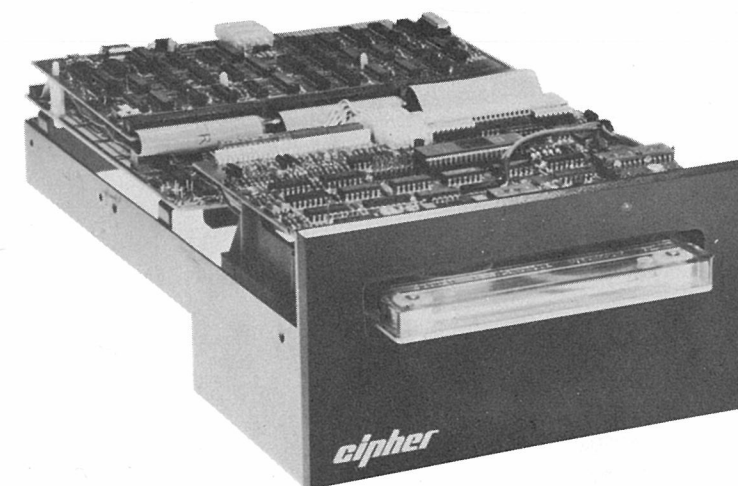


cipher[®]
data products, inc.

Quarterback[™]
1/4-Inch Cartridge Tape Drive
Engineering Drawing Package

Volume 2





QuarterbackTM
1/4-Inch Cartridge Tape Drive
Engineering Drawing Package

Volume 2

RECORD OF REVISIONS

Revision	Description	Date
A	Original Publication	5/82
B	Updated all sections, deleted Section 4. Revised per ACN 2783 and 31583.	12/83

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SECTION I

LOGIC SCHEMATICS

1.1 INTRODUCTION

This volume contains all data essential to understand the logic functions of the Quarterback tape drive, as described in Volume 1. The information is presented in the following manner:

- Section 1 Logic Schematics
- Section 2 Assembly Drawings
- Section 3 Master Parts List

1.2 RELATED DOCUMENTS

To enhance user knowledge of the Quarterback tape drive, the following related documents are available:

- Product Description207102-001
- Maintenance Manual (Volume 1)207100-001
- Theory of Operation (Volume 3)207100-003

1.3 LOGIC DEFINITIONS AND SYMBOLOGY

In several portions of this documentation, primarily Volume 3, and in this Engineering Drawing Package, logic symbols are used to represent certain logical functions or integrated circuit elements. The accepted integrated circuit manufacturer's industry-standard symbols are used here.

Since DTL and TTL logic is being employed, it is of the typical inverting type that use NAND-NOR elements rather than AND-OR devices.

In the logic schematics, the input/output lines to each device are shown for the true (active) state of the function. A state indicator, shown as a small circle at the input or output of a device, signifies that, if that line is in the true state, it is at a 0-Volt potential (low). Lack of a state indicator signifies that, if that line is in the true state, it is at +5 Volts (high). An example of a logic symbol with definitions is shown in Figure I-1. The symbol depicts a logical NOR element which represents that output D is at +5 Volts if either input, A, B or C is at 0-Volt.

0795

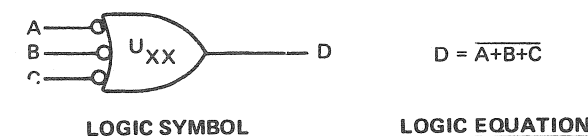


Figure I-1. Logic Symbol Example

This figure shows a logical NOR element that says D is at +5 Volts (true state) if any one, or any combination of A, B, or C is at zero Volt. Typically, the reference designator of the particular chip in the assembly is shown within the symbol, and the corresponding integrated circuit (IC) pin numbers are shown on the lines external to the symbol. The numbers within the arrowheads on the logic schematics indicate the source or destination of the related signal by logic schematic page number. An arrowhead placed adjacent to a signal line indicates a connection at that point.

1.4 INTEGRATED CIRCUIT REFERENCE DATA

The one-shot produces a positive-going pulse at the "1" output and a negative-going pulse at the "0" output, and these are initiated at the time the input pulse makes a transition to its true state. The flip-flops are of the J-K type and have the input/output functions listed in Table I-1. Tables I-2 and I-3 are truth tables applicable to these devices.

Table I-1. Flip-Flop I/O Functions

Designation	Function
J	Synchronous set input
K	Synchronous reset input
T	Clock input
S _D	Direct set input
C _D	Direct clear (or Reset) input
1	Set output
0	Reset output

Table I-2. Truth Table for Synchronous Operation

Before Clocks				After Clock	
Outputs		Inputs		Outputs	
I	0	J	K	I	0
L	H	L	X	L	H
L	H	H	X	H	L
H	L	X	L	H	L
H	L	X	H	L	H

Table I-3. Truth Table for Asynchronous Operation

Inputs		Outputs	
SD	CD	I	0
L	L	H	H
L	H	H	L
H	L	L	L
H	H	Synchronous Operation	H

Table I-4 shows all the logic symbols used in this manual with their corresponding names and logical equations. The equations shown are defined by the true level of the input signal.

Table I-4. Logic Symbols

SYMBOL	NAME	LOGICAL EQUATION
	NEGATIVE INVERTER	$B = \bar{A}$
	POSITIVE INVERTER	$B = \bar{A}$
	POSITIVE NAND GATE	$D = \overline{ABC}$
	NEGATIVE NOR GATE	$D = \overline{A+B+C}$
	NEGATIVE WIRED OR GATE	$D = A+B+C$
	FLIP-FLOP (J-K)	SEE TRUTH TABLE
	ONE-SHOT	SEE EXPLANATION
	TIME DELAY NETWORK	$B = A \cdot [DLY]$

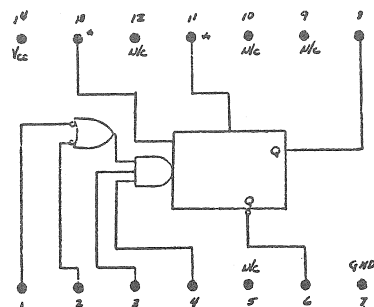
I.5 LOGIC SCHEMATICS

The following listed logic schematics are provided:

	Dwg. No.
Schematic, Main PWB . . . . .	.207002-200
Schematic, Controller PWB . . . . .	.207005-200
Schematic, Microcomputer Expander PWB . . . . .	.207011-200
Schematic, Motor Driver PWB . . . . .	.207017-200
Schematic, Main PWB . . . . .	.207066-200
Schematic, Motor Driver PWB . . . . .	.207069-200
Schematic, Motor Driver PWB . . . . .	.207076-200

NOTES:

- CASE - 14 Pin Dip, Dimensions Per Spec. Dwg. No. 124000-001
- MATERIAL -
Case - PLASTIC
Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets



* FOR EXTERNAL TIMING

VENDOR	PART NO.	COMMENTS
AMD	AM9601PC	
FAIRCHILD	F9601PC	01d P/N U6A960159X
ITT SEMI	ITT9601-N	
NATIONAL SEMI	DM9601N	
RAYTHEON	RF9601N	
STEWART WARNER	SW9601M	



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Part No. 100090-001



I.C., RETRIGGERABLE MONOSTABLE MULTIVIBRATOR (9601)

CODE 109

DRAWN	C. Kelberlau	1/26/77
CHECK	W. Watson	1/24/77
APPR.	Steve Kunkel	1/26/77

100090-000

G

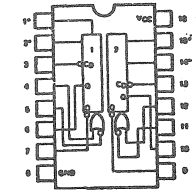
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FORM 495 (12/76)

100234-000

NOTES

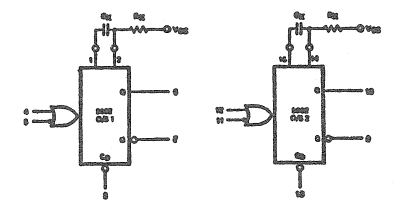
- CASE: 16 Pin Plastic DIP Per CDP Spec. Dwg. No. 124000-002
- ELECTRICAL: Per applicable vendor data sheet



* Pins for external timing.

VENDOR	VENDOR PART NO.
AMD	AM9602PC
FAIRCHILD	9602PC
NATIONAL	DM8602N
SIGNETICS	N9602N

- 100234-001 - STANDARD PART
- 100234-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC. NO. 190000



PART NUMBER 100234-XXX



I.C., MONOSTABLE MULTIVIBRATOR DUAL RETRIGGERABLE (9602)

CODE 109

REV	DESCRIPTION	DATE	APPROVED
ADD-101		1/19	
CRP 8563		1/19	
ECO 1295		1/19	

DO NOT SCALE DRAWING
TOLERANCES .XX± ANGULAR .XXX±
MODEL
NEXT ASSY

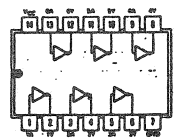
DRAWN	C. Kelberlau	1/17/77	100234-000	E
CHECK	W. Watson	1/17/77		
APPR	Steve Kunkel	1/17/77	CODE IDENT 52465	SHEET 1 of 1

FORM 201 (R. 8/77)

100331

NOTES

- CASE: 14 Pin Plastic DIP Per CDP Spec. Dwg. No. 124000-001
- ELECTRICAL: Per applicable vendor data sheet



VENDOR	VENDOR PART NO.
TEXAS INST.	SN7406N
SIGNETICS	N7406A
MOTOROLA	MC7406P
FAIRCHILD	9N06P
NATIONAL SEMI.	DM7406N

- 100331-001 - STANDARD PART
- 100331-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC. NO. 190000

PART NUMBER 100331-XXX



I.C., HEX INVERTER BUFFER, OC (7406)

CODE 109

DRAWN	C. Kelberlau	1/17/77
CHECK	W. Watson	1/17/77
APPR	Steve Kunkel	1/17/77

100331

B1

REVISIONS				DO NOT SCALE THIS DRAWING	SHEET 1 of 1
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FORM 495 (12/76)

100345 A

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	Manufacturing Release		1/17/77	

Integrated Circuit, Phase-Frequency Detector

Motorola P/N MC4044P

PART NO. 100345-001



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INTEGRATED CIRCUIT, PHASE FREQUENCY DETECTOR

CODE

QTY. REQ'D.

NOTES UNLESS SPECIFIED	DRAWN	G. Scott	8-30-72
1. TOLERANCES .XX± ANGULAR .XXX±	CHECK		
2. BREAK ALL SHARP EDGES APPROX. .010	APPR.		
3. MACH. SURFACES	MATERIAL		
4. ALL DIMS IN INCHES.	FINISH		
	MODEL No.		
	NEXT ASSY		

SCALE	SIZE	100345	A
DO NOT SCALE THIS DRAWING	WEIGHT		SHEET 1 of 1

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101022-000

INTEGRATED CIRCUIT
VOLTAGE COMPARATOR, 8 PIN
DUAL-IN-LINE PLASTIC PACKAGE
OPERATING TEMPERATURE RANGE 0 TO 70°C

NATIONAL SEMICONDUCTOR - P/N LM311N
MICRO SYSTEM INTERNATIONAL (MIL) - P/N LM311S
SILICON GENERAL - P/N SG311M
MOTOROLA - P/N MLM 311P1
INTERSIL - LM311N
TEXAS INST. - LM311P (FORMERLY SN72311P)
AMD - AM311N
FAIRCHILD - μ A311TC

TOP VIEW

PART NUMBER 101022-001

REV	DESCRIPTION	APPROVE	DATE	DO NOT SCALE DRAWING			CODE
A	MFG. RELEASE			TOLERANCES .XX± — ANGULAR .XXX± ±			109
B	ADDED MIL.			MODEL	INTEGRATED CIRCUIT, VOLTAGE COMPARATOR (311)		E ₂
C	SILICON GEN.			NEXT ASSY			
D	ADDED T.I. & INTERSIL			DRAWN	Rene Marcus	8/74	
E	ADDED AMD			CHECK	<i>[Signature]</i>	7/79	
E ₁	CR/O 9361			APPR	<i>[Signature]</i>	7-9-79	
E ₂	CR/O 9564			CODE IDENT	52465		SHEET 1 OF 1
E ₃	CR/O 9650						

FORM 201 (R 1-79) BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-5624

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101031-000

INTEGRATED CIRCUIT,
DUAL PERIPHERAL POSITIVE NAND DRIVER
DUAL-IN-LINE PLASTIC PACKAGE, 8 PIN

VENDOR	PART NO.
Texas Instruments	SN75452P
National	DS75452N
Motorola	MC75452P
Signetics	N75452B
Fairchild	75452BTC

101031-001 STANDARD PART
101031-101 BURN-IN IN ACCORDANCE WITH CDP SPEC NO. 190000.

PART NUMBER 101031-XXX SEE TABULATION

REV	DESCRIPTION	APPROVE	DATE	DO NOT SCALE DRAWING			CODE
A	MFG REL			TOLERANCES .XX± — ANGULAR .XXX± ±	INTEGRATED CIRCUIT, DUAL PERIPHERAL POSITIVE NAND DRIVER		109
B	SEE REV E0			MODEL			
B1	ADD -101			NEXT ASSY			
B2	CR/O 9058			DRAWN	G. Scott	9-18-78	
C	ECO 10978			CHECK	CUMMISKEY	10-17-80	
				APPR	<i>[Signature]</i>	10/17/80	
				CODE IDENT	52465		SHEET 1 OF 1

FORM 201 (R 1-79) BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-5624

101032-000

NOTES:

- CASE - 14 PIN DIP PER SPEC DWG. NO. 124000-001
- ELECTRICAL - PER APPLICABLE VENDOR DATA SHEET.

VENDOR	VENDOR PART NO.
SIGNETICS	NE592N
AMD	AM592PC
INTERSIL	NE592N
MOTOROLA	NE592N

PART NUMBER 101032-001

REV	DESCRIPTION	APPROVE	DATE	DO NOT SCALE DRAWING			CODE
B	ECO 11434			TOLERANCES .XX± — ANGULAR .XXX± ±	I.C., VIDEO AMPLIFIER, DIFFERENTIAL		109
C	ECO 12644			MODEL			
				NEXT ASSY			
				DRAWN	MATTHES	4/21/81	
				CHECK	CUMMISKEY	4/21/81	
				APPR	<i>[Signature]</i>	5/5/81	
				CODE IDENT	52465		SHEET 1 OF 1

FORM 201 (R 1-79) BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-5624

101139-000

NOTES

- CASE: 8 Pin Plastic DIP Per CDP Spec Dwg. No. 124000-003
- ELECTRICAL: Per applicable vendor data sheet

VENDOR	VENDOR PART NO.
TEXAS INSTRUMENTS	SN75451BP
MOTOROLA	MC75451P
NATIONAL SEMI	DS75451N

101139-001 - STANDARD PART
101139-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC NO. 190000

PART NUMBER 101139-001

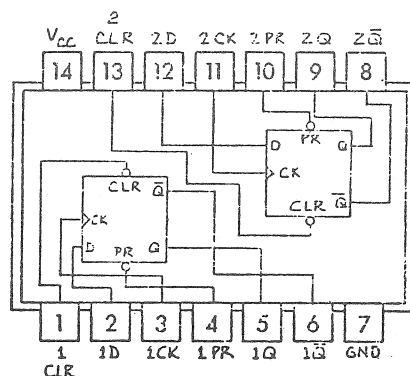
REV	DESCRIPTION	APPROVE	DATE	DO NOT SCALE DRAWING			CODE
B	ECO 10704			TOLERANCES .XX± — ANGULAR .XXX± ±	I.C., DUAL PERIPHERAL POSITIVE AND DRIVER (75451)		109
C	ECO 12245			MODEL			
D	ECO 12282			NEXT ASSY			
				DRAWN	C. Kelberlau	4/11/77	
				CHECK	<i>[Signature]</i>	4/11/77	
				APPR	<i>[Signature]</i>	4/11/77	
				CODE IDENT	52465		SHEET 1 OF 1

FORM 201 (R 8/77) BISHOP GRAPHICS/ACCUPRESS REORDER NO. A-5624

NOTES:

1. CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
2. ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets
3. OPERATING TEMP. - 0°C to +70°C

VENDOR	VENDOR PART NO.
TEXAS INST.	SN74S74N
SIGNETICS	N74S74N
NATIONAL	DM74S74N
FAIRCHILD	74S74PC



- 123023-001 - STANDARD PART
- 123023-101 - BURNED-IN IN ACCORDANCE WITH CIPHEE DATA SPEC NO. 190000.

Part No. 123023-XXX SEE TABULATION



I.C., DUAL "D" TYPE FLIP-FLOP W/PRESET AND CLEAR, SCHOTTKY (74S74)

CODE

109

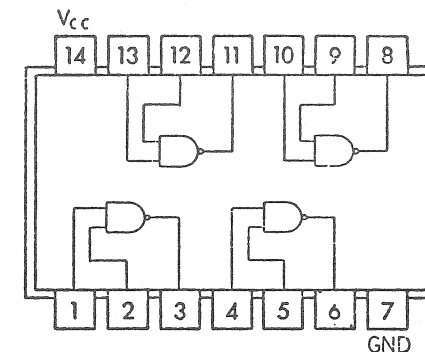
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C	ECO 10719		7/30/80				
B	CR/D 9562		8/17/79				
A1	NEW FORMAT		7/22/77				

FORM 495 (12/76)

NOTES:

1. PACKAGE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
2. ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets
3. OPERATING TEMP. - 0°C to +70°C

VENDOR	PART NO.
Texas Inst.	SN74S00N
Fairchild	74S00PC



- 123028-001 - STANDARD PART
- 123028-101 - BURNED-IN IN ACCORDANCE WITH CIPHEE DATA SPEC NO. 190000

Part No. 123028-XXX



I.C., SUPER HIGH SPEED QUAD TWO INPUT NAND (74S00)

CODE

109

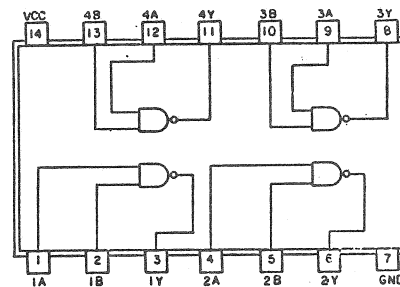
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D	CR/D 9562		9/17/79				
C	CR/D 8227		11/5/77				
B	CR/D 7949		8/1/77				
A1	NEW FORMAT		7/22/77				

FORM 495 (12/76)

NOTES:

1. CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
2. MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin or Bright Solder Dipped)
3. ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets

VENDOR	PART NO.
National	DM74LS02 (N,J)
Signetics	N74LS02 (A,F)
Texas Inst.	SN74LS02 (N,J)
Fairchild	F74LS02 (P,D)C
Motorola	SN74LS00N



POSITIVE LOGIC: V = A*B

- 123029-001 - STANDARD PART
- 123029-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC. NO. 190000

Part No. 123029-XXX



I.C., QUAD 2-INPUT NAND GATE, LOW-PWR. SCHOTTKY (74LS02)

CODE

109

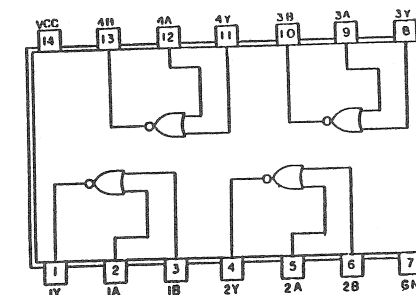
REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
B	ECO 12775		7/2/83				
A2	ADD -101		11/15/78				
A1	NEW FORMAT		7/22/77				

NOTES:

- CASE: 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- ELECTRICAL: Per the Applicable Vendor Data Sheets.

VENDORS:	PART NUMBERS
NATIONAL	DM74LS02 (N,J)
SIGNETICS	N74LS02 (A,F)
TEXAS INST.	SN74LS02 (N,J)
FAIRCHILD	F74LS02 (P,D)C

- 123030-001 - Standard Part
- 123030-101 - Burned-In In Accordance With CDP Spec, No. 190000



POSITIVE LOGIC: V = A+B

PART NUMBER 123030-XXX



I.C., QUAD 2-INPUT NOR GATE, LOW - PWR SCHOTTKY (74LS02)

CODE

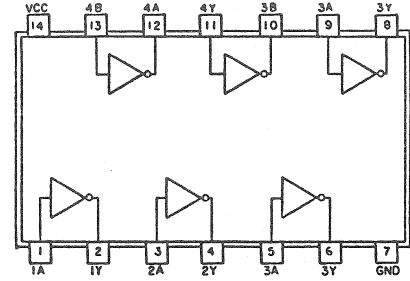
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REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
A2	ADD -101		7/10/78				
A1	NEW FORMAT		9/15/77				

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NOTES:

- CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets



POSITIVE LOGIC:
Y = X

VENDOR	PART NO.
National	DM74LS04 (N,J)
Signetics	N74LS04 (A,F)
Texas Inst.	SN74LS04 (N,J)
Fairchild	F74LS04 (P,D)C

123031-001 - STANDARD PART
123031-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC NO. 190000

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Part No. 123031-XXX



I.C., HEX INVERTER, LOW-PWR. SCHOTTKY (74LS04)

CODE

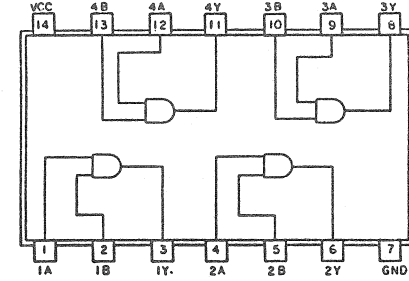
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REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
B	CRIO 9562	JAK	9/17/79	[Signature]	C. Kelberlau 7/21/77		
A ₂	NEW FORMAT	[Signature]	7/22/77	[Signature]	[Signature] 7/21/77	123031-000	B

FORM 495 (12/76)

NOTES:

- CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets



POSITIVE LOGIC:
Y = AB

VENDOR	PART NO.
National	DM74LS08 (N,J)
Signetics	N74LS08 (A,F)
Texas Inst.	SN74LS08 (N,J)
Fairchild	F74LS08 (D,P)C

123032-001 Standard Part
123032-101 Burned-In in accordance with CDP Spec. No. 190000.

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Part No. 123032-XXX



I.C., QUAD 2-INPUT AND GATE, LOW-PWR. SCHOTTKY (74LS08)

CODE

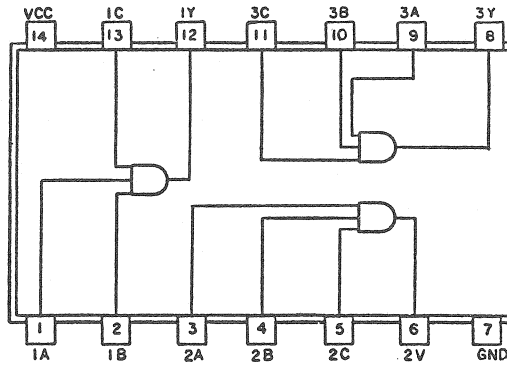
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REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
B	CRIO 97451A M.L.	[Signature]	11/11/80	[Signature]	C. Kelberlau 7/22/77		
A ₂	NEW FORMAT	[Signature]	7/22/77	[Signature]	[Signature] 7/22/77	123032-000	B

FORM 495 (12/76)

NOTES:

- CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets



POSITIVE LOGIC:
Y = ABC

VENDOR	PART NO.
National	DM74LS11 (N,J)
Signetics	N74LS11 (A,F)
Texas Inst.	SN74LS11 (N,J)
Fairchild	F74LS11 (D,P)C
MOTOROLA	SN74LS11N

123034-001 STANDARD PART
123034-101 BURNED-IN IN ACCORDANCE WITH CDP SPEC. NO. 190000

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.

Part No. 123034-XXX



I.C., TRIPLE 3-INPUT AND GATE, LOW-PWR. SCHOTTKY (74LS11)

CODE

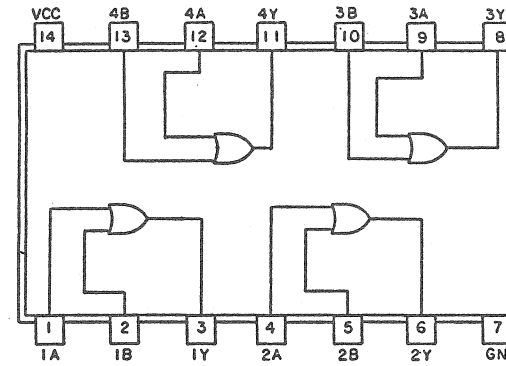
109

REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
B	ECO 13024	JAK	11/30/83	[Signature]	C. Kelberlau 7/21/77		
A ₂	ADD -101	[Signature]	7/21/77	[Signature]	[Signature] 7/21/77	123034-000	B
A ₁	NEW FORMAT	[Signature]	7/21/77	[Signature]	[Signature] 7/21/77		

FORM 495 (12/76)

NOTES:

- CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets



POSITIVE LOGIC:
Y = A+B

VENDOR	PART NO.
National	DM74LS32 (N,J)
Signetics	N74LS32 (A,F)
Texas Inst.	SN74LS32 (N,J)
Fairchild	F74LS32 (D,P)C

123035-001 Standard Part
123035-101 Burned-In in accordance with CDP Spec. No. 190000.

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.

Part No. 123035-XXX



I.C., QUAD 2-INPUT OR GATE, LOW-PWR. SCHOTTKY (74LS32)

CODE

109

REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
B	CRIO 97451A M.L.	[Signature]	11/11/80	[Signature]	C. Kelberlau 7/21/77		
A ₂	NEW FORMAT	[Signature]	7/21/77	[Signature]	[Signature] 7/21/77	123035-000	B

FORM 495 (12/76)

NOTES:

- CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets

VENDOR	PART NO.
National	DM74LS74 (N,J)
HITACHI	HD74LS74AP
Texas Inst.	SN74LS74 (N,J, AN)
Fairchild	74LS74 (D,P)C
Signetics	N74LS74AN
Motorola	SN74LS74A (N,J)

Part No. 123036-001 STANDARD PART
123036-101 BURNED-IN IN ACCORDANCE WITH CDP SPEC. NO. 190000

Part No. 123036-XXX SEE TABULATION

cipher
data products, inc.

I.C., DUAL D-TYPE FLIP-FLOP W/PRESET & CLEAR, LOW-PWR. SCHOTTKY (74LS74)

REV	DESCRIPTION	CHK.	DATE	APPROVED	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
C	ECO 10238	CA	4/29/80	[Signature]		
B2	ADD -101	CA	1/21/78	[Signature]		
B1	CR/O 8727	CA	8/1/78	[Signature]		
B	CR/O 8553	CA	5/5/78	[Signature]		
A2	NEW FORMAT	CA	7/21/77	[Signature]		

FORM 495 (12/76)

NOTES:

- CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001 or Per Pkg. Code Under Vendor Part No.
- MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin, or Bright Solder Dipped)
- ELECTRICAL CHARACTERISTICS - Per the Applicable Vendor Data Sheets

VENDOR	VENDOR PART NO.
Fairchild	F74LS86 (P,D)C
Texas Inst.	SN74LS86 (J,N)
Motorola	SN74LS86 (J,N)
National	DM74LS86 (J,N)
Signetics	N74LS86 (N,F)

123038-001 STANDARD PART
123038-101 BURNED-IN IN ACCORDANCE WITH SPEC. NO. 190000

Part Number 123038-XXX

cipher
data products, inc.

I.C., QUAD. 2-INPUT EXCLUSIVE OR GATE, LOW-PWR. SCHOTTKY (74LS86)

REV	DESCRIPTION	CHK.	DATE	APPROVED	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
A1	NEW FORMAT	CA	7/21/77	[Signature]		
A2	ADD -101	CA	1/27/78	[Signature]		
A3	CR/O 9088	CA	3/13/79	[Signature]		
A4	CR/O 9129	CA	3/26/79	[Signature]		
B	REV. & RDM PER CR/O 9409	CA	7/21/77	[Signature]		
C	CR/O 9639/A	CA	7/21/77	[Signature]		

FORM 201 (R 1-79) BISHOP GRAPHICS/ACCUPRESS

NOTES:

- CASE - 16 Pin Plastic DIP Per Spec. Dwg. No. 124000-002
- MATERIAL - Case - Plastic or Ceramic Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets

VENDOR	PART NO.
National	DM74LS123 (N,J)
Signetics	N74LS123 (B,F)
Texas Inst.	SN74LS123 (N,J)
Fairchild	F74LS123 (D,P)C

Part No. 123039-001

cipher
data products, inc.

I.C., DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR W/CLEAR, LOW-PWR. SCHOTTKY (74LS123)

REV	DESCRIPTION	CHK.	DATE	APPROVED	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
A1	NEW FORMAT	CA	7/21/77	[Signature]		
B	ECO 11993	CA	7/21/77	[Signature]		
C	ECO 13021	CA	7/21/77	[Signature]		

FORM 495 (12/76)

NOTES:

- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET
- PACKAGE: 16 PIN PLASTIC DIP PER CIPHER DATA PRODUCTS SPEC DWG. NO. 124000-002

VCC = PIN 16
GND = PIN 8

CIPHER PART NO.	VENDOR	VENDOR PART NO.
123045-001	TEXAS INSTRUMENTS	SN74LS175 (J,N)
123045-001	FAIRCHILD	F74LS175 (D,P)C
123045-001	NATIONAL	DM74LS175 (J,N)
123045-001	SIGNETICS	N74LS175 (B,F)
123045-001	AMD	AM74LS175 (N,J)
123045-001	MOTOROLA	SN74LS175 (N)
123045-002	AMD	AM25LS175 (N)

123045-0XX STANDARD PART
123045-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

Part Number 123045-XXX(SEE TABULATION)

cipher
data products, inc.

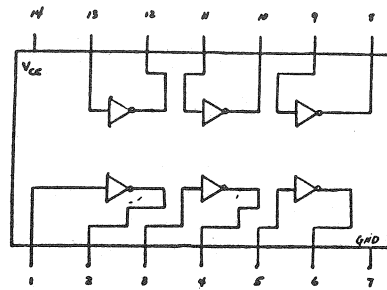
I.C., QUAD., D-TYPE FLIP-FLOP, WITH CLEAR (25/74LS175)

REV	DESCRIPTION	CHK.	DATE	APPROVED	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
A1	NEW FORMAT	CA	7/21/77	[Signature]		
B	ECO 11993	CA	7/21/77	[Signature]		
C	ECO 13021	CA	7/21/77	[Signature]		

FORM 201 (R 11/80)

NOTES:

- CASE - 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- MATERIAL -
Case - Ceramic or Plastic
Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets



VENDOR	VENDOR PART NO.
Signetics	N74S04 (A,F)
Fairchild	F74S04 (P,D)C
National	DM74S04 (N,J)
Texas Inst.	SN74S04 (N,J)

123046-001 Standard Part
123046-101 Burned-In In Accordance With CIP Spec. No. 190000

Part No. 123046-XXX



I.C., HEX INVERTER, SCHOTTKY (74S04)

CODE

109

DRAWN	C. Kelberlau	7/20/77
CHECK		
APPR.		

123046

A₁

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A ₁	NEW FORMAT		7/20/77	

REVISIONS

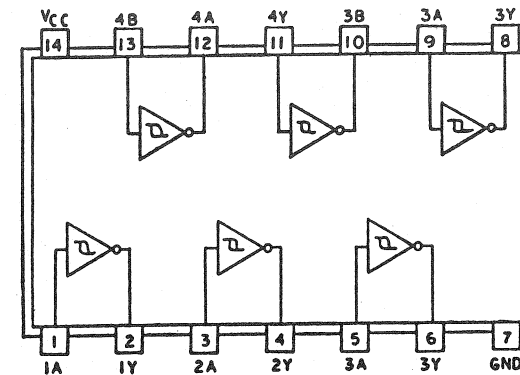
DO NOT SCALE THIS DRAWING

SHEET 1 of 1

FORM 495 (12/76)

NOTES:

- CASE - 14 Pin Plastic Dip Per Spec. Dwg. No. 124000-001
- MATERIAL -
Case - Plastic or ceramic
Leads - Plated (Gold, Tin, or Bright Solder Dipped)
- ELECTRICAL PARAMETERS - Per the Applicable Vendor Data Sheets



POSITIVE LOGIC:
Y=A

VENDOR	VENDOR PART NO.
National	DM74LS14 (N,J)
Signetics	N74LS14 (A,F)
Texas Inst.	SN74LS14 (N,J)
Fairchild	F74LS14 (P,D)C

123047-001 - STANDARD PART
123047-101 - BURNED-IN IN ACCORDANCE WITH CIP SPEC NO. 190000.

Part No. 123047-XXX



I.C., HEX INVERTER, SCHMITT-TRIGGER, LOW-PWR SCHOTTKY (74LS14)

CODE

109

DRAWN	C. Kelberlau	7/20/77
CHECK		
APPR.		

123047

A₂

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A ₂	ADD -101		7/14/77	
A ₁	NEW FORMAT		7/20/77	

REVISIONS

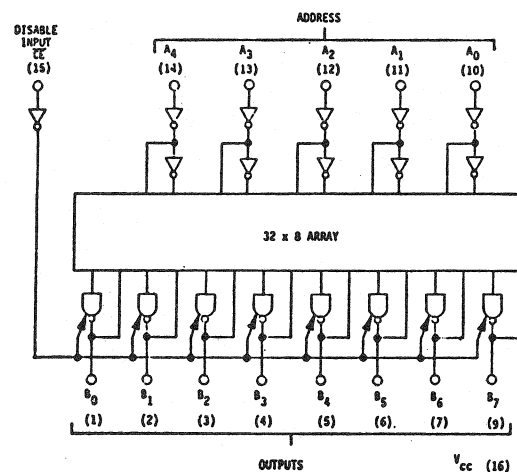
DO NOT SCALE THIS DRAWING

SHEET 1 of 1

FORM 495 (12/76)

NOTES:

- CASE - 16 Pin Plastic DIP Per Spec: Dwg. No. 124000-002
- MATERIAL: Case - Plastic or Ceramic
Leads - Plated (Gold, Tin or Bright Solder Dipped)
- ELECTRICAL CHARACTERISTICS - Per the Applicable Vendor Data Sheets
- The Integrated Circuit described in this spec. must be further modified by programming prior to use.



NOTE: Outputs are disabled (at high impedance state) when CE is at logical high state.

Part No. 123056-001



I.C., ROM-PROGRAMMABLE, 256 BIT TRI-STATE OUTPUTS 123056

CODE

109

DRAWN	C. Kelberlau	7/20/77
CHECK		
APPR.		

123056

A₁

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A ₁	NEW FORMAT		7/20/77	

REVISIONS

DO NOT SCALE THIS DRAWING

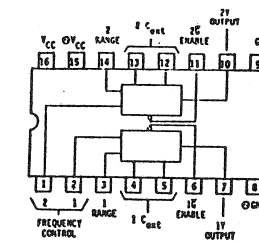
SHEET 1 of 1

FORM 495 (12/76)

NOTES:

- CASE: 16 Pin Plastic DIP Per Spec Dwg. No. 124000-002
- ELECTRICAL: Per The Applicable Vendor Data Sheets.

VENDOR	PART NUMBER
TEXAS INSTRUMENTS	SN74S124N or SN74S124J



LOGIC: OUTPUT (Y) IS ENABLED WHEN ENABLE INPUT (E) IS LOW
OUTPUT (Y) IS DISABLED HIGH WHEN ENABLE INPUT (E) IS HIGH

PART NUMBER 123069-001



INTEGRATED CIRCUIT DUAL VOLTAGE-CONTROLLED OSCILLATORS, SCHOTTKY - 74S124

CODE

109

DRAWN	M.R. HOWARD	8/12
CHECK		
APPR.		

123069

A₁

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A ₁	NEW FORMAT		8/15/77	

REVISIONS

DO NOT SCALE THIS DRAWING

SHEET 1 of 1

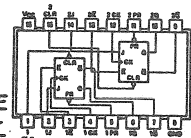
FORM 495 (12/76)

NOTES:

- CASE - 16 Pin Plastic Dip Per Spec Dwg. No. 124000-002
- ELECTRICAL - Per Applicable Vendor Data Sheets

VENDOR	PART NUMBER
TEXAS INST.	SN74LS109N
AMD	AM74LS109PC
FAIRCHILD	74LS109PC
NATIONAL	DM74LS109N
SIGNETICS	N74LS109B
MOTOROLA	SN74LS109AN

INPUTS		OUTPUTS	
PRESET	CLOCK	J	K
L	H	X	X
H	L	X	X
L	L	X	X
H	H	L	L
H	H	L	L
H	H	L	L
H	H	L	L
H	H	L	L



123084-001 - STANDARD PART
 123084-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC. NO. 190000.

PART NUMBER 123084-XXX



I.C., DUAL J-K POSITIVE EDGE TRIGGERED FLIP-FLOP, LOW PWR SCHOTTKY (74LS109)

CODE

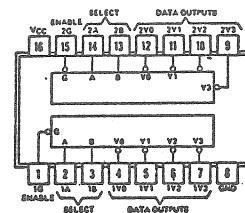
C	ECO 13022	Jax	11/30/83	1/30/83	109
B	CR/D 9562	SEJR	9/17/79	9/17/79	
A ₁	NEW FORMAT		8/15/77	8/15/77	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
REVISIONS					
DO NOT SCALE THIS DRAWING					SHEET 1 of 1

FORM 495 (12/76)

NOTES:

- CASE: 16 Pin Plastic Dip Per Spec. Dwg. No. 124000-002
- ELECTRICAL - Per Applicable Vendor Data Sheets.

VENDOR	PART NUMBER
TEXAS INST.	SN74LS139N
AMD	AM74LS139PC
FAIRCHILD	74LS139PC
NATIONAL	DM74LS139N
SIGNETICS	N74LS139B
MOTOROLA	SN74LS139N



123085-001 Standard Part
 123085-101 Burned-In in accordance with CDP Spec. No. 190000.

PART NO. 123085-XXX



I.C., DUAL 2-TO-4 LINE DECODER DUAL 1-TO-4 LINE DEMULTIPLEXER LOW PWR SCHOTTKY (74LS139)

CODE

C	ECO 13024	Jax	11/30/83	1/30/83	109
B	CR/D 97451A	M.L.	1-10-80	1/11/80	
A ₁	NEW FORMAT		8/15/77	8/15/77	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
REVISIONS					
DO NOT SCALE THIS DRAWING					SHEET 1 of 1

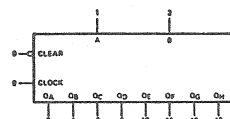
FORM 495 (12/76)

NOTES:

- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET
- PACKAGE: 14 PIN PLASTIC DIP PER CIPHER DATA PRODUCTS SPEC DWG. NO. 124000-001

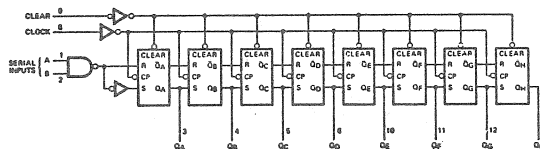
CIPHER PART NO.	VENDOR	VENDOR PART NO.
123086-001	TEXAS INSTRUMENTS FAIRCHILD NATIONAL SIGNETICS AMD	SN74LS164N 74LS164PC DM74LS164N N74LS164A AM74LS164PC
123086-002	AMD	AM25LS164PC

LOGIC SYMBOL



V_{CC} - Pin 14
 GND - Pin 7

LOGIC DIAGRAM



123086-0XX STANDARD PART
 123086-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

PART NUMBER 123086-XXX (SEE TABULATION)

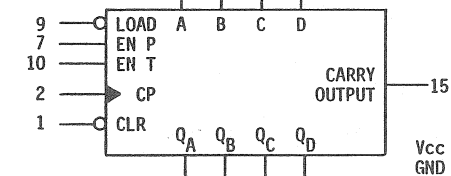
DO NOT SCALE DRAWING						CODE
TOLERANCES .XX± ANGULAR .XXX± ±						
MODEL					I.C., 8-BIT SERIAL-IN, PARALLEL OUT SHIFT REGISTER (25/74LS164)	109
NEXT ASSY						
DRAWN M.R. HOWARD 8/15					123086-000	C
CHECK T. WATSON 8-15-77						
APPR JESS KENDRICK 8-15-77						
THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.					CODE IDENT 52465	SHEET 1 of 1

NOTES:

- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET
- PACKAGE: 16 PIN PLASTIC DIP PER CIPHER DATA PRODUCTS SPEC DWG. NO. 124000-002

CIPHER PART NO.	VENDOR	VENDOR PART NO.
123090-001	FAIRCHILD AMD NATIONAL MOTOROLA SIGNETICS T.I.	74LS163PC AM74LS163APC DM74LS163N SN74LS163AN N74LS163AN SN74LS163AN
123090-002	AMD	AM25LS163APC

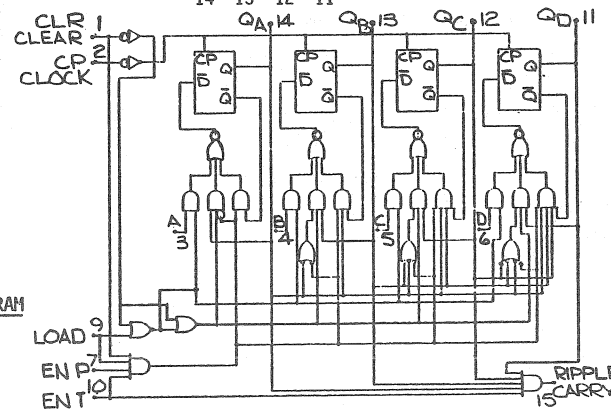
LOGIC SYMBOL



123090-000

V_{CC} = PIN 16
 GND = PIN 8

LOGIC DIAGRAM



123090-0XX STANDARD PART
 123090-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

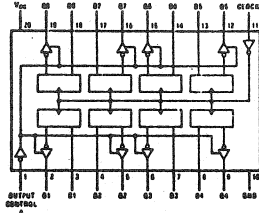
PART NUMBER 123090-XXX (SEE TABULATION)

DO NOT SCALE DRAWING						CODE
TOLERANCES .XX± ANGULAR .XXX± ±						
MODEL					I.C., 4-BIT BINARY COUNTER WITH SYNCHRONOUS RESET (25/74LS163)	109
NEXT ASSY						
DRAWN BAKER 1/27/82					123090-000	D
CHECK Pam Mahan 2/5/82						
APPR Jess Kendrick 2/23/82						
THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.					CODE IDENT 52465	SHEET 1 of 1

NOTES:

1. CASE - 20 Pin Plastic Dip
2. ELECTRICAL - Per applicable vendor data sheets

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.



123091-001 Standard Part
123091-101 Burned-In in accordance with CDP Spec. No. 190000.

