

D0901499 Blade spring Post Stage 0-1, PART PDM REV: X-018, DRAWING PDM REV: X-007

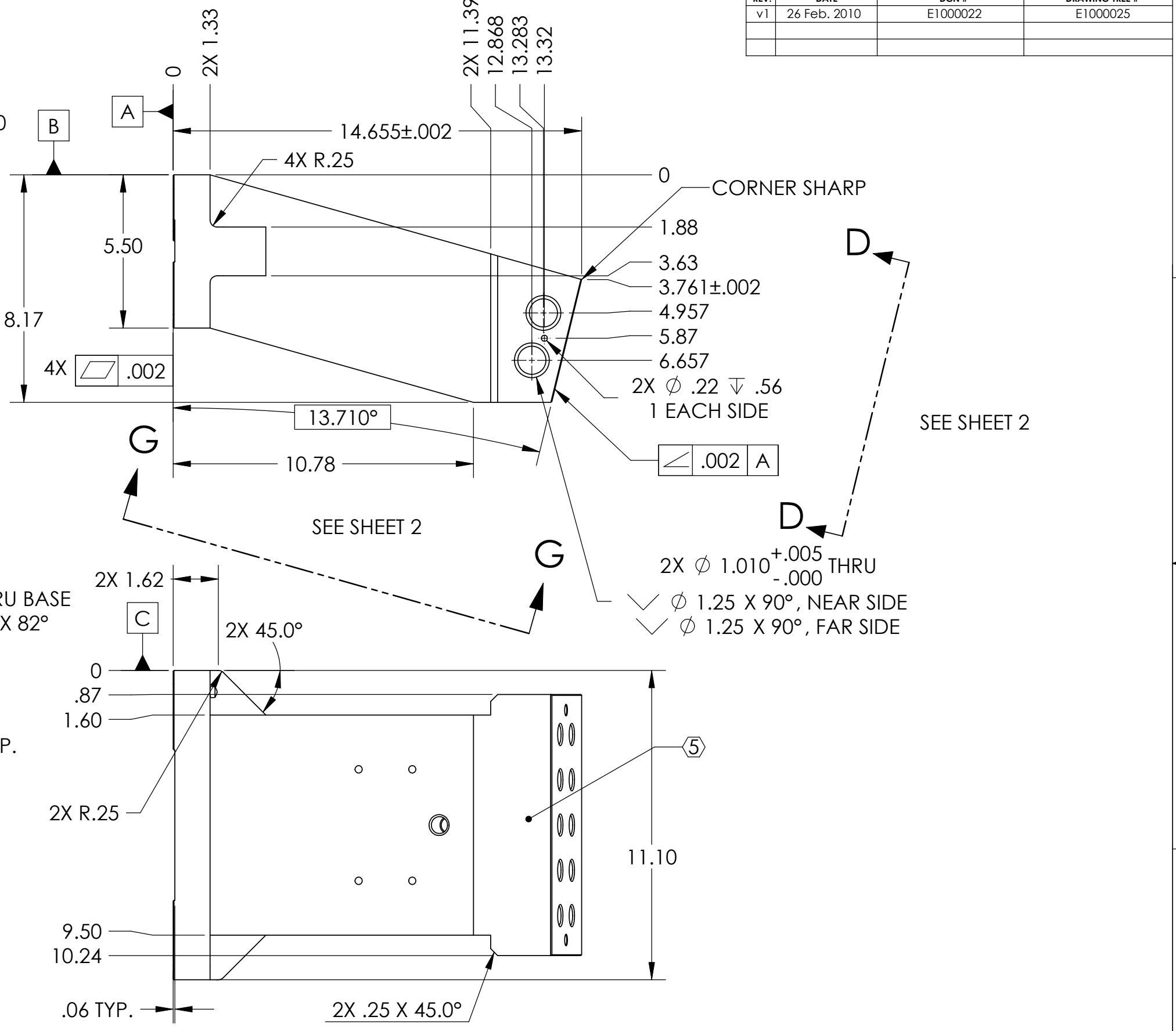
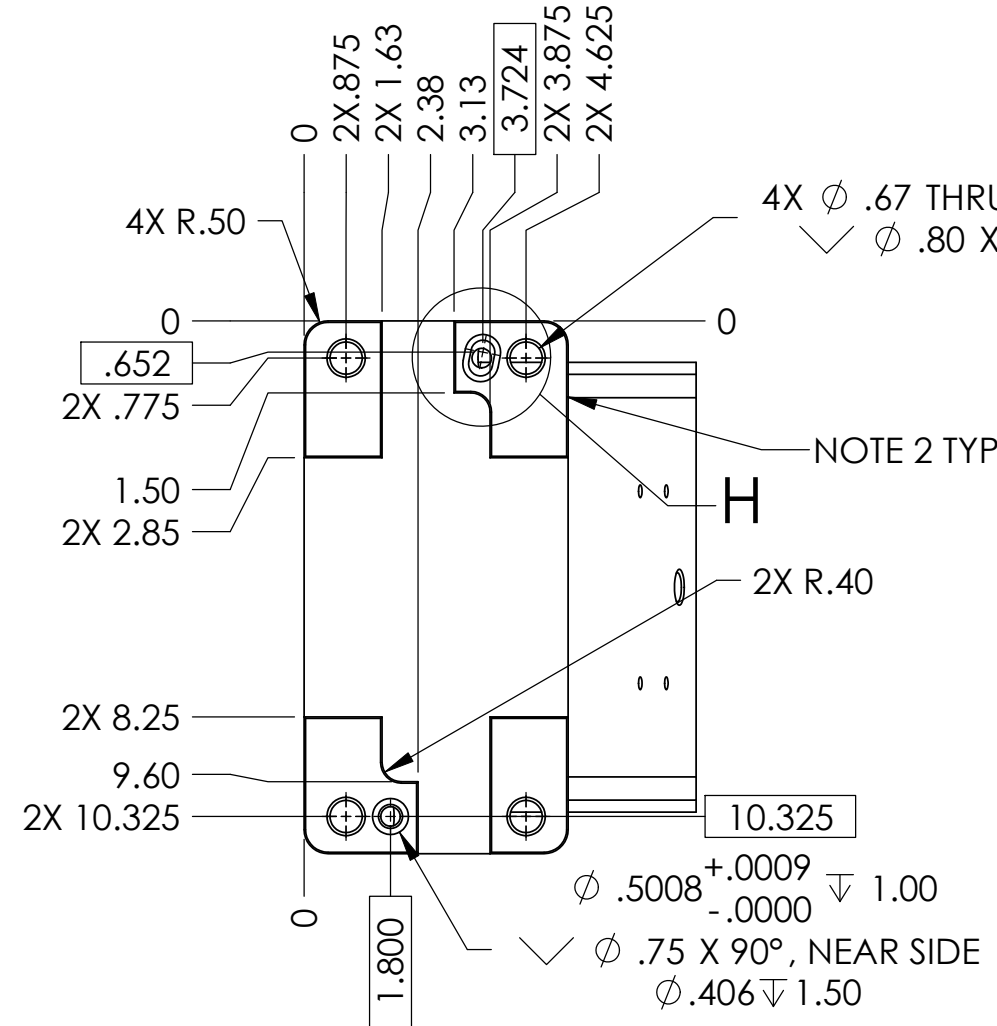
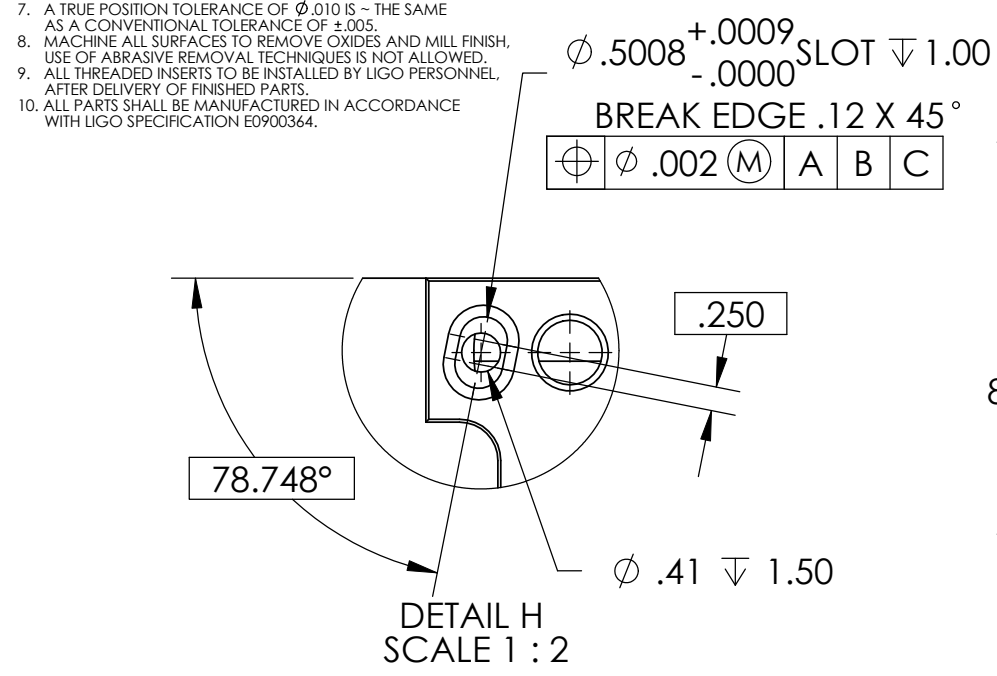
REV.	DATE	DCN #	DRAWING TREE #
v1	26 Feb. 2010	E1000022	E1000025

**NOTES CONTINUED:**

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
6. APPROXIMATE WEIGHT = 60.8 LB.
7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS ~ THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH, USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL, AFTER DELIVERY OF FINISHED PARTS.
10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

D  
C  
B  
A

D  
C  
B  
A



**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .015 .XXX ± .005	
ANGULAR ± .5°	
1. INTERPRET DRAWING PER ASME Y14.5-1994.	
2. BREAK ALL CORNERS AND EDGES .03 X 45°.	
3. DO NOT SCALE FROM DRAWING.	
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.	
MATERIAL	6061-T6 Al
FINISH	63 μinch

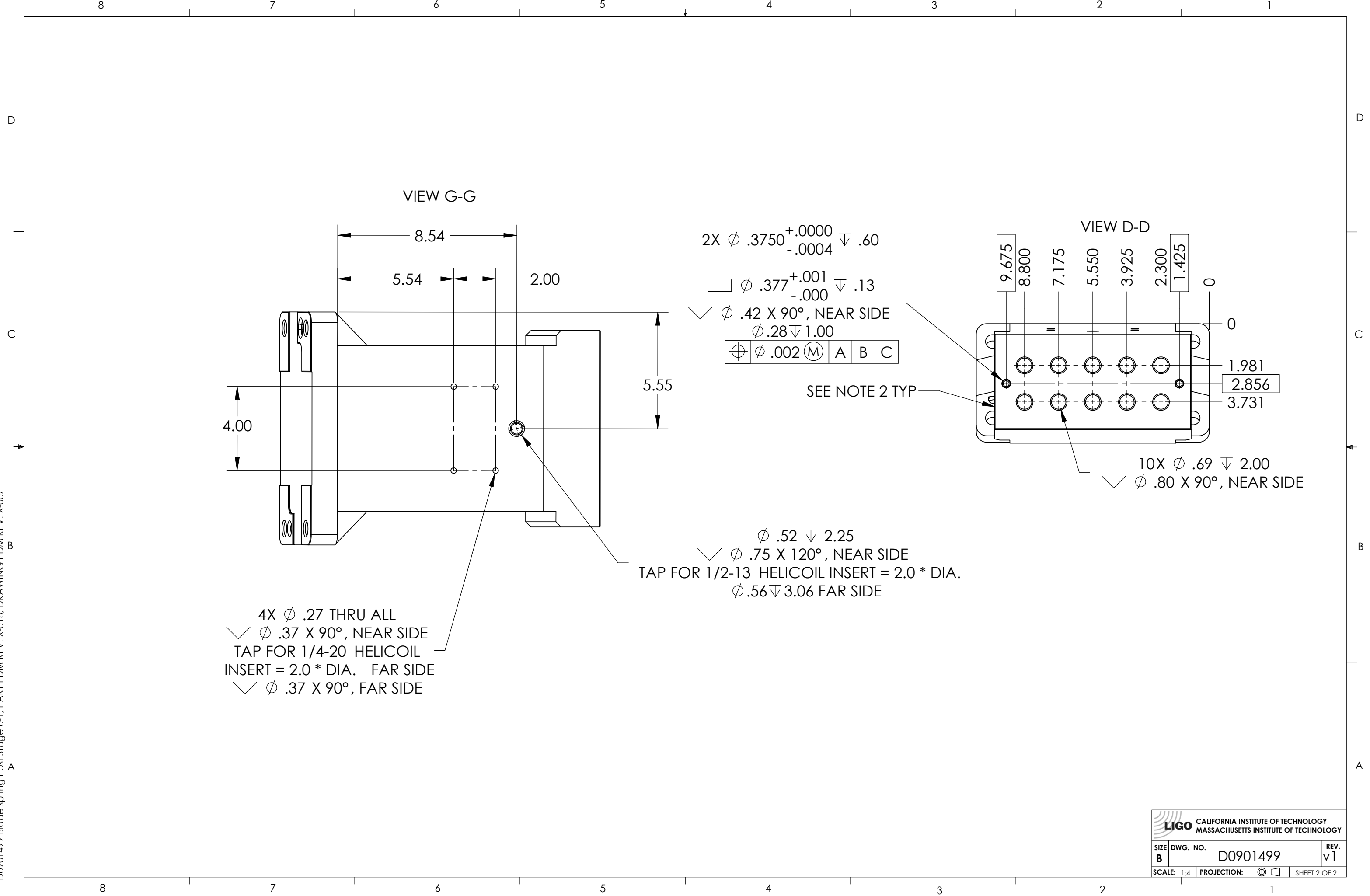
CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME <b>BLADE POST, STAGE 0-1, aLIGO BSC ISI</b>	
SYSTEM	ADVANCED LIGO	SUB-SYSTEM	SEI
DESIGNER	A.STEIN	01 Feb. 2010	SIZE DWG. NO.
DRAFTER	M.HILLARD	01 Feb. 2010	<b>B</b>
CHECKER	F.MATICHARD	01 Feb. 2010	<b>D0901499</b>
APPROVAL	K.MASON	01 Feb. 2010	REV. v1
SCALE: 1:4		PROJECTION:	
SHEET 1 OF 2			

SEE SHEET 2

SEE SHEET 2

8 7 6 5 4 3 2 1

D0901499 Blade spring Post Stage 0-1, PART PDM REV: X-018, DRAWING PDM REV: X-007



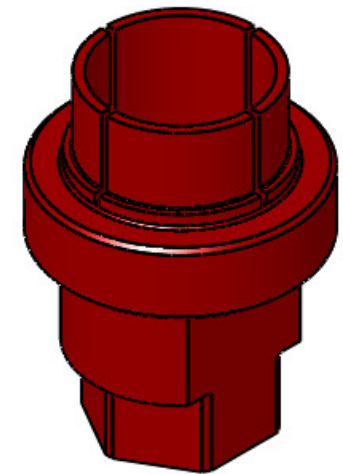
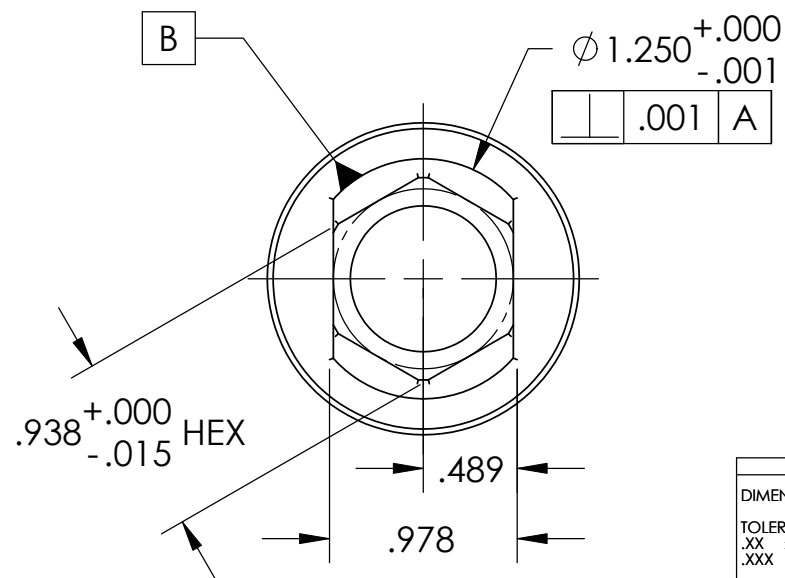
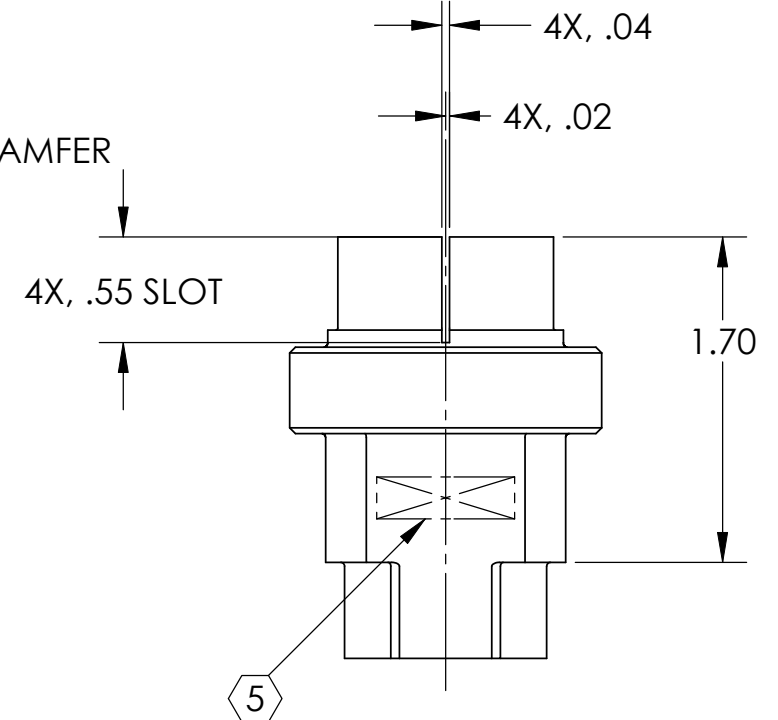
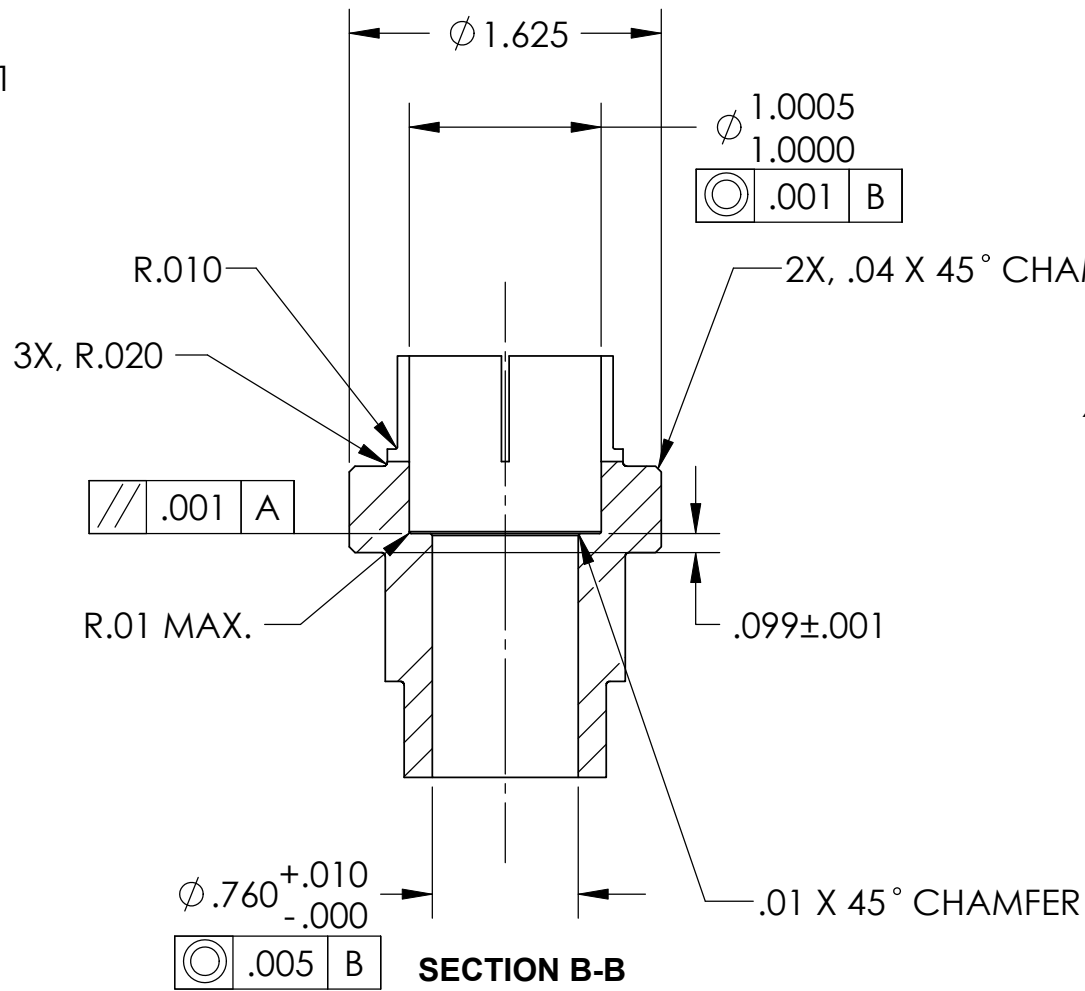
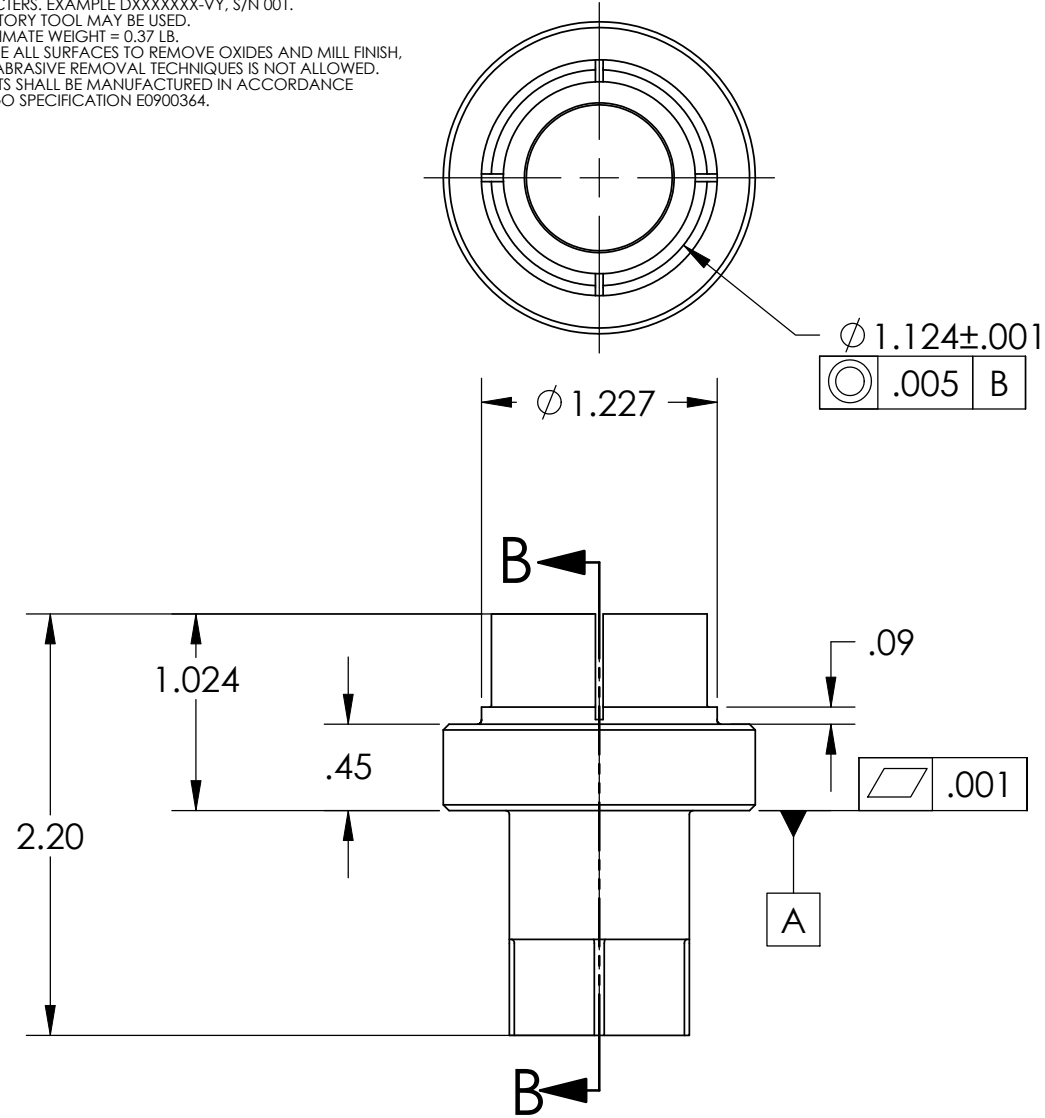
**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SIZE	DWG. NO.	REV.
<b>B</b>	D0901499	v1
SCALE: 1:4	PROJECTION:	SHEET 2 OF 2

D0901500 Flexure Rod Shim, Stage 0-1, aLIGO BSC ISI, PART PDM REV: X-011, DRAWING PDM REV: X-011

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  6. APPROXIMATE WEIGHT = 0.37 LB.
  7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	26 Feb. 2010	E1000022	E1000025

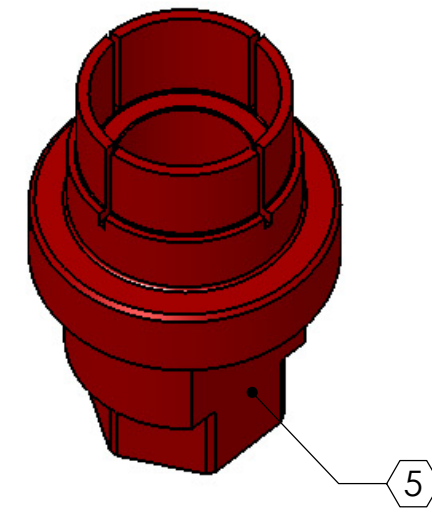
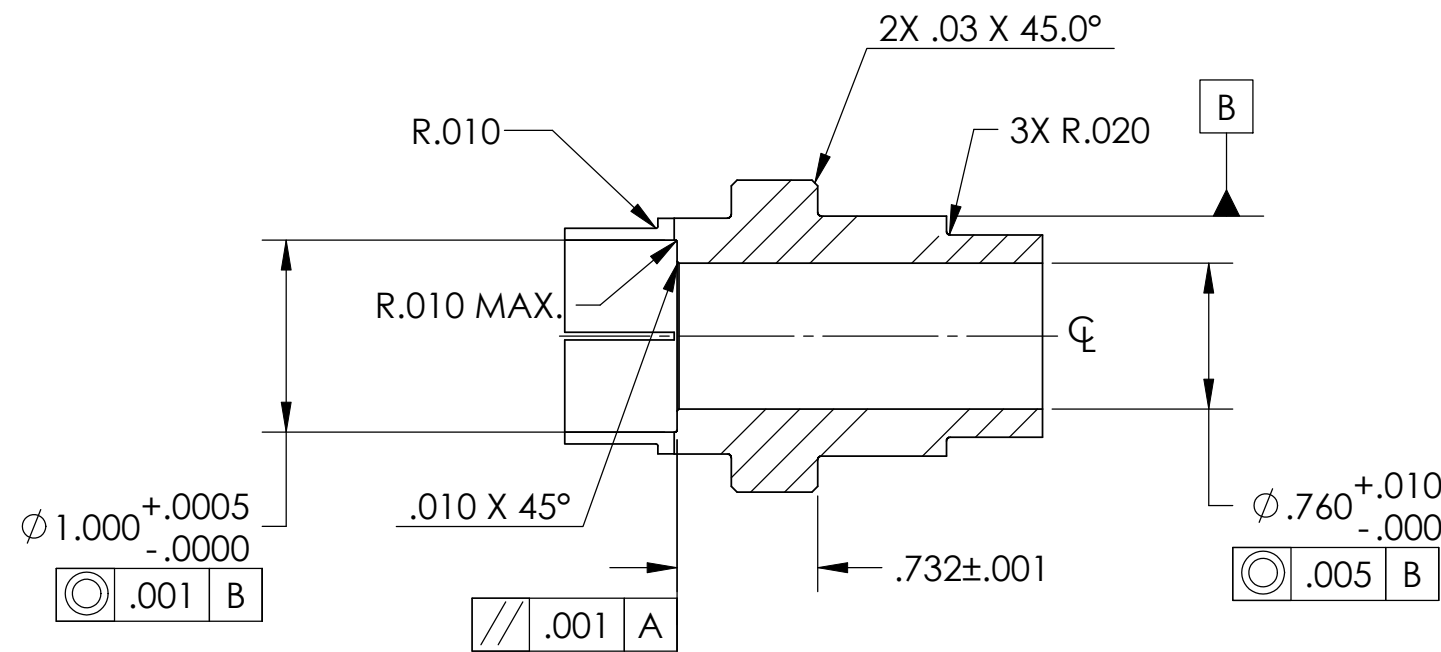
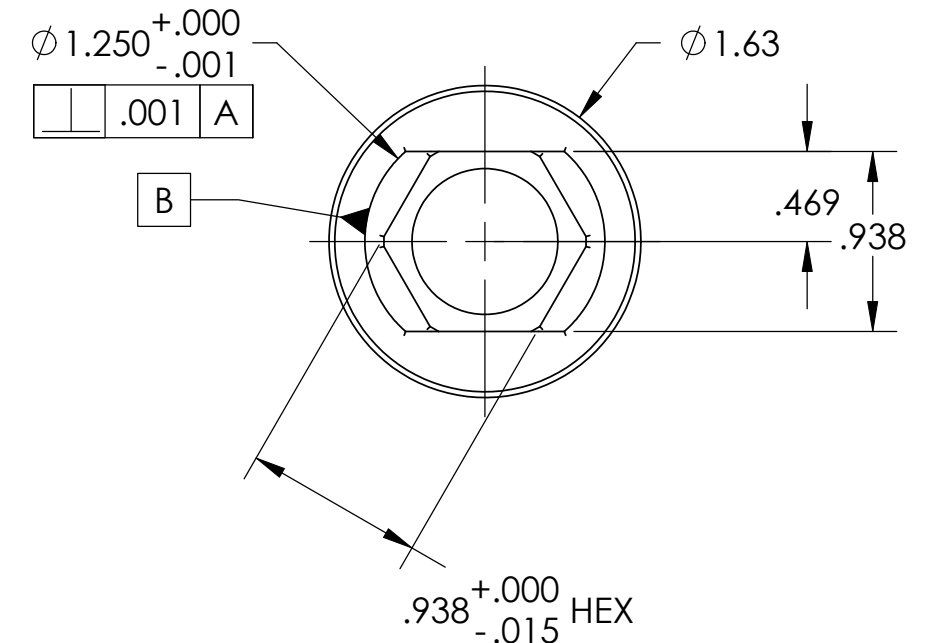
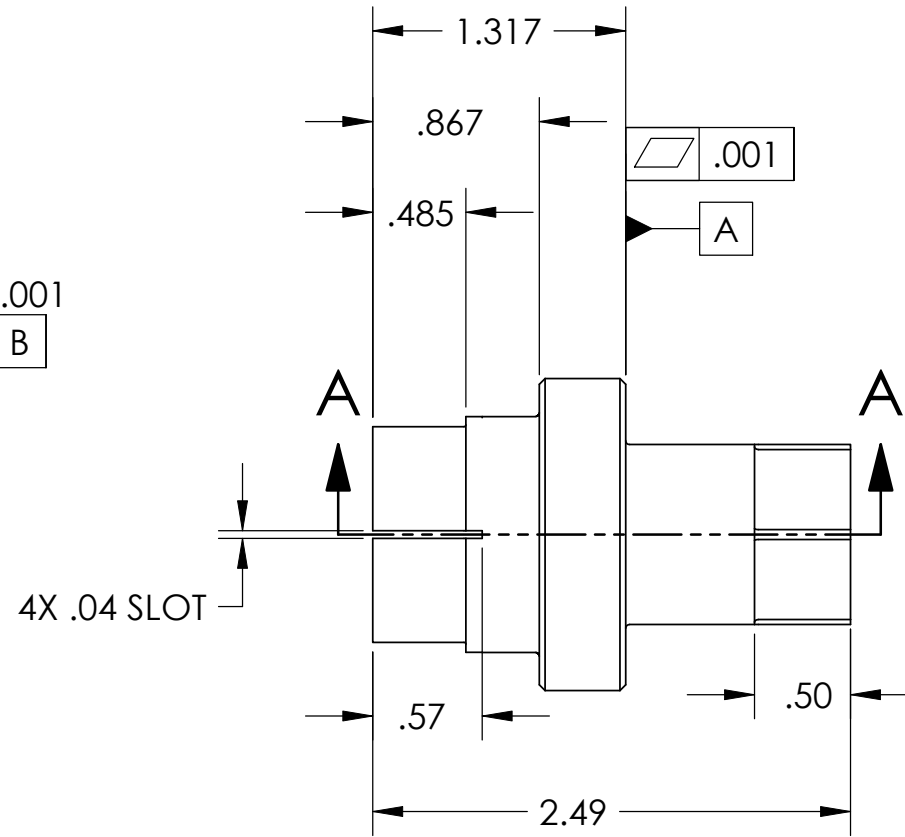
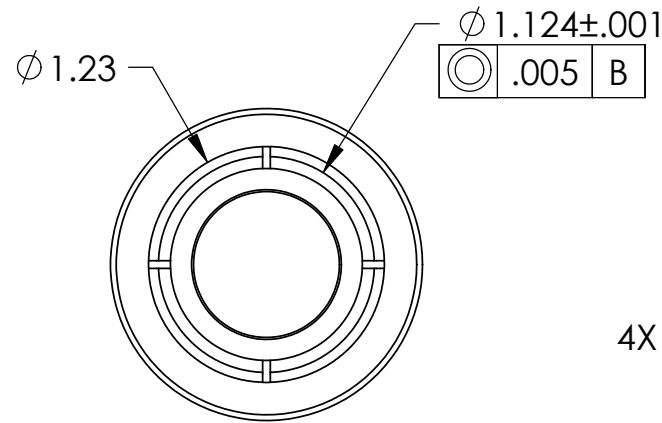


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME					
DIMENSIONS ARE IN INCHES TOLERANCES: .XX ± .015 .XXX ± .005 ANGULAR ± 0.5°				1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CINCINNATI MILACRON'S CIMTECH 410.		<b>STAGE 0-1, FLEXURE ROD SHIM, BSC ISI</b>					
<b>MATERIAL</b> 17-4 PH SSSL, H 1150		<b>FINISH</b> 32 μinch		<b>SYSTEM</b> ADVANCED LIGO		<b>SUB-SYSTEM</b> SEI		<b>DESIGNER</b> C.RAMET 01 Feb. 2010		<b>SIZE DWG. NO.</b> <b>B D0901500</b>	
<b>NEXT ASSY</b> D0902103		<b>DRFTER</b> M.HILLARD 01 Feb. 2010		<b>CHECKER</b> F.MATICHARD 01 Feb. 2010		<b>APPROVAL</b> K.MASON 01 Feb. 2010		<b>SCALE:</b> 1:1		<b>PROJECTION:</b>	
<b>REV.</b> v1										<b>SHEET 1 OF 1</b>	

D0901501 Flexure Rod Shim, Stage 1-2, aLIGO BSC ISI, PART PDM REV: X-007, DRAWING PDM REV: X-004

REV.	DATE	DCN #	DRAWING TREE #
v1	01 Mar. 2010	E1000026	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 0.46 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



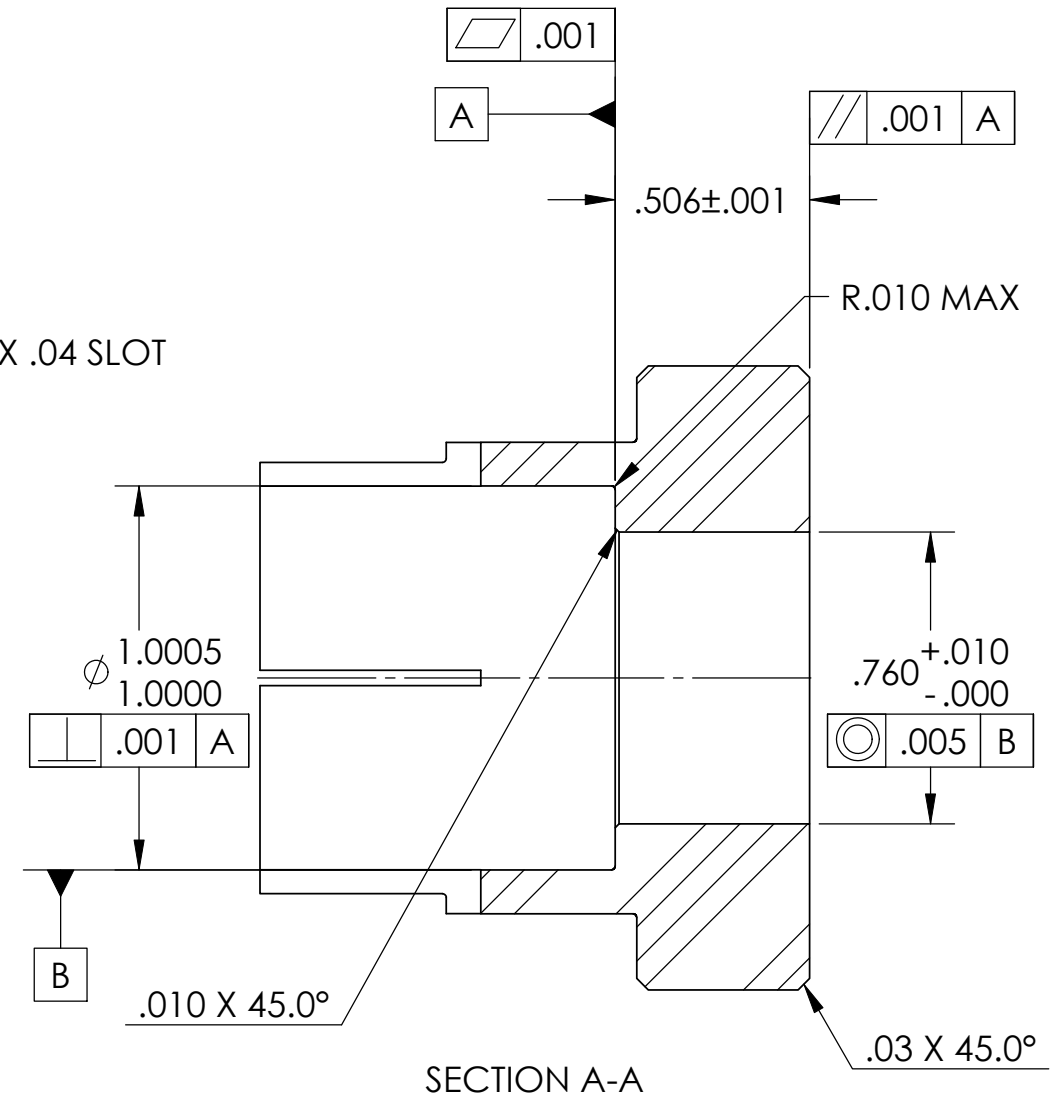
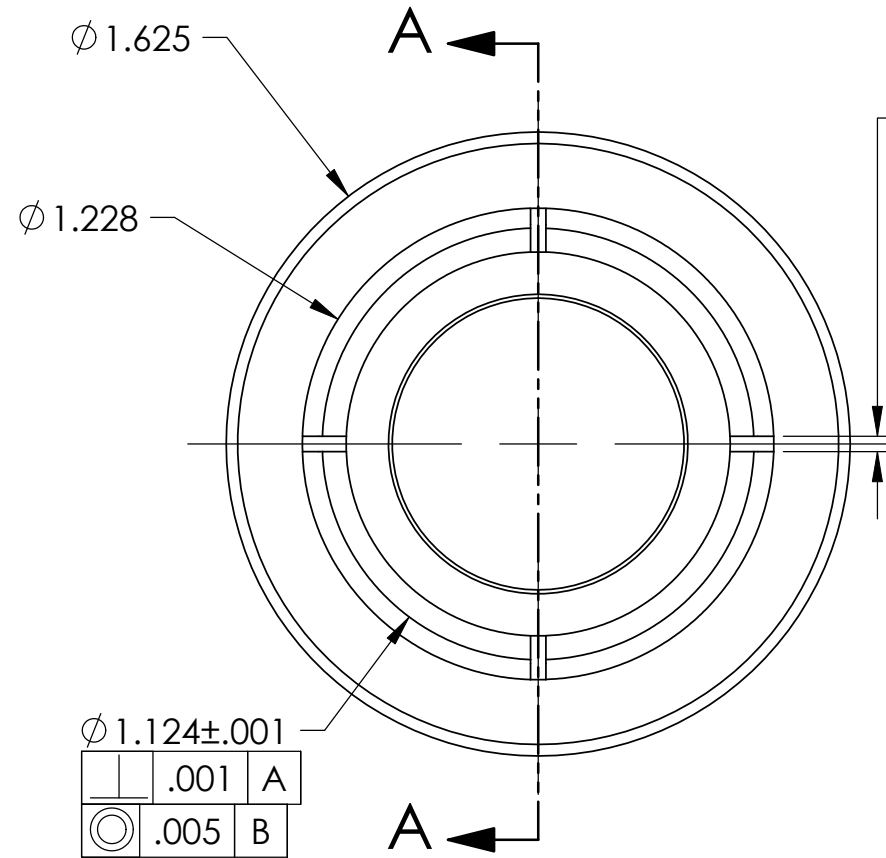
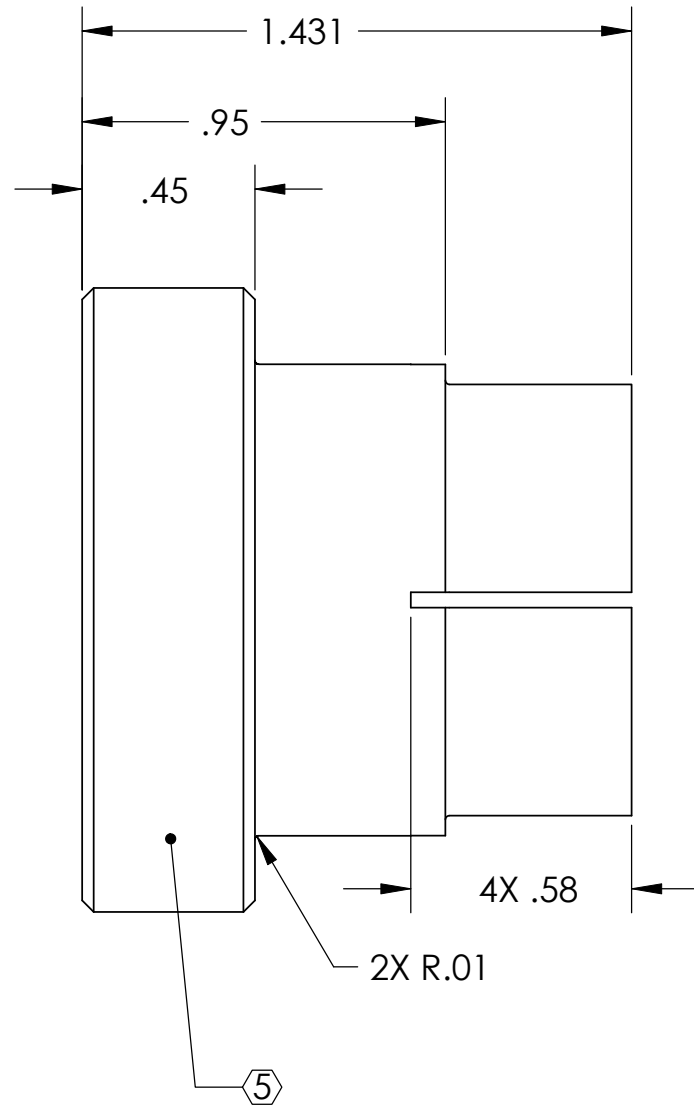
**SECTION A-A**

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME					
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		FLEXURE ROD SHIM, STAGE 1-2. aLIGO BSC ISI					
TOLERANCES: .XX ± .015 .XXX ± .005				SEI		DESIGNER	C.RAMET	01 Feb. 2010	SIZE	DWG. NO.	REV.
ANGULAR ± .5°				MATERIAL		DRAFTER	M.HILLARD	01 Feb. 2010	B	D0901501	v1
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				FINISH		CHECKER	F.MATICHARD	01 Feb. 2010	SCALE	PROJECTION:	SHEET 1 OF 1
				17-4 PH SSSL, H 1150		32 μinch	APPROVAL	K.MASON	01 Feb. 2010	1:1	
				NEXT ASSY		D0902104					

D0901502 Bracket Flexure Rod Shim, Stage 0-1, aLIGO BSC ISI, PART PDM REV: X-006, DRAWING PDM REV: X-004

REV.	DATE	DCN #	DRAWING TREE #
v1	26 Feb. 2010	E1000022	E1000025

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  6. APPROXIMATE WEIGHT = 0.13 LB.
  7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH, USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



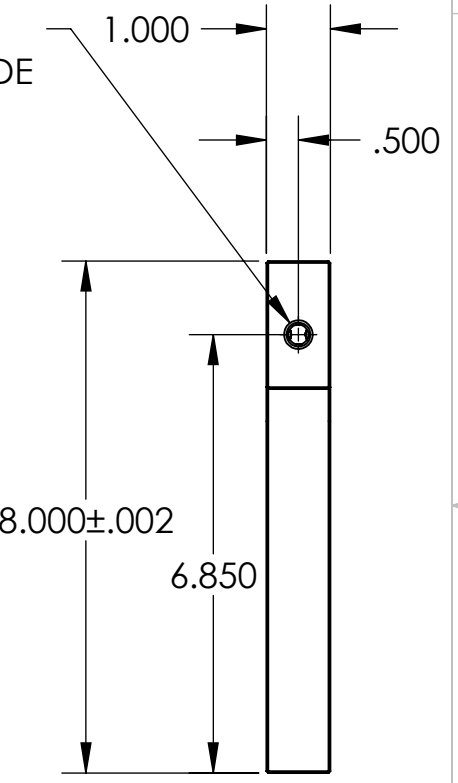
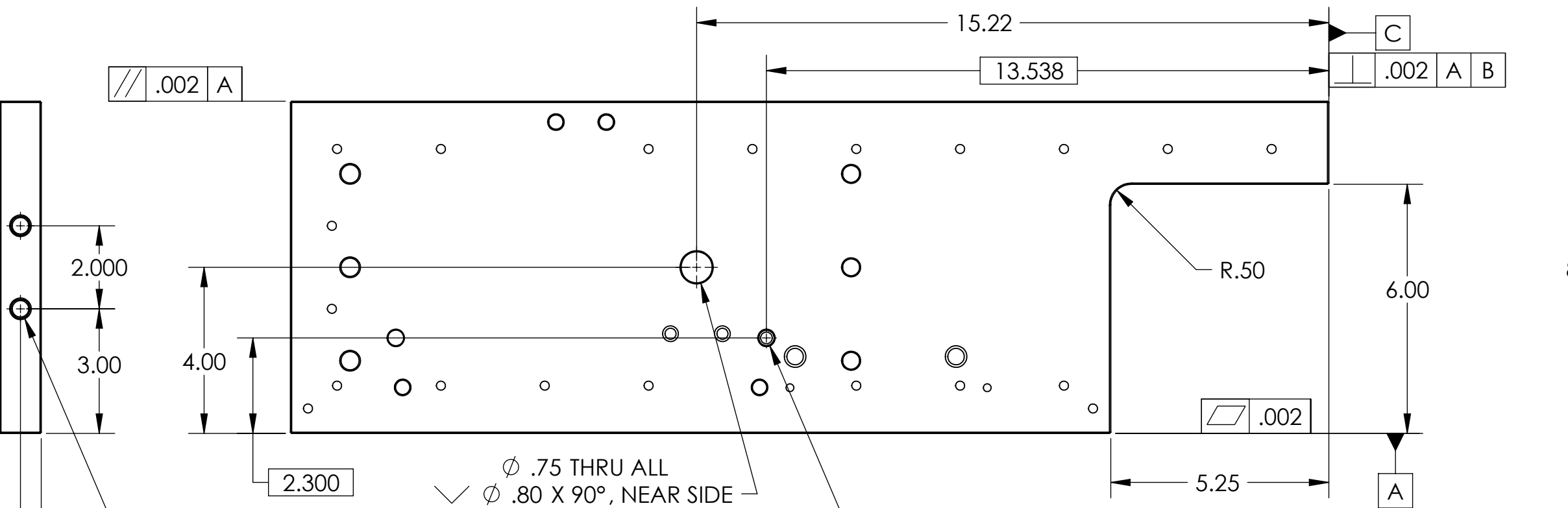
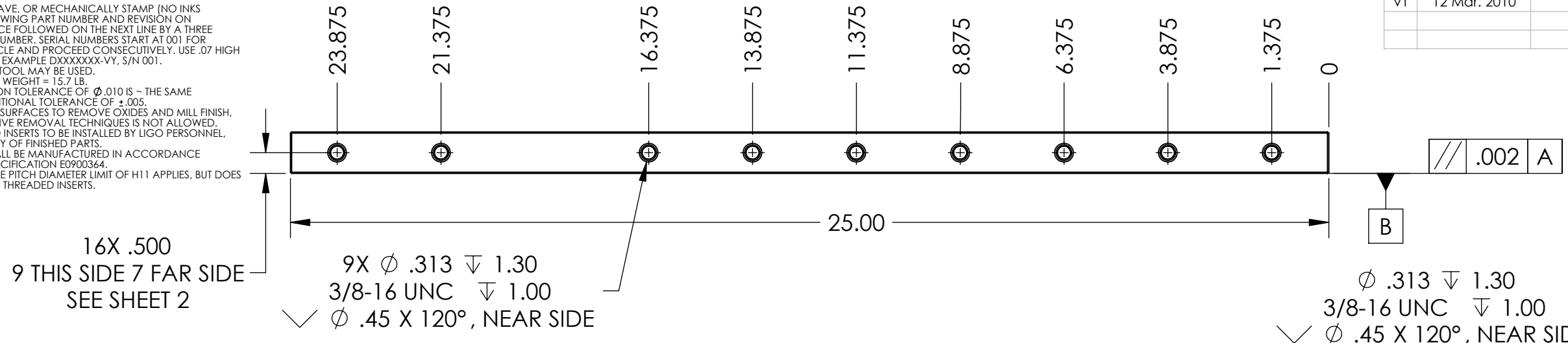
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME					
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		BRACKET FLEXURE SHIM, STAGE 0-1, aLIGO BSC ISI					
TOLERANCES: .XX ± .015 .XXX ± .005				SUB-SYSTEM SEI		DESIGNER	C.RAMET	01 Feb. 2010	SIZE	DWG. NO.	REV.
ANGULAR ± .5°				MATERIAL 17-4 PH SSSL, H 1150		DRAFTER	M.HILLARD	01 Feb. 2010	B	D0901502	v1
				FINISH 32 μinch		CHECKER	F.MATICHARD	01 Feb. 2010			
				NEXT ASSY D0902103		APPROVAL	K.MASON	01 Feb. 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

8 7 6 5 4 3 2 1

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 15.7 LB.  
 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .  
 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL, AFTER DELIVERY OF FINISHED PARTS.  
 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 11. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES, BUT DOES NOT APPLY TO THREADED INSERTS.

