STR-11L

UK Model
AEP Model

FM STEREO/FM-AM RECEIVER

SPECIFICATIONS

GENERAL

Power Requirements: 240 V ac, 50 Hz (UK model)
120 or 220 V ac, 50 Hz (AEP model)

Power Consumption: 130 W (UK model)
110 W (AEP model)

Dimensions: Approx. 410 (w) x 145 (h) x 270 (d) mm
Approx. 16 (w) x 5¾ (h) x 10⅝ (d) inches
Including projecting parts and controls

Weight: Approx. 7.0 kg, 15 lb 7 oz (net)
Approx. 8.3 kg, 18 lb 5 oz
(in shipping carton)

FM SECTION

Tuning Range: 87.5 MHz – 108 MHz

Antenna: 300 Ω balanced
75 Ω unbalanced

Intermediate Frequency: 10.7 MHz

Sensitivity at 50 dB Quieting: 4 μV (MONO)
45 μV (STEREO)

Sensitivity at 46 dB Quieting: 4.5 μV (MONO, 40 kHz deviation)

Usable Sensitivity: IHF 1.9 μV (MONO)
1.7 μV, S/N = 26 dB (40 kHz deviation)

S/N Ratio: 70 dB (MONO)
68 dB (STEREO)

Harmonic Distortion: at 100 Hz
0.2 % (MONO)
0.6 % (STEREO)
at 1 kHz
0.2 % (MONO)
0.5 % (STEREO)
at 10 kHz
0.2 % (MONO)
0.8 % (STEREO)

IM Distortion: 0.2 % (MONO)
0.5 % (STEREO)

Alternate Channel Selectivity: 50 dB (400 kHz)
30 dB (300 kHz, S/N = 26 dB, 40 kHz deviation)

Separation: 35 dB at 100 Hz
40 dB at 1 kHz
35 dB at 10 kHz

– 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

Frequency Response: 40 Hz – 12.5 kHz $\pm\frac{1}{2}$ dB
30 Hz – 15 kHz $\pm\frac{1}{3}$ dB

Capture Ratio: 1.5 dB

AM Suppression Ratio: 54 dB

Image Response Ratio: 45 dB

IF Response Ratio: 90 dB

Spurious Response Ratio: 75 dB

RF Intermodulation: 60 dB

Muting Threshold: Approx. 5 μV

AM SECTION

	SW	MW	LW
Tuning range	5.8MHz–15.8MHz	530kHz–1,605kHz	150kHz–350kHz
Antenna	External antenna terminal	Built-in ferrite-rod antenna External antenna terminal	
Intermediate frequency	468kHz		
Usable sensitivity	30μV with external antenna (10MHz)	250μV/m with built-in antenna 100μV with external antenna (1,000kHz)	500μV/m with built-in antenna 100μV with external antenna (250kHz)
S/N ratio	50dB	50dB	50dB
Harmonic distortion	0.5%	0.5%	0.5%
Selectivity	30dB (10kHz)	30dB (10kHz)	30dB (10kHz)

AMPLIFIER SECTION

Continuous RMS Power Output: (rated output) Less than 0.5% THD, both channels driven simultaneously
at 20 Hz – 20 kHz
25 + 25 W (8 Ω)
at 1 kHz
28 + 28 W (8 Ω)
according to DIN 45500
25 + 25 W (8 Ω)

Dynamic Power Output: IHF constant power supply method
90 W (8 Ω)

Power Bandwidth: 10 Hz – 40 kHz (IHF)

Damping Factor: 30 at 1 kHz, 8 Ω

Harmonic Distortion: Less than 0.5% at rated output
Less than 0.5% at 1 W output

Intermodulation (IM) Distortion: (60 Hz: 7 kHz = 4 : 1) Less than 0.5% at rated output
Less than 0.5% at 1 W output

Residual Noise: Less than 0.03 μW

Frequency Response: PHONO
RIAA equalization curve ± 1 dB
TAPE, REC/PB (input)
10 Hz – 50 kHz $\pm\frac{1}{3}$ dB

Inputs

	Sensitivity	Impedance	S/N	Weighting network
PHONO	2.5 mV (–50 dB)	47 kΩ	70 dB	A
TAPE REC/PB (input)	150 mV (–14.5 dB)	100 kΩ	90 dB	A

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

Outputs (with rated input)

	Voltage	Impedance
REC OUT	150mV (–14.5 dB)	10 kΩ
REC/PB (output)	40 mV (–26 dB)	82 kΩ

0 dB = 0.775 V

Headphones: Accepts all low or high impedance headphones.

Speaker: 8 Ω or more speakers are suitable.

Tone Controls: BASS ±8 dB at 100 Hz
TREBLE ±8 dB at 10 kHz

Loudness Control: (att. 30 dB) +8 dB at 50 Hz
+0 dB at 10 kHz

MODEL IDENTIFICATION

– Specification Label –

UK model

SONY	FM STEREO/FM-AM RECEIVER MODEL NO. **STR-11L** FREQ. RANGE: FM 87.5 – 108 MHz SW 5.8 – 15.8 MHz MW 530 – 1605 kHz LW 150 – 350 kHz IF: FM 10.7 MHz AM 468 kHz AC: 240 V ~ 50 Hz 130 W MADE IN JAPAN

SERIAL NO.

AEP model

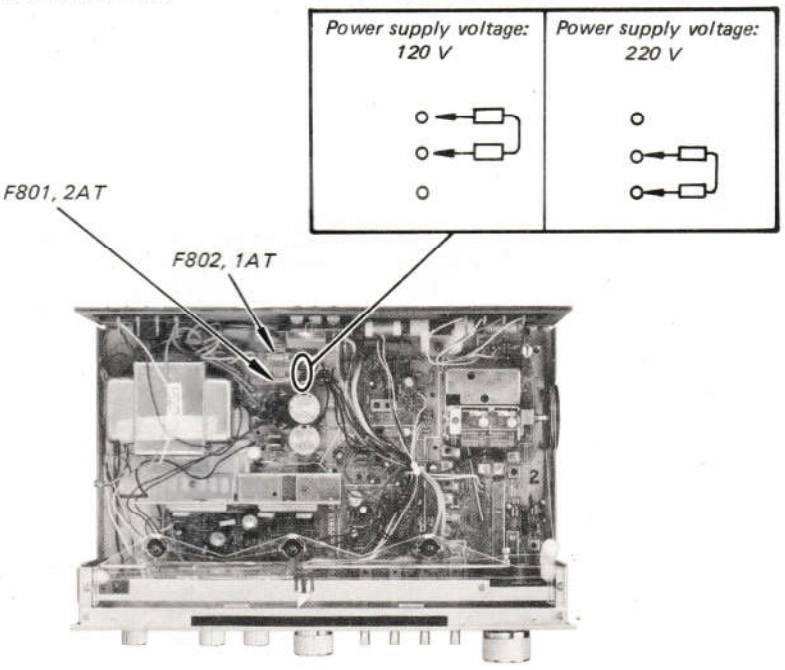
SONY	FM STEREO/FM-AM RECEIVER MODEL NO. **STR-11L** FREQ. RANGE: FM 87.5 – 108 MHz SW 5.8 – 15.8 MHz MW 530 – 1605 kHz LW 150 – 350 kHz IF: FM 10.7 MHz AM 468 kHz AC: 220 V ~ 50 Hz 110 W MADE IN JAPAN

SERIAL NO.

POWER SUPPLY VOLTAGE CHANGING

(AEP model)

Change the connection as shown below.

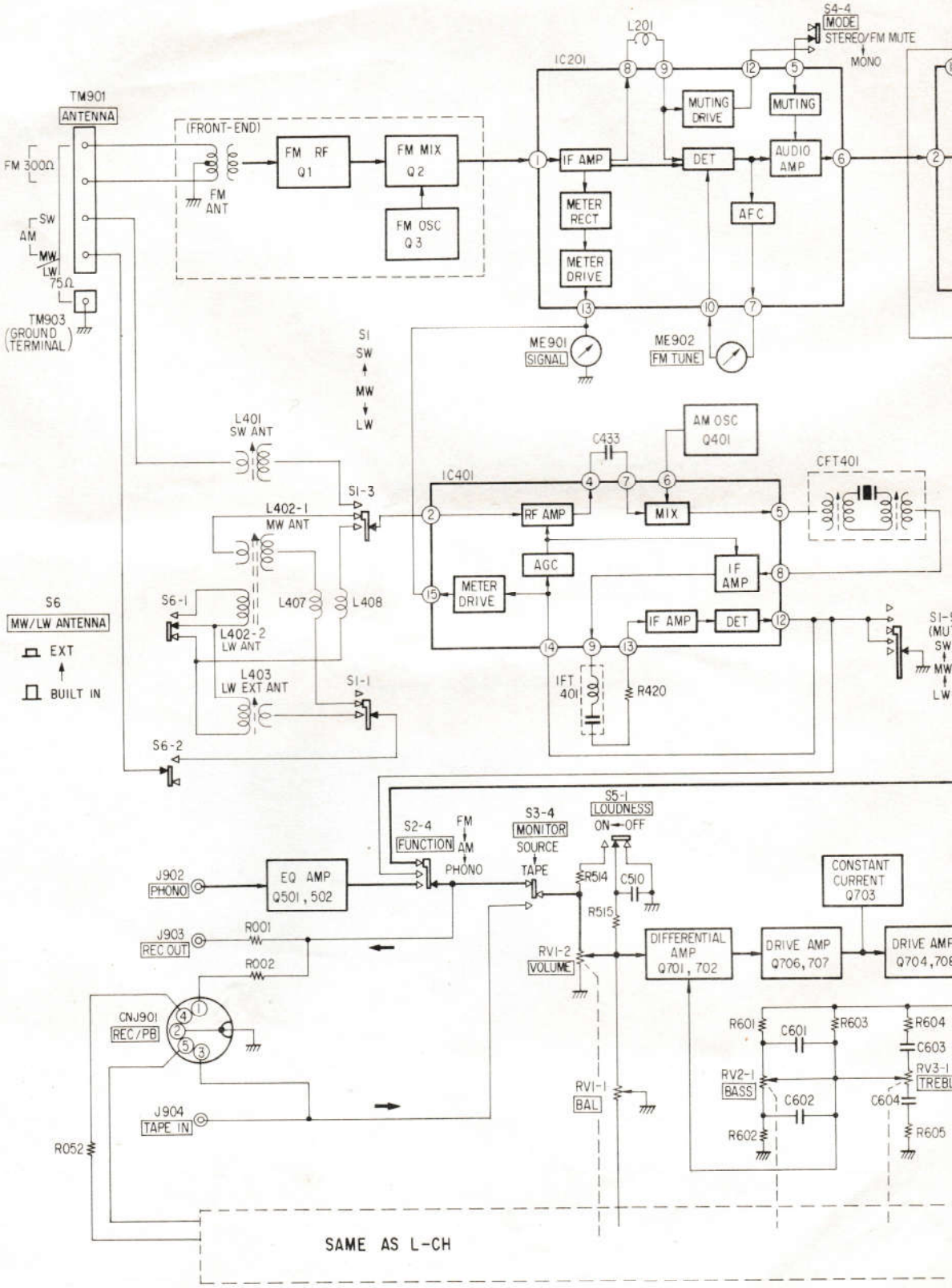


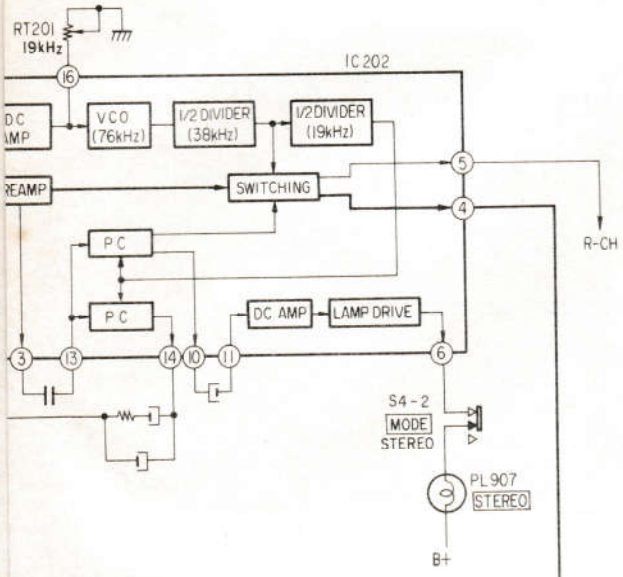
MEMO

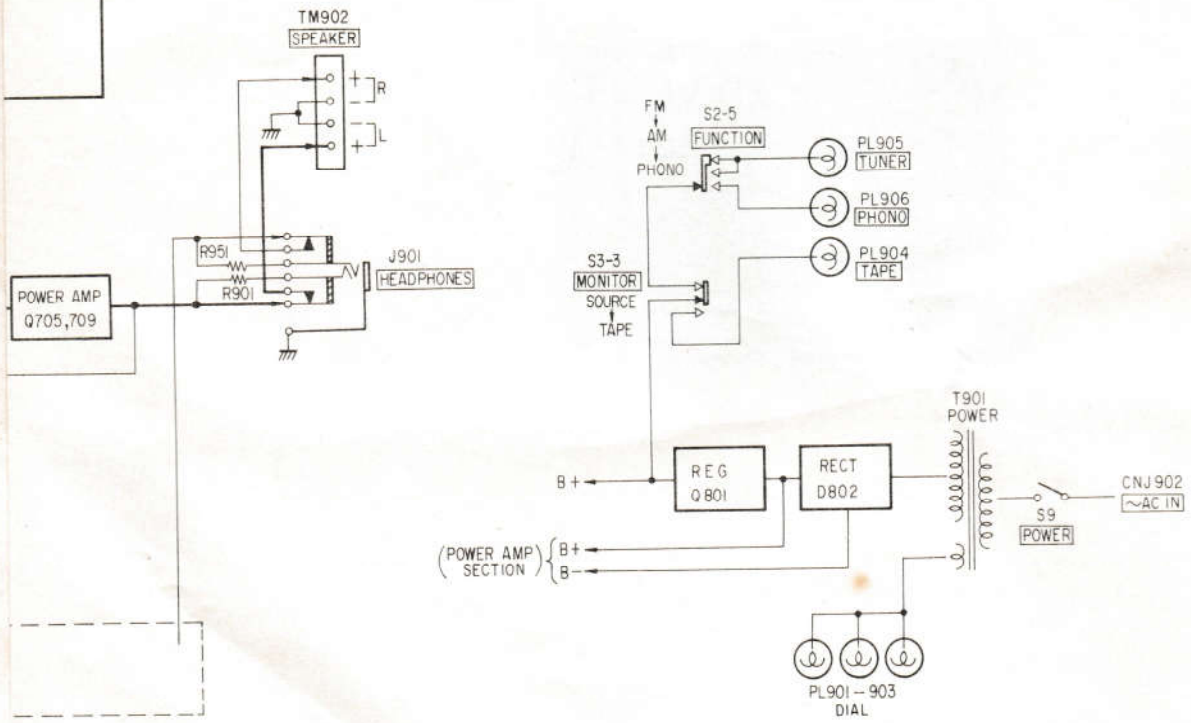
SECTION 1

OUTLINE

1-1. BLOCK DIAGRAM




RT201
19kHz
IC 202
16
DC AMP
VCO (76kHz)
1/2 DIVIDER (38kHz)
1/2 DIVIDER (19kHz)
REAMP
SWITCHING
5
4
R-CH
P C
P C
DC AMP
LAMP DRIVE
3
13
14
10
11
6
S4-2
MODE
STEREO
PL907
STEREO
B+


