

FM STEREO / FM-AM TUNER  
**SONY®**

## TABLE OF CONTENTS

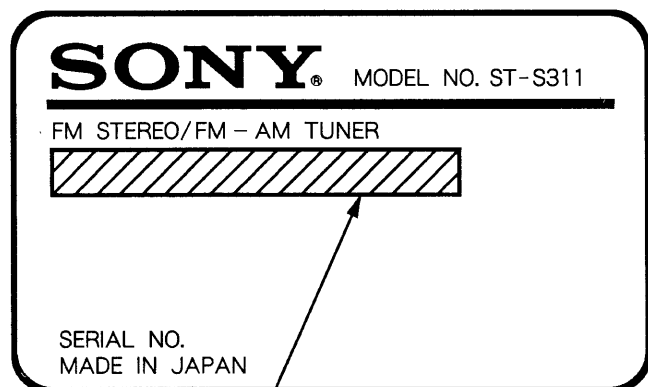
| <u>Section</u>                  | <u>Title</u> | <u>Page</u> |
|---------------------------------|--------------|-------------|
| 1. GENERAL                      | .....        | 3           |
| 2. ADJUSTMENTS                  | .....        | 4           |
| 3. DIAGRAMS                     |              |             |
| 3-1. Block Diagram              | .....        | 7           |
| 3-2. Semiconductor Lead Layouts | .....        | 10          |
| 3-3. Printed Wiring Boards      | .....        | 11          |
| 3-4. Schematic Diagram          | .....        | 13          |
| 3-5. IC Block Diagrams          | .....        | 17          |
| 3-6. IC Pin Description         | .....        | 19          |
| 4. EXPLODED VIEWS               | .....        | 20          |
| 5. ELECTRICAL PARTS LIST        | .....        | 21          |

## 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.

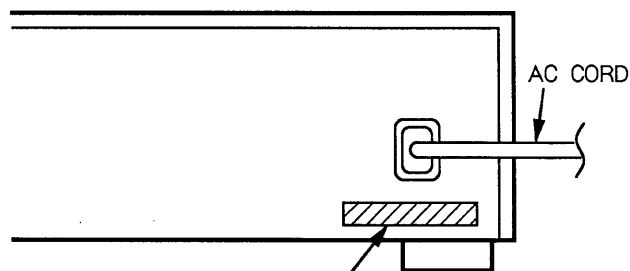
## MODEL IDENTIFICATION

— Specification Label —



AEP, German, Italian Model : AC 220 - 230~50/60Hz 12W  
UK Model : AC 240~50/60Hz

— Back Panel —



AEP, Italian Model : 4-957-875-01  
AEP Model : 4-957-875-11  
German Model : 4-957-875-21  
UK Model : 4-957-875-31

## Identifying the Controls

### ST-S211/ST-S311/ST-S505ES

- 1 Power switch (5, 11, 12)
- 2 CHARACTER button (17)
- 3 DISPLAY button (14, 21)
- 4 DISPLAY MODE button (5)
- 5 Display window
- 6 Preset buttons (5, 8, 13, 14, 17)
- 7 TUNING/PRESET button (6, 7, 15, 16)
- 8 SHIFT button (13, 14, 17)
- 9 TUNING/CHARACTER/PTY SELECT knob (ST-S211; TUNING/ CHARACTER) (6, 7, 15-17, 24, 25)
- 10 TA button (22) (ST-S311/S505ES only)
- 11 NEWS/INFO button (23) (ST-S311/S505ES only)
- 12 PTY button (24, 25) (ST-S311/S505ES only)
- 13 ANT ATT button (10) (ST-S311/S505ES only)
- 14 IF BAND button (10) (ST-S311/S505ES only)
- 15 STEREO/MUTE button (9)
- 16 DIRECT button (8) (ST-S311 only)
- 17 MEMORY button (11-13, 17)
- 18 BAND button (6-8)
- 19 TUNE MODE button (6, 7, 15, 16, 24)
- 20 FM MODE button (ST-S505ES only) (9)
- 21 MUTING button (ST-S505ES only) (9, 10)

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

## Before Starting

### Setting Up

Connect the tuner to the other components in your stereo system as shown in the following steps.

#### Notes

- For your safety, make sure you unplug the power cords of the components in the system before trying to make any connections. Always plug the power cords in last.
- Plugs and jacks are color coded. Red ones are for the right channel (R). White ones are for the left channel (L).

#### 1 Make sure you have everything shown in the illustration.

- a) Connecting cord
- b) FM antenna
- c) AM loop antenna

#### 2 Plug one end of the connecting cord into the OUTPUT jacks on the back of the tuner.

#### 3 Plug the other end of the cord into the TUNER jacks on the back of the amplifier. Then connect the speakers.

#### 4 Connect the FM antenna.

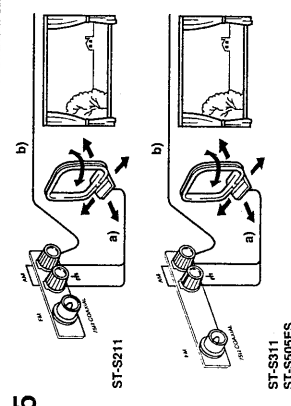
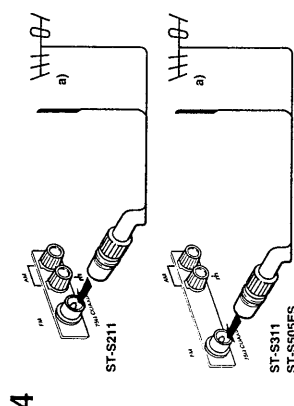
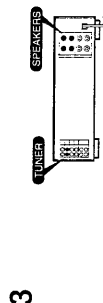
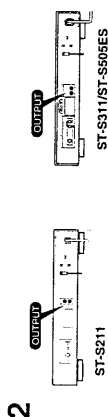
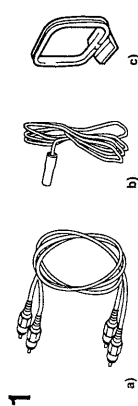
For best reception, connect the tuner to an outdoor antenna. Use a standard socket connector (not supplied). The supplied antenna should only be for temporary use.

#### 5 Connect the AM antenna.

- a) AM loop antenna (supplied)  
Attach the two wires to the "A" and "AM" screw connectors. Experiment with the positioning of the antenna for optimum reception.
- b) AM antenna extension  
For best reception, attach a length of insulated wire (6 - 15 m long) to the "AM" screw connector in addition to the loop antenna.

#### 6 Plug the power cord into an AC outlet.

For ease of operation, plug the tuner into a switched AC outlet on the back of the amplifier and always keep the tuner turned on. This allows you to turn the power of the tuner on and off by using the power switch of the amplifier. If you want to have the tuner switch on automatically at a preset time, connect it to the optional Sony Audio Timer.



This section is extracted from instruction manual (ST-S211/S311/S505ES).

## SECTION 2 ADJUSTMENTS

- Refer to Adjustment Location on page 6.

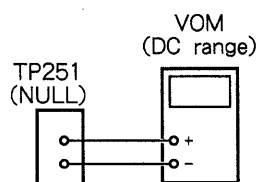
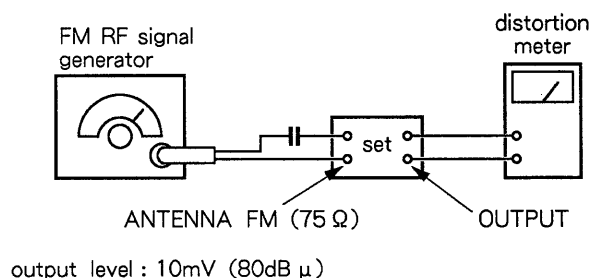
**Note :** As a front-end (FE101, 421 etc.) is difficult to repair if faulty, replace it with new one.

### FM SECTION

- Standard Setting of FM Stereo RF Signal Generator.

| STEREO STANDARD SIGNAL                                                                                                                      | MONAURAL STANDARD SIGNAL       |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| Carrier frequency : 98MHz<br>Modulation : Audio 1kHz, 40kHz deviation<br>Subchannel 38kHz, 40kHz deviation<br>Pilot 19kHz, 7.5kHz deviation | 98MHz<br>1kHz, 40kHz deviation |

### FM Discriminator Adjustment (NULL and MONO Distortion)

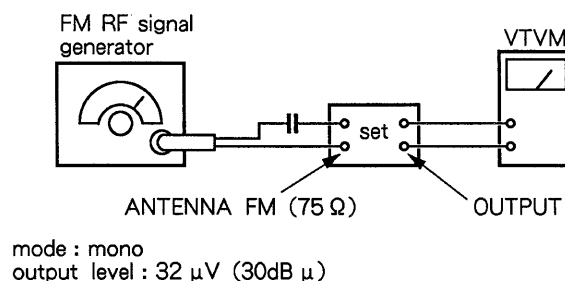


#### Procedure:

1. Tune the set to 98MHz.
2. Adjust T252 for 0V reading on the VOM.  
.....NULL
3. Adjust T253 for a minimum reading on the distortion meter. ....MONO Distortion
4. Repeat the adjustments of 2 and 3 several times.

**Note :** When replacing the ceramic filter, perform this alignment.

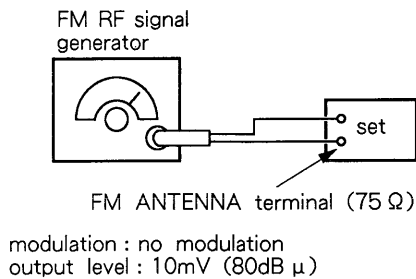
### FM Muting Level Adjustment



#### Procedure:

1. Tune the set to 98MHz.
2. Push the STEREO/MUTE switch and put on the light the "MUTE" indicator in the fluorescent display.
3. Set SSG output level to 32  $\mu$ V (30dB  $\mu$ ).
4. Adjust RV251 so that "STEREO", "TUNED" light.

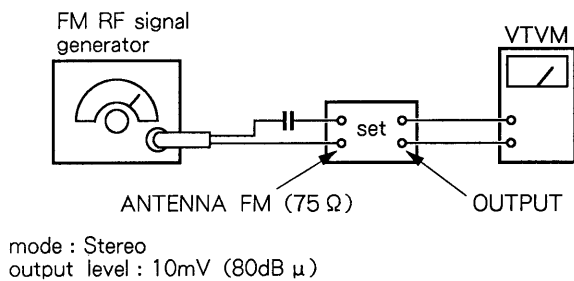
### FM Signal Level Adjustment



#### Procedure:

1. Tune the set to 98MHz.
2. Push the DISPLAY MODE button for digital signal meter indication.
3. Adjust RV221 to the place where level and "75dB" indication lights on fluorescent tube.

