

C 420

**STEREO
AM/FM TUNER**

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AM/FM TUNER**

SERVICE MANUAL

NAD

SERVICE SAFETY PRECAUTIONS

1. Safety check out

(Only U.S.A. model)

Before returning the product to the customer, make leakage current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit.

Parts marked with the symbol \triangle are critical with regard to the risk of fire and electric shock. Replace only with parts recommended by the manufacturer.

CONTENTS

| DESCRIPTION | PAGE |
|---------------------------------|--------|
| SPECIFICATIONS | .3 |
| REAR PANEL / FRONT PANEL | .4 |
| DISASSEMBLY INSTRUCTIONS | .5 |
| BLOCK DIAGRAM | .6 |
| WIRING DIAGRAM | .7 |
| ADJUSTMENT POINTS DIAGRAM | .8 |
| INSTRUMENT SETUP | .9 |
| ALIGNMENT PROCEDURES | .10 |
| PCB LAYOUT | .11-12 |
| SCHEMATIC DIAGRAM | .13-16 |
| IC BLOCK DIAGRAM | .17-19 |
| ELECTRICAL PARTS LIST | .20-25 |
| EXPLODED VIEW | .26 |
| EXPLODED VIEW PARTS LIST | .27 |
| PACKING DIAGRAM | .28 |

SPECIFICATIONS

AM TUNER SECTION

Input level is expressed as the reading in open-circuit of 75-ohm source impedance signal generator

| | | |
|---|---------------|-------------|
| Usable Sensitivity (999/1000kHz) | | ≤30dBμ |
| S/N Ratio (5mV in) | | ≥38dB |
| THD (5mV in) | | ≤3% |
| IF Rejection (450kHz) | | ≥36dB |
| Image Rejection (F+2xIF) | | ≥28dB |
| Selectivity | | ≥17dB |
| Output | | 130 +/-20mV |
| Loop Sensitivity (20dB S/N) | | |
| | 999/1000 kHz | ≤66 dB |
| | 603/600 kHz | ≤66 dB |
| | 1404/1400 kHz | ≤66 dB |
| Frequency response (100 - 2.3 kHz, 5mV) | | ±6 dB |

FM TUNER SECTION

Input level is expressed as the reading in open-circuit of 75-ohm source impedance signal generator

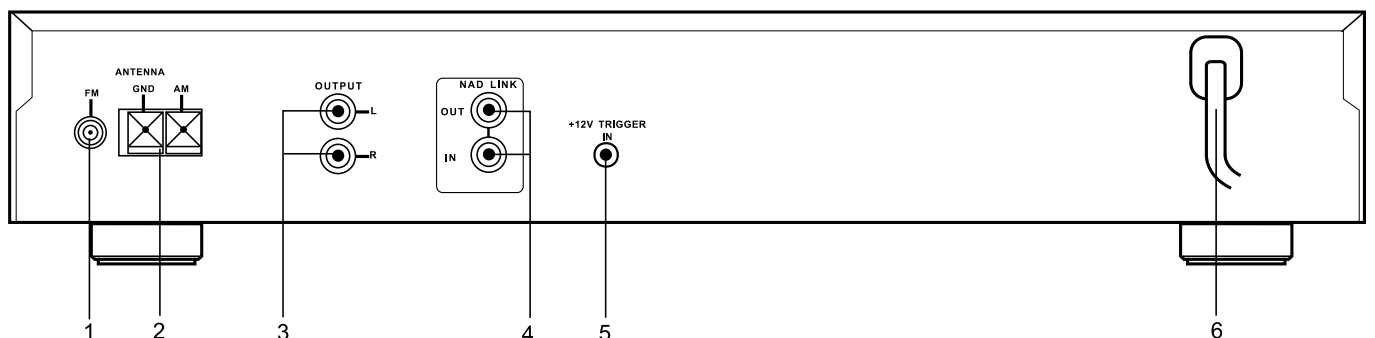
| | | <u>*C</u> | <u>*AH</u> |
|---|--------|-----------|------------|
| Usable Sensitivity (98 MHz) | | ≤13 dBμ | ≤13 dBμ |
| Signal / Noise Ratio | Mono | ≥72 dB | ≥72 dB |
| (60 dBμ, IHF wtd) | Stereo | ≥66 dB | ≥66 dB |
| Frequency Response (20 Hz - 15 kHz, 60 dBμ) | | 0±1.0 dB | 0±1.0 dB |
| Channel Separation (60 dBμ) | 30 Hz | ≥33 dB | ≥33 dB |
| | 1 kHz | ≥42 dB | ≥42 dB |
| | 10 kHz | ≥32 dB | ≥32 dB |
| Alternate Channel Sensitivity | | | |
| (40 dBμ, ±400 kHz) | | ≥60 dB | ≥45 dB |
| Capture Ratio (40 dBμ) | | ≤3 dB | ≤3 dB |
| AM Suppression | | | |
| (60 dBμ, 100% Mod.FM, 30% Mod AM) | | ≥65 dB | ≥65 dB |
| Image Rejection (119.4 MHz) | | ≥85 dB | ≥85 dB |
| I.F. Rejection (10.7 MHz) | | ≥78 dB | ≥78 dB |
| Pilot Suppression (60 dBμ) | | ≥60 dB | ≥60 dB |
| THD (60 dBμ, L=R 75 kHz for AH, 40 kHz Dev for C) | | | |
| | Mono | ≤0.25% | ≤0.25% |
| | Stereo | ≤0.35% | ≤0.35% |
| Auto-Search sensitivity | On | ≥24 dBμ | ≥24 dBμ |
| | Off | ≤15 dBμ | ≤15 dBμ |
| RDS Decode Sensitivity | | ≤26 dBμ | ≤26 dBμ |

PHYSICAL SPECIFICATIONS

| | |
|-------------------------------------|--------------------|
| Dimensions (Width x Height x Depth) | 435 x 80 x 285 mm |
| Net weight | 4 kg (8.8 lbs) |
| Shipping weight | 5.1 kg (11.22 lbs) |

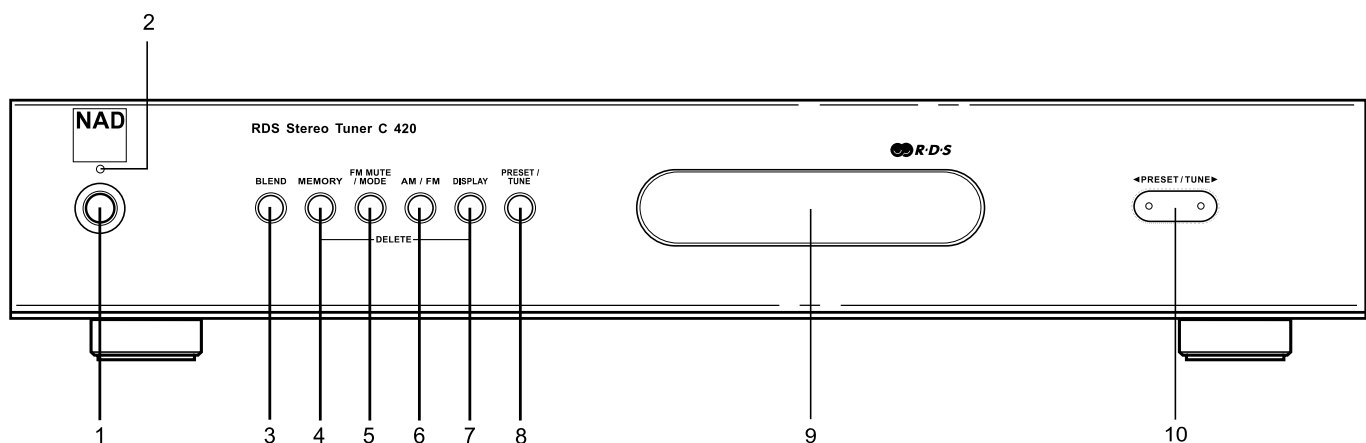
REAR PANEL / FRONT PANEL

REAR PANEL



- | | |
|---------------|--------------------|
| 1. FM ANTENNA | 4. NAD-LINK IN/OUT |
| 2. AM ANTENNA | 5. 12V TRIGGER IN |
| 3. OUTPUT | 6. AC LINE CORD |

FRONT PANEL



- | | |
|-------------------|---------------------------|
| 1. POWER ON / OFF | 6. AM / FM |
| 2. STAND-BY LED | 7. DISPLAY |
| 3. BLEND | 8. PRESET / TUNE |
| 4. MEMORY | 9. DISPLAY AREA |
| 5. FM MUTE / MODE | 10. PRESET / TUNE ◀ AND ▶ |

IMPORTANT NOTES

1. Show the software version

Press "PRESET/TUNE" and "TUNE UP" (▶).

2. Light UP all the icon on the VFL

Press "PRESET/TUNE" and "TUNE DOWN" (◀).

3. CPU Resets

Press "PRESET/TUNE" and "TUNE DOWN" (◀) and any one key.

4. AM Step 10K/9K Change

Add D206: 10KHz / Delete D206: 9KHz.

DISASSEMBLY INSTRUCTIONS

1. Remove machine screws M 4.0 x 6.0 (① to ④) from the side panels.
Remove tapping screw 3.0 x 8.5 (⑤) from the back panel.
Refer to **Figure No.1**.

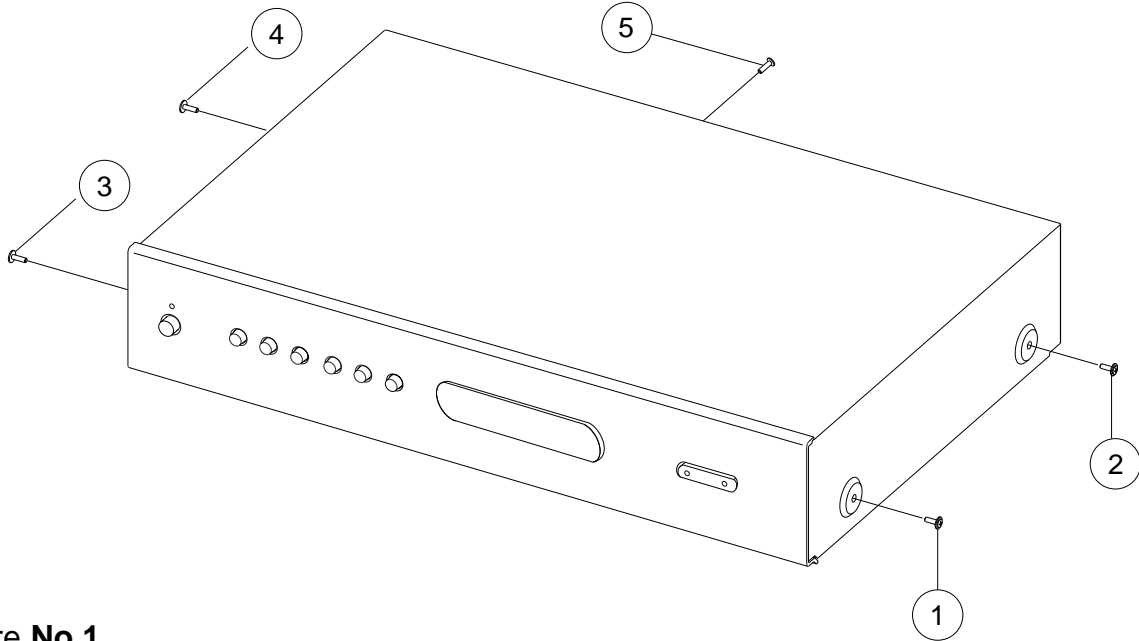


Figure No.1

2. Pull both sides of the TOP COVER slightly outwards (⑥) and tilt approx. 35° and then remove in the direction as indicated by the arrow (⑦). Refer to **Figure No.2**.

