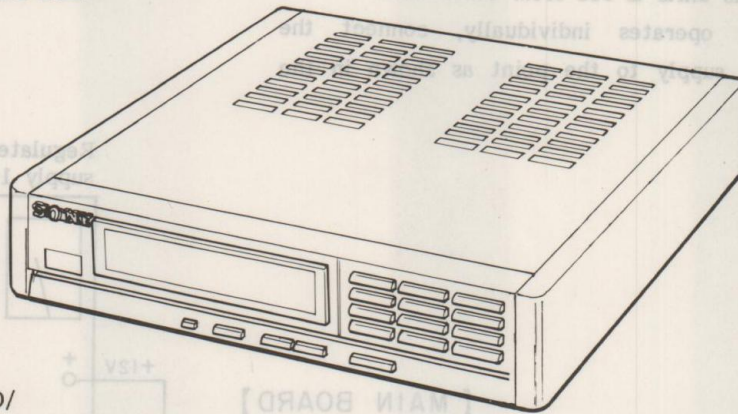


# ST-707RM

## SERVICE MANUAL

*AEP Model*



ST-707RM is the FM STEREO/  
FM-AM TUNER in MHC-2000/  
MHC-3000.

### SPECIFICATIONS

**System** FM stereo, FM/AM superheterodyne tuner  
Quartz-locked PLL digital synthesizer system

#### General

**Dimensions** Approx. 245 × 55 × 240 mm (w/h/d)  
(9<sup>3</sup>/<sub>4</sub> × 2<sup>1</sup>/<sub>4</sub> × 9<sup>1</sup>/<sub>2</sub> inches)  
incl. projecting parts and controls

**Weight** Approx. 1.0 kg (2 lb 4 oz) net

#### FM tuner section

**Tuning range** 87.5 to 108 MHz  
**Antenna terminals** 75 ohms unbalanced  
**Intermediate frequency** 10.7 MHz  
**Usable sensitivity** 2.3 μV (S/N = 30 dB/75 ohms)

#### MW/LW tuner section

|                              |                              | MW                                                                  | LW                                                              |
|------------------------------|------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|
| <b>Tuning range</b>          |                              | 531 – 1,602 kHz<br>(except Italy)<br>522 – 1,611 kHz<br>(for Italy) | 153 – 281 kHz<br>(except Italy)<br>144 – 288 kHz<br>(for Italy) |
| <b>Antenna</b>               |                              | Built-in ferrite bar antenna<br>External antenna terminal           |                                                                 |
| <b>Usable sensitivity</b>    | Built-in ferrite bar antenna | 250 μV/m (999 kHz)                                                  | 500 μV/m (230 kHz)                                              |
|                              | External antenna             | 100 μV (999 kHz)                                                    | 150 μV (230 kHz)                                                |
| <b>Signal-to-noise ratio</b> |                              | 52 dB (50 mW/m)                                                     |                                                                 |
| <b>Harmonic distortion</b>   |                              | 0.3% (50 mV/m, 400 Hz)                                              |                                                                 |



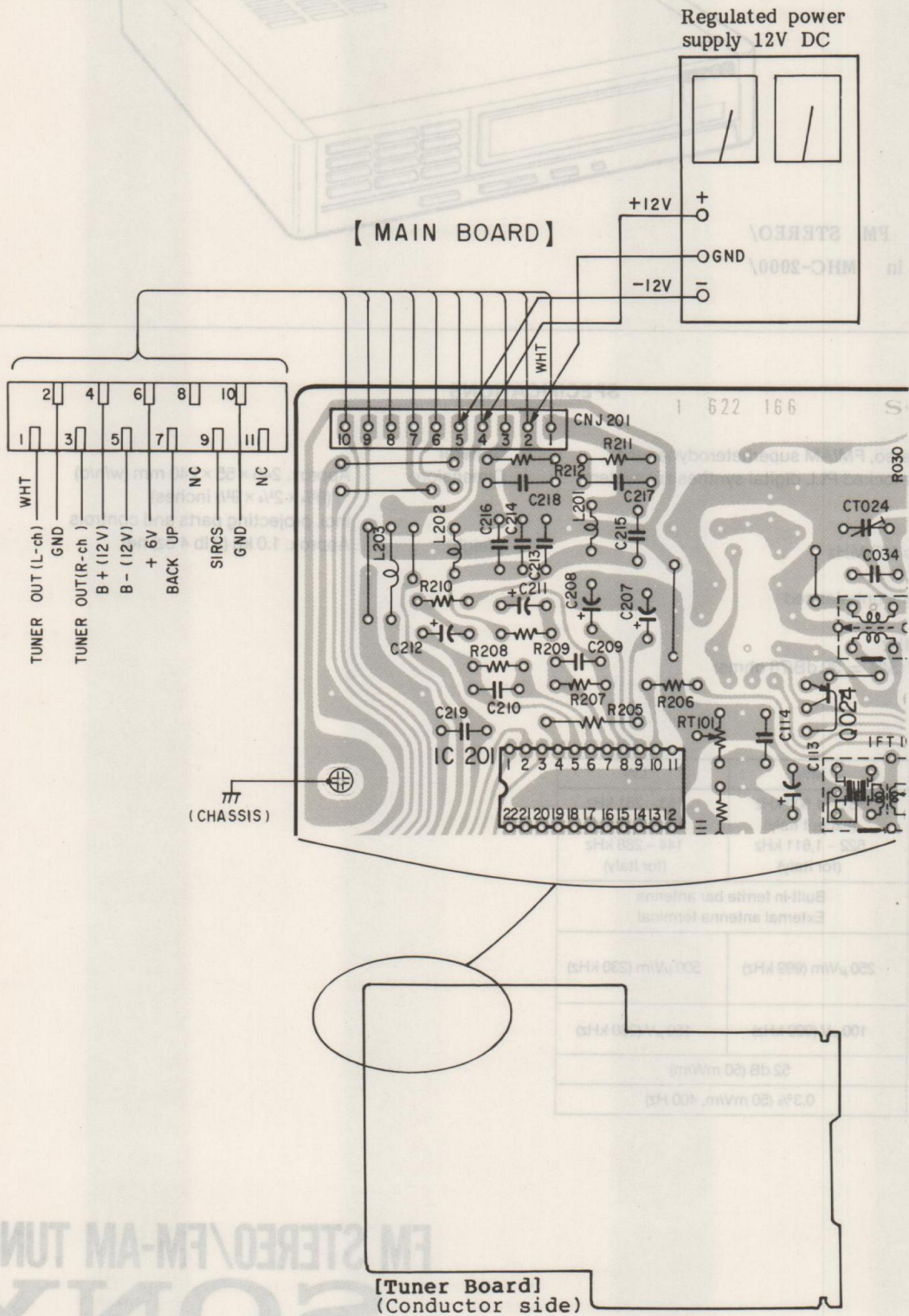
MICROFILM

FM STEREO/FM-AM TUNER  
**SONY**®



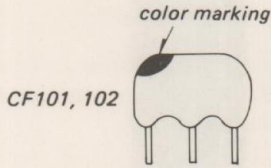
REPAIRING PRECAUTION

[To apply B+ voltage]  
The power of this units is fed from other unit.  
When the unit operates individually, connect the regulated power supply to the point as shown in the below figure.



Note on Ceramic Filter (CF101, 102) Replacement and Diode D314, 315 Connection.

This set employs two ceramic filters (CF101, 102) which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by diodes (D314, 315) connection is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



| Ceramic filter |                        | D314, 315 connection |            | FM intermediate frequency (MHz) |
|----------------|------------------------|----------------------|------------|---------------------------------|
| Color mark     | Center frequency (MHz) | * A (D314)           | * B (D315) |                                 |
| White          | 10.750                 | ○                    | ×          | 10.750                          |
| Red            | 10.700                 | ×                    | ×          | 10.700                          |
| Black          | 10.650                 | ×                    | ○          | 10.650                          |

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i.e., of same color coding should be used for CF101 and CF102.

When replacing the ceramic filters, perform the FM Discriminator Adjustment.

WARNING !!

**ADVARSEL!**  
Lithiumbatteri – Eksplosionsfare  
Udskiftning må kun foretages  
af en sagkyndig, og som  
beskrevet i servicemanualen.

