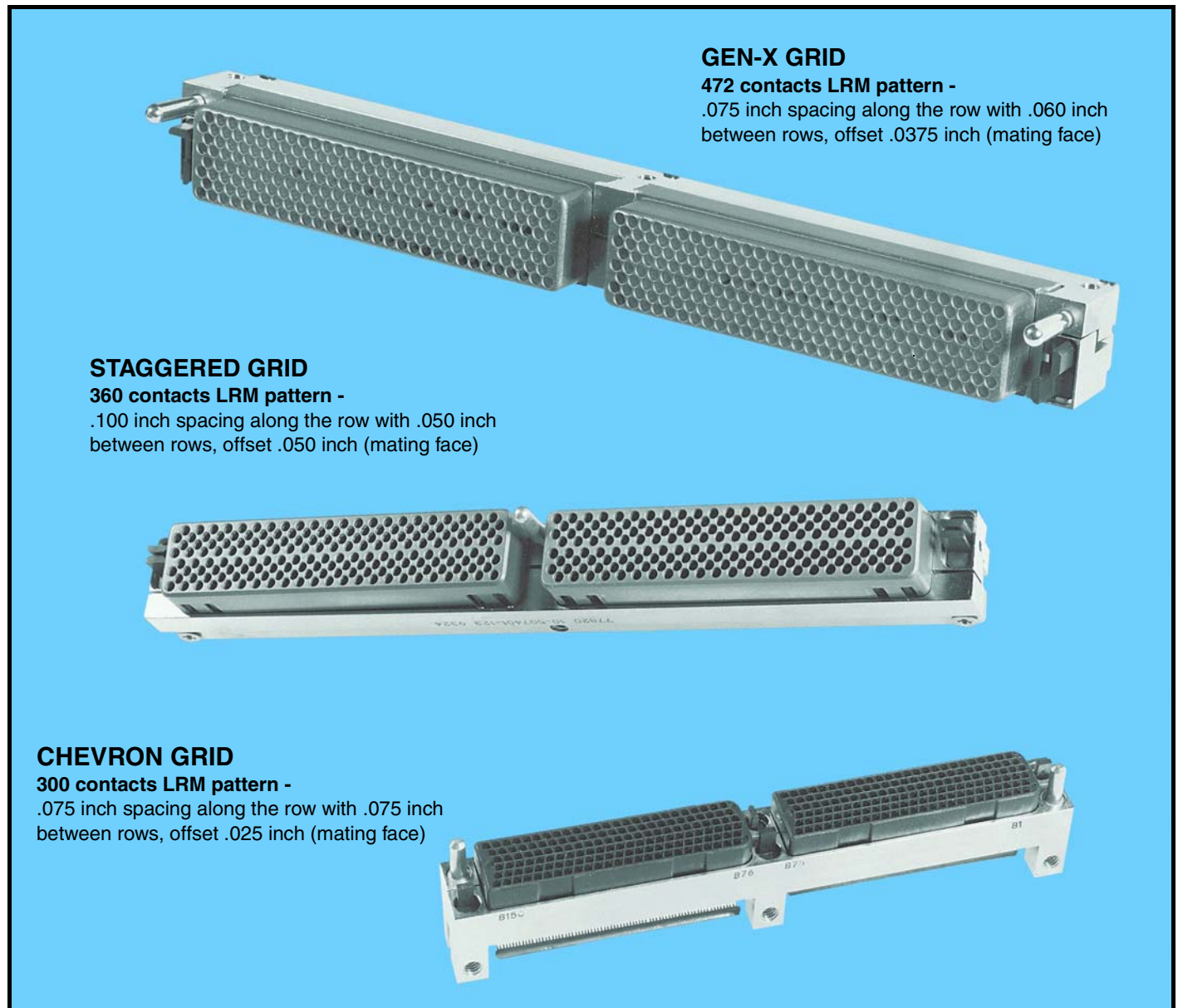


# Amphenol® LRM Surface Mount Connectors Designer's Guide

L-2081-2

High Density Interconnect System with MIL-C-55302 type  
Bristle® Brush® contacts available in three patterns.



This document contains the most common LRM drawings for designer's reference only.  
Contact Amphenol for verification of the latest drawing versions.

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## Amphenol

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This publication provides an engineering drawing package for use as a designer's guide to LRM surface mount connectors.

**CAUTION** - It is important that the designer check with Amphenol LRM product representatives for the most current drawings, as these drawings included here may become out-dated. The drawings are to be used as reference only, and all final product ordering information should be verified with Amphenol.

**Please contact Amphenol Aerospace at the address listed below:**

**Amphenol Corporation  
Amphenol Aerospace  
40 – 60 Delaware Avenue  
Sidney, New York 13838-1395  
Telephone: 607-563-5342 (New Products Development Group)  
Fax: 607-563-5157**

Publication L-2104, "Amphenol® LRM Surface Mount Connectors Reference Guide", gives general product data on LRM surface mount connectors, and should be used in conjunction with this publication for additional information.

**CONTENTS**

TAB1 (Web Pg. 2)  
 GEN-X Grid Module Drawing Package  
 GEN-X Grid Module How to Order Part Numbers .....(9 Pages)

TAB 2 (Web Pg. 12)  
 GEN-X Grid Backplane Drawing Package  
 GEN-X Grid Backplane How to Order Part Numbers .....(4 Pages)

TAB 3 (Web Pg. 17)  
 Staggered Grid (Digital) Module Drawing Package  
 Staggered Grid (Digital) Module How to Order Part Numbers .....(14 Pages)

TAB 4 (Web Pg. 32)  
 Staggered Grid (Digital) Backplane Drawing Package  
 Staggered Grid (Digital) Backplane How to Order Part Numbers .....(10 Pages)

TAB 5 (Web Pg. 43)  
 Staggered Grid Hybrid Insert Illustrations  
 Staggered Grid Hybrid How to Order Part Numbers .....(4 Pages)

TAB 6 (Web Pg. 48)  
 Chevron Pattern LRM Connectors Insert Arrangements, Ordering Procedure ..... (1 Page)

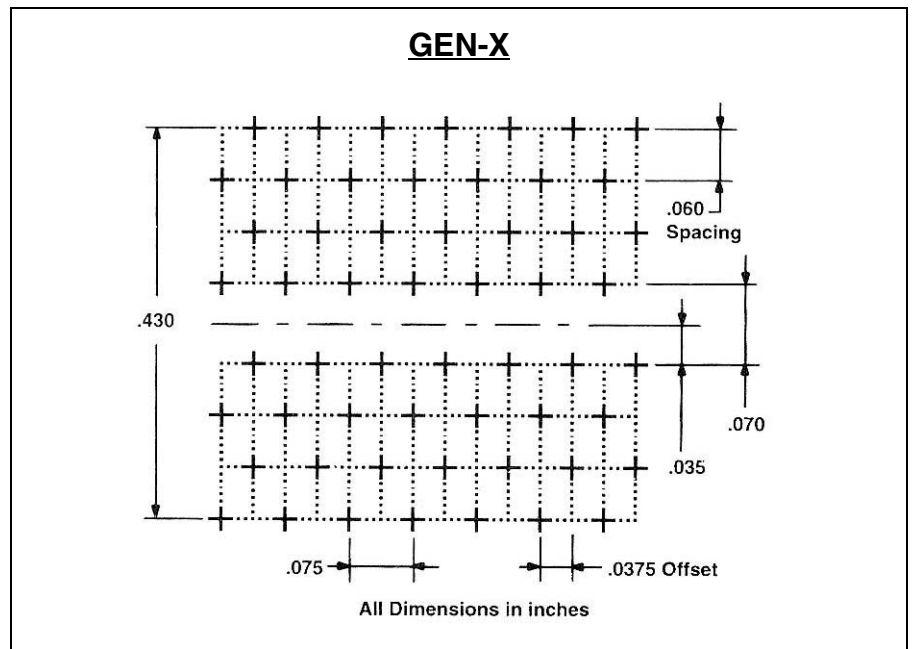
## GEN-X Grid Pattern (472 contacts)

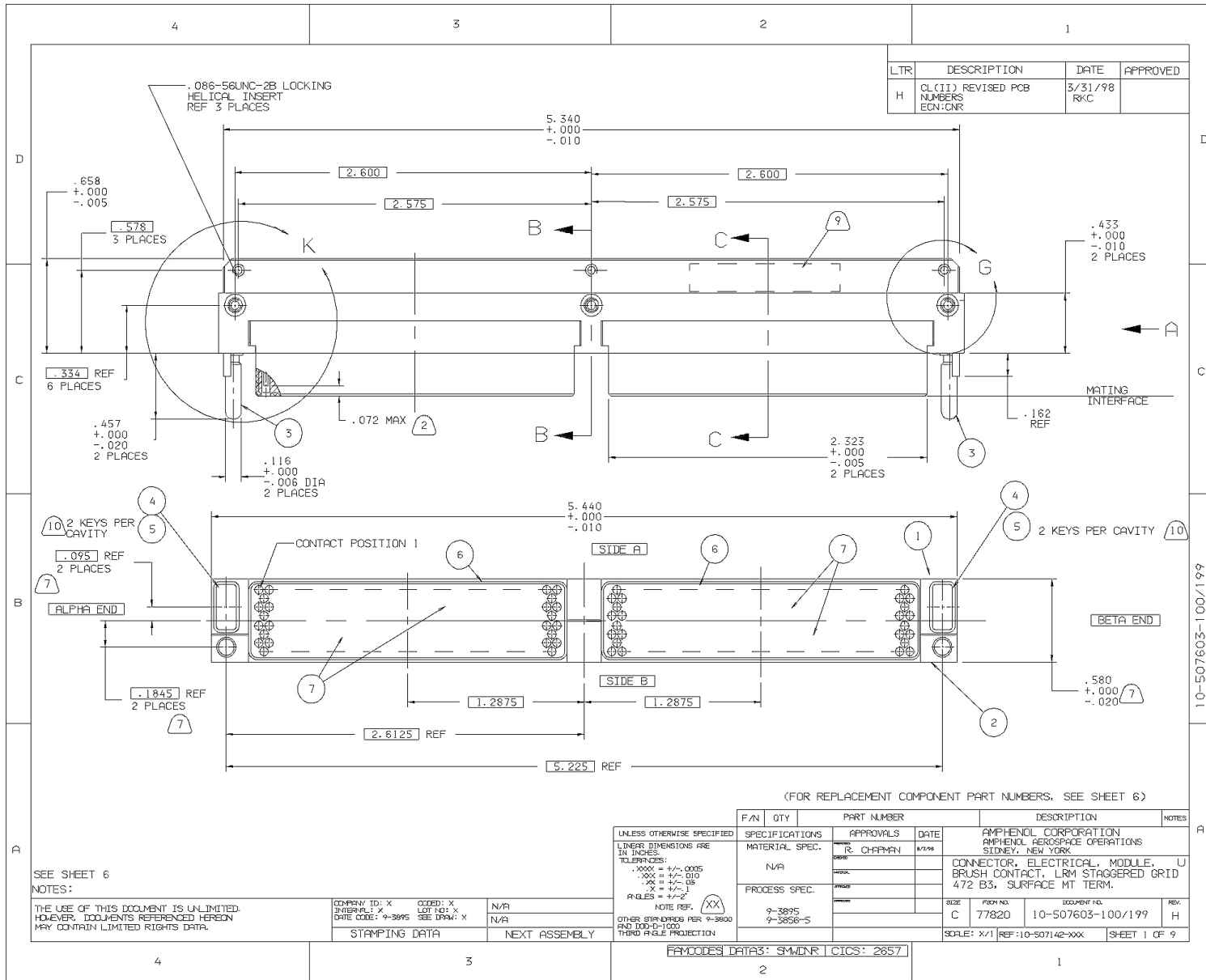
### Drawing Package for Double Bay Module Connectors

Including how to order part numbers.

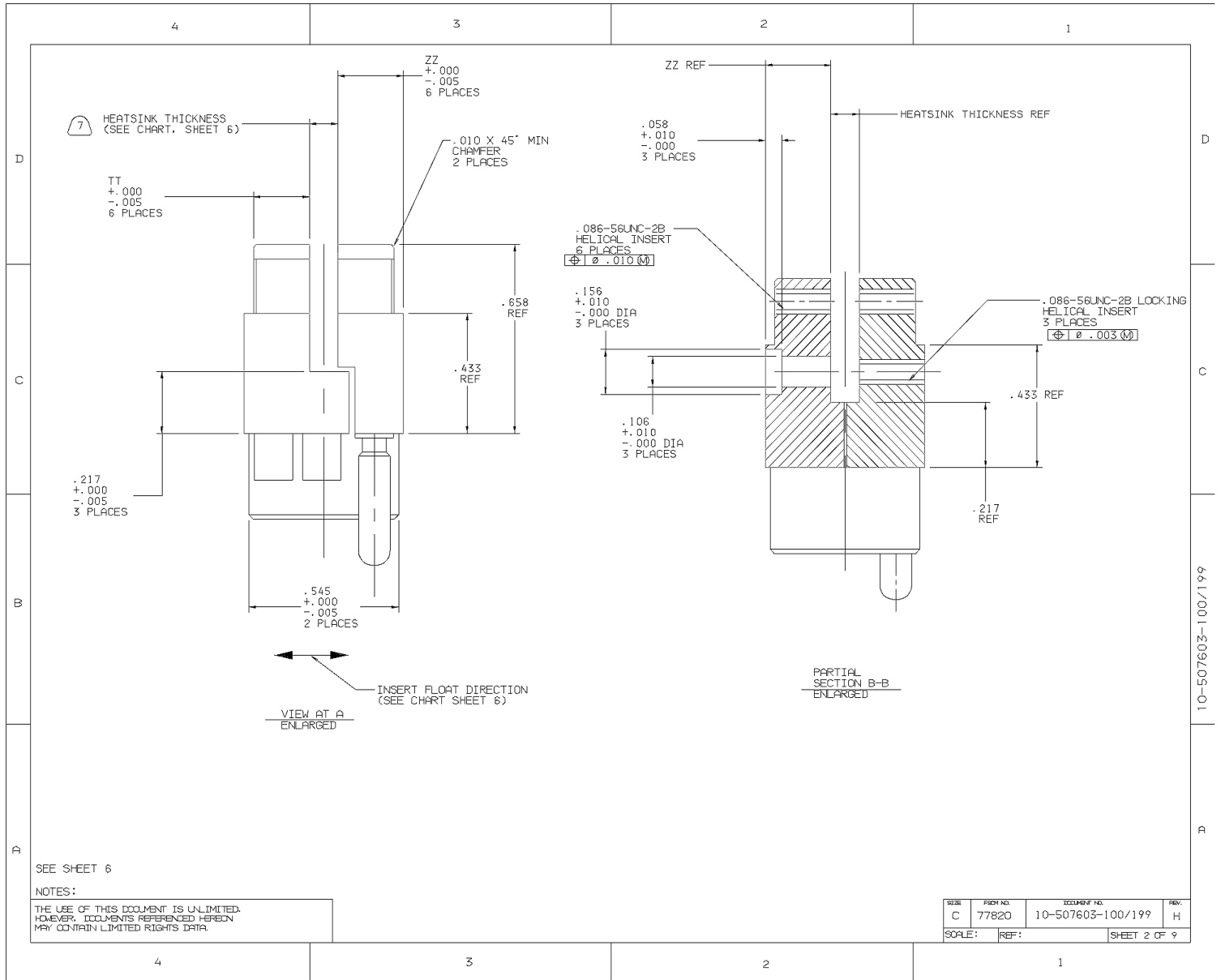
The LRM GEN-X 472 contact pattern allows for surface mount leads on a .035 inch center line.

The following diagram shows the contact pattern of the GEN-X grid LRM Connector, .075 inch spacing along the row with .060 inch between rows, offset .0375 inch (mating face).





10-507603-100/199



10-507603-100/199

SEE SHEET 6

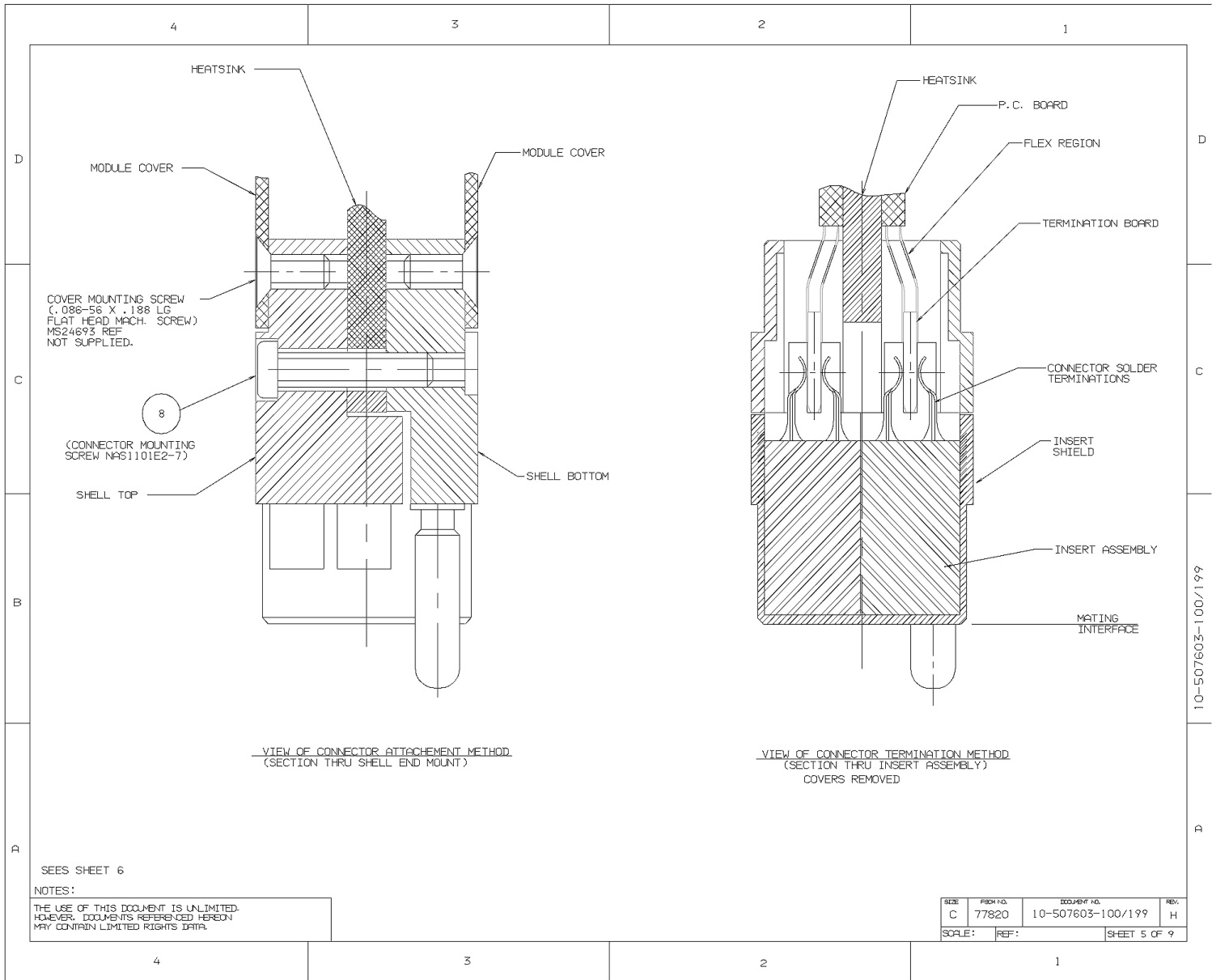
NOTES:

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<p>CONNECTOR PART NUMBER (TO COMPLETE P/N SEE SUFFIX CHART)</p> <p style="font-size: 1.2em;">10-507603-1( ) ( )</p> <p>HEATSINK THICKNESS TERMINATION STYLE</p>	<p>SHELL ASSEMBLY PART NUMBER (TO COMPLETE SEE SUFFIX CHART)</p> <p style="font-size: 1.2em;">10-507972-11( ) F/N 1 10-507972-12( ) F/N 2</p> <p>HEATSINK THICKNESS</p>	<p>INSERT ASSEMBLY PART NUMBER (TO COMPLETE SEE SUFFIX CHART)</p> <p style="font-size: 1.2em;">10-507985-1( ) F/N 7</p> <p>TERMINATION STYLE</p>	<p>REPLACEMENT COMPONENT PART NUMBERS</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>F/N</th> <th>QTY</th> <th>PART NUMBER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td>1</td><td>1</td><td>SEE COLUMN</td><td>SHELL TOP</td></tr> <tr><td>2</td><td>1</td><td>SEE COLUMN</td><td>SHELL BOTTOM</td></tr> <tr><td>3</td><td>2</td><td>10-507906-5</td><td>GUIDE PIN</td></tr> <tr><td>4</td><td>2</td><td>10-507929-3</td><td>RETAINING RING</td></tr> <tr><td>5</td><td>4</td><td>10-507903-3</td><td>POLARIZATION KEY</td></tr> <tr><td>6</td><td>2</td><td>10-507986-12</td><td>INSERT SHIELD</td></tr> <tr><td>7</td><td>4</td><td>SEE COLUMN</td><td>INSERT ASSEMBLY</td></tr> <tr><td>8</td><td>3</td><td>10-507905-15</td><td>MOUNTING SCREW</td></tr> <tr><td>9</td><td>--</td><td>10-507931-2</td><td>REPLACEMENT KEY KIT (100 PCS EACH OF F/N 5 &amp; 6)</td></tr> </tbody> </table>	F/N	QTY	PART NUMBER	DESCRIPTION	1	1	SEE COLUMN	SHELL TOP	2	1	SEE COLUMN	SHELL BOTTOM	3	2	10-507906-5	GUIDE PIN	4	2	10-507929-3	RETAINING RING	5	4	10-507903-3	POLARIZATION KEY	6	2	10-507986-12	INSERT SHIELD	7	4	SEE COLUMN	INSERT ASSEMBLY	8	3	10-507905-15	MOUNTING SCREW	9	--	10-507931-2	REPLACEMENT KEY KIT (100 PCS EACH OF F/N 5 & 6)																																																												
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<p>7. INDICATED DIMENSIONS ARE APPLICABLE ONLY WHEN ASSEMBLED TO THE APPROPRIATE HEATSINK SHOWN IN CHART.</p> <p>6. FOR APPROPRIATE HEATSINK THICKNESS, SEE COLUMN.</p> <p>5. BRUSH CONTACT TERMINATION FINISH IS Sn60 OR Sn63 SOLDER DIPPED.</p> <p>4. FOR MATING BACKPLANE CONNECTOR ASSEMBLY, SEE DRAWING 10-507702-100/199.</p> <p>3. PARTS ARE SHOWN ASSEMBLED. THESE PARTS WILL BE SHIPPED UNASSEMBLED (SEE SHEET 9).</p> <p>2. INDICATED DIMENSION IS TO POINT OF ELECTRICAL ENGAGEMENT.</p> <p>1. FOR SUGGESTED HEATSINK SEE SHEET 8. FOR BOARD LAYOUT SEE SHEET 7.</p> <p>12. TIE BARS MUST BE REMOVED.</p> <p>11. INDICATED SURFACE OF INSERTS BOTTOM ON INDICATED EDGE OF HEATSINK.</p> <p>10. A TOTAL OF 4 KEYS AND 2 RETAINING RINGS ARE REQUIRED TO COMPLETE THE ASSEMBLY. RETAINING RINGS ARE NOT REUSABLE AND MUST BE REPLACED WHEN REKEYING CONNECTOR.</p> <p>9. BLACK INK STAMP "AMPHENOL" 77820 PART NUMBER AND DATE CODE ON INDICATED SURFACES PER 9-3856-5. DATE CODE PER 9-3895. CHARACTERS TO BE .062+/- .020 HIGH. ADDITIONAL INFORMATION MAYBE REQUESTED BY PURCHASE ORDER.</p> <p>8. REAR SURFACE OF INSERTS ARE SEALED IN BRUSH CONTACT AREA ONLY CONTACTS ARE NOT REMOVABLE.</p>																																																																																																							
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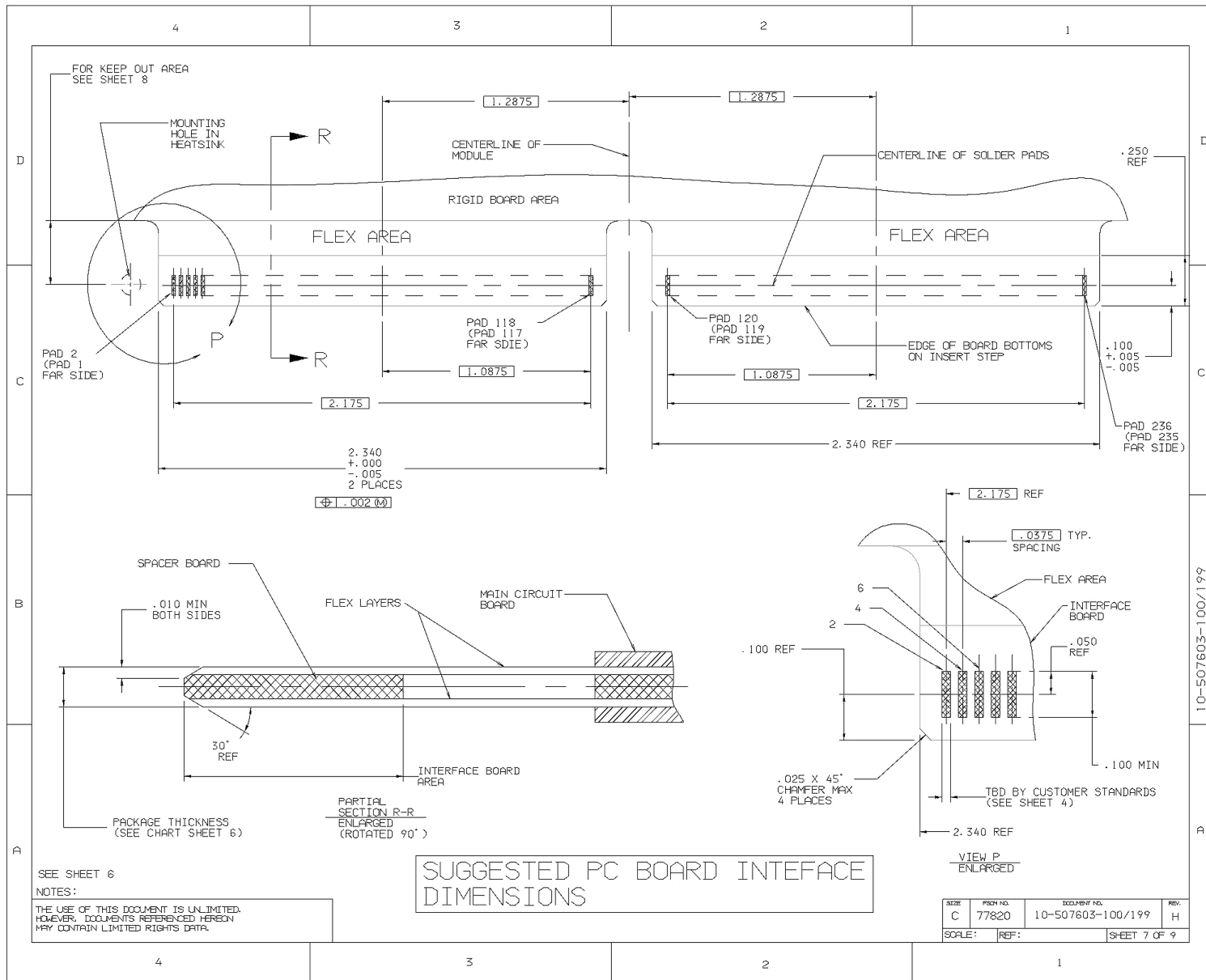
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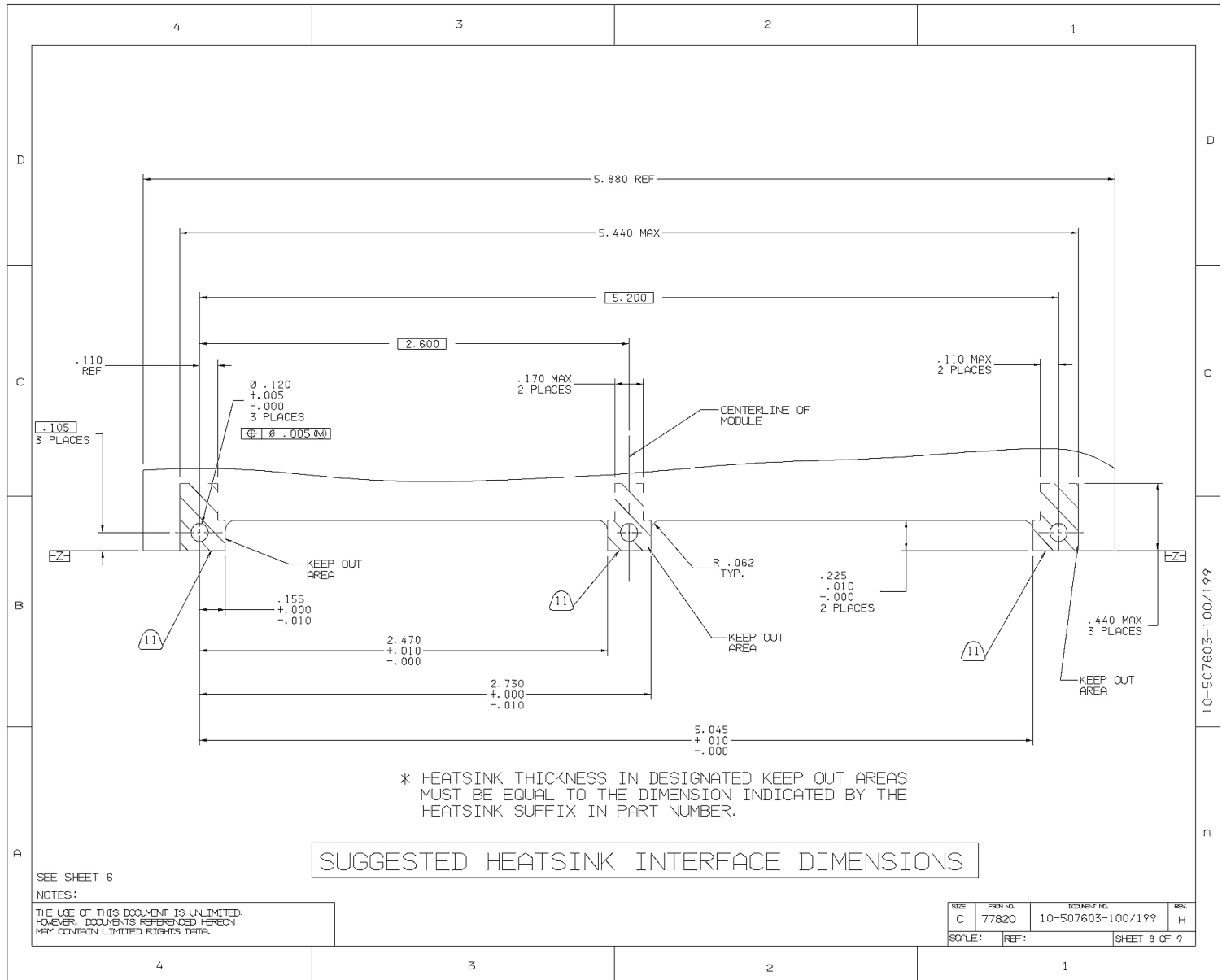
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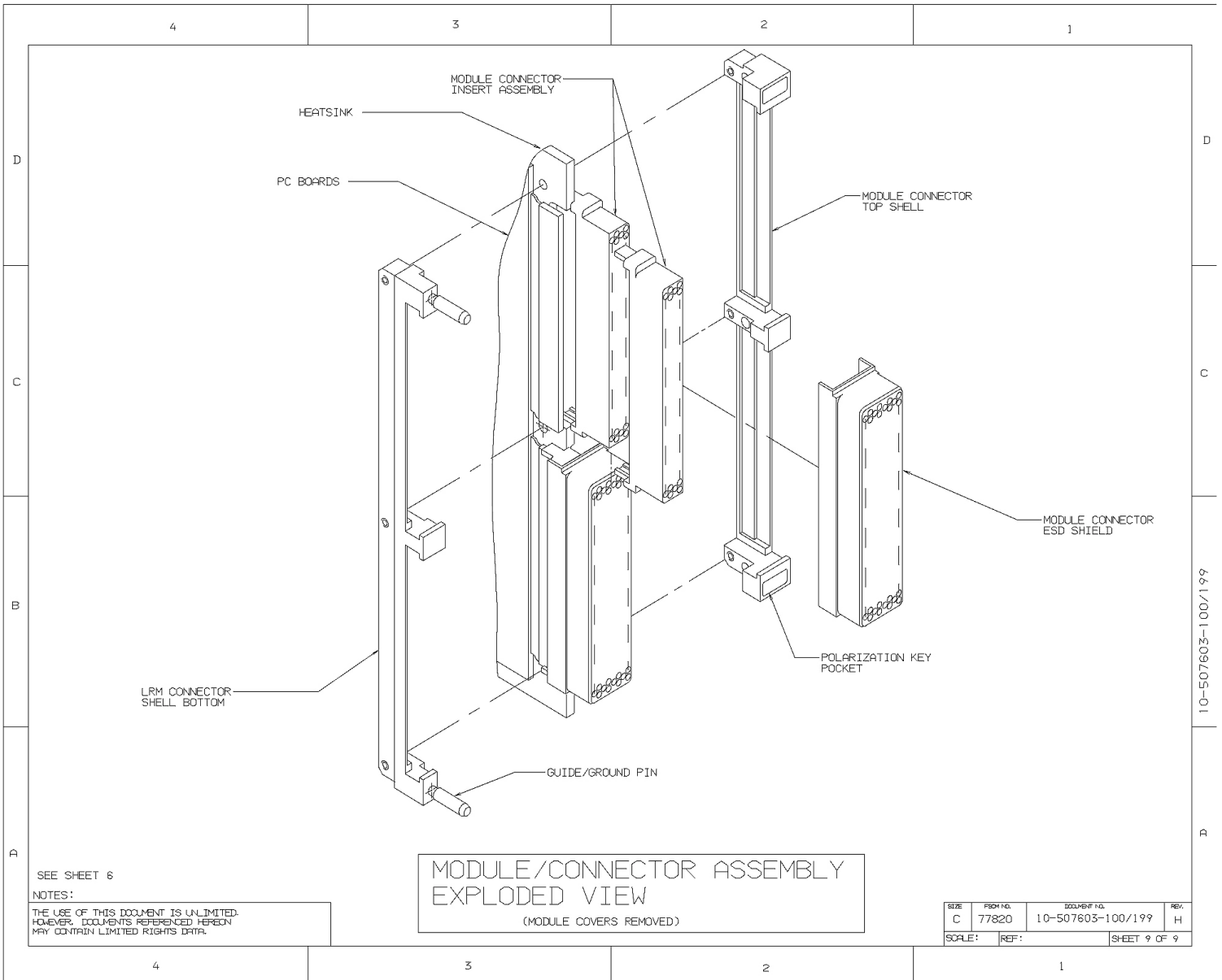
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## GEN-X Grid Pattern (472 contacts)

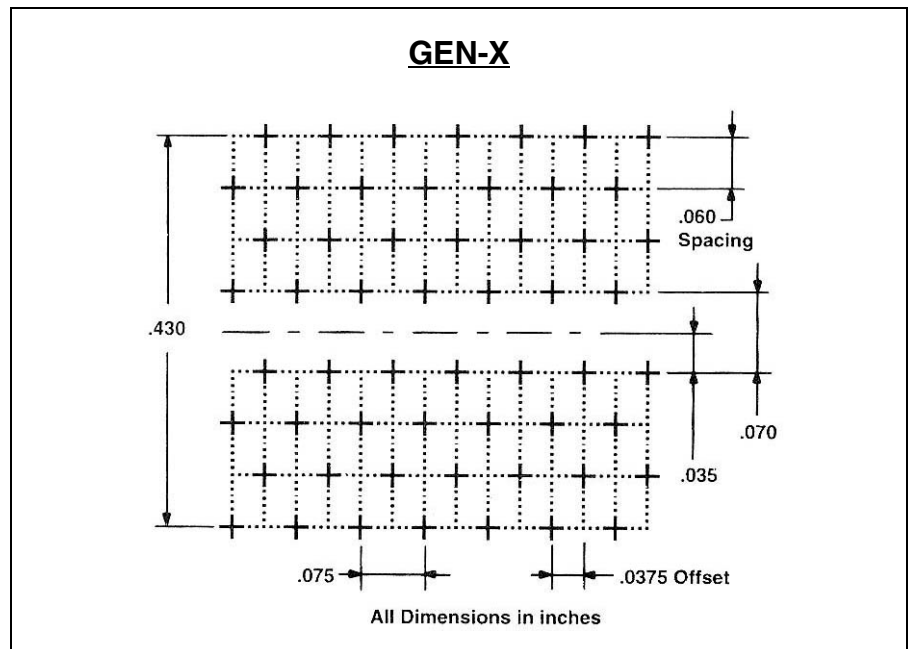
Drawing Package for  
Double Bay

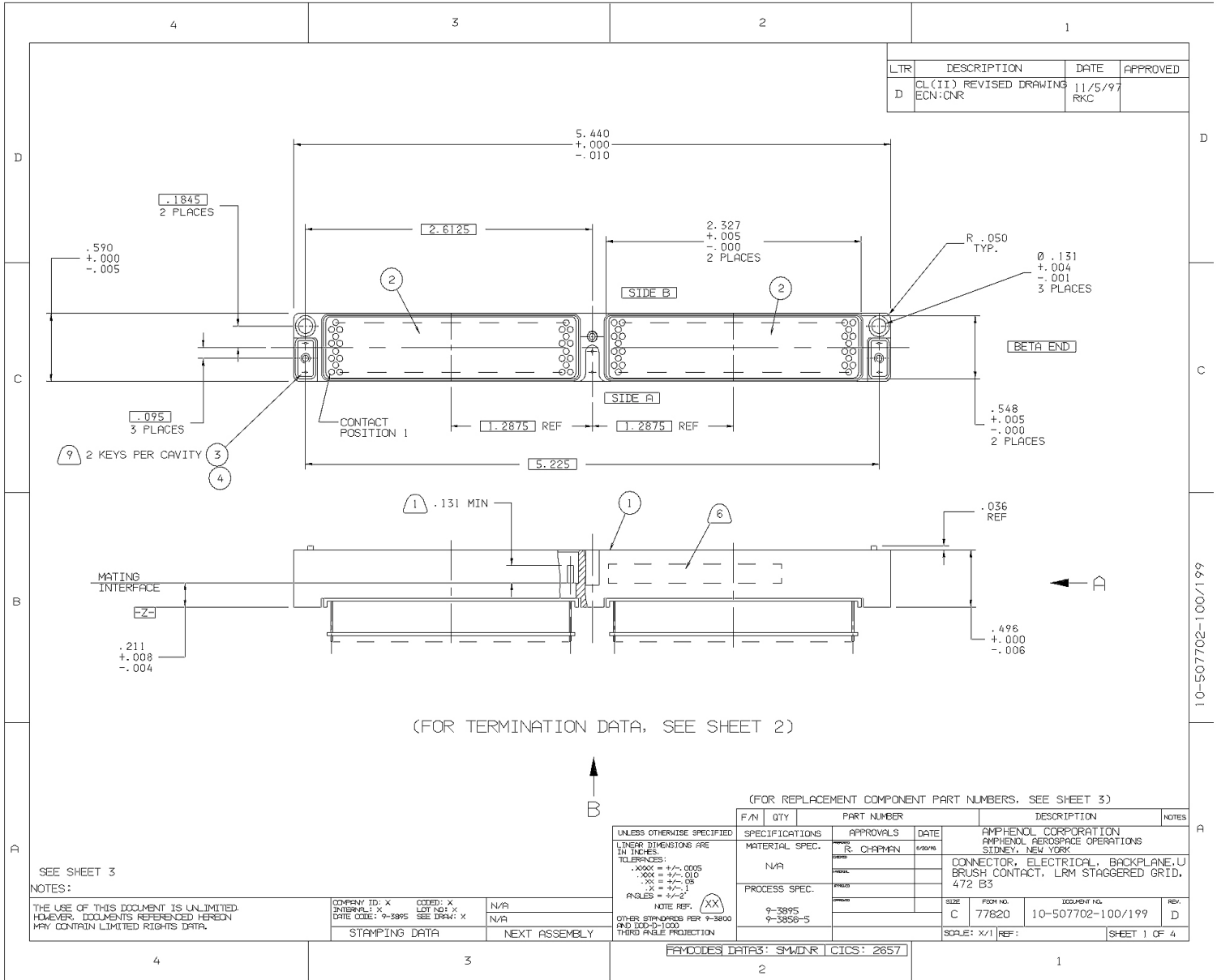
### **Backplane Connectors**

Including how to order part numbers.

The LRM GEN-X 472 contact pattern allows for surface mount leads on a .035 inch center line.

