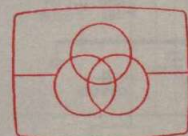


CF-480S

GEP Model



Free service manuals
Gratis schema's

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FM/MW/SW RADIO CASSETTE-CORDER

SPECIFICATIONS

GENERAL

Power Requirements: AC: 100 V, 110 - 120 V, 220 - 240 V, 50/60 Hz

DC: 12 V
Battery size-D, 8 pcs
Car battery cord DCC-9 for 12 V car battery

Power Consumption: AC 10 W
Maximum Power Output: 4000 mW

Speaker: two-way
16 cm (6 1/2 inches) dia, 4 Ω
5 cm (2 inches) dia, 4 Ω

Semiconductors: 29 transistors, 15 diodes, 1 FET (contained in electret condenser microphone)

Dimensions: 376 (w) x 246 (h) x 106 (d) mm
14 1/4 (w) x 9 1/2 (h) x 4 1/8 (d) inches

Weight: 5 kg, 11 lb with batteries

TAPE RECORDER SECTION

Track: 2-track monaural

Tape Speed: 4.8 cm/s (1 7/8 ips)

Fastforward/Rewind Time: Approx. 1 minute and 20 seconds with Sony cassette C-60

Overall Frequency Response: 50 - 10,000 Hz with normal tape
50 - 13,000 Hz with Ferri-Chrome cassette and Chromium dioxide cassette

Record/Playback Head: PP134-36 (250 Ω/1 kHz)

Erase Head: EF135-36 (640 Ω/80 kHz)

Built-in Microphone: Electret condenser microphone C-1003F

Motor: DC servo motor D-015F

Automatic Shut-off System: Mechanical full-auto shut-off system (operates in any function mode by detecting the reel spindle rotation)

Battery Life: In continuous recording with built-in microphone:
Approx. 12 hours with Sony long-life battery size-D

Inputs: MIC (mini jack)
Maximum sensitivity: -72 dB (0.19 mV)
Impedance: 300 kΩ
LINE IN (mini jack)
Maximum sensitivity: -17 dB (0.1 V)
Impedance: 300 kΩ
MIXING MIC (mini jack)
Maximum sensitivity: -72 dB (0.19 mV)

Outputs: MONITOR (mini jack)
Normal level: 0 dB (0.775 V) with 10 kΩ load
Load impedance: 8 Ω or greater

Other Jacks: REMOTE jack
DC IN 12 V jack

RADIO SECTION

Circuit: Superheterodyne

Antennas: FM/SW: telescopic antenna (5 steps, 85 cm)
MW: ferrite-rod antenna (10 mm dia x 130 mm)

Frequency Ranges: FM: 87.5 - 108 MHz (3.43 - 2.78m)
MW: 530 - 1,605 kHz (566 - 187m)
SW: 3.9 - 12 MHz (77 - 25m)

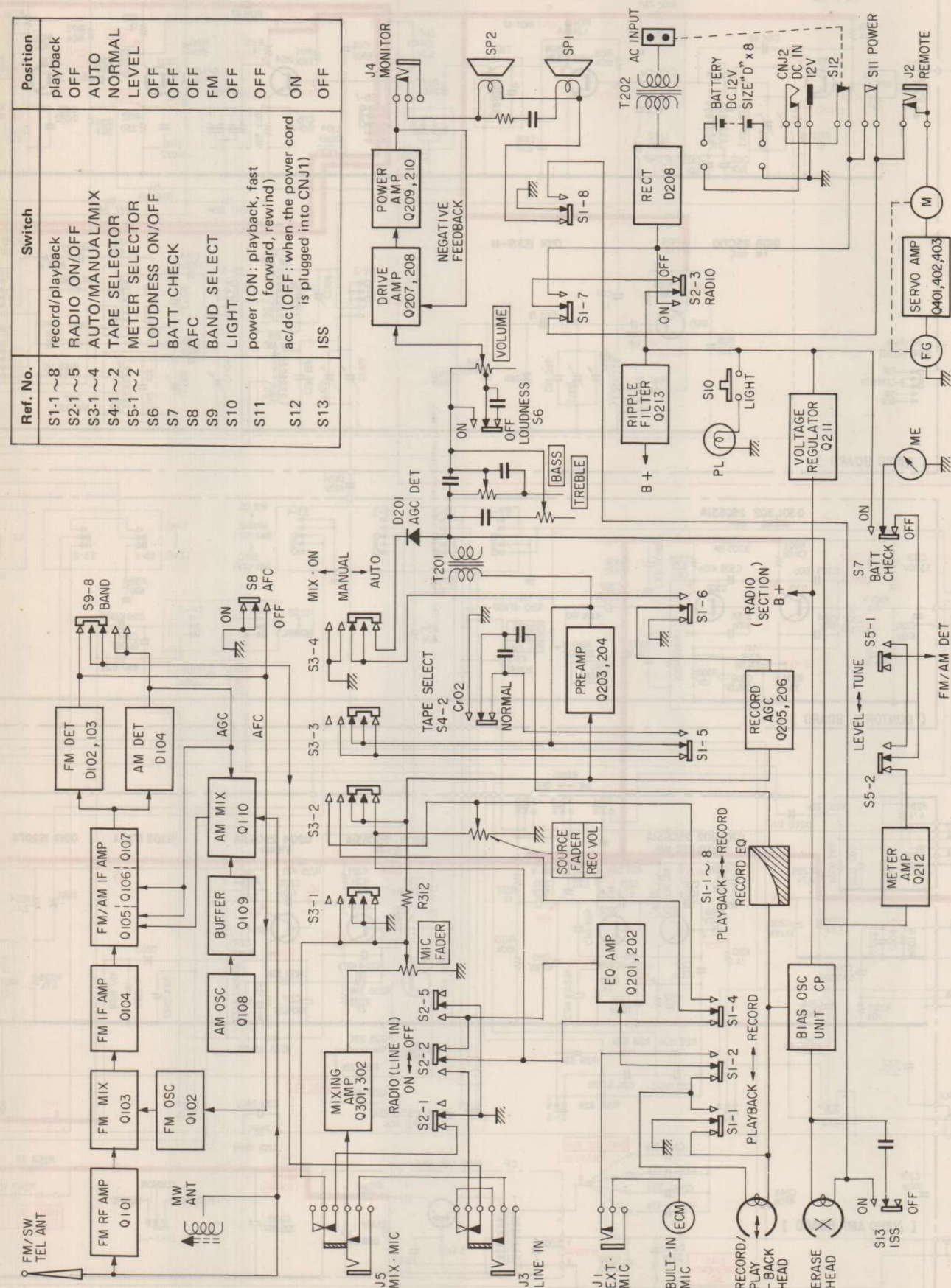
Intermediate Frequencies: FM: 10.7 MHz
MW/SW: 455 kHz