### FM Stereo Separation Adjustment



#### Procedure:

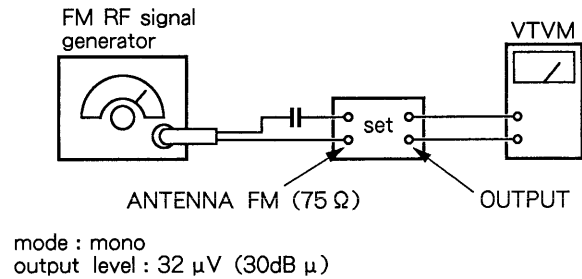
| FM stereo signal generator output channel | VTVM connection | VTVM reading (dB)                      |
|-------------------------------------------|-----------------|----------------------------------------|
| L-CH                                      | L-CH            | Ⓐ                                      |
| R-CH                                      | L-CH            | Ⓑ<br>Adjust RV301 minimum reading.     |
| R-CH                                      | R-CH            | Ⓒ                                      |
| L-CH                                      | R-CH            | Ⓓ<br>Adjust RV301 for minimum reading. |

L-CH Stereo separation : Ⓐ-Ⓑ

R-CH Stereo separation : Ⓒ-Ⓓ

The separation of both channels should be equal.

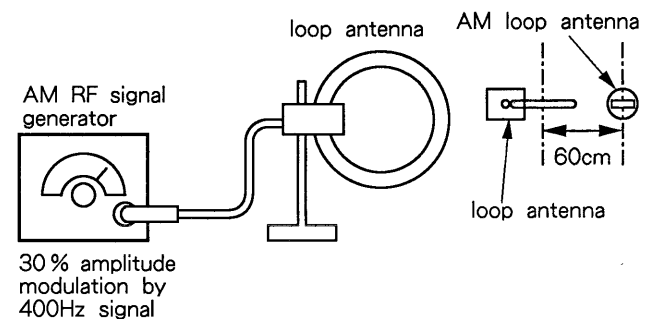
### FM Narrow Gain Adjustment



#### Procedure:

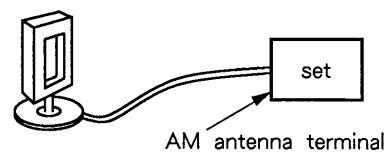
1. Tune the set to 98MHz.
2. Push the IF BAND switch and put on the light the "NARROW" indicator in the fluorescent display.
3. Set SSG output level to 32  $\mu$ V (30dB  $\mu$ ).
4. Adjustment RV231 so that the reading on VTVM becomes within 25  $\mu$ V (28dB  $\mu$ ) – 40  $\mu$ V (32dB  $\mu$ ).

### AM SECTION



Carrier frequency : 216kHz (LW Band)

AM loop antenna



dB  $\mu$ /m = (SSG output level) – 26dB

### AM Signal Level Adjustment

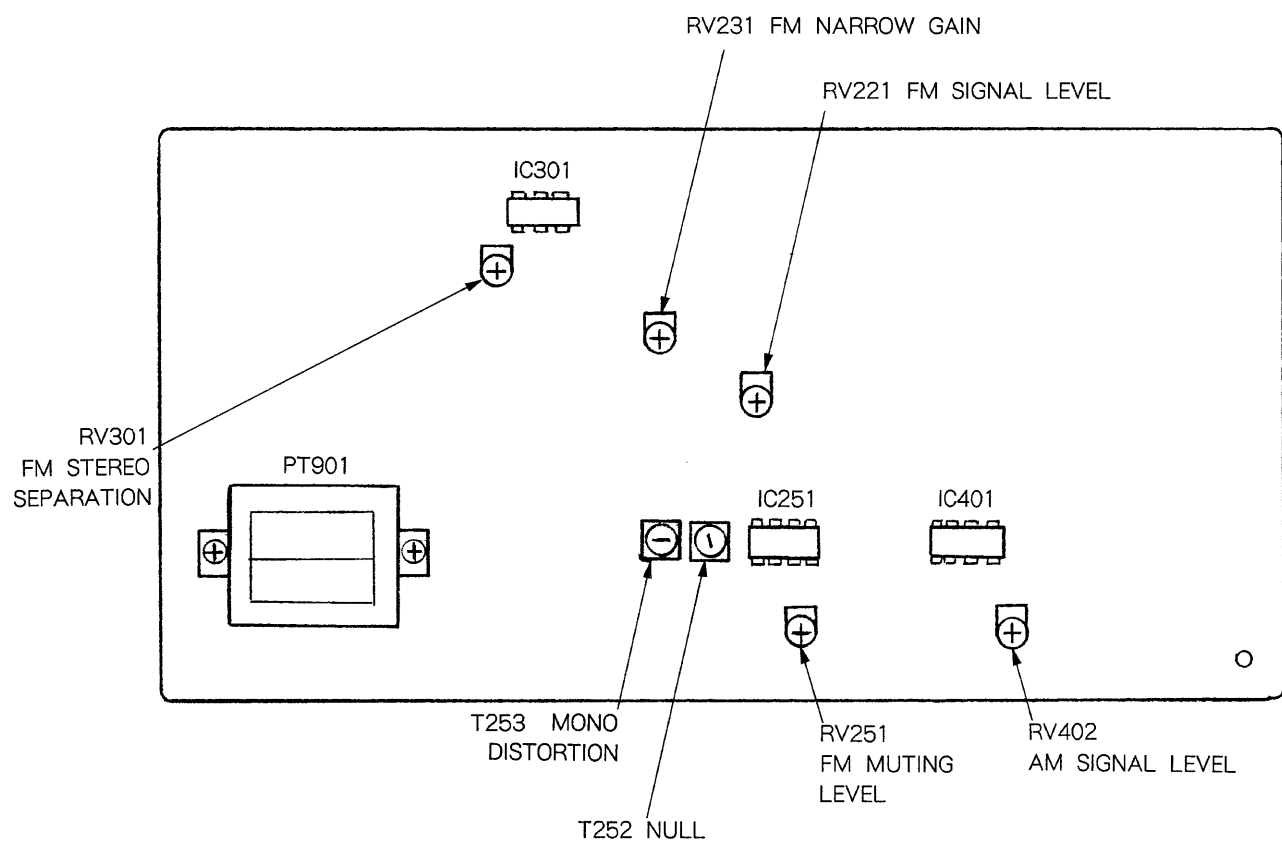
#### Procedure:

1. Set SSG output level so that antenna input level of the set becomes 5.0mV (74dB  $\mu$ /m).
2. Adjust RV402 to the place where level 10 in the signal strength indicator turns from dark to light.

## Adjustment Location

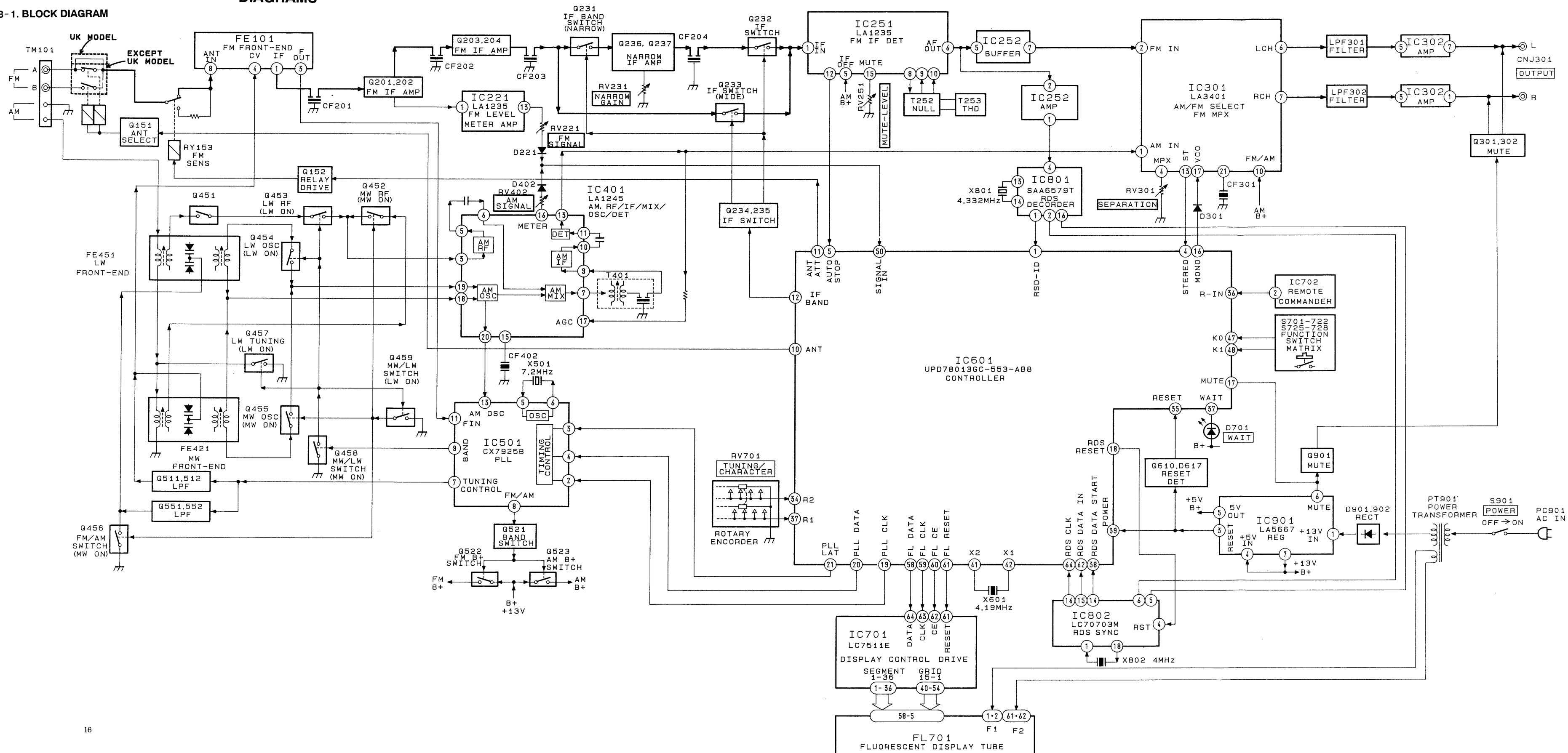
— TUNER BOARD —

(Component Side)

