TFM-C590W

USA Model

SPECIFICATIONS

Circuit System: 1-IC 5-transistor 7-diode superheterodyne

Frequency Coverage:
FM 87.5 ~ 108 MHz (3.42 ~ 2.77 m)
AM 530 ~ 1,605 kHz (566 ~ 187 m)

Intermediate Frequency:
FM 10.7 MHz
AM 455 kHz

Antenna System:
FM ac line antenna or external antenna
AM built-in ferrite bar antenna

Sensitivity
at 50 mW output:
FM 3.5μV (11 dB)
AM 60μV/m (35 dB/m)

Selectivity
at 10 kHz off-resonance: 24 dB at 1,400 kHz

Power Output
at 10% distortion: 800 mW
maximum: 1.2W

Power Requirement: Ac 120V 60 Hz, 6W

Speaker: 3½" (90 mm) dia., 8Ω

Dimensions: 12¼" (W) x 4¼" (H) x 6 7/16" (D) (312 mm x 110 mm x 163 mm)

Weight: 3 lb 12 oz (1.7 kg)

SONY®
SERVICE MANUAL

1531

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SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM

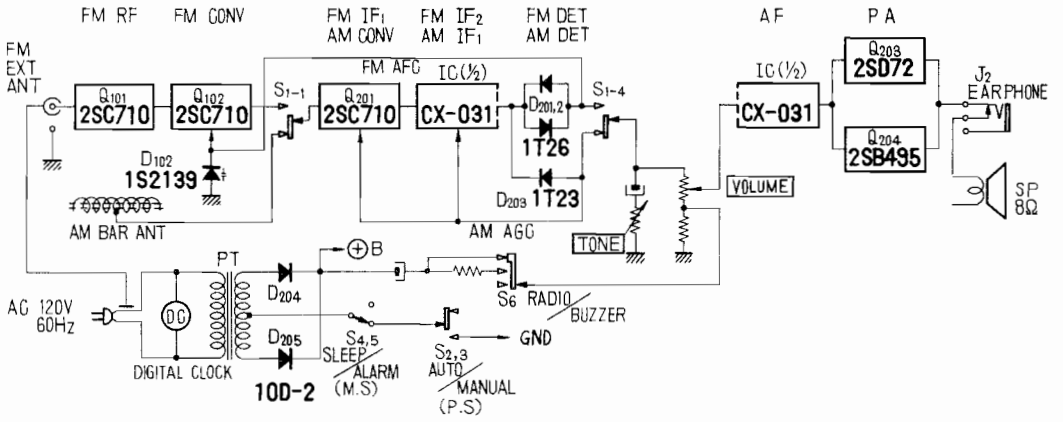


Fig. 1-1

1-2. INTERNAL VIEW

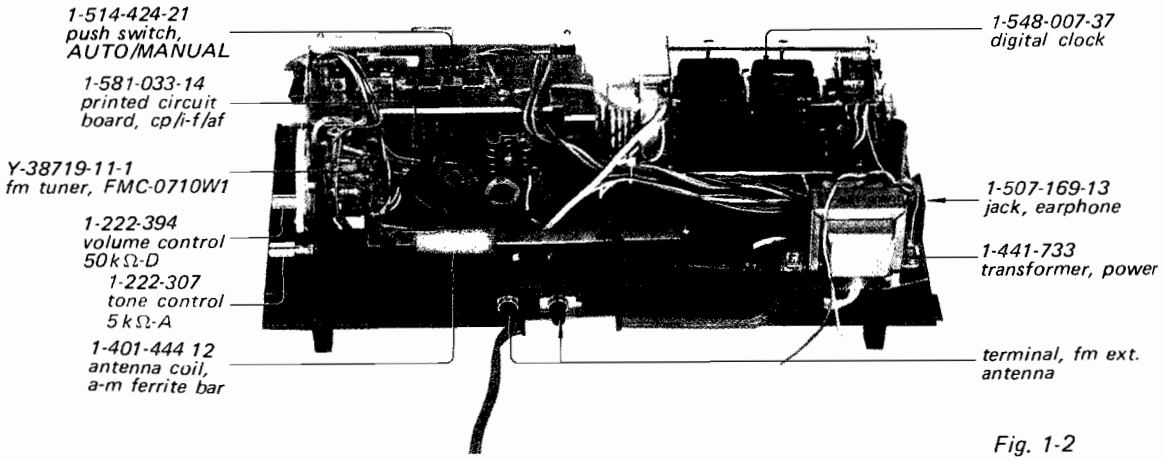


Fig. 1-2

– Hardware Nomenclature –

P – Pan Head Screw

PS – Pan Head Screw with Spring Washer

K – Flat Countersunk Head Screw

B – Binding Head Screw

RK – Oval Countersunk Head Screw

T – Truss Head Screw

R – Round Head Screw

F – Flat Fillister Head Screw

SC – Set Screw

E – Retaining Ring (E Washer)

W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

– Example –

⊕ P 3×10
- Type of Slot
- Length in mm (L)
- Diameter in mm (D)
- Type of Head

SECTION 2
DISASSEMBLY

2-1. UPPER CABINET REMOVAL

1. Pull out the three knobs (TIME ADJUST, ALARM SET, SLEEP) shown in Fig. 2-1.
2. Pull out the four knobs (tuning, VOLUME control, TONE control, and band selector) shown in Fig. 2-2.
3. Remove the three screws shown in Fig. 2-3 and remove the upper cabinet.

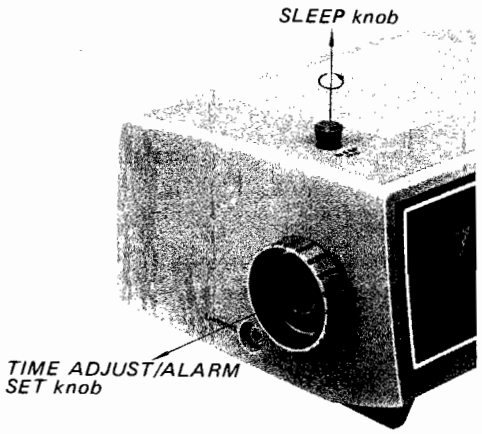


Fig. 2-1

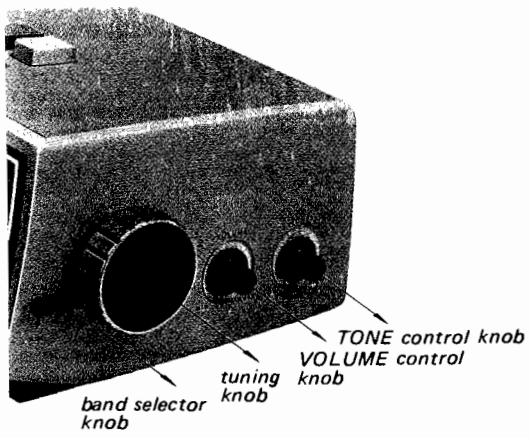


Fig. 2-2

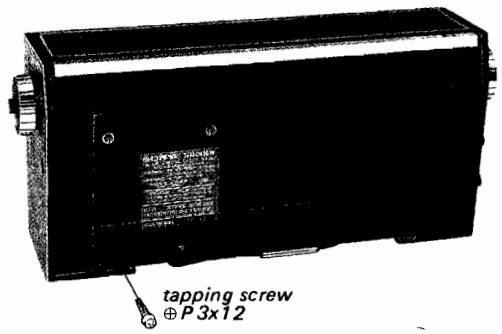


Fig. 2-3

2-2. FM TUNER CIRCUIT BOARD REMOVAL

1. Remove the upper cabinet.
2. Unsolder the three tinned copper wires at the tuning capacitor shown in Fig. 2-4.
3. Unsolder the tuning capacitor terminal shown in Fig. 2-5.
4. Remove the screw shown in Fig. 2-4.

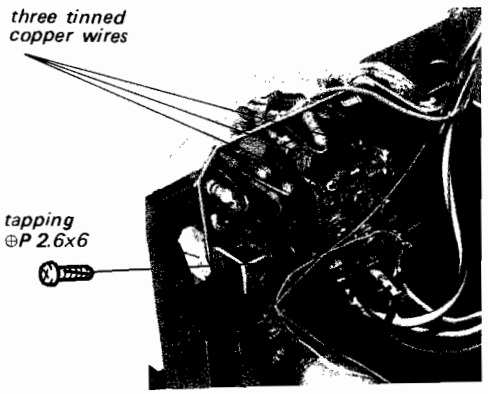


Fig. 2-4

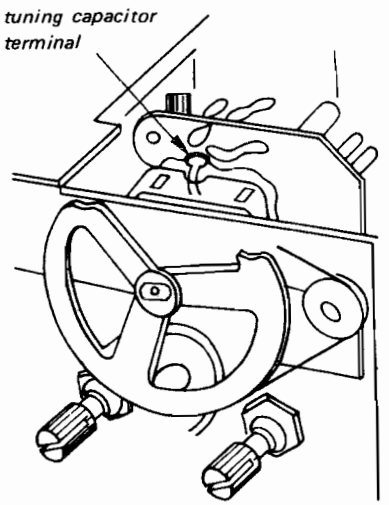


Fig. 2-5

2-3. CP/IF/AF CIRCUIT BOARD REMOVAL

1. Remove the upper cabinet.
2. Unsolder the six wires shown in Fig. 2-6.
3. Remove the printed circuit board in the direction shown by the arrows.

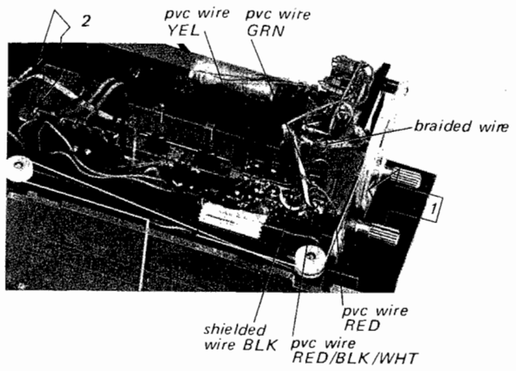


Fig. 2-6

2-4. DIGITAL CLOCK REMOVAL

1. Remove the upper cabinet.
2. Remove the two screws shown in Fig. 2-7.
3. Remove the screw labeled Ⓐ in Fig. 2-8 and take off the terminal cover.

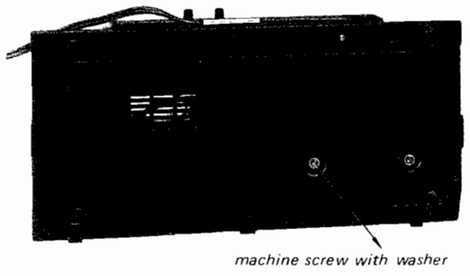


Fig. 2-7

4. Unsolder the four wires on the terminal (two BRN and two WHT) which go to digital clock.
5. Remove the screw labeled Ⓑ in Fig. 2-8 to remove the braided wires (or unsolder the braided wires).
6. Unsolder the three pvc wires and two coaxial cables shown in Fig. 2-9.