**LITHIUM BATTERY**  
SHOULD ONLY BE CHANGED BY TECHNICAL PERSONNEL. THERE IS A RISK FOR EXPLOSION AT A WRONG HANDLING.

“Batteriet må kun udskiftes med et batteri af samme fabrikat og type”.

Because of the risk for explosion the battery must be replaced with the same type and manufacture.

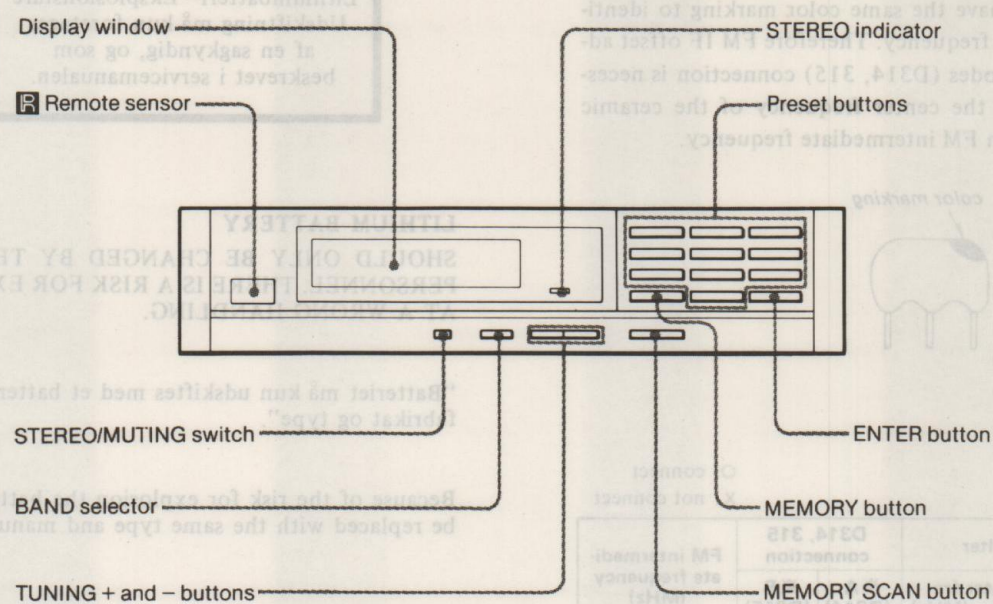
MODEL IDENTIFICATION

**SONY** MODEL NO. ST-707RM

FM STEREO/FM-AM TUNER



## PARTS IDENTIFICATION



## MODEL IDENTIFICATION

SONY MODEL NO. ST-707RM  
FM STEREO/FM-AM TUNER

FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i.e., of same color coding should be used for CP101 and CP102.

When replacing the ceramic filters, perform the FM Discriminator Alignment.

| Color mark | Frequency (MHz) | CP101 (MHz) | CP102 (MHz) |
|------------|-----------------|-------------|-------------|
| White      | 10.750          | X           | O           |
| Red        | 10.700          | X           | X           |
| Black      | 10.650          | X           | X           |

SECTION 1  
ELECTRICAL ADJUSTMENTS

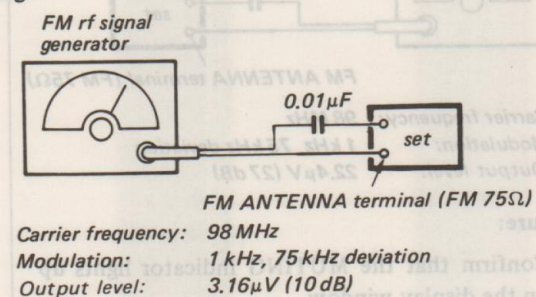
## FM SECTION

Setting:

BAND selector switch: FM

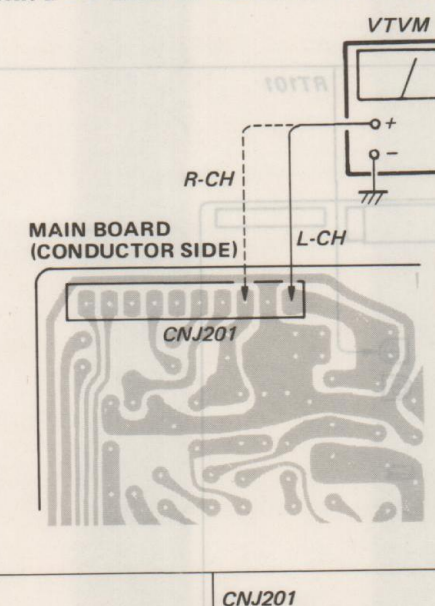
## FM Tracking Adjustment

Setting:



Procedure:

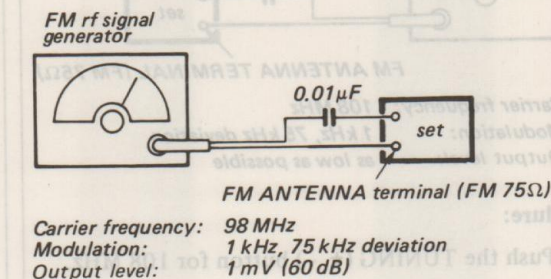
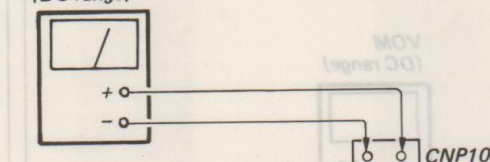
1. Push TUNING (+, -) button for 98 MHz.
2. Approach L002 and L003 not to contact each other.
3. Adjust L001 and L003, and repeat the adjustment 2 - 3 times for maximum VTVM reading.



Note: FM discriminator alignment should be made after FM tracking adjustment.

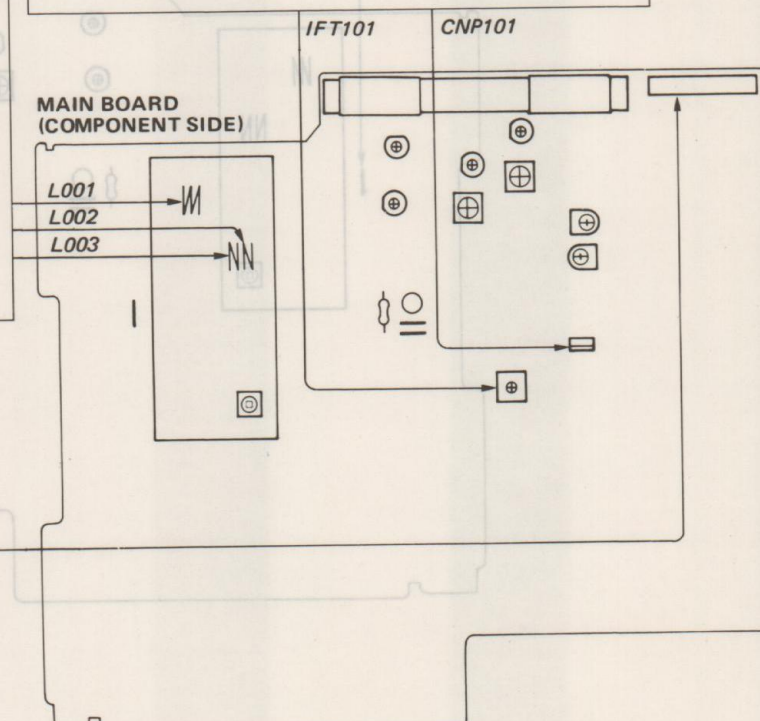
## FM Discriminator Alignment (NULL Check)

Setting:

VOM  
(DC range)

Procedure:

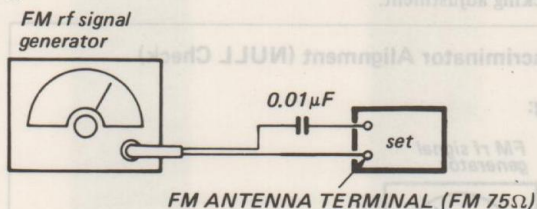
1. Push the TUNING (+, -) button for 98 MHz.
2. Adjust IFT101 for 0 V reading on the VOM.





