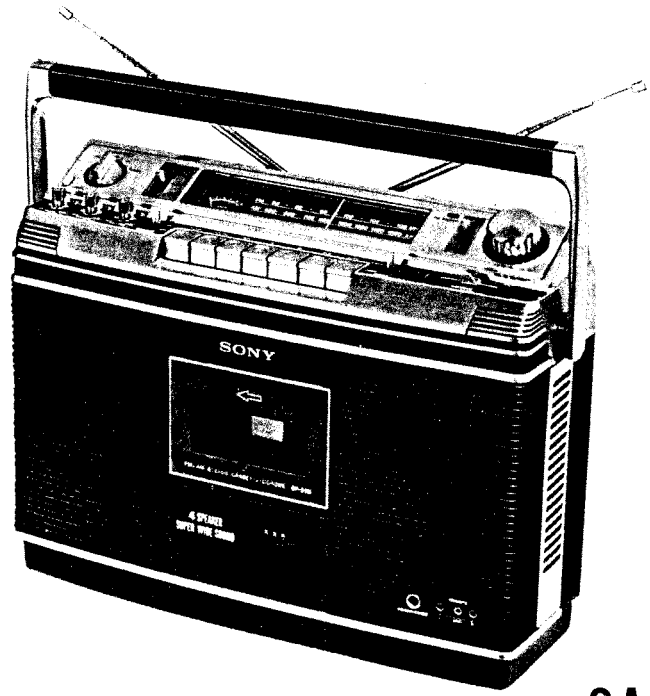
CF-580

E Model
UK Model
AEP Model
US Model
Canadian Model



FM/AM STEREO CASSETTE-CORDER

SPECIFICATIONS

GENERAL

Power Requirements: 100–110, 115–127, 200–220 or 230–250 V ac, 50/60 Hz (E model)
110, 127, 220 or 240 V ac, 50/60 Hz (AEP model)
240 V ac, 50 Hz (UK model)
120 V ac, 60 Hz (US, Canadian model)
12 V dc, eight batteries size "D" (IEC Designation R20), or 12 V car battery with Sony Car Battery Cord DCC-9

Power Consumption: 11W ac (E, UK model)
12W ac (US, Canadian model)
13W ac (AEP model)

Power Output: 5.8W (2.9W x 2) max. (E, AEP, Canadian model)
4.6W (2.3W x 2) max. (UK model)
2W (1W x 2) max. (US model)

Speakers: two 8 x 12 cm (3 x 5 inches)
two 10 x 15 cm (4 x 6 inches)

Battery Life: Approx. 10 hours (E, UK, AEP model)
Approx. 14 hours (US, Canadian model)
continuous recording from the Built-in Microphones with Sony Long-life Batteries size "D"

Dimensions: Approx. 390 (w) x 303 (h) x 143 (d) mm
$15\frac{3}{8}$ (w) x 12 (h) x $5\frac{5}{8}$ (d) inches
including projecting parts and controls not including handle

Weight: Approx. 7.9 kg, 17 lb 7 oz
including batteries

RADIO SECTION

Frequency Range: FM 87.5–108 MHz
AM 530–1,605 kHz

Antennas: FM: Two telescopic antennas
AM: Built-in ferrite-rod antenna

TAPE RECORDER SECTION

Recording System: 4-track 2-channel stereo or monaural

Fast Winding Time: Approx. 90 sec. with Sony Cassette C-60

Frequency Response: 40–10,000 Hz (E, AEP, US, Canadian model)
50–10,000 Hz (UK model)
(with standard cassette, with the TAPE SELECT switch set to NORMAL)
40–13,000 Hz (E, AEP, US, Canadian model)
50–12,000 Hz (UK model)
(with chromium dioxide cassette with the TAPE SELECT switch set to CrO_2, or with Sony Ferri-Chrome cassette with the TAPE SELECT switch set to Fe-Cr)

S/N Ratio: 45 dB

Total Harmonic Distortion: 2.5%

Wow and Flutter: 0.19% (WRMS) (E, AEP, US, canadian model)
0.25% (WRMS) (UK model)

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®
SERVICE MANUAL

6/78

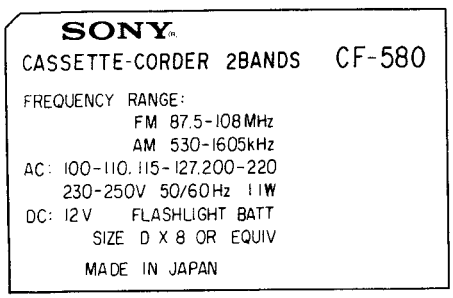
Inputs: MIC ..... 2 (minijack)
sensitivity 0.2 mV (-72 dB)
for low impedance microphone
LINE IN ..... 2 (phono jack)
sensitivity 0.14 V (-15 dB)
input impedance 100 kilohms
PHONO ..... 2 (phono jack)
sensitivity 1.5 mV (-54 dB)
input impedance 47 kilohms

Outputs: LINE OUT ..... 2 (phono jack)
rated output 0.44 V (-5 dB) at load impedance 100 kilohms, load impedance 10 kilohms or higher
EXT SP ..... 2 (minijack)
for 4-ohm or 8-ohm impedance speakers
HEADPHONES ..... 1 (stereo binaural jack)
for 8-ohm impedance headphones

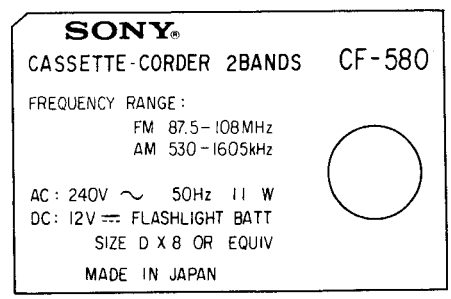
Other Jacks: Remote control jack 1
Record/Playback connector ..... 1 (E, UK, AEP model)

IDENTIFICATION OF SET

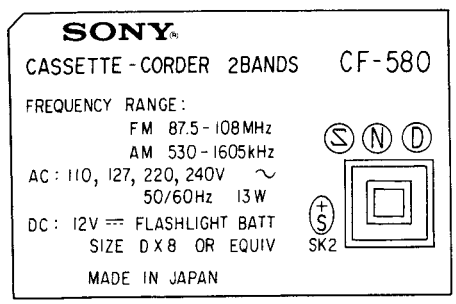
E model



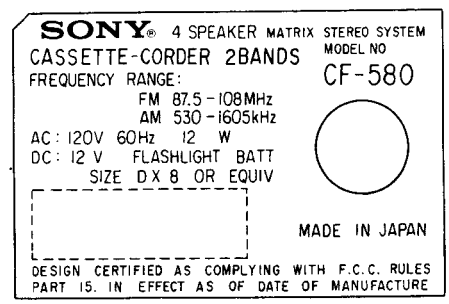
UK model



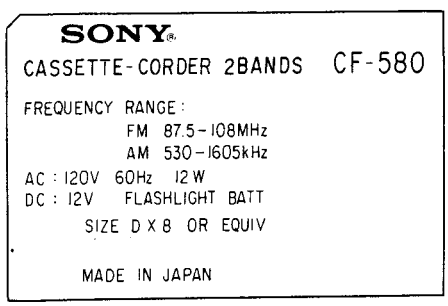
AEP model



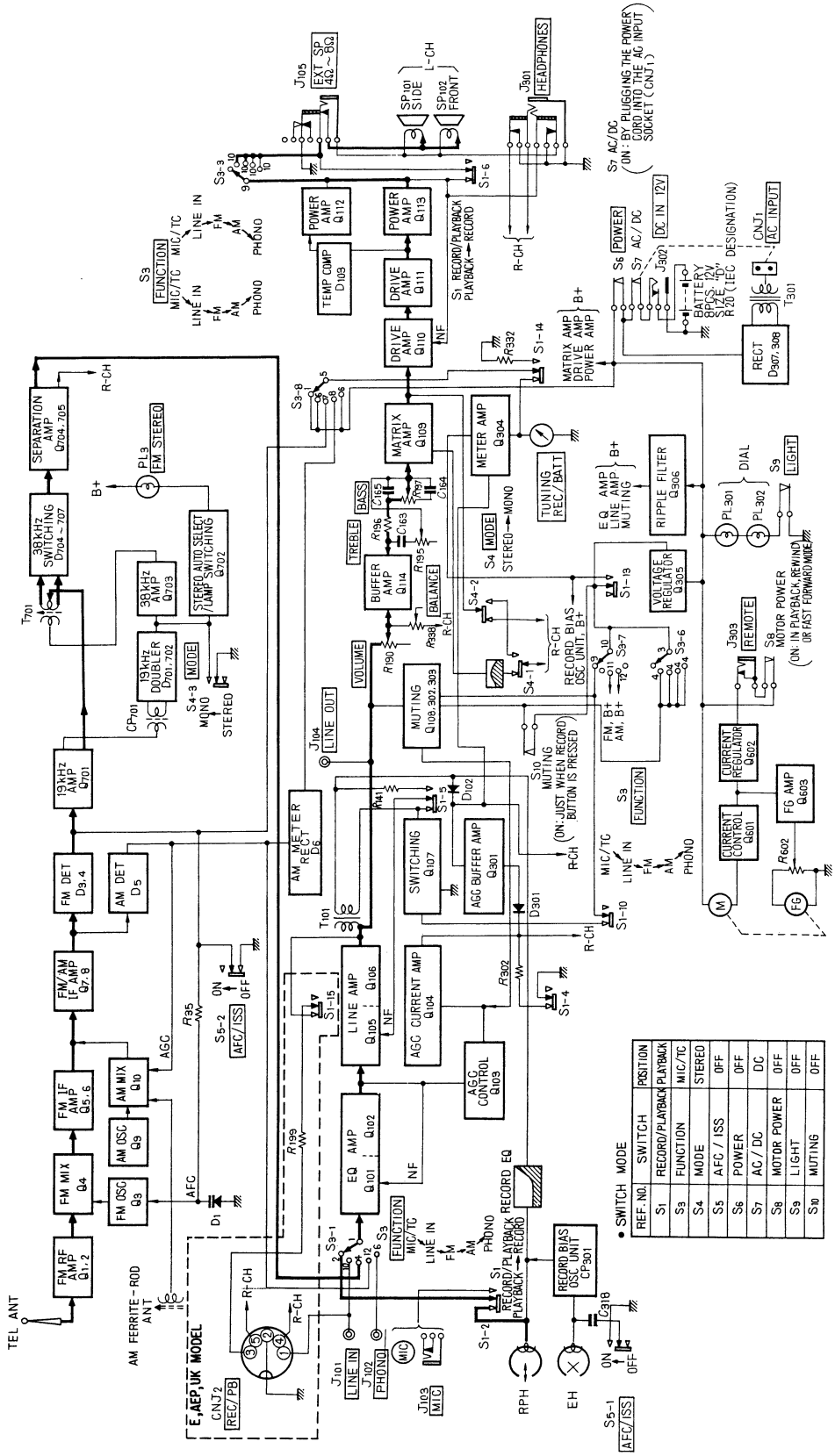
US model



Canadian model



SECTION 1
BLOCK DIAGRAM



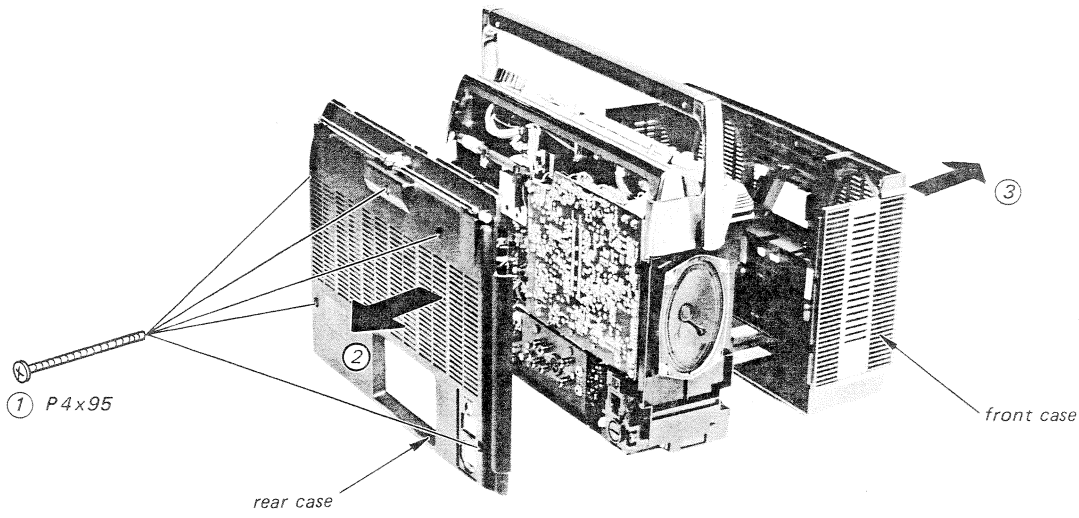
• SWITCH MODE

REF. NO.	SWITCH	POSITION
S1	RECORD/PLAYBACK	PLAYBACK
S3	FUNCTION	MIC/TC
S4	MODE	STEREO
S5	AFC / ISS	OFF
S6	POWER	OFF
S7	AC / DC	DC
S8	MOTOR POWER	OFF
S9	LIGHT	OFF
S10	MUTING	OFF

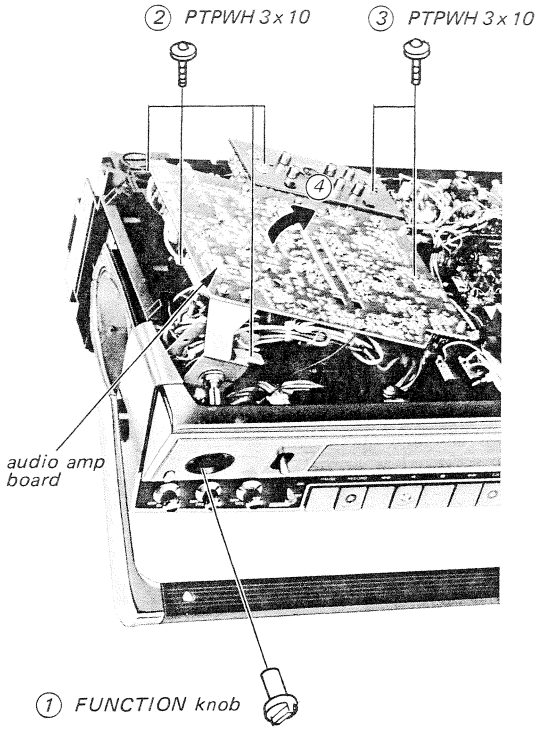
SECTION 2
DISASSEMBLY

2-1. REMOVALS

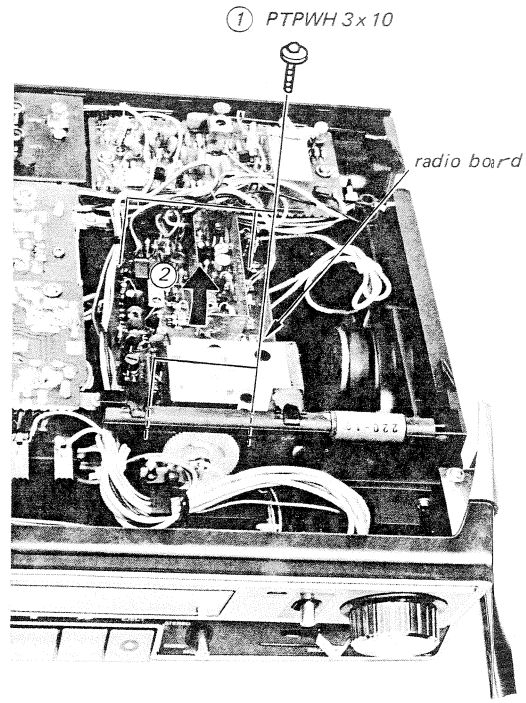
Front and Rear Cases



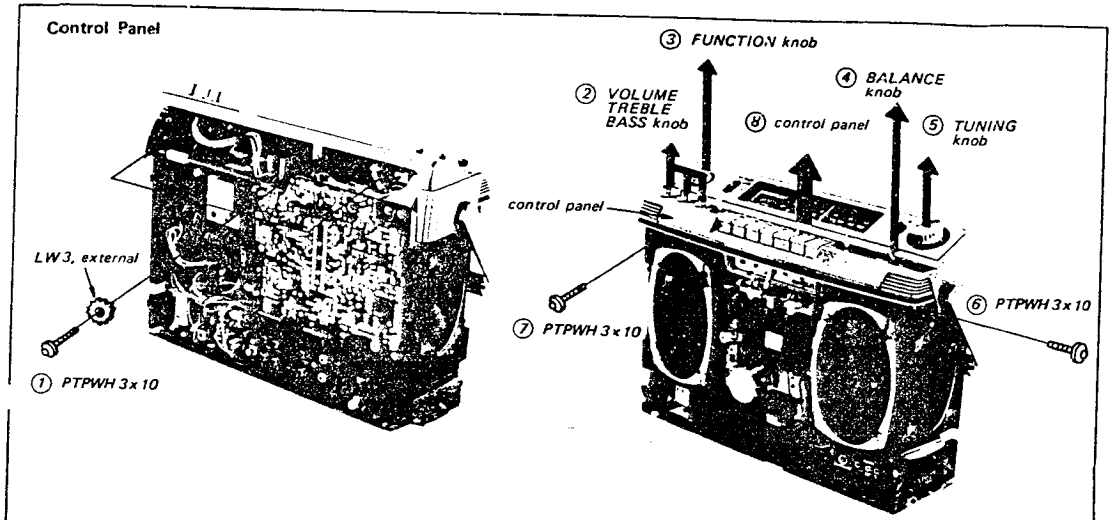
Audio Amp Board



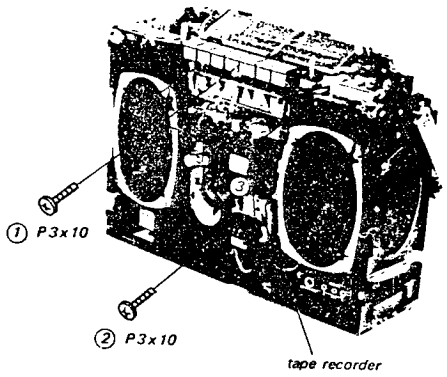
Radio Board



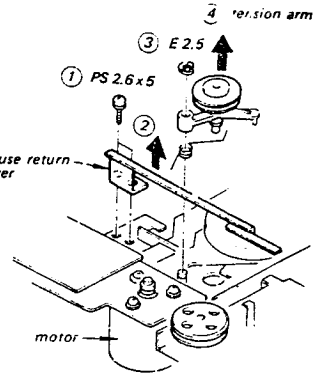
Control Panel



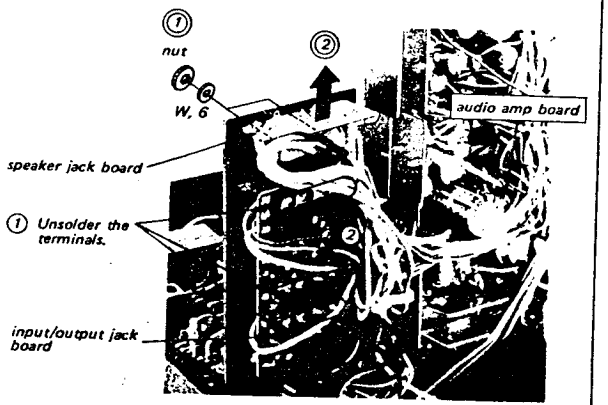
Tape Recorder



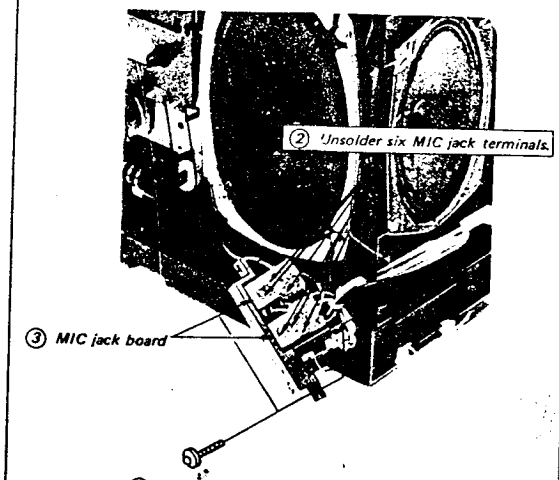
Tension Arm



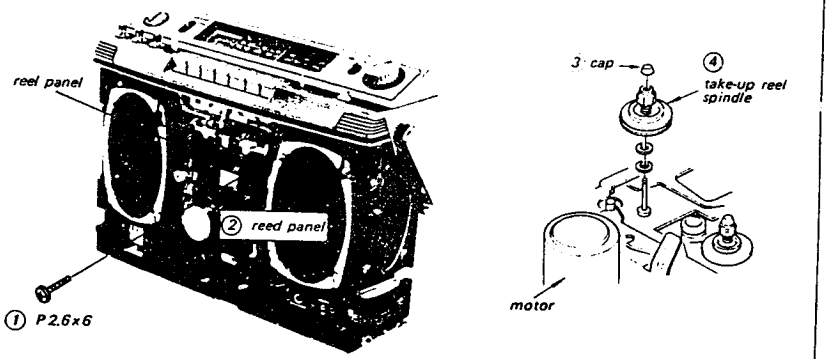
Input/Output Jack Board (①, ②) and Speaker Jack Board (①, ②)



