

FT-711RH

TECHNICAL SUPPLEMENT/

Service manual.

FOR SERVICE MANUALS
CONTACT:
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YAESU MUSEN CO., LTD.
C.P.O. BOX 1500
TOKYO, JAPAN

FT-711RH

TECHNICAL SUPPLEMENT



This manual is intended to serve as a supplement to the FT-711RH Operating Manual. Detailed information regarding functions, specifications, options 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.

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 and alignment procedures of this transceiver, in the interest of technological improvement, without notification of the owners.

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CHIP COMPONENT INFORMATION

While chip components are generally more reliable and enduring than lead components, they are much more difficult to replace. The chip placement robots at the factory set the components into place on a small spot of resin adhesive before soldering, and this adhesive provides rigid mechanical support for the component independently of the solder joints. Once the resin has been cured there is no way to remove it. Therefore, to remove a chip component, it is necessary to first remove all of the solder at each connection and then forcefully break the adhesive bond. This must be done very carefully, both to avoid overheating the board and lifting tracks when desoldering, and to avoid damaging the

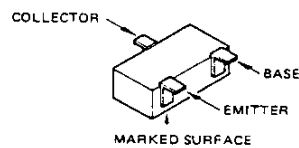
board or underlying tracks when breaking off the component. Removed components should never be reused, as they are bound to be unreliable after removal.

In spite of the following information on labelling, some chip components may have no markings at all (especially resistors and capacitors, indicated with asterisks "*" below). In this case, to identify the component, refer to the part location in the layout diagrams, note the location number, and then refer to the Parts List to determine the value or nomenclature and type.

Transistors

Location	Nomenclature	Mark
Q1012,1013,304 402	2SA812	M6/M7
Q1019,403,502 602,603,604 605,702,703 801	2SC1623	L6/L7
Q1004	2SC2620	QB
Q303	2SC2712	GR/BL
Q1007,1015,302	2SC3356	R22

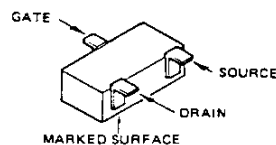
Example:
Nomen. Code
↓
S G
↓
hFE Rank



FETs

Location	Nomenclature	Mark
Q601	2SK208Y	JY

Example:
Nomen. Code
↓
J O
↓
IDSS Rank

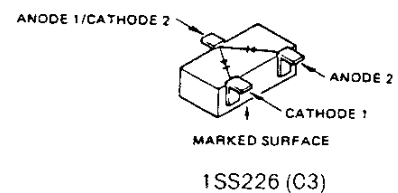
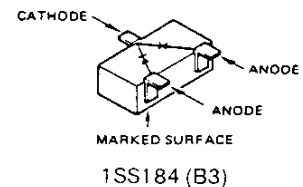
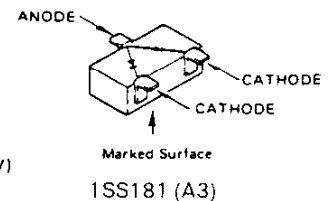


Diodes

Location	Nomenclature	Mark
D701,903	1SS181	A3
D1014,902	1SS184	B3
D1004,1011,501 702	1SS226	C3

Example:

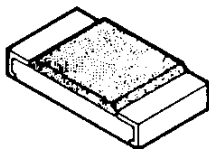
Nomen. Code
↓
B 3
↓
VR Rating (80V)



Resistors

Type RMC 1/10W

Marking* 100,222,473.....



473		
Ten unit	One unit	Multiplier code
0	0	10^0
1	1	10^1
2	2	10^2
3	3	10^3
4	4	10^4
5	5	10^5
6	6	10^6
7	7	10^7
8	8	10^8
9	9	10^9

Examples :

100 = 10Ω

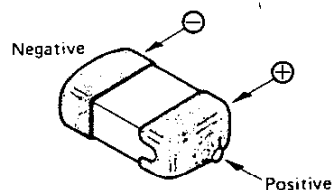
222 = 2.2kΩ

473 = 47kΩ

INDICATED LETTERS

1 2 3 4
5 6 7 8
9 0 .

Tantalum Capacitor



Polarized, Unmarked
(determine value from layout
and Parts List)

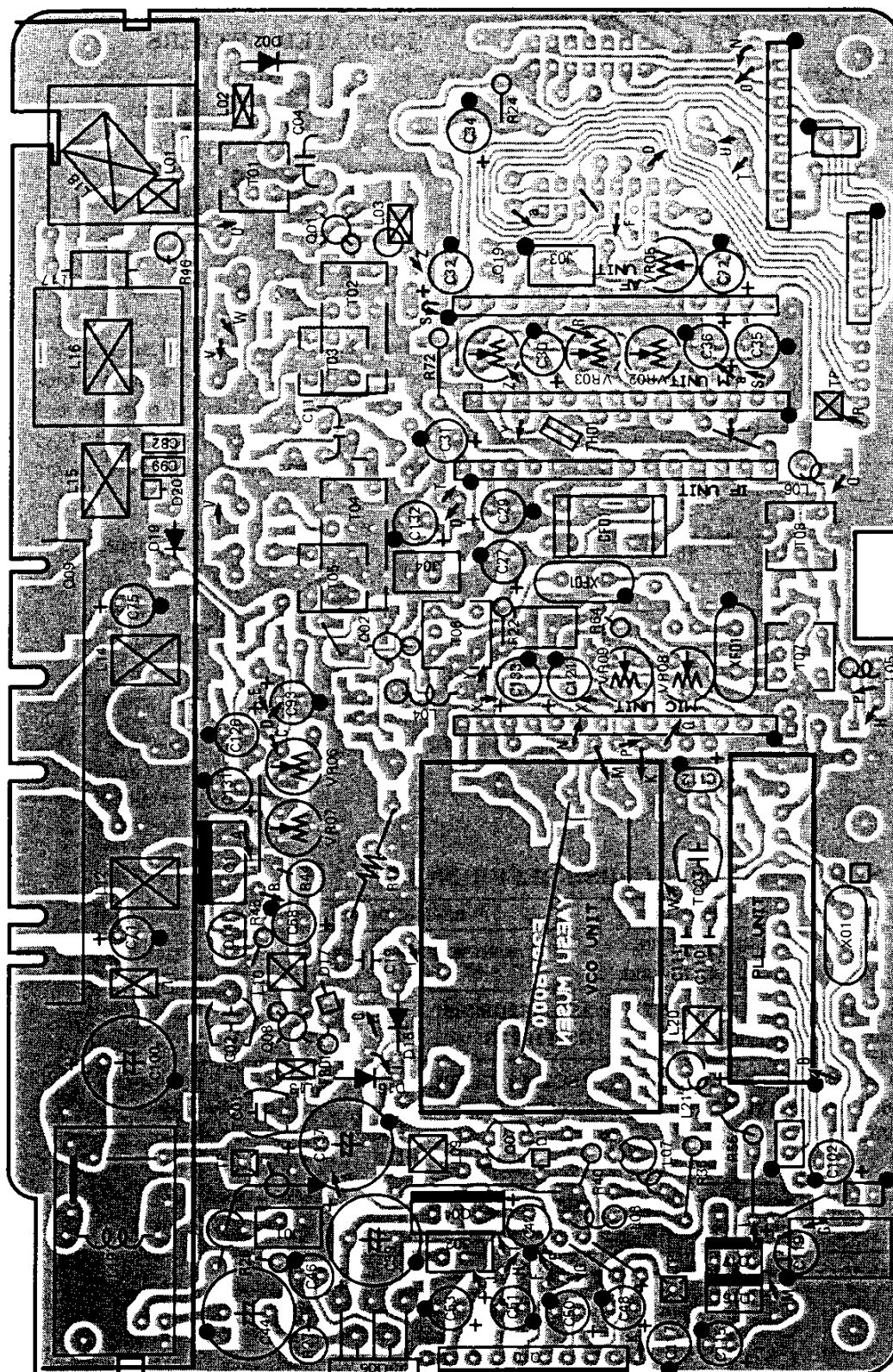
CHIP SEMICONDUCTOR CROSS-REFERENCE

PART LOCATION NO.	ORIRINAL	REPLACEMENT	
	NOMENCLATURE (MARKING) AND PART NUMBER	NOMENCLATURE (MARKING) AND PART NUMBER	
Q1012,1013 304,402	2SA812 (M6/M7) G3108127F/G	2SA1162GR (S0) G3111627G	
Q1019,403,502 602,603,604 605,702,703 801	2SC1623 (L6/L7) G3316237F/G	2SC2712 (GR/BL) G3327127G/B	
Q303	2SC2712 (GR/BL) G3327127G/B	2SC1623 (L6/L7) G3316237F/G	

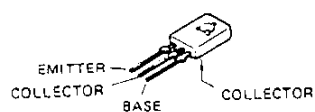
* Semiconductors not listed above may be replaced only with original types.

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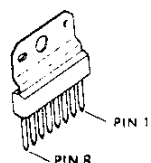
MAIN UNIT



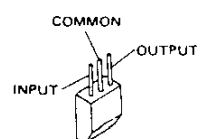
“component” side



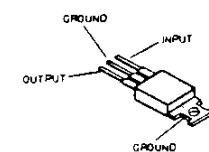
2SD882P (Q1005)



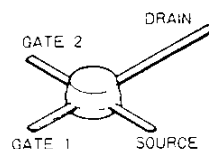
MB3756M (Q1018)



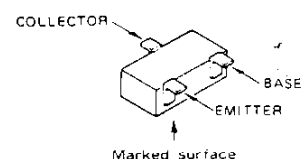
μPC78L08 (Q1016)
μPC78L05 (Q1017)



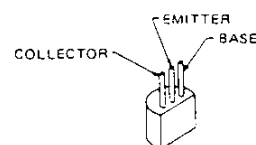
μPC7808H (Q1)



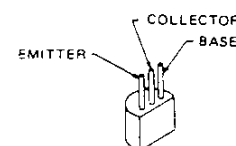
3SK121Y (Q1001)
3SK88 (Q1002,1003)



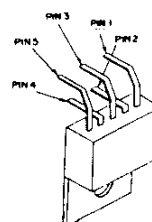
2SA812 (M6/M7) (Q1012,1013)
2SC1623 (L6/L7) (Q1019)
2SC2620 (QB) (Q1004)
2SC3356 (R22) (Q1007,1015)



2SC3355 (Q1008)

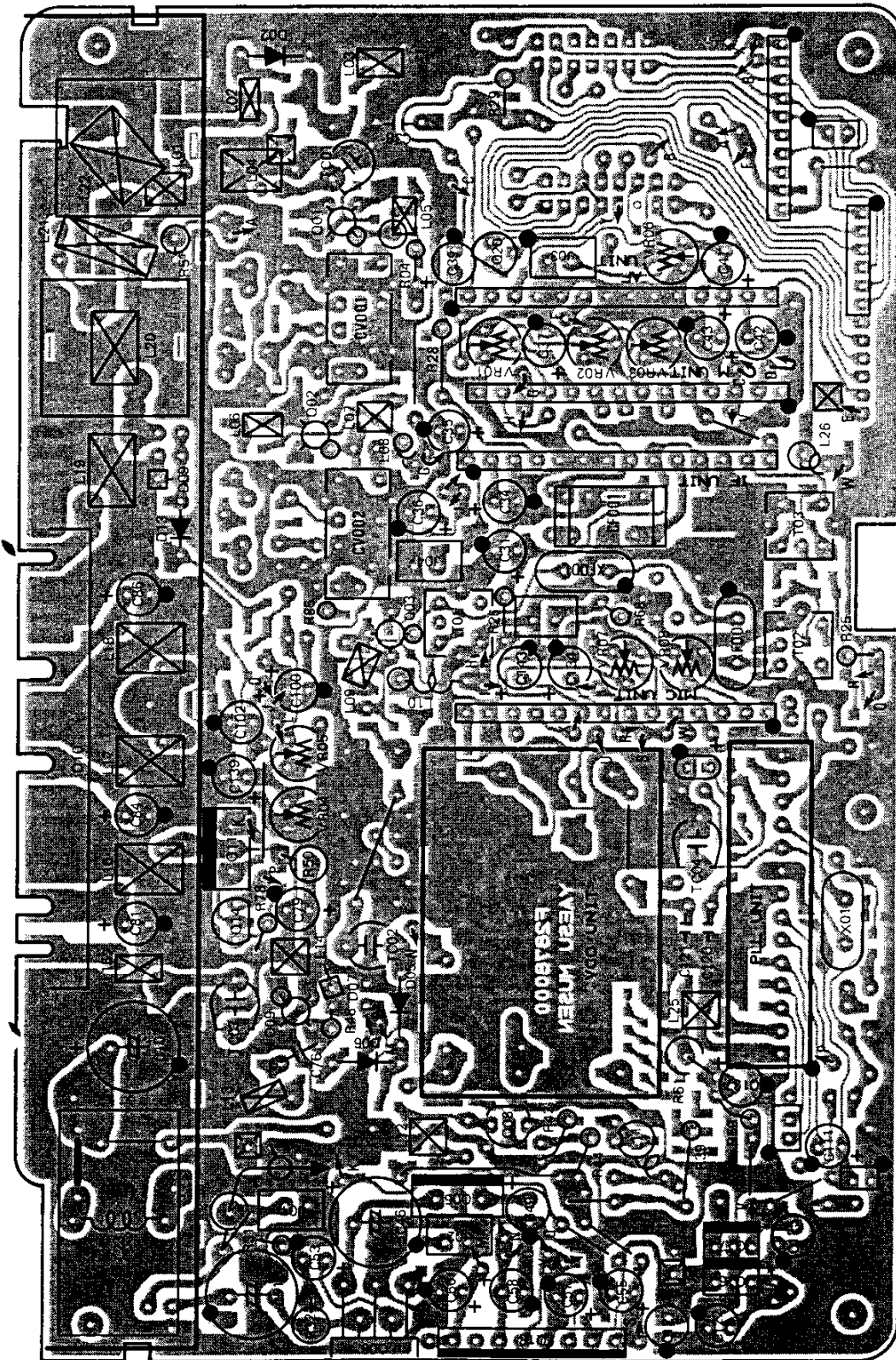


2SC2538 (Q1008)

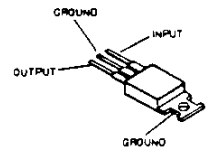


TDA2003 (Q1006)

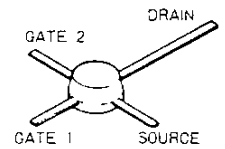
FT-711RH MAIN UNIT PARTS LAYOUT



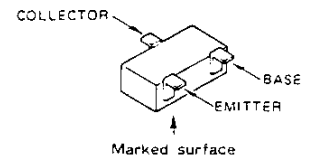
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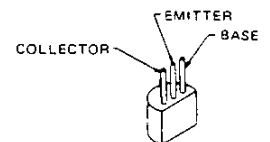
μPC7808H (Q1)



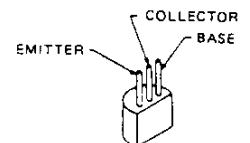
3SK121Y (Q1001)
3SK88 (Q1002, Q1003)



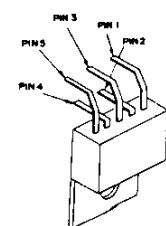
2SA812 (M6/M7) (Q1012, 1013)
2SC1623 (L6/L7) (Q1019)
2SC2620 (QB) (Q1004)
2SC3356 (R22) (Q1007, 1015)



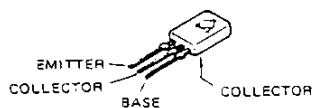
2SC3355 (Q1008)



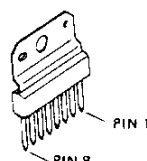
2SC2538 (Q1008)



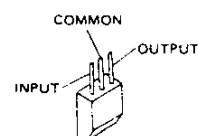
TDA2003 (Q1006)



