

Quality. Uncompromised.

**ROTEL**®

# Technical Manual

## AM/FM STEREO TUNER RT-1000/-L AM/FM STEREO RECEIVER RX-1000/-L

### TABLE OF CONTENTS

Chassis Layout (Top View) . . . . .	2
Adjustment	
I. FM IF and RF Alignment . . . . .	4
II. FM Stereo Adjustment . . . . .	6
III. AM (MW and LW) Alignment . . . . .	7
Specifications . . . . .	9
Dial Stringing Diagram . . . . .	9
Repair Parts List . . . . .	10
Addenda . . . . .	12
Schematic Diagrams . . . . .	13
PC Board Diagrams . . . . .	17

### INHALTSVERZEICHNIS

Chassis-Anordnung (Oberansicht) . . . . .	2
Abgleich	
I. UKW-ZF- und HF-Abgleich . . . . .	4
II. UKW-Stereo-Abgleich . . . . .	6
III. AM (MW und LW) Abgleich . . . . .	7
Technische Daten . . . . .	9
Skalenantriebsschema . . . . .	9
Reparaturteilliste . . . . .	10
Nachtrag . . . . .	12
Schaltungsschema . . . . .	13
Bestückungspläne . . . . .	17

### TABLE DES MATIERES

Installation du châssis (vue de dessus) . . . . .	2
Réglage	
I. Alignement FM IF et HF . . . . .	5
II. Réglage stéréophonique FM . . . . .	6
III. Alignement AM (MW et LW) . . . . .	8
Caractéristiques . . . . .	9
Diagramme du câble d'entraînement . . . . .	9
Liste des pièces de rechange . . . . .	10
Addenda . . . . .	12
Diagramme schématique . . . . .	13
Disgrammes des plaquettes de circuits imprimés . . . . .	17

Serial No. Beginning  
NC12311

**THE ROTEL CO., LTD.**  
**ROTEL ELECTRONICS CO., LTD.**  
**ROTEL OF AMERICA, INC.**  
**ROTEL HI FI LTD.**

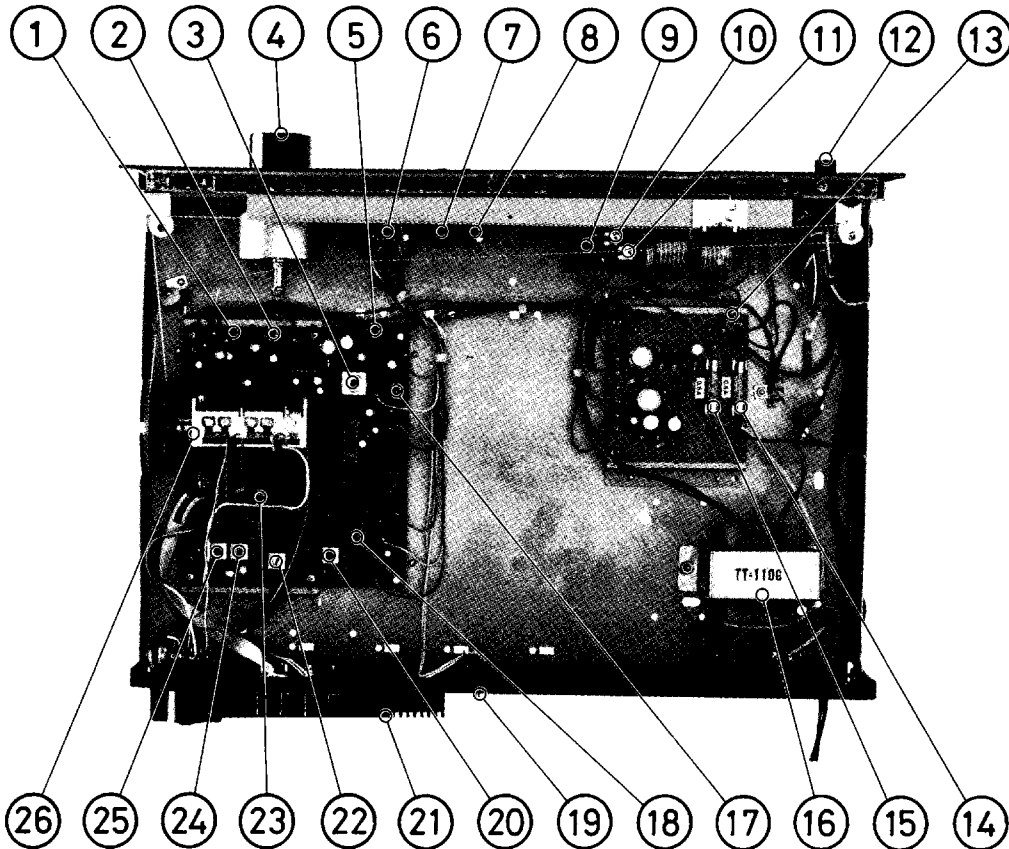
1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN  
2ND FLOOR, EVERGLORY BLDG., NO. 305, SECTION 3,  
NANKING E. ROAD, TAIPEI, TAIWAN, REPUBLIC OF CHINA  
1055 SAW MILL RIVER ROAD, ARDSLEY, N.Y. 10502, U.S.A.  
2-4 ERICA ROAD, STACEY BUSHES, MILTON KEYNES,  
BUCKINGHAMSHIRE, ENGLAND

# Chassis Layout (Top View)

## Chassis-Anordnung (Oberansicht)

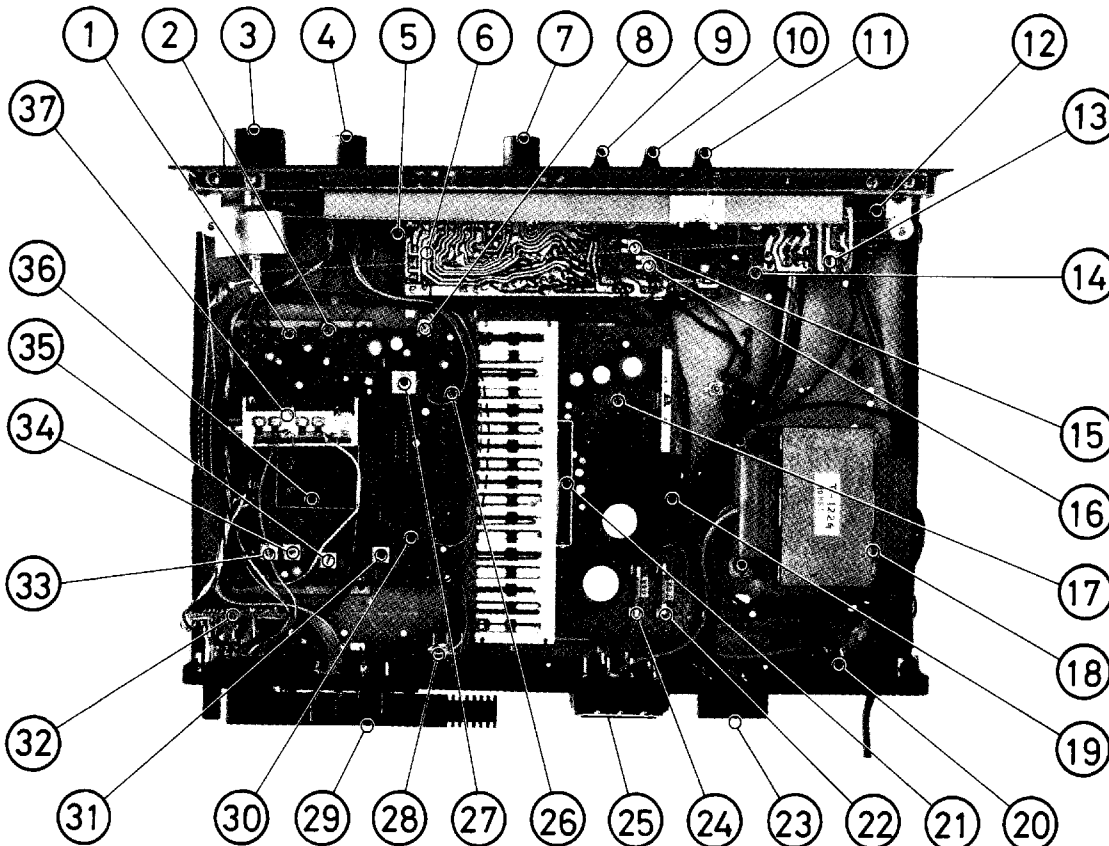
### Installation du châssis (vue de dessus)

RT-1000



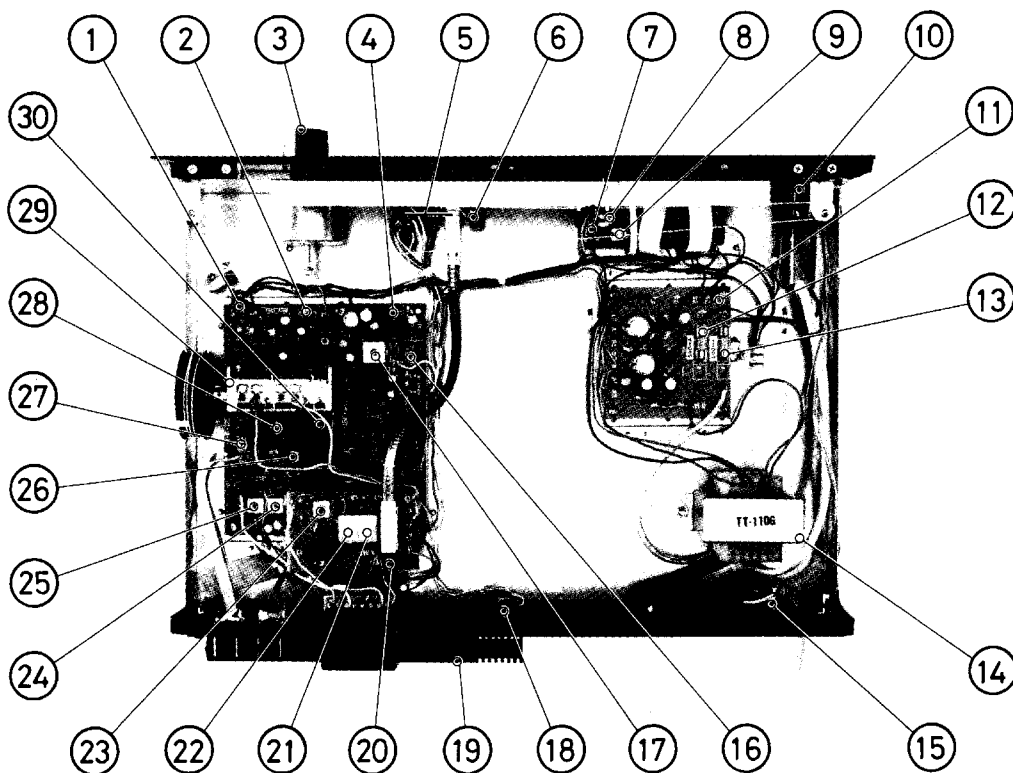
1. IF PCB (H-IF-125)
2. VR103, Separation Adj
3. L113, FM IFT, Det
4. Tuning Knob
5. VR102, VCO Adj
6. Function Switch
7. FM Muting Switch
8. Hi-blend Switch
9. Indicator Driver PCB (X-328)
10. VR302, FM Tuning "←" Level Adj
11. VR301, FM Tuning "→" Level Adj
12. Power Switch
13. Power Supply PCB (B-145)
14. F901, Primary AC Fuse
15. F902, Secondary AC Fuse
16. T001, Power Transformer
17. VR101, FM Signal Indicator Cal
18. VR201, AM Signal Indicator Cal
19. Output Jack
20. L204, AM IFT Det
21. L001, AM Antenna Coil Ass'y
22. L203, AM IFT, 2nd
23. L107, FM IFT, 1st
24. L202, AM IFT, 1st
25. L201, AM OSC Coil
26. FM/AM Variable Capacitor

RX-1000



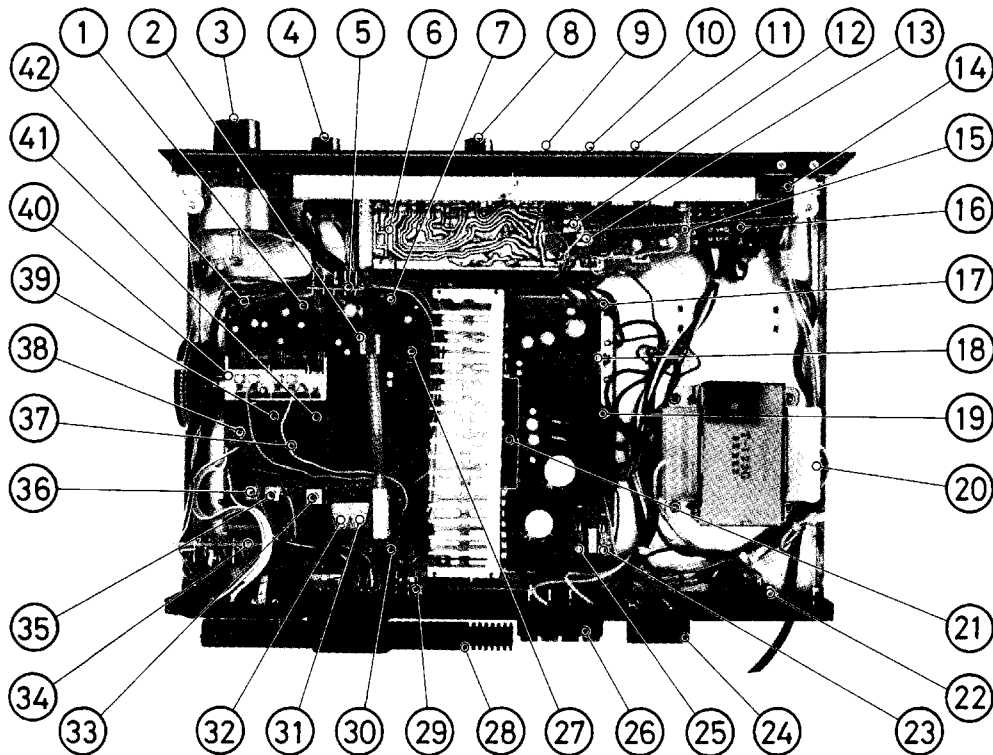
1. IF PCB (H-IF-125)
2. VR103, Separation Adj
3. Tuning Knob
4. Function Selector
5. FM Muting Switch
6. Tone Control Amp PCB (TC-151)
7. Volume Control
8. VR102, VCO Adj
9. Balance Control
10. Treble Control
11. Bass Control
12. Power Switch
13. Speaker Switch PCB (X-330)
14. Indicator Driver PCB (X-328)
15. VR302, FM Tuning "←" Level Adj
16. VR301, FM Tuning "→" Level Adj
17. Main Amp and Power Supply PCB (H-AF-113)
18. T001, Power Transformer
19. D901, Rectifier
20. Voltage Selector (not used for CSA & UL type units)
21. IC601, Power Amp IC
22. F901, AC Fuse
23. F001, 002, Speaker Fuse
24. F902, Lamp Fuse
25. Speaker Terminals
26. VR101, FM Signal Ind Cal
27. L113, FM IFT, Det
28. DIN Socket PCB (X-124A)
29. L001, AM Antenna Coil Ass'y
30. VR201, AM Signal Ind Cal
31. L204, AM IFT, Det
32. Phono Amp PCB (PR-117)
33. L201, AM OSC Coil
34. L202, AM IFT, 1st
35. L203, AM IFT, 2nd
36. L107, FM IFT, 1st
37. FM/AM Variable Capacitor

## RT-1000L



1. IF PCB (H-IF-125)
2. VR103, Stereo Separation Adj
3. Tuning Knob
4. VR102, MPX VCO Adj
5. Function Selector
6. Muting Switch
7. Indicator Driver PCB (X-328)
8. VR302, Tuning Ind "←" Adj
9. VR301, Tuning Ind "→" Adj
10. Power Switch
11. Power Supply PCB (B145)
12. F902, Secondary AC Fuse
13. F901, Primary AC Fuse
14. T001, Power Transformer
15. Voltage Selector
16. VR101, FM Signal Ind Cal
17. L113, FM IFT, Det
18. Output Terminal
19. L001, AM (LW/MW) Antenna Coil
20. LW OSC PCB (X-340)
21. CT811, LW Ant Trim Capacitor
22. CT812, LW OSC Trim Capacitor
23. L812, LW OSC Coil
24. L202, AM IFT, 1st
25. L201, MW OSC Coil
26. L107, FM IFT, 1st
27. L101, 102, FM Ant Coil
28. L104, 105, FM RF Coil
29. FM/AM Variable Capacitor
30. L103, FM OSC Coil

## RX-1000L



1. VR103, Stereo Separation Adj
2. L113, FM IFT, Det
3. Tuning Knob
4. S1, Function Selector
5. LW Muting PCB (X-320)
6. Tone Control Amp PCB (TC-151)
7. VR102, MPX VCO Adj
8. Volume Control
9. Balance Control
10. Treble Control
11. Bass Control
12. VR302, FM Tuning Ind "←" Adj
13. VR301, FM Tuning Ind "→" Adj
14. S10, Power Switch
15. Indicator Driver PCB (X-328)
16. Speaker Switch PCB (X-330)
17. Power Amp and Power Supply PCB (H-AF-113)
18. Q901, Stabilizer
19. D901, Rectifier
20. T001, Power Transformer
21. IC601, Power Amp IC
22. Voltage Selector
23. F901, Primary Fuse, 1.6AT
24. F001, 002, Speaker Fuse, 3.15A
25. F902, Lamp Fuse, 500mA
26. Speaker Terminals
27. VR101, FM Signal Ind Cal
28. L001, AM (LW/MW) Antenna Coil
29. DIN Socket PCB (X-124)
30. LW OSC PCB (X-340)
31. CT811, LW Antenna Trim Capacitor
32. CT812, LW OSC Trim Capacitor
33. L812, LW OSC Coil
34. Phono Amp PCB (PR-117)
35. L202, AM IFT, 1st
36. L201, MW OSC Coil
37. L107, FM IFT, 1st
38. L101, 102, FM Antenna Coil
39. L104, 105, FM RF Coil
40. FM/AM Variable Capacitor
41. L103, FM OSC Coil
42. IF PCB (H-IF-125)

## I. FM IF and RF Alignment

**Instruments:** FM SG, Oscilloscope, HD Analyzer, FM Stereo SG, Zero-center Meter.

- Set Function Selector to FM position beforehand.
- 1. Connect Zero-center Meter to test point on IF PC board (plus lead to pin 8 and minus lead to pin 19). Connect Oscilloscope and HD Analyzer to Tape Out jack.
- 2. Receive white noise, and adjust bottom core of FM IFT L113 on IF PC board so that Zero-center Meter needle falls on mid-position.
- 3. Receive 90MHz signal from FM SG. Antenna input should be set to the optimal level where adjustment can be carried out satisfactorily with the appropriate amount of noise contained in the signal wave ( $5\mu\text{V}$ – $1.5\mu\text{V}$ ). Adjust FM IFT L107 so that the waveform is largest and contains noise uniformly on the top and bottom of the waveform. (See Fig. 1)  
**Note:** Although two synchronizing points are available, be sure to synchronize at the upper point.
- 4. Repeat steps 2 and 3 until no further improvement is noticed.
- 5. Set the dial to 90MHz position precisely. Adjust FM OSC coil L103 on IF PC board to obtain 90MHz signal from FM SG, and adjust RF coils L105, 104 and 102 on IF PC board to obtain maximum sensitivity at 90 MHz.
- 6. Next, set the dial to 106MHz and switch the frequency of FM SG to 106MHz. Adjust FM OSC

trimmer capacitor CT102 to receive 106MHz signal, and adjust RF trimmer capacitors CT103 and 101 to maximum sensitivity at 106MHz.