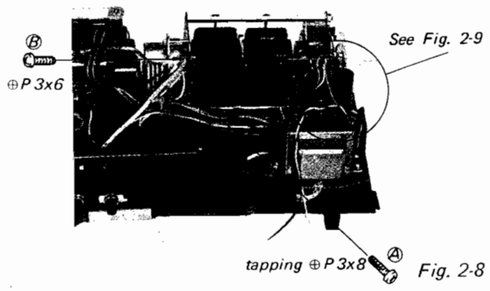


Fig. 2-8

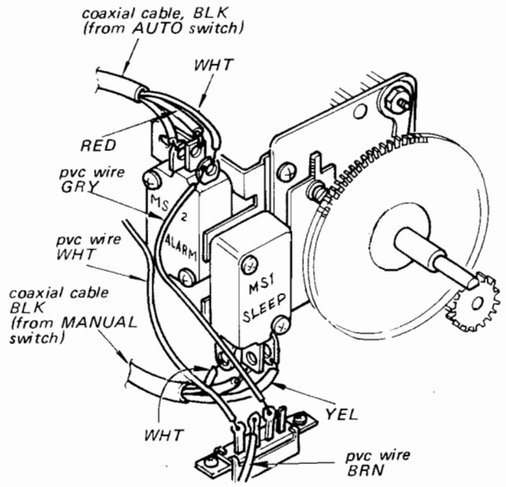


Fig. 2-9

2-5. DIAL CORD STRINGING

1. Cut the dial cord by the length of about 35½" (90 cm).
2. Rotate the dial drum fully clockwise.
3. Set the dial cord in numerical order as shown in Fig. 2-10.
4. Hook the spring on the drum and fix the cord with the eyelet by stretching the spring.
5. Fix the both knots of the dial cord with a contact cement.

Pointer Setting

After stringing, set the pointer as follows.

1. Rotate the dial drum fully counterclockwise.
2. Set the pointer on the pointer setting position.
3. Fix the pointer with a contact cement.

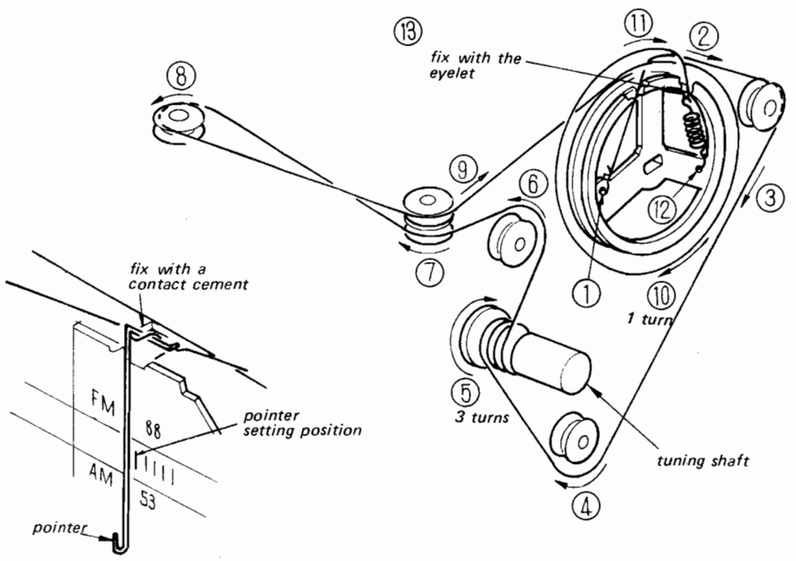


Fig. 2-10

SECTION 3
CIRCUIT ADJUSTMENTS

3-1. AM IF ALIGNMENT

Test Equipments/Tools Required:

* Rf signal generator (for a-m)
* VTVM
* Loop antenna
* Screwdriver for alignment

Preparation:

1. Band Selector: AM
2. VOLUME Control: MAX
3. TONE Control: HIGH
4. Tuning Knob: Fully clockwise

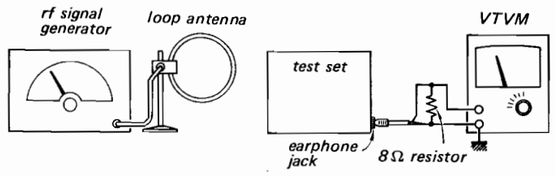


Fig. 3-1 A-m i-f alignment, frequency coverage and tracking adjustment setup

Rf Signal Generator Coupling	Rf Signal Generator Frequency	VTVM Connection	Adjust	Remarks
Loop antenna (See Fig. 3-1)	455 kHz (1 kHz 30% a-m)	Earphone jack with 8Ω load resistor in parallel	CFT A201 IFT A202	Band selector: AM VOLUME control: MAX TONE control: HIGH Tuning Knob: Fully clockwise Adjust for maximum meter reading.

3-2. FM IF ALIGNMENT

Test Equipments/Tools Required:

* 10.7 MHz sweep/marker generator
* Oscilloscope
* Screwdriver for alignment

Preparation:

1. Sweep/marker Generator Connection: Across the tuning capacitor as shown in Fig. 3-2.
2. Oscilloscope Connection: Across the volume control as shown in Fig. 3-3
3. Sweep Generator Center Frequency: 10.7 MHz
4. Marker Generator Center Frequency: 10.7 MHz
5. Band Selector: FM

Procedure:

1. Turn the core of discriminator transformer (IFT F203) fully counterclockwise.
2. Turn the core of fm i-f transformer (IFT F101) and discriminator transformer (IFT F202) to obtain the maximum amplitude response curve shown in Fig. 3-5.
3. Turn the core of discriminator transformer (IFT F203) to obtain the S curve response shown in Fig. 3-6.

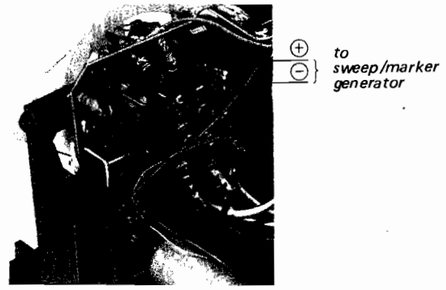


Fig. 3-2 Sweep/marker generator connection

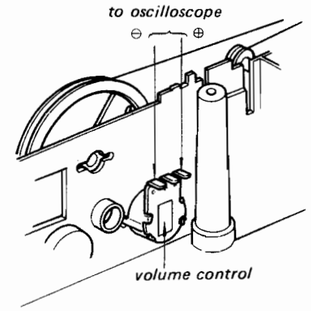


Fig. 3-3 Oscilloscope connection

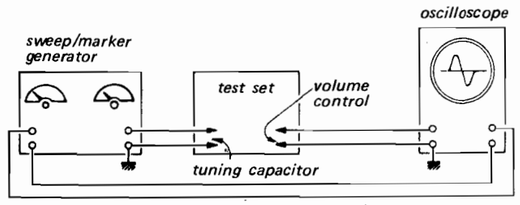


Fig. 3-4 Fm i-f alignment setup

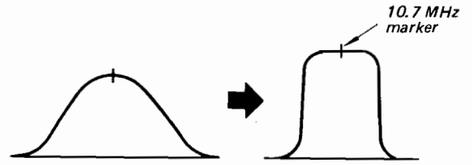


Fig. 3-5

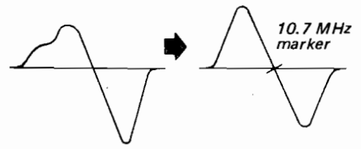


Fig. 3-6

Sweep/marker Generator Coupling	Sweep/marker Generator Frequency	Oscilloscope Connection	Adjust	Remarks
Across the tuning capacitor (See Fig. 3-2)	10.7 MHz	Across the volume control (See Fig. 3-3)	IFT F101 IFT F202 IFT F203	Band selector: FM Adjust for maximum amplitude and symmetrical S curve on the scope.

3-3. FREQUENCY COVERAGE AND TRACKING ADJUSTMENT

Test Equipments/Tools Required:

* Rf signal generator (for fm and a-m)
* Loop antenna
* VTVM
* 8Ω resistor
* Screwdriver for alignment

Preparation:

VTVM Connection:
To earphone jack with 8Ω load resistor in parallel.

Modulation:
FM ----- 400-Hz ±22.5-kHz frequency-modulated signal
AM----- 1-kHz 30% amplitude-modulated signal
VOLUME Control Setting: MAX
TONE Control Setting: HIGH

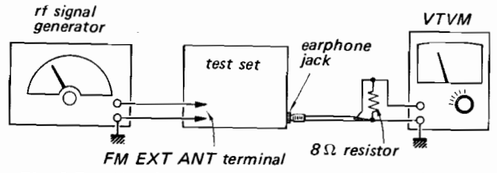


Fig. 3-7 Fm frequency coverage and tracking adjustment setup

Adjustment	Rf Signal Generator Coupling	Rf Signal Generator Frequency	Receiver Dial Setting	Adjust	Remarks
FM Frequency Coverage	FM EXT ANT terminal (See Fig. 3-7)	86.5 MHz	Fully left	FM osc coil L104	Band Selector: FM Adjust for maximum meter reading.
		109 MHz	Fully right	FM osc trimmer CT1-2	
FM Tracking		86.5 MHz	Tune to 86.5-MHz signal	FM rf coil L102	
		109 MHz	Tune to 109-MHz signal	FM rf trimmer CT1-1	
AM Frequency Coverage	Loop antenna (See Fig. 3-1)	520 kHz	Fully left	AM osc coil LO201	Band Selector: AM Adjust for maximum meter reading.
		1,680 kHz	Fully right	AM osc trimmer CT2-2	
AM Tracking		620 kHz	Tune to 620-kHz signal	AM ant coil LA201	
		1,400 kHz	Tune to 1,400-kHz signal	AM ant trimmer CT2-1	

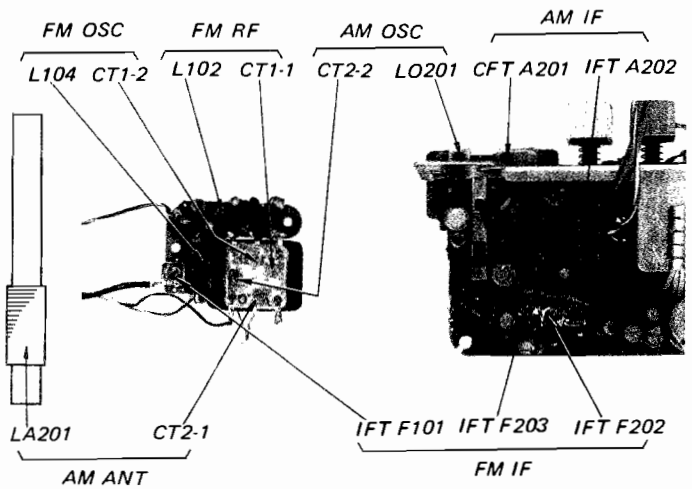


Fig. 3-8 Adjusting parts location

3-4. BIAS ADJUSTMENT

A. R202 (20kΩ – 36kΩ, ¼W ±5% carbon resistor)

The resistance value of R202 is to be selected to obtain 0.23 – 0.30V at the emitter of Q201 with the band selector set to AM.

B. R235 (110kΩ – 150kΩ, ¼W ±5% carbon resistor)

The resistance value of R235 is to be selected to obtain 0.28 – 0.38V at the terminal 2 of IC.

C. R215 (120Ω, 300Ω, ¼W ±5% carbon resistor)

The resistance value of R215 is to be selected in accordance with the suffix on IC.

IC: CX-031 20 ..... R215 : 300Ω
IC: CX-031 30 ..... R215 : 120Ω

D. Base Bias of Q101

Band Selector: FM
Parts to be selected: R102 is selected in relation to the hfe rank of transistor Q101.

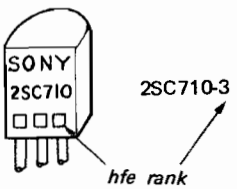
Q101	R102
2SC710-3	75kΩ 1-244-518 RD⅛SR carbon
2SC710-5	82kΩ 1-244-519 RD⅛SR carbon

E. Base Bias of Q102

Band Selector: FM
Parts to be selected: R105 is selected in relation to the hfe rank of transistor Q102.

