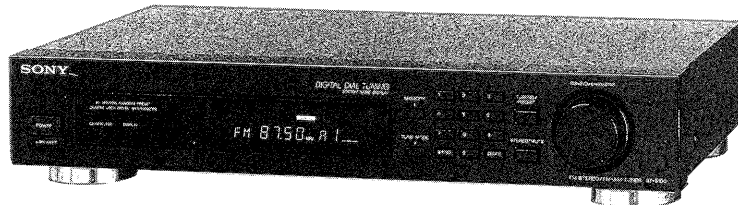


# ST-S190

## SERVICE MANUAL

*AEP Model*



### SPECIFICATIONS

#### Tuner

Circuit system

FM stereo, FM/AM super heterodyne tuner. Quartz locked, PLL digital synthesizer system.

#### FM tuner

Frequency range

87.5 - 108 MHz

Antenna terminals

75  $\Omega$  unbalanced

Intermediate frequency

10.7 MHz

Sensitivity

(at 26 dB quieting)  
12.1 dBf, 1.1  $\mu$ V (mono)  
(at 46 dB quieting)  
40.0 dBf, 24.5  $\mu$ V (stereo)

Usable sensitivity (IHF)

19.5 dBf (5  $\mu$ V)

Signal-to-noise ratio

(at 40 kHz deviation)  
74 dB (mono)  
69 dB (stereo)

Harmonic distortion

0.3% (mono); 0.5% (stereo) (at 1 kHz)

Frequency response

30 Hz - 15 kHz (+0.5, -1.0 dB)

Separation

40 dB (at 1 kHz)

Selectivity

60 dB (at 300 kHz)  
80 dB (at 400 kHz)

Output

600 mV, 470  $\Omega$  (at 40 kHz deviation)

#### AM tuner

Frequency range

Italy  
MW: 522 - 1,611 kHz  
LW: 144 - 288 kHz  
Other  
MW: 531 - 1,602 kHz  
LW: 153 - 279 kHz

Antenna

AM loop antenna  
External antenna terminal

Intermediate frequency

450 kHz

Usable sensitivity (with AM

loop antenna)  
300  $\mu$ V/m (999 kHz); 1 mV/m (216 kHz)

Signal-to-noise ratio

54 dB (50 mV/m, 999 kHz)  
50 dB (50 mV/m, 216 kHz)

Harmonic distortion

0.5% (50 mV/m, 400 Hz)

Selectivity

32 dB

#### General

Power requirements

220 - 230 V AC, 50/60 Hz (adjustable to 240 V AC by Sony personnel)

Power consumption

10 W

Dimensions

Approx. 430 mm (W) x 85 mm (H) x 295 mm (D) (17 x 3 $\frac{3}{8}$  x 11 $\frac{3}{5}$  inches)

Weight

Approx. 2.8 kg (6 lb. 2.8 oz.)

Accessories supplied

Remote control cord (1); Connecting cord (1); AM loop antenna (1); FM antenna (1)

Design and specifications are subject to change without notice.

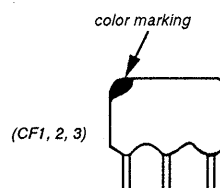
FM STEREO / FM - AM TUNER  
**SONY**®

## TABLE OF CONTENTS

| <u>Section</u>                   | <u>Title</u> | <u>Page</u> |
|----------------------------------|--------------|-------------|
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## Note on Ceramic Filter (CF1, 2, 3) Replacement.

This set employs three ceramic filters (CF1, 2, 3) which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by \* D707, \* D708 mounted is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



○ : Mounted  
× : not Mounted

| Ceramic filter |                       | Mount    |          | FM intermediate frequency (MHz) |
|----------------|-----------------------|----------|----------|---------------------------------|
| Color mark     | Center frequency(MHz) | * A D707 | * B D708 |                                 |
| 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 CF1, 2 and CF3.

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

## FEATURES

The ST-S190 comes with a host of convenient features for your listening pleasure. Among them are:

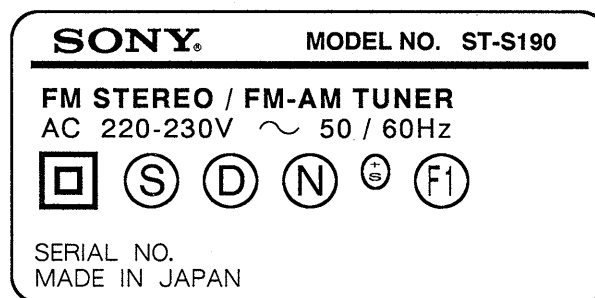
- **Digitally controlled tuning**  
Gives you precise control when tuning in stations.
- **Automatic tuning for up to 30 stations**  
Allows you to store the frequencies of your most popular stations under two-character codes. To tune in any stored station, simply enter the appropriate code.
- **Name assignment for up to 30 stations**  
Allows you to assign four-letter names to frequencies so you can more quickly identify stations.

## SAFETY-RELATED COMPONENT WARNING!!

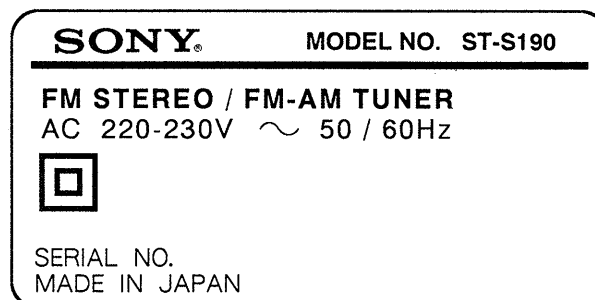
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

MODEL IDENTIFICATION  
(Specification Label)

AEP Model



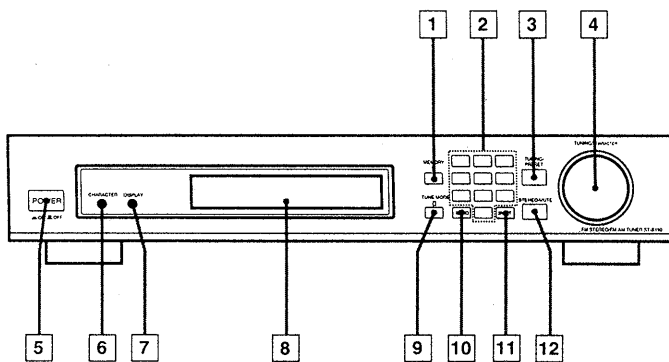
Germany, Italian Model



## SECTION 1 GENERAL

This section is extracted from instruction manual.

### Identifying the Controls



- 1** MEMORY button (16, 18)
- 2** Preset buttons (16, 20, 26)
- 3** TUNING/PRESET button (12, 14, 22, 24)
- 4** TUNING/CHARACTER knob (12, 14, 16, 22, 24, 26)
- 5** Power switch
- 6** CHARACTER button (26)
- 7** DISPLAY button (20)
- 8** Display window
- 9** TUNE MODE button (12, 14, 18, 22, 24)
- 10** BAND button (12, 14)
- 11** SHIFT button (16, 20, 26)
- 12** STEREO/MUTE button (14)

(The numbers in parenthesis indicate the page(s) where the control is described.)

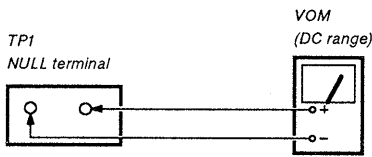
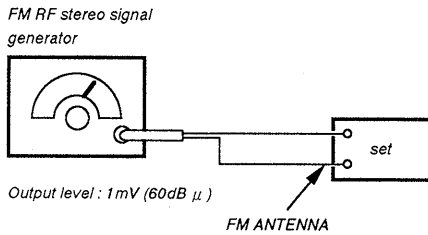
## SECTION 2 ELECTRICAL ADJUSTMENTS

### FM SECTION

|            |                   |                                                                                                                   |
|------------|-------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>SSG</b> | Carrier frequency | 98MHz                                                                                                             |
|            | Modulation        | MONO : 1kHz, 40kHz deviation                                                                                      |
|            |                   | STEREO : Audio 1kHz, 16.25kHz deviation<br>Pilot 19kHz, 7.5kHz deviation<br>Sub-carrier 38kHz, 16.25kHz deviation |

#### • FM Discriminator Alignment (NULL check)

Setting :



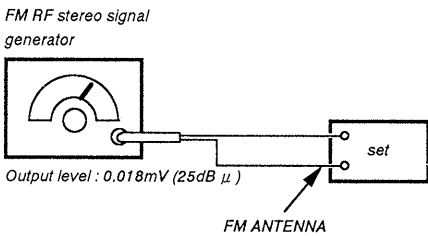
Procedur :

1. Tune the set to 98MHz.
2. Adjust T21 for 0V reading on the VOM

**Note :** FM tuning level adjustment should be made after FM discriminator alignment.

#### • FM Tuning Level Adjustment

Setting :

