

ICF-303/303L

SERVICE MANUAL

Ver 1.0 1999.07



Photo: ICF-303

Canadian Model
E Model
Australian Model
Chinese Model
ICF-303
AEP Model
ICF-303/303L

SPECIFICATIONS

Frequency range:

Central and East European model

| | |
|-------------|----------------|
| Band | ICF-303 |
| FM | 65 - 108 MHz |
| AM | 530 - 1605 kHz |

Italian model

| | |
|-------------|--------------------|
| Band | ICF-303 |
| FM | 87.5 - 108 MHz |
| AM | 526.5 - 1606.5 kHz |

Other countries model

| | | |
|-------------|----------------|----------------|
| Band | ICF-303 | ICF303L |
| FM | 87.5 - 108 MHz | 87.5 - 108 MHz |
| AM | 530 - 1605 kHz | — |
| LW | — | 153 - 255 kHz |

Speaker

Approx. 6.6 cm (2 5/8 inches) dia., 8 Ω

Output

Ⓢ (earphone) jack (minijack)

Power output

100 mW (at 10 % harmonic distortion)

Power requirements

3 V DC, two R6 (size AA) batteries

3 V DC, two LR6 (size AA) batteries

Dimensions

Approx. 156.9 × 82.5 × 41.1 mm (w/h/d)

(6 1/4 × 3 1/4 × 1 5/8 inches) incl. projecting parts and controls

Mass

Approx. 309.5 g (10.9 oz) incl. batteries

Supplied accessories

Operating instructions (1)

Design and specifications are subject to change without notice.

Features

- Compact radio
- TUNE indicator for easy tuning

FM/AM RADIO

ICF-303

FM/LW RADIO

ICF-303L



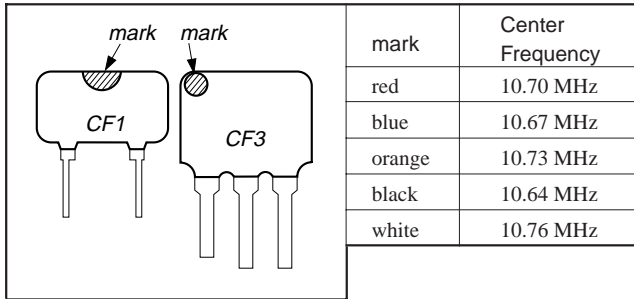
SONY®

HOW TO CHANGE THE CERAMIC FILTERS

This model is used two ceramic filters of CF1 and CF3.

You must use same type of color marked ceramic filters in order to meet same specifications.

Therefore, the ceramic filter must change two pieces together since it's supply two pieces in one package as a spare parts.