## FM OSC Voltage Adjustment

## Setting:

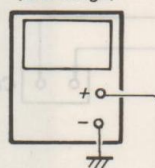


Carrier frequency: 108 MHz  
 Modulation: 1 kHz, 75 kHz deviation  
 Output level: as low as possible

## Procedure:

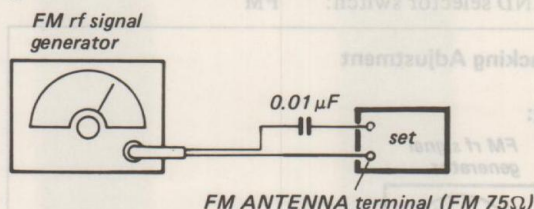
1. Push the TUNING (+, -) button for 108 MHz.
2. Adjust L005 for 8 – 8.5 V reading on the VOM.

VOM  
(DC range)



## FM TUNED Indication Lighting Level Adjustment

## Setting:



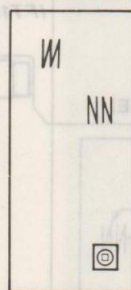
Carrier frequency: 98 MHz  
 Modulation: 1 kHz, 75 kHz deviation  
 Output level: 22.4  $\mu$ V (27 dB)

## Procedure:

1. Confirm that the MUTING indicator lights up on the display window.
2. Tune the set to 98 MHz.
3. Adjust RT101 so that the TUNED indicator goes on.

RT101

MAIN BOARD  
(COMPONENT SIDE)

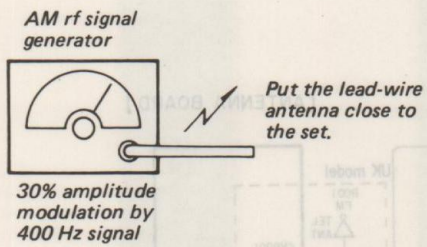




# AM SECTION

Setting:

BAND selector switch: MW or LW



- Repeat the procedures in each adjustment several times, and the OSC voltage and tracking adjustments should be finally done by the trimmer capacitors.

Perform after LW TRACKING ADJUSTMENT.

| MW TRACKING ADJUSTMENT                |       |
|---------------------------------------|-------|
| Adjust for a maximum reading on VTVM. |       |
| 603 kHz                               | L022  |
| 1,404 kHz                             | CT021 |

| LW TRACKING ADJUSTMENT                |       |
|---------------------------------------|-------|
| Adjust for a maximum reading on VTVM. |       |
| 162 kHz                               | L022  |
| 270 kHz                               | CT023 |

MAIN BOARD (COMPONENT SIDE)

MAIN BOARD (CONDUCTOR SIDE)

R-CH L-CH

VTVM

CNJ201

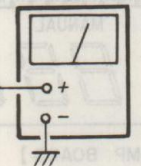
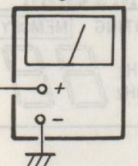
## MW/LW OSC Voltage Adjustment

Procedure:

- Set BAND selector switch to MW.
- Push TUNING (+, -) button for 522 kHz. Adjust L023 for 1 - 1.1 V VOM ② reading.
- Push the button for 1,611 kHz. Adjust CT022 for 8 - 8.5 V VOM ② reading.
- Set BAND selector switch to LW.
- Push TUNING (+, -) button for 144 kHz. Adjust L025 for 1 - 1.1 V VOM ① reading.
- Push the button for 288 kHz. Adjust CT024 for 8 - 8.5 V VOM ① reading.

VOM ② : MW (DC range)

VOM ① : LW (DC range)

