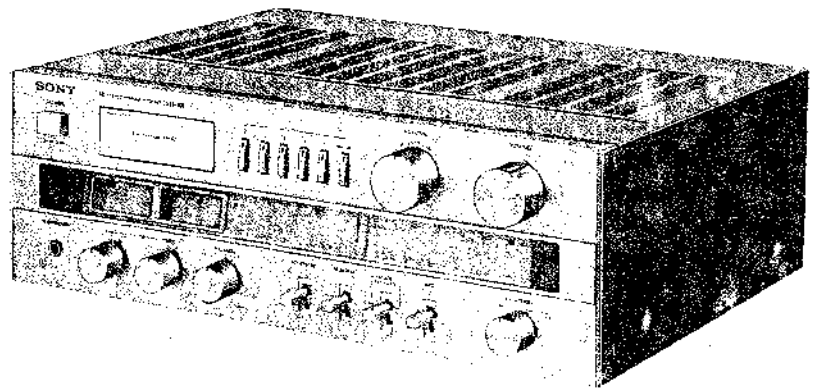
STR-V3L

AEP Model

UK Model



FM STEREO/FM-AM RECEIVER

SPECIFICATIONS

GENERAL

Power Requirements:	120 V, 220 V or 240 V ac adjustable, 50/60 Hz
Power Consumption:	250 W (US model) 190 W (AEP model)
Dimensions:	Approx. 440 mm x 145 mm x 370 mm (17 3/8 in. x 5 7/8 in. x 14 5/8 in.) (w/h/d) including projecting parts and controls
Weight:	Approx. 8.4 kg (18 lb 12 oz) (net) Approx. 11.5 kg (25 lb 6 oz) (shipping carton)

FM SECTION

Frequency Range:	87.5 – 108 MHz
Antenna:	300 Ω balanced 75 Ω unbalanced
Intermediate Frequency:	10.7 MHz
Sensitivity at 46dB Quieting: (at 40 kHz deviation)	4.5 µV (18.3 dBf) (MONO) 50 µV (39.1 dBf) (STEREO)
Usable Sensitivity: (at 40kHz deviation)	2 µV (11.2 dBf), IHF 1.6 µV, S/N=26 dB
S/N Ratio: (at 40kHz deviation)	67 dB (MONO) 63 dB (STEREO)
Limiting Threshold:	1.4 µV
Harmonic Distortion: (at 40kHz deviation)	At 100 Hz 0.2 % (MONO) 0.3 % (STEREO) At 1 kHz 0.2 % (MONO) 0.3 % (STEREO) At 10 kHz 0.3 % (MONO) 0.6 % (STEREO)
IM Distortion: (at 40kHz deviation)	0.2 % (MONO) 0.3 % (STEREO)
Separation:	40 dB at 100 Hz 45 dB at 1 kHz 22 dB at 10 kHz
Frequency Response:	40 – 12,500 Hz $^{+0.5}_{-1.0}$ dB 30 – 15,000 Hz $^{+1.0}_{-3.0}$ dB

– Continued on page 2 –

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS 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

Selectivity: 70 dB (400 kHz)
45 dB (300 kHz)
Capture Ratio: 1.0 dB
AM Suppression Ratio: 55 dB
Image Response Ratio: 45 dB
IF Response Ratio: 95 dB
Spurious Response Ratio: 75 dB
RF Intermodulation: 60 dB
Muting Threshold: Approx. 5 μV
Sub-carrier Product Ratio: 40 dB

AM (MW, LW) SECTION

Frequency Range: MW: 530 – 1,605 kHz
LW: 150 – 350 kHz
Antenna: Built-in ferrite-rod antenna
External antenna terminal
Intermediate Frequency: 468 kHz
Usable Sensitivity: MW: 200 μV/m (46 dB/m)
built-in antenna (1,000 kHz)
100 μV (40 dB),
external antenna (1,000 kHz)
LW: 450 μV/m (53 dB/m),
built-in antenna (250 kHz)
100 μV (40 dB),
external antenna (250 kHz)
S/N Ratio: MW: 50 dB (50 mV/m)
LW: 50 dB (50 mV/m)
Harmonic Distortion: MW: 0.5 % (50 mV/m, 400 Hz)
LW: 0.5 % (50 mV/m, 400 Hz)
Selectivity: MW: 35 dB (10 kHz)
LW: 35 dB (10 kHz)
Image Response Ratio: MW: 40 dB (1,000 kHz)
LW: 75 dB (250 kHz)

AUDIO AMPLIFIER SECTION

Continuous RMS Power Output: Less than 0.3 % THD, both channels driven simultaneously
At 20 – 20,000 Hz
25 W + 25 W (8 Ω)
At 1 kHz
28 W + 28 W (8 Ω)
28 W + 28 W (4 Ω, 0.5 %)
According to DIN 45500
25 W + 25 W (8 Ω)

Dynamic Power Output: IHF constant power supply method
70 W (8 Ω)
Power Bandwidth: 10 – 35,000 Hz, IHF
Damping Factor: 30 at 1 kHz (8 Ω)
Harmonic Distortion: Less than 0.3 % at rated output
Less than 0.1 % at 1 W output
IM Distortion: (60 Hz : 7 kHz = 4 : 1) Less than 0.3 % at rated output
Less than 0.1 % at 1 W output
Residual Noise: Less than 0.3 mV (A-network)
Frequency Response: PHONO:
RIAA equalization curve ± 0.8 dB
TAPE
REC/PB :
10 – 40,000 Hz $^{+0.5\ dB}_{-3\ dB}$

Inputs:

	Sensitivity	Impedance	S/N	Weighting network
PHONO	2.5 mV (–50 dB)	50 kΩ	75 dB	A
TAPE REC/PB	150 mV (–14.5 dB)	50 kΩ	100 dB	A

Measured with rated output power into 8 Ω loads (both channels driven simultaneously) at 1 kHz.

Outputs:
(with rated input, FM 30 % modulation, speaker rated output)

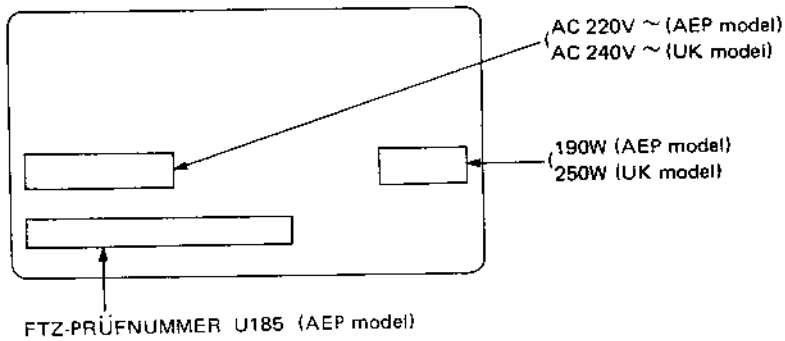
	Voltage	Impedance
REC OUT	150 mV (–14.5 dB)	4.7 kΩ
REC/PB	25 mV (–30 dB)	82 kΩ

Headphones: Accepts 8 Ω to 10 kΩ headphones
Speaker: 4 – 16 Ω speakers are suitable.
Tone Controls: BASS: ± 8 dB at 100 Hz
TREBLE: ± 6 dB at 10 kHz
Loudness Control: (att. 30 dB) +10 dB at 50 Hz
+3 dB at 10 kHz

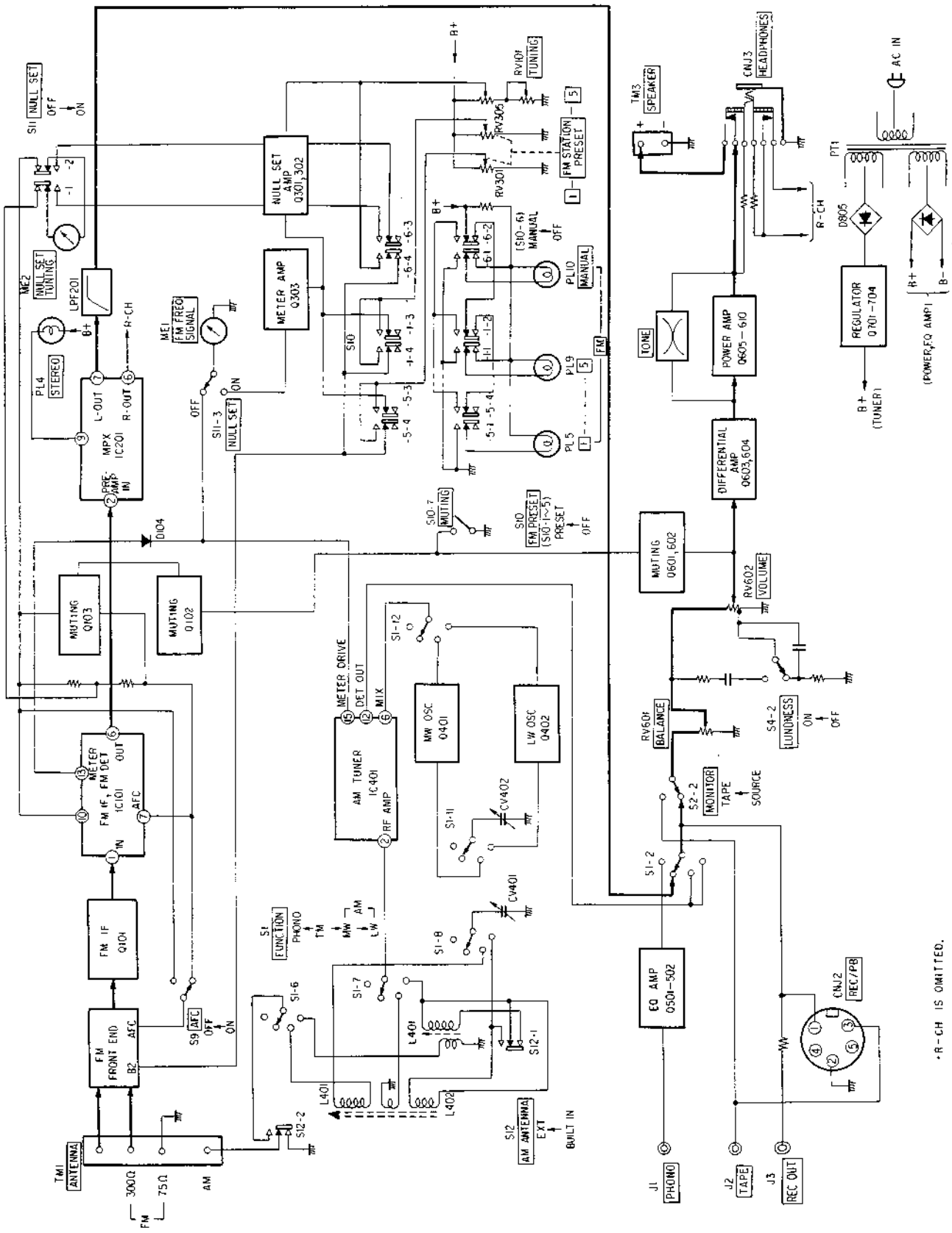
0dB = 0.775V

MODEL IDENTIFICATION

Specification Label



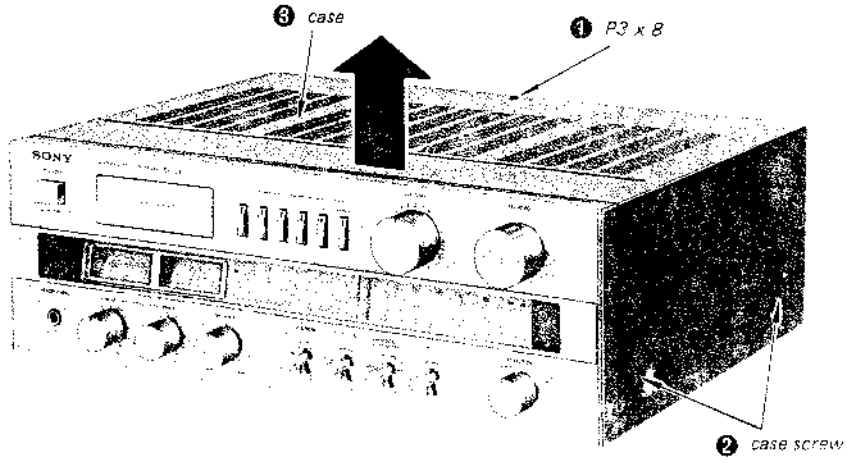
SECTION 1
BLOCK DIAGRAM



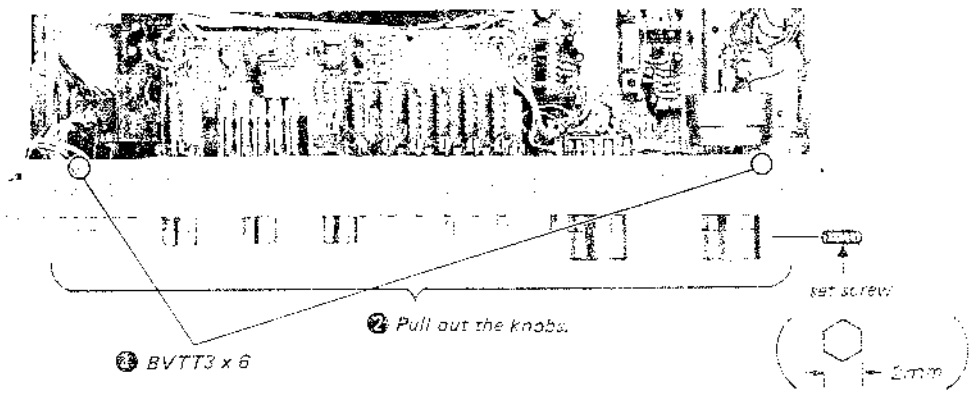
SECTION 2
DISASSEMBLY AND REPLACEMENT

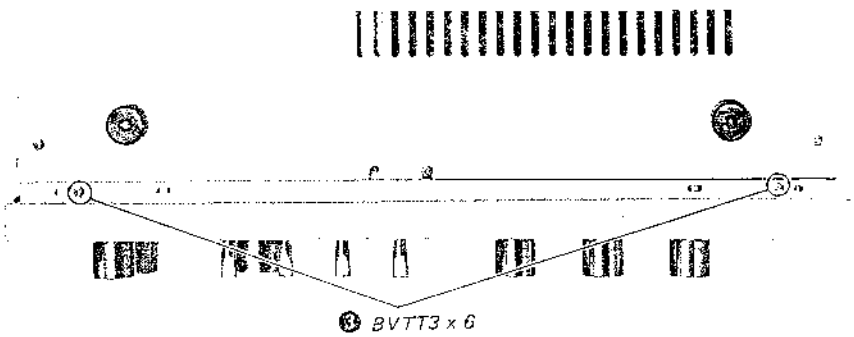
Note: Follow the disassembly procedure in the numerical order given.

