digital EQUIPMENT CORPORATION
MAYNARD MASSACHUSETTS

DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE		SEQUENCE	
DRAWING DIRECTORY	B-DD-KL8-M		
MODEM CONTROL	A-PL-KL8-M-0		
ASYNCHRONOUS MODEM CNTL	E-CS-M8653-0-1		
CABLE MODEM INTERCONNECTING	D-UA-BC08T-0-0		
TEST CONNECTOR	C-UA-7008952-0-0		
ACCEPTANCE PROCEDURE/TEST	A-SP-KL8-M-2		
ACCESSORY LIST	A-AL-KL8-M-3		
ENGINEERING SPECIFICATION	A-SP-KL8-M-1		
MODEM CABLE	D-UA-BC05C-25-0		

THIS IS PRINT SET [X]

UNIT VARIATIONS

VARIATION	TITLE	PRINT SET TYPE
KL8-M	MODEM CONTROL	X

REVISIONS		
REV		A
CHG. NO.		KL8M-2
DATE		2/5

USED ON OPTION/MODEL	
KL8-M	

DRN.	DATE	6-2-72
CHK'D.	DATE	
PROJ ENG.	DATE	6-16-72
PROD.	DATE	6-16-72
FIELD SERV.	DATE	
SHEET 1 OF 3		

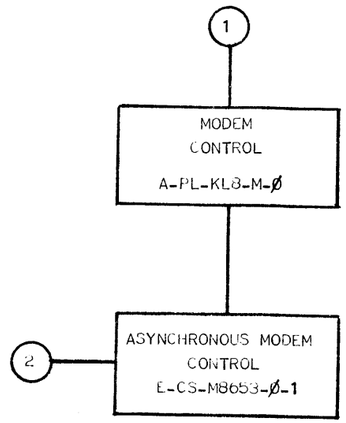
TITLE: MODEM CONTROL

SIZE	CODE	NUMBER	REV
B	DD	KL8-M	A

DIST

DRB 106

DEC 16-(325)-1062-1-N871



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

ELECTRICAL

CUSTOMER PRINT SET	MFG. SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
X		1.	A-PL-KL8-M-0	A		MODEM CONTROL	
X			A-SP-KL8-M-1	A		ENGINEERING SPECIFICATION	
X			A-SP-KL8-M-2	A		ACCEPTANCE PROCEDURE /TEST	
X			A-AL-KL8-M-3	A		ACCESSORY LIST	
X			D-UA-BCØ8T-Ø-Ø	#	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-Ø-1	#	3	ASYNCHRONOUS MODEM CNTL.	
			K-CO-M8653-Ø-4		1	X-Y COORDINATE HOLE LOCATION	
			D-AH-M8653-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-M8653-Ø-6		1	MODULE ECO HISTORY	

MECHANICAL

CUSTOMER PRINT SET	MFG SET	FIND NO.	DRAWING NO.	REV	NO OF SHT	DESCRIPTION	OPTION NO.
		1.	A-PL-KL8-M-Ø	A	1	MODEM CONTROL	
			C-UA-7008952-0-0		1	TEST CONNECTOR	
		2.	E-CS-M8653-Ø-1		1	ASYNCHRONOUS MODEM CNTL.	
			K-CO-M8653-Ø-4		1	X-Y COORDINATE HOLE LOC.	
			D-AH-M8653-Ø-5		1	ASSY/DRILLING HOLE LAYOUT	
			B-MH-M8653-Ø-6		1	MODULE ECO HISTORY	