SONY

SERVICE MANUAL

1. BLOCK DIAGRAM

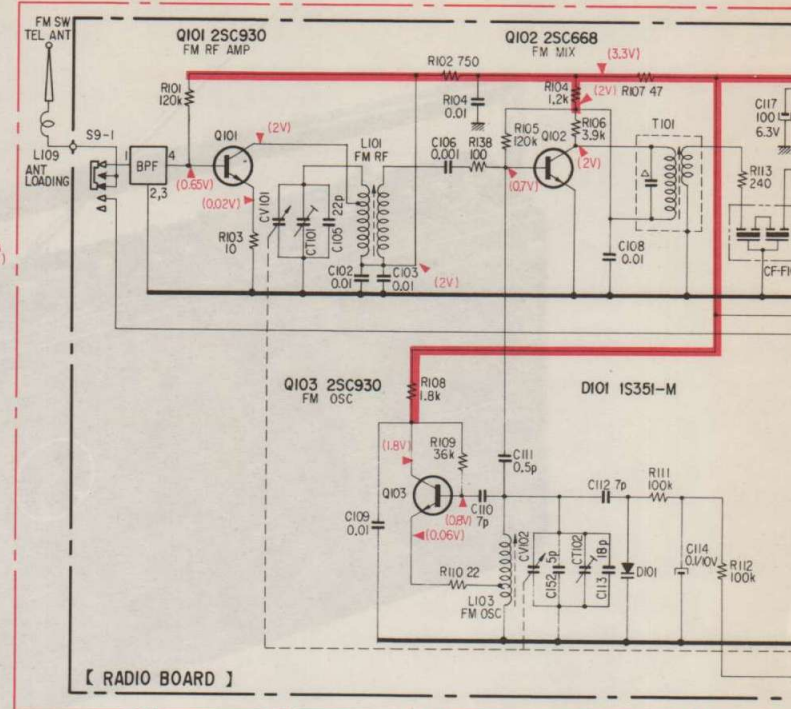
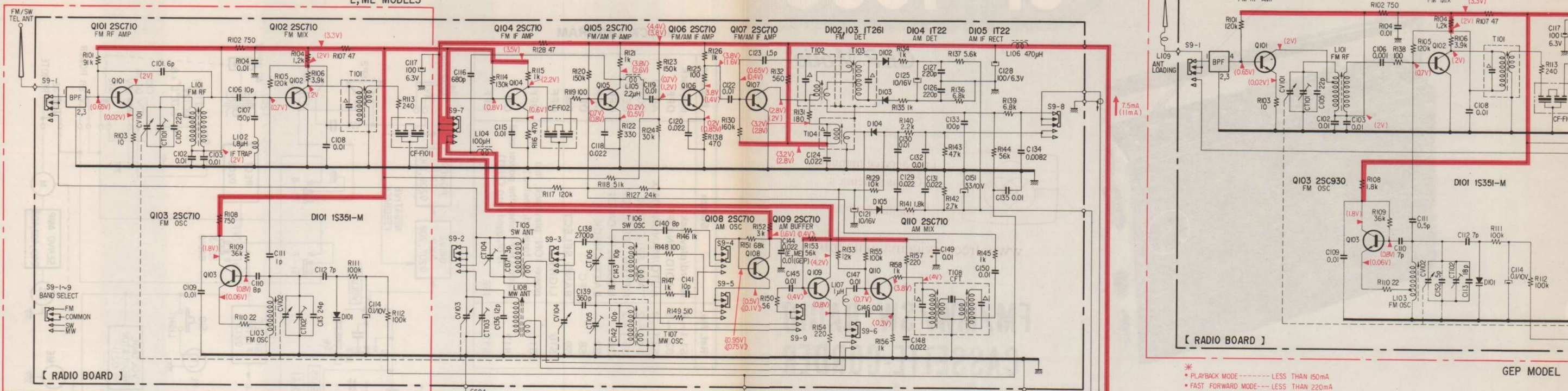
Ref. No.	Switch	Position
S1-1 ~ 8	record/playback	playback
S2-1 ~ 5	RADIO ON/OFF	OFF
S3-1 ~ 4	AUTO/MANUAL/MIX	AUTO
S4-1 ~ 2	TAPE SELECTOR	NORMAL
S5-1 ~ 2	METER SELECTOR	LEVEL
S6	LOUDNESS ON/OFF	OFF
S7	BATT CHECK	OFF
S8	AFC	OFF
S9	BAND SELECT	FM
S10	LIGHT	OFF
S11	power (ON: playback, fast forward, rewind)	OFF
S12	ac/dc (OFF: when the power cord is plugged into CNJ1)	OFF
S13	ISS	ON



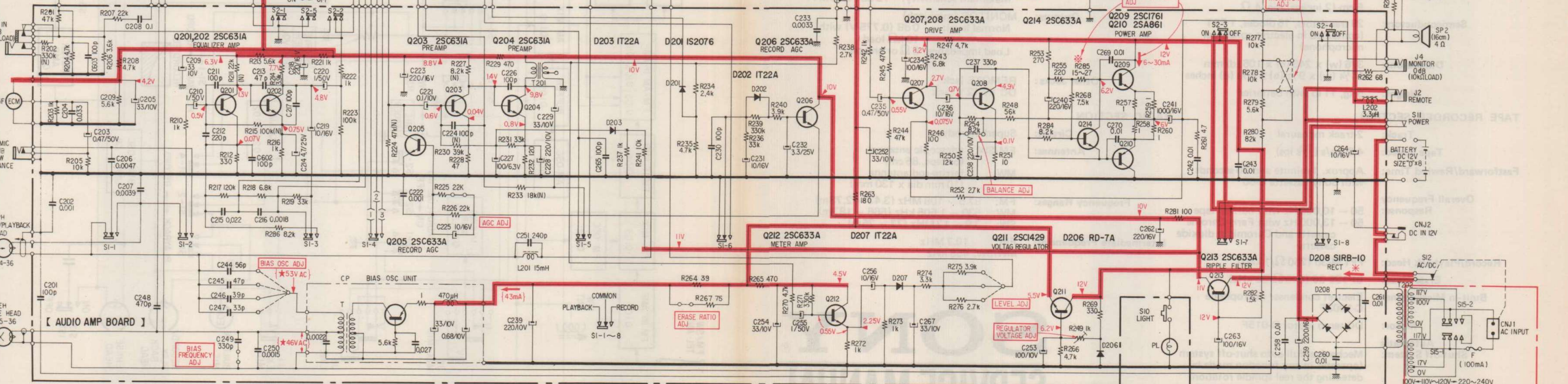
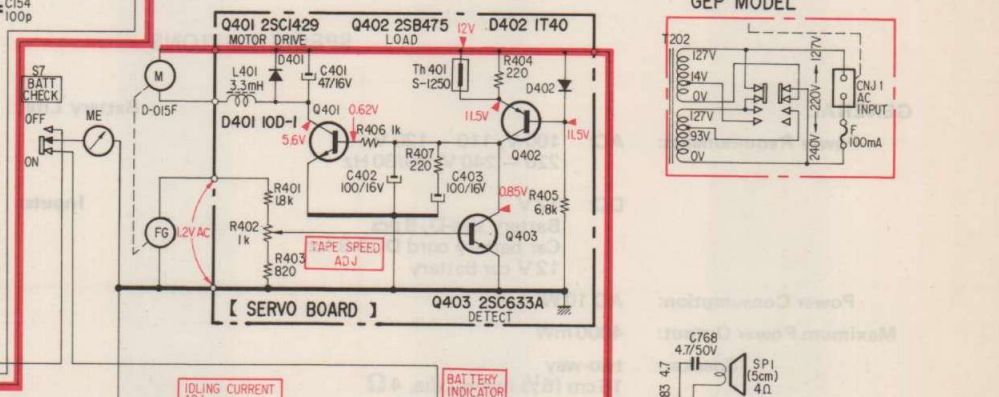
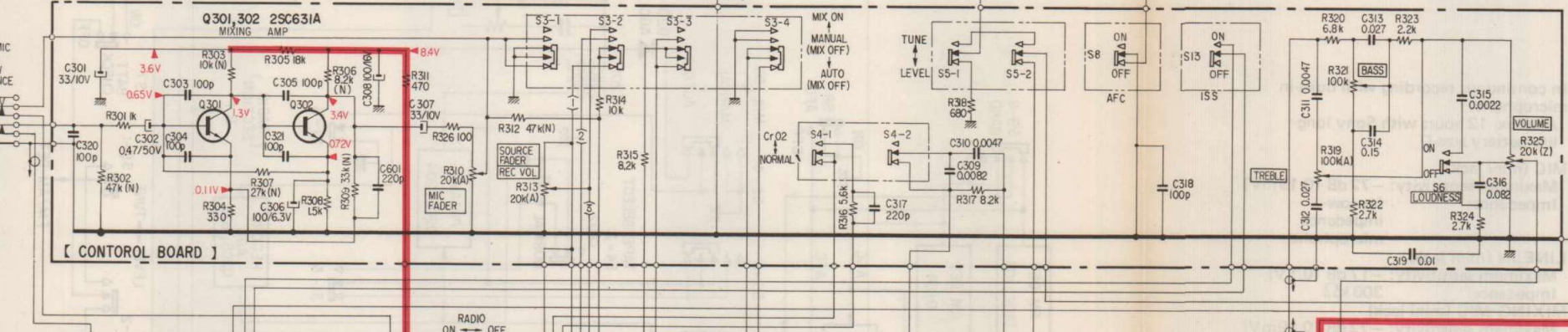
2. SCHEMATIC DIAGRAM

