

ICF-A6500/A6500L

SERVICE MANUAL

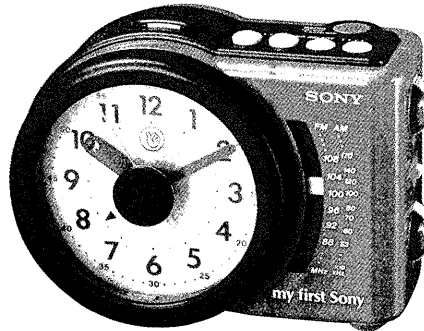


Photo : ICF-A6500

US Model
Canadian Model
AEP Model
UK Model
E Model
ICF-A6500
French Model
ICF-A6500L



SPECIFICATIONS

Frequency range

FM: 87.6–108 MHz (US, Canadian)
87.6–107.5 MHz (AEP, UK, E, French)
MW: 530–1,710 kHz (US, Canadian)
531–1,602 kHz (AEP, UK, E, French)
LW: 153–255 kHz

Antennas

FM: Lead antenna 75 Ω
MW: Built-in ferrite bar antenna

Speaker

5.7 cm (2 $\frac{1}{4}$ inches) dia. 16 Ω (1)

Power requirements

DC 3 V with four R6 (size AA) batteries

Battery life

Approx. 52 hours (Sony batteries SUM-3(NS)/R6P)
Approx. 115 hours (Sony batteries AM3(N)/LR6)

Dimensions

Approx. 168 × 125 × 88 mm (w/h/d)
(6 $\frac{5}{8}$ × 5 × 3 $\frac{1}{2}$ inches)

Weight

Approx. 590 g (20.8 oz) incl. batteries

Design and specifications subject to change without notice.

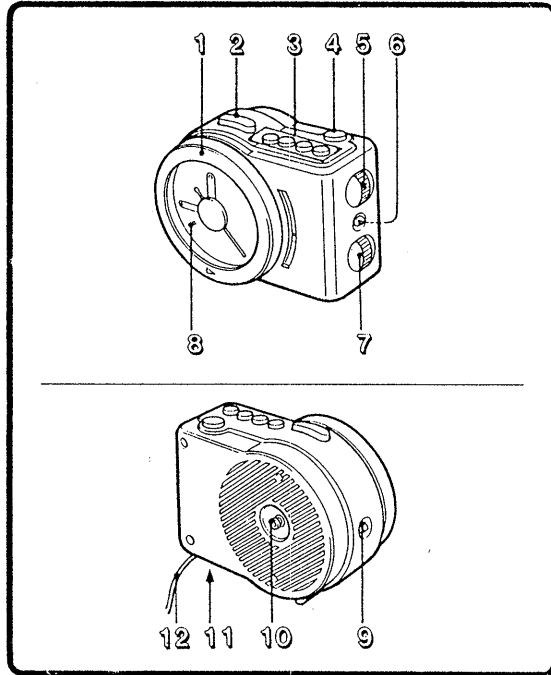
FM/AM ANALOG CLOCK RADIO
SONY®

SECTION 1
GENERAL

This section is extracted from instruction manual.

PARTS IDENTIFICATION

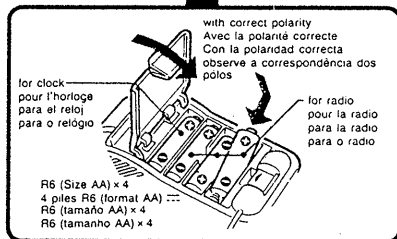
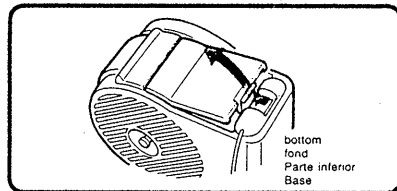
Parts Identifications
Identification des éléments
Identificación de partes
Identificação dos Comandos



- 1 ALARM set dial
- 2 ALARM ON/OFF button
- 3 Sound select buttons
- 4 RADIO ON/OFF button
- 5 TUNING dial
- 6 BAND selector: FM/AM:ICF-A6500
FM/LW:ICF-A6500L
- 7 VOLUME control
- 8 Mark for setting Alarm
- 9 ALARM mode (RADIO/SOUND) selector
- 10 Time set knob
- 11 Battery compartment (bottom)
- 12 FM wire Antenna

Getting Started/Préparatifs
Preparativos/Preparativos

Inserting the batteries/Mise en place des piles
Colocación de las pilas/Inserção das pilhas



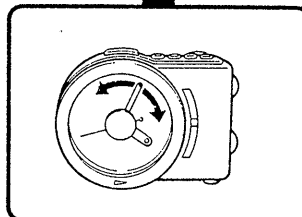
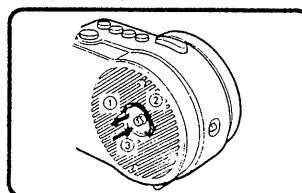
When to replace the batteries

When:	Replace the battery for:
The radio sound becomes distorted or unstable	radio (3 batteries)
The clock loses a few minutes per year	clock (1 battery)

Cuándo reemplazar las pilas

Cuando:	Reemplace las pilas para:
El sonido de la radio se vuelve distorsionado o inestable	la radio (3 pilas)
El reloj se atrasa algunos minutos al año	el reloj (1 pila)

Setting the clock/Réglage de l'horloge
Puesta en hora del reloj/
Acerto do relógio



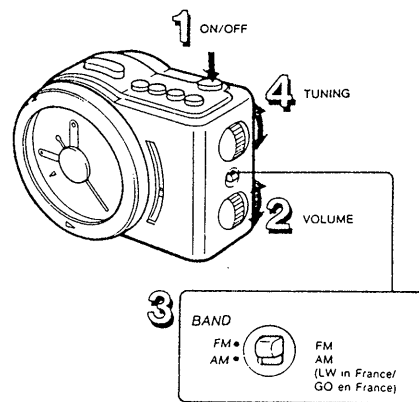
Remplacement des piles

Quand:	Remplacer les piles de:
le son de la radio est déformé ou irrégulier	la radio (3 piles)
l'horloge perd quelques minutes sur une année	l'horloge (1 pile)

Quando trocar as pilhas

Quando:	Troque pilhas do:
o som do rádio distorcer-se ou tornar-se instável.	rádio (3 pilhas)
o relógio atrasar alguns minutos por ano.	relógio (1 pilha)

Listening to the Radio/Ecoute de la radio
Escucha de la radio/Utilização do rádio



To turn off the radio, press the RADIO ON/OFF button.

Note
The radio goes off automatically after it has been on for an hour.

Para desconectar la radio, presione la tecla RADIO ON/OFF.

Nota
La radio se desconectará automáticamente después de haberse escuchado durante una hora.