The following diagram shows the contact pattern of the GEN-X grid LRM Connector, .075 inch spacing along the row with .060 inch between rows, offset .0375 inch (mating face).





LTR	DESCRIPTION	DATE	APPROVED
D	CL (II) REVISED DRAWING ECN: CNR	11/5/97 RKC	

(FOR TERMINATION DATA, SEE SHEET 2)

(FOR REPLACEMENT COMPONENT PART NUMBERS, SEE SHEET 3)

F/N	QTY	PART NUMBER	DESCRIPTION	NOTES
			AMPHENOL CORPORATION AMPHENOL AEROSPACE OPERATIONS SIDNEY, NEW YORK	
			CONNECTOR, ELECTRICAL, BACKPLANE, U BRUSH CONTACT, LRM STAGGERED GRID, 472 B3	
			SIZE: C	
			FORM NO: 77820	
			DOCUMENT NO: 10-507702-100/199	
			REV: D	
			SCALE: X/1 REF:	SHEET 1 OF 4

SEE SHEET 3  
NOTES:

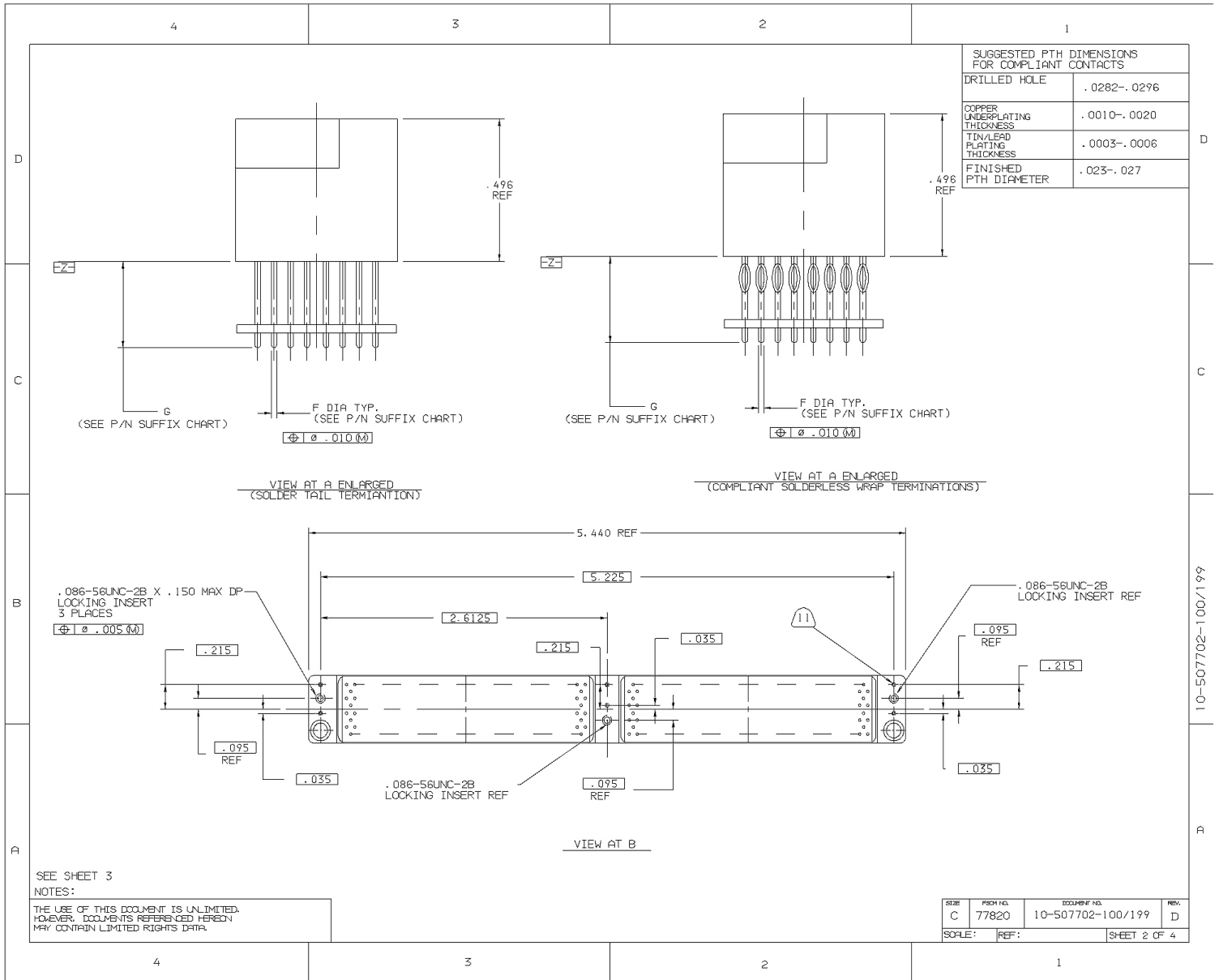
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MAY CONTAIN LIMITED RIGHTS DATA.

COMPANY ID: X    CODED: X    N/A  
INTERNAL: X    LOT NO: X    N/A  
DATE CODE: 9-3895    SEE DRAW: X    N/A

STAMPING DATA    NEXT ASSEMBLY

UNLESS OTHERWISE SPECIFIED  
LINEAR DIMENSIONS ARE  
IN INCHES  
TOLERANCES:  
-XXX = +/- .0005  
-XX = +/- .010  
-X = +/- .05  
Ø = +/- .1  
ANGLES = +/- 2°  
NOTE REF. (XX)  
OTHER STANDARDS REF. 9-5800  
AND 100-D-1000  
THIRD ANGLE PROJECTION

FANCODES DATA: SMWINR CICS: 2857



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CONNECTOR PART NUMBER (TO COMPLETE P/N SEE SUFFIX CHART)

10-507702-1( )( )

TERMINATION STYLE  
TERMINATION STICKOUT

INSERT ASSEMBLY PART NUMBER (TO COMPLETE P/N SEE SUFFIX CHART)

10-507989-1( )( )

TERMINATION STYLE  
TERMINATION STICKOUT

REPLACEMENT COMPONENT PART NUMBERS

F/N	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	10-507988-11	SHELL ASSEMBLY	
2	2	SEE COLUMN	INSERT ASSEMBLY	
3	4	10-507903-3	POLARIZATION KEY	2
4	2	10-507929-3	RETAINING RING	2
5	6	10-507912-1	COMPLIANT PINS	2
6	AR	10-507931-1	REPLACEMENT KEY KIT (100 PCS EACH F/N 3 & 4)	10
7	AR	10-507818-12	COMPLIANT CONTACT (NO WRAP)	10
8	AR	10-507818-22	COMPLIANT CONTACT (1 WRAP)	10
9	AR	10-507818-32	COMPLIANT CONTACT (2 WRAP)	10
10	AR	10-507818-42	COMPLIANT CONTACT (3 WRAP)	10

PART NUMBER SUFFIX CHART

TERMINATION STYLE		TERMINATION STICKOUT	
SUFFIX	DESCRIPTION (DIM "F")	SUFFIX	DESCRIPTION (DIM "G")
1	.021+/- .002 DIA PCB TAIL	1	.150+/- .020 (PCB)
2	.016+/- .002 DIA PCB TAIL	2	.200+/- .020 (PCB)
3	.012+/- .002 DIA PCB TAIL	3	.250+/- .020 (PCB)
4	N/A	4	.300+/- .020 (PCB)
5	COMPLIANT	5	.350+/- .020 (PCB)
6	TBD	6	.400+/- .020 (PCB)
7		7	.450+/- .020 (PCB)
8		8	.500+/- .020 (PCB)
9		9	.550+/- .020 (PCB)
0	NONE	A	NA
A		B	NA
		C	.157+/- .020 (COMPLT., NO WRAP)
		D	.217+/- .020 (COMPLT., 1 WRAP)
		E	.317+/- .020 (COMPLT., 2 WRAP)
		F	.417+/- .020 (COMPLT., 3 WRAP)

- 5. BRUSH CONTACTS WITH PCB TAIL TERMINATIONS ARE NOT REMOVABLE. THE REAR OF THE INSERT IS SEALED. COMPLAINT CONTACTS ARE REMOVABLE FROM THE FRONT.
- 4. CONTACT TERMINATION FINISH: PCB TERMINATION FINISH IS 60/40 TIN/LEAD SOLDER DIPPED. COMPLIANT TERMINATION FINISH IS GOLD PLATE PER MIL-G-45204, TYPE II, .000050 MIN THK OVER .000050 MIN THK NICKEL.
- 3. FOR MATING MODULE CONNECTOR ASSEMBLY, SEE DRAWING 10-507602-100/199.
- 2. INDICATED PARTS ARE SHOWN ASSEMBLED. THESE PARTS WILL BE SHIPPED UNASSEMBLED.
- 1. INDICATED DIMENSION B IS TO POINT OF ELECTRICAL ENGAGEMENT.

NOTES:

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- 11. REF HOLES (6 PLACES) ARE FOR GROUNDING THE SHELL TO THE BACKPLANE USING INCLUDED DOUBLE ENDED COMPLIANT PINS F/N 5. WHEN GROUNDING IS REQUIRED TRANSFER THE 6 HOLE LOCATIONS TO THE BACKPLANE LAYOUT AND SPECIFY A FINISHED HOLE SIZE OF .040+/- .003 DIA.
- 10. INDICATED ITEMS ARE REPAIR OR REPLACEMENT COMPONENT PART NUMBERS.
- 9. A TOTAL OF 4 KEYS AND 2 RETAINING RINGS ARE REQUIRED TO COMPLETE THE ASSEMBLY. RETAINING RINGS ARE NOT REUSABLE AND MUST BE REPLACED WHEN REKEYING CONNECTOR.
- 8. COMPLIANT TERMINATION WRAP NUMBERS ASSUME A .125 INCH THICK BACKPLANE.
- 7. INDICATED POSITIONAL TOLERANCE ID FOR PCB TERMINATION ONLY. THIS TOLERANCE APPLIES WHEN BOTTOM OF INDICATED ORGANIZER IS WITHIN .020 INCH OF TAIL END.
- 6. BLACK INK STAMP "AMPHENOL" 77820, PART NUMBER AND DATE CODE ON INDICATED SURFACE PER 9-3856-5. DATE CODE PER 9-3895. CHARACTERS TO BE .082+/- .020 HIGH. ADDITIONAL INFORMATION MAYBE REQUESTED BY PURCHASE ORDER.

SIZE	PESH NO.	DOCUMENT NO.	REV.
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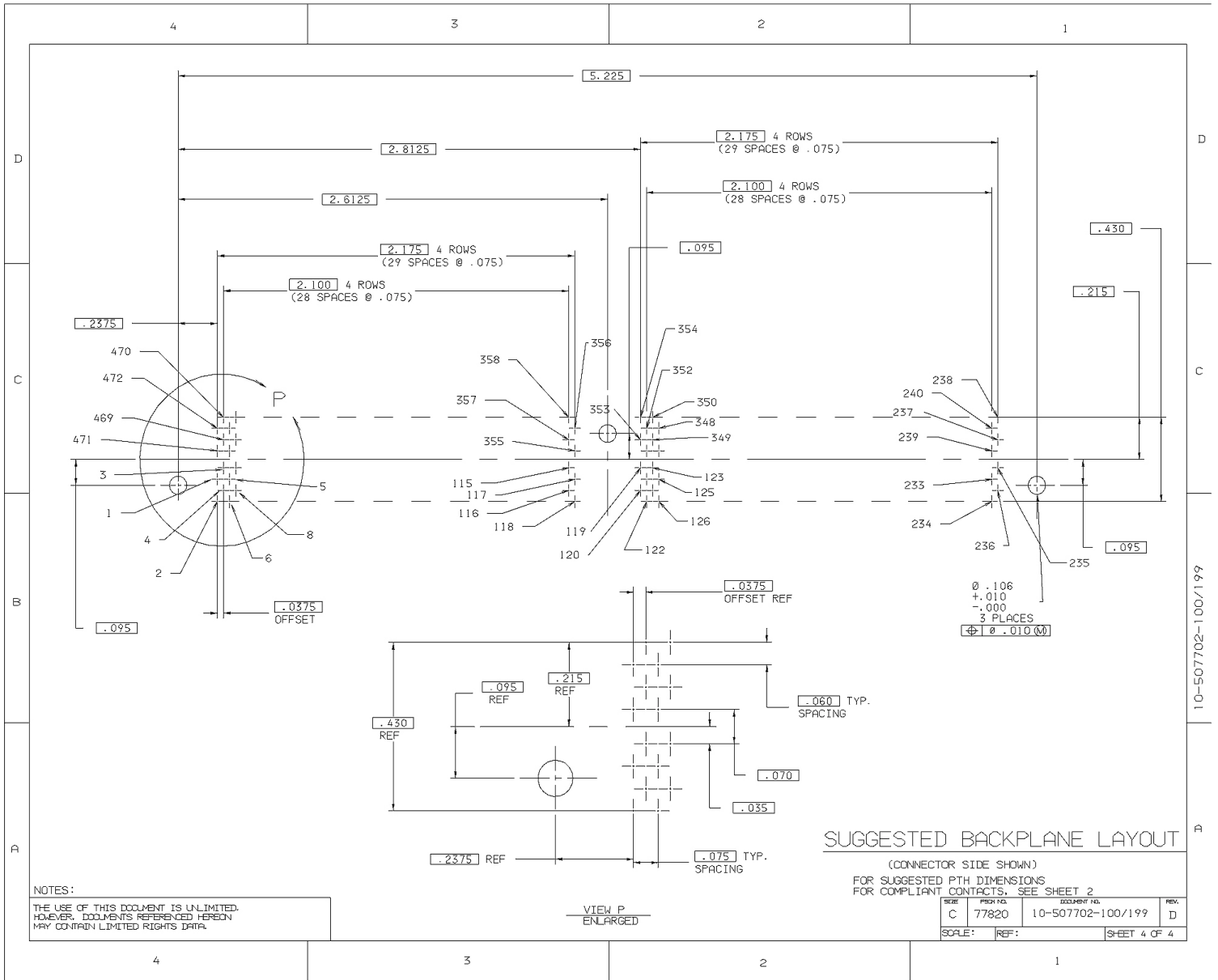
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**SUGGESTED BACKPLANE LAYOUT**

(CONNECTOR SIDE SHOWN)  
 FOR SUGGESTED PTH DIMENSIONS  
 FOR COMPLIANT CONTRACTS, SEE SHEET 2

REV.	DOCUM. NO.	FRSH. NO.	SIZE
D	10-507702-100/199	77820	C
SCALE:		REF:	
SHEET 4 OF 4			

10-507702-100/199

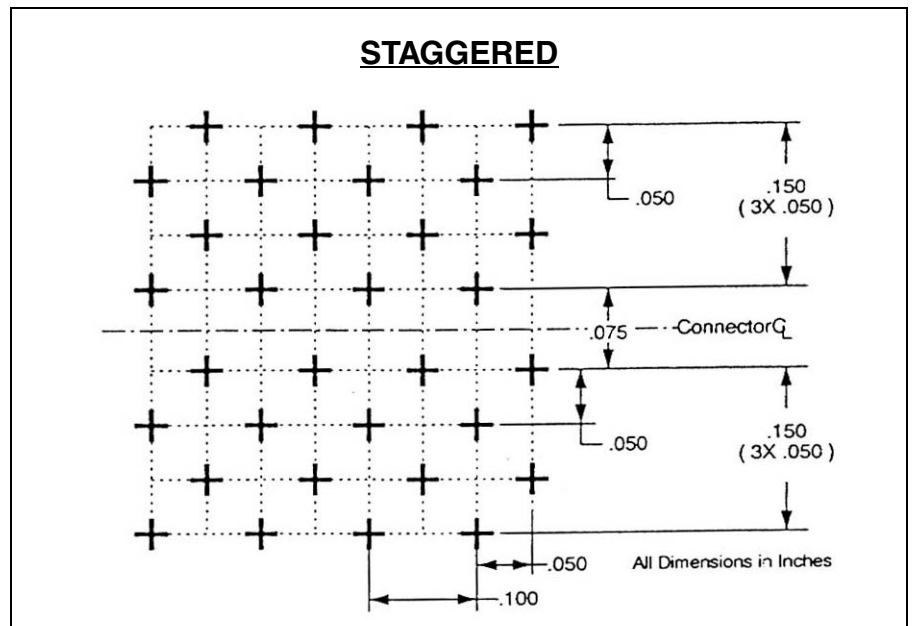
## Staggered Grid Pattern (Digital)

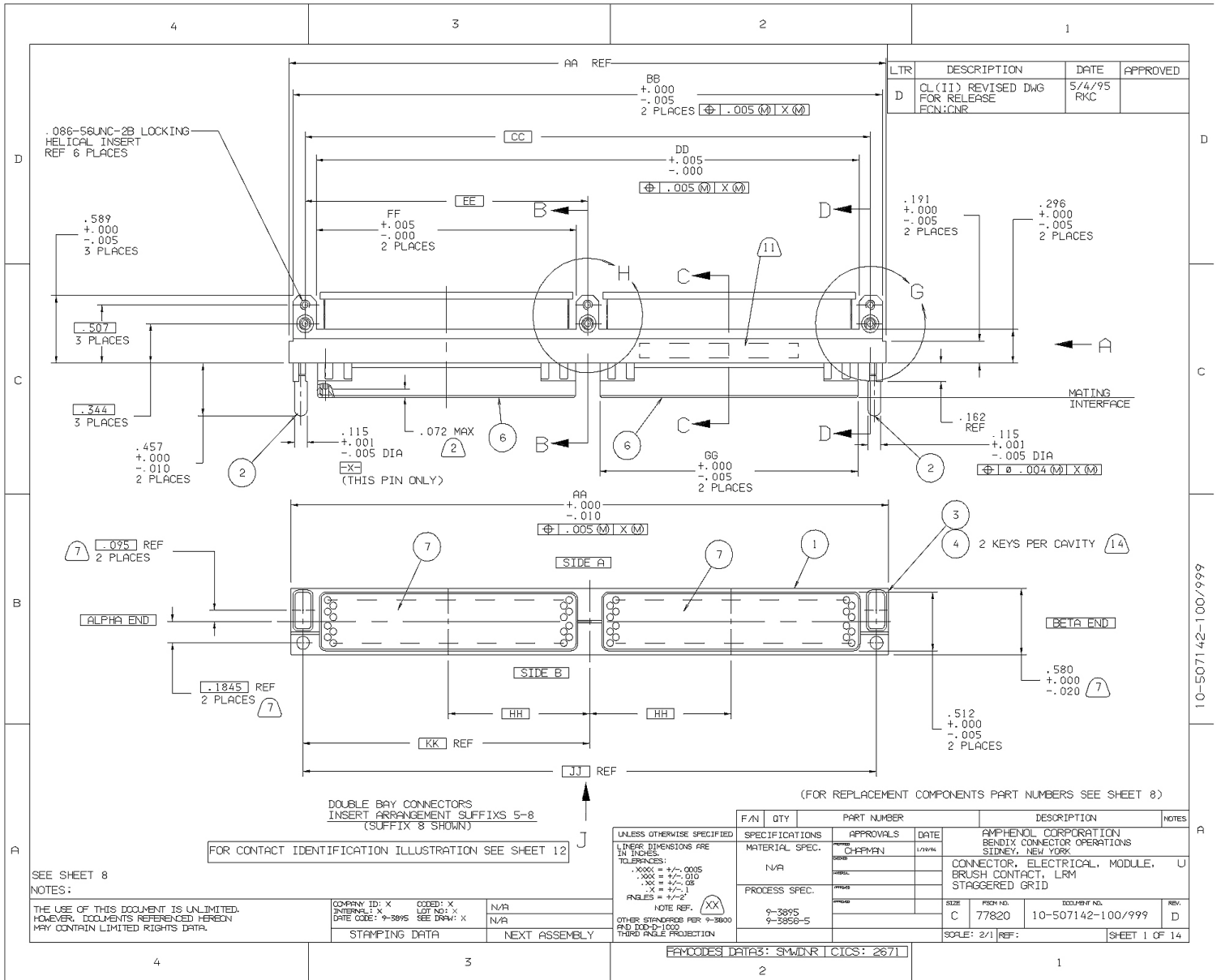
### Drawing Package for Single, Double and 3-Bay **Module Connectors**

Including how to order part numbers.

The LRM Staggered pattern allows for surface mount leads on a .025 inch center line.

The following diagram shows the contact pattern of the staggered grid LRM Connector, .100 inch spacing along the row with .050 inch between rows, offset .050 inch (mating face).