E, ME MODELS

GEP MODEL



- * PLAYBACK MODE ----- LESS THAN 150mA
- * FAST FORWARD MODE ----- LESS THAN 220mA
- * REWIND MODE ----- LESS THAN 200mA



E, ME MODELS


FM/MW/SW RADIO CASSETTE-CORDER

CF-480S

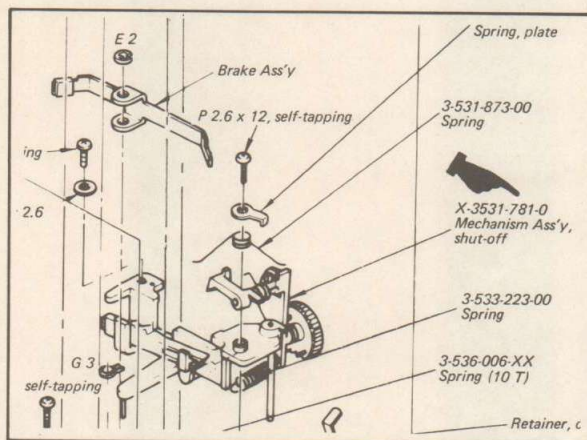
*E Model
ME Model
GEP Model
AUS Model*

CORRECTION

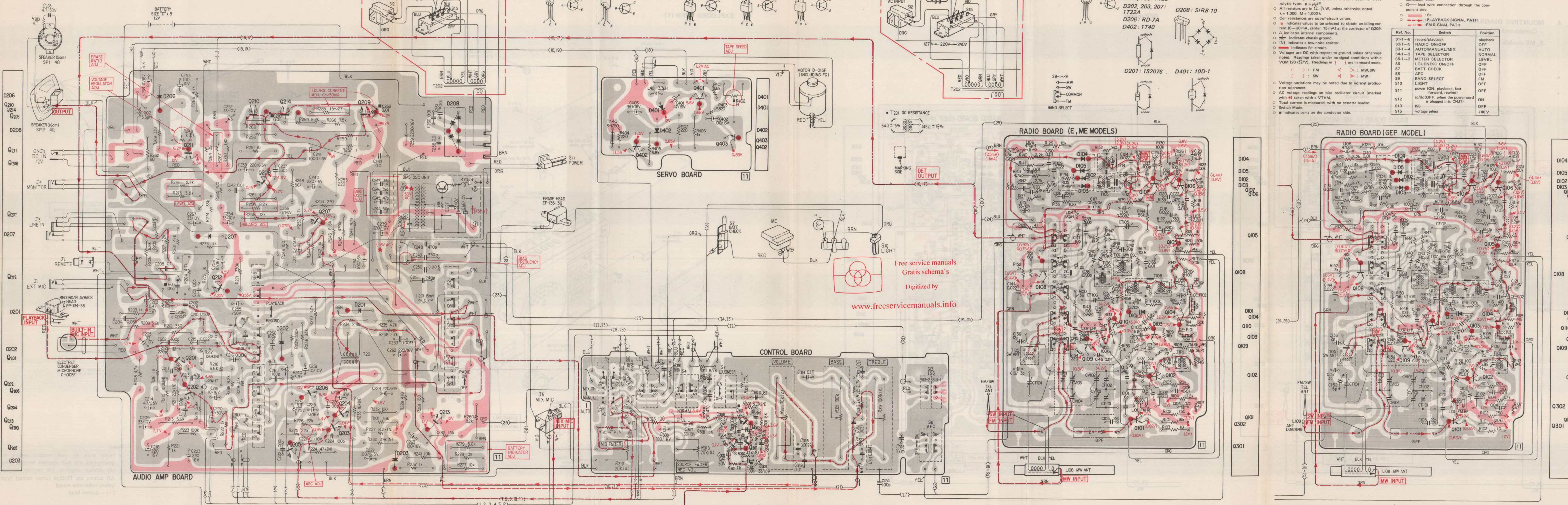
No. 2
October, 1976

 : corrected portion

On Page 46:

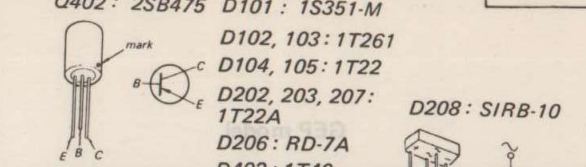
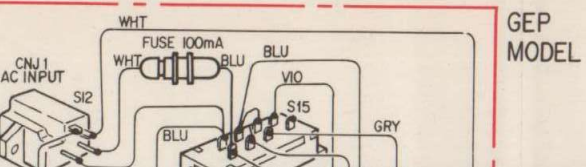
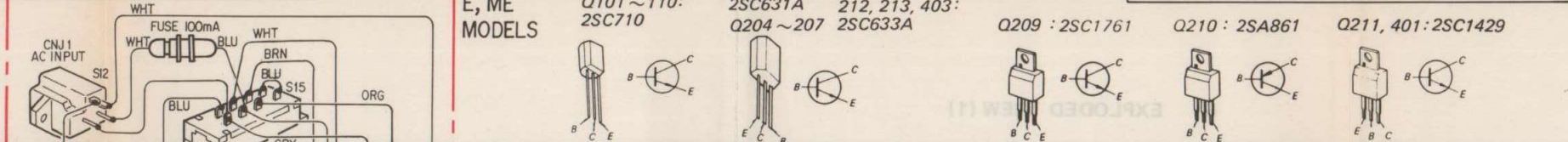


3. MOUNTING DIAGRAM - Conductor Side -



CF-480S CF-480S

CF-480S CF-480S



Note:

- All capacitors are in μF unless otherwise noted.
- 50 or less working volts are omitted except for electrolytic type. $p = \mu\text{F}$
- All resistors are in Ω , $\frac{1}{2}$ W, unless otherwise noted.
- k = 1,000, M = 1,000 k
- Coil resistances are out-of-circuit values.
- Indicates values to be selected to obtain an idling current (I_b = 30 mA, center: 15 mA) at the corrector of Q209.
- Indicates internal components.
- Indicates chassis ground.
- (N) indicates a low-noise resistor.
- Indicates B+ circuit.
- Notes are DC with respect to ground unless otherwise noted. Readings taken under no-signal conditions with a VOM (20 k Ω /V). Readings in () are in record mode.
- () : FM
- () : MW, SW
- () : SW
- Indicates parts on the conductor side.