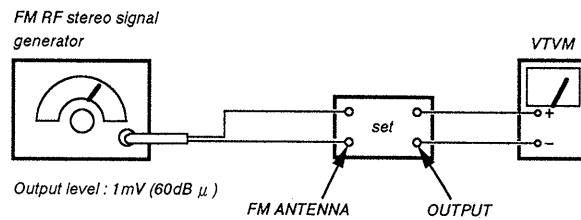


Procedure :

1. Tune the set to 98MHz.
2. Adjust RV24 so that the TUNE LED goes on.

#### • FM Stereo Separation Adjustment

Setting :



Procedure :

Tune the set to 98MHz

| FM stereo<br>Signal generator<br>Output | VTVM<br>connection | VTVM<br>reading (dB)                      |
|-----------------------------------------|--------------------|-------------------------------------------|
| L-CH                                    | L-CH               | (A)                                       |
| R-CH                                    | L-CH               | (B)<br>Adjust RV21 for<br>minimum reading |
| R-CH                                    | R-CH               | (C)                                       |
| L-CH                                    | R-CH               | (D)<br>Adjust RV21 for<br>minimum reading |

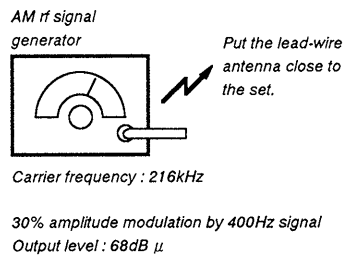
L-CH Stereo separation : (A) - (B)

R-CH Stereo separation : (C) - (D)

The separations of both channels should be equal.

**AM SECTION**• **AM Tuning Level Adjustment****Setting :**

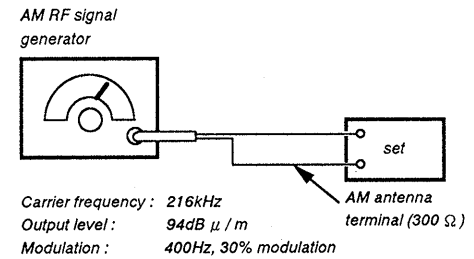
BAND selector : LW

**Procedure :**

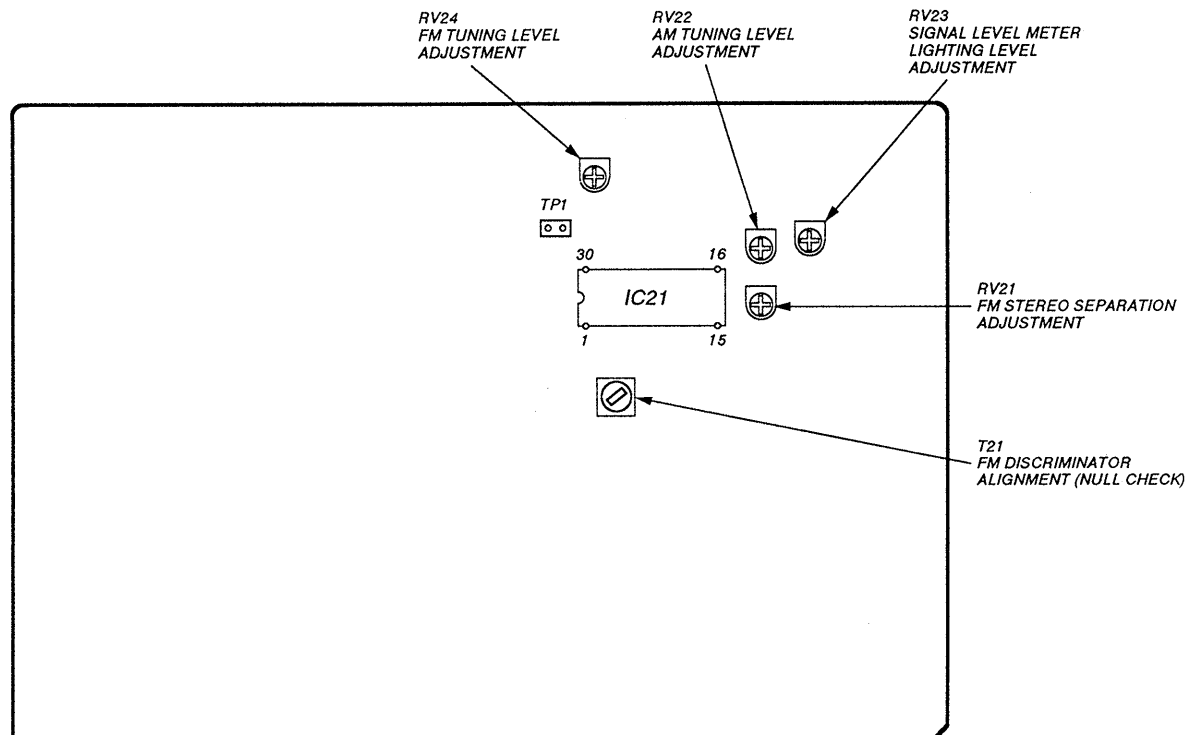
1. Tune the set to 216kHz.
2. Adjust the RV22 so that the TUNED LED goes on.

• **Signal Level Meter Lighting Adjustment****Setting :**

BAND selector : LW

**Procedure :**

1. Tune the set to 216kHz.
2. Adjust RV23 until the scale-5 on SIGNAL METER indicator lights up.

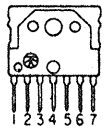
**Adjusting Parts Location : Tuner Board (Component Side)**



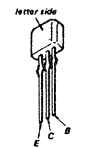
SECTION 3  
DIAGRAMS

SEMICONDUCTOR  
LEAD LAYOUTS

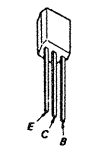
LA5667



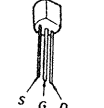
2SA1175-HFE  
2SC2785-HFE



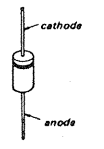
2SC2603-EF  
2SC2669-OY  
2SC3113-AB  
DTA114ES