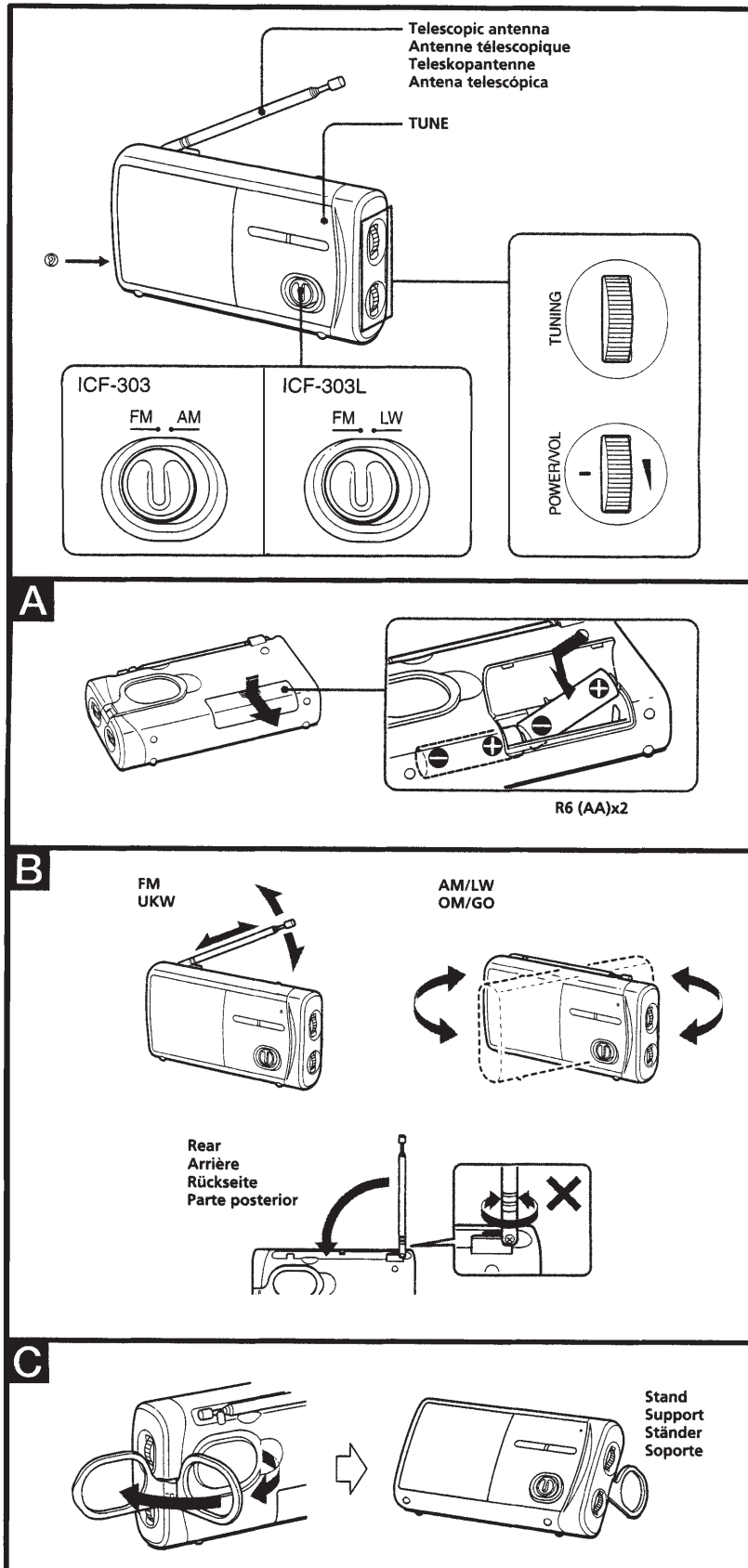


Notes on Chip Component Replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

SECTION 1 GENERAL

This section is extracted from instruction manual.



Installing the Batteries (See fig. A)

- 1 Open the battery compartment lid.
- 2 Insert two R6 (size AA) batteries (not supplied) with correct polarity.
- 3 Close the lid.

Battery life

Using Sony batteries R6 (size AA) :
Approx. 35 hours
Using Sony alkaline batteries LR6 (size AA):
Approx. 95 hours

Replacing batteries

When the sound becomes weak or distorted, replace all batteries with new ones.

Notes on batteries

- Do not charge the dry batteries.
- Do not carry the dry batteries with coins or other metallic objects. It can generate heat if the positive and negative terminals of the batteries are accidentally contacted by a metallic object.
- When you are not going to use the unit for a long time, remove the batteries to avoid damage from battery leakage and corrosion.

Operating the Radio

- 1 Turn up POWER/VOL to turn power on and adjust the volume.
- 2 Select a desired band.
- 3 Tune in to a station using TUNING.
The TUNE indicator lights up when a station is tuned in.

To turn off the radio

Turn down POWER/VOL completely until a click is heard.

To listen with an earphone

Connect the earphone to the Ⓣ (earphone) jack. The speaker is deactivated when an earphone is connected.

To improve reception (See fig. B)

FM: Extend the telescopic antenna and adjust the angle for optimum reception.
AM/LW: Rotate the unit horizontally for optimum reception. A ferrite bar antenna is built into the unit.

Note

Do not rotate the telescopic antenna.