TM902
SPEAKER
R
L
R951
R901
J901
HEADPHONES
POWER AMP
Q705,709
FM
AM
PHONO
S2-5
FUNCTION
PL905
TUNER
PL906
PHONO
PL904
TAPE
S3-3
MONITOR
SOURCE
TAPE
T901
POWER
B+
REG
Q801
RECT
D802
CNJ902
~AC IN
S9
POWER
(POWER AMP SECTION)
B+
B-
PL901 – 903
DIAL

1-2. FM MPX DECODER

This set uses a PLL (phase-locked loop) IC in the FM MPX decoder circuit, and a very good channel separation and stability are obtained in wide frequency range.

The PLL is a negative frequency feedback circuit. This circuit operates in such a manner that a frequency of the voltage-controlled oscillator in a closed-loop circuit always coincides with an input-signal frequency.

1) Basic Circuit

The PLL circuit is basically composed of a phase comparator (PC), low-pass filter (LPF) and a voltage-controlled oscillator (VCO).

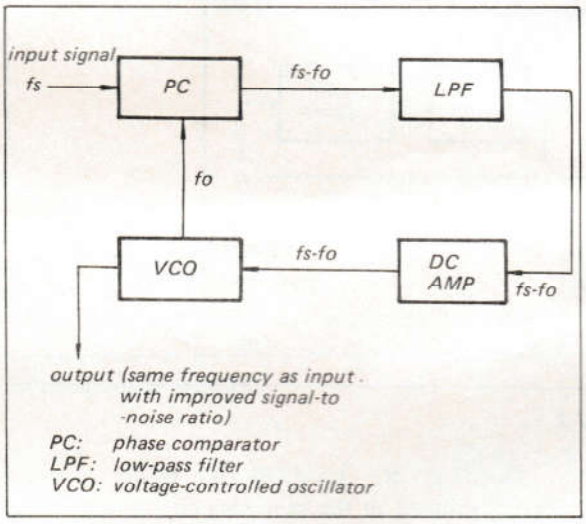


Fig. 1-1

Phase Comparator (PC):

This circuit compares the frequencies or phases of the input signal (fs) and VCO signal (fo), and it outputs voltages depending on the frequency or phase difference.

Low-pass Filter (LPF):

This circuit attenuates high-frequency harmonic components and provides a good interfering-signal rejecting characteristic. This circuit also acts to re-lock the PLL circuit by storing the voltage of the previously-locked condition when the PLL looses its lock by some noise interference.

The locked condition is that the control voltage needed to make the VCO frequency precisely coincides with the input-signal frequency is injected to the VCO, and the voltage holds this condition.

DC Amplifier:

This circuit amplifies the frequency content (fs-fo) and provides an ample loop gain.

Voltage Controlled Oscillator (VCO):

This circuit generates a frequency depending on the amplitude of the voltage made by its input frequency (fs-fo).

When there is no input signal at pin 2, the VCO oscillates at a free-running frequency. When there is an input signal at pin 2, the phase comparator detects the frequency or phase difference between the input signal and VCO frequencies. If there is any frequency or phase difference, the phase comparator detects the difference (fs-fo) as a voltage. This output voltage is smoothed by the low-pass filter and a dc voltage is obtained at the output of the low-pass filter. This dc voltage controls the VCO frequency to coincide with the input signal frequency.

When the VCO frequency coincides with the input signal frequency, the detected output voltage from the phase comparator becomes constant and the PLL becomes in a locked condition. In other words, the VCO frequency becomes the same one as the input signal when the PLL is locked.

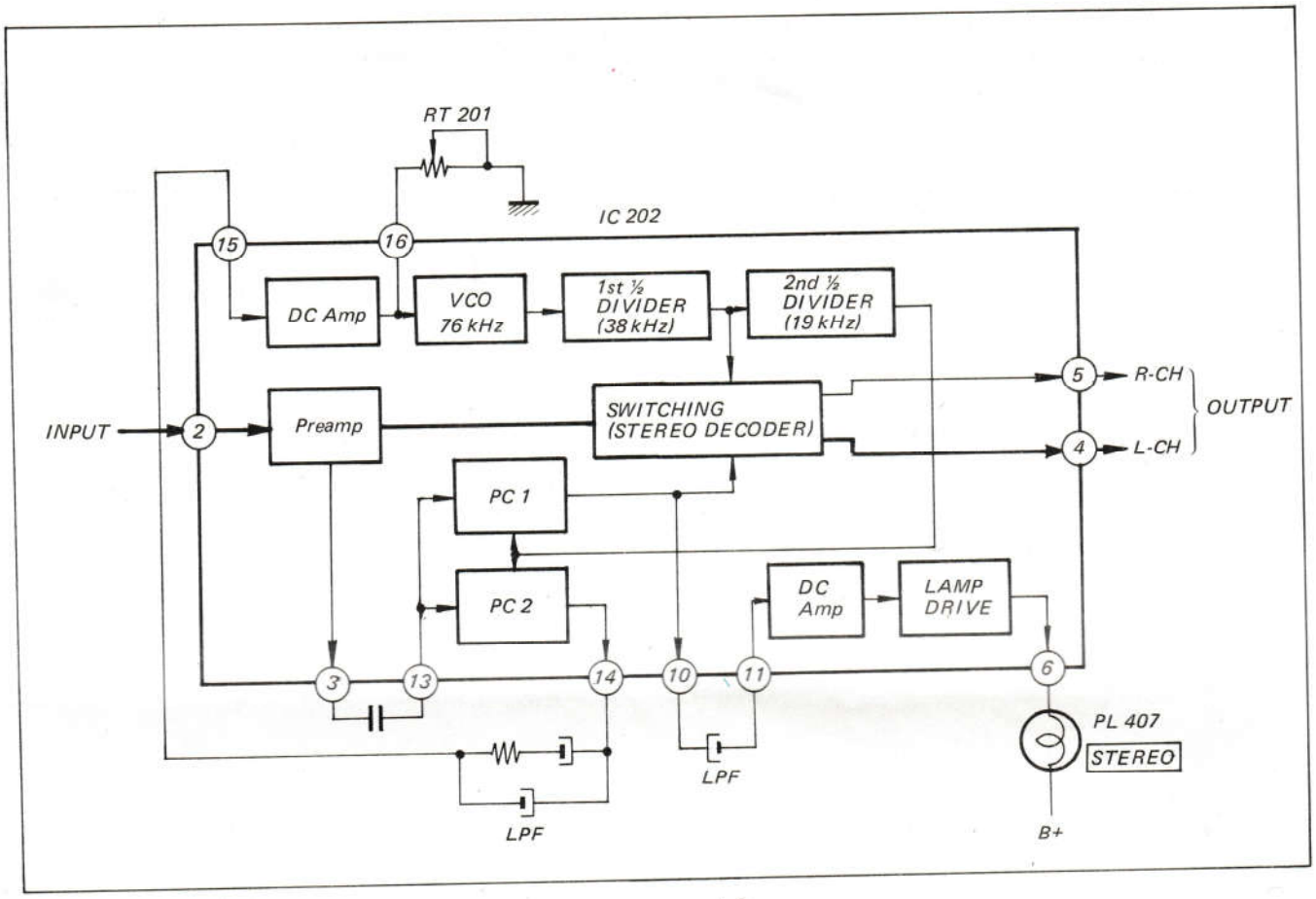


Fig. 1-2

2) Outline of Operation

Fig. 1-2 is the block diagram of the PLL IC LA-3350. The VCO generates a 76 kHz signal. This 76 kHz signal is divided by two ½ dividers resulting in the 19 kHz (½ x ½ x 76 kHz) signal. This resultant 19 kHz signal next goes to the phase comparator (PC 2).

When there is a 19 kHz signal (i.e., the pilot signal) at the input terminal pin 2, the 19 kHz singal from the second ½ divider is compared with the pilot signal. If any frequency of phase difference is detected between the two 19 kHz signals, the phase comparator (PC 2) generates voltage. This voltage is smoothed by the low-pass filter and is next amplified by the dc amplifier. This amplified dc voltage controls the VCO frequency. Thus the VCO frequency synchronizes with the pilot-signal frequency. And the 38 kHz signal from the first ½ divider becomes corectly in phase with the input signal and is applied to the stereo decoder (included in the switching circuit). Thus a good quality FM MPX stereo reception is ensured with no phase shift, less high-frequency harmonic distortion and a good channel separation.

The PLL IC LA-3350 also includes a stereo switch (included in the switching circuit) and stereo lamp drive circuit. When the input signal is not a stereo or the broadcasting field strength is weak, it is necessary to mute the output. For this purpose, this stereo switch turns on only when the input signal of more than a rated level is received.

The 19 kHz pilot signal and the 19 kHz signal from the second ½ divider which is in-phase with the pilot signal are applied to the phase comparator (PC 1). If there is the 19 kHz pilot signal, these two 19 kHz signals are compared and dc voltage is obtained at the output of the phase comparator (PC 1). This dc voltage drives the switching circuit to operate the stereo decoder. And the dc voltage is also applied to the dc amp through the lowpass filter and drives the lamp drive circuit. Then the STEREO lamp lights up.

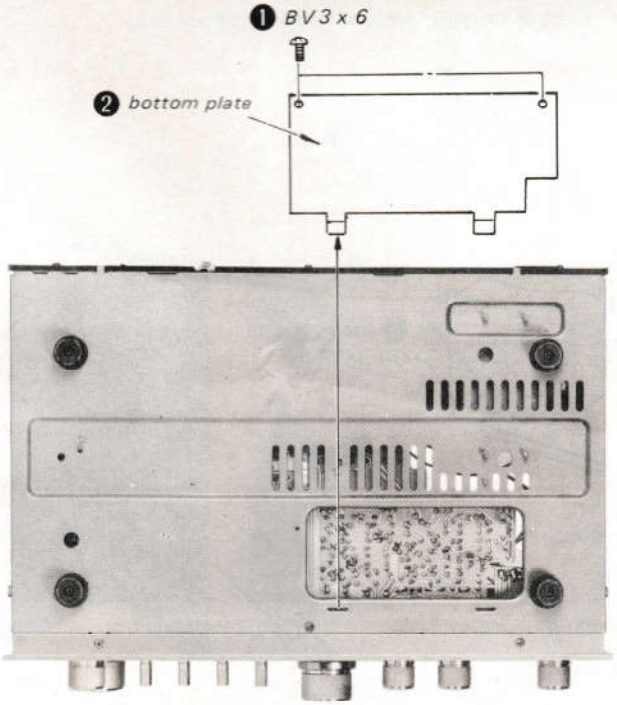
SECTION 2
DISASSEMBLY

2-1. REMOVAL

Remove the parts in the numerical order.

