

# **FT-727R**

# **TECHNICAL SUPPLEMENT**

This booklet contains supplemental technical information related to the FT-727R for use with the FT-727R Operating Manual. Service or repairs to the FT-727R transceiver should be performed by qualified technicians only.

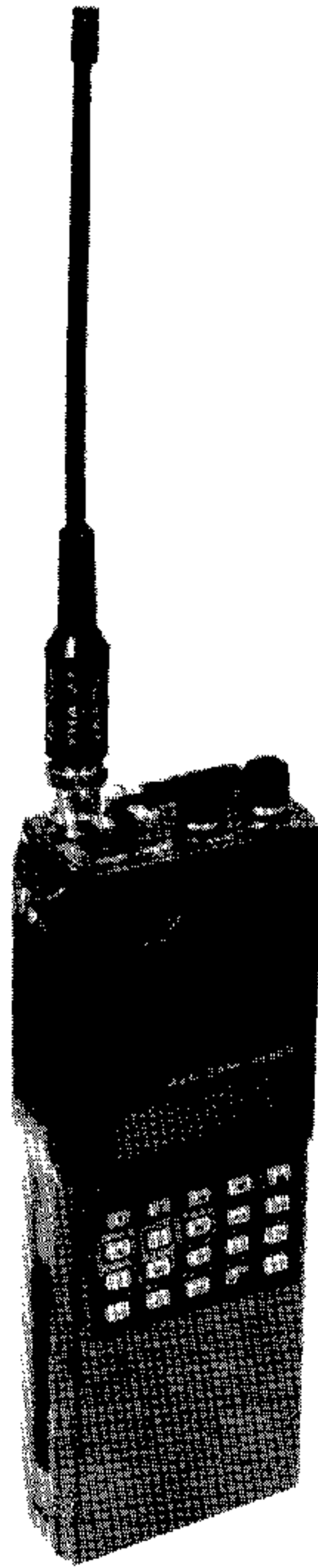
**YAESU MUSEN CO., LTD.**

**C.P.O. BOX 1500**

**TOKYO, JAPAN**

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FT-727R  
TECHNICAL SUPPLEMENT



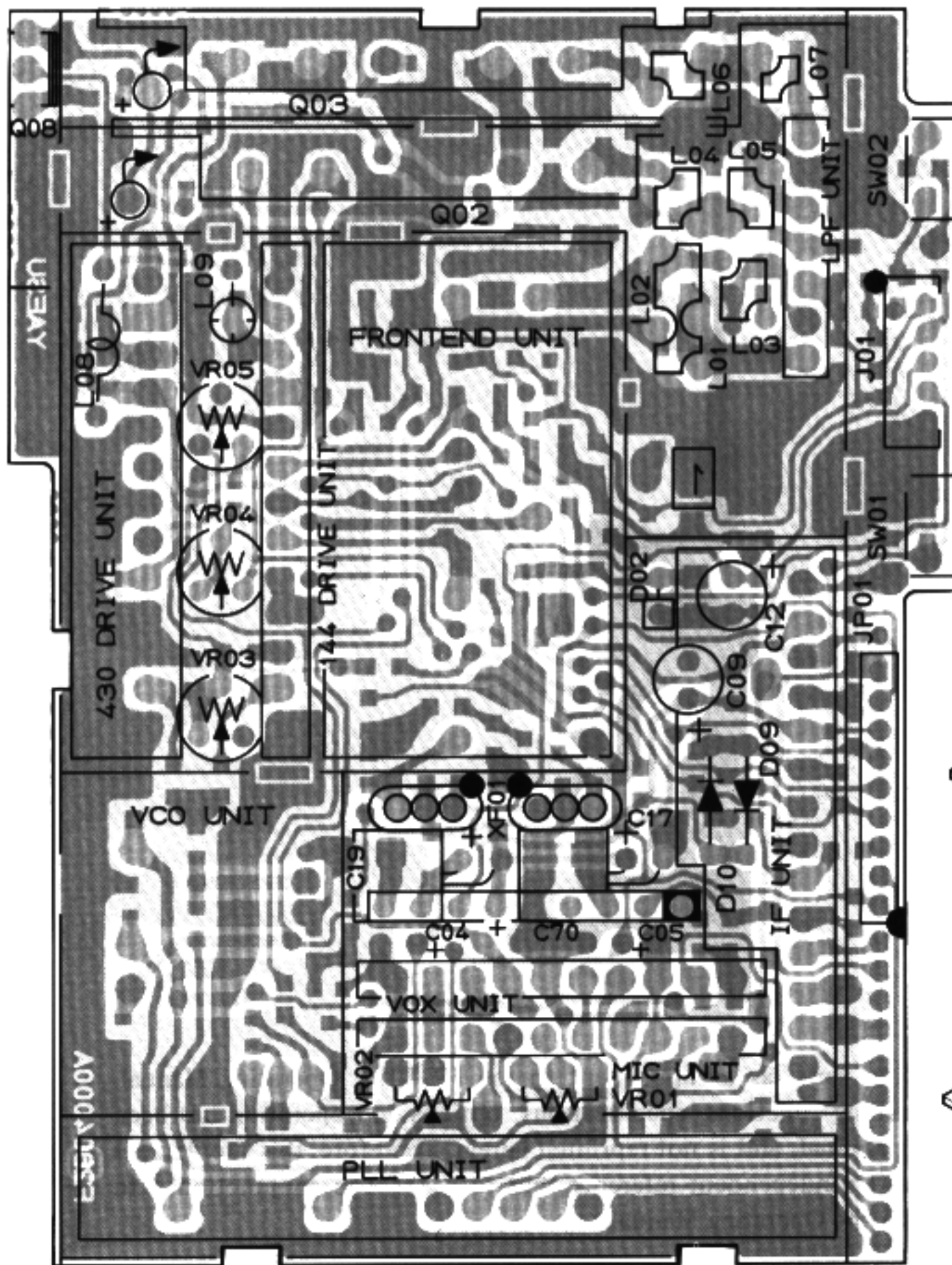
This manual is intended to serve as a supplement to the FT-727R Operating Manual. Detailed information regarding functions, specifications, options and operation has been provided in the Operating Manual, and is not reprinted herein. Therefore, this supplement is not intended to serve as an independent reference, but to be used in conjunction with the information provided in the Operating Manual.

Because of the compactness and complexity of the double-sided glass-epoxy circuit boards used in the FT-727R, four layout diagrams are provided for each board. Each side of the board is identified by the type of the majority of components installed on that side. In most cases one side has only chip components, and the other has either a mixture of both chip and lead components (trimmers, coils, electrolytic capacitors, packaged ICs, etc.), or lead components only. The two "obverse" views depict the board as it is seen when viewed directly with the eye, while the two "reverse" views depict the unseen side of the board as it would appear if one were to peer through the board from the other side without seeing the components and tracks on the near side.

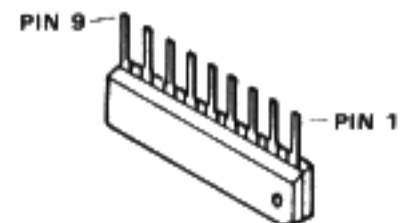
While we believe the technical information in this manual is correct, Yaesu assumes no liability for damage that may occur as a result of typographical or other errors that may be present. Your cooperation in pointing out any inconsistencies in the technical information would be appreciated.

Yaesu Musen reserves the right to make changes in the circuitry of this transceiver, in the interest of technological improvement, without notification of the owners.

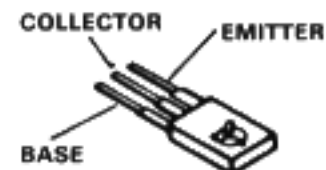
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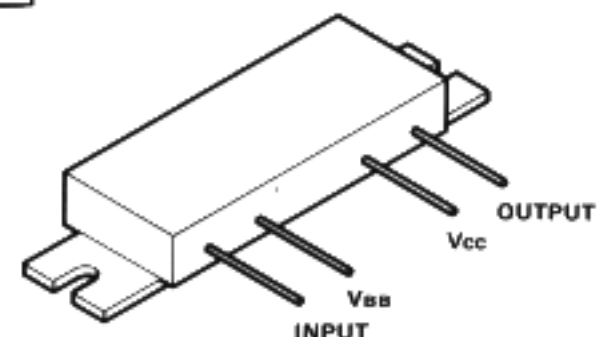
(Obverse view of "component" side)



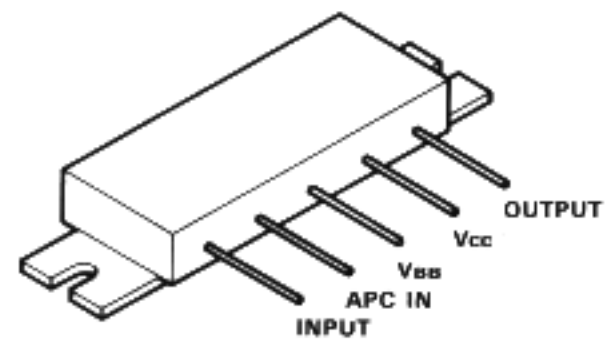
LA4145 (Q1001)



COLLECTOR  
BOTTOM SURFACE  
2SB772Q (Q1008)

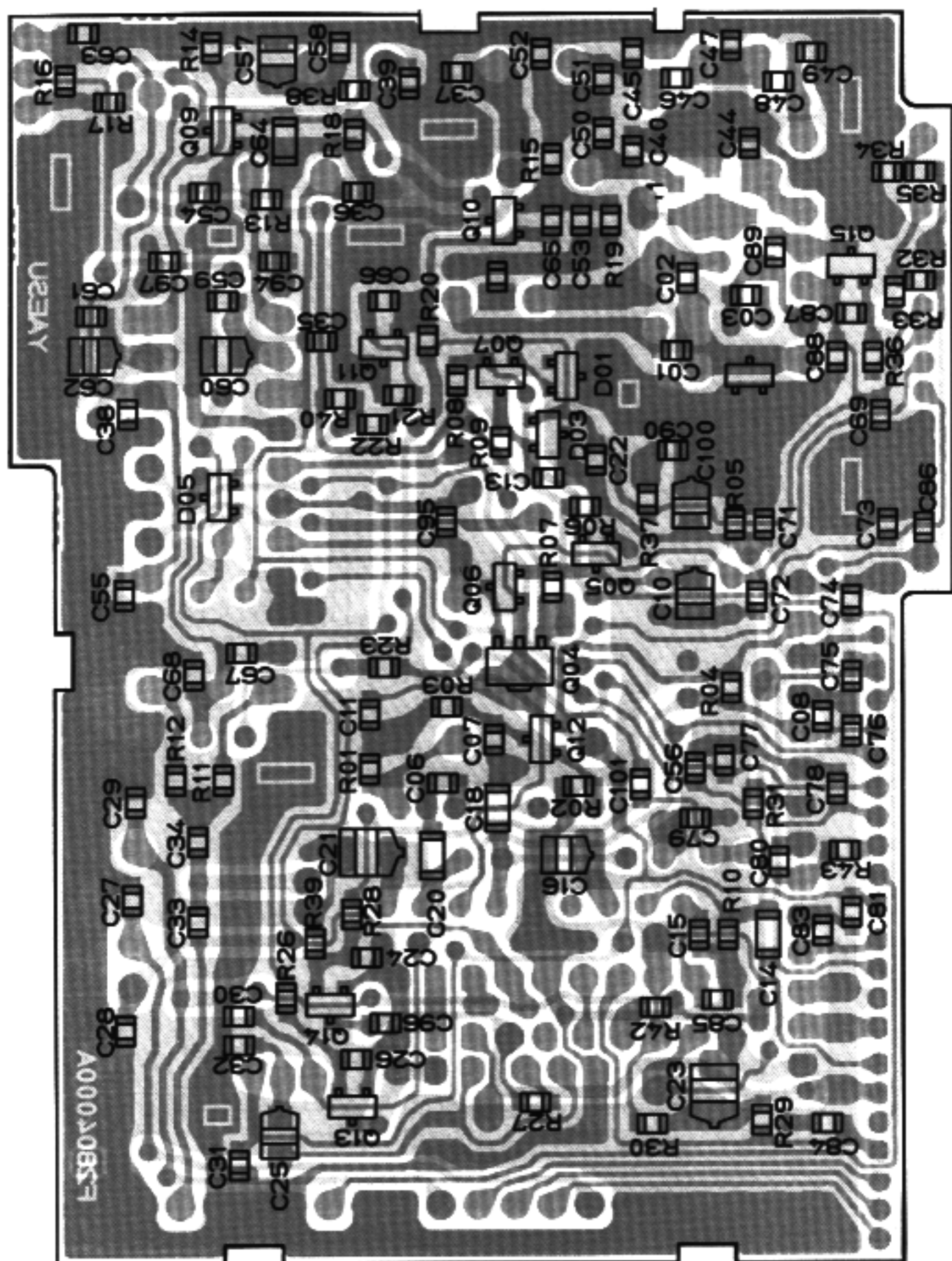


M57796MA (Q1002)



M57797MA (Q1003)

# MAIN UNIT



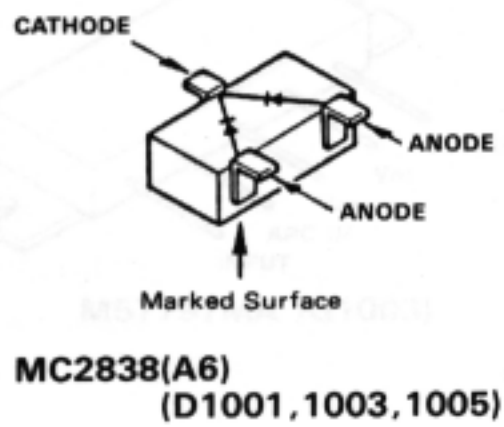
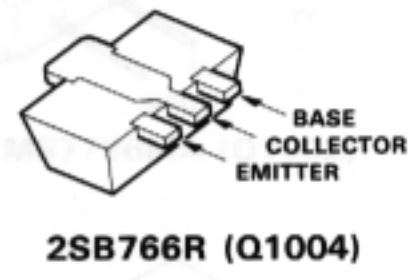
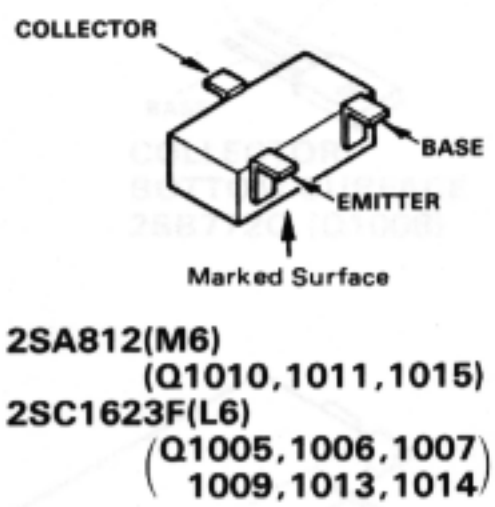
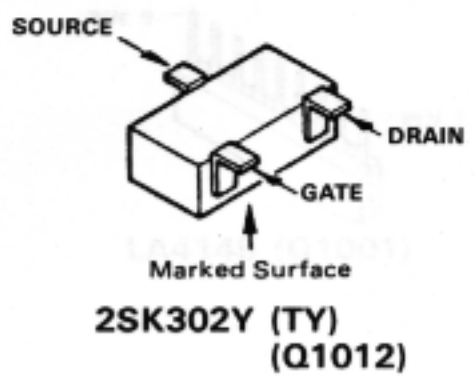
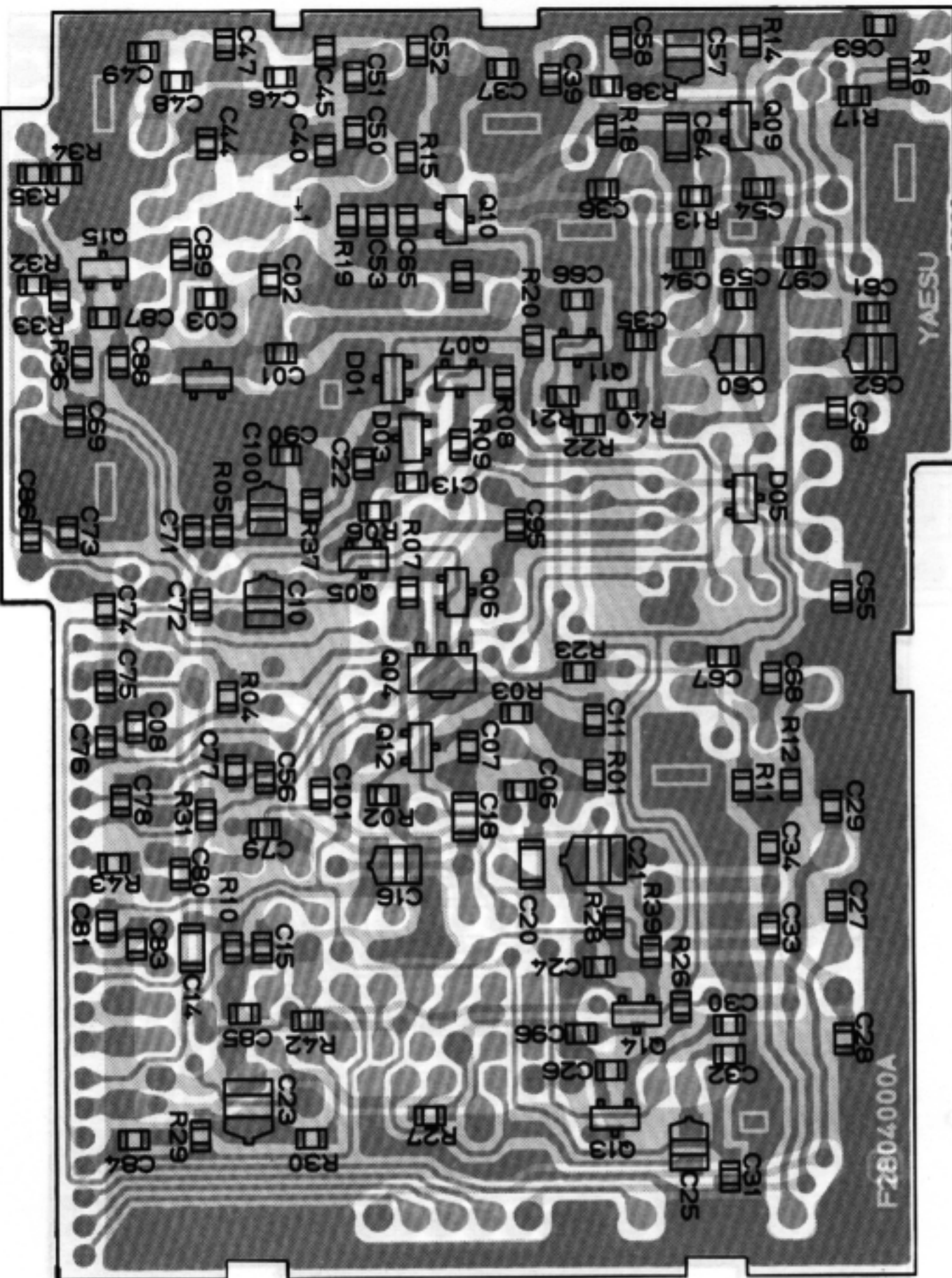
(Reverse view of "chip" side)

## SEMICONDUCTOR CROSS-REFERENCE

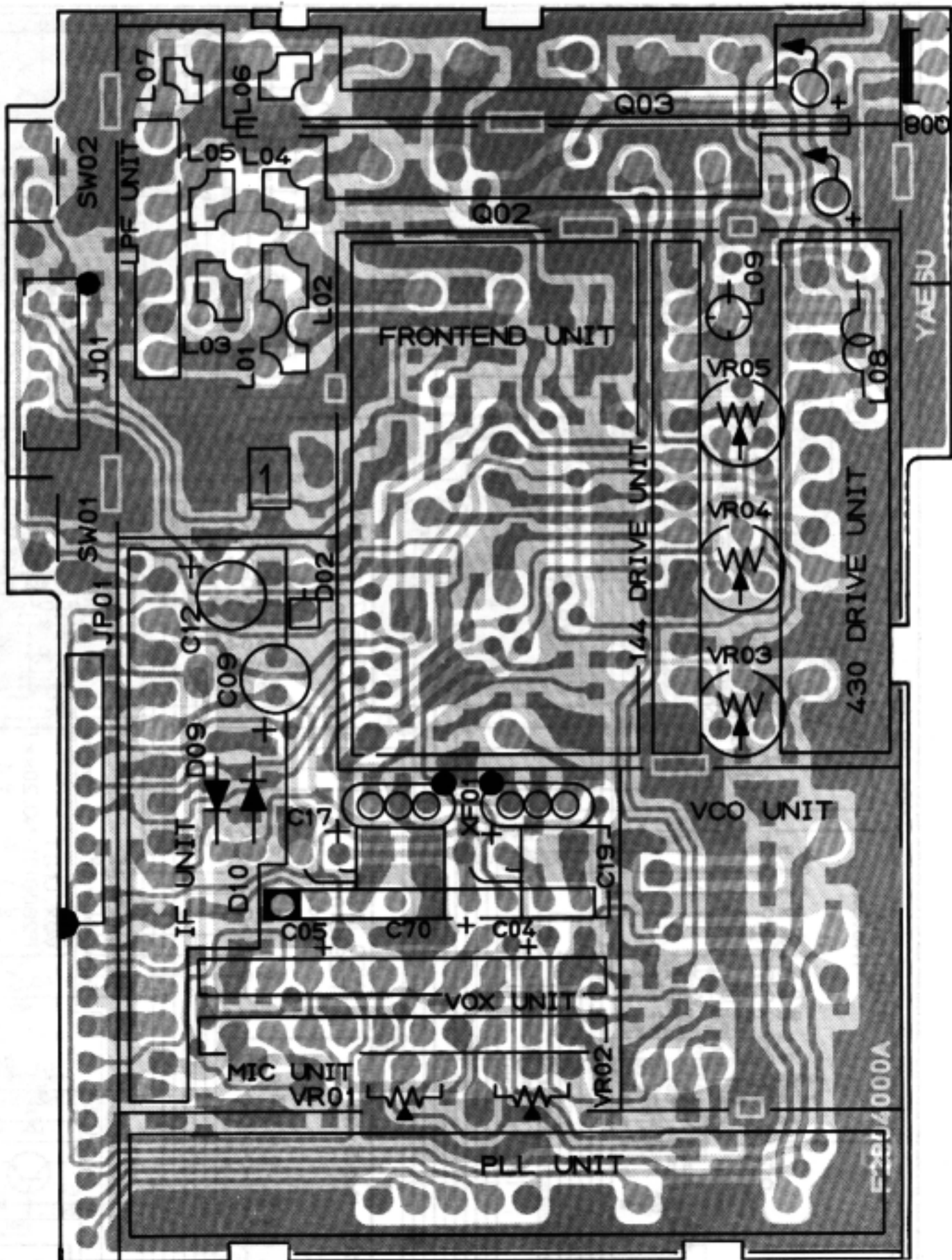
PART LOCATION No.	ORIGINAL	REPLACEMENT	
	NOMENCLATURE (MARKING) AND PART NUMBER	NOMENCLATURE (MARKING) AND PART NUMBER	
Q 1010, 1011, 1015, 503, 2001, 2003, 3008, 3018, 3028, 3030	2SA812F/G (M6/M7) G3108120F/G	2SA1162GR (SG) G3111620G	2SA1179F/G (M6/M7) G3111790F/G
Q 1005, 1006, 1007, 1009, 1013, 1014, 902, 2002, 3010, 3011, 3019, 3020, 3021, 3022, 3023, 3025, 3026, 3027, 3029, 3031	2SC1623F/G (L6/L7) G3316230F/G	2SC2712GR/Y (LG/LY) G3327120G/Y	2SC2812F (L6) G3328120F
Q 901	M5224FP G1090726	LA6324M G1090559	$\mu$ PC324G G1090603
Q 3002	M5233FP G1090728	LA6393M —	
D 501	1SS123(A7) G2070020	1SS181(C3) G2090003	DCA015TA (A4) G2070014
D 502, 602, 2201, 2202, 2203, 2204, 2205, 2206, 2203, 3009	MC2836 (A4) G2070024	1SS181(A3) G2070001	DCA015TA (A4) G2070014
D 1001, 1003, 1005, 301, 302, 303, 2001, 2002, 3001, 3002, 3004, 3005, 3007, 3008, 3010, 3011, 3015, 3016, 3019	MC2838 (A6) G2070018	1SS184(B3) G2070009	DCB015TA (A6) G2070012
D 3012	SLM-13VW G2070030	SLM-23VMW G2070028	
Q 3003, 3004	$\mu$ PD4011BG G1090600	LC4011BM G1090773	

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

# MAIN UNIT

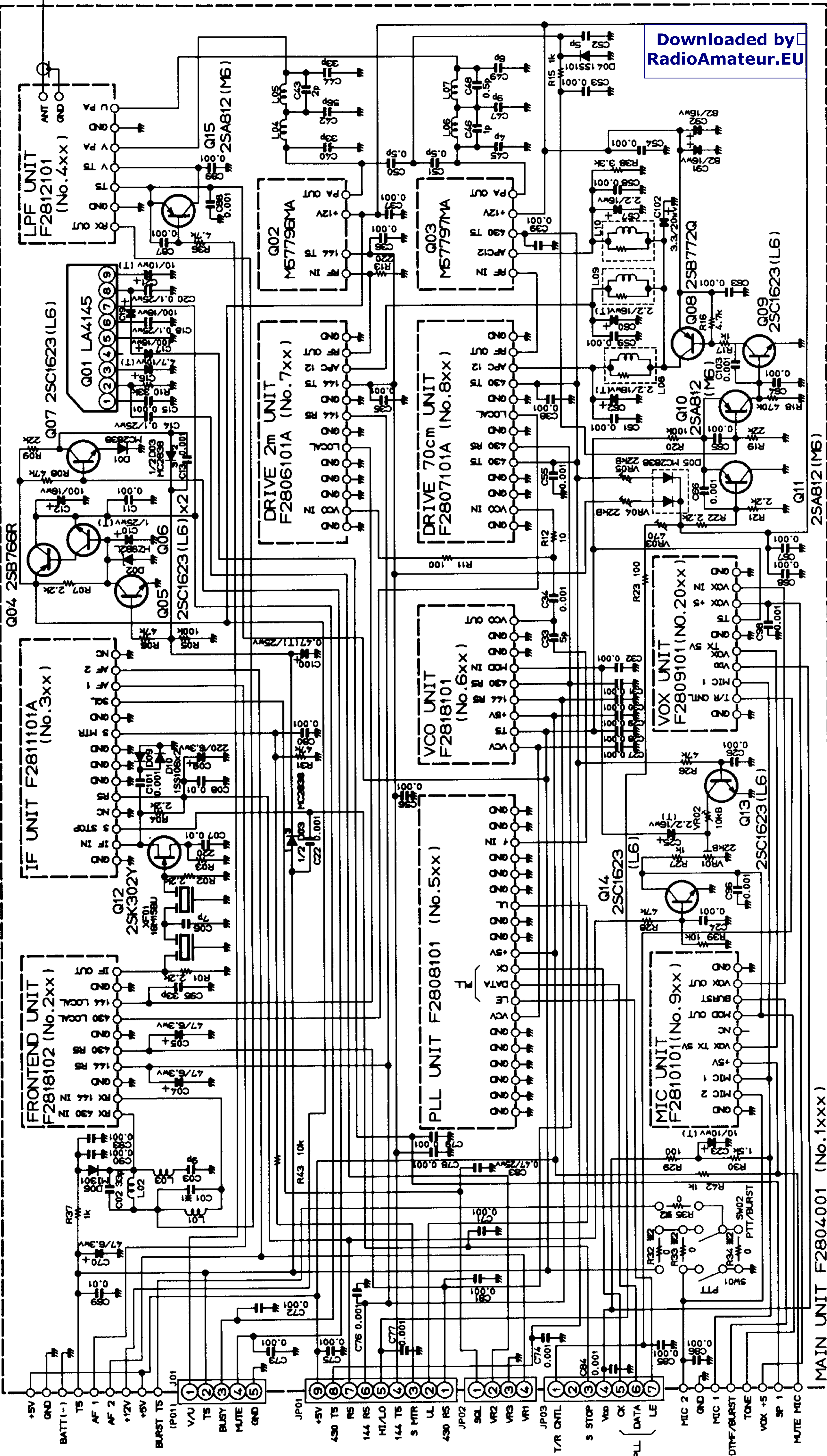


# MAIN UNIT



# MAIN UNIT

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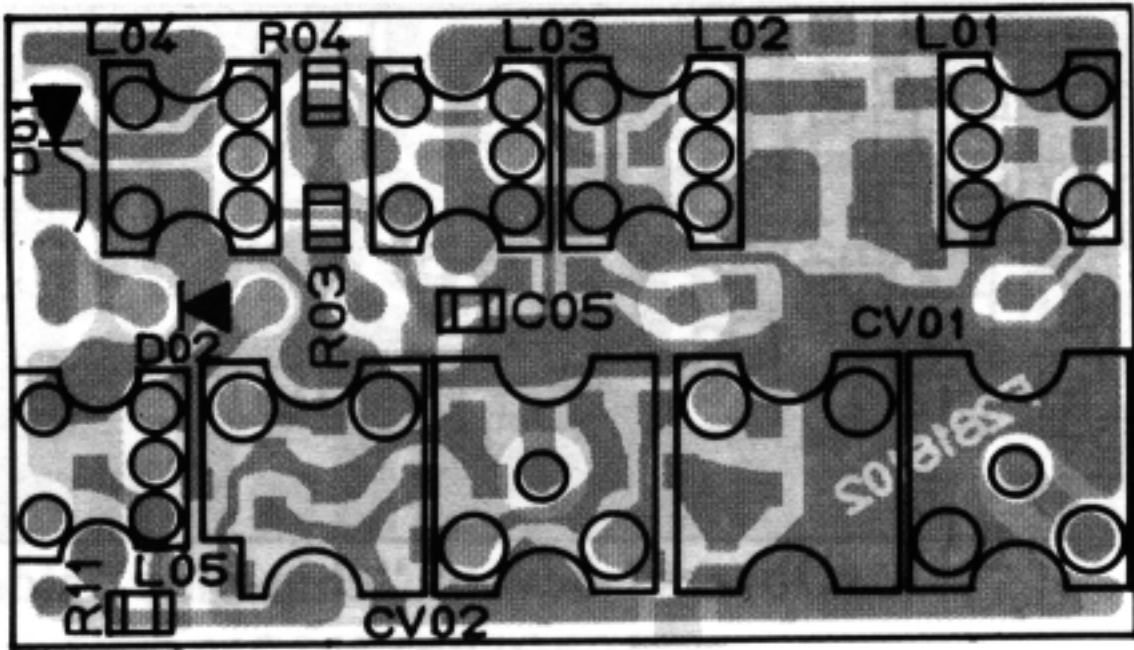
R32	R33	R34	R35
A	—	—	—
B,C,F	—	—	—

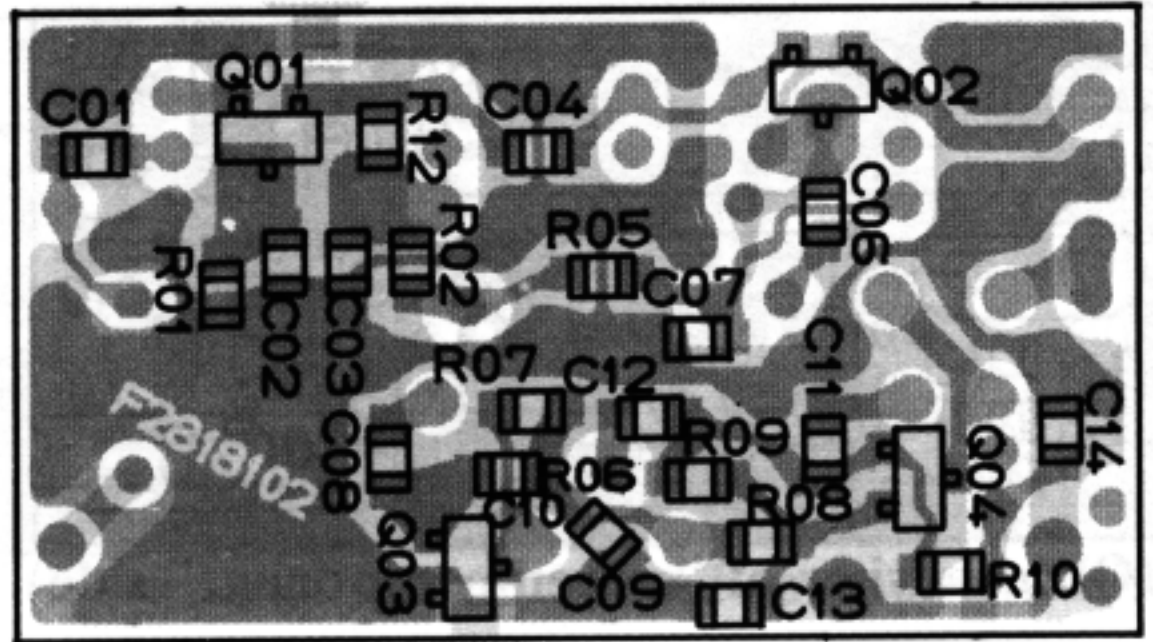
C01	C02	C03	C04	C05
A	7pF	—	—	—
B,C,F	5pF	—	—	—

RESISTOR VALUES ARE IN  $\Omega$ , 1/10W; CAPACITOR VALUES ARE IN  $\mu$ F, 50V;  
AND INDUCTOR VALUES ARE IN H; UNLESS OTHERWISE NOTED.  
(T) CAPACITORS ARE TANTALUM.

