

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 101 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

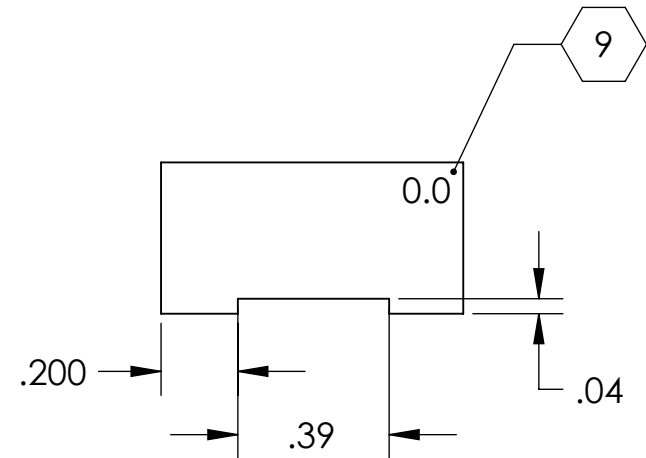
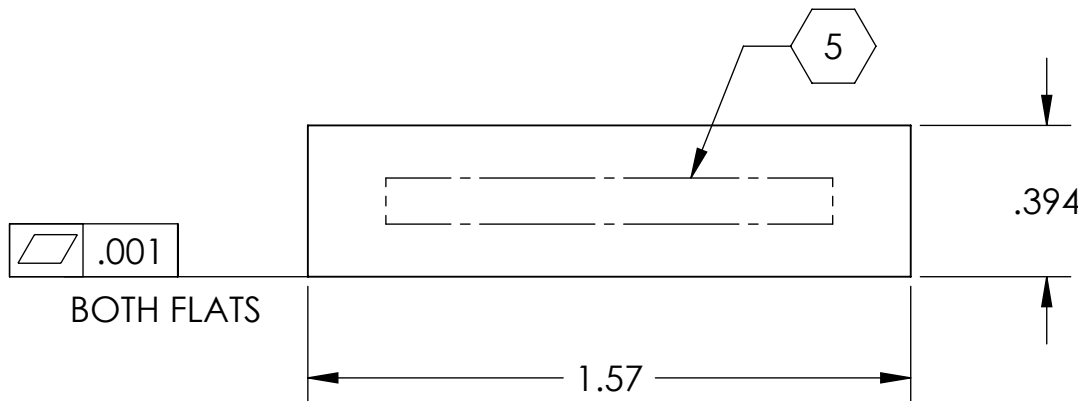
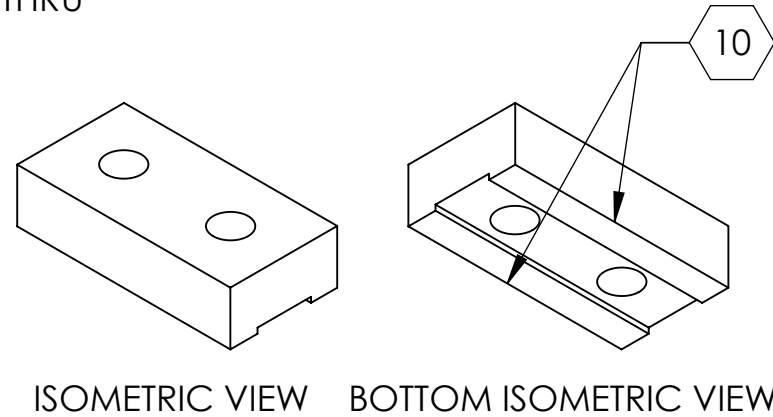
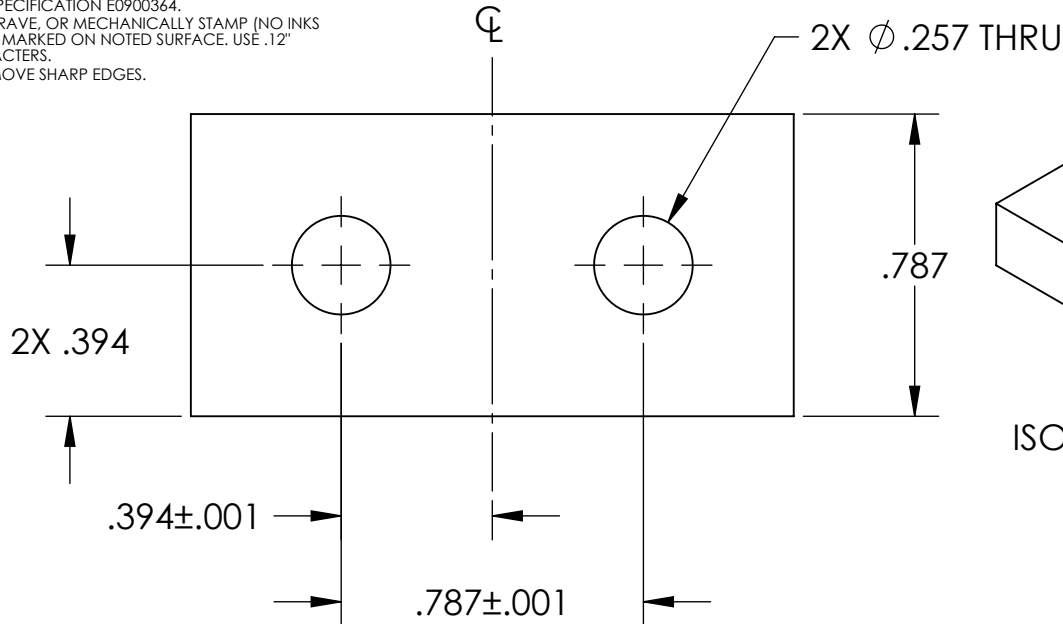
6. APPROXIMATE WEIGHT = 0.123 LB.
 7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

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

9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .XXX ± .005

ANGULAR ± 0.2°

1. INTERPRET DRAWING PER ASME Y14.5-1994.
2. REMOVE ALL SHARP EDGES.
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 304, 316 OR 302 SSSL
 FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY MULTIPLE ASSY

PART NAME UPPER BLADE CLAMP UPPER SIDE 0.0 DEGREE

DESIGNER C. TORRIE 01 MAY 2002	SIZE DWG. NO. A D020116	REV. v2
DRAFTER B. MOORE 09 NOV 2009		
CHECKER M. MEYER 15 DEC 2009		
APPROVAL	SCALE: 2:1	PROJECTION:

SHEET 1 OF 1

NOTES CONTINUED:

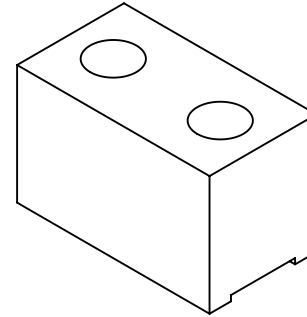
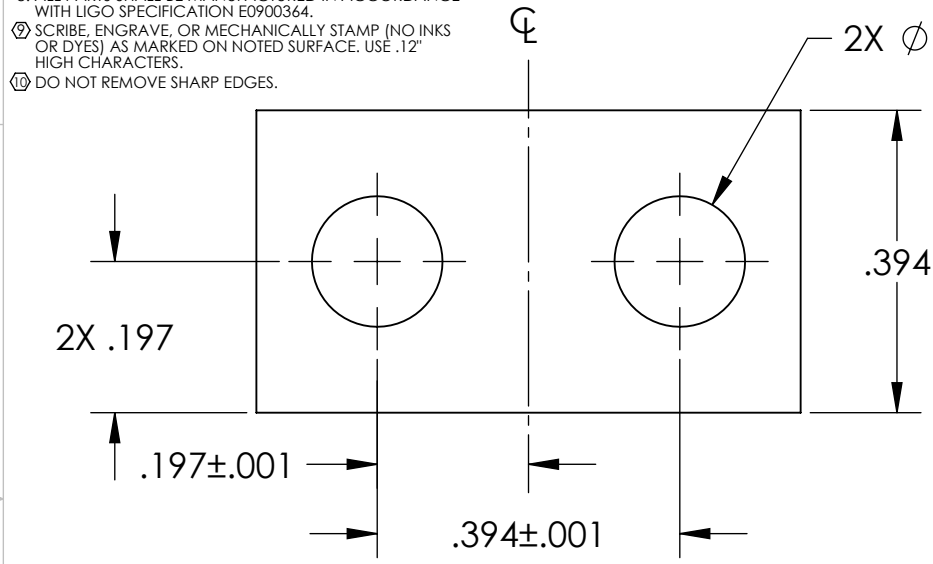
⑤ SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.029 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.

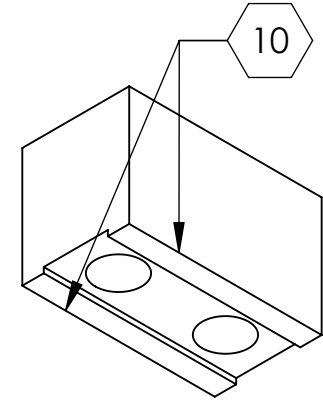
⑥ SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

⑩ DO NOT REMOVE SHARP EDGES.

