

SECTION 20.

CELLULAR-TELEPHONE TEST BOARD (A12) — OPTION A

20.1 GENERAL

Cellular telephones can be tested using the Cellular-Telephone Test board. By selecting tests from a menu on the screen, the operator can use the board to provide the data and generate the tones necessary to communicate with a Cellular telephone. This board also contains circuitry to test a Cellular telephone in the Manual Mode and to send the results of an Auto-Test to a printer.

A block diagram of the Cellular-Telephone Test board is shown at the end of the section in Figure 20-1, a schematic in Figure 20-2, and the printed wiring board assembly and parts list in Figure 20-3.

20.2 THEORY OF OPERATION

20.2.1 TRANSMITTED DATA

The system microprocessor generates all data transmitted to the Cellular telephone under test. A synchronous serial-data adapter (SSDA) (U8) on the Cellular-Telephone Test board transforms the data from a parallel to a serial format. The transmitted data is then Manchester-encoded at U1 and filtered by U24.

The transmit clock is divided down to 10 kHz from the 3.84-MHz master oscillator by U3 and U7.

20.2.2 RECEIVED DATA

The data received from the Cellular telephone under test is filtered by U40. A hard limiter (U17) shapes the Manchester-encoded data to CMOS levels.

The data enters a synchronizer IC (U3) where a bit-sync detector derives the receive clock. The received data is then Manchester decoded, and the synchronizer looks for word sync, which is an 11-bit sequence. When it detects word sync, U3 signals the SSDA that valid data is available. The data is then clocked into the SSDA and read by the microprocessor.

20.2.3 CONTROL

The microprocessor controls all data and signal paths through U9, an on-board peripheral-interface adapter (PIA). This PIA disables all analog signals when data is being transmitted, and disables the data path when data is not being transmitted.

20.2.4 MODULATION

The audio-modulation paths are enabled or disabled, depending on whether or not a Cellular test is in progress. As long as there is no Cellular test, the

EXT MOD RTN (O), INT MOD RTN (O), and 1 KHz SINE RTN (O) paths are enabled. During a Cellular test, whenever data is not being transmitted, MIC IN, EXT MOD INPUT, INT MOD (I) and 1 KHz SINE RTN (O) are enabled.

During a Cellular test, the System Analyzer transmits a supervisory audio tone (SAT) with a frequency of 5970 Hz, 6000 Hz, or 6030 Hz. This tone comes to the board via the INT MOD (I) line. The SAT passes through an automatic gain control (AGC) circuit (U23 and U25). U25B full-wave rectifies the SAT, and amplifier U23A sets the output level. U23B then compares the average voltage of the rectified signal with 2.5 Vdc. The output of U23B drives the gate of Q2, which acts as a voltage-variable resistor to attenuate the input SAT.

The microphone input port (Mic) on the front panel allows voice to be transmitted to the Cellular telephone under test. The incoming signal is amplified and filtered before it enters compressor U21, which condenses amplitude variations by attenuating high-level signals and amplifying low-level ones. The signal enters a pre-emphasis circuit, and then, to limit the FM deviation to a specified level, an instantaneous deviation control (IDC) circuit. To attenuate harmonics created by the IDC, a splatter filter follows.

The 1 KHz SINE RTN (O) line can be used to measure receiver distortion and sensitivity. EXT MOD INPUT can be used to add an external modulation source.

20.2.5 10-KHZ DETECTION

Detect circuitry measures the duration of the Cellular telephone's 10-kHz signaling tone. The received signaling tone comes in via DEMOD CAL AUDIO, where it is filtered to eliminate noise and unwanted signals before becoming an input for a 10-kHz detector (U12). The output of this detector is normally a logic 1. However, when it detects a 10-kHz signal, U12 outputs a logic 0 for the duration of the 10-kHz signal. A timer IC (U10) measures the duration of the logic 0.

20.2.6 MANUAL-MODE CONTROL

With the Manual-Mode Test, the transceiver portion of the Cellular telephone can be manually tested. The Manual-Mode Test connector (CELL BUS) is located on the back of the System Analyzer.

A handshaking (asynchronous) process transfers data to and from the transceiver. The microprocessor controls the signals and their direction through a PIA (U15). All control and data lines are buffered by GPIB transceivers U35 and U36.

20.2.7 PRINTER

The Manual-Mode Test connector also contains the three data and control lines necessary to interface with a printer. The Cellular-Telephone Test board provides the circuitry for these three lines: a ground line (GND), the PRINTER DATA line, which serially out-

