



# DOCUMENT CHANGE NOTICE (DCN)

DOCUMENT No. (DOC-REV-GP. ID)	TITLE	NEW REV.
D972118-B-D	LIGO BSC, CROSSBEAM WELDMENT	N/A
D972123-B-D	LIGO BSC, SUPPORT TUBE SPHERICAL MOUNT	N/A
D972128-D-D	LIGO BSC, SUPPORT PIER	N/A
D972609-C-D	LIGO, HAM, SUPPORT PIER	N/A
D972612-C-D	LIGO, HAM, CROSSBEAM WELDMENT	N/A

CHANGE DESCRIPTION (FROM/TO):

D972615-B-D LIGO HAM, SPHERICAL BEARING N/A

RELEASED FOR FABRICATION

REASON FOR CHANGE:

ACTION:  Incorporate change  Attach DCN to drawing(s)  Other action (specify): **FABRICATION**

DISPOSITION OF HARDWARE (IDENTIFY SERIAL NUMBERS)

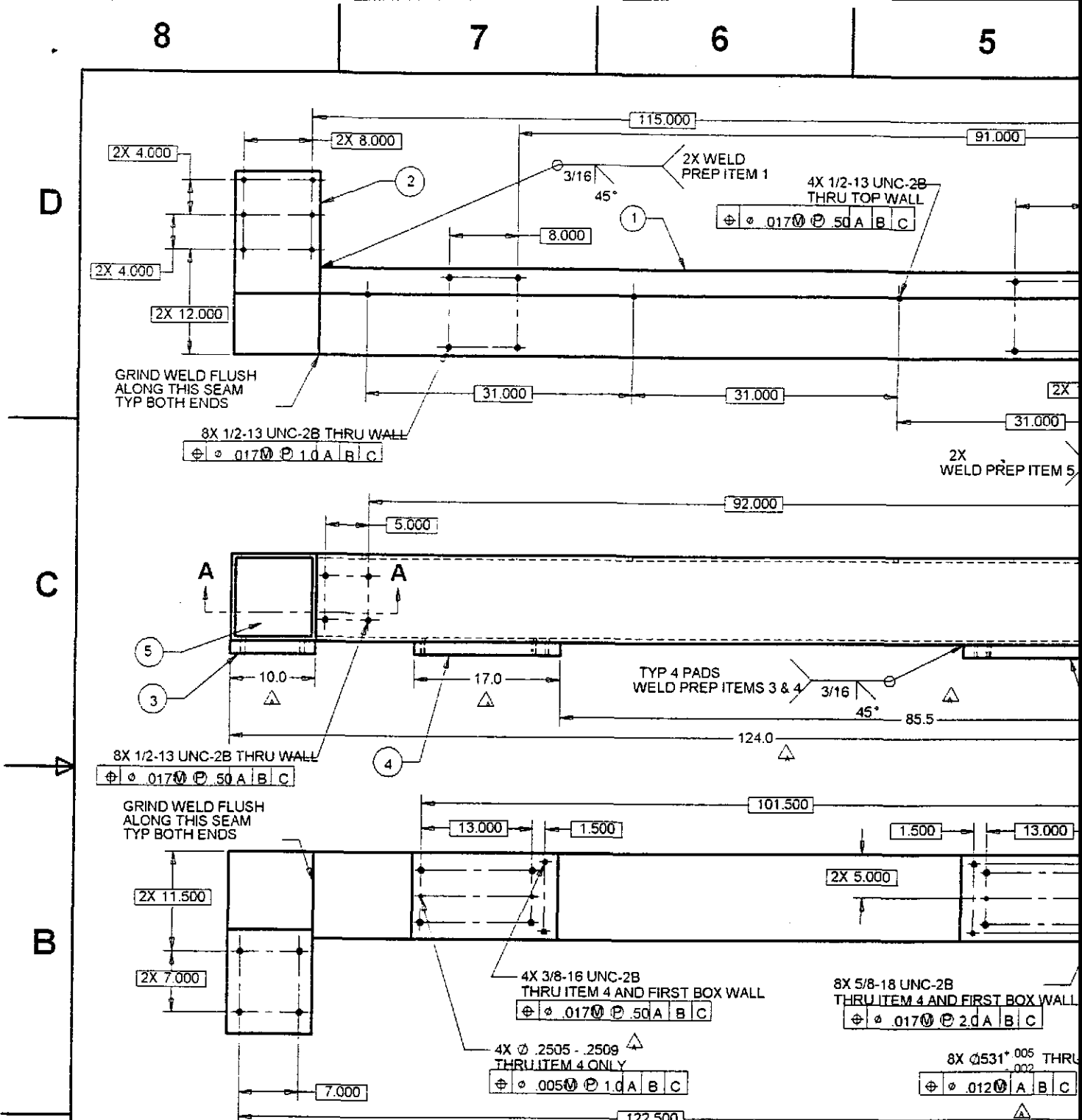
- No hardware affected (record change only)
- List S/Ns which comply already:
- List S/Ns to be reworked or scrapped:
- List S/Ns to be built with this change:
- List S/Ns to be retested per this change:
- 
- 
- 
- 

DCN DISTRIBUTION (X=incl. docs)

Atthouse	Barish	Coles
✓Coyne	Lazzarini	Lindquist
✓Raab	✓Sanders	✓Shoemaker
Stapfer	✓Tyler	Weiss
✓Whitcomb	Zydowicz	
✓Thompson, Tim (Hytec)		
✓Wilcox, Dean March Metal-fab		

SAFETY, COST, SCHEDULE, REQUIREMENTS IMPACT?  No  Yes (If yes, enter Change Request number )

APPROVALS:	DATE	OTHER APPROVALS (specify)	DATE
ORIGINATOR: <i>F. ASIRI</i>	<i>5/14/98</i>		
TASK LEADER: <i>m fine</i>	<i>5/14/98</i>		
GROUP LEADER: <i>Dennis Coyne</i>	<i>5/14/98</i>		
DCC RELEASE: <i>[Signature]</i>	<i>5/14/98</i>		



NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS IN INCHES
2. DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994
3. SURFACE TEXTURE PER ANSI/ASME B 46.1-1985
4. REMOVE ALL BURRS AND BREAK SHARP EDGES TO A MAXIMUM OF .015
5. ALL INSIDE CORNERS TO BE .015 RADIUS MAX
6. COUNTERSINK 82 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
7. COUNTERSINK 82 DEGREES APPROXIMATELY .015 DEEP ALL DRILLED HOLES
8. PARTS TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT AND CHIPS
9. PART NUMBER (DRAWING NO. PLUS DASH NO. PLUS SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

10. PAINT:  
 ALL VISIBLE SURFACES  
 MEDIUM TEXTURED BLUE SHERWIN WILLIAMS (POLANE (R) T-PLUS.  
 POLYURETHANE ENAMEL.) #SW-F63TX-L2822-5864.  
 PRIME WITH SHERMAN-WILLIAMS INDUSTRIAL WASH PRIMER P60G2