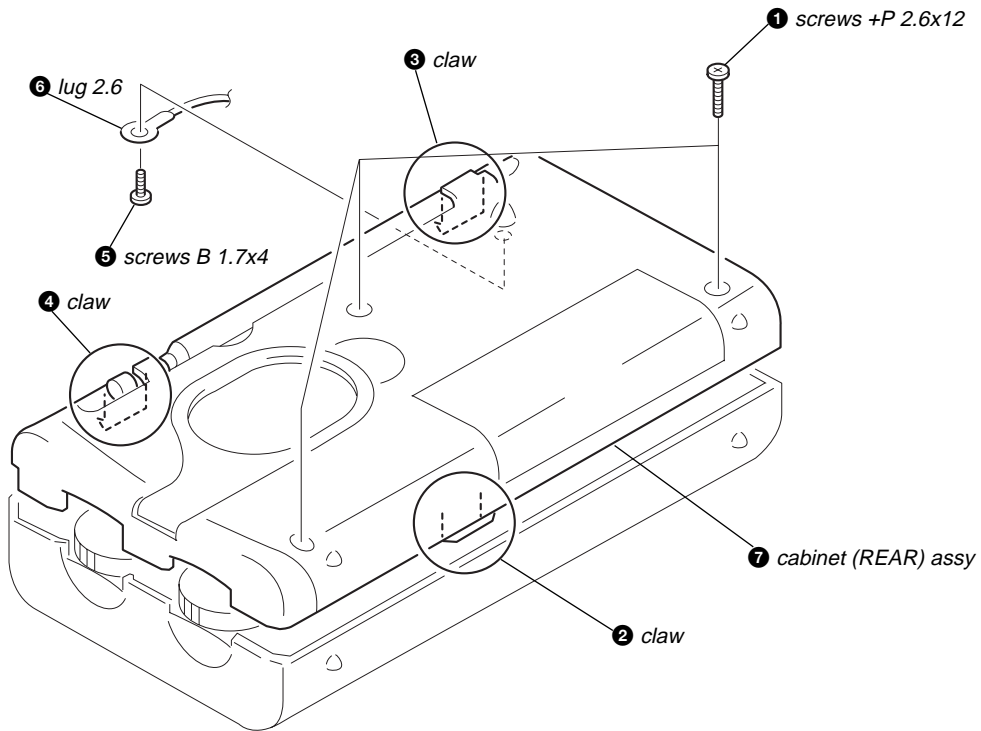
To use the stand (See fig. C)

- To use the stand as support for the unit, unfold the stand half-way.
- The stand can also be used as a handle to carry the unit. For this purpose, unfold the stand completely.