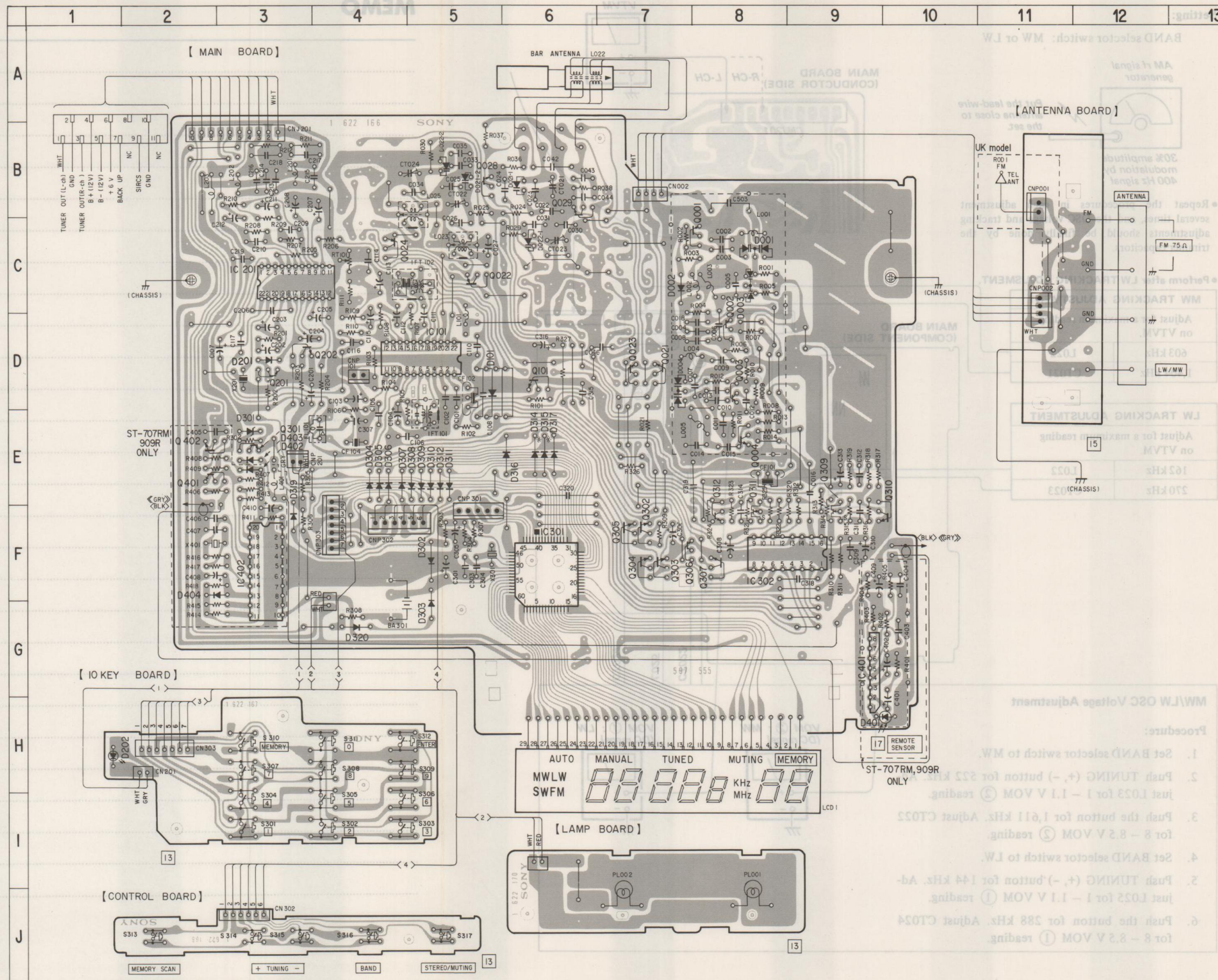


## MEMO



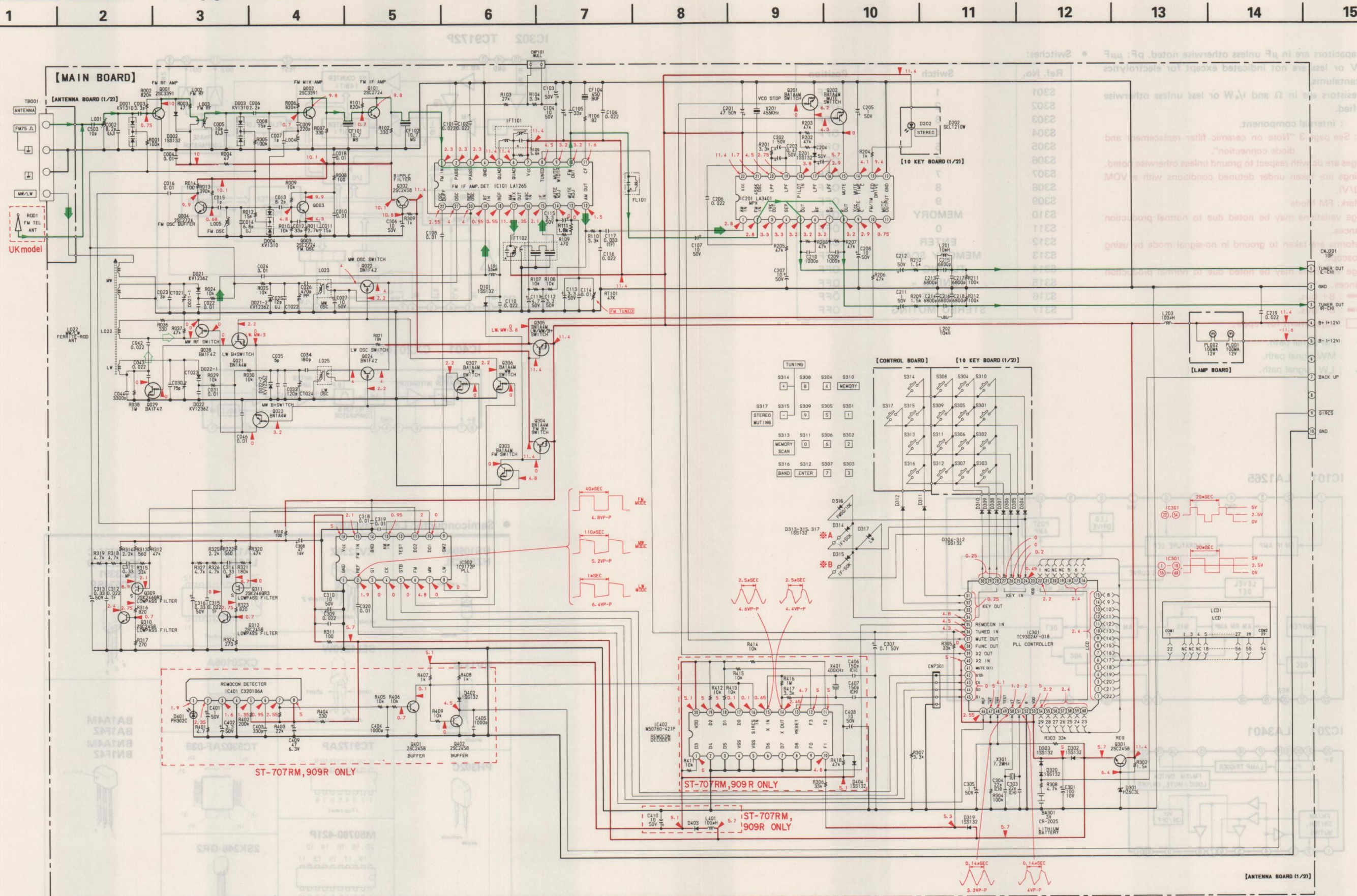
- ■ : parts mounted on the conductor side.
- [ ] ← indicates side identified with part number.

| Ref. No. |     | Ref. No. |     |
|----------|-----|----------|-----|
| IC101    | D-4 | D004     | D-7 |
| IC201    | C-3 | D021-1   | B-5 |
| IC301    | F-6 | D021-2   | B-5 |
| IC302    | F-8 | D022-1   | C-6 |
| IC401    | G-9 | D022-2   | B-5 |
| IC402    | F-3 | D101     | D-5 |
| Q001     | C-7 | D201     | D-3 |
| Q002     | D-8 | D202     | H-1 |
| Q003     | D-8 | D301     | E-3 |
| Q004     | E-8 | D302     | F-5 |
| Q021     | D-7 | D303     | F-5 |
| Q022     | C-5 | D304     | E-4 |
| Q023     | D-7 | D305     | E-4 |
| Q024     | C-4 | D306     | E-4 |
| Q028     | B-5 | D307     | E-4 |
| Q029     | B-6 | D308     | E-4 |
| Q101     | D-6 | D309     | E-4 |
| Q201     | D-3 | D310     | E-5 |
| Q202     | D-3 | D311     | E-5 |
| Q301     | E-3 | D312     | E-5 |
| Q302     | F-7 | D314     | E-6 |
| Q303     | F-7 | D315     | E-6 |
| Q304     | F-7 | D316     | E-5 |
| Q305     | F-7 | D317     | E-6 |
| Q306     | F-7 | D319     | F-3 |
| Q307     | F-7 | D320     | G-4 |
| Q309     | F-9 | D401     | H-9 |
| Q310     | F-9 | D402     | E-3 |
| Q311     | E-8 | D403     | E-3 |
| Q312     | E-8 | D404     | F-2 |
| Q401     | E-2 |          |     |
| Q402     | E-2 |          |     |
| D001     | C-8 |          |     |
| D002     | C-7 |          |     |
| D003     | C-8 |          |     |





. See page 13 for note.





**Note:**

- All capacitors are in  $\mu\text{F}$  unless otherwise noted. pF:  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.

- All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.

- $\Delta$  : internal component.

- \*A·B: See page 3 "Note on ceramic filter replacement and diode connection".

- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under detuned conditions with a VOM (50k $\Omega$ /V).

No Mark: FM Mode

- Voltage variations may be noted due to normal production tolerances.

- Waveforms are taken to ground in no-signal mode by using oscilloscope.

Voltage variations may be noted due to normal production tolerances.

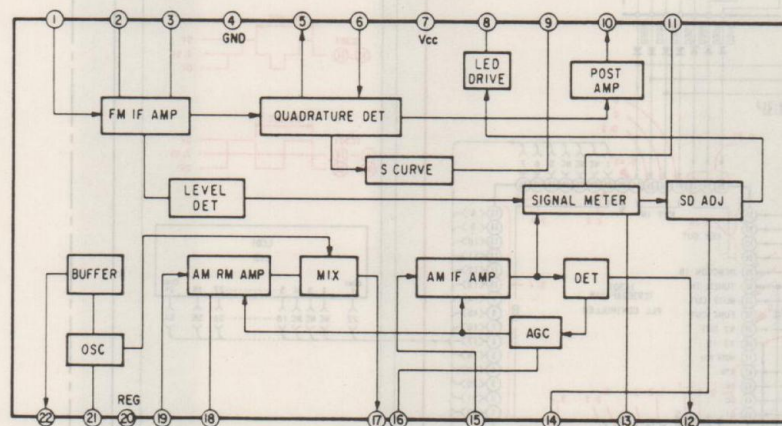
- — : B+ bus.
- --- : B- bus.
- □ : adjustment for repair.

- → : FM signal path.
- → : MW signal path.
- → : LW signal path.

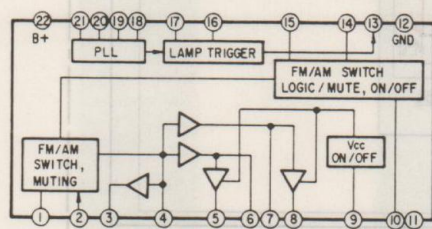
## • Switches:

| Ref. No. | Switch        | Position |
|----------|---------------|----------|
| S301     | 1             | OFF      |
| S302     | 2             | OFF      |
| S303     | 3             | OFF      |
| S304     | 4             | OFF      |
| S305     | 5             | OFF      |
| S306     | 6             | OFF      |
| S307     | 7             | OFF      |
| S308     | 8             | OFF      |
| S309     | 9             | OFF      |
| S310     | MEMORY        | OFF      |
| S311     | 0             | OFF      |
| S312     | ENTER         | OFF      |
| S313     | MEMORY SCAN   | OFF      |
| S314     | TUNING +      | OFF      |
| S315     | TUNING -      | OFF      |
| S316     | BAND          | OFF      |
| S317     | STEREO MUTING | OFF      |

