



Preliminary Service Manual

FT-911

**YAESU U.S.A.
17210 Edwards Road
Cerritos, CA. 90701**

FT-911 PRELIMINARY SERVICE INFORMATION

This document presents basic alignment, part location, and part identification information for the dealer or user. It is intended to serve as a temporary aid to the individual who needs to perform the more common performance optimization tasks, and it is provided in advance of the arrival of the regular Technical Supplement for the FT-911, which will arrive in due course.

The information presented herein is believed to be correct and factual. Your kind assistance, however, in pointing out any inconsistencies in the documentation would be appreciated.

YAESU U.S.A.
17210 Edwards Road
Cerritos, California 90701

Required Test Equipment

- | | |
|--|--|
| --Variable Voltage DC Power Supply | --Frequency Counter Good to 1300 MHz |
| --DC Voltmeter, with at least one range of 3 VDC maximum | --FM Deviation Meter |
| --Calibrated Audio Generator | --Oscilloscope |
| --AF Millivoltmeter | --RF Millivoltmeter |
| --Hybrid Combiner (aka "CM Coupler") | --RF Signal Generator Good to 1300 MHz |
| --RF Power Meter Good to 1300 MHz | --SINAD Meter |
| --50 Ohm Dummy Load Good to 1300 MHz | --Audio Dummy Load or 8 Ohm Speaker |
| --Spectrum Analyzer | |

Note: All signal generator levels are quoted with reference to "0 dBu" equal to 0.5 uV at 50 Ohms.

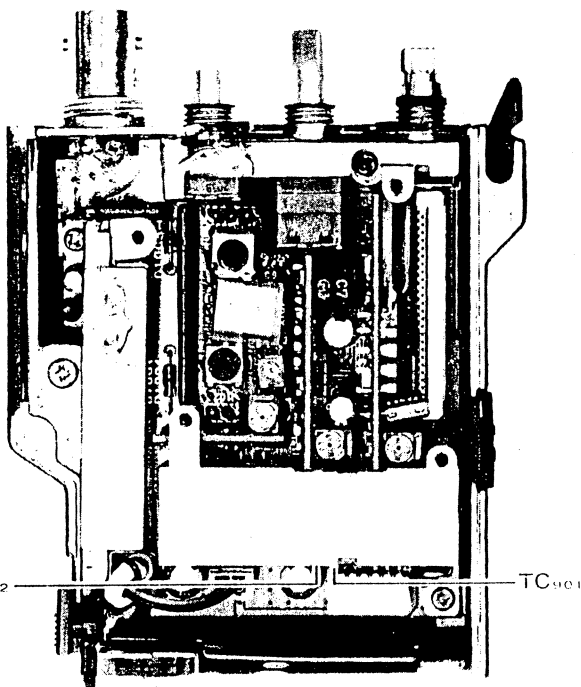
ALIGNMENT PROCEDURE

PLL Master Oscillator

1. Connect the dummy load to the antenna jack, and connect the frequency counter through the sampling coupler to the antenna line. Set the main dial to 1280.000 MHz simplex. Close the PTT switch, and adjust TC901 (PLL Unit) for a counter reading of 1280.000 MHz \pm 300 Hz.

VCV Voltage Verification

1. Connect the DC voltmeter to TP2, located inside the shield case in the PLL area.
2. Set the main dial to a frequency of 1300.000 MHz. Verify that the the voltmeter reading is less than 4.6V.
3. Set the main dial to 1260.000 MHz. Verify that the voltmeter reading is at least 0.7V.



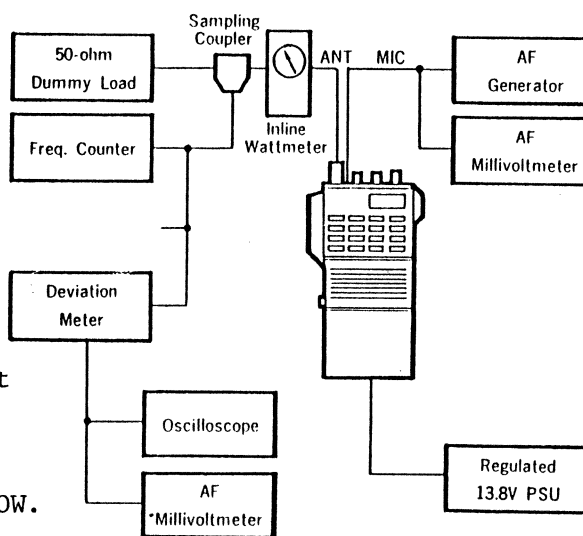
PLL ALIGNMENT POINTS

TRANSMITTER SECTION

Connect the transceiver to the test equipment as shown.

PO

1. Set the main dial to 1260,000 MHz. Confirm that the input voltage to the transceiver is 13.8V.
2. Set the power selection switch to HI. Close the PTT switch, and adjust VR701 (APC Unit) for a reading of exactly 1W on the wattmeter.
3. Set the power swlection switch to LOW. Verify that the low power level is 0.15W \pm 0.05W.
4. If the bandpass circuits are properly aligned, the power output in high power mode should be within 0.2W.



PLL & TRANSMITTER ALIGNMENT SETUP

Deviation

1. Set the main dial to 1280.00 MHz. Inject a 25 mV, 1 kHz signal to the microphone jack. Adjust VR601 (REG Unit) for \pm 4.5 kHz deviation.

TRANSMITTER ALIGNMENT (CONT.)

VOX Threshold

1. Push the front panel VOX key. Inject a 1.5 mV 1 kHz signal to the microphone jack. Verify that the VOX circuit activates at this level.
2. Set the VOX button to LOW. Verify that the VOX activates at an input level of 2.5 mV to the MIC jack.

RECEIVER ALIGNMENT

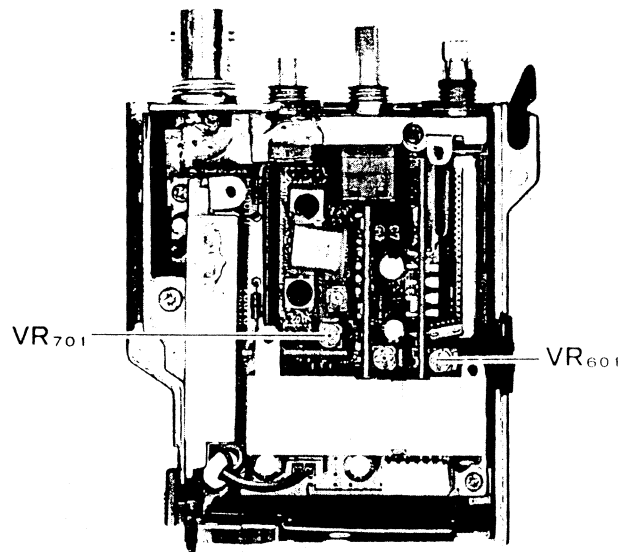
Connect the test equipment as shown.

AFC Alignment

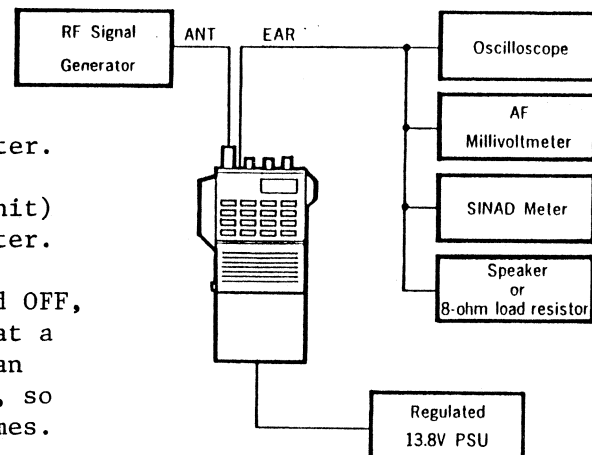
1. Turn the AFC ON. Set the main dial and signal generator to 1280.000 MHz. Superimpose a 1 kHz, 3.5 kHz deviation signal, and adjust L101 (AFC Unit) for the best SINAD as shown on the SINAD meter.
2. Switch the AFC OFF. Adjust VR101 (AFC Unit) for best SINAD as shown on the SINAD meter.
3. Repeat steps 1 and 2 with the AFC ON and OFF, so as to achieve a 12 dB SINAD reading at a signal generator input level of less than 0.2 uV. The adjustments are interactive, so these steps must be repeated several times.

S Meter

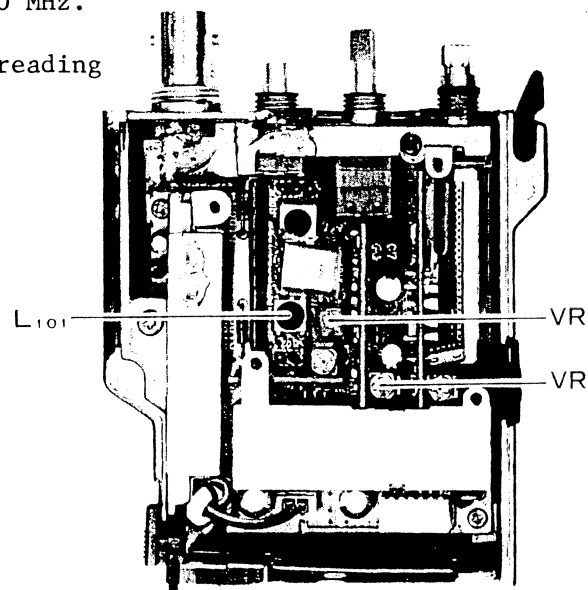
1. Inject a 20 dBu (5 uV) signal at 1280.000 MHz. Tune the transceiver to that frequency. Adjust VR501 (IF Unit) for a full scale reading on the S-meter.



TRANSMITTER ALIGNMENT POINTS



RECEIVER ALIGNMENT SETUP



RECEIVER ALIGNMENT POINTS

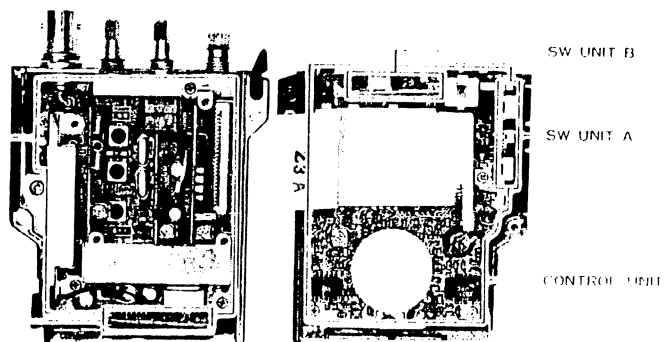
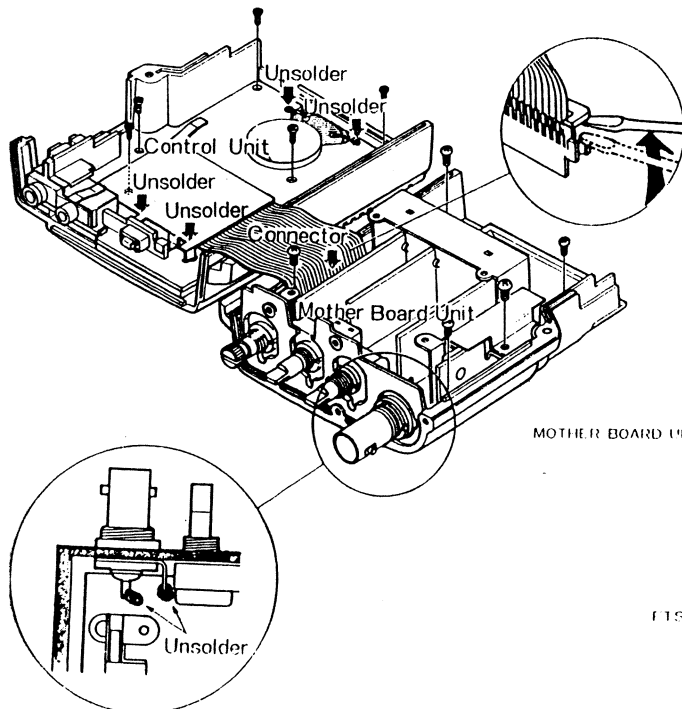
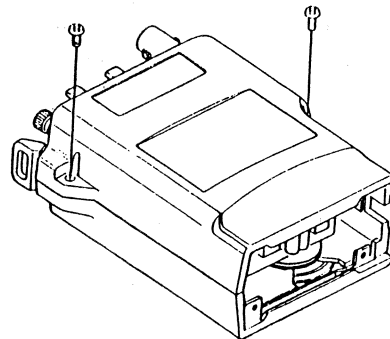
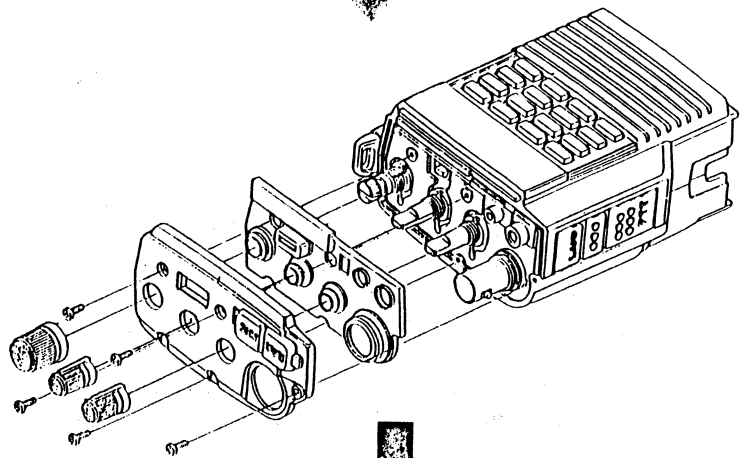
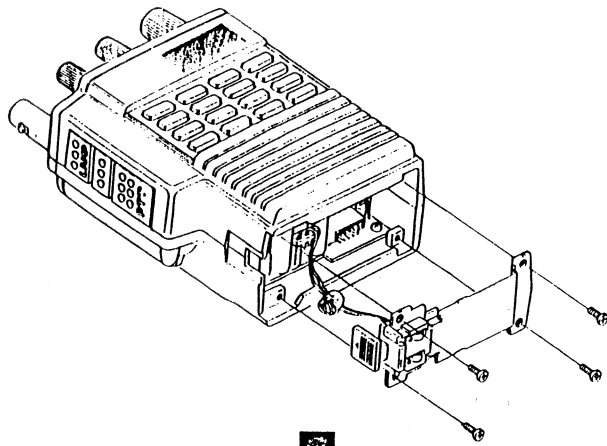
CIRCUIT BOARD ACCESS

- 1) Make sure the transceiver is off. Remove the hard or soft case, if used, and remove the battery pack. Also remove the antenna.
- 2) Remove the four screws affixing the battery spring plate on the bottom of the transceiver, and carefully remove the plate and the battery catch button.
- 3) Pull off the three knobs on the top panel. Then remove the five screws affixing the panel and carefully remove it and the rubber gasket underneath.
- 4) Remove the two screws affixing the front and rear halves of the case, and slowly separate the halves, using care not to stress the inter-connecting cable.

To separate the front and rear halves of the chassis, use a small screwdriver to pry up one side of the plug on the "rear panel end" of the flat cable (see upper inset in diagram below), and then gently pull the plug out of its jack.

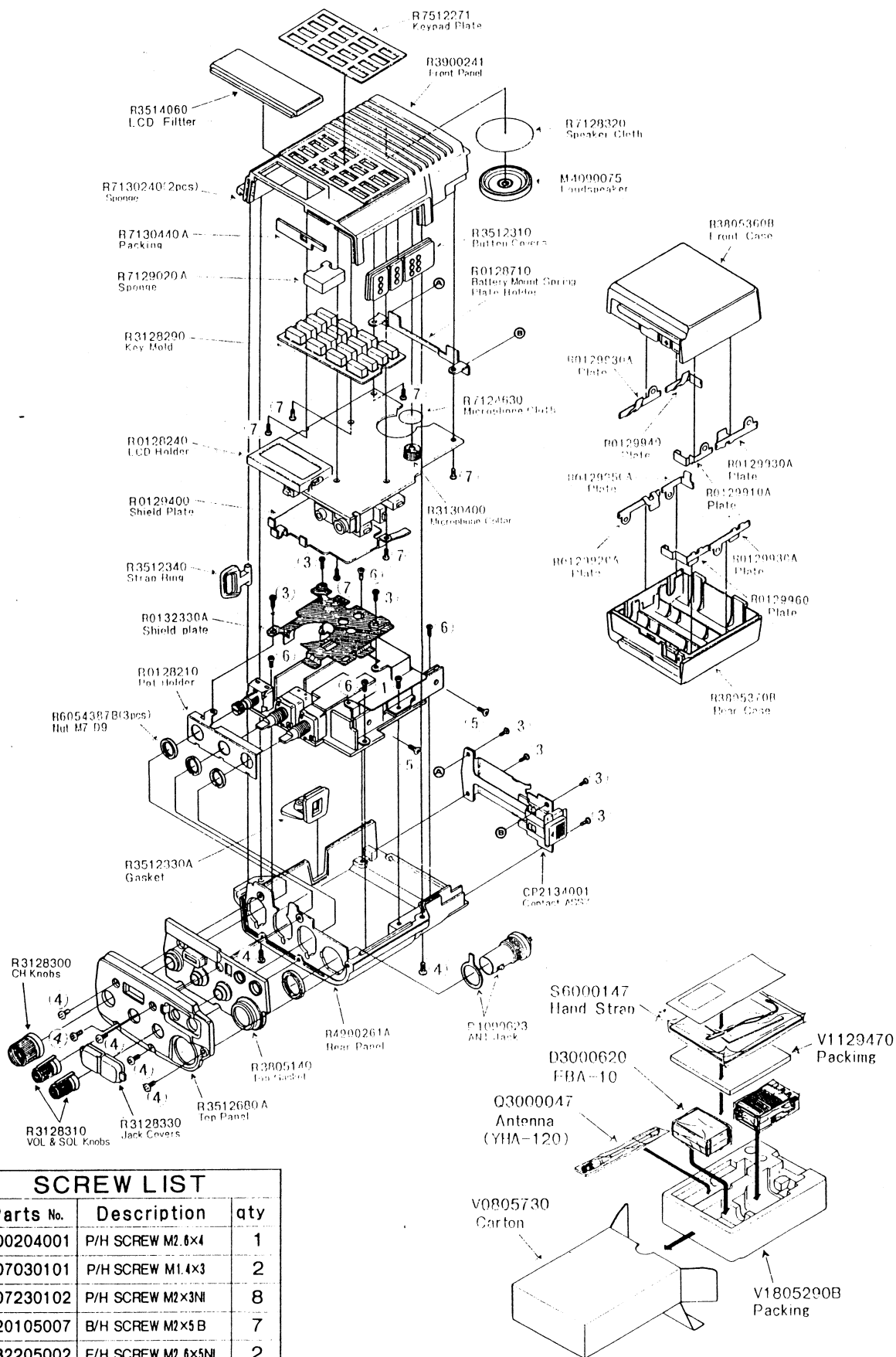
To remove the Control Unit from the front half of the chassis, remove the five screws indicated in the diagram, and unsolder the shield plate (2 places) and the loudspeaker wires (2 places).