SECTION 2 DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

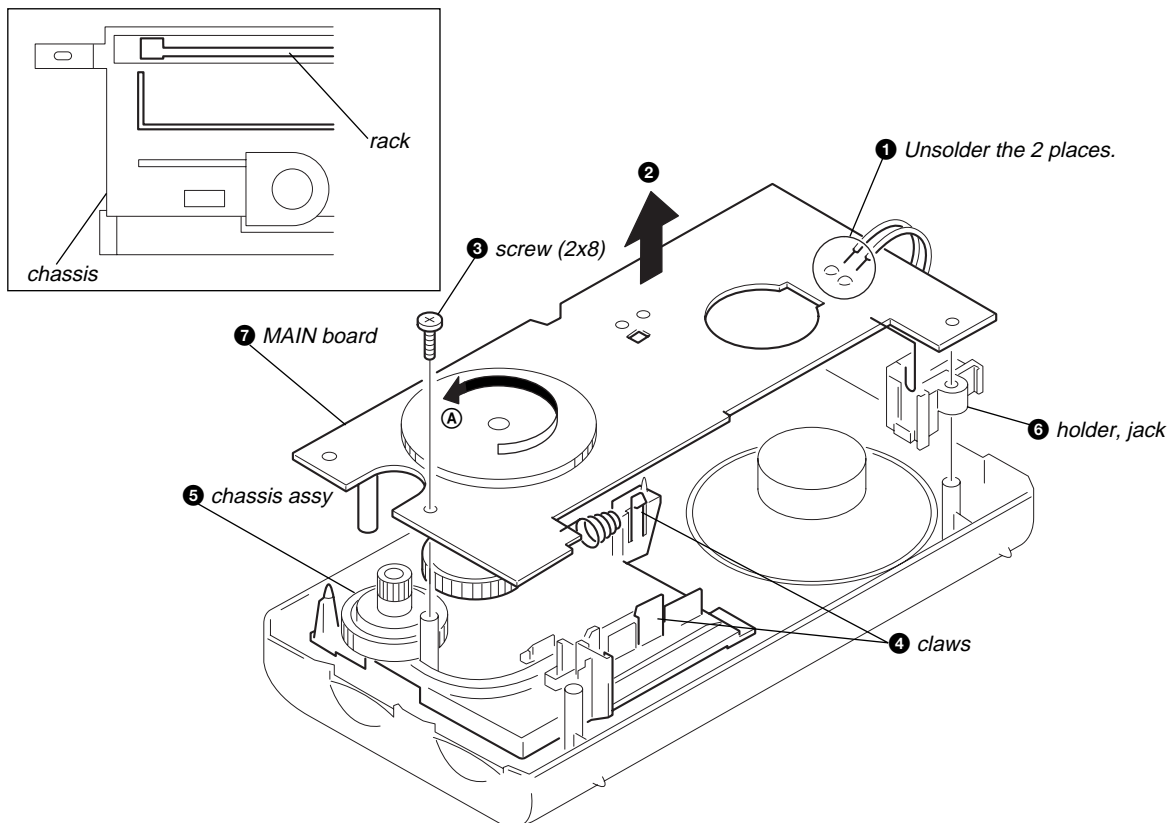
2-1. CABINET (REAR) ASSY



2-2. MAIN BOARD

• **Setting the Pointer**

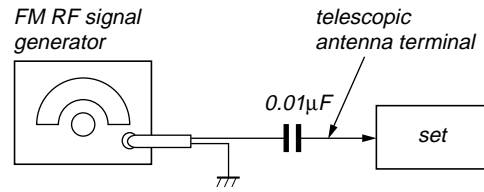
1. Turn the gear (tuning capacitor) in the direction of **A** until it is stopped.
2. Place the rack as shown in the figure.
3. Mount the pointer.



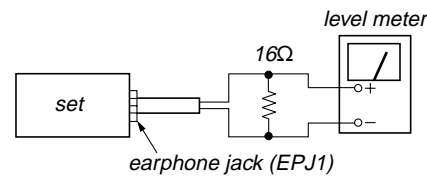
SECTION 3 ELECTRICAL ADJUSTMENTS

FM SECTION

BAND switch : FM



400Hz, 30% FM modulation
frequency deviation ± 22.5 kHz
Output level: as low as possible



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

ICF-303:

| FM FREQUENCY COVERAGE ADJUSTMENT | |
|---|--------------------------|
| Adjust for a maximum reading on level meter | |
| L4 | 86.5 (87.35) <64> MHz |
| CT1-3 | 109.5 (108.25) MHz |

| FM TRACKING ADJUSTMENT | |
|---|-----------------------------|
| Adjust for a maximum reading on level meter | |
| L2 | 86.5 (87.35) <68> MHz |
| CT1-2 | 109.5 (108.25) <102> MHz |

NOTE : () : Italian model
< > : East European model

ICF-303L:

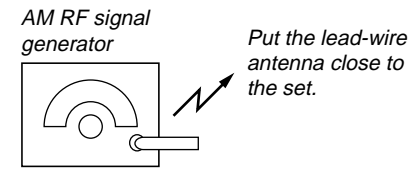
| FM FREQUENCY COVERAGE ADJUSTMENT | |
|---|-----------|
| Adjust for a maximum reading on level meter | |
| L4 | 86.5 MHz |
| CT1-3 | 109.5 MHz |

| FM TRACKING ADJUSTMENT | |
|---|-----------|
| Adjust for a maximum reading on level meter | |
| L2 | 86.5 MHz |
| CT1-2 | 109.5 MHz |