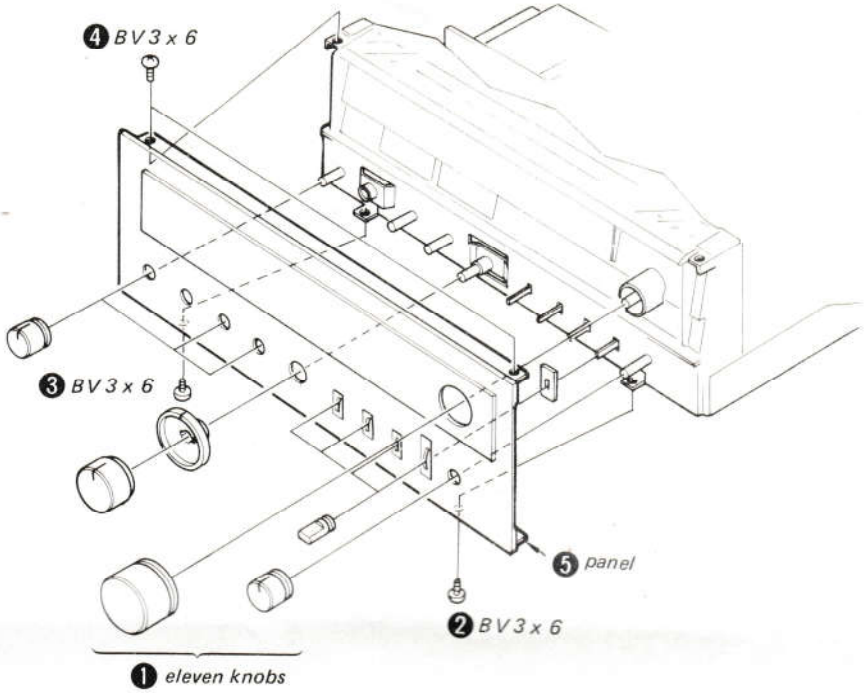
Case Removal

Bottom Plate Removal



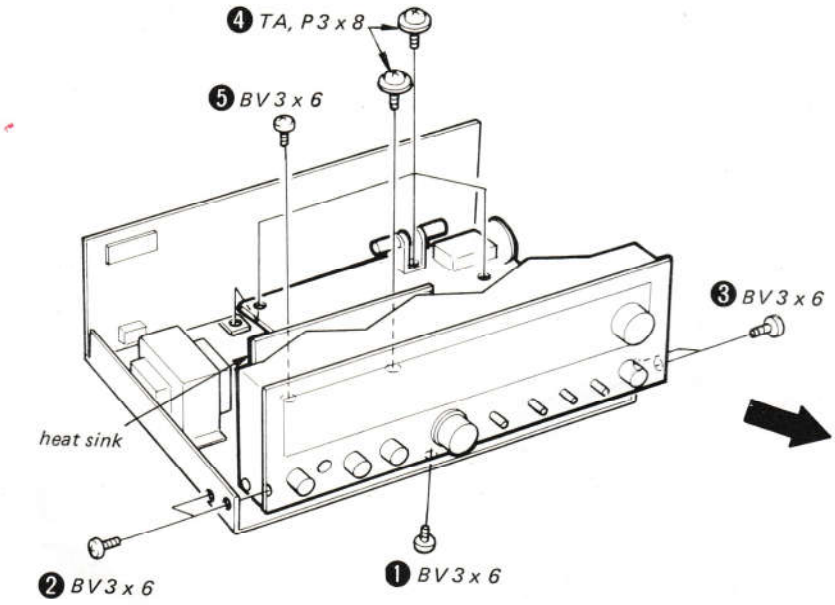
❸ *Power amplifier section can be checked.*

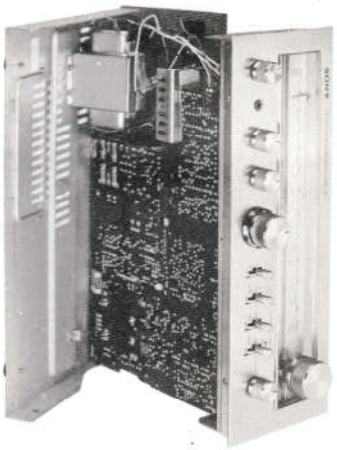
Panel Removal



Main Circuit Board Removal

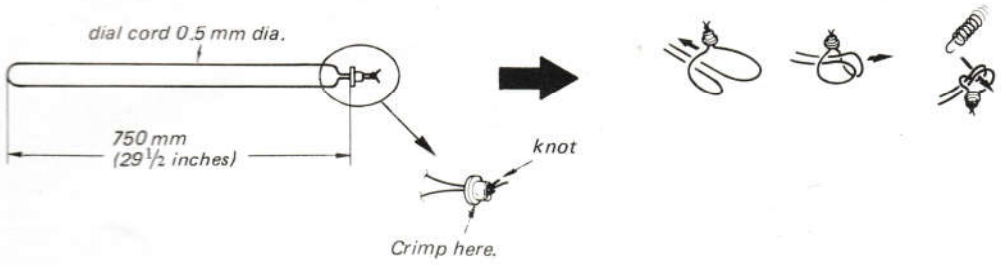
Screws of this removal are indicated by the mark of ⇒.



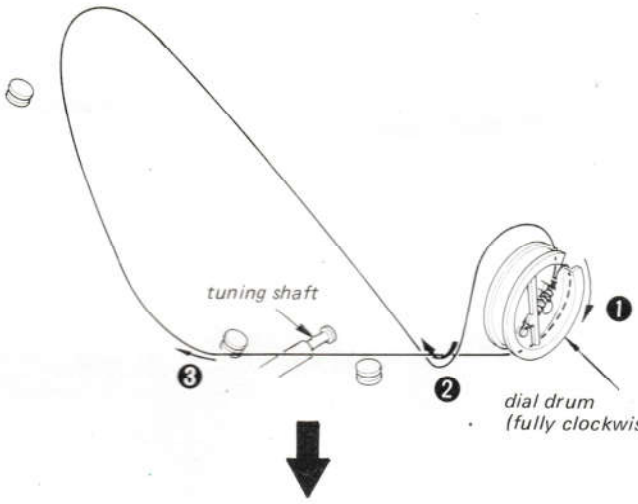


2-2. DIAL CORD STRINGING

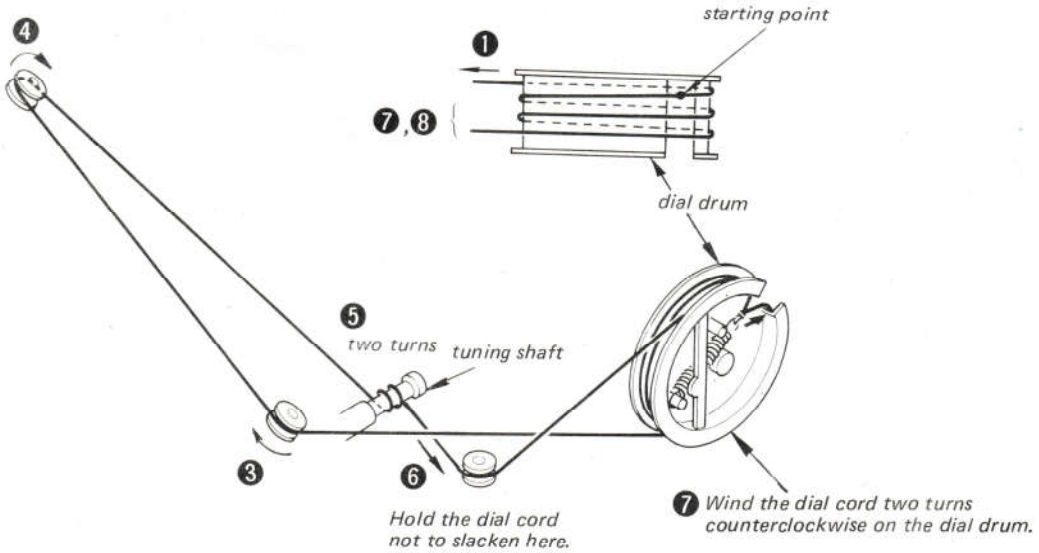
1) Dial Cord Length



2) Dial Cord Stringing



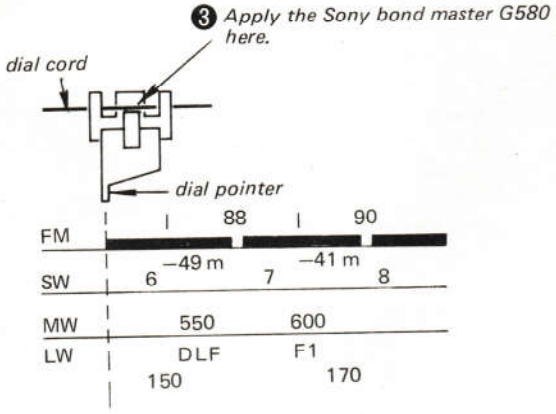
❽ Set the dial cord on the dial drum completely as shown below by turning the dial drum counterclockwise.



3) Dial Pointer Setting

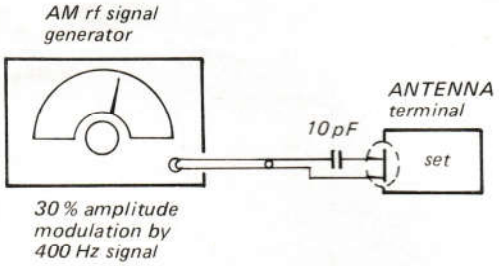
❶ *Turn the tuning knob fully counterclockwise.*

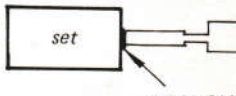
❷ *Set the dial pointer as shown below.*



SECTION 3
ADJUSTMENTS

3-1. AM SECTION





REC OU

- Repeat the proced several times, and t tracking adjustment the trimmer capaci

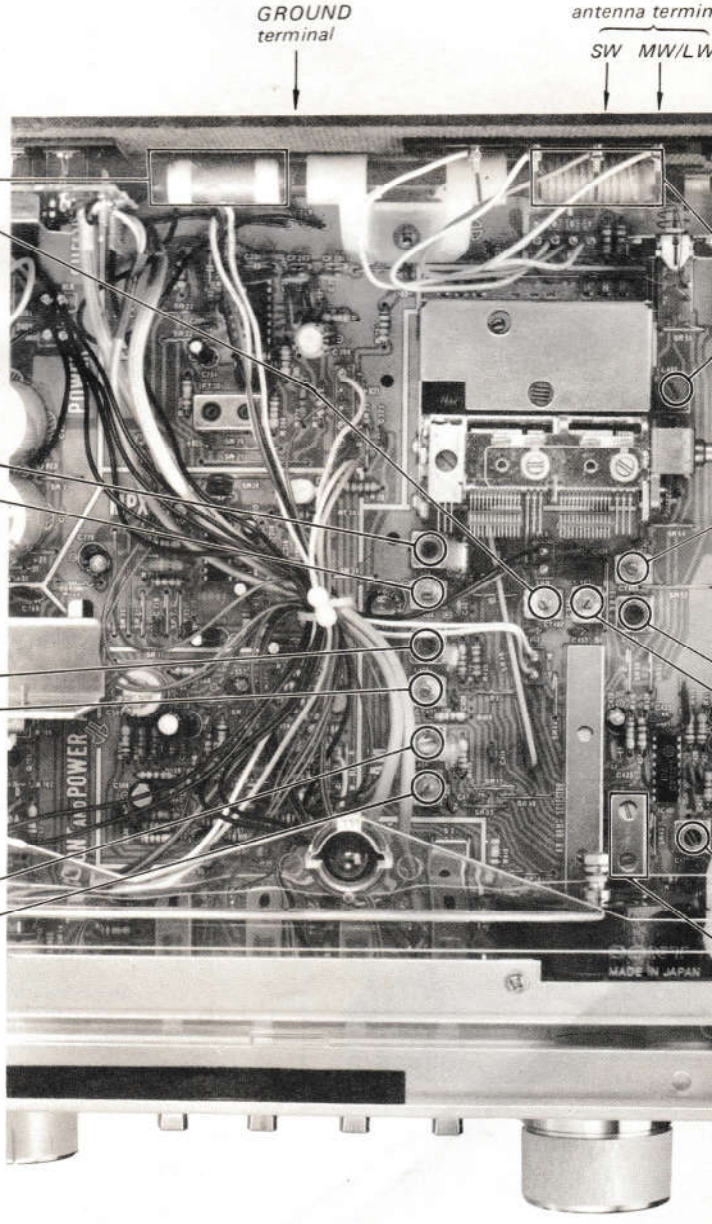
MW/LW ANTENNA
□ : BUILT
⊓ : EXT

MW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
600 kHz	L402-1
1,400 kHz	CT402

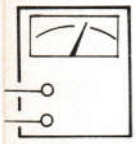
SW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
5.8 MHz	L404
15.8 MHz	CT404

MW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for maximum reading on VOM ①.	
520 kHz	L405
1,680 kHz	CT405

LW FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
150 kHz	L406
350 kHz	CT406



VOM ①
(range: 0.5 ~ 5 V ac)



in each adjustment
equency coverage and
ld be finally done by

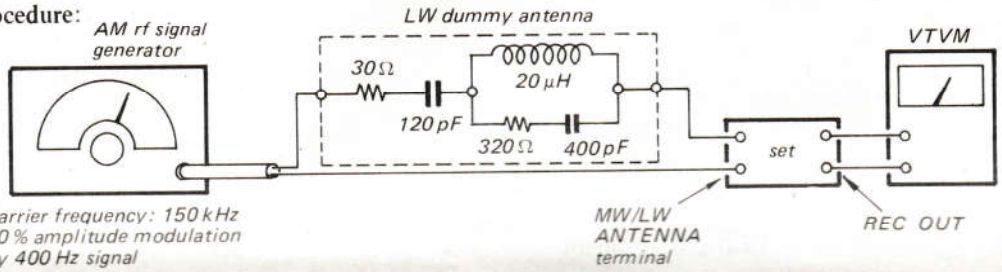
: BUILT-IN position

LW EXT Antenna Coil Adjustment

Setting:

MW/LW ANTENNA switch: EXT

Procedure:



- Tune the set to 150 kHz and adjust L403 for a maximum reading on VTVM.

L403

LW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
L402-2	150 kHz
CT403	350 kHz

SW TRACKING ADJUSTMENT	
Adjust for a maximum reading on VOM ①.	
L401	5.8 MHz
CT401	15.8 MHz

AM IF ALIGNMENT	
Adjust for a maximum reading on VOM ①.	
IFT401	468 kHz
CFT401	

3-2. FM SECTION

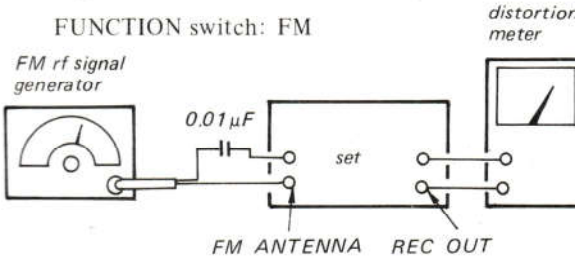
FM Frequency Coverage and Tracking Adjustment

Never attempt alignment of the fm front-end section for the fm frequency coverage and tracking adjustment. If the fm frequency coverage and tracking adjustments are required, consult the factory service center.