Q102	R105
2SC710-2	100kΩ 1-244-521 RD⅛SR carbon
2SC710-4	130kΩ 1-244-524 RD⅛SR carbon

Note:



SECTION 4
DIGITAL CLOCK MAINTENANCE

4-1. COMPONENT PARTS OF CLOCK ASSEMBLY

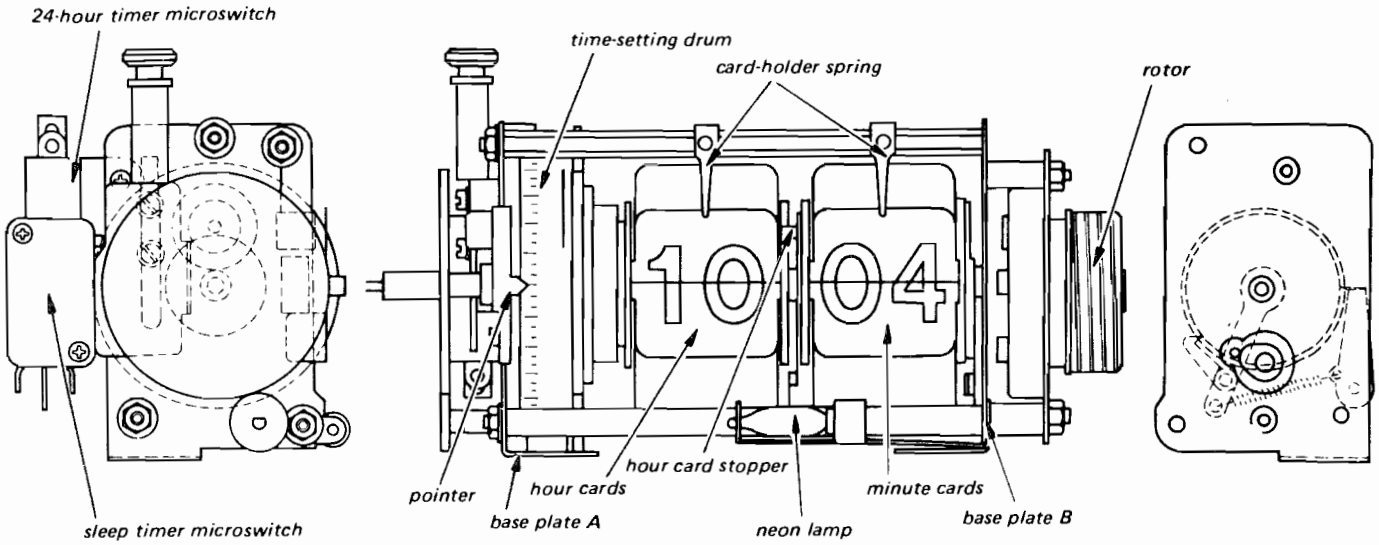


Fig. 4-1. Layout of digital clock

4-2. PRECAUTIONS FOR DISASSEMBLY AND REASSEMBLY

Following are the precautional items to be closely adhered to in disassembling and reassembling the clock.

(1) Wear clean gloves so as not to leave fingerprints and/or grease on the clock parts.

(2) Be sure to hold the clock assembly by gripping the base plates (A) and (B) when removing or reinstalling the clock assembly.

(3) Do not touch the rotor of the motor when handling the clock assembly.

(4) Do not touch the hour and minute cards, hour card stopper, card-holder spring and pointer.

(5) Be careful not to give any blow to the rotor and pointer when removing or reinstalling the clock assembly.

(6) When installing the clock assembly to the cabinet, tighten its attaching screws uniformly.

4-3. MOTOR ASSEMBLY REPLACEMENT

(1) Remove two hex nuts (together with plain washers), securing the motor to the bosses. Now, the motor can be removed from the clock assembly.

(2) Install a new motor in place with its rotor side facing outside, and secure it by tightening the hex nuts good and hard.

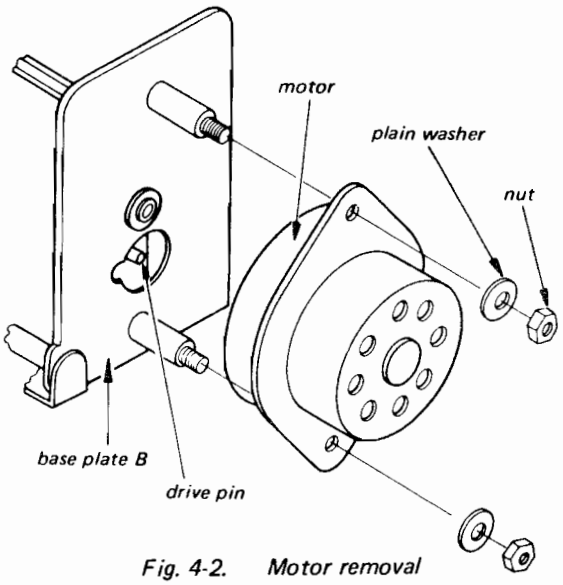


Fig. 4-2. Motor removal

Notes: 1) When installing the motor, keep its lead wires lifted upward.

2) Check to make sure that the cam of the motor is properly positioned with respect to the driven pin of the minute count lever.

3) Apply an adequate amount of screw locking agent to the hex nuts to prevent the possibility of loosening them.

4-4. NEON LAMP REPLACEMENT

(1) The lamp can be removed from the clock assembly by straightening its clamp.

(2) Install a new neon lamp in place by inserting its tip into the hole provided in the support plate. Then, bend up the clamp against the lamp for securing.

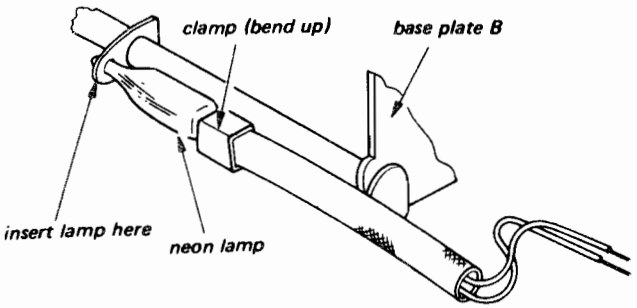


Fig. 4-3. Neon lamp installation

4-5. MICROSWITCH REPLACEMENT

(1) 24-hour Timer Microswitch

This microswitch, like the 24-hour timer switch, ment by removing two attaching screws, upper and lower, as shown in Fig.4-4. The upper attaching screw is used to secure the microswitch lever shaft also. It is, therefore, necessary to see, upon installing a new switch, if the microswitch lever is properly installed in place.

Check the microswitch operation in the following manner:

a) Finger-rotate the time-setting drum counter-clockwise (as viewed from the knob gear side of the clock), making sure that the switch button (red) is depressed by the spring-loaded micro-switch lever when the clutch cam is engaged (moved toward the drum).

b) With the clutch cam kept in engaged position, finger-lift the microswitch lever and release it to see if the lever is spring-returned to depress the switch button properly.

c) Make sure that the microswitch is turned off when the clutch cam is disengaged (moved away from the drum). Repeat the operation as in Steps a) through c) above at four equal intervals of time setting to make sure that the switch properly operated.

(2) Sleep Timer Microswitch

This microswitch, like the 24-hour timer switch, can easily be removed by removing two attaching screws then it has to be replaced. Upon installing, check the switch for proper operation. The switch must be turned on when the rack is pulled upward, and vice versa. The left-hand edge of the rack is profiled to control the switch button. The rack disengages from the 3rd gear to drop by itself, releasing the switch button (red) when the button is on the half-way of the beveled edge of the rack on its downward stroke. Remember that if the switch is positioned too close to the rack when installed, the force for pulling up the rack will be increased.

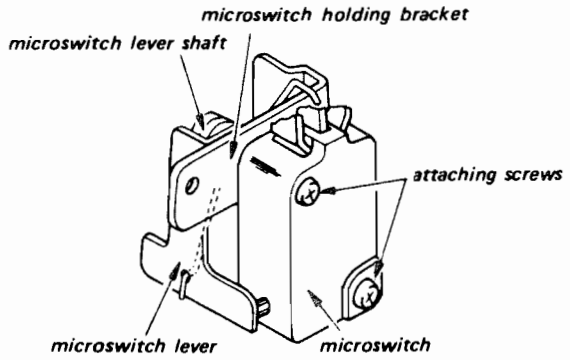


Fig. 4-4. 24-hour timer microswitch installation

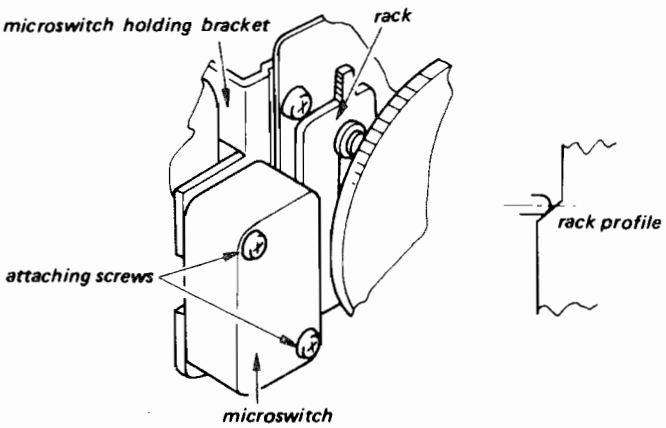


Fig. 4-5. Sleep timer microswitch installation

4-6. LUBRICATION GUIDE

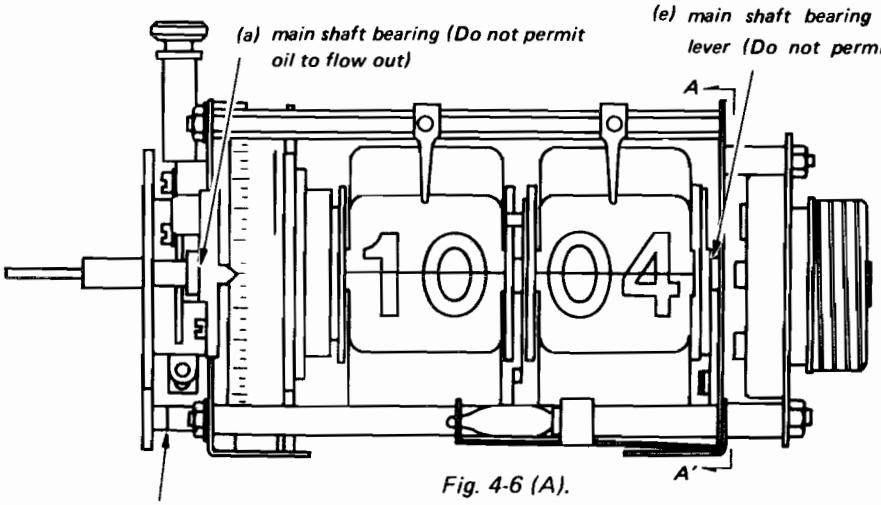


Fig. 4-6 (A).

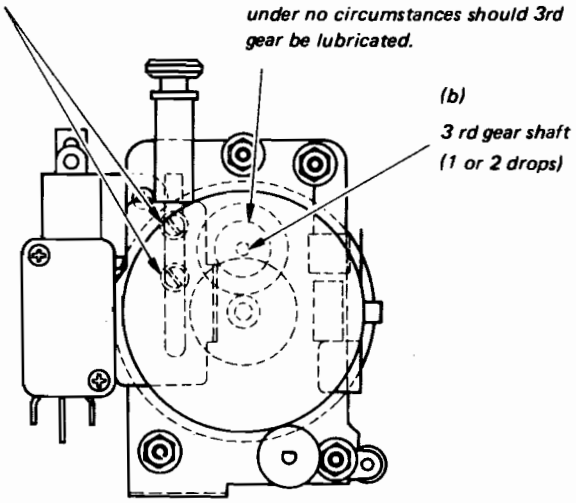


Fig. 4-6 (B).

