

FT-747GX

TECHNICAL SUPPLEMENT

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FT-747GX TECHNICAL SUPPLEMENT



This manual is intended to serve as a supplement to the FT-747GX Operating Manual. Detailed information regarding functions, installation, interconnections and operation has been provided in the Operating Manual, and is not reprinted herein. Therefore, this supplement is not intended to serve as an independent reference, but to be used in conjunction with the information provided in the Operating Manual.

Because there are nearly two hundred and fifty semiconductor devices in the FT-747GX, circuit description information is provided in the form of numerous block diagrams. We hope that this manner of providing functional information proves to be more convenient for the owner and technician than would a lengthy verbal description. Those readers unfamiliar with the basic types of analog and digital circuits that serve as the building blocks of the FT-747GX are encouraged to study instructional material, such as that provided in handbooks on amateur radio and digital circuit design, before attempting to understand the design of the FT-747GX. Each block in the block diagrams represents one such basic circuit. General information on integrated circuits and their applications is available in the data provided by the IC manufacturers. Specific circuit details are provided in the schematic diagrams in this manual.

While we believe the technical information in this manual is correct, Yaesu assumes no liability for damage that may occur as a result of typographical or other errors that may be present. Your cooperation in pointing out any inconsistencies in the technical information would be appreciated.

Yaesu Musen reserves the right to make changes in the circuitry of this transceiver, in the interest of technological improvement, without obligation to notify owners or to modify any sets produced prior to the modification.

TOP COVER REMOVAL

The top cover of the FT-747GX must be removed as described here to install the modifications and internal options described afterwards.

- (1) Switch off the transceiver and disconnect all cables from the rear panel.
- (2) Referring to Figure 1 below, use a sharp instrument (such as a small screwdriver) to depress the catch pin in the strip on the side of the set (near the rear), while sliding the strip towards the rear with

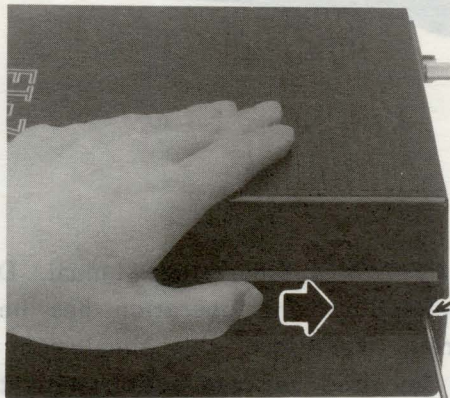


Figure 1.

your other hand. Do this on each side to remove both strips.

- (3) With the transceiver facing away from you, grasp the top panel with both hands near the front as shown in Figure 2. There are clips at positions (1) which can move only vertically, and a clip at (2) which can move only horizontally. Lift up on both sides to unlatch the clips at points (1) while holding the center clip (2) in the same position, and slide the top panel back about 2 centimeters ($\frac{1}{2}$ -inch) until the clips clear the top edge of the front panel.

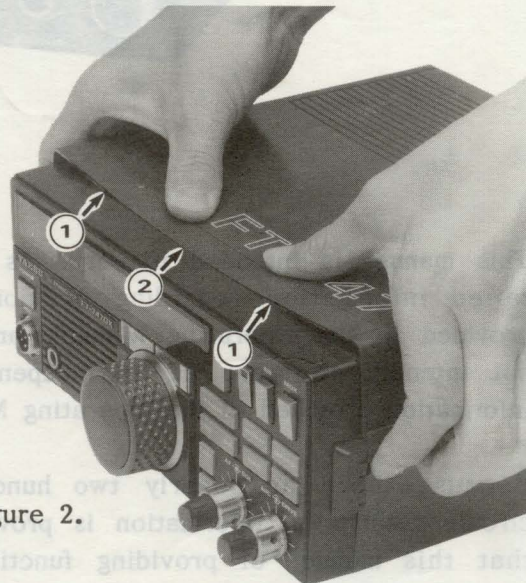
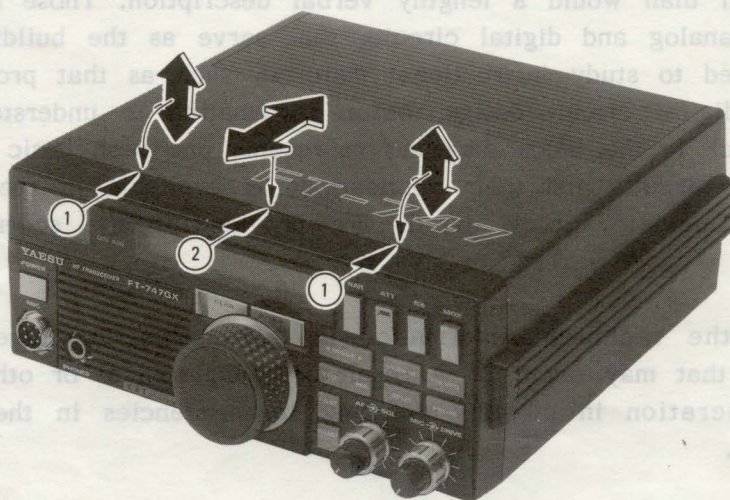
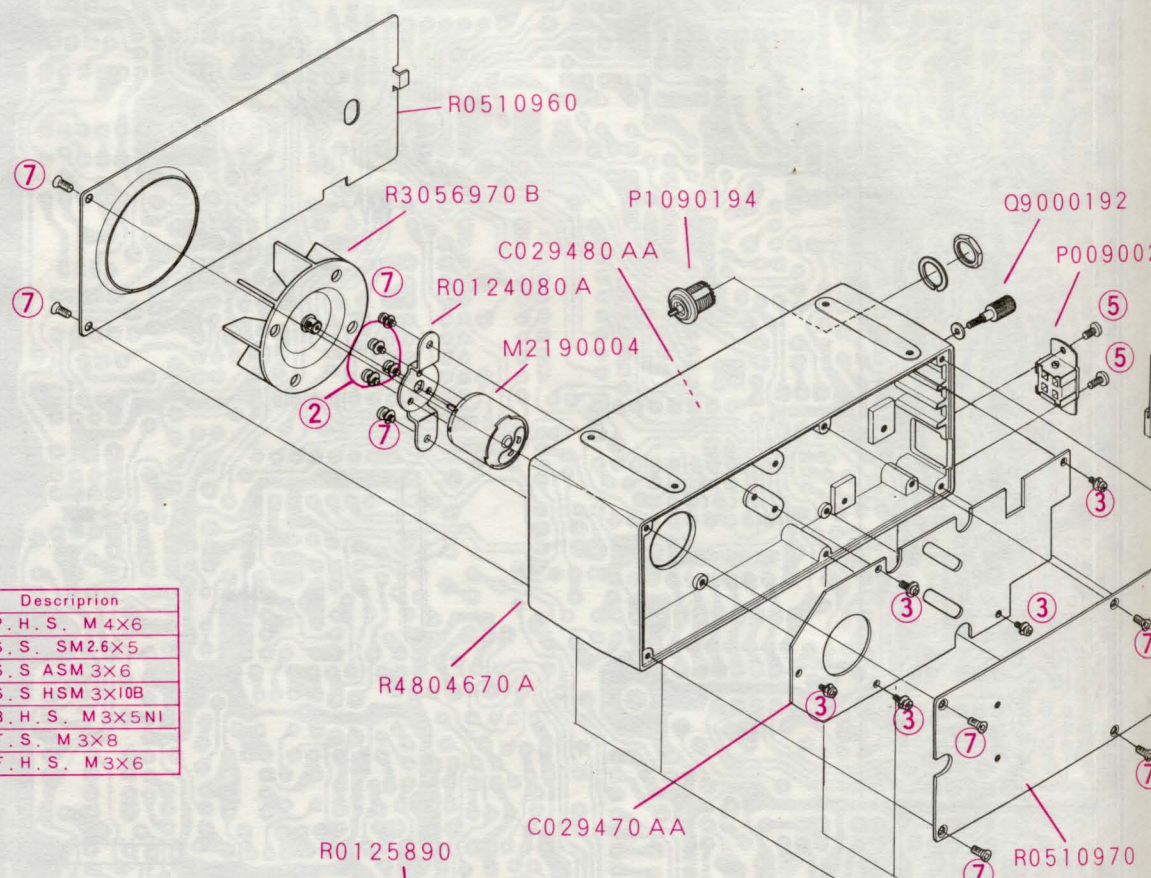
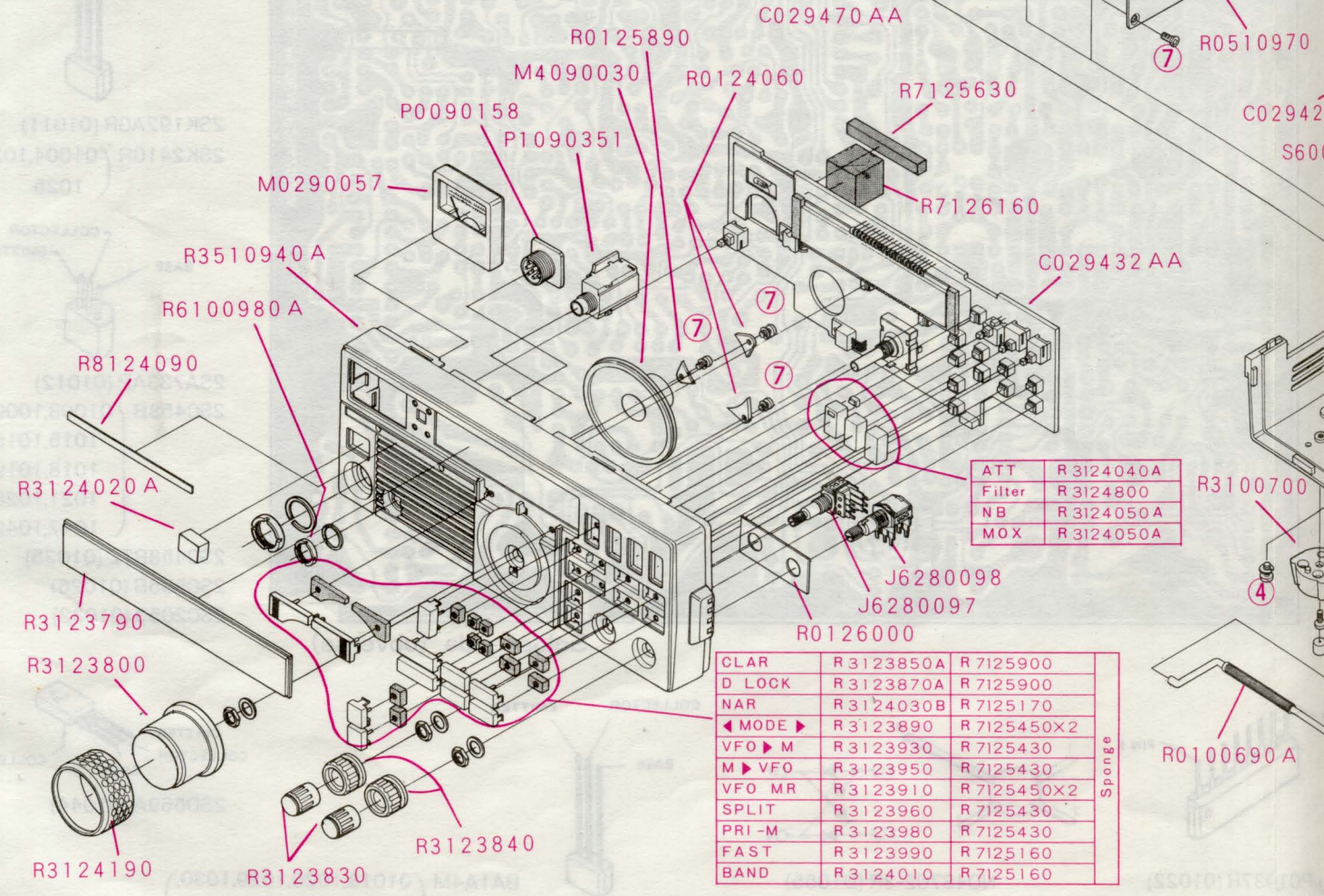


Figure 2.





	Part No.	Description
①	U 00406001	P. H. S. M 4X6
②	U 02205001	S. S. SM2.6X5
③	U 03306001	S. S. ASM 3X6
④	U 04310007	S. S. HSM 3X10B
⑤	U 20305002	B. H. S. M 3X5NI
⑥	U 23308001	T. S. M 3X8
⑦	U 30306001	F. H. S. M 3X6

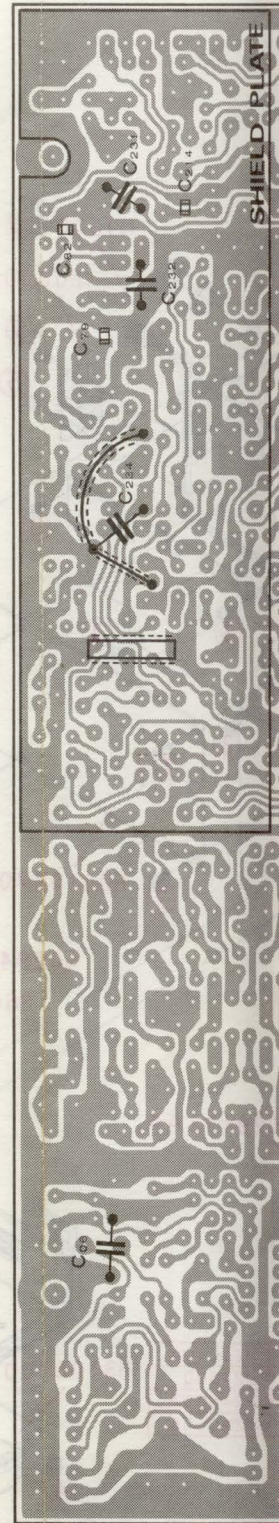
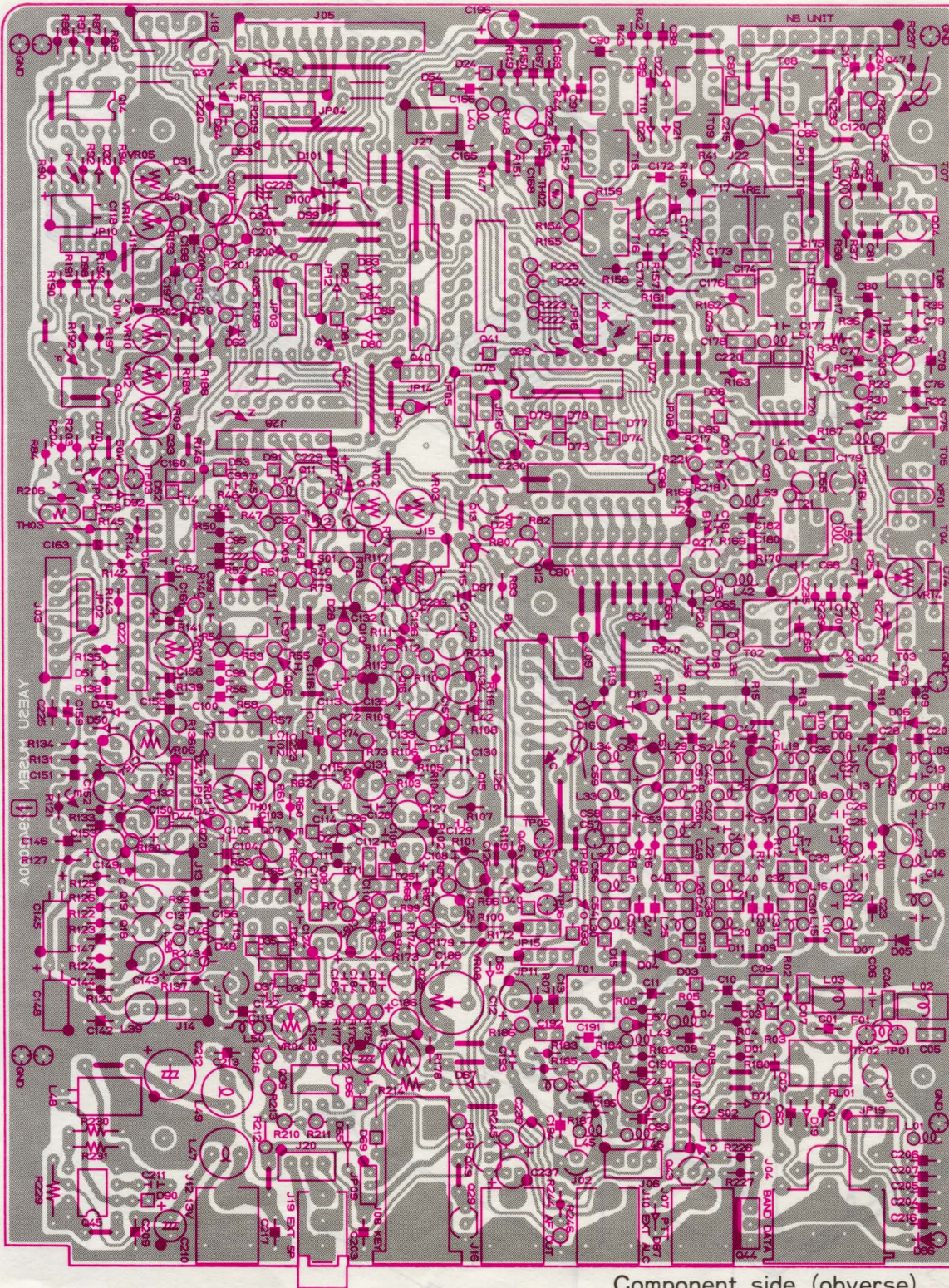


CLAR	R 3123850A	R 7125900
D LOCK	R 3123870A	R 7125900
NAR	R 3124030B	R 7125170
◀ MODE ▶	R 3123890	R 7125450X2
VFO ▶ M	R 3123930	R 7125430
M ▶ VFO	R 3123950	R 7125430
VFO MR	R 3123910	R 7125450X2
SPLIT	R 3123960	R 7125430
PRI -M	R 3123980	R 7125430
FAST	R 3123990	R 7125160
BAND	R 3124010	R 7125160

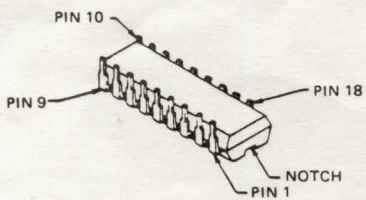
Sponge

MAIN UNIT

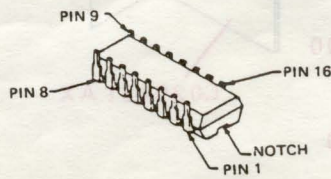
PARTS LAYOUT



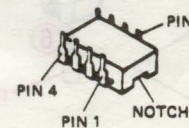
Component side (obverse)



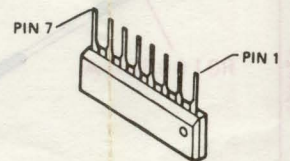
M54563P (Q1038)
M54564P (Q1040)



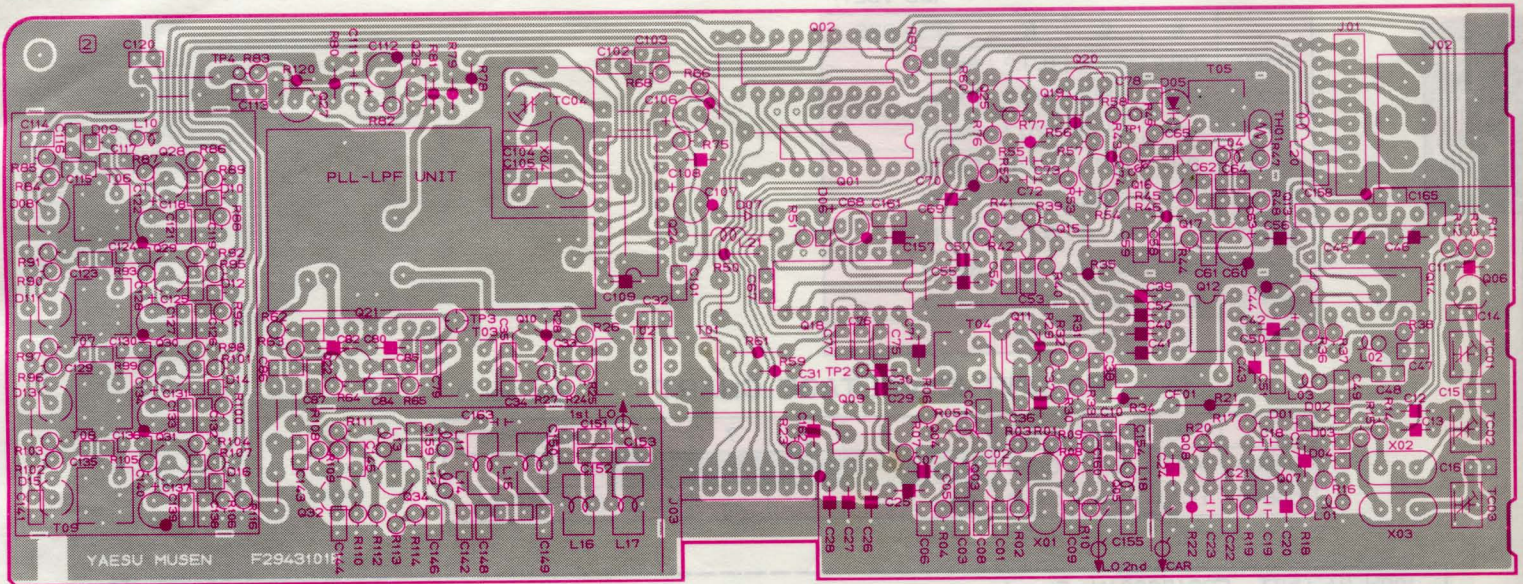
μ PD4028BC (Q1039)
 μ PD4094BC (Q1041,1042)



IR3M03A (Q1045)
M5218P (Q1014,1034)
M5223P (Q1036)

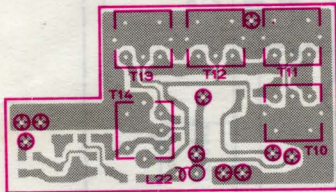


μ PC1037H (Q1022)

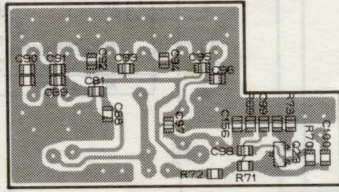


Component side (reverse)

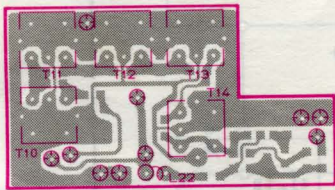
PLL-LPF UNIT PARTS LAYOUT



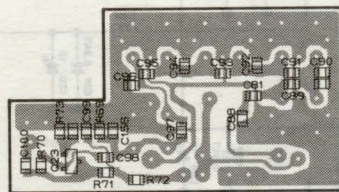
Component side (obverse)



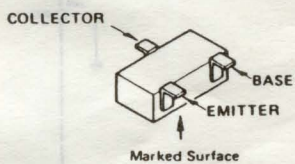
Solder side (obverse)



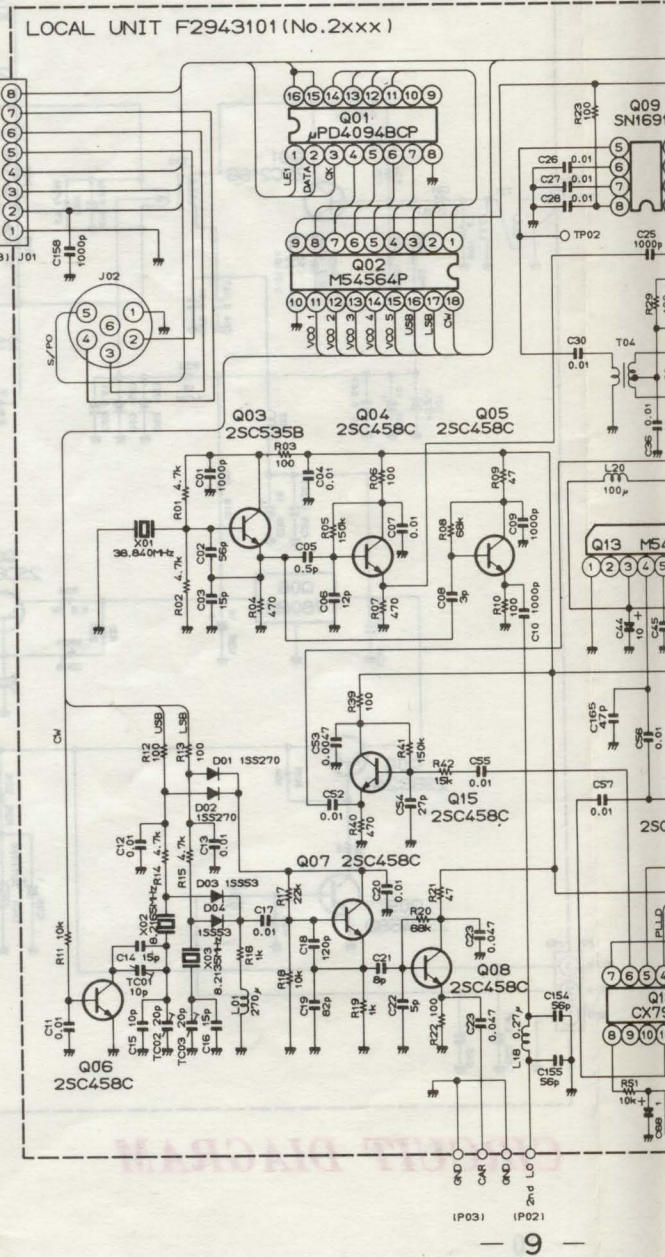
Component side (reverse)



Solder side (reverse)

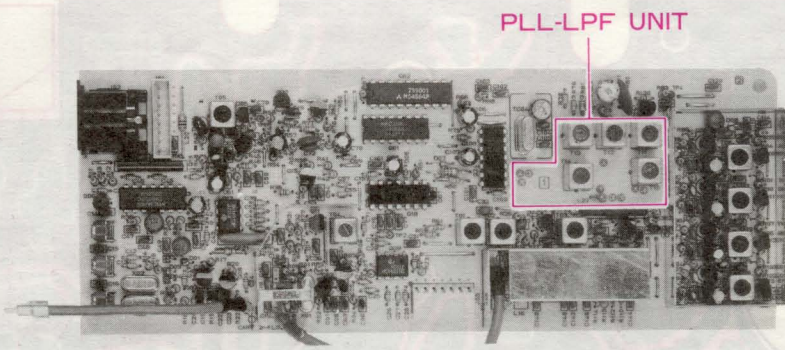
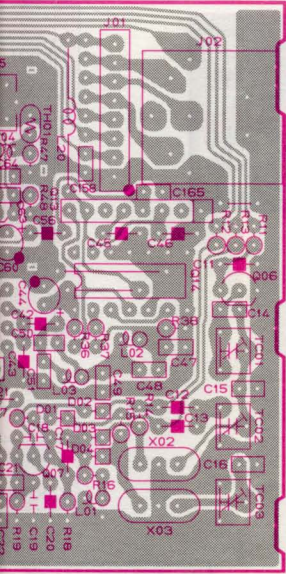


2SC2620QB (Q7023)