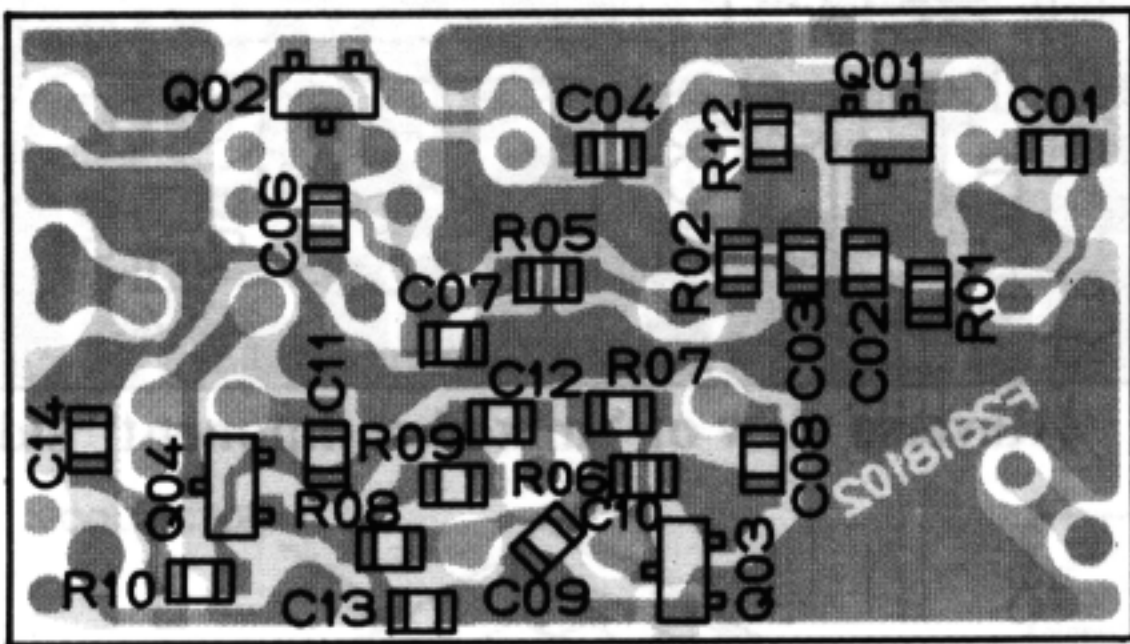
# FRONTEND UNIT



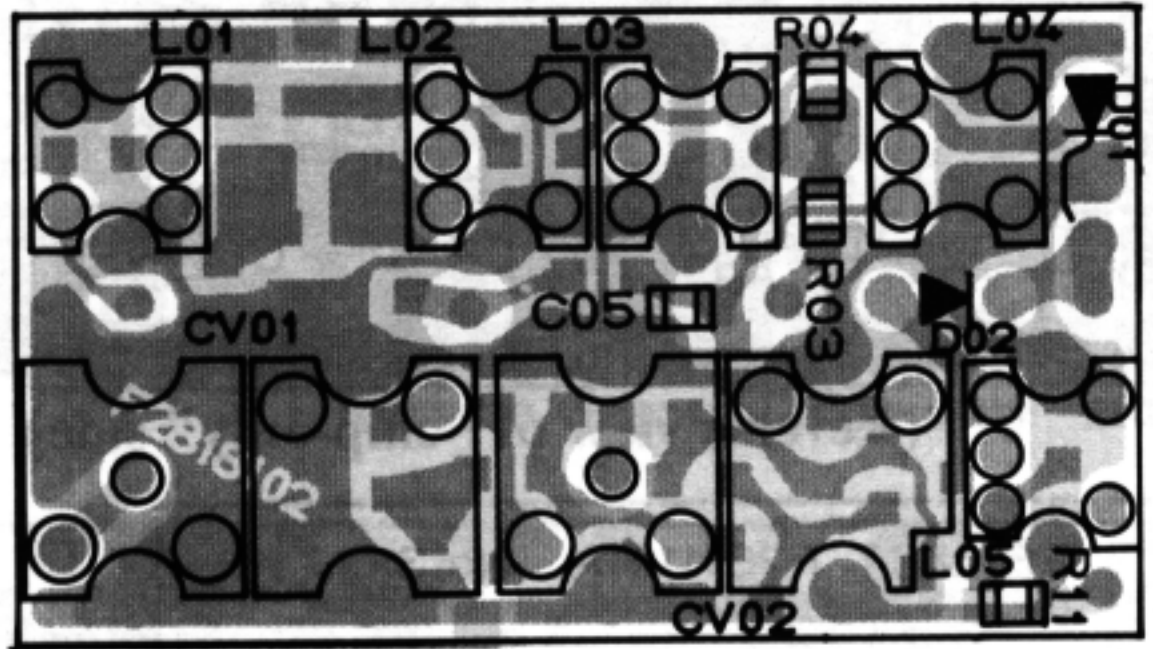
(Obverse view of "mixed-component" side)



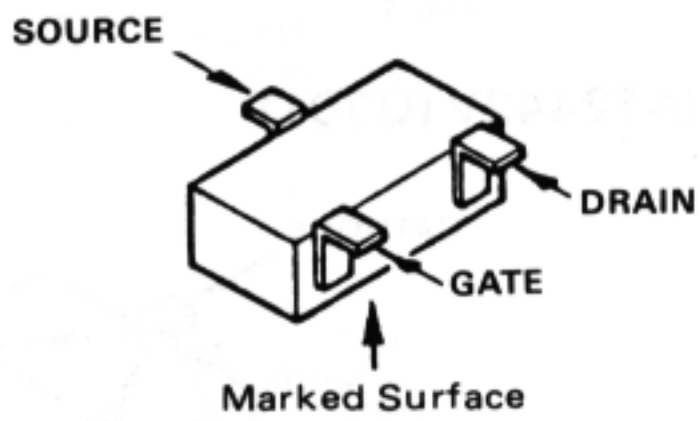
(Obverse view of "chip-only" side)



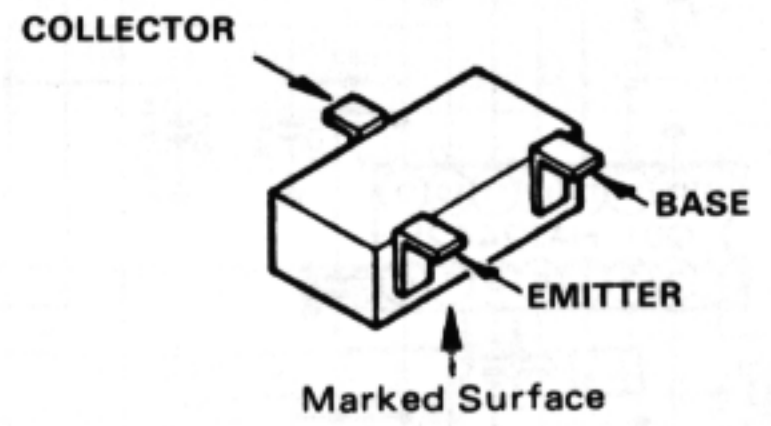
(Reverse view of "chip-only" side)



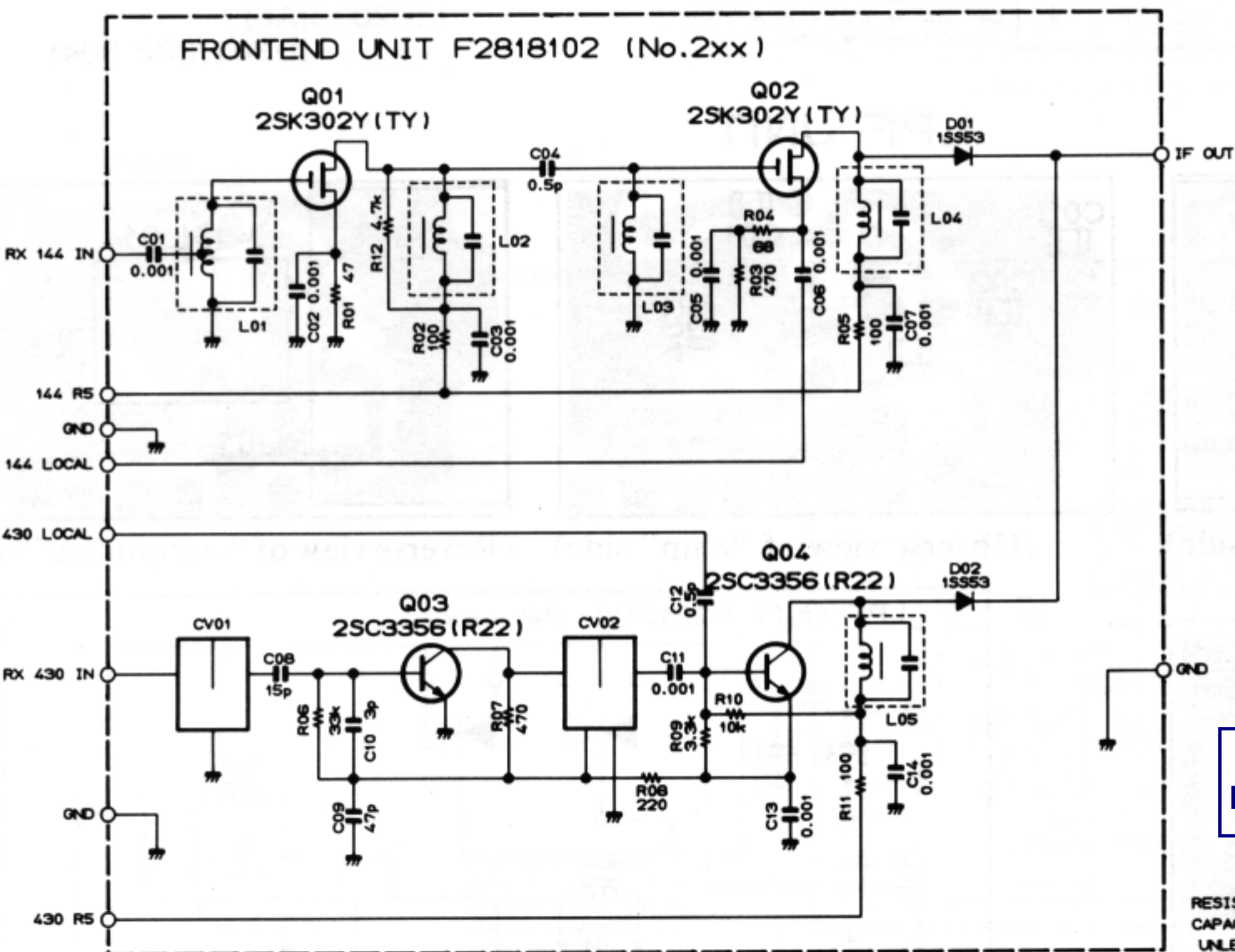
(Reverse view of "mixed-component" side)



2SK302Y(TY)  
(Q201, 202)



2SC3356(R22)  
(Q203, 204)

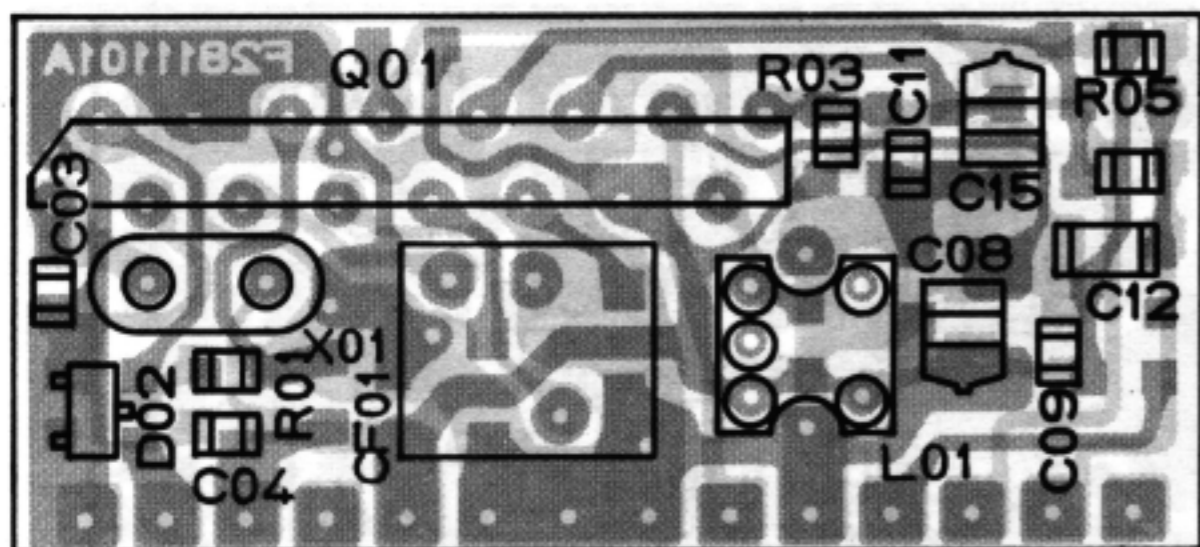


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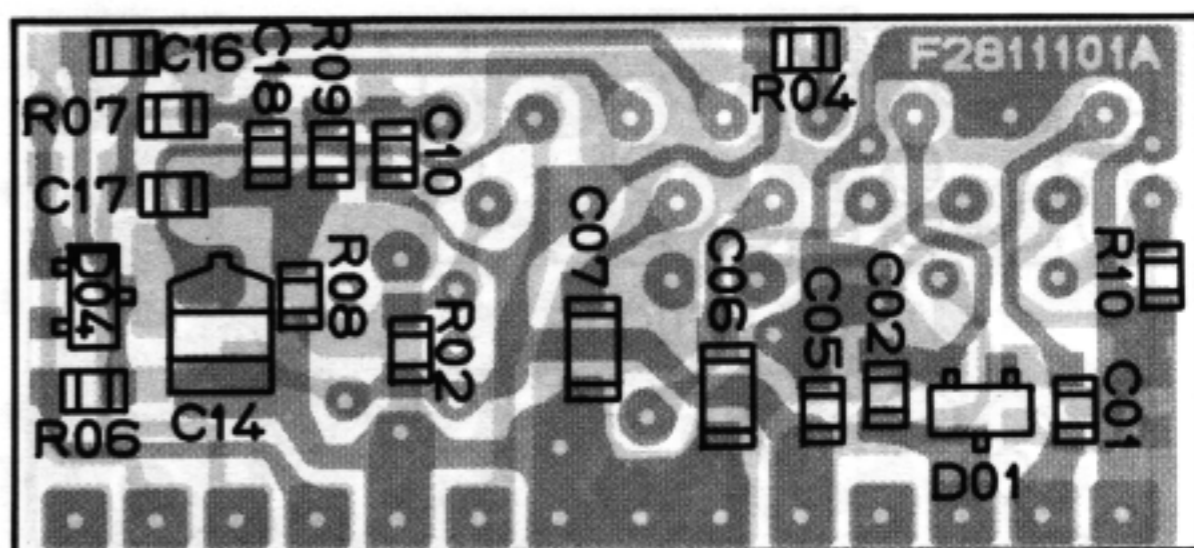
RESISTOR VALUES ARE IN  $\Omega$ , 1/10W;  
CAPACITOR VALUES ARE IN  $\mu$ F, 50vV;  
UNLESS OTHERWISE NOTED.



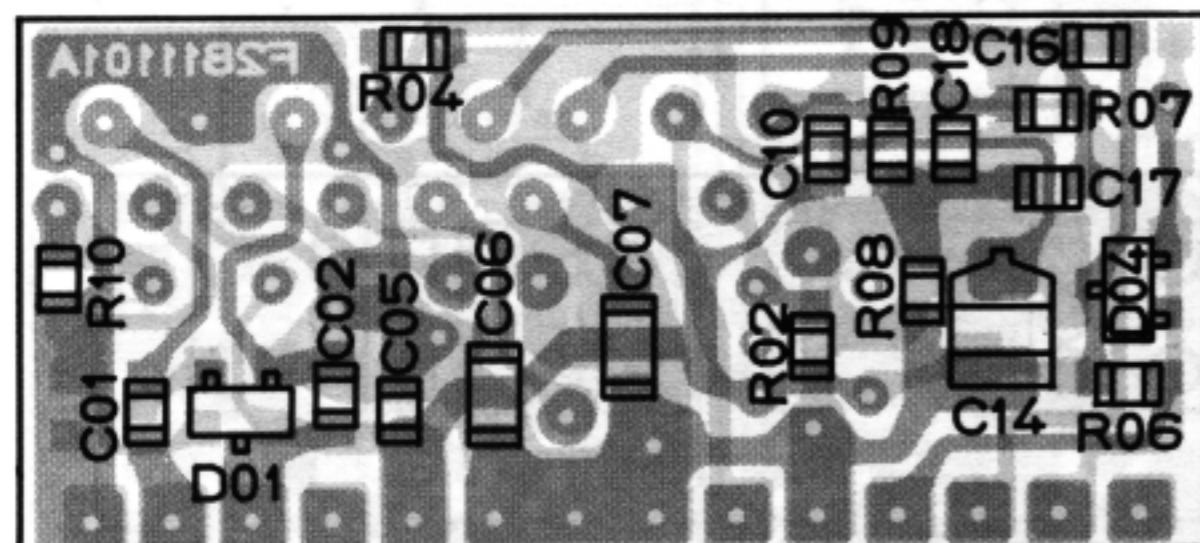
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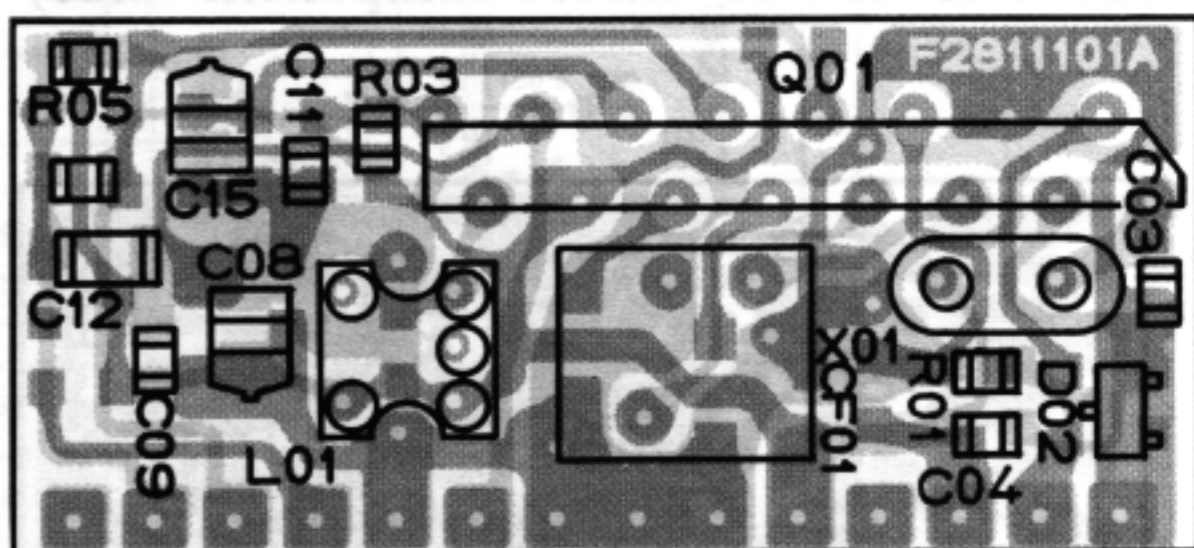
(Obverse view of "mixed-component" side)



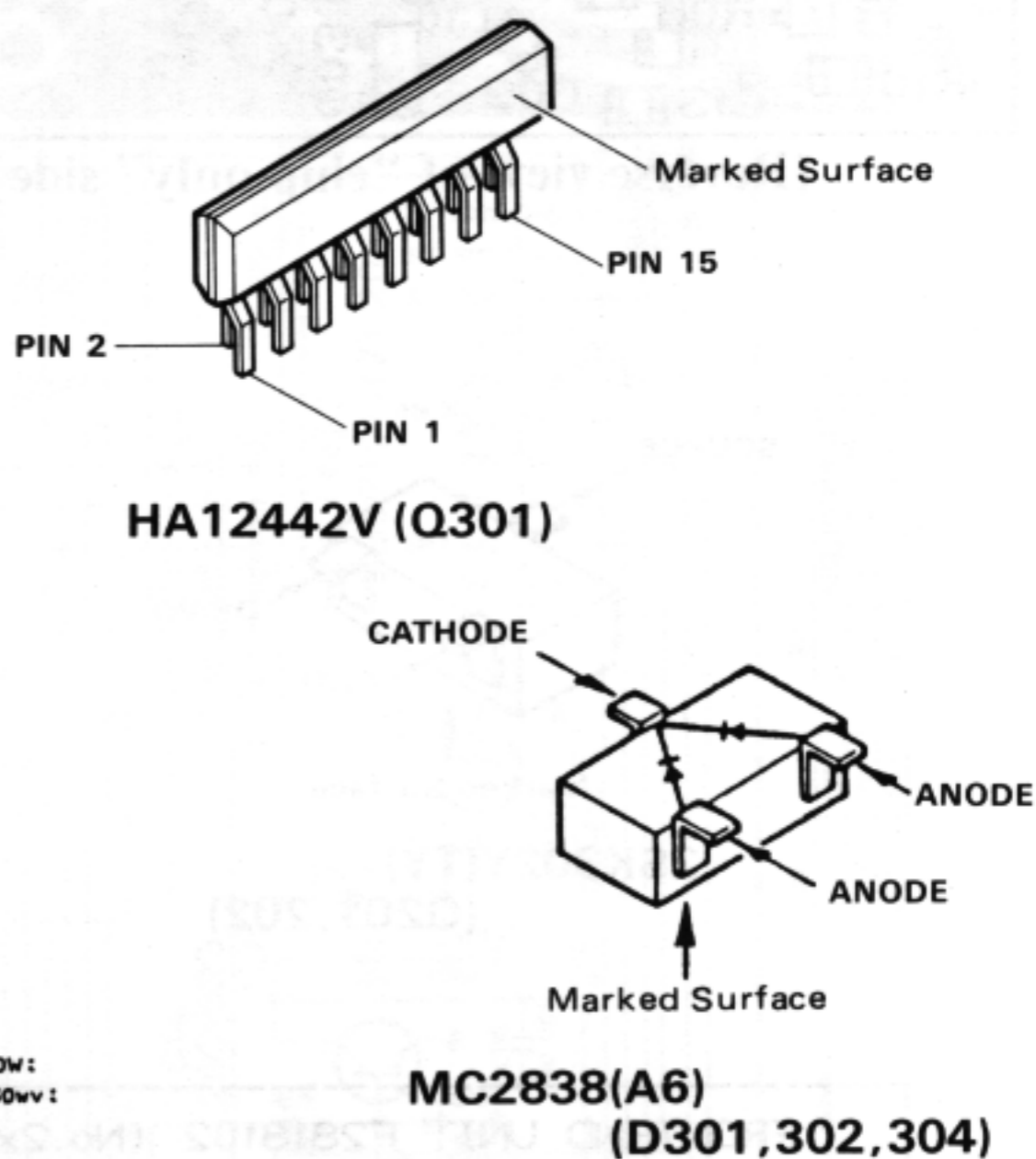
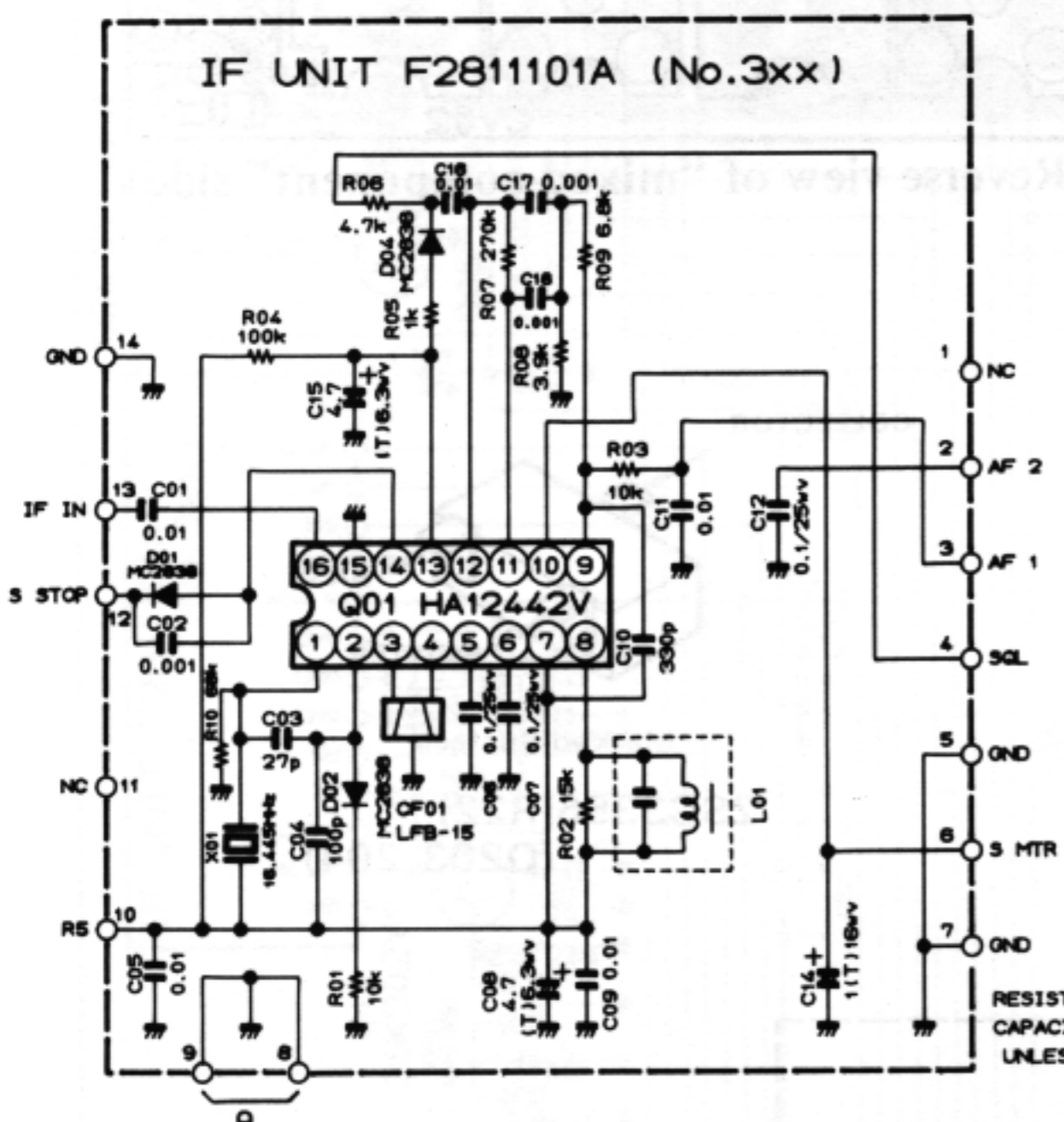
(Obverse view of "chip-only" side)



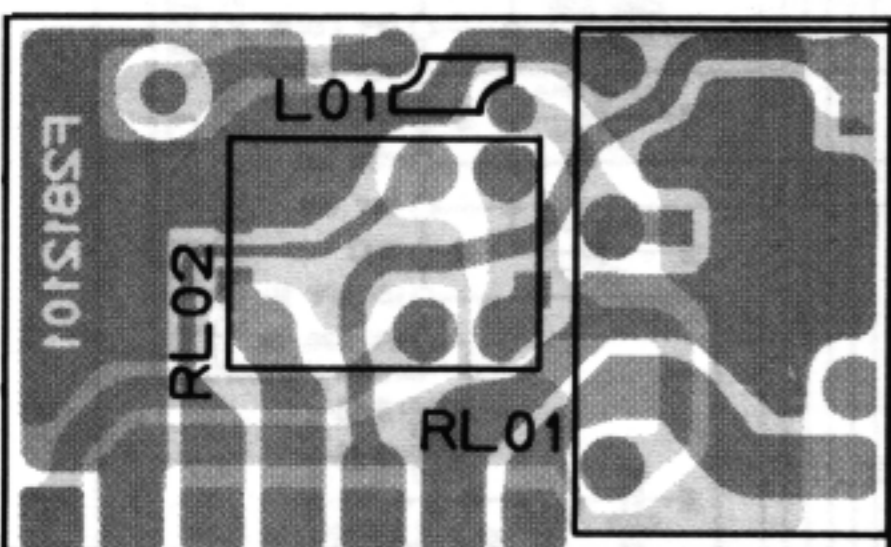
(Reverse view of "chip-only" side)



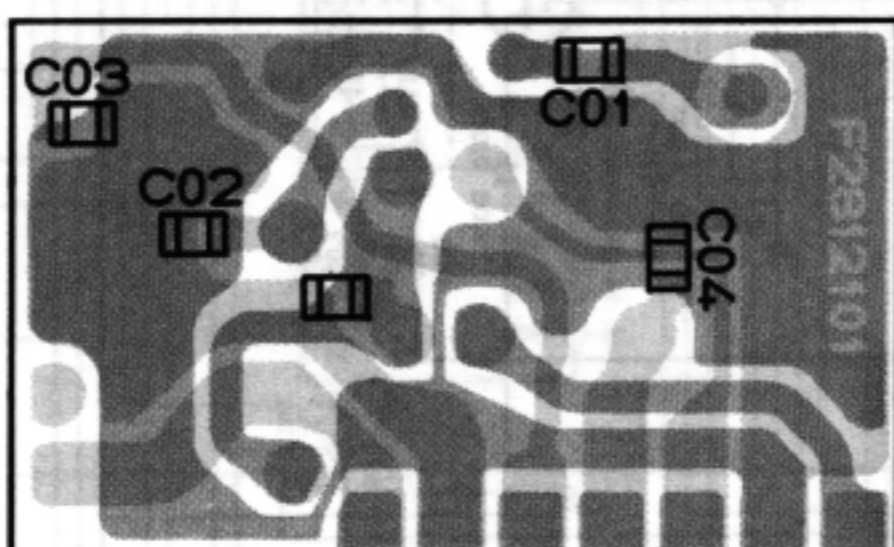
(Reverse view of "mixed-component" side)



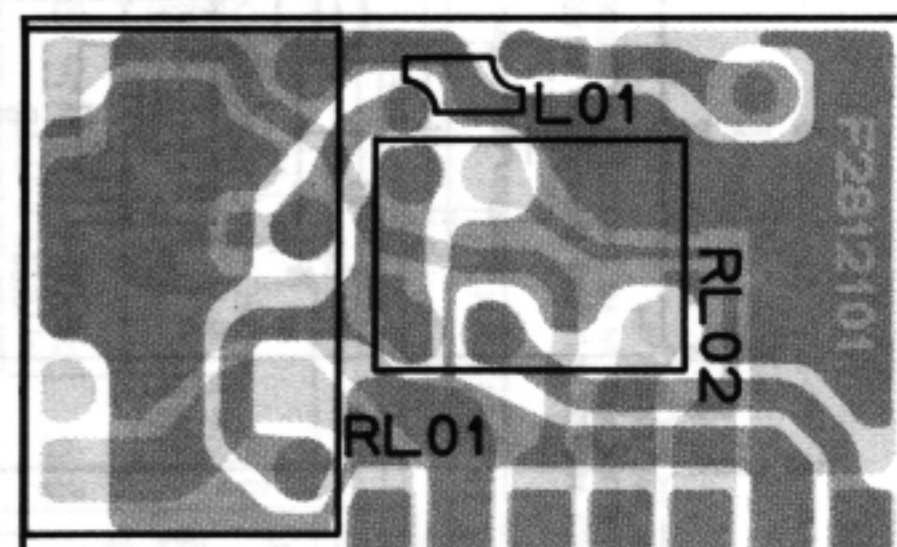
# LPF UNIT



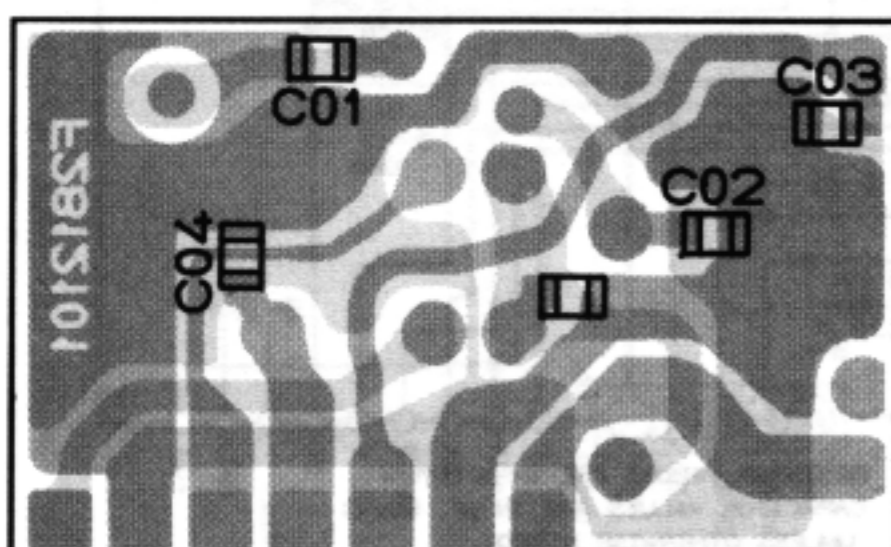
(Obverse view of "component" side)



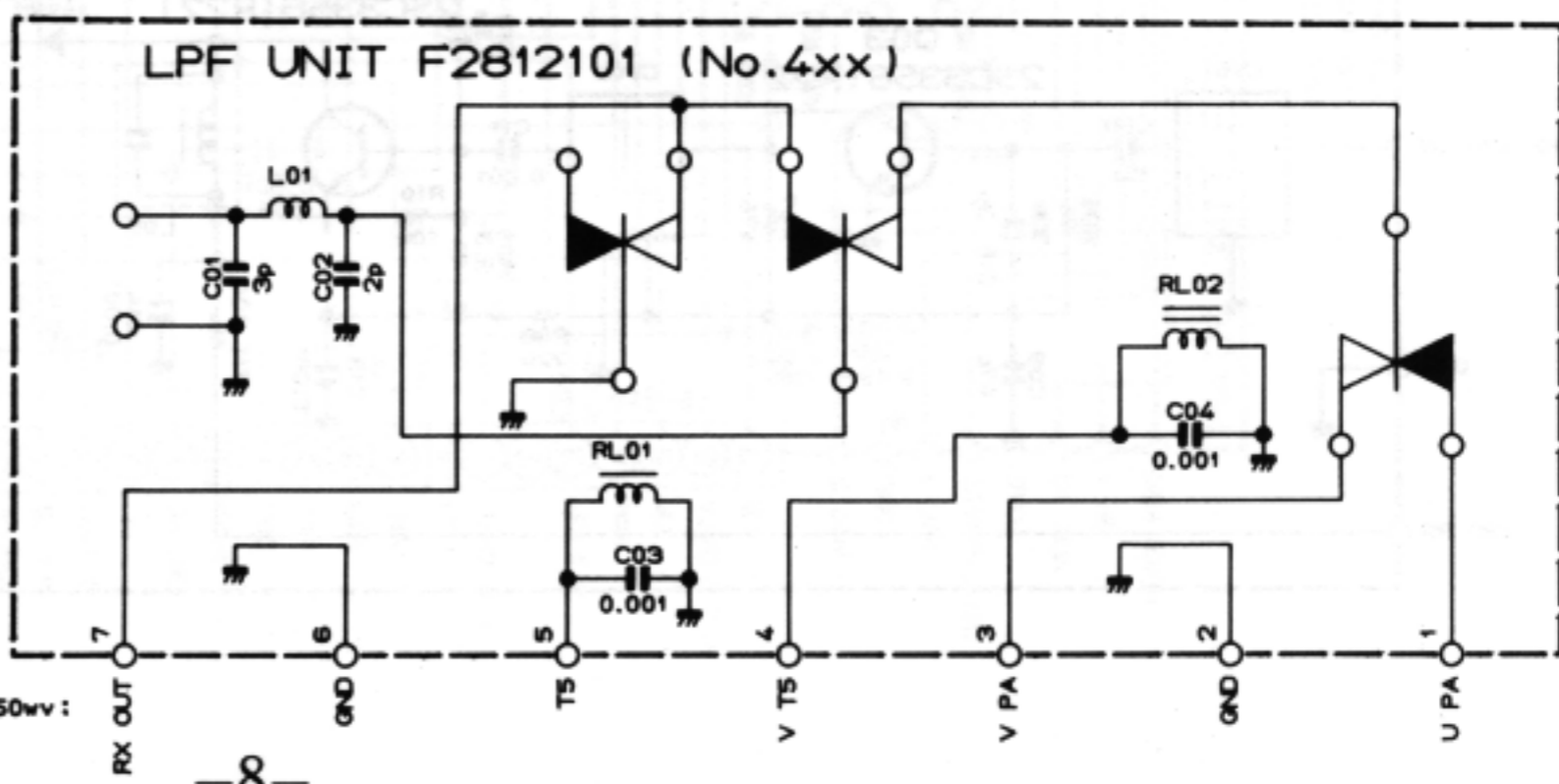
(Obverse view of "chip" side)



(Reverse view of "component" side)

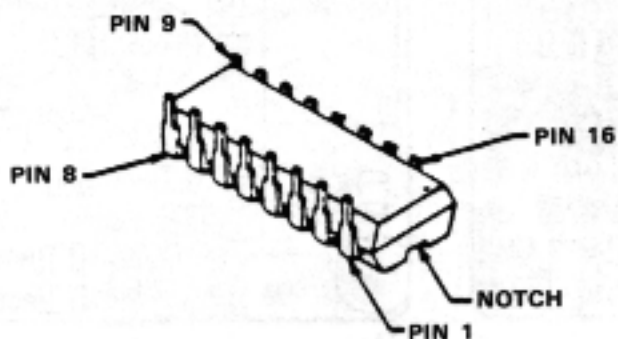


(Reverse view of "chip" side)

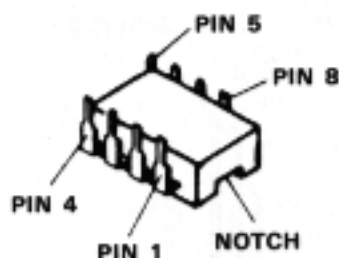


CAPACITOR VALUES ARE IN  $\mu\text{F}$ , 50V;  
INDUCTOR VALUES ARE IN H;  
UNLESS OTHERWISE NOTED.

