TECHNICAL MANUAL

ROTEL®

RT-830A

AM/FM STEREO TUNER

RT-830AL

MW/LW/FM STEREO TUNER

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THE ROTEL CO., LTD.
1-36-8 OHOKAYAMA, MEGURO-KU, TOKYO 152, JAPAN

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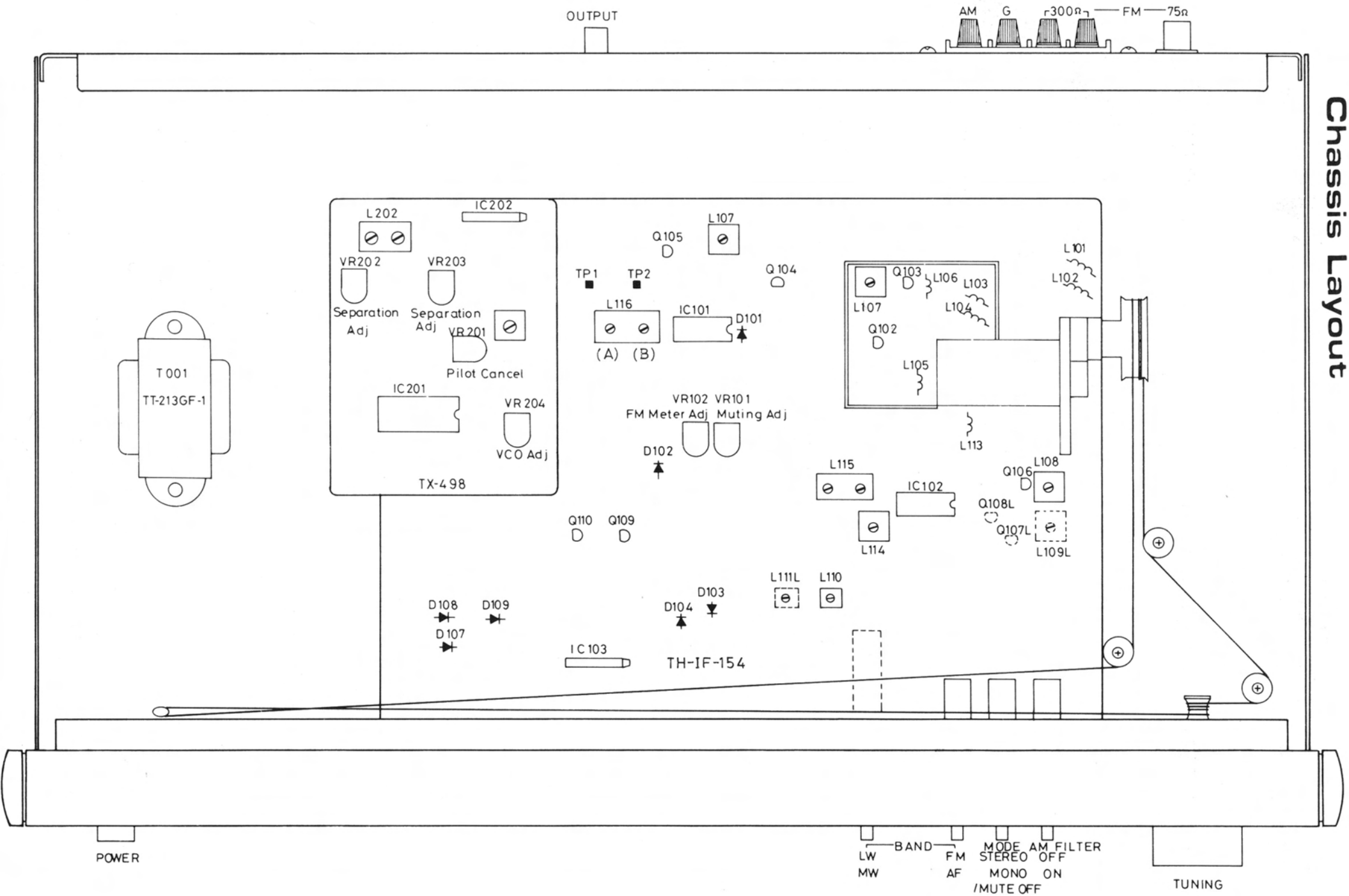
MN 200014

