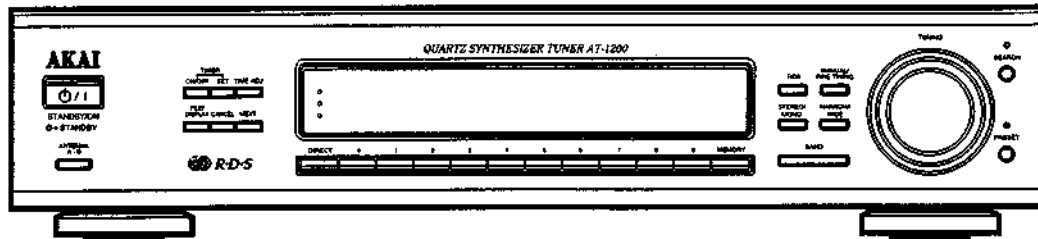




AKAI-01217

AKAI SERVICE MANUAL



FM/MW/LW STEREO TUNER

SPECIFICATIONS

MODEL AT-1200

| FM | LW |
|---|---|
| Frequency Range : 87.50 MHz ~ 108.00MHz (50kHz Step: Manual) (10kHz Step: Fine) | Frequency Range : 146kHz ~ 290kHz (1kHz Step: Manual) (9kHz Step: Auto) |
| Usable Sensitivity (S/N 30dB): 1.2 μ V | Usable Sensitivity (S/N 20dB): 60dB S/N Ratio : 45dB |
| Total Harmonic Distortion (1kHz) MONO : 0.08% STEREO : 0.15% | Total Harmonic Distortion (400Hz): 1% |
| S/N Ratio(IHF) MONO : 80dB STEREO : 75dB | MW |
| Frequency Response : 20Hz ~ 15kHz +0.5 ~ -3.0dB | Frequency Range : 522kHz ~ 1620kHz (9kHz Step) |
| AM Suppression : 60dB | Usable Sensitivity (S/N 20dB): 50dB |
| Separation(1kHz) : 50dB | S/N Ratio : 45dB |
| | Total Harmonic Distortion(400Hz): 0.8% |
| GENERAL | Standard accessories |
| Power supply : AC 230V, 50Hz | Audio Signal connection cord |
| Power consumption : 9W | Remote control connection cord |
| Dimensions(W×H×D): 430×96×336mm | FM Antenna |
| Weight(net) : 3.8kg (net) | AM Antenna |
| | Operator's manual |

* For improvement purposes, specifications and design are subject to change without notice.

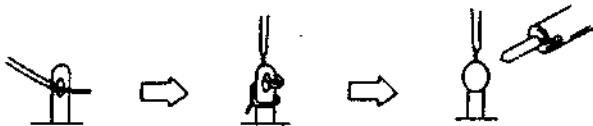
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SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

- Parts identified by the \triangle (*) symbol parts are critical for safety. Replace only with parts number specified.
- In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
Examples :RF converters, tuner units, antenna select switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
- Use specified internal wiring. Note especially :
 - Wires covered with PVC tubing
 - Double insulated wires
 - High voltage leads
- Use specified insulating materials for hazardous live parts. Note especially:
 - Insulation Tape
 - PVC tubing
 - Spacers(insulating barriers)
 - Insulation sheets for transistors
 - Plastic screws for fixing micro switches
- When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



- Make sure that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).
- Check that replaced wires do not contact sharp edged or pointed parts.
- Also check areas surrounding repaired locations.
- Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.



Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

SAFETY CHECK AFTER SERVICING

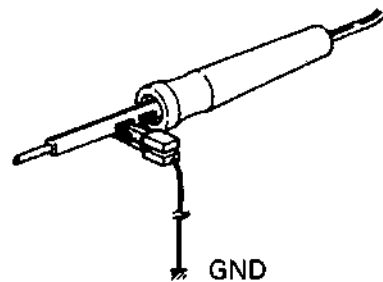
After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit. The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500 ohms paralleled with a 0.15 μ F capacitor, under the unit's normal working conditions.

The leakage-current should be less than 0.5mA rms AC. The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2M Ohms.

PRECAUTIONS IN REPAIRING

When repairing or adjusting the unit, please note the following points.

- Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
- When the base is removed for repair adjustment, make sure that there are no metal objects in the narrow gap between the P. C. board or the mecha parts and the base
- The Micro-Computer and the CD signal processing ICs can be damaged by static electricity or leakage from a soldering iron during repairing. While soldering, please take the precautions against leakage as in the illustration.



- Do not loosen any screws in the pick-up block. When handing the pick-up block, please refer to the points to NOTE when replacing the pick-up block.
- Keep safety for hazardous invisible Laser Radiation, DO NOT watch the Laser Beam (Objective lens) directly.
- Models for some countries, laser warning labels are affixed on the unit and inside of the unit, as shown below. Read it carefully for your safety, when repairing or adjusting the unit.

INFORMATION

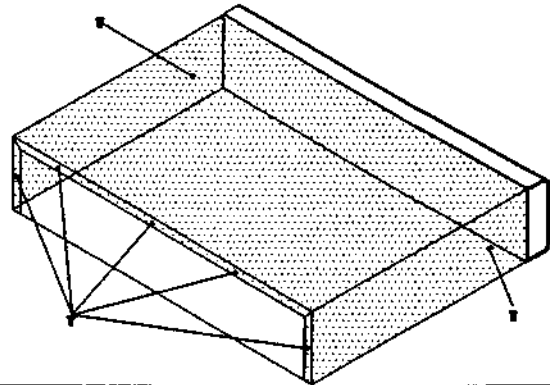
SYMBOLS FOR PRIMARY DESTINATION

Primary destination of units are indicated with the following alphabet.

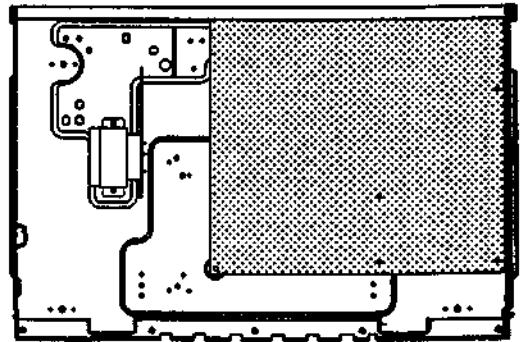
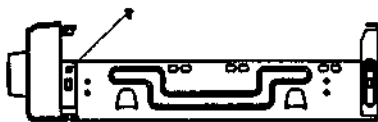
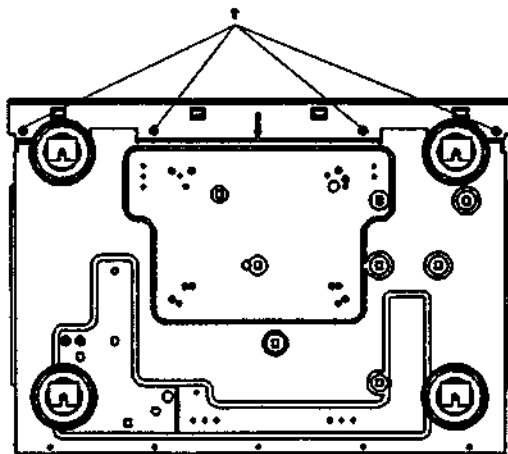
| Symbols | Principal Destinations |
|---------|------------------------|
| B | UK |
| E | Europe (except UK) |
| S | Australia |
| U | Universal Area |
| Y* | Custom version |

DISASSEMBLY

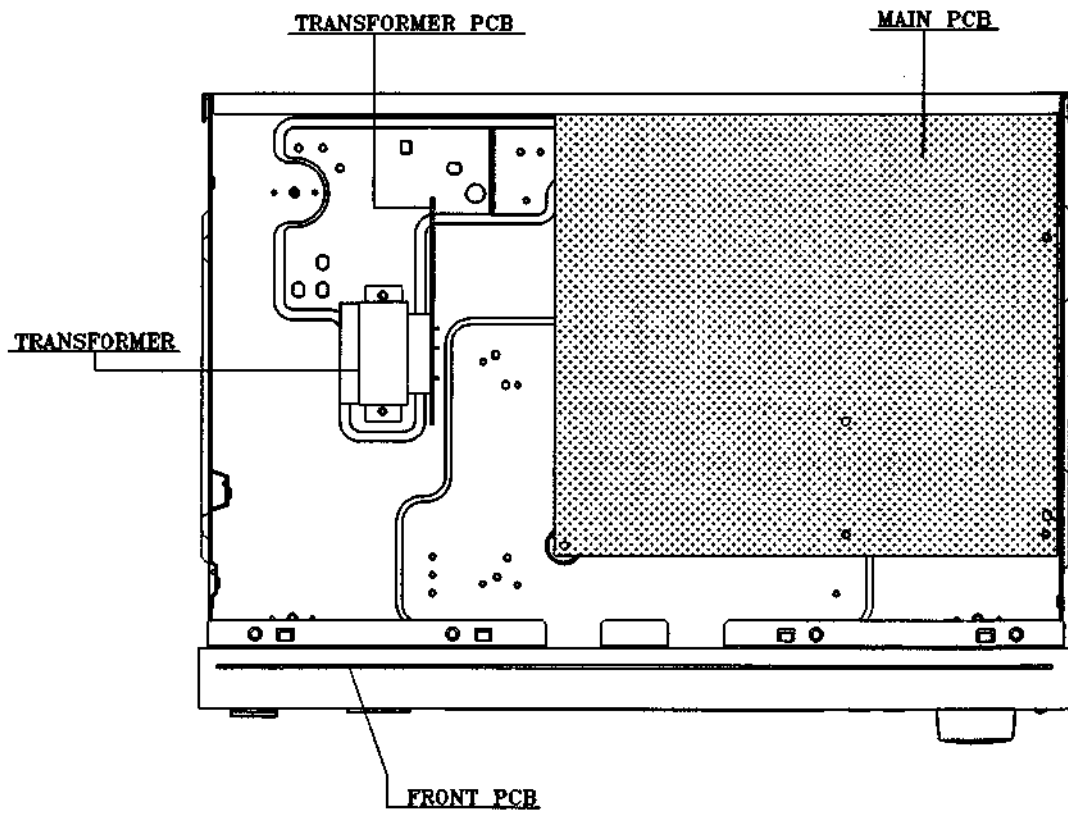
1) ROMOVAL OF TOP COVER



2) ROMOVAL OF FRONT PANEL



PRINCIPAL PARTS LOCATION



■ ALIGNMENT INSTRUCTIONS

EQUIPMENT NEEDED:

AM Signal Generator
FM Signal Generator
Oscilloscope
VTVM(AC, DC)
Test loop antenna (MW Adjustment)
Dummy antenna (FM Adjustment)
Stereo signal modulator (RDS IN)
Frequency counter
Distortion analyser

IMPORTANT

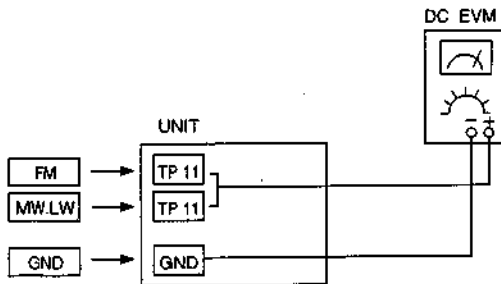
1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

| Band \ Item | Modulation | Modulation frequency |
|-------------|------------------|----------------------|
| MW/LW | 30% | 400Hz |
| FM | 100%(75kHz Dev.) | 400Hz |

MEASUREMENTS AND ADJUSTMENTS

1. FM, MW/LW TRACKING VOLTAGE ADJUSTMENTS

(FM) DC VOLTMETERCONNECT TO TEST POINT TP11 and GND
 (MW, LW) DC VOLTMETERCONNECT TO TEST POINT TP11 and GND

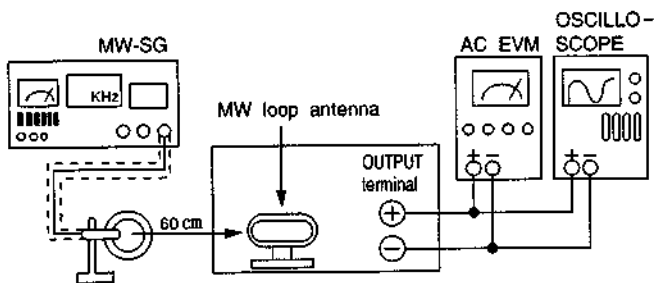


| No | Band | Frequency | Adjust for | Adjustment |
|----|------|-----------|------------|------------|
| 1 | FM | 87.50MHz | 1.6V | L7 |
| 2 | MW | 522kHz | 1V | L204 |
| 3 | LW | 146kHz | 1.3V | L205 |

2. MW/LW RF ADJUSTMENTS

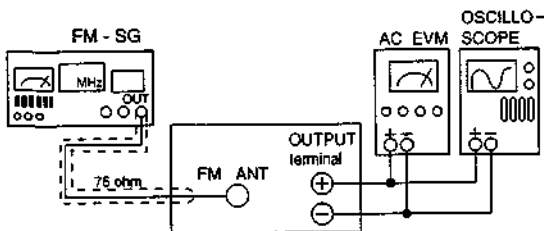
Signal GeneratorConnects to the MW Ant. Coil through the loop antenna.
 Adjust for the indication of VTVM of the wave form of scope to be maximum.

| BAND | Step | Frequency | Adjust for | Adjustment |
|------|------|------------------------------------|---------------------|------------------|
| MW | 1 | 612kHz | Maximum sensitivity | L202, T201, T202 |
| | 2 | 1503kHz | Maximum sensitivity | CT21 |
| | 3 | Repeat steps 1 and 2 several times | | |
| LW | 1 | 164kHz | Maximum sensitivity | L203 |
| | 2 | 272kHz | Maximum sensitivity | CT22 |
| | 3 | Repeat steps 1 and 2 several times | | |



3. FM-RF ADJUSTMENT

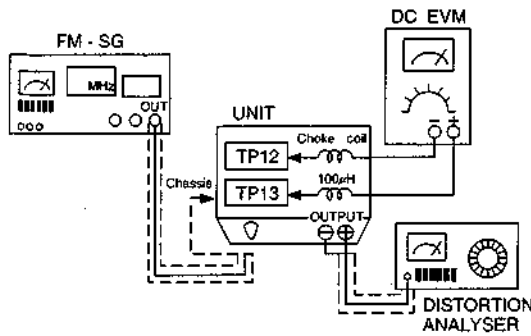
Signal GeneratorConnect to FM ANT JACK (FM IN) through the dummy.



| No | Frequency | Adjust for | Adjustment |
|----|-----------------------------|---------------------|------------|
| 1 | 90.10MHz | Maximum Sensitivity | L2, L5, L6 |
| 2 | Repeat step 1 several times | | |

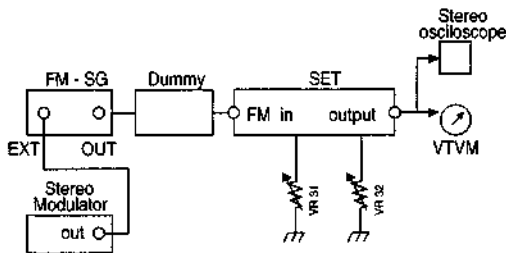
4. FM MONO DISTORTION ADJUSTMENT

- DC VOLT METERConnect to TP12(-), TP13(+) Through the choke coil (100μH)
- Signal GeneratorConnect to FM ANT Jacek (FM IN) through the dummy.
- Distortion MeterConnect to the output.



| No | Frequency | Adjust for | Adjustment |
|----|-------------------------------------|-----------------|------------|
| 1 | 100.10MHz | DC Voltmeter 0V | T101 |
| 2 | 100.10MHz | Minimum T. H. D | T102 |
| 3 | Repeat steps 1 and 2 Several times. | | |

5. FM STEREO SEPARATION (WIDE/NARROW) ADJUSTMENT



| Pilot signal | Adjust for | Adjustment |
|--------------|--------------------------------------|----------------------------|
| ON | Different of R and L must be maximum | VR31(WIDE) VR32(NARROW) |

NOTE : In case of adjusting the stereo separation, of input is L (or R) channel, R (or L) channel must be maximum.

6. FM/MW(LW) AUTO STOP LEVEL ADJUSTMENT

- FM SIGNAL GENERATORConnec to FM ANT Jack(FM IN)through the dummy
- MW(LW) SIGNAL GENERATORConnect to MW ANT, Coil through the Loop antenna

| BAND | STEP | SIGNAL GENERATOR | Adjust for | Adjustment |
|--------|------|------------------|--|------------|
| FM | 1 | 100.1MHz 35dB | <input type="checkbox"/> TUNED Display OFF | VR11 |
| | 2 | 100.1MHz 35dB | <input type="checkbox"/> TUNED Display ON | VR11 |
| MW(LW) | 1 | 999kHz 80dB | <input type="checkbox"/> TUNED Display OFF | VR21 |
| | 2 | 999kHz 80dB | <input type="checkbox"/> TUNED Display ON | VR21 |

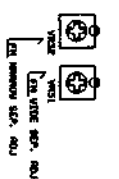
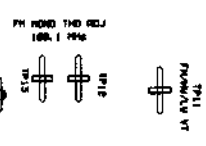
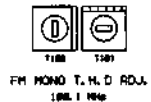
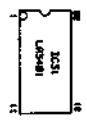
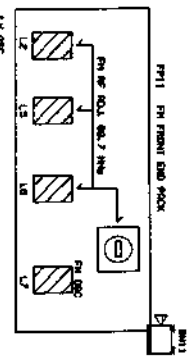
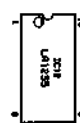
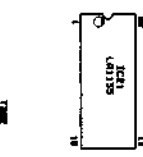
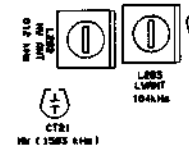
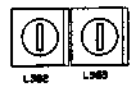
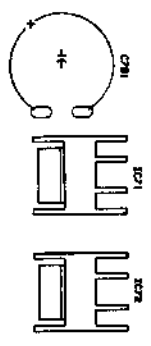
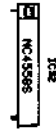
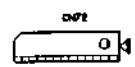
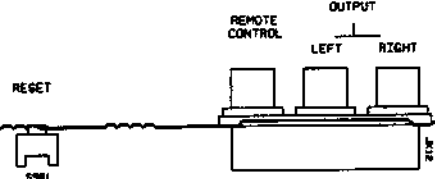
7. FM/MW(LW) SIGNAL METER LEVEL ADJUSTMENT

- FM SIGNAL GENERATORConnect to FM ANT Jack(FM IN) through the dummy
- MW(LW) SIGNAL GENERATORConnect to MW ANT, Coil through the Loop Antenna

| BAND | SIGNAL GENERATOR | Adjust for (signal level) | Adjustment |
|--------|------------------|--|------------|
| FM | 100.1MHz 66dB | Signal level : 59~61dB FM(ANT A) IN | VR12 |
| MW(LW) | 999kHz 100dB | Signal level : 75~80dB | VR22 |