CASE REMOVAL

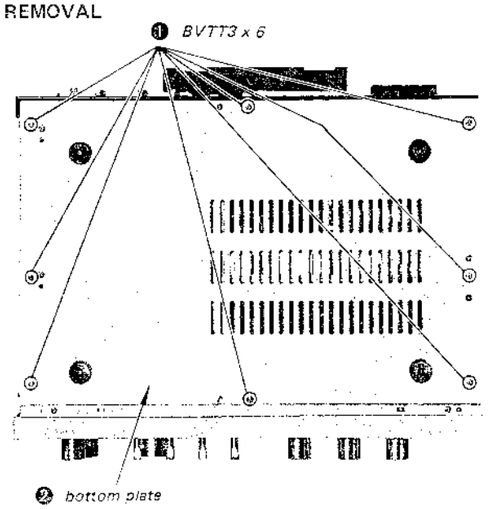


PANEL REMOVAL

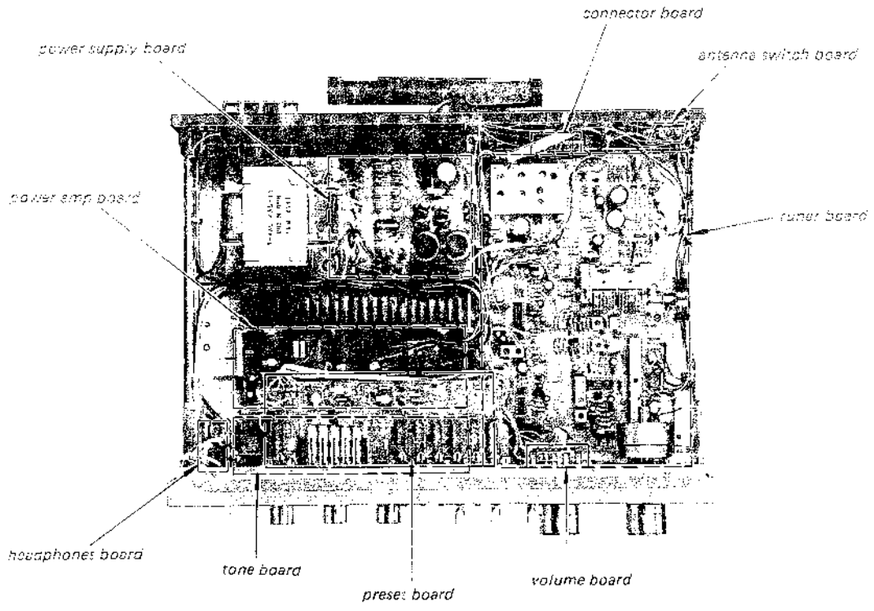




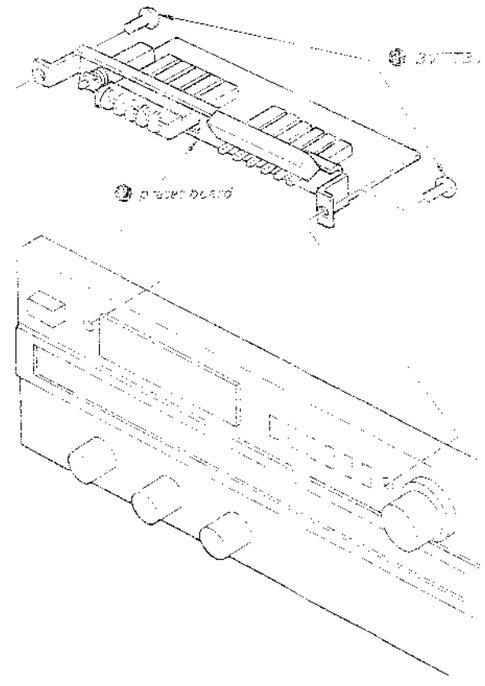
BOTTOM PLATE REMOVAL



CIRCUIT BOARDS LOCATION

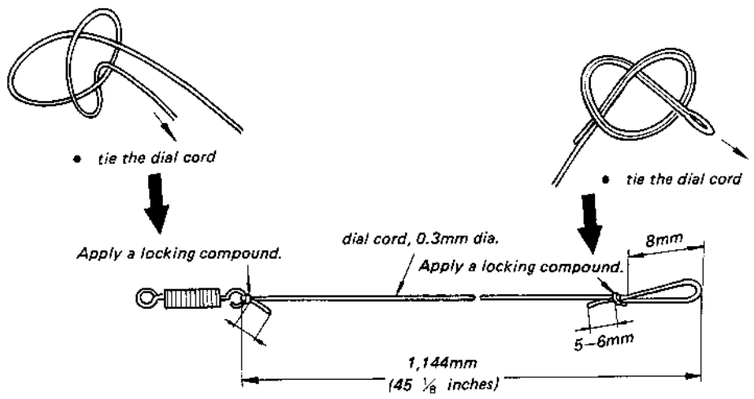


PRESET BOARD REMOVAL



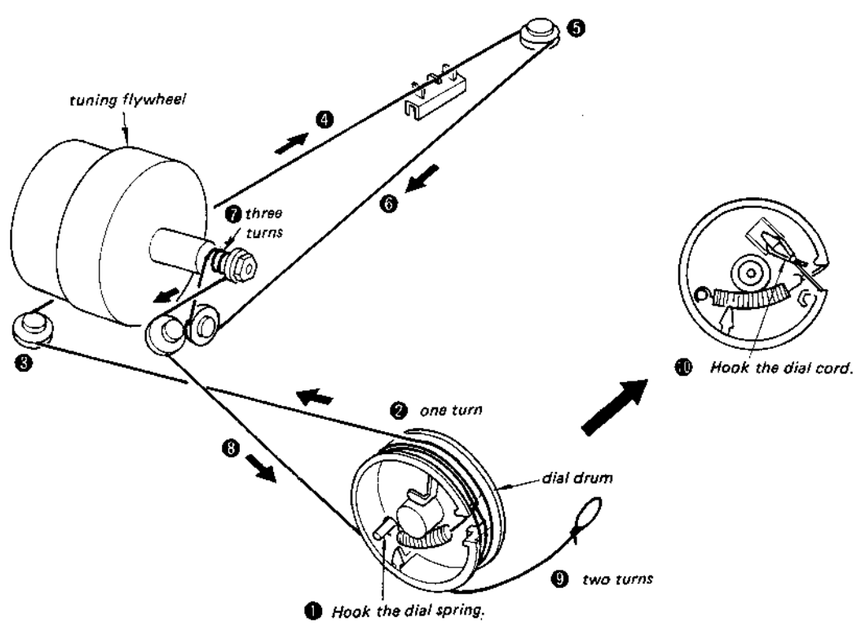
DIAL CORD STRINGING

1. Dial Cord Preparation

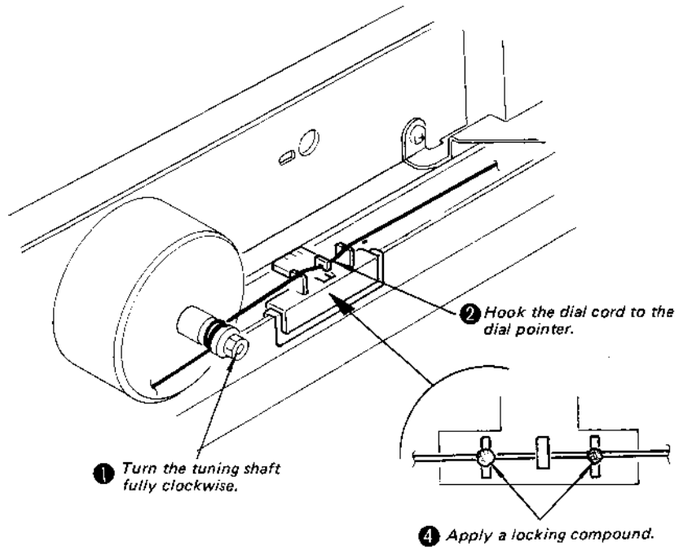


2. Dial Cord Stringing

• *Turn the dial drum fully counterclockwise.*



3. Dial Pointer Installation



❸ *Set the dial pointer at "108.4 MHz.*

SECTION 3
ELECTRICAL ADJUSTMENTS

Bias Adjustment

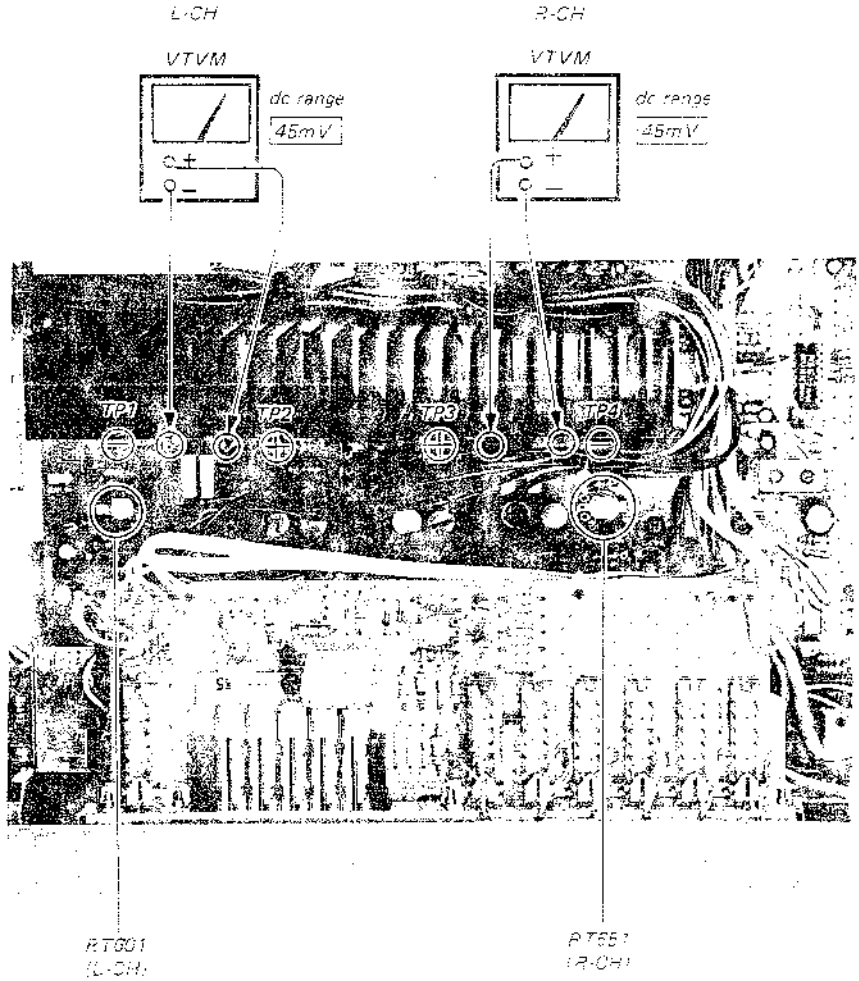
Setting:

1. Detune the set.
2. Perform this adjustment in one minute or more after turning the power switch on.

Procedure:

1. Adjust R1601 (L-CH) and R1651 (R-CH) for a 45 mV reading on the VTVM.

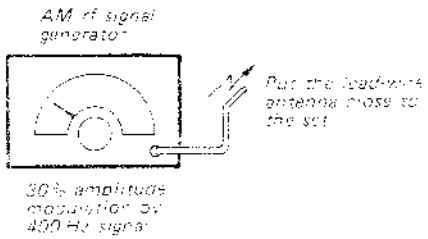
Adjustment Location: – power amp board –

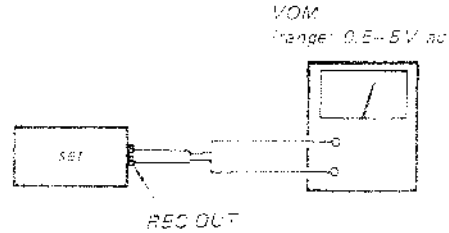


LW SECTION

Setting: FUNCTION switch: LW
AM ANTENNA switch: BUILT-IN

Note: Repeat the LW and MW Tracking Adjustments alternately.





IFT401 and CFT401 are adjusted in the factory, so no adjustment of AM IF is necessary.

IFT401	CFT401

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

LW TRACKING ADJUSTMENT

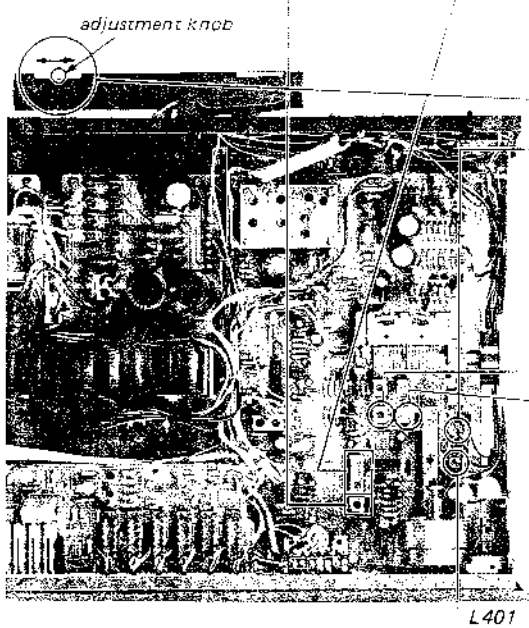
Adjust for a maximum reading on VOM.

L1	170 kHz
CT401	310 kHz

LW FREQUENCY COVERAGE ADJUSTMENT

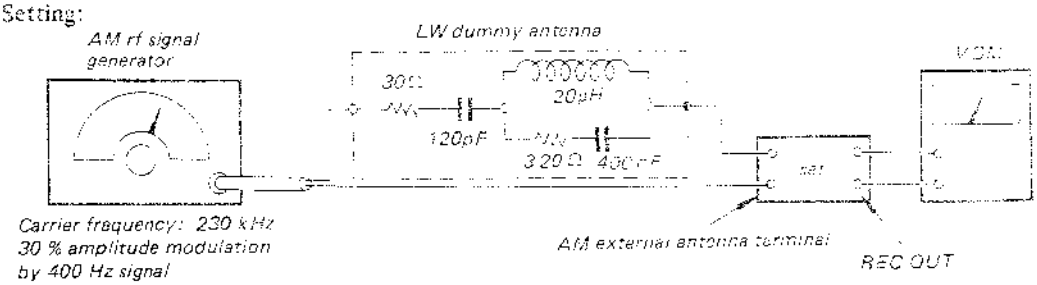
Adjust for a maximum reading on VOM.

L406	145 kHz
CT404	365 kHz



LW EXT ANTENNA COIL ADJUSTMENT

Setting:

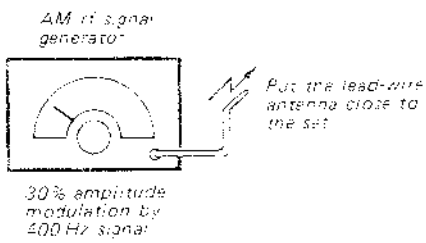


Procedure:

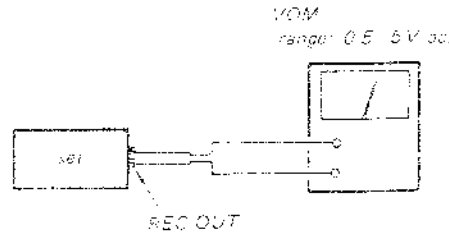
1. Set the AM ANTENNA switch to EXT position.
2. Tune the set to 230 kHz and adjust L401 for a maximum reading on VOM.

MW SECTION

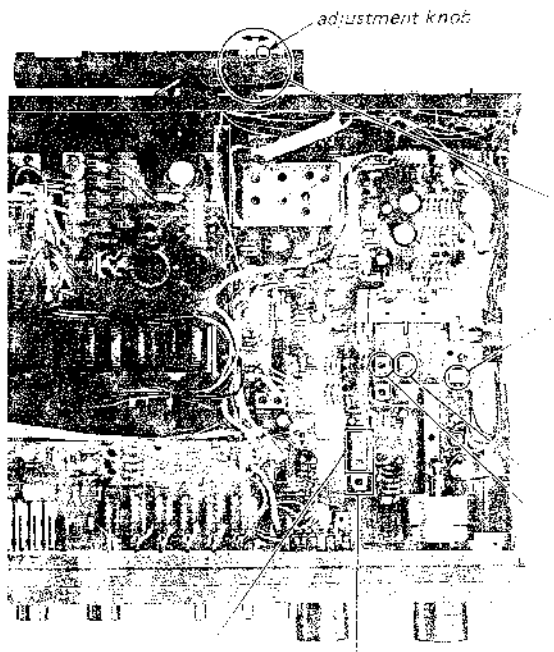
Setting: FUNCTION switch: MW
AM ANTENNA switch: BUILT-IN



Note: Repeat the LW and MW Tracking Adjustments alternately.



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



MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM.	
CT	600 kHz
CFT402	1,250 kHz

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM.	
CT402	530 kHz
L403	520 kHz

CFT401	IFT401

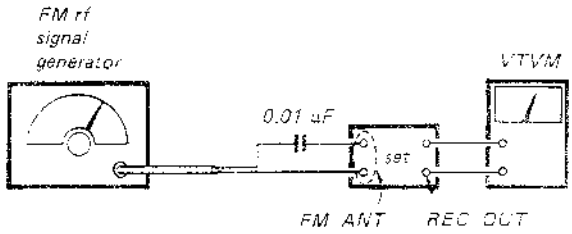
IFT401 and CFT401 are adjusted in the factory, so no adjustment of AM IF is necessary.

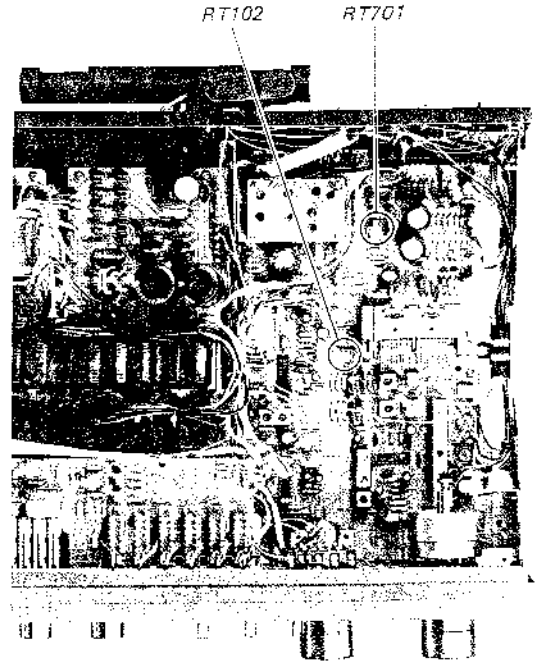
FM SECTION

High Frequency and Low Frequency Adjustment

Setting: PRESET switch (S106): MANUAL

Adjustment Location: - tuner board -





FM Signal Generator Setting:

Carrier frequency: 108.4 MHz, 87.2 MHz
Output level: 1mV (60 dB)
Modulation: 400 Hz, 75 kHz deviation (100%)

- **High Frequency Adjustment**

  Procedure:

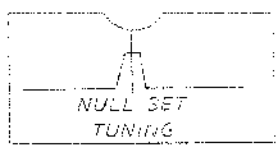
  1. Tune the set to 108.4 MHz.
  2. Turn the variable capacitor fully clockwise.
  3. Adjust RT701 for the center reading on the TUNING meter.