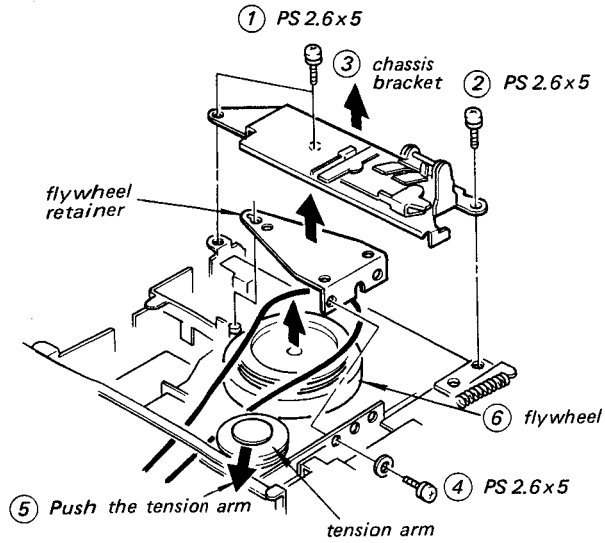
MIC JACK Board (L-ch and R-ch)



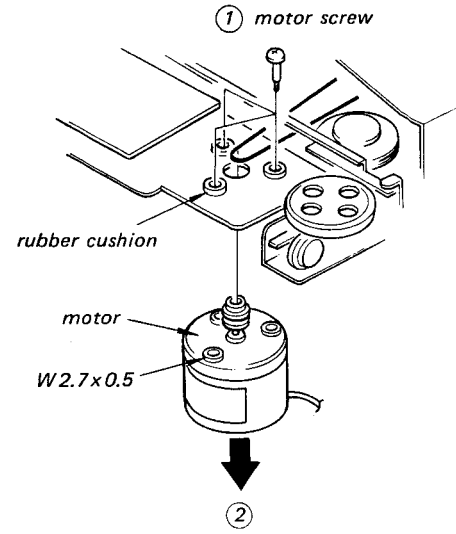
Take-up Reel Spindle



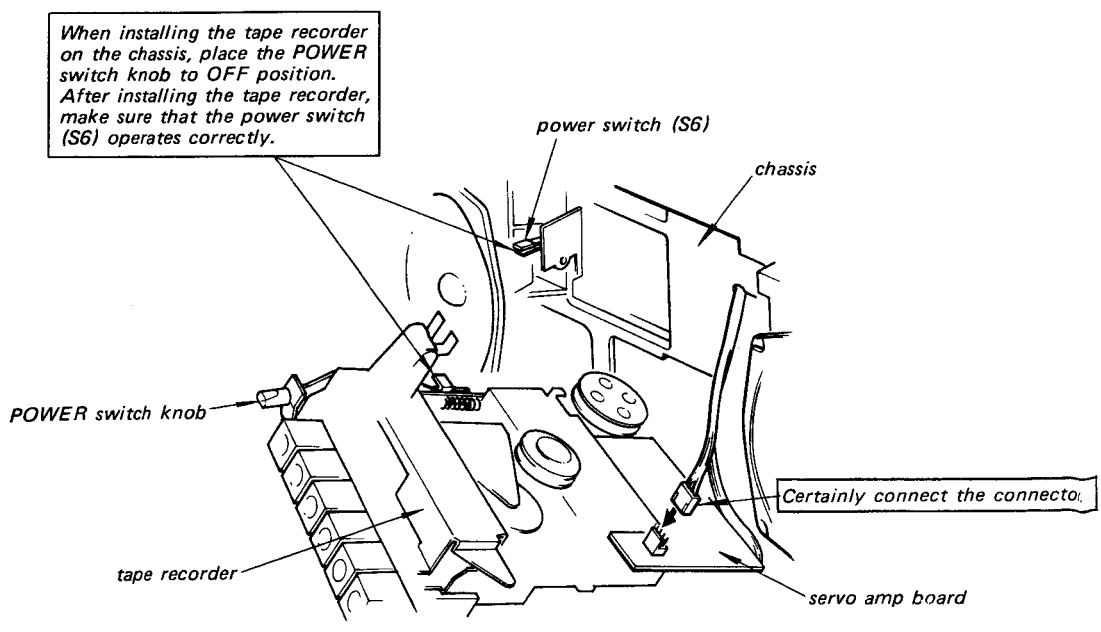
Flywheel



Motor



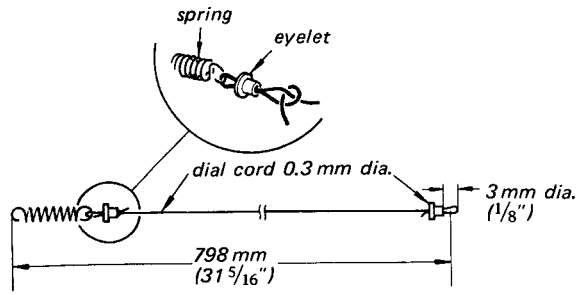
Notice of Tape Recorder Installation



2-2. DIAL CORD STRINGING

1. Preparation (1)

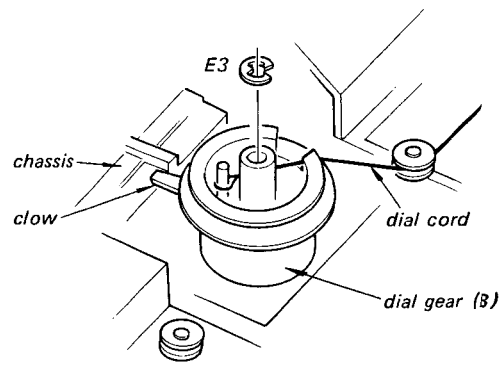
- *Climp two eyelets.*



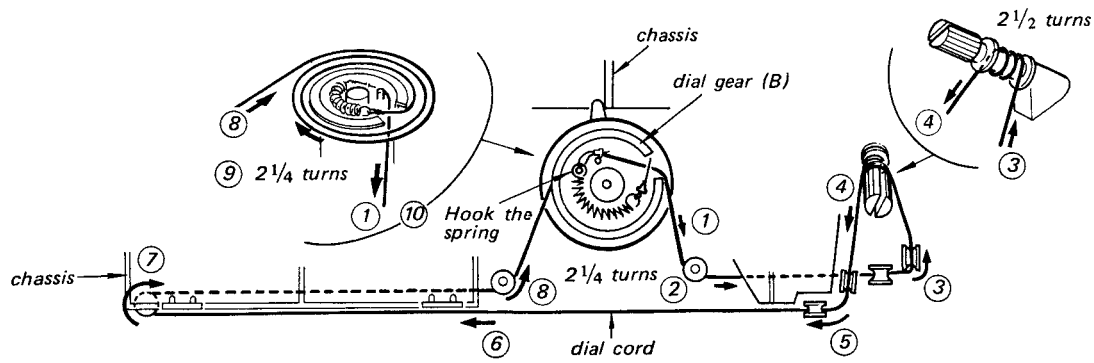
2. Preparation (2)

(1) *Pull the dial gear (B) up and place it as shown below.*

(2) *Hook the loop of dial cord on the projection of dial gear (B).*



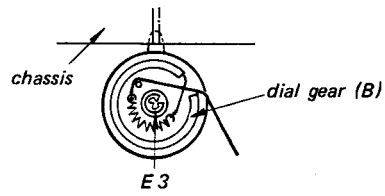
3. Stringing



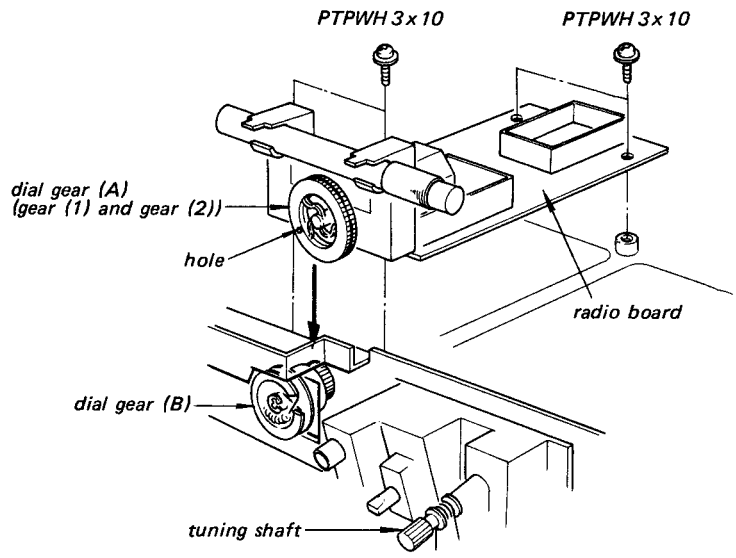
(11) *Secure the ties and the spring hooking positions with a suitable locking compound.*

4. Dial Gear (A) and (B) Installation

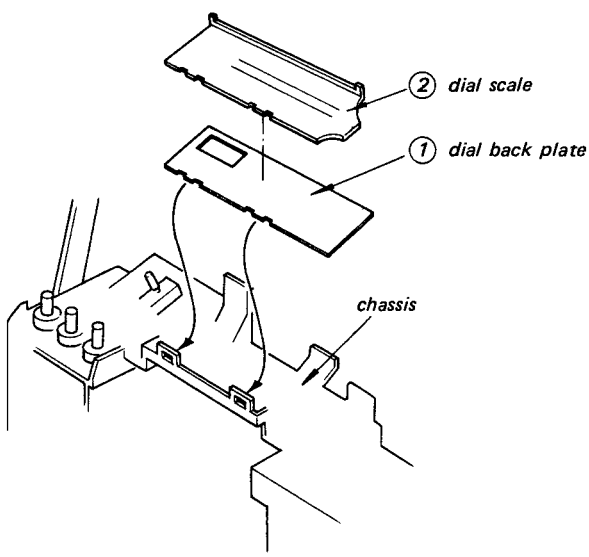
(1) *Install the dial gear (B) in the hollow on the chassis.*
(2) *Position the dial gear (B) as shown right.*
(3) *Install the retaining ring (E3) on the shaft of the dial gear (B).*
(4) *Turn the dial gear (B) twice counterclockwise by turning the tuning shaft clockwise, and position the dial gear (B) as shown right.*



(5) *Turn the dial gear (A) fully clockwise.*
(6) *Fit the hole of the gear (1) to the hole of gear (2) by turning the both gears in the counter direction each other.*
(7) *Install the radio board by engaging the dial gear (A) to the dial gear (B).*
(After installing the dial gear (A), one of the holes may be shifted from the other hole.)

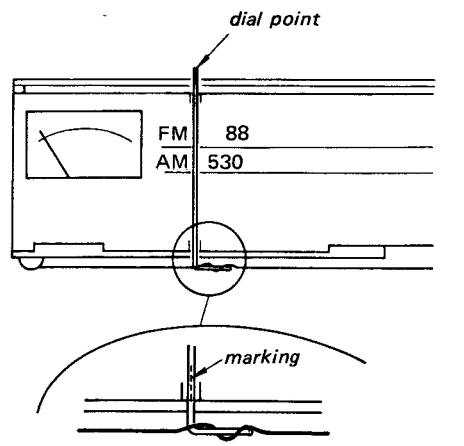


5. Dial Scale Installation



6. Dial Pointer Installation

(1) *Turn the tuning shaft fully counterclockwise.*
(2) *Place the dial pointer on the marking as shown below.*
(3) *Secure the dial pointer to the dial cord with a suitable locking compound.*



SECTION 3
ADJUSTMENTS

3-1. TAPE RECORDER SECTION

MECHANICAL ADJUSTMENTS AND MEASUREMENTS

PRECAUTION

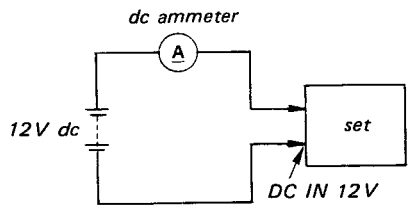
1. Clean the following parts with a denatured-alcohol-moistened swab:

record/playback head	pinch roller
erase head	rubber belts
capstan	idlers

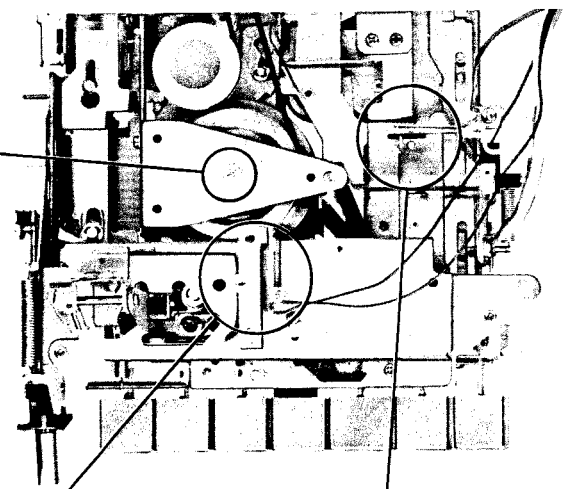
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply a suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Flywheel Thrust Play Adjustment

Procedure:

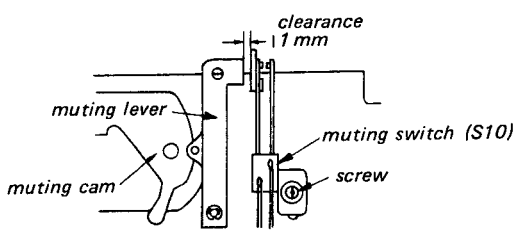


1. Place the set horizontally and reel-spindle-side-down.
2. Loosen the screw by turning it counterclockwise.
3. Carefully tighten the screw until current suddenly increases.
   Then, loosen the screw 1/4 turn.



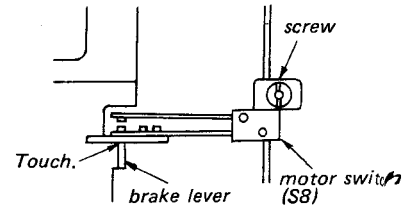
Muting Switch (S10) Adjustment

1. Press the record button.
2. Loosen the screw and change the muting switch position for specified clearance.
3. When pressing or releasing the record button, make sure that the muting switch turns on and returns off soon.



Motor Switch (S8) Adjustment

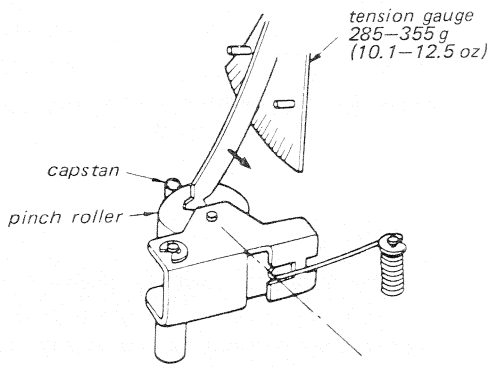
1. Loosen the screw and change the motor switch position to touch the brake lever.
2. When pressing the forward, fast forward or rewind button, make sure that the motor switch turns on.

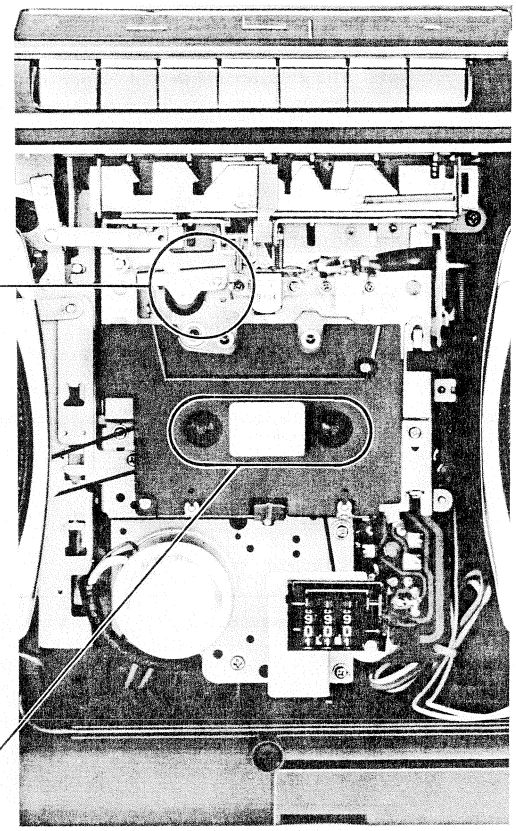


Pinch Roller Pressure Measurement

– Playback mode –

1. Push the tension gauge.
2. Slowly return the pinch roller and read the tension gauge just when the pinch roller starts to rotate.





Torque Measurement

Forward:

Torque meter	Meter reading
CQ-101A CQ-102A CQ-103A	20–65 g.cm (0.28–0.91 oz.inch)

Fast Forward, Rewind:

Torque meter	Meter reading
CQ-201A	more than 50 g.cm (more than 0.7 oz.inch)

CUE, REVIEW:

Torque meter	Meter reading
CQ-201A	more than 50 g.cm (more than 0.7 oz.inch)

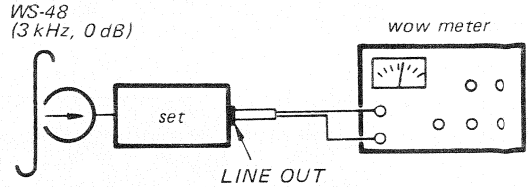
Wow and Flutter Measurement

Setting:

FUNCTION switch: MIC/TC
Power source: 12 V dc

Procedure:

1. Mode: playback



Specification:

less than 0.32% (RMS)

Note: Measure wow and flutter for beginning and end portion of the test tape (WS-48).

ELECTRICAL ADJUSTMENTS

Note: The adjustments should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

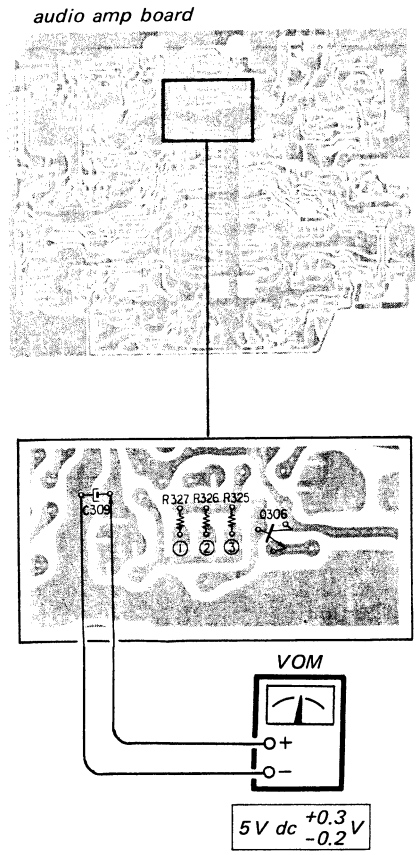
B+ Voltage Adjustment

Setting:

Power supply voltage:	12 V dc
FUNCTION switch:	MIC/TC
VOLUME control:	minimum
Mode:	playback with no cassette loaded

Adjustment Location and Specification:

Pattern connection	B+ Voltage
①	low ↕ high
②	
③	



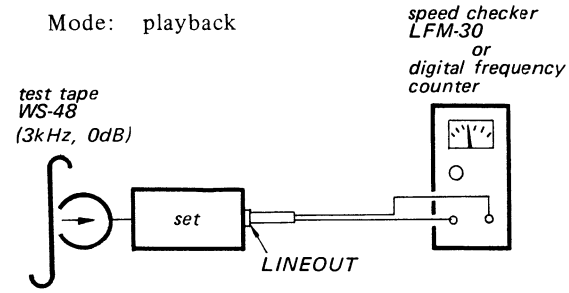
Tape Speed Adjustment

Setting:

FUNCTION switch: MIC/TC

Procedure:

Mode: playback

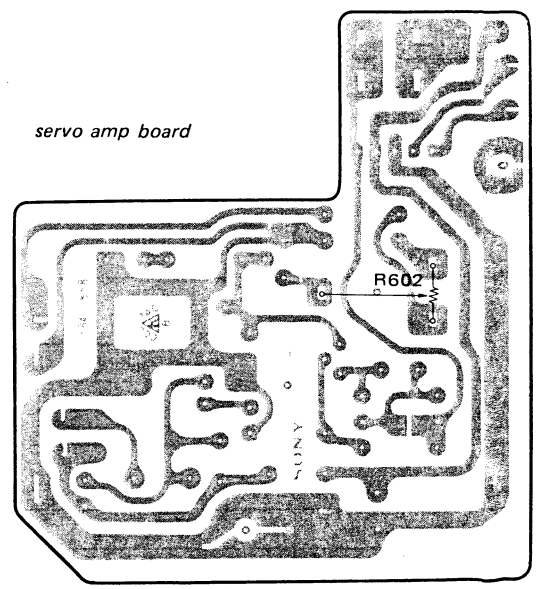


Specification:

Speed checker	Digital frequency counter
-2.5–+3%	2,925–3,090 Hz

Frequency difference between beginning and end of tape should be within 1% (30 Hz).