TITLE		SIZE	CODE	NUMBER	REV
[illegible] CONTROL	SHEET 3 OF 3	B	DD	KL8-M	A

DRB 108

DEC - 16 - (325)-1062-2A-R272

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

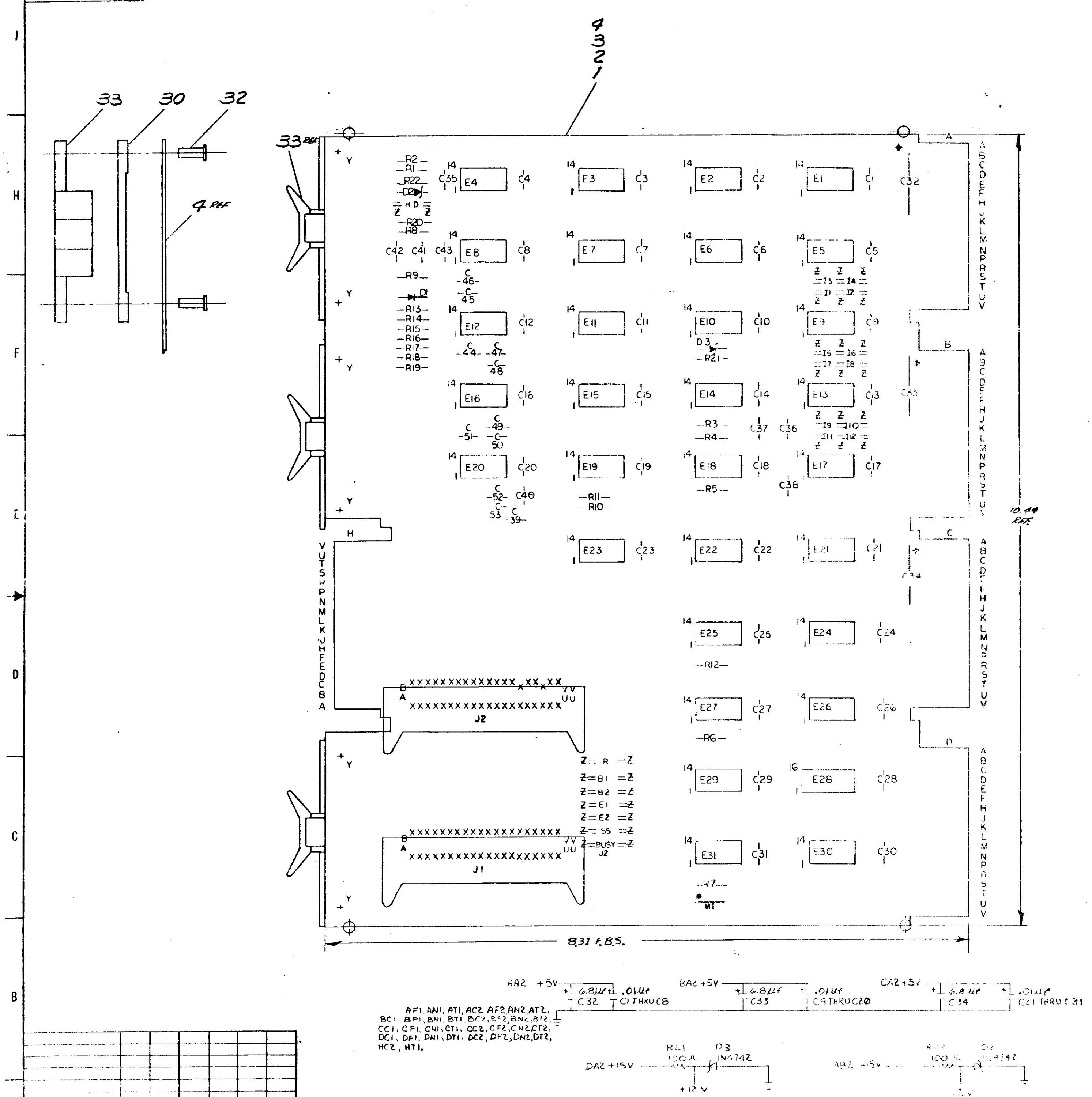
PARTS LIST

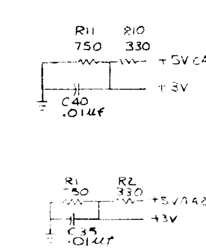
MADE BY P.MARCOTTE	CHECKED	SECTION
DATE 5/8/72	DATE	1
ENG	PROD	ISSUED SECT.
DATE 6-16-72	DATE 6-16-72	1

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION KL8-M
1	E-CS-M8653-0-1	ASYNCHRONOUS MODEM CONTROL	1
2	D-UA-BC087-0-0	CABLE MODEM INTERCONNECTING	1
3	C-UA-7008952-0-0	TEST CONNECTOR	1
4	D-UA-BC05C-0-0	MODEM CABLE	1

TITLE: MODEM CONTROL FOR KL8'S	ASSY NO.	SIZE: A	CODE: PL	NUMBER: KL8-M-0	REV: A	ECO NO.: KL8M-00002
	SHEET 1 OF 1	DIST. 6				

DEC FORM DEC 16-(325)-1031-N870
DRA 110





NOTES:

1. JUMPERS & FUNCTIONS (WHEN INSTALLED):
   - A.) E1-E2-EIA SEC. TRANSMIT & RECEIVE.
   - B.) B1 & B2 BELL 202 SEC. TRANSMIT & RECEIVE.
   - C.) SS SPEED SELECT.
   - D.) R RESTRAINT (BELL 811 B OR EQUIV.).
   - E.) MI MACHINE INITIALIZE.
   - F.) HD HALF DUPLEX (RECEIVER BLIND).
   - H.) I1 THRU I12 IOT SELECTION:

MD BIT	JUMPER INSTALLED	CONDITION SELECTED
Ø3	I1	MDØ3=Ø=TRUE
	I2	MDØ3=1=TRUE
Ø4	I3	MDØ4=Ø=TRUE
	I4	MDØ4=1=TRUE
Ø5	I5	MDØ5=Ø=TRUE
	I6	MDØ5=1=TRUE
Ø6	I7	MDØ6=Ø=TRUE
	I8	MDØ6=1=TRUE
Ø7	I9	MDØ7=Ø=TRUE
	I1Ø	MDØ7=1=TRUE
Ø8	I11	MDØ8=Ø=TRUE
	I12	MDØ8=1=TRUE

2. J1/J2 INTERCONNECTION & FUNCTION:
   - A.)

PIN	FUNCTION
J1A,B	GROUND TO J2A & J2B
J1E	CONNECTS TO M8650/8652 PIN E THRU J2RR
J1M	CONNECTS TO M8650/8652 PIN M THRU J2JJ
J1UU,J1VV	GROUND TO J2UU & J2VV

   - B.) J1J IS RECEIVE DATA INPUT TO M8653, J2MM IS RECEIVE DATA INPUT FOR M8650/8652 OUTPUT.
   - C.) J2PP IS TRANSMIT DATA OUTPUT FROM M8650/8652 REFRESHED TRANSMIT DATA TO MODEM.