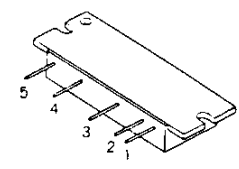
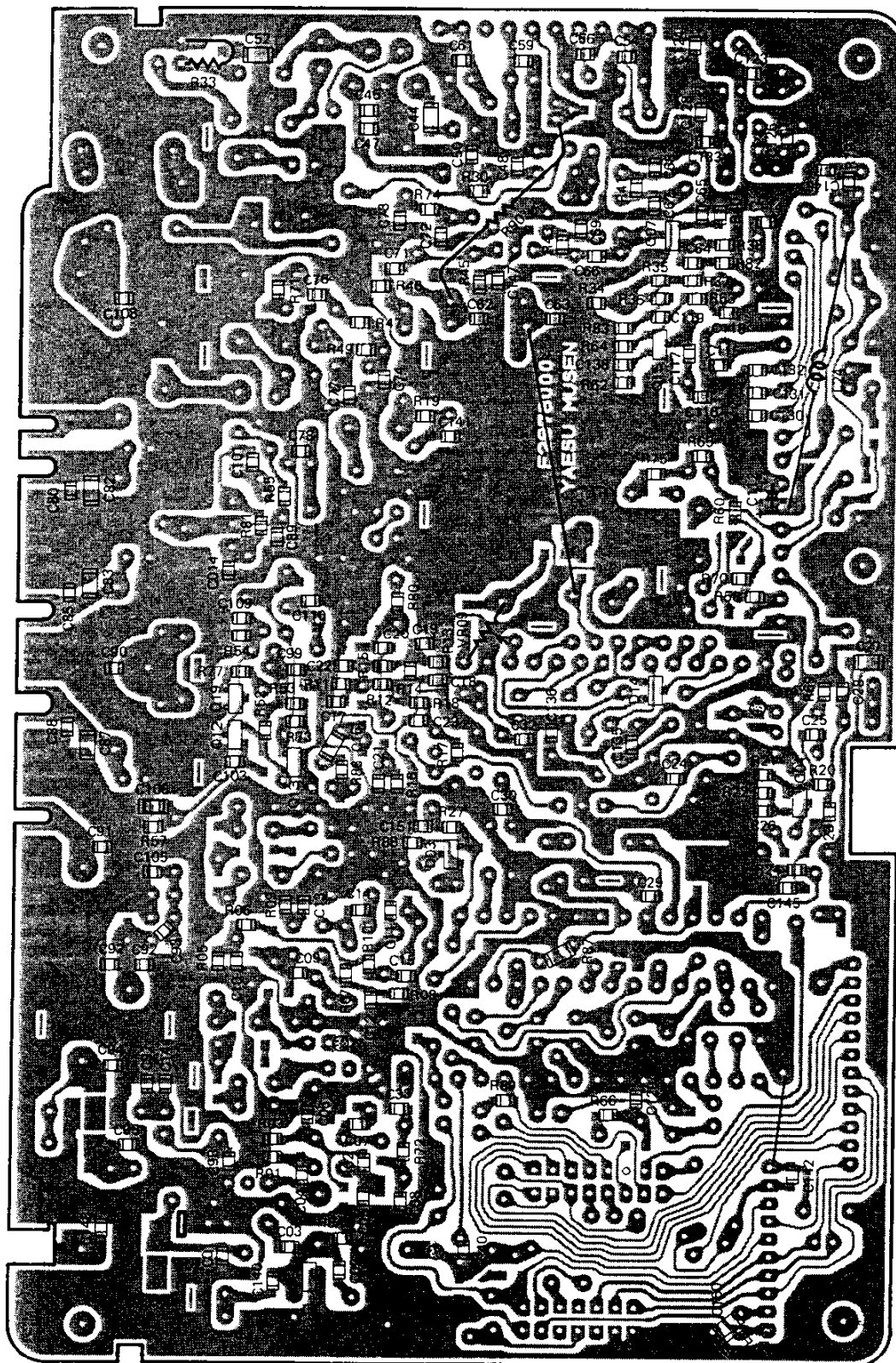
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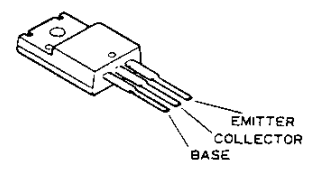
MB3756M (Q1018)



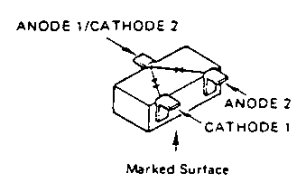
μPC78L08 (Q1016)
μPC78L05 (Q1017)



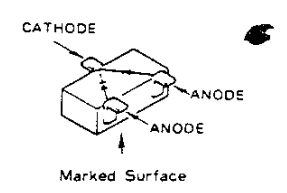
M57729(Q1010)
RF output 25W Type
M57788M(Q1010)
RF output 35W Type



2SB1134R(Q1011)
RF output 25W Type
2SB942(Q1011)
RF output 35W Type

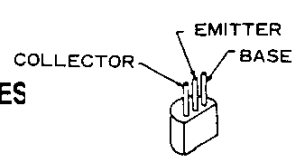


1SS226 (C3) (D1003,1011)

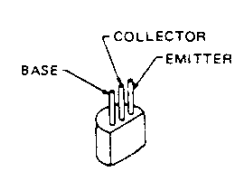


1SS184 (B3) (D1014)

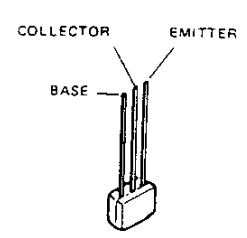
"chip" side



2SC2407 (Q1009)



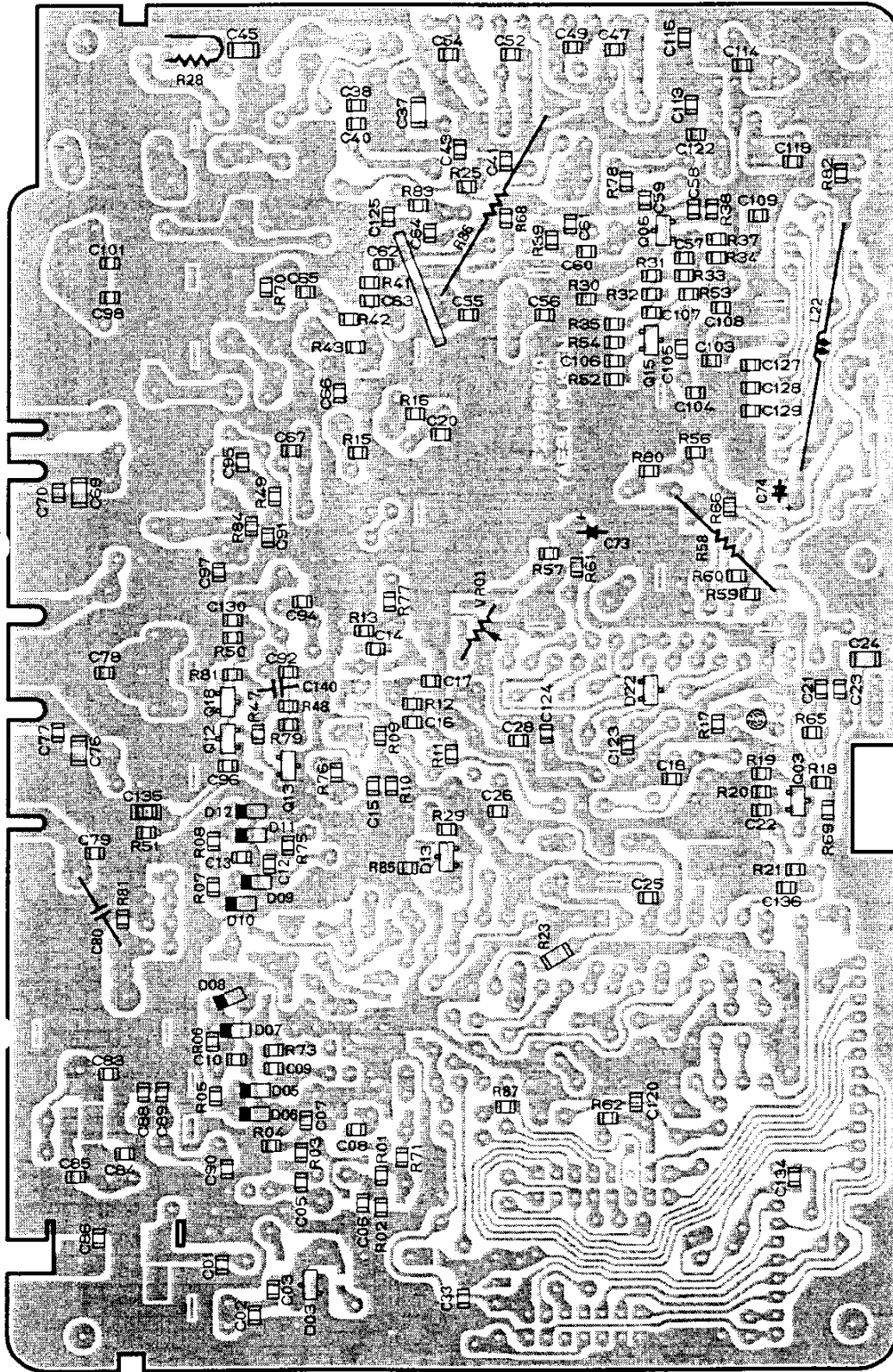
2SC945AP (Q1014)



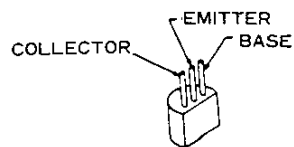
BN1A4M (Q1020)

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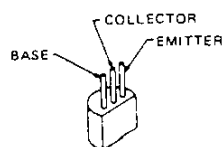
MAIN UNIT



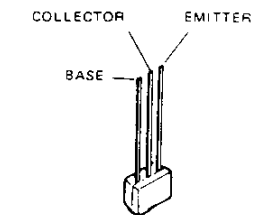
"chip" side



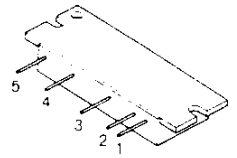
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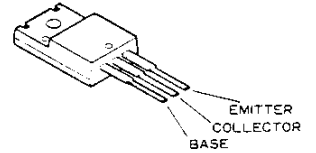
2SC945AP (Q1014)



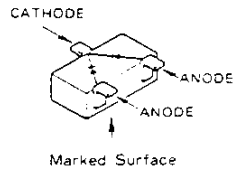
BN1A4M (Q1020)



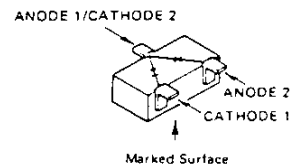
M57729 (Q1010)
RF output 25W
M57788M (Q1010)
RF output 35W



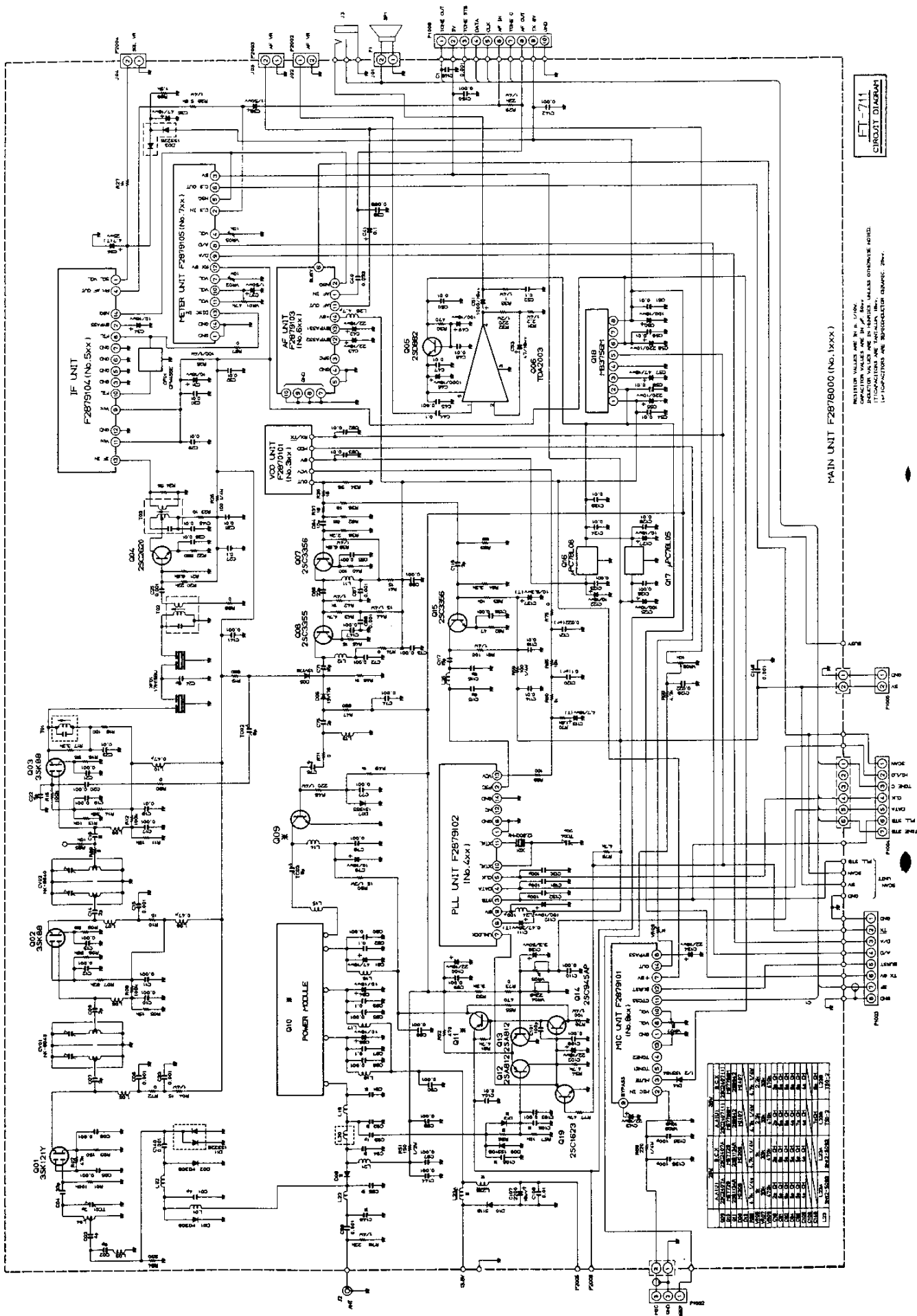
2SB1134R (Q1011)
RF output 25W Type
2SB942 (Q1011)
RF output 35W Type



1SS184 (B3) (D1014)



1SS226 (C3) (D1003,1011)



RESISTOR VALUES ARE IN Ω , K, M, ∞
CAPACITOR VALUES ARE IN P, μ , N, F, ∞
1% TOLERANCE ARE INDICATED BY "1" IN THE LAST DIGIT

FIG. 7-11
CIRCUIT DIAGRAM

MAIN UNIT VOLTAGE CHART

ICs

(DC VOLTS)

PIN No. Symbol No.	1	2	3	4	5	6	7	8	REMARKS
Q1005	1.0	0.8	0	6.0	12.0	—	—	—	
Q1009	0	13.6/12.5	13.6/13.2	0	—	—	—	—	
Q1010	8.2	13.6/12.5	8.2	0	5.0/0	8.2/0.2	0	0.2/8.2	RX/TX
Q1016	8.2	0	13.5	—	—	—	—	—	
Q1017	5.1	0	13.6	—	—	—	—	—	

TRANSISTORS & FETS

(DC VOLTS)

Symbol No.	E(S)	C(D)	B(G1)	G2	REMARKS
Q1001	1.2	8.1	0	1.1	
Q1002	0.3	7.8	1.0	1.4	
Q1003	1.0	8.1	1.8	—	
Q1004	12.8	13.6	13.6	—	
Q1006	1.0	8.0	1.8	—	
Q1007	0	8.0	0.6	—	
Q1008	0	0/7.2	0.3/0.5	—	RX/TX
Q1015	0.7	5.0	1.5	—	
Q1011	13.6/12.5	0/11.7	13.6/11.5	—	RX/TX
Q1012	0.3/4.6	0/4.6	0/4.0	—	RX/TX
Q1013	0.3/4.6	0	0/4.0	—	RX/TX
Q1018	0	0/4.6	0.6/0	—	RX/TX
Q1014	0/4.0	13.0/11.5	0/4.6	—	RX/TX

