



# Technical Manual

# STEREO TUNER RT-300 STEREO INTEGRATED AMPLIFIER RA-300

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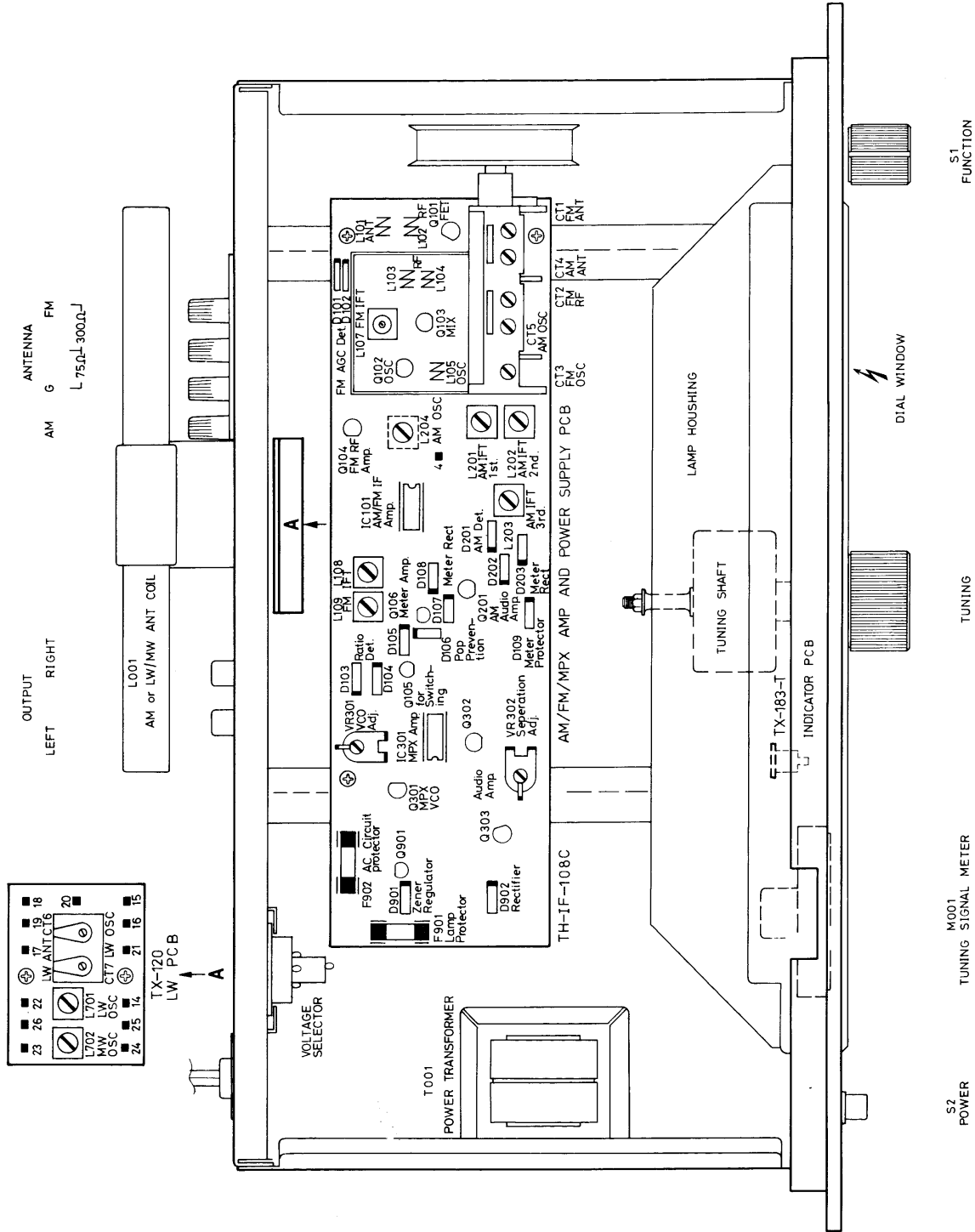
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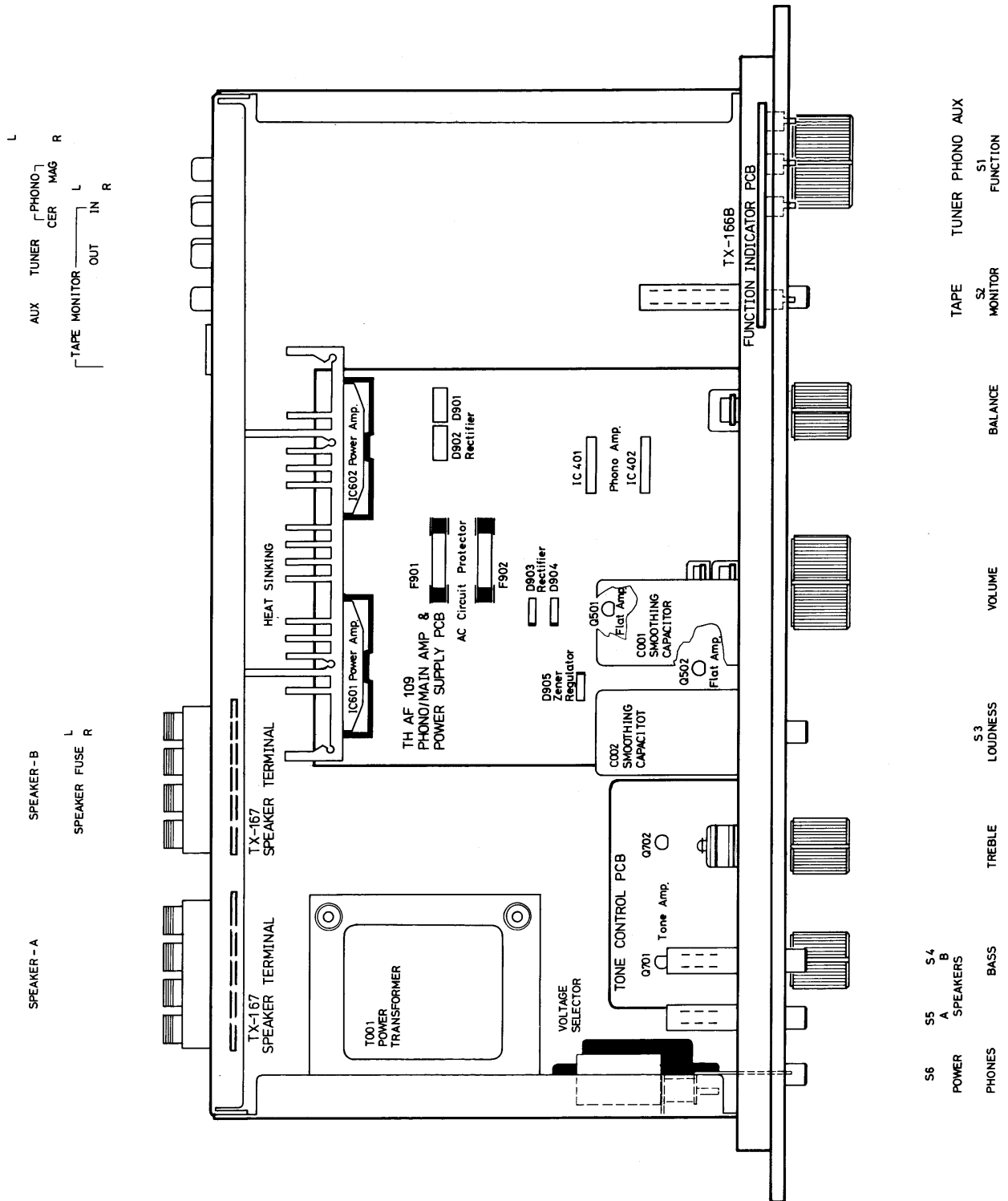
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# Chassis Layout Chassis-Anordnung (RT-300) Installation du châssis



# Chassis Layout Chassis-Anordnung (RA-300) Installation du châssis



# AM IF and RF Alignment Procedure (Part I MW Section)

**Part I:** MW Section (AM/FM, LW/MW/FM)

**Instruments:** AM Signal Generator and AC VTVM.

**Notes:** Set Function Switch to "AM" or "MW" position. Input signal must be kept as low as possible to avoid AVC action.

Step	Generator		Tuning Dial	Adjust	Adjust for
	Coupling	Frequency			
1	Pin No. 4 (on IF board). through a 0.01 mfd. capacitor.	455KHz (400Hz 30% Mod.)	No interfering at low end of scale.	L201, L202 and L203 (on IF board).	Maximum reading on AC VTVM.
2	Test Loop Radiate signal into ferrite loop-stick antenna.	600KHz (400Hz 30% Mod.)	600KHz on dial scale.	L204 (OSC) and L001 (ANT coil)	
3		1400KHz (400Hz 30% Mod.)	1400KHz on dial scale.	CT5 (OCS) and CT4 (ANT) all on Front-end.	
4	Repeat steps 2 and 3 until no further improvement is noticed.				

# MW-ZF und HF-Einstellung (Teil I MW Sektion)

**Teil I:** MW Sektion (MW/UKW, LW/MW/UKW)

**Instrumente:** MW-Messender und Wechselstrom-Roehrenvoltmeter

**Zur Beachtung:** Funktionswaehler auf MW stellen.

Das Eingangssignal muss so klein wie moeglich gehalten werden, um Ansprechen der AVR zu vermeiden.

Schritt	Messender		Abstimmskalens- Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Steckerstift 4 (auf ZF-Leiterplatte ueber 0.01MF-Kondensator	455KHz (400Hz 30% moduliert)	Keine Interferenz am unteren Skalende	L201, L202 und L203 (auf ZF-Leiterplatte)	Maximalanzeige am Roehrenvoltmeter.
2	Mess-Signal mit Schleife in Ferritantenne einspeisen	600KHz (400Hz 30% moduliert)	600KHz auf Skala	L204 (OSZ) und L001 Antennenspule	
3		1400KHz (400Hz 30% moduliert)	1400KHz auf Skala	CT5 (OSC) und CT4 (ANT) (in der Eingangsstufe)	
4	Schritt 2 und 3 wiederholen, bis keine weitere Verbesserung eintritt.				

## Procédure d'Alignement AM IF et HF (Part I Section MW)

**Part I:** Section MW (AM/FM, LW/MW/FM)

**Instruments:** Le Générateur du Signal AM et AC VTVM

**Notes:** Mettre le commutateur de Sélecteur à la position MW ou AM.

Le Signal d'entrée doit être maintenu le plus bas que possible pour éviter l'action AVC.

Point	Générateur		Ecran d'accord	Réglage	Réglage pour
	Couplage	Fréquence			
1	Branche no.4 (Sur JF.plaquette) par l'intermediaire d'un Condensateur de 0.01 mfd.	455KHz (400Hz 30% Mod.)	Non Interférence à l'extrémité de l'échelle	L201, L202 et L203 (Sur la plaquette)	Lecture maximum Sur le voltmètre électronique AC VTVM)
2	Boucle de mesure Envoyée le Signal Sur ferrite à boucle	600KHz (400Hz 30% Mod.)	600KHz sur l'échelle de l'écran	L204 (OSC) et et L001 (ANT Ligne)	
3		1400KHz (400KHz Mod.)	1400KHz sur l'échelle de l'écran	CT5 (OSC) et CT4 (ANT) Tous sont sur V.C.	
4	Répéter les points 2 et 3 jusqu'aucun perfectionnement est marqué.				