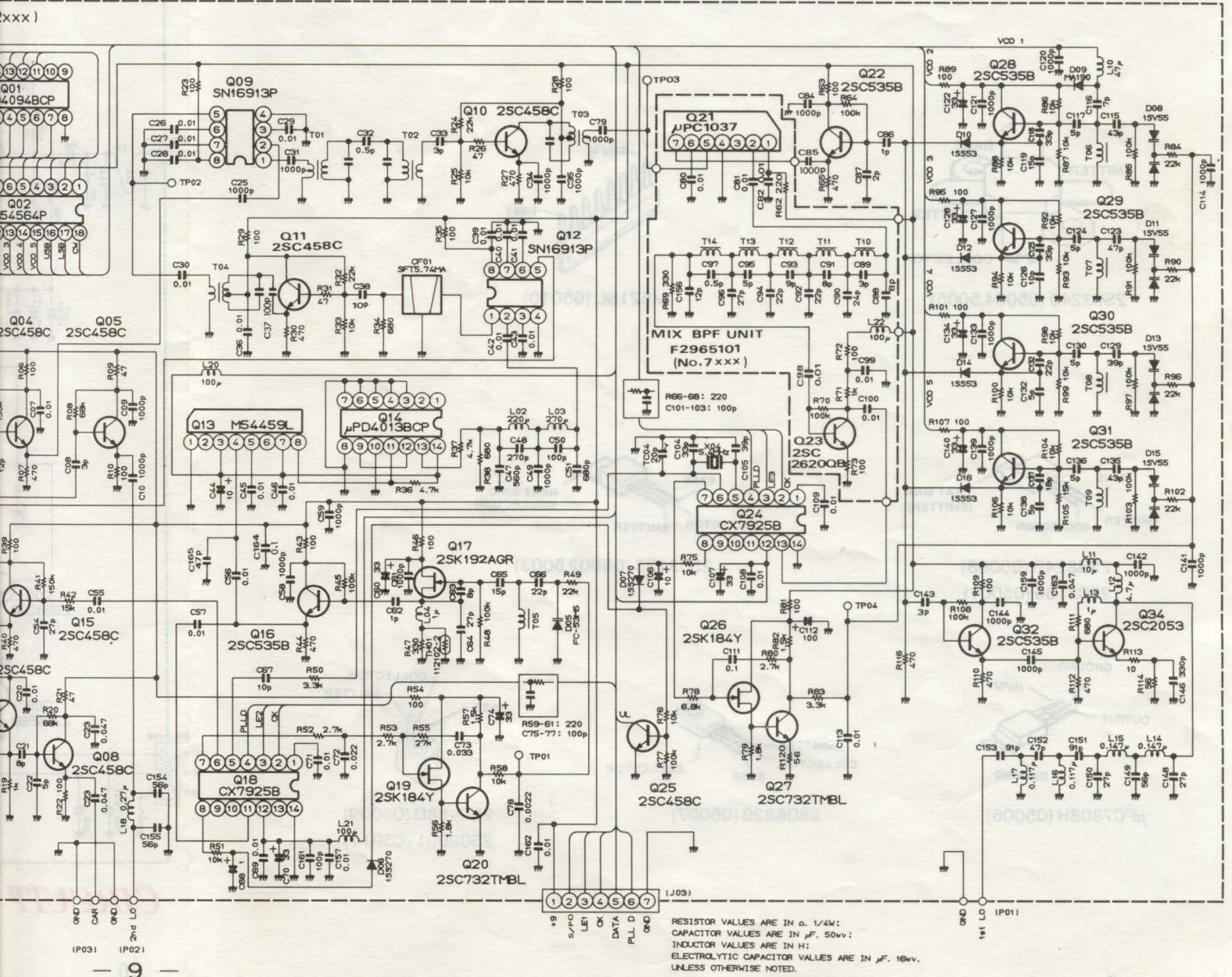
LOCAL UNIT

PARTS LAYOUT



PLL-LPF UNIT

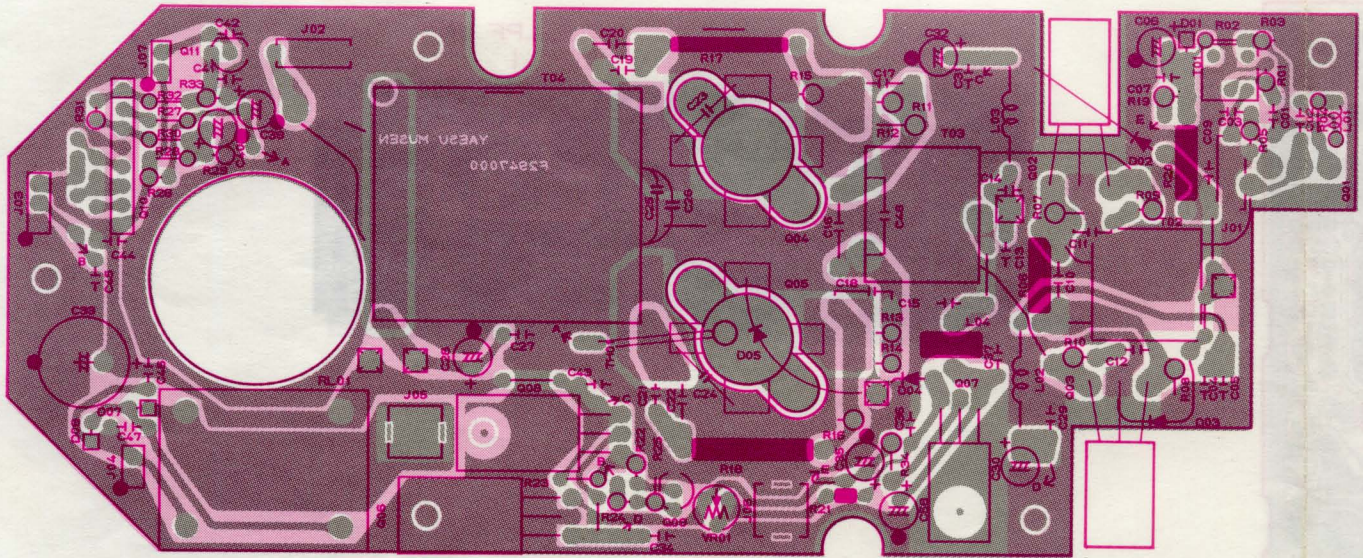
CIRCUIT DIAGRAM



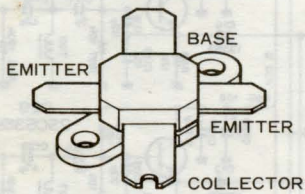
RESISTOR VALUES ARE IN Ω , 1/4W;
 CAPACITOR VALUES ARE IN μ F, 50V;
 INDUCTOR VALUES ARE IN mH;
 ELECTROLYTIC CAPACITOR VALUES ARE IN μ F, 16V,
 UNLESS OTHERWISE NOTED.

100W PA UNIT

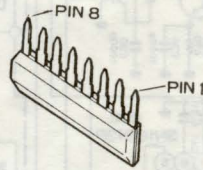
PARTS LAYOUT



Component side (obverse)



2SC3240 (Q5004,5005)

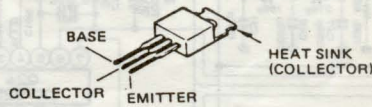


M5218L (Q5010)

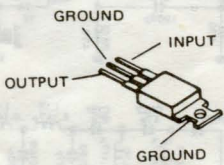


2SB824R (Q5008)

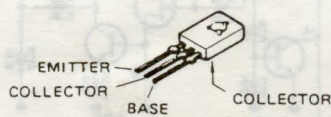
2SC2166 (Q5001)



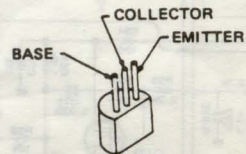
2SC3133 (Q5002,5003)



μPC7808H (Q5006)

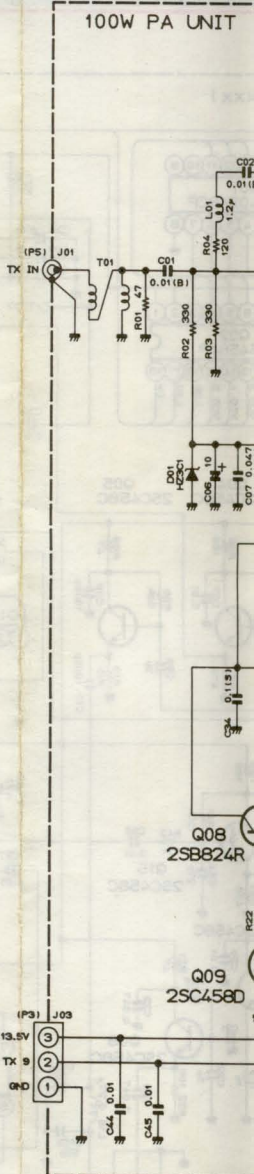


2SD882Q (Q5007)



2SC458D (Q5009)

2SC2001 (Q5011)



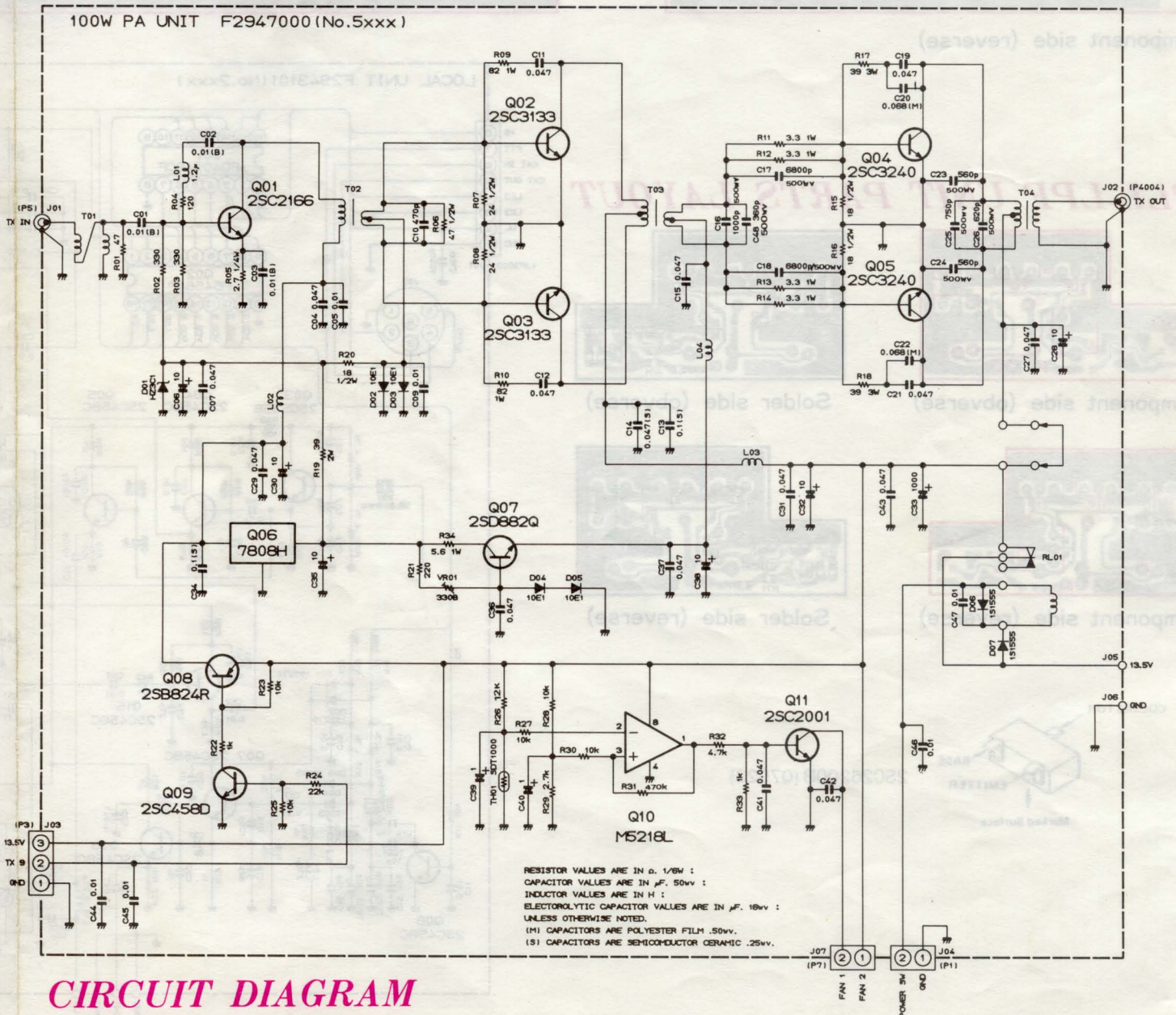
CIRCUIT

PA UNIT VOLTAGE CHART (DC VOLT)

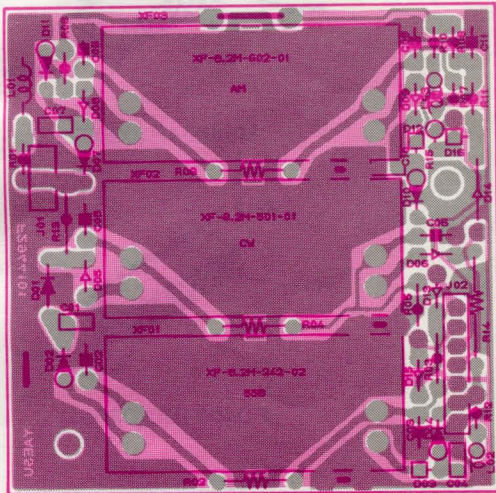
	E	C	B	REMARKS
Q5001	0/0.4	0/13.4	0/1.2	RX/TX
Q5002	0/0	13.5/13.5	0/0.7	RX/TX
Q5003	0/0	13.5/13.5	0/0.7	RX/TX
Q5004	0/0	13.5/13.5	0/0.6	RX/TX
Q5005	0/0	13.5/13.5	0/0.6	RX/TX
Q5007	0.4/1.4	0/7.6	0/0.7	RX/TX
Q5008	13.5/13.5	0.5/13.4	13.5/12.7	RX/TX
Q5009	0/0	13.5/0.1	0/0.7	RX/TX
Q5010	0	13.5	0.2	

PA UNIT IC VOLTAGE CHART (DC VOLT)

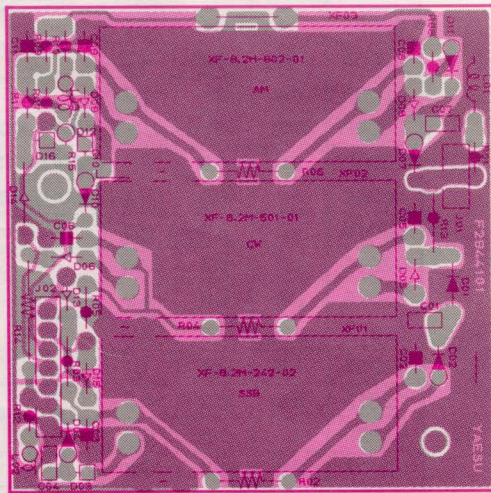
	1 (IN)	2 (GND)	3 (OUT)	4	5	6	7	8	REMARKS
Q5006	0.4/13.4	0/0	0/8.0						RX/TX
Q5010	1.4/1.3	4.0-7.0/1.0-3.0	2.8/3.1	0/0	—	—	—	13.5/13.5	FAN OFF/ON



FILTER UNIT PARTS LAYOUT

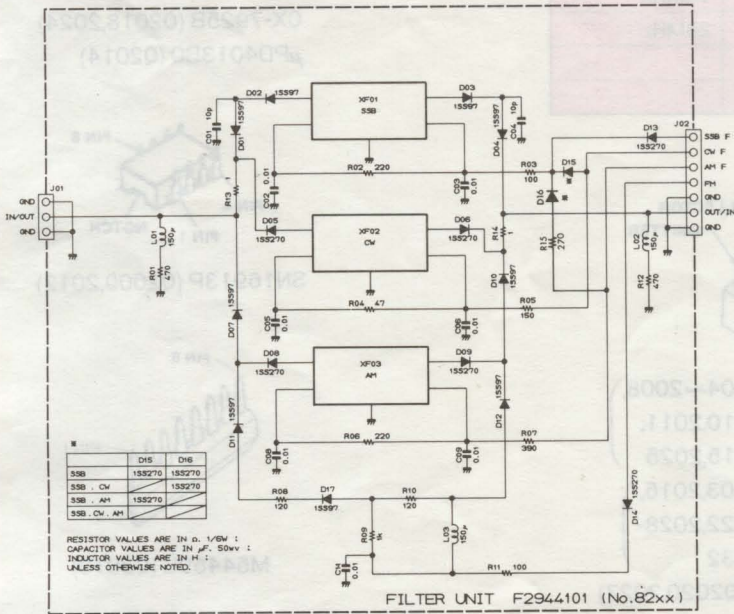


Component side (obverse)

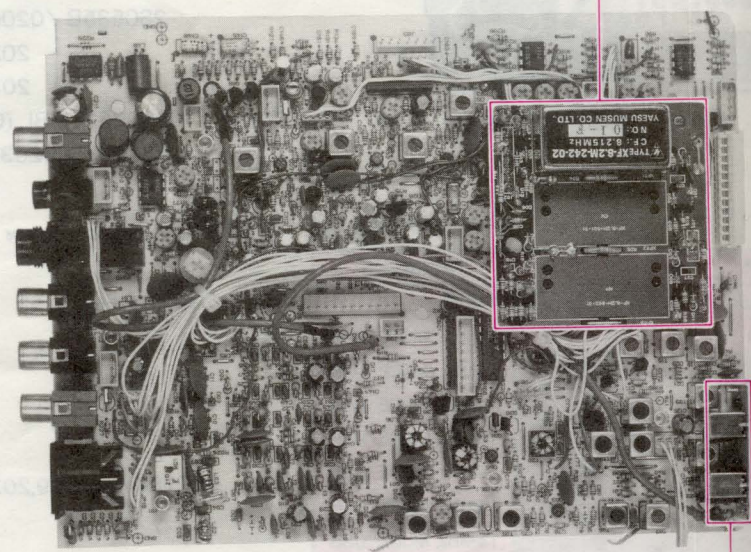


Component side (reverse)

FILTER UNIT CIRCUIT DIAGRAM



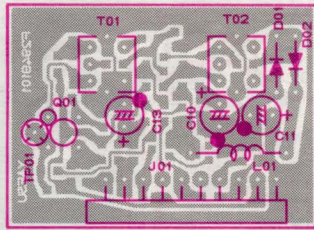
FILTER UNIT



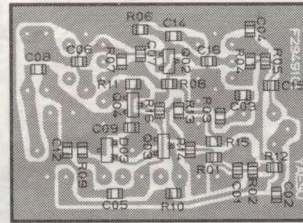
NB UNIT

FILTER UNIT & NB UNIT

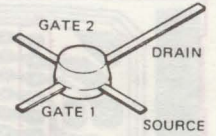
NB UNIT PARTS LAYOUT



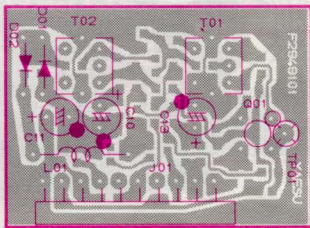
Component side (obverse)



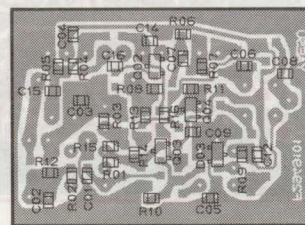
Solder side (obverse)



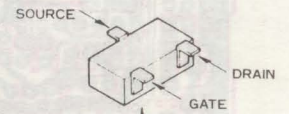
3SK74L
(Q8101)



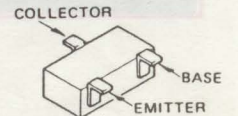
Component side (reverse)



Solder side (reverse)

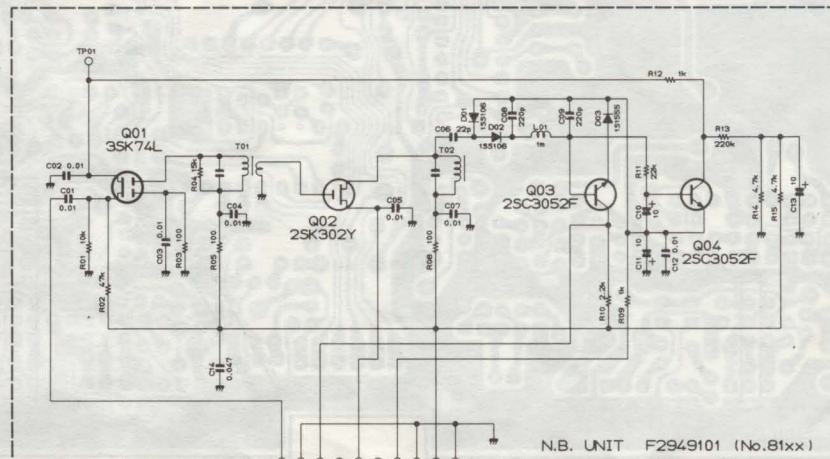


2SK302Y
(Q8102)



2SC3052F
(Q8103,8104)

NB UNIT CIRCUIT DIAGRAM



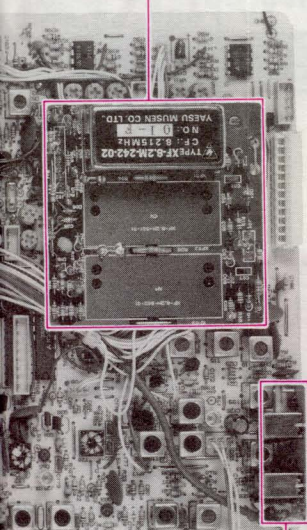
RESISTOR VALUES ARE IN Ω, 1/10Ω;
CAPACITOR VALUES ARE IN μF, 50V;
INDUCTOR VALUES ARE IN H;
ELECTROLYTIC CAPACITOR VALUES ARE IN μF, 16V;
UNLESS OTHERWISE NOTED.

NB UNIT VOLTAGE CHART

(DC VOLT)

	E (S)	C (D)	B (G ₁)	(G ₂)	REMARKS
Q8101	7.4	1.5	1.5	4.3	
Q8102	1.7/0	8.9/8.2	0/0		NB OFF/ON
Q8103	-8.8	6.4	-8.9		
Q8104	-9.1	4.3	-9.0		

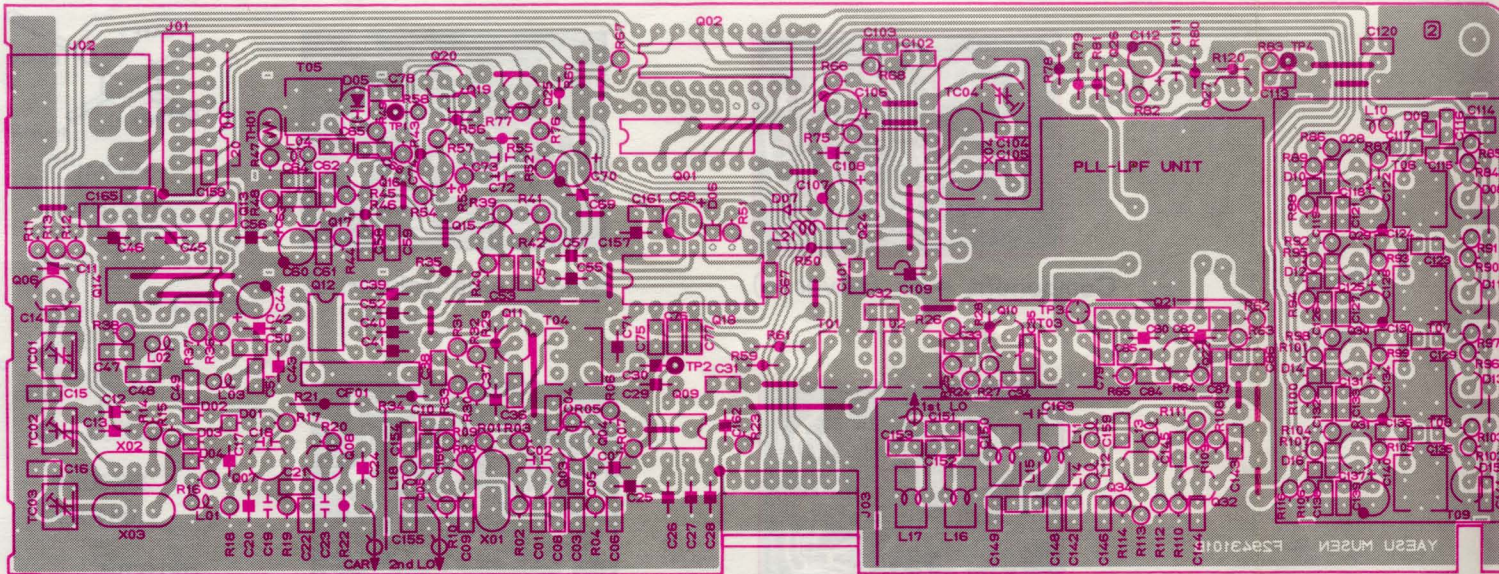
FILTER UNIT



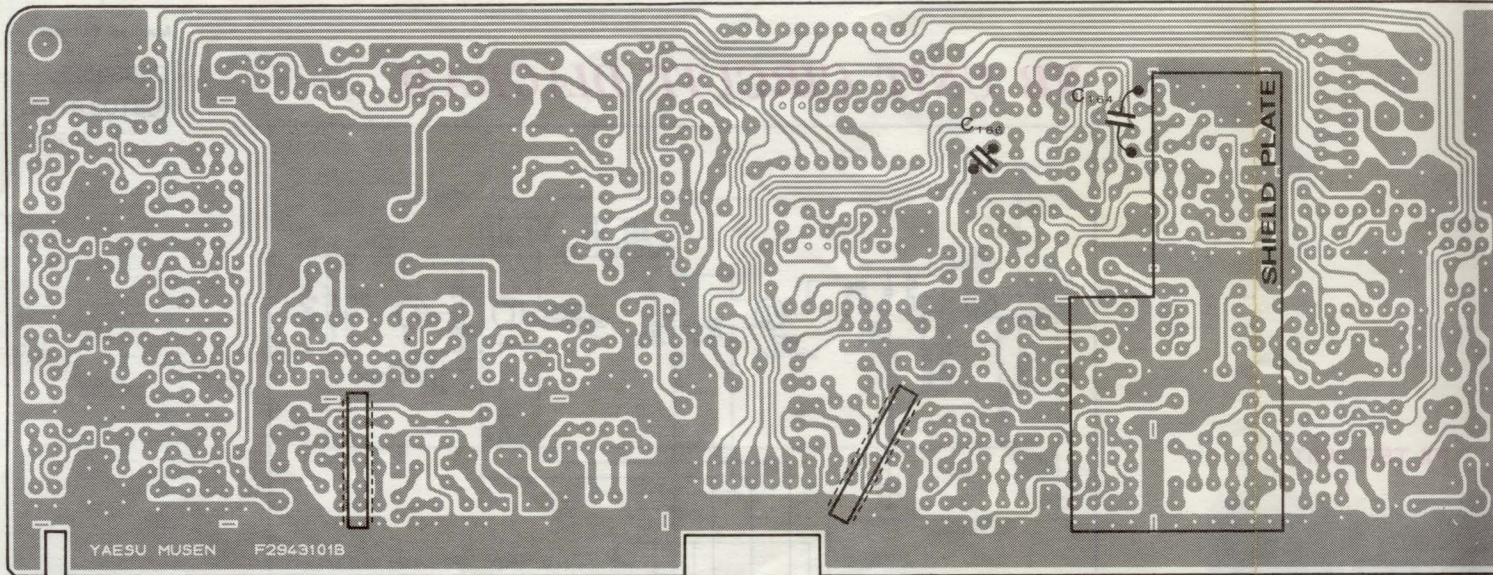
NB UNIT

LOCAL UNIT

PARTS LAYOUT



Component side (obverse)



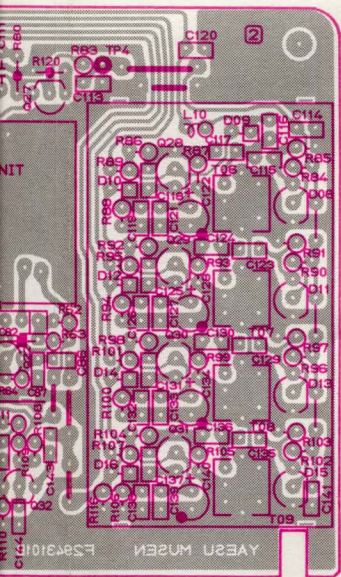
Solder side (obverse)