Adjustment Location:



ELECTRICAL ADJUSTMENTS

Note: The adjustments should be performed in the order given in this service manual. The adjustments should be performed for both L-CH and R-CH.

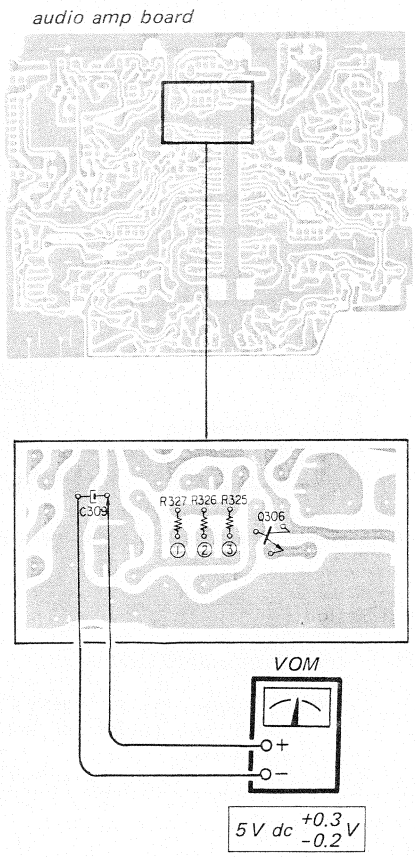
B+ Voltage Adjustment

Setting:

Power supply voltage:	12 V dc
FUNCTION switch:	MIC/TC
VOLUME control:	minimum
Mode:	playback with no cassette loaded

Adjustment Location and Specification:

Pattern connection	B+ Voltage
①	low ↕ high
②	
③	



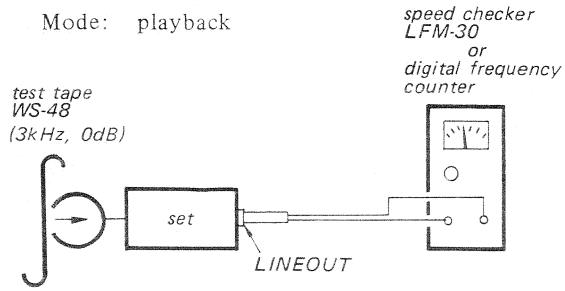
Tape Speed Adjustment

Setting:

FUNCTION switch: MIC/TC

Procedure:

Mode: playback

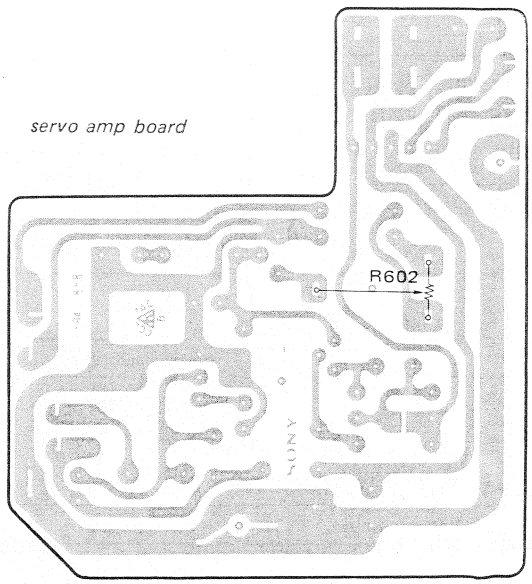


Specification:

Speed checker	Digital frequency counter
−2.5–+3%	2,925–3,090 Hz

Frequency difference between beginning and end of tape should be within 1% (30 Hz).

Adjustment Location:



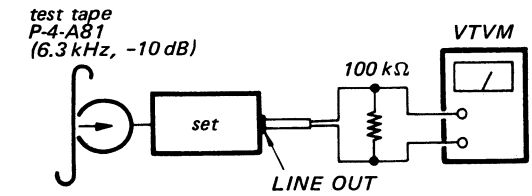
Record/playback Head Azimuth Adjustment

Setting:

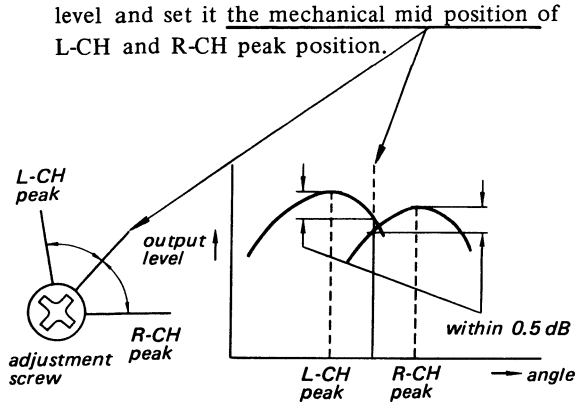
FUNCTION switch: MIC/TC
MODE switch: STEREO

Procedure:

1. Mode: playback

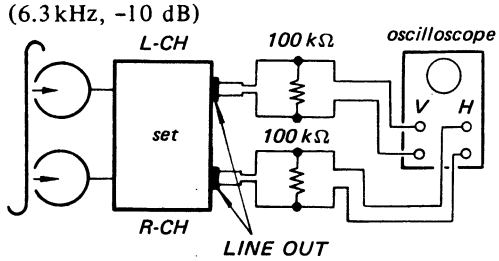


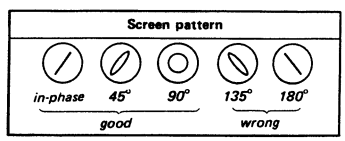
2. Turn the adjustment screw for the maximum level and set it the mechanical mid position of L-CH and R-CH peak position.



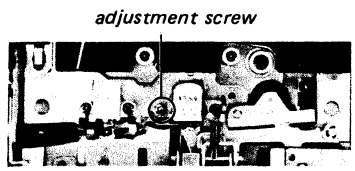
3. Mode: playback

P-4-A81
(6.3 kHz, -10 dB)





Adjustment Location:

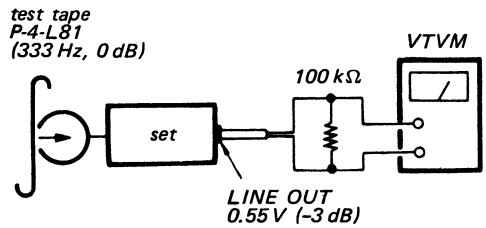


Playback Level Adjustment

Setting:

FUNCTION switch: MIC/TC
TAPE SELECT switch: NORMAL
MODE switch: STEREO

Procedure:

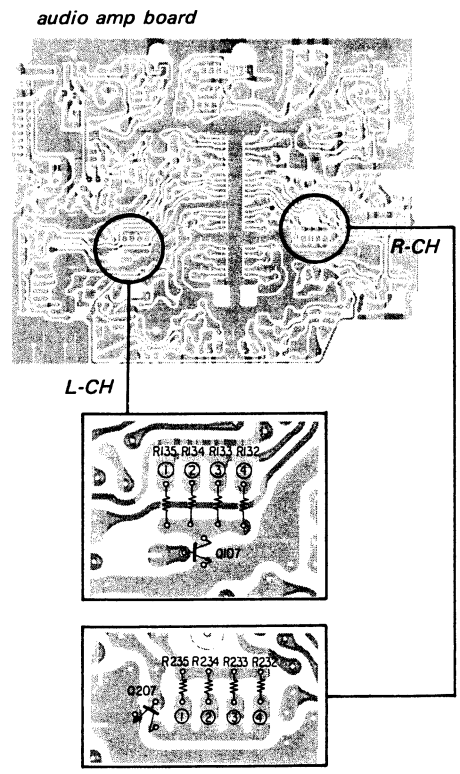


Specification:

LINE OUT Level: 0.55 V (-3 dB)

Adjustment Location:

Pattern connection	LINE OUT Level
①	low ↑
②	↕
③	↕
④	↓ high

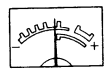


Battery Meter Calibration

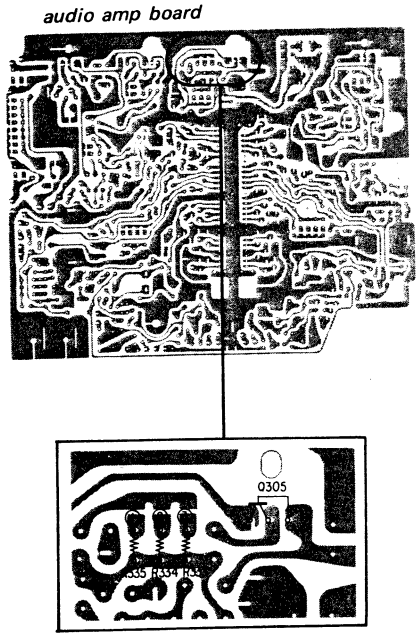
Setting:

Power Supply Voltage:	8.8 V dc
VOLUME control:	minimum
FUNCTION switch:	MIC/TC
Mode:	playback with no cassette loaded

Adjustment Location and Specification:

Pattern connection	Pointer deflection	Meter indication
①	decrease ↕ increase	
②		
③		

audio amp board



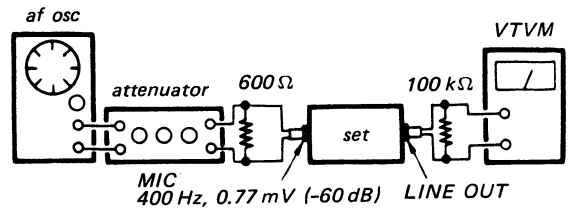
AGC Balance Adjustment

Setting:

FUNCTION switch:	MIC/TC
MODE switch:	STEREO

Procedure:

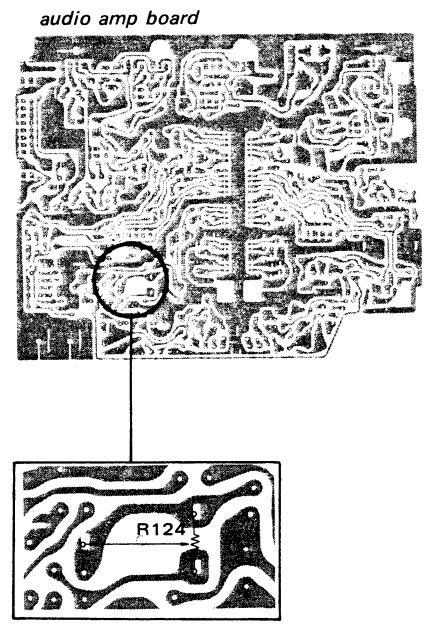
1. Mode: record



2. Adjust R124 so that LINE OUT of L-CH becomes the same as R-CH.

Adjustment Location:

audio amp board

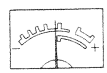


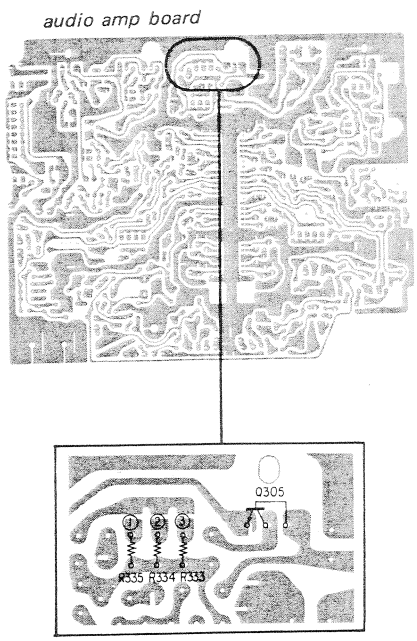
Battery Meter Calibration

Setting:

Power Supply Voltage:	8.8 V dc
VOLUME control:	minimum
FUNCTION switch:	MIC/TC
Mode:	playback with no cassette loaded

Adjustment Location and Specification:

Pattern connection	Pointer deflection	Meter indication
①	decrease ↕ increase	
②		
③		



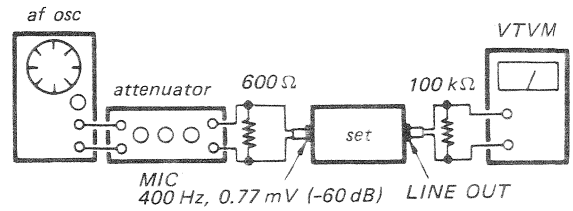
AGC Balance Adjustment

Setting:

FUNCTION switch:	MIC/TC
MODE switch:	STEREO

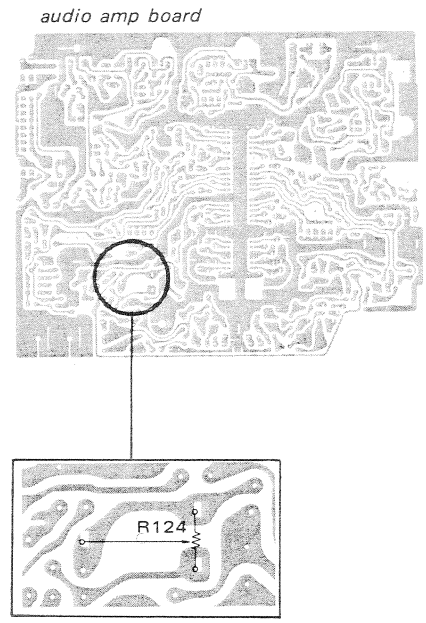
Procedure:

1. Mode: record



2. Adjust R124 so that LINE OUT of L-CH becomes the same as R-CH.

Adjustment Location:



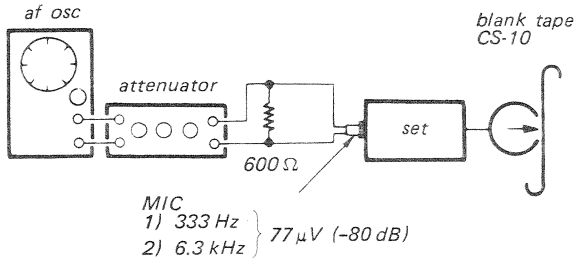
Record Bias Adjustment

Setting:

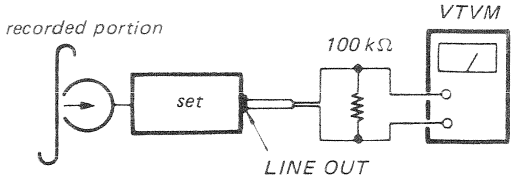
FUNCTION switch: MIC/TC
TAPE SELECT switch: NORMAL

Procedure:

1. Mode: record



2. Mode: playback

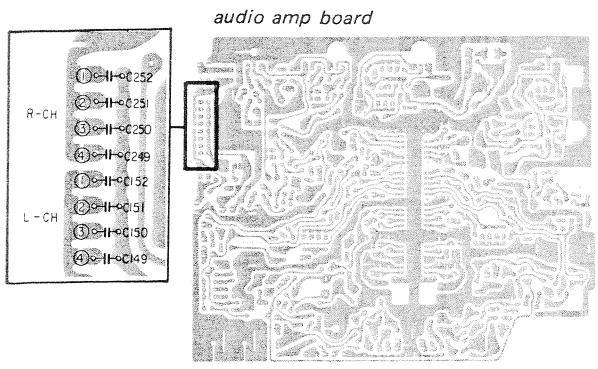


Specification:

6.3 kHz level difference from 333 Hz:
0 dB ± 1.5 dB

Adjustment Location:

Pattern connection	6.3 Hz VTVM reading
①	down
②	
③	
④	up



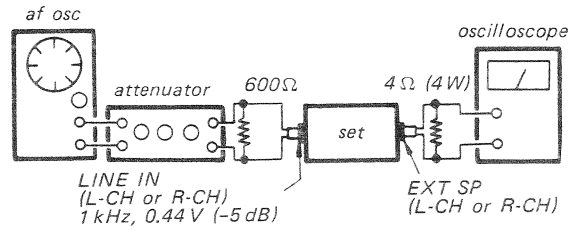
Note: If necessary, repeat above steps.

AC Bias Adjustment

Setting:

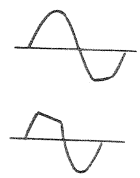
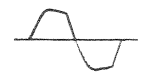
FUNCTION switch: LINE IN
Power supply voltage: 12 V dc

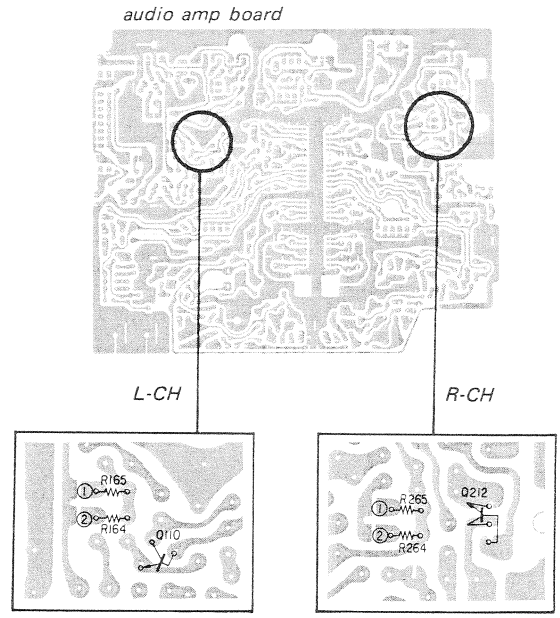
Procedure:



1. Turn the VOLUME control to MIN position.
2. Slowly turn the VOLUME control clockwise and adjust the pattern connection to obtain the oscilloscope pattern as shown below.

Oscilloscope pattern

Wrong	Good
	



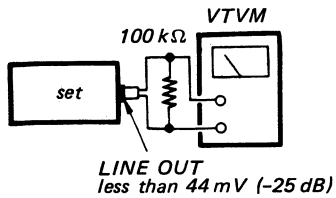
Bias Leakage Adjustment

Setting:

FUNCTION switch: LINE IN
AFC/ISS switch: ON or OFF

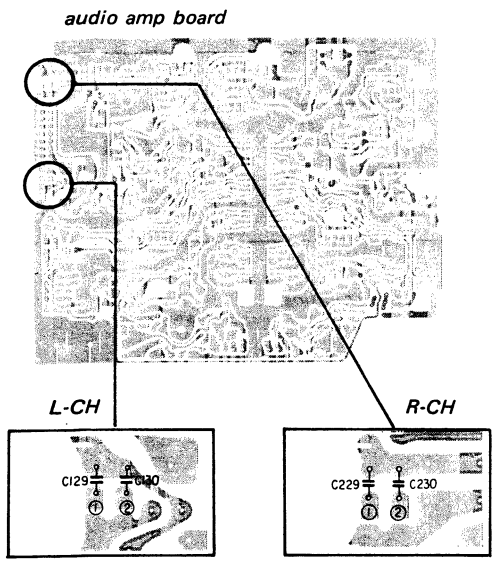
Procedure:

Mode: record (no signal input)



Adjust pattern connection for the specified reading on VTVM.

