

# ECM-737

## SERVICE MANUAL

*US Model  
Canadian Model  
AEP Model  
UK Model  
E Model*



### Specifications

#### General

|                      |                                                                                                                                                    |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| Type                 | One-point stereo (employing the Mid-Side system), electret condenser microphone (with back-electret condenser capsules)                            |
| Output plug          | Stereo miniplug                                                                                                                                    |
| Cord length          | Approx. 2 m (6 feet 7 inches)                                                                                                                      |
| Battery              | R6 (size AA) battery                                                                                                                               |
| Dimensions           | Approx. 48 x 145 x 40 mm (w/h/d)<br>(1 15/16 x 5 3/4 x 1 5/8 inches)                                                                               |
| Weight               | Approx. 225 g (8 oz) incl. battery                                                                                                                 |
| Supplied accessories | Wind screen (1)<br>Microphone holder (with PF 1/2 screw) (1)<br>Microphone stand (1) (UK, AEP, E Model)<br>Case (1)<br>Sony battery SUM-3 (NS) (1) |

#### Performance

|                                                  |                                                                                                                                                                                                                                 |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency response                               | 80-15,000 Hz                                                                                                                                                                                                                    |
| Directivity                                      | Directive angle: 90° or 120°                                                                                                                                                                                                    |
| Output impedance                                 | 200 $\Omega$ $\pm$ 20% unbalanced                                                                                                                                                                                               |
| Output level (at 1,000 Hz, directive angle 120°) | Open circuit voltage: $-41 \pm 3$ dB (0 dB = 1 V/Pa)<br>Effective output level: $-40 \pm 3$ dBm (0 dBm = 1 mW/Pa)<br>Difference between L and R output level: Less than 3 dB<br>Recommended load impedance: More than 3 kilohms |
| Power requirements                               | Normal operating voltage: 1.5 V<br>Minimum operating voltage: Approx. 1.1 V<br>Battery life: Approx. 50 hours with Sony battery SUM-3 (NS)<br>Approx. 120 hours with Sony alkaline battery AM 3 (N)                             |
| Noise level                                      | Signal-to-noise ratio: More than 69 dB (1,000 Hz, 1 Pa)<br>Inherent noise: Less than 25 dB SPL (0 dB SPL = $2 \times 10^{-5}$ Pa = $2 \times 10^{-4}$ $\mu$ bar)<br>Wind noise*: Less than 35 dB SPL, using wind screen         |
| Maximum sound pressure level                     | More than 125 dB SPL (at 1,000 Hz, 1% distortion)                                                                                                                                                                               |
| Dynamic range                                    | More than 100 dB                                                                                                                                                                                                                |
| Operating temperature range                      | 0°C to 60°C (32°F to 140°F)                                                                                                                                                                                                     |
| Storage temperature range                        | -20°C to 60°C (-4°F to 140°F)                                                                                                                                                                                                   |

\* Wind noise is the value measured by applying a wind velocity of 2 m/sec. (6.6 ft./sec.) from all directions to the microphone. The mean value is taken and converted to the equivalent input sound level.

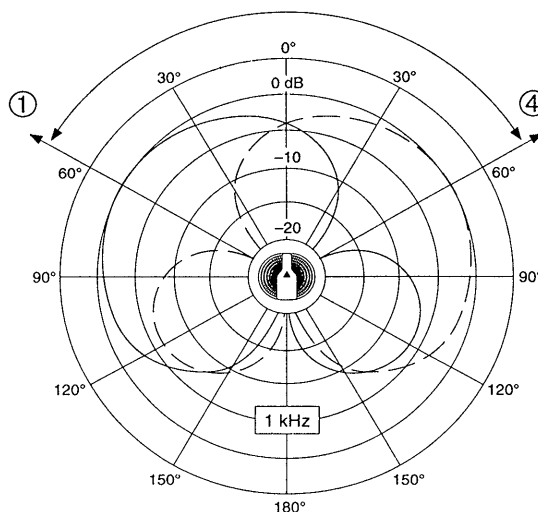
Design and specifications subject to change without notice.

### Features

- Compact stereo microphone for a portable digital audio tape-corder or a cassette-corder.
- Either 90° or 120° of the directive angle between the left and the right channels (directivity characteristics) can be selected according to the sound source.
- The Mid-Side Stereo System assures a steady sound pickup, preventing a "hole in the middle", and gives a truer duplication of the original sound distribution.
- The gold plated plug and the OFC microphone cord assure good sound reproduction.

Directivity characteristics

|   |                            |
|---|----------------------------|
| ① | L-channel directional axis |
| ② | Front                      |
| ③ | Directive angle 120°       |
| ④ | R-channel directional axis |

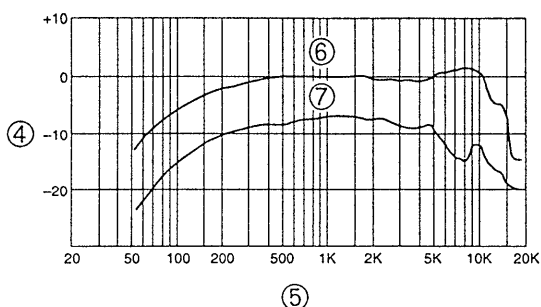
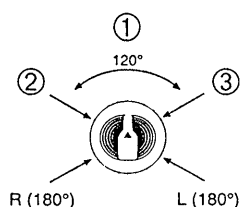