FM Discriminator Alignement

Setting:

FUNCTION switch: FM

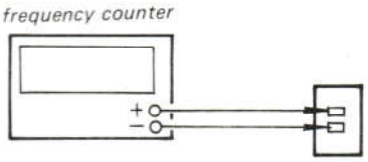


19 kHz Adjustment

Setting:

FUNCTION switch: FM
MODE switch: STEREO/FM MUTE

A) With Frequency Counter

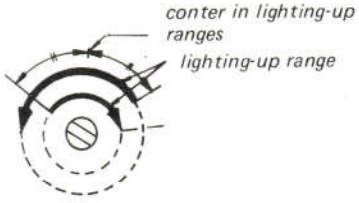


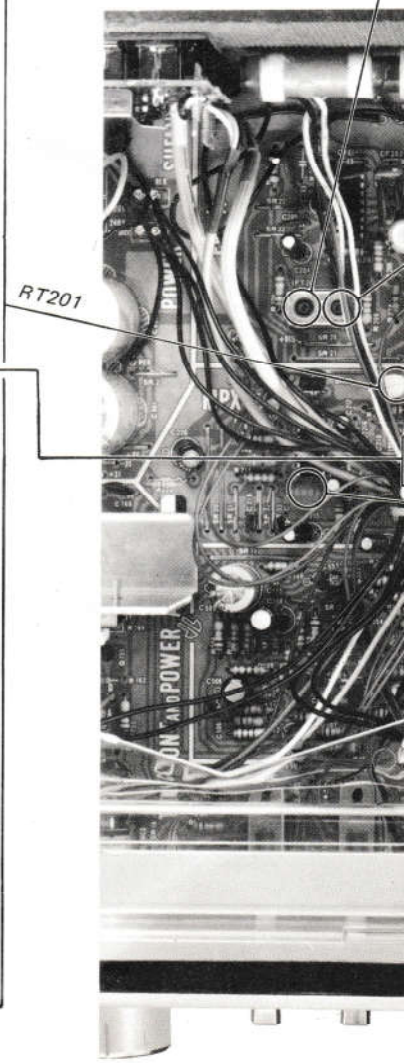
Adjust RT201 for 19 kHz ± 100 Hz on the counter.

B) Without Frequency Counter

Procedure:

1. Tune the set to the FM stereo broadcasting signal.
2. Turn RT201 clockwise or counterclockwise and memorize the lighting-up range of stereo lamp.
3. Secure RT201 at the center in lighting-up range of both turns as shown below.





FM Signal Generator Setting

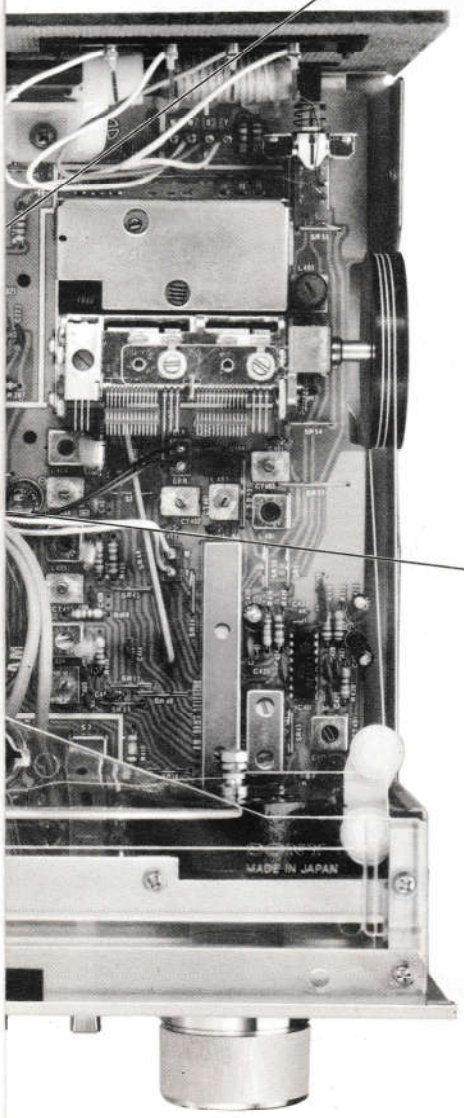
Carrier frequency: 98 MHz
Modulation: 400 Hz,
75 kHz deviation (100 %)
Output level: 1 mV (60 dB)

Procedure:

Tune the set to 98 MHz and adjust the secondary-side core (black) of IFT201 for a minimum distortion reading.

IFT201 (secondary side: black)

IFT201 primary side: blue



R217

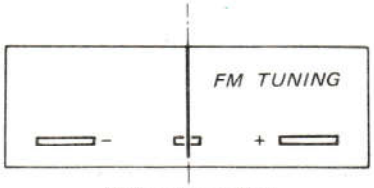
FM IF Alignment

Setting:

FUNCTION switch: FM

Procedure:

1. Detune the set.
2. Turn the primary-side core (blue) of IFT201 for null-point reading on the FM TUNING meter.



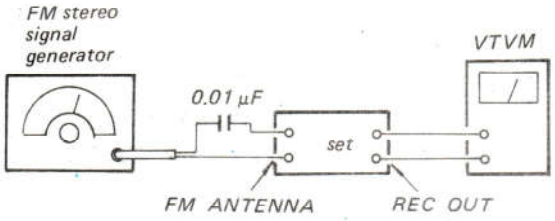
Null-point reading

FM Stereo Separation Adjustment

Setting:

FUNCTION switch: FM
MODE switch: STEREO/FM MUTE

Procedure:



FM Signal Generator Setting:

Carrier frequency: 98 MHz
Output level: 1 mV (60 dB)
Mode: Stereo
Modulation:
Audio (400 Hz): 67.5 kHz deviation (90 %)
Pilot (19 kHz): 7.5 kHz deviation (10 %)

FM stereo signal generator output channel	VTVM connection	VTVM reading
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust R217 for a minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust R217 for a minimum reading.

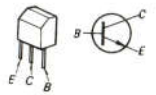
Stereo separation: Ⓐ – Ⓑ, Ⓒ – Ⓓ.

The difference between separations Ⓐ → Ⓑ and Ⓒ → Ⓓ should be equal.

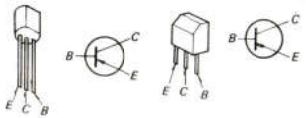
Replacement Semiconductors

For replacement, use semiconductors except in ( ).

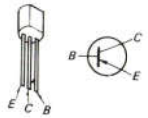
Q401, 501, 502, Q551, 552): 2SC1345



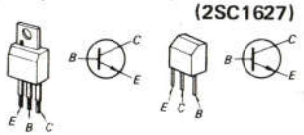
Q701, 702, Q751, 752): 2SA872 (2SA836)



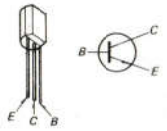
Q703, 753: 2SA896 (2SA893)



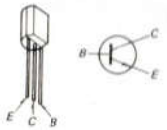
Q704, 754: 2SC1962 (2SC1627)



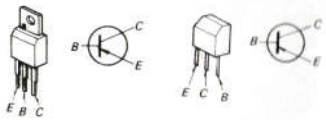
Q705, 709, Q755, 759): 2SC1061



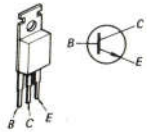
Q706, 707, Q756, 757): 2SC1400



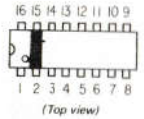
Q708, 758: 2SA835 (2SA817)



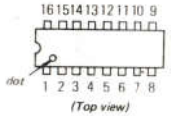
Q801: 2SC1173



IC201: HA1137W



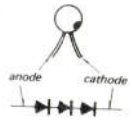
IC202: LA3350
IC401: LA1240



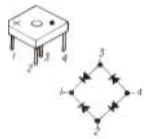
D201: 1S1555

D701: EQB01-07 (EQA01-07A)
D801: EQB01-21 (EQA01-21R)