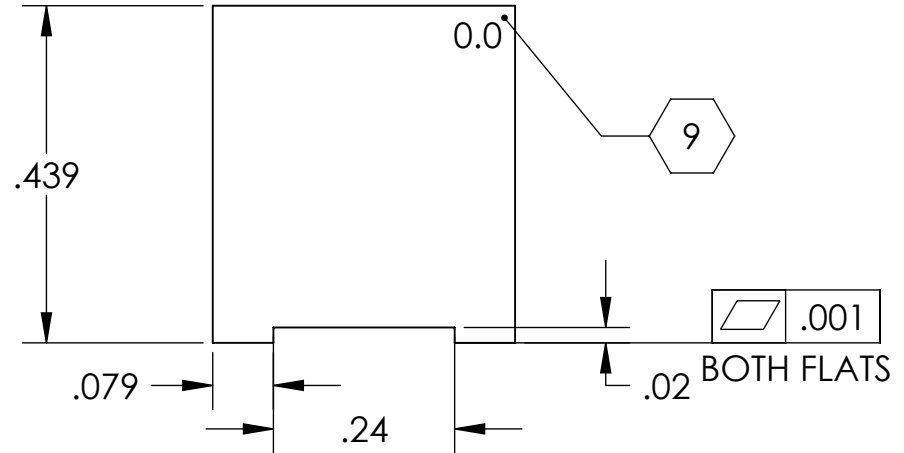
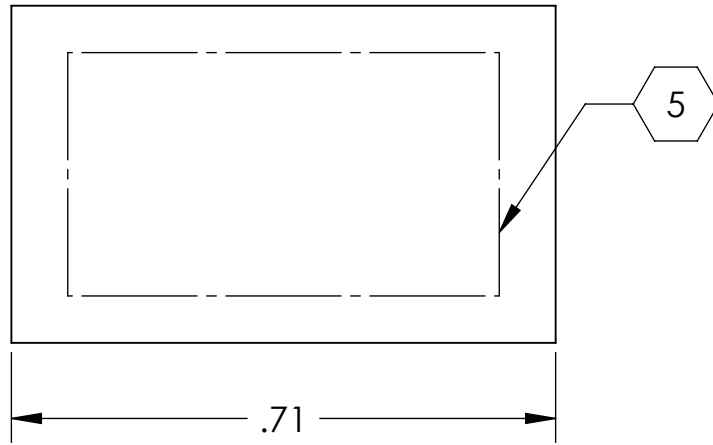
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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
304, 316 OR 302 SSSL

FINISH
32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM
ADVANCED LIGO

SUB-SYSTEM
SUS

NEXT ASSY
D020677

PART NAME
LOWER BLADE CLAMP, UPPER SIDE

DESIGNER C. TORRIE	01 MAY 2002	SIZE A	DWG. NO. D020119	REV. v2
DRAFTER B. MOORE	01 JUN 2010			
CHECKER M. MEYER	01 JUN 2010			
APPROVAL		SCALE: 4:1	PROJECTION:	SHEET 1 OF 1

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 101 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

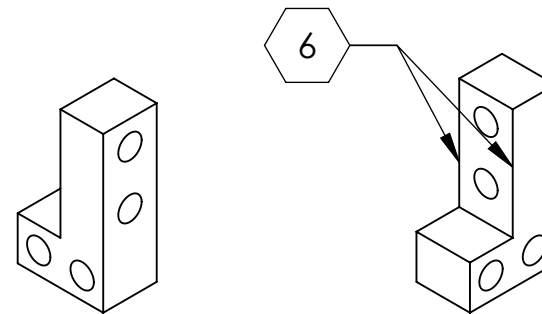
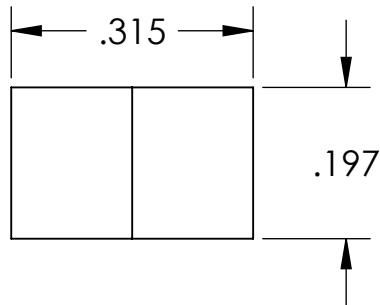
6. DO NOT BREAK INDICATED SHARP EDGES.

7. APPROXIMATE WEIGHT = 0.005 LB.

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

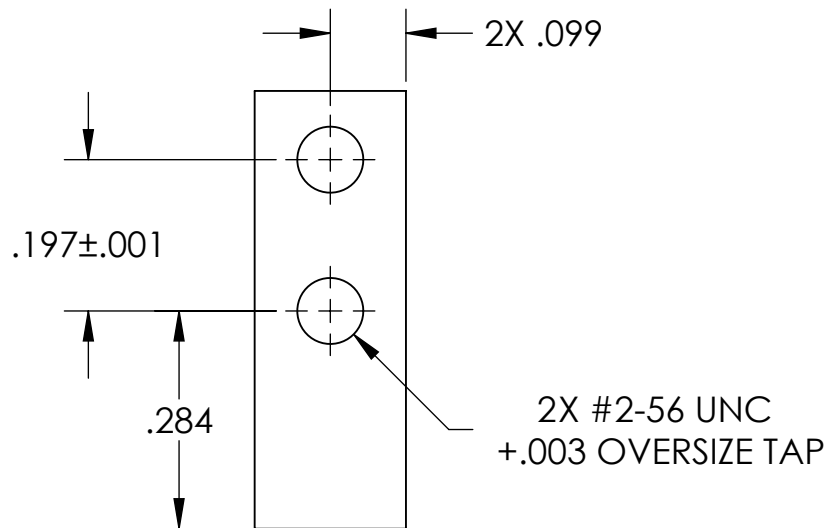
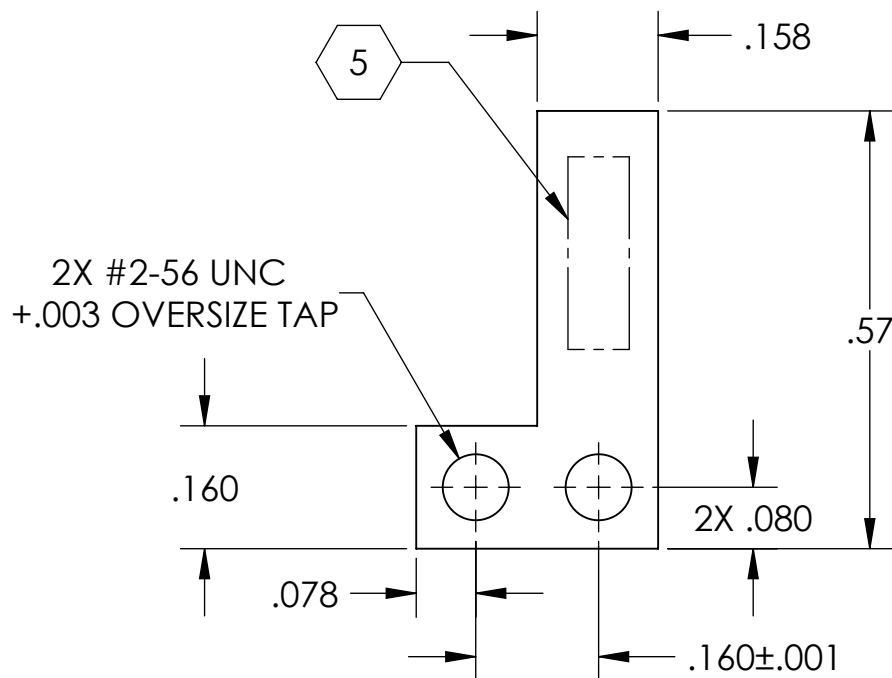
9. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
B	09 APR 2008	E080156-00	-
v1	22 APR 2009	E0900107-v1	-
v2	09 JUN 2010	E0900500	E0900353



ISOMETRIC VIEW

REVERSE ISO VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .01
.XXX ± .005

ANGULAR ± 0.5°

1. INTERPRET DRAWING PER ASME Y14.5-1994.
2. REMOVE ALL SHARP EDGES, EXCEPT WHERE INDICATED.
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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

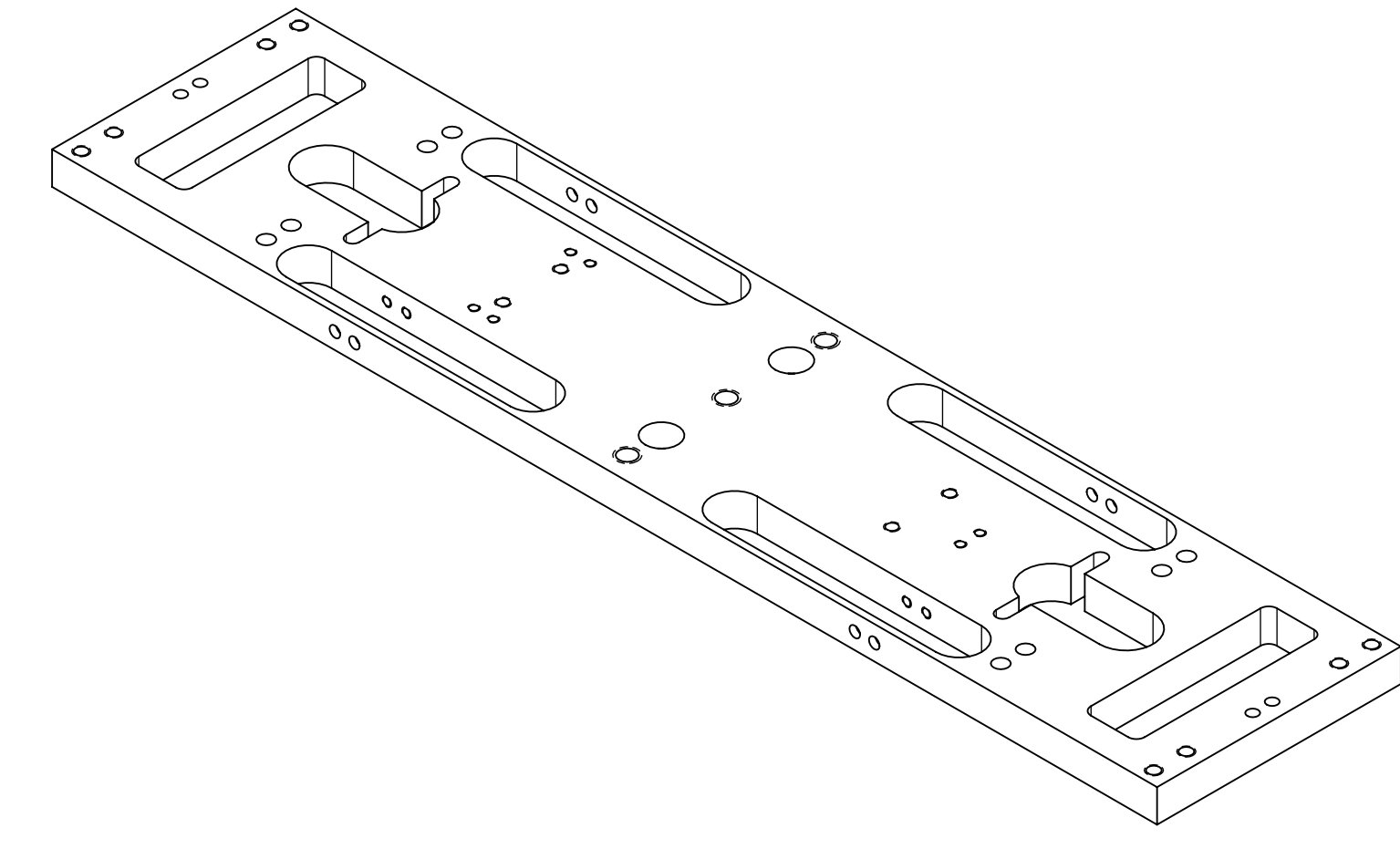
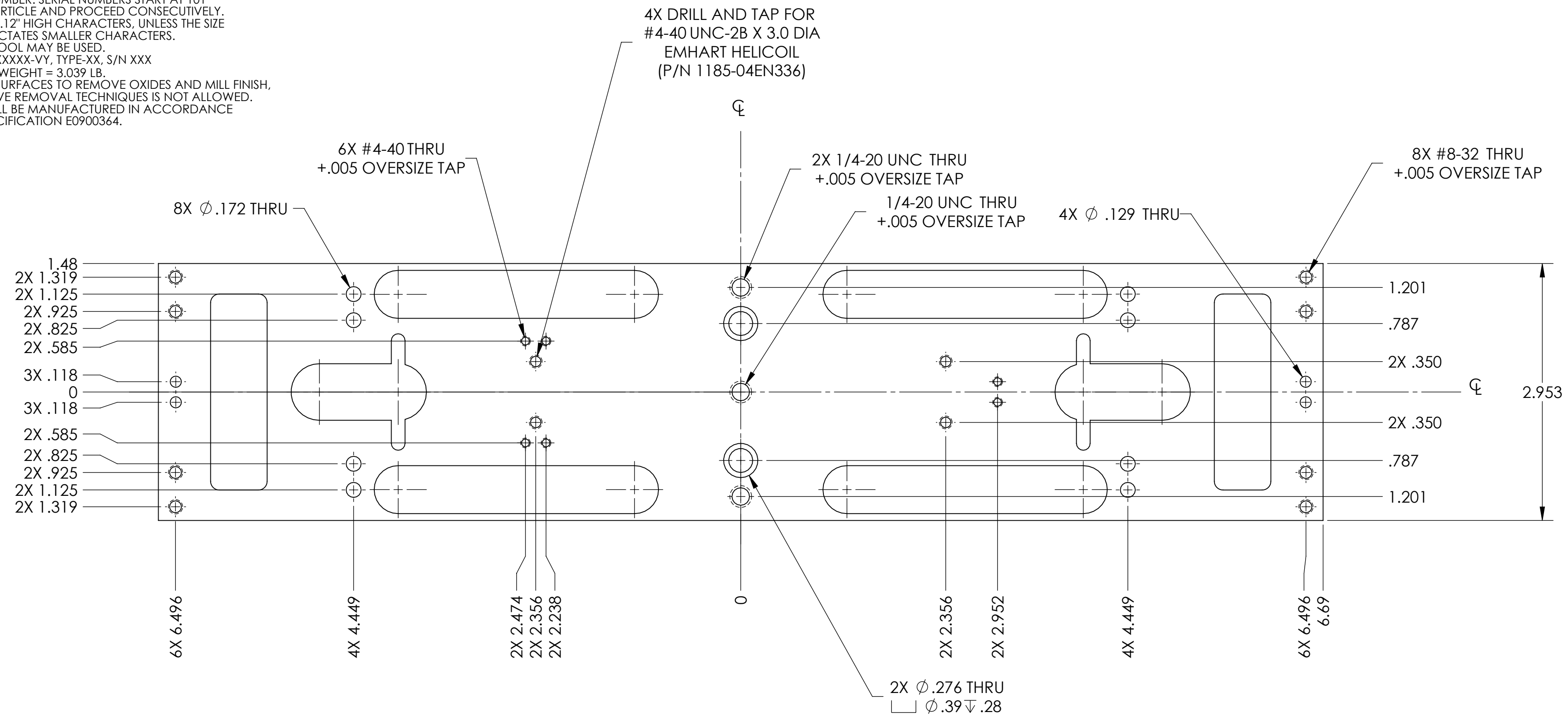
SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY D0901905