D  
C  
B  
A



$\phi .3750^{+.0000} \nabla .60$   
 $-.0004$

$\square \phi .377^{+.001} \nabla .13$   
 $-.000$

$\surd \phi .42 \times 90^\circ$ , NEAR SIDE

$\phi .25$  THRU

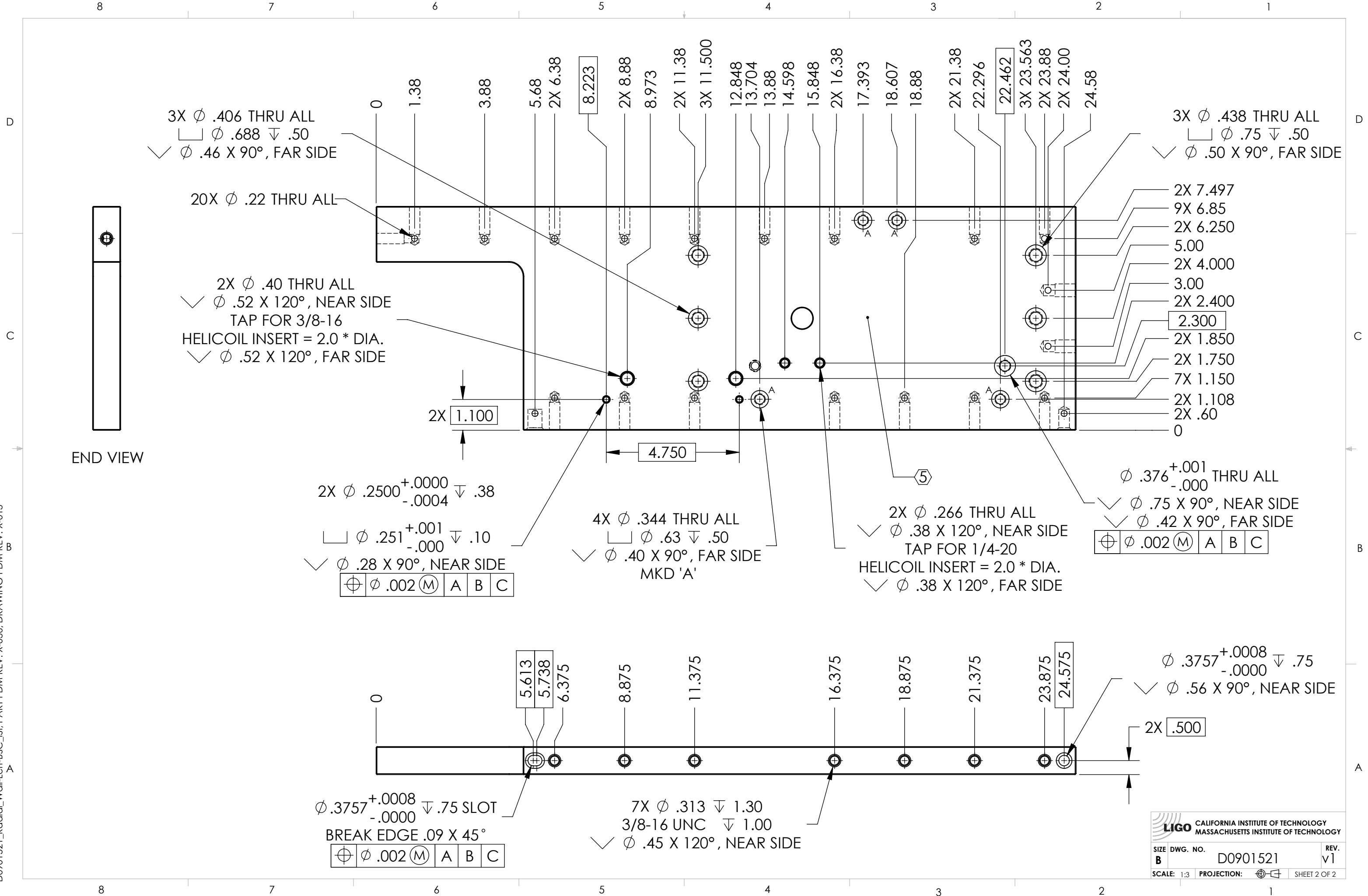
Feature Callouts:  
 - Position:  $\oplus \phi .002$  (M) A B C

D0901521\_Radial\_Wall-Left-BSC\_ISI, PART PDM REV: X-036, DRAWING PDM REV: X-013

8 7 6 5 4 3 2 1

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Radial Wall, Left, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER	A.STEIN 11 Jan. 2010
ANGULAR $\pm 0.5^\circ$				NEXT ASSY		DRAWER	M.HILLARD 11 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 $\mu$ inch		CHECKER	F.MATICHARD 11 Jan. 2010
				D0901181		APPROVAL	K.MASON 11 Jan. 2010
						SIZE DWG. NO.	B D0901521
						SCALE:	1:3
						PROJECTION:	
						SHEET	1 OF 2
						REV.	v1

D0901521\_Radial\_Wall-Left-BSC\_ISI, PART PDM REV: X-036, DRAWING PDM REV: X-013



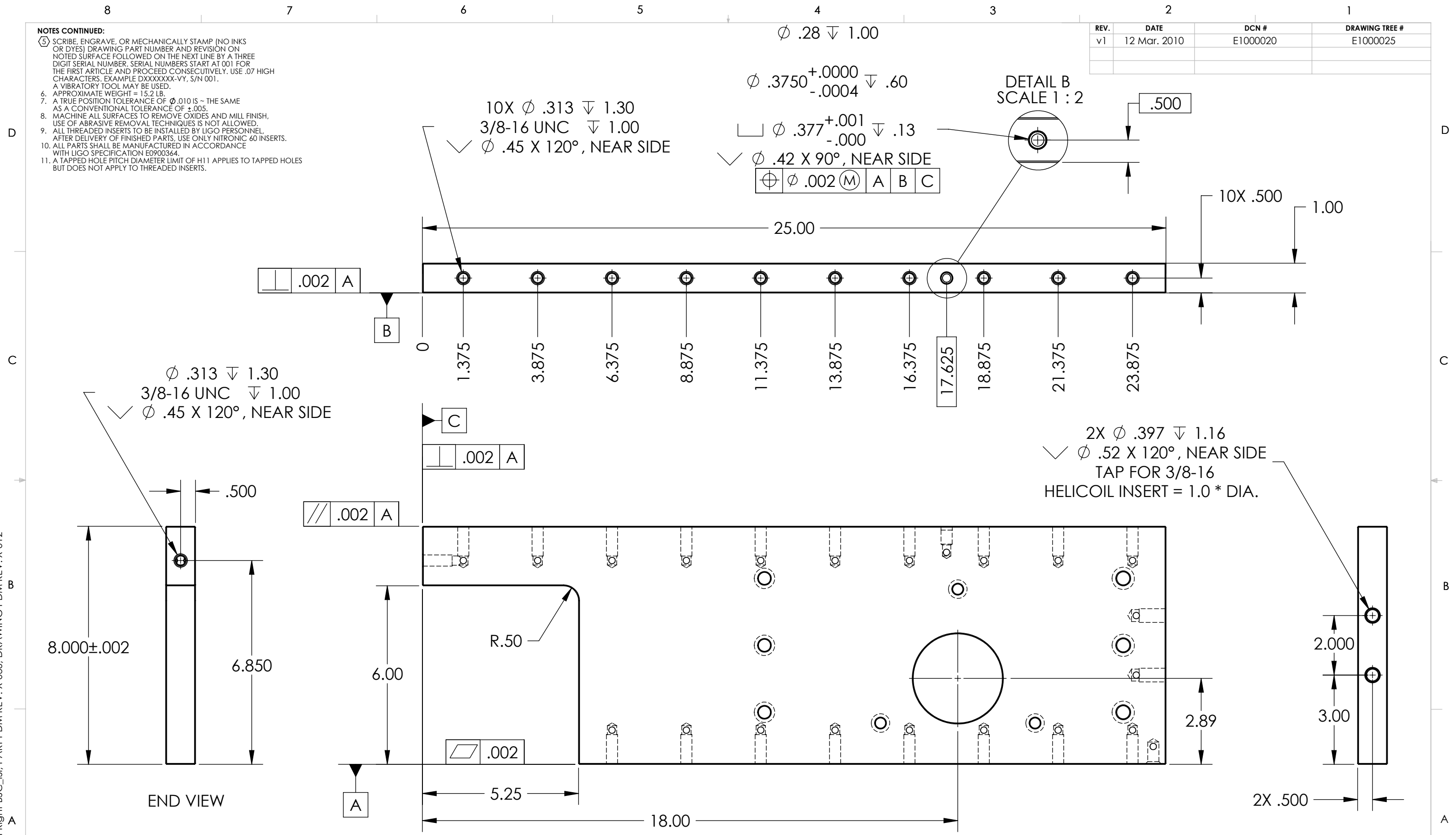
**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
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SIZE	DWG. NO.	REV.
B	D0901521	v1
SCALE: 1:3	PROJECTION:	SHEET 2 OF 2

D0901522\_Radial\_Wall-Right-BSC\_ISI, PART PDM REV: X-036, DRAWING PDM REV: X-012

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  6. APPROXIMATE WEIGHT = 15.2 LB.
  7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE ONLY NITRONIC 60 INSERTS.
  10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  11. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO TAPPED HOLES BUT DOES NOT APPLY TO THREADED INSERTS.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025



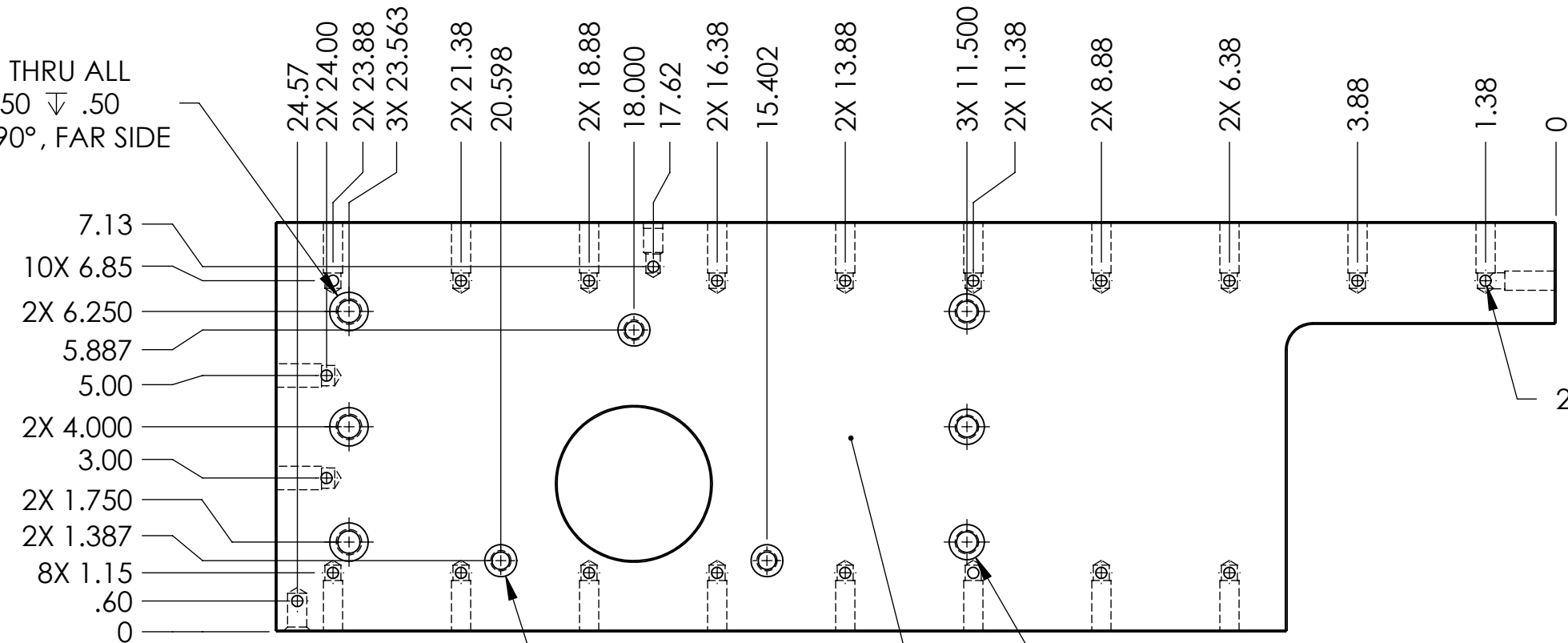
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		SUB-SYSTEM		Radial Wall, Right, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				6061-T6 Al		63 $\mu\text{inch}$		D0901181	
ANGULAR $\pm 0.5^\circ$				NEXT ASSY		D0901181		DESIGNER: A.STEIN 11 Jan. 2010	
								DRFTER: M.Hillard 11 Jan. 2010	
								CHECKER: F.MATICHARD 11 Jan. 2010	
								APPROVAL: K.MASON 11 Jan. 2010	
								SIZE DWG. NO. B D0901522	
								REV. v1	
								SCALE: 1:3 PROJECTION: SHEET 1 OF 2	



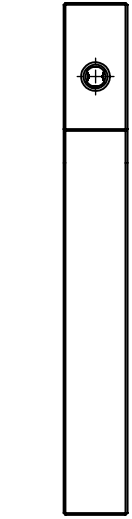
D0901522\_Radial\_Wall-Right-BSC\_ISI, PART PDM REV: X-036, DRAWING PDM REV: X-012

8 7 6 5 4 3 2 1

3X  $\phi$  .438 THRU ALL  
 $\square$   $\phi$  .750  $\nabla$  .50  
 $\sphericalangle$   $\phi$  .50 X 90°, FAR SIDE



22X  $\phi$  .22 THRU ALL



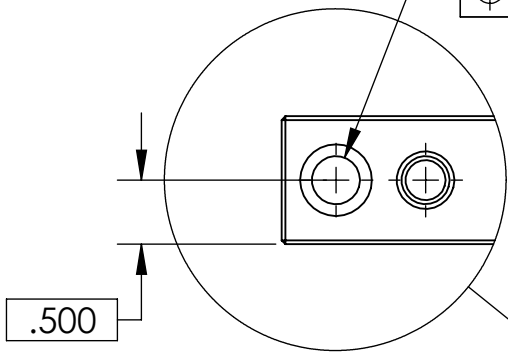
END VIEW

3X  $\phi$  .344 THRU ALL  
 $\square$   $\phi$  .625  $\nabla$  .50  
 $\sphericalangle$   $\phi$  .40 X 90°, FAR SIDE

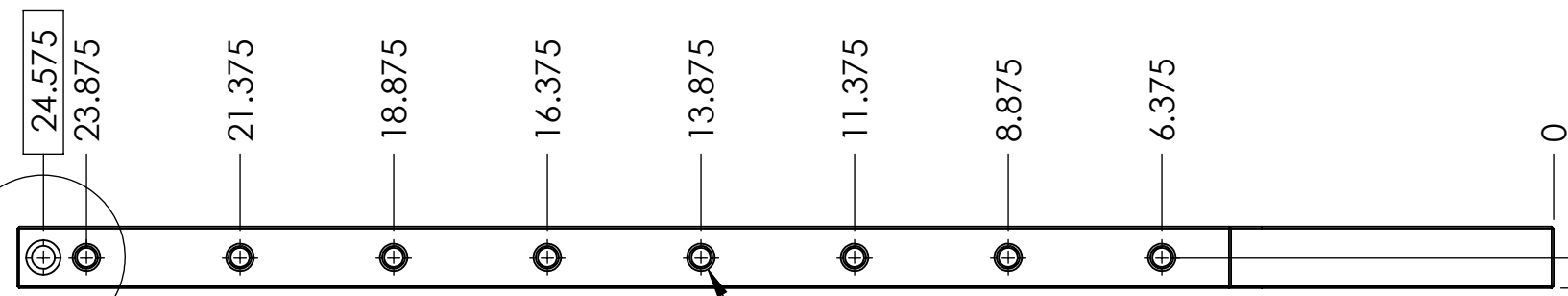
3X  $\phi$  .406 THRU ALL  
 $\square$   $\phi$  .688  $\nabla$  .50  
 $\sphericalangle$   $\phi$  .46 X 90°, FAR SIDE

$\phi$  .3757<sup>+0.0008</sup>/<sub>-.0000</sub>  $\nabla$  .75  
 $\sphericalangle$   $\phi$  .56 X 90°, NEAR SIDE

$\phi$ .002 (M)	A	B	C
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DETAIL C  
SCALE 2 : 3



8X  $\phi$  .313  $\nabla$  1.30  
3/8-16 UNC  $\nabla$  1.00  
 $\sphericalangle$   $\phi$  .45 X 120°, NEAR SIDE

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY

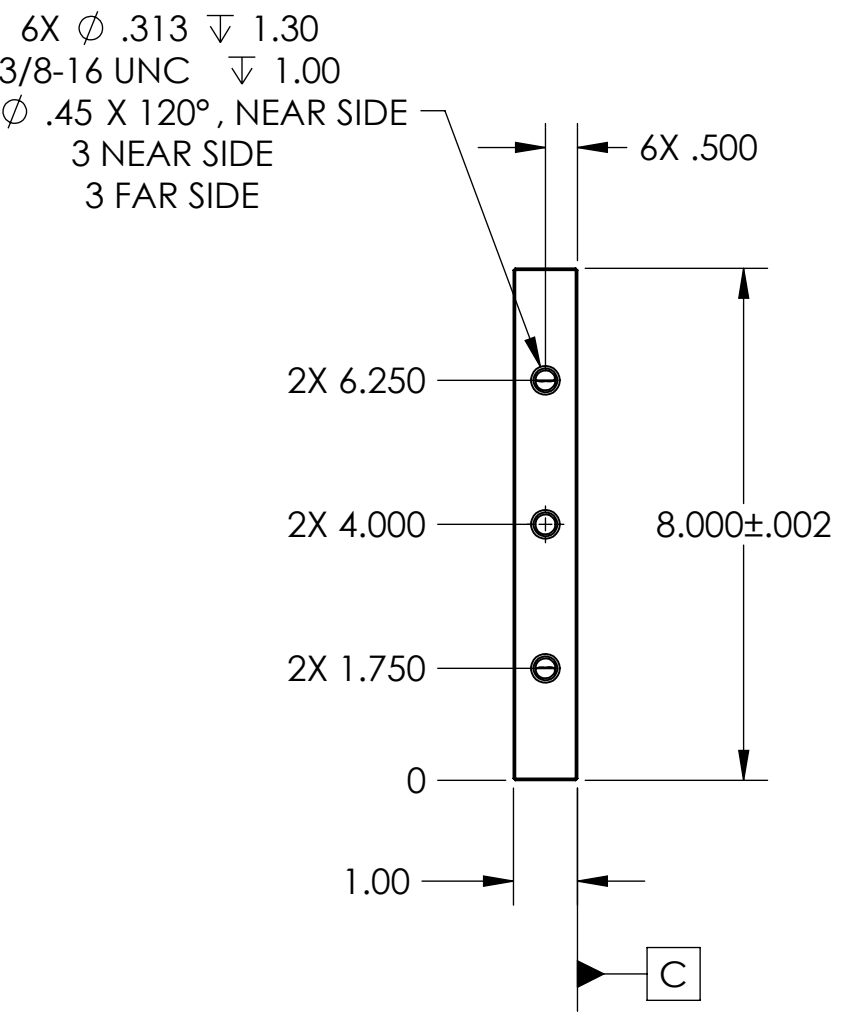
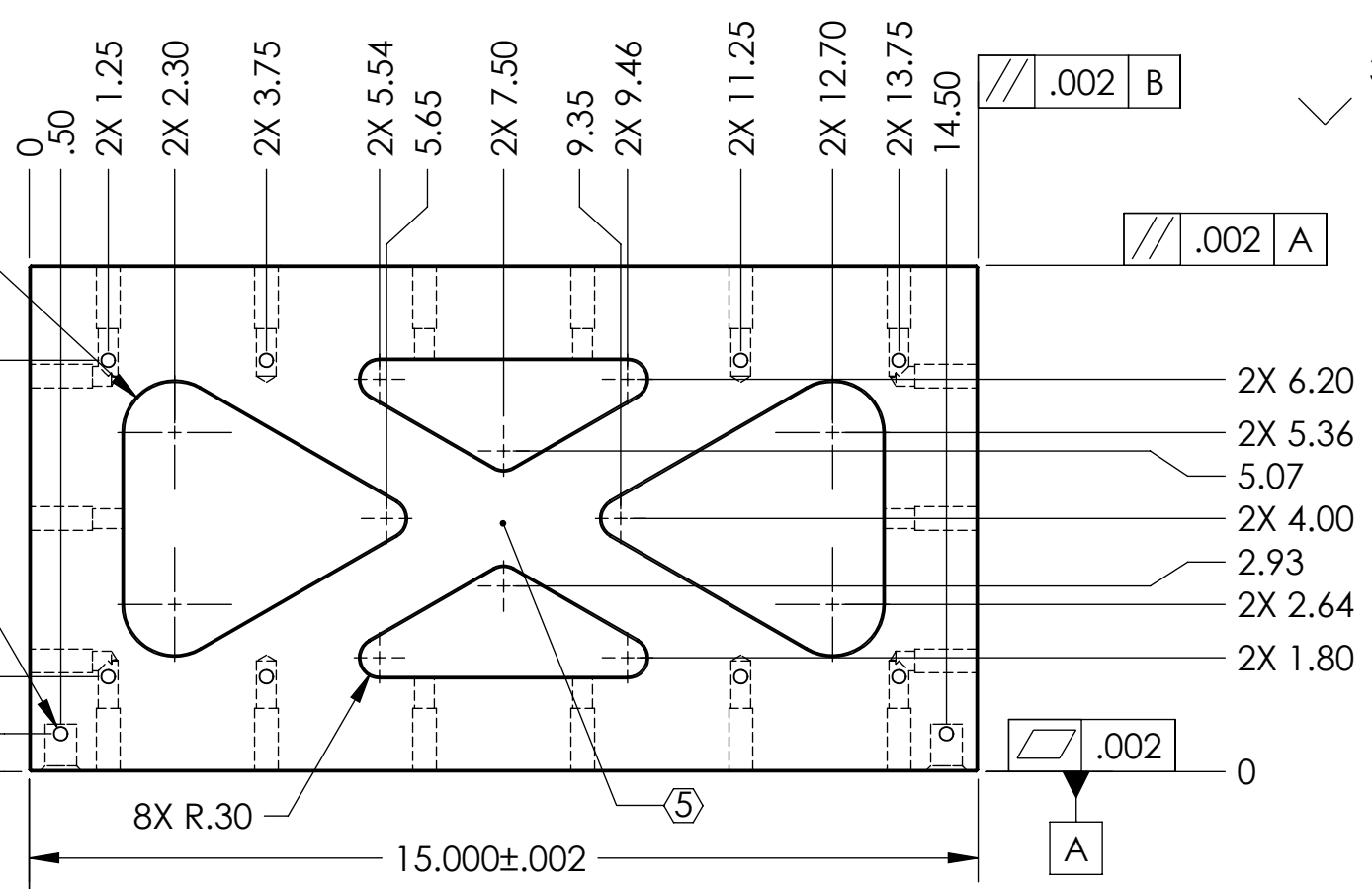
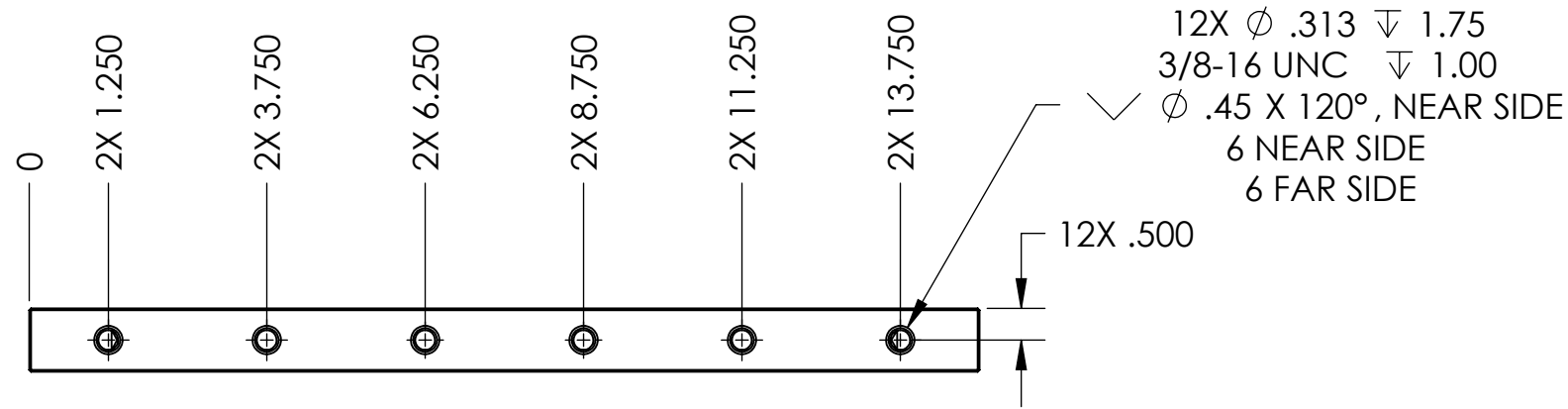
SIZE	DWG. NO.	REV.
B	D0901522	v1
SCALE: 1:3	PROJECTION:	SHEET 2 OF 2

8 7 6 5 4 3 2 1

**NOTES CONTINUED:**

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
6. APPROXIMATE WEIGHT = 8.0 LB.
7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
9. A PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL THREADED HOLES.
10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025



2X  $\phi .3757^{+.0008}_{-.0000}$   $\nabla .75$  SLOT  
 BREAK EDGE .09 X 45°

$\phi .002$	(M)	A	B	C
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**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

1. INTERPRET DRAWING PER ASME Y14.5-1994.
2. BREAK ALL EDGES AND CORNERS .03 X 45°.
3. DO NOT SCALE FROM DRAWING.
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

DIMENSIONS ARE IN INCHES

TOLERANCES:  
 .XX ± .015  
 .XXX ± .005

ANGULAR ± 0.5°

MATERIAL: 6061-T6 Al      FINISH: 63  $\mu$ inch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
ADVANCED LIGO		Tangential Wall, aLIGO BSC ISI	
DESIGNER	A.STEIN	11 Jan. 2010	SIZE DWG. NO.
DRAFTER	M.HILLARD	11 Jan. 2010	<b>B</b>
CHECKER	F.MATICHERD	11 Jan. 2010	D0901523
APPROVAL	K.MASON	11 Jan. 2010	REV. v1
NEXT ASSY: D0901181		SCALE: 1:3	PROJECTION:
		SHEET 1 OF 1	

D0901523\_Tangential\_Wall-BSC\_ISI, PART PDM REV: X-013, DRAWING PDM REV: X-007

D0901524\_Hex\_Wall-Lower-Large-BSC\_ISI, PART PDM REV: X-021, DRAWING PDM REV: X-008

**NOTES CONTINUED:**

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001.  
A VIBRATORY TOOL MAY BE USED.

6. APPROXIMATE WEIGHT = 9.8 LB.

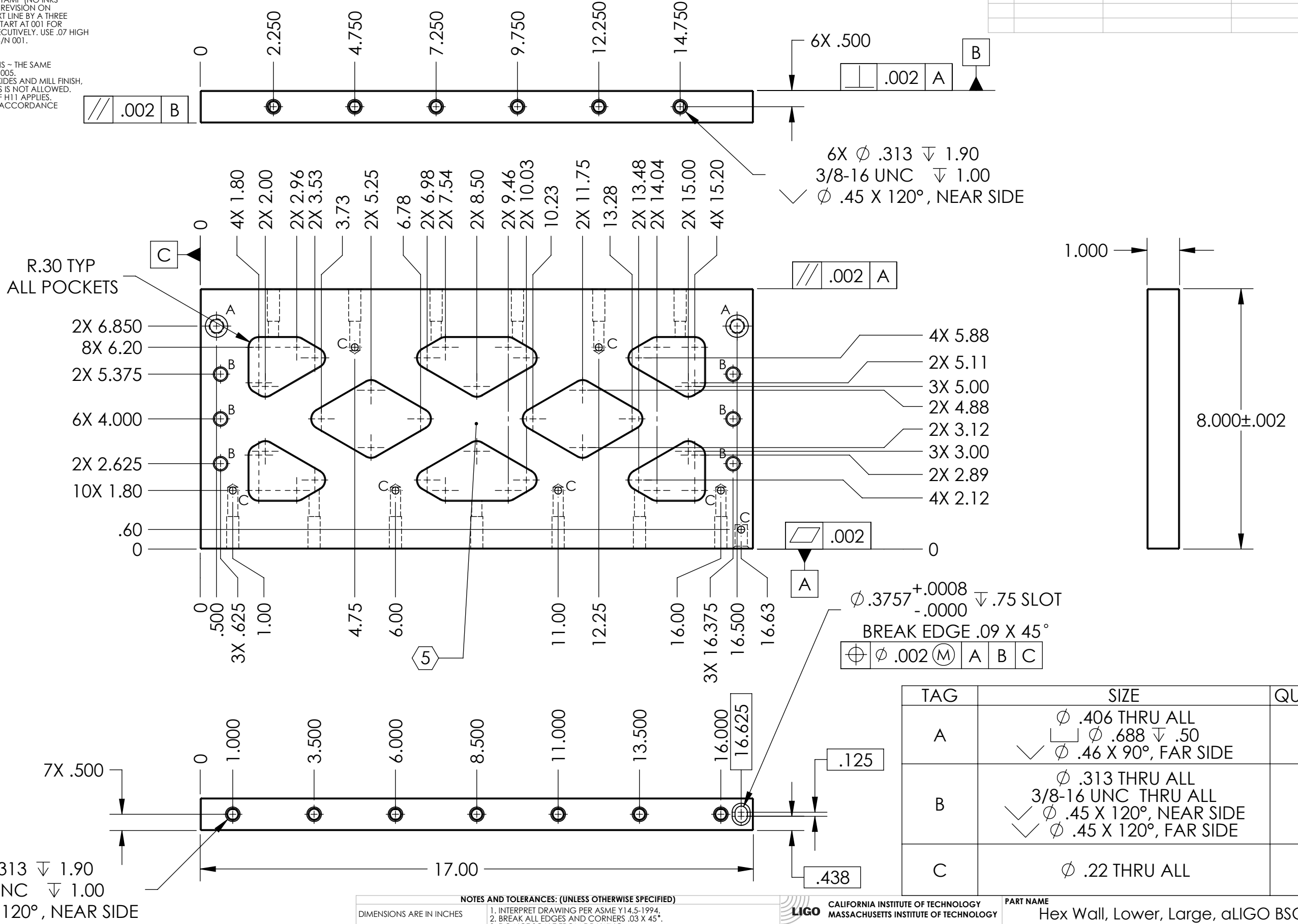
7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES.

10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025



TAG	SIZE	QUANTITY
A	$\phi .406$ THRU ALL $\phi .688 \nabla .50$ $\phi .46 \times 90^\circ$ , FAR SIDE	2
B	$\phi .313$ THRU ALL 3/8-16 UNC THRU ALL $\phi .45 \times 120^\circ$ , NEAR SIDE $\phi .45 \times 120^\circ$ , FAR SIDE	6
C	$\phi .22$ THRU ALL	7

**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

1. INTERPRET DRAWING PER ASME Y14.5-1994.  
2. BREAK ALL EDGES AND CORNERS .03 X 45°.  
3. DO NOT SCALE FROM DRAWING.  
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

**TOLERANCES:**  
.XX  $\pm .015$   
.XXX  $\pm .005$   
ANGULAR  $\pm 0.5^\circ$

**DIMENSIONS ARE IN INCHES**

**MATERIAL:** 6061-T6 Al      **FINISH:** 63  $\mu$ inch

**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY

**PART NAME:** Hex Wall, Lower, Large, aLIGO BSC ISI

**SYSTEM:** ADVANCED LIGO      **SUB-SYSTEM:** SEI

**DESIGNER:** A.STEIN 11 Jan. 2010      **SIZE DWG. NO.:** B      **D0901524**      **REV.:** v1

**DRAFTER:** M.HILLARD 11 Jan. 2010

**CHECKER:** F.MATICHARD 11 Jan. 2010

**APPROVAL:** K.MASON 11 Jan. 2010      **SCALE:** 1:3      **PROJECTION:**      **SHEET 1 OF 1**

**NEXT ASSY:** D0901181

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1

D0901525\_Hex\_Wall-Lower-Small-BSC\_ISI, PART PDM REV: X-026, DRAWING PDM REV: X-008

8 7 6 5 4 3 2 1

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.

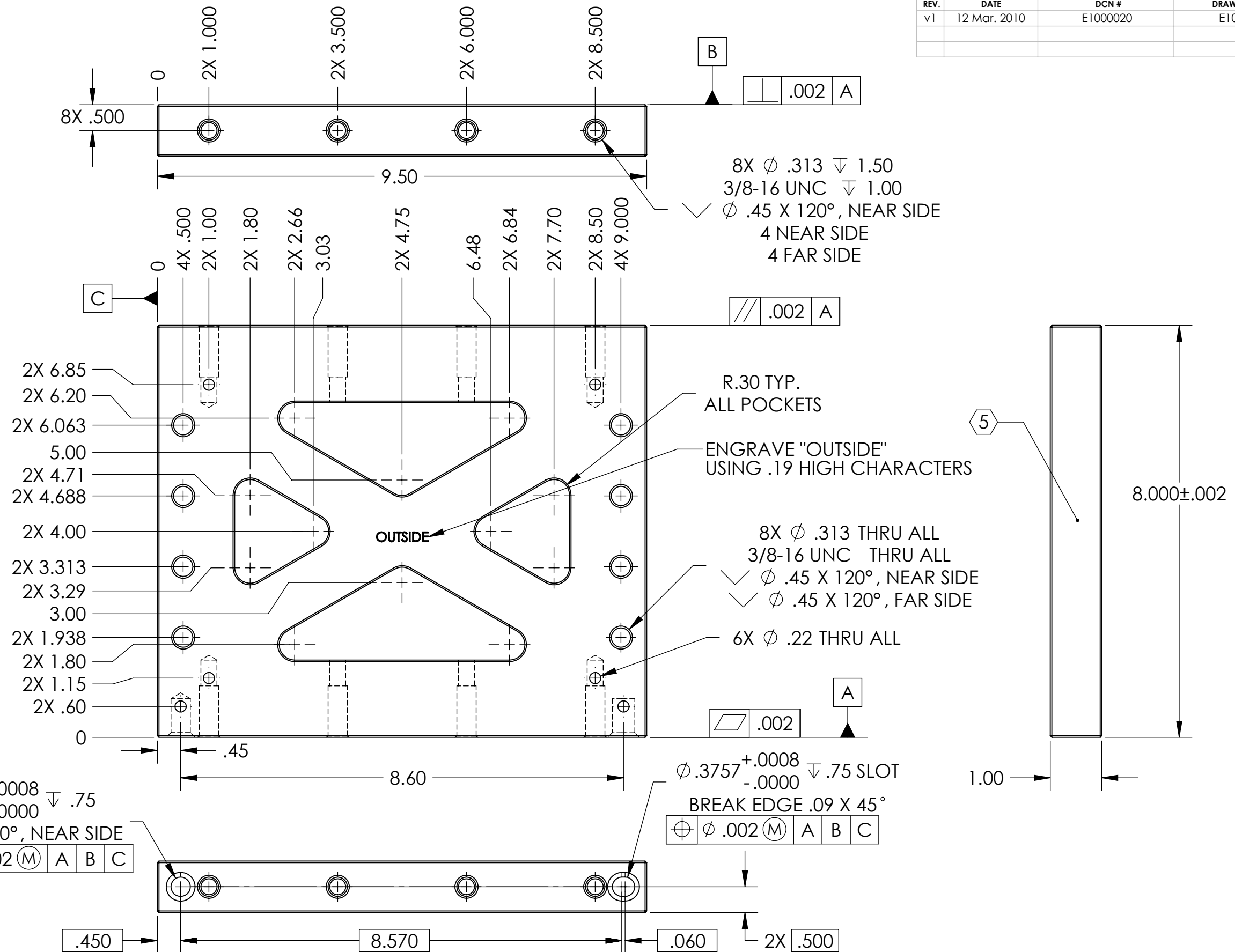
6. APPROXIMATE WEIGHT = 5.6 LB.

7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS ~ THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES.

10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



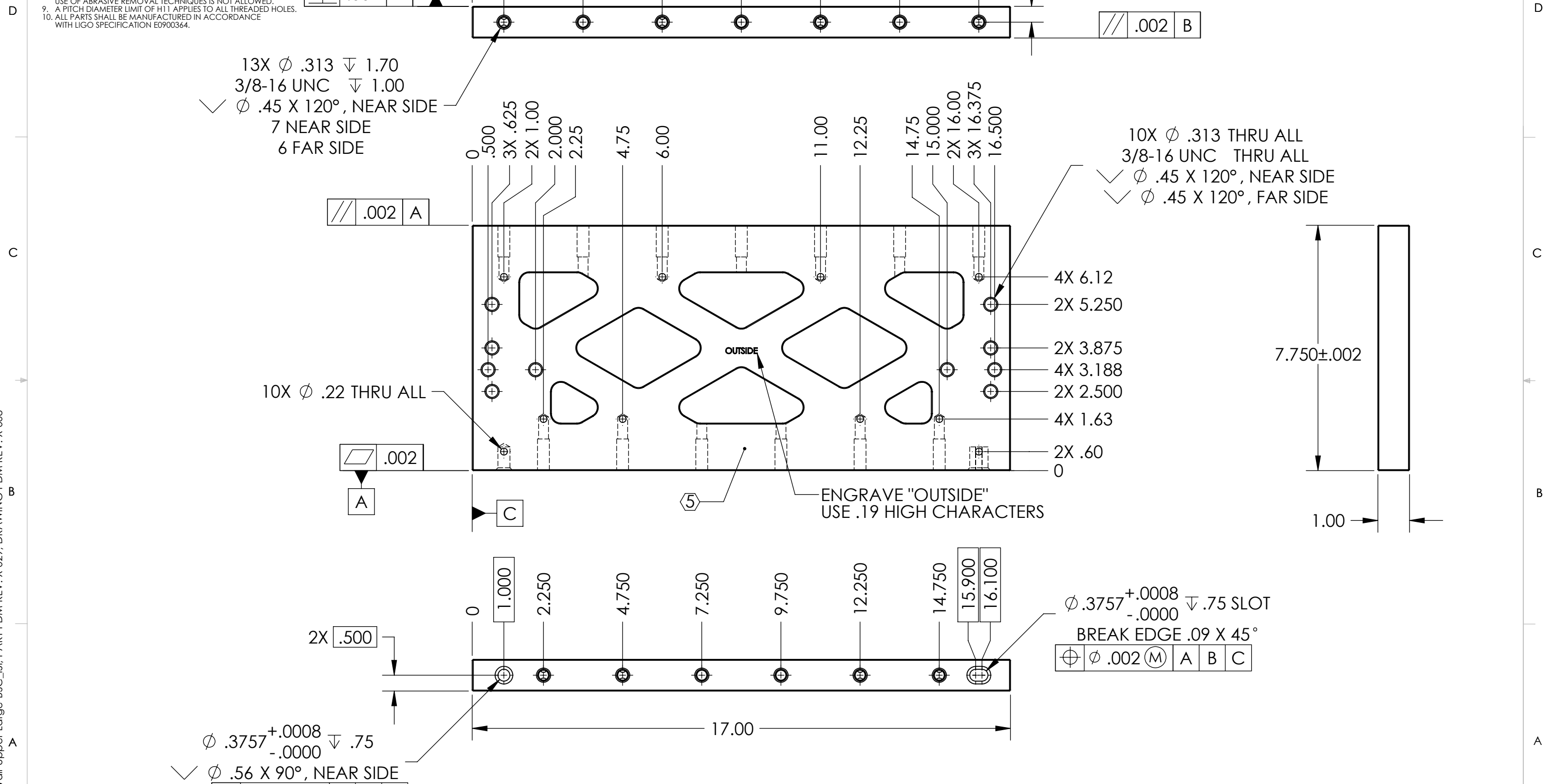
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX ± .015 .XXX ± .005 ANGULAR ± 0.5°				CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		Hex Wall, Lower, Small, aLIGO BSC ISI	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. BREAK ALL EDGES AND CORNERS .03 X 45°. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				<b>ADVANCED LIGO</b>		<b>SEI</b>	
MATERIAL 6061-T6 Al FINISH 63 μinch				NEXT ASSY D0901181		DESIGNER A.STEIN 11 Jan. 2010 DRAFTER M.HILLARD 11 Jan. 2010 CHECKER F.MATICHARD 11 Jan. 2010 APPROVAL K.MASON 11 Jan. 2010	
SCALE: 1:2 PROJECTION:				SIZE DWG. NO. <b>B</b> <b>D0901525</b>		REV. <b>v1</b> SHEET 1 OF 1	

8 7 6 5 4 3 2 1

D0901526\_Hex\_Wall-Upper-Large-BSC\_ISI, PART PDM REV: X-029, DRAWING PDM REV: X-008

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 9.6 LB.  
 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .  
 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 9. A PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL THREADED HOLES.  
 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



$\phi .3757^{+.0008}_{-.0000} \downarrow .75$   
 $\checkmark \phi .56 \times 90^\circ$ , NEAR SIDE  
 $\phi .002 (M) A B C$

$\phi .3757^{+.0008}_{-.0000} \downarrow .75$  SLOT  
 BREAK EDGE .09 X 45°  
 $\phi .002 (M) A B C$

**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

- INTERPRET DRAWING PER ASME Y14.5-1994.
- BREAK ALL EDGES AND CORNERS .03 X 45°.
- DO NOT SCALE FROM DRAWING.
- ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 .XX  $\pm .015$   
 .XXX  $\pm .005$   
 ANGULAR  $\pm 0.5^\circ$

MATERIAL	6061-T6 Al	FINISH	63 $\mu$ inch
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CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
ADVANCED LIGO		Hex Wall, Upper, Large, aLIGO BSC ISI	
DESIGNER	A.STEIN	11 Jan. 2010	SIZE DWG. NO.
DRAFTER	M.HILLARD	11 Jan. 2010	<b>B</b>
CHECKER	F.MATICHARD	11 Jan. 2010	<b>D0901526</b>
APPROVAL	K.MASON	11 Jan. 2010	REV. <b>v1</b>
NEXT ASSY		SCALE: 1:3	PROJECTION:
D0901181		SHEET 1 OF 2	

D0901526\_Hex\_Wall-Upper-Large-B5C\_ISI\_PART PDM REV: X-029, DRAWING PDM REV: X-008

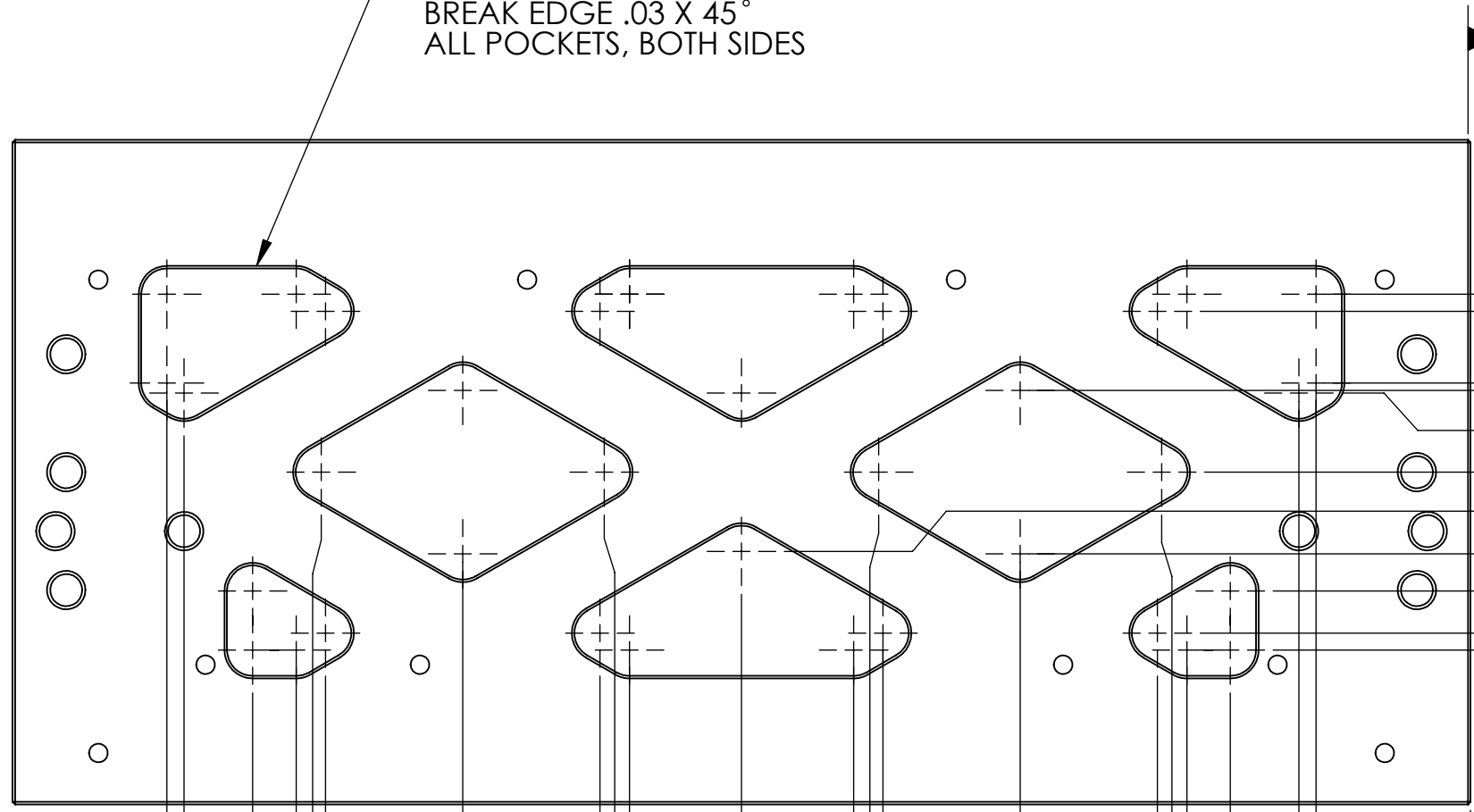
8 7 6 5 4 3 2 1

SCALE 1/2

D  
C  
B  
A

D  
C  
B  
A

THRU POCKETS  
BREAK EDGE .03 X 45°  
ALL POCKETS, BOTH SIDES



2X 15.20  
15.00  
2X 14.20  
2X 13.69  
13.40  
2X 13.35  
2X 11.75  
2X 10.15  
10.10  
2X 9.81  
2X 8.50  
2X 7.19  
6.90  
2X 6.85  
2X 5.25  
2X 3.65  
3.60  
2X 3.31  
2X 2.80  
2.00  
2X 1.80  
0

6X 5.95  
4X 5.75  
2X 4.91  
2X 4.83  
3X 4.80  
4X 3.88  
2.95  
2X 2.92  
2X 2.49  
4X 2.00  
6X 1.80  
0

**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

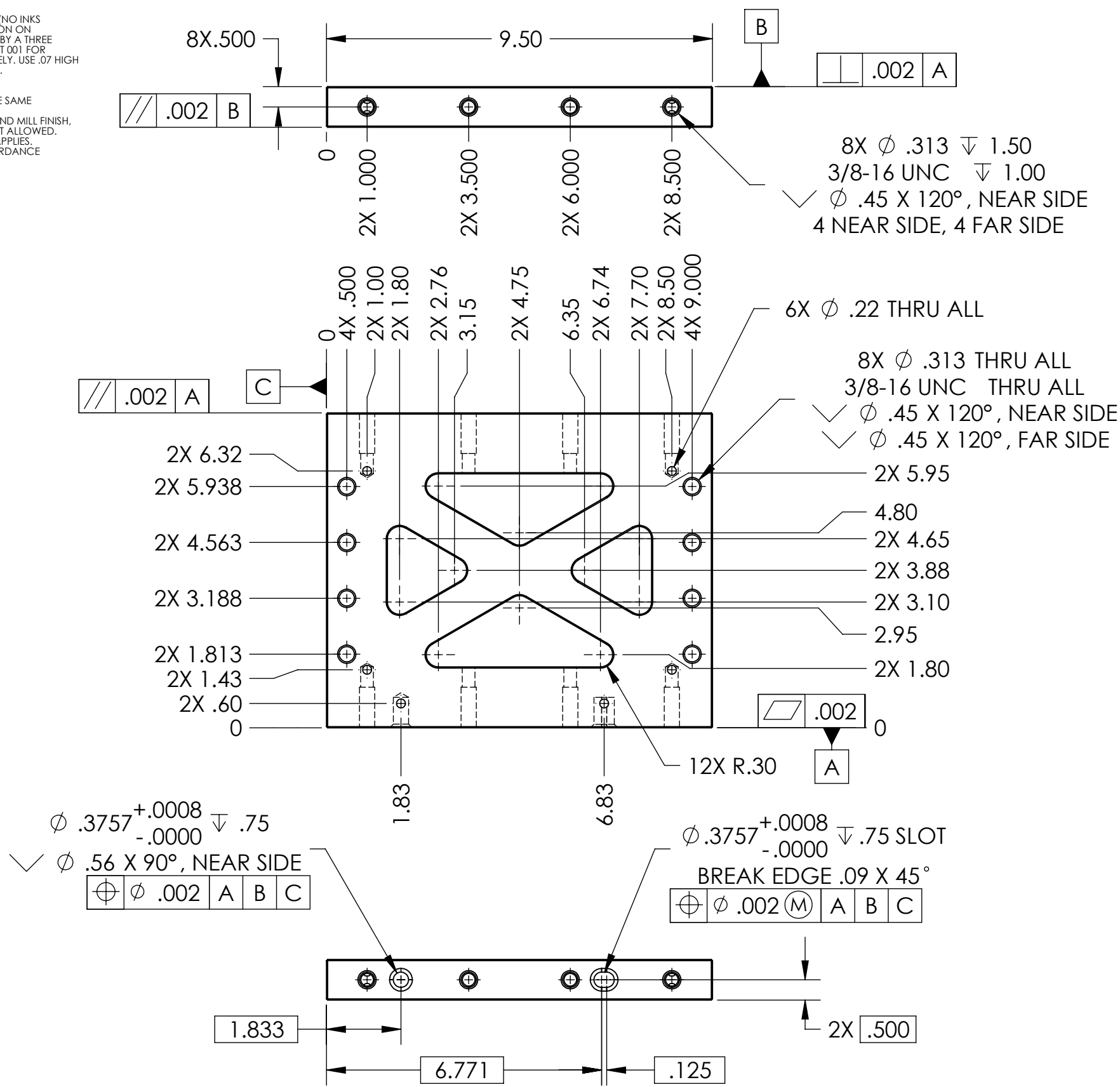
SIZE	DWG. NO.	REV.
B	D0901526	v1
SCALE: 1:2		PROJECTION:
		SHEET 2 OF 2

8 7 6 5 4 3 2 1

D0901528\_Hex\_Wall-Upper-Small-BSC\_ISI, PART PDM REV: X-022, DRAWING PDM REV: X-007

- NOTES CONTINUED:**
- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  - 6. APPROXIMATE WEIGHT = 5.4 LB.
  - 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  - 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  - 9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES.
  - 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025



**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

- INTERPRET DRAWING PER ASME Y14.5-1994.
- BREAK ALL EDGES AND CORNERS .03 X 45°.
- DO NOT SCALE FROM DRAWING.
- ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

**TOLERANCES:**

- .XX  $\pm .015$
- .XXX  $\pm .005$
- ANGULAR  $\pm 0.5^\circ$

**MATERIAL:** 6061-T6 Al

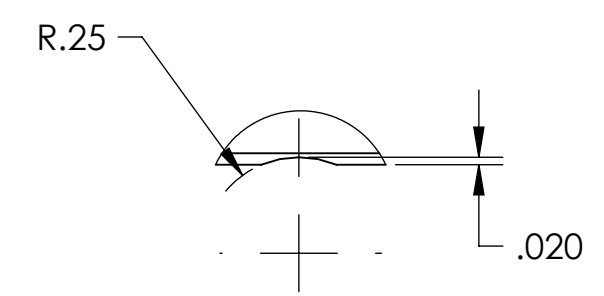
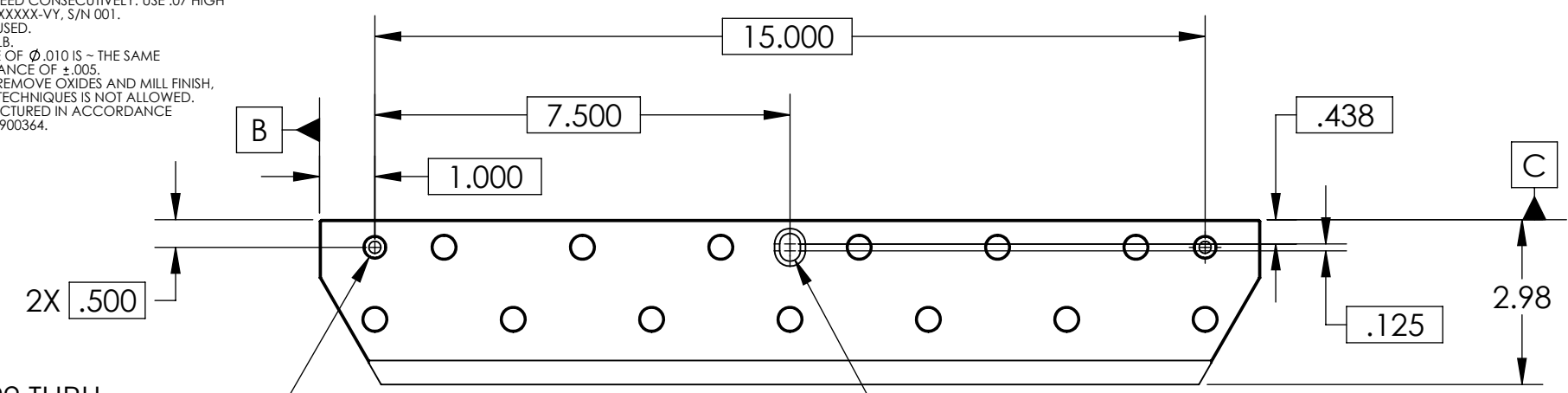
**FINISH:** 63  $\mu$ inch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		<b>PART NAME</b> Hex Wall, Upper, Small, aLIGO BSC ISI	
<b>SYSTEM</b> ADVANCED LIGO	<b>SUB-SYSTEM</b> SEI	<b>DESIGNER</b> A.STEIN 11 Jan. 2010	<b>SIZE DWG. NO.</b> B D0901528
<b>DRAFTER</b> M.HILLARD 11 Jan. 2010	<b>CHECKER</b> F.MATICHARD 11 Jan. 2010	<b>APPROVAL</b> K.MASON 11 Jan. 2010	<b>REV.</b> v1
<b>NEXT ASSY</b> D0901181	<b>SCALE:</b> 1:3	<b>PROJECTION:</b>	<b>SHEET 1 OF 1</b>

D0901530\_Adapter-Large\_Hex\_Wall-BSC\_ISI, PART PDM REV: X-019, DRAWING PDM REV: X-006

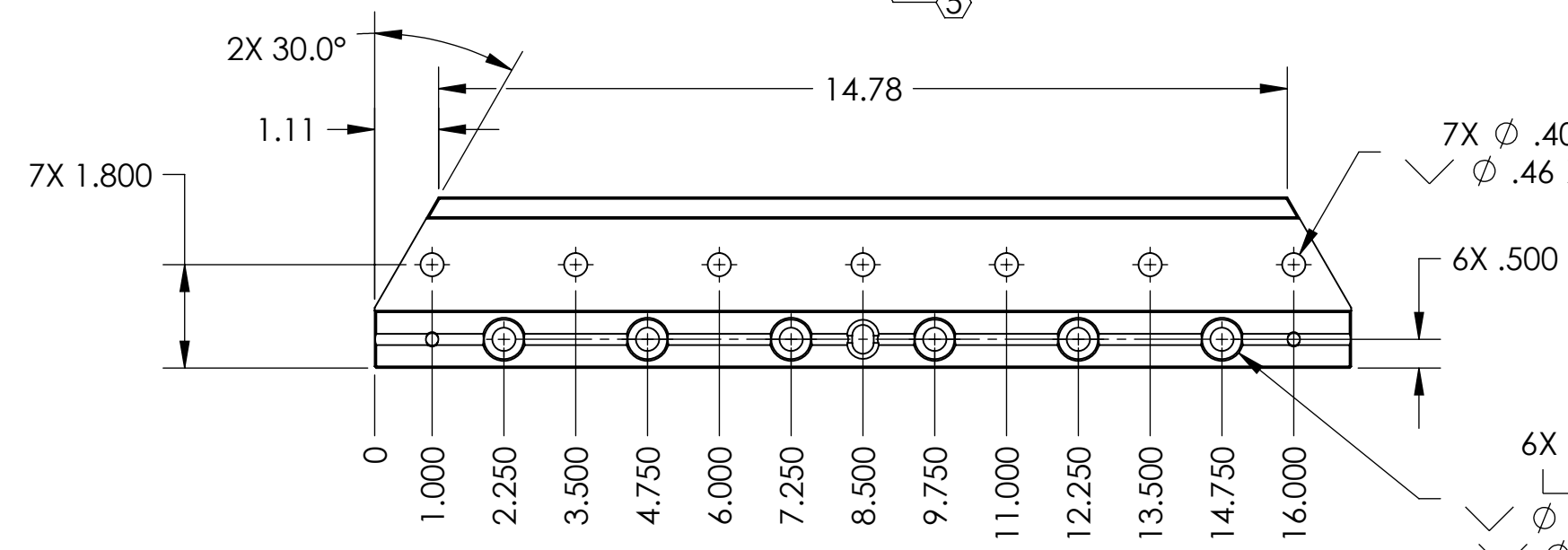
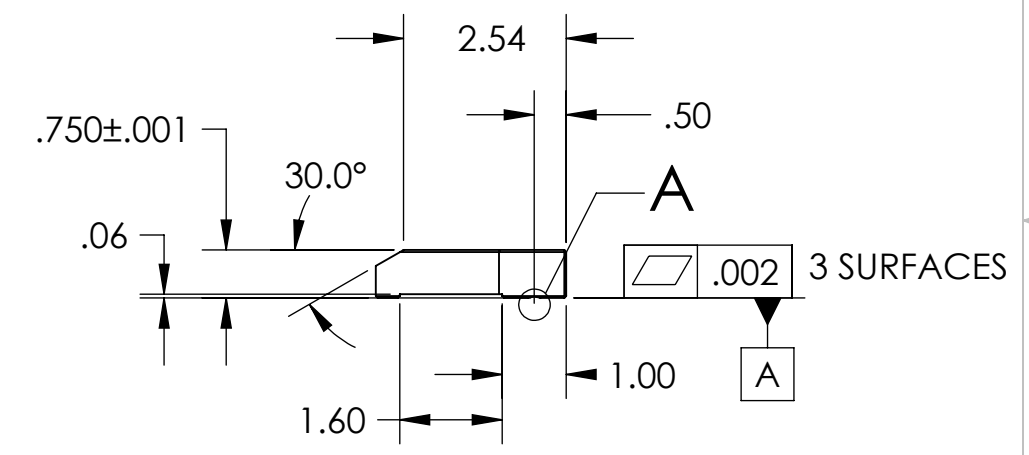
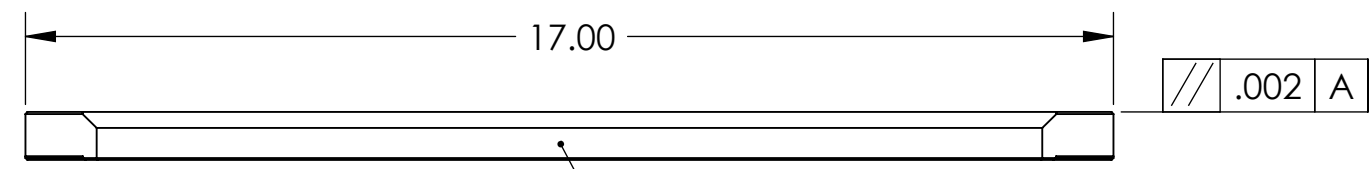
REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 3.1 LB.  
 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS ~ THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .  
 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



2X  $\phi .22$  THRU  
 $\phi .3750^{+.0000}_{-.0004} \nabla .60$   
 $\phi .377^{+.001}_{-.000} \nabla .13$   
 $\phi .42 \times 90^\circ$ , NEAR SIDE  
 $\phi .25 \times 90^\circ$  FAR SIDE  
 $\phi .002$  (M) A B C

$\phi .3757^{+.0008}_{-.0000}$  THRU SLOT  
 BREAK EDGE  $.09 \times 45^\circ$   
 BOTH SIDES  
 $\phi .002$  (M) A B C



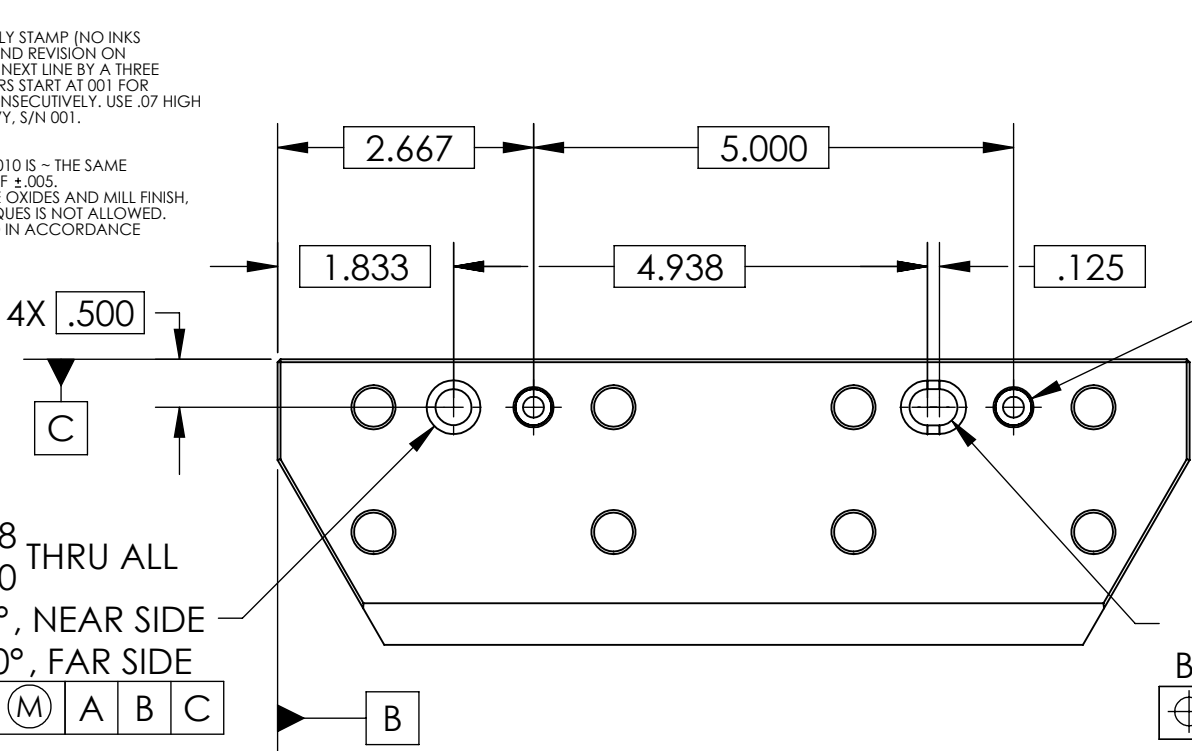
7X  $\phi .406$  THRU ALL  
 $\phi .46 \times 90^\circ$ , FAR SIDE  
 6X  $\phi .500$   
 6X  $\phi .406$  THRU ALL  
 $\phi .688 \nabla .50$   
 $\phi .75 \times 90^\circ$ , NEAR SIDE  
 $\phi .46 \times 90^\circ$ , FAR SIDE

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Adapter, Large Hex Wall, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER	A.STEIN 11 Jan. 2010
ANGULAR $\pm 0.5^\circ$				NEXT ASSY D0901181		DRAFTER	M.HILLARD 11 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 $\mu$ inch		CHECKER	F.MATICHARD 11 Jan. 2010
1. INTERPRET DRAWING PER ASME Y14.5-1994.				SCALE: 1:3		APPROVAL	K.MASON 11 Jan. 2010
2. BREAK ALL EDGES AND CORNERS $.03 \times 45^\circ$ .				PROJECTION:		SIZE DWG. NO.	B D0901530
3. DO NOT SCALE FROM DRAWING.				SHEET 1 OF 1		REV.	v1
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.							