- **Low Frequency Adjustment**

  Procedure:

  1. Tune the set to 87.2 MHz.
  2. Turn the variable capacitor fully counterclockwise.
  3. Adjust RT102 for the center reading on the TUNING meter.

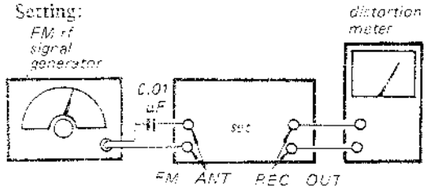
Note: Repeat the high frequency and low frequency adjustment several times.



FM SECTION

Discriminator Adjustment

Setting:



FM Signal Generator Setting:

Carrier frequency:	98 MHz
Output level:	1 mV (60 dB)
Modulation:	400 Hz, 75 kHz deviation (100 %)

• Secondary-side Adjustment

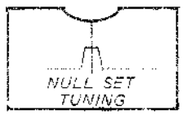
Procedure:

1. Tune the set to 98 MHz.
2. Adjust the secondary-side core (black) of IFT101 for a minimum reading on the distortion meter.

• Primary-side Adjustment

Procedure:

1. Detune the set.
2. Adjust the primary-side core (blue) of IFT101 for the center reading on the TUNING meter.



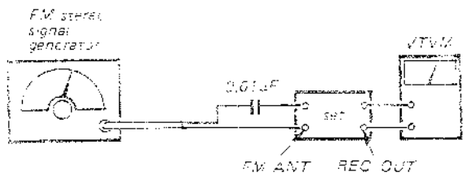
Note: Repeat the secondary-side and primary-side adjustments several times.

FM Stereo Separation Adjustment

Setting:

MODE switch: FM STEREO

Procedure:



FM Signal Generator Setting:

Carrier frequency:	98 MHz
Output level:	1 mV (60 dB)
Mode:	Stereo
Modulation:	
Audio (400 Hz):	33.75 kHz deviation (45 %)
Pilot (19 kHz):	7.5 kHz deviation (10 %)

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	A
		B
R-CH	L-CH	Adjust RT202 for minimum reading
R-CH	R-CH	C
		D
L-CH	R-CH	Adjust RT203 for minimum reading.

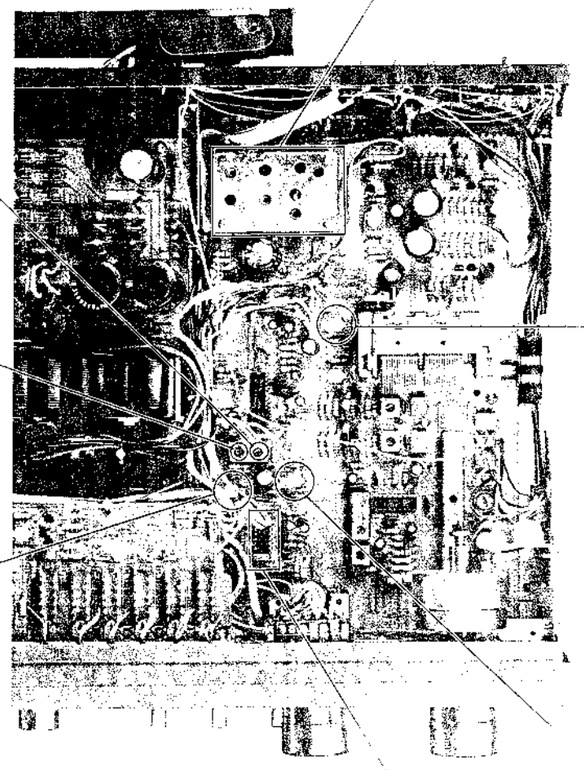
L-CH Stereo separation: A − B

R-CH Stereo separation: C − D

The difference between separations of both channels should be equal.

FRONT-END SECTION

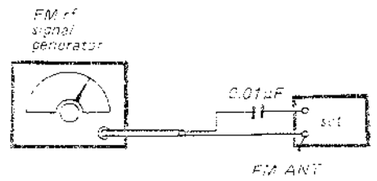
The front-end section has been carefully adjusted at the factory, so the adjustment is unnecessary in the field.



Signal Meter Adjustment

Setting:

FUNCTION switch: FM

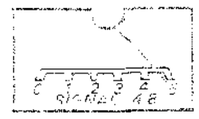


FM Signal Generator Setting:

Carrier frequency:	98 MHz
Modulation:	no modulation
Output level:	1 mV (60 dB)

Procedure:

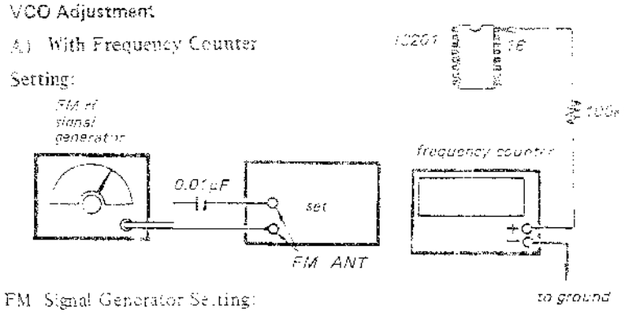
Tune the set to 98 MHz and adjust RT101 for maximum pointer deflection on the SIGNAL meter.



VCO Adjustment

A) With Frequency Counter

Setting:



FM Signal Generator Setting:

Carrier frequency:	98 MHz
Modulation:	no modulation
Output level:	1 mV (60 dB)

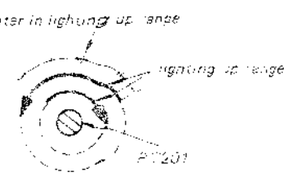
Procedure:

Tune the set to 98 MHz.

Adjust RT201 for 76 kHz ± 3 Hz on the frequency counter.

B) Without Frequency Counter

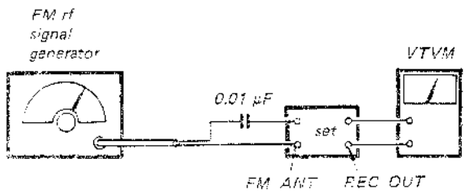
1. Tune the set to FM stereo signals.
2. Turn RT201 clockwise or counterclockwise and secure RT201 at the center in lighting-up range of stereo lamp as shown below.



PRESET BOARD ADJUSTMENTS

1. Low Frequency Adjustment

Setting: PRESET switch 1 (S10-1): ON



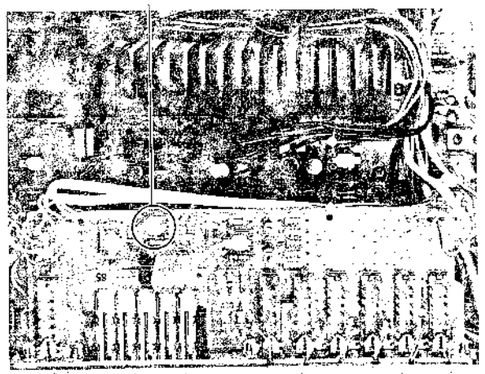
FM Signal Generator Setting:
Carrier frequency: 87.2 MHz
Modulation: 400 Hz, 75 kHz deviation (100 %)
Output level: 1 mV (60 dB)

Procedure:

1. Tune the set to 87.2 MHz.
2. Turn the PRESET control (RV301) fully counterclockwise.
3. Adjust RT301 to receive the signal.

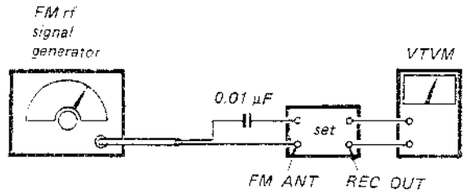
Adjustment Location:

RT301



2. DC Balance Adjustment

Setting:

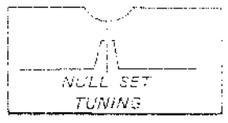


FM Signal Generator Setting:
Carrier frequency: 98 MHz
Modulation: 400 Hz, 75 kHz deviation (100 %)
Output level: 1 mV (60 dB)

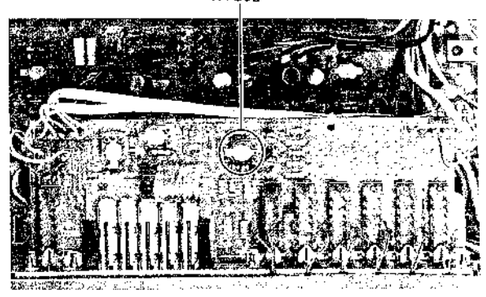
Procedure:

1. Set the PRESET switch to MANUAL.
2. Tune the set to 98 MHz.
3. Set the PRESET switch to 1 and turn the NULL SET switch (S11) on.
4. Adjust the PRESET control (RV301) so that the pointer of the NULL SET meter set to the center position.
5. Turn the NULL SET switch off and readjust the PRESET controls.
6. Turn the NULL SET switch on and adjust RT302 so that the pointer of the NULL SET meter set to the center position.
7. Confirm that the NULL SET meter position is correct. If necessary, repeat this adjustment several times.

Adjustment Location:

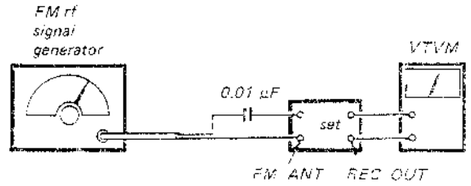


RT302



3. Meter Adjustment (FM FREQ)

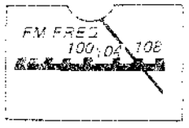
Setting:



FM Signal Generator Setting:
Carrier frequency: 108 MHz
Modulation: 400 Hz, 75 kHz deviation (100 %)
Output level: 1 mV (60 dB)

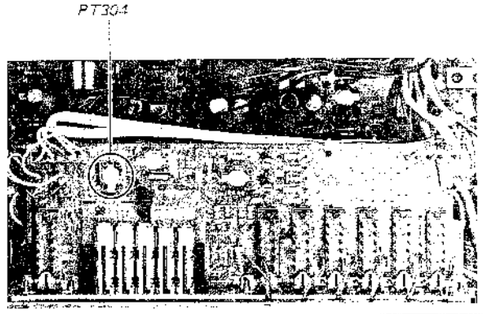
Procedure:

1. Set the PRESET switch to MANUAL.
2. Tune the set to 108 MHz.
3. Set the PRESET switch to 1 and turn the NULL SET switch (S11) on.
4. Adjust the PRESET control for the specified position or pointer on the NULL SET meter.
5. Turn the NULL SET switch off and readjust the PRESET controls.
6. Turn the NULL SET switch on and adjust RT304 for specified pointer position on the FM FREQ meter.



Adjustment Location:

PT304

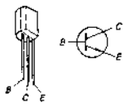


SECTION 4
DIAGRAMS

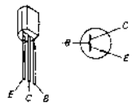
Replacement Semiconductors

For replacement, use semiconductors except in ( ).

Q101 : 2SC710
Q401, 402 : 2SC710-15 (2SC710)

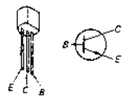


Q102, 103
Q301–303
Q601, 602, 652
Q701, 703
: 2SC1364 (2SC945)

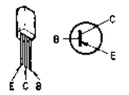


Q501, 551
Q603, 604
Q653, 654
: 2SC1345

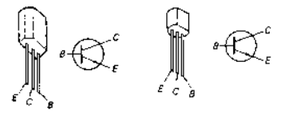
Q608, 658 : 2SD667



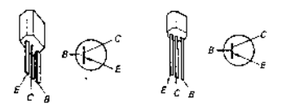
Q502, 552 : 2SA872-D (2SA836)



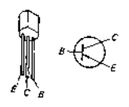
Q605, 655 : 2SC926A (2SC1896)



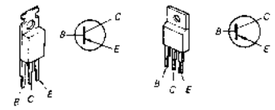
Q606, 656 : 2SA678 (2SA893)



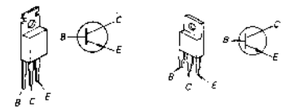
Q607, 657 : 2SB647



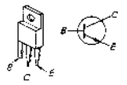
Q609, 659 : 2SB566A (2SA769)



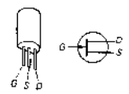
Q610, 660 : 2SD476A (2SC1827)



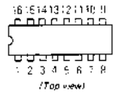
Q702: 2SC1826



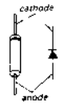
Q704: 2SK43-2



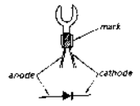
IC101: μPC1167C
IC201: HA1196
IC401: LA1240



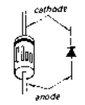
D101 106
D201, 301, 302
D701–703
: 1S1555



D601, 651 : SV04S

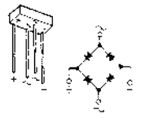


D704: EQB01-16 (EQA01-16R)
D705: EQB01-09 (EQA01-09)



D801–804 : U05G (U05E)