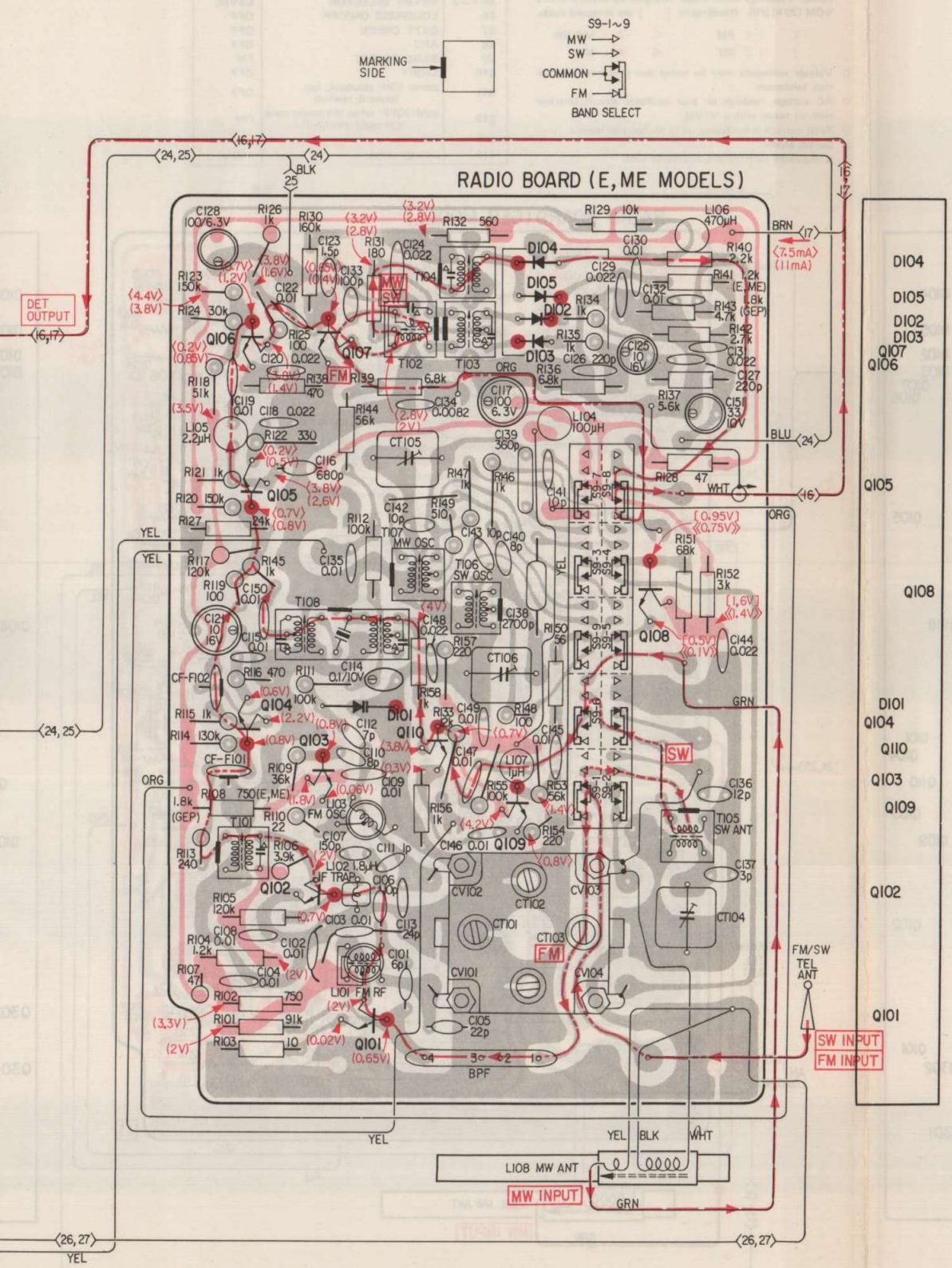
Legend:

- indicates lead wire connection on the conductor side.
- — lead wire connection through the component side.
- B+
- FM SIGNAL PATH
- FM SIGNAL PATH

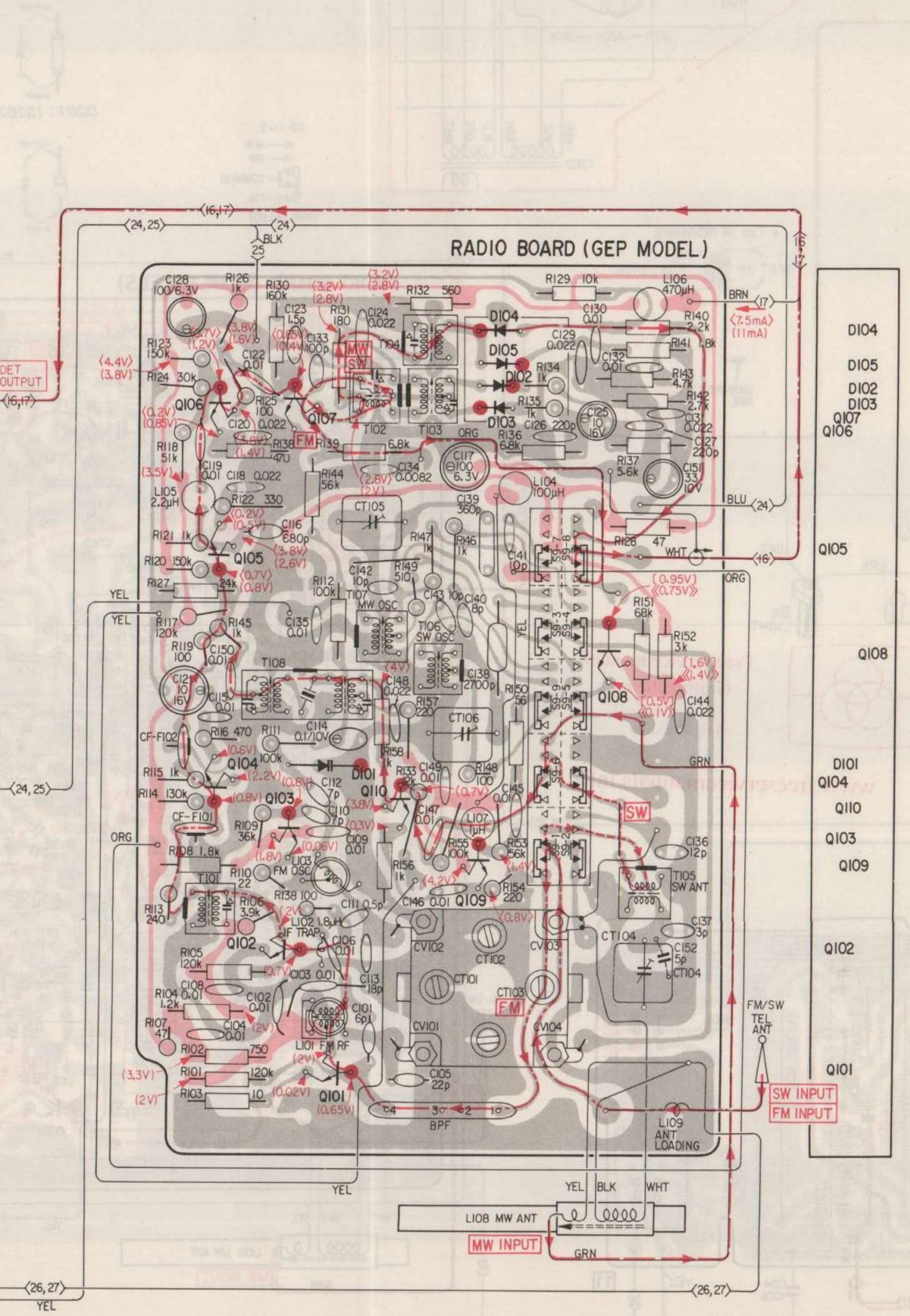
Ref. No.	Switch	Position
S1-1 ~ 8	record/playback	playback
S2-1 ~ 5	RADIO ON/OFF	OFF
S3-1 ~ 4	AUTO/MANUAL/MIX	AUTO
S4-1 ~ 2	TAPE SELECTOR	NORMAL
S5-1 ~ 2	METER SELECTOR	LEVEL
S6	LOUDNESS ON/OFF	OFF
S7	BATT CHECK	OFF
S8	AFC	OFF
S9	BAND SELECT	FM
S10	LIGHT	OFF
S11	power (ON: playback, fast forward, rewind)	OFF
S12	ac/dc (OFF: when the power cord is plugged into CNJ1)	ON
S13	ISS	OFF
S15	voltage select	100 V