LOCAL UNIT IC VOLTAGE CHART

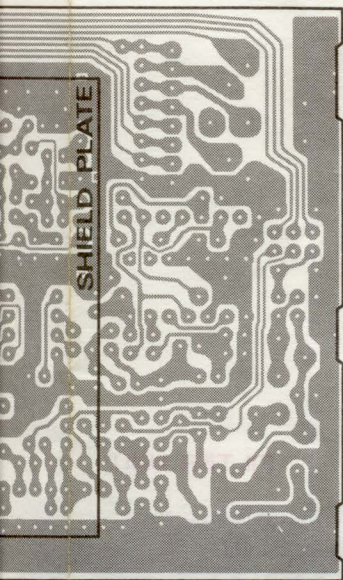
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	R
Q2001	—	—	—	0	4.8	0	0	0	0	0	0	4.8	0	0	5.0	5.0			14MH
Q2002	0	0	4.8	0	0	4.8	0	0	8.8	0	0	0	7.6	0	0	7.6	-0.4	0	14MH
Q2009	6.4	3.8	2.7	0	2.7	3.8	3.8	7.8											14MH
Q2012	6.4	3.8	2.7	0	2.7	3.8	3.8	7.7											14MH
Q2013	0	0	4.9	2.6	2.6	0	4.9	2.5											14MH
Q2014	0	4.9	0	0	0	0	0	0	2.5	0	2.5	2.5	2.3	4.9					14MH
Q2018	-2.4	—	—	—	2.1	2.2	0.5	0	—	—	2.4	5.0	4.2	0					14MH
Q2021	5.9	5.2	4.8	0	2.6	2.6	2.6												14MH
Q2024	-2.4	—	—	—	2.2	1.9	0.5	0	—	—	0.5	4.8	2.0	0					14MH

LOCAL UNIT VOLTAGE CHART (DC VOLT)

	E (S)	C (D)	B (G)	REMARKS
Q2003	3.1	8.1	3.9	
Q2004	3.5	8.1	4.2	
Q2005	1.4	8.1	2.2	
Q2006	0/0	0.7/0	0/0.7	RX/TX, MODE CW
Q2007	2.0	6.6	2.0	MODE USB
Q2008	1.7	8.0	2.4	MODE USB
Q2010	1.8	8.4	2.5	
Q2011	1.9	8.4	2.6	
Q2015	3.6	8.0	4.2	
Q2016	2.3	8.3	2.9	
Q2017	1.0	8.4	0	
Q2019	8.6	0.5	0.6	
Q2020	0	5.6	0.7	
Q2022	2.5	8.3	3.2	
Q2025	0/0	5.0/0	0/0.6	PLL LOCK/UNLOCK
Q2026	0.8	8.6	0.5	14MHz
Q2027	0.1	5.3	0.8	14MHz
Q2028	2.6	7.1	3.3	3.5MHz
Q2029	2.6	7.1	3.3	28MHz
Q2030	2.6	7.1	3.3	18MHz
Q2031	3.1	7.0	3.9	28MHz
Q2032	2.5	8.3	3.3	
Q2034	2.8	8.7	3.5	



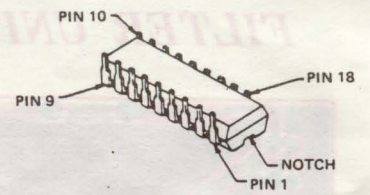
Component side (obverse)



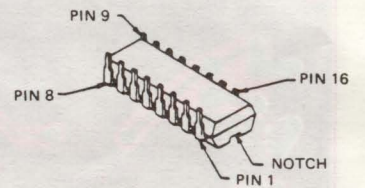
Solder side (obverse)

(DC VOLT)

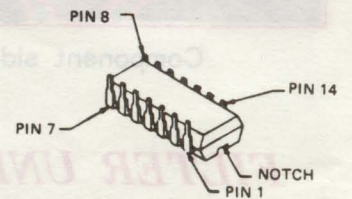
15	16	17	18	REMARKS
5.0	5.0			14MHz
0	7.6	-0.4	0	14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB
				14MHz, MODE USB



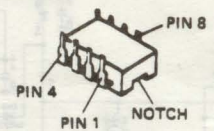
M54564P (Q2002)



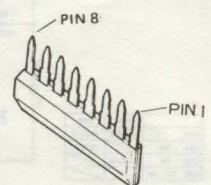
μPD4094BC (Q2001)



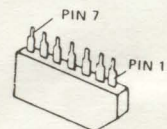
CX-7925B (Q2018,2024)
μPD4013BC (Q2014)



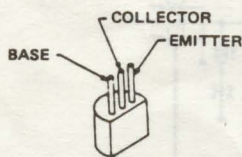
SN16913P (Q2009,2012)



M54459L (Q2013)



μPC1037H (Q2021)

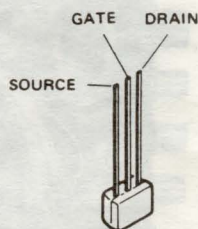


2SC458C (Q2004~2008,
2010,2011,
2015,2025)

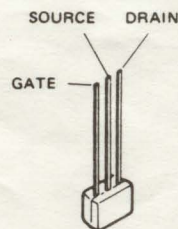
2SC535B (Q2003,2016,
2022,2028-
2032)

2SC732TMBL (Q2020,2027)

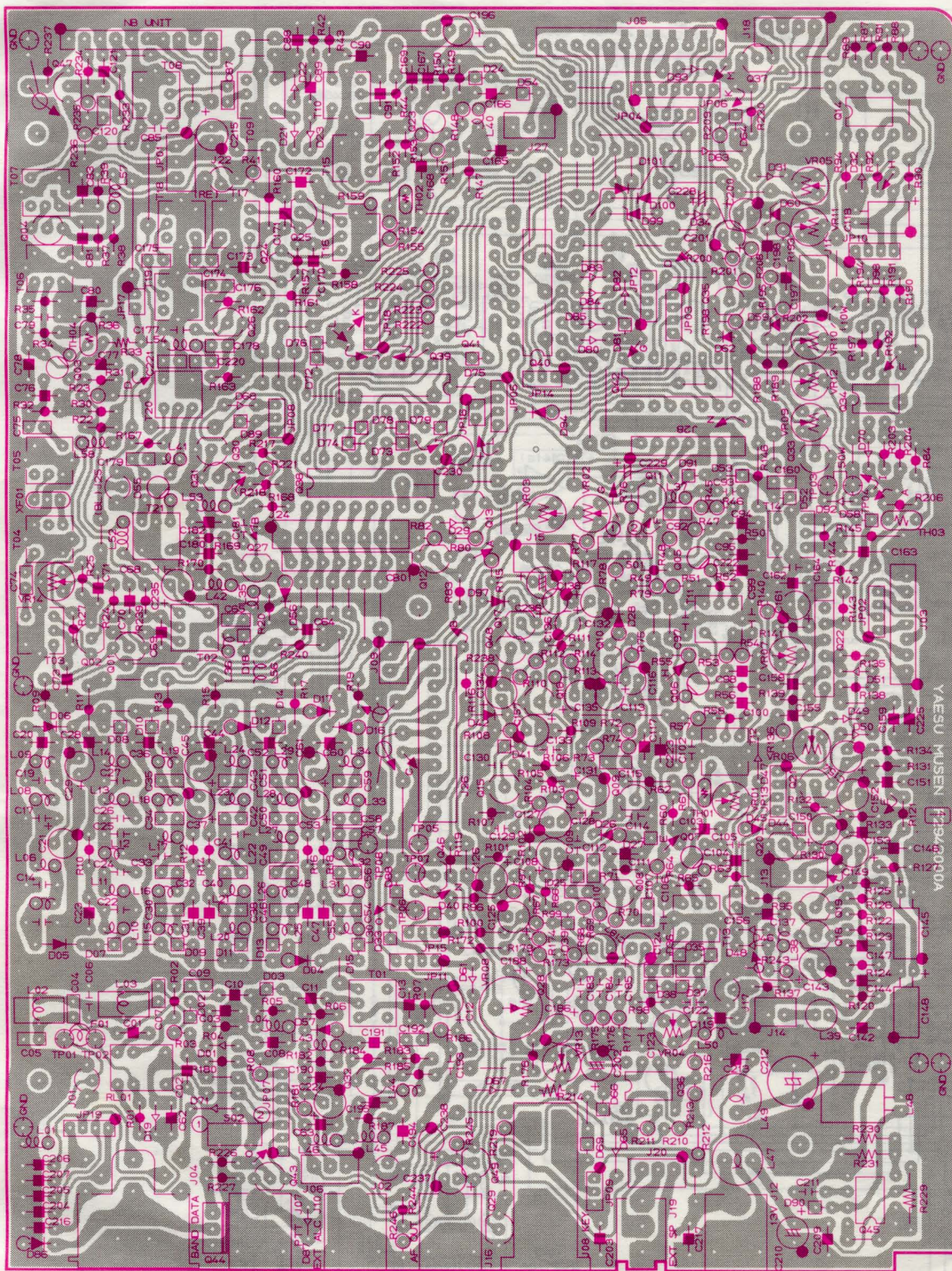
2SC2053 (Q2034)



2SK184Y (Q2019,2026)



2SK192AGR (Q2017)



Component side (reverse)

	E (S)	C (D)	B (G ₁)
Q1001	2.5/-0.1	12.7/13.4	-0.7/-5.1
Q1002	2.5/-0.1	12.7/13.4	-0.7/-5.1
Q1003	2.0/0	13.2/13.4	1.5/-4.1
Q1004	0.6	13.4	0
Q1005	1.7/0	7.8/8.8	1.7/-4.0
Q1006	2.2	7.4	2.4
Q1007	1.9	8.0	1.8
Q1008	4.8	8.3	5.5
Q1009	0	3.4	0.1
Q1010	3.6	3.6	0
Q1011	6.2	8.8	3.4
Q1012	5.3/0.7	0/0	4.7/4.6
Q1013	0/0	5.0/0.1	0/4.3
Q1015	4.2	8.4	4.8
Q1016	1.3	4.4	2.0
Q1017	0/0	0/0	0.1/3.7
Q1018	0.1	1.4	0.7
Q1019	0.8	4.2	1.4
Q1020	0/0	0/0	7.0/0
Q1021	3.0	8.4	3.6
Q1023	1.9	0	1.8
Q1024	0/0.6	8.9/8.6	-3.9/0.1
Q1025	0/0.6	8.9/8.6	-3.9/0.1
Q1026	3.0	7.5	3.8
Q1027	0/1.6	-4.0/0.1	0/6.9
Q1028	0.6(0.3/0.6)	7.7(7.7/3.7)	1.0(1.0/0.9)
Q1029	0(0/0)	0.6(0.6/0)	0(0/11.0)
Q1030	0(0/0)	0(7.5/0)	0(0/10.5)
Q1031	0(7.5/7.5)	0(-0.5/7.5)	0(7.5/0)
Q1032	8.1	13.2	8.8
Q1033	0	6.9	0
Q1035	0	3.1	-0.5
Q1037	0/0	0.5/7.4	4.0/0
Q1043	5.5/5.0	0/5.0	5.0/0.6
Q1044	0/0	0.6/0	0/0.6
Q1046	0/0	0.4/0	0/4.8
Q1047	0.8	8.7	1.5
Q1048	0/0	0/0	0.1/3.7

	1.	2	3
Q1014	8.4/2.5	8.4/2.5	8.8/2.5
Q1022	7.0	—	5.4
Q1034	-5.2	0	0
Q1036	12.0/0.7	0/10.2	4.2/3.9
Q1038	0	0	0
Q1039	0	0	0
Q1040	0/0	4.8/4.8	0/0
Q1041	0	4.6	0
Q1042	0	0	0
Q1045	13.5	0.1	-8.2

MAIN UNIT VOLTAGE CHART

(DC VOLT)

	E (S)	C (D)	B (G ₁)	(G ₂)	REMARKS
Q1001	2.5/-0.1	12.7/13.4	-0.7/-5.1		RX/TX
Q1002	2.5/-0.1	12.7/13.4	-0.7/-5.1		RX/TX
Q1003	2.0/0	13.2/13.4	1.5/-4.1	3.2/3.2	RX/TX
Q1004	0.6	13.4	0		
Q1005	1.7/0	7.8/8.8	1.7/-4.0	3.4/3.4	RX/TX
Q1006	2.2	7.4	2.4	3.4	
Q1007	1.9	8.0	1.8	3.6	
Q1008	4.8	8.3	5.5		
Q1009	0	3.4	0.1		
Q1010	3.6	3.6	0		
Q1011	6.2	8.8	3.4		
Q1012	5.3/0.7	0/0	4.7/4.6		RX/TX
Q1013	0/0	5.0/0.1	0/4.3		RX/TX
Q1015	4.2	8.4	4.8		
Q1016	1.3	4.4	2.0		
Q1017	0/0	0/0	0.1/3.7		RX/TX
Q1018	0.1	1.4	0.7		
Q1019	0.8	4.2	1.4		
Q1020	0/0	0/0	7.0/0		RX/TX
Q1021	3.0	8.4	3.6		
Q1023	1.9	0	1.8	3.2	
Q1024	0/0.6	8.9/8.6	-3.9/0.1		RX/TX
Q1025	0/0.6	8.9/8.6	-3.9/0.1		RX/TX
Q1026	3.0	7.5	3.8		
Q1027	0/1.6	-4.0/0.1	0/6.9		RX/TX
Q1028	0.6(0.3/0.6)	7.7(7.7/3.7)	1.0(1.0/0.9)		RX CW(TX CW KEY UP/DWN)
Q1029	0(0/0)	0.6(0.6/0)	0(0/11.0)		RX CW(TX CW KEY UP/DWN)
Q1030	0(0/0)	0(7.5/0)	0(0/10.5)		RX CW(TX CW KEY UP/DWN)
Q1031	0(7.5/7.5)	0(-0.5/7.5)	0(7.5/0)		RX CW(TX CW KEY UP/DWN)
Q1032	8.1	13.2	8.8		
Q1033	0	6.9	0		
Q1035	0	3.1	-0.5		
Q1037	0/0	0.5/7.4	4.0/0		0.5-1.5, 14.5-18.5 / other 21.5-25.0MHz
Q1043	5.5/5.0	0/5.0	5.0/0.6		RX/TX
Q1044	0/0	0.6/0	0/0.6		RX/TX
Q1046	0/0	0.4/0	0/4.8		RX/TX (MODE FM SPLIT ON)
Q1047	0.8	8.7	1.5		
Q1048	0/0	0/0	0.1/3.7		RX/TX

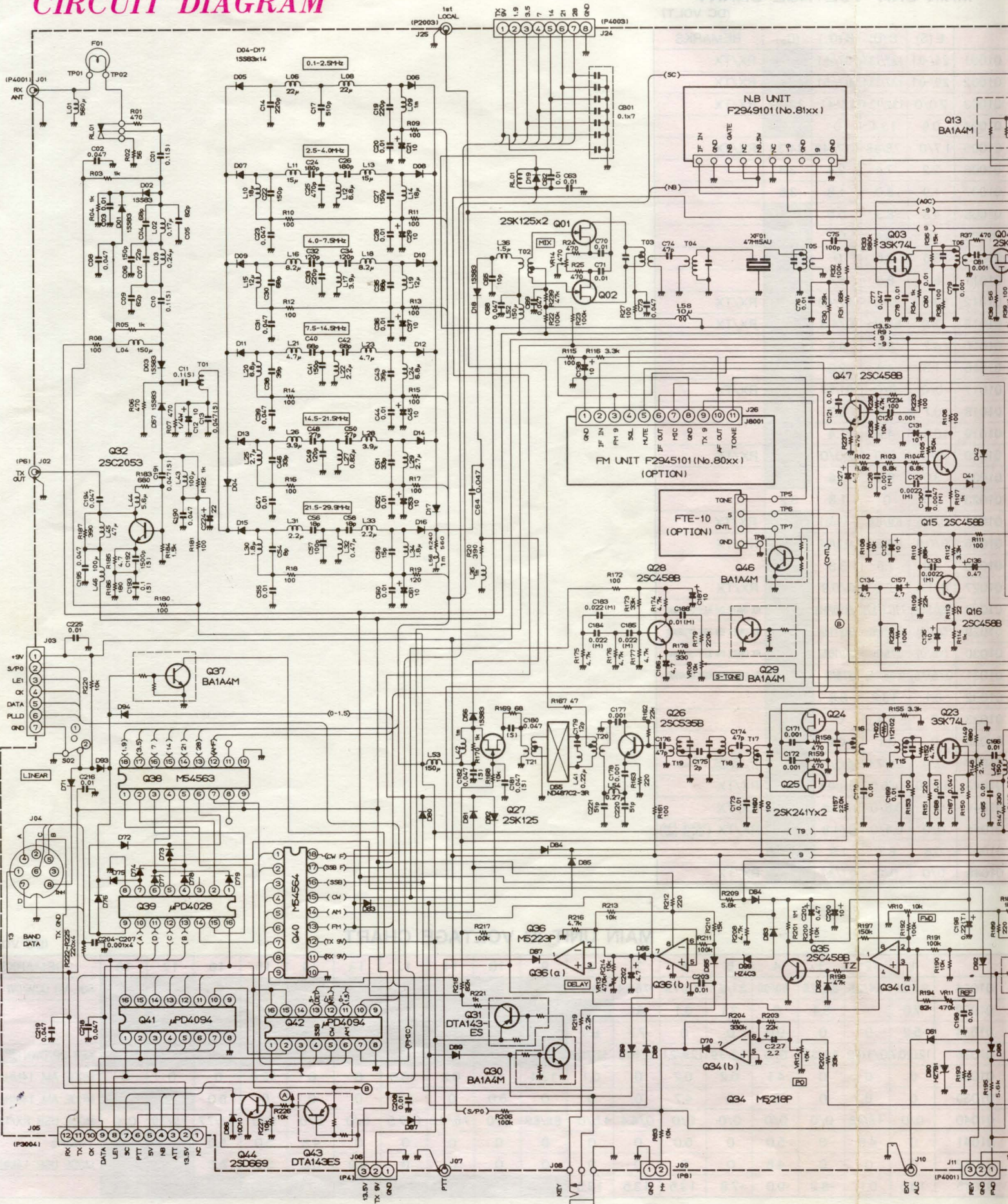
MAIN UNIT IC VOLTAGE CHART

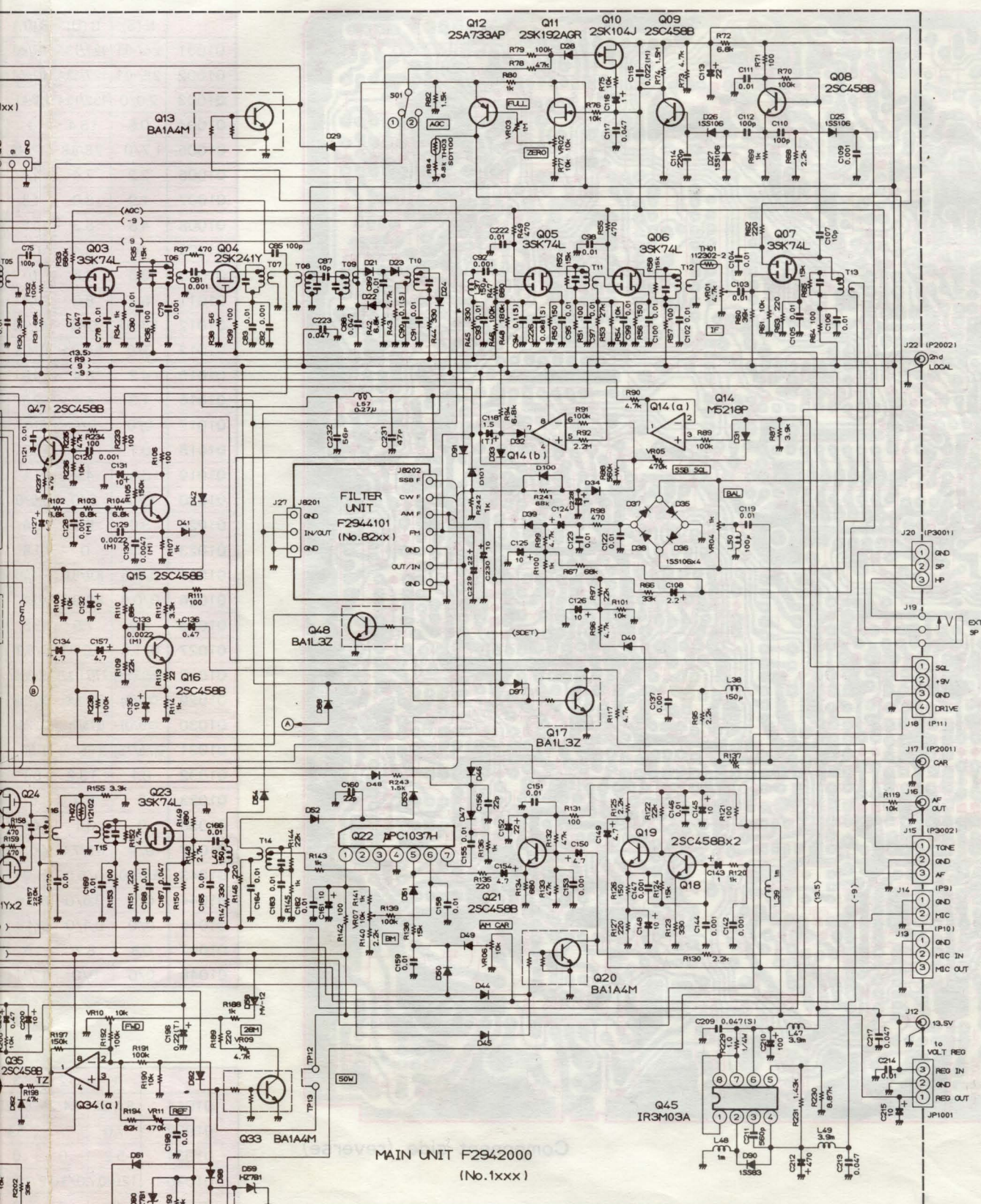
(DC VOLT)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	REMARKS	
Q1014	8.4/2.5	8.4/2.5	8.8/2.5	-9.0/9.0	3.1/2.7	7.0/1.8	-7.6/8.4	8.9/8.9												SQL VR CCW/CW
Q1022	7.0	—	5.4	0	3.1	3.1	3.1													
Q1034	-5.2	0	0	-9.0	0	0	-7.7	8.9												
Q1036	12.0/0.7	0/10.2	4.2/3.9	0/0	4.2/3.9	12.9/2.1	0/10.8	13.1/12.3												KEY UP/DWN (MODE CW VRI13 MIN)
Q1038	0	0	0	4.1	0.2	0.2	0	0.1	13.4	0	0.2	13.0	0	0	12.0	0	0	0	0	MODE AM, 14MHz
Q1039	0	0	0	0	0	4.7	0	0	0	5.0	0	5.0	0	0	0	5.0				MODE AM, 14MHz
Q1040	0/0	4.8/4.8	0/0	0/0	0/0	0/0	0/4.4	4.5/0	8.9/8.9	0/0	7.6/-1.3	0/7.5	0/0	0/0	0/0	7.7/7.7	7.9/7.9	0/0	0/0	MODE USB, RX/TX
Q1041	0	4.6	0	5.0	0	5.0	0	0	0	0	0	0	0	4.8	5.0	5.0				14MHz
Q1042	0	0	0	4.8	0	0	0	0	0	0	0	0	0	4.9	5.0	5.0	5.0			MODE USB, 14MHz
Q1045	13.5	0.1	-8.2	-9.0	-7.8	13.5	13.5	13.5												

MAIN UNIT

CIRCUIT DIAGRAM

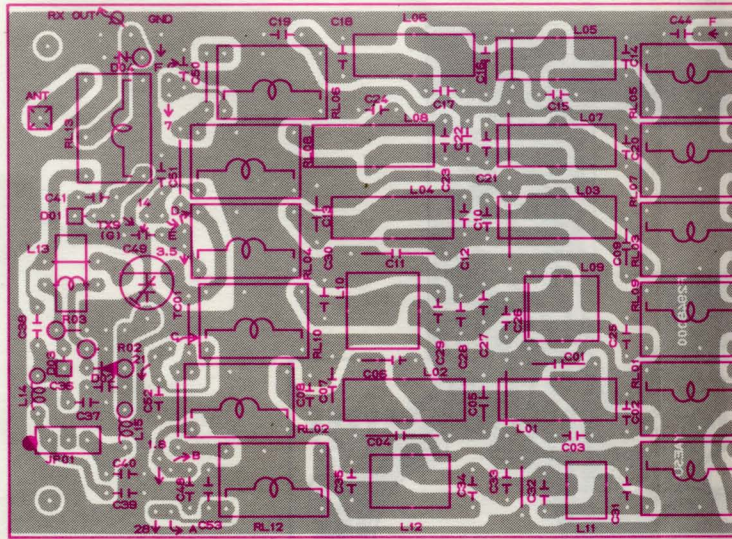




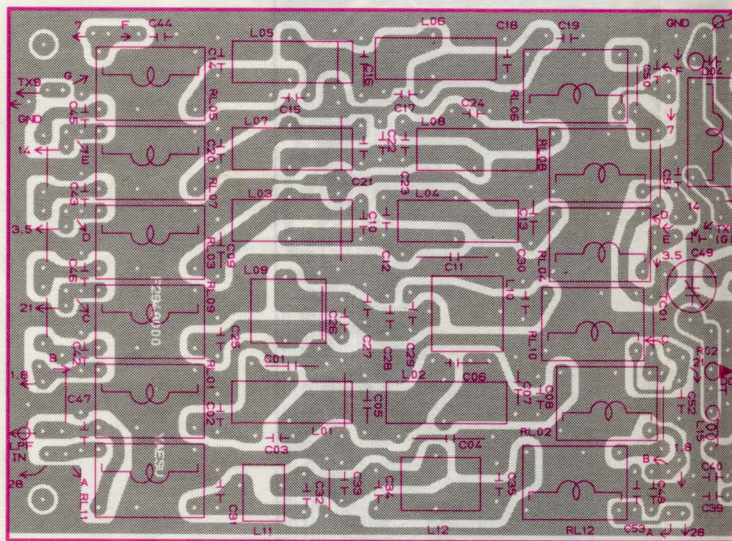
MAIN UNIT F294200
(No. 1xxx)

RESISTOR VALUES ARE IN Ω , 1/16W;
 CAPACITOR VALUES ARE IN μ F, 50V;
 INDUCTOR VALUES ARE IN H;
 ELECTROLYTIC CAPACITOR VALUES ARE IN μ F, 16V; UNLESS OTHERWISE NOTED.
 DIODES ARE TYPE 1SS270 UNLESS OTHERWISE NOTED.
 MICAPACITORS ARE POLYESTER FILM, 50V.
 (S)CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V.
 (T)CAPACITORS ARE TANTALUM, 25V.