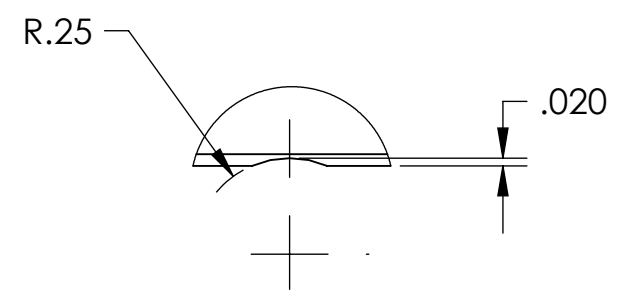


**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 1.6 LB.  
 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .  
 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025



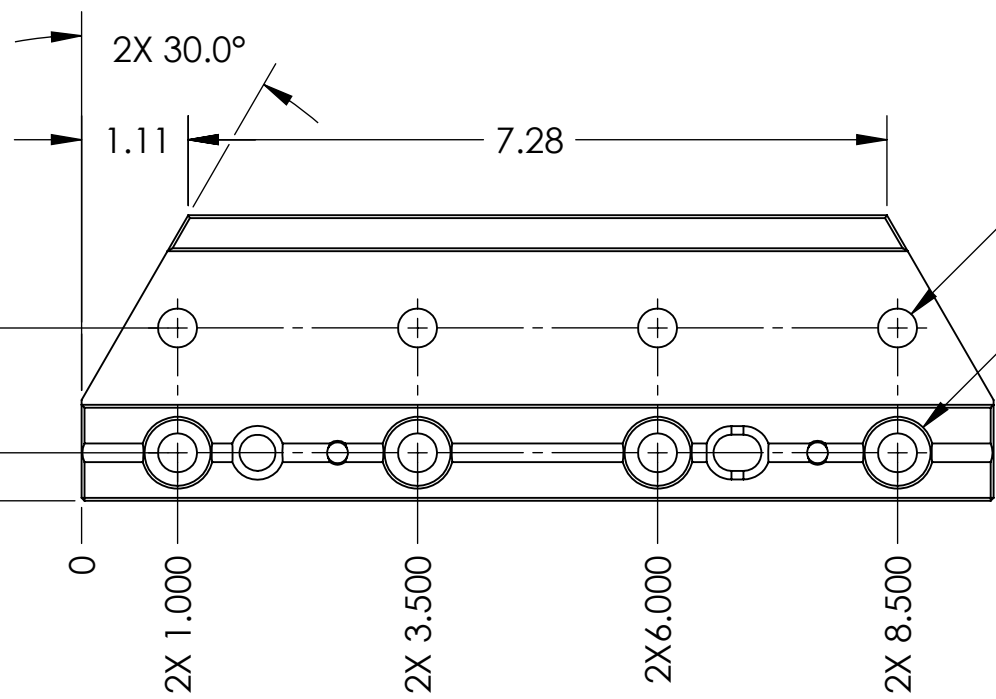
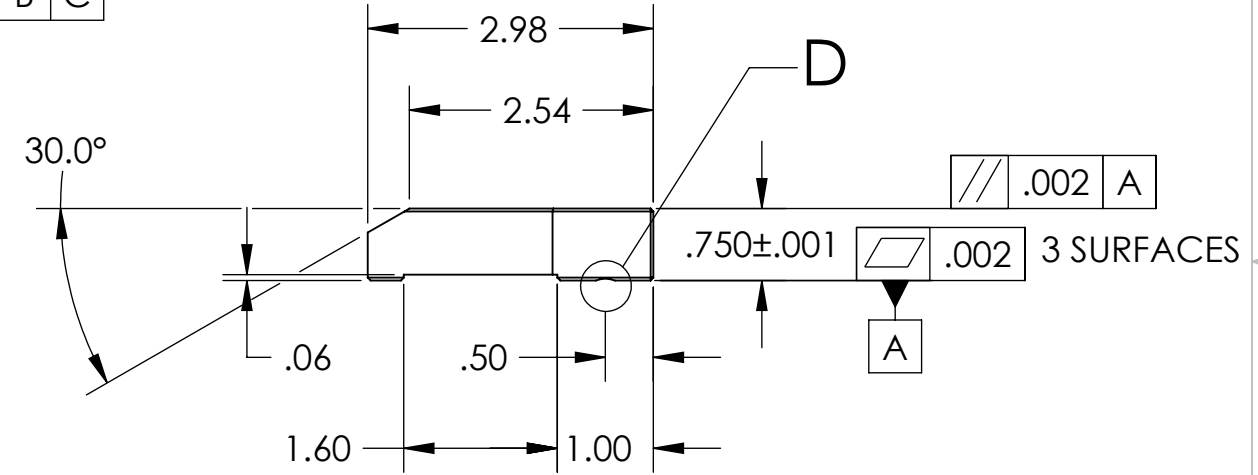
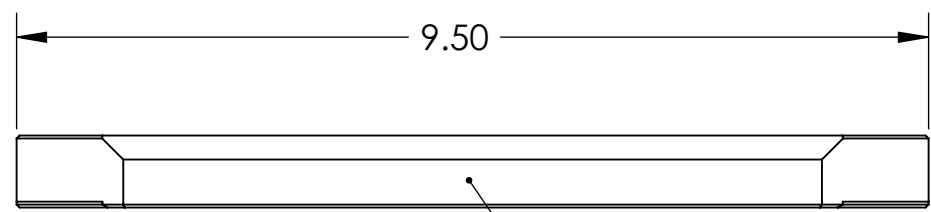
2X  $\phi .22$  THRU  
 $\phi .3750^{+.0000} \downarrow .60$   
 $\phi .377^{+.0001} \downarrow .13$   
 $\phi .42 \times 90^\circ$ , NEAR SIDE  
 $\phi .25 \times 90^\circ$ , FAR SIDE  
 $\phi .002$  (M) A B C



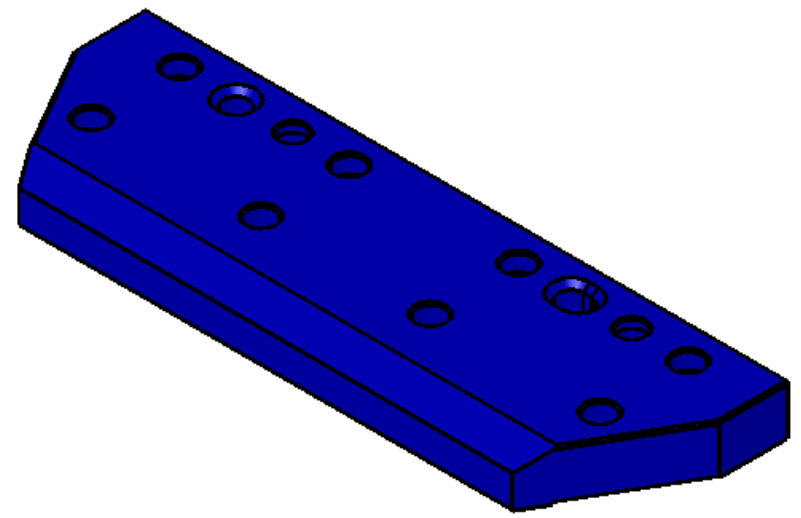
DETAIL D  
 SCALE 2:1  
 (VENT GROOVE)

$\phi .3757^{+.0008} \downarrow .0000$  THRU ALL  
 $\phi .56 \times 90^\circ$ , NEAR SIDE  
 $\phi .56 \times 90^\circ$ , FAR SIDE  
 $\phi .002$  (M) A B C

$\phi .3757^{+.0008} \downarrow .0000$  THRU SLOT  
 BREAK EDGE  $.09 \times 45^\circ$ , BOTH SIDES  
 $\phi .002$  (M) A B C



4X  $\phi .406$  THRU ALL  
 $\phi .46 \times 90^\circ$ , FAR SIDE  
 4X  $\phi .406$  THRU ALL  
 $\phi .688 \downarrow .50$   
 $\phi .75 \times 90^\circ$ , NEAR SIDE  
 $\phi .46 \times 90^\circ$ , FAR SIDE



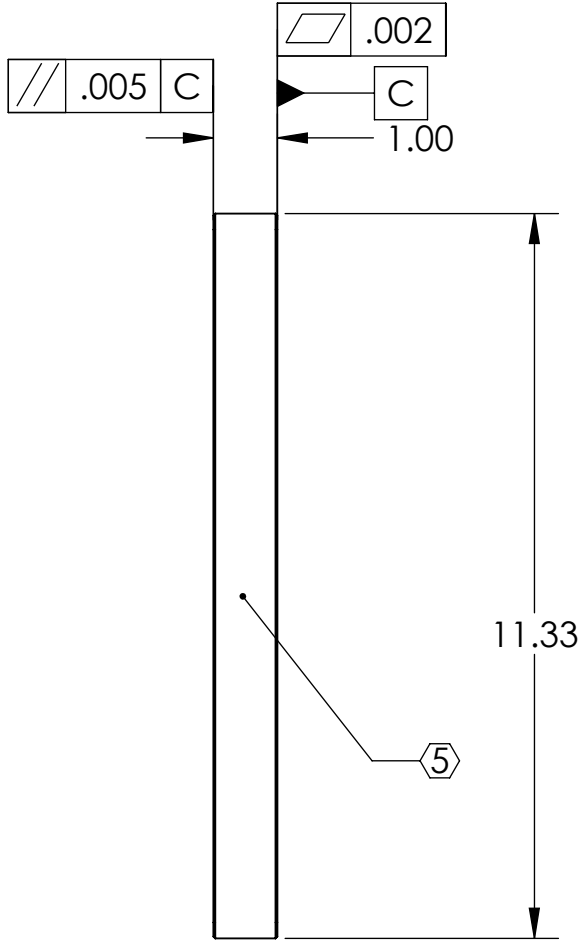
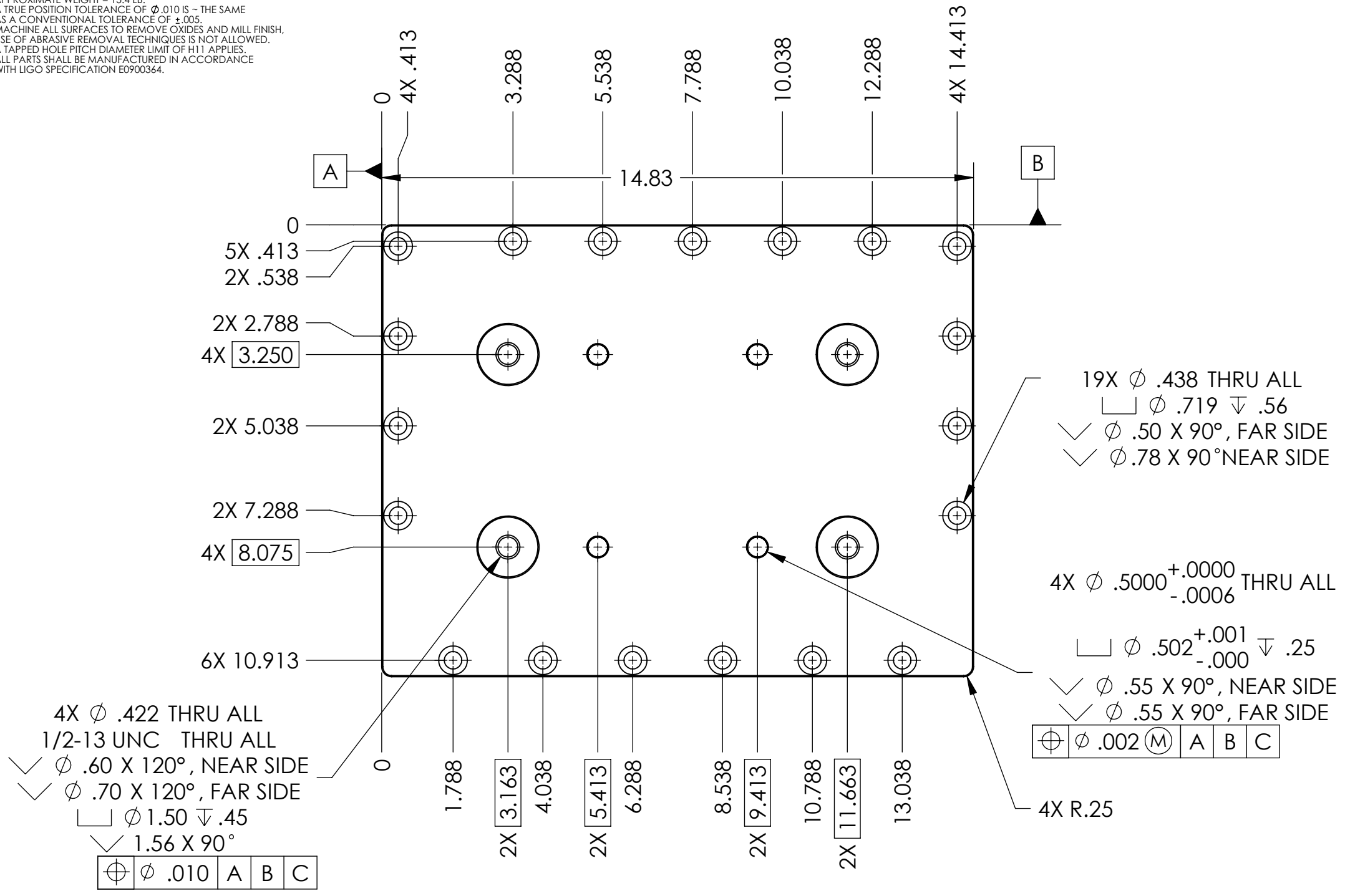
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Adapter, Small Hex Wall, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER	Andy Stein
ANGULAR $\pm 0.5^\circ$				NEXT ASSY		DRAFTER	M.HILLARD
MATERIAL 6061-T6 Al				D0901181		CHECKER	F.MATICHARD
FINISH 63 $\mu$ inch						APPROVAL	K.MASON
						DATE	30 JUL 2009
						SIZE	DWG. NO.
						B D0901531	
						REV.	v1
						SCALE:	1:2
						PROJECTION:	AS SHOWN
						SHEET 1 OF 1	

NOTES CONTINUED:

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
6. APPROXIMATE WEIGHT = 15.4 LB.
7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES.
10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

D0901532\_Outer\_Wall-Lower-BSC\_ISI, PART PDM REV: X-027, DRAWING PDM REV: X-007

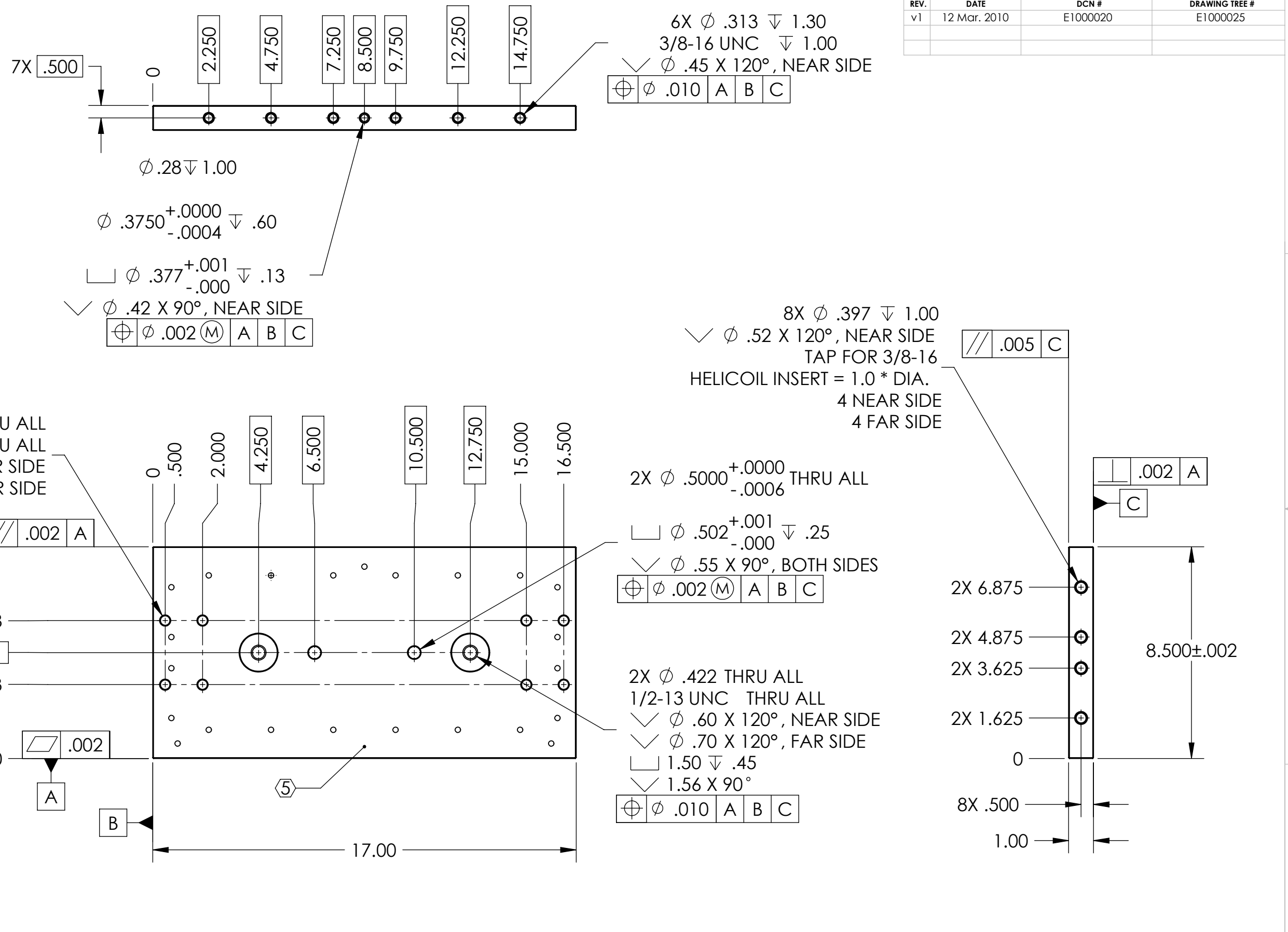


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$ ANGULAR $\pm 0.5^\circ$				<b>LIGO</b>		<b>Outer Wall, Lower, aLIGO BSC ISI</b>	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. BREAK ALL EDGES AND CORNERS .03 X 45°. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				<b>ADVANCED LIGO</b>		<b>SEI</b>	
MATERIAL: 6061-T6 Al				FINISH: 63 $\mu$ inch		NEXT ASSY: D1000052	
DESIGNER: A.STEIN 14 Jan. 2010		SIZE DWG. NO. B		DRAFTER: M.HILLARD 14 Jan. 2010		REV. v1	
CHECKER: F.MATICHARD 14 Jan. 2010		SCALE: 1:3		APPROVAL: K.MASON 14 Jan. 2010		PROJECTION:	
SHEET 1 OF 1				SHEET 1 OF 1			

D0901533\_Outer\_Wall-Upper-BSC\_ISI, PART PDM REV: X-036, DRAWING PDM REV: X-008

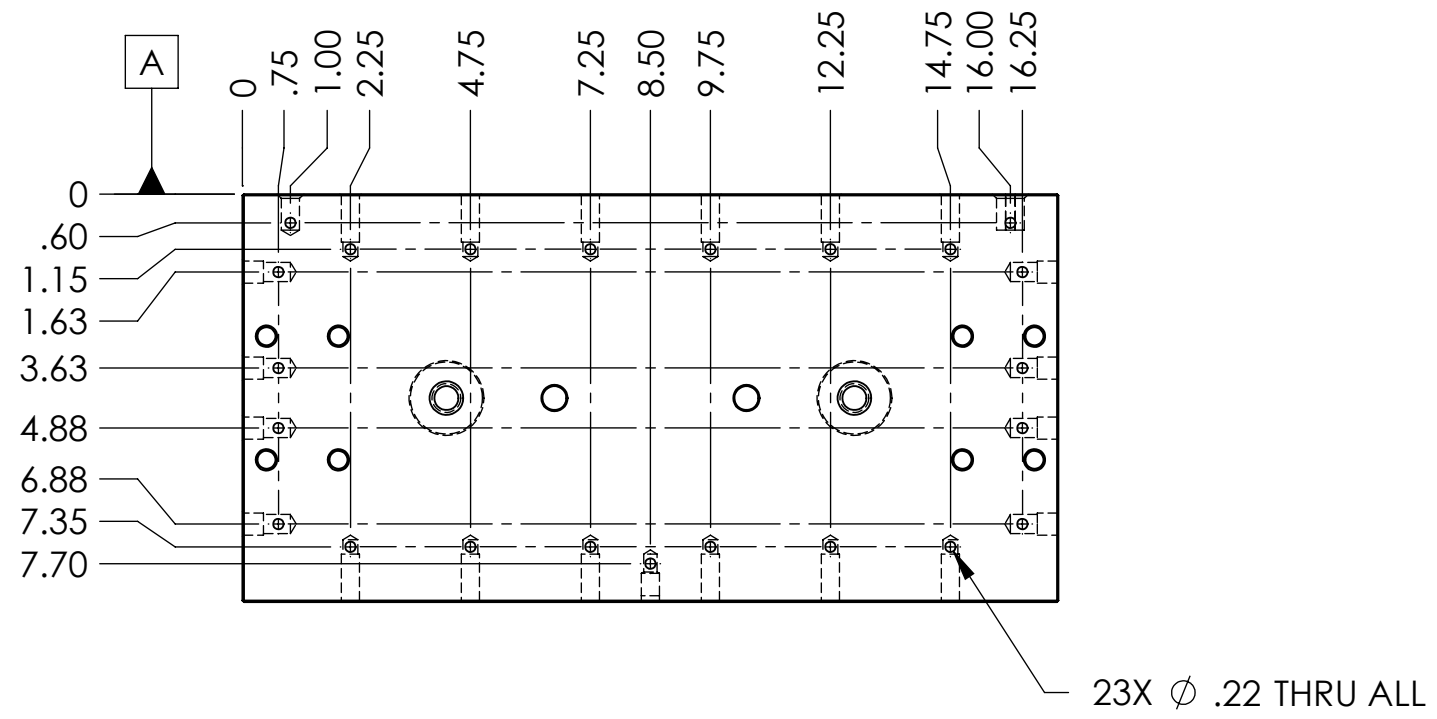
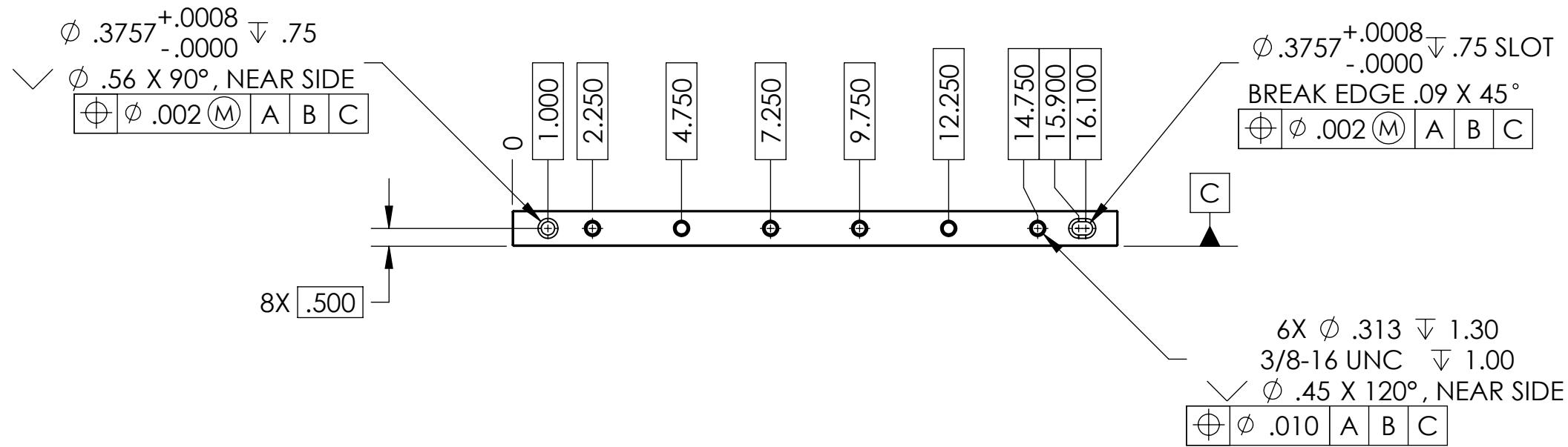
**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001.  
 6. APPROXIMATE WEIGHT = 13.4 LB.  
 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS ~ THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .  
 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS.  
 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 11. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Outer Wall, Upper, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER	A.STEIN 14 Jan. 2010
ANGULAR $\pm 0.5^\circ$				MATERIAL 6061-T6 Al		DRAFTER	M.HILLARD 14 Jan. 2010
				FINISH 63 $\mu$ inch		CHECKER	F.MATICHARD 14 Jan. 2010
				NEXT ASSY D1000053		APPROVAL	K.MASON 11 Jan. 2010
						SIZE DWG. NO.	B D0901533
						REV.	v1
						SCALE: 1:4	PROJECTION:
						SHEET 1 OF 2	

D0901533\_Outer\_Wall-Upper-BSC\_ISI, PART PDM REV: X-036, DRAWING PDM REV: X-008



**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

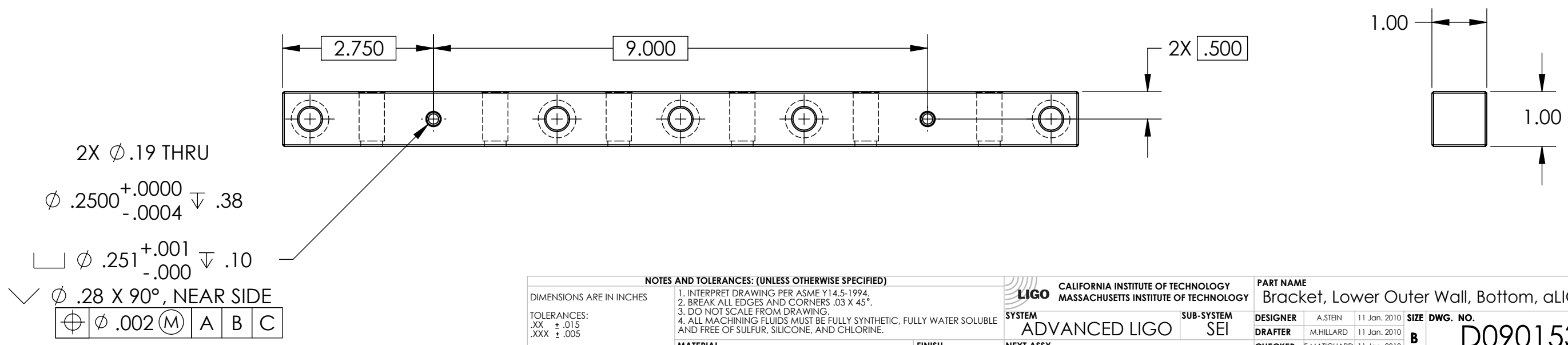
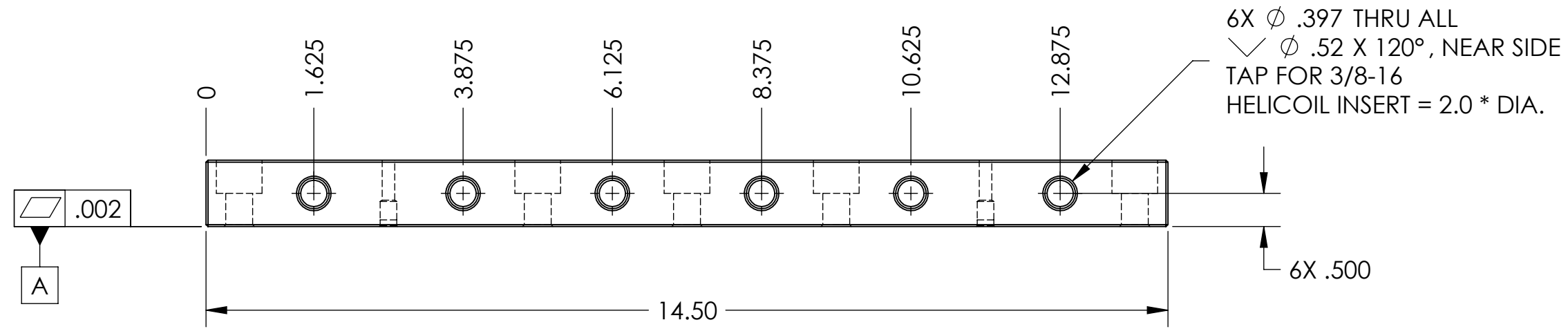
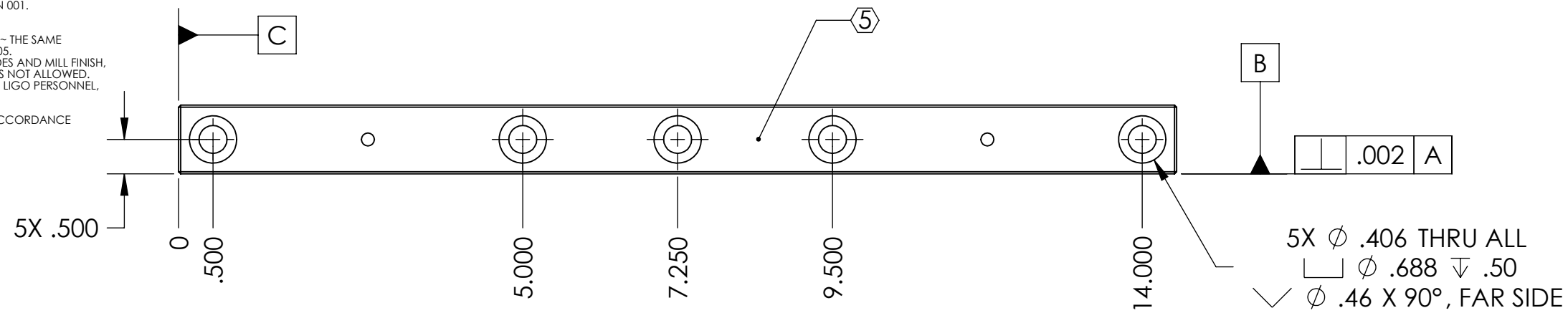
SIZE	DWG. NO.	REV.
B	D0901533	v1
SCALE: 1:4	PROJECTION:	SHEET 2 OF 2

D0901535\_Bracket-Lower\_Outer\_Wall-Bottom-BSC\_ISI, PART PDM REV: X-016, DRAWING PDM REV: X-010

8 7 6 5 4 3 2 1

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

- NOTES CONTINUED:**
- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  - 6. APPROXIMATE WEIGHT = 1.2 LB.
  - 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS ~ THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  - 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  - 9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS. USE ONLY NITRONIC 60 INSERTS.
  - 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Bracket, Lower Outer Wall, Bottom, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER	A.STEIN 11 Jan. 2010
ANGULAR $\pm 0.5^\circ$				D0901181		DRAFTER	M.HILLARD 11 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 $\mu$ inch		CHECKER	F.MATICHARD 11 Jan. 2010
1. INTERPRET DRAWING PER ASME Y14.5-1994.				NEXT ASSY		APPROVAL	K.MASON 11 Jan. 2010
2. BREAK ALL EDGES AND CORNERS .03 X 45°.				D0901181		SIZE	DWG. NO. B D0901535
3. DO NOT SCALE FROM DRAWING.						REV.	v1
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.						SCALE	1:2
						PROJECTION	
						SHEET 1 OF 1	

8 7 6 5 4 3 2 1

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

- NOTES CONTINUED:
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  6. APPROXIMATE WEIGHT = 0.9 LB.
  7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS ~ THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS. USE ONLY NITRONIC 60 INSERTS.
  10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

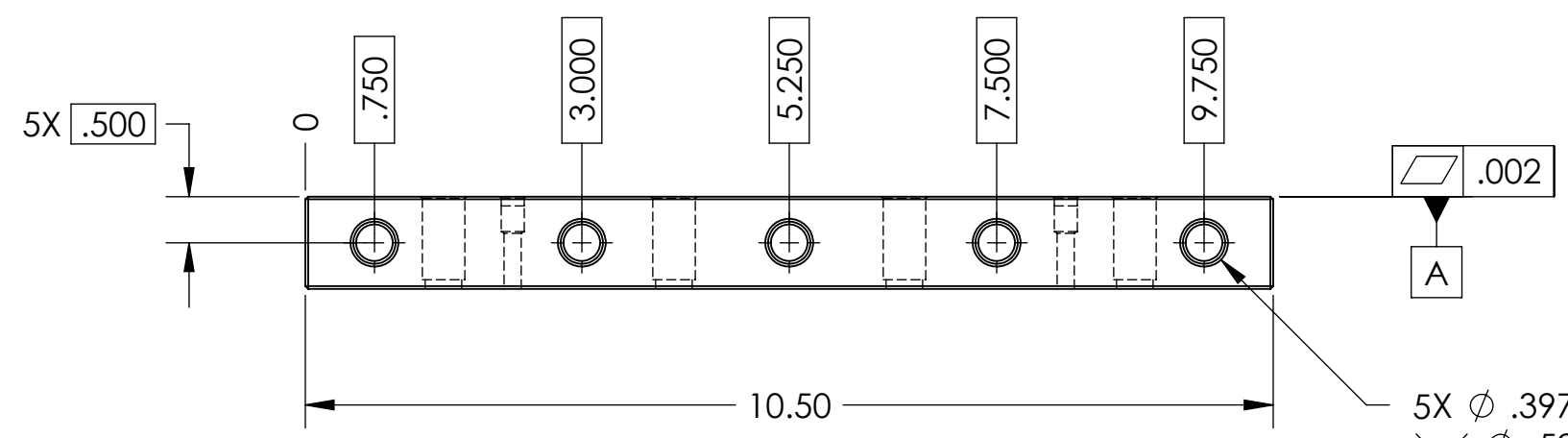
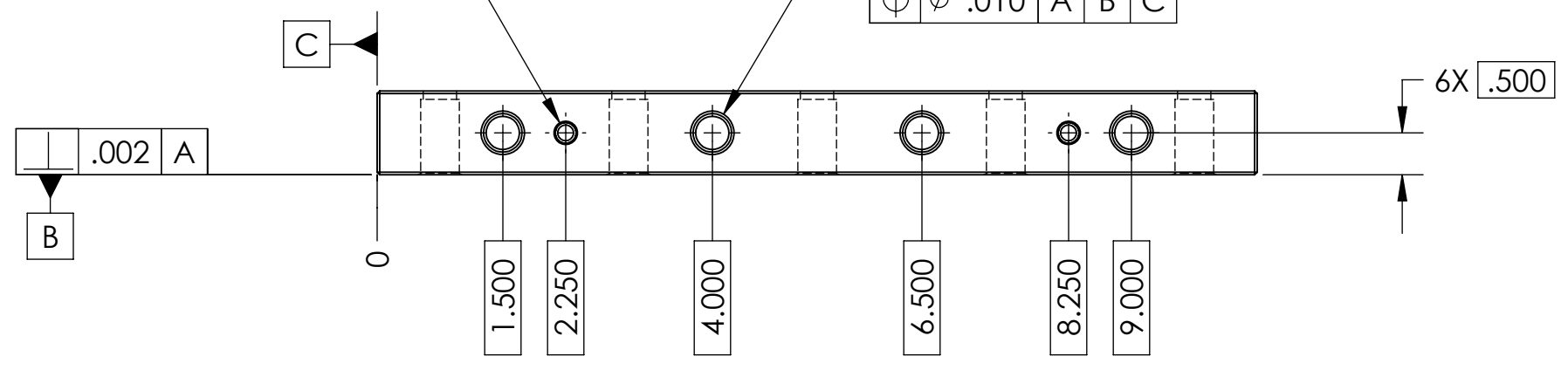
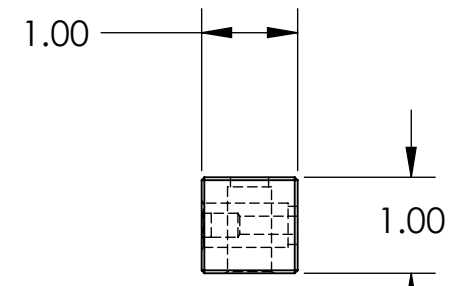
D  
C  
B  
A

D  
C  
B  
A

2X  $\phi .19$  THRU  
 $\phi .2500^{+.0000}_{-.0004}$   $\nabla .38$

$\nabla \phi .251^{+.001}_{-.000}$   $\nabla .10$   
 $\nabla \phi .28 \times 90^\circ$ , NEAR SIDE  
 $\phi .002$  (M) A B C

4X  $\phi .397$  THRU ALL  
 $\nabla \phi .52 \times 120^\circ$ , NEAR SIDE  
 TAP FOR 3/8-16  
 HELICOIL INSERT = 2.0 \* DIA.  
 $\phi .010$  A B C



5X  $\phi .397$  THRU ALL  
 $\nabla \phi .52 \times 120^\circ$ , NEAR SIDE  
 TAP FOR 3/8-16  
 HELICOIL INSERT = 2.0 \* DIA.  
 $\phi .010$  B A C

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

1. INTERPRET DRAWING PER ASME Y14.5-1994.  
 2. BREAK ALL EDGES AND CORNERS  $.03 \times 45^\circ$ .  
 3. DO NOT SCALE FROM DRAWING.  
 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

DIMENSIONS ARE IN INCHES

TOLERANCES:  
 .XX  $\pm .015$   
 .XXX  $\pm .005$   
 ANGULAR  $\pm 0.5^\circ$

MATERIAL	6061-T6 Al	FINISH	63 $\mu$ inch
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CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
ADVANCED LIGO		Bracket, Lower Outer Wall, Top, aLIGO BSC ISI	
DESIGNER	A.STEIN	11 Jan. 2010	SIZE DWG. NO.
DRAFTER	M.HILLARD	11 Jan. 2010	<b>B</b>
CHECKER	F.MATICHARD	11 Jan. 2010	<b>D0901536</b>
APPROVAL	K.MASON	11 Jan. 2010	REV. <b>v1</b>
NEXT ASSY		D0901181	
SCALE: 1:2		PROJECTION:	
SHEET 1 OF 1			

D0901536\_Bracket-Lower\_Outer\_Wall-Top-BSC\_ISI, PART PDM REV: X-013, DRAWING PDM REV: X-008

D0901537\_Bracket-Lower\_Outer\_Wall-Side-BSC\_ISI, PART PDM REV: X-014, DRAWING PDM REV: X-006

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**

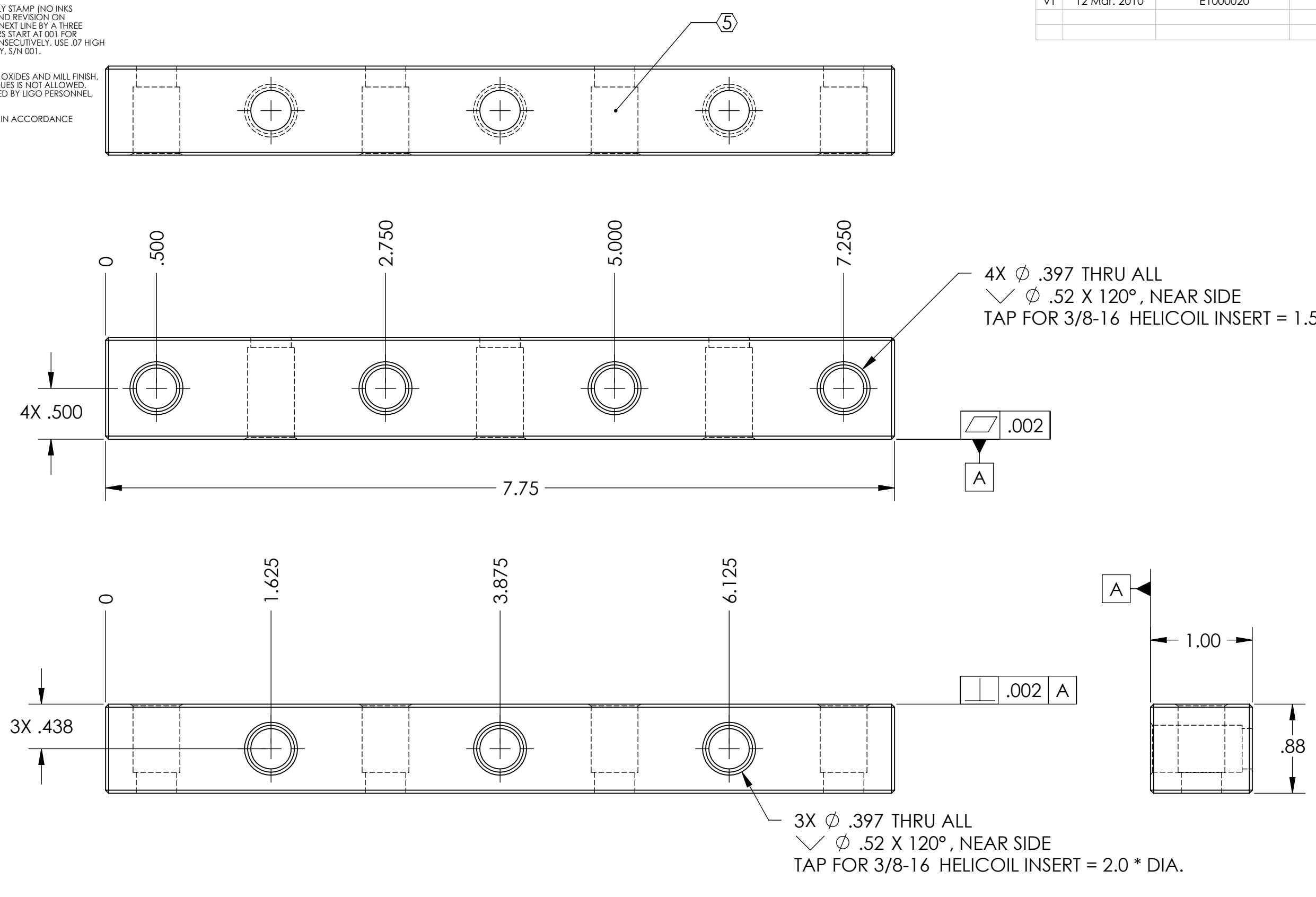
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.

6. APPROXIMATE WEIGHT = 0.6 LB.

7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

8. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL, AFTER DELIVERY OF FINISHED PARTS. USE ONLY NITRONIC 60 HELICOILS.

9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



4X  $\phi$  .397 THRU ALL  
 $\checkmark$   $\phi$  .52 X 120°, NEAR SIDE  
 TAP FOR 3/8-16 HELICOIL INSERT = 1.5 \* DIA.

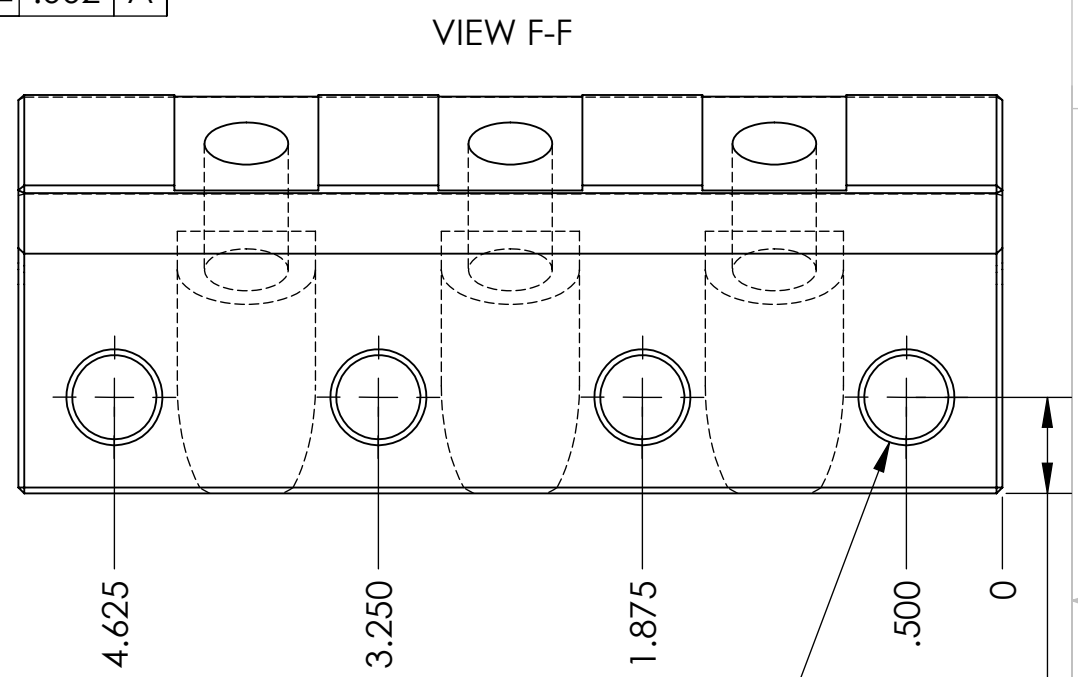
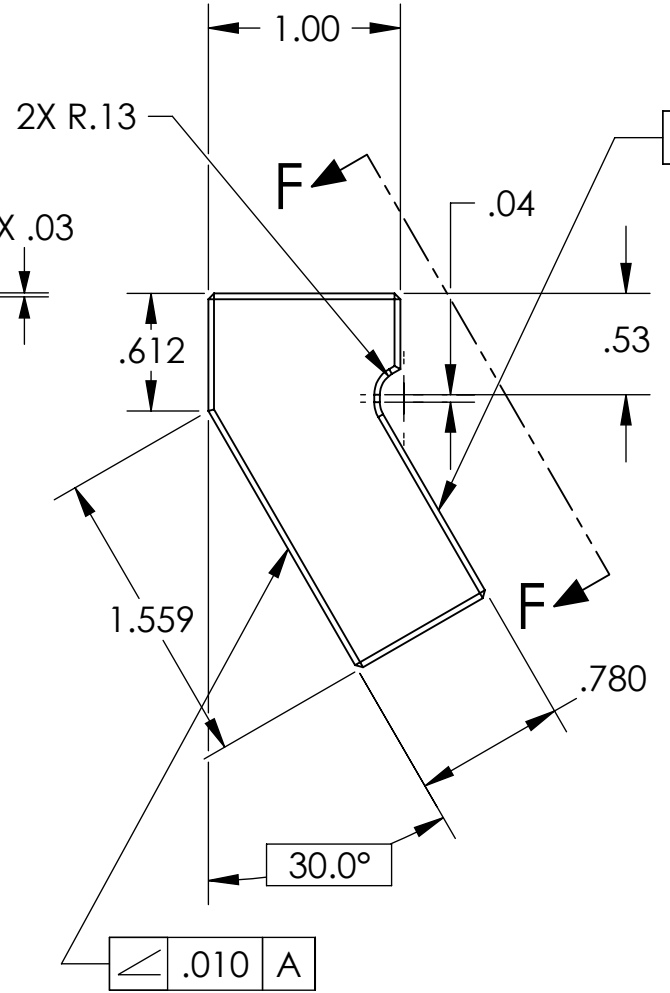
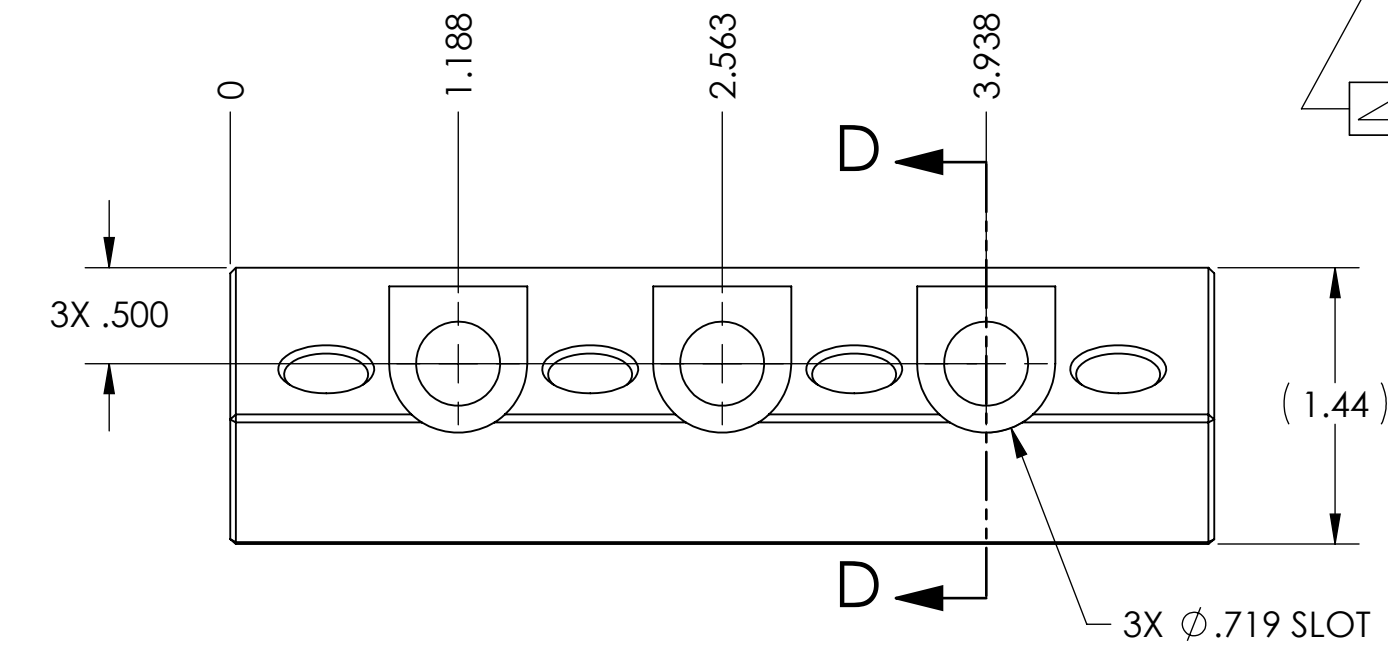
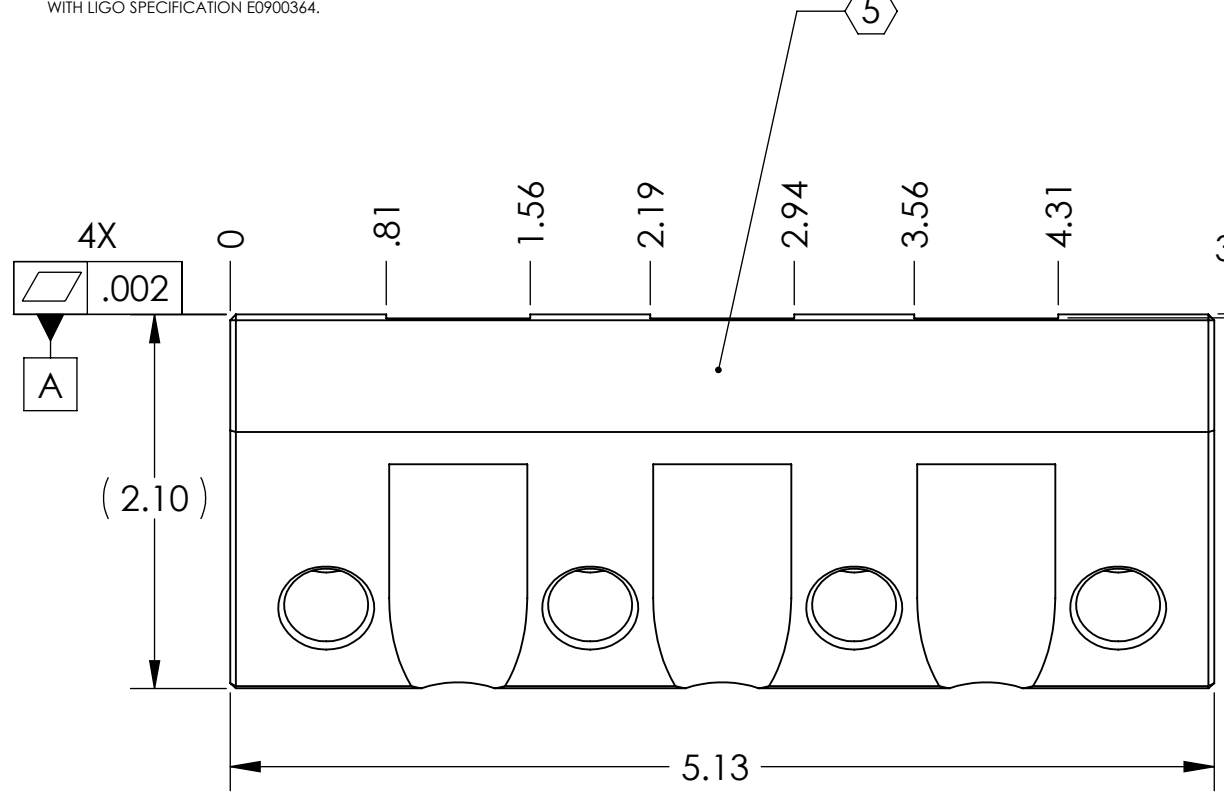
3X  $\phi$  .397 THRU ALL  
 $\checkmark$   $\phi$  .52 X 120°, NEAR SIDE  
 TAP FOR 3/8-16 HELICOIL INSERT = 2.0 \* DIA.