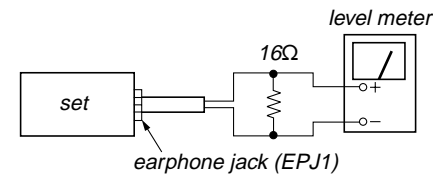
ICF-303:

AM SECTION

BAND switch : AM



400Hz, 30% AM modulation
Output level: as low as possible



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

| AM FREQUENCY COVERAGE ADJUSTMENT | |
|---|---------------------|
| Adjust for a maximum reading on level meter | |
| L5 | 520 (516.5) kHz |
| CT1-4 | 1,650 (1,631.5) kHz |

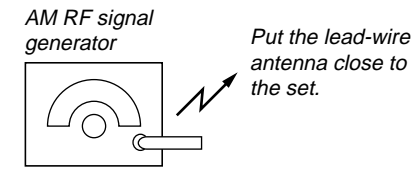
| AM TRACKING ADJUSTMENT | |
|---|---------------|
| Adjust for a maximum reading on level meter | |
| L1 | 600 (620) kHz |
| CT1-1 | 1,400 kHz |

NOTE : no mark : () : Italian model

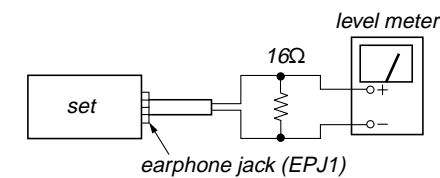
ICF-303L:

LW SECTION

BAND switch : LW



400Hz, 30% AM modulation
Output level: as low as possible

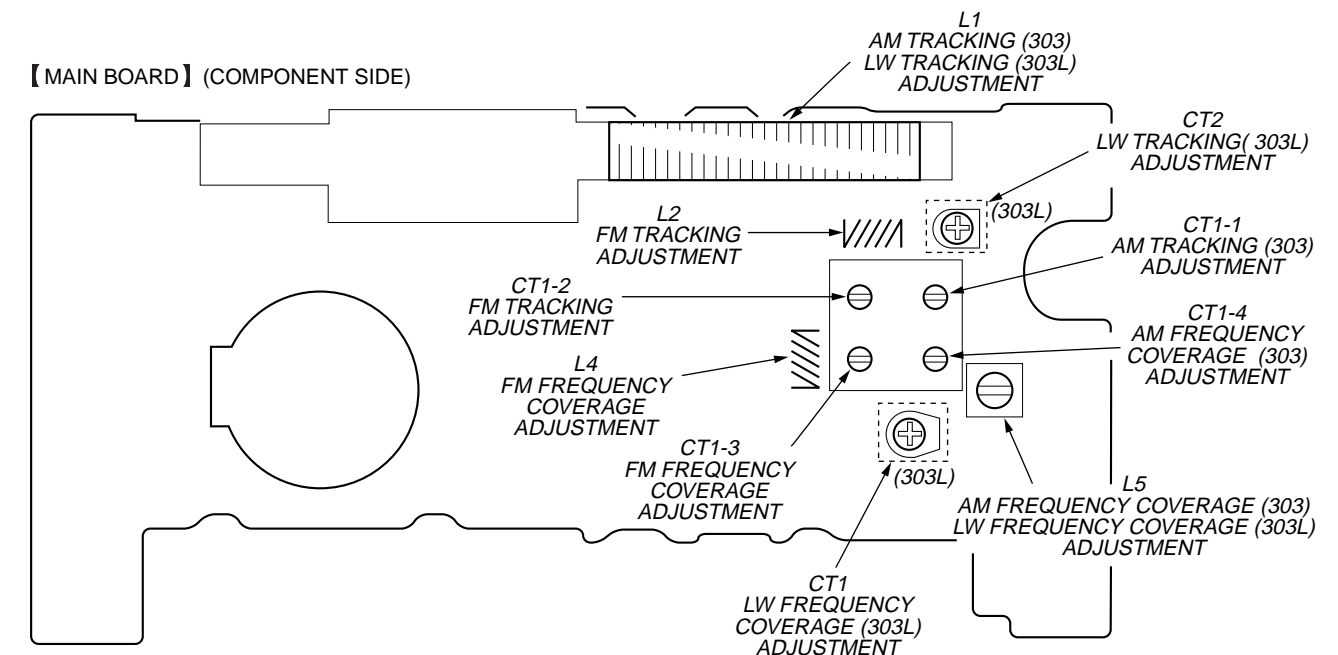


- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

| LW FREQUENCY COVERAGE ADJUSTMENT | |
|---|---------|
| Adjust for a maximum reading on level meter | |
| L5 | 145 kHz |
| CT1 | 265 kHz |