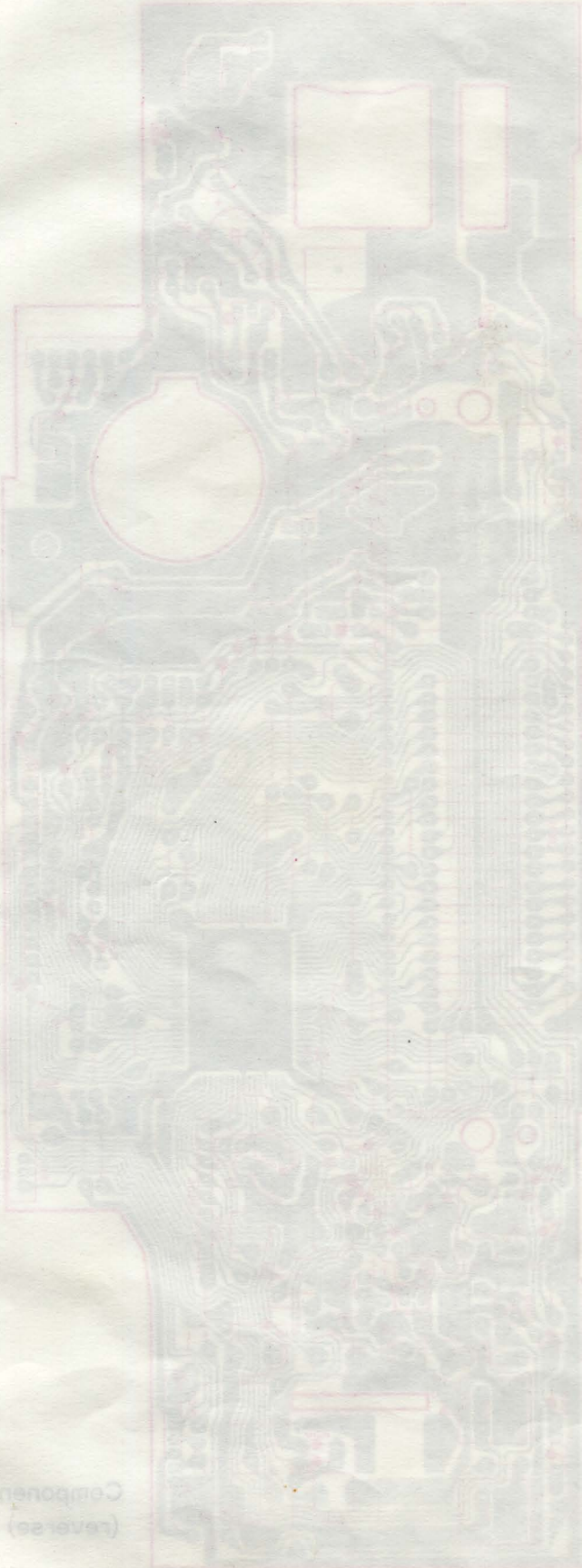
PARTS LAYOUT



Component side (o

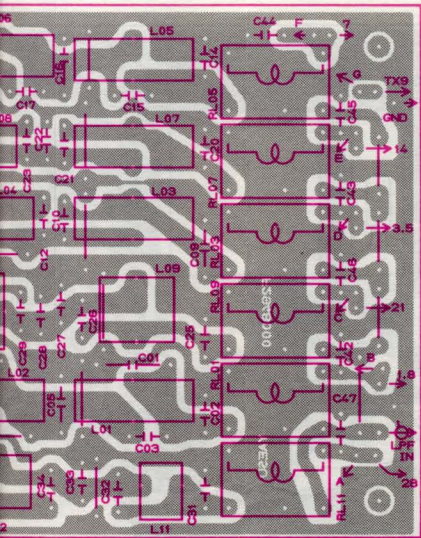


Component side (r

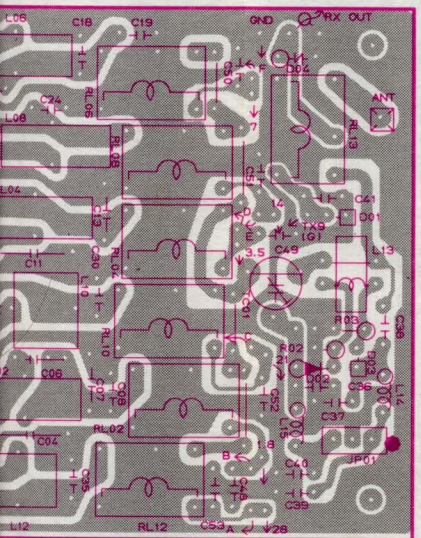


Component side
(reverse)

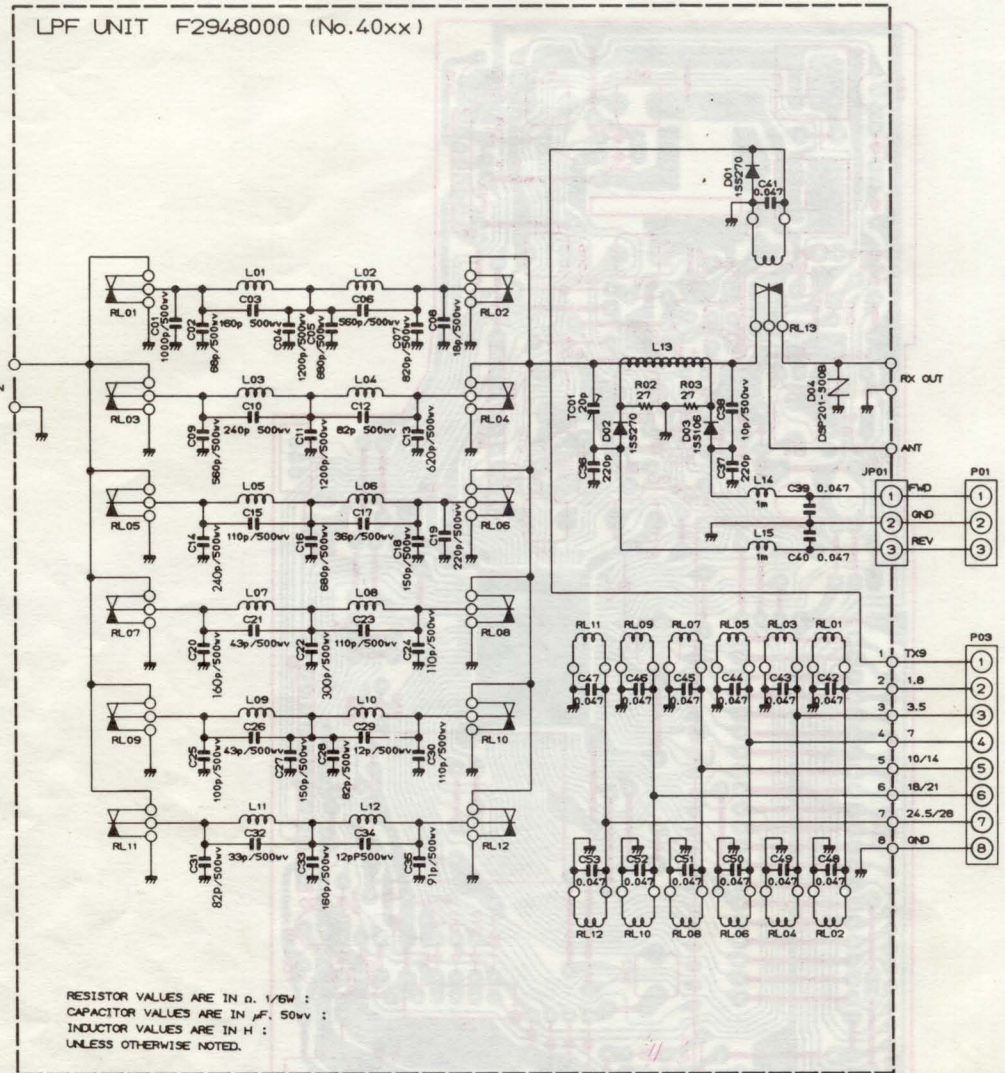
T



Component side (obverse)



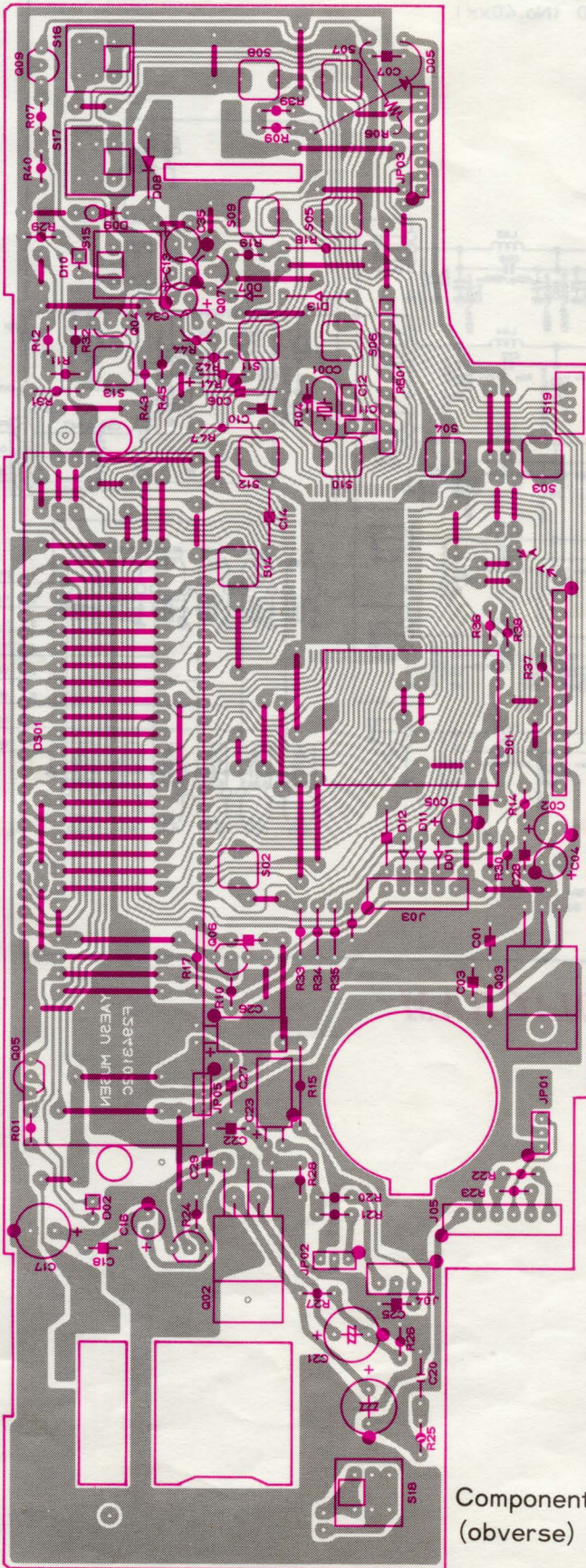
Component side (reverse)



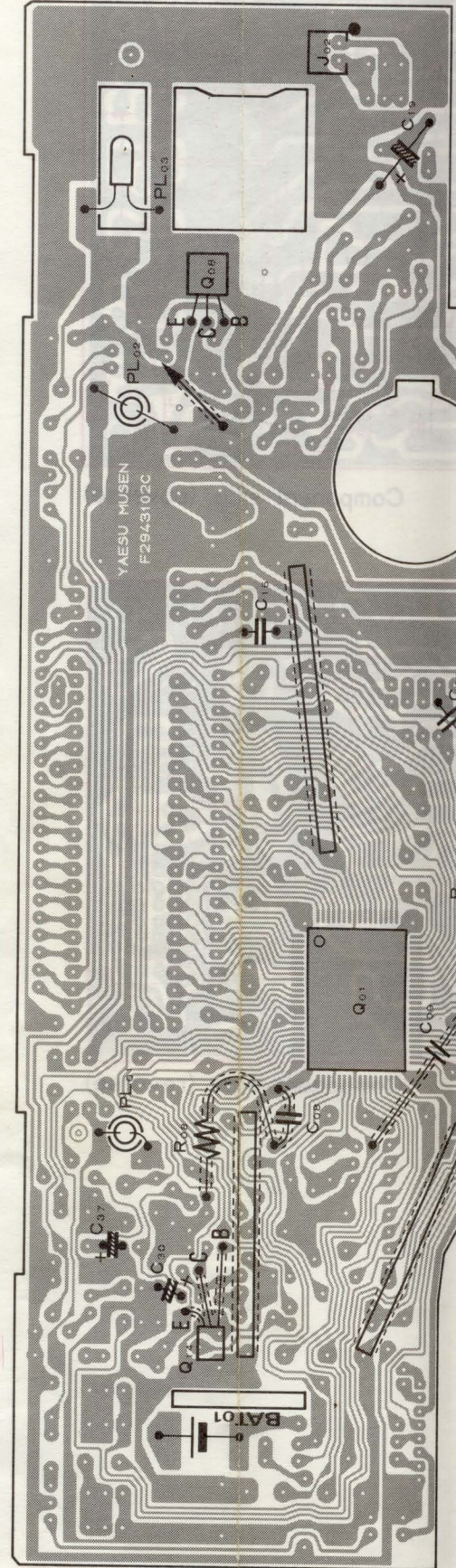
CIRCUIT DIAGRAM

DISPLAY UNIT

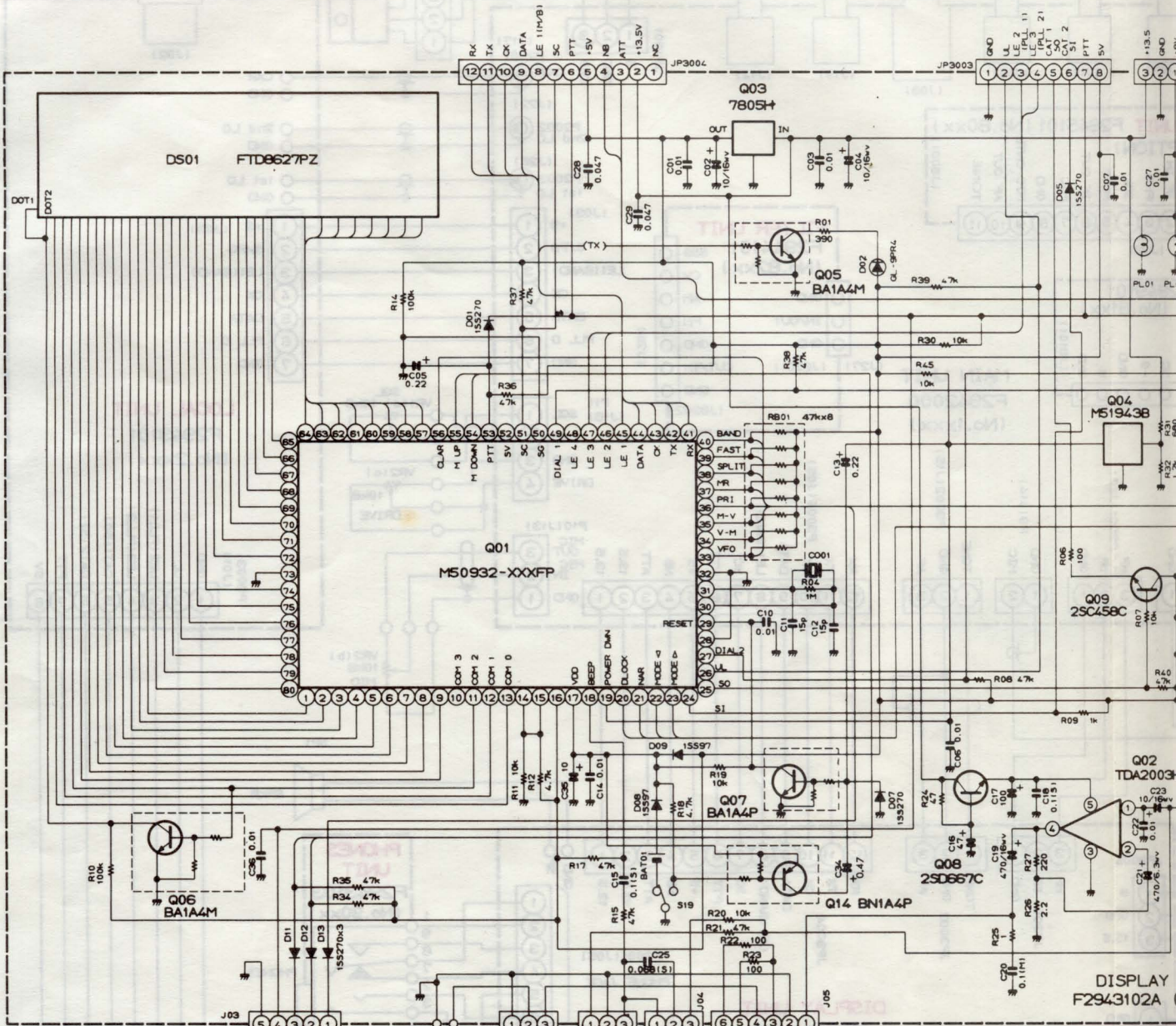
PARTS LAYOUT



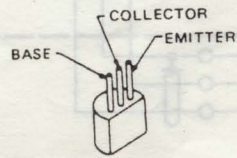
Component side
(obverse)



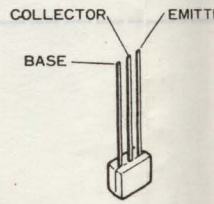
CIRCUIT DIAGRAM



RESISTOR VALUES ARE IN Ω , 1/k Ω ,
 CAPACITOR VALUES ARE IN μ F, 50V;
 ELECTROLYTIC CAPACITORS ARE IN μ F, 16V,
 UNLESS OTHERWISE NOTED.
 (M)CAPACITORS ARE POLYESTER FILM, 50V.
 (S)CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V.
 (T)CAPACITORS ARE TANTALUM, 25V.



2SC458 (Q3009)
 2SD667C (Q3008)



BA1A4M (Q3005,3006)
 BA1A4P (Q3007)
 BN1A4P (Q3014)

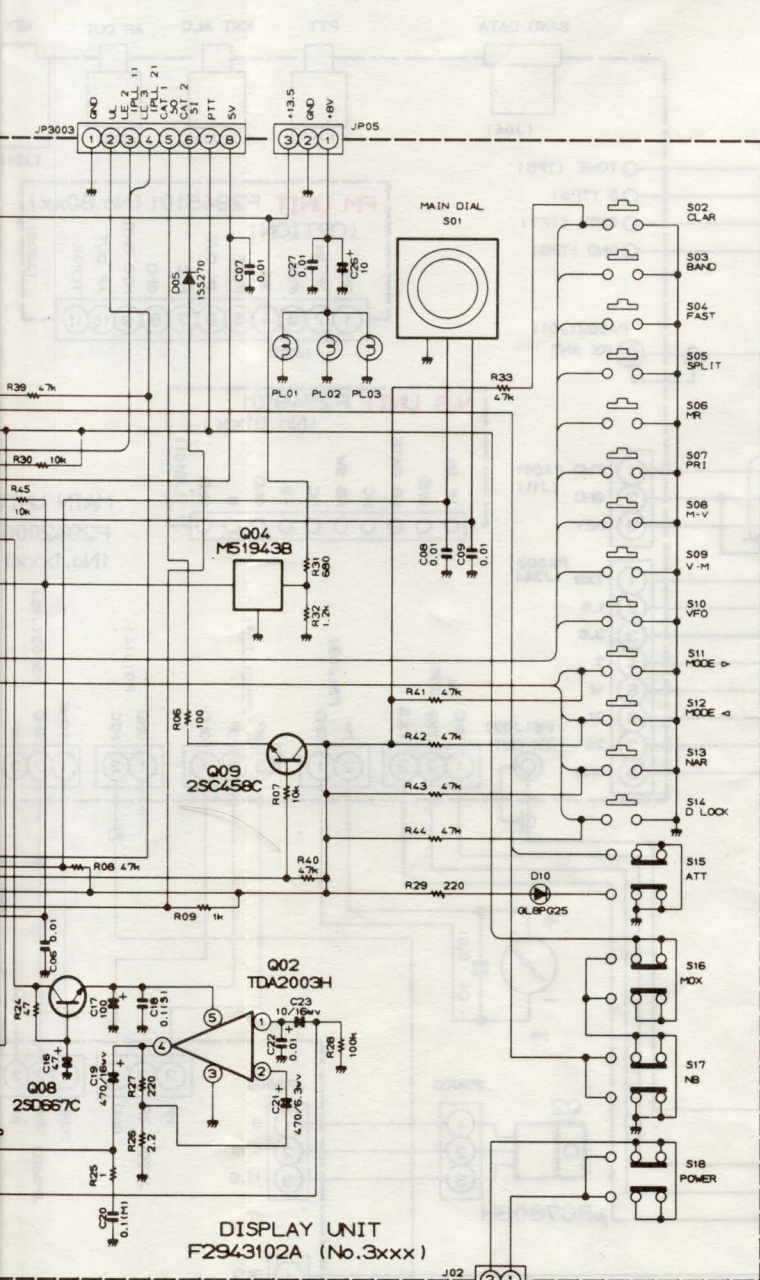
DISPLAY UNIT

DISPLAY UNIT VOLTAGE CHART
(DC VOLT)

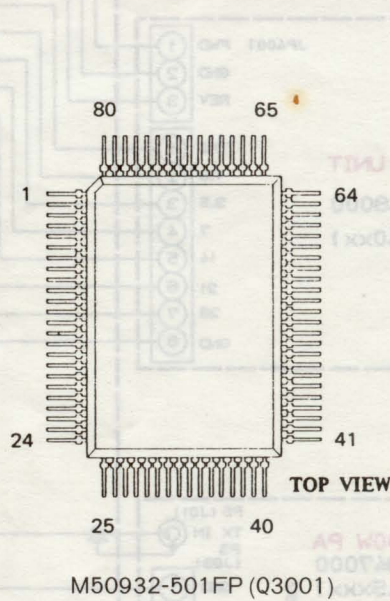
	E	G	B	REMARKS
Q3005	0/0	3.5/0	0/4.5	RX/TX
Q3006	2.7	0.8	0	
Q3007	0	4.6	0	
Q3008	12.7	13.4	13.4	
Q3009	4.2	5.0	4.6	
Q3014	4.6	0	4.0	

DISPLAY UNIT VOLTAGE CHART
(DC VOLT)

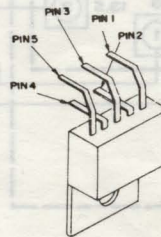
	1 (IN)	2 (GND)	3 (OUT)	4	5	REMARKS
Q3002	0.7	0.1	0	4.8	12.7	
Q3003	13.5	0	5.0			
Q3004	8.3	0	5.0			



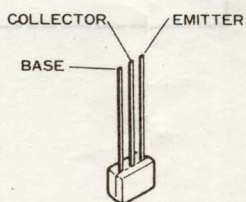
RESISTOR VALUES ARE IN Ω, 1/8W;
CAPACITOR VALUES ARE IN μF, 50V;
ELECTROLYTIC CAPACITORS ARE IN μF, 16V,
UNLESS OTHERWISE NOTED.
(M)CAPACITORS ARE POLYESTER FILM, 50V.
(S)CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V.
(T)CAPACITORS ARE TANTALUM, 25V.



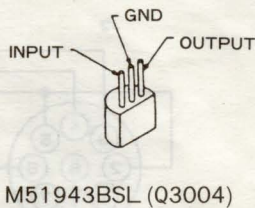
M50932-501FP (Q3001)



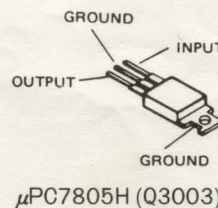
TDA2003H (Q3002)



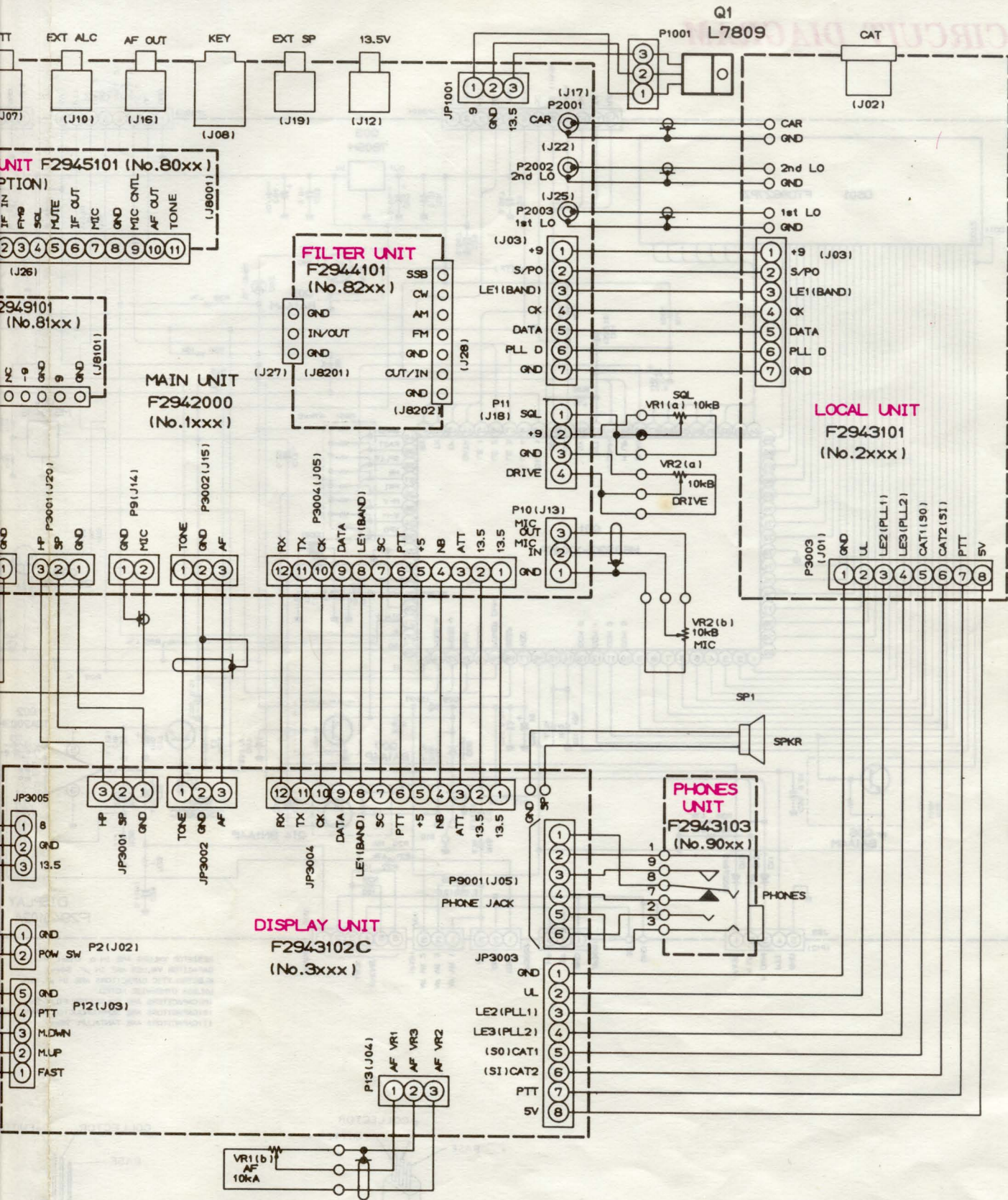
- BA1A4M (Q3005,3006)
- BA1A4P (Q3007)
- BN1A4P (Q3014)



M51943BSL (Q3004)

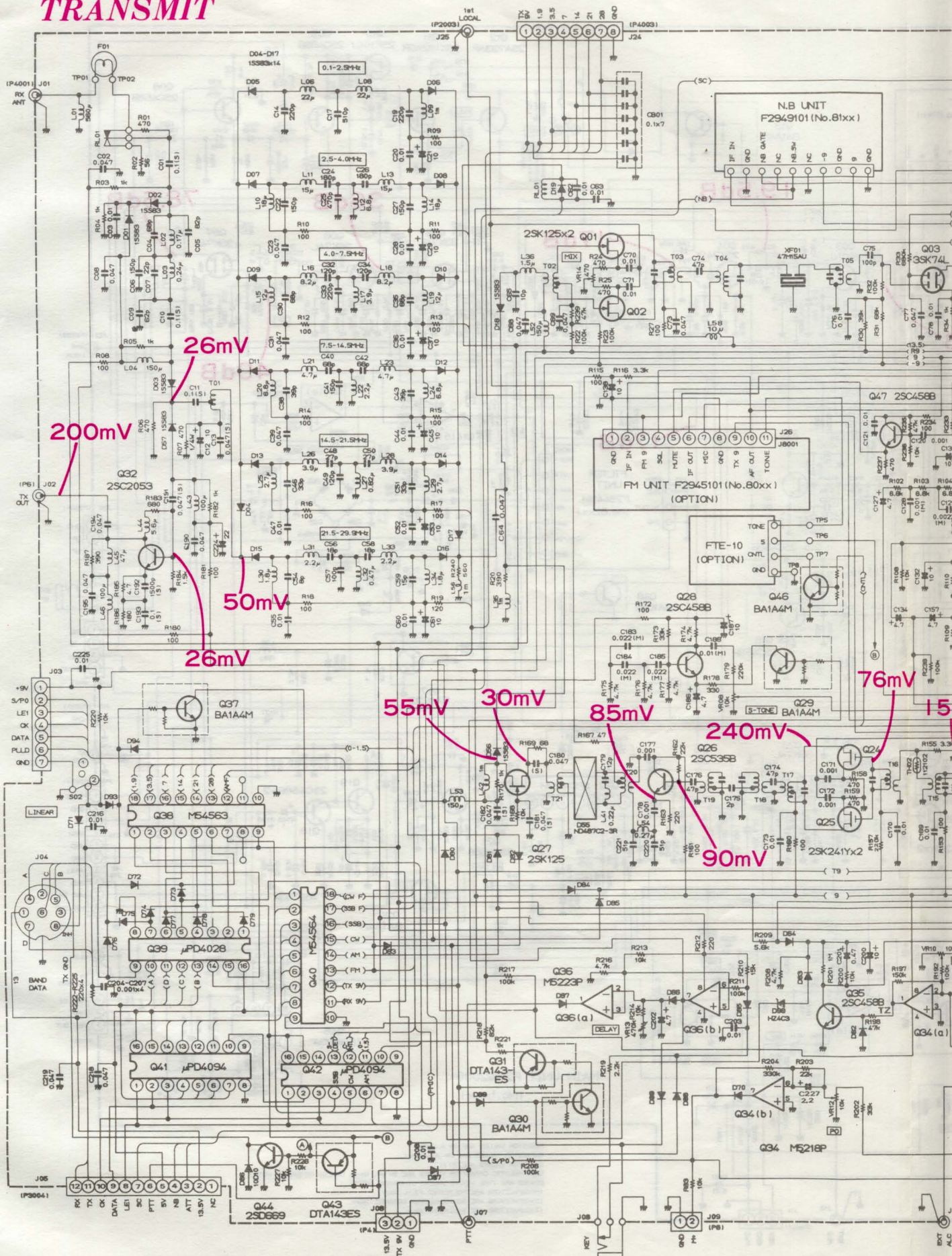


μPC7805H (Q3003)