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Bracket, Lower Outer Wall, Side, aLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				SEI		DESIGNER	A.STEIN 11 Jan. 2010
ANGULAR ± 0.5°				NEXT ASSY D0901181		DRAFTER	M.HILLARD 11 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 $\mu$ inch		CHECKER	F.MATICHARD 11 Jan. 2010
1. INTERPRET DRAWING PER ASME Y14.5-1994.				2. BREAK ALL EDGES AND CORNERS .03 X 45°.		APPROVAL	K.MASON 11 Jan. 2010
3. DO NOT SCALE FROM DRAWING.				4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SIZE DWG. NO.	B D0901537
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.				6. APPROXIMATE WEIGHT = 0.6 LB.		REV.	v1
7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.				8. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL, AFTER DELIVERY OF FINISHED PARTS. USE ONLY NITRONIC 60 HELICOILS.		SCALE:	1:1
9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.				PROJECTION:		SHEET 1 OF 1	

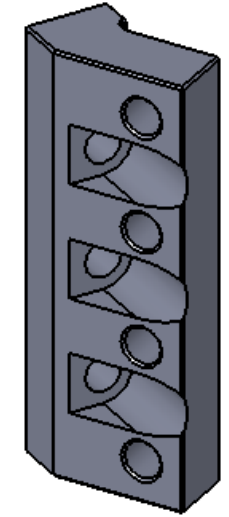
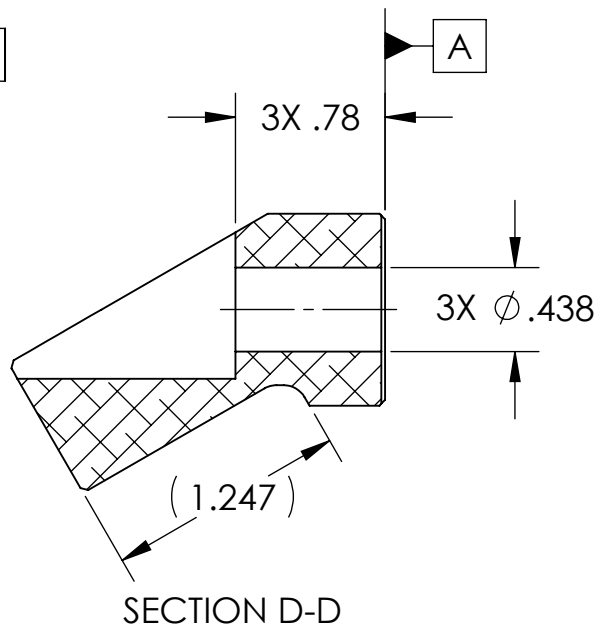
D0901538\_Bracket-Hex\_Wall-BSC\_ISI, PART PDM REV: X-014, DRAWING PDM REV: X-006

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 0.6 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



4X Ø .438 THRU  
 ✓ Ø .50 X 90°, NEAR SIDE  
 ✓ Ø .50 X 90°, FAR SIDE



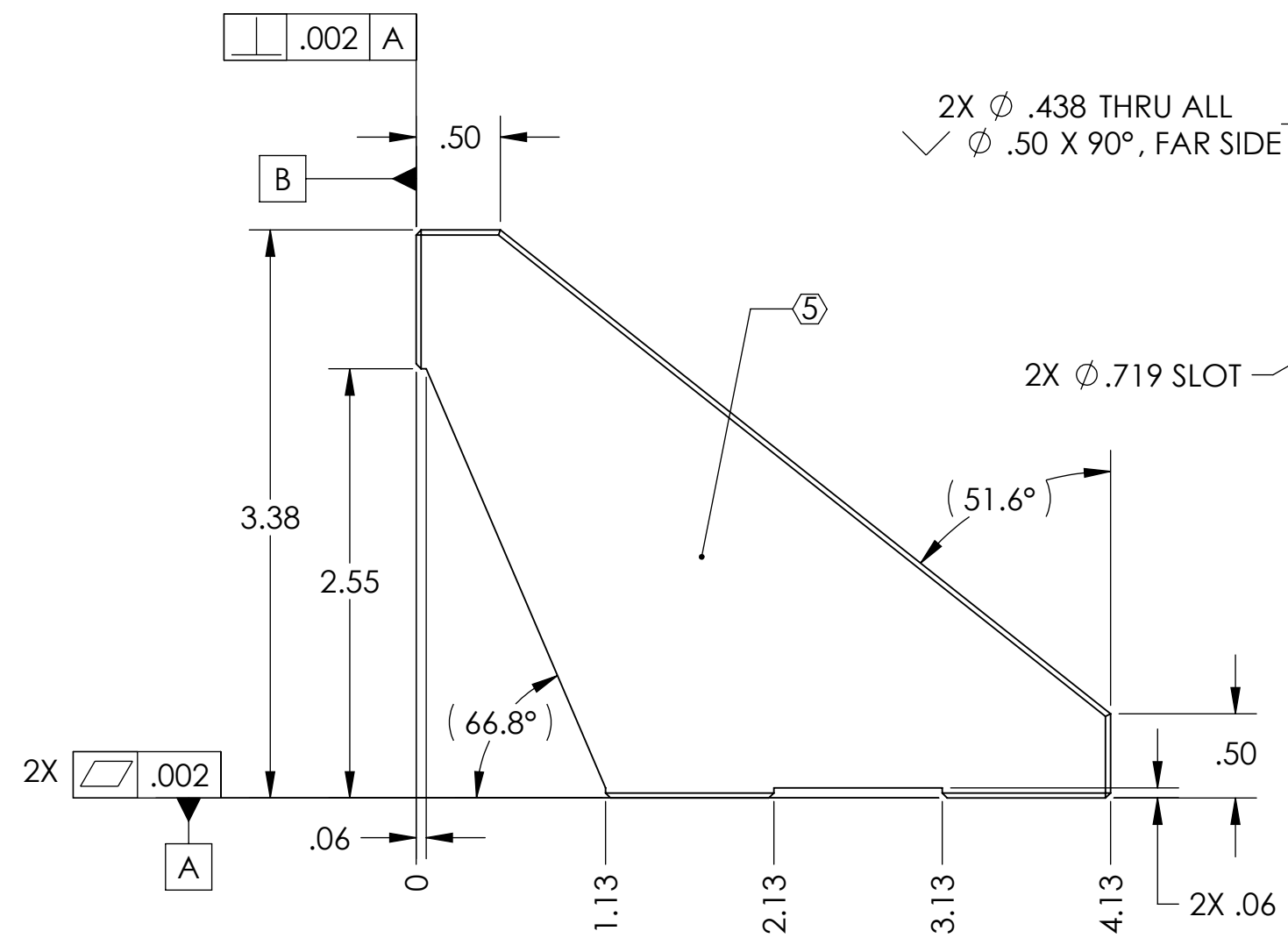
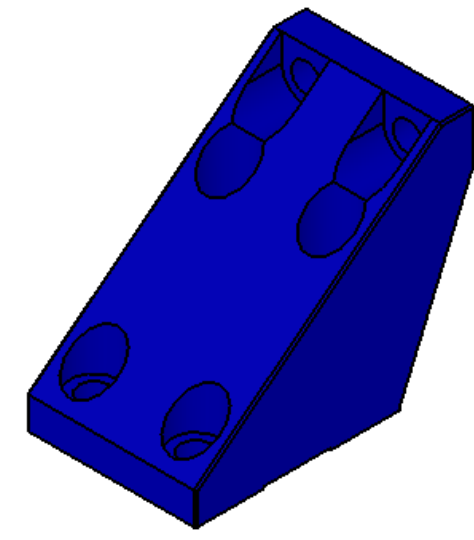
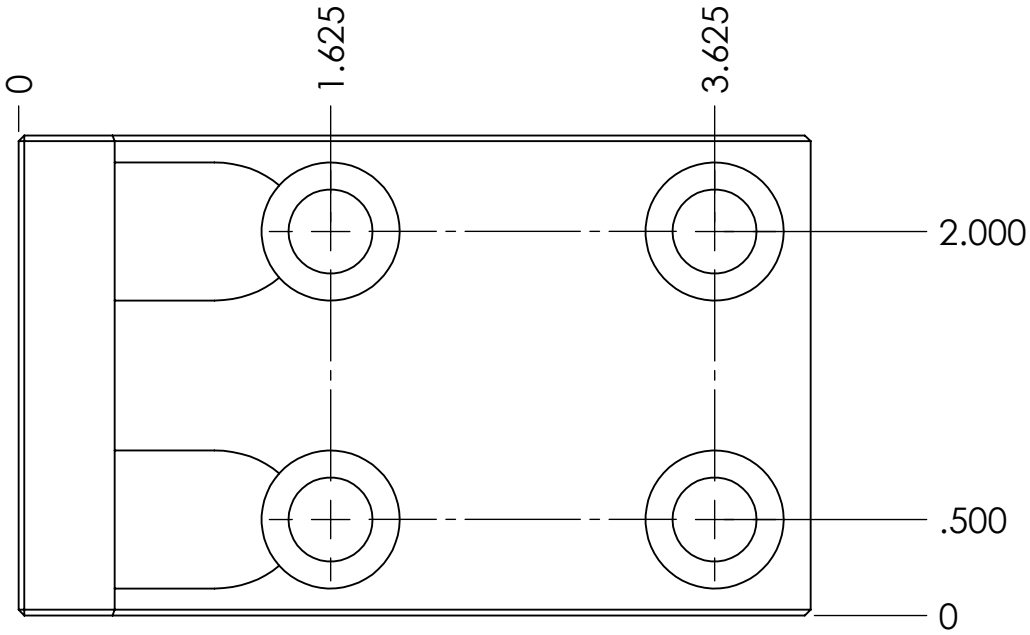
DIMENSIONS ARE IN INCHES		TOLERANCES:		ANGULAR ± 0.5°		MATERIAL		FINISH		NEXT ASSY		PART NAME		DESIGNER		DRAFTER		CHECKER		APPROVAL	
.XX ± .015		.XXX ± .005				6061-T6 Al		63 µinch		D0901181		Bracket, Hex Wall, aLIGO BSC ISI		A.STEIN 11 Jan. 2010		M.HILLARD 11 Jan. 2010		F.MATICHARD 11 Jan. 2010		K.MASON 11 Jan. 2010	
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)		1. INTERPRET DRAWING PER ASME Y14.5-1994.		2. BREAK ALL EDGES AND CORNERS .03 X 45°.		3. DO NOT SCALE FROM DRAWING.		4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM ADVANCED LIGO		SUB-SYSTEM SEI		SIZE DWG. NO. B		D0901538		REV. v1		SCALE: 1:1	



D0901539\_Gusset-BSC\_ISI, PART PDM REV: X-013, DRAWING PDM REV: X-007

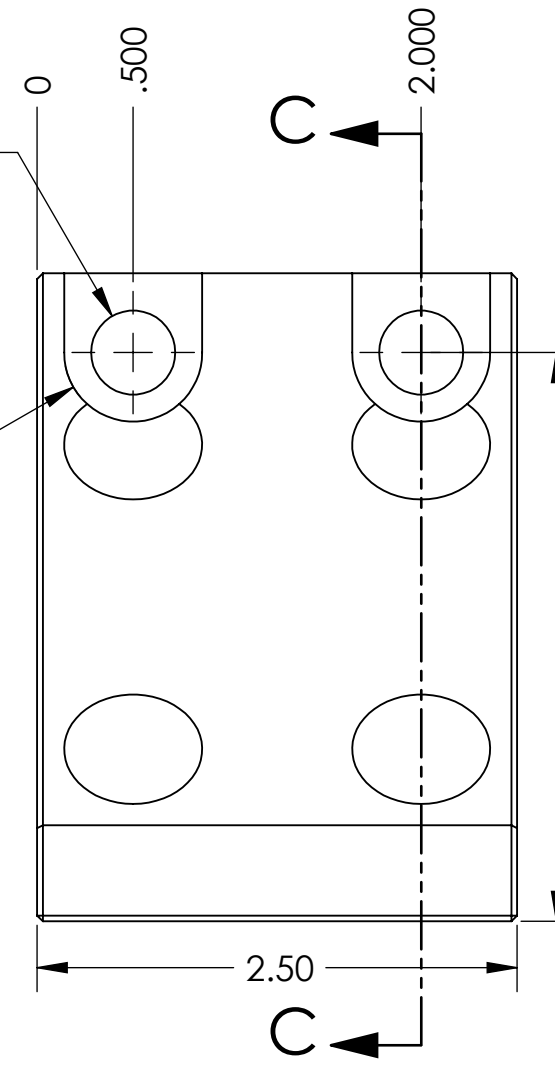
**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 1.5 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH, USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

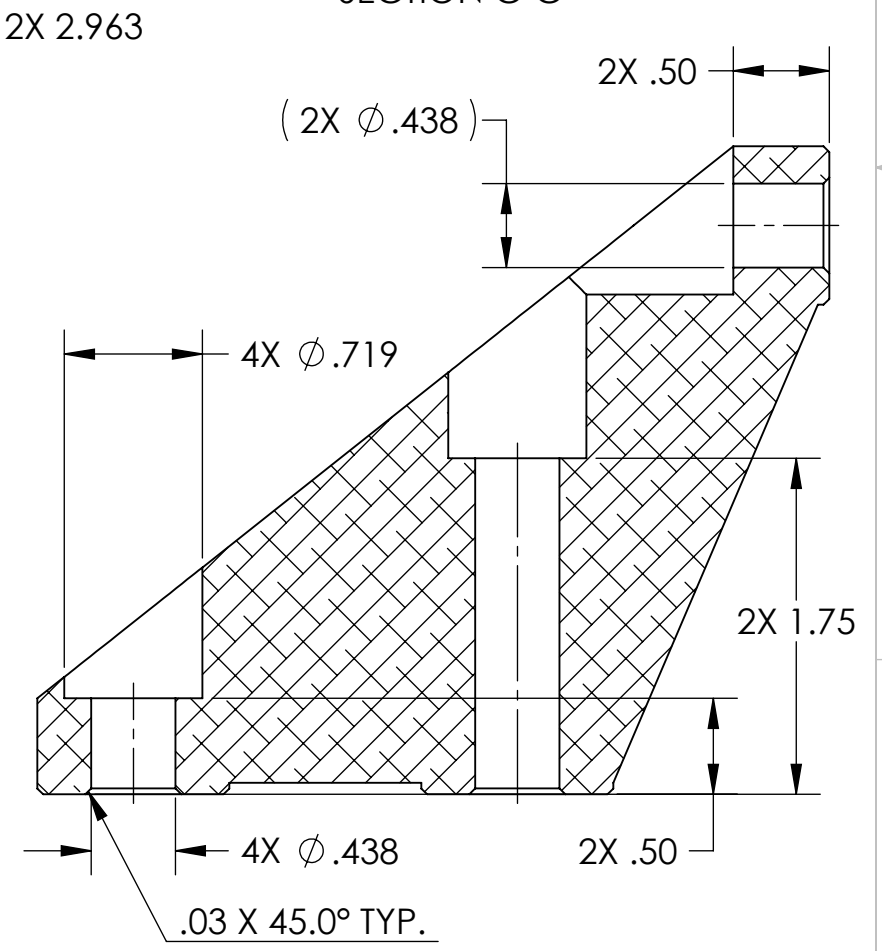


2X  $\phi$  .438 THRU ALL  
 $\checkmark$   $\phi$  .50 X 90°, FAR SIDE

2X  $\phi$  .719 SLOT



SECTION C-C



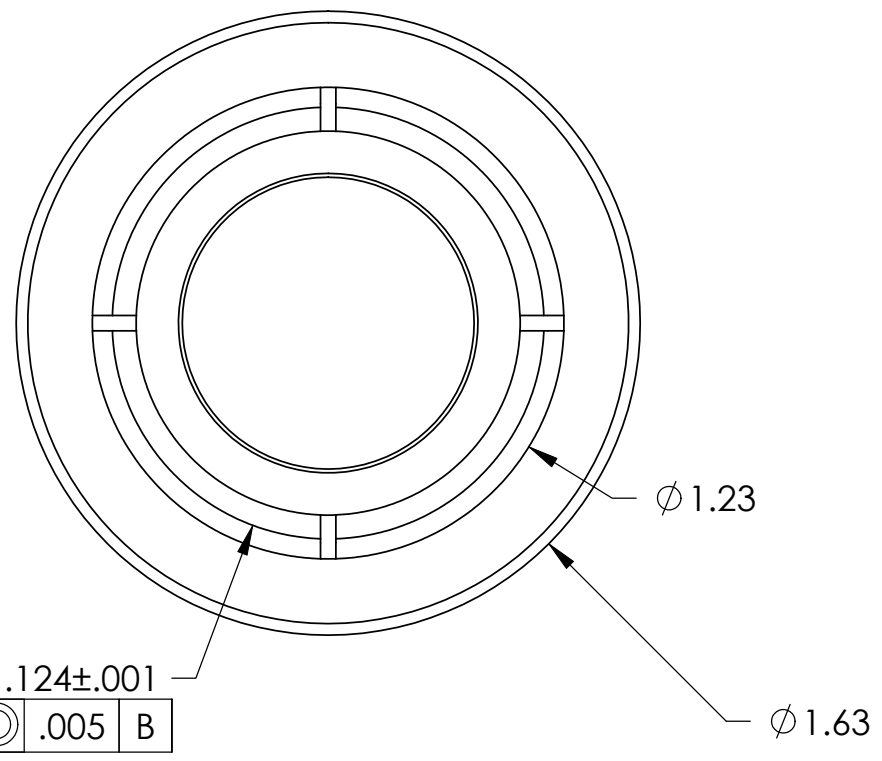
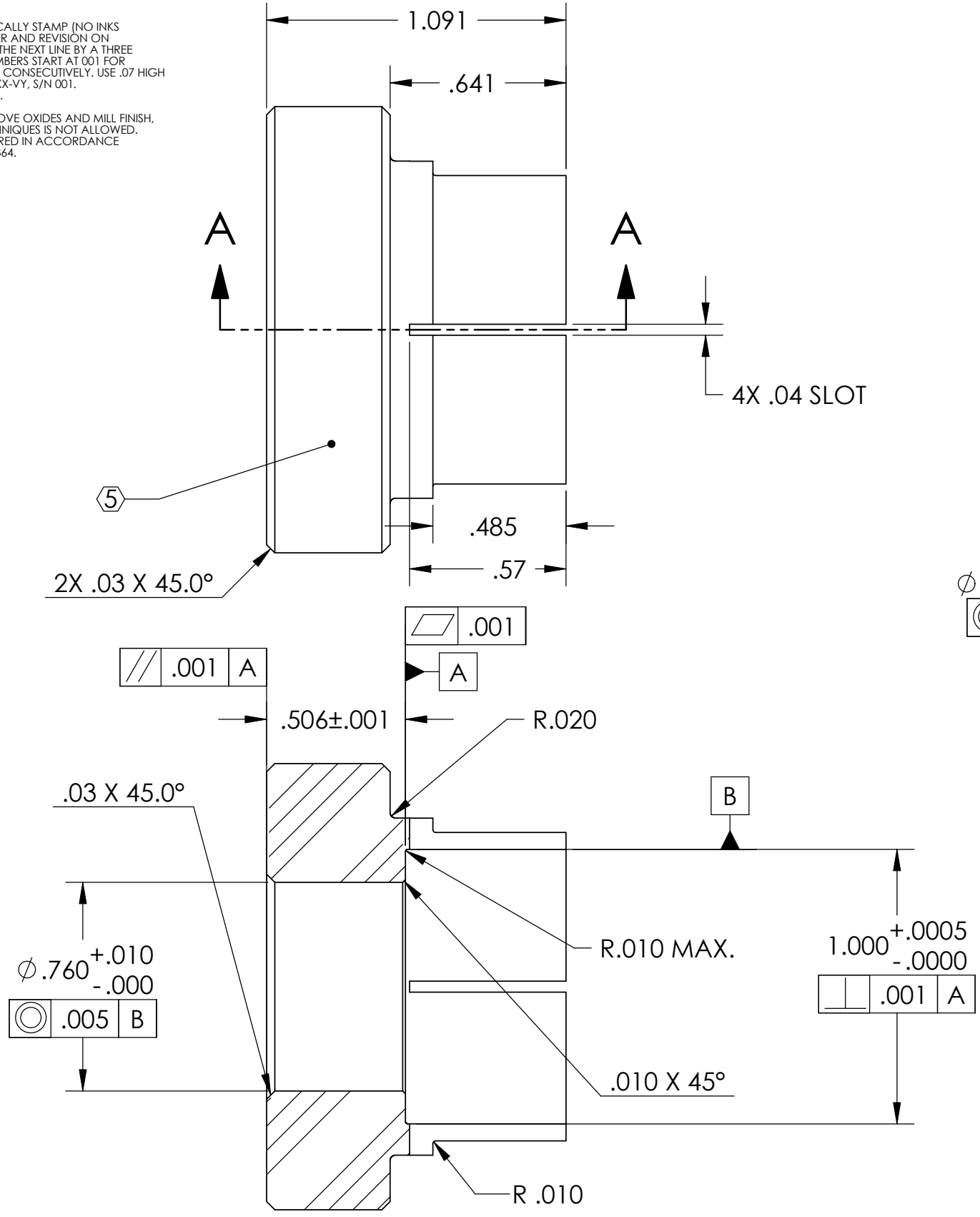
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Gusset, Outer Wall, aLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				SUB-SYSTEM SEI		DESIGNER	A.STEIN 11 Jan. 2010
ANGULAR ± 0.5°				NEXT ASSY D0901181		DRAFTER	M.HILLARD 11 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 $\mu$ inch		CHECKER	F.MATICHARD 11 Jan. 2010
						APPROVAL	K.MASON 11 Jan. 2010
						SIZE DWG. NO.	B D0901539
						REV.	v1
						SCALE: 1:1	PROJECTION:  SHEET 1 OF 1



D0901743 Bracket Flexure Shim, Stage 1-2, aLIGO BSC ISI, PART PDM REV: X-007, DRAWING PDM REV: X-003

REV.	DATE	DCN #	DRAWING TREE #
v1	01 Mar. 2010	E1000026	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 0.25 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



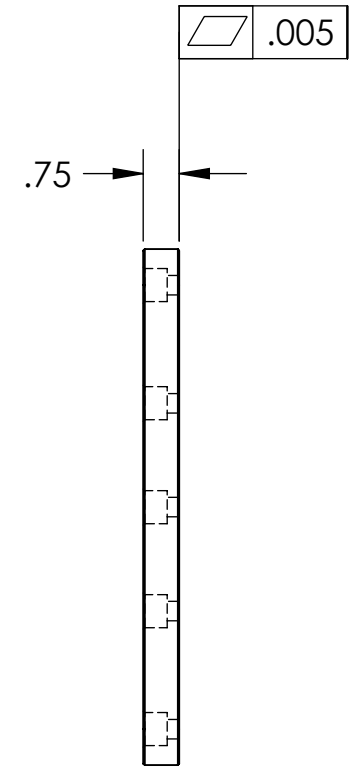
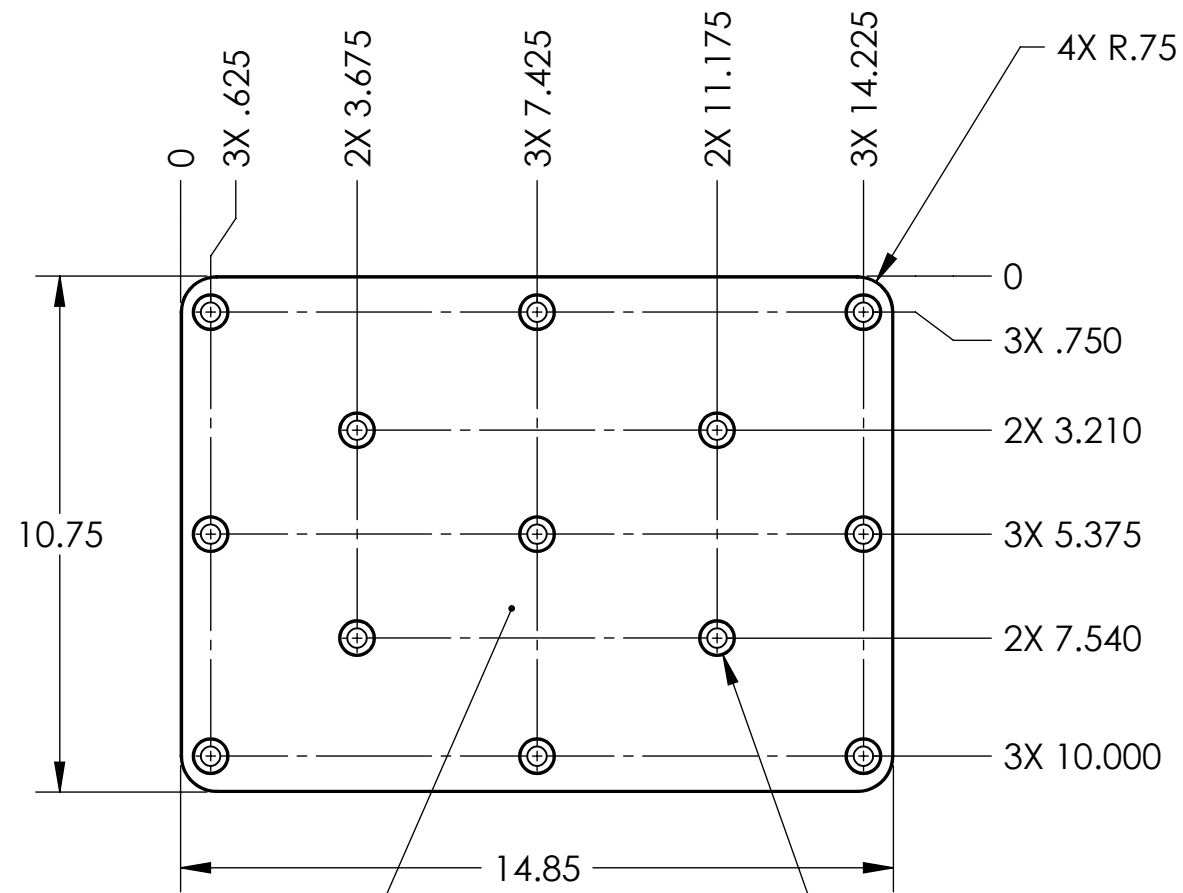
SECTION A-A

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		BRACKET FLEXURE SHIM, STAGE 1-2, aLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				SUB-SYSTEM SEI		DESIGNER C.RAMET 01 Feb. 2010	SIZE DWG. NO. B D0901743
ANGULAR ± .5°				MATERIAL 17-4 PH SSSL, H 1150		DRAFTER M.HILLARD 01 Feb. 2010	REV. v1
FINISH 32 μinch				NEXT ASSY D0902104		CHECKER F.MATICHARD 01 Feb. 2010	SCALE: 2:1
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				APPROVAL K.MASON 01 Feb. 2010		PROJECTION:  SHEET 1 OF 1	

D0901842\_Cover\_1-BSC\_Optical\_Table, PART PDM REV: X-008, DRAWING PDM REV: X-007

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

- NOTES CONTINUED:
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  6. APPROXIMATE WEIGHT = 11.4 LB.
  7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



- 13X  $\phi$  .406 THRU ALL  
 $\square$   $\phi$  .688  $\nabla$  .50  
 $\checkmark$   $\phi$  .75 X 90°, NEAR SIDE  
 $\checkmark$   $\phi$  .46 X 90°, FAR SIDE

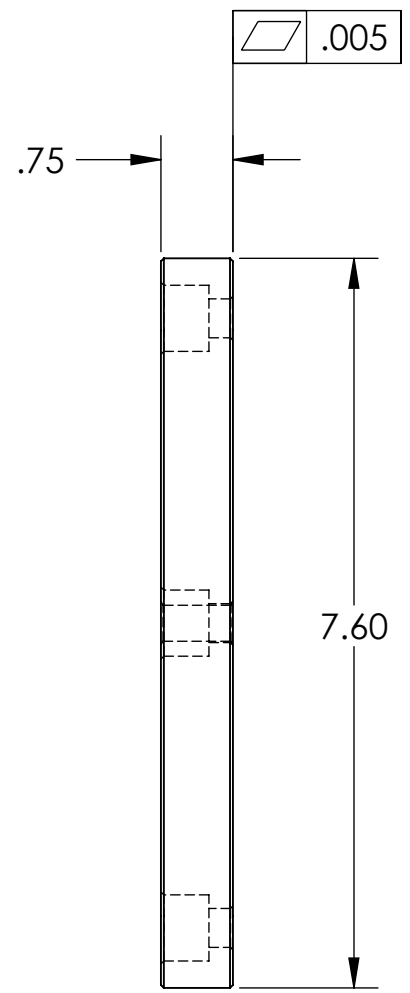
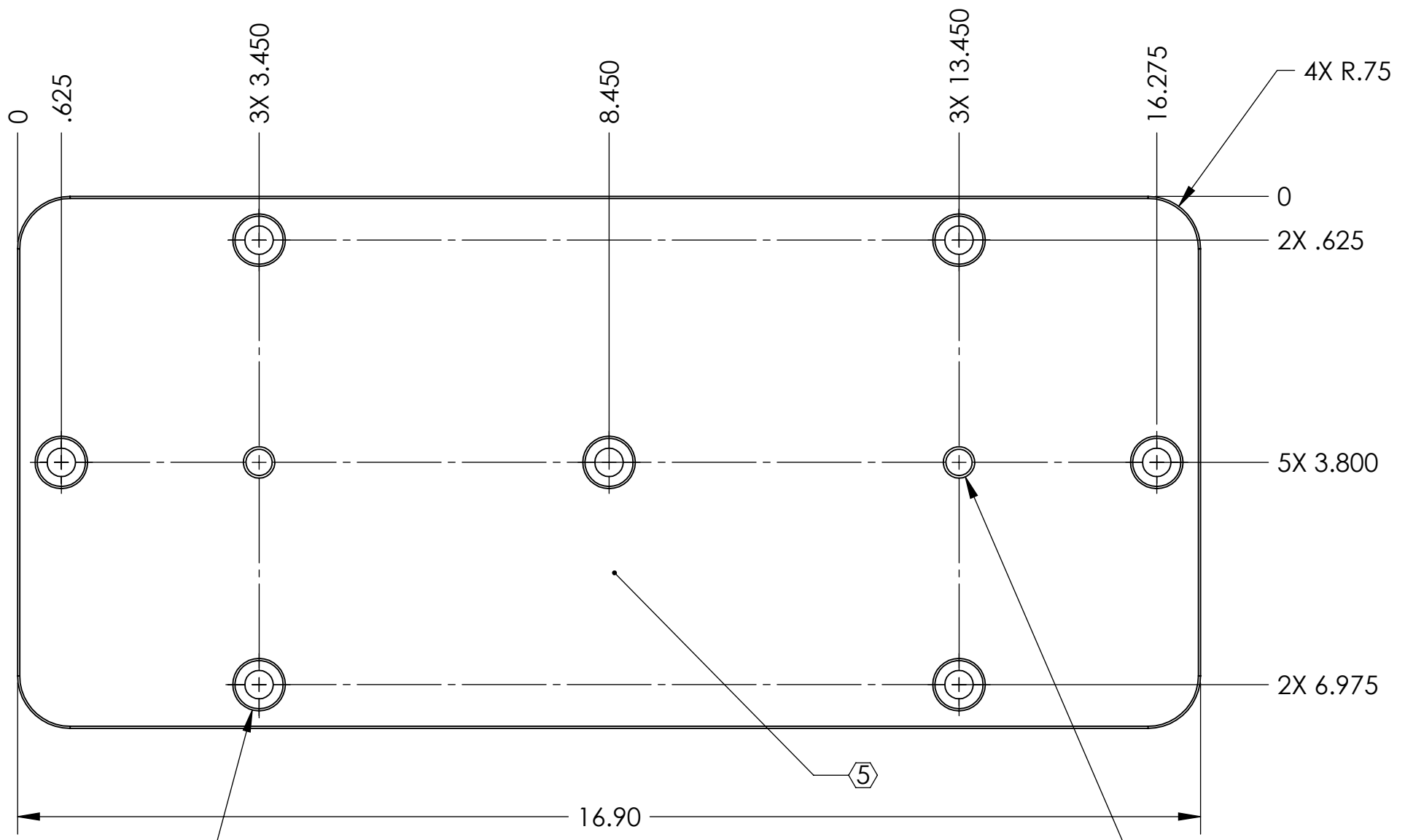
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. BREAK ALL EDGES AND CORNERS .03 X 45°. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM <b>ADVANCED LIGO</b>		SUB-SYSTEM <b>SEI</b>	
TOLERANCES: .XX ± .015 .XXX ± .005		MATERIAL <b>6061-T6 Al</b>		FINISH <b>63 <math>\mu</math>inch</b>		NEXT ASSY <b>D0901181</b>	
ANGULAR ± 0.5°				DESIGNER A.STEIN 11 Jan. 2010		SIZE DWG. NO. <b>B D0901842</b>	
				DRAFTER M.HILLARD 11 Jan. 2010		REV. <b>v1</b>	
				CHECKER F.MATICHARD 11 Jan. 2010		SCALE: 1:4	
				APPROVAL K.MASON 11 Jan. 2010		PROJECTION:  SHEET 1 OF 1	

COVER 1, OPTICAL TABLE, aLIGO BSC ISI

8 7 6 5 4 3 2 1

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 9.2 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES.



7X Ø .406 THRU ALL  
 □ Ø .688 ± .50  
 ✓ Ø .75 X 90°, NEAR SIDE  
 ✓ Ø .46 X 90°, FAR SIDE

2X Ø .313 THRU ALL  
 3/8-16 UNC THRU ALL  
 ✓ Ø .45 X 120°, NEAR SIDE  
 ✓ Ø .45 X 120°, FAR SIDE

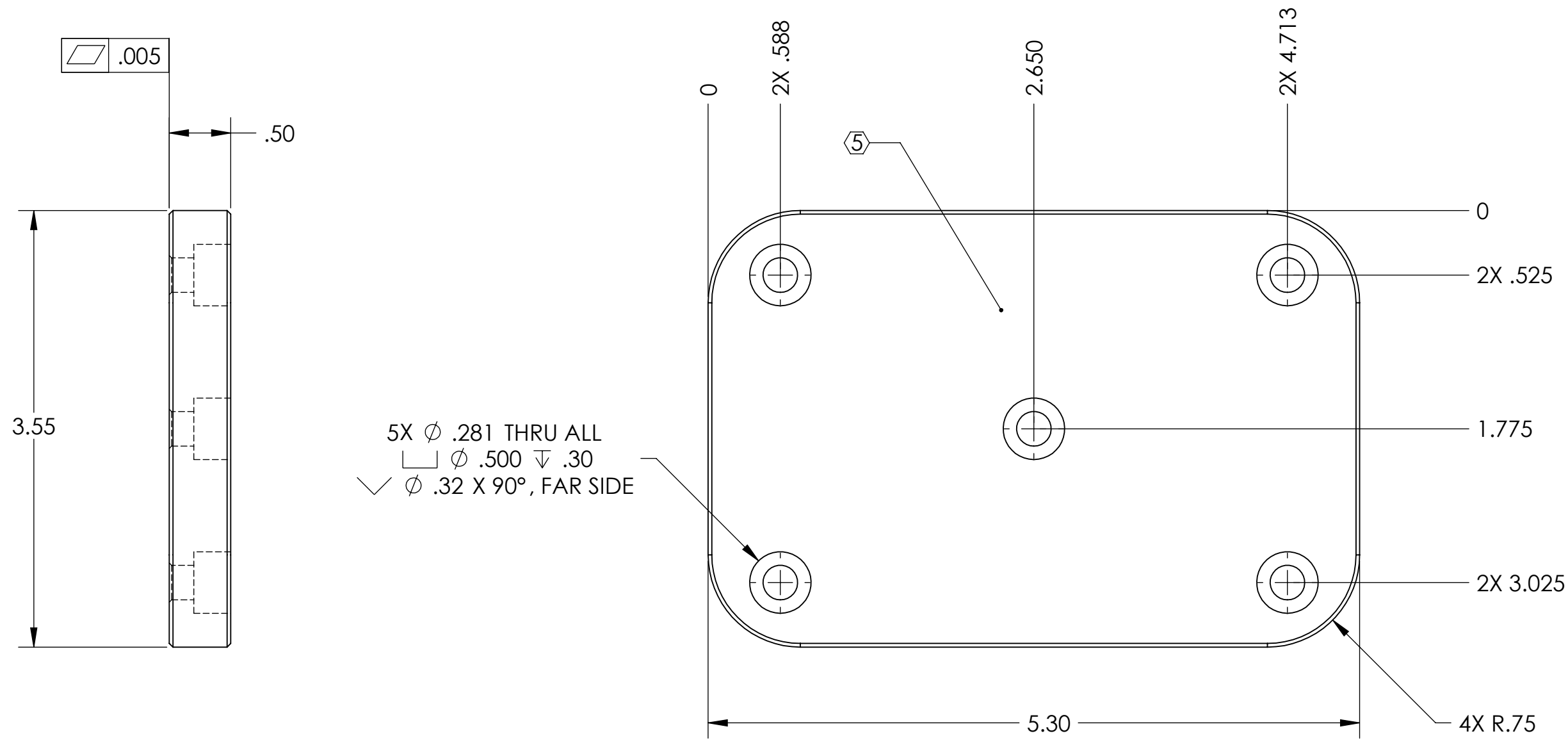
D0901843\_Cover\_2-BSC\_Optical\_Table, PART PDM REV: X-007, DRAWING PDM REV: X-008

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				1. INTERPRET DRAWING PER ASME Y14.5-1994.		2. BREAK ALL EDGES AND CORNERS .03 X 45°.		3. DO NOT SCALE FROM DRAWING.	
TOLERANCES: .XX ± .015 .XXX ± .005				4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM ADVANCED LIGO		SUB-SYSTEM SEI	
ANGULAR ± 0.5°				MATERIAL 6061-T6 Al		FINISH 63 µinch		NEXT ASSY D0901181	
				DESIGNER A.STEIN		11 Jan. 2010		SIZE DWG. NO. B D0901843	
				DRAFTER M.HILLARD		11 Jan. 2010		REV. v1	
				CHECKER F.MATICHARD		11 Jan. 2010		SCALE: 1:2	
				APPROVAL K.MASON		11 Jan. 2010		PROJECTION:	
								SHEET 1 OF 1	

8 7 6 5 4 3 2 1

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 0.9 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

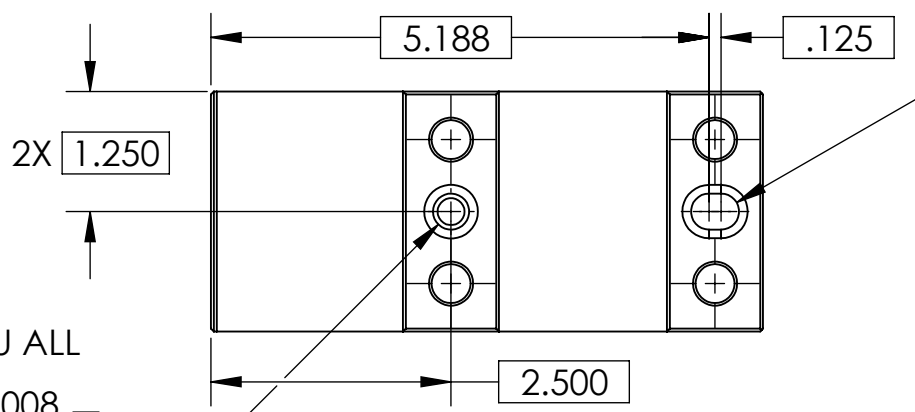
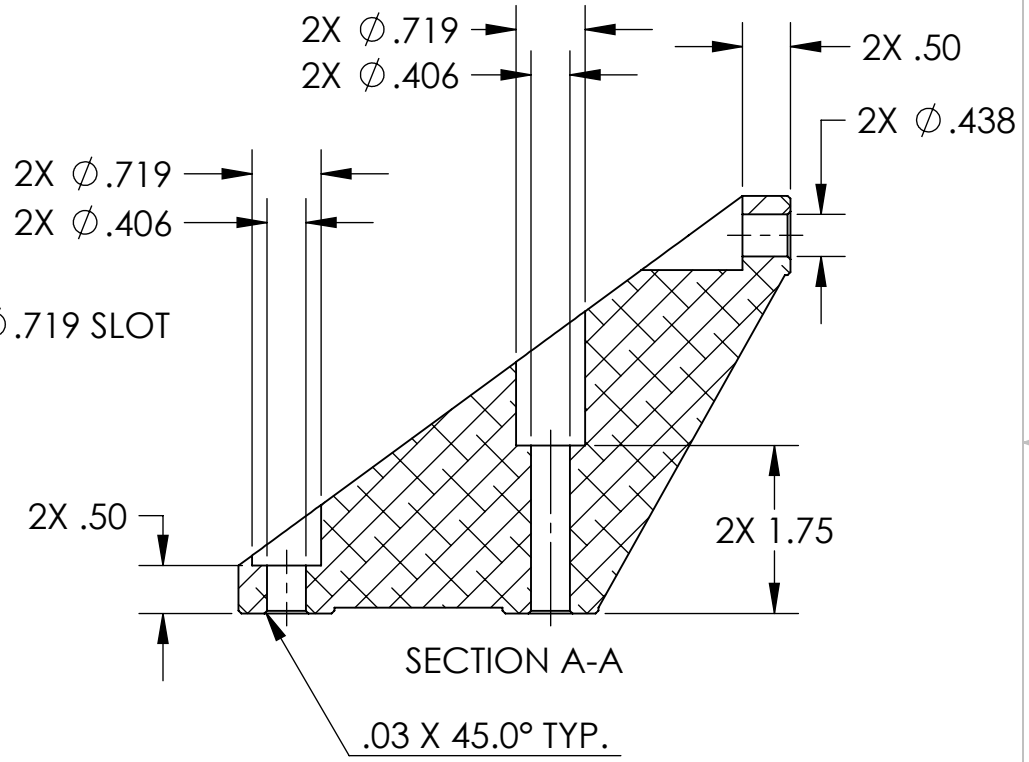
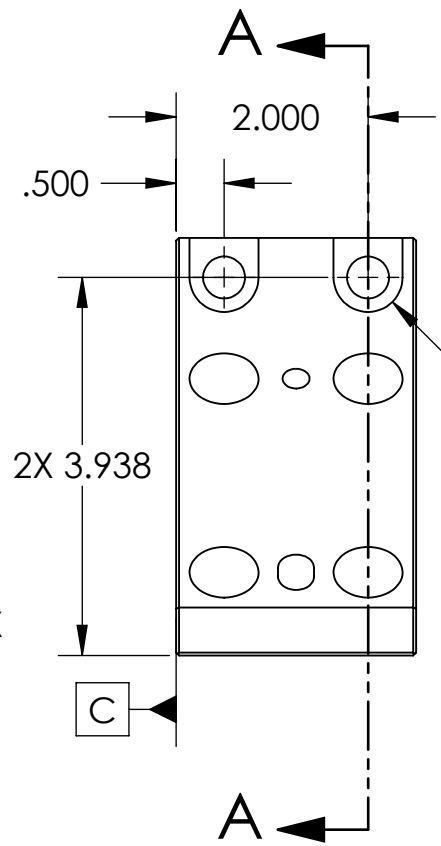
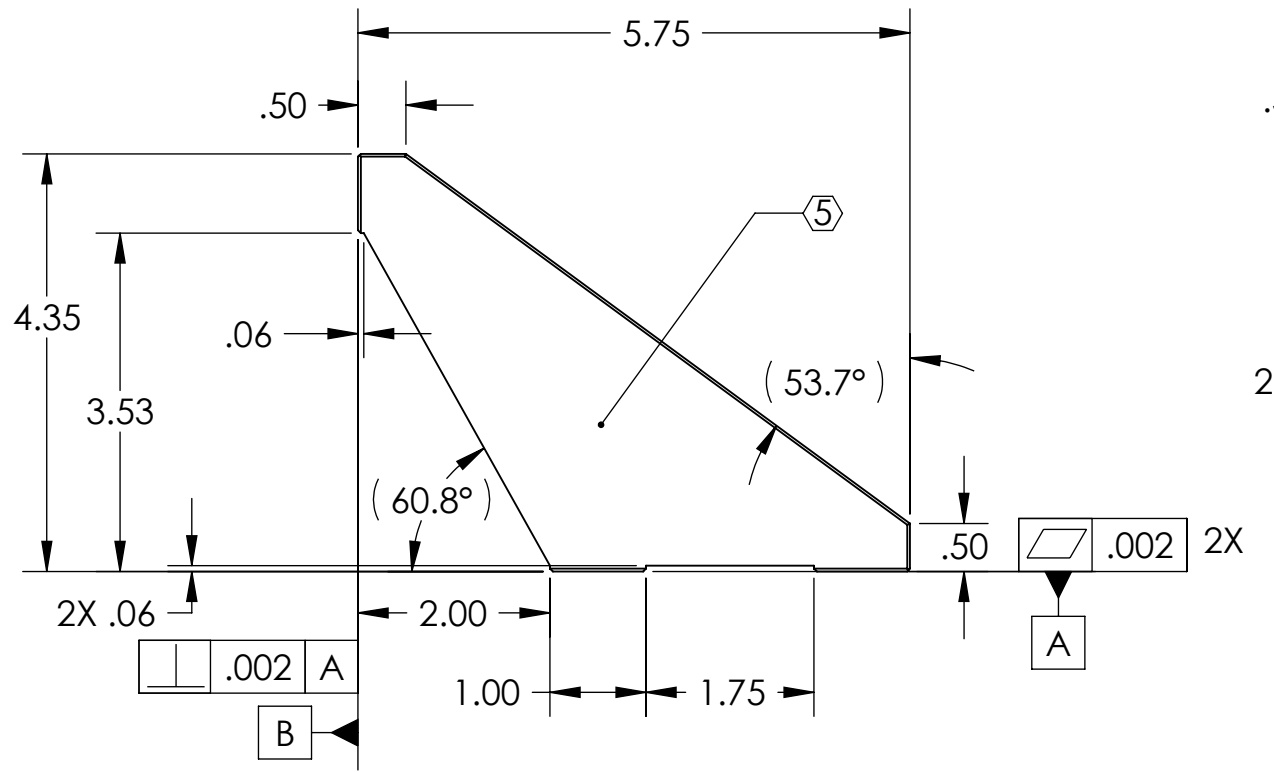
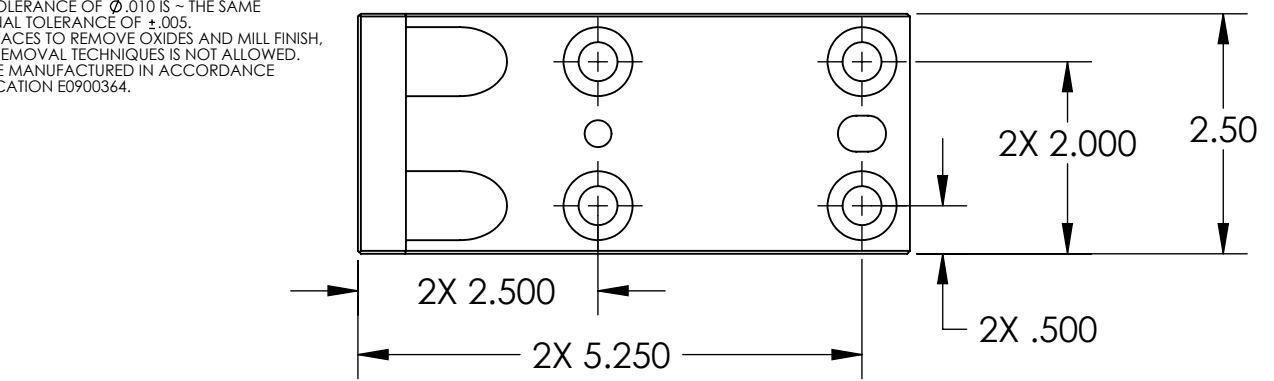


D0901844\_Cover\_3-BSC\_Optical\_Table, PART PDM REV: X-006, DRAWING PDM REV: X-006

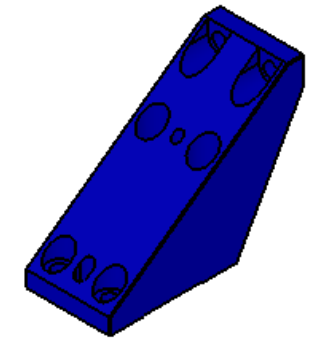
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX ± .015 .XXX ± .005 ANGULAR ± 0.5°				1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. BREAK ALL EDGES AND CORNERS .03 X 45°. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		Cover 3, Optical Table, aLIGO BSC ISI	
MATERIAL 6061-T6 Al		FINISH 63 μinch		SYSTEM ADVANCED LIGO		SUB-SYSTEM SEI	
NEXT ASSY D0901181				DESIGNER A. STEIN	11 Jan. 2010	SIZE DWG. NO. B	D0901844
				DRAFTER M. HILLARD	11 Jan. 2010	REV. v1	
				CHECKER F. MATICHARD	11 Jan. 2010	SCALE: 1:1	PROJECTION:
				APPROVAL K. MASON	11 Jan. 2010	SHEET 1 OF 1	

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 2.4 LB.  
 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .  
 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025



$\phi .3757^{+.0008}_{-.0000}$  THRU SLOT  
 BREAK EDGE .09 X 45°  
 $\phi .002$  (M) A B C



$\phi .28$  THRU ALL  
 $\phi .3757^{+.0008}_{-.0000}$   $\downarrow$  .75  
 $\phi .56$  X 90°, NEAR SIDE  
 $\phi .002$  (M) A B C

**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

- INTERPRET DRAWING PER ASME Y14.5-1994.
- BREAK ALL EDGES AND CORNERS .03 X 45°.
- DO NOT SCALE FROM DRAWING.
- ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 .XX  $\pm$  .015  
 .XXX  $\pm$  .005  
 ANGULAR  $\pm$  0.5°

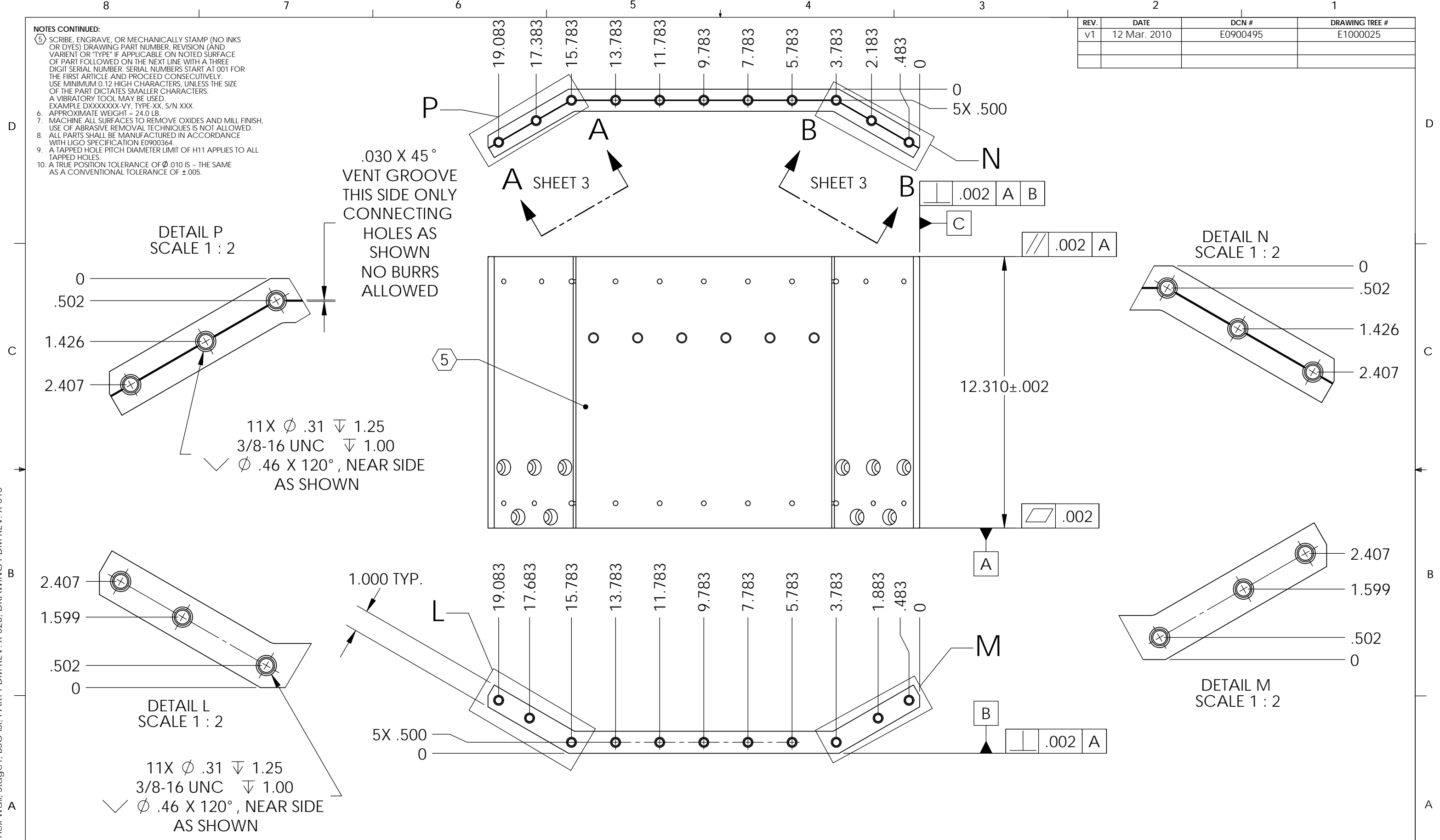
MATERIAL	6061-T6 Al	FINISH	63 $\mu$ inch
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CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
SYSTEM ADVANCED LIGO		SUB-SYSTEM SEI	
NEXT ASSY		D0901181	
DESIGNER	A.STEIN	11 Jan. 2010	SIZE DWG. NO.
DRAFTER	M.HILLARD	11 Jan. 2010	B
CHECKER	F.MATICHARD	11 Jan. 2010	D0902133
APPROVAL	K.MASON	11 Jan. 2010	REV. v1
SCALE: 1:2		PROJECTION:	
SHEET 1 OF 1			

D0902271 Angled Hex Wall, Stage1, BSC-ISI, PART PDM REV: X-026, DRAWING PDM REV: X-010

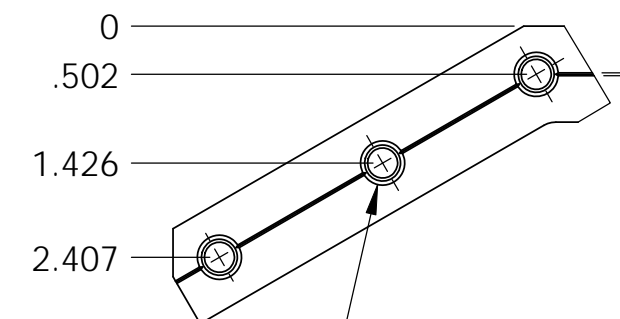
- NOTES CONTINUED:**
- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.
  - 6. APPROXIMATE WEIGHT = 24.0 LB.
  - 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  - 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  - 9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES.
  - 10. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025



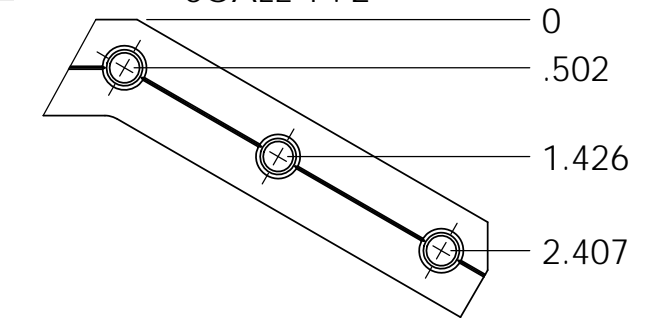
**.030 X 45° VENT GROOVE THIS SIDE ONLY CONNECTING HOLES AS SHOWN NO BURRS ALLOWED**

**DETAIL P SCALE 1 : 2**

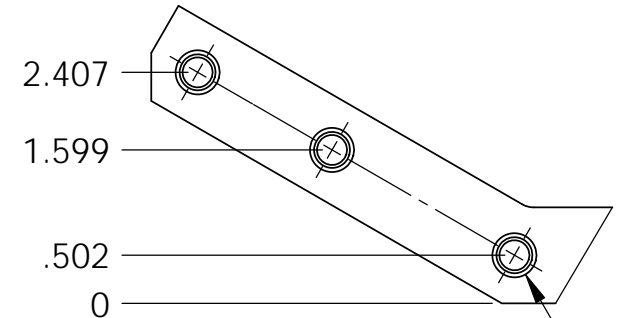


11X  $\phi .31 \nabla 1.25$   
 3/8-16 UNC  $\nabla 1.00$   
 $\checkmark \phi .46 \times 120^\circ$ , NEAR SIDE AS SHOWN