## AM IF and RF Alignment Procedure (Part II LW Section)

**Part II:** LW Section (LW/MW/FM only)

**Instruments:** AM Signal Generator and AC VTVM.

**Notes:** Set Function Selector Switch to LW position. Input signal must be kept as low as possible to avoid AVC action.

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	Pin No. 4 (on IF PCB thru. a 0.01 mfd. capacitor	455KHz (400Hz 30% Mod.)	Non interefering at Low end of Dial scale	L201, L202 and L203 (on IF PCB)	Maximum reading on AC VTVM
2	Test Loop Radiates Signal into ferrite loop stick antenna	160KHz (400Hz 30% Mod.)	160KHz on dial scale	L701 (OSC) L001 (ANT) (REAR SIDE)	
3		330KHz (400Hz 30% Mod.)	330KHz on dial scale	CT7 (OSC) CT6 (ANT)	
4	Repeat step 2 and 3 until no further improvement is noticed.				

\*NOTES: After adjustment, check to make sure that, indeed, both LW and MW alignment are in the best state. Otherwise repeat LW and MW alignment procedure until no further improvement is noticed. (LW/MW/FM only)

## MW-ZF und HF-Einstellung (Teil II LW Sektion)

**Teil II:** LW Sektion (LW/MW/FM nur)

**Instrumente:** MW-Messender und Wechselstrom-Roehrentvometer

**Zur Beachtung:** Das Eingangssignal muss so klein wie moeglich gehalten werden, um Ansprechen der AVR zu vermeiden

Schritt	Messender		Abstimmskalen Einstellung	Abgleich	Abgleich auf
	Anschluss	Frequenz			
1	Steckerstift Nr. 4 (auf IF Leiterplatte uber 0.01 mfd. Kondensator	455KHz (400Hz 30% Mod.)	Kein Interferenz an unteren Skaleneende	L201, L202 und L203 (auf ZF Leiterplatte	Maximalanzeige am Röhren voltmeter.
2	Mess-signal mit Schleife in Ferritantenne einspeisen	160KHz (400Hz 30% Mod.)	160KHz auf Skala	L701 (OSZ) L001 (ANT) (hinters seite)	
3		330KHz (400Hz 30% Mod.)	330KHz auf Skala	CT7 (OSC) CT6 (ANT)	
4	Schritt 2 und 3 wiederholen, bis keine weitere verbesserung.				

Zur Beachtung: Nach Einstellung prüfen Sie bitte, ob 2 LW and MW Einstellungen sicherin bester platze sind.

Außerdem wiederholen Sie bitte LW und MW Einstellungen bis keine weitere Verbesserung eintritt.

## Procédure d'Alignement AM IF et HF (Part II Section LW)

**Part II:** Section LW (Seuls LW/MW/FM)

**Instruments:** Le Générateur de signal AM et AC VTVM.

**Notes:** Mettre le Commutateur de Sélecteur à la position LW.

Le signal d'entrée doit être garde au plus das que possible pour éviter l'action AVC.

Point	Générateur		Ecran d'accord	Réglage	Réglage pour
	Coupage	Frequence			
1	Branche No. 4 (sur la plaquette IF) par l'inter- mediaire d'un condensateur de 0.01 mfd.	455KHz (400Hz 30% Mod.)	Non interférence à l'extrémité inferieure de l'échelle.	L201, L202 et L203 (sur la plaquette IF)	Lecture maximum sur le voltmètre électronique (AC VTVM)
2	Boucle de mesure Envoyée le signal sur l'antenne ferrite à boucle.	160KHz (400Hz 30% Mod.)	160KHz sur l'échelle de l'écran	L701 (OSC) et L001 (REAR SIDE)	
3		330KHz (400Hz 30% Mod.)	330KHz sur l'échelle de l'écran	CT7 (OSC) CT6 (ANT)	
4	Répéter les points 2 et 3 jusqu'aucun perfectionnement est marqué.				

**NOTES:** Apres le réglage, controler encore une fois poursassurer que les alignements de LW et de MW sont vraiment en bon etat.

Autrement, répéter la procédure d'alignement LW et MW jusqu'aucun perfectionnement est marqué.  
(seuls LW/MW/FM)

# FM IF and RF Alignment Procedure

**Instruments:** FM Signal Generator, H.D. Analyzer and Oscilloscope.

- Set Function Selector to FM position.
- Connect FM Signal Generator to FM antenna terminal.
- Connect Oscilloscope and H.D. Analyzer to "OUTPUT" jack.

## A. FM IF Alignment

1. Set Signal Generator frequency at 98MHz (400Hz 100% Mod.) and adjust the Tuning to Max. output. (The antenna terminal voltage should be 1mV, 60dB).
2. Tuning Signal Meter to obtain Max.
3. Adjust IF coil L108 and L109 set distortion to minimum lower then 0.3%

## B. FM RF Alignment

1. Set Signal Generator frequency at 106MHz (400Hz 100% Mod.) and also tune receiver at 106MHz on the dial scale. Then adjust FM OSC trimmer CT3 (on Front-end) to obtain maximum deflection on

Scope.

2. Set the receiver at 90MHz on the dial scale, and change the frequency of Signal Generator so that the output of the OUTPUT becomes maximum. Then make sure Signal Generator frequency stays within  $90\text{MHz} \pm 150\text{KHz}$ .
3. Sensitivity on this alignment must be attempted at 106MHz by adjusting CT1 and CT2 to obtain maximum deflection on Scope and fine tune to balance sensitivity at 90 and 106MHz.
4. Adjust FM OSC coil L105 and FM RF coil L101, L102, L103 and L104 as described below only when tracking and sensitivity adjustments are not
  - a. Fine tune Signal Generator and receiver to 90MHz, and adjust L107, L101 L102, L103 and L104.
  - b. Fine tune Signal Generator and receiver to 106MHz, and adjust CT1, CT2 and CT3 so that maximum output is obtained.
  - c. Repeat step a and b to obtain enough effect.

# UKW-ZF und HF-Einstellung

**Instrumente:** UKW-Messender, Klirrfaktormesser und Oszillograph

- Funktionswaehler auf FM stellen
- den UKW-Messender an die UKW-Antennenklemmen anschliessen.
- Oszillograph und Klirrfaktormesser an die Tonbandausgangsbuchse anschliessen.

## A. UKW-ZF-Abgleich

1. Die Frequenz des Messenders auf 98 MHz (400 Hz 100% mod.) stellen und Empfänger auf max. Ausgang abstimmen. (Die Antennenklemmenspannung hat 1 mV 60 dB zu sein.)
2. Abstimminstrument auf Maximum einstellen.
3. ZF-Spulen L 108, L 109 abgleichen, bis Klirrfaktor niedriger als 0,3% ist.

## B. UKW-HF-Abgleich

1. Frequenz des Messenders auf 106 MHz (400 HZ 100% moduliert) stellen und damit den Empfänger auf 106 MHz auf der Abstimmkala abgleichen. Dann UKW OSZ Trimmer CT3 (in der Eingangsstufe) abgleichen um maximal Ablenkung auf dem Skope zu erhalten.

2. Abstimmkala auf 90 MHz stellen. Frequenz des Messenders ändern, bis am OUTPUT Maximum erreicht wird. An diesem Punkt muss die eingestellte Frequenz am Messender  $90\text{ MHz} \pm 150\text{ KHz}$  betragen.
3. Empfindlichkeit bei 106 MHz auf max. Ablenkung auf dem Skope mit CT1 und CT2 einstellen. Feinabgleich, bis Empfindlichkeit bei 90 und 106 MHz gleich ist.
4. UKW-OSZ-Spule L 105 und UKW-HF-Spulen L 101, 102, 103 und L 104 nur wie unten beschrieben abgleichen, wenn Gleichlauf und Empfindlichkeit mit CT1, CT2 und CT3 nicht zu erreichen sind.
  - a. Messender und Empfänger auf 90 MHz einstellen und L 107, L 101, L 102, L 103 und L 104 abgleichen.
  - b. Messender auf 106 MHz einstellen, mit CT1, CT2 und CT3 auf Maximum Ausgang abgleichen.
  - c. Schritte a und b wiederholen, bis genügend Wirkung erzielt ist.

# Procédure d'Alignement FM IF et HF

**Instruments:** FM Signal Générateur, H.D. Analyzeur et Oscilloscope.

- Mettre le Selecteur de Fonction à la position "FM" STEREO.
- Lier le Générateur de Signal au bout d'antenne FM.
- Lier l'Oscilloscope et H.D. Analyzeur à la prise de "OUTPUT"

## A. Alignement de FM IF

1. Mettre la fréquence du Générateur à 98MHz (400Hz 100% Mod.) et ajuster le ton au Rendement Max. (le voltage terminal d'antenne doit être 1mV, 60dB).
2. Le metre de Signal du Ton pour Obtenir Max.

3. Adjuster le rouleau IF L108, L109 jeu de distorsion au Minimum plus bas que 0.3%.

## B. Alignement de FM HF

1. Mettre la fréquence du Générateur de Signal à 106MHz (400Hz 100% Mod.) et aussi Ton Releveur à 106KHz sur l'échelle d'écran. Puis régler FM OSC l'appareil CT3 (au bout de front) à Obtenir déflction sur Skope.
2. Mettre le Releveur à 90MHz sur l'échelle d'écran et changer la fréquence et du Générateur de Signal c'est pourquoi le Rendement de "OUTPUT" devient maximum.

3. La sensibilité sur cet alignement doit être tentée à 106MHz en réglant CT1 et CT2 pour obtenir déviation maximum sur Scope et à affiner l'accordeur à la sensibilité de balance à 90MHz et 106MHz.
4. Régler FM OSC bobine 105 et FM RF bobine L101, L102, L103 et L104 comme décrit ci-dessous seulement lorsque les réglages de course de sensibilité ne sont pas atteints en réglant CT1, CT2, et CT3.

- a. Raffiner l'accord du Générateur de Signal et l'accordeur à 90MHz et L107, L101, L102, L103 et L104.
- b. Raffiner l'accord du Générateur et l'accordeur à 106MHz, et régler CT1, CT2, et CT3 pour obtenir le rendement maximum.
- c. Répéter les points a et b pour obtenir l'effet suffisant.

## FM MPX Alignment Procedure

**Instruments:** FM Stereo Generator, AC VTVM and Oscilloscope.

**Notes:** The FM IF amplifier alignment must be completed before attempting this MPX alignment. Poor FM IF alignment will result in poor multiplex adjustment.

1. Set Function Switch to "FM STEREO" position.
2. Set VR301 at middle of range in which Stereo indicator light up.
3. Connect FM Stereo Generator to FM antenna terminals and AC VTVM and Oscilloscope to "OUTPUT" jack.
4. Set the frequency at 98MHz (if a disturbing signal appears, select different frequency). Set FM Stereo

Generator as follows:

Pilot 10%

Modulation frequency at 1KHz (L-ch, Signal) 90%.