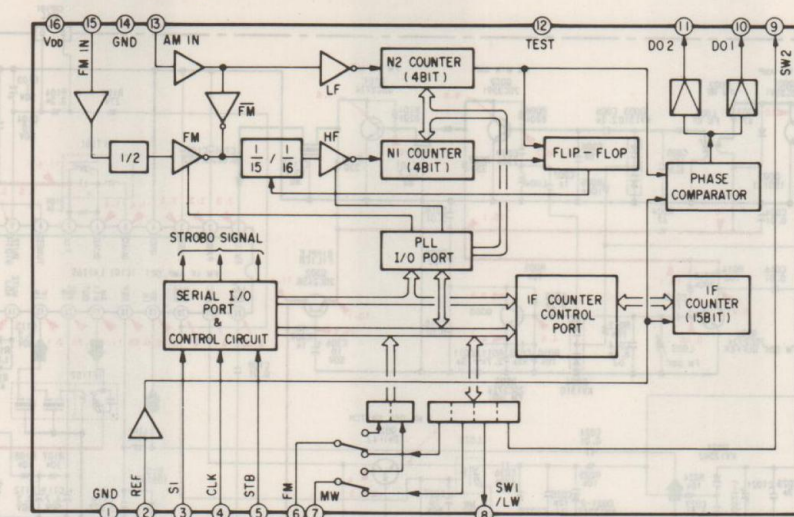
IC101 LA1265



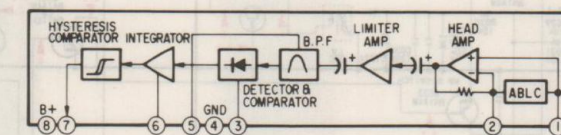
IC201 LA3401



IC302 TC9172P



IC401 CX20106A



## • Semiconductor Lead Layouts

|                                      |                        |                                    |                                                                               |
|--------------------------------------|------------------------|------------------------------------|-------------------------------------------------------------------------------|
| <b>US1060M</b><br><b>HZS6C3L</b><br> | <b>KV1236Z</b><br>     | <b>LA1265</b><br><b>LA3401</b><br> | <b>2SC2724-C</b><br><b>2SC2724-D</b><br><b>2SC3391</b><br><b>2SC634SP</b><br> |
| <b>KV1310</b><br>                    | <b>SEL1210W</b><br>    | <b>CX20106A</b><br>                |                                                                               |
| <b>PH302C</b><br>                    | <b>TC9172AP</b><br>    | <b>TC9302AF-039</b><br>            | <b>BA1A4M</b><br><b>BA1F4Z</b><br><b>BN1A4M</b><br><b>BN1F4Z</b><br>          |
|                                      | <b>M50760-421P</b><br> | <b>2SK246-GR2</b><br>              |                                                                               |



## SECTION 3

### EXPLODED VIEWS

#### NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

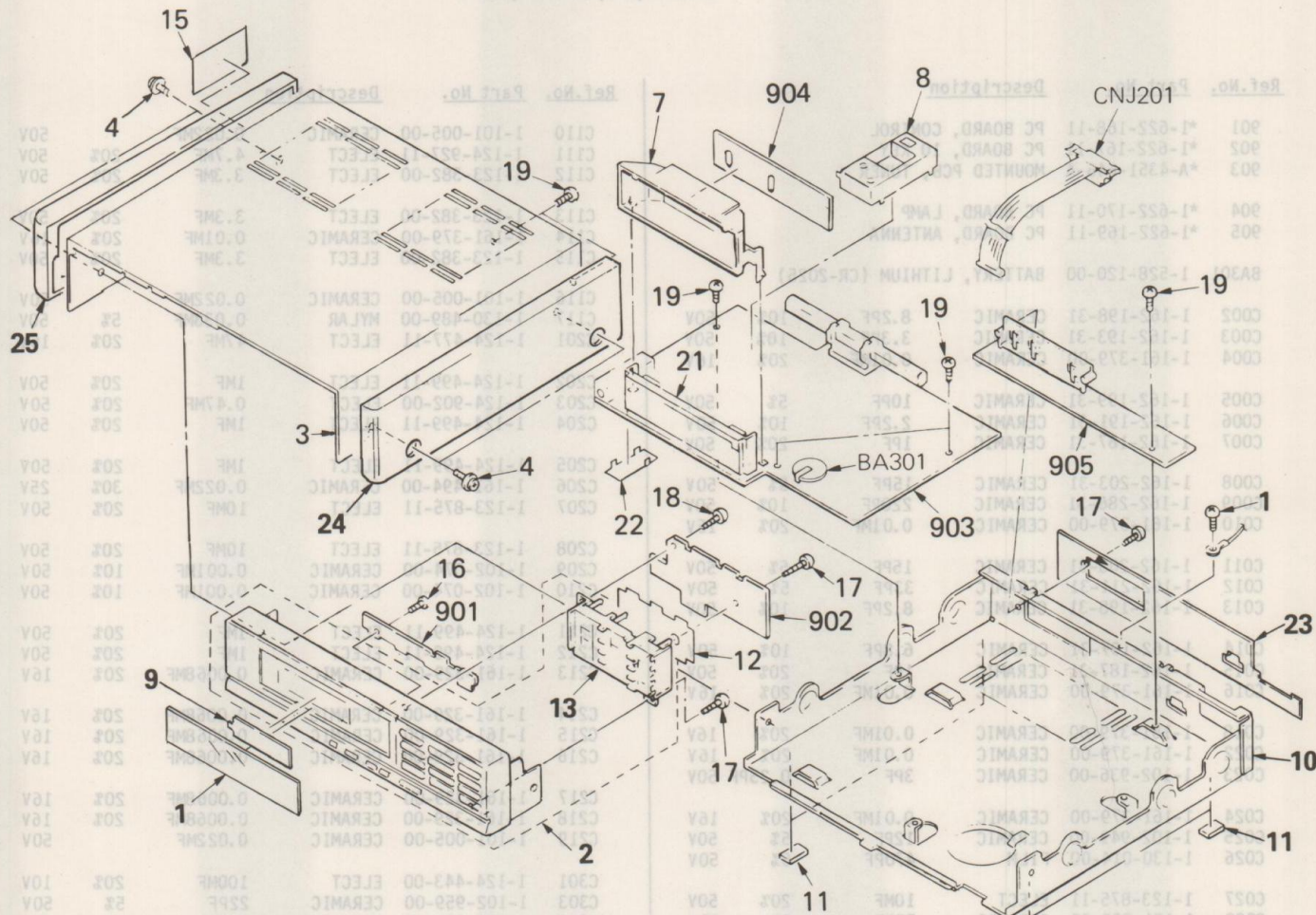
- Color Indication of Appearance Parts Example:

(RED) ... KNOB, BALANCE (WHITE)

↑  
Cabinet's Color

↑  
Parts Color

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.



| No. | Part No.      | Description                |
|-----|---------------|----------------------------|
| 1   | 4-920-874-01  | PLATE (ST), ORNAMENTAL     |
| 2   | X-4919-643-1  | PANEL ASSY, FRONT          |
| 3   | 4-920-137-01  | CASE                       |
| 4   | 4-886-821-51  | SCREW (CASE) (M3X14)       |
| 5   |               |                            |
| 6   | *4-909-705-01 | PLATE, SHIELD              |
| 7   | *4-917-275-01 | HOUSE, LAMP                |
| 8   | *4-874-704-01 | CASE, SHIELD               |
| 9   | 4-920-872-01  | PLATE (ST), INDICATION     |
| 10  | *4-919-617-01 | CHASSIS                    |
| 11  | 4-919-608-01  | FOOT                       |
| 12  | *4-919-607-01 | SPACER                     |
| 13  | *4-919-614-01 | RETAINER, BUTTON           |
| 14  | *4-922-718-01 | LABEL, MODEL NUMBER (AE)   |
| 16  | 7-685-133-19  | SCREW +P 2.6X6 TYPE2 SLIT  |
| 17  | 7-685-647-79  | SCREW +BVTP 3X10 TYPE2 N-S |

| No.    | Part No.      | Description                |
|--------|---------------|----------------------------|
| 18     | 7-685-646-79  | SCREW +BVTP 3X8 TYPE2 N-S  |
| 19     | 7-682-147-01  | SCREW +BVTT 3X6 (S)        |
| 20     |               |                            |
| 21     | *4-909-633-01 | ILLUMINATOR                |
| 22     | *4-920-149-01 | PLATE (A), SHIELD          |
| 23     | *4-919-613-71 | COVER, REAR                |
| 24     | 4-922-759-01  | PLATE (A-RIGHT), SIDE      |
| 25     | 4-922-760-01  | PLATE (A-LEFT), SIDE       |
| 901    | *1-622-168-11 | PC BOARD, CONTROL          |
| 902    | *1-622-167-11 | PC BOARD, 10 KEY           |
| 903    | *A-4351-646-A | MOUNTED PCB, TUNER         |
| 904    | *1-622-170-11 | PC BOARD, LAMP             |
| 905    | *1-622-169-11 | PC BOARD, ANTENNA          |
| BA301  | 1-528-120-00  | BATTERY, LITHIUM (CR-2025) |
| CNJ201 | 1-559-816-11  | CORD (WITH CONNECTOR) 10P  |



SECTION 4  
ELECTRICAL PARTS LIST

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

## CAPACITORS:

MF:  $\mu$ F, PF:  $\mu$ F.