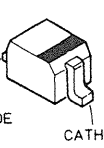
2SK246-GR3



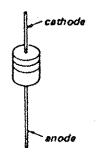
10E2N  
1N4148M



1SS352  
1SS355



RD18ES-B2  
RD30ES-B3  
UZ16BSB



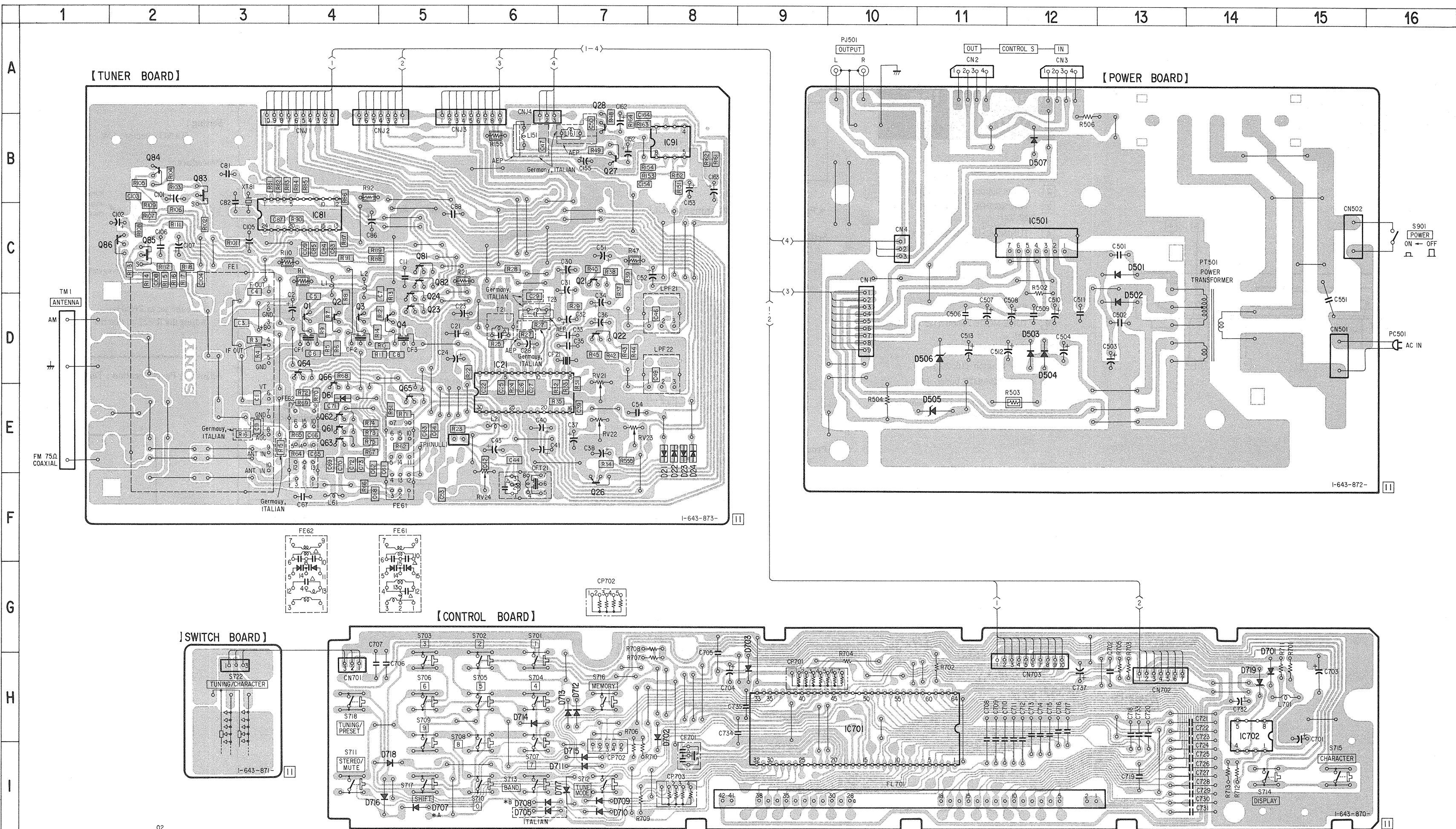
• SEMICONDUCTOR LOCATION

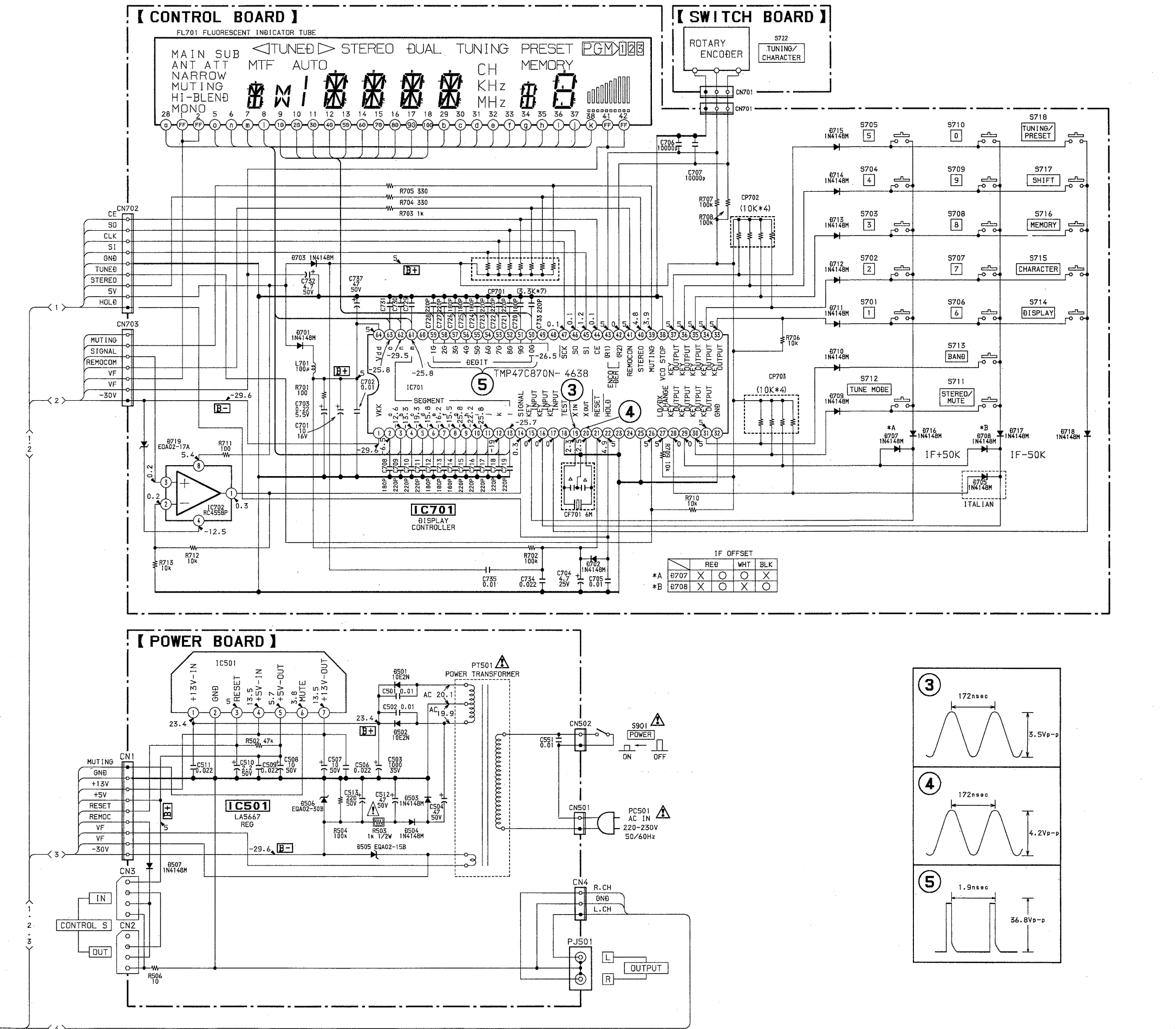
| Ref. No. | Location | Ref. No. | Location |
|----------|----------|----------|----------|
| D21      | E - 8    | IC21     | E - 6    |
| D22      | E - 8    | IC81     | C - 4    |
| D23      | E - 8    | IC91     | B - 8    |
| D24      | E - 8    | IC501    | C - 12   |
| D61      | E - 4    | IC701    | H - 10   |
|          |          | IC702    | H - 14   |
| D501     | C - 13   |          |          |
| D502     | D - 13   |          |          |
| D503     | D - 12   | Q1       | D - 4    |
| D504     | D - 12   | Q2       | D - 4    |
| D505     | E - 11   | Q3       | D - 4    |
|          |          | Q4       | D - 5    |
| D506     | D - 11   | Q21      | C - 7    |
| D507     | B - 12   |          |          |
| D701     | H - 14   | Q22      | D - 7    |
| D702     | H - 8    | Q23      | D - 4    |
| D703     | H - 9    | Q24      | D - 5    |
|          |          | Q26      | F - 7    |
|          |          | Q27      | B - 7    |
| D705     | I - 6    |          |          |
| D707     | I - 5    | Q28      | B - 7    |
| D708     | I - 6    | Q61      | E - 4    |
| D709     | I - 7    | Q62      | E - 4    |
| D710     | I - 7    | Q63      | E - 4    |
|          |          | Q64      | D - 4    |
| D711     | I - 7    |          |          |
| D712     | H - 7    | Q65      | E - 5    |
| D713     | H - 7    | Q66      | D - 4    |
| D714     | H - 6    | Q81      | C - 5    |
| D715     | I - 7    | Q82      | C - 5    |
|          |          | Q83      | B - 3    |
| D716     | I - 5    |          |          |
| D717     | I - 7    | Q84      | B - 2    |
| D718     | I - 5    | Q85      | C - 2    |
| D719     | H - 14   | Q86      | C - 2    |

Note:

- : parts extracted from the component side.
- : indicates side identified with part number.

3-1. PRINTED WIRING BOARDS





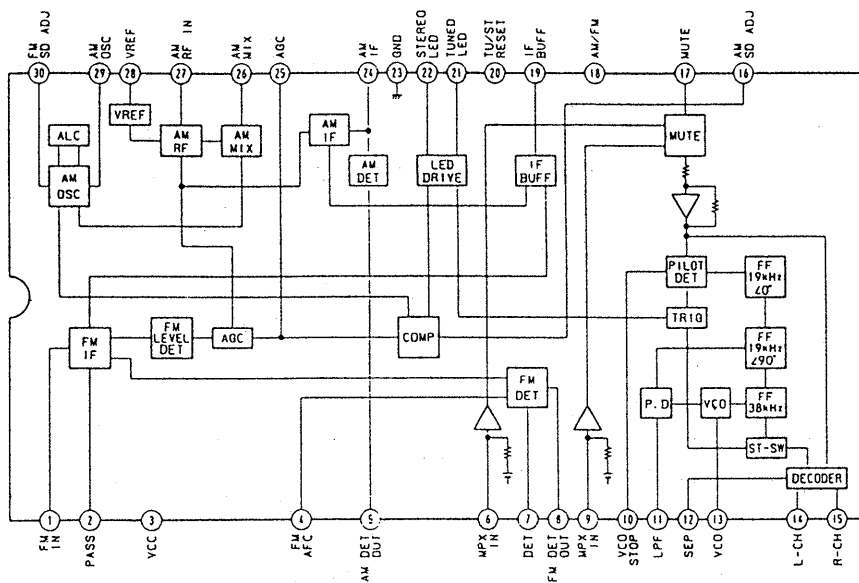
**INDICATOR TUBE ALL LIGHT-UP MODE**  
When turning **POWER** switch on while pressing **PRESET 1** and **AUTO TUNING KEYS** simultaneously, all the segments of FL701 will light.