5. Adjust VR301 so that the output signal on Oscilloscope and AC VTVM is maximum.
6. Then change the connections of the Scope and AC VTVM from L-ch to R-ch. At the same time, check that the leakage signal is large, adjust the VR401 precisely so as to obtain equal levels between leakage signal.
7. Make sure the stereo can be operated normally even when the modulation degree of pilot signal of FM Stereo Generator is reduced from 10% to 6%.

## UKW-MPX-Einstellung

**Instrumente:** UKW-Stereo-Messenger, Roehrevoltmeter und Oszillograph.

**Anmerkung:** Der UKW-ZF Abgleich muss vor Beginn der MPX-Einstellung abgeschlossen sein. Ein schlechter UKW-ZF-Abgleich fuehrt auch zu einer schlechten Multiplex-Einstellung.

1. Funktions waehler S1 auf "FM-Stereo" stellen.
2. VR 301 in die Mitte des Bereiches stellen, in dem die Stereoanzeige aufleuchtet.
3. UKW-Stereo-Generator an UKW-Antennenklemmen, Roehrevoltmeter und Oszillograph an Tonbandausgangsbuchse anschliessen (Linker Kanal).
4. Die Frequenz auf 98 MHz (falls Stoerungssignal

auftritt, andere Frequenz waehlen.) UKW-Stereo-Generator wie folgt ein stellen:

Pilotton . . . 10%

Modulation Frequenz 1KHZ (L-K, Signal) . . . 90%

5. VR301 abgleichen, so dass Ausgangssignal auf Oszillograph und Roehrevoltmeter maximal ist.
6. Oszillograph und Roehrevoltmeter vom linken auf den rechten Kanal umklemmen. Bei dieser Gelegenheit Kanaltrennung pruefen, gegebenenfalls mit VR 401 nachjustieren.
7. Einwandfreier Stereobetrieb muss auch noch gewaehrleistet sein, wenn der Modulationsgrad des Stereopilottons von 10% auf 6% reduziert wird.

## Procédure d'Alignement FM MPX

**Instruments:** FM Stéreo Générateur AC VTVM et Oscilloscope.

**Notes:** L'Alignement FM IF doit être complété avant de tenter cet Alignement MPX. Mauvais FM IF alignement cause le mauvais réglage multiplex.

1. Mettre le commutateur de fonction à la position de "FM Stéreo".
2. Mettre VR301 au demi-rang, dans lequel, l'indicateur de Stéreo s'éclaircit.
3. Brancher FM STEREO Générateur aux bornes d'antenne FM et AC VTVM et Oscilloscope à la puissance de Bande "OUTPUT" (L-ch).
4. Mettre la fréquence à 98KHz (si le signal perturbateur paraît choisir l'autre fréquence). Mettre FM Stéreo Générateur comme ci-joints:

Contrôle (pilote).

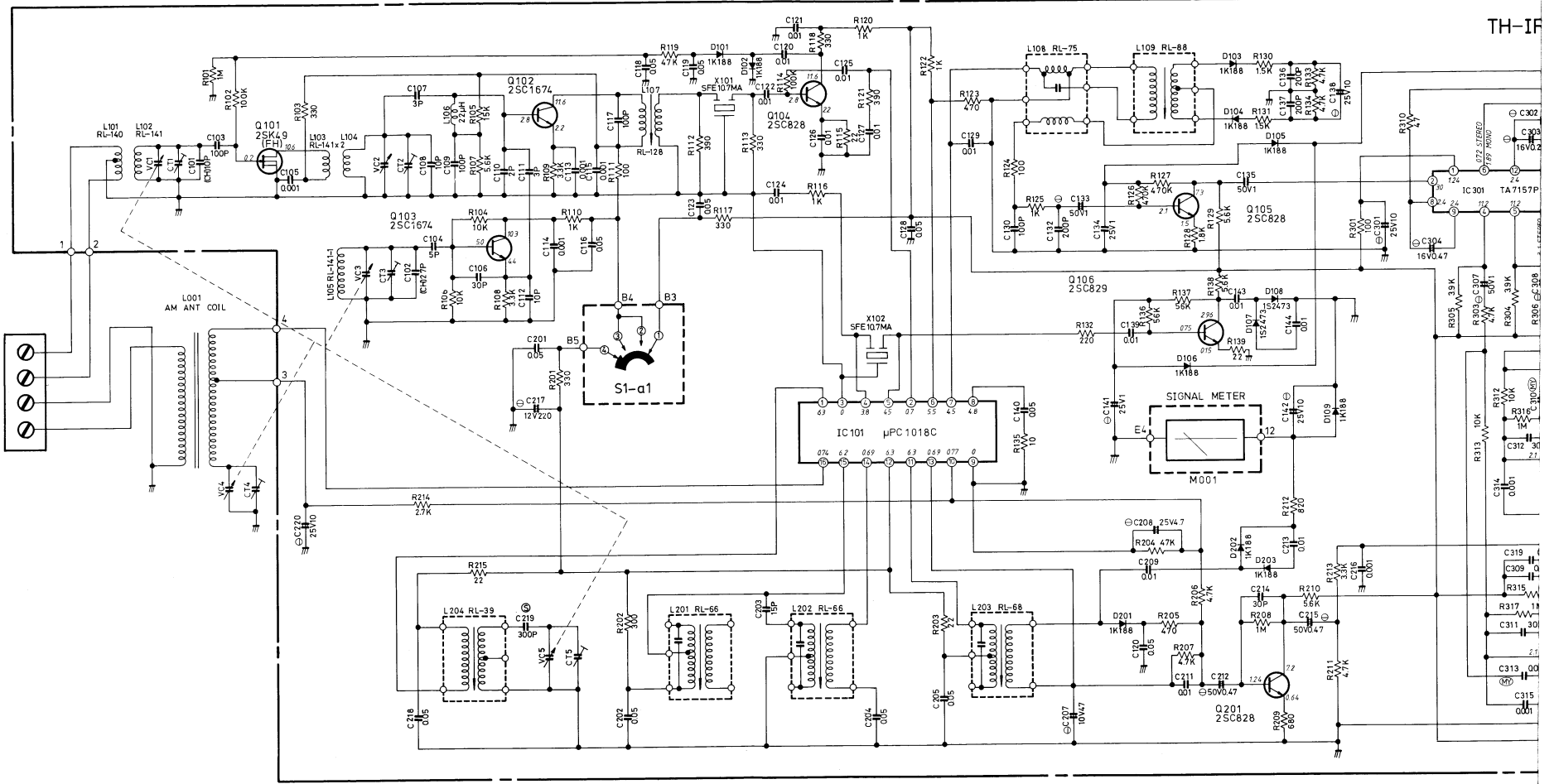
La position de la modulation 1KHz (L-ch, Signal 90%)

5. Régler VR301 pour que le signal de fuite sur l'oscilloscope et AC VTVM soit le minimum.
6. Puis changer le branchement de l'Oscilloscope et AC VTVM de L-ch à R-ch est grande, régler précisément VR401 pour obtenir les niveaux égaux entre les signaux de fuite.
7. S'assurer que le Stéreo peut être opérée normalement même quand le degré de la modulation du signal de contrôle de FM Stéreo Générateur soit réduit de 10% à 6%.

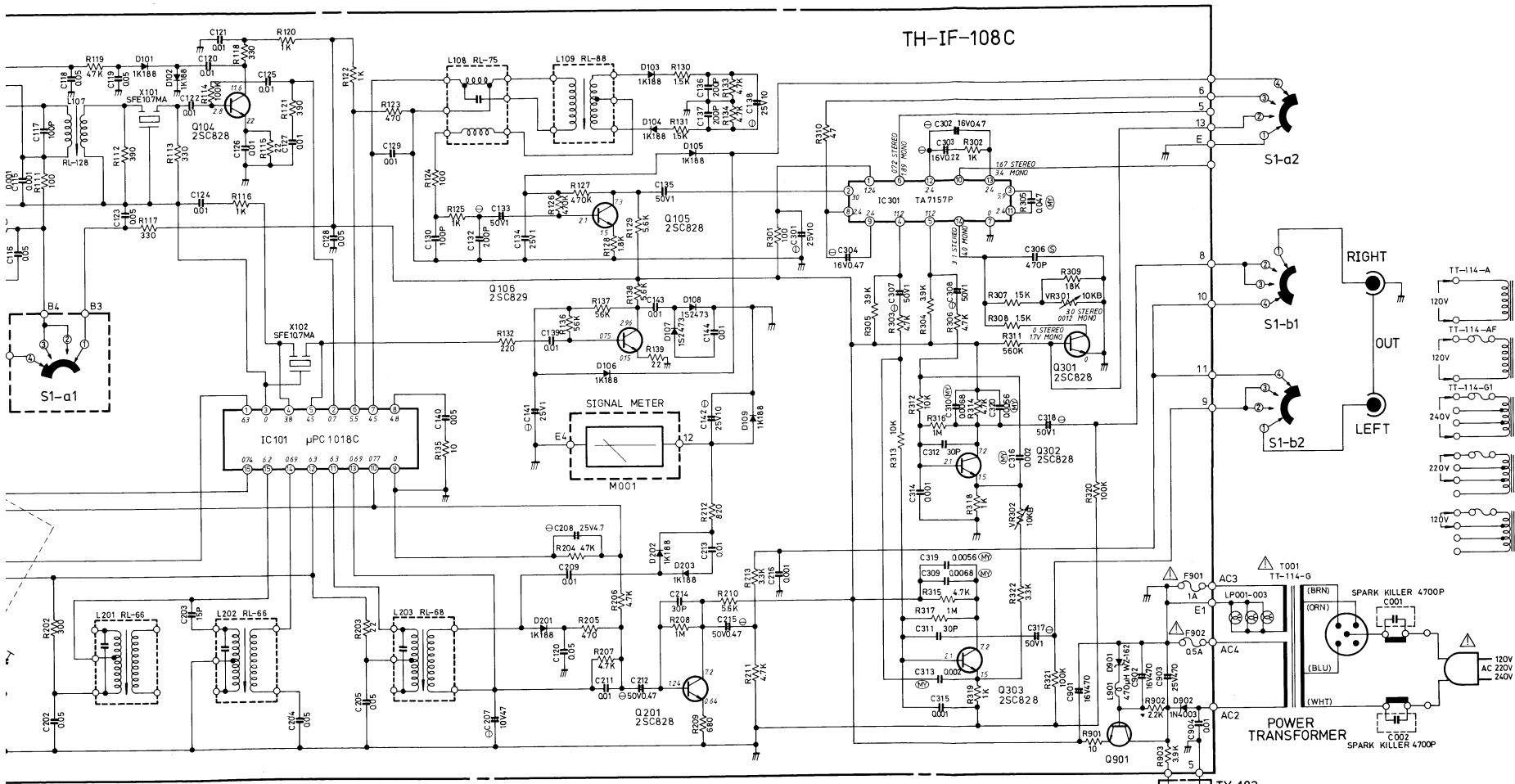


Schematic Diagram (AM/FM)  
 Schaltungsschema (MW/UKW) (RT-300)  
 Diagramme schématique (AM/FM)