LTR	DESCRIPTION	DATE	APPROVED
D	CL(II) REVISED DWG FOR RELEASE ECN:CNR	5/4/95 RKC	

F/N	QTY	PART NUMBER	DESCRIPTION	NOTES
			AMPHENOL CORPORATION BENDIX CONNECTOR OPERATIONS SIDNEY, NEW YORK	
			CONNECTOR, ELECTRICAL, MODULE, BRUSH CONTACT, LRM STAGGERED GRID	U
			SIZE: C PESH NO: 77820 DDD/REF NO: 10-507142-100/999	D
			SCALE: 2/1 REF:	SHEET 1 OF 14

DOUBLE BAY CONNECTORS  
INSERT ARRANGEMENT SUFFIXS 5-8  
(SUFFIX 8 SHOWN)

FOR CONTACT IDENTIFICATION ILLUSTRATION SEE SHEET 12

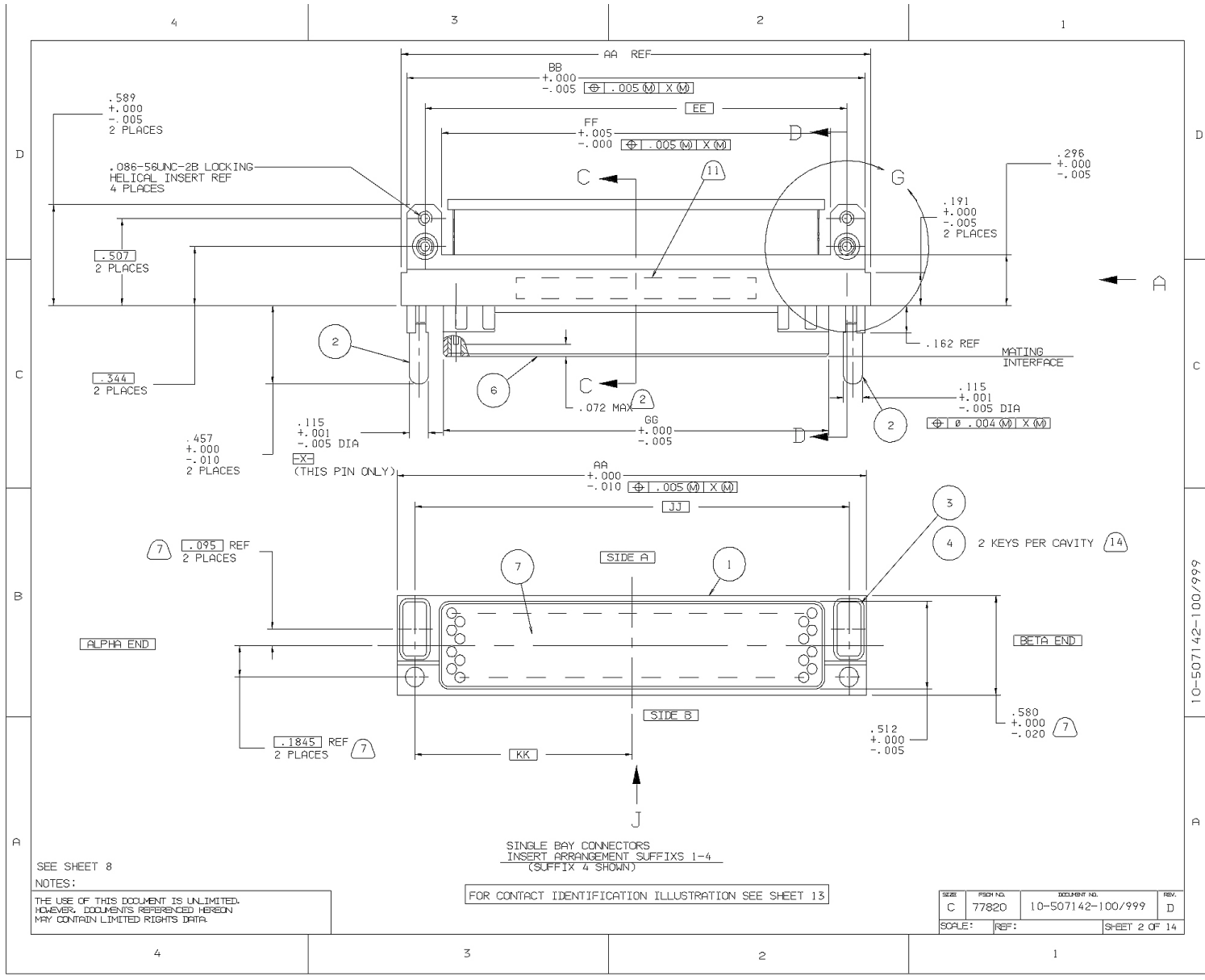
SEE SHEET 8  
NOTES:

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HOWEVER, DOCUMENTS REFERENCED HEREON  
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COMPANY ID: X	CODED: X	N/A
INTERNAL: X	LOT NO: X	N/A
DATE CODE: 9-3895	SEE DRAW: X	N/A
STAMPING DATA	NEXT ASSEMBLY	

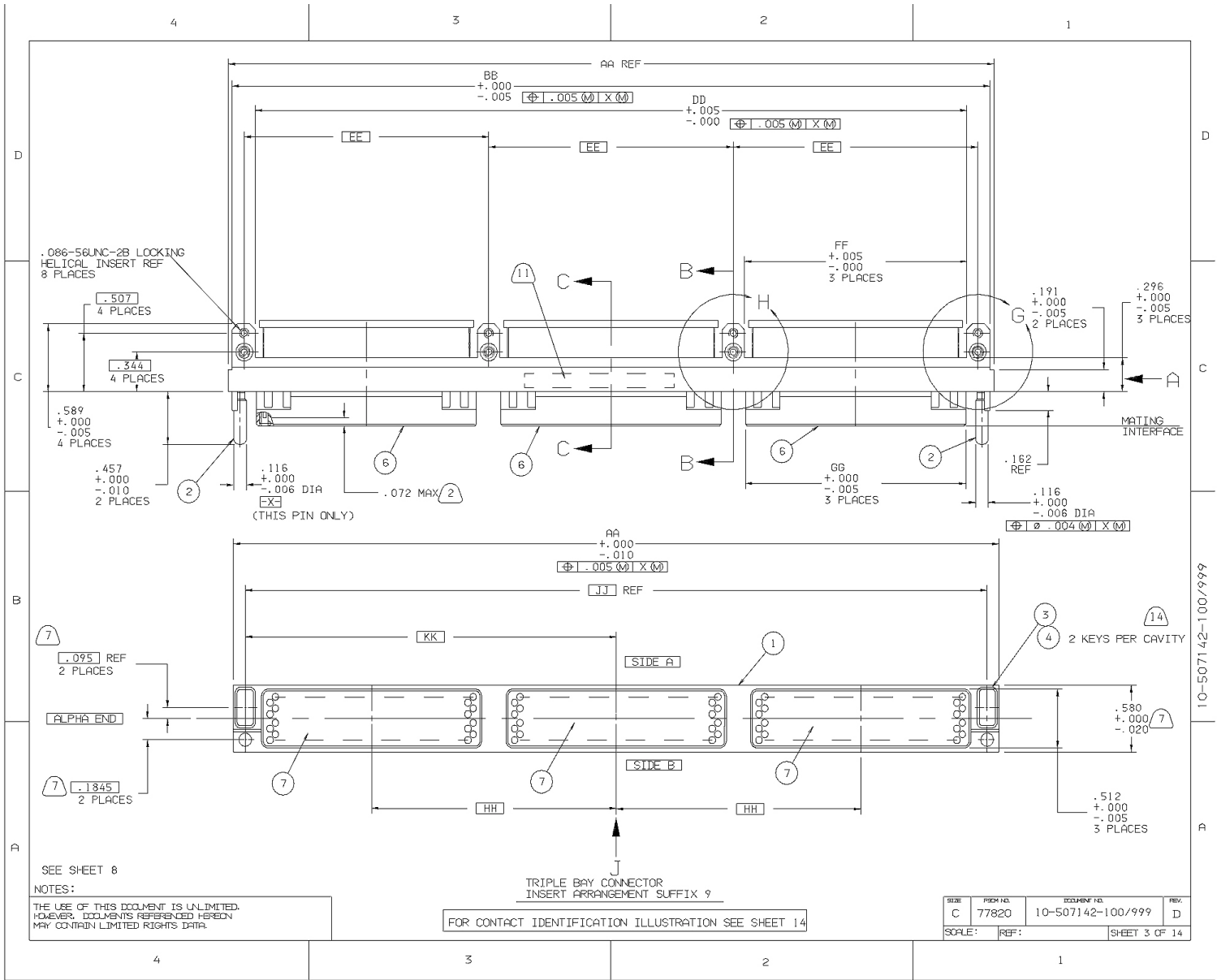
UNLESS OTHERWISE SPECIFIED  
DIMENSIONS ARE  
IN INCHES  
TOLERANCES:  
.XXX = +/- .005  
.XXX = +/- .010  
.XX = +/- .05  
.X = +/- .1  
ANGLES = +/- 2°  
NOTE REF: (XX)  
OTHER STANDARDS PER: 9-3800  
AND DD-D-1000  
THIRD ANGLE PROJECTION

FAMCODES DATAS: SMDNR | CICS: 2671

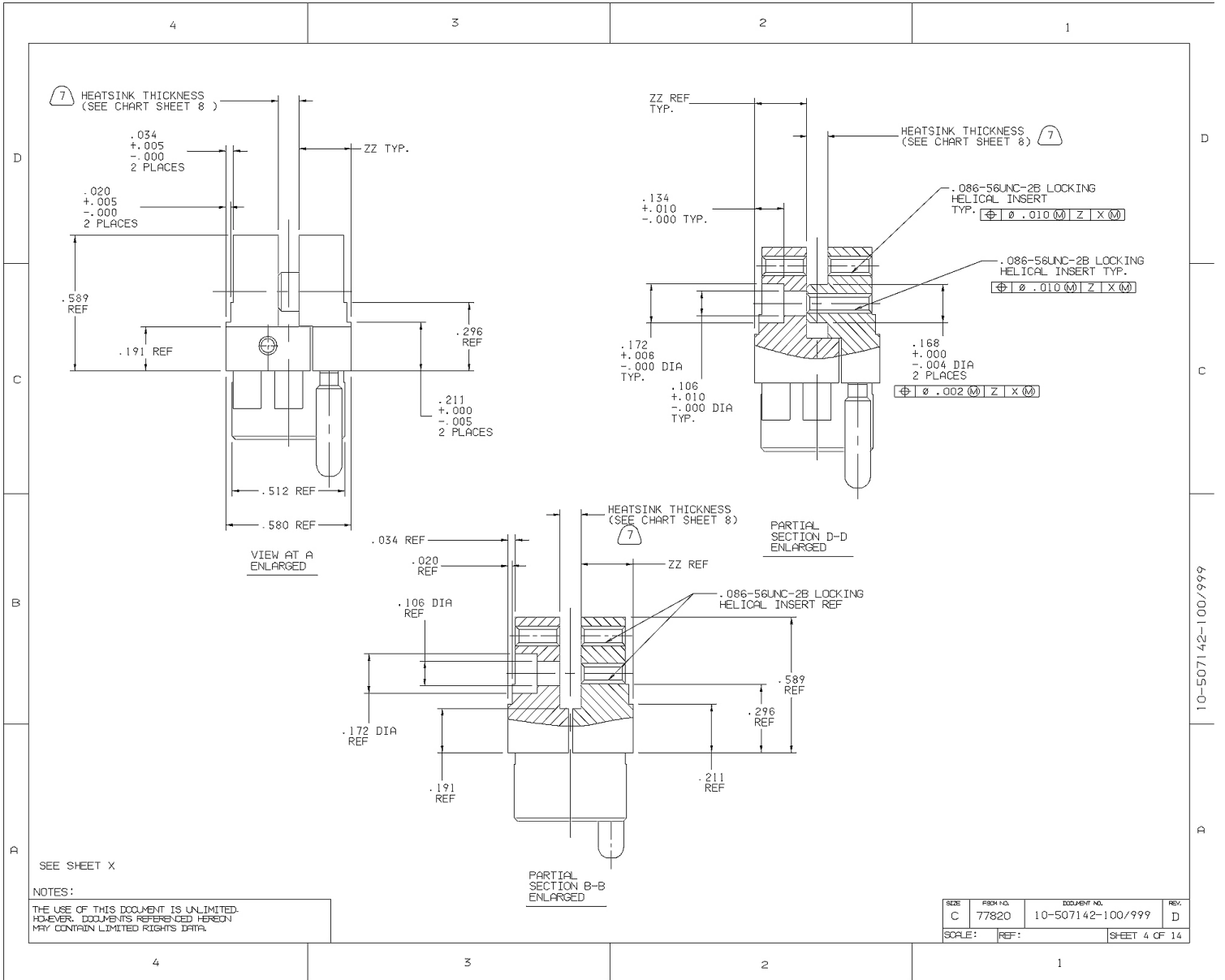


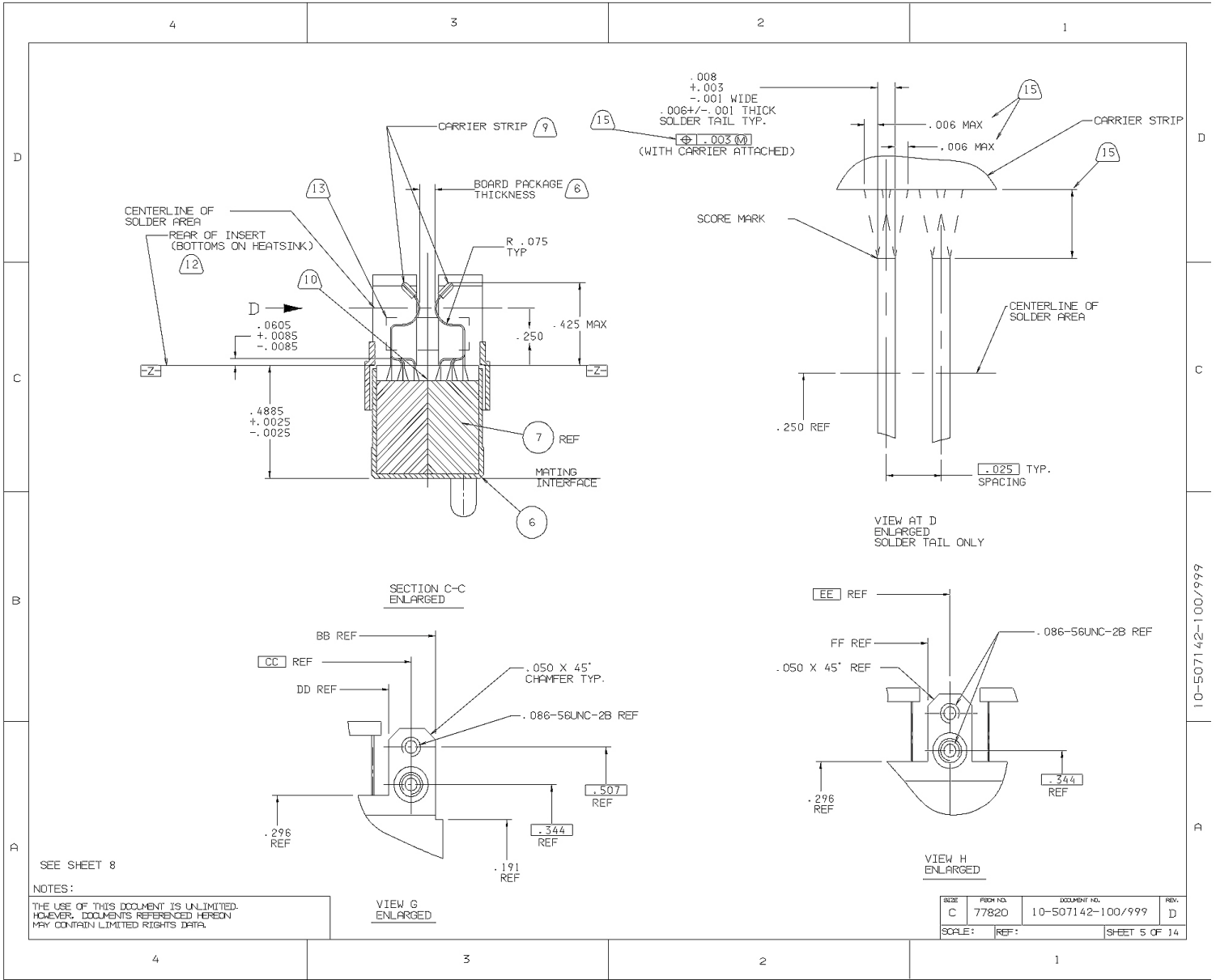
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10-507142-100/999

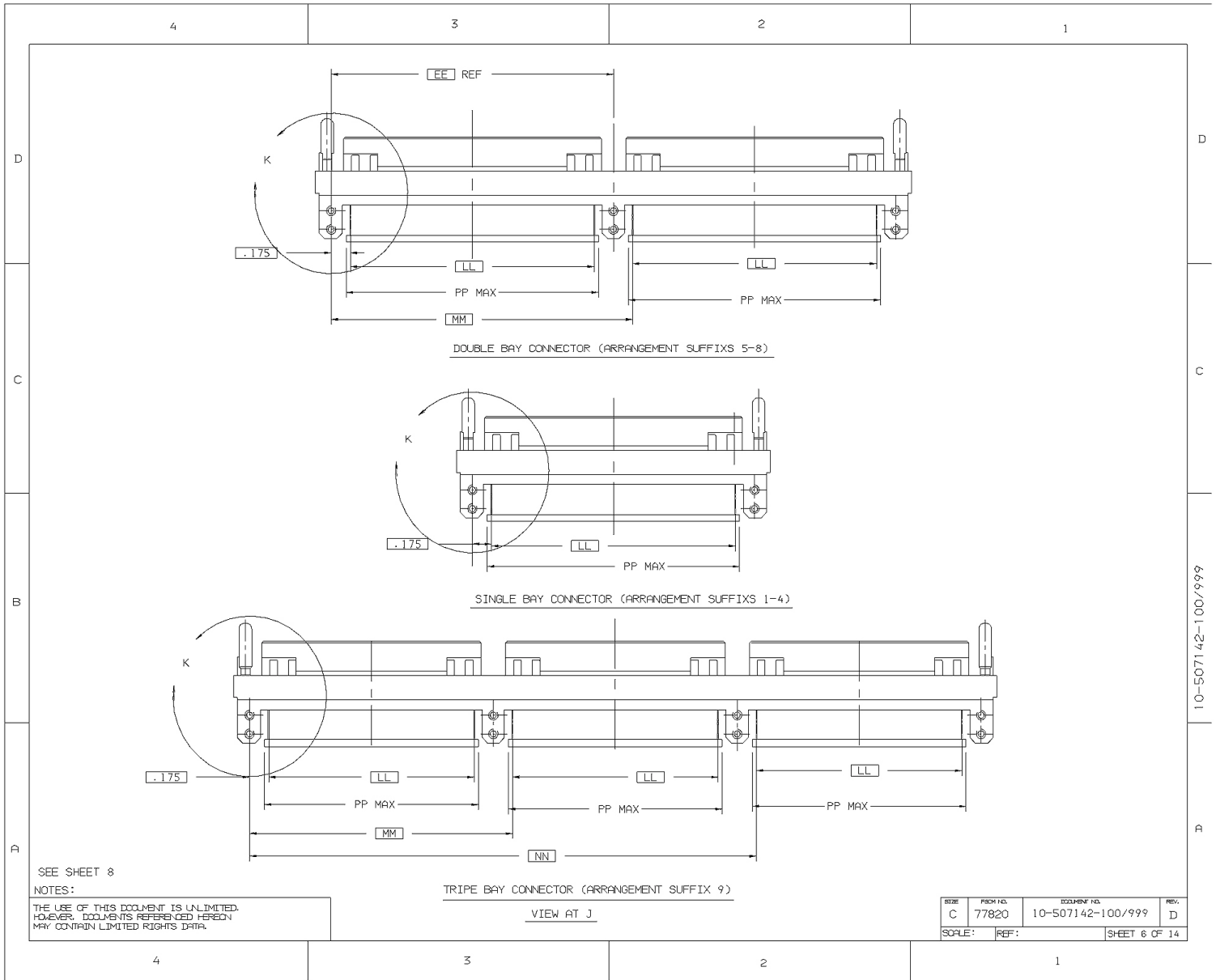




SEE SHEET 8

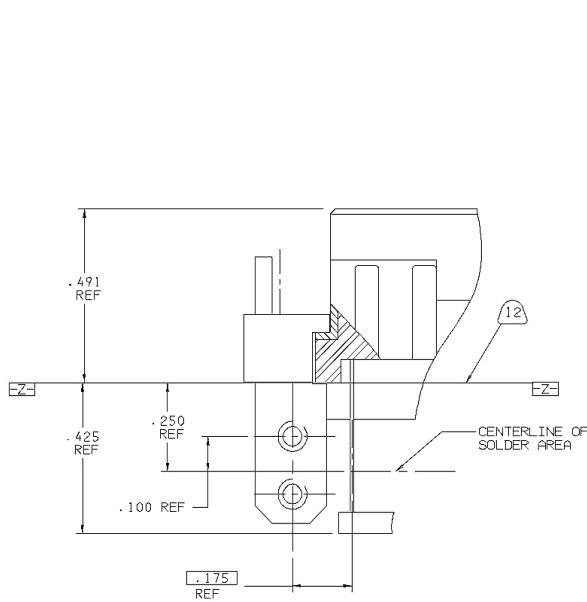
NOTES:

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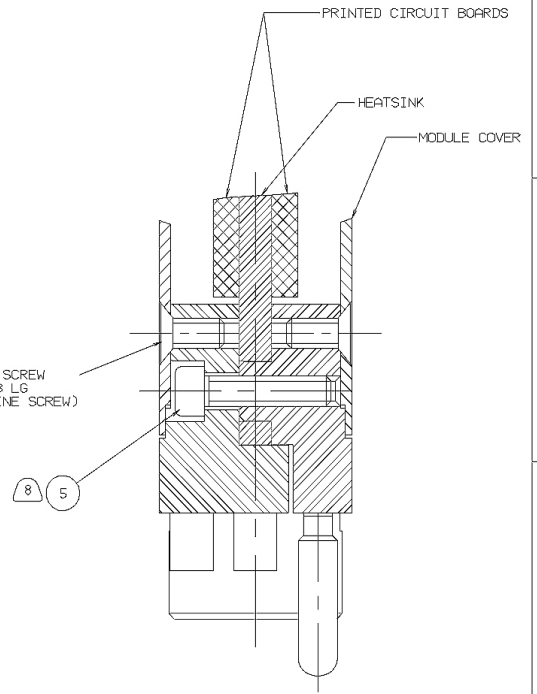
10-507142-100/999





VIEW K  
ENLARGED  
(SHELL HALF REMOVED)

COVER MOUNTING SCREW  
(.086-56 X .188 LG  
FLAT HEAD MACHINE SCREW)  
NOT SUPPLIED.