QTY	REF DESIGNATION	DESCRIPTION	PART NO.	ITEM NO.
34		SPLIT LUGS	9006735	34
3		HANDLE FLIP-CHIP MAGENTA	9008337-6	33
6		EYELET GS4-11	9006750	32
2	J1, J2	CONNECTOR 90 PINS	1209991	31
3		CLAMP, CABLE	1202704	30
5	E1, E9, E13, E21, E26	I.C. DEC 5380	1910392	29
2	E16, E20	I.C. DEC 1489	1910323	28
2	E8, E12	I.C. DEC 1488	1910322	27
1	E28	I.C. DEC 7492	1910046	26
1	E18	I.C. DEC 7486	1910011	25
5	E2, E6, E10, E25, E27	I.C. DEC 97401	1909973	24
1	E5	I.C. DEC 6314	1909972	23
1	E17	I.C. DEC 74H04	1909981	22
2	E14, E31	I.C. DEC 7404	1909686	21
4	E4, E24, E29, E30	I.C. DEC 7402	1909004	20
1	E22	I.C. DEC 7400	1905575	19
6	E3, E7, E11, E15, E19, E23	I.C. DEC 7474	1905547	18
7	R13 - R19	RES. 33K 1/4 W 10%	1300510	17
5	R1, R2, R8, R11, R20	RES. 750 1/4 W 5%	1301901	16
1	R9	RES. 1K 1/4 W 5%	1300365	15
2	R6, R12	RES. 470 1/4 W 5%	1300316	14
2	R2, R10	RES. 330 1/4 W 5%	1300295	13
2	R21, R22	RES. 100, 1/4 W 5%	1300229	12
3	R3, R4, R5	RES. 220, 1/4 W, 5%	1300271	11
1	D1	DIODE D664	1100114	10
2	D2, D3	DIODE 1N4742	1103502	9
10	C36-C39 C41-C46	CAP. 330 MMF 100V 5%	1000023	8
33	C1 - C31, C35, C40	CAP. .01 MFD 100V 20%	1001610	7
7	C47 - C53	CAP. 470 MMF 100V 5%	1000024	6
3	C32, C33, C34	CAP 6.8 MFD, 35V, 20% S.TANT	1000067	5
1		ETCH CIRCUIT BOARD	5008800	4
REF		MODULE ECO HISTORY	B-MW-M8653-0-6	3
REF		ASSY DRILLING HOLE LAYOUT	D-AH-M8653-0-5	2
REF		X-Y COORDINATE HOLE LOCATION	K-CO-M8653-0-4	1