## RESISTORS

- All resistors are in ohms.
- F: nonflammable

## COILS

- MMH: mH, UH:  $\mu$ H

## SEMICONDUCTORS

In each case, U:  $\mu$ , for example:UA...:  $\mu$ A..., UPA...:  $\mu$ PA...,UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

| Ref.No. | Part No.      | Description                |
|---------|---------------|----------------------------|
| 901     | *1-622-168-11 | PC BOARD, CONTROL          |
| 902     | *1-622-167-11 | PC BOARD, 10 KEY           |
| 903     | *A-4351-646-A | MOUNTED PCB, TUNER         |
| 904     | *1-622-170-11 | PC BOARD, LAMP             |
| 905     | *1-622-169-11 | PC BOARD, ANTENNA          |
| BA301   | 1-528-120-00  | BATTERY, LITHIUM (CR-2025) |
| C002    | 1-162-198-31  | CERAMIC 8.2PF 10% 50V      |
| C003    | 1-162-193-31  | CERAMIC 3.3PF 10% 50V      |
| C004    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C005    | 1-162-199-31  | CERAMIC 10PF 5% 50V        |
| C006    | 1-162-191-31  | CERAMIC 2.2PF 10% 50V      |
| C007    | 1-162-187-31  | CERAMIC 1PF 20% 50V        |
| C008    | 1-162-203-31  | CERAMIC 15PF 5% 50V        |
| C009    | 1-162-286-31  | CERAMIC 220PF 10% 50V      |
| C010    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C011    | 1-162-203-31  | CERAMIC 15PF 5% 50V        |
| C012    | 1-162-211-31  | CERAMIC 33PF 5% 50V        |
| C013    | 1-162-198-31  | CERAMIC 8.2PF 10% 50V      |
| C014    | 1-162-197-31  | CERAMIC 6.8PF 10% 50V      |
| C015    | 1-162-187-31  | CERAMIC 1PF 20% 50V        |
| C016    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C018    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C022    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C023    | 1-102-936-00  | CERAMIC 3PF 0.25PF 50V     |
| C024    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C025    | 1-102-949-00  | CERAMIC 12PF 5% 50V        |
| C026    | 1-130-014-00  | FILM 470PF 5% 50V          |
| C027    | 1-123-875-11  | ELECT 10MF 20% 50V         |
| C030    | 1-101-890-00  | CERAMIC 75PF 5% 50V        |
| C031    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C033    | 1-102-816-00  | CERAMIC 120PF 5% 50V       |
| C034    | 1-130-047-00  | FILM 180PF 5% 50V          |
| C035    | 1-102-942-00  | CERAMIC 5PF 0.5PF 50V      |
| C042    | 1-161-494-00  | CERAMIC 0.022MF 30% 25V    |
| C043    | 1-101-005-00  | CERAMIC 0.022MF 50V        |
| C044    | 1-161-327-00  | CERAMIC 0.0033MF 20% 16V   |
| C046    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |
| C101    | 1-101-005-00  | CERAMIC 0.022MF 50V        |
| C102    | 1-101-005-00  | CERAMIC 0.022MF 50V        |
| C103    | 1-124-499-11  | ELECT 1MF 20% 50V          |
| C104    | 1-123-875-11  | ELECT 10MF 20% 50V         |
| C105    | 1-162-211-31  | CERAMIC 33PF 5% 50V        |
| C106    | 1-101-005-00  | CERAMIC 0.022MF 50V        |
| C107    | 1-123-875-11  | ELECT 10MF 20% 50V         |
| C108    | 1-161-379-00  | CERAMIC 0.01MF 20% 16V     |

| Ref.No. | Part No.     | Description              |
|---------|--------------|--------------------------|
| C110    | 1-101-005-00 | CERAMIC 0.022MF 50V      |
| C111    | 1-124-927-11 | ELECT 4.7MF 20% 50V      |
| C112    | 1-123-382-00 | ELECT 3.3MF 20% 50V      |
| C113    | 1-123-382-00 | ELECT 3.3MF 20% 50V      |
| C114    | 1-161-379-00 | CERAMIC 0.01MF 20% 16V   |
| C115    | 1-123-382-00 | ELECT 3.3MF 20% 50V      |
| C116    | 1-101-005-00 | CERAMIC 0.022MF 50V      |
| C117    | 1-130-489-00 | MYLAR 0.033MF 5% 50V     |
| C201    | 1-124-477-11 | ELECT 47MF 20% 16V       |
| C202    | 1-124-499-11 | ELECT 1MF 20% 50V        |
| C203    | 1-124-902-00 | ELECT 0.47MF 20% 50V     |
| C204    | 1-124-499-11 | ELECT 1MF 20% 50V        |
| C205    | 1-124-499-11 | ELECT 1MF 20% 50V        |
| C206    | 1-161-494-00 | CERAMIC 0.022MF 30% 25V  |
| C207    | 1-123-875-11 | ELECT 10MF 20% 50V       |
| C208    | 1-123-875-11 | ELECT 10MF 20% 50V       |
| C209    | 1-102-074-00 | CERAMIC 0.001MF 10% 50V  |
| C210    | 1-102-074-00 | CERAMIC 0.001MF 10% 50V  |
| C211    | 1-124-499-11 | ELECT 1MF 20% 50V        |
| C212    | 1-124-499-11 | ELECT 1MF 20% 50V        |
| C213    | 1-161-329-00 | CERAMIC 0.0068MF 20% 16V |
| C214    | 1-161-329-00 | CERAMIC 0.0068MF 20% 16V |
| C215    | 1-161-329-00 | CERAMIC 0.0068MF 20% 16V |
| C216    | 1-161-329-00 | CERAMIC 0.0068MF 20% 16V |
| C217    | 1-161-329-00 | CERAMIC 0.0068MF 20% 16V |
| C218    | 1-161-329-00 | CERAMIC 0.0068MF 20% 16V |
| C219    | 1-101-005-00 | CERAMIC 0.022MF 50V      |
| C301    | 1-124-443-00 | ELECT 100MF 20% 10V      |
| C303    | 1-102-959-00 | CERAMIC 22PF 5% 50V      |
| C304    | 1-102-959-00 | CERAMIC 22PF 5% 50V      |
| C305    | 1-124-499-11 | ELECT 1MF 20% 50V        |
| C306    | 1-123-875-11 | ELECT 10MF 20% 50V       |
| C307    | 1-124-463-00 | ELECT 0.1MF 20% 50V      |
| C308    | 1-124-477-11 | ELECT 47MF 20% 16V       |
| C309    | 1-101-005-00 | CERAMIC 0.022MF 50V      |
| C310    | 1-123-875-11 | ELECT 10MF 20% 50V       |
| C311    | 1-136-171-00 | FILM 0.33MF 5% 50V       |
| C312    | 1-130-487-00 | MYLAR 0.022MF 5% 50V     |
| C313    | 1-124-252-00 | ELECT 0.33MF 20% 50V     |
| C314    | 1-136-171-00 | FILM 0.33MF 5% 50V       |
| C315    | 1-130-487-00 | MYLAR 0.022MF 5% 50V     |
| C316    | 1-124-252-00 | ELECT 0.33MF 20% 50V     |
| C318    | 1-161-379-00 | CERAMIC 0.01MF 20% 16V   |
| C319    | 1-161-379-00 | CERAMIC 0.01MF 20% 16V   |
| C320    | 1-161-379-00 | CERAMIC 0.01MF 20% 16V   |

