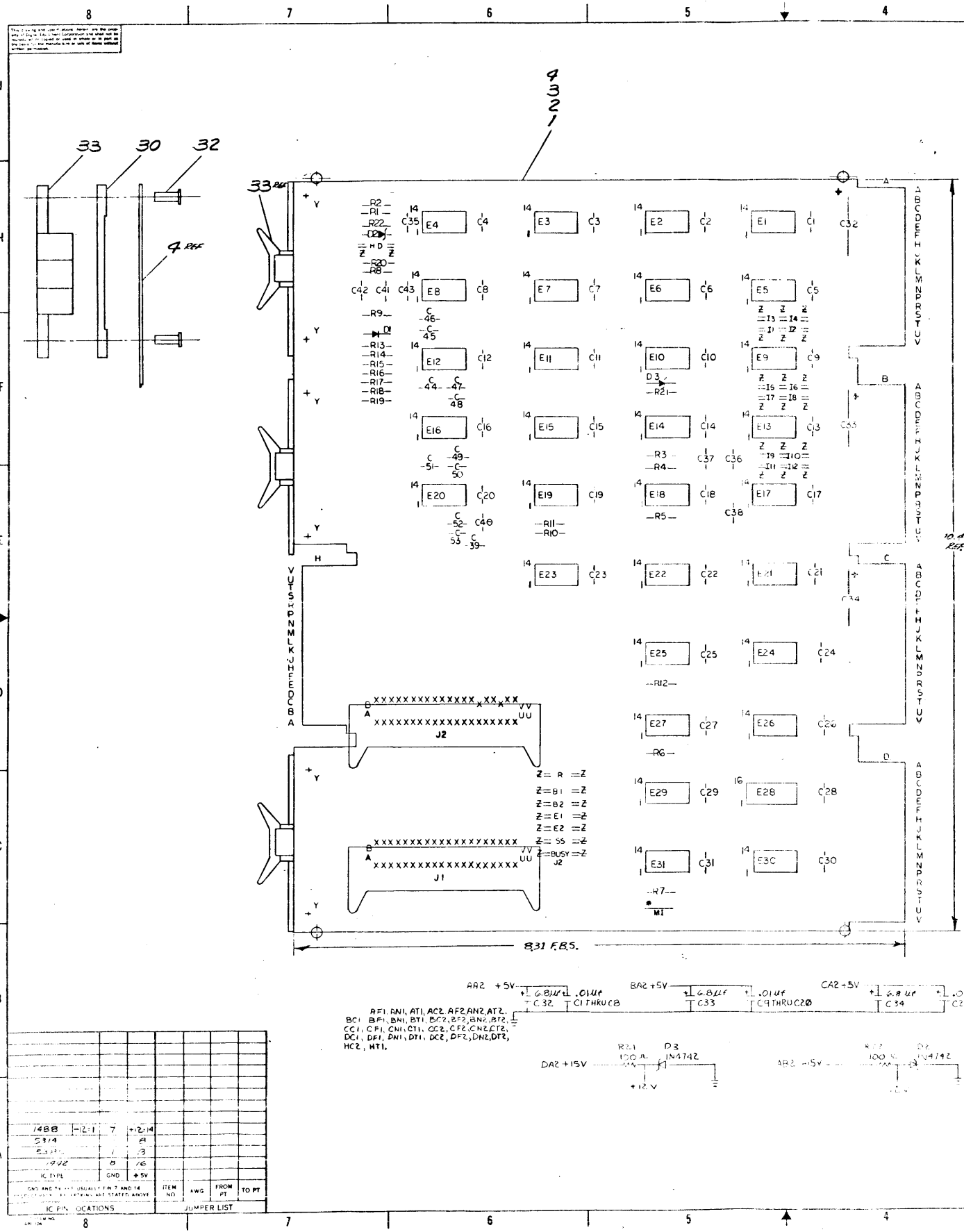


TITLE	SHEET 2 OF 3	SIZE CODE	NUMBER	REV
MODEM CONTROL	B DD	KL8-M	A	

CUSTOMER PRINT SET					ELECTRICAL					CUSTOMER PRINT SET					MECHANICAL						
MFG. SET					FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.	MFG. SET					FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X					1.	A-PL-KL8-M-0	A		MODEM CONTROL						1.	A-PL-KL8-M-0	A	1	MODEM CONTROL		
X						A-SP-KL8-M-1	A		ENGINEERING SPECIFICATION							C-UA-7008952-0-0		1	TEST CONNECTOR		
X						A-SP-KL8-M-2	A		ACCEPTANCE PROCEDURE / TEST												
X						A-AL-KL8-M-3	A		ACCESSORY LIST												
X						D-UA-BC08T-0-0	#	1	CABLE MODEM INTERCONNECTING												
X						C-UA-7008952-0-0	#	1	TEST CONNECTOR												
X						D-UA-BC05C-25-0	#	1	MODEM CABLE												
X					2.	E-CS-M8653-0-1	#	3	ASYNCHRONOUS MODEM CNTL.						2.	E-CS-M8653-0-1		1	ASYNCHRONOUS MODEM CNTL.		
						K-CO-M8653-0-4		1	X-Y COORDINATE HOLE LOCATION							K-CO-M8653-0-4		1	X-Y COORDINATE HOLE LOC.		
						D-AH-M8653-0-5		1	ASSY/DRILLING HOLE LAYOUT							D-AH-M8653-0-5		1	ASSY/DRILLING HOLE LAYOUT		
						B-MH-M8653-0-6		1	MODULE ECO HISTORY							B-MH-M8653-0-6		1	MODULE ECO HISTORY		





**NOTES:**

1. JUMPERS & FUNCTIONS (WHEN INSTALLED):  
 A) E1-E2-E1A SEC. TRANSMIT & RECEIVE.  
 B) B1-B2 BELL 212 SEC. TRANSMIT & RECEIVE.  
 C) SS SPEED SELECT.  
 D) R RESTRAINT (BELL BU B OR EQUIV.).  
 E) MI MACHINE INITIALIZE.  
 F) MD HALF DUPLEX (RECEIVER BLIND).  
 H) I1 THRU I12 IOT SELECTIONS.