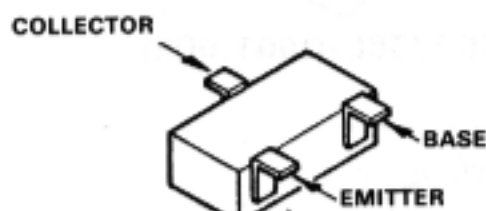
# PLL UNIT



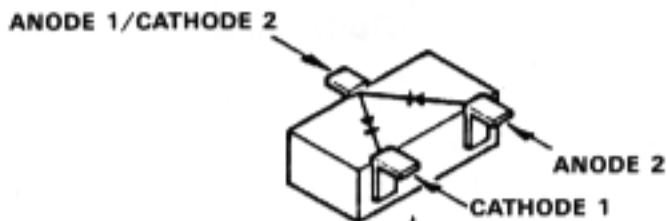
MC145158 (Q501)



MC12017 (Q502)



2SA812(M6)  
(Q503)



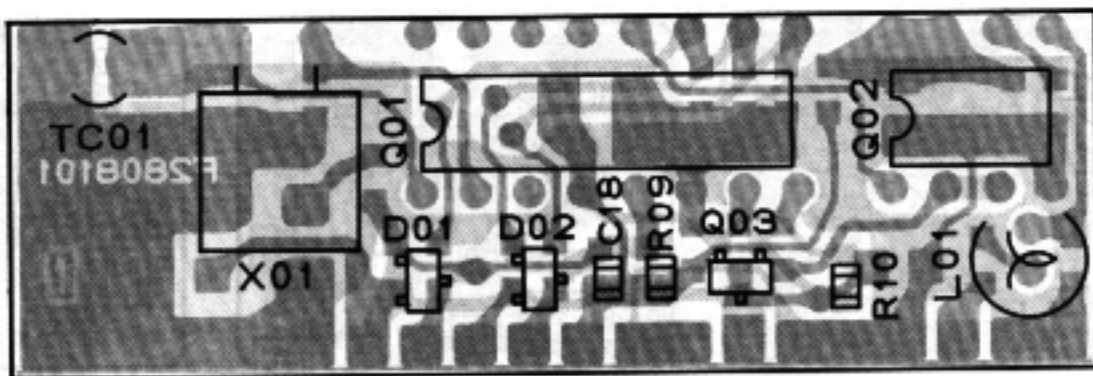
1SS123(A7)  
(D501)



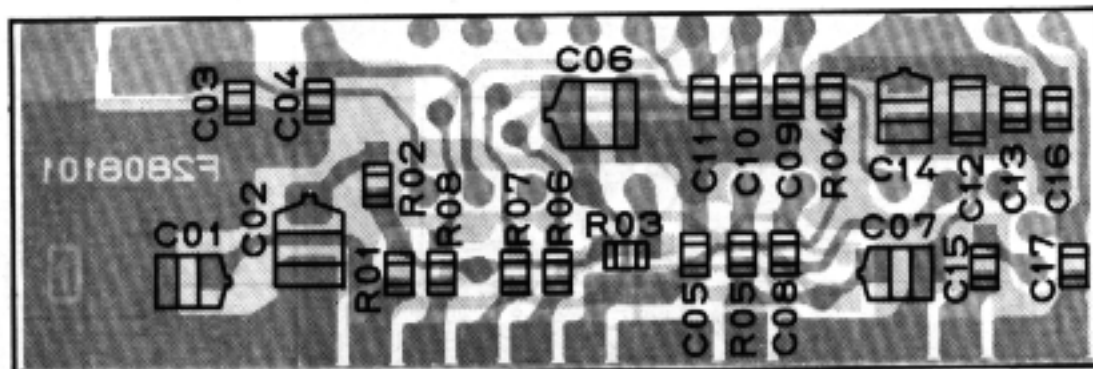
MC2836(A4)  
(D502)

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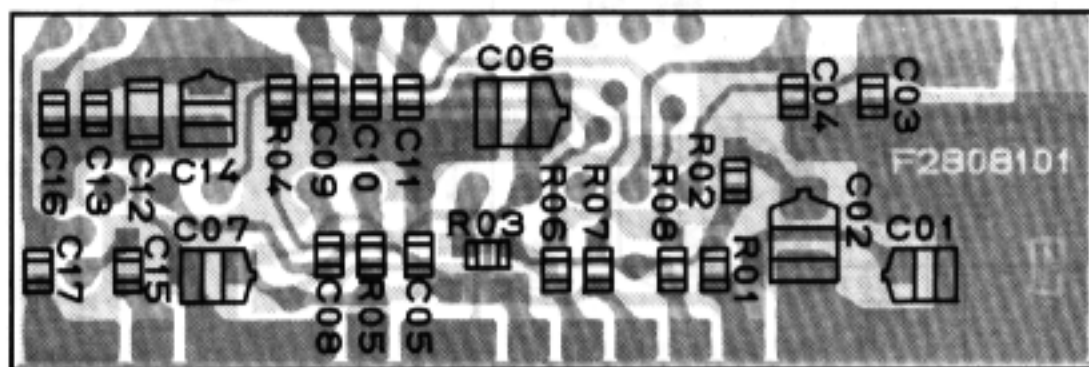
RESISTOR VALUES ARE IN Ω, 1/10W;  
CAPACITOR VALUES ARE IN μF, 50V;  
INDUCTOR VALUES ARE IN H;  
UNLESS OTHERWISE NOTED.



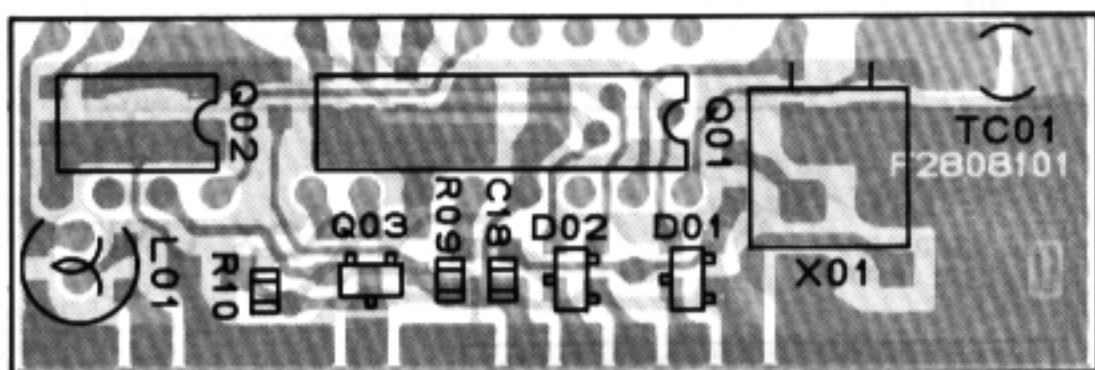
(Obverse view of "mixed-component" side)



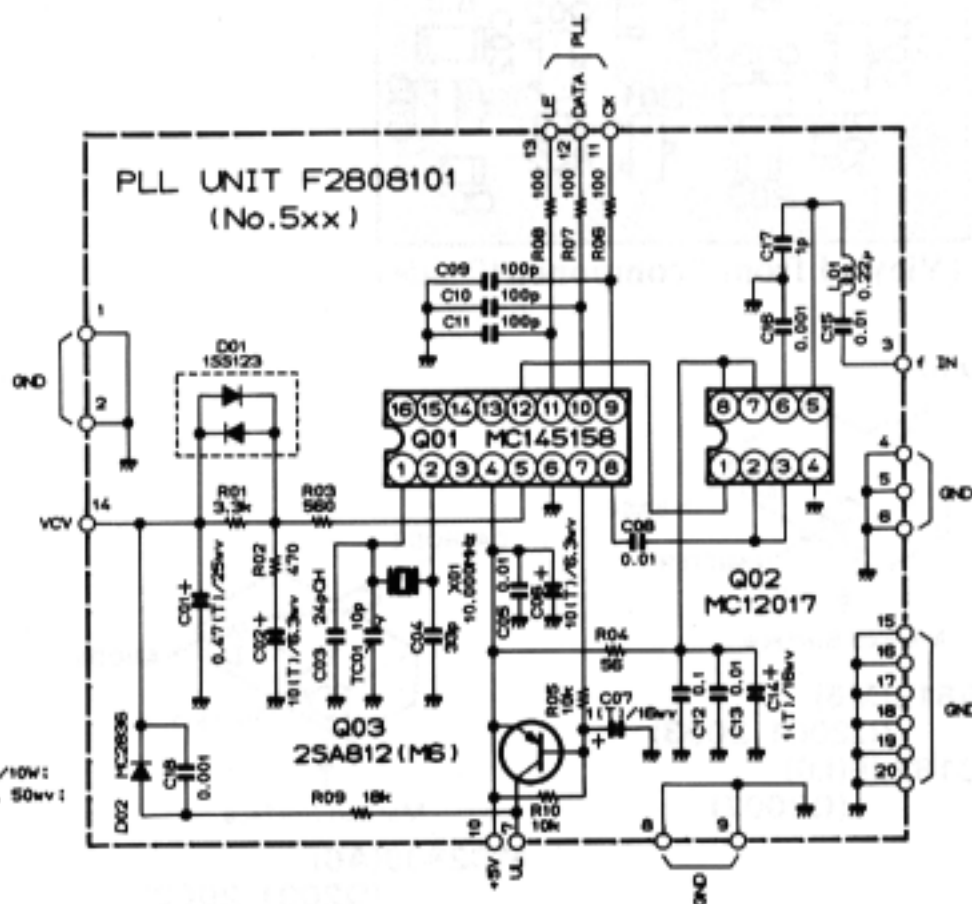
(Reverse view of "chip-only" side)



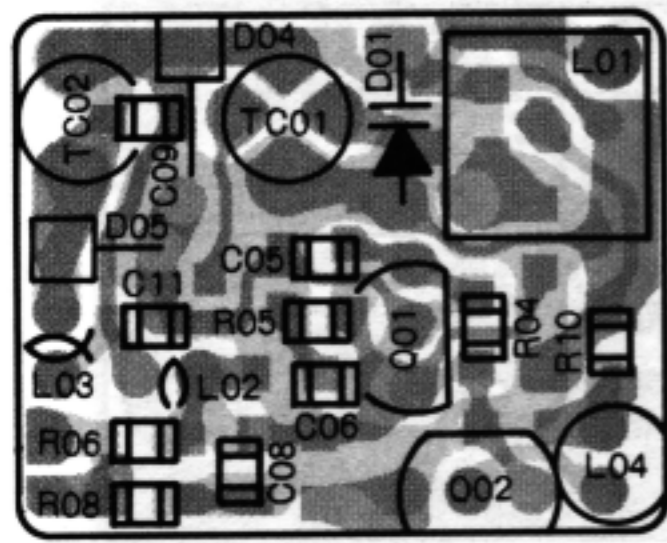
(Obverse view of "chip-only" side)



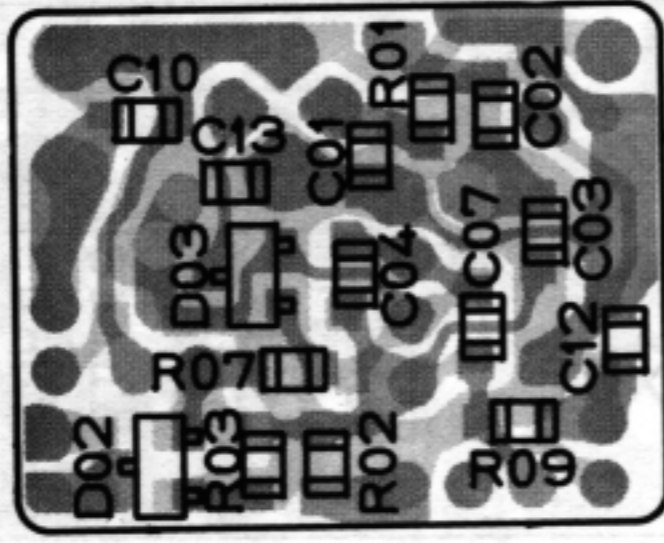
(Reverse view of "mixed-component" side)



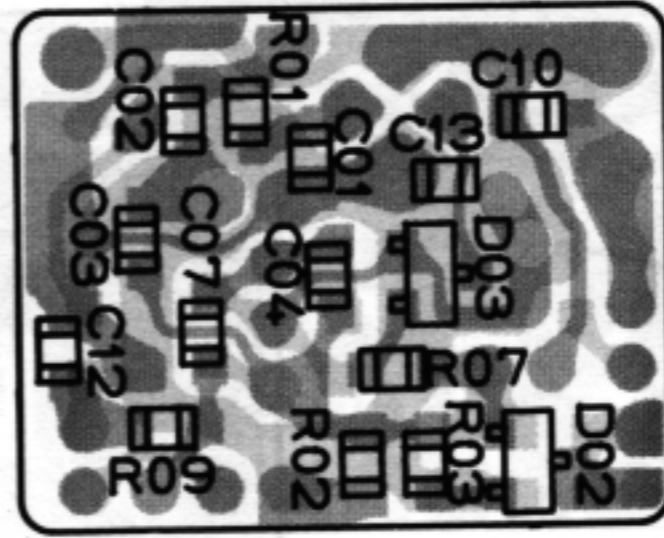
# VCO UNIT



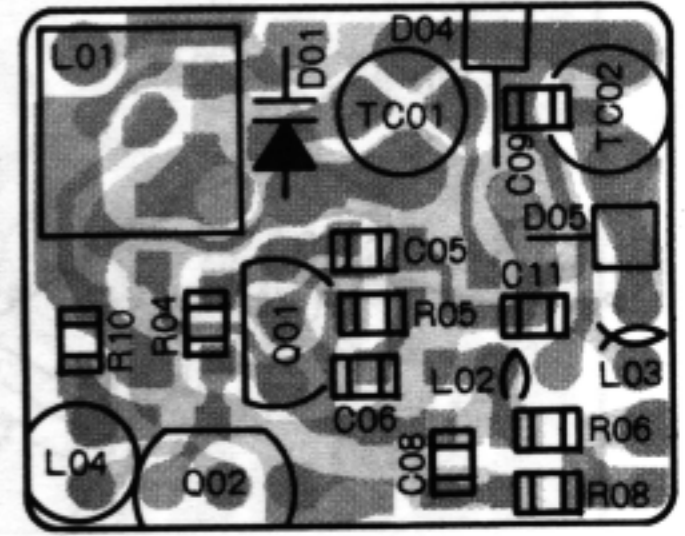
(Obverse view of "mixed-component" side)



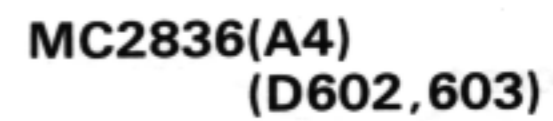
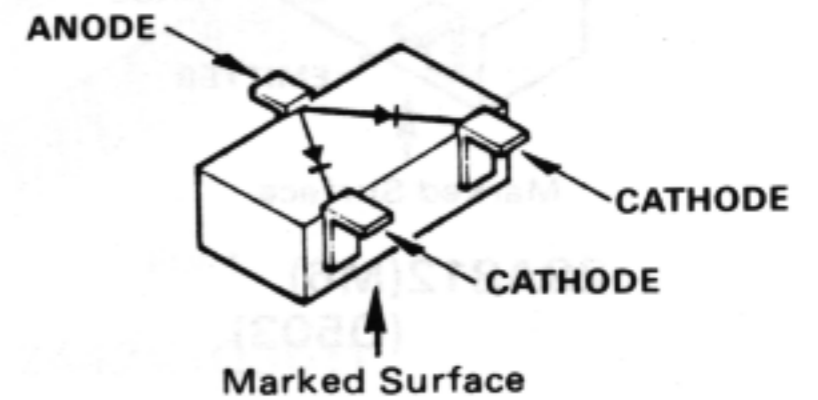
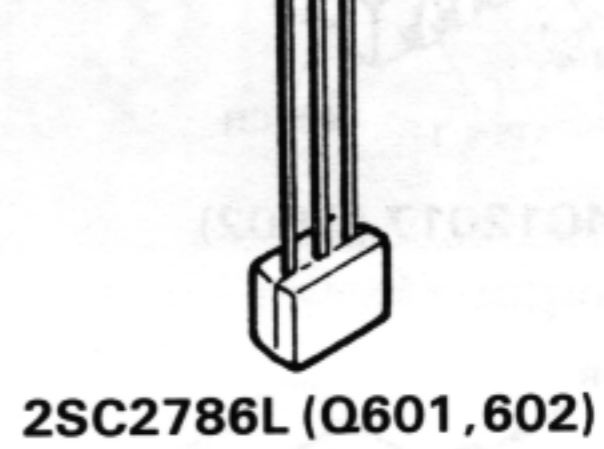
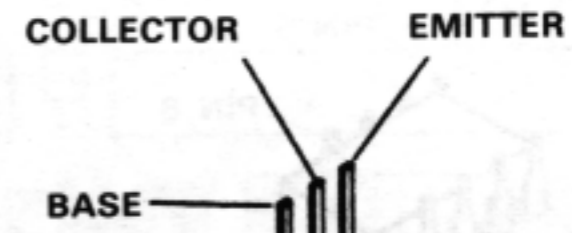
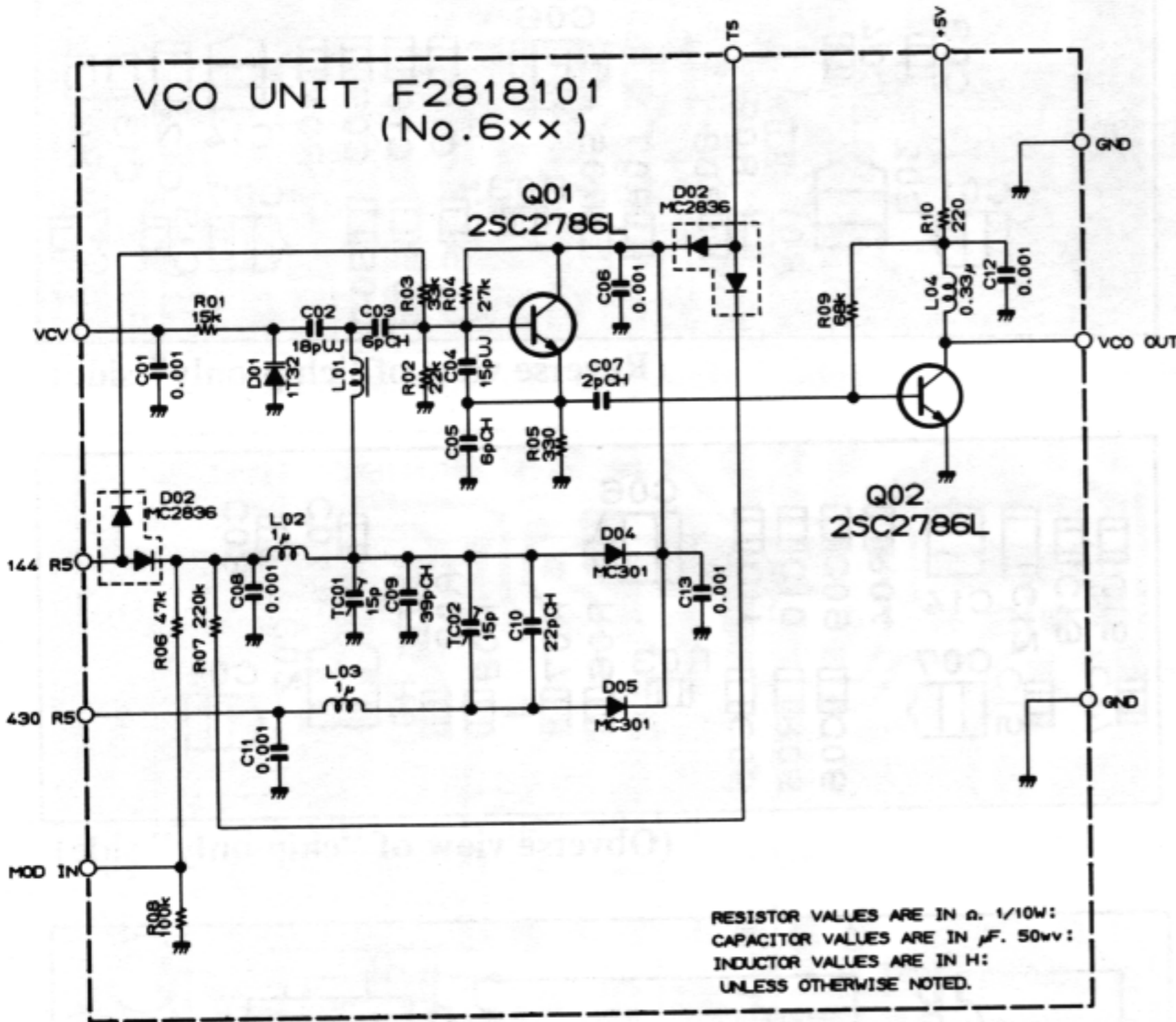
(Reverse view of "chip-only" side)



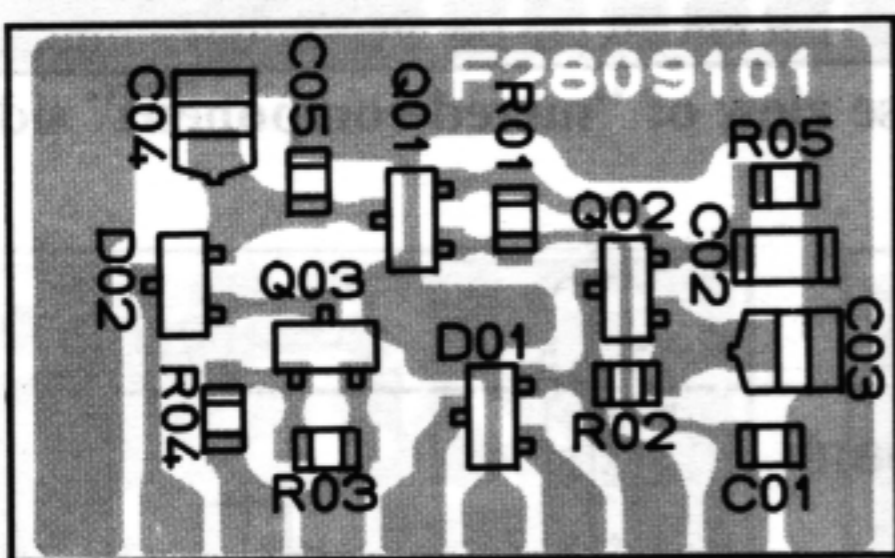
(Obverse view of "chip-only" side)



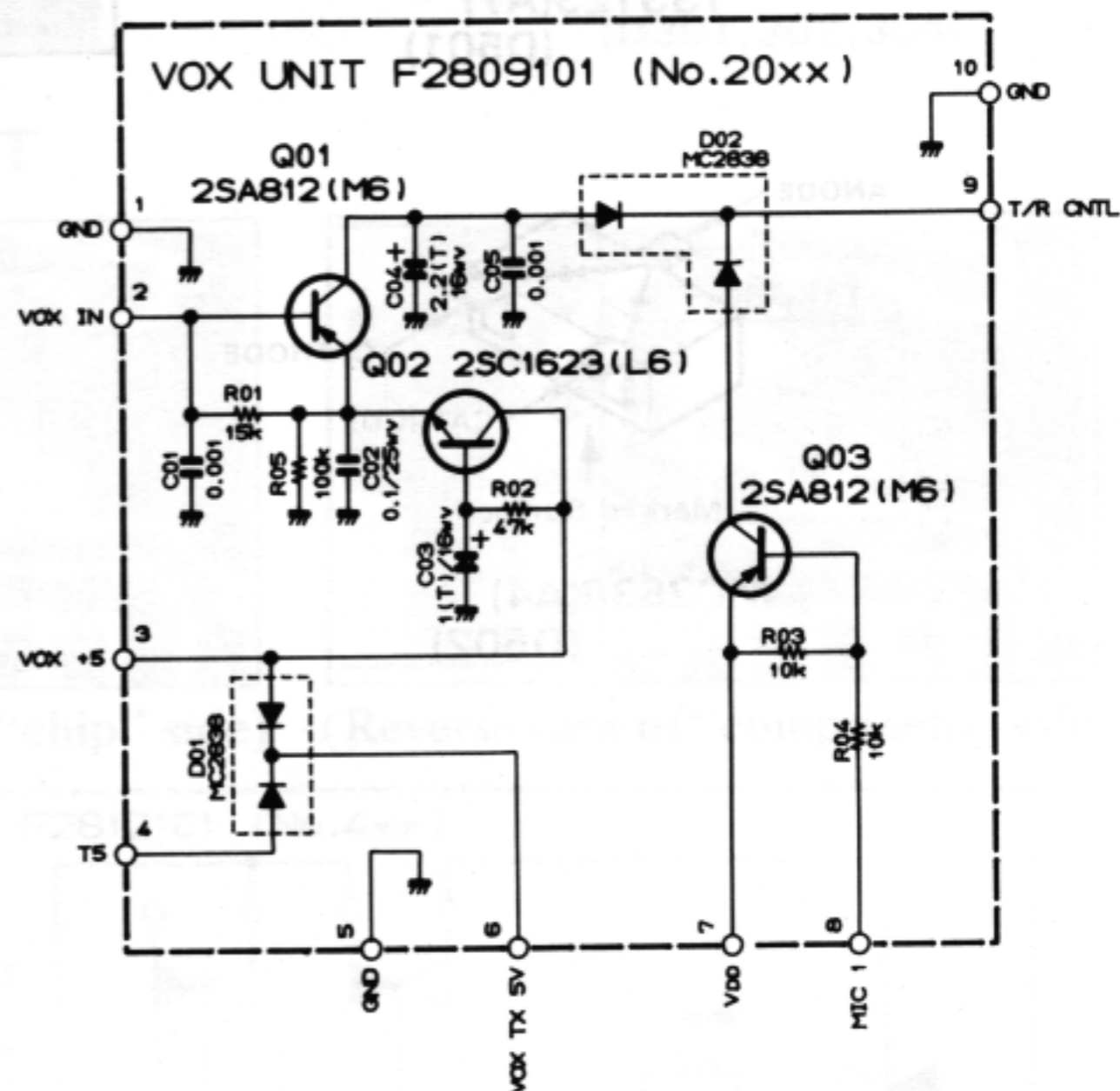
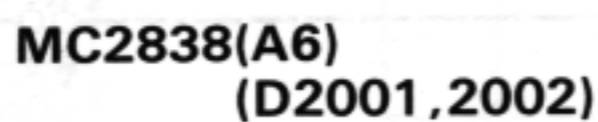
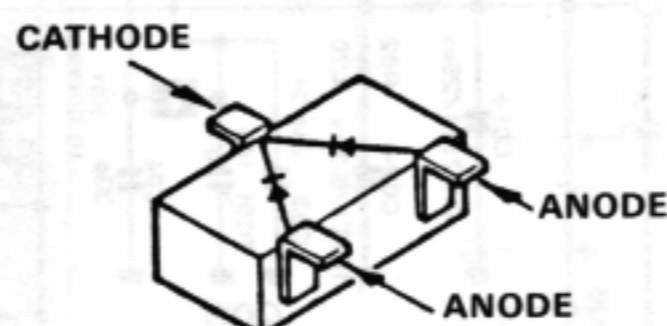
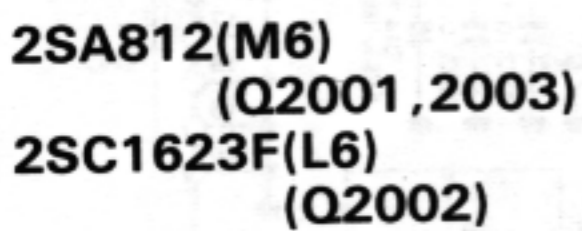
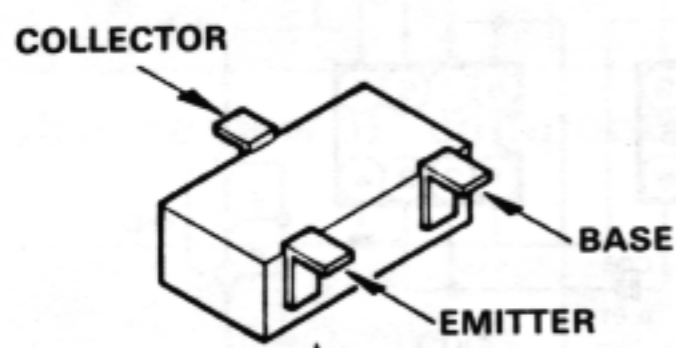
(Reverse view of "mixed-component" side)



# VOX UNIT

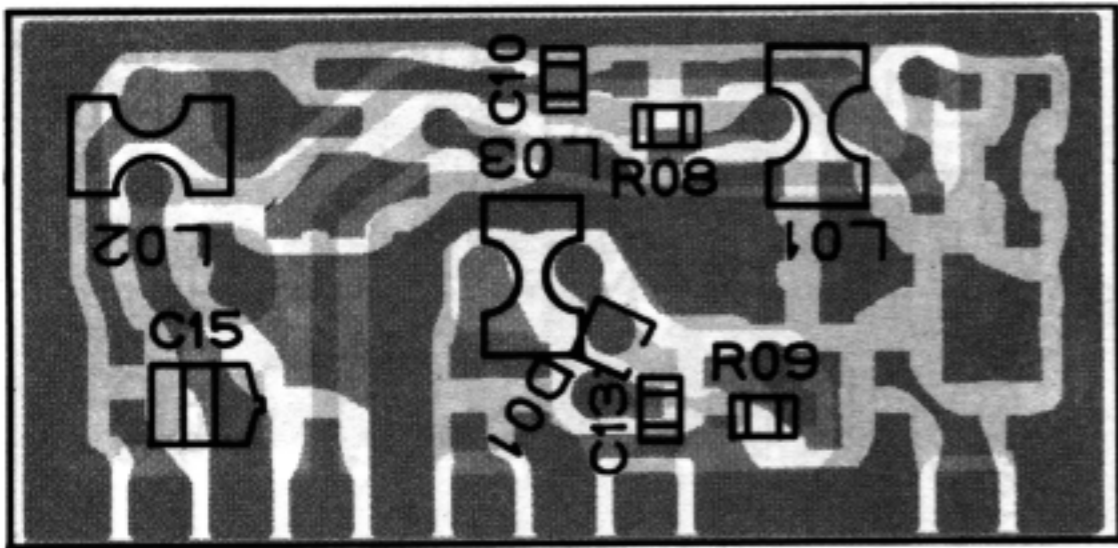


(Viewed from "component" side)

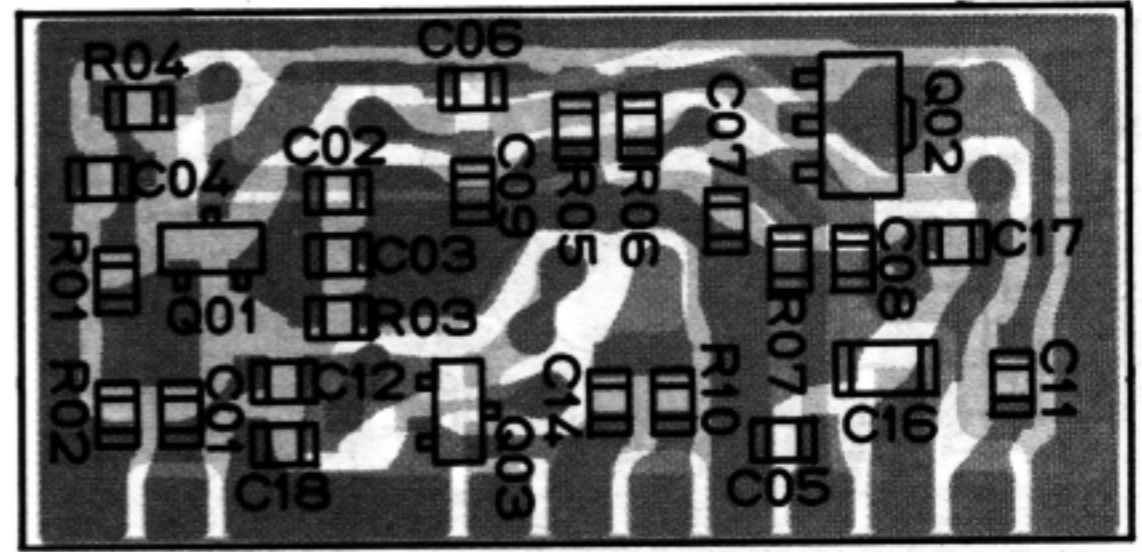


RESISTOR VALUES ARE IN  $\Omega$ , 1/10W;  
CAPACITOR VALUES ARE IN  $\mu$ F, 50v;  
UNLESS OTHERWISE NOTED.