Adjustment Location:



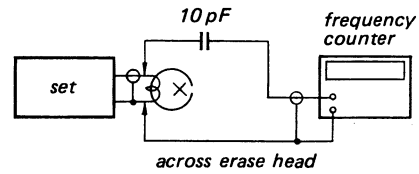
Bias Osc Frequency Adjustment

Setting:

FUNCTION switch: LINE IN

Procedure:

Mode: record (no signal input)

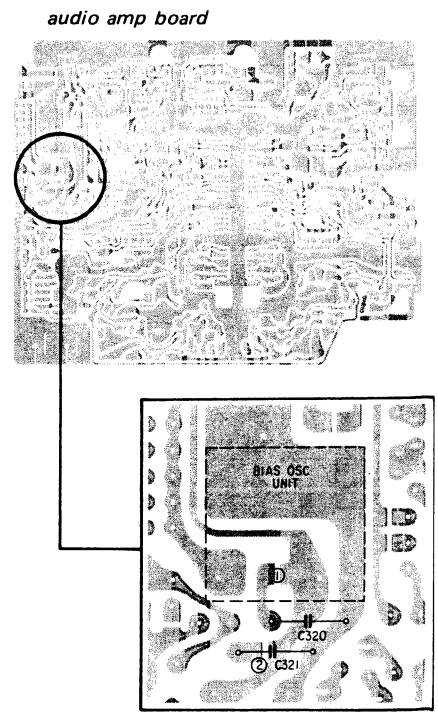


Specification:

AFC/ISS switch: ON
78.2 kHz–83.8 kHz
AFC/ISS switch: OFF
82 kHz–87 kHz

Adjustment Location:

Pattern connection	Bias Osc frequency
Open	high
①	↕
②	↕
① and ②	low

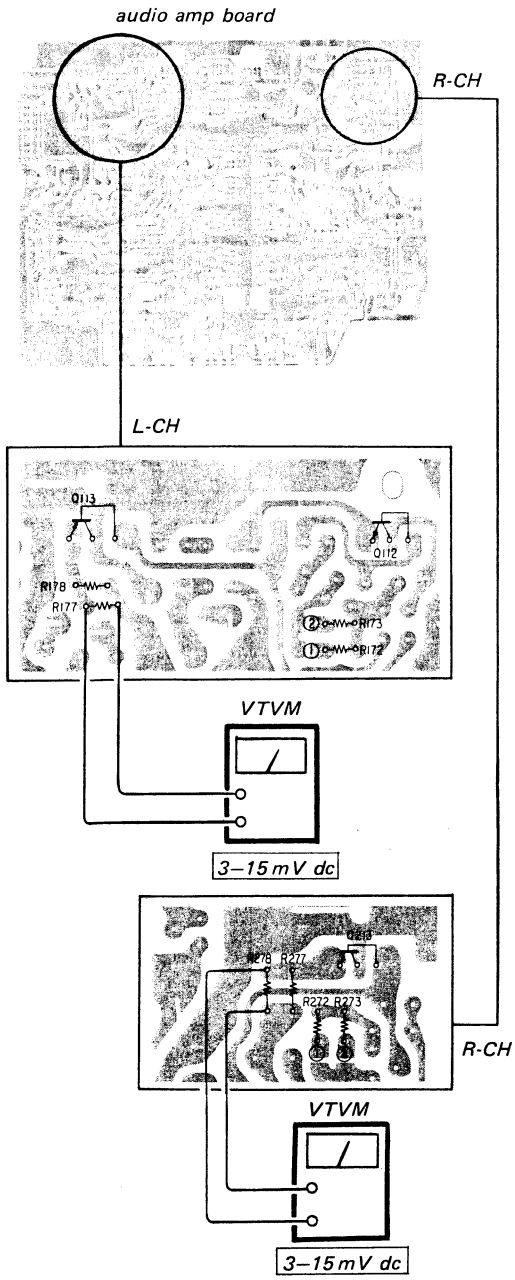


DC Bias Adjustment

Setting:

FUNCTION switch: MIC/TC

Adjustment Location and Specification:



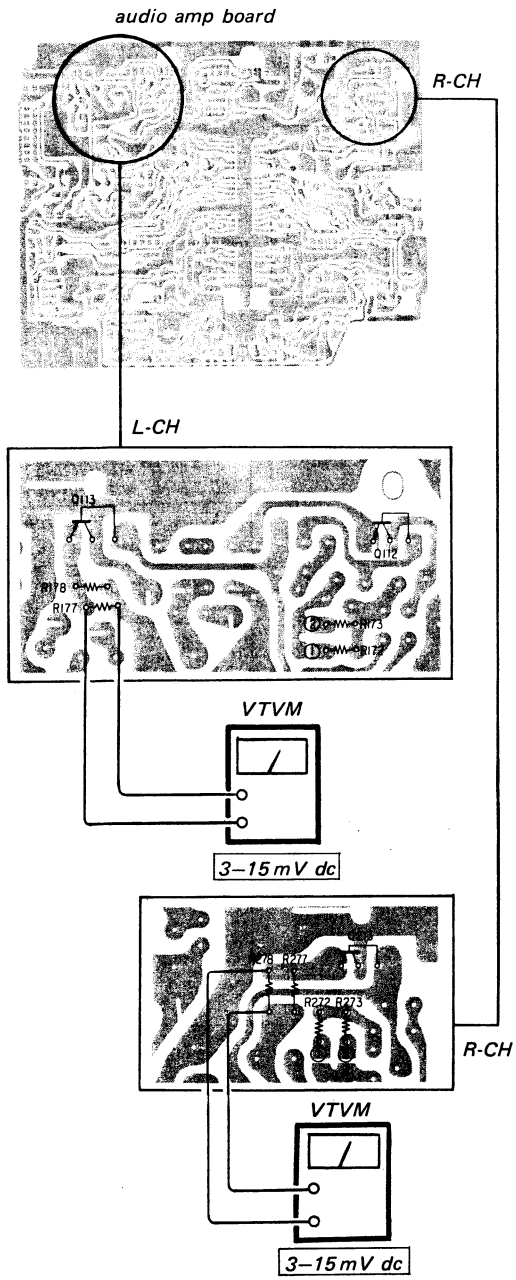
Pattern connection	VTVM Reading
Open	up
①	↕
②	
① and ②	down

DC Bias Adjustment

Setting:

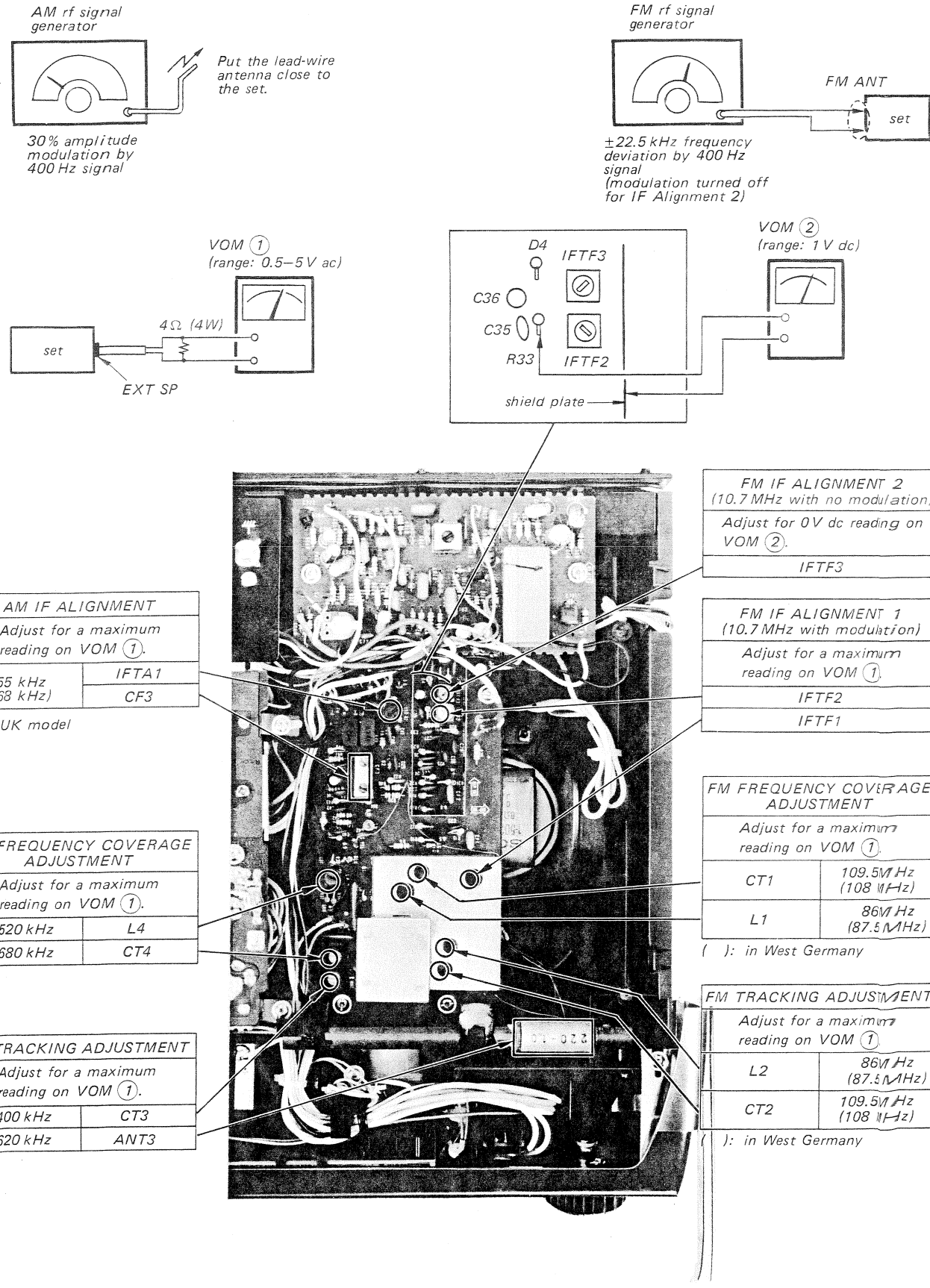
FUNCTION switch: MIC/TC

Adjustment Location and Specification:



Pattern connection	VTVM Reading
Open	up
①	down
②	
① and ②	

3-2. RADIO SECTION



AM IF ALIGNMENT	
Adjust for a maximum reading on VOM (1).	
455 kHz (468 kHz)	IFTA1
	CF3

( ) : UK model

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM (1).	
520 kHz	L4
1,680 kHz	CT4

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM (1).	
1,400 kHz	CT3
620 kHz	ANT3

FM IF ALIGNMENT 2 (10.7 MHz with no modulation)
Adjust for 0 V dc reading on VOM (2).
IFTF3

FM IF ALIGNMENT 1 (10.7 MHz with modulation)
Adjust for a maximum reading on VOM (1).
IFTF2
IFTF1

FM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM (1).	
CT1	109.5 MHz (108 MHz)
L1	86 MHz (87.5 MHz)

( ): in West Germany

FM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM (1).	
L2	86 MHz (87.5 MHz)
CT2	109.5 MHz (108 MHz)

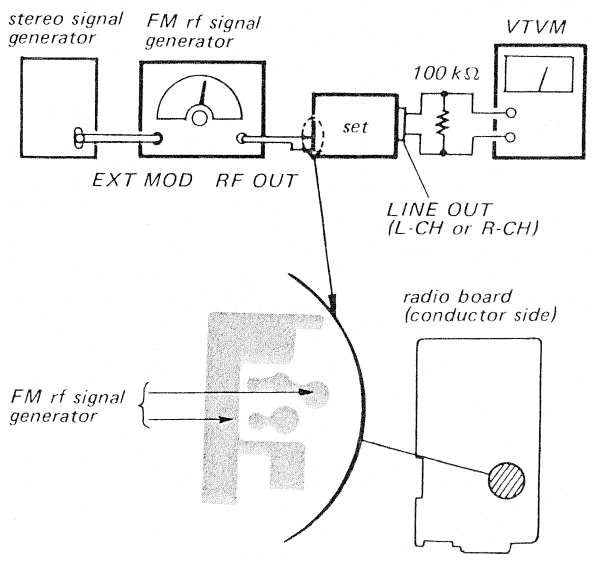
( ): in West Germany

FM Stereo Separation Adjustment

Setting:

FUNCTION switch: FM
MODE switch: STEREO

Procedure:



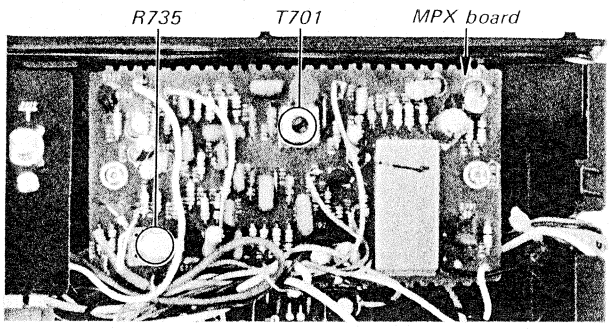
Carrier frequency: 98 MHz

	Main channel	Sub channel	Pilot signal
Frequency deviation	10.125 kHz (13.5%)	10.125 kHz (13.5%)	7.5 kHz (10%)
Modulation frequency	1 kHz	1 kHz	19 kHz

1. Adjust T701 for a maximum reading on VTVM at both channels.
2. Modulate L-ch (R-ch) only and adjust R735 for a minimum reading on VTVM at R-ch (L-ch).

Specification:

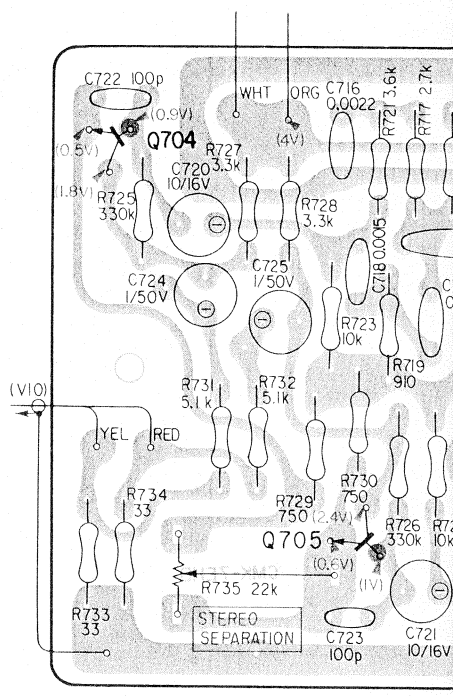
Adjustment Location:



4-1. MOUNTING DIAGRAM – M

– Component Side –

D		
Q	704	705

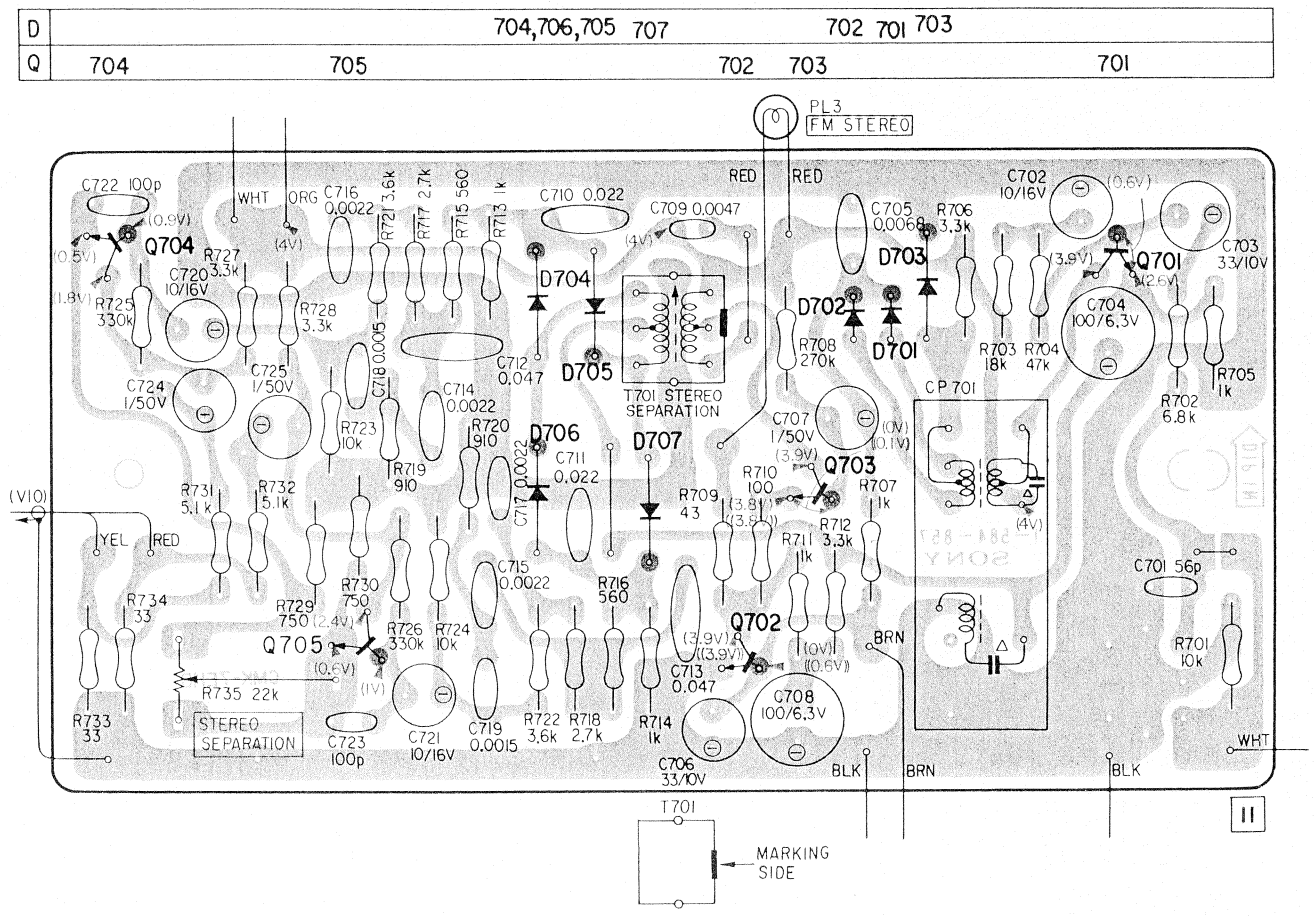


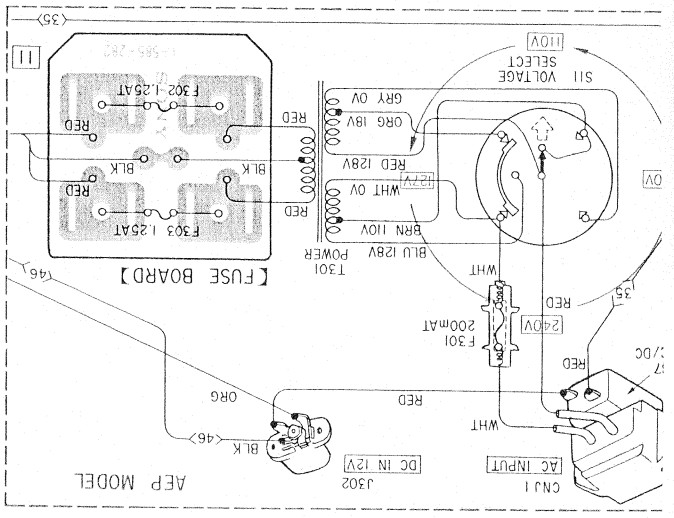
CF-580	CF-580
CF-580	CF-580

SECTION 4
DIAGRAMS

4-1. MOUNTING DIAGRAM – MPX Board –

– Component Side –

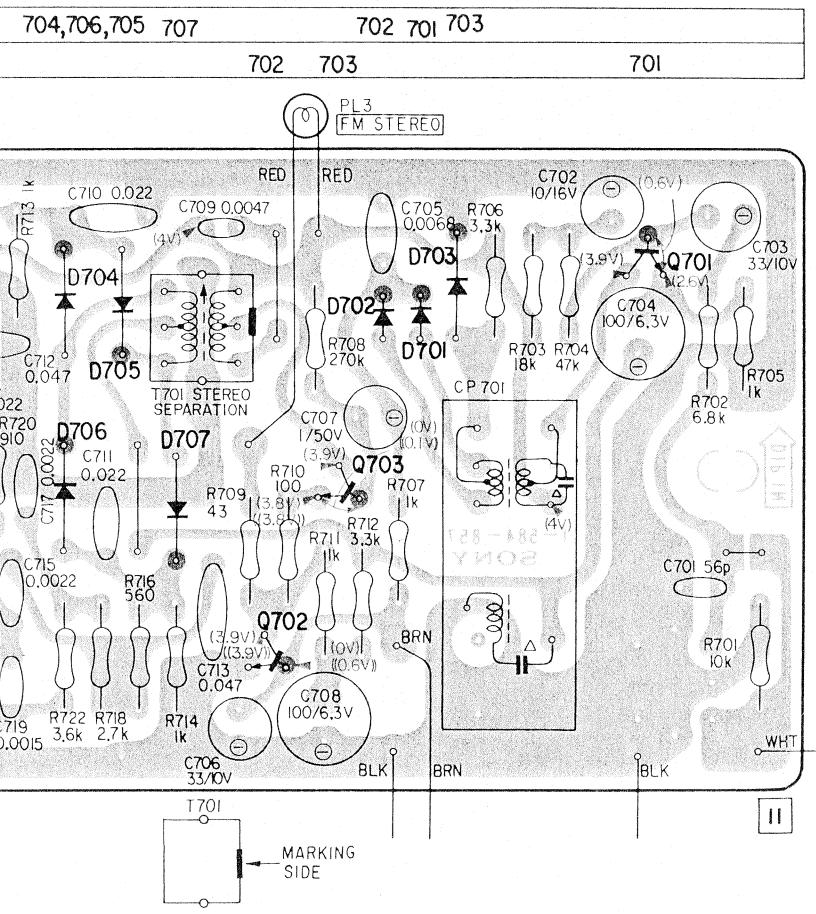


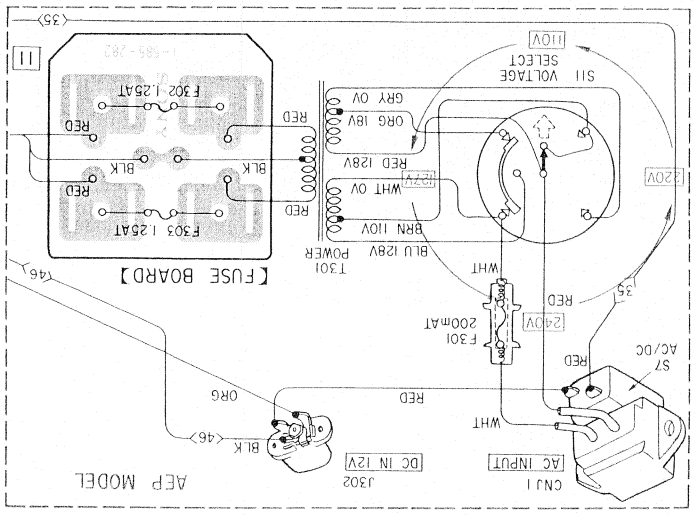


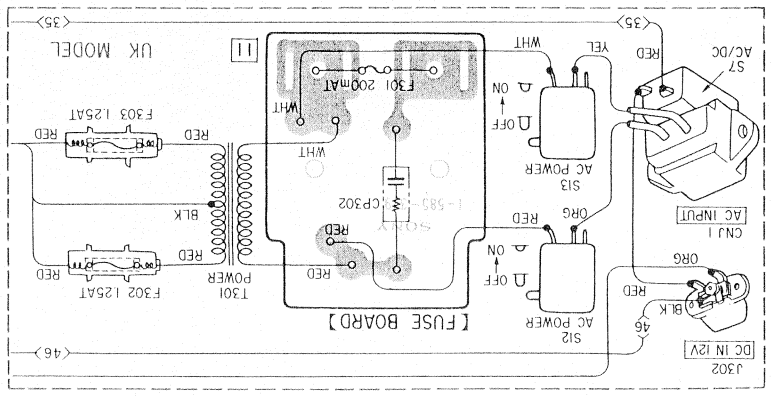
SECTION 4
DIAGRAMS

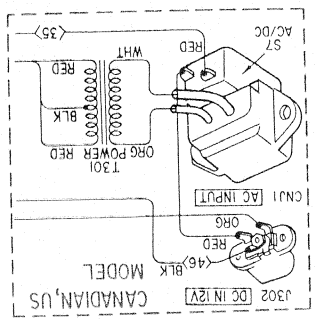
4-2. MOUNTING DIAGRAM — Radio Board —

— Component Side —





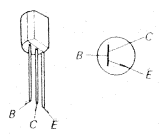




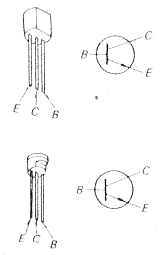
CF-580 CF-580

CF-580 CF-580

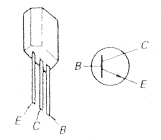
Q1,2,5~10: 2SC710



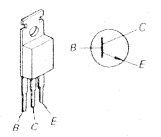
Q3, 4: 2SC930



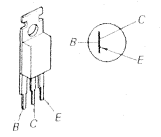
Q101, 102
Q201, 202 : 2SC633A
Q103~111,114
Q203~211,214
Q301~304,306 : 2SC633A
Q701~705
D103, 203
Q603: 2SC633



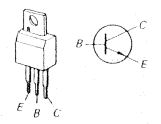
Q112, 212: 2SC1173



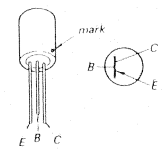
Q113, 213: 2SA473



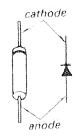
Q305, 601: 2SC1429



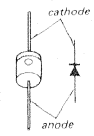
Q602: 2SB475



D1: 1S2687S
D2, 7: 1S1555
D3, 4, 6: 1T261
D5: 1T23
D101,201,302, D305,602,703 :
D102,202,301, D303,304,701, : 1T22
D702
D306: RD6A (N)
D309: RD4A (N)
D704~707: 1T22A