- 7. Repeat steps 5 and 6 until no further improvement is noticed.
- 8. Receive 90MHz (400Hz 100% Mod, 1 mV input) signal from FM SG. Adjust top core of FM IFT L113 on IF PC board to minimize distortion.
- 9. If Zero-center Meter needle deviates from mid-position after adjustment in step 8, fine-adjust the bottom core of FM IFT L113.
- 10. Receive 90MHz, 1 mV signal and adjust potentiometer VR101 on IF PC board so that LED 5 of signal indicator dimly glows.
- 11. Make sure that the needle of Zero-center Meter stays on mid-position when receiving white noise.
- 12. Receive 90MHz, 1 mV signal from FM SG (needle of Zero-center Meter should fall on mid-position). Adjust potentiometers VR301 and 302 (on Ind driver PC board) so that center Ind LED 2 (green) alone glows.  
Maintaining this state;
  - a) Set the SG to a position 50kHz higher than 90MHz, and adjust potentiometer VR301 (on Ind driver PC board) so that both LEDs 1 and 2 dimly glow.
  - b) Set the SG to a position 50kHz lower than 90MHz, and adjust potentiometer VR302 so that both LEDs 2 and 3 dimly glow. See Fig. 4.

## I. UKW-ZF- und HF-Abgleich

**Instrumente:** UKW-Meßsender, Oszillograph, Klirrfaktormesser, UKW-Stereo-Meßsender, Nullpunkt-Mittelinstrument.

- Zuerst den Funktionswahlschalter auf FM stellen.
- 1. Das Mittelinstrument an die Meßstifte auf der ZF-Leiterplatte anschließen (Pluskabel an Stift 8 und Minuskabel an Stift 19). Den Oszillographen und den Klirrfaktormesser an die TAPE OUT-Buchse anschließen.
- 2. Bei Empfang von weißem Rauschen den unteren Kern von FM IFT L113 auf der ZF-Leiterplatte so einstellen, daß die Nadel des Mittelinstrumentes in ihrer Mittenstellung steht.
- 3. 90MHz-Signal vom UKW-Meßsender empfangen. Der Antenneneingangspegel sollte für zufriedenstellende Messung optimal sein und in der Signalwelle einen angemessenen Betrag von Rauschen enthalten ( $5\mu\text{V}$ – $1,5\mu\text{V}$ ). FM IFT L107 so einstellen, daß die Wellenform am größten ist und gleichmäßig verteiltes Rauschen auf den oberen und unteren Halbwellen enthält. (Abb. 1)  
**Hinweis:** Wenn es auch zwei Synchronisierungspunkte gibt, versichern Sie sich, daß Sie bei dem oberen Punkt synchronisieren.
- 4. Schritte 2 und 3 wiederholen, bis keine weitere Verbesserung eintritt.
- 5. Stellen Sie die Skala auf genau 90 MHz ein. Die UKW-Oszillatorspeule (FM OSC) L103 so abgleichen, daß das 90MHz-Signal vom UKW-Meßsender erhalten wird, und dann die HF-Spulen L105, 104 und 102 auf der ZF-Leiterplatte so einstellen, daß maximale Empfindlichkeit bei 90 MHz erreicht wird.

- 6. Anschließend den Empfänger auf 106 MHz stellen und den UKW-Meßsender ebenfalls auf 106 MHz umschalten. Den UKW-Oszillator-Trimmkondensator CT102 für richtigen Empfang des 106 MHz-Signals einstellen und die HF-Trimmkondensatoren CT103 und 101 so einstellen, daß maximale Empfindlichkeit bei 106 MHz erreicht wird.
- 7. Schritte 5 und 6 wiederholen, bis keine weitere Verbesserung eintritt.
- 8. 90MHz-Signal (Modulation 400 Hz, 100%, 1 mV) vom UKW-Meßsender einspeisen. Den oberen Kern von FM IFT L113 auf der ZF-Leiterplatte so einstellen, daß minimale Verzerrung erreicht wird.
- 9. Falls die Nadel des Mittelinstrumentes nach Beendigung des Abgleichschrittes 8 nicht mehr in ihrer Mittenstellung steht, muß ein Feinabgleich des unteren Kernes von FM IFT L113 vorgenommen werden.
- 10. Ein 90 MHz–1 mV-Signal einspeisen und das Potentiometer VR101 auf der ZF-Leiterplatte so einstellen, daß die Leuchtdiode 5 der Signalanzeige schwach leuchtet.
- 11. Versichern Sie sich, daß die Nadel des Mittelinstrumentes beim Empfang von weißem Rauschen in ihrer Mittenstellung steht.
- 12. Ein 90 MHz–1 mV-Signal vom UKW-Meßsender einspeisen. (Die Nadel des Mittelinstrumentes muß in ihrer Mittenstellung stehen.) Die Potentiometer VR301 und 302 (auf der Leiterplatte der Anzeige-Treiberstufe) so einstellen, daß nur die mittlere Leuchtdiode 2 der Signalanzeige (grün) leuchtet.  
Dann folgenden Abgleich durchführen:
  - a) Den Meßsender auf 90 MHz + 50 kHz einstellen und

das Potentiometer VR301 (auf der Leiterplatte der Anzeige-Treiberstufe) so einstellen, daß die Leuchtdioden 1 und 2 schwach leuchten.

b) Den Meßsender auf 90MHz-50kHz einstellen und das Potentiometer VR302 so einstellen, daß die Leuchtdioden 2 und 3 schwach leuchten. Siehe Abb. 4.

## I. Aligement FM IF et HF

**Instruments:** Générateur de signal FM, oscilloscope, analyseur à distorsion non-linéaire, générateur de signal stéréophonique FM et compteur à centre zéro.

● Placer le sélecteur de fonction à la position FM d'avance.

1. Brancher le compteur à centre zéro sur le point d'épreuve dans la plaquette IF (conducteur positif à la goupille 8 et conducteur négatif à la goupille 19. Brancher l'oscilloscope et l'analyseur à distorsion non-linéaire au jack Tape Out.

2. Recevoir le bruit blanc, et régler l'âme inférieure de FM IFT L113 sur la plaquette IF de sorte que l'aiguille du compteur à centre zéro tombe sur la position moyenne.

3. Récevoir le signal de 90MHz du générateur de signal FM. L'entrée de l'antenne doit être réglée au niveau optimal où le réglage peut être mis à exécution d'une manière satisfaisante avec la quantité appropriée de bruit contenue dans l'onde de signal ( $5\mu V \sim 1,5\mu V$ ). Régler FM IFT L107 de sorte que la forme d'onde soit plus grande et contienne le bruit uniformément sur le sommet et le fond de la forme d'onde. (Fig. 1)

Note: Quoique les deux points d'accord soient disponibles, s'assurer de synchroniser dans le point supérieur.

4. Répéter les points 2 et 3 jusqu'à ce que aucune amélioration additionnelle n'est observée pas.

5. Placer le cadran à la position de 90MHz précisément. Régler la bobine FM OSC L103 sur la plaquette IF pour obtenir le signal de 90MHz du générateur de signal FM, et régler les bobines RF L105, 104 et 102 sur la plaquette IF pour obtenir la sensibilité maximale à 90MHz.

6. Ensuite, placer le cadran à 106MHz et commuter la fréquence du générateur de signal FM à 106MHz. Régler le condensateur de réglage FM OSC CT102

pour recevoir le signal de 106MHz, et régler les condensateurs de réglage RF CT103 et 101 pour la sensibilité maximale à 106MHz.

7. Répéter les points 5 et 6 jusqu'à ce que aucune amélioration additionnelle n'est observée pas.

8. Recevoir le signal de 90MHz (Mod. du 100% de 400 Hz, entrée de 1mV) du générateur de signal FM. Régler l'âme supérieure de FM IFT L113 sur la plaquette IF pour minimiser la distortion.

9. Si l'aiguille du compteur à centre zéro s'écarte de la position moyenne après le réglage dans le point 8, régler finement l'âme inférieure de FM IFT L113.

10. Recevoir le signal de 90MHz et 1mV et régler le potentiomètre VR101 sur la plaquette IF de sorte que le LED 5 de l'indicateur de signal se brûle confusément.

11. S'assurer que l'aiguille du compteur à centre zéro si trouve sur la position moyenne lors de recevoir le bruit blanc.

12. Recevoir le signal de 90MHz et 1mV du générateur de signal FM (l'aiguille du compteur à centre zéro doit tomber sur la position moyenne). Régler les potentiomètres VR301 et 302 (sur la plaquette de l'impulseur indicateur) de sorte que le LED 2 (vert) se brûle seulement.

En maintenant cet état:

a) Placer le générateur de signal à une position de 50kHz plus haute que 90MHz, et régler le potentiomètre VR301 (sur la plaquette de l'impulseur indicateur) de sorte que les deux LED 1 et 2 se brûlent confusément.

b) Placer le générateur de signal à une position de 50kHz plus basse que 90MHz, et régler le potentiomètre VR302 de sorte que les deux LED 2 et 3 se brûlent confusément.

Voir la Fig. 4.

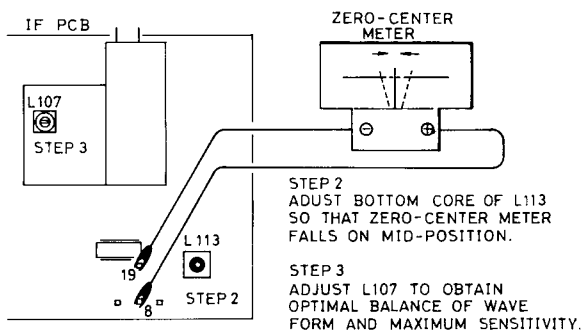


Fig. 1. FM IF Alignment  
Abb. 1. UKW-ZF-Einstellung  
Fig. 1. Aligement FM IF

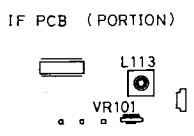


Fig. 3. FM Distortion Adjustment  
FM Signal Ind Calibration  
Abb. 3. UKW Verzerrung-Abgleich  
UKW Signalanzeige Eichung  
Fig. 3. réglage de distorsion FM  
étalonnage de l'indicateur de signal FM

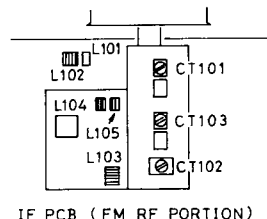
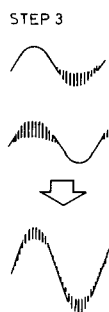


Fig. 2. FM RF Alignment  
Abb. 2. UKW-HF-Einstellung  
Fig. 2. Aligement FM HF

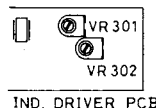
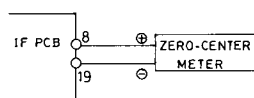
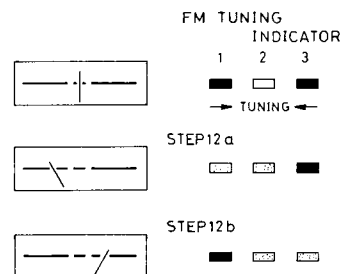


Fig. 4. FM Tuning Indicator Adjustment  
Abb. 4. UKW Abstimmanzeige-Abgleich  
Fig. 4. Réglage de l'indicateur d'accord FM



## II. FM Stereo Adjustment

**Instruments:** FM Stereo SG, Oscilloscope, AC Voltmeter.

- Set Function Selector to FM position beforehand.
- 1. Connect Oscilloscope and AC Voltmeter to R-ch Tape Out jack.
- 2. Receive stereo signal from FM ST SG (antenna input level set to 1 mV).  
 Pilot tone . . . . . 9% mod.  
 Audio signal 1,000Hz L-ch only . . . . . 90% mod.  
 Turn potentiometer VR102 (on IF PC board) to the

mid-position of the range where Stereo Indicator illuminates.

3. Adjust potentiometer VR103 (on IF PC board) to minimize leakage of signal from L-ch into R-ch.
4. Next, connect Oscilloscope and AC Voltmeter to L-ch Tape Out jack, and switch the modulation of the FM ST SG to R-ch signal. Check to make sure leakage of signal from R-ch into L-ch is almost the same as that from L-ch into R-ch.  
 If there is a marked difference, fine-adjust VR103.

## II. UKW-Stereo-Abgleich

**Instrumente:** UKW-Stereo-Meßsender, Oszillograph, Wechselstrom-Voltmeter.

- Zuerst den Funktionswahlschalter auf FM stellen.
- 1. Den Oszillographen und das Wechselstrom-Voltmeter an die TAPE OUT-Buchse des R-Kanals anschließen.
- 2. Stereosignal vom UKW-Stereo-Meßsender einspeisen (Antennen-Eingangspegel auf 1 mV stellen).  
 Pilotton . . . . . 9% Modulation  
 Tonsignal 1.000Hz, nur L-Kanal  
 . . . . . 90% Modulation  
 Das Potentiometer VR102 (auf der ZF-Leiterplatte) in die Mitte des Bereiches einstellen, in dem die

Stereoanzeige aufleuchtet.

3. Das Potentiometer VR103 (auf der ZF-Leiterplatte) so einstellen, daß das Übersprechen des Signals vom L-Kanal in den R-Kanal sein Minimum erreicht.
4. Als nächstes den Oszillographen und das Wechselstrom-Voltmeter an die TAPE OUT-Buchse des L-Kanals anschließen und die Modulation des UKW-Stereo-Meßsenders auf das R-Kanal-Signal umschalten. Überprüfen Sie, ob das Übersprechen vom R-Kanal in den L-Kanal und das vom L-Kanal in den R-Kanal gleich ist. Sollte ein erheblicher Unterschied bestehen, VR103 feineinstellen.

## II. Réglage stéréophonique FM

**Instruments:** Générateur de signal stéréophonique FM, oscilloscope et voltmètre à courant alternatif

- Placer le sélecteur de fonction à la position FM d'avance.
- 1. Brancher l'oscilloscope et le voltmètre à courant alternatif au jack Tape Out à R-ch. au canal droit.
- 2. Recevoir le signal stéréophonique du générateur de signal stéréophonique FM (niveau d'entrée de l'antenne placé à 1 mV)  
 Signal d'identification . . . . . 9%  
 Signal audio 1.000Hz (canal gauche seul) . . . 90%  
 Tourner le potentiomètre VR102 (sur la plaquette IF) à la position moyenne de l'étendue où l'indicateur

stéréo s'illumine.

3. Régler le potentiomètre VR103 (sur la plaquette IF) pour minimiser la fuite du signal du canal gauche au canal droit.
4. Ensuite, brancher l'oscilloscope et le voltmètre à courant alternatif au jack Tape Out de canal droit, et commuter la modulation du générateur de signal stéréophonique FM au signal de canal droit. Vérifier pour assurer que la fuite du signal du canal droit au canal gauche est presque la même que cela du canal gauche au canal droit. S'il y a une différence marquée, régler finement le VR103.

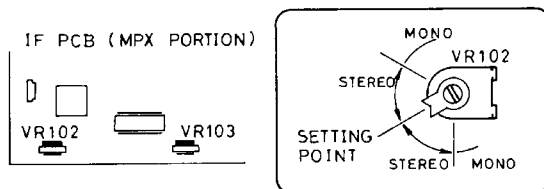


Fig. 5. FM Stereo Adjustment

Abb. 5. UKW-Stereo-Abgleich

Fig. 5. Réglage stéréophonique FM

### III. AM (MW and LW) Alignment

**Instruments:** AM Signal Generator and AC voltmeter

Input signal must be kept as low as possible to avoid AGC action.

