# SRF-A1

# SERVICE MANUAL


*US Model*
*Canadian Model*

## SPECIFICATIONS

| | |
|---|---|
| Frequency range | FM 87.6 – 108 MHz<br>AM 530 – 1,605 kHz |
| Antennas | FM: Headphone cord antenna<br>AM: Built-in ferrite bar antenna |
| Power output | 20 mW × 2 (at 10% harmonic distortion) with 32-ohm impedance headphones |
| Power requirements | 3 V dc, two size AA batteries (IEC designation R6) |
| Dimensions | Approx. 77 × 112 × 23.5 mm (w/h/d) ($3\frac{1}{8} \times 4\frac{1}{2} \times \frac{15}{16}$ inches) not incl. projecting parts and controls<br>Approx. 79 × 113 × 25.5 (w/h/d) ($3\frac{1}{8} \times 4\frac{1}{2} \times 1$ inches) incl. projecting parts and controls |
| Weight | Approx. 175 g (6.2 oz) incl. batteries |

MICROFILM

FM/AM STEREO RECEIVER

SONY®

TR

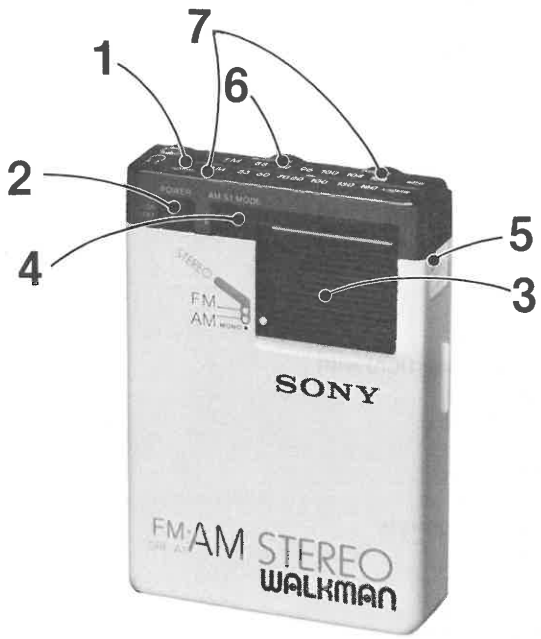
## FEATURES

The Sony SRF-A1 is a compact FM/AM stereo receiver capable of receiving all four AM stereo broadcasting systems currently in use.

- High-quality stereo sound through the headphones.
- The one-chip IC developed by Sony assures high sensitivity and high reliability.

## HOW TO USE

Follow the steps **1** to **7** in sequence to tune in the station.




**1** ∩ **(headphones) jack (stereo minijack)**
Connect the stereo headphones supplied.

**2** **POWER switch**
Flip up to turn the power on. A green line will appear. To turn the receiver off, flip the switch down.

**3** **BAND selector**
Select the desired band.
**FM ST:** For FM reception, set it to this position.
The receiver operates in stereo mode for FM stereo programs and will automatically switch to mono for monaural programs.
**AM ST:** For AM stereo program reception. The receiver operates in stereo mode for AM stereo programs.
**AM:** For AM monaural program reception. When it is hard to hear the AM stereo program due to noise, set it to this position.

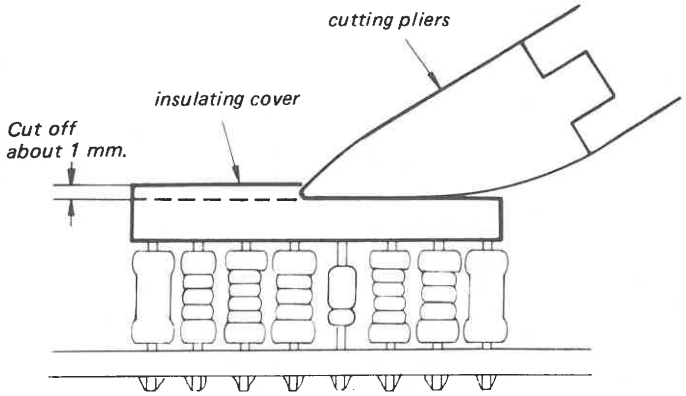
**4** **AM ST MODE (stereo mode) selector**
Set it to the appropriate position according to the AM stereo broadcasting system being used.
**A:** For the Harris, Magnavox or Motorola Systems
**B:** For the Kahn-Hazeltine System
If you do not know which system is being used, you can determine the appropriate position of this selector by comparing the quality of the stereo reception at each position.

**5** **FM SENS (sensitivity) selector**
Normally, set the selector to DX. During FM reception, if a very strong station signal causes noise or if multipath signals are heard, set it to LOCAL. The noise will be reduced.

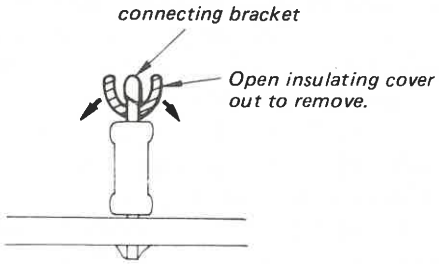
**6** **VOLUME control**
Adjust the volume to your preference.

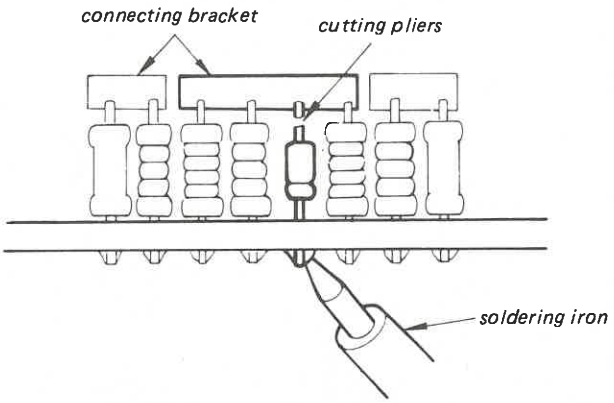
**7** **TUNING knob and indicator**
Turn the TUNING knob to tune in the desired station observing the indicator.

## REPAIR METHOD FOR HYBRID CIRCUIT BLOCK

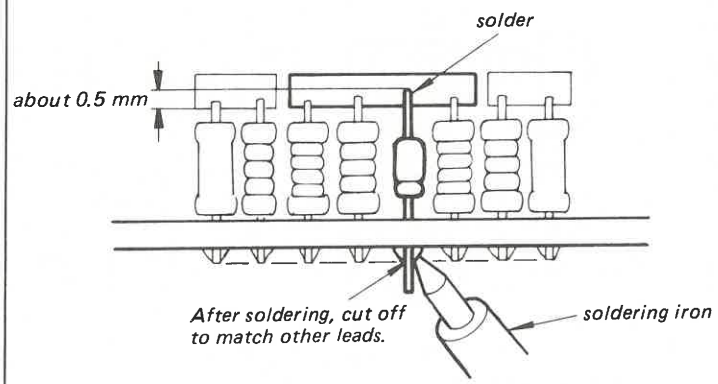



Using a cutting pliers, cut off the upper portion of the insulating cover about 1 mm, exposing the top of the connecting brackets.

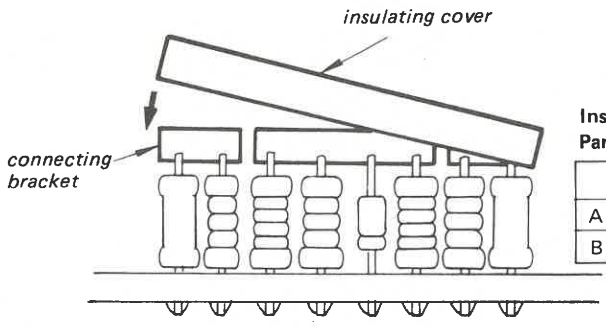



Cut off the lead of the defective part with cutting pliers. Remove solder and take out the defective part.



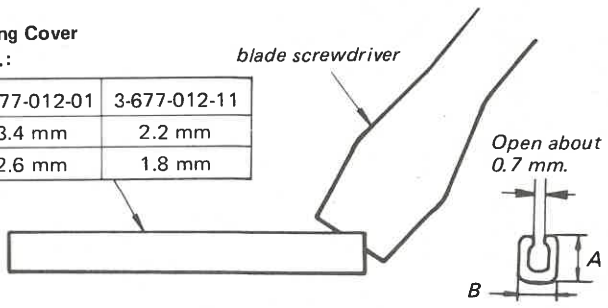

Insert the new part on the board and solder the lead to the board. Cut off the lead on the connecting bracket side so that it overlaps by about 0.5 mm, and solder to the connecting bracket.




Open the insulating cover groove about 0.7 mm and place over the connecting brackets, positioning one end first.

**Insulating Cover Part No.:**

| | 3-677-012-01 | 3-677-012-11 |
|---|---|---|
| A | 3.4 mm | 2.2 mm |
| B | 2.6 mm | 1.8 mm |



# SECTION 1
# OUTLINE

## 1-1. AM STEREO

There are four systems of stereo AM broadcasting on MW bands which are now effective in the U.S.A. This is shown in the simple outline below.

### (1) MAGNAVOX (AM-PM) SYSTEM

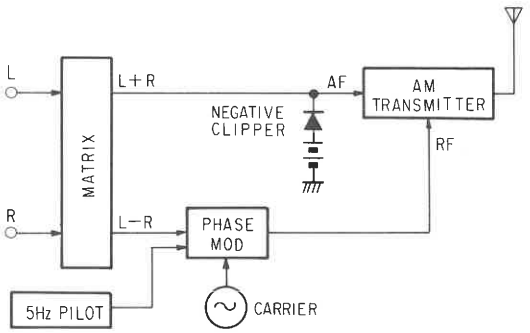
The Magnavox system is an AM/PM system which uses amplitude modulation for the L+R information and phase modulation for the L−R information.

In addition, a 5 Hz pilot signal tone is phase modulated onto the carrier. This signal is for the purpose of stereo identification.

The equation for the transmittal signal is:

$$E(t) = A\,(1 + M\cos\omega mt)\cdot\cos(\omega ct + S\cos\omega mt)$$

Where A = carrier amplitude
M = L+R signals amplitude
$\omega mt$ = angular frequency of modulation wave
$\omega ct$ = angular frequency of carrier wave
S = L−R signals amplitude
Pilot signal is omitted.




*Magnavox System*

### (2) KAHN/HAZELTINE (ISB: Independent Side Band) SYSTEM

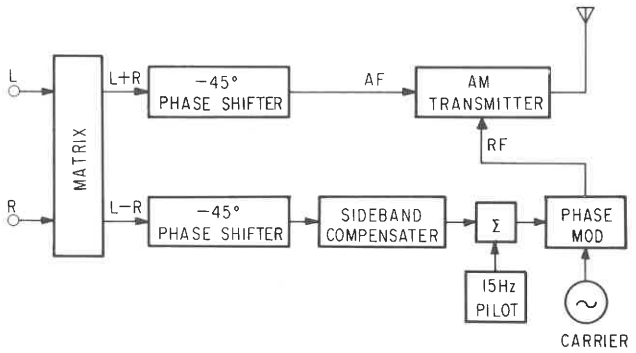
The Kahn/Hazeltime system also uses amplitude modulation for the L+R information and phase modulation for the L−R information. There are 90° phase differences between L−R and L+R in this system. And each frequency spectrum separates into lower side band and upper side band. L signal component goes into the lower side band and R signal component goes into the upper side band.

In addition, a 15 Hz pilot signal is phase modulated onto the carrier. This signal is also for the purpose of stereo identification.