PARTS LIST

ETCH BOARD REV C

DEC NO	EIA NO	DEC NO	EIA NO
		D664	1N3606

SEMICONDUCTOR CONVERSION CHART

REVISIONS: ORIGINATED

EQUIPMENT CORPORATION, MAYNARD MASSACHUSETTS

TITLE: ASYNCHRONOUS MODEM CONTROL

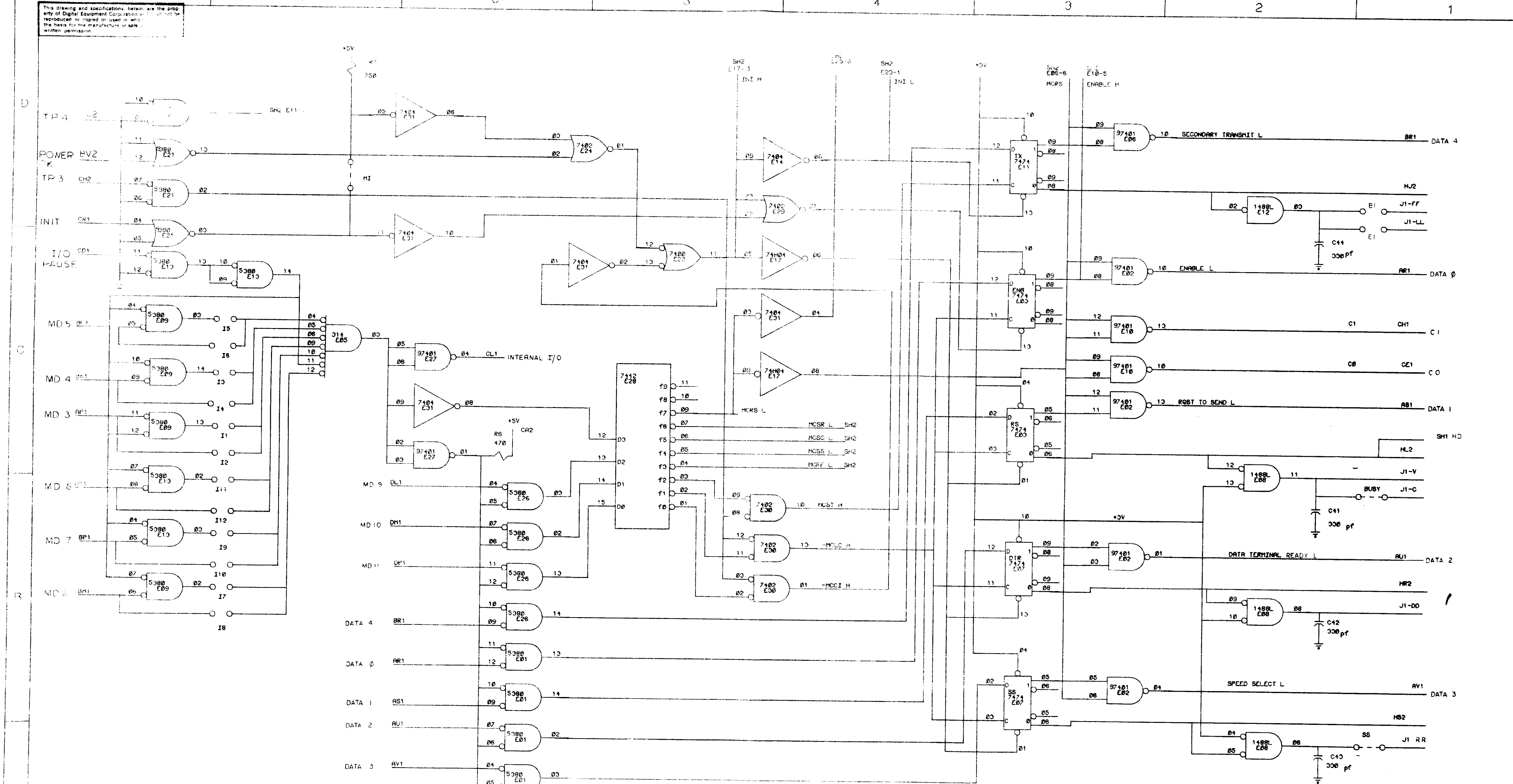
NEXT HIGHER ASSY: B-DD-KL8-M

SIZE: E CODE: CS NUMBER: M8653-0-1 REV. C

SCALE 2/1 SHEET 1 OF 3

IC PIN LOCATIONS

JUMPER LIST



FIRST USED ON OPTION/MODEL	QTY.	DESCRIPTION	PART NO.	ITEM NO.
PDP8E		PARTS LIST		

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —/ /—

FINISH —/ /—

DRN. DATE
CHK'D. DATE 5-15-72
ENG. DATE
PROJ. ENG. DATE
PROD. DATE

NEXT HIGHER ASSY.

SCALE NONE

SHEET 2 OF 3

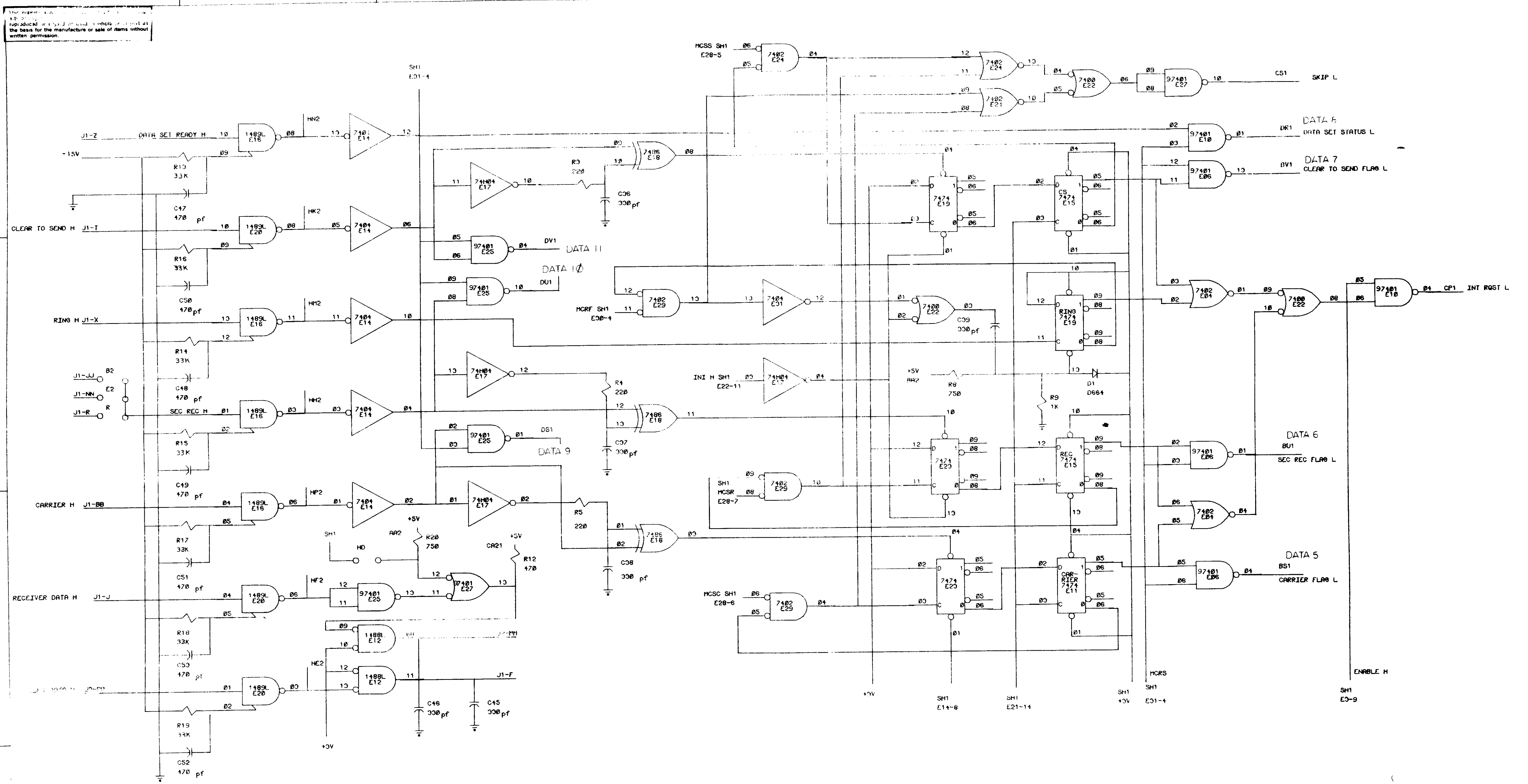
digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE
ASYNCHRONOUS MODEM CONTROL