**DETAIL N SCALE 1 : 2**

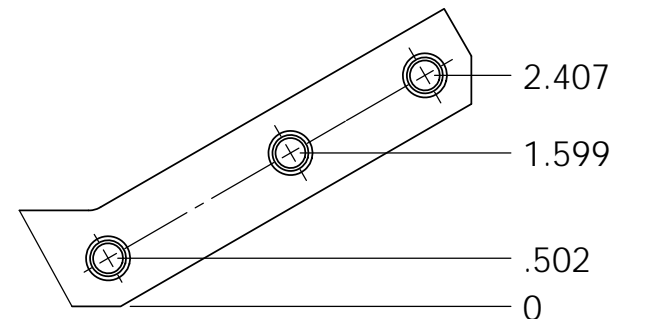


**DETAIL L SCALE 1 : 2**



11X  $\phi .31 \nabla 1.25$   
 3/8-16 UNC  $\nabla 1.00$   
 $\checkmark \phi .46 \times 120^\circ$ , NEAR SIDE AS SHOWN

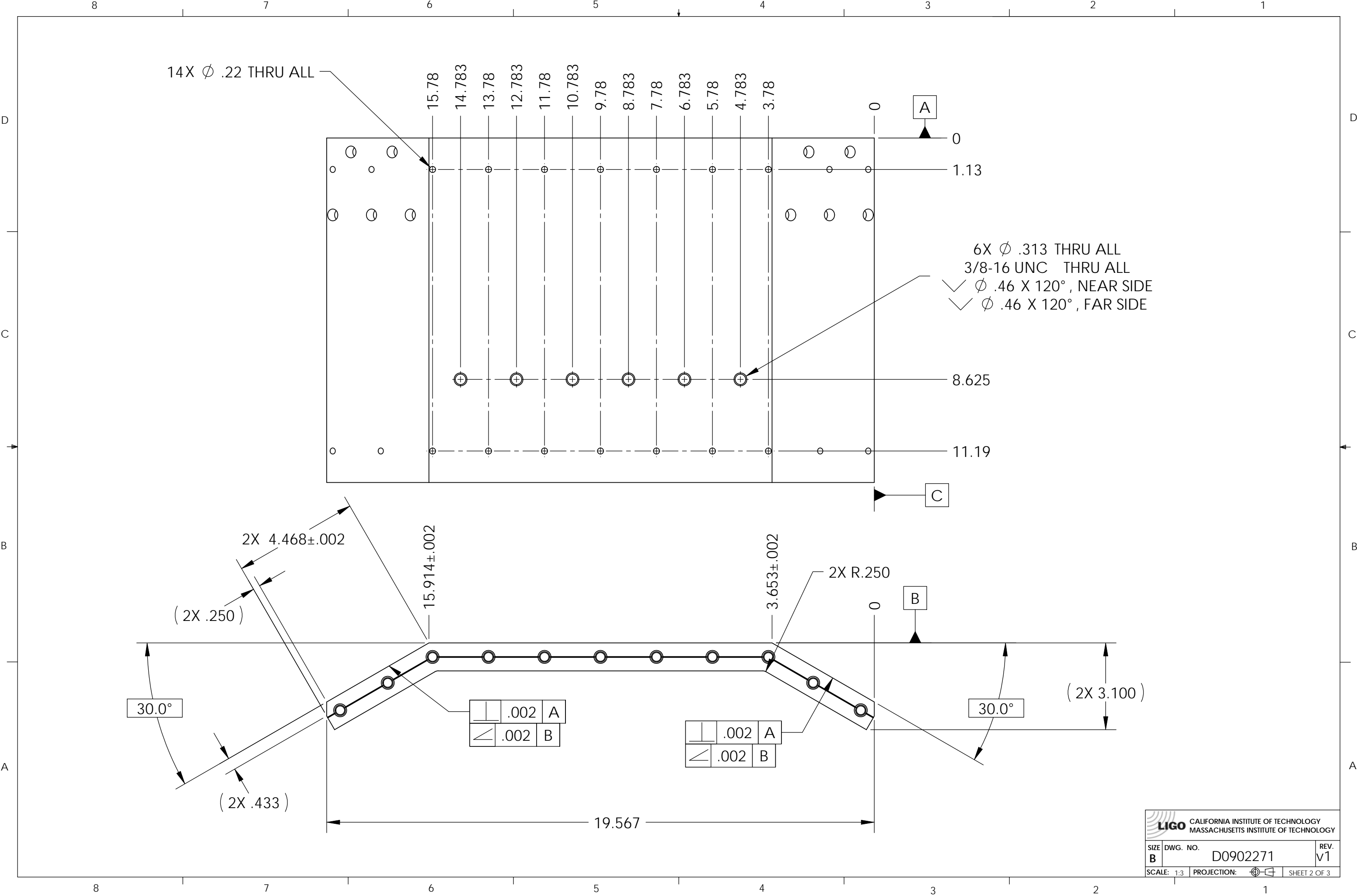
**DETAIL M SCALE 1 : 2**



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME				
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		ANGLED HEX WALL, STAGE 1, aLIGO BSC ISI				
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SUB-SYSTEM SEI		DESIGNER	F.MATICHARD	15 Jan. 2010	SIZE	DWG. NO.
ANGULAR $\pm 0.5^\circ$				MATERIAL 6061-T6 Al		DRAFTER	M.HILLARD	15 Jan. 2010	B	D0902271
				FINISH 63 $\mu$ inch		CHECKER	A.STEIN	15 Jan. 2010		
				NEXT ASSY D0901180		APPROVAL	K.MASON	15 Jan. 2010	SCALE: 1:4	PROJECTION:
						SHEET 1 OF 3				

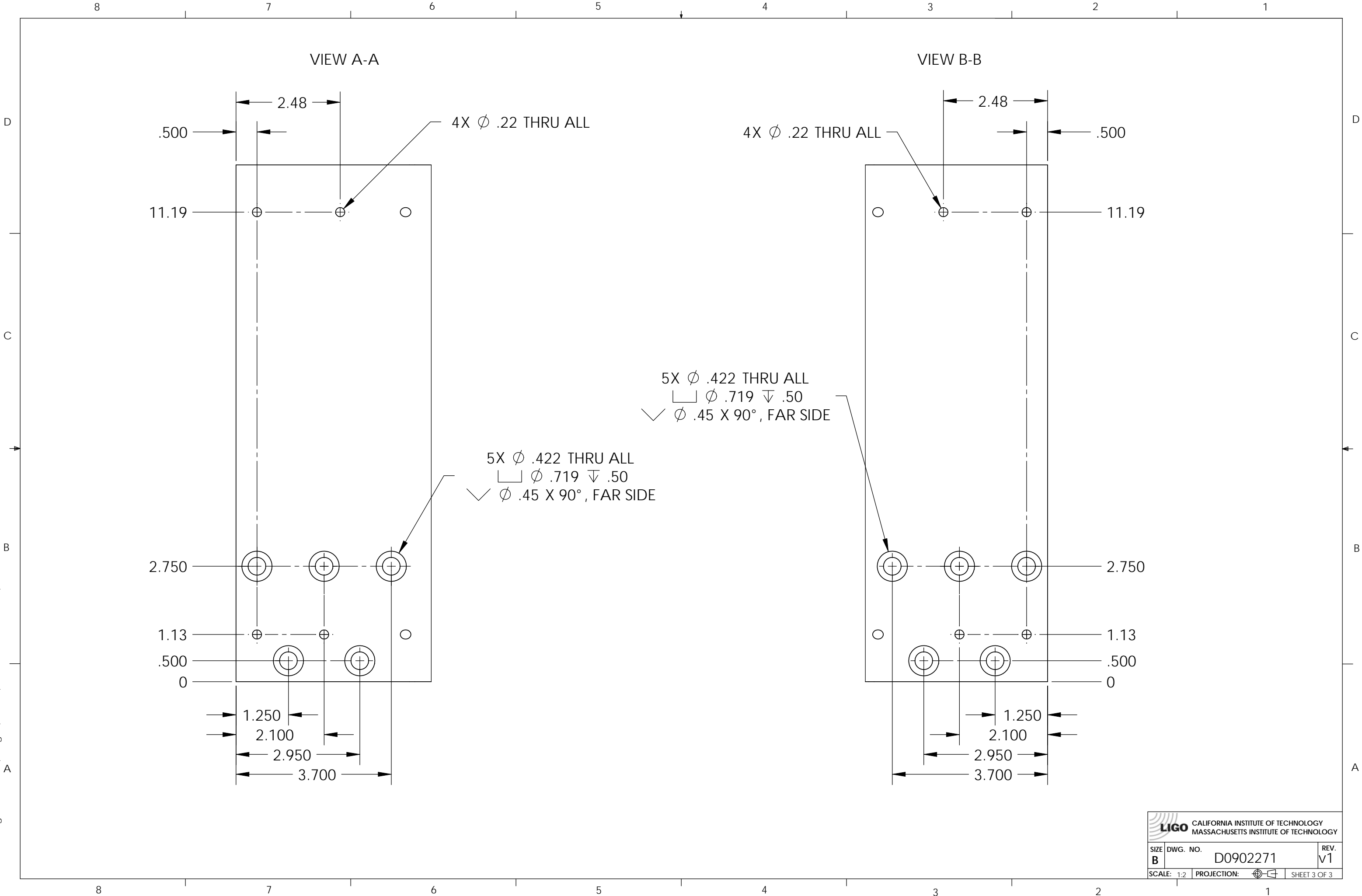


D0902271 Angled Hex Wall, Stage1, BSC-ISI, PART PDM REV: X-026, DRAWING PDM REV: X-010



<b>LIGO</b> CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SIZE <b>B</b>	DWG. NO. D0902271
SCALE: 1:3	PROJECTION:
REV. V1	SHEET 2 OF 3

D0902271 Angled Hex Wall, Stage1, BSC-ISI, PART PDM REV: X-026, DRAWING PDM REV: X-010



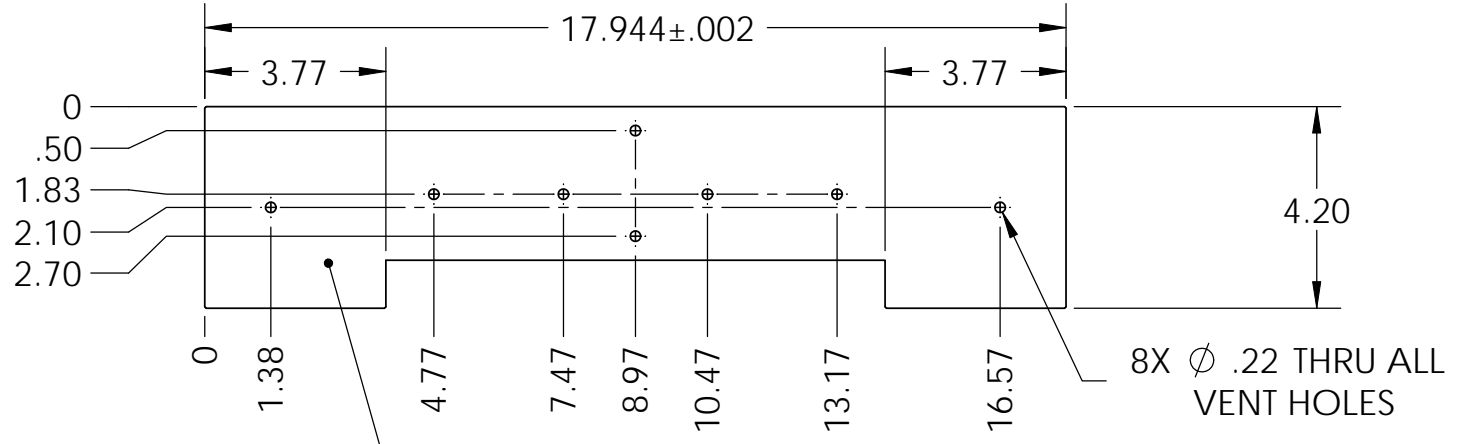
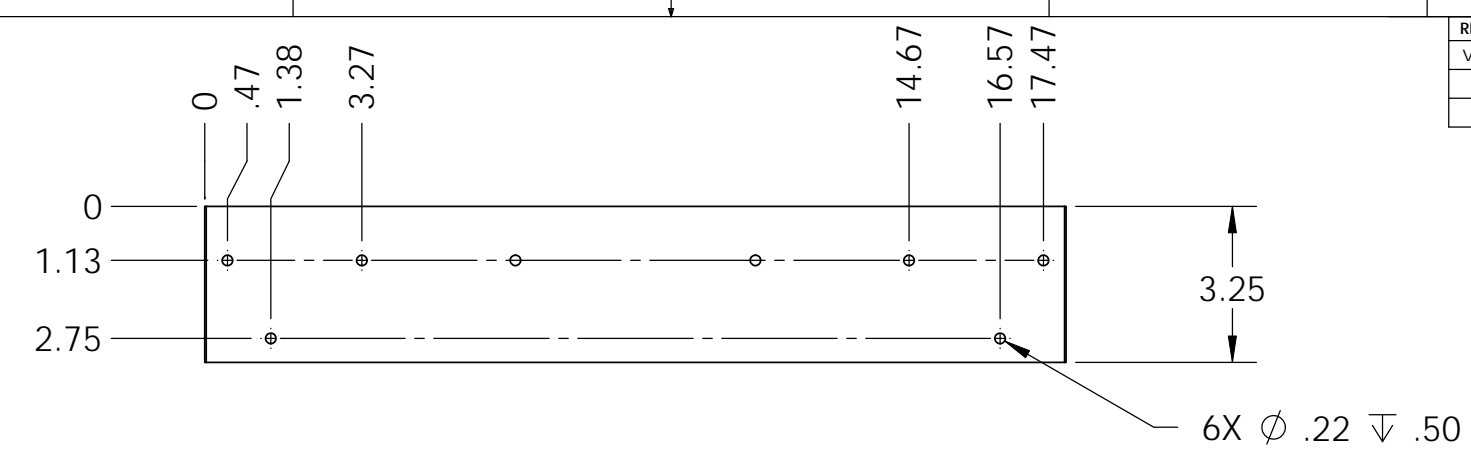
**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SIZE <b>B</b>	DWG. NO. D0902271	REV. V1
SCALE: 1:2	PROJECTION:	SHEET 3 OF 3

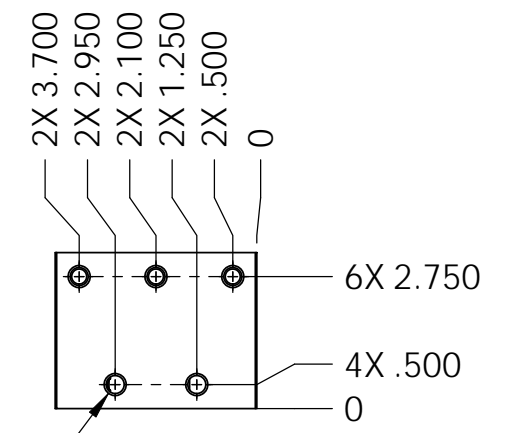
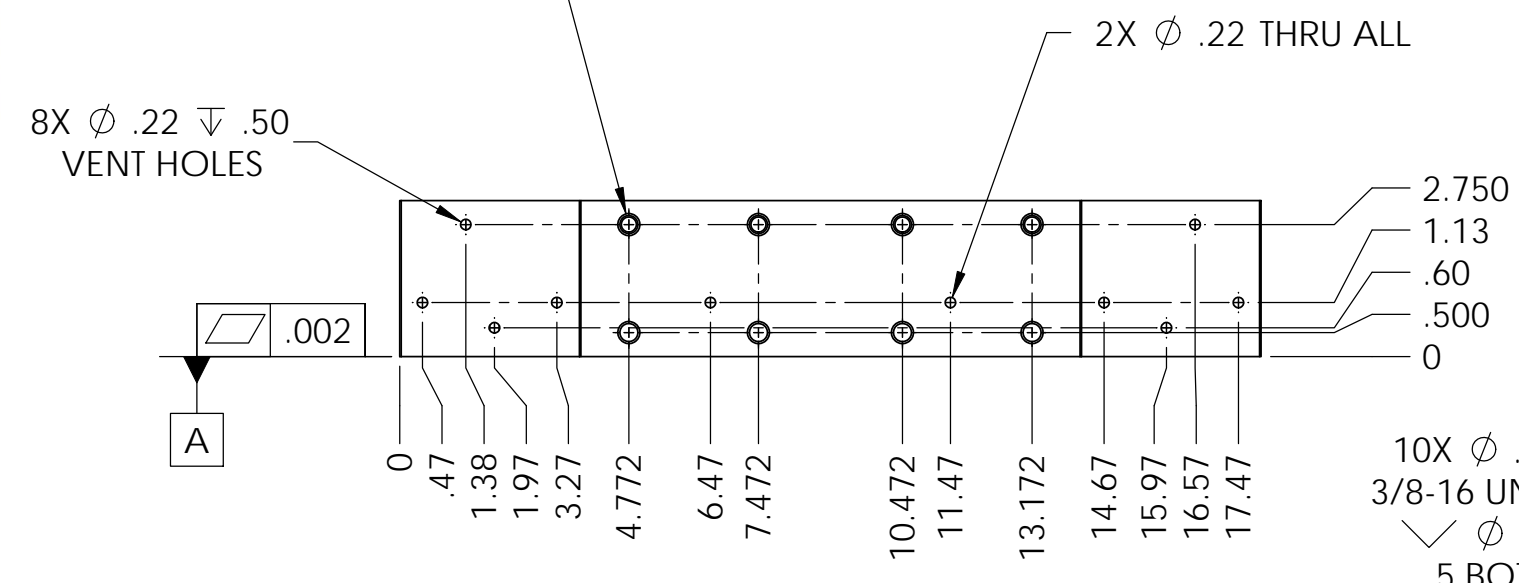
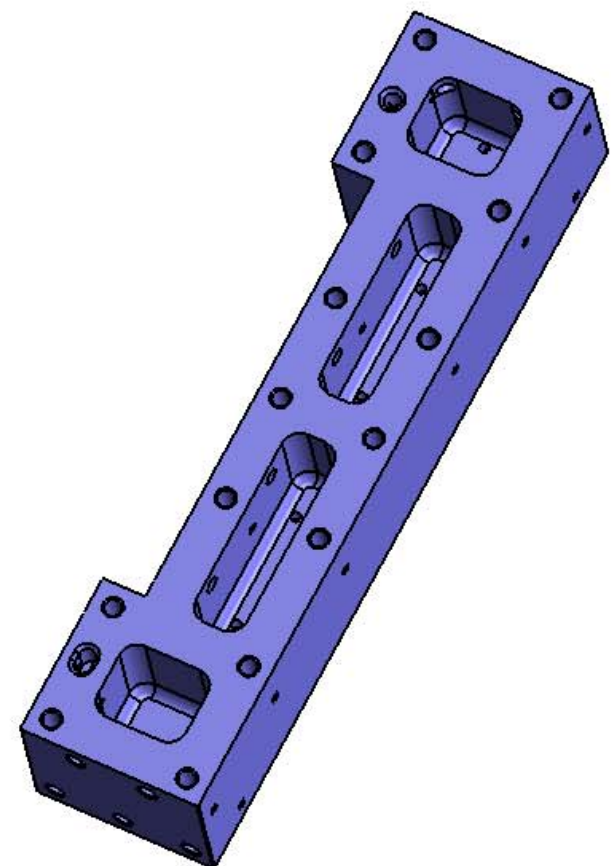
D0902272 Blocks Links, Stage 1, BSC-ISI, PART PDM REV: X-021, DRAWING PDM REV: X-010

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VV, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 16.15 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES.  
 10. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .



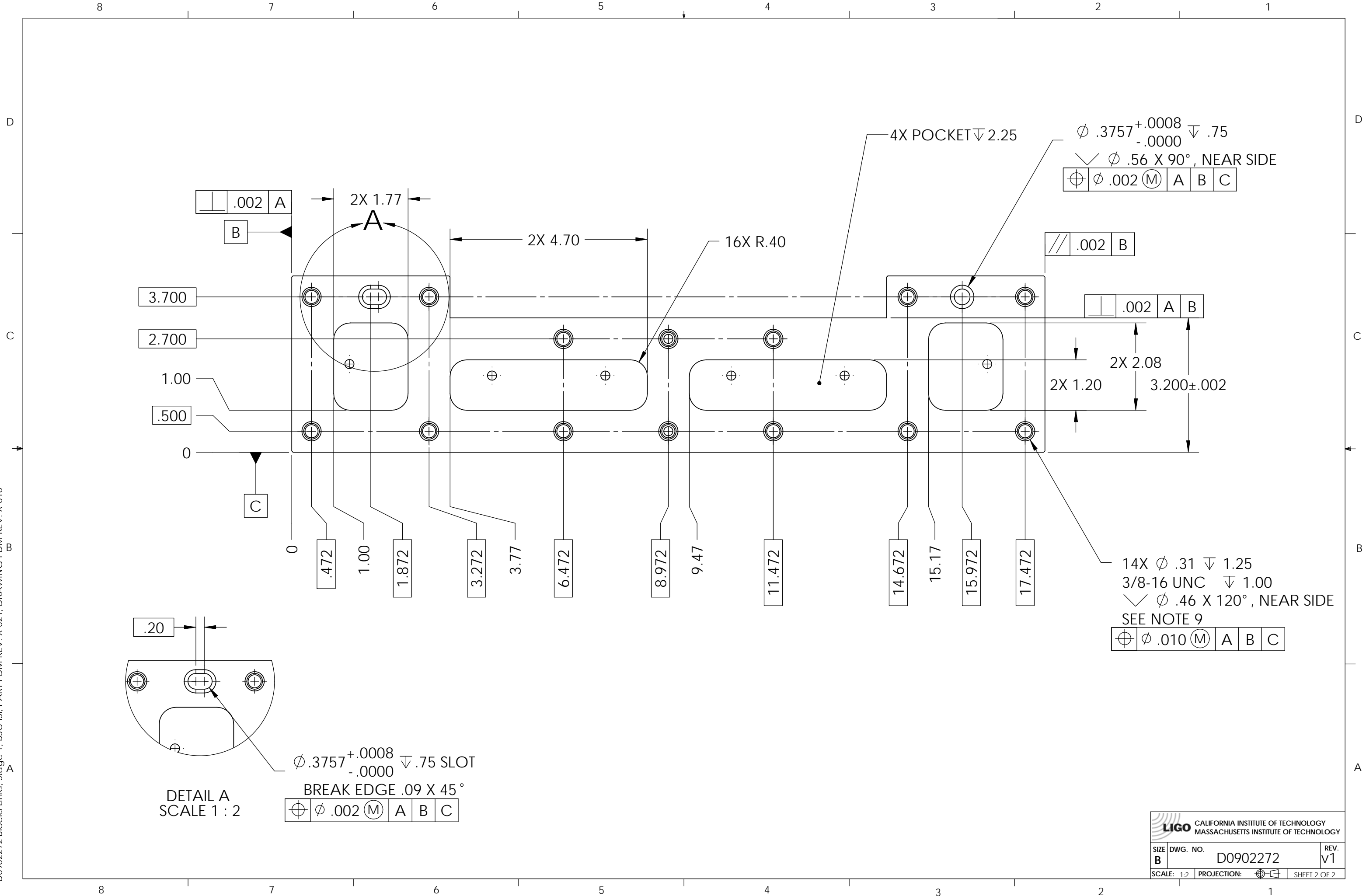
8X  $\phi .31 \nabla 1.50$   
 3/8-16 UNC  $\nabla 1.25$   
 $\surd \phi .46 \times 120^\circ$ , NEAR SIDE



BOTTOM VIEW SEE SHEET 2  
 SHEETS HAVE DIFFERENT SCALE

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		BLOCKS LINK, STAGE 1, aLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				SUB-SYSTEM SEI		DESIGNER	F.MATICHARD 15 Jan. 2010
ANGULAR ± 0.5°				NEXT ASSY D0901180		DRAFTER	M.HILLARD 15 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 $\mu$ inch		CHECKER	A.STEIN 15 Jan. 2010
						APPROVAL	K.MASON 15 Jan. 2010
						SIZE	DWG. NO.
						B	D0902272
						SCALE: 1:4	PROJECTION:
						SHEET 1 OF 2	
						REV.	v1

D0902272 Blocks Links, Stage 1, BSC-ISI, PART PDM REV: X-021, DRAWING PDM REV: X-010



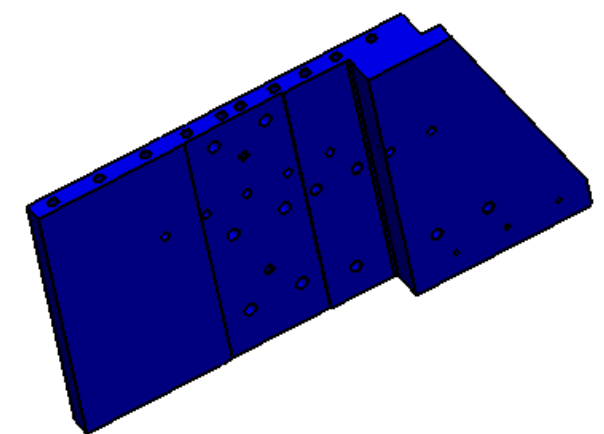
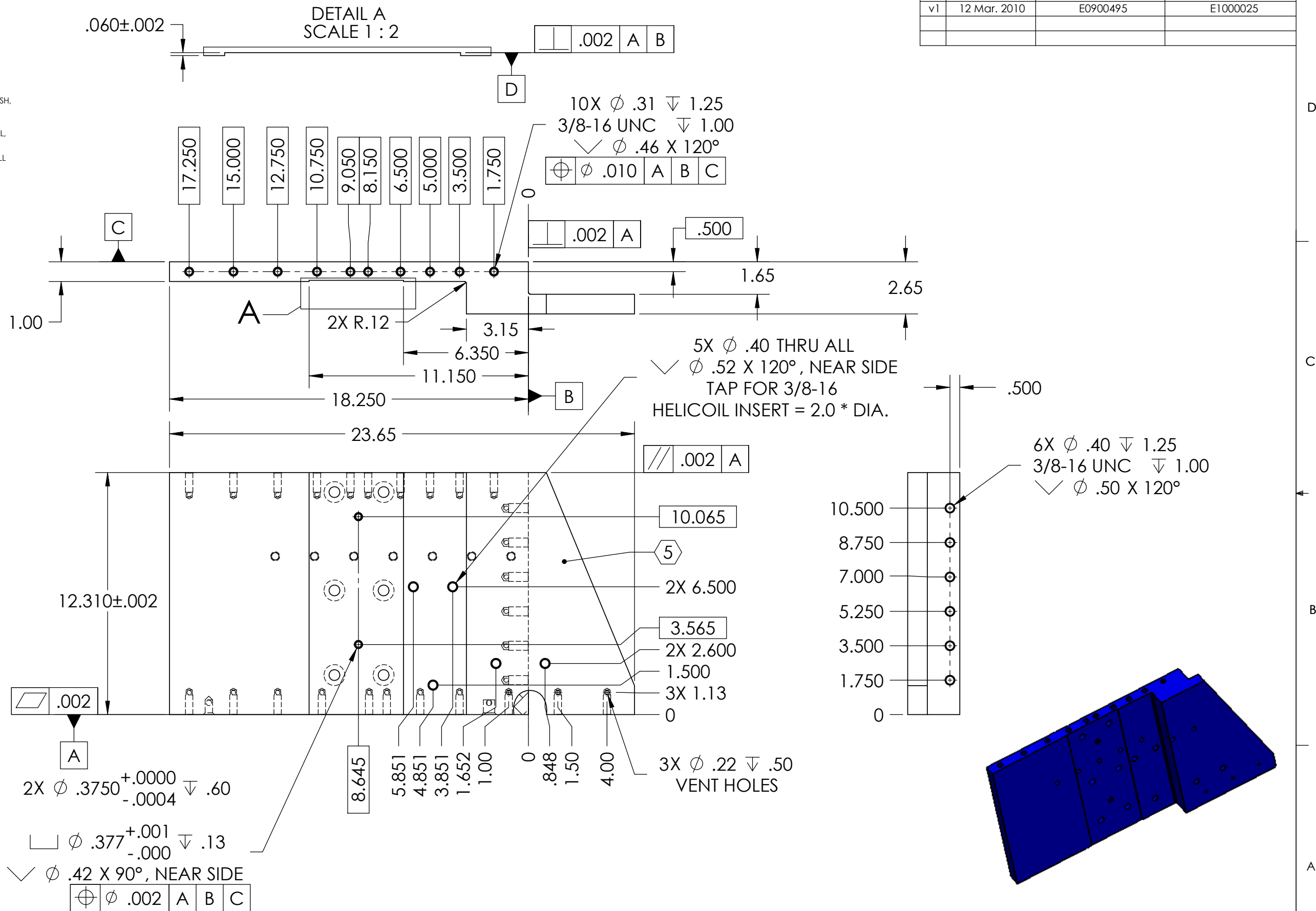
**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SIZE	DWG. NO.	REV.
B	D0902272	V1
SCALE: 1:2	PROJECTION:	SHEET 2 OF 2

D0902274 Flexure Wall, Stage 1, BSC ISI, PART PDM REV: X-040, DRAWING PDM REV: X-016

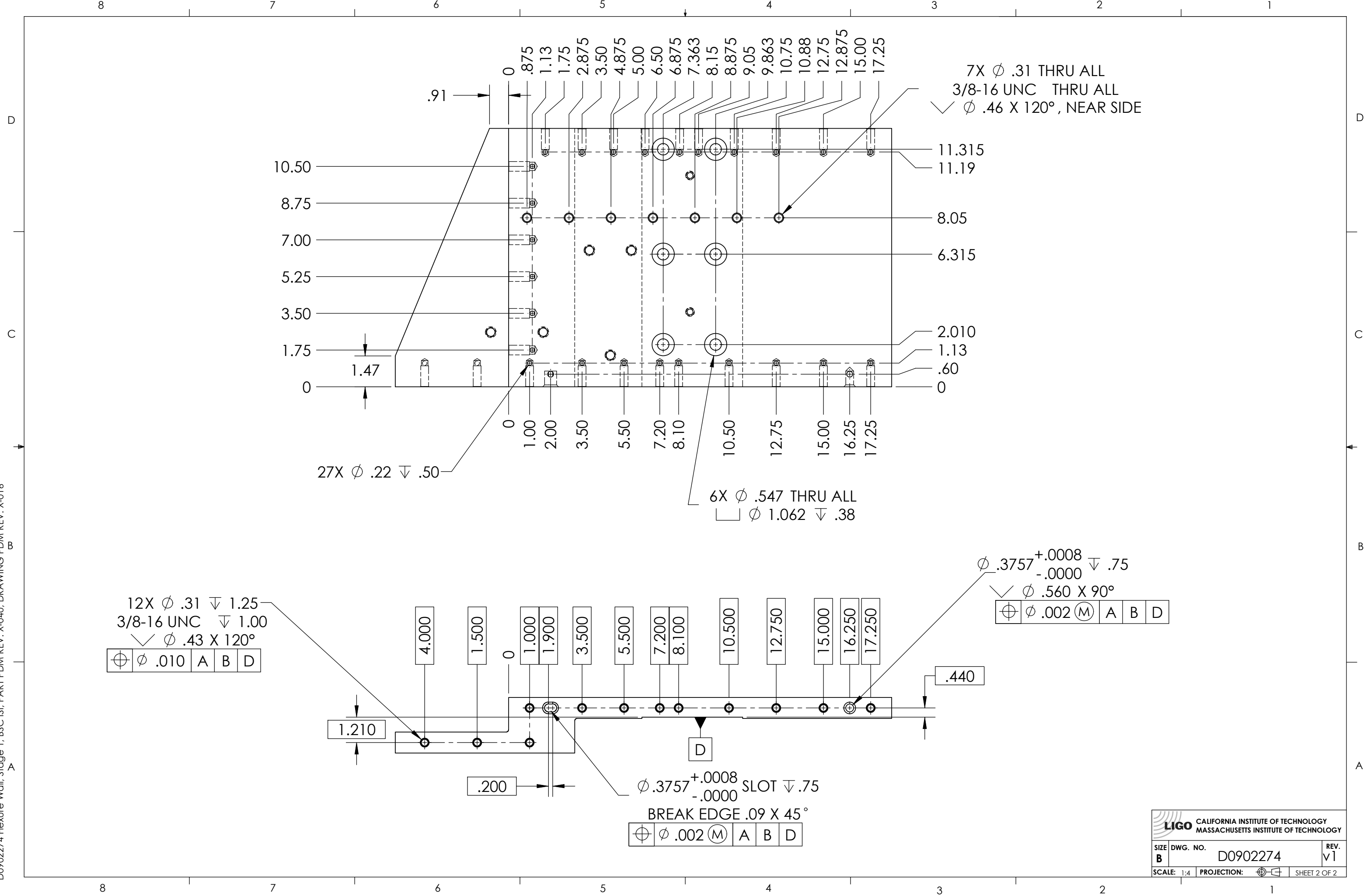
- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.
  6. APPROXIMATE WEIGHT = 14.0 LB.
  7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.
  10. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES EXCLUDING THREADED INSERTS.
  11. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		FLEXURE WALL, STAGE 1, aLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				SEI		DESIGNER	F.MATICHARD 15 Jan. 2010
ANGULAR ± .5°				NEXT ASSY		DRAFTER	M.HILLARD 15 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 μinch		CHECKER	A.STEIN 15 Jan. 2010
1. INTERPRET DRAWING PER ASME Y14.5-1994.				D0901180		APPROVAL	K.MASON 15 Jan. 2010
2. BREAK ALL EDGES AND CORNERS .03 X 45°.				SCALE: 1:5		SIZE	DWG. NO. B D0902274
3. DO NOT SCALE FROM DRAWING.				PROJECTION:		REV.	v1
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				SHEET 1 OF 2			

D0902274 Flexure Wall, Stage 1, BSC ISI, PART PDM REV: X-040, DRAWING PDM REV: X-016



7X  $\phi$  .31 THRU ALL  
3/8-16 UNC THRU ALL  
 $\checkmark$   $\phi$  .46 X 120°, NEAR SIDE

27X  $\phi$  .22  $\nabla$  .50

6X  $\phi$  .547 THRU ALL  
 $\square$   $\phi$  1.062  $\nabla$  .38

12X  $\phi$  .31  $\nabla$  1.25  
3/8-16 UNC  $\nabla$  1.00  
 $\checkmark$   $\phi$  .43 X 120°  
 $\oplus$   $\phi$  .010 A B D

$\phi$  .3757<sup>+0.0008</sup><sub>-.0000</sub>  $\nabla$  .75  
 $\checkmark$   $\phi$  .560 X 90°  
 $\oplus$   $\phi$  .002 (M) A B D

$\phi$  .3757<sup>+0.0008</sup><sub>-.0000</sub> SLOT  $\nabla$  .75  
BREAK EDGE .09 X 45°  
 $\oplus$   $\phi$  .002 (M) A B D

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY

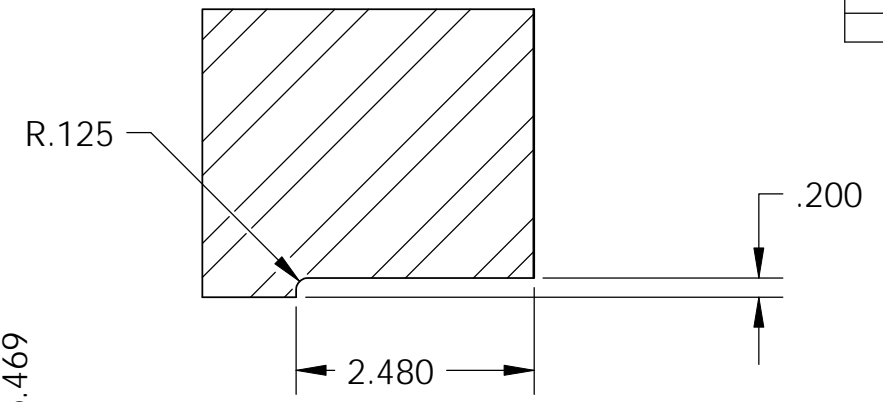
SIZE	DWG. NO.	REV.
B	D0902274	v1
SCALE: 1:4	PROJECTION:	SHEET 2 OF 2

D0902276 Flexure Rod Bracket, Stage 1, BSC-ISI, PART PDM REV: X-015, DRAWING PDM REV: X-005

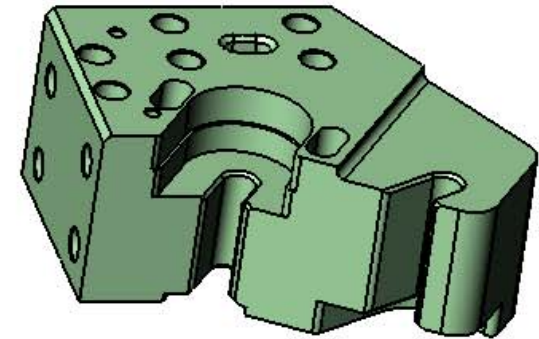
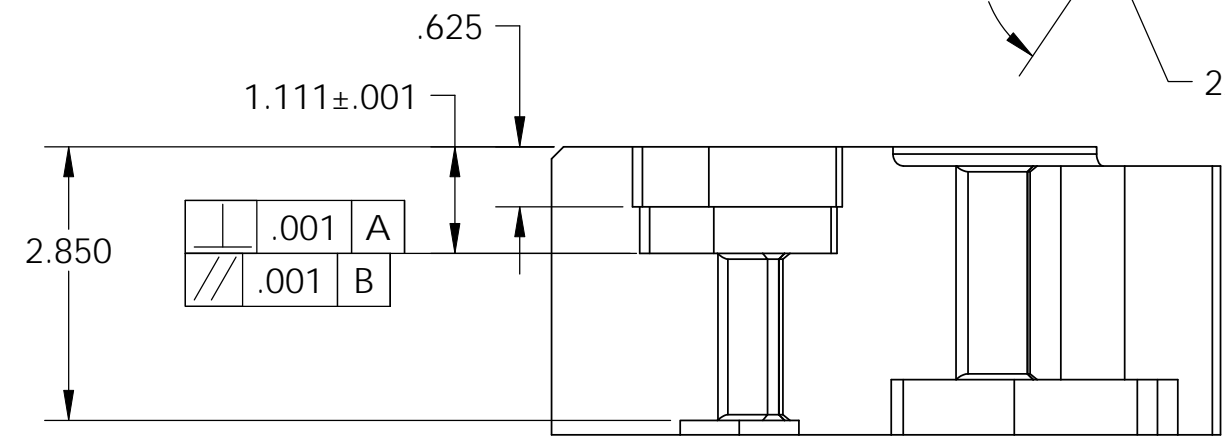
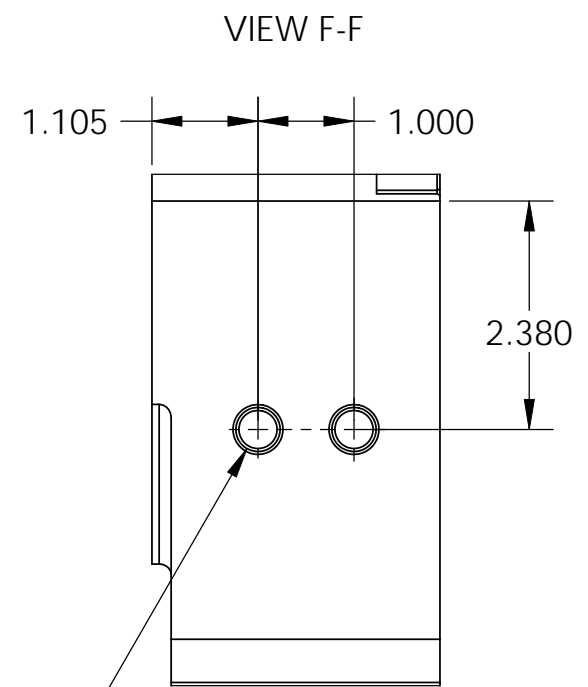
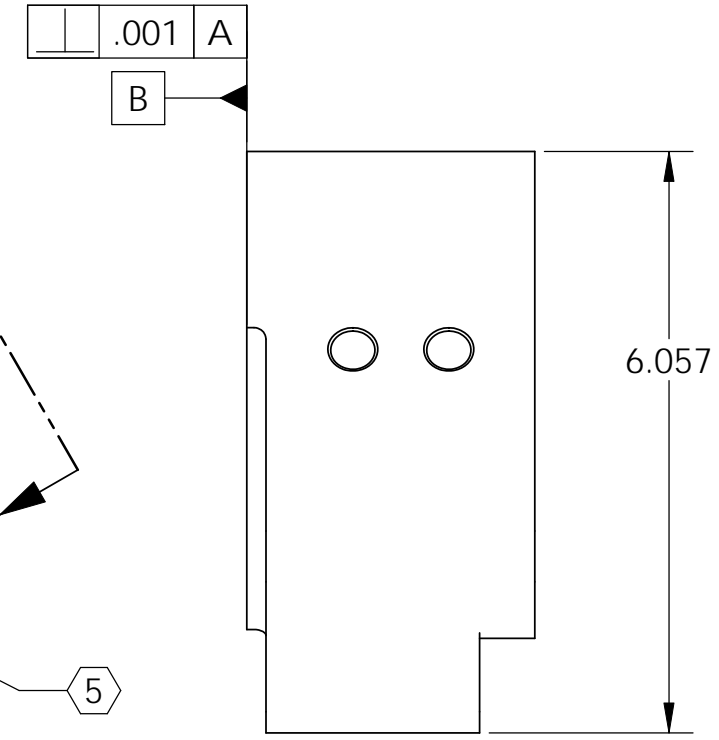
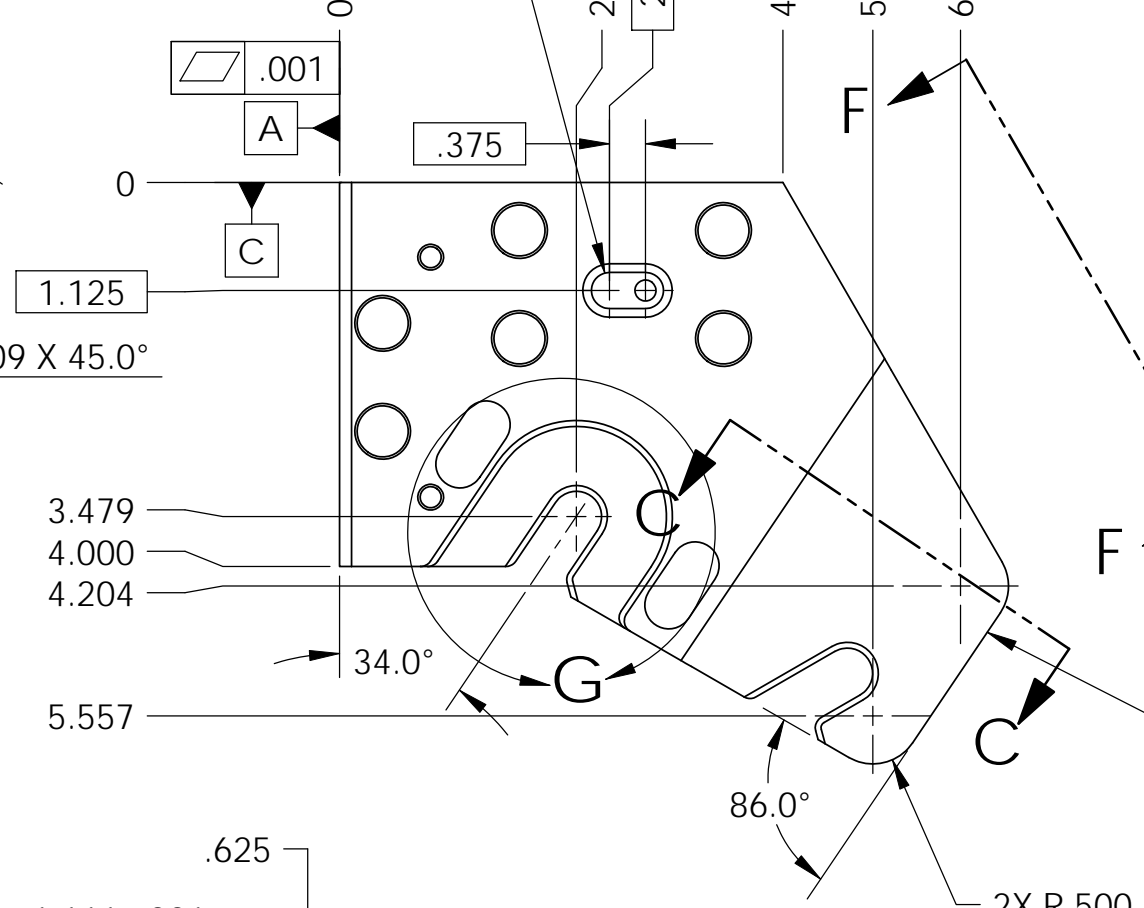
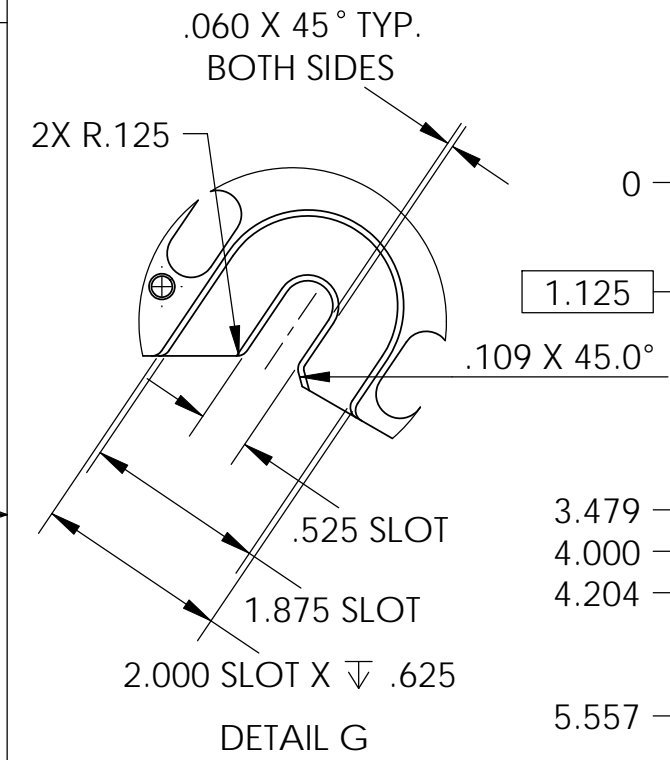
**NOTES CONTINUED:**  
 (5) SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT) OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
 EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 19.518 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.  
 10. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES, BUT EXCLUDES THREADED INSERTS.  
 11. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

**SECTION C-C**



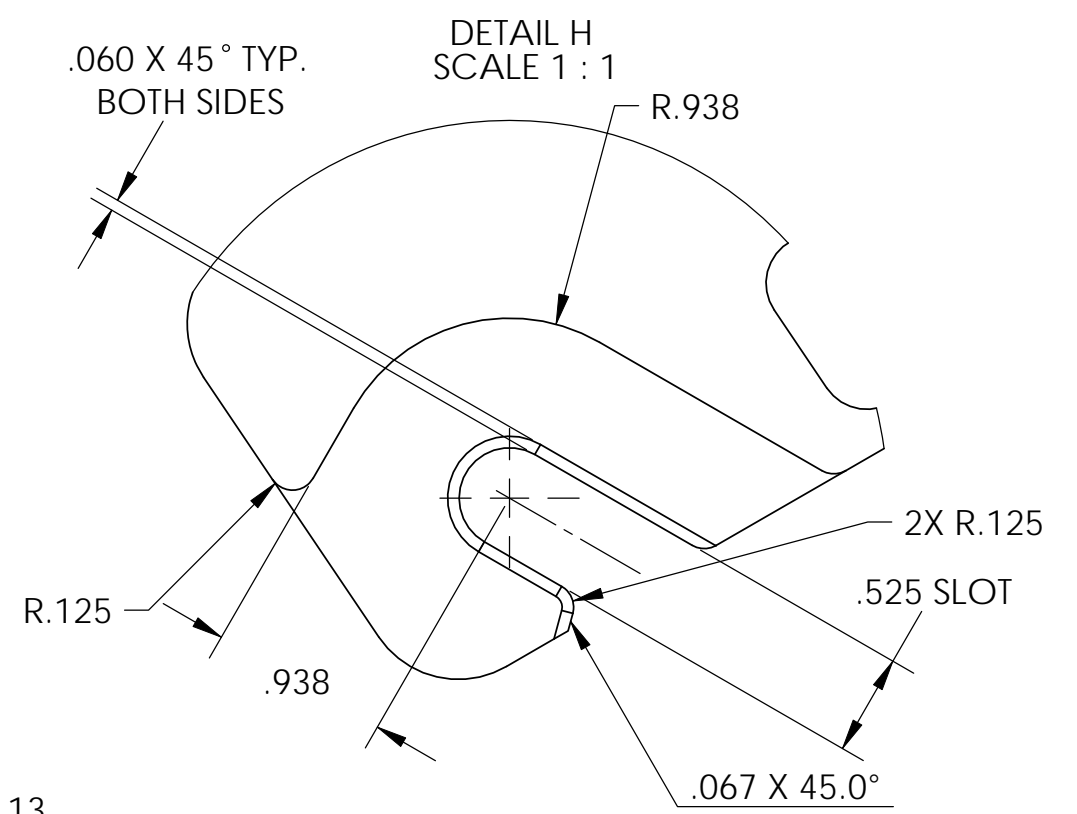
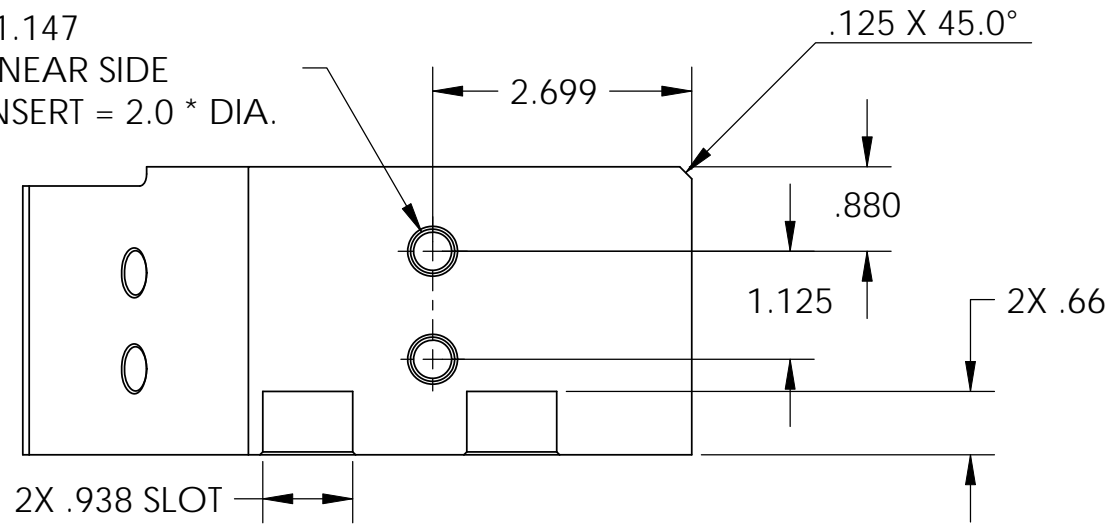
$\phi .3757^{+.0008}_{-.0000} \nabla .75$  SLOT  
 BREAK EDGE .09 X 45°  
 $\oplus \phi .001 \text{ (M) A B C}$



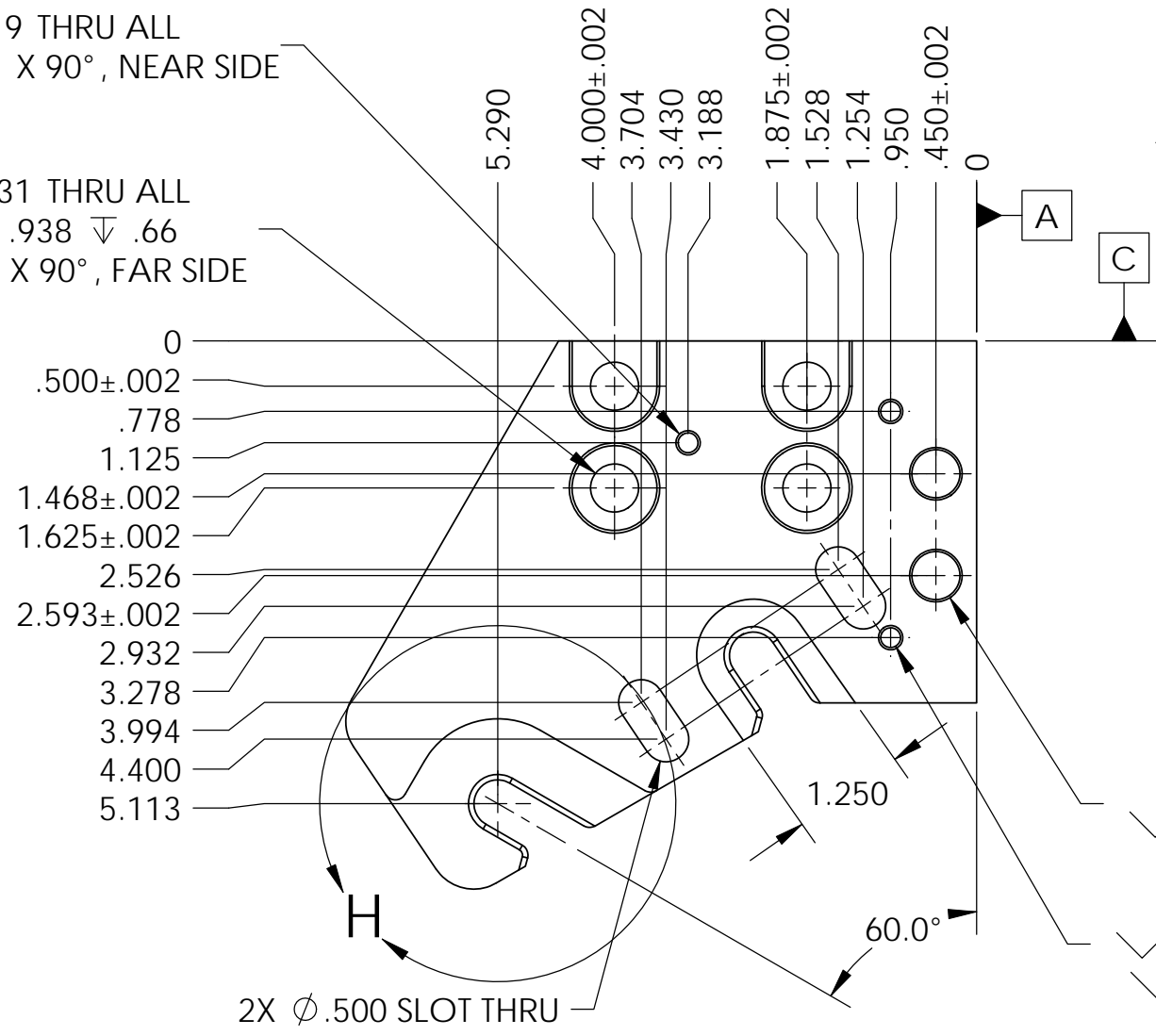
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		STAGE 1 FLEXURE ROD BRACKET	
TOLERANCES: .XX ± .015 .XXX ± .005				SEI		DESIGNER	F. MATICHARD 15 Jan. 2010
ANGULAR ± .5°				NEXT ASSY		DRAWER	M. HILLARD 15 Jan. 2010
MATERIAL AISI 304				D0908120		CHECKER	A. STEIN 15 Jan. 2010
FINISH 63 μinch						APPROVAL	K. MASON 15 Jan. 2010
						SIZE	DWG. NO.
						B	D0902276
						SCALE	PROJECTION
						1:2	AS SHOWN
						REV.	v1
						SHEET 1 OF 2	

D0902276 Flexure Rod Bracket, Stage 1, BSC-ISI, PART PDM REV: X-015, DRAWING PDM REV: X-005

2X  $\phi$  .397  $\nabla$  1.147  
 $\nabla$   $\phi$  .520 X 120°, NEAR SIDE  
TAP FOR 3/8-16 HELICOIL INSERT = 2.0 \* DIA.