To remove the Mother Board Unit from the rear half of the chassis, unsolder the ANT jack from the Mother Board (2 places, see lower inset), and then remove the five screws shown.



BOARD LOCATIONS

EXPLODED VIEW

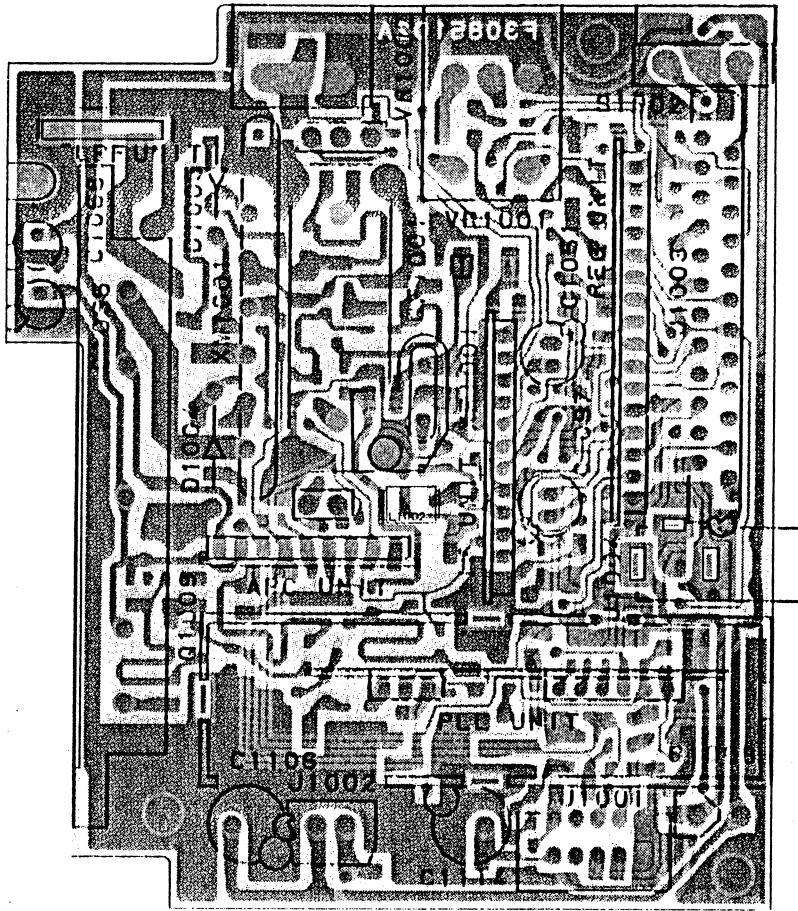


SCREW LIST

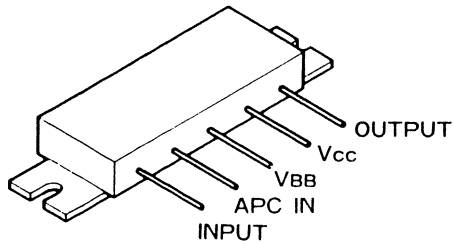
No.	Parts No.	Description	Qty
(1)	U00204001	P/H SCREW M2.6x4	1
(2)	U07030101	P/H SCREW M1.4x3	2
(3)	U07230102	P/H SCREW M2x3NI	8
(4)	U20105007	B/H SCREW M2x5 B	7
(5)	U32205002	F/H SCREW M2.6x5NI	2
(6)	U9900004	P/H. T SCREW M2x4	4
(7)	S5000102	T SCREW M2x4	6

MOTHER BOARD UNIT PARTS LAYOUT

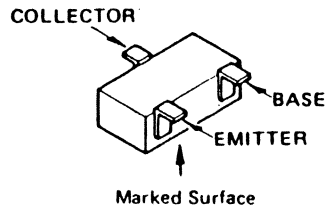
MOTHER BOARD UNIT (No. 1 × X)



obverse view of "component" side

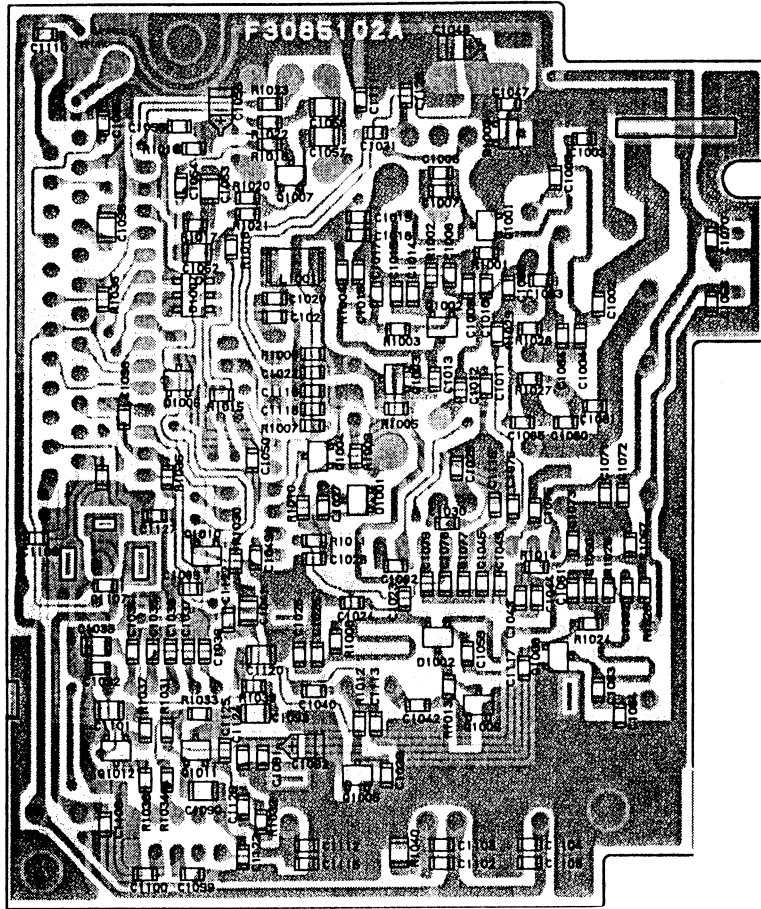


M57787 (Q1009)

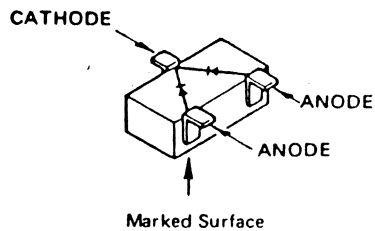


- | | |
|-------------------------------------|-------------------------------|
| 2SC4116GR (LG)
(Q1007,1011,1021) | 2SC4227 (R34)
(Q1001,1002) |
| 2SC4215Y (QY)
(Q1004) | 2SC4228 (R44)
(Q1003) |
| 2SC4226 (R24)
(Q1006,1008) | DTC144EU (26)
(Q1005,1010) |

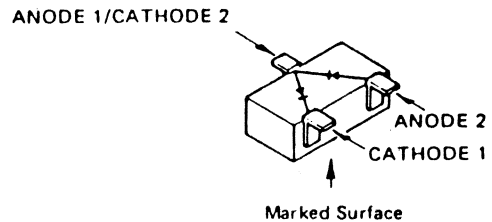
MOTHER BOARD UNIT PARTS LAYOUT



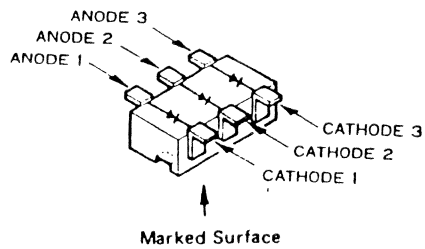
obverse view of "chip-only" side



1SS301 (B3) (D1002)

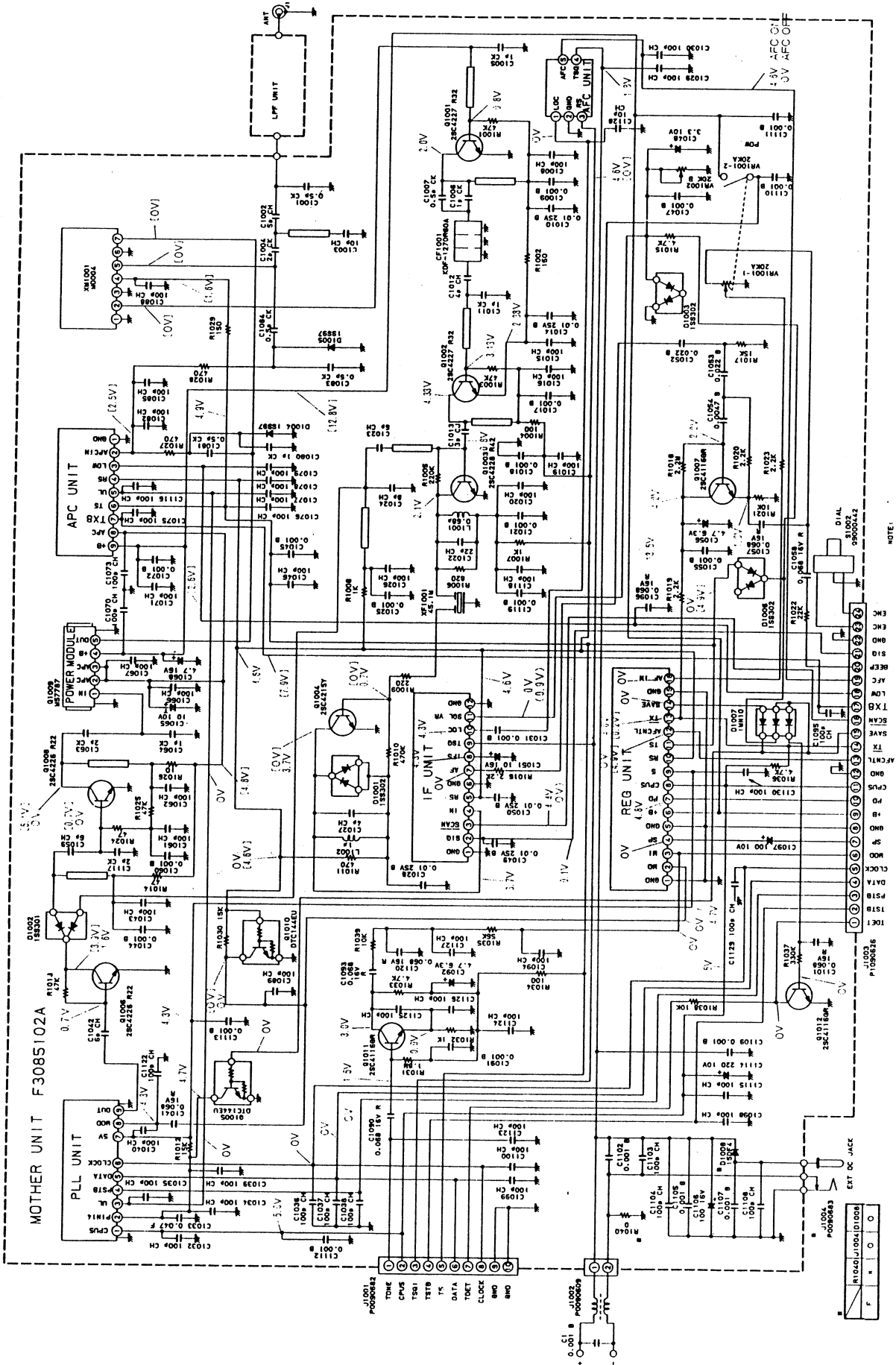


1SS302 (C3)
(1001,1003,1006)



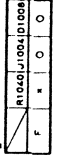
IMN10 (N10) (D1007)

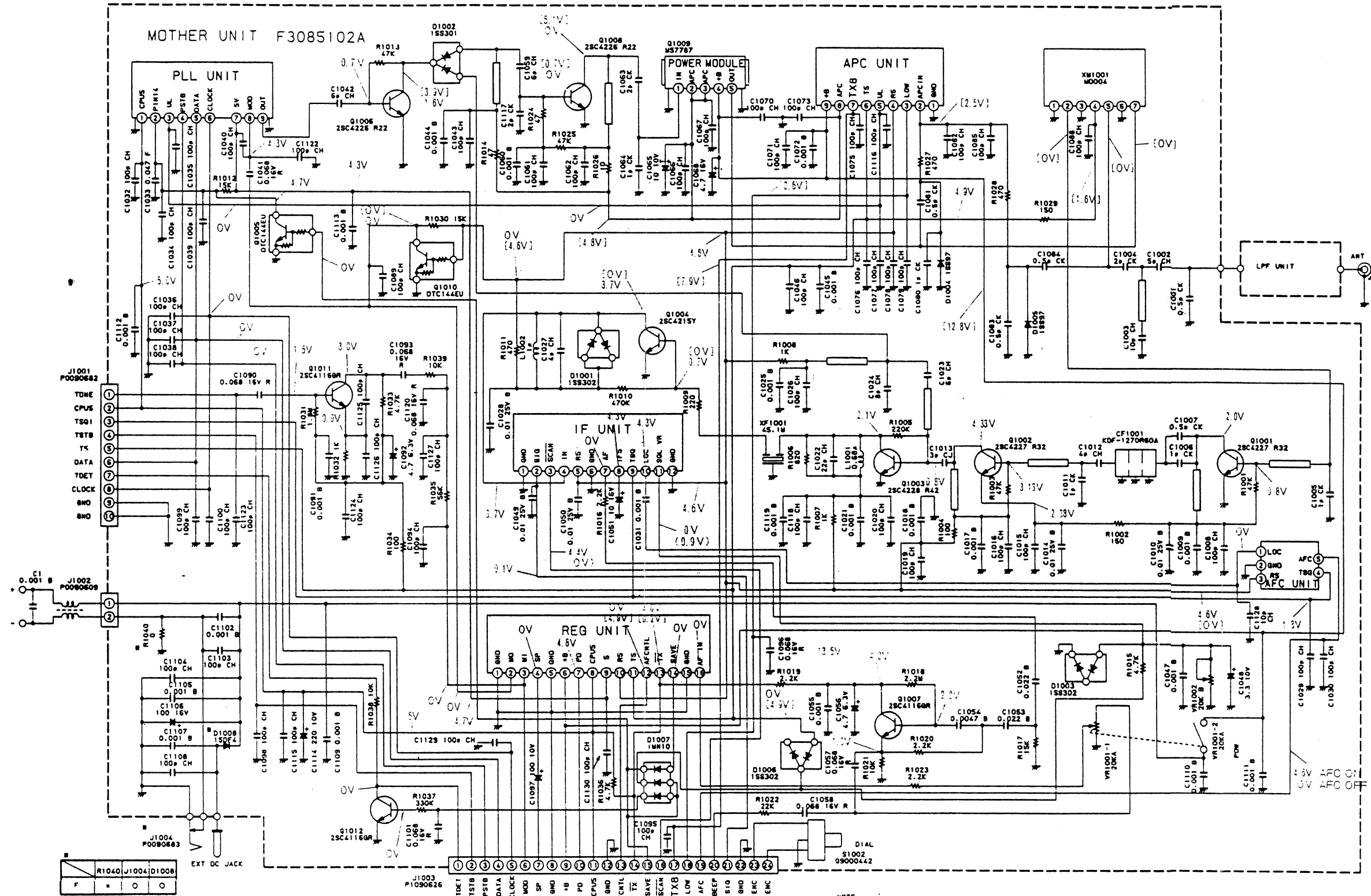
MOTHER BOARD UNIT CIRCUIT DIAGRAM



NOTE:
RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE NOTED.
CAPACITOR VALUES ARE IN P.F. UNLESS OTHERWISE NOTED.

SEMICONDUCTORS SUB-UNITS





SEMICONDUCTORS
SUB-UNITS

NOTE:
RESISTOR VALUES ARE IN Ω , $\frac{1}{16}$ W;
CAPACITOR VALUES ARE IN pF, 50V;
M CAPACITOR VALUES ARE TANTALUM;
UNLESS OTHERWISE NOTED.

MOTHER BOARD UNIT PARTS LIST

*** MOTHER UNIT ***

CP2124001 P.C.B. W/COMP./IF/REG/LPF/
PLL/CLOCK/AFC/APC UNITS
F3085102A P.C.B. W/O COMP.