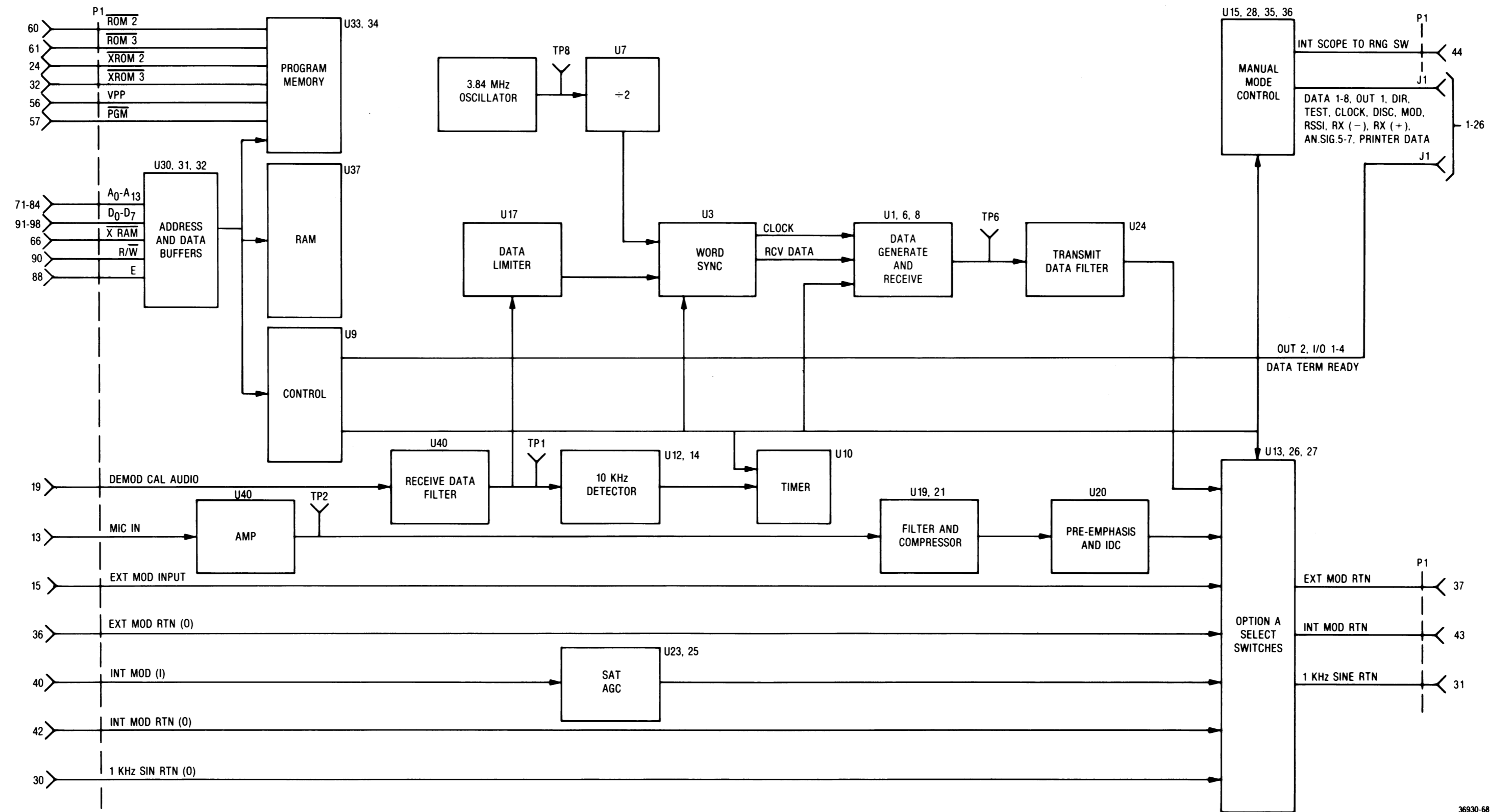
puts data to the printer, and the DATA TERMINAL READY line, which is an input to the Cellular-Telephone Test board. The output-signal levels are in accordance with EIA RS232C.

The printer can provide a hard copy of the results from the Cellular Auto-Test. It can also print out test results displayed on any screen.

CELLULAR-TELEPHONE TEST BOARD (A12) – OPTION A

(RTC-1012A)

Figure 20-1. Block Diagram



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CELLULAR-TELEPHONE TEST BOARD (A12) - OPTION A

(RTC-1012A)

Figure 20-2a. Schematic (Sheet 1 of 2)

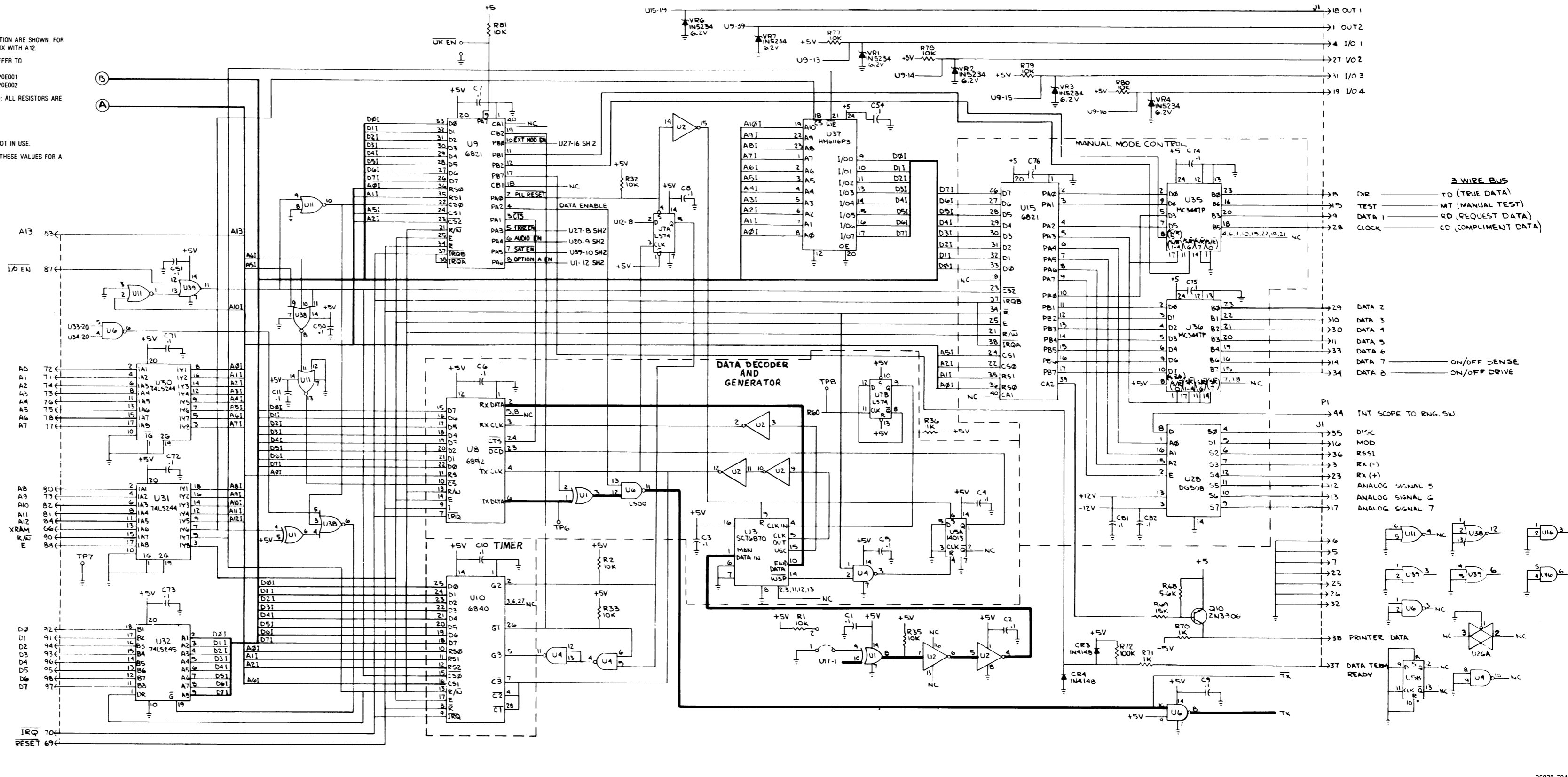
NOTES:

- PARTIAL REFERENCE DESIGNATION ARE SHOWN FOR COMPLETE DESIGNATION PREFIX WITH A12.
 - FOR REFERENCE DRAWINGS REFER TO ASSY. 01-P22120C PARTS LIST: STD - PL01-P22120E001 UK - PL01-P22120E002
 - UNLESS OTHERWISE SPECIFIED: ALL RESISTORS ARE IN OHMS, ± 5 PCT, 1/4 W. ALL CAPACITORS ARE IN UF. ALL INDUCTORS ARE IN UH. ALL VOLTAGES ARE DC.
- △ ENABLED WHEN OPTION "A" NOT IN USE.
- ⚠ THE FOLLOWING PARTS HAVE THESE VALUES FOR A UK BOARD (PL01-P22120E002)
- R41: 11K
C25: 1200 PF
C26: 1200 PF
C68: 470 PF
Y1: 3.072 MHZ

LAST USED	NOT USED
C69	A18, A19, B10, B11
CR4	
L1	
Q10	Q1, 5-9
S	
TPB	
U4D	U22
VR1	VR5
RBI	R34, R39, 31, 5A, 64, 61, 74

WARNING: STATIC-SENSITIVE PARTS HANDLE APPROPRIATELY

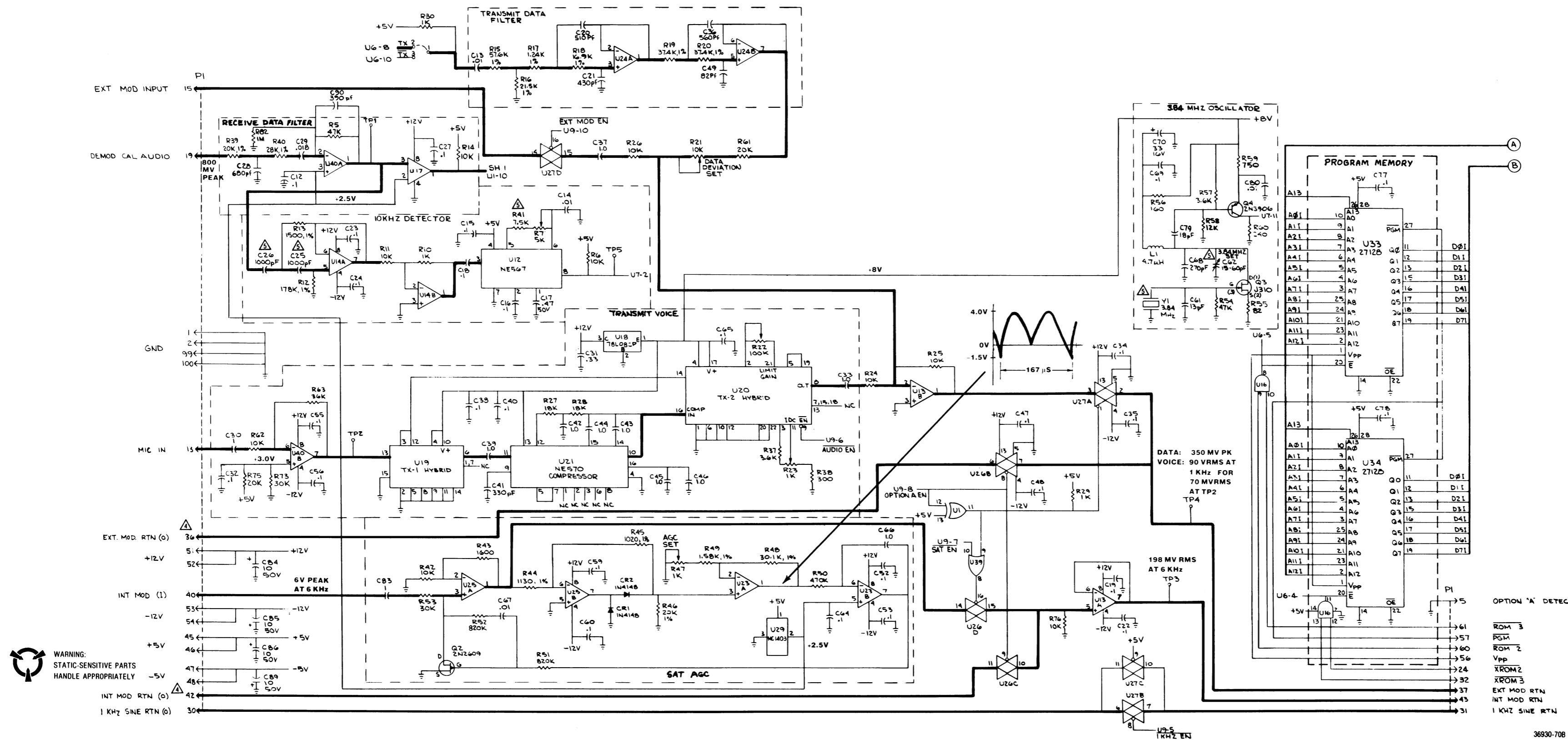
REF DES	DEVICE	CND	+5V	NOT USED
U1	74LS06	7, 9	5, 13, 14	
U2	MC14049	B	1	15, 16
U3	5C76070	6, 7, 8	10	2, 3, 11, 12, 13
U4	MC14011	1, 8, 9	14	10
U5	14013	35, 11	14	2, 12, 13
U6	L500	1, 2, 7	9, 14	3
U7	L574	1	20	5, 8, 40
U8	6882	1	20	5, 8, 40
U9	6840	1	14	3, 6, 7
U10	6882	1	20	5, 8, 40
U11	L502	35, 8, 14	14	4
U12	NE547	7	4	
U13	CA3240E	3	HE, 14, 4	
U14	CA3240E	3	HE, 14, 4	
U15	6821	1	20	5, 8, 40
U16	L500	1, 2, 7	9, 14	3
U17	LM555	4	HE, 14, 4	
U18	74LS00	1	HE, 14, 4	
U19	74LS00	1	HE, 14, 4	
U20	74LS00	1	HE, 14, 4	
U21	NE570	4	HE, 14, 4	
U22				
U23	CA3240E	3	HE, 14, 4	
U24	CA3240E	3	HE, 14, 4	
U25	CA3240E	3	HE, 14, 4	
U26	M1201-5	1, 5	HE, 14, 4	
U27	M1201-5	1, 5	HE, 14, 4	
U28	DG9000	14	HE, 14, 4	
U29	MC1403	3	1	
U30	74LS244	10, 9	20	
U31	74LS244	10, 9	20	
U32	74LS245	10	20	
U33	2712B	4, 22	28	
U34	2712B	4, 22	28	
U35	MC3447P	10, 4	14	
U36	MC3447P	10, 4	14	
U37	HM6116P3	17, 15	24	
U38	L527	12, 7, 13	14	12
U39	L532	12, 7, 13	14	3, 6
U40	CA3240E	3	HE, 14, 4	