Note: When assembling, lubricate the following parts as specified in Fig. 4-6. The lubrication oil to be used is " Launa 40", Only oils equivalent to "Launa 40" must be selected for use. Do not apply too much oil.

a) Main shaft bearing

b) 3rd gear shaft (1 or 2 drops)

c) Idler gear shaft

d) Rack sliding surface and rack guide screws (1 or 2 drops)

e) Main shaft bearing at minute-counting lever

f) Minute-counting click shaft (1 or 2 drops)

g) Minute-setting lever shaft (1 or 2 drops)

h) Minute-counting lever shaft and cam contact surface

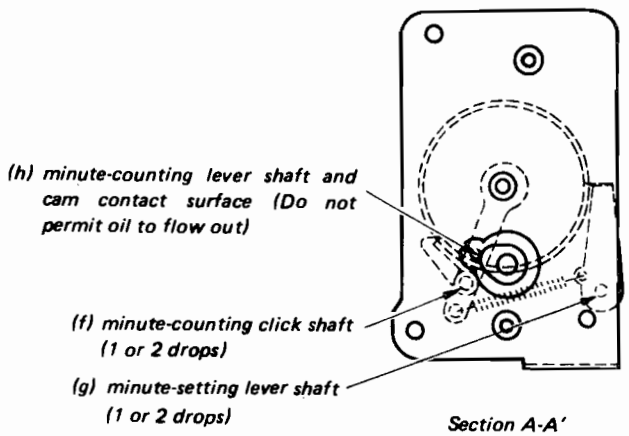


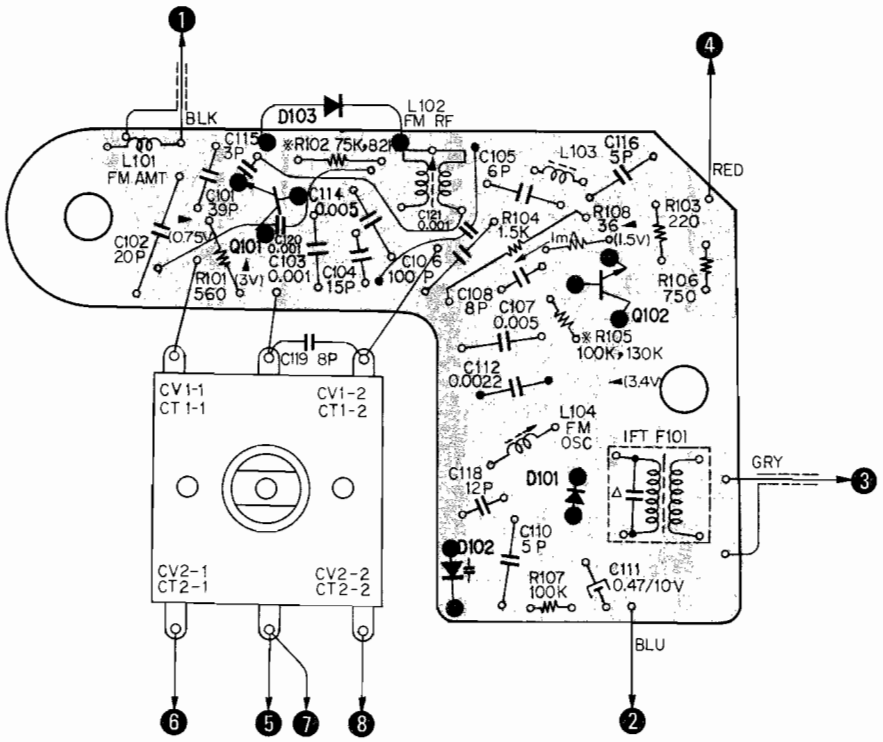
Fig. 4-6 (C).

MEMO

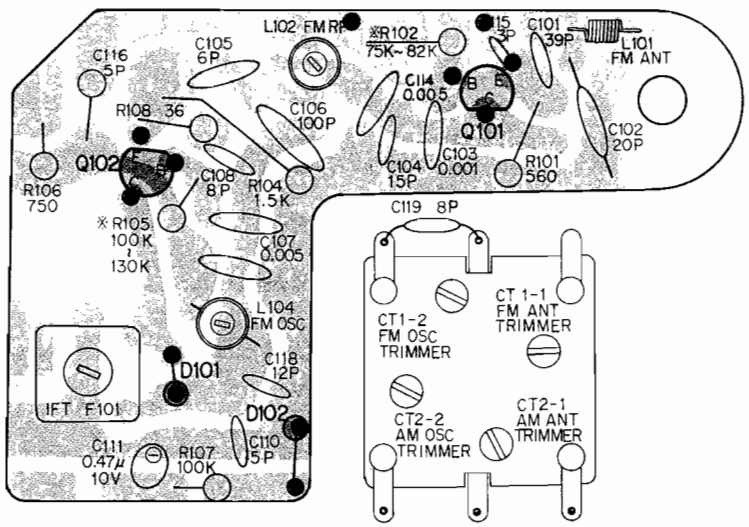
SECTION 5
MOUNTING AND SCHEMATIC DIAGRAMS

5-1. FM TUNER CIRCUIT BOARD

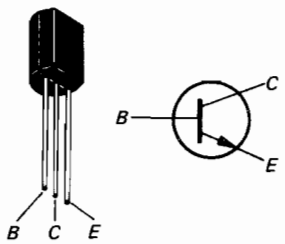
– Conductor Side –



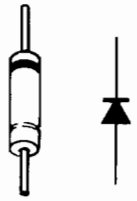
– Component Side –



Q101, Q102;
2SC710



D101; 1T261
D102; 1S2139C
D103; 1T22

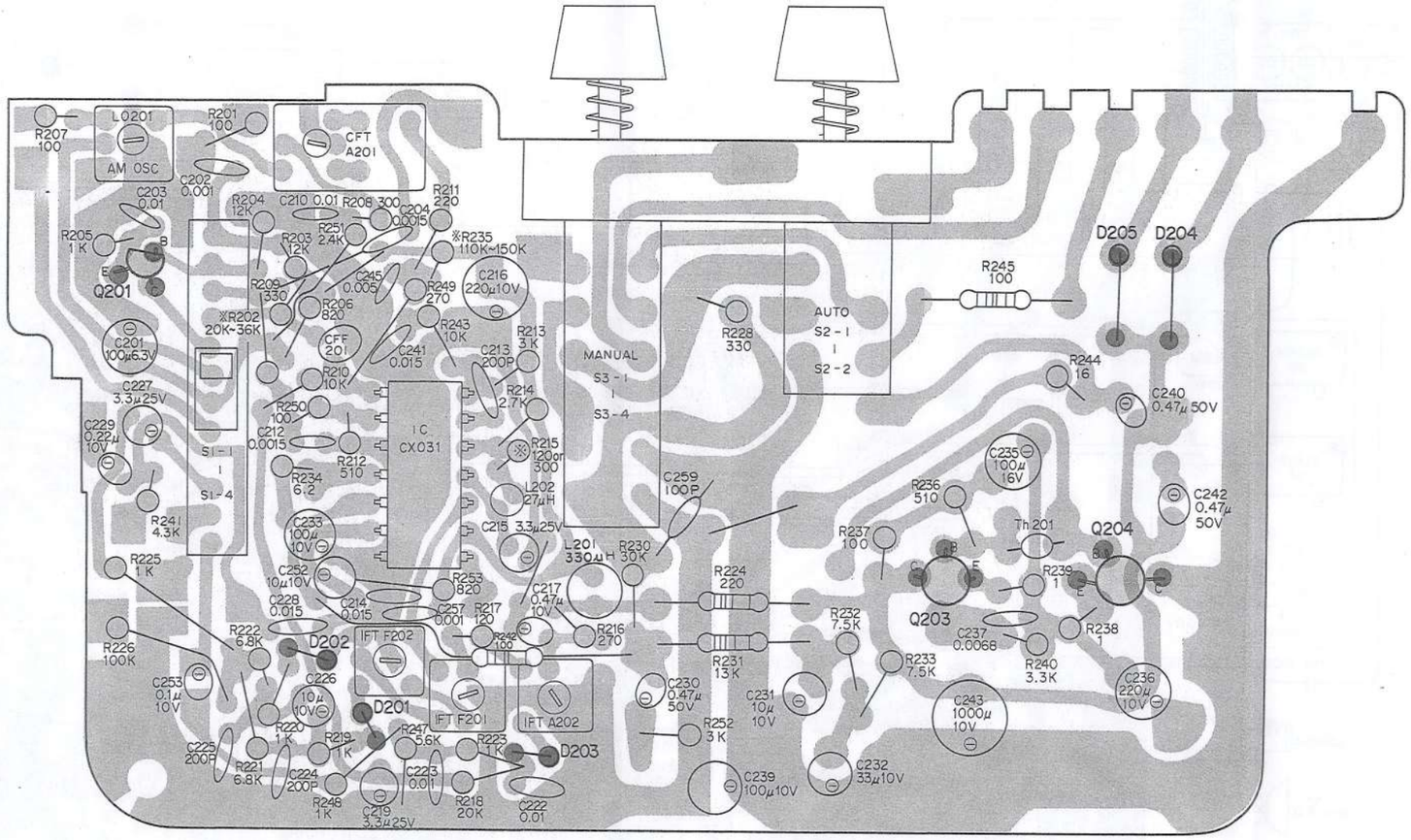


Note:

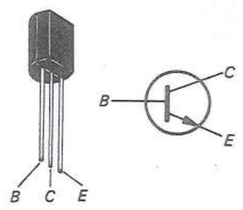
1. Printed Circuit Board, Part No. 1-538-649-13
2. The following parts are mounted on the conductor side; C105, C112.