**ELECTRET CONDENSER MICROPHONE**  
**SONY®**

## SECTION 1

### GENERAL

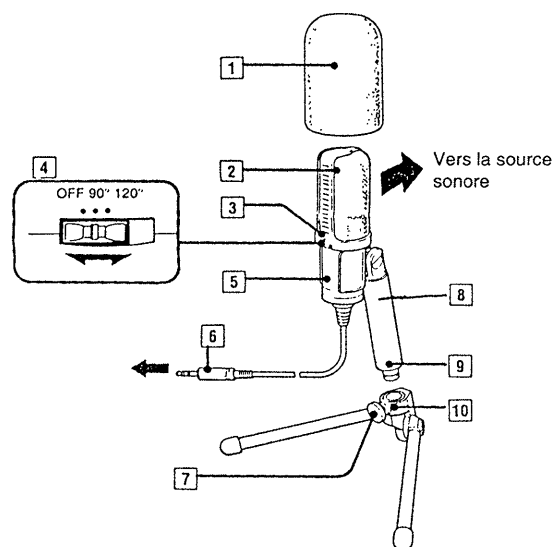
#### Frequency response



- ① Directive angle
- ② L-channel directional axis
- ③ R-channel directional axis
- ④ Response in dB
- ⑤ Frequency in Hz
- ⑥ Axis
- ⑦ 180° from the axis

## Parts Identification

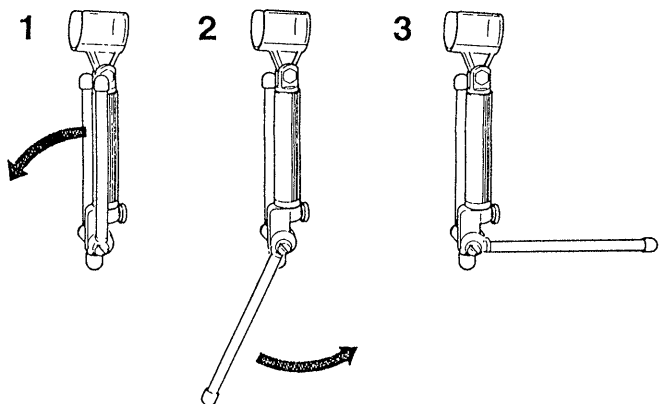
- 1 Wind screen**  
Reduces wind or breath noises.
- 2 Microphone unit**  
Set the microphone vertical to the sound source.
- 3 Battery check indicator**  
When the power/directive angle switch is moved from OFF to 90°, this indicator will light momentarily, if the battery is in good condition.
- 4 Power/directive angle switch**  
OFF: To turn off the power  
90°: To pick up the source more clearly than the sound around the source (e.g. to pick up the sound of a string quartet or jazz trio, or bird and insect noises)  
120°: To pick up a sound well distributed to the left and right (e.g. to pick up the sound of an orchestra, chorus, moving steam locomotive, motor race)
- 5 Grip**
- 6 Stereo miniplug**  
Connect to the microphone jack of a portable digital audio tape-corder or a cassette-corder.
- 7 Lock screw**  
Adjust the angle of the microphone, and then tighten this screw to set the microphone steadily.
- 8 Microphone holder**  
Attach to the microphone grip.
- 9 Joint screw**  
If you remove the screw, you can attach the microphone holder to an ordinary microphone stand.  
By using this screw, you can also attach the microphone to a camera tripod.
- 10 Microphone stand**



#### How to extend the legs of the microphone stand **C**

Extend each leg as illustrated.

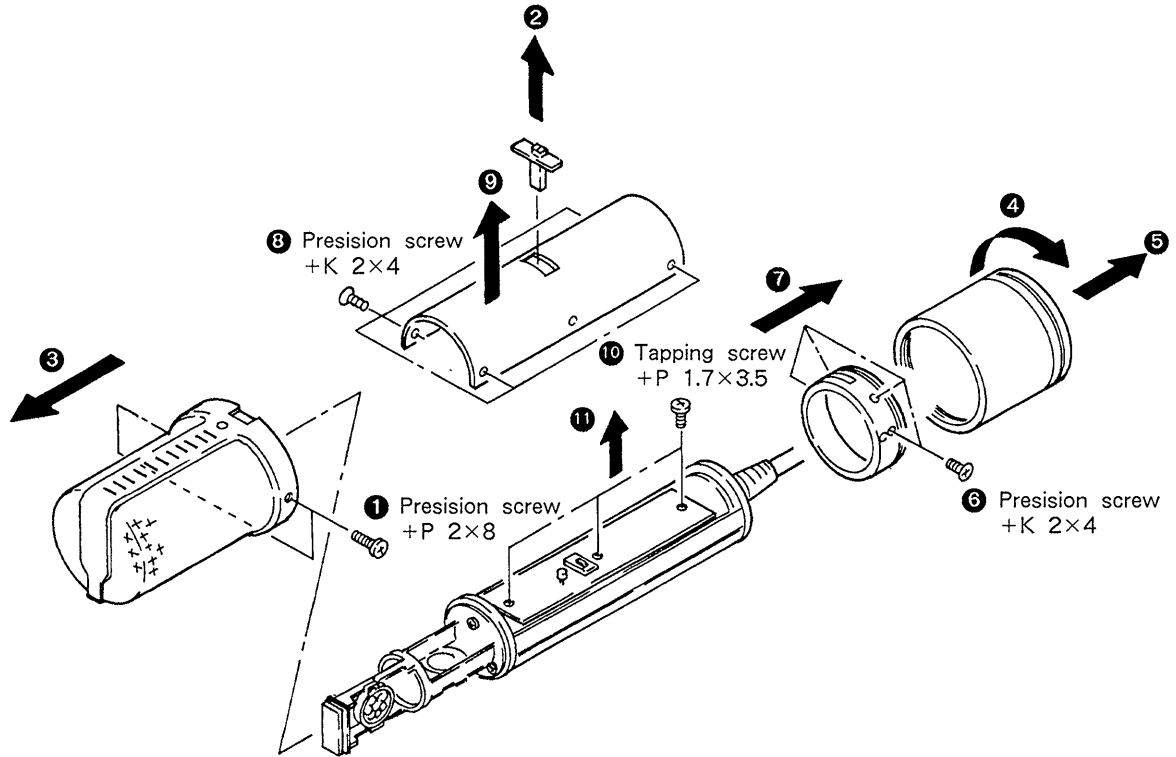
To retract the legs, follow the steps in the opposite order.