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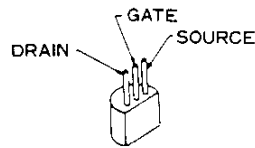
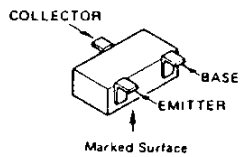
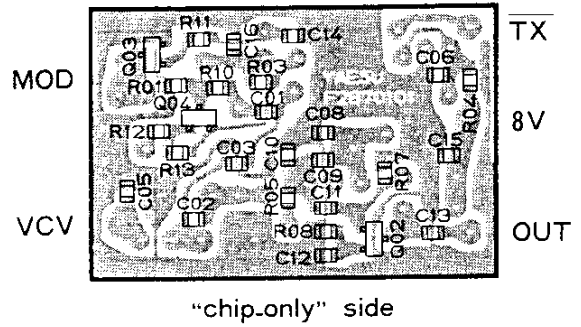
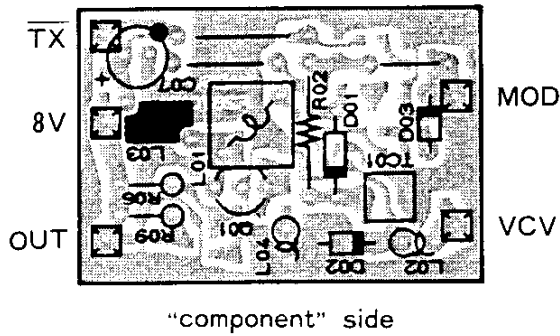
FAX: 01844 - 352554

CONNECTORS

(DC VOLTS)

PIN No. Symbol No.	1	2	3	4	5	6	7	8	9	10	REMARKS
J1001	0	0	—	—	—	—	—	—	—	—	SQL VR min~max
J1002	0	0	—	—	—	—	—	—	—	—	
J1003	0	0	—	—	—	—	—	—	—	—	
J1004	0	0	—	—	—	—	—	—	—	—	
P1002	0	0	0	—	—	—	—	—	—	—	
P1003	0/0	4.6/0	—	—	0/0	0/8.0	0/0	0/0	—	—	RX/TX
P1004	0	13.6	—	—	—	—	—	—	—	—	RX/TX
P1005	5	0	—	—	—	—	—	—	—	—	
P1006	0/0	5/5	0/0	0/0	0/0	0/0	0/0	0/0	0/8	0/0	RX/TX

VCO UNIT

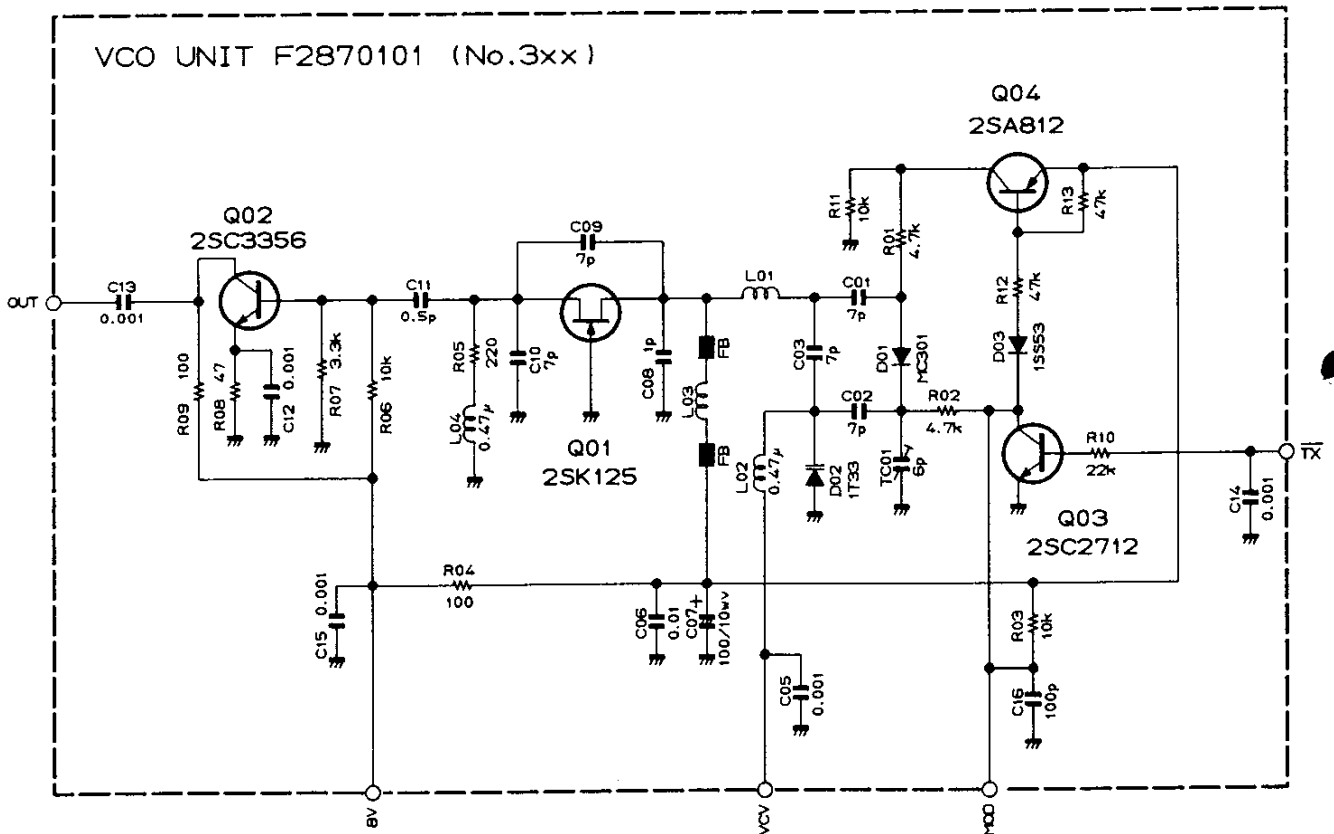


2SA812 (M6/M7) (Q304)
2SC2712 (GR/BL) (Q303)
2SC3356 (R22) (Q302)

2SK125 (Q301)

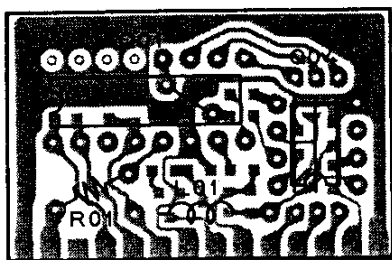
VCO UNIT VOLTAGE CHART
(DC VOLTS)

MOD	TX	8V	REMARKS
4.5/4.5	0.1/4.15	8.1/8.1	RX/TX



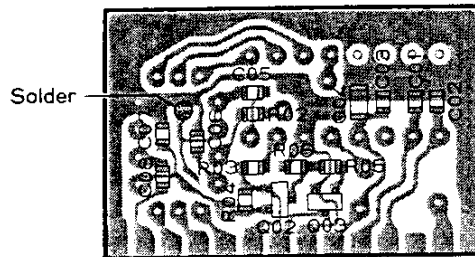
RESISTOR VALUES ARE IN Ω , 1/10W;
CAPACITOR VALUES ARE IN μ F, 50V;
INDUCTOR VALUES ARE IN H;
UNLESS OTHERWISE NOTED.

PLL UNIT



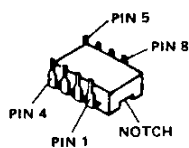
⑭⑬⑫⑪⑩⑨⑧⑦⑥⑤④③②①

"component" side

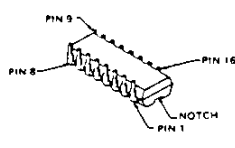


①②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭

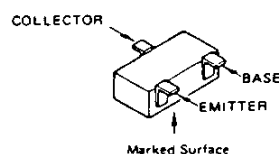
"chip-only" side



M54475P (Q404)



MC145158P (Q401)

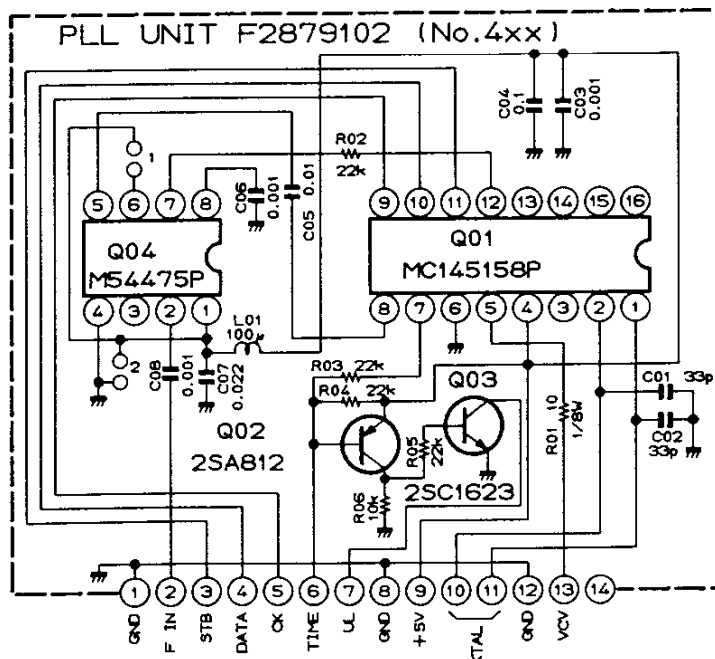


2SA812 (M6) (Q402)
2SC1623 (L6) (Q403)

PLL UNIT VOLTAGE CHART

(DC VOLTS)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	REMARKS
GND	F IN	STB(P)	DATA	CLOCK	TIMER	UNLOCK	GND	5V	Xtal	Xtal	GND	VCV	GND	
0/0	—	0/0	0/0	0/0	4.6/4.6	0/0	0/0	5.0/5.0	—	—	0/0	—	0/0	RX/TX

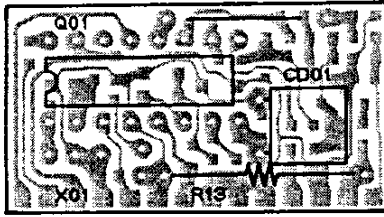


RESISTOR VALUES ARE IN Ω , 1/10W;
CAPACITOR VALUES ARE IN μ F, 50WV;
INDUCTOR VALUES ARE IN H;
UNLESS OTHERWISE NOTED.

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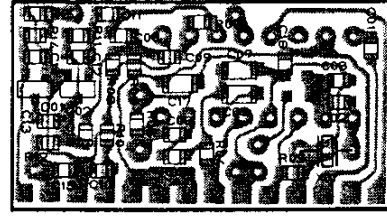
2 : 1/128, 1/129 U-F

IF UNIT



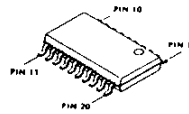
⑭ ⑬ ⑫ ⑪ ⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①

"component" side

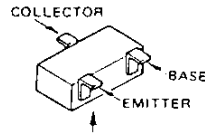


① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

"chip-only" side

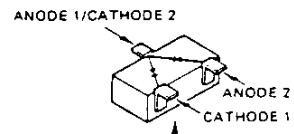


TK10420M (Q501)



Marked Surface

2SC1623 (L6/L7) (Q502)



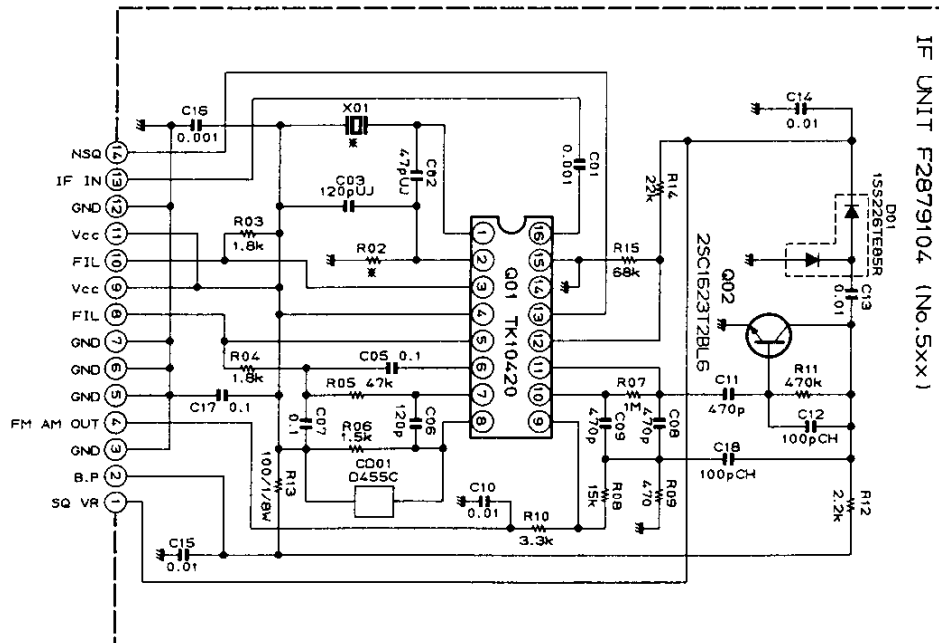
Marked Surface

1SS226 (C3) (D501)

IF UNIT VOLTAGE CHART

(DC VOLTS)

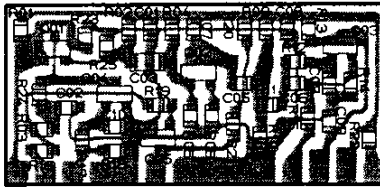
1 SQ VR	2 BYPASS	3 GND	4 FM AM OUT	5 GND	6 GND	7 GND	8 FIL	9 Vcc	10 FIL	11 Vcc	12 GND	13 IF IN	14 NSQ	REMARKS
SG OFF 04-2270-72	8.2/0	0/0	—	0/0	0/0	0/0	—	8.4/0	8/0	8.4/0	0/0	0/0	SO ON/SO OFF 0.0 8.2/0	RX/TX



	X01	R02
FT-711	16.745MHz	100k

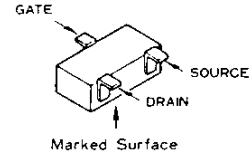
RESISTOR VALUES ARE IN Ω , 1/10W
CAPACITOR VALUES ARE IN μ F:

AF UNIT



① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

"chip-only" side

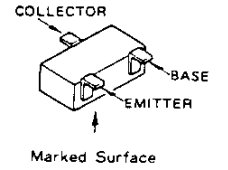


2SK208Y (JY) (Q601)

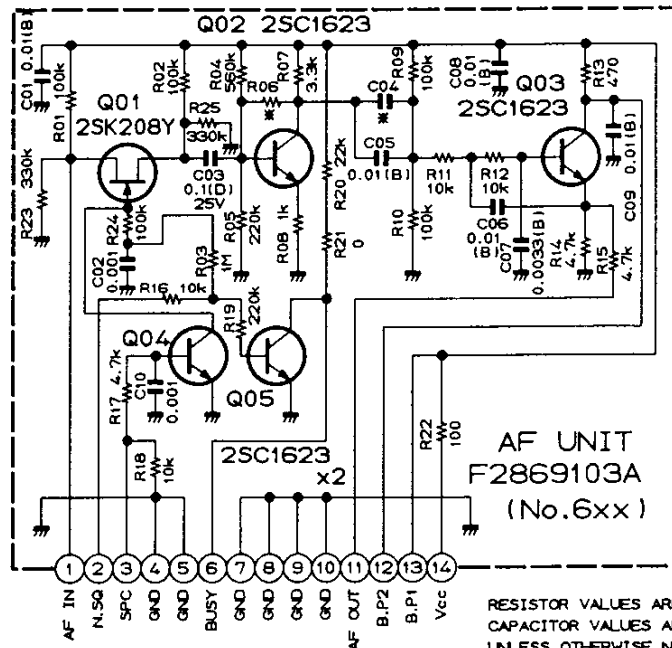
AF UNIT VOLTAGE CHART

(DC VOLTS)

1	2	3	4	5	6	7	REMARKS
AF IN	NSQ	SPC	GND	GND	BUSY	GND	
—	SQ ON OFF 0/0 8.2/0	SQ ON OFF 1/- 0/-	0/0	0/0	—	0/0	RX/TX
8	9	10	11	12	13	14	REMARKS
GND	GND	GND	AF OUT	BYPASS 2	BYPASS 1	Vcc	
0/0	0/0	0/0	—	7.6/7.6	8/8	8.4/8.4	RX/TX



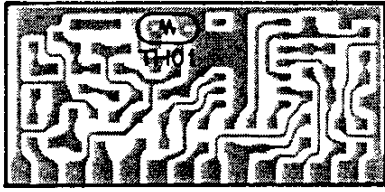
2SC1623 (L6/L7) (Q602,603,604,605)



RESISTOR VALUES ARE IN Ω , 1/10W;
CAPACITOR VALUES ARE IN μ F, 50V;
UNLESS OTHERWISE NOTED.
* R06 C04 : OUT OF USE

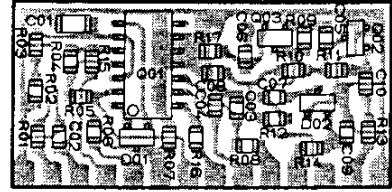
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METER UNIT