SIZE	CODE	NUMBER	REV.
D	CS	M8653-0-01	C

DIST.

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

DECIMALS: XXX ± .005, XX ± .02, X ± .1 — ANGLES: ±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL

FINISH

DRN. — DATE
CHK'D — DATE 5-15-72
ENG. — DATE
PROJ. ENG. — DATE
PROD. — DATE

NEXT HIGHER ASSY.

SCALE

SHEET 3 OF 3

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: ASYNCHRONOUS MODEM CONTROL

SIZE	CODE	NUMBER	REV.
D	CS	M8653-0-01	C

DIST.

REVISIONS

CHK	CHANGE NO.	REV.

WIRE TABLE

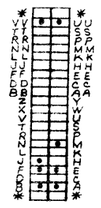
ITEM NO.	DESCRIPTION AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH	REMARKS
2		BLU	P1 - A	3	P2 - VV	3	CRIMP
		ORN	P1 - B		P2 - UU		
		BRN	P1 - E		P2 - RR		
		RED	P1 - F		P2 - PP		
		VIO	P1 - J		P2 - MM		
		BLK	P1 - M		P2 - JJ		
		GRY	P1 - UU		P2 - B		
2		GRN	P1 - VV	3	P2 - A	3	CRIMP

LEGEND

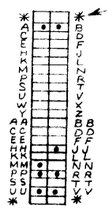
NUMBER	VARIATION
BC08T-1A	DIM "X" 1 FT. 1 IN. ± 1 IN.

NOTES:

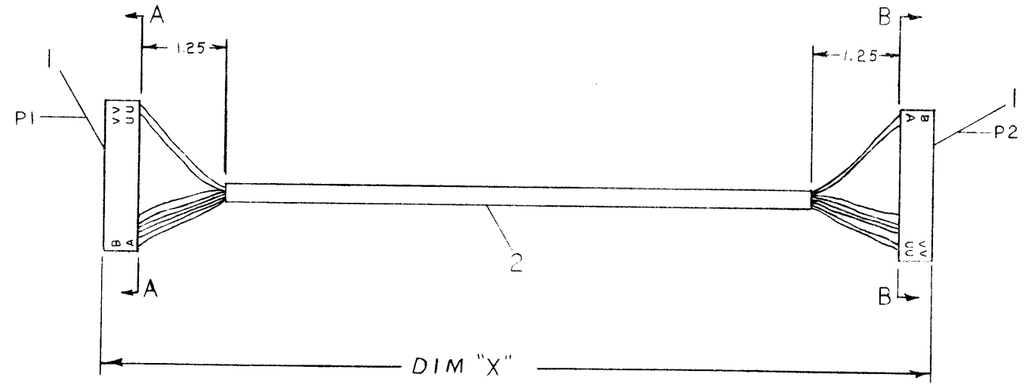
1. MANUFACTURING SHOULD USE MACHINE CRIMPING TOOL FOR THE ASSY OF PINS. (ITEM #3)
2. PINS (ITEM" 3) SHOULD BE CRIMPED USING ELCO HAND TOOL (067515-01) OR THE EQUIVALENT.
3. * ASTERISKS INDICATES CAVITIES NOT USED OR DESIGNATED BY LETTERS.
4. BERG CONNECTORS WILL BE LABELLED BC08T P1 AND BC08T P2 ON THE BACK SIDE OF THE RESPECTIVE CONNECTOR.