## SECTION 2 DISASSEMBLY

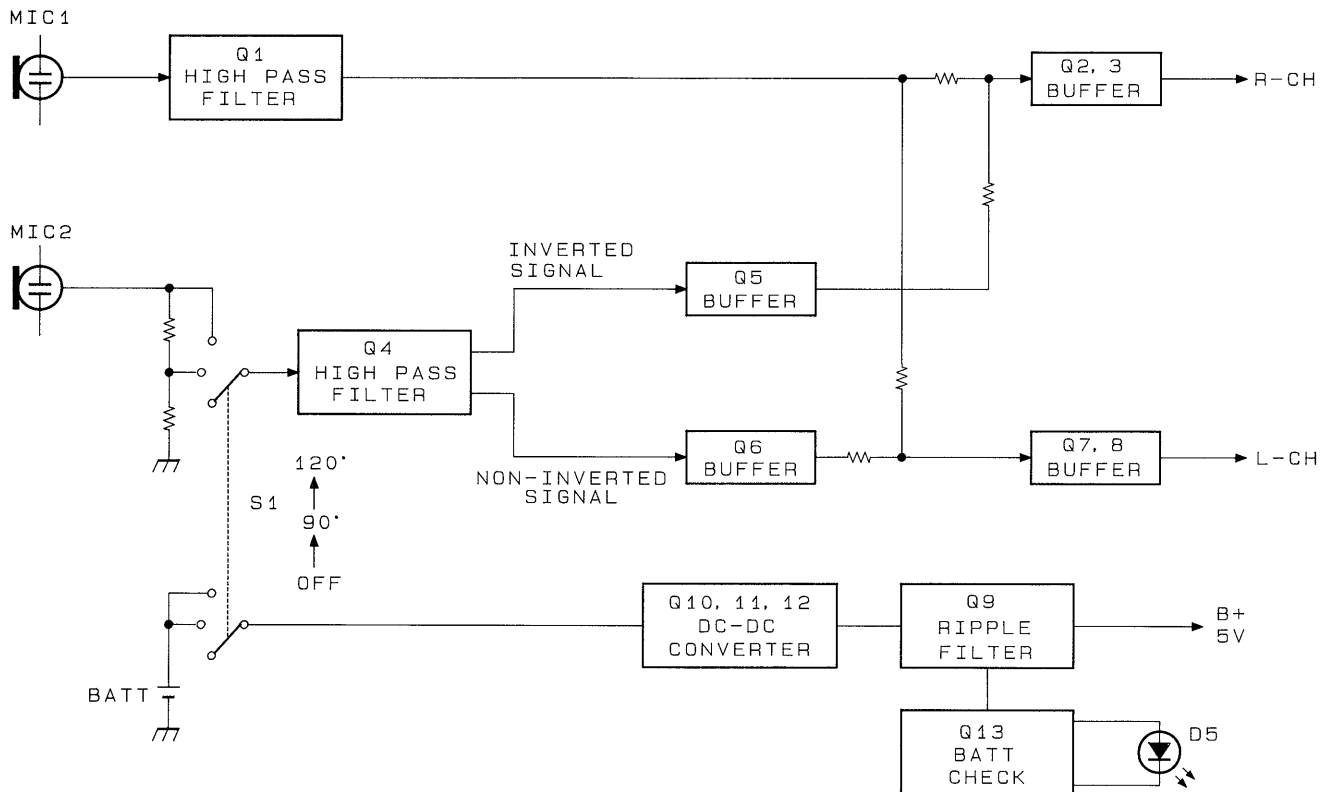
### CASE REMOVAL

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



## SECTION 3 DIAGRAMS

### 