| Ref.No.  | Part No.     | Description             |
|----------|--------------|-------------------------|
| C401     | 1-124-499-11 | ELECT 1MF 20% 50V       |
| C402     | 1-123-382-00 | ELECT 3.3MF 20% 50V     |
| C403     | 1-162-288-31 | CERAMIC 330PF 10% 50V   |
| C404     | 1-162-294-31 | CERAMIC 0.001MF 10% 50V |
| C405     | 1-162-294-31 | CERAMIC 0.001MF 10% 50V |
| C406     | 1-101-361-00 | CERAMIC 150PF 5% 50V    |
| C407     | 1-101-361-00 | CERAMIC 150PF 5% 50V    |
| C408     | 1-123-875-11 | ELECT 10MF 20% 50V      |
| C409     | 1-124-477-11 | ELECT 47MF 20% 16V      |
| C410     | 1-123-875-11 | ELECT 10MF 20% 50V      |
| C503     | 1-162-199-31 | CERAMIC 10PF 5% 50V     |
| CF101    | 1-567-389-11 | FILTER, CERAMIC         |
| CF102    | 1-567-389-11 | FILTER, CERAMIC         |
| CF104    | 1-527-981-00 | FILTER, CERAMIC         |
| CNJ201   | 1-559-816-11 | CORD (WITH CONNECTOR)   |
| CNP002*1 | 1-564-337-00 | PIN, CONNECTOR 3P       |
| CNP101*1 | 1-560-060-00 | PIN, CONNECTOR 2P       |
| CNP201*1 | 1-564-336-00 | PIN, CONNECTOR 2P       |
| CNP301*1 | 1-560-063-00 | PIN, CONNECTOR 5P       |
| CNP302*1 | 1-560-064-00 | PIN, CONNECTOR 6P       |
| CNP303*1 | 1-564-341-11 | PIN, CONNECTOR 7P       |
| CT021    | 1-141-227-00 | CAP, CERAMIC TRIMMER    |
| CT022    | 1-141-227-00 | CAP, CERAMIC TRIMMER    |
| CT023    | 1-141-227-00 | CAP, CERAMIC TRIMMER    |
| CT024    | 1-141-227-00 | CAP, CERAMIC TRIMMER    |
| D001     | 8-719-918-45 | DIODE KV1310            |
| D002     | 8-719-000-26 | DIODE US1060M           |
| D003     | 8-719-918-45 | DIODE KV1310            |
| D004     | 8-719-918-45 | DIODE KV1310            |
| D021     | 8-719-923-64 | DIODE KV1236Z           |
| D022     | 8-719-923-64 | DIODE KV1236Z           |
| D101     | 8-719-000-26 | DIODE US1060M           |
| D201     | 8-719-000-26 | DIODE US1060M           |
| D202     | 8-719-303-13 | DIODE SEL1210W          |
| D301     | 8-719-933-41 | DIODE HZS6C3L           |
| D302     | 8-719-000-26 | DIODE US1060M           |
| D303     | 8-719-000-26 | DIODE US1060M           |
| D304     | 8-719-000-26 | DIODE US1060M           |
| D305     | 8-719-000-26 | DIODE US1060M           |
| D306     | 8-719-000-26 | DIODE US1060M           |
| D307     | 8-719-000-26 | DIODE US1060M           |
| D308     | 8-719-000-26 | DIODE US1060M           |
| D309     | 8-719-000-26 | DIODE US1060M           |
| D310     | 8-719-000-26 | DIODE US1060M           |
| D311     | 8-719-000-26 | DIODE US1060M           |
| D312     | 8-719-000-26 | DIODE US1060M           |
| D314     | 8-719-000-26 | DIODE US1060M           |
| D315     | 8-719-000-26 | DIODE US1060M           |
| D316     | 8-719-000-26 | DIODE US1060M           |
| D317     | 8-719-000-26 | DIODE US1060M           |
| D319     | 8-719-000-26 | DIODE US1060M           |
| D320     | 8-719-000-26 | DIODE US1060M           |
| D401     | 8-719-123-68 | PH302C                  |
| D402     | 8-719-000-26 | DIODE US1060M           |
| D403     | 8-719-000-26 | DIODE US1060M           |
| D404     | 8-719-000-26 | DIODE US1060M           |
| FL101    | 1-235-126-00 | ENCAPSULATED COMPONENT  |

IC101 8-759-801-81 IC LA1265  
IC201 8-759-801-80 IC LA3401  
IC301 8-759-230-50 IC TC9302AF-039

| Ref.No. | Part No.      | Description                   |
|---------|---------------|-------------------------------|
| IC302   | 8-759-230-16  | IC TC9172AP                   |
| IC401   | 8-759-602-54  | IC CX20106A                   |
| IC402   | 8-759-603-43  | IC M50760-421P                |
| IFT101  | 1-404-659-11  | COIL, DISCRIMINATOR           |
| IFT102  | 1-404-713-11  | TRANSFORMER, IF               |
| L001    | *1-422-336-11 | COIL, AIR-CORE                |
| L002    | *1-422-040-00 | COIL, AIR-CORE                |
| L003    | *1-422-081-00 | COIL (WITH CORE)              |
| L004    | *1-422-039-00 | COIL, AIR-CORE                |
| L005    | 1-459-396-00  | COIL (WITH CORE)              |
| L022    | 1-402-151-11  | ANTENNA, FERRITE-ROD (LW/MW)  |
| L023    | 1-406-089-11  | COIL (OSC)                    |
| L025    | 1-406-207-11  | COIL, LW (OSC)                |
| L101    | 1-408-930-00  | INDUCTOR 33MMH                |
| L201    | 1-408-924-00  | INDUCTOR 10MMH                |
| L202    | 1-408-924-00  | INDUCTOR 10MMH                |
| L203    | 1-410-601-21  | INDUCTOR 100UH                |
| L401    | 1-410-601-21  | INDUCTOR 100UH                |
| LCD1    | 1-807-453-41  | DISPLAY PANEL, LIQUID CRYSTAL |
| PL001   | 1-518-527-51  | LAMP, PILOT                   |
| PL002   | 1-518-527-51  | LAMP, PILOT                   |
| Q001    | 8-729-304-38  | TRANSISTOR 2SC3391            |
| Q002    | 8-729-304-38  | TRANSISTOR 2SC3391            |
| Q003    | 8-729-672-42  | TRANSISTOR 2SC2724-C          |
| Q004    | 8-729-672-42  | TRANSISTOR 2SC2724-C          |
| Q021    | 8-729-115-15  | TRANSISTOR BN1A4M             |
| Q022    | 8-729-115-33  | TRANSISTOR BN1F4Z             |
| Q023    | 8-729-115-15  | TRANSISTOR BN1A4M             |
| Q024    | 8-729-115-33  | TRANSISTOR BN1F4Z             |
| Q028    | 8-729-115-93  | TRANSISTOR BA1F4Z             |
| Q029    | 8-729-115-79  | TRANSISTOR BA1A4M             |
| Q101    | 8-729-672-43  | TRANSISTOR 2SC2724-D          |
| Q201    | 8-729-115-79  | TRANSISTOR BA1A4M             |
| Q202    | 8-729-115-79  | TRANSISTOR BA1A4M             |
| Q301    | 8-729-600-27  | TRANSISTOR 2SC634SP           |
| Q302    | 8-729-600-27  | TRANSISTOR 2SC634SP           |
| Q303    | 8-729-115-79  | TRANSISTOR BA1A4M             |
| Q304    | 8-729-115-15  | TRANSISTOR BN1A4M             |
| Q305    | 8-729-115-15  | TRANSISTOR BN1A4M             |
| Q306    | 8-729-115-79  | TRANSISTOR BA1A4M             |
| Q307    | 8-729-115-79  | TRANSISTOR BA1A4M             |
| Q309    | 8-729-201-56  | TRANSISTOR 2SK246GR2          |
| Q310    | 8-729-600-27  | TRANSISTOR 2SC634SP           |
| Q311    | 8-729-201-56  | TRANSISTOR 2SK246GR2          |
| Q312    | 8-729-600-27  | TRANSISTOR 2SC634SP           |
| Q401    | 8-729-600-27  | TRANSISTOR 2SC634SP           |
| Q402    | 8-729-600-27  | TRANSISTOR 2SC634SP           |
| R001    | 1-249-441-11  | CARBON 100K 5% 1/4W           |
| R002    | 1-215-491-00  | CARBON 820K 5% 1/4W           |
| R003    | 1-249-401-11  | CARBON 47 5% 1/4W             |
| R004    | 1-249-401-11  | CARBON 47 5% 1/4W             |
| R005    | 1-249-441-11  | CARBON 100K 5% 1/4W           |
| R006    | 1-215-491-00  | CARBON 820K 5% 1/4W           |
| R007    | 1-249-411-11  | CARBON 330 5% 1/4W            |
| R008    | 1-249-405-11  | CARBON 100 5% 1/4W            |
| R009    | 1-249-429-11  | CARBON 10K 5% 1/4W            |