TH-IF



- |   |  |   |  |   |  |
|---|--|---|--|---|--|
| <p><b>FOR CAS UL</b></p> <p>1 CHANGED POWER TRANSFORMER T001 TO TT-114-A TYPE (FOR CAS)</p> <p>2 CHANGED POWER TRANSFORMER T001 TO TT-114-AF TYPE (FOR UL)</p> <p>3 CHANGED SPARK KILLER C001 C002 TO ALUM 4700P TYPE</p> | <p><b>FOR BEAB CEE SEV</b></p> <p>1 CHANGED POWER TRANSFORMER T001 TO TT-114G-1 TYPE</p> <p>2 CHANGED SPARK KILLER C001 C002 TO 4700PF Y TYPE</p> <p>3 ALL FUSE USED MINATURE TYPE WITH "S" "D" MARK</p> | <p><b>CAPACITORS</b></p> <p>⊖ --- MYLAR FILM CAPACITORS</p> <p>⊙ --- POLYSTYRENE FILM CAPACITORS</p> <p>⊕ --- ELECTROLYTIC CAPACITORS</p> <p>NON MARK --- CERAMIC CAPACITORS</p> <p>UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD</p> | <p><b>RESISTORS</b></p> <p>5% --- TOLERANCE UNLESS OTHERWISE NOTED</p> <p>K --- KILO OHM</p> <p>M --- MEGA OHM</p> <p>▽ --- COMPOSITION RESISTOR</p> <p>RSU METAL OXIDE FILM RESISTOR</p> <p>NON MARK LOW TYPE CARBON RESISTOR</p> | <p><b>FUNCTION</b></p> <p>AM FM FM AUTO</p> | <p><b>BOTTOM VIEW</b></p> <p>25K49</p> |
|---|--|---|--|---|--|



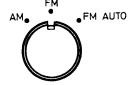
CAPACITORS

- PE (M) --- NYLON FILM CAPACITORS
- (P) --- POLYSTYRENE FILM CAPACITORS
- (E) --- ELECTROLYTIC CAPACITORS
- NON MARK --- CERAMIC CAPACITORS UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD

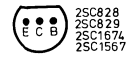
RESISTORS

- 5% --- TOLERANCE UNLESS OTHERWISE NOTED
- K --- KILO OHM
- M --- MEGA OHM
- COMPOSITION RESISTOR
- RSU --- METAL OXIDE FILM RESISTOR
- NON MARK --- LOW TYPE CARBON RESISTOR

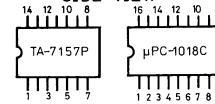
FUNCTION



BOTTOM VIEW

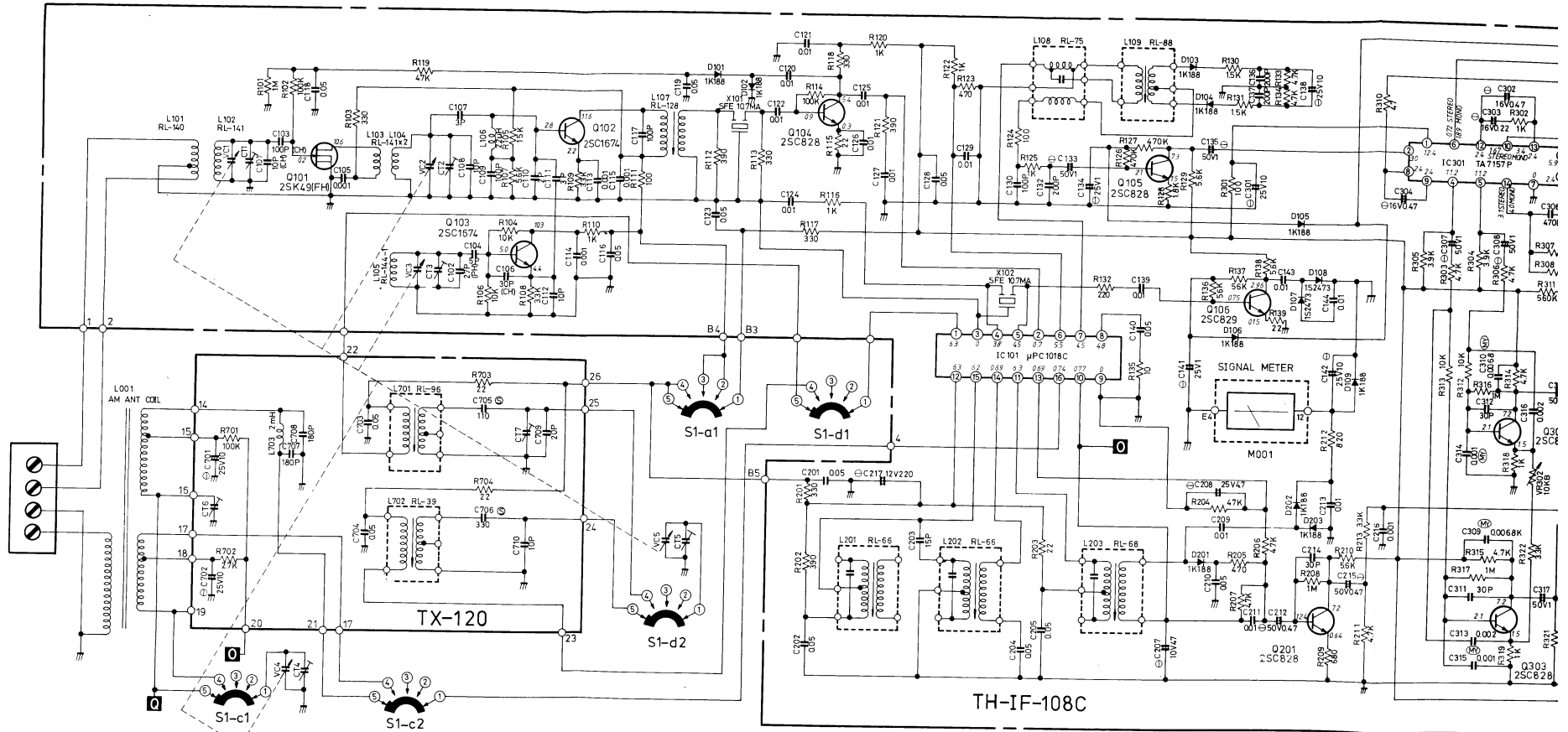


SIDE VIEW



ITEM	SCHEMATIC LOCATION(LAST)
FM AMP	R139 C144
MW LW IF AMP	R215 C220
FM MPX & AUDIO AMP	R322 C320
POWER SUPPLY	R903 C904
CHASSIS	---
	C003

Schematic Diagram (LW/MW/FM)  
 Schaltungsschema (LW/MW/UKW) (RT-300)  
 Diagramme schématique (LW/MW/FM)

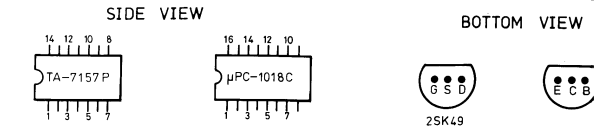


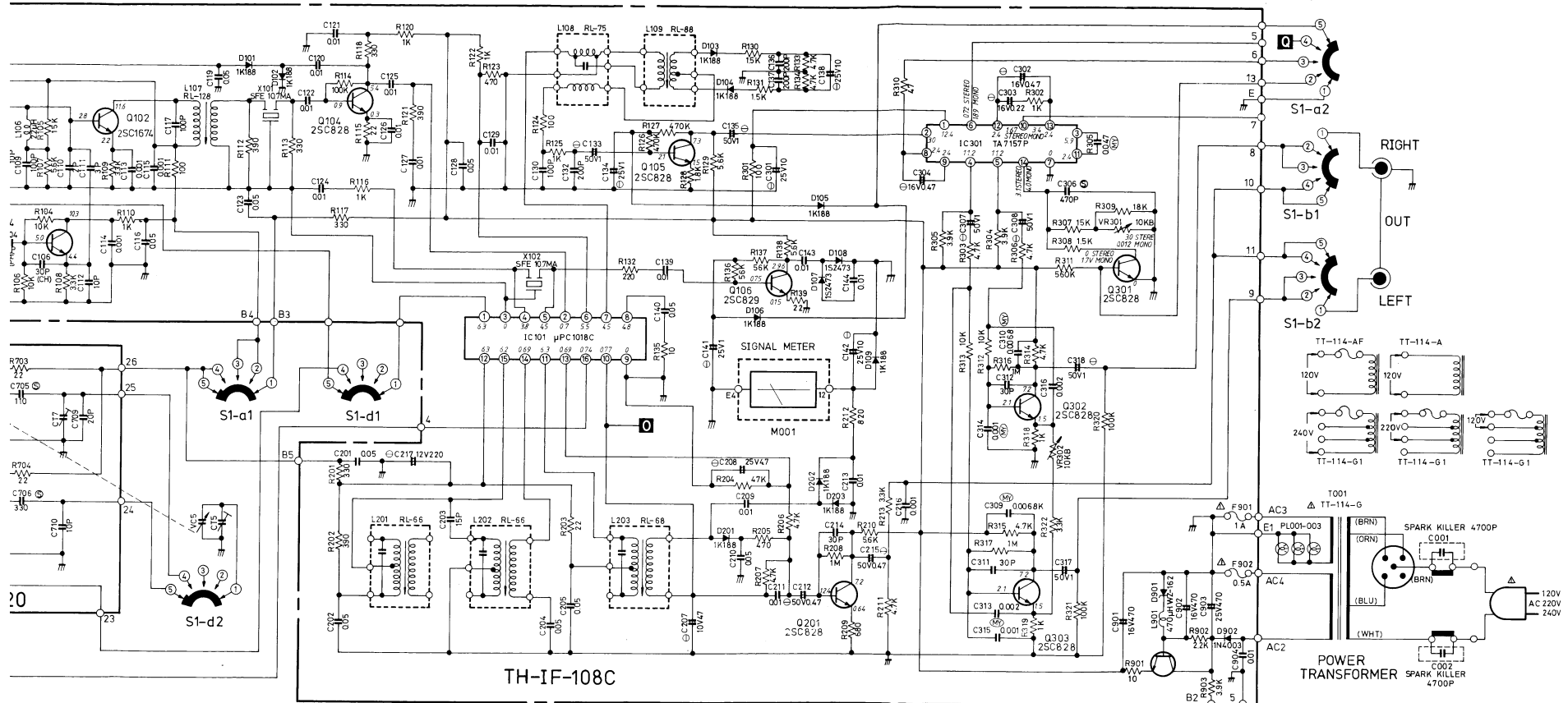
FOR CSA UL  
 1 CHANGED POWER TRANSFORMER T001 TO TT-114-A TYPE (FOR CAS)  
 2 CHANGED POWER TRANSFORMER T001 TO TT-114-AF TYPE (FOR UL)  
 3 CHANGED SPARK KILLER C001 C002 TO AUM 4700PF TYPE

FOR BEAB CEE SEV  
 1 CHANGED POWER TRANSFORMER T001 TO TT-114G-1 TYPE  
 2 CHANGED SPARK KILLER C001 C002 TO 4700PF Y TYPE  
 3 ALL FUSE USED MINATURE TYPE WITH "S""D" MARK

CAPACITOR  
 (M) ---MYLAR CAPACITORS  
 (T) ---TANTALUM CAPACITORS  
 (P) ---POLYSTYRENE FILM CAPACITORS  
 (H) ---ELECTROLYTIC CAPACITORS  
 NON MARK ---CERAMIC CAPACITORS  
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUE ARE EXPRESSED IN MFD