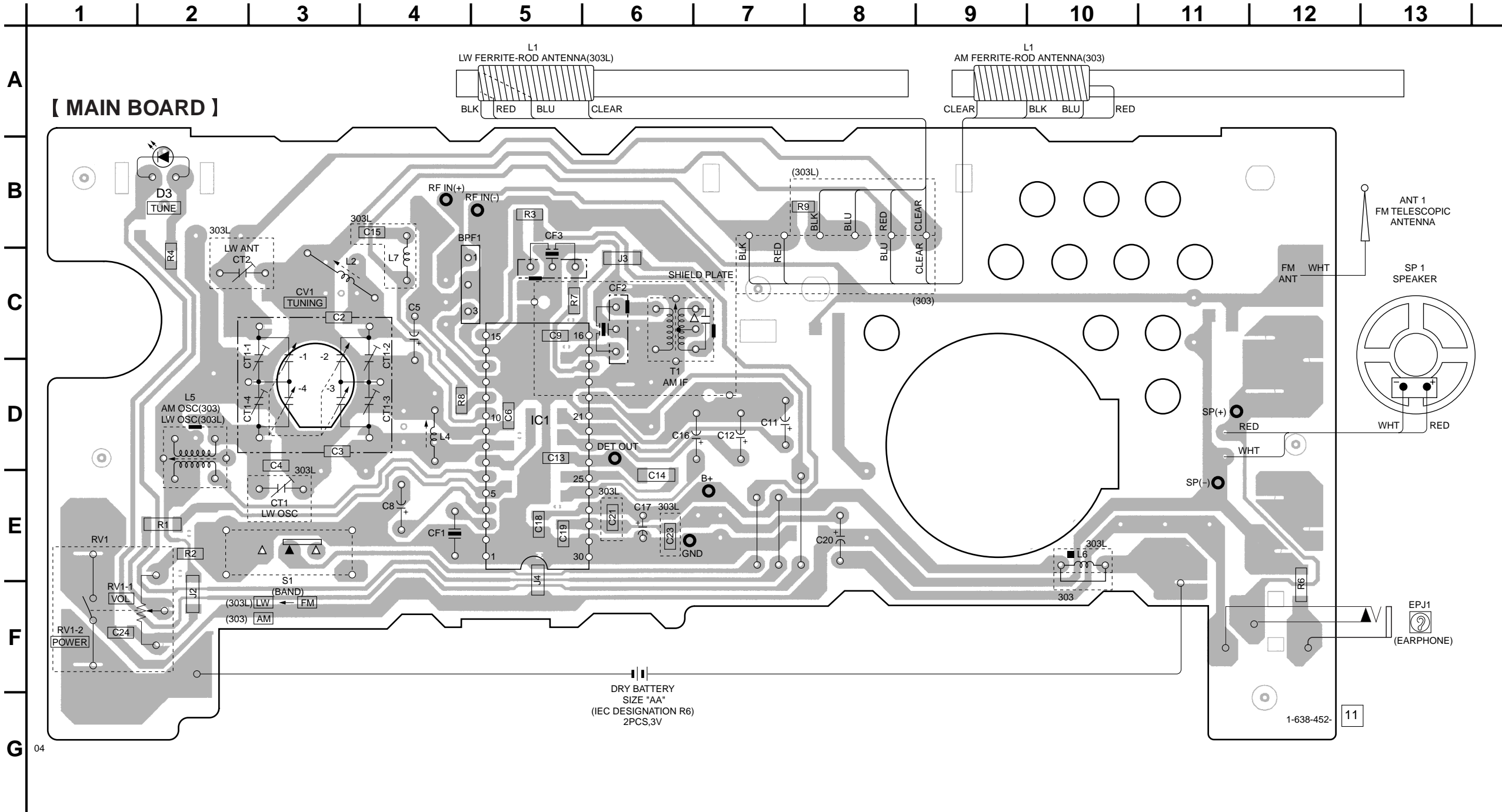
| LW TRACKING ADJUSTMENT | |
|---|---------|
| Adjust for a maximum reading on level meter | |
| L1 | 160 kHz |
| CT2 | 240 kHz |