WEIGHT: 1077

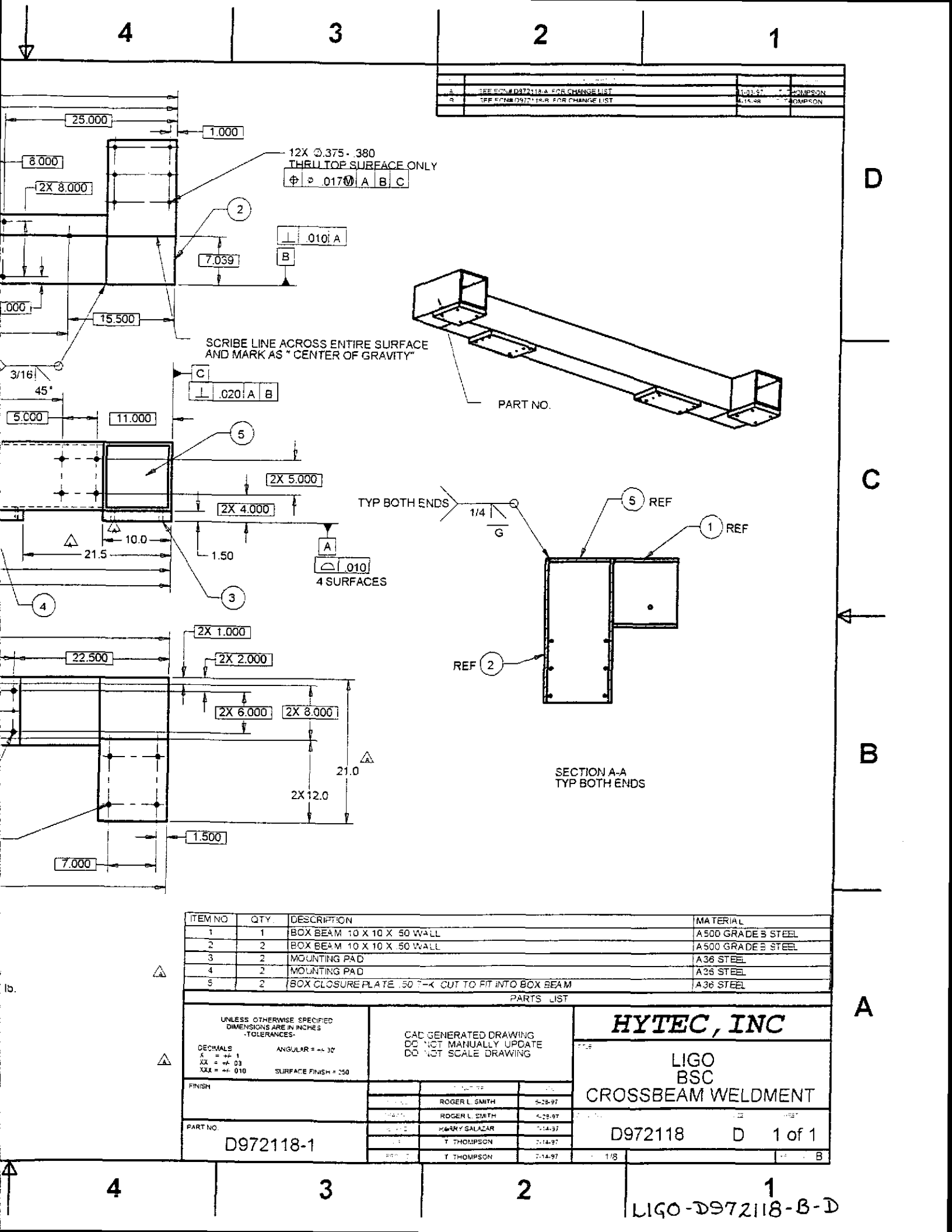
**RELEASED FOR  
FABRICATION**

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A	SEE ECN# D972118-A FOR CHANGE LIST	1/13/97	T. THOMPSON
B	SEE ECN# D972118-B FOR CHANGE LIST	4/14/98	T. THOMPSON

12X Ø.375 - .380  
THRU TOP SURFACE ONLY  
Φ ± .017 A B C

⊥ .010 A  
B

⊥ .020 A B  
C

⊥ .010  
4 SURFACES  
A

PART NO.

TYP BOTH ENDS

SECTION A-A  
TYP BOTH ENDS

ITEM NO	QTY.	DESCRIPTION	MATERIAL
1	1	BOX BEAM 10 X 10 X .50 WALL	A500 GRADE B STEEL
2	2	BOX BEAM 10 X 10 X .50 WALL	A500 GRADE B STEEL
3	2	MOUNTING PAD	A36 STEEL
4	2	MOUNTING PAD	A36 STEEL
5	2	BOX CLOSURE PLATE .50 T-X CUT TO FIT INTO BOX BEAM	A36 STEEL

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES:  DECIMALS      ANGULAR = ± .30° X = ± .1 XX = ± .03 XXX = ± .010      SURFACE FINISH = 250	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING		<b>HYTEC, INC</b>  LIGO BSC CROSSBEAM WELDMENT	
	FINISH  PART NO. <b>D972118-1</b>	DESIGNED ROGER L. SMITH DRAWN ROGER L. SMITH CHECKED HENRY SALAZAR DATE T. THOMPSON DATE T. THOMPSON	DATE 5-28-97 DATE 5-28-97 DATE 7-14-97 DATE 7-14-97 DATE 7-14-97	D972118 D 1 of 1 1/8 B

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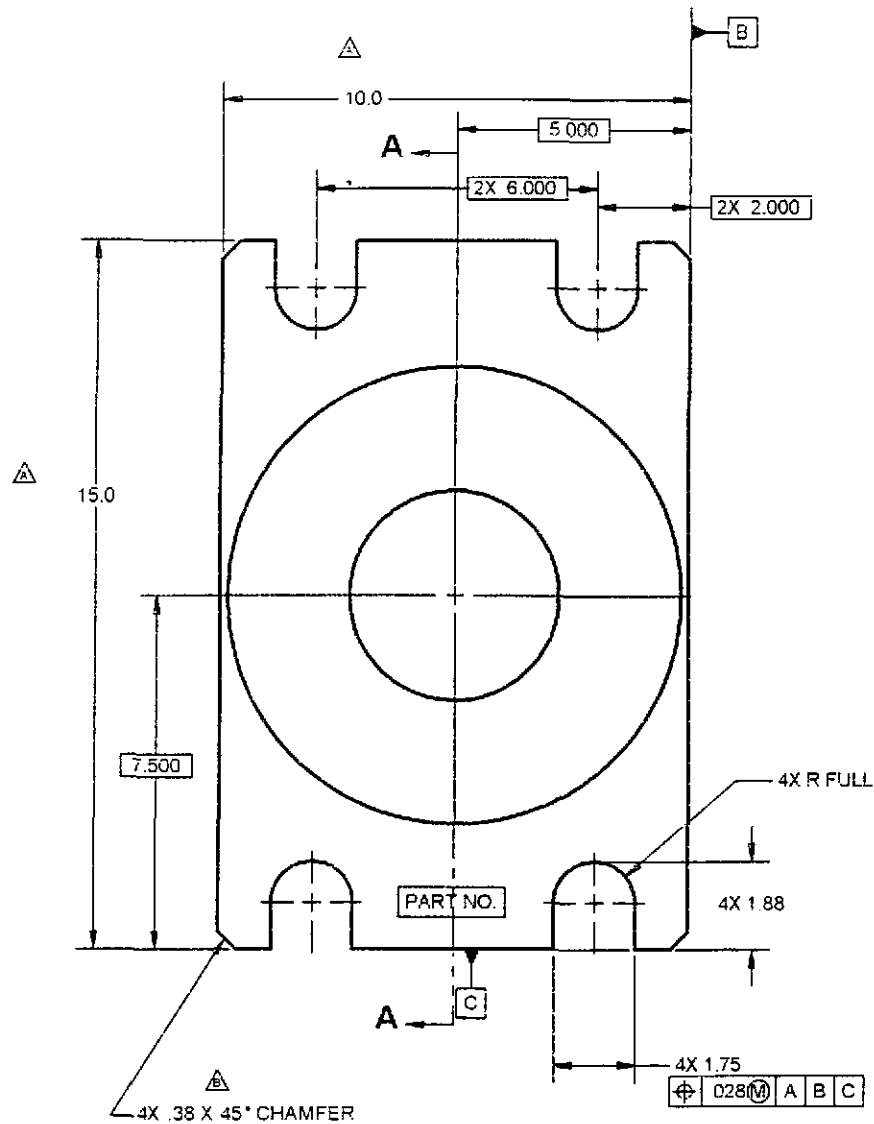
5

D

C

B

A



NOTES: UNLESS OTHERWISE SPECIFIED

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2. DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994
3. SURFACE TEXTURE PER ANSI/ASME B 46.1-1985
4. REMOVE ALL BURRS AND BREAK SHARP EDGES TO A MAXIMUM OF .015
5. ALL INSIDE CORNERS TO BE .015 RADIUS MAX
6. COUNTERSINK 82 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
7. COUNTERSINK 82 DEGREES APPROXIMATELY .015 DEEP ALL DRILLED HOLES
8. PARTS TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT AND CHIPS
9. PART NUMBER (DRAWING NO. PLUS DASH NO. PLUS SERIAL NO.) TO BE CLEARLY MARKED ON THE PART.