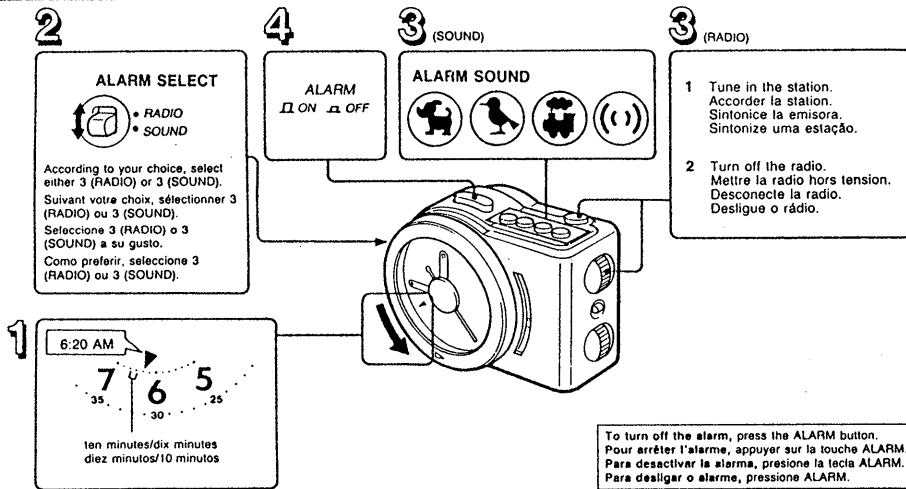
Pour mettre la radio hors tension, appuyer sur la touche RADIO ON/OFF.

REMARQUE
La radio s'arrête d'elle-même au bout d'une heure.

Para desligar o rádio, pressione RADIO ON/OFF.

NOTA
O rádio desliga-se automaticamente passada uma hora após a sua activação.

**Setting the Alarm/Réglage de l'alarme
Ajuste de la alarma/Ajuste do alarme**



NOTE

- The ALARM may sound 10 minutes earlier or later than the preset time.
- Make sure to turn the ALARM setting dial counterclockwise to set the alarm time.

REMARQUE

- L'alarme peut se déclencher 10 minutes avant ou après l'heure pré-réglée.
- Lors du réglage de l'alarme, tourner la bague dans le sens inverse des aiguilles d'une montre.

NOTA

- Es posible que la alarma suene 10 minutos antes o después de la hora ajustada.
- Cerciórese de girar el mando de ajuste de la alarma hacia la izquierda a finde ajustar la hora de alarma.

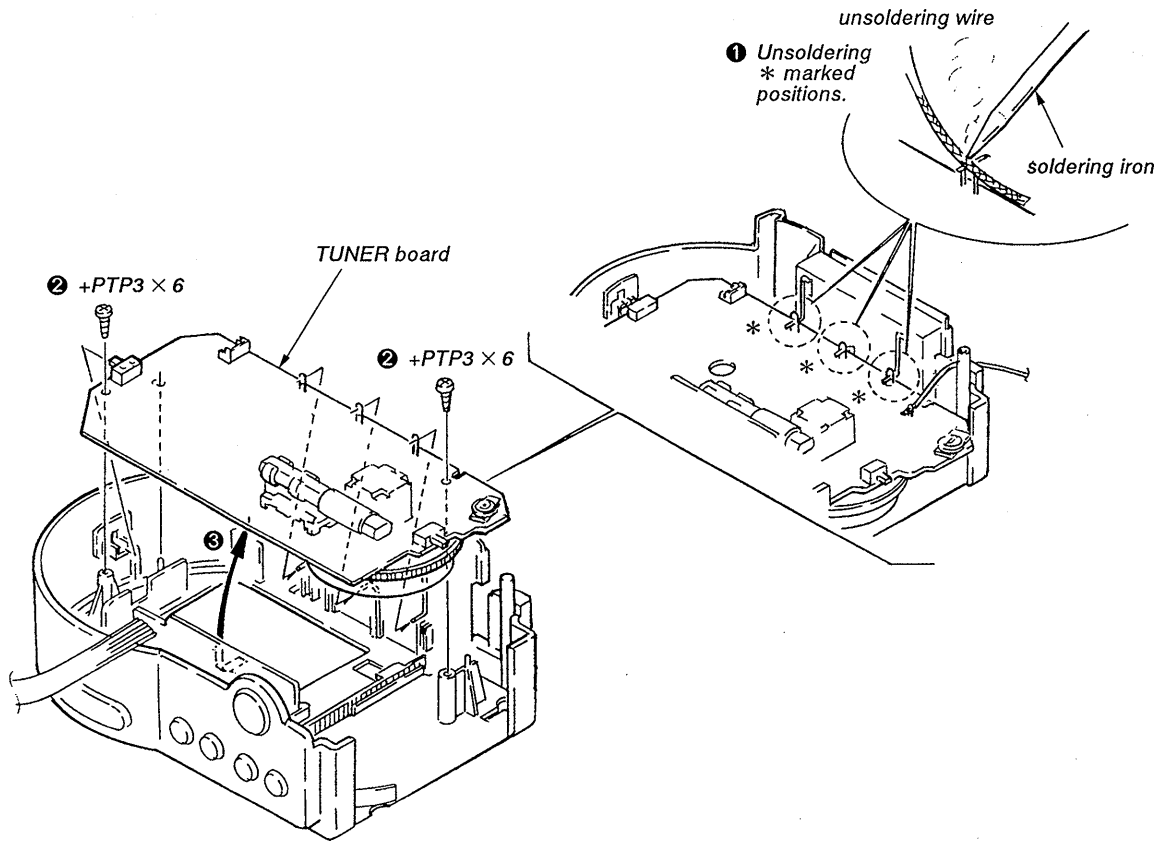
NOTA

- O alarme poderá soar 10 minutos antes ou após a hora ajustada.
- Certeque-se de girar o dial de ajuste do alarme para a esquerda para ajustar a hora do alarme.