Adjustment Location: MAIN BOARD



SECTION 4
DIAGRAMS

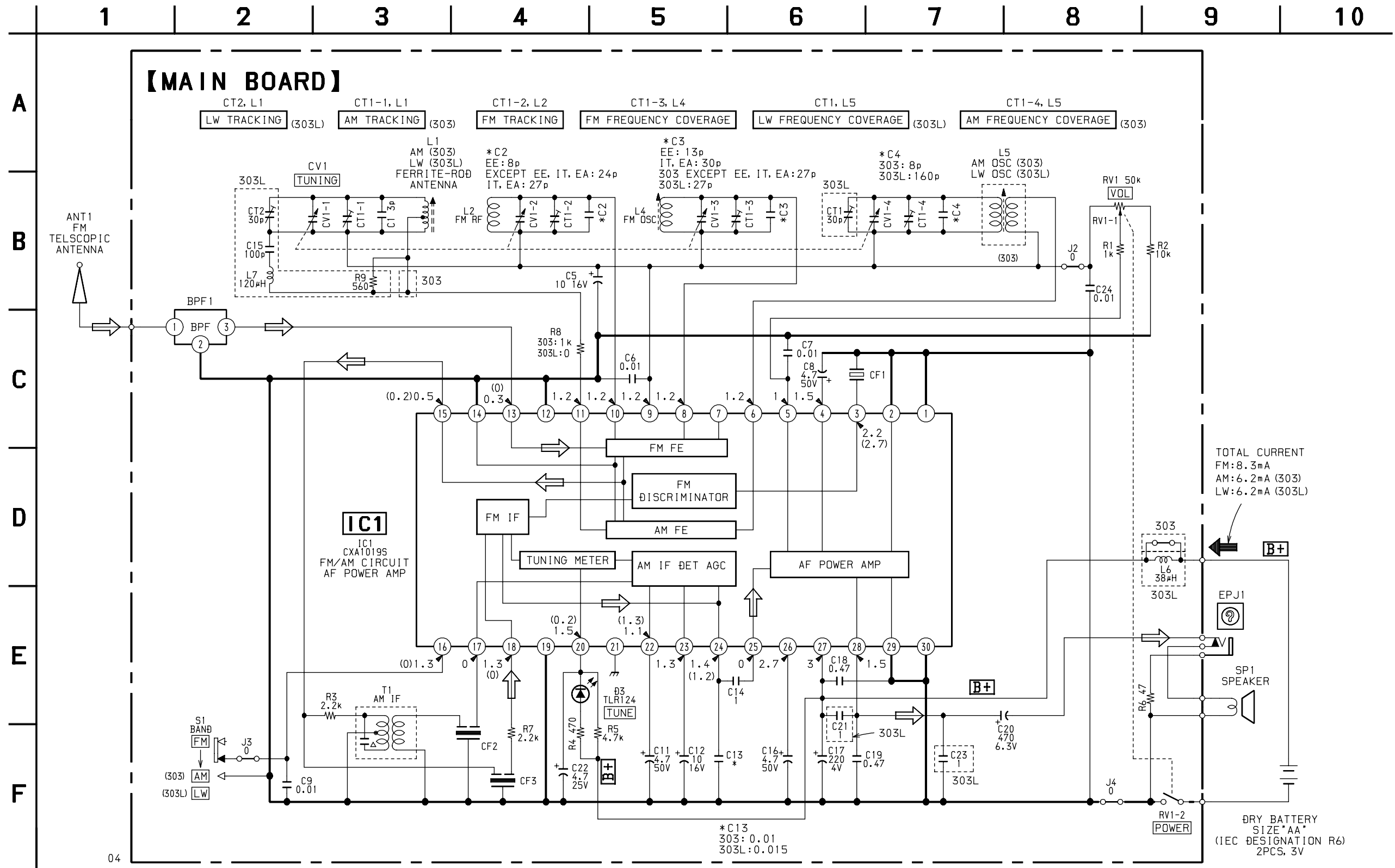
4-1. PRINTED WIRING BOARD



Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : parts mounted on the conductor side.
- △ : internal component.
- ▨ : Pattern from the side which enables seeing.

4-2. SCHEMATIC DIAGRAM



Note:

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- Δ : internal component.
- : panel designation.

- B+ : B+ Line.
- : adjustment for repair.
- Total current is measured with power on.
- Power voltage is dc 3 V and fed with regulated dc power supply from battery terminal.
- Voltage is dc with respect to ground under no-signal (detuned) condition.
- no mark : FM
- () : AM or LW

- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- ⇒ : FM
- Abbreviation
- IT : Italian model
- EE : East European model
- EA : Saudi Arabia model

| Ref. No. | Part No. | Description | Remark |
|--|--|--|-----------------|
| L4 | 1-422-131-00 | COIL, FM OSCILLATION (EXCEPT EE,IT,EA) | |
| L4 | 1-428-241-11 | COIL, AIR-CORE (EE) | |
| L4 | 1-459-954-21 | COIL (WITH CORE) (IT,EA) | |
| L5 | 1-406-028-00 | COIL, OSC (MW) | |
| L6 | 1-410-294-11 | INDUCTOR 38uH (303L) | |
| L7 | 1-412-316-11 | INDUCTOR 120uH (303L) | |
| < RESISTOR > | | | |