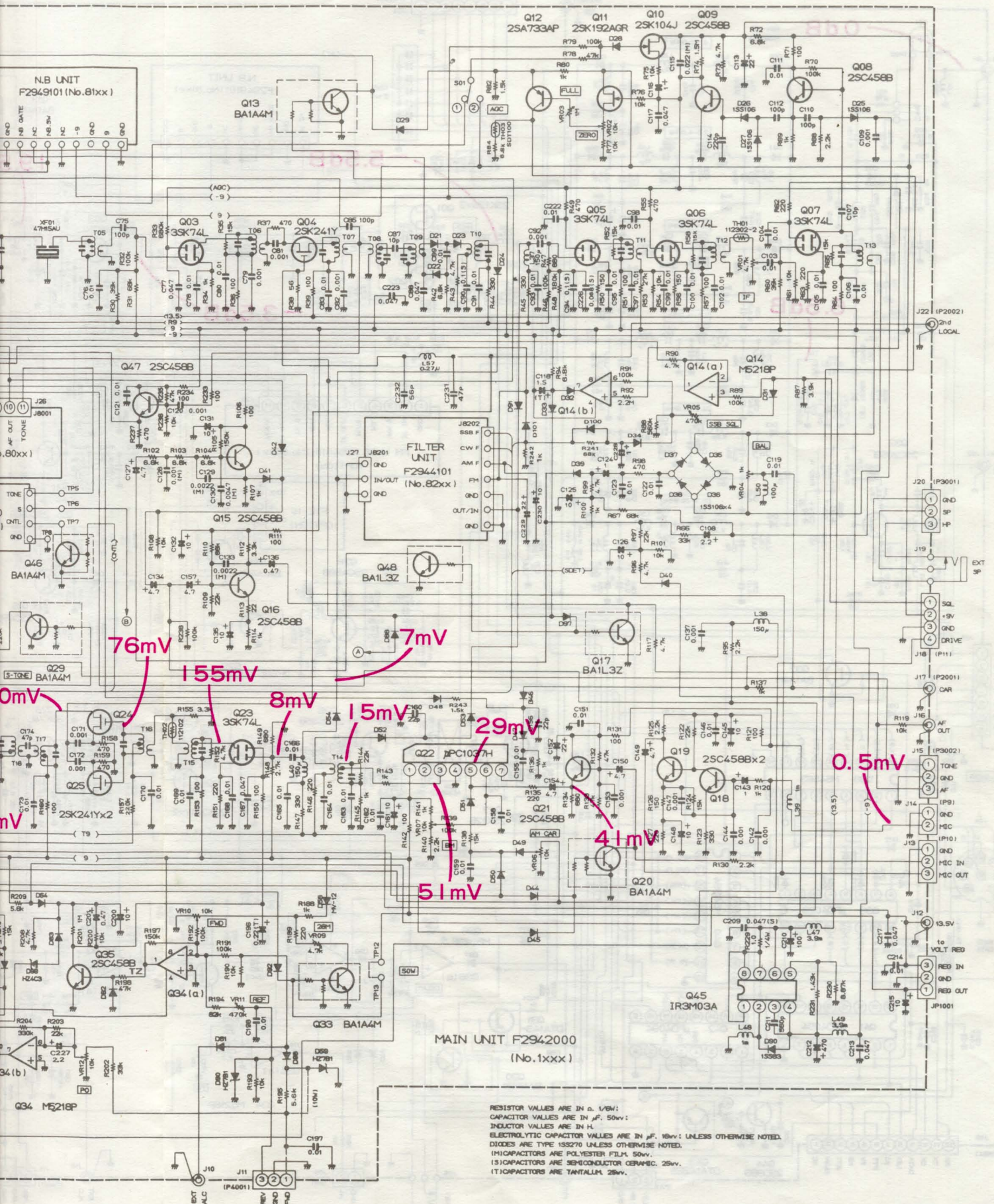
FT-747GX
 CONNECTION DIAGRAM

TRANSMIT



LEVEL DIAGRAM

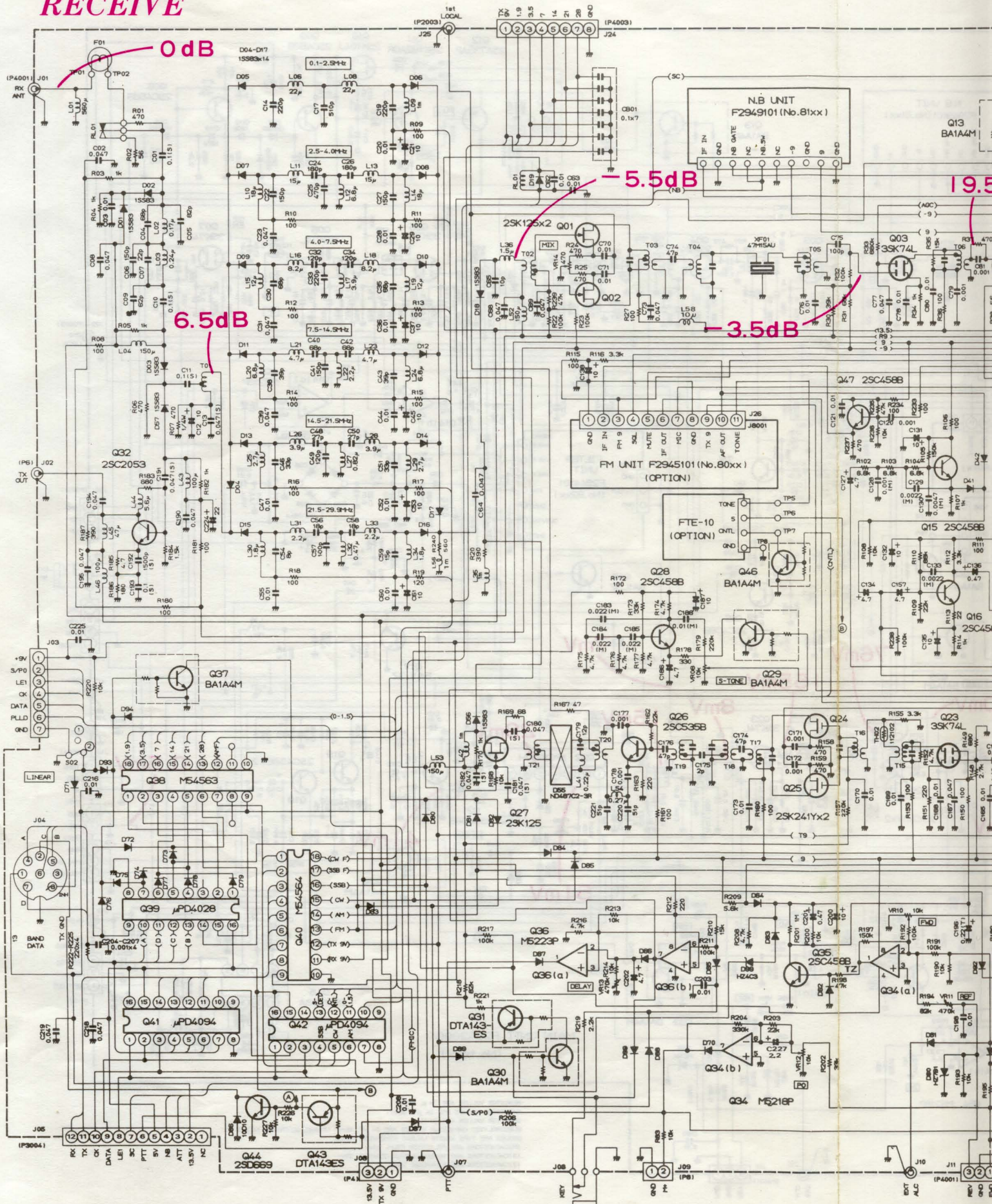
RECEIVE

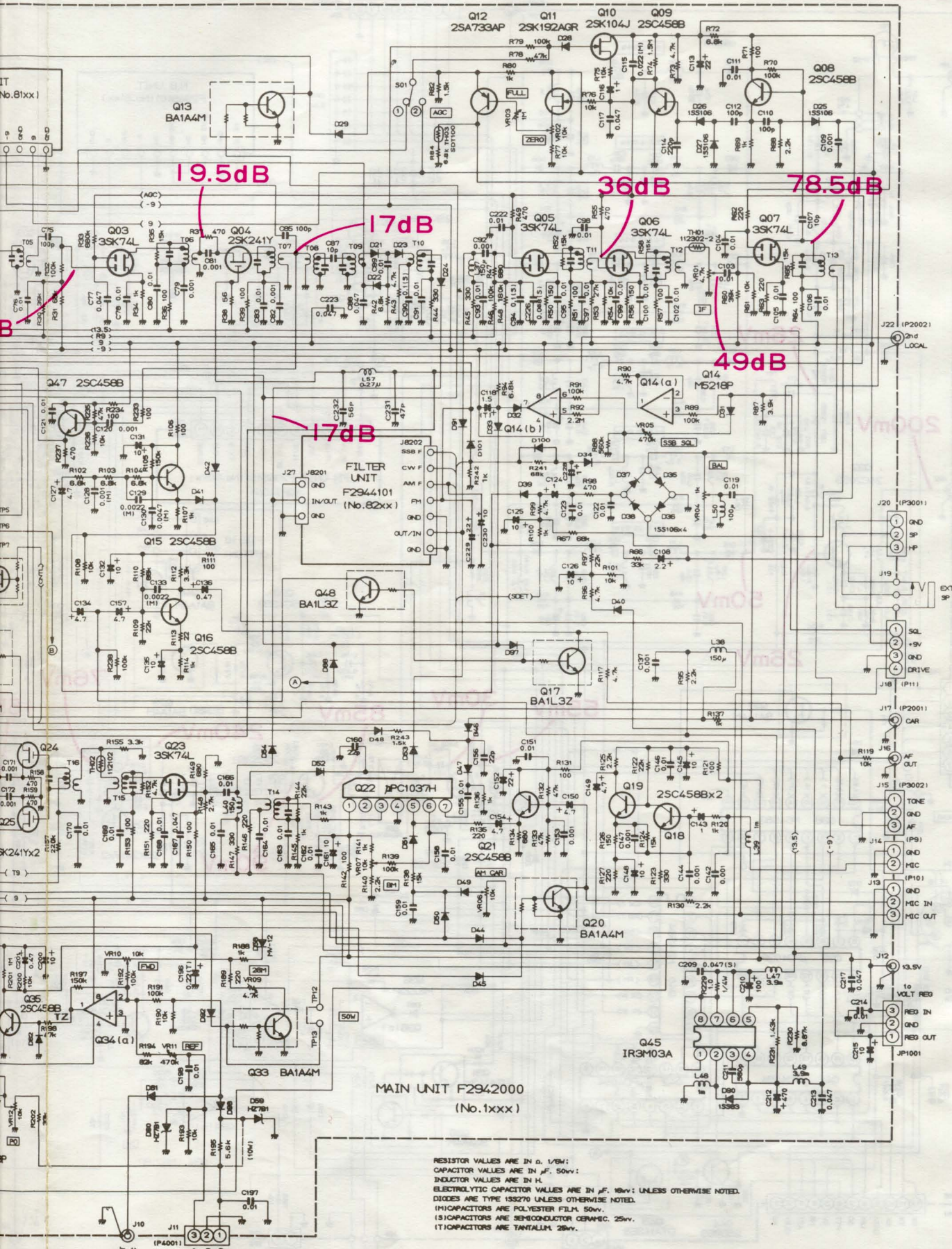


RESISTOR VALUES ARE IN Ω , 1/10W;
 CAPACITOR VALUES ARE IN μ F, 50V;
 INDUCTOR VALUES ARE IN H.
 ELECTROLYTIC CAPACITOR VALUES ARE IN μ F, 16V; UNLESS OTHERWISE NOTED.
 DIODES ARE TYPE 1SS270 UNLESS OTHERWISE NOTED.
 (M) CAPACITORS ARE POLYESTER FILM, 50V.
 (S) CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V.
 (T) CAPACITORS ARE TANTALUM, 25V.

LEVEL DIAGRAM

RECEIVE





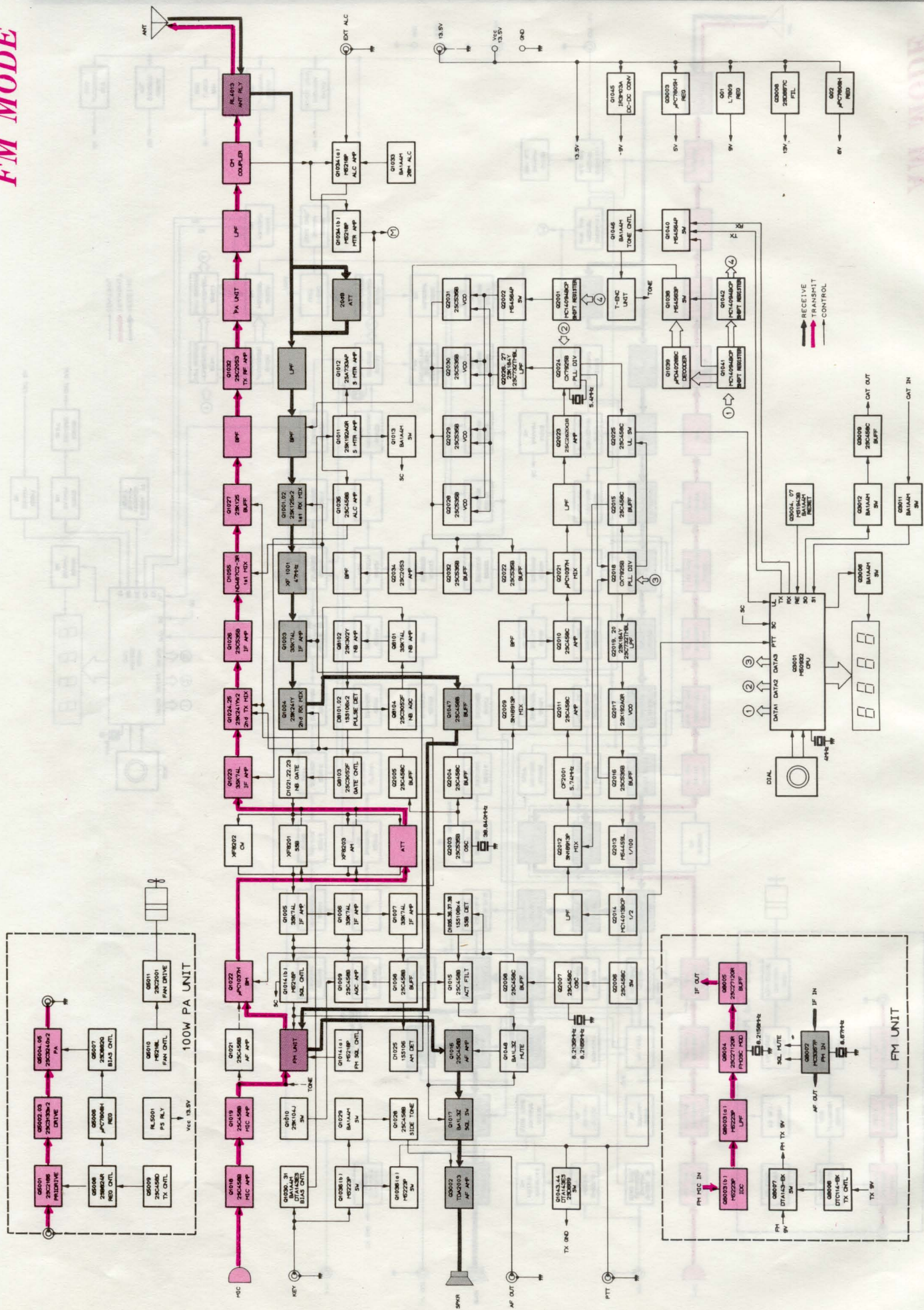
MAIN UNIT F294200
(No. 1xxx)

RESISTOR VALUES ARE IN Ω, 1/10W;
 CAPACITOR VALUES ARE IN μF, 50V;
 INDUCTOR VALUES ARE IN H;
 ELECTROLYTIC CAPACITOR VALUES ARE IN μF, 10V, UNLESS OTHERWISE NOTED.
 DIODES ARE TYPE 1S5270 UNLESS OTHERWISE NOTED.
 MICAPACITORS ARE POLYESTER FILM, 50V.
 (S) CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V.
 (T) CAPACITORS ARE TANTALUM, 25V.

FM MODE

SIGNAL PATH

FM MODE



ALIGNMENT

The FT-747GX is carefully designed to allow the knowledgeable operator to make all adjustments required for various station conditions, modes and operator preferences simply from the controls on the front panel, without opening the case of the transceiver. These adjustments are described in the FT-747GX Operating Manual.

The following procedures cover the sometimes critical and tedious adjustments that are not normally required once the transceiver has left the factory. However, if damage occurs and some parts subsequently be replaced, realignment may be required. If a sudden problem occurs during normal operation, it is likely due to component failure; realignment should not be done until after the faulty component has been replaced.

We recommend servicing be performed only by authorized Yaesu service technicians who are experienced with the circuitry and fully equipped for repair and alignment. Therefore, if a fault is suspected, contact the dealer from whom the transceiver was purchased for instructions regarding repair. Authorized Yaesu service technicians realign all circuits and make complete performance checks to ensure compliance with factory specifications after replacing any faulty components.

Those who do undertake any alignment are cautioned to proceed at their own risk. Problems caused by unauthorized attempts at realignment are not covered by the warranty policy. Also, Yaesu must reserve the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners.

Under no circumstances should alignment be attempted unless the normal function and operation of the transceiver are clearly understood, the cause of the malfunction has been clearly pinpointed and any faulty

components replaced, and the need for realignment determined to be absolutely necessary.

The following test equipment (and thorough familiarity with its correct use) is necessary for complete realignment. Correction of problems caused by misalignment resulting from use of improper test equipment is not covered under the warranty policy. While most steps do not require all equipment listed, interactions of some adjustments may require complex adjustments be performed afterwards. Do not attempt to perform only a single step unless it is clearly isolated electrically from all other steps. Rather, have all test equipment ready before beginning, and follow all of the steps in a section in the order they are presented.

A 50-ohm dummy load must be connected to the antenna jack in steps calling for transmission (pressing the MOX button). Correct alignment is not possible with an antenna.

The NAR, ATT and NB buttons should be set to OFF and the SQL control must be fully counterclockwise, unless stated otherwise.

After completing one step, read the following step to determine whether the same test equipment will be required. If not, remove the test equipment (except dummy load and wattmeter, if connected) before proceeding.

ALIGNMENT

Alignment Equipment

Frequency counter with accuracy of 0.1 ppm to 100 MHz

DC voltmeter with at least 10-Megohm input impedance

RF voltmeter with at least 5% accuracy to 100 MHz, high impedance, and ranging from 10 mV to 3 Vrms

AF millivoltmeter

DC milliammeter ranging to 500 mA

RF in-line wattmeter

Resistive dummy load, 50 ohms, 150W; three required for SWR Turndown alignment

RF signal generator covering 1-30 MHz, with calibrated output levels from 5 dB μ to 100 dB μ

AF signal generator with calibrated output levels from 1 mV to 25 mV

RF sampling coupler ("T")

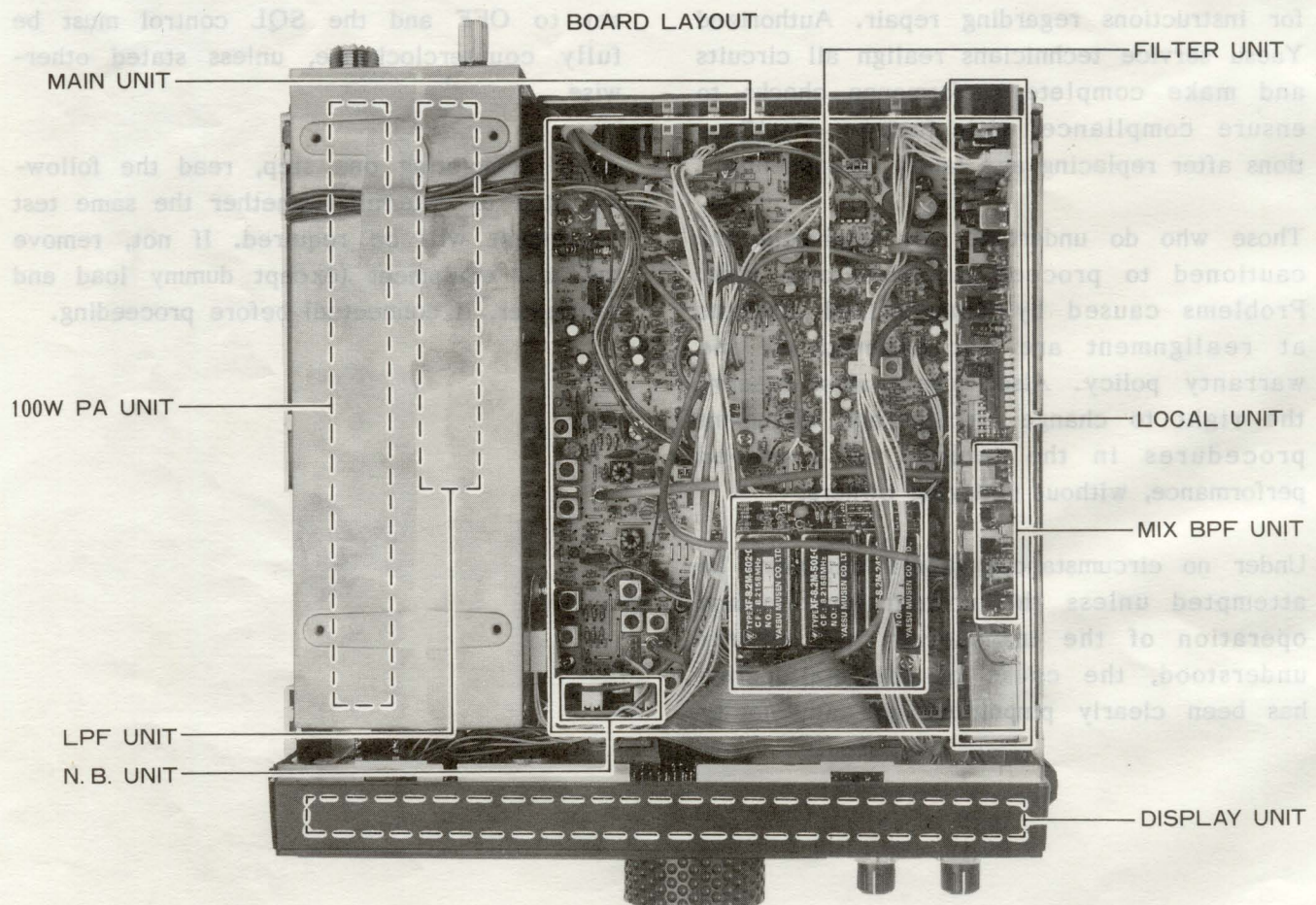
Additional Alignment Precautions

Correct alignment requires that the ambient temperature be the same as that of the transceiver and test equipment, and that this temperature be held constant between 20 and 30 °C (68 to 86 °F). When the transceiver is brought into the shop from hot or cold air it should be allowed some time for thermal equalization before alignment.

Alignments must only be made with oscillator shields and circuit boards firmly affixed in place. Also, the test equipment must be thoroughly warmed up before beginning.

Alignment values assume a DC supply voltage of 13.5V DC.

Note: Signal levels in dB referred to in the alignment procedure are based on 0dBu=0.5uV.



ALIGNMENT

I. Local Unit

A. 2nd Local Overall Check

1. Disconnect TMP plug P2002 from J1022 on the Main Unit.
2. Connect the frequency counter to P2002 and confirm 38.8380 MHz \pm 400 Hz on the counter.
3. Remove the counter and connect a 50-ohm resistor and the RF voltmeter to P2002.
4. Confirm at least 230 mVrms on the voltmeter.
5. Disconnect the resistor and voltmeter, and replace P2002 in J1022.

B. PLL Subloop VCO

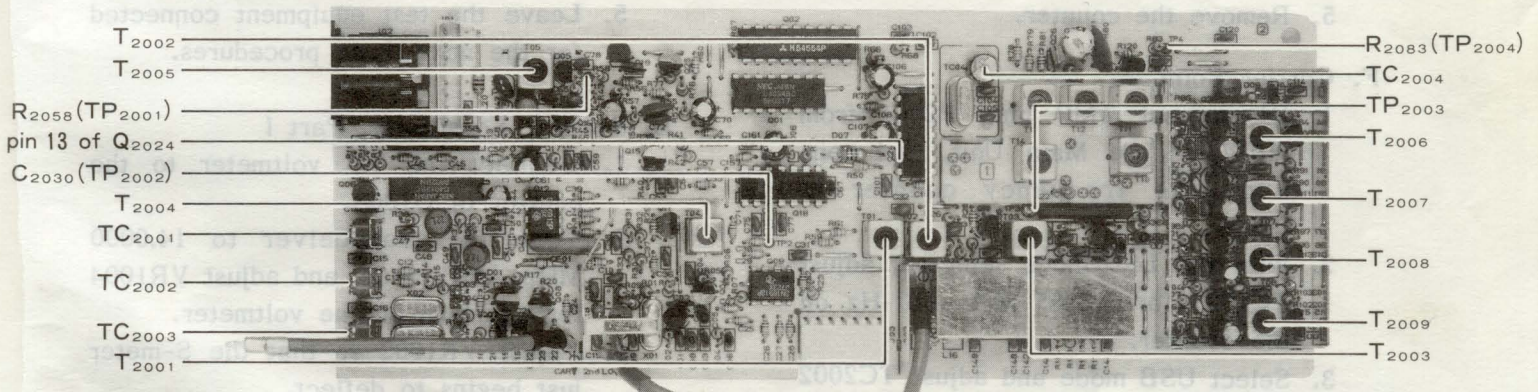
1. Connect the DC voltmeter between the exposed lead of R2058 (TP2001) and chassis ground.
2. Tune the transceiver to 7.0015 MHz, LSB mode.
3. Adjust T2005 for 2.0 \pm 0.1V on the meter. *2.185!*
4. Retune the transceiver to 7.0014 MHz and confirm at least 5.6 \pm 0.6V on the voltmeter.
5. Disconnect the voltmeter.

C. PLL Subloop BPF

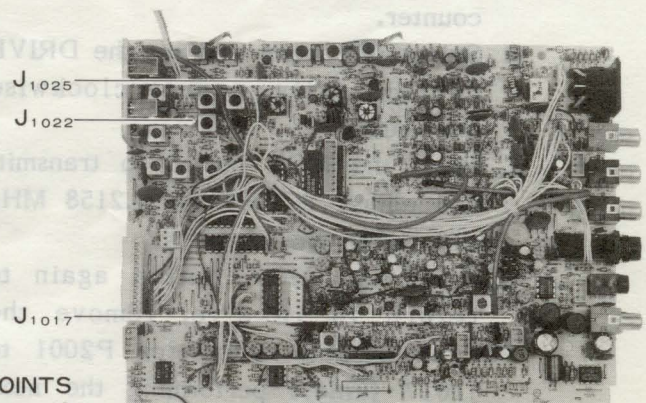
1. Connect the RF voltmeter to the exposed lead of C2030 (TP2002).
2. Tune the transceiver to 7.0265 MHz, LSB mode.
3. Adjust T2004 for peak on the voltmeter (at least 70 mVrms).
4. Move the voltmeter to TP2003, and retune the transceiver to 7.0267 MHz.
5. Adjust T2001-T2003 for peak on the voltmeter (more than 50 mVrms).
6. Disconnect the voltmeter.