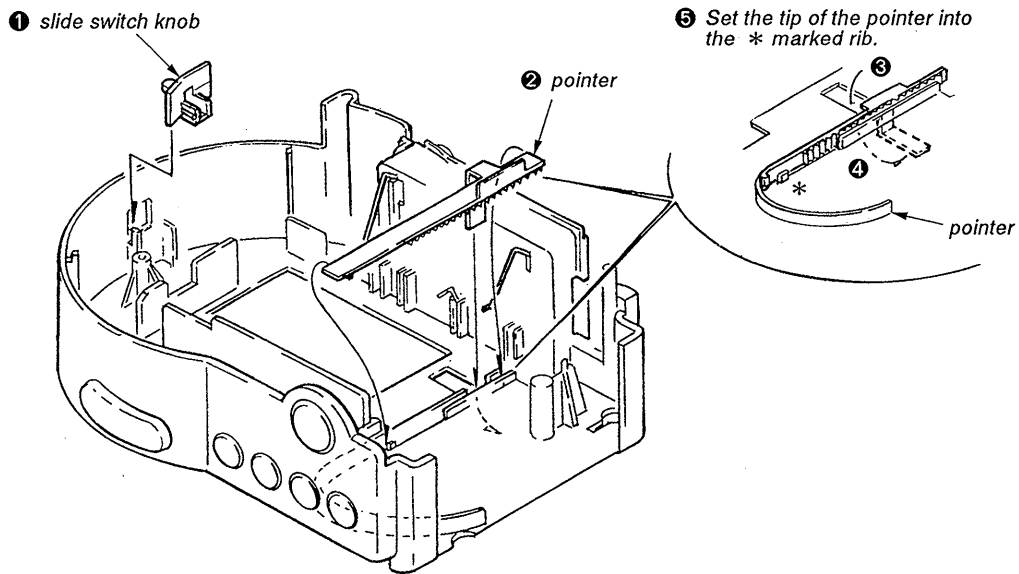
SECTION 2 DISASSEMBLY AND DIAL POINTER SETTING

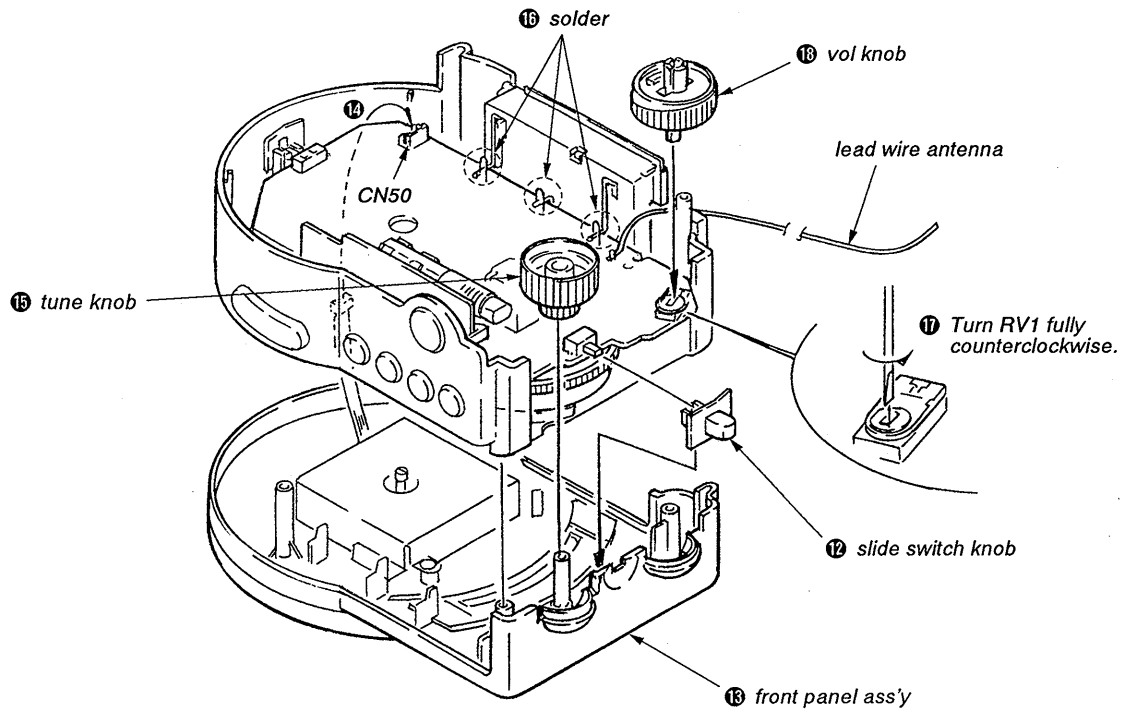
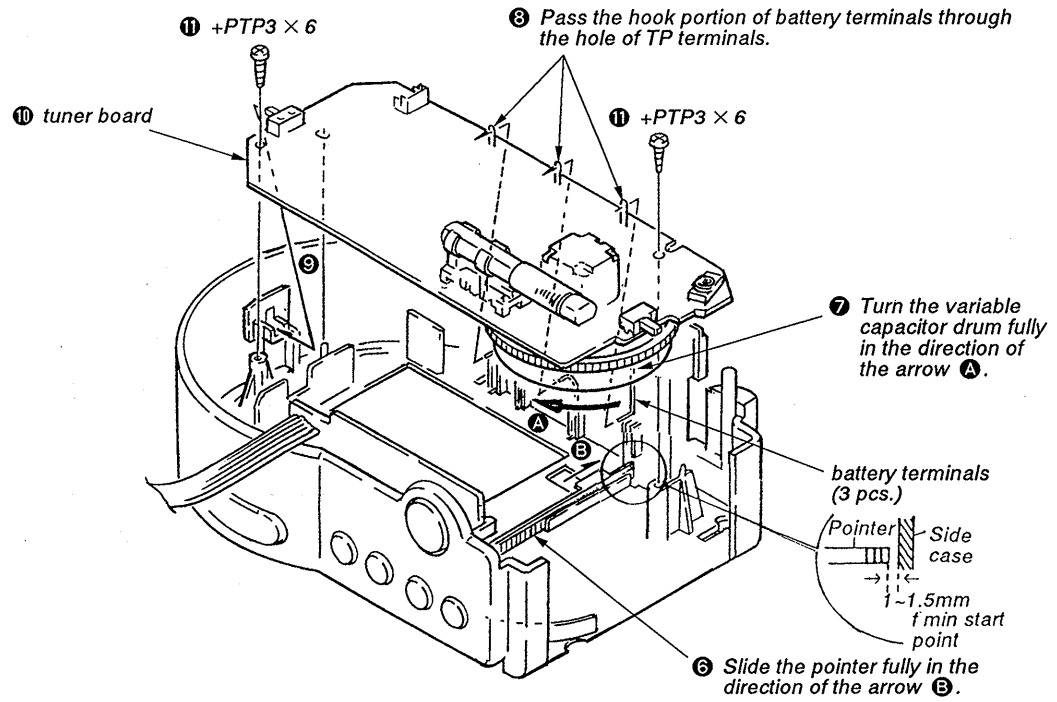
Note: Follow the disassembly procedure in the numerical order given.