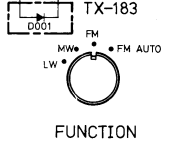
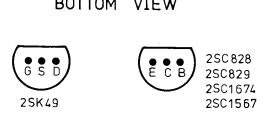
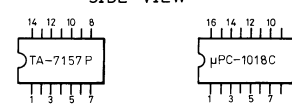
RESISTOR  
 5% TOLERANCE UNLESS OTHERWISE NOTED  
 K ---KILO OHM  
 M ---MEGA OHM  
 \* ---COMPOSITION RESISTOR  
 RSU METAL OXIDE FILM RESISTORS  
 NON MARK-LOW TYPE CARBON RESISTORS





**CAPACITOR**  
 (M)---MYLAR CAPACITORS  
 (T)---TANTALUM CAPACITORS  
 (S)---POLYSTYRENE FILM CAPACITORS  
 (E)---ELECTROLYTIC CAPACITORS  
 (N)---NON MARK---CERAMIC CAPACITORS  
 UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUE ARE EXPRESSED IN MFD

**RESISTOR**  
 5% TOLERANCE UNLESS OTHERWISE NOTED  
 K---KILO OHM  
 M---MEGA OHM  
 (V)---COMPOSITION RESISTOR  
 (RSU)---METAL OXIDE FILM RESISTORS  
 (N)---NON MARK---LOW TYPE CARBON RESISTORS

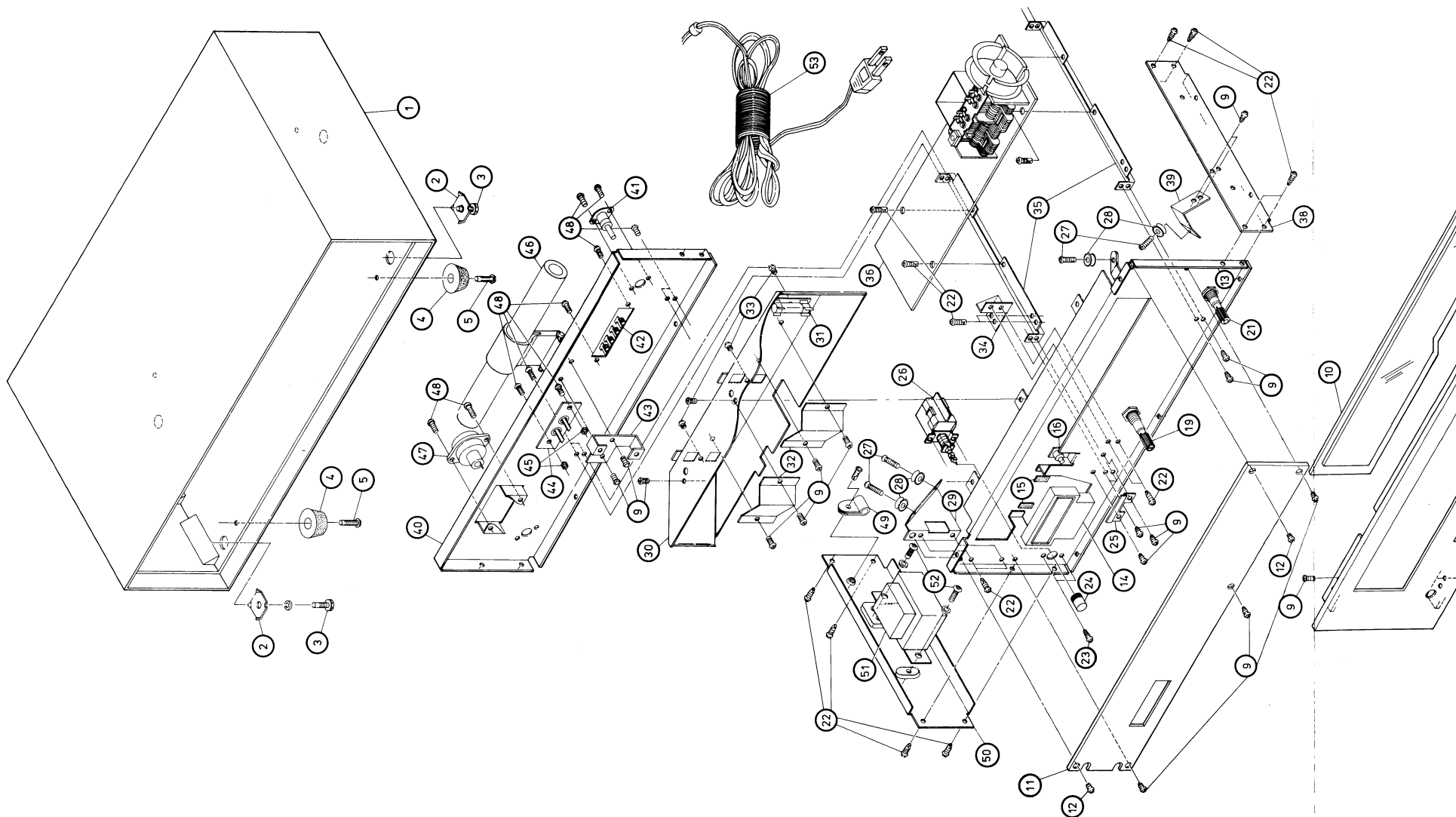


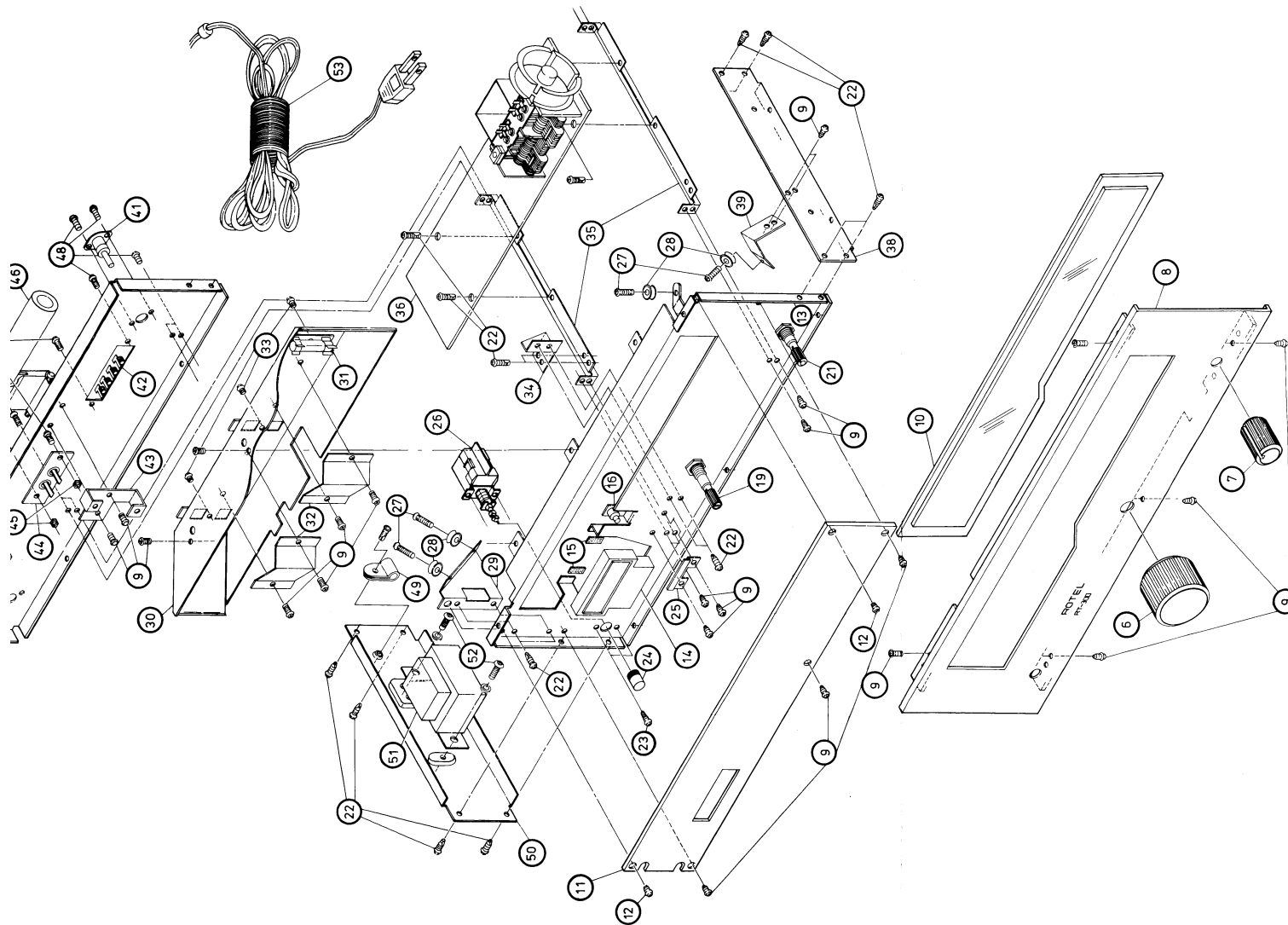
ITEM	SCHEMATIC LOCATION (LAST)
FM AMP	R139 C144
MW IF AMP	R213 C217
FM MPX & AUDIO AMP	R322 C318
LW OSC	R704 C708
POWER SUPPLY	R903 C904
CHASSIS	C002





Disassembly Diagram  
Illustration des Auseinanderbaus (RT-300)  
Schéma de démontage