D805: SIRB10



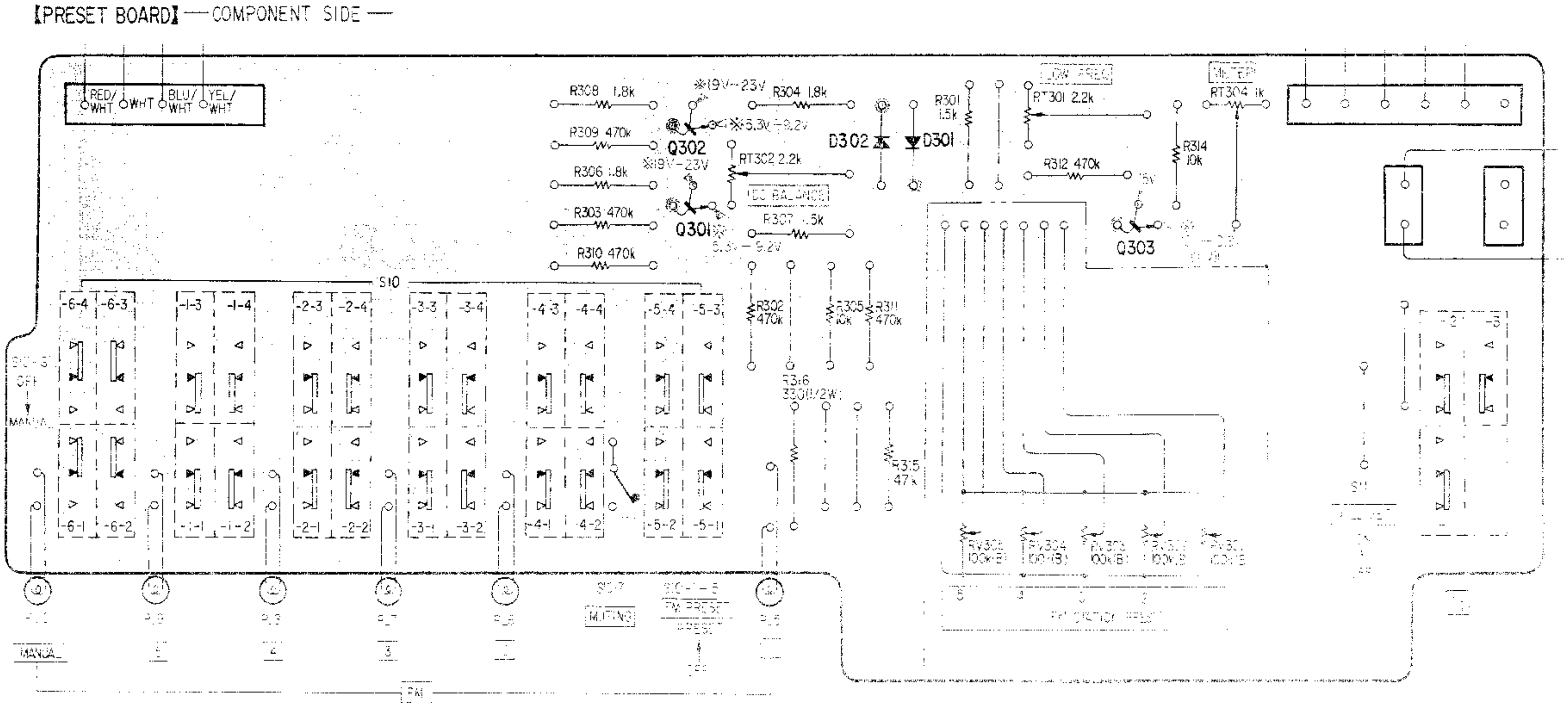
17

4-1. PRESET BOARD MOUNTING DIAGRAM

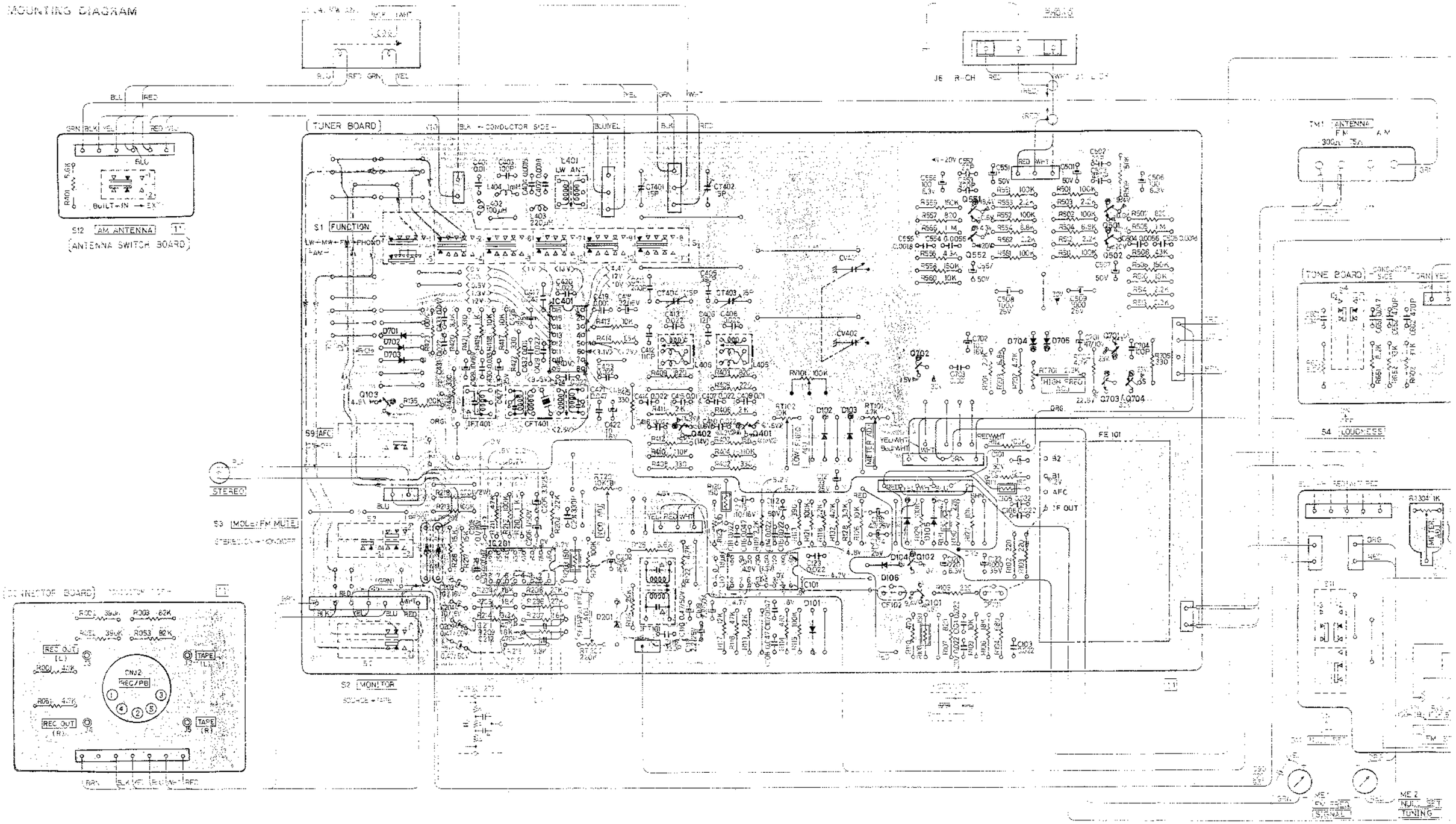
– Conductor Side –

1-16R)
1-09)

5E)

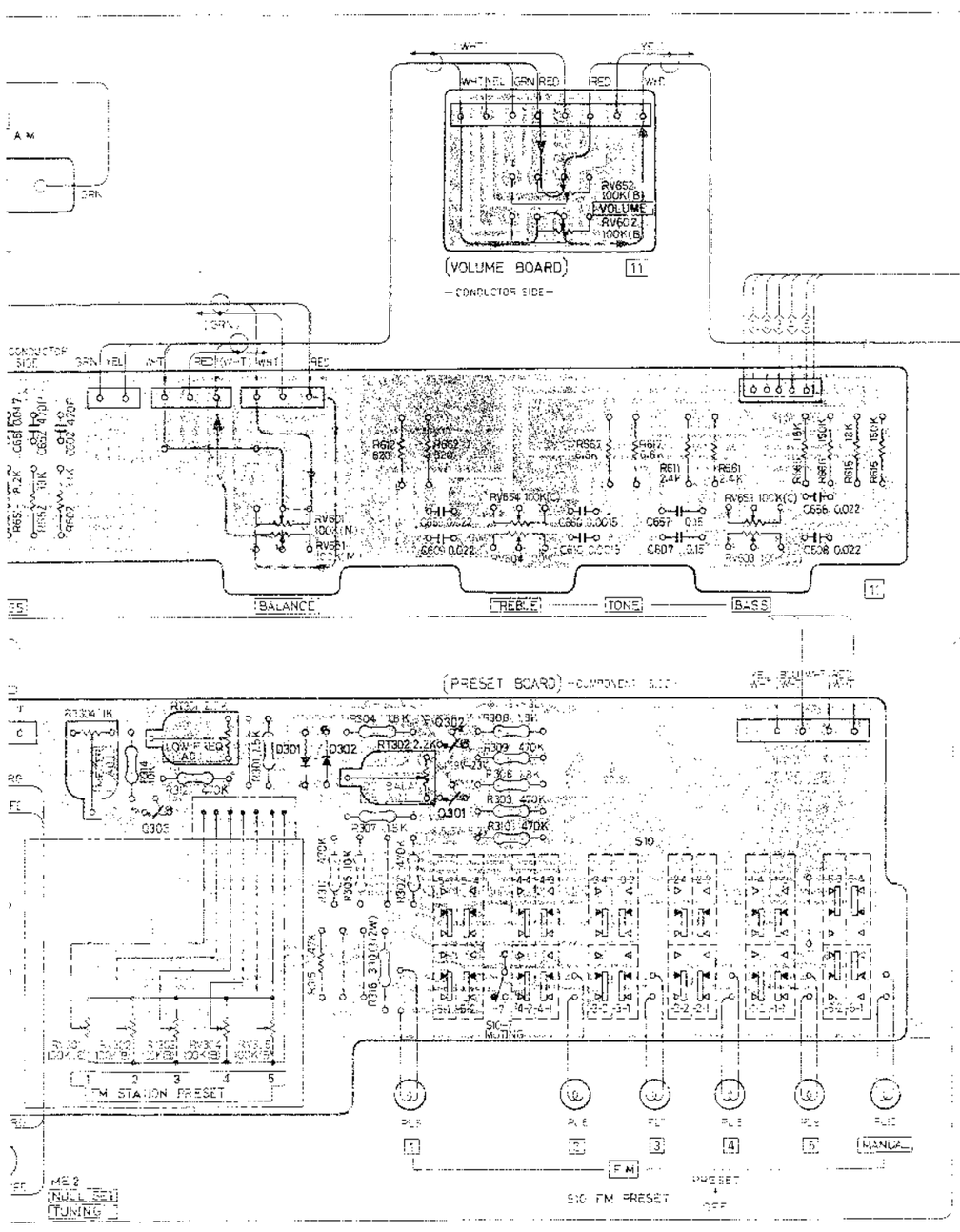


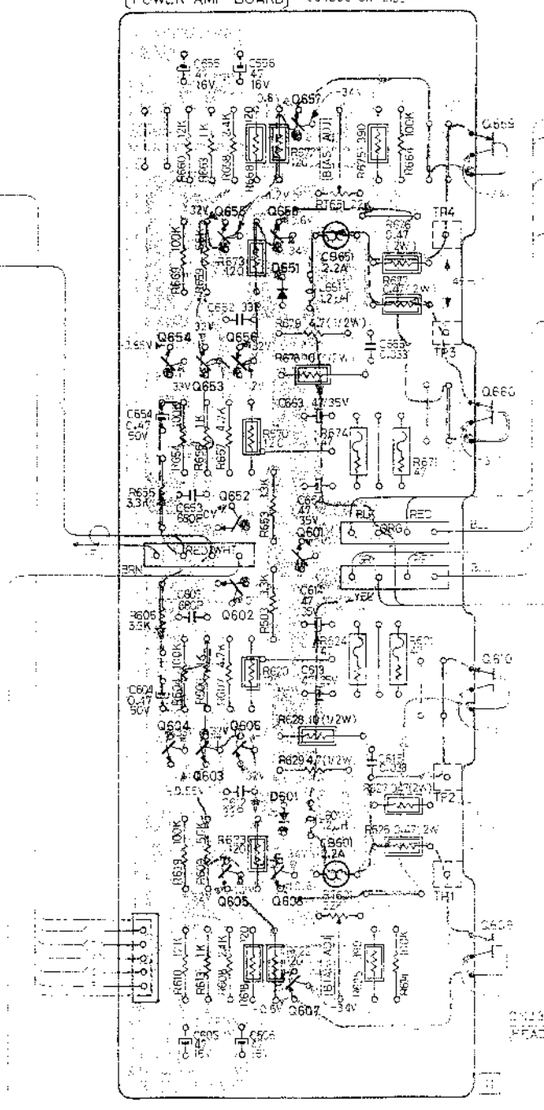
4-2. MOUNTING DIAGRAM

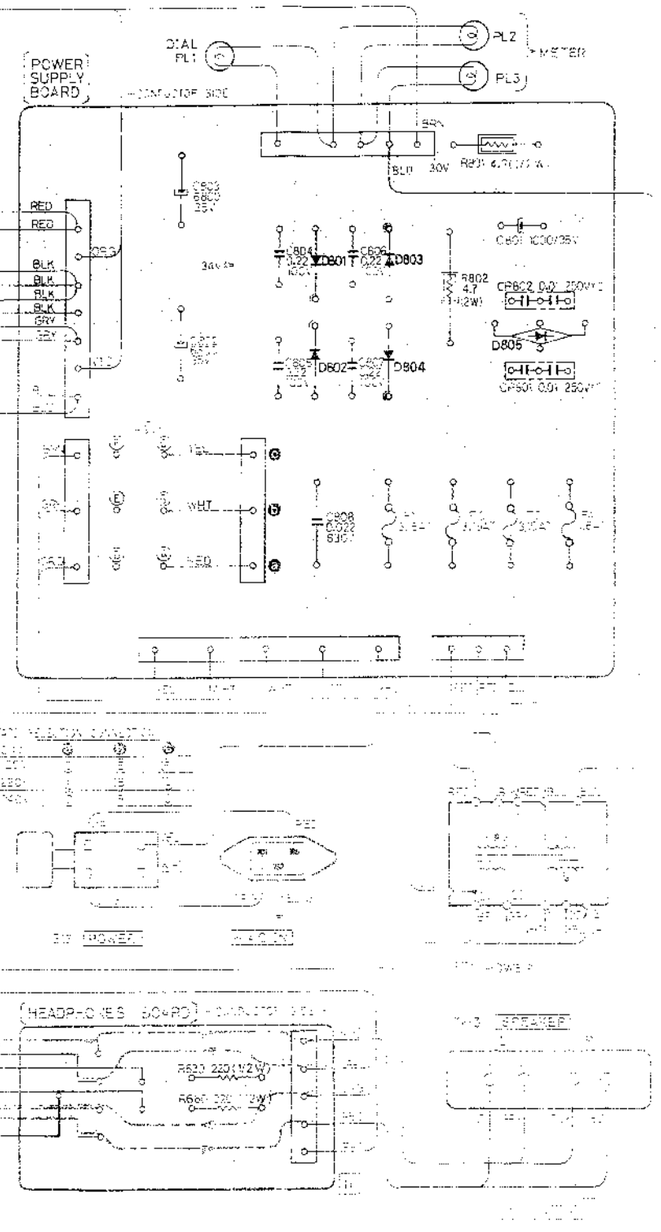


Q IC	Q103	IC401 IC201	Q402	Q401 IC101	Q702 Q102 Q101	Q551 Q552	Q501 Q502 Q701 Q703 Q704
D	D701 D702 D703	D201		D102 D103 D106 D101	D104 D105		D704 D705

Q IC
D







Q I C	Q303	Q302 Q304
D	D301 D302	

Q I C	Q655 Q656 Q657 Q654 Q653 Q656 Q652 D601 Q602 Q604 Q603 Q606 Q605 Q608 Q607	Q658 Q660 Q610 Q609				
D	D651 D601			D601 D602	D603 D604	D605