DISASSEMBLY



DIAL POINTER SETTING





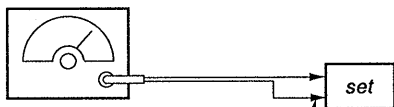
SECTION 3 ELECTRICAL ADJUSTMENTS

• FM Section

Setting:

BAND switch: FM

FM rf signal generator



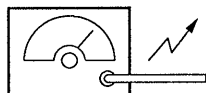
+22.5 kHz frequency deviation
by 400 Hz signal
Output level: as low as possible

• AM Section

Setting:

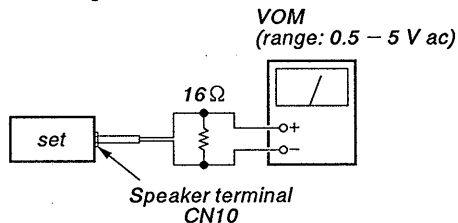
BAND switch: AM or LW

AM rf signal generator



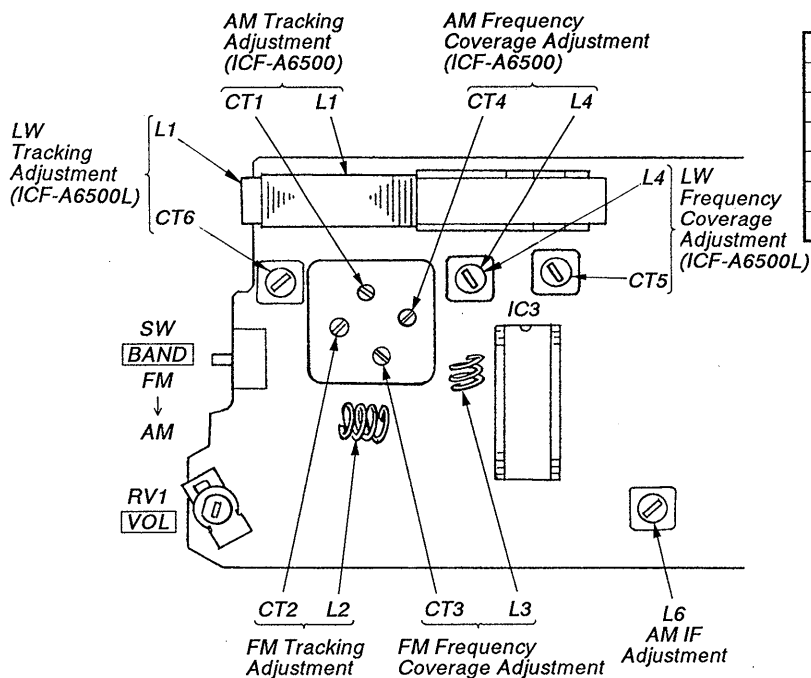
Put the lead-wire antenna close to the set.

30% amplitude modulation by 400 Hz signal



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

Adjustment Location: tuner board



AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
L6	
455 kHz	

AM FREQUENCY COVERAGE ADJUSTMENT (ICF-A6500)	
Adjust for a maximum reading on VTVM.	
L4	CT4
520 kHz (516.5 kHz)	1,750 kHz (1631 kHz)

() : Except US, Canadian models.

AM TRACKING ADJUSTMENT (ICF-A6500)	
Adjust for a maximum reading on VTVM.	
L1	CT1
600 kHz	1,400 kHz

LW FREQUENCY COVERAGE ADJUSTMENT (ICF-A6500L)	
Adjust for a maximum reading on VTVM.	
L4	CT5
145 kHz	265 kHz

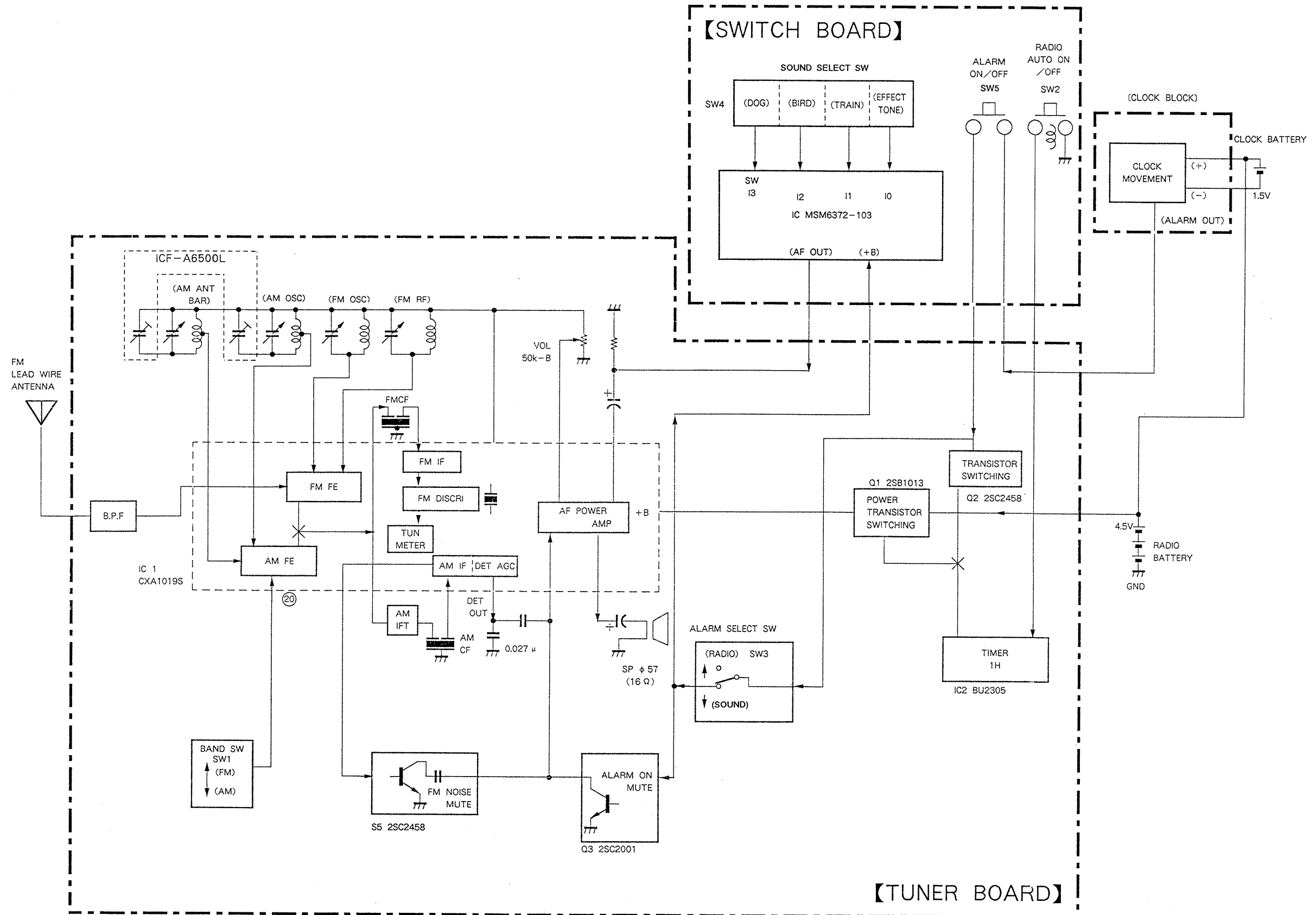
LW TRACKING ADJUSTMENT (ICF-A6500L)	
Adjust for a maximum reading on VTVM.	
L1	CT6
160 kHz	240 kHz