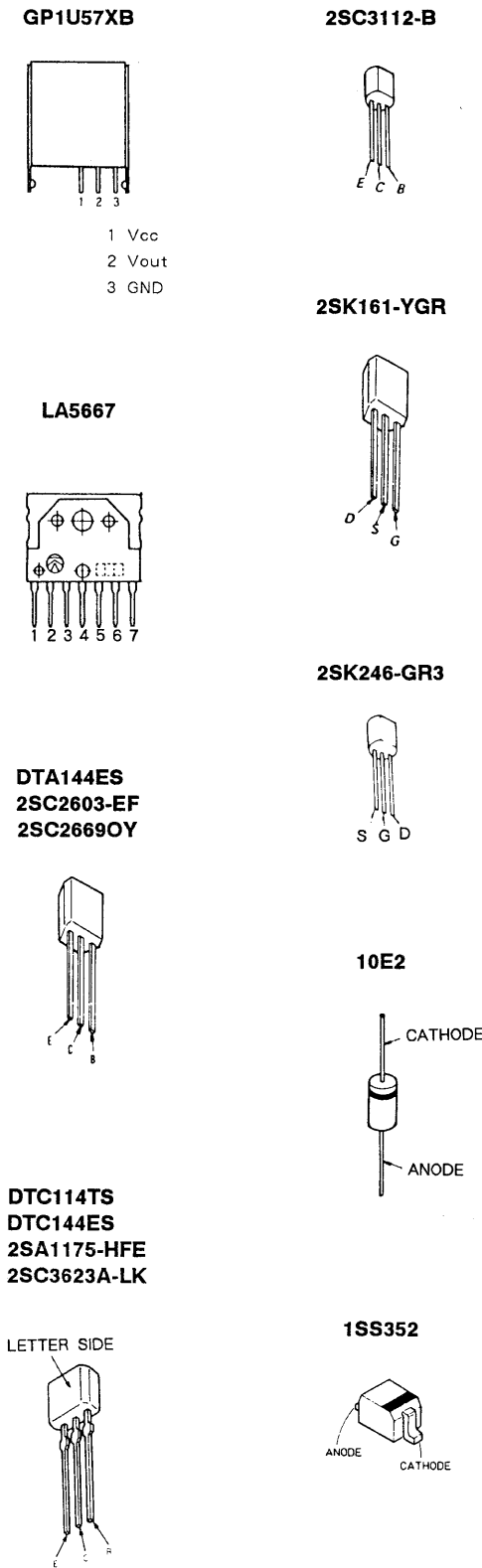


### SECTION 3 DIAGRAMS

3-1. BLOCK DIAGRAM



3-2. SEMICONDUCTOR LEAD LAYOUTS

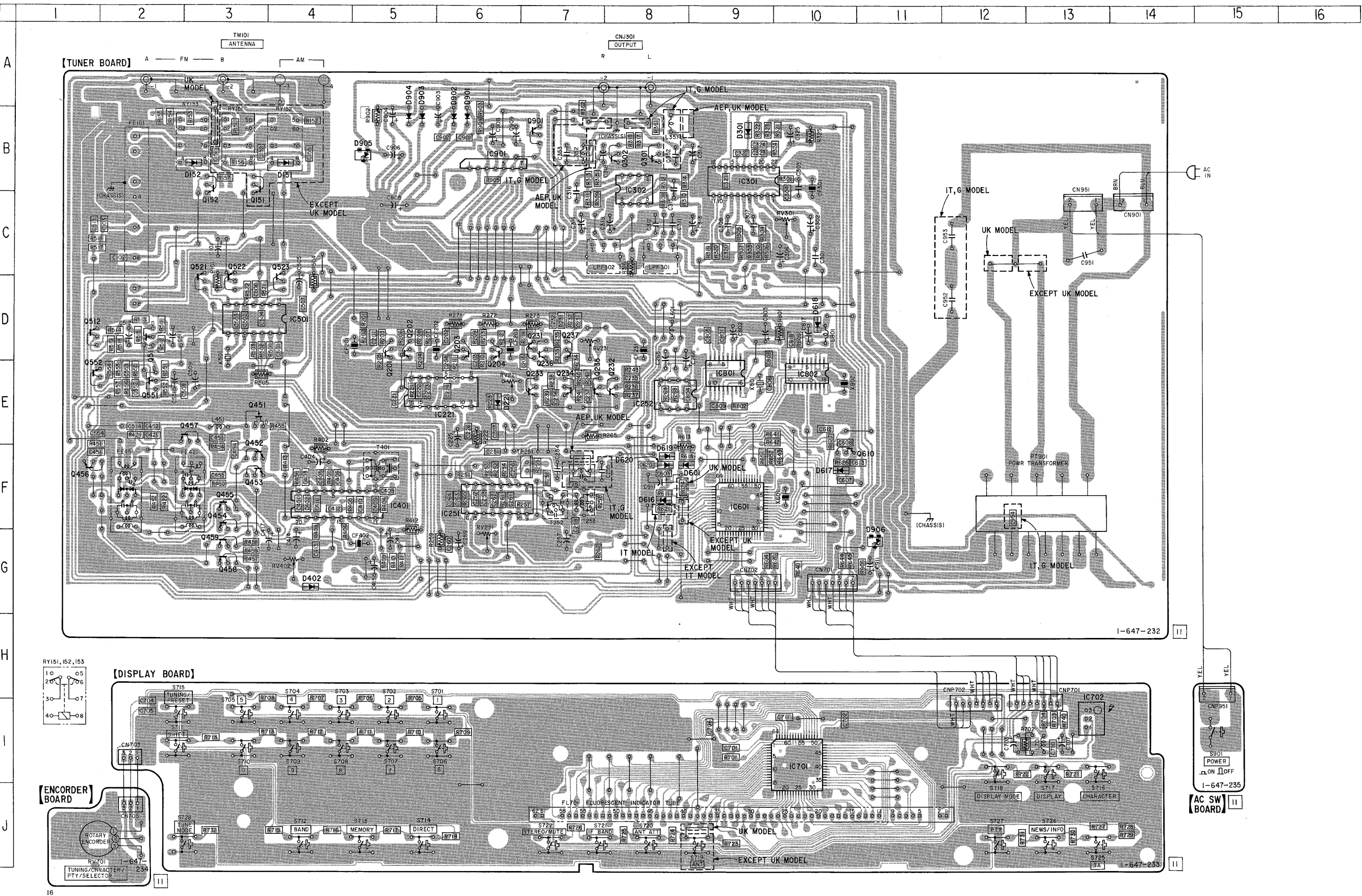


● Semiconductor Location

| Ref. No. | Location | Ref. No. | Location |
|----------|----------|----------|----------|
| D151     | B-4      | Q152     | B-3      |
| D152     | B-3      | Q201     | D-5      |
| D221     | D-6      | Q202     | D-5      |
| D301     | B-9      | Q203     | D-6      |
| D402     | G-4      | Q204     | D-6      |
| D601     | F-8      | Q231     | D-7      |
| D616     | F-8      | Q232     | E-7      |
| D617     | F-10     | Q233     | E-7      |
| D618     | D-10     | Q234     | E-7      |
| D619     | F-8      | Q235     | E-7      |
| D620     | F-8      | Q236     | D-7      |
| D901     | B-6      | Q237     | D-7      |
| D902     | B-6      | Q301     | B-8      |
| D903     | B-5      | Q302     | B-8      |
| D904     | B-5      | Q451     | F-3      |
| D905     | B-5      | Q452     | F-3      |
| D906     | G-11     | Q453     | F-3      |
|          |          | Q454     | F-3      |
| IC221    | E-5      | Q455     | F-3      |
| IC251    | F-6      | Q456     | F-1      |
| IC252    | E-8      | Q457     | E-3      |
| IC301    | B-9      | Q458     | G-3      |
| IC302    | B-8      | Q459     | G-3      |
| IC401    | F-5      | Q511     | D-2      |
| IC501    | D-4      | Q512     | D-1      |
| IC601    | F-9      | Q521     | C-3      |
| IC701    | I-10     | Q522     | C-3      |
| IC702    | I-13     | Q523     | C-4      |
| IC801    | E-9      | Q551     | F-2      |
| IC802    | E-10     | Q552     | F-1      |
| IC901    | B-6      | Q610     | F-10     |
| Q151     | B-3      | Q901     | B-7      |

- Note on Mounting Diagram :
- : Parts extracted from the component side.
  - ▨ : Pattern on the side which is seen.
  - G: German
  - IT: Italian