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R .06

△ 32  
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MATL: L  
COATIN

WEIGHT:

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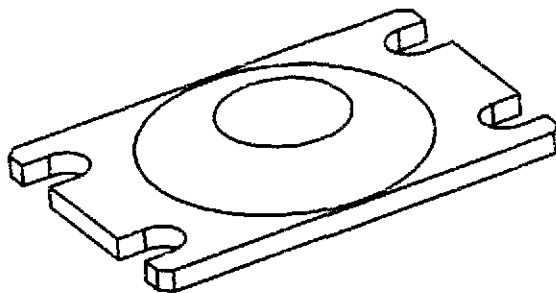
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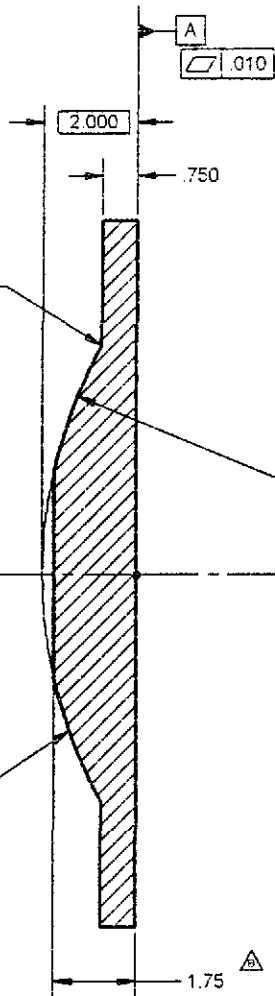
A	SEE BOM/DRAWING FOR CHANGE LIST	11-01-97	T. THOMPSON
B	SEE BOM/DRAWING FOR CHANGE LIST	01-11-98	T. THOMPSON

D



C

MAX



SR 10.000  
 .005 A B C

A

B

**RELEASED FOR  
 FABRICATION**

LOW CARBON STEEL  
 G. HI-T-LUBE, MAGNAPLATE INC.

42.8 lbs.

A

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES:		CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING		<b>HYTEC, INC</b>	
DECIMALS	ANGULAR = ± 30'			LIGO BSC SUPPORT TUBE SPHERICAL MNT	
A = ± .1				D972123 D 1 of 1	
XX = ± .03	SURFACE FINISH = 250				
XXX = ± .010					
FINISH		REV	BY	DATE	
		1	ROGER L SMITH	5-28-97	
		2	ROGER L SMITH	5-28-97	
		3	HARRY SALAZAR	7-10-97	
		4	T. THOMPSON	7-10-97	
PART NO	D972123-1			1/0	B

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LIGO-D972123-B-D

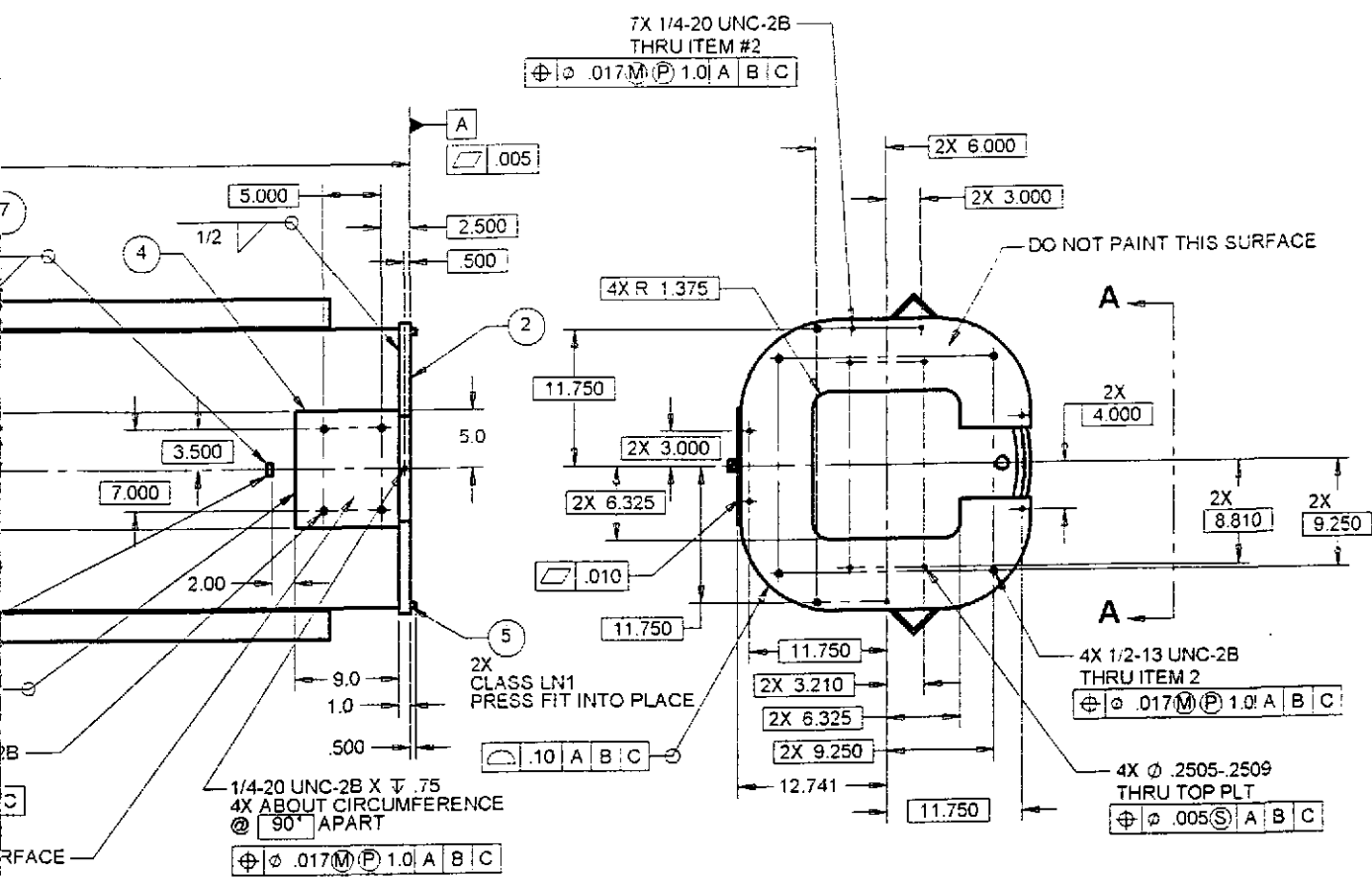
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A	SEE ECN# D972128-A FOR CHANGE LIST	11-03-97	T. THOMPSON
B	SEE ECN# D972128-B FOR CHANGE LIST	11-19-97	T. THOMPSON
C	SEE ECN# D972128-C FOR CHANGE LIST	12-23-97	T. THOMPSON
D	SEE ECN# D972128-D FOR CHANGE LIST	3-15-98	T. THOMPSON



PART NO.	DESCRIPTION	DIM. "A"	WEIGHT
D972128-1	BSC PIER FOR HANFORD WA SITE	98.43	1673.4 lbs
D972128-3	BSC PIER FOR LIVINGSTON LA SITE	97.43	1659.1 lbs
D972128-5	BSC PIER PROTOTYPE FOR HYTEC WITHOUT ITEMS 7 & 8	29.43	607.6 lbs

ITEM NO.	QTY	DESCRIPTION	MATERIAL
1	1	TUBE 24.00 DIAM X .68 WALL	A106 STEEL
2	1	PLATE	A36 STEEL
3	1	PLATE	A36 STEEL
4	1	PLATE (.75 THK)	A36 STEEL
5	2	DOWEL PIN 5000 DIAM X 1.00 LG	SS7
6	1	PLATE .50 THK	A36 STEEL
7	1	ANGLE 6 X 3.5 X .31 THK	A36 STEEL
8	1	ANGLE 6 X 3.5 X .31 THK	A36 STEEL

PARTS LIST

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: DECIMALS      ANGULAR = ± .30° X = ± .1 XX = ± .03 XXX = ± .010      SURFACE FINISH = 320	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING	<b>HYTEC, INC</b>	
		LIGO BSC SUPPORT PIER	
FINISH PART NO <b>D972128-1, 3 &amp; 5</b>	DATE DESIGNED HARRY SALAZAR      5-6-97 CHECKED T. THOMPSON      3-6-97 DATE T. THOMPSON      8-5-97	<b>D972128    D 1 of 2</b>	