MW/LW
LOOP ANT

FM ANT
75 OHM



KUP11056

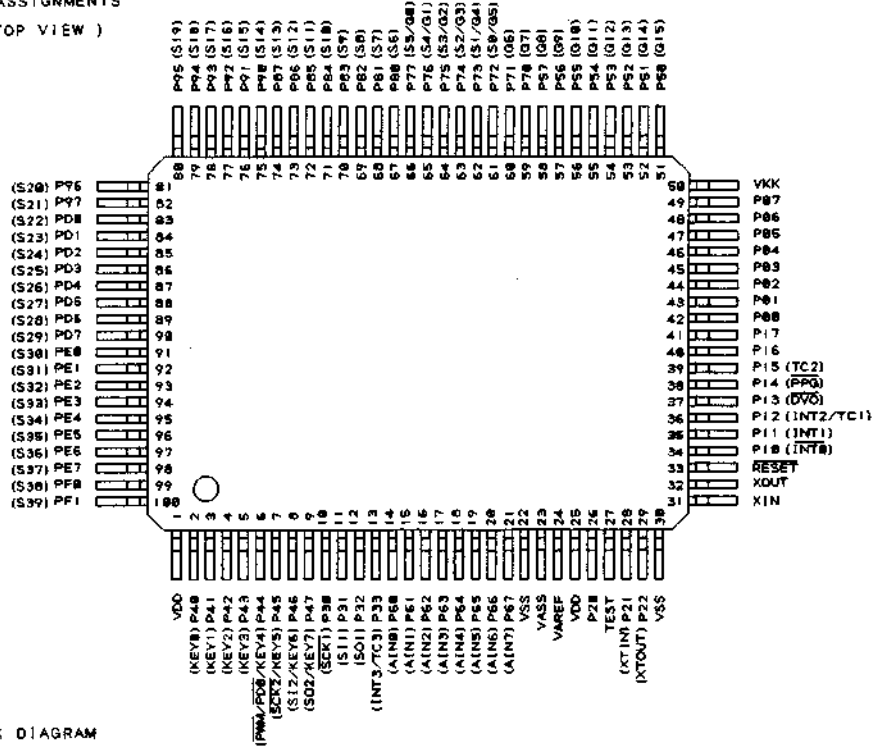


IC(μ -COM) PIN FUNCTION

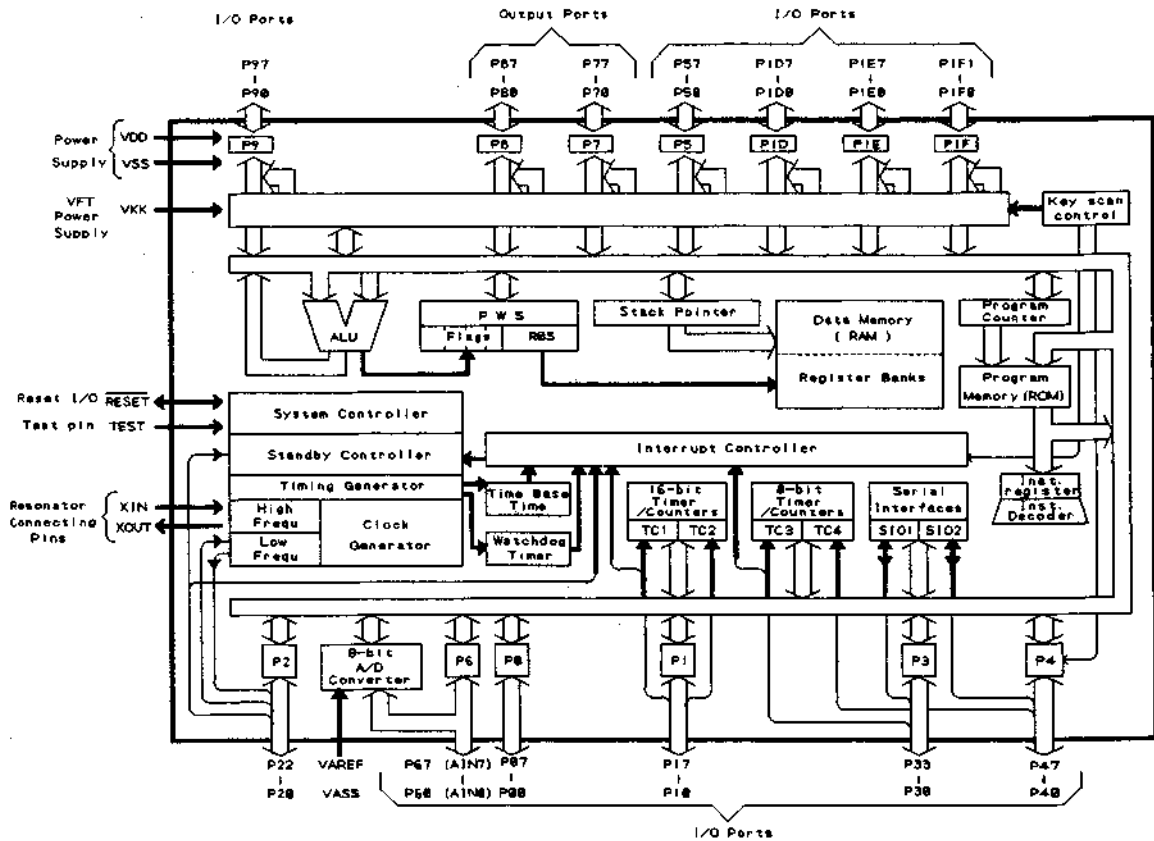
| NO. | SYMBOL | I/O | DESCRIPTION |
|-------|----------------------------|-----|------------------------------------|
| 1 | VDD | I | +4.8V |
| 2~8 | KEY 0~7 | I | KEY MATRIX IN |
| 9 | NC | - | NOT USED |
| 10~13 | KEY 8~11 | O | KEY MATRIX OUT |
| 14 | P60 (SM IN) | I | SIGNAL METER LEVEL IN |
| 15 | P61 (SD IN) | I | TUNED IN PORT |
| 16 | P62 (ST IN) | I | STEREO IN PORT |
| 17~21 | AIN 0~4 | I | AREA OPTION |
| 22 | VSS | I | GROUND |
| 23 | VASS | I | GROUND |
| 24 | VAREF | I | +4.8V |
| 25 | VDD | I | +4.8V |
| 26 | P20 (BACK-UP) | I | BACK-UP MODE CONTROL |
| 27 | TEST | I | GROUND |
| 28 | XT IN | I | 32.768kHz CRYSTAL TIME OPERATOR |
| 29 | XT OUT | O | |
| 30 | VSS | I | GROUND |
| 31 | X IN | I | 8.0MHz CRYSTAL μ -COM OPERATOR |
| 32 | X OUT | O | |
| 33 | RESET | I/O | RESET SIGNAL INPUT |
| 34 | NC | - | NOT USED |
| 35 | PI1/INTO (REMOTE IN) | I | REMOTE CONTROL IN |
| 36 | PI2 (RDS CL) | I | RDS CLOCK IN |
| 37 | PI3 (RDS DATA) | I | RDS DATA IN |
| 38 | PI4 (REMOTE OUT) | O | REMOTE CONTROL OUTPUT |
| 39 | NC | - | NOT USED |
| 40 | NC | - | NOT USED |
| 41 | NC | - | NOT USED |
| 42 | TUNING UP | I | TUNING UP/DOWN SWITCHING CONTROL |
| 43 | TUNING DOWN | I | |
| 44 | P02 (MUTE) | O | MUTE CONTROL OUTPUT |
| 45 | P03 (POWER ON/OFF) | O | POWER ON/OFF PORT |
| 46 | P04 (PLL IC DI) | I | PLL DATA IN |
| 47 | P05 (PLL IC CE) | O | PLL CE |
| 48 | P06 (PLL IC DO) | O | PLL DATA OUT |
| 49 | P07 (PLL IC CL) | O | PLL CLOCK |
| 50 | VKK | I | -30V |
| 51~73 | S0 ~ S23 | O | SEGMENT OUTPUT |
| 74 | NC | - | NOT USED |
| 75~87 | G1~13 | O | GRID OUTPUT |
| 88~90 | NC | - | NOT USED |
| 91 | PE0 (ANT A LED) | O | ANT A LED CONTROL |
| 92 | PE1 (ANT B LED) | O | ANT B LED CONTROL |
| 93 | PE2 (FM WIDE / NARROW LED) | O | WIDE/NARROW LED CONTROL |
| 94 | PE3 (SEARCH MODE LED) | O | SEARCH MODE LED CONTROL |
| 95 | PE4 (PRESET MODE LED) | O | PRESET MODE LED CONTROL |
| 96 | PE5 (POWER LED) | O | POWER ON/STANDBY LED CONTROL |

[U-COM FUNCTION : BV1ANAMI229T]

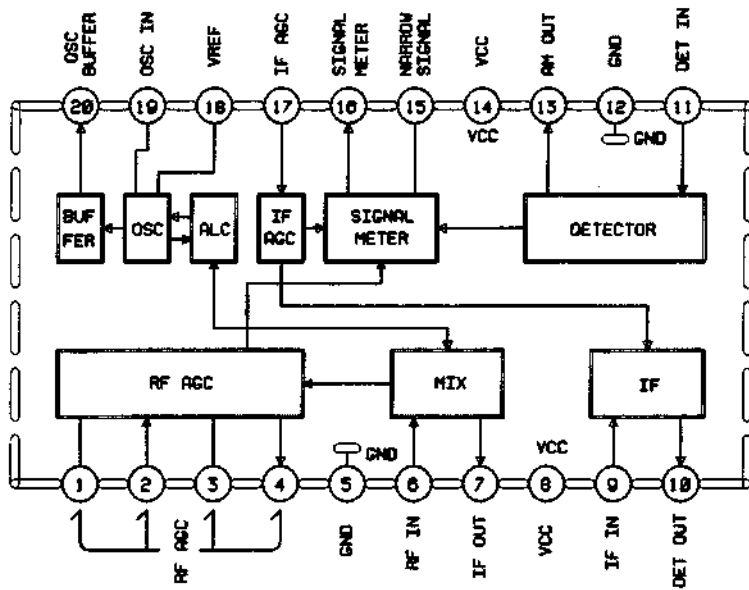
PIN ASSIGNMENTS
(TOP VIEW)