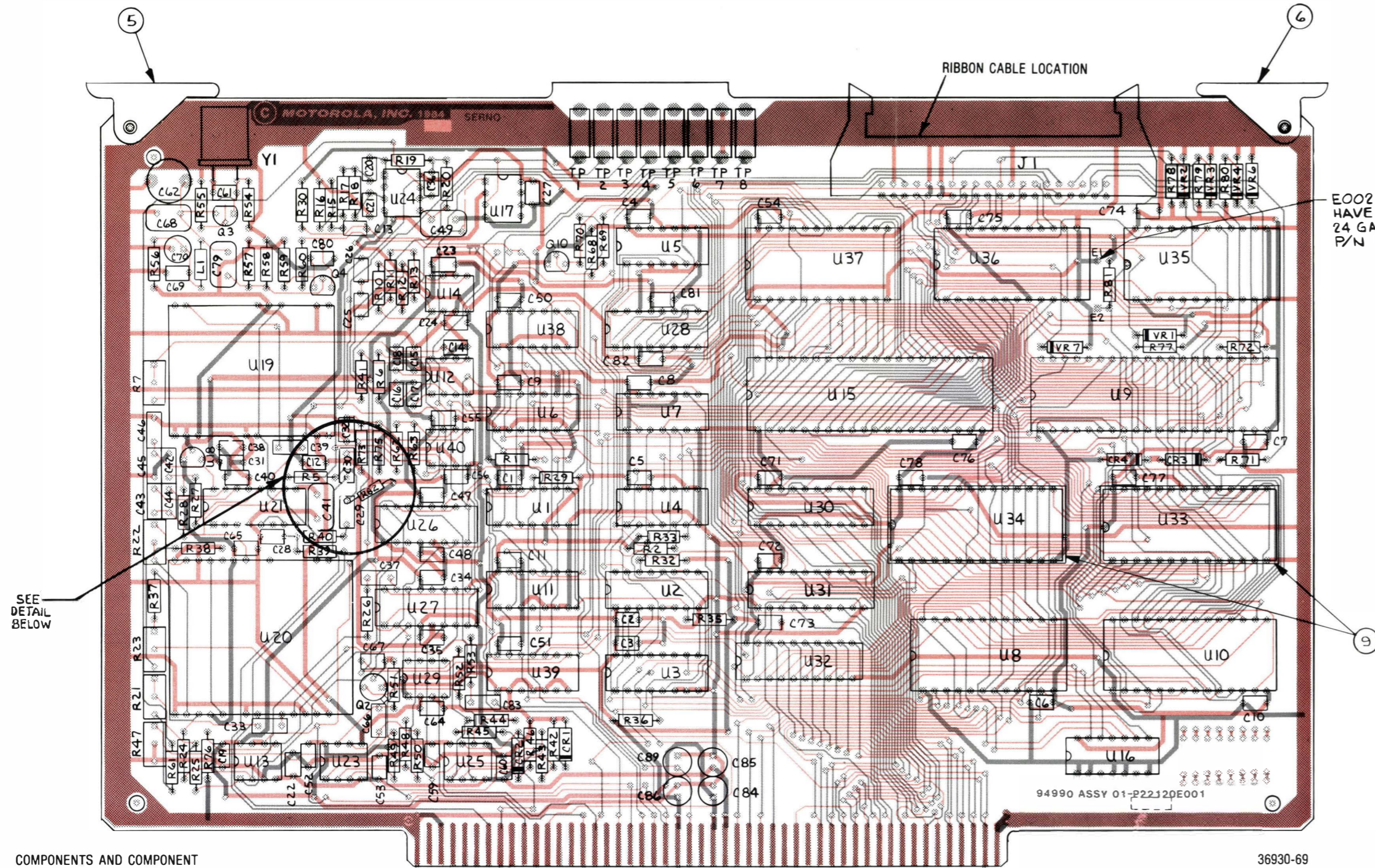
CELLULAR-TELEPHONE TEST BOARD (A12) - OPTION A

(RTC-1012A)

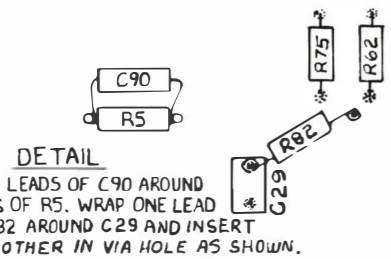
Figure 20-2b. Schematic (Sheet 2 of 2)



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COMPONENTS AND COMPONENT SIDE TRACK SHOWN IN BLACK.
SOLDER-SIDE TRACK SHOWN IN ORANGE



CELLULAR-TELEPHONE TEST BOARD (A12)
OPTION A
RTC-1012A

Find No.	Qty. Req.	Part No.	Nomenclature	Part Value
005	1	45-80339B28	CARD EJECTOR	
006	1	45-80339B31	CARD EJECTOR	MARKED
009	2	09-80343B85	SOCKET	28 PIN
C 001	1	21-80342B10	CAPACITOR	.1UF-20-50
C 002	1	21-80342B10	CAPACITOR	.1UF-20-50
C 003	1	21-80342B10	CAPACITOR	.1UF-20-50
C 004	1	21-80342B10	CAPACITOR	.1UF-20-50
C 005	1	21-80342B10	CAPACITOR	.1UF-20-50
C 006	1	21-80342B10	CAPACITOR	.1UF-20-50
C 007	1	21-80342B10	CAPACITOR	.1UF-20-50
C 008	1	21-80342B10	CAPACITOR	.1UF-20-50
C 009	1	21-80342B10	CAPACITOR	.1UF-20-50
C 010	1	21-80342B10	CAPACITOR	.1UF-20-50
C 011	1	21-80342B10	CAPACITOR	.1UF-20-50
C 012	1	21-80342B10	CAPACITOR	.1UF-20-50
C 013	1	21-80342B09	CAPACITOR	.01UF-20-50
C 014	1	21-80342B09	CAPACITOR	.01UF-20-50
C 015	1	21-80342B10	CAPACITOR	.1UF-20-50
C 016	1	21-80342B10	CAPACITOR	.1UF-20-50
C 017	1	21-80342B14	CAPACITOR	.47UF-20-50
C 018	1	21-80342B10	CAPACITOR	.1UF-20-50
C 019	1	21-80342B10	CAPACITOR	.1UF-20-50
C 020	1	21-80341B75	CAPACITOR	510PF-5-50
C 021	1	21-80341B80	CAPACITOR	430PF-5-50
C 022	1	21-80342B10	CAPACITOR	.1UF-20-50
C 023	1	21-80342B10	CAPACITOR	.1UF-20-50
C 024	1	21-80342B10	CAPACITOR	.1UF-20-50
C 025	1	21-80341B46	CAPACITOR	1000PF-5-50
C 026	1	21-80341B46	CAPACITOR	1000PF-5-50
C 027	1	21-80342B10	CAPACITOR	.1UF-20-50
C 028	1	21-80341B77	CAPACITOR	680PF-5-50
C 029	1	21-80342B36	CAPACITOR	.018UF-5-50
C 030	1	21-80342B46	CAPACITOR	.1UF-20-50
C 031	1	21-80342B12	CAPACITOR	33UF-20-50
C 032	1	21-80342B10	CAPACITOR	.1UF-20-50