3-1. BLOCK DIAGRAM



## 3-2. SCHEMATIC DIAGRAM

10

9

8

7

6

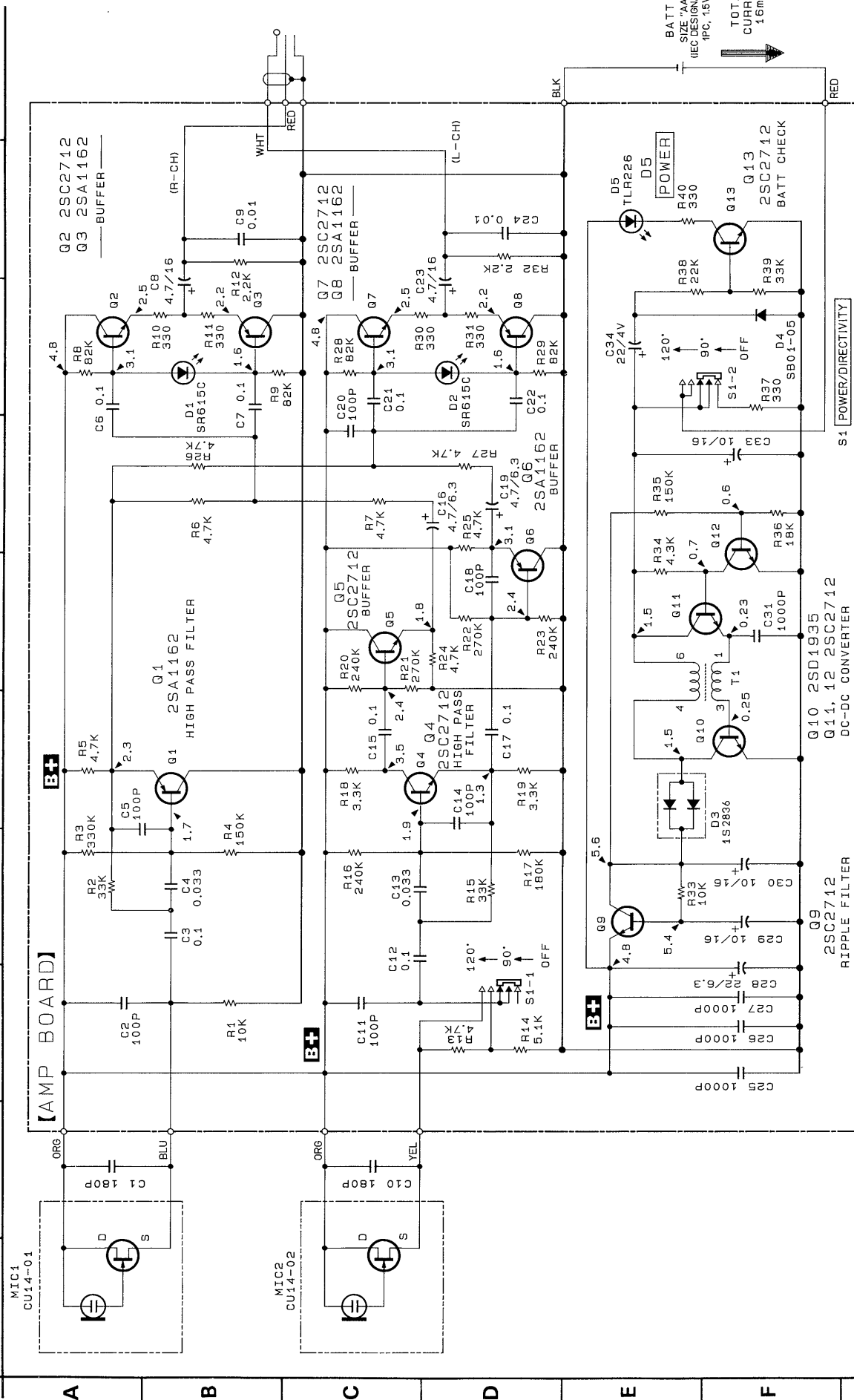
5

4

3

2

1



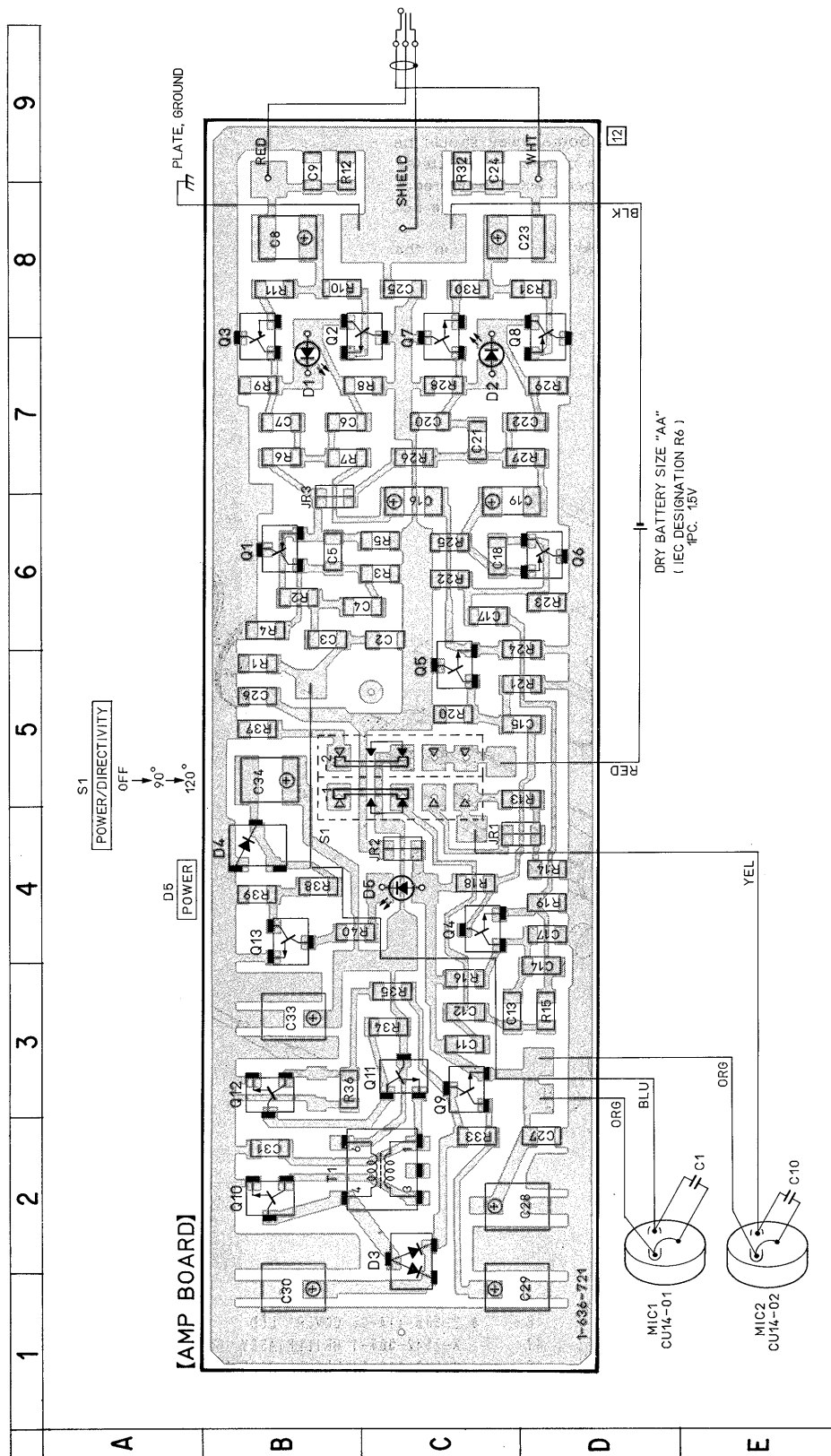
Note :