C 1001	K22174201	CHIP CAP.	0.5pF	50V	CK
C 1002	K22174206	CHIP CAP.	5pF	50V	CH
C 1003	K22174211	CHIP CAP.	10pF	50V	CH
C 1004	K22174203	CHIP CAP.	2pF	50V	CK
C 1005	K22174202	CHIP CAP.	1pF	50V	CK
C 1006	K22174202	CHIP CAP.	1pF	50V	CK
C 1007	K22174201	CHIP CAP.	0.5pF	50V	CK
C 1008	K22174235	CHIP CAP.	100pF	50V	CH
C 1009	K22174809	CHIP CAP.	0.001uF	50V	B
C 1010	K22144802	CHIP CAP.	0.01uF	25V	B
C 1011	K22174202	CHIP CAP.	1pF	50V	CK
C 1012	K22174205	CHIP CAP.	4pF	50V	CH
C 1013	K22174204	CHIP CAP.	3pF	50V	CJ
C 1014	K22144802	CHIP CAP.	0.01uF	25V	B
C 1015	K22174235	CHIP CAP.	100pF	50V	CH
C 1016	K22174235	CHIP CAP.	100pF	50V	CH
C 1017	K22174809	CHIP CAP.	0.001uF	50V	B
C 1018	K22174809	CHIP CAP.	0.001uF	50V	B
C 1019	K22174235	CHIP CAP.	100pF	50V	CH
C 1020	K22174235	CHIP CAP.	100pF	50V	CH
C 1021	K22174809	CHIP CAP.	0.001uF	50V	B
C 1022	K22174219	CHIP CAP.	22pF	50V	CH
C 1023	K22174207	CHIP CAP.	6pF	50V	CH
C 1024	K22174209	CHIP CAP.	8pF	50V	CH
C 1025	K22174809	CHIP CAP.	0.001uF	50V	B
C 1026	K22174235	CHIP CAP.	100pF	50V	CH
C 1027	K22174205	CHIP CAP.	4pF	50V	CH
C 1028	K22144802	CHIP CAP.	0.01uF	25V	B
C 1029	K22174235	CHIP CAP.	100pF	50V	CH
C 1030	K22174235	CHIP CAP.	100pF	50V	CH
C 1031	K22174809	CHIP CAP.	0.001uF	50V	B
C 1032	K22174235	CHIP CAP.	100pF	50V	CH
C 1033	K22171008	CHIP CAP.	0.047uF	50V	F
C 1034	K22174235	CHIP CAP.	100pF	50V	CH
C 1035	K22174235	CHIP CAP.	100pF	50V	CH
C 1036	K22174235	CHIP CAP.	100pF	50V	CH
C 1037	K22174235	CHIP CAP.	100pF	50V	CH
C 1038	K22174235	CHIP CAP.	100pF	50V	CH
C 1039	K22174235	CHIP CAP.	100pF	50V	CH
C 1040	K22174235	CHIP CAP.	100pF	50V	CH
C 1041	K22120805	CHIP CAP.	0.068uF	16V	R
C 1042	K22174207	CHIP CAP.	6pF	50V	CH
C 1043	K22174235	CHIP CAP.	100pF	50V	CH
C 1044	K22174809	CHIP CAP.	0.001uF	50V	B
C 1045	K22174809	CHIP CAP.	0.001uF	50V	B
C 1046	K22174235	CHIP CAP.	100pF	50V	CH
C 1047	K22174809	CHIP CAP.	0.001uF	50V	B
C 1048	K78100002	CHIP TA CAP.	3.3uF	10V	
C 1049	K22144802	CHIP CAP.	0.01uF	25V	B
C 1050	K22144802	CHIP CAP.	0.01uF	25V	B
C 1051	K40129012	AL. ELECTRO. CAP.	10uF	16V	
C 1052	K22170821	CHIP CAP.	0.022uF	50V	B
C 1053	K22170821	CHIP CAP.	0.022uF	50V	B
C 1054	K22174817	CHIP CAP.	0.0047uF	50V	B
C 1055	K22174809	CHIP CAP.	0.001uF	50V	B
C 1056	K78080002	CHIP TA CAP.	4.7uF	6.3V	
C 1057	K22120805	CHIP CAP.	0.068uF	16V	R
C 1058	K22120805	CHIP CAP.	0.068uF	16V	R
C 1059	K22174207	CHIP CAP.	6pF	50V	CH
C 1060	K22174809	CHIP CAP.	0.001uF	50V	B
C 1061	K22174235	CHIP CAP.	100pF	50V	CH
C 1062	K22174235	CHIP CAP.	100pF	50V	CH
C 1063	K22174203	CHIP CAP.	2pF	50V	CK
C 1064	K22174202	CHIP CAP.	1pF	50V	CK
C 1065	K70107106	TANTALUM CAP.	10uF	10V	

MOTHER BOARD UNIT PARTS LIST

C 1066	K22174235	CHIP CAP.	100pF	50V	CH
C 1067	K22174235	CHIP CAP.	100pF	50V	CH
C 1068	K40129059	AL. ELECTRO. CAP.	4.7uF	16V	
C 1070	K22174235	CHIP CAP.	100pF	50V	CH
C 1071	K22174235	CHIP CAP.	100pF	50V	CH
C 1072	K22174809	CHIP CAP.	100puF	50V	B
C 1073	K22174235	CHIP CAP.	100pF	50V	CH
C 1075	K22174235	CHIP CAP.	100pF	50V	CH
C 1076	K22174235	CHIP CAP.	100pF	50V	CH
C 1077	K22174235	CHIP CAP.	100pF	50V	CH
C 1078	K22174235	CHIP CAP.	100pF	50V	CH
C 1079	K22174235	CHIP CAP.	100pF	50V	CH
C 1080	K22174202	CHIP CAP.	100pF	50V	CH
C 1081	K22174201	CHIP CAP.	1pF	50V	CK
C 1082	K22174235	CHIP CAP.	0.5pF	50V	CK
C 1083	K22174201	CHIP CAP.	100pF	50V	CH
C 1084	K22174201	CHIP CAP.	0.5pF	50V	CK
C 1085	K22174235	CHIP CAP.	0.5pF	50V	CK
C 1088	K22174235	CHIP CAP.	100pF	50V	CH
C 1089	K22174235	CHIP CAP.	100pF	50V	CH
C 1090	K22120805	CHIP CAP.	100pF	50V	CH
C 1091	K22174809	CHIP CAP.	0.068uF	16V	R
C 1092	K78080002	CHIP TA CAP.	0.001uF	50V	B
C 1093	K22120805	CHIP CAP.	4.7uF	6.3V	
C 1094	K22174235	CHIP CAP.	0.068uF	16V	R
C 1095	K22174235	CHIP CAP.	100pF	50V	CH
C 1096	K22174235	CHIP CAP.	100pF	50V	CH
C 1096	K22120805	CHIP CAP.	100pF	50V	CH
C 1097	K40109026	AL. ELECTRO. CAP.	0.068uF	16V	R
C 1098	K22174235	CHIP CAP.	100uF	10V	
C 1099	K22174235	CHIP CAP.	100pF	50V	CH
C 1100	K22174235	CHIP CAP.	100pF	50V	CH
C 1101	K22120805	CHIP CAP.	100pF	50V	CH
C 1102	K22174809	CHIP CAP.	0.068uF	16V	R
C 1103	K22174235	CHIP CAP.	0.001uF	50V	B
C 1104	K22174235	CHIP CAP.	100pF	50V	CH
C 1105	K22174809	CHIP CAP.	100pF	50V	CH
C 1106	K40129060	AL. ELECTRO. CAP.	0.001uF	50V	B
C 1107	K22174809	CHIP CAP.	100uF	16V	
C 1108	K22174235	CHIP CAP.	0.001uF	50V	B
C 1109	K22174809	CHIP CAP.	100pF	50V	CH
C 1110	K22174809	CHIP CAP.	0.001uF	50V	B
C 1111	K22174809	CHIP CAP.	0.001uF	50V	B
C 1112	K22174809	CHIP CAP.	0.001uF	50V	B
C 1113	K22174809	CHIP CAP.	0.001uF	50V	B
C 1114	K40109027	AL. ELECTRO. CAP.	0.001uF	50V	B
C 1115	K22174235	CHIP CAP.	220uF	10V	
C 1116	K22174235	CHIP CAP.	100pF	50V	CH
C 1117	K22174203	CHIP CAP.	100pF	50V	CH
C 1118	K22174235	CHIP CAP.	2pF	50V	CK
C 1118	K22174235	CHIP CAP.	100pF	50V	CH
C 1119	K22174809	CHIP CAP.	100pF	50V	CH
C 1120	K22174809	CHIP CAP.	0.001uF	50V	B
C 1120	K22120805	CHIP CAP.	0.068uF	16V	R
C 1122	K22174235	CHIP CAP.	100pF	50V	CH
C 1123	K22174235	CHIP CAP.	100pF	50V	CH
C 1124	K22174235	CHIP CAP.	100pF	50V	CH
C 1125	K22174235	CHIP CAP.	100pF	50V	CH
C 1126	K22174235	CHIP CAP.	100pF	50V	CH
C 1127	K22174235	CHIP CAP.	100pF	50V	CH
C 1128	K22174211	CHIP CAP.	10pF	50V	CH
C 1129	K22174235	CHIP CAP.	100pF	50V	CH
C 1130	K22174235	CHIP CAP.	100pF	50V	CH

CF1001 H3900397 CERAMIC FILTER KDF-1270R60A

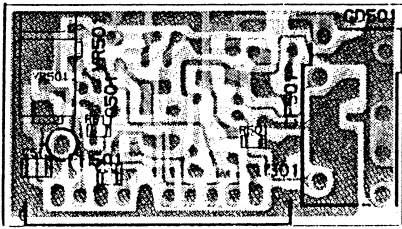
D 1001	G2070088	DIODE	1SS302		
D 1002	G2070086	DIODE	1SS301	TE85R	
D 1003	G2070088	DIODE	1SS302	TE85R	
D 1004	G2090118	DIODE	1SS97		
D 1005	G2090118	DIODE	1SS97		
D 1006	G2070088	DIODE	1SS302	TE85R	
D 1007	G2070078	DIODE	1MN10	T108	
D 1008	G2090462	DIODE	15DF4		

MOTHER BOARD UNIT PARTS LIST

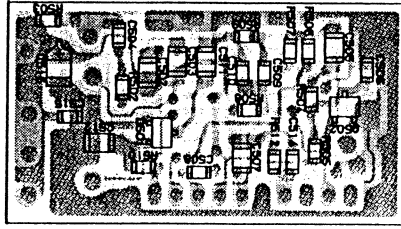
J 1001	P0090682	CONNECTOR	53020-1010
J 1002	P0090609	CONNECTOR	SB20-02WS
J 1003	P1090626	CONNECTOR	52030-2420
J 1004	P0090683	CONNECTOR	HEC1781-01-520
L 1001	L1690067	COIL	0.68uH
L 1002	L1690016	COIL	1uH
Q 1001	G3342277B	TRANSISTOR	2SC4227-T2B R32
Q 1002	G3342277B	TRANSISTOR	2SC4227-T2B R32
Q 1003	G3342287B	TRANSISTOR	2SC4228-T2B R42
Q 1004	G3342157Y	TRANSISTOR	2SC4215Y TE85R
Q 1005	G3070041	TRANSISTOR	DTC144EU T107
Q 1006	G3342267B	TRANSISTOR	2SC4226-T2B R22
Q 1007	G3341167G	TRANSISTOR	2SC4116GR TE85R
Q 1008	G3342267B	TRANSISTOR	2SC4226-T2B R22
Q 1009	G1090802	IC	M57787
Q 1010	G3070041	TRANSISTOR	DTC144EU T107
Q 1011	G3341167G	TRANSISTOR	2SC4116GR TE85R
Q 1012	G3341167G	TRANSISTOR	2SC4116GR TE85R
R 1001	J24185473	CHIP RES.	47K 1/16W
R 1002	J24185151	CHIP RES.	150 1/16W
R 1003	J24185473	CHIP RES.	47K 1/16W
R 1004	J24185101	CHIP RES.	100 1/16W
R 1005	J24185224	CHIP RES.	220K 1/16W
R 1006	J24185821	CHIP RES.	820 1/16W
R 1007	J24185102	CHIP RES.	1K 1/16W
R 1008	J24185102	CHIP RES.	1K 1/16W
R 1009	J24185221	CHIP RES.	220 1/16W
R 1010	J24185474	CHIP RES.	470K 1/16W
R 1011	J24185471	CHIP RES.	470 1/16W
R 1012	J24185153	CHIP RES.	15K 1/16W
R 1013	J24185473	CHIP RES.	47K 1/16W
R 1014	J24185470	CHIP RES.	47 1/16W
R 1015	J24185472	CHIP RES.	4.7K 1/16W
R 1016	J24185222	CHIP RES.	2.2K 1/16W
R 1017	J24185153	CHIP RES.	15K 1/16W
R 1018	J24185225	CHIP RES.	2.2M 1/16W
R 1019	J24185222	CHIP RES.	2.2K 1/16W
R 1020	J24185222	CHIP RES.	2.2K 1/16W
R 1021	J24185103	CHIP RES.	10K 1/16W
R 1022	J24185223	CHIP RES.	22K 1/16W
R 1023	J24185222	CHIP RES.	2.2K 1/16W
R 1024	J24185470	CHIP RES.	47 1/16W
R 1025	J24185473	CHIP RES.	47K 1/16W
R 1026	J24185100	CHIP RES.	10 1/16W
R 1027	J24185471	CHIP RES.	470 1/16W
R 1028	J24185471	CHIP RES.	470 1/16W
R 1029	J24185151	CHIP RES.	150 1/16W
R 1030	J24185153	CHIP RES.	15K 1/16W
R 1031	J24185185	CHIP RES.	1.8M 1/16W
R 1032	J24185102	CHIP RES.	1K 1/16W
R 1033	J24185472	CHIP RES.	4.7K 1/16W
R 1034	J24185101	CHIP RES.	100 1/16W
R 1035	J24185563	CHIP RES.	56K 1/16W
R 1036	J24185472	CHIP RES.	4.7K 1/16W
R 1037	J24185334	CHIP RES.	330K 1/16W
R 1038	J24185103	CHIP RES.	10K 1/16W
R 1039	J24185103	CHIP RES.	10K 1/16W
S 1002	Q9000442	SWITCH	EC09P20-04
VR1002	J60800150	POT. RK0971110	20KB
XF1001	H1102155	XTAL FILTER	45.1M
XM1001	Q7000054	PWR MODULE	M0004

IF UNIT PARTS LAYOUT/CIRCUIT DIAGRAM

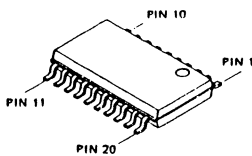
IF UNIT (No. 5 × X)



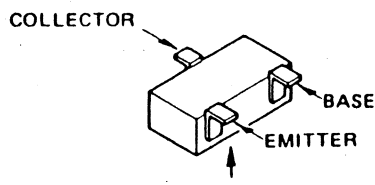
obverse view of "mixed-component" side



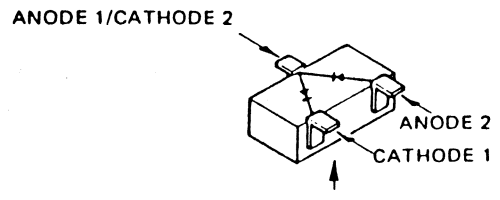
obverse view of "chip-only" side



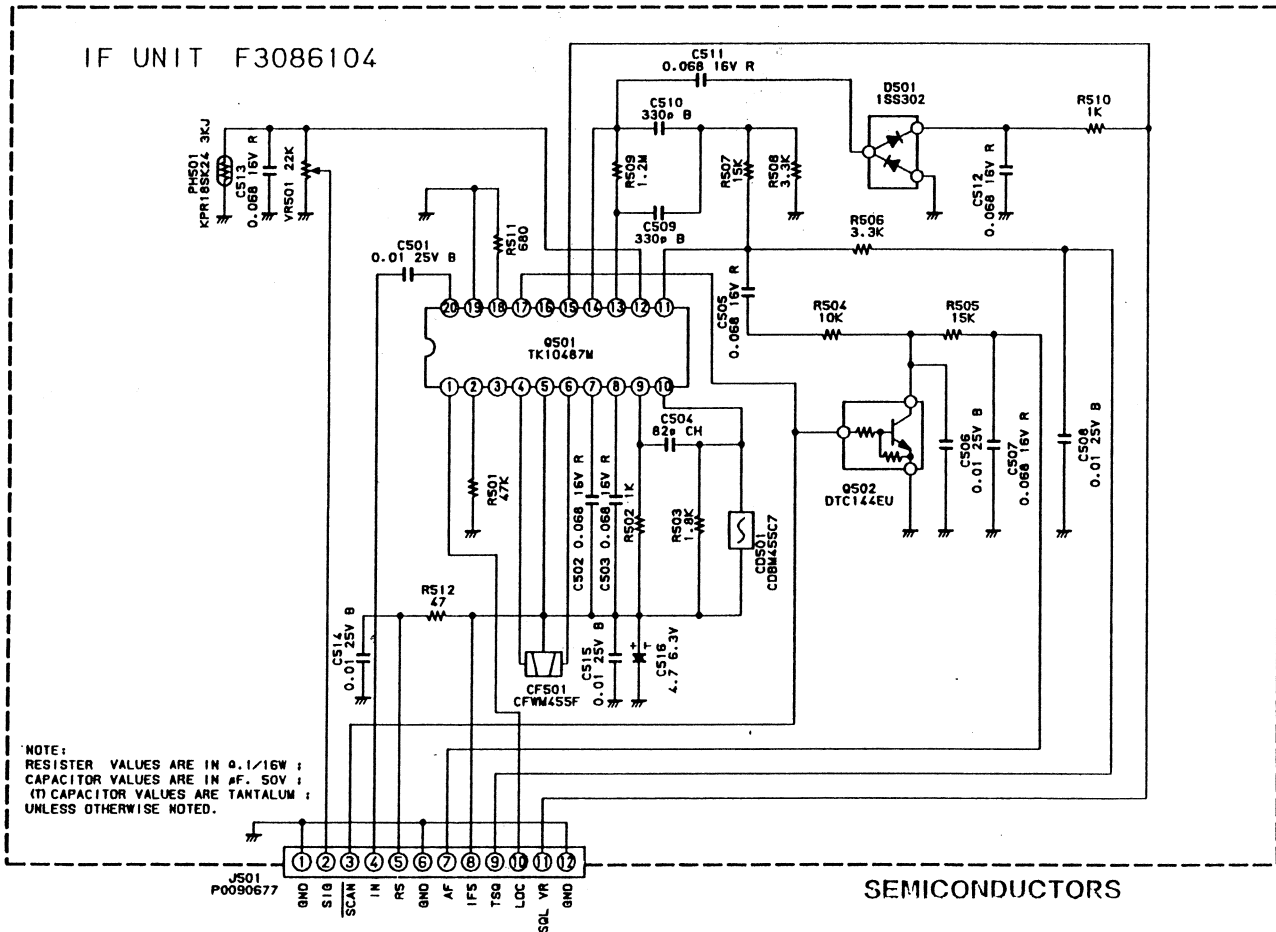
TK10487M (Q501)



DTC144EU (26) (Q502)



1SS302 (C3) (D501)



IF UNIT PARTS LIST

*** IF UNIT ***

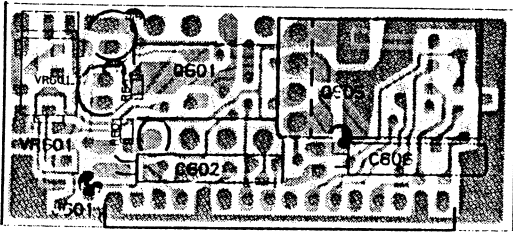
CA0044001 P.C.B. W/COMP.