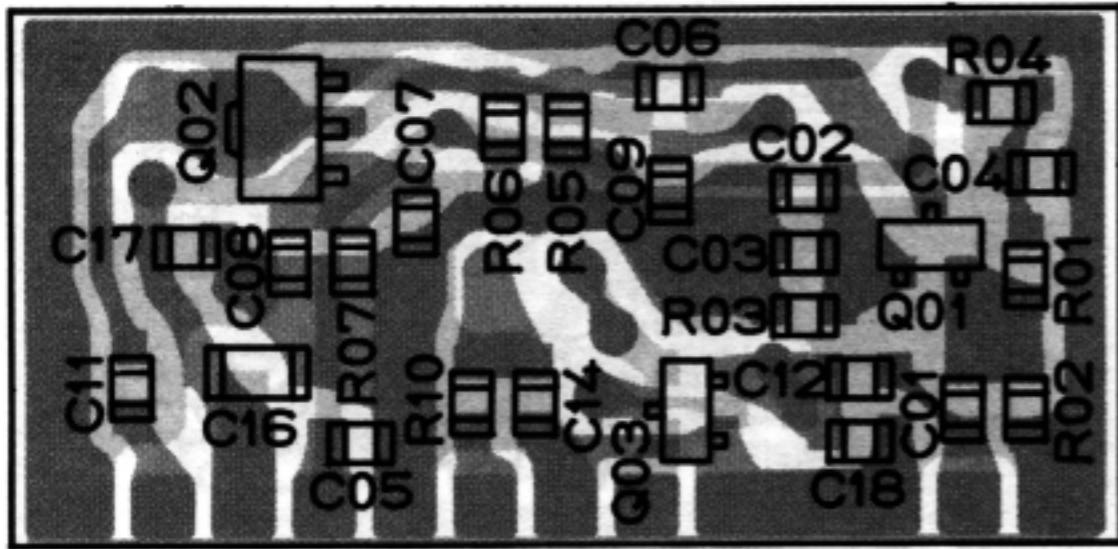
# 2m DRIVE UNIT



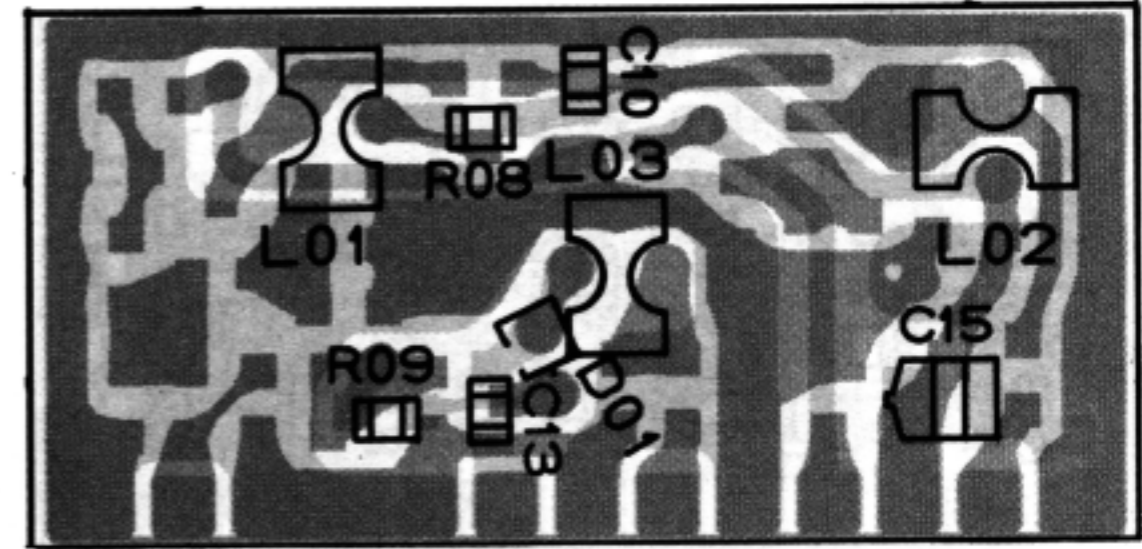
(Obverse view of "mixed-component" side)



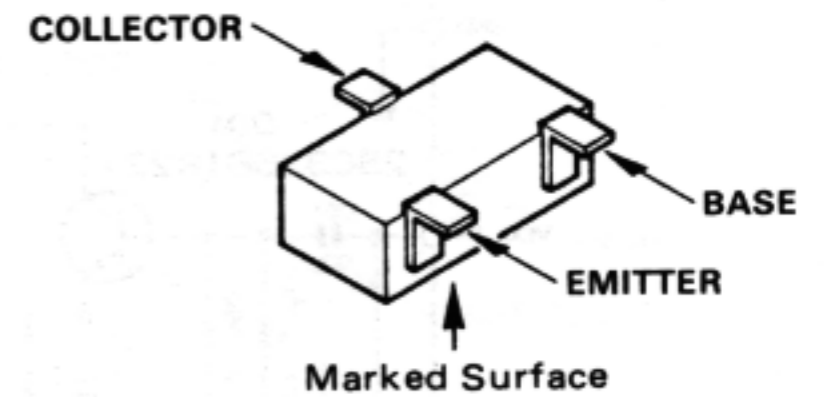
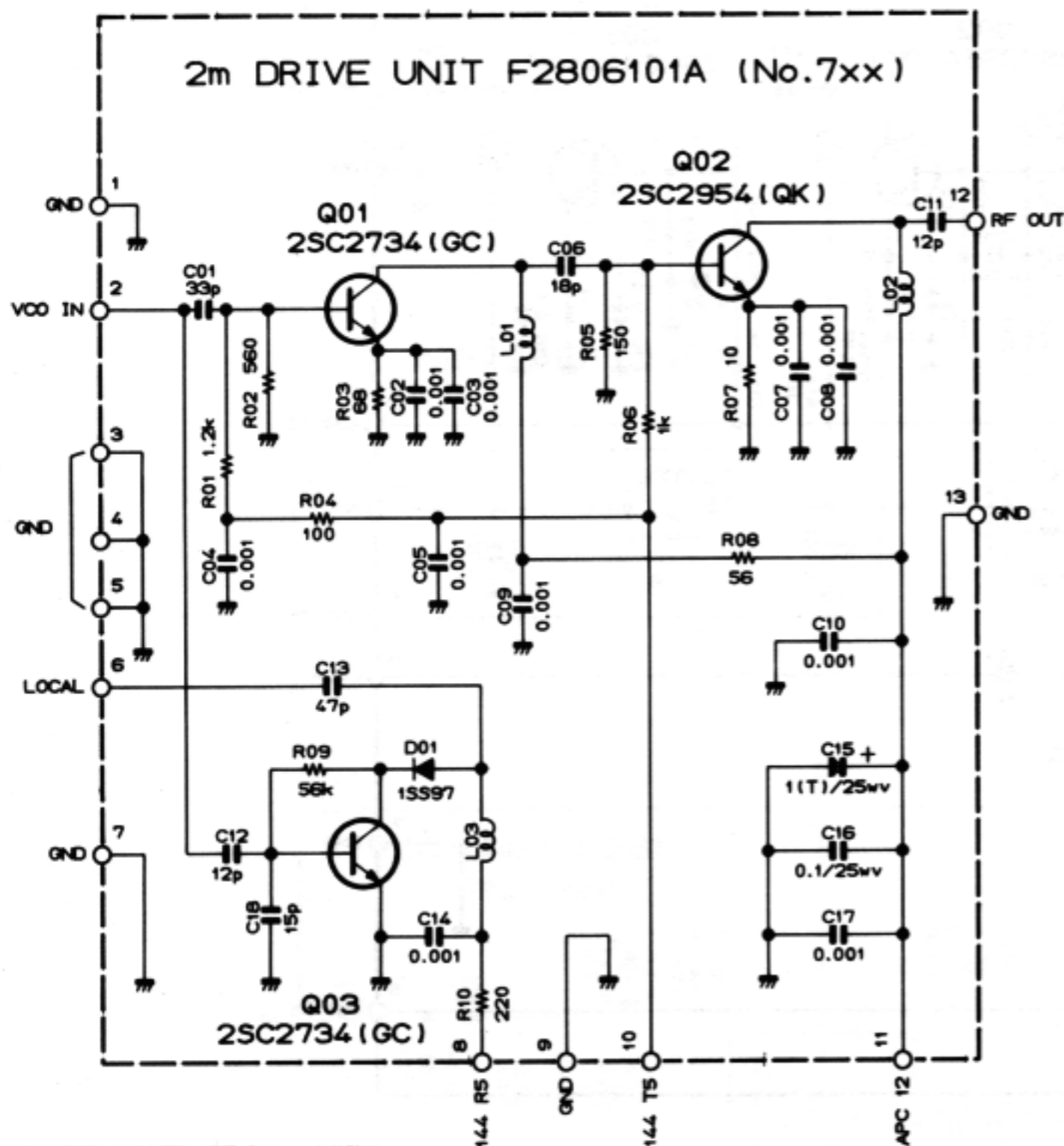
(Obverse view of "chip-only" side)



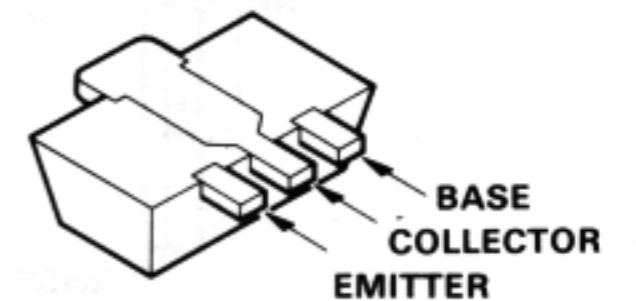
(Reverse view of "chip-only" side)



(Reverse view of "mixed-component" side)



2SC2734(GC)  
(Q701, 703)

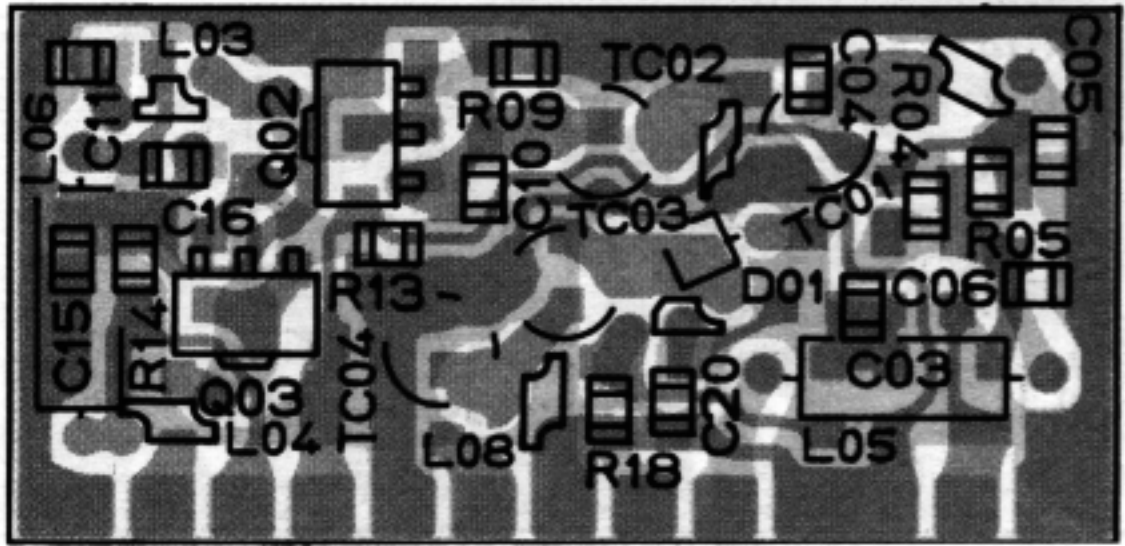


2SC2954 (Q702)

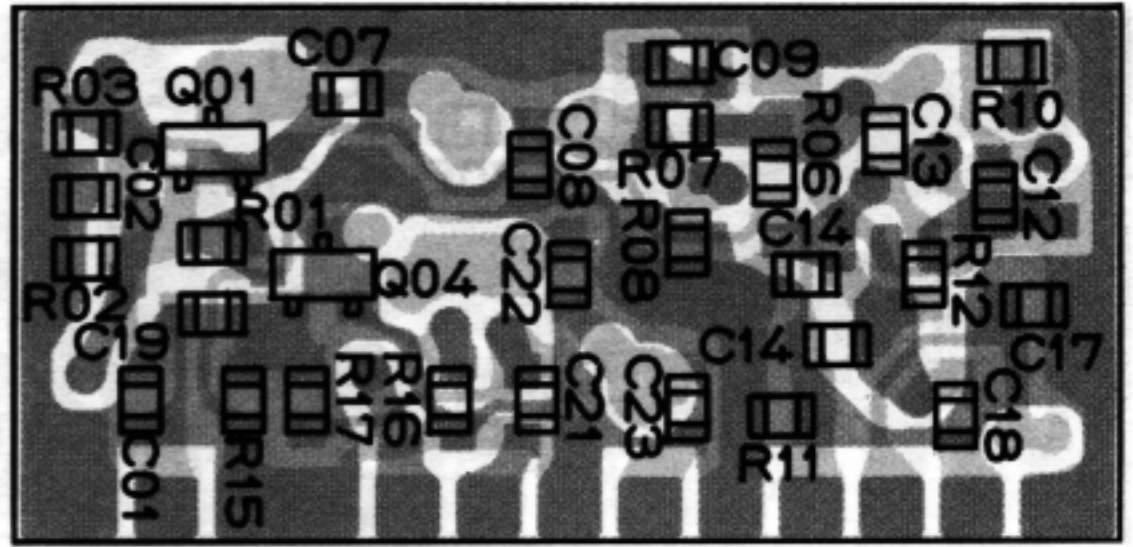
Downloaded by  RadioAmateur.EU

RESISTOR VALUES ARE IN  $\Omega$ , 1/10W:  
CAPACITOR VALUES ARE IN  $\mu$ F, 50V:  
UNLESS OTHERWISE NOTED.

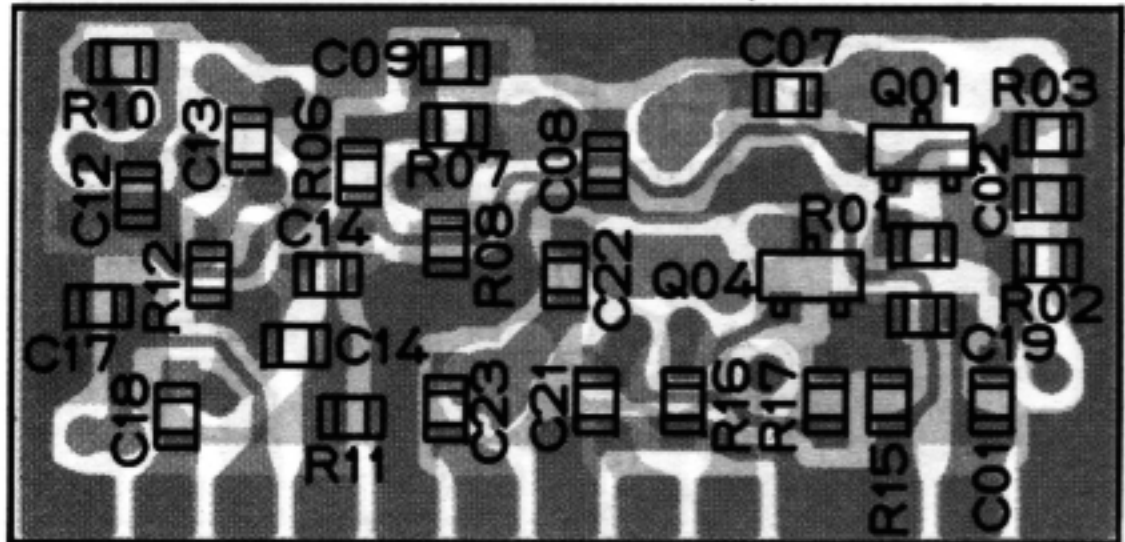
# 70cm DRIVE UNIT



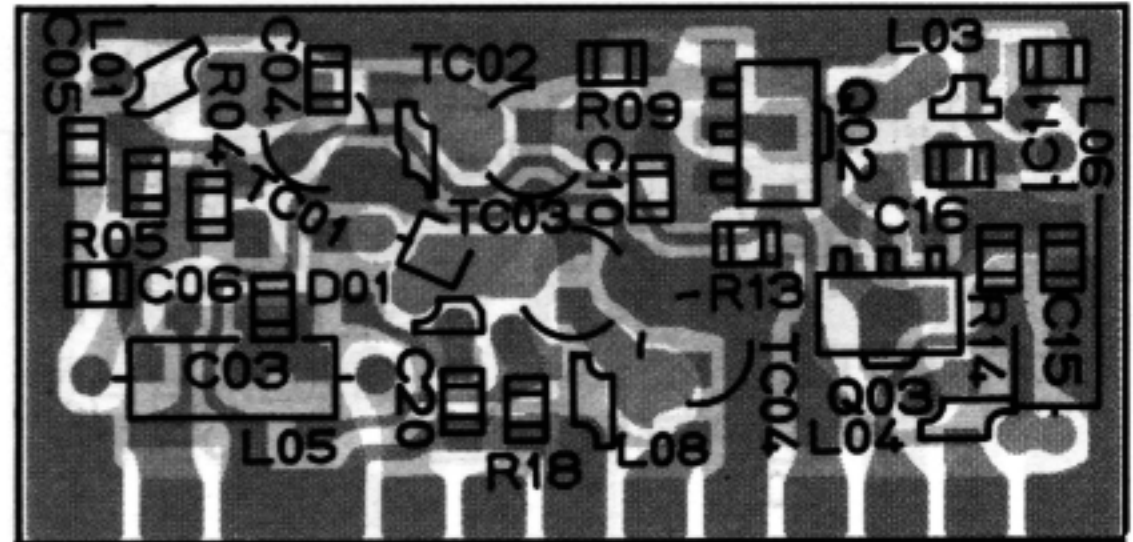
(Obverse view of "mixed-component" side)



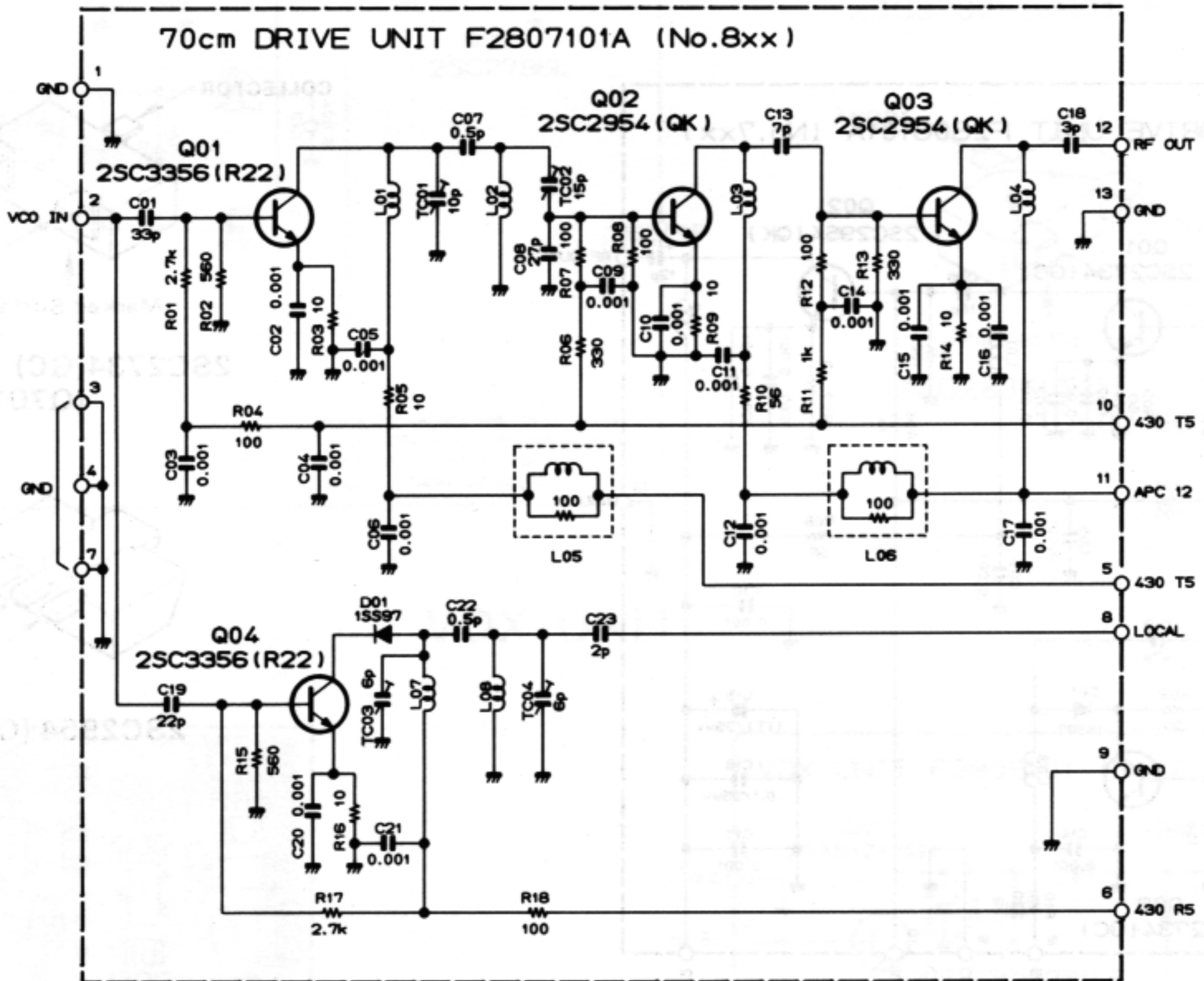
(Obverse view of "chip-only" side)



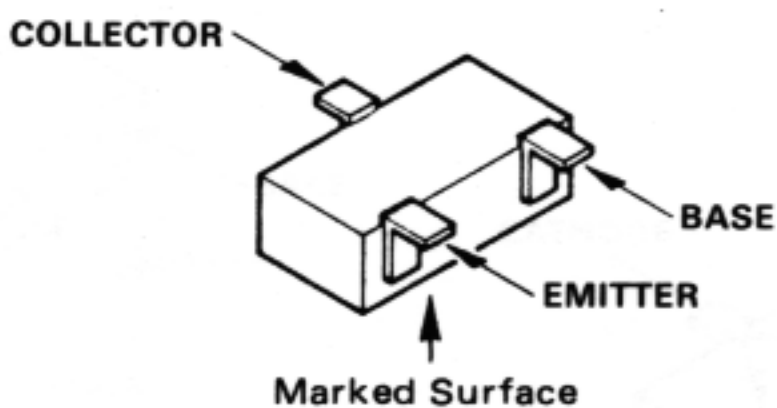
(Reverse view of "chip-only" side)



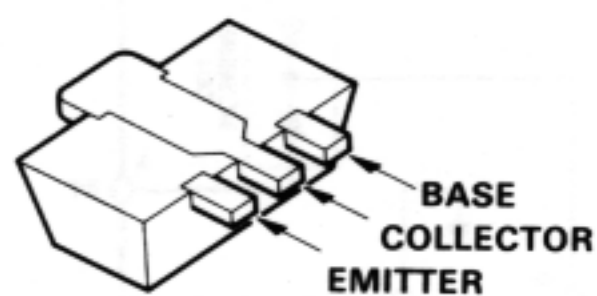
(Reverse view of "mixed-component" side)



RESISTOR VALUES ARE IN  $\Omega$ , 1/10W:  
CAPACITOR VALUES ARE IN  $\mu$ F, 50Vv:  
UNLESS OTHERWISE NOTED.

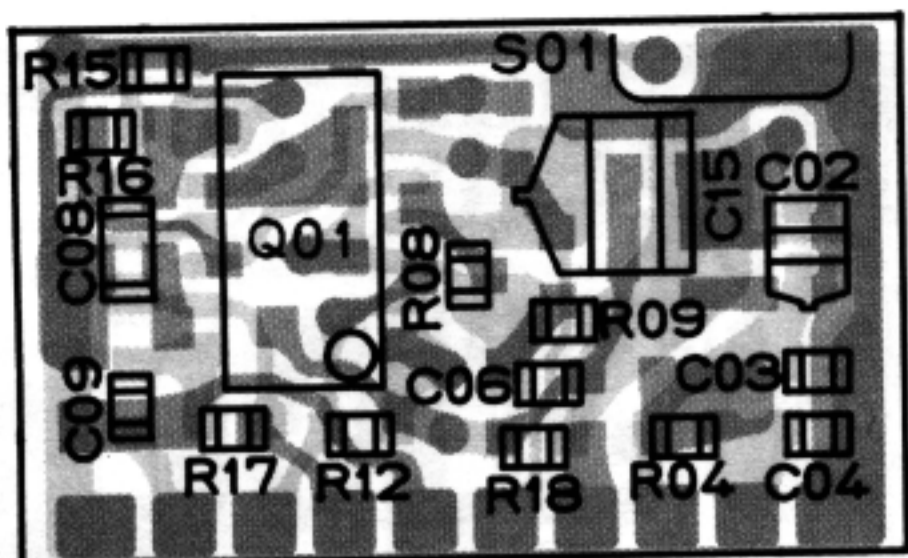


2SC3356(R22)  
(Q801, 804)

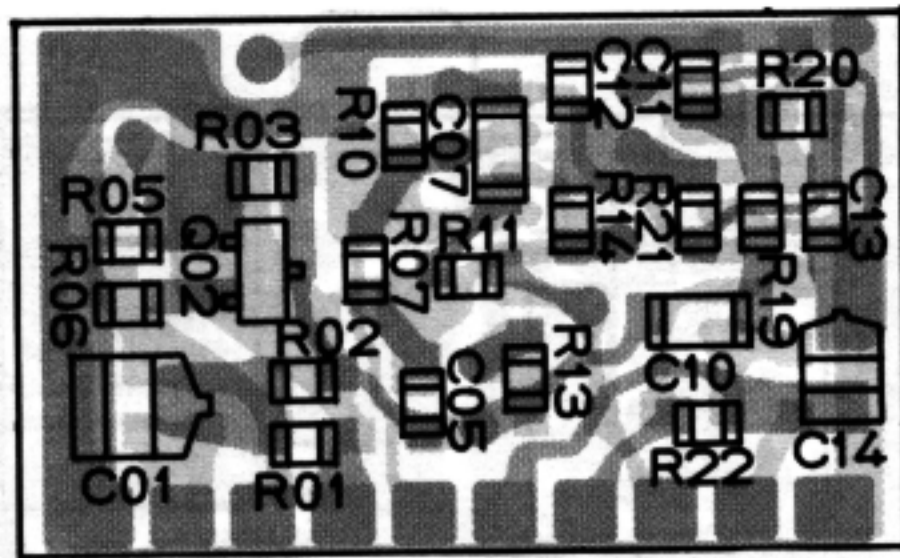


2SC2954 (Q802, 803)

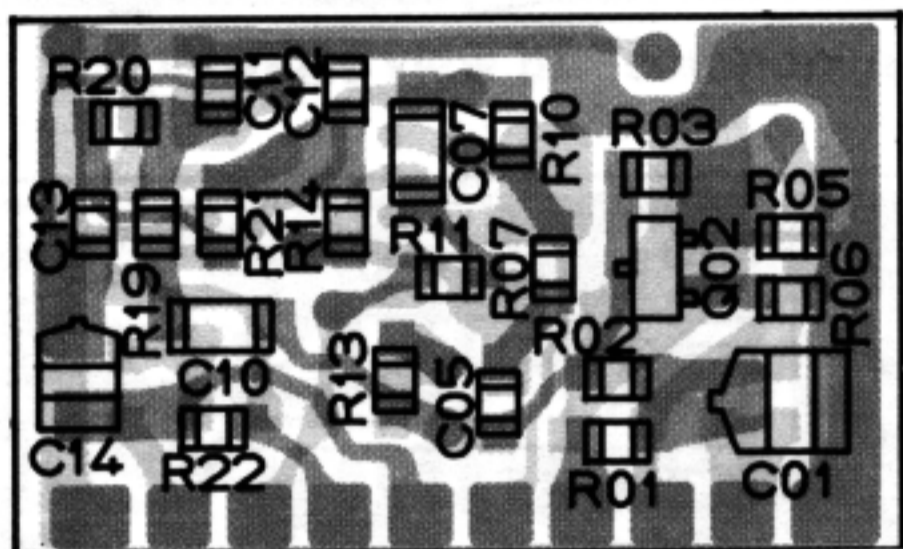
# MIC UNIT



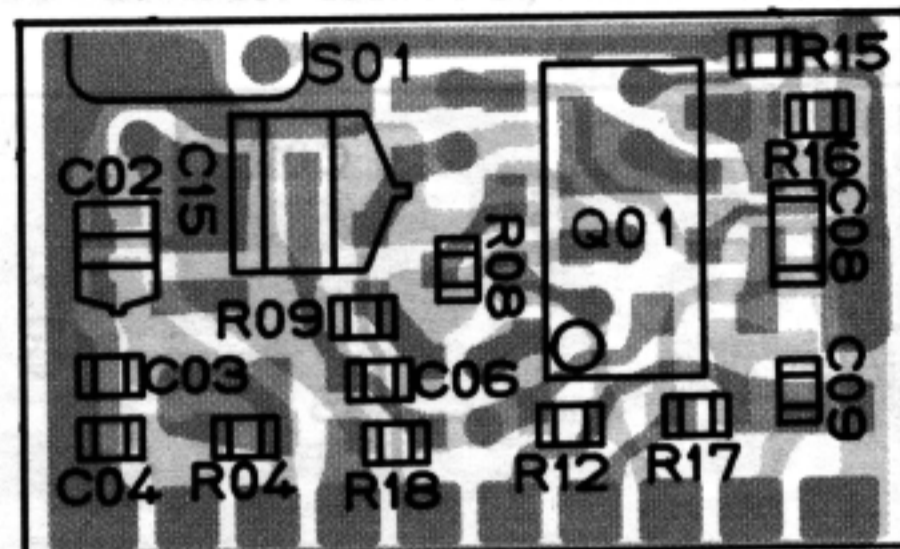
(Obverse view of "mixed-component" side)