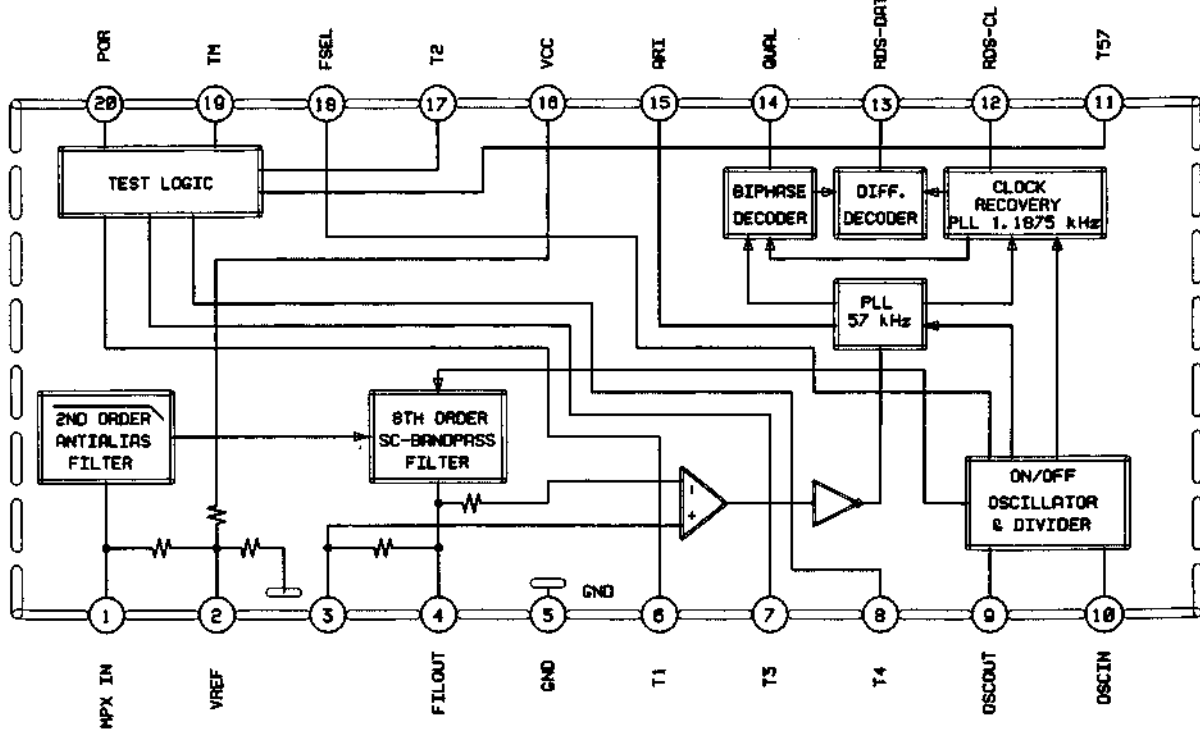
BLOCK DIAGRAM



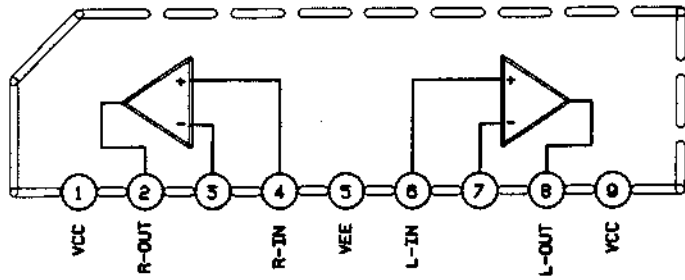
LA1135 AM RF & IF



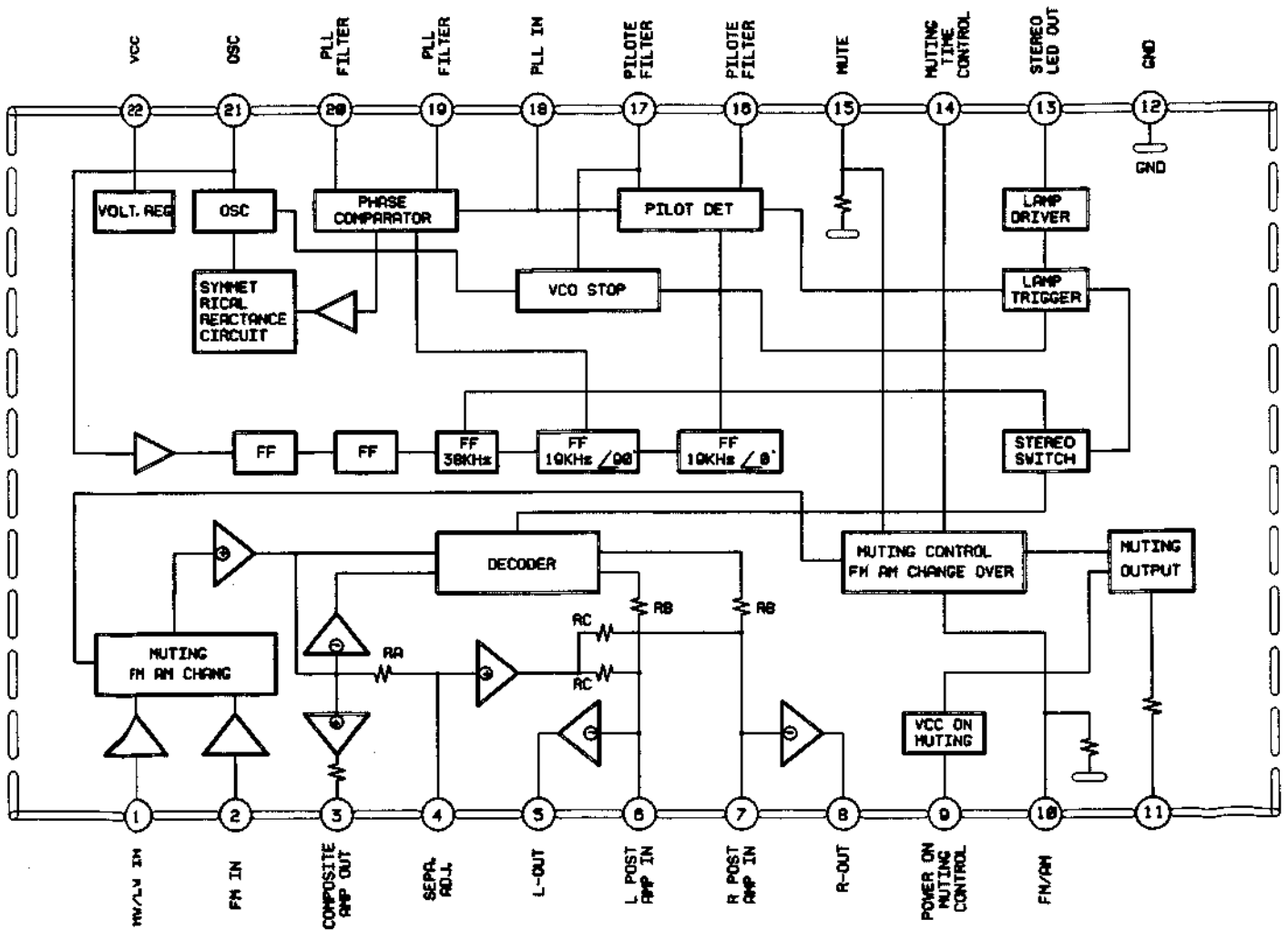
TDA7330BD RDS DECODER



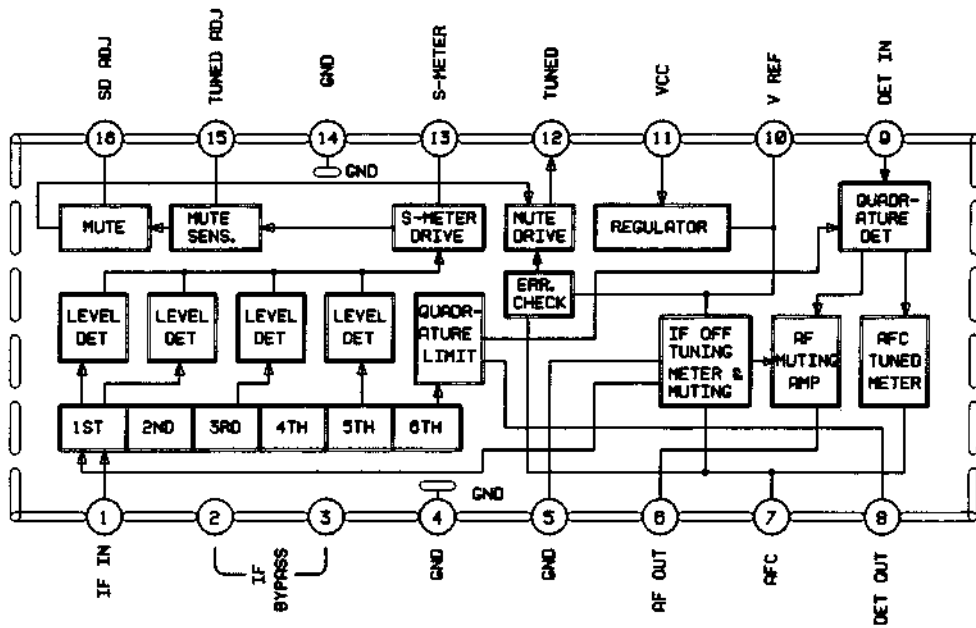
MC4558S



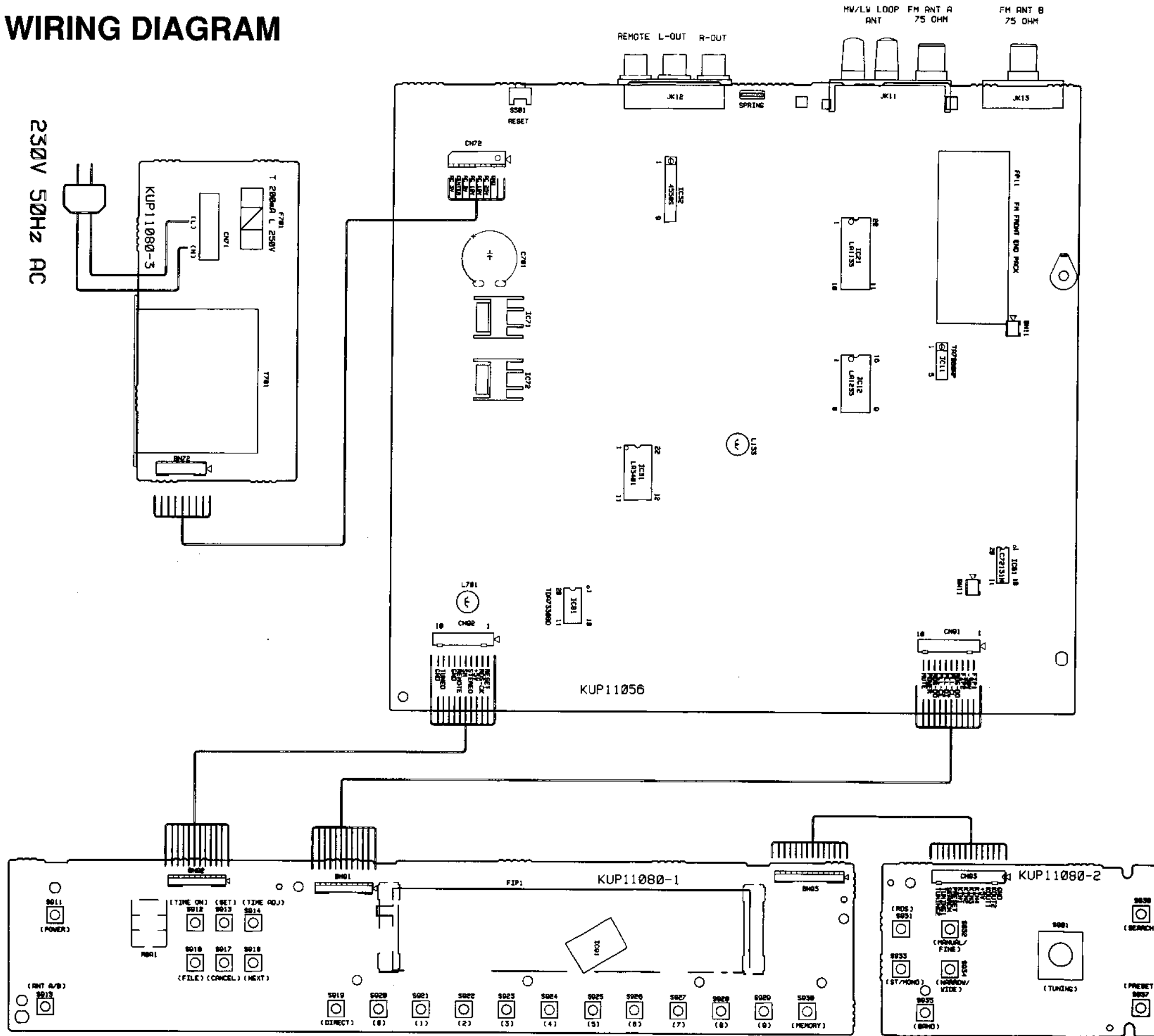
LA3401 MPX



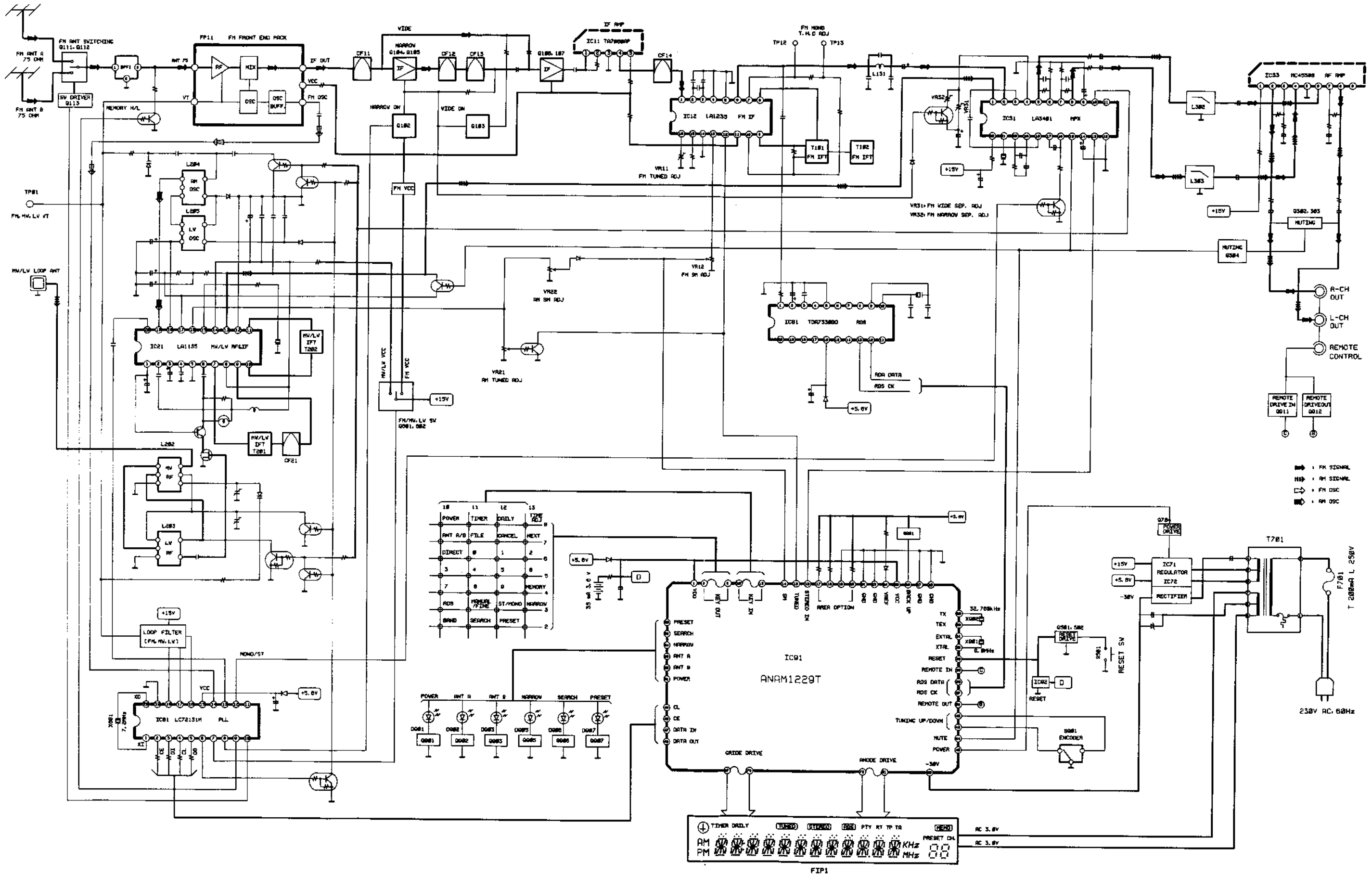
LA1235 FM IF



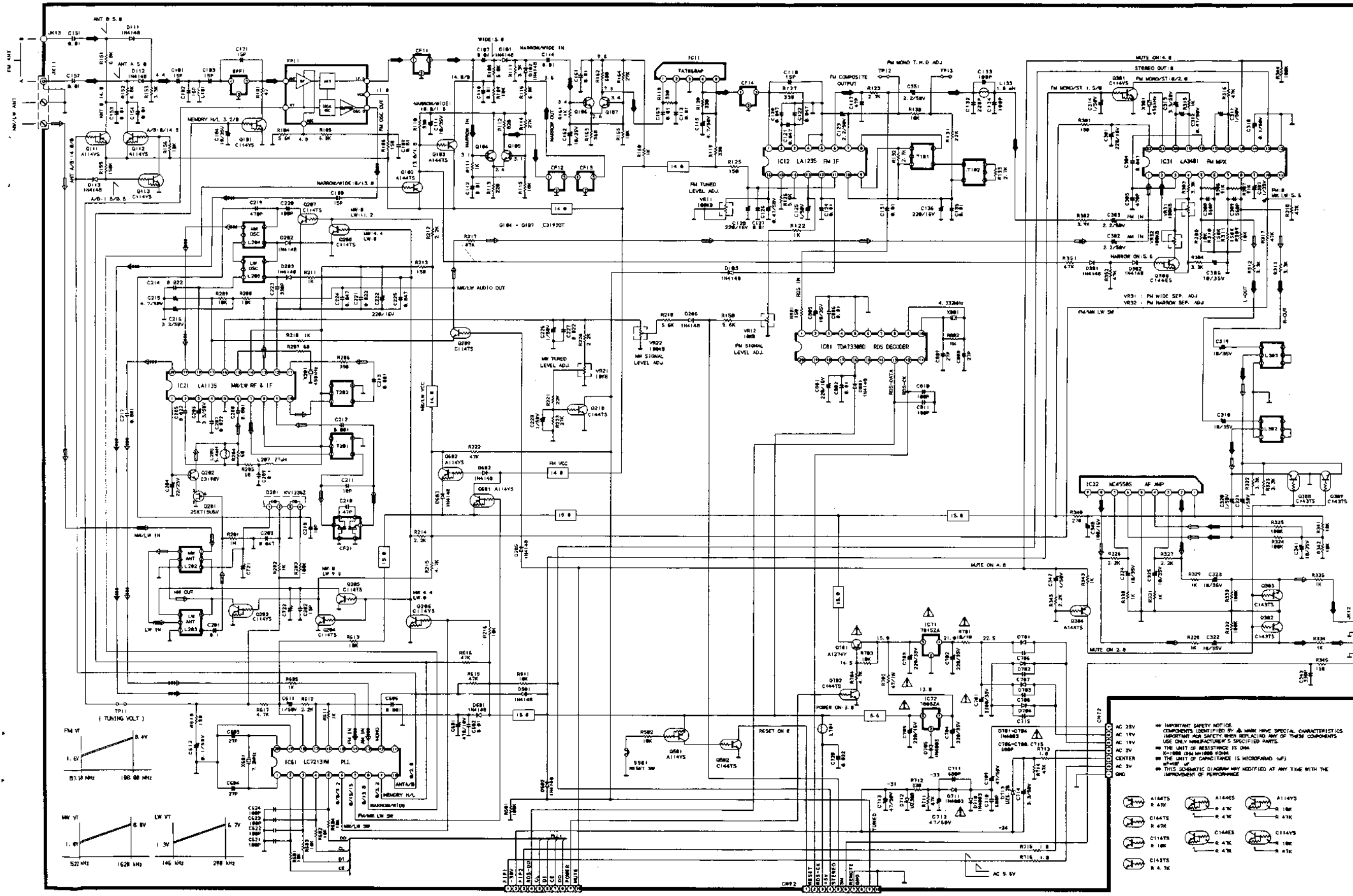
WIRING DIAGRAM



BLOCK DIAGRAM



SCHEMATIC DIAGRAM



IC11 - TA7668P

| PIN | 1 | 2 | 3 | 4 | 5 |
|------|-----|-----|-----|-----|------|
| VOLT | 1.4 | 1.4 | 0ND | 0ND | 12.8 |

IC12 - LA1235

| PIN | 1 | 2 | 3 | 4 | 5 | 6 |
|------|-----|-----|-----|-----|------|-----|
| VOLT | 2.8 | 2.8 | 2.8 | 0ND | 0ND | 2.8 |
| PIN | 7 | 8 | 9 | 10 | 11 | 12 |
| VOLT | 6.4 | 6.4 | 6.4 | 6.4 | 14.2 | 6.4 |
| PIN | 13 | 14 | 15 | 16 | | |