5-2. CP/IF/AF CIRCUIT BOARD

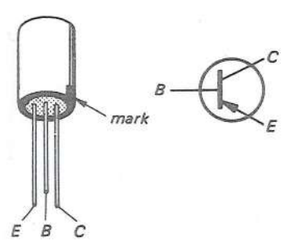
– Component Side –



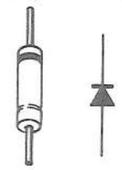
Q201, 2SC710



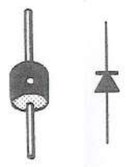
Q203; 2SD72
Q204; 2SB495



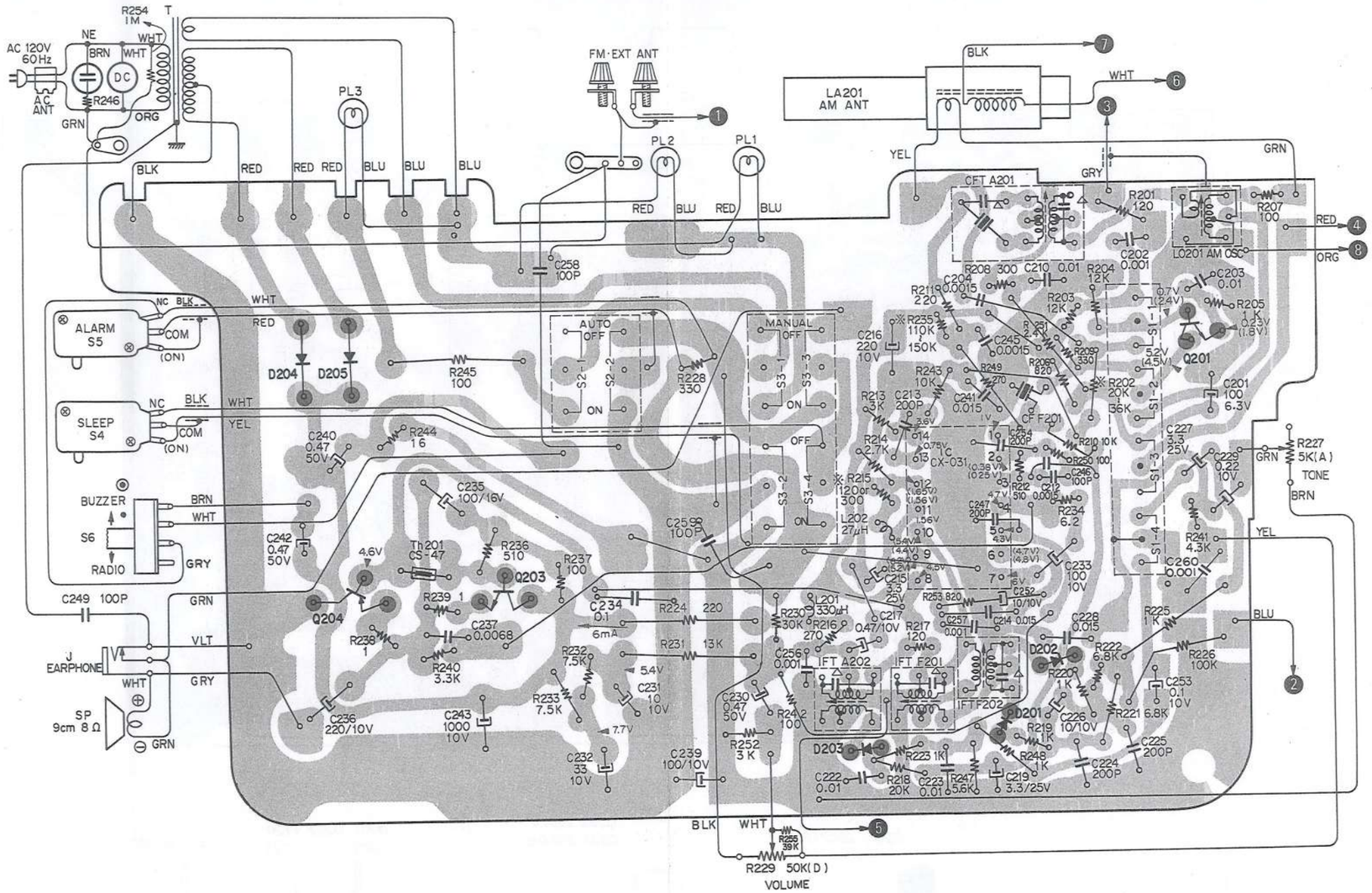
D201, D202; 1T26
D203; 1T23



D204, D205; 10D2

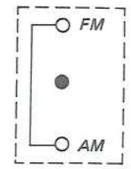


– Conductor Side –

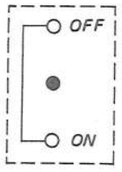


Note:

Slide switch, band selector
S1-1 ~ S1-4

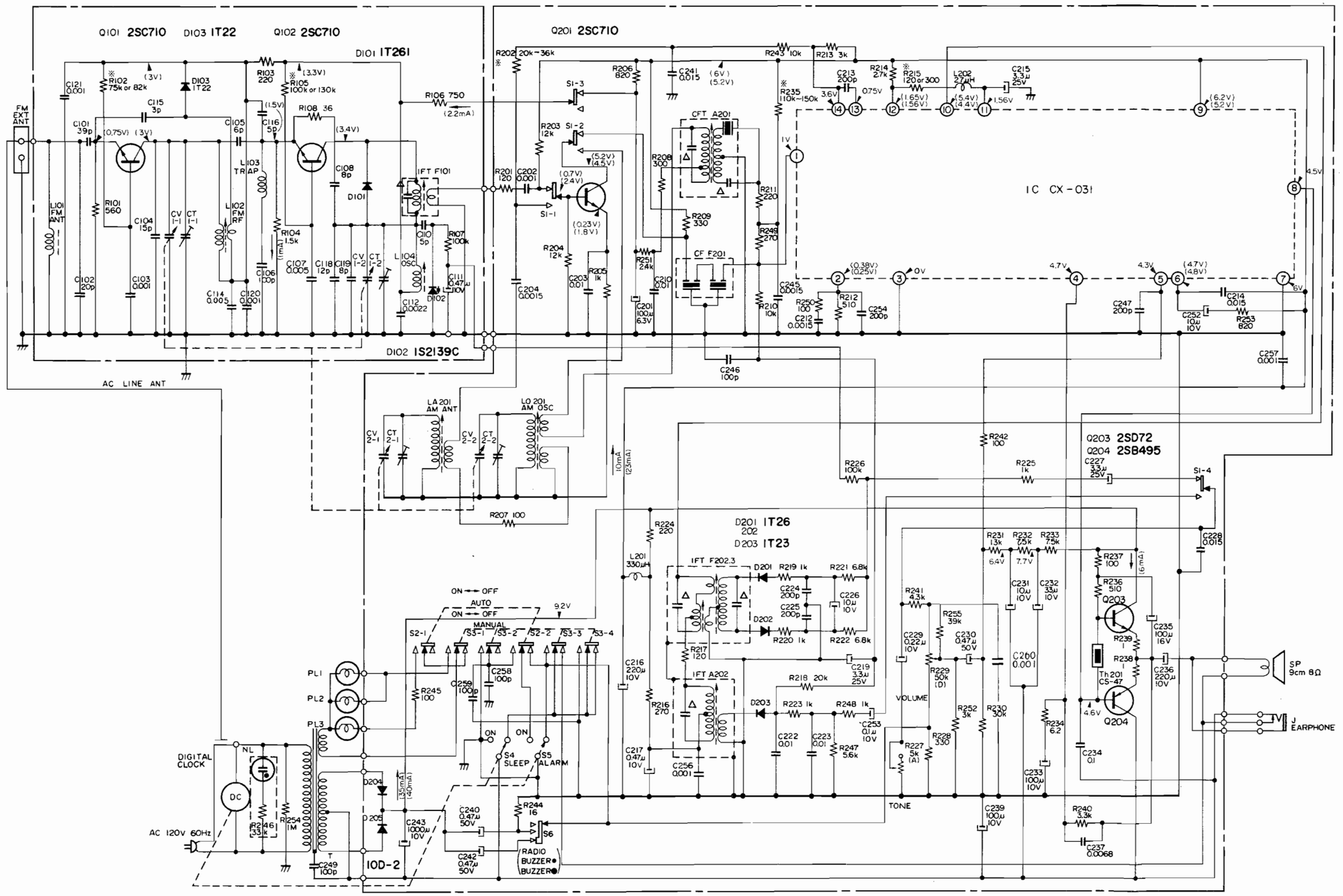


Push switch, AUTO/MANUAL
S2-1 ~ S2-2
S3-1 ~ S3-4



Printed circuit board, Part No. 1-581-033-14.

5-3. SCHEMATIC DIAGRAM

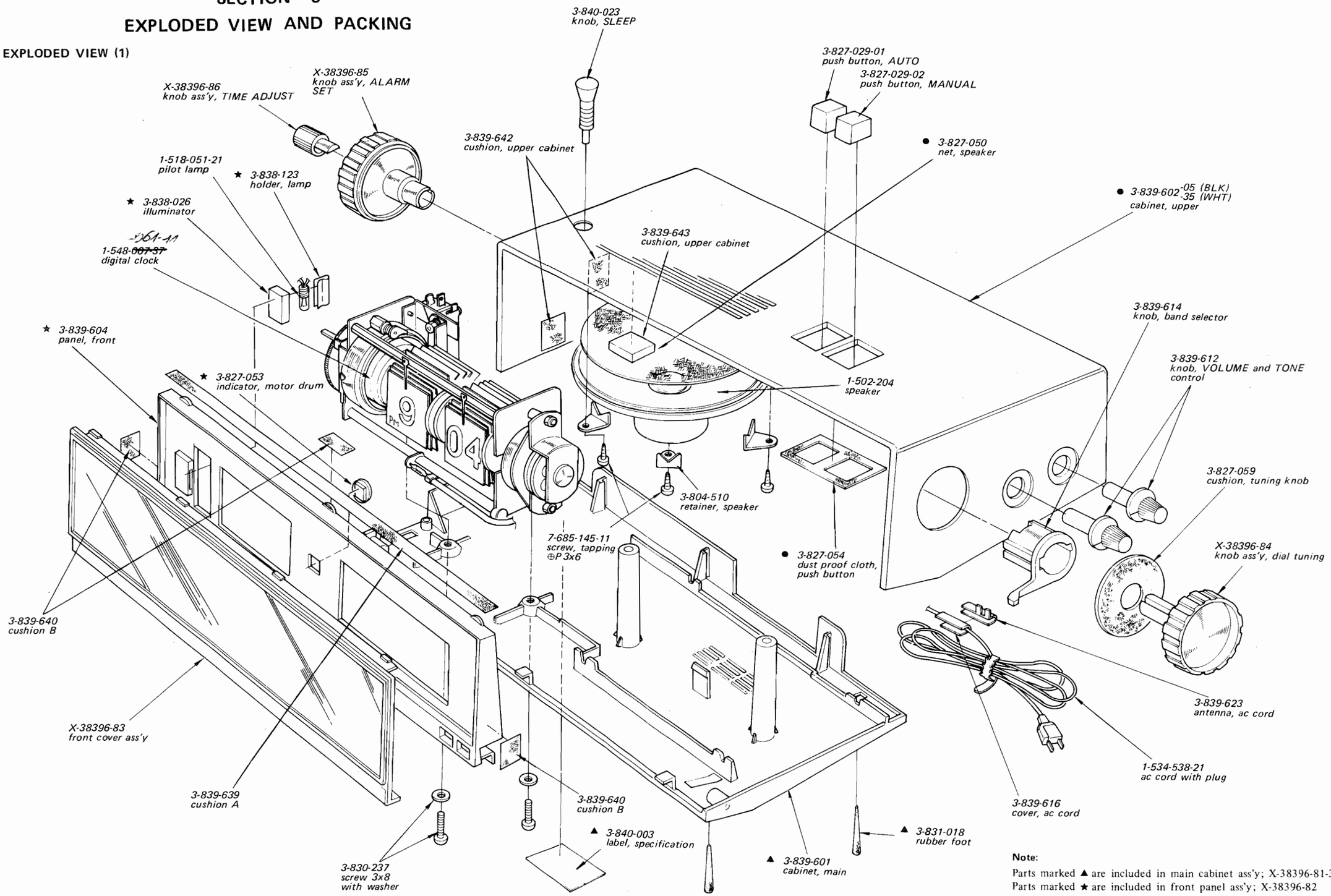


Note:

1. ⏚ : grounding to chassis.
2. All capacitance values in μF and all resistance values in Ω unless otherwise noted.
3. All voltages measured to ground circuit with a dc voltmeter (20kΩ/V) with no signal received. The values in ( ) are measured with band selector set to FM and in < > with AM.
   Variations may be noted due to normal production tolerances.
4. All currents measured with a dc ammeter with no signal received.
5. Capacitor marked with △ is built in i-f transformer.
6. The symbol ※ indicates a component whose value is to be selected to yield specified operating condition.