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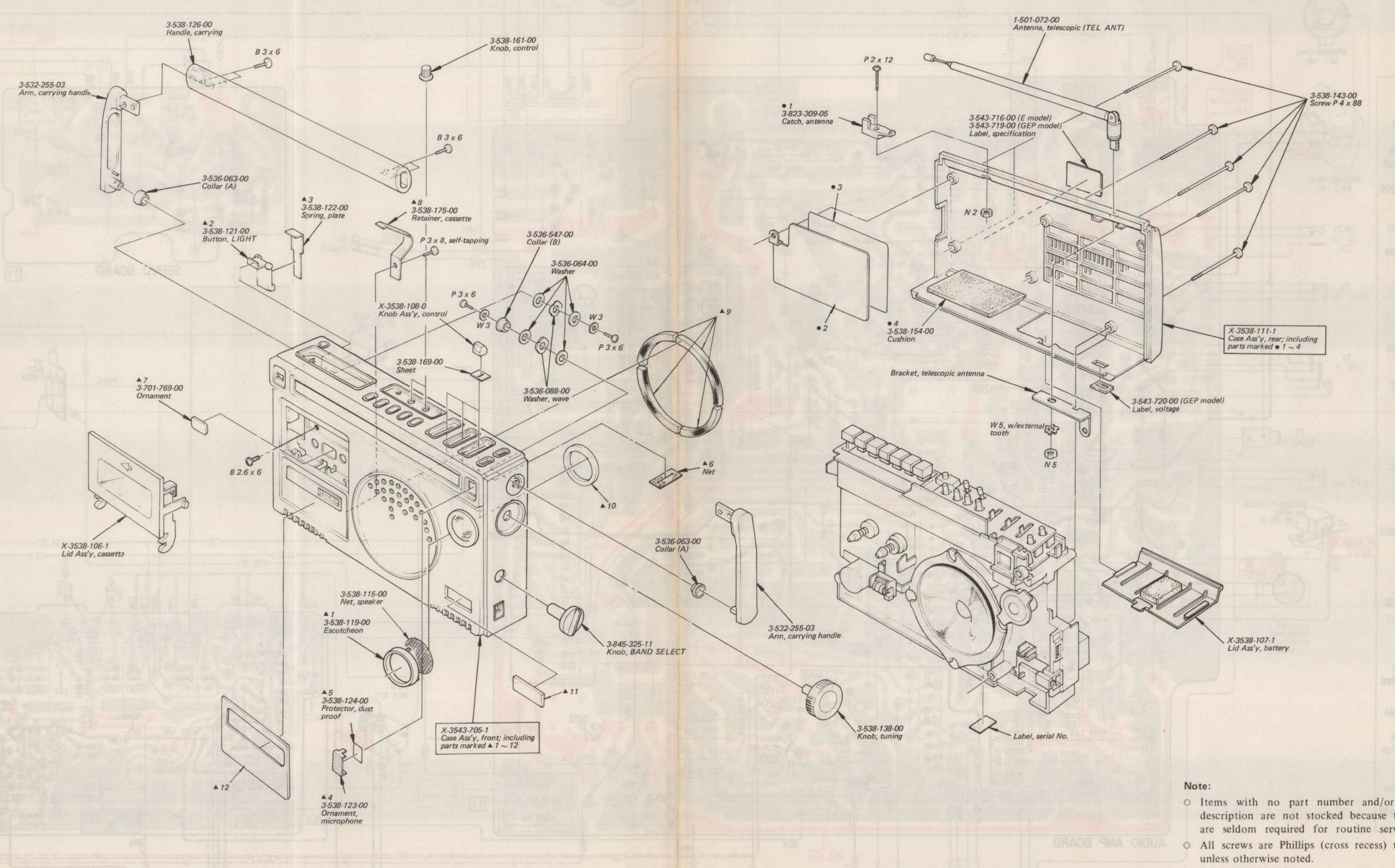
4. MOUNTING DIAGRAM - Radio Section - Component Side - E, ME models