The equation for the transmittal signal is:

$$E(t) = A\,(1 + M\cos\omega mt)\cdot\cos(\omega ct - S\sin\omega mt - aS^2\sin 2\,\omega mt)$$

Where a = the coefficient decided by the side band compensation circuit




*Kahn/Hazeltine System*

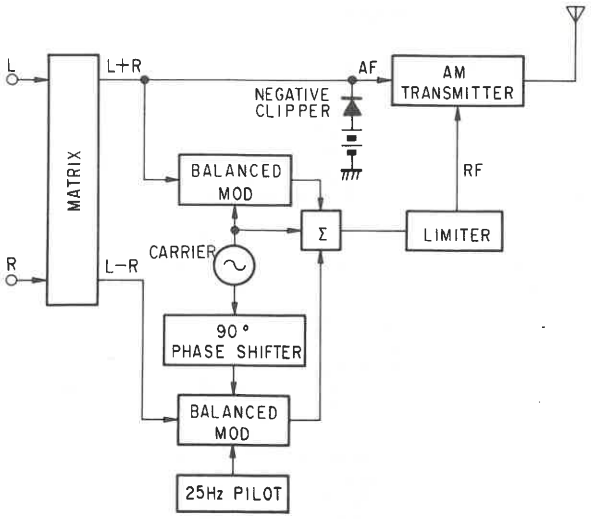
### (3) MOTOROLA (C-QUAM: Compatible Quadrature Amplitude Modulating) SYSTEM

The Motorola system uses quadrature modulation for each L+R and L−R information. The synthesized wave which is made by quadrature modulation has amplitude change part omitted through the limiter. After that it is amplitude modulated for L+R again.

This system shows better compatibility for the existing monaural receiver than the simple modulation one.

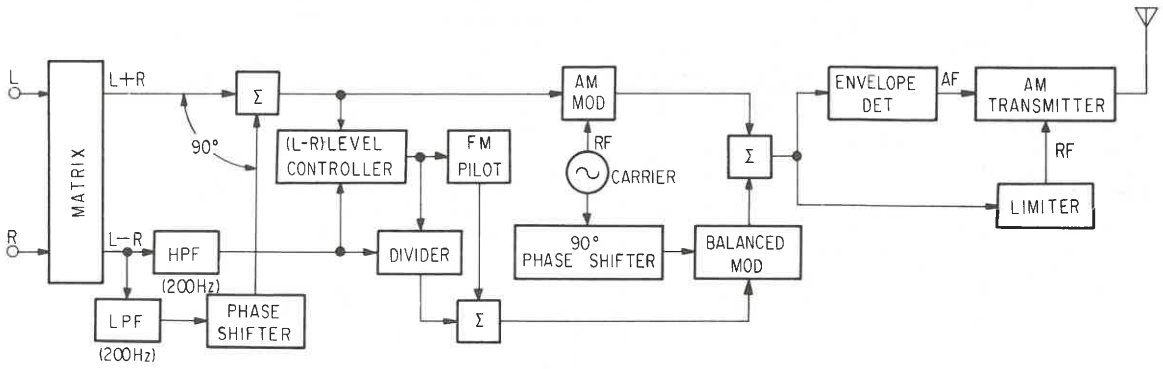
The equation for the transmittal signal is:

$$E(t) = A\,(1 + M\cos\omega mt)\cdot\cos\left(\omega ct + \tan^{-1}\frac{S\cos\omega mt}{1 + M\cos mmt}\right)$$




*Motorola System*

### (4) HARRIS (VCPM: Variable Compatible Phase Muliplex) SYSTEM




*Harris System*

The Harris system is an addition of the signal amplitude modulated for L+R and the signal formed by balance modulation for L−R of the carrier which is 90° different from the carrier of the signal amplitude modulated for L+R.

To improve the compatibility for the existing monaural receiver, the signal level which is modulated for L−R is decreased, but not enough to cause deterioration of the S/N ratio. The diminution ratio changes according to relative strength between L+R. The information about those changes are transmitted from the transmitting side to the receiving side by changing the frequency of the pilot signal.

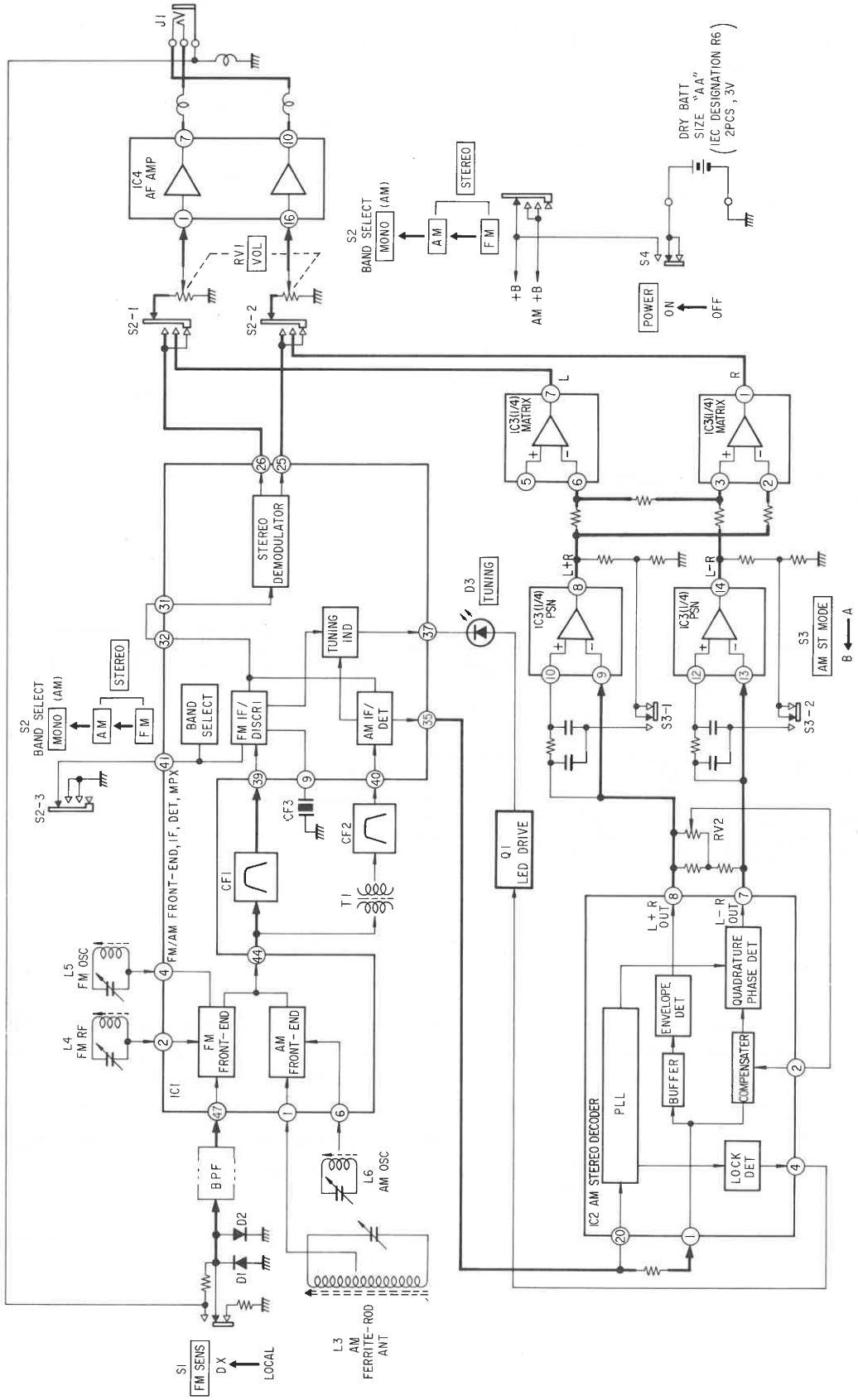
The equation for the transmittal signal is:

$$E(t) = A\,(1 + M\cos\omega mt)\cdot\cos\omega ct + A\cdot S\tan\theta\cos\omega mt\cdot\sin\omega ct$$

Where $\theta$ = diminution ratio of L−R

* This system may be changed as the receiver side has a large load.