SECTION 6
EXPLODED VIEW AND PACKING

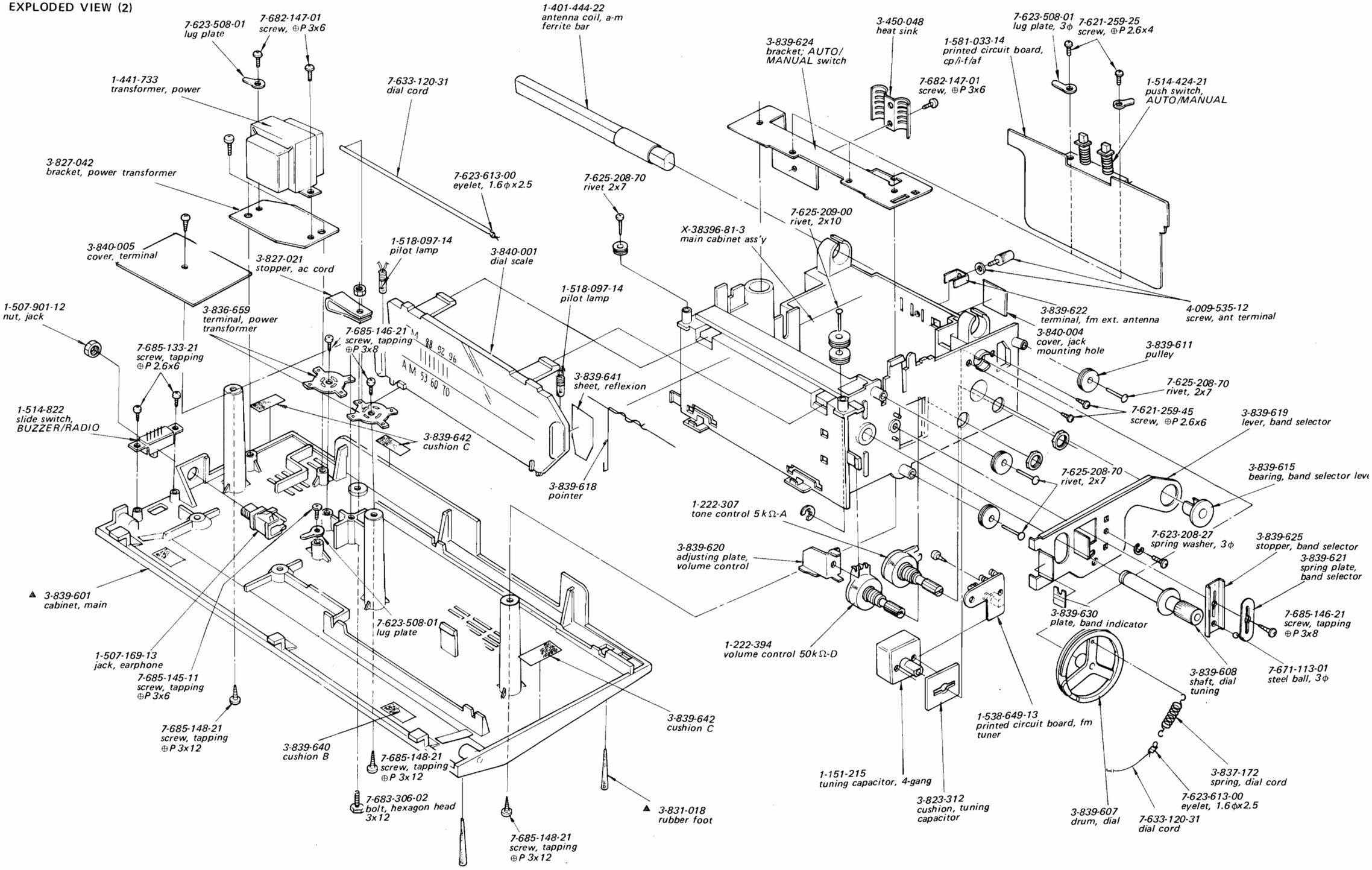
6-1. EXPLODED VIEW (1)



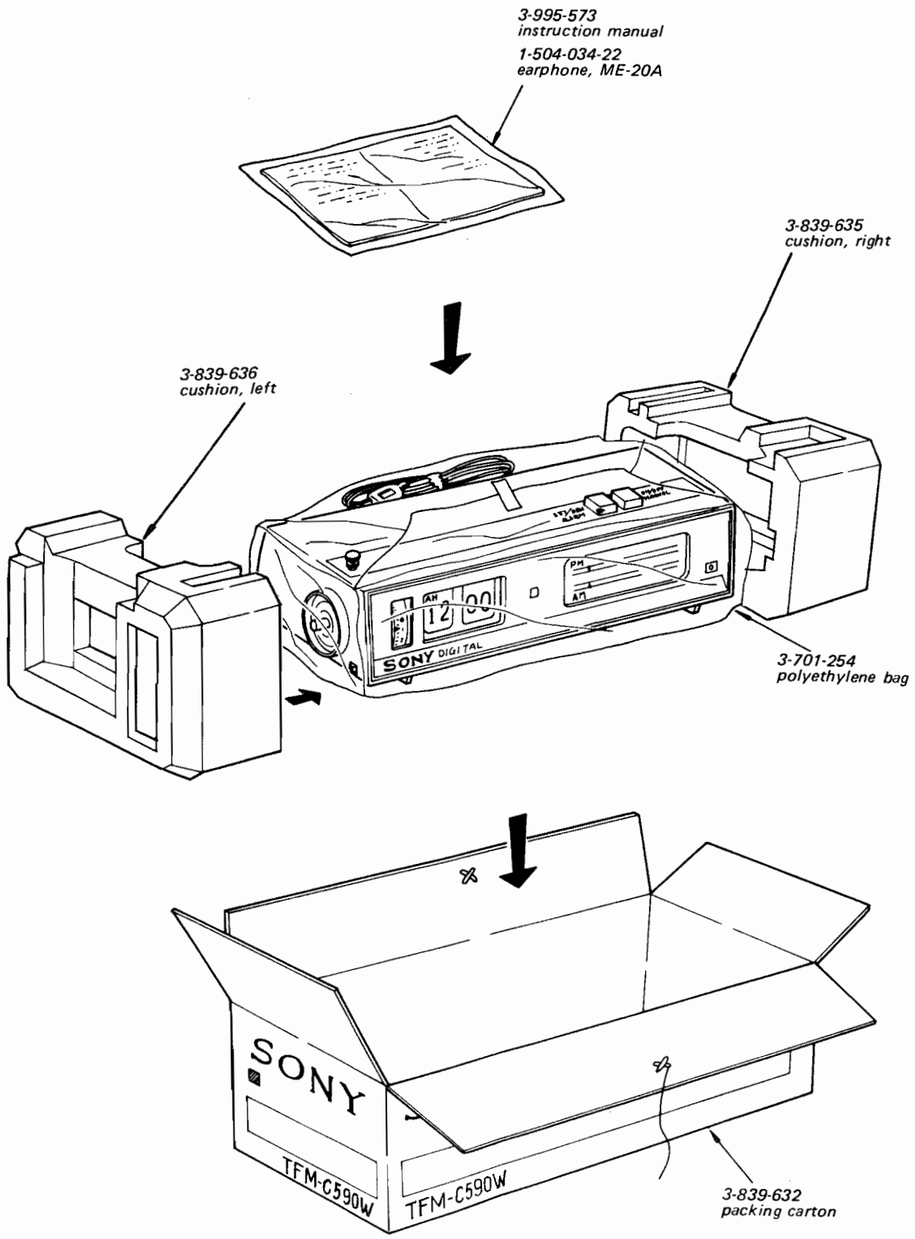
Note:

Parts marked ▲ are included in main cabinet ass'y; X-38396-81-3
Parts marked ★ are included in front panel ass'y; X-38396-82
Parts marked ● are included in upper cabinet ass'y; X-38396-87-1 (BLK) -4 (WHT)

6-2. EXPLODED VIEW (2)



6-3. PACKING



SECTION 7
ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
		SEMICONDUCTORS
Q101		transistor 2SC710
Q102		transistor 2SC710
Q201		transistor 2SC710
Q202		– discarded –
Q203		transistor 2SD72
Q204		transistor 2SB495
D101		diode 1T261
D102		diode 1S2139C
D103		diode 1T22
D201		diode 1T26
D202		diode 1T26
D203		diode 1T23
D204		diode 10D-2
D205		diode 10D-2
IC		integrated circuit CX-031
Th201	8-691-002-11	thermistor CS-47
		COILS AND TRANSFORMERS
L101	1-401-228	coil, fm ant
L102	1-425-373	coil, fm rf
L103	1-407-101	coil, trap
L104	1-425-533	coil, fm osc
L201	1-407-175	330μH, micro inductor
L202	1-407-162	27μH, micro inductor
LA201	1-401-444-22	antenna coil, a-m ferrite bar
LO201	1-405-417	coil, a-m osc
IFT F101	1-403-242-31	transformer, fm i-f
IFT F201	1-403-272-31	transformer, fm discriminator
IFT F202	1-403-273-31	transformer, fm discriminator
IFT A202	1-403-152	transformer, a-m i-f
CF F201	1-527-501-$\frac{11}{17}$	ceramic filter, fm i-f
CFT A201	1-403-163-12	ceramic filter, a-m i-f
T	1-441-733	transformer, power
		CAPACITORS
CV, CT	1-151-215	capacitor, tuning; 4-gang
C101	1-101-876	39pF ceramic
C102	1-101-864	20pF ceramic
C103	1-101-918	0.001μF ceramic
C104	1-102-951	15pF ceramic
C105	1-101-956	6pF ceramic
C106	1-101-896	100pF ceramic
C107	1-101-922	0.005μF ceramic
C108	1-102-945	8pF ceramic
C109		– discarded –
C110	1-102-942	5pF ceramic
C111	1-127-022	0.47μF 10V electrolytic (alox)
C112	1-102-100	0.0022μF ceramic
C113		– discarded –
C114	1-101-922	0.005μF ceramic
C115	1-102-011	3pF ceramic
C116	1-102-942	5pF ceramic
C117		– discarded –
C118	1-102-847	12pF ceramic
C119	1-102-945	8pF ceramic
C120	1-101-918	0.001μF ceramic
C121	1-101-918	0.001μF ceramic
C201	1-121-413	100μF 6.3V electrolytic
C202	1-101-918	0.001μF ceramic
C203	1-108-278-12	0.01μF mylar
C204	1-108-267-12	0.0015μF mylar
C205		– discarded –
C206		– discarded –
C207		– discarded –
C208		– discarded –
C209		– discarded –
C210	1-101-072	0.01μF ceramic
C211		– discarded –
C212	1-108-267-12	0.0015μF mylar
C213	1-107-138	200pF silvered mica
C214	1-108-279-12	0.015μF mylar
C215	1-121-392	3.3μF 25V electrolytic
C216	1-121-420	220μF 10V electrolytic
C217	1-127-022	0.47μF 10V electrolytic (alox)
C218		– discarded –
C219	1-121-392	3.3μF 25V electrolytic
C220		– discarded –
C221		– discarded –
C222	1-108-278-12	0.01μF mylar
C223	1-101-072	0.01μF ceramic
C224	1-107-138	200pF silvered mica
C225	1-107-138	200pF silvered mica
C226	1-121-469	10μF 10V electrolytic
C227	1-121-392	3.3μF 25V electrolytic
C228	1-108-279-12	0.015μF mylar
C229	1-127-020	0.22μF 10V electrolytic (alox)
C230	1-121-726	0.47μF 50V electrolytic
C231	1-121-469	10μF 10V electrolytic
C232	1-121-402	33μF 10V electrolytic
C233	1-121-414	100μF 10V electrolytic
C234	1-108-290-12	0.1μF mylar
C235	1-121-415	100μF 16V electrolytic
C236	1-121-420	220μF 10V electrolytic
C237	1-108-276-12	0.0068μF mylar
C238		– discarded –
C239	1-121-414	100μF 10V electrolytic
C240	1-121-726	0.47μF 50V electrolytic
C241	1-108-279-12	0.015μF mylar
C242	1-121-726	0.47μF 50V electrolytic
C243	1-121-736	1,000μF 10V electrolytic
C244		– discarded –
C245	1-108-267-12	0.0015μF mylar
C246	1-102-975	100pF ceramic