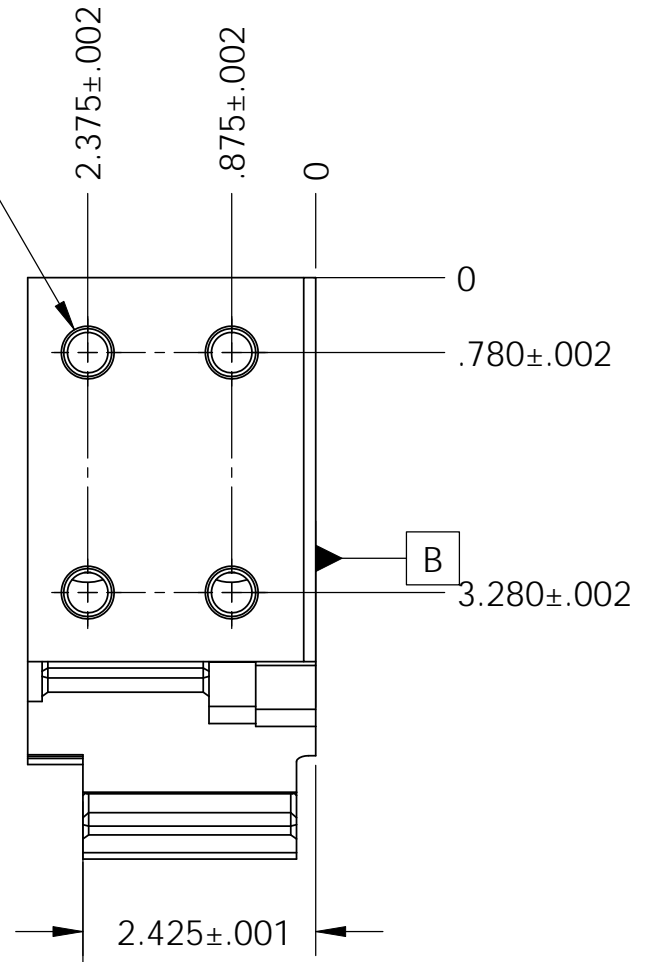


$\phi$  .219 THRU ALL  
 $\nabla$   $\phi$  .269 X 90°, NEAR SIDE  
2X  $\phi$  .531 THRU ALL  
 $\square$   $\phi$  .938  $\nabla$  .66  
 $\nabla$   $\phi$  .581 X 90°, FAR SIDE



4X  $\phi$  .422  $\nabla$  1.13  
1/2-13 UNC  $\nabla$  .80  
 $\nabla$   $\phi$  .550 X 120°, NEAR SIDE

4X  $\phi$  .531 THRU ALL  
 $\nabla$   $\phi$  .580 X 90°, FAR SIDE  
2X  $\phi$  .22 THRU ALL  
 $\nabla$   $\phi$  .269 X 90°, NEAR SIDE  
 $\nabla$   $\phi$  .269 X 90°, FAR SIDE



	.001	A
	.001	B

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SIZE	DWG. NO.	REV.
B	D0902276	V1
SCALE: 1:2	PROJECTION:	SHEET 2 OF 2



D0902277 Flexure Rod Gusset, Stage 1, BSC-ISI, PART PDM REV: X-021, DRAWING PDM REV: X-006

8 7 6 5 4 3 2 1

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.
  6. APPROXIMATE WEIGHT = 11.0 LB.
  7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS. USE NITRONIC 60 THREADED INSERTS.
  10. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES EXCEPT THREADED INSERTS.
  11. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

$\phi .3757^{+.0008} \downarrow .75$   
 $\phi .56 \times 90^\circ$ , NEAR SIDE  
 $\phi .002$  A B C

4X  $\phi .42 \downarrow 2.00$   
 1/2-13 UNC  $\downarrow 1.50$   
 $\phi .60 \times 120^\circ$ , NEAR SIDE

$\phi .3757^{+.0008} \downarrow .75$  SLOT  
 BREAK EDGE  $.09 \times 45^\circ$   
 $\phi .002$  A B C

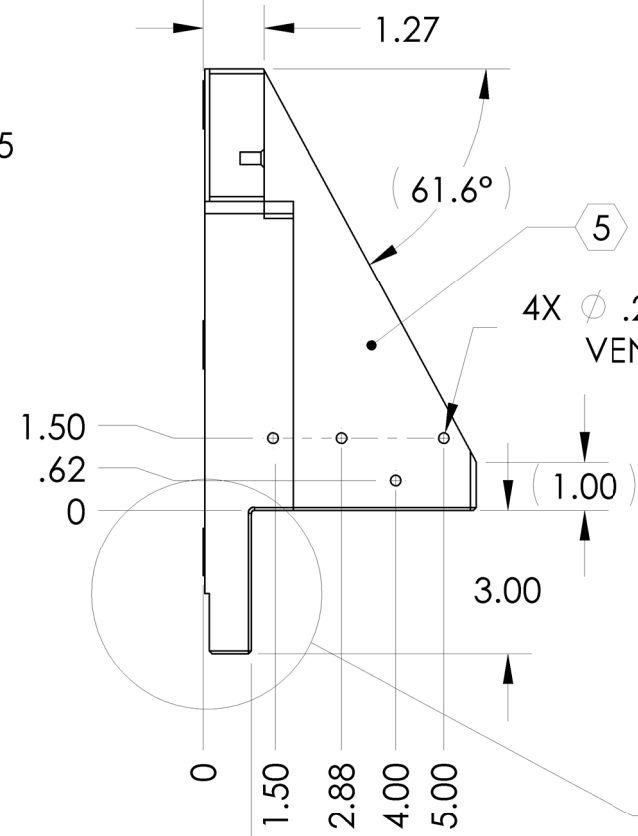
2X  $\phi .547$  THRU  
 $\phi .62 \times 90^\circ$ , NEAR SIDE

6X 1.00 SQ. PADS  
 CENTERED ON HOLES

2X  $\phi .547$  THRU  
 $\phi .938 \downarrow .55$   
 $\phi .62 \times 90^\circ$ , FAR SIDE

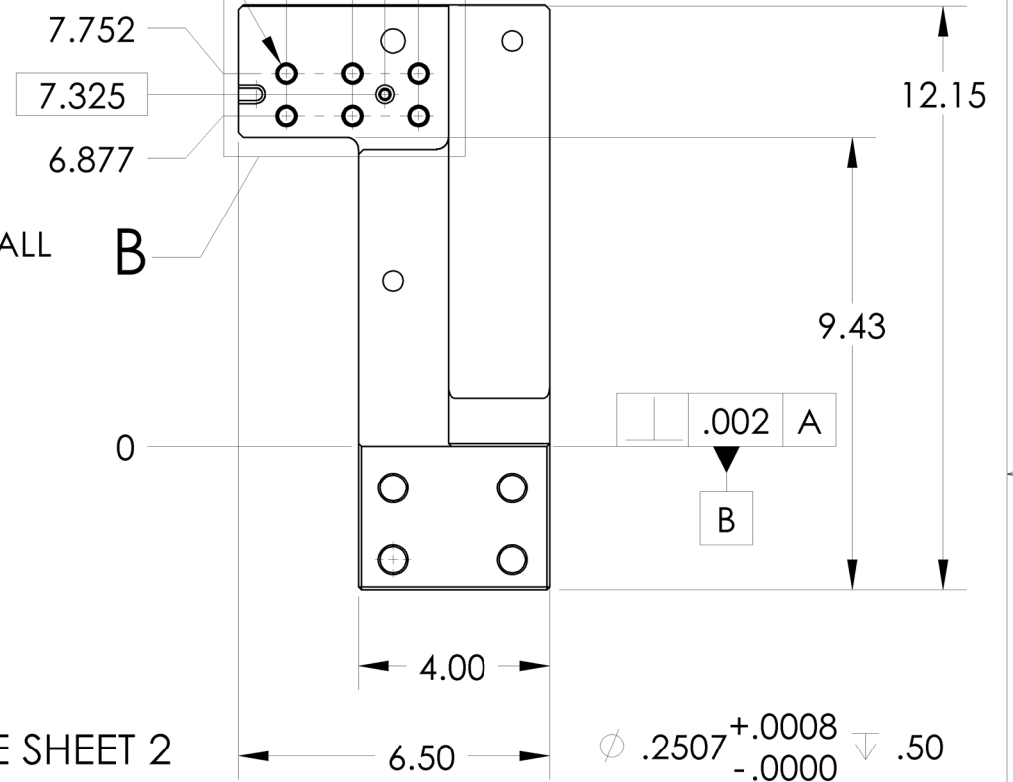
6X  $\phi .33$  THRU ALL  
 $\phi .44 \times 90^\circ$ , NEAR SIDE  
 TAP FOR 5/16-18  
 HELICOIL INSERT = 2.5 \* DIA.

$\phi .002$   
 A  
 4 PADS



7.752  
 7.325  
 6.877

5.499  
 4.124  
 3.45  
 2.749  
 0

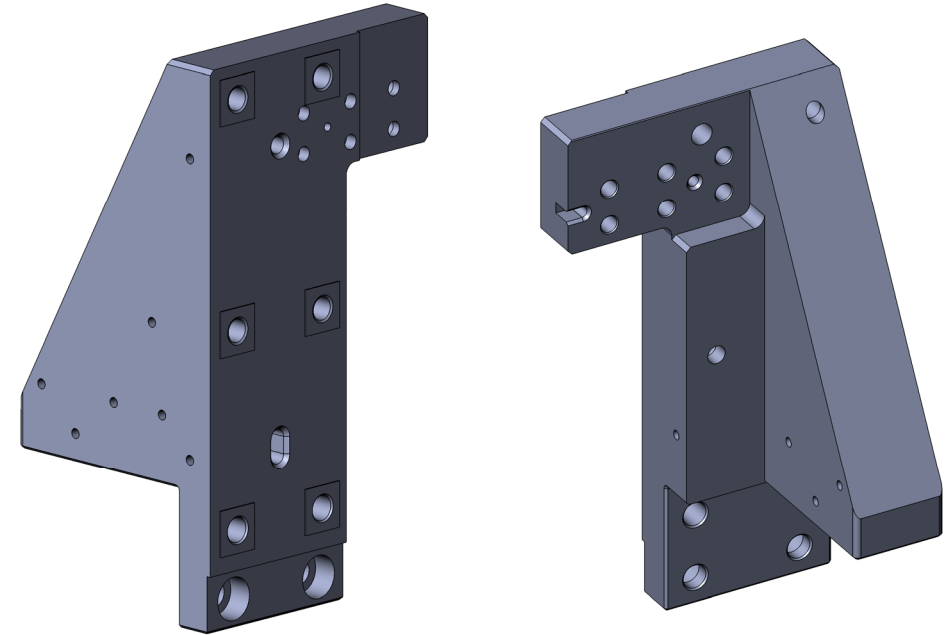
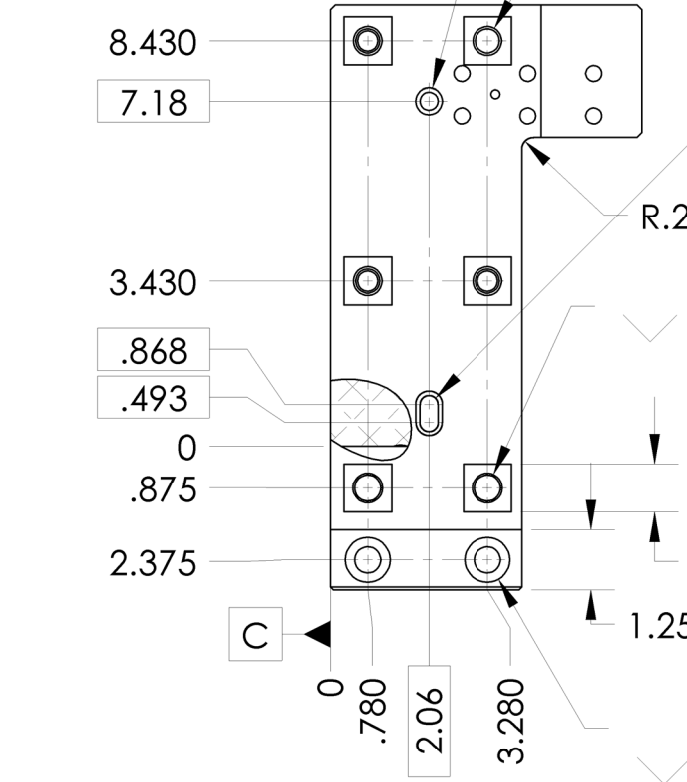


$\phi .2507^{+.0008} \downarrow .50$   
 $\phi .38 \times 90^\circ$ , NEAR SIDE  
 $\phi .19$  THRU  
 $\phi .002$  A B C

$\phi .2507^{+.0008} \downarrow .50$   
 .50 BREAK EDGE  
 $.09 \times 45^\circ$   
 $\phi .002$  A B C

DETAIL B  
 SCALE 1:2

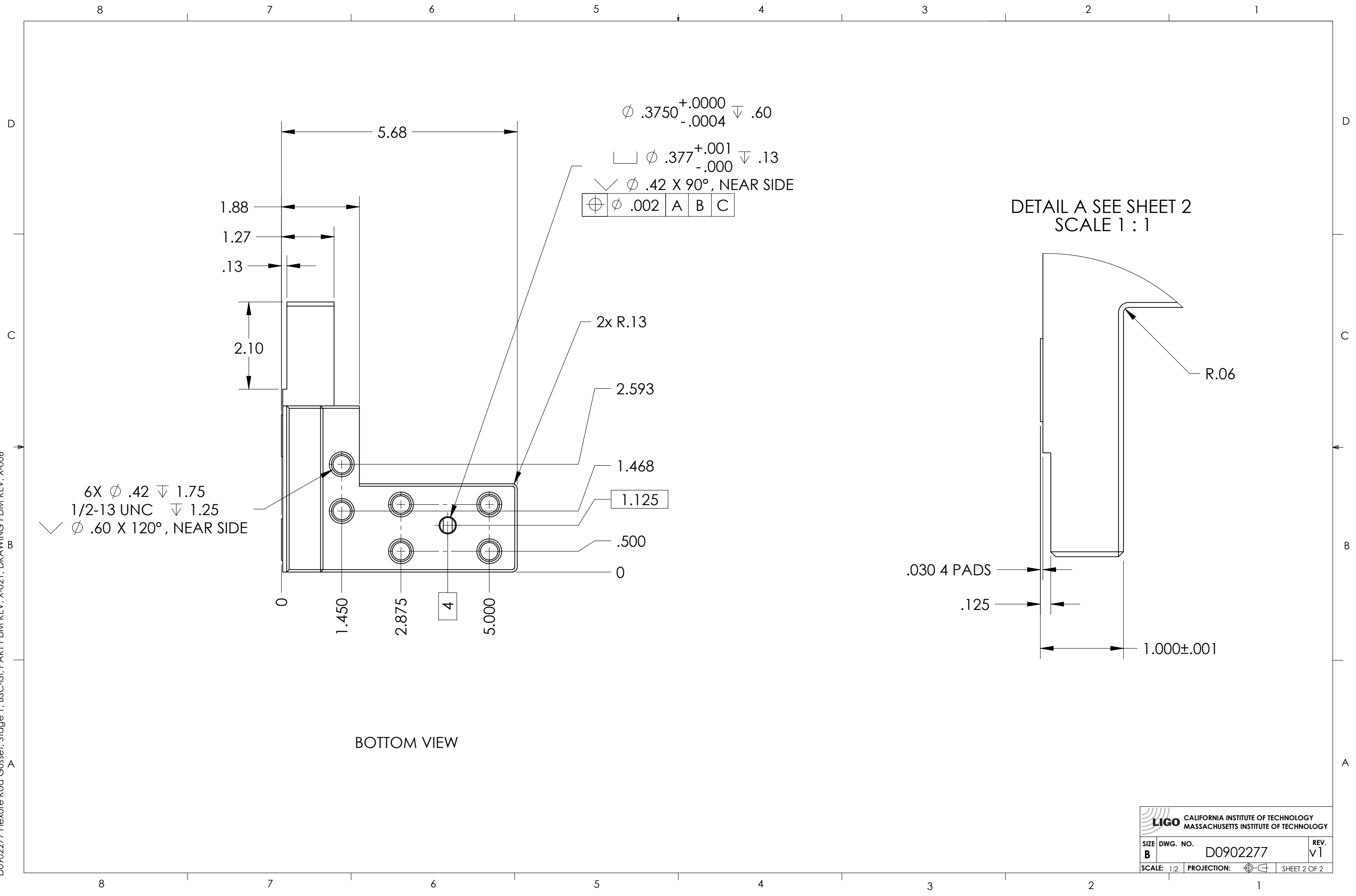
BOTTOM VIEW SEE SHEET 2  
 SCALE 1:2



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		FLEXURE ROD GUSSET, STAGE 1, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER F.MATICHARD 15 Jan. 2010	
ANGULAR $\pm .5^\circ$				MATERIAL 6061-T6 Al		FINISH 63 $\mu$ inch	
				NEXT ASSY D0901180		DRAFTER M.HILLARD 15 Jan. 2010	
						CHECKER A.STEIN 15 Jan. 2010	
						APPROVAL K.MASON 15 Jan. 2010	
						SIZE DWG. NO. B D0902277	
						REV. v1	
						SCALE: 1:4 PROJECTION: SHEET 1 OF 2	

8 7 6 5 4 3 2 1

D0902277 Flexure Rod Gusset, Stage 1, BSC-ISI, PART PDM REV: X-021, DRAWING PDM REV: X-006



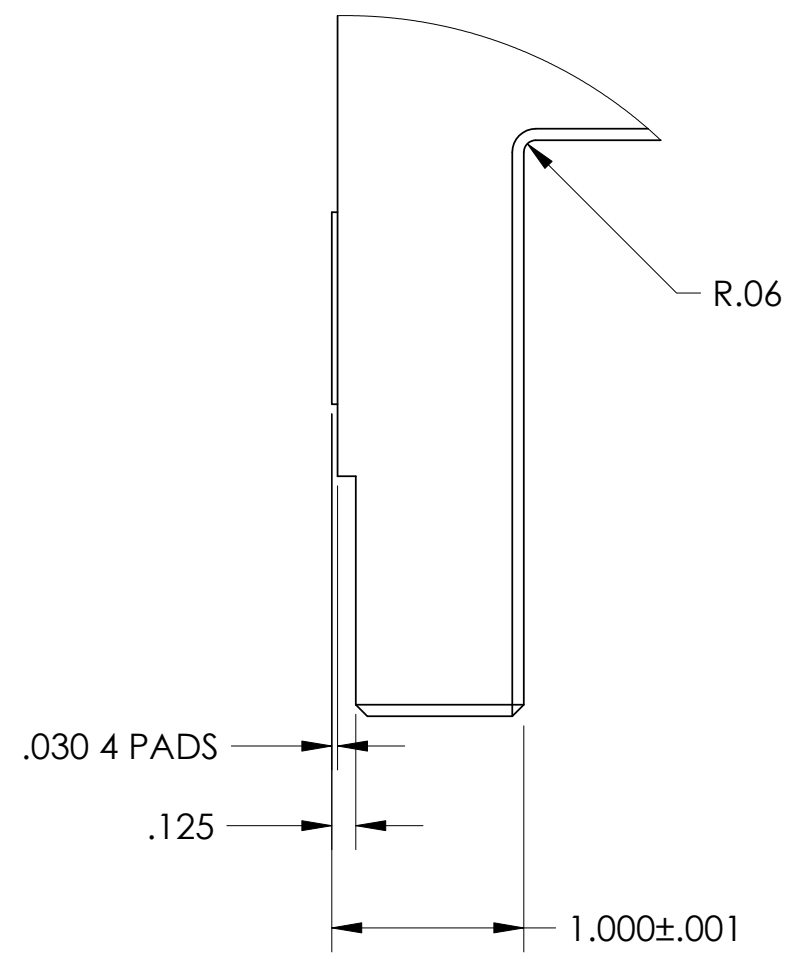
6X  $\phi .42 \downarrow 1.75$   
1/2-13 UNC  $\downarrow 1.25$   
 $\checkmark \phi .60 \times 120^\circ$ , NEAR SIDE

$\phi .3750^{+.0000}_{-.0004} \downarrow .60$   
 $\square \phi .377^{+.001}_{-.000} \downarrow .13$   
 $\checkmark \phi .42 \times 90^\circ$ , NEAR SIDE  
 $\oplus \phi .002$  A B C

5.68  
1.88  
1.27  
.13  
2.10  
2x R.13  
2.593  
1.468  
1.125  
.500  
0  
0 1.450 2.875 4 5.000

BOTTOM VIEW

DETAIL A SEE SHEET 2  
SCALE 1 : 1



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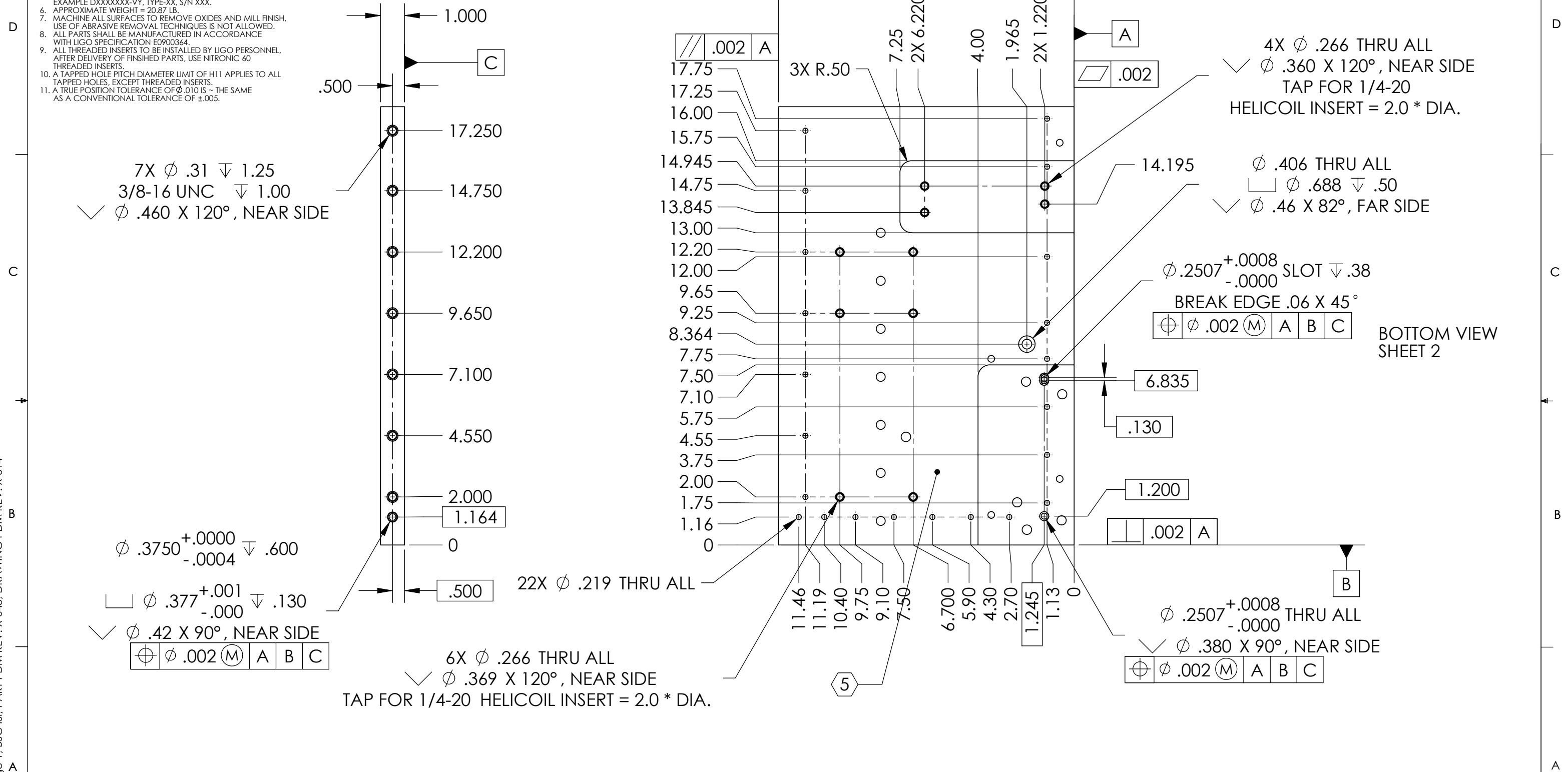
SIZE	DWG. NO.	REV.
B	D0902277	v1
SCALE: 1:2	PROJECTION:	SHEET 2 OF 2

D0902278 L4C Wall, Stage 1, BSC-ISI, PART PDM REV: X-043, DRAWING PDM REV: X-014

NOTES CONTINUED:

- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.
- 6. APPROXIMATE WEIGHT = 20.87 LB.
- 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
- 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
- 9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.
- 10. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES, EXCEPT THREADED INSERTS.
- 11. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025



4X  $\phi .266$  THRU ALL  
 $\checkmark \phi .360$  X 120°, NEAR SIDE  
 TAP FOR 1/4-20  
 HELICOIL INSERT = 2.0 \* DIA.

$\phi .406$  THRU ALL  
 $\checkmark \phi .688$   $\nabla .50$   
 $\checkmark \phi .46$  X 82°, FAR SIDE

$\phi .2507^{+.0008}_{-.0000}$  SLOT  $\nabla .38$   
 BREAK EDGE .06 X 45°

$\phi .002$  (M) A B C

BOTTOM VIEW SHEET 2

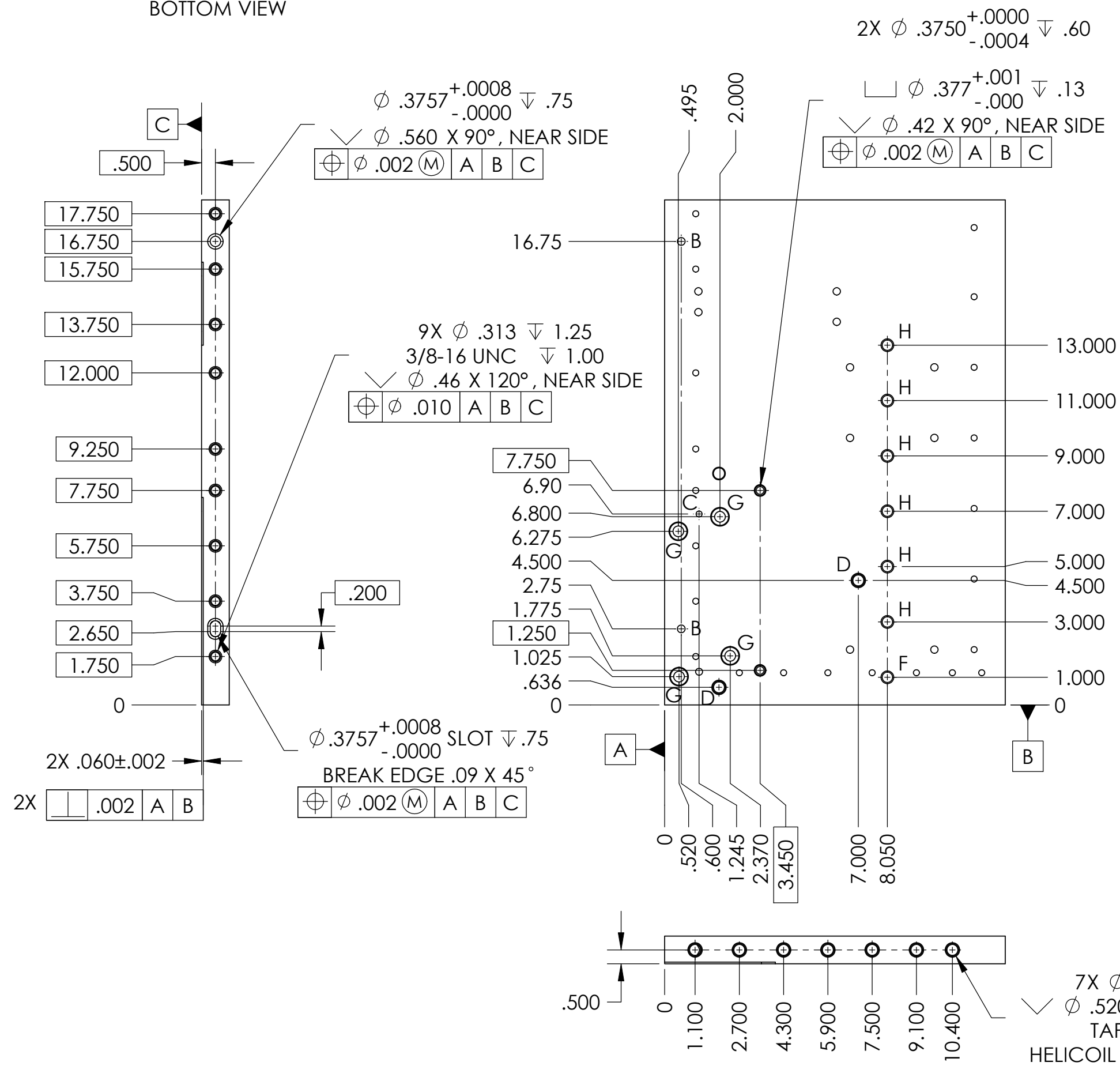
$\phi .2507^{+.0008}_{-.0000}$  THRU ALL  
 $\checkmark \phi .380$  X 90°, NEAR SIDE  
 $\phi .002$  (M) A B C

6X  $\phi .266$  THRU ALL  
 $\checkmark \phi .369$  X 120°, NEAR SIDE  
 TAP FOR 1/4-20 HELICOIL INSERT = 2.0 \* DIA.

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$ ANGULAR $\pm .5^\circ$				CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		L4C WALL, STAGE 1, aLIGO BSC ISI	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				SYSTEM <b>ADVANCED LIGO</b>		SUB-SYSTEM <b>SEI</b>	
MATERIAL <b>6061-T6 Al</b>				FINISH <b>63 <math>\mu</math>inch</b>		NEXT ASSY <b>D0901180</b>	
DESIGNER F.MATICHARD 15 Jan. 2010				DRAFTER M.HILLARD 15 Jan. 2010		SIZE DWG. NO. <b>B D0902278</b>	
CHECKER A.STEIN 15 Jan. 2010				APPROVAL K.MASON 15 Jan. 2010		REV. <b>v1</b>	
SCALE: 1:4				PROJECTION:		SHEET 1 OF 2	

D0902278 L4C Wall, Stage 1, BSC-ISI, PART PDM REV: X-043, DRAWING PDM REV: X-014

BOTTOM VIEW



TAG	SIZE	QUANTITY
B	$\phi .28$ THRU ALL	2
C	$\phi .22$ THRU TO SLOT	1
D	$\phi .397$ THRU ALL $\phi .52 \times 120^\circ$ , NEAR SIDE TAP FOR 3/8-16 HELICOIL INSERT = 2.0 * DIA.	2
F	$\phi .313$ THRU ALL 3/8-16 UNC THRU ALL $\phi .46 \times 120^\circ$ , NEAR SIDE	1
G	$\phi .386$ THRU ALL $\phi .625 \text{ } \nabla .375$ $\phi .68 \times 90^\circ$ , NEAR SIDE	4

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MASSACHUSETTS INSTITUTE OF TECHNOLOGY

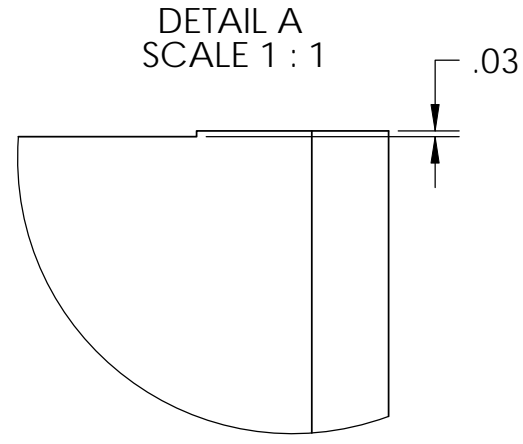
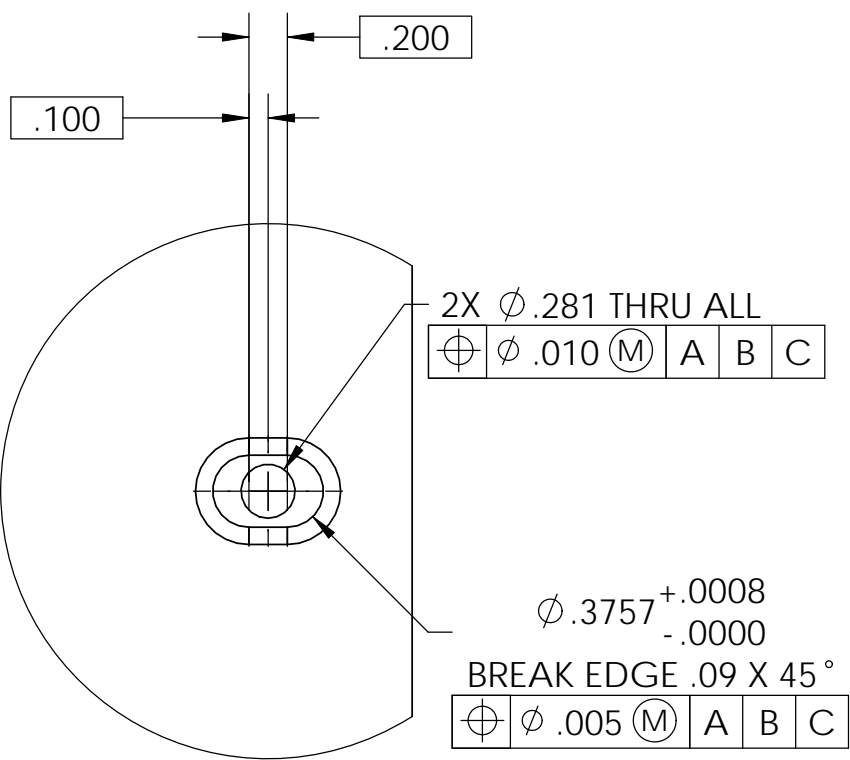
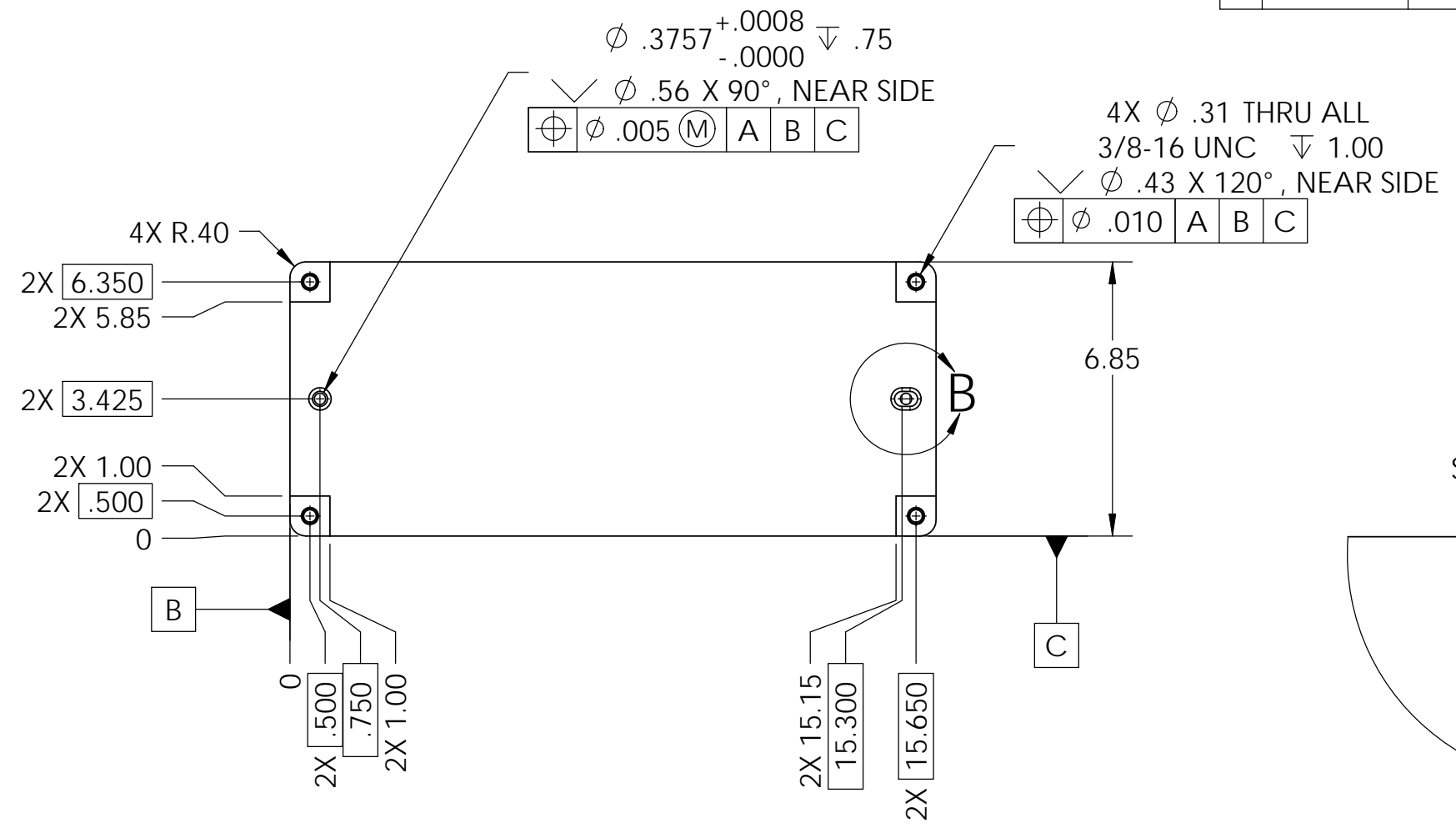
SIZE	DWG. NO.	REV.
B	D0902278	v1
SCALE: 1:4	PROJECTION:	SHEET 2 OF 2

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	D0900495	E1000025

NOTES CONTINUED:  
 (5) SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
 EXAMPLE DXXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 31.9 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES.  
 10. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

D  
C  
B  
A

D  
C  
B  
A



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY				PART NAME			
DIMENSIONS ARE IN INCHES				1. INTERPRET DRAWING PER ASME Y14.5-1994.				BALLAST, STAGE 1, aLIGO BSC-ISI			
TOLERANCES: .XX ± .015 .XXX ± .005				2. REMOVE ALL SHARP EDGES, R.02 MIN.				DESIGNER F.MATICHARD 15 Jan. 2010			
ANGULAR ± .5°				3. DO NOT SCALE FROM DRAWING.				DRAFTER M.HILLARD 15 Jan. 2010			
MATERIAL 6061-T6 Al				4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				SIZE DWG. NO. B D0902280			
FINISH 63 μinch				NEXT ASSY D0901180				REV. v1			
								SCALE: 1:4 PROJECTION:  SHEET 1 OF 1			

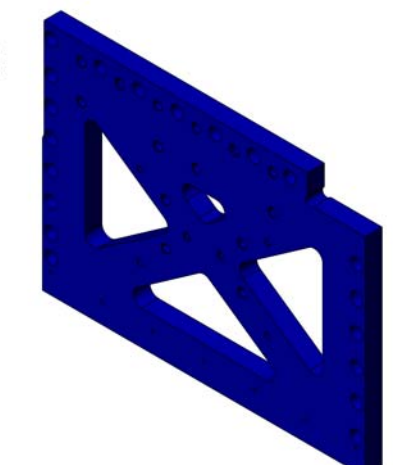
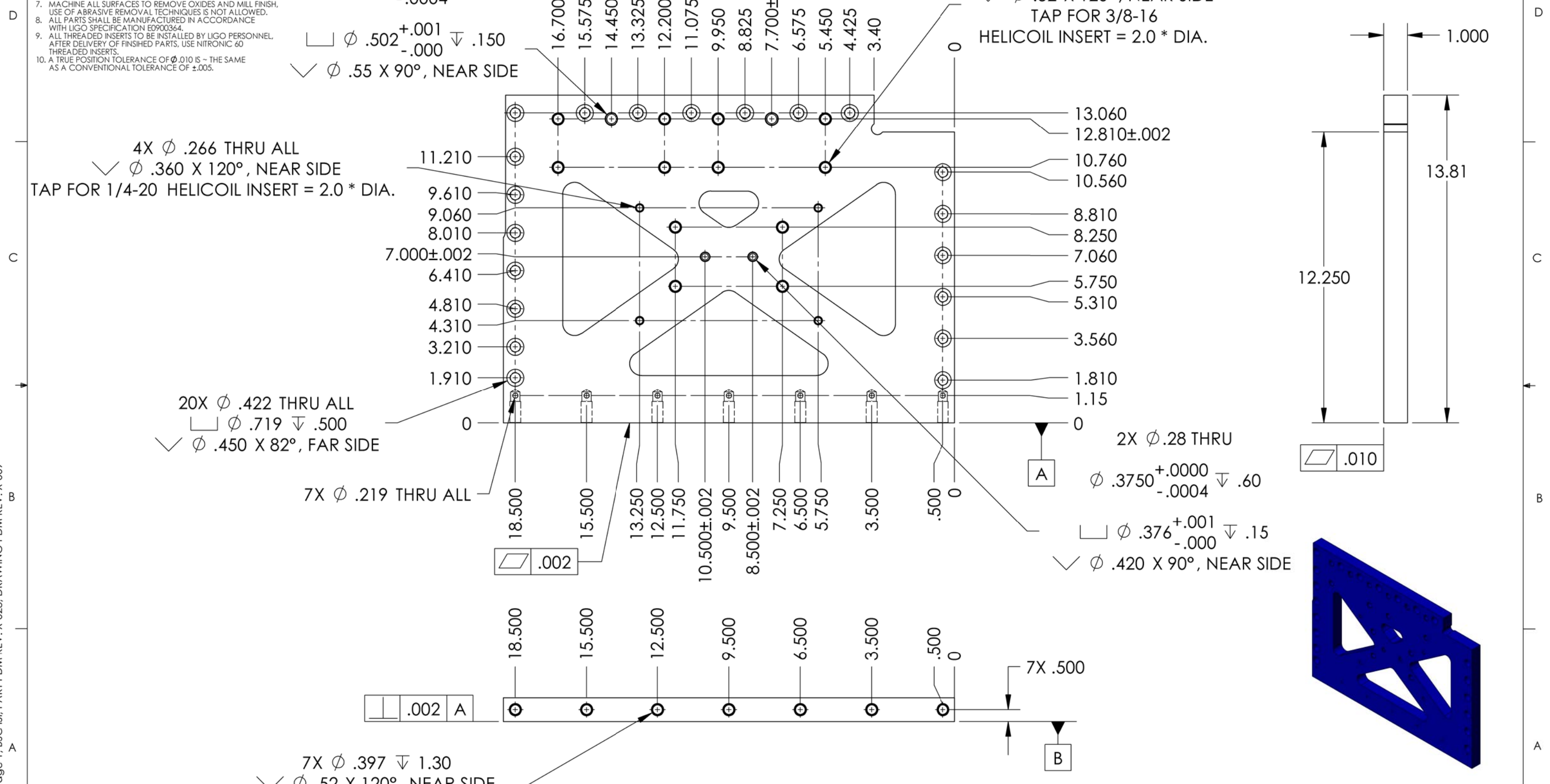
D0902280 Ballast, Stage 1, BSC-ISI, PART PDM REV: X-012, DRAWING PDM REV: X-010

8 7 6 5 4 3 2 1

D0902281 Door, Stage 1, BSC ISI, PART PDM REV: X-023, DRAWING PDM REV: X-009

- NOTES CONTINUED:
- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.
  - 6. APPROXIMATE WEIGHT = 18.3 LB.
  - 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  - 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  - 9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS. USE NITRONIC 60 THREADED INSERTS.
  - 10. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E100025



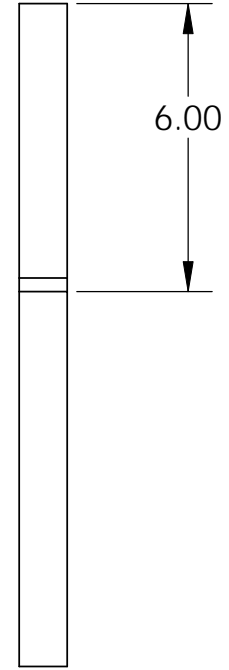
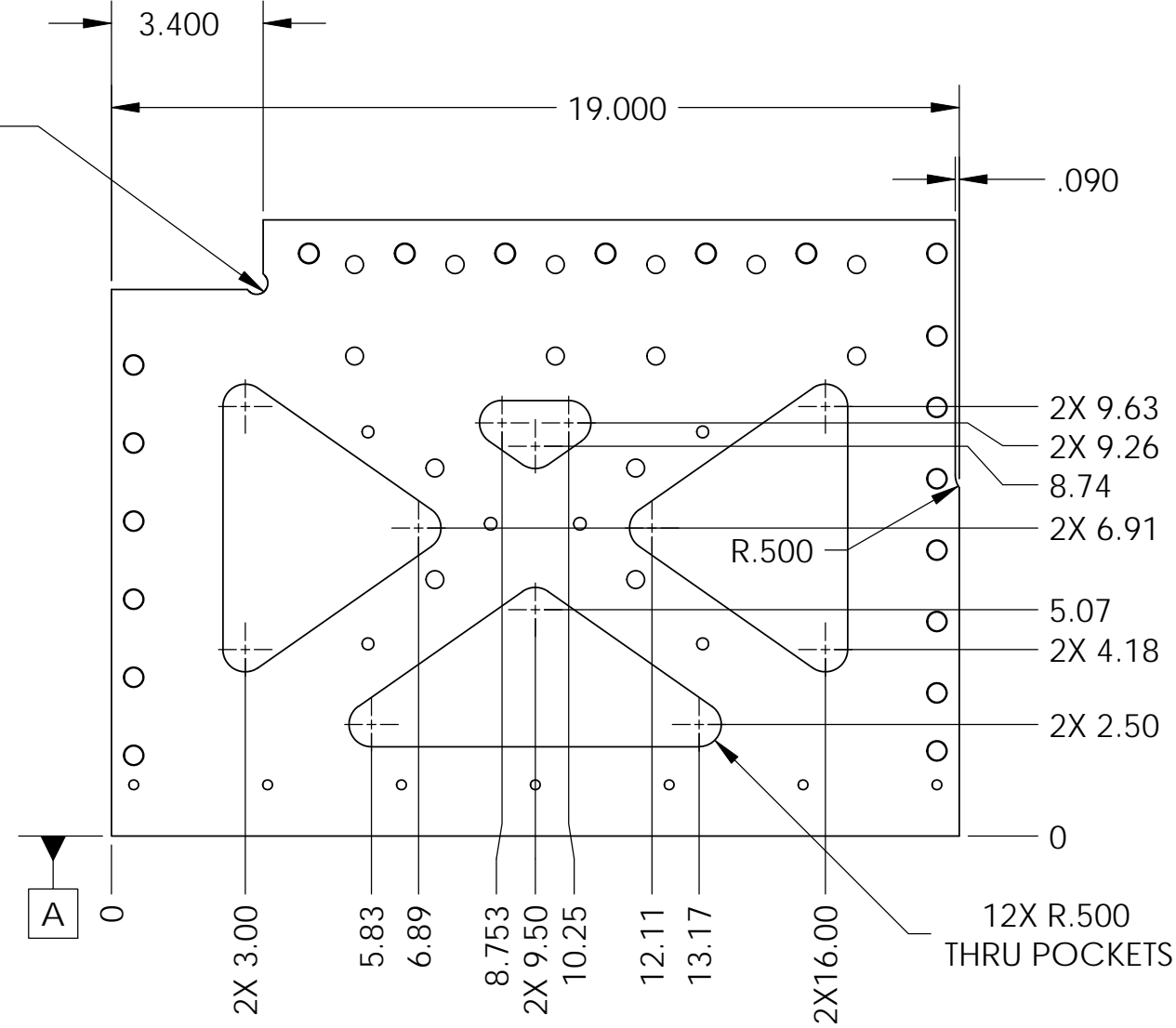
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Door, Stage 1, aLIGO BSC ISI	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER	F.MATCHARD 15 Jan. 2010
ANGULAR $\pm .5^\circ$				NEXT ASSY		DRAWN	M.HILLARD 15 Jan. 2010
MATERIAL 6061-T6 Al				FINISH 63 $\mu$ inch		CHECKER	A.STEIN 15 Jan. 2010
				D0901180		APPROVAL	K.MASON 15 Jan. 2010
				SCALE: 1:4		PROJECTION:	SIZE DWG. NO. D0902281
							REV. v1
							SHEET 1 OF 2

D0902281 Door, Stage 1, BSC ISI, PART PDM REV: X-023, DRAWING PDM REV: X-009

D  
C  
B  
A

8 7 6 5 4 3 2 1

RELIEVE CORNER  
CONSTRUCTION  
VENDOR OPTION



D  
C  
B  
A

8 7 6 5 4 3 2 1

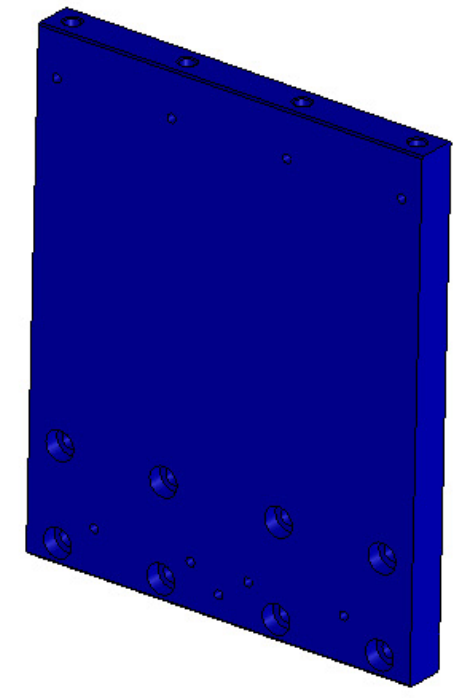
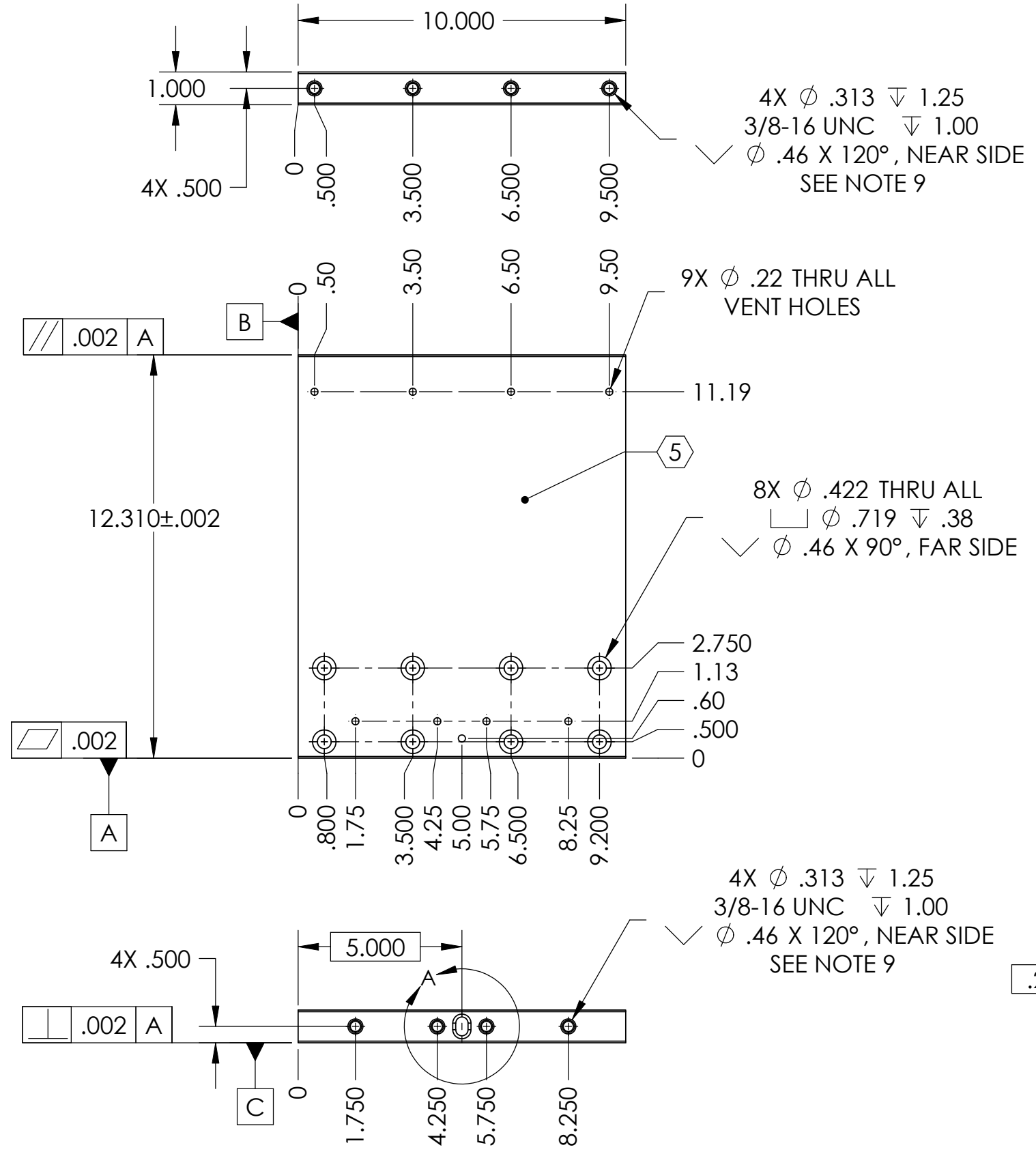
**LIGO** CALIFORNIA INSTITUTE OF TECHNOLOGY  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SIZE <b>B</b>	DWG. NO. D0902281	REV. V1
SCALE: 1:4		PROJECTION:  SHEET 2 OF 2

D0902282 Hex Inner Wall, Stage 1, BSC-ISI, PART PDM REV: X-019, DRAWING PDM REV: X-008

**NOTES CONTINUED:**  
 (5) SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR 'TYPE' IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
 EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 11.67 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 9. A TAPPED HOLE PITCH DIAMETER LIMIT OF H11 APPLIES TO ALL TAPPED HOLES.  
 10. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025



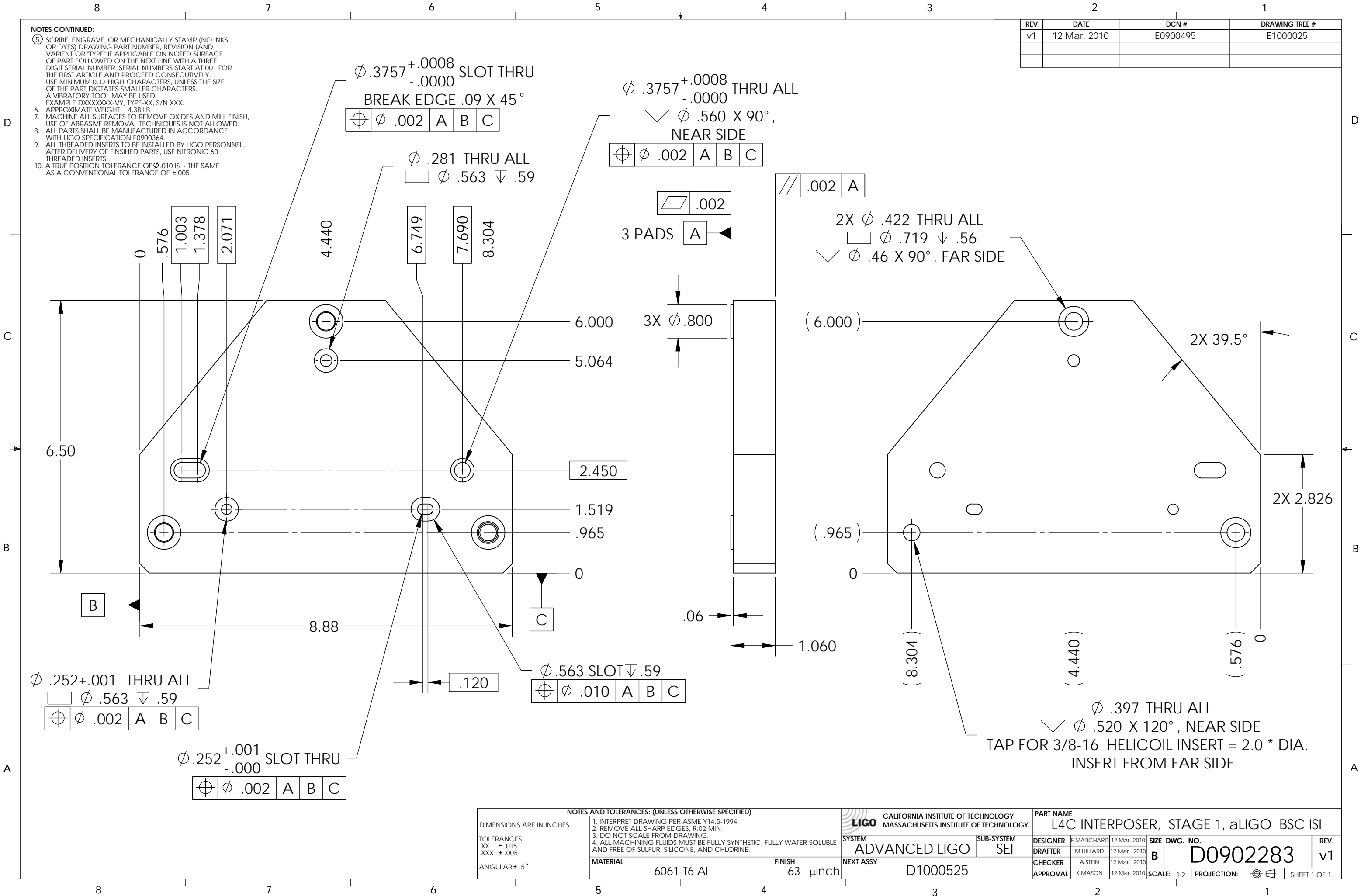
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		HEX INNER WALL, STAGE 1, aLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				SUB-SYSTEM SEI		DESIGNER F.MATICHARD 15 Jan. 2010	SIZE DWG. NO. B D0902282
ANGULAR ± 0.5°				NEXT ASSY D0901180		DRAFTER M.HILLARD 15 Jan. 2010	REV. v1
MATERIAL 6061-T6 Al				FINISH 63 μinch		CHECKER A.STEIN 15 Jan. 2010	SCALE: 1:4
						APPROVAL K.MASON 15 Jan. 2010	PROJECTION:  SHEET 1 OF 1



D0902283 L4C Interposer, Stage 1, BSC-ISI, PART PDM REV: X-010, DRAWING PDM REV: X-005

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.
  6. APPROXIMATE WEIGHT = 4.38 LB.
  7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.
  10. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .



$\phi .252 \pm .001$  THRU ALL  
 $\phi .563 \downarrow .59$   
 $\phi .002$  A B C

$\phi .252^{+.001}$   
 $-.000$  SLOT THRU  
 $\phi .002$  A B C

$\phi .3757^{+.0008}$   
 $-.0000$  SLOT THRU  
 BREAK EDGE .09 X 45°  
 $\phi .002$  A B C

$\phi .3757^{+.0008}$   
 $-.0000$  THRU ALL  
 $\phi .560$  X 90°, NEAR SIDE  
 $\phi .002$  A B C

/// .002 A

2X  $\phi .422$  THRU ALL  
 $\phi .719 \downarrow .56$   
 $\phi .46$  X 90°, FAR SIDE

$\phi .563$  SLOT  $\downarrow .59$   
 $\phi .010$  A B C

$\phi .397$  THRU ALL  
 $\phi .520$  X 120°, NEAR SIDE  
 TAP FOR 3/8-16 HELICOIL INSERT = 2.0 \* DIA.  
 INSERT FROM FAR SIDE

**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .015 .XXX ± .005	
ANGULAR ± .5°	
1. INTERPRET DRAWING PER ASME Y14.5-1994.	
2. REMOVE ALL SHARP EDGES, R.02 MIN.	
3. DO NOT SCALE FROM DRAWING.	
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.	
MATERIAL	FINISH
6061-T6 Al	63 μinch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
ADVANCED LIGO		L4C INTERPOSER, STAGE 1, aLIGO BSC ISI	
DESIGNER	F.MATICHARD	12 Mar. 2010	SIZE
DRAFTER	M.HILLARD	12 Mar. 2010	DWG. NO.
CHECKER	A.STEIN	12 Mar. 2010	<b>B</b>
APPROVAL	K.MASON	12 Mar. 2010	D0902283
NEXT ASSY		D1000525	REV.
SCALE: 1:2		PROJECTION:	v1
SHEET 1 OF 1			

D0902420 Flexure Rod Shaft Collar Tapped Side, Stage 0-1, aLIGO BSC ISI, PART PDM REV: X-009, DRAWING PDM REV: X-003

REV.	DATE	DCN #	DRAWING TREE #
v1	26 Feb. 2010	E1000022	E1000025

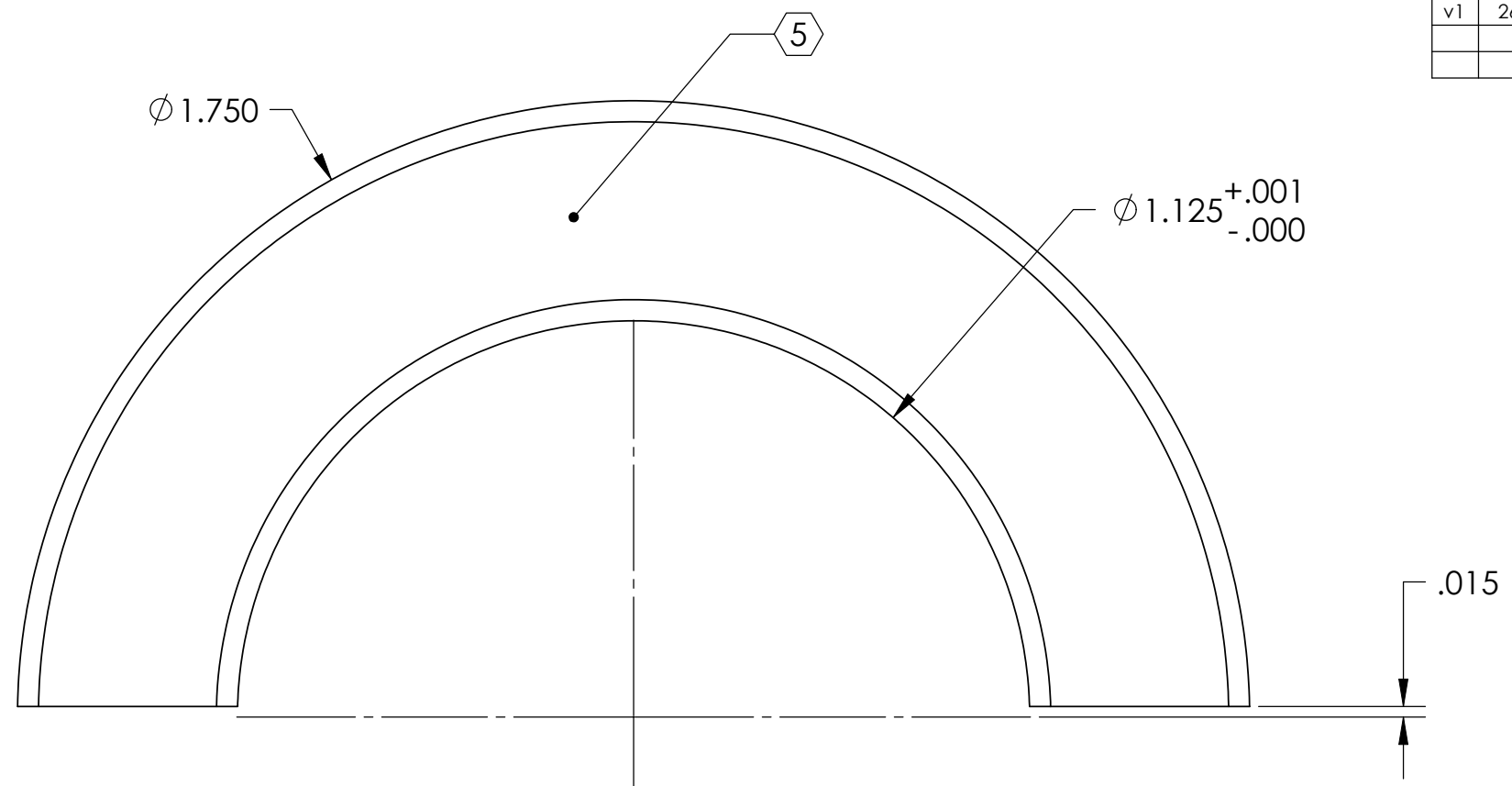
**NOTES CONTINUED:**

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.

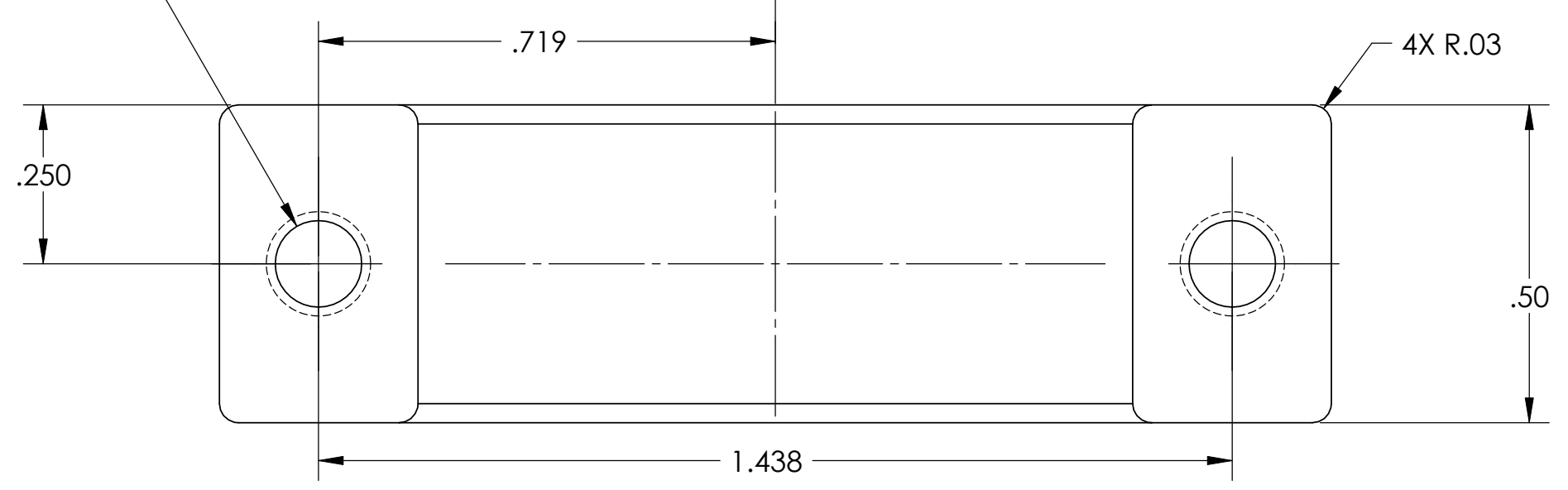
6. APPROXIMATE WEIGHT = 0.10 LB.

7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



2X  $\phi$  .14 THRU ALL  
8-32 UNC THRU ALL

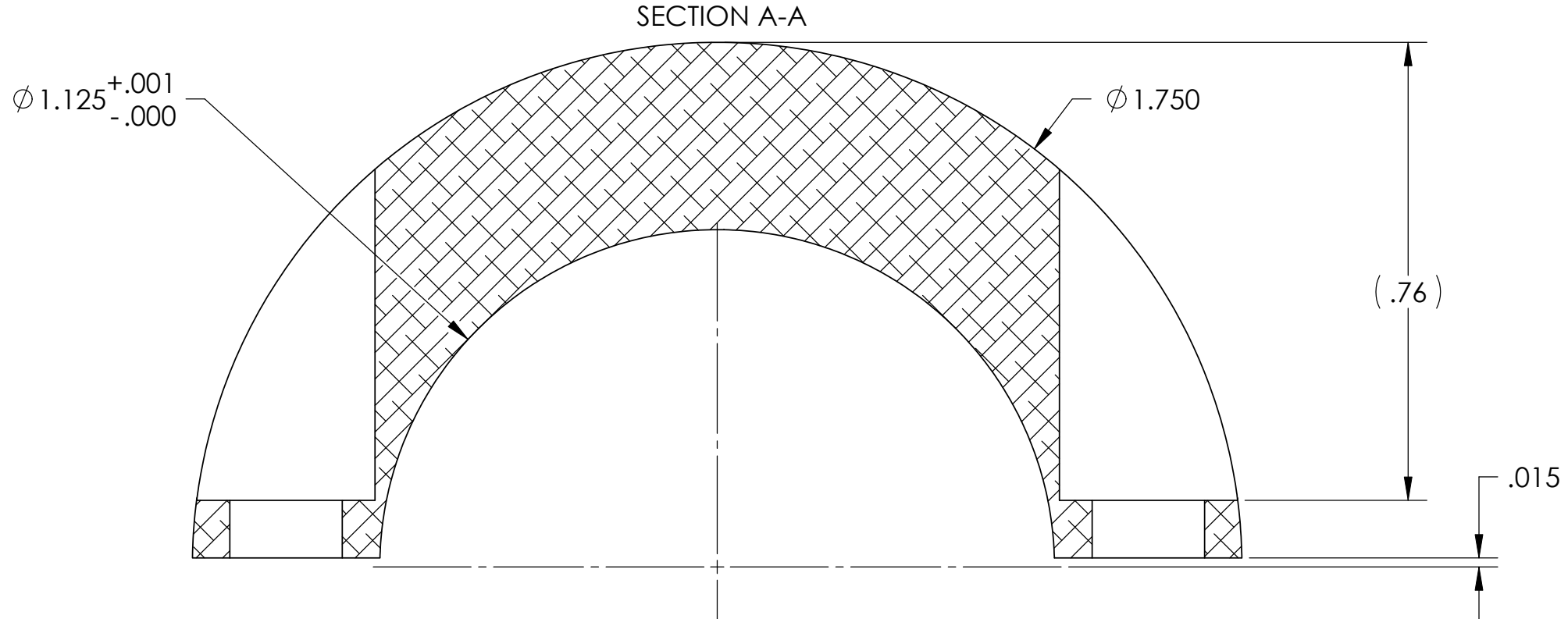
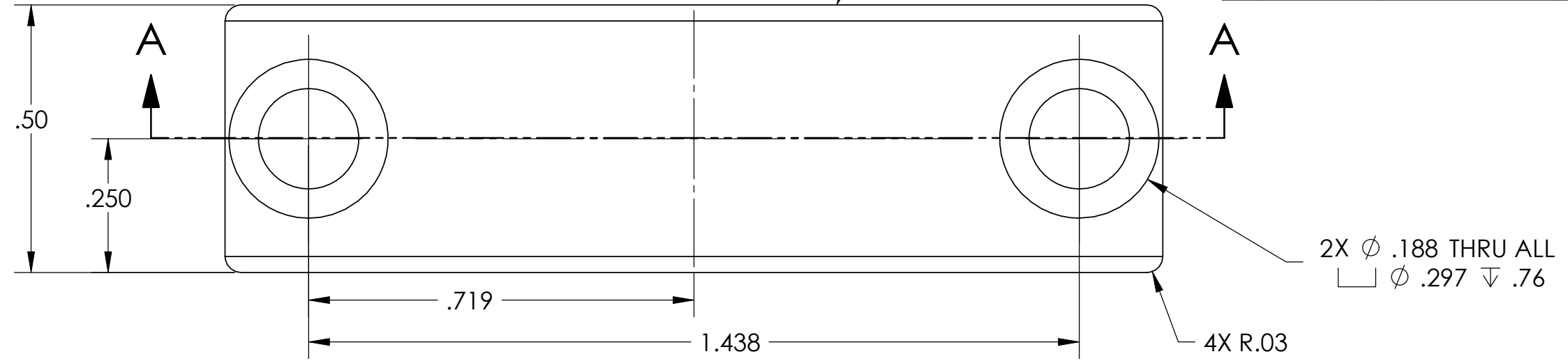


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME FLEXURE ROD SHAFT COLLAR TAPPED SIDE, STAGE 0-1, aLIGO BSC ISI							
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM	ADVANCED LIGO	SUB-SYSTEM	SEI	DESIGNER	C.RAMET	01 Feb. 2010	SIZE	DWG. NO.	REV.
TOLERANCES: .XX ± .015 .XXX ± .005		MATERIAL	316 SSSL	FINISH	32 $\mu$ inch	NEXT ASSY	D0901504	DRAFTER	M.HILLARD	01 Feb. 2010	B	D0902420	v1
ANGULAR ± .5°				APPROVAL	K.MASON	01 Feb. 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1				

D0902421 Flexure Rod Shaft Collar C Bore Side, Stage 0-1, dLIGO BSC ISI, PART PDM REV: X-009, DRAWING PDM REV: X-003

- NOTES CONTINUED:**
- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  - 6. APPROXIMATE WEIGHT = 0.08 LB.
  - 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  - 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

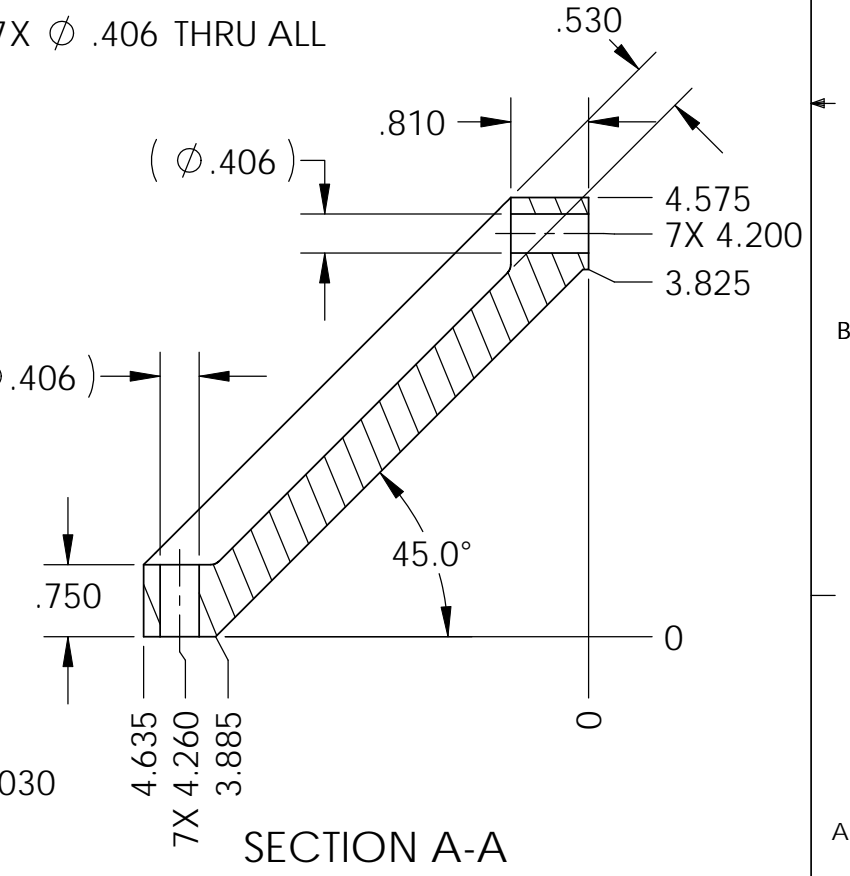
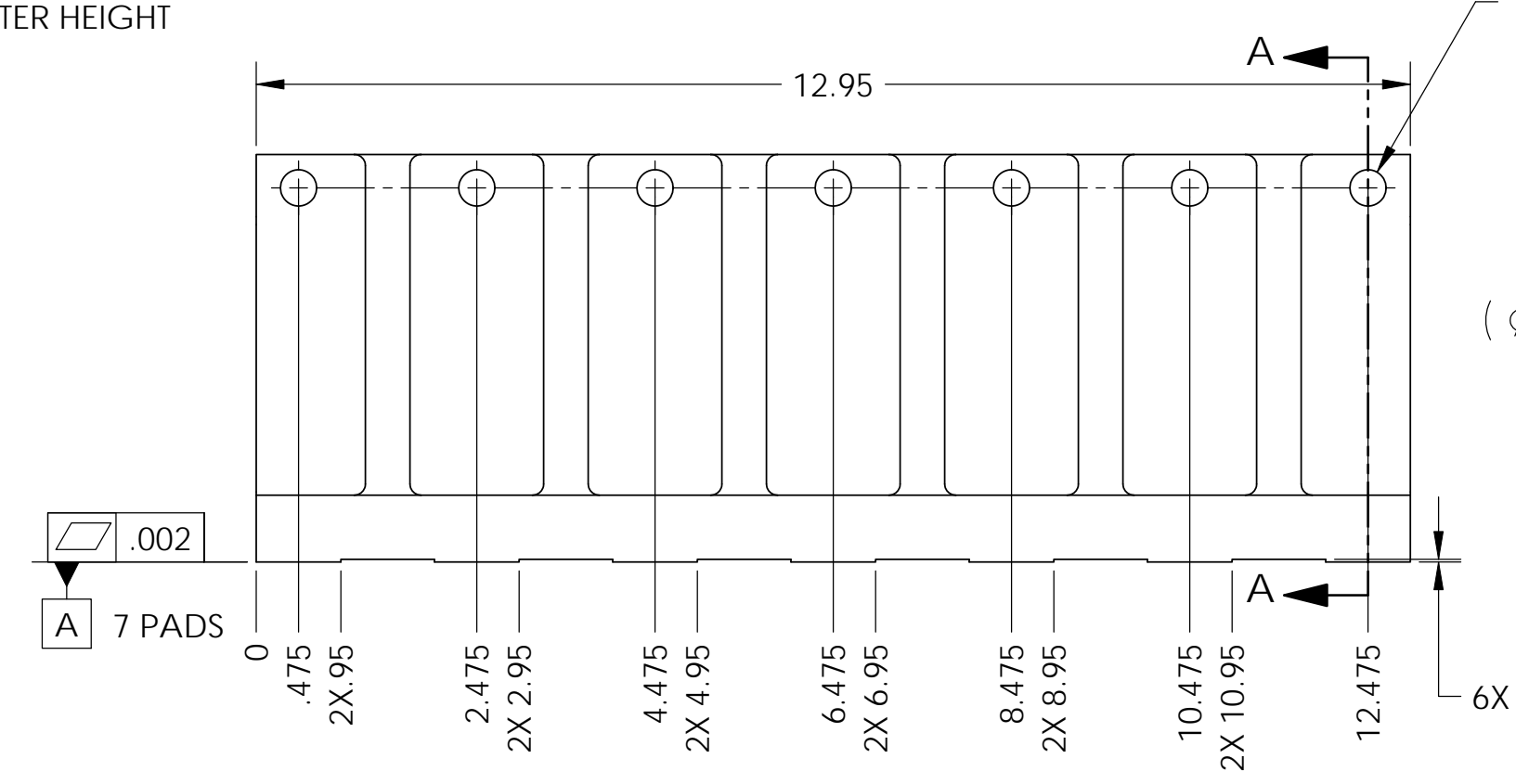
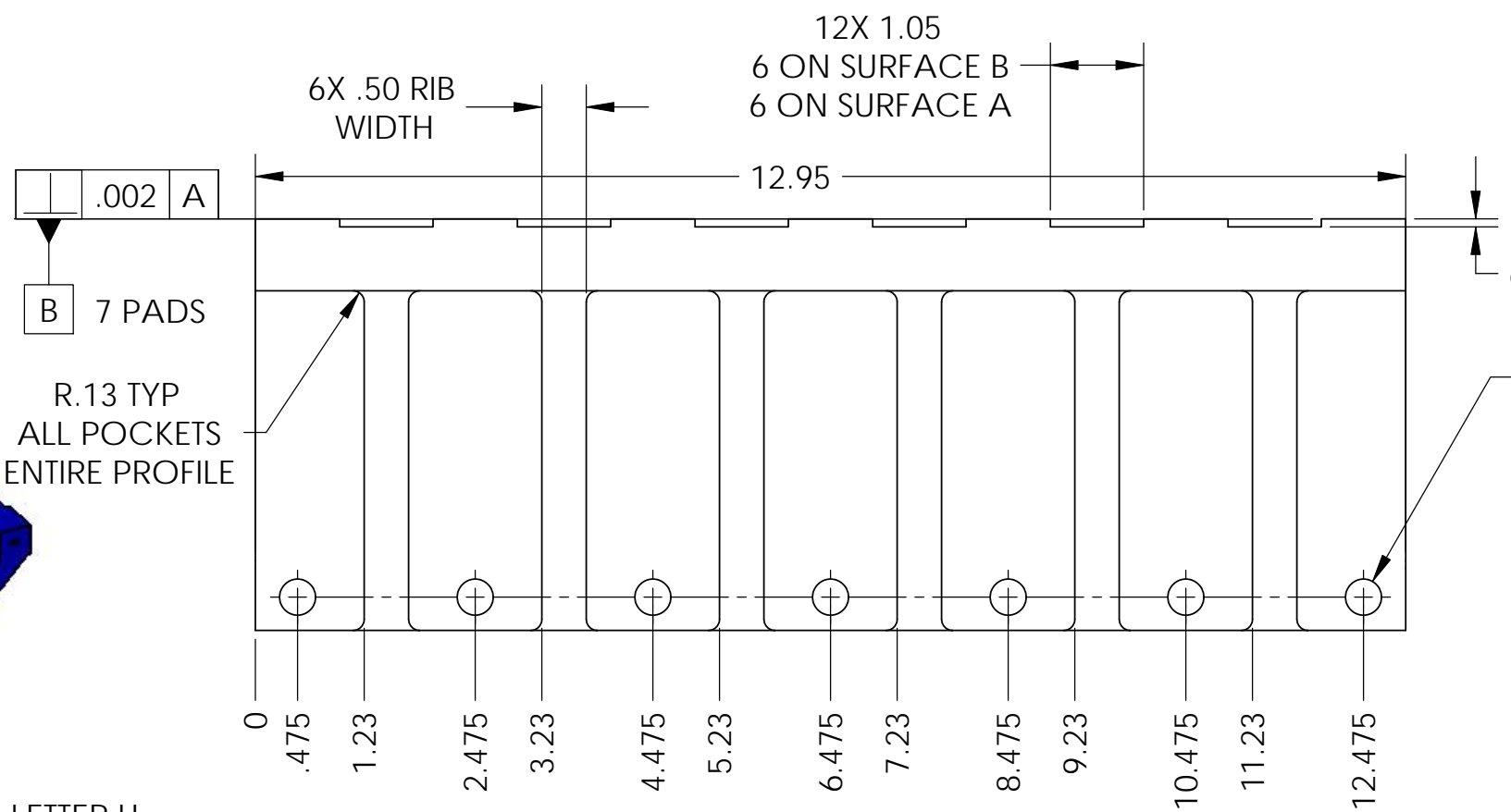
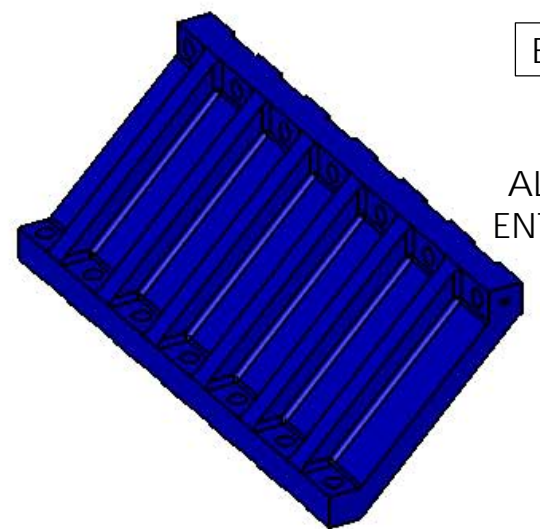
REV.	DATE	DCN #	DRAWING TREE #
v1	26 Feb. 2010	E1000022	E1000025



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME FLEXURE ROD SHAFT COLLAR C'BORE SIDE, STAGE 0-1, dLIGO BSC ISI					
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN.		SYSTEM ADVANCED LIGO		SUB-SYSTEM SEI		DESIGNER C.RAMET	01 Feb. 2010	SIZE DWG. NO.	REV.
TOLERANCES: .XX ± .015 .XXX ± .005		3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		MATERIAL 316 SSSL		FINISH 32 µinch		DRAFTER M.HILLARD	01 Feb. 2010	B	D0902421
ANGULAR ± .5°		NEXT ASSY D0901504		CHECKER F.MATICHARD		01 Feb. 2010		APPROVAL K.MASON	01 Feb. 2010		
				SCALE: 4:1		PROJECTION:		SHEET 1 OF 1			

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

NOTES CONTINUED:  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 5.3 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



D0902441, Side Ribs, Stage 1, BSC ISI, PART PDM REV: X-011, DRAWING PDM REV: X-011

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES  
 TOLERANCES:  
 .XX ± .015  
 .XXX ± .005  
 ANGULAR ± 0.5°

1. INTERPRET DRAWING PER ASME Y14.5-1994.  
 2. REMOVE ALL SHARP EDGES, R.02 MIN.  
 3. DO NOT SCALE FROM DRAWING.  
 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.

MATERIAL: 6061-T6 Al      FINISH: 63 μinch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
SYSTEM: <b>ADVANCED LIGO</b> NEXT ASSY: D0901180		SIDE RIBS, STAGE 1, aLIGO BSC ISI	
DESIGNER	F.MATICHARD	15 Jan. 2010	SIZE: <b>B</b> DWG. NO.: <b>D0902441</b> REV.: <b>v1</b>
DRAFTER	M.HILLARD	15 Jan. 2010	
CHECKER	A.STEIN	15 Jan. 2010	
APPROVAL	K.MASON	15 Jan. 2010	
SCALE:	1:2	PROJECTION:	SHEET 1 OF 1

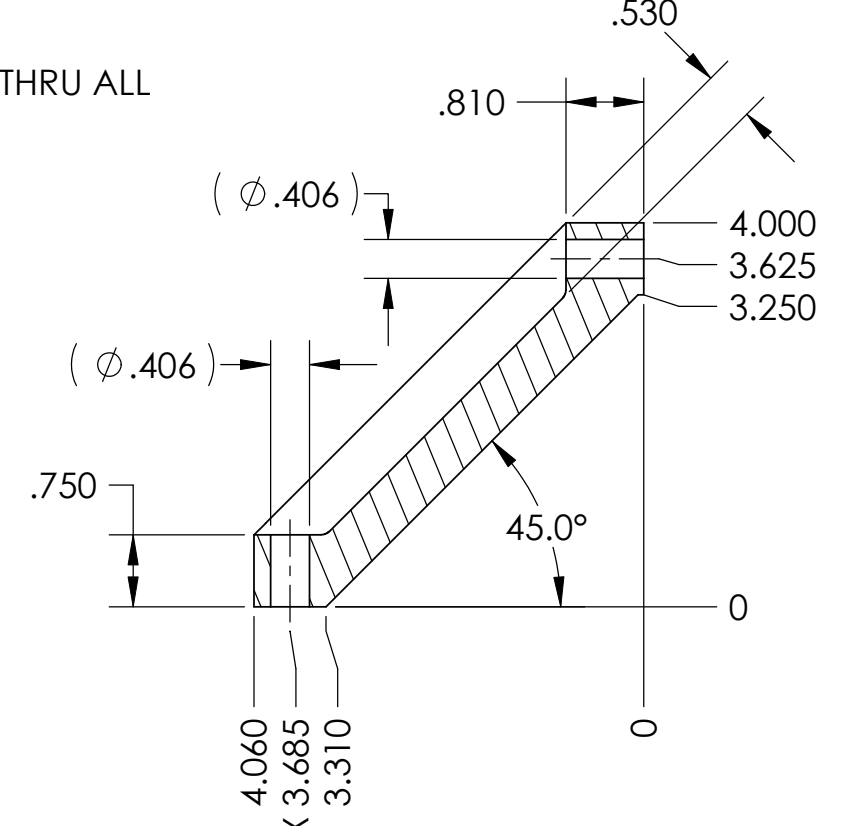
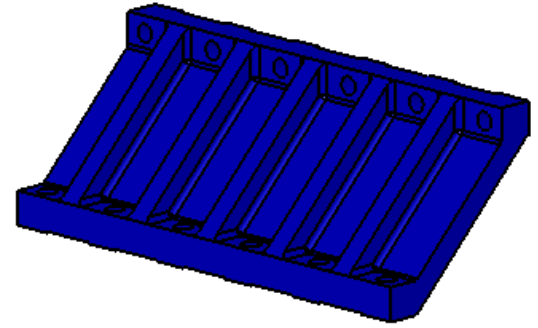
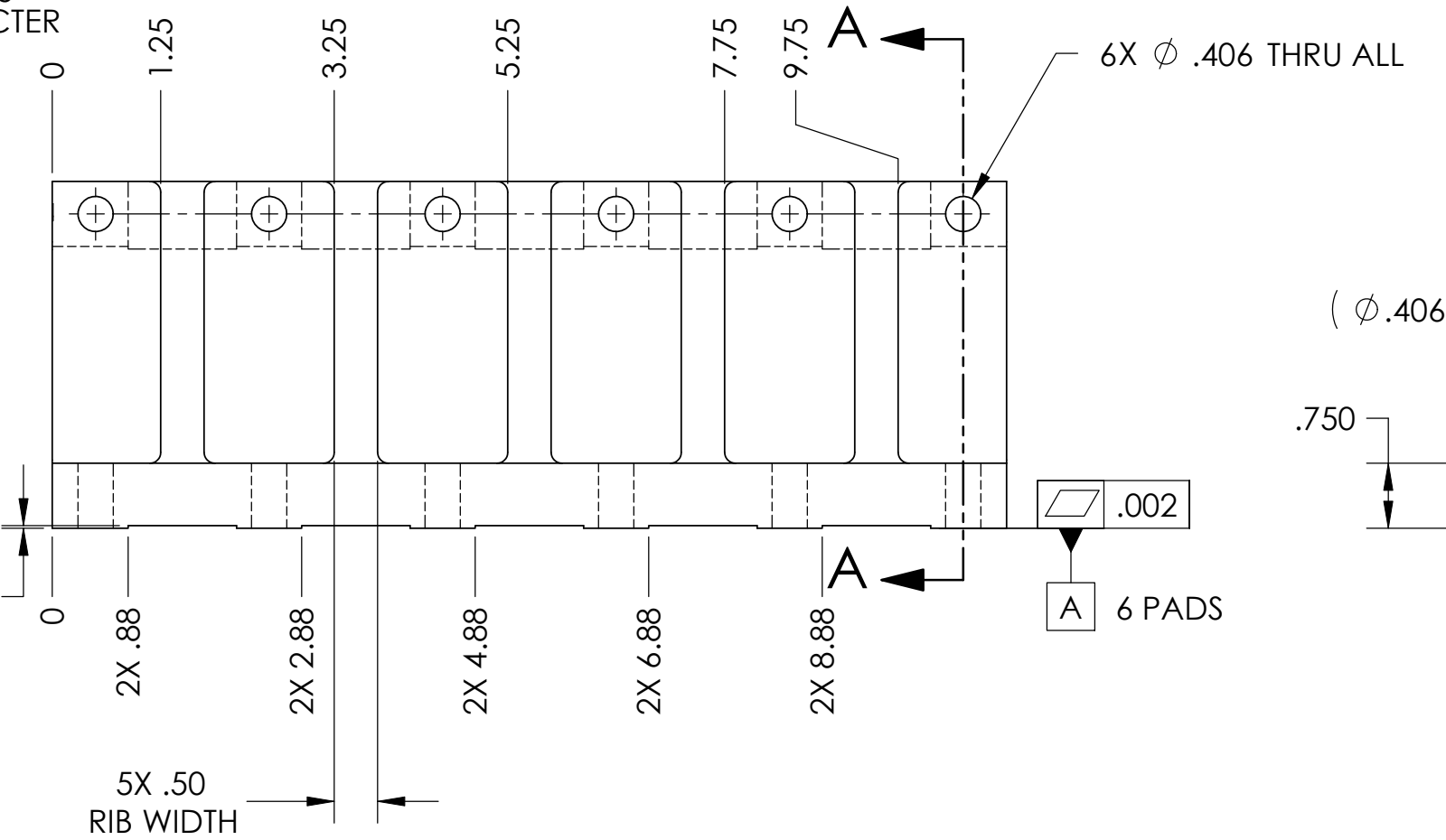
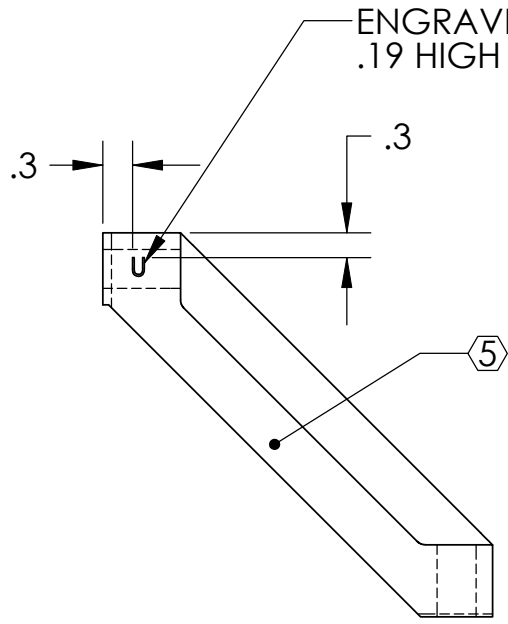
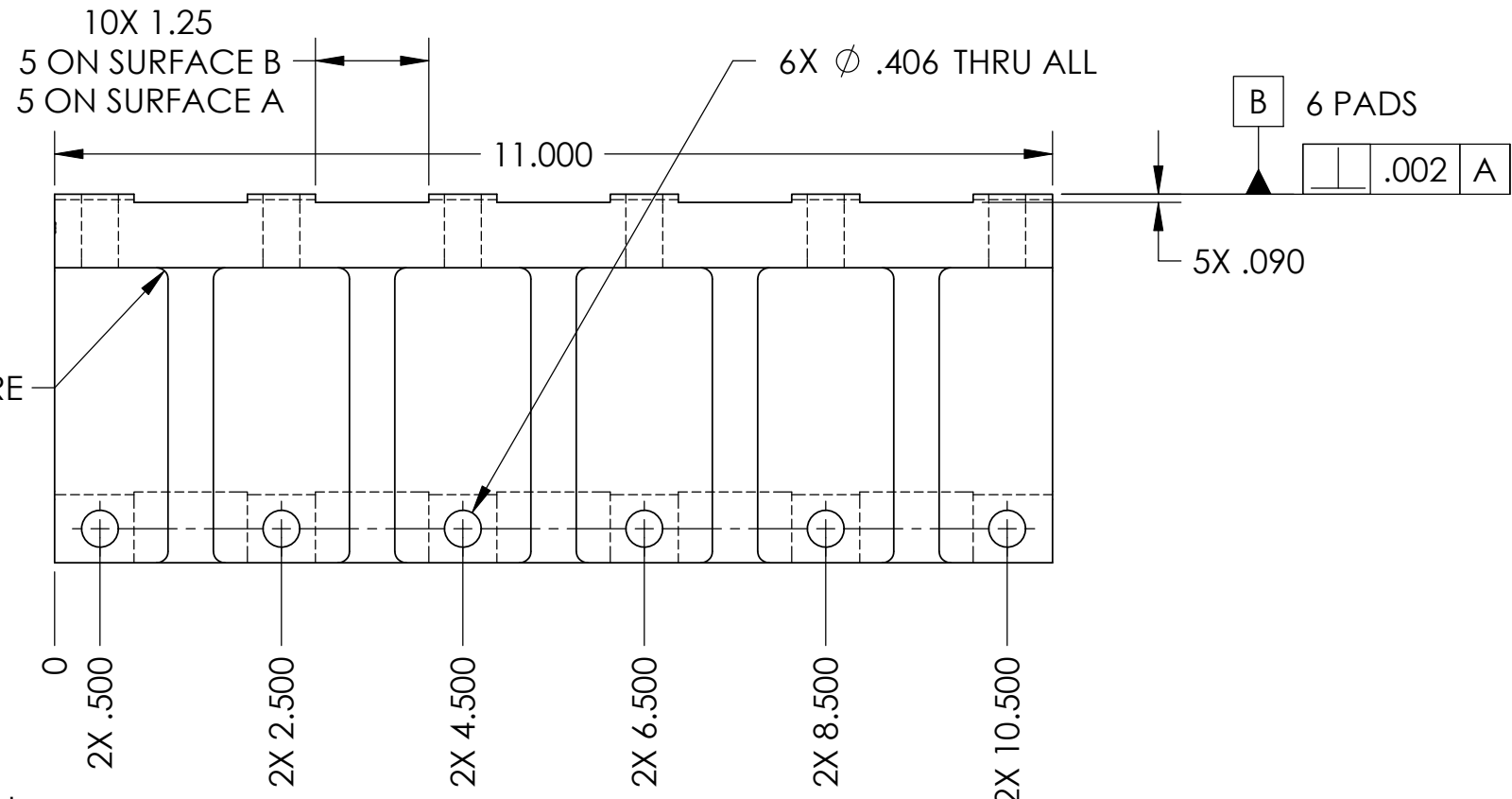
D0902443, Back Ribs, Stage 1, BSC ISI, PART PDM REV: X-009, DRAWING PDM REV: X-007

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 3.9 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

D  
C  
B  
A

D  
C  
B  
A



SECTION A-A

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		BACK RIBS, STAGE 1, αLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				SEI		DESIGNER	F.MATICHARD 15 Jan. 2010
ANGULAR ± .5°				NEXT ASSY		DRAWER	M.HILLARD 15 Jan. 2010
MATERIAL		FINISH		SCALE		DWG. NO.	
6061-T6 Al		63 μinch		1:2		B D0902443	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				D0901180		CHECKER	A.STEIN 15 Jan. 2010
APPROVAL				K.MASON 15 Jan. 2010		REVISION	v1
SHEET 1 OF 1				PROJECTION:		SHEET 1 OF 1	

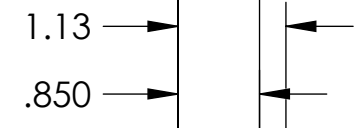
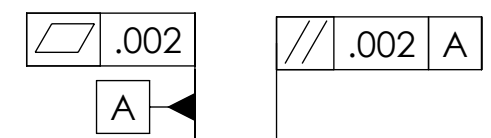
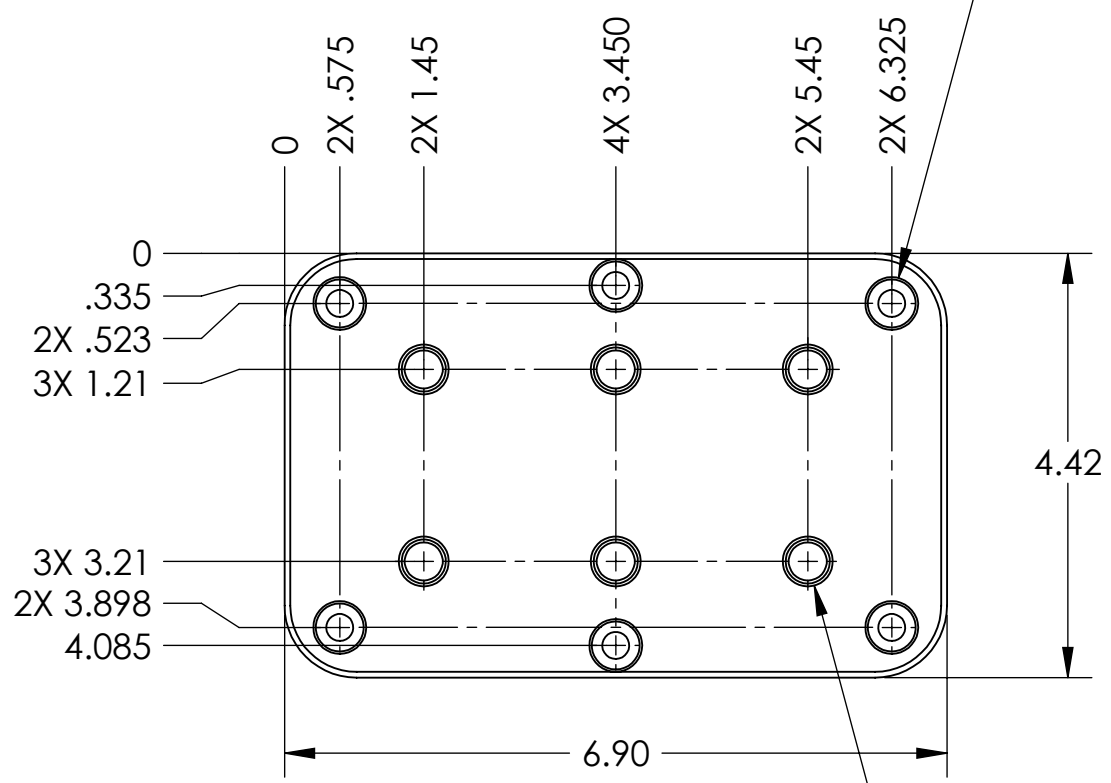
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8 7 6 5 4 3 2 1

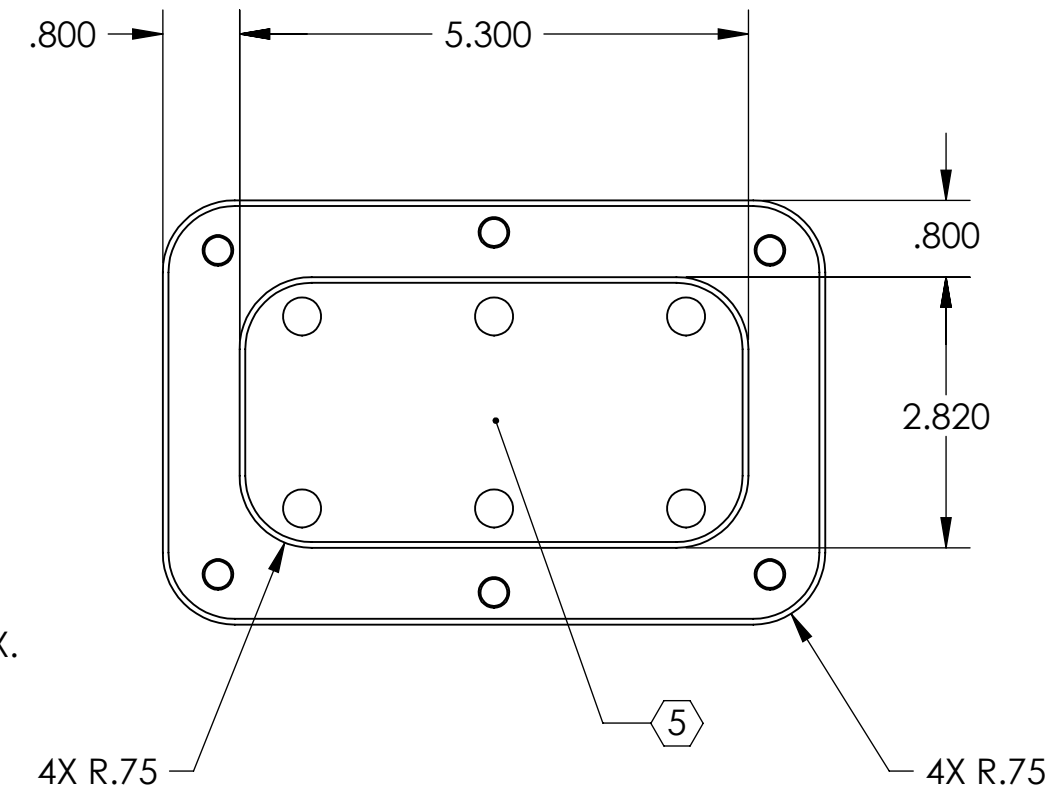
REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E1000020	E1000025

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 2.7 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL AFTER DELIVERY OF FINISHED PARTS. USE ONLY NITRONIC 60 INSERTS.  
 9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

6X  $\phi$  .281 THRU ALL  
 $\square$   $\phi$  .500  $\nabla$  .50  
 $\checkmark$   $\phi$  .55 X 90°, NEAR SIDE  
 $\checkmark$   $\phi$  .32 X 90°, FAR SIDE



3X .06 X 45.0° TYP.  
 R.015 MAX.



6X  $\phi$  .397 THRU ALL  
 $\checkmark$   $\phi$  .52 X 120°, NEAR SIDE  
 TAP FOR 3/8-16  
 HELICOIL INSERT = 2.0 \* DIA.

D0902487\_Spring\_Hatch-BSC\_ISI, PART PDM REV: X-008, DRAWING PDM REV: X-004

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .015 .XXX ± .005 ANGULAR ± .5°	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.	
MATERIAL	FINISH
6061-T6 Al	63 $\mu$ inch

<b>LIGO</b> CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	PART NAME
ADVANCED LIGO	Spring Hatch, aLIGO BSC ISI
SEI	DESIGNER
D0901181	A.STEIN
	M.HILLARD
	F.MATICHARD
	K.MASON

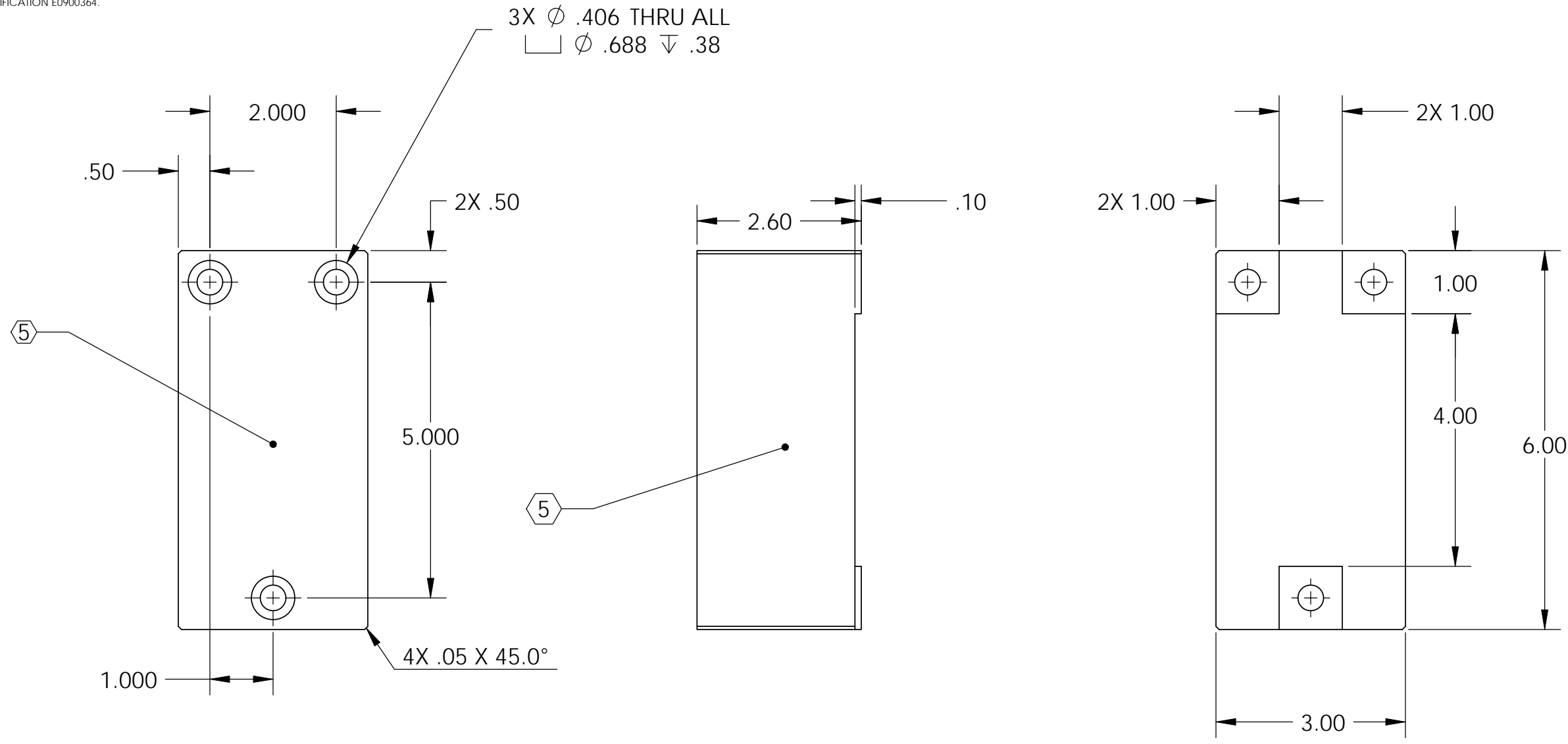
DESIGNER	A.STEIN	11 Jan. 2010	SIZE	DWG. NO.	REV.
DRAFTER	M.HILLARD	11 Jan. 2010	B	D0902487	v1
CHECKER	F.MATICHARD	11 Jan. 2010	SCALE	1:2	PROJECTION:
APPROVAL	K.MASON	11 Jan. 2010	SHEET	1 OF 1	

8 7 6 5 4 3 2 1

D0902612 Lateral Trim Mass 12 Lbs., Stage 1, aLIGO BSC-ISI, PART PDM REV: X-008, DRAWING PDM REV: X-005

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICAL AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.  
 6. APPROXIMATE WEIGHT = 12.72 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

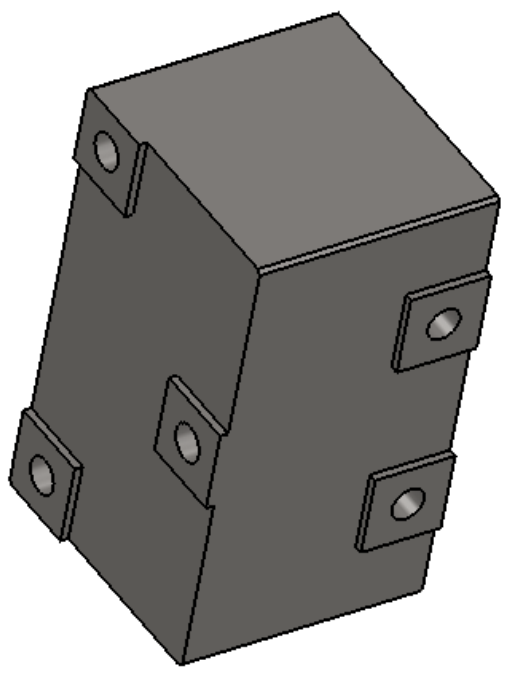
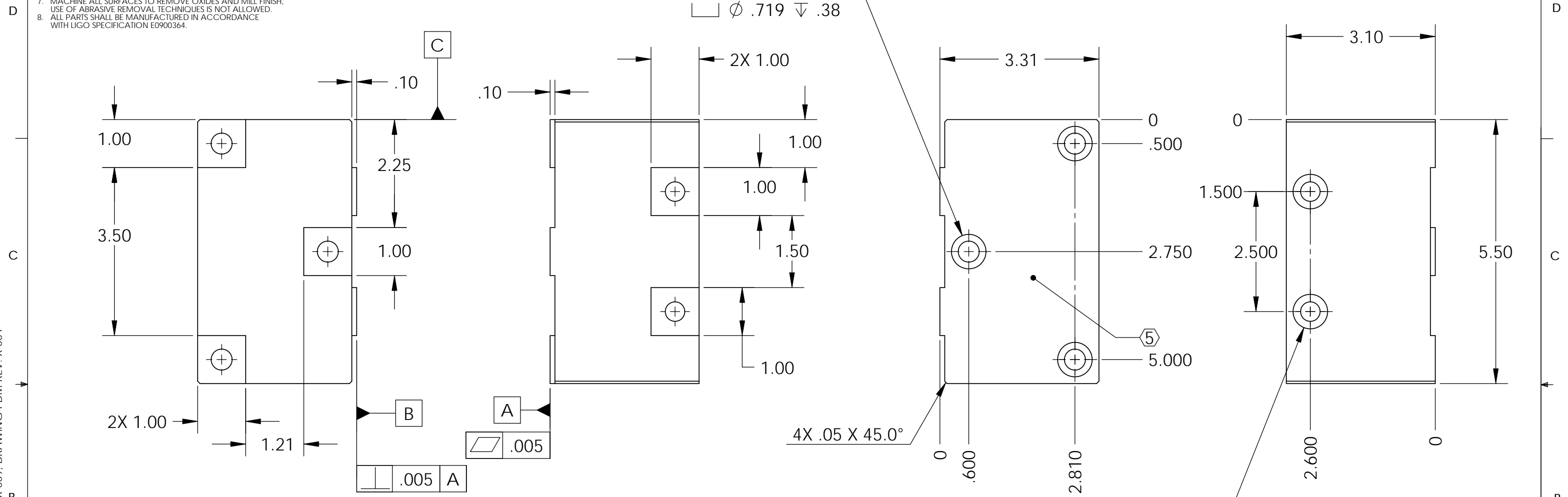