F3086104A P.C.B. W/O COMP.

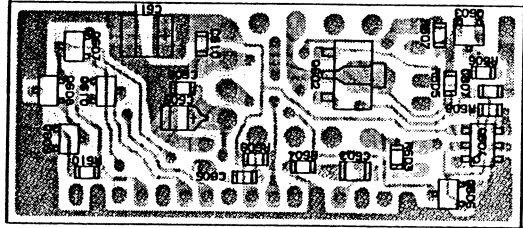
C 0501	K22144802	CHIP CAP.	0.01uF	25V	B
C 0502	K22120805	CHIP CAP.	0.068uF	16V	R
C 0503	K22120805	CHIP CAP.	0.068uF	16V	R
C 0504	K22174233	CHIP CAP.	82pF	50V	CH
C 0505	K22120805	CHIP CAP.	0.068uF	16V	R
C 0506	K22144802	CHIP CAP.	0.01uF	25V	B
C 0507	K22120805	CHIP CAP.	0.068uF	16V	R
C 0508	K22144802	CHIP CAP.	0.01uF	25V	B
C 0509	K22174803	CHIP CAP.	330pF	50V	B
C 0510	K22174803	CHIP CAP.	330pF	50V	B
C 0511	K22120805	CHIP CAP.	0.068uF	16V	R
C 0512	K22120805	CHIP CAP.	0.068uF	16V	R
C 0513	K22120805	CHIP CAP.	0.068uF	16V	R
C 0514	K22144802	CHIP CAP.	0.01uF	25V	B
C 0515	K22144802	CHIP CAP.	0.01uF	25V	B
C 0516	K78080002	CHIP TA. CAP.	4.7uF	6.3V	
CD0501	H7900480	CERAMIC DISC	CDBM455C7		
CF0501	H3900395	CERAMIC FILTER	CFWM455F		
D 0501	G2070088	DIODE	1SS302 TE8		
J 0501	P0090677	CONNECTOR	9230B-1-12		
PH0501	G9090036	POSISTOR	KPR18SK24		3KJ
Q 0501	G1090859	IC	TK10487M		
Q 0502	G3070041	TRANSISTOR	DTC144EU T		
R 0501	J24185473	CHIP RES.	47K	1/16W	
R 0502	J24185102	CHIP RES.	1K	1/16W	
R 0503	J24185182	CHIP RES.	1.8K	1/16W	
R 0504	J24185103	CHIP RES.	10K	1/16W	
R 0505	J24185153	CHIP RES.	15K	1/16W	
R 0506	J24185332	CHIP RES.	3.3K	1/16W	
R 0507	J24185153	CHIP RES.	15K	1/16W	
R 0508	J24185332	CHIP RES.	3.3K	1/16W	
R 0509	J24185125	CHIP RES.	1.2M	1/16W	
R 0510	J24185102	CHIP RES.	1K	1/16W	
R 0511	J24185681	CHIP RES.	680	1/16W	
R 0512	J24185470	CHIP RES.	47	1/16W	
VR0501	J50779223	POT. RH04AVCJ4W	22K		

REG UNIT PARTS LAYOUT/CIRCUIT DIAGRAM

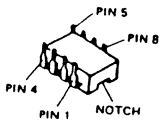
REG UNIT (No. 6 × X)



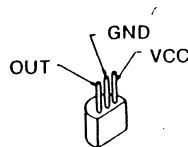
obverse view of "mixed-component" side



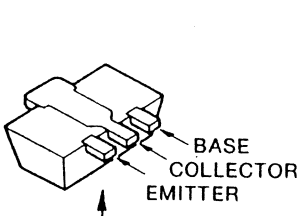
obverse view of "chip-only" side



NJM386BD (Q601)

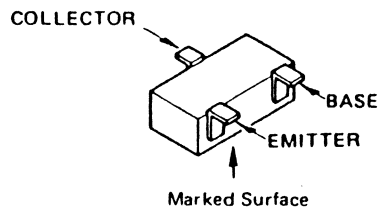


μPC2255H (Q605)



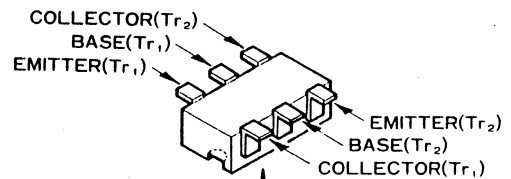
Marked Surface

2SB799 (ML) (Q602)



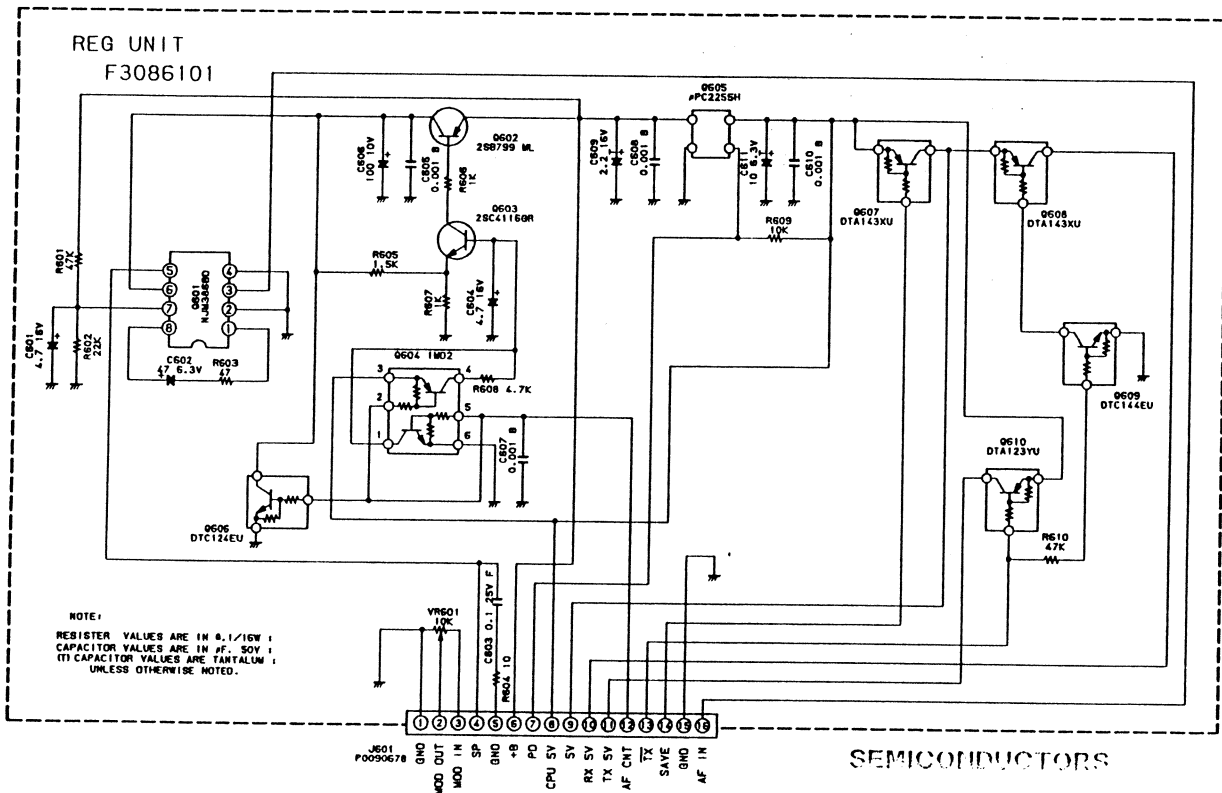
Marked Surface

- 2SC4116GR (LG) (Q603)
- DTA143XU (33) (Q607,608)
- DTC144EU (26) (Q609)
- DTA123YU (52) (Q610)
- DTC124EU (25) (Q606)



Marked Surface

IMD2 (D2) (Q604)



REG UNIT PARTS LIST

*** REG UNIT ***

CA0047001 P.C.B. W/COMP.

PB0601 F3086101A P.C.B. W/O COMP.

C 0601	K40129059	AL. ELECTRO. CAP.	4.7uF	16V	
C 0602	K40089023	AL. ELECTRO. CAP.	47uF	6.3V	
C 0603	K22141005	CHIP CAP.	0.1uF	25V	F
C 0604	K40129059	AL. ELECTRO. CAP.	4.7uF	16V	
C 0605	K22174809	CHIP CAP.	0.001uF	50V	B
C 0606	K40109026	AL. ELECTRO. CAP.	100uF	10V	
C 0607	K22174809	CHIP CAP.	0.001uF	50V	B
C 0608	K22174809	CHIP CAP.	0.001uF	50V	B
C 0609	K78120002	CHIP TA CAP.	2.2uF	16V	
C 0610	K22174809	CHIP CAP.	0.001uF	50V	B
C 0611	K78080003	CHIP TA CAP.	10uF	6.3V	

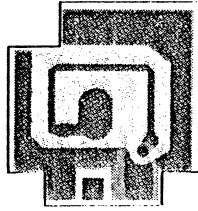
J 0601 P0090678 CONNECTOR 9230B-1-16Z009-T

Q 0601	G1091068	IC	NJM386BD	
Q 0602	G3207997L	TRANSISTOR	2SB799-ML	
Q 0603	G3341167G	TRANSISTOR	2SC4116GR	
Q 0604	G3070026	TRANSISTOR	IMD2	
Q 0605	G1090965	TRANSISTOR	uPC2255H	
Q 0606	G3070045	TRANSISTOR	DTC124EU	T107
Q 0607	G3070050	TRANSISTOR	DTA143XU	T107
Q 0608	G3070050	TRANSISTOR	DTA143XU	T107
Q 0609	G3070041	TRANSISTOR	DTC144EU	T107
Q 0610	G3070038	TRANSISTOR	DTA123YU	T107

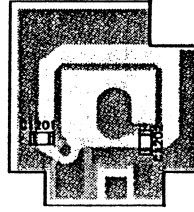
R 0601	J24185473	CHIP RES.	47K	1/16W
R 0602	J24185223	CHIP RES.	22K	1/16W
R 0603	J24185470	CHIP RES.	47	1/16W
R 0604	J24185100	CHIP RES.	10	1/16W
R 0605	J24185152	CHIP RES.	1.5K	1/16W
R 0606	J24185102	CHIP RES.	1K	1/16W
R 0607	J24185102	CHIP RES.	1K	1/16W
R 0608	J24185472	CHIP RES.	4.7K	1/16W
R 0609	J24185103	CHIP RES.	10K	1/16W
R 0610	J24185473	CHIP RES.	47K	1/16W

VR0601 J50779103 POT. RH04AVC14W 10K 10K

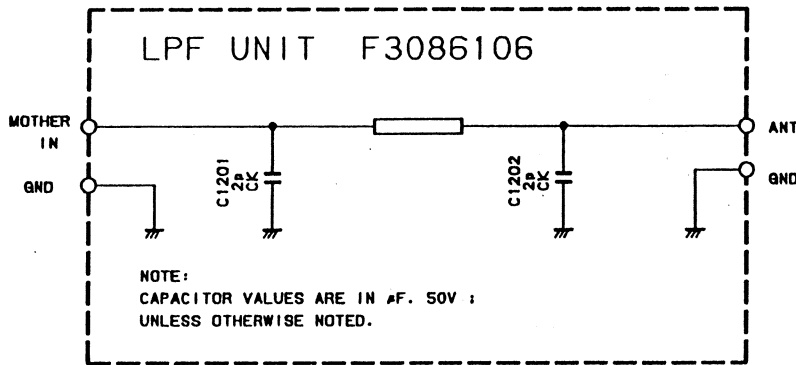
LPF UNIT (No. 12XX)



obverse view of "mixed-component" side



obverse view of "chip-only" side



*** LPF UNIT ***

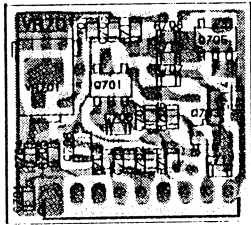
CA0101001 P.C.B. W/COMP.

F3086106 P.C.B. W/O COMP.

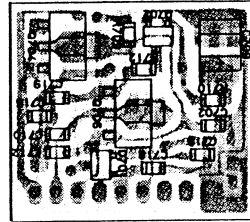
C 1201	K22174203	CHIP CAP.	2pF	50V	CK
C 1202	K22174203	CHIP CAP.	2pF	50V	CK

APC UNIT PARTS LAYOUT/CIRCUIT DIAGRAM

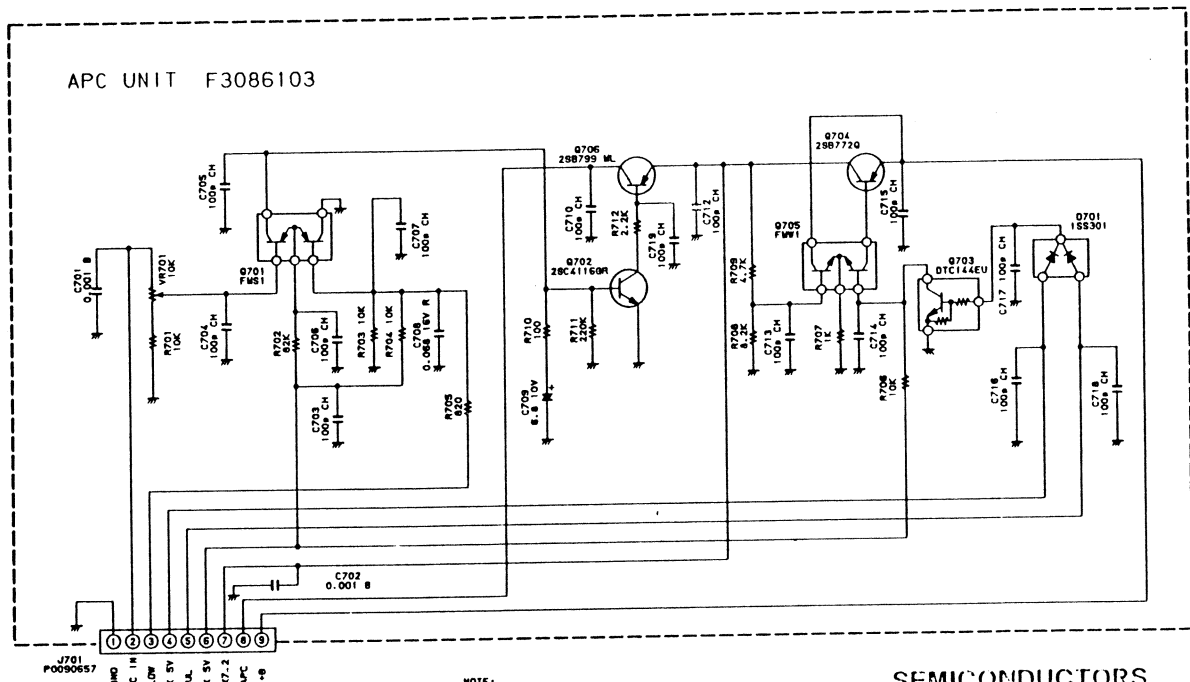
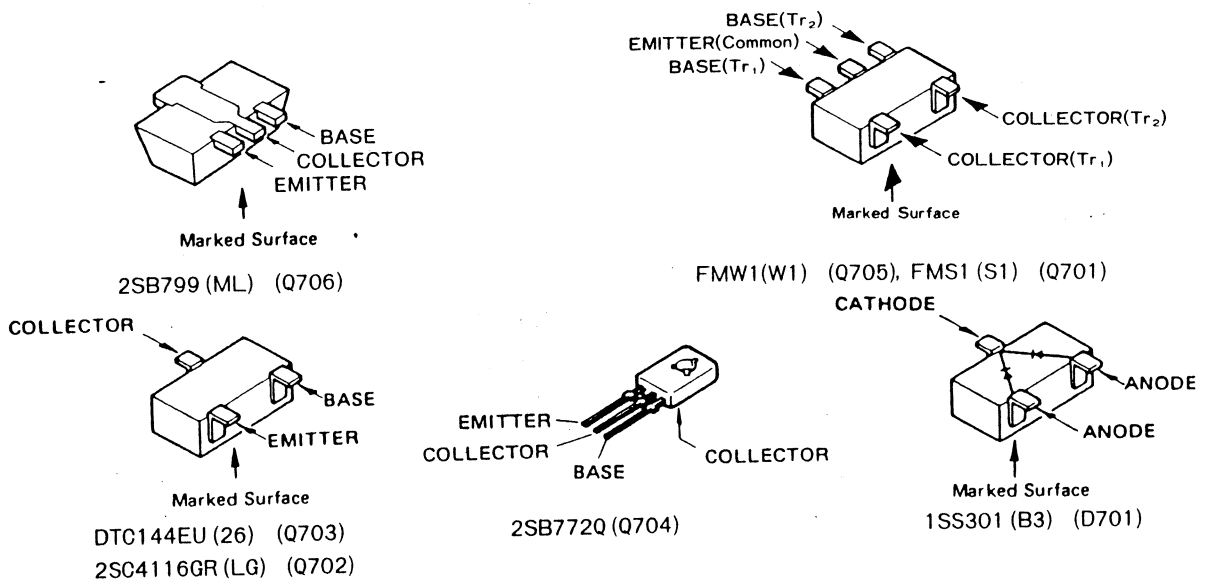
APC UNIT (No. 7 × ×)



obverse view of "mixed-component" side



obverse view of "chip-only" side



SEMICONDUCTORS

APC UNIT PARTS LIST

*** APC UNIT ***

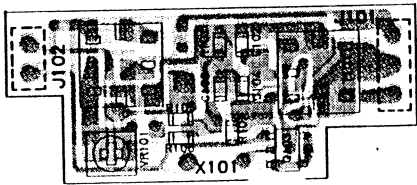
CA0039001 P.C.B. W/COMP.