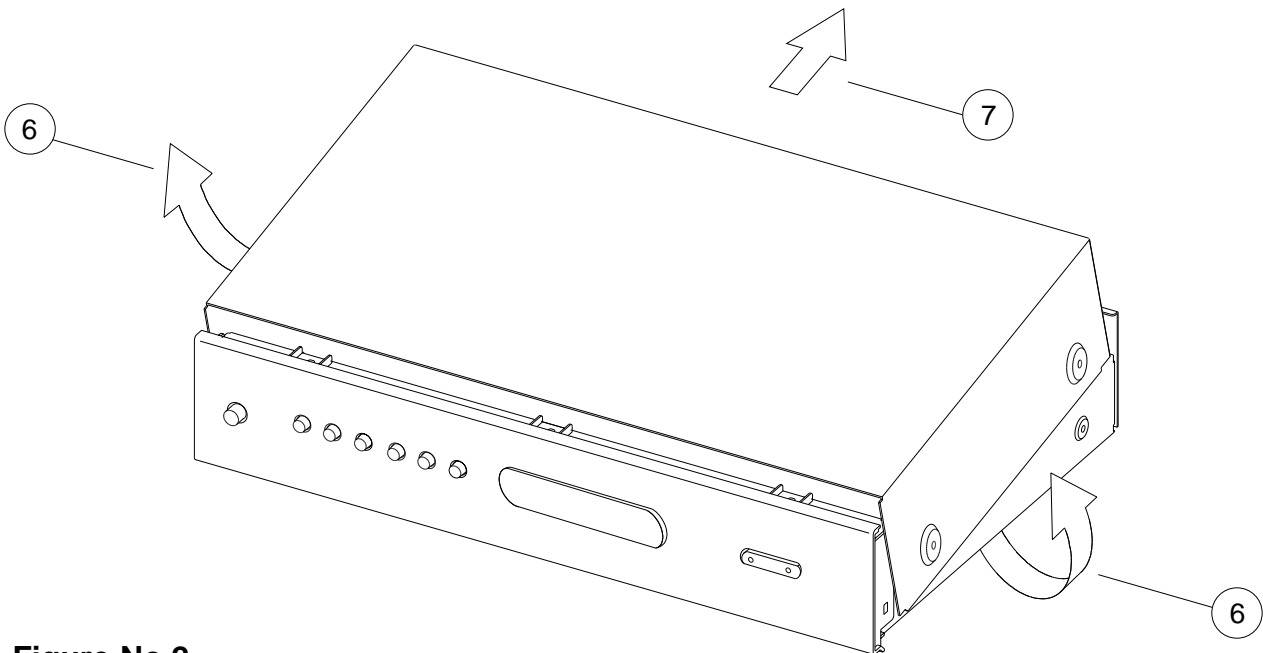
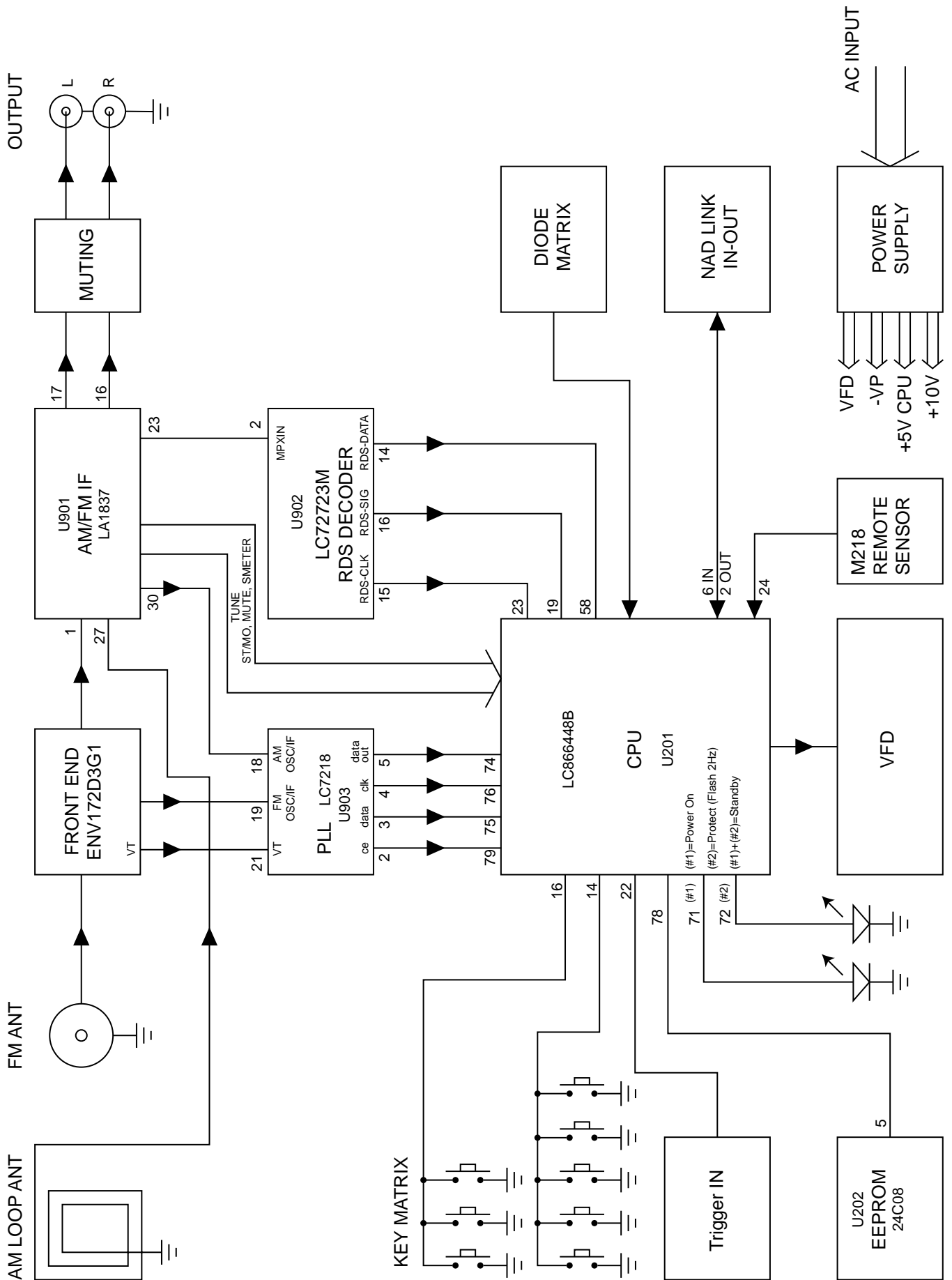


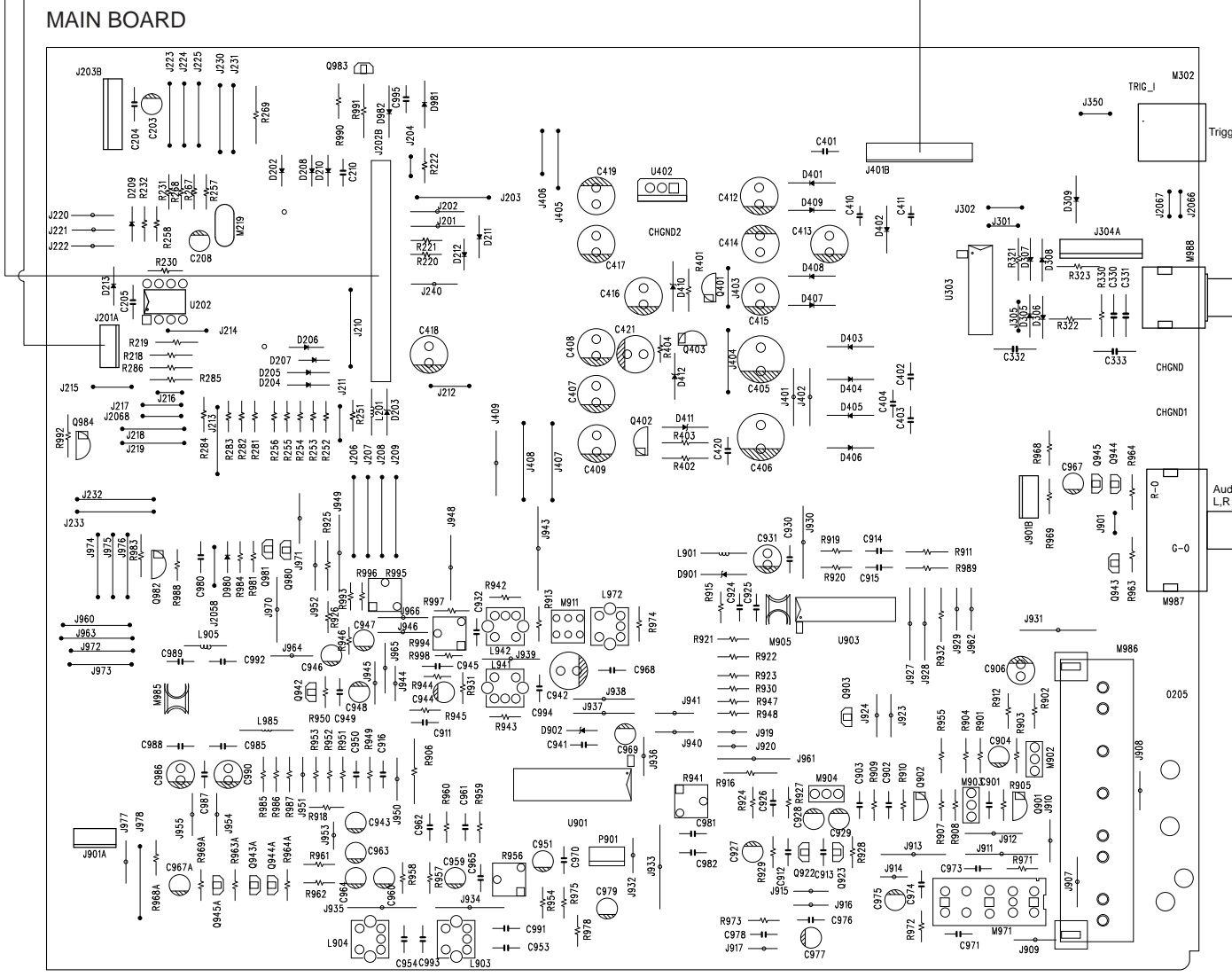
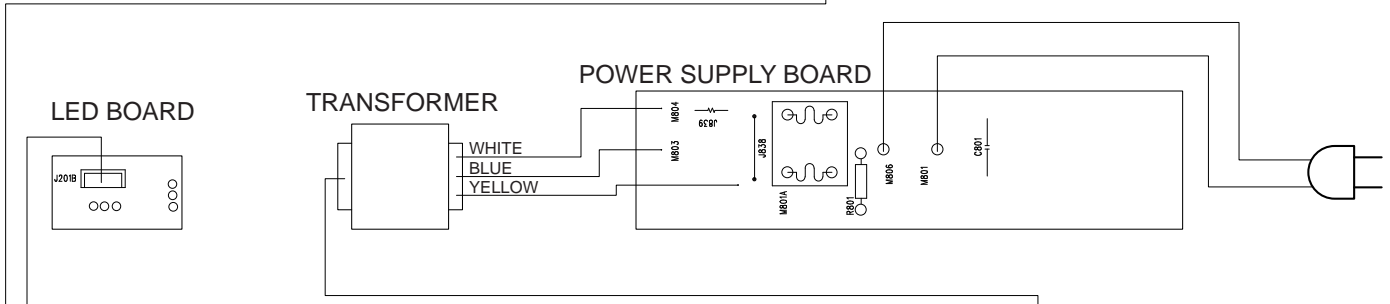
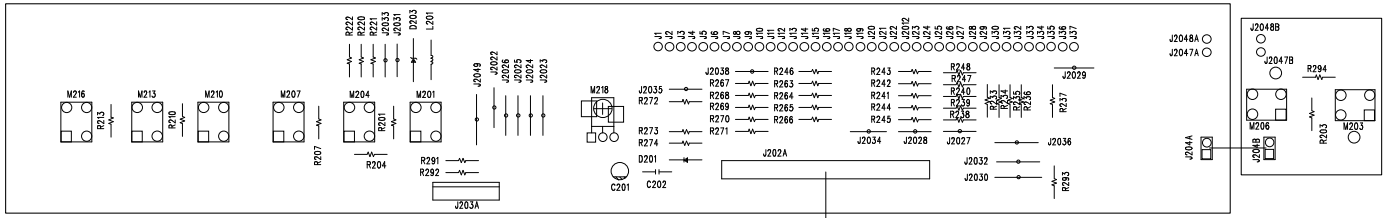
Figure No.2.