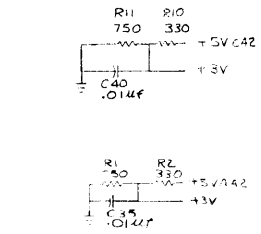
MD BIT	JUMPER INSTALLED	CONDITION SELECTED
03	I1	MD03=0=TRUE
	I2	MD03=1=TRUE
04	I3	MD04=0=TRUE
	I4	MD04=1=TRUE
05	I5	MD05=0=TRUE
	I6	MD05=1=TRUE
06	I7	MD06=0=TRUE
	I8	MD06=1=TRUE
07	I9	MD07=0=TRUE
	I10	MD07=1=TRUE
08	I11	MD08=0=TRUE
	I12	MD08=1=TRUE

2. J1/J2 INTERCONNECTION & FUNCTION:  
 A) J1A GROUND TO J2A/J2B.  
 J1B CONNECTS TO MB65Q/B65E PIN E THRU J2B.  
 J1C CONNECTS TO MB65Q/B65E PIN M THRU J2C.  
 J1D, J1V GROUND TO J2U/J2V.  
 B) J1 IS RECEIVE DATA INPUT TO MB65B, J2MM IS RECEIVE DATA INPUT FOR MB65Q/B65E OUTPUT.  
 C) J2PP IS TRANSMIT DATA OUTPUT FROM MB65Q/B65E REFRESHED TRANSMIT DATA TO MODEM.

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
34		SPLIT LUGS	9004735	34
3		WAVESHIP ALU-CAMP MB65Q/B65E	300033-6	35
6		FIXLET 850-11	3006750	32
2	J1, J2	CONNECTOR 94 AWS	1205941	31
3		CAMP CABLE	1207709	30
5	R1, R2, R3, R4, R5	T.C. DEC 5300	1310332	23
2	R6, R7	T.C. DEC 1989	1310323	28
2	R8, R9	T.C. DEC 1985	1310322	27
1	R10	T.C. DEC 7982	1310096	26
1	R11	T.C. DEC 7986	1310071	25
5	R12, R13, R14, R15, R16	T.C. DEC 37401	1309973	24
1	R17	T.C. DEC 6319	1309972	23
1	R18	T.C. DEC 79109	1309931	22
2	R19, R20	T.C. DEC 7908	1309886	21
4	R21, R22, R23, R24	T.C. DEC 7902	1309009	20
1	R25	T.C. DEC 7900	1305325	19
16	R26, R27, R28, R29, R30	T.C. DEC 7979	1305397	18
7	R31, R32	RES. 33K 1/4 W 10%	1300510	17
1	R33	RES. 1K 1/4 W 5%	1300491	16
1	R34	RES. 1K 1/4 W 5%	1300365	15
2	R35, R36	RES. 470 1/4 W 5%	1300318	14
2	R37, R38	RES. 330 1/4 W 5%	1300295	13
2	R39, R40	RES. 100 1/4 W 5%	1300239	12
3	R41, R42	RES. 220 1/4 W 5%	1300221	11
1	R43	DIODE D660	1100119	10
2	R44, R45	DIODE 1N4742	1103502	9
10	C36, C37, C38, C39	CAP. 330 MFD 16V 5%	1000023	8
33	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C29, C30, C31, C32, C33, C34	CAP. 0.1MFD 16V 20%	1001610	7
7	C47, C48, C49	CAP. 470 MFD 100V 5%	1000029	6
3	C32, C33, C34	CAP. 6.8MFD 35V 20% 57MFD	1000067	5
1		ETCH CIRCUIT BOARD	3003001	4
1		MODULE ECO HISTORY	3-MB65Q-0-0	3
1		W5Y SPILLING HOLE CIRCUIT	2-MB653-0-0	2
1		X-Y COORDINATE AND LOCATION	1-MB653-0-0	1

ITEM NO.	QTY	DESCRIPTION	FROM PT.	TO PT.
1488	12	7	+12V	
5314	1	3		
5315	1	3		
1902	1	6		
IC ENPL		GND	+5V	

REF: AN1, AT1, AC2, AF2, AN2, AT2,  
 BC1, BF1, BN1, BT1, DF2, BF2, BN2, BT2,  
 CC1, CF1, CN1, CT1, CC2, CF2, CN2, CT2,  
 DC1, DF1, DN1, DT1, DC2, DF2, DN2, DT2,  
 HC2, HT1.



SEMICONDUCTOR CONVERSION CHART

DATE: 10/1/77

SCALE: 1/2" = 1"