3-3. PRINTED WIRING BOARDS

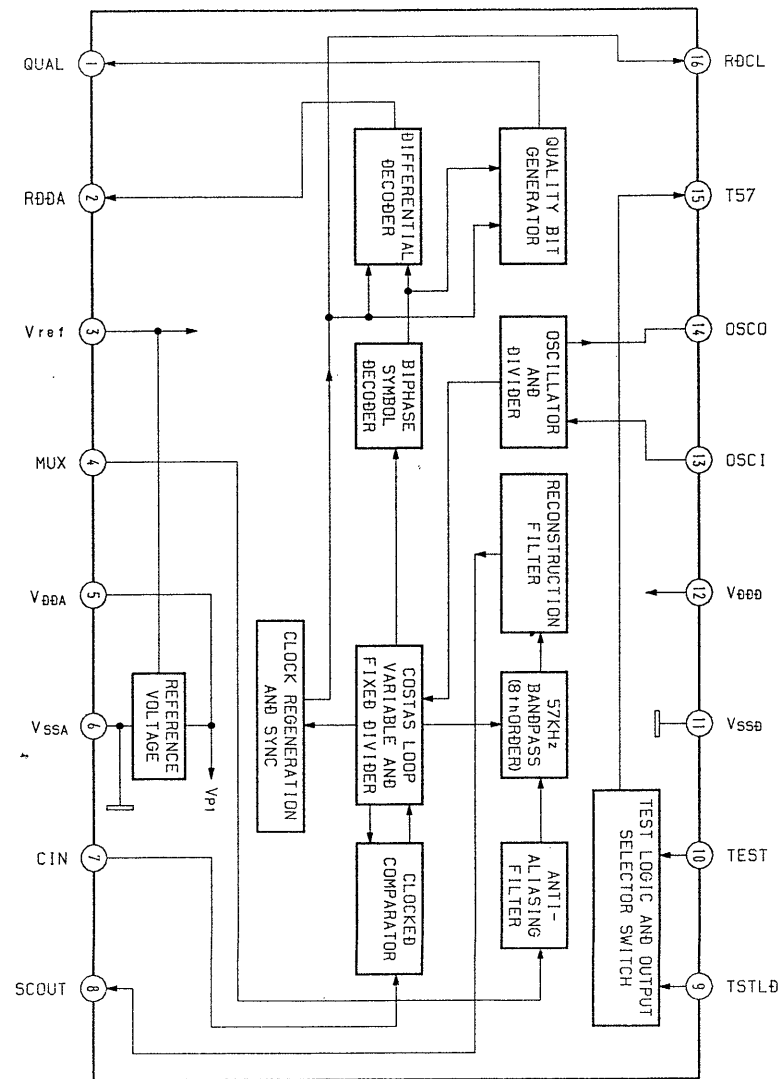




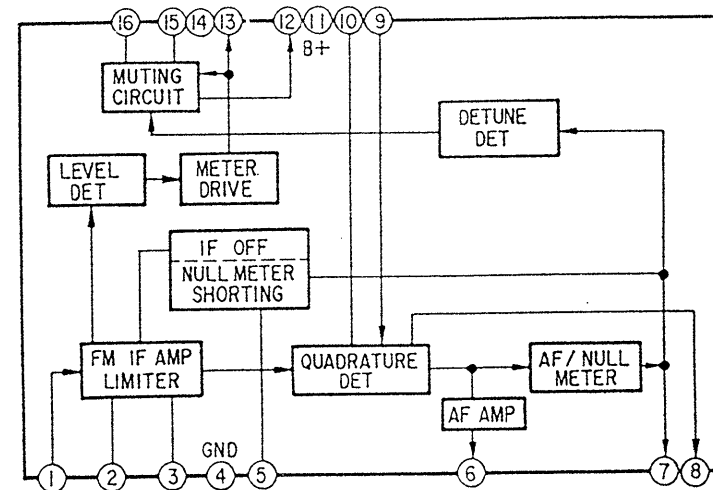


### 3-5. IC BLOCK DIAGRAMS

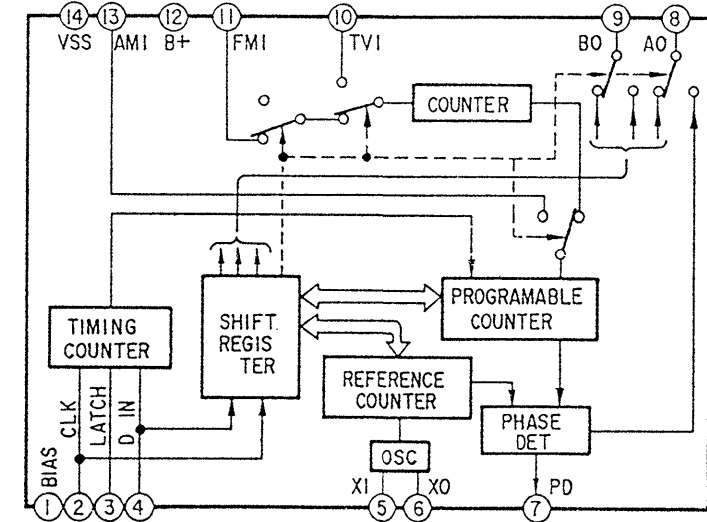
- IC801 SAA6579T-T



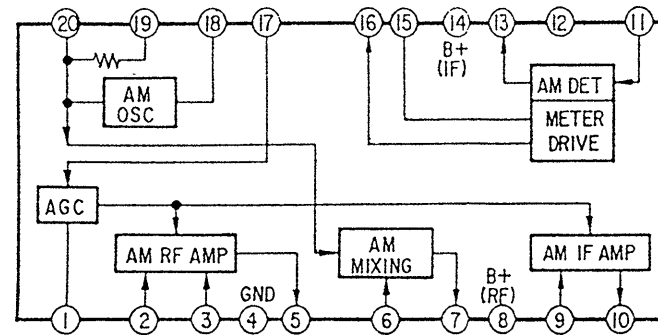
- IC221, 251 LA1235



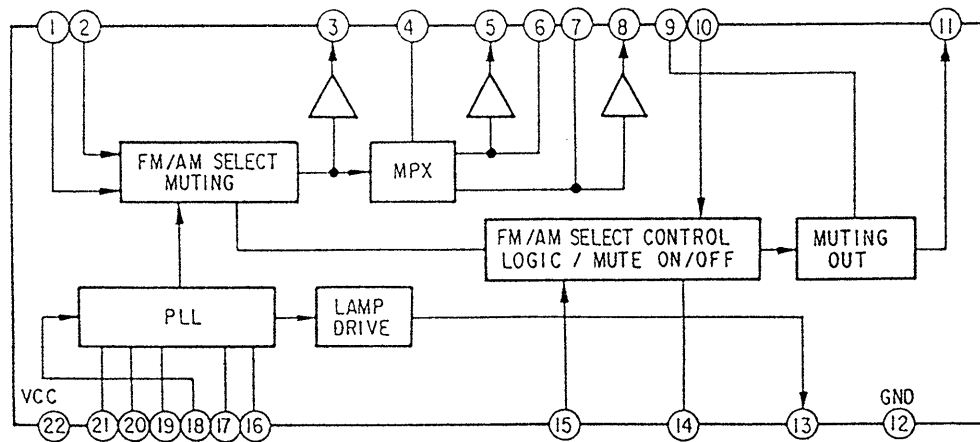
- IC501 CX7925B



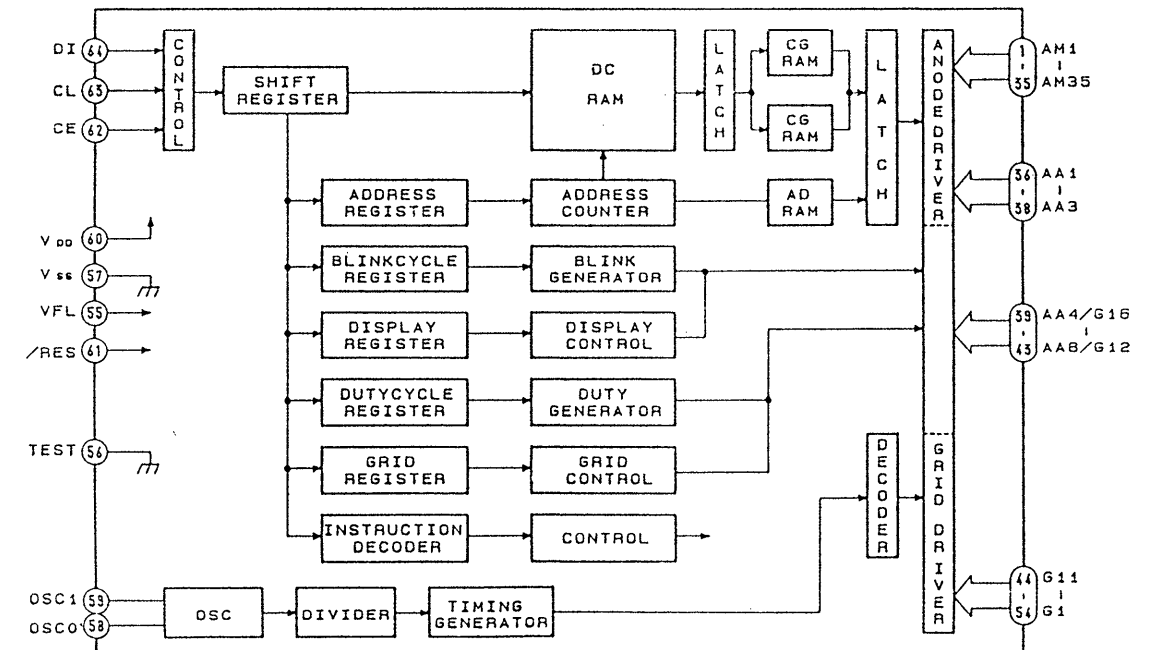
- IC401 LA1245



- IC301 LA3401



- IC701 LC75711E



### 3-6. IC PIN DESCRIPTION

#### ● IC601 $\mu$ PD78013GC-518-AB8

| No.     | Pin Name   | I/O | Description                                                |
|---------|------------|-----|------------------------------------------------------------|
| 1       | RDS - ID   | I   | RDS-ID detection input                                     |
| 2       | GND        |     |                                                            |
| 3       | ANT 2/1    | I   | Antenna terminal select (UK MODEL). GND (EXCEPT UK MODEL). |
| 4       | ST         | I   | STEREO display detection                                   |
| 5       | AST        | I   | AUTO STOP signal detection                                 |
| 6       | S1         | I   | Destination setting                                        |
| 7       | S2         | I   | Destination setting                                        |
| 8       | S3         | I   | Destination setting                                        |
| 9       | GND        |     |                                                            |
| 10      | ANT        | O   | ANT A/B switching                                          |
| 11      | ANT ATT    | O   | ANT ATT on/off switching                                   |
| 12      | IF BAND    | O   | IF BAND wide/narrow switching                              |
| 13      | F - MUT    | O   | FM muting on/off                                           |
| 14      | TUN        | O   | Tuning detection                                           |
| 15      | HI - B     | O   | Hi-blend output                                            |
| 16      | MONO       | O   | Enforced monaural output                                   |
| 17      | MUTE       | O   | Muting signal output                                       |
| 18      | RDS Reset  | O   | LC7073 resetting                                           |
| 19      | PLL CLK    | O   | Clock for CX7925                                           |
| 20      | PLL DATA   | O   | Data for CX7925                                            |
| 21      | PLL LAT    | O   | Latch for CX7925                                           |
| 22 - 33 | GND        |     |                                                            |
| 34      | R2         |     | Rotary encoder phase detection                             |
| 35      | RESET      | I   | System reset                                               |
| 36      | RIN        | I   | Remote controller input                                    |
| 37      | R1         |     | Rotary encoder number of rotations detection               |
| 38      | RD - ST    | I   | RDS data start                                             |
| 39      | POWER      | I   | Power supply on/off monitor                                |
| 40      | + 5V       |     | System power supply                                        |
| 41      | 8.38MHz    |     |                                                            |
| 42      | 8.38MHz    |     | Main system clock oscillation                              |
| 43      | GND        |     |                                                            |
| 44      | NC         |     |                                                            |
| 45 - 46 | GND        |     |                                                            |
| 47      | KEY0       |     | Key input (0)                                              |
| 48      | KEY1       |     | Key input (1)                                              |
| 49      | KEY2       |     | Key input (2)                                              |
| 50      | SI         | I   | Signal input                                               |
| 51 - 54 | GND        |     |                                                            |
| 55      | + 5V       |     | Analog power supply of the A/D converter                   |
| 56      | + 5V       | I   | Reference voltage of the A/D converter                     |
| 57      | GND        |     |                                                            |
| 58      | FL DATA    | O   | Display data for LC75711E                                  |
| 59      | FL CLK     | O   | Clock for LC75711                                          |
| 60      | FL CE      | O   | Latch for LC75711                                          |
| 61      | FL Reset   | O   | Reset for LC75711                                          |
| 62      | RDS - DATA | I   | RDS data input                                             |
| 63      | NC         |     |                                                            |
| 64      | RDS - CLK  | I   | RDS data clock input                                       |