C 033	1	21-80342B46	CAPACITOR	.1UF-20-50
C 034	1	21-80342B10	CAPACITOR	.1UF-20-50
C 035	1	21-80342B10	CAPACITOR	.1UF-20-50
C 036	1	21-80341B76	CAPACITOR	560PF-5-50
C 037	1	21-80342B46	CAPACITOR	.1UF-20-50
C 038	1	21-80342B10	CAPACITOR	.1UF-20-50
C 039	1	21-80342B46	CAPACITOR	.1UF-20-50
C 040	1	21-80342B10	CAPACITOR	.1UF-20-50
C 041	1	21-80339B19	CAPACITOR	330PF-5-100
C 042	1	21-80342B46	CAPACITOR	.1UF-20-50
C 043	1	21-80342B46	CAPACITOR	.1UF-20-50
C 044	1	21-80342B46	CAPACITOR	.1UF-20-50
C 045	1	21-80342B46	CAPACITOR	.1UF-20-50
C 046	1	21-80342B46	CAPACITOR	.1UF-20-50
C 047	1	21-80342B10	CAPACITOR	.1UF-20-50
C 048	1	21-80342B10	CAPACITOR	.1UF-20-50
C 049	1	21-80339B18	CAPACITOR	82PF-5-500
C 050	1	21-80342B10	CAPACITOR	.1UF-20-50
C 051	1	21-80342B10	CAPACITOR	.1UF-20-50
C 052	1	21-80342B10	CAPACITOR	.1UF-20-50
C 053	1	21-80342B10	CAPACITOR	.1UF-20-50
C 054	1	21-80342B10	CAPACITOR	.1UF-20-50
C 055	1	21-80342B10	CAPACITOR	.1UF-20-50
C 056	1	21-80342B10	CAPACITOR	.1UF-20-50
C 059	1	21-80342B10	CAPACITOR	.1UF-20-50
C 060	1	21-80342B10	CAPACITOR	.1UF-20-50
C 061	1	21-80341B51	CAPACITOR	13PF-5-50
C 062	1	21-80339B43	CAPACITOR	15 TO 60PF-200
C 064	1	21-80342B10	CAPACITOR	.1UF-20-50
C 065	1	21-80342B10	CAPACITOR	.1UF-20-50
C 066	1	21-80342B46	CAPACITOR	.1UF-20-50
C 067	1	21-80342B09	CAPACITOR	.01UF-20-50
C 068	1	21-80339B22	CAPACITOR	270PF-5-300
C 069	1	21-80342B10	CAPACITOR	.1UF-20-50
C 070	1	23-8465F24	CAPACITOR	33UF-20-16
C 071	1	21-80342B10	CAPACITOR	.1UF-20-50
C 072	1	21-80342B10	CAPACITOR	.1UF-20-50
C 073	1	21-80342B10	CAPACITOR	.1UF-20-50
C 074	1	21-80342B10	CAPACITOR	.1UF-20-50
C 075	1	21-80342B10	CAPACITOR	.1UF-20-50
C 076	1	21-80342B10	CAPACITOR	.1UF-20-50
C 077	1	21-80342B10	CAPACITOR	.1UF-20-50
C 078	1	21-80342B10	CAPACITOR	.1UF-20-50
C 079	1	21-80339B13	CAPACITOR	18PF-5-500
C 080	1	21-80342B09	CAPACITOR	.01UF-20-50
C 081	1	21-80342B10	CAPACITOR	.1UF-20-50