PART NAME LOWER BLADE WIRE CLAMP

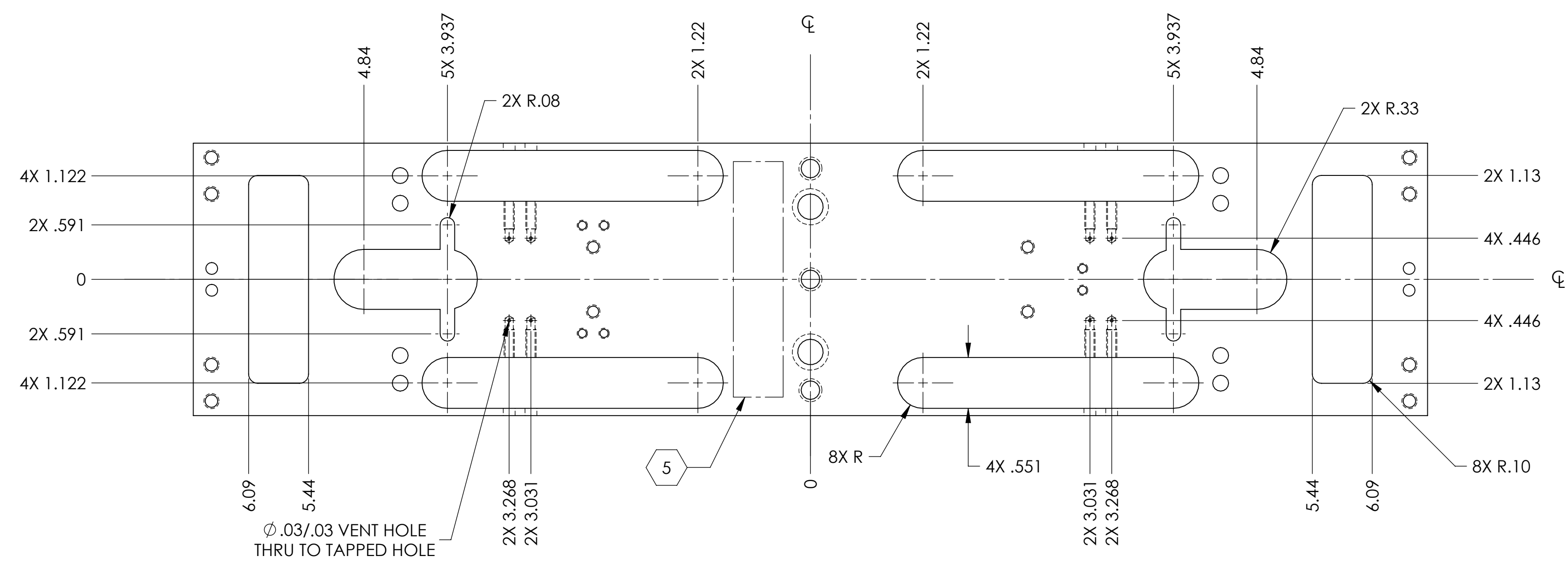
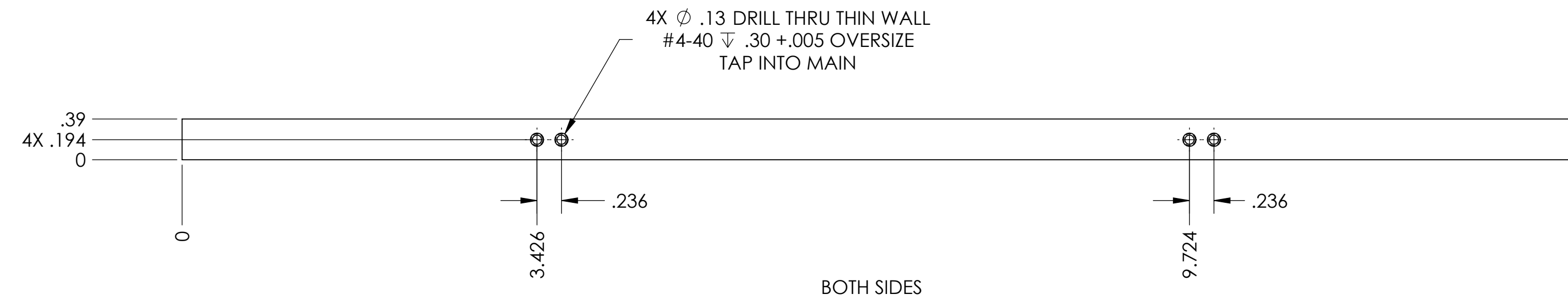
DESIGNER C. TORRIE	01 APR 2002	SIZE DWG. NO. A	D020132	REV. v2
DRAFTER B. MOORE	10 NOV 2009			
CHECKER M. MEYER	15 JAN 2010			
APPROVAL		SCALE: 4:1	PROJECTION:	SHEET 1 OF 1

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 101 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 = 3.039 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 #
A	24 JUN 2004	E040303-00	-
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ±.01 .XXX ±.005	
ANGULAR ± 0.5°	
MATERIAL	FINISH
304, 316 OR 302 SSTL	32 μinch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SYSTEM	SUB-SYSTEM
ADVANCED LIGO	SUS
NEXT ASSY	
D020534	

PART NAME				MAIN SECTION UPPER MASS			
DESIGNER	C. TORRE	01 FEB 2002	SIZE	DWG. NO.	REV.		
DRAFTER	B. MOORE	02 DEC 2009	D	D020134	v1		
CHECKER	M. MEYER	02 DEC 2009					
APPROVAL			SCALE: 1:1	PROJECTION:	SHEET 1 OF 1		