Chassis Layout



FM IF and RF Alignment

Instruments : FM Signal Generator, (400Hz, 100% Modulated) T.H.D. analyzer, Oscilloscope, AC VTVM, and Tuning Meter
Terminated : Tuning Meter... Between TP1 and TP2 on TH-IF-154 P.C.B

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	Antenna terminal	90 MHz	90 MHz	L105	Maximum reading on AC VTVM.
2		106 MHz	106 MHz	CT3	
3	Repeat steps 1 and 2 unit no further improvement is noticed.				
4	Antenna terminal	90 MHz	90 MHz	L101, L102, L103 and L104	Maximum reading on AC VTVM.
5				L107	Adjusting balance of wave form
6		106 MHz	106 MHz	CT1 and CT2	Maximum reading on AC VTVM.
7	Repeat steps 4,5 and 6 unit on further improvement is noticed (Muting OFF)				
8	Antenna terminal 1mV input	90 MHz	90 MHz	L116(A)	Adjust center on Tuning Meter
9				L116(B)	Minimum reading on T.H.D. Analyzer
10	Repeat steps 8 and 9 unit no further improvement is noticed, (Muting OFF)				
11	Antenna terminal 15μV input	90 MHz	90 MHz	VR101	Muting Level (Muting ON)
12	Antenna terminal 3μV input	90 MHz	90 MHz	VR102	Signal Indicator Level (Muting OFF)

FM MPX alignment

Instruments : FM Stereo Generator, AC VTVM, Oscilloscope, Frequency Countor and THD Analizer

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	No use		98 MHz	VR 104	VCO 76 kHz ± 100Hz (Muting ON) TP3 Thru 560kohms resistor
2	Antenna terminal 1mV input	98 MHz Pilot.....10% 1 KHz.....90% Mod.	98 MHz	VR202, VR203	Best separation
3					
4	Antenna terminal 1mV input	98 MHz Pilot.....10% 1 KHz.....90% Mod.	98 MHz	VR201 L201	Pilot Cancel 19 KHz Minimum Dist.
5	Repeat steps 2 to 4 unit no further improvement is noticed. Check the stereo indicator can be operated normally when pilot signal is reduce from 10% to 5%.				

MW IF and RF Alignment

Instruments : AM signal Generator (400Hz 30% Modulated), AC VTVM and Oscilloscope.