BLOCK DIAGRAM

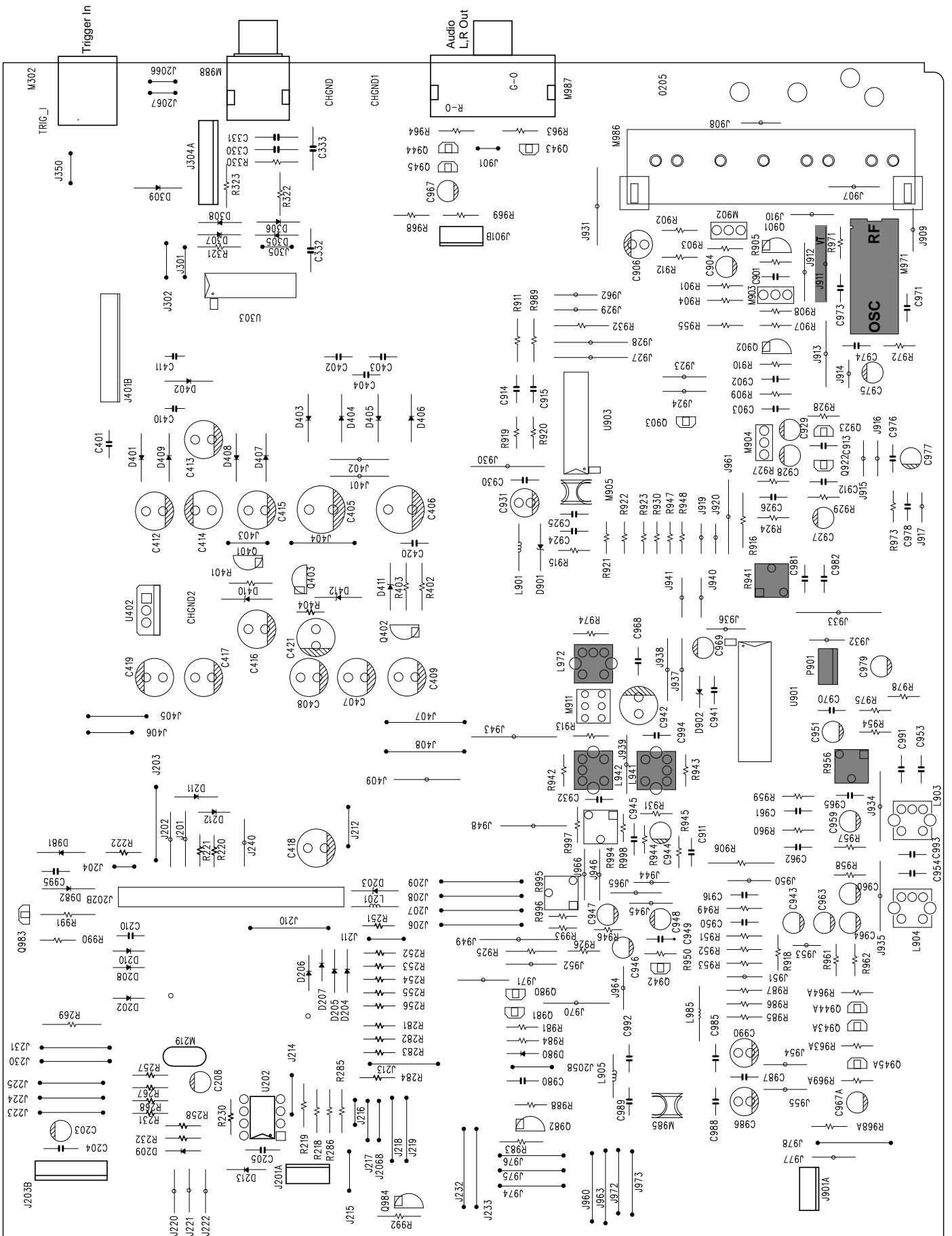


WIRING DIAGRAM

KEY BOARD



ADJUSTMENT POINTS DIAGRAM



INSTRUMENT SETUP

1. FM MEASUREMENT

Fig. 1

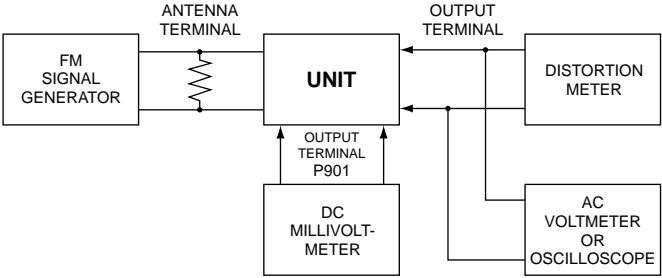
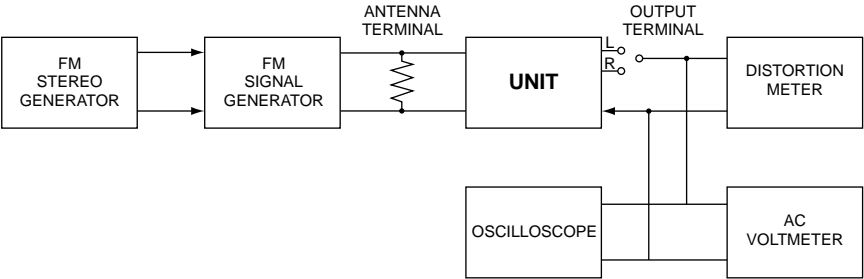
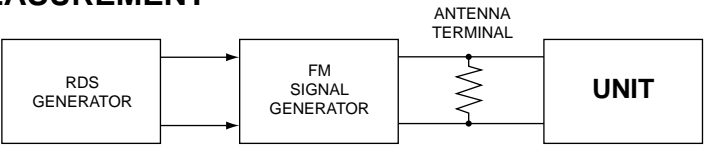


Fig. 2



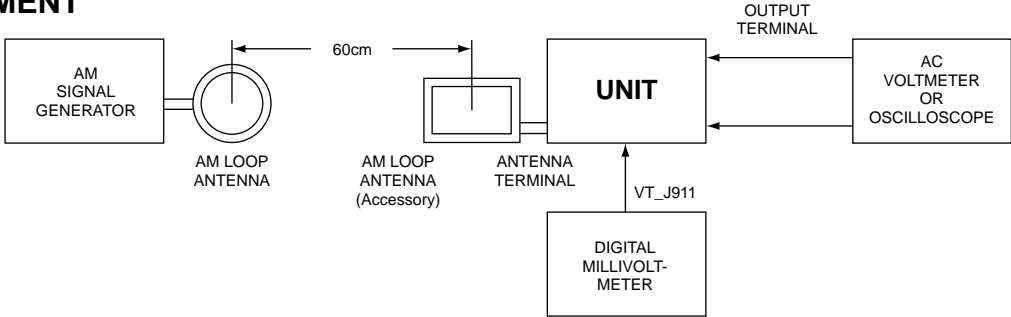
2. RDS MEASUREMENT

Fig. 3



3. AM MEASUREMENT

Fig. 4



ALIGNMENT PROCEDURES

FM/RDS SECTION

- FM mono: 1kHz, 75kHz devi., 60dB/μV
- FM stereo: 1kHz, 67.5kHz devi., 60dB/μV
Pilot signal 19kHz 7.5kHz devi.

OUTPUTS

- Connect the 47Kohm resistor unless otherwise noted.

| 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 | 99.0MHz 1kHz 75kHz devi. 65dBf (60dB) | - | 99.0MHz | DC voltmeter | L941 | 0±70mV | FM MUTE/MODE switch: ON/AUTO Repeat the steps 1 to 3 until no further adjustment is necessary. |
| | 2 | | | | | AC voltmeter | IFT on the front end | Maximum | |
| | 3 | | | | | Distortion analyzer | L942 | Minimum | |
| Stereo Distortion | | Fig.2 | 99.0MHz Ext. mod. 65dBf (60dB) | Channel L or R 1kHz | 99.0MHz | Distortion analyzer | IFT on the front end | Minimum | FM MUTE/MODE switch: ON/AUTO Don't turn more than ±180° |
| Stereo Separation | | Fig.2 | 99.0MHz Ext. mod. 65dBf (60dB) | Channel L or R 1kHz | 99.0MHz | Oscilloscope | R941 | Maximum separation | Repeat stereo distortion and stereo separation alignment until THD at minimum and separation at maximum. |
| | | | | | | Distortion Meter | | Minimum | |
| Mute Level | | Fig.1 | 99.0MHz 18dB | - | 99.0MHz | Oscilloscope | R956 | Signal output | |
| RDS | | Fig.3 | 99.0MHz Ext. mod. 65dBf (60dB) RDS 2% MOD | - | 99.0MHz | - | - | - | Decode the RDS-Program station |

AM SECTION

AF Modulation: 400Hz, 30%

For AH Version

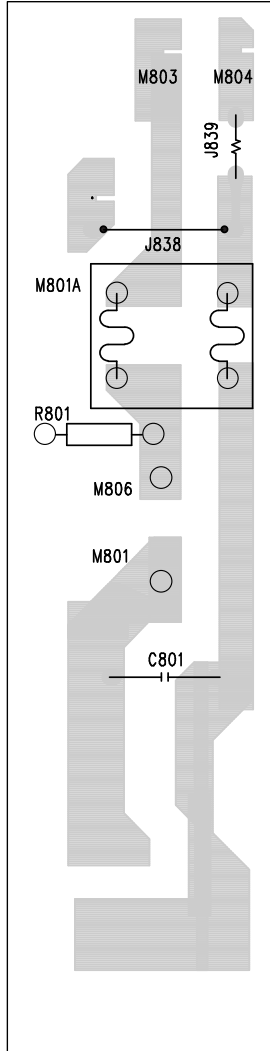
| Step | AM SG output | Tuning frequency | Output indicator | Adjustment point | Adjust for |
|------|------------------------------------|------------------|----------------------|---------------------------|------------|
| 1 | - | 530kHz | Digital DC voltmeter | OSC coil on RF block M971 | 1.35±0.2V |
| 2 | 600kHz 400Hz 30% mod. 60dB/m | 600kHz | AC voltmeter | RF coil on RF block M971 | Maximum |
| 3 | 600kHz 400Hz 30% mod. 60dB/m | 990kHz | AC voltmeter | L972 | Maximum |

For C Version

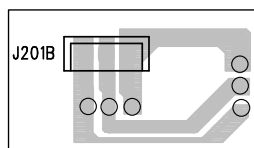
| Step | AM SG output | Tuning frequency | Output indicator | Adjustment point | Adjust for |
|------|------------------------------------|------------------------|----------------------|---------------------------|---|
| 1 | - | 522kHz or 531kHz | Digital DC voltmeter | OSC coil on RF block M971 | 1.3±0.2V (522kHz) 1.35±0.2V (531kHz) |
| 2 | 600kHz 400Hz 30% mod. 60dB/m | 603kHz | AC voltmeter | RF coil on RF block M971 | Maximum |
| 3 | 600kHz 400Hz 30% mod. 60dB/m | 999kHz | AC voltmeter | L972 | Maximum |