CELLULAR-TELEPHONE TEST BOARD (A12) - OPTION A

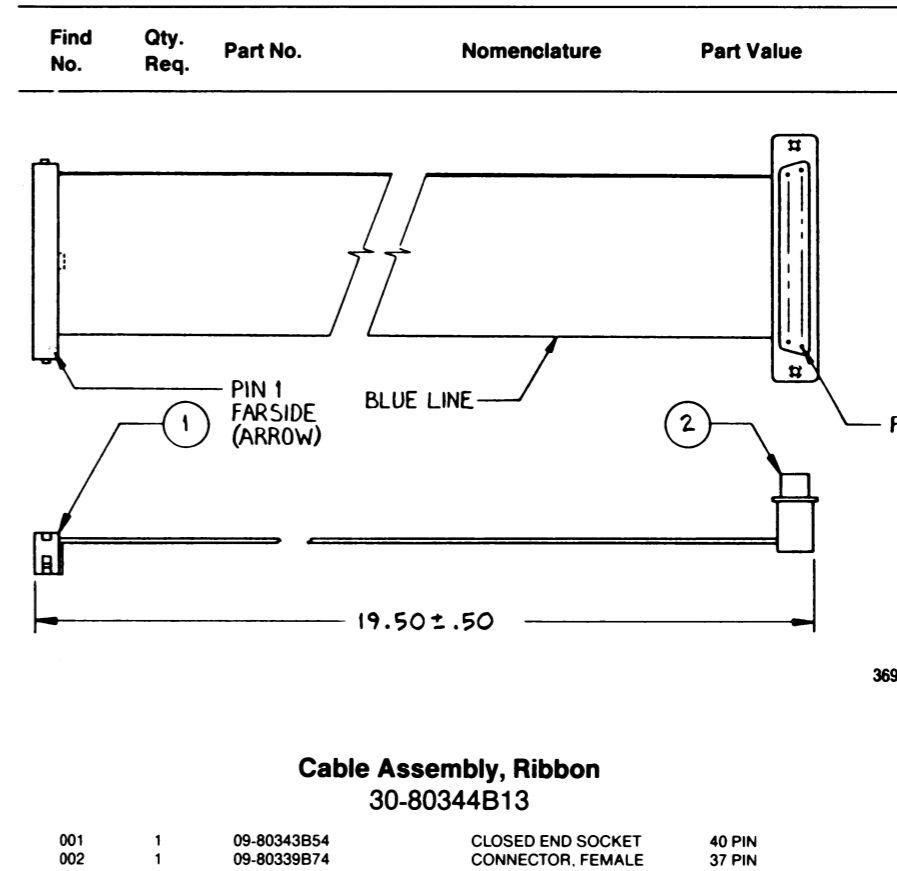
(RTC-1012A)
Figure 20-3. Printed Wiring Board Assembly and Parts List