D702, 752: MV203V

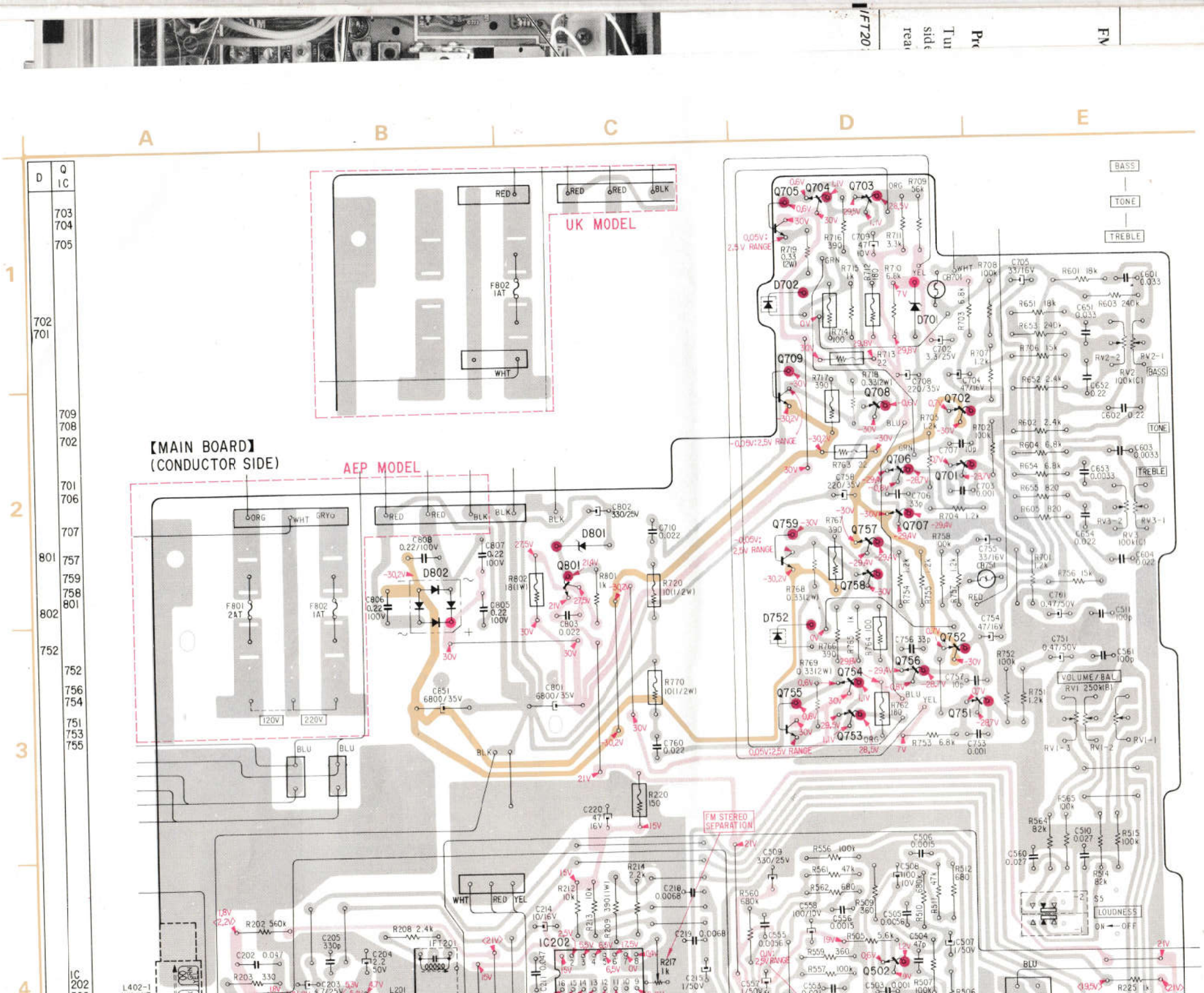


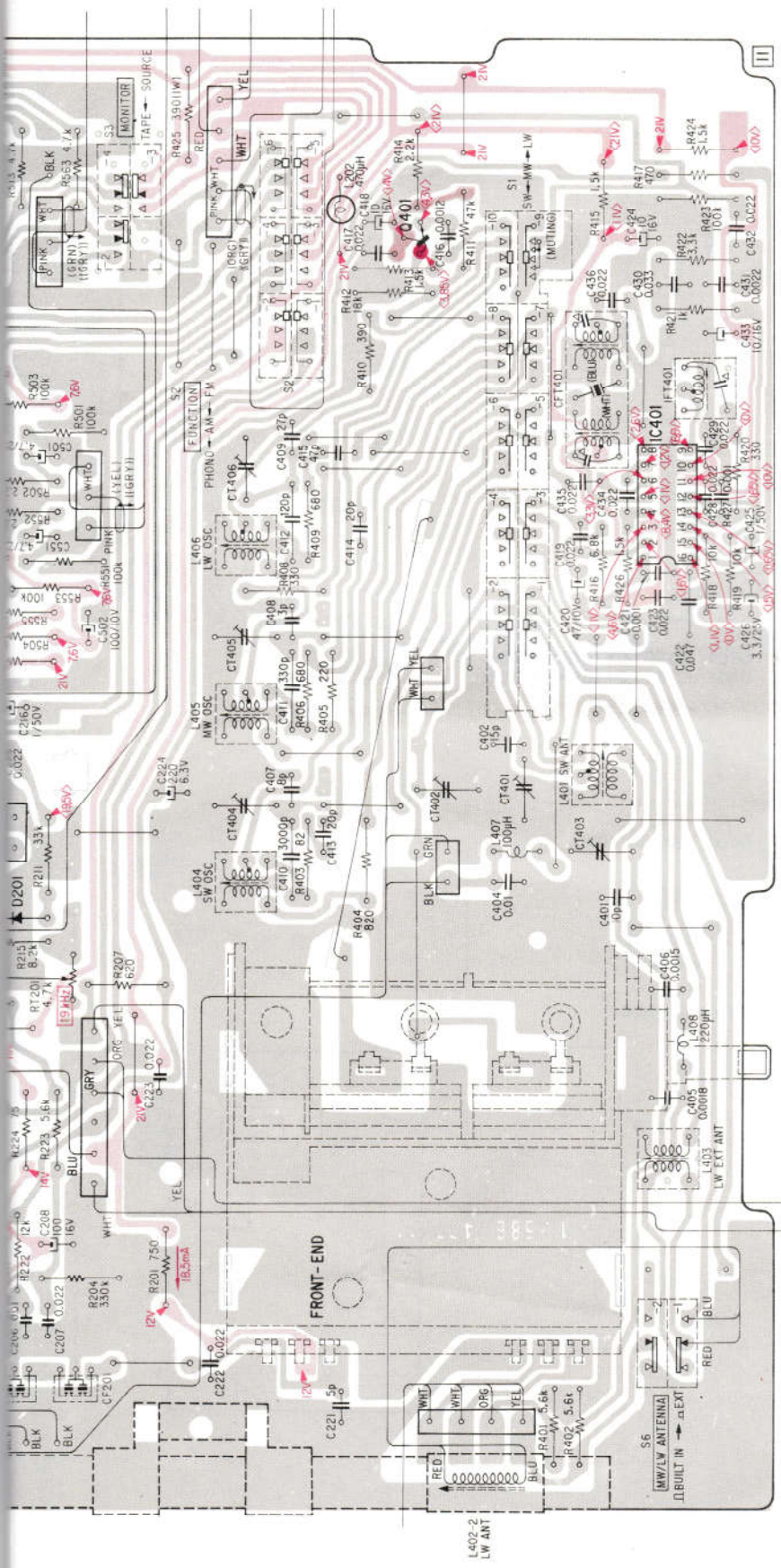
D802: S2VB20

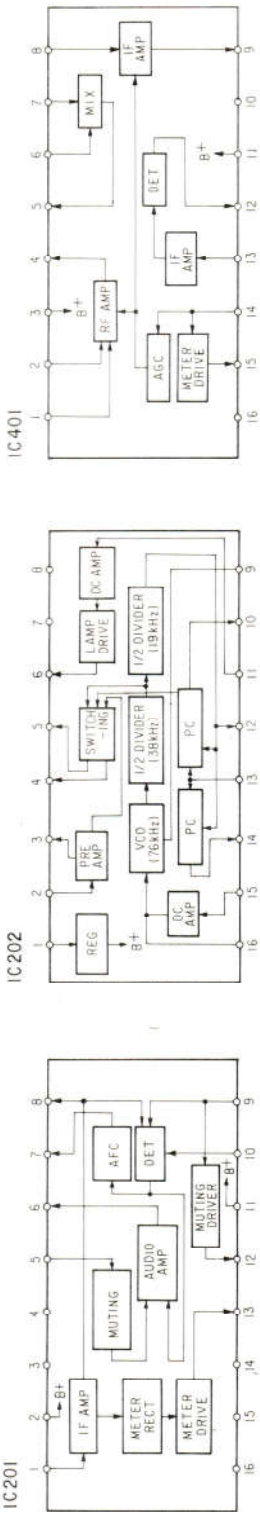


Note:

- (F) : fusible resistor.
- < > : AM
- : B+ pattern.
- : B− pattern.
- : indicates side identified with part number.


A
B
C
D
E
1
2
3
4
D
Q
IC
703
704
705
702
701
709
708
702
701
706
707
801
757
759
758
801
802
752
752
756
754
751
753
755
IC
202
UK MODEL
RED
RED
RED
BLK
F802
1AT
WHT
【MAIN BOARD】
(CONDUCTOR SIDE)
AEP MODEL
ORG
WHT
GRY
RED
RED
BLK
BLK
BLK
C802
330/25V
C808
0.22/100V
C807
0.22
100V
D801
D802
C806
0.22
100V
C805
0.22
100V
Q801
R802
18(1W)
R801
1k
C803
0.022
R720
10(1/2W)
C710
0.022
F801
2AT
F802
1AT
120V
220V
C651
6800/35V
C801
6800/35V
R770
10(1/2W)
C760
0.022
BLU
BLU
BLK
R220
150
C220
47
16V
15V
FM STEREO
SEPARATION
WHT
RED
YEL
R212
10k
R214
2.2k
C218
0.0068
C214
10/16V
R213
10k
R209
390(1W)
C219
0.0068
IC202
R217
1k
C215
1/50V
R202 560k
C202
0.047
R203
330
C205
330p
C204
2.2
50V
R208 2.4k
IF T201
L402-1
L201
Q705
Q704
Q703
R709
56k
R716
390
R719
0.33
(2W)
C709
47
10V
R715
1k
R712
180
R710
6.8k
R711
3.3k
D702
D701
CB701
R708
100k
R714
100
R713
22
C702
3.3/25V
R703
6.8k
R707
1.2k
Q709
R717
390
R718
0.33(2W)
C708
220/35V
C704
47/16V
Q708
Q702
R705
1.2k
R702
100k
C707
10p
Q706
Q701
C758
220/35V
C706
33p
R704
1.2k
Q759
R767
390
Q757
Q707
R758
100
C755
33/16V
CB751
Q7584
R768
0.33(2W)
R754
1.2k
R755
2k
D752
R766
390
R765
1k
R764
100
C756
33p
Q752
Q756
R769
0.33(2W)
Q754
C754
47/16V
Q755
R762
180
Q751
Q753
R753
6.8k
C753
0.001
C705
33/16V
R601
18k
L601
0.033
R651
18k
C651
0.033
R603
240k
R653
240k
R706
15k
RV2-1
RV2-2
RV2
100k(B)
BASS
R652
2.4k
C652
0.22
C602
0.22
R602
2.4k
R604
6.8k
C603
0.0033
R654
6.8k
C653
0.0033
R655
820
R605
820
RV3-2
RV3-1
RV3
100k(B)
C654
0.022
C604
0.022
R701
1.2k
R756
15k
C701
0.47/50V
C511
100p
C751
0.47/50V
C561
100p
R752
100k
R751
1.2k
C752
10p
VOLUME/BAL
RV1
250k(B)
RV1-3
RV1-2
RV1-1
R565
100k
R564
82k
C510
0.027
R515
100k
C560
0.027
R564
82k
LOUDNESS
ON
OFF
BASS
TONE
TREBLE
R556
100
R561
47k
R562
680
C558
100/10V
C556
0.0015
R509
360
C506
0.0015
C508
100
10V
R510
330
R511
47k
R512
680
C505
0.0056
C555
0.0056
R505
5.6k
C504
47p
C507
1/50V
R559
360
R557
100k
Q502
C503
0.001
R507
100k
R506
R225
1k
C509
330/25V
R560
680k
C557
1/50V
C553
0.001
C554
0.001
0.05V:
2.5V RANGE


FRONT-END
MONITOR
TAPE → SOURCE
FUNCTION
PHONO → AM → FM
S1
SW WW → LW
MUTING
MW/LW ANTENNA
BUILT IN → EXT
L402-2 LW ANT
L403 LW EXT ANT
IC401
IC202
IC201
201
401
IC 401
5
6
7

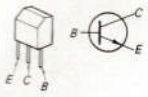

IC401
IF AMP
MIX
DET
RF AMP
AGC
METER DRIVE
IC202
REG
PRE AMP
VCO (76kHz)
1/2 DIVIDER (38kHz)
1/2 DIVIDER (19kHz)
SWITCHING
LAMP DRIVE
DC AMP
PC
IC201
IF AMP
METER RECT
METER DRIVE
MUTING
AUDIO AMP
AFC
DET
MUTING DRIVER

4-2. MOUNTING DIAGRAM

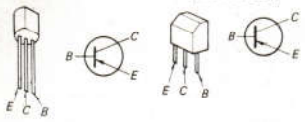
Replacement Semiconductors

For replacement, use semiconductors except in ( ).

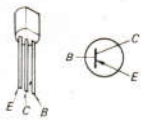
Q401, 501, 502, Q551, 552): 2SC1345



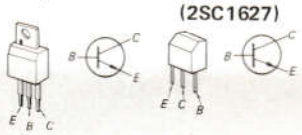
Q701, 702, Q751, 752): 2SA872 (2SA836)



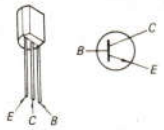
Q703, 753: 2SA896 (2SA893)



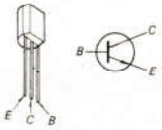
Q704, 754: 2SC1962 (2SC1627)



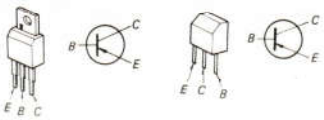
Q705, 709, Q755, 759): 2SC1061



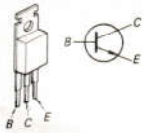
Q706, 707, Q756, 757): 2SC1400



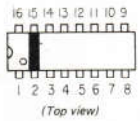
Q708, 758: 2SA835 (2SA817)



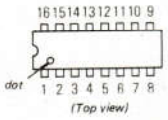
Q801: 2SC1173



IC201: HA1137W



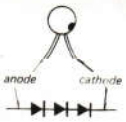
IC202: LA3350
IC401: LA1240



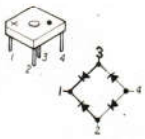
D201: 1S1555

D701: EQB01-07 (EQA01-07A)
D801: EQB01-21 (EQA01-21B)

D702, 752: MV203V

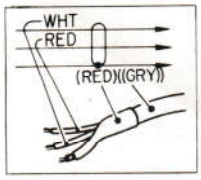


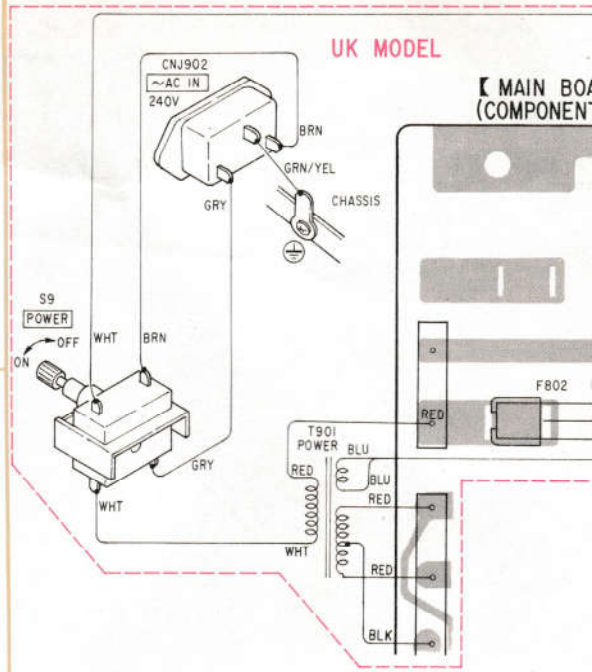
D802: S2VB20

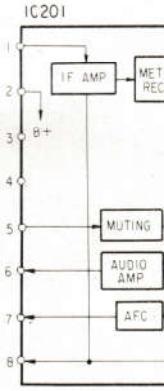


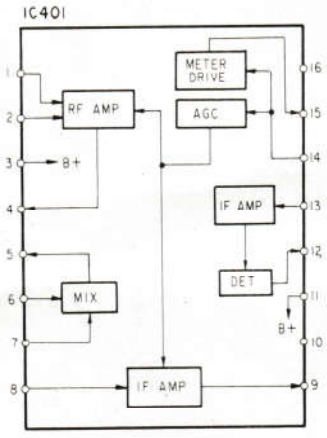
Note:

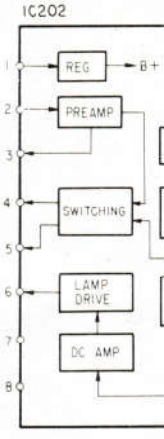
- Color code of sleeving over the end of the jacket.