| VOLT | 3.8 | 0ND | 4.6 | 3.4 | | |

12.8 (TUNED ON) / 6 (TUNED OFF)
13.8-4.8 (SIGNAL LEVEL)

IC21 - LA1135

| PIN | 1 | 2 | 3 | 4 | 5 | 6 |
|------|-----|-----|-----|-----|-----|-----|
| VOLT | 5.8 | 3.2 | 5.2 | 5.2 | 0ND | 2.8 |
| PIN | 7 | 8 | 9 | 10 | 11 | 12 |
| VOLT | 8.8 | 8.8 | 8.8 | 8.8 | 0ND | |
| PIN | 13 | 14 | 15 | 16 | 17 | 18 |
| VOLT | 3.8 | 8.8 | 1.3 | 5.8 | 3.8 | 5.2 |
| PIN | 19 | 20 | | | | |
| VOLT | 5.2 | 2.8 | | | | |

16.8-5.8 (SIGNAL LEVEL)

IC31 - LA3481

| PIN | 1 | 2 | 3 | 4 | 5 | 6 |
|------|-----|-----|------|------|-----|-----|
| VOLT | 3.2 | 3.2 | 3.2 | 3.2 | 5.8 | 3.2 |
| PIN | 7 | 8 | 9 | 10 | 11 | 12 |
| VOLT | 3.2 | 5.8 | 3.2 | 8 | 0ND | 0ND |
| PIN | 13 | 14 | 15 | 16 | 17 | 18 |
| VOLT | 8.5 | 5.8 | 8.8 | 2.8 | 2.8 | 2.8 |
| PIN | 19 | 20 | 21 | 22 | | |
| VOLT | 2.8 | 2.8 | 4.96 | 11.6 | | |