F3126103A P.C.B. W/O COMP.

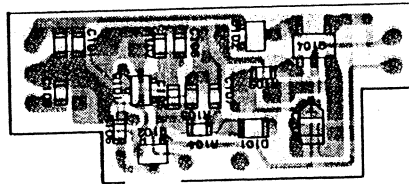
C 0701	K22174809	CHIP CAP.	0.001uF	50V	B
C 0702	K22174809	CHIP CAP.	0.001uF	50V	B
C 0703	K22174235	CHIP CAP.	100pF	50V	CH
C 0704	K22174235	CHIP CAP.	100pF	50V	CH
C 0705	K22174235	CHIP CAP.	100pF	50V	CH
C 0706	K22174235	CHIP CAP.	100pF	50V	CH
C 0707	K22174235	CHIP CAP.	100pF	50V	CH
C 0708	K22120805	CHIP CAP.	0.068uF	16V	R
C 0709	K78100003	CHIP TA CAP.	6.8	10V	
C 0710	K22174235	CHIP CAP.	100pF	50V	CH
C 0712	K22174235	CHIP CAP.	100pF	50V	CH
C 0713	K22174235	CHIP CAP.	100pF	50V	CH
C 0714	K22174235	CHIP CAP.	100pF	50V	CH
C 0715	K22174235	CHIP CAP.	100pF	50V	CH
C 0716	K22174235	CHIP CAP.	100pF	50V	CH
C 0717	K22174235	CHIP CAP.	100pF	50V	CH
C 0718	K22174235	CHIP CAP.	100pF	50V	CH
C 0719	K22174235	CHIP CAP.	100pF	50V	CH
D 0701	G2070086	DIODE	1SS301	TE8	
J 0701	P0090657	CONNECTOR	92308-1-09		
Q 0701	G3070008	TRANSISTOR	FMS1	T98	
Q 0702	G3341167G	TRANSISTOR	2SC4116GR		
Q 0703	G3070041	TRANSISTOR	DTC144EU	T	
Q 0704	G3207720Q	TRANSISTOR	2SB772-Q		
Q 0705	G3070009	TRANSISTOR	FMW1	T98	
Q 0706	G3207997L	TRANSISTOR	2SB799-T2M		
R 0701	J24185103	CHIP RES.	10K	1/16W	
R 0702	J24185823	CHIP RES.	82K	1/16W	
R 0703	J24185103	CHIP RES.	10K	1/16W	
R 0704	J24185103	CHIP RES.	10K	1/16W	
R 0705	J24185821	CHIP RES.	820	1/16W	
R 0706	J24185103	CHIP RES.	10K	1/16W	
R 0707	J24185102	CHIP RES.	1K	1/16W	
R 0708	J24185822	CHIP RES.	8.2K	1/16W	
R 0709	J24185472	CHIP RES.	4.7K	1/16W	
R 0710	J24185101	CHIP RES.	100	1/16W	
R 0711	J24185224	CHIP RES.	220K	1/16W	
R 0712	J24185222	CHIP RES.	2.2K	1/16W	
VR0701	J50779103	POT. RH04AVC14W	10K		

AFC UNIT PARTS LAYOUT/CIRCUIT DIAGRAM

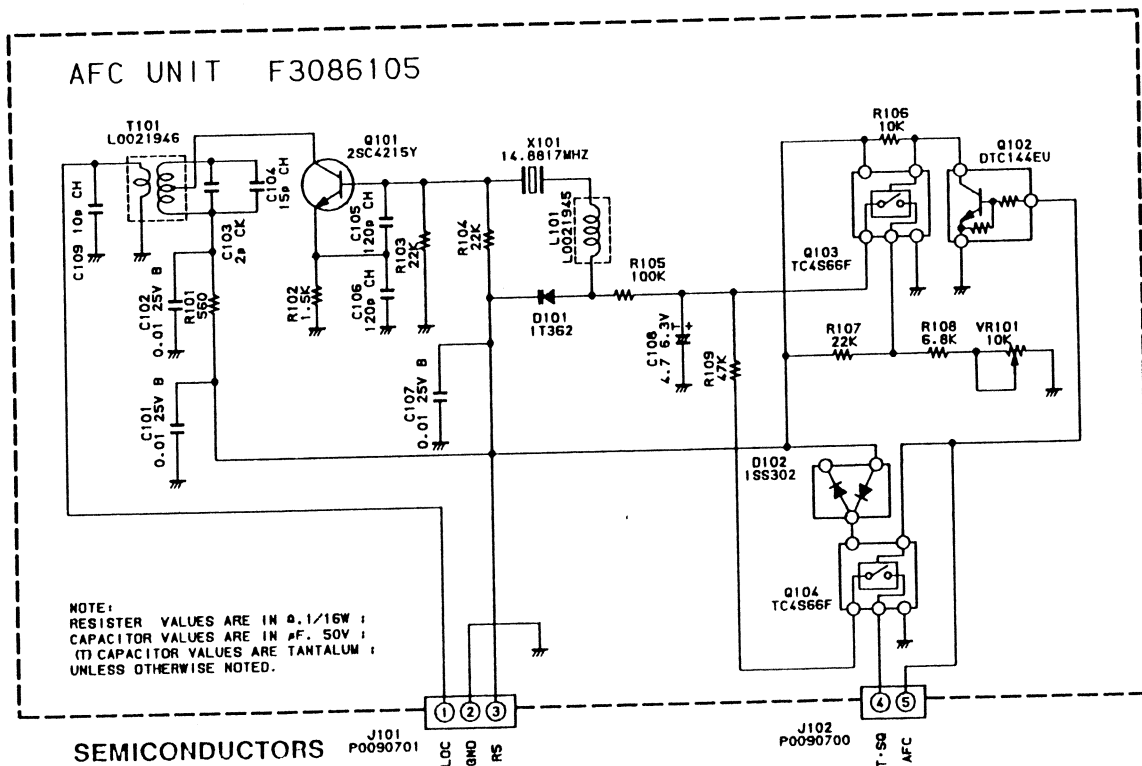
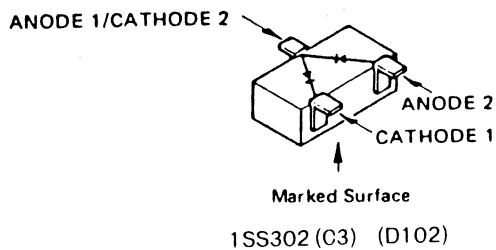
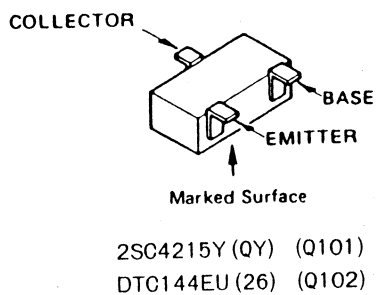
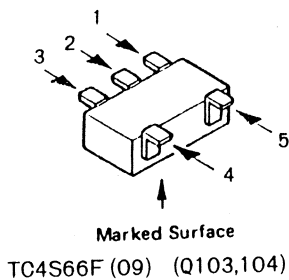
AFC UNIT (No. 1 × ×)



obverse view of "mixed-component" side



obverse view of "chip-only" side



AFC UNIT PARTS LIST

*** AFC UNIT ***

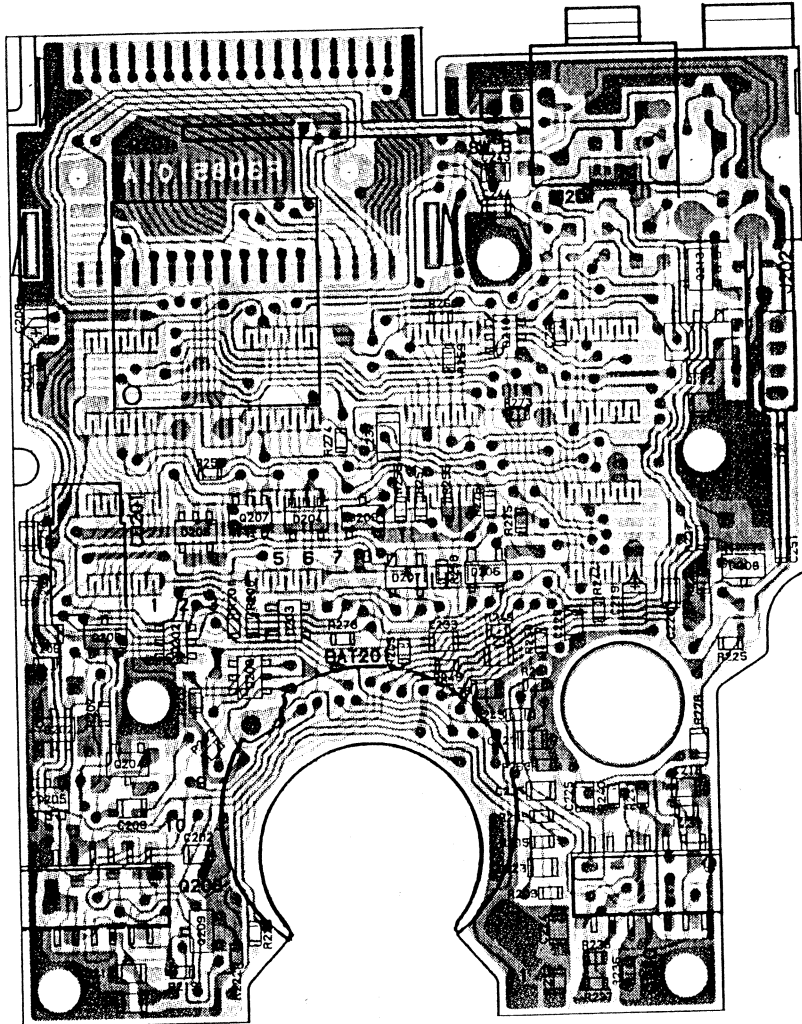
CA0040001 P.C.B. W/COMP.

F3086105A P.C.B. W/O COMP.

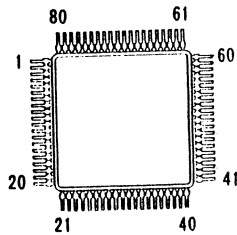
C 0101	K22144802	CHIP CAP.	0.01uF	25V	B
C 0102	K22144802	CHIP CAP.	0.01uF	25V	B
C 0103	K22174203	CHIP CAP.	2pF	50V	CK
C 0104	K22174215	CHIP CAP.	15pF	50V	CH
C 0105	K22174237	CHIP CAP.	120pF	50V	CH
C 0106	K22174237	CHIP CAP.	120pF	50V	CH
C 0107	K22144802	CHIP CAP.	0.01uF	25V	B
C 0108	K78080002	CHIP TA CAP.	4.7uF	6.3V	
C 0109	K22174211	CHIP CAP.	10pF	50V	CH
D 0101	G2070102	DIODE	1T362-T8		
D 0102	G2070088	DIODE	1T362-T8		
J 0101	P0090701	CONNECTOR	9210B-1-03		
J 0102	P0090700	CONNECTOR	9210B-1-02		
L 0101	L0021945	COIL	L0021945		
Q 0101	G3342157Y	TRANSISTOR	2SC4215Y T		
Q 0102	G3070041	TRANSISTOR	DTC144EU T		
Q 0103	G1090893	IC	TC4S66F TE		
Q 0104	G1090893	IC	TC4S66F TE		
R 0101	J24185561	CHIP RES.	560		
R 0102	J24185152	CHIP RES.	1.5K		
R 0103	J24185223	CHIP RES.	22K		
R 0104	J24185223	CHIP RES.	22K		
R 0105	J24185104	CHIP RES.	100K		
R 0106	J24185103	CHIP RES.	10K		
R 0107	J24185223	CHIP RES.	22K		
R 0108	J24185682	CHIP RES.	6.8K		
R 0109	J24185473	CHIP RES.	47K		
T 0101	L0021946	COIL			
VR0101	J51778103	POT. RH03AYA14X	10K		
X 0101	H0102933	XTAL UM-1	14.8817MHz		

CONTROL UNIT PARTS LAYOUT

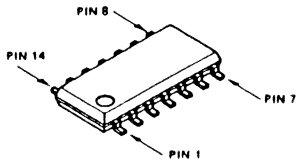
CONTROL UNIT (No. 2 × X)



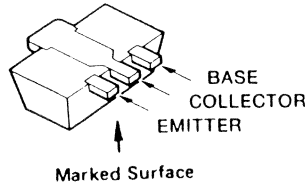
obverse view of "microprocessor" side



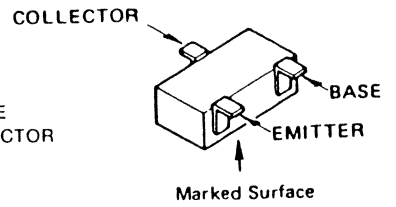
HD404608-A35H (Q201)



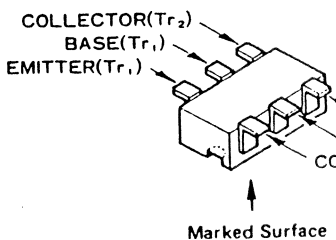
μPD4013BG (Q208)
NJM2902M (Q210)



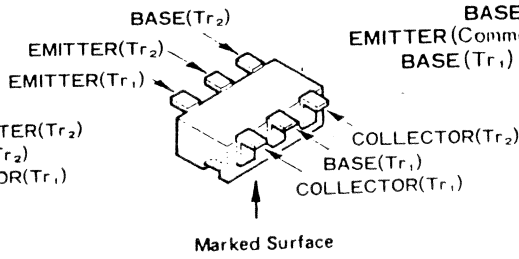
2SB799 (ML) (Q212)



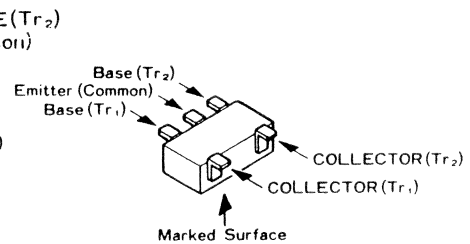
2SC2712GR (LG) (Q209)
DTA124EK (15) (Q206,211)
DTC124TK (05) (Q204)



IMZ1 (Z1) (Q202,203)
IMD2 (D2) (Q205)

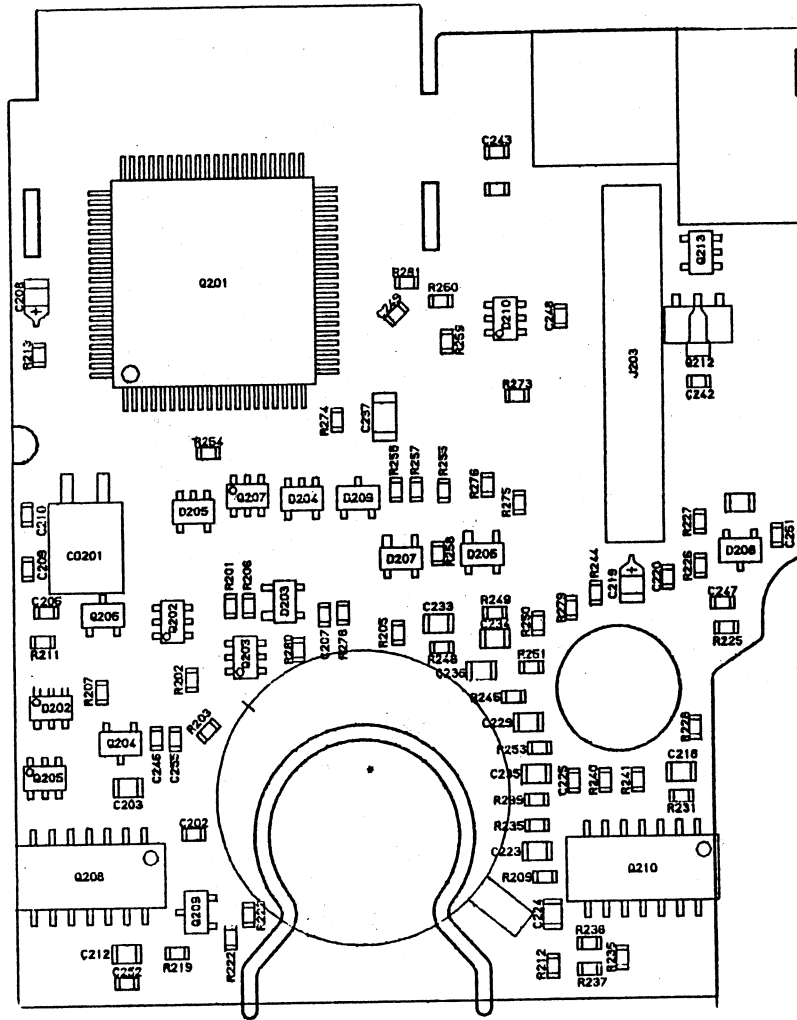


IMH5 (H5) (Q207)