D. PLL Main Loop VCO

1. Connect the DC voltmeter between the exposed lead of R2083 (TP2004) and chassis ground.
2. Referring to the following table, tune the transceiver to each adjustment frequency (MHz), adjust the corresponding transformer for 1.5 \pm 0.1V, retune to the corresponding check frequency and confirm the check voltage on the voltmeter.



LOCAL UNIT ALIGNMENT POINTS



MAIN UNIT ALIGNMENT POINTS

ALIGNMENT

<u>Adjust. Frequency</u>	<u>Adjust. Transformer</u>	<u>Check Freq.</u>	<u>Check Voltage</u>
2.5000	T2006	2.4999 7.4999 0.1000	4.5-6.0V 5.0-6.5V 1.5-3.0V
7.5000	T2007	14.4999	5.0-6.5V
14.5000	T2008	21.4999	5.0-6.5V
21.5000	T2009	29.9999	5.0-6.5V

3. Connect the RF voltmeter to pin 13 of Q2024 and tune the transceiver to 29.9999 MHz. Confirm at least 90mVrms on the RF voltmeter.
4. Disconnect the voltmeters.

E. Reference Oscillator

1. Connect the frequency counter to the exposed lead of C2030 (TP2002).
2. Tune the transceiver to 7.0000 MHz, LSB mode.
3. If the TCXO option is installed, adjust the trimmer accessible through the hole in the TCXO housing, if necessary, for 5.7635 MHz \pm 3 Hz on the counter.
4. If the TCXO option is not installed, adjust TC2004, if necessary, for 5.7635 MHz \pm 10 Hz on the counter.
5. Remove the counter.

F. Carrier Point

1. Disconnect TMP plug P2001 from J1017 on the Main Unit, and connect the frequency counter to P2001.
2. With the LSB mode selected, adjust TC2003 for 8.2135 MHz \pm 10 Hz on the counter.
3. Select USB mode and adjust TC2002 for 8.2165 MHz \pm 10 Hz on the counter.
4. Select CW mode and set the DRIVE control fully counterclockwise (minimum).
5. Press the MOX button to transmit, and adjust TC2001 for 8.2158 MHz \pm 10 Hz on the counter.
6. Press the MOX button again to return to receive, remove the counter and reconnect P2001 to J1017 (unless performing the next procedure).

G. Carrier Level

1. Disconnect TMP plug P2003 from J1025 on the Main Unit, and connect a 50-ohm resistor in parallel with the RF voltmeter to P2003.
2. Confirm at least 230 mVrms on the RF voltmeter in all modes.
3. Remove the voltmeter and resistor, and reconnect P2003 to J1025.

II. Main Unit - Receiver

A. RX IF, Part I

1. Connect the RF generator to the antenna jack, and the AF voltmeter and an 8-ohm, 3W resistor across the EXT SPKR jack.
2. Tune the transceiver to 14.2000 MHz, USB mode. Set the AF gain to the 10 o'clock position.
3. Tune the RF generator for a 1.5 kHz heterodyne in the receiver, and adjust the injection level for S-7 on the S-meter.
4. Adjust T1003-T1013 for peak on the AF voltmeter, reducing the injection level, if necessary, to keep S-meter deflection near S-7.
5. Leave the test equipment connected for the next three procedures.

B. S-meter Sensitivity, Part I

1. Connect the RF voltmeter to the emitter of Q1008.
2. Tune the transceiver to 14.0000 MHz, USB mode, and adjust VR1004 for minimum on the voltmeter.
3. Adjust VR1002 so that the S-meter just begins to deflect.
4. Disconnect the voltmeter, and continue with the next procedure.

ALIGNMENT

C. RX IF, Part II

1. Set the transceiver to 14.2000 MHz (USB).
2. Tune the RF generator for a 1.5 kHz heterodyne in the receiver, and adjust the injection level for S-7 on the S-meter.
3. Adjust T1003-T1013 for maximum on the S-meter, reducing the injection level, if necessary, to keep S-meter deflection near S-7.
4. Reduce the injection level to +6dBu and adjust VR1001 for S-1 indication.
5. Perform the next procedure.

D. S-Meter Sensitivity, Part II

Perform the preceding procedure, if not done already.

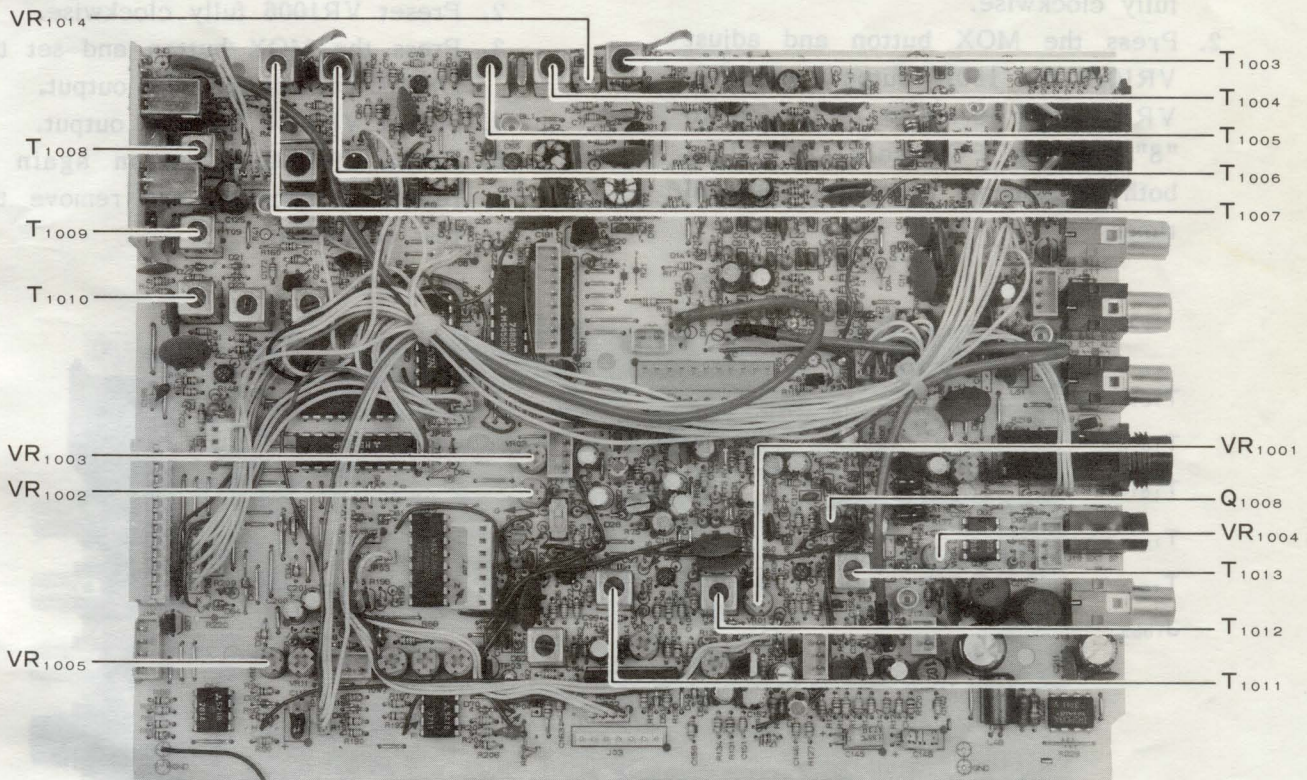
1. Set the RF injection level to +100 dBu and adjust VR1003 for S-meter deflection of 60 dB over S-9.
2. Disconnect the test equipment.

E. RX 1st Mixer

1. In LSB mode, tune to the internal heterodyne near 7.1 MHz.
2. Adjust VR1014 for best null of the heterodyne.

F. Noise Squelch

1. Tune to 14.2000 MHz, USB mode, and set the SQL control to the 10 o'clock position.
2. Adjust VR1005 so the squelch just closes when no signal is received.



MAIN UNIT ALIGNMENT POINTS
(Receiver Section)

ALIGNMENT

III. Main Unit, Transmitter

A. TX IF

1. Connect the dummy load and wattmeter to the antenna jack, and tune to 14.2000 MHz, CW mode.
2. Press the MOX button and set the DRIVE control for 50W output.
3. Adjust T1014-T1019 for peak on the wattmeter, reducing the DRIVE, if necessary, to keep power below 60W output.
4. Press the MOX button again to return to receive.

B. ALC & PO Meter Sensitivity

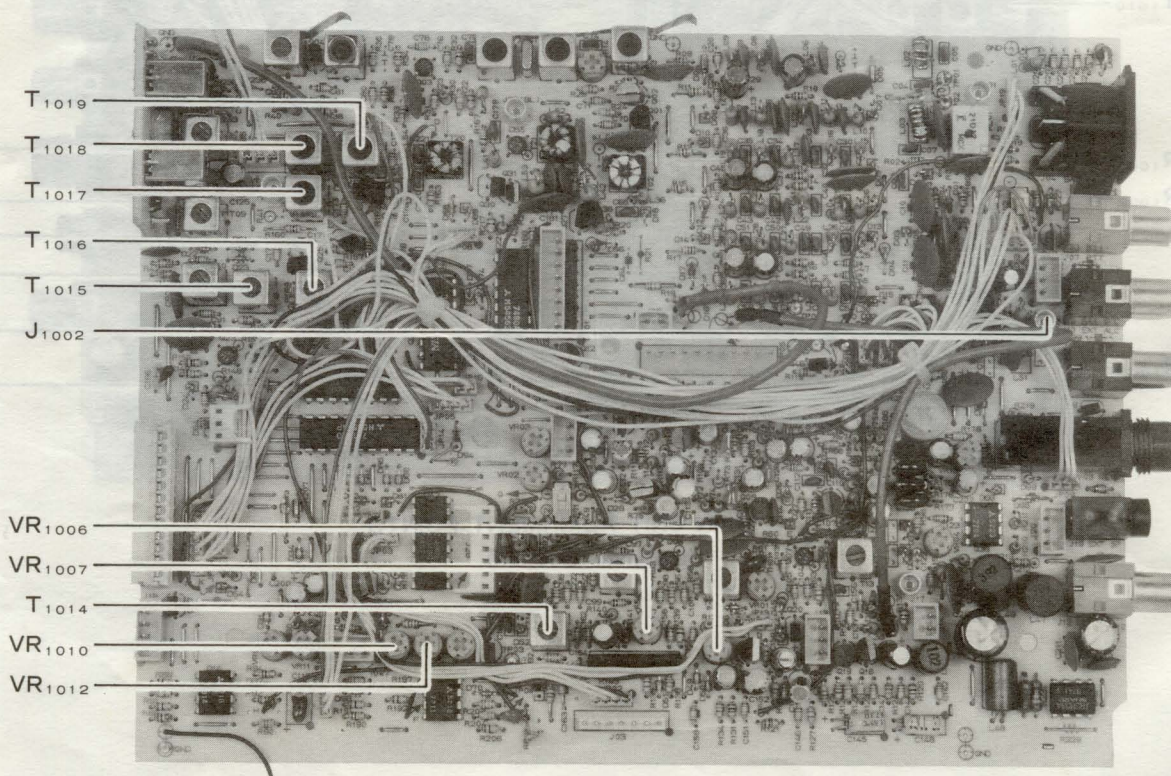
1. With the dummy load and wattmeter connected to the antenna jack, and tuned to 14.2000 MHz, CW mode, set the DRIVE control fully clockwise.
2. Press the MOX button and adjust VR1010 for 100W output, and then VR1012 for S-meter deflection to "8" on the PO scale, repeating both adjustments alternately several times.

C. SSB Carrier Balance

1. With the dummy load and wattmeter connected to the antenna jack, and tuned to 14.2000 MHz, USB mode, set the MIC gain fully counterclockwise.
2. Connect the RF voltmeter to J1002.
3. Press the MOX button and adjust VR1007 for minimum on the voltmeter.
4. Press the MOX button again to return to receive, and disconnect the voltmeter.

D. AM Carrier Level

1. With the dummy load and wattmeter connected to the antenna jack, and tuned to 14.2000 MHz, AM mode, set the MIC gain fully counterclockwise.
2. Preset VR1006 fully clockwise.
3. Press the MOX button and set the DRIVE control for 80W output.
4. Adjust VR1006 for 20W output.
5. Press the MOX button again to return to receive, and remove the test equipment.

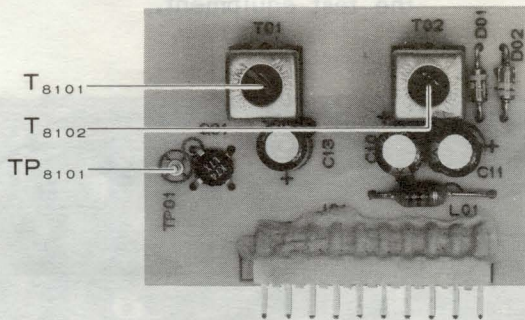


MAIN UNIT ALIGNMENT POINTS
(Transmitter Section)

ALIGNMENT

IV. Noise Blanker Unit

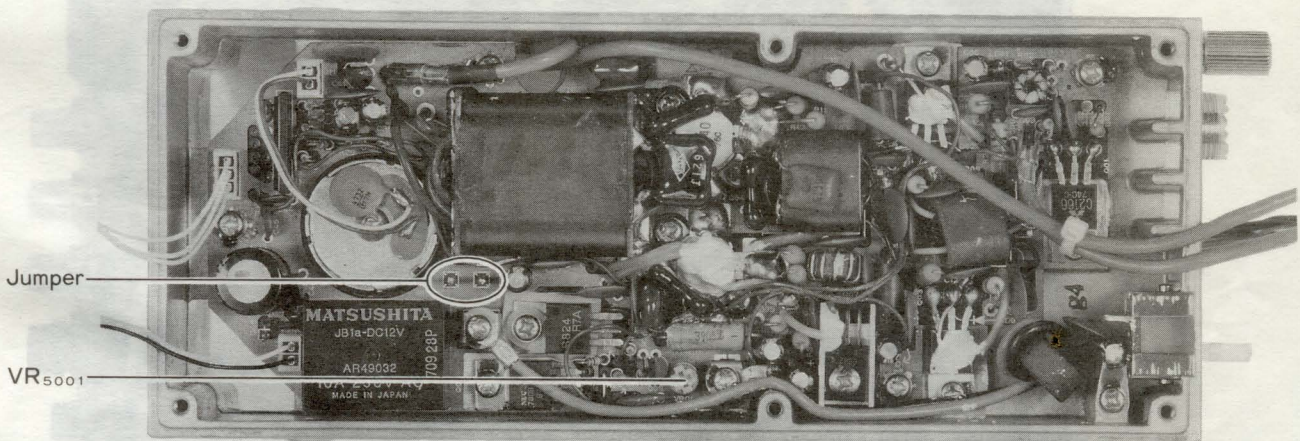
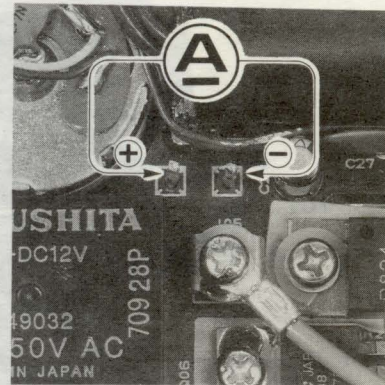
1. Connect the RF generator to the antenna jack, and the DC voltmeter between TP8101 and chassis ground.
2. Tune the transceiver and RF generator to 14.2000 MHz, and inject 40 dBu with no modulation.
3. Press the NB switch and select the USB mode.
4. Adjust T8101 and T8102 for minimum deflection on the voltmeter.
5. Disconnect the test equipment.



NB UNIT ALIGNMENT POINTS

V. 100W PA Unit (Idling Current)

1. Temporarily remove the jumper indicated below, and connect the DC milliammeter (set to 500 mA range) in its place.
2. Set the transceiver to USB mode, and set the MIC gain fully counterclockwise.
3. Press the MOX button and adjust VR5001 for 200 ± 50 mA on the milliammeter.
4. Press the MOX button again to return to receive, remove the milliammeter and reinstall the jumper.



100W PA UNIT ALIGNMENT POINTS

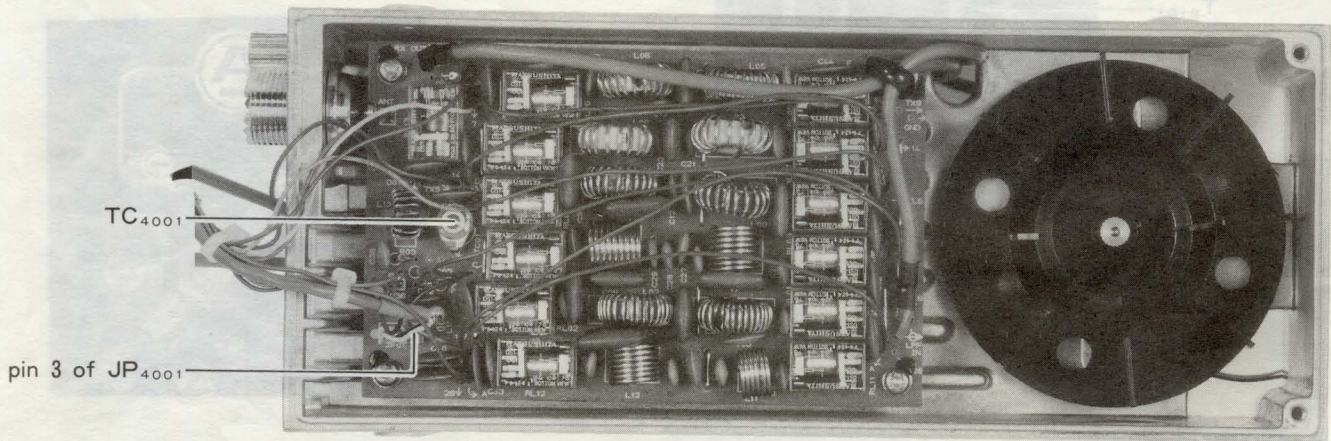
ALIGNMENT

VI. LPF Unit (CM Coupler Balance)

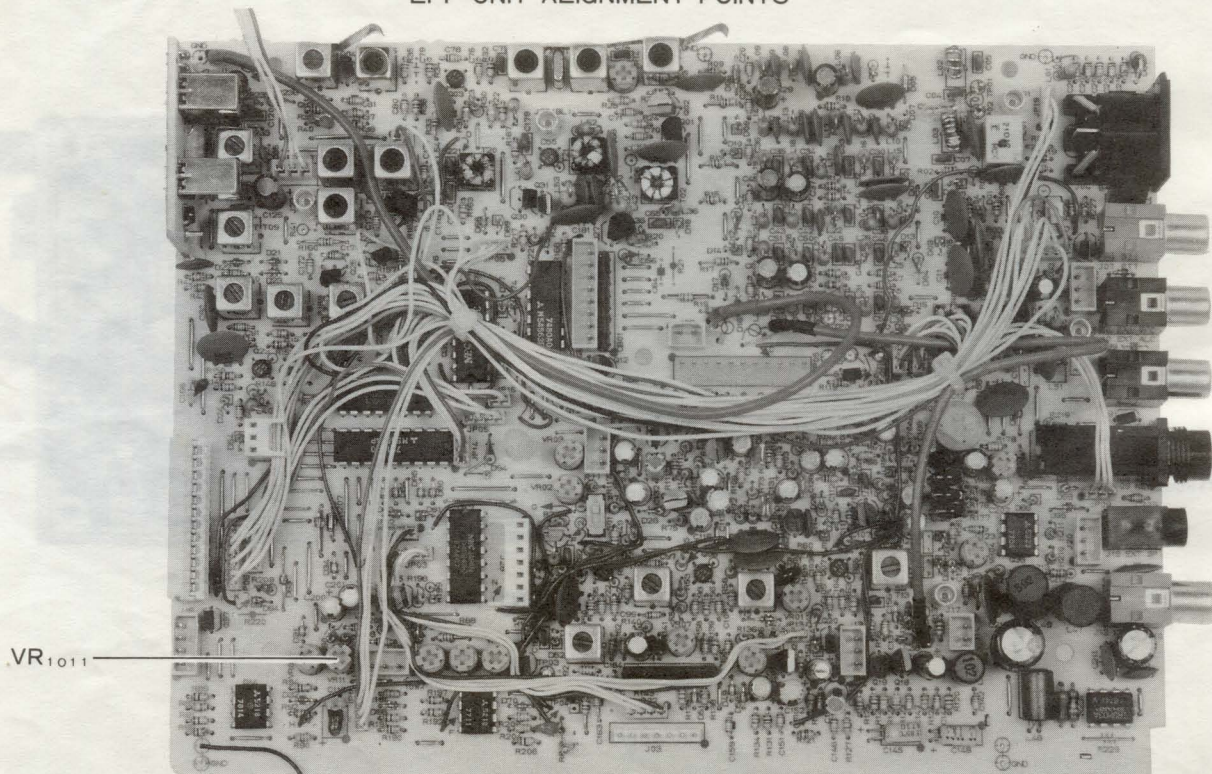
1. Connect the dummy load to the antenna jack, and the DC voltmeter between pin 3 of JP4001 and chassis ground.
2. Tune to 14.2000 MHz, CW mode, and set the DRIVE control fully clockwise.
3. Press the MOX button and adjust TC4001 for minimum deflection on the voltmeter.
4. Press the MOX button again to return to receive, and remove the test equipment.

VII. Main Unit (AFP - Automatic Final Protection)

1. Connect the wattmeter and 16.7-ohm dummy load (three 50-ohm loads in parallel) to the antenna jack.
2. With the transceiver tuned to 14.2000 MHz, CW mode, set the DRIVE control fully clockwise.
3. Press the MOX button and adjust VR1011 for 75W output.
4. Press the MOX button again to return to receive, and disconnect the test equipment.



LPF UNIT ALIGNMENT POINTS



MAIN UNIT ALIGNMENT POINT
(AFP Section)

PARTS LIST

MAIN CHASSIS				MAIN UNIT				
Symbol No.	Part No.	Description	Device		Symbol No.	Part No.	Description	Device
Q1	G1090778	IC	L7809			R7125850	Press Board	
Q2	G1090294	IC	uPC7808H			R0125890	Fitting	
VR1	J62800097	Potentiometer	10KA/10kB (AF/SQL)			R7125900	Sponge	
VR2	J62800098	Potentiometer	10kB/10kB(MIC/DRIVE)			R0126000	Clamp	
C1	K19149025	Ceramic CAP.		50WV 0.1uF		R7125631	Sponge Rubber	
C2	K13179009	Ceramic CAP. ▲	F	50WV 0.047uF		R3126040	Rubber Foot	
C3	K10176102	Ceramic CAP.	B	50WV 0.001uF		R7126140	Plate	
C4	K13179008	Ceramic CAP.	F	50WV 0.01uF		R7126150	Plate	
C5	K19149025	Ceramic CAP.		50WV 0.1uF		R6100980A	Nut	
L1	L9190010	Ferrite Beads				R7126400	Plate	
L2	L9190047	Ferrite Beads				R7126410	Fiber	
M1	M0290057	Meter	MG-20L			R7126640	Sheet	
SP1	M4090030	Speaker	1.5W	8 ohm		R8124070	Nameplate "FT-747SX" •	
J1	P1090194	Connector (ANT)				R8124090	Nameplate "FT-747GX" ▲	
J2	P0090158	Connector (MIC)				R0124080A	Motor Holder	
J3	P0090026	Connector (13.8V DC)				R3056970B	Radial Fan	
Q9000078		Ground Post				M2190004	Motor MDN-7R1	DC13.5V
Q9000192		Thermal Gasket				T9205619	Wire ASSY	
Q9000125		Insulator						
T9205617		Wire ASSY	P1-P2					
T9205618		Wire ASSY	P3-P4					
T9315504		Wire ASSY	P5-P6					
T9205619		Wire ASSY ▲	P7					
T9205620		Wire ASSY	P8					
T9205621		Wire ASSY	P9					
T9205622		Wire ASSY	P10					
T9205623A		Wire ASSY	P11					
T9205624A		Wire ASSY	P12					
T9205625		Wire ASSY	P13					
T9311301B		Wire ASSY	P14					
T9317811		Wire ASSY	P15					
T9317825		Wire ASSY						
R3510940A		Panel						
R3123790		Display Filter						
R3123800		Knob (MAIN)						
R3123830		Knob (AF, MIC)						
R6123840		Knob (SQL, DRIVE)						
R3123850A		Knob (CLAR)						
R3123870A		Knob (D LOCK)						
R3123890		Knob (MODE)						
R3123910		Knob (VFO MR)						
R3123930		Knob (VFO M)						
R3123950		Knob (M VFO)						
R3123960		Knob (SPLIT)						
R3123980		Knob (PRIM)						
R3123990		Knob (FAST)						
R3124020A		Knob (POWER)						
R3124030B		Knob (NAR)						
R3124040A		Knob (ATT)						
R3124050A		Knob (NB, MOX)						
R3124190		Ring						
R3804450A		Case Top						
R3804460A		Case Bottom						
R5510950A		Side Trim						
R0510960		Heatsink Cover						
R0510970A		Heatsink Cover						
R4804670A		Heatsink						
R0124060		Fitting						
R3124010		Knob						
R5510951		Side Trim						
R3124800		Diffusor						
R7049015		SP Net						
R3100700		Foot						
R0100690A		Wire Stand						
R7125160		Sponge						
R7125170		Sponge						
R7125230		Press Board						
R7125430		Sponge						
R7125450		Sponge						
R7125460		Sponge						
R7125630		Sponge						
R6125640A		Washer						
R8013580		Name Plate						
R0116420		Ground Lug						
R7125830		Sheet						
F2942000A		Printed Circuit Board						
C029420AA		PCB with Components (10W: Version F)						
C029420AB		PCB with Components (100W: Version F)						
C029420AC		PCB with Components						
C029420AD		PCB with Components w/o NB UNIT (10W: Version F)						
C029420AE		PCB with Components w/o NB UNIT (100W: Version F)						
C029420AF		PCB with Components w/o NB UNIT						
Q1001	G3801250	FET	2SK125					
Q1002	G3801250	FET	2SK125					
Q1003	G4800740L	FET	3SK74L					
Q1004	G3802410Y	FET	2SK241Y					
Q1005	G4800740L	FET	3SK74L					
Q1006	G4800740L	FET	3SK74L					
Q1007	G4800740L	FET	3SK74L					
Q1008	G3304580B	Transistor	2SC458B					
Q1009	G3304580B	Transistor	2SC458B					
Q1010	G3801040J	FET	2SK104J					
Q1011	G3801921G	FET	2SK192AGR					
Q1012	G3107331P	Transistor	2SA733AP					
Q1013	G3090074	Transistor	BA1A4M					
Q1014	G1090633	IC	M5218P					
Q1015	G3304580B	Transistor	2SC458B					
Q1016	G3304580B	Transistor	2SC458B					
Q1017	G3090077	Transistor	BA1L3Z					
Q1018	G3304580B	Transistor	2SC458B					
Q1019	G3304580B	Transistor	2SC458B					
Q1020	G3090074	Transistor	BA1A4M					
Q1021	G3304580B	Transistor	2SC458B					
Q1022	G1090101	IC	uPC1037H					
Q1023	G4800740L	FET	3SK74L					
Q1024	G3802410Y	FET	2SK241Y					
Q1025	G3802410Y	FET	2SK241Y					
Q1026	G3305350B	Transistor	2SC535B					
Q1027	G3801250	FET	2SK125					
Q1028	G3304580B	Transistor	2SC458B					
Q1029	G3090074	Transistor	BA1A4M					
Q1030	G3090074	Transistor	BA1A4M					
Q1031	G3090078	Transistor	DTA143ES					
Q1032	G3320530	Transistor	2SC2053					
Q1033	G3090074	Transistor	BA1A4M					
Q1034	G1090633	IC	M5218P					
Q1035	G3304584B	Transistor	2SC458BTZ					
Q1036	G1090749	IC	M5223P					
Q1037	G3090074	Transistor	BA1A4M					
Q1038	G1090721	IC	M54563P					
Q1039	G1090657	IC	uPD4028BC					
Q1040	G1090836	IC	M54564P					