D307, 308, D601 : 10D2



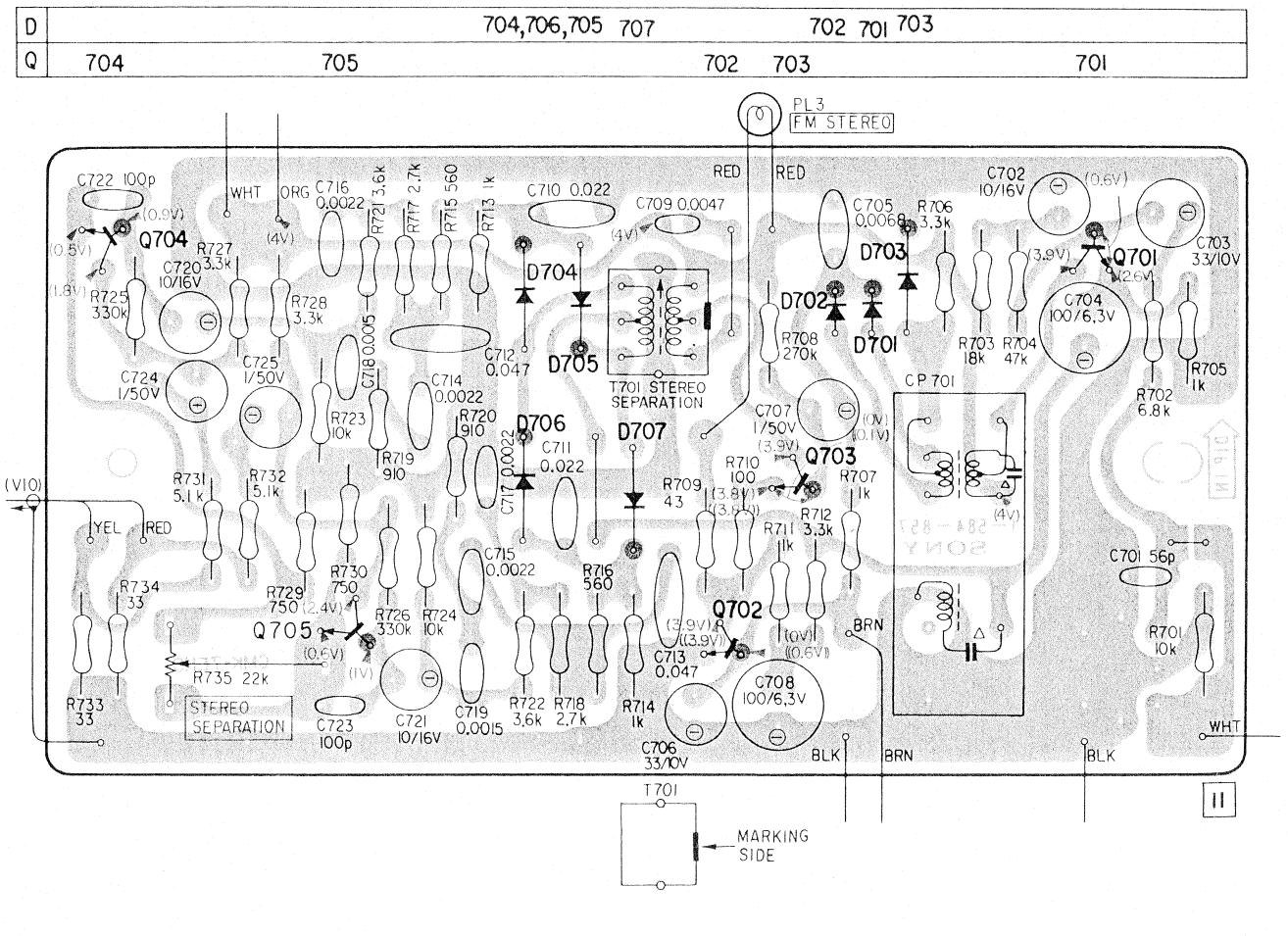
CF-580

CF-580

SECTION 4
DIAGRAMS

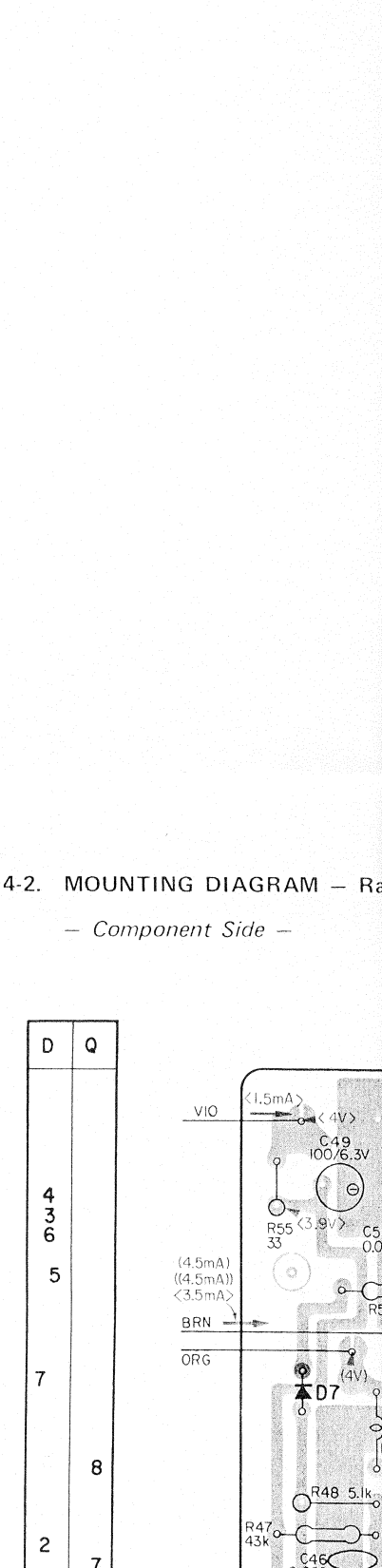
4-1. MOUNTING DIAGRAM — MPX Board —

— Component Side —



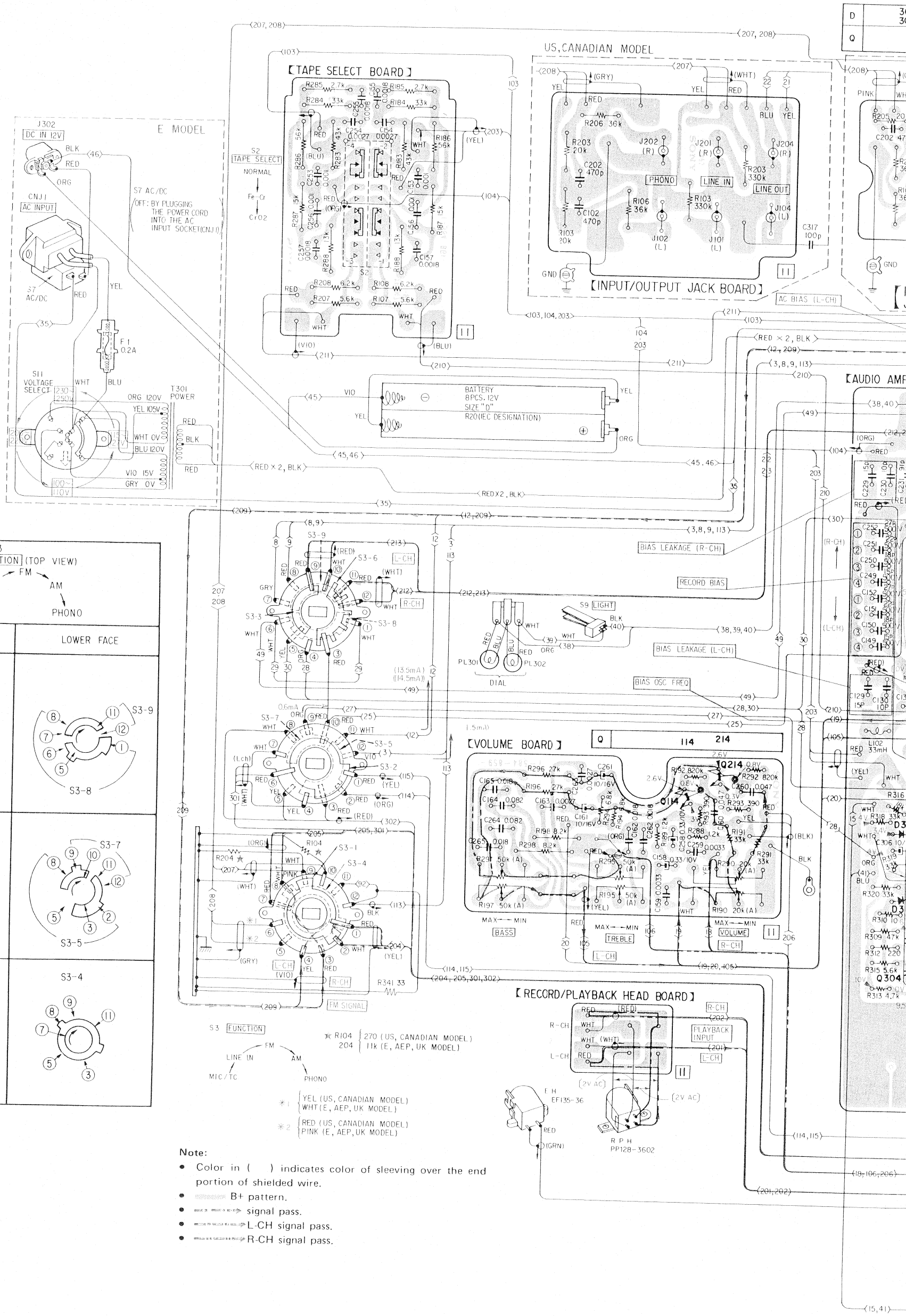
4-2. MOUNTING DIAGRAM — Ra

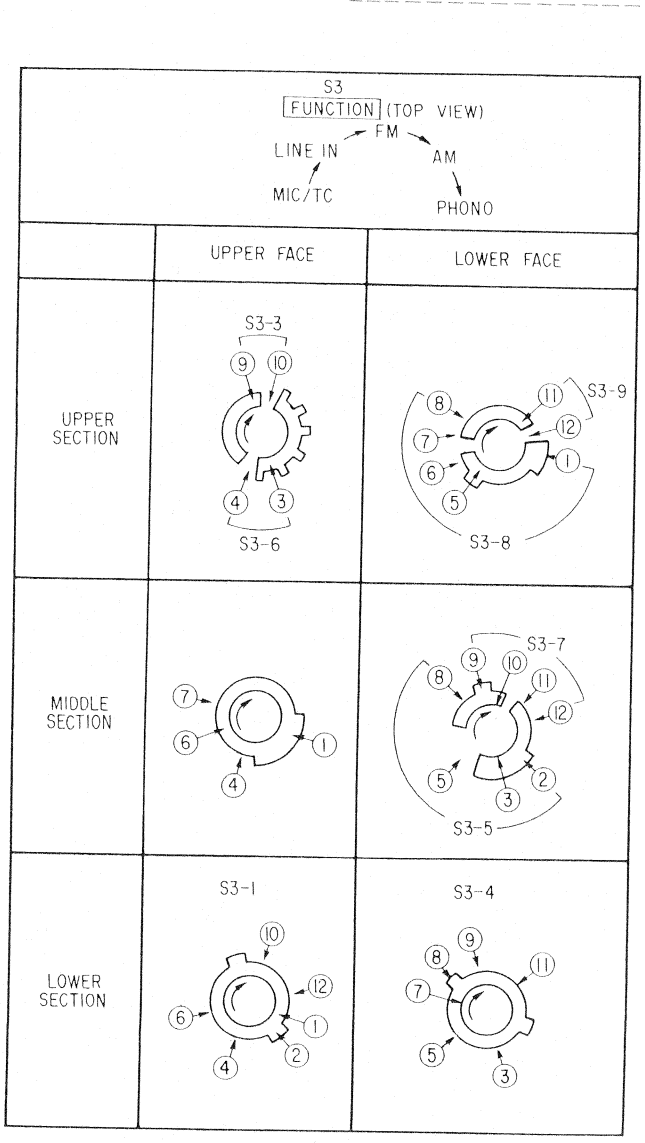
— Component Side —



4-3. MOUNTING DIAGRAM

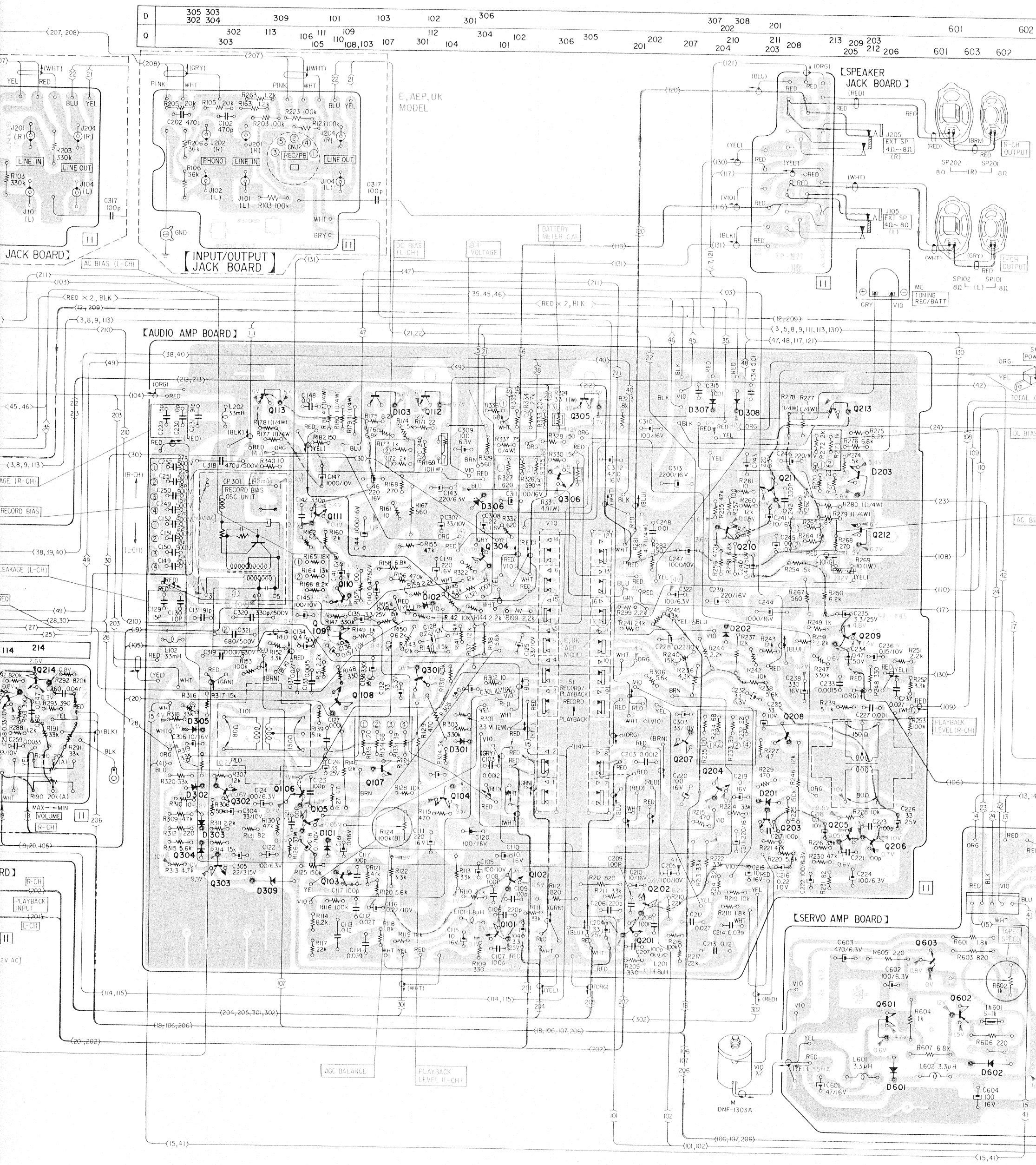
– Conductor Side –

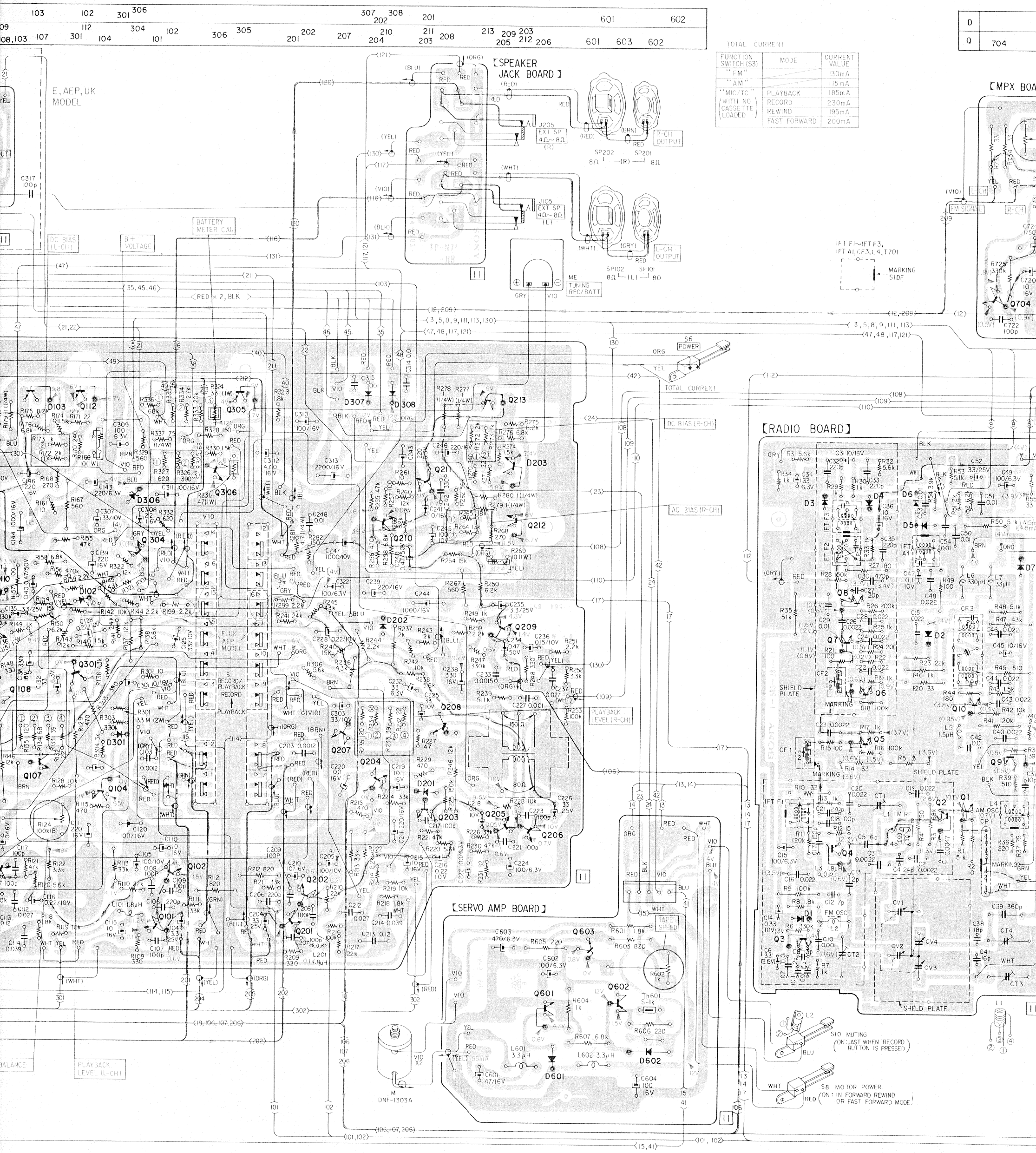




Note:

- Color in ( ) indicates color of sleeving over the end portion of shielded wire.
- B+ pattern.
- signal pass.
- L-CH signal pass.
- R-CH signal pass.


E, AEP, UK MODEL
【INPUT/OUTPUT JACK BOARD】
【SPEAKER JACK BOARD】
【AUDIO AMP BOARD】
【SERVO AMP BOARD】
JACK BOARD】
RECORD BIAS OSC UNIT
DC BIAS (L-CH)
B+ VOLTAGE
BATTERY METER CAL
AC BIAS (L-CH)
RECORD BIAS
PLAYBACK LEVEL (R-CH)
PLAYBACK LEVEL (L-CH)
AGC BALANCE
PLAYBACK INPUT
VOLUME
TUNING REC/BATT
TAPE SPEED
R-CH OUTPUT
L-CH OUTPUT
EXT SP 4Ω~8Ω (R)
EXT SP 4Ω~8Ω (L)
LINE IN
LINE OUT
PHONO
REC/PB
SI RECORD/PLAYBACK
PLAYBACK
RECORD
DNF-1303A


E, AEP, UK MODEL
【SPEAKER JACK BOARD】
J205 EXT SP 4Ω~8Ω (R)
J105 EXT SP 4Ω~8Ω (L)
R-CH OUTPUT
L-CH OUTPUT
SP202 8Ω (R) 8Ω
SP201
SP102 8Ω (L) 8Ω
SP101
ME TUNING REC/BATT
TOTAL CURRENT
FUNCTION SWITCH (S3) | MODE | CURRENT VALUE
"FM" | | 130mA
"AM" | | 115mA
"MIC/TC" (WITH NO CASSETTE LOADED) | PLAYBACK | 185mA
| RECORD | 230mA
| REWIND | 195mA
| FAST FORWARD | 200mA
【MPX BOA
IFT F1~IFT F3, IFT A1, CF3, L4, T701
MARKING SIDE
S6 POWER
TOTAL CURRENT
DC BIAS (R-CH)
AC BIAS (R-CH)
PLAYBACK LEVEL (R-CH)
BATTERY METER CAL
DC BIAS (L-CH)
B+ VOLTAGE
S5 RECORD/PLAYBACK
PLAYBACK
RED × 2, BLK
【RADIO BOARD】
【SERVO AMP BOARD】
TAPE SPEED
S10 MUTING (ON: JAST WHEN RECORD BUTTON IS PRESSED)
S8 MOTOR POWER (ON: IN FORWARD REWIND OR FAST FORWARD MODE)
M DNF-1303A
SHIELD PLATE
MARKING
FM SIGNAL
L-CH
R-CH
D
Q 704

602
602

TOTAL CURRENT

FUNCTION SWITCH (S3)	MODE	CURRENT VALUE
"FM"		130mA
"AM"		115mA
"MIC/TC" (WITH NO CASSETTE LOADED)	PLAYBACK	185mA
	RECORD	230mA
	REWIND	195mA
	FAST FORWARD	200mA

D	706 704	705	707	702	701	703
Q	704	705		702	703	701

【MPX BOARD】

STEREO SEPARATION

【AFC/ISS SWITCH BOARD】

【RADIO BOARD】

【BALANCE BOARD】

【MIC JACK (L) BOARD】

【MIC JACK (R) BOARD】

IFT F1~IFT F3, IFT A1, CF3, L4, T701 — MARKING SIDE

S6 POWER

TOTAL CURRENT

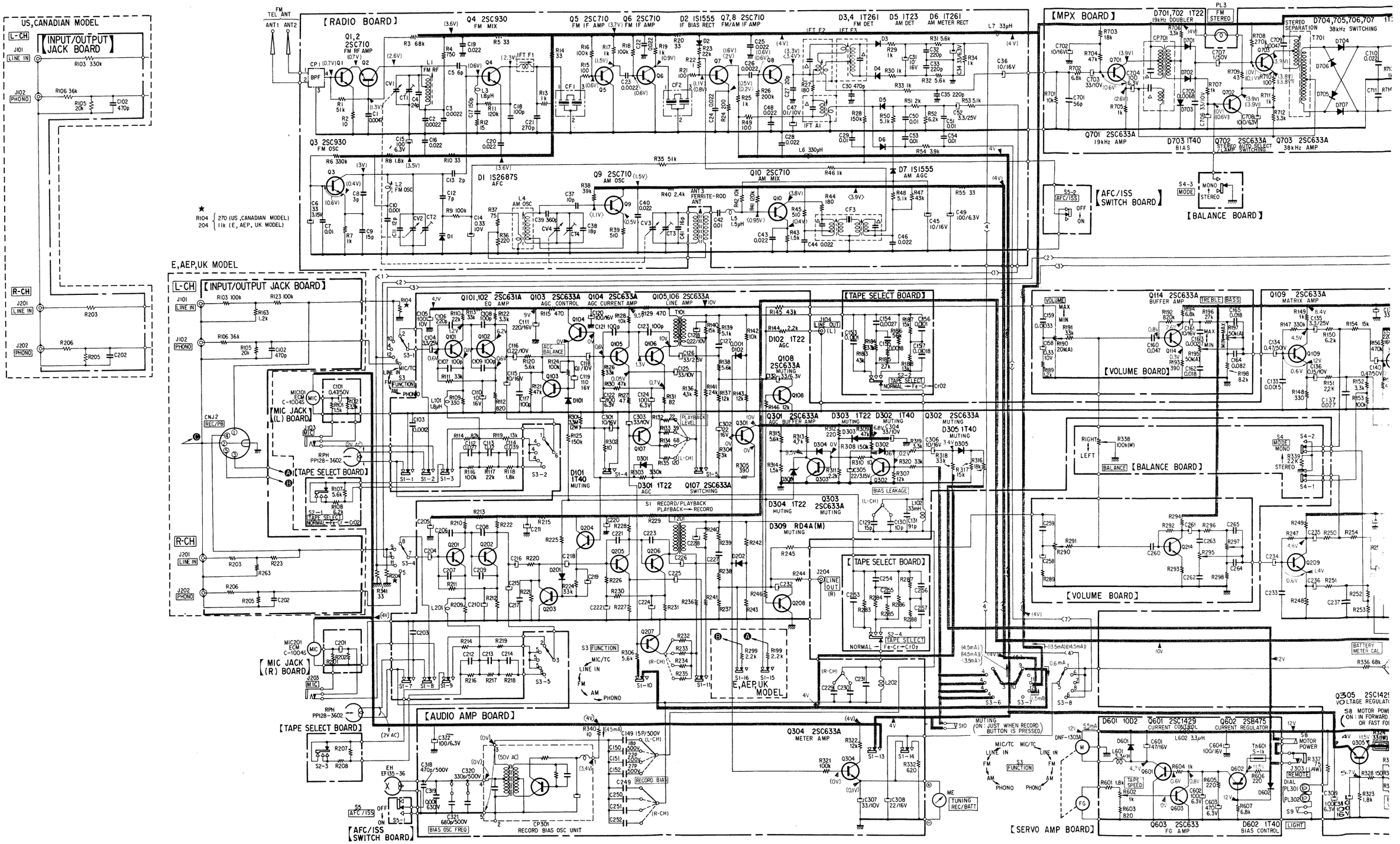
DC BIAS (R-CH)

AC BIAS (R-CH)

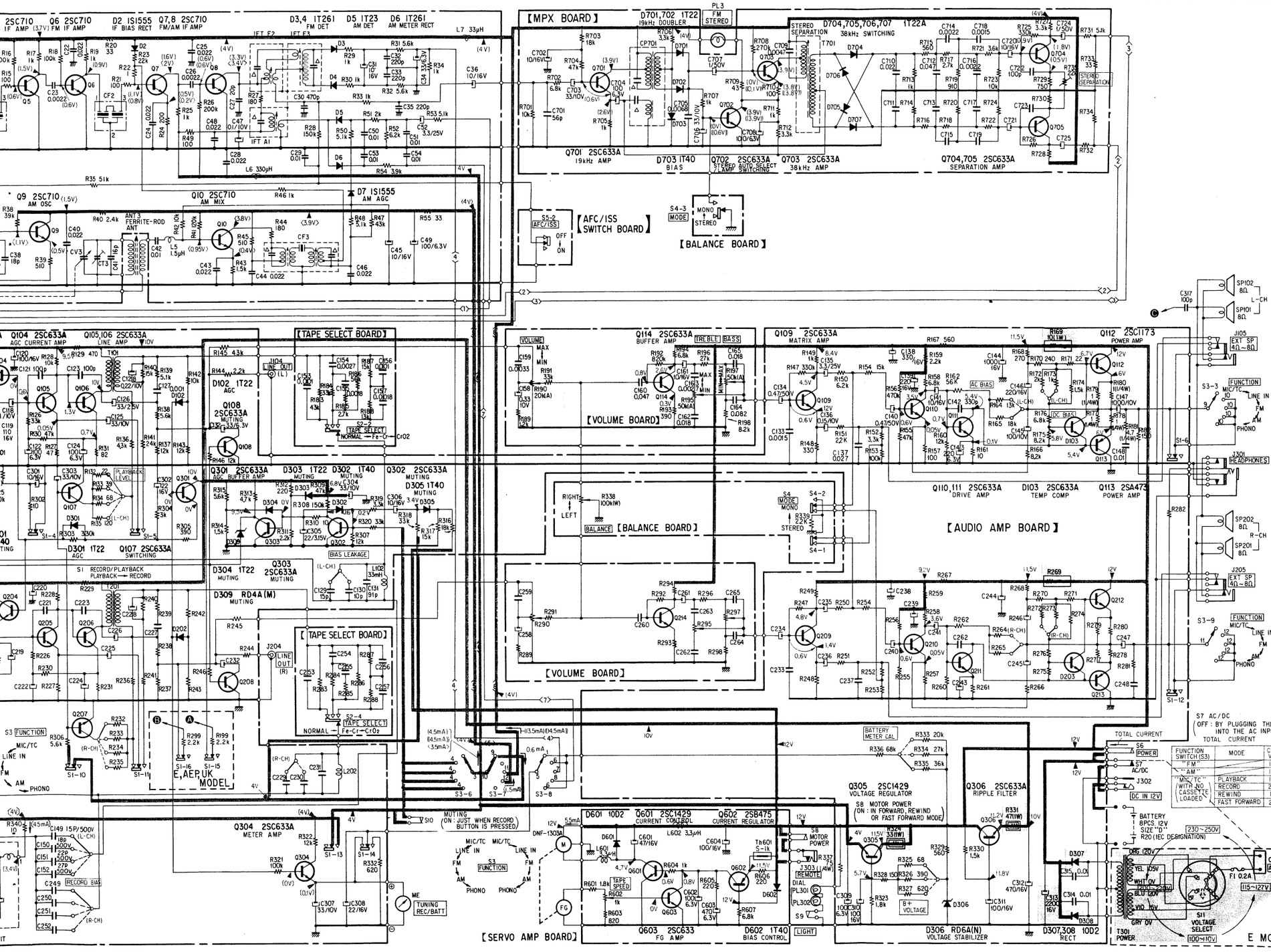
S10 MUTING (ON: JAST WHEN RECORD BUTTON IS PRESSED)

S8 MOTOR POWER (ON: IN FORWARD REWIND OR FAST FORWARD MODE)

4-4. SCHEMATIC DIAGRAM



Note: The components identified by shading are critical for safety. Replace only with part number specified.



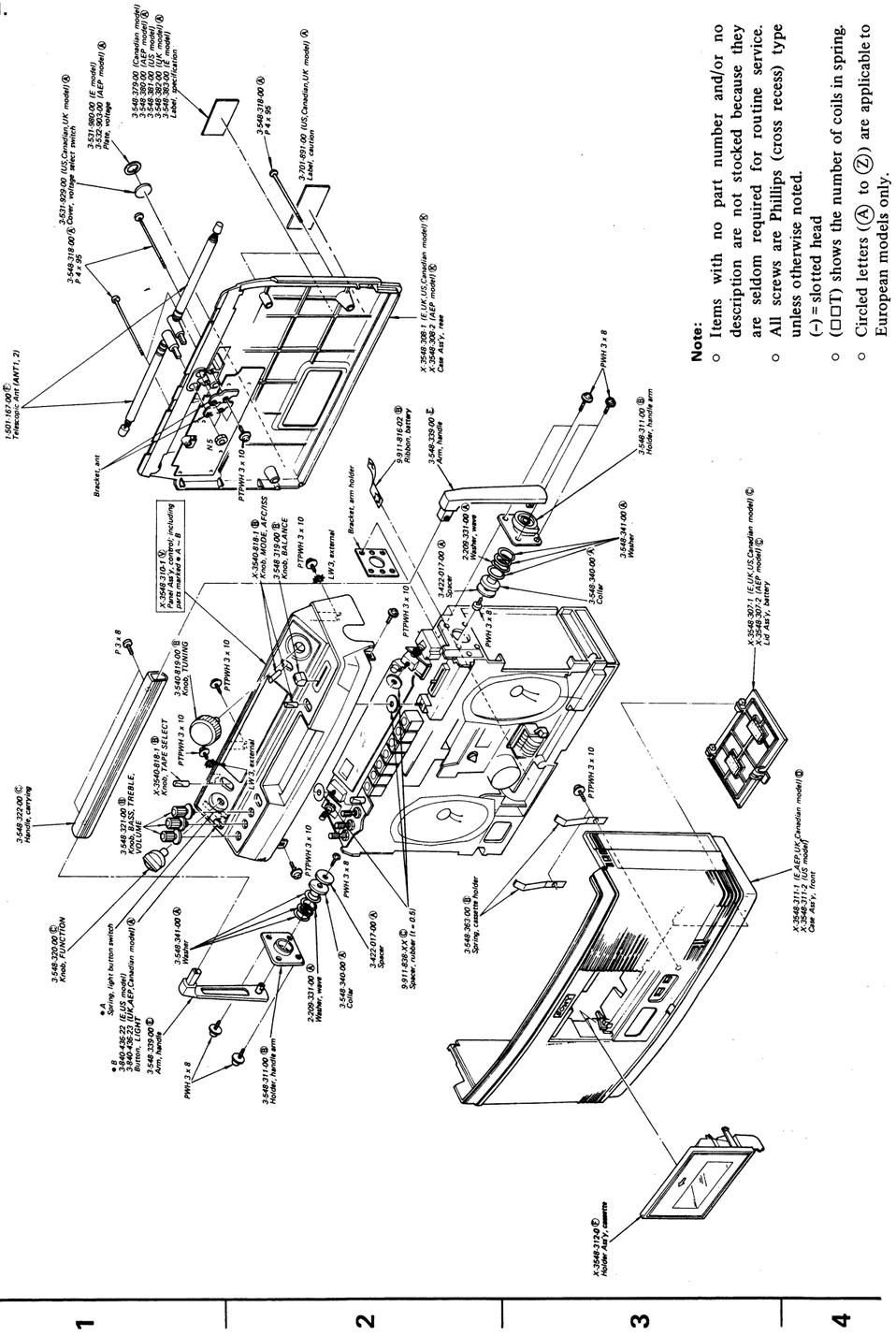
Note:

- All capacitors are in μF unless otherwise noted. 50 or less working voltages are not indicated except for electrolytic type. p = μμF
- All resistors are in Ω, 1/8W, unless otherwise noted. k = 1,000 M = 1,000 k
- △ indicates internal components.
- ⏚ indicates chassis ground.
- ⏚ indicates the connection point marked with ⏚ on the chassis.
- ▬ indicates B+ circuit.
- Voltages are DC with respect to ground unless otherwise noted. Readings are taken under no-signal conditions with a VOM (20 kΩ/V). Readings in [ ] are in record mode.
  ( ): FM
  〈 〉: AM
  (( )): FM STEREO
  no mark: common
- Voltage variations may be noted due to normal production tolerances.
- AC voltage readings on bias oscillator circuit are taken with a VTVM.
- Voltage between base and emitter are measured with 2.5V range.
- ⏦: fusible resistor.
- ⏦: non-flammable resistor
- ▭ indicates designation on the panel.
- ▭ indicates the adjustment for repair.
- Switch Mode:

Ref. No.	Switch	Position
S1	RECORD/PLAYBACK	PLAYBACK
S2	TAPE SELECT	NORMAL
S3	FUNCTION	MIC/TC
S4	MODE	STEREO
S5	AFC/ISS	OFF
S6	POWER	OFF
S7	AC/DC	DC
S8	MOTOR POWER	OFF
S9	LIGHT	OFF
S10	MUTING	OFF
S11 (E, AEP model)	VOLTAGE SELECT	100~110V (E mode) 110V (AEP model)
S12, 13 (UK model)	AC POWER	OFF