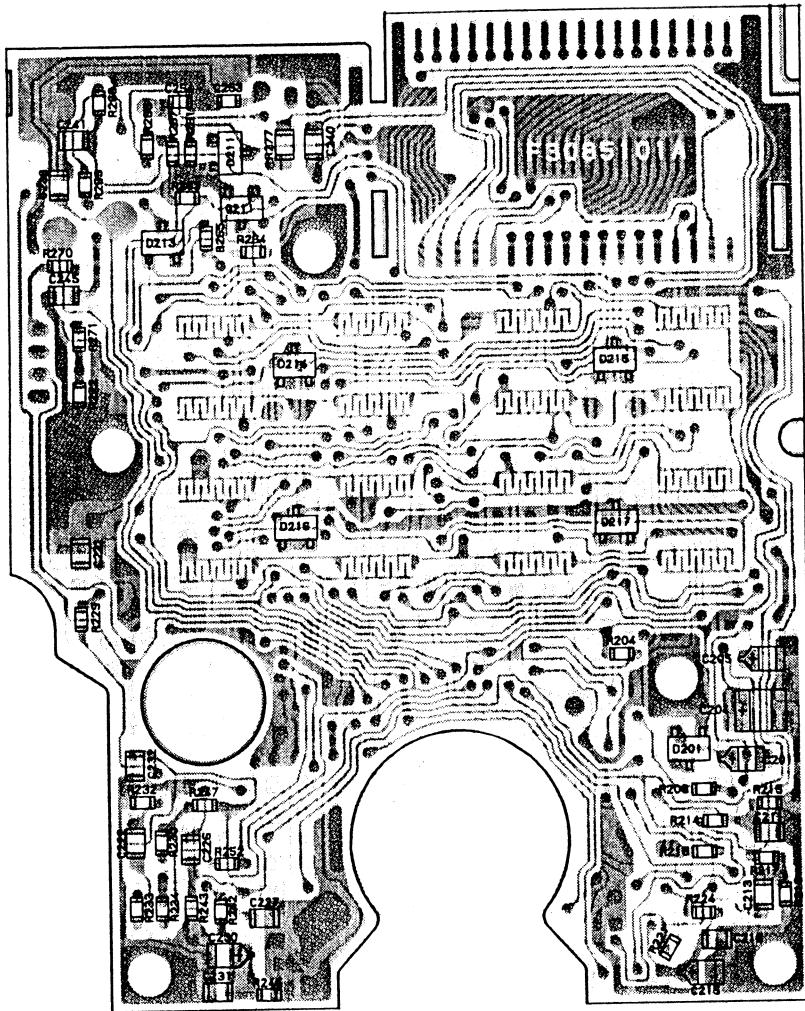
FMW1 (W1) (Q213)

CONTROL UNIT

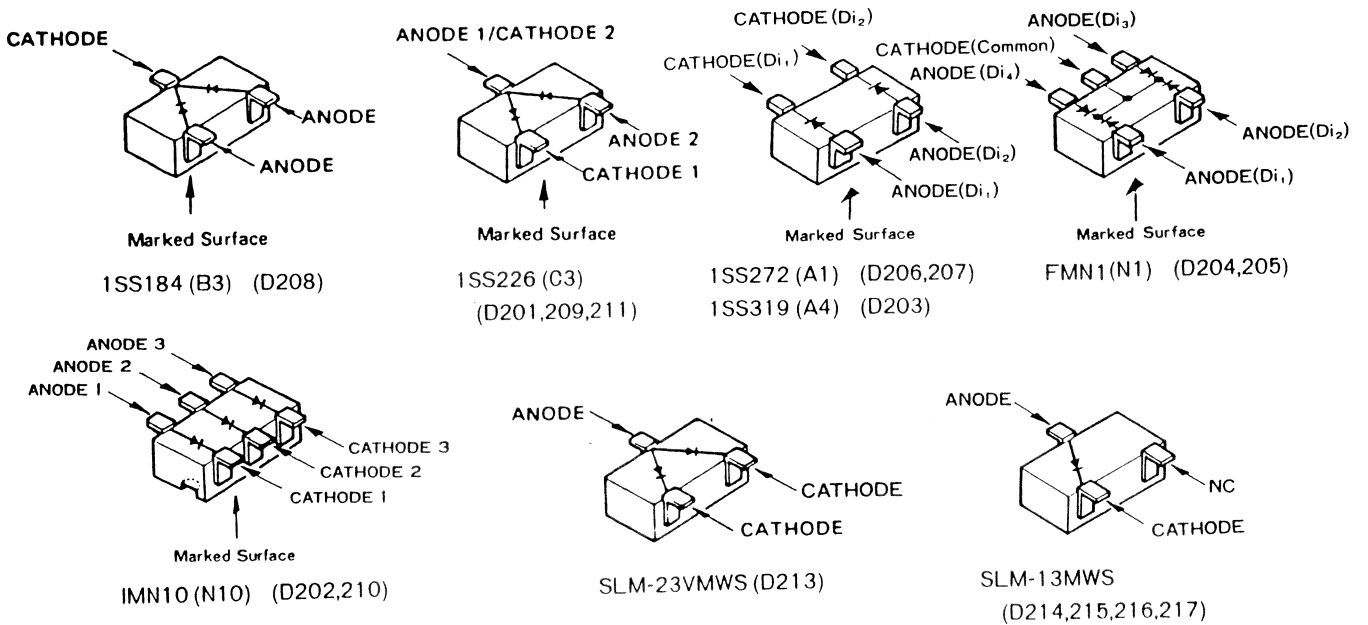


PARTS LAYOUT--MICROPROCESSOR SIDE

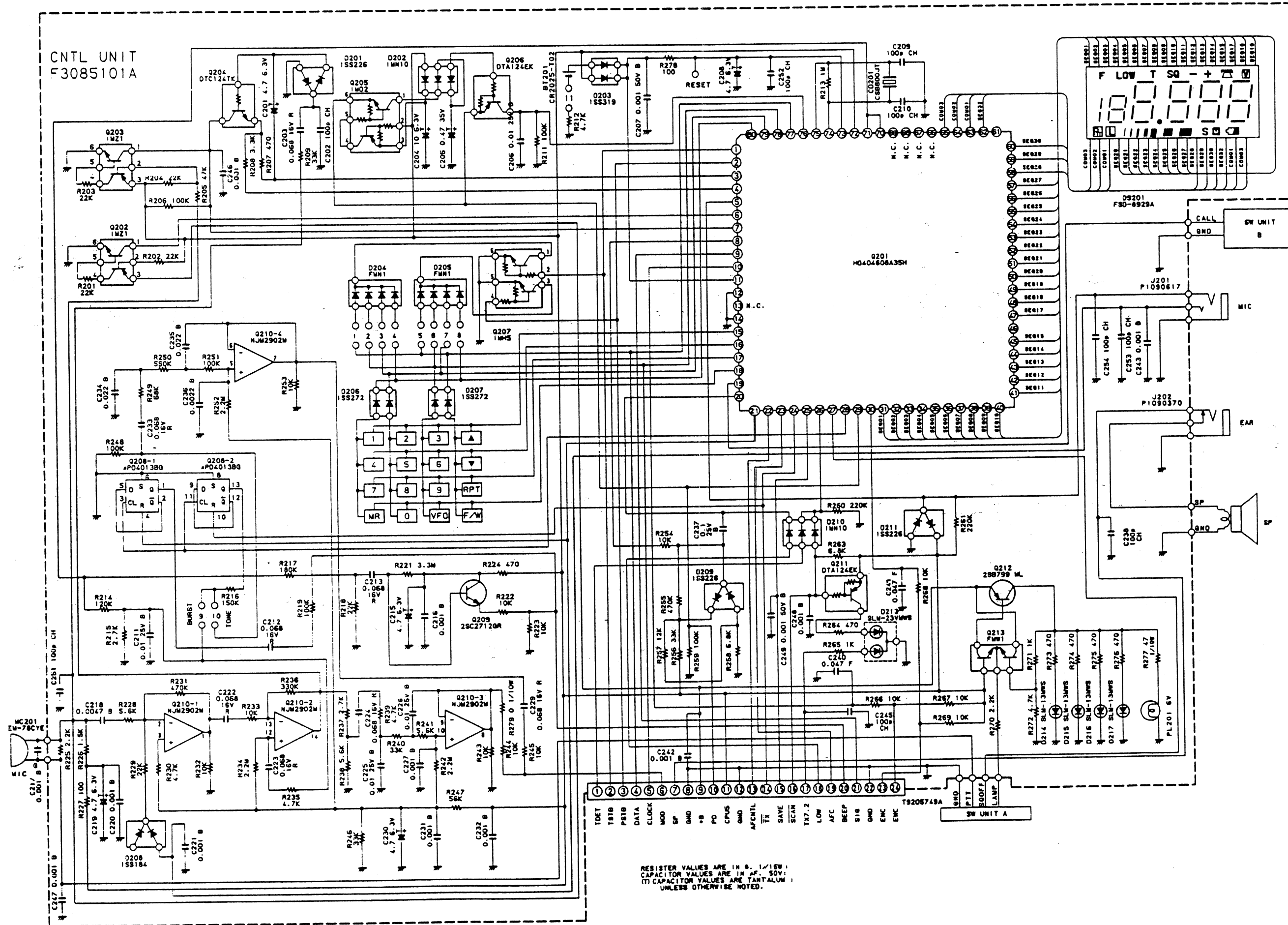
CONTROL UNIT PARTS LAYOUT



obverse view of "display" side



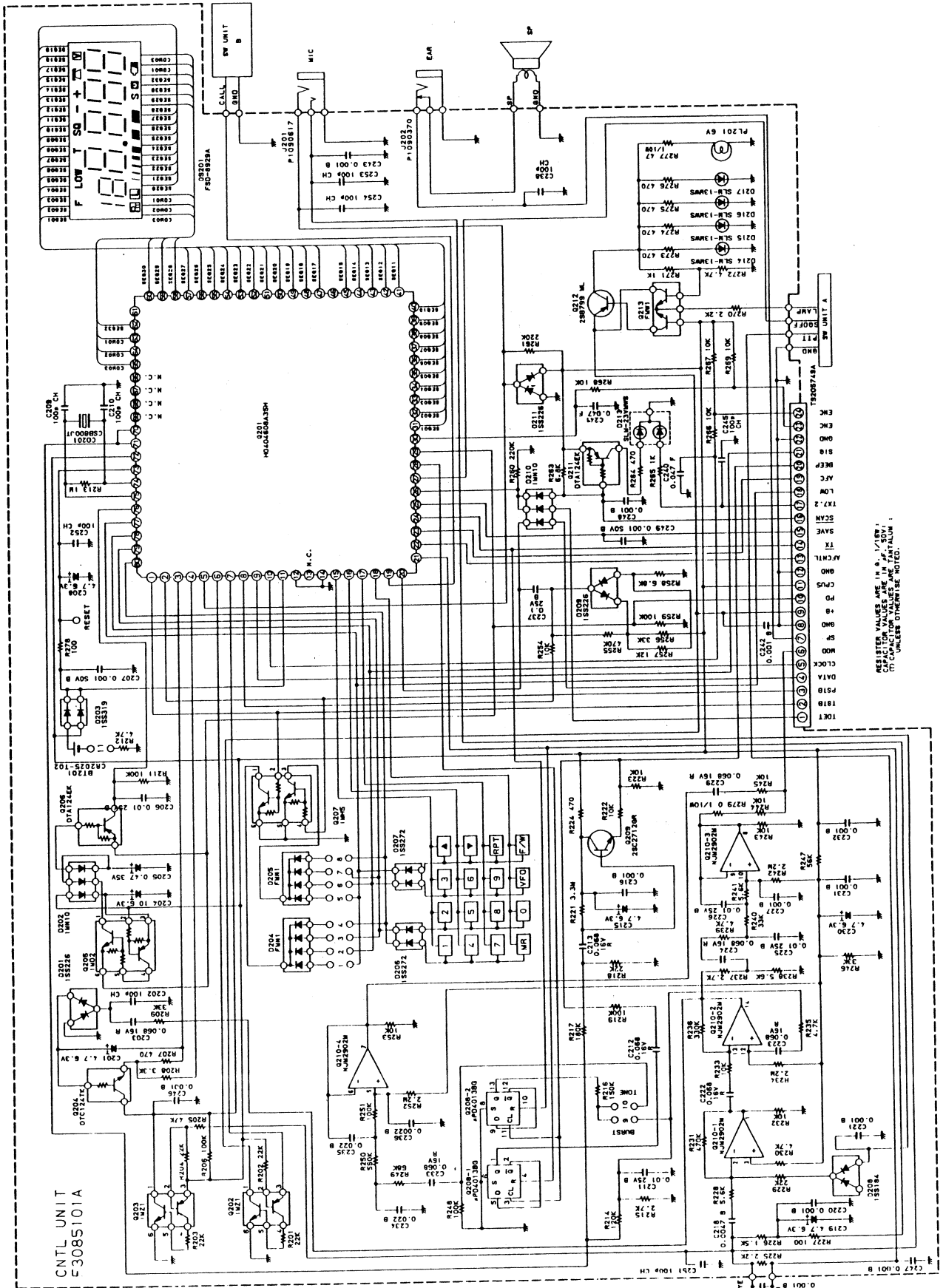
CNTL UNIT
F3085101A



RESISTOR VALUES ARE IN Ω , $\frac{1}{10W}$,
CAPACITOR VALUES ARE IN μF , 50V;
CAPACITOR VALUES ARE TANTALUM
UNLESS OTHERWISE NOTED.

CONTROL UNIT OF ROUTE FACTORY

CONTROL UNIT CIRCUIT DIAGRAM



CNTL UNIT
E3085101A

RESISTOR VALUES ARE IN Ω, K, M, OR Ω/100.
CAPACITOR VALUES ARE IN P, µF, OR MFD.
UNLESS OTHERWISE NOTED.

CONTROL UNIT PARTS LIST

*** CONTROL UNIT ***

CS0789001 P.C.B. W/COMP.

F3085101A P.C.B. W/O COMP.

C 0201	K78080002	CHIP TA CAP.	4.7uF	6.3V	
C 0202	K22174235	CHIP CAP.	100pF	50V	CH
C 0203	K22120805	CHIP CAP.	0.068uF	16V	R
C 0204	K78080003	CHIP TA CAP.	10uF	6.3V	
C 0205	K78160005	CHIP TA CAP.	0.47uF	35V	
C 0206	K22144802	CHIP CAP.	0.01uF	25V	B
C 0207	K28179001	CERAMIC CAP.	0.001uF	50V	B
C 0208	K78080002	CHIP TA CAP.	4.7uF	6.3V	
C 0209	K22174235	CHIP CAP.	100pF	50V	CH
C 0210	K22174235	CHIP CAP.	100pF	50V	CH
C 0211	K22144802	CHIP CAP.	0.01uF	25V	B
C 0212	K22120805	CHIP CAP.	0.068uF	16V	R
C 0213	K22120805	CHIP CAP.	0.068uF	16V	R
C 0215	K78080002	CHIP TA CAP.	4.7uF	6.3V	
C 0216	K22174809	CHIP CAP.	0.001uF	50V	B
C 0218	K22170813	CHIP CAP.	0.0047uF	50V	B
C 0219	K78080002	CHIP TA CAP.	4.7uF	6.3V	
C 0220	K22174809	CHIP CAP.	0.001uF	50V	B
C 0221	K22174809	CHIP CAP.	0.001uF	50V	B
C 0222	K22120805	CHIP CAP.	0.0068uF	16V	R
C 0223	K22120805	CHIP CAP.	0.0068uF	16V	R
C 0224	K22120805	CHIP CAP.	0.0068uF	16V	R
C 0225	K22144802	CHIP CAP.	0.01uF	25V	B
C 0226	K22144802	CHIP CAP.	0.01uF	25V	B
C 0227	K22174809	CHIP CAP.	0.001uF	50V	B
C 0229	K22120805	CHIP CAP.	0.068uF	16V	R
C 0230	K78080002	CHIP TA CAP.	4.7uF	6.3V	
C 0231	K22174809	CHIP CAP.	0.001uF	50V	B
C 0232	K22174809	CHIP CAP.	0.001uF	50V	B
C 0233	K22120805	CHIP CAP.	0.0068uF	16V	R
C 0234	K22170821	CHIP CAP.	0.022uF	50V	B
C 0235	K22170821	CHIP CAP.	0.022uF	50V	B
C 0236	K22170809	CHIP CAP.	0.0022uF	50V	B
C 0237	K22141809	CHIP CAP.	0.1uF	25V	B
C 0238	K22174235	CHIP CAP.	100pF	50V	CH
C 0240	K22171008	CHIP CAP.	0.047uF	50V	F
C 0241	K22171008	CHIP CAP.	0.047uF	50V	F
C 0242	K22174809	CHIP CAP.	0.001uF	50V	B
C 0243	K22174809	CHIP CAP.	0.001uF	50V	B
C 0245	K22174235	CHIP CAP.	100pF	50V	CH
C 0246	K22174809	CHIP CAP.	0.001uF	50V	B
C 0247	K22174809	CHIP CAP.	0.001uF	50V	B
C 0248	K22174809	CHIP CAP.	0.001uF	50V	B
C 0249	K28179001	CERAMIC CAP.	0.001uF	50V	B
C 0251	K22174235	CHIP CAP.	100pF	50V	CH
C 0252	K22174235	CHIP CAP.	100pF	50V	CH
C 0253	K22174235	CHIP CAP.	100pF	50V	CH
C 0254	K22174235	CHIP CAP.	100pF	50V	CH

C00201 H7900530 CERAMIC OSC

CSB800JT

D 0201	G2070003	DIODE	1SS226 TE8
D 0202	G2070078	DIODE	1MN10 T108
D 0203	G2070080	DIODE	1SS319 TE8
D 0204	G2070068	DIODE	FMN1 T99
D 0205	G2070068	DIODE	FMN1 T99
D 0206	G2070048	DIODE	1SS272 TE8
D 0207	G2070048	DIODE	1SS272 TE8
D 0208	G2070009	DIODE	1SS184 TE8
D 0209	G2070003	DIODE	1SS226 TE8
D 0210	G2070078	DIODE	1MN10 T108
D 0211	G2070003	DIODE	1SS226 TE8
D 0213	G2070096	LED	SLM-23VMWS
D 0214	G2070098	LED	SLM-13MWS