VENDOR	VENDOR PART NO.
AMD	AM74LS374PC
NATIONAL	DM74LS374N
FAIRCHILD	74LS374PC
TI	SN74LS374N
SIGNETICS	N74LS374N
MHI	SN74LS374N

Part No. 123091-XXX

cipher
DATA PRODUCTS, INC.
OCTAL D FLIP-FLOPS, TRI-STATE
LOW PWR SCHOTTKY (74LS374)

CODE

109

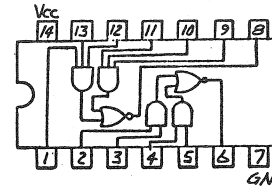
REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
C	E.C.O. 10096	ALL	3/6/80	3/6/80	[Signature]		
B	NEW FORMAT		11/1/77	11/1/77	[Signature]		
A ₁	NEW FORMAT		7/1/77	7/1/77	[Signature]		

FORM 495 (12/76)

NOTES:

1. CASE - 14 Pin Plastic Dip Per Spec. Dwg. No. 124000-001
2. ELECTRICAL - Per Applicable Vendor Data Sheets

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.



LOGIC/PIN CONFIGURATION

VENDOR	VENDOR PART NUMBER
AMD	AM74LS51PC
FAIRCHILD	74LS51PC
NATIONAL	DM74LS51N
SIGNETICS	N74LS51A
T. I.	SN74LS51N

Part No. 123093-001

cipher
DATA PRODUCTS, INC.
I.C., DUAL 2-WIDE 2-INPUT/3-INPUT AND-OR
INVERT GATE LOW PWR SCHOTTKY (74LS51)

CODE

109

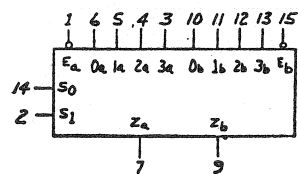
REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
A ₁	NEW FORMAT		7/6/77	7/6/77	[Signature]		
					[Signature]		

FORM 495 (12/76)

NOTES:

1. CASE - 16 Pin Plastic Dip Per Spec. Dwg. No. 124000-002.
2. ELECTRICAL - Per Applicable Vendor Data Sheets

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.



LOGIC/PIN CONFIGURATION

VENDOR	VENDOR PART NO.
AMD	AM74LS153PC
FAIRCHILD	74LS153PC
NATIONAL	DM74LS153N
SIGNETICS	N74LS153B
T. I.	SN74LS153N

Part No. 123095-001

cipher
DATA PRODUCTS, INC.
DUAL 4-LINE TO 1-LINE DATA SELECTORS/
MULTIPLEXERS, LOW PWR SCHOTTKY (74LS153)

CODE

109

REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
A ₁	NEW FORMAT		7/1/77	7/1/77	[Signature]		
					[Signature]		

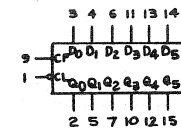
FORM 495 (12/76)

NOTES:

1. ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET
2. PACKAGE: 16 PIN PLASTIC DIP PER CIPHER DATA PRODUCTS SPEC DWG. NO. 124000-002

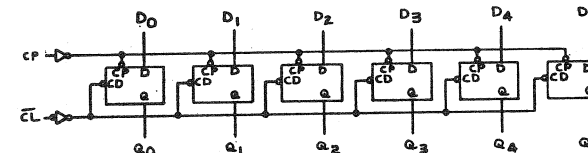
CIPHER PART NO.	VENDOR	VENDOR PART NO.
123096-001	AMD FAIRCHILD NATIONAL SIGNETICS	AM74LS174PC 74LS174PC DM74LS174N N74LS174N
123096-002	TEXAS INSTRUMENTS MOTOROLA AMD	SN74LS174N SN74LS174N AM25LS174PC

LOGIC SYMBOL
LS174



Vcc = PIN 15
GND = PIN 8

LOGIC DIAGRAM LS174



123096-0XX STANDARD PART

123096-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

PART NUMBER: 123096-XXX (SEE TABULATION)

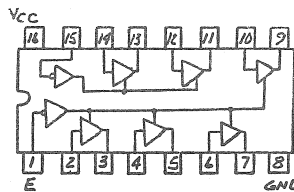
REV	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
A ₁	NEW FORMAT		7/1/77	7/1/77	[Signature]		
					[Signature]		

FORM 201 (R 11/80)

NOTES:

- CASE - 14 Pin Plastic Dip Per Spec. Drawing No. 124000-002.
- ELECTRICAL - Per Applicable Vendor Data Sheets

VENDOR	VENDOR PART NO.
AMD	AM74LS367PC
FAIRCHILD	74LS367PC
NATIONAL	DM74LS367N
SIGNETICS	N74LS367B
T. I.	SN74LS367N
Motorola	SN74LS367AH



LOGIC/PIN CONFIGURATION

123097-001 - STANDARD PART
 123097-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC NO. 190000.

Part No. 123097-XXX



HEX 3-STATE BUFFER, SEPARATE 2-BIT SECTIONS, LOW PWR SCHOTTKY (74LS367)

CODE 109

REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
B	CR/O 9562	JELSON	9/17/79	(Signature)				
A2	CR/O 9190	San J	9/11/79	(Signature)				
A3	NEW FORMAT	ca	7/1/77	(Signature)				
REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE THIS DRAWING	SHEET 1 of 1

FORM 496 (12/76)

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.

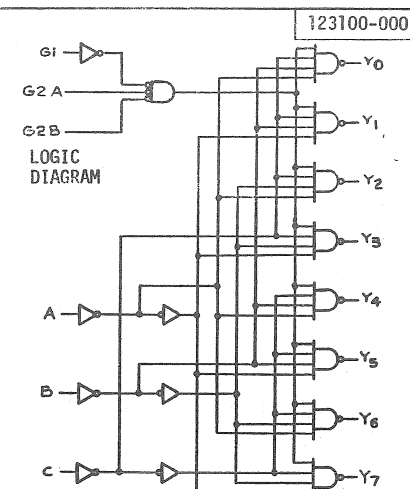
NOTES:

- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET
- PACKAGE: 16 PIN PLASTIC DIP PER CIPHER DATA PRODUCTS SPEC DWG. NO. 124000-002

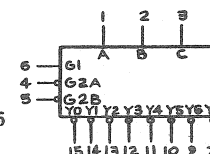
CIPHER PART NO.	VENDOR	VENDOR PART NO.
123100-001	AMD	AM74LS138PC
123100-001	FAIRCHILD	74LS138PC
123100-001	NATIONAL	DM74LS138N
123100-001	SIGNETICS	N74LS138A
123100-001	TEXAS INST.	SN74LS138N
123100-002	AMD	AM25LS138PC

123100-0XX STANDARD PART

123100-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.



LOGIC SYMBOL
 Vcc= Pin 16
 GND= Pin 8



PART NUMBER 123100-XXX(SEE TABULATION)



I.C., DECODER/DEMULTIPLXER 3-LINE TO 8-LINE (25/74LS138)

CODE 109

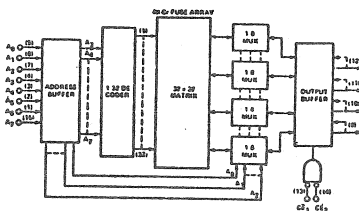
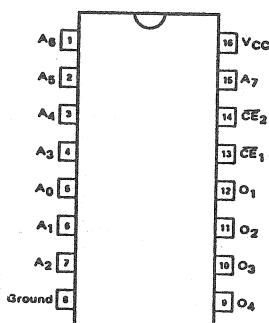
REV	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE DRAWING	TOLERANCES	MODEL	NEXT ASSY	THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.	DO NOT SCALE THIS DRAWING	CODE IDENT	SHEET 1 OF 1
REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE DRAWING	TOLERANCES	MODEL	NEXT ASSY	THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.	DO NOT SCALE THIS DRAWING	CODE IDENT	SHEET 1 OF 1

FORM 201 (R 11/80)

NOTES:

- CASE - 16 Pin Plastic or Ceramic Per Spec. Dwg., No. 124000-002.
- MECHANICAL & ELECTRICAL - Per Applicable Vendor Data Sheet

VENDOR	VENDOR PART NO.
Signetics	N82S129N, N82S129F
Fairchild	93427PC, 93427DC
NATIONAL	DM74S287N



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Part No. 123106-001



I.C., 1024-BIT BIPOLAR PROGRAMMABLE ROM (256X4 PROM) WITH TRI-STATE OUTPUTS

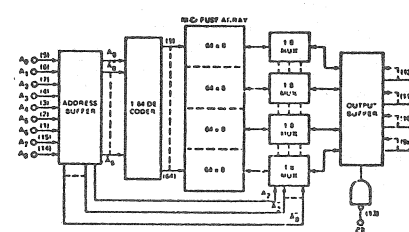
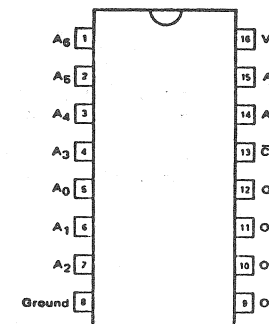
CODE 109

REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
E	ECO 12298	Joz	6/22/82	(Signature)				
D	ECO 12136	W	4/24/82	(Signature)				
C	CR/O 9834	NJ 1-7-80	1/11/80	(Signature)				
B	CR/O 9340	D.ULLOA	7/3/79	(Signature)				
A1	CR/O - 8996	D.ULLOA	2/19/79	(Signature)				
A	MFG. RELEASE	ca	4/21/77	(Signature)				
REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE THIS DRAWING	SHEET 1 of 1

NOTES:

- CASE - 16 Pin Plastic or Ceramic Per Spec Dwg. 124000-002.
- ELECTRICAL & MECHANICAL - Per Applicable Vendor Data Sheet

VENDOR	VENDOR P/N
Signetics	N82S131N, N82S131F
Harris	HM1-7621-5, HM3-7621-5
Fairchild	93446PC, 93446DC
AMD	AM27S13DC
NATIONAL	DM74S571N



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Part No. 123107-001



I.C., 2048-BIT BIPOLAR PROGRAMMABLE ROM (512X4 PROM), WITH TRI-STATE OUTPUTS

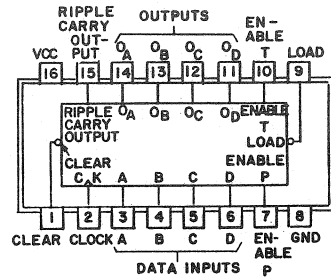
CODE 109

REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE THIS DRAWING	SHEET 1 of 1
C	ECO 12136	W	4/24/82	(Signature)				
B	CR/O 9834	NJ 1-7-80	1/11/80	(Signature)				
A1	CR/O - 8996	D.ULLOA	2/19/79	(Signature)				
A	MFG. RELEASE	ca	4/21/77	(Signature)				
REV.	DESCRIPTION	CHK.	DATE	APPROVED	APPR.	DATE	DO NOT SCALE THIS DRAWING	SHEET 1 of 1

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NOTES:

- CASE - 16 Pin Plastic DIP Per Spec Dwg. No. 124000-002
- ELECTRICAL - Per Applicable Vendor Data Sheet



VENDOR	VENDOR PART NO.
Texas Inst.	SN74S163N

Part No. 123119-001

cipher

I.C., SYNCHRONOUS 4-BIT COUNTER (74S163)

CODE

109

DRAWN	C. Kelberlau	6/9/77
CHECK	<i>[Signature]</i>	6/9/77
APPR.	<i>[Signature]</i>	6/9/77

123119

A

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	MFG. RELEASE	<input checked="" type="checkbox"/>	6/9/77	<i>[Signature]</i>

REVISIONS

DO NOT SCALE THIS DRAWING

SHEET 1 of 1

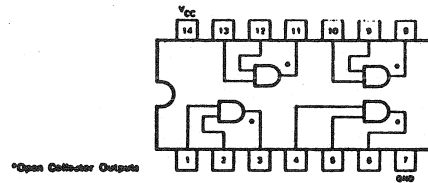
FORM 495 (12/76)

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NOTES:

- CASE - 14 Pin Plastic DIP Per Spec Dwg. No. 124000-001
- ELECTRICAL - Per Applicable Vendor Data Sheet

QUAD 2-INPUT AND GATE (WITH OPEN-COLLECTOR OUTPUT)



VENDOR	VENDOR PART NO.
Signetics	SN74LS09N
Fairchild	SN74LS09N
Texas Inst.	SN74LS09N

Part No. 123123-001

cipher

I.C., QUAD 2-INPUT AND GATE WITH OPEN COLLECTOR OUTPUT (74LS09)

CODE

109

DRAWN	C. Kelberlau	9/22/77
CHECK	<i>[Signature]</i>	9/22/77
APPR.	<i>[Signature]</i>	9/22/77

123123

A

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	MFG. RELEASE	<input checked="" type="checkbox"/>	9/22/77	<i>[Signature]</i>

REVISIONS

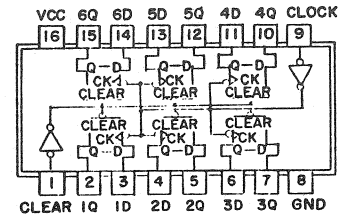
DO NOT SCALE THIS DRAWING

SHEET 1 of 1

FORM 495 (12/76)

NOTES:

- CASE - 16 Pin Plastic DIP Per Spec. Dwg. No. 124000-002
- ELECTRICAL - Per Applicable Vendor Data Sheet



LOGIC / PIN CONFIGURATION

VENDOR	VENDOR PART NO.
Texas Inst.	SN74S174N
Signetics	N74S174N
Fairchild	74S174PC
National	DM74S174N
AMD	SN74S174N

123120-001 - STANDARD PART
123120-101 - BURNED-IN IN ACCORDANCE WITH CDP SPEC NO. 190000.

Part No. SEE TABULATION

cipher

I.C., HEX D-TYPE FLIP-FLOPS WITH CLEAR (74S174)

CODE

109

C	E.C.O. 10016 ML.	3-6-80	7/6/80	<i>[Signature]</i>
B	CRIO 9562	JEHCB	9/7/79	<i>[Signature]</i>
A1	CRIO 8946	SAI	1/25/79	<i>[Signature]</i>

DRAWN	C. Kelberlau	6/9/77
CHECK	<i>[Signature]</i>	6/9/77
APPR.	<i>[Signature]</i>	6/9/77

123120-000

C

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	MFG. RELEASE	<input checked="" type="checkbox"/>	6/9/77	<i>[Signature]</i>

REVISIONS

DO NOT SCALE THIS DRAWING

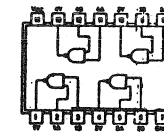
SHEET 1 of 1

FORM 495 (12/76)

123149

NOTES:

- CASE: 14 Pin Plastic DIP Per Spec. Dwg. No. 124000-001
- ELECTRICAL: Per Applicable Vendor Data Sheet.



VENDOR	PART NUMBER
TEXAS INST.	SN74LS01N
SIGNETICS	SN74LS01N
FAIRCHILD	SN74LS01N
AMD	SN74LS01N

PART NUMBER 123149-001

DO NOT SCALE DRAWING 3/4"

TOLERANCES .XX± ANGULAR ±

cipher

I.C., QUAD 2-INPUT POSITIVE NAND GATE W/OPEN COLL. (74LS01)

CODE

109

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	MFG. RELEASE	<input checked="" type="checkbox"/>	9/22/77	<i>[Signature]</i>

DRAWN	C. Kelberlau	9/22/77
CHECK	<i>[Signature]</i>	9/22/77
APPR.	<i>[Signature]</i>	9/22/77

123149

A

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CODE IDENT 52465 SHEET 1 of 1

FORM 201 (R. 8/77)

123152-000

NOTES

- CASE: 20 Pin Plastic DIP Per Spec. Dwg. No. 124000-006
- ELECTRICAL: Per Applicable Vendor Data Sheet

VENDOR	VENDOR P/N
TEXAS INST.	SN74LS273N
AMD	SN74LS273N
FAIRCHILD	74LS273PC

PART NUMBER 123152-001

DO NOT SCALE DRAWING 3/4"

TOLERANCES
.XX± ANGULAR
.XXX± ±

MODEL I.C., OCTAL D-TYPE FLIP-FLOP WITH CLEAR (74LS273) CODE 109

NEXT ASSY

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DRAWN C. Kelberlau 3/27/78 123152-000 B

CHECK *[Signature]* 3/27/78

APPR *[Signature]* 3/27/78 CODE IDENT 52465 SHEET 1 OF 1

FORM 201 (R. 8/77)

123192

DESCRIPTION

GENERAL: 8-Bit CPU, ROM, RAM, I/O in single package. 2.5μsec and 5.0μsec versions. All instructions 1 or 2 cycles. Over 90 instructions: 70% Single Byte. 1K x 8 ROM/EPROM, 64 x 8 RAM, 27 I/O lines. Interval Timer/Event Counter, Expandable Memory and I/O. Compatible with 8000 series peripherals. Single level interrupt. Single 5V supply.

PACKAGE: 40 PIN Dual in Line.

ELECTRICAL: Per applicable vendor data sheet.

VENDOR	VENDOR PART NO.
INTEL	8035

PART NUMBER 123192-001

DO NOT SCALE DRAWING

TOLERANCES
.XX± ANGULAR
.XXX± ±

MODEL I.C., SINGLE COMPONENT 8-BIT MICRO COMPUTER (8035) CODE 109

NEXT ASSY

DRAWN L. Hale 8-22-78 123192 A

CHECK *[Signature]* 8-22-78

APPR *[Signature]* 8-23-78 CODE IDENT 52465 SHEET 1 OF 1

FORM 201 (R. 8/77)

123203-000

NOTES:

- CASE- 14 PIN PLASTIC DIP PER SPEC. DWG. 124000-001.
- ELECTRICAL- PER APPLICABLE VENDER DATA SHEET.

VENDER	VENDOR PART NO.
TEXAS INST.	SN74LS393N
FAIRCHILD	74LS393PC
SIGNETICS	N74LS393N
MOTOROLA	SN74LS393N

PART NUMBER 123203-001

DO NOT SCALE DRAWING

TOLERANCES
.XX± ANGULAR
.XXX± ±

MODEL I.C., DUAL 4 STAGE BINARY COUNTER (74LS393) CODE 109

NEXT ASSY

DRAWN *[Signature]* 9-22-80 123203-000 A

CHECK *[Signature]* 9-26-80

APPR *[Signature]* 9/26/80 CODE IDENT 52465 SHEET 1 OF 1

FORM 201 (R. 8/77)

123231-000

NOTES:

- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET.
- PACKAGE: 16 PIN DIP PER CIPHER DATA PRODUCTS SPEC DWG NO. 124000-002

VENDOR	VENDOR PART NO.
RCA MOTOROLA SGS	CD4502BE MC14502BCP HCF4502BE

123231-0XX STANDARD PART

123231-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

PART NUMBER 123231-XXX

DO NOT SCALE DRAWING

TOLERANCES
.XX± ANGULAR
.XXX± ±

MODEL I.C., STROBED HEX INVERTER/BUFFER-CMOS (4502B) CODE 109

NEXT ASSY

DRAWN T. LINDMAN 1-29-82 123231-000 C

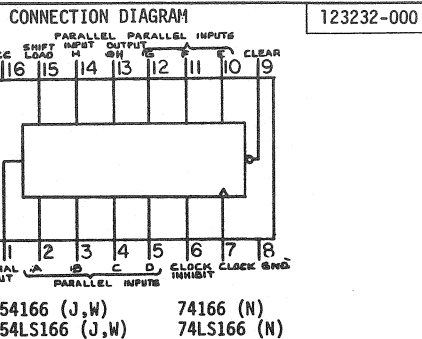
CHECK *[Signature]* 1/29/82

APPR *[Signature]* 3/26/82 CODE IDENT 52465 SHEET 1 OF 1

FORM 201 (R. 8/77)

- NOTES:
- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET.
 - PACKAGE: 16 PIN DIP PER CIPHER DATA PRODUCTS SPEC DWG NO. 124000-002

VENDOR	VENDOR PART NO.
MOTOROLA	SN74LS166N
NATIONAL	DM74LS166N
TEXAS INST.	SN74LS166AN



Truth Table

Clear	Inputs					Internal Outputs		Output Q _n
	Shift/Load	Clock Inhibit	Clock	Serial A...H	Parallel A...M	Q _A	Q _B	
L	X	X	X	X	X	L	L	L
H	X	L	L	X	X	Q _{A0}	Q _{B0}	Q _{n0}
H	L	L	L	X	a...h	a	b	h
H	H	L	L	L	X	H	Q _{An}	Q _{Gn}
H	H	L	L	L	X	L	Q _{An}	Q _{Gn}
H	H	X	H	X	X	Q _{A0}	Q _{B0}	Q _{n0}

H = High Level (steady state), L = Low Level (steady state)
 X = Don't Care (any input, including transitions)
 i = Transition from low to high level
 a...h = The level of steady-state signal at inputs A through H, respectively
 Q_{A0}, Q_{B0}, Q_{n0} = The level of Q_A, Q_B, Q_n, respectively, before the indicated steady-state input conditions were established
 Q_{An}, Q_{Bn}, Q_{Gn} = The level of Q_A, Q_B, Q_n, respectively, before the most recent i transition of the clock

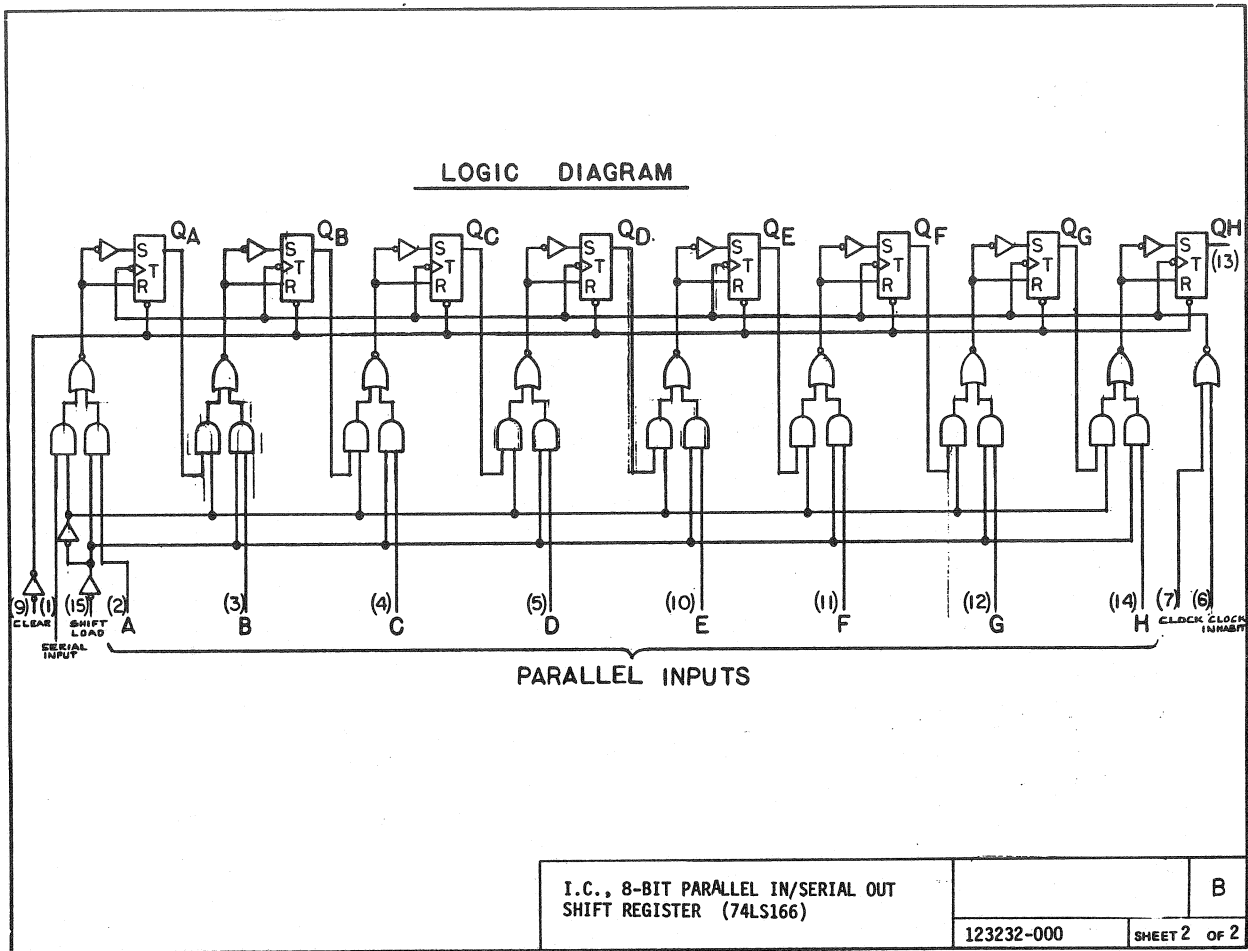
123232-001 STANDARD PART

123232-101 BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

DSC: R PART NUMBER 123232-XXX

REV	DESCRIPTION	APP/DATE	DO NOT SCALE DRAWING		I.C., 8-BIT PARALLEL IN/SERIAL OUT SHIFT REGISTER (74LS166)	CODE 109
A	PROD. BEL. ERO 820299 1/15/82	1/15/82	TOLERANCES .XX± ANGULAR .XXX± ±			
B	ECO 12301 12/12/82	12/12/82	MODEL NEXT ASSY		I.C., 8-BIT PARALLEL IN/SERIAL OUT SHIFT REGISTER (74LS166)	B
THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF PERKIN-ELMER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE PERKIN-ELMER MEMORY PRODUCTS DIVISION.			DRAWN R. Baumgartner 2-2-82 CHECK Sam Mathew 2/3/82 APPR Wes Kendrick 3/30/82	123232-000 CODE IDENT 52465	SHEET 1 OF 2	

FORM 201 (R 11/80)

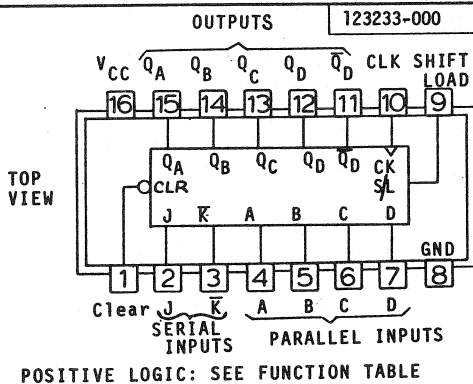


I.C., 8-BIT PARALLEL IN/SERIAL OUT SHIFT REGISTER (74LS166)	B
123232-000	SHEET 2 OF 2

FORM 202 (R.8/77)

- NOTES:
- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET.
 - PACKAGE: 16 PIN DIP PER CIPHER DATA PRODUCTS SPEC DWG NO. 124000-002

VENDOR	VENDOR PART NO.
TEXAS INST. SIGNETICS NATIONAL	SN74LS195AN N74LS195N DM74LS195N



POSITIVE LOGIC: SEE FUNCTION TABLE

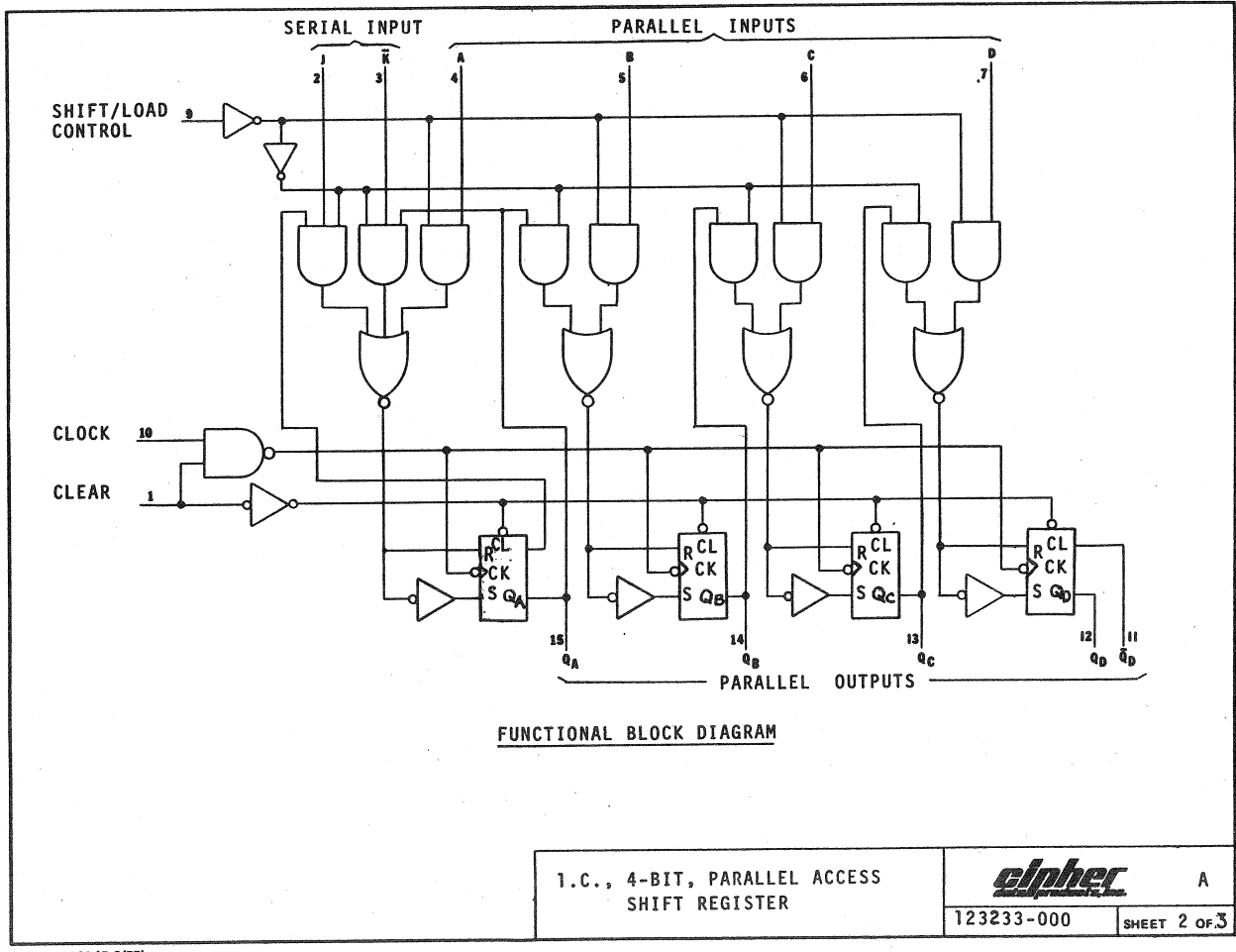
123233-0XX STANDARD PART

123233-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

DSC: R PART NUMBER 123233-XXX

REV	DESCRIPTION	APP/DATE	DO NOT SCALE DRAWING		I.C., 4-BIT, PARALLEL ACCESS SHIFT REGISTER	CODE 109
A	PROD. BEL. ERO 820299 1/15/82	1/15/82	TOLERANCES .XX± ANGULAR .XXX± ±			
B	ECO 12301 12/12/82	12/12/82	MODEL NEXT ASSY		I.C., 4-BIT, PARALLEL ACCESS SHIFT REGISTER	A
THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF PERKIN-ELMER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE PERKIN-ELMER MEMORY PRODUCTS DIVISION.			DRAWN D. WILSON JAN 29 82 CHECK Sam Mathew 2/1/82 APPR Wes Kendrick 2/20/82	123233-000 CODE IDENT 52465	SHEET 1 OF 3	

FORM 201 (R 11/80)



I.C., 4-BIT, PARALLEL ACCESS SHIFT REGISTER	A
123233-000	SHEET 2 OF 3

FORM 202 (R.8/77)

CLEAR	SHIFT/LOAD	CLOCK	INPUTS				OUTPUTS				
			SERIAL J K	PARALLEL A B C D	Q _A	Q _B	Q _C	Q _D	Q̄ _D		
L	X	X	X X	X X X X	L L	L L	H				
H	L	↑	X X	a b c d	a b	c d	d̄				
H	H	L	X X	X X X X	Q _{A0} Q _{B0}	Q _{C0} Q _{D0}	Q̄ _{D0}				
H	H	↑	L H	X X X X	Q _{A0} Q _{A0}	Q _{Bn} Q _{Cn}	Q̄ _{Cn}				
H	H	↑	L L	X X X X	L Q _{An}						
H	H	↑	H H	X X X X	H						
H	H	↑	H L	X X X X	Q̄ _{An} Q _{An}	Q _{Bn} Q _{Cn}	Q̄ _{Cn}				

FUNCTION TABLE
H = high level (steady state)
L = low level (steady state)
X = irrelevant (any input, including transitions)
↑ = transition from low to high level.
a,b,c,d, = the level of steady state input at A,B,C, or D, respectively.
Q_{A0}, Q_{B0}, Q_{C0}, Q_{D0} = the level of Q_A, Q_B, Q_C, or Q_D, respectively, before the indicated steady state input conditions were established.
Q_{An}, Q_{Bn}, Q_{Cn} = the level of Q_A, Q_B, or Q_C, respectively, before the most recent transition of the clock.

I.C., 4-BIT PARALLEL ACCESS SHIFT REGISTER

elpher A

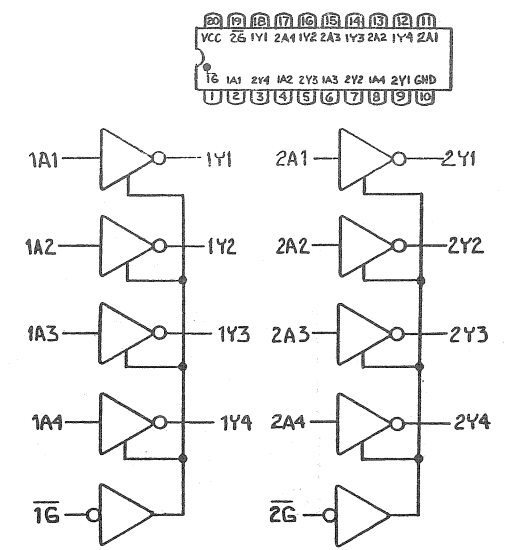
123233-000 SHEET 3 OF 3

FORM 202 (R.8/77)

- NOTES:
- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET.
 - PACKAGE: 20 PIN DIP PER CIPHER DATA PRODUCTS SPEC DWG NO. 124000-005

VENDOR	VENDOR PART NO.
AMD	SN74S240N
FAIRCHILD	74S240PC
NATIONAL	DM74S240N
T.I.	SN74S240N

123234 -0XX STANDARD PART
123234 -1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.



DSC: R PART NUMBER 123234-XXX

DO NOT SCALE DRAWING

TOLERANCES .XX± ANGULAR ±

MODEL I.C., OCTAL BUFFER/LINE DRIVER, TRI-STATE OUTPUTS (74S240) CODE 109

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DRAWN D. WILSON 1-20-82 123234-000 A

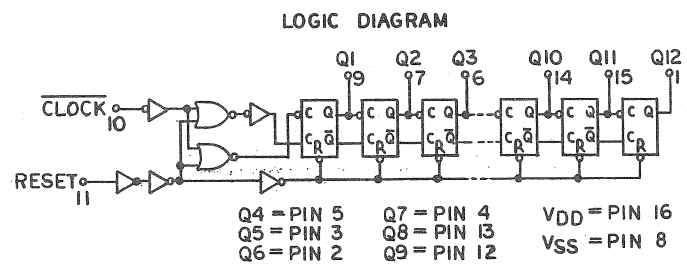
CHECK Kam Mathraw 1/29/82

APPR (Signature) 3/30/82 CODE IDENT 52465 SHEET 1 OF 1

FORM 201 (R 11/80)

- NOTES:
- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET.
 - PACKAGE: 16 PIN DIP PER CIPHER DATA PRODUCTS SPEC DWG NO. 124000-002

VENDOR	VENDOR PART NO.
MOTOROLA	MC14040BCP
NATIONAL	CD4040CN
SGS	HCF4040BE



123235-0XX STANDARD PART
123235-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

DSC: R PART NUMBER 123235-XXX

DO NOT SCALE DRAWING

TOLERANCES .XX± ANGULAR ±

MODEL I.C., 12-STAGE RIPPLE-CARRY BINARY COUNTER/DIVIDER (4040)CMOS CODE 109

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.

DRAWN T. LINDMAN 1-29-82 123235-000 B

CHECK Kam Mathraw 2/1/82

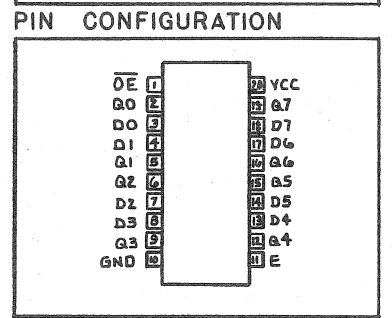
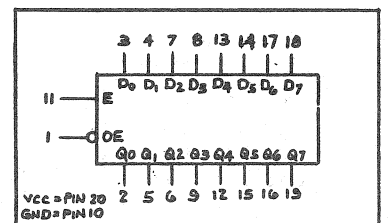
APPR (Signature) 3/30/82 CODE IDENT 52465 SHEET 1 OF 1

FORM 201 (R 11/80)

- NOTES:
- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET.
 - PACKAGE: 20 PIN DIP PER CIPHER DATA PRODUCTS SPEC DWG NO. 124000-005

VENDOR	VENDOR PART NO.
NATIONAL	DM74LS373N
AMD	SN74LS373N
T.I.	SN74LS373N
SIGNETICS	N74LS373N
FAIRCHILD	74LS373PC
MOTOROLA	SN74LS373N

123237-0XX STANDARD PART
123237-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.



DSC: R PART NUMBER 123237-XXX

DO NOT SCALE DRAWING

TOLERANCES .XX± ANGULAR ±

MODEL I.C., OCTAL TRANSPARENT LATCH W/3-STATE OUTPUTS (74LS373) CODE 109

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF PERKINS-ELMER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE PERKINS-ELMER MEMORY PRODUCTS DIVISION.

DRAWN Baumgarten 1-2-82 123237-000 B

CHECK Kam Mathraw 2/2/82

APPR (Signature) 3/30/82 CODE IDENT 52465 SHEET 1 OF 2

FORM 201 (R 11/80)

123240-000

NOTES:

- ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET
- PACKAGE: 40 PIN DIP

PIN CONFIGURATION

TO	1	40	Vcc
XTAL 1	2	39	T1
XTAL 2	3	38	P27
RESET	4	37	P26
SS	5	36	P25
INT	6	35	P24
EA	7	34	P17
RD	8	33	P16
PSEN	9	M8048	P15
WR	10	M8748	P14
ALE	11	M8055L	P13
DB ₀	12		P12
DB ₁	13		P11
DB ₂	14		P10
DB ₃	15		V _{DD}
DB ₄	16		PROG
DB ₅	17		P23
DB ₆	18		P22
DB ₇	19		P21
Vss	20		P20

VENDOR	VENDOR PART NO.
INTEL	D8748
NEC	D8748D

DSC: R PART NUMBER: 123240-001

REV	DESCRIPTION	APP/DATE	DO NOT SCALE DRAWING	TOLERANCES: .XX± ANGULAR .XXX± ±		Cipher data products, inc. GARDEN GROVE DIVISION		CODE
A	PROD. REL. ER0820322	1/22/78						109
B	ECO 12527	1/10/78						
C	ECO 12659	1/10/78						

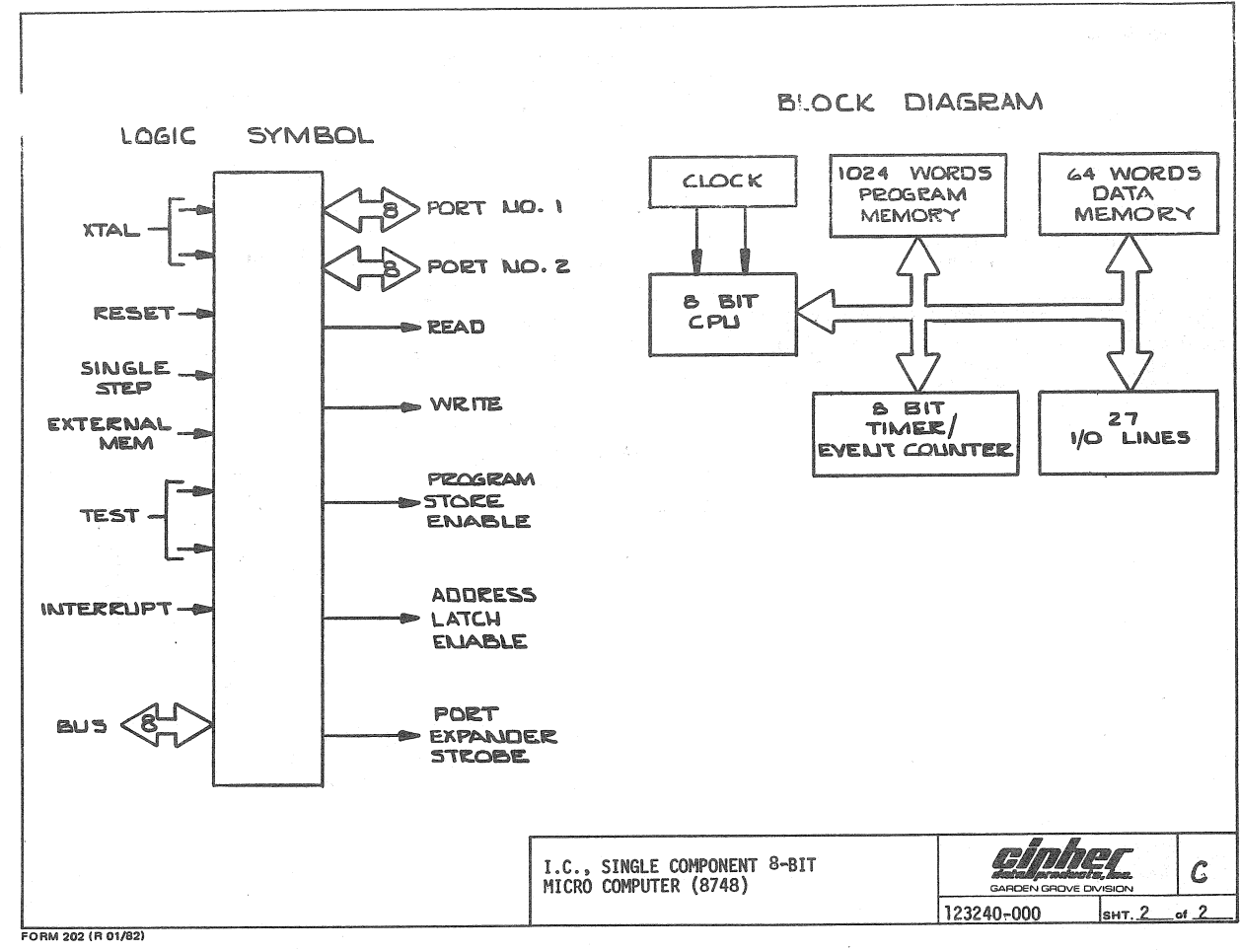
I.C., SINGLE COMPONENT 8-BIT MICRO COMPUTER (8748)

REV	DESCRIPTION	APP/DATE	DRAWN	CHECK	APPR.	CODE IDENT	SHT. 1 of 2
			MATTHES 3/1/82	Sam Makovai 3/2/82	Jess Kendrick 4/2/82	123240-000 C	

I.C., SINGLE COMPONENT 8-BIT MICRO COMPUTER (8748)

Cipher
data products, inc.
GARDEN GROVE DIVISION

123240-000 SHT. 2 of 2



125006-000

NOTES:

- CASE TYPE: TO-220
- ELECTRICAL: Per Applicable Vendor Data Sheets.