4-3. SCHEMATIC DIAGRAM

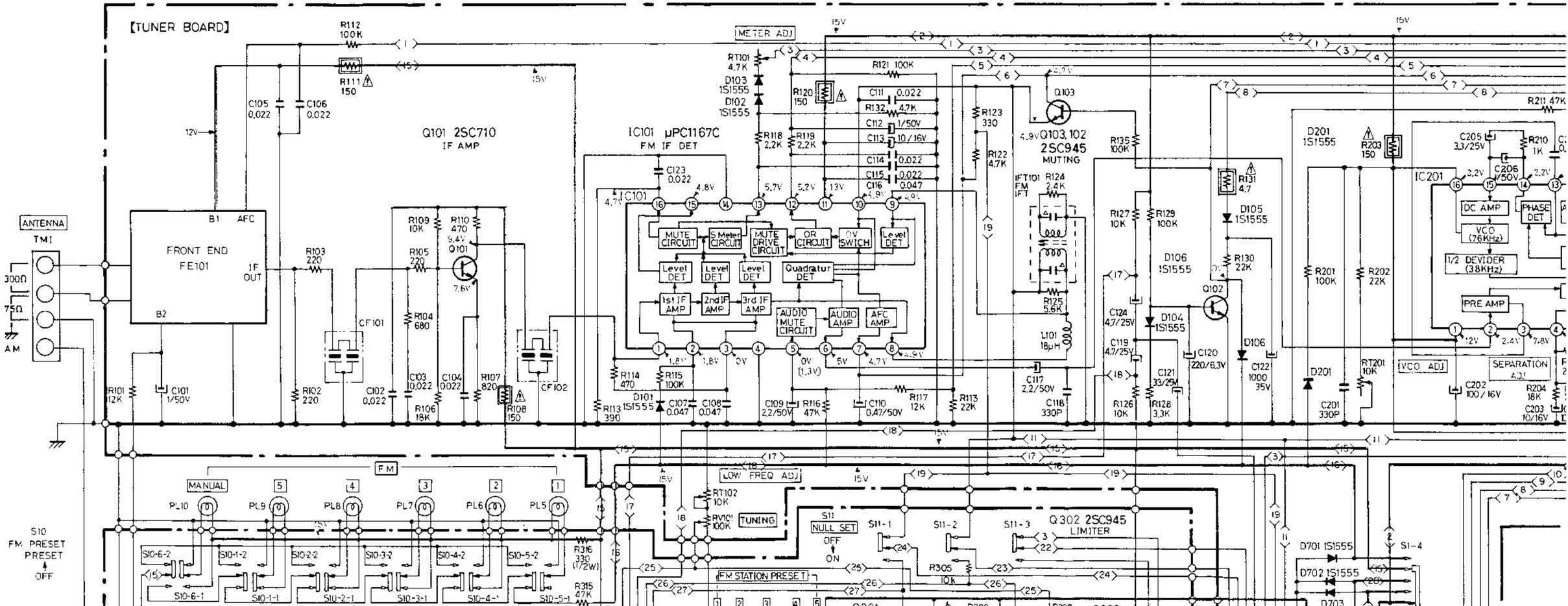
NOTE OF SCHEMATIC DIAGRAM

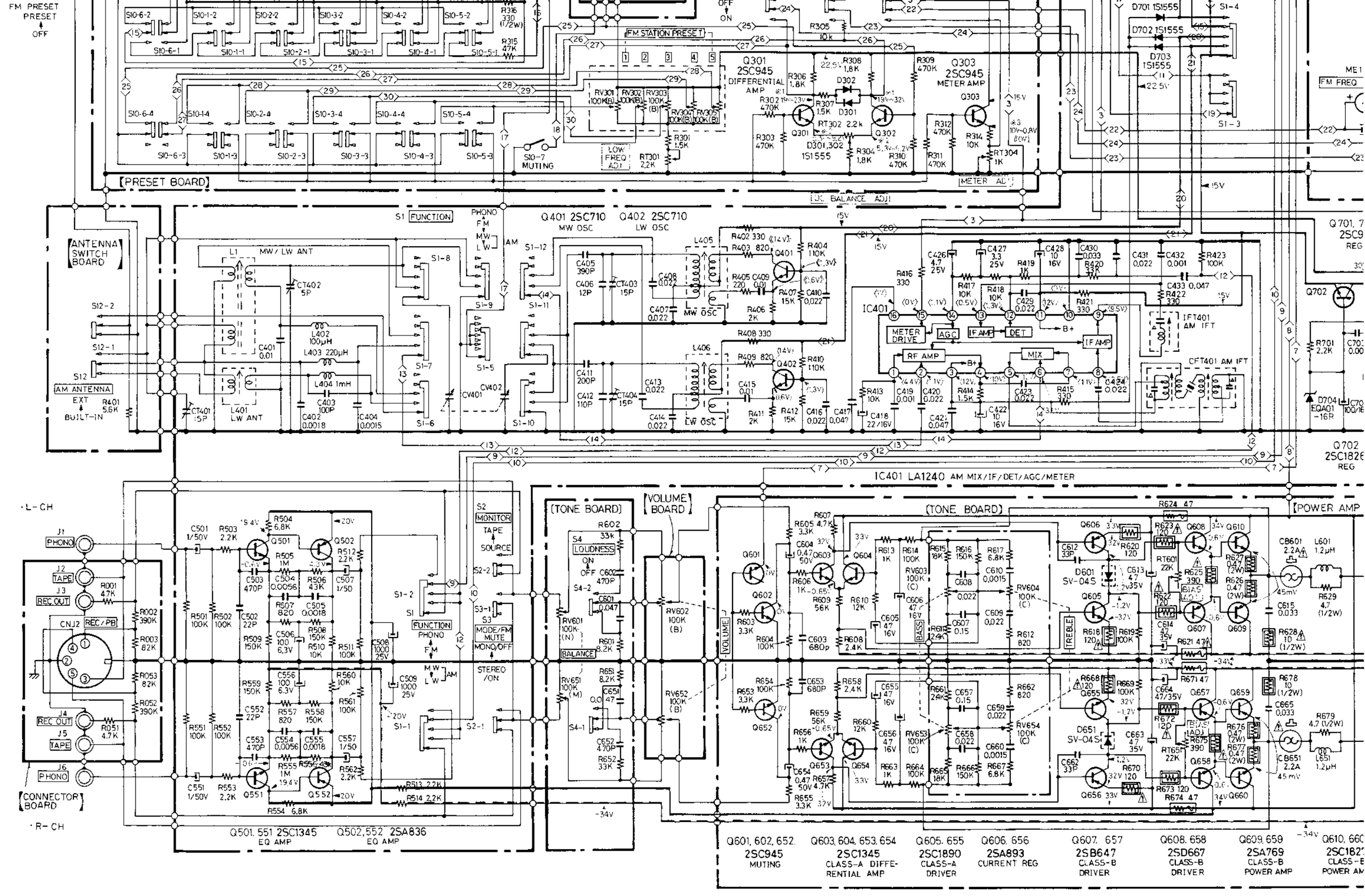
- All capacitors are in μF unless otherwise noted. pF : μμF
  50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted.
  kΩ : 1000Ω; MΩ : 1000kΩ
- ⚠ : nonflammable resistor.
- ⚠ : fusible resistor.
- △ : internal component.
- ▭ : panel designation.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (20kΩ/V).
  no mark: FM MONO ( ) : FM STEREO
  < > : AM { } : FM MUTING ON
  ≪ ≫ : MW (( )) : MANUAL
  ( ) : LW
- ※ : fMIN – fMAX

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

- ▭ : adjustment for repair.
- ——— : B+ bus.
- – – – : B– bus.
- Switch

Ref. No.	Switch	Position
S1	FUNCTION	FM
S2	MONITOR	SOURCE
S3	MODE/FM MUTE	STEREO/ON
S4	LOUDNESS	OFF
S9	AFC	ON
S10	FM/1–5, MANUAL	MANUAL
S11	NULL SET	OFF
S12	AM ANTENNA	BUILT IN
S13	POWER	OFF




[PRESET BOARD]
FM PRESET
OFF
S10-6-2
S10-1-2
S10-2-2
S10-3-2
S10-4-2
S10-5-2
S10-6-1
S10-1-1
S10-2-1
S10-3-1
S10-4-1
S10-5-1
R316 330 (1/2W)
R315 47K
FM STATION PRESET
1 2 3 4 5
S10-6-4
S10-1-4
S10-2-4
S10-3-4
S10-4-4
S10-5-4
S10-6-3
S10-1-3
S10-2-3
S10-3-3
S10-4-3
S10-5-3
S10-7 MUTING
RV301 100K(B)
RV302 100K(B)
RV303 100K (B)
RV304 100K(B)
RV305 100K(B)
LOW FREQ ADJ
RT301 2.2K
R301 1.5K
Q301 2SC945 DIFFERENTIAL AMP
R306 1.8K
R308 1.8K
D302
R307 1.5K
D301
RT302 2.2K
Q302
R302 470K
R303 470K
Q301
D301,302 1S1555
R304 1.8K
R310 470K
R309 470K
Q303 2SC945 METER AMP
Q303
R312 470K
R311 470K
R314 10K
RT304 1K
METER ADJ
D701 1S1555
D702 1S1555
D703 1S1555
S1-4
S1-3
FM FREQ
I.C. BALANCE ADJ
S1 FUNCTION
PHONO
FM
MW
LW
AM
[ANTENNA SWITCH BOARD]
S12-2
S12-1
S12
AM ANTENNA
EXT
BUILT-IN
R401 5.6K
L1 MW/LW ANT
CT402 5P
L402 100μH
L403 220μH
L404 1mH
C401 0.01
C402 0.0018
C403 100P
C404 0.0015
CT401 5P
L401 LW ANT
S1-8
S1-9
S1-5
S1-6
S1-7
CV401
CV402
S1-12
S1-11
S1-10
C405 390P
C406 12P
CT403 15P
C407 0.022
C408 0.022
MW OSC
Q401 2SC710 MW OSC
Q402 2SC710 LW OSC
L405
L406
R402 330
R403 820
Q401
R404 110K
R405 220
C409 0.01
R406 2K
R407 15K
C410 0.022
R408 330
C411 200P
C412 110P
CT404 15P
C413 0.022
C414 0.022
LW OSC
R409 820
Q402
R410 110K
C415 0.01
R411 2K
R412 15K
C416 0.022
C417 0.047
IC401
METER DRIVE
AGC
IF AMP
DET
B+
IF AMP
RF AMP
MIX
R413 10K
C418 22/16V
C419 0.001
C420 0.022
C421 0.047
R414 1.5K
C422 10 16V
R415 330
C423 0.022
C424 0.022
C426 4.7 25V
C427 3.3 25V
R419 1K
C428 10 16V
C430 0.033
R420 33K
C431 0.022
C432 0.001
R423 100K
R416 330
R417 10K
R418 10K
C429 0.022
R421 330
C433 0.047
R422 330
IFT401 AM IFT
CFT401 AM IFT
IC401 LA1240 AM MIX/IF/DET/AGC/METER
Q702
R701 2.2K
D704 EQA01-16R
Q702 2SC1826 REG
[CONNECTOR BOARD]
L-CH
R-CH
J1 PHONO
J2 TAPE
J3 REC OUT
CNJ2 REC/PB
J4 REC OUT
J5 TAPE
J6 PHONO
R001 4.7K
R002 390K
R003 82K
R053 82K
R052 390K
R051 4.7K
C501 1/50V
R503 2.2K
R504 6.8K
Q501
Q502
R505 1M
R506 43K
R512 2.2K
C503 470P
C504 0.0056
C505 0.0018
C507 1/50
R507 820
R508 150K
R509 150K
C506 100 6.3V
R510 10K
R511 100K
R501 100K
R502 100K
C502 22P
C508 1000 25V
C509 1000 25V
S1-2
S1
FUNCTION PHONO FM
S2 MONITOR TAPE SOURCE
S2-2
S3-1
S3 MODE/FM MUTE MONO/OFF
STEREO /ON
S2-1
S1-1
C551 1/50V
R553 2.2K
Q551
Q552
R554 6.8K
R513 2.2K
R514 2.2K
C556 100 6.3V
R560 10K
R557 820
R558 150K
R561 100K
C552 22P
C553 470P
C554 0.0056
C555 0.0018
C557 1/50
R555 1M
R556 43K
R562 2.2K
R559 150K
R551 100K
R552 100K
Q501, 551 2SC1345 EQ AMP
Q502, 552 2SA836 EQ AMP
[TONE BOARD]
R602 33K
S4 LOUDNESS
ON
OFF
C602 470P
S4-2
S4-1
C601 0.047
RV601 100K (N)
BALANCE
R601 8.2K
RV651 100K (M)
R651 8.2K
C651 0.047
C652 470P
R652 33K
[VOLUME BOARD]
RV602 100K (B)
RV652 100K (B)
VOLUME
[TONE BOARD]
Q601
Q602
R603 3.3K
R604 100K
R605 3.3K
C604 0.47 50V
Q603
R606 1K
R609 56K
Q604
R613 1K
R614 100K
RV603 100K (C)
C606 47 16V
BASS
R611 24K
C605 47 16V
R610 12K
R615 18K
R616 150K
C608 0.022
C607 0.15
R617 6.8K
C610 0.0015
RV604 100K (C)
C609 0.022
R612 820
R608 2.4K
C603 680P
TREBLE
Q606
Q605
R618 120
R619 100K
D601 SV-04S
C612 33P
C613 47 35V
R620 120
R623 120
Q608
Q610
RT601 22K
R625 390
BIAS ADJ
R626 0.47 (2W)
R627 0.47 (2W)
Q607
Q609
R622 120
C614 47 35V
C615 0.033
CB601 2.2A
L601 1.2μH
R629 4.7 (1/2W)
R628 10 (1/2W)
R624 47
R621 47
R671 47
Q654
Q653
R654 100K
R653 3.3K
Q652
R659 56K
R656 1K
R657 0.47 50V 4.7K
R655 3.3K
C653 680P
R658 2.4K
C655 47 16V
R660 12K
R661 24K
C656 47 16V
RV653 100K (C)
C657 0.15
C658 0.022
R662 820
C659 0.022
RV654 100K (C)
C660 0.0015
R663 1K
R664 100K
R665 18K
R666 150K
R667 6.8K
Q655
Q656
D651 SV-04S
C662 33P
C663 47 35V
R670 120
R668 120
R669 100K
C664 47/35V
R672 120
BIAS ADJ
RT651 22K
R675 390
Q657
Q658
R676 0.47 (2W)
R677 0.47 (2W)
Q659
Q660
R673 120
R674 47
C665 0.033
CB651 2.2A
L651 1.2μH
R679 4.7 (1/2W)
R678 10 (1/2W)
[POWER AMP]
Q601, 602, 652 2SC945 MUTING
Q603, 604, 653, 654 2SC1345 CLASS-A DIFFERENTIAL AMP
Q605, 655 2SC1890 CLASS-A DRIVER
Q606, 656 2SA893 CURRENT REG
Q607, 657 2SB647 CLASS-B DRIVER
Q608, 658 2SD667 CLASS-B DRIVER
Q609, 659 2SA769 CLASS-B POWER AMP
Q610, 660 2SC1827 CLASS-B POWER AMP

NOTE OF SCHEMATIC DIAGRAM

- All capacitors are in μF unless otherwise noted. pF : μμF 50 WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼ W unless otherwise noted. kΩ : 1000 Ω; MΩ : 1000 kΩ
- : nonflammable resistor.
- : fusible resistor.
- △ : internal component.
- : panel designation.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under no-signal (detuned) conditions with a VOM (20kΩ/V).
  no mark: FM MONO ( ): FM STEREO
  < >: AM { }: FM MUTING ON
  ≪ ≫: MW (( )): MANUAL
  [ ]: LW
- ✻ : fMIN – fMAX

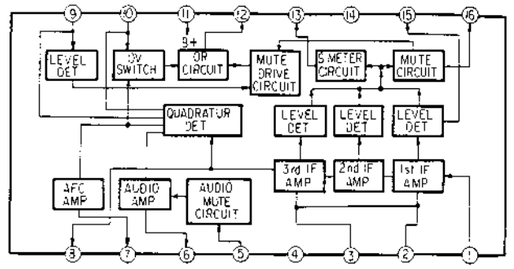
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

- : adjustment for repair.
- : B+ bus.
- : B– bus.
- Switch

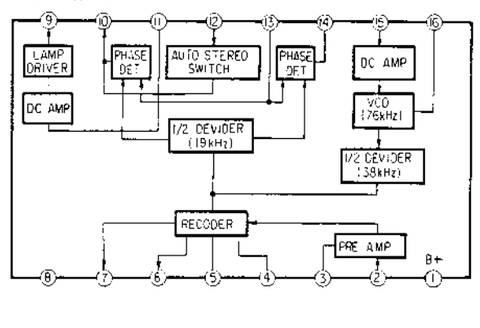
Ref. No.	Switch	Position
S1	FUNCTION	FM
S2	MONITOR	SOURCE
S3	MODE/FM MUTE	STEREO/ON
S4	LOUDNESS	OFF
S9	AFC	ON
S10	FM/1–5, MANUAL	MANUAL
S11	NULL SET	OFF
S12	AM ANTENNA	BUILT IN
S13	POWER	OFF