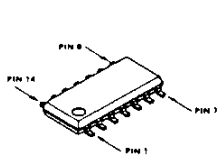
⑭⑬⑫⑪⑩⑨⑧⑦⑥⑤④③②①

"component" side

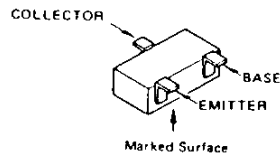


①②③④⑤⑥⑦⑧⑨⑩⑪⑫⑬⑭

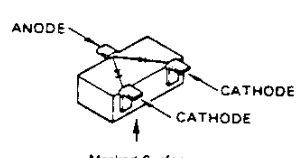
"chip-only" side



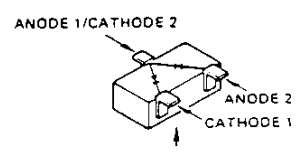
LA6324M (Q701)



2SC1623 (L6/L7) (Q702,703)



1SS181 (A3) (D701)

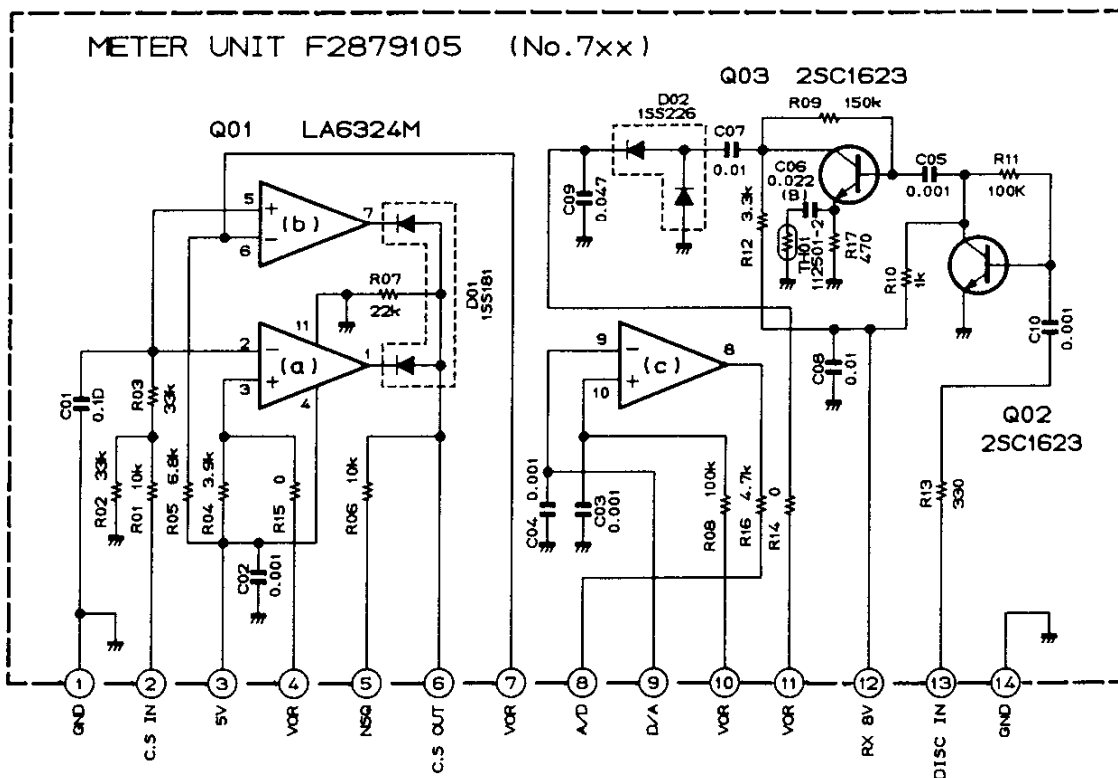


1SS226 (C3) (D702)

METER UNIT VOLTAGE CHART

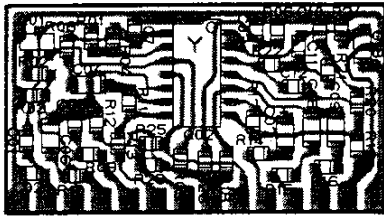
(DC VOLTS)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	REMARKS
GND	C.S IN	5V	VOR	NSQ	C.S OUT	VOR	A/D	D/A	VOR	VOR	RX8V	DISC IN	GND	
SD ON/SD OFF 0/0 0/0	SD ON/SD OFF -/0 -/0	SD ON/SD OFF 5/5 5/5	35-0/35-0	SD ON/SD OFF 0/0 7.5/0	SD ON/SD OFF 0/0 4.7/0	28-0/28-0	-	-	-	-	7.8/0	-	0/0	RX/TX



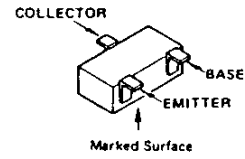
RESISTOR VALUES ARE IN Ω , 1/10W;
CAPACITOR VALUES ARE IN μ F, 50V;
UNLESS OTHERWISE NOTED.

MIC AMP UNIT



① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

"chip-only" side

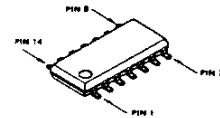


2SC1623 (L6/L7) (Q801)

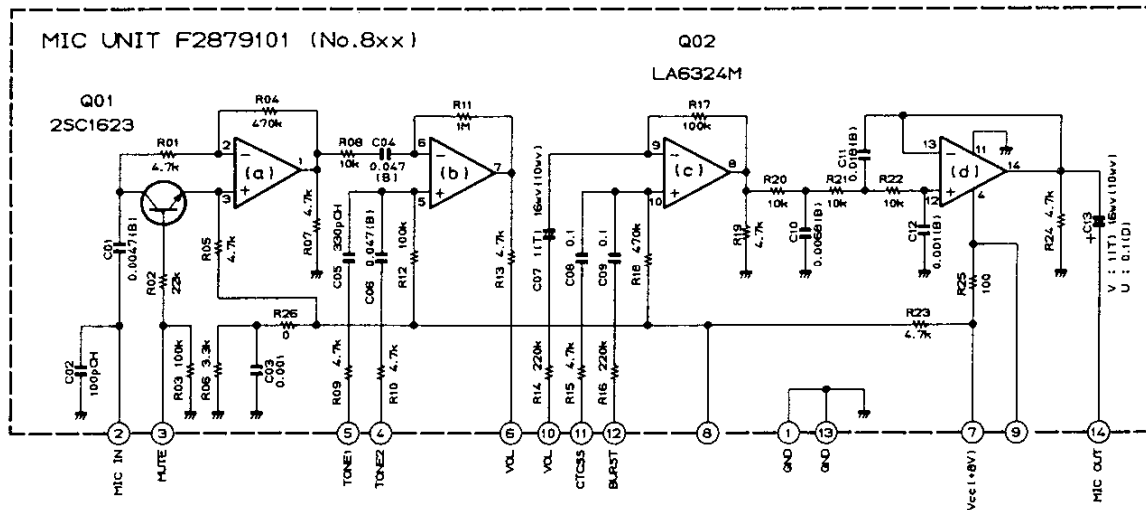
MIC AMP UNIT VOLTAGE CHART

(DC VOLTS)

1	2	3	4	5	6	7	REMARKS
GND	MIC IN	MUTE	TONE 2	TONE 1	VOL	Vcc	
0/0	0/0	7.9/0	0/0	0/0	3.7/3.4	8.4/8.4	RX/TX
8	9	10	11	12	13	14	REMARKS
BYPASS 1	BYPASS 2	VOL	CTCSS	BURST	GND	MIC OUT	
3.7/3.4	8.0/8.0	1.0/1.0	0/0	0/0	0/0	4.5/4.5	RX/TX



LA6324M (Q802)



RESISTOR VALUES ARE IN Ω , 1/10W;
CAPACITOR VALUES ARE IN μ F, 50V;
UNLESS OTHERWISE NOTED.
(T)CAPACITORS ARE TANTALUM.

FOR SERVICE MANUALS

CONTACT:

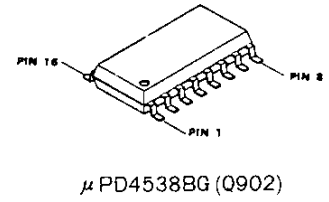
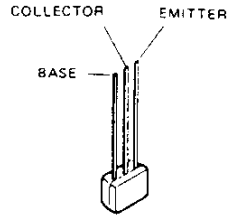
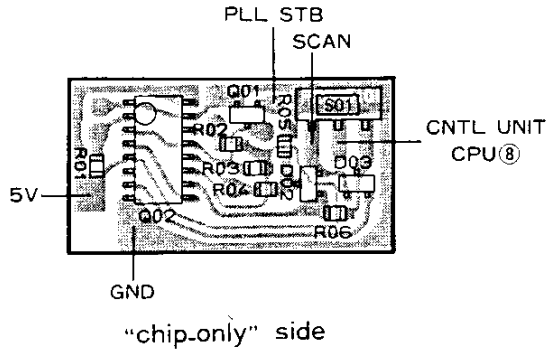
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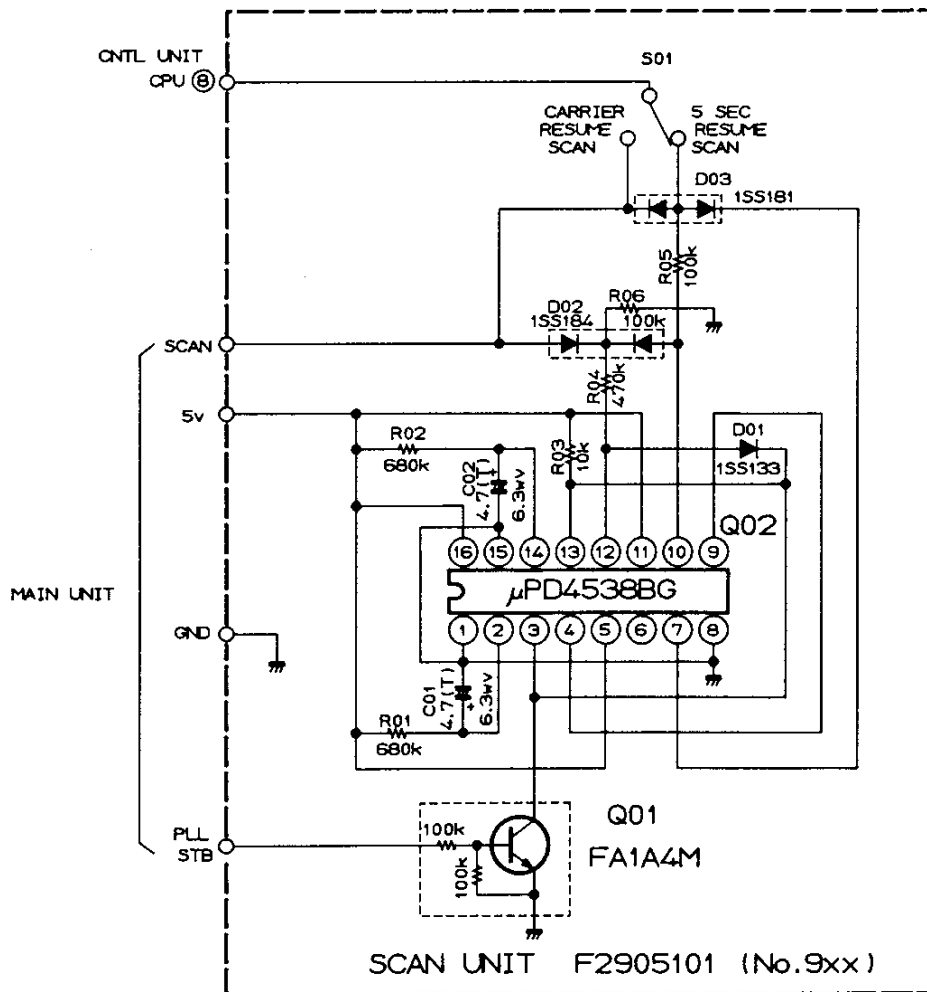
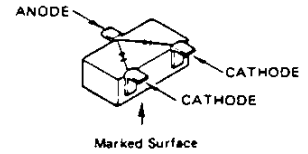
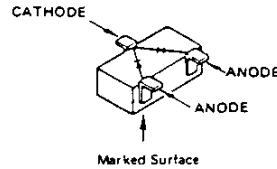
SCAN UNIT



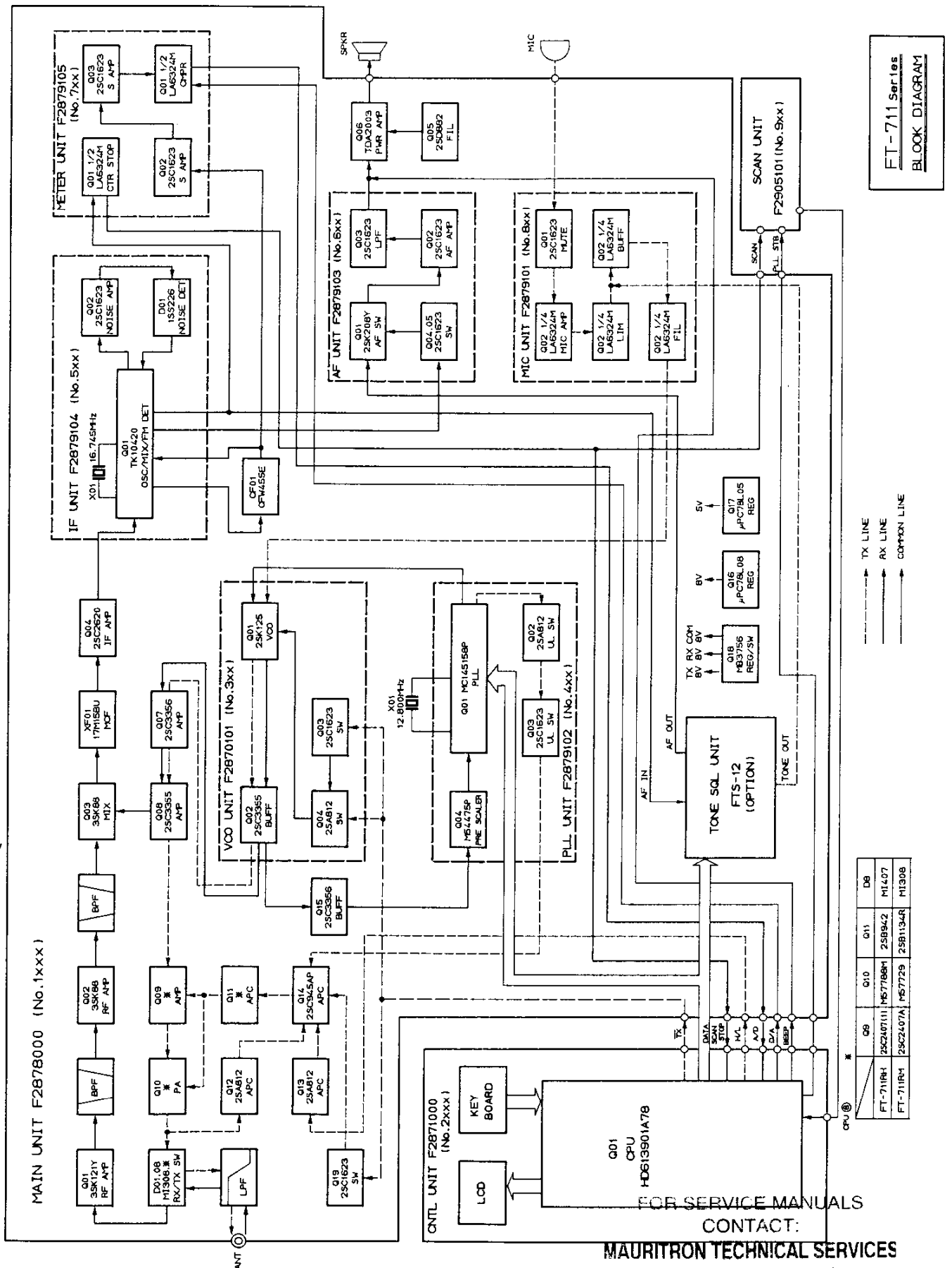
SCAN UNIT VOLTAGE CHART

(DC VOLTS)

CPU 8	SCAN	5V	PLL STB	REMARKS
S0 ON/S0 OFF 5/0 0/0	SQ ON/SQ OFF 5/0 0/0	S0 ON/S0 OFF 5/5 5/5	-	RX/TX



(T)CAPACITORS ARE TANTALUM.