CDP PART NO.	OUTPUT VOLTAGE	FAIRCHILD PART NO.	MOTOROLA PART NO.	TEXAS INSTRUMENT PART NO.	NATIONAL PART NO.	SIGNETICS PART NO.
125006-005	5	JJA 7805UC	MC 7805CT	JJA7805CKC	LM7805CT	JJA7805CU
-006	6	JJA 7806UC	MC 7806CT	JJA7806CKC	LM7806CT	JJA7806CU
-008	8	JJA 7808UC	MC 7808CT	JJA7808CKC	LM7808CT	JJA7808CU
-012	12	JJA 7812UC	MC 7812CT	JJA7812CKC	LM7812CT	JJA7812CU
-015	15	JJA 7815UC	MC 7815CT	JJA7815CKC	LM7815CT	JJA7815CU
-018	18	JJA 7818UC	MC 7818CT	JJA7818CKC	LM7818CT	JJA7818CU

PART NUMBER 125006-XXX SEE TABULATION

REV	DESCRIPTION	APP/DATE	DO NOT SCALE DRAWING	TOLERANCES: .XX± ANGULAR .XXX± ±		Cipher data products, inc.		CODE
B	CR10 8576	5/22/78						109
C	ECO 5410	5/13/78						
D	ECO 12499	5/14/78						

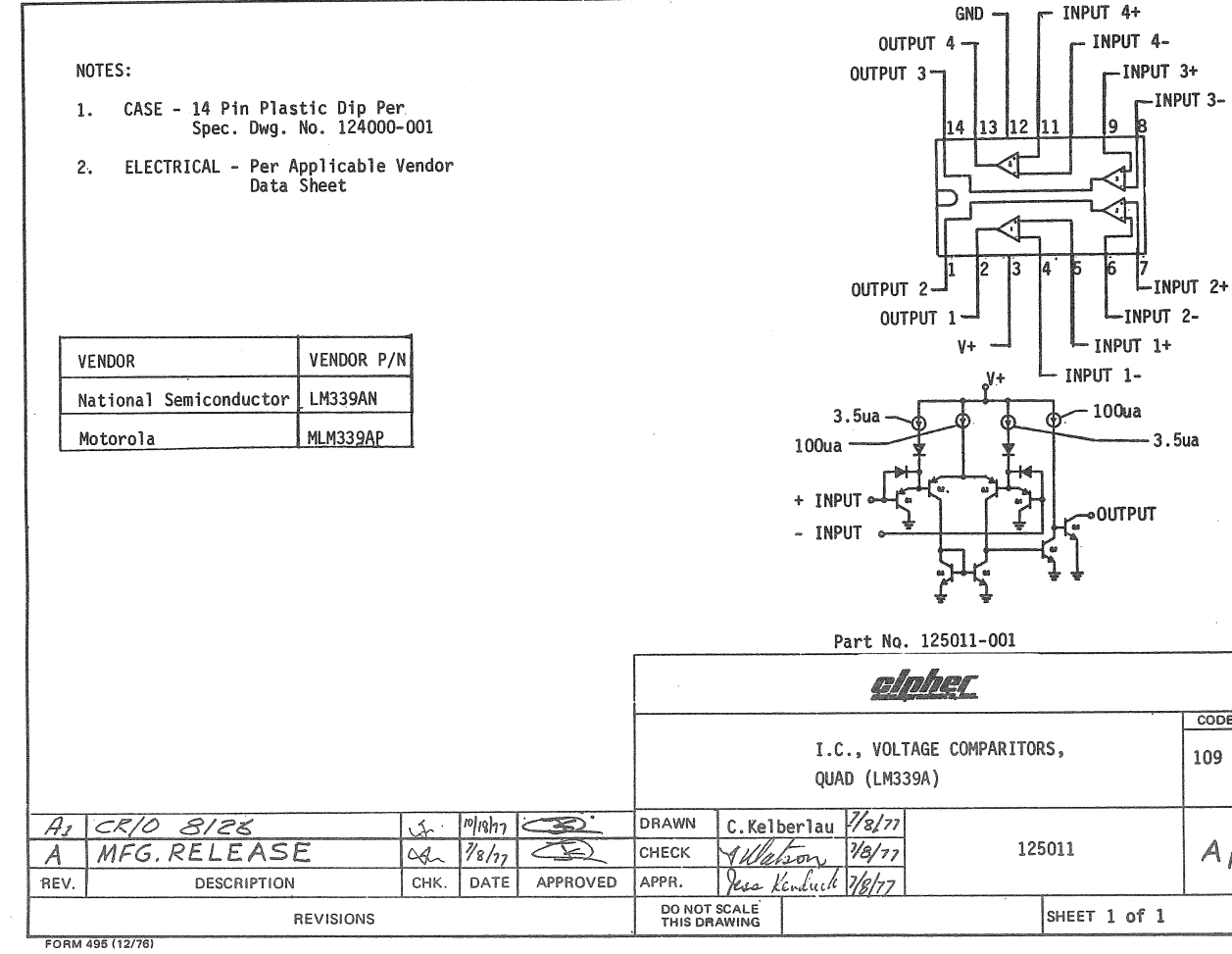
I.C., POSITIVE 3 TERMINAL REGULATOR (TO-220 TYPE CASE, 7800 SERIES)

REV	DESCRIPTION	APP/DATE	DRAWN	CHECK	APPR.	CODE IDENT	SHEET 1 OF 1
			L. HALE 5/22/78	V. WATSON 5/22/78	J. KENDRICK 5/22/78	125006-000 D	

I.C., VOLTAGE COMPARITORS, QUAD (LM339A)

Cipher
data products, inc.
GARDEN GROVE DIVISION

125011 SHT. 1 of 1

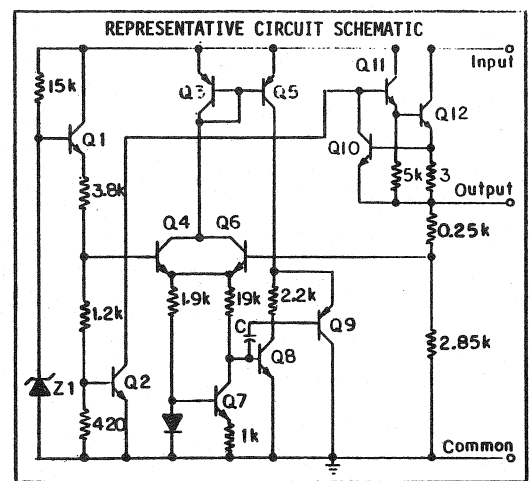


THIS DRAWING CONTAINS PROPRIETARY INFORMATION AND IS UNCLASSIFIED BY DATE 08/26/77 PER PERMSSION OF THE COMMERCIAL MEMORY PRODUCTS DIVISION

125017-000

DESCRIPTION:
 1. CASE: TO-92 (JEDEC)
 2. ELECTRICAL: Per Applicable Vendor Data Sheets.

P-E P/N	VOLTAGE	MOTOROLA P/N	FAIRCHILD P/N
125017-005	5	MC78L05CP	UA78L05AMC
-012	12	MC78L12CP	UA78L12AMC
-015	15	MC78L15CP	UA78L15AMC



P SUFFIX CASE 29 TO-92

Pin 1. Output
 2. Ground
 3. Input



PART NUMBER 125017-XXX SEE TABULATION

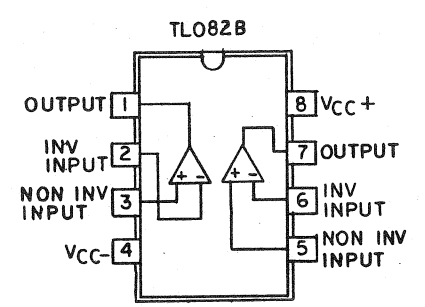
REV	DESCRIPTION	DATE	BY	CHKD	APPD	DO NOT SCALE DRAWING	TOLERANCES	MODEL	NEXT ASSY	CODE
A	MFG REL	8/26/77				DO NOT SCALE DRAWING TOLERANCES .XX± ANGULAR .XXX± ± MODEL I.C., POSITIVE 3-TERMINAL REGULATOR (78L00CP SERIES) CODE 109		DRAWN M.R. HOWARD 8/16 CHECK J. WATSON 8/26/77 APPR J. KENDRICK 8/26/77	125017-000 CODE IDENT 52465 SHEET 1 OF 1	C
B	REVISE PERMANENT	10/1/79								
C	ECO 10975	11/1/82								

FORM 201 (R 1-78) BISHOP GRAPHICS/ACCUPRESS

125040-000

- NOTES:
 1. ELECTRICAL CHARACTERISTICS: PER APPLICABLE VENDOR DATA SHEET.
 2. PACKAGE: 8 PIN DIP PER CIPHER DATA PRODUCTS SPEC DWG NO. 124000-003

VENDOR	VENDOR PART NO.
TEXAS INST.	TL082BP
RCA	CA3240E
NATIONAL	LF353N



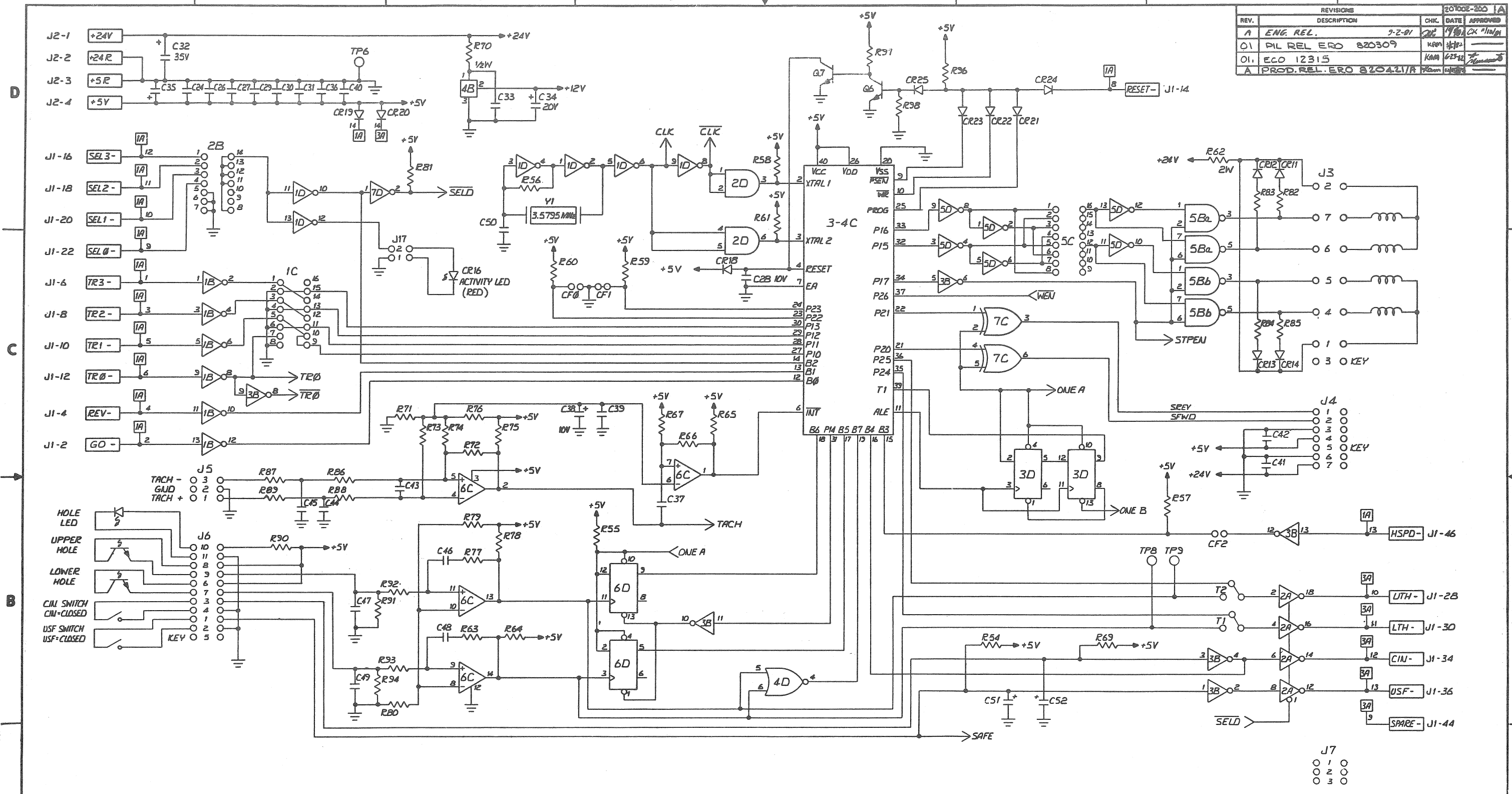
- 125040-0XX STANDARD PART
 125040-1XX BURNED-IN IN ACCORDANCE WITH CIPHER DATA PRODUCTS SPEC NO. 190000.

PART NUMBER 125040-XXX DSC: R

REV	DESCRIPTION	DATE	BY	CHKD	APPD	DO NOT SCALE DRAWING	TOLERANCES	MODEL	NEXT ASSY	CODE
A	PROD. REL.	8/26/77				DO NOT SCALE DRAWING TOLERANCES .XX± ANGULAR .XXX± ± MODEL I.C., J-FET INPUT OPERATIONAL AMPLIFIER (TL082B) CODE 109		DRAWN T.LINDMAN 1-29-82 CHECK Kam Makhsos 2/1/82 APPR J. Kendrick 7/30/82	125040-000 CODE IDENT 52465 SHEET 1 OF 1	A

FORM 201 (R 11/80)

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	ENG. REL.	J-2-81	11/11/81	CK #11/81
01	PIL REL ERO 820309	KMM	11/11/81	
01	E.C.O 12315	KMM	6/23/82	
A	PROD. REL. ERO 820421/A	KMM	11/11/81	



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1. USE PARTS LIST 207002-001 OR 002.
NOTES: UNLESS OTHERWISE SPECIFIED

I C DESIGNATORS								REF DESIGNATORS					
LOCATION	TYPE	PWR	GND	LOCATION	TYPE	PWR	GND	LOCATION	TYPE	PWR	GND	LAST USED	NGT USED
1A	220/330 TERM	14	7	6C	LM339	3	12	4E	9602	16	8	C52	
2A	74S240	20	10	7C	74LS86	14	7	7E	LM379	-	36B	CR25	CR15, CR17
1B, 3B, 1D, 5D	74LS04	14	7	2D	74LS09	14	7	6E	74LS00	14	7	L10	
4B	MATHEUR/MC	-	3	3D, 6D, 5E	74LS74	14	7	5F, 7F	NE552A	2, 5, 6, 9, 13	-	R38	R68
5Ba, 5Bb	75452B	8	4	4D	74LS02	14	7	2E	QT 2905	-	-	TP9	
3-4C	8048	40, 26	20, 7	7D	7406	14	7	3A	220/330 TERM	16	8	41	
				2G	75451B	8	4					Q7	

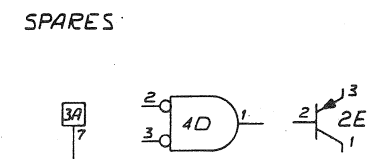
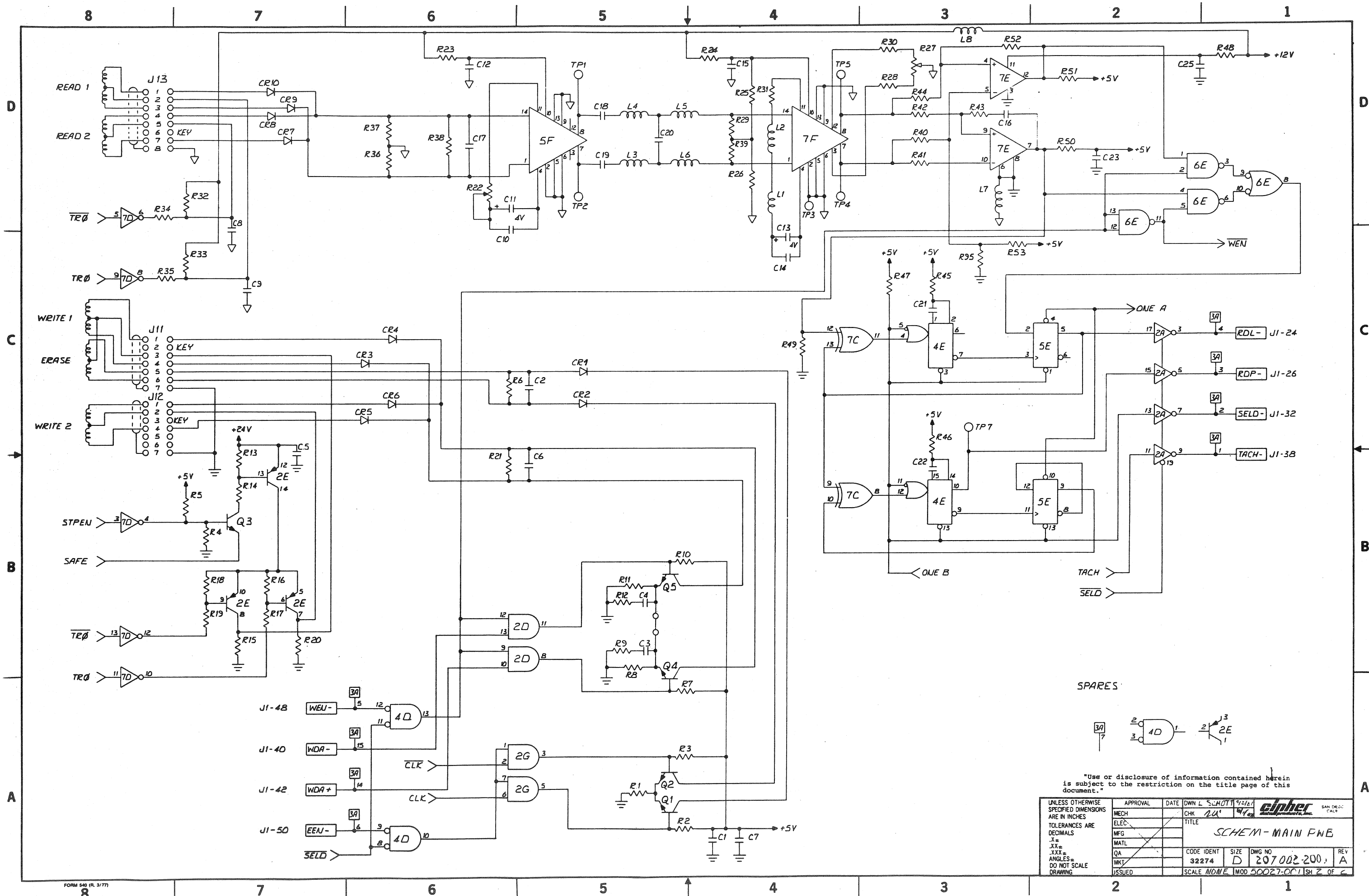
DESC: R

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE DECIMALS

APPROVAL: [Signature] DATE: 11-11-81
 MECH: [Signature] DATE: 11-12-81
 ELEC: [Signature] DATE: 11-13-81
 MFG: [Signature] DATE: 11-13-81
 MATL: [Signature] DATE: 11-13-81
 QA: [Signature] DATE: 11-13-81
 MGT: [Signature] DATE: 11-13-81
 ISSUED: [Signature] DATE: 11-13-81

OWN: L. SCHOTT 11/11/81
 CHK: JIN 11/11/81
 TITLE: SCHEM-MAIN PWB
 CODE IDENT: 92274
 SIZE: D
 DWG NO: 207002-200
 REV: A
 SCALE: NONE
 MOD: 50027-001 SH 1 OF 2

13. 7 6 5 4 3 2 1



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UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE DECIMALS .X = .XX = .XXX = ANGLES = DO NOT SCALE DRAWING	APPROVAL	DATE	DWN L. SCHOTT 9/2/61	alphac SAN DIEGO, CALIF.
MECH	CHK	10/1/61		
ELEC	TITLE			
MFG				
MATL				
QA	CODE IDENT	SIZE	DWG NO	REV
MKT	32274	D	207002-200	A
ISSUED	SCALE	NONE	MOD 50027-001 SH 2 OF 2	

8

7

6

5

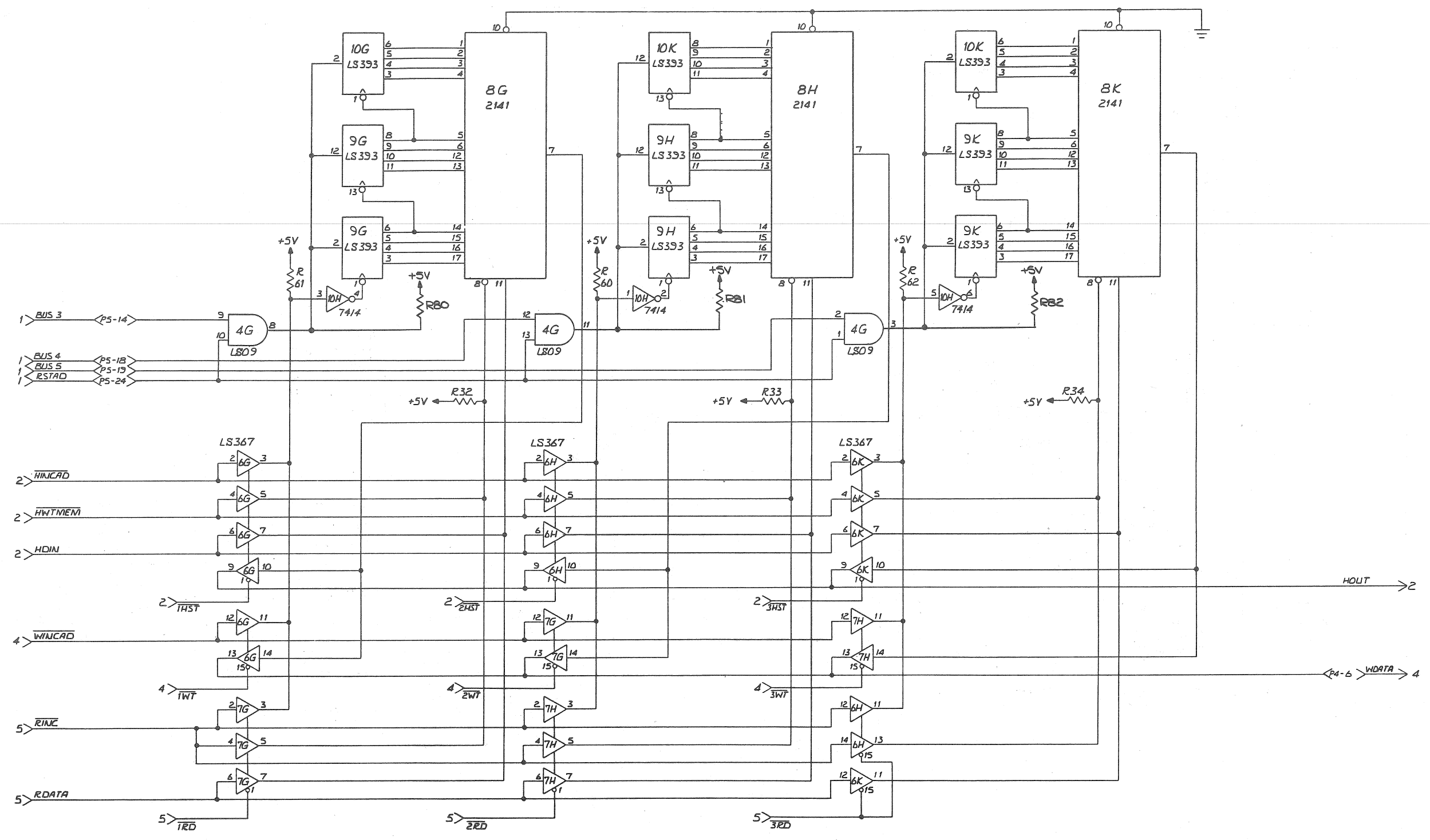
4

3

2

1

BUFFER MEMORIES



8

7

6

5

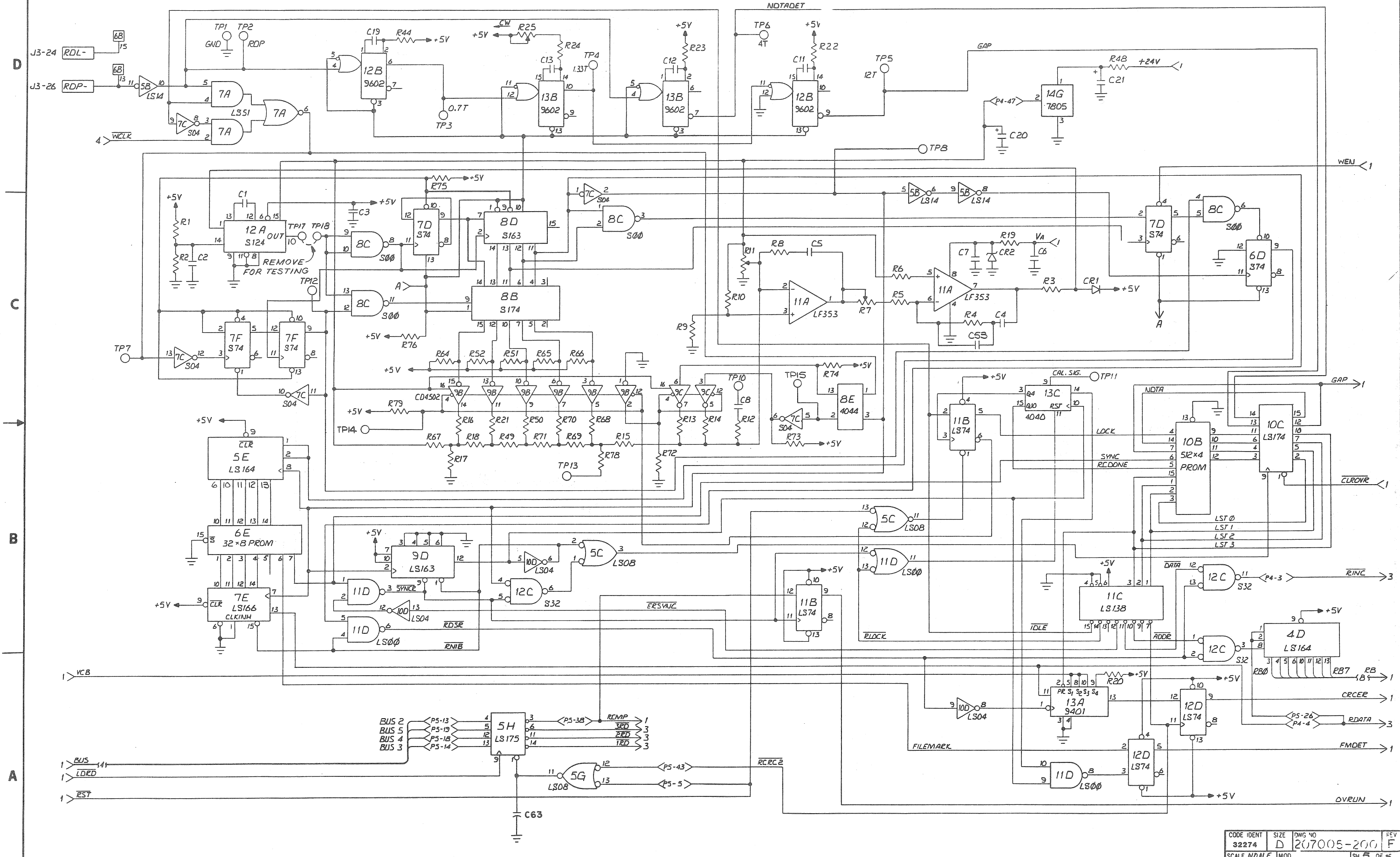
4

3

2

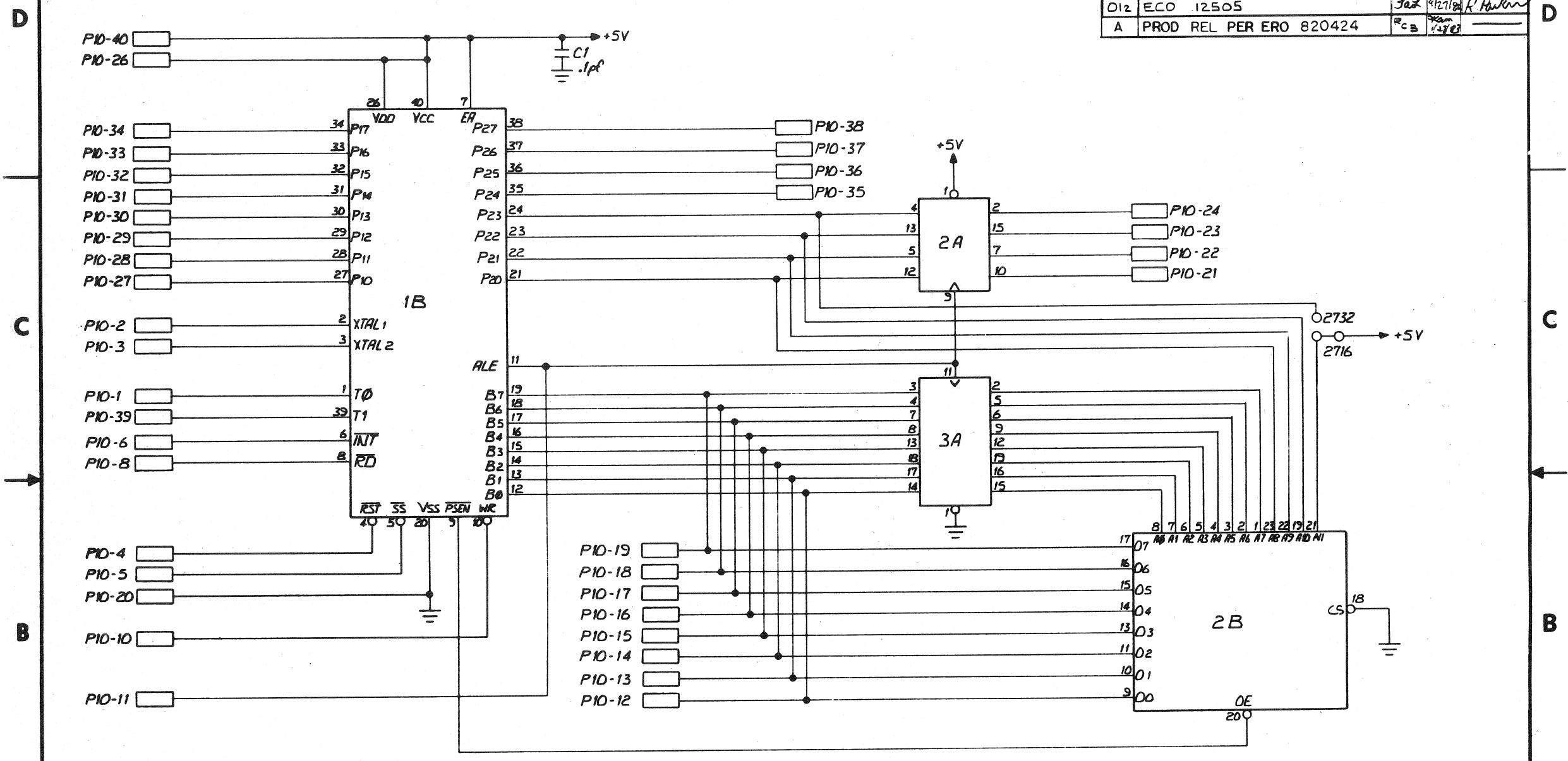
CODE IDENT	SIZE	DWG NO	REV
32274	D	207005-200	F
SCALE	MOD	SH	OF
1	360601-300	3	2

READ LOGIC



CODE IDENT	SIZE	DWG NO	REV
32274	D	207005-200	F
SCALE NDA/E MOD		SH 5 OF 5	

REVISIONS				207011-200	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
A	ENG REL 8-30-81	ZVD	9/1/81	CA 11/3/81	
O1	PIL REL ERO 82030A	KAM	3/5/82		
O1	ECO 12442	KAM	9/21/81	R. Parker	
O12	ECO 12505	Jax	9/21/81	R. Parker	
A	PROD REL PER ERO 820424	ECB	12/81		



IC DESIGNATORS				REF DESIGNATORS	
LOCATION	TYPE	PWR	GND	LAST USED	NOT USED
1B	8035	7,26,40	20	C1	
2B	2716/2732	24	12,18		
2A	74LS175	1,16	8		
3A	74LS373	20	1,10		

D & D MGR	W. Jordan	8-11-81
ME MGR	W. Jordan	8-12-81
DOC MGR	W. Jordan	11-12-81
UL/CSA	W. Jordan	11/1/81

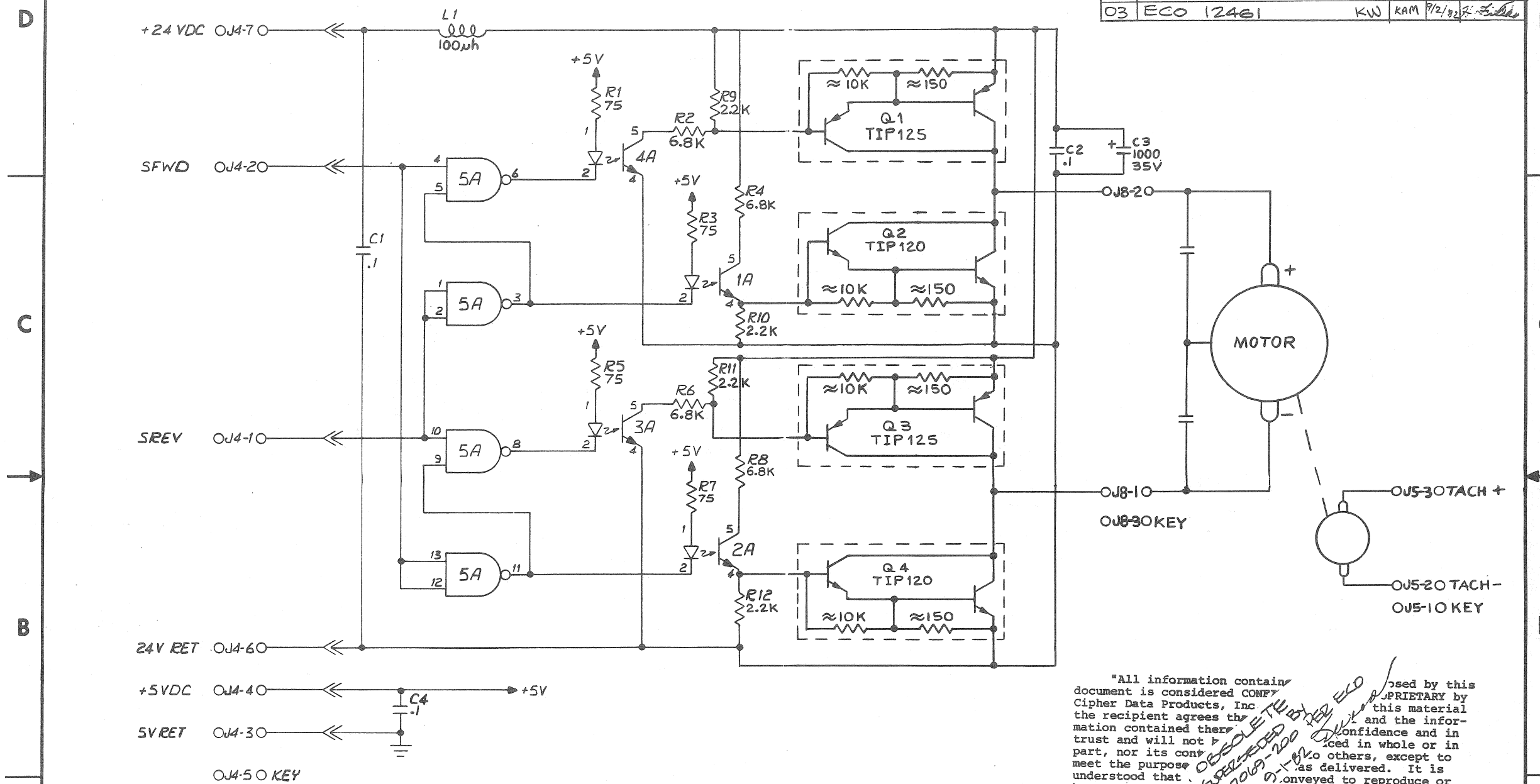
DSC: R

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		TOLERANCES ARE DECIMALS		.X =		.XX =		.XXX =		ANGLES =		DO NOT SCALE DRAWING	
APPROVAL	DATE	DWN L. SCHOTT	8/30/81	MECH	W. Jordan	11/18/81	CHK	ZVD	9/1/81	TITLE			REV
ELEC										SCHEM-MICROCOMPUTER EXPANDER, PWB (VERSION 2)			
MFG										CODE IDENT			
MKT										SIZE			
ISSUED										DWG NO			
SCALE NONE										MOD 40041-001 SH 1 OF 1			

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NOTES: UNLESS OTHERWISE SPECIFIED

REVISIONS				207017-200 13	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
A	ENG REL		8-29-81		
01	PIL REL ECO 820309	KAM	3/5/82		
02	ECO 12179	HS	4/27/82		
03	ECO 12461	KW	7/2/82		



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D & D MGR	11/11/81
ME MGR	11/12/81
DOC MGR	11/12/81
UL/CSA	11/11/81

HISTORICAL RECORD
DO NOT DESTROY
Q-10B

DSC: 7

APPROVAL	DATE	DWN L. SCHOTT	8/25/81	
MECH	11/18/81	CHK	7/10	
ELEC	10/15/81	TITLE		
MFG	30/08/81			
MATL				
QA	11/18/81	CODE IDENT	32274	
MKT	11/18/81	SIZE	C	
ISSUED	11/18/81	DWG NO	207017-200	
		REV	03	
		SCALE	MOD 40012-001	
		SH	1 OF 1	

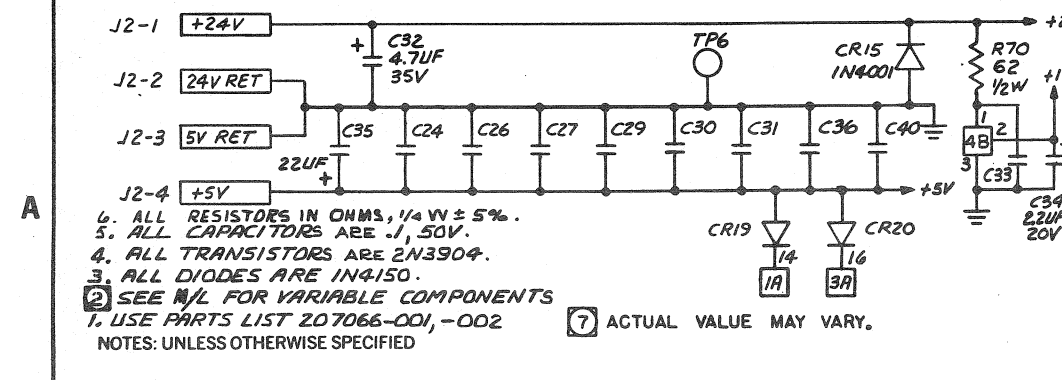
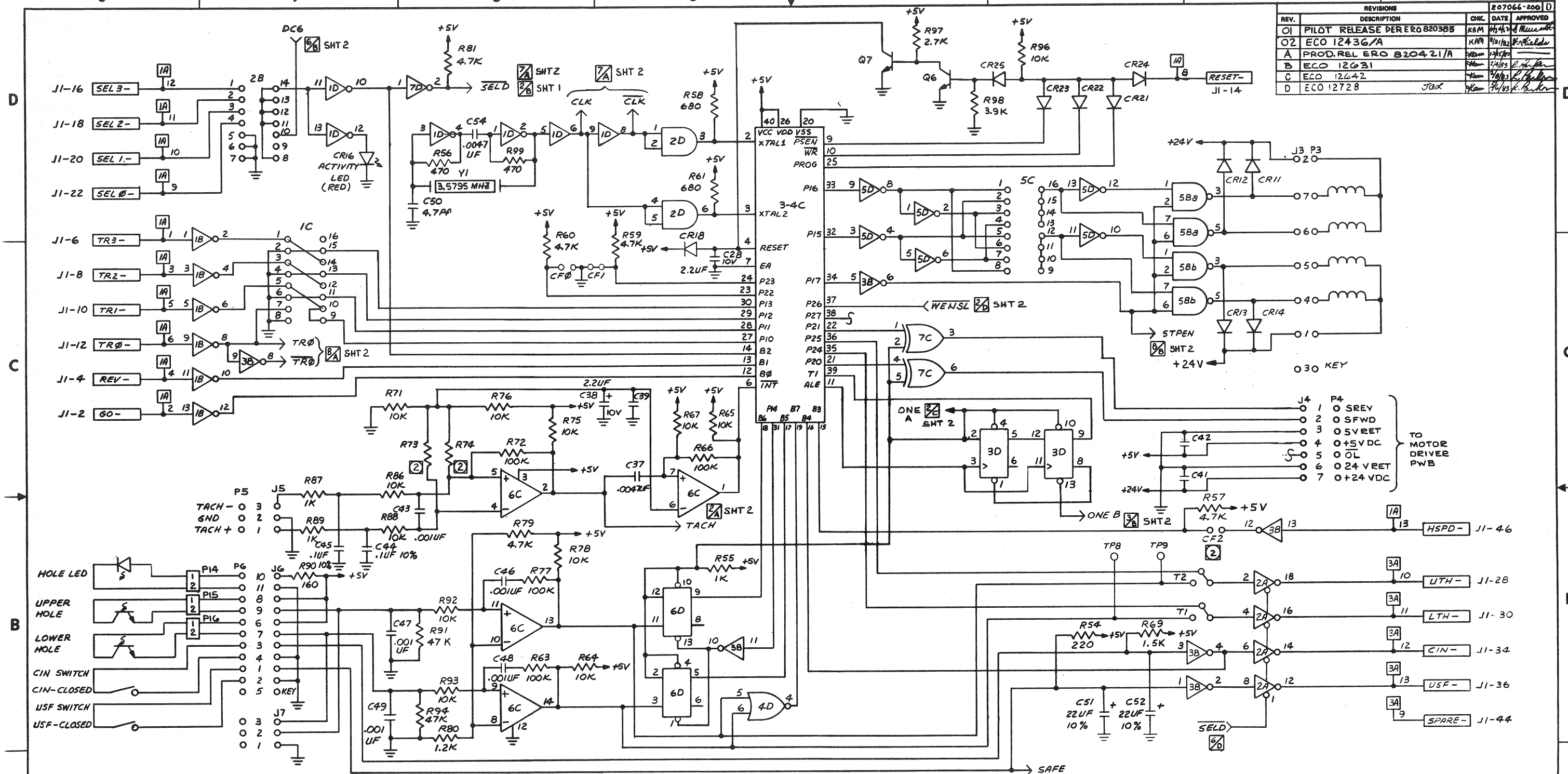
IC DESIGNATORS				REF DESIGNATORS	
LOCATION	TYPE	PWR	GRID	LAST USED	NOT USED
1A, 2A, 3A, 4A	4N2B	-	-	C4	
5A	743B	14	7	L2	
				R12	
				Q4	