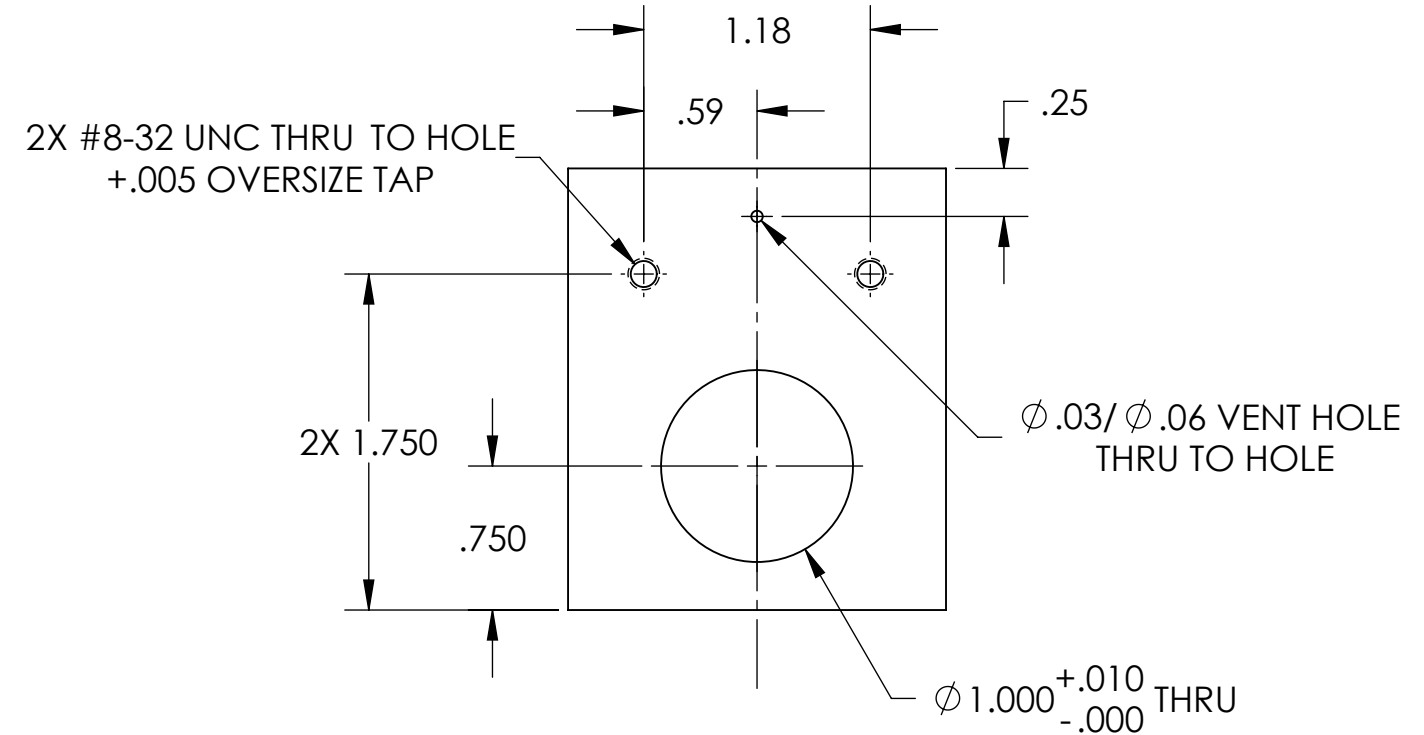
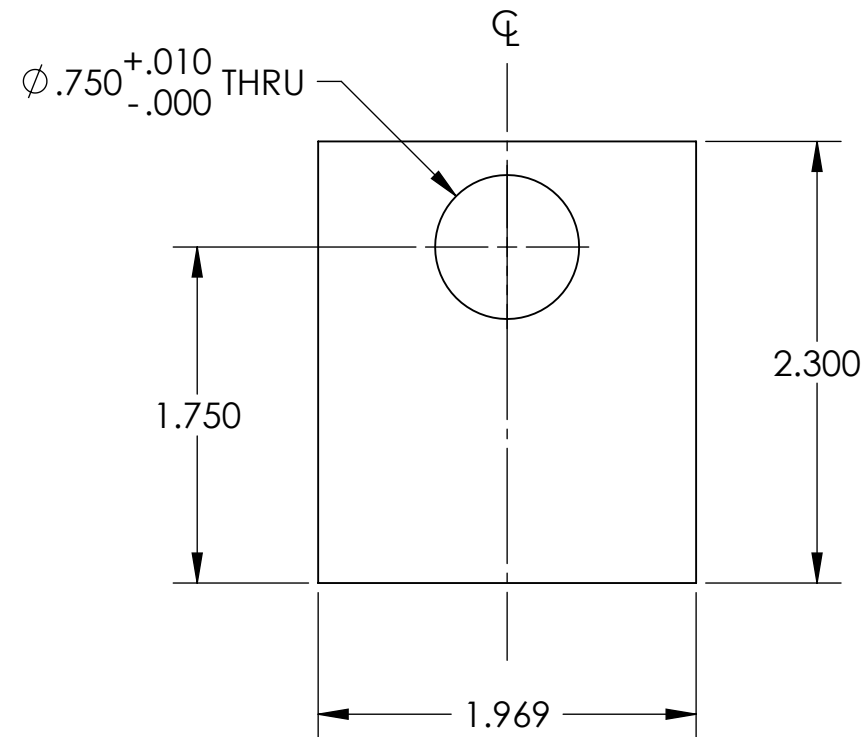
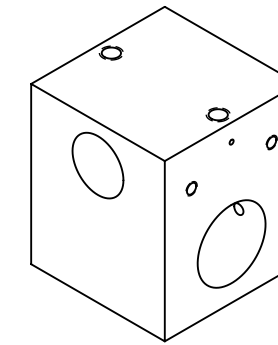
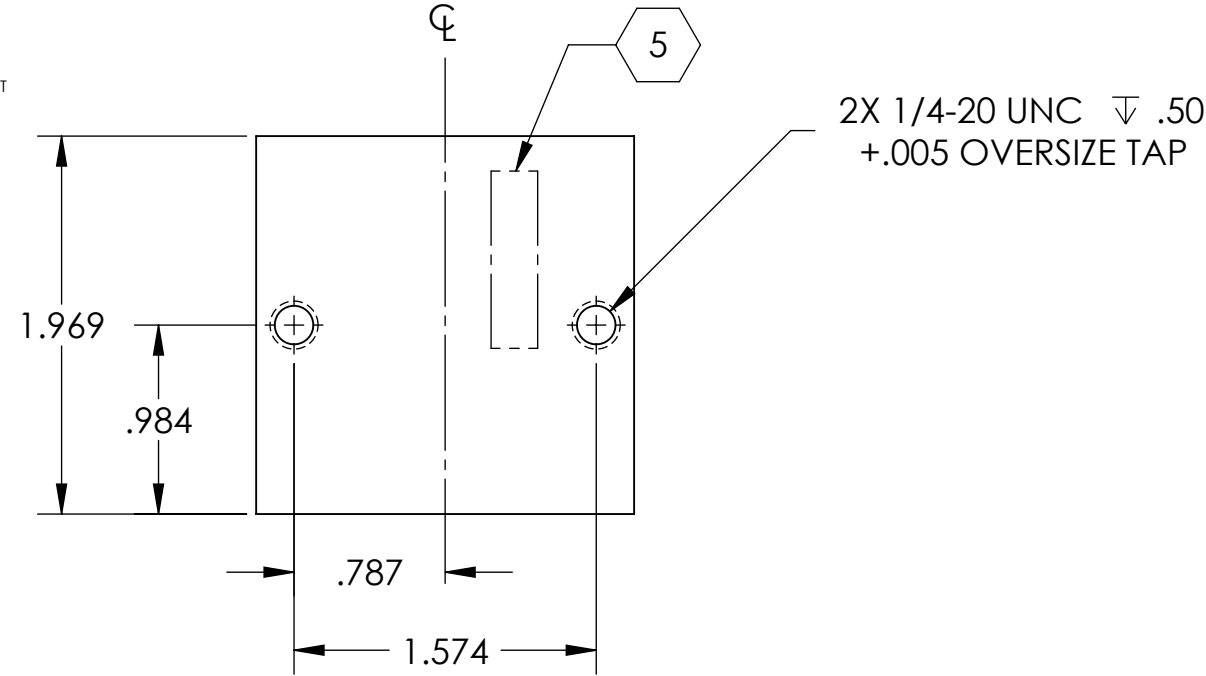
D020134_UPPER MASS MAIN SECTION PART FROM REV. X022 DRAWING FROM REV. X010

D020136_TSECTION_FOR_UPPERMASS, PART PDM REV: X-013, DRAWING PDM REV: X-007

NOTES CONTINUED:

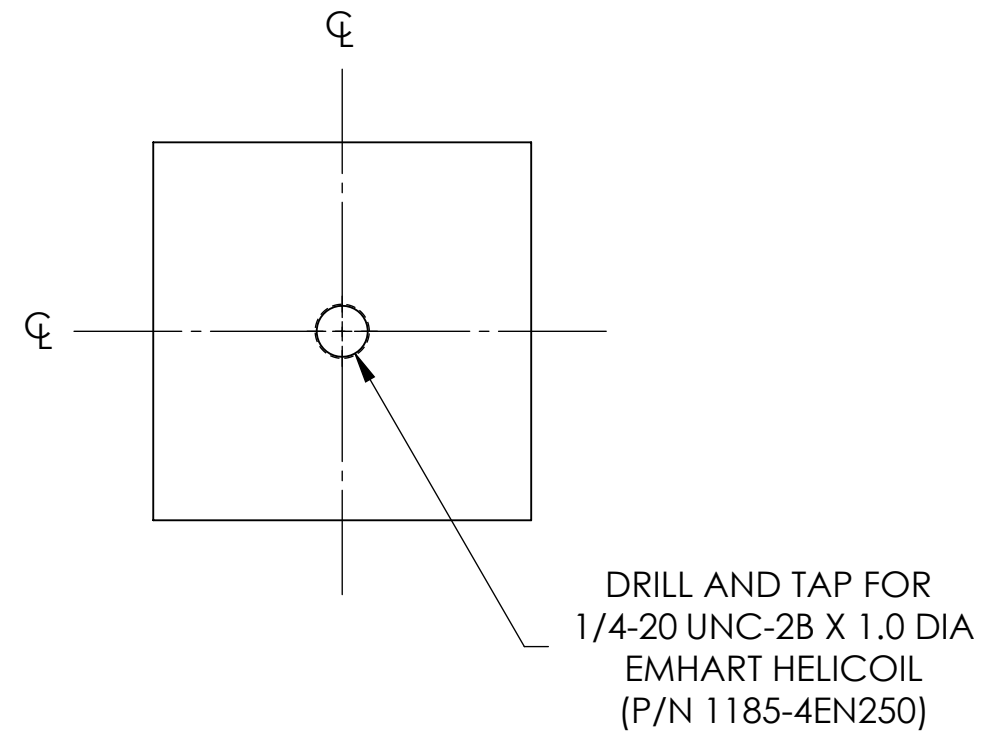
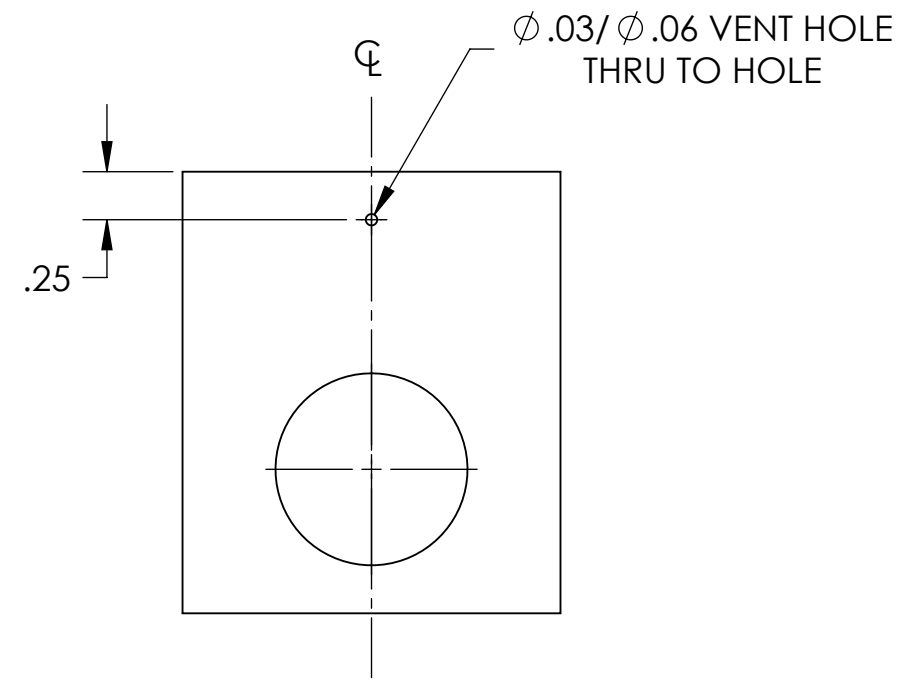
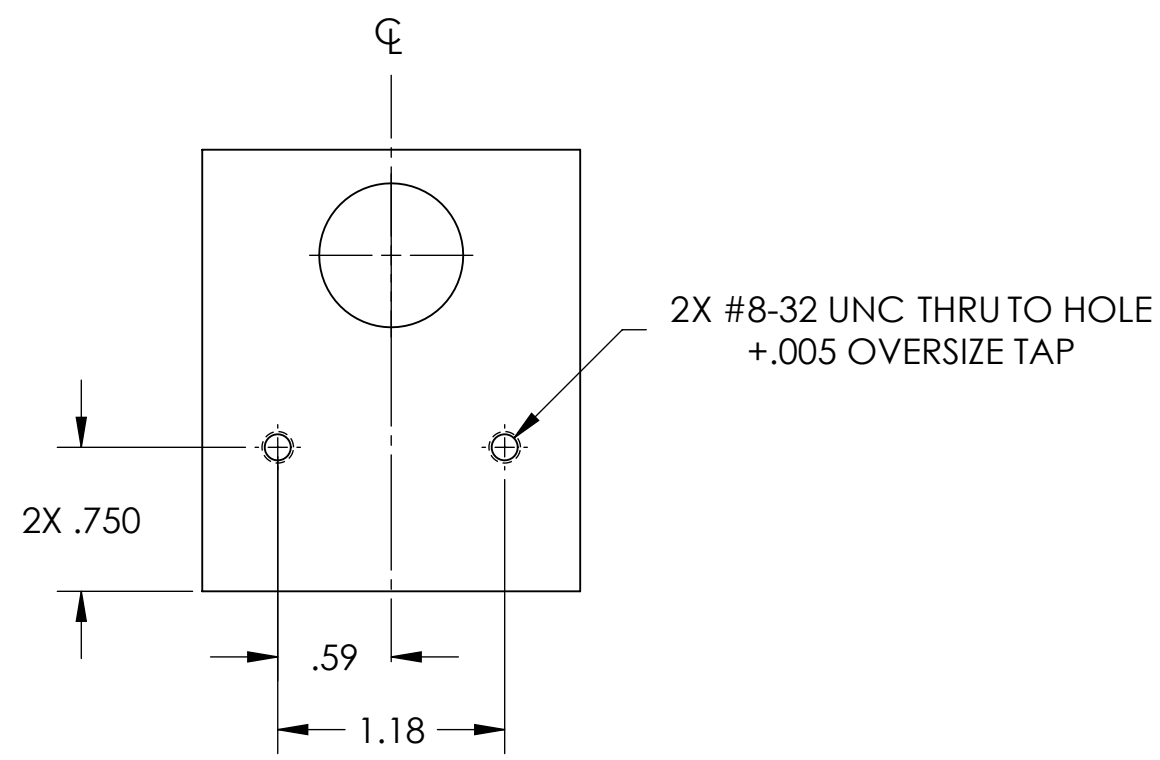
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 1.852 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 HELI-COIL HOLES TO BE PREPARED ACCORDING TO EMHART HELI-COIL PRODUCT CATALOG, HC2000, REV 4
10. ALL HELI-COIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.



REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX \pm .01 .XXX \pm .005 ANGULAR \pm 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.		T-SECTION FOR UPPER MASS	
						MATERIAL 304, 316 OR 302 SSSL FINISH 32 μ inch	
				SYSTEM ADVANCED LIGO SUB-SYSTEM SUS		DESIGNER C. TORRIE 01 MAY 2002 DRAFTER B. MOORE 11 NOV 2009 CHECKER M. MEYER 22 JAN 2010 APPROVAL	
				NEXT ASSY D020534		SIZE DWG. NO. B D020136 REV. v1	
						SCALE: 1:1 PROJECTION: SHEET 1 OF 2	

D020136_ISECTION_FOR_UPPERMASS, PART PDM REV: X-013, DRAWING PDM REV: X-007



 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SIZE B	DWG. NO. D020136
SCALE: 1:1	REV. v1
PROJECTION: 	SHEET 2 OF 2

4

3

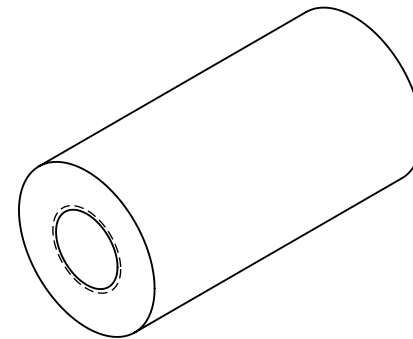
2

1

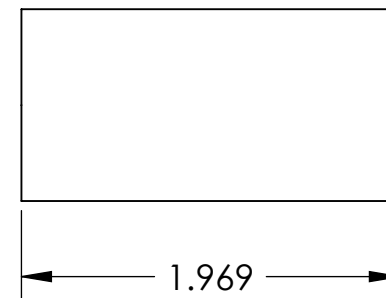
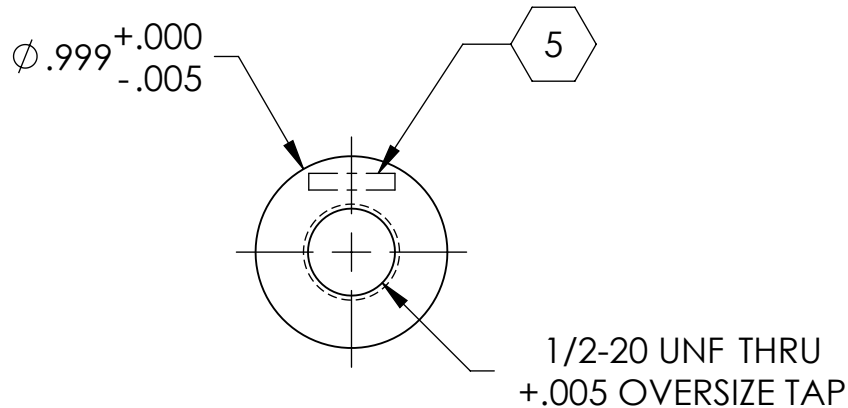
NOTES CONTINUED:

- 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 101 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 = 0.354 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 #
A	24 JUN 2004	E040303-00	-
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .01
.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.

MATERIAL 304, 316 OR 302 SSTL **FINISH** 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020534**

PART NAME PITCH INSERT FOR T-SECTION

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 OCT 2009	A	D020137	v1
CHECKER	M. MEYER	15 JAN 2010	SCALE: 1:1		
APPROVAL					SHEET 1 OF 1

4

3

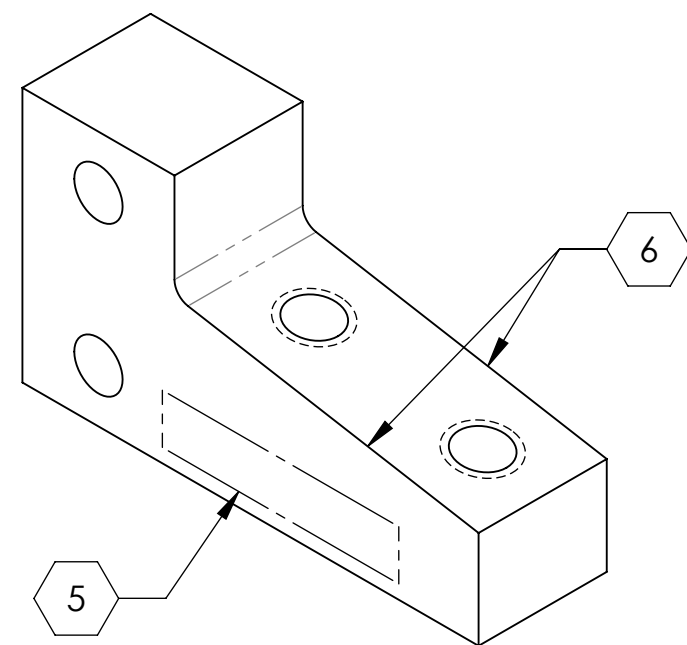
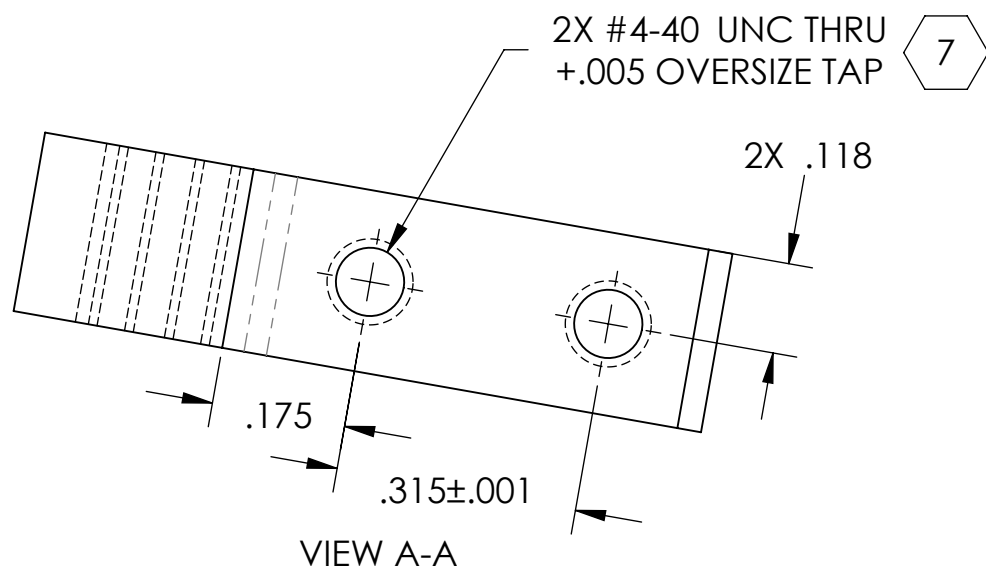
2