PCB LAYOUT

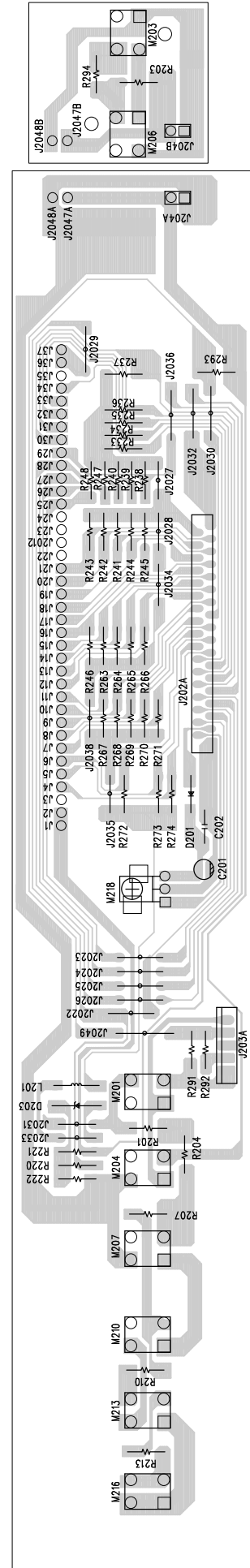
POWER SUPPLY BOARD



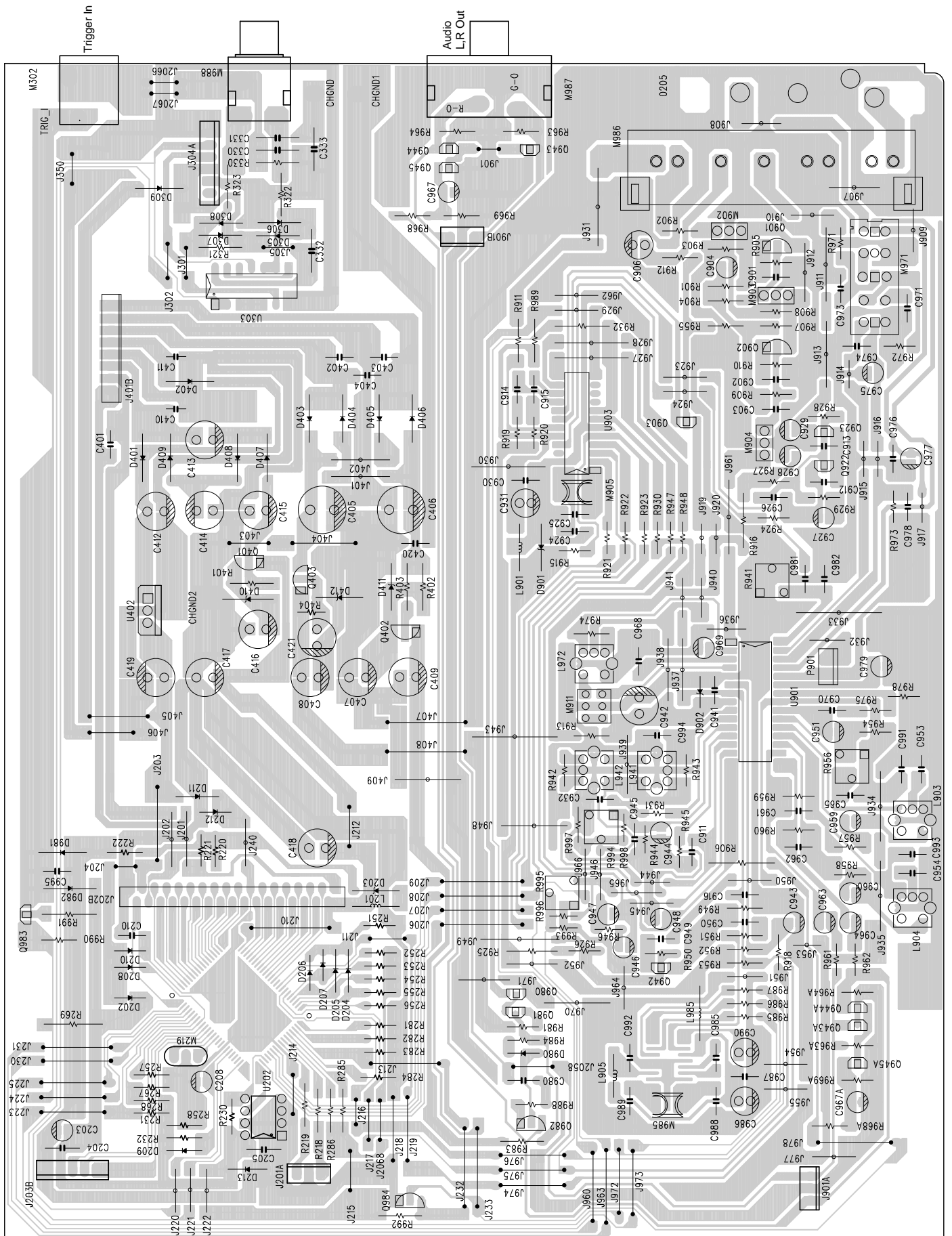
LED BOARD



KEY BOARD

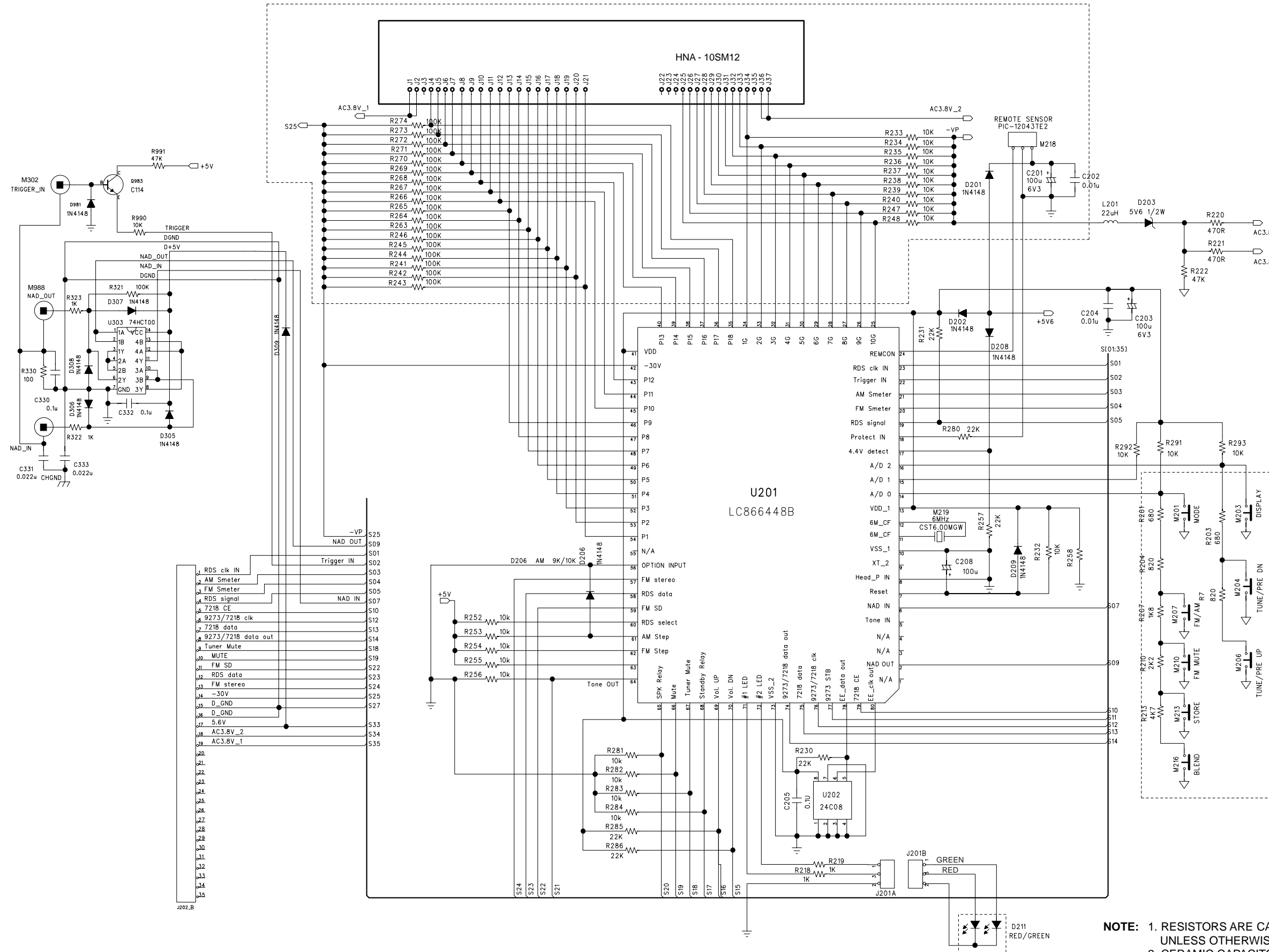


MAIN BOARD



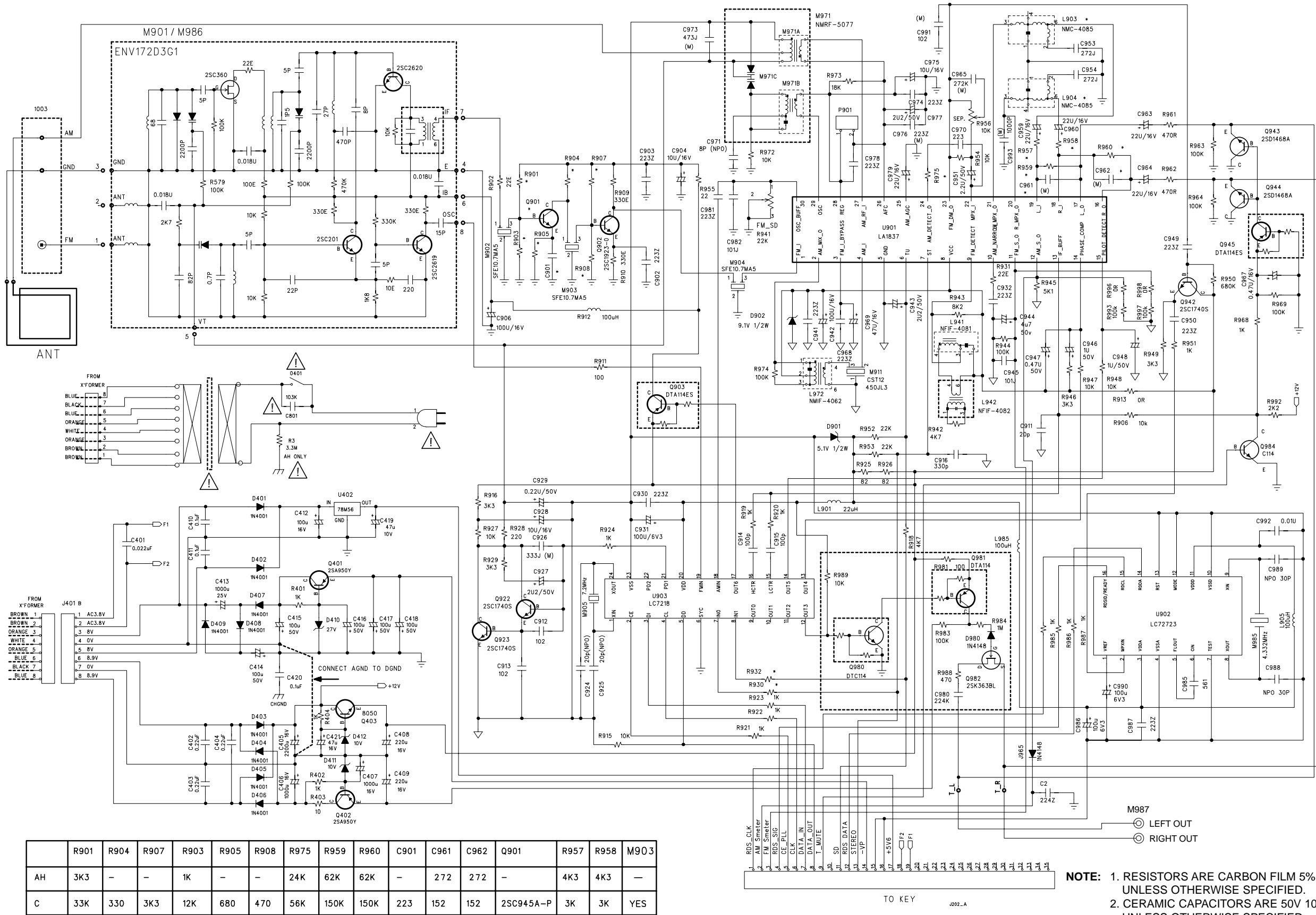
SCHEMATIC DIAGRAM

KEYBOARD / CPU



NOTE: 1. RESISTORS ARE CARBON FILM 5% 1/8W UNLESS OTHERWISE SPECIFIED.
2. CERAMIC CAPACITORS ARE 50V 10% UNLESS OTHERWISE SPECIFIED.