VIEW OF CONNECTOR ATTACHMENT METHOD  
(SECTION THRU END MOUNTING TAB)

SEE SHEET 8

NOTES:

THE USE OF THIS DOCUMENT IS UNLIMITED,  
HOWEVER, DOCUMENTS REFERENCED HEREON  
MAY CONTAIN LIMITED RIGHTS DATA.

SIZE:	PART NO.:	DOCUMENT NO.:	REV.:
C	77820	10-507142-100/999	D
SCALE:	REF:	SHEET 7 OF 14	

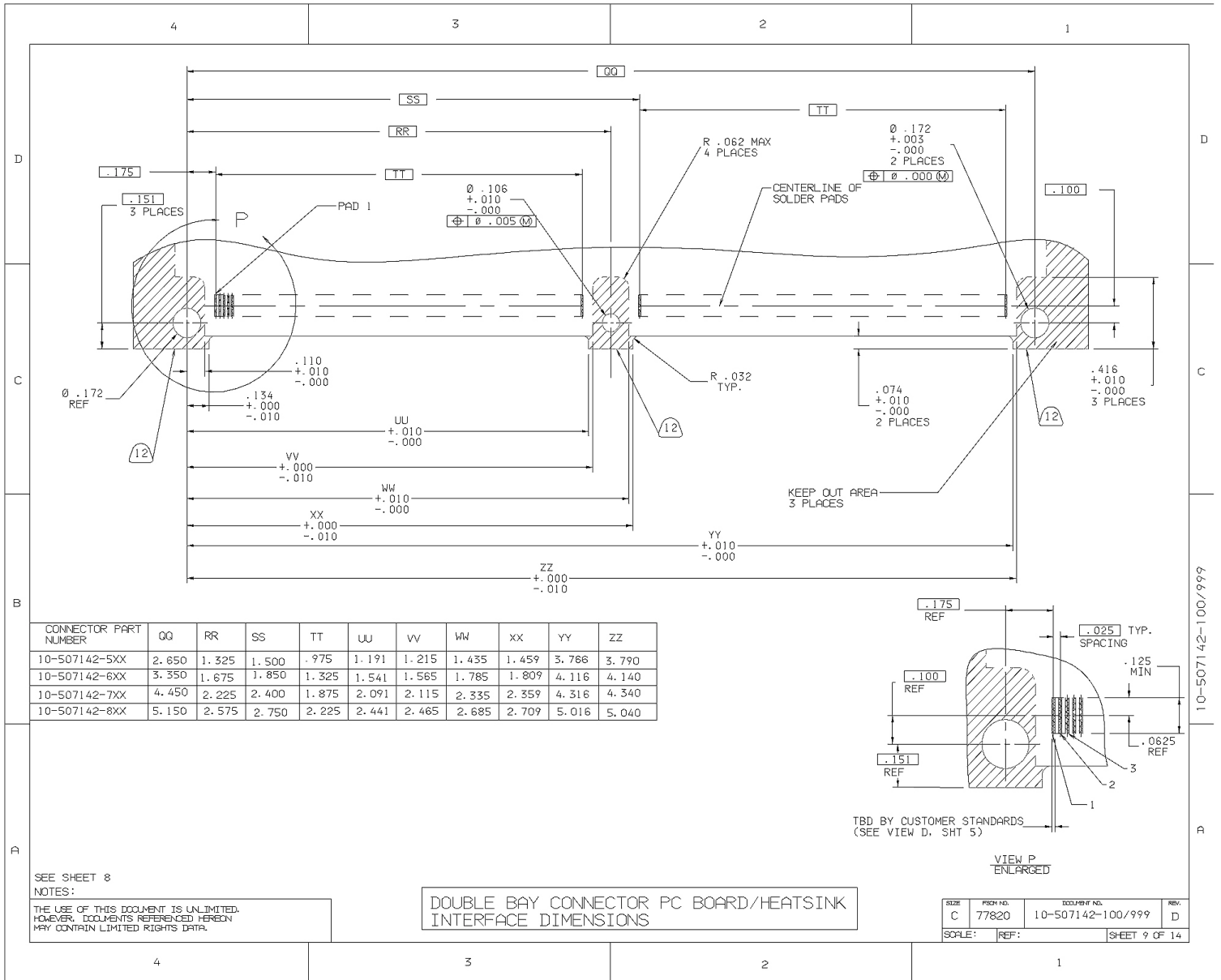
10-507142-100/999

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SUFFIX TO COMPLETE)	10-507142-1XX	1.615	1.547	N/A	N/A	1.325	1.123	1.103	N/A	1.400	.700	.975	N/A	N/A	1.050	10-507956-1( )	10-507910-102	10-507958-80( )	10-507142-2XX	1.965	1.897	N/A	N/A	1.675	1.473	1.453	N/A	1.750	.875	1.325	N/A	N/A	1.400	10-507956-2( )	10-507910-152	10-507958-10( )	10-507142-3XX	2.515	2.447	N/A	N/A	2.225	2.023	2.003	N/A	2.300	1.150	1.875	N/A	N/A	1.950	10-507956-3( )	10-507910-92	10-507958-15( )	10-507142-4XX	2.865	2.797	N/A	N/A	2.575	2.373	2.353	N/A	2.650	1.325	2.225	N/A	N/A	2.300	10-507956-4( )	10-507910-42	10-507958-18( )	10-507142-5XX	2.940	2.872	2.650	2.448	1.325	1.123	1.103	.6625	2.725	1.3625	.975	1.500	N/A	1.050	10-507956-5( )	10-507910-102	10-507958-80( )	10-507142-6XX	3.640	3.572	3.350	3.148	1.675	1.473	1.453	.8375	3.425	1.7125	1.325	1.850	N/A	1.400	10-507956-6( )	10-507910-152	10-507958-10( )	10-507142-7XX	4.740	4.672	4.450	4.248	2.225	2.023	2.003	1.1125	4.525	2.2625	1.875	2.400	N/A	1.950	10-507956-7( )	10-507910-92	10-507958-15( )	10-507142-8XX	5.440	5.372	5.150	4.948	2.575	2.373	2.353	1.2875	5.225	2.6125	2.225	2.750	N/A	2.300	10-507956-8( )	10-507910-42	10-507958-18( )	10-507142-9XX	6.965	6.897	N/A	6.473	2.225	2.023	2.003	2.225	6.750	3.375	1.875	2.400	4.625	1.950	10-507956-9( )	10-507910-92	10-507958-15( )	<p>9. CONDUCTIVE CARRIER STRIPS MUST BE REMOVED. NON-CONDUCTIVE CARRIER STRIPS ARE NOT SCORED AND MAYBE LEFT IN PLACE.</p> <p>8. THE CONNECTOR IS ATTACHED USING SUPPLIED MOUNTING SCREWS. SEE SHEET 7.</p> <p>7. INDICATED DIMENSIONS ARE APPLICABLE ONLY WHEN ASSEMBLED TO THE APPROPRIATE HEATSINK THICKNESS SHOWN IN CHART.</p> <p>6. FOR APPROPRIATE PCB/HEATSINK PACKAGE THICKNESS, SEE COLUMN.</p> <p>5. BRUSH CONTACT TERMINATION FINISH IS Sn60 OR Sn63 SOLDERED DIPPED.</p> <p>4. FOR MATING BACKPLANE CONNECTOR ASSEMBLY, SEE DRAWING 10-507143-100/999.</p> <p>3. INDICATED PARTS ARE SHOWN ASSEMBLED. THESE PARTS WILL BE SHIPPED UNASSEMBLED.</p> <p>2. INDICATED DIMENSION IS TO POINT OF ELECTRICAL ENGAGEMENT.</p> <p>1. FOR SUGGESTED HEATSINK/BOARD LAYOUT SEE SHEETS 9, 10, &amp; 11.</p> <p>NOTES:</p> <p>THE USE OF THIS DOCUMENT IS UNLIMITED. HOWEVER, DOCUMENTS REFERENCED HEREON MAY CONTAIN LIMITED RIGHTS DATA.</p>		<p>15. INDICATED GEOMETRIC TOLERANCE APPLIES BETWEEN THE BACK OF THE INSERT AND THE SCORE MARK ONLY. BETWEEN THE SCORE MARK AND THE CARRIER STRIP, THE POSITION OF THE LEADS MAY NOT VARY MORE THAN .006 INCHES FROM THE ACTUAL POSITION OF THE LEAD BELOW THE SCORE MARK.</p> <p>14. A TOTAL OF 4 KEYS AND 2 RETAINING RINGS ARE REQUIRED TO COMPLETE THE ASSEMBLY. RETAINING RINGS ARE NOT REMOVABLE AND MUST BE REPLACED WHEN REKEYING CONNECTOR.</p> <p>13. CONFIGURATION OF SOLDER TAILS VARIES WITH PACKAGE THICKNESS.</p> <p>12. INDICATED SURFACE OF INSERTS BOTTOM ON INDICATED EDGE OF HEATSINK.</p> <p>11. BLACK INK STAMP "BENDIX 77820 PART NUMBER AND DATE CODE ON INDICATED SURFACE PER 9-5856-5. DATE CODE PER 9-3895. CHARACTERS TO BE .062+/- .020 HIGH. ADDITIONAL INFORMATION MAYBE REQUESTED BY PURCHASE ORDER.</p> <p>10. REAR SURFACE OF INSERTS ARE SEALED IN BRUSH CONTACT AREA ONLY. CONTACT ARE NOT REMOVABLE.</p>	
CONNECTOR PART NUMBER	AA	BB	CC	DD	EE	FF	GG	HH	JJ	KK	LL	MM	NN	PP	SHELL ASSEMBLY (ADD H/S SUFFIX TO COMPLETE)	INSERT SHIELD	INSERT ASSEMBLY (ADD TERM. SUFFIX TO COMPLETE)																																																																																																																																																																								
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25

10-507142-100/999

A



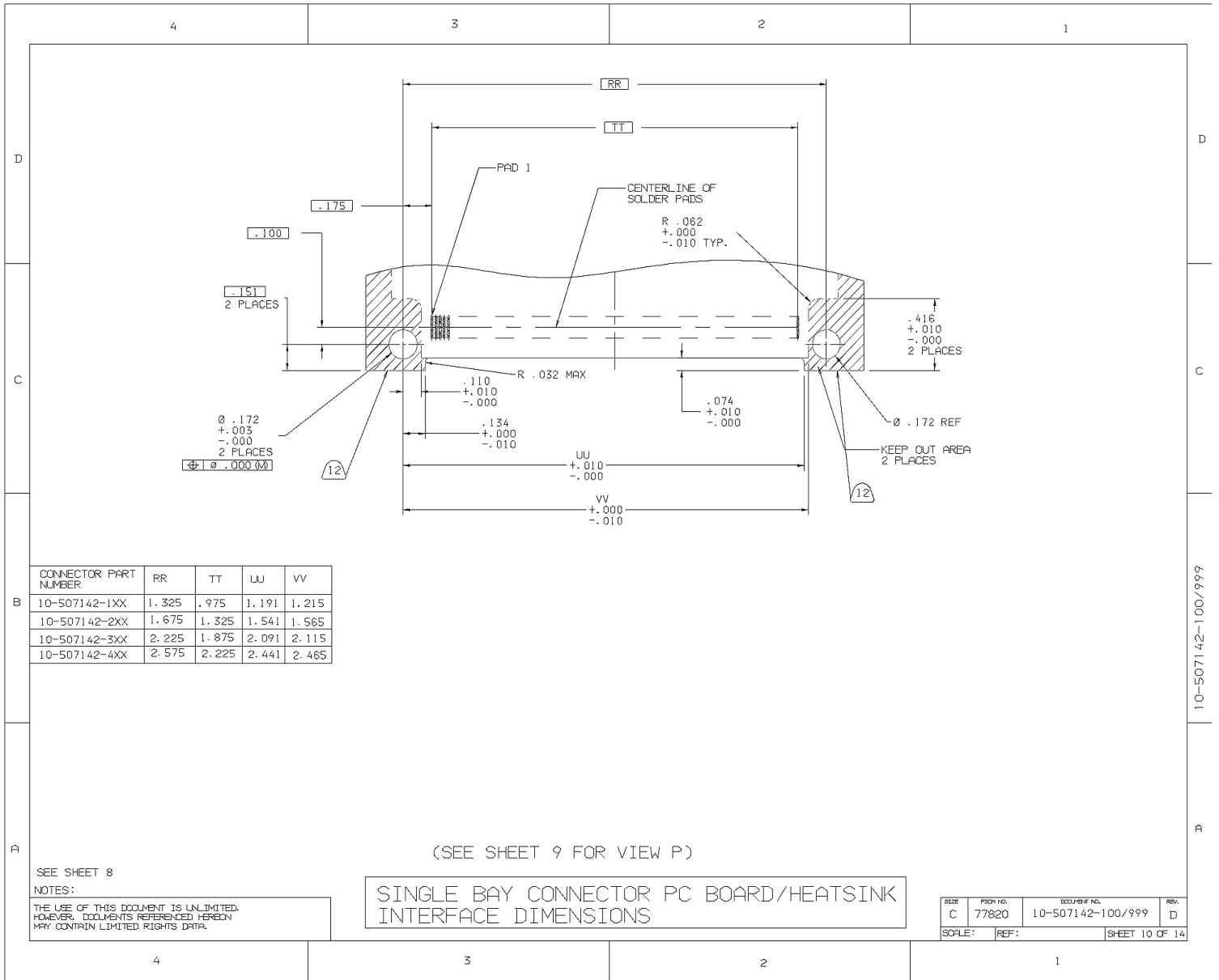
SEE SHEET 8  
 NOTES:  
 THE USE OF THIS DOCUMENT IS UNLIMITED,  
 HOWEVER, DOCUMENTS REFERENCED HEREON  
 MAY CONTAIN LIMITED RIGHTS DATA.

DOUBLE BAY CONNECTOR PC BOARD/HEATSINK  
 INTERFACE DIMENSIONS

SIZE	PESH NO.	ECO/REV NO.	REV.
C	77820	10-507142-100/999	D
SCALE:	REF:	SHEET 9 OF 14	

10-507142-100/999

A



10-507142-100/999

P

D

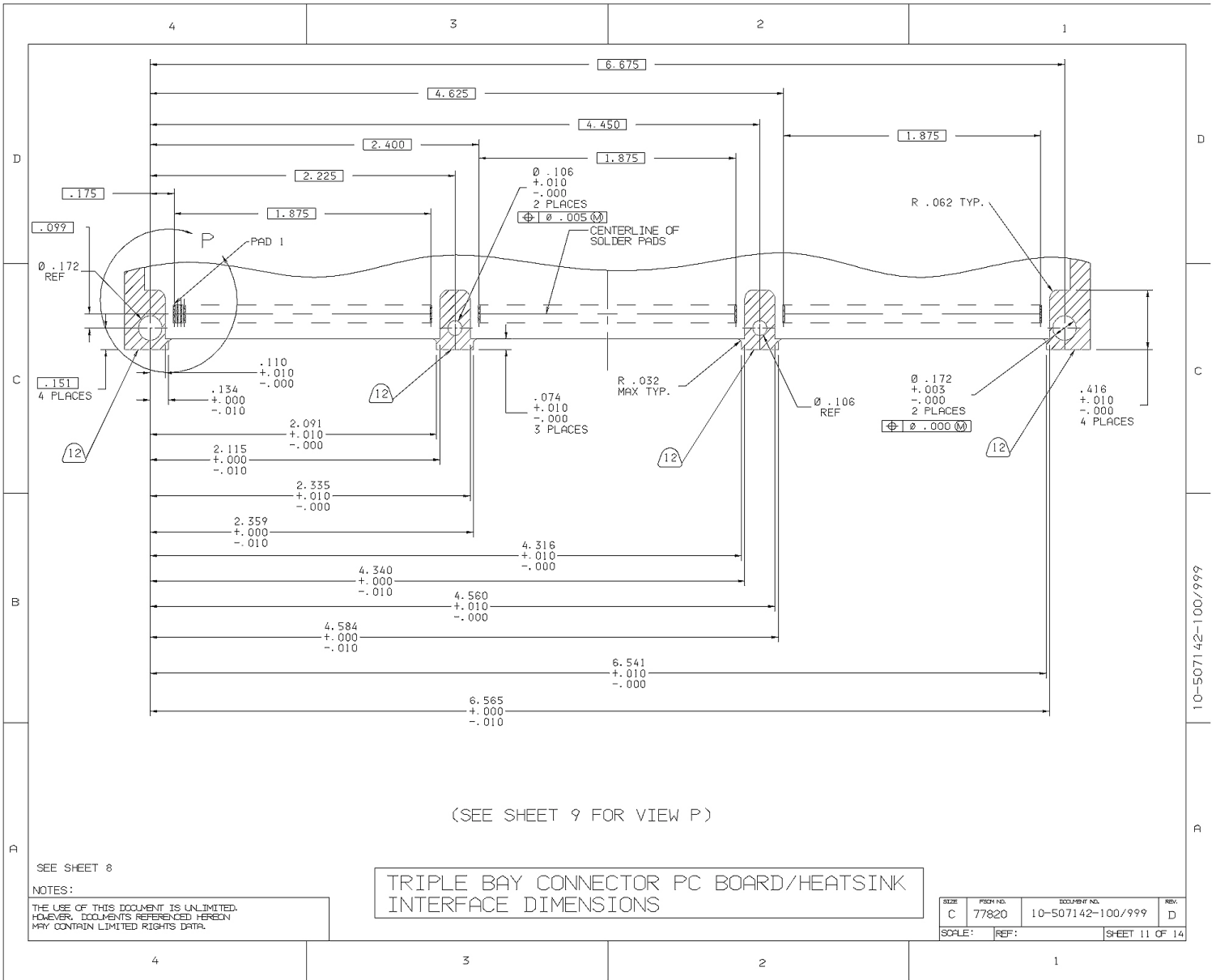
C

1

2

3

4



(SEE SHEET 9 FOR VIEW P)