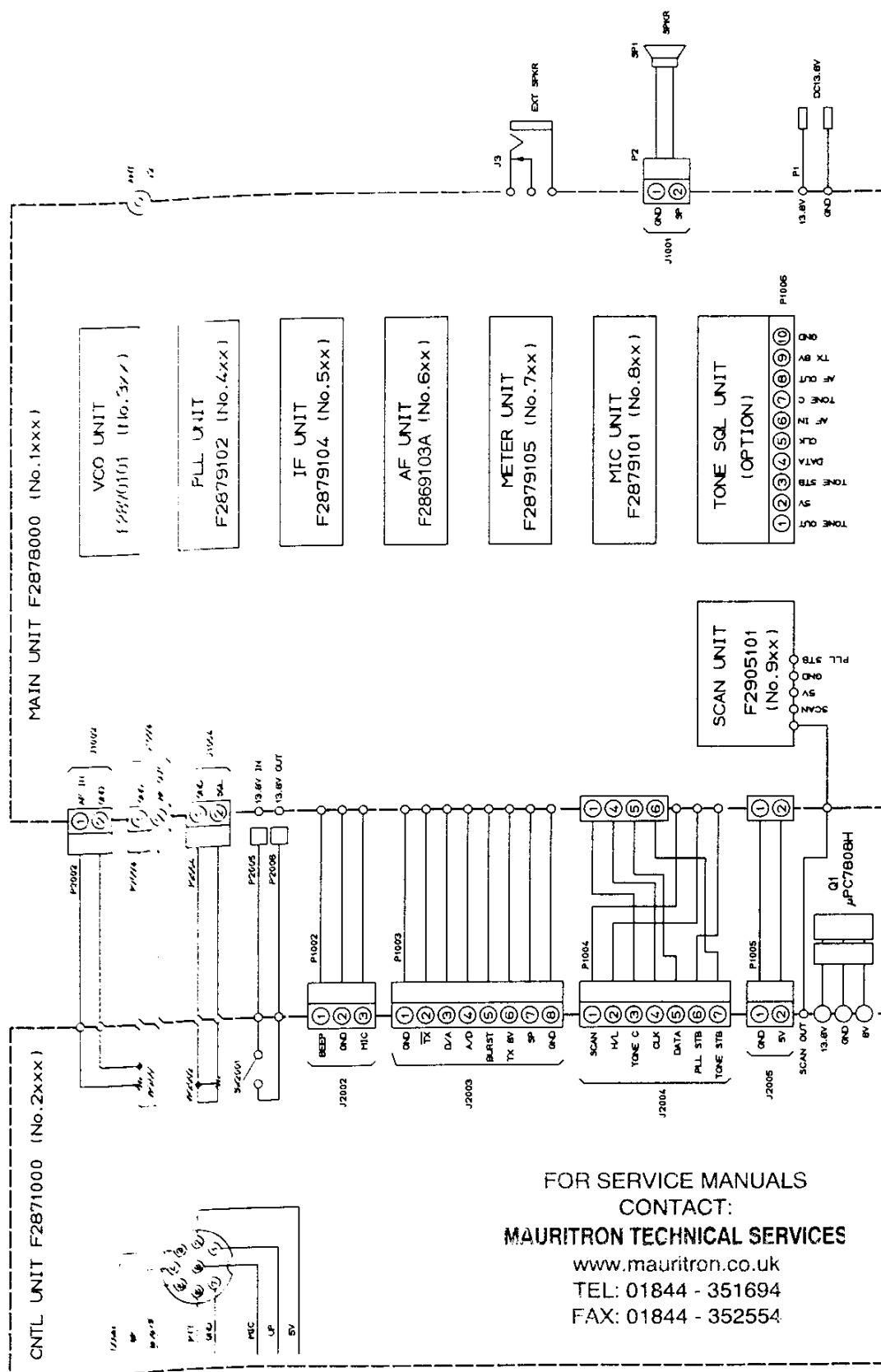


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* [BUSY A1,A2
BURST PTT B,C,D,E

FT-711RH
CONNECTION DIAGRAM

MAINTENANCE AND ALIGNMENT

The high reliability of the chip components in the FT-711RH minimize the possibility that repair or realignment should be needed after leaving 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.

Because of the compact circuitry of this transceiver, we recommend that 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 of the following alignments are cautioned to proceed at their own risk. Yaesu must reserve the right to change circuits and alignment procedures in the interest of improved performance, without notifying owners.

Under no circumstances should any 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.

A 50-ohm dummy load that is non-reactive up to 500 MHz is required. Correct alignment is not possible with an antenna.

Alignment Equipment

DC voltmeter (at least 20-kilohms/volt)
500 MHz standard signal generator (SSG) with calibrated level and modulation (see note below)
AF signal generator
SINAD meter (SINADDER)
FM linear detector (deviation meter)
CM coupler (directional coupler)
RF wattmeter (50W, $\pm 5\%$ @500MHz)
50-ohm non-reactive (@500 MHz) dummy load
Frequency counter (100Hz resolution at 500MHz)
Spectrum Analyzer
Tracking Generator (420-460 MHz)

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

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 it should be allowed at least 2 hours for thermal equalization before alignment.

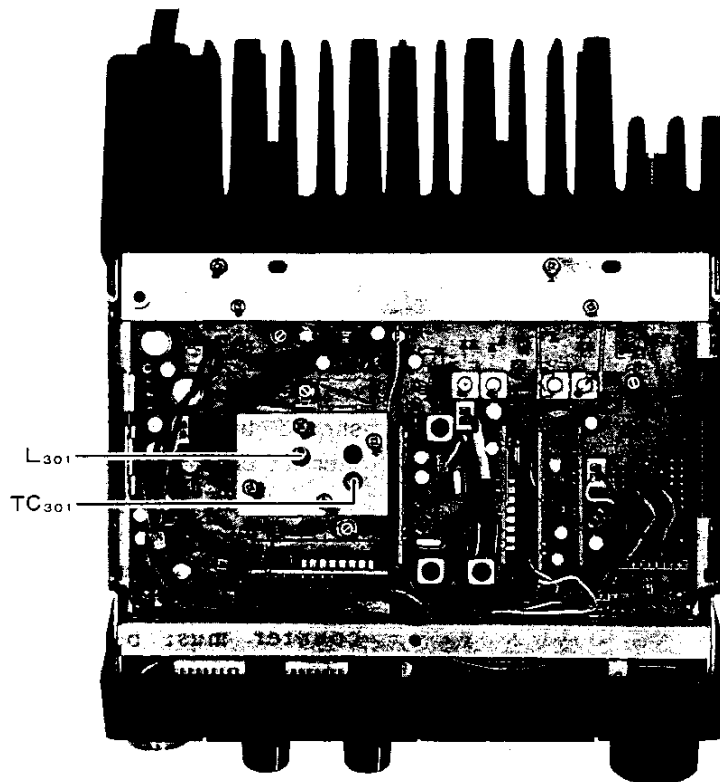
Alignments must not be made unless the oscillator shields and circuit boards are firmly affixed in place. Also, the frequency counter must be thoroughly warmed up before beginning.

Supply voltage during alignment must be held constant at 12.5V DC. Use a well regulated, adjustable power supply capable of at least 10A continuous load.

A. PLL Unit

- 1) VCV (Varactor Control Voltage)
 - a) With the dummy load connected to the ANT jack, connect the DC voltmeter (3V scale) to the VCV terminal on the VCO Unit.
 - b) Tune the transceiver to the top edge of the band for the model being aligned, and while receiving, adjust TC301 on the VCO Unit for $4.0 \pm 0.1V$.
 - c) Close the PTT line and adjust L301 on the VCO Unit for $4.0 \pm 0.1V$.
 - d) Retune to the bottom edge of the band and confirm at least 1V during both receive and transmit, and then remove the voltmeter.

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B. Transmitter

Set up the test equipment as shown in Figure 1. Close the PTT line when making adjustments. All adjustment points are on the Main Unit.

1) Early Stage Coupling

- a) With the transceiver tuned to the high band edge, set the LOW button to the high power (undepressed) position.
- b) Adjust TC1003, L1019, L1020, L1021 and L1013 for maximum power output (at least 37 watts).

2) Power Output

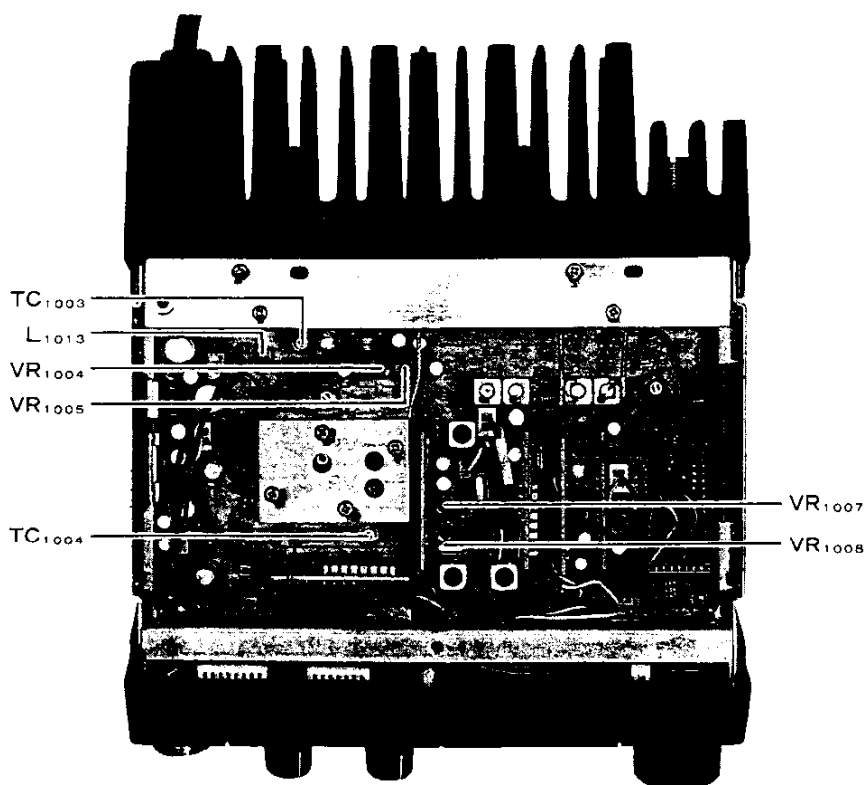
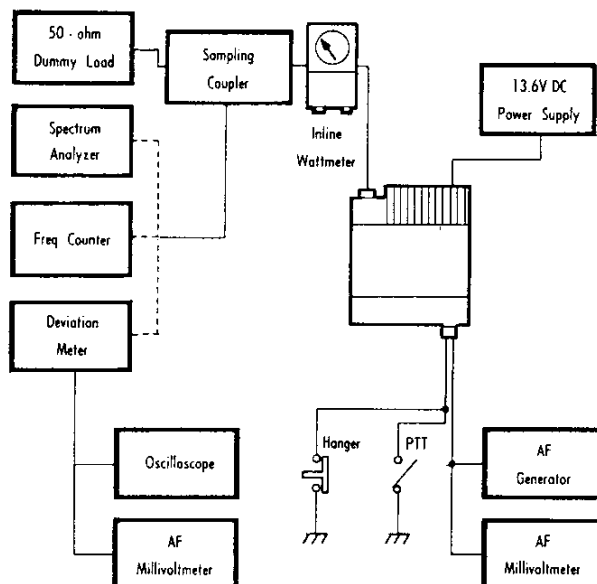
- a) Retune to the high band edge, and adjust VR1004 for at least 37 watts output with the LOW switch set for high power.
- b) Now press the LOW switch and adjust VR1005 for 4W output.

3) Frequency Calibration

- a) Adjust TC1004 to match the counter indication with the transceiver frequency.

4) Deviation

- a) Set the AF generator for 25mV output at 1 kHz. Adjust VR1009 for ± 4.5 kHz deviation on the Deviation Meter.
- b) Reduce the AF generator level to 2.5mV and adjust VR1008 for ± 3.5 kHz deviation.



C. Receiver

1) Bandpass Filters

- Connect the Tracking Generator to R1085 (10K) on the Main Unit, as shown in Figure 2.
- Adjust CV1001, CV1002 and TC1001 for the passband shown in Figure 3.

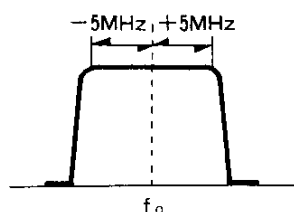
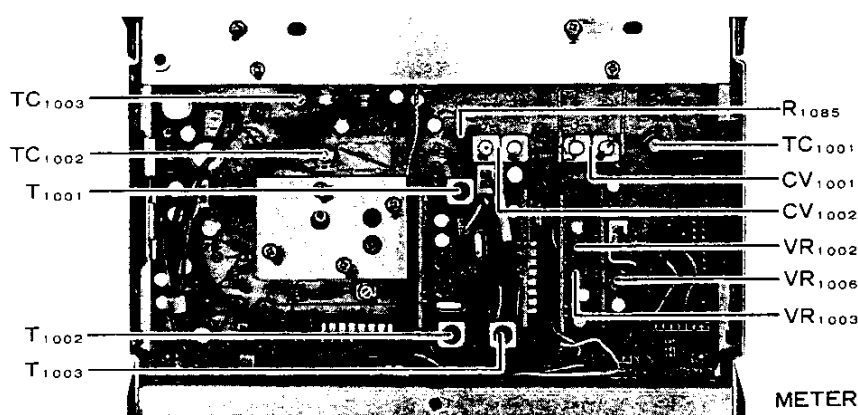
2) Interstage Transformers

Set up the test equipment as shown in Figure 4. All adjustment points are on the Main Unit.

- Modulate the RF signal generator with ± 3.5 kHz deviation of a 1 kHz tone.
- Tune the transceiver and signal generator to the same frequency at the center of the band, and set the injection level to 10dBu.
- Ensure that TC1002 is set for minimum capacitance (it should remain set this way), and then adjust TC1001 for best SINAD.
- Connect the DC voltmeter to pin 11 on the Meter Unit and adjust T1001, T1002 and T1003 for maximum voltmeter deflection.

3) S-Meter Calibration

- At the center of the band, set the signal generator for 15dBu (2.8uV) injection with ± 3 kHz deviation of a 1 kHz tone.



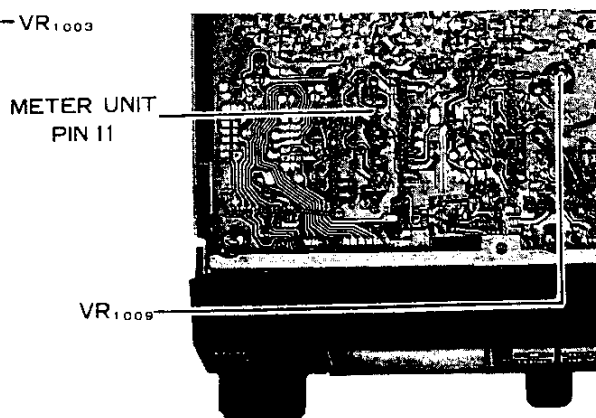
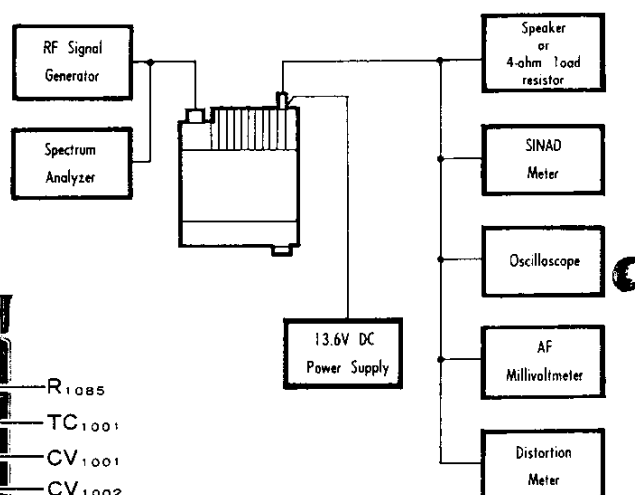
- Adjust VR1001 so that all S-meter segments are just on.
- Confirm that the S-meter still indicates when injection is reduced to 5dBu.

4) Scanner Center-Stop

- With the transceiver tuned precisely to 435.0000 or 445.0000 MHz, set the SQL to the 10 o'clock position (the BUSY lamp should be lit).
- Tune the signal generator 3.7 kHz above the receiver, and inject 20dBu (5uV) with ± 3 kHz deviation of a 1 kHz tone.
- Adjust VR1003 so that the BUSY lamp just turns off.
- Now tune the signal generator to 3.7 kHz below the receiver and adjust VR1002 so that the BUSY lamp again just turns off.