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LIGO-D972128-D-D

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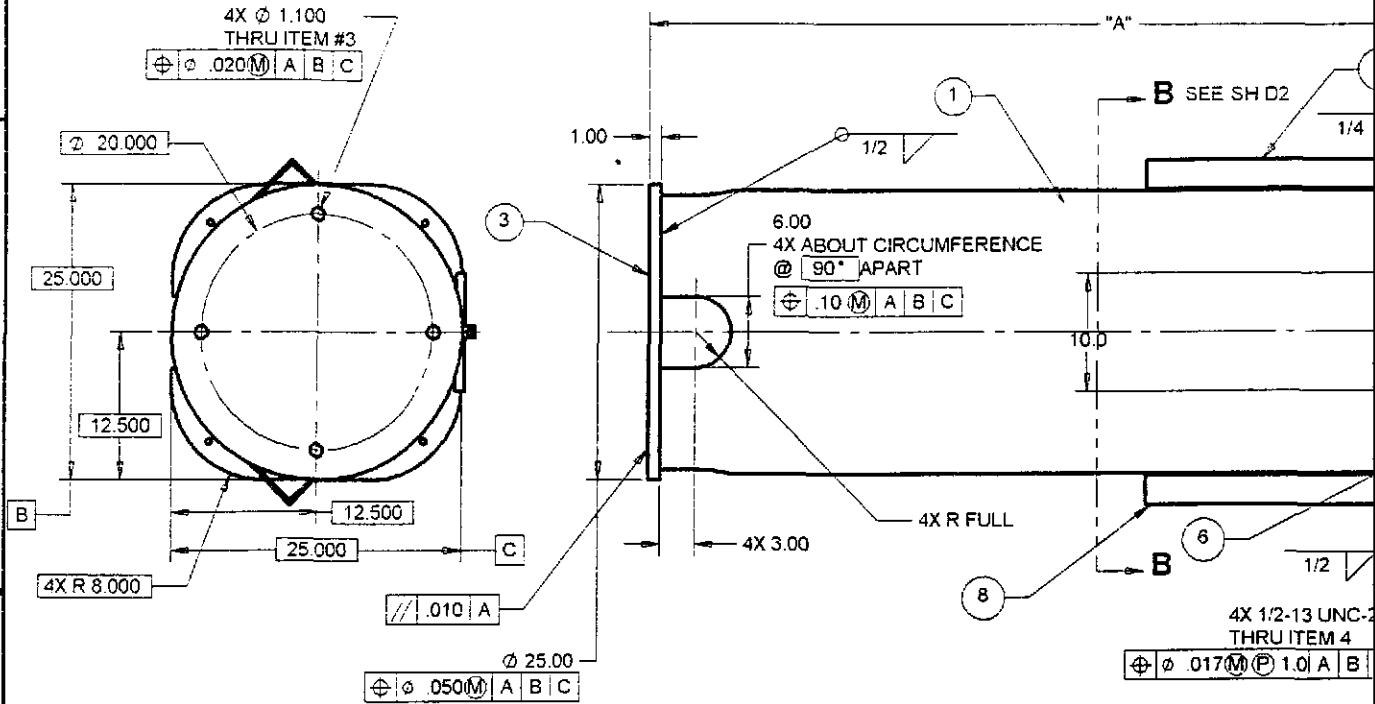
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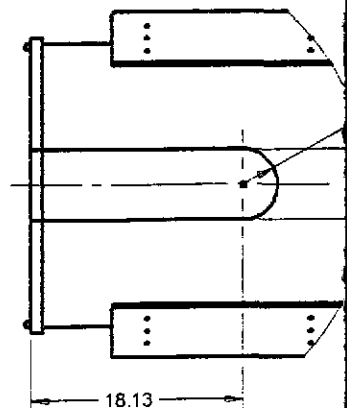
A



# RELEASED FOR FABRICATION

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2. DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994
3. SURFACE TEXTURE PER ANSI/ASME B 46.1-1985
4. REMOVE ALL BURRS AND BREAK SHARP EDGES TO A MAXIMUM OF .015
5. ALL INSIDE CORNERS TO BE .015 RADIUS MAX
6. COUNTERSINK 82 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
7. COUNTERSINK 82 DEGREES APPROXIMATELY .015 DEEP ALL DRILLED HOLES
8. PARTS TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT AND CHIPS
9. PART NUMBER (DRAWING NO. PLUS DASH NO. PLUS SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.
10. PAINT ALL VISIBLE SURFACES:  
MEDIUM TEXTURED BLUE SHERWIN WILLIAMS (D13 POLANE (R) T-PLUS,  
POLYURETHANE ENAMEL, F63 SERIES) F63TX-L2822-5864,  
PRIME WITH SHERMAN-WILLIAMS INDUSTRIAL WASH PRIMER P60G2



VIEW A-A

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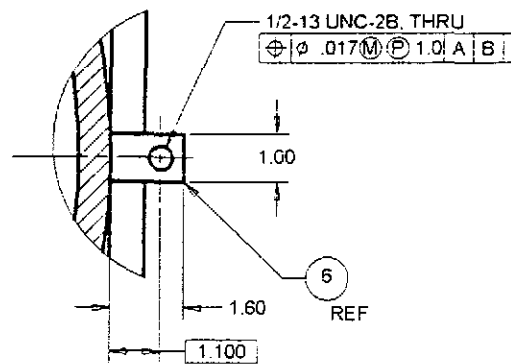
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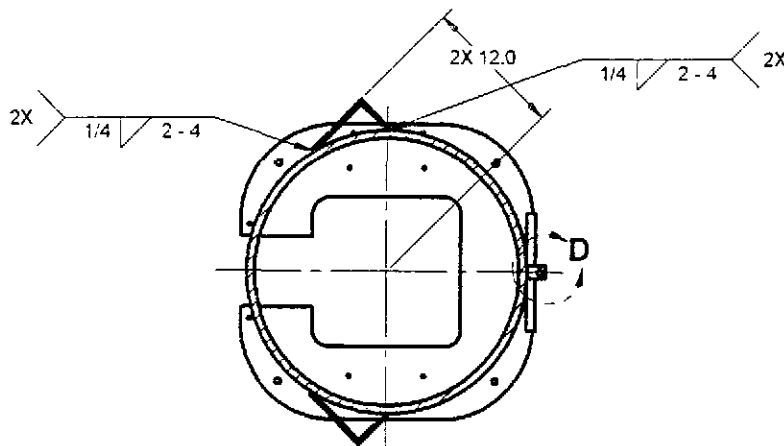
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DETAIL D  
SCALE 1 : 2

C



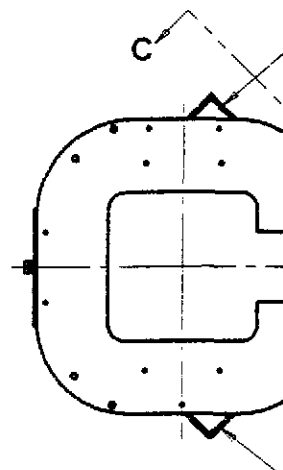
SECTION B-B

12X 1/4  
 $\oplus \phi .01$

B

RELEASED FOR  
FABRICATION

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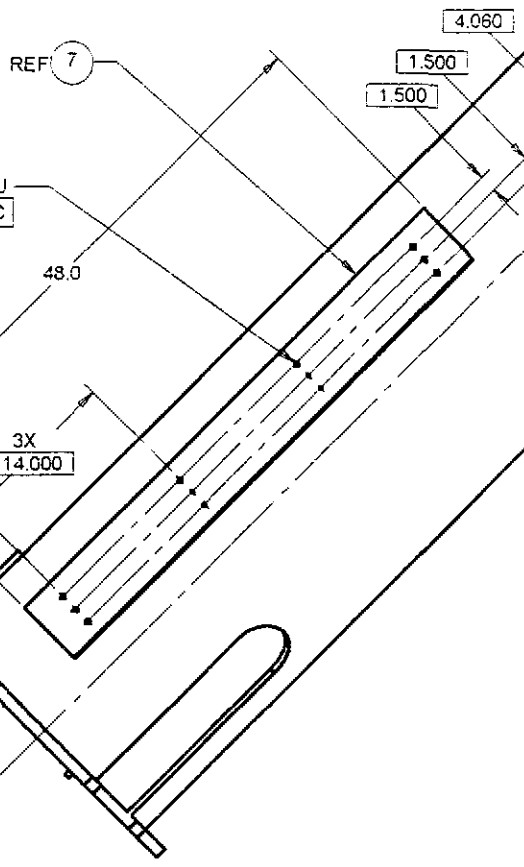
1

C	SEE ECN# D972128-C FOR CHANGE LIST	11-28-98	T. THOMPSON
D	SEE ECN# D972128-D FOR CHANGE LIST	04-15-99	T. THOMPSON

C

D

20 UNC-2B, THRU  
 2M (P) .5 A B C



VIEW C-C  
 TYP ITEMS 7 & 8

C

B

PARTS LIST

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES -TOLERANCES-	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING		<b>HYTEC, INC</b>	
	DECIMALS X = .001 XX = .0005 XXX = .0001	ANGULAR = +A-30 SURFACE FINISH = 250	LIGO BSC SUPPORT PIER	
FINISH		ROGER L. SMITH	10-22-97	D972128 D 2 of 2
		ROGER L. SMITH	10-22-97	
PART NO.		T. THOMPSON	02-06-99	D
D972128-1, 3 & 5		T. THOMPSON	12-22-97	
		T. THOMPSON	02-06-98	