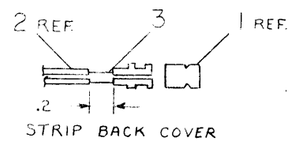


VIEW A-A
(P1)



VIEW B-B
(P2)





ITEM NO.	QTY.	DESCRIPTION	PART NO.
3	16	SOCKET PIN 48015 BERG	1210089-6
2	A/R	10 COND. CABLE	917623
1	2	HOUSING BERG #20383	1210090-0

PARTS LIST

FIRST USED ON OPTION/MODEL: PDP-8E

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES
DECIMALS: .XXX = .005, .XX = .02, X = .1 — ANGLES: ±0° 30'
REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓
MATERIAL
FINISH

		DATE
DRN.	F. Wilson	3/27/72
CHKD.		DATE 3/30/72
ENG.		DATE 3/30/72
PROJ. ENG.		DATE 3/31/72
PROD.		DATE 3/31/72

NEXT HIGHER ASSY. KL8M
SCALE NONE
SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: CABLE MODEM INTERCONNECTING

SIZE	CODE	NUMBER	REV.
D	UA	BC08T-0-0	A

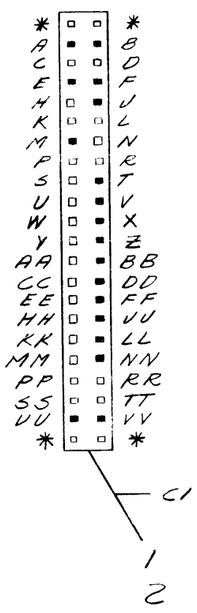
DIST.

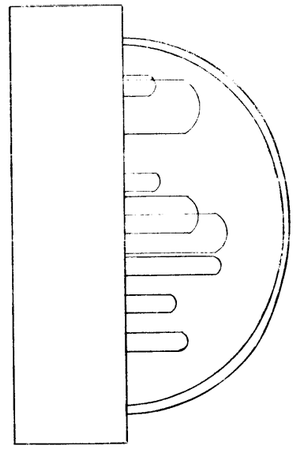
REVISIONS			
ZIK	CHANGE NO.	REV	
	BC08T-00001	A	4/18/72

B. SMITH

DEC FORM NO. DIRT 100-A

ITEM NO.	DESCRIPTION AWG	DESCRIPTION COLOR	FROM CONNECTION	FROM WITH	TO CONNECTION	TO WITH	WIRE LENGTH
3	26	YEL	C1-E	2	C1-M	2	2"
			C1-F		C1-J		
			C1-T		C1-V		
			C1-V		C1-Z		
			C1-X		C1-BB		
			C1-BB		C1-DD		
			C1-FF		C1-JJ		
3		YEL	C1-LL		C1-NN		2"
4		BLK	C1-A		C1-UU		5"
4	26	BLK	C1-B	2	C1-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
18	BERG PIN (47706)	1210089-6	2
1	BERG 40 PIN HOUSING	1210090-0	1

PARTS LIST

REVISIONS	CHANGE NO.	CHK	
REV. A	KLEM-CCCC		5-8-72

R. SMITH

UNLESS OTHERWISE SPECIFIED

UNLESS OTHERWISE SPECIFIED
DIMENSION IN INCHES
TOLERANCES
DECIMALS ± .005 FRACTIONS ± 1/64 ANGLES ± 0°30'
FINAL SURFACE QUALITY ✓
REMOVE BURRS AND BREAK SHARP CORNERS

MATERIAL

FINISH

DRN.	DATE	5-10-72
CHK'D.	DATE	
ENG.	DATE	
PROJ. ENG.	DATE	
PROD.	DATE	

FIRST USED ON A-FL-KL8-M-Ø

SCALE NONE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

TITLE
TEST CONNECTOR

SIZE	CODE	NUMBER	REV.
C	UA	7008952-0-0	A

DIST.

SIZE C CODE UA NUMBER 7008952-0-0 REV. A

DEC FORM NO. DRC 100

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	[redacted]	11-72

ENG	APPD	SIZE	CODE	NUMBER	REV
Bob Smith	[redacted]	A	SP	KL8-M-2	A

DEC FORM NO. DRA 107

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.

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.

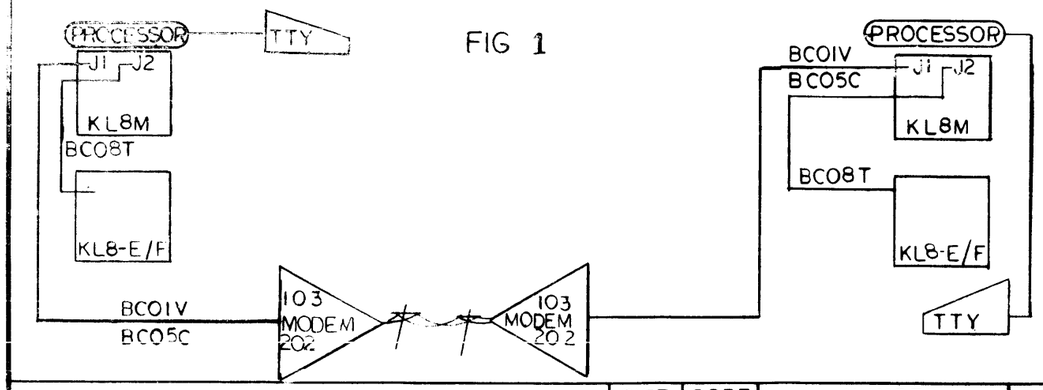
*To be used in the field only if equipment is available.