| Ref.No. | Part No.     | Description |      |    |      |
|---------|--------------|-------------|------|----|------|
| R010    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R011    | 1-249-422-11 | CARBON      | 2.7K | 5% | 1/4W |
| R012    | 1-249-431-11 | CARBON      | 15K  | 5% | 1/4W |
| R013    | 1-215-483-00 | CARBON      | 390K | 5% | 1/4W |
| R014    | 1-249-405-11 | CARBON      | 100  | 5% | 1/4W |
| R021    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R024    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R025    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R029    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R030    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R036    | 1-249-411-11 | CARBON      | 330  | 5% | 1/4W |
| R037    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R038    | 1-247-903-00 | CARBON      | 1M   | 5% | 1/4W |
| R101    | 1-215-491-00 | CARBON      | 820K | 5% | 1/4W |
| R102    | 1-249-411-11 | CARBON      | 330  | 5% | 1/4W |
| R103    | 1-249-434-11 | CARBON      | 27K  | 5% | 1/4W |
| R104    | 1-249-423-11 | CARBON      | 3.3K | 5% | 1/4W |
| R105    | 1-249-426-11 | CARBON      | 5.6K | 5% | 1/4W |
| R106    | 1-249-404-00 | CARBON      | 82   | 5% | 1/4W |
| R107    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R108    | 1-249-429-11 | CARBON      | 10K  | 5% | 1/4W |
| R109    | 1-249-413-11 | CARBON      | 470  | 5% | 1/4W |
| R110    | 1-249-423-11 | CARBON      | 3.3K | 5% | 1/4W |
| R111    | 1-249-420-11 | CARBON      | 1.8K | 5% | 1/4W |
| R201    | 1-249-423-11 | CARBON      | 3.3K | 5% | 1/4W |
| R202    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R203    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R204    | 1-249-417-11 | CARBON      | 1K   | 5% | 1/4W |
| R205    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R206    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R207    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R208    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R209    | 1-249-419-11 | CARBON      | 1.5K | 5% | 1/4W |
| R210    | 1-249-419-11 | CARBON      | 1.5K | 5% | 1/4W |
| R211    | 1-249-441-11 | CARBON      | 100K | 5% | 1/4W |
| R212    | 1-249-441-11 | CARBON      | 100K | 5% | 1/4W |
| R302    | 1-249-419-11 | CARBON      | 1.5K | 5% | 1/4W |
| R303    | 1-249-435-11 | CARBON      | 33K  | 5% | 1/4W |
| R304    | 1-249-441-11 | CARBON      | 100K | 5% | 1/4W |
| R305    | 1-249-435-11 | CARBON      | 33K  | 5% | 1/4W |
| R306    | 1-249-435-11 | CARBON      | 33K  | 5% | 1/4W |
| R307    | 1-249-423-11 | CARBON      | 3.3K | 5% | 1/4W |
| R308    | 1-249-425-11 | CARBON      | 4.7K | 5% | 1/4W |
| R309    | 1-249-417-11 | CARBON      | 1K   | 5% | 1/4W |
| R310    | 1-249-405-11 | CARBON      | 100  | 5% | 1/4W |
| R311    | 1-249-405-11 | CARBON      | 100  | 5% | 1/4W |
| R312    | 1-249-437-11 | CARBON      | 47K  | 5% | 1/4W |
| R313    | 1-249-414-11 | CARBON      | 560  | 5% | 1/4W |
| R314    | 1-249-421-11 | CARBON      | 2.2K | 5% | 1/4W |
| R315    | 1-249-435-11 | CARBON      | 33K  | 5% | 1/4W |
| R316    | 1-249-416-11 | CARBON      | 820  | 5% | 1/4W |
| R317    | 1-249-410-11 | CARBON      | 270  | 5% | 1/4W |
| R318    | 1-249-425-11 | CARBON      | 4.7K | 5% | 1/4W |
| R319    | 1-249-425-11 | CARBON      | 4.7K | 5% | 1/4W |

| Ref.No. | Part No.      | Description          |      |    |      |
|---------|---------------|----------------------|------|----|------|
| R320    | 1-249-437-11  | CARBON               | 47K  | 5% | 1/4W |
| R321    | 1-247-885-00  | CARBON               | 180K | 5% | 1/4W |
| R322    | 1-249-414-11  | CARBON               | 560  | 5% | 1/4W |
| R323    | 1-249-416-11  | CARBON               | 820  | 5% | 1/4W |
| R324    | 1-249-410-11  | CARBON               | 270  | 5% | 1/4W |
| R325    | 1-249-421-11  | CARBON               | 2.2K | 5% | 1/4W |
| R326    | 1-249-425-11  | CARBON               | 4.7K | 5% | 1/4W |
| R327    | 1-249-425-11  | CARBON               | 4.7K | 5% | 1/4W |
| R401    | 1-249-389-11  | CARBON               | 4.7  | 5% | 1/4W |
| R402    | 1-215-476-00  | CARBON               | 200K | 5% | 1/4W |
| R403    | 1-249-433-11  | CARBON               | 22K  | 5% | 1/4W |
| R404    | 1-249-411-11  | CARBON               | 330  | 5% | 1/4W |
| R405    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R406    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R407    | 1-249-417-11  | CARBON               | 1K   | 5% | 1/4W |
| R408    | 1-249-417-11  | CARBON               | 1K   | 5% | 1/4W |
| R409    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R411    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R412    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R413    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R414    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R415    | 1-249-429-11  | CARBON               | 10K  | 5% | 1/4W |
| R416    | 1-247-903-00  | CARBON               | 1M   | 5% | 1/4W |
| R417    | 1-249-423-11  | CARBON               | 3.3K | 5% | 1/4W |
| R418    | 1-249-437-11  | CARBON               | 47K  | 5% | 1/4W |
| TB001   | *1-537-138-21 | TERMINAL BOARD (ANT) |      |    |      |
| RT101   | 1-228-996-00  | RES, ADJ, CARBON 47K |      |    |      |
| S301    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S302    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S303    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S304    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S305    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S306    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S307    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S308    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S309    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S310    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S311    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S312    | 1-554-303-21  | SWITCH, KEY BOARD    |      |    |      |
| S313    | 1-570-876-11  | SWITCH, KEY BOARD    |      |    |      |
| S314    | 1-570-876-11  | SWITCH, KEY BOARD    |      |    |      |
| S315    | 1-570-876-11  | SWITCH, KEY BOARD    |      |    |      |
| S316    | 1-570-876-11  | SWITCH, KEY BOARD    |      |    |      |
| S317    | 1-570-876-11  | SWITCH, KEY BOARD    |      |    |      |
| X201    | 1-567-250-11  | OSCILLATOR, CERAMIC  |      |    |      |
| X301    | 1-567-736-11  | VIBRATOR, CRYSTAL    |      |    |      |
| X401    | 1-527-532-00  | OSCILLATOR, CERAMIC  |      |    |      |