- **IC Block Diagrams**

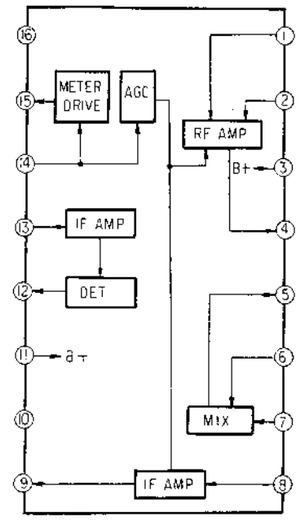
IC101 μPC1167C

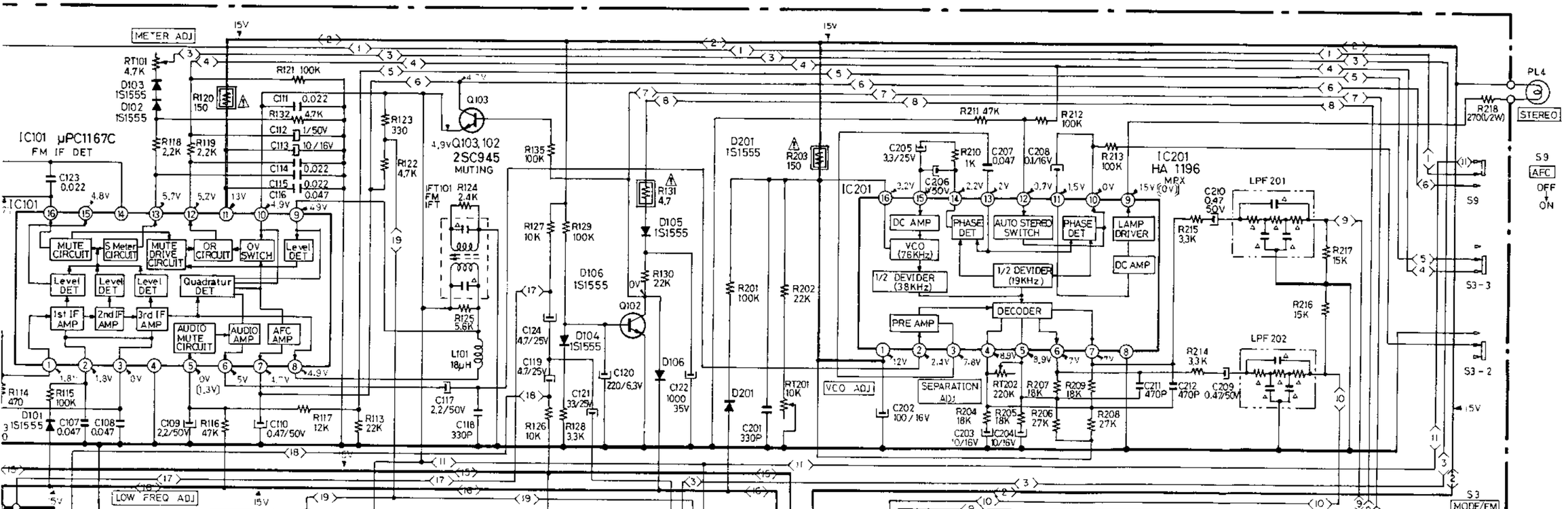


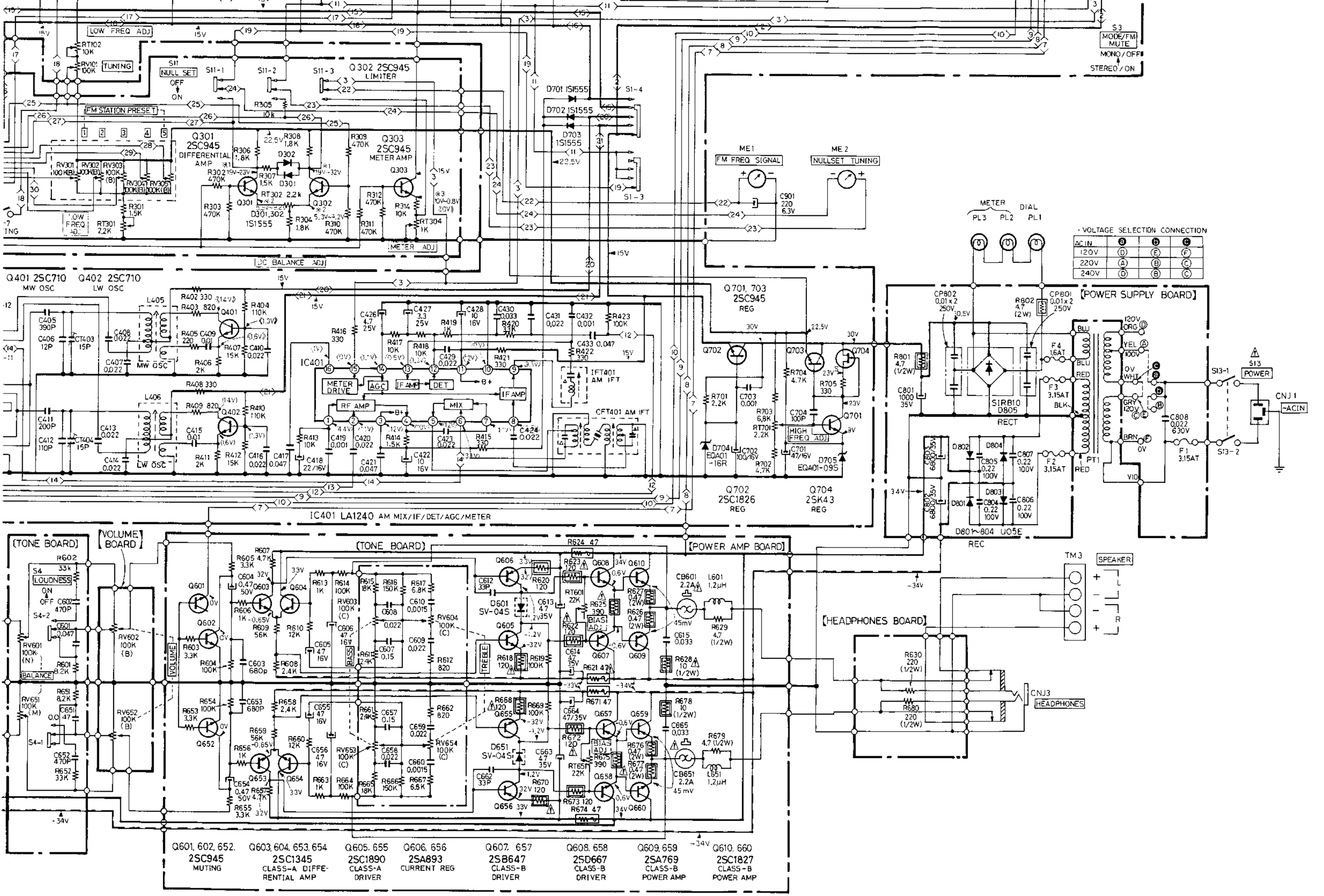
IC201 HA1196

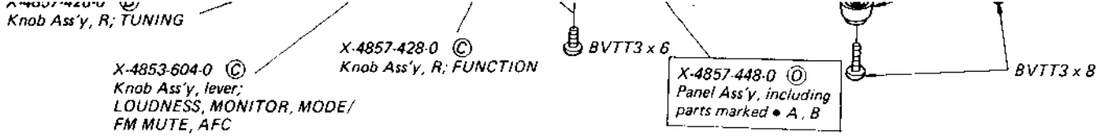


IC401 LA1240






LOW FREQ ADJ
TUNING
S11 NULL SET OFF ON
FM STATION PRESET
Q301 2SC945 DIFFERENTIAL AMP
Q302 2SC945 LIMITER
Q303 2SC945 METER AMP
D701 1S1555
D702 1S1555
D703 1S1555
D301,302 1S1555
S1-4
S1-3
ME1 FM FREQ SIGNAL
ME2 NULLSET TUNING
C901 220 6.3V
METER ADJ
DC BALANCE ADJ
S3 MODE/FM MUTE
MONO / OFF
STEREO / ON
Q401 2SC710 MW OSC
Q402 2SC710 LW OSC
IC401
METER DRIVE
AGC
IF AMP
DET
RF AMP
MIX
IFT401 AM IFT
CFT401 AM IFT
IC401 LA1240 AM MIX/IF/DET/AGC/METER
Q701, 703 2SC945 REG
Q702 2SC1826 REG
Q704 2SK43 REG
HIGH FREQ ADJ
METER
PL3 PL2 PL1
DIAL
VOLTAGE SELECTION CONNECTION
AC IN
120V
220V
240V
[POWER SUPPLY BOARD]
SIRB10 D805
RECT
D801~804 UO5E
REC
F1 3.15AT
F2 3.15AT
F3 3.15AT
F4 1.6AT
PT1
S13 POWER
CNJ1 ~AC IN
TM3 SPEAKER
[HEADPHONES BOARD]
CNJ3 HEADPHONES
[TONE BOARD]
[VOLUME BOARD]
[POWER AMP BOARD]
VOLUME
BASS
TREBLE
BALANCE
LOUDNESS
Q601, 602, 652. 2SC945 MUTING
Q603, 604, 653, 654 2SC1345 CLASS-A DIFFERENTIAL AMP
Q605, 655 2SC1890 CLASS-A DRIVER
Q606, 656 2SA893 CURRENT REG
Q607, 657 2SB647 CLASS-B DRIVER
Q608, 658 2SD667 CLASS-B DRIVER
Q609, 659 2SA769 CLASS-B POWER AMP
Q610, 660 2SC1827 CLASS-B POWER AMP

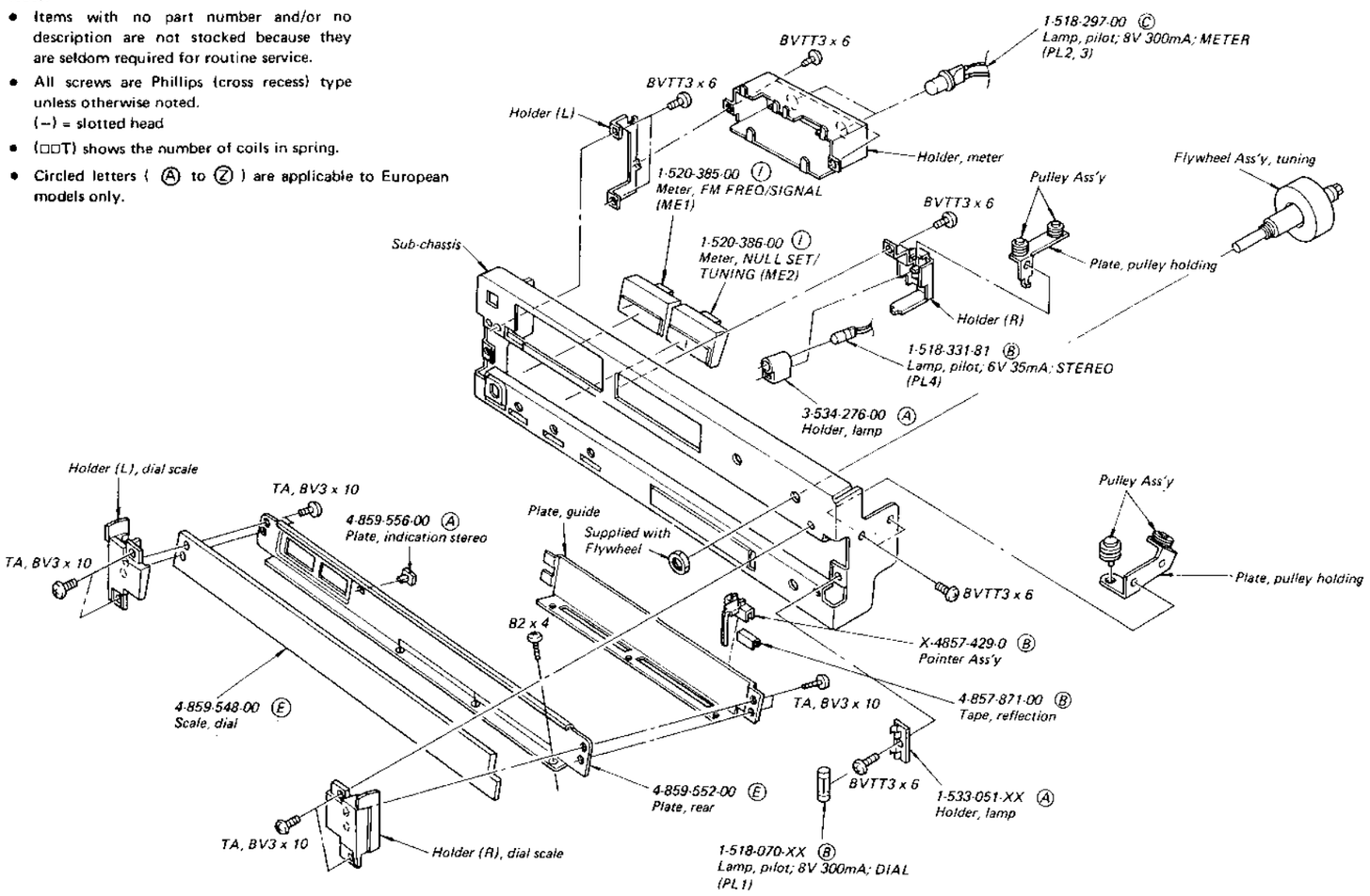


A B C D E

(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
- (□□T) shows the number of coils in spring.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



A B C D E

(3)

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
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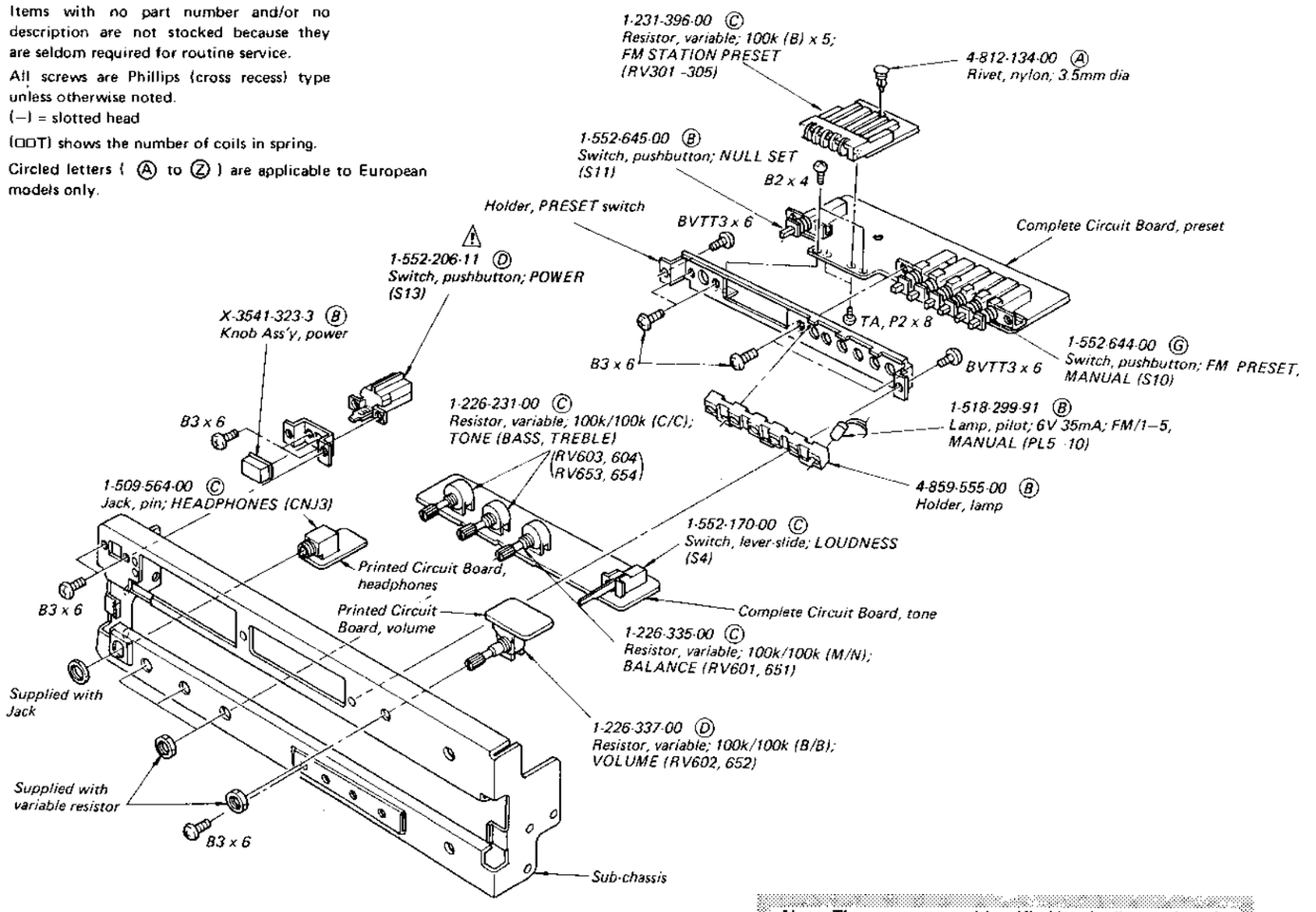
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



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

(4)

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
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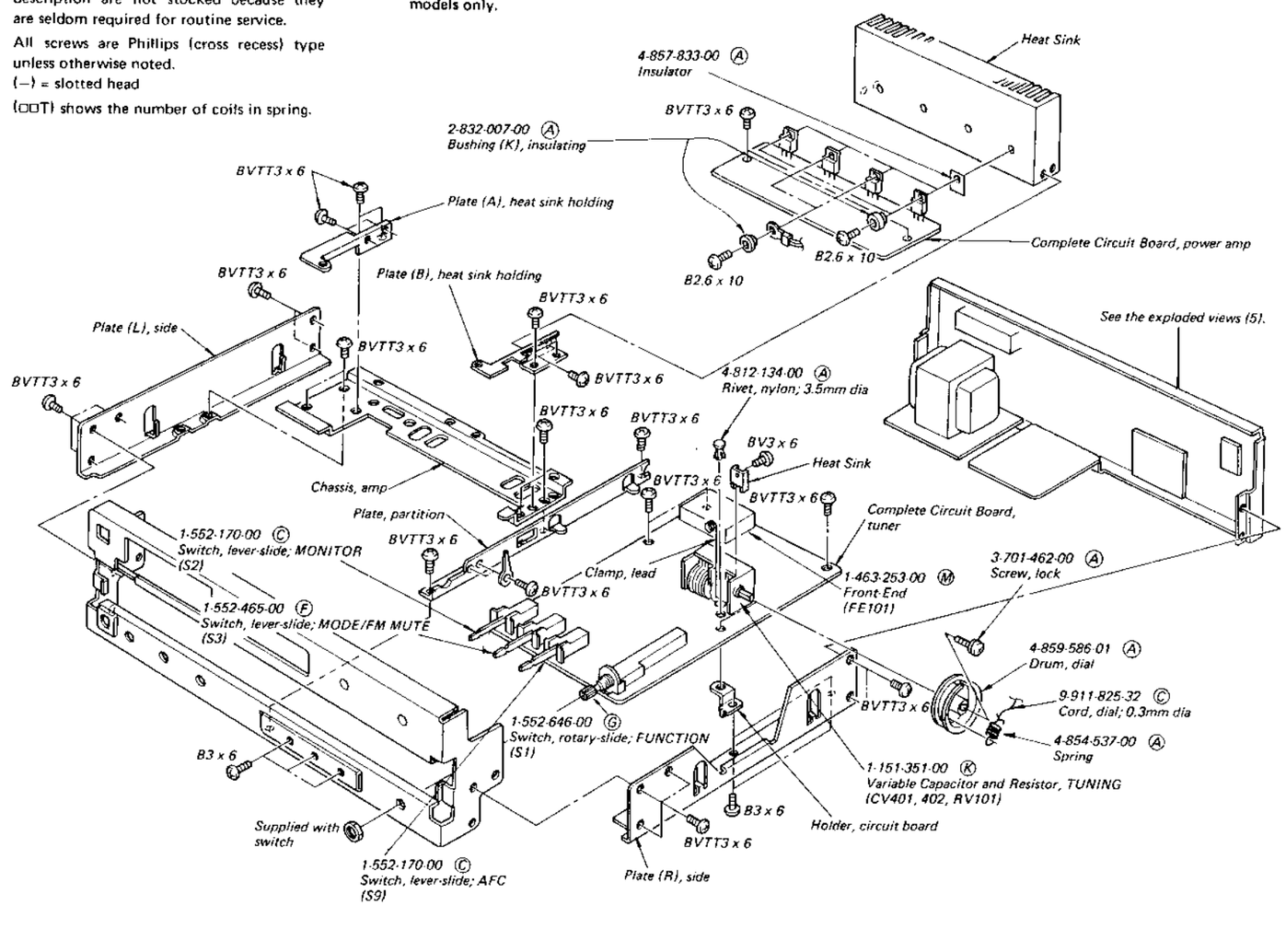
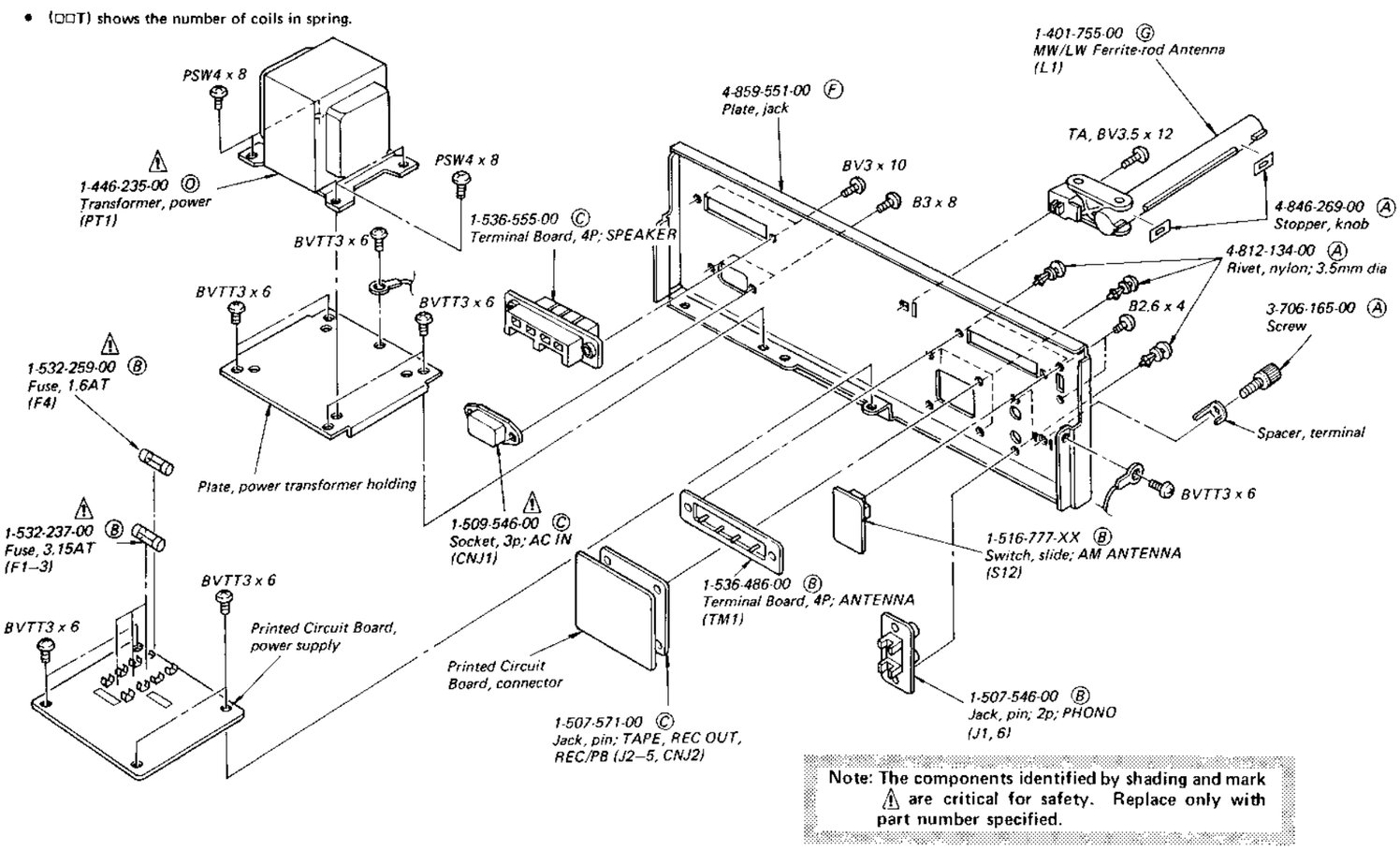
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.