5) Beeper Volume

- Adjust VR1006 as desired (this is normally set to maximum at the factory).



FT-711 PARTS LIST

MAIN UNIT								
Symbol No.	Part No.	Description	Device					
	F2878000	Printed Circuit Board		R1001	J24205104	RES Chip.	1/10W	100kΩ
				R1002	J24205473	RES Chip.	1/10W	47kΩ
				R1003	J24205151	RES Chip.	1/10W	150Ω
	C028780AA	PCB with Components Version A**		R1004	J02245150	Carbon Film RES.	1/4W	15Ω
				R1005	J24205153	RES Chip.	1/10W	15kΩ
				R1006	J24205104	RES Chip.	1/10W	100kΩ
	C028780AB	PCB With Components Version A***		R1007	J24205823	RES Chip.	1/10W	82kΩ
				R1008	J24205563	RES Chip.	1/10W	56kΩ
				R1009	J24205680	RES Chip.	1/10W	68Ω
	C028780AC	PCB With Components Version B**		R1010	J24205150	RES Chip.	1/10W	15Ω
				R1011	J24205153	RES Chip.	1/10W	15kΩ
				R1012	J24205104	RES Chip.	1/10W	100kΩ
	C028780AD	PCB With Components Version B***		R1013	J24205103	RES Chip.	1/10W	10kΩ
				R1014	J24205393	RES Chip.	1/10W	39kΩ
				R1015	J24205104	RES Chip.	1/10W	100kΩ
	C028780AE	PCB With Components Version C**		R1016	J24205560	RES Chip.	1/10W	56Ω
				R1017	J24205332	RES Chip.	1/10W	3.3kΩ
				R1018	J24205101	RES Chip.	1/10W	100Ω
	C028780AF	PCB With Components Version C***		R1019	J24205681	RES Chip.	1/10W	680Ω
				R1020	J24205223	RES Chip.	1/10W	22kΩ
				R1021	J24205682	RES Chip.	1/10W	6.8kΩ
	C028780AG	PCB With Components Version X**		R1022	J24205681	RES Chip.	1/10W	680Ω
				R1023	J24205100	RES Chip.	1/10W	10Ω
				R1024	J24205151	RES Chip.	1/10W	150Ω
	C028780AU	PCB With Components Version X***		R1025	J02245101	Carbon Film RES.	1/4W	100Ω
				R1026	J02245101	Carbon Film RES.	1/4W	100Ω
				R1027	J24205102	RES Chip.	1/10W	1kΩ
	C028780AV	PCB With Components Version F**		R1028	J02245562	Carbon Film RES.	1/4W	5.6kΩ
				R1029	J02245223	Carbon Film RES.	1/4W	22kΩ
				R1030	J24205471	RES Chip.	1/10W	470Ω
	C028780AW	PCB With Components Version F***		R1031	J02245229	Carbon Film RES.	1/4W	2.2Ω
				R1032	J01275221	Carbon Film RES.	1/2W	220Ω
				R1033	J02245010	Carbon Film RES.	1/4W	1Ω
				R1034	J24205560	RES Chip.	1/10W	56Ω
				R1035	J24205180	RES Chip.	1/10W	18Ω
Q1001	G4801210Y	FET	3SK121Y	R1036	J24205180	RES Chip.	1/10W	18Ω
Q1002	G4800880	FET	3SK88	R1037	J24205180	RES Chip.	1/10W	18Ω
Q1003	G4800880	FET	3SK88	R1038	J24205222	RES Chip.	1/10W	2.2kΩ
Q1004	G3326207B	Transistor	2SC2620QBTR	R1039	J02245682	Carbon Film RES.	1/4W	6.8kΩ
Q1005	G3408820	Transistor	2SD882	R1040	J24205101	RES Chip.	1/10W	100Ω
Q1006	G1090769	IC	TDA2003	R1041	J24205150	RES Chip.	1/10W	15Ω
Q1007	G3333567	Transistor	2SC3356-T2B	R1042	J02245102	Carbon Film RES.	1/4W	1kΩ
Q1008	G3333550	Transistor	2SC3355-T2B	R1043	J24205472	RES Chip.	1/10W	4.7kΩ
Q1009	G3324071	Transistor*	2SC2407(A)	R1044	J02245150	Carbon Film RES.	1/4W	15Ω
	G3324071	Transistor**	2SC2407(A)	R1045	J24205150	RES Chip.	1/10W	15Ω
	G3090050	Transistor***	2SC2407(1)	R1046	J24205102	RES Chip.	1/10W	1kΩ
Q1010	G1090225	IC*	M57704M	R1047	J24205681	RES Chip.	1/10W	680Ω
	G1090622	IC**	M57729	R1048	J02245221	Carbon Film RES.	1/4W	220Ω
	G1090799	IC***	M57788M	R1049	J24205102	RES Chip.	1/10W	1kΩ
Q1011	G3211340R	Transistor*	2SB1134R	R1050	J01275150	Carbon Film RES.	1/2W	15Ω
	G3211340R	Transistor**	2SB1134R	R1051	J01275151	Carbon Film RES.	1/2W	150Ω
	G3209420	Transistor***	2SB942	R1052	J24205471	RES Chip.	1/10W	470Ω
Q1012	G3108127F	Transistor	2SA812-T2BM6B	R1053	J24205332	RES Chip.	1/10W	3.3kΩ
Q1013	G3108127F	Transistor	2SA812-T2BM6B	R1054	J24205472	RES Chip.	1/10W	4.7kΩ
Q1014	G3309451P	Transistor	2SC945AP	R1055	J24205471	RES Chip.	1/10W	470Ω
Q1015	G3333567	Transistor	2SC3356-T2B	R1056	J02245472	Carbon Film RES.	1/4W	4.7kΩ
Q1016	G1090080	IC	PC78L08			RES.**,***		
Q1017	G1090084	IC	PC78L05	R1057	J24205103	RES Chip.	1/10W	10kΩ
Q1018	G1090222	IC	MB3756M	R1058	J24205101	RES Chip.	1/10W	100Ω
Q1019	G3316237F	Transistor	2SC1623-T2BL6	R1059	J02245101	Carbon Film RES.	1/4W	100Ω
Q1020	G3090081	IC	BN1A4M	R1060	J24205102	RES Chip.	1/10W	1kΩ
				R1061	J02245101	Carbon Film RES.	1/4W	100Ω
D1001	G2090337	Diode	MI308	R1062	J24205470	RES Chip.	1/10W	47Ω
D1002	G2090337	Diode	MI308	R1063	J24205103	RES Chip.	1/10W	10kΩ
D1003	G2070003	Diode	1SS226TE85R	R1064	J24205332	RES Chip.	1/10W	3.3kΩ
D1005	G2090344	Diode	1SV178	R1065	J24205103	RES Chip.	1/10W	10kΩ
D1006	G2090344	Diode	1SV178	R1066	J24205472	RES Chip.	1/10W	4.7kΩ
D1007	G2015550	Diode	1SI555	R1068	J02245221	Carbon Film RES.	1/4W	220Ω
D1008	G2090337	Diode*,**	MI308	R1069	J24205000	RES Chip.	1/10W	0Ω
	G2090345	Diode***	MI407	R1070	J24205182	RES Chip.	1/10W	1.8kΩ
D1009	G2090377	Diode	1SS108	R1071	J24205000	RES Chip.	1/10W	0Ω
D1010	G2090232	Diode	S11B	R1072	J24205000	RES Chip.	1/10W	0Ω
D1011	G2070003	Diode	1SS226TE85R	R1073	J24205000	RES Chip.	1/10W	0Ω
D1013	G2090377	Diode*	1SS108	R1074	J24205000	RES Chip.	1/10W	0Ω
D1014	G2070009	Diode	1SS184TE85R	R1075	J24205000	RES Chip.	1/10W	0Ω
				R1076	J01245223	Carbon Film RES.	1/4W	22kΩ
X1001	H0102804	Xtal	HC-49/T 12.8MHz	R1077	J24205473	RES Chip.	1/10W	47kΩ
				R1078	J02245101	Carbon Film RES.	1/4W	100Ω
XF1001	H1102101	Xtal Filter	17M15BU	R1079	J24205472	RES Chip.	1/10W	4.7kΩ
				R1080	J24205000	RES Chip.	1/10W	0Ω
CF1001	H3900200	Ceramic Filter	CFW455E	R1081	J24205472	RES Chip.	1/10W	4.7kΩ
				R1082	J24205680	RES Chip.	1/10W	68Ω

* RF output 10W Model
 ** RF output 25W Model
 *** RF output 24W Model

R1083	J24205680	RES Chip.	1/10W	68Ω	C1063	K22170817	CAP Chip.	B	50WV	0.01μF
R1084	J24205331	RES Chip.	1/10W	330Ω	C1064	K22170211	CAP Chip.	CH	50WV	10pF
R1085	J01245103	Carbon Film RES.	1/4W	10kΩ	C1065	K22170805	CAP Chip.	B	50WV	0.001μF
R1086	J24205000	RES Chip.	1/10W	Ω	C1066	K22170219	CAP Chip.	CH	50WV	22pF
R1087	J24205562	RES Chip.	1/10W	5.6kΩ	C1067	K22170805	CAP Chip.	B	50WV	0.001μF
R1088	J24205152	RES Chip.	1/10W	1.5kΩ	C1068	K22170805	CAP Chip.	B	50WV	0.001μF
R1089	J24205000	RES Chip.	1/10W	Ω	C1069	K22170805	CAP Chip.	B	50WV	0.001μF
R1090	J01245473	Carbon Film RES.	1/4W	47kΩ	C1071	K22170215	CAP Chip.	CH	50WV	15pF
VR1001	J51745473	POT.	B	47kΩ	C1072	K22170805	CAP Chip.	B	50WV	0.001μF
VR1002	J51745103	POT.	B	10kΩ	C1073	K22170805	CAP Chip.	B	50WV	0.001μF
VR1003	J51745103	POT.	B	10kΩ	C1074	K22170805	CAP Chip.	B	50WV	0.001μF
VR1004	J51745223	POT.	B	22kΩ	C1075	K22170203	CAP Chip.	CH	50WV	2pF
VR1005	J51745102	POT.**, **	B	1kΩ	C1076	K02172040	Ceramic CAP.	CH	50WV	4pF
	J51745222	POT.***	B	2.2kΩ	C1077	K22170805	CAP Chip.	B	50WV	0.001μF
VR1006	J51745104	POT.	B	100kΩ	C1078	K22170805	CAP Chip.	B	50WV	0.001μF
VR1007		See BAND Table			C1079	K40129004	AL. Electro CAP.		16WV	10μF
VR1008	J51745103	POT.	B	10kΩ	C1080	K22170805	CAP Chip.	B	50WV	0.001μF
VR1009		See BAND Table			C1081	K40129042	AL. Electro CAP.		16WV	47μF
C1001	K22170205	CAP Chip.	CH	50WV	C1082	K22141904	CAP Chip.	D	25WV	0.1μF
C1002	K22170210	CAP Chip.	CH	50WV	C1083	K22141904	CAP Chip.	D	25WV	0.1μF
C1003	K22170205	CAP Chip.	CH	50WV	C1084	K40129004	AL. Electro CAP.		16WV	10μF
C1004	K22170223	CAP Chip.	CH	50WV	C1085	K22170805	CAP Chip.	B	50WV	0.001μF
C1005	K22170805	CAP Chip.	B	50WV	C1086	K40129004	AL. Electro CAP.		16WV	10μF
C1006	K22170805	CAP Chip.	B	50WV	C1087	K22141904	CAP Chip.	D	25WV	0.1μF
C1007	K22170203	CAP Chip.	CH	50WV	C1088	K22170805	CAP Chip.	B	50WV	0.001μF
C1008	K22170805	CAP Chip.	B	50WV	C1089	K22170805	CAP Chip.	B	50WV	0.001μF
C1009	K22170203	CAP Chip.	CH	50WV	C1090	K22170805	CAP Chip.	B	50WV	0.001μF
C1010	K22170805	CAP Chip.	B	50WV	C1091		See BAND Table			
C1011	K22170805	CAP Chip.	B	50WV	C1092		See BAND Table			
C1012	K22170805	CAP Chip.	B	50WV	C1093	K22170202	CAP Chip.	CH	50WV	1pF
C1013	K22170805	CAP Chip.	B	50WV	C1094	K22170207	CAP Chip.*	CH	50WV	6pF
C1014	K22170203	CAP Chip.	CH	50WV		K22170206	CAP Chip.**	CH	50WV	5pF
C1015	K22170805	CAP Chip.	B	50WV	C1095		See BAND Table			
C1016		See BAND Table			C1096	K10176102	Ceramic CAP.	B	50WV	0.001μF
C1017	K22170805	CAP Chip.	B	50WV	C1097	K22170805	CAP Chip.	B	50WV	0.001μF
C1018	K22170817	CAP Chip.	B	50WV	C1098	K22170805	CAP Chip.	B	50WV	0.001μF
C1019	K22170805	CAP Chip.	B	50WV	C1099	K22170805	CAP Chip.	B	50WV	0.001μF
C1020	K22170805	CAP Chip.	B	50WV	C1100	K40129016	AL. Electro CAP.		16WV	22μF
C1021	K22170805	CAP Chip.	B	50WV	C1101	K22170235	CAP Chip.	CH	50WV	100pF
C1022	K22170206	CAP Chip.	CH	50WV	C1102	K40129016	AL. Electro CAP.		16WV	22μF
C1023	K22170817	CAP Chip.	B	50WV	C1103	K22170805	CAP Chip.	B	50WV	0.001μF
C1024	K22170207	CAP Chip.	CH	50WV	C1104	K22170817	CAP Chip.	B	50WV	0.01μF
C1025	K22170805	CAP Chip.	B	50WV	C1105	K22170208	CAP Chip.*	CH	50WV	7pF
C1026	K22170817	CAP Chip.	B	50WV		K22170205	CAP Chip.**,**	CH	50WV	4pF
C1027	K22141904	CAP Chip.	D	50WV	C1106	K22170805	CAP Chip.*	B	50WV	0.001μF
C1028	K22170817	CAP Chip.	B	50WV	C1107	K40129050	AL. Electro CAP.		16WV	2200μF
C1029	K22170817	CAP Chip.	B	50WV	C1108	K22170817	CAP Chip.	B	50WV	0.001μF
C1030	K22170817	CAP Chip.	B	50WV	C1109	K22170805	CAP Chip.	B	50WV	0.001μF
C1031	K70107476	Tantalum CAP.		10WV	C1110	K22170805	CAP Chip.	B	50WV	0.001μF
C1032	K22170817	CAP Chip.	B	50WV	C1111	K70167474	Tantalum CAP.		35WV	0.47μF
C1033	K22170805	CAP Chip.	B	50WV	C1112	K40109001	AL. Electro CAP.		10WV	0.01μF
C1034	K40129004	AL. Electro CAP.		16WV	C1113	K70127475	Tantalum CAP.		16WV	4.7μF
C1035	K70147475	Tantalum CAP.		25WV	C1114	K22170817	CAP Chip.	B	50WV	0.01μF
C1036	K40129054	AL. Electro CAP.		16WV	C1115	K22170207	CAP Chip.	CH	50WV	6pF
C1037	K40179001	AL. Electro CAP.		50WV	C1116	K22170207	CAP Chip.	CH	50WV	6pF
C1038	K19149023	Ceramic CAP.		25WV	C1117	K22170215	CAP Chip.	CH	50WV	15pF
C1039	K40179013	AL. Electro CAP.		50WV	C1118	K22170817	CAP Chip.	B	50WV	0.01μF
C1040	K22140809	CAP Chip.	B	25WV	C1119	K22170204	CAP Chip.	CH	50WV	3pF
C1041	K40179016	AL. Electro CAP.		50WV	C1120	K19149025	Ceramic CAP.		25WV	0.1μF
C1042	K40129016	AL. Electro CAP.		16WV	C1121	K19149017	Ceramic CAP.		25WV	0.022μF
C1043	K40129016	AL. Electro CAP.		16WV	C1122	K40129004	AL. Electro CAP.		16WV	10μF
C1044	K22141904	CAP Chip.	D	25WV	C1123	K22170805	CAP Chip.	B	50WV	0.001μF
C1045	K22170805	CAP Chip.	B	50WV	C1124	K22170817	CAP Chip.	B	50WV	0.01μF
C1046	K40129046	AL. Electro CAP.		16WV	C1125	K40109001	AL. Electro CAP.		10WV	100μF
C1047	K22170817	CAP Chip.	B	50WV	C1126	K22170805	CAP Chip.	B	50WV	0.001μF
C1048	K22170817	CAP Chip.	B	50WV	C1127	K40129004	AL. Electro CAP.		16WV	10μF
C1049	K40129042	AL. Electro CAP.		16WV	C1128	K22170817	CAP Chip.	B	50WV	0.01μF
C1050	K22170817	CAP Chip.	B	50WV	C1129	K22170821	CAP Chip.	B	50WV	0.0022μF
C1051	K40129046	AL. Electro CAP.		16WV	C1130	K22170235	CAP Chip.	CH	50WV	100pF
C1052	K22141904	CAP Chip.	D	25WV	C1131	K22170235	CAP Chip.	CH	50WV	100pF
C1053	K40129054	AL. Electro CAP.		16WV	C1132	K22170235	CAP Chip.	CH	50WV	100pF
C1054	K22170817	CAP Chip.	B	50WV	C1133	K22170817	CAP Chip.	B	50WV	0.01μF
C1055	K40109018	AL. Electro CAP.		10WV	C1134	K40129016	AL. Electro CAP.		16WV	22μF
C1056	K22170817	CAP Chip.	B	50WV	C1135	K22170235	CAP Chip.	CH	50WV	100pF
C1057	K40129054	AL. Electro CAP.		16WV	C1136	K22170235	CAP Chip.	CH	50WV	100pF
C1058	K40109018	AL. Electro CAP.		10WV	C1137	K70087106	Tantalum CAP.		6.3WV	10μF
C1059	K22170817	CAP Chip.	B	50WV	C1138	K22170805	CAP Chip.	B	50WV	0.001μF
C1060	K40129042	AL. Electro CAP.		16WV	C1139	K40179011	AL. Electro CAP.		50WV	3.3μF
C1061	K22170817	CAP Chip.	B	50WV	C1140	K22170805	CAP Chip.	B	50WV	0.001μF
C1062	K22170817	CAP Chip.	B	50WV	C1141	K22170805	CAP Chip.	B	50WV	0.001μF
					C1142	K22170805	CAP Chip.	B	50WV	0.001μF
					C1143	K40129016	AL. Electro CAP.		16WV	22μF