Step	Generator		Tuning Dial Setting	Output Indicator Connected to	Adjust	Adjust for
	Coupling	Frequency				
1	Set Function Selector switch to MW* <sup>1</sup>					
2	Pin No.14 (on IF board) through a 0.01 mfd capacitor.	455kHz (400Hz 30% mod.)	Non interfering at low end of scale.	AC VTVM to OUTPUT jack.	L202, 203, 204 (on IF board)	Maximum reading on AC voltmeter
3	Test Loop Radiate signal into ferrite loopstick antenna.	600kHz (400Hz 30% mod.)	600kHz		L201 (OSC) (on IF board) and L001 ANT. Coil (MW).	
4		1400kHz (400Hz 30% mod.)	1400kHz		CT202 (OSC) and CT201 (ANT) Trim (on AM VC)	
5	Repeat steps 3 and 4 until no further improvement is noticed.					
6	Same as above Step 3 5mV/m	1000kHz	1000kHz	Same as above Step 2	VR201 (on IF board)	Signal Ind. reads "4."
7	Set Function Selector switch to LW.					
8	Same as above Step 3	160kHz (100Hz 30% Mod.)	160kHz	Same as above Step 2	L812 (OSC) (on LW OSC board) L001 ANT Coil (LW).	Same as above Step 2
9		320kHz (100Hz 30% Mod.)	320kHz		CT812 (OSC) CT811 (ANT) Trim (on LW OSC board)	
10	Repeat Steps 8 and 9 until no further improvement is noticed.					
11	MW may need readjustment after completing LW adjustment. Repeat steps 3 and 4.					

\*1: "AM" position for 2-band model.

Note: Steps 7 to 11 apply to 3-band models (with LW) only.

### III. AM (MW und LW) Abgleich

**Instrumente:** AM-Meßsender und Wechselstrom-Röhrenvoltmeter

Das Eingangssignal muß so klein wie möglich gehalten werden, um Ansprechen der automatischen Schwundregelung zu vermeiden.

Schritt	Meßsender		Abstimmskaleneinstellung	Ausgangsanzeige angeschlossen an	Abgleich	Abgleich auf
	Anschluß	Frequenz				
1	Funktionswahlschalter auf MW* <sup>1</sup> stellen.					
2	Steckerstift 14 (auf ZF-Leiterplatte) über 0,01 mF-Kondensator	455kHz (400Hz 30% moduliert)	Keine Interferenz am unteren Skaleneende	Wechselstrom-Röhrenvoltmeter an Buchse OUTPUT	L202, 203, 204 (auf ZF-Leiterplatte)	Maximalanzeige am Röhrenvoltmeter
3	Meßschleife. Signal in Ferritrahmenantenne einspeisen.	600kHz (400Hz 30% moduliert)	600kHz		L201 (OSZ) (auf ZF-Leiterplatte) und L001 (MW) Antennenspule	
4		1400kHz (400Hz 30% moduliert)	1400kHz		CT202 (OSZ) und CT201 (Ant.) Trimmer (in der AM VC)	
5	Schritt 3 und 4 wiederholen, bis keine weitere Verbesserung eintritt.					
6	gleich wie Schritt 3 oben 5mV/m	1,000kHz	1,000kHz	gleich wie Schritt 2 oben	VR201 (auf der ZF-Leiterplatte)	Feldstärkeinstrument zeigt 4 an.
7	Funktionswahlschalter auf LW stellen					
8	gleich wie Schritt 3 oben	160kHz (100Hz 30% Mod.)	160kHz	gleich wie Schritt 2 oben	L812 (OSZ) (auf LW-OSZ-Leiterplatte) und L001 (LW) Antennenspule	gleich wie Schritt 2 oben
9		320kHz (100Hz 30% Mod.)	320kHz		CT812 (OSZ) und CT811 (Ant.) Trimmer (auf der LW-OSZ-Leiterplatte)	

10	Schritt 8 und 9 wiederholen, bis keine weitere Verbesserung eintritt.
11	Nach Beendigung des LW-Abgleichs ist möglicherweise eine Neueinstellung von MW nötig. Neueinstellung nach Schritten 3 und 4 durchführen.

\*1: Stellung "AM" bei Modellen mit zwei Frequenzbereichen.

Hinweis: Abgleichschritte 7 bis 11 nur bei Modellen mit drei Frequenzbereichen (mit LW).

### III. Alignement AM (MW et LW)

**Instruments:** Générateur de signal AM et voltmètre à courant alternatif

Le signal d'entrée doit être maintenu aussi bas que possible afin d'éviter l'action AGC.

Point	Générateur		Ecran d'accord	Indicateur de sortie connecté à	Réglage	Réglage pour
	Couplage	Fréquence				
1	Régler le commutateur sélecteur de fonction sur MW*1					
2	Broche No. 14 (sur la plaquette IF) par l'intermédiaire d'un condensateur de 0,01 mfd.	455kHz (400Hz 30% mod.)	Non interférence à l'extrémité inférieure de l'échelle.	Voltmètre électronique au OUTPUT	L202, 203, 204 (sur la plaquette IF)	Lecture maximum sur le voltmètre à courant alternatif
3	Boucle de mesure Envoie le signal sur l'antenne ferrite à boucle.	600kHz (400Hz 30% mod.)	600kHz		L201 (OSC) (sur la plaquette IF) et L001 (MW) ANT. bobine.	
4		1400kHz (400Hz 30% mod.)	1400kHz		CT202 (OSC) et CT201 (ANT) de correction (sur AM VC)	
5	Répéter les points 3 et 4 jusqu'à ce qu'il ne puisse être remarqué d'amélioration supplémentaire.					
6	Identique au point 3. 5mV/m	1.000kHz	1.000kHz	Identique au point 2.	VR201 (sur la plaquette IF)	L'indicateur de signal indique "4".
7	Régler le commutateur sélecteur de fonction sur LW.					
8	Identique au point 3.	160kHz (100Hz 30% mod.)	160kHz	Identique au point 2.	L812 (OSC) (sur la plaquette LW-OSC) et L001 ANT (LW) bobine.	Identique au point 2.
9		320kHz (100Hz 30% mod.)	320kHz		CT812 (OSC) et CT811 (ANT) de correction (sur la plaquette LW-OSC)	
10	Répéter les points 8 et 9 jusqu'à ce qu'il ne puisse être remarqué d'amélioration supplémentaire.					
11	La MW peut nécessiter le ré-réglage en complétant le réglage LW. Ré-régler les points 3 et 4.					

\*1: Position "AM" pour modèle de 2 bandes

Note: Les points 7 à 11 s'appliquent aux modèles de 3 bandes (avec LW) seulement.

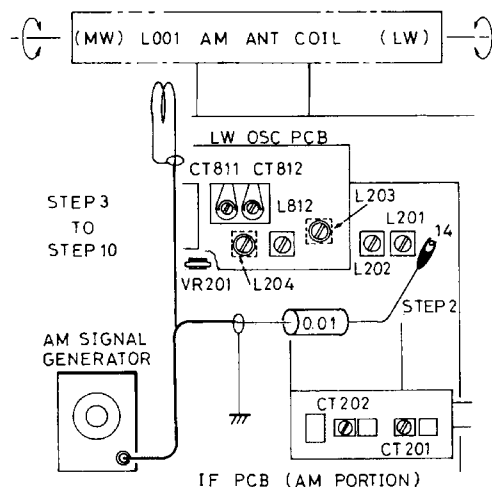
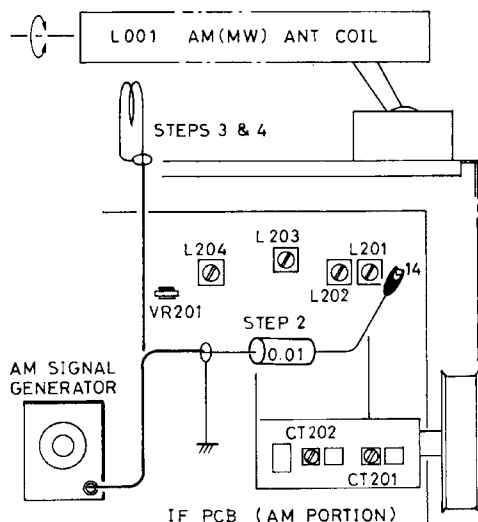


Fig. 6-a. AM Alignment (RT-1000 and RX-1000)  
 Abb. 6-a. MW-Abgleich (RT-1000 und RX-1000)  
 Fig. 6-a. Alignement AM (RT-1000 et BX-1000)

Fig. 6-b. AM (MW and LW) Alignment (RT-1000L and RX-1000L)  
 Abb. 6-b. AM (MW und LW)-Abgleich (RT-1000L und RX-1000L)  
 Fig. 6-b. Alignement AM (MW et LW) (RT-1000L et RX-1000L)



# Specifications

## Technische Daten

## Caractéristiques

### FM TUNER SECTION (RT-1000, RT-1000L, RX-1000, RX-1000L)

Usable Sensitivity:	
Mono	10.8dBf (1.9 $\mu$ V/300 ohms)
Stereo	20dBf (5.5 $\mu$ V/300 ohms)
50dB Quieting Sensitivity:	
Mono	16.0dBf (3.5 $\mu$ V/300 ohms)
Stereo	36dBf (35 $\mu$ V/300 ohms)
Signal-to-Noise Ratio (at 65dBf):	
Mono	75dB
Stereo	65dB
Distortion (at 65dB):	
100Hz	0.1% (mono), 0.25% (stereo)
1kHz	0.1% (mono), 0.25% (stereo)
6kHz	0.2% (mono), 0.35% (stereo)
Frequency Response	30~15,000Hz + 1.0dB, -2.0dB
Capture Ratio	1.0dB
Alternate Channel Selectivity	60dB
Spurious Response Ratio	75dB
Image Response Ratio	55dB
IF Response Ratio	80dB
AM Suppression Ratio	60dB
Muting Threshold	12dBf
Stereo Separation	42dB (1kHz), 35dB (30~15kHz)
Subcarrier Product Ratio	45dB
SCA Rejection Ratio	70dB
Antenna Input	300ohms balanced, 75ohms unbalanced

### AM TUNER SECTION (RT-1000, RX-1000)

Sensitivity	200 $\mu$ V/m (IHF, ferrite antenna)
Selectivity	30dB
Signal-to Noise Ratio	50dB
Image Response Ratio	45dB
IF Response Ratio	40dB
Antenna	Built-in ferrite loopstic antenna

### MW+LW TUNER SECTION (RT-1000L, RX-1000L)

Sensitivity: MW	270 $\mu$ V/m (IHF, ferrite antenna)
LW	400 $\mu$ V/m (IHF, ferrite antenna)
Signal-to-Noise Ratio	50dB (MW), 45dB (LW)
Image Response Ratio	45dB (MW), 45dB (LW)
IF Response Ratio	40dB (MW), 40dB (LW)

### AMPLIFIER SECTION (RX-1000, RX-1000L)

Continuous Power Output	35 watts* per channel, min. RMS at 8 ohms from 20 to 20,000Hz with no more than 0.06% total harmonic distortion
Total Harmonic Distortion (20 to 20,000Hz, from AUX)	No more than 0.06% (continuous rated power output) No more than 0.08% (continuous

	1/2 rated power output)
	No more than 0.07% (1 watt per channel power output)
Intermodulation Distortion (60Hz : 7 kHz = 4:1)	No more than 0.06% (continuous rated power output)
	No more than 0.08% (continuous 1/2 rated power output)
	No more than 0.07% (1 watt per channel power output)
Output: Speaker	A, B (4~16 ohms) A + B (8~16 ohms)
Headphone	4~16 ohms
Damping Factor	35 (20~20,000Hz, 8 ohms)
Input Sensitivity/Impedance	
PHONO	2.5mV/50 kilohms
AUX	150mV/30 kilohms
TAPE IN	150mV/30 kilohms
Overload Level (T.H.D. 0.5% 1kHz):	
PHONO	180mV
AUX	5V
Output Level/Impedance:	
TAPE OUT	280mV/1 kilohms
TAPE OUT (DIN)	90mV/80 kilohms
Frequency Response:	
PHONO	30~15,000Hz $\pm$ 0.5dB (RIAA STD)
AUX, TAPE IN	5~40,000Hz + 0dB, -1.0dB
Tone Control:	
BASS	$\pm$ 10dB (50Hz)
TREBLE	$\pm$ 10dB (15kHz)
Loudness Contour	+10dB (100Hz), +4dB (10kHz) (volume control set at -40dB position)
Signal-to-Noise Ratio: (IHF, A network)	
PHONO	75dB
AUX, TAPE IN	90dB

### MISCELLANEOUS

Power Requirement	120V/60Hz, 220V/50Hz, 240V/50Hz 120, 220, 240V/50-60Hz
Power Consumption	8.5 watts (UL, IEC) (RT-1000, RT-1000L)
Power Consumption	300 watts (Max, IEC): (RX-1000, RX-1000L)

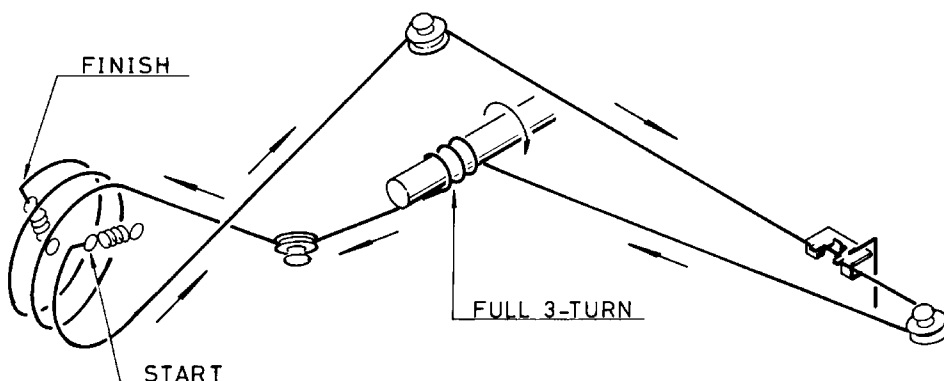
\*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers. (Applicable to the U.S.A. only)

NOTE: Specifications and design subject to possible modification without notice.

## Dial Stringing Diagram

## Skalenantriebsschema

## Diagramme du câble d'entraînement



**Note:** Carry out stringing with the front end set at VC maximum.

**Zur Beachtung:** Antriebsseil mit dem Drehko der Eingangsstufe in Maximumstellung verlegen.

**Note:** Effectuer le câblage avec le condensateur réglable de l'étage d'entrée réglé au maximum.

## Common to All Models

Schematic Location	Description	Part No.
<b>TRANSISTORS, DIODES AND IC'S</b>		
Q101	2SK168(F), FM RF Amp	302001122
Q102, 103	2SC1674 (K or L), FM OSC, Mixer	301201163
Q104, 201, 202, 203	2SC829C, FM IF 1st Amp AM(MW) Conv, AM(MW) IF Amp	301201117
Q105, 106, 109	2SC828 (R or S), Mono-ST Switching, FM Muting etc.	301201115
Q107, 108, 204	2SC1327 (S or T), FM Audio Amp, AM Audio Amp	301201134
Q301	2SA921 (S or T), FM Tuning Center LED Driver	301001145
D101, 102, 201, 203, 204	1K188, (Ge), FM AGC, AM AGC, AM Meter Rect	300111008
D103, 202, 301, 302		
D001	SEL-8802R, LED Array, Signal Indicator	300414032
IC101	HA1137W, FM Detector	303452156
IC102	AN363N, FM MPX Decoder	303452197
IC301	LB1405S, Signal Ind Driver	303452188
IC302	NJM4558D, FM Tuning Ind Driver	303452215
<b>VARIABLE RESISTORS</b>		
VR101	10KB, FM Signal Ind Cal	510502147
VR102	5KB, FM MPX VCO Adj	510502140
VR103	50KB, FM Stereo Separation Adj	510502142
VR201	100KB, AM Signal Ind Cal	510502149
VR301, 302	10KB, FM Tuning Ind Cal	510502186
<b>COILS AND TRANSFORMERS</b>		
L101	FM Ant Coil (Pri)	226501131
L102, 104, 105	FM RF Coil	226501132
L103	FM OSC Coil	226501135
L106	Choke Coil, 2.2 $\mu$ H	226501143
L107	FM IFT, 1st 10.7MHz Tune	225501131
L108, 111, 112, 114	Choke Coil, 47 $\mu$ H	226501123
L110		
L110	Quadrature Coil, 18 $\mu$ H	226501152
L113	FM IFT, Det	225501132
L201	AM OSC Coil	223301127
L202	AM IFT, 1st, 455kHz Tune	225301131
L203	AM IFT, 2nd, 455kHz Tune	225301132
L204	AM IFT, Det 455kHz Tune	225301133
L001	AM Antenna Coil Ass'y* <sup>1</sup>	222391137
<b>OTHERS</b>		
X101, 102	FM IF BPF, 10.7MHz	229101171
X201	AM IF BPF, 455kHz	229101205
F902	AM/FM Variable Capacitor	322420018
	Fuse, 0.5A-3AG, (STD type)	341222050
	Fuse, 500mA- $\phi$ 5.2 (for Europe, UK)	345252050
	Dial Lamp, 6.3V, 250mA (BLU)	359101116
C001	Noise Canceller, NSK-135 (STD)* <sup>1</sup>	470101118
	Noise Canceller, X type, 0.047 (Europe, UK)	470101122
	Noise Canceller, NSK-132 (CSA type only)* <sup>1</sup>	470101129
	Voltage Selector* <sup>2</sup>	648211247
	Antenna Terminal Strip, 4P	649201115
	Bracket, Dial Lamp	648211135
	IF PCB Ass'y* <sup>1</sup>	141311383