FM FREQUENCY COVERAGE ADJUSTMENT		
Adjust for a maximum reading on VTVM.		
Model	L3	CT3
US, Canadian	86.5 MHz	109.5 MHz
AEP, UK, E, French	87.35 MHz	108.05 MHz
Germany, Saudi Arabia	87.35 MHz	107.9 MHz
Italian	87.35 MHz	108.25 MHz

FM TRACKING ADJUSTMENT		
Adjust for a maximum reading on VTVM.		
Model	L2	CT2
US, Canadian	86.5 MHz	109.5 MHz
AEP, UK, E, French	87.35 MHz	108.05 MHz
Germany, Saudi Arabia	87.35 MHz	107.9 MHz
Italian	87.35 MHz	108.25 MHz

SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM



4-2. PRINTED WIRING BOARDS

Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μF
- 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4} W$ or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.
- **B+** : B + Line.
- ※ : selected to yield optimum performance.
- Total current is measured with no cassette installed.
- Power voltage is dc 4.5 V and fed with regulated dc power supply from external power voltage jack.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM
- (): AM
- < > : ALARM ON
- Voltages are taken with a VOM (10 M Ω/V). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- \Rightarrow : FM

Note on Printed Wiring Board:

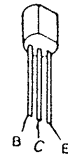
- \circ : parts extracted from the component side.
- \square : indicates side identified with part number.

Note on replacing ceramic filter CF2.

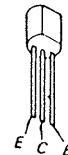
When replacing CF2-1 or CF2-2, be sure to replace both of them with new parts.