CELLULAR-TELEPHONE TEST BOARD (A12)
 OPTION A (Cont)
 RTC-1012A

Find No.	Qty. Req.	Part No.	Nomenclature	Part Value
C 082	1	21-80342B10	CAPACITOR	.1UF-20-50
C 083	1	21-80342B46	CAPACITOR	1UF-20-50
C 084	1	23-80341B15	CAPACITOR	10UF-20-50
C 085	1	23-80341B15	CAPACITOR	10UF-20-50
C 086	1	23-80341B15	CAPACITOR	10UF-20-50
C 089	1	23-80341B15	CAPACITOR	10UF-20-50
C 090	1	21-80339B21	CAPACITOR	390PF-5-100
CR001	1	48-84463K02	DIODE	
CR002	1	48-84463K02	DIODE	
CR003	1	48-84463K02	DIODE	
CR004	1	48-84463K02	DIODE	
J 001	1	28-80343B53	CONNECTOR	40 PIN HEADER
L 001	1	24-80340B55	COIL	4.7UH
Q 002	1	48-80342B47	TRANSISTOR	
Q 003	1	48-00869878	TRANSISTOR	
Q 004	1	RG-2N3906	TRANSISTOR	
Q 010	1	RG-2N3906	TRANSISTOR	
R 001	1	06-11009C73	RESISTOR	10K-5-1/4
R 002	1	06-11009C73	RESISTOR	10K-5-1/4
R 005	1	06-11009C89	RESISTOR	47K-5-1/4
R 006	1	06-11009C73	RESISTOR	10K-5-1/4
R 007	1	18-83452F11	RESISTOR VARIABLE	5K
R 010	1	06-11009C49	RESISTOR	1K-5-1/4
R 011	1	06-11009C73	RESISTOR	10K-5-1/4
R 012	1	06-10621E13	RESISTOR	178K-1-1/4
R 013	1	06-10621C12	RESISTOR	1.5K-1-1/4
R 014	1	06-11009C73	RESISTOR	10K-5-1/4
R 015	1	06-10621D65	RESISTOR	57.6K-1-1/4
R 016	1	06-10621D24	RESISTOR	21.5K-1-1/4
R 017	1	06-10621C04	RESISTOR	1.24K-1-1/4
R 018	1	06-10621D14	RESISTOR	16.9K-1-1/4
R 019	1	06-10621D47	RESISTOR	37.4K-1-1/4
R 020	1	06-10621D47	RESISTOR	37.4K-1-1/4
R 021	1	18-83452F13	RESISTOR VARIABLE	10K
R 022	1	18-83452F19	RESISTOR VARIABLE	100K
R 023	1	18-83452F09	RESISTOR VARIABLE	1K
R 024	1	06-11009C73	RESISTOR	10K-5-1/4
R 025	1	06-11009C73	RESISTOR	10K-5-1/4
R 026	1	06-11009C73	RESISTOR	10K-5-1/4
R 027	1	06-11009C79	RESISTOR	18K-5-1/4
R 028	1	06-11009C79	RESISTOR	18K-5-1/4
R 029	1	06-11009C49	RESISTOR	1K-5-1/4
R 030	1	06-11009C49	RESISTOR	1K-5-1/4
R 032	1	06-11009C73	RESISTOR	10K-5-1/4
R 033	1	06-11009C73	RESISTOR	10K-5-1/4
R 035	1	06-11009C73	RESISTOR	10K-5-1/4
R 036	1	06-11009C49	RESISTOR	1K-5-1/4
R 037	1	06-11009C62	RESISTOR	3.6K-5-1/4
R 038	1	06-11009C36	RESISTOR	300-5-1/4
R 039	1	06-10621D21	RESISTOR	20K-1-1/4
R 040	1	06-10621D35	RESISTOR	28K-1-1/4
R 041	1	06-11009C70	RESISTOR	7.5K-5-1/4
R 042	1	06-11009C73	RESISTOR	10K-5-1/4
R 043	1	06-11009C54	RESISTOR	1.6K-5-1/4
R 044	1	06-10621B99	RESISTOR	1.13K-1-1/4
R 045	1	06-10621B95	RESISTOR	1.02K-1-1/4
R 046	1	06-10621D21	RESISTOR	20K-1-1/4
R 047	1	18-83452F09	RESISTOR VARIABLE	1K
R 048	1	06-10621D38	RESISTOR	30.1K-1-1/4
R 049	1	06-10621C14	RESISTOR	1.58K-1-1/4
R 050	1	06-11009D14	RESISTOR	470K-5-1/4
R 051	1	06-11009D20	RESISTOR	820K-5-1/4
R 052	1	06-11009D20	RESISTOR	820K-5-1/4
R 053	1	06-11009C84	RESISTOR	30K-5-1/4
R 054	1	06-11009C89	RESISTOR	47K-5-1/4
R 055	1	06-11009C23	RESISTOR	82-5-1/4
R 056	1	06-11009C30	RESISTOR	160-5-1/4
R 057	1	06-11009C62	RESISTOR	3.6K-5-1/4
R 058	1	06-11009C75	RESISTOR	12K-5-1/4
R 059	1	06-11009C46	RESISTOR	750-5-1/4
R 060	1	06-11009C34	RESISTOR	240-5-1/4
R 061	1	06-11009C80	RESISTOR	20K-5-1/4
R 062	1	06-11009C73	RESISTOR	10K-5-1/4
R 063	1	06-11009C86	RESISTOR	36K-5-1/4
R 068	1	06-11009C67	RESISTOR	5.6K-5-1/4
R 069	1	06-11009C77	RESISTOR	15K-5-1/4
R 070	1	06-11009C49	RESISTOR	1K-5-1/4