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

FIG 1



DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS

ACCESSORY LIST

MADE BY R.ALLEN DATE 3/21/72	CHECKED DATE 6/22	SECTION
ENG DATE 6-16-72	PROD R.K. DATE 6-16-72	ISSUED SECT.

LEGEND

D DOCUMENT
DN DOCUMENT CHANGE NOTICE
PA PAPER TAPE ASCII
PB PAPER TAPE BINARY
PM PAPER TAPE READ-IN-MODE

ITEM NO.	DWG NO./PART NO.	DESCRIPTION	QUANTITY/VARIATION KL8-M
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

KIT CHECK BY _____ DATE _____

INSTALLATION CHECK BY _____ DATE _____

TITLE	ASSY. NO.	SIZE	CODE	NUMBER	REV.	ECO NO
ACCESSORY LIST KL8-M	SHEET 1 OF 1	A	AL	KL8-M-3	A	KL8M-00002

DIST.

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	R.M. Smith	11-72

NOTE: KL8E/F IS A PREREQUISITE.

ENG	APPD	SIZE	CODE	NUMBER	REV
R. M. SMITH	R. M. Smith	A	SP	KL8-M-1	A

DEC FORM NO. DRA 107

TABLE OF CONTENTS

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, restraint 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 8¼" quad module that plugs into the PDP8/E OMNIBUS and a BC08T cable.

2.0 Specifications

2.1 Modem Interface: Designed to accomodate 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

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:

a) Carrier phase shift
b) Ring indicator
c) Clear to send phase shift
d) Secondary receive phase shift

3.0 Programming

3.1 Bit Assignments and/or Function

3.1.1 Control Word
(Assertion = 1 = Value)

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)

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

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.

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

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.

4.5 Jumper Functions

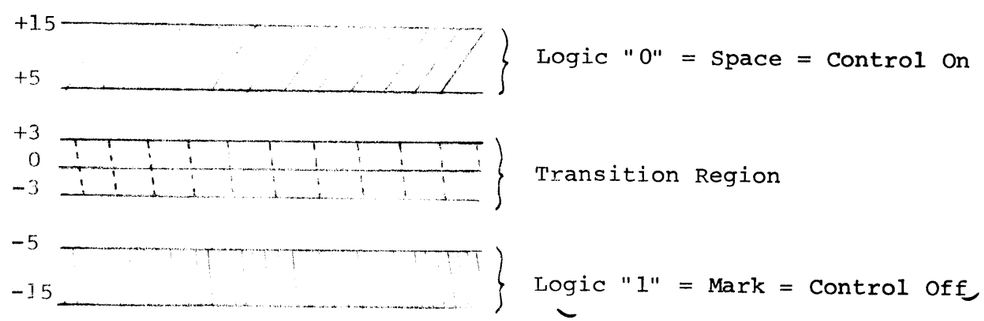
(When installed, the function associated is selected)

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	Bwll 811B Modem Restraint Signal Detection

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	±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



APPENDIX B

PDP8/E Data Communications Signal and Function Assignments with EIA Pin Equivalent

Signal Name	Connectors J1	"H"	EIA	Note
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	
[1]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.
[1]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.

[1]Request to send is also used to indicate a busy condition to 811B or equivalent.

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

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

WIRE TABLE

ITEM NO.	AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH
1	22	BLU/WHT	P1-1		J1-VV	
		WHT/BLU	P1-2		J1-F	
		ORN/WHT	P1-3		J1-J	
		WHT/ORN	P1-4		J1-V	
		GRN/WHT	P1-5		J1-T	
		WHT/GRN	P1-6		J1-Z	
		BRN/WHT	P1-7		J1-UU	
		WHT/BRN	P1-8		J1-BB	
		SLA/WHT	P1-9		J1-Y	
		WHT/SLA	P1-1Ø		J1-W	
		BLU/RED	P1-11		J1-FF	
		RED/BLU	P1-12		J1-JJ	
		ORN/RED	P1-13		J1-D	
		SLA/RED	P1-14		J1-LL	
1	22	SLA/GRN	P1-15		J1-N	