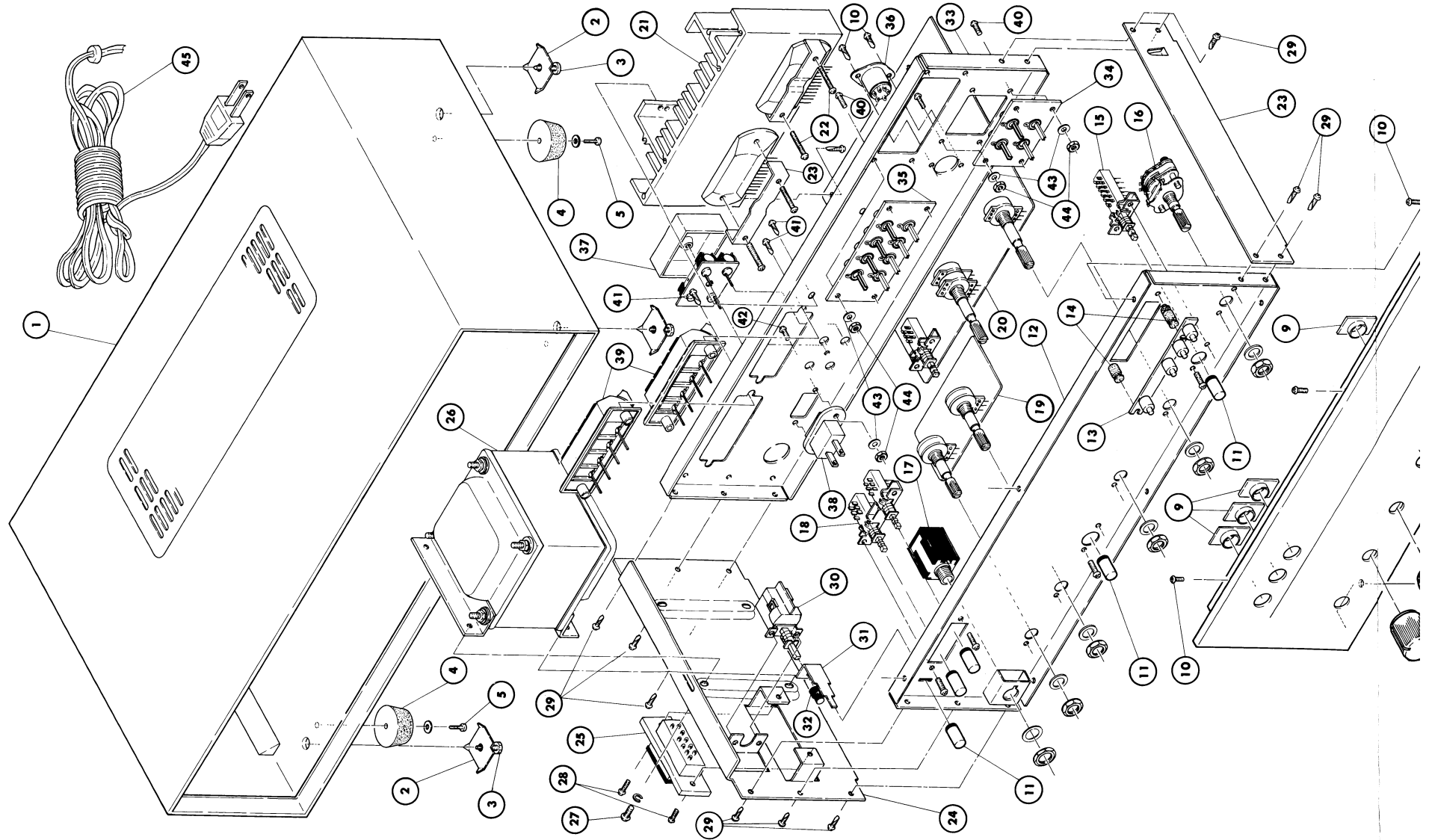


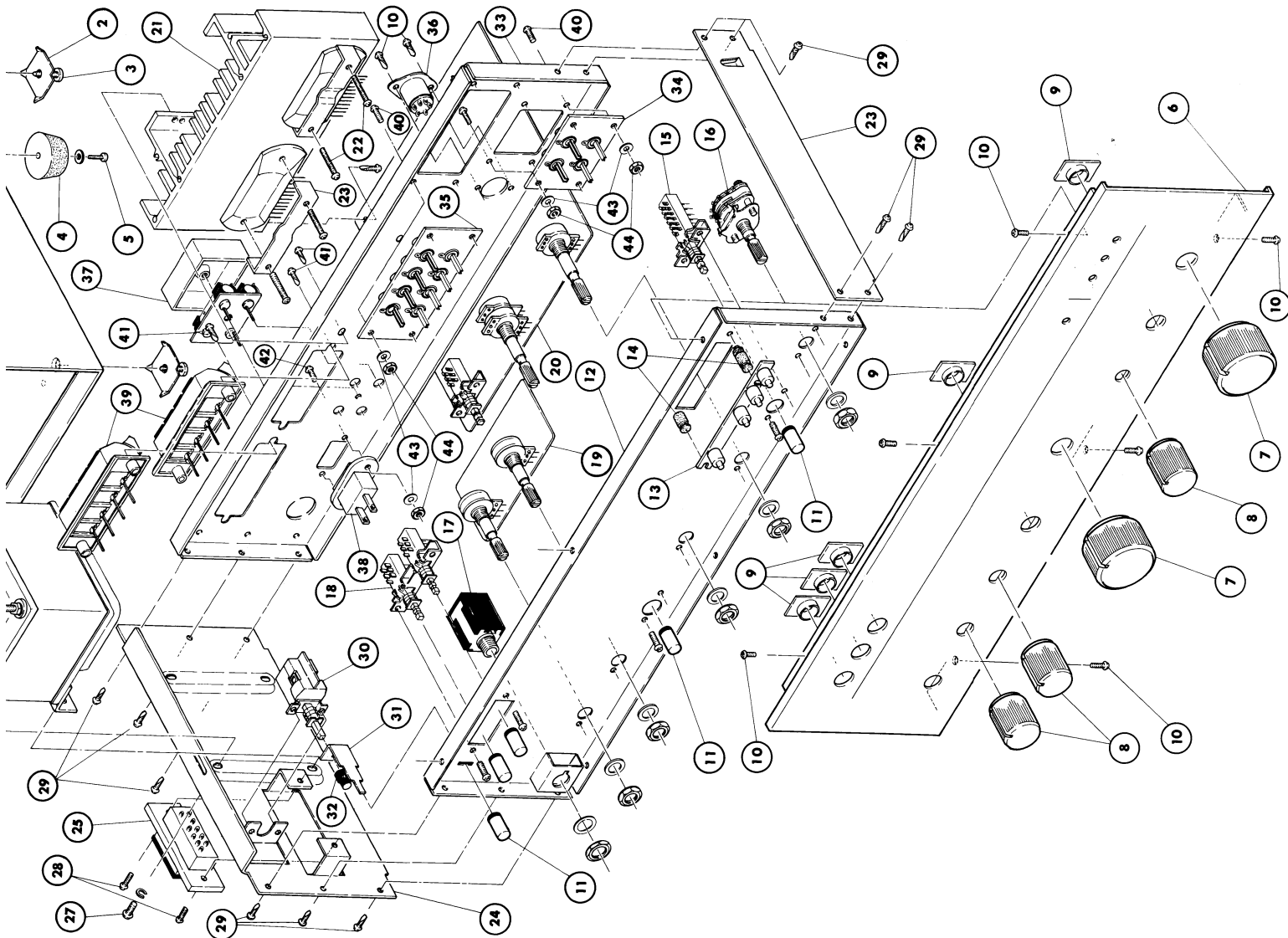


Key No.	Parts No.	Description
1.	131011347	Cabinet
	131011348	Cabinet (for Europe)
2.	761911139	Square Washer
3.	703214015	Screw, (+) M4x15
4.	673402020	Rubber Foot
5.	730213010	Screw, (+) M3x10
6.	116310278	Knob, Tuning
7.	116310277	Knob, Function
8.	111911451	Front Panel Ass'y (AM/FM)
	111911452	Front Panel Ass'y (LW/MW/FM)
9.	703213006	Screw, (+) M3x6
10.	114902271	Dial Window
11.	112011365	Dial Board (AM/FM)
	112011366	Dial Board (LW/MW/FM)
12.	770911227	Screw, Dial Board
13.	122011394	Front Panel Ass'y
14.	231310082	Meter, Tuning and Signal
15.	990201257	Cushion, Meter
16.	141810685	Indicator PCB Ass'y
17.	_____	Not Used
18.	_____	Not Used
19.	654211919	Tuning Shaft
20.	_____	Not Used
21.	601011318	Switch, Function (AM/FM)
	601011329	Switch, Function (LW/MW/FM)
22.	723213008	Screw, (+) M3x8, Tapping
23.	703213008	Screw, (+) M3x8
24.	116210051	Knob, Push Switch
25.	120012880	Support, Dial Board
26.	614010140	Switch, Power Supply
	614010141	Switch, Power Supply (for UL, CSA)
27.	761911130	Screw, Pulley
28.	651110019	Dial Pulley
29.	120012884	Support, Pulley (A)
30.	128011303	Lamp Houshing
31.	359101116	Pilot Lamp, 6.3V 250mA Blue
32.	991001157	Reflection Board
33.	303213004	Screw, (+) M3x4 (Pan Head)
34.	120012883	Support, Front Chassis
35.	120012680	Support, PCB
36.	141010178	AM/FM/MPX Amp. PCB Ass'y (2 Band 75µS)
	141010179	(2Band 50µS Long Size Fuse)
	141010180	(2 Band 50µS Long Size Fuse)
	141010181	(3 Band Mini Size Fuse)
37.	_____	Not Used
38.	120012686	Side Chassis (R)
39.	120012683	Support, Pulley (B)
40.	123011496	Rear Panel Ass'y
	123011497	Rear Panel Ass'y (for CSA)
41.	628111166	Coaxial Connection
42.	649201115	Terminal, Screw, 4P
43.	_____	Support, PCB (LW)
44.	624101102	Jack, RCA, 2P
45.	770402201	Nut, M3
46.	222391121	AM ANT Coil (AM/FM)
	222391136	LW/MW ANT Coil (LW/MW/FM)
47.	648211170	Voltage Selector
48.	705223006	Screw, (+) M3x6
49.	770031336	Spacer, Wire
50.	120012679	Side Chassis (L)
51.	201001435	Transformer, Power Supply (120V only)
	207001478	Transformer, Power Supply (for BEAB)
	207001435	Transformer, Power Supply (120/220/240V)
	714214008	Screw, (+) M4x8
52.	_____	Support, PCB (LW)
53.	796301115	Line Cord (for UL, CSA)
	796301130	Line Cord (for BEAB)
	796301145	Line Cord (for Europe)



Disassembly Diagram  
Illustration des Auseinanderbaus (RA-300)  
Schéma de démontage