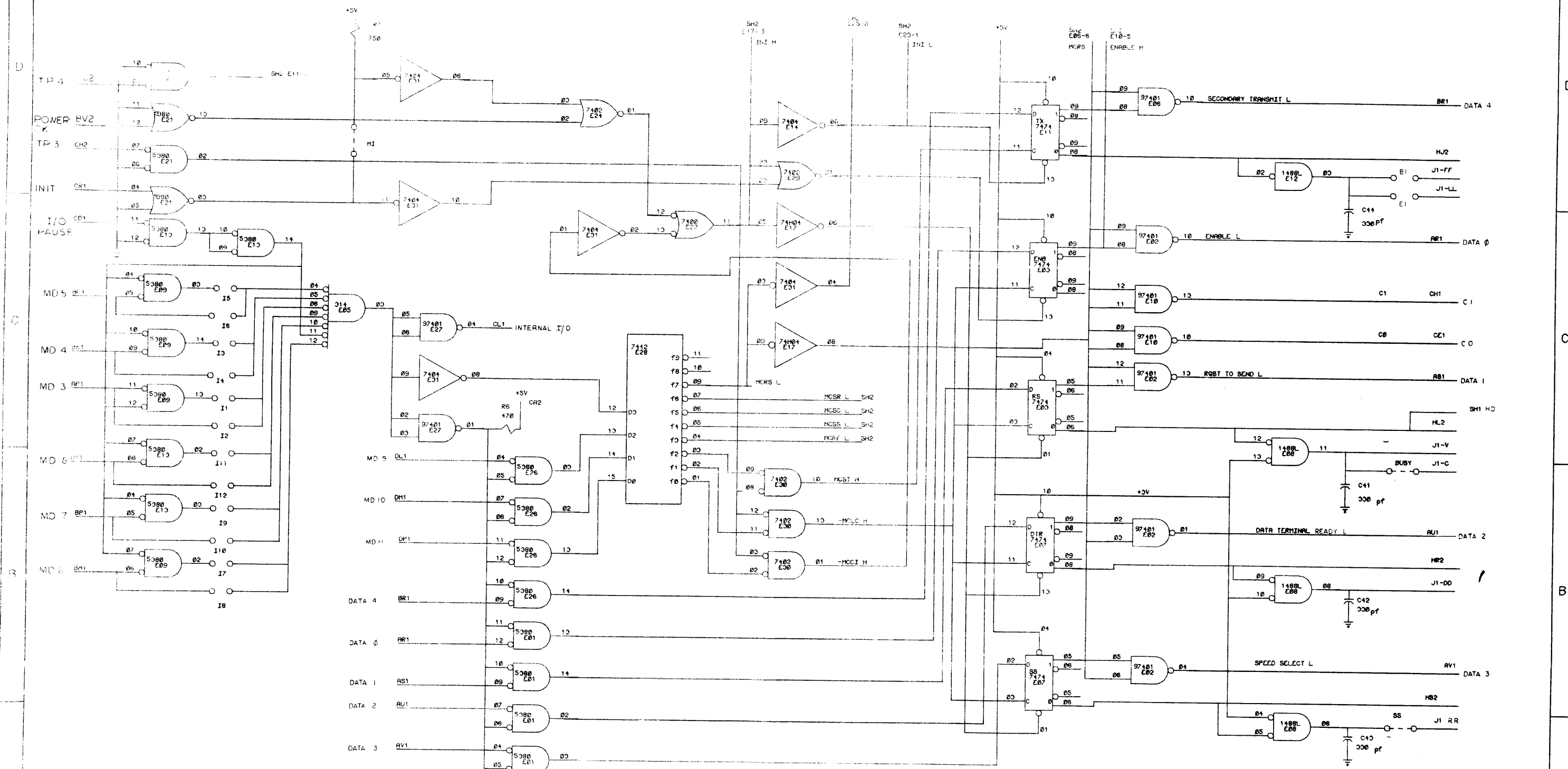
SHEET: 1 OF 3

ASYNCHRONOUS MODEM CONTROL

ITEM NO. 1000000

REV. C

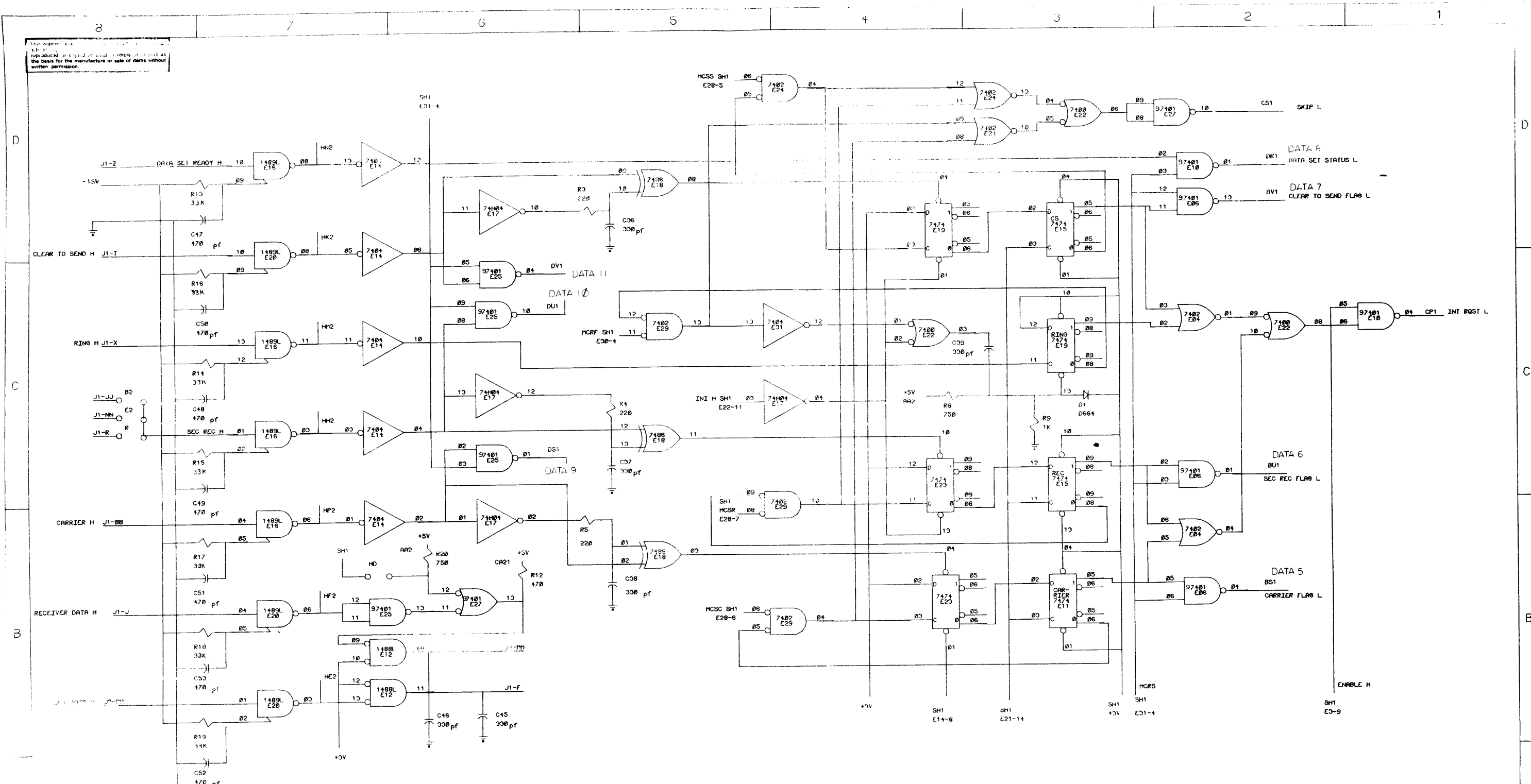
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REVISIONS		
CHK	CHANGE NO.	REV.

FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDFBE				
PARTS LIST				
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES		DRN. DATE	 <b>digital EQUIPMENT CORPORATION</b> <small>MATHEW MASSACHUSETTS</small>	
DECIMALS	ANGLES	CHK'D DATE		
XXX - .005	±0° 30'	ENG DATE		
.XX - .02		PROJ. ENG. DATE		
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓		PROD. DATE	TITLE	
			ASYNCHRONOUS MODEM CONTROL	
MATERIAL		NEXT HIGHER ASSY.		REV.
				C
FINISH		SCALE		NUMBER
		NONE		H853-0-01
SHEET 2 OF 3		DIST.		

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REVISIONS		
CHK	CHANGE NO.	REV.

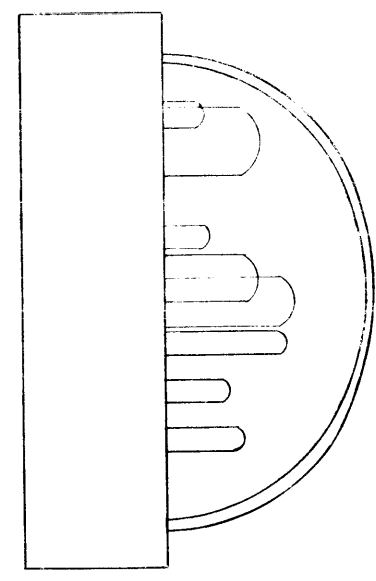
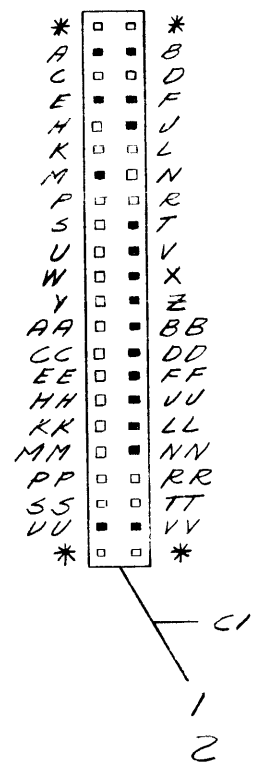
FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8E		PARTS LIST		
UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES TOLERANCES	DRN. _____ DATE _____	 <b>digital EQUIPMENT CORPORATION</b> <small>MAYNARD MASSACHUSETTS</small>		
DECIMALS _____ ANGLES _____	CHK'D _____ DATE _____			
XXX - .005 XX - .02 X - .1	ENG _____ DATE _____			
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY _____	PRJ. ENG. _____ DATE _____			
MATERIAL _____	PROD. _____ DATE _____	TITLE		
FINISH _____	NEXT HIGHER ASSY. _____	ASYNCRONOUS MODEM CONTROL		
	SCALE _____	SIZE CODE	NUMBER	REV.
	SHEET 3 OF 3	D CS	M8653-0-01	C
		DIST.		