18.8 (FM) / 5.8 (MW)
13.8 (STEREO) / 5.8 (MONO)

IC32 - MC4558

| PIN | 1 | 2 | 3 | 4 | 5 |
|------|------|-----|-----|-----|-----|
| VOLT | 14.8 | 7.8 | 7.8 | 7.8 | 0ND |
| PIN | 6 | 7 | 8 | 9 | |
| VOLT | 7.8 | 7.8 | 7.8 | 0ND | |

IC41 - MC4558

| PIN | 1 | 2 | 3 | 4 | 5 | 6 |
|------|-----|-----|-----|-----|------|-----|
| VOLT | 24 | CE | DI | CL | 00 | PIN |
| PIN | 7 | 8 | 9 | 10 | 11 | 12 |
| VOLT | PIN | PIN | PIN | PIN | OPEN | PIN |
| PIN | 13 | 14 | 15 | 16 | 17 | 18 |
| VOLT | AM | AM | AM | 4.8 | 8.8 | 8.8 |
| PIN | 19 | 20 | | | | |
| VOLT | 0ND | 2.8 | | | | |

IC51 - LC7213M

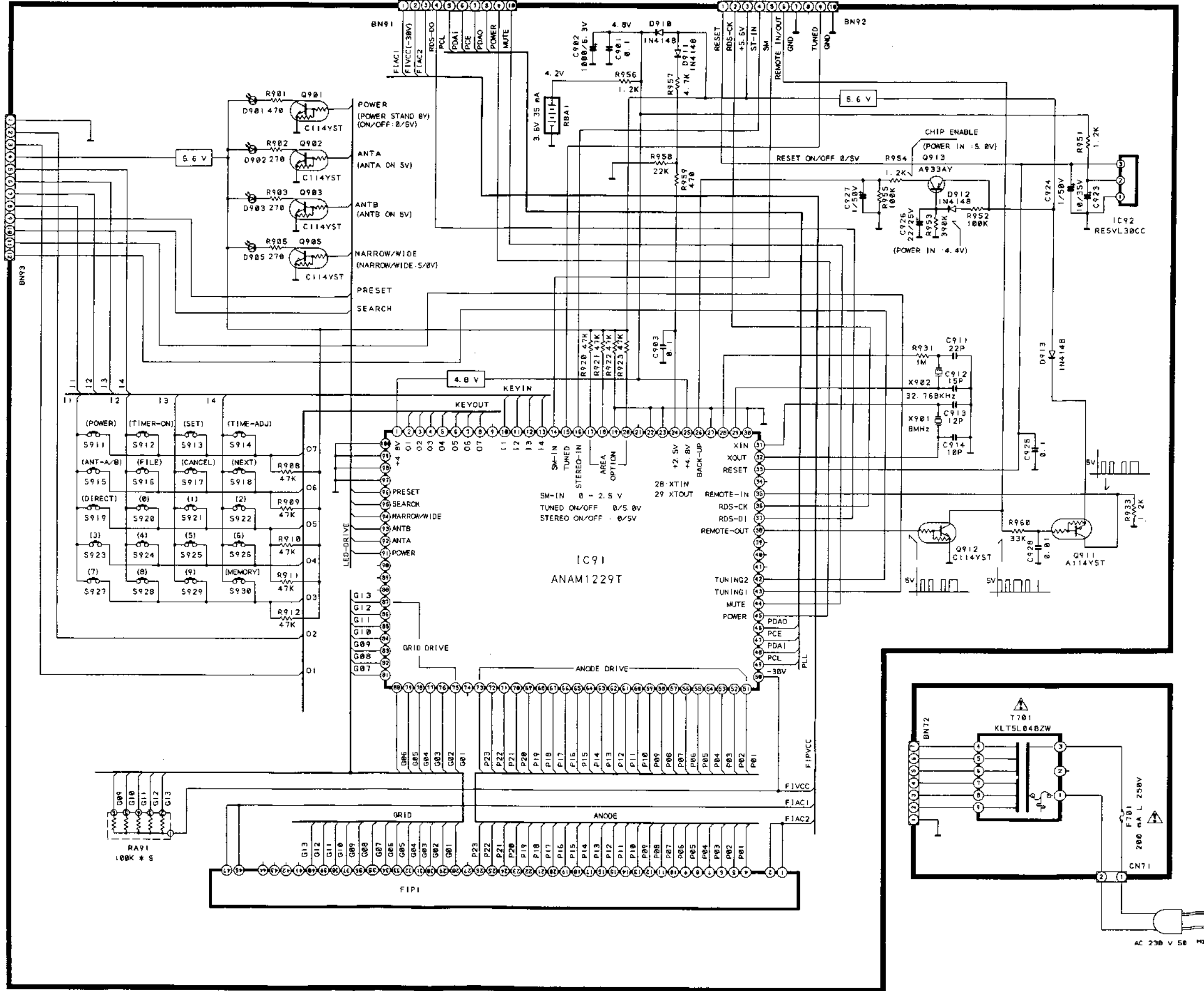
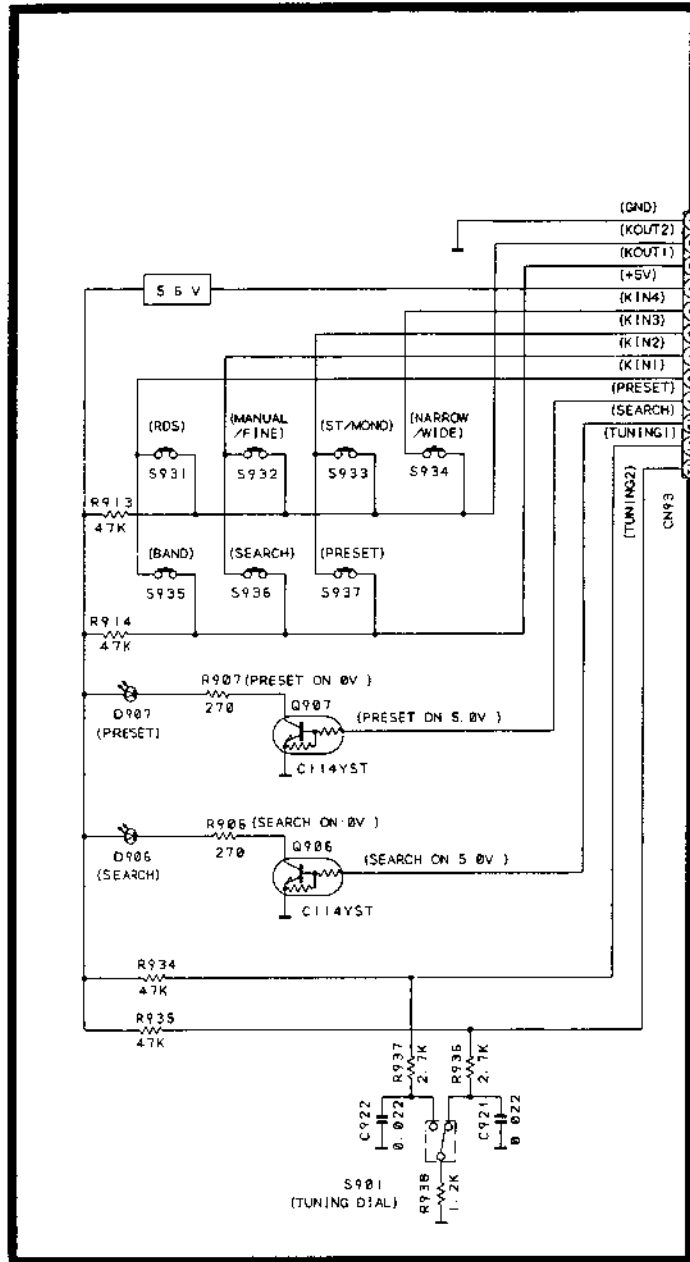
| PIN | 1 | 2 | 3 | 4 | 5 | 6 |
|------|------|------|------|-----|------|------|
| VOLT | 2.2 | 2.2 | 2.2 | 1.5 | 0ND | 0ND |
| PIN | 7 | 8 | 9 | 10 | 11 | 12 |
| VOLT | OPEN | OPEN | OSC | OSC | OPEN | CLK |
| PIN | 13 | 14 | 15 | 16 | 17 | 18 |
| VOLT | DATA | OPEN | OPEN | 5.6 | OPEN | OPEN |
| PIN | 19 | 20 | | | | |
| VOLT | OPEN | OPEN | | | | |

(R) OUTPUT
(L) OUTPUT
(REMOTE) CONTROL

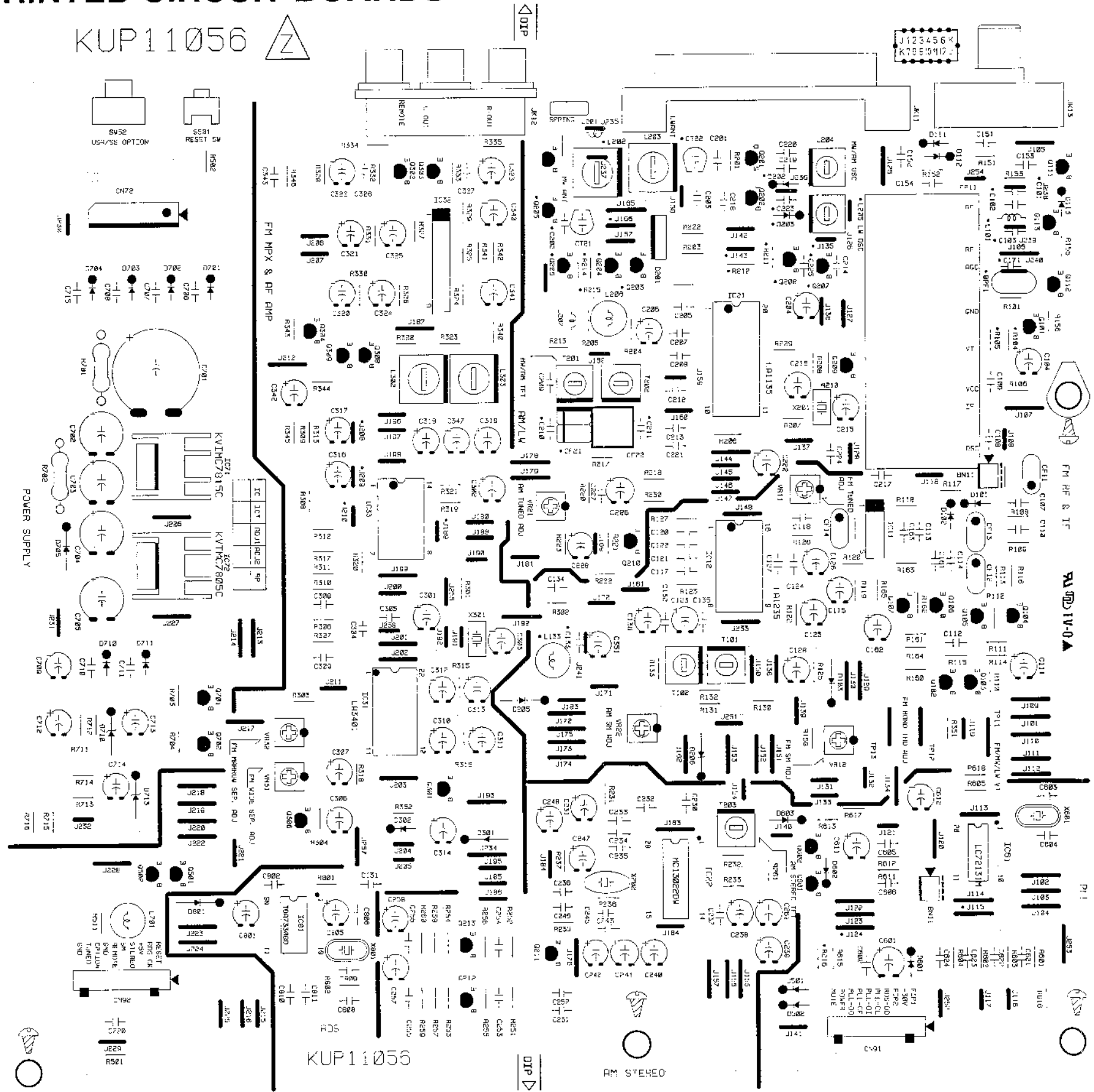
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY A MARK HAVE SPECIAL CHARACTERISTICS.
IMPORTANT FOR SAFETY: WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY MANUFACTURER'S SPECIFIED PARTS.
THE LIMIT OF RESISTANCE IS 0.5W.
K=1000 OHM (RESISTANCE)
M=1000 MICRO (CAPACITANCE)
THIS SCHEMATIC DIAGRAM MAY BE MODIFIED AT ANY TIME WITH THE
IMPROVEMENT OF PERFORMANCE.