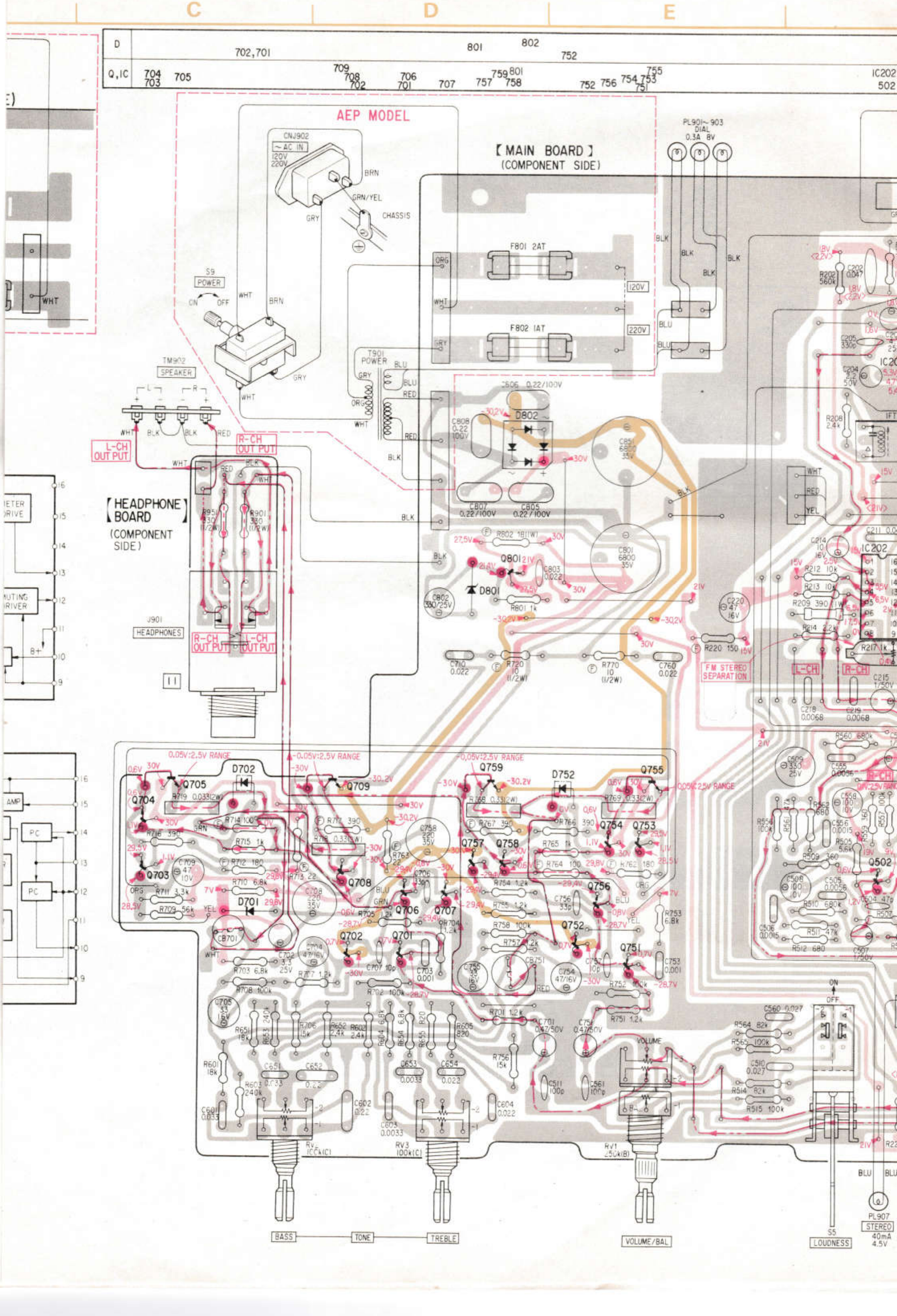




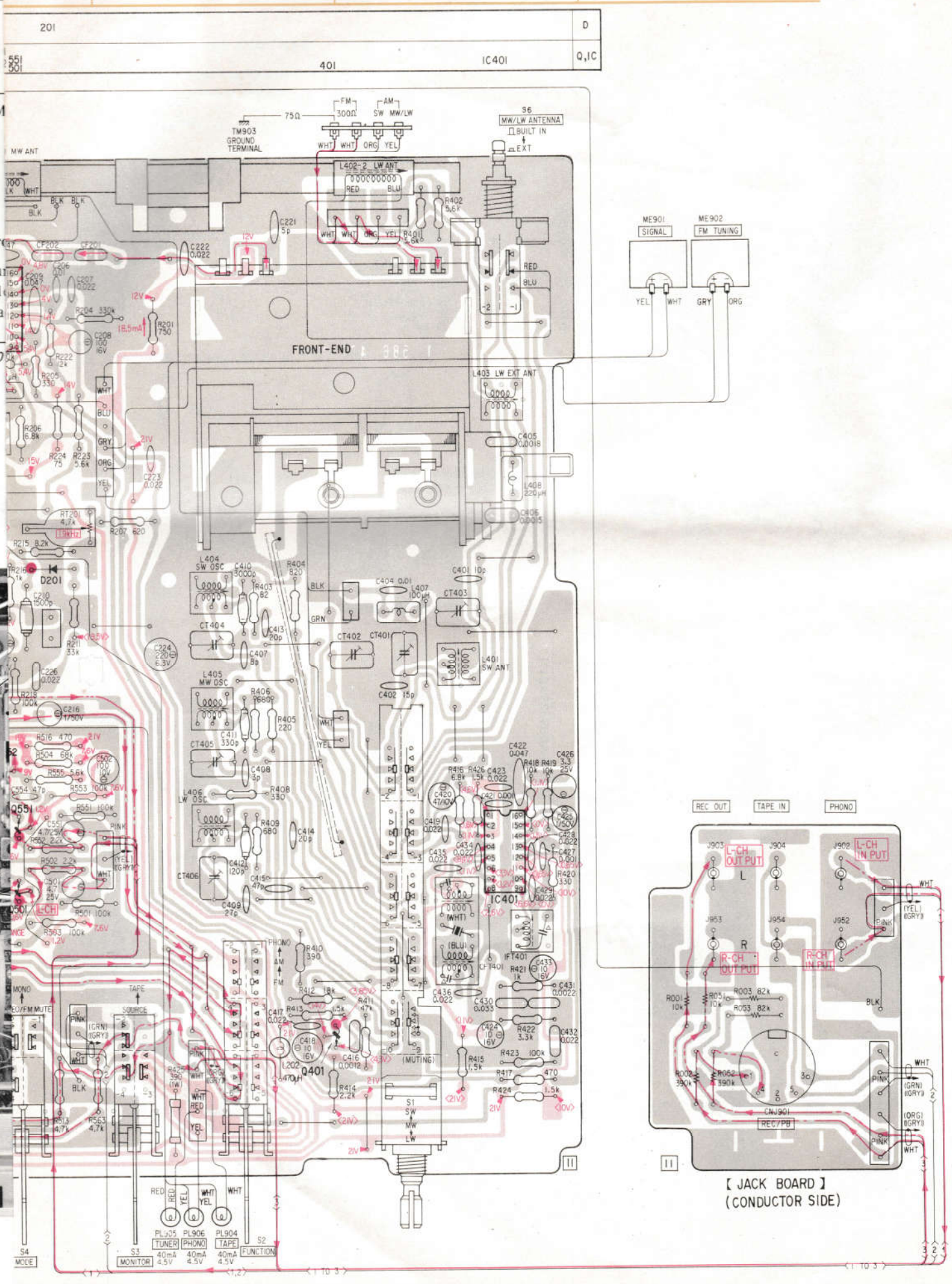


5

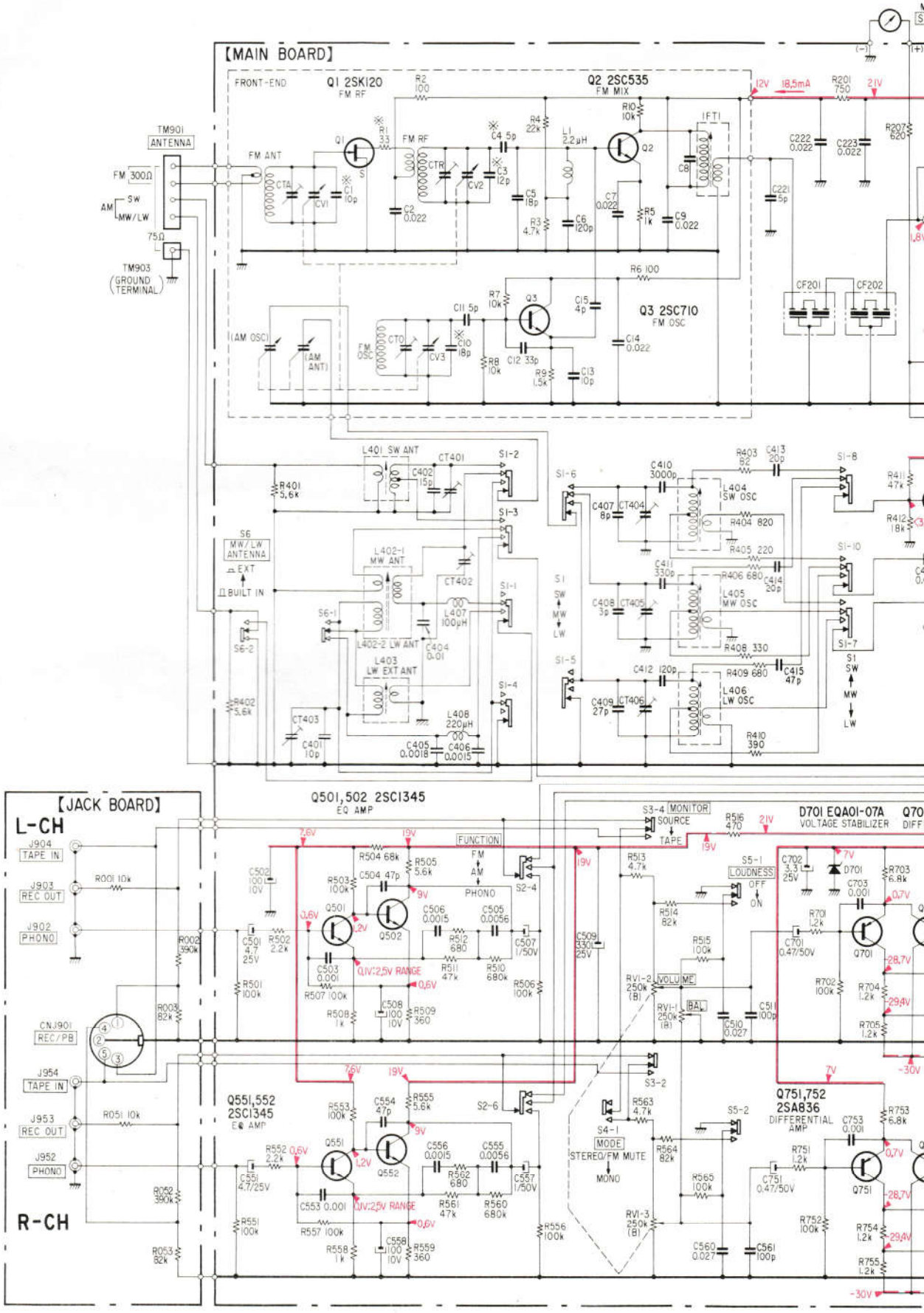
- : indicates side identified with part numbe
- < >: AM
- : B+ pattern.
- : B- pattern.
- Signal Path
  - : FM
  - : L-CH
  - : R-CH

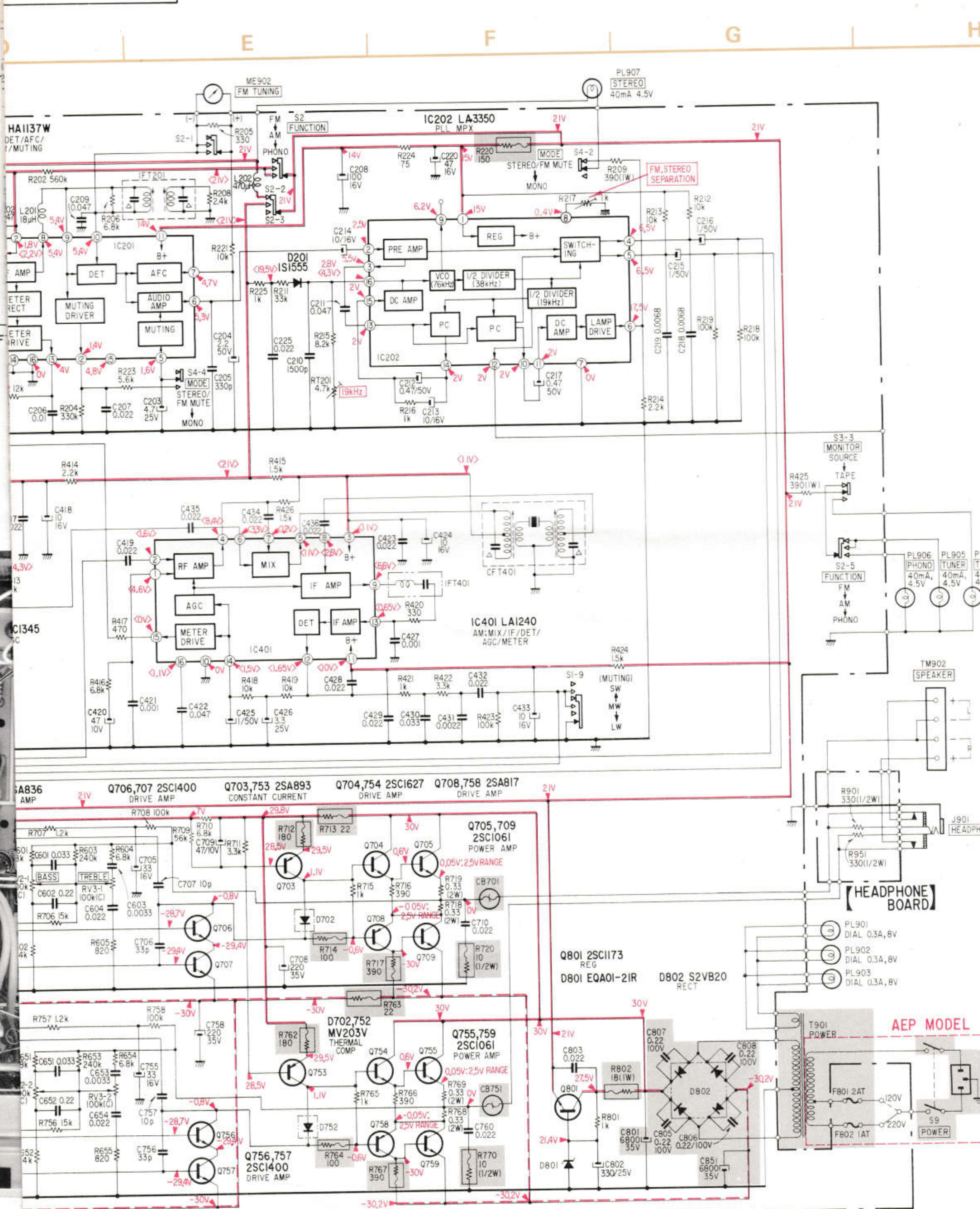


C
D
E
AEP MODEL
【MAIN BOARD】
(COMPONENT SIDE)
【HEADPHONE BOARD】
(COMPONENT SIDE)
CNJ902 ~AC IN 120V 220V
S9 POWER
ON OFF
TM902 SPEAKER
L-CH OUT PUT
R-CH OUT PUT
T901 POWER
F801 2AT
F802 1AT
120V
220V
PL901~903 DIAL 0.3A 8V
D802
D801
Q801
J901 HEADPHONES
METER DRIVE
MUTING DRIVER
AMP
PC
FM STEREO SEPARATION
L-CH
R-CH
0.05V:2.5V RANGE
Q701 Q702 Q703 Q704 Q705 Q706 Q707 Q708 Q709
Q751 Q752 Q753 Q754 Q755 Q756 Q757 Q758 Q759
D701 D702 D752
IC202
Q502
VOLUME
RV2 100k(C)
RV3 100k(C)
RV1 250k(B)
BASS
TONE
TREBLE
VOLUME/BAL
S5 LOUDNESS
PL907 STEREO 40mA 4.5V
ON
OFF