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ITEM NO.	DESCRIPTION		FROM		TO		WIRE LENGTH
	AWG	COLOR	CONNECTION	WITH	CONNECTION	WITH	
3	26	YEL	CI-E	2	CI-M	2	2"
			CI-F		CI-U		
			CI-T		CI-V		
			CI-V		CI-Z		
			CI-X		CI-BB		
			CI-BB		CI-DD		
			CI-FF		CI-JJ		
3		YEL	CI-LL		CI-NN		2"
4		BLK	CI-A		CI-UU		5"
4	26	BLK	CI-B	2	CI-VV	2	5"



QTY.	DESCRIPTION	PART NO.	ITEM NO.
	A/R WIRE 26 AWG. STRANDED BLK	9107636-00	4
	A/R WIRE 26 AWG STRANDED YEL	9107636-44	3
	1B BERG PIN (47706)	1210089-6	2
	1 BERG 40 PIN HOUSING	1210090-0	1

REVISIONS	REV.	DATE
CHANGE NO.	REV.	DATE
CHK	REV.	DATE
2/2	KL6M-CCCC	A
	2-5-72	
	R. SMITH	

UNLESS OTHERWISE SPECIFIED		DRN	DATE	<b>digital</b> EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS
UNLESS OTHERWISE SPECIFIED		CHK'D	DATE	
DIMENSION IN INCHES		ENG.	DATE	
TOLERANCES		PROJ. ENG.	DATE	
DECIMALS FRACTIONS ANGLES		PROD.	DATE	TITLE <h1>TEST CONNECTOR</h1>
± .005 ± 1/64 ± 0°30'		FIRST USED ON		
FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS		A-FL-KLB-M-Ø		SIZE CODE
MATERIAL	FINISH	SCALE	SHEET	NUMBER
+	+	NONE	1 OF 1	7008952-0-0
				REV.
				A

REV. A  
NUMBER 7008952-0-0  
SIZE CODE CUA

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**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 6/16/72

TITLE KL8-M ACCEPTANCE AND TEST PROCEDURE

REVISIONS

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	UPDATE PER ECO	KL8M 00001	SMITH	10/72	<i>Smith</i>	11-72

ENG	Bob Smith	APPD	<i>W. J. ...</i>	SIZE	A	CODE	SP	NUMBER	KL8-M-2	REV	A
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DEC FORM NO. DRA 107

**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE KL8-M ACCEPTANCE AND TEST PROCEDURE

1.0 Acceptance and Test Procedure

1.1 The following procedure provides the method to test and accept the KL8-M Asynchronous Modem Control.

1.1.1 The KL8-M component parts are:

- A. M8653 module
- B. 7008952 test connector
- C. BC08T cable

1.1.2 The KL8-M software consists of:

- A. KL8-M print set
- B. MAINDEC-08-DHKLA (offline)
- C. MAINDEC-08-DHKLB (Online)

1.1.3 Test configuration requirements:

A. Hardware for KL8-M

- 1. PDP8/E/M/F with 4K of memory and a teletype
- 2. KL8-M (to be tested) and KL8-E
- \*3. PDP8/E/M/F with 4K of memory and teletype
- \*4. KL8-M (known good) and KL8-E
- \*5. Two Bell 103 modems

B. Software for KL8-M

- 1. MAINDEC-08-DHKLA (Offline)
- 2. MAINDEC-08-DHKLB (Online)

1.2 Detailed Test Procedure

1.2.1 The Maindec diagnostics will accept any IOT codes. (The standard KL8-M IOT code is 6420.)

1.2.2 The following is the Offline Test Procedure:

Step 1. Assemble the hardware

- A. If testing only the KL8-M, install test connector 7008952 in J1.

SIZE	A	CODE	SP	NUMBER	KL8-M-2	REV	A
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DEC FORM NO DRA 108 DEC 16-(381)-1022-N370

TITLE KL8-M ACCEPTANCE AND TEST PROCEDURE

- B. If testing the KL8-M in a systems environment, install test connector 7008952 in J1 and BC08T in J2 to the appropriate KL8/E/F. (P2 to KL8-M, P1 to KL8E/F.)
- Step 2. Load MAINDEC DHKLA and operate as indicated in the diagnostic procedure.
- Step 3. A valid test is a minimum of three passes error free. A sample of KL8-M's should be heat and cold tested.

\*1.2.3 The following is the Online Test Procedure:

- Step 1. Assemble the hardware as in paragraph 1.2.2 with the exception of the test connector 7008952. Instead install either a BC01V or BC05C cable in J1 (cable type is dependent upon the type of cable shipped with KL8/E/F). Refer to Figure 1.
- Step 2. Load MAINDEC-DHKLB and operate as indicated in the diagnostic procedure.
  - A. Besure receiver is in Auto Answer Mode and transmitter in Talk Mode.
  - B. Call the receiver. When the receiver answers with a tone, depress Data button.
- Step 3. A valid test is a minimum of three passes in full data test mode with no errors. In the event of data errors, the KL8-E, KL8-M, cables or telephone line could be at fault.

\*To be used in the field only if equipment is available.