- All capacitors are in  $\mu F$  unless otherwise noted. pF :  $\mu F$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}W$  or less unless otherwise specified.
- Voltages are taken with a VOM (input impedance  $10M\Omega$ ). Voltage variations may be noted due to normal production tolerances.

# • SEMICONDUCTOR LOCATION

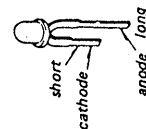
| Ref. No. | Location |
|----------|----------|
| D1       | B-7      |
| D2       | C-7      |
| D3       | C-2      |
| D4       | B-4      |
| D5       | C-4      |
| Q1       | B-6      |
| Q2       | B-7      |
| Q3       | B-7      |
| Q4       | C-4      |
| Q5       | C-5      |
| Q6       | D-6      |
| Q7       | C-7      |
| Q8       | D-7      |
| Q9       | C-3      |
| Q10      | B-2      |
| Q11      | C-3      |
| Q12      | B-3      |
| Q13      | B-4      |

# 3-3. PRINTED WIRING BOARDS

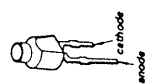


# • SEMICONDUCTOR LEAD LAYOUTS

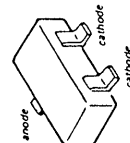
SR615C



TLR226



1S2836



SB01-05CP



2SA1162  
2SC2712-G  
2SD1935-CT6



Note :

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- ⋯ : Pattern on the side which is seen.
- ⋯ : Never reuse a disconnected chip component.
- ⋯ : Notice that the minus side of a tantalum capacitor may be damaged by heat.

## SECTION 4

### EXPLODED VIEWS

**NOTE:**

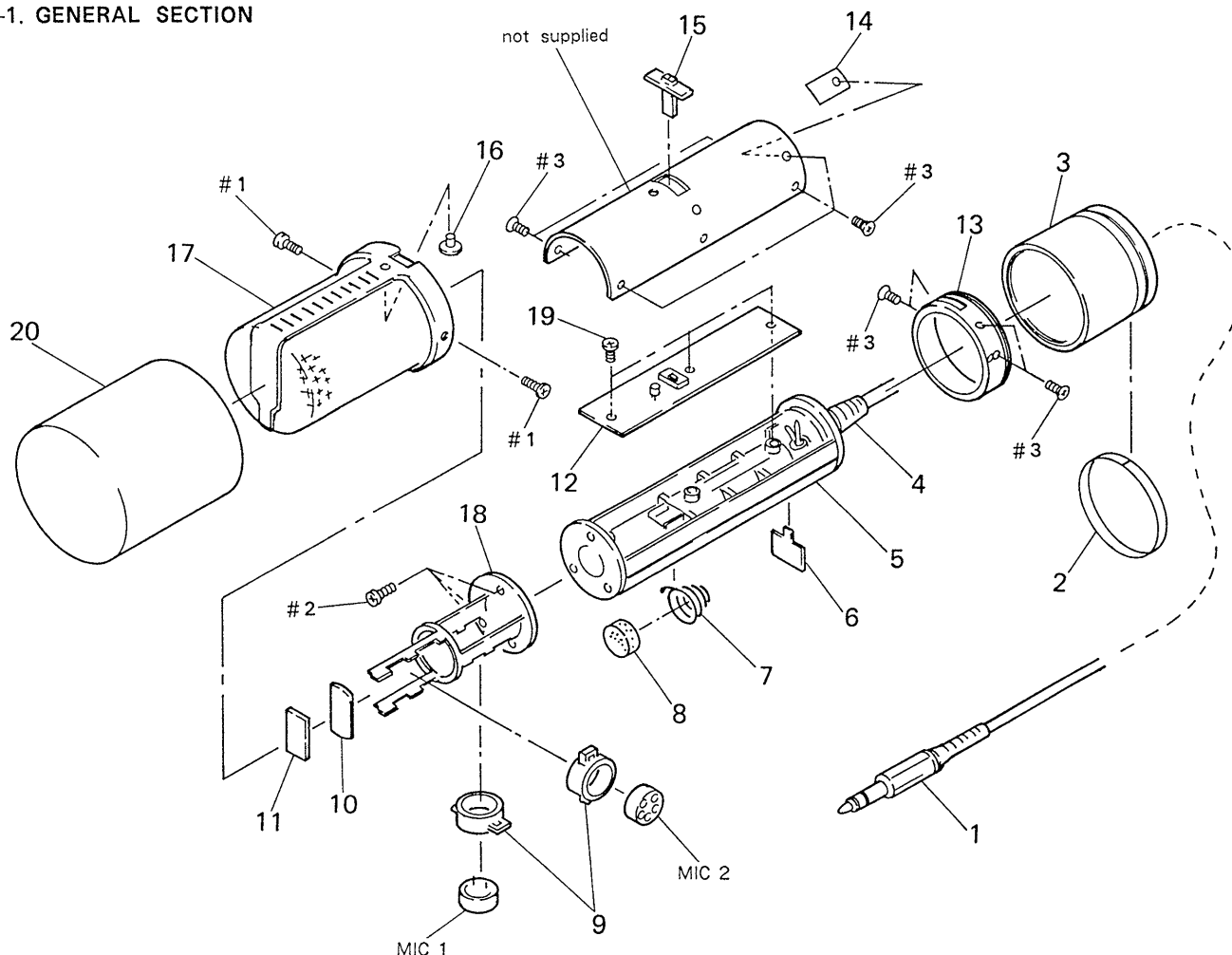
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Color indication of Appearance Parts