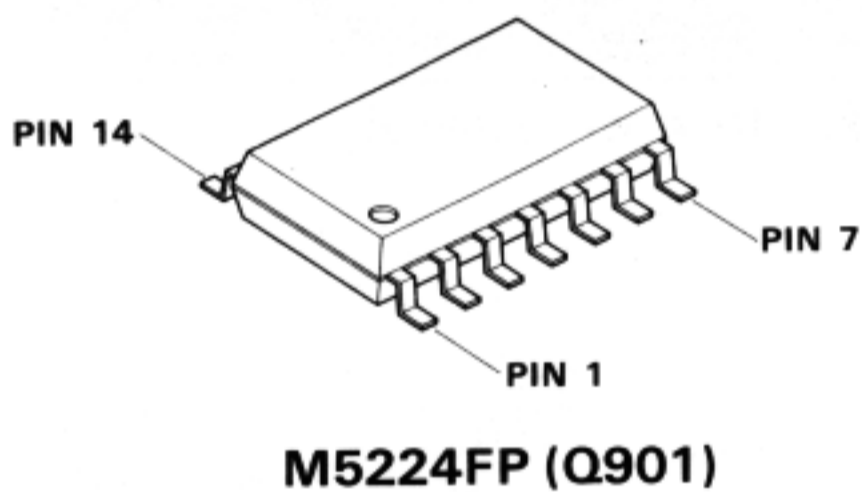
(Obverse view of "chip-only" side)



(Reverse view of "chip-only" side)

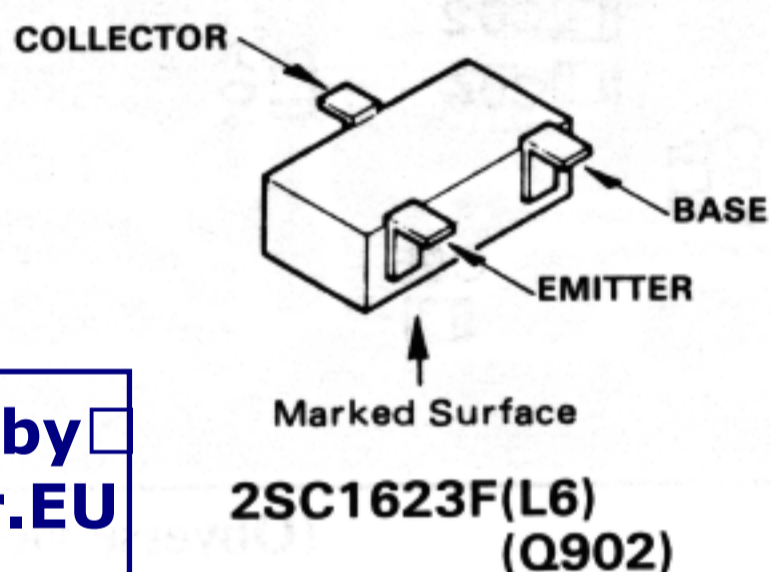


(Reverse view of "mixed-component" side)

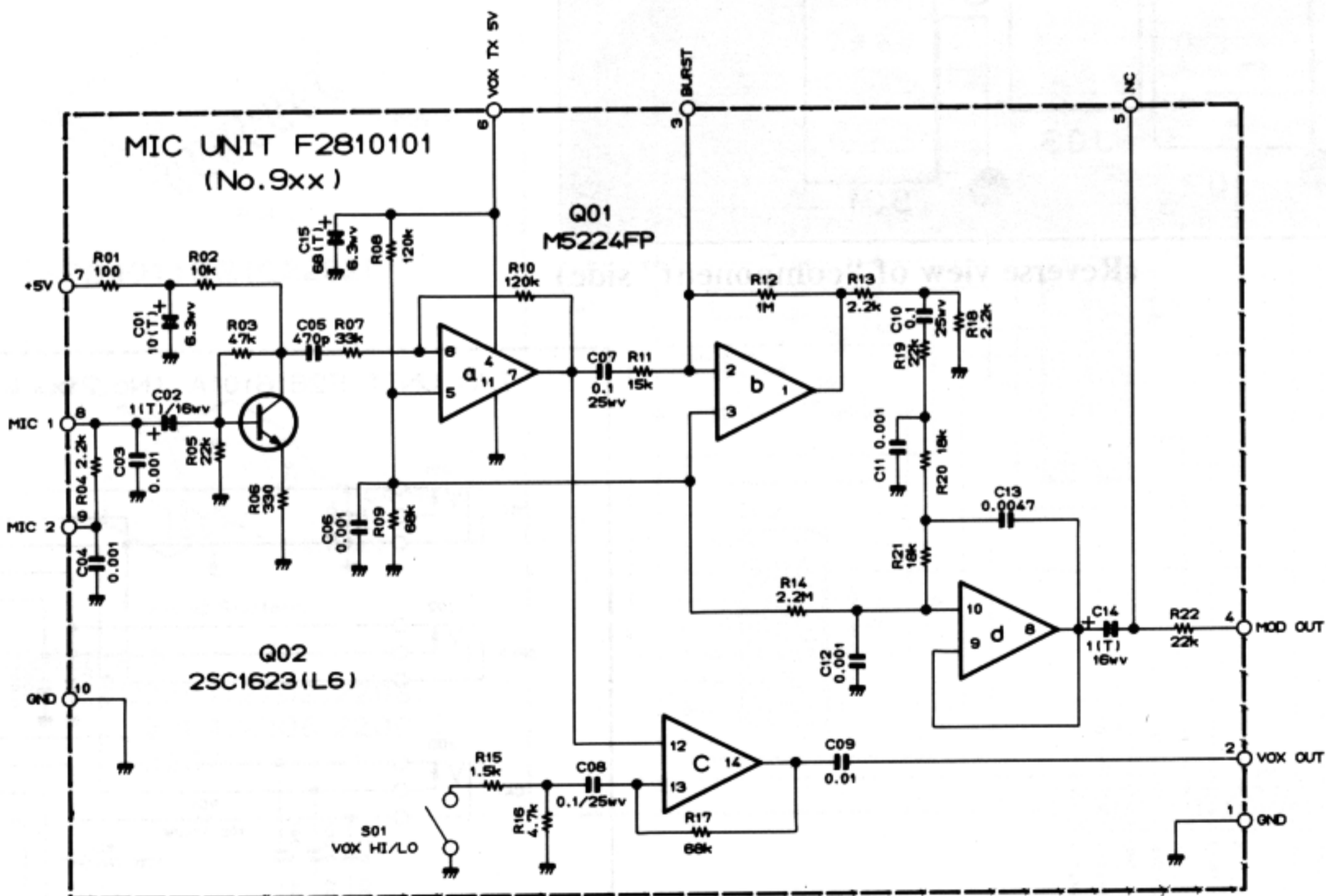


M5224FP (Q901)

Downloaded by RadioAmateur.EU

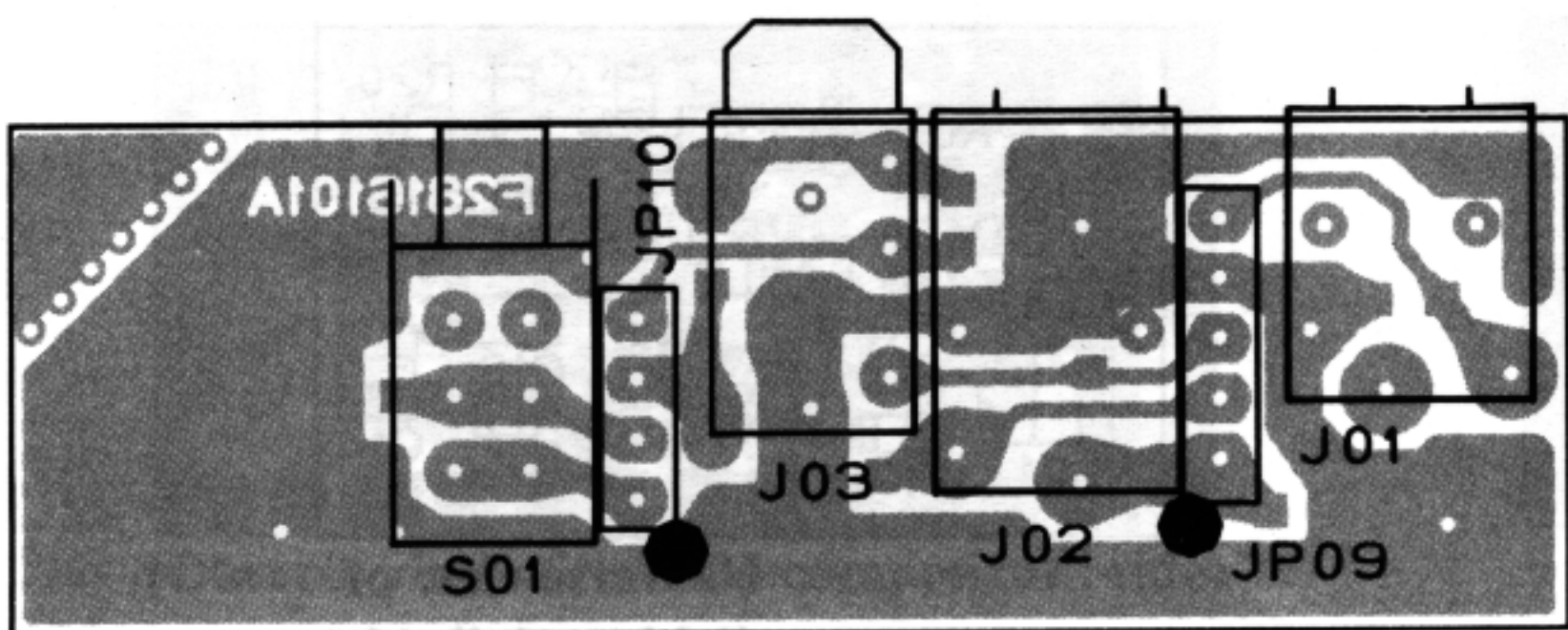


2SC1623F(L6) (Q902)

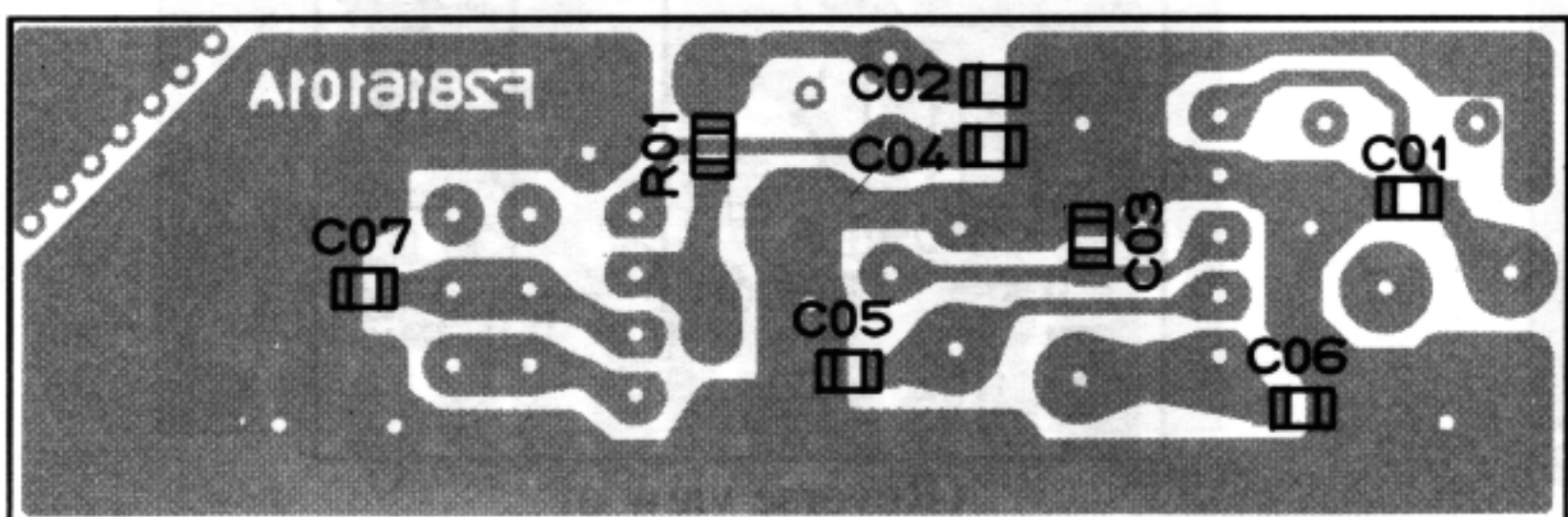


RESISTOR VALUES ARE IN  $\Omega$ , 1/10W;  
CAPACITOR VALUES ARE IN  $\mu$ F, 50V;  
UNLESS OTHERWISE NOTED.

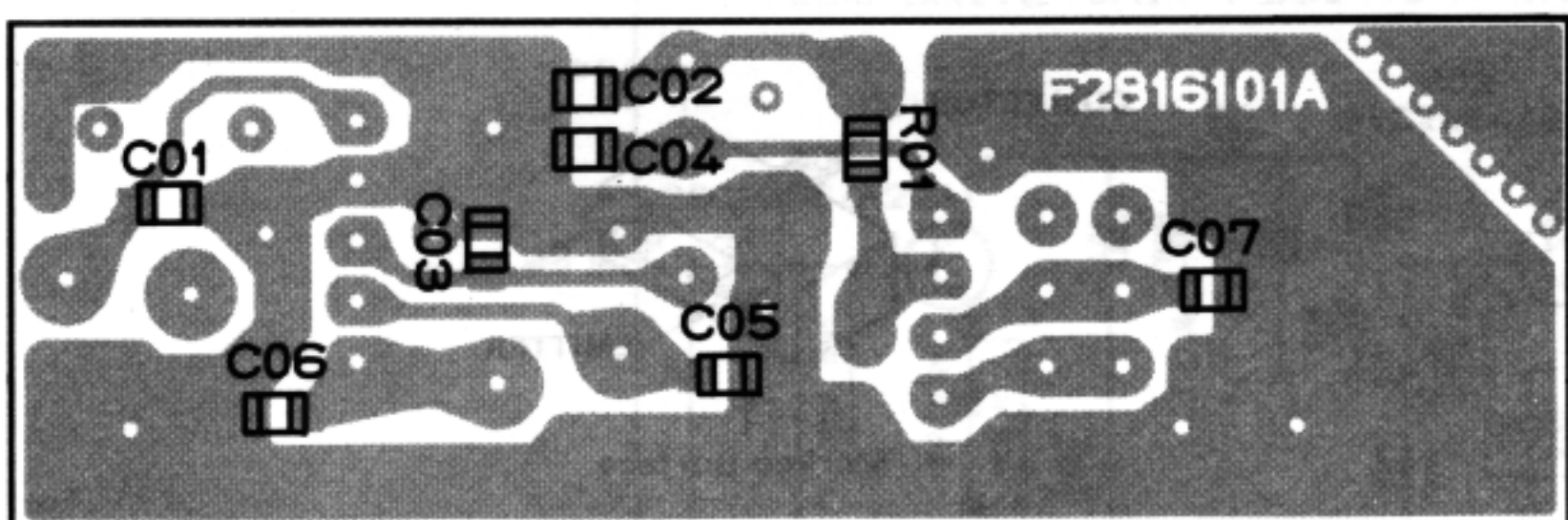
# INTERFACE UNIT



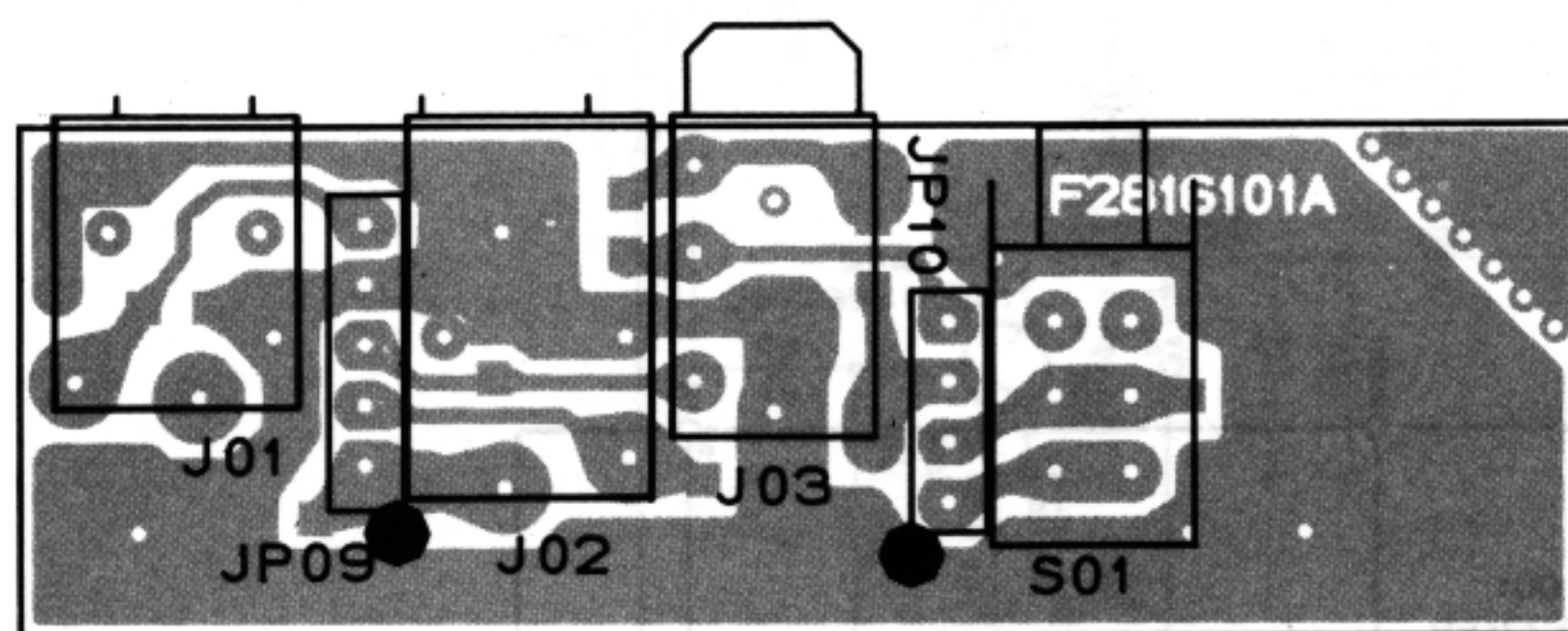
(Obverse view of "component" side)



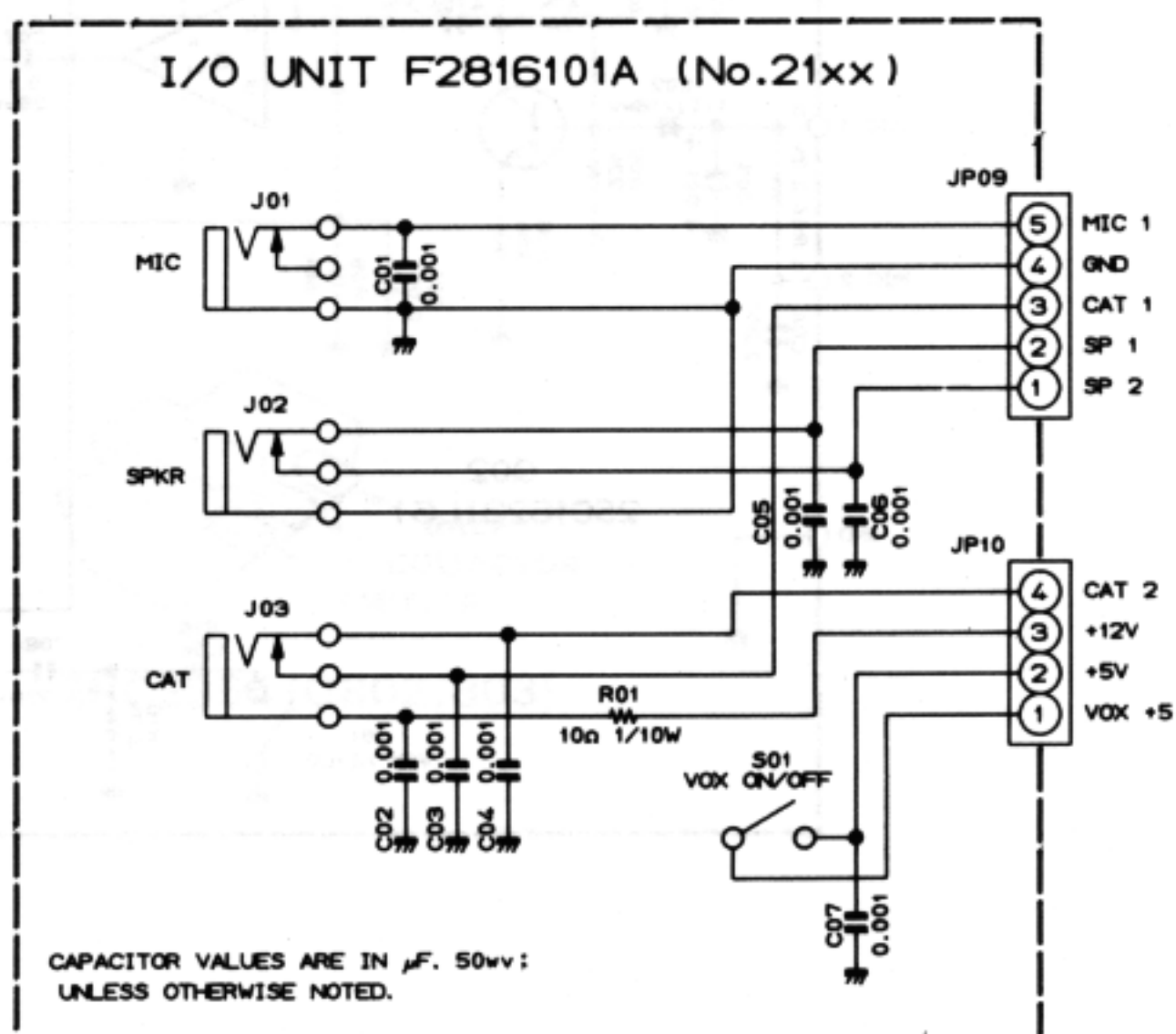
(Reverse view of "chip" side)



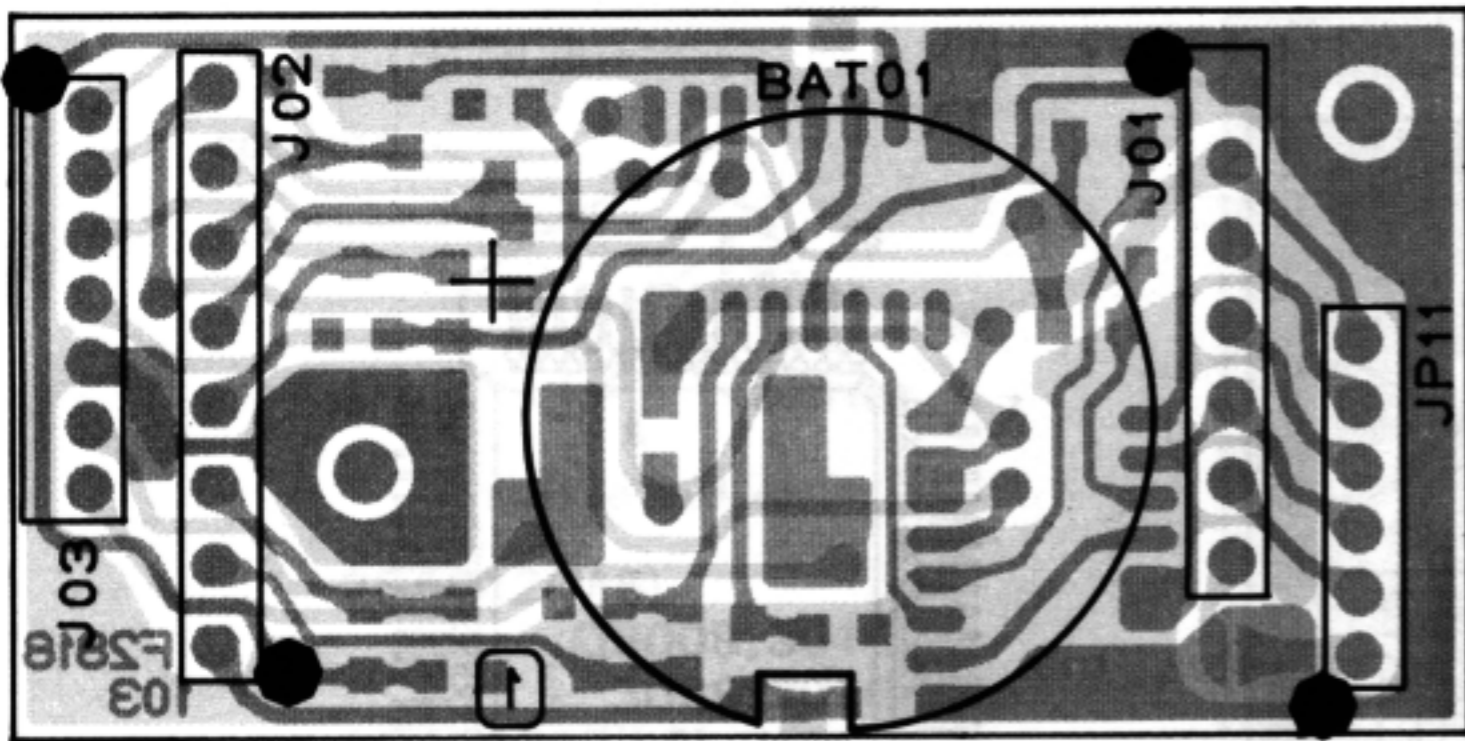
(Obverse view of "chip" side)



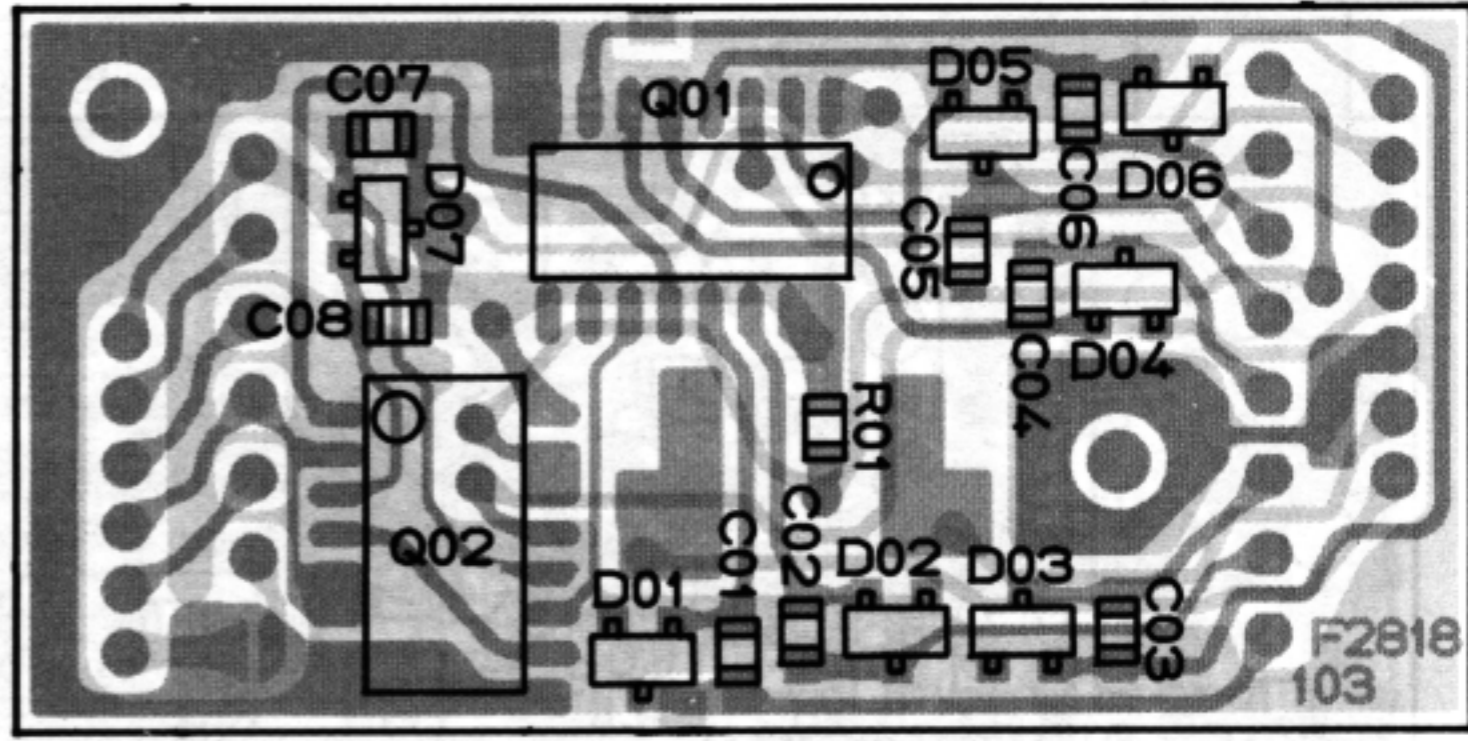
(Reverse view of "component" side)



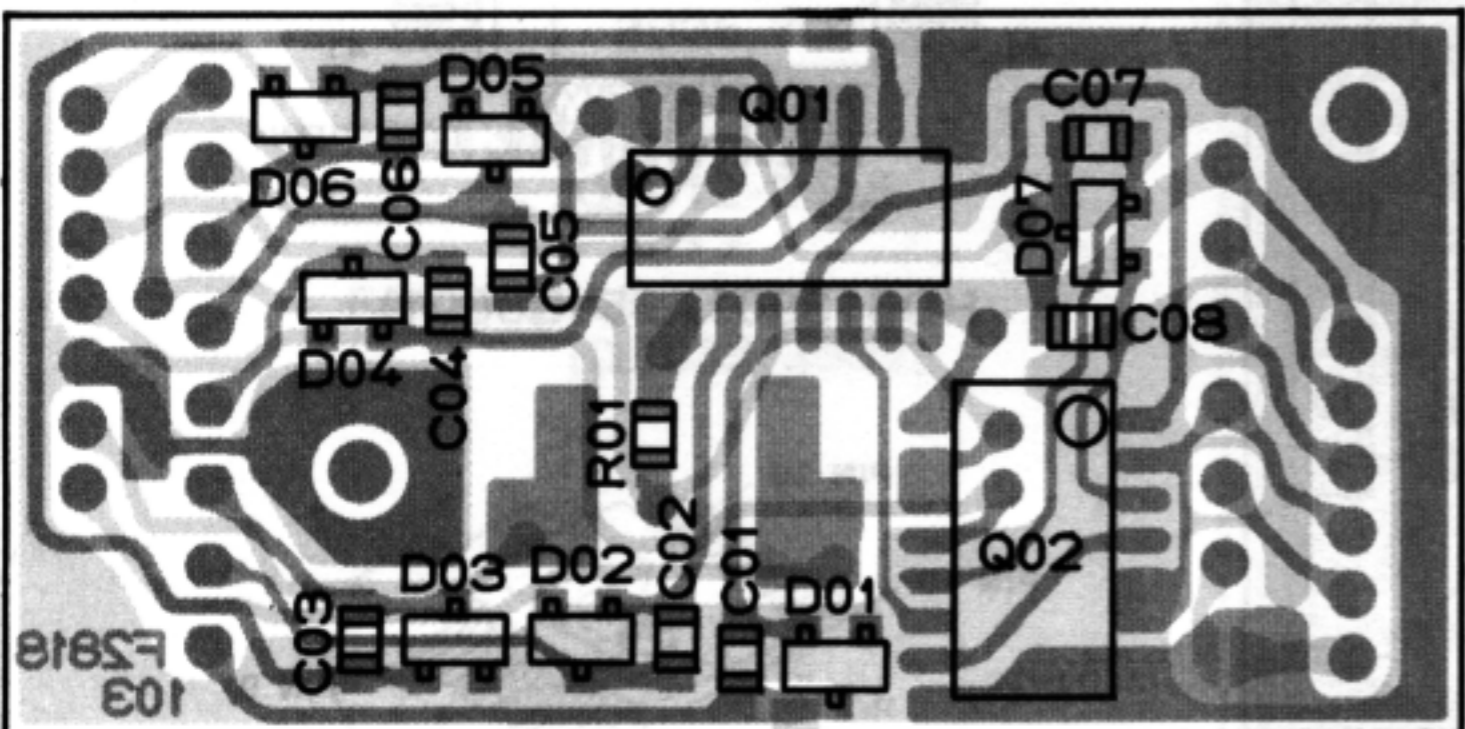
# CONNECTOR UNIT



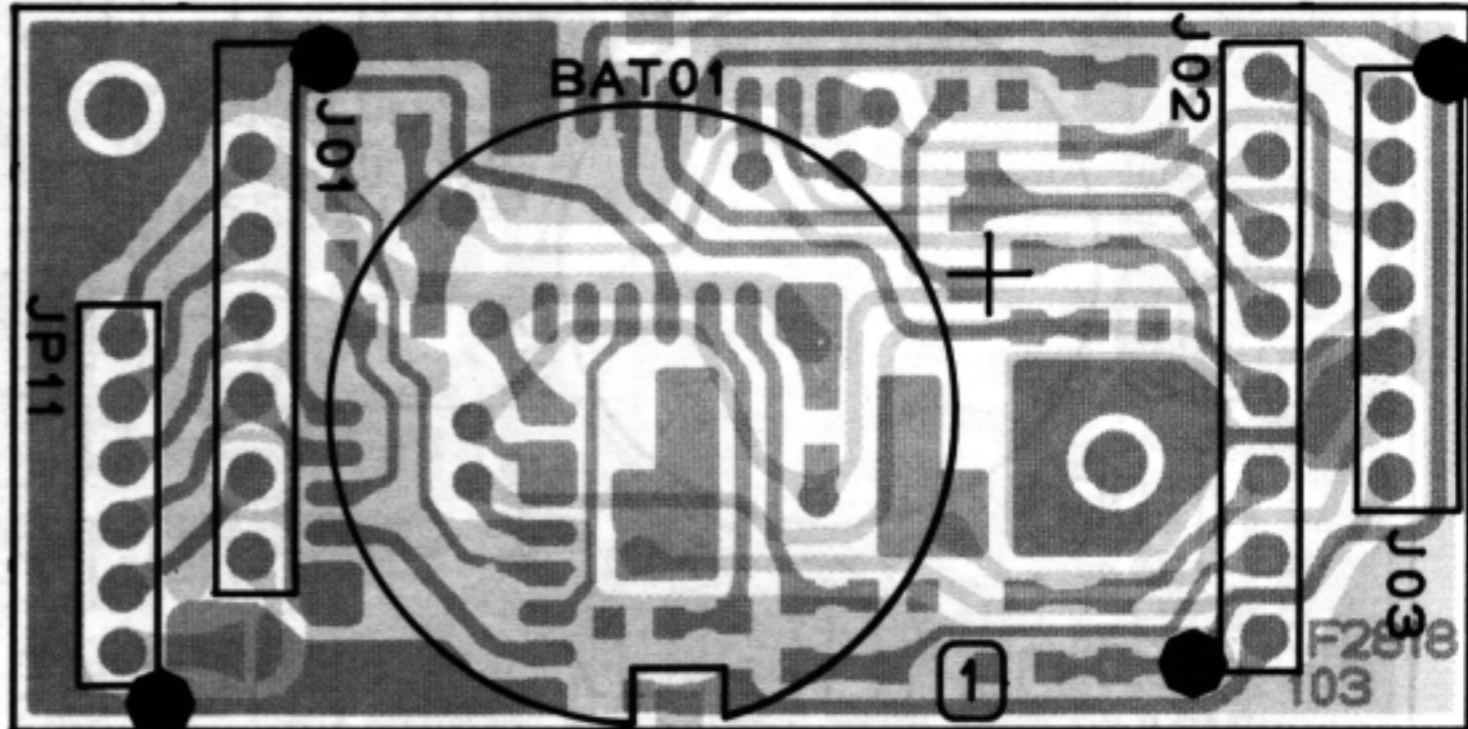
(Obverse view of "component" side)