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LIGO-D972128-D-D

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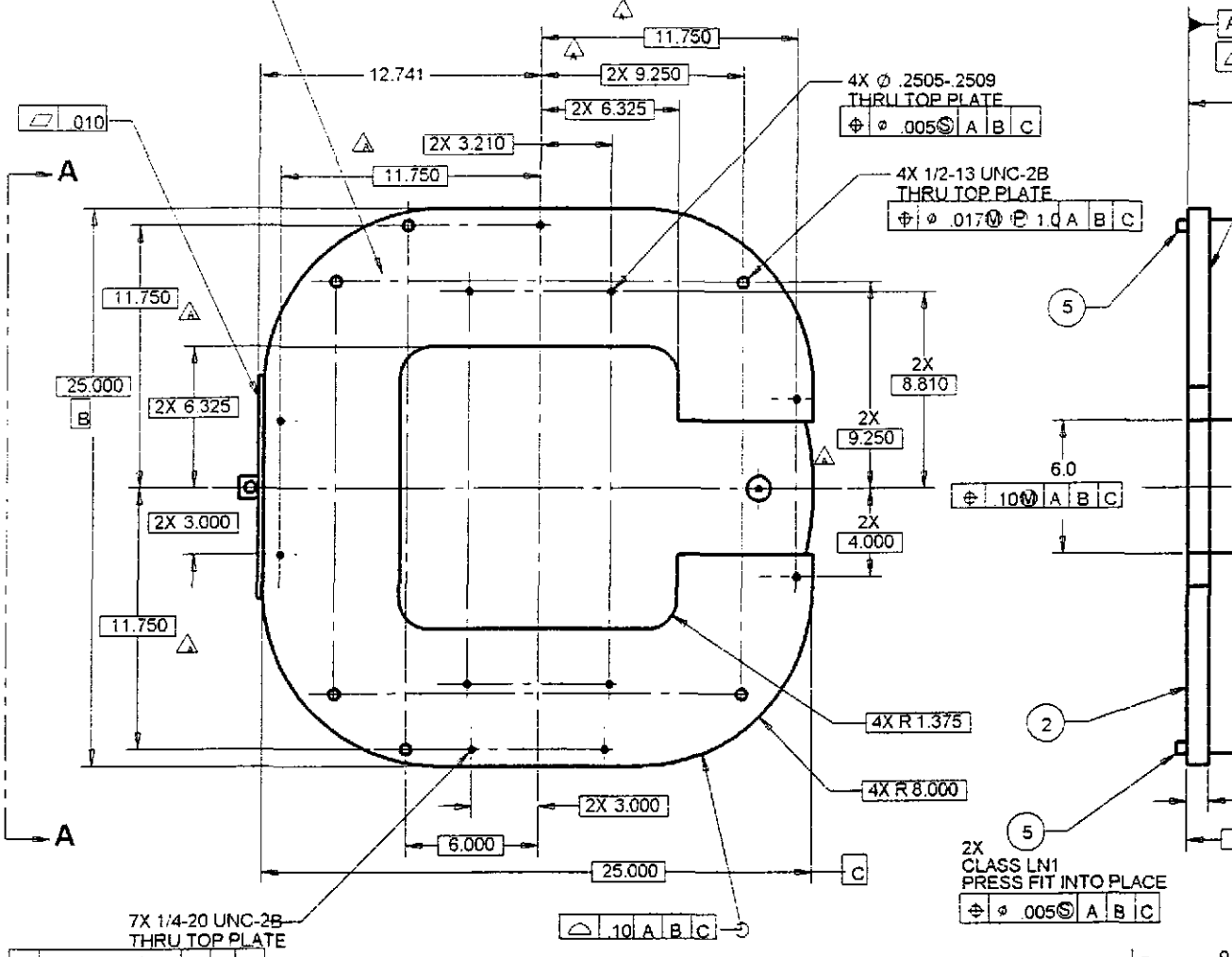
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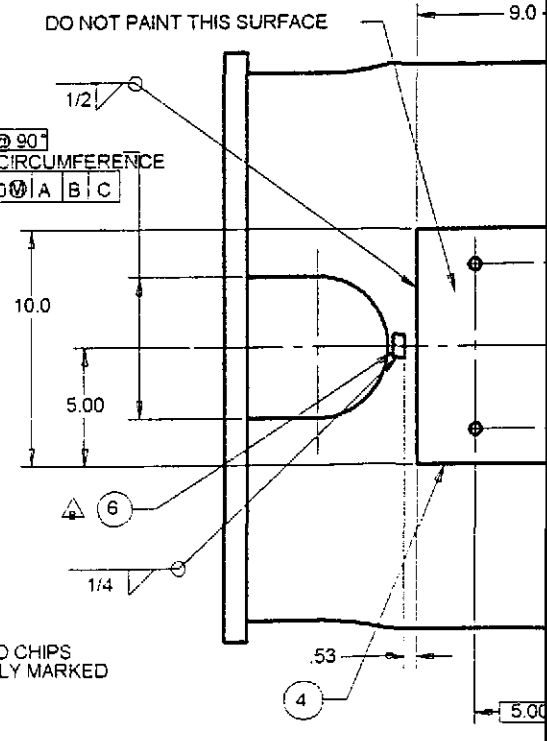
DO NOT PAINT THIS SURFACE



# RELEASED FOR FABRICATION

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4. REMOVE ALL BURRS AND BREAK SHARP EDGES TO A MAXIMUM OF .015
5. ALL INSIDE CORNERS TO BE .015 RADIUS MAX
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7. COUNTERSINK 82 DEGREES APPROXIMATELY .015 DEEP ALL DRILLED HOLES
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9. PART NUMBER (DRAWING NO. PLUS DASH NO. PLUS SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.
10. PAINT ALL VISIBLE SURFACES:  
MEDIUM TEXTURED BLUE SHERWIN WILLIAMS (D13 POLANE (R) T-PLUS.  
POLYURETHANE ENAMEL, F63 SERIES) F63TX-L2822-5864.  
PRIME WITH SHERWIN-WILLIAMS INDUSTRIAL WASH PRIMER P60G2



VIEW A-A

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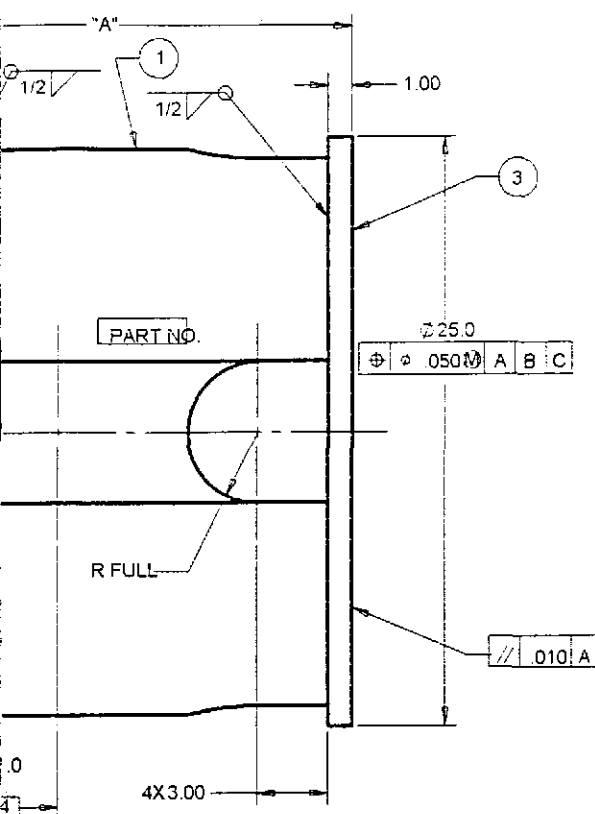
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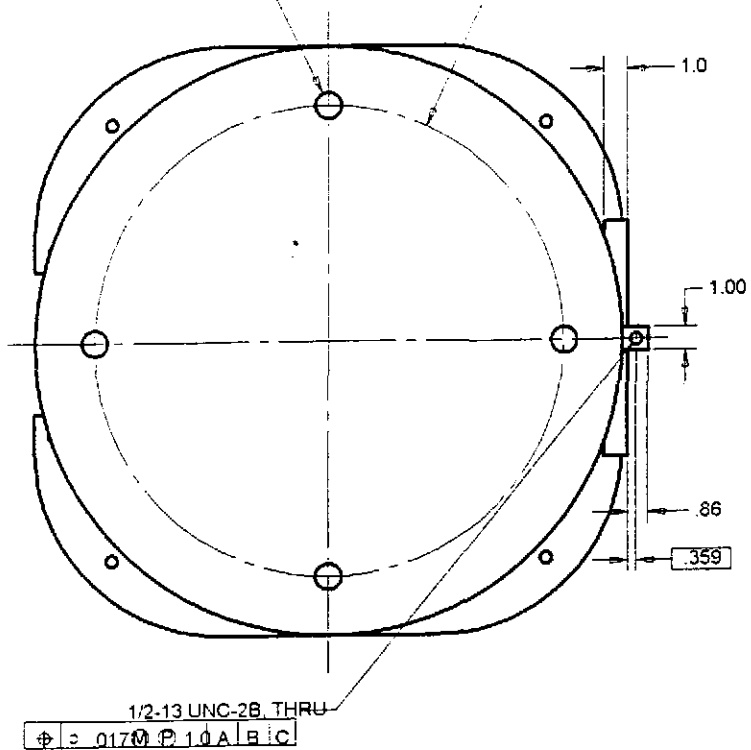
1	SEE ECH#D972609-A FOR CHANGE LIST	11-03-97	T. THOMPSON
2	SEE ECH#D972609-B FOR CHANGE LIST	11-11-98	T. THOMPSON
3	SEE ECH#D972609-C FOR CHANGE LIST	02-15-99	T. THOMPSON