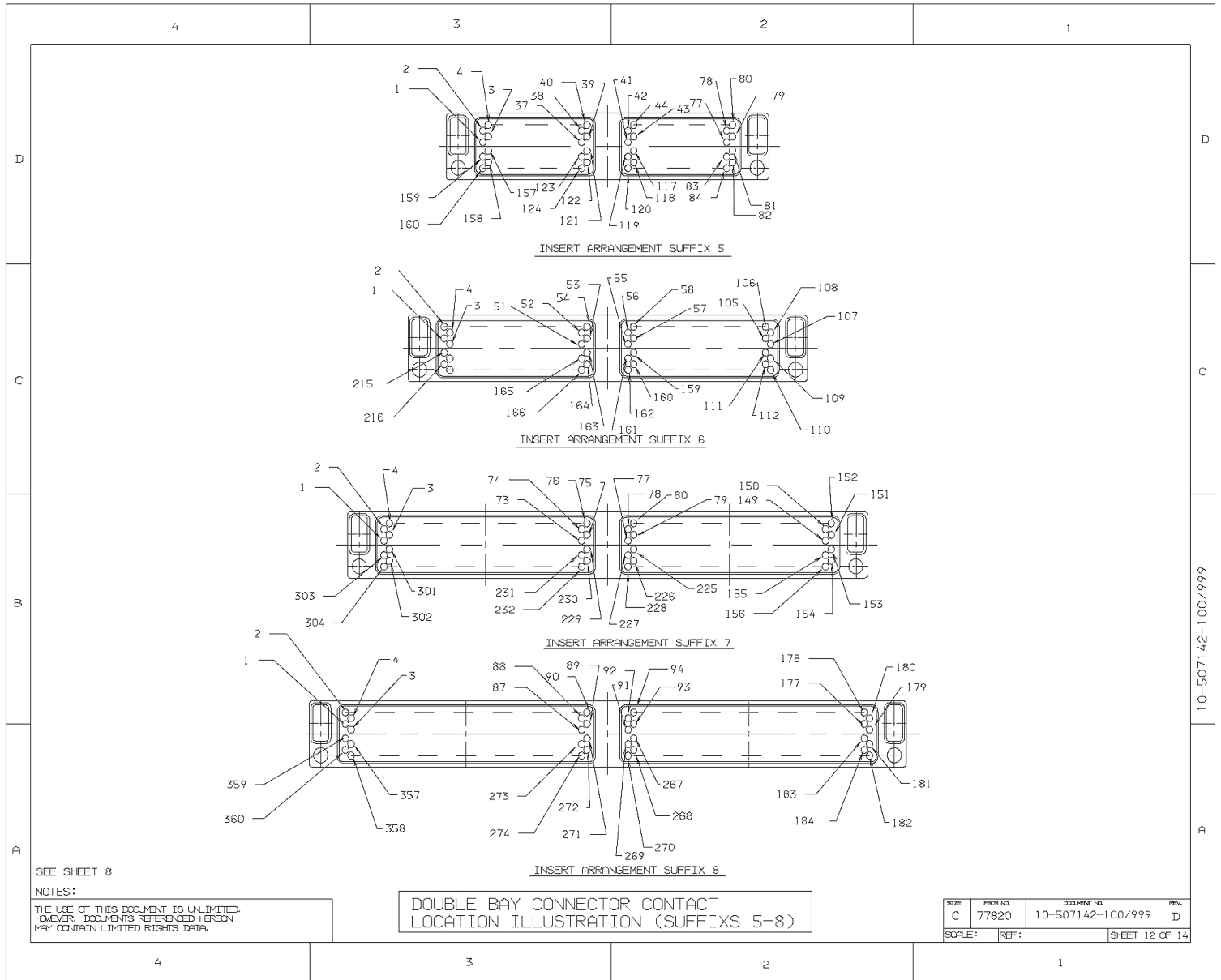
SEE SHEET 8

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TRIPLE BAY CONNECTOR PC BOARD/HEATSINK INTERFACE DIMENSIONS

SIZE	PDR#	DOCUMENT NO.	REV.
C	77820	10-507142-100/999	D
SCALE:	REF:	SHEET 11 OF 14	



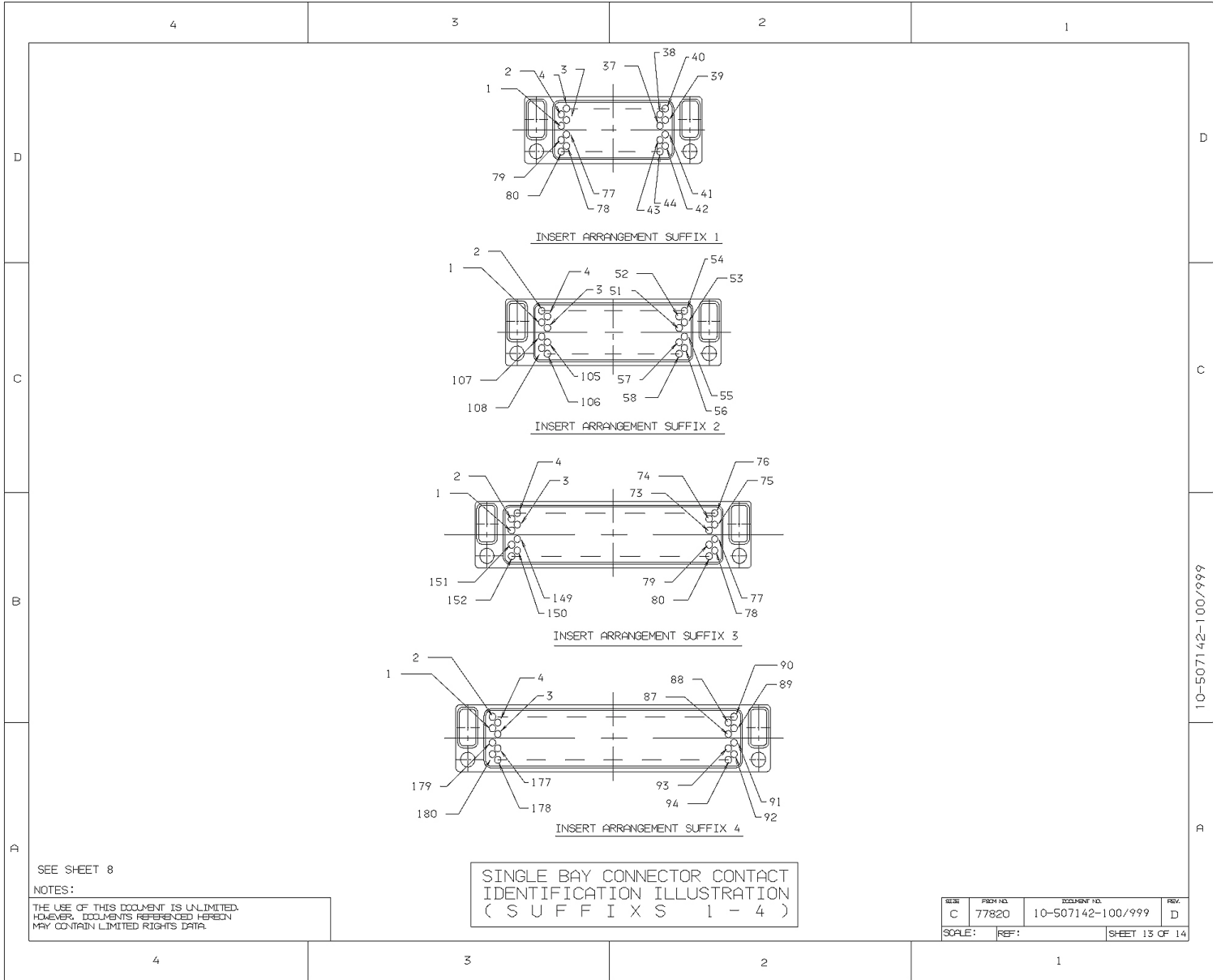
SEE SHEET 8

NOTES:

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DOUBLE BAY CONNECTOR CONTACT LOCATION ILLUSTRATION (SUFFIXES 5-8)

SIZE	FORM NO.	DOCUMENT NO.	REV.
C	77820	10-507142-100/999	D
SCALE:	REF:	SHEET 12 OF 14	



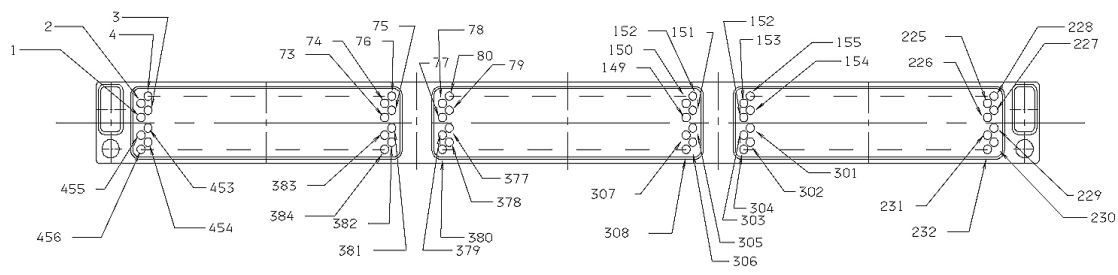
SEE SHEET 8

NOTES:

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SINGLE BAY CONNECTOR CONTACT IDENTIFICATION ILLUSTRATION ( S U F F I X S 1 - 4 )

SIZE	PART NO.	DOCUMENT NO.	REV.
C	77820	10-507142-100/999	D
SCALE:	REF:	SHEET 13 OF 14	



INSERT ARRANGEMENT SUFFIX 9

SEE SHEET 8

NOTES:

THE USE OF THIS DOCUMENT IS UNLIMITED  
HOWEVER, DOCUMENTS REFERENCED HEREON  
MAY CONTAIN LIMITED RIGHTS DATA.

TRIPLE BAY CONNECTOR CONTACT  
LOCATION ILLUSTRATION  
(SUFFIX 9)

SIZE	FIG. NO.	EQUIP. NO.	REV.
C	77820	10-507142-100/999	D
SCALE:	REF:	SHEET 14 OF 14	

31

10-507142-100/999



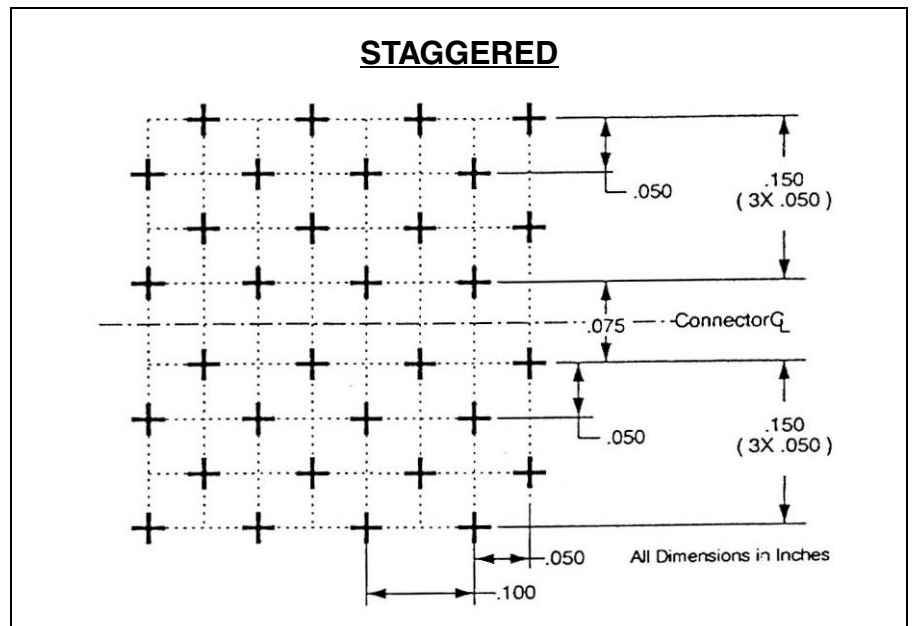
## Staggered Grid Pattern (Digital)

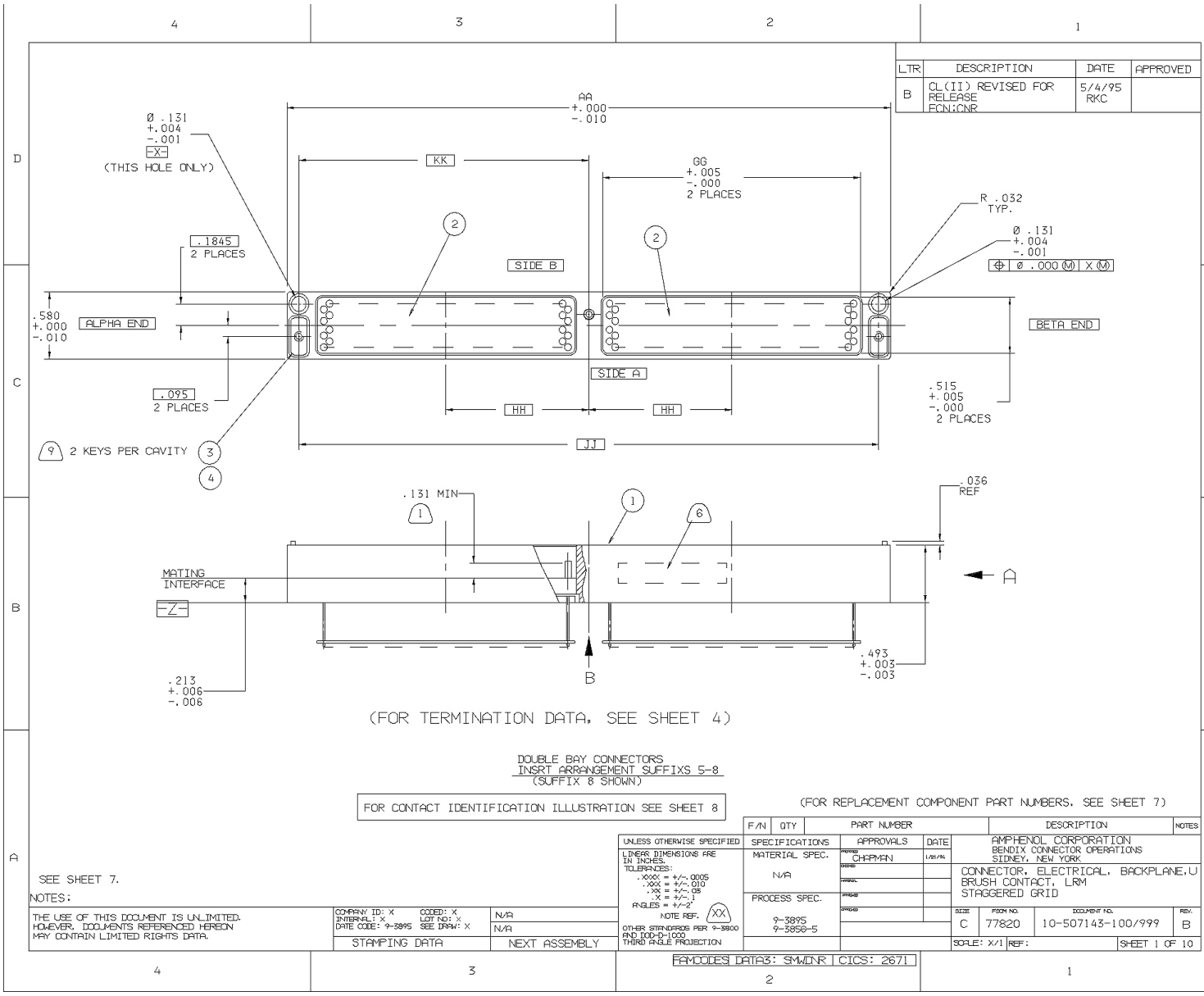
### Drawing Package for Single, Double and 3-Bay **Backplane Connectors**

Including how to order part numbers.

The LRM Staggered pattern allows for surface mount leads on a .025 inch center line.

The following diagram shows the contact pattern of the staggered grid LRM Connector, .100 inch spacing along the row with .050 inch between rows, offset .050 inch (mating face).





LTR	DESCRIPTION	DATE	APPROVED
B	CL (II) REVISED FOR RELEASE FCN: CNR	5/4/95 RKC	

(FOR TERMINATION DATA, SEE SHEET 4)

DOUBLE BAY CONNECTORS  
INSRT ARRANGEMENT SUFFIXS 5-8  
(SUFFIX 8 SHOWN)

FOR CONTACT IDENTIFICATION ILLUSTRATION SEE SHEET 8

(FOR REPLACEMENT COMPONENT PART NUMBERS, SEE SHEET 7)

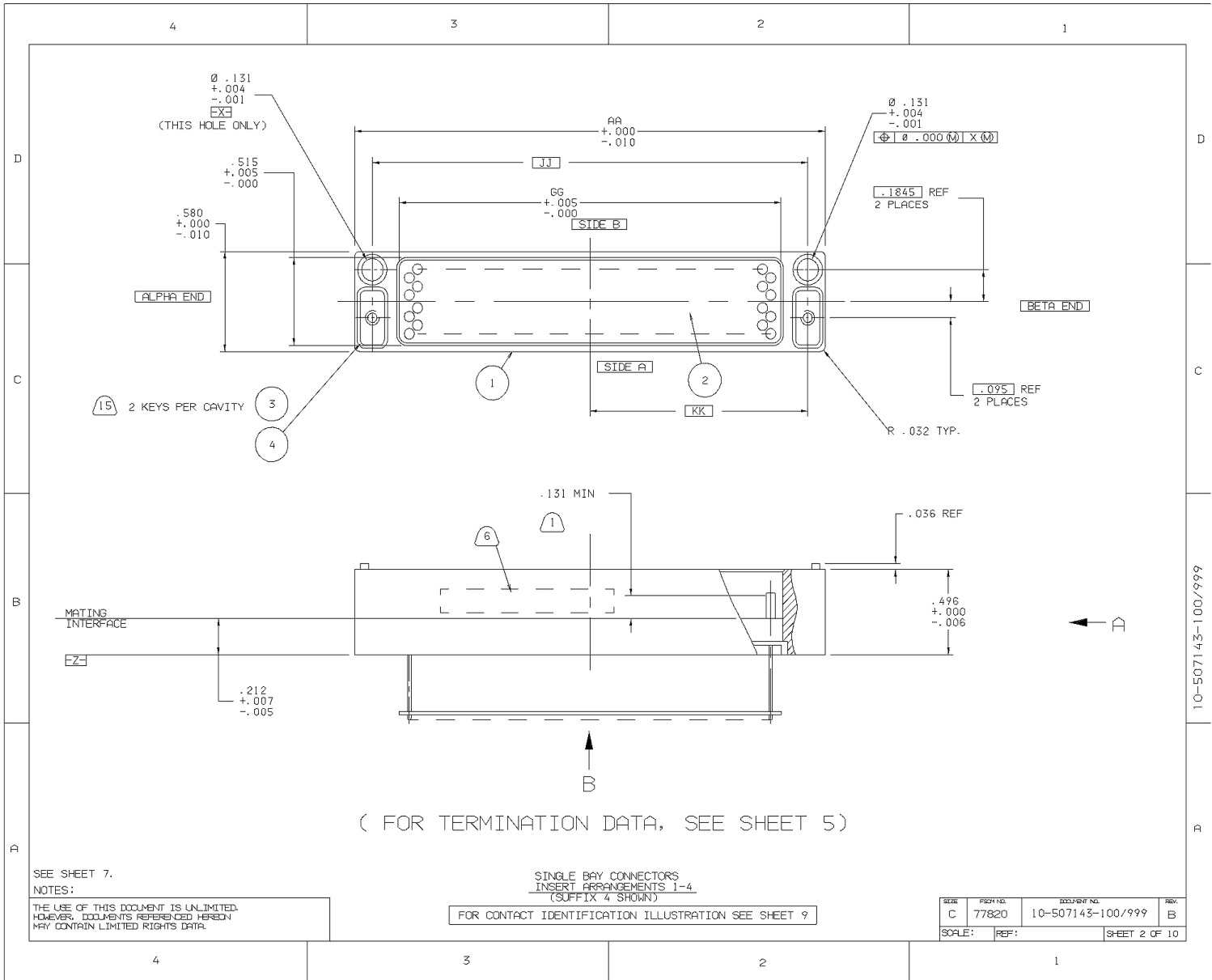
SEE SHEET 7.