Ref. No.	Part No.	Description
C247	1-107-138	200pF silvered mica
C248		– discarded –
C249	1-102-975	100pF ceramic
C250		– discarded –
C251		– discarded –
C252	1-121-469	10μF 10V electrolytic
C253	1-127-019	0.1μF 10V electrolytic (alox)
C254	1-107-138	200pF silvered mica
C255		– discarded –
C256	1-101-918	0.001μF ceramic
C257	1-101-918	0.001μF ceramic
C258	1-102-975	100pF ceramic
C259	1-102-975	100pF ceramic
C260	1-101-918	0.001μF ceramic

RESISTORS

R101	1-244-467	560Ω	1/8W carbon
R102	1-244-518	75kΩ	1/8W carbon
	1-244-519	82kΩ	1/8W carbon
R103	1-244-457	220Ω	1/8W carbon
R104	1-244-477	1.5kΩ	1/8W carbon
R105	1-244-521	100kΩ	1/8W carbon
	1-244-524	130kΩ	1/8W carbon
R106	1-244-470	750Ω	1/8W carbon
R107	1-244-521	100kΩ	1/8W carbon
R108	1-244-438	36Ω	1/8W carbon
R201	1-244-651	120Ω	
R202	1-244-704	20kΩ	
	1-244-705	22kΩ	
	1-244-706	24kΩ	
	1-244-707	27kΩ	
	1-244-708	30kΩ	
	1-244-709	33kΩ	
	1-244-710	36kΩ	
R203	1-244-699	12kΩ	
R204	1-244-699	12kΩ	
R205	1-244-673	1kΩ	
R206	1-244-671	820Ω	
R207	1-244-649	100Ω	
R208	1-244-660	300Ω	
R209	1-244-661	330Ω	
R210	1-244-697	10kΩ	
R211	1-244-657	220Ω	
R212	1-244-666	510Ω	
R213	1-244-684	3kΩ	
R214	1-244-683	2.7kΩ	
R215	1-244-651	120Ω	
	1-244-660	300Ω	
R216	1-244-659	270Ω	
R217	1-244-651	120Ω	
R218	1-244-704	20kΩ	
R219	1-244-673	1kΩ	
R220	1-244-673	1kΩ	

Ref. No.	Part No.	Description
R221	1-244-193	6.8kΩ
R222	1-244-693	6.8kΩ
R223	1-244-673	1kΩ
R224	1-244-657	220Ω
R225	1-244-673	1kΩ
R226	1-244-721	100kΩ
R227	1-222-307	5kΩ-A, tone control
R228	1-244-661	330Ω
R229	1-222-394	50kΩ-D, volume control
R230	1-244-708	30kΩ
R231	1-244-700	13kΩ
R232	1-244-694	7.5kΩ
R233	1-244-694	7.5kΩ
R234	1-244-620	6.2Ω
R235	1-244-722	110kΩ
	1-244-723	120kΩ
	1-244-724	130kΩ
	1-244-725	150kΩ
R236	1-244-666	510Ω
R237	1-244-649	100Ω
R238	1-244-601	1Ω
R239	1-244-601	1Ω
R240	1-244-685	3.3kΩ
R241	1-244-673	1kΩ
R242	1-244-649	100Ω
R243	1-244-697	10kΩ
R244	1-244-630	16Ω
R245	1-244-649	100Ω
R246	1-244-709	33kΩ
R247	1-244-691	5.6kΩ
R248	1-244-673	1kΩ
R249	1-244-659	270Ω
R250		– discarded –
R251	1-244-682	2.4kΩ
R252	1-244-684	3kΩ
R253	1-244-671	820Ω
R254	1-202-645	1MΩ 1/2W composition

MISCELLANEOUS

SP	1-502-204	speaker, 8Ω
J	1-507-169-13	jack, earphone
	1-507-901-12	nut, jack
	1-514-424-21	push switch, AUTO/MANUAL
	1-514-821	slide switch, band selector
	1-514-822	slide switch, BUZZER/RADIO
PL1	1-518-097-14	pilot lamp
PL2	1-518-097-14	pilot lamp
PL3	1-518-051-21	pilot lamp
	1-534-538-21	ac cord with plug
	1-548-007-37	digital clock
	1-538-649-13	printed circuit board, fm tuner
	1-581-033-14	printed circuit board, cp/i-f/af
	Y-38719-11-1	fm tuner, FMC-0710W1

SONY CORPORATION

1B0626-1

Printed in Japan

SONY®

Complete Spare Parts List

Model TFM-C590W

GENERAL EXPORT MODEL

"IMPORTANT"

When ordering parts, please do not fail to furnish us the following:

1. Part Number
2. Model Name
3. Description as mentioned in this parts list

We are now using EDPS (Electronic Data Processing System) in all the departments concerned, for procurement, inventory control, packing, warehousing, etc. Your orders are processed mainly from the PART NUMBERS referred by you. Incorrect part numbers, therefore, will result in incorrect parts shipment. To assure prompt shipment of correct parts, your cooperation will be appreciated.

NOTE:

Prices are subject to change without notice.

SONY CORPORATION

COMPLETE SPARE PARTS LIST FOR TFM-C590W

(General Export Model & UK Model)

MAY, 1971

Part No.	Description	Unit Price
	A. MECNANICAL PARTS	
X-38396-82	Front Panel Ass'y, including ----------	0.35
3-827-053	Indicator, motor drum ----------	0.02
3-838-026	Illuminator ----------	0.02
3-838-123	Holder, lamp ----------	0.03
3-839-604	Panel, front ----------	0.13
	* * *	
X-38396-83	Front Cover Ass'y, including ----------	0.75
3-839-605	Front Cover ----------	0.33
3-839-617	Ornamental Plate, front cover ----------	0.12
7-632-453-16	Adhesive Sheet ----------	0.01
	* * *	
X-38396-84-2	Knob Ass'y, dial tuning; including ----------	0.20
3-839-609	Knob, dial tuning ----------	0.11
3-839-627	Plate, ornamental ----------	0.02
	* * *	
X-38396-85	Knob Ass'y, ALARM SET; including ----------	0.25
3-839-610	Knob, ALARM SET ----------	0.11
3-840-042	Plate, ornamental ----------	0.03
	* * *	

Part No.	Description	Unit Price
X-38396-86	Knob Ass'y, TIME ADJUST ----------	$0.10
3-837-931	Knob, TIME ADJUST ----------	0.03
3-839-626	Spring, knob ----------	0.02
	* * *	
X-38396-87-1 (-1 BLK), X-38396-87-4 (-4 WHT)	Upper Cabinet Ass'y; including ----------	1.00
3-827-050	Net, speaker ----------	0.02
3-827-054	Dust Proof Cloth, pushbutton ----------	0.01
3-839-602-05 (-05 BLK), 3-839-602-35 (-35 WHT)	Cabinet, upper ----------	0.61
	* * *	
3-839-229	Stopper, ac cord (UK Model) ----------	0.02
3-827-021	Stopper, ac cord ----------	0.02
3-840-056	Antenna, ac cord (UK Model) ----------	0.05
3-839-647	Antenna, ac cord ----------	0.05
3-831-018	Rubber Foot ----------	0.02
3-839-601	Cabinet, main ----------	0.33
3-840-058	Label, specification (UK Model) ----------	0.02
3-840-041	Label, specification ----------	0.02
3-450-048	Heat Sink ----------	0.03
3-804-510	Retainer, speaker ----------	0.01
3-823-312	Cushion, tuning capacitor ----------	0.01
3-827-029-01	Pushbutton, AUTO ----------	0.01
3-827-029-02	Pushbutton, MANUAL ----------	0.01
3-827-047	Bracket, power transformer ----------	0.03
3-827-059	Washer ----------	0.01
3-830-237	Screw 3 x 8 with Washer ----------	0.02
3-833-920	Lug, cord ----------	0.01
3-836-659	Terminal, power transformer ----------	0.03
3-837-172	Spring ----------	0.02
3-839-603	Chassis ----------	0.25
3-839-607	Drum, dial ----------	0.02
3-839-608	Shaft, dial tuning ----------	0.03
3-839-611	Pulley ----------	0.01
3-839-612	Knob, VOL and TONE ----------	0.02
3-840-023	Knob, SLEEP ----------	0.05
3-839-614	Knob, band select ----------	0.02

Part No.	Description	Unit Price
3-839-615	Bearing, band selector lever	$0.02
3-840-057	Cover, ac cord (UK Model)	0.05
3-839-616	Cover, ac cord	0.02
3-839-619	Lever, band select	0.06
3-839-620	Adjusting Plate, volume control	0.06
3-839-621	Spring Plate, band selector	0.04
3-839-622	Terminal, ext. antenna	0.03
3-839-623	Antenna, ac cord	0.04
3-839-624	Bracket, AUTO/MANUAL switch	0.08
3-839-625	Stopper, band selector	0.02
3-839-618	Pointer	0.08
3-839-630	Plate, band indicator	0.02
3-839-639	Cushion A	0.02
3-839-640	Cushion B	0.01
3-839-641	Sheet, reflexion	0.01
3-839-642	Cushion C	0.01
3-839-643	Cushion, upper cabinet	0.01
3-840-001	Dial Scale	0.15
3-840-004	Cover, jack mounting hole	0.02
3-840-005	Cover, terminal	0.02
4-009-535-12	Screw, ant terminal	0.03
3-839-645	Plate, reflection	0.05
3-840-060	Lug Cover	0.05

	B. SCREWS, NUTS, WASHERS & MISCELLANEOUS	(Per 100)
7-621-259-25	Screw, (+) P 2.6 x 4	0.15/100
7-621-259-45	Screw, (+) P 2.6 x 6	0.10/100
7-682-147-01	Screw, (+) P 3 x 6	0.10/100
7-685-133-21	Screw, tapping (+) P 2.6 x 6	0.28/100
7-685-145-11	Screw, tapping (+) P 3 x 6	0.24/100
7-685-146-21	Screw, tapping (+) P 3 x 8	0.24/100
7-685-148-21	Screw, tapping (+) P 3 x 12	0.28/100
7-623-108-12	Washer 3 ϕ (middle)	0.10/100
7-623-208-27	Spring Washer 3 ϕ	0.06/100
7-623-508-01	Lug Plate 3 ϕ	0.10/100
7-623-613-00	Eyelet, 1.6 ϕ x 2.5	0.06/100
7-624-109-05	Retaining Ring, E-5	0.47/100
7-625-208-70	Rivet, 2 x 7	0.15/100
7-625-209-00	Rivet, 2 x 10	0.20/100
7-671-113-01	Steel Ball, 3 ϕ	0.25/100
7-683-306-02	Bolt, hexagon head 3 x 12	0.55/100
7-633-120-31	Dial Cord	0.02/ m
7-684-013-01	Nut, 3 ϕ	0.20/100
7-623-510-11	Lug Plate, 4 ϕ	0.12/100