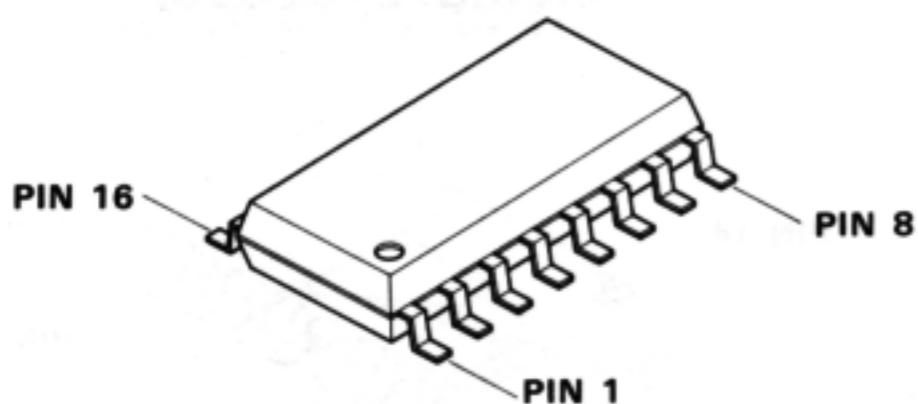
(Obverse view of "chip" side)



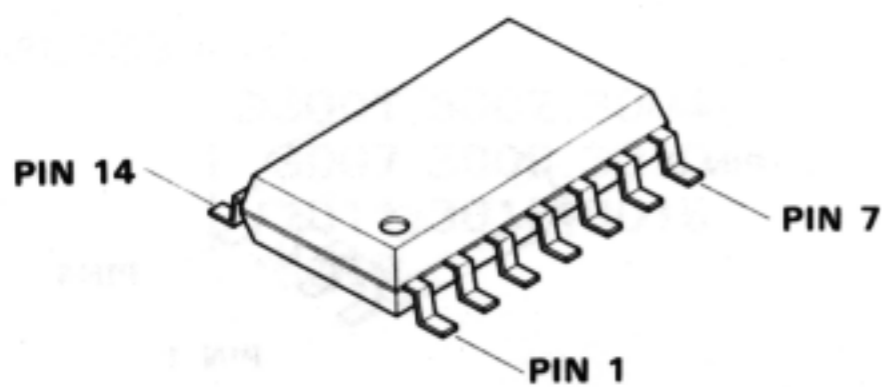
(Reverse view of "chip" side)



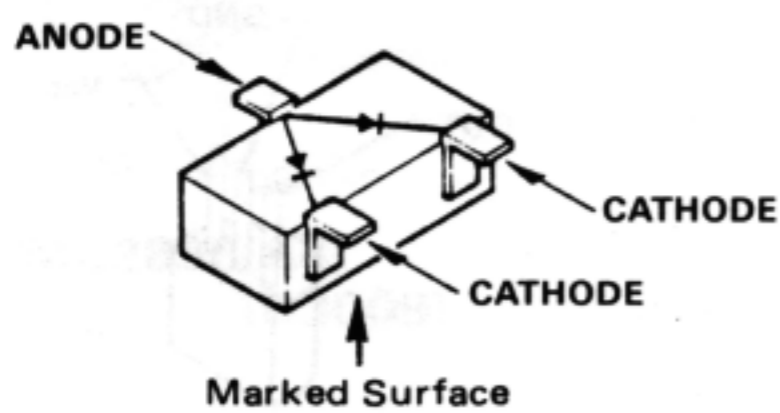
(Reverse view of "component" side)



$\mu$ PD4094BG (Q2201)

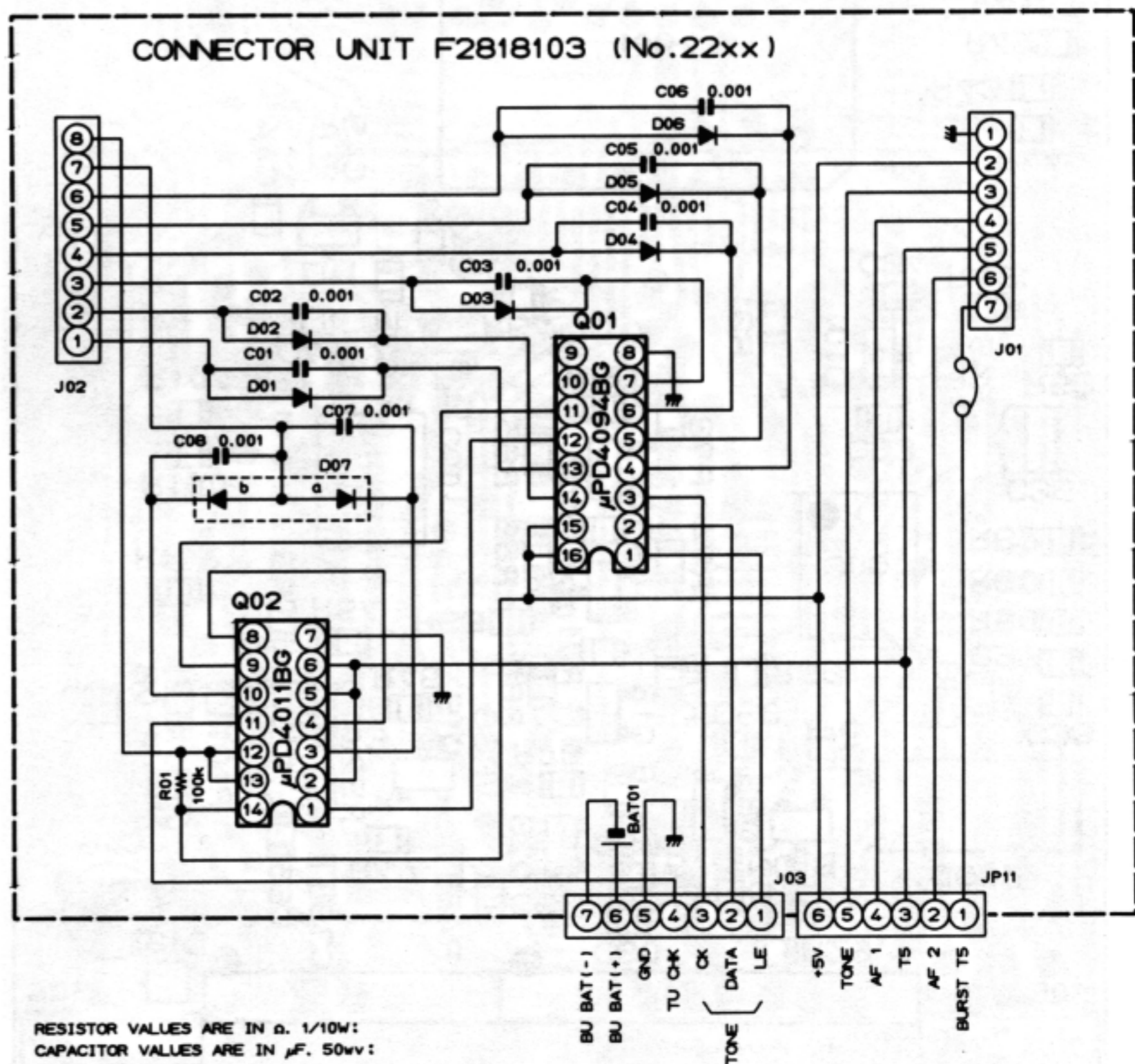


$\mu$ PD4011BG (Q2202)



MC2836(A4)

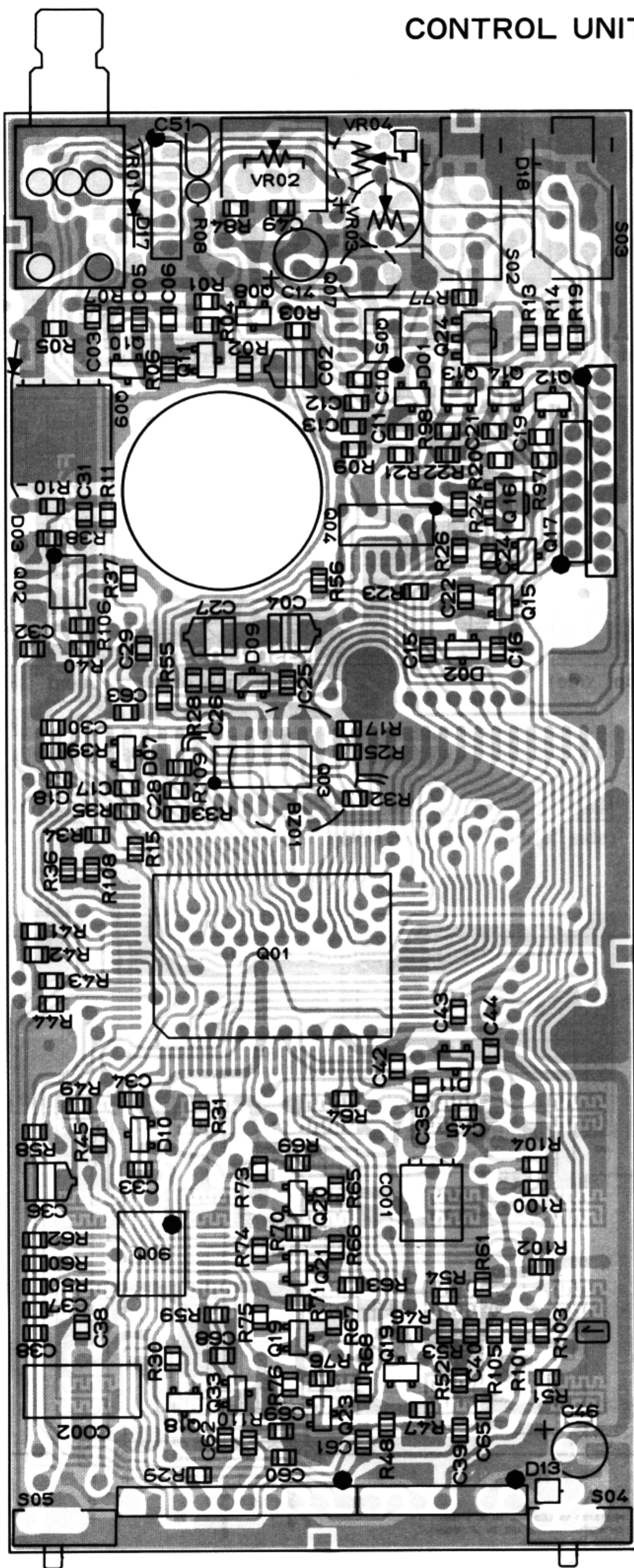
(D2201, 2202, 2203,  
2204, 2205, 2206,  
2207)



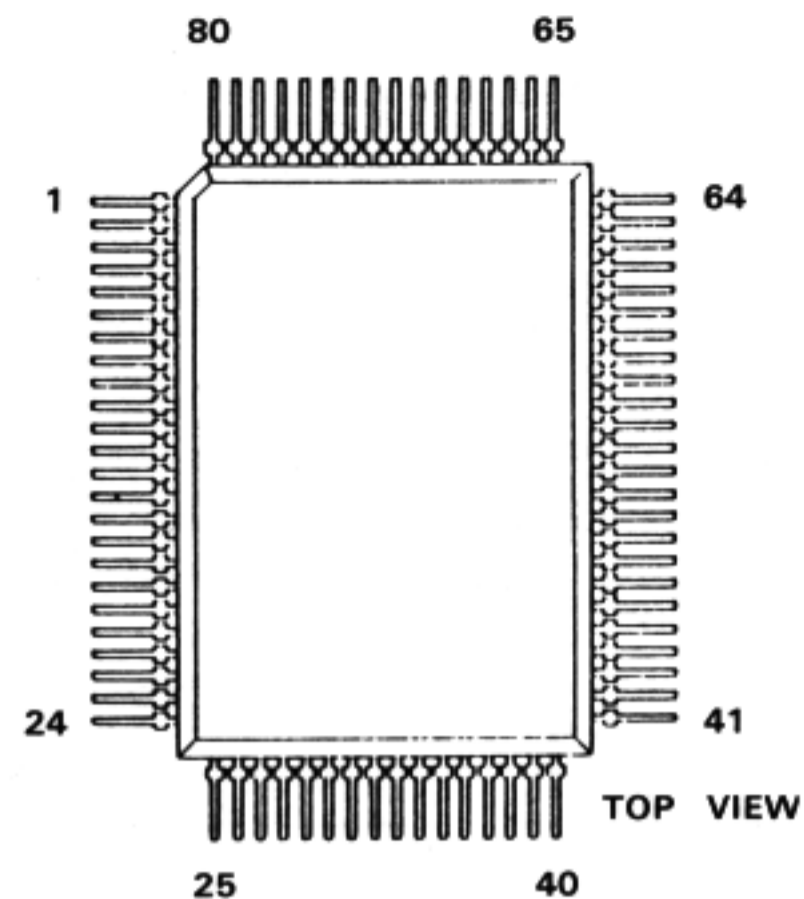
RESISTOR VALUES ARE IN  $\Omega$ , 1/10W:  
CAPACITOR VALUES ARE IN  $\mu$ F, 50Vv:  
DIODE ARE MC2836:  
UNLESS OTHERWISE NOTED.



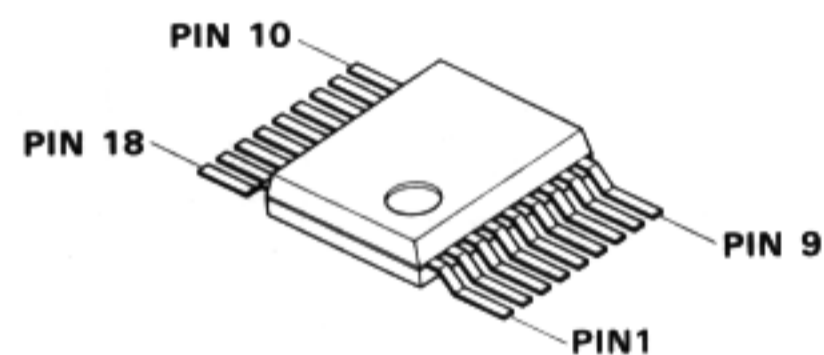
# CONTROL UNIT



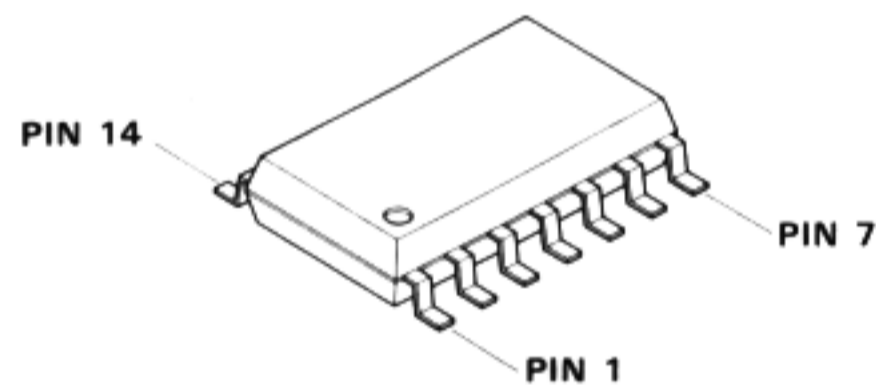
(Obverse view of "microprocessor" side)



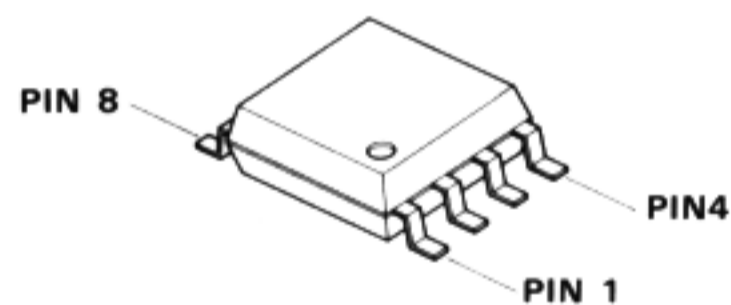
HD613901A55 (Q3001)



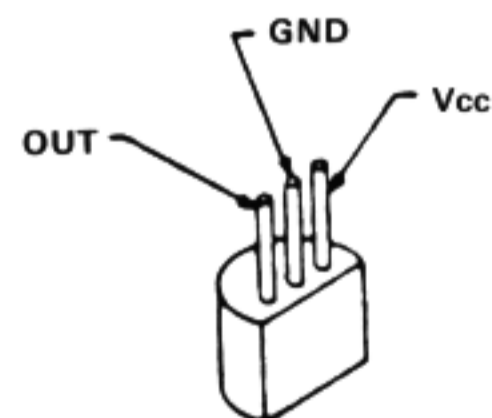
LR40872 (Q3006)



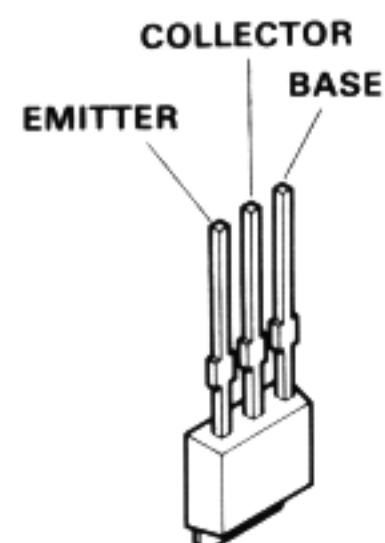
PD4011BG (Q3003, 3004)



LA5005MH (Q3005)  
M5233FP (Q3002)

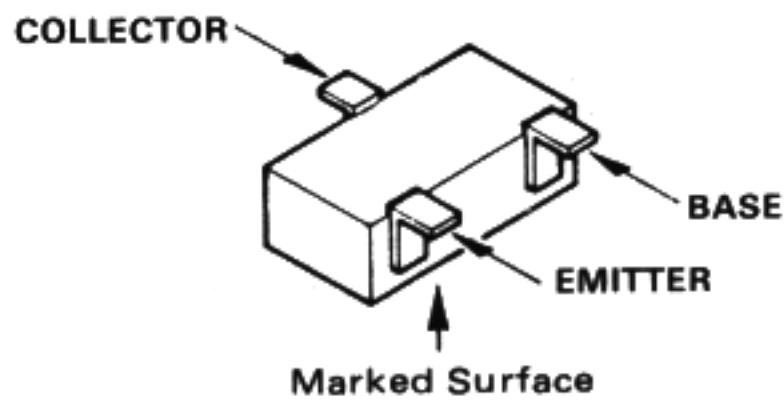


PST524C (Q3007)

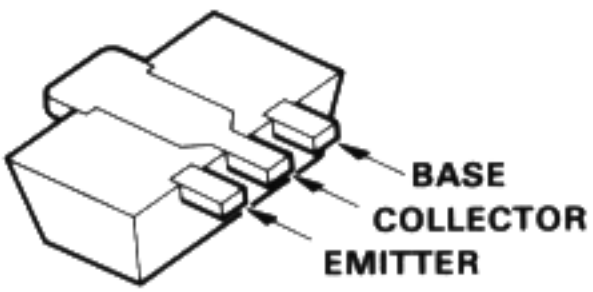


2SC1243 (Q3009)

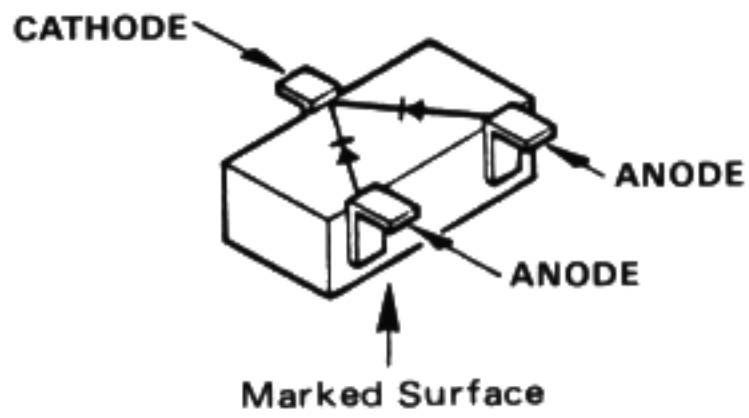
# CONTROL UNIT



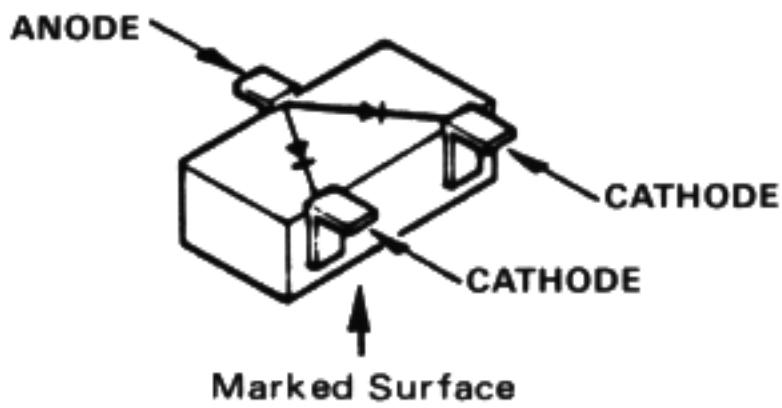
- 2SA812(M6)  
(Q3008, 3018  
3028, 3030)
- 2SA1623F(L6)  
(Q3010, 3011  
3019, 3023  
3025, 3027  
3029, 3031)
- 2SA1365AG(AF)  
(Q3012-3015  
3017)
- FA1A4M(L33)  
(Q3032, 3033)



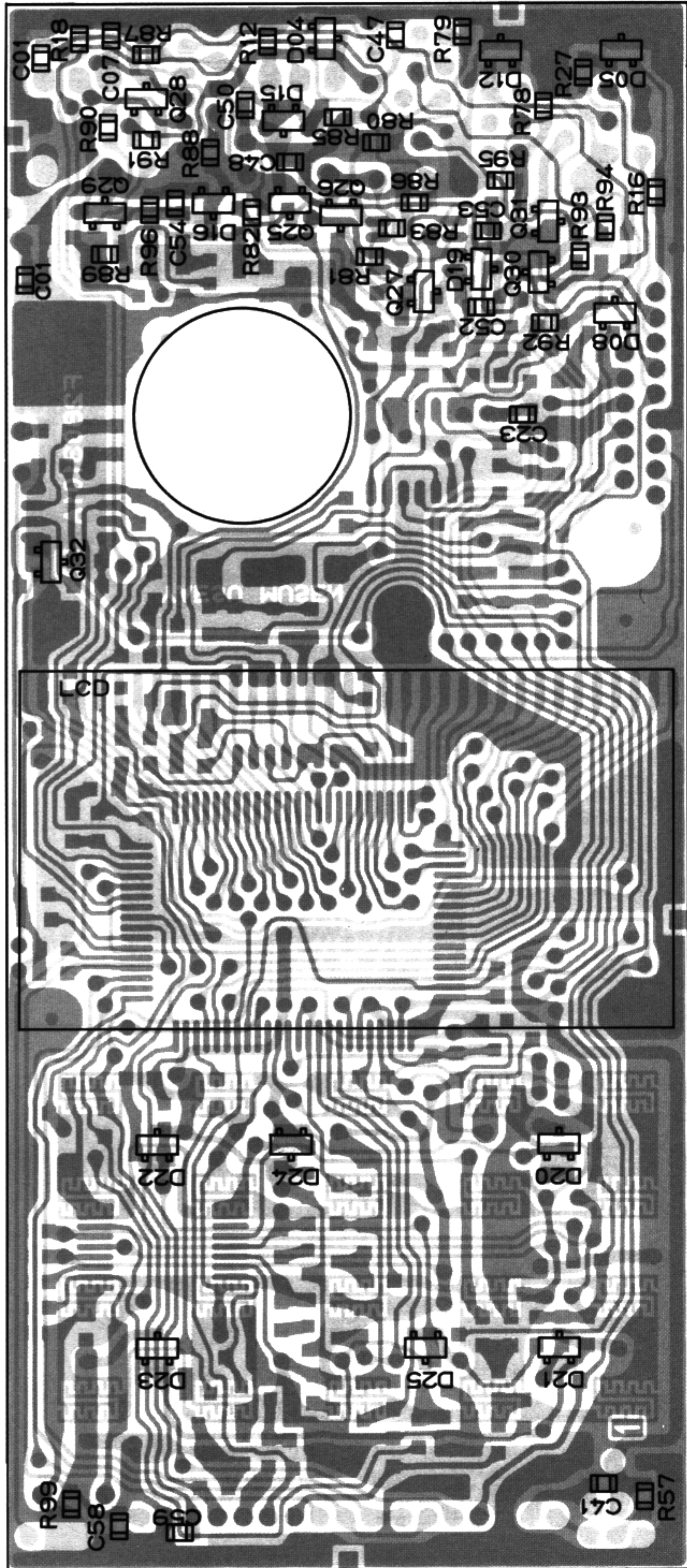
- 2SB766R (Q3016)  
2SD1366A (Q3024)



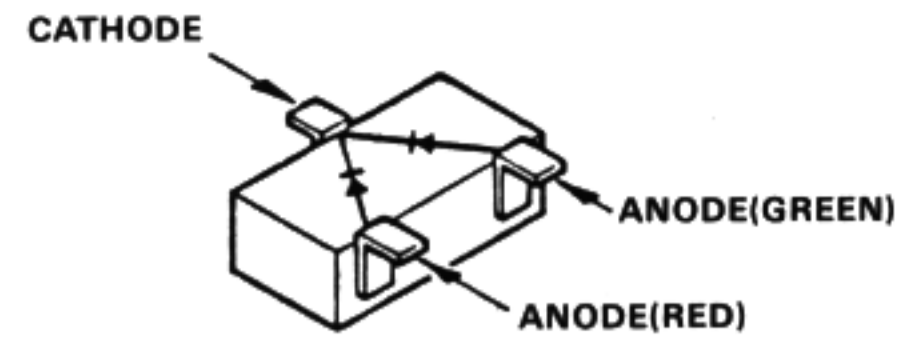
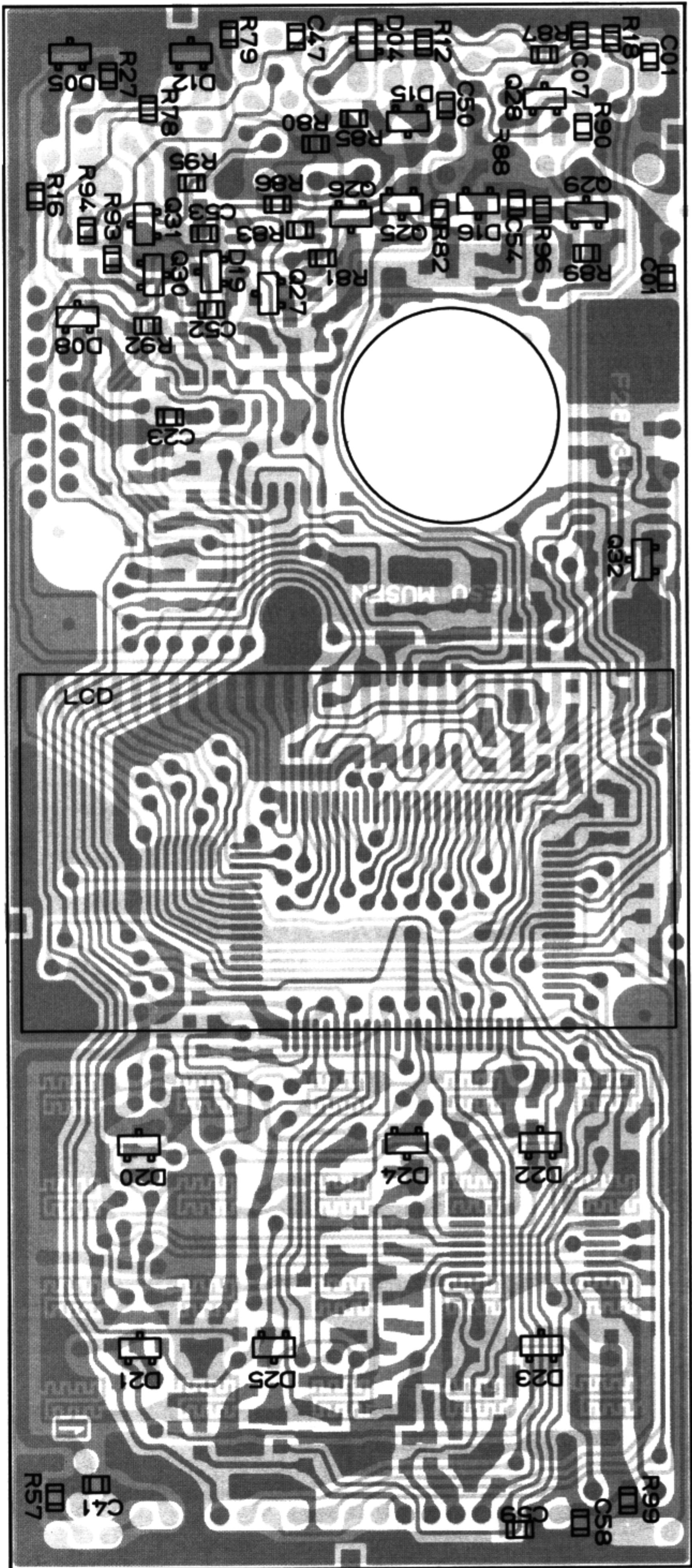
- MC2838(A6)  
(D3001, 3002, 3004  
3007, 3008, 3010  
3011, 3015, 3016  
3019)



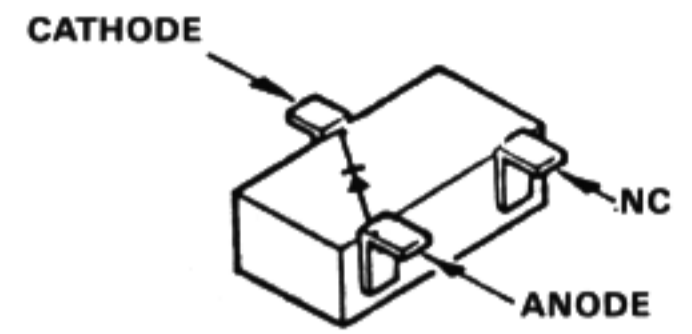
- MC2836(A4)  
(D3009)