## 1-2. BLOCK DIAGRAM

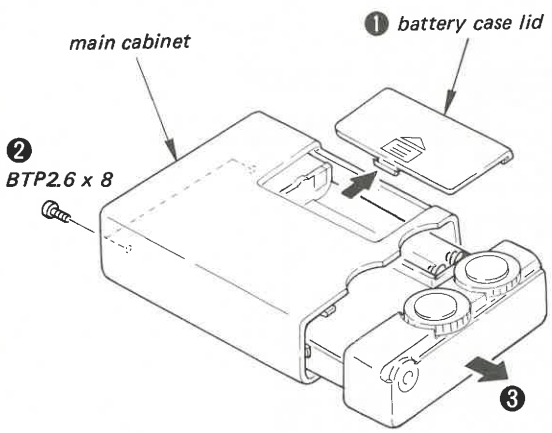


# SECTION 2
# DISASSEMBLY

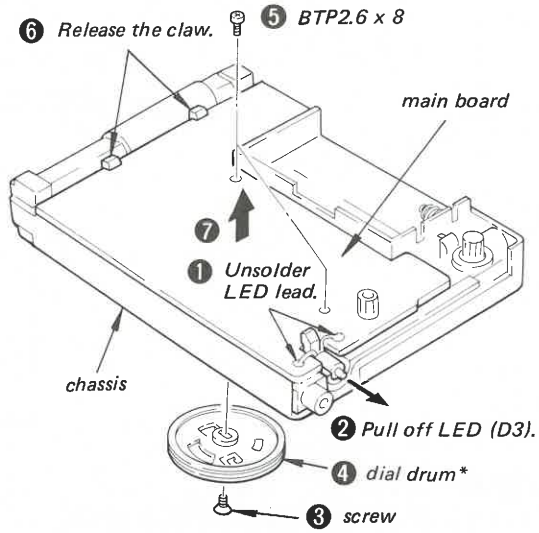
## 2-1. REMOVAL

**Note:** Remove the parts in the numerical order.

### MAIN CABINET

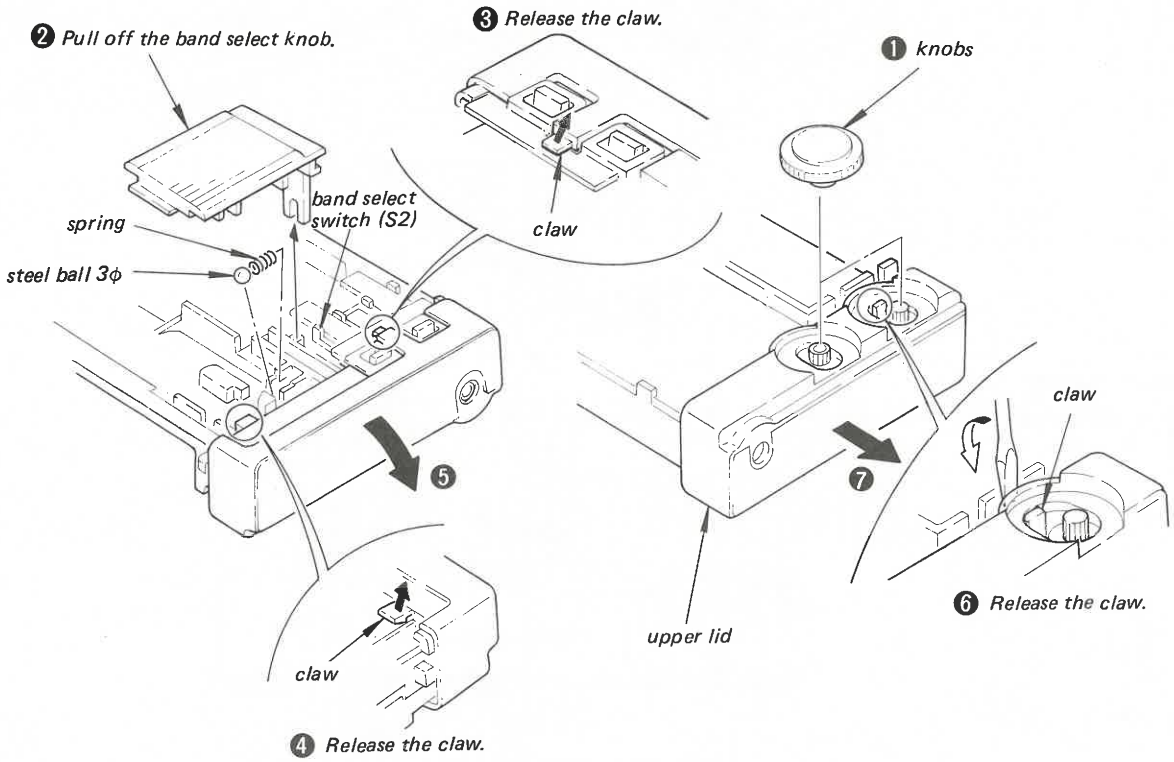



### MAIN BOARD



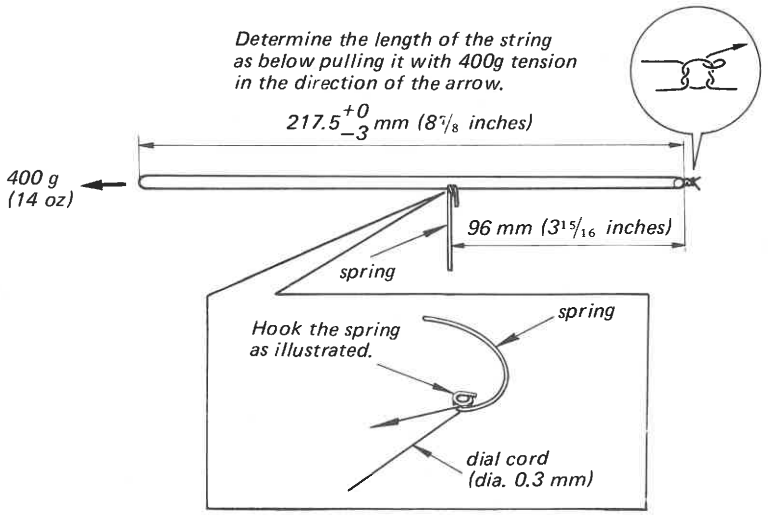

* Fix the dial drum to the chassis with plastic tape, and the main board can be removed with dial cord strung.

### UPPER LID



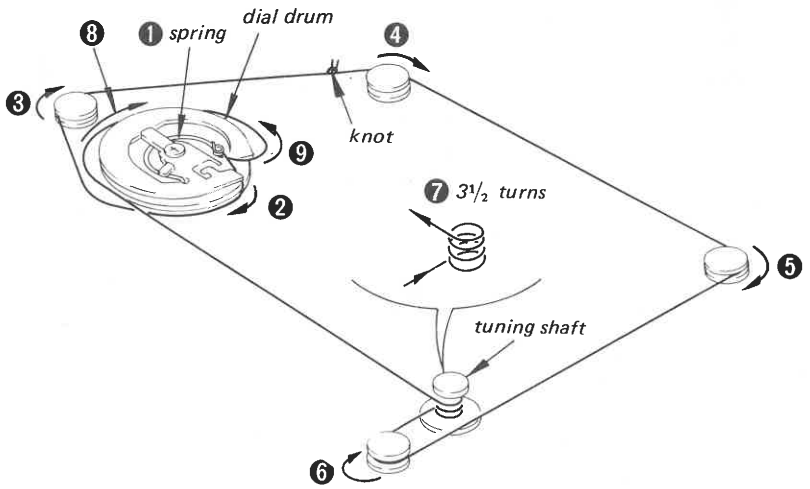
## 2-2. DIAL CORD STRINGING

### 1) Dial Cord Preparation



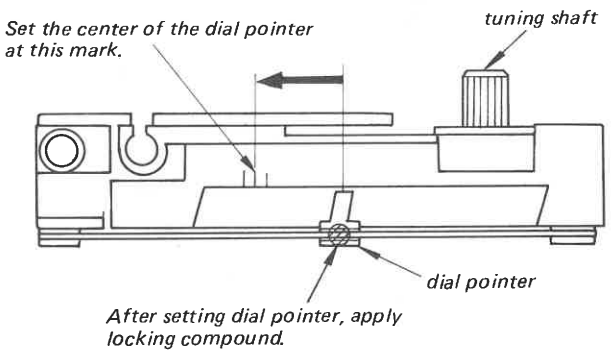

### 2) Dial Cord Stringing

1. Turn the tuning capacitor fully clockwise.
   (see from the dial drum side).
2. Install the dial drum to the tuning capacitor as shown below.
3. String the dial cord in the numerical order given.




### 3) Pointer Setting

After the stringing, turn the tuning shaft fully counterclockwise.

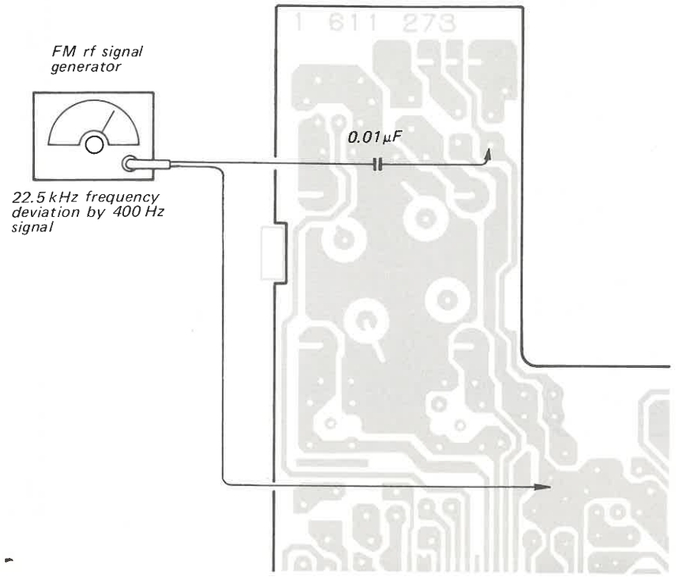


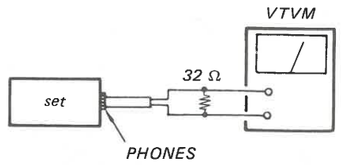
# SECTION 3
# ADJUSTMENTS

## FM SECTION

BAND selector switch: FM ST
FM SENS selector switch: DISTANT

【MAIN BOARD】 (CONDUCTOR SIDE)

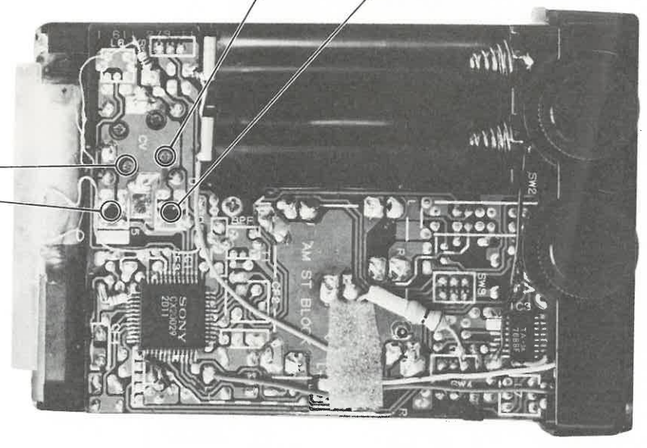



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

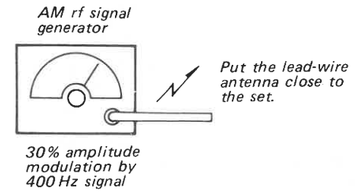
| FM TRACKING ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| 109.5 MHz | 86.5 MHz |
| CT1-2 | L4 |

| FM FREQUENCY COVERAGE ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| 109.5 MHz | CT1-3 |
| 86.5 MHz | L5 |



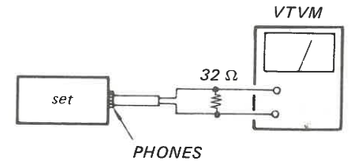


## AM SECTION

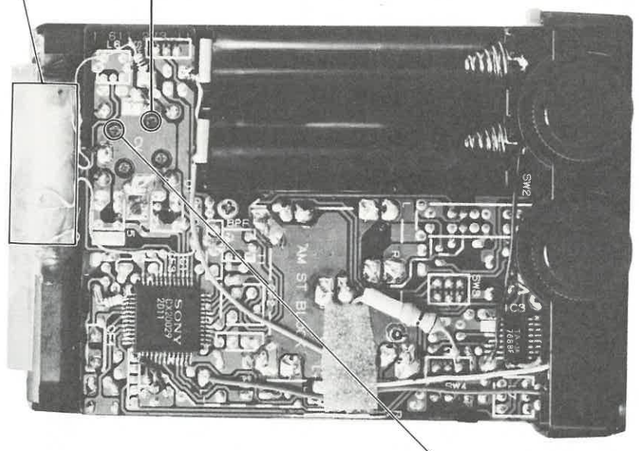



- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

| AM TRACKING ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| 620 kHz | 1,400 kHz |
| L3 | CT1-1 |

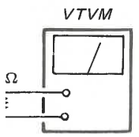


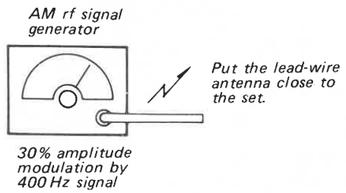

| AM IF ALIGNMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| T1 | 450 kHz |

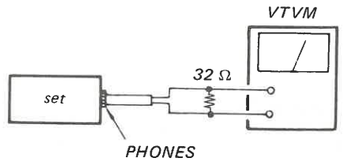


| CT1-4 | L6 |
|---|---|
| 1,680 kHz | 520 kHz |
| Adjust for a maximum reading on VTVM. | |
| AM FREQUENCY COVERAGE ADJUSTMENT | |

## AM SECTION




in each adjustment
equency coverage and
uld be finally done by

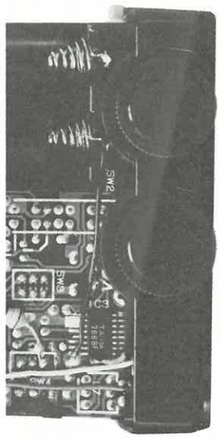
- Repeat the procedures in each adjustment several times, and the frequency coverage and tracking adjustments should be finally done by the trimmer capacitors.