Schematic Location	Description	Part No.
	Dial Pointer	151691146
	Pulley, $\phi$ 10	651110019
	Dial Drum, $\phi$ 53	651300020
	Tuning Shaft	654911298
	Cord Stopper (STD)* <sup>1</sup>	675201111
	Cord Stopper (Europe, UK)	675201114
	Line Cord (STD)* <sup>1</sup>	796301115
	Line Cord (UL)* <sup>1</sup>	796301140
	Line Cord (Europe)	796301139
	Line Cord (UK)* <sup>1</sup>	796301138
	Dial Spring	658601121
	Dial String 1.8m	787121123
	Foot	673402021
	Knob, Tuning (Metallic Brown)	116310283
	Button, Power SW (Metallic Brown)	116210058
	Button, Function etc. (Metallic Brown)	116210056
	Knob, Tuning (Black)* <sup>1</sup>	116310284
	Button, Power SW (Black)* <sup>1</sup>	116210059
	Button, Function, etc. (Black)* <sup>1</sup>	116210057
	Clip, Fuse, $\phi$ 6.5* <sup>1</sup>	648211146
	Clip, Fuse, $\phi$ 5.2	648211147
	T type FM Feeder Antenna, 300 $\Omega$	791001112
	Screw, 3x8mm, Tapping (Ni)	726213008
	Screw, 2x4mm, Binding Head (Ni)	705212004
	Screw, 3x4mm, Binding Head (Ni)	705213004
	Screw, 3x6mm, Oval Countersunk (Ni)	702213006
	Screw, Insert, 2.6x6mm	770911133
	Screw, 3x9mm, Pulley Mtg	770911130
	Screw, 3x6mm, Binding Head (Ni)	705213006
	Screw, 3x10mm, Tapping (BLZ)	726223010
	Screw, 3x5mm, Flat Head (BLZ)	770911166
	Screw, 3x12mm, Tapping (Ni)	726213012
	Screw, 4x10mm, Binding Head (Ni)	705214010
	Screw, 3x6mm, Tapping, Oval Countersunk	722213006
	Screw, 3x6mm, Countersunk (Ni)	701213006
	Screw, 4x8mm, Binding, w/washer (BLZ)	705224008
	Screw, 3x8mm, Binding Head (BLZ)	705223008
	Screw, 3x6mm, Binding Head (Ni)	705213006
	Screw, 3x15mm, Binding Head (Ni)* <sup>3</sup>	705213015
	Screw, 3x12mm, Binding Head (Ni)* <sup>3</sup>	705213012
	Nut, M9, Hex T Shaft Mtg	770402207
	Nut, M4, Hex P Trans Mtg	770402202
	Nut, M3, Hex	770402201
	Nut, M7, Hex Volume Mtg etc* <sup>3</sup>	770402205
	Nut, M12, Hex Phone Jack Mtg* <sup>3</sup>	770402209
	Nut, M3, Square Tr Mtg* <sup>3</sup>	770911144
	Washer, $\phi$ 9, Flat T Shaft Mtg	770500008

For RX-1000 and RX-1000L only

Schematic Location	Description	Part No.
	Washer, $\phi 3$ , Fiber, Ind Driver PCB Mtg* <sup>4</sup>	770500051
	Washer, $\phi 4$ , Flat, P Trans Mtg	770500004
	Washer, $\phi 4$ , Spring, P Trans Mtg	770500011
	Washer, $\phi 3$ , Flat	770500003
	Washer, $\phi 7$ , Flat	770500006
	Teethed Washer, $\phi 3$	770500014
	GND Terminal* <sup>3</sup>	770911119
	Spacer, $\phi 3$ , Tr Mtg* <sup>3</sup>	992001111
	Closed-end Connector	643110012
*1 Not used for Models RT-1000L and RX-1000L		
*2 Not used for UL or CSA approved units		
*3 Not used for Models RT-1000 and RT-1000L		
*4 Not used for Models RX-1000 and RX-1000L		

For RT-1000L and RX-1000L only

Schematic Location	Description	Part No.
L811	Bandpass Filter	228641120
L812	LW OSC Coil	223301129
L001	AM (MW & LW) Antenna Coil Ass'y	222391139
Q811	2SC829C	301201117
Q851	2SK68A (L or M)	302001113
CT811, 812 (pair)	Trimmer Cap, 15pF max.	490110113
S2-1	Slide SW, Remote Type	615232274
	LW OSC PCB Ass'y	141810970
	IF PCB Ass'y	141311384

For RT-1000 and RT-1000L only

Schematic Location	Description	Part No.
<b>TRANSISTOR AND DIODES</b>		
Q901	2SC1567 (R or S) Stabilizer	301201150
D901, 902, 904	SR1K-4, Rectifier	300919024
D903	WZ-162, Zener Regulator, 16.2V, 0.5W	300313017
<b>COIL AND TRANSFORMER</b>		
L901	Choke Coil, 47 $\mu$ H	226501123
T001	Power Transformer (STD)	207001429
	Power Transformer (CSA type)	201001466
<b>OTHERS</b>		
F901	Fuse, 0.5A-3AG (STD)	341222050
	Fuse, 125mA-T- $\phi 5.2$ (Europe, UK)	345952012
	Power Supply PCB Ass'y (STD)* <sup>5</sup>	141810964
	Power Supply PCB Ass'y (Europe, UK)	141810968
	Pin Jack, 2P	624200202
S4	Power Switch (STD)	614010138
	Power Switch (UL, CSA)* <sup>5</sup>	614010139
	Top Cover	138011305
	Signal Cord Ass'y	791001112
*5: Not used for Model RT-1000L		

Schematic Location	Description	Part No.
<b>TRANSISTOR, DIODES AND IC'S</b>		
Q501, 502	2SC1327(S or T), Buffer	301201134
Q901	2SC1826 (O or Y) Stabilizer	301201169
D601	WZ-063, Zener Regulator, 6.3V, 0.5W	300313038
D901	S-5VB-02, Rectifier	300919032
D902	WZ-162, Zener Regulator, 16.2V, 0.5W	300313017
D903, 904	BZ-210, Zener Regulator, 21V, 1W	300313007
IC401, 402	HA1457, Phono Amp	303452192
IC501	NJM4558DD, Tone Amp	303452152
IC601	SI-1135HD, Power Amp	303452214
<b>VARIABLE RESISTORS</b>		
VR501	250kW, Balance Control	515121130
VR502	100KBTx2, Volume Control	525121147
VR503, 504	100KCx2, Treble, Bass Control	525101166
<b>COILS AND TRANSFORMER</b>		
L601, 602	Antiparastic Coil	228641105
L901, 902, 903	Choke Coil, 47 $\mu$ H	226501123
T001	Power Transformer (STD)	207001481
	Power Transformer (CSA Type)* <sup>6</sup>	204001481
<b>OTHERS</b>		
S1	Function Selector	601011344
S6, 7 (1 set)	Push 2-key, Tape Monitor Switch	614020434
S8, 9 (1 set)	Push 2-key, Speaker Switch	614020433
S10	Power Switch (STD Type)	614010138
	Power Switch (UL, CSA Type)* <sup>6</sup>	614010139
J001	AC Outlet	648211141
F901	Fuse, 3.5A-3AG (STD)* <sup>6</sup>	341222350
	Fuse, 1.6AT- $\phi 5.2$ (Europe, UK)	345952160
F001, 002	Fuse, 3.5A-3AG (STD)* <sup>6</sup>	341222350
	Fuse, 3.15A- $\phi 5.2$ (Europe, UK)	345252315
	Speaker Terminal, 4P	642400111
	DIN Socket, 5P	625001114
	Pin Jack, 4P	624200204
	Bracket, Fuse (Europe, UK)	648211162
J701	Phone Jack	626110033
	Phono Amp PCB Ass'y	141510172
	Power Amp and Power Supply PCB Ass'y (STD)* <sup>6</sup>	141610333
	(Europe, UK)	141610334
	DIN Socket PCB Ass'y	141810730
	Speaker Switch PCB Ass'y	141810953
	Top Cover	138011304
	Knob, Func, Vol (Metallic Brown)	116310285
	Knob, Bal, Bass, Treble (Metallic Brown)	116310287
	Knob, Func, Vol (Black)* <sup>6</sup>	116310286
	Knob, Bal, Bass, Treble (Black)* <sup>6</sup>	116310288
*6: Not used for Model RX-1000L.		

### For RT-1000 only

Schematic Location	Description	Part No.
S1, 2, 3 (1 set)	Front Panel Ass'y (Metallic Brown)	111911467
	Front Panel Ass'y (Black)	111911468
	Dial Board	112011369
	Push Switch, 3-key, Func, etc.	614030827

### For RX-1000 only

Schematic Location	Description	Part No.
	Front Panel Ass'y (Metallic Brown)	111911463
	Front Panel Ass'y (Black)	111911464
	Dial Board	112011367

### For RT-1000L only

Schematic Location	Description	Part No.
S1, 2, 3 (1 set)	Wire Ass'y, Remote Switch	647110012
	Front Panel Ass'y	111911476
	Dial Board	112011370
	Push Switch, 4-key, Func, etc.	614030827

### For RX-1000L only

Schematic Location	Description	Part No.
	LW Muting PCB Ass'y	141810969
	Wire Ass'y, Remote Switch	647110011
	Front Panel Ass'y	111911475
	Dial Board	112011368

## Addendum Nachtrag Addenda

The following modifications have been made to the units with serial numbers NC20951 and over.

#### A. For All Models

1. FM IF Circuit: Resistance value of resistor R126 is changed to 10 kilohms.  
Reason: To improve stability in stereo operation.
2. FM MPX Circuit: Resistance value of resistors R150 and R151 is changed to 820 ohms.  
Reason: To improve FM output.

#### B. For RT-1000L and RX-1000L

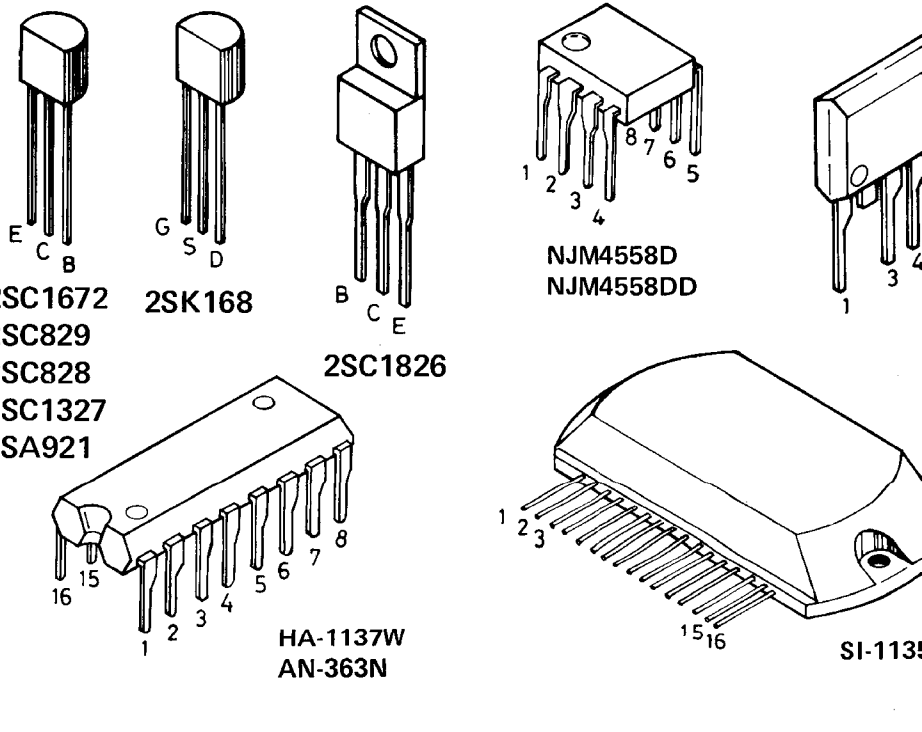
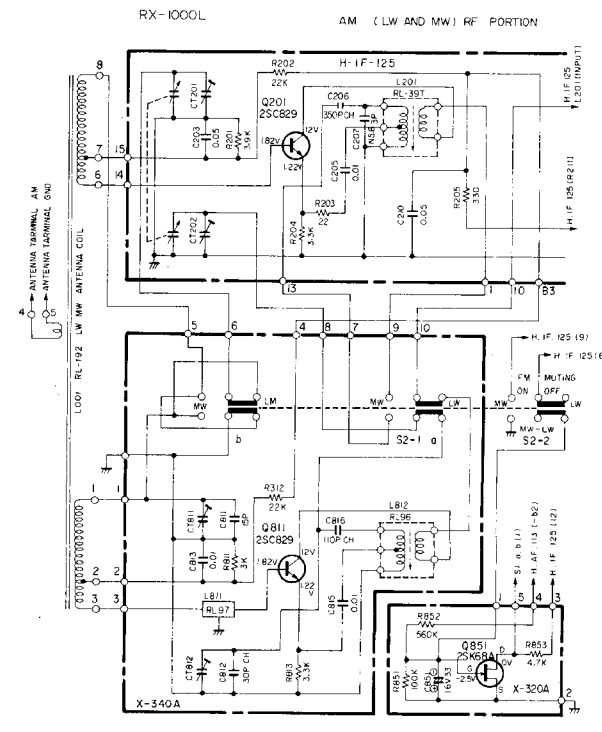
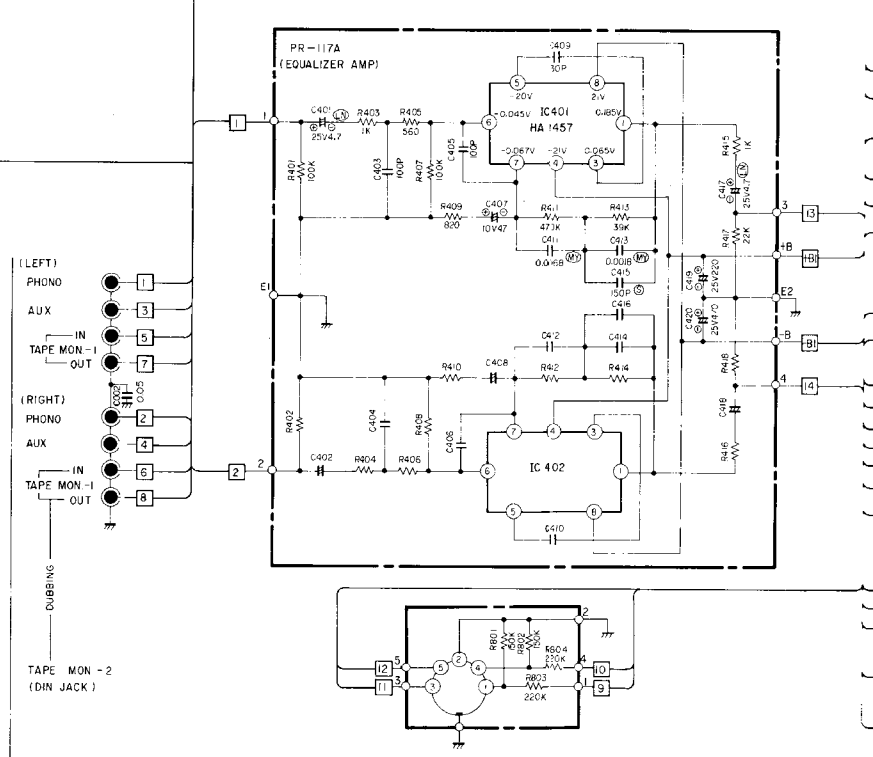
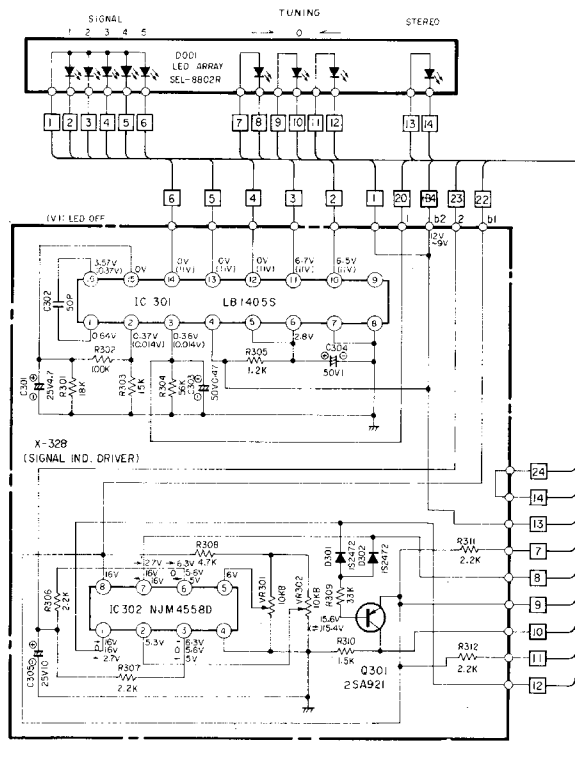
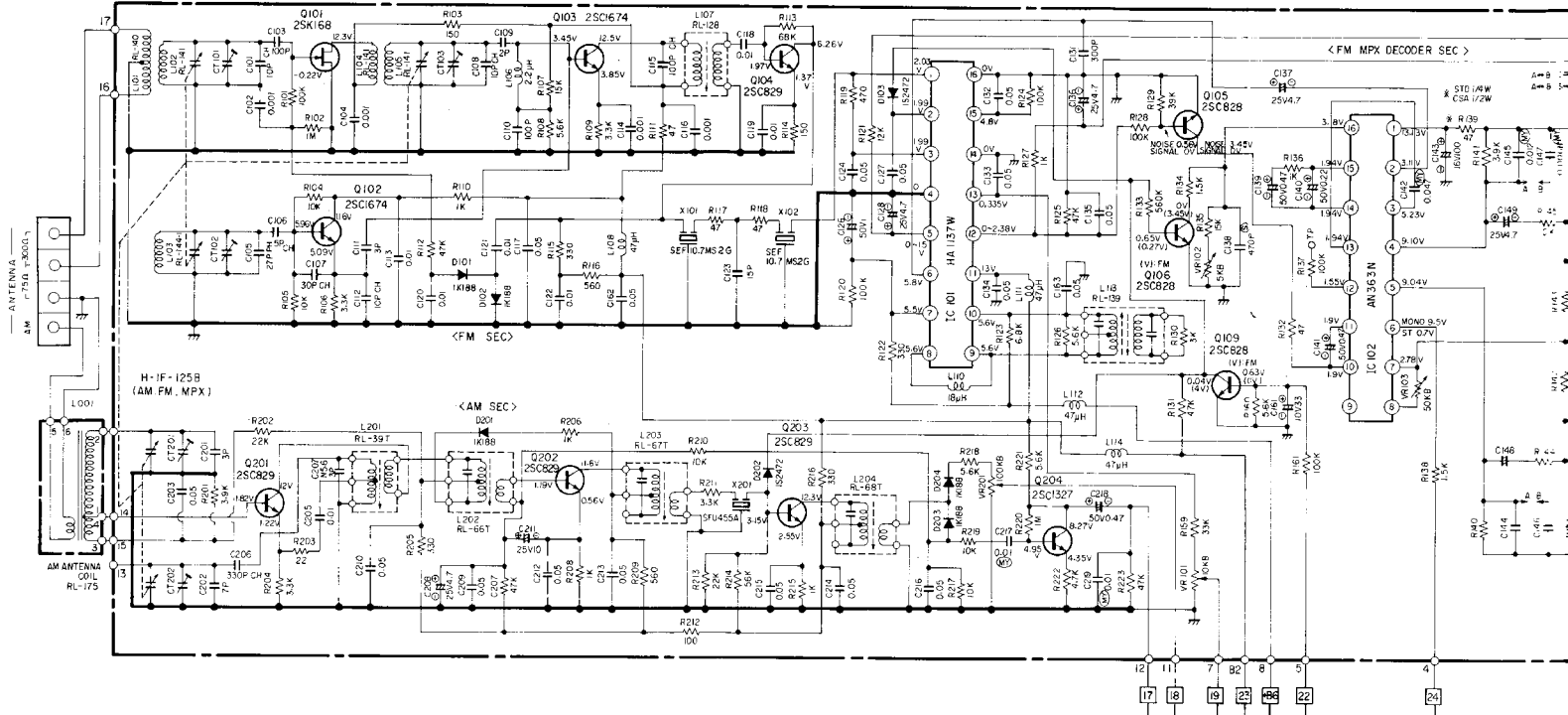
1. Ceramic capacitors C201 and C202 (placed in parallel with Trimmer Capacitor) on AM VC circuit are removed.