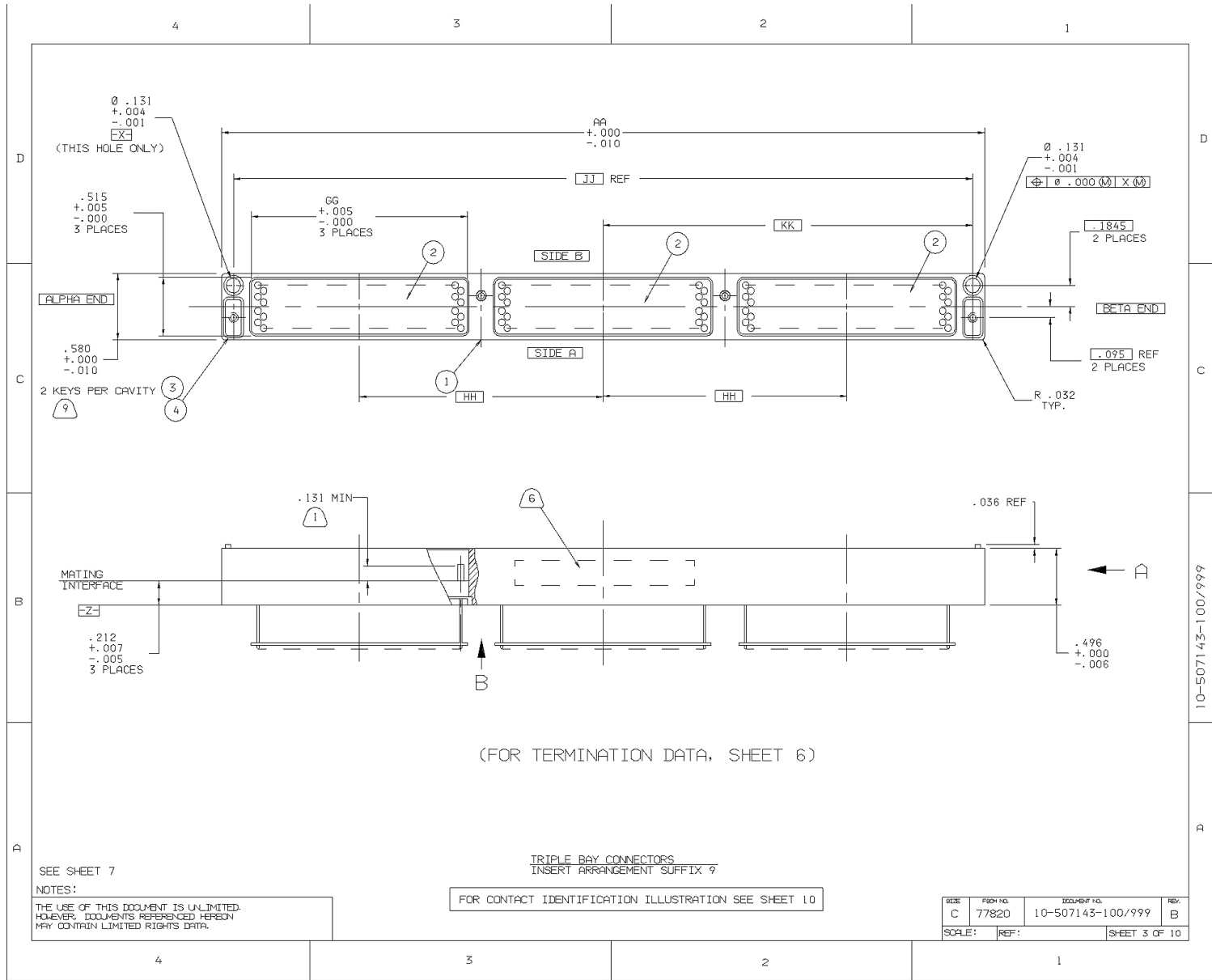
NOTES:  
THE USE OF THIS DOCUMENT IS UNLIMITED. HOWEVER, DOCUMENTS REFERENCED HEREON MAY CONTAIN LIMITED RIGHTS DATA.

COMPANY ID: X	CODE: X	N/A
PRIOR: X	LOT NO: X	N/A
DATE CODE: 9-3895	SEE DRAW: X	N/A
STAMPING DATA	NEXT ASSEMBLY	

F/A	QTY	PART NUMBER	APPROVALS	DATE	DESCRIPTION	NOTES
			CHAPMAN	1/28/94	AMPHENOL CORPORATION BENDIX CONNECTOR OPERATIONS SIDNEY, NEW YORK	
					CONNECTOR, ELECTRICAL, BACKPLANE, U BRUSH CONTACT, LRM STAGGERED GRID	
					SIZE: C	
					PSN NO: 77820	
					DOCUMENT NO: 10-507143-100/999	
					SCALE: X/1	
					REF:	
						SHEET 1 OF 10

FAYOODES DATA: SMDNR CICS: 2671





(FOR TERMINATION DATA, SHEET 6)

TRIPLE BAY CONNECTORS  
INSERT ARRANGEMENT SUFFIX 9

SEE SHEET 7

NOTES:

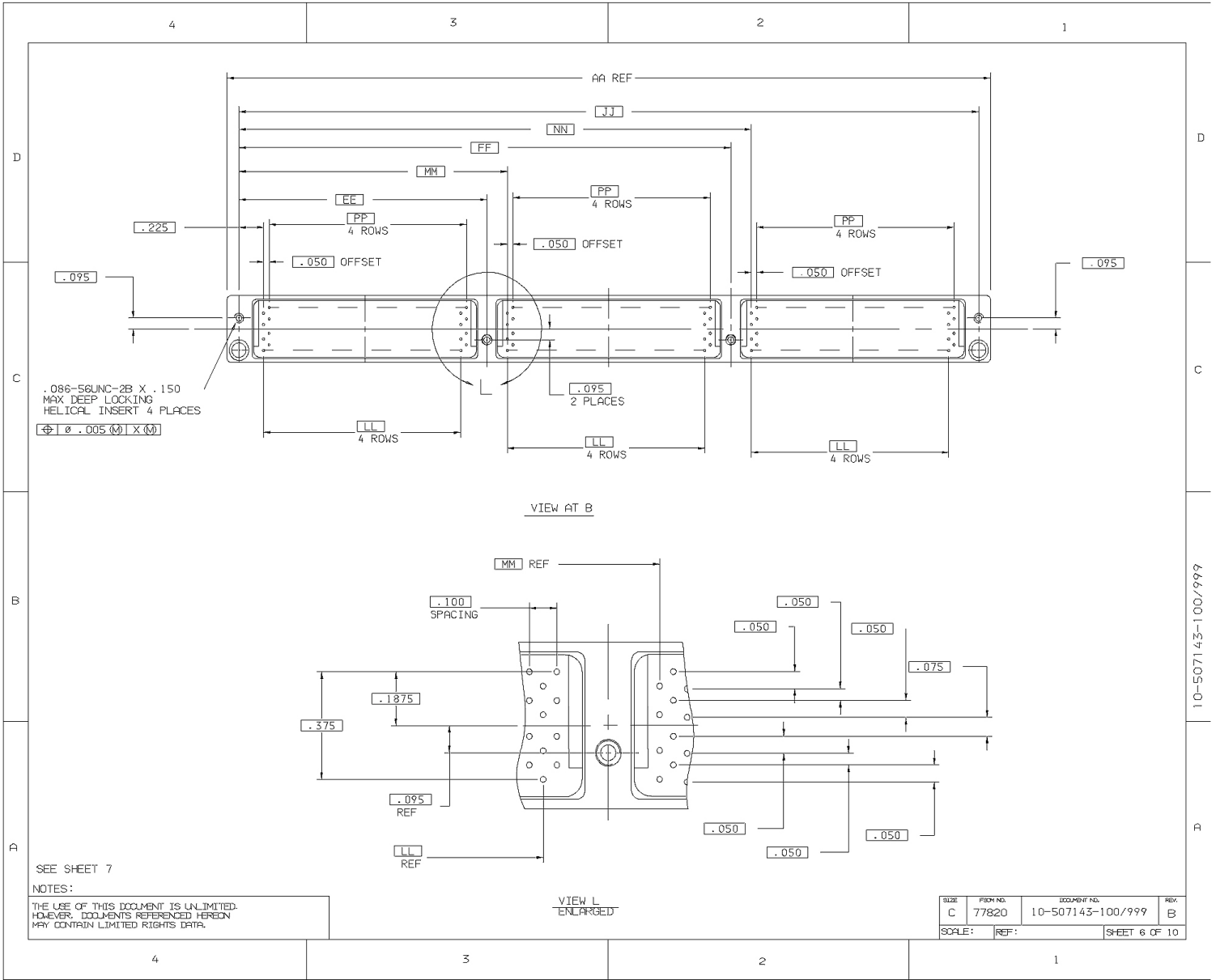
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FOR CONTACT IDENTIFICATION ILLUSTRATION SEE SHEET 10

SIZE C	FIG. NO. 77820	DOCUMENT NO. 10-507143-100/999	REV. B
SCALE:	REF:	SHEET 3 OF 10	







4
3
2
1

CONNECTOR PART NUMBER (TO COMPLETE F/N SEE SUFFIX CHART)  
10-507143-( ) ( ) ( )

INSERT ARRANGEMENT  
TERMINATION STYLE  
TERMINATION STICKOUT

**PART NUMBER SUFFIX CHART**

INSERT ARRANGEMENT		TERMINATION STYLE		TERMINATION STICKOUT	
SUFFIX	DESCRIPTION	SUFFIX	DESCRIPTION (DIM "F")	SUFFIX	DESCRIPTION (DIM "G")
1	80 DIGITAL (SINGLE BAY)	1	.021+/- .002 DIA PCB TAIL	1	.150+/- .020 (PCB)
2	108 DIGITAL (SINGLE BAY)	2	.016+/- .002 DIA PCB TAIL	2	.200+/- .020 (PCB)
3	152 DIGITAL (SINGLE BAY)	3	.012+/- .002 DIA PCB TAIL	3	.250+/- .020 (PCB)
4	180 DIGITAL (SINGLE BAY)	4	N/A	4	.300+/- .020 (PCB)
5	160 DIGITAL (DOUBLE BAY)	5	COMPLIANT	5	.350+/- .020 (PCB)
6	216 DIGITAL (DOUBLE BAY)	6	TBD	6	.400+/- .020 (PCB)
7	304 DIGITAL (DOUBLE BAY)	7		7	.185+/- .020 (PCB)
8	360 DIGITAL (DOUBLE BAY)	8		8	TBD
9	456 DIGITAL (TRIPLE BAY)	9		9	TBD
0	NONE	0	NONE N/A	A	NA
A	TBD	A		B	NA
				C	.157+/- .020 (COMPLT., NO WRAP)
				D	.217+/- .020 (COMPLT., 1 WRAP)
				E	.317+/- .020 (COMPLT., 2 WRAP)
				F	.417+/- .020 (COMPLT., 3 WRAP)

**REPLACEMENT COMPONENT PART NUMBERS**

F/N	QTY	PART NUMBER	DESCRIPTION	NOTES
1	1	SEE COLUMN	SHELL ASSEMBLY	
2	AR	SEE COLUMN	INSERT ASSEMBLY	
3	4	10-507903-3	POLARIZATION KEY	2
4	2	10-507929-1	RETAINING RING	2
5	AR	10-507931-1	REPLACEMENT KEY KIT (100 PCS EACH F/N 3 & 4)	10
6	AR	10-507818-12	COMPLIANT CONTACT (NO WRAP)	10
7	AR	10-507818-22	COMPLIANT CONTACT (1 WRAP)	10
8	AR	10-507818-32	COMPLIANT CONTACT (2 WRAP)	10
9	AR	10-507818-42	COMPLIANT CONTACT (3 WRAP)	10

CONNECTOR PART NUMBER	AA	EE	FF	GG	HH	JJ	KK	LL	MM	NN	PP	SHELL ASSEMBLY	INSERT ASSEMBLY (TO COMPLETE ADD TERM. SUFFIXES)
10-507143-1XX	1.615	NA	NA	1.107	N/A	1.400	.700	.900	NA	NA	.900	10-507945-11	10-507959-1( ) ( )
10-507143-2XX	1.965	NA	NA	1.457	N/A	1.750	.875	1.300	NA	NA	1.200	10-507945-21	10-507959-2( ) ( )
10-507143-3XX	2.515	NA	NA	2.008	N/A	2.300	1.150	1.800	NA	NA	1.800	10-507945-31	10-507959-3( ) ( )
10-507143-4XX	2.865	NA	NA	2.357	N/A	2.650	1.325	2.200	NA	NA	2.100	10-507945-41	10-507959-4( ) ( )
10-507143-5XX	2.940	NA	NA	1.107	.6625	2.725	1.3625	.900	1.550	NA	.900	10-507945-51	10-507959-1( ) ( )
10-507143-6XX	3.640	NA	NA	1.457	.8375	3.425	1.7125	1.300	1.900	NA	1.200	10-507945-61	10-507959-2( ) ( )
10-507143-7XX	4.740	NA	NA	2.008	1.1125	4.525	2.2625	1.800	2.450	NA	1.800	10-507945-71	10-507959-3( ) ( )
10-507143-8XX	5.440	NA	NA	2.357	1.2875	5.225	2.6125	2.200	2.800	NA	2.100	10-507945-81	10-507959-4( ) ( )
10-507143-9XX	6.965	2.2625	4.4875	2.008	2.225	6.750	3.375	1.800	2.450	4.675	1.800	10-507945-91	10-507959-3( ) ( )

5. BRUSH CONTACTS WITH PCB TAIL TERMINATIONS ARE NOT REMOVABLE. THE REAR OF THE INSERT IS SEALED. COMPLAINT CONTACTS ARE REMOVABLE FROM THE FRONT.

4. CONTACT TERMINATION FINISH: PCB TERMINATION FINISH IS 60/40 TIN/LEAD SOLDER DIPPED. COMPLIANT TERMINATION FINISH IS GOLD PLATE PER MIL-G-45204, TYPE II, .000050 MIN THK OVER .000050 MIN THK NICKEL.

3. FOR MATING MODULE CONNECTOR ASSEMBLY, SEE DRAWING 10-507142-100/999.

2. INDICATED PARTS ARE SHOWN ASSEMBLED. THESE PARTS WILL BE SHIPPED UNASSEMBLED.

1. INDICATED DIMENSION B IS TO POINT OF ELECTRICAL ENGAGEMENT.

NOTES:

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10. INDICATED ITEMS ARE REPAIR OR REPLACEMENT COMPONENT PART NUMBERS.

9. A TOTAL OF 4 KEYS AND 2 RETAINING RINGS ARE REQUIRED TO COMPLETE THE ASSEMBLY. RETAINING RINGS ARE NOT REUSABLE AND MUST BE REPLACED WHEN REKEYING CONNECTOR.

8. COMPLIANT TERMINATION WRAP NUMBERS ASSUME A .125 INCH THICK BACKPLANE.

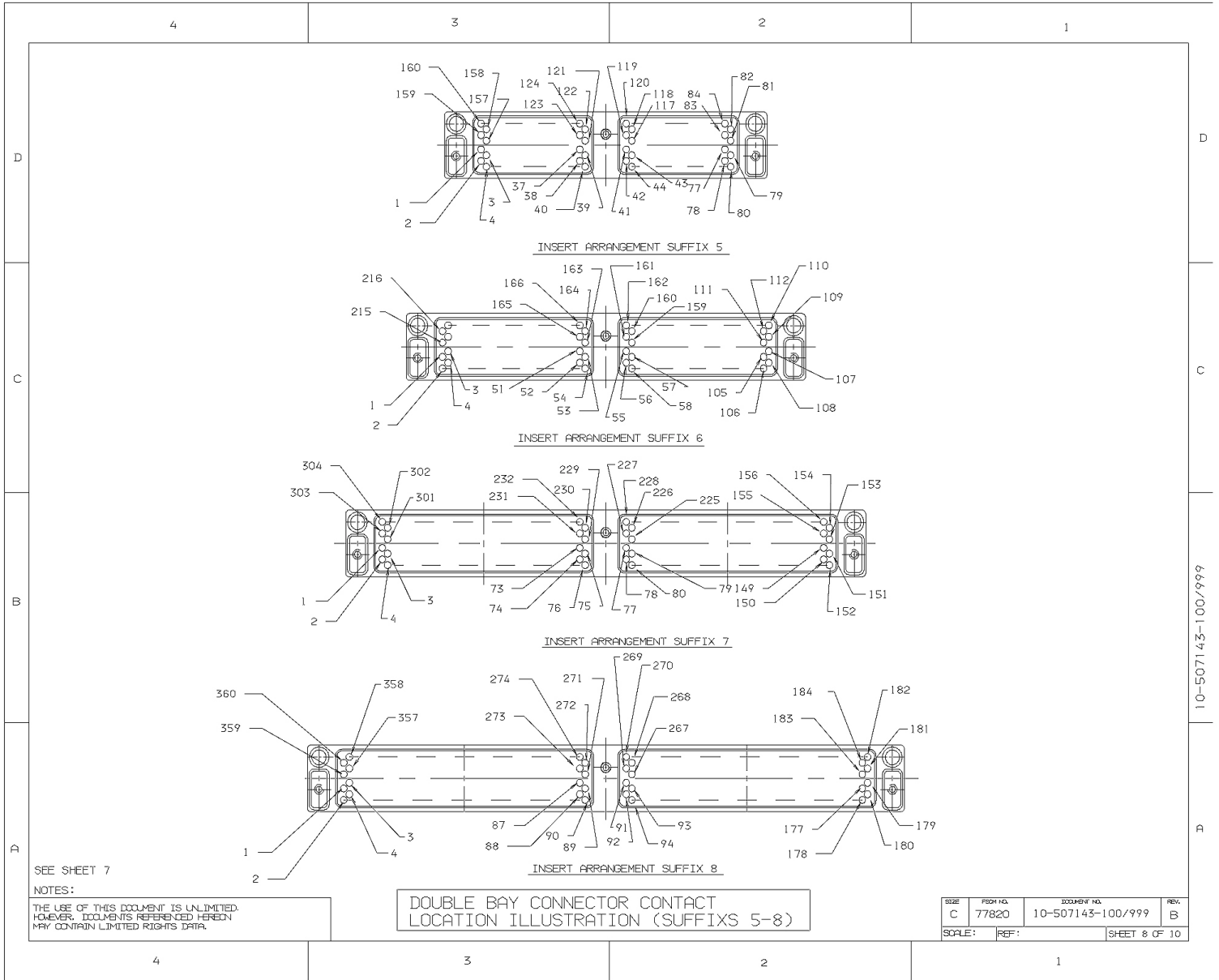
7. INDICATED POSITIONAL TOLERANCE ID FOR PCB TERMINATION ONLY. THIS TOLERANCE APPLIES WHEN BOTTOM OF INDICATED ORGANIZER IS WITHIN .020 INCH OF TAIL END.

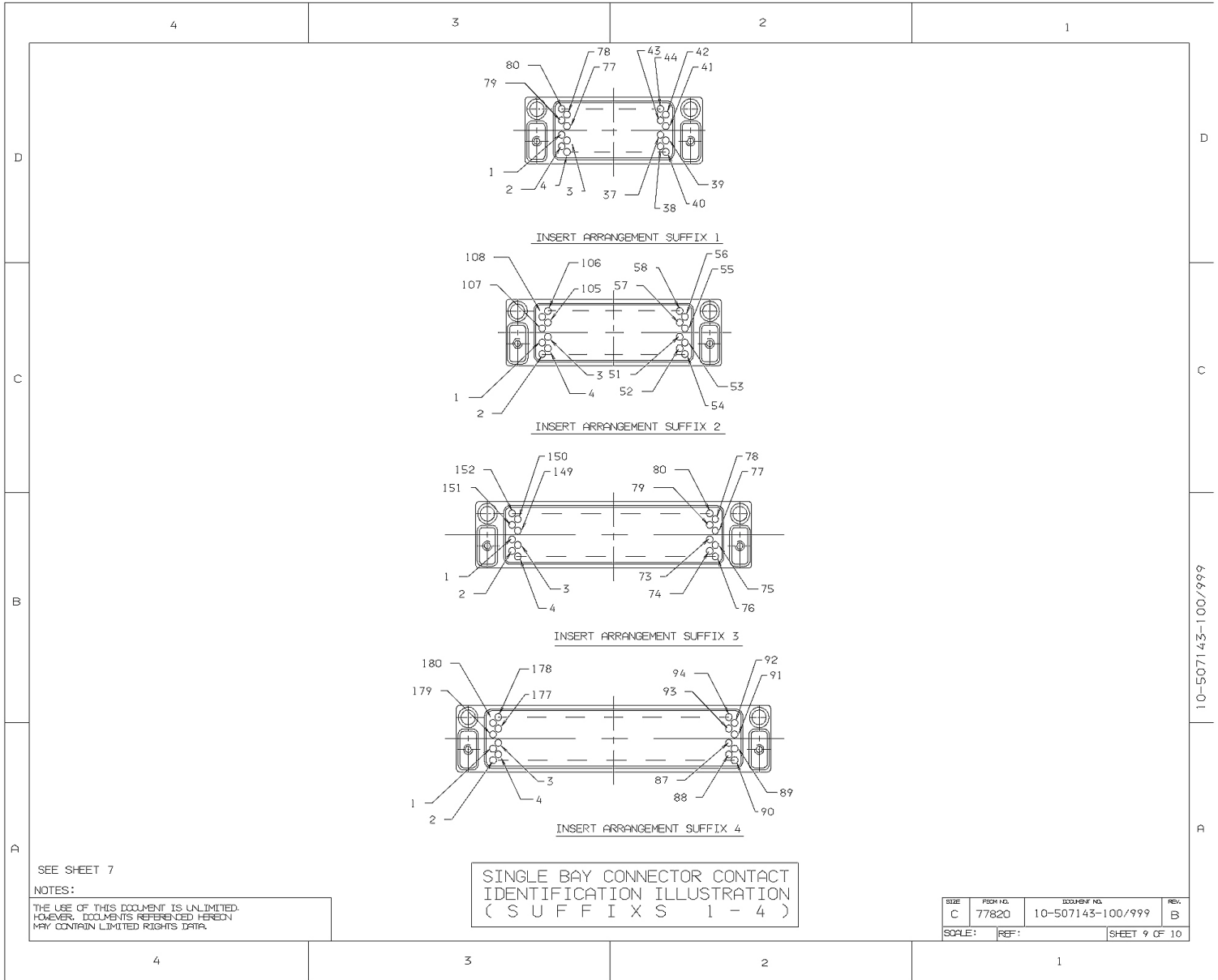
6. BLACK INK STAMP "BENDIX" 77820, PART NUMBER AND DATE CODE ON INDICATED SURFACE PER 9-3856-5. DATE CODE PER 9-3895. CHARACTERS TO BE .062+/- .020 HIGH. ADDITIONAL INFORMATION MAYBE REQUESTED BY PURCHASE ORDER.