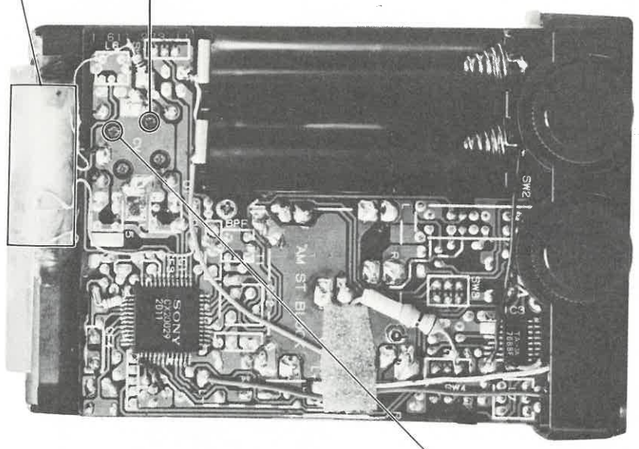
| JUSTMENT |
|---|
| um reading |
| 86.5 MHz |
| L4 |

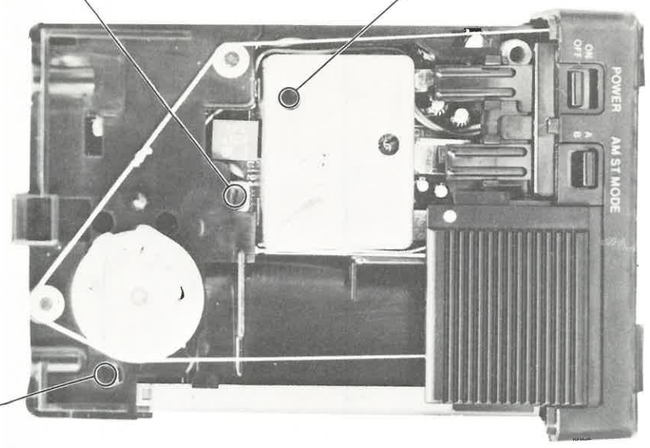
| AM TRACKING ADJUSTMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| 620 kHz | 1,400 kHz |
| L3 | CT1-1 |

| AM IF ALIGNMENT | |
|---|---|
| Adjust for a maximum reading on VTVM. | |
| T1 | 450 kHz |

| STEREO DISTORTION ADJUSTMENT |
|---|
| Adjust RV2 to the mechanical center in rotation angle. |
| RV2 |






| CT1-4 | L6 |
|---|---|
| 1,680 kHz | 520 kHz |
| Adjust for a maximum reading on VTVM. | |
| **AM FREQUENCY COVERAGE ADJUSTMENT** | |

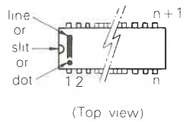
# SECTION 4
# DIAGRAMS

## 4-1. MOUNTING DIAGRAM

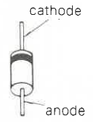
**2SA1048-GR**


**μPC324G2**

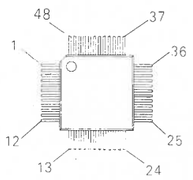

**CX857**



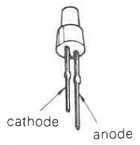

**1S1555**



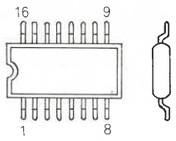

**CX20029**




**SLP144B**

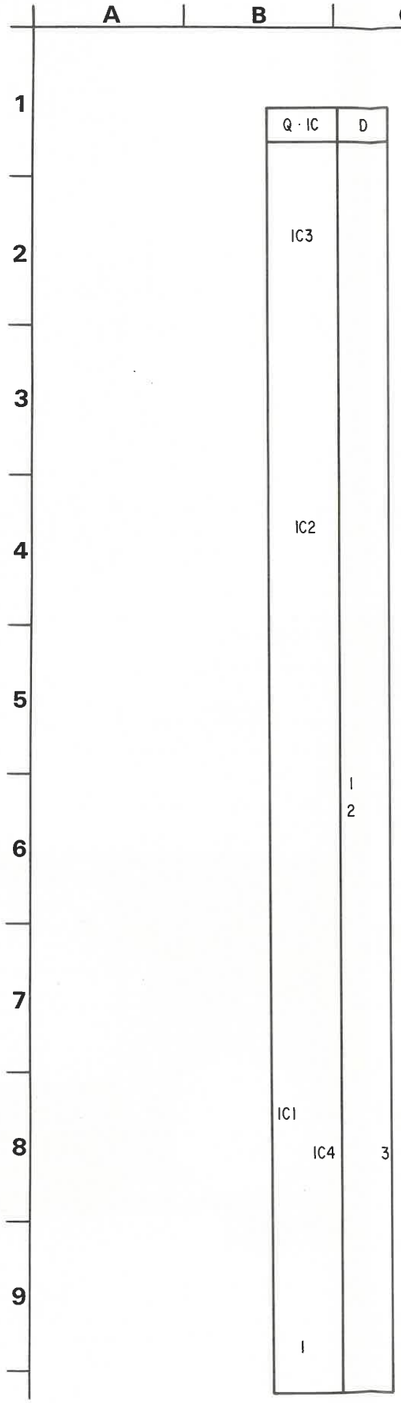


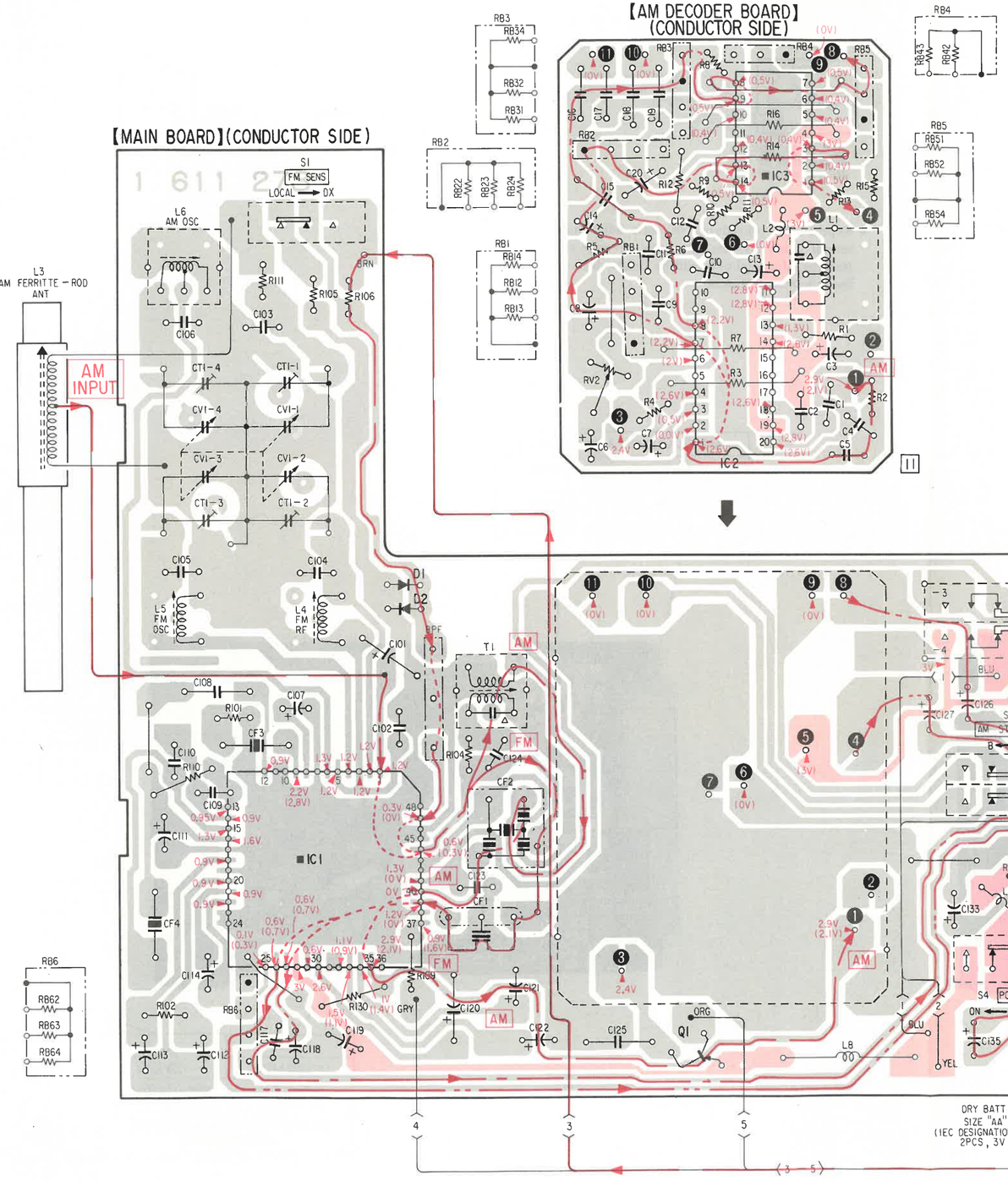

**TA7688F**




**Note:**

- ● ○— : parts extracted from the component side.
- ● ●— : parts extracted from the conductor side.
- ● : B + pattern
- ● ▬▶ : signal path
- ● ▬·▶ : L—CH/L+R signal path
- ● ▬··▶ : R—CH/L—R signal path