2. ALL CAPACITORS IN MICROFARADS.
1. ALL RESISTORS IN OHMS, 1/4W, 5%
NOTES: UNLESS OTHERWISE SPECIFIED

FORM 380 (R. 10/77)

1 360601-301

REV.	DESCRIPTION	CHK.	DATE	APPROVED
O1	PILOT RELEASE DER ERO B20385	KAM	4/14/82	[Signature]
O2	ECO 12436/A	KAM	4/14/82	[Signature]
A	PROD. REL. ERO B20421/A	[Signature]	4/14/82	[Signature]
B	ECO 12631	[Signature]	4/14/82	[Signature]
C	ECO 12642	[Signature]	4/14/82	[Signature]
D	ECO 12728	Jax	4/14/82	[Signature]



I.C. DESIGNATORS				REF DESIGNATORS			
LOCATION	TYPE	PWR	GND	LOCATION	TYPE	PWR	GND
1A	1801390 74LS14	14	7	6C	LM339	3	12
2A	74LS240	20	10	7C	74LS86	14	7
1B, 3B, 12, 5D	74LS04	14	7	2D	74LS09	14	7
4B	74LS15	14	7	6E	74LS00	14	7
5B, 5Bb	74LS28	8	4	5F, 7F	NE592A	—	—
3-4C	8048	20, 26	7	7D	7406	14	7
2G	74LS1B	8	4	—	—	—	—

NOTES UNLESS SPECIFIED:

- TOLERANCES: .XX ± ANGULAR .XXX ±
- BREAK ALL SHARP EDGES APPROX. .010
- MACH. SURFACES
- ALL DIMS IN INCHES.
- DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT

PART NUMBER: 207066-200

SCALE: D

SIZE: 207066-200

CODE: 108

REV: D

DATE: 4-28-82

CHECK: [Signature]

APPR: [Signature]

FINISH: [Signature]

MODEL No. 0420-30190

NEXT ASSY:

DSC: R

DO NOT SCALE THIS DRAWING

CODE IDENT: 52465

SHEET 1 OF 2

6. ALL RESISTORS IN OHMS, 1/4 W ± 5%.

5. ALL CAPACITORS ARE .1, .50V.

4. ALL TRANSISTORS ARE 2N3904.

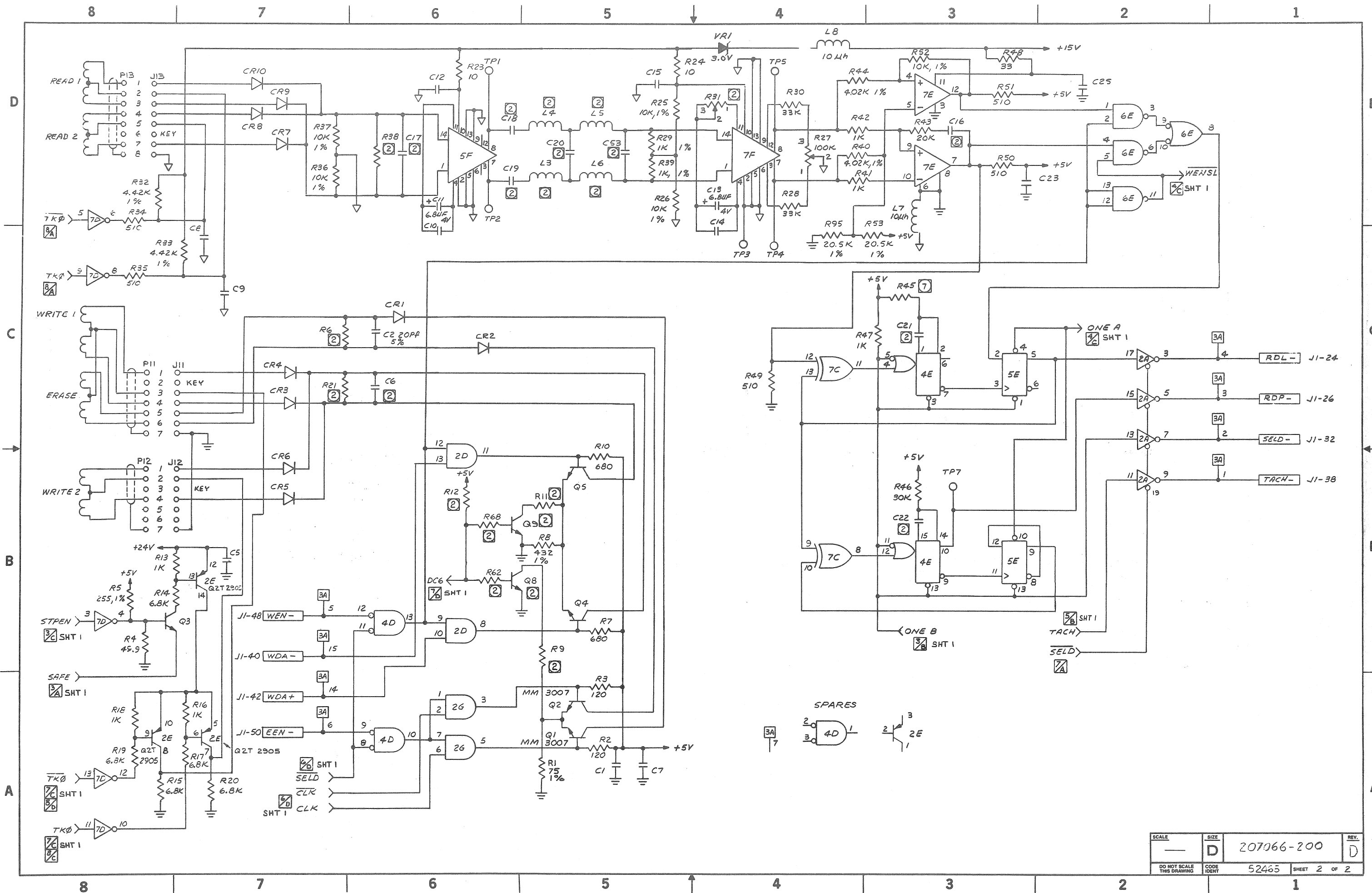
3. ALL DIODES ARE IN4150.

2. SEE M/L FOR VARIABLE COMPONENTS

1. USE PARTS LIST 207066-001, -002

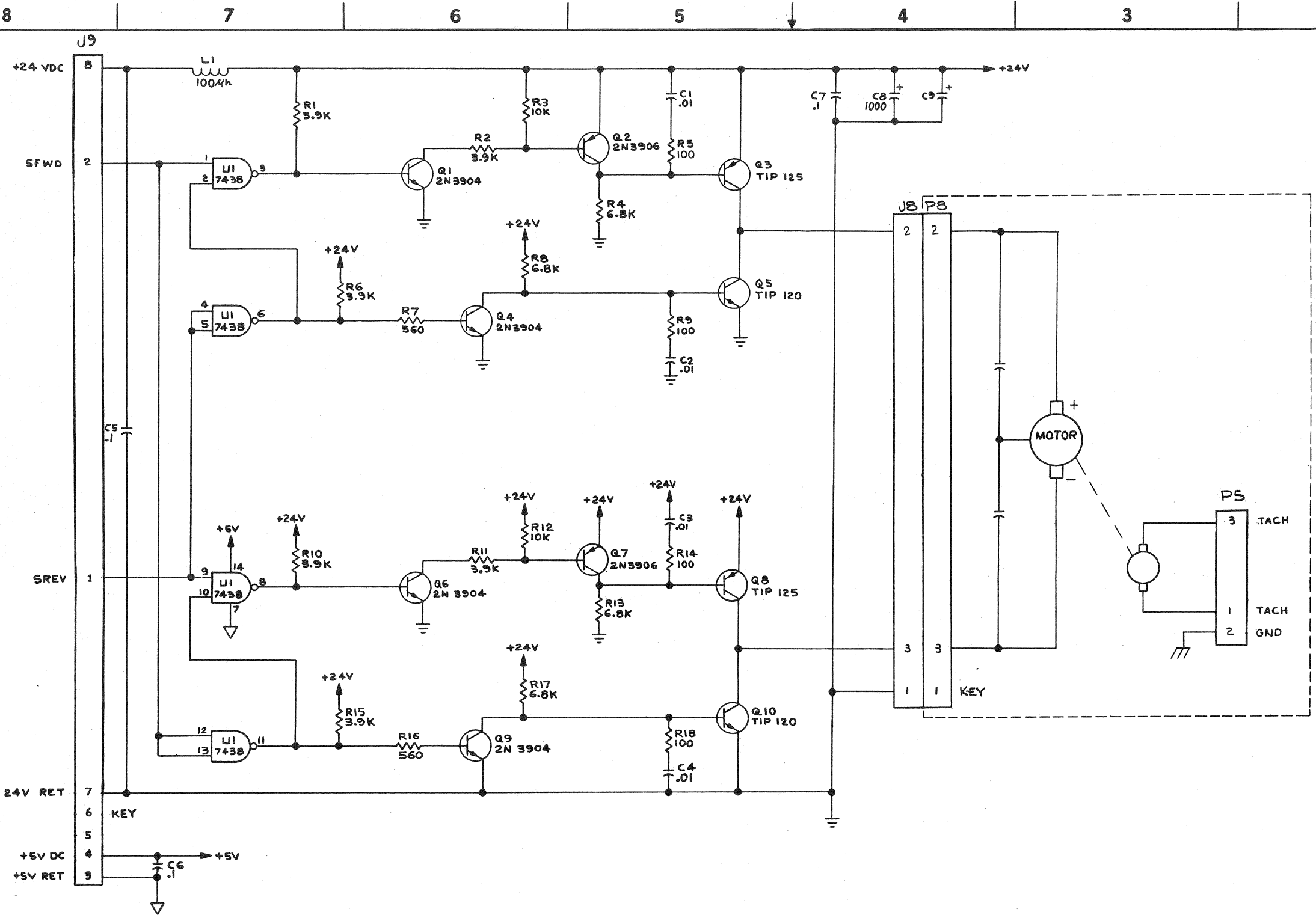
NOTES: UNLESS OTHERWISE SPECIFIED

ACTUAL VALUE MAY VARY.



SCALE	SIZE	REV.
	D	D
DO NOT SCALE THIS DRAWING	CODE IDENT	SHEET
	207066-200	2 OF 2
	52465	

REVISIONS				207069-200	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
01	PILCT PEL PER ERO 820561	KW	5-11-81		
02	ECO 12382	JAX	4/13/82		
A	PROD. REL ERO 820421/A	JBM	12/82		
B	ECO 12592	JBM	2-1-83		



HISTORICAL RECORD
DO NOT DESTROY

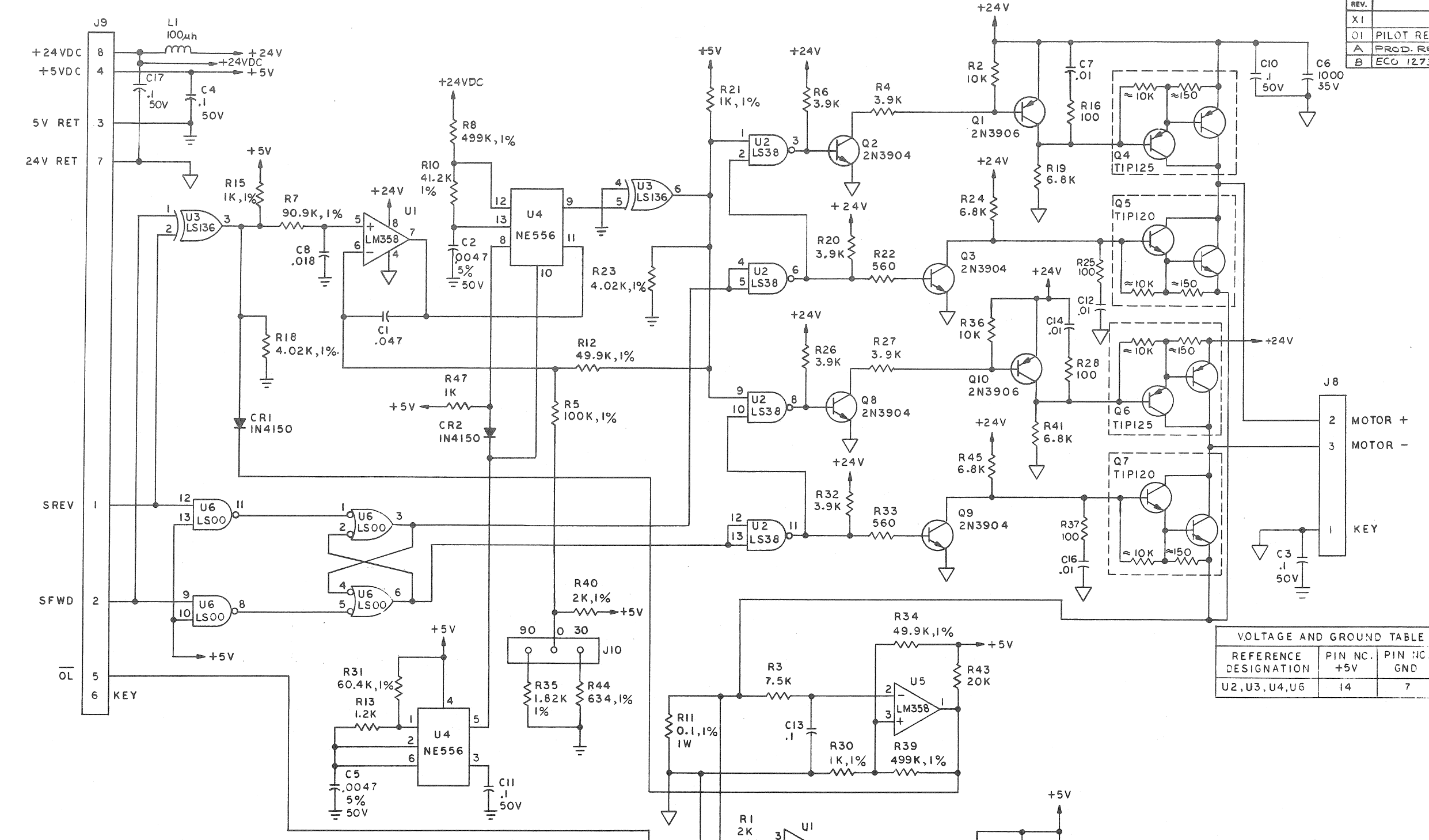
OBsolete
REPLACED BY: 20707-200
CR/O #: 12592
DATE: 2-1-83

2. ALL CAPACITOR VALUES ARE IN MICROFARADS.
1. ALL RESISTOR VALUES ARE IN OHMS ±5%, 1/4W
NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER 207069-200

NOTES UNLESS SPECIFIED 1. TOLERANCES XX = ANGULAR XXX = 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	DRAWN: Howard H. Smith 4/5/82 CHECK: K. M. Mahan 4/6/82 APPR: J. L. St. John 5/13/82		THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS INC.		
	MATERIAL:		SCHEMATIC		CODE Q 108
	FINISH:		PWB, MOTOR DRIVER		REV. 3
	MODEL No. QUARTERBACK		SCALE NONE	SIZE D	207069-200
	NEXT ASSY 207358 & 207359		DO NOT SCALE THIS DRAWING	CODE IDENT 52465	SHEET 1 OF 1

REVISIONS				207076-200
REV.	DESCRIPTION	CHK.	DATE	APPROVED
X1				
01	PILOT REL PER ERC 800448	KAM		
A	PROD. REL PER ERC 820448	PLM		
B	ECO 12738	PLM		



VOLTAGE AND GROUND TABLE

REFERENCE DESIGNATION	PIN NO. +5V	PIN NO. GND
U2, U3, U4, U6	14	7

2. ALL CAPACITOR VALUES IN MICROFARADS ±10%, 100VDC
 1. ALL RESISTOR VALUES IN OHMS ±5%, 1/4 W
 NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER 207076-200

NOTES UNLESS SPECIFIED	DRAWN T. LIIMATI 7-21-82	 Garden Grove Division	THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE REPRODUCED OR IN PART, BE DUPLICATED, COPIED, CLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS INC.
1. TOLERANCES .XX± ANGULAR .XXX± 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	CHECK 98m Makhari 10/5/82 APPR. R. B. Baker 10/21/82 MATERIAL FINISH MODEL No. QUARTERBACK NEXT ASSY			SCALE NONE SIZE D 207076-200 DO NOT SCALE THIS DRAWING CODE IDENT	SHEET 1 OF 1

SECTION 2

ASSEMBLY DRAWINGS

2.1 INTRODUCTION

This section contains the assembly drawings and material lists for all the assemblies in the Quarterback Tape Drive. These documents are listed in paragraph 2.2. Logic schematics are provided in Section 1 of this Engineering Drawing Package.

The assembly drawings identify every part on any given assembly. Parts are identified either by item number; (e.g., 1, 2, 3, etc.) or by circuit reference number (e.g., R1, C1, U1, etc.). The associated material lists incorporate these identification numbers, together with part description, Cipher part number, and part quantity, i.e., the quantity of a particular part required for a given assembly.

2.2 ASSEMBLY DRAWINGS

The following assembly drawings are provided in numerical sequence, as listed. Included are related material lists.

	Dwg. No.
Assembly, Main PWB . . . . .	.207002-100
Assembly, Controller . . . . .	.207005-100
Assembly, Microcomputer Expander PWB . . . . .	.207011-100
Assembly, Motor Driver PWB . . . . .	.207017-100
Assembly, Main PWB . . . . .	.207066-100
Assembly, Motor Driver PWB . . . . .	.207069-100
Assembly, Diode/Slow Speed Motor Kit 30 lps . . . . .	.207072-100
Assembly, Cable-Motor Driver PWB . . . . .	.207073-100
Assembly, Motor Driver PWB . . . . .	.207076-100
Outline Drawing, Basic Cartridge Tape Drive . . . . .	.207302-001
Outline Drawing, Intelligent Cartridge Tape Drive . . . . .	.207303-001
Assembly, Main Frame . . . . .	.207304-100
Assembly, Drive Motor . . . . .	.207314-100
Assembly, Sensor . . . . .	.207324-100
Assembly, Sensor Harness . . . . .	.207326-100
Assembly, Carriage . . . . .	.207329-100
Pictorial, MTT F420 . . . . .	.207350-100
Pictorial, MTT 0420 . . . . .	.207358-100
Assembly, Main Frame . . . . .	.207393-100
Assembly, Ground Strap Cable . . . . .	.207394-100

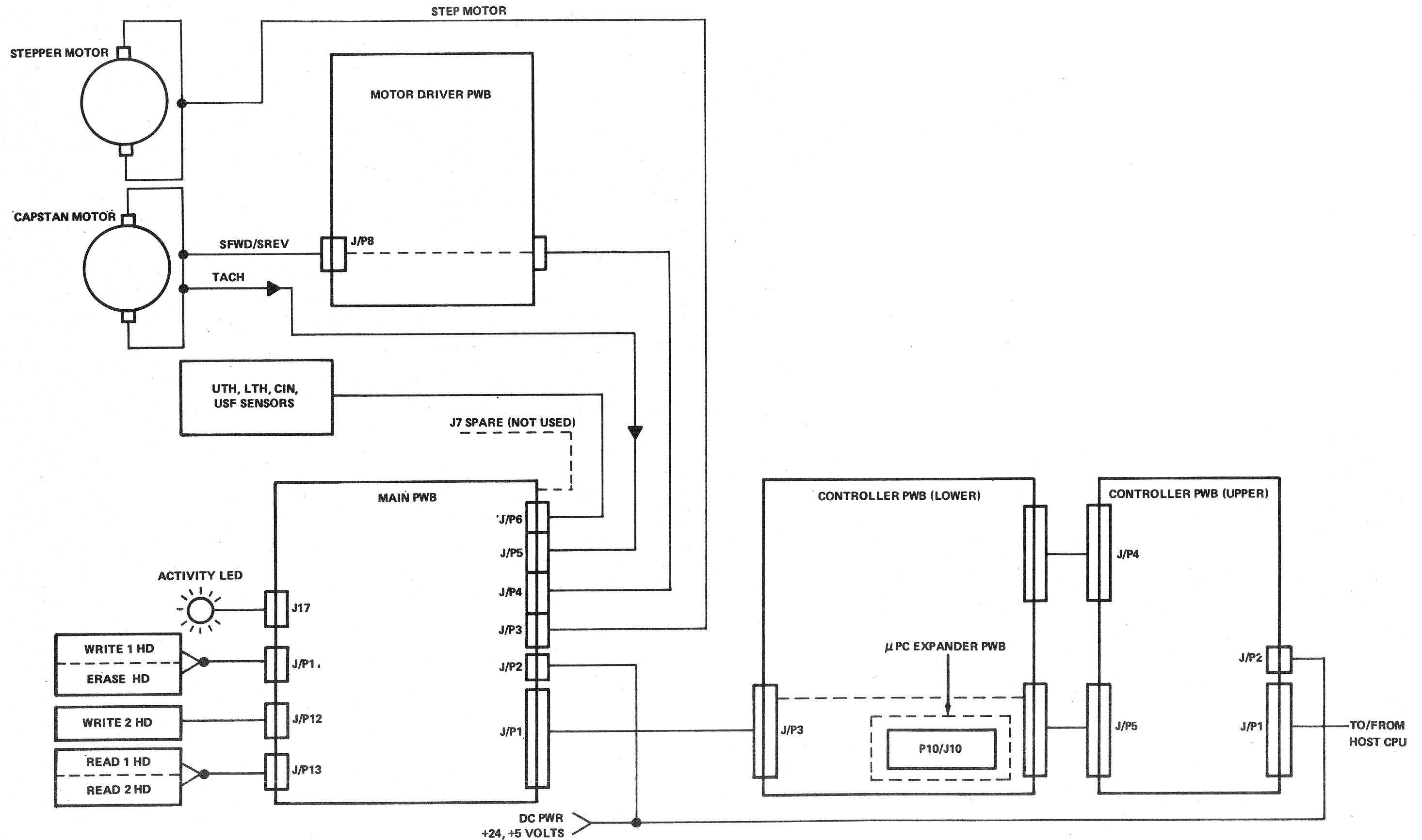


FIGURE 2-1. QUARTERBACK INTELLIGENT TAPE DRIVE, INTERCONNECT DIAGRAM

8

7

6

5

4

3

2

1

REVISIONS				207002-100	
REV	DESCRIPTION	CHK	DATE	APPROVED	
A	ENG REL	ZVS	11/18/81	CK	11/18/81
O1	PIL REL ERO 820309	KAM	3/5/82		
O2	ECO 12315	KAM			
A	PROD. REL ERO 820421/A	KAM	12/1/82		

REMOVE PIN 6 OF J13 FLUSH WITH HEADER BODY WITHIN .03

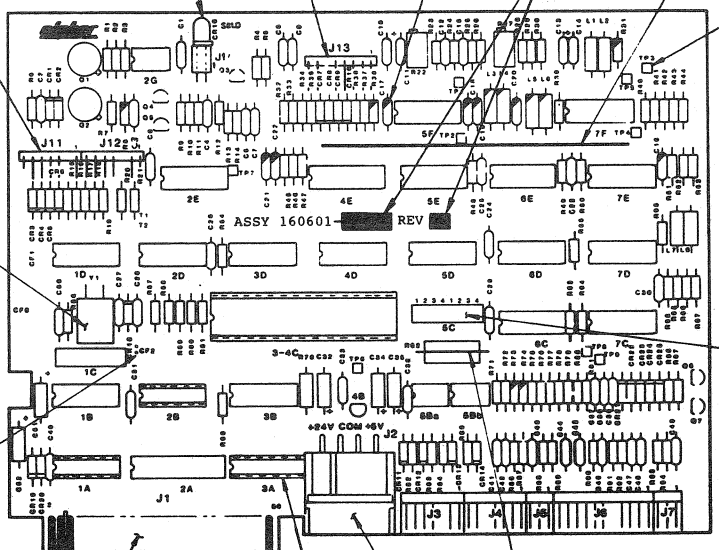
MOUNT LED FLUSH TO -.03 TO EDGE OF PWB.

REMOVE PIN 2 OF J11 AND PIN 3 OF J12 FLUSH WITH HEADER BODY WITHIN .03

APPLY .25 LG PIECE OF ITEM 140 TAPE TO Y1 AND STICK FIRMLY TO PWB. NOTE, CLEANING SOLVENTS WILL ATTACK ADHESIVE

INSTALL JUMPER AT CF2 ON -001 ASSEMBLY ONLY

INSTALL JUMPER AT R62



93 BOS BAR-VERTICAL

102 PIN-WIRE WRAP (9-REQ'D)

- 100 CONNECTOR, PIN HOUSING (FLAT SIDE DOWN)
- 101 CONTACT, CONNECTOR (INSURE THAT PINS ARE ALIGNED IN HOUSING AFTER ASSEMBLY) 4-REQ'D
- 104 TY-RAP

.40 MAX COMPONENT HEIGHT

.062 MAX LEAD LENGTH

REMOVE PIN 3 OF J3, PIN 5 OF J4, AND PIN 5 OF J6 FLUSH WITH HEADER BODY WITHIN .03

HEADER 99

HEADER 98

- 1 INSTALL COMPONENTS 1A, 3A, 2B, AND 3-4C IN SOCKETS AFTER FLOW SOLDERING AND CLEANING
- 2 PRESS TEST POINT PINS INTO PWB PRIOR TO FLOW SOLDERING
- 3 INSTALL ITEM 103 JUMPER CLIPS ON PIN SETS 1 OF HEADER 5C
- 4 COMPONENTS MARKED WITH TRIANGLE IN CORNER HAVE UNIQUE VALUES FOR EACH ASSY VERSION
- 5 MASK CONNECTOR FINGERS PRIOR TO FLOW SOLDERING
- 6 FOR SCHEMATIC REFER TO DWG 207002-200
- 7 MARK APPROPRIATE DASH NO. AND REVISION LETTER WHERE SHOWN USING .12 IN. HIGH WHITE CHARACTERS PER CDP SPEC 100037-001.

NOTES: UNLESS OTHERWISE SPECIFIED

PART NO. SEE SEPARATE M/L

D & D MGR	11/18/81
ME MGR	
DOC MGR	11/12/81
UL/CSA	

DSC: R

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APPROVAL	DATE	OWN	L	SCHOTT	9/2/81	
MECH	11/21	CHK	ZVS	11/18/81		
ELEC	11/15/81	TITLE	ASSY, PWB-MAIN			
MFG	11/18/81	CODE IDENT	32274	SIZE	D	DWG NO
QA	11/18/81	ISSUED	11/18/81	SCALE	1:1	MOD
MKT	11/18/81	REV	A	MOD	50030-C011SH	OF 1



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207002 - 001 REV B

ASSEMBLY TITLE ASSY, PWB - MAIN - 30 IPS DSC:R DOC CODE Q 120

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes a revision table at the bottom with columns: PREPARED BY, CHECKED BY, DESIGN ENGINEER, DATE, SIGNATURE, DWG REL NO., DATE, M, M, D, D, Y, Y.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 001 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Continuation of the assembly parts list.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 001 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Continuation of the assembly parts list.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 001 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Continuation of the assembly parts list.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 001 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Continuation of the assembly parts list.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 001 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Continuation of the assembly parts list.



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207002 - 002 REV B

ASSEMBLY TITLE ASSY, FWB - MAIN - 90 IPS DSC:R DCC CODE Q 120

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include SCHEMATIC, PROCESS BOARD, I.C. 74S240, I.C. 74LS04, I.C. MA78L12, I.C. 75452, I.C. LM339, I.C. 74LS86, I.C. 74LS09, I.C. 74LS02, I.C. 74LS74, I.C. 7406, I.C. 75451, I.C. 9602.

Administrative form with fields for PREPARED BY (Sue Redmond), CHECKED BY (J.P.), DESIGN ENGINEER (J.P.), DATE (1-14-82), DWG NO. (12494), and other project details.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 002 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include I.C. LM319, I.C. NE592, ASSY, FROM - 8 BIT MICROCOMPUTER, I.C. 74LS00, SOCKET, DIP - 14 CONTACTS, SOCKET, DIP - 40 CONTACTS, SOCKET, DIP - 16 CONTACTS, HEADER, PROGRAM-DIP, TRANSISTOR, PNP Q2T2905, TRANSISTOR, NPN 2N3904, TRANSISTOR, NPN MM3007, DIODE 1N4150, LED, INDICATOR MV5054-2, CRYSTAL - 3.579545 MHz, RESISTOR, 1/2w +5% 120, RESISTOR, 1/2w +5% 4.7K, RESISTOR, 1/2w +5% 470, RESISTOR, 1/2w +5% 680, RESISTOR, 1/2w +5% 10K, RESISTOR, 1/2w +5% 33K, RESISTOR, 1/2w +5% 100K.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 002 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include RESISTOR, 1/2w +5% 160, RESISTOR, 1/2w +5% 47K, RESISTOR, 1/2w +5% 1.2K, RESISTOR, 1/2w +5% 100, RESISTOR, 1/2w +5% 47, RESISTOR, 1/2w +5% 6.8K, RESISTOR, 1/2w +5% 120, RESISTOR, 1/2w +5% 510, RESISTOR, 1/2w +5% 30K, RESISTOR, 1/2w +5% 10, RESISTOR, 1/2w +5% 220, RESISTOR, 1/2w +5% 33, RESISTOR, 1/2w +5% 1K, RESISTOR, 1/2w +5% 3K, RESISTOR, 1/2w +5% 20K, RESISTOR, 1/2w +5% 1.5K, RESISTOR, 1/2w +5% 2.7K, RESISTOR, 1/2w +5% 3.9K, RESISTOR, 1/2w +1% 255, RESISTOR, 1/2w +1% 75, RESISTOR, 1/2w +1% 4.42K.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 002 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include RESISTOR, 1/2w +1% 10K, RESISTOR, 1/2w +1% 1K, RESISTOR, 1/2w +1% 432, RESISTOR, 1/2w +1% 1.37K, RESISTOR, 1/2w +1% 4.02K, RESISTOR, 1/2w +1% 20.5K, TERMINATOR - 14 PIN 220/330 OHM, TERMINATOR - 16 PIN 220/330 OHM, POTENTIOMETER 1/2w, 100K, CAP., TANT. 35v +20% 4.7uf, CAP., TANT. 10v +20% 22uf, CAP., TANT. 10v +20% 2.2uf, CAP., TANT. 20v +20% 2.2uf, CAP., TANT. 4v +20% 6.8uf, CAP., CER. 50v -20+80% .1 uf, CAP., CER. 50v +10% .1 uf, CAP., CER. 50v +10% .001 uf, CAP., CER. 50v +10% .0047uf, CAP., CER. 50v +5% 4.7pf, CAP., CER. 50v +5% 330pf.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 002 REV B

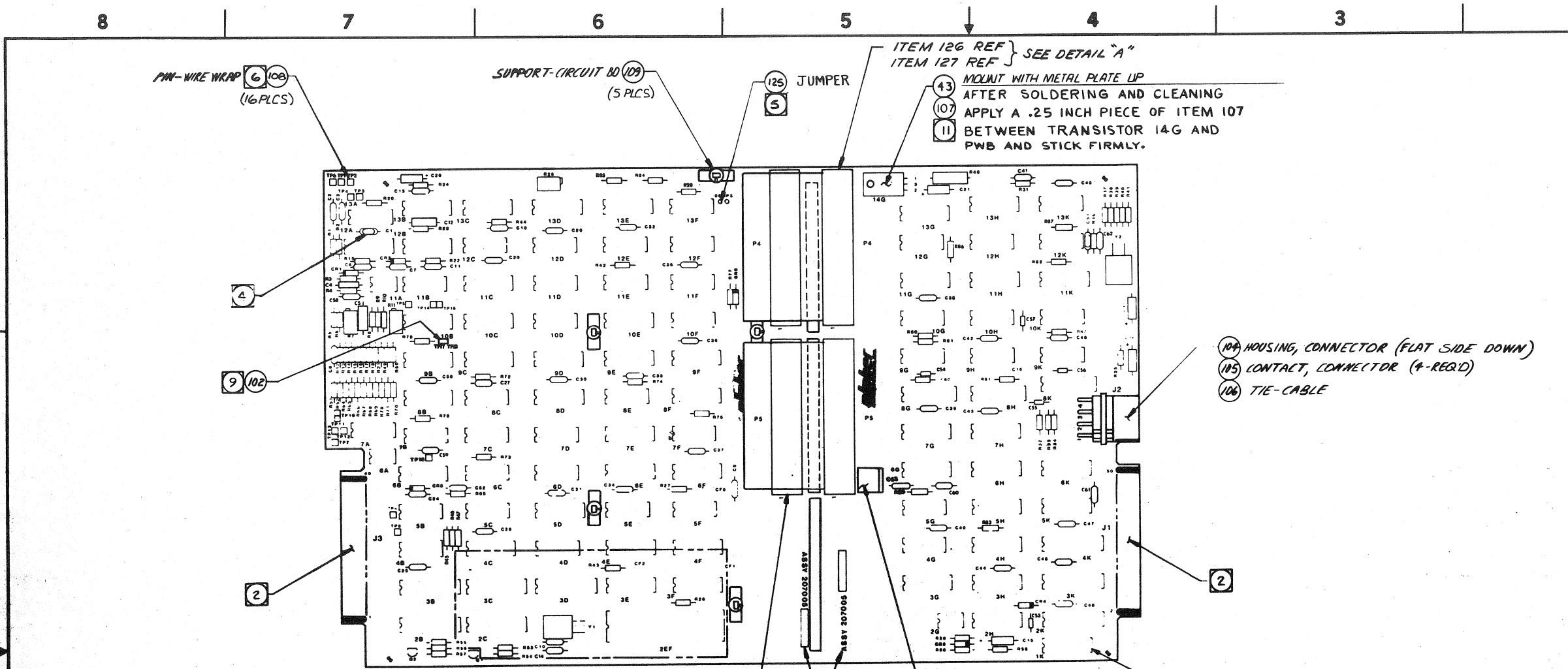
Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include CAP., CER. 50v +5% 300pf, CAP., CER. 50v +5% 75pf, CAP., CER. 50v +5% 33pf, CAP., CER. 50v +5% 20pf, INDUCTOR 56uh +5%, 164ma, INDUCTOR 10uh +5%, 290ma, INDUCTOR 240uh +5%, 101ma, INDUCTOR 120uh +5%, 124ma, BUS BAR - VERTICAL, PAD, TRANSISTOR, TO-5, HEADER, DOUBLE ROW, STRAIGHT, HEADER, RIGHT ANGLE, HEADER, RIGHT ANGLE.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207002 - 002 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include HEADER, RIGHT ANGLE, CONNECTOR-HOUSING, 4 PIN, CONTACT, PIN, PIN, WIRE WRAP, .025 SQ., CLIP, JUMPER, .025 SQ. POST, TY-RAP 1/16-1 1/2, TAPE, DOUBLE COATED POLYURETHANE FOAM, WIRE, HOOKUP 26 AWG, DIODE, ZENER (1N5221) 2.4V ±10%, ASSY, DWG, PRINTED MASTER, RESISTOR, 1/4w ±1% 34.8K.



REVISIONS			207005-100	C
REV	DESCRIPTION	CHK	DATE	APPROVED
A	ENG REL	LVS	11/17/81	[Signature]
B	INCRP ECC 12192	LA	11/18/81	[Signature]
C	INCRP ECC 12291	LA	11/18/81	[Signature]
D	INCRP ECC 12307	LA	11/18/81	[Signature]
01	PIL REL ERO 820509	KAM	11/18/81	[Signature]
02	ECO 12096	AS	11/18/81	[Signature]
03	ECO 12178	BV	11/18/81	[Signature]
04	ECO 12307	ECB	11/18/81	[Signature]
05	ECO 12442	KAM	11/18/81	[Signature]
A	PROD REL ECO 230-2	ECB	11/18/81	[Signature]
B	ECO 12718	JAZ	11/18/81	[Signature]
C	ECO 12849	JAZ	11/18/81	[Signature]

- 104 HOUSING, CONNECTOR (FLAT SIDE DOWN)
- 105 CONTACT, CONNECTOR (#-REQ'D)
- 106 TIE-CABLE

- 9 ADD CLIP AFTER A.T.E. TESTING
SEE DETAIL 'A' ON SH 2
- ROUTE POWER CABLE ASSEMBLY (ITEM-3) UNDER PWB AS SHOWN. SOLDER TO HOLES 1-4, LOCATED AT REAR OF J2, AFTER FLOW SOLDERING
- PRESS TEST POINT PINS (ITEM-108) INTO PWB PRIOR TO FLOW SOLDERING
- INSTALL "90 IPS" JUMPER (A-002 ASSEMBLY ONLY)

- COMPONENTS MARKED WITH TRIANGLE IN CORNER HAVE UNIQUE VALUES FOR EACH ASSEMBLY VERSION
- 3. FOR SCHEMATIC REFER TO DWG 207005-200
- WIRE CONNECTOR FINGERS PRIOR TO FLOW SOLDERING
- 1. STAMP DASH NO. AND REV LTR USING A PERMANENT AND LEGIBLE MARKING METHOD, (2- PLACES)

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PART NO. SEE SEPARATE M/L

D & D MGR	[Signature]	11/18/81
ME MGR	[Signature]	11/18/81
DOC MGR	[Signature]	11/18/81
UL/CSA	[Signature]	11/18/81

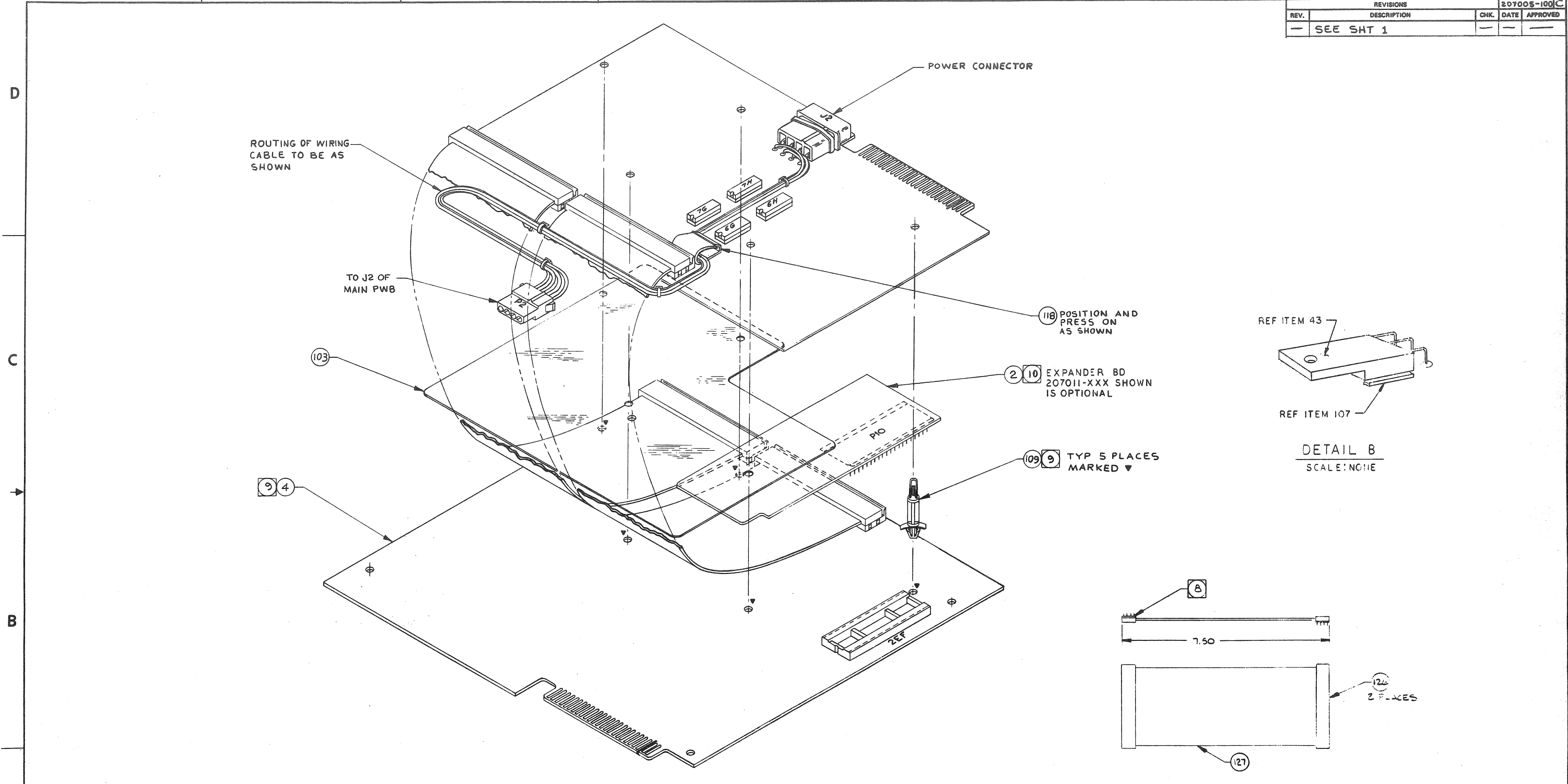
DSC:R

APPROVAL	DATE	OWN L. SCOTT	11/17/81	
MECH	[Signature]	CHK	2/18/82	
ELEC	[Signature]	TITLE	ASSY, PWB- CONTROLLER	
MFG	[Signature]	DATE	11/18/81	
MATERIAL	[Signature]	DATE	11/18/81	
QA	[Signature]	DATE	11/18/81	
MKTG	[Signature]	DATE	11/18/81	
ISSUED	[Signature]	DATE	11/18/81	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE DECIMALS
XXX =
ANGLES =
DO NOT SCALE DRAWING

SCALE 1:1 MOD 50040-001 SH OF 2

REVISIONS				207005-100 C	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
-	SEE SHT 1	-	-	-	-



- 1 SEE DETAIL "B"
- 10 PLUG ITEM 2 (MICROCOMPUTER ASSEMBLY) INTO SOCKET OF CONTROLLER PWB AT POSITION 2EF AS SHOWN.
- 9 BREAK ITEM 4 (CONTROLLER PWB) AT SLOTS BETWEEN P4 AND P5 CABLES. CUT OFF EXCESS TABS AND MOUNT PWBS USING ITEM 109 (SUPPORT) AS SHOWN.