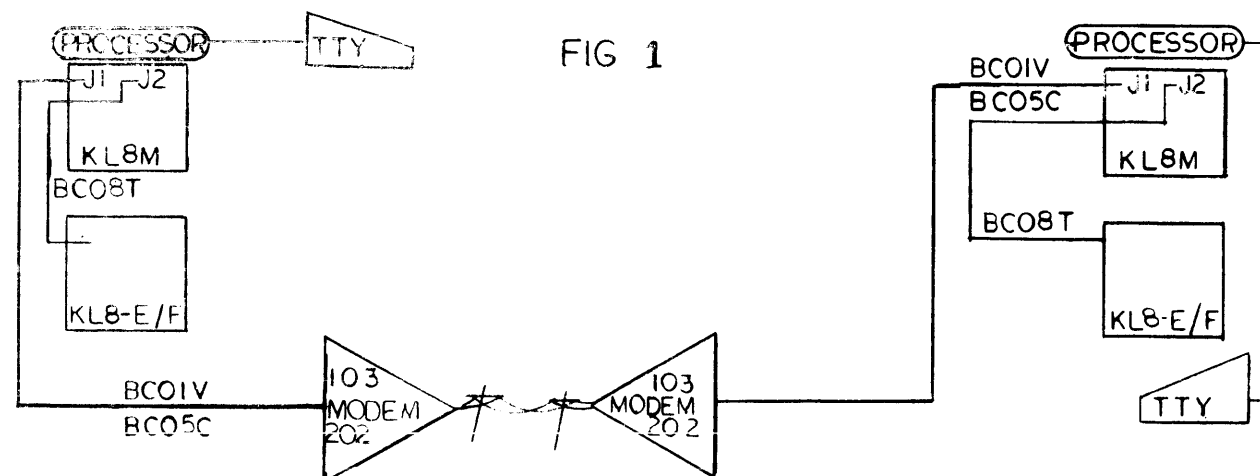
SIZE A	CODE SP	NUMBER KL8-M-2	REV A
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TITLE KL8-M ACCEPTANCE AND TEST PROCEDURE

APPENDIX A

JUMPER TABLE

TITLE	FUNCTION
I1 - I12	IOT Code Jumpers. Even numbered I jumper installed indicates the appropriate bit on a one. (Standard IOT set 6420.) Odd numbered I jumper installed indicates the appropriate bit on a zero. (Only one jumper per bit should be installed.)
HD	Half duplex or receiver blind
B1, B2	#Bell 202 compatible secondary receive and transmit leads.
E1, E2	EIA compatible secondary receive and transmit leads.
SS	Speed select
Busy	Busy indicator (for use with Bell 811B and equiv. modems)
R	Restraint indicator (for use with Bell 811B and equiv. modems)
MI	#Machine initialize #Standard configuration



SIZE A	CODE SP	NUMBER KL8-M-2	REV A
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<b>DIGITAL EQUIPMENT CORPORATION</b> MAYNARD, MASSACHUSETTS  <b>ACCESSORY LIST</b>			<b>LEGEND</b> D DOCUMENT DN DOCUMENT CHANGE NOTICE PA PAPER TAPE ASCII PB PAPER TAPE BINARY PM PAPER TAPE READ-IN-MODE		<b>QUANTITY / VARIATION</b>													
MADE BY R. ALLEN DATE 3/21/72		CHECKED <i>[Signature]</i> DATE <i>[Date]</i>	SECTION		KL8-M						KIT CHECK	BY	DATE	INSTALLATION CHECK	BY	DATE		
ENG <i>[Signature]</i> DATE 6-16-72		PROD <i>[Signature]</i> DATE 6-16-72	ISSUED SECT.														PA	
ITEM NO.	DWG NO. / PART NO.	DESCRIPTION																
1	B-DD-KL8-M	PRINT SET					1											
2	LIBKIT-8E-KL8-M	LIBRARY KIT					1											
3	NONE	MAINTENANCE MANUAL *					1											
4	M8653	CONTROL INTERFACE					1											
5	BCJ8T	CABLE (ONE FOOT LENGTH)					1											
6	7008952	TEST CONNECTOR					1											
7	BC05C	MODEM CABLE					1											
		* IF MAINTENANCE MANUAL NOT AVAILABLE, SHIP ENG. SPECS. INSTEAD																
<b>TITLE</b> ACCESSORY LIST KL8-M			<b>ASSY. NO.</b> SHEET 1 OF 1		<b>SIZE CODE</b> A AL	<b>NUMBER</b> KL8-M-3		<b>REV.</b> A	<b>ECO NO</b> KL8M-00002									

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**DIGITAL EQUIPMENT CORPORATION**  
MAYNARD, MASSACHUSETTS

**ENGINEERING SPECIFICATION**

DATE 6/19/72

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

**REVISIONS**

REV	DESCRIPTION	CHG NO	ORIG	DATE	APPD BY	DATE
A	UPDATE PER ECO	KL8M-00002	SMITH	10/72	<i>R.M. Smith</i>	11-72

NOTE: KL8E/F IS A PREREQUISITE.

ENG <i>R.M. Smith</i>	APPD <i>R.M. Smith</i>	SIZE <b>A</b>	CODE SP	NUMBER KL8-M-1	REV <b>A</b>
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**ENGINEERING SPECIFICATION**

**000001**

CONTINUATION SHEET

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

TABLE OF CONTENTS

- 1.0 Description
  - 1.1 General Description
  - 1.2 General Specifications
  - 1.3 Physical Description
- 2.0 Specifications
  - 2.1 Modem Interface
  - 2.2 Device Codes
  - 2.3 Options
  - 2.4 Power Consumption
  - 2.5 Interrupt Functions
- 3.0 Programming
  - 3.1 Bit Assignments
    - 3.1.1 Control Word
    - 3.1.2 Status Word
  - 3.2 Instructions
    - 3.2.1 Summary
    - 3.2.2 Detailed
- 4.0 Miscellaneous
  - 4.1 Level Conversion
  - 4.2 Test Connector
  - 4.3 Application Notes
    - 4.3.1 Bell 811B
- Appendices
  - A RS232-C Electrical Specifications
  - B PDP8/E Communications Pinning Assignments
  - C RS232C Interface Pin Assignments
  - D RS232C to CCITT Conversion Chart

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

## 1.0 Description

## 1.1 General Description

The KL8-M is a single line modem control interface for the PDP8/E. It is designed to be used in conjunction with the KL8-E or KL8-F series of asynchronous control interfaces (data only).

The KL8-M provides the necessary control functions to interface to Bell 103A/F/E/G/H, 202C/D, 811B modems and Datel/GPO modems or equivalent. The interface levels are EIA/CCITT compatible for data set operation.

## 1.2 General Specifications

1.2.1 The KL8-M, under program control, with the KL8-E or KL8-F series provides auto answering, carrier phase transition detection, speed selection, re-straint or secondary receive phase transition detection, secondary transmit channel, "Busy" generation, and a choice of secondary receive and transmit output pins - EIA (RS232C) or Bell 202C/D - allowing maximum flexibility in choice of modem. Additionally the necessary control leads (Request to Send, Data Terminal Ready and Interface Enable) are under program control. Time Share systems may exercise the option of eliminating the machine initialize function simply by removing the appropriate jumper thus insuring the ability to determine the state of the KL8-M after a power failure.

## 1.3 Physical Description

The KL8-M is contained on a single 8 $\frac{1}{4}$ " quad module that plugs into the PDP8/E OMNIBUS and a BC08T cable.