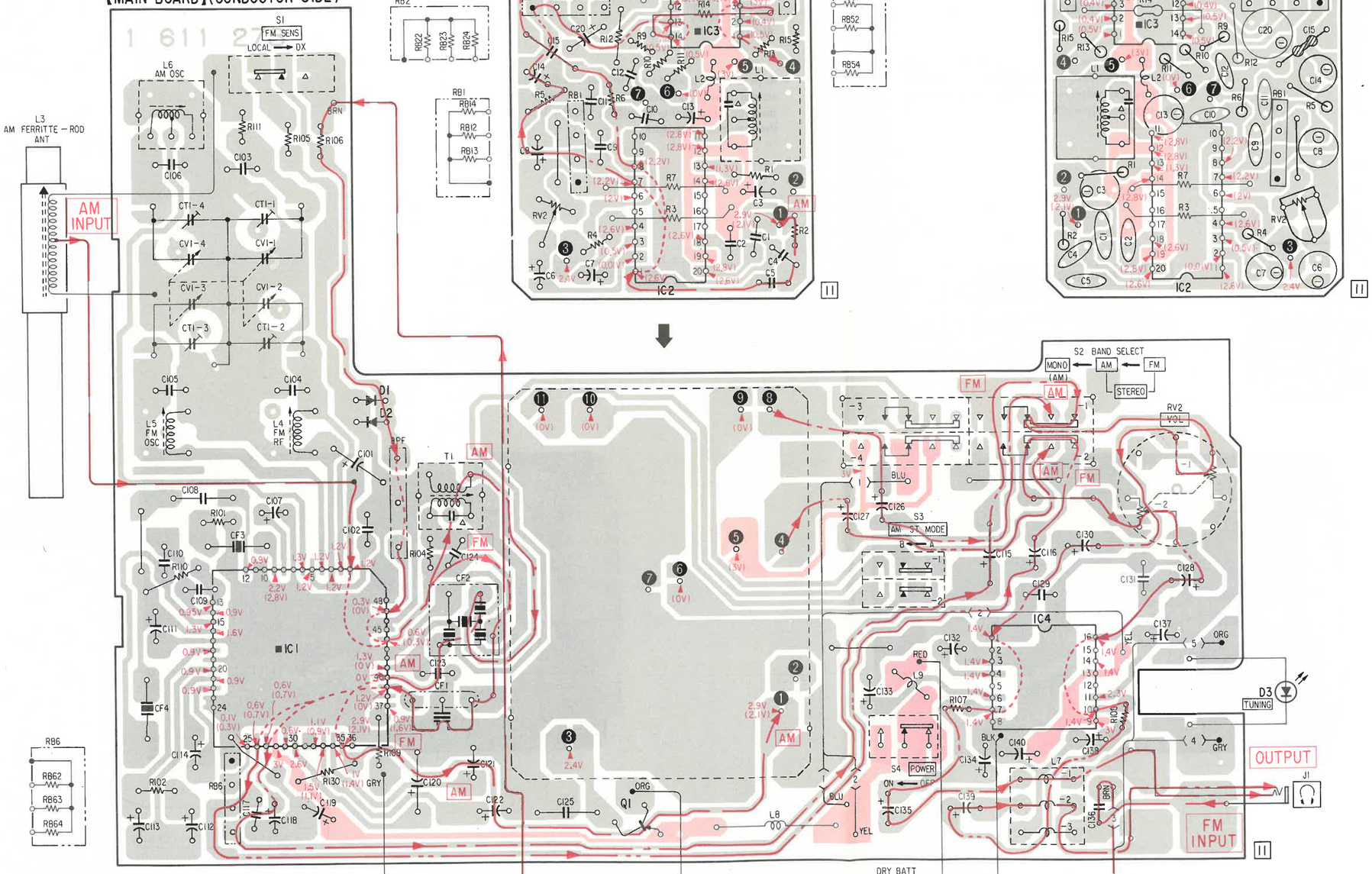



| Q · IC | D |
|---|---|
| IC3 | |
| IC2 | |
| | 1 |
| | 2 |
| IC1 | |
| IC4 | 3 |
| | 1 |

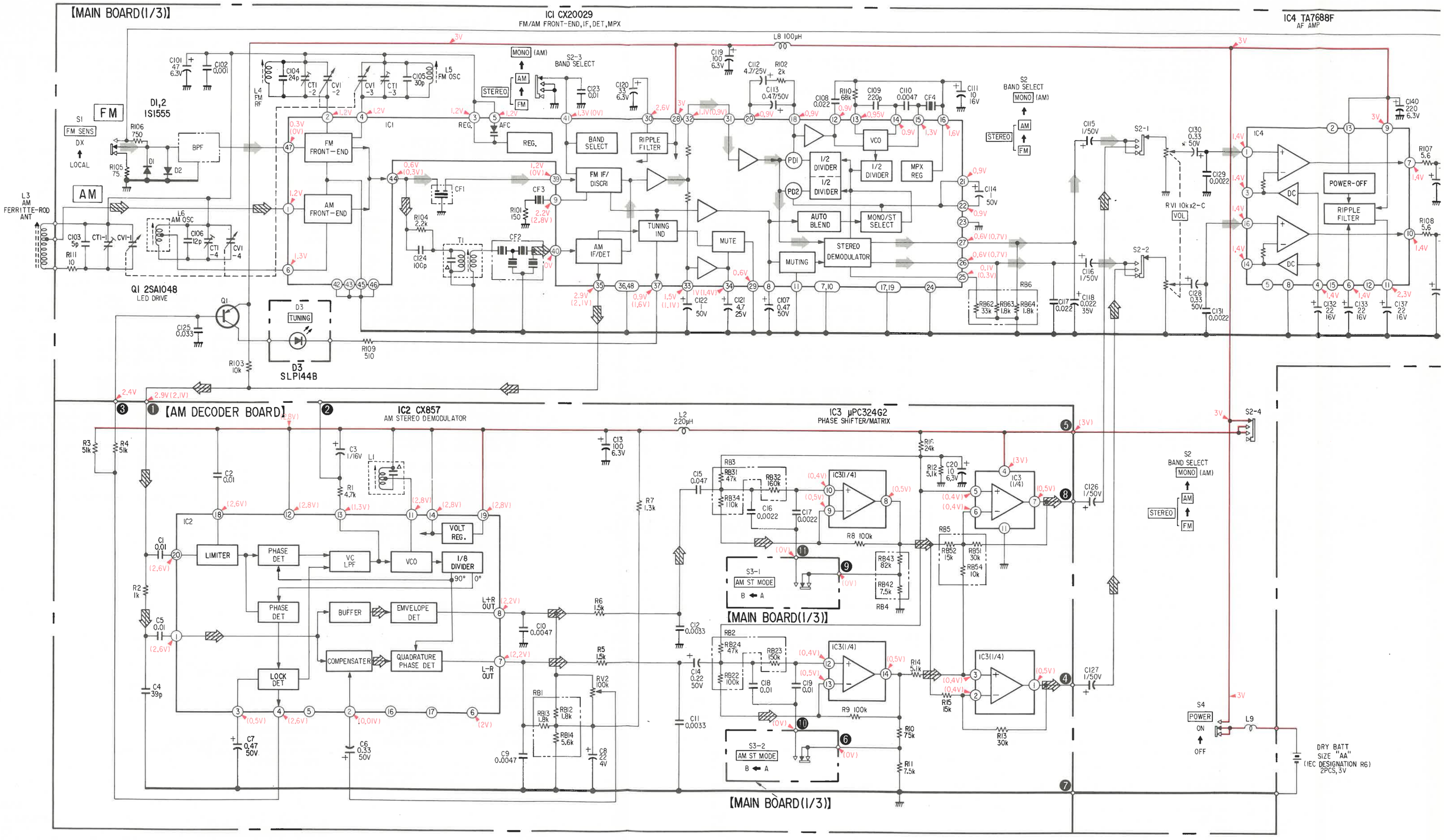
【MAIN BOARD】(CONDUCTOR SIDE)

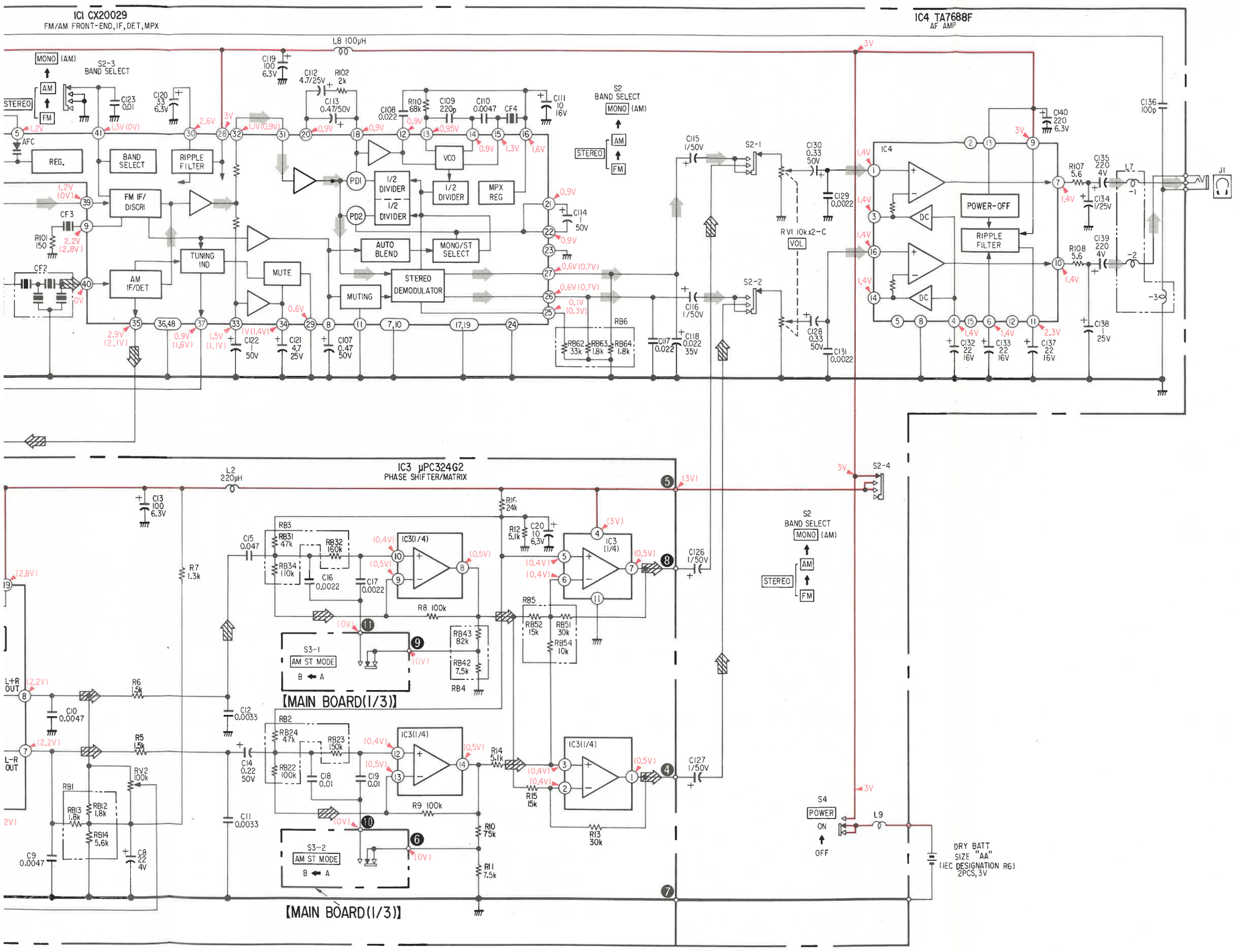
【AM DECODER BOARD】(CONDUCTOR SIDE)

【AM DECODER BOARD】(COMPONENT SIDE)



## 4-2. SCHEMATIC DIAGRAM





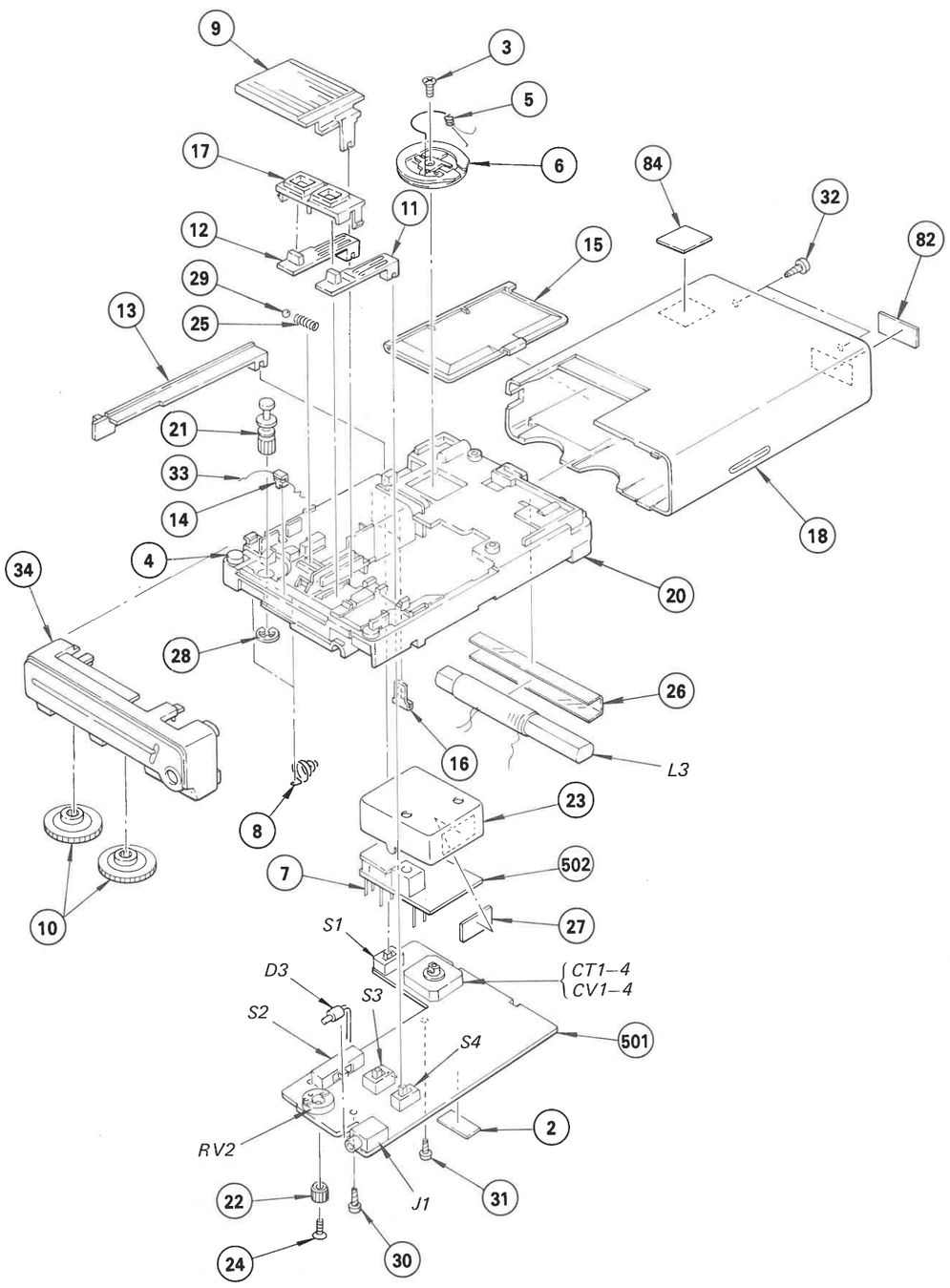

Note:

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in ohms, 1/6 W unless otherwise noted. kΩ: 1000 Ω, MΩ: 1000 kΩ
- : FM, AM signal path
- : AM signal path
- : adjustment for repair.
- : B+ bus.
- Readings are taken under no-signal (detuned) conditions with a VOM.
  ( ): AM
- Switch

| Ref. No. | Switch | Position |
|---|---|---|
| S1 | FM SENS | LOCAL |
| S2 | BAND SELECT | FM |
| S3 | AM ST MODE | A |
| S4 | POWER | OFF |

Note: Voltages are measured with a VOM (50kΩ/V).