SECTION 5
EXPLODED VIEW

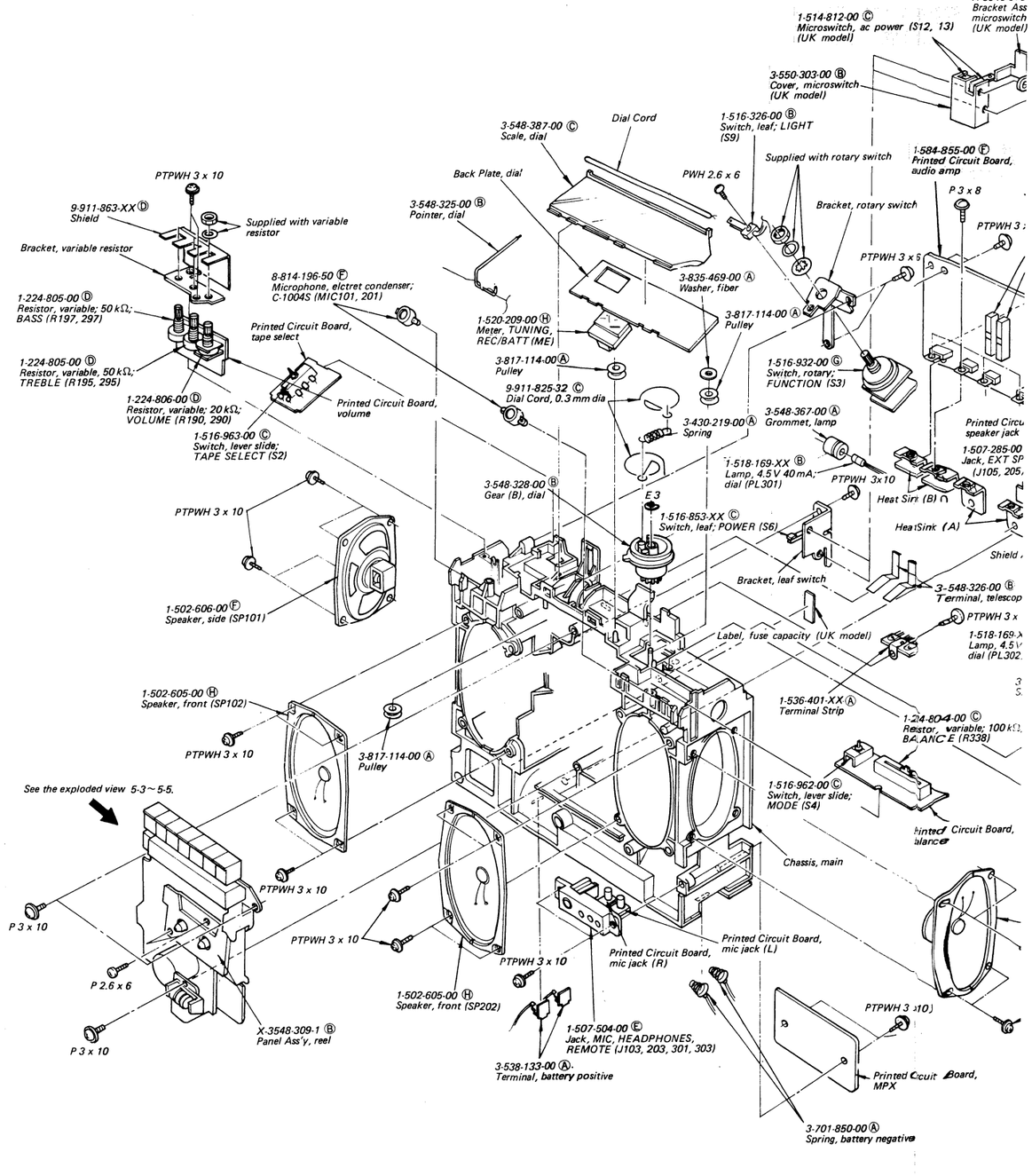
5-1.



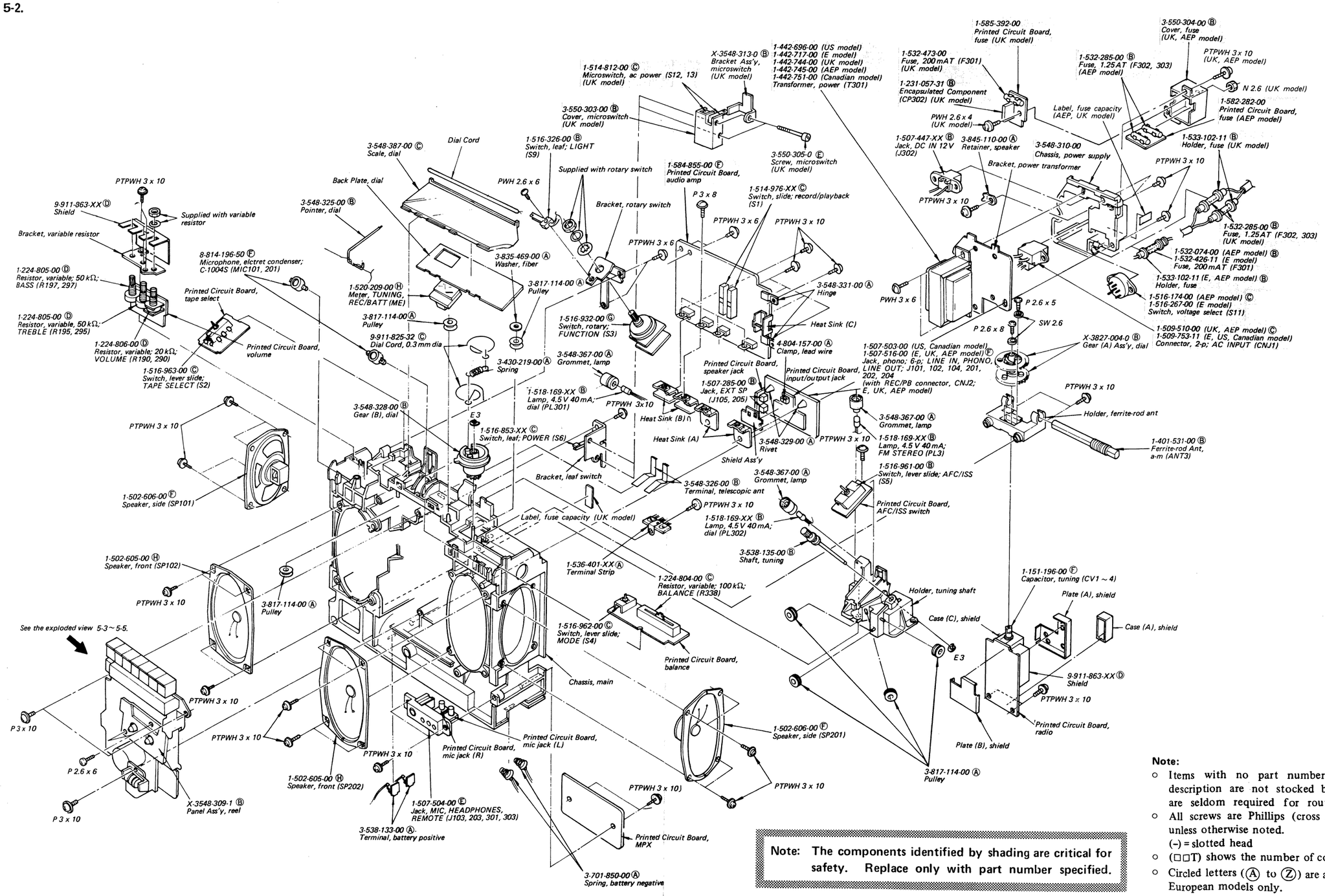
Note:

- 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.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

5-2.



5-2.

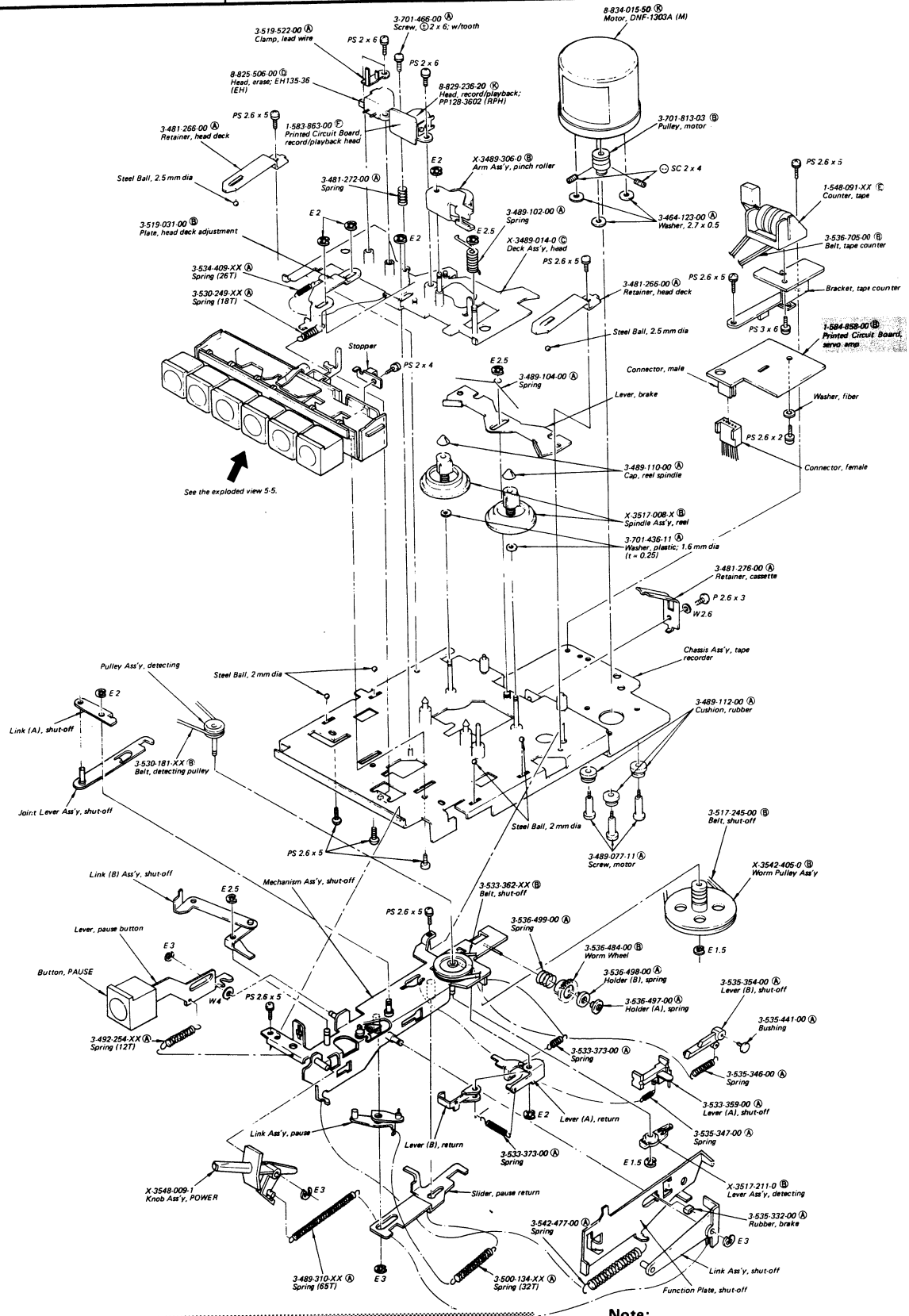


Note: The components identified by shading are critical for safety. Replace only with part number specified.

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.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

5-3.



Note: The components identified by shading are critical for safety. Replace only with part number specified.

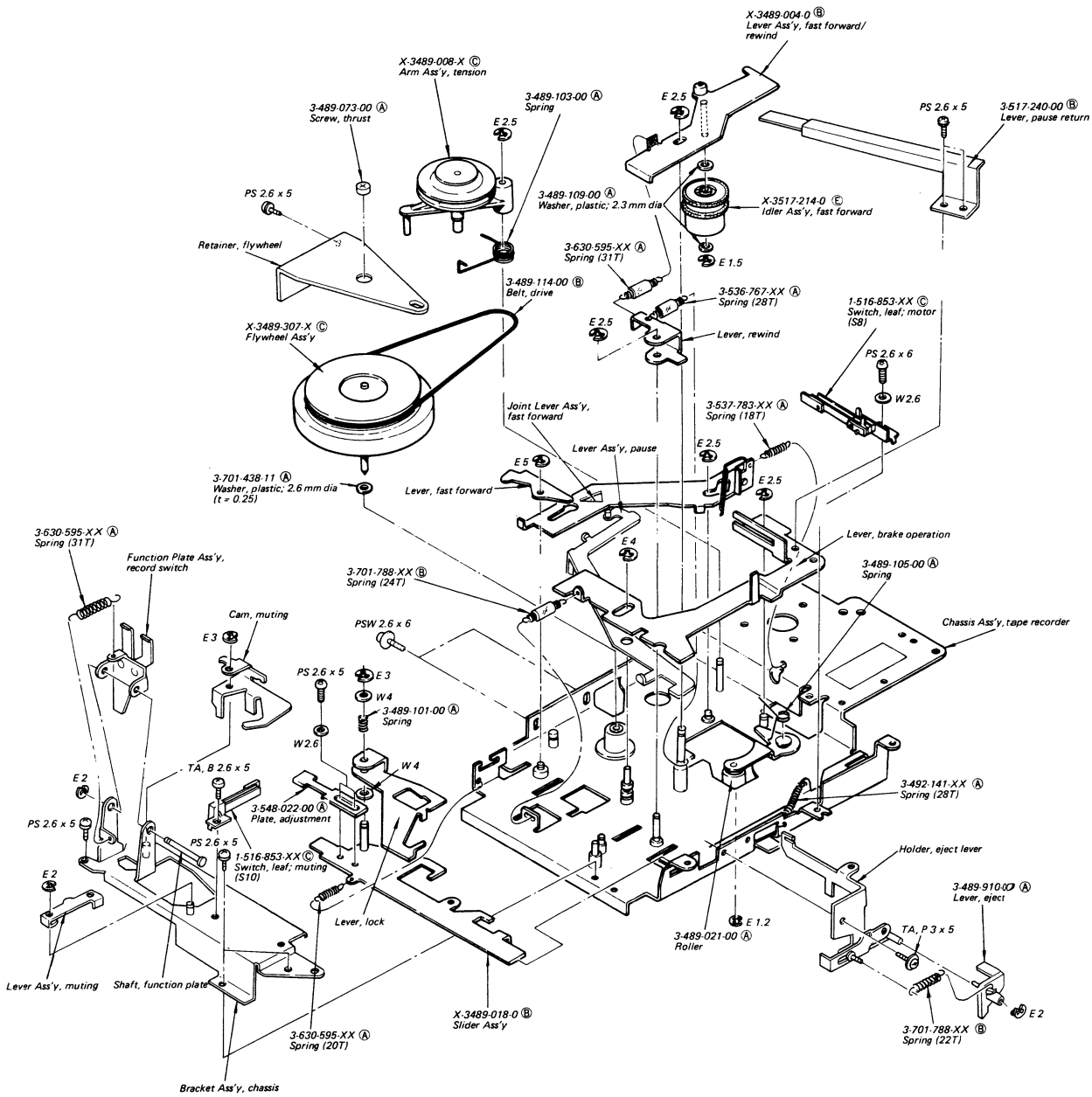
Note:

- 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
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

A B C D

1 2 3 4 5

5-4.



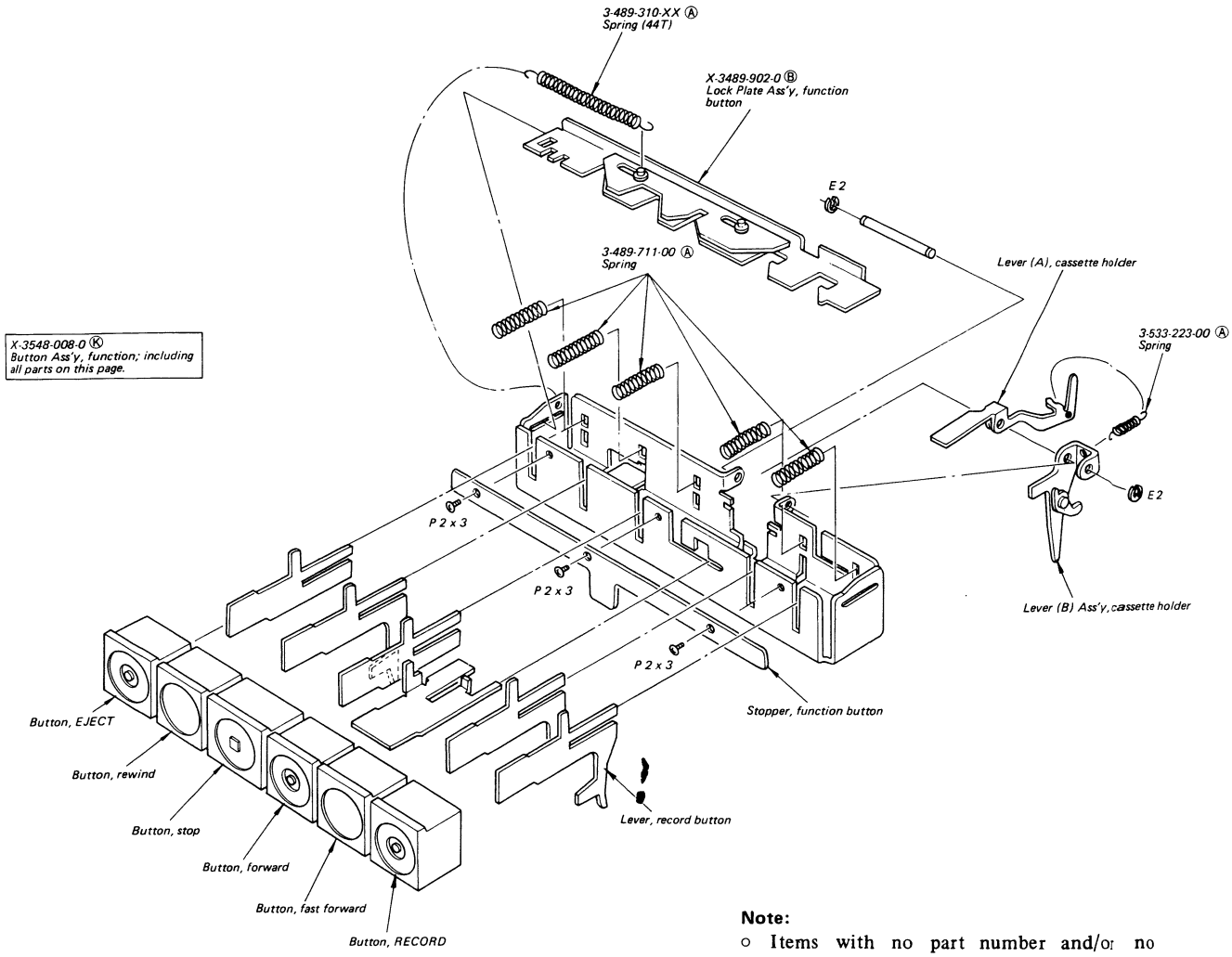
Note:

- 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
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

A B C D

1 2 3 4 5

5-5.



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
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SECTION 6
ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*		*Description*
			PRINTED CIRCUIT BOARD
	1-583-863-00	Ⓕ	Record/Playback Head
	1-584-855-00	Ⓕ	Audio Amp
	1-584-858-00	Ⓑ	Servo Amp
	1-585-282-00		Fuse (AEP model)
	1-585-329-00		Fuse (UK model)
			SEMICONDUCTORS
			Transistors
Q1,2		Ⓑ	2SC710
⇒ Q3,4		Ⓑ	2SC930D
Q5~10		Ⓑ	2SC710
⇒ Q101,201 ⇒ Q102,202		Ⓑ	2SC632A
⇒ Q103,203 ⇒ Q104~107 ⇒ Q204~207		Ⓑ	2SC634A
⇒ Q108,208 ⇒ Q109~111 ⇒ Q209~211		Ⓑ	2SC634A
Q112,212		Ⓒ	2SC1173
Q113,213		Ⓔ	2SA473
⇒ Q114,214		Ⓑ	2SC634A
⇒ Q301~304		Ⓑ	2SC634A
⇒ Q305		Ⓒ	2SC1173
⇒ Q306		Ⓑ	2SC634A
⇒ Q601		Ⓒ	2SC1760
Q602		Ⓑ	2SB475
⇒ Q603		Ⓑ	2SC634A
⇒ Q701~705		Ⓑ	2SC634A
			Diodes
⇒ D1		Ⓑ	1S2687
D2		Ⓑ	1S1555
D3,4		Ⓐ	1T261
⇒ D5		Ⓐ	1T22A
D6		Ⓐ	1T261
D7		Ⓑ	1S1555

⇒: Due to replacement parts, the description are different on the schematic diagram.