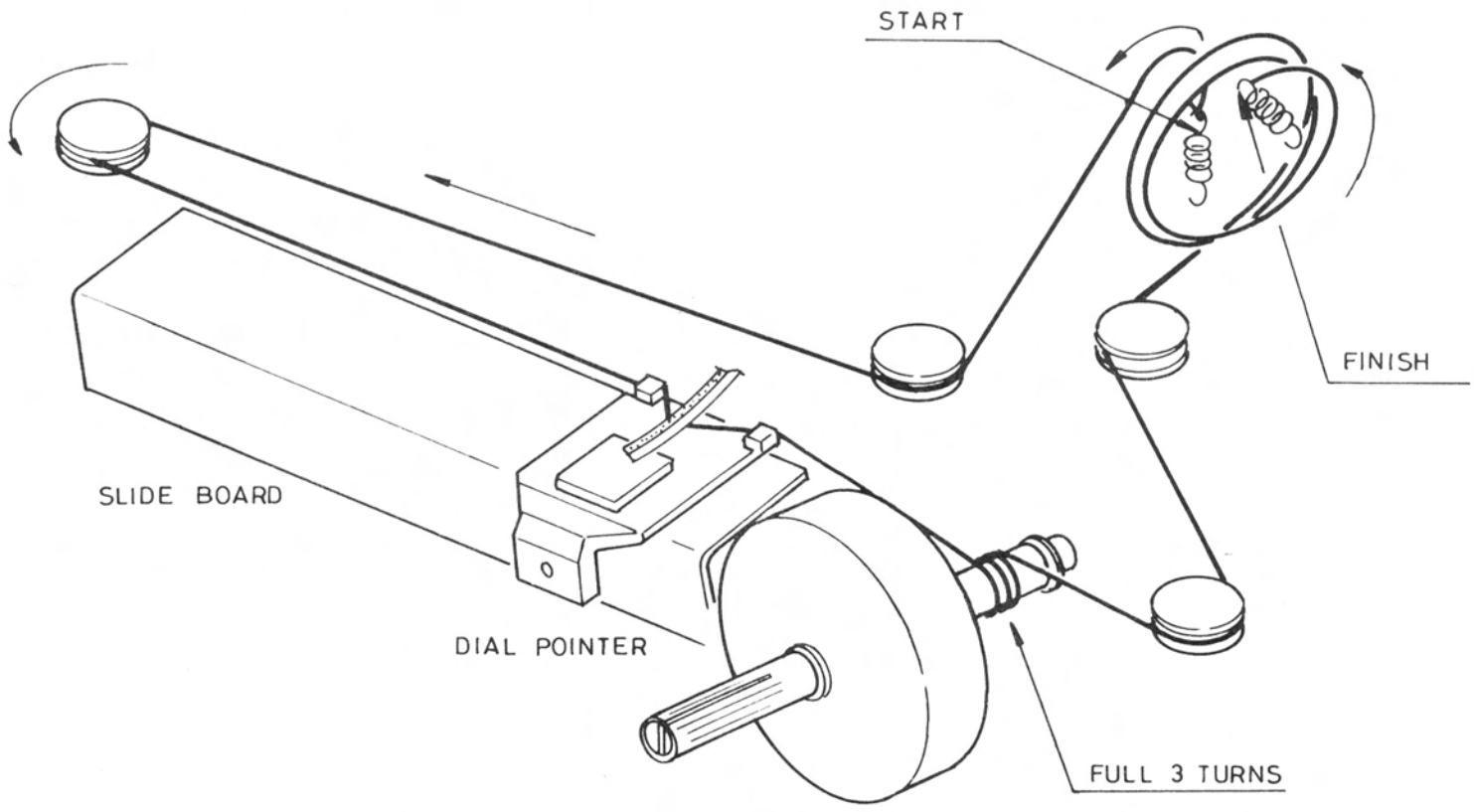
Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	Pin No. 3 (on IF board through a 0.01 mfd Capacitor)	450 KHz	No interfering at low end of scale	L115 , L114	Maximum reading on AC VTVM.
2	Test Loop Radiate signal into loop antenna,	600 KHz	600 KHz	L110(OSC)L108(ANT) L115, L114	Maximum reading on AC VTVM.
3		1400 KHz	1400 KHz	CT5(OSC) CT4(ANT)	
4	Repeat steps 2 and 3 unit no further improvement is noticed.				