# SECTION 5
# EXPLODED VIEW AND PARTS LIST








## GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 1 | 3-701-436-01 | WASHER, 1.6 |
| 2 | 3-831-441-XX | CUSHION, ADJUSTMENT |
| 3 | 3-880-990-00 | SCREW (1.7X3), FLAT, (+) SPECIAL |
| 4 | 3-881-911-00 | PULLEY |
| 5 | 3-889-008-00 | SPRING (A) |
| 6 | 3-889-014-00 | DRUM, DIAL |
| 7 ♦ | 3-891-044-00 | PIN, WIRE |
| 8 | 3-892-301-00 | SPRING |
| 9 | 3-892-302-00 | KNOB, BAND SELECTION |
| 10 | 3-892-303-00 | KNOB (A) |
| 11 | 3-892-304-00 | KNOB (A), SELECTION |
| 12 | 3-892-304-11 | KNOB (A), SELECTION |
| 13 | 3-892-305-00 | KNOB, SELECTION |
| 14 | 3-892-306-00 | POINTER |
| 15 | 3-892-308-00 | LID, BATTERY CASE |
| 16 | 3-892-309-00 | PLATE, POLE, BATTERY |
| 17 | 3-892-310-00 | COVER, KNOB |
| 18 | 3-892-313-00 | CABINET (MAIN) |
| 20 ♦ | 3-892-314-00 | CHASSIS |
| 21 | 3-892-315-00 | SHAFT, TUNING |
| 22 | 3-892-316-00 | SHAFT, CONTROL |
| 23 ♦ | 3-892-317-00 | CASE (B), SHIELD |
| 24 | 3-892-318-00 | SCREW, SMALL |
| 25 | 3-892-321-00 | SPRING, COMPRESSION |
| 26 | 3-892-322-00 | COVER, FERRITE-ROD ANTENNA |
| 27 | 3-892-323-00 | SHEET, INSULATING |
| 28 | 7-624-109-04 | STOP RING 5.0, TYPE -E |
| 29 | 7-671-155-01 | STEEL BALL 3.0 |
| 30 | 7-685-134-14 | SCREW +BTP 2.6X8 TYPE2 N-S |
| 31 | 7-685-134-19 | SCREW +BTP 2.6X8 TYPE2 N-S |
| 32 | 7-685-534-24 | SCREW +P 2.6X8 TYPE2 NON-SLIT |
| 33 | 9-911-825-52 | STRING, DIAL |
| 34 | A-3640-631-A | LID ASSY, UPPER, CABINET |

## ACCESSORY & PACKING MATERIAL

| No. | Part No. | Description |
|---|---|---|
| 81 | 3-701-621-00 | BAG, POLYETHYLENE |
| 82 | 3-701-999-00 | LABEL, SERIAL NUMBER |
| 83 | 3-703-485-00 | BAG, POLYETHYLENE |
| 84 | 3-703-710-01 | STICKER, SONY SYMBOL (12) |
| 85 | 3-795-748-21 | (US)...SAFETY INSTRUCTIONS, HEADPHONE |
| 86 | 3-892-311-00 | HANGER, CARRYING |
| 87 | 3-892-319-00 | INDIVIDUAL CARTON |
| 88 | 3-892-320-00 | CUSHION |
| 89 | 3-892-326-00 | SPACER |
| 90 | 3-995-977-21 | MANUAL, INSTRUCTION |
| 91 | 3-995-977-31 | (Canadian)...MANUAL, INSTRUCTION |
| 92 | 8-951-144-92 | MDR-1L1(B) SET |

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

## ELECTRICAL PARTS

| Ref.No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| 501 ♦ | A-3660-467-A | PC BOARD ASSY (A), MAIN | | | |
| 502 ♦ | A-3689-047-A | PC BOARD ASSY, AM DECODER | | | |
| BPF | 1-235-171-00 | FILTER, BAND PASS | | | |
| C1 | 1-161-013-00 | CERAMIC | 0.01MF | 10% | 25V |
| C2 | 1-161-013-00 | CERAMIC | 0.01MF | 10% | 25V |
| C3 | 1-131-347-00 | TANTALUM | 1MF | 20% | 16V |
| C4 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C5 | 1-161-013-00 | CERAMIC | 0.01MF | 10% | 25V |
| C6 | 1-124-269-00 | ELECT | 0.33MF | 20% | 50V |
| C7 | 1-124-270-00 | ELECT | 0.47MF | 20% | 50V |
| C8 | 1-124-430-00 | ELECT | 22MF | 20% | 4V |
| C9 | 1-161-030-00 | CERAMIC | 0.0047MF | 20% | 25V |
| C10 | 1-161-030-00 | CERAMIC | 0.0047MF | 20% | 25V |
| C11 | 1-161-029-00 | CERAMIC | 0.0033MF | 20% | 25V |
| C12 | 1-161-029-00 | CERAMIC | 0.0033MF | 20% | 25V |
| C13 | 1-123-661-00 | ELECT | 100MF | 20% | 6.3V |
| C14 | 1-123-608-00 | ELECT | 0.22MF | 20% | 50V |
| C15 | 1-161-036-00 | CERAMIC | 0.047MF | 20% | 25V |
| C16 | 1-108-563-00 | MYLAR | 0.0022MF | 5% | 50V |
| C17 | 1-108-563-00 | MYLAR | 0.0022MF | 5% | 50V |
| C18 | 1-108-579-00 | MYLAR | 0.01MF | 5% | 50V |
| C19 | 1-108-579-00 | MYLAR | 0.01MF | 5% | 50V |
| C20 | 1-124-435-00 | ELECT | 10MF | 20% | 6.3V |
| C101 | 1-123-647-00 | ELECT | 47MF | 20% | 6.3V |
| C102 | 1-161-039-00 | CERAMIC | 0.001MF | 10% | 25V |
| C103 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C104 | 1-102-960-00 | CERAMIC | 24PF | 5% | 50V |
| C105 | 1-102-673-00 | CERAMIC | 30P | 5% | 50V |
| C106 | 1-102-637-00 | CERAMIC | 12PF | 5% | 50V |
| C107 | 1-123-610-00 | ELECT | 0.47MF | 20% | 50V |
| C108 | 1-161-017-00 | CERAMIC | 0.022MF | 10% | 25V |
| C109 | 1-102-110-00 | CERAMIC | 220PF | 10% | 50V |
| C110 | 1-161-009-00 | CERAMIC | 0.0047MF | 10% | 25V |
| C111 | 1-123-617-00 | ELECT | 10MF | 20% | 16V |
| C112 | 1-123-616-00 | ELECT | 4.7MF | 20% | 25V |
| C113 | 1-123-610-00 | ELECT | 0.47MF | 20% | 50V |
| C114 | 1-123-611-00 | ELECT | 1MF | 20% | 50V |
| C115 | 1-123-611-00 | ELECT | 1MF | 20% | 50V |
| C116 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C117 | 1-161-494-00 | CERAMIC | 0.022MF | 30% | 25V |
| C118 | 1-131-398-00 | TANTALUM | 0.022MF | 20% | 35V |
| C119 | 1-123-661-00 | ELECT | 100MF | 20% | 6.3V |
| C120 | 1-123-646-00 | ELECT | 33MF | 20% | 6.3V |
| C121 | 1-123-616-00 | ELECT | 4.7MF | 20% | 25V |
| C122 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···



SRF-A1

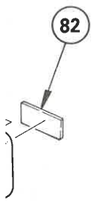
ELEC

| Ref.No. | Part No. |
|---|---|
| C123 | 1-161-013 |
| C124 | 1-102-973 |
| C125 | 1-161-019 |
| C126 | 1-124-438 |
| C127 | 1-124-438 |
| C128 | 1-123-609 |
| C129 | 1-161-005 |
| C130 | 1-123-609 |
| C131 | 1-161-005 |
| C132 | 1-123-622 |
| C133 | 1-123-622 |
| C134 | 1-131-408 |
| C135 | 1-124-434 |
| C136 | 1-102-973 |
| C137 | 1-123-622 |
| C138 | 1-131-408 |
| C139 | 1-124-434 |
| C140 | 1-123-296 |
| CF1 | 1-567-166 |
| CF2 | 1-567-165 |
| CF3 | 1-567-166 |
| CF4 | 1-567-164 |
| CT1-4 | 1-151-434 |
| CV1-4 | |
| D1 | 8-719-815 |
| D2 | 8-719-815 |
| D3 | 8-719-901 |
| IC1 | 8-759-908 |
| IC2 | 8-759-907 |
| IC3 | 8-759-100 |
| IC4 | 8-759-200 |
| J1 | 1-507-917 |
| L1 | 1-406-070 |
| L2 | 1-408-579 |
| L3 | 1-402-060 |
| L4 | 1-459-435 |
| L5 | 1-459-418 |
| L6 | 1-405-989 |
| L7 | 1-409-365 |
| L8 | 1-408-575 |
| L9 | 1-408-120 |
| Q1 | 8-729-204 |

NOTE:
- Items with no p
  cription are no
  are seldom requ
- Items marked "
  they are seldor
  service. Some
  pated when orde
- Due to standard
  numbers (Δ-ΔΔΔ-
  may be differer
  set.
- If there are tw
  set such as a s
  typical circuit
  capacitors and
  circuits may be