# CONTROL UNIT



**SLM-23VMW (D3005)**

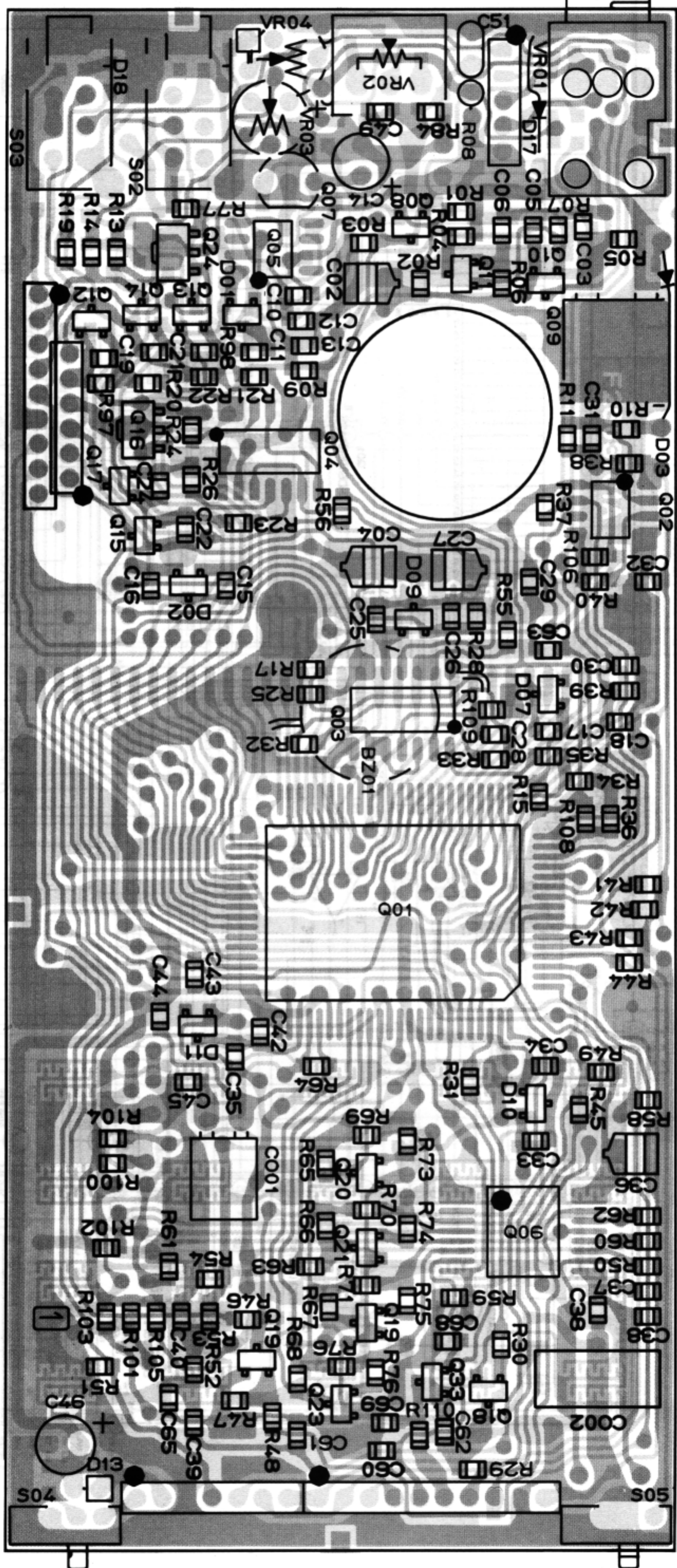


**SLM-13VM (D3012)  
SLM-13MW (D3020-3025)**

(Obverse view of "display" side)

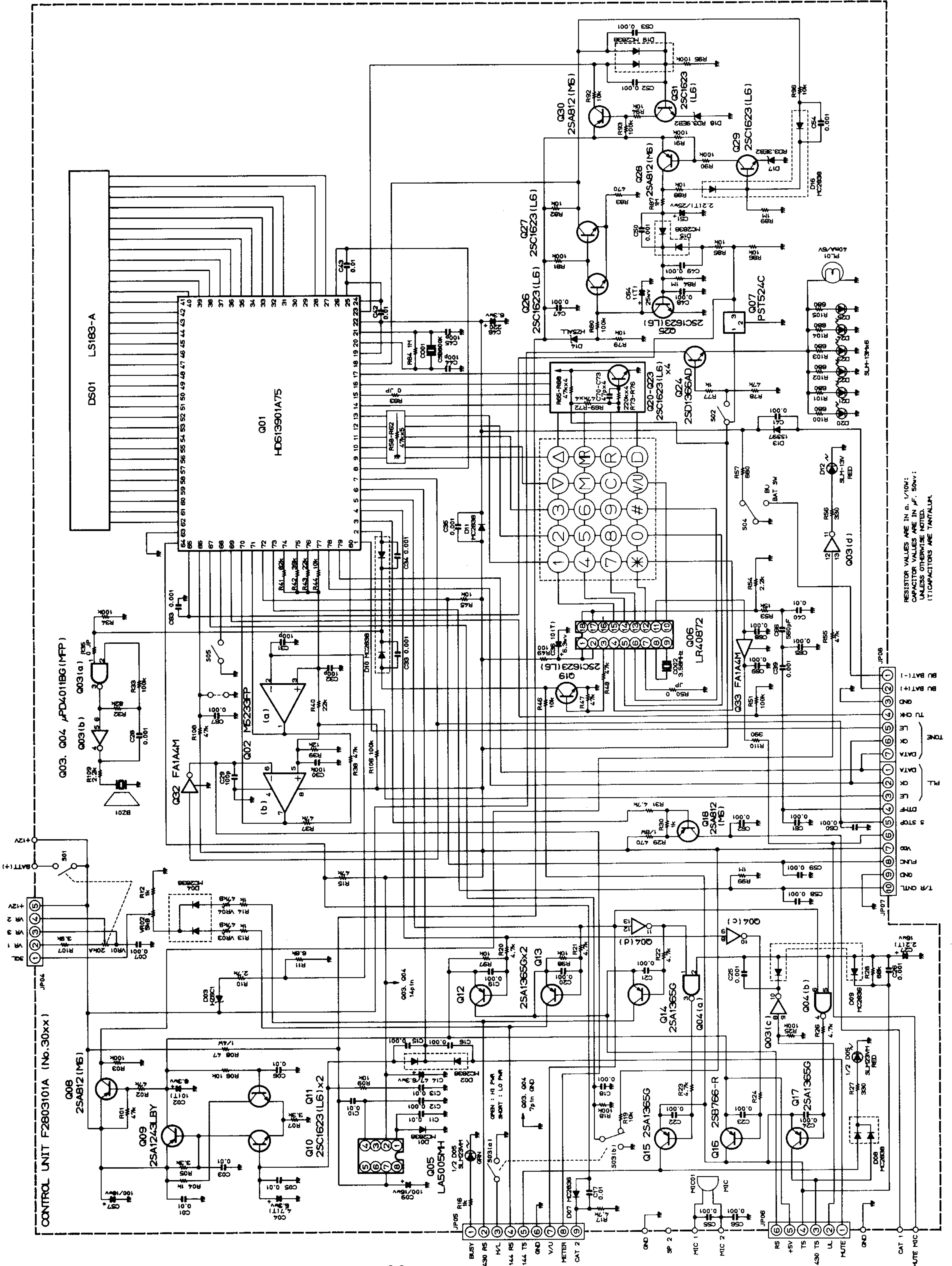
Downloaded by   
RadioAmateur.EU

# CONTROL UNIT

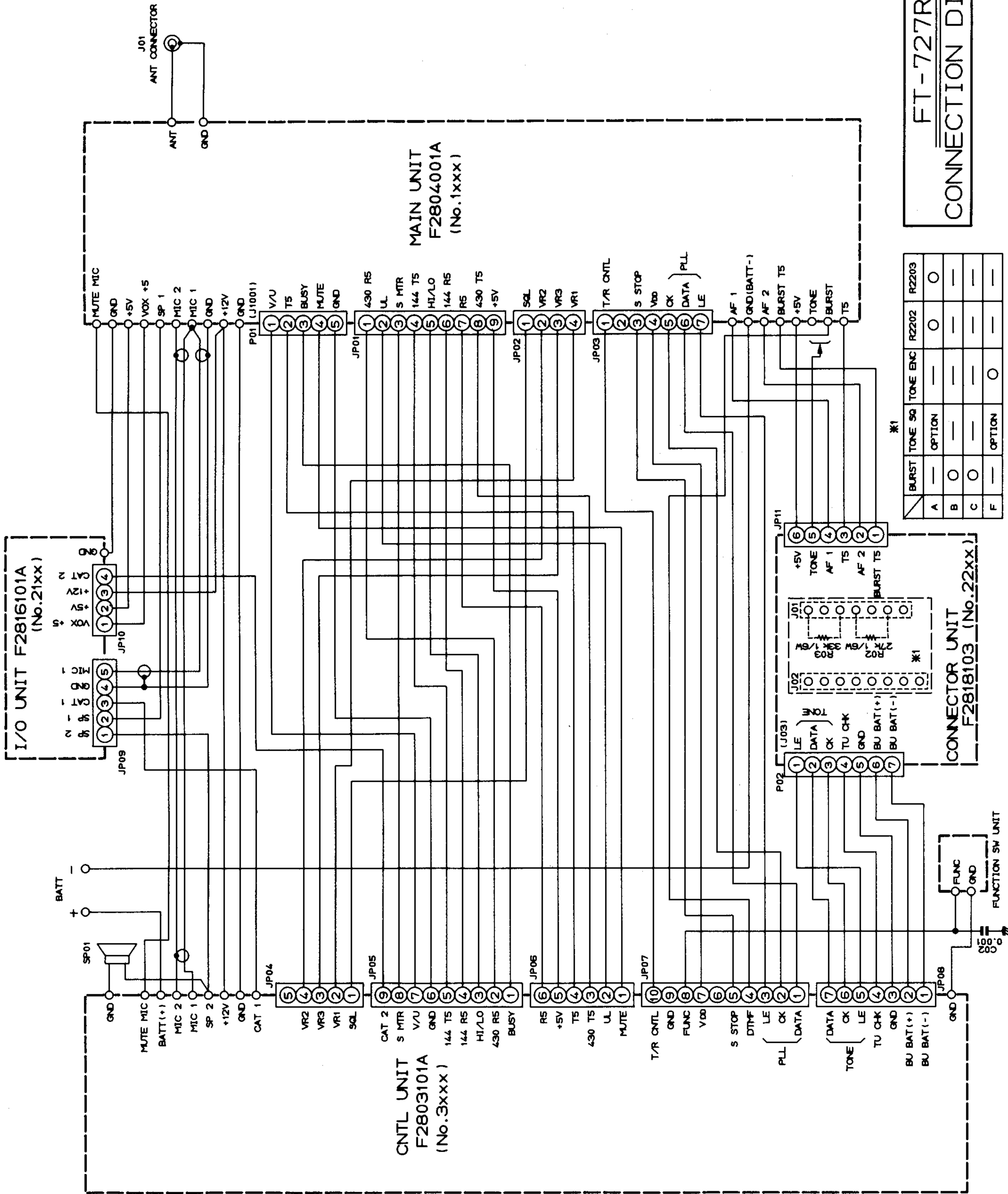


(Reverse view of "microprocessor" side)

# CONTROL UNIT



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



FT-727R  
CONNECTION DIAGRAM

The FT-727R has been aligned at the factory for best performance across the specified frequency range. Realignment should therefore not be necessary except in the event of component failure, or alteration of version. All component replacement and service should be performed only by an authorized Yaesu representative, or the warranty policy may be voided.

The following test equipment is required for alignment:

- RF Signal Generator: calibrated output level at 450 MHz
- Deviation Meter (linear detector)
- Oscilloscope
- AF Millivoltmeter
- SINAD Meter
- Inline Wattmeter: 10W at 450 MHz
- Regulated DC Power Supply: adjustable from 4 to 17V, 2A
- 50-ohm Non-reactive Dummy Load: 10W at 450 MHz
- Frequency Counter: 0.2ppm accuracy at 450 MHz
- AF Signal Generator
- DC Voltmeter: high impedance

**ALIGNMENT FREQUENCY (MHz)**

Version	Low edge		Center		High edge	
	VHF	UHF	VHF	UHF	VHF	UHF
A	144	440	146	445	148	450
B, B1	144	430	145	435	146	400
C	144	430	146	435	148	440

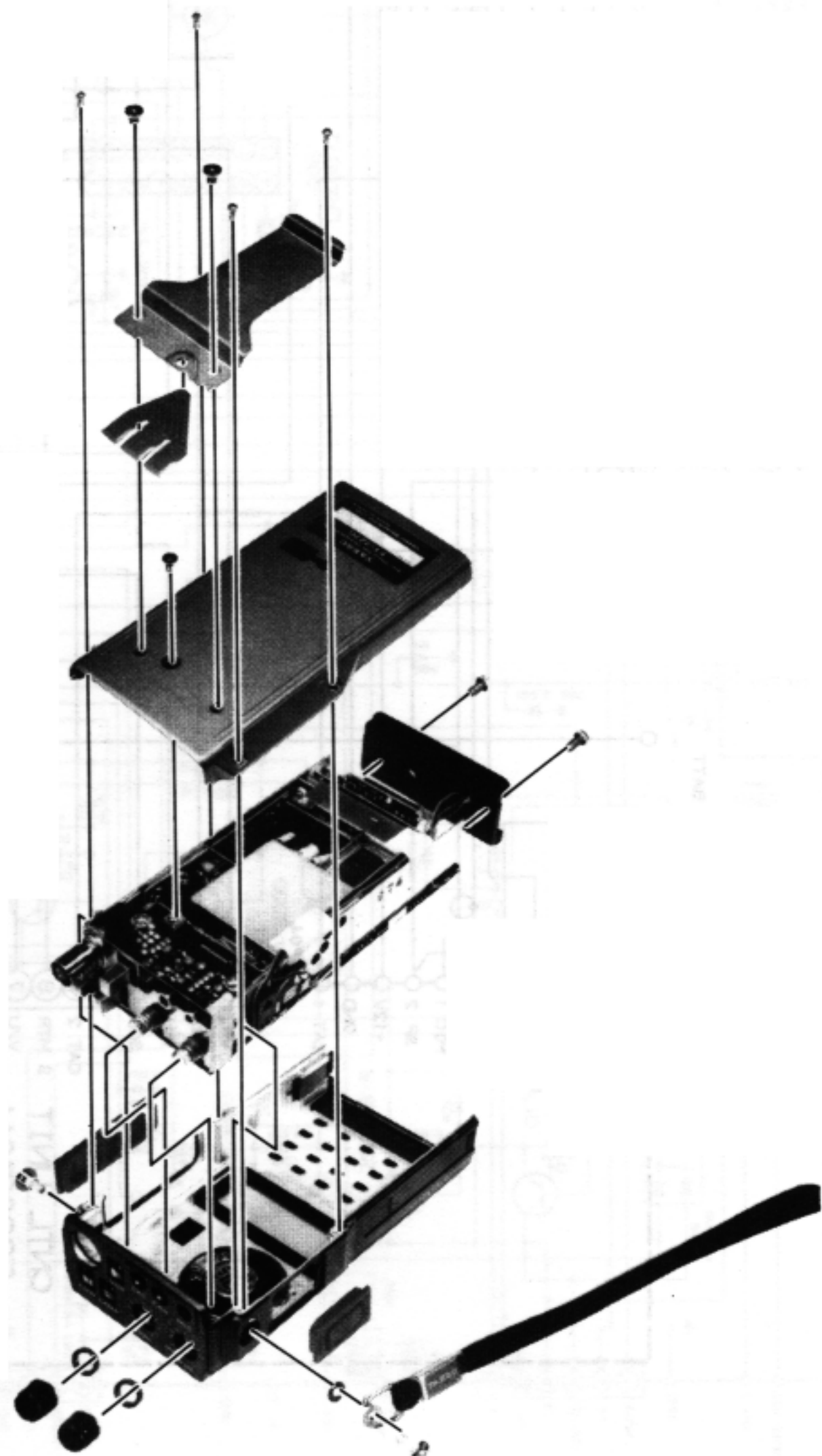
**Preparation & Precautions**

Before beginning alignment, allow the temperature of the transceiver to stabilize in the alignment environment. Temperature must be stable between 20 and 30°C (68 to 86°F) during alignment.

Set the regulated power supply voltage to 10.8V for all steps unless specifically indicated otherwise (for transmitter output power alignment). Do not depend on the battery as a stable voltage source during alignment.

Do not use an antenna during alignment, as RF loopback will cause false readings.

**CASE DISASSEMBLY**



## I. PLL

Set up the test equipment as shown below for PLL and transmitter alignment.

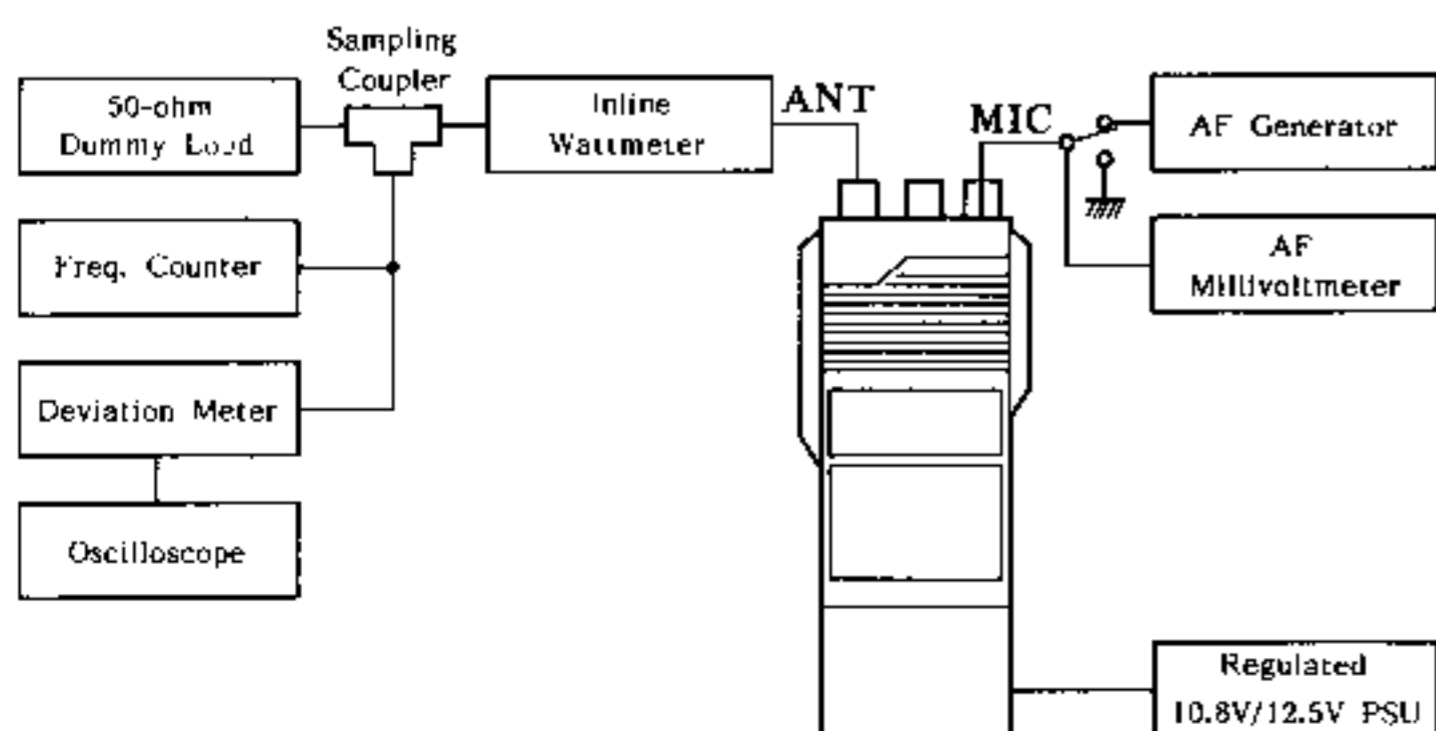
### A. 2m PLL VCV (Varactor Control Voltage)

- (1) Connect the DC voltmeter (10V scale) to pin 14 at the edge of the PLL Unit.
- (2) Set the transceiver to the low edge of the 2m band, and adjust L601 on the VCO Unit for 1.5V DC on the meter.
- (3) Retune to the high edge of the 2m band and check for not more than 2.5V DC (3V in versions A & C) on the meter.

### B. 70cm PLL VCV

- (1) Connect the DC voltmeter (set to the 10V scale) to pin 14 at the edge of the PLL Unit.
- (2) Set the transceiver to the low edge of the 70cm band, close the PTT switch, and adjust TC601 on the VCO Unit for 1.5V DC (2.5V for version A) on the meter.
- (3) Tune to the high band edge, close the PTT, and check for not more than 3V DC (4V in version A) on the meter.
- (4) Retune to the low band edge, and adjust TC602 on the VCO Unit for 1.5V DC (2.3V for version A) while receiving.
- (5) Retune to the high band edge, and check for less than 3V DC (4V for version A) on the meter while receiving.

## PLL & TRANSMITTER ALIGNMENT POINTS



## II. TRANSMITTER

With the test equipment connected as indicated in the diagram below, close the PTT switch for all readings and adjustments during these steps.

### A. 2m Power Output

- (1) Tune the transceiver to the center of the 2m band, set the supply voltage to 12.5V, and set the LOW switch on the top panel to the undepressed position.
- (2) Adjust VR1004 on the Main Unit for 5 watts output on the wattmeter. Confirm 5  $\pm$ 0.5 watts output at the high and low edges of the 2m band.

### B. 70cm Power Output

- (1) Tune the transceiver to the center of the 70cm band, and with the supply voltage set to 12.5V and the LOW switch set to the undepressed position, preset VR1005 on the Main Unit fully clockwise.
- (2) Adjust TC801, TC802, L803 and L804 on the 70cm Drive Unit for maximum power output (close the shield cover on the Drive Unit when adjusting the trimmers).
- (3) Now adjust VR1005 for 5 watts output, and confirm 5  $\pm$ 0.5 watts at each band edge.

### C. Low Power Setting

Tune to the center of the 70cm band, and with 12.5V supply, press the LOW switch and adjust VR1003 on the Main Unit for 0.5 watts on the wattmeter. Confirm 0.5 watts output on the 2m band.

### D. Frequency Calibration

Set the supply voltage to 10.8V, and tune to the center of the 70cm band. Close the PTT and adjust TC501 on the PLL Unit, if necessary, so that the displayed frequency matches the frequency counter  $\pm$ 200 Hz.



## E. Modulator Deviation

- (1) Tune to the center of the 2m band, and set the audio generator to 1 kHz at a level of 25 mV at the MIC jack. Adjust VR1001 on the Main Unit, if necessary, for  $\pm 4.5$  kHz deviation.
- (2) Now set the transceiver to the center of the 70cm band, and adjust VR1002, if necessary, for  $\pm 4.5$  kHz deviation.
- (3) Reduce the AF generator output level until the deviation meter shows  $\pm 3.5$  kHz deviation, and check that the AF generator level is between 2 and 4 mV (both bands).

## F. DTMF Deviation Check

Tune to the center of the 70cm band, close the PTT and press '1' and 'C' on the keypad while transmitting, and observe the deviation meter, which should show  $\pm 2$  to  $\pm 3.5$  kHz deviation.

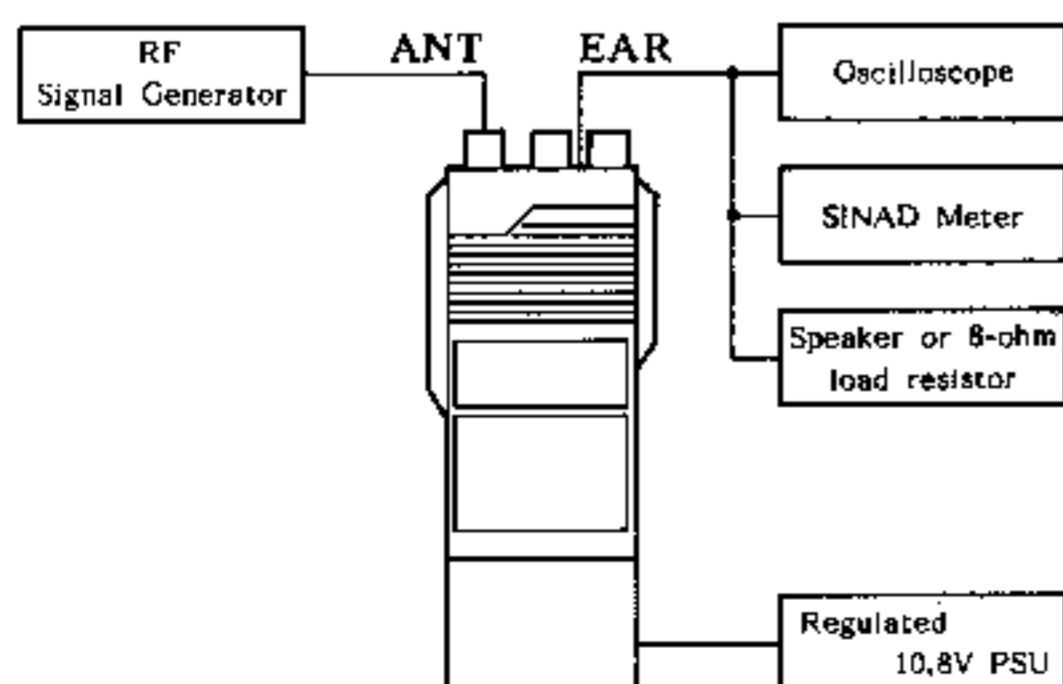
## F. Burst Deviation Check (Eu vers. only)

Tune to the center of the 70cm band, close the PTT and Burst buttons, and observe the deviation meter, which should show  $\pm 2.5$  to  $\pm 4.5$  kHz deviation.

## G. VOX Sensitivity Check

With the transceiver tuned to the center of the 70cm band, set the AF Generator (at the MIC jack) to 1 kHz. Vary the input level from the AF Generator and note the levels at which VOX trips, which should be 6 to 10 mV when the VOX button is depressed, and 3 to 6 mV when undepressed.

## RECEIVER ALIGNMENT SETUP



## II. RECEIVER

Set up the test equipment as shown below for receiver alignment.

### A. 2m Resonant Circuits

- (1) With the transceiver and RF signal generator (at the ANT jack) both tuned to the center of the 2m band, set the generator for  $\pm 3.5$  kHz deviation of 1 kHz tone modulation, and set the output level so that the S-meter on the transceiver reads '4'.
- (2) Adjust L201 through L204 on the Front End Unit for peak S-meter indication, and adjust L301 on the IF Unit for maximum amplitude and minimum distortion on the oscilloscope.
- (3) Set the RF generator level to -6 dBu (0.12 uV) and adjust L201 - L203 again, for optimum SINAD indication.
- (4) At both edges of the 2m band, confirm at least 12 dB SINAD with 0.25 uV input from the RF generator.

### B. 70cm Resonant Circuits

- (1) With the transceiver and RF signal generator (at the ANT jack) both tuned to the center of the 70cm band, set the generator for  $\pm 3.5$  kHz deviation of 1 kHz tone modulation, and set the output level so that the S-meter on the transceiver reads '4'.
- (2) Adjust CV201, CV202 and L205 on the Front End Unit, and TC803 and TC804 on the 70cm Drive Unit, for peak S-meter indication.
- (3) Set the RF generator level to -6 dBu (0.12 uV) and adjust CV201, CV202, TC803 and TC804 again, for optimum SINAD indication.
- (4) At both edges of the 70cm band, confirm at least 12 dB SINAD with 0.25 uV input from the RF generator.

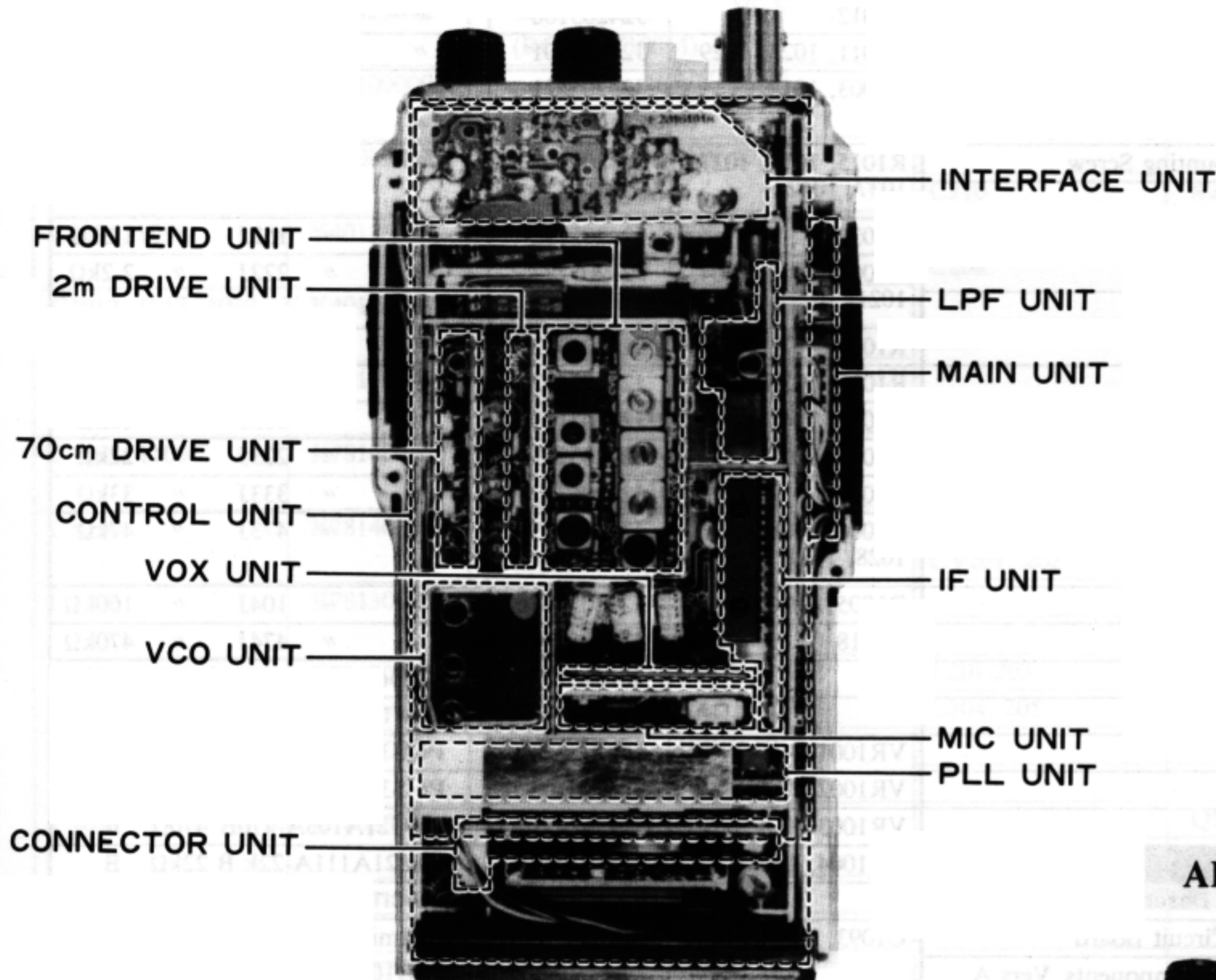
### C. Squelch Preset

(1) Set the transceiver to the center of the 2m band, and set the SQL control on the top panel to the center of its range. Reduce the RF generator level at the ANT jack to nil (but do not disconnect it, to maintain a 50-ohm termination).

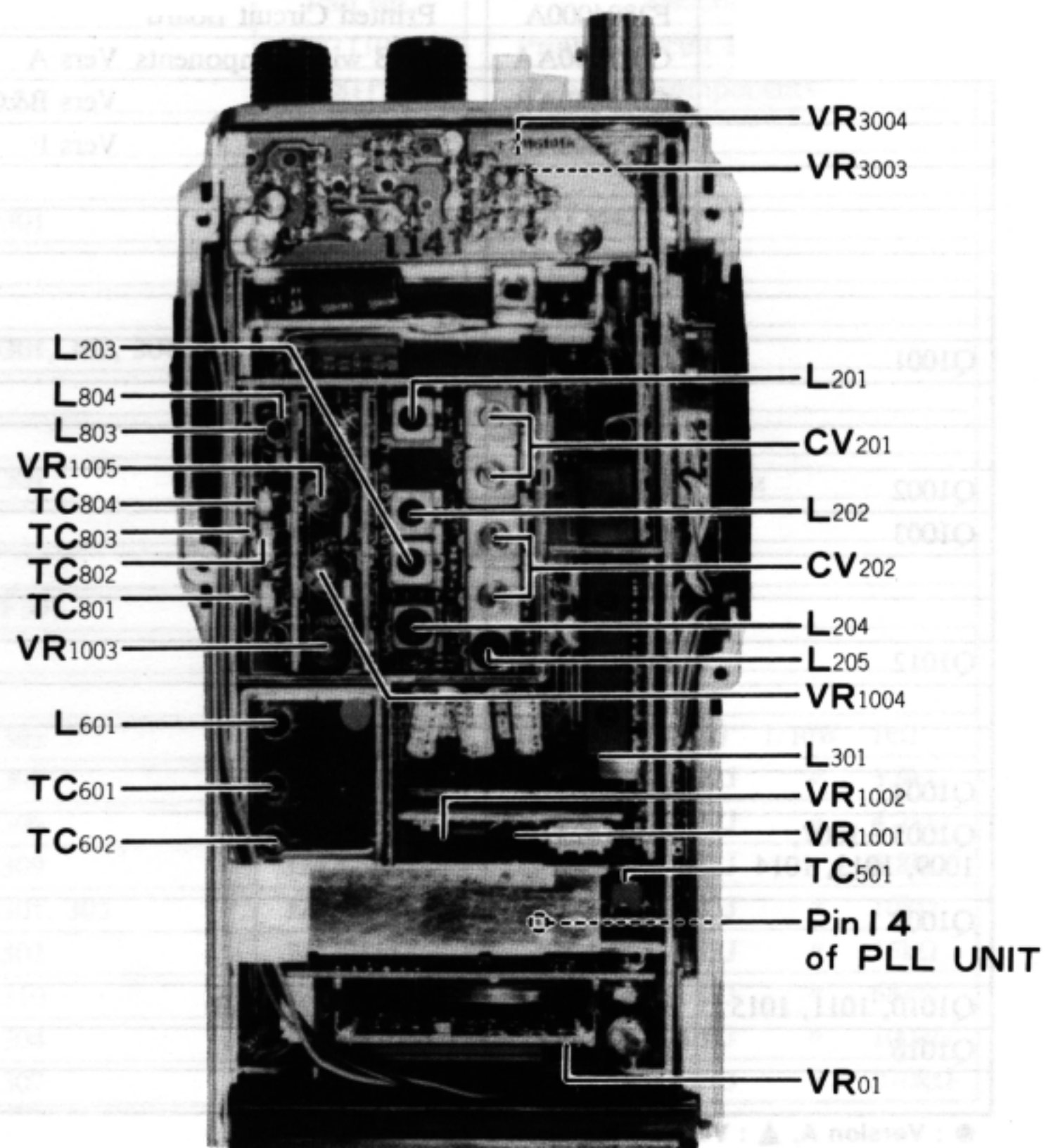
(2) Adjust VR3003 on the Control Unit so that the squelch just closes.