LW RF Alignment

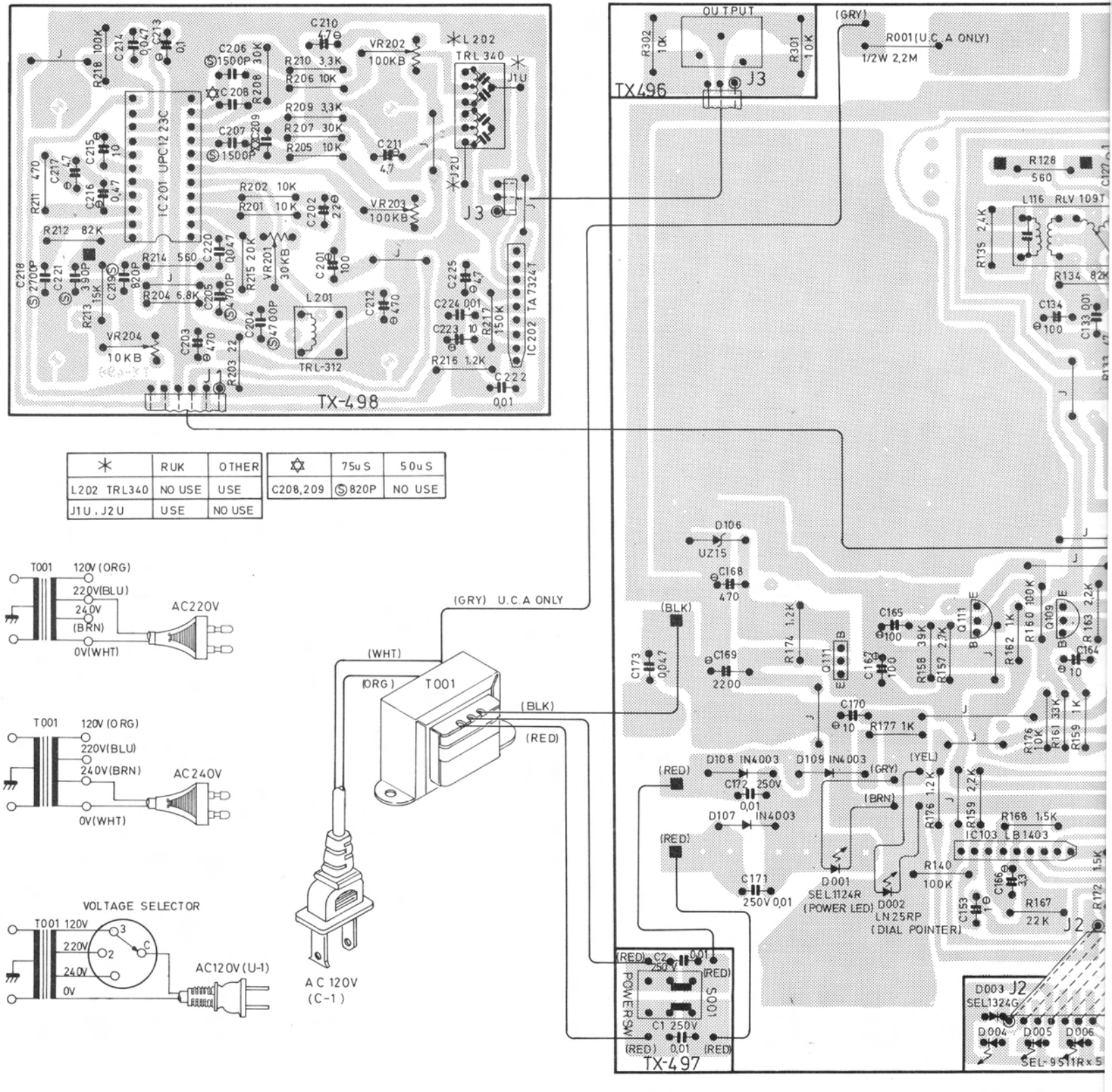
Instruments : AM signal Generator (400Hz 30% Modulated), AC VTVM and Oscilloscope

Step	Generator		Tuning Dial Setting	Adjust	Adjust for
	Coupling	Frequency			
1	Test Loop Radiate signal into loop antenna	160 KHz	160 KHz	L111L(OSC) L109L(ANT)	Maximum reading on AC VTVM.
2		330 KHz	330 KHz	CT7L(OSC) CT6L(ANT)	
3	Repeat steps 1 and 2 unit no further improvement is noticed.				