**9-951-292-11**
**[with MDR-1L1]**

G




## GENERAL SECTION

| No. | Part No. | Description |
|---|---|---|
| 1 | 3-701-436-01 | WASHER, 1.6 |
| 2 | 3-831-441-XX | CUSHION, ADJUSTMENT |
| 3 | 3-880-990-00 | SCREW (1.7X3), FLAT, (+) SPECIAL |
| 4 | 3-881-911-00 | PULLEY |
| 5 | 3-889-008-00 | SPRING (A) |
| 6 | 3-889-014-00 | DRUM, DIAL |
| 7 ♦ | 3-891-044-00 | PIN, WIRE |
| 8 | 3-892-301-00 | SPRING |
| 9 | 3-892-302-00 | KNOB, BAND SELECTION |
| 10 | 3-892-303-00 | KNOB (A) |
| 11 | 3-892-304-00 | KNOB (A), SELECTION |
| 12 | 3-892-304-11 | KNOB (A), SELECTION |
| 13 | 3-892-305-00 | KNOB, SELECTION |
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| 15 | 3-892-308-00 | LID, BATTERY CASE |
| 16 | 3-892-309-00 | PLATE, POLE, BATTERY |
| 17 | 3-892-310-00 | COVER, KNOB |
| 18 | 3-892-313-00 | CABINET (MAIN) |
| 20 ♦ | 3-892-314-00 | CHASSIS |
| 21 | 3-892-315-00 | SHAFT, TUNING |
| 22 | 3-892-316-00 | SHAFT, CONTROL |
| 23 ♦ | 3-892-317-00 | CASE (B), SHIELD |
| 24 | 3-892-318-00 | SCREW, SMALL |
| 25 | 3-892-321-00 | SPRING, COMPRESSION |
| 26 | 3-892-322-00 | COVER, FERRITE-ROD ANTENNA |
| 27 | 3-892-323-00 | SHEET, INSULATING |
| 28 | 7-624-109-04 | STOP RING 5.0, TYPE -E |
| 29 | 7-671-155-01 | STEEL BALL 3.0 |
| 30 | 7-685-134-14 | SCREW +BTP 2.6X8 TYPE2 N-S |
| 31 | 7-685-134-19 | SCREW +BTP 2.6X8 TYPE2 N-S |
| 32 | 7-685-534-24 | SCREW +P 2.6X8 TYPE2 NON-SLIT |
| 33 | 9-911-825-52 | STRING, DIAL |
| 34 | A-3640-631-A | LID ASSY, UPPER, CABINET |

## ACCESSORY & PACKING MATERIAL

| No. | Part No. | Description |
|---|---|---|
| 81 | 3-701-621-00 | BAG, POLYETHYLENE |
| 82 | 3-701-999-00 | LABEL, SERIAL NUMBER |
| 83 | 3-703-485-00 | BAG, POLYETHYLENE |
| 84 | 3-703-710-01 | STICKER, SONY SYMBOL (12) |
| 85 | 3-795-748-21 | (US)...SAFETY INSTRUCTIONS, HEADPHONE |
| 86 | 3-892-311-00 | HANGER, CARRYING |
| 87 | 3-892-319-00 | INDIVIDUAL CARTON |
| 88 | 3-892-320-00 | CUSHION |
| 89 | 3-892-326-00 | SPACER |
| 90 | 3-995-977-21 | MANUAL, INSTRUCTION |
| 91 | 3-995-977-31 | (Canadian)...MANUAL, INSTRUCTION |
| 92 | 8-951-144-92 | MDR-1L1(B) SET |

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- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

## ELECTRICAL PARTS

| Ref.No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| 501 ♦ | A-3660-467-A | PC BOARD ASSY (A), MAIN | | | |
| 502 ♦ | A-3689-047-A | PC BOARD ASSY, AM DECODER | | | |
| BPF | 1-235-171-00 | FILTER, BAND PASS | | | |
| C1 | 1-161-013-00 | CERAMIC | 0.01MF | 10% | 25V |
| C2 | 1-161-013-00 | CERAMIC | 0.01MF | 10% | 25V |
| C3 | 1-131-347-00 | TANTALUM | 1MF | 20% | 16V |
| C4 | 1-102-965-00 | CERAMIC | 39PF | 5% | 50V |
| C5 | 1-161-013-00 | CERAMIC | 0.01MF | 10% | 25V |
| C6 | 1-124-269-00 | ELECT | 0.33MF | 20% | 50V |
| C7 | 1-124-270-00 | ELECT | 0.47MF | 20% | 50V |
| C8 | 1-124-430-00 | ELECT | 22MF | 20% | 4V |
| C9 | 1-161-030-00 | CERAMIC | 0.0047MF | 20% | 25V |
| C10 | 1-161-030-00 | CERAMIC | 0.0047MF | 20% | 25V |
| C11 | 1-161-029-00 | CERAMIC | 0.0033MF | 20% | 25V |
| C12 | 1-161-029-00 | CERAMIC | 0.0033MF | 20% | 25V |
| C13 | 1-123-661-00 | ELECT | 100MF | 20% | 6.3V |
| C14 | 1-123-608-00 | ELECT | 0.22MF | 20% | 50V |
| C15 | 1-161-036-00 | CERAMIC | 0.047MF | 20% | 25V |
| C16 | 1-108-563-00 | MYLAR | 0.0022MF | 5% | 50V |
| C17 | 1-108-563-00 | MYLAR | 0.0022MF | 5% | 50V |
| C18 | 1-108-579-00 | MYLAR | 0.01MF | 5% | 50V |
| C19 | 1-108-579-00 | MYLAR | 0.01MF | 5% | 50V |
| C20 | 1-124-435-00 | ELECT | 10MF | 20% | 6.3V |
| C101 | 1-123-647-00 | ELECT | 47MF | 20% | 6.3V |
| C102 | 1-161-039-00 | CERAMIC | 0.001MF | 10% | 25V |
| C103 | 1-102-942-00 | CERAMIC | 5PF | 0.5PF | 50V |
| C104 | 1-102-960-00 | CERAMIC | 24PF | 5% | 50V |
| C105 | 1-102-673-00 | CERAMIC | 30P | 5% | 50V |
| C106 | 1-102-637-00 | CERAMIC | 12PF | 5% | 50V |
| C107 | 1-123-610-00 | ELECT | 0.47MF | 20% | 50V |
| C108 | 1-161-017-00 | CERAMIC | 0.022MF | 10% | 25V |
| C109 | 1-102-110-00 | CERAMIC | 220PF | 10% | 50V |
| C110 | 1-161-009-00 | CERAMIC | 0.0047MF | 10% | 25V |
| C111 | 1-123-617-00 | ELECT | 10MF | 20% | 16V |
| C112 | 1-123-616-00 | ELECT | 4.7MF | 20% | 25V |
| C113 | 1-123-610-00 | ELECT | 0.47MF | 20% | 50V |
| C114 | 1-123-611-00 | ELECT | 1MF | 20% | 50V |
| C115 | 1-123-611-00 | ELECT | 1MF | 20% | 50V |
| C116 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C117 | 1-161-494-00 | CERAMIC | 0.022MF | 30% | 25V |
| C118 | 1-131-398-00 | TANTALUM | 0.022MF | 20% | 35V |
| C119 | 1-123-661-00 | ELECT | 100MF | 20% | 6.3V |
| C120 | 1-123-646-00 | ELECT | 33MF | 20% | 6.3V |
| C121 | 1-123-616-00 | ELECT | 4.7MF | 20% | 25V |
| C122 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |



## ELECTRICAL PARTS

| Ref.No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| C123 | 1-161-013-00 | CERAMIC | 0.01MF | 10% | 25V |
| C124 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C125 | 1-161-019-00 | CERAMIC | 0.033MF | 10% | 25V |
| C126 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C127 | 1-124-438-00 | ELECT | 1MF | 20% | 50V |
| C128 | 1-123-609-00 | ELECT | 0.33MF | 20% | 50V |
| C129 | 1-161-005-00 | CERAMIC | 0.0022MF | 10% | 25V |
| C130 | 1-123-609-00 | ELECT | 0.33MF | 20% | 50V |
| C131 | 1-161-005-00 | CERAMIC | 0.0022MF | 10% | 25V |
| C132 | 1-123-622-00 | ELECT | 22MF | 20% | 16V |
| C133 | 1-123-622-00 | ELECT | 22MF | 20% | 16V |
| C134 | 1-131-408-00 | TANTALUM | 1MF | 10% | 25V |
| C135 | 1-124-434-00 | ELECT | 220MF | 20% | 4V |
| C136 | 1-102-973-00 | CERAMIC | 100PF | 5% | 50V |
| C137 | 1-123-622-00 | ELECT | 22MF | 20% | 16V |
| C138 | 1-131-408-00 | TANTALUM | 1MF | 10% | 25V |
| C139 | 1-124-434-00 | ELECT | 220MF | 20% | 4V |
| C140 | 1-123-296-00 | ELECT | 220MF | 20% | 6.3V |
| CF1 | 1-567-166-61 | FILTER, CERAMIC | | | |
| CF2 | 1-567-165-00 | FILTER, CERAMIC | | | |
| CF3 | 1-567-166-61 | FILTER, CERAMIC | | | |
| CF4 | 1-567-164-00 | VIBRATOR, CERAMIC | | | |
| CT1-4<br>CV1-4 | 1-151-434-00 | CAP, TUNING, POLYETHYLENE | | | |
| D1 | 8-719-815-55 | DIODE 1S1555 | | | |
| D2 | 8-719-815-55 | DIODE 1S1555 | | | |
| D3 | 8-719-901-44 | DIODE SLP144B | | | |
| IC1 | 8-759-908-89 | IC CX20029 | | | |
| IC2 | 8-759-907-69 | IC CX-857 | | | |
| IC3 | 8-759-100-95 | IC UPC324G2 | | | |
| IC4 | 8-759-200-95 | IC TA7688F | | | |
| J1 | 1-507-917-00 | JACK, STEREO (HEADPHONE) | | | |
| L1 | 1-406-070-00 | COIL, OSC | | | |
| L2 | 1-408-579-00 | MICRO INDUCTOR 220UH | | | |
| L3 | 1-402-060-00 | ANTENNA, FERRITE-ROD (MW) | | | |
| L4 | 1-459-435-00 | COIL (WITH CORE) | | | |
| L5 | 1-459-418-00 | COIL (WITH CORE) | | | |
| L6 | 1-405-989-00 | COIL, OSC | | | |
| L7 | 1-409-365-00 | COIL, TRAP | | | |
| L8 | 1-408-575-00 | MICRO INDUCTOR 100UH | | | |
| L9 | 1-408-120-00 | MICRO INDUCTOR 18UH | | | |
| Q1 | 8-729-204-83 | TRANSISTOR 2SA1048-GR | | | |

## ELECTRICAL PARTS

| Ref.No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| R1 | 1-247-847-00 | CARBON | 4.7K | 5% | 1/6W |
| R2 | 1-247-831-00 | CARBON | 1K | 5% | 1/6W |
| R3 | 1-247-872-00 | CARBON | 51K | 5% | 1/6W |
| R4 | 1-247-872-00 | CARBON | 51K | 5% | 1/6W |
| R5 | 1-247-835-00 | CARBON | 1.5K | 5% | 1/6W |
| R6 | 1-247-835-00 | CARBON | 1.5K | 5% | 1/6W |
| R7 | 1-247-834-00 | CARBON | 1.3K | 5% | 1/6W |
| R8 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R9 | 1-247-879-00 | CARBON | 100K | 5% | 1/6W |
| R10 | 1-247-876-00 | CARBON | 75K | 5% | 1/6W |
| R11 | 1-247-852-00 | CARBON | 7.5K | 5% | 1/6W |
| R12 | 1-247-848-00 | CARBON | 5.1K | 5% | 1/6W |
| R13 | 1-247-866-00 | CARBON | 30K | 5% | 1/6W |
| R14 | 1-247-848-00 | CARBON | 5.1K | 5% | 1/6W |
| R15 | 1-247-859-00 | CARBON | 15K | 5% | 1/6W |
| R16 | 1-247-864-00 | CARBON | 24K | 5% | 1/6W |
| R101 | 1-247-811-00 | CARBON | 150 | 5% | 1/6W |
| R102 | 1-247-838-00 | CARBON | 2K | 5% | 1/6W |
| R103 | 1-247-855-00 | CARBON | 10K | 5% | 1/6W |
| R104 | 1-247-839-00 | CARBON | 2.2K | 5% | 1/6W |
| R105 | 1-247-804-00 | CARBON | 75 | | 1/6W |
| R106 | 1-247-828-00 | CARBON | 750 | 5% | 1/6W |
| R107 | 1-247-777-00 | CARBON | 5.6 | 5% | 1/6W |
| R108 | 1-247-777-00 | CARBON | 5.6 | 5% | 1/6W |
| R109 | 1-247-824-00 | CARBON | 510 | 5% | 1/6W |
| R110 | 1-247-875-00 | CARBON | 68K | 5% | 1/6W |
| R111 | 1-247-783-00 | CARBON | 10 | 5% | 1/6W |
| RV1 | 1-230-272-00 | RES, VAR, CARBON 10K/10K (VOLUME) | | | |
| RV2 | 1-226-775-00 | RES, ADJ, METAL GLAZE 100K | | | |
| S1 | 1-554-438-00 | SWITCH, SLIDE (FM SENS) | | | |
| S2 | 1-554-656-00 | SWITCH, SLIDE (BAND SELECT) | | | |
| S3 | 1-554-663-00 | SWITCH, SLIDE (AM ST MODE) | | | |
| S4 | 1-554-438-00 | SWITCH, SLIDE (POWER) | | | |
| T1 | 1-404-362-00 | TRANSFORMER, IF | | | |

NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part numbers (Δ-ΔΔΔ-ΔΔΔ-XX or Δ-ΔΔΔΔ-ΔΔΔ-X) may be different from those used in the set.
- If there are two or more same circuitsin a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF:μF, PF:μμF.