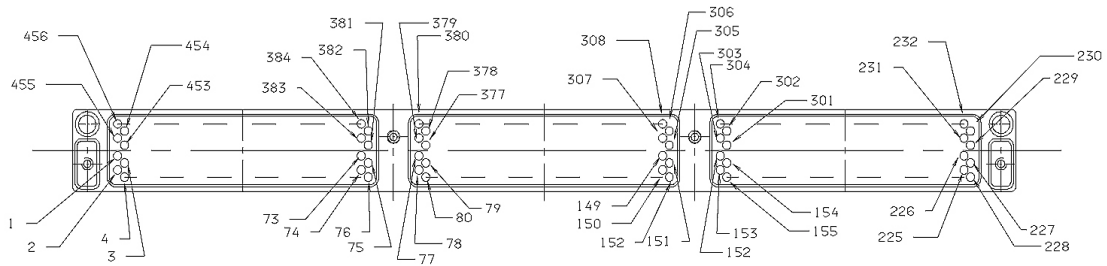
REV:	77820	EQUIP. NO.	10-507143-100/999	REV.	B
SCALE:	REF:			SHEET 7 OF 10	

4
3
2
1









INSERT ARRANGEMENT SUFFIX 9

SEE SHEET 7

NOTES:

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TRIPLE BAY CONNECTOR CONTACT LOCATION ILLUSTRATION (SUFFIX 9)

SIZE	FORM NO.	DOCUM. # NO.	REV.
C	77820	10-507143-100/999	B
SCALE:	REF:	SHEET 10 OF 10	

4

3

2

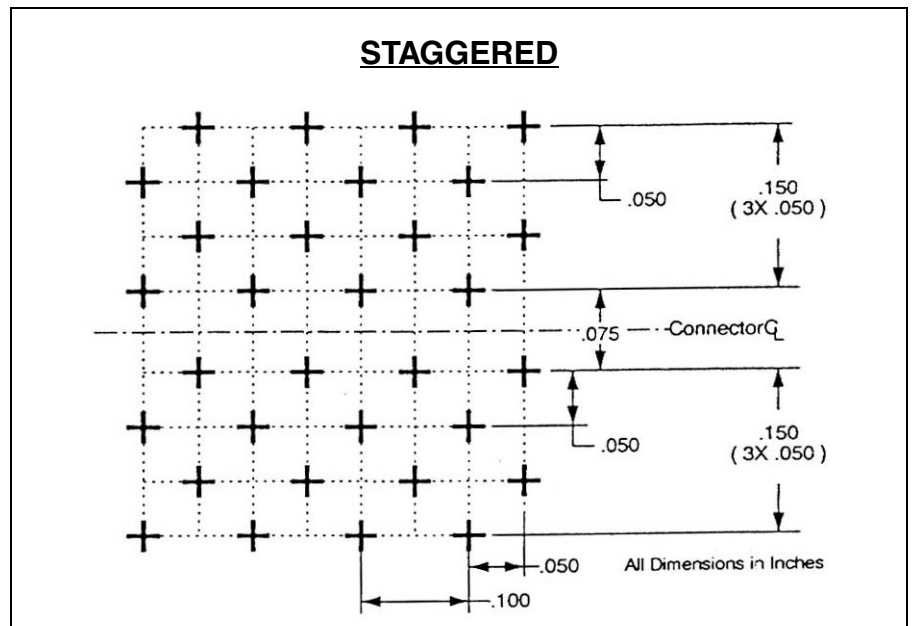
1

## Staggered Grid Pattern Hybrid Insert Illustrations

Including how to order part numbers.

The LRM Staggered pattern allows for surface mount leads on a .025 inch center line.

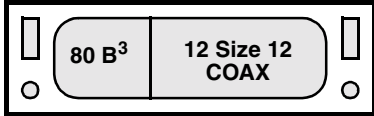

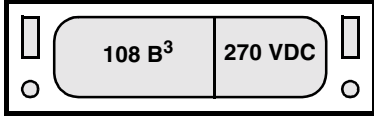


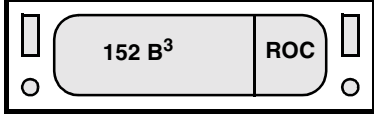
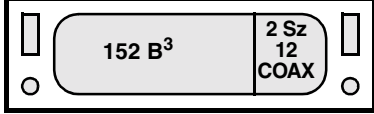
The following diagram shows the contact pattern of the staggered grid LRM Connector, .100 inch spacing along the row with .050 inch between rows, offset .050 inch (mating face).



# Staggered Grid, 360 Contacts LRM Connectors

## typical arrangements, how to order

### SINGLE BAY HYBRID ARRANGEMENTS

MODULE	BACKPLANE	
10-507184-1**	10-507186-1**	
10-507184-2**	10-507186-2**	
10-507184-3**	10-507186-3**	
10-507184-4**	10-507186-4**	
10-507184-5**	10-507186-5**	
10-507184-6**	10-507186-6**	
10-507184-7**	10-507186-7**	

Replace \*\* in desired part number with heat sink and total board package thickness indicators from MODULE suffix chart (pg. 15).

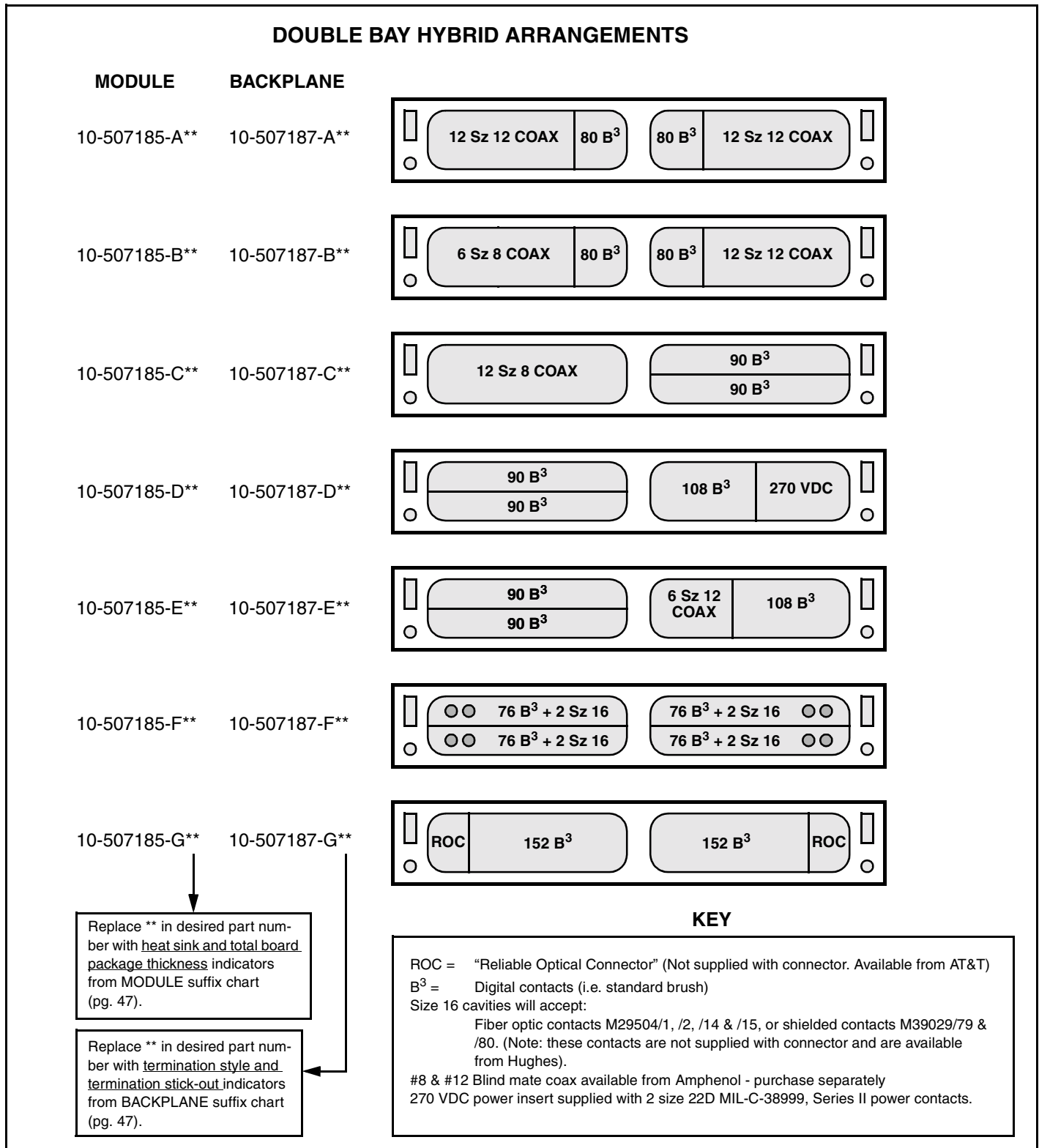
Replace \*\* in desired part number with termination style and termination stick-out indicators from BACKPLANE suffix chart (pg. 15).

### KEY

ROC = "Reliable Optical Connector" (Not supplied with connector. Available from AT&T)  
 B<sup>3</sup> = Digital contacts (i.e. standard brush)  
 Size 16 cavities will accept:  
 Fiber optic contacts M29504/1, /2, /14 & /15, or shielded contacts M39029/79 & /80. (Note: these contacts are not supplied with connector and are available from Hughes).  
 #8 & #12 Blind mate coax available from Amphenol - purchase separately  
 270 VDC power insert supplied with 2 size 22D MIL-C-38999, Series II power contacts.

# Staggered Grid, 360 Contacts LRM Connectors

typical arrangements, how to order



# Staggered Grid, 360 Contacts LRM Connectors

typical arrangements, how to order

**DOUBLE BAY HYBRID ARRANGEMENTS, CONT.**

MODULE	BACKPLANE	
10-507185-H**	10-507187-H**	
10-507185-J**	10-507187-J**	
10-507185-K**	10-507187-K**	
10-507185-L**	10-507187-L**	

Replace \*\* in desired part number with heat sink and total board package thickness indicators from MODULE suffix chart (pg. 47).

Replace \*\* in desired part number with termination style and termination stick-out indicators from BACKPLANE suffix chart (pg. 47).

**KEY**

ROC = "Reliable Optical Connector" (Not supplied with connector. Available from AT&T)

B<sup>3</sup> = Digital contacts (i.e. standard brush)

Size 16 cavities will accept:  
Fiber optic contacts M29504/1, /2, /14 & /15, or shielded contacts M39029/79 & /80. (Note: these contacts are not supplied with connector and are available from Hughes).

#8 & #12 Blind mate coax available from Amphenol - purchase separately

270 VDC power insert supplied with 2 size 22D MIL-C-38999, Series II power contacts.

# LRM Hybrid Connectors

## part number suffixes

The following charts identify the part number suffixes to be used when ordering Hybrid LRM Connectors. (Refer to preceding pages of Hybrid Arrangements and also to the Staggered Grid drawing packages in this document).

### HYBRID MODULE SUFFIX CHARTS

#### HEATSINK THICKNESS

Suffix	Description
1	.125 ± .005
2	.100 ± .005
3	.075 ± .005
4	.062 ± .005
5	.035 ± .005

#### TOTAL BOARD PACKAGE THICKNESS

Suffix	Description
1	Surface Mount / .090 – .130 Package
2	Surface Mount / .130 – .190 Package
3	Surface Mount / .190 – .250 Package
4	Surface Mount / .060 – .100 Package
5	Surface Mount / .100 – .160 Package
6	Surface Mount / .160 – .220 Package

### HYBRID BACKPLANE SUFFIX CHARTS

#### TERMINATION STYLE

Suffix	Description - Dimension "F" (See Staggered Grid Drawings)
1	.021 ± .002 Dia. PCB Tail
2	.016 ± .002 Dia. PCB Tail
3	.012 ± .002 Dia. PCB Tail
4	N/A
5	Compliant

#### TERMINATION STICKOUT

Suffix	Description - Dimension "G" (See Staggered Grid Drawings)
1	.150 ± .020 (PCB)
2	.200 ± .020 (PCB)
3	.250 ± .020 (PCB)
4	.300 ± .020 (PCB)
5	.350 ± .020 (PCB)
6	.400 ± .020 (PCB)
7	.185 ± .020 (PCB)
8	.450 ± .020 (PCB)
9	.500 ± .020 (PCB)
C	.157 ± .020 (Compliant, No Wrap)
D	.217 ± .020 (Compliant, 1 Wrap)
E	.317 ± .020 (Compliant, 2 Wrap)
F	.417 ± .020 (Compliant, 3 Wrap)



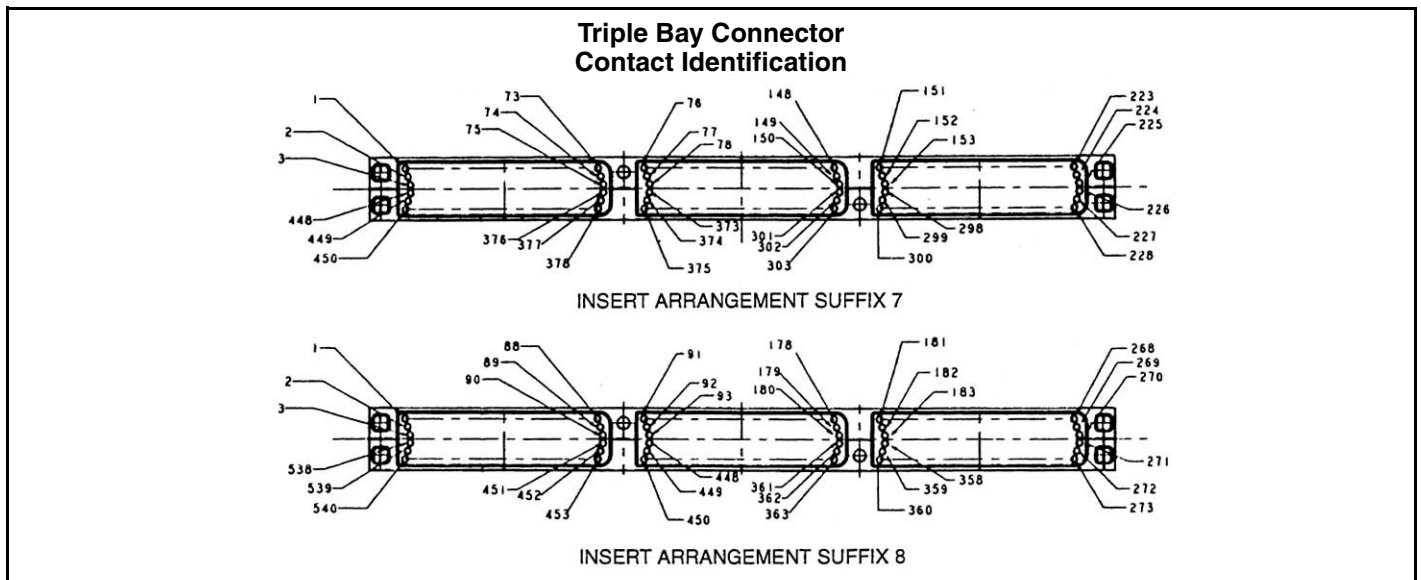
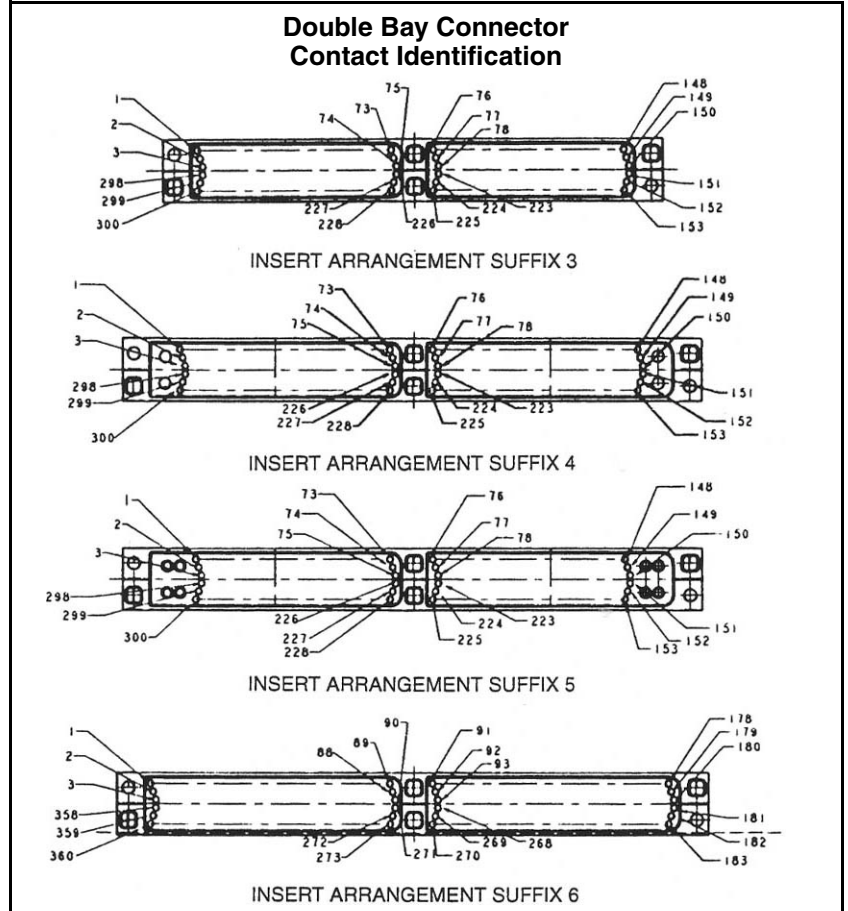
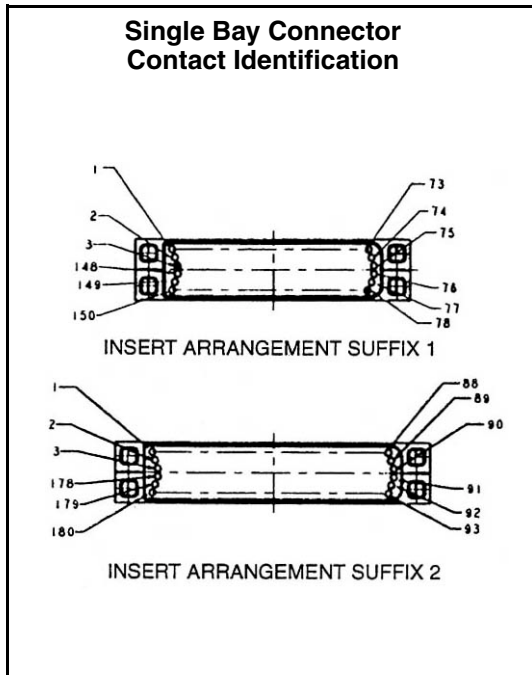


# Chevron Grid LRM Connectors

## insert arrangements

TO ORDER CHEVRON GRID LRM CONNECTORS:

Consult Amphenol, Sidney, NY for availability and part number ordering procedure.



Front of module connector shown. Backplane will be mirror image.