NOTES: UNLESS OTHERWISE SPECIFIED

DETAIL "A"
2 PLACES
SCALE: NONE

DETAIL "B"
SCALE: NONE

SCALE	SIZE	CODE	REV.
1:1	D	207005-100	C
DO NOT SCALE THIS DRAWING	CODE IDENT	52465	SHEET 2 OF 2



ASSEMBLY PARTS LIST

ASSEMBLY TITLE:		DSC: R		DOC CODE: Q120		S 7 0 1 1		207005 - 001		REV N	
19	20	21	22	23	24	25	26	27	28	29	30
PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY	U.M. CODE	WHOLE	DECIMAL	U.M. CODE	WHOLE	DECIMAL	U.M. CODE
207005-200	1	SCHEMATIC		0							
207041-001	2	ASSY, 8-BIT EXPANDER MICROCOMPUTER	2 EF(207011-001 OPTIONAL)	1							
207021-001	3	ASSY, POWER CABLE - CONTROL		1							
207004-001	4	PROCESS BOARD		1							
123029-001	5	I.C. 74LS00	7B, 11D	2							
123149-001	6	I.C. 74LS01	13F	1							
123031-001	7	I.C. 74LS04	10D, 12E, 12K	3							
123032-001	8	I.C. 74LS08	5C, 5G	2							
123034-001	9	I.C. 74LS11	10F	1							
123047-001	10	I.C. 74LS14	5B	1							
123035-001	11	I.C. 74LS32	5F, 11F	2							
123093-001	12	I.C. 74LS51	7A	1							
123084-001	13	I.C. 74LS109	13E	1							
123100-001	14	I.C. 74LS138	11C, 5D, 10E	3							

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ASSEMBLY PARTS LIST

ASSEMBLY TITLE:		DSC: R		DOC CODE: Q120		S 7 0 1 1		207005 - 001		REV N	
19	20	21	22	23	24	25	26	27	28	29	30
PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY	U.M. CODE	WHOLE	DECIMAL	U.M. CODE	WHOLE	DECIMAL	U.M. CODE
123085-001	15	I.C. 74LS139	11G	1							
123095-001	16	I.C. 74LS153	3E, 4E, 3F, 4F	4							
123231-001	17	I.C. CD4502B	9B, 9C	2							
123090-001	18	I.C. 74LS163	9D, 13D	2							
123086-001	19	I.C. 74LS164	4D, 5E, 13K	3							
123232-001	20	I.C. 74LS166	4C, 7E, 13G, 2H	4							
123096-001	21	I.C. 74LS174	10C, 9E, 11H	3							
123045-001	22	I.C. 74LS175	4H, 5H, 5K	3							
123233-001	23	I.C. 74LS195	3G, 3H	2							
123097-001	24	I.C. 74LS367	6G, 7G, 6H, 7H, 6K	5							
123091-001	25	I.C. 74LS374	3C	1							
123203-001	26	I.C. 74LS393	9G, 10G, 9H, 10K, 9K	5							
123234-001	27	I.C. 74S240	2B, 3B, 3K, 4K	4							
100234-001	28	I.C. 9602	12B, 13B	2							
123245-001	29	I.C. 9401	13A, 11E	2							
100345-001	30	I.C. MC4044P	8E	1							
123069-001	31	I.C. 74S124	12A	1							
123235-001	32	I.C. MC14040	13C, 6F, 8F	3							
207029-001	33	ASSY, PROM 512 X 4 (READ SEQUENCER)	10B	1							
207026-001	34	ASSY, PROM 256 X 4 (WRITE SEQUENCER)	9F	1							
207024-001	35	ASSY, PROM 32 X 8 (READ DECODER)	6E	1							

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ASSEMBLY PARTS LIST

ASSEMBLY TITLE:		DSC: R		DOC CODE: Q120		S 7 0 1 1		207005 - 001		REV N	
19	20	21	22	23	24	25	26	27	28	29	30
PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY	U.M. CODE	WHOLE	DECIMAL	U.M. CODE	WHOLE	DECIMAL	U.M. CODE
123238-001	36	I.C. MM5257N-25	8G, 8H, 8K	3							
125040-001	37	I.C. TL082P	11A	1							
101022-001	38	I.C. LM311	2G	1							
123036-001	39	I.C. 74LS74	11B, 6C, 12D, 12F, 12G, 12H	6							
100336-001	40	I.C. 7438	4B	1							
207027-001	41	ASSY, PROM 256 X 4 (HOST SEQUENCER)	11K	1							
207025-001	42	ASSY, PROM 32 X 8 (WRITE ENCODER)	13H	1							
125006-005	43	I.C. UA7805UC	14G	1							
123237-001	44	I.C. 74LS373	3D	1							
123023-001	45	I.C. 74S74	7D, 6D, 7F	3							
123028-001	46	I.C. 74800	8C	1							
123046-001	47	I.C. 74S04	7C	1							
101031-001	48	I.C. 75452	6A	1							
123119-001	49	I.C. 74S163	8D	1							
123120-001	50	I.C. 74S174	8B	1							
123152-001	51	I.C. 74LS273	2C	1							
146014-016	52	SOCKET, DIP - 16 CONTACTS	1K, 6B	2							
146014-040	53	SOCKET, DIP - 40 CONTACTS	2EF	1							
107201-001	54	DIODE 1N4150	CR1, 3-6	5							
100373-012	55	DIODE, ZENER 1N759A	CR2	1							
106500-114	56	CRYSTAL 3.579545 MHZ	Y2	1							

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ASSEMBLY PARTS LIST

ASSEMBLY TITLE:		DSC: R		DOC CODE: Q120		S 7 0 1 1		207005 - 001		REV N	
19	20	21	22	23	24	25	26	27	28	29	30
PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY	U.M. CODE	WHOLE	DECIMAL	U.M. CODE	WHOLE	DECIMAL	U.M. CODE
M P 106500	- 115	57	CRYSTAL 6.00 MHz	Y1		1					
M P 101156	- 105	58	RESISTOR, 1/4w +5% 1.0M	R59		1					
M P 101156	- 302	59	RESISTOR, 1/4w +5% 3K	R2,8		2					
M P 101156	- 750	60	RESISTOR, 1/4w +5% 75	R20,42		2					
M P 101156	- 392	61	RESISTOR, 1/4w +5% 3.9K	R87		1					
M P 101156	- 511	62	RESISTOR, 1/4w +5% 510	R3,5,19,35		4					
M P 101156	- 102	63	RESISTOR, 1/4w +5% 1K	R1,28,29,31-34,36-41,47,51,52,55,60-62,64-66,73-77,79		29					
M P 101156	- 472	64	RESISTOR, 1/4w +5% 4.7K	R26,27,43,45,46,56,57,86		8					
M P 101156	- 512	65	RESISTOR, 1/4w +5% 5.1K	R23,44		2					
M P 101156	- 103	66	RESISTOR, 1/4w +5% 10K	R24,78		2					
M P 101156	- 362	67	RESISTOR, 1/4w +5% 3.6K	R6,80-82		4					
M P 101156	- 333	68	RESISTOR, 1/4w +5% 33K	R13,14		2					
M P 101156	- 473	69	RESISTOR, 1/4w +5% 47K	R22,58		2					
M P 101156	- 244	70	RESISTOR, 1/4w +5% 240K	R30		1					
M P 100155	- 164	71	RESISTOR, 1/4w +1% 49.9	R53		1					
M P 101156	- 203	72	RESISTOR, 1/4w +5% 20K	R72		1					
M P 101156	- 562	73	RESISTOR, 1/4w +5% 5.6K	R4		1					
M P 101156	- 154	74	RESISTOR, 1/4w +5% 150K	R12		1					
M P 100155	- 232	75	RESISTOR, 1/4w +1% 255	R54		1					
M P 100155	- 414	76	RESISTOR, 1/4w +1% 20K	R9,10,15,16,21,50,68,70		8					

FORM 788 (R 06/82) PAGE 4 OF 10



ASSEMBLY PARTS LIST

ASSEMBLY TITLE:		DSC: R		DOC CODE: Q120		S 7 0 1 1		207005 - 001		REV N	
19	20	21	22	23	24	25	26	27	28	29	30
PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY	U.M. CODE	WHOLE	DECIMAL	U.M. CODE	WHOLE	DECIMAL	U.M. CODE
M P 100155	- 385	77	RESISTOR, 1/4w +1% 10K	R18,49,69,71		4					
M P 100155	- 443	78	RESISTOR, 1/4w +1% 40.2K	R17,67		2					
M P 101156	- 271	79	RESISTOR, 1/4w +5% 270 OHMS	R63		1					
M P 100067	- 101	80	RESISTOR, 1w +5% 100	R48		1					
M P 138002	- 503	81	POTENTIOMETER 1/4w, 50K	R11		1					
M P 138002	- 103	82	POTENTIOMETER 1/4w, 10K	R25,R7		2					
M P 142032	- 002	84	TERMINATOR, 16 PIN, 180/390 OHM	1K		1					
M P 102768	- 225	85	CAP., TANT. 10v +20% 2.2uf	C15		1					
M P 102768	- 475	86	CAP., TANT. 10v +20% 4.7uf	C20		1					
M P 102768	- 226	87	CAP., TANT. 10v +20% 2.2uf	C16		1					
M P 102769	- 475	88	CAP., TANT. 35v +20% 4.7uf	C17,21		2					
M P 102668	- 472	89	CAP., CER. 50v +5% 4700pf NPO	C4		1					
M P 102665	- 104	90	CAP., CER. 50v -20+80% 0.10uf Z5U	C2,3,6,7,8,24-50		32					
M P 102669	- 301	91	CAP., CER. 100v +5% 300pf NPO	C9,10,60,61,63		5					
M P 102667	- 563	92	CAP., CER. 100v +10% .056uf X7R	C5		1					
M P 102669	- 150	93	CAP., CER. 100v +5% 15pf NPO	C14		1					
M P 102669	- 330	94	CAP., CER. 100v +5% 33pf NPO	C1		1					
M P 102669	- 911	95	CAP., CER. 100v +5% 910pf NPO	C13		1					
M P 102668	- 122	96	CAP., CER. 50v +5% 1200pf NPO	C19		1					
M											



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 001 REV N

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes parts like I.C. 74LS09, I.C. 74LS240, I.C. 7414, I.C. 74S32, CONN-PC, 50 PIN RIBBON, CAP., CER. 100WVDC±5% 220PF, ASSY DWG CONTROLLER, PRINTED MASTER.

FORM 798 (R 06/80)

PAGE 7 OF 10



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207005 - 002 REV P

ASSEMBLY TITLE ASSY, FWB - CONTROLLER - 90 ips DOC CODE Q120

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes parts like SCHEMATIC, EXPANDER, ASSY, 8-BIT MICROCOMPUTER, ASSY, POWER CABLE - CONTROL, PROCESS BOARD, I.C. 74LS00, I.C. 74LS01, I.C. 74LS04, I.C. 74LS08, I.C. 74LS11, I.C. 74LS14, I.C. 74LS32, I.C. 74LS51, I.C. 74LS109, I.C. 74LS138.

FORM 798 (R 06/80)

PAGE 1 OF 10



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 002 REV P

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes parts like I.C. 74LS139, I.C. 74LS153, I.C. CD4502B, I.C. 74LS163, I.C. 74LS164, I.C. 74LS166, I.C. 74LS174, I.C. 74LS175, I.C. 74LS195, I.C. 74LS367, I.C. 74LS374, I.C. 74LS393, I.C. 74S240, I.C. 9602, I.C. 9401, I.C. MC4044P, I.C. 74S124, I.C. MC14040BCP, ASSY, PROM 512 x 4 (READ SEQUENCER), ASSY, PROM 256 x 4 (WRITE SEQUENCER), ASSY, PROM 32 x 8 (READ DECODER).

FORM 798 (R 06/80)

PAGE 2 OF 10



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 002 REV P

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes parts like I.C. MM5257N-25, I.C. TL082P, I.C. LM311, I.C. 74LS74, I.C. 7438, ASSY, PROM 256 X 4 (HOST SEQUENCER), ASSY, PROM 32 X 8 (WRITE ENCODER), I.C. UA7805UC, I.C. 74LS373, I.C. 74S74, I.C. 74S00, I.C. 74S04, I.C. 75452, I.C. 74S163, I.C. 74S174, I.C. 74LS273, SOCKET, DIP - 16 CONTACTS, SOCKET, DIP - 40 CONTACTS, DIODE 1N4150, DIODE, ZENER 1N759A, CRYSTAL 3.579545 MHZ.

FORM 798 (R 06/80)

PAGE 3 OF 10



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 002 REV P

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes parts like CRYSTAL 6.00 MHZ, RESISTOR, 1/4w ±5% 1.0M, RESISTOR, 1/4w ±5% 75, RESISTOR, 1/4w ±5% 3.9K, RESISTOR, 1/4w ±5% 510, RESISTOR, 1/4w ±5% 1K, RESISTOR, 1/4w ±5% 4.7K, RESISTOR, 1/4w ±5% 5.1K, RESISTOR, 1/4w ±5% 10K, RESISTOR, 1/4w ±5% 3.6K, RESISTOR, 1/4w ±5% 33K, RESISTOR, 1/4w ±5% 47K, RESISTOR, 1/4w ±5% 240K, RESISTOR, 1/4w ±1% 49.9, RESISTOR, 1/4w ±5% 20K, RESISTOR, 1/4w ±5% 5.6K, RESISTOR, 1/4w ±5% 82K, RESISTOR, 1/4w ±1% 255, RESISTOR, 1/4w ±1% 20K.

FORM 798 (R 06/80)

PAGE 4 OF 10



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 002 REV P

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes parts like RESISTOR, 1/4w ±1% 10K, RESISTOR, 1/4w ±1% 40.2K, RESISTOR, 1/4w ±5% 270 OHMS, RESISTOR, 1w ±5% 100, POTENTIOMETER 1/4w, 50K, POTENTIOMETER 1/4w, 10K, TERMINATOR, 16 PIN, 180/390 OHM, CAP., TANT. 10v+20% 2.2uf, CAP., TANT. 10v +20% 4.7uf, CAP., TANT. 10v +20% 22uf, CAP., TANT. 35v +20% 4.7uf, CAP., CER. 50v ±5% 4700pf NPO, CAP., CER. 50v -20+80% 0.10uf Z5U, CAP., CER. 100v ±5% 300pf NPO, CAP., CER. 100v ±5% 15pf NPO, CAP., CER. 100V ±5% 8.2pf NPO, CAP., CER. 50v ±5% 390pf NPO, CAP., CER. 50v ±5% 2700pf NPO.

FORM 798 (R 06/80)

PAGE 5 OF 10



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 002 REV P

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include components like capacitors, transistors, and resistors.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 002 REV P

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include integrated circuits, wires, and printed masters.



ASSEMBLY PARTS LIST

ASSEMBLY TYPE: ASSY, PWB - CONTROLLER - 30 IPS DSC:R DOC CODE: Q120 S 7 0 1 1 M P 207005 - 003 REV L

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes a schematic and various components. Includes a signature block for J. MAY dated 01-11-83.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 003 REV L

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include integrated circuits and resistors.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 003 REV L

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include sequencers, decoders, and various ICs.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 003 REV L

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include sockets, diodes, and resistors.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 003 REV. L

19	PART NUMBER	28	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
						12	13	
M P	100155 - 164		71	RESISTOR, 1/4w ±1% 49.9	R53			
M P	101156 - 203		72	RESISTOR, 1/4w ±5% 20K	R72			
M P	101156 - 562		73	RESISTOR, 1/4w ±5% 5.6K	R4			
M P	101156 - 154		74	RESISTOR, 1/4w ±5% 150K	R12			
M P	100155 - 232		75	RESISTOR, 1/4w ±1% 225	R54			
M P	100155 - 414		76	RESISTOR, 1/4w ±1% 20K	R9, 10, 15, 16, 21, 50 68, 70		8	
M P	100155 - 385		77	RESISTOR, 1/4w ±1% 10K	R18, 49, 69, 71		4	
M P	100155 - 443		78	RESISTOR, 1/4w ±1% 40.2K	R17, 67		2	
M P	101156 - 271		79	RESISTOR, 1/4w ±5% 270 OHMS	R63			
M P	100067 - 101		80	RESISTOR, 1/4w ±5% 100	R48			
M P	138002 - 503		81	POTENTIOMETER 1/4w, 50K	R11			
M P	138002 - 103		82	POTENTIOMETER 1/4w, 10K	R25, R7		2	
M P	138002 - 503		83	POTENTIOMETER 1/4w, 50K	R7			
M P	142032 - 002		84	TERMINATOR, 16 PIN, 180/390 OHM	IK			
M P	102768 - 225		85	CAP., TANT. 10v ±20% 2.2uf	C15			
M P	102768 - 475		86	CAP., TANT. 10v ±20% 4.7uf	C20			
M P	102768 - 226		87	CAP., TANT. 10v ±20% 2.2uf	C16			
M P	102769 - 475		88	CAP., TANT. 35v ±20% 4.7uf	C17, 21		2	
M P	102668 - 472		89	CAP., CER. 50v ±5% 4700pf NPO	C4			

FORM 798 (R 03/82) (Continuation)

PAGE 5 OF 9



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 003 REV. L

19	PART NUMBER	28	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
						12	13	
M P	102665 - 104		90	CAP., CER. 50v -20-80% 0.10uf Z5U	C2, 3, 6, 7, 8, 24-50		32	
M P	102669 - 301		91	CAP., CER. 100v ±5% 300pf NPO	C9, 10, 60, 61, 63		5	
M P	102667 - 563		92	CAP., CER. 100v ±10% .056uf X7R	C5			
M P	102669 - 150		93	CAP., CER. 100v ±5% 15pf NPO	C14			
M P	102669 - 330		94	CAP., CER. 100v ±5% 33pf NPO	C1			
M P	102669 - 911		95	CAP., CER. 100v ±5% 910pf NPO	C13			
M P	102668 - 122		96	CAP., CER. 50v ±5% 1200pf NPO	C19			
M P	102668 - 822		97	CAP., CER. 50v ±5% 8200pf NPO	C12			
M P	102666 - 479		98	CAP., CER. 50v ±5% 4.7pf	C51			
M P	102669 - 561		99	CAP., CER. 100v ±5% 560pf NPO	C52			
M P	151031 - 001		100	TRANSISTOR, PNP 2N3906	Q1			
M P	151030 - 001		101	TRANSISTOR, NPN 2N3904	Q2			
M P	104903 - 001		102	CLIP, JUMPER .025 SQ POST	TP17-18		1	
M P	207338 - 001		103	SHIELD, CABLE				
M P	105084 - 001		104	CONNECTOR-HOUSING, 4 PIN	J2			
M P	106019 - 001		105	CONTACT, PIN	J2		4	
M P	100171 - 002		106	TY-RAP 1/16 -1%	J2			
M P	150107 - 001		107	TAPE, DOUBLE COATED POLYURETHANE FOAM	I4G		5	06
M P	100360 - 001		108	PIN, WIRE WRAP .025 SQ.	TP1-18		18	

FORM 798 (R 03/82) (Continuation)

PAGE 6 OF 9



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207005 - 003 REV. L

19	PART NUMBER	28	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
						12	13	
	147805 - 001		109	SUPPORT, CIRCUIT BOARD			5	
M P	100171 - 001		110	TY-RAP 1/16 to 5/8			3	
M P	102668 - 272		111	CAP., CER. 50v ±5% 2700pf NPO	C11		1	
M P	102664 - 103		112	CAP., CER. 50v -20% +80% 0.01uf Z5U	C53-C57		5	
M P	102667 - 102		113	CAP., CER. 100 WVDC ±10% 1000 pf	C62		1	
M P	-		114					
M P	101156 - 682		115	RESISTOR, 1/4w ±5% 6.8K	R83		1	
M P	101156 - 331		116	RESISTOR, 1/4w ±5% 330	R84		1	
M P	101156 - 221		117	RESISTOR, 1/4w ±5% 220	R85		1	
M P	104804 - 001		118	CLAMP, CABLE			1	
M P	-		119					
M P	123123 - 001		120	I.C. 74LS09	4G		1	
M P	123246 - 001		121	I.C. 74LS240	2K		1	
M P	123001 - 001		122	I.C. 7414	10H		1	
M P	123074 - 001		123	I.C. 74S32	12C		1	
M P	105008 - 006		126	CONN-PC, 50 PIN RIBBON	P4,5		4	
M P	101045 - 001		127	CABLE, FLAT			15	06
M P	102669 - 221		128	CAP., CER. 100WVDC ±5% 220PF	C59		1	
M P	207005 - 100		130	ASSY DWG CONTROLLER			0	
M P	207003 - 001		131	PRINTED MASTER			0	

FORM 798 (R 03/82) (Continuation)

PAGE 7 OF 9

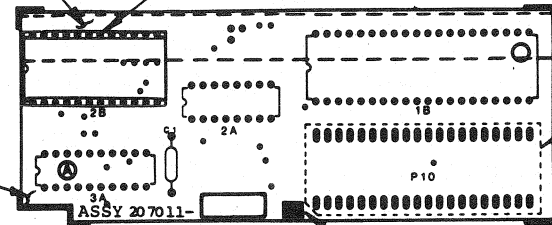
REVISION		207011-100			
LTR	DESCRIPTION	DWN	DATE	APVD	DATE
A	ENG REL	LS	1/14/82	CK	1/1/82
O1	PIL REL ERO 820309	BB	2/4/82		
O1	ECO 12121	BB	KAM 3/29/82	2/6/82	1/6/82
O12	ECO 12442	KM	1/21/82	2/1/82	1/21/82
O13	ECO 12505	JAR	1/21/82	1/21/82	1/21/82
A	PROD REL PER ERO 820424	RC	1/27/82		

INSTALL 4" LONG PIECE OF ITEM 10 (TAPE) TO UNDERSIDE OF PWB AFTER FLOW SOLDERING AND CLEANING.

INSTALL COMPONENT 2B (ITEM 9) IN SOCKET X2B AFTER FLOW SOLDERING AND CLEANING.

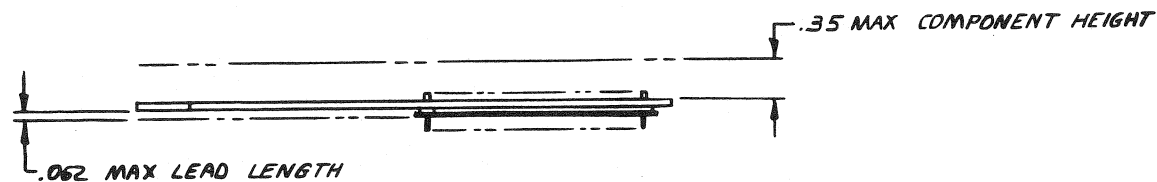
PWB-MICROCOMPUTER EXPANDER

2



7 CONNECTOR-P10 (INSTALL FROM FAR SIDE AFTER FLOW SOLDERING)

207011-100
REV A



D & D MGR	<i>[Signature]</i>	1-29-82
ME MGR	<i>[Signature]</i>	2-10-82
DOC MGR	<i>[Signature]</i>	1-27-82
UL/CSA	<i>[Signature]</i>	2/1/82
FACR NO.	NONE	

APPROVAL		DATE	DWN	L. SCHOTT	1/14/82	cipher		SAN DIEGO CALIF
MECH	<i>[Signature]</i>	2-11-82	CHK	<i>[Signature]</i>	2/25/82	SAN DIEGO CALIF		
ELEC	<i>[Signature]</i>	1/21/82	TITLE		PWB ASSY-MICROCOMPUTER EXPANDER			
MFG	<i>[Signature]</i>	1/21/82	CODE IDENT		SIZE	DWG NO	REV	
MATL	<i>[Signature]</i>	1/21/82	32274		C	207011-100	A	
QA	<i>[Signature]</i>	1/21/82	SCALE 1-1		MOD 40049-001	SH 1 OF 1		
MKTG	<i>[Signature]</i>	1/21/82	DRAWING					

2. FOR SCHEMATIC REFERENCE SEE, DWG. 207011-200.

STAMP REVISION LETTER USING A PERMANENT AND LEGIBLE MARKING METHOD.

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ASSEMBLY PARTS LIST

S 7 0 1 1 207011 - 001 C

ASSY, PWB - MICROCOMPUTER EXPANDER DSC: R Q 120

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include items like SCHEMATIC, PROCESS BOARD, I.C. P8035, I.C. 74LS175PCB, etc.

Prepared by Sue Redmond, 1-14-82. Checked by [Signature], 1-26-82. Design Engineer [Signature], 1-29-82. Model No. 207005-001. F420-30/90



ASSEMBLY PARTS LIST

S 7 0 1 1 207011 - 002 B

ASSY, PWB - MICROCOMPUTER EXPANDER DSC: R Q120

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include items like SCHEMATIC, PROCESS BOARD, I.C. P8035, I.C. 74LS175PCB, etc.

Prepared by S. HENCKE, 01-17-83. Checked by [Signature], 1/17/83. Design Engineer [Signature], 1/17/83. Model No. 207005-003. F420-30/90

4

3

2

1

D

C

B

A

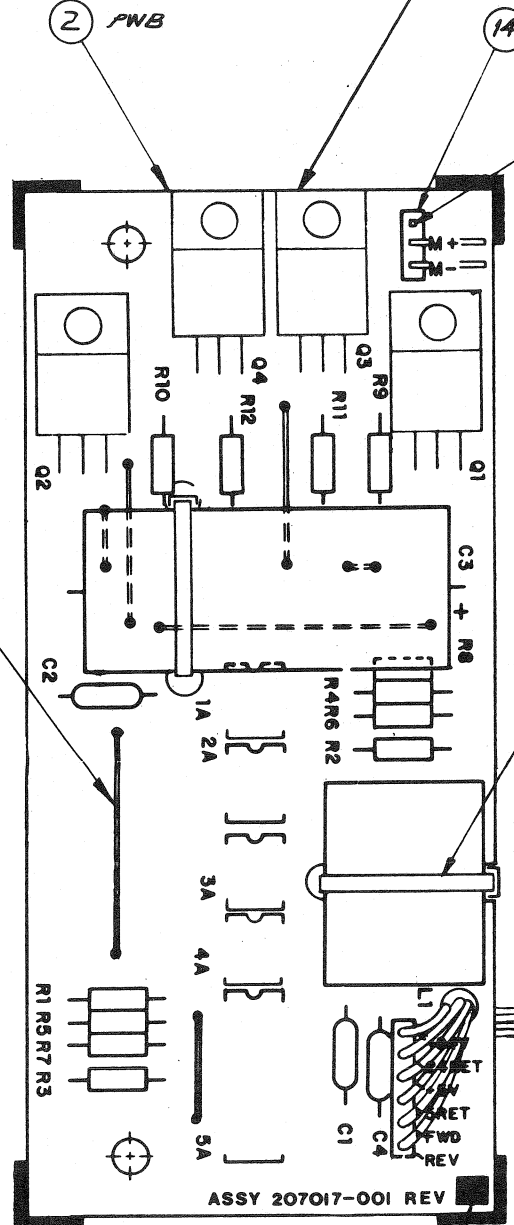
D

C

B

A

REVISIONS				
REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	ENG. REL	LVS	9-25-81	CK 1143-81
01	PIL REL ERO 820309	KAM	9/5/82	
02	ECO 12179	MS	KAM	12/21/81
03	ECO 12243	JAZ	KAM	6/22/82
04	ECO 12461	KW	KAM	9/2/82



18 APPLY .25 LONG UNDER Q1-Q4. APPLY FIRMLY TO PWB AFTER FLOW SOLDER

14 HEADER

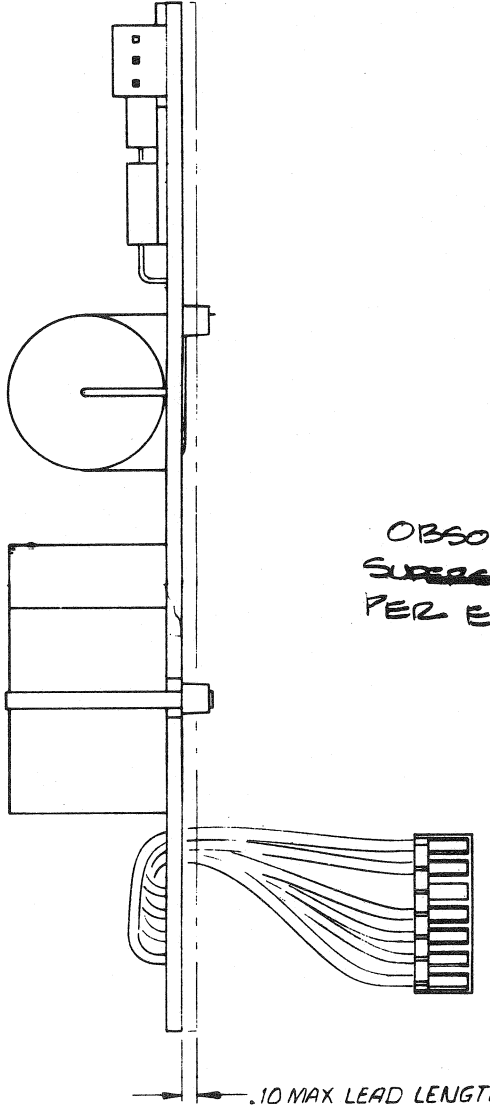
CUT OFF OR REMOVE PIN 3 (KEY POSITION)

16 7 PLACES TYP.

15 TY-RAP (2PLCS)

17 CABLE ASSY

- 7 +24V
- 6 24V RET
- 5 KEY
- 4 +5V
- 3 5V RET
- 2 FWD
- 1 REV



OBSOLETE
~~SUPERSEDED BY 207069-100~~
 PER ECO 12461 9-1-82

HISTORICAL RECORD
 DO NOT DESTROY

STAMP REVISION LETTER USING A PERMANENT AND LEGIBLE MARKING METHOD.

1. FOR SCHEMATIC REFERENCE SEE DWG 207017-200.

NOTES: UNLESS OTHERWISE SPECIFIED

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DSC: 7

D & D MGR	11/2-81
ME MGR	11-12-81
DOC MGR	11-12-81
UL/CSA	11/1/81

PART NO. SEE SEPARATE M/L

Q-120

APPROVAL	DATE	DWN L. SCHOTT	9/21/81						
MECH	11/12-81	CHK	2/11/82						
ELEC	11/19/81	TITLE	ASSY PWB MOTOR DRIVER						
MFG	3/20/81	CODE IDENT	32274	SIZE	C	DWG NO	207017-100	REV	0-
MATL	11/1/81	ISSUED	7/1/81	SCALE	2:1	MOD	40011-001	SH	1 OF 1



ASSEMBLY PARTS LIST

S 7 0 1 1 207017 - 001

ASSEMBLY TITLE ASSY, PWB - MOTOR DRIVER DSC:4 DOC CODE Q 120

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes items like SCHEMATIC, PROCESS BOARD, PHOTOTRANSISTOR, TRANSISTOR, RESISTOR, CAP., INDUCTOR, and HEADER.

Table with columns: PREPARED BY, CHECKED BY, DESIGN ENGINEER, DATE, DIVISION, DATE, NEXT ASSEMBLY, MODEL NO. Includes handwritten signatures and dates.

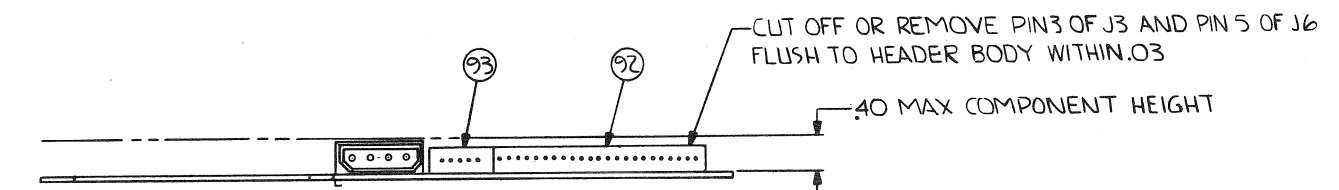
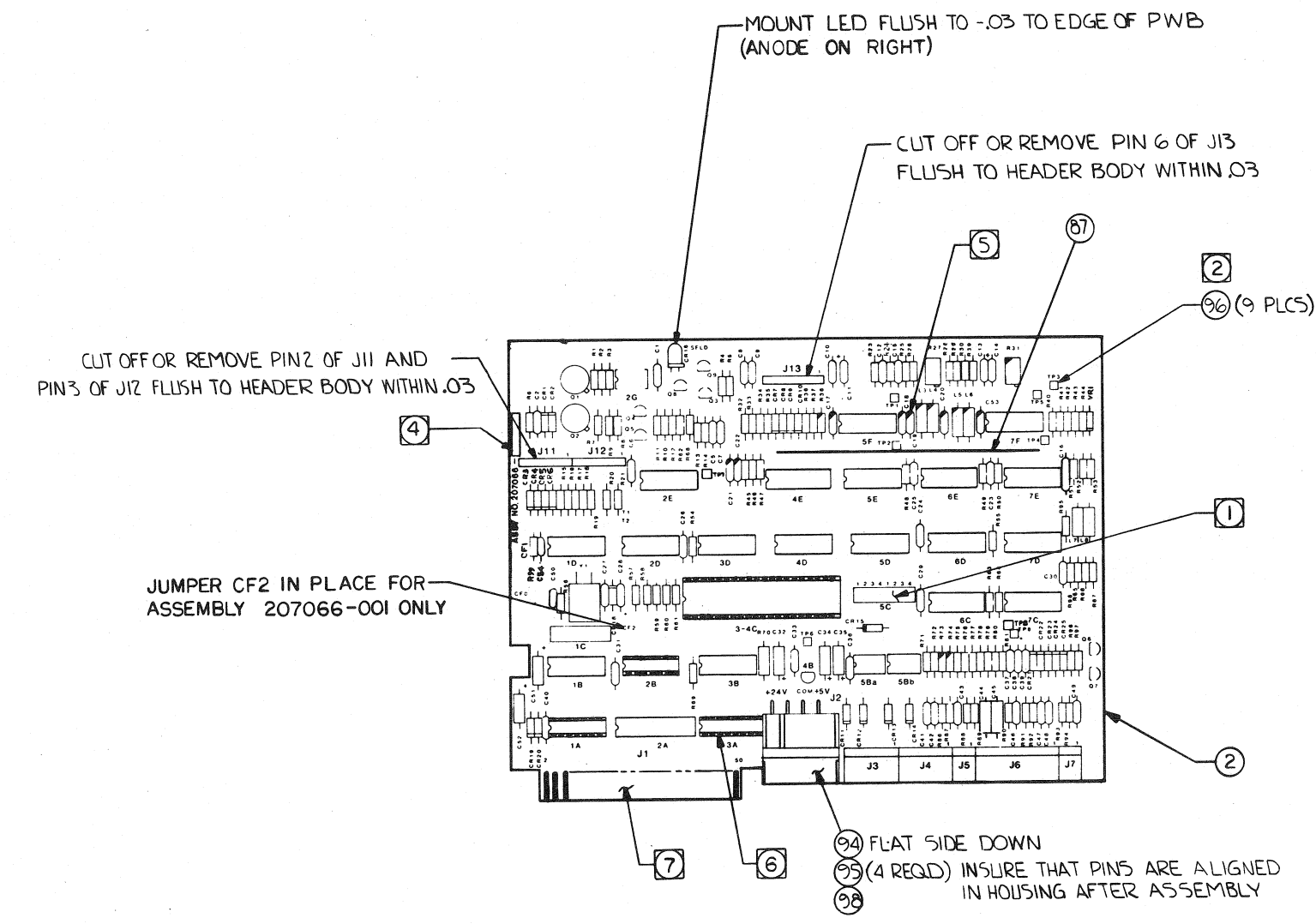


ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207017 - 001

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes items like TY-RAP, WIRE, ASSY, TAPE, and PRINTED MASTER.

REVISIONS				207066-100	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
01	PILOT REL PER ERO B20372 W	KAM			
02	ECO 12436/A	JdZ			
A	PROD. REL ERO B20421/A				
B	ECO 12642				



- 7 MASK CONNECTOR FINGERS PRIOR TO FLOW SOLDERING
- 3 INSTALL COMPONENTS 1A, 3A, 2B, 3C-4C IN SOCKETS AFTER FLOW SOLDERING AND CLEANING
- 2 COMPONENTS MARKED WITH TRIANGLE IN CORNER HAVE UNIQUE VALUES FOR EACH ASSEMBLY VERSION
- 4 MARK APPROPRIATE DASH NO. AND REVISION LETTER WHERE SHOWN USING .12 CHARACTERS PER CIPHER DATA SPEC 100037-001
- 3. REFERENCE SCHEMATIC DIAGRAM 207066-200
- 2 PRESS TEST POINT PIN INTO PWB PRIOR TO FLOW SOLDERING
- 1 INSTALL ITEM 97, JUMPER CLIPS ON PIN SETS I OF HEADER 5C

NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER		SEE SEPARATE M/L	
NOTES UNLESS SPECIFIED		DRAWN D. WILSON 3-5-82 CHECK <i>[Signature]</i> 6/7/82 APPR. <i>[Signature]</i> 6/7/82	
1. TOLERANCES XX± ANGULAR ± XXX± ±	2. BREAK ALL SHARP EDGES APPROX .010 3. MACH. SURFACES ✓ 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	MATERIAL FINISH MODEL No. 0420-30/90 NEXT ASSY	THIS DRAWING IS THE PROPERTY OF CIPHER DATA PRODUCTS, INC. IT IS TO BE USED ONLY FOR THE MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS, INC.
ASSEMBLY - PWB. MAIN BOARD		SCALE 1:1	SIZE D
DSC:R		CODE IDENT 52465	REV. B
DO NOT SCALE THIS DRAWING		SHEET 1	OF 1



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 001 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes sub-tables for PREPARED BY, CHECKED BY, DESIGN ENGINEER, and DATE/SIGNATURE.

FORM 755 (R 06/80)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 001 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes sub-tables for PREPARED BY, CHECKED BY, DESIGN ENGINEER, and DATE/SIGNATURE.

FORM 755 (R 06/80)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 001 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes sub-tables for PREPARED BY, CHECKED BY, DESIGN ENGINEER, and DATE/SIGNATURE.

FORM 755 (R 06/80)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 001 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes sub-tables for PREPARED BY, CHECKED BY, DESIGN ENGINEER, and DATE/SIGNATURE.

FORM 755 (R 06/80)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 001 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes sub-tables for PREPARED BY, CHECKED BY, DESIGN ENGINEER, and DATE/SIGNATURE.

FORM 755 (R 06/80)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 001 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes sub-tables for PREPARED BY, CHECKED BY, DESIGN ENGINEER, and DATE/SIGNATURE.

FORM 755 (R 06/80)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 002 REV F

ASSEMBLY TITLE: ASSY, PWB - MAIN - 90 IPS

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes a revision table at the bottom.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207066 - 002 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207066 - 002 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207066 - 002 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207066 - 002 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207066 - 002 REV F

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.



ASSEMBLY PARTS LIST

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes assembly title 'ASSY, PWB - MAIN - 30 IPS' and various part numbers like 207066, 207065, 940222.

FORM 755 (R 03/82)

PAGE 1 OF 7



ASSEMBLY PARTS LIST (CONTINUATION)

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Continuation of parts list with items like 123239, 125011, 125017.

FORM 755 (R 03/82) (Continuation)

PAGE 2 OF 7



ASSEMBLY PARTS LIST (CONTINUATION)

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Continuation of parts list with items like 101156, 101155, 101156.

FORM 755 (R 03/82) (Continuation)

PAGE 3 OF 7



ASSEMBLY PARTS LIST (CONTINUATION)

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Continuation of parts list with items like 100155, 100155, 100155.

FORM 755 (R 03/82) (Continuation)

PAGE 4 OF 7



ASSEMBLY PARTS LIST (CONTINUATION)

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Continuation of parts list with items like 102667, 102665, 102667.

FORM 755 (R 03/82) (Continuation)

PAGE 5 OF 7



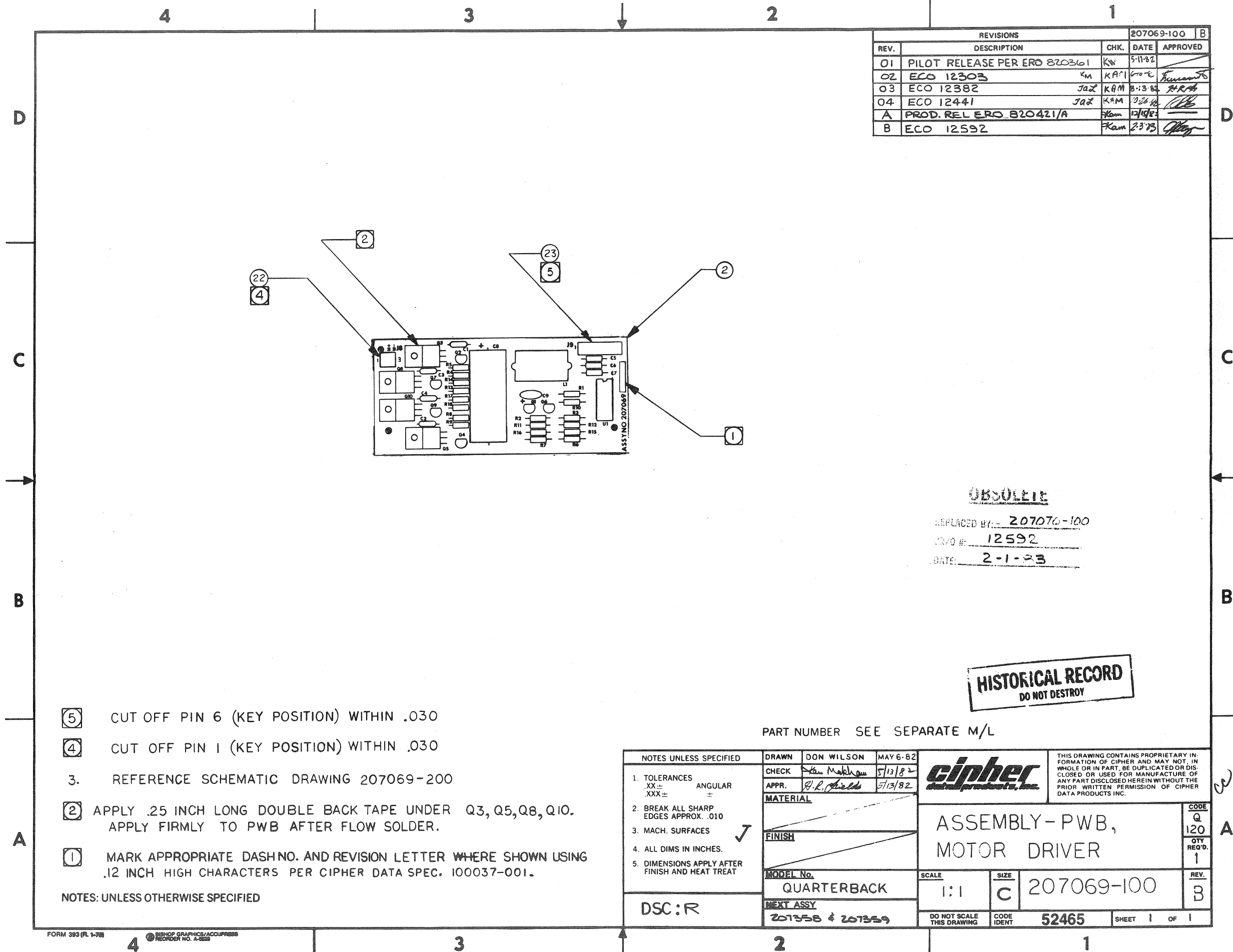
ASSEMBLY PARTS LIST (CONTINUATION)

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Continuation of parts list with items like 120916, 120915, 120915.