## SECTION 4

### EXPLODED VIEWS

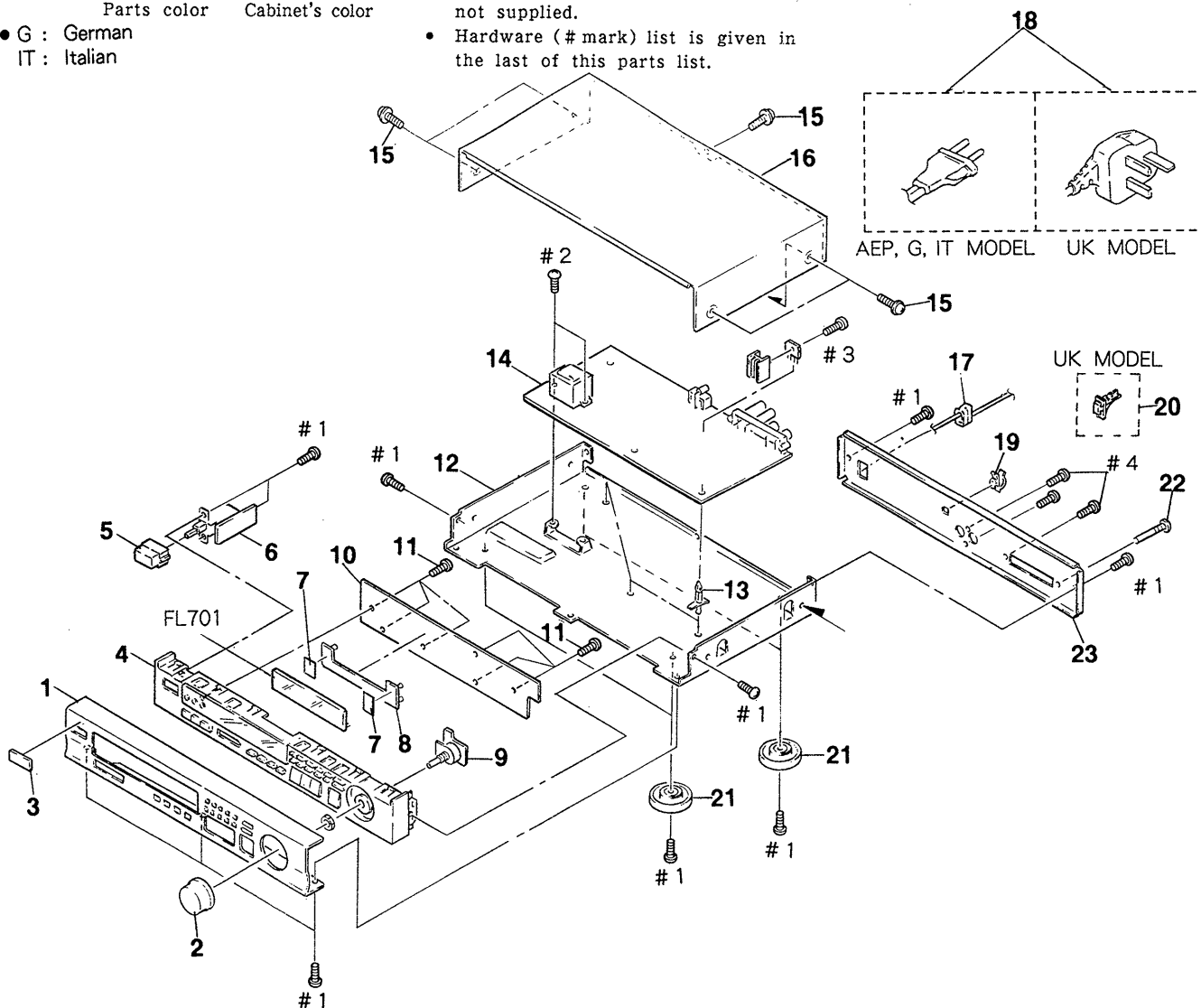
● ———

- |             |                 |
|-------------|-----------------|
| Parts color | Cabinet's color |
|-------------|-----------------|

- G : German
- IT : Italian

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

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



| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u>                   | <u>Remarks</u> | <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u>           | <u>Remarks</u> |
|-----------------|-----------------|--------------------------------------|----------------|-----------------|-----------------|------------------------------|----------------|
| 1               | A-4353-104-A    | PANEL ASSY, FRONT (AEP, G, IT)       |                | * 14            | A-4360-461-A    | TUNER BOARD, COMPLETE (G)    |                |
| 1               | A-4353-141-A    | PANEL ASSY, FRONT (UK)               |                | * 14            | A-4360-462-A    | TUNER BOARD, COMPLETE (IT)   |                |
| 2               | 4-944-125-01    | KNOB (DIA. 44)                       |                | * 14            | A-4360-463-A    | TUNER BOARD, COMPLETE (UK)   |                |
| 3               | 4-942-568-01    | EMBLEM (NO. 5), SONY                 |                | 15              | 3-704-366-01    | SCREW (CASE) (M3X8)          |                |
| 4               | X-4943-556-1    | BASE ASSY, PANEL (AEP, G, IT)        |                | 16              | 4-923-457-01    | CASE                         |                |
| 4               | X-4943-617-1    | BASE ASSY, PANEL (UK)                |                | * 17            | 3-703-244-00    | BUSHING (2104), CORD         |                |
| 5               | 4-917-460-01    | KNOB, POWER                          |                | △18             | 1-575-651-11    | CORD, POWER (AEP, G, IT)     |                |
| * 6             | 1-647-235-11    | AC SW BOARD                          |                | △18             | 1-696-570-21    | CORD, POWER (UK)             |                |
| * 7             | 4-932-810-11    | CUSHION (FL)                         |                | * 19            | 4-949-235-01    | HOOK (AEP, G, IT)            |                |
| * 8             | 4-945-292-01    | HOLDER, INDICATION TUBE              |                | * 20            | 4-956-370-02    | BAND, PLUG FIXED (UK)        |                |
| * 9             | 1-647-234-11    | ENCORDER BOARD                       |                | 21              | 4-956-885-11    | FOOT (F58175S2W)             |                |
| * 10            | A-4360-457-A    | DISPLAY BOARD, COMPLETE (AEP, G, IT) |                | 22              | 3-704-242-01    | SCREW, TERMINAL, + BVTP CLAW |                |
| * 10            | A-4365-404-A    | DISPLAY BOARD, COMPLETE (UK)         |                | * 23            | 4-957-875-01    | PANEL, BACK (AEP, IT)        |                |
| 11              | 4-951-620-01    | SCREW (2. 6X8), +BVTP                |                | * 23            | 4-957-875-11    | PANEL, BACK (AEP)            |                |
| * 12            | 4-929-296-51    | CHASSIS                              |                | * 23            | 4-957-875-21    | PANEL, BACK (G)              |                |
| * 13            | 3-346-265-11    | HOLDER, PC BOARD                     |                | * 23            | 4-957-875-31    | PANEL, BACK (UK)             |                |
| * 14            | A-4360-460-A    | TUNER BOARD, COMPLETE (AEP)          |                | FL701           | 1-517-177-11    | INDICATOR TUBE, FLUORESCENT  |                |

TUNER

DISPLAY

ENCORDER

AC SW

## SECTION 5

### ELECTRICAL PARTS LIST

**NOTE:**

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

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

• G : German  
IT : Italian

- 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.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS :  
uF :  $\mu$ F

**RESISTORS**

All resistors are in ohms.  
METAL : metal-film resistor  
METAL OXIDE : Metal Oxide-film resistor  
F : nonflammable

**COILS**

uH :  $\mu$ H

**SEMICONDUCTORS**

In each case, u :  $\mu$ , for example :

uA... :  $\mu$ A..., uPA...,  $\mu$ PA...,  
uPB...,  $\mu$ PB..., uPC...,  $\mu$ PC...,  
uPD...,  $\mu$ PD...

| Ref. No. | Part No.     | Description                          | Remarks         | Ref. No. | Part No.     | Description         | Remarks         |
|----------|--------------|--------------------------------------|-----------------|----------|--------------|---------------------|-----------------|
| *        | A-4360-460-A | TUNER BOARD, COMPLETE (AEP)          |                 | C232     | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V             |
|          |              | *****                                |                 | C235     | 1-163-109-00 | CERAMIC CHIP 47PF   | 5% 50V          |
| *        | A-4360-463-A | TUNER BOARD, COMPLETE (UK)           |                 | C236     | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V             |
|          |              | *****                                |                 | C237     | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V             |
| *        | A-4360-461-A | TUNER BOARD, COMPLETE (G)            |                 | C251-253 |              |                     |                 |
|          |              | *****                                |                 |          | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V             |
| *        | A-4360-463-A | TUNER BOARD, COMPLETE (IT)           |                 | C254     | 1-110-335-11 | MYLAR 100PF         | 5% 50V(AEP, UK) |
|          |              | *****                                |                 | C254     | 1-110-341-11 | MYLAR 330PF         | 5% 50V(G, IT)   |
| *        | A-4360-457-A | DISPLAY BOARD, COMPLETE (AEP, G, IT) |                 | C255     | 1-130-467-00 | MYLAR 470PF         | 5% 50V(G, IT)   |
|          |              | *****                                |                 | C256     | 1-164-346-11 | CERAMIC CHIP 1uF    | 16V             |
| *        | A-4365-404-A | DISPLAY BOARD, COMPLETE (UK)         |                 |          |              |                     |                 |
|          |              | *****                                |                 | C257     | 1-124-477-11 | ELECT 47uF          | 20% 25V         |
| *        | 1-647-234-11 | ENCORDER BOARD                       |                 | C258     | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V             |
|          |              | *****                                |                 | C259     | 1-124-477-11 | ELECT 47uF          | 20% 25V         |
| *        | 1-647-235-11 | AC SW BOARD                          |                 | C260-263 |              |                     |                 |
|          |              | *****                                |                 |          | 1-164-232-11 | CERAMIC CHIP 0.01uF | 50V             |
|          | 1-690-122-41 | REED (WITH CONNECTOR) (2 CORE)       |                 | C264     | 1-164-005-11 | CERAMIC CHIP 0.47uF | 25V             |
|          | 1-690-880-11 | LEAD (WITH CONNECTOR)                |                 | C265     | 1-124-477-11 | ELECT 47uF          | 20% 25V         |
| *        | 4-932-810-11 | CUSHION (FL)                         |                 | C266     | 1-124-907-11 | ELECT 10uF          | 20% 50V         |
| *        | 4-945-292-01 | HOLDER, INDICATION TUBE              |                 | C301     | 1-164-098-11 | CERAMIC 0.047uF     | 12V             |
|          | 4-957-933-01 | PLATE, GROUND (G, IT)                |                 |          |              |                     |                 |
|          | 7-682-548-09 | SCREW +B 3X8                         |                 | C302     | 1-124-477-11 | ELECT 47uF          | 20% 25V         |
|          |              | < CAPACITOR >                        |                 | C303     | 1-164-098-11 | CERAMIC 0.047uF     | 12V             |
| C101     | 1-124-477-11 | ELECT 47uF                           | 20% 25V         | C304     | 1-163-129-00 | CERAMIC CHIP 330PF  | 5% 50V          |
| C102     | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V             | C306     | 1-124-477-11 | ELECT 47uF          | 20% 25V         |
| C103     | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V             | C307     | 1-130-467-00 | MYLAR 470PF         | 5% 50V          |
| C151     | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V(AEP, G, IT) | C308     | 1-130-467-00 | MYLAR 470PF         | 5% 50V          |
| C152     | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V(AEP, G, IT) | C311     | 1-130-475-00 | MYLAR 0.0022uF      | 5% 50V          |
|          |              |                                      |                 | C312     | 1-130-475-00 | MYLAR 0.0022uF      | 5% 50V          |
| C155     | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V(AEP, G, IT) | C313     | 1-124-907-11 | ELECT 10uF          | 20% 50V         |
| C201-205 |              |                                      |                 | C314     | 1-124-907-11 | ELECT 10uF          | 20% 50V         |
|          | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V             | C315     | 1-110-335-11 | MYLAR 100PF         | 5% 50V          |
| C221     | 1-163-117-00 | CERAMIC CHIP 100PF                   | 5% 50V          | C316     | 1-110-335-11 | MYLAR 100PF         | 5% 50V          |
| C222-224 |              |                                      |                 | C317     | 1-123-382-00 | ELECT 3.3uF         | 20% 100V        |
|          | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V             | C318     | 1-123-382-00 | ELECT 3.3uF         | 20% 100V        |
| C225     | 1-124-477-11 | ELECT 47uF                           | 20% 25V         | C319     | 1-124-477-11 | ELECT 47uF          | 20% 25V         |
| C226     | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V             | C320-322 |              |                     |                 |
| C227     | 1-163-038-00 | CERAMIC CHIP 0.1uF                   | 25V             |          | 1-164-346-11 | CERAMIC CHIP 1uF    | 16V             |
| C231     | 1-164-232-11 | CERAMIC CHIP 0.01uF                  | 50V             | C323     | 1-164-005-11 | CERAMIC CHIP 0.47uF | 25V             |
|          |              |                                      |                 | C324     | 1-164-346-11 | CERAMIC CHIP 1uF    | 16V             |
|          |              |                                      |                 | C325     | 1-124-477-11 | ELECT 47uF          | 20% 25V         |
|          |              |                                      |                 | C352     | 1-130-471-00 | MYLAR 0.001uF       | 5% 50V(G, IT)   |

