                                  | NPJ-1PDBL263                          |                                         | 223205             | 1SS270A                               |
| P701                             | 25050965                                   | NSCT-25P752                           | D755                                    | 223163 or          | 1SS133 or                             |
| P903                             | 25051108                                   | NSCT-4P895                            |                                         | 223205             | 1SS270A                               |
|                                  | <b>Plugs</b>                               |                                       |                                         | <b>X'tal</b>       |                                       |
| △ P902                           | 25055675                                   | NPLG-2P-631                           | X751                                    | 3010224            | XTL-4.19M                             |
| TP101,TP201                      | 25055038                                   | NPLG-2P29                             |                                         | <b>Capacitors</b>  |                                       |
| TP301                            | 25055038                                   | NPLG-2P29                             |                                         | C751               | 354780109 1 $\mu$ F,50V,Elect.        |
|                                  | <b>POWER SWITCH PC BOARD (NASW-5171-1)</b> |                                       | C753                                    | 375524744          | 0.47 $\mu$ F $\pm$ 5%, 50V, Plastic   |
|                                  | <b>CIRCUIT NO. PART NO. DESCRIPTION</b>    |                                       | C754                                    | 3000076            | 0.1F, 5.5V, Super                     |
|                                  | <b>Switch</b>                              |                                       | C756                                    | 354780479          | 4.7 $\mu$ F,50V,Elect.                |
| △ S901                           | 25035663Y                                  | NPS-122-L615, Power switch            |                                         | <b>Resistor</b>    |                                       |
|                                  | <b>Holder</b>                              |                                       | R790                                    | 49163104412        | 100K ohm x12, 1/10W, Network resistor |
| P903a                            | 25051108                                   | NSCT-4P895, Wire traps                |                                         | <b>Switches</b>    |                                       |
|                                  |                                            |                                       | S751-S763                               | 25035664Y          | NPS-111-S616, Push switches           |
|                                  |                                            |                                       | S766-S774                               | 25035664Y          | NPS-111-S616, Push switches           |
|                                  |                                            |                                       |                                         | <b>Wire holder</b> |                                       |
|                                  |                                            |                                       | P701a                                   | 25050889           | NSCT-25P684                           |
|                                  |                                            |                                       |                                         | <b>Holder</b>      |                                       |
|                                  |                                            |                                       |                                         | 27190953Y          | FL tube                               |

## ONKYO CORPORATION

International Sales Div. : 31 Sankyo-bld. 3-8-5, Asakusabashi, Taito-ku, TOKYO 111, JAPAN  
 TEL : 03-5820-5865 FAX : 03-5820-5869

ONKYO U.S.A. CORPORATION  
 200 Williams Drive, Ramsey, N.J. 07446, U.S.A.  
 TEL : 201-825-7950 FAX : 201-825-8150