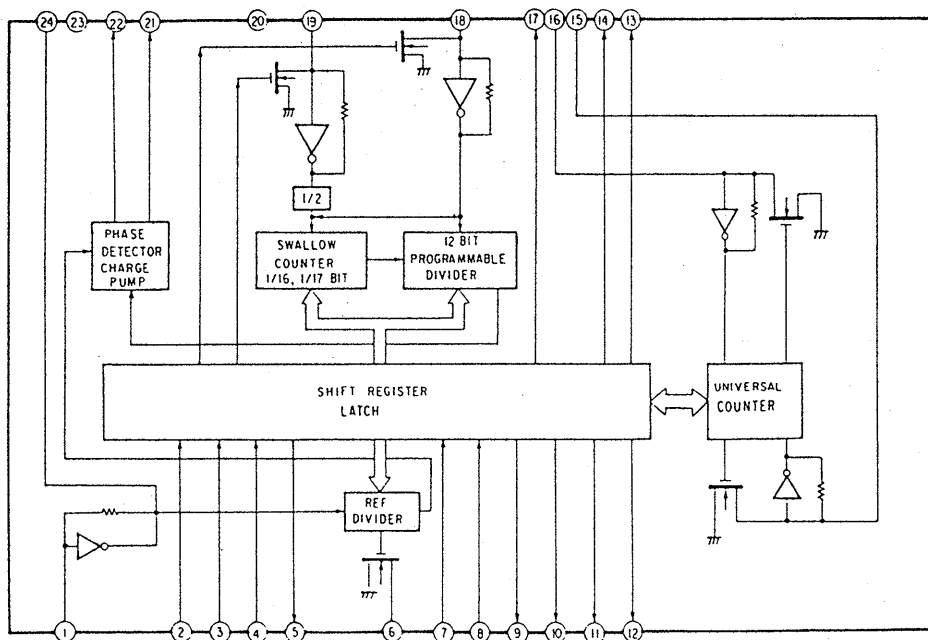


### 3-3. IC BLOCK DIAGRAMS

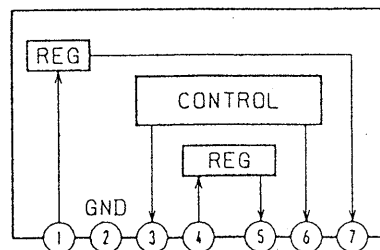
IC21 LA1851N



IC81 LC7218



IC501 LA5667



## SECTION 4 EXPLODED VIEW

### NOTE:

● -XX, -X mean standardized parts, so they may have some differences from the original one.

● The construction parts of an assembled part are indicated with a collation number in the remark column.

● Color indication of Appearance Parts  
Example:

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

↑                      ↑  
Parts color      Cabinet's color

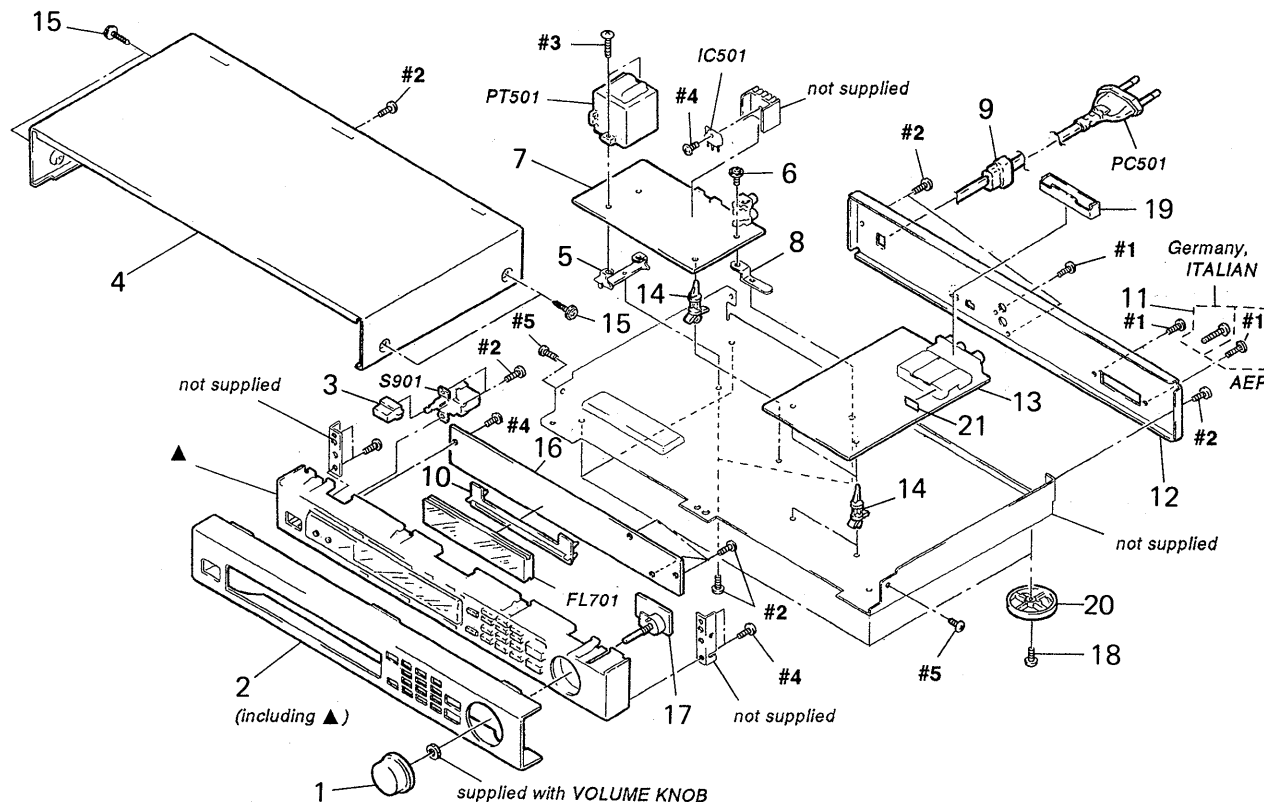
● Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

● The mechanical parts with no reference number in the exploded views are not supplied.

● Hardware (# mark) list is given in the last of this parts list.

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

When indicating parts by reference number, please include the board.



| Ref.No. | Part No.     | Description                          | Remark |
|---------|--------------|--------------------------------------|--------|
| 1       | 4-944-125-01 | KNOB (DIA. 44)                       |        |
| 2       | A-4325-512-A | PANEL ASSY, FRONT                    |        |
| 3       | 3-354-912-01 | KNOB, POWER                          |        |
| 4       | 4-923-457-01 | CASE                                 |        |
| * 5     | 4-917-044-01 | BRACKET (PT)                         |        |
| 6       | 4-886-821-11 | SCREW, S TIGHT, +PTTWH 3X6           |        |
| * 7     | A-4347-333-A | POWER BOARD, COMPLETE                |        |
| * 8     | 3-332-563-01 | BRACKET (P)                          |        |
| * 9     | 3-703-244-00 | BUSHING (2104), CORD                 |        |
| * 10    | 4-925-125-11 | HOLDER, FL TUBE                      |        |
| 11      | 3-704-242-01 | SCREW, TERMINAL, + BVTP CLAW (G, IT) |        |
| * 12    | 4-950-071-01 | PANEL, BACK (G)                      |        |
| * 12    | 4-950-071-11 | PANEL, BACK (IT)                     |        |
| * 12    | 4-950-071-21 | PANEL, BACK (AEP)                    |        |
| * 13    | A-4347-633-A | TUNER BOARD, COMPLETE (AEP)          |        |

| Ref.No. | Part No.     | Description                      | Remark |
|---------|--------------|----------------------------------|--------|
| * 13    | A-4347-635-A | TUNER BOARD, COMPLETE (G, IT)    |        |
| * 14    | 3-346-265-11 | HOLDER, PC BOARD                 |        |
| 15      | 3-704-366-01 | SCREW (CASE) (M3X8)              |        |
| * 16    | A-4347-331-A | CONTROL BOARD, COMPLETE (AEP, G) |        |
| * 16    | A-4347-634-A | CONTROL BOARD, COMPLETE (IT)     |        |
| * 17    | 1-643-871-11 | SWITCH BOARD                     |        |
| 18      | 4-951-620-01 | SCREW (2.6X8), +BVTP             |        |
| * 19    | 4-924-988-11 | PLATE (ST), GROUND               |        |
| 20      | 4-943-148-42 | FOCT (F58175SW)                  |        |
| * 21    | 4-612-009-01 | SPACER (A) (G, IT)               |        |
| FL701   | 1-519-602-21 | INDICATOR TUBE, FLUORESCENT      |        |
| IC501   | 8-759-820-09 | IC LA5667                        |        |
| △PC501  | 1-575-651-11 | CORD, POWER                      |        |
| △PT501  | 1-449-400-11 | TRANSFORMER, POWER               |        |
| △S901   | 1-554-920-21 | SWITCH, PUSH (AC POWER) (1 KEY)  |        |

# CONTROL

## SECTION 5 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms  
METAL : Metal-film resistor  
METAL OXIDE : Metal oxide-film resistor  
F : nonflammable

- Items marked " \* " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS  
In each case, u :  $\mu$ , for example :  
uA.... :  $\mu$  A...., uPA.... :  $\mu$  PA....  
uPB.... :  $\mu$  PB...., uPC.... :  $\mu$  PC....  
uPD.... :  $\mu$  PD....
- CAPACITORS  
uF :  $\mu$  F
- COILS  
uH :  $\mu$  H