**TUNER****ENCORDER****AC SW**

| Ref. No. | Part No.     | Description        | Remarks               |
|----------|--------------|--------------------|-----------------------|
| C353     | 1-130-471-00 | MYLAR              | 0.001uF 5% 50V(G, IT) |
| C401-403 |              |                    |                       |
|          | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C404     | 1-124-477-11 | ELECT              | 47uF 20% 25V          |
| C405     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C406     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C408     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C409     | 1-163-141-00 | CERAMIC CHIP       | 0.001uF 5% 50V        |
| C410     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C411     | 1-124-477-11 | ELECT              | 47uF 20% 25V          |
| C412     | 1-164-346-11 | CERAMIC CHIP       | 1uF 16V               |
| C413     | 1-164-346-11 | CERAMIC CHIP       | 1uF 16V               |
| C414     | 1-124-927-11 | ELECT              | 4.7uF 20% 100V        |
| C415     | 1-123-382-00 | ELECT              | 3.3uF 20% 100V        |
| C416     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C417     | 1-124-907-11 | ELECT              | 10uF 20% 50V          |
| C421     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C451     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C452     | 1-164-693-11 | CERAMIC CHIP       | 0.0018uF 5% 50V       |
| C453     | 1-163-145-00 | CERAMIC CHIP       | 0.0015uF 5% 50V       |
| C454     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C455     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C501     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C502     | 1-163-235-11 | CERAMIC CHIP       | 22PF 5% 50V           |
| C503     | 1-163-235-11 | CERAMIC CHIP       | 22PF 5% 50V           |
| C504     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C505     | 1-124-907-11 | ELECT              | 10uF 20% 50V          |
| C506-508 |              |                    |                       |
|          | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C509     | 1-124-477-11 | ELECT              | 47uF 20% 25V          |
| C511     | 1-124-907-11 | ELECT              | 10uF 20% 50V          |
| C512     | 1-123-382-00 | ELECT              | 3.3uF 20% 100V        |
| C513     | 1-164-346-11 | CERAMIC CHIP       | 1uF 16V               |
| C514     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C551     | 1-124-907-11 | ELECT              | 10uF 20% 50V          |
| C552     | 1-164-346-11 | CERAMIC CHIP       | 1uF 16V               |
| C553     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C554     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C603     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C607     | 1-164-005-11 | CERAMIC CHIP       | 0.47uF 25V            |
| C608     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C611     | 1-104-905-11 | CAP, DOUBLE LAYERS | 0.22F                 |
| C612     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C613     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C620     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C701     | 1-163-104-00 | CERAMIC CHIP       | 30PF 5% 50V           |
| C702     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C703     | 1-128-183-11 | ELECT              | 470uF 20% 6.3V        |
| C704     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C705     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |
| C706     | 1-163-038-00 | CERAMIC CHIP       | 0.1uF 25V             |
| C707     | 1-126-157-11 | ELECT              | 10uF 20% 16V          |
| C710     | 1-164-232-11 | CERAMIC CHIP       | 0.01uF 50V            |

| Ref. No. | Part No.     | Description  | Remarks                  |
|----------|--------------|--------------|--------------------------|
| C711     | 1-163-038-00 | CERAMIC CHIP | 0.1uF 25V                |
| C801     | 1-164-232-11 | CERAMIC CHIP | 0.01uF 50V               |
| C802     | 1-124-925-11 | ELECT        | 2.2uF 20% 100V           |
| C803     | 1-124-477-11 | ELECT        | 47uF 20% 25V             |
| C804     | 1-164-232-11 | CERAMIC CHIP | 0.01uF 50V               |
| C805     | 1-163-135-00 | CERAMIC CHIP | 560PF 5% 50V             |
| C806     | 1-163-115-00 | CERAMIC CHIP | 82PF 5% 50V              |
| C808     | 1-163-243-11 | CERAMIC CHIP | 47PF 5% 50V              |
| C809     | 1-164-232-11 | CERAMIC CHIP | 0.01uF 50V               |
| C817     | 1-124-907-11 | ELECT        | 10uF 20% 50V             |
| C818     | 1-164-232-11 | CERAMIC CHIP | 0.01uF 50V               |
| C901     | 1-164-232-11 | CERAMIC CHIP | 0.01uF 50V               |
| C902     | 1-164-232-11 | CERAMIC CHIP | 0.01uF 50V               |
| C903     | 1-124-910-11 | ELECT        | 47uF 20% 50V             |
| C904     | 1-124-910-11 | ELECT        | 47uF 20% 50V             |
| C905     | 1-124-618-11 | ELECT        | 2200uF 20% 35V           |
| C906     | 1-124-911-11 | ELECT        | 220uF 20% 50V            |
| C908     | 1-124-907-11 | ELECT        | 10uF 20% 50V             |
| C909     | 1-124-477-11 | ELECT        | 47uF 20% 25V             |
| C911     | 1-124-916-11 | ELECT        | 22uF 20% 63V             |
| C951     | 1-161-744-00 | CERAMIC      | 0.01uF 400V              |
| C952     | 1-161-742-00 | CERAMIC      | 0.0022uF 20% 400V(G, IT) |
| C953     | 1-161-742-00 | CERAMIC      | 0.0022uF 20% 400V(G, IT) |
| C954     | 1-164-232-11 | CERAMIC CHIP | 0.01uF 50V (G, IT)       |

&lt; FILTER &gt;

CF201-203

|       |              |                     |
|-------|--------------|---------------------|
|       | 1-567-389-11 | FILTER, CERAMIC     |
| CF231 | 1-567-107-71 | FILTER, CERAMIC     |
| CF301 | 1-567-250-11 | OSCILLATOR, CERAMIC |
| CF402 | 1-527-981-00 | FILTER, CERAMIC     |

&lt; CONNECTOR &gt;

|         |              |                   |
|---------|--------------|-------------------|
| * CN701 | 1-564-341-11 | PIN, CONNECTOR 7P |
| * CN702 | 1-564-341-11 | PIN, CONNECTOR 7P |
| * CN901 | 1-564-321-00 | PIN, CONNECTOR 2P |
| CN951   | 1-564-321-00 | PIN, CONNECTOR 2P |

&lt; JACK &gt;

CNJ301 1-568-250-11 JACK, PIN 2P (OUTPUT)

&lt; DIODE &gt;

|          |              |                           |
|----------|--------------|---------------------------|
| D151     | 8-719-016-74 | DIODE 1SS352 (AEP, G, IT) |
| D152     | 8-719-016-74 | DIODE 1SS352              |
| D221     | 8-719-016-74 | DIODE 1SS352              |
| D301     | 8-719-016-74 | DIODE 1SS352              |
| D402     | 8-719-016-74 | DIODE 1SS352              |
| D601     | 8-719-016-74 | DIODE 1SS352              |
| D616-620 |              |                           |
|          | 8-719-016-74 | DIODE 1SS352              |

TUNER

ENCORDER

AC SW

| Ref. No.        | Part No.     | Description                      | Remarks |
|-----------------|--------------|----------------------------------|---------|
| D901-904        |              |                                  |         |
|                 | 8-719-200-07 | DIODE 10E2                       |         |
| D905            | 8-719-022-74 | DIODE UZM27B                     |         |
| D906            | 8-719-021-61 | DIODE UZM6.8Z                    |         |
| < FRONTEND >    |              |                                  |         |
| FE101           | 1-693-212-11 | FRONT END (FTZ)                  |         |
| FE421           | 1-236-462-11 | ENCAPSULATED COMPONENT           |         |
| FE451           | 1-236-463-11 | ENCAPSULATED COMPONENT           |         |
| < FILTER >      |              |                                  |         |
| FL701           | 1-517-177-11 | INDICATOR TUBE, FLUORESCENT      |         |
| < IC >          |              |                                  |         |
| IC221           | 8-759-812-35 | IC LA1235                        |         |
| IC251           | 8-759-812-35 | IC LA1235                        |         |
| IC252           | 8-759-145-58 | IC uPC4558C                      |         |
| IC301           | 8-759-801-80 | IC LA3401                        |         |
| IC302           | 8-759-145-58 | IC uPC4558C                      |         |
| IC401           | 8-759-812-45 | IC LA1245                        |         |
| IC501           | 8-757-925-20 | IC CX7925B                       |         |
| IC601           | 8-759-164-12 | IC uPD78013GC-518-AB8            |         |
| IC701           | 8-759-823-57 | IC LC75711E                      |         |
| IC702           | 8-749-923-43 | IC GP1U57XB                      |         |
| IC801           | 8-759-065-98 | IC SAA6579T                      |         |
| IC802           | 8-759-161-78 | IC LC7073M-TE-R                  |         |
| IC901           | 8-759-820-09 | IC LA5667                        |         |
| < COIL >        |              |                                  |         |
| L351            | 1-410-470-11 | INDUCTOR 10uH (G, IT)            |         |
| L352            | 1-410-470-11 | INDUCTOR 10uH (G, IT)            |         |
| L451            | 1-408-425-00 | INDUCTOR 220uH                   |         |
| L601            | 1-410-482-31 | INDUCTOR 100uH                   |         |
| L701            | 1-408-421-00 | INDUCTOR 100uH                   |         |
| L801            | 1-410-482-31 | INDUCTOR 100uH                   |         |
| < FILTER >      |              |                                  |         |
| LPF301          | 1-235-164-00 | FILTER, LOW PASS                 |         |
| LPF302          | 1-235-164-00 | FILTER, LOW PASS                 |         |
| < TRANSFORMER > |              |                                  |         |
| △PT901          | 1-423-525-11 | TRANSFORMER, POWER               |         |
| < TRANSISTOR >  |              |                                  |         |
| Q151            | 8-729-904-39 | TRANSISTOR DTC114TS (AEP, G, IT) |         |
| Q152            | 8-729-904-39 | TRANSISTOR DTC114TS              |         |
| Q201-204        |              |                                  |         |
|                 | 8-729-230-XX | TRANSISTOR 2SC26690Y             |         |
| Q231-233        |              |                                  |         |
|                 | 8-729-904-39 | TRANSISTOR DTC114TS              |         |
| Q234            | 8-729-620-05 | TRANSISTOR 2SC2603-EF            |         |