TUNER

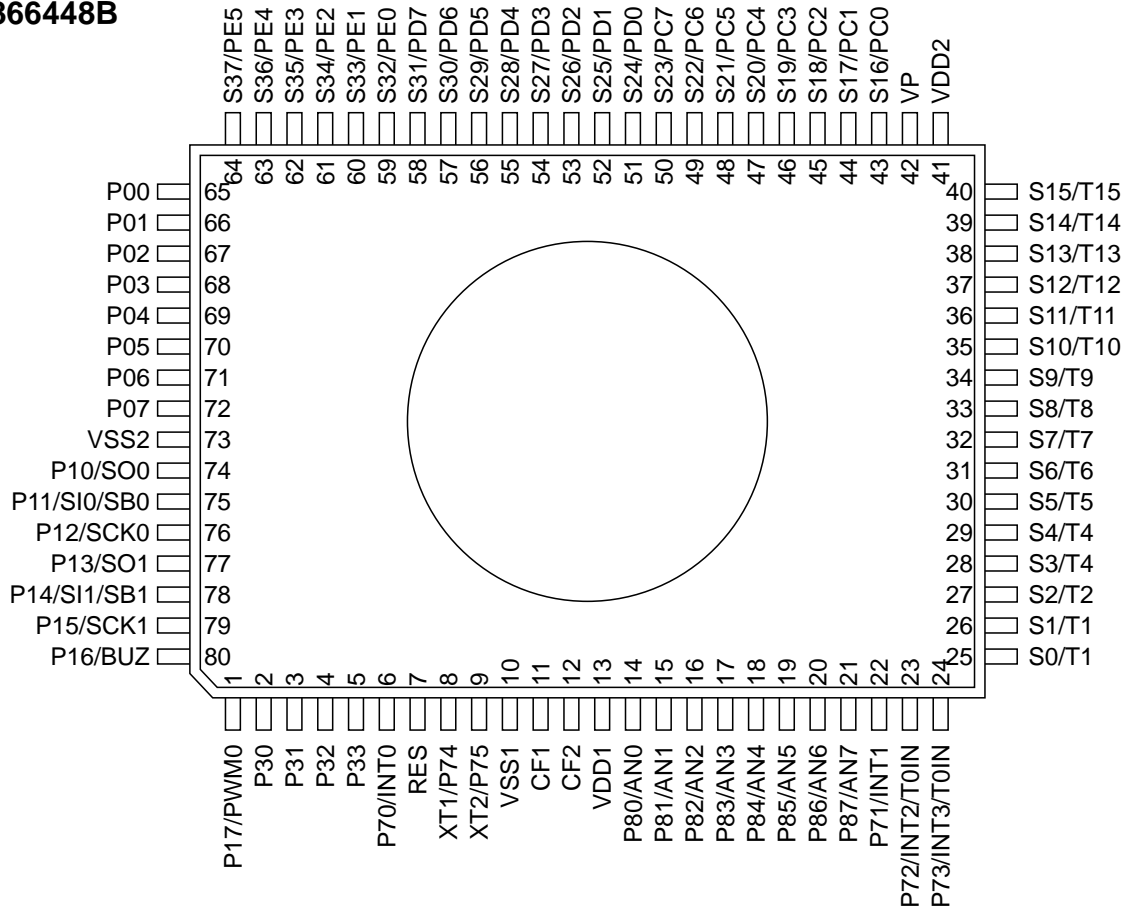


| | R901 | R904 | R907 | R903 | R905 | R908 | R975 | R959 | R960 | C901 | C961 | C962 | Q901 | R957 | R958 | M903 |
|----|------|------|------|------|------|------|------|------|------|------|------|------|-----------|------|------|------|
| AH | 3K3 | - | - | 1K | - | - | 24K | 62K | 62K | - | 272 | 272 | - | 4K3 | 4K3 | - |
| C | 33K | 330 | 3K3 | 12K | 680 | 470 | 56K | 150K | 150K | 223 | 152 | 152 | 2SC945A-P | 3K | 3K | YES |

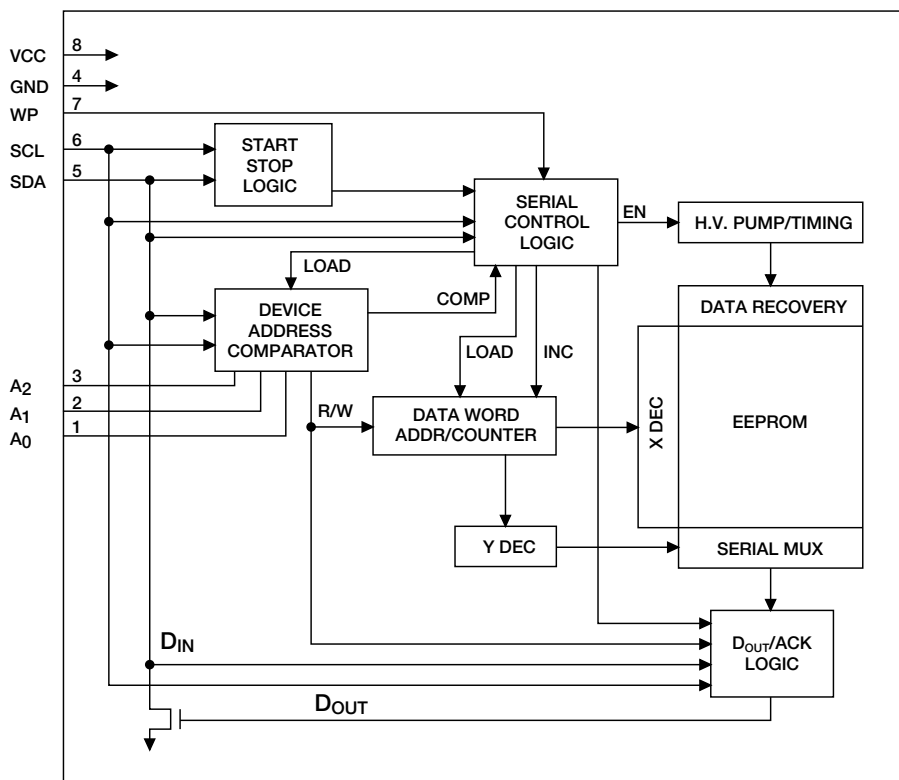
NOTE: 1. RESISTORS ARE CARBON FILM 5% 1/8W UNLESS OTHERWISE SPECIFIED.
2. CERAMIC CAPACITORS ARE 50V 10% UNLESS OTHERWISE SPECIFIED.