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

When indicating parts by reference number, please include the board.

| Ref.No. | Part No.     | Description                               | Remark |
|---------|--------------|-------------------------------------------|--------|
| *       | A-4347-331-A | CONTROL BOARD, COMPLETE (AEP, G)<br>***** |        |
| *       | A-4347-634-A | CONTROL BOARD, COMPLETE (IT)<br>*****     |        |
| *       | 4-925-125-11 | HOLDER, FL TUBE                           |        |
|         | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2                     |        |
|         |              | < CAPACITOR >                             |        |
| C701    | 1-126-157-11 | ELECT 10uF 20% 16V                        |        |
| C702    | 1-161-379-00 | CERAMIC 0.01uF 20% 25V                    |        |
| C703    | 1-125-486-11 | DOUBLE LAYERS 0.22F 5.5V                  |        |
| C704    | 1-126-163-11 | ELECT 4.7uF 20% 50V                       |        |
| C705    | 1-161-379-00 | CERAMIC 0.01uF 20% 25V                    |        |
| C706    | 1-161-379-00 | CERAMIC 0.01uF 20% 25V                    |        |
| C707    | 1-161-379-00 | CERAMIC 0.01uF 20% 25V                    |        |
| C708    | 1-162-285-31 | CERAMIC 180PF 10% 50V                     |        |
| C709    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C710    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C711    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C712    | 1-162-285-31 | CERAMIC 180PF 10% 50V                     |        |
| C713    | 1-162-285-31 | CERAMIC 180PF 10% 50V                     |        |
| C714    | 1-162-285-31 | CERAMIC 180PF 10% 50V                     |        |
| C715    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C716    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C717    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C718    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C719    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C720    | 1-162-285-31 | CERAMIC 180PF 10% 50V                     |        |
| C721    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C722    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C723    | 1-162-286-31 | CERAMIC 220PF 10% 50V                     |        |
| C724    | 1-162-285-31 | CERAMIC 180PF 10% 50V                     |        |
| C725    | 1-162-285-31 | CERAMIC 180PF 10% 50V                     |        |

| Ref.No. | Part No.     | Description               | Remark |
|---------|--------------|---------------------------|--------|
| C726    | 1-162-285-31 | CERAMIC 180PF 10% 50V     |        |
| C727    | 1-162-286-31 | CERAMIC 220PF 10% 50V     |        |
| C728    | 1-162-286-31 | CERAMIC 220PF 10% 50V     |        |
| C729    | 1-162-286-31 | CERAMIC 220PF 10% 50V     |        |
| C730    | 1-162-286-31 | CERAMIC 220PF 10% 50V     |        |
| C731    | 1-162-286-31 | CERAMIC 220PF 10% 50V     |        |
| C732    | 1-126-163-11 | ELECT 4.7uF 20% 50V       |        |
| C733    | 1-162-286-31 | CERAMIC 220PF 10% 50V     |        |
| C734    | 1-161-494-00 | CERAMIC 0.022uF 25V       |        |
| C735    | 1-161-379-00 | CERAMIC 0.01uF 20% 25V    |        |
| C737    | 1-124-910-11 | ELECT 47uF 20% 50V        |        |
|         |              | < FILTER >                |        |
| CF701   | 1-577-360-11 | VIBRATOR, CERAMIC         |        |
|         |              | < CIRCUIT BLOCK >         |        |
| CP701   | 1-233-185-11 | COMPOSITION CIRCUIT BLOCK |        |
| CP702   | 1-232-986-11 | COMPOSITION CIRCUIT BLOCK |        |
| CP703   | 1-232-986-11 | COMPOSITION CIRCUIT BLOCK |        |
|         |              | < DIODE >                 |        |
| D701    | 8-719-987-63 | DIODE 1N4148M             |        |
| D702    | 8-719-987-63 | DIODE 1N4148M             |        |
| D703    | 8-719-987-63 | DIODE 1N4148M             |        |
| D705    | 8-719-987-63 | DIODE 1N4148M (IT)        |        |
| D707    | 8-719-987-63 | DIODE 1N4148M             |        |
| D708    | 8-719-987-63 | DIODE 1N4148M             |        |
| D709    | 8-719-987-63 | DIODE 1N4148M             |        |
| D710    | 8-719-987-63 | DIODE 1N4148M             |        |
| D711    | 8-719-987-63 | DIODE 1N4148M             |        |
| D712    | 8-719-987-63 | DIODE 1N4148M             |        |

## CONTROL

## POWER

| Ref.No.            | Part No.     | Description                   | Remark |
|--------------------|--------------|-------------------------------|--------|
| D713               | 8-719-987-63 | DIODE 1N4148M                 |        |
| D714               | 8-719-987-63 | DIODE 1N4148M                 |        |
| D715               | 8-719-987-63 | DIODE 1N4148M                 |        |
| D716               | 8-719-987-63 | DIODE 1N4148M                 |        |
| D717               | 8-719-987-63 | DIODE 1N4148M                 |        |
| D718               | 8-719-987-63 | DIODE 1N4148M                 |        |
| D719               | 8-719-110-49 | DIODE RD18ES-B2               |        |
| < INDICATOR TUBE > |              |                               |        |
| FL701              | 1-519-602-21 | INDICATOR TUBE, FLUORESCENT   |        |
| < IC >             |              |                               |        |
| IC701              | 8-759-064-82 | IC TMP47C870N-S190            |        |
| IC702              | 8-759-945-58 | IC RC4558P                    |        |
| < COIL >           |              |                               |        |
| L701               | 1-410-521-11 | INDUCTOR 100uH                |        |
| < RESISTOR >       |              |                               |        |
| R701               | 1-249-405-11 | CARBON 100 5% 1/4W            |        |
| R702               | 1-249-441-11 | CARBON 100K 5% 1/4W           |        |
| R703               | 1-249-417-11 | CARBON 1K 5% 1/4W             |        |
| R704               | 1-249-411-11 | CARBON 330 5% 1/4W            |        |
| R705               | 1-249-411-11 | CARBON 330 5% 1/4W            |        |
| R706               | 1-249-429-11 | CARBON 10K 5% 1/4W            |        |
| R707               | 1-249-441-11 | CARBON 100K 5% 1/4W           |        |
| R708               | 1-249-441-11 | CARBON 100K 5% 1/4W           |        |
| R709               | 1-249-429-11 | CARBON 10K 5% 1/4W            |        |
| R710               | 1-249-429-11 | CARBON 10K 5% 1/4W            |        |
| R711               | 1-249-405-11 | CARBON 100 5% 1/4W            |        |
| R712               | 1-249-429-11 | CARBON 10K 5% 1/4W            |        |
| R713               | 1-249-429-11 | CARBON 10K 5% 1/4W            |        |
| < SWITCH >         |              |                               |        |
| S701               | 1-554-303-21 | SWITCH, TACTILE ( 1 )         |        |
| S702               | 1-554-303-21 | SWITCH, TACTILE ( 2 )         |        |
| S703               | 1-554-303-21 | SWITCH, TACTILE ( 3 )         |        |
| S704               | 1-554-303-21 | SWITCH, TACTILE ( 4 )         |        |
| S705               | 1-554-303-21 | SWITCH, TACTILE ( 5 )         |        |
| S706               | 1-554-303-21 | SWITCH, TACTILE ( 6 )         |        |
| S707               | 1-554-303-21 | SWITCH, TACTILE ( 7 )         |        |
| S708               | 1-554-303-21 | SWITCH, TACTILE ( 8 )         |        |
| S709               | 1-554-303-21 | SWITCH, TACTILE ( 9 )         |        |
| S710               | 1-554-303-21 | SWITCH, TACTILE ( 0 )         |        |
| S711               | 1-554-303-21 | SWITCH, TACTILE (STEREO/MUTE) |        |
| S712               | 1-554-303-21 | SWITCH, TACTILE (TUNER MODE)  |        |
| S713               | 1-554-303-21 | SWITCH, TACTILE (BAND)        |        |
| S714               | 1-554-303-21 | SWITCH, TACTILE (DISPLAY)     |        |