Dialing String Diagram

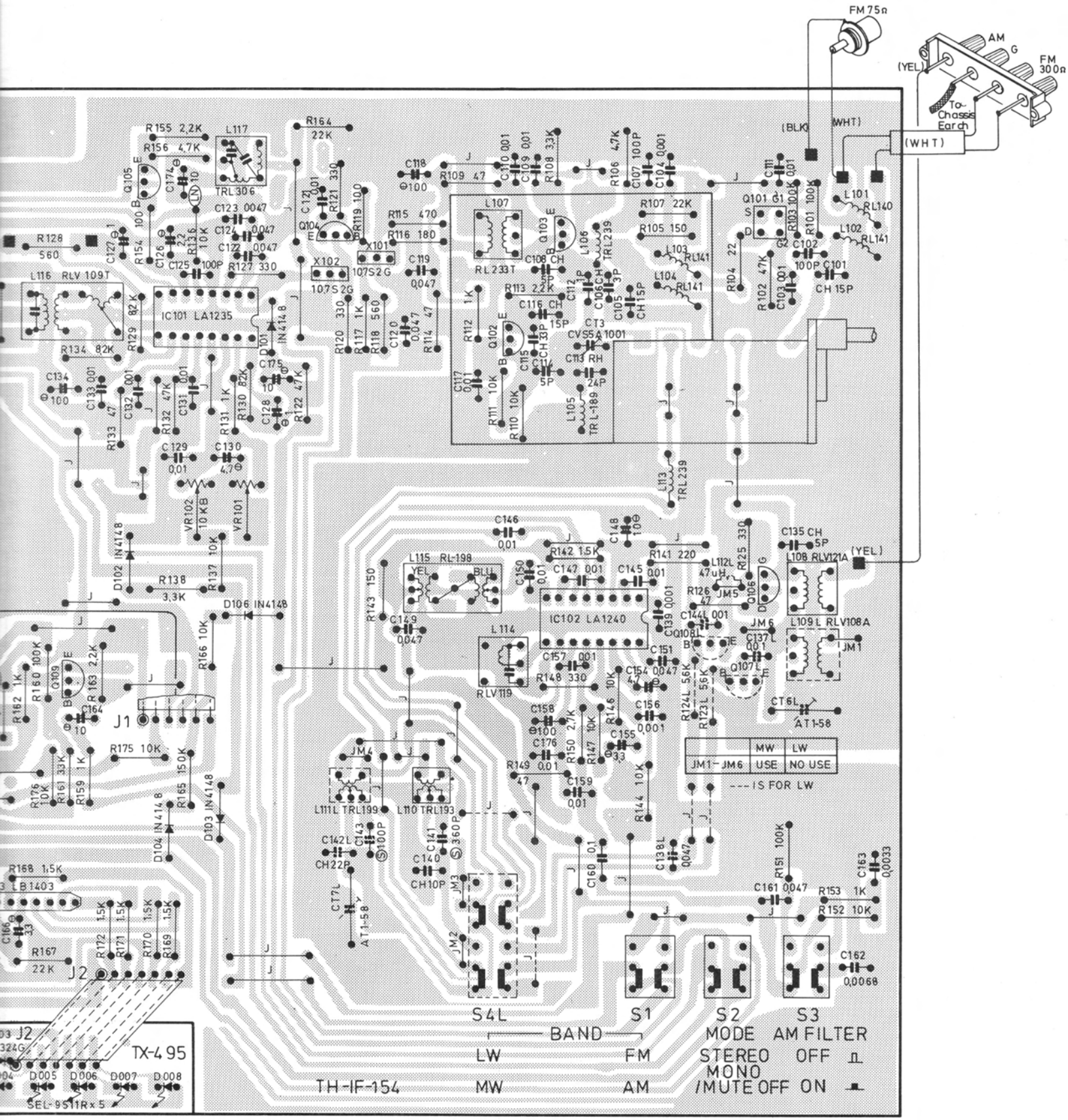


Wiring Diagram



✳	RUK	OTHER
L202 TRL340	NO USE	USE
J1U , J2U	USE	NO USE

✡	75uS	50uS
C208,209	Ⓢ820P	NO USE