(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
- (□□T) shows the number of coils in spring.
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

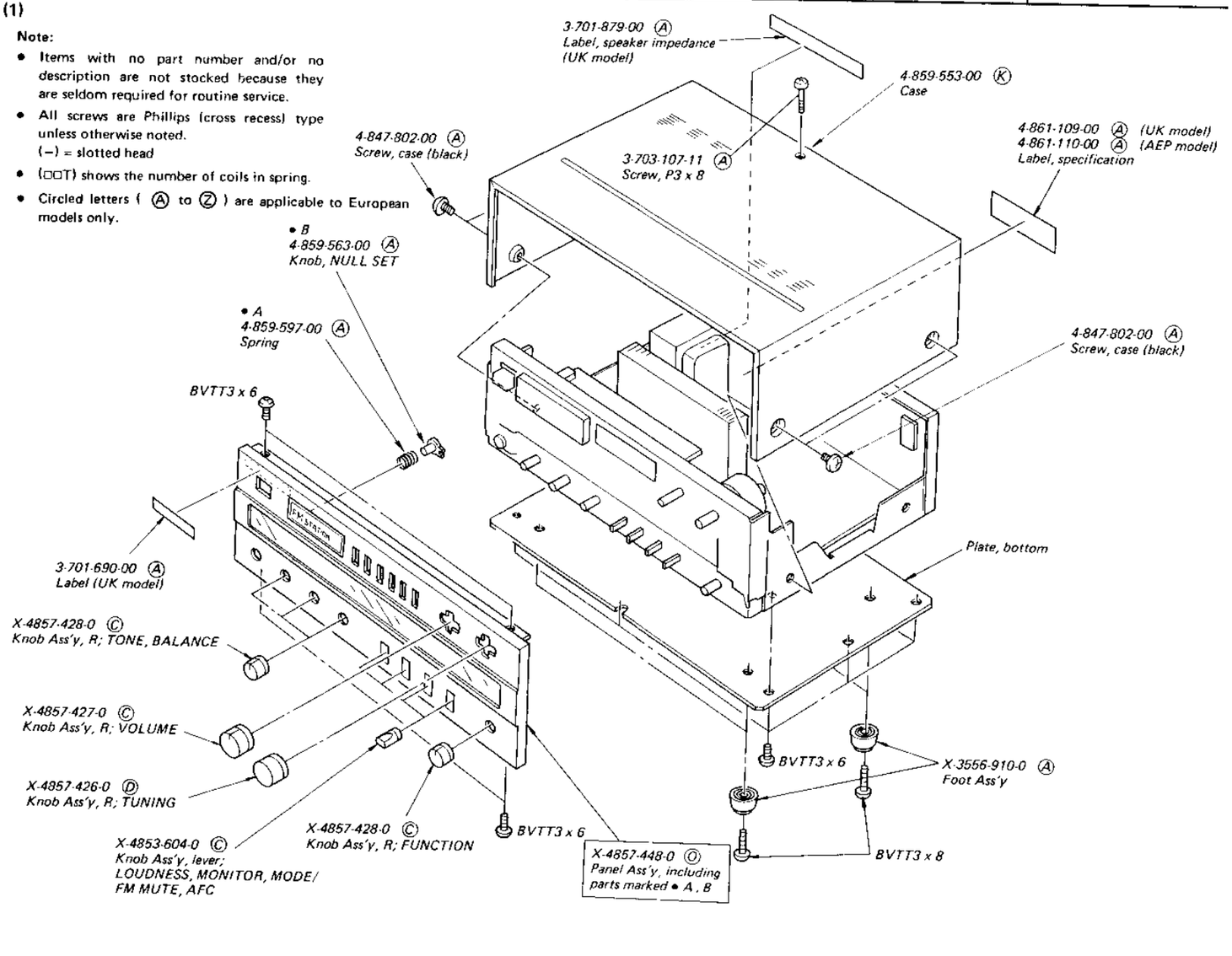


Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

(1)

Note:

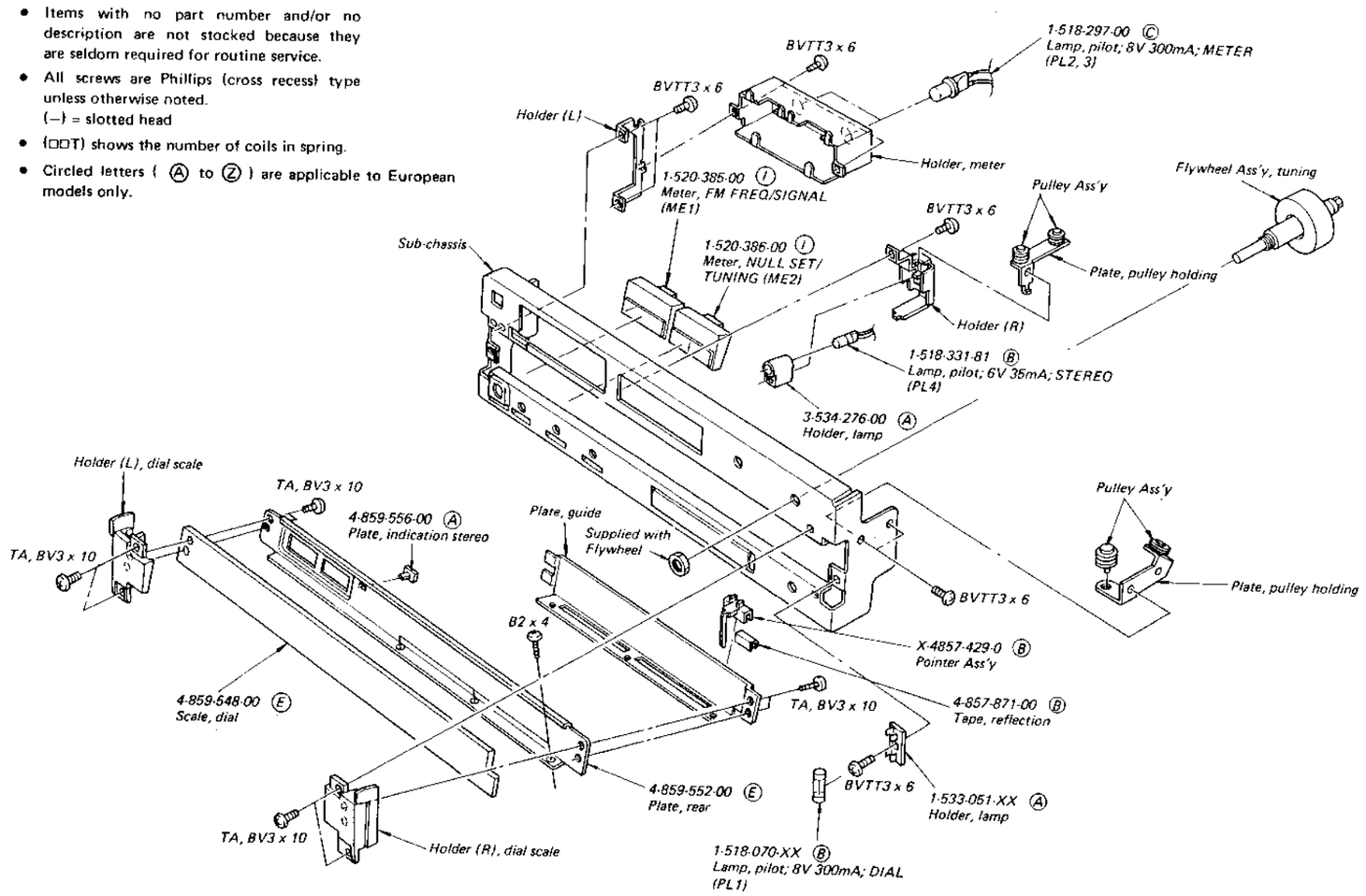
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (−) = slotted head
- (□□T) shows the number of coils in spring.
- Circled letters (Ⓐ to Ⓩ) are applicable to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



(2)

Note:

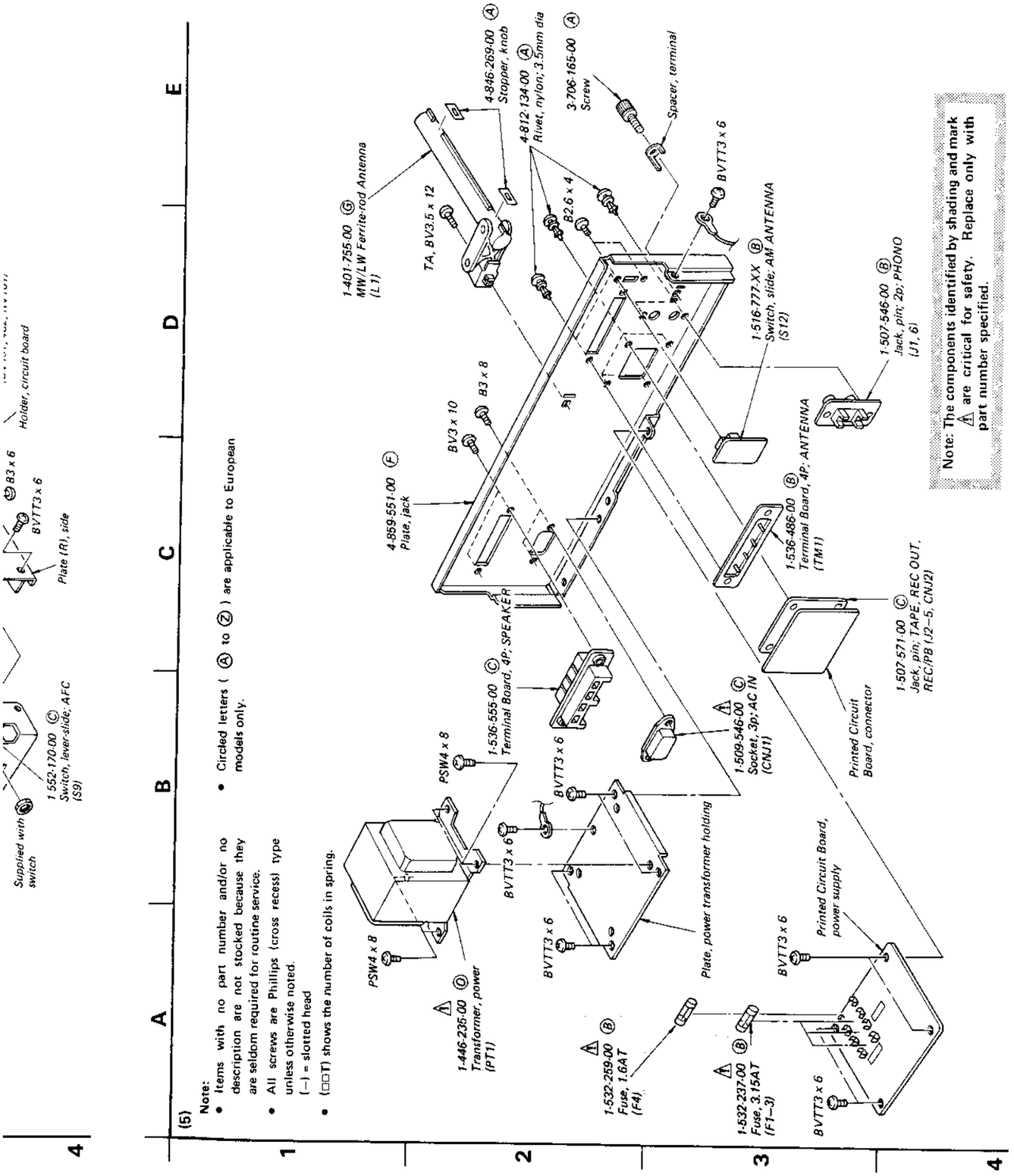
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (−) = slotted head
- (□□T) shows the number of coils in spring.
- Circled letters (Ⓐ to Ⓩ) are applicable to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



(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



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

(5)

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

SECTION 6
ELECTRICAL PARTS LIST

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

Ref. No.	*Part No.*	*Description*
		SEMICONDUCTORS
		Transistors
Q101	8-729-671-13	Ⓑ 2SC710
⇒ Q102, 103	8-729-663-47	Ⓑ 2SC1364
⇒ Q301–303	8-729-663-47	Ⓑ 2SC1364
⇒ Q401, 402	8-729-671-15	Ⓑ 2SC710-15
Q501, 551	8-729-334-58	Ⓑ 2SC1345
⇒ Q502, 552	8-729-387-27	Ⓑ 2SA872-D
⇒ Q601, Q602, 652	8-729-663-47	Ⓑ 2SC1364
Q603, 653 Q604, 654	8-729-334-58	Ⓑ 2SC1345
⇒ Q605, 655	8-720-950-03	Ⓒ 2SC926A
⇒ Q606, 656	8-727-788-00	Ⓑ 2SA678
Q607, 657	8-729-364-71	Ⓑ 2SB647
Q608, 658	8-729-366-71	Ⓑ 2SD667
⇒ Q609, 659	8-729-306-62	Ⓓ 2SB566A
⇒ Q610, 660	8-729-307-62	Ⓒ 2SD476A
⇒ Q701, 703	8-729-663-47	Ⓑ 2SC1364
Q702	8-729-382-62	Ⓒ 2SC1826
Q704	8-723-302-00	Ⓒ 2SK43-2
		ICs
IC101	8-759-111-67	Ⓔ μPC1167C
IC201	8-759-311-96	Ⓕ HA1196
IC401	8-759-812-40	Ⓔ LA1240
		Diodes
D101–106 D201	8-719-815-55	Ⓐ 1S1555
D301, 302	8-719-815-55	Ⓐ 1S1555
D601, 651	8-719-300-11	Ⓒ SV04S
D701–703	8-719-815-55	Ⓐ 1S1555
⇒ D704	8-719-931-16	Ⓑ EQB01-16
⇒ D705	8-719-931-09	Ⓑ EQB01-09