CONTROL UNIT PARTS LIST

D 0215	G2070098	LED	SLM-13MWS
D 0216	G2070098	LED	SLM-13MWS
D 0217	G2070098	LED	SLM-13MWS
DS0201	G6090075	LCD	FSD-8929A
J 0201	P1090617	CONNECTOR	HSJ1102-01
J 0202	P1090370	CONNECTOR	HSJ0836-01
MC0201	M3290008	MIC ELEMENT	EM-78CYE
P 0201	T9205749A	WIRE-ASSY 2580	
PL0201	Q1000060	LAMP	KD-0001-016V
Q 0201	G1091083	IC	HD404608A3
Q 0202	G3070025	TRANSISTOR	IMZ1 T108
Q 0203	G3070025	TRANSISTOR	IMZ1 T108
Q 0204	G3070031	TRANSISTOR	DTC124TK T
Q 0205	G3070026	TRANSISTOR	IMD2 T108
Q 0206	G3070030	TRANSISTOR	DTA124EK T
Q 0207	G3070027	TRANSISTOR	IMH5 T108
Q 0208	G1090668	IC	UPD4013BG
Q 0209	G3327127G	TRANSISTOR	2SC2712GR
Q 0210	G1090908	IC	NJM2902M
Q 0211	G3070030	TRANSISTOR	DTA124EK T
Q 0212	G3207997L	TRANSISTOR	2SB799-T2M
Q 0213	G3070009	TRANSISTOR	FMW1 T98
R 0201	J24185223	CHIP RES.	22K 1/16W
R 0202	J24185223	CHIP RES.	22K 1/16W
R 0203	J24185223	CHIP RES.	22K 1/16W
R 0204	J24185223	CHIP RES.	22K 1/16W
R 0205	J24185473	CHIP RES.	47K 1/16W
R 0206	J24185104	CHIP RES.	100K 1/16W
R 0207	J24185471	CHIP RES.	470 1/16W
R 0208	J24185332	CHIP RES.	3.3K 1/16W
R 0209	J24185333	CHIP RES.	33K 1/16W
R 0211	J24185104	CHIP RES.	100K 1/16W
R 0212	J24185472	CHIP RES.	4.7K 1/16W
R 0213	J24185105	CHIP RES.	1M 1/16W
R 0214	J24185124	CHIP RES.	120K 1/16W
R 0215	J24185272	CHIP RES.	2.7K 1/16W
R 0216	J24185154	CHIP RES.	150K 1/16W
R 0217	J24185184	CHIP RES.	180K 1/16W
R 0218	J24185223	CHIP RES.	22K 1/16W
R 0219	J24185104	CHIP RES.	100K 1/16W
R 0221	J24185335	CHIP RES.	3.3M 1/16W
R 0222	J24185103	CHIP RES.	10K 1/16W
R 0223	J24185103	CHIP RES.	10K 1/16W
R 0224	J24185471	CHIP RES.	470 1/16W
R 0225	J24185222	CHIP RES.	2.2K 1/16W
R 0226	J24185152	CHIP RES.	1.5K 1/16W
R 0227	J24185101	CHIP RES.	100 1/16W
R 0228	J24185562	CHIP RES.	5.6K 1/16W
R 0229	J24185223	CHIP RES.	22K 1/16W
R 0230	J24185472	CHIP RES.	4.7K 1/16W
R 0231	J24185474	CHIP RES.	470K 1/16W
R 0232	J24185103	CHIP RES.	10K 1/16W
R 0233	J24185103	CHIP RES.	10K 1/16W
R 0234	J24185225	CHIP RES.	2.2M 1/16W
R 0235	J24185472	CHIP RES.	4.7K 1/16W
R 0236	J24185334	CHIP RES.	330K 1/16W
R 0237	J24185272	CHIP RES.	2.7K 1/16W
R 0238	J24185562	CHIP RES.	5.6K 1/16W
R 0239	J24185472	CHIP RES.	4.7K 1/16W
R 0240	J24185333	CHIP RES.	33K 1/16W
R 0241	J24185562	CHIP RES.	5.6K 1/16W
R 0242	J24185225	CHIP RES.	2.2M 1/16W

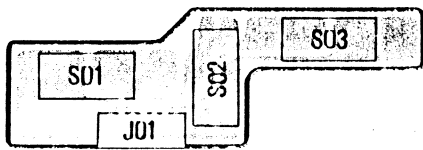
CONTROL UNIT PARTS LIST

R 0243	J24185103	CHIP RES.	10K	1/16W
R 0244	J24185103	CHIP RES.	10K	1/16W
R 0245	J24185103	CHIP RES.	10K	1/16W
R 0246	J24185333	CHIP RES.	33K	1/16W
R 0247	J24185563	CHIP RES.	56K	1/16W
R 0248	J24185104	CHIP RES.	100K	1/16W
R 0249	J24185683	CHIP RES.	68K	1/16W
R 0250	J24185564	CHIP RES.	560K	1/16W
R 0251	J24185104	CHIP RES.	100K	1/16W
R 0252	J24185225	CHIP RES.	2.2M	1/16W
R 0253	J24185103	CHIP RES.	10K	1/16W
R 0254	J24185103	CHIP RES.	10K	1/16W
R 0255	J24185474	CHIP RES.	470K	1/16W
R 0256	J24185333	CHIP RES.	33K	1/16W
R 0257	J24185123	CHIP RES.	12K	1/16W
R 0258	J24185682	CHIP RES.	6.8K	1/16W
R 0259	J24185104	CHIP RES.	100K	1/16W
R 0260	J24185224	CHIP RES.	220K	1/16W
R 0261	J24185224	CHIP RES.	220K	1/16W
R 0263	J24185682	CHIP RES.	6.8K	1/16W
R 0264	J24185471	CHIP RES.	470	1/16W
R 0265	J24185102	CHIP RES.	1K	1/16W
R 0266	J24185103	CHIP RES.	10K	1/16W
R 0267	J24185103	CHIP RES.	10K	1/16W
R 0268	J24185103	CHIP RES.	10K	1/16W
R 0269	J24185103	CHIP RES.	10K	1/16W
R 0270	J24185222	CHIP RES.	2.2K	1/16W
R 0271	J24185102	CHIP RES.	1K	1/16W
R 0272	J24185472	CHIP RES.	4.7K	1/16W
R 0273	J24185471	CHIP RES.	470	1/16W
R 0274	J24185471	CHIP RES.	470	1/16W
R 0275	J24185471	CHIP RES.	470	1/16W
R 0276	J24185471	CHIP RES.	470	1/16W
R 0277	J24205470	CHIP RES.	47	1/16W
R 0278	J24185101	CHIP RES.	100	1/16W
R 0279	J24205000	CHIP RES.	0	1/10W

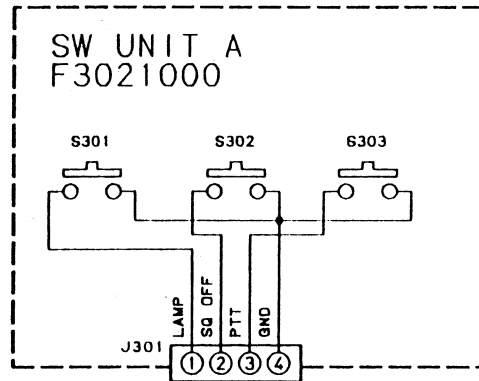
R0129400 SHIELD PLATE
R7130220 MYLAR FILM

SW UNIT A & B

SW UNIT A (No. 3 X X)



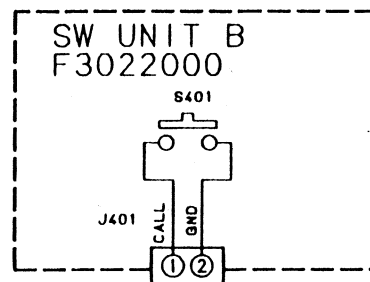
obverse view of "mixed-component" side



SW UNIT B (No. 4 X X)



obverse view of "chip-only" side



*** SW UNIT A ***

CP2119001 P.C.B. W/COMP.

F3021000 P.C.B. W/O COMP.

S 0301	N5090027	TACT SWITCH	SKHLAB
S 0302	N5090027	TACT SWITCH	SKHLAB
S 0303	N5090027	TACT SWITCH	SKHLAB

J 0301	P0090674	CONNECTOR	9230B-1-04Z009-T
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*** SW UNIT B ***

CP2120001 P.C.B. W/COMP.

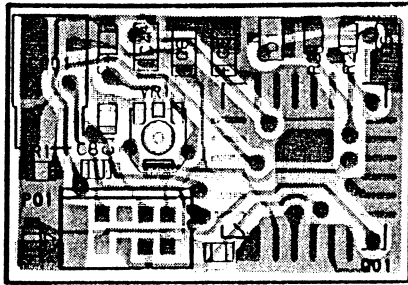
F3022000 P.C.B. W/O COMP.

S 0401	N5090027	TACT SWITCH	SKHLAB
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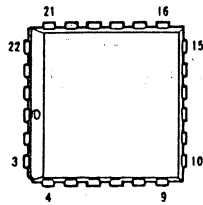
J 0401	P0090672	CONNECTOR	9230B-1-02
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FTS-17 PARTS LAYOUT /CIRCUIT DIAGRAM (OPTION)

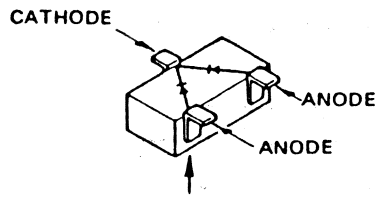
FTS-17 (No. XX)



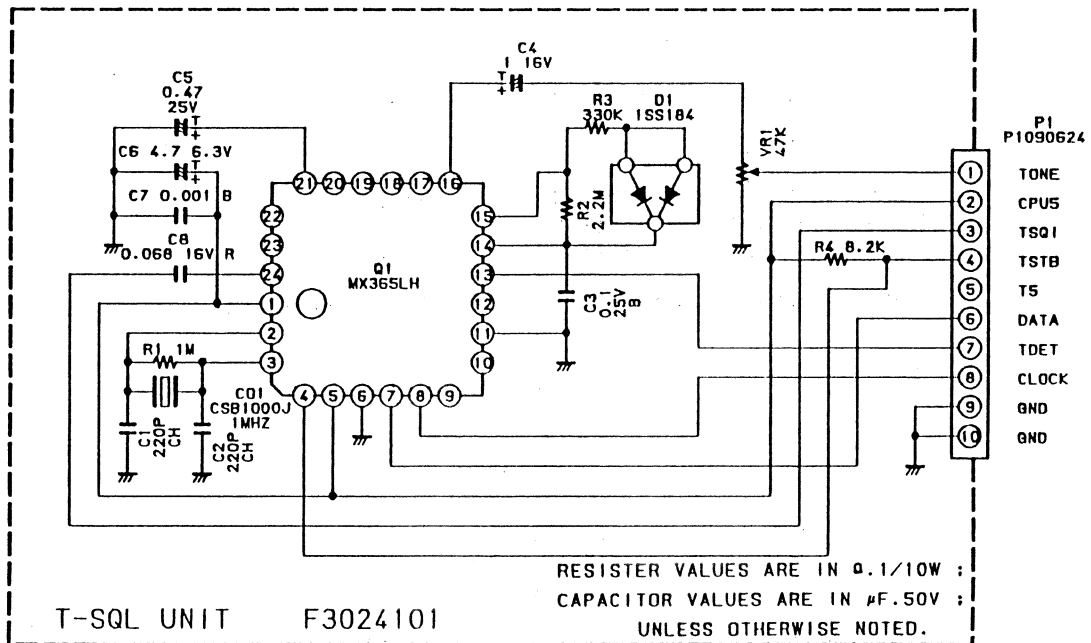
obverse view of "mixed-component" side



MX365LH (Q1)



1SS184 (B3) (D1)



SEMICONDUCTORS

FTS-17 PARTS LIST

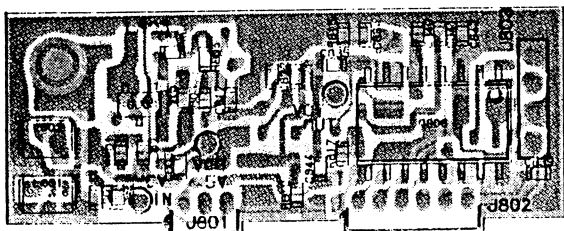
*** FTS-17 ***

CP1645001 P.C.B. W/COMP.
F3024101 P.C.B. W/O COMP.

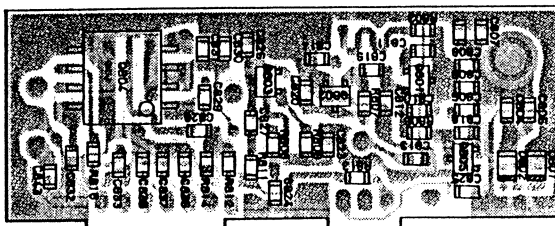
Q 0001	G1090897	IC	MX365LH		
D 0001	G2070009	DIODE	1SS184TE85R		
C00001	H7900550	CERAMIC OSC	CSB1000J221T		
R 0001	J24205105	CHIP RES.	1M	1/10W	
R 0002	J24205225	CHIP RES.	2.2M	1/10W	
R 0003	J24205334	CHIP RES.	330K	1/10W	
R 0004	J24205822	CHIP RES.	8.2K	1/10W	
VR0001	J51780473	POT.	47K	B	
C 0001	K22170243	CHIP CAP.	220pF	50V	CH
C 0002	K22170243	CHIP CAP.	220pF	50V	CH
C 0003	K22141809	CHIP CAP.	0.1uF	25V	B
C 0004	K78120013	CHIP TA. CAP.	1uF	16V	
C 0005	K78120012	CHIP TA. CAP.	0.47uF	16V	
C 0006	K78080002	CHIP TA. CAP.	4.7uF	25V	
C 0007	K22170805	CHIP CAP.	0.001uF	50V	B
C 0008	K22120805	CHIP CAP.	0.068uF	16V	B
P 0001	P1090624	CONNECTOR	52022-1010		

PLL CLOCK UNIT PARTS LAYOUT

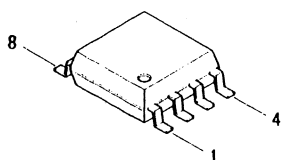
PLL UNIT (No. 8 × ×)



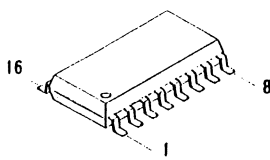
obverse view of "mixed-component" side



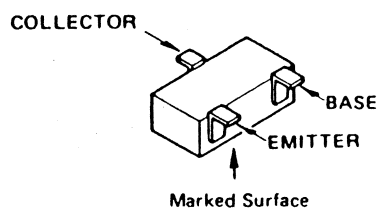
obverse view of "chip-only" side



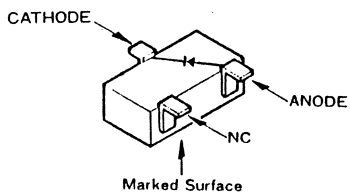
MB507PF (Q804)



MB87076PF (Q306)

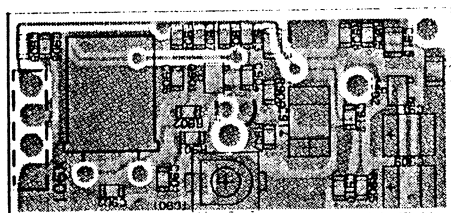


DTC144EU (26) (Q805)
2SC4226 (R24) (Q801,802,803)

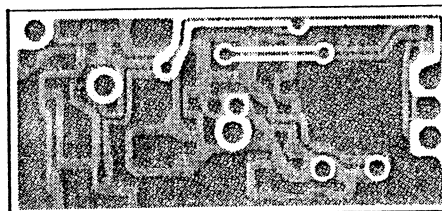


1SS153 (A9) (D803)

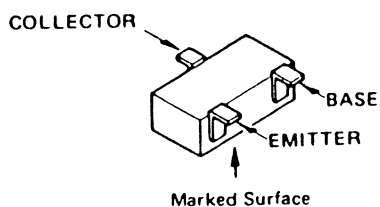
CLOCK UNIT (No. 9 × ×)



obverse view of "mixed-component" side

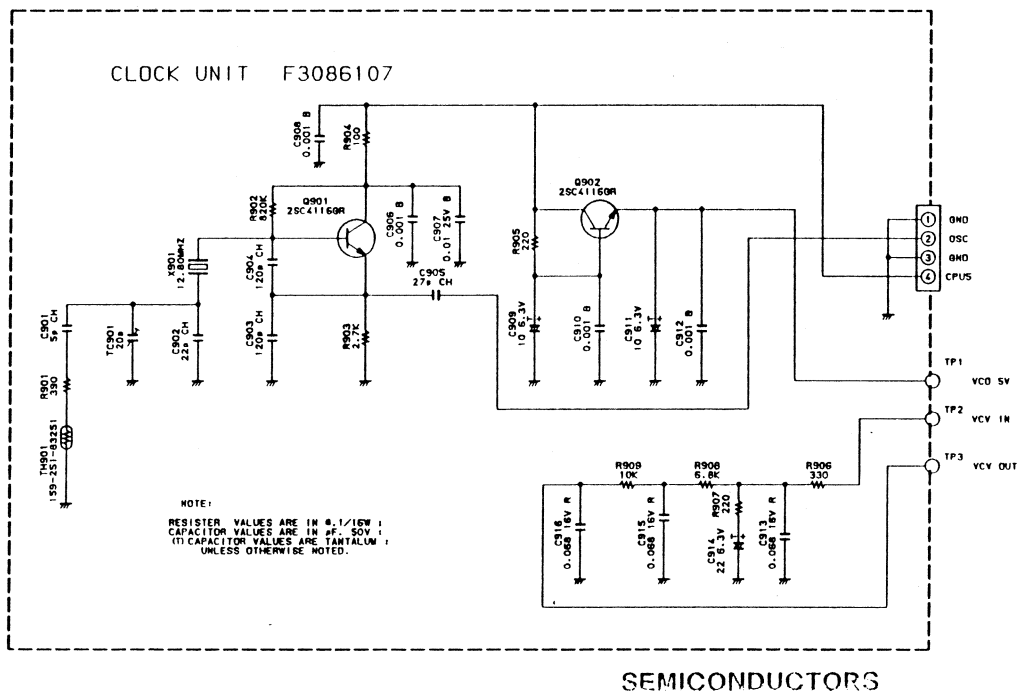
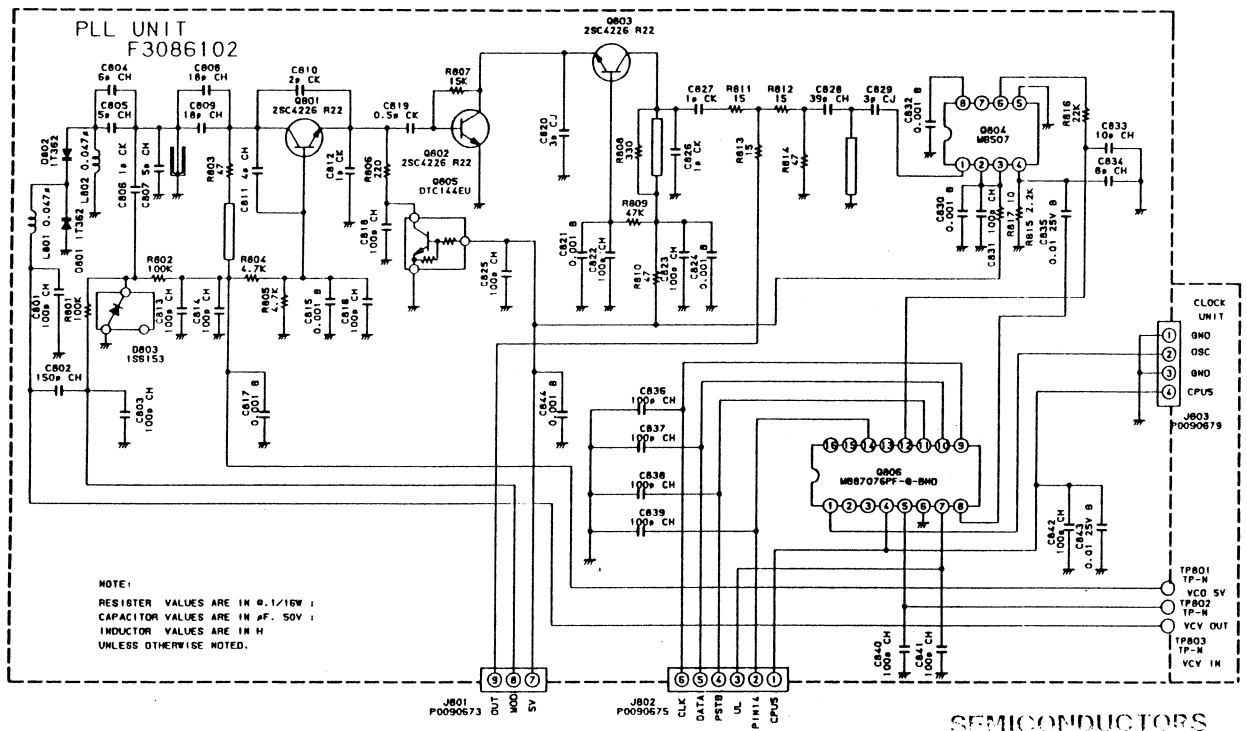


obverse view of "chip-only" side



2SC4116GR (LG) (Q901,902)