G
H
I
201
D
401
IC401
Q,IC
FM
75Ω
300Ω
AM
SW MW/LW
TM903
GROUND
TERMINAL
S6
MW/LW ANTENNA
BUILT IN
EXT
MW ANT
L402-2 LW ANT
ME901
SIGNAL
ME902
FM TUNING
YEL
WHT
GRY
ORG
FRONT-END
L403 LW EXT ANT
L404
SW OSC
L405
MW OSC
L406
LW OSC
L401
SW ANT
IC401
IFT401
Q401
Q551
D201
CT401
CT402
CT403
CT404
CT405
CT406
L407
100μH
L408
220μH
S1
SW
MW
LW
(MUTING)
REC OUT
TAPE IN
PHONO
L-CH
OUT PUT
L-CH
IN PUT
R-CH
OUT PUT
R-CH
IN PUT
CN901
REC/PB
【 JACK BOARD 】
(CONDUCTOR SIDE)
PL905
TUNER
PL906
PHONO
PL904
TAPE
S2
FUNCTION
S3
MONITOR
S4
MODE
TO 3
TO 3

4-3. SCHEMATIC DIAGRAM




E
F
G
H
ME902 FM TUNING
PL907 STEREO 40mA 4.5V
HA1137W
DET/AFC/ /MUTING
S2 FUNCTION
FM
AM
PHONO
IC202 LA3350
PLL MPX
MODE
STEREO/FM MUTE
MONO
FM STEREO SEPARATION
IFT201
IC201
DET
AFC
AUDIO AMP
MUTING
MUTING DRIVER
METER DRIVE
D201 1S1555
PRE AMP
REG
SWITCHING
VCO (76kHz)
1/2 DIVIDER (38kHz)
1/2 DIVIDER (19kHz)
DC AMP
PC
DC AMP
LAMP DRIVE
IC202
19kHz
S3-3 MONITOR
SOURCE
TAPE
S4-4 MODE
STEREO/ FM MUTE
MONO
RF AMP
MIX
IF AMP
AGC
METER DRIVE
DET
IF AMP
IC401
CFT401
IFT401
IC401 LA1240
AM:MIX/IF/DET/ AGC/METER
S1-9
(MUTING) SW
MW
LW
S2-5 FUNCTION
FM
AM
PHONO
PL906 PHONO 40mA, 4.5V
PL905 TUNER 40mA, 4.5V
TM902 SPEAKER
R901 330(1/2W)
R951 330(1/2W)
J901 HEADPHONES
HEADPHONE BOARD
PL901 DIAL 0.3A, 8V
PL902 DIAL 0.3A, 8V
PL903 DIAL 0.3A, 8V
Q706,707 2SC1400 DRIVE AMP
Q703,753 2SA893 CONSTANT CURRENT
Q704,754 2SC1627 DRIVE AMP
Q708,758 2SA817 DRIVE AMP
Q705,709 2SC1061 POWER AMP
BASS
TREBLE
0.05V: 2.5V RANGE
CB701
D702
D702,752 MV203V THERMAL COMP
Q755,759 2SC1061 POWER AMP
CB751
D752
Q756,757 2SC1400 DRIVE AMP
Q801 2SC1173 REG
D801 EQA01-21R
D802 S2VB20 RECT
T901 POWER
AEP MODEL
F801 2AT
F802 1AT
120V
220V
S9 POWER

H I J

Note:

- All capacitors are in μF unless otherwise noted. pF = μμF 50WV or less are not indicated except for electrolytics.
- All resistors are in ohms, ¼W unless otherwise noted. kΩ = 1000Ω, MΩ = 1000kΩ
- : fusible resistor.
- △ : internal component.
- ※ : selected to yield optimum performance.
- : B+ bus.
- : panel designation.
- : adjustment for repair.
- : direct connection to points marked ⏚ on the chassis.
- : B− bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Readings are taken under FM STEREO detuned conditions with a VOM (20kΩ/V).
  < >: AM
- Voltage variations may be noted due to normal production tolerances.
- Switch

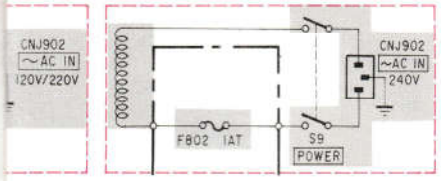
Ref. No.	Switch	Position
S1	AM BAND SELECT	MW
S2	FUNCTION	FM
S3	MONITOR	SOURCE
S4	MODE	STEREO/ FM MUTE
S5	LOUDNESS	OFF
S9	POWER	OFF

PL904
TAPE
40mA,
4.5V

PHONES

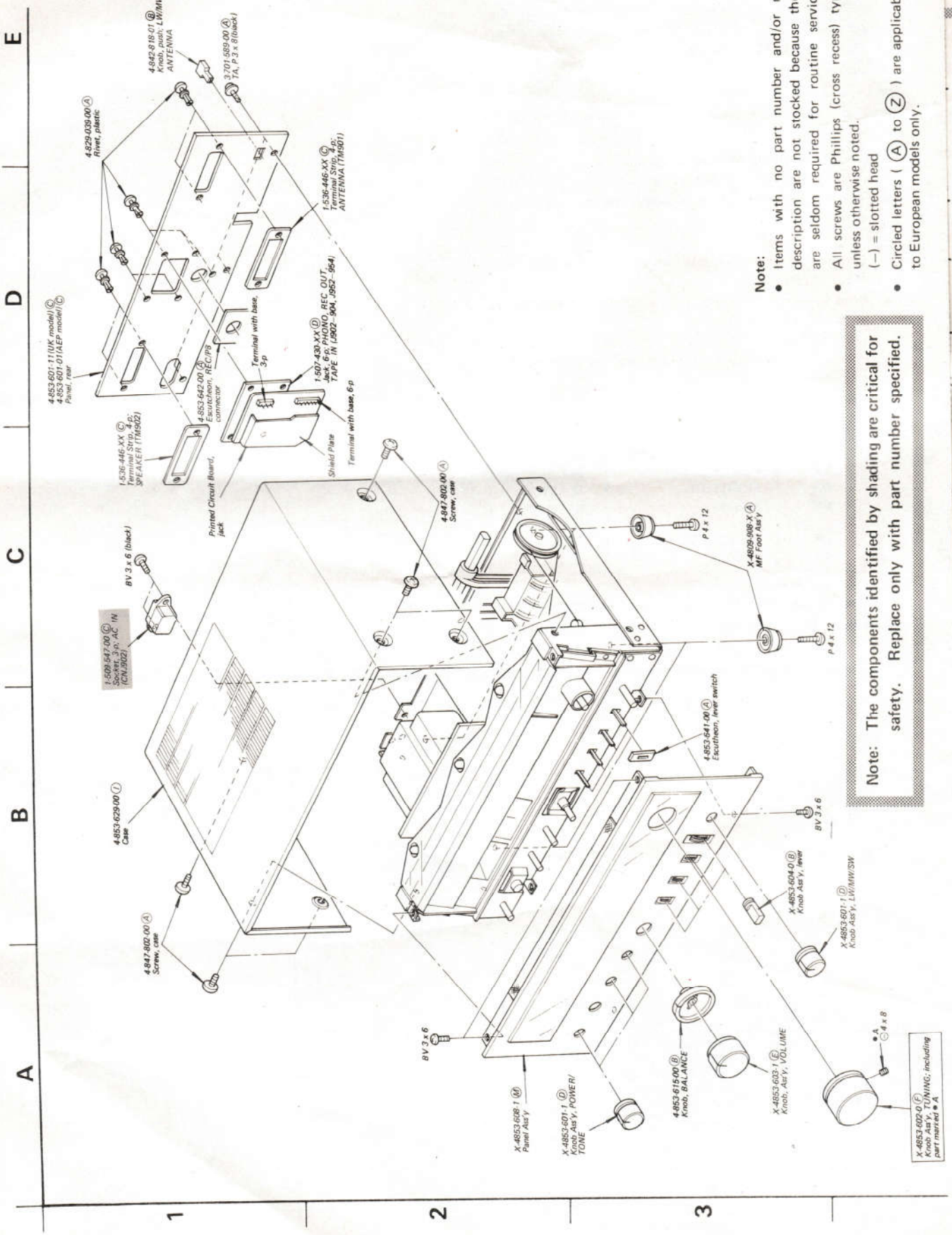
Note: The components identified by shading are critical for safety. Replace only with part number specified.

UK MODEL



SECTION 5
EXPLODED VIEWS

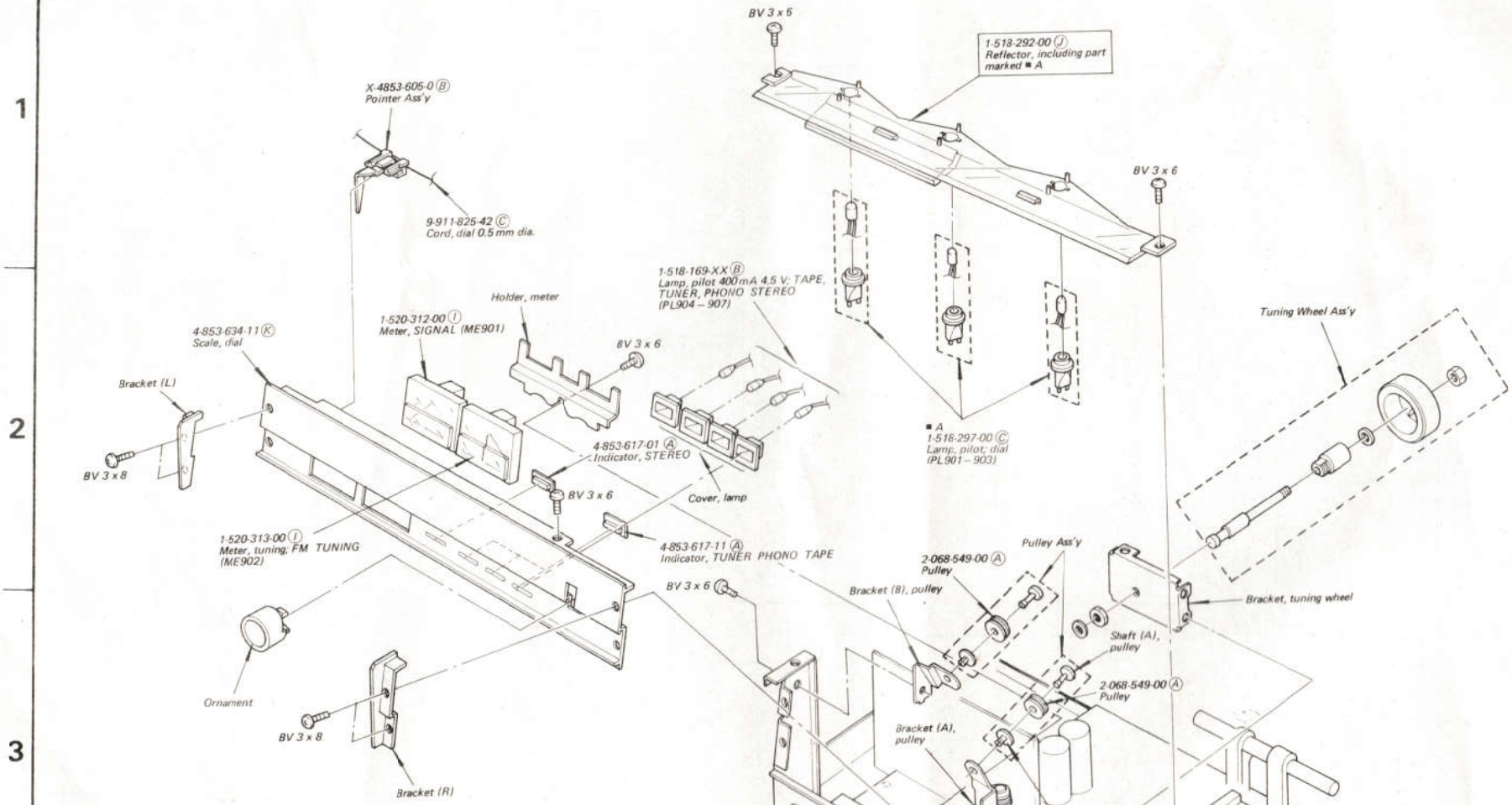
5-1.