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM <b>ADVANCED LIGO</b>		SUB-SYSTEM <b>SEI</b>	
TOLERANCES: .XX ± .015 .XXX ± .005		MATERIAL <b>AISI 304</b>		FINISH <b>63 <math>\mu</math>inch</b>		NEXT ASSY <b>D0901180</b>	
ANGULAR ± .5°		DESIGNER F.MATICHARD 15 Jan. 2010		DRAFTER M.HILLARD 15 Jan. 2010		SIZE DWG. NO. <b>B D0902612</b>	
		CHECKER A.STEIN 15 Jan. 2010		APPROVAL K.MASON 15 Jan. 2010		REV. <b>v1</b>	
		SCALE: 1:2		PROJECTION:		SHEET 1 OF 1	

D0902613 Lateral Trim Mass 15 Lbs., Stage 1, aLIGO BSC-ISI, PART PDM REV: X-009, DRAWING PDM REV: X-004

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 14.65 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

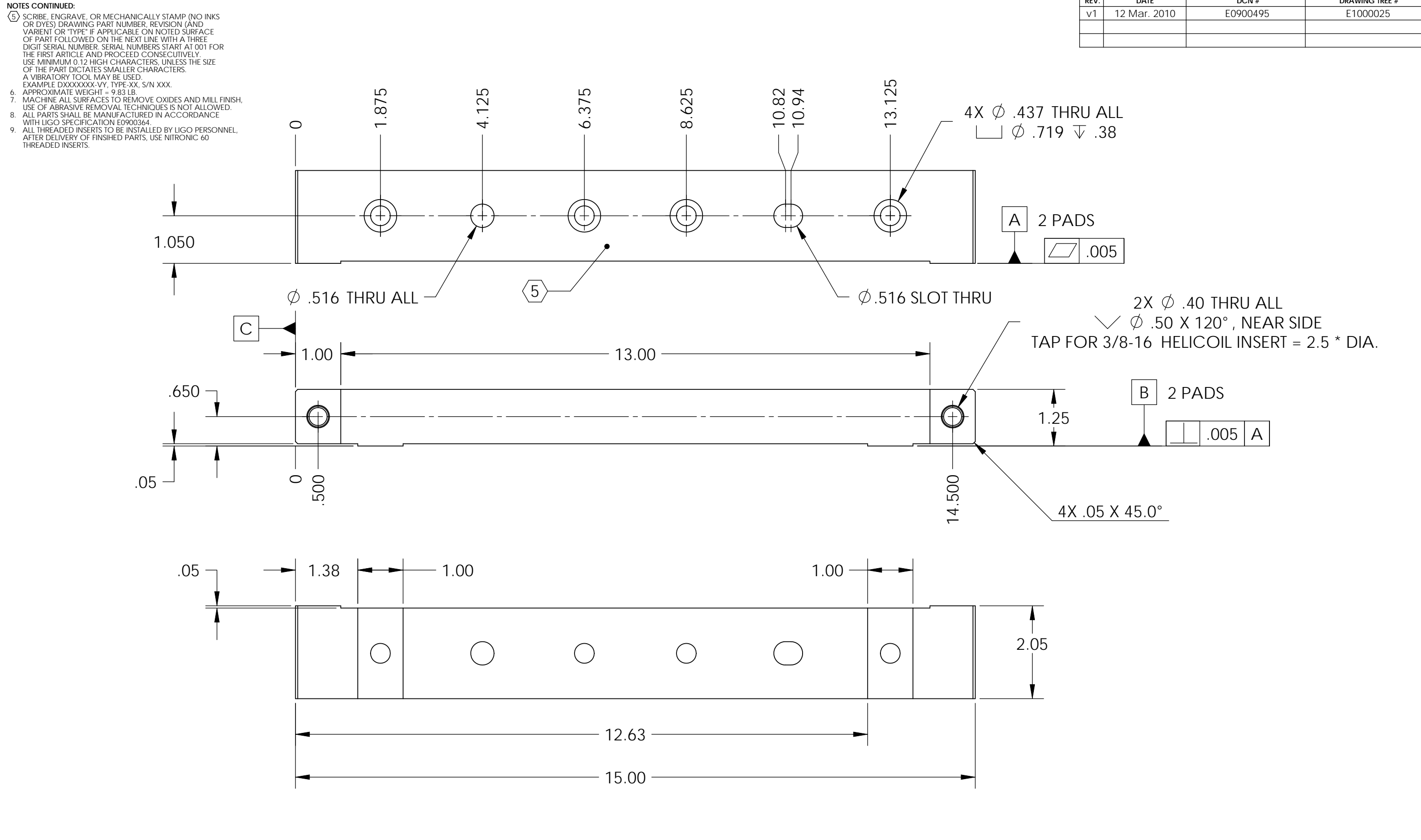
REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		SUB-SYSTEM		LATERAL TRIM MASS 15 LBS, STAGE 1, aLIGO BSC ISI	
TOLERANCES: .XX ± .015 .XXX ± .005				FINISH		NEXT ASSY		DESIGNER	DATE
ANGULAR ± .5°				63 μinch		D0901180		DRAFTER	15 Jan. 2010
MATERIAL				AISI 304		SEI		CHECKER	15 Jan. 2010
								APPROVAL	15 Jan. 2010
								SCALE: 1:2	PROJECTION:
								SIZE DWG. NO.	REV.
								B	D0902613
								SHEET 1 OF 1	v1



D0902614 Front Lower Trim Mass 10 Lbs., Stage 1, aLIGO BSC-ISI, PART PDM REV: X-010, DRAWING PDM REV: X-007



REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

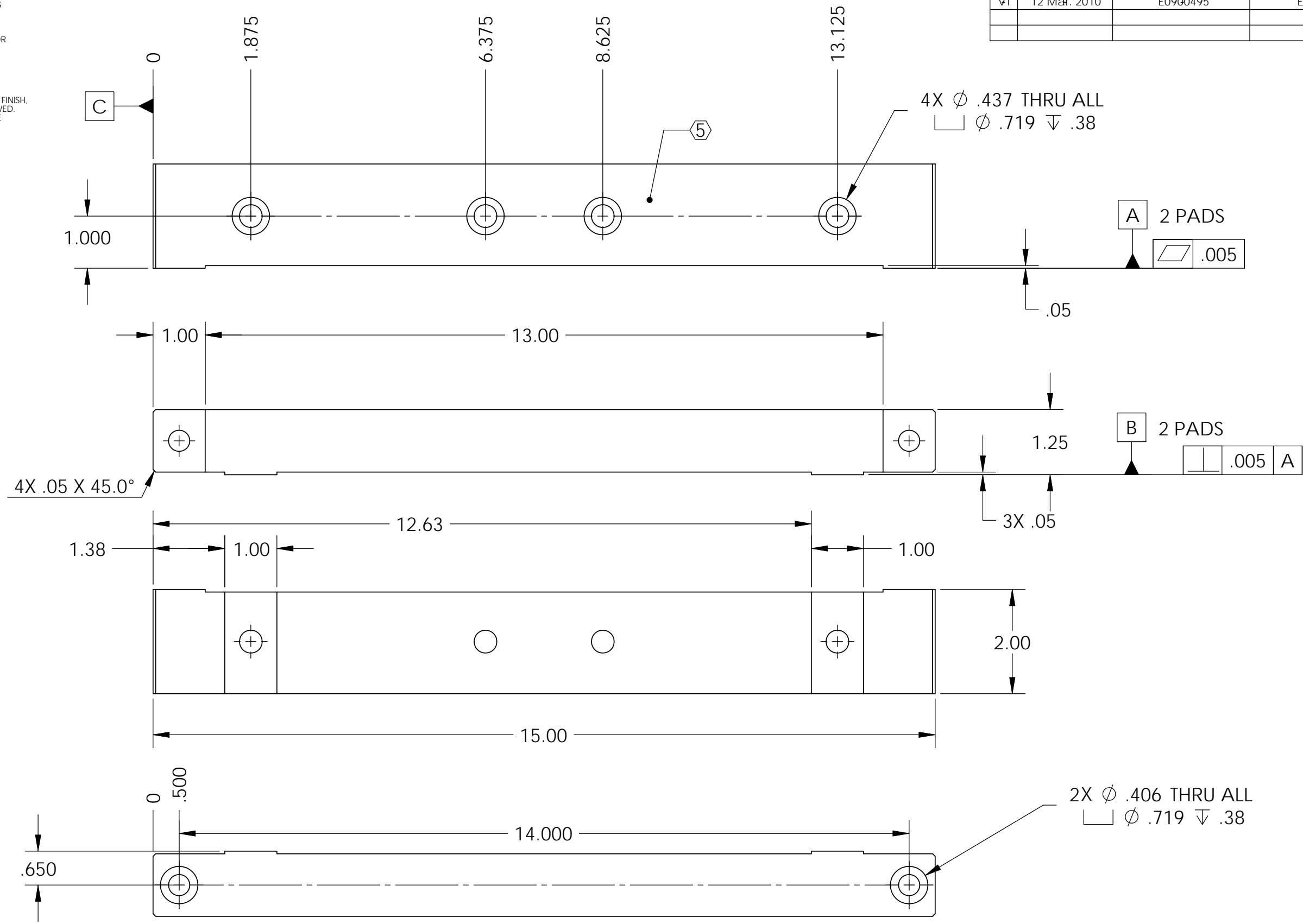
**NOTES CONTINUED:**  
 (5) SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
 EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 9.83 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.  
 9. ALL THREADED INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM ADVANCED LIGO		SUB-SYSTEM SEI	
TOLERANCES: .XX ± .015 .XXX ± .005		MATERIAL AISI 304		FINISH 63 μinch		NEXT ASSY D0901180	
ANGULAR ± .5°							
				DESIGNER F.MATICHARD 15 Jan. 2010		SIZE DWG. NO.	
				DRAFTER M.HILLARD 15 Jan. 2010		B D0902614	
				CHECKER A.STEIN 15 Jan. 2010		REV.	
				APPROVAL K.MASON 15 Jan. 2010		v1	
				SCALE: 1:2		PROJECTION:	
				SHEET 1 OF 1			

D0902615 Front Upper Trim Mass 10 Lbs., Stage 1, aLIGO BSC-ISI, PART PDM REV: X-009, DRAWING PDM REV: X-004

**NOTES CONTINUED:**  
 (5) SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
 EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. APPROXIMATE WEIGHT = 9.70 LB.  
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 8. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025

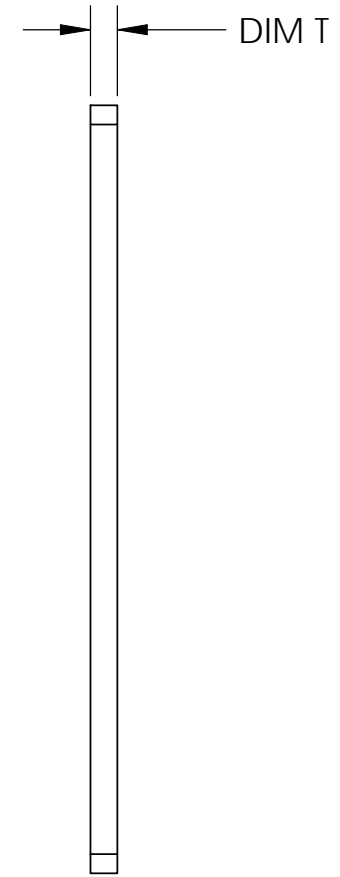
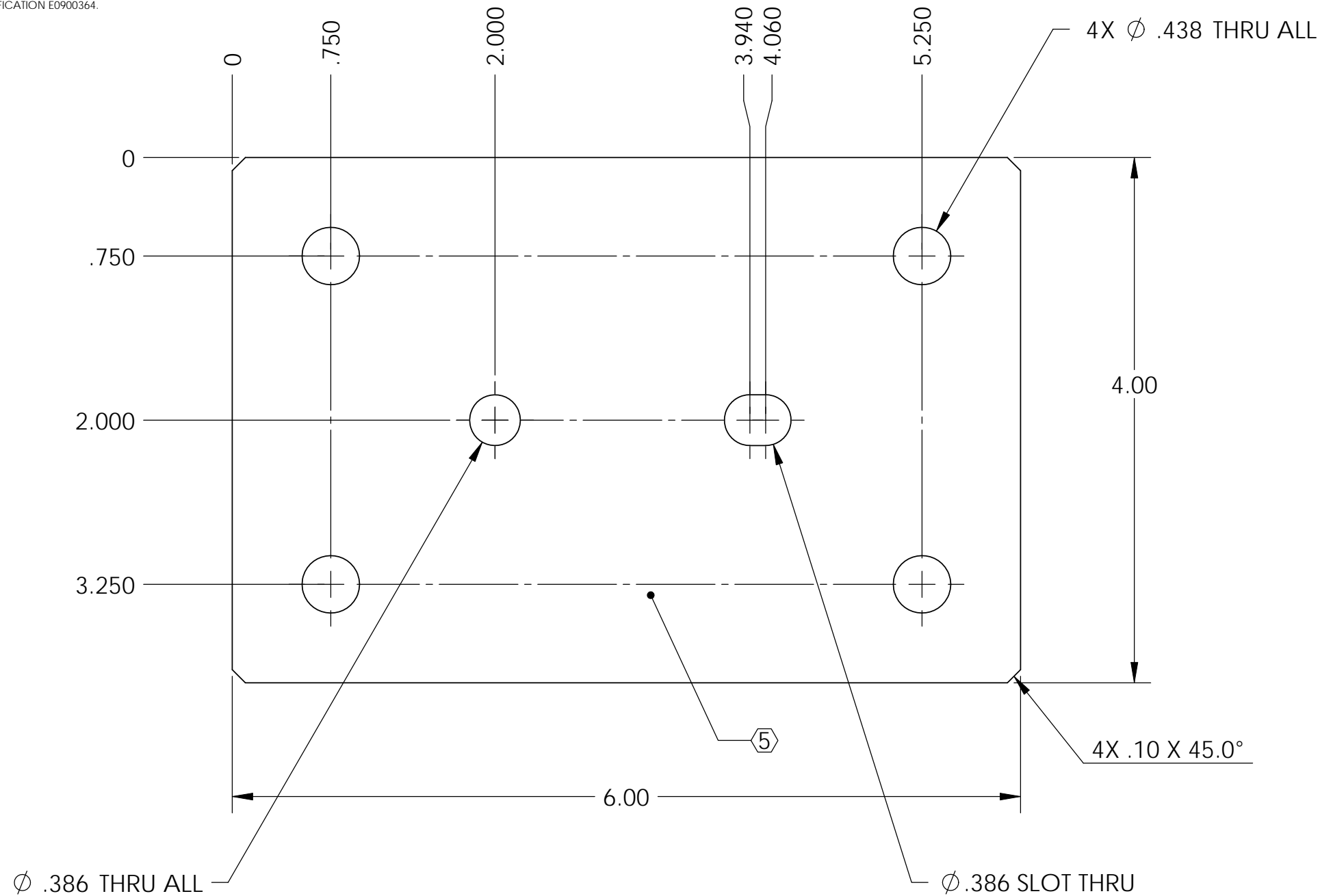


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN.		ADVANCED LIGO		Front Upper Trim Mass 10 Lbs., Stage 1, aLIGO BSC-ISI	
TOLERANCES: .XX ± .015 .XXX ± .005		3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SEI		DESIGNER	F.MATICHARD 15 Jan. 2010
ANGULAR ± .5°		MATERIAL	FINISH	NEXT ASSY	D0901180	DRAFTER	M.HILLARD 15 Jan. 2010
		AISI 304	63 μinch			CHECKER	A.STEIN 15 Jan. 2010
						APPROVAL	K.MASON 15 Jan. 2010
						SIZE	DWG. NO.
						B	D0902615
						REV.	v1
						SCALE:	1:2
						PROJECTION:	ASME
						SHEET 1 OF 1	

D0902616 Small Trim Masses, Stage 1, aLIGO BSC-ISI, PART PDM REV: X-010, DRAWING PDM REV: X-007

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12 HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE DXXXXXX-VY, TYPE-XX, S/N XXX.  
 6. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 7. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 Mar. 2010	E0900495	E1000025



PART NUMBER	DIM T
D0902616-1	0.500
D0902616-2	0.140
D0902616-3	0.280
D0902616-4	0.720
D0902616-5	0.070

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME						
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		SEI		Small Trim Masses, Stage 1, aLIGO BSC-ISI						
TOLERANCES: .XX ± .015 .XXX ± .005				MATERIAL AISI 304		FINISH 63 μinch		NEXT ASSY D0901180		DESIGNER F.Matichard	15 Jan. 2010	SIZE B	DWG. NO. D0902616	REV. v1
ANGULAR ± .5°				1. INTERPRET DRAWING PER ASME Y14.5-1994.		2. REMOVE ALL SHARP EDGES, R.02 MIN.		3. DO NOT SCALE FROM DRAWING.		4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		APPROVAL K.MASON	15 Jan. 2010	SCALE: 1:1
												PROJECTION:  SHEET 1 OF 1		

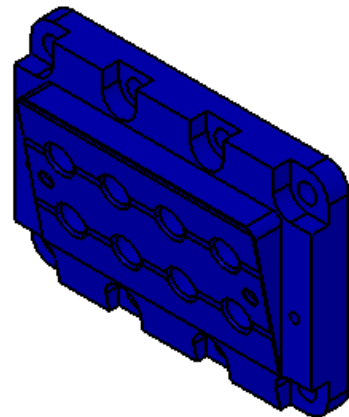
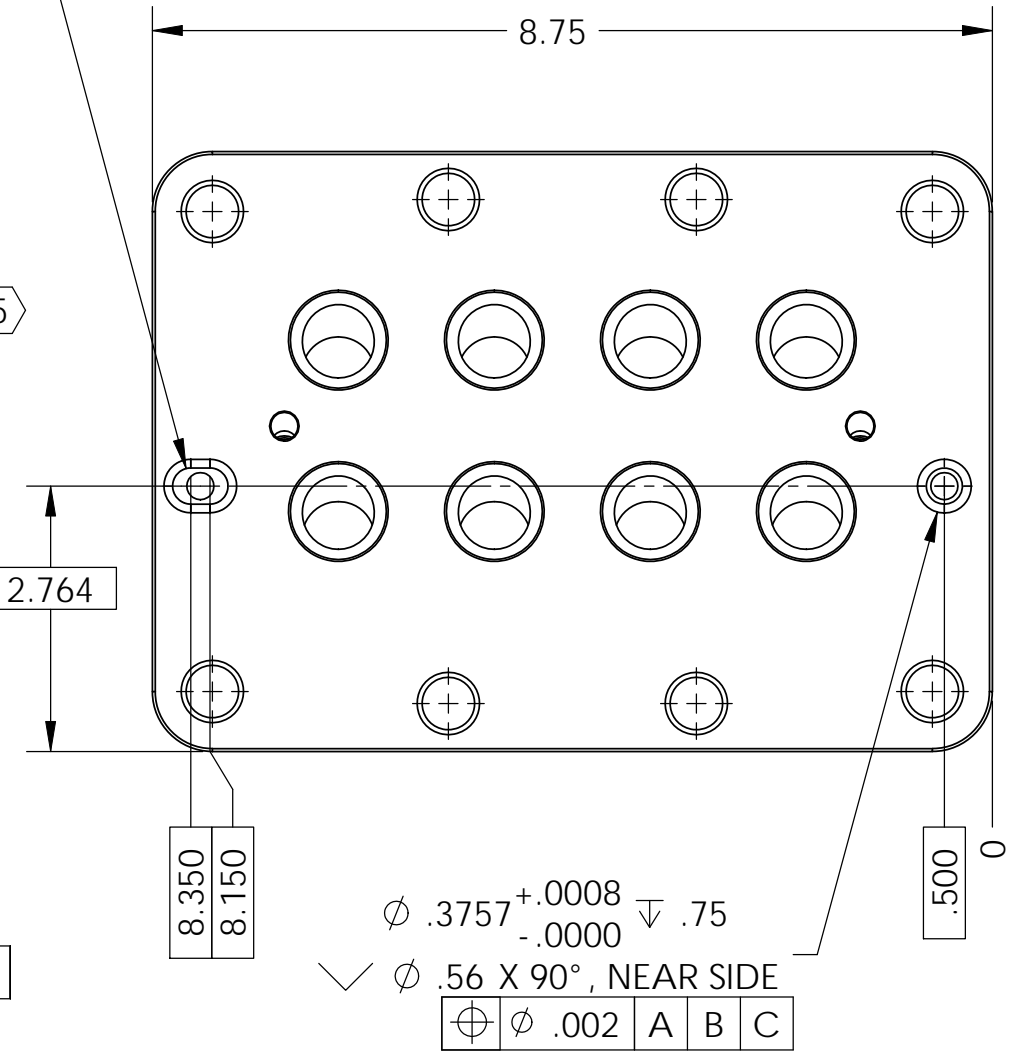
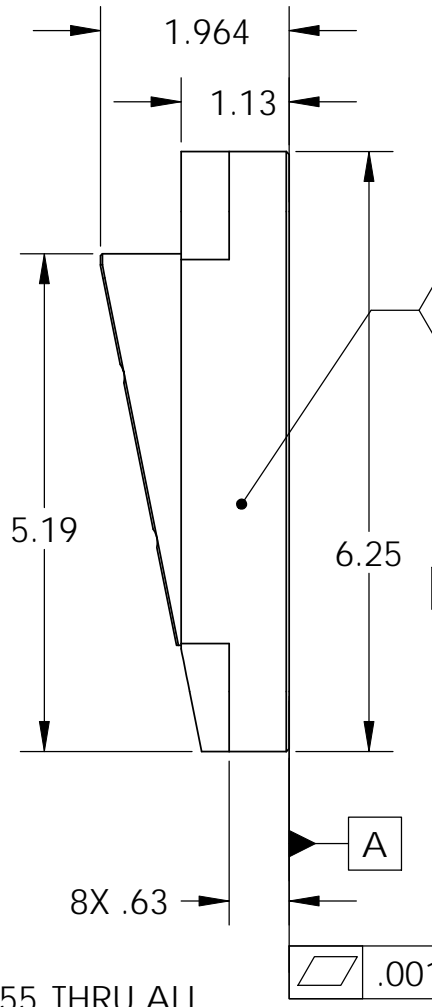
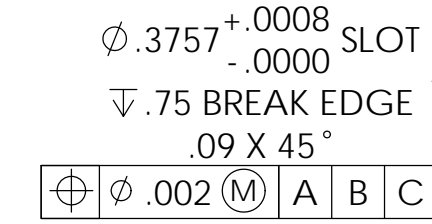
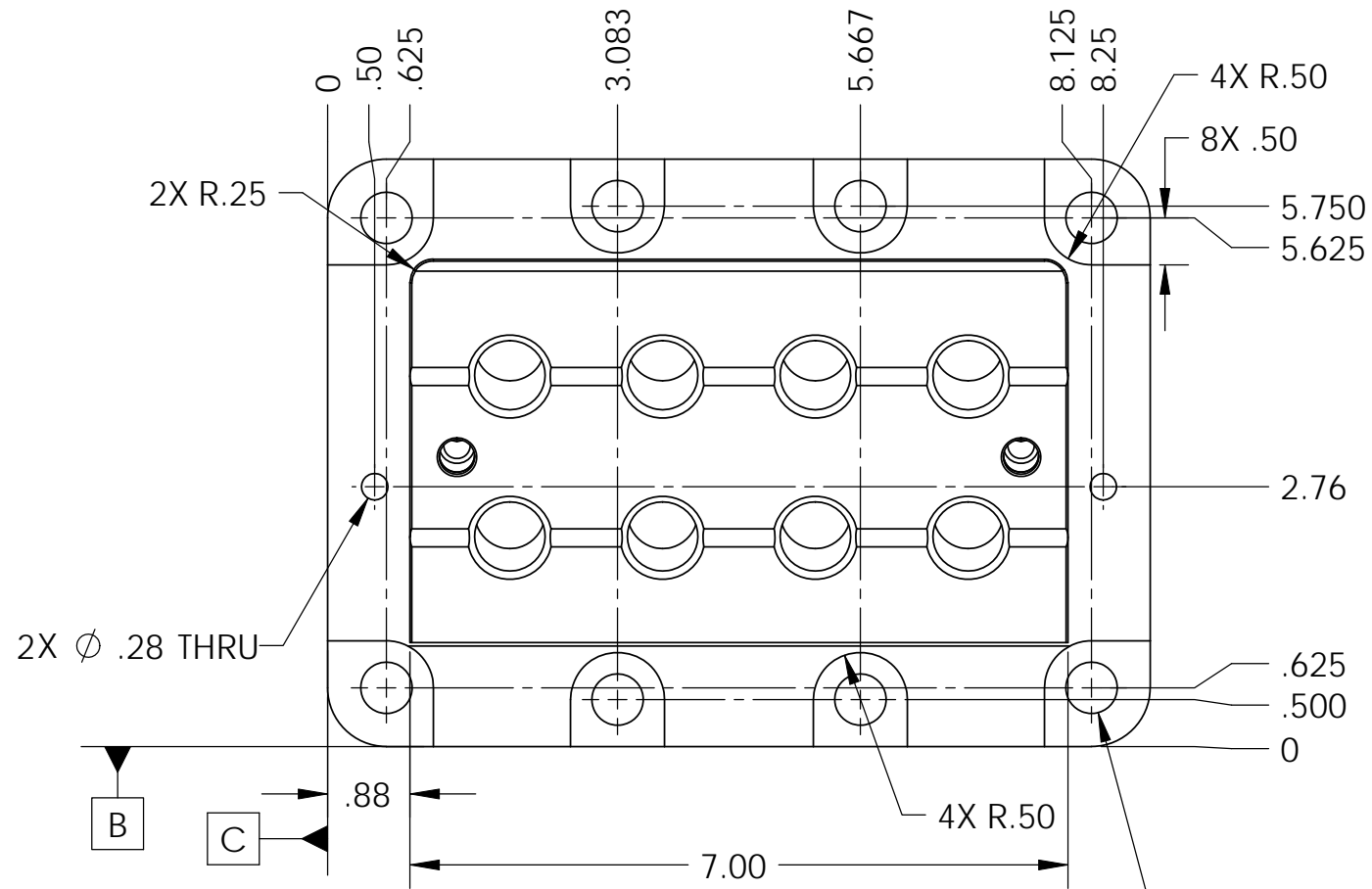
D0902647 Spring Base, Stage 1-2, aLIGO BSC ISI, PART PDM REV: X-024, DRAWING PDM REV: X-009

**NOTES CONTINUED:**  
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
 EXAMPLE: DXXXXXX-VY, TYPE-XX, S/N XXX  
 6. APPROXIMATE WEIGHT = 6.04 LB.  
 7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .  
 8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.  
 9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
v1	01 Mar. 2010	E1000026	E1000025

D  
C  
B  
A

D  
C  
B  
A

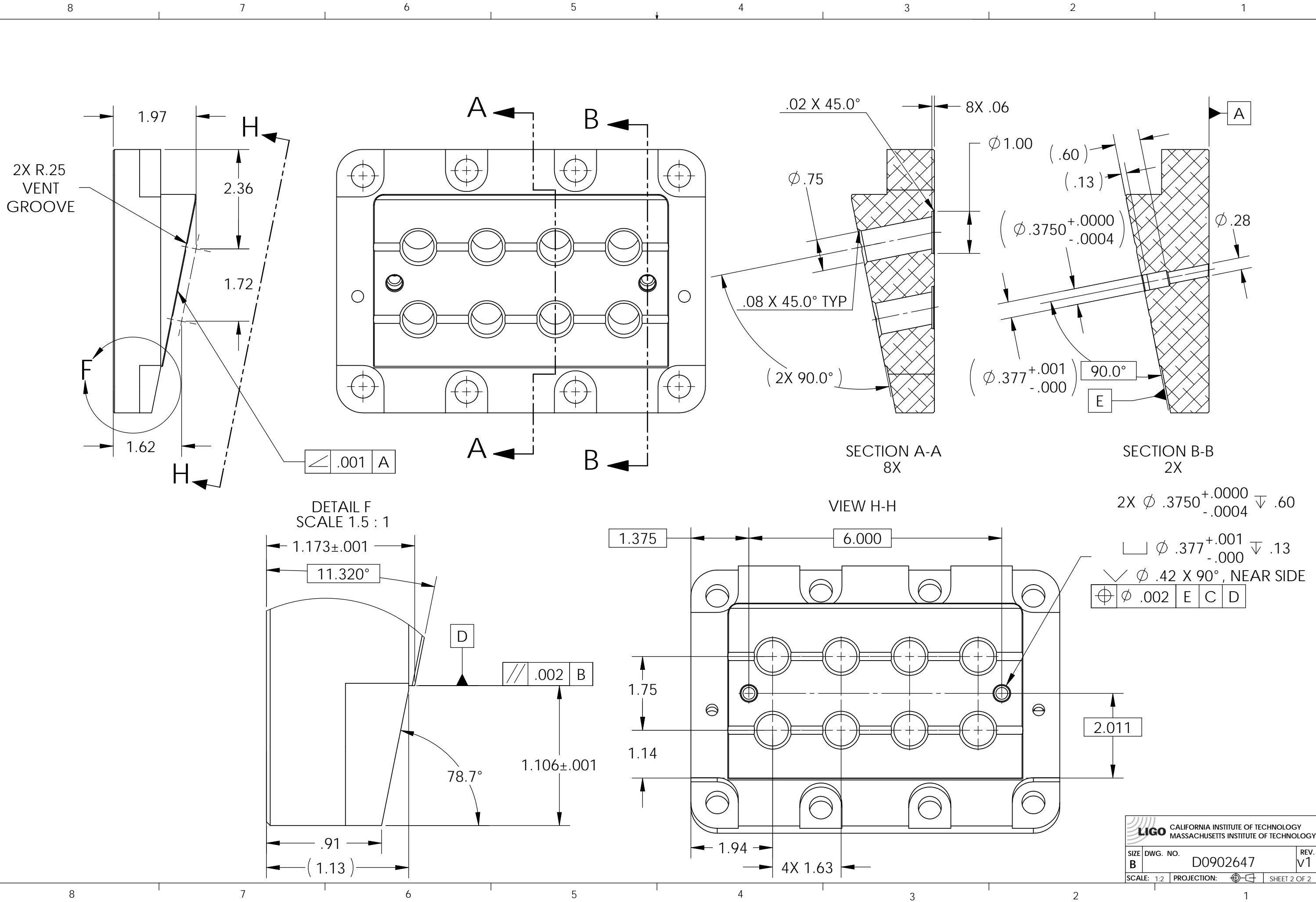



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .015 .XXX ± .005	
ANGULAR ± .5°	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. BREAK ALL EDGES AND CORNERS .03 X 45°. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.	
MATERIAL	FINISH
6061-T6 Al	32 µinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
SYSTEM ADVANCED LIGO		Spring Base, Stage 1-2, aLIGO BSC ISI	
SUB-SYSTEM SEI		DESIGNER A. STEIN	01 Feb. 2010
NEXT ASSY D0902485		DRAFTER M.HILLARD	01 Feb. 2010
		CHECKER F.MATICHARD	01 Feb. 2010
		APPROVAL K.MASON	01 Feb. 2010
SIZE	DWG. NO.	REV.	
B	D0902647	v1	
SCALE: 1:2	PROJECTION:	SHEET 1 OF 2	

8 7 6 5 4 3 2 1

D0902647 Spring Base, Stage 1-2, aLIGO BSC ISI, PART PDM REV: X-024, DRAWING PDM REV: X-009



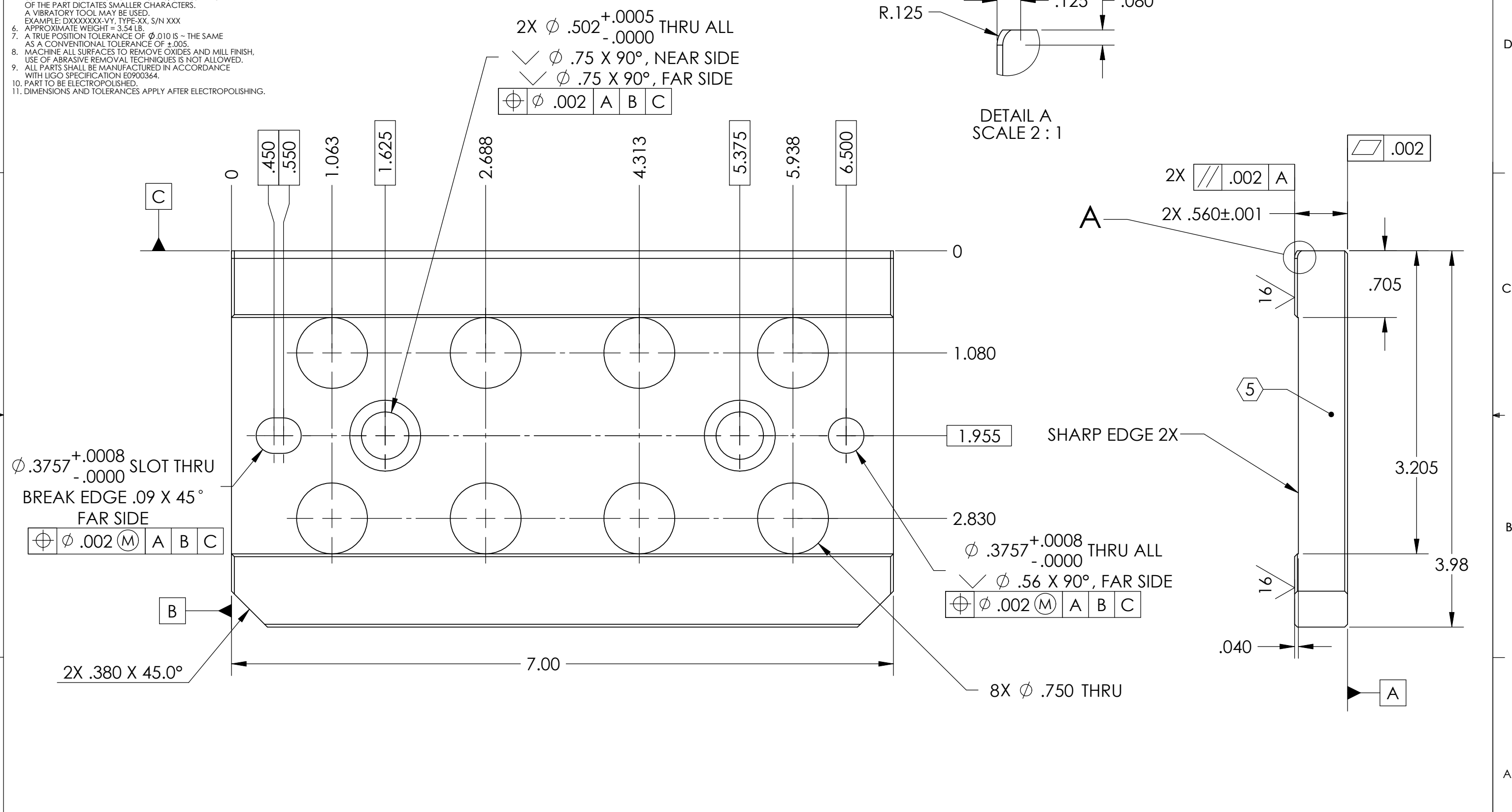
 CALIFORNIA INSTITUTE OF TECHNOLOGY  
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SIZE	DWG. NO.	REV.
B	D0902647	V1
SCALE: 1:2	PROJECTION: $\phi$	SHEET 2 OF 2

D0902648 Spring Clamp Plate, Stage 1-2, aLIGO BSC ISI, PART PDM REV: X-022, DRAWING PDM REV: X-008

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE: DXXXXXX-VY, TYPE-XX, S/N XXX
  6. APPROXIMATE WEIGHT = 3.54 LB.
  7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  10. PART TO BE ELECTROPOLISHED.
  11. DIMENSIONS AND TOLERANCES APPLY AFTER ELECTROPOLISHING.

REV.	DATE	DCN #	DRAWING TREE #
v1	01 Mar. 2010	E1000026	E1000025

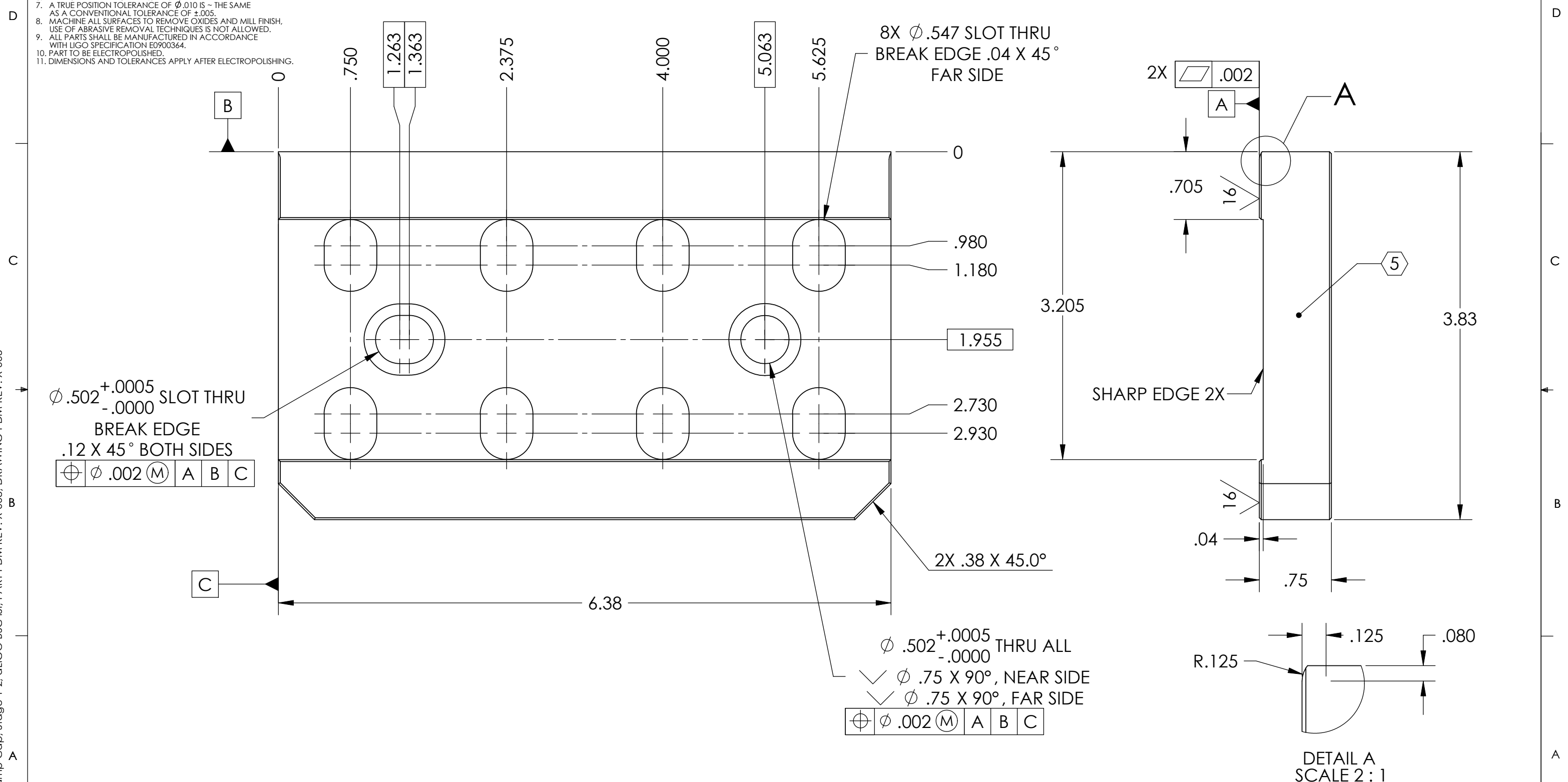


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME				
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		Spring Clamp Plate, Stage 1-2, aLIGO BSC ISI				
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$				SEI		DESIGNER	A.STEIN	01 Feb. 2010	SIZE	DWG. NO.
ANGULAR $\pm .5^\circ$				MATERIAL		DRAFTER	M.HILLARD	01 Feb. 2010	B	D0902648
FINISH				NEXT ASSY		CHECKER	F.MATICHARD	01 Feb. 2010	REV.	v1
17-4 PH SSSL, H 1150				D0902485		APPROVAL	K.MASON	01 Feb. 2010	SCALE: 1:1	PROJECTION:
						SHEET 1 OF 1				

D0902695 Spring Clamp Cap, Stage 1-2, aLIGO BSC ISI, PART PDM REV: X-008, DRAWING PDM REV: X-005

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED.  
EXAMPLE: DXXXXXX-VY, TYPE-XX, S/N XXX
  6. APPROXIMATE WEIGHT = 4.31 LB.
  7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  10. PART TO BE ELECTROPOLISHED.
  11. DIMENSIONS AND TOLERANCES APPLY AFTER ELECTROPOLISHING.

REV.	DATE	DCN #	DRAWING TREE #
v1	01 Mar. 2010	E1000026	E1000025



**NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)**

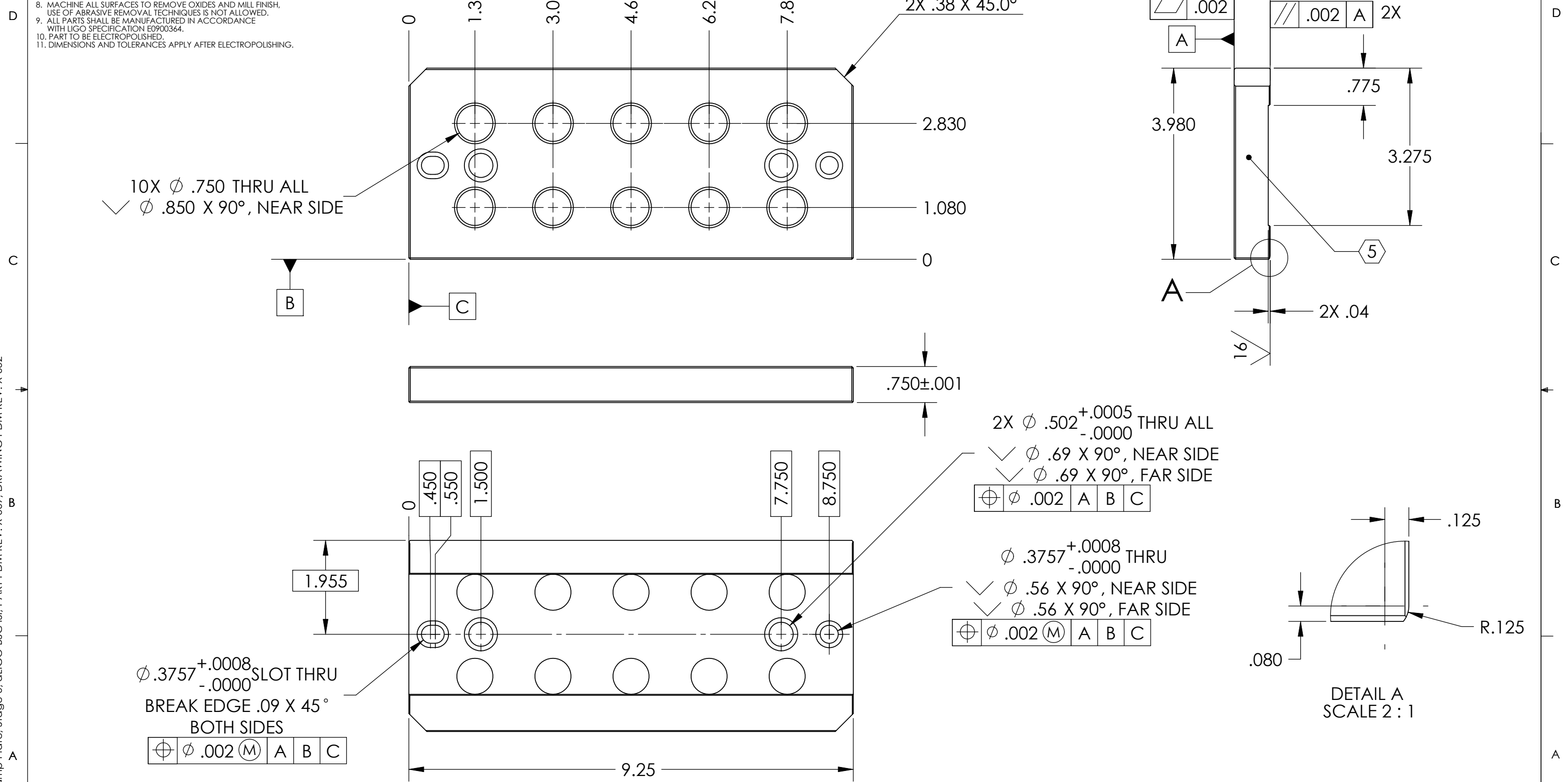
DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX $\pm .015$ .XXX $\pm .005$	
ANGULAR $\pm .5^\circ$	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. BREAK ALL EDGES AND CORNERS .03 X 45°. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.	
MATERIAL	FINISH
17-4 PH SSSL, H 1150	32 $\mu$ inch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
SYSTEM ADVANCED LIGO		SUB-SYSTEM SEI	
NEXT ASSY		D0902485	
DESIGNER	A.STEIN	01 Feb. 2010	SIZE
DRAFTER	M.HILLARD	01 Feb. 2010	DWG. NO.
CHECKER	F.MATICHARD	01 Feb. 2010	B
APPROVAL	K.MASON	01 Feb. 2010	D0902695
SCALE: 1:1		PROJECTION:	
SHEET 1 OF 1		REV. v1	

D0902696 Spring Clamp Plate, Stage 0, aLIGO BSC ISI, PART PDM REV: X-009, DRAWING PDM REV: X-002

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07" HIGH CHARACTERS. EXAMPLE: DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  6. APPROXIMATE WEIGHT = 6.47 LB.
  7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  10. PART TO BE ELECTROPOLISHED.
  11. DIMENSIONS AND TOLERANCES APPLY AFTER ELECTROPOLISHING.

REV.	DATE	DCN #	DRAWING TREE #
v1	26 Feb. 2010	E1000022	E1000025



10X  $\phi .750$  THRU ALL  
 $\checkmark \phi .850$  X 90°, NEAR SIDE

2X .38 X 45.0°

2X  $\phi .502^{+.0005}_{-.0000}$  THRU ALL  
 $\checkmark \phi .69$  X 90°, NEAR SIDE  
 $\checkmark \phi .69$  X 90°, FAR SIDE

$\phi .3757^{+.0008}_{-.0000}$  THRU  
 $\checkmark \phi .56$  X 90°, NEAR SIDE  
 $\checkmark \phi .56$  X 90°, FAR SIDE

$\phi .3757^{+.0008}_{-.0000}$  SLOT THRU  
 BREAK EDGE .09 X 45°  
 BOTH SIDES

DETAIL A  
 SCALE 2 : 1

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME					
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		SPRING CLAMP PLATE, STAGE 0, aLIGO BSC ISI					
TOLERANCES: .XX ± .015 .XXX ± .005				SEI		DESIGNER	A.STEIN	01 Feb. 2010	SIZE	DWG. NO.	REV.
ANGULAR ± .5°				FINISH 63 $\mu$ inch		DRAFTER	M.HILLARD	01 Feb. 2010	B	D0902696	v1
MATERIAL 17-4 PH SSSL, H 1150				NEXT ASSY D0901197		CHECKER	F.MATICHARD	01 Feb. 2010	SCALE: 1:2	PROJECTION:	SHEET 1 OF 1
1. INTERPRET DRAWING PER ASME Y14.5-1994.						APPROVAL	K.MASON	01 Feb. 2010			
2. BREAK ALL EDGES AND CORNERS .03 X 45°.											
3. DO NOT SCALE FROM DRAWING.											
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.											



D0902697 Spring Clamp Cap, Stage 0, aLIGO BSC ISI, PART PDM REV: X-006, DRAWING PDM REV: X-004

REV.	DATE	DCN #	DRAWING TREE #
v1	26 Feb. 2010	E1000022	E1000025

- NOTES CONTINUED:**
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER AND REVISION ON NOTED SURFACE FOLLOWED ON THE NEXT LINE BY A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE .07 HIGH CHARACTERS. EXAMPLE DXXXXXX-VY, S/N 001. A VIBRATORY TOOL MAY BE USED.
  6. APPROXIMATE WEIGHT = 5.91 LB.
  7. A TRUE POSITION TOLERANCE OF  $\phi .010$  IS - THE SAME AS A CONVENTIONAL TOLERANCE OF  $\pm .005$ .
  8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
  9. PART TO BE ELECTROPOLISHED.
  10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.
  11. DIMENSIONS AND TOLERANCES APPLY AFTER ELECTROPOLISHING.

$\phi .502^{+.0005}_{-.0000}$  SLOT THRU  
 BREAK EDGE .09 X 45° NEAR SIDE  
 .03 X 45° FAR SIDE

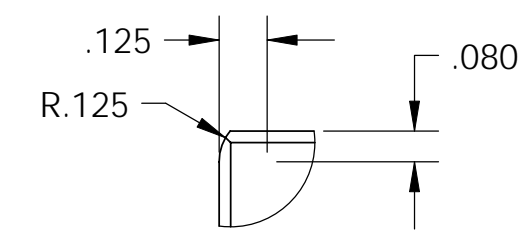
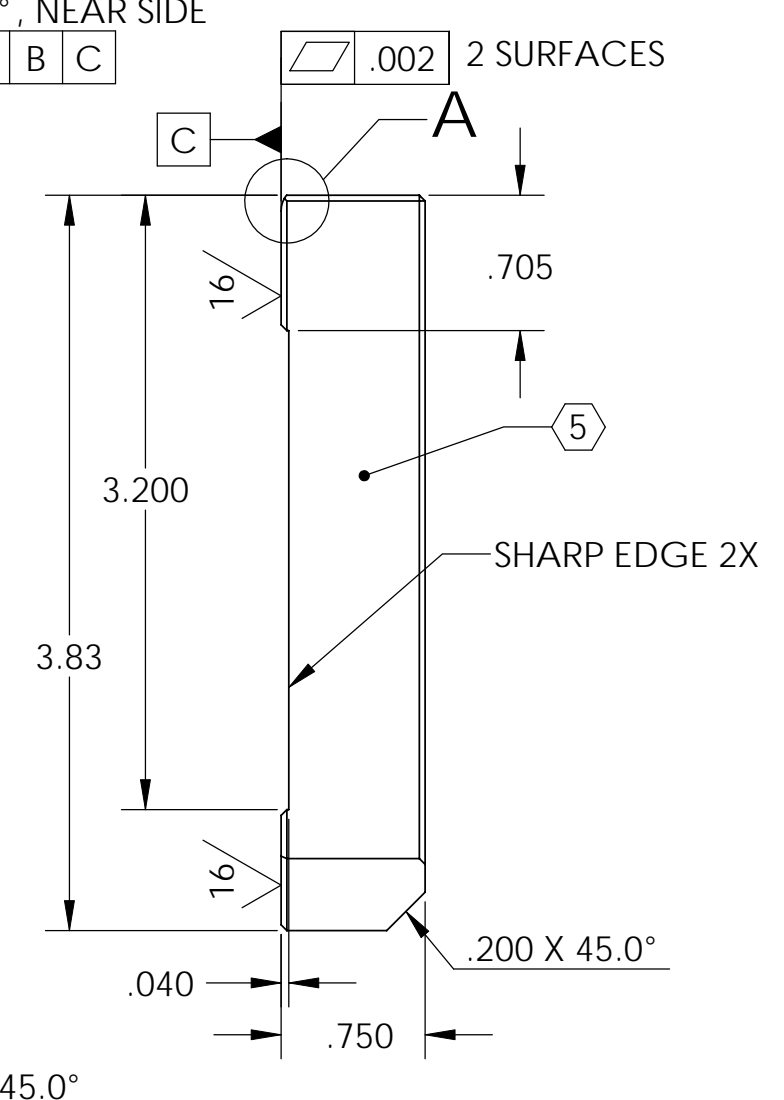
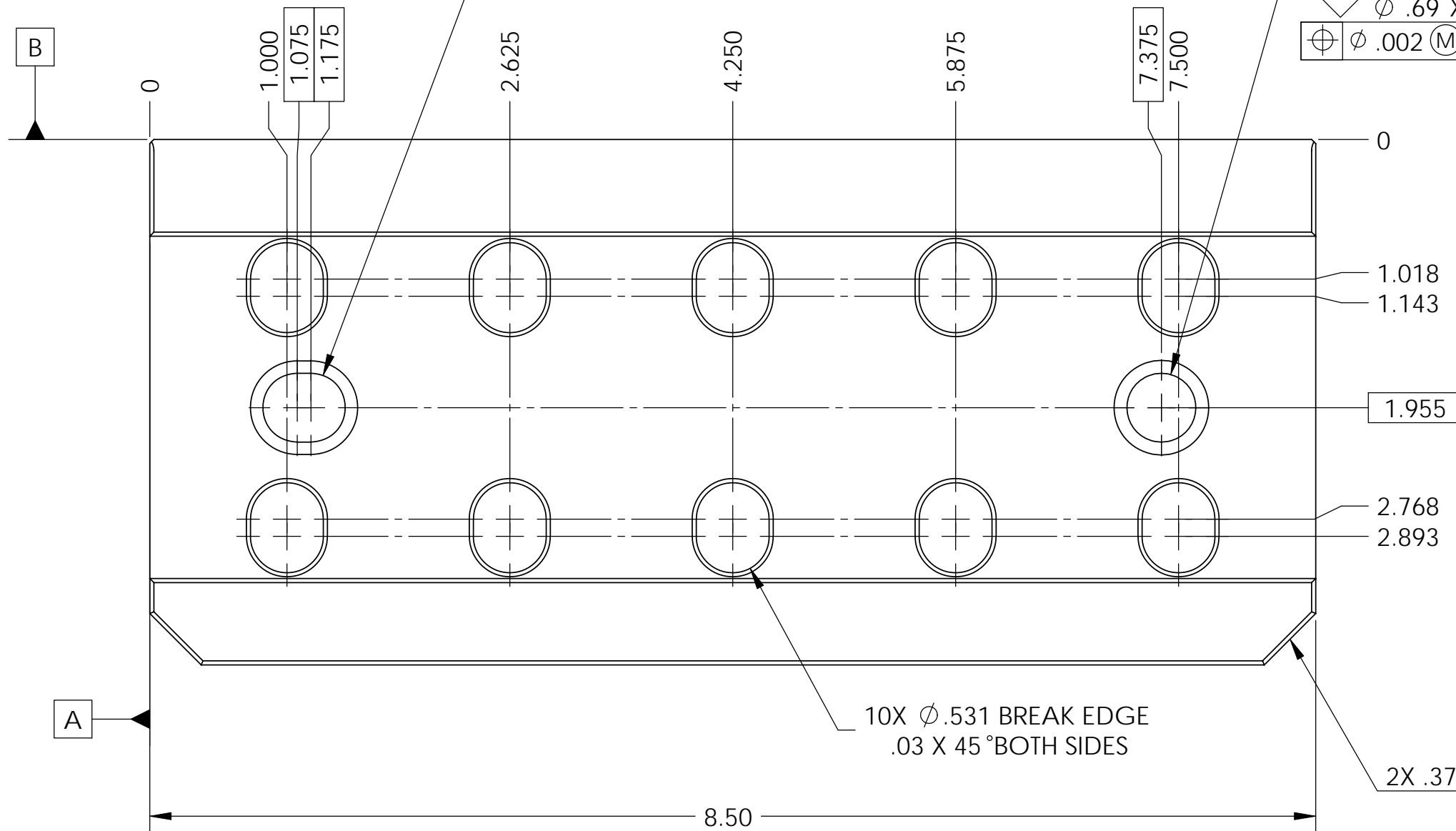
$\phi .002$  (M) A B C

$\phi .502^{+.0005}_{-.0000}$  THRU

✓  $\phi .56$  X 90°, FAR SIDE  
 ✓  $\phi .69$  X 90°, NEAR SIDE

$\phi .002$  (M) A B C

.002 2 SURFACES



DETAIL A  
SCALE 2 : 1

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		SEI	
TOLERANCES: .XX ± .015 .XXX ± .005				NEXT ASSY		D0901197	
ANGULAR ± .5°				MATERIAL		FINISH	
1. INTERPRET DRAWING PER ASME Y14.5-1994.				17-4 PH SSSL, H 1150		63 μinch	
2. BREAK ALL EDGES AND CORNERS .03 X 45°.				DESIGNER		A.STEIN 01 Feb. 2010	
3. DO NOT SCALE FROM DRAWING.				DRAFTER		M.HILLARD 01 Feb. 2010	
4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				CHECKER		F.MATICHARD 01 Feb. 2010	
				APPROVAL		K.MASON 01 Feb. 2010	
				SCALE: 1:1		PROJECTION:	
				SHEET 1 OF 1		PART NAME	
				D0902697		SPRING CLAMP CAP, STAGE 0, aLIGO BSC ISI	
				DWG. NO.		REV.	
				B		v1	