• Semiconductor Lead Layouts

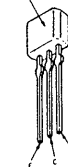
2SB1013



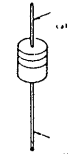
2SC2001-L1



2SC2785-E

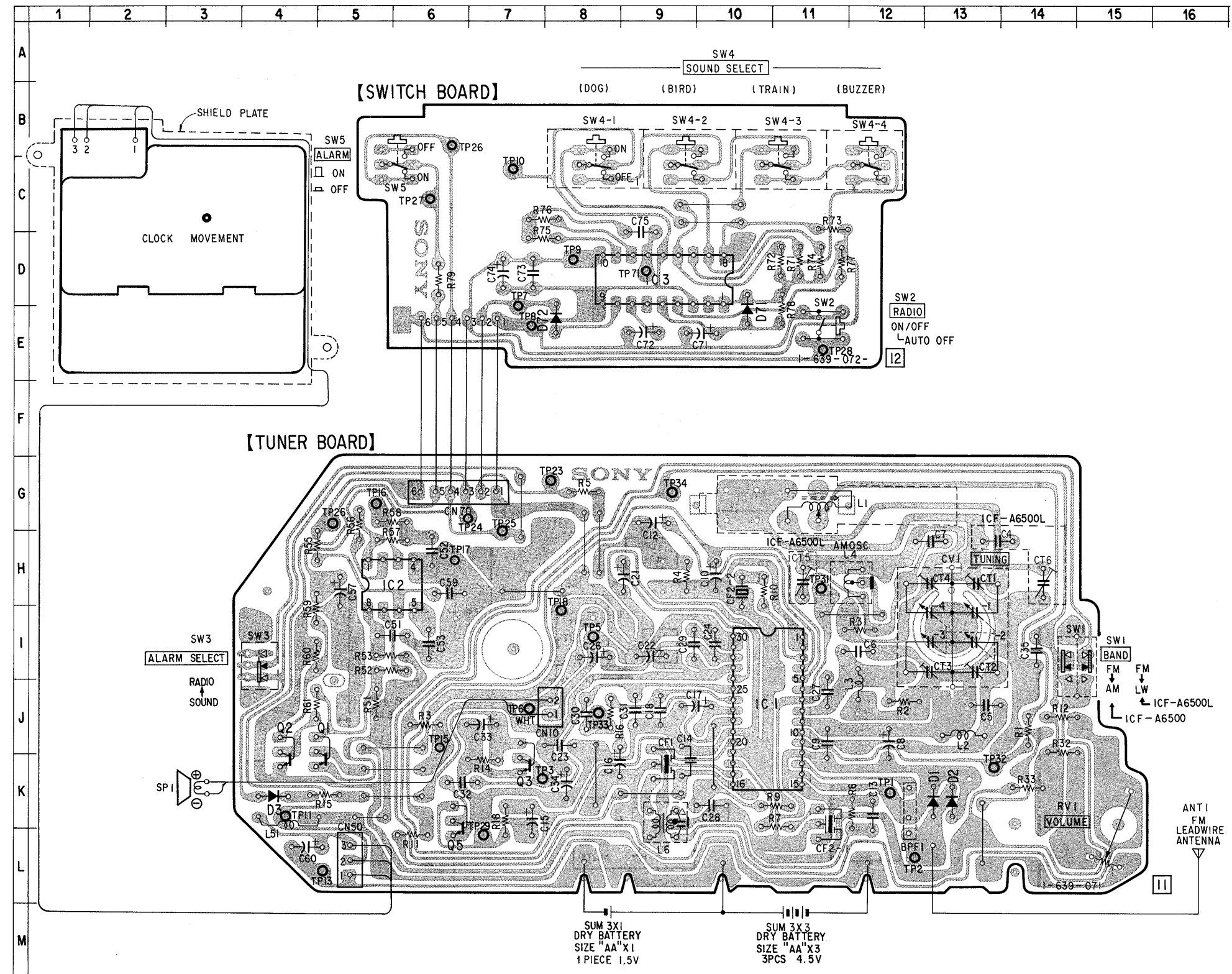


1SS133



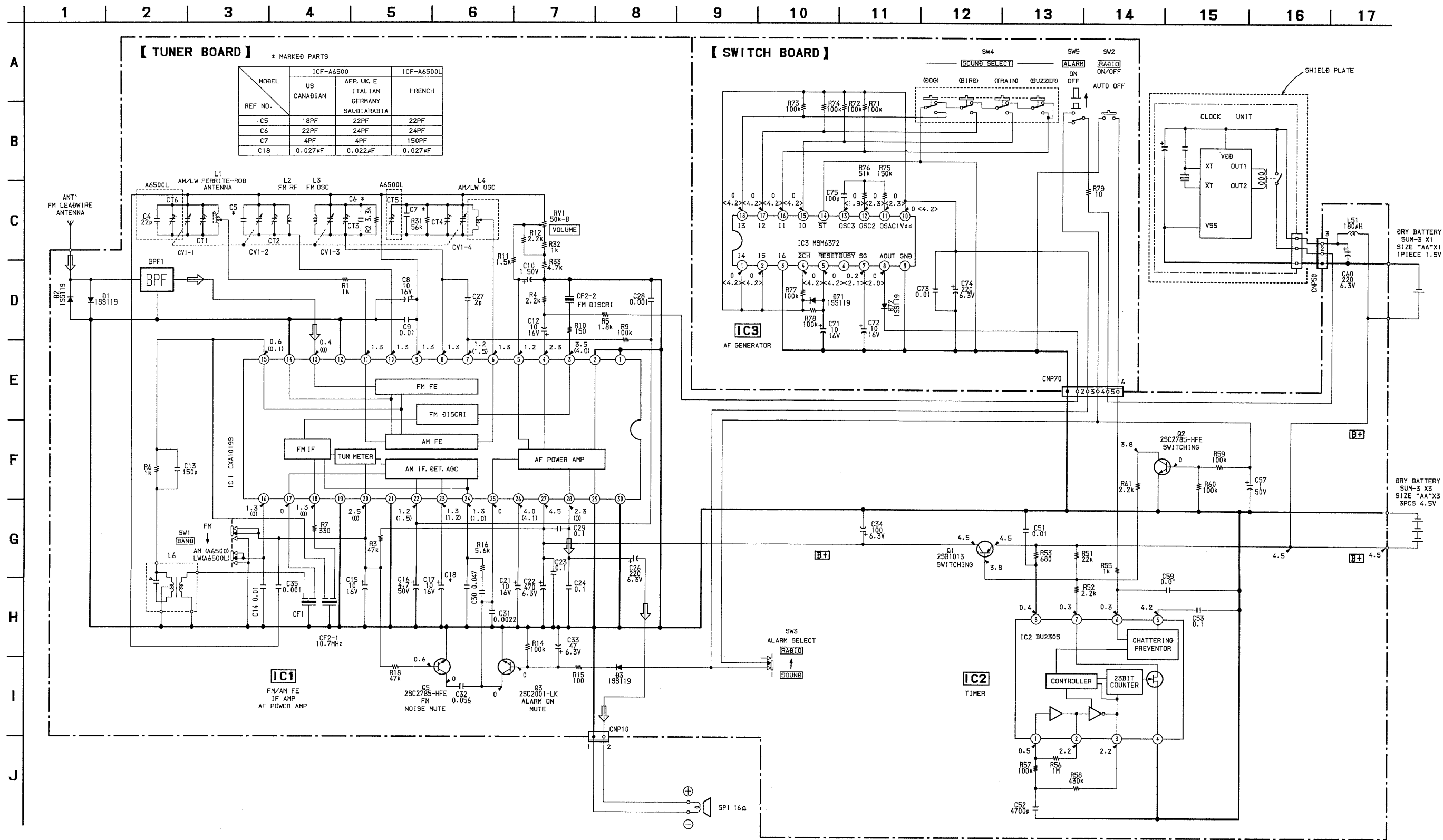
• Semiconductor Location

Ref. No.	Location
D1	K-13
D2	K-13
D3	K-4
D71	E-10
D72	E-8
IC1	J-10
IC2	H-5
Q1	J-5
Q2	J-4
Q3	K-7
Q5	K-6

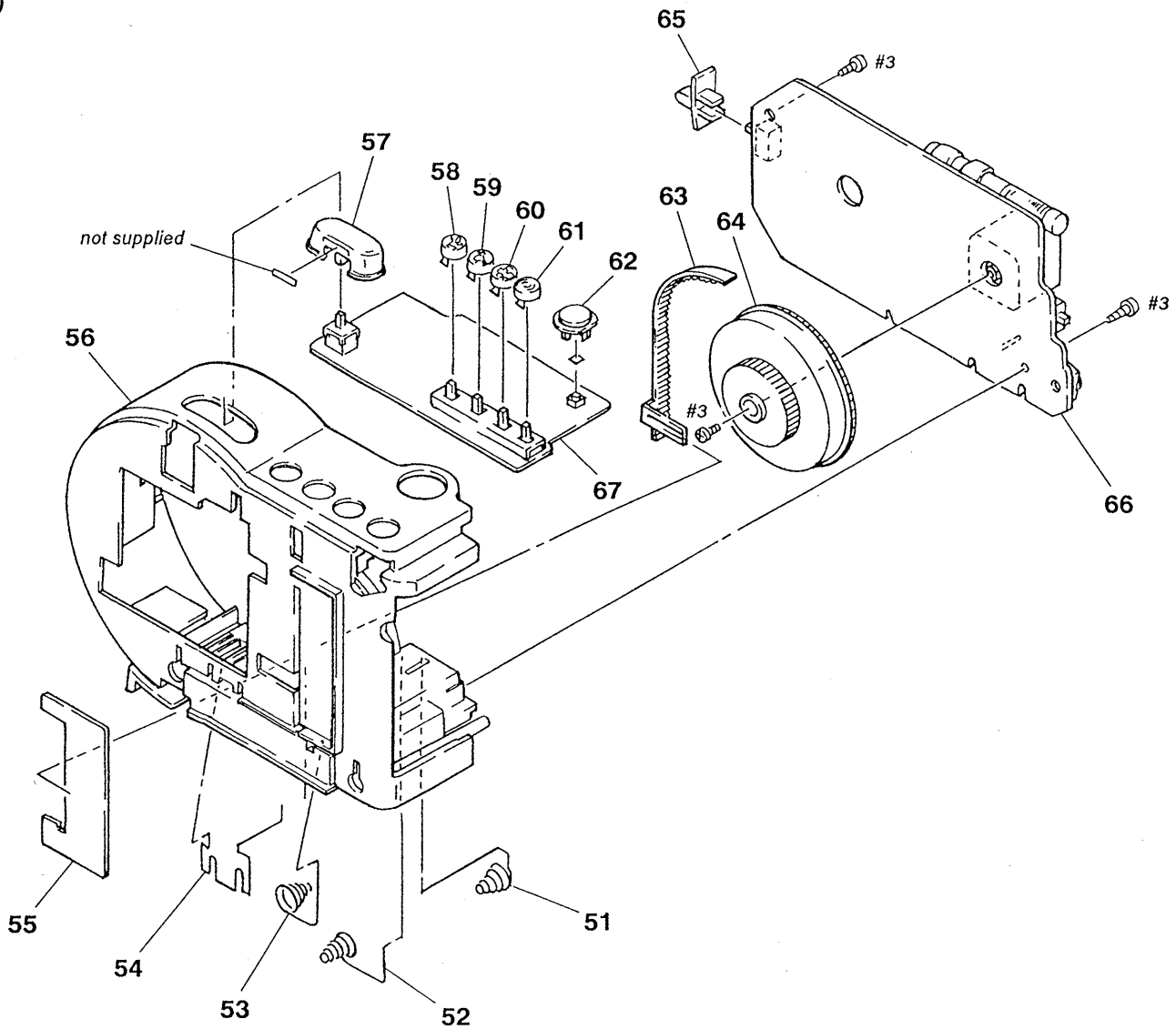


4-3. SCHEMATIC DIAGRAM

• See page 9 for Note.