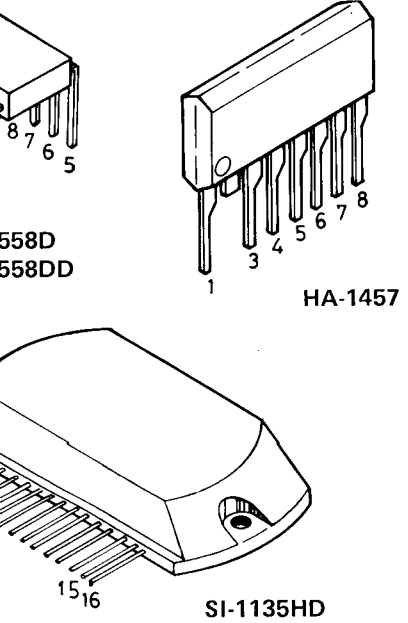
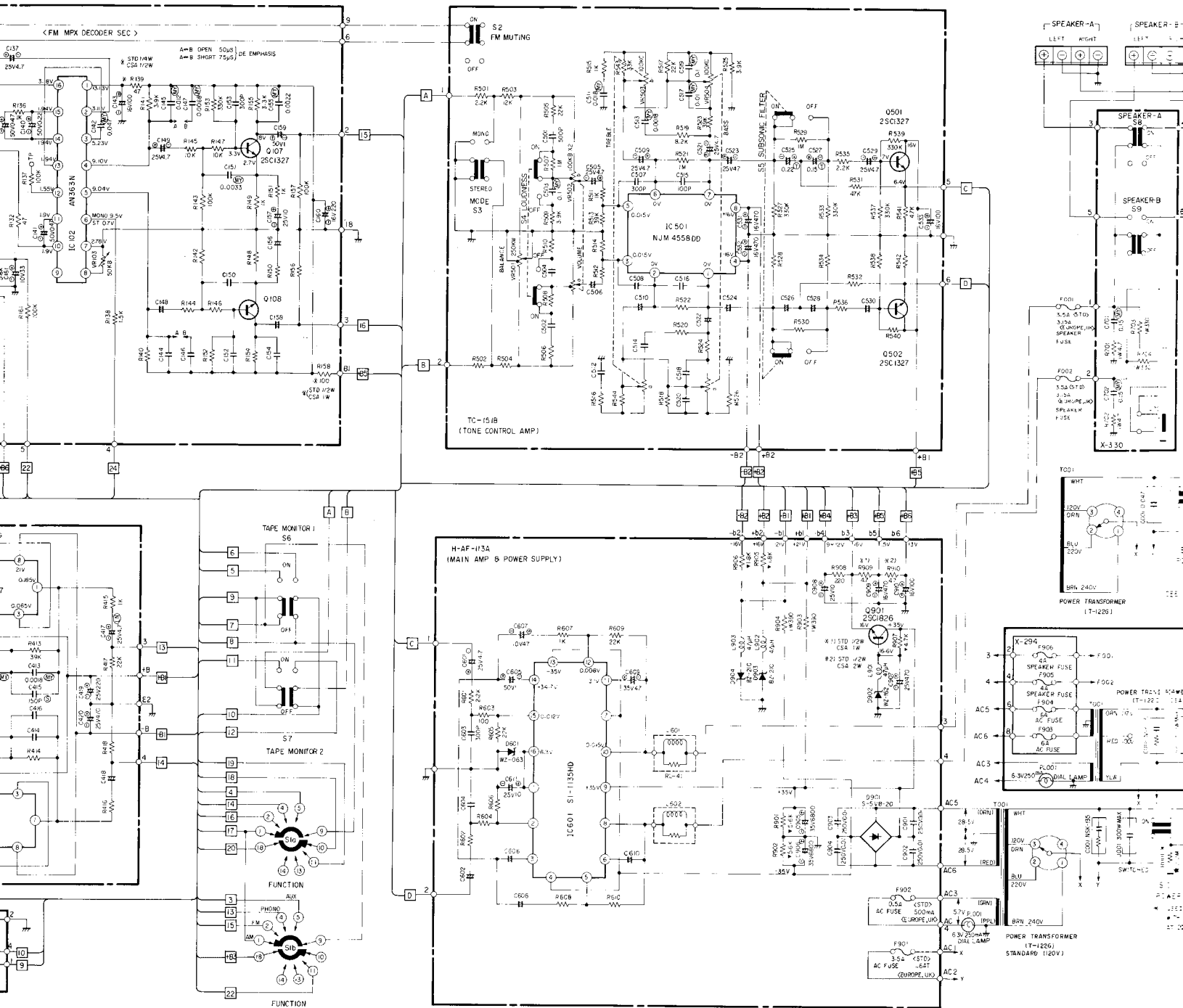
# Schematic Diagram

# Schaltungsschema

# Diagramme schématique

RX-1000





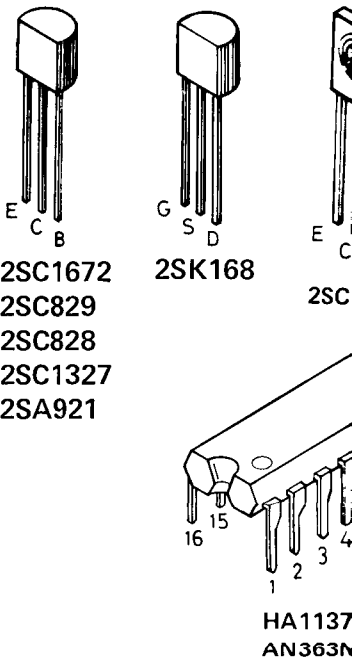
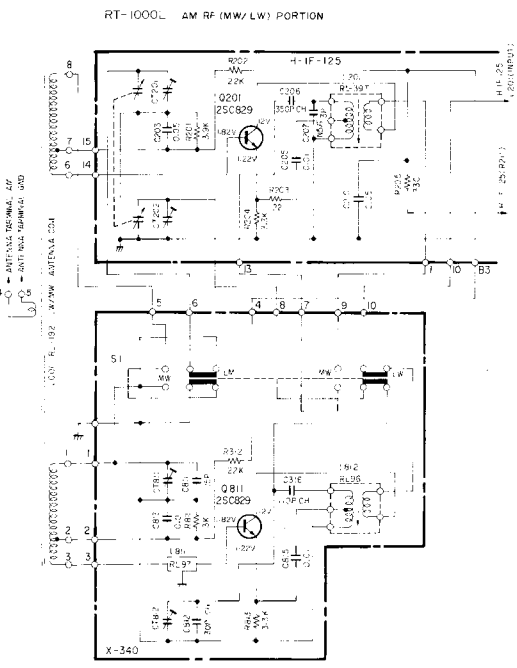
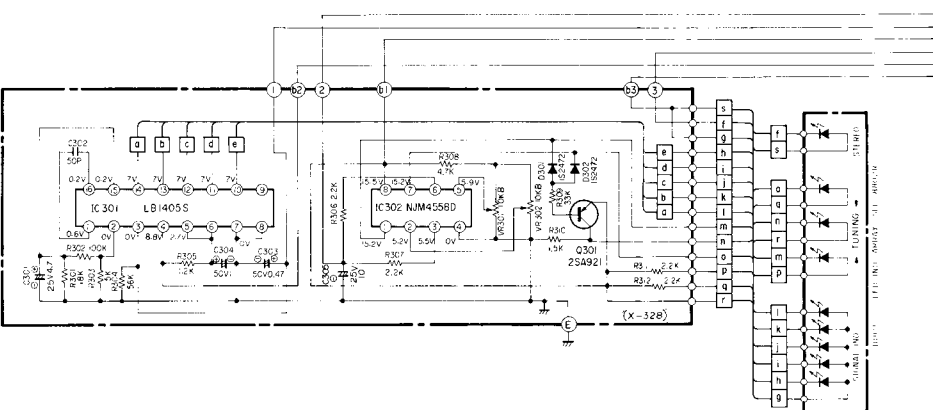
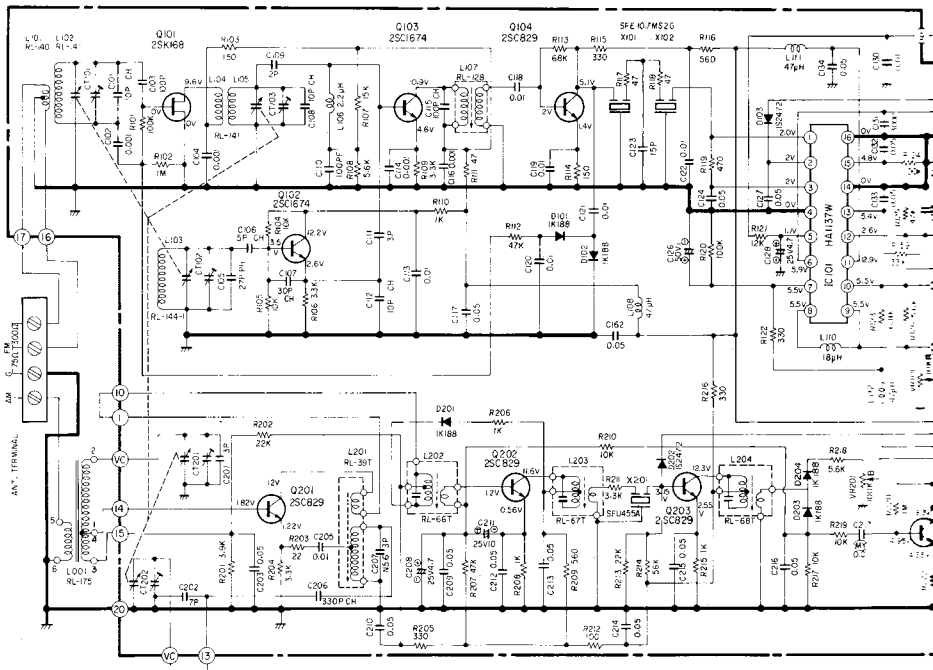
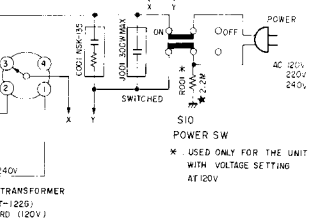
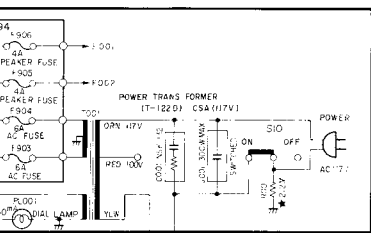
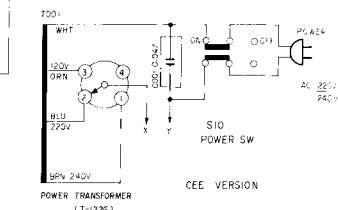
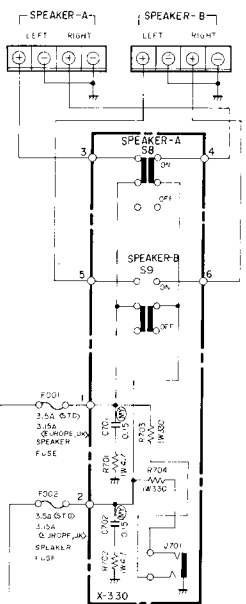
(RESISTORS)  
 5% TOLERANCE UNLESS OTHERWISE NOTED.  
 K--- KILO OHM  
 M--- MEGA OHM  
 ▼--- NONFLAMMABLE CARBON FILM RESISTORS. 1/2WATT  
 ★--- COMPOSITION RESISTORS. 1/2WATT  
 NON MARK--- LOW NOISE TYPE CARBON RESISTORS. 1/4WATT

(CAPACITORS)  
 Ⓢ--- POLYSTYRENE FILM CAPACITORS.  
 Ⓣ--- TANTALUM CAPACITORS.  
 Ⓜ--- MYLAR FILM CAPACITORS.  
 Ⓛ--- LOW NOISE TYPE CAPACITORS.  
 Ⓜ--- ELECTROLYTIC CAPACITORS.  
 NON MARK--- CERAMIC CAPACITORS.

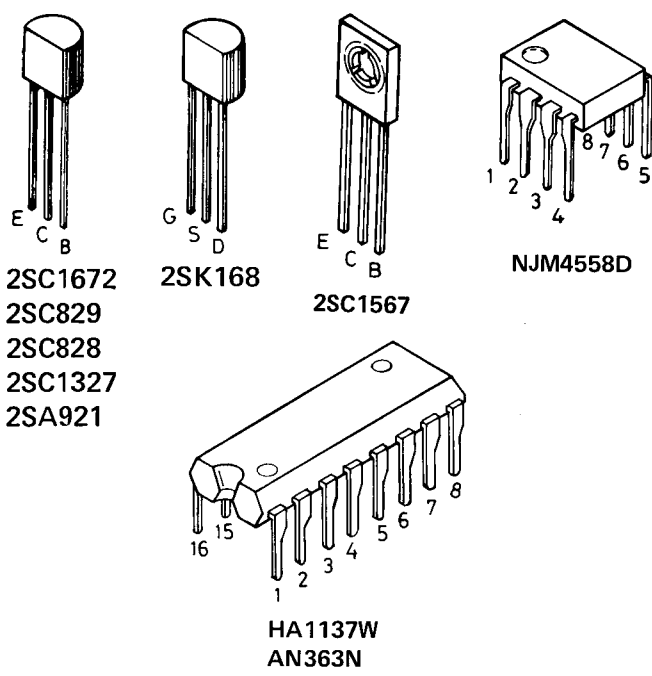
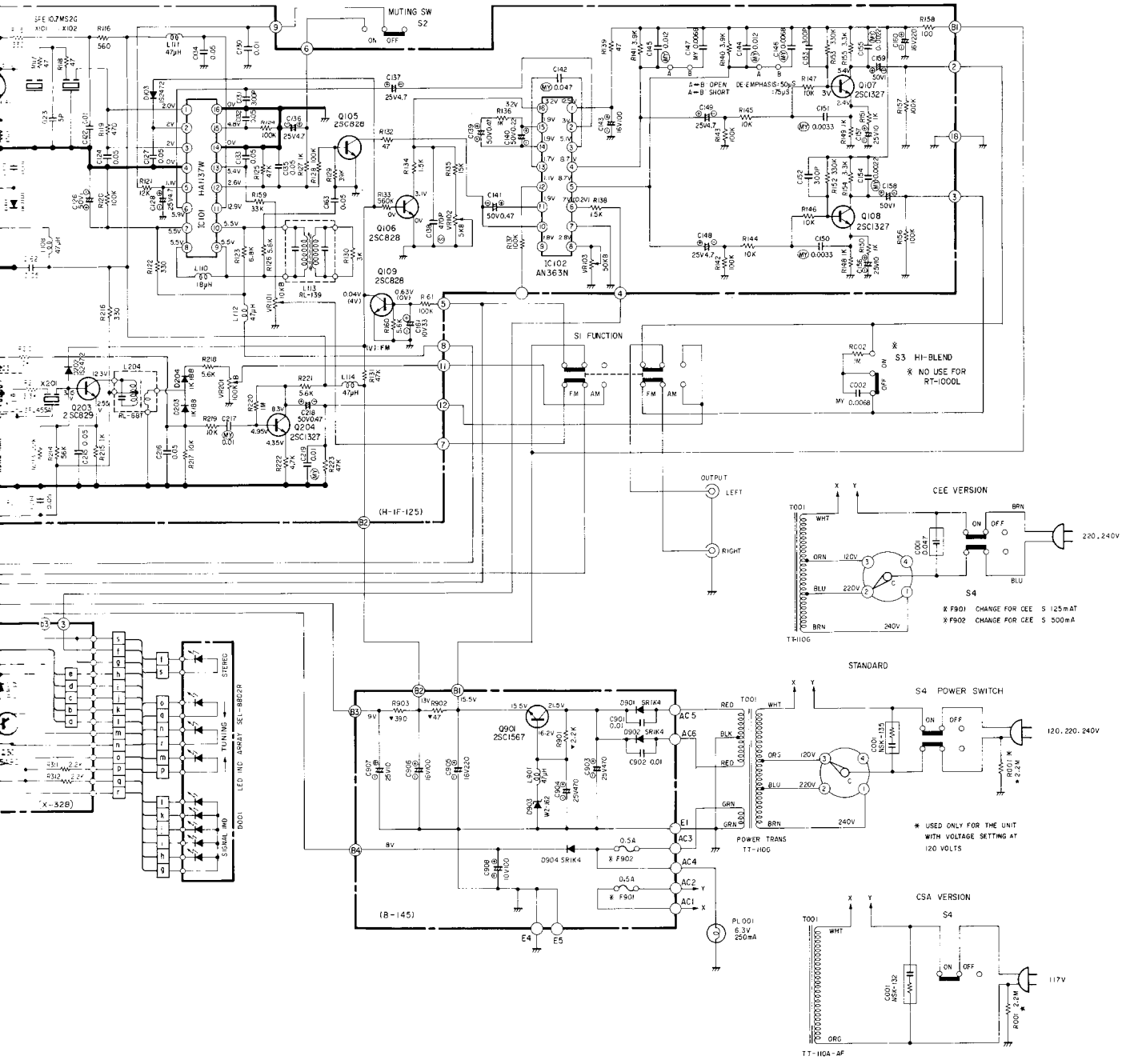
- UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD.
- VOLTAGE READING WITH VTVM FROM THE POINT SHOWN TO THE CHASSIS GROUND. (LINE VOLTAGE 120 VOLTS)
- VOLTAGE READING MAY ±20 %