## 2.0 Specifications

2.1 Modem Interface: Designed to accommodate Bell 103A/F/E/H/G, 202C/D, and 811B or Datel/GPO Modem 1A or equivalents. Level conversion is either TTL by using the "H" connector

SIZE A	CODE SP	NUMBER KL8-M-1	REV A
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SHEET 3 OF 13

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

pins or EIA by using I/O connector J1. Additionally jumpers are provided for signals or levels peculiar to certain modems. See Section 4.0 for details.

2.2 Device Codes: The M8653 is jumper programmable for any 6XX0 - 6XX7 instruction set. 6420 is the standard IOT set.

2.3 Options: The options for implementing the KL8-M are:

KL8-EA	Asynchronous Control
KL8-FA	Double-Buffered Asynchronous Control

2.4 Power Consumption:

2.4.1 M8653	+5V	400	MA
	-15V	37	MA
	+15V	40	MA

2.5 Interrupt Functions: Interrupts are generated by the following conditions:

- Carrier phase shift
- Ring indicator
- Clear to send phase shift
- Secondary receive phase shift

## 3.0 Programming

## 3.1 Bit Assignments and/or Functions

3.1.1 Control Word  
(Assertion = 1 = True)

AC00 Enable - Enables the Modem Control Interrupt Circuitry

AC01 Request to Send - Indicates a Request to Transmit Data (Circuit CA)

AC02 Data Terminal Ready - Indicates the Data Terminal (Business Machine - PDP8/E) is ready to receive data. (For U.K. modems this is connect data set to line.)

AC03 Speed Select - When asserted puts a "Control On" signal to the line (Circuit CH/CI)

SIZE A	CODE SP	NUMBER KL8-M-1	REV A
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SHEET 4 OF 13

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

3.1.2 Status Word

(Assertion = 1 = True)

- AC00 Enable - Interrupt Circuitry Enabled
- AC01 Request to Send - Request to Send is being generated (CA)
- AC02 Data Terminal Ready - Business machine is ready to receive data (Circuit CD)
- AC03 Speed Select - Indicates the state of CH/CI circuit
- AC04 Secondary Transmit - Indicates the state of the secondary transmit circuit (SBA)
- AC05 Carrier indicates the state of the carrier interrupt circuit
- AC06 Secondary Receive - Indicates the state of the secondary receive data interrupt circuit
- AC07 Clear to Send - Indicates the state of the clear to send interrupt circuit
- AC08 Data Set Status - Indicates condition of the data set status circuit (CC)
- AC09 Carrier State - Indicates state of carrier line
- AC10 Secondary Receive State - Indicates state of secondary receive line
- AC11 Clear to Send State - Indicates the state of the clear to send line

SIZE	CODE	NUMBER	REV
A	SP	KL8-M-1	A

**ENGINEERING SPECIFICATION**

digital

CONTINUATION SHEET

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

3.2 Instructions

3.2.1 Summary of KL8-M Instructions and their Function

- 6XX0 - MCCI - Clear Modem Interface
- 6XX1 - MCLC - Load Control Word
- 6XX2 - MCST - Load Secondary Transmit
- 6XX3 - MCRF - Skip on a Ring Flag
- 6XX4 - MCSS - Skip on Clear to Send Transition
- 6XX5 - MCSC - Skip on Carrier Transition
- 6XX6 - MCSR - Skip on Secondary Receive Transition
- 6XX7 - MCRS - Read Status

3.2.2 Detailed Instruction Description

- Clear Interface  
6XX0  
MCCI initializes the interface. It sets all modem control signals to the EIA/CCITT control off state (Mark Hold).
- Load Control  
6XX1  
MCLC transfers the contents of AC00-AC03 to the control register.  
  
(AC00) Interface Enable allows program interrupts.  
  
(AC01) Request to Send activates the Request to Send signal to the modem.  
  
(AC02) Data Terminal Ready permits the modem to enter the data mode.  
  
(AC03) Speed Select activates the signal rate selection circuitry of the modem (if the modem is equipped with this circuitry).
- Load Secondary Transmit  
6XX2  
MCST transfers the contents of AC04 to the secondary transmit circuit of the modem.

SIZE	CODE	NUMBER	REV
A	SP	KL8-M-1	A

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

Skip on Ring Flag 6XX3	MCRF causes a skip if the ring flag is set. Also it clears the ring flip-flop. The ring flag is set on the leading edge of the ring signal.
Skip on Clear to Send Flag 6XX4	MCSS causes a skip if the Clear to Send flag is set. It also clears the flag.
Skip on Carrier Flag 6XX5	MCSC causes a skip if the carrier flag is set. It also clears the flag.
Skip on Secondary Receive Flag 6XX6	MCSR causes a skip if the secondary receive flag is set. It also clears the flag.
Read Status 6XX7	MCRS clears the AC and transfers the contents of the Modem Control status register to the AC.
	The AC vs Status is as follows:
AC00	Enable
AC01	Request to Send
AC02	Terminal Ready
AC03	Speed Select
AC04	Secondary Transmit
AC05	Carrier Flag
AC06	Secondary Receive Flag
AC07	Clear to Send Flag
AC08	Data Set Status
AC09	Carrier State
AC10	Secondary Receive State
AC11	Clear to Send State

SIZE A	CODE SP	NUMBER KL8-M-1	REV A
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TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

4.0 Miscellaneous

4.1 Level Conversion Applications

4.1.1 The EIA/CCITT levels from the KL8-E or KL8-F series asynchronous controllers are converted to TTL and with the KL8-M signals, also TTL, are available at the "H" connector.

All modem signals originating at the KL8-E, KL8-F, or KL8-M are converted to EIA/CCITT levels on the modem control interface.

4.2 The test connector is DEC Part #7008952.

The KL8-M diagnostics are MAINDEC-08-DHKLA (OFFLINE)  
MAINDEC-08-DHKLB (ONLINE)

4.3 Application Notes

4.3.1 The Bell 811B modem requires a signal (busy) to indicate the 811B is in the Transmit mode. A jumper is provided for use with the 811B, thus allowing Request to Send to Control the "busy" signal.

Additionally the 811B generates a signal indicating when its data buffers from the business machine are full. This signal (restraint) can be monitored by the secondary receive channel of the modem control of the KL8-F.

4.4 Test Connector Wiring

See drawing number C-UA-7008952-0-0.