(2)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	3-368-968-01	TERMINAL (-), BATTERY		61	3-368-983-01	BUTTON (1), ALARM	
52	3-368-966-01	TERMINAL (\pm A), BATTERY		62	3-368-984-01	KNOB, ON/OFF, RADIO	
53	3-368-967-01	TERMINAL (\pm B), BATTERY		63	3-368-978-01	POINTER	
54	3-368-965-01	TERMINAL (+), BATTERY		64	3-368-963-01	DRUM	
55	3-368-964-01	PLATE, BACK		65	3-368-985-01	KNOB, SLIDE SWITCH	
56	3-368-988-01	CHASSIS, MOLD		66	* A-3661-285-A	TUNER BOARD, COMPLETE (A6500:US)	
57	3-368-986-01	KNOB, ON/OFF, ALARM		66	* A-3661-402-A	TUNER BOARD, COMPLETE (A6500:AE6, AE7, UK, E, EA, IT)	
58	3-368-980-01	BUTTON (4), ALARM		66	* A-3661-403-A	TUNER BOARD, COMPLETE (A6500L)	
59	3-368-981-01	BUTTON (3), ALARM		67	1-639-072-12	SWITCH BOARD	
60	3-368-982-01	BUTTON (2), ALARM					

SECTION 6
ELECTRICAL PARTS LIST

SWITCH

TUNER

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

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

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

- CA: Canadian Model
AE6: Germany Model
AE7: AEP Model
EA: Saudi Arabia Model
IT: Italian Model

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	1-639-072-12	SWITCH BOARD ***** < CAPACITOR >			3-368-963-01	DRUM	
					3-368-985-01	KNOB, SLIDE SWITCH	
					* 3-657-703-01	TERMINAL, TP	
					7-621-770-87	SCREW +P 2. 6X5	
						< BAND PASS FILTER >	
C71	1-126-157-11	ELECT	10uF 20% 16V	BPF1	1-236-022-11	FILTER, BAND PASS	
C72	1-126-157-11	ELECT	10uF 20% 16V			< CAPACITOR >	
C73	1-161-051-00	CERAMIC	0. 01uF 10% 50V				
C74	1-124-635-00	ELECT	220uF 20% 6. 3V				
C75	1-102-973-00	CERAMIC	100PF 5% 50V				
		< DIODE >					
D71	8-719-911-19	DIODE 1SS119			C4	1-102-959-00 CERAMIC 22PF 5% 50V (A6500L)	
D72	8-719-911-19	DIODE 1SS119			C5	1-102-953-00 CERAMIC 18PF 5% 50V (A6500:US, CA)	
		< IC >			C5	1-102-959-00 CERAMIC 22PF 5% 50V (A6500:AE6, AE7, UK, E, EA, IT, A6500L)	
					C6	1-102-959-00 CERAMIC 22PF 5% 50V (A6500:US, CA)	
IC3	8-759-519-02	IC MSM6372-103			C6	1-102-960-00 CERAMIC 24PF 5% 50V (A6500:AE6, AE7, UK, E, EA, IT, A6500L)	
		< RESISTOR >			C7	1-101-361-00 CERAMIC 150PF 5% 50V (A6500L)	
					C7	1-102-937-00 CERAMIC 4. 0PF \pm 0. 25PF 50V (A6500)	
R71	1-249-441-11	CARBON	100K 5% 1/4W		C8	1-124-907-11 ELECT 10uF 20% 50V	
R72	1-249-441-11	CARBON	100K 5% 1/4W				
R73	1-249-441-11	CARBON	100K 5% 1/4W		C9	1-161-051-00 CERAMIC 0. 01uF 10% 50V	
R74	1-249-441-11	CARBON	100K 5% 1/4W		C10	1-124-903-11 ELECT 1uF 20% 50V	
R75	1-215-473-00	METAL	150K 1% 1/6W		C12	1-124-907-11 ELECT 10uF 20% 50V	
					C13	1-101-361-00 CERAMIC 150PF 5% 50V	
R76	1-215-462-00	METAL	51K 1% 1/6W		C14	1-161-051-00 CERAMIC 0. 01uF 10% 50V	
R77	1-249-441-11	CARBON	100K 5% 1/4W				
R78	1-249-441-11	CARBON	100K 5% 1/4W		C15	1-124-907-11 ELECT 10uF 20% 50V	
R79	1-249-393-11	CARBON	10 5% 1/4W		C16	1-124-927-11 ELECT 4. 7uF 20% 50V	
		< SWITCH >			C17	1-124-907-11 ELECT 10uF 20% 50V	
SW2	1-554-303-21	SWITCH, TACTILE (RAD10)			C18	1-161-055-00 CERAMIC 0. 022uF 10% 25V (A6500:AE6, AE7, UK, E, EA, IT)	
SW4	1-572-806-11	SWITCH, PUSH (4 KEY) (SOUND SELECT)					
SW5	1-572-805-11	SWITCH, PUSH (ALARM)			C18	1-161-056-00 CERAMIC 0. 027uF 10% 25V (A6500:US, CA, A6500L)	

		* A-3661-285-A TUNER BOARD, COMPLETE (A6500:US, CA)					
		* A-3661-402-A TUNER BOARD, COMPLETE (A6500:AE6, AE7, UK, E, EA, IT)			C21	1-124-907-11 ELECT 10uF 20% 50V	
		* A-3661-403-A TUNER BOARD, COMPLETE (A6500L)			C22	1-124-472-11 ELECT 470uF 20% 10V	
		*****			C23	1-161-772-11 CERAMIC 0. 1uF 10% 25V	
					C24	1-161-772-11 CERAMIC 0. 1uF 10% 25V	
					C26	1-126-176-11 ELECT 220uF 20% 10V	
					C27	1-102-935-00 CERAMIC 2. 0PF \pm 0. 25PF 50V	
					C28	1-161-039-00 CERAMIC 0. 001uF 10% 50V	
					C29	1-161-772-11 CERAMIC 0. 1uF 10% 25V	