- A144T R 47K
- A144S R 47K
- A144V R 47K
- C144T 100P
- C144S 100P
- C144V 100P
- A144W R 10K
- A144X R 10K
- A144Y R 10K
- C144W 100P
- C144X 100P
- C144Y 100P

AT-1200 SCHEMATIC DIAGRAM (SUB PART)

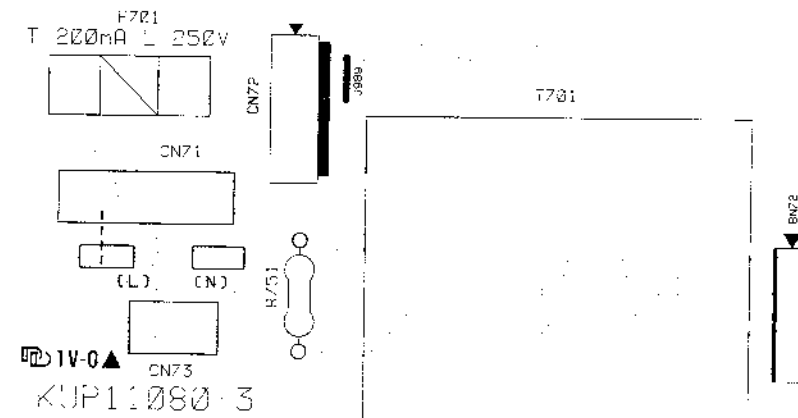
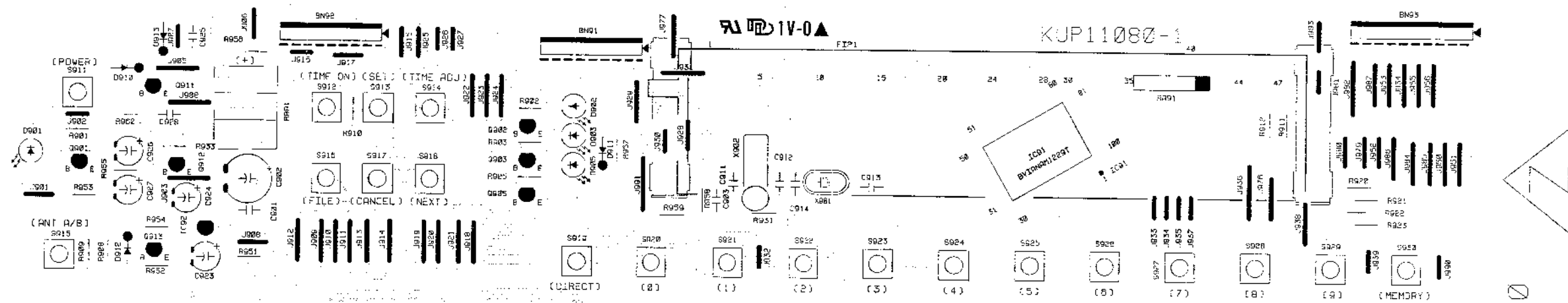


PRINTED CIRCUIT BOARDS



KUP11056

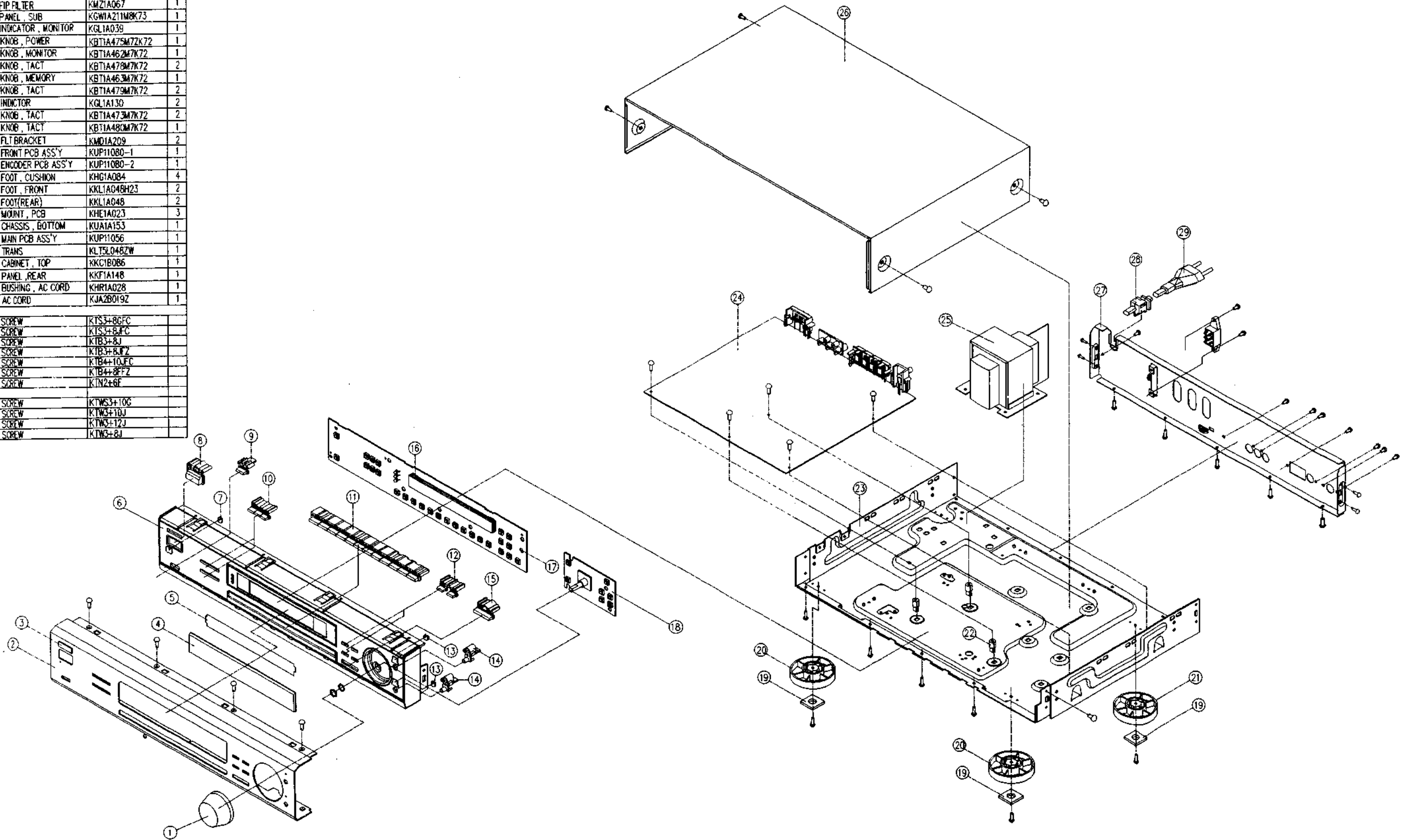
KUP11056



08

EXPLODED VIEW

| NO | DESCRIPTION | PARTS-NO | Qty |
|-----|--------------------|----------------|-----|
| 1 | KNOB, FUNCTION | KBN1A078M7K72 | 1 |
| 2 | PANEL, FRONT | KKM1A068ZC16 | 1 |
| 3 | BADGE | KGB1A045Z | 1 |
| 4 | WINDOW, FIP | KGU1A168Z | 1 |
| 5 | FIP FILTER | KMZ1A067 | 1 |
| 6 | PANEL, SUB | KGW1A211M8K73 | 1 |
| 7 | INDICATOR, MONITOR | KGL1A039 | 1 |
| 8 | KNOB, POWER | KBT1A475M7ZK72 | 1 |
| 9 | KNOB, MONITOR | KBT1A462M7K72 | 1 |
| 10 | KNOB, TACT | KBT1A478M7K72 | 2 |
| 11 | KNOB, MEMORY | KBT1A463M7K72 | 1 |
| 12 | KNOB, TACT | KBT1A479M7K72 | 2 |
| 13 | INDICATOR | KGL1A130 | 2 |
| 14 | KNOB, TACT | KBT1A473M7K72 | 2 |
| 15 | KNOB, TACT | KBT1A480M7K72 | 1 |
| 16 | FLT BRACKET | KMD1A209 | 2 |
| 17 | FRONT PCB ASS'Y | KUP11080-1 | 1 |
| 18 | ENCODER PCB ASS'Y | KUP11080-2 | 1 |
| 19 | FOOT, CUSHION | KHG1A084 | 4 |
| 20 | FOOT, FRONT | KKL1A048H23 | 2 |
| 21 | FOOT, REAR | KKL1A048 | 2 |
| 22 | MOUNT, PCB | KHE1A023 | 3 |
| 23 | CHASSIS, BOTTOM | KUA1A153 | 1 |
| 24 | MAIN PCB ASS'Y | KUP11056 | 1 |
| 25 | TRANS | KL75L048ZW | 1 |
| 26 | CABINET, TOP | KKC1B086 | 1 |
| 27 | PANEL, REAR | KKF1A148 | 1 |
| 28 | BUSHING, AC CORD | KHR1A028 | 1 |
| 29 | AC CORD | KJA2B019Z | 1 |
| S1 | SCREW | KTS3+8GFC | |
| S2 | SCREW | KTS4+8JFC | |
| S3 | SCREW | KTB3+8J | |
| S4 | SCREW | KTB3+8JFZ | |
| S5 | SCREW | KTB4+10JFC | |
| S6 | SCREW | KTB4+8FFZ | |
| S7 | SCREW | KTN2+6F | |
| S9 | SCREW | KTWS3+10G | |
| S10 | SCREW | KTWS4+10J | |
| S11 | SCREW | KTWS4+12J | |
| S12 | SCREW | KTWS4+8J | |



PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list the Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering.
If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
3. How to read the Parts List.