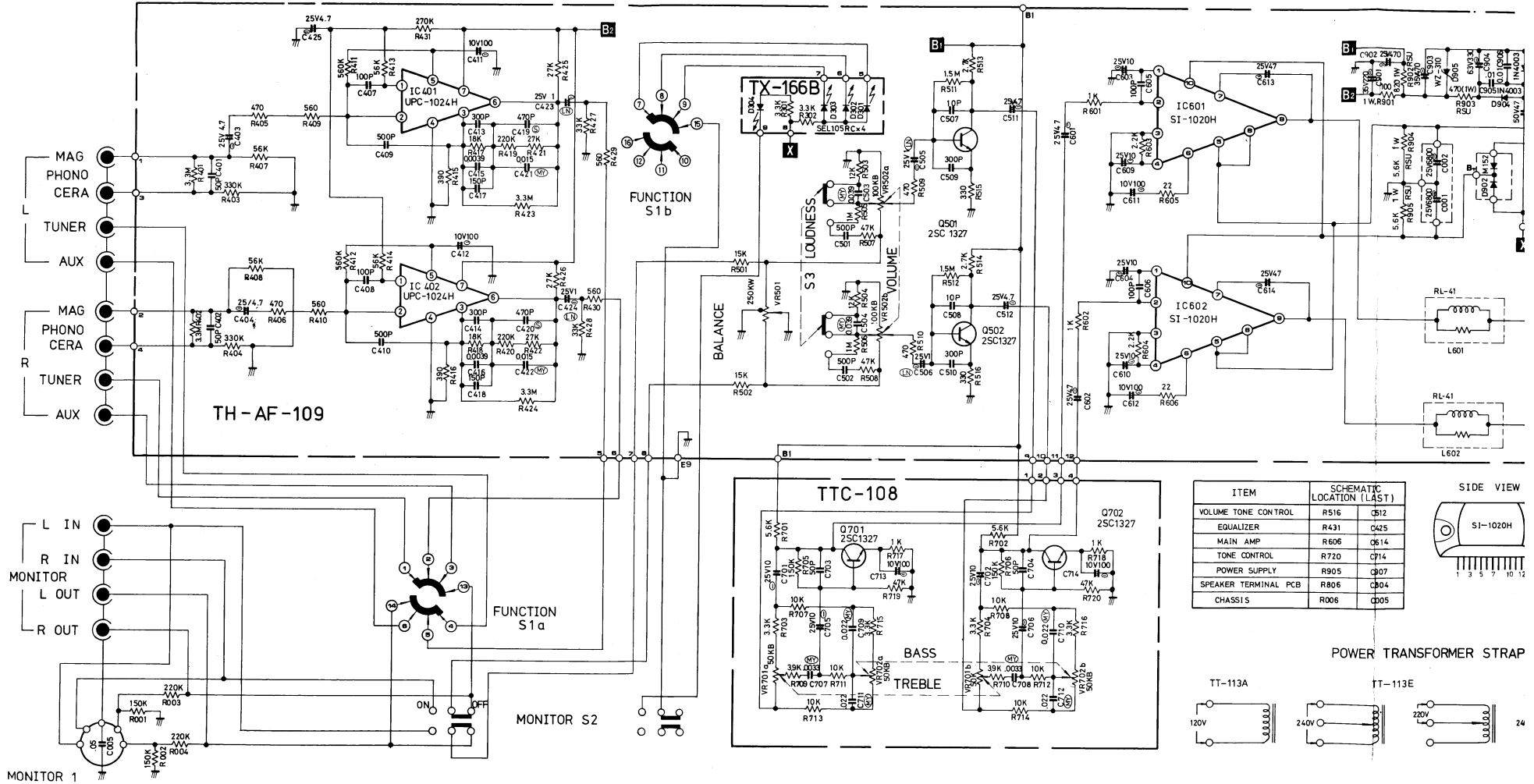




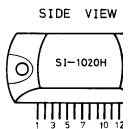
Key No.	Parts No.	Description
1.	131011349	Cabinet
	131011350	Cabinet (for Europe)
2.	761911139	Square Washer
3.	703214015	Screw, (+) M4x15
4.	673402020	Rubber Foot
5.	703213010	Screw, (+) M3x10
6.	111911453	Front Panel Ass'y
7.	116310276	Knob, Function and Volume Control
8.	116310278	Knob, Balance Control etc.
9.	672200855	Bush, Push Button
10.	703213006	Screw, (+) M3x6
11.	116210048	Push Button
12.	122011395	Front Chassis Ass'y
13.	141810938	Indicator PCB Ass'y
14.	672200874	Rubber Support, Indicator PCB
15.	614010145	Switch, Push, Monitor
16.	601011329	Switch, Function
17.	626110023	Jack, Headphone
18.	614020402	Switch, Push 2-Key, Speaker-A and B
19.	141710324	Tone Control PCB Ass'y
20.	141010174	Main Amp. and Power Supply PCB Ass'y (Long Size Fuse)
	141010176	Main Amp. and Power PCB Ass'y (Mini Size Fuse)
21.	127012196	Heat Sinking
22.	120012878	Support, IC
23.	703213015	Screw, (+) M3x15 (Pan Head)
24.	120012885	Side Chassis (L)
25.	648211121	Voltage Selector
26.	201001486	Transformer, Power Supply (120V only)
	201001487	Transformer, Power Supply (for UL)
	206001486	Transformer, Power Supply (220V/240V)
	206001487	Transformer, Power Supply (for BEAB)
	205001486	Transformer, Power Supply (Multi-Voltage)
27.	703214008	Screw, (+) M4x8
28.	703213008	Screw, (+) M3x8 (Pan Head)
29.	723213008	Screw, (+) M3x8, Tapping
30.	614010140	Switch, Power Supply
	614010141	Switch, Power Supply (for UL, CSA)
31.	120012886	Lever, Power Switch
32.	116210048	Bush, Power Switch
33.	123011498	Rear Chassis Ass'y
	123011499	Rear Chassis Ass'y (for CSA)
34.	624110204	Jack, RCA, 4P
35.	624110208	Jack, RCA, 8P
36.	625001112	Jack, DIN, 5P
37.	648211162	Holder, 2P, Speaker Fuse
38.	648211116	Socket, AC Outlet
39.	642400111	Terminal, Push 4P, Speaker
40.	705223008	Screw, (+) M3x8 BLK
41.	723213008	Screw, (+) M3x8 Tapping
42.	770911166	Screw, Flat
43.	770500014	Washer, 3.2 x 6.5 x 0.45
44.	770402201	Nut, M3
45.	796301115	Line Cord
	796301145	Line Cord (for Europe)
	796301125	Line Cord (for Austria)
	796301130	Line Cord (for BEAB)

# Schematic Diagram Schaltungsschema (RA-300) Diagramme schématique

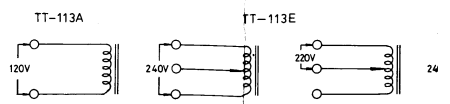
NOTE: PARTS AND CIRCUIT SUBJECT TO CHANGES FOR IMPROVEMENTS WITHOUT PRIOR NOTICE.



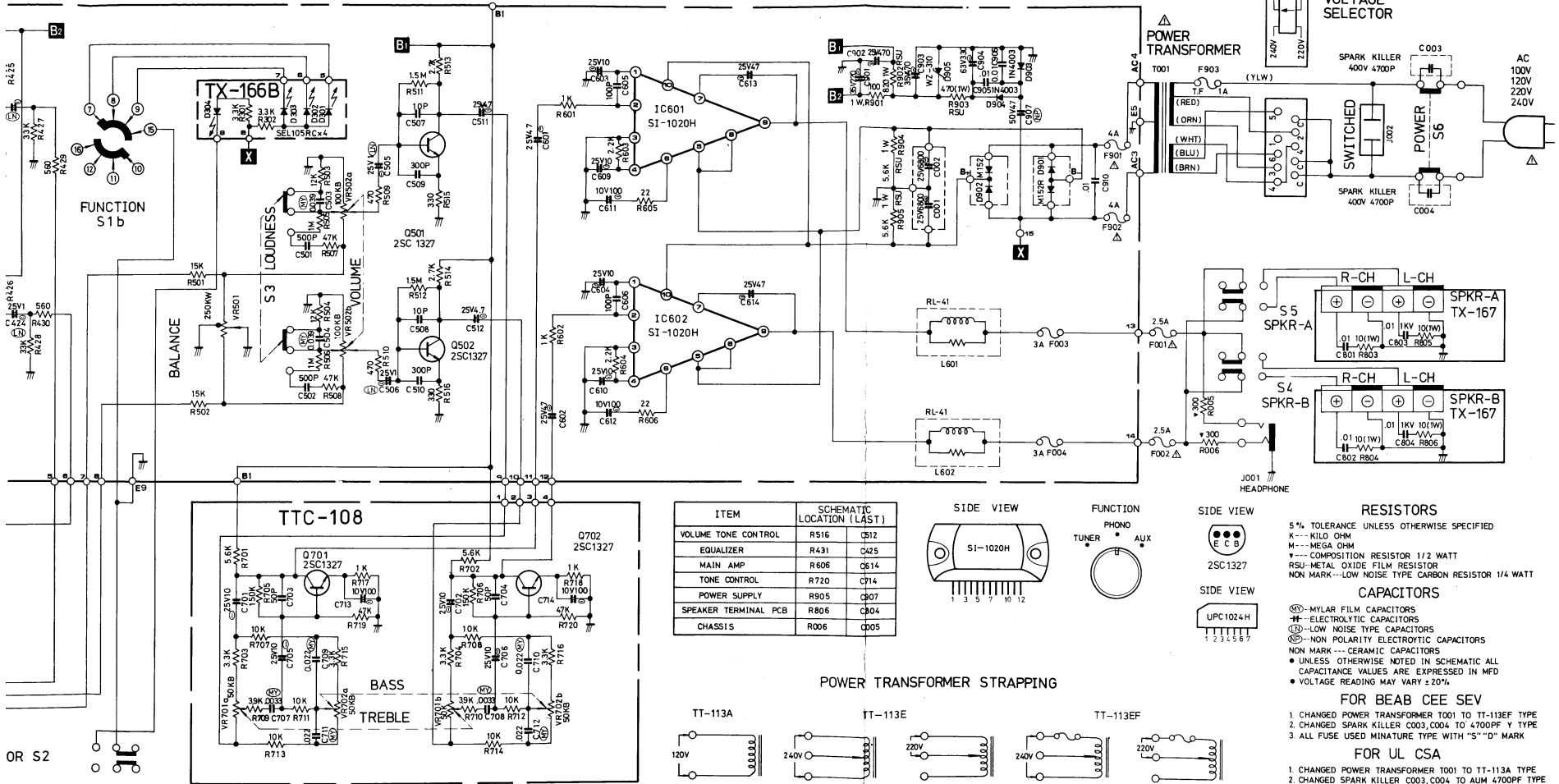
ITEM	SCHEMATIC LOCATION (LAST)	
VOLUME TONE CONTROL	R516	C612
EQUALIZER	R431	C425
MAIN AMP	R606	O614
tone control	R720	C714
POWER SUPPLY	R905	O907
SPEAKER TERMINAL PCB	R806	O804
CHASSIS	R006	O005



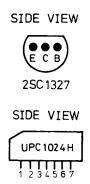
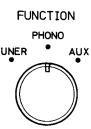
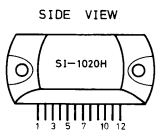
POWER TRANSFORMER STRAP



OUT PRIOR NOTICE.



ITEM	SCHEMATIC LOCATION (LAST)	
VOLUME TONE CONTROL	R516	CS12
EQUALIZER	R431	CA25
MAIN AMP	R606	CS14
TONE CONTROL	R720	CP14
POWER SUPPLY	R905	CS07
SPEAKER TERMINAL PCB	R806	CS04
CHASSIS	R006	CS05



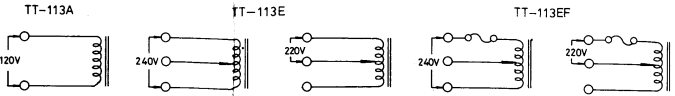
**RESISTORS**  
 5% TOLERANCE UNLESS OTHERWISE SPECIFIED  
 K---KILO OHM  
 M---MEGA OHM  
 \*---COMPOSITION RESISTOR 1/2 WATT  
 RSU-METAL OXIDE FILM RESISTOR  
 NON MARK---LOW NOISE TYPE CARBON RESISTOR 1/4 WATT

**CAPACITORS**  
 MF---MYLAR FILM CAPACITORS  
 E---ELECTROLYTIC CAPACITORS  
 L---LOW NOISE TYPE CAPACITORS  
 NP---NON POLARITY ELECTROLYTIC CAPACITORS  
 NON MARK---CERAMIC CAPACITORS  
 \* UNLESS OTHERWISE NOTED IN SCHEMATIC ALL CAPACITANCE VALUES ARE EXPRESSED IN MFD  
 \* VOLTAGE READING MAY VARY ±20%

**FOR BEAB CEE SEV**  
 1. CHANGED POWER TRANSFORMER T001 TO TT-113EF TYPE  
 2. CHANGED SPARK KILLER C003, C004 TO 4700PF Y TYPE  
 3. ALL FUSE USED MINATURE TYPE WITH "S" "D" MARK