(3) Retune to the center of the 70cm band, and adjust VR3004 so that the squelch again just closes.

### BOARD LAYOUT



### ALIGNMENT POINTS



# PARTS LIST

MAIN CHASSIS			D1001, 1003, 1005	G2070018	MC2838-T14-2 Si
Symbol No.	Part No.	Description	D1002	G2090227	HZ9B2L Zener
	F2803102	Printed Circuit Board	D1004	G2090223	1SS101 Schottky
			D1006	G2090033	M1301 PIN
			D1008	G2090168	RD5. 6EB1 Zener
		<b>CONNECTOR</b>	D1009, 1010	G2090244	1SS106 Schottky
J1	P1090541	BNC-RM			<b>CRYSTAL FILTER</b>
			XF1001	H1102108	16M15BU
				R7066320	Insulator
	R3507630C	Front Cover			
	R4803350B	Rear Cover w/o label, belt clip			
	R3507440A	FUNC Button			<b>RESISTORS</b>
	R3507620	PTT Button Vers A	R1033 <sup>•</sup> ×, 1034 <sup>•</sup> ×	J24205000	RMC 1/10T 000J 1/10W 0Ω
	R3507430A	PTT, BURST Button Vers B&C	R1032, 1035 <sup>▲</sup>	J24205000	" " " " "
	R3115560	Knob VOL & SQL	R1012	J24205100	" " 100J " 10Ω
	R3507400C	Battery Mounting Track	R1011, 1023, 1029	J24205101	" " 101J " 100Ω
	R3102080	Push Button	R1003, 1013	J24205221	" " 221J " 220Ω
	R6111460	Strap Mounting Dummy Screw		J24205561	" " 561J " 560Ω
	R6105240	Strap Mounting Screw	R1015, 1017, 1027, 1037, 1042	J24205102	" " 102J " 1kΩ
	R0116710C	Belt Clip			
	S6000061	Hand Strap	R1030	J24205152	" " 152J " 1.5kΩ
	R3116730A	Rubber Cap	R1001, 1002, 1004, 1021, 1022	J24205222	" " 222J " 2.2kΩ
	R3507570B	Rubber Key top			
			R1038	J24205332	" " 332J " 3.3kΩ
			R1016, 1036	J24205472	" " 472J " 4.7kΩ
		<b>CAPACITOR</b>	R1039, 1043	J24205103	" " 103J " 10kΩ
	K12171102	Ceramic disc 50WV 0.001μF E	R1007, 1009, 1019	J24205223	" " 223J " 22kΩ
			R1010	J24205333	" " 333J " 33kΩ
		<b>MINI CONNECTORS</b>	R1006, 1008, 1026, 1028, 1031	J24205473	" " 473J " 47kΩ
P1	T9205369C				
P2	T9205370		R1005, 1020	J24205104	" " 104J " 100kΩ
P3	T9205371B		R1018	J24205474	" " 474J " 470kΩ
P4	T9205372			J01215153	Carbon film 1/8w 15kΩ TJ
P5	T9205373B				<b>POTENTIOMETERS</b>
P6	T9205374		VR1001	J50773223	P6-S3Z 22K 22kΩ B
			VR1002	J50773103	P6-S3Z 10k 10kΩ B
			VR1003	J51762471	H0521A105A-470B 470Ω B
			VR1004, 1005	J51762223	H0521A111A-22k B 22kΩ B
MAIN UNIT					<b>CAPACITORS</b>
Symbol No.	Part No.	Description			
	F2804000A	Printed Circuit Board	C1093, 1098, 1103	K12171102	ceramic disc 50WV 0.001μF E (DD104E102P50)
	C028040AA	PCB with components Vers A			
	C028040AB	" Vers B&C	C1048, 1050, 1051	K22170201	Chip Ceramic 50WV 0.5pF CH (C2012CH1H0R5CFA)
	C028040AC	" Vers F			
			C1046	K22170202	" " " 1pF " (C2012CH1H010CFA)
			C1043	K22170203	" " " 2pF " (C2012CH1H020CFA)
		<b>IC</b>			
Q1001	G1090558	LA4145	C1045, 1052	K22170205	" " " 4pF " (C2012CH1H040CFA)
		<b>POWER MODULES</b>			
Q1002	G1090732	M57796MA	C1033	K22170206	" " " 5pF " (C2012CH1H050CFA)
Q1003	G1090733	M57797MA			
			C1049	K22170207	" " " 6pF " (C2012CH1H060DFA)
		<b>FET</b>			
Q1012	G3803027Y	2SK302YTE85R	C1001 <sup>•</sup> , 1006	K22170208	" " " 7pF " (C2012CH1H070DFA)
		<b>TRANSISTORS</b>			
Q1004	G3207667R	2SB766-R	C1001 <sup>▲</sup> ×, 1003, 1047	K22170210	" " " 9pF " (C2012CH1H090DFA)
Q1005-1007, 1009, 1013, 1014	G3316237F	2SC1623-T2BL6		K22170217	" " " 18pF " (C2012CH1H180JFA)
Q1008	G3207720Q	2SB772Q	C1002, 1040, 1044, 1095	K22170223	" " " 33pF " (C2012CH1H330JFA)
Q1010, 1011, 1015	G3108127F	2SA812T2BM6B			
Q1016	G3090074	BA1A4M		K22170219	" " " 22pF " (C2012CH1H220JFA)
		<b>DIODES</b>			

● : Version A, ▲ : Version B & C, × : Version F

C1011, 1013, 1015	K22170805	" " " 0.001 $\mu$ F B (C2012B1H102MFA)	Q203, 204	G3333567	2SC3356T2B
1022, 1024, 1026-1032, 1034-1039, 1053-1056, 1058, 1059, 1061, 1063-1068, 1071-1081, 1084-1090, 1096, 1101					<b>DIODES</b>
			D201, 202	G2090027	ISS53 Si
					<b>RESISTORS</b>
			R201	J24205470	RMC 1/10T-470J 1/10W 47 $\Omega$
			R204	J24205680	" " -680J " 68 $\Omega$
			R202, 205, 211	J24205101	" " -101J " 100 $\Omega$
			R208	J24205221	" " -221J " 220 $\Omega$
			R203, 207	J24205471	" " -471J " 470 $\Omega$
				J24205222	" " -222J " 2.2k $\Omega$
C1007, 1008, 1069	K22170817	" " " 0.01 $\mu$ F " (C2012B1H103MFA)	R209	J24205332	" " -332J " 3.3k $\Omega$
			R212	J24205472	" " -472J " 4.7k $\Omega$
C1014, 1018, 1020	K22141904	" " 25WV 0.1 $\mu$ F D (C3216D1E104MFA)	R210	J24205103	" " -103J " 10k $\Omega$
			R206	J24205333	" " -333J " 33k $\Omega$
C1004, 1005	K40129012	Electrolytic 16WV 10 $\mu$ F (RC2-16V100M)			
C1009	K40109009	10WV 33 $\mu$ F (RC2-10V330M)			<b>CAPACITORS</b>
C1070	K40089003	" 6.3WV 47 $\mu$ F (RC2-6V470M)	C204, 212	K22170201	Chip Ceramic 50WV0.5pF CH (C2012CH1H0R5CFA)
C1091, 1092	K40129047	" 16WV 82 $\mu$ F (SXE-16VB-82 5X15L)	C210	K22170204	" " " 3pF " (C2012CH1H030CFA)
C1012, 1017, 1019	K40129038	" " 100 $\mu$ F (RC2-16V101M)	C208	K22170315	" " " 5pF UJ (C2012UJ1H150JFA)
C1042	K22170229	" " " 56pF CH (C2012CH1H560JFA)	C209	K22170227	" " " 7pF CH (C2012CH1H470JFA)
C1083, 1100	K78140012	Chip tantalum 25WV 0.47 $\mu$ F (F951E474MRAAF1Q2)	C201-203, 205-207, 211, 213, 214	K22170805	" " " 0.001 $\mu$ F B (C2012B1H102MFA)
C1010	K78140002	" " " 1 $\mu$ F (F951E105MSAAF1Q2)			<b>RESONATORS</b>
C1102	K78130003	" " " 3.3 $\mu$ F (F951D335MVCAF1Q2)	CV201, 202	Q9000114B	CV441B
C1025, 1057, 1060, 1062	K78120002	" " 16WV 2.2 $\mu$ F (F951C225MSAAF1Q2)			<b>INDUCTORS</b>
C1021, 1023	K78100004	" " 10WV 10 $\mu$ F (F951A106MVCAF1Q2)	L201-203	L0021639	RI2E539A 146MHz
C1016	K78080002	" " " 4.7 $\mu$ F (F950J475MSAAF1Q2)	L204, 205	L0021521	RI2-6443X 16.9MHz
					<b>TERMINAL POSTS</b>
				Q5000052	TP-M
<b>IF UNIT</b>					
		<b>INDUCTORS</b>	Symbol No.	Part No.	Description
L1001	L0020767			F2811101	Printed Circuit Board
L1002	L0020780			C028111AA	PCB with components
L1003, 1004, 1005	L0020342				
L1006, 1007	L0021273				IC
			Q301	G1090669	HA12442V
L1008, 1010	L1020720				
L1009	L1020676				<b>DIODES</b>
			D301, 302, 304	G2070018	MC2838-T14-2
		<b>SWITCH</b>			<b>CRYSTAL</b>
S1001, 1002	N5090018	KHH15951	X301	H0102704	UM-1 16, 445MHz
		<b>CONNECTOR</b>			
J1001	P0090488	PI22A05M			<b>CERAMIC FILTER</b>
			CF301	H3900030	LF-B15
					<b>RESISTORS</b>
	R0116720A	Shield Plate	R305	J24205102	RMCI/10T -102J 1/10W 1k $\Omega$
	R7116800	Press Board	R308	J24205392	" " -392J " 3.9k $\Omega$
			R306	J24205472	" " -472J " 4.7k $\Omega$
			R309	J24205682	" " -682J " 6.8k $\Omega$
			R301, 303	J24205103	" " -103J " 10k $\Omega$
			R302	J24205153	" " -153J " 15k $\Omega$
		<b>FETS</b>	R310	J24205683	" " -683J " 68k $\Omega$
Q201, 202	G3803027Y	2SK302Y-TE85R	R304	J24205104	" " -104J " 100k $\Omega$
		<b>TRANSISTORS</b>	R307	J24205274	" " -274J " 270k $\Omega$
<b>FRONT END UNIT</b>					
Symbol No.	Part No.	Description			
	F2818102	Printed Circuit Board			
	C028182AA	PCB with components			
		<b>FETS</b>			

CAPACITORS			R501	J24205332	" -332J 3.3kΩ
C303	K22170221	Chip Ceramic 50WV 27pF CH (C2012CH1H270JFA)	R505, 510	J24205103	" 103J 10kΩ
			R509	J24205183	" 183J 18kΩ
C304	K22170235	" " " 100pF " (C2012CH1H101JFA)			
C310	K22170247	" " " 330pF " (C2012CH1H331JFA)	C517	K22170202	Chip ceramic 50WV 1pF CH (C2012CH1H010CFA)
C302, 317, 318	K22170805	" " " 0.001μF B (C2012B1H102MFA)	C520	K22170209	" " " 8pF " (C2012CH1H080DFA)
C301, 305, 309, 311, 316	K22170817	" " " 0.01μF " (C2012B1H103MFA)	C503	K22170220	" " " 24pF " (C2012CH1H240JFA)
C306, 307, 312	K22141904	" " " 0.1μF D (C3216D1E104MFA)	C504	K22170223	" " " 33pF " (C2012CH1H330JFA)
C314	K78120013	Chip Tantalum 16WV 1μF (F951C105MRAAF1Q2)	C509-511	K22170235	" " " 100pF " (C2012CH1H101JFA)
C308, 315	K78080002	" 6.3WV 4.7μF (F950J475MSAAF1Q2)	C516, 518	K22170805	" " " 0.001μF B (C2012B1H102MFA)
			C505, 508, 513, 515	K22170817	" " " 0.01μF " (C2012B1H103MFA)
		<b>INDUCTOR</b>			
L301	L0021527	RI2-8497A 455KHz	C512	K22141904	" " 25WV 0.1μF D (C3216D1E104MFA)
			C501, 507, 514	K78140012	Chip tantalum 25WV 0.47μF (F951E474MRAAF1Q2)
		<b>1 PF UNIT</b>			
Symbol No.	Part No.	Description			
	F2812101	Printed Circuit Board		K78100001	" " 10WV 1μF (F951A105MAA)
	C028121AA	PCB with Components			
			C502, 506	K78080003	" " 6.3WV10μF (F950J106MTAAF1Q2)
		<b>CAPACITORS</b>			
C402	K22170203	Chip Ceramic 50WV 2pF CH (C2012CH1H020CFA)			<b>TRIMMER CAPACITOR</b>
C401	K22170204	" " " 3pF " (C2012CH1H030CFA)	TC501	K91000155	VCT35C
					<b>INDUCTOR</b>
C403, 404	K22170805	" " " 0.001μF B (C2012B1H102MFA)	L501	L1190275	LAL02NAR22M 0.22μH
					<b>VCO UNIT</b>
		<b>INDUCTOR</b>	Symbol No.	Part No.	Description
L401	L0020878A			F2818101	Printed Circuit Board
				C028181AA	PCB with components
		<b>RELAYS</b>			
RL401	M1190072	DF2-DC5V			<b>TRANSISTORS</b>
RL402	M1190071	FBR22D05	Q601, 602	G3327860L	2SC2786L
					<b>DIODES</b>
			D601	G2090248	1T32 Varactor
			D602, 603	G2070024	MC2836-T14-2 Si
			D604, 605	G2090044	MC301 "
					<b>RESISTORS</b>
Q501	G1090648	MC145158	R610	J24205221	RMC 1/10T 221J 1/10W 220Ω
Q502	G1090725	MC12017	R605	J24205331	" " 331J " 330Ω
			R601	J24205153	" " 153J " 15kΩ
			R602	J24205223	" " 223J " 22kΩ
Q503	G3108127F	2SA812T2B-M6B	R604	J24205273	" " 273J " 27kΩ
			R603	J24205333	" " 333J " 33kΩ
			R606	J24205473	" " 473J " 47kΩ
D501	G2070020	ISS123 T2B Si	R609	J24205683	" " 683J " 68kΩ
D502	G2070024	MC2836-T14-2 "	R608	J24205104	" " 104J " 100kΩ
			R607	J24205224	" " 224J " 220kΩ
		<b>CRYSTAL</b>			
X501	H0102705	UM-1 10MHz			<b>CAPACITORS</b>
			C614	K22170202	Chip ceramic 50WV 1pF CH (C2012CH1H010CFA)
R504	J24205560	RMC 1/10T-560J 56Ω	C607	K22170203	" " " 2pF " (C2012CH1H020CFA)
R506, 507, 508	J24205101	" -101J 100Ω			
R502	J24205471	" -471J 470Ω		K22170206	" " " 5pF " (C2012CH1H050CFA)
R503	J24205561	" -561J 560Ω			

C603, 605	K22170207	" " " 6pF " (C2012CH1H060DFA)	C715	K78140002	Chip tantalum 25WV 1 $\mu$ F (F951E105SAAFIQ2)	
C610	K22170219	" " " 22pF " (C2012CH1H220JFA)			<b>INDUCTORS</b>	
C609	K22170225	" " " 39pF " (C2012CH1H390JFA)	L701, 703 L702	L0021638 L0020743		
C604	K22170315	" " " 15pF UJ (C2012UJ1H150JFA)			<b>70cm DRIVE UNIT</b>	
C602	K22170317	" " " 18pF " (C2012UJ1H180JFA)	Symbol No.	Part No.	Description	
C601, 606, 608 C611-613	K22170805	" " " 0.001 $\mu$ F B (C2012B1H102MFA)		F2807101A C028071AA	Printed Circuit Board PCB with components	
		<b>TRIMMER CAPACITORS</b>	Q801, 804 Q802, 803	G3333567 G3329547	2SC3356-T2B 2SC2954-T2	
TC601, 602	K91000107	ECR-GA015E30 15PF			<b>DIODE</b>	
		<b>INDUCTORS</b>	D801	G2090118	ISS97 Schottky	
L601	L0190127	MC122			<b>RESISTORS</b>	
L602, 603	L1190283	LAL02NAIR0M				
L604	L1190277	LAL02NAR33M	R803, 805, 809, 814, 816	J24205100	RMC 1/10T 100J 1/10W 10 $\Omega$	
		<b>TERMINAL POSTS</b>	R810	J24205560	" " 560J " 56 $\Omega$	
	Q5000052	TP-M	R804, 807, 808, 812, 818	J24205101	" " 101J " 100 $\Omega$	
		<b>2M DRIVE UNIT</b>				
	Symbol No.	Part No.	Description	R806, 813 R802, 815 R811 R801, 817	J24205331 J24205561 J24205102 J24205272	" " 331J " 330 $\Omega$ " " 561J " 560 $\Omega$ " " 102J " 1k $\Omega$ " " 272J " 2.7k $\Omega$
						<b>TRANSISTORS</b>
Q701, 703	G3327347	2SC2734G TR				
Q702	G3329547	2SC2954-T2			<b>CAPACITORS</b>	
			C807, 822	K22170201	chip ceramic 50WV 0.5pF CH (CZ012CH1H0R5CFA)	
		<b>DIODE</b>				
D701	G2090118	ISS97 Schottky	C823	K22170203	" " " 2pF " (C2012CH1H020CFA)	
		<b>RESISTORS</b>	C818	K22170204	" " " 3pF " (C2012CH1H030CEA)	
R707	J24205100	RMC 1/10T 100J 1/10W 10 $\Omega$	C813	K22170207	" " " 6pF " (C2012CH1H060JFA)	
R708	J24205560	" " 560J " 56 $\Omega$	C808	K22170221	" " " 27pF " (C2012CH1H270JFA)	
R703	J24205680	" " 680J " 68 $\Omega$	C801	K22170223	" " " 33pF " (C2012CH1H330JFA)	
R704	J24205101	" " 101J " 100 $\Omega$	C802-806, C809-812, C814-817, C820, 821	K22170805	" " " 0.001 $\mu$ F B (C2012B1H102MFA)	
R705	J24205151	" " 151J " 150 $\Omega$				
R710	J24205221	" " 221J " 220 $\Omega$				
R702	J24205561	" " 561J " 560 $\Omega$				
R706	J24205102	" " 102J " 1k $\Omega$				
R701	J24205122	" " 122J " 1.2k $\Omega$				
R709	J24205563	" " 563J " 56k $\Omega$				
		<b>CAPACITORS</b>	C819	K00175220	Ceramic disc " 22pF SL (DD104SL220J50)	
C712	K00175120	Ceramic disc 50WV 12pF CH (DD104SL120J50)			<b>TRIMMER CAPACITORS</b>	
C716	K22141904	chip ceramic 25WV 0.1 $\mu$ F D (C3216D1E104MFA)	TC801 TC803, 804 TC802	K91000101 K91000105 K91000107	ECR-GA010D30 10pF ECR-GA006A30 6pF ECR-GA015E30 15pF	
C711	K22170213	" " " 12pF " (C2012CH1H120JFA)				
C718	K22170315	" " " 15pF UF (C2012UJ1H150JFA)			<b>INDUCTORS</b>	
C706	K22170317	" " " 18pF UJ (C2012UJ1H180JFA)	L801-803 L805, 806 L804, 807, 808	L0021637 L0020720 L0021636		
C701	K22170223	" " " 33pF " (C2012CH1H330JFA)				
					<b>MIC AF UNIT</b>	
C713	K22170227	" " " 47pF " (C2012CH1H470JFA)	Symbol No.	Part No.	Description	
C702-705, C707-710, C714, 717	K22170805	" " " 0.001 $\mu$ F B (C2012B1H102MFA)		F2810101 C028101AA	Printed Circuit Board PCB with components	
			Q901	G1090726	IC M5224FP	

					(F951C105MRAAF1Q2)
		<b>TRANSISTOR</b>	C2004	K78120002	" " " 2.2 $\mu$ F
Q902	G3316237F	2SC1623-T2BL6			(F951C225MSAAF1Q2)
		<b>RESISTORS</b>	<b>INTERFACE UNIT</b>		
R901	J24205101	RMC 1/10T 101J 1/10W 100 $\Omega$	Symbol No.	Part No.	Description
R906	J24205331	" " 331J " 330 $\Omega$		F2816101A	Printed Circuit Board
R915	J24205152	" " 152J " 1.5k $\Omega$		C028161AA	PCB with components
R904, 913, 918	J24205222	" " 222J " 2.2k $\Omega$			
R916	J24205472	" " 472J " 4.7k $\Omega$			<b>RESISTOR</b>
R902	J24205103	" " 103J " 10k $\Omega$	R2101	J24205100	RMC1/10T 100J 1/10W 10 $\Omega$
R911	J24205153	" " 153J " 15k $\Omega$			
R920, 921	J24205183	" " 183J " 18k $\Omega$			<b>CAPACITORS</b>
R905, 919, 922	J24205223	" " 223J " 22k $\Omega$	C2101-2107	K22170805	chip ceramic 50WV 0.001 $\mu$ F B (C2012B1H102MFA)
R907	J24205333	" " 333J " 33k $\Omega$			
R903	J24205473	" " 473J " 47k $\Omega$			
R909, 917	J24205683	" " 683J " 68k $\Omega$			<b>SWITCH</b>
	J24205104	" " 104J " 100k $\Omega$	S2101	N4090091	SPJ422N26
R908, 910	J24205124	" " 124J " 120k $\Omega$			
R912	J24205105	" " 105J " 1M $\Omega$			<b>CONNECTORS</b>
R914	J24205225	" " 225J " 2.2M $\Omega$	J2101	P1090369	HSJ0838-01-010
			J2102	P1090370	HSJ0836-01-010
		<b>CAPACITORS</b>	J2103	P1090538	S-G8058
C907, 908, 910	K22141904	chip ceramic 25WV 0.1 $\mu$ F D (C3216D1E104MFA)			
			<b>CONNECTOR UNIT</b>		
C905	K22170801	" " 50WV 470pF B (C2012B1H471MFA)	Symbol No.	Part No.	Description
				F2818103	Printed Circuit Board
C903, 904, 906, 911, 912	K22170805	" " " 0.001 $\mu$ F " (C2012B1H102MFA)		C028183AA	PCB with components w/o BAT2201
C913	K22170813	" " " 0.0047 $\mu$ F " (C2012B1H472MFA)			
					<b>ICs</b>
C909	K22170817	" " " 0.01 $\mu$ F " (C2012B1H103MFA)	Q2201	G1090696	$\mu$ PD4094BG
			Q2202	G1090600	$\mu$ PD4011BG
C901	K78080003	Chip tantalum 6.3WV 10 $\mu$ F (F950J106MTAAF1Q2)			
					<b>DIODES</b>
C915	K78080014	" " " 68 $\mu$ F (F950J686MGCAF1)	D2201-2207	G2070024	MC2836-T14-2
C902, 914	K78120013	" " 16WV 1 $\mu$ F (F951C105MRAAF1Q2)			<b>RESISTORS</b>
		<b>SWITCH</b>	R2201	J24205104	RMC1/10T 104J 1/10W 100k $\Omega$
			R2202(Vers A)	J01225273	Carbon film 1/6W 27k $\Omega$
S901	N6090051	SSS212299	R2203( " )	J01225333	" " " 33k $\Omega$
					<b>CAPACITORS</b>
<b>VOX UNIT</b>			C2201-2208	K22170805	chip ceramic 50WV 0.001 $\mu$ F B (C2012B1H102MFA)
Symbol No.	Part No.	Description			
	F2809101	Printed Circuit Board			
	C028091AA	PCB with components			
					<b>CONNECTORS</b>
		<b>TRANSISTORS</b>	J2201	Q5000080	310-92-164-07
Q2001, 2003	G3108127F	2SA812-T2BM6B	J2202	Q5000081	310-92-164-08
Q2002	G3316237F	2SC1623-TZBL6	J2203	P0090490	PI22A07M
		<b>DIODES</b>			<b>BATTERY</b>
D2001, 2002	G2070018	MC2838-T14-2	BAT2201	Q9000268	CR2032-WT6
		<b>RESISTORS</b>	<b>TONE BURST UNIT</b>		
R2003, 2004	J24205103	RMC 1/10T 103J 1/10W 10k $\Omega$	Symbol No.	Part No.	Description
R2001	J24205153	" " 153J " 15k $\Omega$		F2815101	Printed Circuit Board
R2002	J24205473	" " 473J " 47k $\Omega$		C028151AA	PCB with components
R2005	J24205104	" " 104J " 100k $\Omega$			
					<b>IC</b>
		<b>CAPACITORS</b>	Q2301	G1090239	TC5082P-G
C2002	K22141904	chip ceramic 25WV 0.1 $\mu$ F D (C3216D1E104MFA)			
					<b>CRYSTAL</b>
C2001, 2005	K22170805	" " 50WV 0.001 $\mu$ F B (C2012B1H102MFA)	X2301*	H0101982	HC-18/T 7.168MHz 1750Hz
			X2301*	H0101983	" 7.3728MHz 1800Hz
C2003	K78120013	Chip tantalum 16WV 1 $\mu$ F			

		RESISTORS	BZ3001	M4290001	FEBRE-25D02
R2304	J24205273	RMC 1/10T 273J 1/10W 27kΩ			
R2302	J24205683	" " 683J " 68kΩ			RESISTORS
R2303	J24205154	" " 154J " 150kΩ	R3008	J02245470	Carbon film 1/4W 47Ω SJ
R2301	J24205474	" " 474J " 470kΩ	3035, 3050, 3063	J24205000	RMC 1/10T 000J 1/10W 0Ω
			R3049	J24205101	" " 101J " 100Ω
		CAPACITORS	R3027, 3056	J24205331	" " 331J " 330Ω
C2302, C2303	K22170223	chip ceramic 50WV 33pF CH (C2012CH1H330JFA)	R3110	J24205391	" " 391J " 390Ω
C2301	K22170315	" " " 15pF UJ (C2012UJ1H150JFA)	R3083	J24205471	" " 471J " 470Ω
C2305	K22170805	" " " 0.001μF B (C2012B1H102MFA)	R3057, 3100-3105	J24205681	" " 681J " 680Ω
C2304	K22170817	" " " 0.01μF " (C2012B1H103MFA)	R3004, 3012-3014 3016, 3024, 3030, 3077	J24205102	" " 102J " 1kΩ
CONTROL UNIT			R3054, 3109	J24205222	" " 222J " 2.2kΩ
Symbol No.	Part No.	Description	R3010	J24205272	" " 272J " 2.7kΩ
	F2803101A	Printed Circuit Board	R3005, 3007	J24205332	" " 332J " 3.3kΩ
	C028031AA	PCB with components	R3107	J24205392	" " 392J " 3.9kΩ
			R3017, 3020-3023, 3026, 3031	J24205472	" " 472J " 4.7kΩ
		ICs	R3011	J24205682	" " 682J " 6.8kΩ
Q3001	G1090740	HD613901A55	R3006, 3009, 3019, 3044-3046, 3079, 3082, 3085, 3086, 3088, 3092, 3094, 3096-3098	J24205103	" " 103J " 10kΩ
Q3002	G1090728	M5233FP			
Q3003, 3004	G1090600	μPD4011BG			
Q3005	G1090729	LA5005MH			
Q3006	G1090731	LR40872			
Q3007	G1090730	PST524C			
		TRANSISTORS	R3039	J24205123	" " 123J " 12kΩ
Q3008, 3018, 3028, 3030	G3108127F	2SA812-T2BM6B	R3053	J24205153	" " 153J " 15kΩ
Q3009	G3112430Y	2SA1243LB-Y	R3040, 3043	J24205223	" " 223J " 22kΩ
Q3010, 3011 3019-3023 3025-3027 3029, 3031	G3316237F	2SA1623-T2BL6	R3042	J24205393	" " 393J " 39kΩ
Q3012-3015, 3017	G3113657G	2SA1365AG	R3001, 3002, 3015, 3037, 3038, 3047, 3048, 3055, 3058-3062, 3065-3072, 3078, 3108	J24205473	" " 473J " 47kΩ
Q3016	G3207667R	2SB766-R TW	R3028	J24205683	" " 683J " 68kΩ
Q3024	G3413667D	2SD1366A-AD-TR	R3032, 3041	J24205823	" " 823J " 82kΩ
Q3032, 3033	G3070001	FA1A4M	R3003, 3018, 3025, 3033, 3034, 3051, 3080, 3081, 3090, 3091, 3093, 3095, 3106	J24205104	" " 104J " 100kΩ
		DIODES	R3073-3076	J24205224	" " 224J " 220kΩ
D3001, 3002, 3004 3007, 3008 3010, 3011, 3015 3016, 3019	G2070018	MC2838-T14-2 Si	R3064, 3084, 3087 3089, 3099	J24205105	" " 105J " 1MΩ
D3009	G2070024	MC2836-T14-2 "	R3029	J01215471	Carbon film 1/8W 470kΩ TJ
D3013	G2090118	1SS97 Schottky	R3106	J01215104	Carbon film 1/8W 100kΩ "
D3003	G2090111	HZ6C1 Zener			POTENTIOMETERS
D3014	G2090365	HZ5ALL "	VR3001	J60800105	K0911100B-5R1111-20KA 20kΩA (VOL)
D3017	G2090201	RD3.3EB2 "	VR3002	J60800111	K0911005K-5KB 5kΩ0B3 (SQL)
D3018	G2090266	RD3.9EB2 "	VR3003, 3004	J51762473	H0521A117A-47KB 47kΩB
D3005	G2070028	SLM-23VMW T-97 LED			CAPACITORS
D3012	G2070030	SLM-13VM T-97 "	C3056	K12171101	Ceramic disc 50WV 0.001μF E (DD104E102P50)
D3020-3025	G2070036	SLM-13MW T-97 "	C3029-3032, 3044, 3045	K22170235	Chip Ceramic " 100pF CH (C2012CH1H101JFA)
D3026	G2015550	1S1555 Si	C3070-3073	K22170227	" " " 47pF " (C2012CH1H470JFA)
		LIQUID CRYSTAL DISPLAY	C3007, 3012, 3015-3026, 3028, 3033-3035, 3039, 3041, 3047-3050 3052-3055 3058-3060, 3062, 3063, 3065-3069	K22170805	" " " 0.001μF B (C2012B1H102MFA)
DS3001	G6090054	LS183-A			
		CERAMIC RESONATORS			
CO3001	H7900270	CSB800k			
CO3002	H7900337	FAR-C4CA-03580000-MOO-S			
		BEEPER			



C3001, 3003, 3005, 3006, 3010, 3011, 3013, 3040, 3042, 3043	K22170817	" " " 0.01 $\mu$ F " (C2012B1H103MFA)
C3039	K22141904	" " 25WV 0.1 $\mu$ F D (C3216D1E104MFA)
C3046	K40089010	Electrolytic 6.3WV 220 $\mu$ F (RC2-6V221M)
C3014	K40089003	" " 47 $\mu$ F (RC2-6V101M)
C3009, 3057	K40089003	" 16WV 100 $\mu$ F (RC2-16V101M)
C3051	K70147225	Tantalum 25WV 2.2 $\mu$ F (DN1E2R2MIS)
C3064	K78140002	Chip tantalum 25WV 1 $\mu$ F (F951E105MSAAF1Q2)
C3004	K78080002	" " 6.3WV 4.7 $\mu$ F (F950J475MSAAF1Q2)
C3002, 3036	K78080003	" " " 10 $\mu$ F (F950J106MTAAF1Q2)
C3027	K78120002	" " 16WV 2.2 $\mu$ F (F951C225MSAAF1Q2)
		<b>MICROPHONE</b>
MIC3001	M3290007	EM-78
		<b>SPEAKER</b>
SP3001	M4090063	TO36S13Y2611
		<b>SWITCHES</b>
S3001		with VR3001
S3002, 3003	N4090091	SPJ422N26
S3004, 3005	N6090060	SSS712
		<b>LAMP</b>
PL3001	Q1000060	KD-0001-01 6V 40AM
	R0507460	LCD MOUNT
<b>ACCESSORIES</b>		
<b>Symbol No.</b>	<b>Part No.</b>	<b>Description</b>
		<b>ANTENNA</b>
	Q3000046	YHA-27
		Ni-Cd BATTERY PACK* FNB-3A FNB-4A
		<b>DRY BATTERY CASE*</b>
		FBA-5A
		<b>CHARGER FOR FNB-3A*</b>
	Q9000070	NC-9A 100V AC
	Q9000071	NC-9B 117V AC
	Q9000072	NC-9C 220-234V AC
		<b>CHARGER FOR FNB-4A*</b>
	Q9000279	NC-18A 100V AC
	Q9000280	NC-18B 117V AC
	Q9000281	NC-18C 220-234V AC
		<b>CARRYING CASE*</b>
		CSC-17 use W/FNB-3A
		CSC-18 use W/FNB-4A