IC BLOCK DIAGRAM

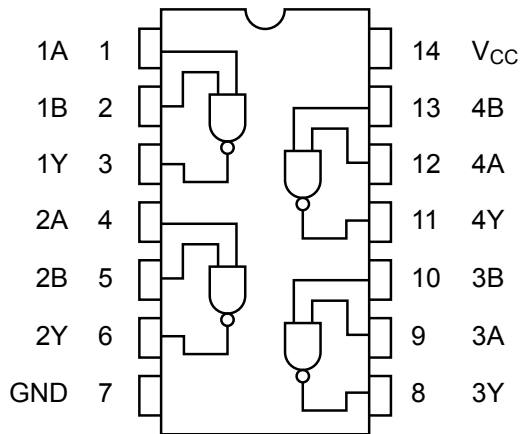
U201: LC866448B



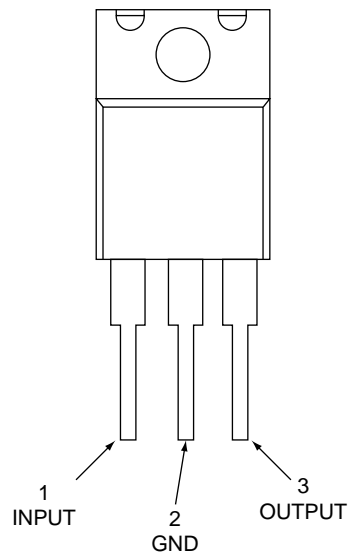
U202: 24C08



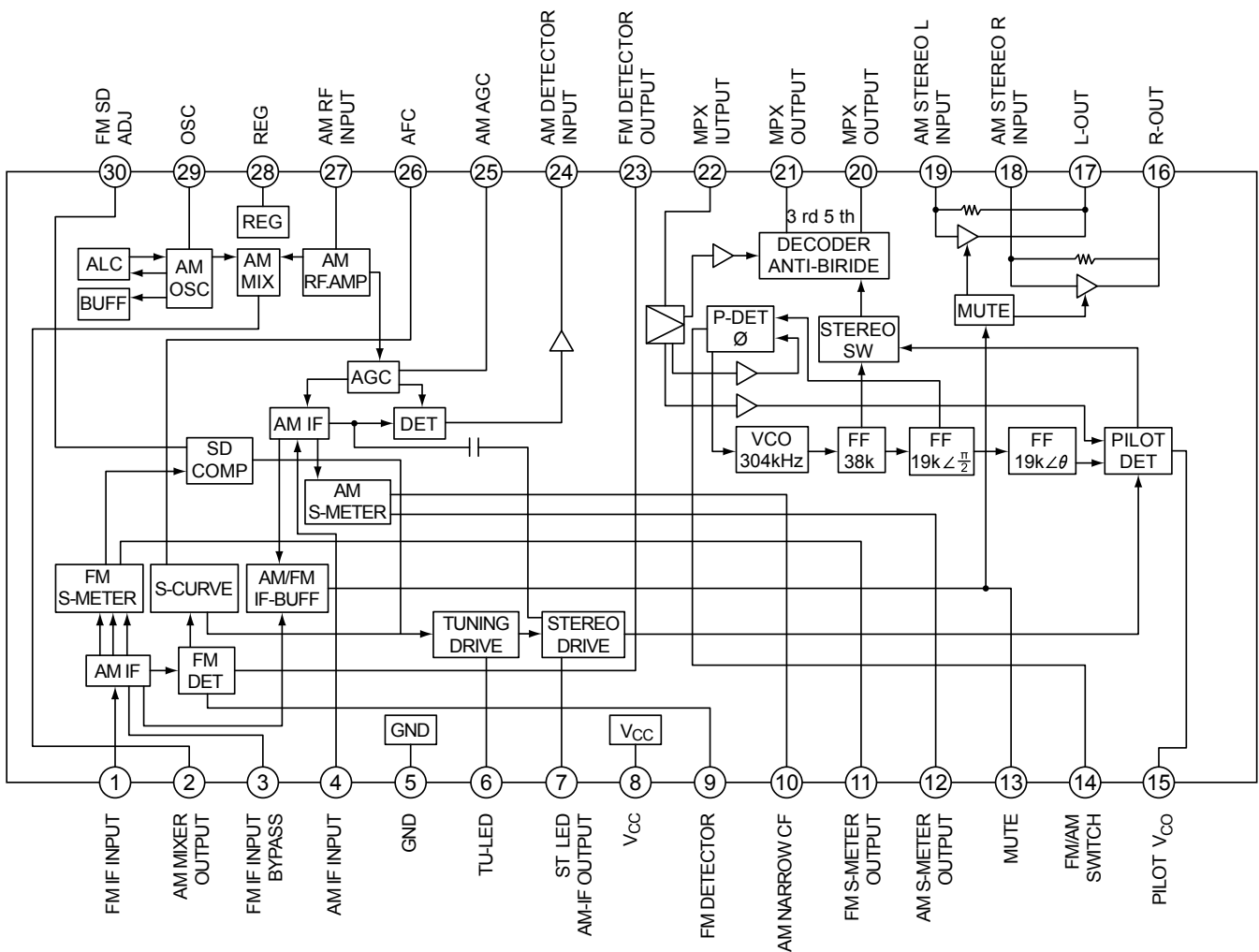
U303: 74HCT00



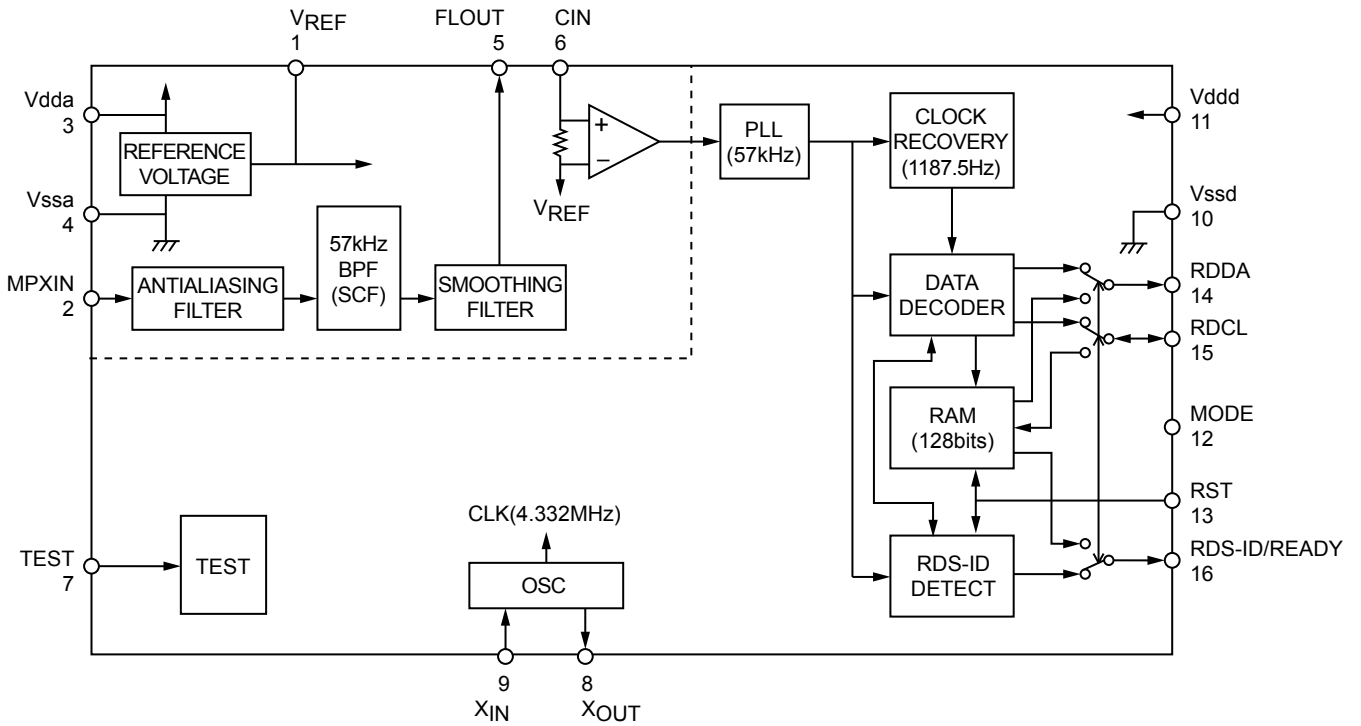
U402: NJM78M56FA



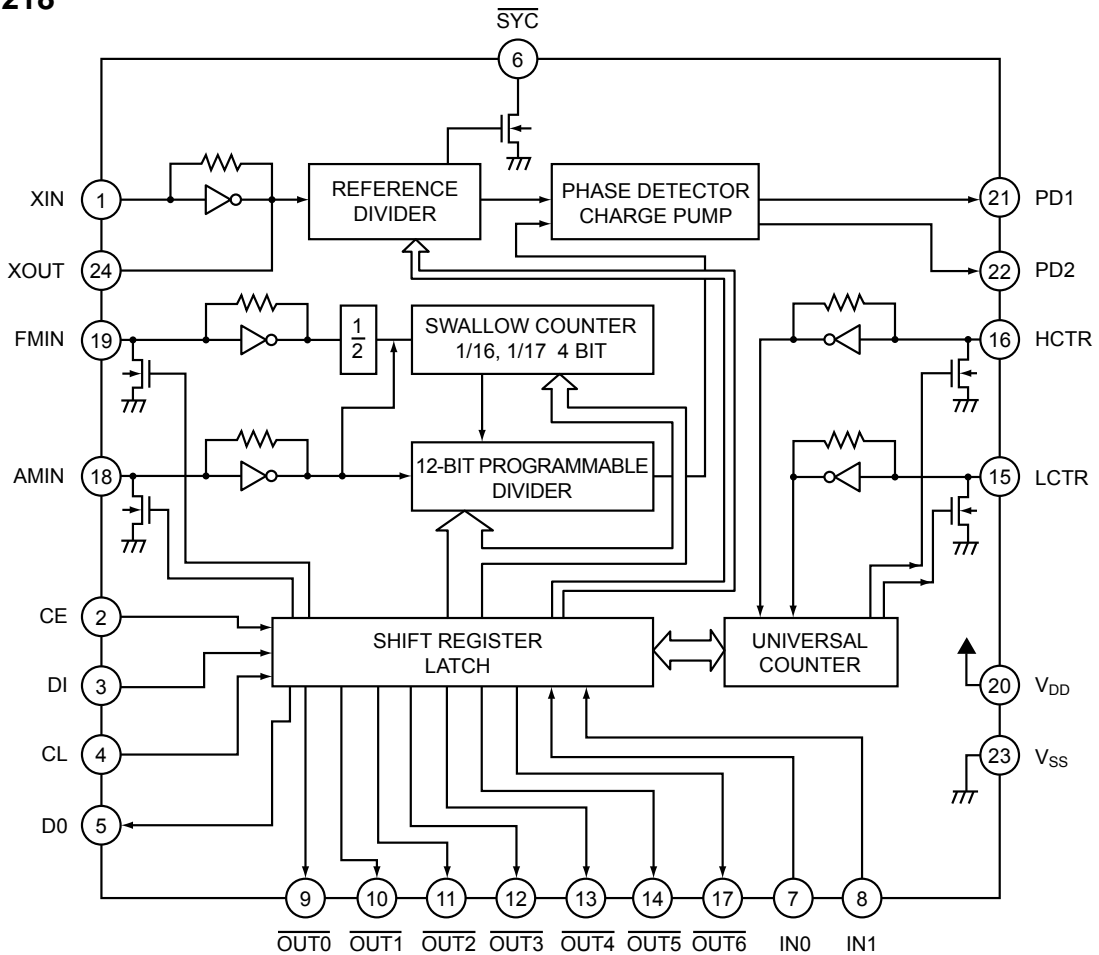
U901: LA1837



U902: LC72723M



U903: LC7218



ELECTRICAL PARTS LIST

| <u>Reference No.</u> | <u>Part No.</u> | <u>Description</u> |
|---|-----------------|-------------------------------------|
| <u>KEYBOARD ASSEMBLY</u> | | |
| <u>PC BOARD</u> | | |
| 3000 | PCB-N0930C-KEY | KEY PCB ASSY C420 |
| <u>VFD</u> | | |
| 0303 | 2460-1960-0 | VFD SAMSUNG HNA-105M12 |
| <u>CAPACITORS</u> | | |
| C201 | 157B-107M-5-KMK | CE 6.3V 100μF 20% RL 6x7 ELNA |
| C202 | 153F-103J-5-KM | CM 50V 0.01μF 5% RL 6.0x7.0 |
| <u>DIODES</u> | | |
| D201 | 4804-1480-C | DIODE 1N4148 ATS |
| D206 *C | 4804-1480-C | DIODE 1N4148 ATS |
| <u>CONNECTORS</u> | | |
| J202A | 2101-1581-0 | FLEXIBLE CONN. 35P P1.25 SIDE ENTRY |
| J203A | 7705-1150-2004 | 5P CONN WIRE ASSY L=150 26AWG |
| J204A | 7702-1075-2004 | CONN.ASSY 2P P2.5 L=75 AWG26 |
| J204B | 2102-021R-004 | WAFER 2P P2.5 RIGHT |
| <u>SWITCHES</u> | | |
| M201, M203, M204, M206, M207, M210, M213, M216 | 5200-3538-0 | SWITCH, TACT SKHHBY 7mm HIGH |
| <u>INFRA-RED SENSOR</u> | | |
| M218 | 4814-3TE2-3 | IR SENSOR PIC-12043TE2 |
| <u>RESISTORS</u> | | |
| R201 | 4701-681J-C | RCF 1/8W 680R 5% ATS |
| R203, R204 | 4701-122J-C | RCF 1/8W 1.2K 5% ATS |
| R207 | 4701-182J-C | RCF 1/8W 1.8K 5% ATS |
| R210 | 4701-222J-C | RCF 1/8W 2.2K 5% ATS |
| R213 | 4701-472J-C | RCF 1/8W 4.7K 5% ATS |
| R220, R221 | 4701-471J-C | RCF 1/8W 470R 5% ATS |
| R222 | 4701-473J-C | RCF 1/8W 47K 5% ATS |
| R233-R240 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R241-R246 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R247, R248 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R263-R274 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R291-R293 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R294 | 4701-122J-C | RCF 1/8W 1.2K 5% ATS |
| <u>LED ASSEMBLY</u> | | |
| <u>PC BOARD</u> | | |
| 5000 | PCB-N0930C-LED | PCB ASSY LED N093xC |
| <u>LED</u> | | |
| D211 | 3700-3517-RG | LED RED/GREEN (L-469HGW) |
| <u>CONNECTOR WIRE</u> | | |
| J201B | 7703-1320-2004 | 3P CONN WIRE ASSY L=320 26AWG |

| <u>Reference No.</u> | <u>Part No.</u> | <u>Description</u> |
|-------------------------------------|-----------------|---------------------------------------|
| <u>POWER SUPPLY ASSEMBLY</u> | | |
| <u>PC BOARD</u> | | |
| 4000 *AH | PCB-N0930C-PSU | POWER SUPPLY PCB ASSY C420AH |
| 4000 *C | PCB-N0931C-PSU | POWER SUPPLY PCB ASSY C420C |
| <u>SWITCH</u> | | |
| 0401 △ | 5200-3151-0-01 | POWER SWITCH |
| <u>CAPACITOR</u> | | |
| C801 △ | 8910-0049-0 | CAP400V 4700P DE7150F472MVA1KC |
| <u>RESISTOR</u> | | |
| R801 *AH △ | 4717-335J-2-S | RMF 1/2W 3.3M 5% AT UL APPROVED |
| <u>MAIN BOARD ASSEMBLY</u> | | |
| <u>PC BOARD</u> | | |
| 2000 *AH | PCB-N0930C-TUN | PCB ASSY TUNER (AH) N0930C |
| 2000 *C | PCB-N0931C-TUN | PCB ASSY TUNER (C) N0931C |
| <u>JACKS</u> | | |
| M987 | 2113-1300-0 | 2P RCA JACK W/R AU W/SHIELD |
| M988 | 2113-1121-0 | 2P RCA JACK Y/Y AU HSP-242V-22 |
| M302 | 2113-1179-0 | PHONE JACK D3.5 BK JY-3537-01-140 |
| <u>CAPACITORS</u> | | |
| C203 | 157B-107M-5-KMK | CE 6.3V 100µF 20% RL 6x7 ELNA |
| C204 | 153F-103J-5-IM | CM 50V 0.01µF 5% RL 5x7 |
| C205 | 150F-104Z-5-IU | CC 50V 0.1µF +80/-20% RL 5x11 |
| C208 | 157D-476M-5-IUK | CE 16V 47µF 20% RL 5x11 ELNA |
| C210 | 153F-103J-5-IM | CM 50V 0.01µF 5% RL 5x7 |
| C330 | 150F-104K-2-FC | CC 50V 0.1µF 10% AT 3.5x2 |
| C331 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C332 | 150F-104K-5-II | CC 50V 0.1µF 10% RL 5x5 |
| C333 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C401-C404 | 153F-224J-5-MIB | CM 50V 0.22µF 5% RL 7x5 |
| C405 | 157D-228M-5-x9E | CE 16V 2200µF 20% RL 12.5x20 ELNA |
| C406, C407 | 157D-108M-5-S9K | CE 16V 1000µF 20% RL 10x20 ELNA |
| C408, C409 | 157D-227M-5-OMK | CE 16V 220µF 20% RL 8x7 ELNA |
| C410, C411 | 150F-104K-5-II | CC 50V 0.1µF 10% RL 5x5 |
| C412 | 157D-107M-5-KUK | CE 16V 100µF 20% RL 6.3x11 ELNA |
| C413 | 157E-108M-5-S9E | CE 25V 1000µF 20% RL 10x20 ELNA |
| C414-C418 | 157F-107M-5-KUK | CE 50V 100µF 20% RL 6.3x11 ELNA |
| C419 | 157C-476M-5-IMK | CE 10V 47µF 20% RL 5x7 ELNA |
| C420 | 150F-104K-5-II | CC 50V 0.1µF 10% RL 5x5 |
| C421 | 157E-107M-5-KUK | CE 25V 100µF 20% RL 6.3x11 ELNA |
| C901 *C | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C902, C903 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C904 | 157D-106M-5-GM | CE 16V 10µF 20% RL 4x7 |
| C906 | 157D-107M-5-KUK | CE 16V 100µF 20% RL 6.3x11 ELNA |
| C911 | 150F-200J-2-FC | CC 50V 20pF 5% AT 3.5x2 |
| C912, C913 | 150F-102K-2-FC | CC 50V 1000pF 10% AT 3.5x2 |
| C914, C915 | 150F-101K-2-FC | CC 50V 100pF 10% AT 3.5x2 |
| C916 | 150F-331K-2-FC | CC 50V 330pF 10% AT 3.5x2 |
| C924 | 15CH-270J-5-GG | CTC 0/60 27pF 5% RL 4x4 |
| C925 | 15CH-200J-5-GG | CTC 0/60 20pF 5% RL 4x4 |
| C926 | 153F-333J-5-NLM | CM 50V 0.033µF 5% RL 7.5 x6.5 Metalzd |
| C927 | 157F-225M-5-GM | CE 50V 2.2µF 20% RL 4x7 |
| C928 | 157D-106M-5-GM | CE 16V 10µF 20% RL 4x7 |
| C929 | 157F-224M-5-GM | CE 50V 0.22µF 20% RL 4x7 |
| C930 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |

| <u>Reference No.</u> | <u>Part No.</u> | <u>Description</u> |
|----------------------|-----------------|---------------------------------------|
| C931 | 157B-107M-5-KM | CE 6.3V 100µF 20% RL 6x7 |
| C932, C941 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C942 | 157D-107M-5-KUK | CE 16V 100µF 20% RL 6.3x11 ELNA |
| C943 | 157F-225M-5-GM | CE 50V 2.2µF 20% RL 4x7 |
| C944 | 157F-475M-5-GM | CE 50V 4.7µF 20% RL 4x7 |
| C945 | 150F-101K-2-FC | CC 50V 100pF 10% AT 3.5x2 |
| C946 | 157F-105M-5-GM | CE 50V 1µF 20% RL 4x7 |
| C947 | 157F-474M-5-GM | CE 50V 0.47µF 20% RL 4x7 |
| C948 | 157F-105M-5-GM | CE 50V 1µF 20% RL 4x7 |
| C949, C950 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C951 | 157F-225M-5-GM | CE 50V 2.2µF 20% RL 4x7 |
| C953, C954 | 150D-272K-2-FC | CC 16V 2700pF 10% AT 3.5x2 |
| C959, C960 | 157D-226M-5-GM | CE 16V 22µF 20% RL 4x7 |
| C961, C962 *AH | 153F-272J-5-JM | CM 50V 2700PF 5% RL 5.5x7 |
| C961, C962 *C | 153F-152J-5-KW | CM 50V 1500pF 5% RL 6x12 |
| C963, C964 | 157D-226M-5-GM | CE 16V 22µF 20% RL 4x7 |
| C965 | 150D-272K-2-FC | CC 16V 2700pF 10% AT 3.5x2 |
| C967 | 157D-474M-5-II | CE 16V 0.47µF 20% RL 5x5 |
| C968 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C969 | 157D-476M-5-IM | CE 16V 47µF 20% RL 5x7 |
| C970 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C971 | 15CH-080D-5-GG | CTC 0/60 8pF 0.5pF RL 4x4 |
| C973 | 153F-473J-5-NLM | CM 50V 0.047µF 5% RL 7.5 x6.5 Metalzd |
| C974 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C975 | 157D-106M-5-GM | CE 16V 10µF 20% RL 4x7 |
| C976 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C977 | 157F-225M-5-GM | CE 50V 2.2µF 20% RL 4x7 |
| C978 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C979 | 157D-226M-5-GM | CE 16V 22µF 20% RL 4x7 |
| C980 | 153F-224J-5-MIB | CM 50V 0.22µF 5% RL 7x5 |
| C981 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C982 | 150F-101K-2-FC | CC 50V 100pF 10% AT 3.5x2 |
| C985 | 150F-561K-2-FC | CC 50V 560pF 10% AT 3.5x2 |
| C986 | 157B-107M-5-KM | CE 6.3V 100µF 20% RL 6x7 |
| C987 | 150F-223K-2-FD | CC 50V 0.022µF 10% AT 3.2x2.2 |
| C988, C898 | 15CH-300J-5-IG | CTC 0/60 30pF 5% RL 5x4 |
| C990 | 157B-107M-5-KM | CE 6.3V 100µF 20% RL 6x7 |
| C991 | 150F-102K-2-FC | CC 50V 1000pF 10% AT 3.5x2 |
| C992 | 150F-103K-2-FC | CC 50V 0.01µF 10% AT 3.5x2 |
| R995 | 150F-224M-N-II | CC 50V 0.22µF 20% RLF MONO |
| DIODES | | |
| D202 | 4804-1480-C | DIODE 1N4148 ATS |
| D203 | 4837-5V61-2 | DZ 1/2W 5.6V ROHM AT |
| D208-D211 | 4804-1480-C | DIODE 1N4148 ATS |
| D213, D305-D309 | | |
| D206 *AH | 4804-1480-C | DIODE 1N4148 ATS |
| D401-D409 | 4804-0010-2 | DIODE 1N4001 AT |
| D410 | 4837-27V0-2 | DZ 1/2W 27V(26.2-27.6)AT |
| D411 *AH | 4837-1001-2 | DZ 1/2W 10V ROHM AT |
| D411 *C | 4837-10D1-2 | DZ 1/2W 9.94-10.44V ROHM |
| D412 | 4837-10D1-2 | DZ 1/2W 9.94~10.44V ROHM AT (MTZJ10D) |
| D901 | 4837-4C20-2 | DZ 1/2W 5.0-5.2V AT |
| D902 | 4837-7C20-2 | DZ 1/2W 9.1-9.5V AT |
| D980, D981 | 4804-1480-C | DIODE 1N4148 ATS |
| J213 | 4837-3A31-2 | DZ 1/2W 3.16~3.38V ROHM AT (MTZJ3.3A) |
| J965 | 4804-1480-C | DIODE 1N4148 ATS |
| WAFERS | | |
| J201A | 2102-031S-004 | 3 PIN ST. WAFER P=2.5 COULOMB |

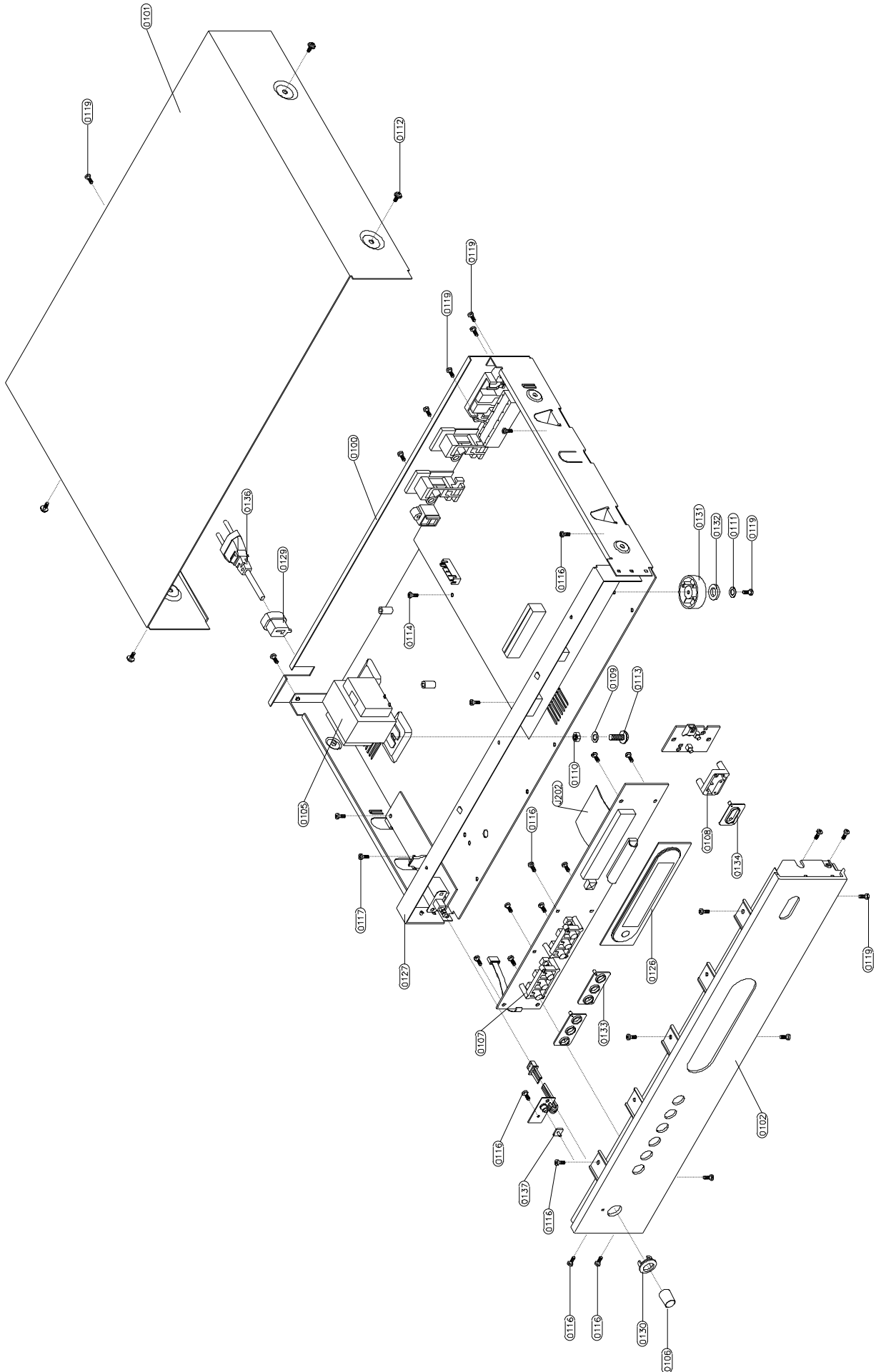
| Reference No. | Part No. | Description |
|--|--|--|
| J202B J203B J401B P901 | 2101-1591-0 2102-051S-004 2102-081S-004 2113-1160-0 | FLEXIBLE CONN. 35P P1.25 TOP ENTRY 5P ST.WAFER P=2.5 COULOMB WAFER 8P P2.5 ST. WAFER 2P ST. P=2.5 NH (JST) |
| COILS | | |
| L201, L901 L903, L904 L905 L941 L942 L971 L972 L985 R912 | 1801-220K-M 5600-3386-S 1801-101K-M 5600-3396-S 5600-3406-S 5600-3280-G 5600-3416-S 1801-101K-M 1801-101K-M | COIL 22 μ H 10% AL BL7 COIL MPx LPF NMC-4085 COIL 100 μ H 10% COIL FM DET-1 10.7MHZ NFIF-4081 COIL FM DET-2 10.7MHZ NFIF-4082 COIL MW RF BLOCK NMRF-5077 COIL AM IFT NMIF-4062 COIL 100 μ H 10% COIL 100 μ H 10% |
| TUNER | | |
| M901 / M986 | 1300-0726-0 | TUNER ENV172D3G1 PANASONIC |
| CERAMIC FILTERS | | |
| M902, M904 M903 *C M911 | 2701-0010-1 2701-0010-1 2701-0680-0 | CF10.7 +-30 SFE10.7MA5-A CF10.7 +-30 SFE10.7MA5-A CF 450 +-1 SFZ450JL3 MURATA |
| CRYSTALS | | |
| M219 M905 M985 | 2703-0200-0 2300-0440-0 2300-1220-0 | CR 6MHZ CST6.00MGW MURATA CRYSTAL 7.2MHZ 20PPM CRYSTAL 4.332MHZ |
| TRANSISTORS | | |
| Q401, Q402 Q403 Q901 *C Q902 Q903 Q922, Q923, Q942 Q943, Q944 Q945 Q980 Q981 Q982 Q983, Q984 | 485A-950Y-5 4860-0050-5 485C-945P-5 4851-9230-5 485A-114E-5 4860-1590-5 4860-8120-0 485A-114E-5 485C-114E-5 485A-114E-5 4853-63BL-5 485C-114E-5 | TR 2SA950-Y HFE 100-200 TR SS8050 C/D SAMSUNG RL TR 2SC945P HFE 200-400 TR 2SC1923-0 HFE 70-140 TR DTA114ESA ROHM TR 2SC1740S (R) HFE180-390 TR 2SD 1468 S TR DTA114ESA ROHM TR DTC114ES TR DTA114ESA ROHM TR N-JFET 2SK-363BL TR DTC114ES |
| RESISTORS | | |
| R218, R219 R230, R231 R232, R252-R256 R257, R267 R281-R284 R285, R286 R321 R322, R323 R330 R401, R402 R403 R404 R901 *A R901 *C R902 R903 *AH | 4701-102J-C 4701-223J-C 4701-103J-C 4701-223J-C 4701-103J-C 4701-223J-C 4701-104J-C 4701-102J-C 4701-101J-C 4701-102J-C 4701-100J-C 4701-102J-C 4701-332J-C 4701-333J-C 4701-220J-C 4701-102J-C | RCF 1/8W 1K 5% ATS RCF 1/8W 22K 5% ATS RCF 1/8W 10K 5% ATS RCF 1/8W 22K 5% ATS RCF 1/8W 10K 5% ATS RCF 1/8W 22K 5% ATS RCF 1/8W 100K 5% ATS RCF 1/8W 1K 5% ATS RCF 1/8W 100R 5% ATS RCF 1/8W 1K 5% ATS RCF 1/8W 10R 5% ATS RCF 1/8W 1K 5% ATS RCF 1/8W 3.3K 5% ATS RCF 1/8W 33K 5% ATS RCF 1/8W 22R 5% ATS RCF 1/8W 1K 5% ATS |