FORM 755 (R 03/82) (Continuation)

PAGE 6 OF 7

REVISIONS				207069-100	B
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
01	PILOT RELEASE PER ERO 820361	KW	5-11-82		
02	ECO 12303	KM	KAM	6-10-82	<i>Furman</i>
03	ECO 12382	Jad	KAM	8-3-82	<i>J.R.H.</i>
04	ECO 12441	Jad	KAM	10-26-82	<i>W.B.</i>
A	PROD. REL ERO 820421/A	Kam	12/15/82		
B	ECO 12592	Kam	2-3-83		<i>W.B.</i>



OBsolete
 REPLACED BY: 207076-100
 D/D #: 12592
 DATE: 2-1-83

HISTORICAL RECORD
 DO NOT DESTROY

- ⑤ CUT OFF PIN 6 (KEY POSITION) WITHIN .030
- ④ CUT OFF PIN 1 (KEY POSITION) WITHIN .030
- 3. REFERENCE SCHEMATIC DRAWING 207069-200
- ② APPLY .25 INCH LONG DOUBLE BACK TAPE UNDER Q3, Q5, Q8, Q10. APPLY FIRMLY TO PWB AFTER FLOW SOLDER.
- ① MARK APPROPRIATE DASH NO. AND REVISION LETTER WHERE SHOWN USING .12 INCH HIGH CHARACTERS PER CIPHER DATA SPEC. 100037-001.

NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER SEE SEPARATE M/L

NOTES UNLESS SPECIFIED 1. TOLERANCES XX± ANGULAR XXX± ± 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES ✓ 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	DRAWN DON WILSON MAY 6-82 CHECK <i>Don Mahlow</i> 5/13/82 APPR. <i>R.L. Field</i> 5/13/82	THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS INC.	CODE Q 120 QTY REQ'D 1 REV. B	
	MATERIAL FINISH			ASSEMBLY-PWB, MOTOR DRIVER
	MODEL No. QUARTERBACK			SCALE 1:1 SIZE C 207069-100
	NEXT ASSY 207358 & 207359			DO NOT SCALE THIS DRAWING CODE IDENT 52465 SHEET 1 OF 1

alber HISTORICAL RECORD ASSEMBLY PARTS LIST

DO NOT DESTROY
 GARDEN GROVE DIVISION
 ASSEMBLY TITLE: ASSY, PNB-MOTOR DRIVER
 DSC: R DDC CODE: Q120
 S 7 0 1 1 207069 - 001 REV B

PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
-	1					
207068 - 001	2	PROCESS BOARD		1		
100336 - 001	3	I.C. 7438		1		
-	4					
151027 - 002	5	TRANSISTOR, NPN TIP120	REPLACED BY: - 207076-001	2		
151028 - 002	6	TRANSISTOR, PNP TIP125	CR/O #: 12592	2		
151030 - 001	7	TRANSISTOR, NPN 2N3904	DATE: 2-1-83	4		
151031 - 001	8	TRANSISTOR, PNP 2N3906		2		
-	9					
101156 - 101	10	RESISTOR, 1/4W ± 5% 100	R5, R9, R14, R18	4		
101156 - 561	11	RESISTOR, 1/4W ± 5% 560	R7, R16	2		
101156 - 392	12	RESISTOR, 1/4W ± 5% 3.9K	R1, R2, R6, R10, R11, R15	6		
101156 - 682	13	RESISTOR, 1/4W ± 5% 6.8K	R4, R8, R13, R17	4		
101156 - 103	14	RESISTOR, 1/4W ± 5% 10K	R3, R12	2		

FORM 786 (R 03/82) PAGE 1 OF 3

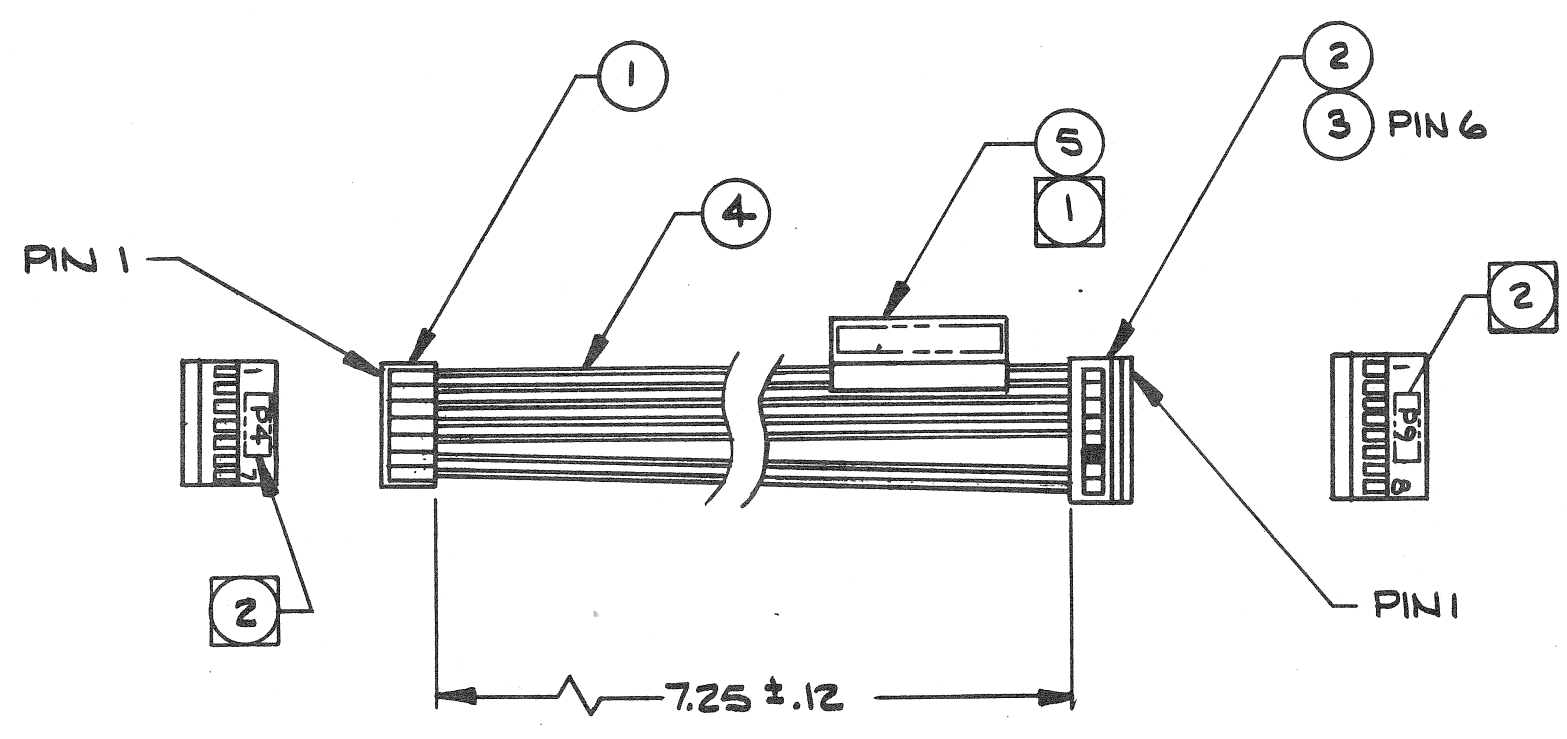
alber ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 207069 - 001 REV B

PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
-	15					
102608 - 108	16	CAP, ELEC 35V-10% + 50% 1000uf	C8	1		
102665 - 104	17	CAP, CER. 50V-20 + 80% .1uf	C5, C6, C7	3		
102667 - 103	18	CAP, CER. 100V ± 10% .01uf	C1, C2, C3, C4	4		
-	19					
122522 - 001	20	INDUCTOR, HIGH CURRENT FILTER ± 10% 100uh	L1	1		
-	21					
120917 - 003	22	HEADER, STRAIGHT 3-PIN	J8	1		
120917 - 008	23	HEADER, STRAIGHT 8-PIN	J9	1		
-	24					
150107 - 001	25	TAPE, DOUBLE COATED POLYURETHANE FOAM	Q3, Q5, Q8, Q10	1	0.6	
207069 - 200	26	SCHEMATIC	REF	0		
207069 - 100	27	ASSY. DWG	REF	0		
207067 - 001	28	MASTER ARTWORK	REF	0		
-	29					
-	30					
-	31					
-	32					
-	33					

FORM 786 (R 03/82) (Continuation) PAGE 2 OF 3

REVISIONS				207070-100	A
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
01	PILOT REL PER ERO 820368	KAM	—	—	
A	PROD. REL ERO 820421/A	Kam	12/4/82	—	




P4		P9	
1	S REV	1	
2	S FWD	2	
3	+5 RET	3	
4	+5V	4	
5	OL	5	
		6	KEY
6	+24 RET	7	
7	+24V	8	

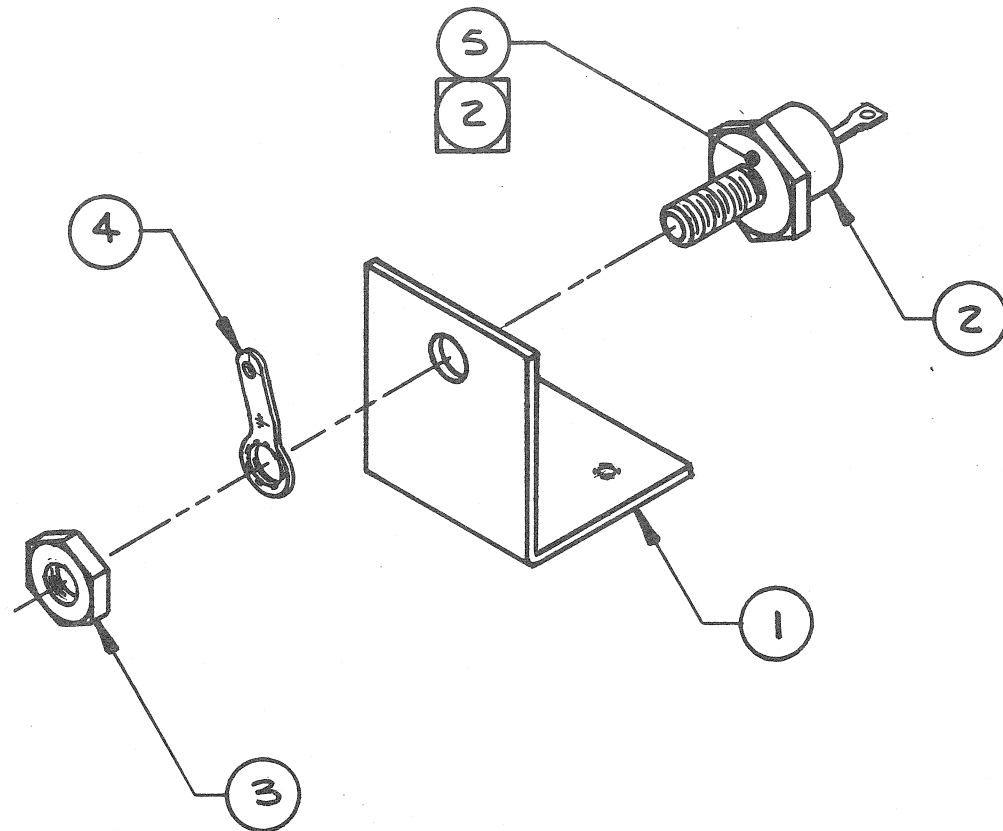
PART NUMBER SEE SEPARATE M/L

- ② MARK CONNECTORS WITH APPROPRIATE REF DESIGNATION USING .12 HIGH WHITE CHARACTERS PER CDP SPEC 100013-001.
- ① MARK WITH PART NO., APPROPRIATE DASH NO. & LATEST REVISION LEVEL PER CDP SPEC 100037-001.

NOTES: UNLESS OTHERWISE SPECIFIED

NOTES UNLESS SPECIFIED		DRAWN MATTHES 8/24/82		 Garden Grove Division		THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.	
1. TOLERANCES .XX ± — ANGULAR .XXX ± — ± — 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES ✓ 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT		CHECK Kam Mahrawi 6/1/82 APPR. [Signature] 11/4/82						ASSY, CABLE-MOTOR DRIVER PWB, 90 IPS		QTY REQD. 1
DSC: R		MATERIAL		SCALE 1/1		SIZE B	
		FINISH		207070-100		REV. A	
		MODEL No. QB		DO NOT SCALE THIS DRAWING		CODE IDENT	
		NEXT ASSY		SHEET 1 OF 1			

REVISIONS				207072-100	A
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
01	PILOT REL PER ERO 820368	KAM	—	—	
A	PROD. REL ERO 820421/A	Kam	12/14/82	—	




PART NUMBER SEE SEPARATE M/L

2 APPLY ITEM 5 (THERMAL COMPOUND) TO BASE OF ITEM 2 (DIODE) BEFORE INSTALLATION.

- BAG & TAG PART NO., APPROPRIATE DASH NO. & LATEST REVISION LEVEL PER CDP SPEC 100037-001.

NOTES: UNLESS OTHERWISE SPECIFIED

NOTES UNLESS SPECIFIED		DRAWN	MATTHES	5/24/82	 Garden Grove Division	THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.				
1. TOLERANCES .XX± — ANGULAR .XXX± — ± —		CHECK	Kam Makhsari	6/1/82		ASSY, DIODE - SLOW SPEED MOTOR KIT, 30 IPS	CODE	Q 100		
2. BREAK ALL SHARP EDGES APPROX. .010		APPR.	G. Perry	6/14/82			QTY REQ'D.	1		
3. MACH. SURFACES — ✓		MATERIAL			SCALE	1/1	SIZE	B	REV.	A
4. ALL DIMS IN INCHES.		FINISH			MODEL No.	QB	207072-100		SHEET 1 OF 1	
5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT		MODEL No.			DO NOT SCALE THIS DRAWING	CODE IDENT				
DSC: R		NEXT ASSY								



ASSEMBLY PARTS LIST

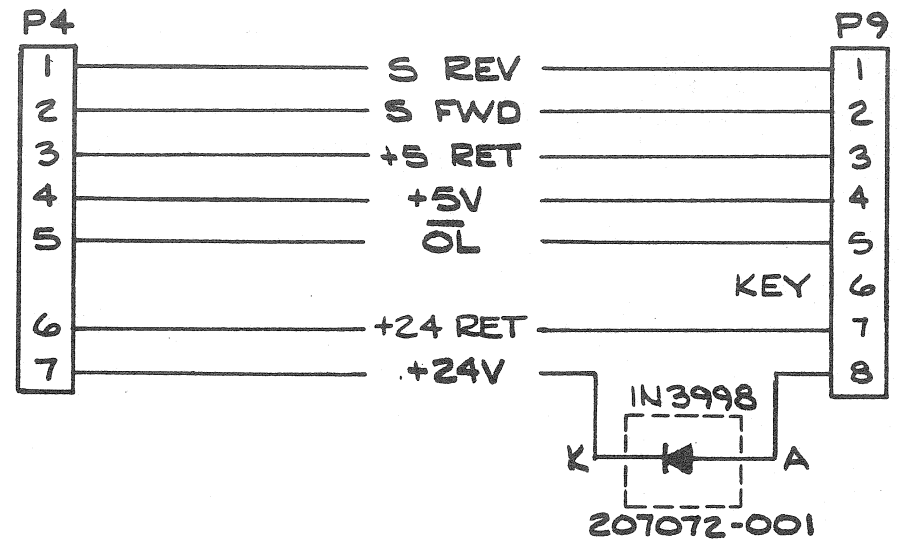
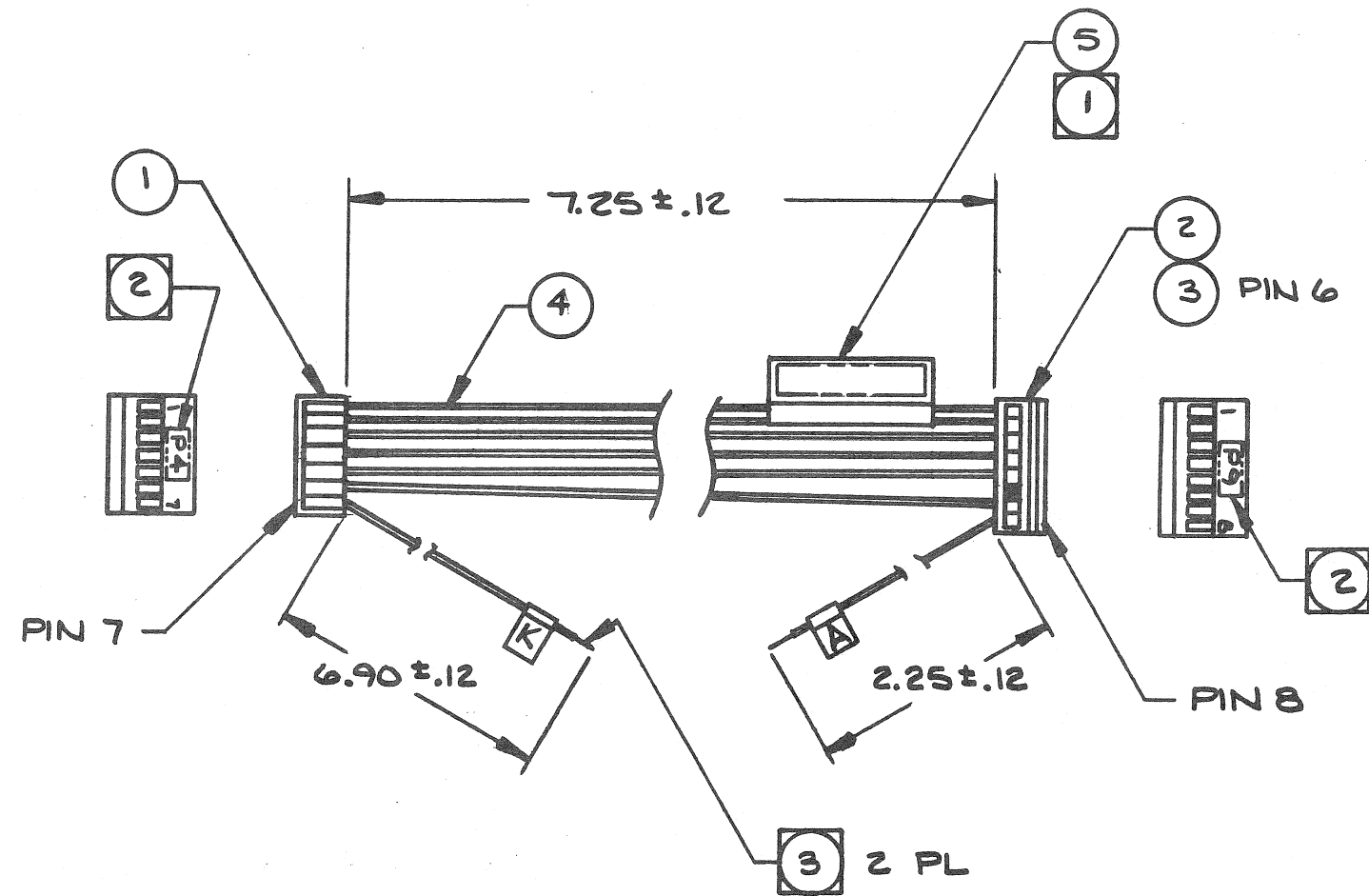
S 7 0 1 1 M P 207072-001 A
ASSEMBLY PARTS NUMBER

ASSEMBLY TITLE: ASSY, DIODE - MOTOR DRIVER, 30 IPS DSC:R DOC CODE: Q100

PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
207318 - 001	1	HEATSINK - ZENER DIODE		1		
107044 - 001	2	DIODE, ZENER 10w 1N3998		1		
136004 - 500	3	NUT, HEX MACH	#10	1		
150527 - 001	4	TERMINAL - LOCKING LUG		1		
120100 - 001	5	THERMAL COMPOUND		A/R		
207072 - 100	6	ASSY DWG		0		
-						
-						
-						
-						
-						
-						
-						

PREPARED BY: T. Scott	DATE: 5-24-82	DWG REL NO.:	DATE:
CHECKED BY: John Mathews	5/24/82	820368	06 04 82
DESIGN ENGINEER: G. P. [Signature]	6/14/82	NEXT ASSEMBLY:	M M D D Y Y
REL FOR: [Signature]		207359	
PILOT REL: [Signature]		MODEL NO.:	0420-30
REV ECO DATE / SIGNATURE	REV ECO DATE / SIGNATURE		

REVISIONS				207073-100	A
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
01	PILOT REL PER ERO 820368	KAM	—	—	
A	PROD. REL ERO 820421/A	Kam	12/14/82	—	



- ③ STRIP WIRE ENDS BACK .19 AND LABEL AS SHOWN.
- ② MARK CONNECTORS WITH APPROPRIATE REF DESIGNATION USING .12 HIGH WHITE CHARACTERS PER CDP SPEC 100013-001.
- ① MARK WITH PART NO., APPROPRIATE DASH NO. & LATEST REVISION LEVEL PER CDP SPEC 100037-001.

NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER SEE SEPARATE M/L

NOTES UNLESS SPECIFIED 1. TOLERANCES .XX ± — ANGULAR .XXX ± — ± — 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES ✓ 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	DRAWN MATTHES 5/20/82 CHECK Kam Malhousi 6/1/82 APPR. G. Perez 4/1/82	 Garden Grove Division	THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.		
	MATERIAL FINISH MODEL No. QB NEXT ASSY			ASSY, CABLE - MOTOR DRIVER PWB, 30 IPS	CODE Q115 QTY REQD. 1
	DSC : R	SCALE 1/1 SIZE B		207073-100	REV. A
	DO NOT SCALE THIS DRAWING CODE IDENT	SHEET 1 OF 1			



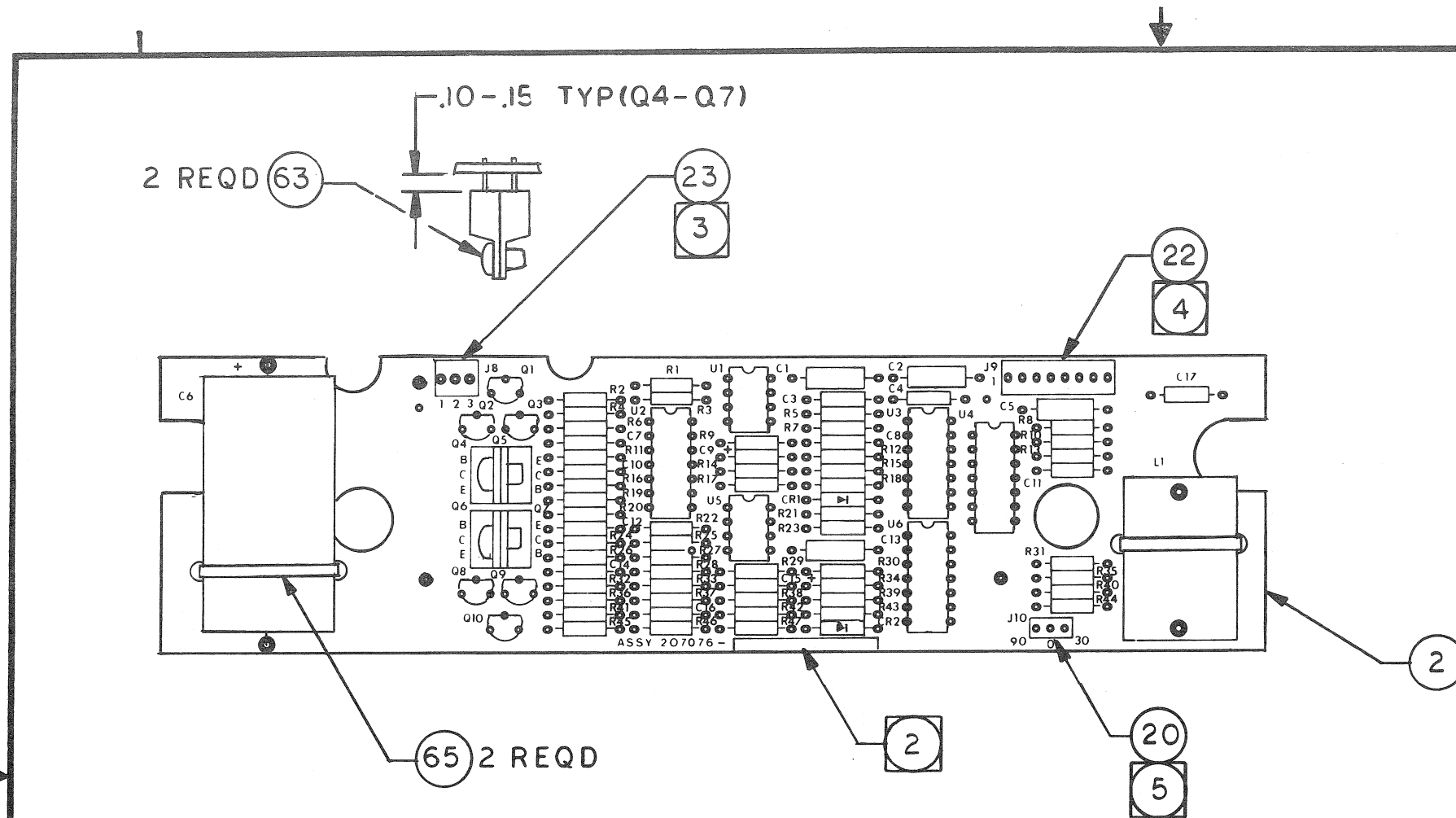
ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207073 - 001 A

ASSY, CABLE - MOTOR DRIVER PWB, 30 IPS DSC: R Q115

PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
105081-607	1	CONNECTOR HSG - 7 POS.	P4	1		
105081-608	2	CONNECTOR HSG - 8 POS.	P9	1		
130006-001	3	KEY, CONNECTOR HSG		1		
100053-926	4	WIRE, HOOKUP	26 AWG WHITE	58		06
133500-001	5	CABLE MARKER		1		
207073-100	6	ASSY DWG		0		
-						
-						
-						
-						
-						
-						
-						
-						

PREPARED BY T. Scott	DATE 5-24-82	ISS 8/24/82	DATE 5/24/82	DWG REL NO. 820703	DATE 05 24 82
CHECKED BY D. Makrow	DATE 5/24/82	PROD. REL PER	DATE 6/14/82	REV 01	DATE/SIGNATURE 4/24/82
DESIGN ENGINEER G. Perry				REV ASSEMBLY 207359	
				MODEL NO. 0420-30	



REVISIONS				207076-100	D
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
XI					
OI	PILOT REL PER ERO 820426	KMM			
A	PROD. REL PER ERO 820448	Kam	1/24/83		
B	ECO 12595	Jax	3/23/83	R. Parker	
C	ECO 12616		4/5/83	R. Parker	
D	REVISED AND REDRAWN PER ECO 12738	Kam	8/9/83	R. Parker	

6. SECURE C6 WITH RTV AFTER ASSEMBLY.
5. INSTALL JUMPER ON J10 FROM CENTER PIN TO APPROPRIATE PIN INDICATING DESIRED SPEED
4. CUT OFF PIN 6 (KEY POSITION) WITHIN .030
3. CUT OFF PIN 1 (KEY POSITION) WITHIN .030
2. MARK PART NUMBER, APPROPRIATE DASH NUMBER AND LATEST REVISION LETTER PER CIPHER DATA PRODUCTS SPEC 100037-001
1. FOR SCHEMATIC SEE DRAWING NUMBER 207076-200
- NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER SEE SEPARATE M/L

NOTES UNLESS SPECIFIED 1. TOLERANCES .XX ± — ANGULAR .XXX ± — = — 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES — ✓ 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	DRAWN	T.LINDMAN	8-4-82	 Garden Grove Division	THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT IN WHOLE OR IN PART BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF THE CIPHER DATA PRODUCTS, INC.	
	CHECK	Kam Mahajan	10/5/82			
	APPR.	R. Parker	10/6/82			
	MATERIAL	ASSEMBLY - MOTOR DRIVER			CODE	Q
	FINISH				QTY REQ'D	1
MODEL No.	QUARTERBACK			SCALE	1/1	
NEXT ASSY				SIZE	B	
DSC:R				207076-100		
DO NOT SCALE THIS DRAWING				CODE IDENT		
SHEET				1	OF 1	



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207076-001 D

ASSEMBLY TITLE MOTOR DRIVER DSC: R DOC CODE Q 120

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes handwritten notes and signatures.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207076-001 D

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207076-001 D

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207076-001 D

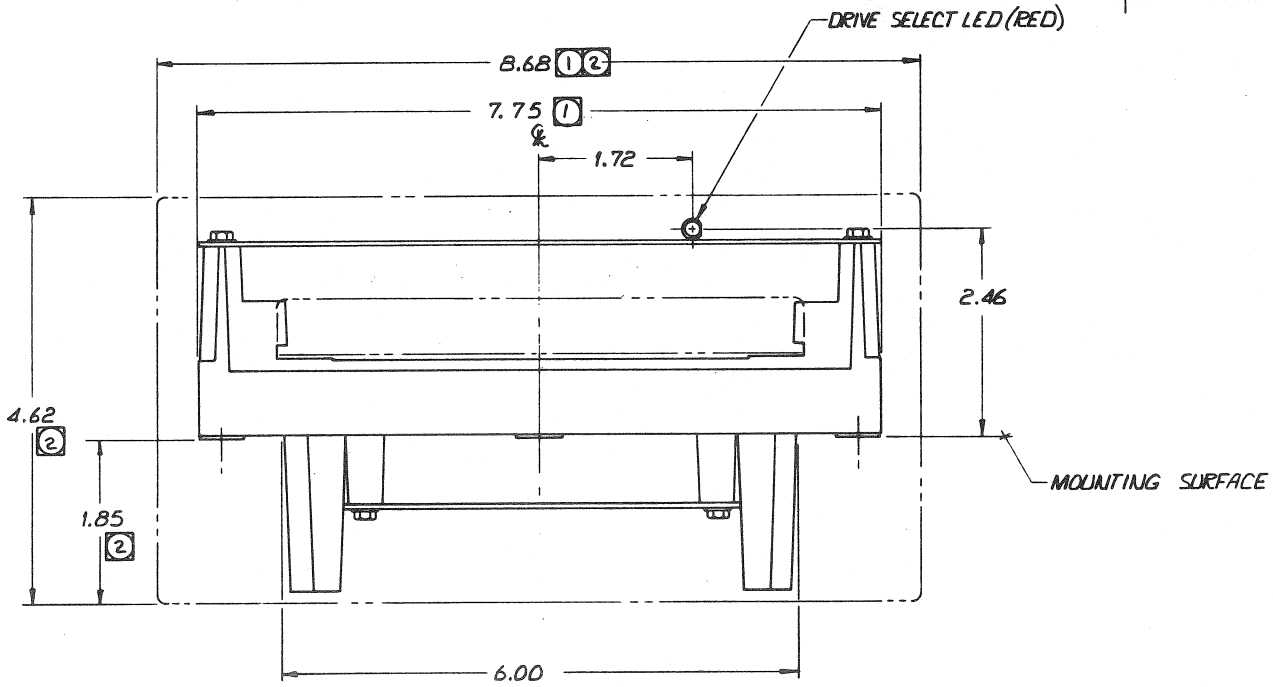
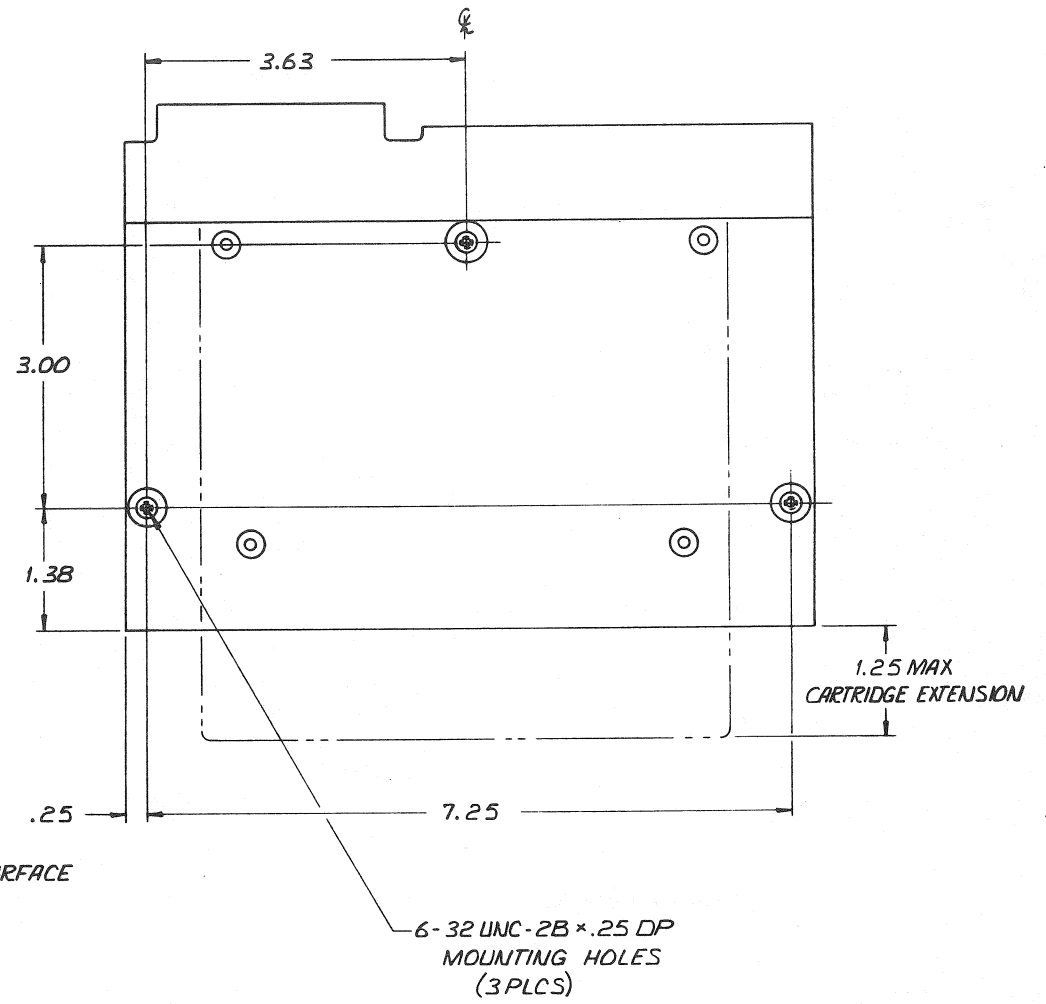
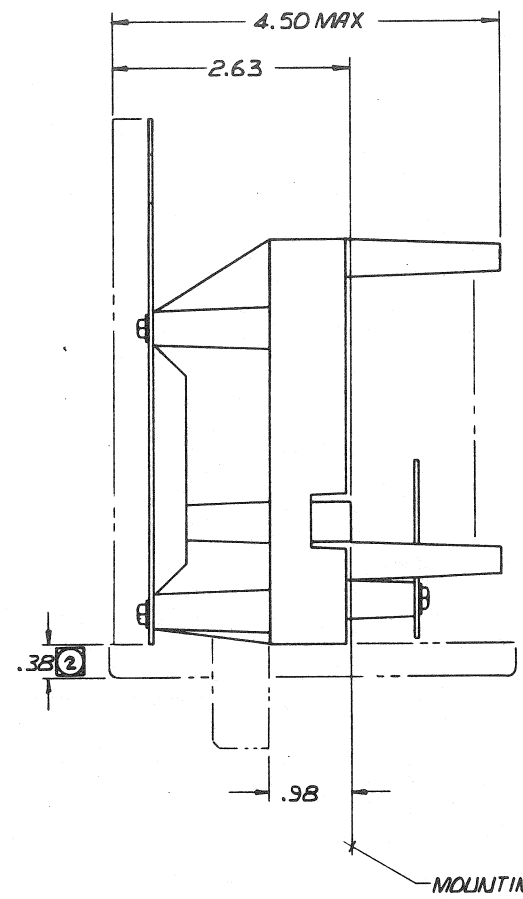
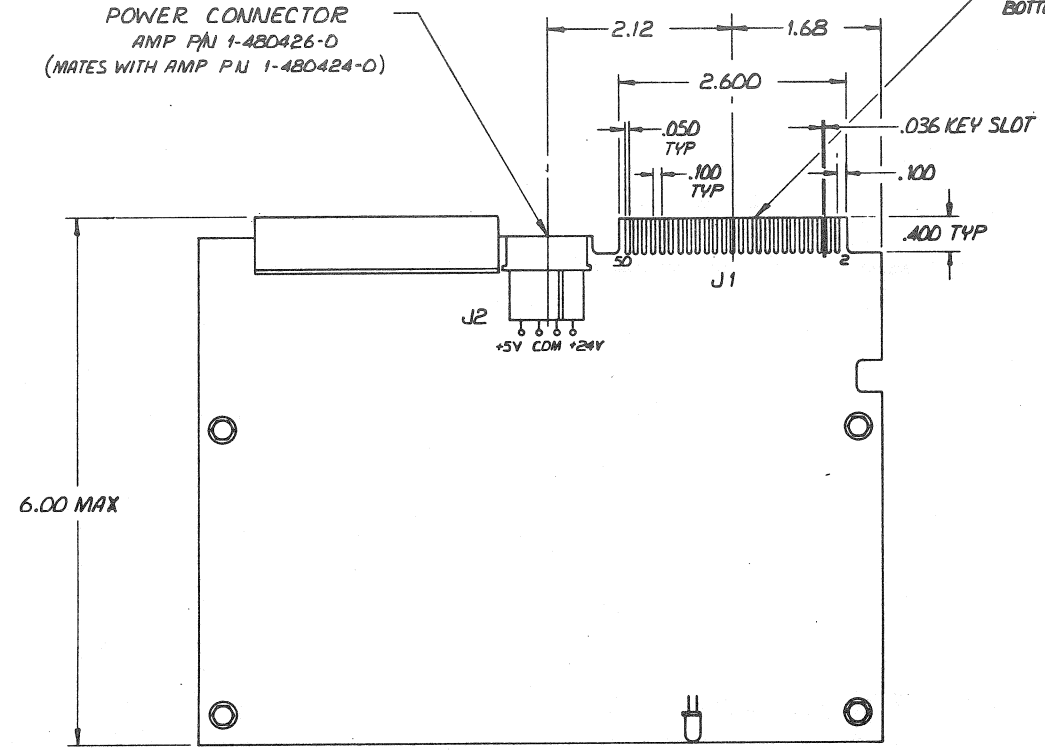
Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE.

8 7 6 5 4 3 2 1

REVISIONS				207302-001A	
REV	DESCRIPTION	CHK	DATE	APPROVED	
A	ENG REL	NP	7/26/81	CK	7/27/81
O1	FIL REL ERO 820309	KAM	3/5/82		
O1	ECO 12350	KAM	8/19/82		
A	PROD REL ERO 820421/A				

POWER CONNECTOR
AMP P/N 1-480426-D
(MATES WITH AMP P/N 1-480424-D)

INPUT/OUTPUT CONNECTOR
TOP (COMPONENT) SIDE: EVEN NUMBERED FINGERS
BOTTOM (SOLDER) SIDE: ODD NUMBERED FINGERS
(MATES WITH 3M P/N 3415-0001 OR EQUIV.)