1

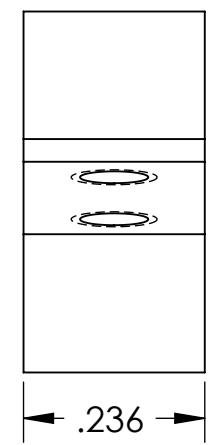
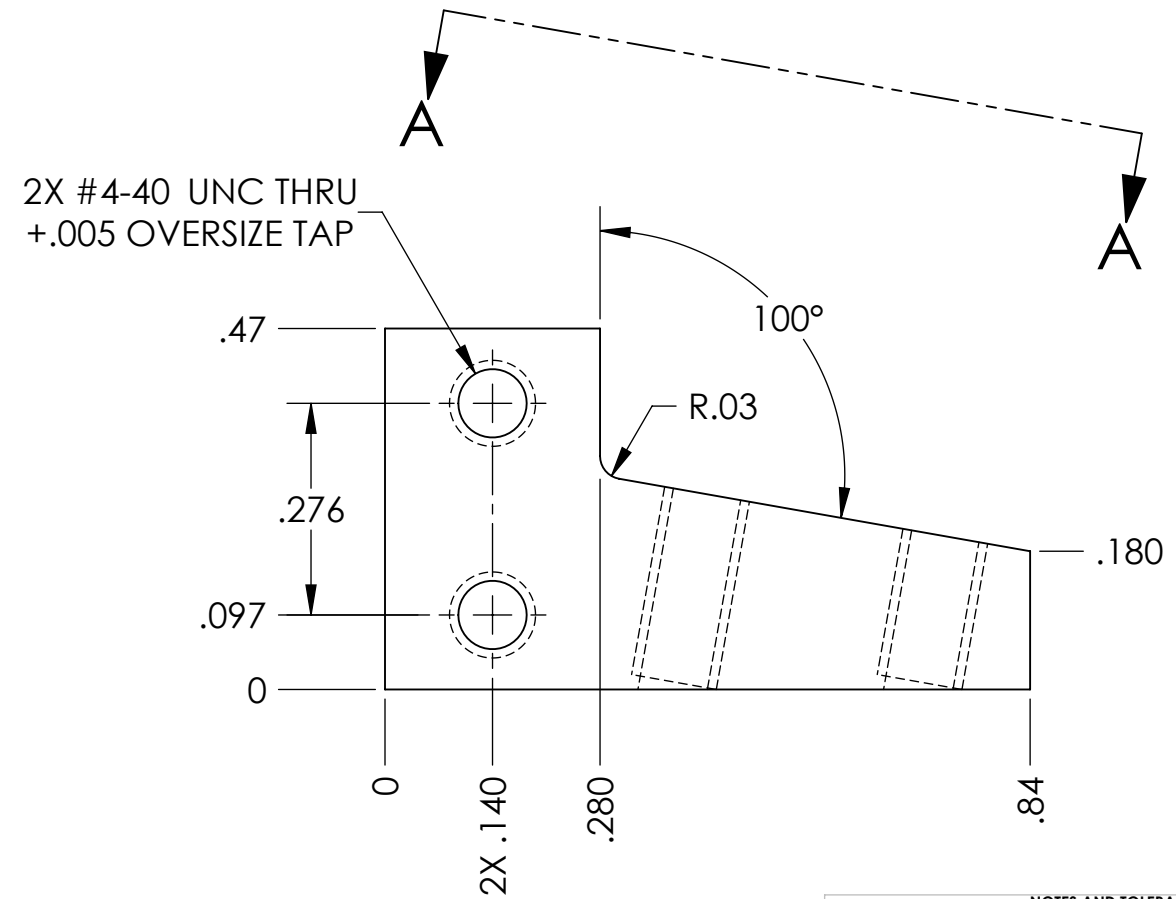
NOTES CONTINUED:

- 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 101 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 DO NOT BREAK SHARP EDGES.
- ⑦ HOLES ARE PERPENDICULAR TO ANGLED FACE.
- 8. APPROXIMATE WEIGHT = 0.016 LB.
- 9. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
- 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	09 JUN 2010	E0900500	E0900353
-	-	-	-



ISOMETRIC VIEW



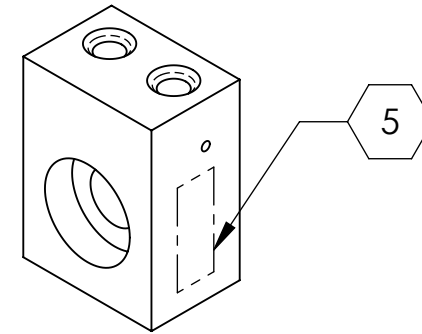
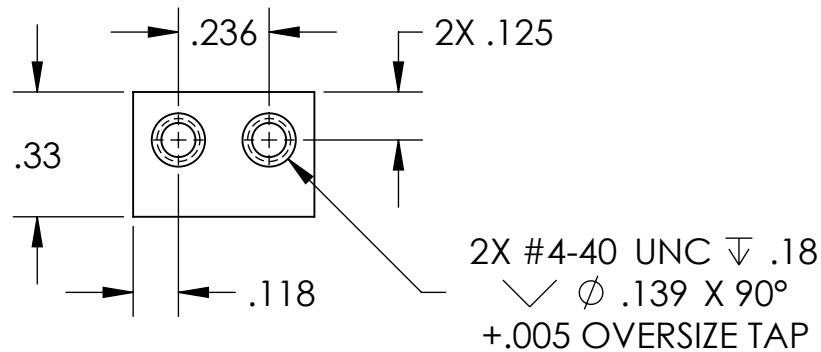
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX ± .01 .XXX ± .005 ANGULAR ± 0.5°				1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, EXCEPT WHERE INDICATED. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		UPPER BLADE WIRE CLAMP	
						SYSTEM ADVANCED LIGO SUB-SYSTEM SUS	
MATERIAL 304, 316 OR 302 SSSL FINISH 32 μinch				NEXT ASSY D0901854		SCALE: 4:1 PROJECTION: SHEET 1 OF 1	

D020198_upperbladewireclamp, PART PDM REV: X-008, DRAWING PDM REV: X-022

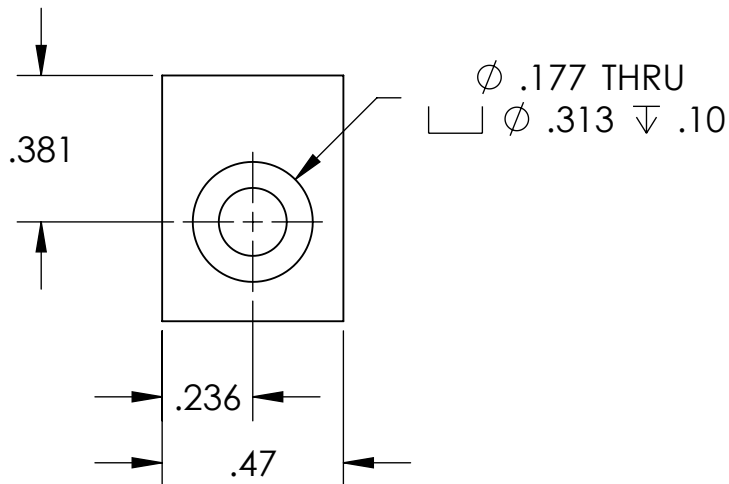
NOTES CONTINUED:

- 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 101 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 = 0.008 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 #
A	24 JUN 2004	E040303-00	-
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-

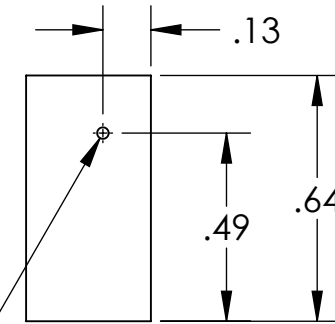


ISOMETRIC VIEW



.03/.06 VENT HOLE THRU TO TAPPED HOLE

BOTH SIDES



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX \pm .03
.XXX \pm .005

ANGULAR \pm 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 32 μ inch



SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY MULTIPLE ASSY

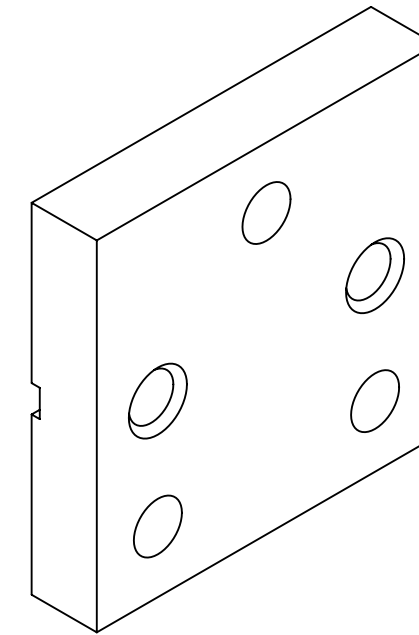
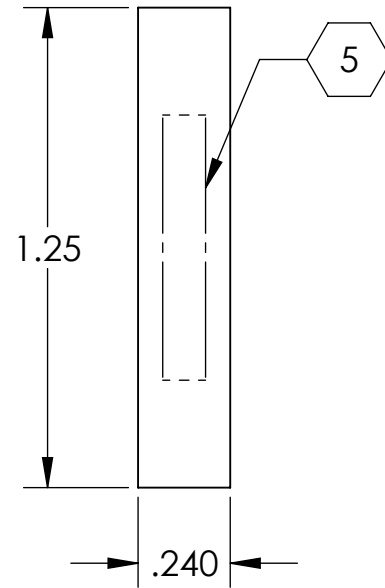
PART NAME MAGNET-FLAG BASE (SHORT), UPPER MASS

DESIGNER	C. ECHOLS	15 FEB 2007	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	13 APR 2010	A	D020199	v1
CHECKER	M. MEYER	14 APR 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