| Ref. No.     | Part No.     | Description                           | Remarks |
|--------------|--------------|---------------------------------------|---------|
| Q235         | 8-729-620-05 | TRANSISTOR 2SC2603-EF                 |         |
| Q236         | 8-729-230-XX | TRANSISTOR 2SC26690Y                  |         |
| Q237         | 8-729-230-XX | TRANSISTOR 2SC26690Y                  |         |
| Q301         | 8-729-141-30 | TRANSISTOR 2SC3623A-LK                |         |
| Q302         | 8-729-141-30 | TRANSISTOR 2SC3623A-LK                |         |
| Q451         | 8-729-231-20 | TRANSISTOR 2SK161-YGR                 |         |
| Q452-456     |              |                                       |         |
|              | 8-729-900-89 | TRANSISTOR DTC144ES                   |         |
| Q457         | 8-729-141-30 | TRANSISTOR 2SC3623A-LK                |         |
| Q458         | 8-729-904-39 | TRANSISTOR DTC114TS                   |         |
| Q459         | 8-729-620-05 | TRANSISTOR 2SC2603-EF                 |         |
| Q511         | 8-729-202-67 | TRANSISTOR 2SK246-GR3                 |         |
| Q512         | 8-729-201-84 | TRANSISTOR 2SC3112-B                  |         |
| Q521         | 8-729-900-89 | TRANSISTOR DTC144ES                   |         |
| Q522         | 8-729-119-76 | TRANSISTOR 2SA1175-HFE                |         |
| Q523         | 8-729-620-05 | TRANSISTOR 2SC2603-EF                 |         |
| Q551         | 8-729-202-67 | TRANSISTOR 2SK246-GR3                 |         |
| Q552         | 8-729-201-84 | TRANSISTOR 2SC3112-B                  |         |
| Q610         | 8-729-620-05 | TRANSISTOR 2SC2603-EF                 |         |
| Q901         | 8-729-900-65 | TRANSISTOR DTA144ES                   |         |
| < RESISTOR > |              |                                       |         |
| △R101        | 1-249-401-11 | CARBON 47 5% 1/4W F                   |         |
| R151         | 1-216-097-00 | METAL CHIP 100K 5% 1/10W (AEP, G, IT) |         |
| R152         | 1-216-097-00 | METAL CHIP 100K 5% 1/10W (AEP, G, IT) |         |
| R153         | 1-216-018-00 | METAL CHIP 51 5% 1/10W                |         |
| R154         | 1-216-018-00 | METAL CHIP 51 5% 1/10W                |         |
| R155         | 1-216-011-00 | METAL CHIP 27 5% 1/10W                |         |
| R156         | 1-216-023-00 | METAL CHIP 82 5% 1/10W (AEP, G, IT)   |         |
| R157         | 1-216-023-00 | METAL CHIP 82 5% 1/10W                |         |
| R201         | 1-216-033-00 | METAL CHIP 220 5% 1/10W               |         |
| R202         | 1-216-001-00 | METAL CHIP 10 5% 1/10W                |         |
| R203         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| R204         | 1-216-077-00 | METAL CHIP 15K 5% 1/10W               |         |
| R205         | 1-216-031-00 | METAL CHIP 180 5% 1/10W               |         |
| R206         | 1-216-041-00 | METAL CHIP 470 5% 1/10W               |         |
| R207         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| R208         | 1-216-083-00 | METAL CHIP 27K 5% 1/10W               |         |
| R209         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| R210         | 1-216-077-00 | METAL CHIP 15K 5% 1/10W               |         |
| R211         | 1-216-031-00 | METAL CHIP 180 5% 1/10W               |         |
| R212         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| R213         | 1-216-083-00 | METAL CHIP 27K 5% 1/10W               |         |
| R214         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| R221         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| △R222        | 1-249-405-11 | CARBON 100 5% 1/4W F                  |         |
| R223         | 1-216-101-00 | METAL CHIP 150K 5% 1/10W              |         |
| R231         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| R232         | 1-216-077-00 | METAL CHIP 15K 5% 1/10W               |         |
| R233         | 1-216-037-00 | METAL CHIP 330 5% 1/10W               |         |
| R234         | 1-216-005-00 | METAL CHIP 15 5% 1/10W                |         |
| R235         | 1-216-083-00 | METAL CHIP 27K 5% 1/10W               |         |

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



**TUNER**
**ENCORDER**
**AC SW**

| Ref. No.  | Part No.     | Description        | Remarks         |
|-----------|--------------|--------------------|-----------------|
| R236      | 1-216-033-00 | METAL CHIP 220 5%  | 1/10W           |
| R237      | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W           |
| R238      | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W           |
| R239      | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W           |
| R240      | 1-216-077-00 | METAL CHIP 15K 5%  | 1/10W           |
| R241      | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W           |
| R242      | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W           |
| R243      | 1-216-025-00 | METAL CHIP 100 5%  | 1/10W           |
| R251      | 1-216-037-00 | METAL CHIP 330 5%  | 1/10W           |
| R252      | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W           |
| R253      | 1-216-093-00 | METAL CHIP 68K 5%  | 1/10W           |
| R254      | 1-216-001-00 | METAL CHIP 10 5%   | 1/10W (AEP, UK) |
| R254      | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W (G, IT)   |
| R255      | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W           |
| R256      | 1-216-079-00 | METAL CHIP 18K 5%  | 1/10W           |
| R257      | 1-216-063-00 | METAL CHIP 3.9K 5% | 1/10W           |
| R258      | 1-216-059-00 | METAL CHIP 2.7K 5% | 1/10W           |
| △R259     | 1-249-405-11 | CARBON 100 5%      | 1/4W F          |
| R260      | 1-216-091-00 | METAL CHIP 56K 5%  | 1/10W           |
| R261      | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W           |
| R262      | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W           |
| R264      | 1-216-067-00 | METAL CHIP 5.6K 5% | 1/10W           |
| △R265     | 1-249-401-11 | CARBON 47 5%       | 1/4W F          |
| R268      | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W           |
| △R271-273 |              |                    |                 |
|           | 1-249-393-11 | CARBON 10 5%       | 1/4W F          |
| R301      | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W           |
| R302      | 1-216-101-00 | METAL CHIP 150K 5% | 1/10W           |
| R303      | 1-216-101-00 | METAL CHIP 150K 5% | 1/10W           |
| R304      | 1-216-098-00 | METAL CHIP 110K 5% | 1/10W           |
| R305      | 1-216-098-00 | METAL CHIP 110K 5% | 1/10W           |
| R306      | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W           |
| R307      | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W           |
| R308-311  |              |                    |                 |
|           | 1-216-067-00 | METAL CHIP 5.6K 5% | 1/10W           |
| R312      | 1-216-063-00 | METAL CHIP 3.9K 5% | 1/10W           |
| R313      | 1-216-063-00 | METAL CHIP 3.9K 5% | 1/10W           |
| R314      | 1-216-041-00 | METAL CHIP 470 5%  | 1/10W           |
| R315      | 1-216-041-00 | METAL CHIP 470 5%  | 1/10W           |
| △R316     | 1-249-401-11 | CARBON 47 5%       | 1/4W F          |
| R317      | 1-216-043-00 | METAL CHIP 560 5%  | 1/10W           |
| R318      | 1-216-043-00 | METAL CHIP 560 5%  | 1/10W           |
| R319-321  |              |                    |                 |
|           | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W           |
| R322      | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W           |
| R323      | 1-216-085-00 | METAL CHIP 33K 5%  | 1/10W           |
| R324      | 1-216-067-00 | METAL CHIP 5.6K 5% | 1/10W           |
| △R325     | 1-249-401-11 | CARBON 47 5%       | 1/4W F          |
| R361      | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W           |
| R362      | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W           |
| R401      | 1-216-057-00 | METAL CHIP 2.2K 5% | 1/10W           |
| △R402     | 1-249-409-11 | CARBON 220 5%      | 1/4W F          |
| R404      | 1-216-041-00 | METAL CHIP 470 5%  | 1/10W           |

| Ref. No. | Part No.     | Description        | Remarks    |
|----------|--------------|--------------------|------------|
| R405     | 1-216-025-00 | METAL CHIP 100 5%  | 1/10W      |
| R406     | 1-216-023-00 | METAL CHIP 82 5%   | 1/10W      |
| R408     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W      |
| R409     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W      |
| R410     | 1-216-075-00 | METAL CHIP 12K 5%  | 1/10W      |
| R411     | 1-216-069-00 | METAL CHIP 6.8K 5% | 1/10W      |
| △R412    | 1-249-407-11 | CARBON 150 5%      | 1/4W F     |
| R413     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W      |
| R421     | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W      |
| R422     | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W      |
| R451     | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W      |
| R452     | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W      |
| R454     | 1-216-121-00 | METAL CHIP 1M 5%   | 1/10W      |
| R455     | 1-216-049-00 | METAL CHIP 1K 5%   | 1/10W      |
| R456     | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W      |
| R457     | 1-216-049-00 | METAL CHIP 1K 5%   | 1/10W      |
| R458     | 1-216-097-00 | METAL CHIP 100K 5% | 1/10W      |
| R459     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W      |
| R460     | 1-216-061-00 | METAL CHIP 3.3K 5% | 1/10W      |
| R501-503 |              |                    |            |
|          | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W      |
| △R504    | 1-249-400-11 | CARBON 39 5%       | 1/4W F     |
| △R505    | 1-249-408-11 | CARBON 180 5%      | 1/4W F     |
| R511     | 1-216-043-00 | METAL CHIP 560 5%  | 1/10W      |
| R512     | 1-216-043-00 | METAL CHIP 560 5%  | 1/10W      |
| R513     | 1-216-051-00 | METAL CHIP 1.2K 5% | 1/10W      |
| R514     | 1-216-037-00 | METAL CHIP 330 5%  | 1/10W      |
| R515     | 1-216-055-00 | METAL CHIP 1.8K 5% | 1/10W      |
| R516     | 1-216-069-00 | METAL CHIP 6.8K 5% | 1/10W      |
| R517     | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W      |
| R518     | 1-216-045-00 | METAL CHIP 680 5%  | 1/10W      |
| R519     | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W      |
| R521     | 1-216-061-00 | METAL CHIP 3.3K 5% | 1/10W      |
| R522     | 1-216-081-00 | METAL CHIP 22K 5%  | 1/10W      |
| R551     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W      |
| R552     | 1-216-043-00 | METAL CHIP 560 5%  | 1/10W      |
| R553     | 1-216-051-00 | METAL CHIP 1.2K 5% | 1/10W      |
| R554     | 1-216-037-00 | METAL CHIP 330 5%  | 1/10W      |
| R555     | 1-216-089-00 | METAL CHIP 47K 5%  | 1/10W      |
| R556     | 1-216-069-00 | METAL CHIP 6.8K 5% | 1/10W      |
| R557     | 1-216-065-00 | METAL CHIP 4.7K 5% | 1/10W      |
| R604     | 1-216-025-00 | METAL CHIP 100 5%  | 1/10W      |
| R611     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W      |
| △R613    | 1-249-401-11 | CARBON 47 5%       | 1/4W F     |
| R614     | 1-216-049-00 | METAL CHIP 1K 5%   | 1/10W      |
| R620     | 1-216-025-00 | METAL CHIP 100 5%  | 1/10W      |
| R621     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W (IT) |
| R624     | 1-216-073-00 | METAL CHIP 10K 5%  | 1/10W (UK) |
| R626     | 1-216-081-00 | METAL CHIP 22K 5%  | 1/10W      |
| R627     | 1-216-113-00 | METAL CHIP 470K 5% | 1/10W      |
| R640     | 1-216-025-00 | METAL CHIP 100 5%  | 1/10W      |