Find No.	Qty. Req.	Part No.	Nomenclature	Part Value
R 071	1	06-11009C49	RESISTOR	1K-5-1/4
R 072	1	06-11009C97	RESISTOR	100K-5-1/4
R 073	1	06-11009C84	RESISTOR	30K-5-1/4
R 075	1	06-11009C80	RESISTOR	20K-5-1/4
R 076	1	06-11009C73	RESISTOR	10K-5-1/4
R 077	1	06-11009C73	RESISTOR	10K-5-1/4
R 078	1	06-11009C73	RESISTOR	10K-5-1/4
R 079	1	06-11009C73	RESISTOR	10K-5-1/4
R 080	1	06-11009C73	RESISTOR	10K-5-1/4
R 081	1	06-11009C73	RESISTOR	10K-5-1/4
R 082	1	06-11009D22	RESISTOR	1M-5-1/4
TP001	1	09-80331A88	JACK	WHITE
TP002	1	09-80331A88	JACK	WHITE
TP003	1	09-80331A88	JACK	WHITE
TP004	1	09-80331A88	JACK	WHITE
TP005	1	09-80331A88	JACK	WHITE
TP006	1	09-80331A88	JACK	WHITE
TP007	1	09-80331A88	JACK	WHITE
TP008	1	09-80331A88	JACK	WHITE
U 001	1	51-82609M79	INTEGRATED CIRCUIT	
U 002	1	51-82884L02	INTEGRATED CIRCUIT	
U 003	1	51-82609M28	INTEGRATED CIRCUIT	SC76870
U 004	1	51-05596E46	INTEGRATED CIRCUIT	SCREENED
U 005	1	51-05596E15	INTEGRATED CIRCUIT	
U 006	1	51-84561L04	INTEGRATED CIRCUIT	
U 007	1	51-83627M93	INTEGRATED CIRCUIT	
U 008	1	51-82807K10	INTEGRATED CIRCUIT	
U 009	1	51-82807K20	INTEGRATED CIRCUIT	
U 010	1	51-82848M44	INTEGRATED CIRCUIT	
U 011	1	51-84561L06	INTEGRATED CIRCUIT	
U 012	1	51-82609M34	INTEGRATED CIRCUIT	
U 013	1	51-80345A04	INTEGRATED CIRCUIT	CA3240E SCREENED
U 014	1	51-80345A04	INTEGRATED CIRCUIT	CA3240E SCREENED
U 015	1	51-82807K20	INTEGRATED CIRCUIT	
U 016	1	51-84561L07	INTEGRATED CIRCUIT	SCREENED
U 017	1	51-80345A10	INTEGRATED CIRCUIT	LM393N SCREENED
U 018	1	51-05683H01	INTEGRATED CIRCUIT	
U 019	1	51-80341B35	INTEGRATED CIRCUIT	
U 020	1	51-80341B36	INTEGRATED CIRCUIT	
U 021	1	51-80340B71	INTEGRATED CIRCUIT	
U 023	1	51-80345A04	INTEGRATED CIRCUIT	CA3240E SCREENED
U 024	1	51-80345A04	INTEGRATED CIRCUIT	CA3240E SCREENED
U 025	1	51-80345A04	INTEGRATED CIRCUIT	CA3240E SCREENED
U 026	1	51-80345A05	INTEGRATED CIRCUIT	HI-201-5 SCREENED
U 027	1	51-80345A05	INTEGRATED CIRCUIT	HI-201-5 SCREENED
U 028	1	51-80396A13	INTEGRATED CIRCUIT	DG508CJ SCREENED
U 029	1	51-05469E13	INTEGRATED CIRCUIT	
U 030	1	51-82609M56	INTEGRATED CIRCUIT	
U 031	1	51-82609M56	INTEGRATED CIRCUIT	
U 032	1	51-82609M57	INTEGRATED CIRCUIT	
U 033	1	51-80339B89	INTEGRATED CIRCUIT	EPROM
U 034	1	51-80339B89	INTEGRATED CIRCUIT	EPROM
U 035	1	51-80343B38	INTEGRATED CIRCUIT	MC3447
U 036	1	51-80343B38	INTEGRATED CIRCUIT	MC3447
U 037	1	51-80340B03	INTEGRATED CIRCUIT	RAM
U 038	1	51-84561L38	INTEGRATED CIRCUIT	
U 039	1	51-84561L36	INTEGRATED CIRCUIT	
U 040	1	51-80345A04	INTEGRATED CIRCUIT	CA3240E SCREENED
VR001	1	48-80342B16	DIODE,ZENER	6.2V
VR002	1	48-80342B16	DIODE,ZENER	6.2V
VR003	1	48-80342B16	DIODE,ZENER	6.2V
VR004	1	48-80342B16	DIODE,ZENER	6.2V
VR005	1	48-80342B16	DIODE,ZENER	6.2V
VR006	1	48-80342B16	DIODE,ZENER	6.2V
VR007	1	48-80342B16	DIODE,ZENER	6.2V
Y 001	1	48-80343B31	CRYSTAL	

Find No.	Qty. Req.	Part No.	Nomenclature	Part Value
Cellular Interface Kit				
001	1	RTC-1012A	OPTION 'A' BD ASSY(A12)	
002	1	30-80344B13	CABLE ASSEMBLY, RIBBON	OPTION A/BACK PANEL
003	2	55-80339B88	LATCH	
Cellular Connector Kit				
001	1	RTC-4048A	PRINTED WIRING BOARD ASSY	JUMPER CARD
Jumper Card (Option A) RTC-4048A				
004	1	45-80339B28	CARD EJECTOR	
005	1	45-80339B32	CARD EJECTOR	MARKED
006	4	30-80344B18	JUMPER WIRE	



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