SIZE A	CODE SP	NUMBER KL8-M-1	REV A
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**ENGINEERING SPECIFICATION**

CONTINUATION SHEET

TITLE ASYNCHRONOUS MODEM CONTROL KL8-M

4.5 Jumper Functions

(When installed, the function associated is selected)

Jumper	Function
I1 - I12	Device Code Selection
E1 + E2	EIA Secondary Receive & Transmit Channels
B1 + B2	Bell 202C/D Secondary Receive & Transmit Channels (on conn pins 11 (TX) and 12 (RX))
M1	Selection of Machine Clear
Busy	Bell 811B Modem Busy Generation
R	Bell 811B Modem Restraint Signal Detection

SIZE <b>A</b>	CODE SP	NUMBER KL8-M-1	REV A
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**ENGINEERING SPECIFICATION**

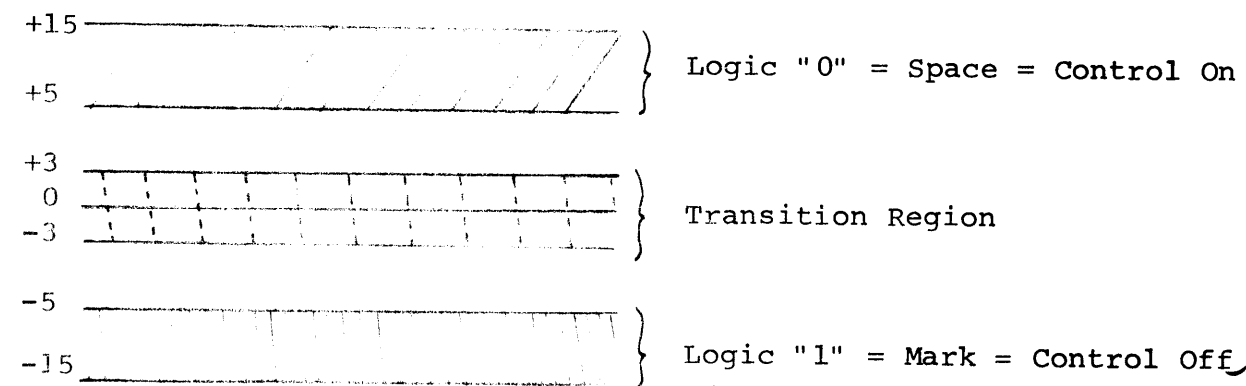
CONTINUATION SHEET

TITLE ASYNCHRONOUS MODEM INTERFACE KL8-M

APPENDIX A

RS-232-C Electrical Specifications

Driver output logic levels with 3K to 7K load	15 volts > $V_{oh}$ > 5V -5 volts > $V_{ol}$ > -15V
Driver output voltage with open circuit	$V_o$ < 25 volts
Driver output impedance with power off	$Z_o$ > 300 ohms
Output short circuit current	$I_o$ < 5 amps
Driver slew rate	$\frac{dv}{dt}$ < 30 volts/usec.
Receiver input impedance	7K ohms > $R_{in}$ > 3K ohms
Receiver input voltage	$\pm 15V$ compatible w/driver
Receiver output with open circuit input	Mark
Receiver output with 300 ohms to gnd on input	Mark
Receiver output with +3 volt input	Space
Receiver output with -3 volt input	Mark



SIZE <b>A</b>	CODE SP	NUMBER KL8-M-1	REV A
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TITLE ASYNCHRONOUS MODEM INTERFACE KL8-M

## APPENDIX B

PPPS/E Data Communications Signal and Function Assignments with  
EIA Pin Equivalent

Signal Name	Connectors			Note
	J1	"H"	EIA	
Signal Ground	VV	HC2	7	
Frame Ground	B	HT1	1	
Clear to Send	T	HK2	5	
Receive Data	J	HF2	3	
Interlock/Data Set Ready	Z	HN2	6	
Serial Clock Transmit*	N	HH2	15	
Serial Clock Receive*	R	HJ2	17	
Carrier/AGC	BB	HP2	8	
Ring	X	HM2	22	
Send Data	F	HE2	2	
Terminal Ready	DD	HR2	20	
<sup>1</sup> Send Request	V	HL2	4	
External Timing Out1	L	HH1	24	
Secondary Transmit	FF	HJ2	14	E1 Jumper
Secondary Receive	JJ	HH2	16	E2 Jumper
202 Secondary Transmit	LL	HJ2	11	Bell 202C/D
202 Secondary Receive	NN	HH2	12	Series Modem or equiv.
<sup>1</sup> Busy	C	HL2	25	
Data Signal Rate	RR	HS2	23	
-	-	HV2	-	
*Restraint	R	HH2	17	Bell 811B Modem

\*SCR is redefined as restraint for 811B or equivalent applications.

<sup>1</sup>Request to send is also used to indicate a busy condition to 811B or equivalent.

SIZE A	CODE SP	NUMBER KL8-M-1	REV A
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SHEET 11 OF 13

TITLE ASYNCHRONOUS MODEM INTERFACE KL8-M

## APPENDIX C

Pin Number	Circuit	Description
1	AA	Protective Ground
2	BA	Transmitted Data
3	BB	Received Data
4	CA	Request to Send
5	CB	Clear to Send
6	CC	Data Set Ready
7	AB	Signal Ground (Common Return)
8	CF	Received Line Signal Detector
9	--	(Reserved for Data Set Testing)
10	--	(Reserved for Data Set Testing)
11	--	Unassigned
12	SCF	Sec. Rec'd Line Sig. Detector
13	SCB	Sec. Clear to Send
14	SBA	Secondary Transmitted Data
15	DB	Transm. Signal Element Timing (DCE Source)
17	DD	Received Signal Element Timing (DCE Source)
18		Unassigned
19	SCA	Secondary Request to Send
20	CD	Data Terminal Ready
21	CG	Signal Quality Detector
22	CE	Ring Indicator
23	CH/CI	Data Signal Rate Selector (DTE/DCE Source)
24	DA	Transmit Signal Element Timing (DTE/DCE Source)
25		Unassigned

EIA RS-232-C Interface Pin Assignments

SIZE A	CODE SP	NUMBER KL8-M-1	REV A
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SHEET 12 OF 13

TITLE ASYNCHRONOUS MODEM INTERFACE KL8- M.