| Ref.No.       | Part No.     | Description                       | Remark |
|---------------|--------------|-----------------------------------|--------|
| S715          | 1-554-303-21 | SWITCH, TACTILE (CHARACTER)       |        |
| S716          | 1-554-303-21 | SWITCH, TACTILE (MEMORY)          |        |
| S717          | 1-554-303-21 | SWITCH, TACTILE (SHIFT)           |        |
| S718          | 1-554-303-21 | SWITCH, TACTILE (TUNING/PRESET)   |        |
| *****         |              |                                   |        |
| *             | A-4347-333-A | POWER BOARD, COMPLETE             |        |
| *****         |              |                                   |        |
| < CAPACITOR > |              |                                   |        |
| C501          | 1-101-004-00 | CERAMIC 0.01uF 50V                |        |
| C502          | 1-101-004-00 | CERAMIC 0.01uF 50V                |        |
| C503          | 1-126-105-11 | ELECT 1000uF 20% 35V              |        |
| C504          | 1-124-910-11 | ELECT 47uF 20% 50V                |        |
| C506          | 1-101-005-00 | CERAMIC 22000PF 50V               |        |
| C507          | 1-124-907-11 | ELECT 10uF 20% 50V                |        |
| C508          | 1-124-907-11 | ELECT 10uF 20% 50V                |        |
| C509          | 1-101-005-00 | CERAMIC 22000PF 50V               |        |
| C510          | 1-124-925-11 | ELECT 2.2uF 20% 100V              |        |
| C511          | 1-101-005-00 | CERAMIC 22000PF 50V               |        |
| C512          | 1-124-910-11 | ELECT 47uF 20% 50V                |        |
| C513          | 1-124-911-11 | ELECT 220uF 20% 50V               |        |
| C551          | 1-161-744-00 | CERAMIC 0.01uF 400V               |        |
| < CONNECTOR > |              |                                   |        |
| * CN1         | 1-568-284-11 | SOCKET, CONNECTOR 9P              |        |
| CN2           | 1-564-980-11 | PIN, CONNECTOR 4P (CONTROL S OUT) |        |
| CN3           | 1-564-980-11 | PIN, CONNECTOR 4P (CONTROL S IN)  |        |
| CN4           | 1-568-278-11 | SOCKET, CONNECTOR 3P              |        |
| * CN501       | 1-564-321-00 | PIN, CONNECTOR 2P                 |        |
| * CN502       | 1-564-321-21 | PIN, CONNECTOR 2P                 |        |
| < DIODE >     |              |                                   |        |
| D501          | 8-719-200-77 | DIODE 10E2N                       |        |
| D502          | 8-719-200-77 | DIODE 10E2N                       |        |
| D503          | 8-719-987-63 | DIODE 1N4148M                     |        |
| D504          | 8-719-987-63 | DIODE 1N4148M                     |        |
| D505          | 8-719-110-49 | DIODE RD18ES-B2                   |        |
| D506          | 8-719-905-05 | DIODE EQA02-35C                   |        |
| D507          | 8-719-987-63 | DIODE 1N4148M                     |        |
| < IC >        |              |                                   |        |
| IC501         | 8-759-820-09 | IC LA5667                         |        |
| < JACK >      |              |                                   |        |
| PJ501         | 1-565-352-11 | JACK, PIN 2P (OUTPUT)             |        |

## POWER

## SWITCH

## TUNER

| Ref.No.         | Part No.     | Description                        | Remark |
|-----------------|--------------|------------------------------------|--------|
| < TRANSFORMER > |              |                                    |        |
| △PT501          | 1-449-400-11 | TRANSFORMER, POWER                 |        |
| < RESISTOR >    |              |                                    |        |
| R502            | 1-249-437-11 | CARBON 47K 5% 1/4W                 |        |
| △R503           | 1-247-752-11 | CARBON 1K 5% 1/2W F                |        |
| R504            | 1-249-441-11 | CARBON 100K 5% 1/4W                |        |
| R506            | 1-249-393-11 | CARBON 10 5% 1/4W                  |        |
| *****           |              |                                    |        |
| *               | 1-643-871-11 | SWITCH BOARD                       |        |
| *****           |              |                                    |        |
| < SWITCH >      |              |                                    |        |
| S722            | 1-466-513-11 | ENCODER, ROTARY (TUNING/CHARACTER) |        |
| *****           |              |                                    |        |
| *               | A-4347-633-A | TUNER BOARD, COMPLETE (AEP)        |        |
| *****           |              |                                    |        |
| *               | A-4347-635-A | TUNER BOARD, COMPLETE (G, IT)      |        |
| *****           |              |                                    |        |
| *               | 1-535-303-00 | WIRE, JUMPER                       |        |
| *               | 4-924-988-11 | PLATE (ST), GROUND                 |        |
| *               | 4-612-009-01 | SPACER (A) (G, IT)                 |        |
| < CAPACITOR >   |              |                                    |        |
| C1              | 1-163-141-00 | CERAMIC CHIP 0.001uF 5% 50V        |        |
| C2              | 1-124-477-11 | ELECT 47uF 20% 25V                 |        |
| C3              | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V            |        |
| C4              | 1-163-141-00 | CERAMIC CHIP 0.001uF 5% 50V        |        |
| C5              | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V            |        |
| C6              | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V            |        |
| C7              | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V            |        |
| C8              | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V            |        |
| C9              | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V (G, IT)    |        |
| C11             | 1-101-005-00 | CERAMIC 22000PF 50V(AEP)           |        |
| C11             | 1-164-097-11 | CERAMIC 0.022uF 50V (G, IT)        |        |
| C21             | 1-101-006-00 | CERAMIC 0.047uF 50V                |        |
| C22             | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V            |        |
| C23             | 1-124-477-11 | ELECT 47uF 20% 25V                 |        |
| C24             | 1-123-382-00 | ELECT 3.3uF 20% 100V               |        |
| C25             | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V       |        |
| C26             | 1-163-019-00 | CERAMIC CHIP 0.0068uF 10% 50V      |        |
| C27             | 1-163-117-00 | CERAMIC CHIP 100PF 5% 50V(AEP)     |        |
| C27             | 1-163-137-00 | CERAMIC CHIP 680PF 5% 50V (G, IT)  |        |
| C28             | 1-124-903-11 | ELECT 1uF 20% 50V                  |        |
| C29             | 1-163-117-00 | CERAMIC CHIP 100PF 5% 50V (G, IT)  |        |
| C30             | 1-124-903-11 | ELECT 1uF 20% 50V                  |        |
| C31             | 1-124-902-00 | ELECT 0.47uF 20% 50V               |        |

| Ref.No. | Part No.     | Description                         | Remark |
|---------|--------------|-------------------------------------|--------|
| C32     | 1-124-463-00 | ELECT 0.1uF 20% 50V                 |        |
| C33     | 1-130-481-00 | MYLAR 0.0068uF 5% 50V               |        |
| C34     | 1-123-382-00 | ELECT 3.3uF 20% 100V                |        |
| C35     | 1-130-481-00 | MYLAR 0.0068uF 5% 50V               |        |
| C36     | 1-123-382-00 | ELECT 3.3uF 20% 100V                |        |
| C37     | 1-124-907-11 | ELECT 10uF 20% 50V                  |        |
| C38     | 1-124-907-11 | ELECT 10uF 20% 50V                  |        |
| C39     | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C40     | 1-124-463-00 | ELECT 0.1uF 20% 50V                 |        |
| C41     | 1-124-927-11 | ELECT 4.7uF 20% 100V                |        |
| C42     | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C43     | 1-126-176-11 | ELECT 220uF 20% 10V                 |        |
| C44     | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C46     | 1-164-161-11 | CERAMIC CHIP 0.0022uF 10% 100V      |        |
| C47     | 1-163-141-00 | CERAMIC CHIP 0.001uF 5% 50V (G, IT) |        |
| C49     | 1-164-161-11 | CERAMIC CHIP 0.0022uF 10% 100V      |        |
| C50     | 1-163-141-00 | CERAMIC CHIP 0.001uF 5% 50V (G, IT) |        |
| C51     | 1-124-477-11 | ELECT 47uF 20% 25V                  |        |
| C52     | 1-124-252-00 | ELECT 0.33uF 20% 50V                |        |
| C53     | 1-163-105-00 | CERAMIC CHIP 33PF 5% 50V            |        |
| C54     | 1-101-005-00 | CERAMIC 22000PF 50V(AEP)            |        |
| C54     | 1-164-097-11 | CERAMIC 0.022uF 50V (G, IT)         |        |
| C61     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C62     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C63     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C64     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C65     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C66     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C67     | 1-102-120-00 | CERAMIC 0.0018uF 10% 50V            |        |
| C68     | 1-163-011-11 | CERAMIC CHIP 0.0015uF 10% 50V       |        |
| C69     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C70     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C71     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C72     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C73     | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V        |        |
| C81     | 1-102-961-00 | CERAMIC 27PF 5% 50V                 |        |
| C82     | 1-102-961-00 | CERAMIC 27PF 5% 50V                 |        |
| C83     | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C84     | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C85     | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C86     | 1-124-477-11 | ELECT 47uF 20% 25V                  |        |
| C87     | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C88     | 1-101-004-00 | CERAMIC 0.01uF 50V                  |        |
| C101    | 1-124-925-11 | ELECT 2.2uF 20% 100V                |        |
| C102    | 1-124-463-00 | ELECT 0.1uF 20% 50V                 |        |
| C103    | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C104    | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V             |        |
| C105    | 1-124-477-11 | ELECT 47uF 20% 25V                  |        |
| C106    | 1-136-173-00 | FILM 0.47uF 5% 50V                  |        |