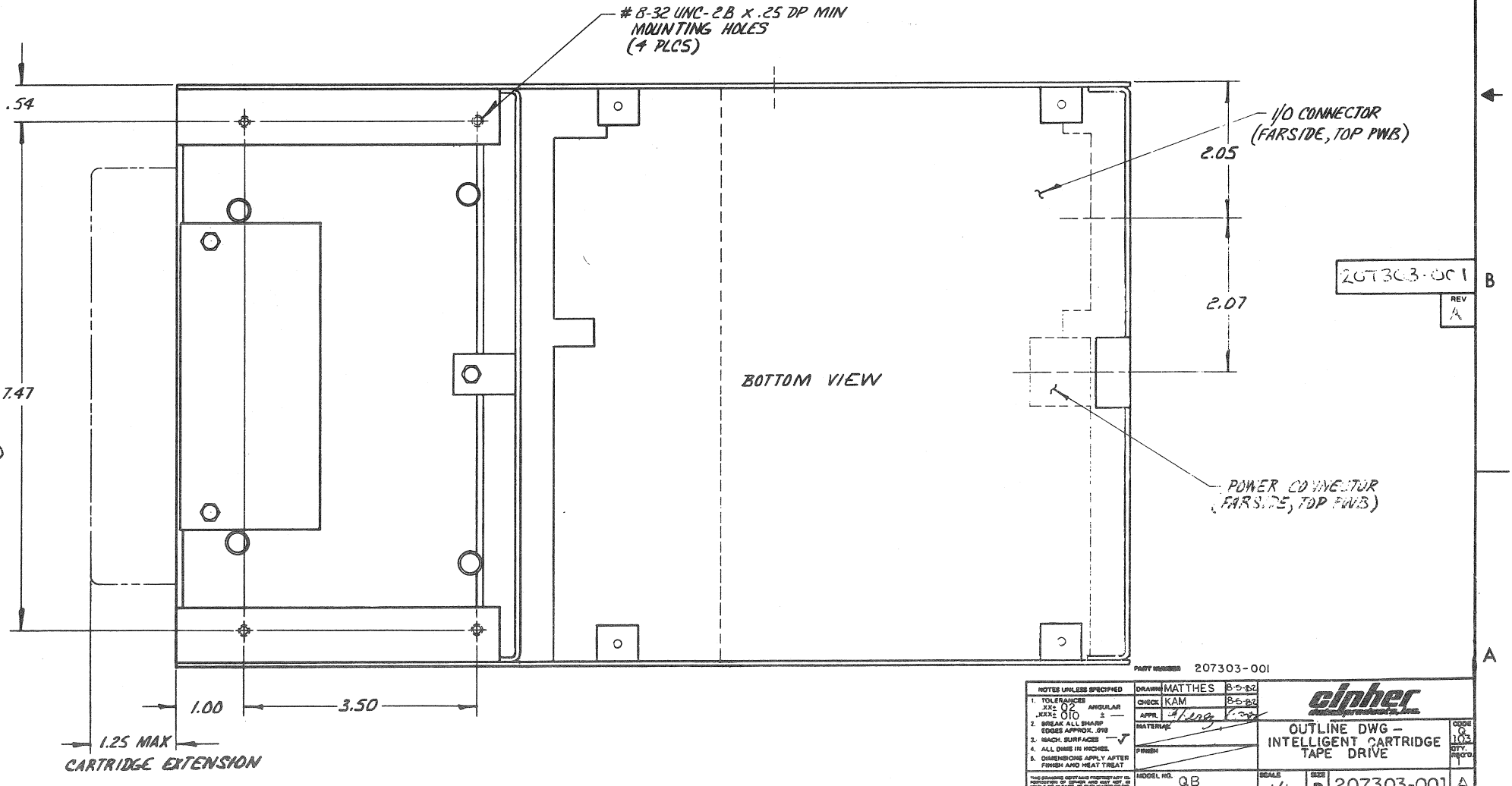
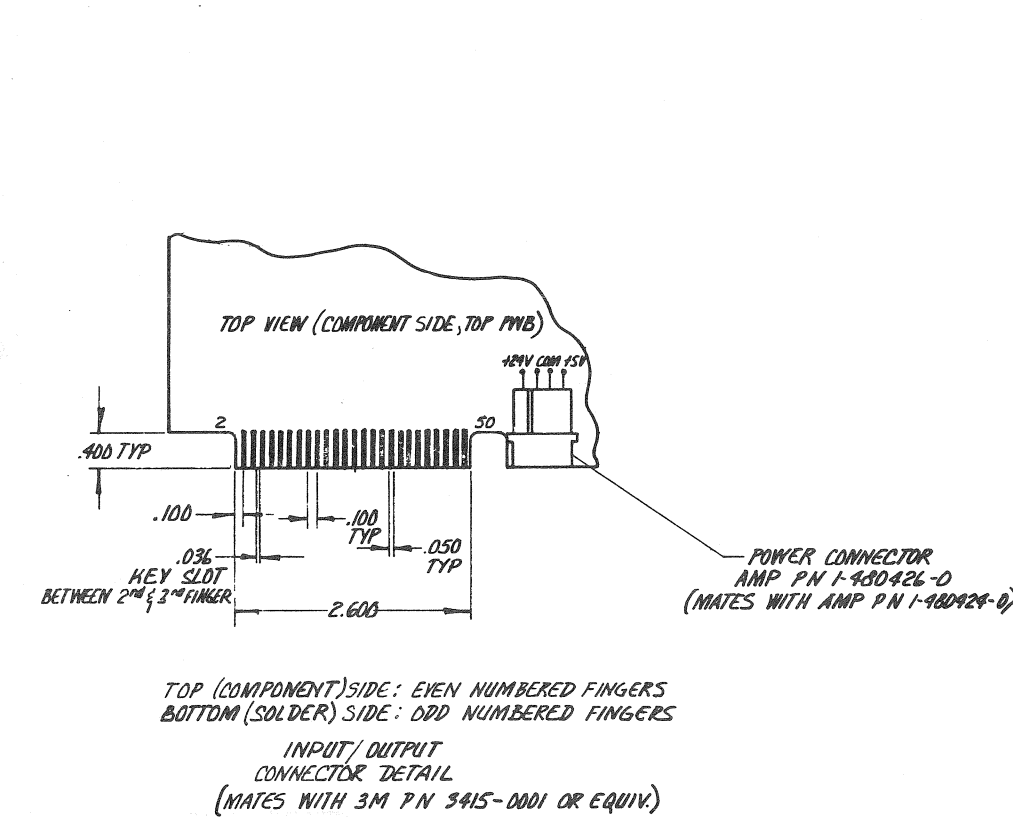
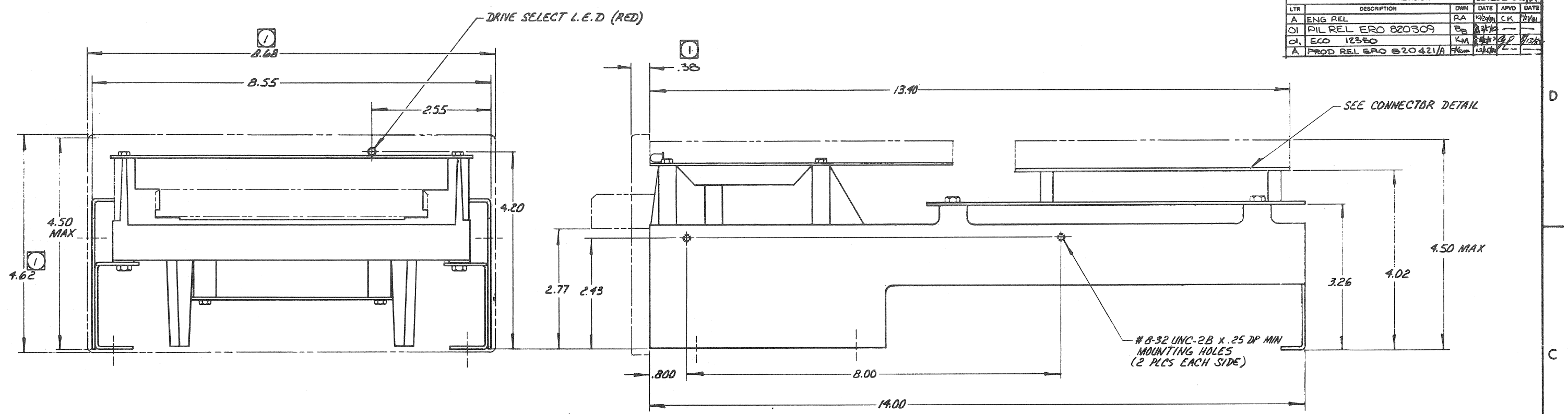
(2) OPTIONAL FRONT PLATE DIMENSIONS
(1) SYMMETRICAL ABOUT Q WITHIN .01
NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER 207302-001

NOTES UNLESS SPECIFIED 1. TOLERANCES .XX ± .02 ANGULAR .XXX ± .010 ± 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES ✓ 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS, INC.	DRAWN: MATTHES 8-3-82 CHECK: KAM 8-3-82 APPR: <i>[Signature]</i> 7-31-82 MATERIAL: FINISH:		MODEL NO. QB NEXT ASSY 207350	SCALE 1/1 SIZE D	207302-001 CODE IDENT 52465	SHEET 1 OF 1	
	OUTLINE DWG - BASIC CARTRIDGE TAPE DRIVE		CODE A 103 QTY. REQ'D 1	DO NOT SCALE THIS DRAWING	SHEET 1 OF 1		
	DSC :R		1-460601-307				

8 7 6 5 4 3 2 1

REVISION					
LTR	DESCRIPTION	DWN	DATE	APVD	DATE
A	ENG REL	RA	12/28/81	CK	1/1/82
01	PIL REL ERO 820309	B	8/2/81		
01	ECO 12380	KM	8/2/81		1/28/82
A	PROD REL ERO 820421/A	PKM	12/10/81		



OPTIONAL FRONT PLATE DIMENSIONS.

NOTES UNLESS SPECIFIED		DRAWN: MATTHES 8-5-82		elpher	
1. TOLERANCES	± .02 ANGULAR	CHECK: KAM 8-5-82		OUTLINE DWG - INTELLIGENT CARTRIDGE TAPE DRIVE	
2. BREAK ALL SHARP EDGES APPROX. 5/16"		APPR: J. L. 8-2-82		SCALE: 1/1	SIZE: D
3. MACH. SURFACES				MODEL NO. QB	207303-001
4. ALL DIMS IN INCHES				REV: A	1 of 1
5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT				DATE: 8/24/82	SHEET: 1 of 1

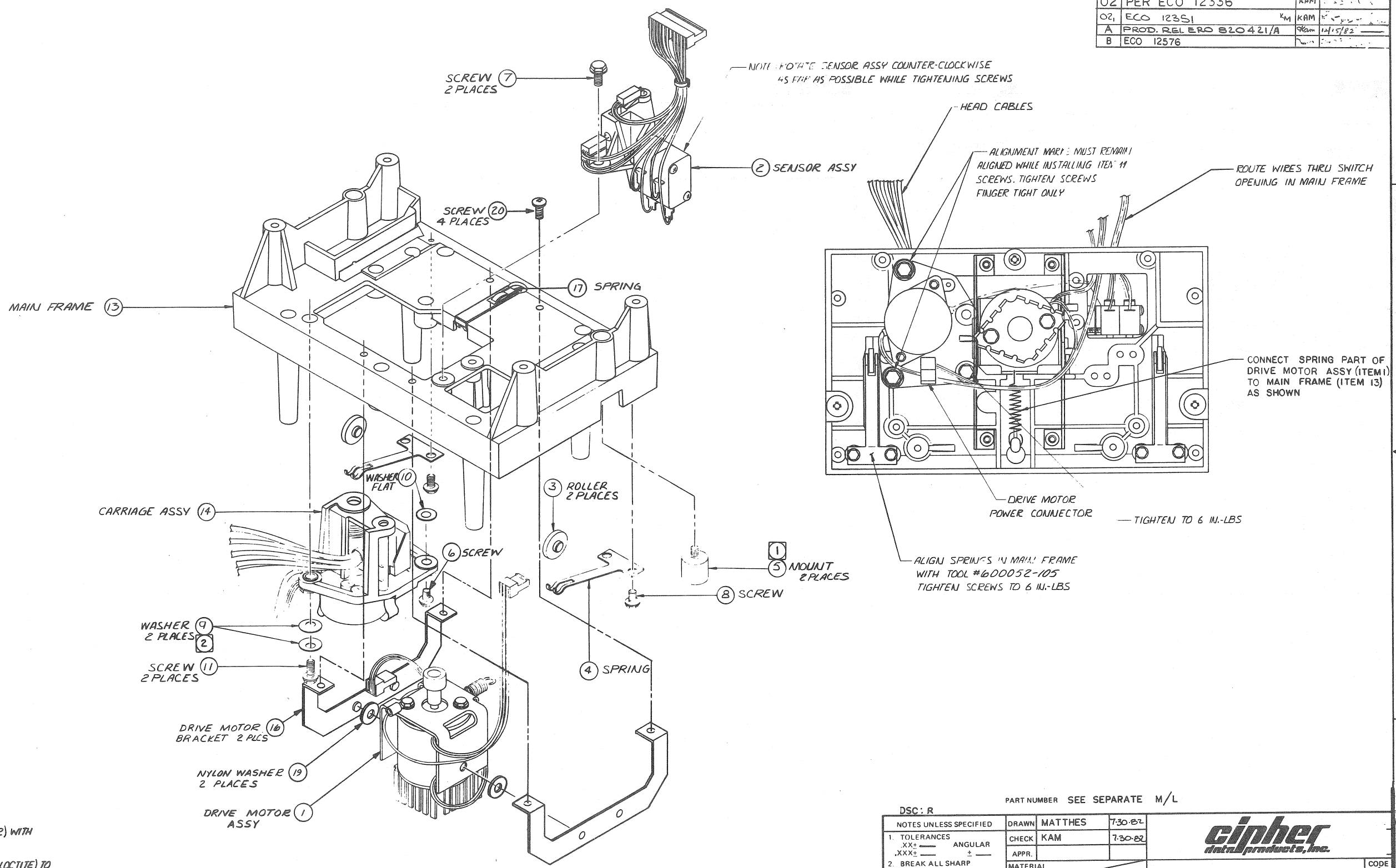
207303-001

DSC:R

146051-308

8 7 6 5 4 3 2 1

REVISIONS				207304-100 B	
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
A	ENG REL	NI	11/4/81	CK	1/1/81
01	PIL REL ERO 820309	KAM	3/10/82		
02	PER ECO 12336	KAM			
02	ECO 12351	KAM			
A	PROD. REL ERO 820421/A	9kam	11/15/82		
B	ECO 12576				



- INSTALL ITEMS 9 (BELLEVILLE WASHER) WITH CONCAVE SIDES TOWARD EACH OTHER
- APPLY ONE DROP OF ITEM 12 (GREEN LOCTITE) TO THREADS OF ITEM 5 (SHOCK MOUNT) PRIOR TO ASSEMBLY

NOTES: UNLESS OTHERWISE SPECIFIED

DSC: R		PART NUMBER SEE SEPARATE M/L				CODE MAIN FRAME ASSY
NOTES UNLESS SPECIFIED	DRAWN	MATTHES	7-30-82				SCALE 1/1	SIZE D
1. TOLERANCES .XX± — ANGULAR .XXX± — ±	CHECK	KAM	7-30-82	MODEL NO. QB		207304-100
2. BREAK ALL SHARP EDGES APPROX. .010	APPR.			NEXT ASSY 207358, 207359		
3. MACH. SURFACES	MATERIAL			DO NOT SCALE THIS DRAWING		CODE IDENT 52465
4. ALL DIMS IN INCHES.	FINISH			SHEET 1 OF 1		
5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT						

8 7 6 5 4 3 2 1



ASSEMBLY PARTS LIST

S 7 0 1 1 207304 -001 REV B

ASSEMBLY TITLE ASSY, MAIN FRAME DSC:R DOC CODE Q100

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include: 207314 - 001 ASSY, DRIVE MOTOR; 207324 - 001 ASSY, SENSOR; 207309 - 001 ROLLER - DETENT (MOLDED); 207308 - 001 SPRING - DETENT; 135001 - 001 MOUNT - SHOCK; 145026 - 306 SCREW - WASHER HD HEX 6-32X3/8; 145027 - 306 SCREW - THREAD CUTTING INDENTED HEX WASHER HEAD; 145027 - 304 SCREW - THREAD CUTTING INDENTED HEX WASHER HEAD; 100256 - 002 WASHER - BELLEVILLE; 163010 - 003 WASHER - FLAT; 145026 - 308 SCREW - WASHER HD HEX, INDENTED 6-32 X 1/2; 100465 - 003 ADHESIVE-ACCELERATOR; 207311 - 001 MAIN FRAME; 207329 - 001 ASSY, CARRIAGE.

Prepared by Sue Redmond, DATE 1-15-82, DWG REL NO. 820287, DATE 2 1 82, PART ASSEMBLY 207358/207359, MODEL NO. 0420-30/90.

FORM 788 (R 06/80)



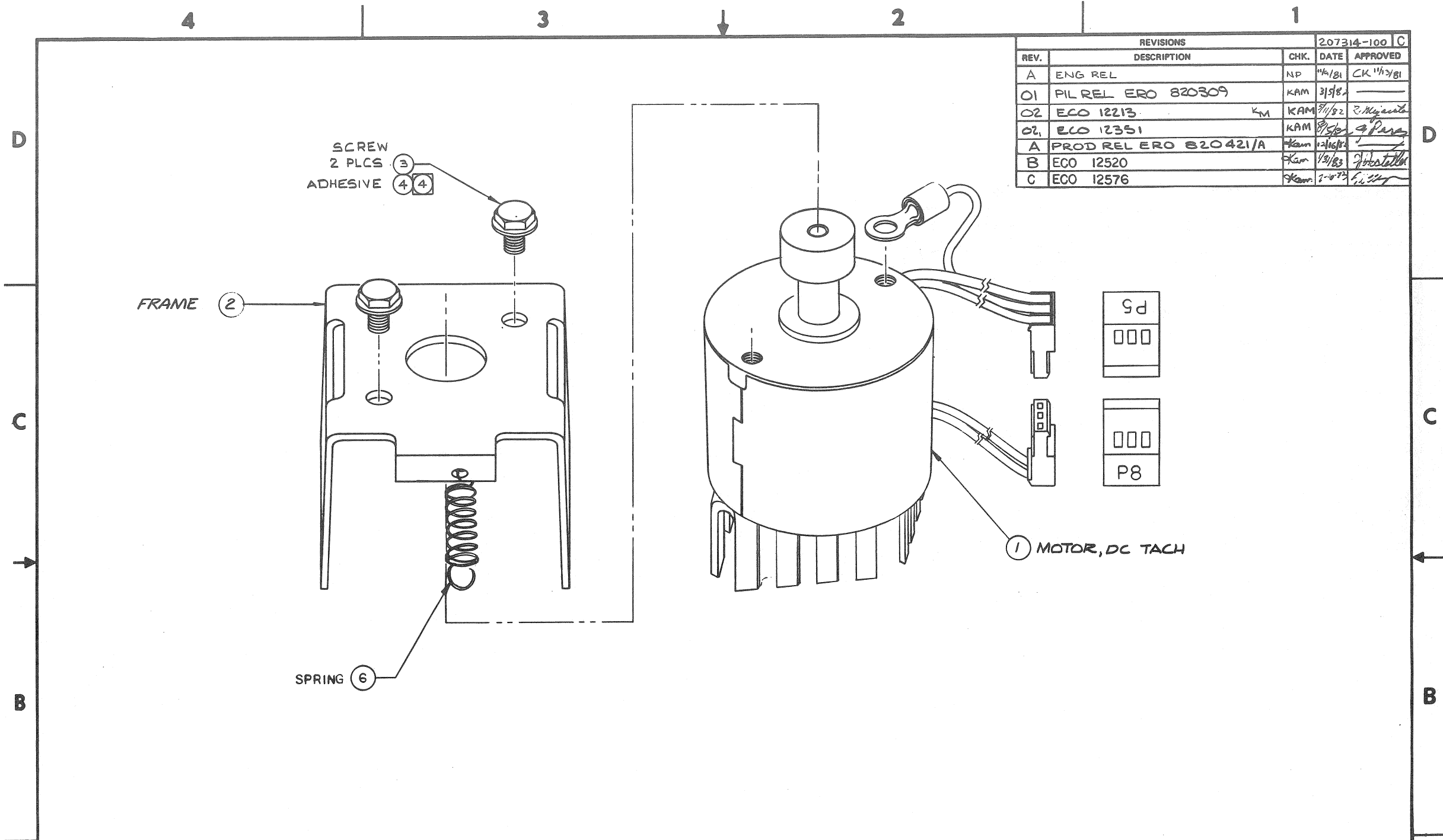
ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207304 -001 REV B

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Rows include: 207304 - 100 ASSEMBLY DRAWING; 207377 - 001 BRACKET, DRIVE MOTOR; 207376 - 001 SPRING, CARTRIDGE; 100050 - 301 WASHER, FLAT NYLON .192 ID X .50 OD X .010; 100293 - 104 SCREW, BUT. HD. BLK 4-40 X 1/4.

FORM 788 (R 06/80)

REVISIONS					207314-100	C
REV.	DESCRIPTION	CHK.	DATE	APPROVED		
A	ENG REL	ND	11/4/81	CK	11/3/81	
01	PIL REL ERO 820309	KAM	3/5/81			
02	ECO 12213	KM	7/1/82	R. M. G. Smith		
02	ECO 12351	KAM	8/5/81	J. P. G. Smith		
A	PROD REL ERO 820421/A	Kam	12/16/81			
B	ECO 12520	Kam	1/9/83	J. P. G. Smith		
C	ECO 12576	Kam	2-10-83	J. P. G. Smith		



- 5 MARK REFERENCE DESIGNATION PER CDP SPEC 100013-001
- 4 APPLY ONE DROP OF ADHESIVE TO EACH SCREW BEFORE INSTALLATION
- 3. BAG & TAG PART NO., APPROPRIATE DASH NO. & LATEST REVISION LEVEL PER CDP SPEC 100037-001.

2. CONFIGURATION WITH SHORT CAPSTAN SHANK AND LONG MOTOR SHAFT IS ACCEPTABLE.
 1. ORIENT SEAM ON DRIVE MOTOR CASE AS SHOWN.

NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER SEE SEPARATE W/L

DRAWN	MATTHES	7-29-82	cipher data products, inc.		ASSY, DRIVE MOTOR	CODE	Q	100
CHECK	MAKHANI	7-29-82				QTY.	REQ'D.	1
APPR.	<i>J. P. G. Smith</i>	1/31/83						
MATERIAL								
FINISH								
MODEL NO.	QB	SCALE	2/1	SIZE	C	207314-100	C	
NEXT ASSY	207304	DO NOT SCALE THIS DRAWING	CODE IDENT	52465	SHEET	1 OF 1		

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS INC.

DSC:R



ASSEMBLY PARTS LIST

S 7 0 1 1 207314 -001 C

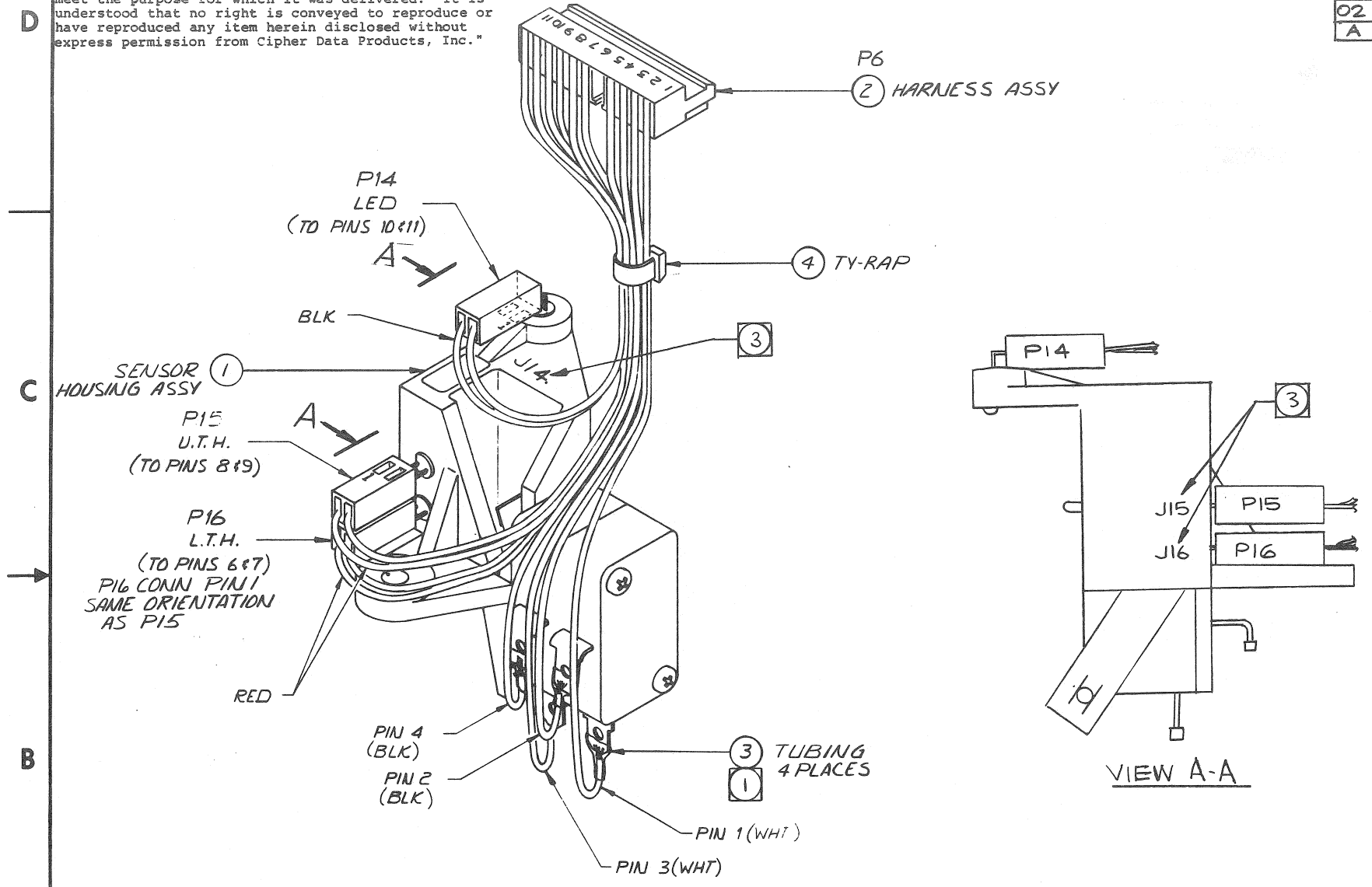
ASSEMBLY TITLE ASSY, DRIVE MOTOR DSC:R DSC CODE @100

PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
207362 - 001	1	MOTOR, DC TACH		1		
207315 - 001	2	FRAME, MOTOR		1		
145026 - 304	3	SCREW, WASHER HD HEX 6-32 X 1/4		2		
100303 - 004	4	ADHESIVE / SEALANT (LOCTITE)	BLUE	A/R		
207314 - 100	5	ASSEMBLY DRAWING		0		
207379 - 001	6	SPRING, CAPSTAN		1		
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

PREPARED BY	Sue Redmond	DATE	1-15-82	REV	B	12520	1/15/82	DATE	820287	DATE	2 1 1 8 2
CHECKED BY	J.P.S.	DATE	1-26-82	REV	A	12520	1/26/82	DATE	820287	DATE	2 1 1 8 2
DESIGN ENGINEER	J.P.S.	DATE	1-27-82	REV	02	12213	1/27/82	DATE	207304	DATE	2 1 1 8 2
		DATE		REV	01	12576	1/27/82	DATE	0420-30/90	DATE	2 1 1 8 2

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REVISIONS				
REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	ENG REL	NP	11/81	CK 11/3/81
01	PIL REL ERO 820309	KAM	3/5/82	
01	ECO 12351	KM	8/5/82	9 Pers
02	ECO 12464	KM	7/2/82	5/2/82
A	PROD REL ERO 820421/A	SKM	11/82	



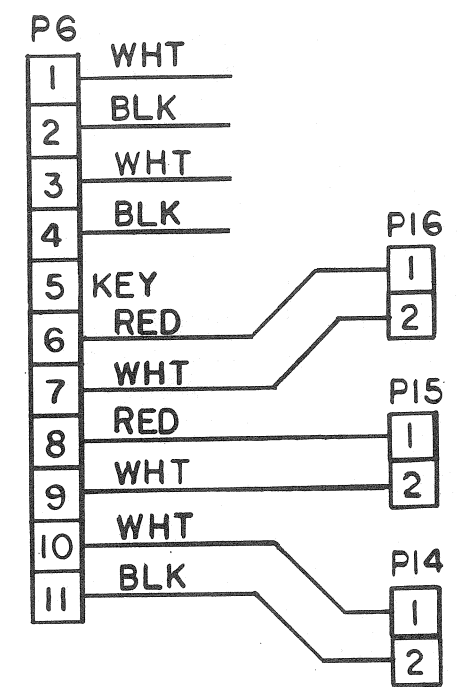
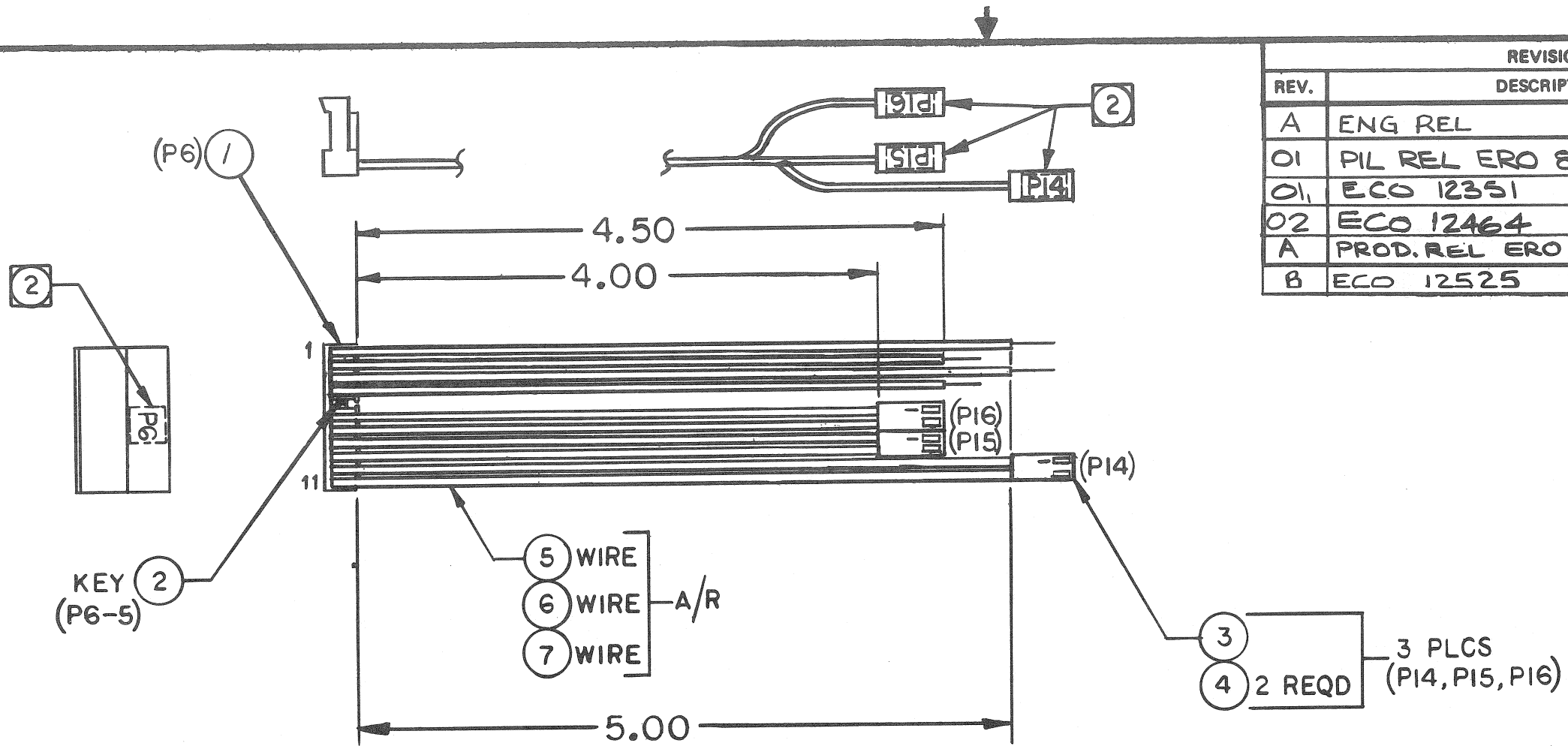
- ③ RUBBER STAMP OR STENCIL DESIGNATIONS .12 HIGH WHITE CHARACTERS PER CDP SPEC 100013-001.
- 2. BAG & TAG PART NO., APPROPRIATE DASH NO & LATEST REVISION LEVEL PER CDP SPEC 100037-001
- ① SOLDER WIRES TO SWITCH, COVER WITH ITEM 3 TUBING.

NOTES: UNLESS OTHERWISE SPECIFIED

DSC: R PART NUMBER SEE SEPARATE M/L

NOTES UNLESS SPECIFIED	DRAWN	MATTHES	7-29-82	cipher data products, inc.	SENSOR ASSY	CODE Q 100 QTY. REQ'D 1
1. TOLERANCES .XX± ——— ANGULAR .XXX± ——— ±	CHECK	KAM	7-29-82			
2. BREAK ALL SHARP EDGES APPROX. .010	APPR.					
3. MACH. SURFACES ✓	MATERIAL			SCALE 2/1	SIZE C	207324-100
4. ALL DIMS IN INCHES.	FINISH					
5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	MODEL NO.	QB		207324-100		A
THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS INC.	NEXT ASSY	207304		DO NOT SCALE THIS DRAWING	CODE IDENT	52465
						SHEET 1 OF 1

REVISIONS				
REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	ENG REL	NP	11/9/81	CK 11/13/81
01	PIL REL ERO 820309	EB	3/5/82	
01	ECO 12351	KM	8/5/82	9/2/82
02	ECO 12464	KW	9/2/82	9/2/82
A	PROD. REL ERO 820421/A	Kam	12/14/82	
B	ECO 12525	Kam	2-3-83	4/1/83



PART NUMBER SEE SEPARATE M/L

- 2 RUBBER STAMP OR STENCIL DESIGNATIONS .12 HIGH WHITE CHARACTERS PER CDP SPEC 100013-001.
- 1. BAG & TAG PART NO., APPROPRIATE DASH NO. & LATEST REVISION LEVEL PER CDP SPEC 100037-001.

NOTES: UNLESS OTHERWISE SPECIFIED

THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS INC.

DSC:R

DRAWN	MATTHES	7-29-82	cipher data products, inc.		CODE Q 115
CHECK	KAM	7-29-82			
APPR.	J.K	2-3-83			
MATERIAL	HARNESS ASSY-SENSOR			QTY. REQ'D. 1	
FINISH				SCALE 1/1		SIZE B	207326-100
MODEL NO.	QB	DO NOT SCALE THIS DRAWING		CODE IDENT	52465
NEXT ASSY	207324	SHEET		1 OF 1	



ASSEMBLY PARTS LIST

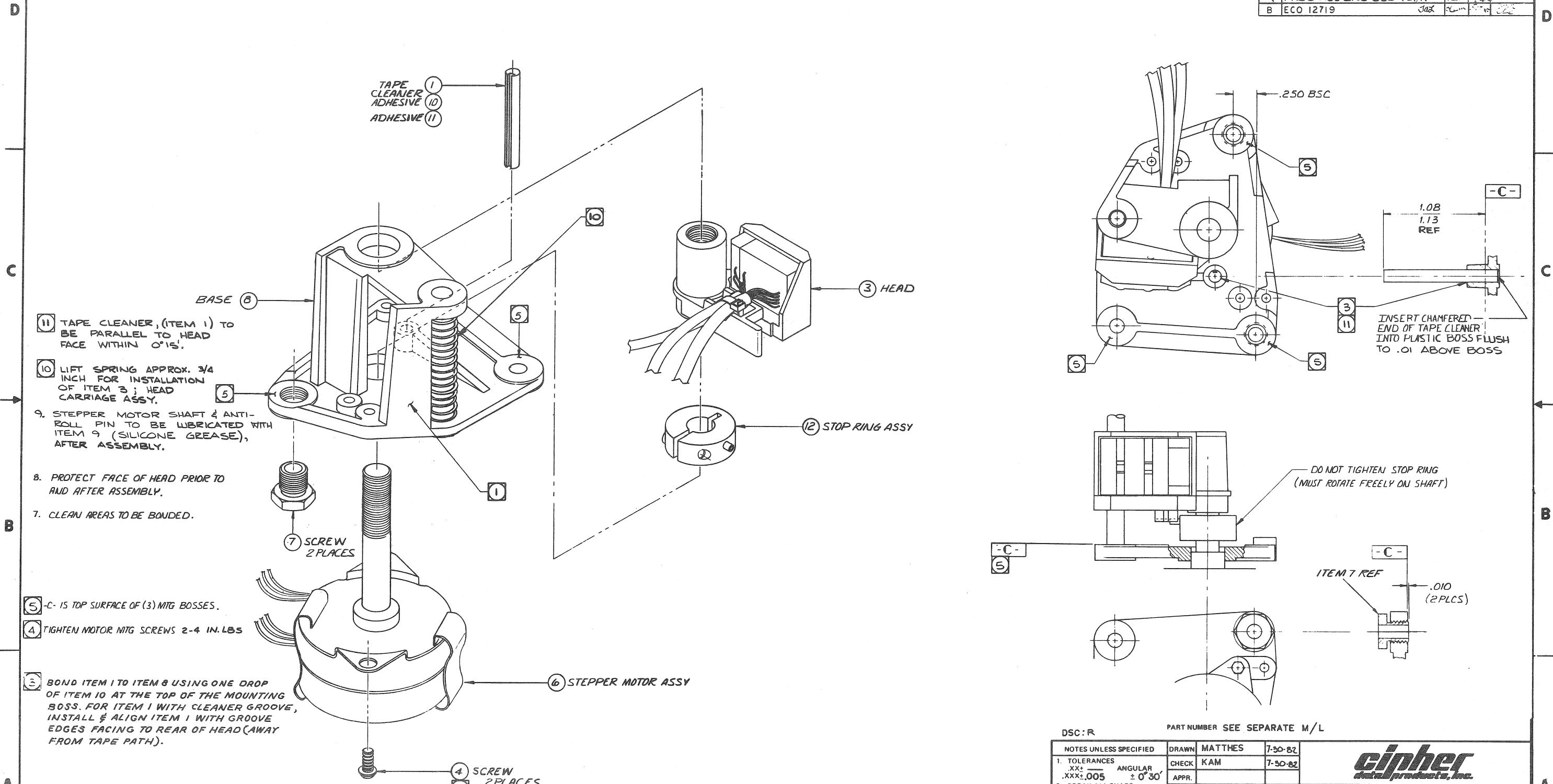
S 7 0 1 1 M P 207326 - 001 REV 6

ASSEMBLY TITLE: ASSY, HARNESS - SENSOR DSC:R DDC CODE: Q115

PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
105081 - 611	1	CONNECTOR, HOUSING	P6	1		
130006 - 001	2	KEY, CONNECTOR HOUSING		1		
105082 - 001	3	CONNECTOR, HOUSING	P14,P15,P16	3		
106017 - 101	4	CONTACT, CRIMP 22-30GA		6		
100053 - 026	5	WIRE, HOOKUP 26 AWG, BLACK		18		06
100053 - 226	6	WIRE, HOOKUP 26 AWG, RED		11		06
100053 - 926	7	WIRE, HOOKUP 26 AWG, WHITE		28		06
207326 - 100	8	ASSEMBLY DRAWING		0		
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-
-	-	-	-	-	-	-

PREPARED BY Sue Redmond	DATE 1-14-82	REV A	ECO 820421A	DATE / SIGNATURE	DWG REL NO. 820287	DATE 2 1 82
CHECKED BY G. P. [Signature]	DATE 1-26-82	REV B	ECO 820421A	DATE / SIGNATURE	NEXT ASSEMBLY M M D D Y Y	
DESIGN ENGINEER G. P. [Signature]	DATE 1-29-82	REV C	ECO 12464	DATE / SIGNATURE	MODEL NO. 207324	
		REV D	ECO 12341	DATE / SIGNATURE	MODEL NO. 0420-30/90	
		REV E	ECO 01PILREL	DATE / SIGNATURE		
		REV F	ECO B 12464	DATE / SIGNATURE		

REVISIONS				207329-100	B
REV.	DESCRIPTION	CHK.	DATE	APPROVED	
A	ENG REL	NF	4/13/81	LK	4/17/81
01	PIL REL ERO 820309	KAM	8/15/81		
02	ECO 12128	KM	KAM		8/16/81
02	ECO 12351	KM	KAM		8/16/81
1	PROD REL ERO 820421/A				
B	ECO 12719	Jax			



- 11 TAPE CLEANER, (ITEM 1) TO BE PARALLEL TO HEAD FACE WITHIN 0°15'.
- 10 LIFT SPRING APPROX. 3/4 INCH FOR INSTALLATION OF ITEM 3; HEAD CARRIAGE ASSY.
- 9 STEPPER MOTOR SHAFT & ANTI-ROLL PIN TO BE LUBRICATED WITH ITEM 9 (SILICONE GREASE), AFTER ASSEMBLY.
- 8. PROTECT FACE OF HEAD PRIOR TO AND AFTER ASSEMBLY.
- 7. CLEAN AREAS TO BE BOWDED.
- 5 -C- IS TOP SURFACE OF (3) MTG BOSSES.
- 4 TIGHTEN MOTOR MTG SCREWS 2-4 IN. LBS
- 3 BOND ITEM 1 TO ITEM 8 USING ONE DROP OF ITEM 10 AT THE TOP OF THE MOUNTING BOSS. FOR ITEM 1 WITH CLEANER GROOVE, INSTALL & ALIGN ITEM 1 WITH GROOVE EDGES FACING TO REAR OF HEAD (AWAY FROM TAPE PATH).

1 MARK PART NO., APPROPRIATE DASH NO. & LATEST REVISION LEVEL PER CDP SPEC 100031-001

NOTES: UNLESS OTHERWISE SPECIFIED

DSC:R		PART NUMBER SEE SEPARATE M/L			
NOTES UNLESS SPECIFIED	DRAWN MATTHES 7-30-82	CHECK KAM 7-30-82	APPR.		
1. TOLERANCES XX+ ANGULAR .XXX±.005 ± 0°30'	MATERIAL			CARRIAGE ASSY CODE Q 100 QTY. REQ'D 1	
2. BREAK ALL SHARP EDGES APPROX. .010	FINISH				
3. MACH. SURFACES	MODEL NO. QB			SCALE 2/1 SIZE D 207329-100 B	
4. ALL DIMS IN INCHES.	NEXT ASSY 207304				
5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	DO NOT SCALE THIS DRAWING			CODE IDENT 52465 SHEET 1 OF 1	

8

7

6

5

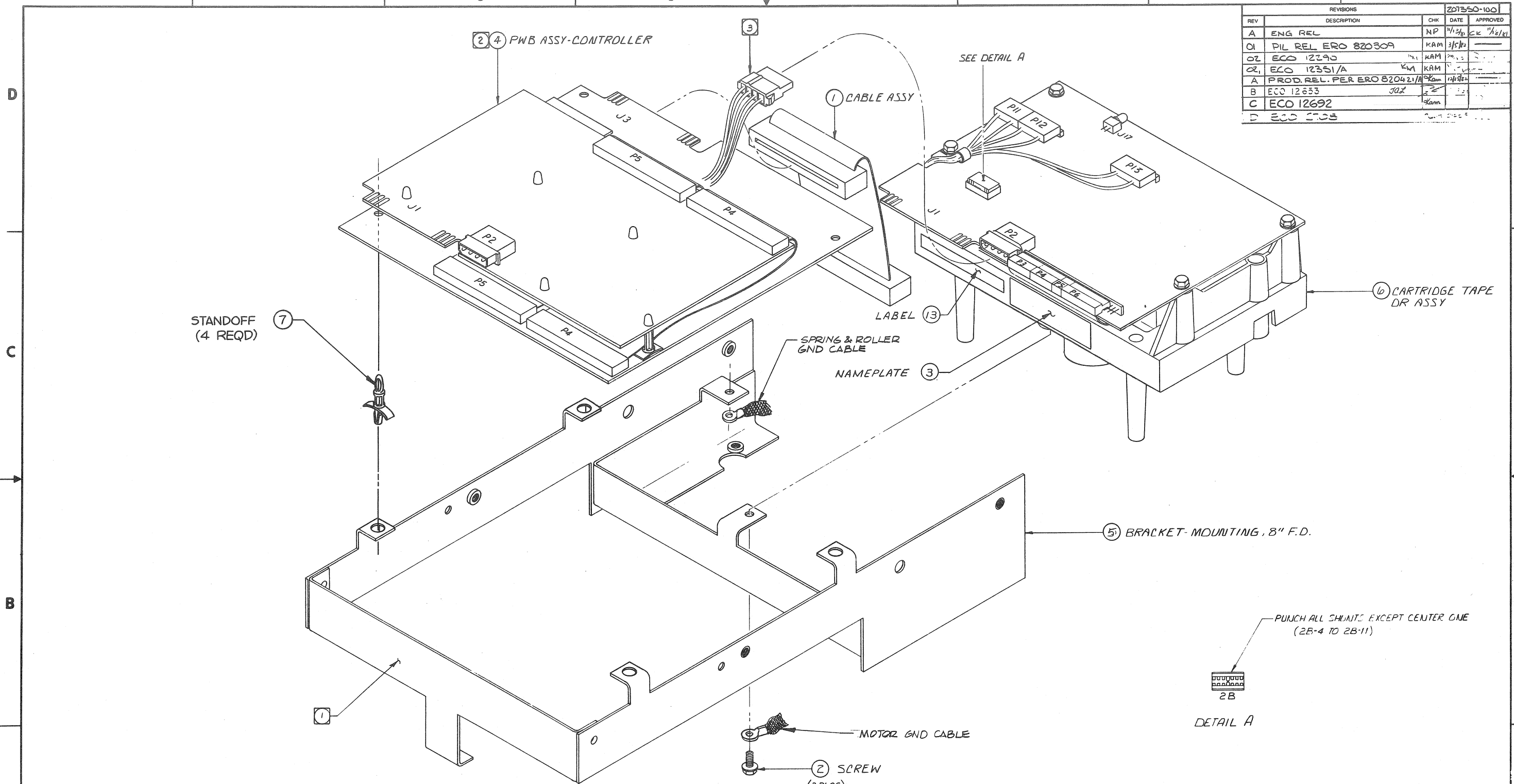
4

3

2

1

REVISIONS				207350-100	
REV	DESCRIPTION	CHK	DATE	APPROVED	
A	ENG REL	NP	11/2/81	CK	11/2/81
Q1	PIL REL ERO 820309	KAM	3/5/82		
Q2	ECO 12390	KAM			
Q2	ECO 12351/A	KAM			
A	PROD. REL. PER ERO 820421/A	KAM	11/8/82		
B	ECO 12653	JAL			
C	ECO 12692	KAM			
D	ECO 12708				



STANDOFF (4 REQD) (7)

SPRING & ROLLER GND CABLE

NAMEPLATE (3)

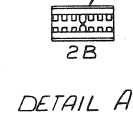
(5) BRACKET-MOUNTING, 8" F.D.