• 10W Type
▲ 100W Type

PARTS LIST

Q1041	G1090297	IC	uPD4094BC	D1081	G2090408	Diode	1SS270
Q1042	G1090297	IC	uPD4094BC	D1082	G2060004	Diode	1SS270TJ
Q1043	G3090078	Transistor	DTA143ES	D1083	G2060004	Diode	1SS270TJ
Q1044	G3406691	Transistor	2SD669A	D1084	G2060004	Diode	1SS270TJ
Q1045	G1090837	IC	IR3M03A	D1085	G2060004	Diode	1SS270TJ
Q1046	G3090074	Transistor	BA1A4M	D1086	G2090002	Diode	10D10
Q1047	G3304580B	Transistor	2SC458B	D1087	G2060004	Diode	1SS270TJ
Q1048	G3090077	Transistor	BA1L3Z	D1088	G2090408	Diode	1SS270
Q1049	G3304580B	Transistor	2SC458B	D1089	G2090408	Diode	1SS270
				D1090	G2090340	Diode	1SS83
D1001	G2090340	Diode	1SS83	D1091	G2090408	Diode	1SS270
D1002	G2090340	Diode	1SS83	D1092	G2090408	Diode *	1SS270
D1003	G2090340	Diode	1SS83	D1093	G2060004	Diode	1SS270TJ
D1004	G2090340	Diode	1SS83	D1094	G2090408	Diode	1SS270
D1005	G2090340	Diode	1SS83	D1097	G2060004	Diode	1SS270TJ
D1006	G2090340	Diode	1SS83	D1098	G2060004	Diode	1SS270TJ
D1007	G2090340	Diode	1SS83	D1099	G2090226	Diode	HZ4C3
D1008	G2090340	Diode	1SS83	D1100	G2090408	Diode	1SS270
D1009	G2090340	Diode	1SS83	D1101	G2090408	Diode	1SS270
D1010	G2090340	Diode	1SS83				
D1011	G2090340	Diode	1SS83	TH1001	G9090010	Thermistor	112302-2
D1012	G2090340	Diode	1SS83	TH1002	G9090008	Thermistor	112102-2
D1013	G2090340	Diode	1SS83	TH1003	G9090015	Thermistor	SDT-100
D1014	G2090340	Diode	1SS83	TH1004	G9090039	Thermistor	112152-2
D1015	G2090340	Diode	1SS83				
D1016	G2090340	Diode	1SS83				
D1017	G2090340	Diode	1SS83	XF1001	H1102090	XTAL Filter	47M15AU
D1018	G2090340	Diode	1SS83				
D1019	G2060004	Diode	1SS270TJ	R1001	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
D1021	G2060004	Diode	1SS270TJ	R1002	J01225560	Carbon Film RES.	1/6W 56 ohm PJ
D1022	G2060004	Diode	1SS270TJ	R1003	J02225102	Carbon Film RES.	1/6W 1k ohm UJ
D1023	G2060004	Diode	1SS270TJ	R1004	J01225102	Carbon Film RES.	1/6W 1k ohm PJ
D1024	G2090408	Diode	1SS270	R1005	J01225102	Carbon Film RES.	1/6W 1k ohm PJ
Q1025	G2090244	Diode	1SS106	R1006	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
Q1026	G2090244	Diode	1SS106	R1007	J02245471	Carbon Film RES.	1/4W 470 ohm SJ
Q1027	G2090244	Diode	1SS106	R1008	J02245101	Carbon Film RES.	1/6W 100 ohm UJ
Q1028	G2060004	Diode	1SS270TJ	R1009	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1029	G2060004	Diode	1SS270TJ	R1010	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1031	G2060004	Diode	1SS270TJ	R1011	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1032	G2060004	Diode	1SS270TJ	R1012	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1033	G2060004	Diode	1SS270TJ	R1013	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1034	G2060004	Diode	1SS270TJ	R1014	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1035	G2090244	Diode	1SS106	R1015	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1036	G2090244	Diode	1SS106	R1016	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1037	G2090244	Diode	1SS106	R1017	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1038	G2090244	Diode	1SS106	R1018	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1039	G2090408	Diode	1SS270	R1019	J01225121	Carbon Film RES.	1/6W 120 ohm PJ
Q1040	G2090408	Diode	1SS270	R1020	J01225391	Carbon Film RES.	1/6W 390 ohm PJ
Q1041	G2090408	Diode	1SS270	R1022	J01225104	Carbon Film RES.	1/6W 100k ohm PJ
Q1042	G2060004	Diode	1SS270TJ	R1023	J02225104	Carbon Film RES.	1/6W 100k ohm UJ
Q1044	G2090408	Diode	1SS270	R1024	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
Q1045	G2060004	Diode	1SS270TJ	R1025	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
Q1046	G2060004	Diode	1SS270TJ	R1027	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
Q1047	G2060004	Diode	1SS270TJ	R1030	J01225393	Carbon Film RES.	1/6W 39k ohm PJ
Q1048	G2060004	Diode	1SS270TJ	R1031	J01225683	Carbon Film RES.	1/6W 68k ohm PJ
Q1049	G2060004	Diode	1SS270TJ	R1032	J01225104	Carbon Film RES.	1/6W 100k ohm PJ
Q1050	G2060004	Diode	1SS270TJ	R1033	J01225684	Carbon Film RES.	1/6W 680k ohm PJ
Q1051	G2060004	Diode	1SS270TJ	R1034	J01225272	Carbon Film RES.	1/6W 2.7k ohm PJ
D1052	G2090408	Diode	1SS270	R1035	J01225153	Carbon Film RES.	1/6W 15k ohm PJ
D1053	G2090408	Diode	1SS270	R1036	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
D1054	G2090408	Diode	1SS270	R1037	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
D1055	G2090135	Diode	ND487C2-3R	R1038	J01225560	Carbon Film RES.	1/6W 56 ohm PJ
D1056	G2090340	Diode	1SS83	R1039	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
D1057	G2090340	Diode	1SS83	R1042	J01225682	Carbon Film RES.	1/6W 6.8k ohm PJ
D1058	G9090007	Diode	MV12	R1043	J01225472	Carbon Film RES.	1/6W 4.7k ohm PJ
D1059	G2090229	Diode	HZ7B1	R1044	J01225331	Carbon Film RES.	1/6W 330 ohm PJ
D1060	G2090229	Diode	HZ7B1	R1045	J02225331	Carbon Film RES.	1/6W 330 ohm UJ
D1061	G2060004	Diode	1SS270TJ	R1046	J02225104	Carbon Film RES.	1/6W 100k ohm UJ
D1062	G2060004	Diode	1SS270TJ	R1047	J02225681	Carbon Film RES.	1/6W 680 ohm UJ
D1063	G2060004	Diode	1SS270TJ	R1048	J02225184	Carbon Film RES.	1/6W 180k ohm UJ
D1064	G2090408	Diode	1SS270	R1049	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
D1065	G2060004	Diode	1SS270TJ	R1050	J01225151	Carbon Film RES.	1/6W 150 ohm PJ
D1066	G2090408	Diode	1SS270	R1051	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
D1067	G2090118	Diode	1SS97	R1052	J01225153	Carbon Film RES.	1/6W 15k ohm PJ
D1068	G2060004	Diode	1SS270TJ	R1053	J02225273	Carbon Film RES.	1/6W 27k ohm UJ
D1069	G2090408	Diode	1SS270	R1054	J02225103	Carbon Film RES.	1/6W 10k ohm UJ
D1070	G2060004	Diode	1SS270TJ	R1055	J02225471	Carbon Film RES.	1/6W 470 ohm UJ
D1071	G2060004	Diode	1SS270TJ	R1056	J01225151	Carbon Film RES.	1/6W 150 ohm PJ
D1072	G2090408	Diode	1SS270	R1057	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
D1073	G2090408	Diode	1SS270	R1058	J01225153	Carbon Film RES.	1/6W 15k ohm PJ
D1074	G2090408	Diode	1SS270	R1060	J01225393	Carbon Film RES.	1/6W 39k ohm PJ
D1075	G2090408	Diode *	1SS270	R1061	J01225103	Carbon Film RES.	1/6W 10k ohm PJ
D1076	G2090408	Diode *	1SS270	R1062	J01225221	Carbon Film RES.	1/6W 220 ohm PJ
D1077	G2090408	Diode	1SS270	R1063	J01225221	Carbon Film RES.	1/6W 220 ohm PJ
D1078	G2090408	Diode	1SS270	R1064	J02225101	Carbon Film RES.	1/6W 100 ohm UJ
D1079	G2090408	Diode	1SS270	R1065	J01225153	Carbon Film RES.	1/6W 15k ohm PJ
D1080	G2060004	Diode	1SS270TJ	R1066	J01225333	Carbon Film RES.	1/6W 33k ohm PJ
				R1067	J01225683	Carbon Film RES.	1/6W 68k ohm PJ

*: Version F

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R1068	J02225222	Carbon Film RES.	1/6W 2.2k ohm	UJ	R1167	J01225470	Carbon Film RES.	1/6W 47 ohm	PJ
R1069	J02225102	Carbon Film RES.	1/6W 1k ohm	UJ	R1168	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ
R1070	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	R1169	J01225680	Carbon Film RES.	1/6W 68 ohm	PJ
R1071	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	R1170	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ
R1072	J02225682	Carbon Film RES.	1/6W 6.8k ohm	UJ	R1172	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ
R1073	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ	R1173	J02225333	Carbon Film RES.	1/6W 33k ohm	UJ
R1074	J02225155	Carbon Film RES.	1/6W 1.5M ohm	UJ	R1174	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ
R1075	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	R1175	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ
R1076	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	R1176	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ
R1077	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	R1177	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ
R1078	J02225473	Carbon Film RES.	1/6W 47k ohm	UJ	R1178	J01225331	Carbon Film RES.	1/6W 330 ohm	PJ
R1079	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	R1179	J02225224	Carbon Film RES.	1/6W, 220k ohm	UJ
R1080	J02225102	Carbon Film RES.	1/6W 1k ohm	UJ	R1180	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ
R1082	J02225152	Carbon Film RES.	1/6W 1.5k ohm	UJ	R1181	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ
R1083	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ	R1182	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ
R1084	J01225682	Carbon Film RES.	1/6W 6.8k ohm	PJ	R1183	J01225681	Carbon Film RES.	1/6W 680 ohm	PJ
R1087	J01225392	Carbon Film RES.	1/6W 3.9k ohm	PJ	R1184	J01225152	Carbon Film RES.	1/6W 1.5k ohm	PJ
R1088	J01225564	Carbon Film RES.	1/6W 560k ohm	PJ	R1185	J02225479	Carbon Film RES.	1/6W 4.7 ohm	UJ
R1089	J01225104	Carbon Film RES.	1/6W 100k ohm	PJ	R1186	J02225181	Carbon Film RES.	1/6W 180 ohm	UJ
R1090	J01225472	Carbon Film RES.	1/6W 4.7k ohm	PJ	R1187	J01225391	Carbon Film RES.	1/6W 390 ohm	PJ
R1091	J01225104	Carbon Film RES.	1/6W 100k ohm	PJ	R1188	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ
R1092	J01225225	Carbon Film RES.	1/6W 2.2M ohm	PJ	R1189	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ
R1094	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ	R1190	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ
R1095	J01225222	Carbon Film RES.	1/6W 2.2k ohm	PJ	R1191	J01225104	Carbon Film RES.	1/6W 100k ohm	PJ
R1096	J01225472	Carbon Film RES.	1/6W 4.7k ohm	PJ	R1192	J01225104	Carbon Film RES.	1/6W 100k ohm	PJ
R1097	J02225223	Carbon Film RES.	1/6W 22k ohm	UJ	R1193	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ
R1098	J01225471	Carbon Film RES.	1/6W 470 ohm	PJ	R1194	J01225823	Carbon Film RES.	1/6W 82k ohm	PJ
R1099	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ	R1195	J02225562	Carbon Film RES.	1/6W 5.6k ohm	UJ
R1100	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ	R1197	J01225154	Carbon Film RES.	1/6W 150k ohm	PJ
R1101	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ	R1198	J02225473	Carbon Film RES.	1/6W 47k ohm	UJ
R1102	J01225682	Carbon Film RES.	1/6W 6.8k ohm	PJ	R1200	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ
R1103	J01225682	Carbon Film RES.	1/6W 6.8k ohm	PJ	R1201	J02225105	Carbon Film RES.	1/6W 1M ohm	UJ
R1104	J02225682	Carbon Film RES.	1/6W 6.8k ohm	UJ	R1202	J02225333	Carbon Film RES.	1/6W 33k ohm	UJ
R1105	J01225154	Carbon Film RES.	1/6W 150k ohm	PJ	R1203	J01225223	Carbon Film RES.	1/6W 22k ohm	PJ
R1106	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	R1204	J01225334	Carbon Film RES.	1/6W 330k ohm	PJ
R1107	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ	R1206	J01225104	Carbon Film RES.	1/6W 100k ohm	PJ
R1108	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	R1208	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ
R1109	J01225223	Carbon Film RES.	1/6W 22k ohm	UJ	R1209	J02225562	Carbon Film RES.	1/6W 5.6k ohm	UJ
R1110	J02225683	Carbon Film RES.	1/6W 68k ohm	UJ	R1210	J02225153	Carbon Film RES.	1/6W 15k ohm	UJ
R1111	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	R1211	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ
R1112	J02225332	Carbon Film RES.	1/6W 3.3k ohm	UJ	R1212	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ
R1113	J02225220	Carbon Film RES.	1/6W 22 ohm	UJ	R1213	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ
R1114	J02225102	Carbon Film RES.	1/6W 1k ohm	UJ	R1214	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ
R1115	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	R1216	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ
R1116	J01225332	Carbon Film RES.	1/6W 3.3k ohm	PJ	R1217	J01225104	Carbon Film RES.	1/6W 100k ohm	PJ
R1117	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ	R1218	J01225823	Carbon Film RES.	1/6W 82k ohm	PJ
R1119	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ	R1219	J02225222	Carbon Film RES.	1/6W 2.2k ohm	UJ
R1120	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ	R1220	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ
R1121	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	R1221	J02225102	Carbon Film RES.	1/6W 1k ohm	UJ
R1122	J01225223	Carbon Film RES.	1/6W 22k ohm	PJ	R1222	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ
R1123	J01225331	Carbon Film RES.	1/6W 330 ohm	PJ	R1223	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ
R1124	J01225153	Carbon Film RES.	1/6W 15k ohm	PJ	R1224	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ
R1125	J01225222	Carbon Film RES.	1/6W 2.2k ohm	PJ	R1225	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ
R1126	J01225151	Carbon Film RES.	1/6W 15k ohm	PJ	R1226	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ
R1127	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ	R1227	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ
R1130	J02225222	Carbon Film RES.	1/6W 2.2k ohm	UJ	R1230	J20249046	Metallic Film RES.	1/4W 8.87k ohm	
R1131	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	R1231	J20249102	Metallic Film RES.	1/4W 1.43k ohm	
R1132	J01225473	Carbon Film RES.	1/6W 47k ohm	PJ	R1233	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ
R1133	J01225473	Carbon Film RES.	1/6W 47k ohm	PJ	R1234	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ
R1134	J01225681	Carbon Film RES.	1/6W 680 ohm	PJ	R1235	J02225473	Carbon Film RES.	1/6W 47k ohm	UJ
R1135	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ	R1236	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ
R1136	J02225102	Carbon Film RES.	1/6W 1k ohm	UJ	R1237	J01225471	Carbon Film RES.	1/6W 470 ohm	PJ
R1137	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ	R1238	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ
R1138	J01225153	Carbon Film RES.	1/6W 15k ohm	PJ	R1239	J01225473	Carbon Film RES.	1/6W 47k ohm	PJ
R1139	J01225104	Carbon Film RES.	1/6W 100k ohm	PJ	R1240	J01225561	Carbon Film RES.	1/6W 560 ohm	PJ
R1140	J02225222	Carbon Film RES.	1/6W 2.2k ohm	UJ	R1241	J01225683	Carbon Film RES.	1/6W 68k ohm	PJ
R1141	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ	R1242	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ
R1142	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	R1243	J02225152	Carbon Film RES.	1/6W 1.5k ohm	UJ
R1143	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ	R1244	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ
R1144	J01225223	Carbon Film RES.	1/6W 22k ohm	PJ	R1245	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ
R1145	J01225102	Carbon Film RES.	1/6W 1k ohm	PJ	R1246	J02225102	Carbon Film RES.	1/6W 1k ohm	UJ
R1146	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ					
R1147	J01225331	Carbon Film RES.	1/6W 330 ohm	PJ	VR1001	J51745472	POT.	B 4.7k ohm	
R1148	J02225272	Carbon Film RES.	1/6W 2.7k ohm	UJ	VR1002	J51745103	POT.	B 10k ohm	
R1149	J01225681	Carbon Film RES.	1/6W 680 ohm	PJ	VR1003	J51745105	POT.	B 1M ohm	
R1150	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	VR1004	J51745102	POT.	B 1k ohm	
R1151	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ	VR1005	J51745474	POT.	B 470k ohm	
R1152	J01225472	Carbon Film RES.	1/6W 4.7k ohm	PJ	VR1006	J51745103	POT.	B 10k ohm	
R1153	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	VR1007	J51745103	POT.	B 10k ohm	
R1155	J02225332	Carbon Film RES.	1/6W 3.3k ohm	UJ	VR1008	J51723103	POT.	B 10k ohm	
R1157	J01225224	Carbon Film RES.	1/6W 220k ohm	PJ	VR1009	J51745472	POT.	B 4.7k ohm	
R1158	J01225471	Carbon Film RES.	1/6W 470 ohm	PJ	VR1010	J51745103	POT.	B 10k ohm	
R1159	J01225471	Carbon Film RES.	1/6W 470 ohm	PJ	VR1011	J51745474	POT.	B 470k ohm	
R1160	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	VR1012	J51745103	POT.	B 10k ohm	
R1161	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	VR1013	J51745474	POT.	B 470k ohm	
R1162	J01225223	Carbon Film RES.	1/6W 22k ohm	PJ	VR1014	J51745471	POT.	B 470 ohm	
R1163	J02225221	Carbon Film RES.	1/6W 220 ohm	PJ					

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C1001	K19149025	Ceramic CAP.		25V	0.1uF	C1089	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1002	K13179009	Ceramic CAP.	F	50V	0.047uF	C1090	K19149025	Ceramic CAP.		25V	0.1uF
C1003	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1091	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1004	K00175680	Ceramic CAP.	SL	50V	68pF	C1092	K12171102	Ceramic CAP.	E	50V	1000pF
C1005	K00175820	Ceramic CAP.	SL	50V	82pF	C1093	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1006	K00175151	Ceramic CAP.	SL	50V	150pF	C1094	K19149025	Ceramic CAP.		25V	0.1uF
C1007	K00175220	Ceramic CAP.	SL	50V	22pF	C1095	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1008	K13179009	Ceramic CAP.	F	50V	0.047uF	C1097	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1009	K00179011	Ceramic CAP.	SL	50V	62pF	C1098	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1010	K19149025	Ceramic CAP.		25V	0.1uF	C1099	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1011	K19149025	Ceramic CAP.		25V	0.1uF	C1100	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1012	K40129004	AL. Electro. CAP.		16V	10uF	C1102	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1013	K19149021	Ceramic CAP.		25V	0.047uF	C1103	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1014	K00175221	Ceramic CAP.	SL	50V	220pF	C1104	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1017	K00175511	Ceramic CAP.	SL	50V	510pF	C1105	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1019	K00175221	Ceramic CAP.	SL	50V	220pF	C1106	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1020	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1107	K00173100	Ceramic CAP.	SL	50V	10pF
C1021	K40129004	AL. Electro. CAP.		16V	10uF	C1108	K40179006	AL. Electro. CAP.		50V	2.2uF
C1022	K00175151	Ceramic CAP.	SL	50V	150pF	C1109	K28179001	Ceramic CAP.	B	50V	1000pF
C1023	K13179009	Ceramic CAP.	F	50V	0.047uF	C1110	K00175101	Ceramic CAP.	SL	50V	100pF
C1024	K00175181	Ceramic CAP.	SL	50V	180pF	C1111	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1025	K00175471	Ceramic CAP.	SL	50V	470pF	C1112	K00175101	Ceramic CAP.	SL	50V	100pF
C1026	K00175181	Ceramic CAP.	SL	50V	180pF	C1113	K40129013	AL. Electro. CAP.		16V	22uF
C1027	K00175151	Ceramic CAP.	SL	50V	150pF	C1114	K00175221	Ceramic CAP.	SL	50V	220pF
C1028	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1115	K50170015	Film CAP.		50V	0.022uF
C1029	K40129004	AL. Electro. CAP.		16V	10uF	C1116	K40179001	AL. Electro. CAP.		50V	1uF
C1030	K00175680	Ceramic CAP.	SL	50V	68pF	C1117	K13179009	Ceramic CAP.	F	50V	0.047uF
C1031	K13179009	Ceramic CAP.	F	50V	0.047uF	C1118	K70147155	Tantalum CAP.		25V	1.5uF
C1032	K00175121	Ceramic CAP.	SL	50V	120pF	C1119	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1033	K00175221	Ceramic CAP.	SL	50V	220pF	C1120	K12171102	Ceramic CAP.	E	50V	1000pF
C1034	K00175121	Ceramic CAP.	SL	50V	120pF	C1121	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1035	K00175680	Ceramic CAP.	SL	50V	68pF	C1122	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1036	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1123	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1037	K40129004	AL. Electro. CAP.		16V	10uF	C1124	K40179001	AL. Electro. CAP.		50V	1uF
C1038	K00175390	Ceramic CAP.	SL	50V	39pF	C1125	K40129012	AL. Electro. CAP.		16V	10uF
C1039	K13179009	Ceramic CAP.	F	50V	0.047uF	C1126	K40129012	AL. Electro. CAP.		16V	10uF
C1040	K00175680	Ceramic CAP.	SL	50V	68pF	C1127	K40149011	AL. Electro. CAP.		25V	4.7uF
C1041	K00175151	Ceramic CAP.	SL	50V	150pF	C1128	K50170007	Film CAP.		50V	0.001uF
C1042	K00175680	Ceramic CAP.	SL	50V	68pF	C1129	K50170009	Film CAP.		50V	0.0022uF
C1043	K00175390	Ceramic CAP.	SL	50V	39pF	C1130	K50170011	Film CAP.		50V	0.0047uF
C1044	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1131	K40129012	AL. Electro. CAP.		16V	10uF
C1045	K40129004	AL. Electro. CAP.		16V	10uF	C1132	K40129012	AL. Electro. CAP.		16V	10uF
C1046	K00175330	Ceramic CAP.	SL	50V	33pF	C1133	K50177222	Film CAP.		50V	0.0022uF
C1047	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1134	K40149011	AL. Electro. CAP.		25V	4.7uF
C1048	K00175270	Ceramic CAP.	SL	50V	27pF	C1135	K40129012	AL. Electro. CAP.		16V	10uF
C1049	K00175121	Ceramic CAP.	SL	50V	120pF	C1136	K40179005	AL. Electro. CAP.		50V	0.47uF
C1050	K00175270	Ceramic CAP.	SL	50V	27pF	C1137	K28179001	Ceramic CAP.	B	50V	1000pF
C1051	K00175330	Ceramic CAP.	SL	50V	33pF	C1138	K40129012	AL. Electro. CAP.		16V	10uF
C1052	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1142	K28179001	Ceramic CAP.	B	50V	1000pF
C1053	K40129004	AL. Electro. CAP.		16V	10uF	C1143	K40179013	AL. Electro. CAP.		50V	1uF
C1054	K00173080	Ceramic CAP.	SL	50V	8pF	C1144	K28179001	Ceramic CAP.	B	50V	1000pF
C1055	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1145	K40129012	AL. Electro. CAP.		16V	10uF
C1056	K00175180	Ceramic CAP.	SL	50V	18pF	C1146	K28129001	Ceramic CAP.	B	16V	0.01uF
C1057	K00175101	Ceramic CAP.	SL	50V	100pF	C1147	K28129001	Ceramic CAP.	B	16V	1000pF
C1058	K00175180	Ceramic CAP.	SL	50V	18pF	C1148	K40129012	AL. Electro. CAP.		16V	10uF
C1059	K00175150	Ceramic CAP.	SL	50V	15pF	C1149	K40149011	AL. Electro. CAP.		25V	4.7uF
C1060	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1150	K40149011	AL. Electro. CAP.		25V	4.7uF
C1061	K40129004	AL. Electro. CAP.		16V	10uF	C1151	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1062	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1152	K40129013	AL. Electro. CAP.		16V	22uF
C1063	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1153	K28179001	Ceramic CAP.	B	50V	1000pF
C1064	K13179009	Ceramic CAP.	F	50V	0.047uF	C1154	K40149011	AL. Electro. CAP.		25V	4.7uF
C1065	K00173100	Ceramic CAP.	SL	50V	10pF	C1155	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1068	K13179009	Ceramic CAP.	F	50V	0.047uF	C1156	K00175220	Ceramic CAP.	Y	50V	22pF
C1069	K13179009	Ceramic CAP.	F	50V	0.047uF	C1157	K40149011	AL. Electro. CAP.		25V	4.7uF
C1070	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1158	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1071	K28129001	Ceramic CAP.	Y	16V	0.01uF	C1159	K28129001	Ceramic CAP.	Y	16V	0.01uF
C1073	K13179009	Ceramic CAP.	F	50V	0.047uF						
C1074	K00175470	Ceramic CAP.	SL	50V	47pF						
C1075	K00175101	Ceramic CAP.	SL	50V	100pF						
C1076	K28129001	Ceramic CAP.	Y	16V	0.01uF						
C1077	K13179009	Ceramic CAP.	F	50V	0.047uF						
C1078	K28129001	Ceramic CAP.	Y	16V	0.01uF						
C1079	K22170805	CAP. Chip	B	50V	1000pF						
C1080	K28129001	Ceramic CAP.	Y	16V	0.01uF						
C1081	K28179001	Ceramic CAP.	B	50V	1000pF						
C1082	K22170805	CAP. Chip	B	50V	1000pF						
C1083	K28129001	Ceramic CAP.	Y	16V	0.01uF						
C1085	K00175101	Ceramic CAP.	SL	50V	100pF						
C1087	K00173100	Ceramic CAP.	SL	50V	10pF						
C1088	K19149021	Ceramic CAP.		25V	0.047uF						