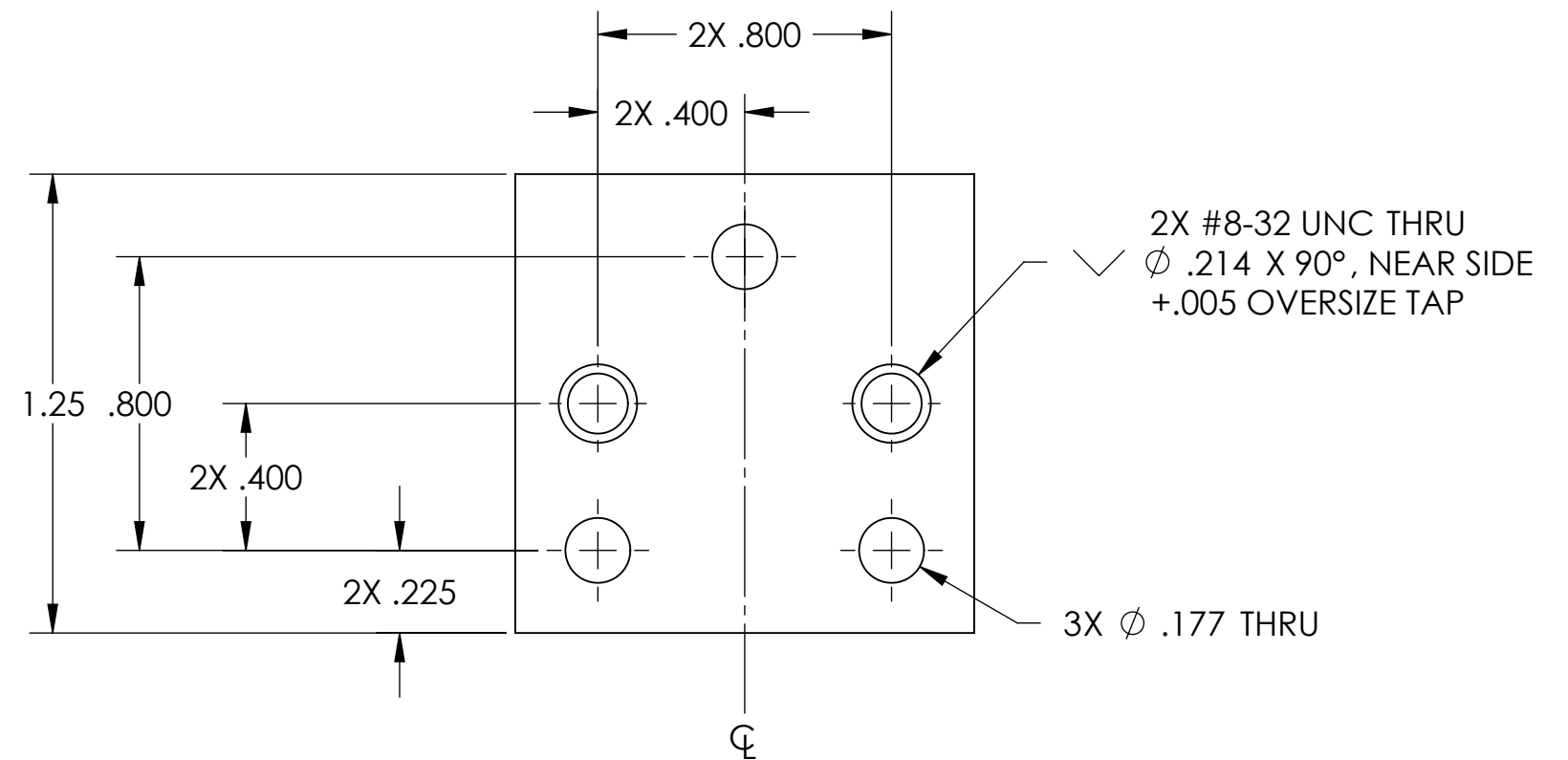
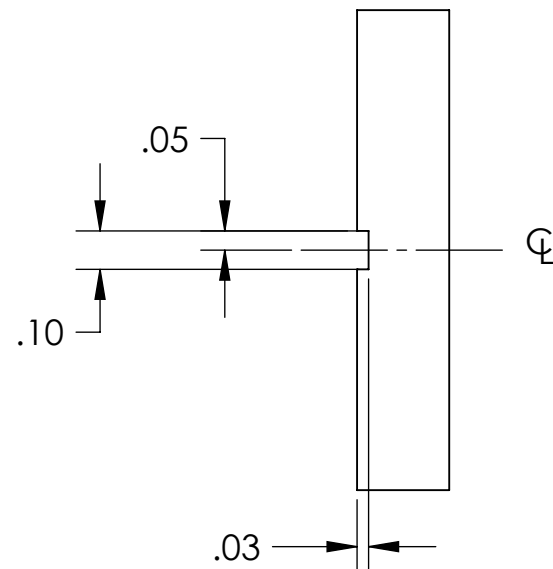
D020202_LOWERWIRECLAMP_INSIDE, PART PDM REV: X-005, DRAWING PDM REV: X-008

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 101 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 = 0.099 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 #
A	24 JUN 2004	E040303-00	-
v1	09 JUN 2010	E0900500	E0900353
-	-	-	-



ISOMETRIC VIEW

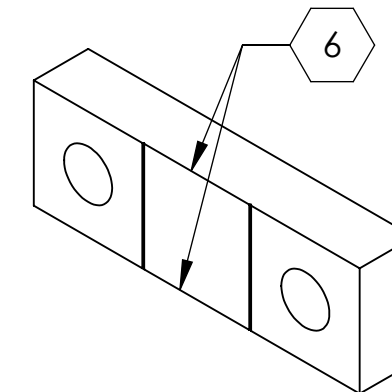
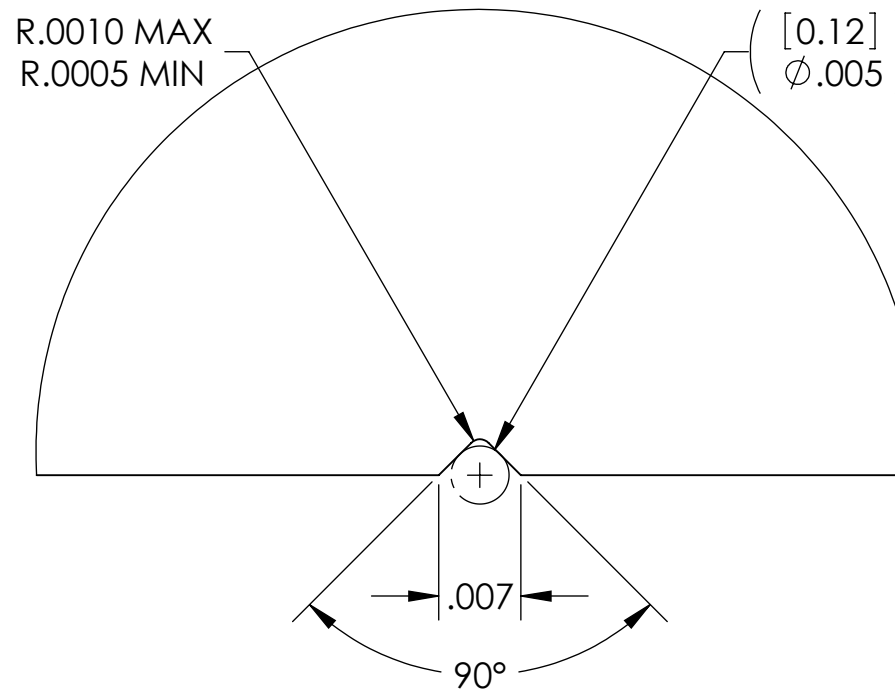
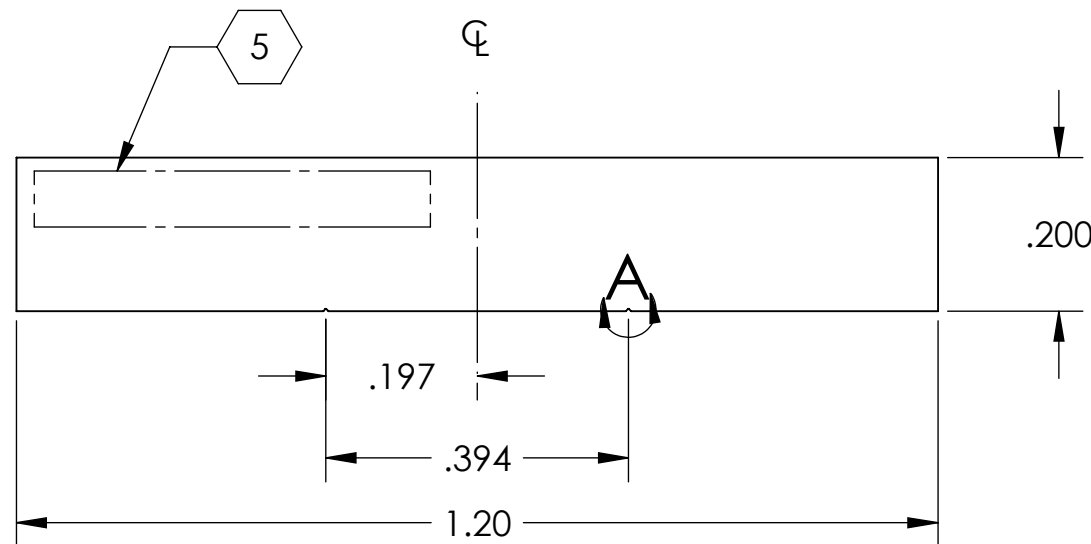


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME						
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM ADVANCED LIGO		SUB-SYSTEM SUS		LOWER WIRE CLAMP MOUNT				
TOLERANCES: .XX ± .03 .XXX ± .005		MATERIAL 304, 316 OR 302 SSSL		FINISH 32 µinch		NEXT ASSY D0901902		DESIGNER M. MEYER	01 SEP 2009	SIZE DWG. NO. B	D020202	REV. v1
ANGULAR ± 0.5°								CHECKER M. MEYER	18 JAN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