## APPENDIX D

Inter- Change Circuit	CCITT Equivalent	Description
AA	101	Protective Ground
AB	102	Signal Ground/Common Return
BA	103	Transmitted Data
BB	104	Received Data
CA	105	Request to Send
CB	106	Clear to Send
CC	107	Data Set Ready
CD	108.2	Data Terminal Ready
CE	125	Ring Indicator
CF	109	Received Line Signal Detector
CG	110	Signal Quality Detector
CH	111	Data Signal Rate Selector (DTE)
CI	112	Data Signal Rate Selector (DCE)
DA	113	Transmitter Signal Element Timing (DTE)
DB	114	Transmitter Signal Element Timing (DCE)
DD	115	Receiver Signal Element Timing (DCE)
SBA	118	Secondary Transmitted Data
SSB	119	Secondary Received Data
SCA	120	Secondary Request to Send
SCB	121	Secondary Clear to Send
SCF	122	Secondary Received Line Signal Detector

EIA (RS-232-C) to Equivalent CCITT

SIZE A	CODE SP	NUMBER KL8-M-I	REV A
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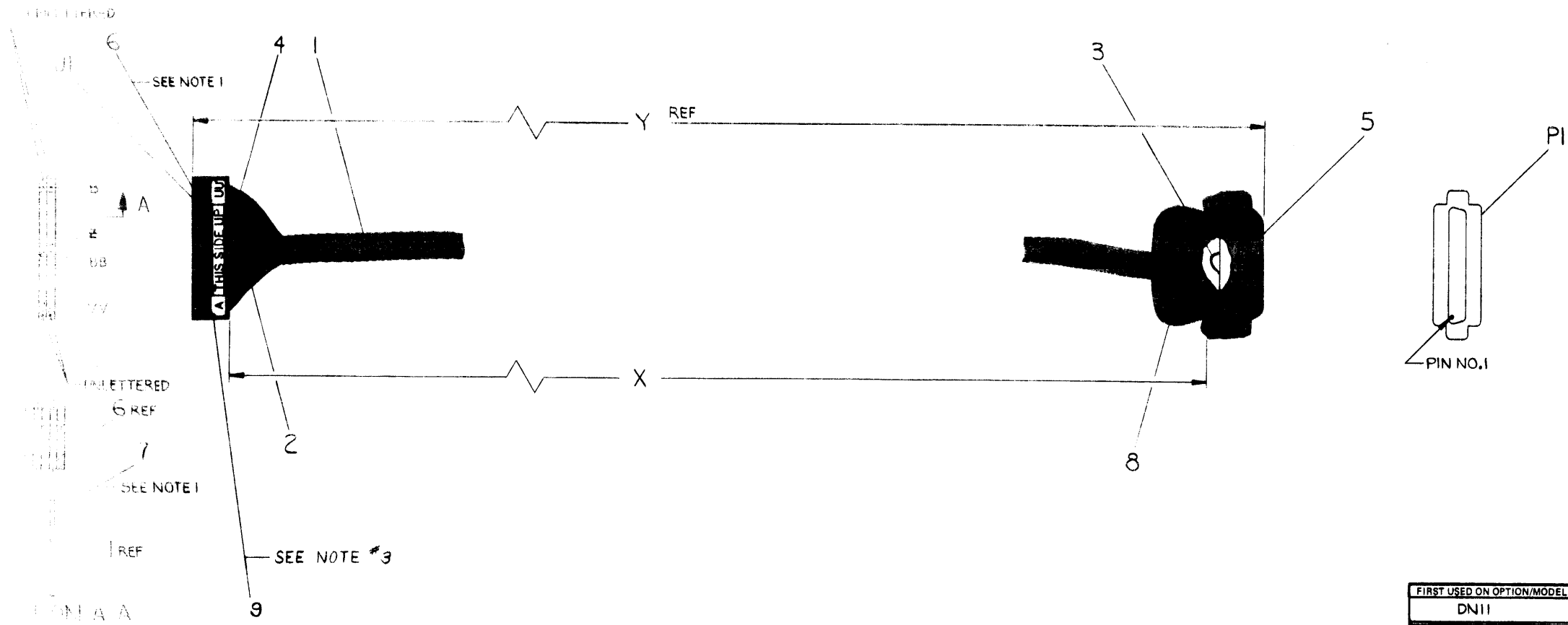
WIRE TABLE					
FROM			TO		
COLOR	CONNECTION	WITH	CONNECTION	WITH	
BLU/WHT	PI-1		J1-VV		
WHT/BLU	PI-2		J1-F		
ORN/WHT	PI-3		J1-J		
WHT/ORN	PI-4		J1-V		
GRN/WHT	PI-5		J1-T		
WHT/GRN	PI-6		J1-Z		
BRN/WHT	PI-7		J1-UU		
WHT/BRN	PI-8		J1-BB		
SLA/WHT	PI-9		J1-Y		
WHT/SLA	PI-10		J1-W		
BLU/RED	PI-11		J1-FF		
RED/BLU	PI-12		J1-JJ		
ORN/BLU	PI-13		J1-D		
SLA/RED	PI-14		J1-LL		
22 SLA/GRN	PI-15		J1-N		

ITEM NO.	DESCRIPTION	FROM CONNECTION	WITH	TO CONNECTION	WITH
1	22	RED/BRN	PI-16	J1-NN	
		SLA	PI-17	J1-R	
		RED/SLA	PI-18	J1-U	
		BLU/BLK	PI-19	J1-P	
		BLK/BLU	PI-20	J1-DD	
		ORN/BLK	PI-21	J1-MM	
		BLK/ORN	PI-22	J1-X	
		GRN/BLK	PI-23	J1-RR	
		BRN/RED	PI-24	J1-L	
		RED/ORN	PI-25	J1-C	
1	22	BLK	PI-1	J1-A	4
3	26	BLK	PI-7	J1-B	4
2	26	RED	PI-1	PI-7	
			J1-E	J1-M	

NUMBER	VARIATION	
	DIM X	DIM Y (PRE CUT)
BC05C-25	25'±3"	25'1.8"
BC05C-50	50'±2%	50'1.8"

- NOTES:**
- MANUFACTURING SHOULD USE MACHINE CRIMPER TOOL FOR CRIMPING PINS (ITEM #7) MUST BE HT68 FROM BERG ELECT
  - ONLY DEC PART #1210090-0-0 MAY BE USED AS J1.
  - PLACE ITEM #9 ("THIS SIDE UP" STICKER) ON LETTERED SIDE OF ITEM #6 (BERG HOUSING) AS SHOWN.



QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	LABEL, THIS SIDE UP	3611567	9
1	HOOD, #DB51226-1 CINCH	1205005	8
29	SOCKET, #HT-68	1210009-5	7
1	HOUSING, #20303 BERG	1210090-0-0	6
1	PLUG, #DB-25P CINCH	1205006	5
A/R	TUBING, #22 AWG TEF BLK	9107256-00	4
A/R	WIRE, #26 AWG STRD TEF BLK	9107636-00	3
A/R	WIRE, #26 AWG STRD TEF RED	9107636-22	2
A/R	CABLE, 25 CONDUCTOR	9107736	1

FIRST USED ON OPTION/MODEL DN11	UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES DECIMALS .XXX - .005 .XX - .02 X - .1 ANGLES ±0° 30'	DRN CHKD ENG PROD RJC	DATE 11/9/71 DATE 11/5/71 DATE 11/5/71 DATE 11/5/71 DATE 11/5/71	PARTS LIST <b>digital</b> EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS TITLE CABLE, MODEM BC05C
MATERIAL FINISH	SCALE NONE SHEET 1 OF 1	SIZE CODE DUA	NUMBER BC05C-0-0	REV. B

REV. B  
BC05C-0-0  
DUA