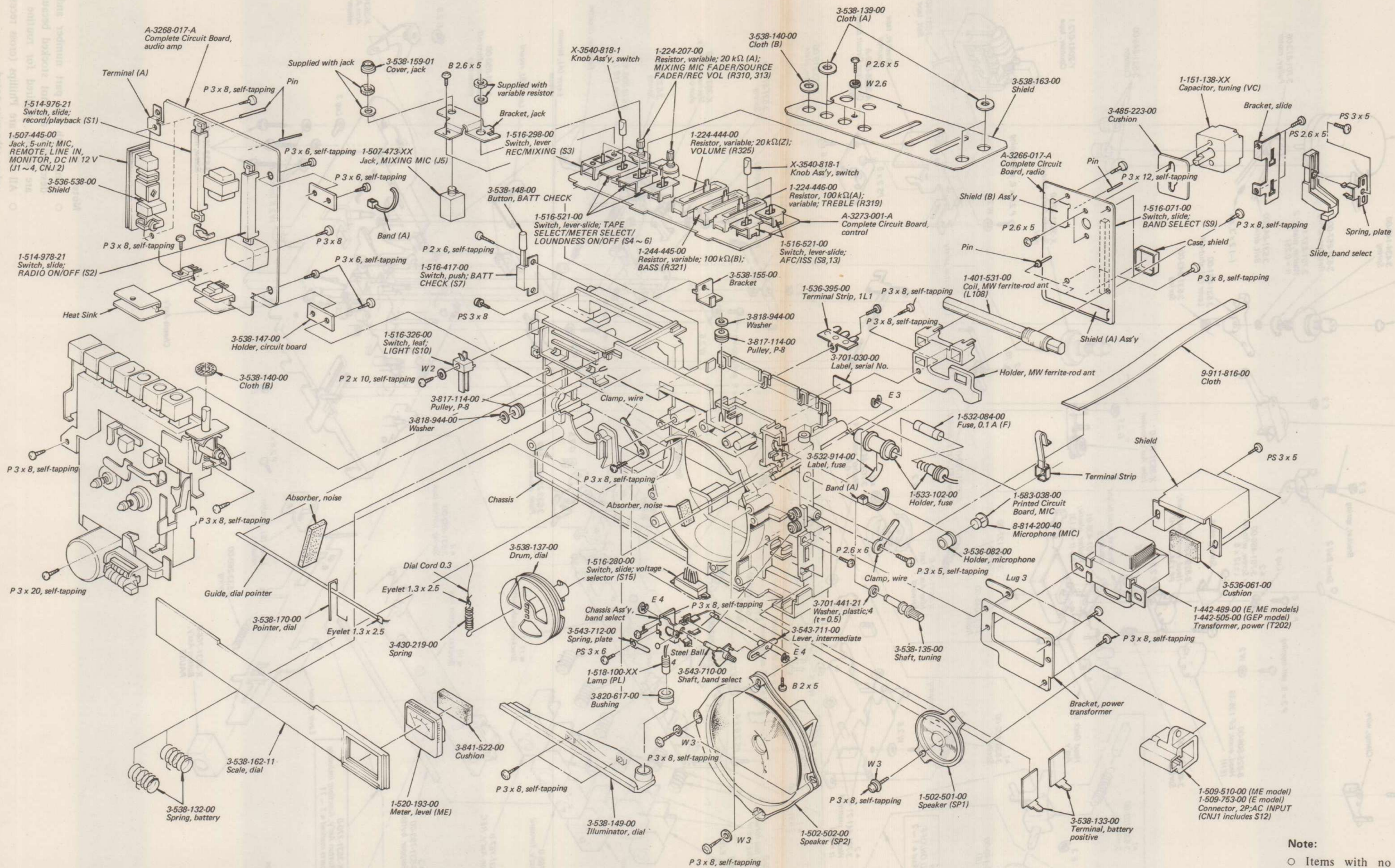
GEP model



5. EXPLODED VIEW (1)



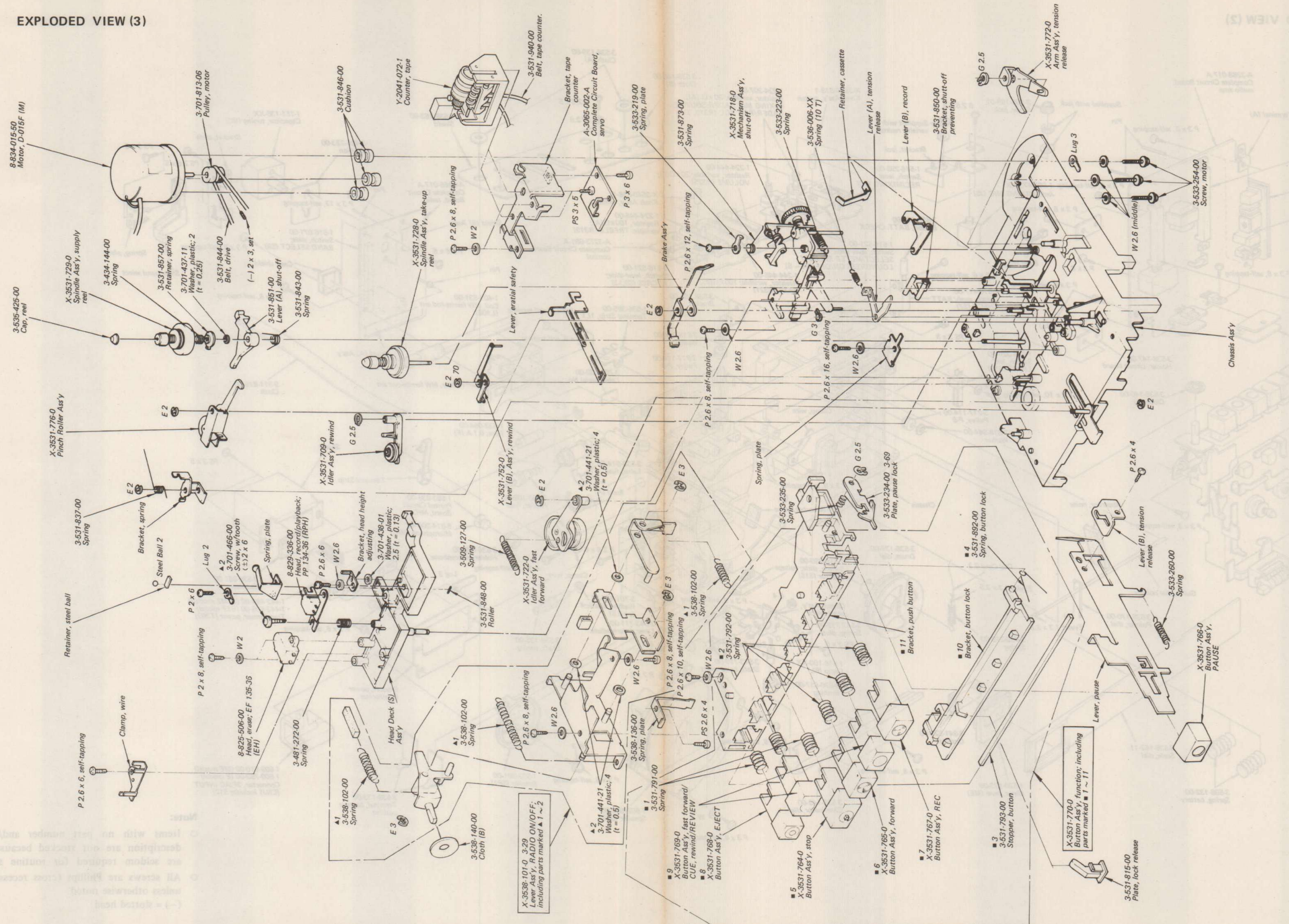
6. EXPLODED VIEW (2)



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head

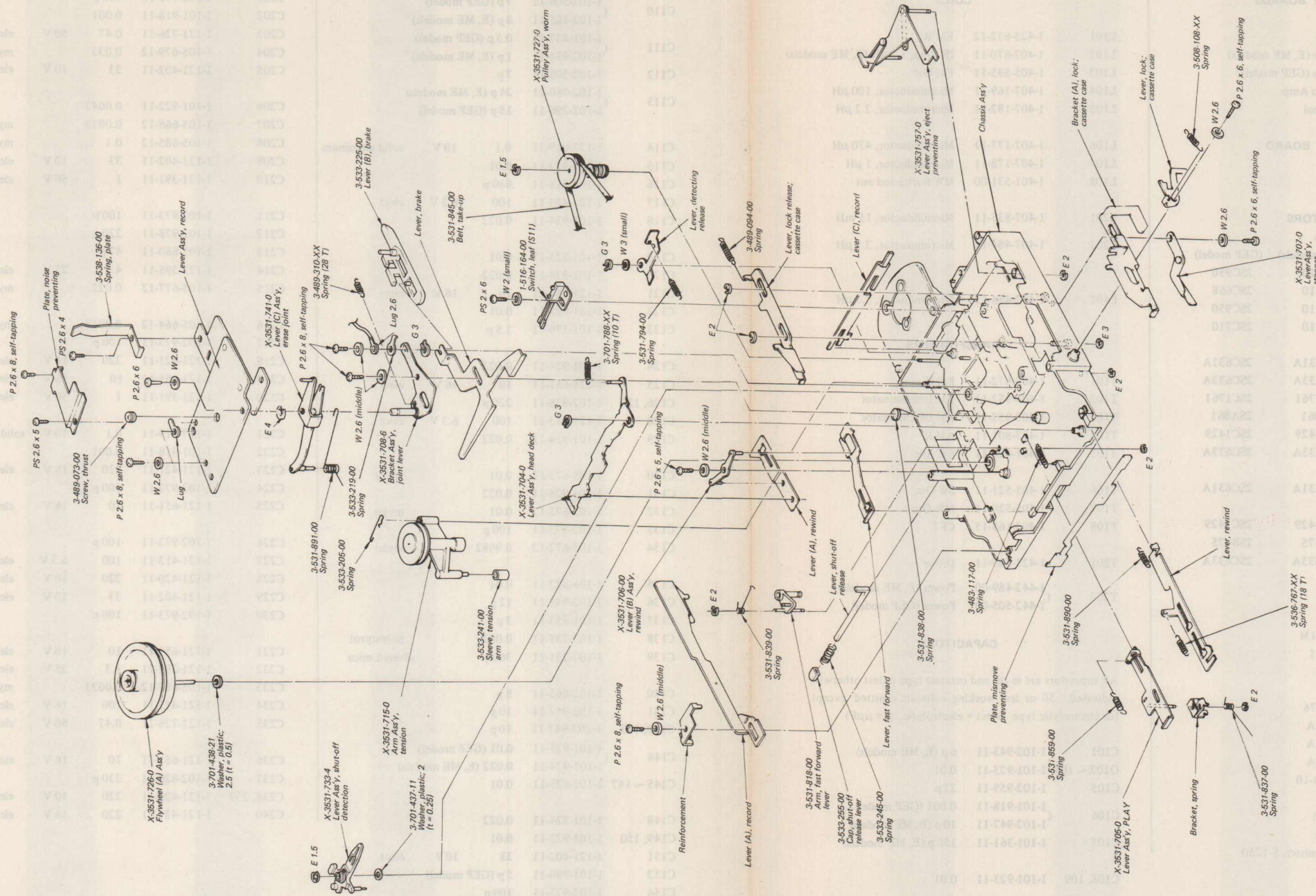
7. EXPLODED VIEW (3)



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (-) = slotted head
- (□□T) shows the number of coils in spring.

8. EXPLODED VIEW (4)



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
- (—) = slotted head
- (□□T) shows the number of coils in spring.

9. ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
----------	----------	-------------

COMPLETE CIRCUIT BOARDS

A-3065-002-A	Servo
A-3266-017-A	Radio (E, ME models)
A-3266-020-A	Radio (GEP model)
A-3268-017-A	Audio Amp
A-3273-001-A	Control

PRINTED CIRCUIT BOARD

1-583-038-00	MIC
--------------	-----

SEMICONDUCTORS

Transistors

(E, ME models) (GEP model)

Q101	2SC710	2SC930
Q102	2SC710	2SC668
Q103	2SC710	2SC930
Q104 ~ 110	2SC710	2SC710

Q201 ~ 204	2SC631A	2SC631A
Q205 ~ 208	2SC633A	2SC633A
Q209	2SC1761	2SC1761
Q210	2SA861	2SA861
Q211	2SC1429	2SC1429
Q212 ~ 214	2SC633A	2SC633A

Q301, 302	2SC631A	2SC631A
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Q401	2SC1429	2SC1429
Q402	2SB475	2SB475
Q403	2SC633A	2SC633A

Diodes

D101	1S351M
D102, 103	1T261
D104, 105	1T22

D201	1S2076
D202, 203	1T22A
D206	RD-7A
D207	1T22A
D208	S1RB-10

D401	10D-1	
D402	1T40	
Th401	1-800-199-11	Thermistor, S-1250

Ref. No.	Part No.	Description
----------	----------	-------------

COILS

L101	1-425-632-12	FM Rf
L102	1-407-670-11	IF Trap, 1.8 μ H (E, ME models)
L103	1-405-595-11	FM Osc
L104	1-407-169-11	Microinductor, 100 μ H
L105	1-407-182-11	Microinductor, 2.2 μ H

L106	1-407-177-11	Microinductor, 470 μ H
L107	1-407-178-11	Microinductor, 1 μ H
L108	1-401-531-00	MW ferrite-rod ant

L201	1-407-835-11	Microinductor, 15 mH
L202	1-407-484-11	Microinductor, 3.3 μ H

L401	1-407-484-11	Microinductor, 3.3 μ H
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TRANSFORMERS

T101	1-403-872-11	FM IF
T102	1-403-952-11	FM Discriminator
T103	1-403-953-11	FM Discriminator
T104	1-403-801-11	AM IF
T105	1-401-496-11	SW Ant

T106	1-405-521-11	SW Osc
T107	1-405-520-11	MW Osc
T108	1-403-165-15	CFT

T201	1-423-209-11	Driver
T202	1-442-489-00	Power (E, ME models)
	1-442-505-00	Power (GEP model)

CAPACITORS

All capacitors are in μ F and ceramic type unless otherwise indicated. 50 or less working volts are omitted except for electrolytic type. (elect = electrolytic, P = μ μ F)

C101	1-102-943-11	6 p (E, ME models)
Q102 ~ 104	1-101-923-11	0.01
C105	1-102-959-11	22 p
C106	1-101-918-11	0.001 (GEP model)
	1-102-947-11	10 p (E, ME models)
C107	1-101-361-11	150 p (E, ME models)

C108, 109	1-101-923-11	0.01
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Ref. No.	Part No.	Description
----------	----------	-------------

C110	1-102-506-11	7 p (GEP model)
	1-102-865-11	8 p (E, ME models)
C111	1-101-837-11	0.5 p (GEP model)
	1-102-934-11	1 p (E, ME models)
C112	1-102-506-11	7 p
C113	1-102-960-11	24 p (E, ME models)
	1-102-296-11	18 p (GEP model)

C114	1-127-019-11	0.1 10 V solid aluminum
C115	1-101-923-11	0.01
C116	1-102-116-11	680 p
C117	1-121-413-11	100 6.3 V elect
C118	1-101-924-11	0.022

C119	1-101-923-11	0.01
C120	1-101-924-11	0.022
C121	1-121-651-11	10 16 V elect
C122	1-101-923-11	0.01
C123	1-101-576-11	1.5 p

C124	1-101-924-11	0.022
C125	1-121-651-11	10 16 V elect
C126, 127	1-102-978-11	220 p
C128	1-121-413-11	100 6.3 V elect
C129	1-101-924-11	0.022

C130	1-105-673-12	0.01 mylar
C131	1-101-924-11	0.022
C132	1-105-673-12	0.01 mylar
C133	1-102-973-11	100 p
C134	1-105-672-12	0.0082 mylar

C135	1-101-923-11	0.01
C136	1-102-949-11	12 p
C137	1-101-953-11	3 p
C138	1-103-735-11	0.0027 polystyrol
C139	1-107-231-11	360 p silvered mica

C140	1-102-865-11	8 p
C141	1-102-947-11	10 p
C142, 143	1-102-947-11	10 p
C144	1-101-923-11	0.01 (GEP model)
	1-101-924-11	0.022 (E, ME models)
C145 ~ 147	1-101-923-11	0.01

C148	1-101-924-11	0.022
C149, 150	1-101-923-11	0.01
C151	1-121-402-11	33 10 V elect
C152	1-101-998-11	5 p (GEP model)
C154	1-102-973-11	100 p

Ref. No.	Part No.	Description
----------	----------	-------------

C201	1-102-973-11	100 p
C202	1-101-918-11	0.001
C203	1-121-726-11	0.47 50 V elect
C204	1-105-679-12	0.033 mylar
C205	1-121-402-11	33 10 V elect

C206	1-101-922-11	0.0047
C207	1-105-668-12	0.0039 mylar
C208	1-105-685-12	0.1 mylar
C209	1-121-402-11	33 10 V elect
C210	1-121-391-11	1 50 V elect

C211	1-102-973-11	100 p
C212	1-102-978-11	220 p
C213	1-101-880-11	47 p
C214	1-121-395-11	4.7 25 V elect
C215	1-105-677-12	0.022 mylar

C216	1-105-664-12	0.0018 mylar
C217	1-102-973-11	100 p
C218	1-121-421-11	220 16 V elect
C219	1-121-651-11	10 16 V elect
C220	1-121-391-11	1 50 V elect

C221	1-127-019-11	0.1 10 V solid aluminum
C222	1-101-918-11	0.001
C223	1-121-421-11	220 16 V elect
C224	1-102-973-11	100 p
C225	1-121-651-11	10 16 V elect

C226	1-102-973-11	100 p
C227	1-121-413-11	100 6.3 V elect
C228	1-121-420-11	220 10 V elect
C229	1-121-402-11	33 10 V elect
C230	1-102-973-11	100 p

C231	1-121-651-11	10 16 V elect
C232	1-121-392-11	3.3 25 V elect
C233	1-105-667-12	0.0033 mylar
C234	1-121-415-11	100 16 V elect
C235	1-121-726-11	0.47 50 V elect

C236	1-121-651-11	10 16 V elect
C237	1-102-820-11	330 p
C238, 239	1-121-420-11	220 10 V elect
C240	1-121-421-11	220 16 V elect

Ref. No.	Part No.	Description
C241	1-121-245-11	1000 16 V elect
C242	1-105-673-12	0.01 mylar
C243	1-101-004-11	0.01
C244	1-107-056-11	56 p silvered mica
C245	1-107-015-11	47 p silvered mica
C246	1-107-055-11	39 p silvered mica
C247	1-107-054-11	33 P silvered mica
C248	1-107-016-11	470 p silvered mica
C249	1-107-006-11	330 p silvered mica
C250	1-129-704-11	0.0015 silvered mica
C251	1-107-178-11	240 p silvered mica
C252	1-121-402-11	33 10 V elect
C253	1-121-414-11	100 10 V elect
C254	1-121-402-11	33 10 V elect
C255	1-121-391-11	1 50 V elect
C256	1-121-651-11	10 16 V elect
C258	1-101-004-11	0.01
C259	1-121-660-11	2200 16 V elect
C260, 261	1-101-004-11	0.01
C262	1-121-421-11	220 16 V elect
C263	1-121-415-11	100 16 V elect
C264	1-121-651-11	10 16 V elect
C265	1-102-973-11	100 p
C267	1-121-402-11	33 10 V elect
C268	1-119-427-11	4.7 50 V elect
C269, 270	1-101-004-11	0.01
C301	1-121-402-11	33 10 V elect
C302	1-121-726-11	0.47 50 V elect
C303 ~ 305	1-102-973-11	100 p
C306	1-121-413-11	100 6.3 V elect
C307	1-121-402-11	33 10 V elect
C308	1-121-415-11	100 16 V elect
C309	1-105-672-12	0.0082 mylar
C310, 311	1-105-669-12	0.0047 mylar
C312, 313	1-105-678-12	0.027 mylar
C314	1-105-687-12	0.15 mylar
C315	1-105-665-12	0.0022 mylar
C316	1-105-684-12	0.082 mylar