ITEM
H-IF-125B
IF AMP. (AM)
PR-117A EQUALIZER
TC-151 TONE CONTROL
H-AF-113A (Power supply) MAIN AMP.
POWER SUPPLY
CHASSIS

# RT-1000



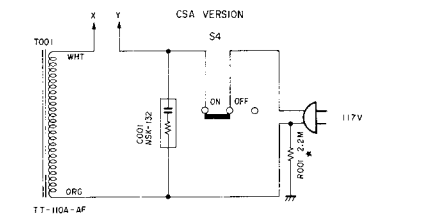
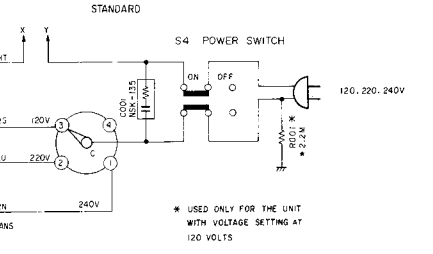
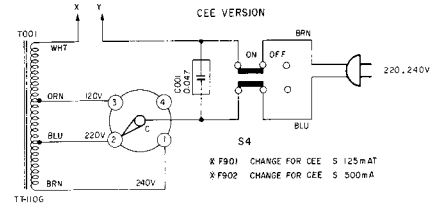
ITEM	SCHEMATIC LOCATION (Last)
H-IF-125B	R161 C162
IF AMP. (AM)	R223 C219
PR-117A EQUALIZER	R418 C420
TC-151 TONE CONTROL	R544 C533
H-AF-113A (Power supply) MAIN AMP.	R610 C611
POWER SUPPLY	R910 C910
CHASSIS	R C002



**(RESISTORS)**  
 5% TOLERANCE UNLESS OTHERWISE NOTED.  
 K --- KILO OHM  
 M --- MEGA OHM  
 ▼ --- NONFLAMMABLE CARBON FILM RESISTORS. 1/2 WATT  
 NON MARK --- LOW NOISE TYPE CARBON RESISTORS. 1/4 WATT

**(CAPACITORS)**  
 Ⓢ --- POLYSTYRENE FILM CAPACITORS.  
 Ⓜ --- MYLAR FILM CAPACITORS.  
 Ⓜ --- ELECTROLYTIC CAPACITORS.  
 NON MARK --- CERAMIC CAPACITORS.

- UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD.
- VOLTAGE READING WITH VTVM FROM THE POINT SHOWN TO THE CHASSIS GROUND. (LINE VOLTAGE 120 VOLTS)
- VOLTAGE READING MAY ± 20 %.



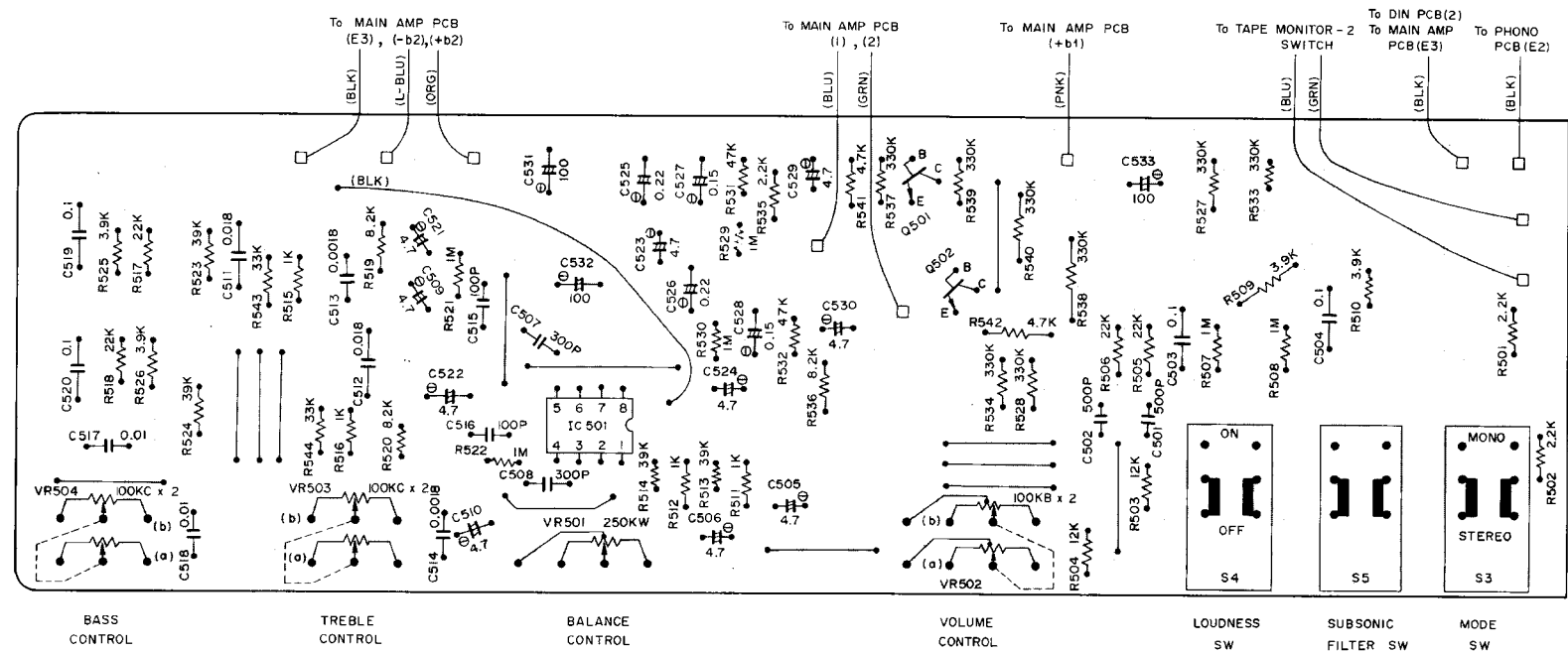


# Circuit Board Diagrams / Bestückungspläne / Diagrammes des plaquettes de circuits imprimés

## Tone Control Amp Circuit (RX-1000/RX-1000L)

### Klangregelverstärker

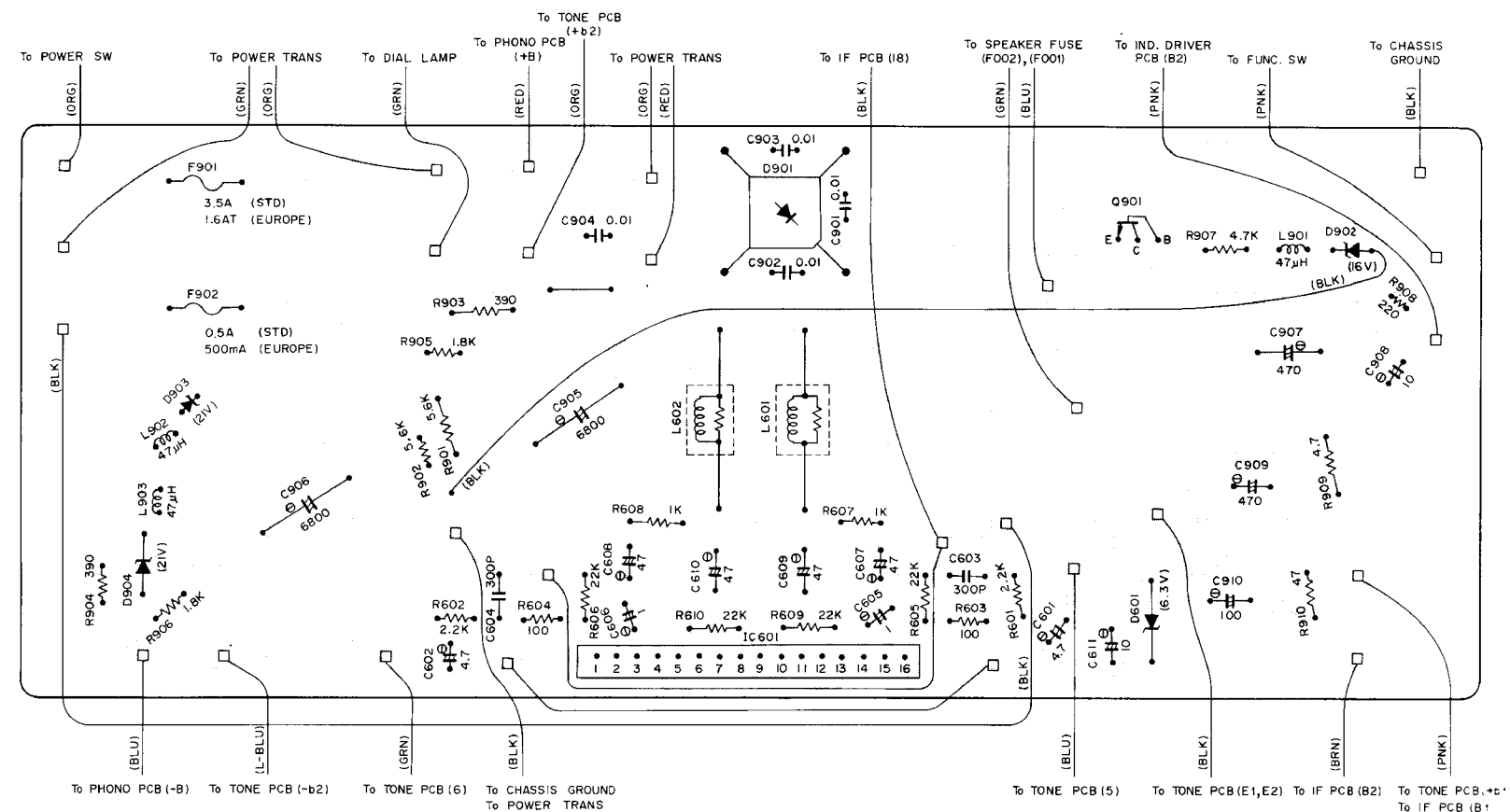
### Circuit de l'amplificateur de correcteur de tonalité



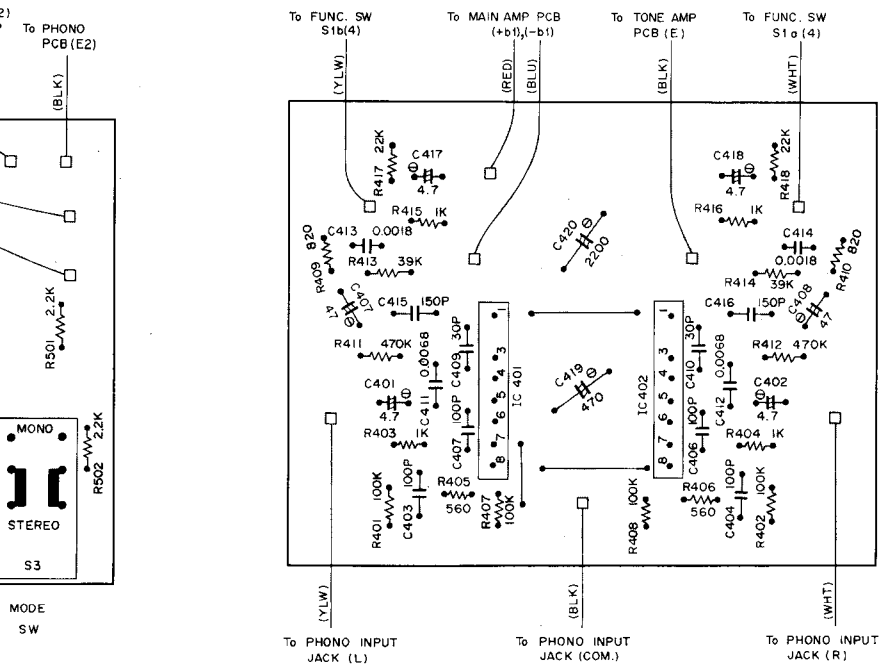
## Main Amp and Power Supply Circuit (RX-1000/RX-1000L)

### Hauptverstärker und Netzteil

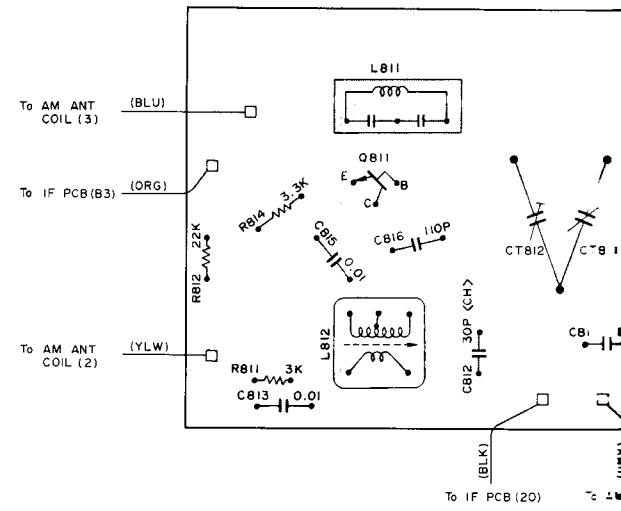
### Circuit d'alimentation et de l'amplificateur principal



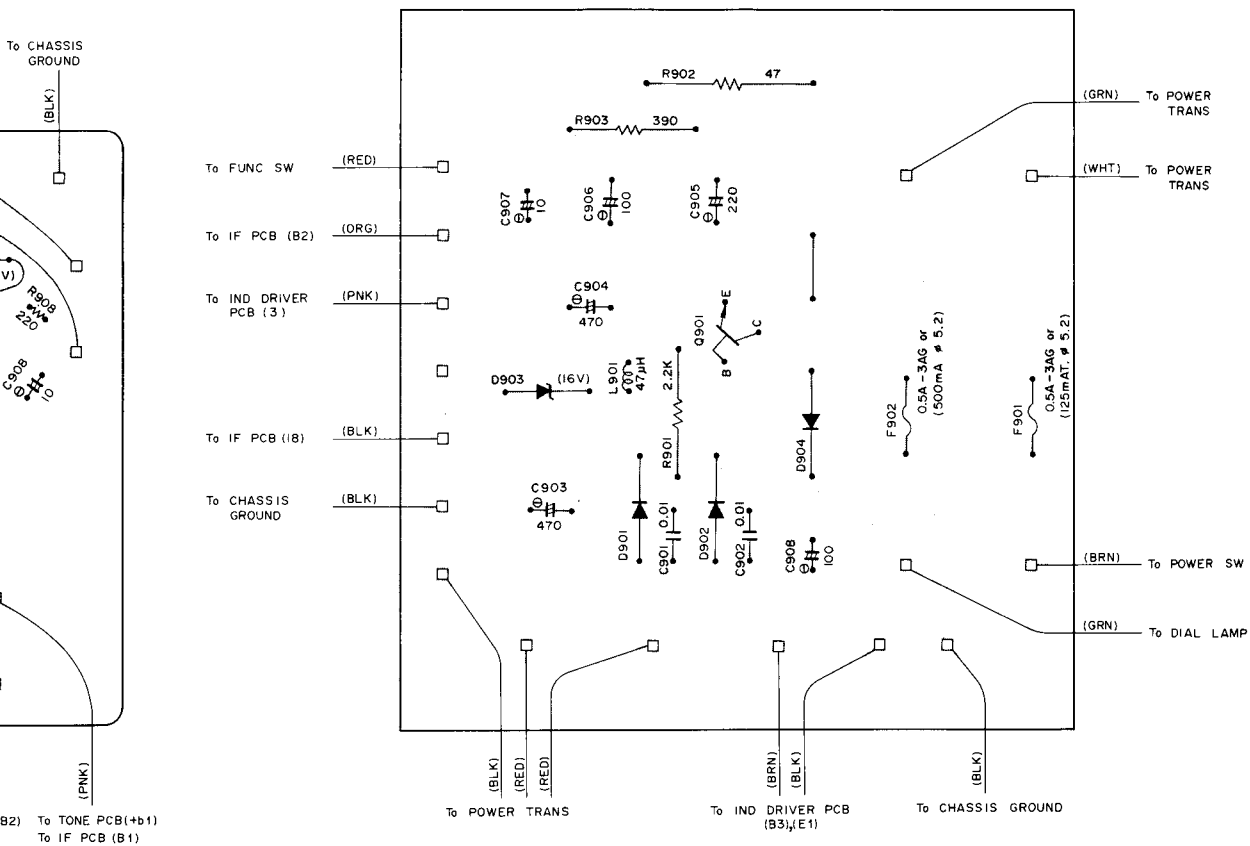
**Phono Amp Circuit (RX-1000/RX-1000L)**  
**Phonoverstärker**  
**Circuit de l'amplificateur phonographique**