C1144	K22170805	CAP Chip.	B	50WV	0.001uF	R303	J24205103	RES Chip.	1/10W	10kΩ
C1145	K22170817	CAP Chip.	B	50WV	0.01uF	R304	J24205101	RES Chip.	1/10W	100Ω
C1146	K22170805	CAP Chip.	B	50WV	0.001uF	R305	J24205221	RES Chip.	1/10W	200Ω
C1147	K22170805	CAP Chip.	B	50WV	0.001uF	R306	J02245103	Carbon Film RES.	1/4W	10kΩ
C1148		See BAND Table				R307	J24205332	RES Chip.	1/10W	3.3kΩ
C1149	K22170805	CAP Chip.	B	50WV	0.001uF	R308	J24205470	RES Chip.	1/10W	47Ω
C1150	K22170805	CAP Chip.	B	50WV	0.001uF	R309	J02245101	Carbon Film RES.	1/4W	100Ω
C1151	K22170805	CAP Chip.	B	50WV	0.001uF	R310	J24205223	RES Chip.	1/10W	22kΩ
						R311	J24205103	RES Chip.	1/10W	10kΩ
TC1001	K91000060	Trimmer CAP.			2pF	R312	J24205473	RES Chip.	1/10W	47kΩ
TC1002	K91000055	Trimmer CAP.			6pF	R313	J24205473	RES Chip.	1/10W	47kΩ
TC1003	K91000055	Trimmer CAP.			6pF					
TC1004	K91000030	Trimmer CAP.			40pF	C301	K22170208	CAP Chip.	CH	50WV 7pF
						C302	K22170208	CAP Chip.	CH	50WV 7pF
L1001	L0021277	Coil				C303	K22170208	CAP Chip.	CH	50WV 7pF
L1002	L0020787	Coil				C305	K22170805	CAP Chip.	B	50WV 0.001uF
L1003	L0020342	Coil				C306	K22170817	CAP Chip.	B	50WV 0.01uF
L1004	L0020900	Coil				C307	K40109024	AL. Electro CAP.		10WV 100uF
L1005	L0020852	Coil				C308	K22170202	CAP Chip.	CH	50WV 1pF
L1006	L0021359	Coil				C309	K22170208	CAP Chip.	CH	50WV 7pF
L1007	L0021705	Coil				C310	K22170208	CAP Chip.	CH	50WV 7pF
L1008	L1190242	M.RFC			0.47uF	C311	K22170201	CAP Chip.	CH	50WV 0.5pF
L1009	L0021359	Coil				C312	K22170805	CAP Chip.	B	50WV 0.001uF
L1010	L1190242	M.RFC			0.47uF	C313	K22170805	CAP Chip.	B	50WV 0.001uF
L1011	L0021359	Coil				C314	K22170805	CAP Chip.	B	50WV 0.001uF
L1012	L0021359	Coil				C315	K22170805	CAP Chip.	B	50WV 0.001uF
L1013	L0021359	Coil				C316	K22170235	CAP Chip.	CH	50WV 100pF
L1014	L0020852	Coil								
L1015	L0021359	Coil				TC301	K91000158	Trimmer CAP.		6pF
L1016	L0021705	Coil								
L1017	L0021705	Coil				L301	L0190134	Coil		
L1018	L0021705	Coil				L302	L1190192	M.RFC		0.47uF
L1019	L0021706	Coil				L303	L0021520	Coil		
L1020	L0021707	Coil				L304	L1190192	M.RFC		0.47uF
L1021	L0021520	Coil								
L1022	L0021706	Coil					L9190001	Ferrite Beads	4A2	RI3X3-1
L1023	L2190024	AFC Toroid*,**			100uF		L9190001	Ferrite Beads	4A2	RI3X3-1
	L0020614	Coil***								
L1024	L1190270	M.RFC			100uF		R0119910	Shield Cover		
L1025	L0021359	Coil					R0119920	Shield Frame		
T1001	L0021533	Coil			17.2MHz			PLL UNIT		
T1002	L0021533	Coil			17.2MHz	Symbol No.	Part No.	Description	Device	
T1003	L0021533	Coil			17.2MHz		F2879102	Printed Circuit Board		
							C028792AB	PCB With Component		
CV1001	L4020070	Helical Resonator			440MHz					
CV1002	L4020070	Helical Resonator			440MHz					
J1001	P0090524	Connector				Q401	G1090648	IC		MC145158P
J1002	P0090524	Connector				Q402	G3108127F	Transistor		2SA812-T2BM6B
J1003	P0090524	Connector				Q403	G3316237F	Transistor		2SC1623-T2BL6
J1004	P0090524	Connector				Q404	G1090770	IC		M54475P
P1002	T9205469B	Wire-Assy				R401	J01215100	Carbon Film RES.	1/8W	10Ω
P1003	T9205470C	Wire-Assy				R402	J24205223	RES Chip.	1/10W	22kΩ
P1004	T9205471B	Wire-Assy				R403	J24205223	RES Chip.	1/10W	22kΩ
P1005	T9205472	Wire-Assy				R404	J24205223	RES Chip.	1/10W	22kΩ
P1006	T9205473	Wire-Assy				R405	J24205223	RES Chip.	1/10W	22kΩ
						R406	J24205103	RES Chip.	1/10W	10kΩ
	T9205474	Wire-Assy								
	R0509420A	Shield Plate				C401	K22170223	CAP Chip.	CH	50WV 33pF
	R0509430	Shield Plate				C402	K22170221	CAP Chip.	CH	50WV 27pF
						C403	K22170805	CAP Chip.	B	50WV 0.001uF
						C404	K22141904	CAP Chip.	D	25WV 0.1uF
						C405	K22170817	CAP Chip.	B	50WV 0.01uF
						C406	K22170805	CAP Chip.	B	50WV 0.001uF
						C407	K22170821	CAP Chip.	B	50WV 0.022uF
						C408	K22170805	CAP Chip.	B	50WV 0.001uF
						L401	L1190270	M.RFC		100uH
Q301	G3801250	FET			2SK125			IF UNIT		
Q302	G3333567	Transistor			2SC3356-T2B		F2876104	Printed Circuit Board		
Q303	G3327127G	Transistor			2SC2712GRTE85R					
Q304	G3108127F	Transistor			2SA812-T2BM6B		C028764AB	PCB With Component		
D301	G2090044	Diode			MC301					
D302	G2090271	Diode			1T33	Q501	G1090617	IC		TK10420
D303	G2090027	Diode			ISS53	Q502	G3316237F	Transistor		2SC1623-T2BL6
R301	J24205472	RES Chip.		1/10W	4.7kΩ	D501	G2070003	Diode		1SS226 TE85R
R302	J01245472	Carbon Film RES.		1/4W	4.7kΩ					

X501	H0102677	XTAL	HC-49/T 16.745MHz	C609	K22170817	CAP Chip.	B 50WV 0.01μF
				C610	K22170805	CAP Chip.	B 50WV 0.001μF
CD501	H7900260	Ceramic DISC	D455C	METER UNIT			
				Symbol No.	Part No.	Description	Device
R503	J24205182	RES Chip.	1/10W 100kΩ		F2879105	Printed Circuit Board	
R504	J24205182	RES Chip.	1/10W 1.8kΩ				
R505	J24205473	RES Chip.	1/10W 47kΩ				
R506	J24205152	RES Chip.	1/10W 1.5kΩ		C028795AB	PCB With Component	
R507	J24205105	RES Chip.	1/10W 1MΩ				
R508	J24205153	RES Chip.	1/10W 15kΩ	Q701	G1090559	IC	LA6324M
R509	J24205471	RES Chip.	1/10W 470Ω	Q702	G3316237F	Transistor	2SC1623-T2BL6
R510	J24205332	RES Chip.	1/10W 3.3kΩ	Q703	G3316237F	Transistor	2SC1623-T2BL6
R511	J24205474	RES Chip.	1/10W 470kΩ				
R512	J24205222	RES Chip.	1/10W 2.2kΩ	D701	G2070001	Diode	1SS181 TE85R
R513	J01251101	Carbon Film RES.	1/8W 100Ω	D702	G2070003	Diode	1SS226 TE85R
R514	J24205223	RES Chip.	1/10W 22kΩ				
R515	J24205683	RES Chip.	1/10W 68kΩ				
C501	K22170805	CAP Chip.	B 50WV 0.001μF	R701	J24205103	RES Chip.	1/10W 10kΩ
C502	K22170327	CAP Chip.	UJ 50WV 47pF	R702	J24205333	RES Chip.	1/10W 33kΩ
C503	K22170337	CAP Chip.	UJ 50WV 120pF	R703	J24205333	RES Chip.	1/10W 33kΩ
C505	K22141904	CAP Chip.	D 25WV 0.1μF	R704	J24205332	RES Chip.	1/10W 3.3kΩ
C506	K22170237	CAP Chip.	CH 50WV 120pF	R705	J24205682	RES Chip.	1/10W 6.8kΩ
C507	K22141904	CAP Chip.	D 25WV 0.1μF	R706	J24205103	RES Chip.	1/10W 10kΩ
C508	K22170801	CAP Chip.	B 50WV 470pF	R707	J24205223	RES Chip.	1/10W 22kΩ
C509	K22170801	CAP Chip.	B 50WV 470pF	R708	J24205104	RES Chip.	1/10W 100kΩ
C510	K22170817	CAP Chip.	B 50WV 0.01μF	R709	J24205154	RES Chip.	1/10W 150kΩ
C511	K22170801	CAP Chip.	B 50WV 470pF	R710	J24205102	RES Chip.	1/10W 1kΩ
C512	K22170235	CAP Chip.	CH 50WV 100pF	R711	J24205104	RES Chip.	1/10W 100kΩ
C513	K22170817	CAP Chip.	B 50WV 0.01μF	R712	J24205332	RES Chip.	1/10W 3.3kΩ
C514	K22170817	CAP Chip.	B 50WV 0.01μF	R713	J24205331	RES Chip.	1/10W 330Ω
C515	K22170817	CAP Chip.	B 50WV 0.01μF	R714	J24205000	RES Chip.	1/10W 0Ω
C516	K22170805	CAP Chip.	B 50WV 0.001μF	R715	J24205000	RES Chip.	1/10W 0Ω
C517	K22141904	CAP Chip.	D 25WV 0.1μF	R716	J24205472	RES Chip.	1/10W 4.7kΩ
C518	K22170235	CAP Chip.	CH 50WV 100pF	R717	J24205471	RES Chip.	1/10W 470Ω
AF UNIT				TH701	G9090013	Thermistor	112501-2
Symbol No.	Part No.	Description	Device	C701	K22141904	CAP Chip.	D 25WV 0.1μF
	F2879103A	Printed Circuit Board		C702	K22170805	CAP Chip.	B 50WV 0.001μF
	C028793AB	PCB With Component		C703	K22170805	CAP Chip.	B 50WV 0.001μF
Q601	G3802087Y	FET	2SK208Y TE85R	C704	K22170805	CAP Chip.	B 50WV 0.001μF
Q602	G3316237F	Transistor	2SC1623-T2BL6	C705	K22170805	CAP Chip.	B 50WV 0.001μF
Q603	G3316237F	Transistor	2SC1623-T2BL6	C706	K22170821	CAP Chip.	B 50WV 0.002μF
Q604	G3316237F	Transistor	2SC1623-T2BL6	C707	K22170817	CAP Chip.	B 50WV 0.01μF
Q605	G3316237F	Transistor	2SC1623-T2BL6	C708	K22170817	CAP Chip.	B 50WV 0.01μF
				C709	K22171008	CAP Chip.	F 50WV 0.047μF
				C710	K22170805	CAP Chip.	B 50WV 0.001μF
				MIC AMP UNIT			
R601	J24205104	RES Chip.	1/10W 100kΩ		F2876101	Printed Circuit Board	
R602	J24205104	RES Chip.	1/10W 100kΩ				
R603	J24205105	RES Chip.	1/10W 1MΩ		C028761AB	PCB With Component	
R604	J24205564	RES Chip.	1/10W 560kΩ				
R605	J24205224	RES Chip.	1/10W 220kΩ	Q801	G3316237F	Transistor	2SC1623-T2BL6
R607	J24205332	RES Chip.	1/10W 3.3kΩ	Q802	G1090559	IC	LA6324M
R608	J24205102	RES Chip.	1/10W 1kΩ				
R609	J24205104	RES Chip.	1/10W 100kΩ	R801	J24205472	RES Chip.	1/10W 4.7kΩ
R610	J24205104	RES Chip.	1/10W 100kΩ	R802	J24205223	RES Chip.	1/10W 22kΩ
R611	J24205103	RES Chip.	1/10W 10kΩ	R803	J24205104	RES Chip.	1/10W 100kΩ
R612	J24205103	RES Chip.	1/10W 10kΩ	R804	J24205474	RES Chip.	1/10W 470kΩ
R613	J24205471	RES Chip.	1/10W 470Ω	R805	J24205472	RES Chip.	1/10W 4.7kΩ
R614	J24205472	RES Chip.	1/10W 4.7kΩ	R806	J24205332	RES Chip.	1/10W 3.3kΩ
R615	J24205472	RES Chip.	1/10W 4.7kΩ	R807	J24205472	RES Chip.	1/10W 4.7kΩ
R616	J24205103	RES Chip.	1/10W 10kΩ	R808	J24205103	RES Chip.	1/10W 10kΩ
R617	J24205472	RES Chip.	1/10W 4.7kΩ	R809	J24205472	RES Chip.	1/10W 4.7kΩ
R618	J24205103	RES Chip.	1/10W 10kΩ	R810	J24205472	RES Chip.	1/10W 4.7kΩ
R619	J24205224	RES Chip.	1/10W 220kΩ	R811	J24205105	RES Chip.	1/10W 1MΩ
R620	J24205223	RES Chip.	1/10W 22kΩ	R812	J24205104	RES Chip.	1/10W 100kΩ
R621	J24205000	RES Chip.	1/10W 0Ω	R813	J24205472	RES Chip.	1/10W 4.7kΩ
R622	J24205101	RES Chip.	1/10W 100Ω	R814	J24205224	RES Chip.	1/10W 220kΩ
R623	J24205334	RES Chip.	1/10W 330kΩ	R815	J24205472	RES Chip.	1/10W 4.7kΩ
R624	J24205104	RES Chip.	1/10W 100kΩ	R816	J24205224	RES Chip.	1/10W 220kΩ
R625	J24205334	RES Chip.	1/10W 330kΩ	R817	J24205104	RES Chip.	1/10W 100kΩ
C601	K22170817	CAP Chip.	B 50WV 0.01μF	R818	J24205474	RES Chip.	1/10W 470kΩ
C602	K22170817	CAP Chip.	B 50WV 0.01μF	R819	J24205472	RES Chip.	1/10W 4.7kΩ
C603	K22141904	CAP Chip.	D 25WV 0.1μF	R820	J24205103	RES Chip.	1/10W 10kΩ
C605	K22170817	CAP Chip.	B 50WV 0.01μF	R821	J24205103	RES Chip.	1/10W 10kΩ
C606	K22170817	CAP Chip.	B 50WV 0.01μF	R822	J24205103	RES Chip.	1/10W 10kΩ
C607	K22170811	CAP Chip.	B 50WV 0.0033μF	R823	J24205472	RES Chip.	1/10W 4.7kΩ
C608	K22170817	CAP Chip.	B 50WV 0.01μF	R824	J24205472	RES Chip.	1/10W 4.7kΩ