.005



4X Ø1.100 THRU ITEM 3  
 Ø Ø .012 M A B C

Ø 20.000



D

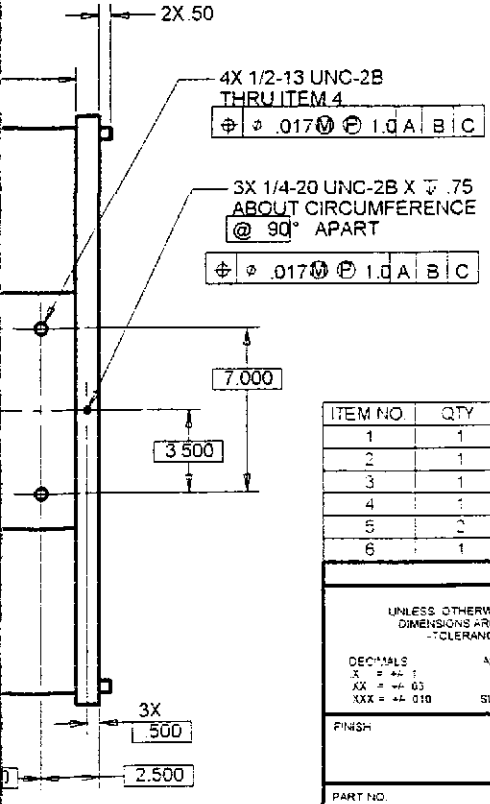
C

B

A

1.0

PART NO.	DESCRIPTION	DIM "A"	WEIGHT
D972609-1	HAM PIER FOR HANFORD WA SITE	19.28	475.4 lbs
D972609-3	HAM PIER FOR LIVINGSTON LA SITE	18.28	462.2 lbs



ITEM NO.	QTY	DESCRIPTION	MATERIAL
1	1	TUBE 24.00 DIA X .88 WALL	A106 STEEL
2	1	PLATE	A36 STEEL
3	1	PLATE	A36 STEEL
4	1	PLATE	A36 STEEL
5	2	DOWEL PIN .5000 DIA X 1.00 LG	SST
6	1	PLATE .50 THK	A36 STEEL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES: DECIMALS .005 XX .001 XXX .0005 ANGULAR ± .30° SURFACE FINISH # 250	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING	<b>HYTEC, INC</b>	
		LIGO HAM SUPPORT PIER	
FINISH		DESIGNED BY ROGER L. SMITH 5-28-97	<b>D972609</b> D 1 of 1
		CHECKED BY ROGER L. SMITH 5-29-97	
		DRAWN BY HARRY SALAZAR 11-14-97	
		APPROVED BY T. THOMPSON 11-14-97	
PART NO. <b>D972609-1</b>			

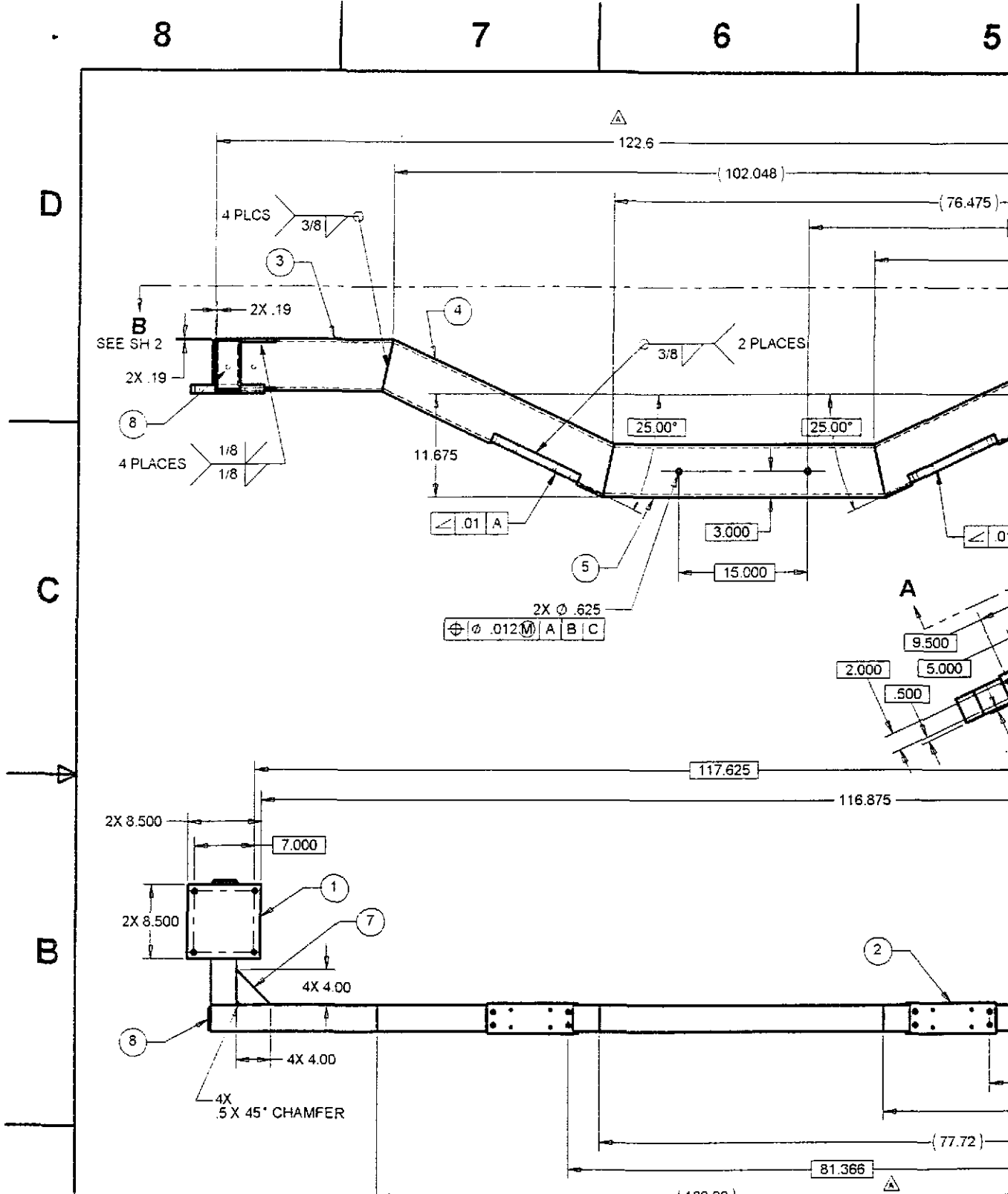
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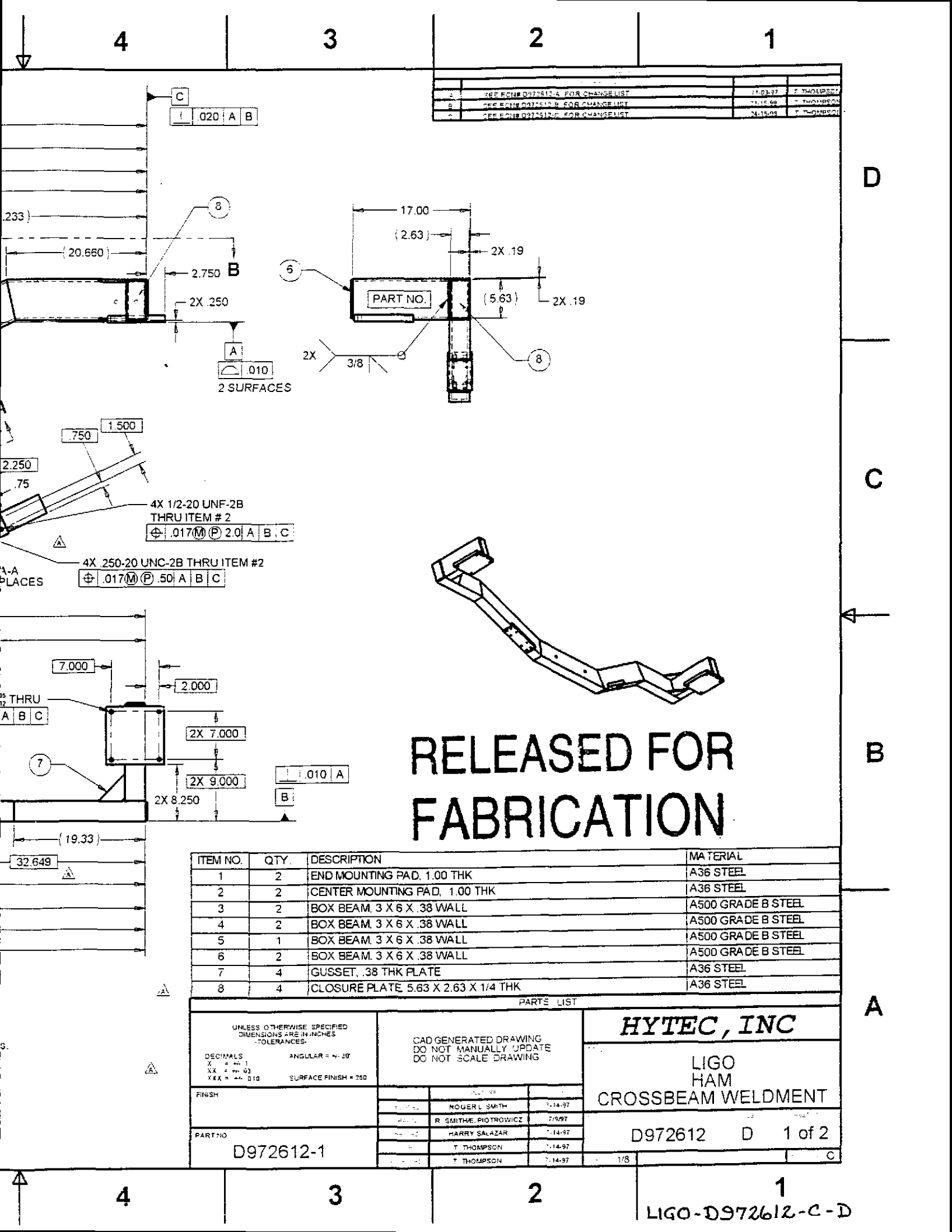
LIGO-D972609-C-D