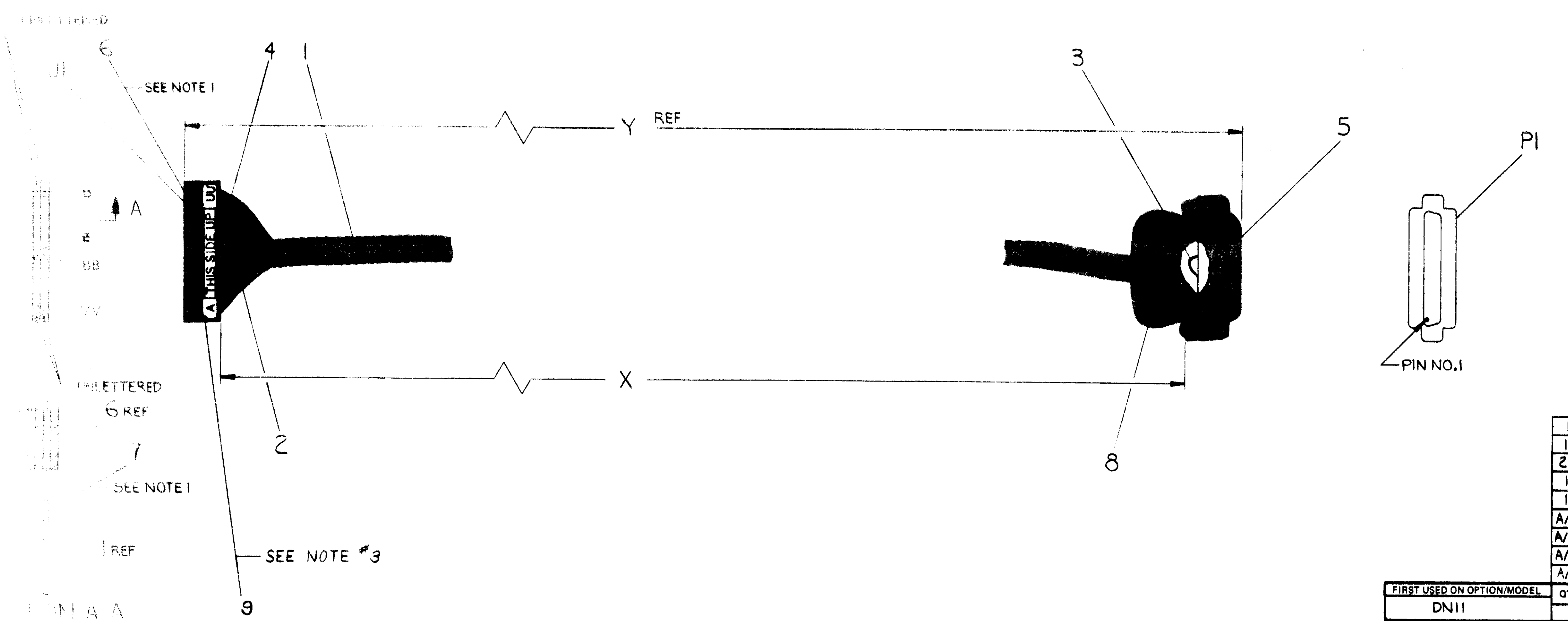
ITEM NO.	AWG	COLOR	FROM CONNECTION	WITH	TO CONNECTION	WITH
1	22	RED/BRN	P1-16		J1-NN	
		SLA	P1-17		J1-R	
		RED/SLA	P1-18		J1-U	
		BLU/BLK	P1-19		J1-P	
		BLK/BLU	P1-2Ø		J1-DD	
		ORN/BLK	P1-21		J1-MM	
		BLK/ORN	P1-22		J1-X	
		GRN/BLK	P1-23		J1-RR	
		BRN/RED	P1-24		J1-L	
		RED/ORN	P1-25		J1-C	
		BLK	P1-1	4	J1-A	
1	22	BLK	P1-7	4	J1-B	
3	26	BLK	P1-1		P1-7	
2	26	RED	J1-E		J1-M	

LEGEND

NUMBER	VARIATION DIM X	VARIATION DIM Y (PRECUT)
BCØ5C-25	25'±3"	25'1.8"
BCØ5C-5Ø	5Ø'±2%	5Ø'1.8"

NOTES:

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



PARTS LIST

QTY.	DESCRIPTION	PART NO.	ITEM NO.
1	LABEL, THIS SIDE UP	3611567	9
1	HOOD, #DB51226-1 CINCH	12Ø5885	8
29	SOCKET, #HT-68	121ØØ89-5	7
1	HOUSING, #2Ø383 BERG	121ØØ9Ø-Ø-Ø	6
1	PLUG, #DB-25P CINCH	12Ø5886	5
A/R	TUBING, #22 AWG TEF BLK	91Ø7256-ØØ	4
A/R	WIRE, #26 AWG STRD TEF BLK	91Ø7636-ØØ	3
A/R	WIRE, #26 AWG STRD TEF RED	91Ø7636-22	2
A/R	CABLE, 25 CONDUCTOR	91Ø7736	1

FIRST USED ON OPTION/MODEL: DN11

UNLESS OTHERWISE SPECIFIED DIMENSION IN INCHES. TOLERANCES

DECIMALS	ANGLES
.XXX = .005 .XX = .02 .X = .1	±0° 30'

REMOVE BURRS AND BREAK SHARP CORNERS SURFACE QUALITY ✓

MATERIAL —//—

FINISH —//—

DRN. S Roberts	DATE 11/3/71	
CHK. R. Cook	DATE 11/5/71	
ENG. R. M. Smith	DATE 11/5/71	
PROJ. ENG. R. M. Smith	DATE 11/5/71	
PROD. R. J. Allen	DATE 11/9/71	

NEXT HIGHER ASSY. —//—

SCALE NONE

SHEET 1 OF 1

digital EQUIPMENT CORPORATION MAYNARD MASSACHUSETTS

TITLE: CABLE, MODEM BCØ5C

SIZE	CODE	NUMBER	REV.
D	UA	BCØ5C-Ø-Ø	B

DIST.

D UA BCØ5C-Ø-Ø B