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

## TUNER

| Ref.No.       | Part No.     | Description                     | Remark |
|---------------|--------------|---------------------------------|--------|
| C107          | 1-124-463-00 | ELECT 0.1uF 20%                 | 50V    |
| C108          | 1-163-037-11 | CERAMIC CHIP 0.022uF 10%        | 25V    |
| C109          | 1-163-105-00 | CERAMIC CHIP 33PF 5%            | 50V    |
| C152          | 1-123-382-00 | ELECT 3.3uF 20%                 | 100V   |
| C153          | 1-124-907-11 | ELECT 10uF 20%                  | 50V    |
| C154          | 1-163-117-00 | CERAMIC CHIP 100PF 5%           | 50V    |
| C155          | 1-124-118-11 | ELECT 220uF 20%                 | 16V    |
| C162          | 1-123-382-00 | ELECT 3.3uF 20%                 | 100V   |
| C163          | 1-124-907-11 | ELECT 10uF 20%                  | 50V    |
| C164          | 1-163-117-00 | CERAMIC CHIP 100PF 5%           | 50V    |
| < FILTER >    |              |                                 |        |
| CF1           | 1-567-389-11 | FILTER, CERAMIC                 |        |
| CF2           | 1-567-389-11 | FILTER, CERAMIC                 |        |
| CF3           | 1-567-389-11 | FILTER, CERAMIC                 |        |
| CF21          | 1-577-075-11 | OSCILLATOR, CERAMIC             |        |
| CFT21         | 1-404-853-11 | TRANSFORMER, IF(CERAMIC FILTER) |        |
| < CONNECTOR > |              |                                 |        |
| * CNJ1        | 1-564-666-11 | PIN, CONNECTOR 10P              |        |
| * CNJ2        | 1-564-341-11 | PIN, CONNECTOR 7P               |        |
| * CNJ3        | 1-568-313-11 | SOCKET, CONNECTO 9P             |        |
| CNJ4          | 1-568-269-11 | SOCKET, CONNECTOR 3P            |        |
| < DIODE >     |              |                                 |        |
| D21           | 8-719-016-74 | DIODE 1SS352 (AEP)              |        |
| D21           | 8-719-988-62 | DIODE 1SS355 (G, IT)            |        |
| D22           | 8-719-016-74 | DIODE 1SS352 (AEP)              |        |
| D22           | 8-719-988-62 | DIODE 1SS355 (G, IT)            |        |
| D23           | 8-719-016-74 | DIODE 1SS352 (AEP)              |        |
| D23           | 8-719-988-62 | DIODE 1SS355 (G, IT)            |        |
| D24           | 8-719-016-74 | DIODE 1SS352 (AEP)              |        |
| D24           | 8-719-988-62 | DIODE 1SS355 (G, IT)            |        |
| D61           | 8-719-016-74 | DIODE 1SS352 (AEP)              |        |
| D61           | 8-719-988-62 | DIODE 1SS355 (G, IT)            |        |
| < FRONT END > |              |                                 |        |
| FE1           | 1-463-862-21 | FRONT END, FM (AEP)             |        |
| FE1           | 1-463-857-11 | FRONT END (FM) (G, IT)          |        |
| FE61          | 1-236-462-11 | ENCAPSULATED COMPONENT          |        |
| FE62          | 1-236-463-11 | ENCAPSULATED COMPONENT          |        |
| < IC >        |              |                                 |        |
| IC21          | 8-759-821-45 | IC LA1851N                      |        |
| IC81          | 8-759-820-91 | IC LC7218                       |        |
| IC91          | 8-759-945-58 | IC RC4558P                      |        |
| < COIL >      |              |                                 |        |
| L1            | 1-410-645-31 | INDUCTOR 100uH                  |        |
| L2            | 1-410-645-31 | INDUCTOR 100uH                  |        |

| Ref.No.        | Part No.     | Description            | Remark       |
|----------------|--------------|------------------------|--------------|
| L21            | 1-407-500-00 | INDUCTOR 4.7mH         |              |
| L61            | 1-410-525-11 | INDUCTOR 220uH (AEP)   |              |
| L61            | 1-410-678-31 | INDUCTOR 220uH (G, IT) |              |
| L151           | 1-410-663-31 | INDUCTOR 10uH (G, IT)  |              |
| L161           | 1-410-663-31 | INDUCTOR 10uH (G, IT)  |              |
| < FILTER >     |              |                        |              |
| LPF21          | 1-235-164-00 | FILTER, LOW PASS       |              |
| LPF22          | 1-235-164-00 | FILTER, LOW PASS       |              |
| < TRANSISTOR > |              |                        |              |
| Q1             | 8-729-230-XX | TRANSISTOR 2SC2669-OY  |              |
| Q2             | 8-729-230-XX | TRANSISTOR 2SC2669-OY  |              |
| Q3             | 8-729-230-XX | TRANSISTOR 2SC2669-OY  |              |
| Q4             | 8-729-230-XX | TRANSISTOR 2SC2669-OY  |              |
| Q21            | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| Q22            | 8-729-119-78 | TRANSISTOR 2SC2785-HFE |              |
| Q23            | 8-729-900-61 | TRANSISTOR DTA114ES    |              |
| Q24            | 8-729-900-80 | TRANSISTOR DTC114ES    |              |
| Q26            | 8-729-900-80 | TRANSISTOR DTC114ES    |              |
| Q27            | 8-729-620-05 | TRANSISTOR 2SC2603-EF  |              |
| Q28            | 8-729-620-05 | TRANSISTOR 2SC2603-EF  |              |
| Q61            | 8-729-900-80 | TRANSISTOR DTC114ES    |              |
| Q62            | 8-729-900-80 | TRANSISTOR DTC114ES    |              |
| Q63            | 8-729-900-80 | TRANSISTOR DTC114ES    |              |
| Q64            | 8-729-620-05 | TRANSISTOR 2SC2603-EF  |              |
| Q65            | 8-729-119-76 | TRANSISTOR 2SA1175-HFE |              |
| Q66            | 8-729-900-80 | TRANSISTOR DTC114ES    |              |
| Q81            | 8-729-900-61 | TRANSISTOR DTA114ES    |              |
| Q82            | 8-729-900-80 | TRANSISTOR DTC114ES    |              |
| Q83            | 8-729-202-67 | TRANSISTOR 2SK246-GR3  |              |
| Q84            | 8-729-230-93 | TRANSISTOR 2SC3113-AB  |              |
| Q85            | 8-729-202-67 | TRANSISTOR 2SK246-GR3  |              |
| Q86            | 8-729-230-93 | TRANSISTOR 2SC3113-AB  |              |
| < RESISTOR >   |              |                        |              |
| △R1            | 1-249-401-11 | CARBON 47 5%           | 1/4W (AEP)   |
| △R1            | 1-249-397-11 | CARBON 22 5%           | 1/4W (G, IT) |
| R3             | 1-216-037-00 | METAL CHIP 330 5%      | 1/10W        |
| R4             | 1-216-037-00 | METAL CHIP 330 5%      | 1/10W        |
| R5             | 1-216-037-00 | METAL CHIP 330 5%      | 1/10W        |
| R6             | 1-216-079-00 | METAL CHIP 18K 5%      | 1/10W        |
| R7             | 1-216-037-00 | METAL CHIP 330 5%      | 1/10W        |
| R8             | 1-216-043-00 | METAL CHIP 560 5%      | 1/10W        |
| R9             | 1-216-083-00 | METAL CHIP 27K 5%      | 1/10W        |
| R10            | 1-216-037-00 | METAL CHIP 330 5%      | 1/10W        |
| R11            | 1-216-079-00 | METAL CHIP 18K 5%      | 1/10W        |
| R12            | 1-216-037-00 | METAL CHIP 330 5%      | 1/10W        |
| R13            | 1-216-047-00 | METAL CHIP 820 5%      | 1/10W        |