PARTS LIST

R2037	J02225472	Carbon Film RES.	1/6W 4.7k ohm	UJ	C2011	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2038	J02225681	Carbon Film RES.	1/6W 680 ohm	UJ	C2012	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2039	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2013	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2040	J02225471	Carbon Film RES.	1/6W 470 ohm	UJ	C2014	K02175150	Ceramic CAP.	CH	50V	15pF	
R2041	J02225154	Carbon Film RES.	1/6W 150k ohm	UJ	C2015	K02173100	Ceramic CAP.	CH	50V	10pF	
R2042	J02225153	Carbon Film RES.	1/6W 15k ohm	UJ	C2016	K02175150	Ceramic CAP.	CH	50V	15pF	
R2043	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2017	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2044	J02225471	Carbon Film RES.	1/6W 470 ohm	UJ	C2018	K02175121	Ceramic CAP.	CH	50V	120pF	
R2045	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2019	K02175820	Ceramic CAP.	CH	50V	82pF	
R2046	J01225101	Carbon Film RES.	1/6W 100 ohm	PJ	C2020	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2047	J02225331	Carbon Film RES.	1/6W 330 ohm	UJ	C2021	K02173080	Ceramic CAP.	CH	50V	8pF	
R2048	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2022	K02172050	Ceramic CAP.	CH	50V	5pF	
R2049	J02225223	Carbon Film RES.	1/6W 22k ohm	UJ	C2023	K19149021	Ceramic CAP.		25V	0.047uF	
R2050	J01225332	Carbon Film RES.	1/6W 3.3k ohm	PJ	C2024	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2051	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2025	K28179001	Ceramic CAP.		50V	1000pF	
R2052	J02225272	Carbon Film RES.	1/6W 2.7k ohm	UJ	C2026	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2053	J02225272	Carbon Film RES.	1/6W 2.7k ohm	UJ	C2027	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2054	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2028	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2055	J01225273	Carbon Film RES.	1/6W 27k ohm	PJ	C2029	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2056	J01225182	Carbon Film RES.	1/6W 1.8k ohm	PJ	C2030	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2057	J02225152	Carbon Film RES.	1/6W 1.5k ohm	UJ	C2031	K12171102	Ceramic CAP.	E	50V	1000pF	
R2058	J01225103	Carbon Film RES.	1/6W 10k ohm	PJ	C2032	K00179001	Ceramic CAP.	SL	50V	0.5pF	
R2059	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ	C2033	K00172030	Ceramic CAP.	SL	50V	3pF	
R2060	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ	C2034	K12171102	Ceramic CAP.	E	50V	1000pF	
R2061	J01225221	Carbon Film RES.	1/6W 220 ohm	PJ	C2035	K12171102	Ceramic CAP.	E	50V	1000pF	
R2062	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ	C2036	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2063	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2037	K00175101	Ceramic CAP.	SL	50V	100pF	
R2064	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2038	K00173100	Ceramic CAP.	SL	50V	10pF	
R2065	J02225471	Carbon Film RES.	1/6W 470 ohm	UJ	C2039	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2066	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ	C2040	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2067	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ	C2041	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2068	J02225221	Carbon Film RES.	1/6W 220 ohm	UJ	C2042	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2075	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2043	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2076	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2044	K40129004	AL. Electro. CAP.		16V	10uF	
R2077	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2045	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2078	J01225682	Carbon Film RES.	1/6W 6.8k ohm	PJ	C2046	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2079	J01225182	Carbon Film RES.	1/6W 1.8k ohm	UJ	C2047	K10176561	Ceramic CAP.	B	50V	560pF	
R2080	J01225272	Carbon Film RES.	1/6W 2.7k ohm	UJ	C2048	K10176271	Ceramic CAP.	B	50V	270pF	
R2081	J01225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2049	K10176102	Ceramic CAP.	B	50V	1000pF	
R2082	J02225152	Carbon Film RES.	1/6W 1.5k ohm	UJ	C2050	K10176101	Ceramic CAP.	B	50V	100pF	
R2083	J01225332	Carbon Film RES.	1/6W 3.3k ohm	PJ	C2051	K10176681	Ceramic CAP.	B	50V	680pF	
R2084	J02225223	Carbon Film RES.	1/6W 22k ohm	UJ	C2052	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2085	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2053	K13179014	Ceramic CAP.	F	50V	0.0047uF	
R2086	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2054	K00175270	Ceramic CAP.	SL	50V	27pF	
R2087	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2055	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2088	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2056	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2089	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2057	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2090	J02225223	Carbon Film RES.	1/6W 22k ohm	UJ	C2058	K12171102	Ceramic CAP.	E	50V	1000pF	
R2091	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2059	K12171102	Ceramic CAP.	E	50V	1000pF	
R2092	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2060	K40129008	AL. Electro. CAP.		16V	33uF	
R2093	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2061	K12171102	Ceramic CAP.	E	50V	1000pF	
R2094	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2062	K02179001	Ceramic CAP.	CH	50V	1pF	
R2095	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2063	K05173080	Ceramic CAP.	RH	50V	8pF	
R2096	J02225223	Carbon Film RES.	1/6W 22k ohm	UJ	C2064	K02175270	Ceramic CAP.	CH	50V	27pF	
R2097	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2065	K02175150	Ceramic CAP.	CH	50V	15pF	
R2098	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2066	K06175220	Ceramic CAP.	UJ	50V	22pF	
R2099	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2067	K02173100	Ceramic CAP.	CH	50V	10pF	
R2100	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2068	K40179013	AL. Electro. CAP.		50V	1uF	
R2101	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2069	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2102	J02225223	Carbon Film RES.	1/6W 22k ohm	UJ	C2070	K40129008	AL. Electro. CAP.		16V	33uF	
R2103	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2071	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2104	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2072	K19149017	Ceramic CAP.		25V	0.022uF	
R2105	J02225153	Carbon Film RES.	1/6W 15k ohm	UJ	C2073	K19149019	Ceramic CAP.		25V	0.033uF	
R2106	J02225103	Carbon Film RES.	1/6W 10k ohm	UJ	C2074	K40129008	AL. Electro. CAP.		16V	33uF	
R2107	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2075	K10176101	Ceramic CAP.	B	50V	100pF	
R2108	J02225104	Carbon Film RES.	1/6W 100k ohm	UJ	C2076	K10176101	Ceramic CAP.	B	50V	100pF	
R2109	J02225101	Carbon Film RES.	1/6W 100 ohm	UJ	C2077	K10176101	Ceramic CAP.	B	50V	100pF	
R2110	J02225471	Carbon Film RES.	1/6W 470 ohm	UJ	C2078	K19149005	Ceramic CAP.		25V	0.0022uF	
R2111	J02225681	Carbon Film RES.	1/6W 680 ohm	UJ	C2079	K12171102	Ceramic CAP.	E	50V	1000pF	
R2112	J02225471	Carbon Film RES.	1/6W 470 ohm	UJ	C2080	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2113	J02225100	Carbon Film RES.	1/6W 10 ohm	UJ	C2082	K28129001	Ceramic CAP.	Y	16V	0.01uF	
R2114	J02225560	Carbon Film RES.	1/6W 56 ohm	UJ	C2084	K12171102	Ceramic CAP.	E	50V	1000pF	
R2116	J02225471	Carbon Film RES.	1/6W 470 ohm	UJ	C2085	K12171102	Ceramic CAP.	E	50V	1000pF	
R2120	J01225560	Carbon Film RES.	1/6W 56 ohm	PJ	C2086	K02179001	Ceramic CAP.	CH	50V	1pF	
TH2001	G9090008	Thermistor	11-2102-2		C2087	K02172020	Ceramic CAP.	CH	50V	2pF	
C2001	K12171102	Ceramic CAP.	E	50V	1000pF	C2101	K10176101	Ceramic CAP.	B	50V	100pF
C2002	K02175560	Ceramic CAP.	CH	50V	56pF	C2102	K10176101	Ceramic CAP.	B	50V	100pF
C2003	K02175150	Ceramic CAP.	CH	50V	15pF	C2103	K10176101	Ceramic CAP.	B	50V	100pF
C2004	K12171102	Ceramic CAP.	E	50V	1000pF	C2104	K06179007	Ceramic CAP.	UJ	50V	36pF
C2005	K02172059	Ceramic CAP.	CH	50V	0.5pF	C2105	K06175390	Ceramic CAP.	UJ	50V	39pF
C2006	K02175120	Ceramic CAP.	CH	50V	12pF	C2106	K40129004	AL. Electro. CAP.		16V	10uF
C2007	K28179001	Ceramic CAP.	B	50V	1000pF						
C2008	K02172030	Ceramic CAP.	CH	50V	3pF						
C2009	K12171102	Ceramic CAP.	E	50V	1000pF						
C2010	K12171102	Ceramic CAP.	E	50V	1000pF						

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C2107	K40129008	AL. Electro. CAP.		16V	33uF	T2004	L0021861	Coil		5.74MHz
C2108	K28129001	Ceramic CAP.	Y	16V	0.01uF	T2005	L0021380	Coil		0.40uH
C2109	K28129001	Ceramic CAP.	Y	16V	0.01uF	T2006	L0021860	Coil		0.45uH
C2111	K19149025	Ceramic CAP.		25V	0.1uF	T2007	L0021380	Coil		0.40uH
C2112	K40129038	AL. Electro. CAP.		16V	100uF	T2008	L0021380	Coil		0.40uH
C2113	K19149013	Ceramic CAP.		25V	0.01uF	T2009	L0021382	Coil		0.29uH
C2114	K12171102	Ceramic CAP.	E	50V	1000uF	J2001	P0090627	Connector		
C2115	K06179008	Ceramic CAP.	UJ	50V	43uF	J2002	P1090554	Connector		
C2116	K02173070	Ceramic CAP.	CH	50V	7uF	J2003	P1090594	Connector		
C2117	K06172050	Ceramic CAP.	UJ	50V	5uF		T9317814	Wire ASSY	P2001	
C2118	K06175330	Ceramic CAP.	UJ	50V	33uF		T9317813	Wire ASSY	P2002	
C2119	K06175150	Ceramic CAP.	UJ	50V	15uF		T9317812	Wire ASSY	P2003	
C2120	K12171102	Ceramic CAP.	E	50V	1000uF					
C2121	K12171102	Ceramic CAP.	E	50V	1000uF		R0124120	VCO Case		
C2122	K40129008	AL. Electro. CAP.		16V	33uF		R0124130	VCO Cover		
C2123	K06175470	Ceramic CAP.	UJ	50V	47pF		R0124140A	Shield Plate		
C2124	K06172050	Ceramic CAP.	UJ	50V	5pF		R0124150A	Shield Plate		
C2125	K05175330	Ceramic CAP.	RH	50V	33pF		R0124160B	Shield Plate		
C2126	K02173100	Ceramic CAP.	CH	50V	10pF		R0123770	Ground Lead		
C2127	K12171102	Ceramic CAP.	E	50V	1000pF		R0125800	Leaf Spring		
C2128	K40129008	AL. Electro. CAP.		16V	33uF					
C2129	K06175390	Ceramic CAP.	UJ	50V	39pF					
C2130	K06172050	Ceramic CAP.	UJ	50V	5pF					
C2131	K06175220	Ceramic CAP.	UJ	50V	22pF					
C2132	K06172050	Ceramic CAP.	UJ	50V	5pF					
C2133	K12171102	Ceramic CAP.	E	50V	1000pF					
C2134	K40129008	AL. Electro. CAP.		16V	33uF					
C2135	K06179008	Ceramic CAP.	UJ	16V	43pF					
C2136	K05172050	Ceramic CAP.	RH	50V	5pF					
C2137	K05175180	Ceramic CAP.	RH	50V	18pF					
C2138	K05172050	Ceramic CAP.	RH	50V	5pF					
C2139	K12171102	Ceramic CAP.	E	50V	1000pF					
C2140	K40129008	AL. Electro. CAP.		16V	33uF					
C2141	K12171102	Ceramic CAP.	E	50V	1000pF					
C2142	K12171102	Ceramic CAP.	E	50V	1000pF					
C2143	K02172030	Ceramic CAP.	CH	50V	3pF					
C2144	K12171102	Ceramic CAP.	E	50V	1000pF					
C2145	K12171102	Ceramic CAP.	E	50V	1000pF					
C2146	K10176331	Ceramic CAP.	B	50V	330pF					
C2148	K00175270	Ceramic CAP.	SL	50V	27pF					
C2149	K00175560	Ceramic CAP.	SL	50V	56pF					
C2150	K00175270	Ceramic CAP.	SL	50V	27pF					
C2151	K00179013	Ceramic CAP.	SL	50V	91pF					
C2152	K00175470	Ceramic CAP.	SL	50V	47pF					
C2153	K00179013	Ceramic CAP.	SL	50V	91pF					
C2154	K00175560	Ceramic CAP.	SL	50V	56pF					
C2155	K00175560	Ceramic CAP.	SL	50V	56pF					
C2157	K28129001	Ceramic CAP.	Y	16V	0.01uF					
C2158	K12171102	Ceramic CAP.	E	50V	1000pF					
C2159	K12171102	Ceramic CAP.	E	50V	1000pF					
C2161	K00175101	Ceramic CAP.	SL	50V	100pF					
C2162	K28129001	Ceramic CAP.	Y	16V	0.01uF					
C2163	K13179009	Ceramic CAP.	F	50V	0.047uF					
C2164	K19149025	Ceramic CAP.		25V	0.1uF					
C2165	K00175470	Ceramic CAP.	SL	50V	47pF					
C2166	K10176331	Ceramic CAP.	B	50V	330pF					
TC2001	K91000141	Trimmer CAP.			10pF					
TC2002	K91000142	Trimmer CAP.			20pF					
TC2003	K91000142	Trimmer CAP.			20pF					
TC2004	K91000186	Trimmer CAP.			20pF					
L2001	L1190223	M. RFC			270uH					
L2002	L1190024	M. RFC			220uH					
L2003	L1190038	M. RFC			270uH					
L2004	L1190005	M. RFC			1uH					
L2010	L1190029	M. RFC			47uH					
L2011	L1190014	M. RFC			10uH					
L2012	L1190011	M. RFC			4.7uH					
L2013	L1190005	M. RFC			1uH					
L2014	L0021410	Coil			0.147uH					
L2015	L0021410	Coil			0.147uH					
L2016	L0021409	Coil			0.117uH					
L2017	L0021409	Coil			0.117uH					
L2018	L1190190	M. RFC			0.27uH					
L2020	L1190218	M. RFC			100uH					
L2021	L1190218	M. RFC			100uH					
T2001	L0021862	Coil			44.6MHz					
T2002	L0021862	Coil			44.6MHz					
T2003	L0021862	Coil			44.6MHz					
PLL-LPF UNIT										
Symbol No.	Part No.	Description			Device					
	F2971101A	Printed Circuit Board								
	C029711AA	PCB with Components								
Q7023	G3326207B	Transistor			2SC2620QBTR					
R7069	J24205331	RES. Chip			1/10W 330 ohm					
R7070	J24205104	RES. Chip			1/10W 100k ohm					
R7071	J24205102	RES. Chip			1/10W 1k ohm					
R7072	J24205101	RES. Chip			1/10W 100 ohm					
R7073	J24205101	RES. Chip			1/10W 100 ohm					
C7081	K22170817	CAP. Chip	B	50V	0.01uF					
C7088	K22170209	CAP. Chip	CH	50V	8pF					
C7089	K22170204	CAP. Chip	CH	50V	3pF					
C7090	K22170220	CAP. Chip	CH	50V	24pF					
C7091	K22170209	CAP. Chip	CH	50V	8pF					
C7092	K22170219	CAP. Chip	CH	50V	22pF					
C7093	K22170210	CAP. Chip	CH	50V	9pF					
C7094	K22170219	CAP. Chip	CH	50V	22pF					
C7095	K22170206	CAP. Chip	CH	50V	5pF					
C7096	K22170221	CAP. Chip	CH	50V	27pF					
C7097	K22170201	CAP. Chip	CH	50V	0.5pF					
C7098	K22170817	CAP. Chip	B	50V	0.01uF					
C7099	K22170817	CAP. Chip	B	50V	0.01uF					
C7100	K22170817	CAP. Chip	B	50V	0.01uF					
C7156	K22170213	CAP. Chip	CH	50V	12pF					
L7022	L1190218	M. RFC			100uH					
T7010	L0021553	Coil								
T7011	L0021554	Coil								
T7012	L0021554	Coil								
T7013	L0021553	Coil								
T7014	L0021555	Coil								
DISPLAY UNIT										
Symbol No.	Part No.	Description			Device					
	F2943102C	Printed Circuit Board								
	C029432AA	PCB with Components								
Q3001	G1090865	IC			M50932-501FP					
Q3002	G1090815	IC			TDA2003H					
Q3003	G1090299	IC			uPC7805H					
Q3004	G1090840	IC			M51943BSL					
Q3005	G3090074	Transistor			BA1A4M					
Q3006	G3090074	Transistor			BA1A4M					
Q3007	G3090079	Transistor			BA1A4P					
Q3008	G3406670C	Transistor			2SD667C					
Q3009	G3304580C	Transistor			2SC458C					
Q3014	G3090075	Transistor			BA1A4P					
D3001	G2090118	Diode			1SS97					
D3002	G2090375	Diode			GL-9PR4					
D3005	G2090408	Diode			1SS270					

PARTS LIST

	C029441AA	PCB with Components (SSB)	
	C029441AB	PCB with Components (SSB, CW, AM)	
D8201	G2090118	Diode	1SS97
D8202	G2090118	Diode	1SS97
D8203	G2090118	Diode	1SS97
D8204	G2090118	Diode	1SS97
D8205	G2060004	Diode	1SS270TJ
D8206	G2060004	Diode	1SS270TJ
D8207	G2090118	Diode	1SS97
D8208	G2060004	Diode	1SS270TJ
D8209	G2060004	Diode	1SS270TJ
D8210	G2090118	Diode	1SS97
D8211	G2090118	Diode	1SS97
D8212	G2090118	Diode	1SS97
D8213	G2060004	Diode	1SS270TJ
D8214	G2060004	Diode	1SS270TJ
D8215	G2090408	Diode *, ***	1SS270TJ
D8216	G2090408	Diode *, **	1SS270TJ
D8217	G2090118	Diode	1SS97
XF8201	H1102128	XTAL Filter	XF8.2M-242-02
XF8202	H1102129	XTAL Filter **	XF8.2M-501-01
XF8203	H1102130	XTAL Filter ***	XF8.2M-602-01
R8201	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
R8202	J01225221	Carbon Film RES.	1/6W 220 ohm PJ
R8203	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
R8204	J01225470	Carbon Film RES.	1/6W 47 ohm PJ
R8205	J01225151	Carbon Film RES.	1/6W 150 ohm PJ
R8206	J01225221	Carbon Film RES.	1/6W 220 ohm PJ
R8207	J01225391	Carbon Film RES.	1/6W 390 ohm PJ
R8208	J01225121	Carbon Film RES.	1/6W 120 ohm PJ
R8209	J01225102	Carbon Film RES.	1/6W 1k ohm PJ
R8210	J01225121	Carbon Film RES.	1/6W 120 ohm PJ
R8211	J01225101	Carbon Film RES.	1/6W 100 ohm PJ
R8212	J01225471	Carbon Film RES.	1/6W 470 ohm PJ
R8213	J01225010	Carbon Film RES.	1/6W 1 ohm PJ
R8214	J01225010	Carbon Film RES.	1/6W 1 ohm PJ
R8215	J01225271	Carbon Film RES.	1/6W 270 ohm PJ
C8201	K00173100	Ceramic CAP.	SL 50V 10pF
C8202	K28129001	Ceramic CAP.	Y 16V 0.01uF
C8203	K28129001	Ceramic CAP.	Y 16V 0.01uF
C8204	K00173100	Ceramic CAP.	SL 50V 10pF
C8205	K28129001	Ceramic CAP.	Y 16V 0.01uF
C8206	K28129001	Ceramic CAP.	Y 16V 0.01uF
C8208	K28129001	Ceramic CAP.	Y 16V 0.01uF
C8209	K28129001	Ceramic CAP.	Y 16V 0.01uF
C8211	K28129001	Ceramic CAP.	Y 16V 0.01uF
L8201	L1190220	M. RFC	150uH
L8202	L1190220	M. RFC	150uH
L8203	L1190220	M. RFC	150uH
J8201	P0090352	Connector	
J8202	P0090390	Connector	
PHONE-JACK UNIT			
Symbol No.	Part No.	Description	Device
	F2943103A	Printed Circuit Board	
	C029433AA	PCB with Components	
J9001	P1090351	Connector	
	T9205616	CW-ASSY	
ACCESSORIES			
Symbol No.	Part No.	Description	Device
	T9014900	DC-Code	
	Q0000012	FUSE *	6A
	Q0000009	FUSE ▲	20A

*: SSB Filter
 **: CW Filter
 ***: AM Filter

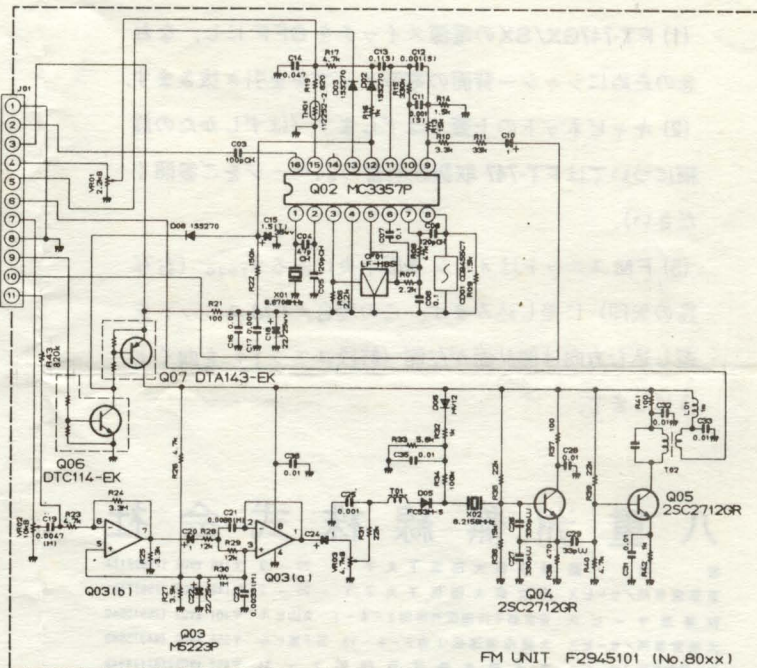
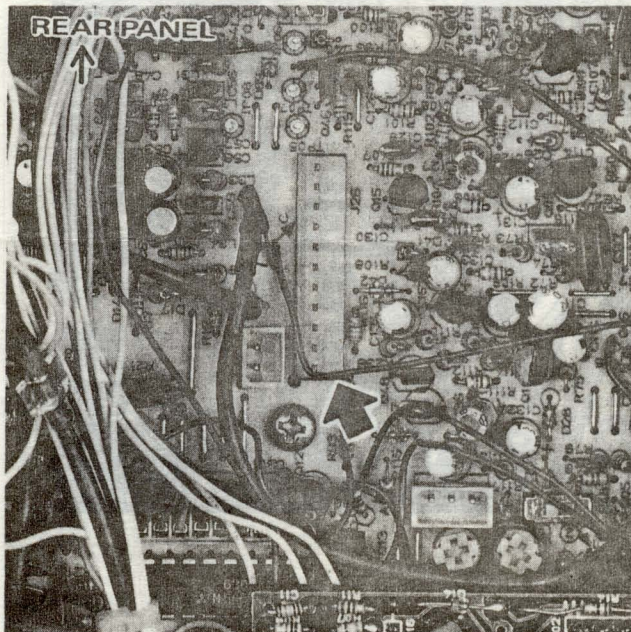
• 10W Type
 ▲ 100W Type



Optional FM Unit Installation



The optional FM Unit can be installed in the 11-pin jack shown in the photo below, with the component side of the board facing to the left.



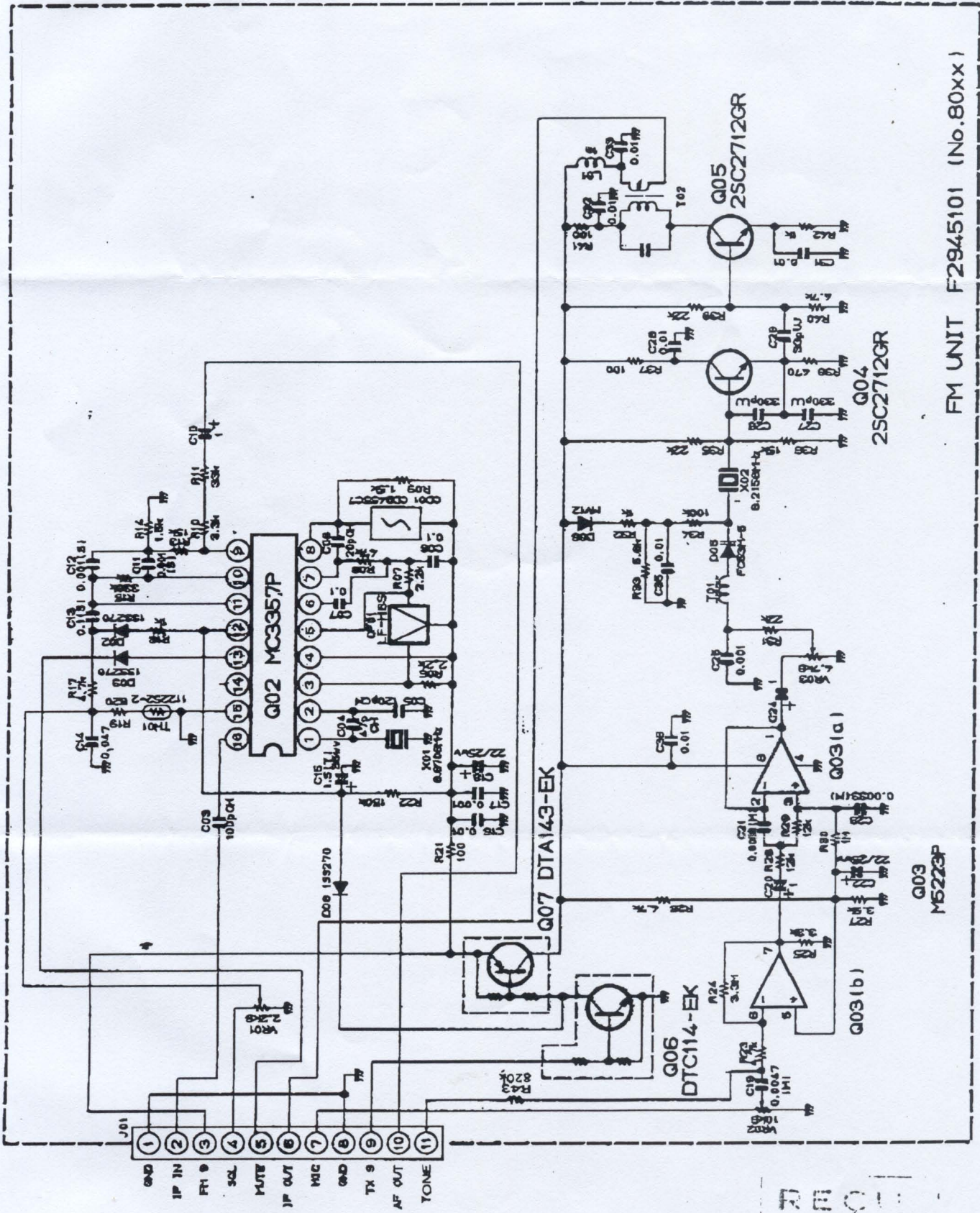
FM UNIT F2945101 (No.80xx)

RESISTOR VALUES ARE IN Ω, 1/10W ;
CAPACITOR VALUES ARE IN μF, 50V ;
INDUCTOR VALUES ARE IN H ;
ELECTROLYTIC CAPACITOR VALUES ARE IN μF, 16V ;
UNLESS OTHERWISE NOTED.

101) CAPACITORS ARE POLYESTER FILM, 50V ;
111) CAPACITORS ARE TANTALUM, 16V ;
131) CAPACITORS ARE SEMICONDUCTOR CERAMIC, 25V ;

YAESU MUSEN CO., LTD.
C.P.O. BOX 1500
TOKYO, JAPAN

B5000316A
A2530 LOT#001
127 OCT., 1987



FM UNIT F2945101 (No.80xx)

- (M) CAPACITORS ARE POLYESTER FILM, 50V.
- (T) CAPACITORS ARE TANTALUM, 16V.
- (S) CAPACITORS ARE BEMICONDUCTOR CERAMIC, 25V.

RESISTOR VALUES ARE IN Ω , 1/10W ;
 CAPACITOR VALUES ARE IN μ F, 50V ;
 INDUCTOR VALUES ARE IN H ;
 ELECTROLYTIC CAPACITOR VALUES ARE IN μ F, 16V,
 UNLESS OTHERWISE NOTED.

REC'D
 14. MAI 1987

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OK

757FM.TXT

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FT-747 FM unit Alignment

-ALIGNMENT

[1] Preparation

- Turn the VR8002 to counter clockwise.
- Microphone input = 0
- DRIVE VR turn to counter clockwise

[2] Adjust the carrier frequency

- Connect frequency counter to the J8001 pin#6
- Switch to transmit the transceiver
- Adjust the FM TX frequency 8.2158MHz turning T8001.

[3] IF carrier level adjust

- Connect RF voltmeter to the J8001 pin#6
- Set the output RF level to 100mV or more turning the T8002

[4] Deviation

- Put audio signal @f=1kHz 10mV(rms) to the microphone input.
- Connect Deviation meter through ATT from the transceiver antenna terminal
- Switch to transmit mode, adjust output power using DRIVE VR
- Set deviation to +/-2.3kHz using VR8003
- Reduce MIC input level to 1mV(rms) @f=1kHz
- Set deviation to +/-1.7kHz using VR8002

[5] Squelch setting

- Set the transceiver to AM mode
- Adjust the SQL VR to close the audio output
- Switch to FM mode
- Set the audio closing (SQL ON) using VR8001

RECU I

14. MAI 1997