(6) CARTRIDGE TAPE DR ASSY

(2) SCREW (3PLCS)

MOTOR GND CABLE

PUNCH ALL SHUNTS EXCEPT CENTER ONE (2B-4 TO 2B-11)



1. STAMP FINAL ASSY P/N & REV ON SURFACE INDICATED.
2. BREAK CONTROLLER PWB (ITEM 4) AT SLOTS BETWEEN P4 & P5 CABLES. CUT OFF EXCESS TABS AND MOUNT SMALLER HALF ONTO (5) PLASTIC SUPPORT POSTS ON LARGER HALF.
3. ROUTE POWER CABLE BETWEEN CONTROLLER BOARDS.

NOTES: UNLESS OTHERWISE SPECIFIED

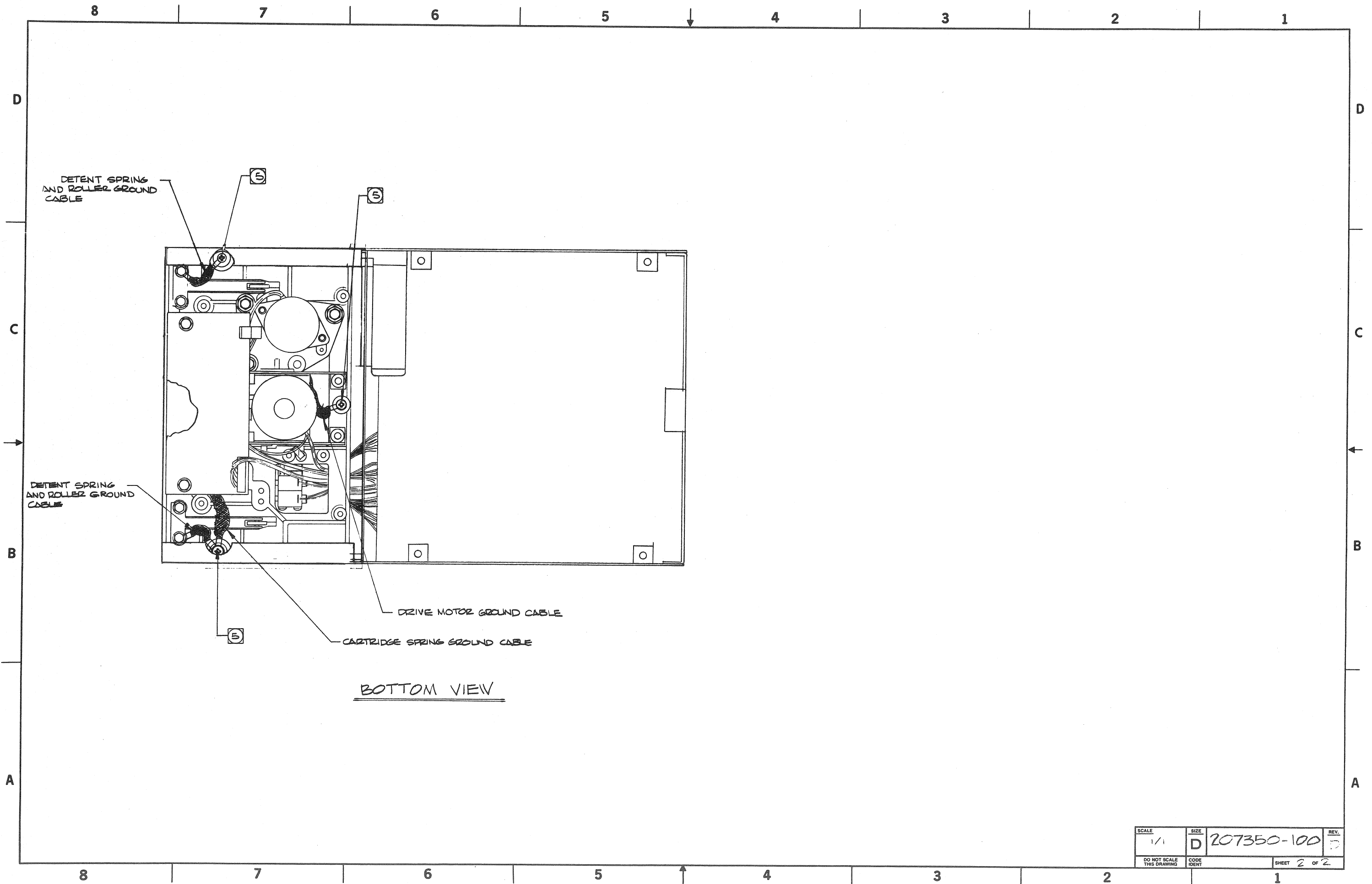
DSC: R PART NUMBER SEE SEPARATE M/L

NOTES UNLESS SPECIFIED	DRAWN	MATTHES	7-29-82
1. TOLERANCES .XX± — ANGULAR .XXX± — ±	CHECK	KAM	7-29-82
2. BREAK ALL SHARP EDGES APPROX. .010	APPR.		
3. MACH. SURFACES	MATERIAL		
4. ALL DIMS IN INCHES.	FINISH		
5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	MODEL NO.	QB	
	NEXT ASSY		

MTT-F420 PICTORIAL

SCALE 1/1 SIZE D 207350-100

DO NOT SCALE THIS DRAWING CODE IDENT 52465 SHEET 1 OF 2





ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207350 - 001 D

ASSEMBLY TITLE: MTT-F420, 30 IPS, 4 TK DSC:R DOC CODE: Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Rows include: 207020 - 001 ASSY, CABLE; 145026 - 303 SCREW, WASHER HD HEX, INDENTED 6-32 X 3/16; 207341 - 002 NAMEPLATE, QUARTERBACK TAPE DRIVE; 207005 - 001 ASSY, PWB - CONTROLLER; 940075 - 001 BRACKET, MOUNTING 8" F.D.; 207359 - 003 ASSY, CARTRIDGE TAPE DRIVE 0420, 30 IPS; 147805 - 002 STANDOFF-LK. CKT. BD. SUP 3/8" Long; 100472 - 001 SHIPPING BAG, PLASTIC - 16 X 14; 950035 - 001 SHIPPING CARTON, OUTER BOX; 950036 - 001 SHIPPING CARTON, INNER FOLD; 207366 - 001 PRODUCT SPEC, QUARTERBACK STREAMING CARTRIDGE TP DR; 207350 - 100 MTT-F420, PICTORIAL; 940012 - 101 LABEL, QUARTERBACK

Prepared by: Sue Redmond, DATE: 1-20-82, DWG REL NO.: 820287, DATE: 2 1 82, CHECKED BY: J.P., DATE: 1-26-82, DESIGN ENGINEER: J.P., DATE: 1-29-82, MODEL NO.: F420-30

FORM 795 (R 03/82)

PAGE 1 OF 2



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207350 - 001 D

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Row: 207305 - 100 LABEL INSTRUCTIONS

FORM 795 (R 03/82) (Continuation)

PAGE 2 OF 2



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207350 - 002 D

ASSEMBLY TITLE: MTT-F420, 90 IPS, 4 TK DSC:R DOC CODE: Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Rows include: 207020 - 001 ASSY, CABLE; 145026 - 303 SCREW, WASHER HD HEX INDENTED 6-32 X 3/16; 207341 - 002 NAMEPLATE, QUARTERBACK TAPE DRIVE; 207005 - 002 ASSY, PWB - CONTROLLER; 940075 - 001 BRACKET, MOUNTING 8" F.D.; 207358 - 003 ASSY, CARTRIDGE TAPE DRIVE 0420, 90 IPS; 147805 - 002 STANDOFF-LK. CKT. BD. SUP 3/8" LONG; 100472 - 001 SHIPPING BAG, PLASTIC - 16 X 14; 950035 - 001 SHIPPING CARTON, OUTER BOX; 950036 - 001 SHIPPING CARTON, INNER FOLD; 207366 - 001 PRODUCT SPEC, QUARTERBACK STREAMING CARTRIDGE TP DR; 207350 - 100 MTT-F420, PICTORIAL; 940012 - 101 LABEL, QUARTERBACK

Prepared by: Sue Redmond, DATE: 1-20-82, DWG REL NO.: 820287, DATE: 2 1 82, CHECKED BY: J.P., DATE: 1-26-82, DESIGN ENGINEER: J.P., DATE: 1-29-82, MODEL NO.: F420-90

FORM 795 (R 03/82)

PAGE 1 OF 2



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207350 - 002 D

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Row: 207305 - 100 LABEL INSTRUCTIONS

FORM 795 (R 03/82) (Continuation)

PAGE 2 OF 2



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207350 - 005 E

ASSEMBLY TITLE: MTT-F420, 30 IPS, 4 TK DSC:R DOC CODE: Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Rows include: 207020 - 001 ASSY, CABLE; 145026 - 303 SCREW, WASHER HD HEX, INDENTED 6-32 X 3/16; 207341 - 005 NAMEPLATE, QUARTERBACK TAPE DRIVE; 207005 - 001 ASSY, PWB - CONTROLLER; 940075 - 001 BRACKET, MOUNTING 8" F.D.; 207359 - 004 ASSY, CARTRIDGE TAPE DRIVE 0420, 30 IPS; 147805 - 002 STANDOFF-LK. CKT. BD. SUP 3/8" LONG; 100472 - 001 SHIPPING BAG, PLASTIC - 16 x 14; 950035 - 001 SHIPPING CARTON, OUTER BOX; 950036 - 001 SHIPPING CARTON, INNER FOLD; 207366 - 001 PRODUCT SPEC., BASIC QUARTERBACK CARTRIDGE TAPE DRIVE; 207350 - 100 MTT-F420, PICTORIAL; 940012 - 101 LABEL, QUARTERBACK; 207305 - 100 LABEL INSTRUCTIONS

Prepared by: Sue Redmond, DATE: 7-9-82, DWG REL NO.: 820420, DATE: 9 1 5 82, CHECKED BY: Kam Mahdavi, DATE: 7/15/82, DESIGN ENGINEER: K. Mahdavi, DATE: 11/1/82, MODEL NO.: F420-30

FORM 795 (R 03/82)

PAGE 1 OF 1



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207350 - 006 H

ASSEMBLY TITLE: MTT-F420, 90 IPS, 4 TK DSC:R DOC CODE: Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Rows include: 207020 - 001 ASSY, CABLE; 145026 - 303 SCREW, WASHER HD HEX INDENTED 6-32 X 3/16; 207341 - 003 NAMEPLATE, QUARTERBACK TAPE DRIVE; 207005 - 002 ASSY, PWB - CONTROLLER; 940075 - 001 BRACKET, MOUNTING 8" F.D.; 207358 - 004 ASSY, CARTRIDGE TAPE DRIVE 0420, 90 IPS; 147805 - 002 STANDOFF-LK. CKT. BD. SUP 3/8" LONG; 100472 - 001 SHIPPING BAG, PLASTIC - 16 X 14; 950035 - 001 SHIPPING CARTON, OUTER BOX; 950036 - 001 SHIPPING CARTON, INNER FOLD; 207366 - 001 PRODUCT SPEC., BASIC QUARTERBACK CARTRIDGE TAPE DRIVE; 207350 - 100 MTT-F420, PICTORIAL; 940012 - 101 LABEL, QUARTERBACK; 207305 - 100 LABEL INSTRUCTIONS

Prepared by: Sue Redmond, DATE: 7-9-82, DWG REL NO.: 12636, DATE: 1/3/83, CHECKED BY: Kam Mahdavi, DATE: 1/3/83, DESIGN ENGINEER: J. L. L. DATE: 1/1/83, MODEL NO.: F420-90

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PAGE 1 OF 1



ASSEMBLY PARTS LIST

ASSEMBLY TITLE: MTT-F420, 30 IPS, 4 TK DSC: R DOC CODE: Q101 S 7 0 1 1 M P 207350 - 009 A

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes parts like ASSY, CABLE, SCREW, WASHER HD HEX, INDENTED, NAMEPLATE, QUARTERBACK TAPE DRIVE, ASSY, PWB - CONTROLLER, BRACKET, MOUNTING 8" F.D., ASSY, CARTRIDGE TAPE DRIVE, STANDOFF-LK. CKT. BD. SUP., SHIPPING BAG, PLASTIC - 16 X 14, SHIPPING CARTON, OUTER BOX, SHIPPING CARTON, INNER FOLD, PRODUCT SPEC., BASIC QUARTERBACK CARTRIDGE TAPE DRIVE, MTT-F420, PICTORIAL, LABEL INSTRUCTIONS.

FORM 795 (R 03/82) PREPARED BY: S. HENCKE DATE: 04-18-83 DWG REL NO.: 820498 DATE: 4 18 83



ASSEMBLY PARTS LIST

ASSEMBLY TITLE: MTT-F420, 30 IPS, 4 TK DSC: R DOC CODE: Q101 S 7 0 1 1 M P 207350 - 010 C

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes parts like ASSY, CABLE, SCREW, WASHER HD HEX, INDENTED, NAMEPLATE, QUARTERBACK TAPE DRIVE, ASSY, PWB - CONTROLLER, BRACKET, MOUNTING 8" F.D., ASSY, CARTRIDGE TAPE DRIVE, STANDOFF-LK. CKT. BD. SUP., SHIPPING BAG, PLASTIC - 16 X 14, SHIPPING CARTON, OUTER BOX, SHIPPING CARTON, INNER FOLD, PRODUCT SPEC., BASIC QUARTERBACK CARTRIDGE TAPE DRIVE, MTT-F420, PICTORIAL, LABEL INSTRUCTIONS.

FORM 795 (R 03/82) PREPARED BY: S. HENCKE DATE: 03-25-83 DWG REL NO.: 820477 DATE: 03 25 83



ASSEMBLY PARTS LIST

ASSEMBLY TITLE: MTT-F420, 90 IPS, 4 TK DSC: R DOC CODE: Q101 S 7 0 1 1 M P 207350 - 011 C

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes parts like ASSY, CABLE, SCREW, WASHER HD HEX, INDENTED 6-32 X 1/4, NAMEPLATE, QUARTERBACK TAPE DRIVE, ASSY, PWB - CONTROLLER, BRACKET, MOUNTING 8" F.D., ASSY, CARTRIDGE TAPE DRIVE, STANDOFF-LK. CKT. BD. SUP., SHIPPING BAG, PLASTIC - 16 X 14, SHIPPING CARTON, OUTER BOX, SHIPPING CARTON, INNER FOLD, PRODUCT SPEC., BASIC QUARTERBACK CARTRIDGE TAPE DRIVE, MTT-F420, PICTORIAL, LABEL INSTRUCTIONS.

FORM 795 (R 03/82) PREPARED BY: S. HENCKE DATE: 03-25-83 DWG REL NO.: 820477 DATE: 03 25 83



ASSEMBLY PARTS LIST

ASSEMBLY TITLE: MTT-F420, 30 IPS, 4 TK DSC: R DOC CODE: Q101 S 7 0 1 1 M P 207350 - 012 A

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY (WHOLE, DECIMAL), U.M. CODE. Includes parts like ASSY, CABLE, SCREW, WASHER HD HEX, INDENTED 6-32 X 1/4, NAMEPLATE, QUARTERBACK TAPE DRIVE, ASSY, PWB - CONTROLLER, ASSY, CARTRIDGE TAPE DRIVE, SHIPPING BAG, PLASTIC - 16 X 14, SHIPPING CARTON, OUTER BOX, SHIPPING CARTON, INNER FOLD, PRODUCT SPEC., BASIC QUARTERBACK CARTRIDGE TAPE DRIVE, MTT-F420, PICTORIAL, LABEL INSTRUCTIONS.

FORM 795 (R 03/82) PREPARED BY: S. HENCKE DATE: 08-23-83 DWG REL NO.: 820520 DATE: 08 23 83



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207358 - 002 Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes assembly details for ASSY, CARTRIDGE TAPE DRIVE 0420, 90 IPS.

FORM 795 (R 03/82)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207358 - 003 Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes assembly details for ASSY, CARTRIDGE TAPE DRIVE 0420, 90 IPS.

FORM 795 (R 03/82)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207358 - 004 Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes assembly details for ASSY, CARTRIDGE TAPE DRIVE 0420, 90 IPS.

FORM 795 (R 03/82)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207358 - 005 Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes assembly details for ASSY, CARTRIDGE TAPE DRIVE 0420, 90 IPS.

FORM 795 (R 03/82)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207359 - 002 Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes assembly details for ASSY, CARTRIDGE TAPE DRIVE 0420, 30 IPS.

FORM 795 (R 03/82)



ASSEMBLY PARTS LIST

S 7 0 1 1 M P 207359 - 003 Q101

Table with columns: PART NUMBER, ITEM NO., DESCRIPTION, REMARKS, QUANTITY, U.M. CODE. Includes assembly details for ASSY, CARTRIDGE TAPE DRIVE 0420, 30 IPS.

FORM 795 (R 03/82)



ASSEMBLY PARTS LIST

Garden Grove Division
 ASSEMBLY TITLE: ASSY, CARTRIDGE TAPE DRIVE 0420, 30 IPS DSC:R DOC CODE: Q101
 S 7 0 1 1 M P 207359 - 004 D

PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
207066 - 003	1	ASSY, PMB - MAIN		1		
207076 - 001	2	ASSY, PMB - MOTOR DRIVER		1		
145027 - 308	3	SCREW, THREAD CUTTING INDENTED HEX WASHER HEAD		6		
100000 - 019	4	CLAMP, CABLE		1		
100171 - 001	5	STRAP-CABLE, SELF-LOCKING		1		
207393 - 001	6	ASSY, MAIN FRAME		1		
900900 - 001	7	PROCEDURE, TRACK AND AZIMUTH ALIGNMENT		0		
207073 - 001	8	ASSY, CABLE - MOTOR DRIVER PMB		1		
207072 - 001	9	ASSY, DIODE - MOTOR DRIVER		1		
100036 - 304	10	SCREW, PAN HEAD PHIL	6-32 x 1/4	2		
207358 - 100	11	MTT-0420, PICTORIAL		0		
207383 - 001	14	SHIELD		1		

PREPARED BY: Sue Redmond DATE: 7-9-82 DWG REL NO.: 820420 DATE: 9 15 82
 CHECKED BY: Ram Mohan DATE: 7/14/82 D 12686 DATE: 8/12/82
 DESIGN ENGINEER: R. Parker DATE: 11/11/82 C 12653 DATE: 3/21/82
 ECO 12553 DATE: 1/1/82
 PROD REL: A DATE: 1/1/82
 REV ECO DATE / SIGNATURE
 NEXT ASSEMBLY: 207350/207351
 MODEL NO.: F/0420-30

FORM 795 (R 03/82)

PAGE 1 OF 1



ASSEMBLY PARTS LIST

Garden Grove Division
 ASSEMBLY TITLE: ASSY, CARTRIDGE TAPE DRIVE 0420, 30 IPS DSC: R DOC CODE: Q101
 S 7 0 1 1 M P 207359 - 005 A

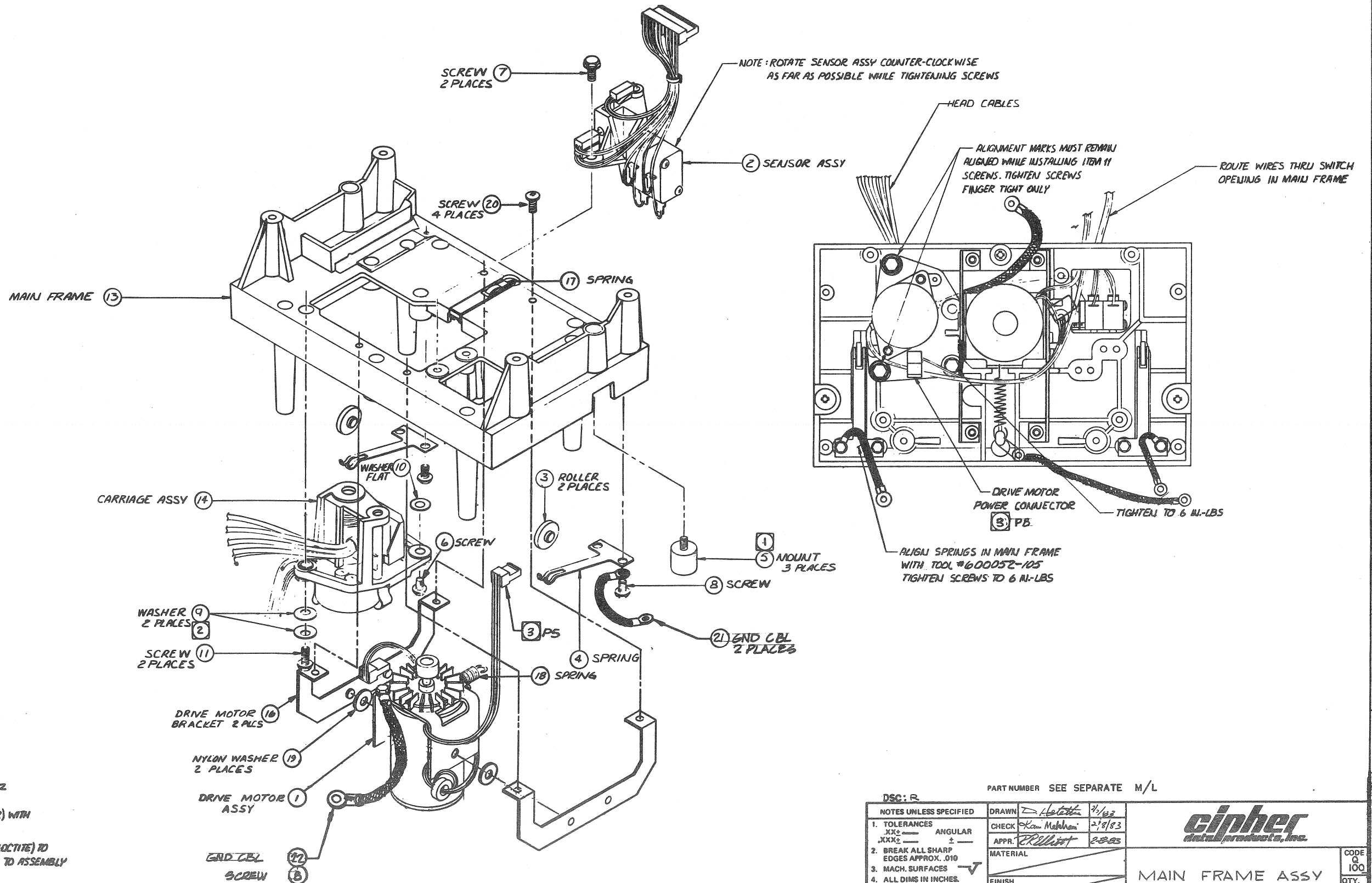
PART NUMBER	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
				WHOLE	DECIMAL	
207066 - 003	1	ASSY, PMB - MAIN		1		
207076 - 001	2	ASSY, PMB - MOTOR DRIVER		1		
145027 - 308	3	SCREW, THREAD CUTTING INDENTED HEX WASHER HEAD		6		
100000 - 019	4	CLAMP, CABLE		1		
100171 - 001	5	STRAP-CABLE, SELF-LOCKING		1		
207393 - 002	6	ASSY, MAIN FRAME		1		
900900 - 001	7	PROCEDURE, TRACK AND AZIMUTH ALIGNMENT		0		
207073 - 001	8	ASSY, CABLE - MOTOR DRIVER PMB		1		
207072 - 001	9	ASSY, DIODE - MOTOR DRIVER		1		
100036 - 304	10	SCREW, PAN HEAD PHIL	6-32 X 1/4	2		
207358 - 100	11	MTT-0420, PICTORIAL		0		
207383 - 001	14	SHIELD		1		

PREPARED BY: S. HENCKE DATE: 03-25-83 DWG REL NO.: 820420 DATE: 9 15 82
 CHECKED BY: J. Wilson DATE: 3-25-83
 DESIGN ENGINEER: J. Wilson DATE: 3-30-83
 ECO 12553 DATE: 1/1/82
 PROD REL: A DATE: 1/1/82
 REV ECO DATE / SIGNATURE
 NEXT ASSEMBLY: 207350/207351
 MODEL NO.: F/0420-30

FORM 795 (R 03/82)

PAGE 1 OF 1

REVISIONS			
REV.	DESCRIPTION	CHK.	DATE
A	PROD. REL PER BRD 020464	KW	2/1/83
B	ECO 12708	KW	8/28/83



- 3 MARK REFERENCE DESIGNATIONS PER CDP SPEC 100013-001.
- 2 INSTALL ITEMS 9 (BELLEVILLE WASHER) WITH CONCAVE SIDES TOWARD EACH OTHER
- 1 APPLY ONE DROP OF ITEM 12 (GREEN LOCTITE) TO THREADS OF ITEM 5 (SHOCK MOUNT) PRIOR TO ASSEMBLY

NOTES: UNLESS OTHERWISE SPECIFIED

DSC: R		PART NUMBER SEE SEPARATE M/L	
NOTES UNLESS SPECIFIED	DRAWN <i>D. Helath</i> 2/1/83	cipher data products, inc.	
1. TOLERANCES XX± — ANGULAR XXX± — ± —	CHECK <i>Kam Mahkam</i> 2/1/83		
2. BREAK ALL SHARP EDGES APPROX. .010	APPR. <i>PRilliant</i> 2/2/83	MAIN FRAME ASSY	
3. MACH. SURFACES	MATERIAL		
4. ALL DIMS IN INCHES	FINISH	CODE Q 100	
5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	MODEL NO. QB	SCALE 1/1	SIZE D 207393-100
THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT BE REPRODUCED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS, INC.	NEXT ASSY 207358, 207359	DO NOT SCALE THIS DRAWING	CODE IDENT 52465 SHEET 1 OF 1



DSC: R

ASSEMBLY PARTS LIST

ASSEMBLY TITLE: ASSY, MAIN FRAME DOC CODE: Q100 S 7 0 1 1 M P 207393 - 001 REV B

19	PART NUMBER	20	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
						12	13	
M P	207385 - 001	1		ASSY, DRIVE MOTOR		1		
M P	207324 - 001	2		ASSY, SENSOR		1		
M P	207309 - 001	3		ROLLER - DETENT (MOLDED)		2		
M P	207308 - 001	4		SPRING - DETENT		2		
M P	135001 - 001	5		MOUNT - SHOCK		3		
M P	145026 - 306	6		SCREW - WASHER HD HEX 6-32 X 3/8		1		
M P	145027 - 306	7		SCREW - THREAD CUTTING INDENTED HEX WASHER HEAD		2		
M P	145027 - 304	8		SCREW - THREAD CUTTING INDENTED HEX WASHER HEAD		4		
M P	100256 - 002	9		WASHER - BELLEVILLE		4		
M P	163010 - 003	10		WASHER - FLAT		1		
M P	145026 - 308	11		SCREW - WASHER HD HEX, INDENTED	6-32 X 1/2	2		
M P	100465 - 003	12		ADHESIVE-ACCELERATOR		A/R		
M P	207311 - 001	13		MAIN FRAME		1		
M P	207329 - 001	14		ASSY, CARRIAGE		1		

FORM 795 (R 03/82) PAGE 1 OF 2



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207393 - 001 REV B

19	PART NUMBER	20	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
						12	13	
M P	207393 - 100	15		ASSEMBLY DRAWING		0		
M P	207377 - 001	16		BRACKET, DRIVE MOTOR		2		
M P	207376 - 001	17		SPRING, CARTRIDGE		1		
M P	207379 - 002	18		SPRING, CAPSTAN		1		
M P	100050 - 301	19		WASHER, FLAT NYLON	.192 ID X .50 OD .010	2		
M P	100293 - 104	20		SCREW, BUT. HD. BLK	4-40 X 1/4	4		
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-

FORM 795 (R 03/82) (Continuation) PAGE 2 OF 2



ASSEMBLY PARTS LIST

ASSEMBLY TITLE: ASSY, MAIN FRAME DSC: R DOC CODE: Q100 S 7 0 1 1 M P 207393 - 002 REV B

19	PART NUMBER	20	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
						12	13	
M P	940076 - 001	1		ASSY, DRIVE MOTOR		1		
M P	207324 - 001	2		ASSY, SENSOR		1		
M P	207309 - 002	3		ROLLER - DETENT	BRASS	2		
M P	207308 - 001	4		SPRING - DETENT		2		
M P	135001 - 001	5		MOUNT - SHOCK		3		
M P	145026 - 306	6		SCREW - WASHER HD HEX 6-32 X 3/8		1		
M P	145027 - 306	7		SCREW - THREAD CUTTING INDENTED HEX WASHER HEAD		2		
M P	145027 - 304	8		SCREW - THREAD CUTTING INDENTED HEX WASHER HEAD		5		
M P	100256 - 002	9		WASHER - BELLEVILLE		4		
M P	163010 - 003	10		WASHER - FLAT		1		
M P	145026 - 308	11		SCREW - WASHER HD HEX, INDENTED	6-32 X 1/2	2		
M P	100465 - 003	12		ADHESIVE-ACCELERATOR		A/R		
M P	207311 - 001	13		MAIN FRAME		1		
M P	207329 - 001	14		ASSY, CARRIAGE		1		

FORM 795 (R 03/82) PAGE 1 OF 2



ASSEMBLY PARTS LIST (CONTINUATION)

S 7 0 1 1 M P 207393 - 002 REV B

19	PART NUMBER	20	ITEM NO.	DESCRIPTION	REMARKS	QUANTITY		U.M. CODE
						12	13	
M P	207393 - 100	15		ASSEMBLY DRAWING		0		
M P	207377 - 001	16		BRACKET, DRIVE MOTOR		2		
M P	940017 - 001	17		ASSY, CARTRIDGE SPRING- STATIC GND		1		
M P	207379 - 002	18		SPRING, CAPSTAN		1		
M P	100050 - 301	19		WASHER, FLAT NYLON	.192 ID X .50 OD .010	2		
M P	100293 - 104	20		SCREW, BUT. HD. BLK	4-40 X 1/4	4		
M P	207394 - 002	21		ASSY, CABLE-GROUND STRAP	2.0 IN.	2		
M P	207394 - 003	22		ASSY, CABLE-GROUND STRAP	3.0 IN.	1		
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-
M P	-	-	-	-	-	-	-	-

FORM 795 (R 03/82) (Continuation) PAGE 2 OF 2

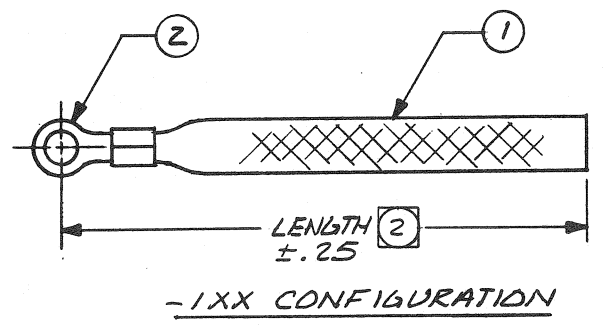
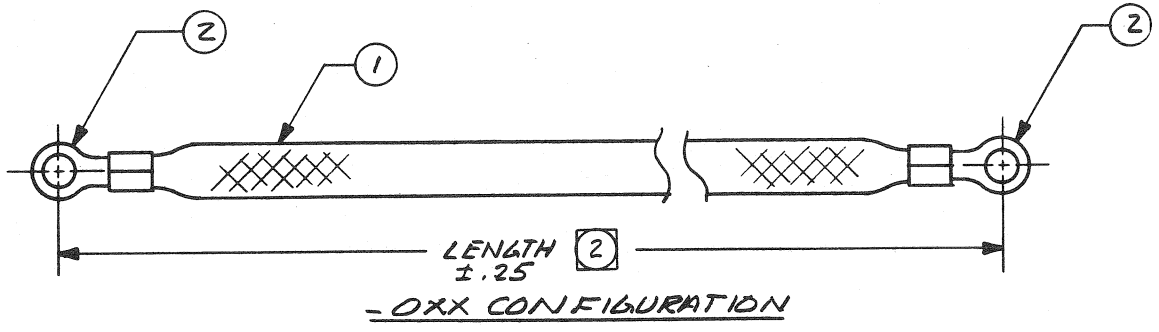
4

3

2

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REVISIONS				
REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	PROD REL PER EDD B20434	CKm	11/2/92	



2 LAST TWO DIGITS OF DASH NO. OF CABLE INDICATE CABLE LENGTH IN INCHES (IE, -008 = 8.0 ± .25 INCHES).

1. TAG WITH PART NO., APPROPRIATE DASH NO. & LATEST REV LEVEL PER CDP SPEC 100037-001.

NOTES: UNLESS OTHERWISE SPECIFIED

PART NUMBER SEE SEPARATE M/L'S

NOTES UNLESS SPECIFIED 1. TOLERANCES .XX± — ANGULAR .XXX± — ± 2. BREAK ALL SHARP EDGES APPROX. .010 3. MACH. SURFACES $\sqrt{\text{J}}$ 4. ALL DIMS IN INCHES. 5. DIMENSIONS APPLY AFTER FINISH AND HEAT TREAT	DRAWN <i>D.L. Lott</i> 11/11/92 CHECK <i>SW</i> 11/28/92 APPR. <i>D.L. Lott</i> 11-12-92			THIS DRAWING CONTAINS PROPRIETARY INFORMATION OF CIPHER AND MAY NOT, IN WHOLE OR IN PART, BE DUPLICATED OR DISCLOSED OR USED FOR MANUFACTURE OF ANY PART DISCLOSED HEREIN WITHOUT THE PRIOR WRITTEN PERMISSION OF CIPHER DATA PRODUCTS INC.	
	MATERIAL	ASSY, CABLE - GROUND STRAP		CODE 2 115 QTY REQ'D —	
	FINISH	MODEL No. QB	SCALE 2/1	SIZE C	REV. A
	DSC:R	NEXT ASSY 207380 940016, 940017	DO NOT SCALE THIS DRAWING	CODE IDENT 52465	SHEET 1 OF 1

4

3

2

1

SECTION 3

MASTER PARTS LIST

3.1 RECOMMENDATIONS

The recommended parts for the Cipher Quarterback Tape Drive are listed in the Master Parts List.

3.2 COMPONENT VARIANCE

For resistors, capacitors, small hardware, and other items not included in the list, equivalents in type, value, size, tolerance, and quality may be substituted.

3.3 INTEGRATED CIRCUIT

For integrated circuit where the manufacture is not specifically listed any manufacturer's device of the specific type may be used.

TABLE 3-1

MASTER PARTS LIST

Assembly, Main PWB - 30 ips R/B 207066-003	207002-001
Assembly, Main PWB - 90 Ips R/B 207066-004	207002-002
Assembly, Controller PWB	207005-001
Assembly, Controller PWB	207005-002
Assembly, Microcomputer Expander PWB	207011-001
Assembly, Motor Driver PWB R/B 207076-001	207017-001
Assembly, Cable - Motor Driver PWB R/B 207073-001	207018-001
Assembly, Cable	207020-001
Assembly, Cable	207020-002
Assembly, Cable	207020-003
Assembly, Cable	207020-004
Assembly, Power Cable - Controller PWB	207021-001
Assembly, 32 x 8 PROM (Read Decode)	207024-001
Assembly, 32 x 8 PROM (Write Decode)	207025-001
Assembly, 256 x 4 Write Sequencer	207026-001
Assembly, 256 x 4 Host Sequencer	207027-001
Assembly, 2K x 8 PROM	207028-001
Assembly, 512 x 4 Read Sequencer	207029-001
Assembly, 8 Bit Microcomputer R/B 207030-002	207030-001
Assembly, 8 Bit Microcomputer	207030-002
Assembly, 8 Bit Microcomputer - 2K x 8 EPROM	207041-001
Assembly, 8 Bit Microcomputer - 2K x 8 EPROM	207041-002
Assembly, Head -2 Ch. (Erase-Read-Write)	207057-001
Assembly, Main PWB - 30 ips R/B 207066-003	207066-001

TABLE 3-1. (Continued)

Assembly, Main PWB - 90 ips R/B 207066-004	207066-002
Assembly, Main PWB - 30 ips	207066-003
Assembly, Main PWB - 90 ips	207066-004
Assembly, Motor Driver PWB R/B 207076-001	207069-001
Assembly, Cable - Motor Driver PWB R/B 207073-001	207070-001
Assembly, Diode - Slow Speed Motor Kit, 30 ips	207072-001
Assembly, Cable - Motor Driver PWB	207073-001
Assembly, Motor Driver PWB	207076-001
Quarterback Maintenance Manual	207100-001
Quarterback Engr. Drawings	207100-002
Quarterback Theory of Operation	207100-003
Plate, Front	207300-001
Light Pipe	207301-001
Assembly, Main Frame	207304-001
Assembly, Main Frame	207304-002
Spring, Detent	207308-001
Frame, Main	207311-001
Frame, Main - Molded	207312-001
Assembly, Drive Motor (Spare)	207314-001
Frame, Drive Motor	207315-001
Heatsink, Zener Diode	207318-001
Capstan R/B 207389-001	207320-001
Assembly, Head/Carriage	207322-001
Housing, Sensor	207323-001
Assembly, Sensor (Spare)	207324-001
Assembly, Sensor Housing	207325-001
Assembly, Sensor Harness	207326-001
Assembly, Stepper Motor	207327-001
Assembly, Stepper Motor - Terminated	207328-001
Assembly, Carriage (Spare)	207329-001
Assembly, Carriage and Nut	207330-001
Assembly, Stop Ring	207332-001
Assembly, Carriage Base	207334-001
Assembly, Carriage Base	207335-001
Assembly, Carriage Base - Molded	207336-001
Shaft, Carriage Drive - ACME	207337-001
Shield, Cable	207338-001
Screw, Adjustment	207339-001
Certified Tape Cartridge - 450 ft.	207340-001
Nameplate - QB Tape Drive	207341-001
Kit, Front Panel	207346-001
Assembly, MTT F420 - 30 ips/4TK	207350-001
Assembly, MTT F420 - 90 ips/4TK	207350-002
Assembly, MTT F420 - 30 ips/4TK	207350-005
Assembly, MTT F420 - 90 ips/4TK	207350-006
Assembly, MTT F420 - 30 ips/4TK	207350-009
Assembly, MTT F420 - 30 ips/4TK	207350-010
Assembly, MTT F420 - 90 ips/4TK	207350-011
Assembly, MTT F420 - 30 ips/4TK	207350-012

TABLE 3-1. (Continued)

Assembly, MTT F420 - 30 ips/4TK	207351-001
Assembly, MTT F420 - 90 ips/4TK	207351-002
Assembly, MTT F420 - 30 ips/4TK	207351-005
Assembly, MTT F420 - 90 ips/4TK	207351-006
Assembly, MTT F420 - 30 ips/4TK	207351-010
Assembly, MTT F420 - 90 ips/4TK	207351-011
Assembly, Cartridge Drive 0420 - 90 ips	207358-002
Assembly, Cartridge Drive 0420 - 90 ips	207358-003
Assembly, Cartridge Drive 0420 - 90 ips	207358-004
Assembly, Cartridge Drive 0420 - 90 ips	207358-005
Assembly, Cartridge Drive 0420 - 30 ips	207359-002
Assembly, Cartridge Drive 0420 - 30 ips	207359-003
Assembly, Cartridge Drive 0420 - 30 ips	207359-004
Assembly, Cartridge Drive 0420 - 30 ips	207359-005
Motor, Stepper	207360-001
Motor, DC, Tach R/B207385-001	207362-001
Drive Nut, Carriage	207363-001
Spring, Compression - Carriage	207375-001
Bracket, Drive Motor	207377-001
Nameplate - Cipher Data Products Logo	207378-001
Cover, Sensor	207381-001
Drive Motor, DC, Tach	207385-001
Frame, Drive Motor	207387-001
Capstan	207389-001
Assembly, Main Frame	207393-001
Assembly, Main Frame	207393-002
Assembly, Ground Strap Cable	207394-002
Assembly, Ground Strap Cable	207394-003
Assembly, Ground Strap Cable	207394-008
Assembly, Ground Strap Cable	207394-104
Assembly, Ground Strap Cable	207394-105
Tracking Tape Cartridge	940049-001
Azimuth Tape Cartridge	940050-001
Bracket, Mounting - 8" F.D.	940075-001
Tape Cartridge Certified by DE I-450 ft.	950125-001



7301 Oranewood Avenue
Garden Grove, California 92641

P.O. Box 3010
Garden Grove, California 92642

Telephone: (714) 891-3711
TWX: 910-596-1870

10225 Willow Creek Road
San Diego, California 92131

P.O. Box 85170
San Diego, California 92138

Telephone: (714) 578-9100
TWX: 910-335-1251