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



## TUNER

| Ref.No. | Part No.     | Description | Remark |    |               |
|---------|--------------|-------------|--------|----|---------------|
| R14     | 1-216-083-00 | METAL CHIP  | 27K    | 5% | 1/10W         |
| R15     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W (G, IT) |
| R16     | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W (G, IT) |
| △ R21   | 1-249-404-00 | CARBON      | 82     | 5% | 1/4W          |
| R22     | 1-216-081-00 | METAL CHIP  | 22K    | 5% | 1/10W         |
| R23     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W         |
| R24     | 1-216-085-00 | METAL CHIP  | 33K    | 5% | 1/10W         |
| R25     | 1-216-071-00 | METAL CHIP  | 8.2K   | 5% | 1/10W         |
| R27     | 1-216-079-00 | METAL CHIP  | 18K    | 5% | 1/10W         |
| R28     | 1-216-061-00 | METAL CHIP  | 3.3K   | 5% | 1/10W         |
| R29     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W         |
| R31     | 1-216-041-00 | METAL CHIP  | 470    | 5% | 1/10W         |
| R32     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W         |
| R33     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W         |
| R34     | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W         |
| R35     | 1-216-089-00 | METAL CHIP  | 47K    | 5% | 1/10W         |
| R37     | 1-216-097-00 | METAL CHIP  | 100K   | 5% | 1/10W         |
| R38     | 1-216-105-00 | METAL CHIP  | 220K   | 5% | 1/10W         |
| R39     | 1-216-057-00 | METAL CHIP  | 2.2K   | 5% | 1/10W         |
| R40     | 1-216-055-00 | METAL CHIP  | 1.8K   | 5% | 1/10W         |
| R42     | 1-216-097-00 | METAL CHIP  | 100K   | 5% | 1/10W         |
| R43     | 1-216-105-00 | METAL CHIP  | 220K   | 5% | 1/10W         |
| R44     | 1-216-057-00 | METAL CHIP  | 2.2K   | 5% | 1/10W         |
| R45     | 1-216-055-00 | METAL CHIP  | 1.8K   | 5% | 1/10W         |
| △ R47   | 1-249-409-11 | CARBON      | 220    | 5% | 1/4W          |
| R48     | 1-216-097-00 | METAL CHIP  | 100K   | 5% | 1/10W         |
| R49     | 1-216-097-00 | METAL CHIP  | 100K   | 5% | 1/10W         |
| R61     | 1-216-097-00 | METAL CHIP  | 100K   | 5% | 1/10W         |
| R62     | 1-216-089-00 | METAL CHIP  | 47K    | 5% | 1/10W         |
| R64     | 1-216-081-00 | METAL CHIP  | 22K    | 5% | 1/10W         |
| R65     | 1-216-089-00 | METAL CHIP  | 47K    | 5% | 1/10W         |
| R66     | 1-216-121-00 | METAL CHIP  | 1M     | 5% | 1/10W         |
| R67     | 1-216-097-00 | METAL CHIP  | 100K   | 5% | 1/10W         |
| R68     | 1-216-083-00 | METAL CHIP  | 27K    | 5% | 1/10W         |
| R69     | 1-216-081-00 | METAL CHIP  | 22K    | 5% | 1/10W         |
| R70     | 1-216-041-00 | METAL CHIP  | 470    | 5% | 1/10W         |
| R71     | 1-216-057-00 | METAL CHIP  | 2.2K   | 5% | 1/10W         |
| R72     | 1-216-081-00 | METAL CHIP  | 22K    | 5% | 1/10W         |
| R73     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W         |
| R74     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W         |
| R75     | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W         |
| R81     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W         |
| R82     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W         |
| R83     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W         |
| R84     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W         |
| R85     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W         |
| R86     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W         |
| R87     | 1-216-073-00 | METAL CHIP  | 10K    | 5% | 1/10W         |
| R88     | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W         |

| Ref.No. | Part No.     | Description | Remark |    |       |
|---------|--------------|-------------|--------|----|-------|
| R89     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W |
| R90     | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W |
| R91     | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W |
| △ R92   | 1-249-401-11 | CARBON      | 47     | 5% | 1/4W  |
| R101    | 1-216-061-00 | METAL CHIP  | 3.3K   | 5% | 1/10W |
| R102    | 1-216-043-00 | METAL CHIP  | 560    | 5% | 1/10W |
| R103    | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W |
| R104    | 1-216-035-00 | METAL CHIP  | 270    | 5% | 1/10W |
| R105    | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W |
| R106    | 1-216-057-00 | METAL CHIP  | 2.2K   | 5% | 1/10W |
| R107    | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W |
| R108    | 1-216-025-00 | METAL CHIP  | 100    | 5% | 1/10W |
| R109    | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W |
| △ R110  | 1-249-405-11 | CARBON      | 100    | 5% | 1/4W  |
| R111    | 1-216-061-00 | METAL CHIP  | 3.3K   | 5% | 1/10W |
| R112    | 1-216-043-00 | METAL CHIP  | 560    | 5% | 1/10W |
| R113    | 1-216-049-00 | METAL CHIP  | 1K     | 5% | 1/10W |
| R114    | 1-216-035-00 | METAL CHIP  | 270    | 5% | 1/10W |
| R115    | 1-216-081-00 | METAL CHIP  | 22K    | 5% | 1/10W |
| R116    | 1-216-057-00 | METAL CHIP  | 2.2K   | 5% | 1/10W |
| R117    | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W |
| R118    | 1-216-025-00 | METAL CHIP  | 100    | 5% | 1/10W |
| R151    | 1-216-067-00 | METAL CHIP  | 5.6K   | 5% | 1/10W |
| R152    | 1-216-067-00 | METAL CHIP  | 5.6K   | 5% | 1/10W |
| R153    | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W |
| R154    | 1-216-041-00 | METAL CHIP  | 470    | 5% | 1/10W |
| △ R155  | 1-249-401-11 | CARBON      | 47     | 5% | 1/4W  |
| R161    | 1-216-067-00 | METAL CHIP  | 5.6K   | 5% | 1/10W |
| R162    | 1-216-067-00 | METAL CHIP  | 5.6K   | 5% | 1/10W |
| R163    | 1-216-065-00 | METAL CHIP  | 4.7K   | 5% | 1/10W |
| R164    | 1-216-041-00 | METAL CHIP  | 470    | 5% | 1/10W |
| R555    | 1-216-097-00 | METAL CHIP  | 100K   | 5% | 1/10W |

&lt; VARIABLE RESISTOR &gt;

|      |              |                                                      |
|------|--------------|------------------------------------------------------|
| RV21 | 1-238-015-11 | RES, ADJ, CARBON 4.7K<br>(STEREO SEPARATION) (AEP)   |
| RV21 | 1-241-629-11 | RES, ADJ, CARBON 4.7K<br>(STEREO SEPARATION) (G, IT) |
| RV22 | 1-238-017-11 | RES, ADJ, CARBON 22K (AM TUNED) (AEP)                |
| RV22 | 1-241-631-11 | RES, ADJ, CARBON 22K (AM TUNED) (G, IT)              |
| RV23 | 1-238-021-11 | RES, ADJ, CARBON 220K<br>(SIGNAL LEVEL METER) (AEP)  |
| RV24 | 1-238-019-11 | RES, ADJ, CARBON 47K (FM TUNER) (AEP)                |
| RV24 | 1-241-632-11 | RES, ADJ, CARBON 47K (FM TUNER) (G, IT)              |

&lt; TRANSFORMER &gt;

|     |              |                                   |
|-----|--------------|-----------------------------------|
| T21 | 1-404-807-11 | TRANSFORMER, DISCRIMINATOR (NULL) |
| T23 | 1-235-126-00 | ENCAPSULATED COMPONENT            |

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

## TUNER

| Ref.No. | Part No. | Description  | Remark |
|---------|----------|--------------|--------|
|         |          | < TERMINAL > |        |

|       |              |                                |  |
|-------|--------------|--------------------------------|--|
| * TM1 | 1-537-138-31 | TERMINAL BOARD (ANT) (ANTENNA) |  |
|-------|--------------|--------------------------------|--|

|  |  |               |  |
|--|--|---------------|--|
|  |  | < CONNECTOR > |  |
|--|--|---------------|--|

|       |              |                   |  |
|-------|--------------|-------------------|--|
| * TP1 | 1-560-060-00 | PIN, CONNECTOR 2P |  |
|-------|--------------|-------------------|--|

|  |  |             |  |
|--|--|-------------|--|
|  |  | < CRYSTAL > |  |
|--|--|-------------|--|

|      |              |                            |  |
|------|--------------|----------------------------|--|
| XT81 | 1-577-126-11 | VIBRATOR, CRYSTAL (7.2MHz) |  |
|------|--------------|----------------------------|--|

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## MISCELLANEOUS

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|        |              |             |  |
|--------|--------------|-------------|--|
| △PC501 | 1-575-651-11 | CORD, POWER |  |
|--------|--------------|-------------|--|

|       |              |                                 |  |
|-------|--------------|---------------------------------|--|
| △S901 | 1-554-920-21 | SWITCH, PUSH (AC POWER) (1 KEY) |  |
|-------|--------------|---------------------------------|--|

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## ACCESSORIES &amp; PACKING MATERIALS

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1-501-369-11 ANTENNA (AEP, IT)

1-501-374-11 ANTENNA, LOOP

1-558-233-11 CORD (WITH CONNECTOR) (SIRCS) 4P

1-558-271-11 CORD, CONNECTION

1-559-533-11 CORD, CONNECTION

3-755-009-11 MANUAL, INSTRUCTION (AEP) (ENGLISH/  
FRENCH/SPANISH/PORTUGUESE)3-755-009-41 MANUAL, INSTRUCTION (AEP, IT)  
(GERMAN/DUTCH/SWEDISH/ITALIAN)

3-755-009-51 MANUAL, INSTRUCTION (G) (GERMAN)

\* 4-930-835-01 CUSHION

\* 4-944-049-31 INDIVIDUAL CARTON

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## HARDWARE LIST

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#1 7-621-849-00 SCREW (BV/RING)

#2 7-682-548-09 SCREW +BVTT 3X8 (S)

#3 7-682-550-04 SCREW +BVTT 3X12 (S)

#4 7-685-646-79 SCREW +BVTP 3X8 TYPE2 N-S

#5 7-682-547-09 SCREW +BV 3X6, S TIGHT

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