**LW Counter Circuit (RT-1000L/RX-1000L)**  
**LW-Zählerkreis**  
**Circuit du compteur LW**

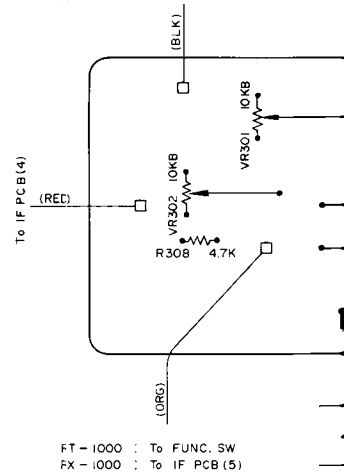


**Power Supply Circuit (RT-1000/RT-1000L)**  
**Netzteil**  
**Circuit d'alimentation**



**Signal Indicator Driver Circuit**  
**Signalanzeige-Treiber**  
**Circuit de l'impulseur ind**

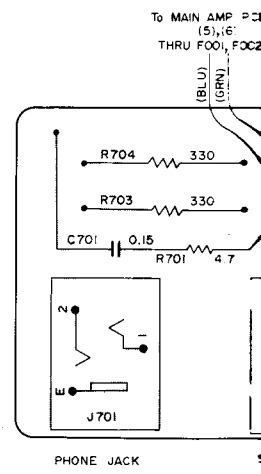
RT-1000 : To POWER SUPPLY PCB (E5)  
 RX-1000 : To CHASSIS GROUND



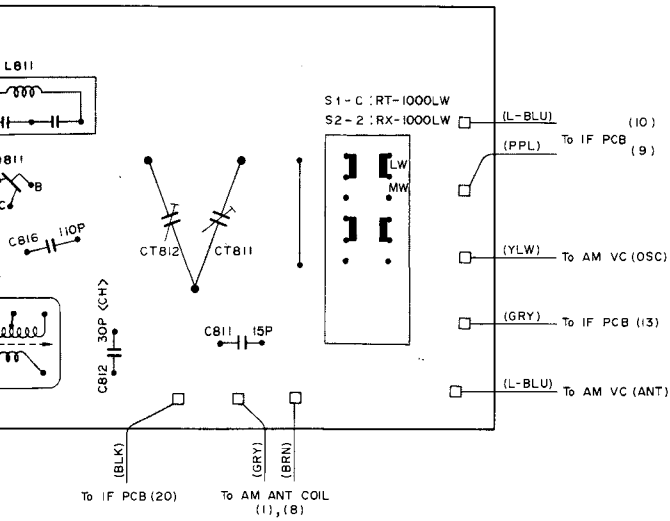
FT-1000 : To FUNC. SW  
 FX-1000 : To IF PCB (5)

Notes: \*1. Jumper (J) is used for...  
 \*2. Terminal wiring (b3) is...

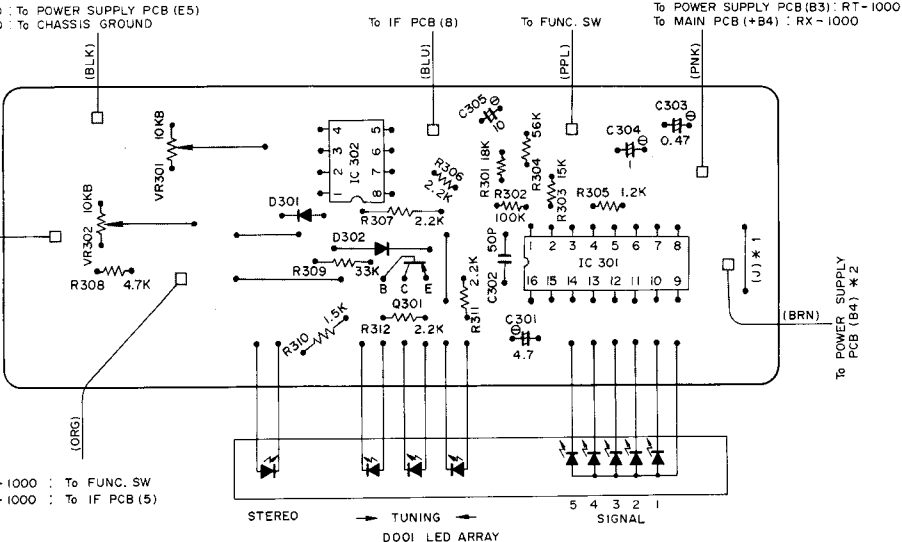
**Speaker Switch Circuit**  
**Lautsprecherschalt**  
**Circuit du commut**



# IF Circuit ZF-Kreis Circuit IF



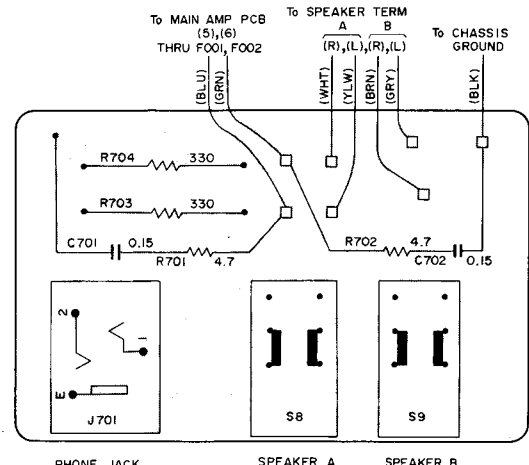
# Indicator Driver Circuit Anzeige-Treiber Circuit de l'impulseur indicateur de signal



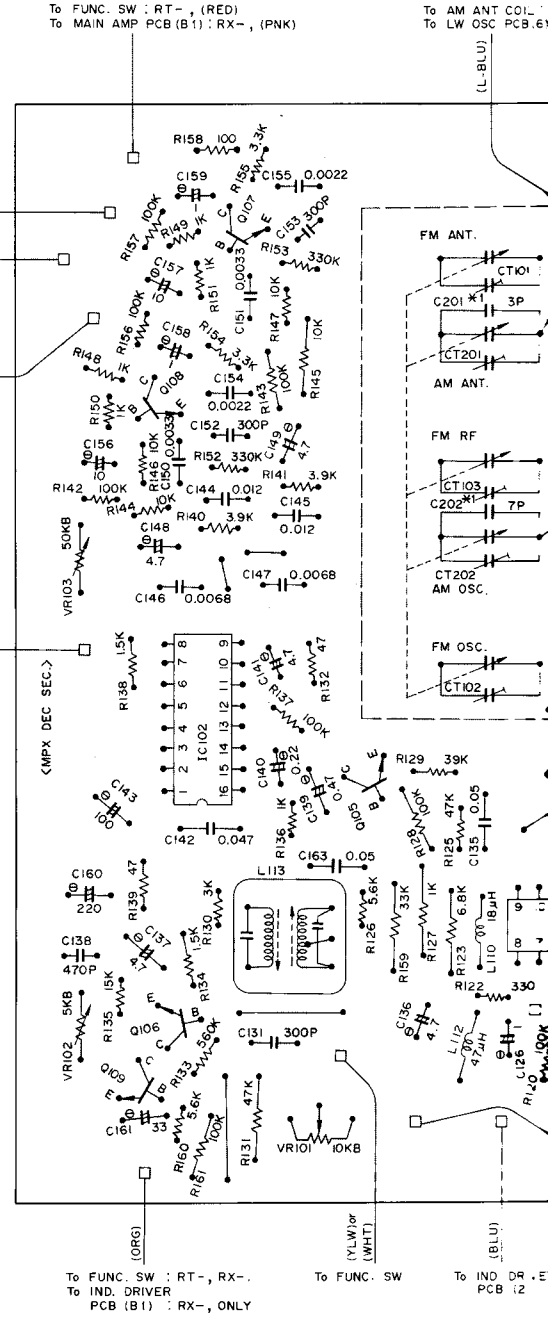
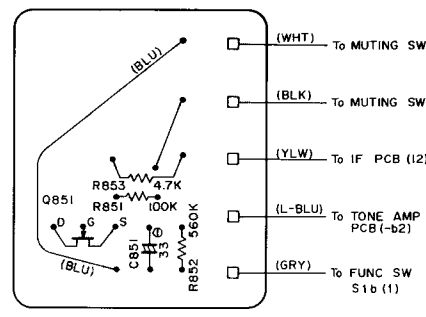
1000 : To FUNC. SW  
1000 : To IF PCB (5)

- \*1. Jumper (J) is used for RX-1000 only.
- \*2. Terminal wiring (b3) is used for RT-1000 only.

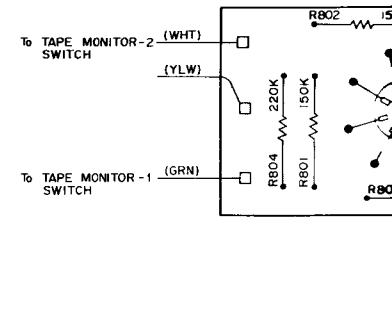
# Speaker Switch Circuit (RX-1000/RX-1000L) Lautsprecherschalterkreis Circuit du commutateur de haut-parleur

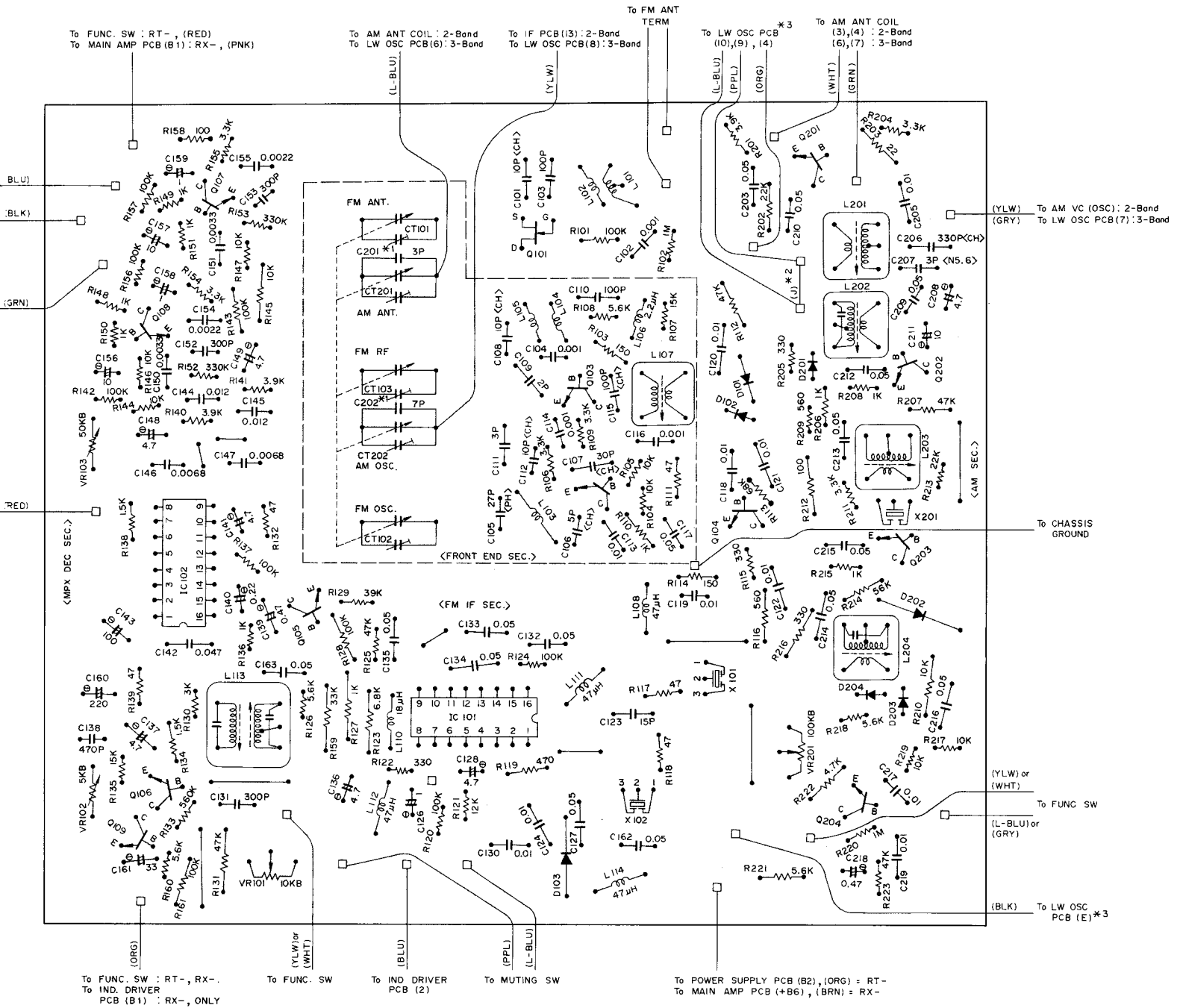


# LW Muting Circuit (RX-1000L) LW-Stummabstimmkreis Circuit de sourdine LW



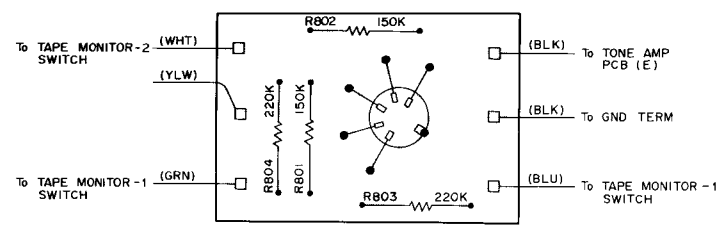
# DIN Socket (Rec/Playback) DIN-Stecker (Aufnahme/Wiedergabe) Circuit de douille DIN (enregistrement)





Notes: C146 and C147 are not used for de-emphasis 50  $\mu$ S.  
 \*1. C201 (3pF) and C202 (7pF) are not used for 3-band model.  
 \*2. Jumper (J) is not used for 3-band model.  
 \*3. Not used for 2-band model.

### 00L) DIN Socket (Rec/Playback) Circuit (RX-1000/RX-1000L) DIN-Stecker (Aufnahme/Wiedergabe)-Kreis Circuit de douille DIN (enregistrement/reproduction)



THE ROTEL CO., LTD.

1-36-8 Ohokayama, Meguro-ku, Tokyo 152, Japan

# TECHNICAL INFORMATION FOR MODEL RT-1000/-L RX-1000/-L

This publication is a supplement to Technical Manual for the model above, and includes the following.

- Errata
- Revisions and changes made on the units produced after the publication of Technical Manual

This publication should be filed together with the Technical Manual.

## Change of Circuit and Errata

1. Primary connection of power supply for UL spec. products is changed from 120V use to multi-voltage use. Accordingly, the voltage selector is added to the UL spec. product. The power transformer is a conventional G-type (RT-1000 and RX-1000).
2. For product conforming to CSA standard, resistors R139 and R158 on the IF Circuit are changed from 1/4W type to 1/2W non-flammable type (RT-1000).
3. Addition to FM IF Circuit (RT-1000/1000L, RX-1000/1000L):
  - a) A 330 ohm resistor is added in parallel with FM IFT, L107 secondary coil: R162.
  - b) A 33 ohm resistor is added between C119 and CE of Q104 in series: R163 (Fig. A).
  - c) New wiring is added to the shield plate on the pattern side (to prevent feedback current). (Fig. B)
4. Change of FM MPX Circuit Constant (RT-1000/1000L, RX-1000/1000L) to improve stereo performance and output level:
  - a) R126: from 5.6 kilohms to 10 kilohms
  - b) R150, R151: from 1 kilohm to 820 ohms
5. Change of level of FM signal indication (RT-1000/-1000L, RX-1000/1000L)
  - a) In conventional adjustment, 1mV antenna input is required to turn on the LED "5." The new adjustment requires 500 $\mu$ V input to turn it on.
6. Power supply cord conforming to CSA (RX-1000) is specified as follows:
  - a) Power supply cord (CSA): Part No. 796301146
7. Change of DIN socket (RX-1000/1000L):
  - a) New DIN socket: Part No. 625001119

**Note:** The conventional DIN socket is liable to develop trouble with the mounting nut. The new DIN socket comes without nut.