TUNER

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C30	1-161-021-11	CERAMIC 0.047uF	10% 25V	L4	1-406-028-00	COIL, OSC (MW) (A6500L)	
C31	1-161-043-00	CERAMIC 0.0022uF	10% 50V	L4	1-406-040-00	COIL (OSC) (A6500)	
C32	1-161-060-00	CERAMIC 0.056uF	10% 25V	L6	1-404-790-11	TRANSFORMER, 1F	
C33	1-124-126-00	ELECT 47uF	20% 10V	L51	1-410-524-41	INDUCTOR 180uH	
C34	1-124-443-00	ELECT 100uF	20% 6.3V			< TRANSISTOR >	
C35	1-161-039-00	CERAMIC 0.001uF	10% 50V	Q1	8-729-116-57	TRANSISTOR 2SB1068-K	
C51	1-161-051-00	CERAMIC 0.01uF	10% 50V	Q2	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C52	1-130-479-00	MYLAR 0.0047uF	10% 25V	Q3	8-729-142-46	TRANSISTOR 2SC2001-LK	
C53	1-161-772-11	CERAMIC 0.1uF	10% 25V	Q5	8-729-119-78	TRANSISTOR 2SC2785-HFE	
C57	1-124-903-11	ELECT 1uF	20% 50V			< RESISTOR >	
C59	1-161-051-00	CERAMIC 0.01uF	10% 50V				
C60	1-126-176-11	ELECT 220uF	20% 10V				
		< FILTER >		R1	1-249-417-11	CARBON 1K 5%	1/4W
CF1	1-577-072-11	FILTER, CERAMIC (A6500)		R2	1-249-423-11	CARBON 3.3K 5%	1/4W
CF1	1-578-677-11	FILTER, CRYSTAL (A6500L)		R3	1-249-437-11	CARBON 47K 5%	1/4W
CF2	1-579-312-71	FILTER, CERAMIC		R4	1-249-421-11	CARBON 2.2K 5%	1/4W
		< CONNECTOR >		R5	1-249-420-11	CARBON 1.8K 5%	1/4W
CNP10	1-564-505-11	PLUG, CONNECTOR 2P		R6	1-249-417-11	CARBON 1K 5%	1/4W
CNP50	1-564-506-11	PLUG, CONNECTOR 3P		R7	1-249-411-11	CARBON 330 5%	1/4W
CNP70	1-564-509-11	PLUG, CONNECTOR 6P		R9	1-249-441-11	CARBON 100K 5%	1/4W
		< VARIABLE CAP >		R10	1-249-407-11	CARBON 150 5%	1/4W
CV1	1-151-628-11	CAP, VARIABLE (A6500:US, CA)		R11	1-249-419-11	CARBON 1.5K 5%	1/4W
CV1	1-151-673-11	CAP, VARIABLE (A6500:AE6, AE7, UK, E, EA, IT, A6500L)		R12	1-249-421-11	CARBON 2.2K 5%	1/4W
		< TRIMMER >		R14	1-249-441-11	CARBON 100K 5%	1/4W
CT5	1-141-245-00	CAP, TRIMMER 30PF (A6500L)		R15	1-249-405-11	CARBON 100 5%	1/4W
CT6	1-141-245-00	CAP, TRIMMER 30PF (A6500L)		R16	1-249-426-11	CARBON 5.6K 5%	1/4W
		< DIODE >		R18	1-249-437-11	CARBON 47K 5%	1/4W
D1	8-719-911-19	DIODE 1SS119		R31	1-249-438-11	CARBON 56K 5%	1/4W
D2	8-719-911-19	DIODE 1SS119		R32	1-249-417-11	CARBON 1K 5%	1/4W
D3	8-719-911-19	DIODE 1SS119		R33	1-249-425-11	CARBON 4.7K 5%	1/4W
		< IC >		R51	1-249-433-11	CARBON 22K 5%	1/4W
IC1	8-752-035-29	IC CXA1019S		R52	1-249-421-11	CARBON 2.2K 5%	1/4W
IC2	8-759-501-92	IC BU2305		R53	1-249-415-11	CARBON 680 5%	1/4W
		< INDUCTOR >		R55	1-249-417-11	CARBON 1K 5%	1/4W
L1	1-402-413-21	ANTENNA, FERRITE-ROD (MW) (A6500:US, CA)		R56	1-247-903-00	CARBON 1M 5%	1/4W
L1	1-402-404-11	ANTENNA, FERRITE-ROD (LW) (A6500L)		R57	1-249-441-11	CARBON 100K 5%	1/4W
L1	1-402-405-11	ANTENNA, FERRITE-ROD (MW) (A6500:AE6, AE7, UK, E, EA, IT)		R58	1-247-894-11	CARBON 430K 5%	1/4W
L2	1-428-271-11	COIL (FM RF)		R59	1-249-441-11	CARBON 100K 5%	1/4W
L3	1-428-273-11	COIL (FM OSC) (A6500:US)		R60	1-249-441-11	CARBON 100K 5%	1/4W
L3	1-460-186-11	COIL (WITH CORE) (A6500:AE6, AE7, UK, E, IT, A6500L)		R61	1-249-421-11	CARBON 2.2K 5%	1/4W
		< SWITCH >				< VARIABLE RESISTOR >	
				RV1	1-238-148-11	RES, VAR, CARBON 50K (VOLUME)	
						< SWITCH >	
				S1	1-554-123-00	SWITCH, SLIDE (BAND)	
				S3	1-554-123-00	SWITCH, SLIDE (ALARM SELECT)	

<u>Ref.No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
----------------	-----------------	--------------------	---------------

ACCESSORIES & PACKING MATERIALS

	* 3-369-868-01	CUSHION	
	3-369-869-01	INDIVIDUAL CARTON US (A6500:US)	
	* 3-370-486-01	CUSHION (UPPER) (A6500:EXCEPT US)	
	* 3-371-922-01	INDIVIDUAL CARTON Canadian (A6500:EXCEPT US)	
	* 3-372-040-01	INDIVIDUAL CARTON (A6500L)	
	3-753-579-12	MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH, PORTUGUESE) (A6500:AE6, AE7, UK, E, EA, IT, A6500L)	
	3-753-579-42	MANUAL, INSTRUCTION (GERMAN, DUTCH, SWEDISH, ITALIAN) (A6500:AE6, AE7, IT)	
	* 3-369-865-01	CUSHION (LOWER) (EXCEPT A6500:US)	
10	* 3-371-711-01	LABEL, MODEL NUMBER (A6500)	
10	* 3-371-714-01	LABEL, MODEL NUMBER (A6500L)	

HARDWARE LIST

#1	7-685-645-79	SCREW +P 3X6 TYPE2 NON-SLIT
#2	7-685-153-19	SCREW +P 3X30 TYPE2 NON-SLIT
#3	7-621-770-87	SCREW +P 2. 6X5