| Reference No. | Part No. | Description |
|----------------------|-----------------|--------------------------|
| R903 *C | 4701-123J-C | RCF 1/8W 12K 5% ATS |
| R904 *C | 4701-331J-C | RCF 1/8W 330R 5% ATS |
| R905 *C | 4701-681J-C | RCF 1/8W 680R 5% ATS |
| R906 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R907 *C | 4701-332J-C | RCF 1/8W 3.3K 5% ATS |
| R908 *C | 4701-471J-C | RCF 1/8W 470R 5% ATS |
| R909, R910 | 4701-331J-C | RCF 1/8W 330R 5% ATS |
| R911 | 4701-101J-C | RCF 1/8W 100R 5% ATS |
| R915 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R916 | 4701-102J-C | RCF 1/8W 1K 5% ATS |
| R918 | 4701-472J-C | RCF 1/8W 4.7K 5% ATS |
| R919, R920 | 4701-102J-C | RCF 1/8W 1K 5% ATS |
| R921, R922 | 4701-222J-C | RCF 1/8W 2.2K 5% ATS |
| R923, R924 | 4701-102J-C | RCF 1/8W 1K 5% ATS |
| R925, R926 | 4701-820J-C | RCF 1/8W 82R 5% ATS |
| R927 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R928 | 4701-221J-C | RCF 1/8W 220R 5% ATS |
| R929 | 4701-222J-C | RCF 1/8W 2.2K 5% ATS |
| R931 | 4701-220J-C | RCF 1/8W 22R 5% ATS |
| R941 | 4756-2236-3-06 | SVR 22K H3 7x7.6 RH0615C |
| R942 | 4701-472J-C | RCF 1/8W 4.7K 5% ATS |
| R943 | 4701-822J-C | RCF 1/8W 8.2K 5% ATS |
| R944 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R945 | 4701-512J-C | RCF 1/8W 5.1K 5% ATS |
| R946 | 4701-332J-C | RCF 1/8W 3.3K 5% ATS |
| R947, R948 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R949 | 4701-332J-C | RCF 1/8W 3.3K 5% ATS |
| R950 | 4701-684J-C | RCF 1/8W 680K 5% ATS |
| R951 | 4701-102J-C | RCF 1/8W 1K 5% ATS |
| R952, R953 | 4701-223J-C | RCF 1/8W 22K 5% ATS |
| R954 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R955 | 4701-220J-C | RCF 1/8W 22R 5% ATS |
| R956 | 4756-1036-3-06 | SVR 10K H3 7x7.6 RH0615C |
| R957, R958 *AH | 4701-432J-2 | RCF 1/8W 4.3K 5% AT |
| R957, R958 *C | 4701-302J-C | RCF 1/8W 3K 5% ATS |
| R959, R960 *AH | 4701-623J-2 | RCF 1/8W 62K 5% AT |
| R959, R960 *C | 4701-154J-C | RCF 1/8W 150K 5% ATS |
| R961, R962 | 4701-471J-C | RCF 1/8W 470R 5% ATS |
| R963, R964 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R968 | 4701-102J-C | RCF 1/8W 1K 5% ATS |
| R969 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R972 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R973 | 4701-183J-C | RCF 1/8W 18K 5% ATS |
| R974 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R975 *AH | 4701-243J-C | RCF 1/8W 24K 5% ATS |
| R975 *C | 4701-563J-C | RCF 1/8W 56K 5% ATS |
| R978 | 4701-105J-C | RCF 1/8W 1M 5% ATS |
| R981 | 4701-101J-C | RCF 1/8W 100R 5% ATS |
| R983 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R984 | 4701-105J-C | RCF 1/8W 1M 5% ATS |
| R985-R987 | 4701-102J-C | RCF 1/8W 1K 5% ATS |
| R988 | 4701-471J-C | RCF 1/8W 470R 5% ATS |
| R989 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R990 | 4701-473J-C | RCF 1/8W 47K 5% ATS |
| R991 | 4701-103J-C | RCF 1/8W 10K 5% ATS |
| R992 | 4701-472J-C | RCF 1/8W 4.7K 5% ATS |
| R993 | 4701-104J-C | RCF 1/8W 100K 5% ATS |
| R997 | 4701-104J-C | RCF 1/8W 100K 5% ATS |

| <u>Reference No.</u> | <u>Part No.</u> | <u>Description</u> |
|----------------------|-----------------|---|
| ICS | | |
| U201 | 3131-9750-1 | IC LC866448B 8 BIT SINGLE CHIP MCU MASKED |
| U202 | 3131-7250-0 | IC 24C08 8K EEPROM |
| U303 | 3130-7370-0 | IC 74HCT00 NAND GATE |
| U402 | 3130-8190-0 | IC NJM78M56FA 5.6V REGULATOR |
| U901 | 3130-8180-0 | IC LA1837 AM/FM IF |
| U902 | 3131-9040-0 | IC LC72723M RDS DEMODULATOR MFP16 |
| U903 | 3131-3760-0 | IC LC7218 PLL FREQ SYNTHESIZER SANYO |

- NOTE:**
- The components identified by \triangle mark are critical for risk of fire and electrical shock.
Replace only with part number specified.
 - <*AH > : USA, Canadian model only.
 - <*C > : European model only.
 - Capacitors : CP-Polystyrene, CM-Mylar, CE-Electrolytic, CC-Ceramic, CTC-NPO.
 - Resistors : RMF-Metal Film, RCF-Carbon Film.

EXPLODED VIEW

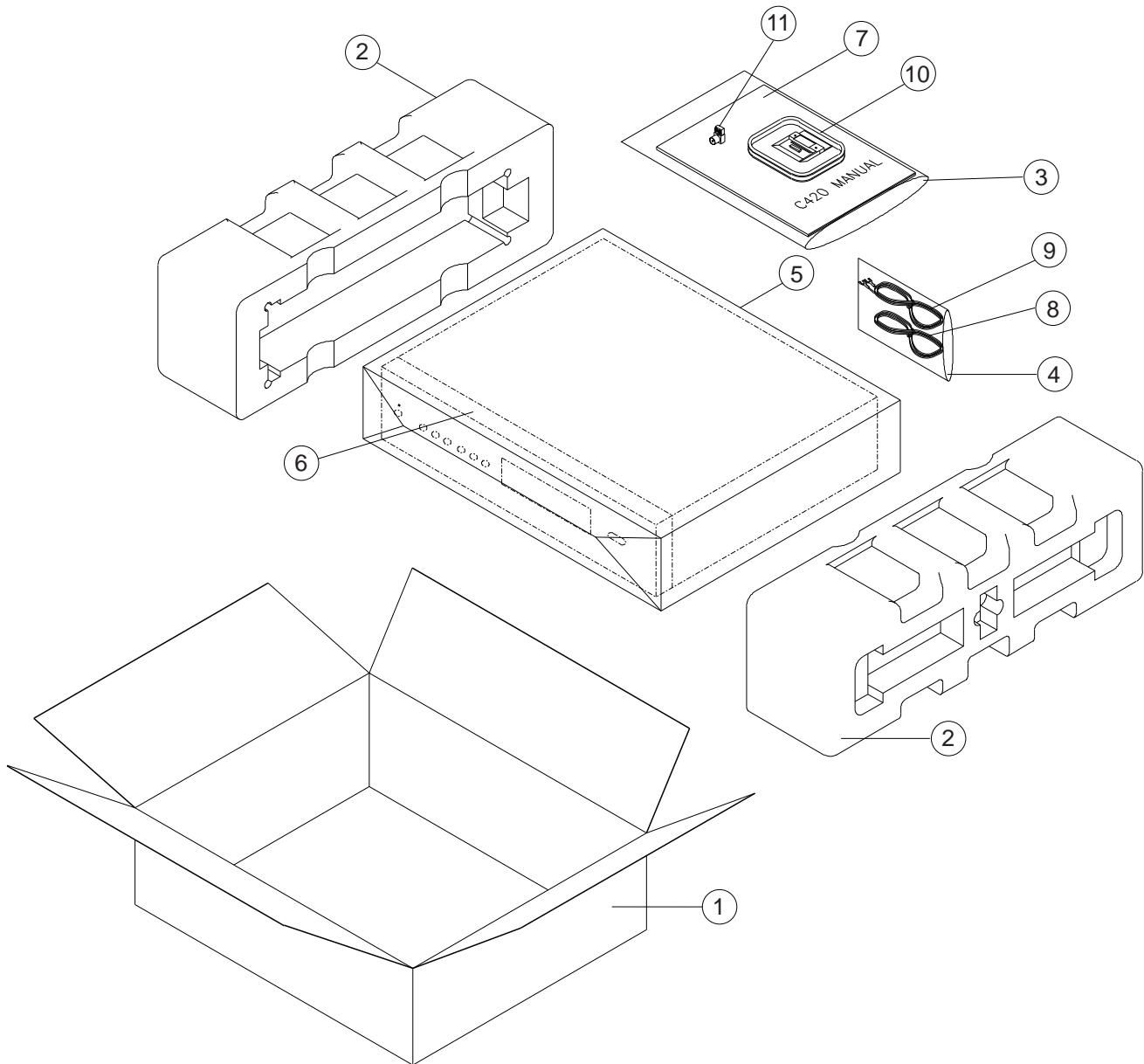


EXPLODED VIEW PARTS LIST

| <u>ITEM</u> | <u>Part No.</u> | <u>Description</u> | <u>Qty</u> |
|--------------|-----------------|--|------------|
| 0100 *AH | 1402-3515-1 | CHASSIS C420 AH W/SS-PAINT | 1 |
| 0100 *C | 1402-3514-1 | CHASSIS C420 C W/SS-PAINT | |
| 0101 | 1402-3530-0 | COVER | 1 |
| 0102 | 1403-7120-1 | FASCIA | 1 |
| 0105 △ | 1806-3541-0 | X'FORMER 120/230V I/P | 1 |
| 0106 | 2442-1000-0 | POWER BUTTON | 1 |
| 0107 | 2444-1201-0 | BUTTON TRIO | 2 |
| 0108 | 2444-1301-1 | BUTTON RACKER | 1 |
| 0109 | 2600-4008-0973 | FLAT WASHER M4X0.8X9.7 BZ | 2 |
| 0110 | 2640-4030-0703 | M4 NUT (BLK) | 2 |
| 0111 | 2842-3367-0 | METAL WASHER ID=3.3 OD=6.7 | 5 |
| 0112 | 2900-4006-3010 | M4X0.5PX6MM W/FLAT WASHER | 4 |
| 0113 | 2900-4010-3030 | PH W/WASHER M4X10 BL ZN | 2 |
| 0114 | 2904-3006-0000 | SCREW M3X6 | 3 |
| 0116 | 2954-3008-0000 | TAPPING 3X8MM B-TITE (YEL.ZN) | 20 |
| 0117 | 2954-3006-0000 | 3X6MM B-TITE (YEL.ZN) | 2 |
| 0119 | 2954-3008-3000 | T3X8MM SELF TAPPING | 14 |
| 0126 | 3716-4314-0 | WINDOW LENS W/SS | 1 |
| 0127 | 1402-3782-1 | STRAP | 1 |
| 0129 △ | 4152-3851-0 | SQ. STRAIN RELIEF BUSHING | 1 |
| 0130 | 4152-4331-0 | POWER BUTTON BEZEL | 1 |
| 0131 | 4152-4631-0 | RUBBER FOOT 14MM HIGH | 4 |
| 0132 | 4152-4641-0 | CUSHION FOOT | 4 |
| 0133 | 4154-0031-0 | BEZEL TRIO | 2 |
| 0134 | 4154-0091-0 | BEZEL RACKER | 1 |
| 0136 *AH △ | 7009-3100-2 | AC CORD 18AWGX2 SPT-2 UL/CSA D.INSULATED | 1 |
| 0136 *C △ | 7009-3110-0 | AC CORD (SEMKO) | 1 |
| 0137 | 3714-5706-0 | LED LENS CLEAR SAN | 1 |
| J202C | 7012-5260-0 | FLEXIBLE CABLE 35P L=150 | 1 |

- NOTE:**
- The components identified by △ mark are critical for risk of fire and electrical shock. Replace only with part number specified.
 - <*AH > : USA, Canadian model only.
 - <*C > : European model only.

PACKING DIAGRAM



| ITEM | PART NO. | DESCRIPTION | Q'TY |
|------|-------------|--------------------|------|
| 1 | 1408-0202-0 | CARTON BOX | 1 |
| 2 | 1490-1783-0 | POLYFORM ENDCAP | 2 |
| 3 | 1497-1062-0 | POLYBAG MANUAL | 1 |
| 4 | 1497-1302-0 | POLYBAG ACCESSORY | 1 |
| 5 | 1497-1332-1 | POLYBAG UNIT | 1 |
| 6 | 1497-1432-0 | FASCIA COVER | 1 |
| 7 | 4301-4868-1 | INSTRUCTION MANUAL | 1 |
| 8 | 2103-7302-1 | RCA CABLE | 1 |
| 9 | 2107-0661-1 | 300-OHM T ANTENNA | 1 |
| 10 | 2113-1155-0 | AM LOOP ANTENNA | 1 |
| 11 | 2103-6101-0 | RF CONNECTION PLUG | 1 |

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SERVICE MANUAL

C 420

STEREO
AM/FM TUNER

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