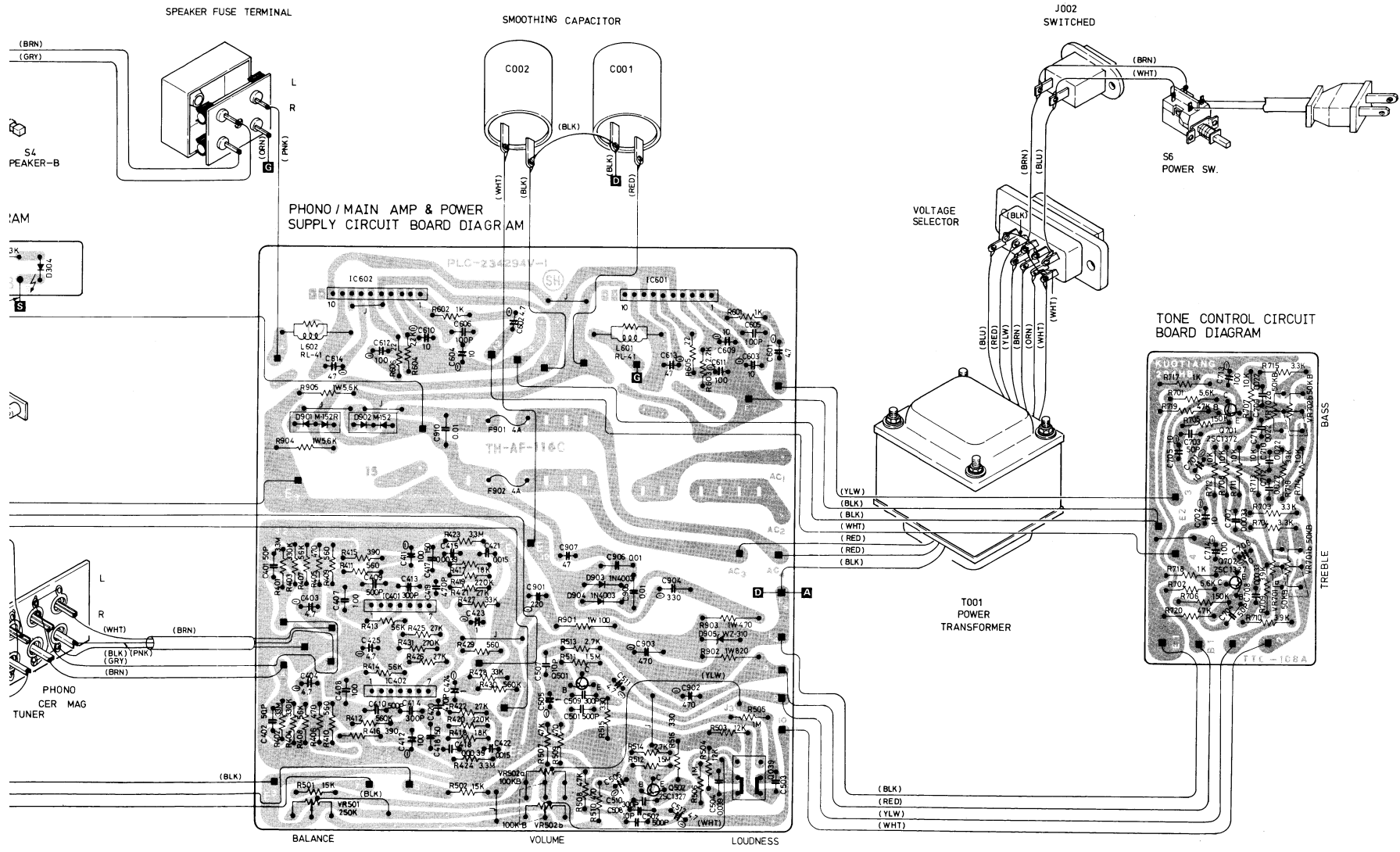
**FOR UL CSA**  
 1. CHANGED POWER TRANSFORMER T001 TO TT-113A TYPE  
 2. CHANGED SPARK KILLER C003, C004 TO AUM 4700PF TYPE  
 3. ADDED AC FUSE F903 1A (UL only)  
 4. ADDED INSIDE FUSE F003, F004 3A\*2 (CSA only)

POWER TRANSFORMER STRAPPING



OR S2







# Repair Parts List

## Rrparaturteilliste

## Liste des pièces de rechange

# (RT-300)

Schematic Location	Parts No.	Description
<b>TRANSISTORS, DIODES AND IC'S</b>		
Q101	302001112	2SK49 (F,H) FM RF Amp.
Q102,103	301201163	2SC1674 (K,L), FM MIX, OSC etc.
Q104,105	301201115	2SC828 (R), FM IF Amp.
Q106	301201117	2SC829 (C), Meter Amp.
Q201	301201115	2SC828 (R), AM Audio Amp.
Q301-303	301201115	2SC828 (R), FM Audio Amp.
Q901	301201150	2SC1567 (R,S), Regulator
D001	300414014	SEL-105RC, Stereo Ind.
D101-104	300111008	1K188, FM AGC Det. Ratio Det.
D105,106	300111008	1K188, POP Prevention
D107,108	300111010	1S2473, Meter Rectifier
D109	300111008	1K188, Meter Protection
D201-203	300111008	1K188, AM AGC Meter Rectifier
D901	300313017	WZ-162, Zener Regulator 16V ½W
D902	300919026	1N4003, Rectifier
IC101	303452170	µPC-1018C, AM/FM Amp.
IC301	303452177	TA-7157P, MPX Amp.
<b>COILS AND VARIABLE RESISTORS</b>		
L001	222391121	AM ANT Coil (AM/FM)
	222391136	AM ANT Coil (LW/MW/FM)
L101	226501131	FM ANT Coil
L102-104	226501132	FM RF Coil
L105	226501135	FM OSC
L106	226501143	2.2µH, FM IF Trap Coil
L107	225501131	FM IFT
L108	225501125	FM IFT
L109	225501127	FM IFT
L201,202	225301131	AM IFT 1st. 2nd.
L203	225301133	AM IFT 3rd.
L204,702	223301127	MW OSC
L701	223301129	LW OSC (LW/MW/FM only)
L901	226501127	470µH, Choke Coil
VR301,302	510502168	10KB, MPX VCO, Separation Adj.

Schematic Location	Part No.	Description
<b>SWITCHES AND FUSES</b>		
S1	601011318	Switch, Function Selector (AM/FM)
	601011329	Switch, Function Selector (LW/MW/FM)
S2	614010140	Switch, Power Supply $\Delta$
	614010141	Switch, Power Supply (for UL, CSA)
F901	341221100	Fuse, 1A, Lamp Protector
	345222100	Fuse, 1A, Lamp Protector (Mini Size)
	345252100	Fuse, 1A, Lamp Protector (Mini Size with "S"D" Mark) $\Delta$
F902	341221050	Fuse, 0.5A, AC Circuit Protector
	345222050	Fuse, 0.5A AC Circuit Protector (Mini Size)
	345252050	Fuse, 500mA, AC Circuit Protector (Mini Size with "S"D" Mark) $\Delta$
T001	201001435	Transformer, Power Supply (120V only)
	207001478	Transformer, Power Supply (for BEAB) $\Delta$
	207001435	Transformer, Power Supply (120V/220V/240V)
PL001-003	359101116	Lamp, 6.3V 250mA, Pilot
M001	231310082	Meter, Signal and Tuning
C001,002	440471095	Spark Killer, 400V 4700P
	470101124	Spark Killer, 4700P Y Type
	470101128	Spark Killer, AUM 4700P
	141010178	AM/FM/MPX Amp. PCB Ass'y ( AM/FM for 75µS)
	141010180	AM/FM/MPX Amp. PCB Ass'y (AM/FM for 50µS)
	141010179	AM/FM/MPX Amp. PCB Ass'y (AM/FM for 50µS Mini Fuse)
	141010181	AM/FM/MPX Amp. PCB Ass'y (LW/MW/FM 50µS Mini Size)
	111911451	Front Panel Ass'y (AM/FM)
	111911452	Front Panel Ass'y (LW/MW/FM)
	649201115	Screw, Terminal, 4P, Antenna
	628111166	Coaxial Connector
	624101102	Jack, 2P



Repair Parts List

Reparaturteilliste

Liste des pièces de rechange

(RA-300)

Schematic Location	Parts No.	Description
<b>Schematic</b>		
Q501,502	301201134	2SC1327 (S,T), Flat, Tone Amp.
Q701,702		
D301-304	300414014	SEL-105RC, Function Indicator
D901	300919023	M1-152R, Rectifier
D902	300919022	M1-152, Rectifier
D903,904	300919026	1N4003, Rectifier
D905	300313021	WZ-310, Zener Regulator, 31V ½W
IC401,402	303452164	μPC1024H, Phono Amp.
IC601,602	303452176	SI-1020H, Power Amp.
<b>VARIABLE RESISTORS AND SWITCHES</b>		
VR501	515121124	250KW, Balance Control
VR502	525121138	100KBx2, Volume Control
VR701,702	525101142	50KBx2, Treble Bass Control
S1	601011329	Switch, Function Selector
S2	614010145	Switch, Push 1-Key, Monitor
S3	614010129	Switch, Push 1-Key, Loudness
S4,5	614020402	Switch, Push 2-Key, Speaker A and B
S6	614010141	Switch, Power Supply (for UL, CSA)
	614010140	Switch, Power Supply ⚠

Schematic Location	Part No.	Description
<b>OTHERS</b>		
J001	626110023	Jack, Headphone
C001,002	403680425	Smoothing Capacitor
C003,004	440471095	Spark Killer, 400V 4700P
	470101127	Spark Killer, 0.047μ x Type (for BEAB)
		Spark Killer, AUM 4700P (for UL, CSA)
T001	201001486	Transformer, Power Supply (120V only)
	201001487	Transformer, Power Supply (for UL)
	206001486	Transformer, Power Supply (220V/240V)
	206001487	Transformer, Power Supply (for BEAB) ⚠
	205001486	Transformer, Power Supply (Multi-Voltage)
F901,902	341221400	Fuse, 4A, AC Circuit Protector
	345222400	Fuse, 4A, AC Circuit Protector (Mini Size)
	345252400	Fuse, 4A, AC Circuit Protector (Mini Size with "S'D" Mark) ⚠
F001,002	341221250	Fuse, 2.5A, Speaker Protector
	345222250	Fuse, 2.5A, Speaker Protector (Mini Size)
	345252250	Fuse, 2.5A, Speaker Protector (Mini Size with "S'D" Mark) ⚠
F003,004	341221300	Fuse, 3A, Speaker Inside Protector (CSA only)
	141710324	Tone Control PCB Ass'y
	141810938	Function Indicator PCB Ass'y
	141010174	Phono/Main Amp. PCB Ass'y (Long Size Fuse)
	141010176	Phono/Main Amp. PCB Ass'y (Mini Size Fuse)
	111911453	Front Panel Ass'y
	116310276	Knob, Function and Volume
	116310278	Knob, Balance Treble Bass Control
	116210048	Push Button
	648211121	Voltage Selector
	642400111	Terminal, Push 4-Key, Speaker
	624110208	Jack, 8P
	624110204	Jack, 4P
	625001112	DIN Jack, 5P

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**ROTEL OF AMERICA, INC.**

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