RESISTORS
- All resistors are in ohms.
- F : nonflammable

COILS
- MMH : mH, UH : μH

SEMICONDUCTORS
In each case, U : μ, for example:
UA···: μA···, UPA···: μPA···, UPC···: μPC,
UPD···: μPD···

**9-951-292-11**
**[with MDR-1L1]**

**Sony Corporation**

**English**
83J0547-1
Printed in Japan

# MDR-1L1

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


## STEREO HEADPHONES

### SPECIFICATIONS

| | |
|---|---|
| **Type:** | Dynamic |
| **Driver Units:** | 23 mm dia., dome |
| **Impedance:** | 32Ω at 1 kHz |
| **Sensitivity:** | 98 dB/mW |
| **Rated Power:** | 40 mW |
| **Frequency Response:** | 20 – 22,000 Hz |
| **Cord Length:** | 1.2 m long with mini plug |
| **Weight:** | Approx. 29 g (without cord) |

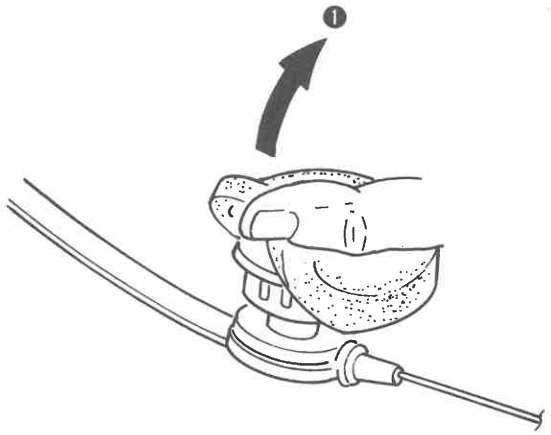
MICROFILM

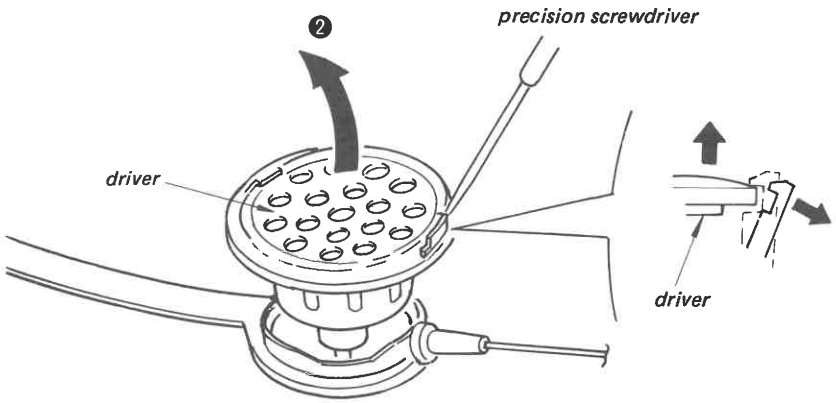
SONY®
SERVICE MANUAL

## 1. DISASSEMBLY

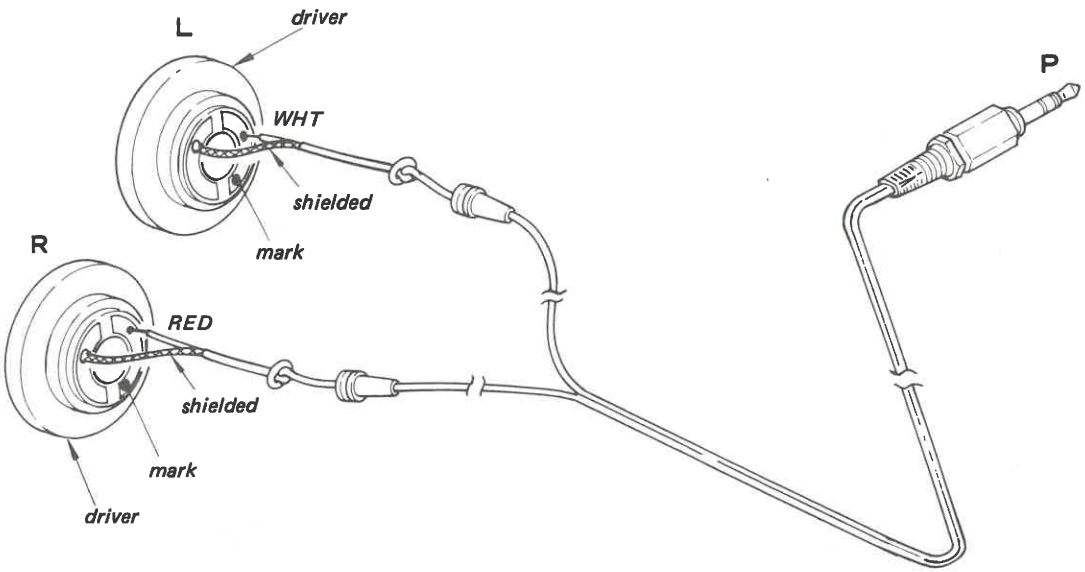
**Note:** Follow the disassembly procedure in the numerical order given.

### DRIVER REMOVAL



## 2. WIRING DIAGRAM




**<Caution>**

After replacing the driver unit, twist the housing (see ⑤, ⑥ in EXPLODED VIEW) back and forth two or three times and then make sure that the sound is not cut off intermittently.

## 3. PARTS LIST

| *No.* | *Part No.* | *Description* |
|---|---|---|
| 1 | 1-505-048-12 | DRIVER |
| 2 | 1-555-459-00 | CORD, 1.2 m LONG WITH MINI PLUG |
| 3 | ♦; 2-284-601-21 | BAND, HEAD |
| 4 | 2-284-602-11 | BUSHING |
| 5 | 2-284-605-00 | HOUSING (L) |
| 6 | 2-284-606-00 | HOUSING (R) |
| 7 | 2-284-609-11 | STOPPER, SLIDE |
| 8 | 2-284-610-11 | PAD, EAR (BLACK) |
| 9 | 4-865-903-00 | SPRING, SLIDE |
| 10 | 4-865-916-00 | SCREEN (D) |
| 11 | X-2292-901-1 | HANGER (L) ASS'Y |
| 12 | X-2292-902-1 | HANGER (R) ASS'Y |

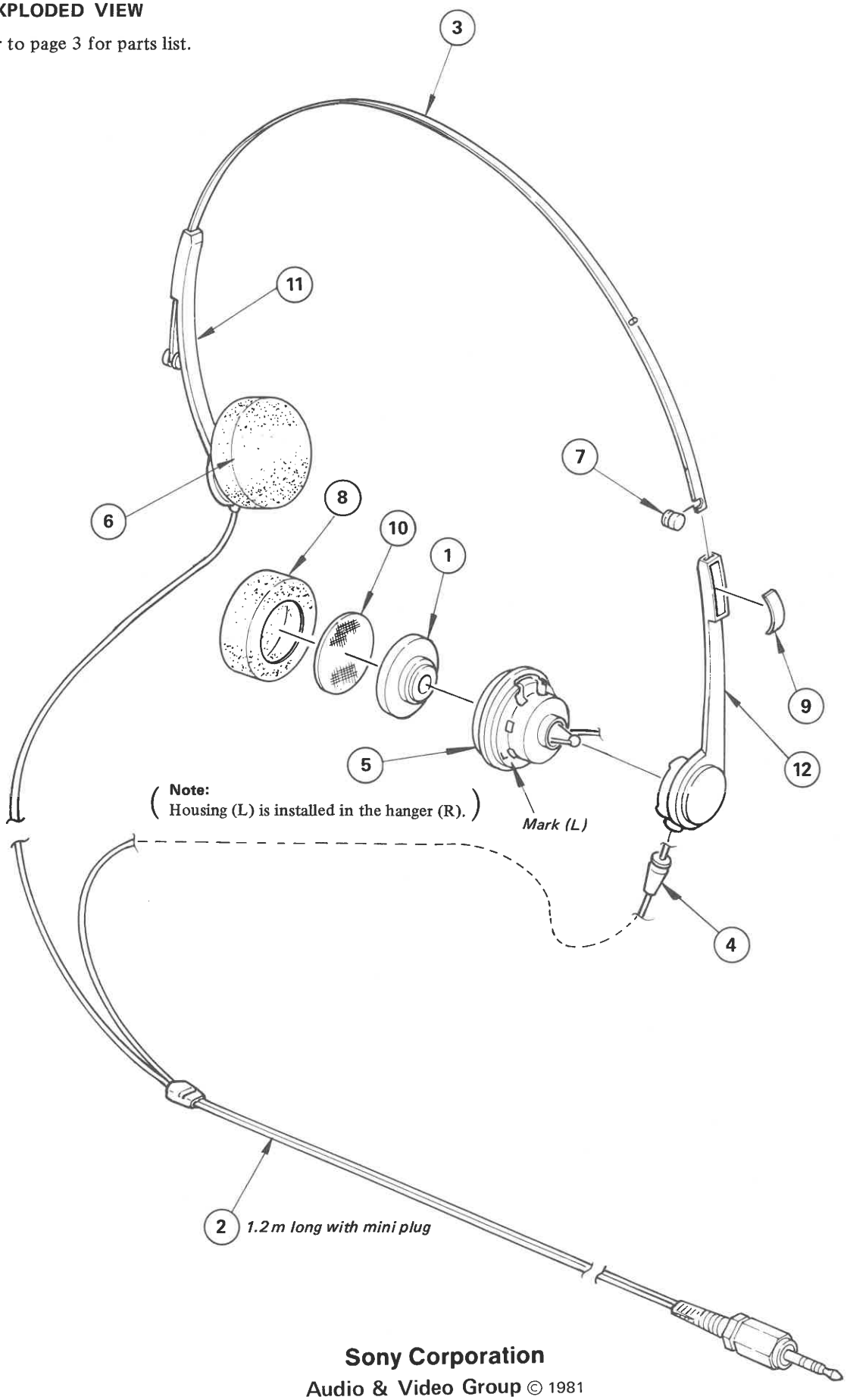
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- Items marked " ♦ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

A B C D

1 2 3 4 5

## 4. EXPLODED VIEW

- Refer to page 3 for parts list.




Sony Corporation
Audio & Video Group 



English
83J0647-3
Printed in Japan