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

↑                      ↑

Parts color    Cabinet's color

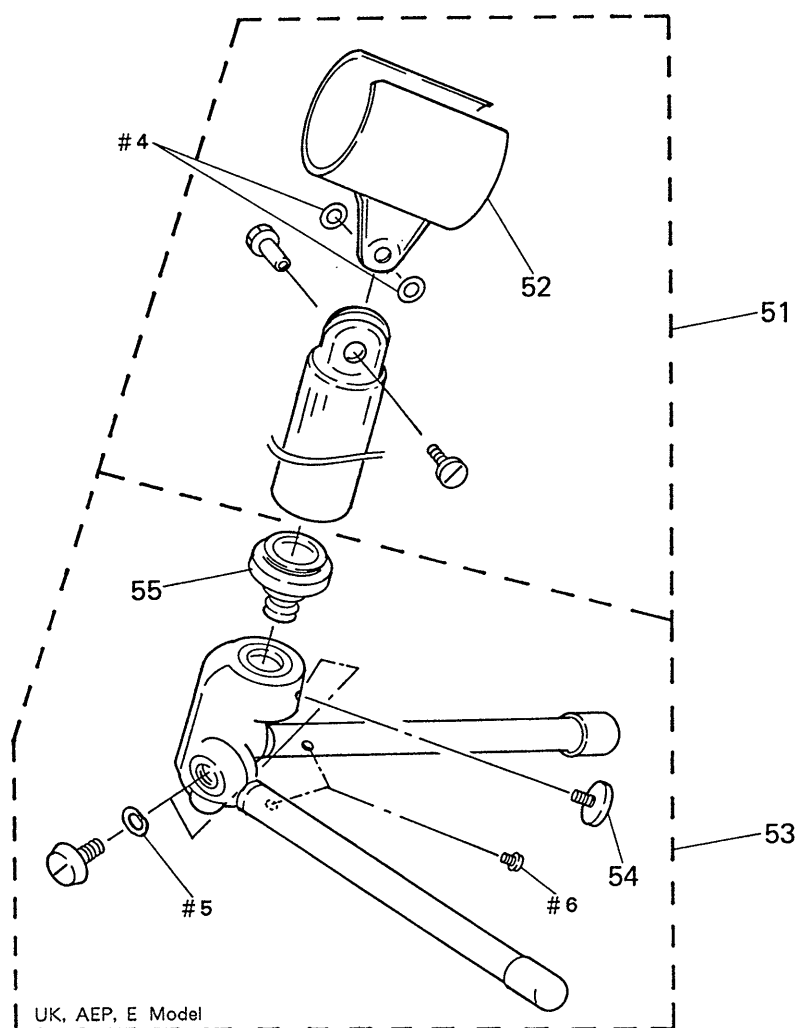
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (#mark) list is given in the last of this parts list.

**4-1. GENERAL SECTION**

| Ref.No. | Part No.       | Description               | Remark |
|---------|----------------|---------------------------|--------|
| 1       | 1-590-558-11   | CORD, MICROPHONE (2 CORE) |        |
| 2       | 2-542-115-01   | LABEL, MODEL NUMBER       |        |
| 3       | 2-542-098-01   | GRIP                      |        |
| 4       | 2-542-107-01   | BUSHING                   |        |
| 5       | * 2-542-116-01 | FRAME (MAIN)              |        |
| 6       | 3-578-109-00   | CONTACT                   |        |
| 7       | 3-325-414-01   | SPRING                    |        |
| 8       | 9-911-846-XX   | CUSHION                   |        |
| 9       | * 2-542-106-01 | SUSPENDOR                 |        |
| 10      | * 2-542-109-01 | RETAINER, FRAME           |        |
| 11      | 2-519-343-00   | CUSHION, TRANSFORMER      |        |
| 12      | * A-4542-038-A | AMPLIFIER BOARD, COMPLETE |        |
| 13      | 2-542-102-01   | SCREW, TRANSLATION        |        |
| 14      | * 2-539-605-01 | PLATE, GROUND             |        |
| 15      | 2-542-097-02   | KNOB, SWITCH              |        |

| Ref.No. | Part No.       | Description            | Remark |
|---------|----------------|------------------------|--------|
| 16      | * 2-535-114-00 | COVER, LED             |        |
| 17      | X-2542-007-1   | GRILLE ASSY            |        |
| 18      | * 2-542-113-01 | FRAME, CAPSULE         |        |
| 19      | 3-892-535-01   | SCREW +P1.7X3.5        |        |
| 20      | 2-542-095-01   | SCREEN, WINDOW         |        |
| MIC1    | 8-814-266-00   | MICROPHONE CU14-01 SET |        |
| MIC2    | 8-814-266-10   | MICROPHONE CU14-02 SET |        |