| R1 | 1-216-198-00 | RES,CHIP 1K 5% | 1/8W |
| R2 | 1-216-073-00 | METAL CHIP 10K 5% | 1/10W |
| R3 | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W |
| R4 | 1-216-041-00 | METAL CHIP 470 5% | 1/10W |
| R6 | 1-216-166-00 | RES,CHIP 47 5% | 1/8W |
| R7 | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W |
| R8 | 1-216-049-11 | RES,CHIP 1K 5% | 1/10W (303) |
| R8 | 1-216-295-00 | SHORT 0 | (303L) |
| R9 | 1-216-043-00 | RES,CHIP 560 5% | 1/10W (303L) |
| < VARIABLE RESISTOR > | | | |
| RV1 | 1-241-555-11 | RES, VAR, CARBON 50K (POWER/VOL) | |
| < SWITCH > | | | |
| S1 | 1-552-370-00 | SWITCH, SLIDE (BAND) | |
| < TRANSFORMER > | | | |
| T1 | 1-404-341-00 | TRANSFORMER, IF (303) | |
| T1 | 1-404-355-00 | TRANSFORMER, IF (303L) | |
| ***** | | | |
| MISCELLANEOUS ***** | | | |
| ANT1 | 1-501-247-21 | ANTENNA, TELESCOPIC | |
| SP1 | 1-529-456-11 | SPEAKER (6.6cm) | |
| ***** | | | |
| ACCESSORIES & PACKING MATERIALS ***** | | | |
| 3-867-126-11 | MANUAL, INSTRUCTION (ENGLISH,FRENCH, GERMAN,SPANISH,DUTCH,ITALIAN, PORTUGUESE) (CND,AEP,AR,IT) | | |
| 3-867-126-21 | MANUAL, INSTRUCTION (ENGLISH,SWEDISH, DANISH,FINNISH,POLISH,CZECH, HUNGARIAN,RUSSIAN) (AEP,EE) | | |
| 3-867-126-31 | MANUAL, INSTRUCTION (ENGLISH,FRENCH, SPANISH,SIMPLIFIED CHINESE, ARABIC) (E,EA,AUS,CH) | | |