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10. PAINT:  
 ALL VISIBLE SURFACES  
 MEDIUM BLUE SHERWIN WILLIAMS (R) T-PLUS,  
 POLYURETHANE ENAMEL, #SW-F53TX-L-2822-5864,  
 PRIME WITH SHERMAN-WILLIAMS INDUSTRIAL WASH PRIMER P60G2.

WEIGH



1	SEE ECN# D972612A FOR CHANGE LIST	11-03-97	T. THOMPSON
2	SEE ECN# D972612B FOR CHANGE LIST	11-15-97	T. THOMPSON
3	SEE ECN# D972612C FOR CHANGE LIST	11-15-97	T. THOMPSON

RELEASED FOR FABRICATION

ITEM NO.	QTY.	DESCRIPTION	MATERIAL
1	2	END MOUNTING PAD, 1.00 THK	A36 STEEL
2	2	CENTER MOUNTING PAD, 1.00 THK	A36 STEEL
3	2	BOX BEAM, 3 X 6 X .38 WALL	A500 GRADE B STEEL
4	2	BOX BEAM, 3 X 6 X .38 WALL	A500 GRADE B STEEL
5	1	BOX BEAM, 3 X 6 X .38 WALL	A500 GRADE B STEEL
6	2	BOX BEAM, 3 X 6 X .38 WALL	A500 GRADE B STEEL
7	4	GUSSET, .38 THK PLATE	A36 STEEL
8	4	CLOSURE PLATE, 5.63 X 2.63 X 1/4 THK	A36 STEEL

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES - TOLERANCES:			CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING		HYTEC, INC	
DECIMALS X = +.01 XX = +.005 XXX = +.0025	ANGULAR = ± .10°	SURFACE FINISH = 250	DATE	BY	LIGO HAM CROSSBEAM WELDMENT	
FINISH			11-14-97	ROGER L SMITH	D972612 D 1 of 2	
			11-14-97	R SMITHE, PIOTROWICZ		
			11-14-97	HARRY SALAZAR		
			11-14-97	T. THOMPSON		
			11-14-97	T. THOMPSON		
PART NO D972612-1			1/8		C	

LIGO-D972612-C-D

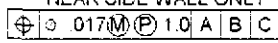
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D


  
 4X 1/2-13 UNC-2B, THRU  
 NEAR SIDE WALL ONLY

3.000

118.125

C

121.125

116.313

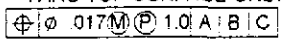
115.313

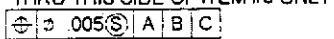
107

B

2X 1.000

2X 8.000

4X 1/2-13 UNC-2B  
 THRU TOP SURFACE ONLY  


4X  $\varnothing$  .2505 - .2509  
 THRU THIS SIDE OF ITEM #3 ONLY  


2X

3/8

1/4

2X

A

VIEW B-B  
 FROM SHEET

8

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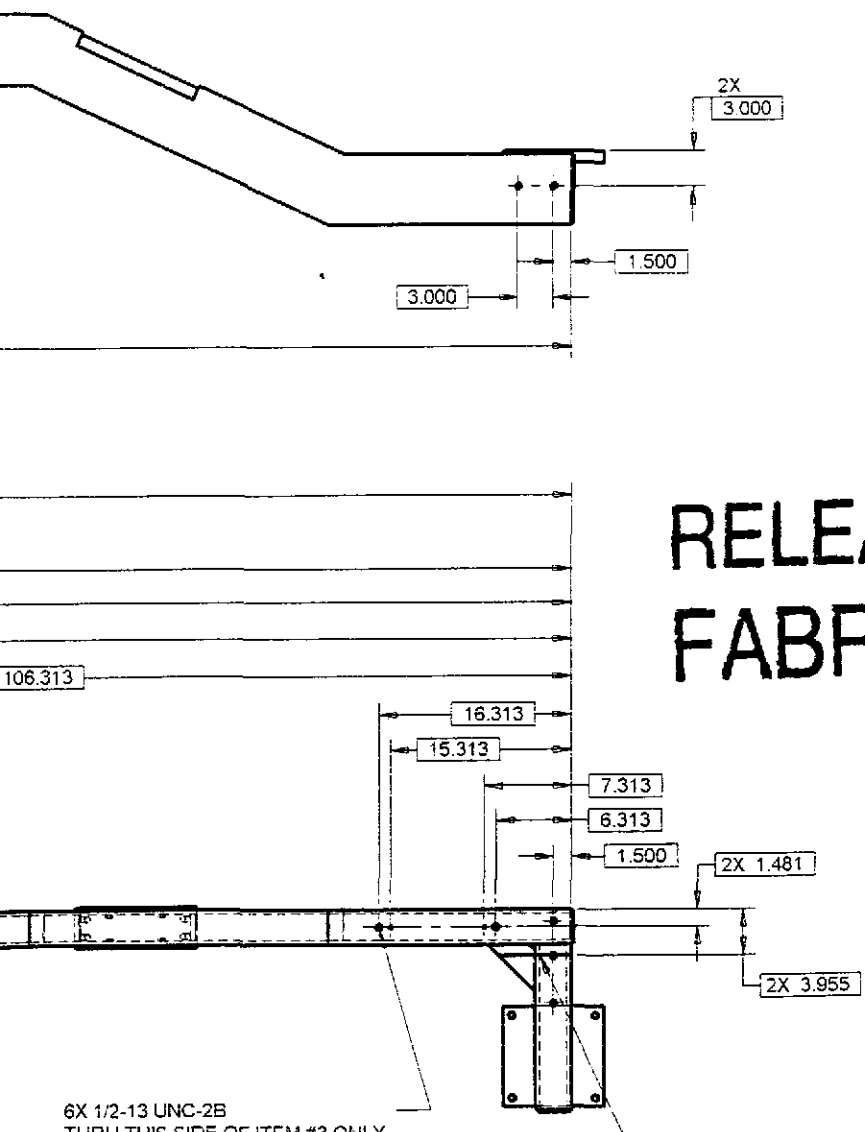
4