## 4.2. MICROPHONE STAND SECTION



| Ref. No. | Part No.       | Description                         | Remark |
|----------|----------------|-------------------------------------|--------|
| 51       | X-2542-008-1   | HOLDER ASSY, MICROPHONE             |        |
| 52       | * 2-542-114-01 | HOLDER                              |        |
| 53       | X-2542-009-1   | STAND ASSY, MICROPHONE (UK, AEP, E) |        |
| 54       | 2-542-105-01   | SCREW (B), SET                      |        |
| 55       | 2-542-103-01   | SCREW, STAND                        |        |

## AMPLIFIER

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,  $\mu$ :  $\mu$ , 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

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

| Ref. No.      | Part No.       | Description                        | Remark |
|---------------|----------------|------------------------------------|--------|
| 12            | * A-4542-038-A | AMPLIFIER BOARD, COMPLETE<br>***** |        |
| < CAPACITOR > |                |                                    |        |
| C2            | 1-163-117-00   | CERAMIC CHIP 100PF 5% 50V          |        |
| C3            | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C4            | 1-163-989-11   | CERAMIC CHIP 0.033uF 10% 25V       |        |
| C5            | 1-163-117-00   | CERAMIC CHIP 100PF 5% 50V          |        |
| C6            | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C7            | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C8            | 1-135-155-21   | TANTALUM CHIP 4.7uF 10% 16V        |        |
| C9            | 1-164-232-11   | CERAMIC CHIP 0.01uF 50V            |        |
| C11           | 1-163-117-00   | CERAMIC CHIP 100PF 5% 50V          |        |
| C12           | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C13           | 1-163-989-11   | CERAMIC CHIP 0.033uF 10% 25V       |        |
| C14           | 1-163-117-00   | CERAMIC CHIP 100PF 5% 50V          |        |
| C15           | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C16           | 1-135-181-21   | TANTALUM CHIP 4.7uF 20% 6.3V       |        |
| C17           | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C18           | 1-163-117-00   | CERAMIC CHIP 100PF 5% 50V          |        |
| C19           | 1-135-181-21   | TANTALUM CHIP 4.7uF 20% 6.3V       |        |
| C20           | 1-163-117-00   | CERAMIC CHIP 100PF 5% 50V          |        |
| C21           | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C22           | 1-164-004-11   | CERAMIC CHIP 0.1uF 10% 25V         |        |
| C23           | 1-135-155-21   | TANTALUM CHIP 4.7uF 10% 16V        |        |
| C24           | 1-164-232-11   | CERAMIC CHIP 0.01uF 50V            |        |
| C25           | 1-163-009-11   | CERAMIC CHIP 0.001uF 10% 50V       |        |
| C26           | 1-163-009-11   | CERAMIC CHIP 0.001uF 10% 50V       |        |
| C27           | 1-163-009-11   | CERAMIC CHIP 0.001uF 10% 50V       |        |
| C28           | 1-126-390-11   | ELECT CHIP 22uF 20% 6.3V           |        |
| C29           | 1-126-394-11   | ELECT CHIP 10uF 20% 16V            |        |
| C30           | 1-126-394-11   | ELECT CHIP 10uF 20% 16V            |        |
| C31           | 1-163-009-11   | CERAMIC CHIP 0.001uF 10% 50V       |        |

| Ref. No.       | Part No.     | Description              | Remark |
|----------------|--------------|--------------------------|--------|
| C33            | 1-126-394-11 | ELECT CHIP 10uF 20% 16V  |        |
| C34            | 1-135-202-21 | TANTAL. CHIP 22uF 20% 4V |        |
| < DIODE >      |              |                          |        |
| D1             | 8-719-123-70 | DIODE SR615C             |        |
| D2             | 8-719-123-70 | DIODE SR615C             |        |
| D3             | 8-719-104-34 | DIODE 1S2836             |        |
| D4             | 8-719-938-72 | DIODE SB01-05CP          |        |
| D5             | 8-719-812-26 | DIODE TLR226 (POWER)     |        |
| < RESISTOR >   |              |                          |        |
| JR1            | 1-216-295-00 | METAL CHIP 0 5% 1/10W    |        |
| JR2            | 1-216-295-00 | METAL CHIP 0 5% 1/10W    |        |
| JR3            | 1-216-295-00 | METAL CHIP 0 5% 1/10W    |        |
| < TRANSISTOR > |              |                          |        |
| Q1             | 8-729-216-22 | TRANSISTOR 2SA1162       |        |
| Q2             | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |
| Q3             | 8-729-216-22 | TRANSISTOR 2SA1162       |        |
| Q4             | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |
| Q5             | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |
| Q6             | 8-729-216-22 | TRANSISTOR 2SA1162       |        |
| Q7             | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |
| Q8             | 8-729-216-22 | TRANSISTOR 2SA1162       |        |
| Q9             | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |
| Q10            | 8-729-809-46 | TRANSISTOR 2SD1935-CT6   |        |
| Q11            | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |
| Q12            | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |
| Q13            | 8-729-271-22 | TRANSISTOR 2SC2712-G     |        |