R825	J24205101	RES Chip.	1/10W	100kΩ	D901	G2090389	Diode	1SS133
R826	J24205000	RES Chip.	1/10W	0Ω	D902	G2070009	Diode	1SS184TE85R
					D903	G2070001	Diode	1SS181TE85R
C801	K22170813	CAP Chip.	B	50WV 0.0047μF	R901	J24205684	RES Chip.	1/10W 680kΩ
C802	K22170235	CAP Chip.	CH	50WV 100pF	R902	J24205684	RES Chip.	1/10W 680kΩ
C803	K22170805	CAP Chip.	B	50WV 0.001μF	R903	J24205103	RES Chip.	1/10W 10kΩ
C804	K22141808	CAP Chip.	B	25WV 0.047μF	R904	J24205474	RES Chip.	1/10W 470kΩ
C805	K22170247	CAP Chip.	CH	50WV 330pF	R905	J24205104	RES Chip.	1/10W 100kΩ
C806	K22141808	CAP Chip.	B	25WV 0.047μF	R906	J24205104	RES Chip.	1/10W 100kΩ
C807	K78120013	CAP Chip.		16WV 1μF				
C808	K22141904	CAP Chip.	D	25WV 0.1μF	C901	K70087475	Tantalum CAP.	6.3WV 4.7μF
C809	K22141904	CAP Chip.	D	25WV 0.1μF	C902	K70087475	Tantalum CAP.	6.3WV 4.7μF
C810	K22170815	CAP Chip.	B	50WV 0.0068μF				
C811	K22140806	CAP Chip.	B	25WV 0.018μF	SW901	N6090051	Slide Switch	SSS-212229
C812	K22170805	CAP Chip.	B	50WV 0.001μF				
C813	K78120013	CAP Chip.		16WV 1μF				
				CNTL UNIT				
Symbol No.	Part No.	Description	Device		Symbol No.	Part No.	Description	Device
	F2905101	Printed Circuit Board				Q7000061A	CNTL UNIT A •	
	C029051AB	PCB With Component				Q7000062A	CNTL UNIT B ••	
						Q7000064A	CNTL UNIT D •••	
					Q2001	G1090767	IC	HD613901A78
Q901	G3070001	Transistor	FA1A4M-T2B		BAT2001	Q9000390	Lithium Battery	CR2032-HP4H
Q902	G1090814	IC	μPD4538BG					

• Version A, A (U)
•• Version B, C
•••Version F

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BAND TABLE

RF Output 25W Model							
Symbol No.	Version A, A(U)			Version B, C, X			
	Part No.	Description	Device	Part No.	Description	Device	
VR1007	J51745333	POT. B	33kΩ	J51745333	POT. B	33kΩ	
VR1009	J50750474	POT.	470kΩ	J50750474	POT.	470kΩ	
C1016	K22170203	CAP Chip. CH	50WV 2pF	K22170206	CAP Chip. CH	50WV 3pF	
C1091	K22170206	CAP Chip. CH	50WV 5pF	K22170204	CAP Chip. CH	50WV 8pF	
C1092	K22170207	CAP Chip. CH	50WV 6pF	K22170206	CAP Chip. CH	50WV 5pF	
C1094	-	-	-	-	-	-	
C1095	K22170206	CAP Chip. CH	50WV 5pF	K22170208	CAP Chip. CH	50WV 5pF	
C1148	-	-	-	-	-	-	

RF Output 35W Model							
Symbol No.	Version A, A(U)			Version B, C, X			
	Part No.	Description	Device	Part No.	Description	Device	
VR1007	J51745333	POT. B	33kΩ	J51745333	POT. B	33kΩ	
VR1009	J50750474	POT.	470kΩ	J50750474	POT.	470kΩ	
C1016	K22170203	CAP Chip. CH	50WV 2pF	K22170204	CAP Chip. CH	50WV 3pF	
C1091	-	-	-	-	-	-	
C1092	-	-	-	-	-	-	
C1094	K22170205	CAP Chip. CH	50WV 4pF	K22170207	CAP Chip. CH	50WV 6pF	
C1095	K22170208	CAP Chip. CH	50WV 7pF	K22170207	CAP Chip. CH	50WV 6pF	
C1148	K22170208	CAP Chip. CH	50WV 7pF	K22170207	CAP Chip. CH	50WV 6pF	

FTS-12 TONE SQUELCH UNIT INSTALLATION

The FTS-12 provides either encode-only or encode/decode operation with 37 front panel selectable subaudible CTCSS tones. See the "Operation" section of the Operating Manual for functional details.

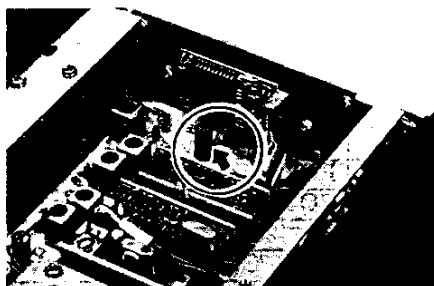
- (1) Disconnect the power cable at the rear of the transceiver, and remove the five screws affixing the bottom cover*. Remove the cover carefully so as not to pull on the speaker wires, and lay the set upside down.
- (2) Locate the unconnected brown 11-pin connector at the front right corner on the Main Board just behind the tuning knob. Align the small tab on one side of this connector with the hole in one side of the FTS-12 connector, and mate these connectors.
- (3) Now locate the double-sided adhesive tape pre-installed on the inside of the side panel. Remove the paper covering from this tape, and press the FTS-12 against it as shown in the photo below.

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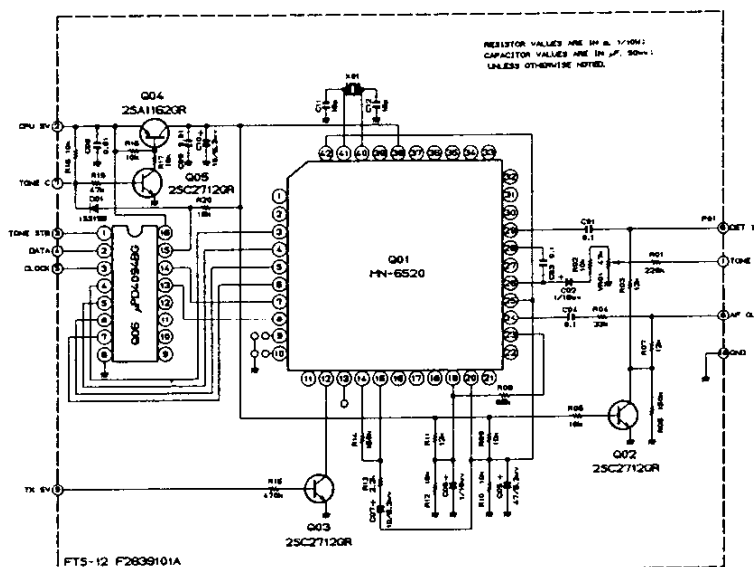
- (4) On the main circuit board near the FTS-12 mounting position, notice a 27-kilohm resistor (red, violet and orange bands). Cut the exposed lead of this resistor. If the FTS-12 is removed from the transceiver, this resistor must be reconnected.
- (5) Replace the bottom cover. The output tone level (VR1 on the FTS-12) is adjusted at the factory for the proper deviation, so no adjustment should be necessary.

* If the front panel has not been reversed (ie., angles upwards), the bottom panel is the larger panel which includes the loudspeaker. Otherwise, the bottom panel is the smaller one.

CTCSS Tone Frequency (Hz)			
67.0	100.0	141.3	203.5
71.9	103.5	146.2	210.7
74.4	107.2	151.4	218.1
77.0	110.9	156.7	225.7
79.7	114.8	162.2	233.6
82.5	118.8	167.9	241.8
85.4	123.0	173.8	250.3
88.5	127.3	179.9	—
91.5	131.8	186.2	—
94.8	136.5	192.8	—



Cut indicated resistor



FTS-12 PARTS LIST

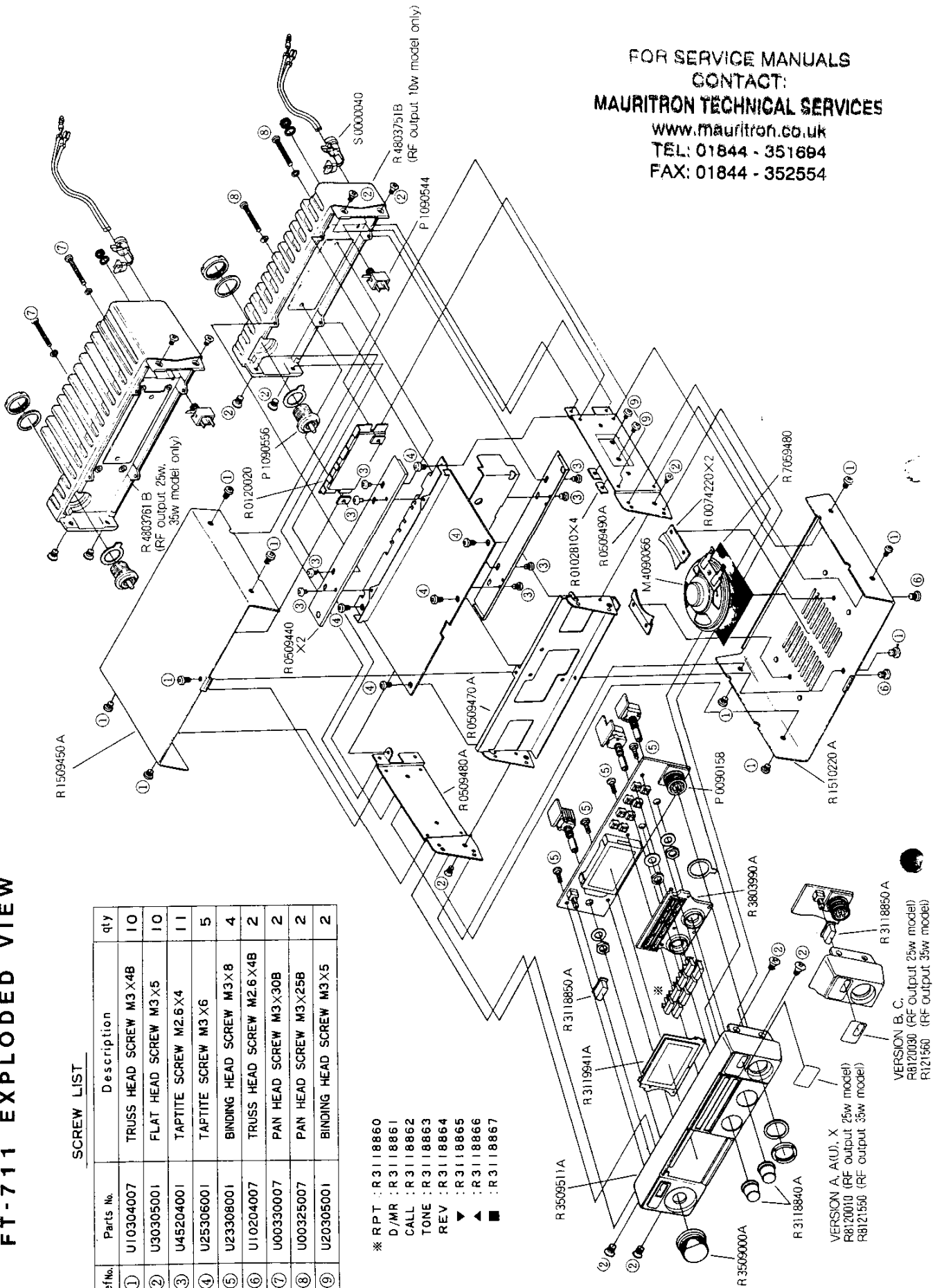
FTS-12 PARTS LIST			
Symbol No.	Part No.	Description	Device
	F2839101A	Printed Circuit Board	
	C028391AA	P.C.B with Components	
Q01	G1090577	IC	MN6520
Q02	G3327127G	Transistor	2SC2712GRTE85R
Q03	G3327127G	Transistor	2SC2712GRTE85R
Q04	G3111627G	Transistor	2SA1162GRTE85R
Q05	G3327127G	Transistor	2SC2712GR
Q06	G1090696	IC	μPD4094BG
D01	G2070026	Diode	1SS196TE85R
R01	J24205224	RES Chip.	1/10W 220kΩ
R02	J24205103	RES Chip.	1/10W 10kΩ
R03	J24205123	RES Chip.	1/10W 12kΩ
R04	J24205333	RES Chip.	1/10W 33kΩ
R05	J24205103	RES Chip.	1/10W 10kΩ
R06	J24205154	RES Chip.	1/10W 150kΩ
R07	J24205123	RES Chip.	1/10W 12kΩ
R08	J24205683	RES Chip.	1/10W 68kΩ
R09	J24205103	RES Chip.	1/10W 10kΩ
R10	J24205103	RES Chip.	1/10W 10kΩ
R11	J24205153	RES Chip.	1/10W 15kΩ
R12	J24205123	RES Chip.	1/10W 12kΩ
R13	J24205222	RES Chip.	1/10W 2.2kΩ
R14	J24205154	RES Chip.	1/10W 150kΩ
R15	J24205474	RES Chip.	1/10W 470kΩ
R16	J24205103	RES Chip.	1/10W 10kΩ
R17	J24205103	RES Chip.	1/10W 10kΩ
R18	J24205103	RES Chip.	1/10W 10kΩ
R19	J24205473	RES Chip.	1/10W 47kΩ
R20	J24205103	RES Chip.	1/10W 10kΩ
R21	J24205000	RES Chip.	1/10W 0Ω
VR01	J51771503	POT.	B 50kΩ
C01	K22141809	CAP Chip.	B 25WV 0.1μF
C02	K78120013	Tantalum CAP.	16WV 1μF
C03	K22141809	CAP Chip.	B 25WV 0.1μF
C04	K22141809	CAP Chip.	B 25WV 0.1μF
C05	K78080013	Tantalum CAP.	6.3WV 47μF
C06	K78120013	Tantalum CAP.	16WV 1μF
C07	K78080003	Tantalum CAP.	6.3WV 10μF
C08	K22170817	CAP Chip.	B 50WV 0.01μF
C09	K22170817	CAP Chip.	B 50WV 0.01μF
C10	K78080003	Tantalum CAP.	6.3WV 10μF
C11	K22170217	CAP Chip.	CH 50WV 18pF
C12	K22170217	CAP Chip.	CH 50WV 18pF
X01	H0102571	XTAL	4.194304MHZ
J01	P0090600	Connector	

FT-711 EXPLODED VIEW

SCREW LIST

Ref.No.	Parts No.	Description	qty
①	U10304007	TRUSS HEAD SCREW M3X4B	10
②	U30305001	FLAT HEAD SCREW M3X5	10
③	U45204001	TAPTITE SCREW M2.6X4	11
④	U25306001	TAPTITE SCREW M3X6	5
⑤	U23308001	BINDING HEAD SCREW M3X8	4
⑥	U10204007	TRUSS HEAD SCREW M2.6X4B	2
⑦	U00330007	PAN HEAD SCREW M3X30B	2
⑧	U00325007	PAN HEAD SCREW M3X25B	2
⑨	U20305001	BINDING HEAD SCREW M3X5	2

* RPT : R3118860
 D/MR : R3118861
 CALL : R3118862
 TONE : R3118863
 REV : R3118864
 ▼ : R3118865
 ▲ : R3118866
 ■ : R3118867



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