Set screws for the new socket:  
Tapping-II, 3 x 8mm, Part No. 726223008 or  
Tapping-II, 3 x 8mm, Part No. 726223010

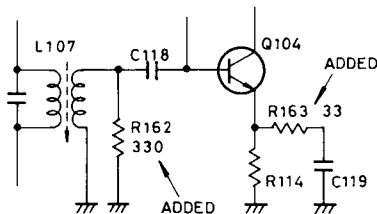


Fig. A

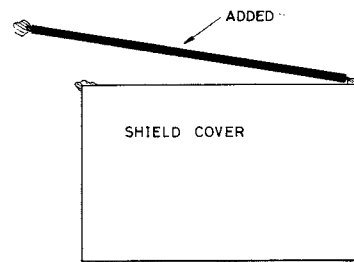
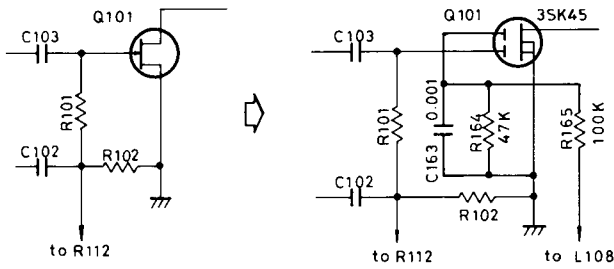


Fig. B

8. Change of FM RF Circuit (RX-1000/1000L, RX-1000/-1000L):

a) Q101: changed from 2SK168 to 3SK45

In relation to this change, the following Bias Circuit is added (Fig. C).



R163 = 0.001mfd  
R164 = 47 kilohms  
R165 = 100 kilohms

Note: The conventional 2SK168 cannot be replaced by 3SK45 without modifying the circuitry.

Fig. C FM RF Circuit (Portion)

b) The conventional coils L101 and 102, L104 and 105, and L103 are independent air-core type. All these coils are changed to bobbin core type.

Symbol Nos. for the new coils are as below:

L101 + 102: L101 FM Ant Coil	226501153
L104 + 105: L104 FM RF Coil	226501154
L103 : L103 FM OSC Coil	226501155

Note that the conventional coil cannot be replaced by the new coils.

c) For RT-1000/-1000LW only: The following change is applicable to model RT-1000LW with serial No. NC 63348 or over and model RT-1000 with serial No. NC6400 or over.

Servo System is added to FM Tuning Circuit. (See Fig. D.) Note that the name of the model remains the same.

1) Because of this change, FM OSC circuit is changed. (See Fig. E.)

2) Additionally employed component parts are as listed in Table 1.

d) Because of the changes in a), b) and c) above, PCB pattern and component parts layout are partly modified. Name of the new PCB: H-IF-125C

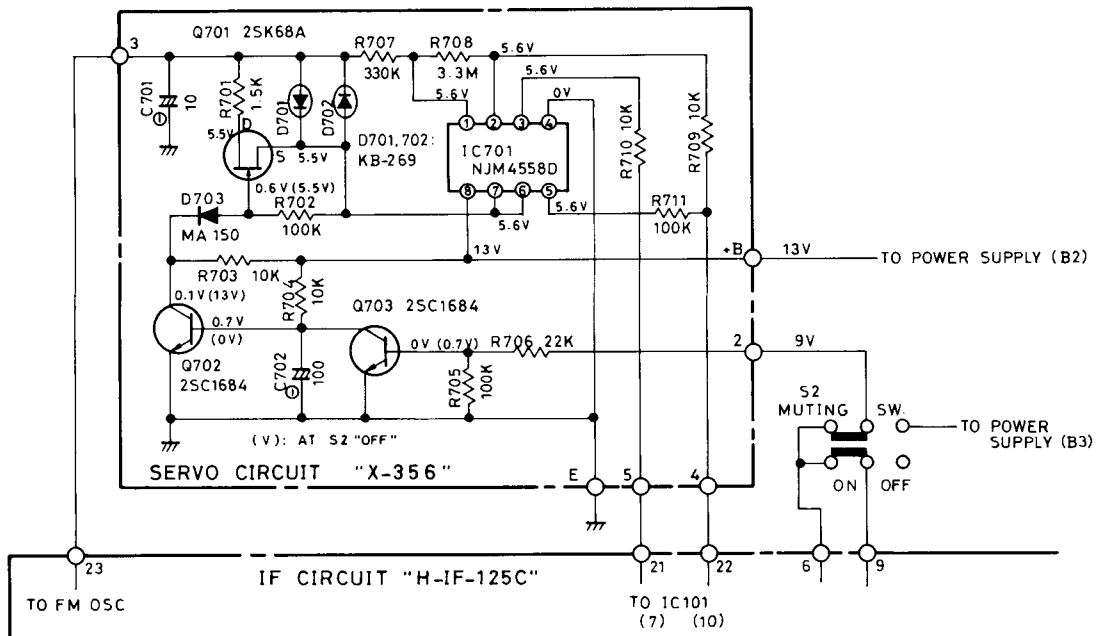


Fig. D Servo Circuit

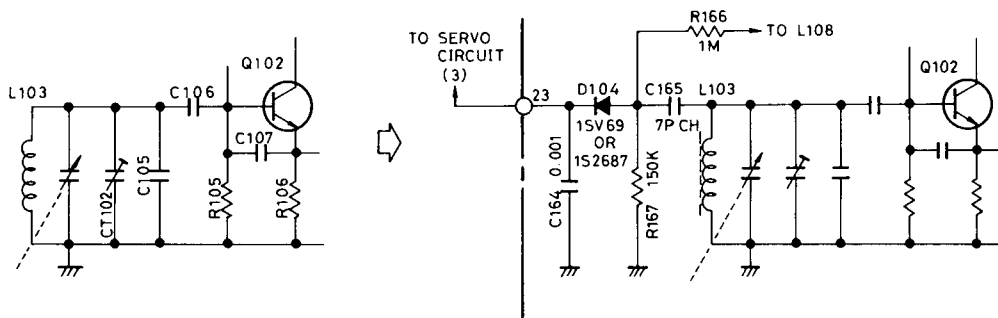


Fig. E FM OSC Circuit (Portion)

**Table 1**

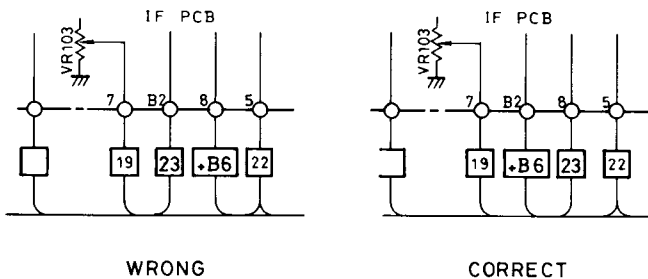
Schematic Location	Description	Part No.
Q701	FET, 2SK68A	302001113
Q702, 703	Transistor, 2SC1684	301201209
D104*	Vari-cap, 1S2687, or 1SV69	300616103 300616103
D701, 702*	Varistor, KB-265 (RED), or KB-269 (BLU)	300212002 300212004
D703	Diode, MA-150	300111016
IC701	NJM4558D	303452215
	Servo Circuit Ass'y	141810985
	IF Circuit Ass'y**, (MW/FM)	141311385
	IF Circuit Ass'y**, (LW/MW/FM)	141311386
	Front Panel** (Metallic Brown), RT-1000	111911491
	Front Panel** (Black), RT-1000	111911492
	Front Panel**, RT-1000LW	111911493

\* D104 and D701, 702 are used in certain combinations with other parts. When 1S2687 is used for D104, then D701, 702 should be KB-267 (RED). When 1SV69 is used for D104, then D701, 702 should be KB-269 (BLU). Please note that only 1S2687 type will be supplied as repair part.

\*\* For the units incorporating Servo Circuit. (For the units without Servo Circuit (RT-1000/-1000L, RX-1000), the conventional part with conventional part No. is used.)

**9. Errata in Circuit Board Diagram**

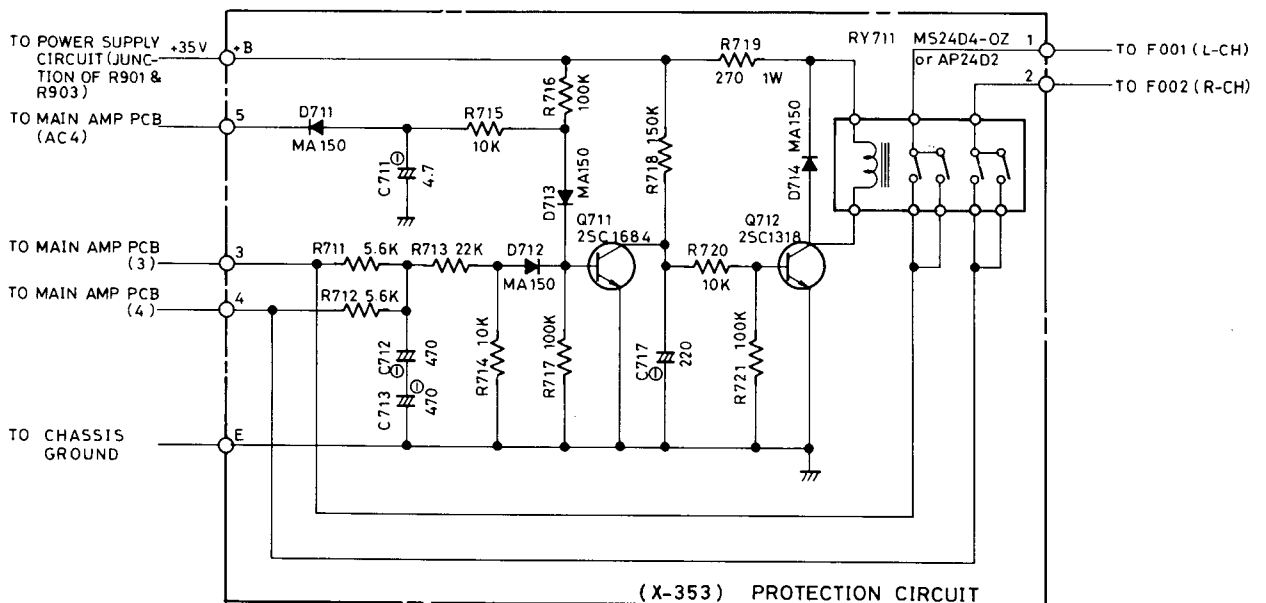
- a) RX-1000: IF PCB is corrected as shown in Fig. F.
- b) RX-1000L/RT-1000L: R312, 22K on LW OSC Circuit (X-340 PCB) should read R812, 22K.



**Fig. F**

WRONG

CORRECT



**Fig. G**

ADDITIONAL CIRCUIT ON RX-1000 FOR NEMKO APPROVAL

**10. Errata in Parts List**

- a) Page 11, "RT-1000L and RX-1000L Only" list: Part No. 615232274 of S2-1, Slide SW, Remote Type should read 615212274.
- b) Page 12, "RT-1000 Only" list: Part No. 614030827 of S1, 2, 3, Push SW, 3-key should read 614030826.
- c) Page 12, "RT-1000L Only" list: Part No. 614030827 of S1, 2, 3, Push SW, 4-key should read 614030832.

**11. RX-1000: Specs. for Norway Only:**

To conform to NEMKO standards, Protection Circuit is added to the Low Frequency Output Circuit. They are shown in Fig. G and Fig. H respectively. Main component parts of the Protection Circuit are as listed in Table 2.

**Table 2**

Schematic Location	Descriptions	Part No.
Q711	Transistor, 2SC1684	301201209
Q712	Transistor, 2SC1318	301201155
D711 to 714	Diode, MA-150	300111016
RY711	Relay, MS24D4-OZ or AP24D2	240111247 240111248
	Protection Circuit Ass'y	141810986

**12. Errata**

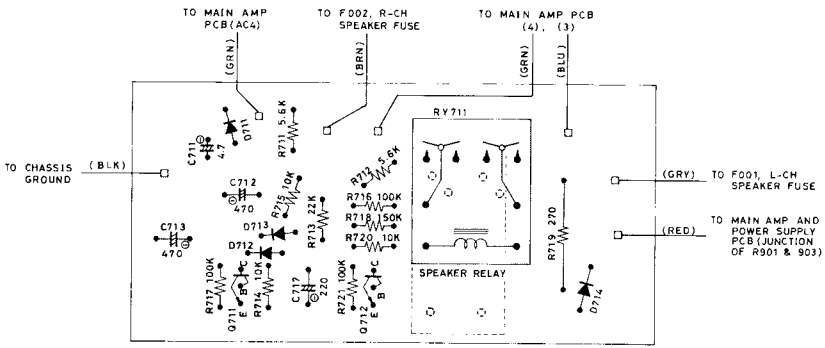
Page 19, LW Counter Circuit (LW-zählerkreis in German, or Circuit du compteur LW in French) should read LW OSC Circuit (LW-OSZ-kreis, or Circuit LW-OSC).

**13. RT-1000L/RX-1000L units for UK only:**

FM coaxial ant. socket is provided. FM coaxial ant. socket Part No. 628111166.

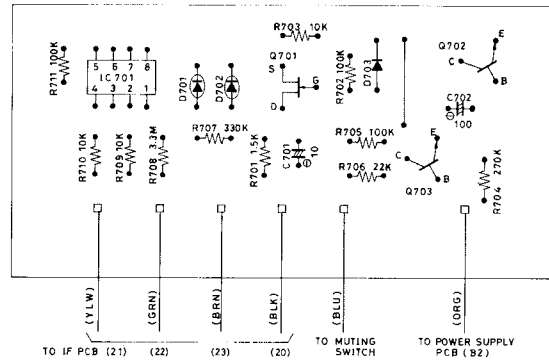
Fig. H

### PROTECTION CIRCUIT BOARD DIAGRAM

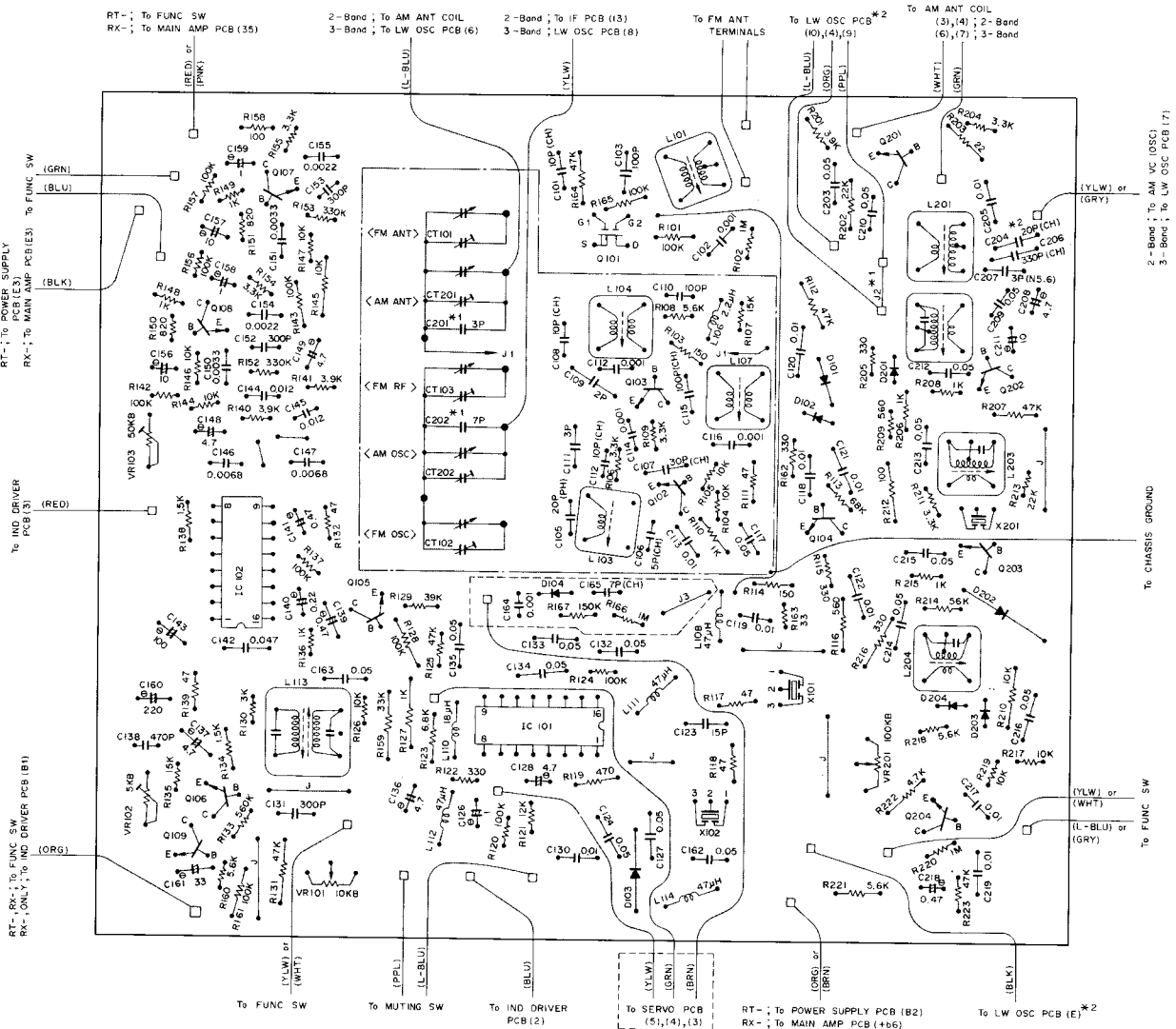


Note: Relay RY711 comes in two types. The broken line indicates the mounting position of Relay AP2402, Part No. 240111248.

### SERVO CIRCUIT BOARD DIAGRAM



### IF CIRCUIT BOARD DIAGRAM



Note: Parts and wiring inside broken line are not applicable to models RX- and RT- (without servo circuit).

\*1: Not used on 3-band models.

\*2: Not used on 2-band models.