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

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



Note:

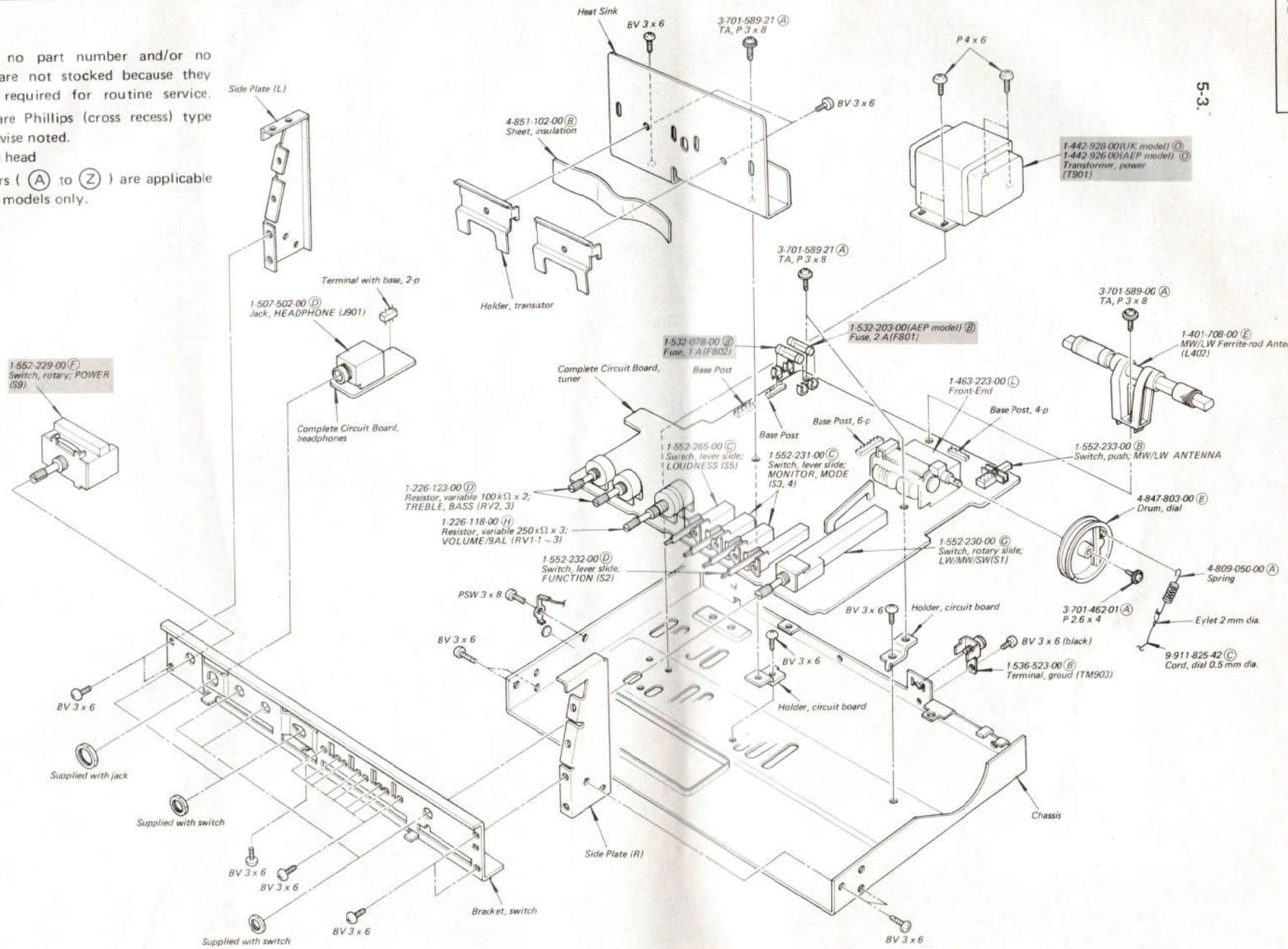
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters ((A) to (Z)) are applicable

A B C D E

1 2 3

Note:

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



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

SECTION 6

ELECTRICAL PARTS LIST

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

Ref. No.	*Part No.*	*Description*
		SEMICONDUCTORS
		Transistors
Q401		Ⓑ 2SC1345
Q501, 502 Q551, 552		Ⓑ 2SC1345
⇒ Q701, 702 Q751, 752		Ⓑ 2SA872
Q703, 753		Ⓒ 2SA896
⇒ Q704, 754		Ⓔ 2SC1962
Q705, 755		Ⓓ 2SC1061
Q706, 707 Q756, 757		Ⓑ 2SC1400
⇒ Q708, 758		Ⓔ 2SA835
Q709, 759		Ⓓ 2SC1061
Q801		Ⓒ 2SC1173
		ICs
IC201		Ⓗ HA1137W
IC202		LA3350
IC401		LA1240
		Diodes
D201		Ⓑ 1S1555
⇒ D701		Ⓑ EQB01-07
D702, 752		Ⓑ MV203V
⇒ D801		Ⓑ EQB01-21
D802		Ⓒ S2VB20
		COILS
L201	1-407-741-00	Ⓑ 18 μH, microinductor
L202	1-407-177-00	Ⓐ 470 μH, microinductor
L401	1-407-710-00	Ⓐ SW ANT
L402	1-401-708-00	Ⓕ MW/LW Ferrite-rod Antenna
L403	1-401-709-00	Ⓒ LW EXT ANT
L404	1-401-778-00	SW OSC
L405	1-405-732-00	Ⓑ MW OSC
L406	1-405-776-00	Ⓑ LW OSC
L407	1-405-169-00	Ⓑ 100 μH, microinductor
L408	1-405-754-00	Ⓑ 220 μH, microinductor
		TRANSFORMERS
T901	1-442-926-00	Ⓞ Power (AEP Model)
T901	1-442-928-00	Ⓞ Power (UK Model)
CF201, 202	1-527-220-XX	Ⓕ Ceramic Filter, 10.7 MHz
CFT401	1-404-087-00	Ⓓ AM IFT
IFT201	1-404-011-00	Ⓒ FM Discriminator
IFT401	1-404-085-00	Ⓑ AM IFT

CAPACITORS

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

C201, 202	1-101-925-11	Ⓐ 0.047		
C203	1-121-395-11	Ⓐ 4.7	25 V	elect
C204	1-121-450-11	Ⓐ 2.2	50 V	elect
C205	1-102-820-11	Ⓐ 330 p		
C206	1-101-923-11	Ⓐ 0.01		
C207	1-101-924-11	Ⓐ 0.022		
C208	1-121-415-11	Ⓑ 100	16 V	elect
C209	1-101-925-11	Ⓐ 0.047		
C210	1-103-729-11	Ⓐ 1500 p		polystyrol
C211	1-108-246-12	Ⓐ 0.047		mylar
C212	1-121-726-11	Ⓐ 0.47	50 V	elect
C213, 214	1-121-651-11	Ⓐ 10	16 V	elect
C215, 216	1-121-391-11	Ⓐ 1	50 V	elect
C217	1-121-726-11	Ⓐ 0.47	50 V	elect
C218, 219	1-108-237-12	Ⓐ 0.0068		mylar
C220	1-121-409-11	Ⓐ 47	16 V	elect
C221	1-102-942-11	Ⓐ 5 p		

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

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*		
C222, 223	1-101-924-11	Ⓐ 0.022		
C224	1-121-419-11	Ⓑ 220	6.3 V	elect
C225	1-101-924-11	Ⓐ 0.022		
C401	1-102-947-11	Ⓐ 10 p		
C402	1-101-951-11	Ⓐ 15 p		
C404	1-101-923-11	Ⓐ 0.01		
C405	1-101-352-12	0.0018		mylar
C406	1-101-228-12	Ⓐ 0.0015		mylar
C407	1-101-282-11	Ⓐ 8 p		
C408	1-101-743-11	Ⓐ 3 p		
C409	1-103-961-11	27 p		
C410	1-103-736-11	Ⓐ 3000 p		polystyrol
C411	1-103-713-11	Ⓐ 330 p		polystyrol
C412	1-103-703-11	Ⓐ 120 p		polystyrol
C413	1-101-974-11	Ⓐ 20 p		
C414	1-102-958-11	Ⓐ 20 p		
C415	1-101-880-11	Ⓐ 47 p		
C416	1-108-351-12	Ⓐ 0.0012		mylar
C417	1-101-924-11	Ⓐ 0.022		
C418	1-121-651-11	Ⓐ 10	16 V	elect
C419	1-101-924-11	Ⓐ 0.022		
C420	1-121-352-11	Ⓐ 47	10 V	elect
C421	1-101-918-11	Ⓐ 0.001		
C422	1-101-925-11	Ⓐ 0.047		
C423	1-121-924-11	Ⓔ 0.022		
C424	1-121-651-11	Ⓐ 10	16 V	elect
C425	1-121-391-11	Ⓐ 1	50 V	elect
C426	1-121-392-11	Ⓐ 3.3	25 V	elect
C427	1-102-074-11	Ⓐ 0.001		
C428, 429	1-101-924-11	Ⓐ 0.022		
C430	1-108-244-12	Ⓐ 0.033		mylar
C431	1-108-230-12	Ⓐ 0.0022		mylar
C432	1-108-242-12	Ⓐ 0.022		mylar
C433	1-121-651-11	Ⓐ 10	16 V	elect
C434–436	1-101-924-11	Ⓐ 0.022		
C501, 551	1-121-915-11	Ⓐ 4.7	25 V	elect
C502	1-121-414-11	Ⓐ 100	10 V	elect
C503, 553	1-108-227-12	Ⓐ 0.001		mylar
C504, 554	1-101-880-11	Ⓐ 47 p		
C505, 555	1-108-355-12	Ⓐ 0.0056		mylar
C506, 556	1-108-228-12	Ⓐ 0.0015		mylar
C507, 557	1-121-391-11	Ⓐ 1	50 V	elect
C508, 558	1-121-414-11	Ⓐ 100	10 V	elect
C509	1-123-065-11	Ⓑ 330	25 V	elect
C510, 560	1-108-359-12	Ⓑ 0.027		mylar
C511, 561	1-102-973-11	Ⓑ 100 p		
C601, 651	1-108-244-12	Ⓐ 0.033		mylar
C602, 652	1-108-254-12	Ⓑ 0.22		mylar
C603, 653	1-108-232-12	Ⓐ 0.0033		mylar
C604, 654	1-108-242-12	Ⓐ 0.022		mylar
C701, 751	1-121-726-11	Ⓐ 0.47	50 V	elect
C702	1-121-392-11	Ⓐ 3.3	25 V	elect
C703, 753	1-108-227-12	Ⓐ 0.001		mylar
C704, 754	1-121-409-11	Ⓐ 47	16 V	elect
C705, 755	1-121-403-11	Ⓐ 33	16 V	elect
C706, 756	1-102-963-11	Ⓐ 33 p		
C707, 757	1-102-947-11	Ⓐ 10 p		
C708, 758	1-123-063-11	Ⓑ 220	25 V	elect
C709	1-121-352-11	Ⓐ 47	10 V	elect
C710, 760	1-108-242-12	Ⓐ 0.022		mylar
C801, 851	1-125-155-11	Ⓔ 6800	35 V	elect
C802	1-123-065-00	Ⓑ 330	25 V	elect
C803	1-101-005-11	Ⓐ 0.022		
C805–808	1-108-393-12	Ⓑ 0.22	100 V	mylar
CT401	1-141-171-XX	Ⓑ Trimmer		
CT402	1-141-179-00	Ⓑ Trimmer		
CT403	1-141-171-XX	Ⓑ Trimmer		
CT404, 405	1-141-178-00	Ⓑ Trimmer		
CT406	1-141-171-XX	Ⓑ Trimmer		

RESISTORS

All resistors are in ohms. Common ¼W carbon resistors are omitted. Check schematic diagram for values.

R209	1-213-138-11	Ⓐ 390	1W	metal oxide
R217	1-224-644-XX	Ⓑ 4.7 k, adjustable		
R220	1-212-885-11	Ⓐ 150		fusible
R425	1-213-138-11	Ⓐ 390	1W	metal oxide

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		
R712, 762	1-212-887-00 Ⓐ	180		fusible
R713, 763	1-212-865-00 Ⓐ	22		fusible
R714, 764	1-212-881-00 Ⓐ	100		fusible
R717, 767	1-212-895-00 Ⓐ	390		fusible
R718, 768 R719, 769	1-217-152-11 Ⓐ	0.33	2W	metal oxide
R720, 770	1-212-958-00 Ⓐ	10	½W	fusible
R802	1-213-066-11 Ⓐ	18	1W	fusible
R901, 951	1-211-626-11 Ⓐ	330	½W	carbon
RT201	1-224-644-XX Ⓑ	4.7 k, adjustable		
RV1	1-226-118-00 Ⓗ	250k x 3, variable; VOLUME/ BAL		
RV2, 3	1-226-123-00 Ⓓ	100k x 2, variable; TREBLE, BASS		

SWITCHES

S1	1-552-230-00 Ⓖ	Rotary, LW/MW/SW
S2	1-552-232-00 Ⓓ	Lever, FUNCTION
S3, 4	1-552-231-00 Ⓒ	Lever, MONITOR MODE
S5	1-552-265-00 Ⓒ	Lever, LOUDNESS
S6	1-552-233-00 Ⓑ	Pushbutton, MW/LW ANTENNA
S9	1-552-229-00 Ⓕ	Rotary, POWER

JACKS

J901	1-507-502-00 Ⓓ	HEADPHONES
J902–904 J952–954	1-507-430-XX Ⓓ	6-p, PHONO, REC OUT, TAPE IN
CNJ901	1-509-508-00 Ⓑ	Connector, REC/PB
CNJ902	1-509-547-00 Ⓒ	Connector, 3-p AC IN

FUSES

F801	1-532-203-XX Ⓑ	2A (AEP Model)
F802	1-532-078-00 Ⓑ	1A

MISCELLANEOUS

CB701, 751	1-532-380-00 Ⓔ	Circuit Braker
ME901	1-520-312-00 Ⓘ	Meter, SIGNAL
ME902	1-520-313-00 Ⓘ	Meter, FM TUNING
PL901–903	1-518-297-00 Ⓒ	Dial Lamp, 0.3A 8V
PL904–907	1-518-169-XX Ⓑ	Pilot Lamp, 40 mA 4.5 V
TM901, 902	1-536-446-XX Ⓒ	Terminal Strip, 4-p; ANTENNA SPEAKER
TM903	1-536-523-00 Ⓑ	Terminal Strip, ground
	1-463-223-00 Ⓛ	FRONT END
	1-518-292-00 Ⓙ	Reflector

ACCESSORIES & PACKING MATERIALS

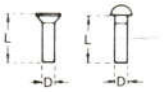
Part No.	Description
X-4490-002-1	Ⓑ Cloth Ass'y, polishing
1-501-161-00	Ⓕ Feeder Antenna
1-534-492-00	Ⓒ External Antenna Cord
1-534-819-00	Ⓖ Cord, power (UK Model)
3-701-630-00	Ⓐ Bag, plastic
3-770-343-11	Ⓕ Manual, instruction
4-853-639-00	Ⓑ Carton
4-853-640-00	Ⓔ Cushion
4-891-037-00	Ⓐ Bag, plastic

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		brazier-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	

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