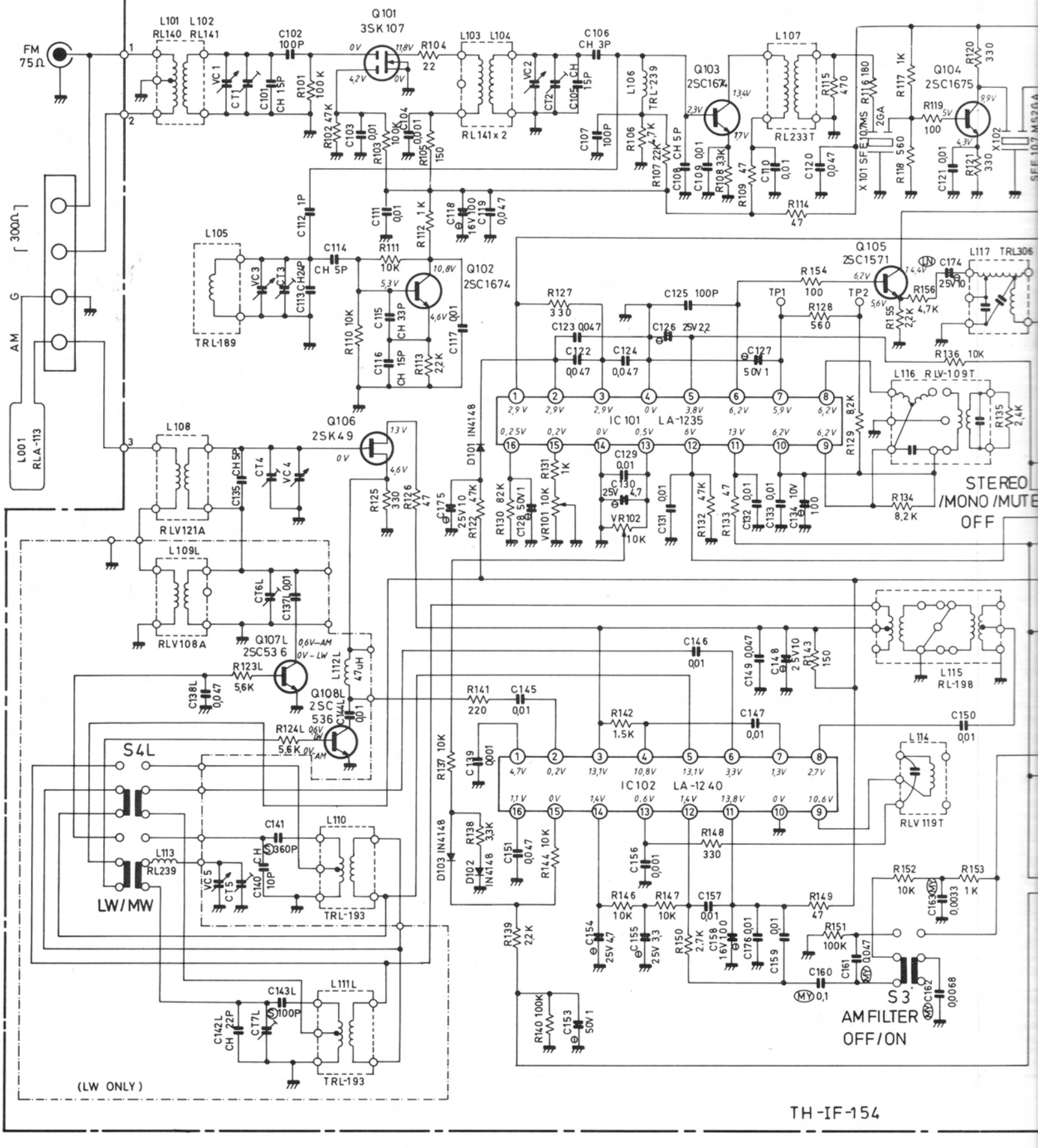


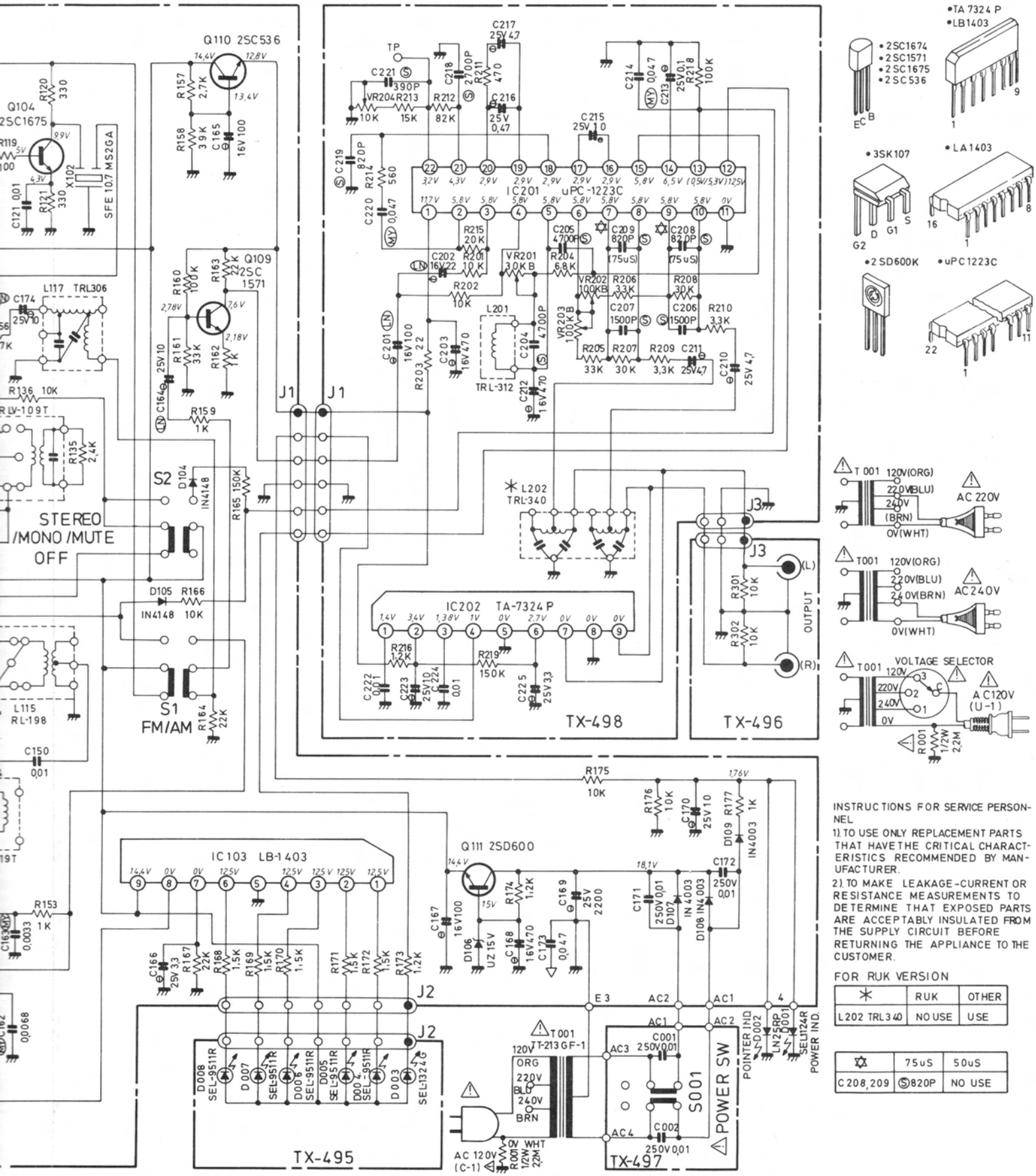
	MW	LW
JM1 - JM6	USE	NO USE

---IS FOR LW

Schematic Diagram

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





INSTRUCTIONS FOR SERVICE PERSONNEL

1). TO USE ONLY REPLACEMENT PARTS THAT HAVE THE CRITICAL CHARACTERISTICS RECOMMENDED BY MANUFACTURER.