PLL CLOCK UNIT CIRCUIT DIAGRAM



PLL,CLOCK UNIT PARTS LIST

*** PLL UNIT ***

CP2125001 P.C.B. W/COMP.& CLOCK UNIT

F3086102A P.C.B. W/O COMP.

C 0801	K22174235	CHIP CAP.	100pF	50V	CH
C 0802	K22174239	CHIP CAP.	150pF	50V	CH
C 0803	K22174235	CHIP CAP.	100pF	50V	CH
C 0804	K22174207	CHIP CAP.	6pF	50V	CH
C 0805	K22174206	CHIP CAP.	5pF	50V	CH
C 0806	K22174202	CHIP CAP.	1pF	50V	CK
C 0807	K22174206	CHIP CAP.	5pF	50V	CH
C 0808	K22174217	CHIP CAP.	18pF	50V	CH
C 0809	K22174217	CHIP CAP.	18pF	50V	CH
C 0810	K22174203	CHIP CAP.	2pF	50V	CK
C 0811	K22174205	CHIP CAP.	4pF	50V	CH
C 0812	K22174202	CHIP CAP.	1pF	50V	CK
C 0813	K22174235	CHIP CAP.	100pF	50V	CH
C 0814	K22174235	CHIP CAP.	100pF	50V	CH
C 0815	K22174809	CHIP CAP.	0.001uF	50V	B
C 0816	K22174235	CHIP CAP.	100pF	50V	CH
C 0817	K22174809	CHIP CAP.	0.001uF	50V	B
C 0818	K22174235	CHIP CAP.	100pF	50V	CH
C 0819	K22174201	CHIP CAP.	0.5pF	50V	CK
C 0820	K22174204	CHIP CAP.	3pF	50V	CJ
C 0821	K22174809	CHIP CAP.	0.001uF	50V	B
C 0822	K22174235	CHIP CAP.	100pF	50V	CH
C 0823	K22174235	CHIP CAP.	100pF	50V	CH
C 0824	K22174809	CHIP CAP.	0.001uF	50V	B
C 0825	K22174235	CHIP CAP.	100pF	50V	CH
C 0826	K22174202	CHIP CAP.	1pF	50V	CK
C 0827	K22174202	CHIP CAP.	1pF	50V	CK
C 0828	K22174225	CHIP CAP.	39pF	50V	CH
C 0829	K22174204	CHIP CAP.	3pF	50V	CJ
C 0830	K22174809	CHIP CAP.	0.001uF	50V	B
C 0831	K22174235	CHIP CAP.	100pF	50V	CH
C 0832	K22174809	CHIP CAP.	0.001uF	50V	B
C 0833	K22174211	CHIP CAP.	10pF	50V	CH
C 0834	K22174209	CHIP CAP.	8pF	50V	CH
C 0835	K22144802	CHIP CAP.	0.01uF	25V	B
C 0836	K22174235	CHIP CAP.	100pF	50V	CH
C 0837	K22174235	CHIP CAP.	100pF	50V	CH
C 0838	K22174235	CHIP CAP.	100pF	50V	CH
C 0839	K22174235	CHIP CAP.	100pF	50V	CH
C 0840	K22174235	CHIP CAP.	100pF	50V	CH
C 0841	K22174235	CHIP CAP.	100pF	50V	CH
C 0842	K22174235	CHIP CAP.	100pF	50V	CH
C 0843	K22144802	CHIP CAP.	0.01uF	50V	B
C 0844	K22174809	CHIP CAP.	0.001uF	50V	B
D 0801	G2070102	DIODE	1T362-T8		
D 0802	G2070102	DIODE	1T362-T8		
D 0803	G2070032	DIODE	1SS153-T2B		
J 0801	P0090673	CONNECTOR	9230B-1-03Z009-T		
J 0802	P0090675	CONNECTOR	9230B-1-06Z009-T		
J 0803	P0090679	CONNECTOR	1MSA-9210B-1-04-T		
L 0801	L1690007	CHIP COIL	0.047uH		
L 0802	L1690007	CHIP COIL	0.047uH		
L 0803	Q9000527	RESONATOR	KDR-1.82GM		
Q 0801	G3342267B	TRANSISTOR	2SC4226-T2B	R22	
Q 0802	G3342267B	TRANSISTOR	2SC4226-T2B	R22	
Q 0803	G3342267B	TRANSISTOR	2SC4226-T2B	R22	
Q 0804	G1090801	IC	MB507PF-G-BND		
Q 0805	G3070041	TRANSISTOR	DTC144EU	T107	
Q 0806	G1090934	IC	MB78076PF-G-BND	TF	

PLL,CLOCK UNIT PARTS LIST

R 0801	J24185104	CHIP RES.	100K	1/16W
R 0802	J24185104	CHIP RES.	100K	1/16W
R 0803	J24185470	CHIP RES.	47	1/16W
R 0804	J24185472	CHIP RES.	4.7K	1/16W
R 0805	J24185472	CHIP RES.	4.7K	1/16W
R 0806	J24185221	CHIP RES.	220	1/16W
R 0807	J24185153	CHIP RES.	15K	1/16W
R 0808	J24185331	CHIP RES.	330	1/16W
R 0809	J24185473	CHIP RES.	47K	1/16W
R 0810	J24185470	CHIP RES.	47	1/16W
R 0811	J24185150	CHIP RES.	15	1/16W
R 0812	J24185150	CHIP RES.	15	1/16W
R 0813	J24185150	CHIP RES.	15	1/16W
R 0814	J24185470	CHIP RES.	47	1/16W
R 0815	J24185222	CHIP RES.	2.2K	1/16W
R 0816	J24185223	CHIP RES.	22K	1/16W
R 0817	J24185100	CHIP RES.	10	1/16W

TP0801	Q5000082	TERMINAL POST	TP-N
TP0802	Q5000082	TERMINAL POST	TP-N
TP0803	Q5000082	TERMINAL POST	TP-N

*** CLOCK UNIT ***

F3086107A P.C.B. W/O COMP.

C 0901	K22174206	CHIP CAP.	5pF	50V	CH
C 0902	K22174219	CHIP CAP.	22pF	50V	CH
C 0903	K22174237	CHIP CAP.	120pF	50V	CH
C 0904	K22174237	CHIP CAP.	120pF	50V	CH
C 0905	K22174221	CHIP CAP.	27pF	50V	CH
C 0906	K22174809	CHIP CAP.	0.001uF	50V	B
C 0907	K22144802	CHIP CAP.	0.01uF	25V	B
C 0908	K22174809	CHIP CAP.	0.001uF	50V	B
C 0909	K78080003	CHIP TA CAP.	10uF	6.3V	
C 0910	K22174809	CHIP CAP.	0.001uF	50V	B
C 0911	K78080003	CHIP TA CAP.	10uF	6.3V	
C 0912	K22174809	CHIP CAP.	0.001uF	50V	B
C 0913	K22120805	CHIP CAP.	0.068uF	16V	R
C 0914	K78080015	CHIP TA CAP.	22uF	6.3V	
C 0915	K22120805	CHIP CAP.	0.068uF	16V	R
C 0916	K22120805	CHIP CAP.	0.068uF	16V	R

Q 0901	G3341167G	TRANSISTOR	2SC4116GR
Q 0902	G3341167G	TRANSISTOR	2SC4116GR

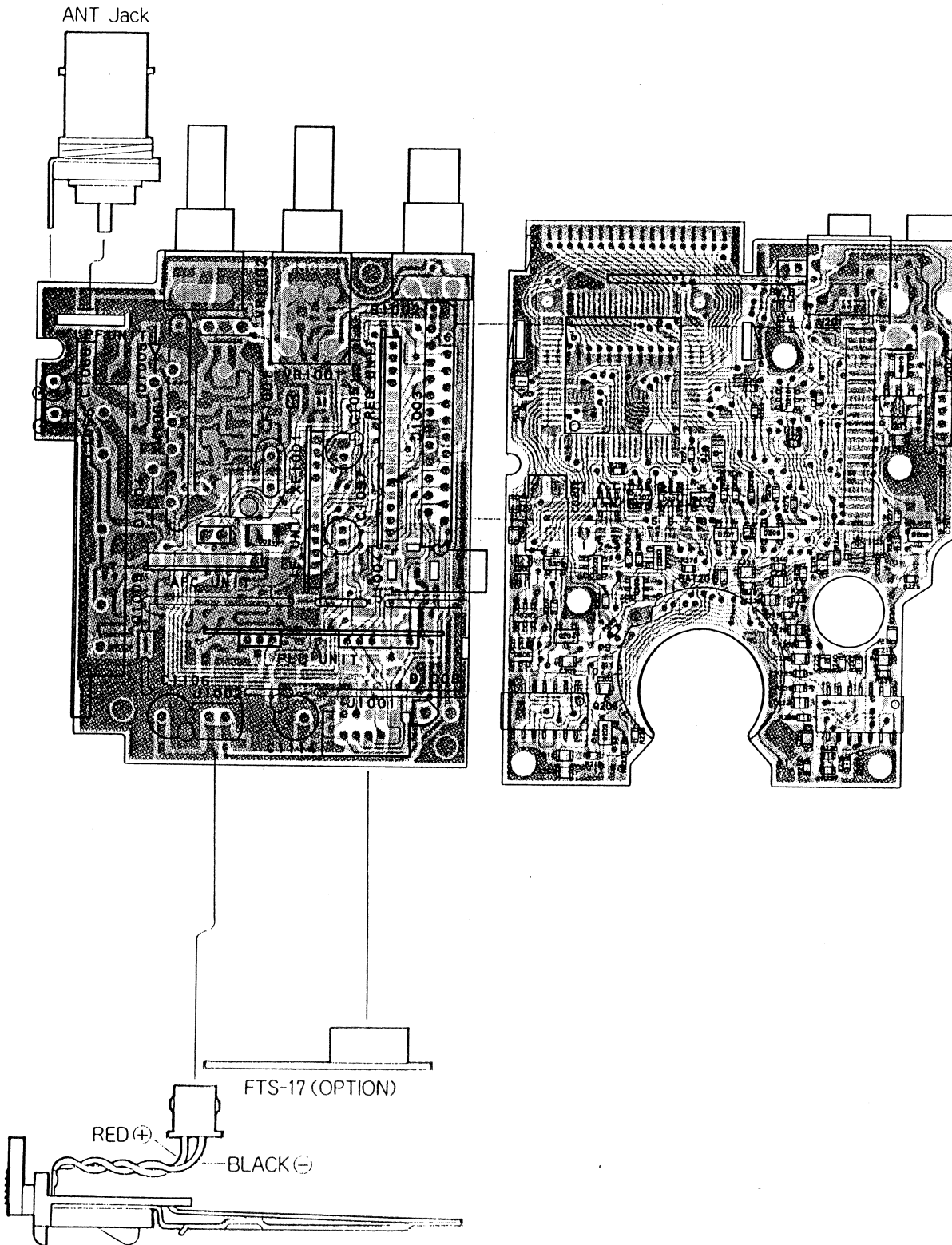
R 0901	J24185391	CHIP RES.	390	1/16W
R 0902	J24185824	CHIP RES.	820K	1/16W
R 0903	J24185272	CHIP RES.	2.7K	1/16W
R 0904	J24185101	CHIP RES.	100	1/16W
R 0905	J24185221	CHIP RES.	220	1/16W
R 0906	J24185331	CHIP RES.	330	1/16W
R 0907	J24185221	CHIP RES.	220	1/16W
R 0908	J24185682	CHIP RES.	6.8K	1/16W
R 0909	J24185103	CHIP RES.	10K	1/16W

TC0901	K91000151	TRIMMER CAP.	ECR-JA020E20pF
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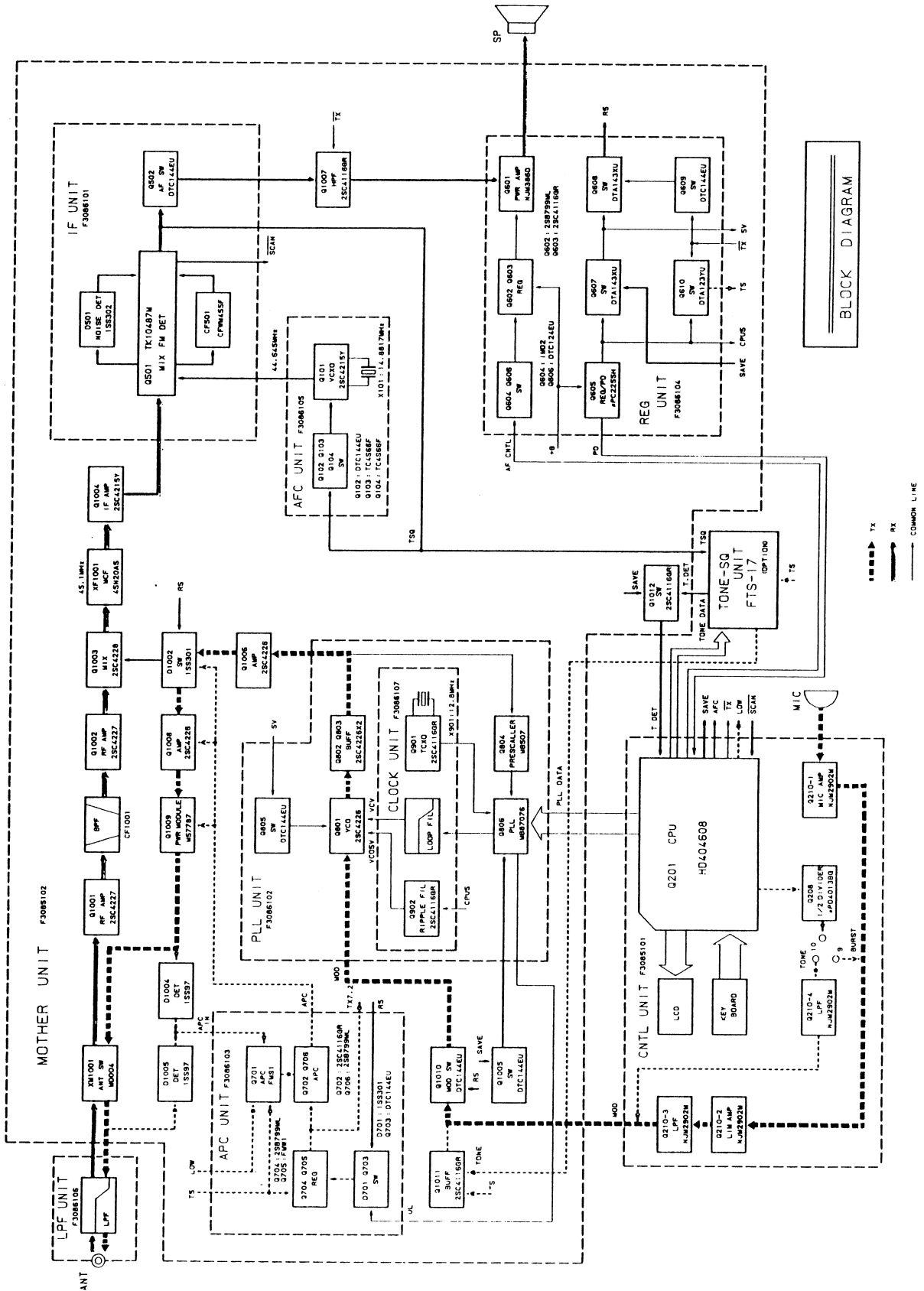
TH0901	G9090042	THERMISTOR	159-251-83
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X 0901	H0102932	XTAL UM-1	12.80MHZ
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CONNECTION DIAGRAM



BLOCK DIAGRAM



BLOCK DIAGRAM