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

Ref. No.	*Part No.*	*Description*
⇒ D801–804	⚠8-719-911-55	Ⓒ U05G
D805	⚠8-719-510-10	Ⓒ SIRB10
		COILS
L1	1-401-755-00	Ⓖ MW/LW Ferrite-rod Anter
L101	1-407-741-00	Ⓑ 18μH, microinductor
L401	1-401-664-00	Ⓑ LW ANT
L402	1-407-169-XX	Ⓐ 100μH, microinductor
L403	1-407-173-XX	Ⓐ 220μH, microinductor
L404	1-407-195-XX	Ⓑ 1mH, microinductor
L405	1-405-826-00	Ⓑ MW OSC
L406	1-405-827-00	Ⓑ LW OSC
		TRANSFORMERS & FILTERS
CF101,102	1-527-344-91	Ⓑ Filter, ceramic
CFT401	1-404-085-00	Ⓑ AM IFT
IFT101	1-404-011-00	Ⓒ FM IFT
IFT401	1-404-087-00	Ⓓ AM IFT
LPF201,202	1-231-224-00	Ⓑ Filter, low-pass
PT1	⚠1-446-235-00	Ⓠ Transformer, power
		CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50WV or less are not indicated except for electrolytics.
pF : μμF, elect : electrolytic

C101	1-121-391-00	Ⓐ 1	50V	elect
C102–106	1-101-924-00	Ⓐ 0.022		
C107, 108	1-101-925-00	Ⓐ 0.047		
C109	1-121-450-00	Ⓐ 2.2	50V	elect
C110	1-121-726-00	Ⓐ 0.47	50V	elect
C111	1-101-924-00	Ⓐ 0.022		
C112	1-121-391-00	Ⓐ 1	50V	elect
C113	1-121-651-00	Ⓐ 10	16V	elect
C114, 115	1-101-924-00	Ⓐ 0.022		
C116	1-101-925-00	Ⓐ 0.047		
C117	1-121-450-00	Ⓐ 2.2	50V	elect
C118	1-102-820-00	Ⓐ 330p		

- ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

Ref. No.	Part No.		Description		
C119	1-121-395-00	(A)	4.7	25V	elect
C120	1-121-419-00	(B)	220	6.3V	elect
C121	1-121-404-00	(A)	33	25V	elect
C122	1-123-349-00	(B)	100	35V	elect
C123	1-101-924-00	(A)	0.022		
C124	1-121-395-00	(A)	4.7	25V	elect
C201	1-104-065-00	(A)	330p		polyethylene
C202	1-121-415-00	(A)	100	16V	elect
C203, 204	1-121-651-00	(A)	10	16V	elect
C205	1-121-392-00	(A)	3.3	25V	elect
C206	1-121-391-00	(A)	1	50V	elect
C207	1-108-246-00	(A)	0.047		mylar
C208	1-131-451-00	(A)	0.1	16V	tantalum
C209, 210	1-121-726-00	(A)	0.47	50V	elect
C211, 212	1-102-824-00	(A)	470p		
C401	1-108-239-00	(A)	0.01		mylar
C402	1-108-352-00	(B)	0.0018		mylar
C403	1-102-973-00	(A)	100p		
C404	1-108-228-00	(A)	0.0015		mylar
C405	1-104-067-00	(A)	390p		polyethylene
C406	1-102-949-00	(A)	12p		
C407, 408	1-101-924-00	A	0.022		
C409	1-108-239-00	(A)	0.01		mylar
C410	1-101-924-00	(A)	0.022		
C411	1-103-708-00	(A)	220p		polystyrol
C412	1-102-815-00	(A)	110p		
C413, 414	1-101-924-00	(A)	0.022		
C415	1-108-239-00	(A)	0.01		mylar
C416	1-101-924-00	(A)	0.022		
C417	1-101-925-00	(A)	0.047		
C418	1-121-479-00	(A)	22	16V	elect
C419	1-101-001-00	(A)	0.001		
C420	1-101-924-00	(A)	0.022		
C421	1-101-925-00	(A)	0.047		
C422	1-121-651-00	(A)	10	16V	elect
C423, 424	1-101-924-00	(A)	0.022		
C426	1-121-395-00	(A)	4.7	25V	elect
C427	1-121-392-00	(A)	3.3	25V	elect
C428	1-121-651-00	(A)	10	16V	elect
C429	1-101-924-00	(A)	0.022		

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

Ref. No.	Part No.		Description		
C430	1-108-244-00	(A)	0.033		mylar
C431	1-108-242-00	(A)	0.022		mylar
C432	1-101-001-00	(A)	0.001		
C433	1-108-246-00	(A)	0.047		mylar
C501, 551	1-121-391-00	(A)	1	50V	elect
C502, 552	1-102-959-00	(A)	22p		
C503, 553	1-102-824-00	(A)	470p		
C504, 554	1-108-573-00	(A)	0.0056		mylar
C505, 555	1-108-561-00	(A)	0.0018		mylar
C506, 556	1-121-419-00	(B)	100	6.3V	elect
C507, 557	1-121-391-00	(A)	1	50V	elect
C508, 509	1-121-388-00	(B)	1000	25V	elect
C601, 651	1-108-246-00	(A)	0.047		mylar
C602, 652	1-102-824-00	(A)	470p		
C603, 653	1-102-116-00	(A)	680p		
C604, 654	1-121-726-00	(A)	0.47	50V	elect
C605, 655, C606, 656	1-121-409-00	(A)	47	16V	elect
C607, 657	1-108-252-00	(B)	0.15		mylar
C608, 658, C609, 659	1-108-242-00	(A)	0.022		mylar
C610, 660	1-108-228-00	(A)	0.0015		mylar
C612, 662	1-102-963-00	(A)	33p		
C613, 663, C614, 664	1-123-186-51	(A)	47	35V	elect
C615, 665	1-108-244-00	(A)	0.033		mylar
C616, 666	1-121-726-00	(A)	0.47	50V	elect
C701	1-123-192-00	(A)	47	16V	elect
C702	1-121-415-00	(A)	100	16V	elect
C703	1-101-001-00	(A)	0.001		
C704	1-102-973-00	(A)	100p		
C801	⚠1-121-388-00	(B)	1000	35V	elect
C802, 803	⚠1-125-155-00	(E)	6800	35V	elect
C804–807	⚠1-108-393-00	(B)	0.22	100V	mylar
C808	⚠1-129-718-00	(A)	0.022	630V	polyethylene
C901	1-121-419-00	(B)	220	6.3V	elect
CT401	1-141-171-00	(B)	Trimmer, 15p		
CT402	1-141-178-00	(B)	Trimmer, 5p		
CT403,404	1-141-171-00	(B)	Trimmer, 15p		

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

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

Ref. No.	Part No.		Description
CV401,402, RV101	1-151-351-00	(K)	Variable Capacitor and Resistor, 100kΩ; TUNING

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Refer to the list on the last page for their part numbers.

R131	⚠1-211-490-00	(A)	4.7	¼W	carbon (nonflammable)
R108, 111, R120, 203	⚠1-211-526-00	(C)	150	¼W	carbon (nonflammable)
R218	1-244-859-00	(A)	270	½W	carbon
R316	1-244-861-00	(A)	330	½W	carbon
R618, 668, R620, 670	⚠1-211-524-00	(A)	120	¼W	carbon (nonflammable)
R621, 671	⚠1-217-395-00	(B)	47	¼W	fusible (nonflammable)
R622, 672, R623, 673	⚠1-211-524-00	(A)	120	¼W	carbon (nonflammable)
R624, 674	⚠1-217-395-00	(B)	47	¼W	fusible (nonflammable)
R625, 675	⚠1-211-536-00	(B)	390	¼W	carbon (nonflammable)
R626, 676, R627, 677	1-217-153-00	(A)	0.47	2W	metal oxide (nonflammable)
R628, 678	⚠1-211-590-00	(A)	10	½W	carbon (nonflammable)
R629, 679	1-244-817-00	(A)	4.7	½W	carbon
R630, 680	1-244-857-00	(A)	220	½W	carbon
R801	⚠1-211-582-00	(B)	4.7	½W	carbon (nonflammable)
R802	1-206-455-00	(A)	4.7	2W	metal oxide (nonflammable)

RT101	1-224-644-XX	(B)	Adjustable, 4.7k; METER
RT102	1-224-645-XX	(B)	Adjustable, 10k; LOW FREQ
RT201	1-224-645-XX	(B)	Adjustable, 10k; VCO
RT202	1-224-649-00	(B)	Adjustable, 220k; SEPARATION

Ref. No.	Part No.		Description
RT301	1-224-643-XX	(B)	Adjustable, 2.2k; LOW FREQ
RT302	1-224-643-XX	(B)	Adjustable, 2.2k; DC BALANCE
RT304	1-224-642-XX	(B)	Adjustable, 1k; METER
RT601,651	1-224-646-XX	(B)	Adjustable, 22k; BIAS
RT701	1-224-644-XX	(B)	Adjustable, 4.7k; HIGH FREQ
RV301–305	1-231-396-00	(C)	Variable, 100 (B) x 5; FM STATION PRESET
RV601,651	1-226-335-00	(C)	Variable, 100k/100k (M/N); BALANCE
RV602,652	1-226-337-00	(D)	Variable, 100k/100 (B/B); VOLUME
RV603,653, RV604,654	1-226-231-00	(C)	Variable, 100k/100k (C/C); TONE (BASS, TREBLE)

SWITCHES

S1	1-552-646-00	(G)	Rotary-slide, FUNCTION
S2	1-552-170-00	(C)	Lever-slide, MONITOR
S3	1-552-465-00	(F)	Lever-slide, MODE/FM MUTE
S4	1-552-170-00	(C)	Lever-slide, LOUDNESS
S9	1-552-170-00	(C)	Lever-slide, AFC
S10	1-552-644-00	(G)	Pushbutton, FM PRESET, MANUAL
S11	1-552-645-00	(B)	Pushbutton, NULL SET
S12	1-516-777-XX	(B)	Slide, AM ANTENNA
S13	⚠1-552-206-11	(D)	Pushbutton, POWER

JACKS

J1, 6	1-507-546-00	(B)	Pin, 2P; PHONO
J2–5 (CNJ2)	1-507-571-00	(C)	Pin, TAPE, REC OUT (REC/PB)
CNJ1	⚠1-509-546-00	(C)	Socket, 3P; AC IN
CNJ3	1-509-564-00	(C)	Pin, HEADPHONES

FUSES

F1–3	⚠1-532-237-00	(B)	Fuse, 3.15AT
F4	⚠1-532-259-00	(B)	Fuse, 1.6AT

MISCELLANEOUS

CB601,651	⚠1-532-380-81	(E)	Circuit Breaker, 2.2A
CP801,802	⚠1-102-394-00	(A)	Compound Parts, 0.01/0.01, 250V
FE101	1-463-253-00	(M)	Front-End

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

Ref. No.	Part No.		Description
ME1	1-520-385-00	(I)	Meter, FM FREQ/SIGNAL
ME2	1-520-386-00	(I)	Meter, NULL SET/TUNING
PL1	1-518-070-XX	(B)	Lamp, pilot; 8V 300mA; DIAL
PL2, 3	1-518-297-00	(C)	Lamp, pilot; 8V 300mA; METER
PL4	1-518-331-81	(B)	Lamp, pilot; 6V 35mA; STEREO
PL5–10	1-518-299-91	(B)	Lamp, pilot; 6V 35mA; FM/1–5, MANUAL
TM1	1-536-486-00	(B)	Terminal Board, 4P; ANTENNA
TM3	1-536-555-00	(C)	Terminal Board, 4P; SPEAKER
	1-533-051-XX	(A)	Holder, lamp

• Circled letters ((A) to (Z)) are applicable to Europen models only.

ACCESSORIES & PACKING MATERIALS

Part No.		Description
1-501-161-00	(F)	Antenna, feeder
⚠1-534-819-00	(G)	Cord, power (UK model)
3-429-126-00	(B)	Bag, polyethylene
3-701-020-00	(A)	Bag, polyethylene
3-701-690-01	(A)	Label (UK model)
3-701-879-00	(A)	Label
3-770-671-11	(E)	Instruction Manual
4-846-269-00	(A)	Stopper, nob
4-859-506-00	(B)	Cushion, lower
4-861-113-00	(C)	Carton
4-861-114-00	(C)	Cushion, upper

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

1/4 WATT CARBON RESISTORS (A)

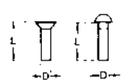
Note: Circled letter (A) is applicable to European models only.

Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.	Ω	Part No.
1.0	1-246-401-00	10	1-246-425-00	100	1-246-449-00	1.0k	1-246-473-00	10k	1-246-497-00	100k	1-246-521-00	1.0M	1-246-545-00
1.1	1-246-402-00	11	1-246-426-00	110	1-246-450-00	1.1k	1-246-474-00	11k	1-246-498-00	110k	1-246-522-00	1.1M	1-210-814-00
1.2	1-246-403-00	12	1-246-427-00	120	1-246-451-00	1.2k	1-246-475-00	12k	1-246-499-00	120k	1-246-523-00	1.2M	1-210-815-00
1.3	1-246-404-00	13	1-246-428-00	130	1-246-452-00	1.3k	1-246-576-00	13k	1-246-500-00	130k	1-246-524-00	1.3M	1-210-816-00
1.5	1-246-405-00	15	1-246-429-00	150	1-246-453-00	1.5k	1-246-577-00	15k	1-246-501-00	150k	1-246-525-00	1.5M	1-210-817-00
1.6	1-246-406-00	16	1-246-430-00	160	1-246-454-00	1.6k	1-246-578-00	16k	1-246-502-00	160k	1-246-526-00	1.6M	1-210-818-00
1.8	1-246-407-00	18	1-246-431-00	180	1-246-455-00	1.8k	1-246-579-00	18k	1-246-503-00	180k	1-246-527-00	1.8M	1-210-819-00
2.0	1-246-408-00	20	1-246-432-00	200	1-246-456-00	2.0k	1-246-580-00	20k	1-246-504-00	200k	1-246-528-00	2.0M	1-210-820-00
2.2	1-246-409-00	22	1-246-433-00	220	1-246-457-00	2.2k	1-246-581-00	22k	1-246-505-00	220k	1-246-529-00	2.2M	1-210-821-00
2.4	1-246-410-00	24	1-246-434-00	240	1-246-458-00	2.4k	1-246-582-00	24k	1-246-506-00	240k	1-246-530-00	2.4M	1-244-754-00
2.7	1-246-411-00	27	1-246-435-00	270	1-246-459-00	2.7k	1-246-583-00	27k	1-246-507-00	270k	1-246-531-00	2.7M	1-244-755-00
3.0	1-246-412-00	30	1-246-436-00	300	1-246-460-00	3.0k	1-246-584-00	30k	1-246-508-00	300k	1-246-532-00	3.0M	1-244-756-00
3.3	1-246-413-00	33	1-246-437-00	330	1-246-461-00	3.3k	1-246-585-00	33k	1-246-509-00	330k	1-246-533-00	3.3M	1-244-757-00
3.6	1-246-414-00	36	1-246-438-00	360	1-246-462-00	3.6k	1-246-586-00	36k	1-246-510-00	360k	1-246-534-00	3.6M	1-244-758-00
3.9	1-246-415-00	39	1-246-439-00	390	1-246-463-00	3.9k	1-246-587-00	39k	1-246-511-00	390k	1-246-535-00	3.9M	1-244-759-00
4.3	1-246-416-00	43	1-246-440-00	430	1-246-464-00	4.3k	1-246-588-00	43k	1-246-512-00	430k	1-246-536-00	4.3M	1-244-760-00
4.7	1-246-417-00	47	1-246-441-00	470	1-246-465-00	4.7k	1-246-489-00	47k	1-246-513-00	470k	1-246-537-00	4.7M	1-244-761-00
5.1	1-246-418-00	51	1-246-442-00	510	1-246-466-00	5.1k	1-246-490-00	51k	1-246-514-00	510k	1-246-538-00	5.1M	1-244-762-00
5.6	1-246-419-00	56	1-246-443-00	560	1-246-467-00	5.6k	1-246-491-00	56k	1-246-515-00	560k	1-246-539-00		
6.2	1-246-420-00	62	1-246-444-00	620	1-246-468-00	6.2k	1-246-492-00	62k	1-246-516-00	620k	1-246-540-00		
6.8	1-246-421-00	68	1-246-445-00	680	1-246-469-00	6.8k	1-246-493-00	68k	1-246-517-00	680k	1-246-541-00		
7.5	1-246-422-00	75	1-246-446-00	750	1-246-470-00	7.5k	1-246-494-00	75k	1-246-518-00	750k	1-246-542-00		
8.2	1-246-423-00	82	1-246-447-00	820	1-246-471-00	8.2k	1-246-495-00	82k	1-246-519-00	820k	1-246-543-00		
9.1	1-246-424-00	91	1-246-448-00	910	1-246-472-00	9.1k	1-246-496-00	91k	1-246-520-00	910k	1-246-544-00		

HARDWARE NOMENCLATURE

Screw: – P 3 × 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		brazier-head screw	

Reference Designation	Shape	Description	Remarks
SELF-TAPPING SCREWS			
TA		self-tapping screw	ex: TA, P 3 × 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 × 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	

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