3

2

1

2	SEE FCN# D972612-B FOR CHANGE LIST	01-28-97	T. THOMPSON
3	SEE FCN# D972612-C FOR CHANGE LIST	04-19-97	T. THOMPSON



RELEASED FOR FABRICATION

6X 1/2-13 UNC-2B  
THRU THIS SIDE OF ITEM #3 ONLY  
⊕ ⌀ .017 (M) (P) 1.0 A B C

SCRIBE LINE 2 PLACES.  
MARK AS "CENTER OF GRAVITY"

D

C

B

A

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES:  DECIMALS XX = ±.03 XXX = ±.010  ANGULAR = ±.30° SURFACE FINISH = 250	CAD GENERATED DRAWING. DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING		<b>HYTEC, INC</b>
			LIGO HAM CROSSBEAM WELDMENT
FINISH			
PART NO D972612-1			D972612 D 2 of 2

4

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2

1

LIGO-D972612-C-D

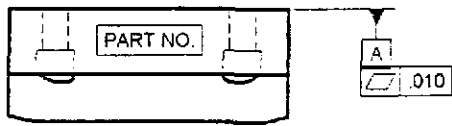
8

7

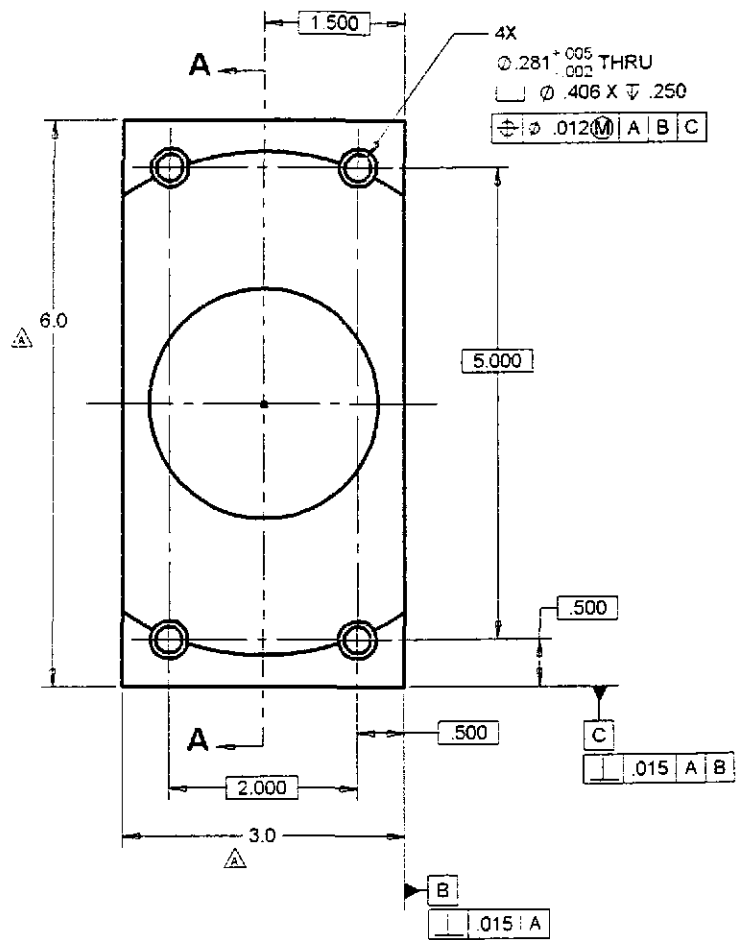
6

5

D



C



B

NOTES: UNLESS OTHERWISE SPECIFIED

1. ALL DIMENSIONS IN INCHES
2. DIMENSIONS AND TOLERANCING PER ASME Y14.5M-1994
3. SURFACE TEXTURE PER ANSI/ASME B 46.1-1985
4. REMOVE ALL BURRS AND BREAK SHARP EDGES TO A MAXIMUM OF .015
5. ALL INSIDE CORNERS TO BE .015 RADIUS MAX
6. COUNTERSINK 32 DEGREES ALL TAPPED HOLES TO MAJOR DIAMETER
7. COUNTERSINK 32 DEGREES APPROXIMATELY .015 DEEP ALL DRILLED HOLES
8. PARTS TO BE THOROUGHLY CLEANED TO REMOVE ALL OIL, GREASE, DIRT AND CHIPS
9. PART NUMBER (DRAWING NO. PLUS DASH NO. PLUS SERIAL NO.) TO BE CLEARLY MARKED ON THE PART ITSELF.

A

MATL: LOW CARBON  
COATING: HI-T LUB

$\Delta$  WEIGHT: 5.1 lbs.

8

7

6

5



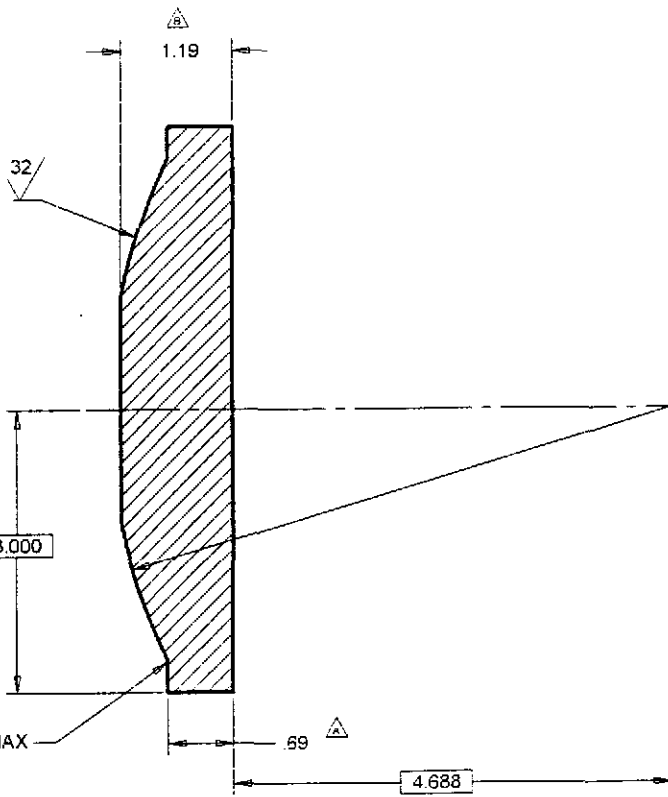
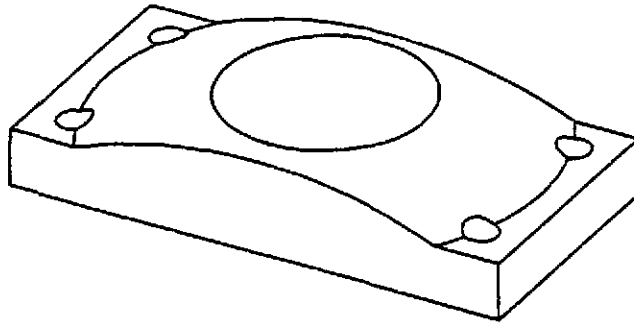
4

3

2

1

A	SEE ECN# D972615 A FOR CHANGE LIST	11-03-97	T THOMPSON
B	SEE ECN# D972615 B FOR CHANGE LIST	01-14-98	T THOMPSON



SECTION A-A

# RELEASED FOR FABRICATION

LIGO-D972615-B-D

IN STEEL  
E. MAGNAPLATE

PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES: DECIMALS      ANGULAR = ± .07 X = ± .01 XX = ± .03 XXX = ± .010      SURFACE FINISH = 250	CAD GENERATED DRAWING DO NOT MANUALLY UPDATE DO NOT SCALE DRAWING		<b>HYTEC, INC</b>
			LIGO HAM SPHERICAL BEARING
FINISH	ROGER L SMITH      3-28-97	D972615      D 1 of 1	
PART NO <b>D972615-1</b>	HARRY SALAZAR      7-10-97		
	T THOMPSON      1-10-97		
	T THOMPSON      1-10-97		

4

3

2

1

D

C

B

A