Ref. No.	*Part No.*		*Description*
⇒ D101,201		Ⓑ	1S1555
⇒ D102,202		Ⓐ	1T22A
⇒ D103,203		Ⓑ	2SC634A
⇒ D301		Ⓐ	1T22A
⇒ D302		Ⓑ	1S1555
⇒ D303,304		Ⓐ	1T22A
⇒ D305		Ⓑ	1S1555
D306		Ⓑ	RD6A
D307,308		Ⓑ	10D2
D309		Ⓑ	RD4A
D601		Ⓑ	10D2
⇒ D602		Ⓑ	1S1555
⇒ D701,702		Ⓑ	1T22A
⇒ D703		Ⓑ	1S1555
D704~707		Ⓑ	1T22A
			Thermistor
Th601	1-800-198-XX	Ⓐ	S-1K
			COILS
L1	1-425-632-00	Ⓑ	FM/RF
L2	1-405-705-00	Ⓑ	FM Osc (UK, AEP model)
	1-459-157-00		FM Osc (E, US, Canadian model)
L3	1-407-670-00	Ⓑ	Microinductor, 1.8μH
L4	1-405-520-00	Ⓑ	AM Osc
L5	1-407-180-XX	Ⓐ	Microinductor, 1.5μH
L6	1-407-175-XX	Ⓐ	Microinductor, 330μH
L7	1-407-163-XX	Ⓐ	Microinductor, 33μH
L101,201	1-407-670-00	Ⓑ	Microinductor, 1.8μH
L102,202	1-407-212-XX	Ⓑ	Microinductor, 33mH
L601,602	1-407-487-00	Ⓑ	Microinductor, 3.3μH
			TRANSFORMERS
IFTA1	1-404-041-00	Ⓑ	AM IFT
IFTF1	1-404-049-00	Ⓑ	FM IFT
IFTF2	1-403-952-00	Ⓑ	FM Discriminator
IFTF3	1-403-953-00	Ⓑ	FM Discriminator

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Ref. No.	Part No.		Description
T101,201	1-423-209-00	Ⓒ	Input
T301	1-442-696-00		Power (US model)
	1-442-717-00		Power (E model)
	1-442-744-00		Power (UK model)
	1-442-745-00		Power (AEP model)
	1-442-751-00		Power (Canadian model)
T701	1-425-260-00	Ⓒ	MPX

FILTERS

CF1,2	1-527-184-XX	Ⓑ	Ceramic, 10.7 MHz
CF3	1-403-144-00	Ⓑ	AM IFT
CP1	1-231-313-00	Ⓑ	Band-pass

CAPACITORS

All capacitors are in μF and of ceramic unless otherwise noted.
50 and/or less working voltages are not indicated except for electrolytic type.
(p = μμF, elect = electrolytic)

C1	1-102-922-11	Ⓐ	0.0047		
C2,3	1-101-919-11	Ⓐ	0.0022		
C4	1-102-960-11	Ⓐ	24p		
C5	1-102-943-11	Ⓐ	6p		
C6	1-131-184-11	Ⓐ	33	3.15V	tantalum
C7	1-101-923-11	Ⓐ	0.01		
C8	1-102-936-11	Ⓐ	3p		
C9	1-102-951-11	Ⓐ	15p		
C10	1-101-918-11	Ⓐ	0.001		
C11	1-102-949-11	Ⓐ	12p		
C12	1-102-944-11	Ⓐ	7p		
C13	1-102-935-11	Ⓐ	2p		
C14	1-127-047-11	Ⓑ	0.33	10V	solid aluminum
C15	1-121-413-11	Ⓐ	100	6.3V	elect
C16	1-101-924-11	Ⓐ	0.022		
C17	1-102-108-11	Ⓐ	150p		
C18	1-102-106-11	Ⓐ	100p		
C19,20	1-101-924-11	Ⓐ	0.022		
C21	1-102-111-11	Ⓐ	270p		
C22	1-101-924-11	Ⓐ	0.022		
C23	1-101-919-11	Ⓐ	0.0022		
C24,25	1-101-924-11	Ⓐ	0.022		
C26	1-101-919-11	Ⓐ	0.0022		
C27	1-102-958-11	Ⓐ	20p		

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
C28	1-101-924-11	Ⓐ	0.022
C29	1-101-923-11	Ⓐ	0.01
C30	1-102-114-11	Ⓐ	470p
C31	1-121-651-11	Ⓐ	10 16V elect
C32,33	1-107-139-11	Ⓐ	220p silvered mica
C34	1-121-402-11	Ⓐ	33 10V elect
C35	1-102-110-11	Ⓐ	220p
C36	1-121-651-11	Ⓐ	10 16V elect
C37	1-102-947-11	Ⓐ	10p
C38	1-102-953-11	Ⓐ	18p
C39	1-107-241-11	Ⓐ	360p silvered mica
C40	1-101-924-11	Ⓐ	0.022
C41	1-102-952-11	Ⓐ	16p
C42	1-101-923-11	Ⓐ	0.01
C43,44	1-101-924-11	Ⓐ	0.022
C45	1-121-651-11	Ⓐ	10 16V elect
C46	1-101-924-11	Ⓐ	0.022
C47	1-127-045-11	Ⓐ	0.1 10V solid aluminum
C48	1-101-924-11	Ⓐ	0.022
C49	1-121-413-11	Ⓐ	100 6.3V elect
C50,51	1-101-923-11	Ⓐ	0.01
C52	1-121-392-11	Ⓐ	3.3 25V elect
C53,54	1-101-923-11	Ⓐ	0.01
C101,201	1-121-726-11	Ⓐ	0.47 50V elect
C102,202	1-102-114-11	Ⓐ	470p
C103,203	1-161-002-11	Ⓐ	0.0012
C104,204	1-121-392-11	Ⓐ	3.3 25V elect
C105,205	1-121-414-11	Ⓐ	100 10V elect
C106,206	1-102-983-11	Ⓐ	220p
C107~109 C207~209	1-102-975-11	Ⓐ	100p
C110,210	1-121-651-11	Ⓐ	10 16V elect
C111,211	1-121-421-11	Ⓑ	220 16V elect
C112,212	1-161-018-11	Ⓐ	0.027
C113,213	1-108-363-12	Ⓑ	0.12 mylar
C114,214	1-161-020-11	Ⓐ	0.039
C115,215	1-121-651-11	Ⓐ	10 16V elect
C116,216	1-127-046-11	Ⓐ	0.22 10V solid aluminum
C117,217	1-102-975-11	Ⓐ	100p
C118,218	1-127-045-11	Ⓐ	0.1 10V solid aluminum

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Ref. No.	Part No.		Description
C119,219	1-121-651-11	Ⓐ	10 16V elect
C120,220	1-121-415-11	Ⓐ	100 16V elect
C121,221	1-102-975-11	Ⓐ	100p
C122,222	1-121-413-11	Ⓐ	100 6.3V elect
C123,223	1-102-975-11	Ⓐ	100p
C124,224	1-121-413-11	Ⓐ	100 6.3V elect
C125,225	1-121-402-11	Ⓐ	33 10V elect
C126,226	1-121-404-11	Ⓐ	33 25V elect
C127,227	1-161-001-11	Ⓐ	0.001
C128,228	1-127-046-11	Ⓐ	0.22 10V solid aluminum
C129,229	1-107-111-11	Ⓐ	15p silvered mica
C130,230	1-107-107-11	Ⓐ	10p silvered mica
C131,231	1-107-130-11	Ⓐ	91p silvered mica
C132,232	1-131-229-11	Ⓑ	33 6.3V tantalum
C133,233	1-161-003-11	Ⓐ	0.0015
C134,234	1-121-726-11	Ⓐ	0.47 50V elect
C135,235	1-121-392-11	Ⓐ	3.3 25V elect
C136,236	1-127-386-11	Ⓑ	0.15 10V solid aluminum
C137,237	1-161-018-11	Ⓐ	0.027
C138,238	1-121-521-11	Ⓐ	330 16V elect
C139,239	1-121-421-11	Ⓑ	220 16V elect
C140,240	1-121-726-11	Ⓐ	0.47 50V elect
C141,241	1-121-651-11	Ⓐ	10 16V elect
C142,242	1-102-832-11	Ⓐ	330p
C143,243	1-121-419-11	Ⓐ	220 6.3V elect
C144,244	1-121-245-11	Ⓑ	1000 16V elect
C145,245	1-121-414-11	Ⓐ	100 10V elect
C146,246	1-121-421-11	Ⓑ	220 16V elect
C147,247	1-121-736-11	Ⓑ	1000 10V elect
C148,248	1-161-013-11	Ⓐ	0.01
C149,249	1-107-051-11	Ⓐ	15p 500V silvered mica
C150,250	1-107-001-11	Ⓐ	18p 500V silvered mica
C151,251	1-107-052-11	Ⓐ	22p 500V silvered mica
C152,252	1-107-053-11	Ⓐ	27p 500V silvered mica
C153,253	1-161-001-11	Ⓐ	0.001
C154,254	1-161-006-11	Ⓐ	0.0027
C155,255	1-161-004-11	Ⓐ	0.0018
C156,256	1-161-001-11	Ⓐ	0.001
C157,257	1-161-004-11	Ⓐ	0.0018
C158,258	1-127-047-11	Ⓑ	0.33 10V solid aluminum
C159,259	1-161-007-11	Ⓐ	0.0033

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description
C160,260	1-161-021-11	Ⓐ	0.047
C161,261	1-121-651-11	Ⓐ	10 16V elect
C162,262	1-161-016-11	Ⓐ	0.018
C163,263	1-161-006-11	Ⓐ	0.0027
C164,264	1-161-024-11	Ⓐ	0.082
C165,265	1-161-016-11	Ⓐ	0.018
C301	1-121-651-11	Ⓐ	10 16V elect
C302	1-121-479-11	Ⓐ	22 16V elect
C303	1-121-402-11	Ⓐ	33 10V elect
C304	1-131-195-11	Ⓑ	33 10V tantalum
C305	1-131-183-11	Ⓑ	22 3.15V tantalum
C306	1-121-651-11	Ⓐ	10 16V elect
C307	1-121-402-11	Ⓐ	33 10V elect
C308	1-121-479-11	Ⓐ	22 16V elect
C309	1-121-413-11	Ⓐ	100 6.3V elect
C310,311	1-121-415-11	Ⓐ	100 16V elect
C312	1-121-426-11	Ⓑ	470 16V elect
C313	1-121-660-11	Ⓑ	2200 16V elect
C314,315	1-101-004-11	Ⓐ	0.01
C317	1-102-106-11	Ⓐ	100p
C318	1-107-016-11	Ⓐ	470p 500V silvered mica
C319	1-129-702-11	Ⓐ	0.001 630V plastic
C320	1-107-006-11	Ⓐ	330p 500V silvered mica
C321	1-107-213-11	Ⓑ	680p 500V silvered mica
C322	1-121-413-11	Ⓐ	100 6.3V elect
C601	1-121-409-11	Ⓐ	47 16V elect
C602	1-121-413-11	Ⓐ	100 6.3V elect
C603	1-121-424-11	Ⓑ	470 6.3V elect
C604	1-121-415-11	Ⓐ	100 16V elect
C701	1-107-125-11	Ⓐ	56p silvered mica
C702	1-121-651-11	Ⓐ	10 16V elect
C703	1-121-402-11	Ⓐ	33 10V elect
C704	1-121-413-11	Ⓐ	100 6.3V elect
C705	1-108-835-12	Ⓐ	0.0068 mylar
C706	1-121-402-11	Ⓐ	33 10V elect
C707	1-121-391-11	Ⓐ	1 50V elect
C708	1-121-413-11	Ⓐ	100 6.3V elect
C709	1-103-575-11	Ⓑ	0.0047 polystyrol
C710,711	1-108-841-12	Ⓐ	0.022 mylar
C712,713	1-108-845-12	Ⓐ	0.047 mylar
C714~717	1-108-829-12	Ⓐ	0.0022 mylar

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.		Description		
C718,719	1-108-827-12	Ⓐ	0.0015		mylar
C720,721	1-121-651-11	Ⓐ	10	16 V	elect
C722,723	1-102-106-11	Ⓐ	100 p		
C724,725	1-121-391-11	Ⓐ	1	50 V	elect
CT1~4	1-141-138-XX	Ⓑ	Trimmer		
CV1~4	1-151-196-00	Ⓕ	Tuning		

RESISTORS

All resistors are in ohms. Regular-type ¼W carbon resistors are omitted.
Check the schematic diagram for the resistance values. (k = 1000)

R124	1-224-648-XX	Ⓑ	100 k, adjustable		
R169,269	**1-213-060-11**	**Ⓐ**	**10**	**1W**	**fusible (nonflammable)**
R190,290	1-224-806-00	Ⓓ	20 k, variable; VOLUME		
R195,295	1-224-805-00	Ⓓ	50 k, variable; TREBLE		
R197,297	1-224-805-00	Ⓓ	50 k, variable; BASS		
R324	**1-213-125-11**	**Ⓐ**	**33**	**1W**	**metal-oxide (nonflammable)**
R331	**1-213-127-11**	**Ⓐ**	**47**	**1W**	**metal-oxide (nonflammable)**
R338	1-224-804-00	Ⓒ	100 k, variable; BALANCE		
R339	1-246-431-35	Ⓐ	2.2 k	¼W	carbon (nonflammable)
R602	1-224-642-XX	Ⓑ	1 k, adjustable		
R735	1-224-646-XX	Ⓑ	22 k, adjustable		

SWITCHES

S1	1-514-976-XX	Ⓒ	Slide, record/playback
S2	1-516-963-00	Ⓒ	Lever Slide, TAPE SELECT
S3	1-516-932-00	Ⓖ	Rotary, FUNCTION
S4	1-516-962-00	Ⓒ	Lever Slide, MODE
S5	1-516-961-00	Ⓑ	Lever Slide, AFC/ISS
S6,8	1-516-853-XX	Ⓒ	Leaf, POWER, motor
S7	————		Included in CNJ2
S9	1-516-326-00	Ⓑ	Leaf, LIGHT
S10	1-516-853-XX	Ⓒ	Leaf, muting
S11	**1-516-174-00**	**Ⓒ**	**Voltage Select (AEP model)**
S11	**1-516-267-00**		**Voltage Select (E model)**
S12,13	**1-514-812-00**	**Ⓒ**	**Micro, ac power (UK model)**

Ref. No.	Part No.		Description
			JACKS
J101,102, J104,201, J202,204	1-507-503-00		Phono, 6-p; LINE IN, PHONO, LINE OUT (US, Canadian model)
J101,102, J104,201, J202,204	1-507-516-00	Ⓕ	Phono, 6-p; LINE IN, PHONO, LINE OUT (with REC/PB connector, CNJ2) (E, UK, AEP model)
J105,205	1-507-285-00	Ⓑ	EXT SP
J103,203 J301,303	1-507-504-00	Ⓔ	MIC, HEADPHONES, REMOTE
J302	1-507-447-XX	Ⓑ	DC IN 12V
			MISCELLANEOUS
ANT1,2	1-501-167-00	Ⓕ	Antenna, telescopic
ANT3	1-401-531-00	Ⓑ	Antenna, a-m ferrite-rod
CNJ1	**1-509-510-00**	**Ⓒ**	**Connector, 2-p; AC INPUT (UK, AEP model)**
CNJ1	**1-509-753-11**		**Connector, 2-p; AC INPUT (E, US, Canadian model)**
CNJ2	————		Connector, REC/PB; included in 6-p phono jack (E, UK, AEP model)
CP301	1-464-025-00	Ⓖ	Unit, bias osc
CP302	**1-231-057-31**	**Ⓑ**	**Encapsulated Component (UK model)**
CP701	1-425-548-00	Ⓔ	Unit, MPX
EH	8-825-506-00	Ⓒ	Head, erase; EH135-36
F301	**1-532-074-00**	**Ⓑ**	**Fuse, 200 mAT (AEP, model)**
F301	**1-532-426-11**		**Fuse, 200 mAT (E model)**
F301	**1-532-473-00**		**Fuse, 200 mAT (UK model)**
F302,303	**1-532-285-00**	**Ⓑ**	**Fuse, 1.25AT (UK, AEP model)**
M	8-834-015-50	Ⓚ	Motor, DNF-1303A
ME	1-520-209-00	Ⓗ	Meter, TUNING, REC/BATT
MIC101,201	8-814-196-50	Ⓕ	Microphone, electret condenser; C-1004S
PL3	1-518-169-XX	Ⓑ	Lamp, 4.5 V 40 mA; FM STEREO
PL301,302	1-518-109-XX	Ⓑ	Lamp, 4.5 V 40 mA; dial
RPH	8-829-236-20	Ⓚ	Head, record/playback; PP128-3602
SP101,201	1-502-606-00	Ⓕ	Speaker, side
SP102,202	1-502-605-00	Ⓗ	Spea Ker, front
	1-533-102-11	**Ⓑ**	**Holder, fuse (E, AEP, UK model)**
	1-535-050-21	**Ⓐ**	**pin Cover, AC INPUT (AEP,UK model)**
	1-536-401-XX	Ⓐ	Terminal Strip

Note: The components identified by shading are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

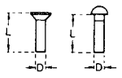
ACCESSORIES AND PACKING MATERIALS

Part No.		Description
X-3701-018-2	Ⓐ	Tips Ass'y, cleaning
1-516-565-00		Adaptor, ac plug (E model)
1-534-830-12		**Cord, power; DK-33 (E model)**
1-534-840-XX	Ⓔ	**Cord, power (AEP model)**
1-534-867-00		**Cord, power; DK-35 (US model)**
1-551-002-XX		**Cord, power (Canadian model)**
1-551-218-00		**Cord, power (UK model)**
3-548-371-00	Ⓐ	Spacer
3-548-372-00	Ⓒ	Bag, plastic; set (E, UK, AEP, US model)
3-548-375-00	Ⓒ	Cushion, right
3-548-376-00	Ⓒ	Cushion, left
3-548-395-00		Bag, plastic; set (Canadian model)
3-548-398-00	Ⓔ	Carton
3-770-018-11	Ⓔ	Manual, instruction (AEP model)
3-770-018-21		Manual, instruction (US model)
3-770-018-31		Manual, instruction (Canadian model)
3-770-018-41	Ⓒ	Manual, instruction (UK model)
3-770-018-51	Ⓔ	Manual, instruction
3-793-455-00	Ⓐ	Tag, caution
3-793-828-00	Ⓐ	Card, caution; cassette
8-893-506-00	Ⓕ	Tape, demonstration; CD-803

Note: The components identified by shading are critical for safety. Replace only with part number specified.

HARDWARE NOMENCLATURE

Screw: — P 3 x 10
- L: Length in mm
- D: Diameter in mm
- Type of head
- Indicated slotted-head only. Unless otherwise indicated, it means cross-recessed head (Phillips type).



Nut, Washer, Retaining ring:

N 3
- Diameter of usable screw or shaft
- Reference designation

Reference Designation	Shape	Description	Remarks
		SCREWS	
P		pan-head screw	binding-head (B) screw for replacement
PWH		pan-head screw with washer face	binding-head (B) screw and flat washer for replacement
PS PSP		pan-head screw with spring washer	binding-head (B) screw and spring washer for replacement
PSW PSPW		pan-head screw with spring and flat washers	binding-head (B) screw and spring and flat washers for replacement
R		round-head screw	binding-head (B) screw for replacement
K		flat-countersunk-head screw	
RK		oval-countersunk-head screw	
B		binding-head screw	
T		truss-head screw	binding-head (B) screw for replacement
F		flat-fillister-head screw	
RF		fillister-head screw	
BV		braizer-head screw	

Reference Designation	Shape	Description	Remarks
		SELF-TAPPING SCREWS	
TA		self-tapping screw	ex: TA, P 3 x 10
PTP		pan-head self-tapping screw	binding-head self-tapping (TA, B) screw for replacement
PTPWH		pan-head self-tapping screw with washer face	binding-head self tapping (TA, B) screw and flat washer for replacement
PTTWH		pan-head thread-rolling screw with washer face	binding-head (B) screw and flat washer for replacement
		SET SCREWS	
SC		set screw	
SC		hexagon-socket set screw	ex: SC 2.6 x 4, hexagon socket
		NUT	
N		nut	
		WASHERS	
W		flat washer	
SW		spring washer	
LW		internal-tooth lock washer	ex: LW3, internal
LW		external-tooth lock washer	ex: LW3, external
		RETAINING RINGS	
E		retaining ring	
G		grip-type retaining ring	

9-954-446-02

Sony Corporation

© 1976

6H0691-
Printed in Japan