2). TO MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

FOR RUK VERSION

✳	RUK	OTHER
L202 TRL340	NO USE	USE

✡	75uS	50uS
C208,209	Ⓢ820P	NO USE

Repair Parts List

Schematic Location	Computer No.	Description
	TRANSISTORS, DIODES AND IC'S	
Q101	TR50000140	Transistor 3SK107-F
Q102	TR30000133	Transistor 2SC1674
Q103	TR30000133	Transistor 2SC1674
Q104	TR30000133	Transistor 2SC1674
Q105	TR30000108	Transistor 2SC1571
Q106	TR50000097	Transistor 2SK49
Q107L	TR30000327	Transistor 2SC536
Q108L	TR30000327	Transistor 2SC536
Q109	TR30000108	Transistor 2SC1571
Q110	TR30000327	Transistor 2SC536
Q111	TR40000069	Transistor 2SD600K
D001	DD40000095	L.E.D SEL1124R
D002	DD40000174	L.E.D LN25RP
D101	DD80000021	Diode IN4148
D102	DD80000021	Diode IN4148
D103	DD80000021	Diode IN4148
D104	DD80000021	Diode IN4148
D105	DD80000021	Diode IN4148
D106	DD20000090	Diode UZ15B(L)
D107	DD80000010	Diode IN4003
D108	DD80000010	Diode IN4003
D109	DD80000010	Diode IN4003
IC101	IC00001103	Integrated Circuit LA-1235
IC102	IC00001360	Integrated Circuit LA-1240
IC103	IC00000925	Integrated Circuit LB-1403N
IC201	IC00001905	Integrated Circuit UPC1223C
IC202	IC00000603	Integrated Circuit TA-7324P
	COILS AND VARIABLE RESISTORS	
L001	LB0113005	Loop antnna RLA113A00
L101	LC01400006	Spring Coil RL-140
L102~104	LC01410000	Spring Coil RL-141
L105	LC21890003	FM OSC Coil TRL-189
L106	LM00000073	Micro Inductor TRL-239 2.2μH
L107	LC02330000	FM IF Coil RL-233T
L108	LC31210001	AM ANT Coil RLV121A00
L109L	LC31080002	LW ANT Coil RLV108A00
L110	LC21930001	AM DSC Coil TRL-193
L111L	LC2199009	LW DSC Coil TRL-199
L112L	LM00000024	Micro Inductor 47μH TRL-236
L113	LM00000073	Micro Inductor RL-239
L114	LC31190002	AM IFT Coil RLV119T
L115	LC01980000	AM IFT Coil RL-198T
L116	LC31090007	IF Coil RLV-109T
L117	LC23060009	MPX Filter TRL-306
L201	LM00000360	Micro Inductor 15MH TRL-312
L202	LC23400003	MPX Filter Coil TRL-340
VR101,102	RV20000193	Semi-Fixed Resistor 10KB
VR201	RV20000284	Semi-FixedResistor 30KB
VR202,203	RV20000181	Semi-FixedResistor 100KB
VR204	RV20000193	Semi-Fixed Resistor 10KB
	SWITCHES AND OTHERS	
S001	SH11000148	1 Key Push SW 4TR-1668
S1~S4	SH12830025	3 Key Push SW 4TR-2117A
	SH12830037	5 Key Push SW 4TR-2111
T001	PT21307119	Power Transformer TT-213GF-1