Resistor and Capacitor

- Notes :
- Part numbers are indicated for most mechanical parts. Please use this part number for parts order.
 - IMPORTANT SAFETY NOTICE.** Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacture's specified parts.
 - The unit of resistance is OHM(Ω)
K=1000(Ω), M=1000(K Ω)
 - The unit of capacitance is MICROFARAD(μ F).
P=10⁻⁶ μ F

Numbering System of Resistor

Example

| | | | | |
|------|---------|-------|-----------|-------|
| KRD | 25 | F | J | 101 |
| Type | Wattage | Shape | Tolerance | Value |

| Resistor Type | Wattage | Tolerance |
|------------------|----------------------|-----------------|
| KRD:Carbon | 20:1/5W | F:±1% |
| KRG:Metal Oxide | 25:1/4W 50:1/2W | J:±5% K:±10% |
| KRF:Metal Cement | 1:1W 2:2W 3:3W | |

Numbering System of Capacitor

Example

| | | | | |
|------|---------|-------|-----------|-------------|
| KCKT | 1H | 101 | K | B |
| Type | Voltage | Value | Tolerance | Peculiarity |

| Capacitor Type | Voltage | | Tolerance |
|---------------------|-----------|------------|---------------|
| | ECEA Type | Other | |
| KCB: Ceramic | OJ:6.3V | 1H:50V DC | C:±0.25pF |
| KCC: Ceramic | 1A:10V | 1:125V DC | G:±2% |
| KCK: Ceramic | 1C:16V | KC:400V AC | J:±5% |
| KCFR: Semiconductor | 1E:25V | | K:±10% |
| KCQI: Polyester | 1H:50V | | Z: +80%, -20% |
| KCQP: Polypropylene | 1V:35V | | |
| KCOS: Polystyrol | | | |

WARNING

Δ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

Δ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

ELECTRICAL PARTS LIST

| REF NO. | PART NO. | DESCRIPTION | REF NO. | PART NO. | DESCRIPTION |
|---|-----------------------|------------------|--------------------|-----------------------|-------------------------------|
| P. C BOARD BLOCK PART NO. | | | | | |
| | Part No. | Description | | | |
| | KOP11056B | MAIN PCB ASS'Y | | | |
| | KOP11080B | FRONT PCB ASS'Y | | | |
| MAIN PCB BLK CONSISTS OF FOLLOWING P. C. B * MAIN P. C. BOARD | | | | | |
| FRONT PCB BLK CONSISTS OF FOLLOWING P. C. B * FRONT P. C. BOARD * SUB P. C. BOARD | | | | | |
| 1. MAIN PCB | | | | | |
| IC11 | BVITA7060AP | IC, FM IF | D301 | KVD1N4148T | DIODE |
| IC12 | BVILA1235 | IC, FM IF | D302 | KVD1N4148MT | DIODE |
| IC21 | BVILA1135 | IC, AM IF | D501, 502 | KVD1N4148MT | DIODE |
| IC31 | BVILA3401 | IC, MPX | D601~D603 | | |
| IC32 | KVIMC4558S | IC | D701~D704 Δ | KVD1N4003SRT | DIODE, RECT |
| IC61 | BVILC72131M | IC, PLL | D705 | KVD1N4003ST | DIODE |
| IC71 | Δ KVIMC7815CZA | IC, ASS'Y | D710, 711 | Δ KVD1N4003SRT | DIODE, RECT |
| IC72 | Δ KVIMC7805CZA | IC, ASS'Y | D712 | KVDUZ30BMT | DIODE, ZENER |
| IC81 | BVITDA7330BD | IC, RDS DECODER | D713 | KVDUZ6.2BMT | DIODE, ZENER |
| | | | D801 | KVD1N4148T | DIODE |
| | | | CF11 | BVFE107MX2HAT | FILTER, CERAMIC |
| | | | CF12~CF14 | BVFE107MZ2HAT | FILTER, CERAMIC |
| | | | CF21 | BVFSFZ450F | FILTER, CERAMIC |
| | | | X201 | BVFBFU450C4N | FILTER, CERAMIC |
| | | | X301 | BVFCB456F11 | RESONATOR, CERAMIC |
| | | | X601 | KOX07200A200C | CRYSTAL |
| | | | X801 | KOX04332A200C | CRYSTAL |
| | | | BN11 | KWZAT1200AK05 | WIRE ASS'Y |
| | | | JW11 | KWE8202040AA | WIRE |
| | | | JW12 | KWZNT20001 | WIRE ASS'Y |
| | | | CN72 | KJP07GA01ZM | WAFER |
| | | | CN91, 92 | KJP10GA19ZM | WAFER |
| | | | CT21, 22 | KCRA020S12 | CAP, VARIABLE |
| | | | C701 | Δ KCEA1VH332E | CAP, ELECT |
| | | | FP11 | KNVFTA4460H | FM FRONT END PACK |
| | | | JK11 | KJJ3S006Z | TERMINAL, ANT |
| | | | JK12 | KJJ4S003V | TERMINAL, OUTPUT 3P(SIL, BLK) |
| | | | JK13 | BJJ3G001Z | TERMINAL FM ANT (75 OHM) |
| | | | R701 | Δ KRG1ANJ100H | RES, METAL OXIDE FILM |
| | | | R702 | Δ KRG1ANJ470H | RES, METAL OXIDE FILM |
| | | | S501 | KST1A010Z | SW, TACT |
| | | | BPF1 | KVFBPMB8 | B.P.F |
| | | | T101 | KLI3B024Z | FM, IFT1 |
| | | | T102 | KLI3B025Z | FM, IFT2 |
| | | | T201 | KLI2B108Z | I.F.T, AM1 |
| | | | T202 | KLI2B109Z | I.F.T, AM2 |
| | | | T302, 303 | KLM5B2-T | COIL, MPX |
| | | | L101 | KLA4Y106Z | COIL, FILTER |
| | | | L151 | KLOA183KW | COIL |
| | | | L202 | KLA2C004 | COIL, AM ANT1 |
| | | | L203 | KLA1B005 | COIL, LW ANT |
| | | | L204 | KLO2B010 | COIL, AM OSC |
| | | | L205 | KLO1B006 | COIL, LW OSC |
| | | | L206 | KLQB542KLZ | COIL |
| | | | L701 | KLQB101KLZ | COIL, INDUCTOR |
| D101, 102 | KVD1N4148MT | DIODE | | | |
| D103 | KVD1N4148T | DIODE | | | |
| D111~D113 | KVD1N4148MT | DIODE | | | |
| D201 | KVDKV1236 | DIODE AM VARICAP | | | |
| D202, 203 | KVD1N4148MT | DIODE | | | |
| D205, 206 | KVD1N4148T | DIODE | | | |

| REF NO. | PART NO. | DESCRIPTION | REF NO. | PART NO. | DESCRIPTION |
|-----------------------|-----------------|----------------------------|---------|----------|-------------|
| VR11 | BVN1PA104B01T | RES, SEMI FIXED | | | |
| VR12 | BVN1PA103B01T | RES, SEMI FIXED | | | |
| VR21 | | | | | |
| VR22 | BVN1PA104B01T | RES, SEMI FIXED | | | |
| VR31,32 | | | | | |
| 2. POWER PCB | | | | | |
| T701 | △ KLT5L048ZW | TRANS POWER | | | |
| BN72 | KWZAT1200AK01 | WIRE ASS'Y | | | |
| F701 | KJCF5S | HOLDER, FUSE | | | |
| | △ KBA2C0200TLE | FUSE (T200mA L250V) | | | |
| 3. FRONT PCB | | | | | |
| IC91 | BVIANAM1229T | IC, μ -COM | | | |
| IC92 | BVIRE5VL30CARZ | VOLTAGE DETECTOR | | | |
| Q901~Q907 | KVTDTC114YST | T.R | | | |
| Q911 | KVTDTA114YST | T.R | | | |
| Q912 | KVTDTC114YST | T.R | | | |
| Q913 | KVT2SA933SRT | T.R | | | |
| D901 | KVD342VCF02T085 | L.E.D, RED | | | |
| D902, 903 | KVD342MCF02T085 | L.E.D, GREEN | | | |
| D905~D907 | | | | | |
| D910~D913 | KVD1N4148MT | DIODE | | | |
| S911~S937 | KST1A012ZT | SW, TACT | | | |
| BN91 | KWZAT1200AK02 | WIRE ASS'Y | | | |
| BN92 | KWZAT1200AK03 | WIRE ASS'Y | | | |
| BN93 | KWZAT1200AK04 | WIRE ASS'Y | | | |
| CN71 | KJP02GA61ZP | WAFER | | | |
| CN93 | KJP12GA19ZP | WAFER | | | |
| FIP1 | BFLFIP13AM7R | F.I.P | | | |
| RA91 | KRGSN5X104J | RES, NETWORK | | | |
| RBA1 | BABGP35BVT3A3H | BATTERY, RECHARGEABLE | | | |
| X901 | KOX08000E160C | CRYSTAL | | | |
| X902 | BOX00032A120C | CRYSTAL | | | |
| S901 | BSR2A007Z | VR, ENCODER | | | |
| 4. ACCESSORIES | | | | | |
| | KJS4M014Y | CORD, REMOTE CONTROL | | | |
| | KJS4N001Y | CORD, AUDIO SIGNAL | | | |
| | KSA1A007 | ANT, FM WIRE(75 Ω) | | | |
| | KSA1A008Z | ANT, AM LOOP | | | |

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