## TUNER

## ENCORDER

## AC SW

| Ref. No.              | Part No.     | Description           | Remarks |
|-----------------------|--------------|-----------------------|---------|
| R641-643              |              |                       |         |
|                       | 1-216-057-00 | METAL CHIP 2.2K 5%    | 1/10W   |
| R644                  | 1-216-025-00 | METAL CHIP 100 5%     | 1/10W   |
| R645                  | 1-216-025-00 | METAL CHIP 100 5%     | 1/10W   |
| R651                  | 1-216-053-00 | METAL CHIP 1.5K 5%    | 1/10W   |
| R652                  | 1-216-053-00 | METAL CHIP 1.5K 5%    | 1/10W   |
| R701                  | 1-216-689-11 | METAL CHIP 39K 0.5%   | 1/10W   |
| △R702                 | 1-249-401-11 | CARBON 47 5%          | 1/4W F  |
| R703                  | 1-216-097-00 | METAL CHIP 100K 5%    | 1/10W   |
| R704                  | 1-216-097-00 | METAL CHIP 100K 5%    | 1/10W   |
| R705                  | 1-216-027-00 | METAL CHIP 120 5%     | 1/10W   |
| R706                  | 1-216-027-00 | METAL CHIP 120 5%     | 1/10W   |
| R707                  | 1-216-029-00 | METAL CHIP 150 5%     | 1/10W   |
| R708                  | 1-216-031-00 | METAL CHIP 180 5%     | 1/10W   |
| R709                  | 1-216-033-00 | METAL CHIP 220 5%     | 1/10W   |
| R710                  | 1-216-035-00 | METAL CHIP 270 5%     | 1/10W   |
| R711                  | 1-216-037-00 | METAL CHIP 330 5%     | 1/10W   |
| R712                  | 1-216-041-00 | METAL CHIP 470 5%     | 1/10W   |
| R713                  | 1-216-043-00 | METAL CHIP 560 5%     | 1/10W   |
| R714                  | 1-216-047-00 | METAL CHIP 820 5%     | 1/10W   |
| R715                  | 1-216-051-00 | METAL CHIP 1.2K 5%    | 1/10W   |
| R716                  | 1-216-057-00 | METAL CHIP 2.2K 5%    | 1/10W   |
| R717                  | 1-216-063-00 | METAL CHIP 3.9K 5%    | 1/10W   |
| R718                  | 1-216-075-00 | METAL CHIP 12K 5%     | 1/10W   |
| R721                  | 1-216-027-00 | METAL CHIP 120 5%     | 1/10W   |
| R722                  | 1-216-027-00 | METAL CHIP 120 5%     | 1/10W   |
| R723                  | 1-216-029-00 | METAL CHIP 150 5%     | 1/10W   |
| R724                  | 1-216-031-00 | METAL CHIP 180 5%     | 1/10W   |
| R725                  | 1-216-033-00 | METAL CHIP 220 5%     | 1/10W   |
| R726                  | 1-216-035-00 | METAL CHIP 270 5%     | 1/10W   |
| R727                  | 1-216-037-00 | METAL CHIP 330 5%     | 1/10W   |
| R728                  | 1-216-041-00 | METAL CHIP 470 5%     | 1/10W   |
| R729                  | 1-216-043-00 | METAL CHIP 560 5%     | 1/10W   |
| R730                  | 1-216-047-00 | METAL CHIP 820 5%     | 1/10W   |
| R731                  | 1-216-051-00 | METAL CHIP 1.2K 5%    | 1/10W   |
| R732                  | 1-216-057-00 | METAL CHIP 2.2K 5%    | 1/10W   |
| R740                  | 1-216-025-00 | METAL CHIP 100 5%     | 1/10W   |
| △R801                 | 1-249-401-11 | CARBON 47 5%          | 1/4W F  |
| R802                  | 1-216-057-00 | METAL CHIP 2.2K 5%    | 1/10W   |
| R809                  | 1-216-073-00 | METAL CHIP 10K 5%     | 1/10W   |
| △R902                 | 1-249-413-11 | CARBON 470 5%         | 1/4W F  |
| R903                  | 1-216-097-00 | METAL CHIP 100K 5%    | 1/10W   |
| R904-906              |              |                       |         |
|                       | 1-216-089-00 | METAL CHIP 47K 5%     | 1/10W   |
| < VARIABLE RESISTOR > |              |                       |         |
| RV221                 | 1-238-601-11 | RES, ADJ, CARBON 22K  |         |
| RV231                 | 1-238-599-11 | RES, ADJ, CARBON 4.7K |         |
| RV251                 | 1-238-600-11 | RES, ADJ, CARBON 10K  |         |
| RV301                 | 1-238-604-11 | RES, ADJ, CARBON 220K |         |
| RV402                 | 1-238-600-11 | RES, ADJ, CARBON 10K  |         |

| Ref. No.        | Part No.     | Description                             | Remarks |
|-----------------|--------------|-----------------------------------------|---------|
| RV701           | 1-466-513-21 | ENCODER, ROTARY (TUNING)                |         |
| < RELAY >       |              |                                         |         |
| RY151-153       |              |                                         |         |
|                 | 1-515-614-11 | RELAY (AEP, G, IT)                      |         |
| < 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 (SHIFT)                 |         |
| S712            | 1-554-303-21 | SWITCH, TACTILE (BAND)                  |         |
| S713            | 1-554-303-21 | SWITCH, TACTILE (MEMORY)                |         |
| S714            | 1-554-303-21 | SWITCH, TACTILE (DIRECT)                |         |
| S715            | 1-554-303-21 | SWITCH, TACTILE (TUNING/PRESET)         |         |
| S716            | 1-554-303-21 | SWITCH, TACTILE (CHARACTER)             |         |
| S717            | 1-554-303-21 | SWITCH, TACTILE (DISPLAY)               |         |
| S718            | 1-554-303-21 | SWITCH, TACTILE (DISPLAY MODE)          |         |
| S719            | 1-554-303-21 | SWITCH, TACTILE (ANT) (AEP, G, IT)      |         |
| S720            | 1-554-303-21 | SWITCH, TACTILE (ANT ATT)               |         |
| S721            | 1-554-303-21 | SWITCH, TACTILE (IF BAND)               |         |
| S722            | 1-554-303-21 | SWITCH, TACTILE (STEREO/MUTE)           |         |
| S725            | 1-554-303-21 | SWITCH, TACTILE (PTY)                   |         |
| S726            | 1-554-303-21 | SWITCH, TACTILE (NEWS/INFO)             |         |
| S727            | 1-554-303-21 | SWITCH, TACTILE (TA)                    |         |
| S728            | 1-554-303-21 | SWITCH, TACTILE (TUNE MODE)             |         |
| △S901           | 1-572-267-51 | SWITCH, PUSH (AC POWER) (1 KEY) (POWER) |         |
| < TRANSFORMER > |              |                                         |         |
| T251            | 1-235-126-00 | ENCAPSULATED COMPONENT (G, IT)          |         |
| T252            | 1-404-845-11 | COIL, DISCRI (PRIMARY)                  |         |
| T253            | 1-404-846-11 | COIL, DISCRI (SECONDARY)                |         |
| T401            | 1-404-713-11 | TRANSFORMER, IF                         |         |
| < TERMINAL >    |              |                                         |         |
| * TM101         | 1-537-406-11 | TERMINAL BOARD (ANT) (AEP, G, IT)       |         |
| TM101           | 1-537-406-21 | TERMINAL BOARD (ANT) (UK)               |         |
| < TEST PIN >    |              |                                         |         |
| * TP251         | 1-565-513-11 | PIN, CONNECTOR 2P                       |         |

TUNER

ENCORDER

AC SW

| Ref. No.                        | Part No.     | Description                                                             | Remarks |
|---------------------------------|--------------|-------------------------------------------------------------------------|---------|
| < VIBRATOR >                    |              |                                                                         |         |
| X501                            | 1-567-826-21 | VIBRATOR, CRYSTAL 7.2MHz                                                |         |
| X601                            | 1-579-599-21 | VIBRATOR, CERAMIC 4.19MHz                                               |         |
| X801                            | 1-579-900-21 | VIBRATOR, CRYSTAL 4.332MHz                                              |         |
| X802                            | 1-577-358-21 | VIBRATOR, CERAMIC 4.00MHz                                               |         |
| *****                           |              |                                                                         |         |
| MISCELLANEOUS                   |              |                                                                         |         |
| *****                           |              |                                                                         |         |
| △18                             | 1-575-651-11 | CORD, POWER (AEP, G, IT)                                                |         |
| △18                             | 1-696-570-21 | CORD, POWER (UK)                                                        |         |
| *****                           |              |                                                                         |         |
| ACCESSORIES & PACKING MATERIALS |              |                                                                         |         |
| *****                           |              |                                                                         |         |
|                                 | 1-501-374-11 | ANTENNA, LOOP                                                           |         |
|                                 | 1-501-594-11 | ANTENNA (FM) (AEP, UK)                                                  |         |
|                                 | 1-558-271-11 | CORD, CONNECTION                                                        |         |
|                                 | 3-756-648-11 | MANUAL, INSTRUCTION (ENGLISH/FRENCH/<br>SPANISH/PORTUGAL/CHINESE) (AEP) |         |
|                                 | 3-756-648-41 | MANUAL, INSTRUCTION<br>(GERMAN/DUTCH/SWEDISH/ITALIAN) (AEP, IT)         |         |
|                                 | 3-756-648-51 | MANUAL, INSTRUCTION (GERMAN) (G)                                        |         |
|                                 | 3-756-648-81 | MANUAL, INSTRUCTION (ENGLISH) (UK)                                      |         |
| *                               | 4-930-835-01 | CUSHION                                                                 |         |
| *                               | 4-944-049-61 | INDIVIDUAL CARTON                                                       |         |
| *****                           |              |                                                                         |         |
| *****                           |              |                                                                         |         |
| HARDWARE LIST                   |              |                                                                         |         |
| *****                           |              |                                                                         |         |
| #1                              | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 IT-3                                              |         |
| #2                              | 7-682-548-04 | SCREW +BVTT 3X8 (S)                                                     |         |
| #3                              | 7-682-548-09 | SCREW +B 3X8                                                            |         |
| #4                              | 7-621-849-00 | SCREW (BV/RING)                                                         |         |

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