Ref. No.	Part No.	Description	Unit Price
		C. ELECTRICAL PARTS	
		Semiconductors	
Q101		Transistor 2SC710	$0.12
Q102		Transistor 2SC710	0.12
Q201		Transistor 2SC710	0.12
Q202		- discarded -	
Q203		Transistor 2SD72	0.39
Q204		Transistor 2SB495	0.18
D101		Diode 1T261	0.05
D102		Diode 1S2139C	0.13
D201		Diode 1T26	0.05
D202		Diode 1T26	0.05
D203		Diode 1T23	0.05
D204		Diode 10D-2	0.11
D205		Diode 10D-2	0.11
IC		Integrated Circuit CX-031	1.25
Th201	8-691-002-11	Thermistor CS-47	0.04
		Coils and Transformers	
L101	1-401-228	Coil, fm ant	0.02
L102	1-425-373	Coil, fm rf	0.06
L103	1-407-101	Coil, trap	0.05
L104	1-425-533	Coil, fm osc.	0.05
L201	1-407-175	330 µH, micro inductor	0.03
L202	1-407-162	27 µH, micro inductor	0.03
LA201	1-401-444-12	Antenna Coil, a-m ferrite bar	0.20
L0201	1-405-417	Coil, a-m osc.	0.11
IFT F101	1-403-242-31	Transformer, fm i-f	0.14
IFT F201	1-403-272-31	Transformer, fm discriminator	0.13
IFT F202	1-403-273-31	Transformer, fm discriminator	0.13
IFT A202	1-403-152	Transformer, a-m i-f	0.11
CF F201	1-527-501-11 - 17	Ceramic Filter, fm i-f	0.25
CFT A201	1-403-163-12	Ceramic Filter, a-m i-f	0.23
CFT A201	1-403-823-21	Ceramic Filter, a-m i-f (UK Model)	0.23
T	1-441-779	Transformer, power	0.96

Ref. No.	Part No.	Description	Unit Price
		Capacitors	
CV, CT	1-151-215	Tuning Capacitor, 4- gang	$0.74
C101	1-101-876	39 pF ceramic	0.02
C102	1-101-864	20 pF ceramic	0.02
C103	1-101-918	0.001 µF ceramic	0.02
C104	1-102-951	15 pF ceramic	0.02
C105	1-101-956	6 pF ceramic	0.02
C106	1-101-896	100 pF ceramic	0.02
C107	1-101-922	0.005 µF ceramic	0.02
C108	1-102-945	8 pF ceramic	0.02
C109		- discarded -	
C110	1-102-942	5 pF ceramic	0.02
C111	1-127-022	0.47 µF/10 V electrolytic (alox)	0.06
C112	1-102-100	0.0022 µF electrolytic	0.02
C113		- discarded -	
C114	1-101-922	0.005 µF ceramic	0.02
C115	1-102-011	3 pF ceramic	0.02
C116	1-102-942	5 pF ceramic	0.02
C117		- discarded -	
C118	1-102-847	12 pF ceramic	0.02
C119	1-102-945	8 pF ceramic	0.02
C120		- discarded -	
C121	1-101-918	0.001 µF ceramic	0.02
C201	1-121-413	100 µF/6.3 V electrolytic	0.05
C202	1-101-918	0.001 µF ceramic	0.02
C203	1-108-278-12	0.01 µF mylar	0.02
C204	1-108-267-12	0.0015 µF mylar	0.02
C205		- discarded -	
C206		- discarded -	
C207		- discarded -	
C208		- discarded -	
C209		- discarded -	
C210	1-101-072	0.01 µF ceramic	0.02
C211		- discarded -	
C212	1-108-267-12	0.0015 µF mylar	0.02
C213	1-107-138	200 pF silvered mica	0.02
C214	1-108-279-12	0.015 µF mylar	0.02
C215	1-121-392	3.3 µF/25 V electrolytic	0.04
C216	1-121-420	220 µF/10 V electrolytic	0.07
C217	1-127-022	0.47 µF/10 V electrolytic (alox)	0.06
C218		- discarded -	

Ref. No.	Part No.	Description		Unit Price
C219	1-121-392	3.3 µF/25 V	electrolytic	$0.04
C220		- discarded -		
C221		- discarded -		
C222	1-108-278-12	0.01 µF	mylar	0.02
C223	1-101-072	0.01 µF	ceramic	0.02
C224	1-107-138	200 pF	silvered mica	0.02
C225	1-107-138	200 pF	silvered mica	0.02
C226	1-121-469	10 µF/10 V	electrolytic	0.03
C227	1-121-392	3.3 µF/25 V	electrolytic	0.04
C228	1-108-279-12	0.015 µF	mylar	0.02
C229	1-127-020	0.22 µF/10 V	electrolytic	0.05
C230	1-121-726	0.47 µF/50 V	electrolytic	0.03
C231	1-121-469	10 µF/10 V	electrolytic	0.03
C232	1-121-402	33 µF/10 V	electrolytic	0.05
C233	1-121-414	100 µF/10 V	electrolytic	0.05
C234	1-108-290-12	0.1 µF	mylar	0.05
C235	1-121-415	100 µF/16 V	electrolytic	0.06
C236	1-121-420	220 µF/10 V	electrolytic	0.07
C237	1-108-276-12	0.0068 µF	mylar	0.02
C238		- discarded -		
C239	1-121-414	100 µF/10 V	electrolytic	0.05
C240	1-121-726	0.47 µF/50 V	electrolytic	0.03
C241	1-108-279-12	0.015 µF	mylar	0.02
C242	1-121-726	0.47 µF/50 V	electrolytic	0.03
C243	1-121-736	1000 µF/10 V	electrolytic	0.12
C244		- discarded -		
C245	1-108-267-12	0.0015 µF	mylar	0.02
C246	1-102-975	100 pF	ceramic	0.02
C247	1-107-138	200 pF	silvered mica	0.02
C248		- discarded -		
C249	1-102-975	100 pF	ceramic	0.02
C250		- discarded -		
C251		- discarded -		
C252	1-121-469	10 µF/10 V	electrolytic	0.06
C253	1-127-019	0.1 µF/10 V	electrolytic (alox)	0.03
C254	1-107-138	200 pF	silvered mica	0.02
C255		- discarded -		
C256	1-101-072	0.01 µF	ceramic	0.02
C257	1-101-918	0.001 µF	ceramic	0.02
C258	1-102-975	100 pF	ceramic	0.02
C259	1-102-975	100 pF	ceramic	0.02
C260	1-101-918	0.001 µF	ceramic	0.02
C261	1-101-896	100 pF	ceramic	0.02
C262	1-101-896	100 pF	ceramic	0.02

Ref. No.	Part No.	Description			Unit Price
		Resistors			
R101	1-244-467	560 Ω	1/8 W	carbon	$0.02
*R102	1-244-723	120 kΩ			0.02
	1-244-725	150 kΩ			0.02
R103	1-244-457	220 Ω	1/8 W	carbon	0.02
R104	1-244-477	1.5 kΩ	1/8 W	carbon	0.02
*R105	1-244-521	100 kΩ	1/8 W	carbon	0.02
	1-244-524	130 kΩ	1/8 W	carbon	0.02
R106	1-244-470	750 Ω	1/8 W	carbon	0.02
R107	1-244-521	100 kΩ	1/8 W	carbon	0.02
R108	1-244-438	36 Ω	1/8 W	carbon	0.02
R201	1-244-651	120 Ω			0.02
*R202	1-244-704	20 kΩ			0.02
	1-244-705	22 kΩ			0.02
	1-244-706	24 kΩ			0.02
	1-244-707	27 kΩ			0.02
	1-244-708	30 kΩ			0.02
	1-244-709	33 kΩ			0.02
	1-244-710	36 kΩ			0.02
R203	1-244-699	12 kΩ			0.02
R204	1-244-699	12 kΩ			0.02
R205	1-244-673	1 kΩ			0.02
R206	1-244-671	820 Ω			0.02
R207	1-244-649	100 Ω			0.02
R208	1-244-660	300 Ω			0.02
R209	1-244-661	330 Ω			0.02
R210	1-244-697	10 kΩ			0.02
R211	1-244-657	220 Ω			0.02
R212	1-244-666	510 Ω			0.02
R213	1-244-684	3 kΩ			0.02
R214	1-244-683	2.7 kΩ			0.02
*R215	1-244-651	120 Ω			0.02
	1-244-660	300 Ω			0.02
R216	1-244-659	270 Ω			0.02
R217	1-244-651	120 Ω			0.02
R218	1-244-704	20 kΩ			0.02
R219	1-244-673	1 kΩ			0.02
R220	1-244-673	1 kΩ			0.02
R221	1-244-693	6.8 kΩ			0.02
R222	1-244-693	6.8 kΩ			0.02

* Mark to be selected.

Ref. No.	Part No.	Description	Unit Price
R223	1-244-673	1 kΩ	$0.02
R224	1-244-657	220 Ω	0.02
R225	1-244-673	1 kΩ	0.02
R226	1-244-721	100 kΩ	0.02
R227	1-222-307	5 kΩ-A, tone control	0.14
R228	1-244-649	100 Ω	0.02
R229	1-222-394	50 kΩ-D, volume control	0.12
R230	1-244-708	30 kΩ	0.02
R231	1-244-700	13 kΩ	0.02
R232	1-244-694	7.5 kΩ	0.02
R233	1-244-694	7.5 kΩ	0.02
R234	1-244-620	6.2 Ω	0.02
R235	1-244-722	110 kΩ	0.02
*R235	1-244-723	120 kΩ	0.02
	1-244-724	130 kΩ	0.02
	1-244-725	150 kΩ	0.02
R236	1-244-666	510 Ω	0.02
R237	1-244-649	100 Ω	0.02
R238	1-244-601	1 Ω	0.02
R239	1-244-601	1 Ω	0.02
R240	1-244-685	3.3 kΩ	0.02
R241	1-244-688	4.3 kΩ	0.02
R242	1-244-649	100 Ω	0.02
R243	1-244-697	10 kΩ	0.02
R244	1-244-630	16 Ω	0.02
R245	1-244-649	100 Ω	0.02
R246	1-244-725	150 kΩ	0.02
R247	1-244-691	5.6 kΩ	0.02
R248	1-244-673	1 kΩ	0.02
R249	1-244-659	270 Ω	0.02
R250		- discarded -	
R251	1-244-682	2.4 kΩ	0.02
R252		- discarded -	
R253	1-244-671	820 Ω	0.02
R254		- discarded -	
R255	1-244-711	39 kΩ	0.02

* Mark to be selected.

Miscellaneous

SP	1-502-204	Speaker, 8 Ω	0.49
J	1-507-169-13	Jack, earphone	0.05
	1-507-901-12	Nut, jack	0.01
	Y-38719-21-1	Fm Front End, FMC-710W2	

Ref. No.	Part No.	Description	Unit Price
	1-514-424-21	Pushswitch, AUTO/MANUAL	$0.42
	1-514-821	Slide Switch	0.17
	1-514-822	Slide Switch	0.13
PL1	1-518-097-14	Pilot Lamp	0.10
PL2	1-518-097-14	Pilot Lamp	0.10
PL3	1-518-051-21	Pilot Lamp	0.08
	1-548-007-47	Digital Clock (UK Model)	5.50
	1-548-007-52	Digital Clock	5.50
	1-538-649-13	Printed Circuit Board, fm	0.04
	1-581-033-14	Printed Circuit Board, cp/i-f/af	0.18
	1-534-502-12	Ac Cord with Plug (UK Model)	0.57
	1-534-587-11	Ac Cord with Plug	0.70

D. ACCESSORIES

3-839-632-21	Packing Carton	0.25
3-839-632-31	Packing Carton (UK Model)	0.25
3-839-635	Cushion, right	0.07
3-839-636	Cushion, left	0.08
3-840-006-21	Master Carton, 6 sets	0.50
3-701-254	Polyethylene Bag	0.02
3-995-573-31	Instruction Manual	0.05
3-995-573-51	Instruction Manual (UK Model)	0.05
3-998-901	Serial No. Tag	0.01
3-993-005-31	Fm Antenna Tag	0.01
1-504-034-22	Earphone, ME-20A	0.14