**AMPLIFIER**

| Ref. No.     | Part No.     | Description                       | Remark |    |       |
|--------------|--------------|-----------------------------------|--------|----|-------|
| < RESISTOR > |              |                                   |        |    |       |
| R1           | 1-216-073-00 | METAL CHIP                        | 10K    | 5% | 1/10W |
| R2           | 1-216-085-00 | METAL CHIP                        | 33K    | 5% | 1/10W |
| R3           | 1-216-109-00 | METAL CHIP                        | 330K   | 5% | 1/10W |
| R4           | 1-216-101-00 | METAL CHIP                        | 150K   | 5% | 1/10W |
| R5           | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R6           | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R7           | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R8           | 1-216-095-00 | METAL CHIP                        | 82K    | 5% | 1/10W |
| R9           | 1-216-095-00 | METAL CHIP                        | 82K    | 5% | 1/10W |
| R10          | 1-216-037-00 | METAL CHIP                        | 330    | 5% | 1/10W |
| R11          | 1-216-037-00 | METAL CHIP                        | 330    | 5% | 1/10W |
| R12          | 1-216-057-00 | METAL CHIP                        | 2.2K   | 5% | 1/10W |
| R13          | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R14          | 1-216-066-00 | METAL CHIP                        | 5.1K   | 5% | 1/10W |
| R15          | 1-216-085-00 | METAL CHIP                        | 33K    | 5% | 1/10W |
| R16          | 1-216-106-00 | METAL CHIP                        | 240K   | 5% | 1/10W |
| R17          | 1-216-103-00 | METAL CHIP                        | 180K   | 5% | 1/10W |
| R18          | 1-216-061-00 | METAL CHIP                        | 3.3K   | 5% | 1/10W |
| R19          | 1-216-061-00 | METAL CHIP                        | 3.3K   | 5% | 1/10W |
| R20          | 1-216-106-00 | METAL CHIP                        | 240K   | 5% | 1/10W |
| R21          | 1-216-107-00 | METAL CHIP                        | 270K   | 5% | 1/10W |
| R22          | 1-216-107-00 | METAL CHIP                        | 270K   | 5% | 1/10W |
| R23          | 1-216-106-00 | METAL CHIP                        | 240K   | 5% | 1/10W |
| R24          | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R25          | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R26          | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R27          | 1-216-065-00 | METAL CHIP                        | 4.7K   | 5% | 1/10W |
| R28          | 1-216-095-00 | METAL CHIP                        | 82K    | 5% | 1/10W |
| R29          | 1-216-095-00 | METAL CHIP                        | 82K    | 5% | 1/10W |
| R30          | 1-216-037-00 | METAL CHIP                        | 330    | 5% | 1/10W |
| R31          | 1-216-037-00 | METAL CHIP                        | 330    | 5% | 1/10W |
| R32          | 1-216-057-00 | METAL CHIP                        | 2.2K   | 5% | 1/10W |
| R33          | 1-216-073-00 | METAL CHIP                        | 10K    | 5% | 1/10W |
| R34          | 1-216-064-00 | METAL CHIP                        | 4.3K   | 5% | 1/10W |
| R35          | 1-216-101-00 | METAL CHIP                        | 150K   | 5% | 1/10W |
| R36          | 1-216-079-00 | METAL CHIP                        | 18K    | 5% | 1/10W |
| R37          | 1-216-037-00 | METAL CHIP                        | 330    | 5% | 1/10W |
| R38          | 1-216-081-00 | METAL CHIP                        | 22K    | 5% | 1/10W |
| R39          | 1-216-085-00 | METAL CHIP                        | 33K    | 5% | 1/10W |
| R40          | 1-216-037-00 | METAL CHIP                        | 330    | 5% | 1/10W |
| < SWITCH >   |              |                                   |        |    |       |
| S1           | 1-570-832-11 | SWITCH, SLIDE (POWER/DIRECTIVITY) |        |    |       |

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

T1 1-447-864-11 TRANSFORMER, DC-DC CONVERTER

\*\*\*\*\*

MISCELLANEOUS

\*\*\*\*\*

1 1-590-558-11 CORD, MICROPHONE (2 CORE)

C1 1-164-076-11 CAP, CERAMIC 180PF B

C10 1-164-076-11 CAP, CERAMIC 180PF B

MIC1 8-814-266-00 MICROPHONE CU14-01 SET

MIC2 8-814-266-10 MICROPHONE CU14-02 SET

\*\*\*\*\*

ACCESSORY & PACKING MATERIAL

\*\*\*\*\*

3-753-205-01 MANUAL, INSTRUCTION (UK, AEP, E)

3-753-205-21 MANUAL, INSTRUCTION (US, Canadian)

\*\*\*\*\*

**HARDWARE LIST**

\*\*\*\*\*

# 1 7-627-553-98 SCREW, PRECISION +P 2X8

# 2 7-685-105-19 SCREW +P 2X8 TYPE2 NON-SLIT

# 3 7-627-452-28 SCREW, PRECISION +K 2X4

# 4 7-623-927-01 WASHER 6.0, NYLONE

# 5 7-623-710-37 WASHER 6, WAVE

# 6 7-685-103-19 SCREW +P 2X5 TYPE2 NON-SLIT