Ref. No.	Part No.	Description
C317	1-102-978-11	220 p
C318	1-102-973-11	100 p
C319	1-101-004-11	0.01
C320, 321	1-102-973-11	100 p
C401	1-121-409-11	47 16 V elect
C402	1-121-415-11	100 16 V elect
C403	1-121-426-11	470 16 V elect
C601	1-102-978-11	220 p
C602 ~ 604	1-102-973-11	100 p
CV101~104	1-151-239-11	Tuning
CT101~103		
CT104~106	1-141-138-XX	Trimmer
RESISTORS		
All resistors are in ohms. Regular-type ¼ W carbon and composition resistors are omitted. Check the schematic diagram for the resistance values. k = 1,000 M = 1,000 k		
R202	1-244-733-09	330 k low noise
R211	1-244-705-09	22 k low noise
R215	1-244-721-09	100 k low noise
R224	1-224-713-09	47 k low noise
R227	1-244-695-09	8.2 k low noise
R230	1-244-711-09	39 k low noise
R233	1-244-703-09	18 k low noise
R249	1-222-771-11	1k (B) adjustable
R283	1-244-817-11	4.7 ½ w
R302	1-242-713-09	47 k low noise
R303	1-242-697-09	10 k low noise
R306	1-242-695-09	8.2 k low noise
R307	1-242-707-09	27 k low noise
R309	1-242-709-09	33 k low noise
R310	1-224-207-00	20 k (A), variable; MIXING MIC FADER
R312	1-244-713-09	47 k low noise
R313	1-224-207-00	20 k (A), variable; SOURCE FADER/ REC VOL
R319	1-224-446-00	100 k (A), variable; TREBLE
R321	1-224-445-00	100 k (B), variable; BASS

Ref. No.	Part No.	Description
R325	1-224-444-00	20 k (Z), variable; VOLUME
R402	1-222-771-11	1 k (B), adjustable
SWITCHES		
S1	1-514-976-21	Slide; record/playback
S2	1-514-978-21	Slide; RADIO ON/OFF
S3	1-516-298-00	Lever-slide; REC/MIXING
S4 ~ 6	1-516-521-00	Lever-slide; TAPE SELECT/METER SELECT/LOUDNESS ON/OFF
S7	1-516-417-00	Push; BATT CHECK
S8	1-516-521-00	Lever-slide; AFC
S9	1-516-071-00	Slide; band select
S10	1-516-326-00	Leaf; LIGHT
S11	1-516-164-00	Leaf
S12		Included in connector (CNJ1)
S13	1-516-521-00	Lever-slide; ISS
S15	1-516-280-00	Slide, voltage select

Ref. No.	Part No.	Description
MISCELLANEOUS		
BPF	1-231-286-11	Filter, bandpass
CF-F101, F102	1-527-184-11 ~15	Filter, ceramic; 10.7 MHz

Ref. No.	Part No.	Description
CNJ1	1-509-510-00	Connector, 2P; AC INPUT (includes S12) (ME model)
	1-509-753-00	Connector, 2P; AC INPUT (includes S12) (GEP, ME models)
CP	1-464-025-11	Bias Osc Unit
EH	8-825-506-00	Head, erase; EF 135-36
F	1-532-084-00	Fuse, 0.1 A
CNJ2 J1 ~ 4	1-507-445-00	Jack, 5-unit; MIC, REMOTE, LINE IN, MONITOR, DC IN 12 V
J5	1-507-473-XX	Jack, mini; MIXING MIC
M	8-834-015-50	Motor; D-015F
ME	1-520-193-00	Meter; BATT/LEVEL/TUNE
MIC	8-814-200-40	Microphone, electret condenser; C-1003F
PL	1-518-100-XX	Lamp, 12 V 100 mA
RPH	8-829-336-00	Head, record/playback; PP134-36
SP1	1-502-501-00	Speaker, 4Ω
SP2	1-502-502-00	Speaker, 4Ω
TEL ANT	1-501-072-00	Antenna, telescopic
	1-533-102-00	Holder, fuse
	1-536-395-00	Terminal Strip, 1L1

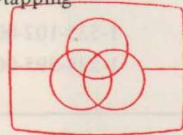
ACCESSORIES & PACKING MATERIALS

Part No.	Description
X-0436-015-00	Manual, instruction (ME model)
X-3701-018-2	Tip Ass'y, head cleaning
1-504-034-12	Earphone, ME-20
1-528-022-00	Battery, size D (E model)
1-534-830-00	Cord, power; DK-33 (E model)
1-534-840-00	Cord, power; DK-38 (GEP and ME models)
3-502-312-00	Label, caution
3-532-616-00	Bag, plastic
3-538-173-00	Cushion (R)
3-538-174-00	Cushion (L)
3-543-717-00	Carton
3-701-363-00	Label, tack
3-701-632-00	Bag, plastic
3-701-683-00	Card, voltage
3-780-771-11	Manual, instruction (GEP and ME models)
3-780-771-51	Manual, instruction (E model)
3-793-010-20	Booklet, tape talk
3-793-408-11	Leaflet
3-793-455-21	Tag, caution
8-893-506-00	Tape, demonstration

10. HARDWARE

Part No.	Description
SCREWS	
All screws are Phillips (cross recess head) type unless otherwise indicated.	
7-621-255-72	P 2 x 12
7-621-259-35	P 2.6 x 5
7-621-259-43	P 2.6 x 6
7-621-770-67	B 2.6 x 6
7-621-770-87	B 2.6 x 5
7-621-771-18	B 2 x 5
7-628-253-92	PS 2.6 x 4
7-628-254-05	PS 2.6 x 5
7-682-147-01	P 3 x 6
7-682-547-04	B 3 x 6
7-682-646-01	PS 3 x 5
7-682-647-01	PS 3 x 6
7-685-104-21	P 2 x 6, self-tapping
7-685-134-21	P 2.6 x 8, self-tapping
7-685-145-21	P 3 x 6, self-tapping
7-685-146-21	P 3 x 8, self-tapping
7-685-148-21	P 3 x 12, self-tapping

Part No.	Description
7-687-206-21	P 2 x 10, self-tapping
7-687-246-21	PTPWH 3 x 8
WASHERS	
7-623-107-12	2.6
7-623-108-12	3
7-623-412-02	5
RETAINING RINGS	
7-624-106-00	E 3
7-624-108-01	E 4
NUTS	
7-684-012-01	2
7-684-025-01	5
MISCELLANEOUS	
7-623-605-01	Eyelet 1.3 x 2.5
7-633-120-32	Dial Cord 0.3
7-671-114-01	Steel Ball 4



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When ordering replacement parts, use PART NUMBERS listed in Parts List or shown in EXPLODED VIEW. Parts List reference numbers should not be used.

Hardware Nomenclature

P - Pan Head Screw		SC - Set Screw	
PS - Pan Head Screw with Spring Washer		E - Retaining Ring (E Washer)	
K - Flat Countersunk Head Screw		W - Washer	
B - Binding Head Screw		SW - Spring Washer	
RK - Oval Countersunk Head Screw		LW - Lock Washer	
T - Truss Head Screw		N - Nut	
R - Round Head Screw		- Example -	
F - Flat Fillister Head Screw			

Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description	Ref. No.
7-687-206-21	P 2 x 10, self-tapping	R212	7-687-246-21	PTPWH 3 x 8	R402	7-623-107-12	2.6	21	7-623-108-12	3	21
7-623-412-02	5	22	7-624-106-00	E 3	27	7-624-108-01	E 4	28	7-684-012-01	2	211
7-684-025-01	5	212	7-623-605-01	Eyelet 1.3 x 2.5	213	7-633-120-32	Dial Cord 0.3	214	7-671-114-01	Steel Ball 4	215