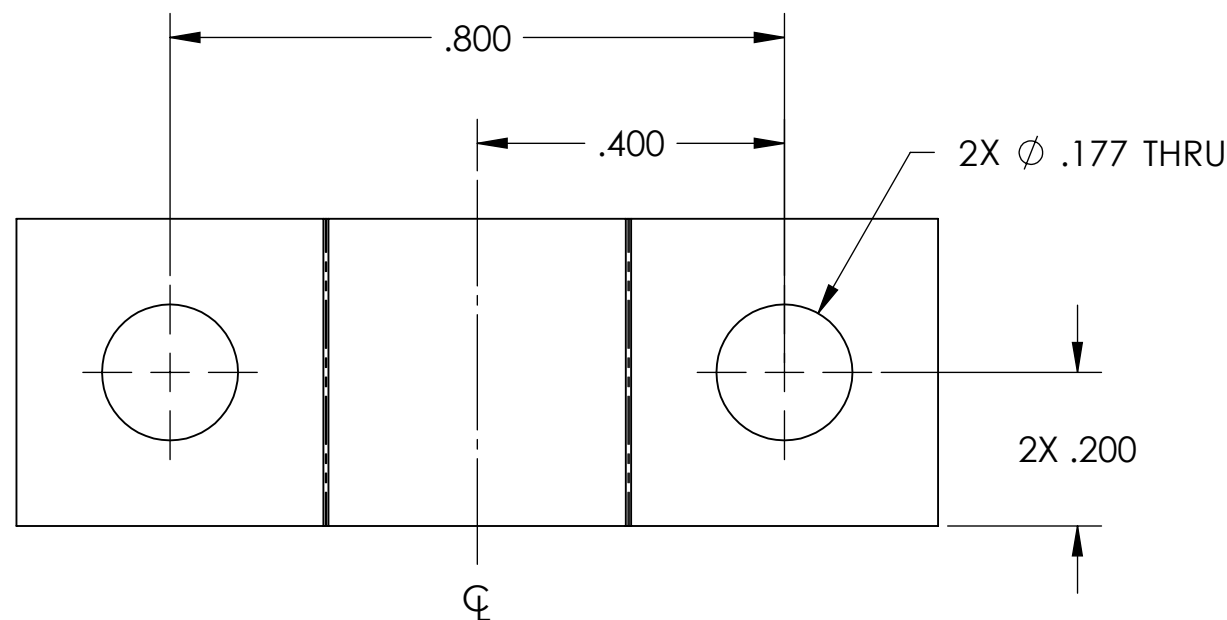
NOTES CONTINUED:

- 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 101 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. DO NOT BREAK INDICATED SHARP EDGES.
- 7. APPROXIMATE WEIGHT = 0.025 LB.
- 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.

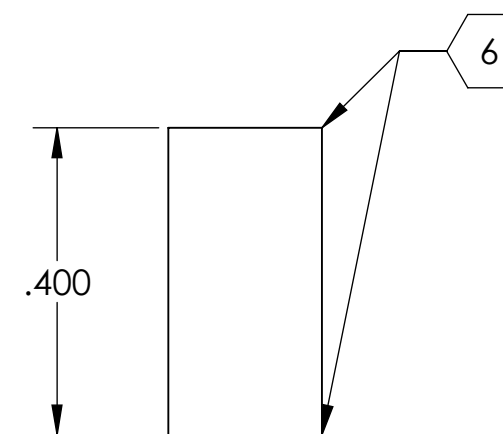
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUNE 2004	E040303-00	-
v1	09 JUN 2010	E0900500	E0900353
-	-	-	-



ISOMETRIC VIEW



DETAIL A
SCALE 64 : 1
2 PLACES



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX $\pm .01$.XXX $\pm .005$	
ANGULAR $\pm 0.5^\circ$	
1. INTERPRET DRAWING PER ASME Y14.5-1994.	
2. REMOVE ALL SHARP EDGES, EXCEPT WHERE INDICATED.	
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
304, 316 OR 302 SSTL	32 μ inch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
ADVANCED LIGO		LOWER WIRE CLAMP, HSTS	
DESIGNER	C. TORRIE	01 APR 2002	SIZE DWG. NO.
DRAFTER	B. MOORE	12 NOV 2009	B
CHECKER	M. MEYER	26 JAN 2010	D020203
APPROVAL			REV. v1
NEXT ASSY		SCALE: 4:1	PROJECTION:
D0901902		SHEET 1 OF 1	

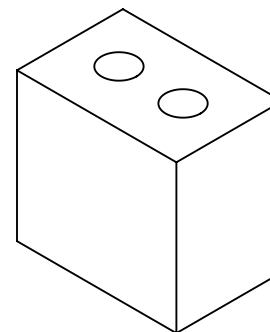
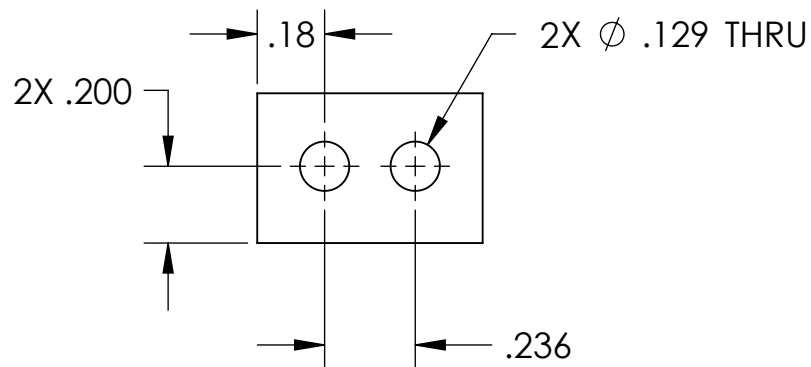
D020203_LOWERWIRECLAMP_OUTSIDE, PART PDM REV: X-006, DRAWING PDM REV: X-010

NOTES CONTINUED:

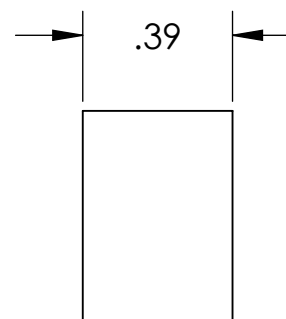
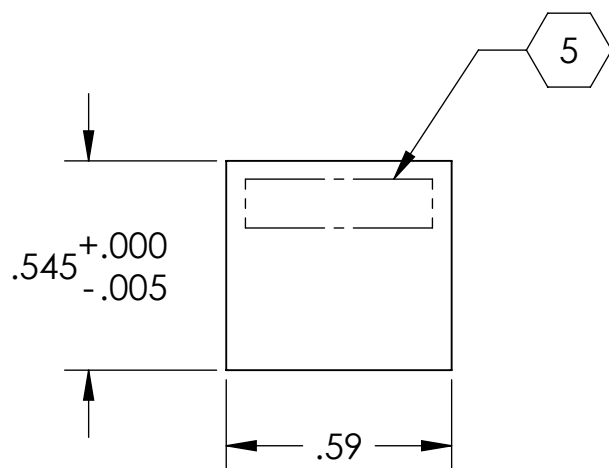
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.011 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 #
A	24 JUN 2004	E040303-00	-
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .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 32 μinch

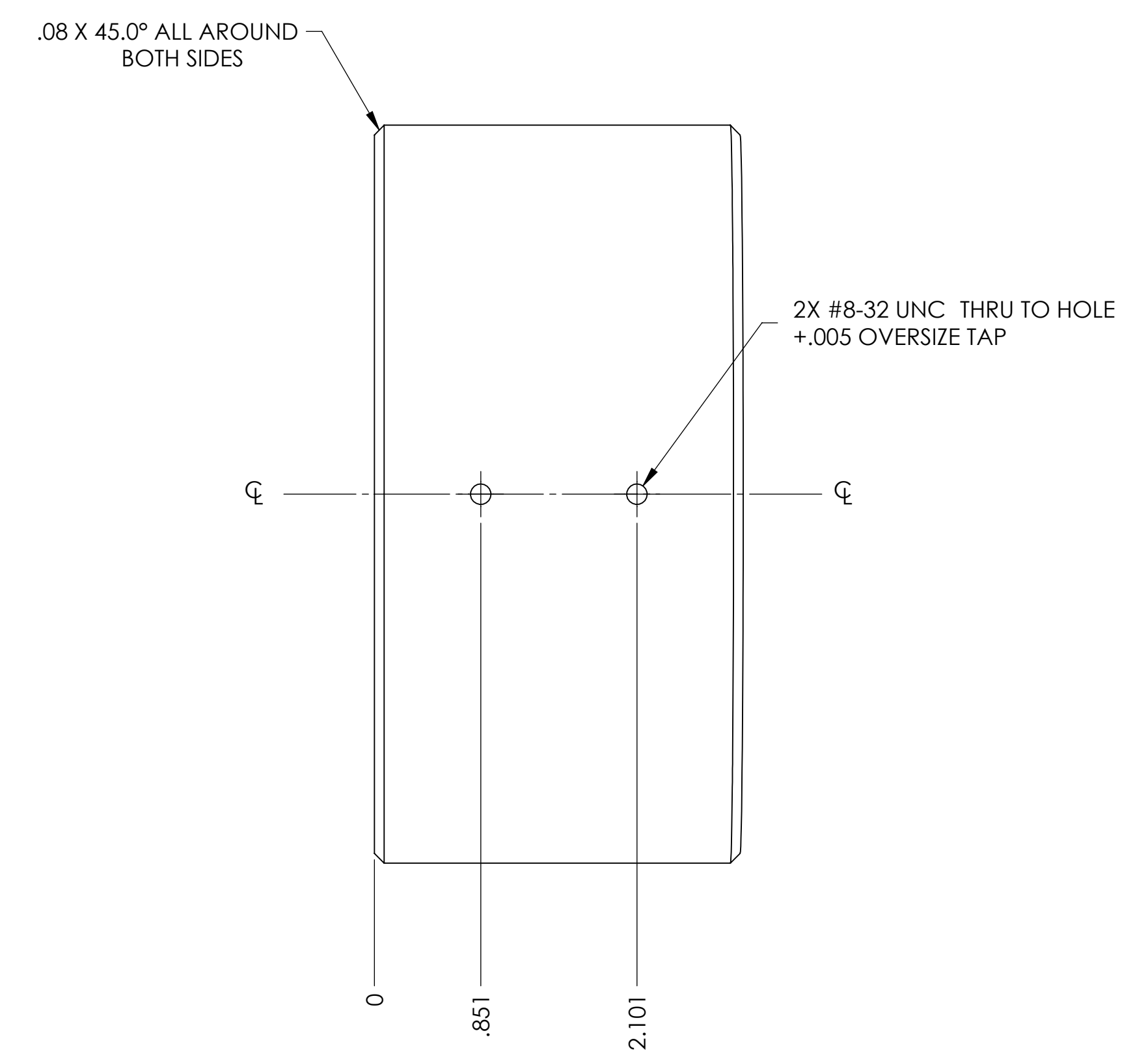
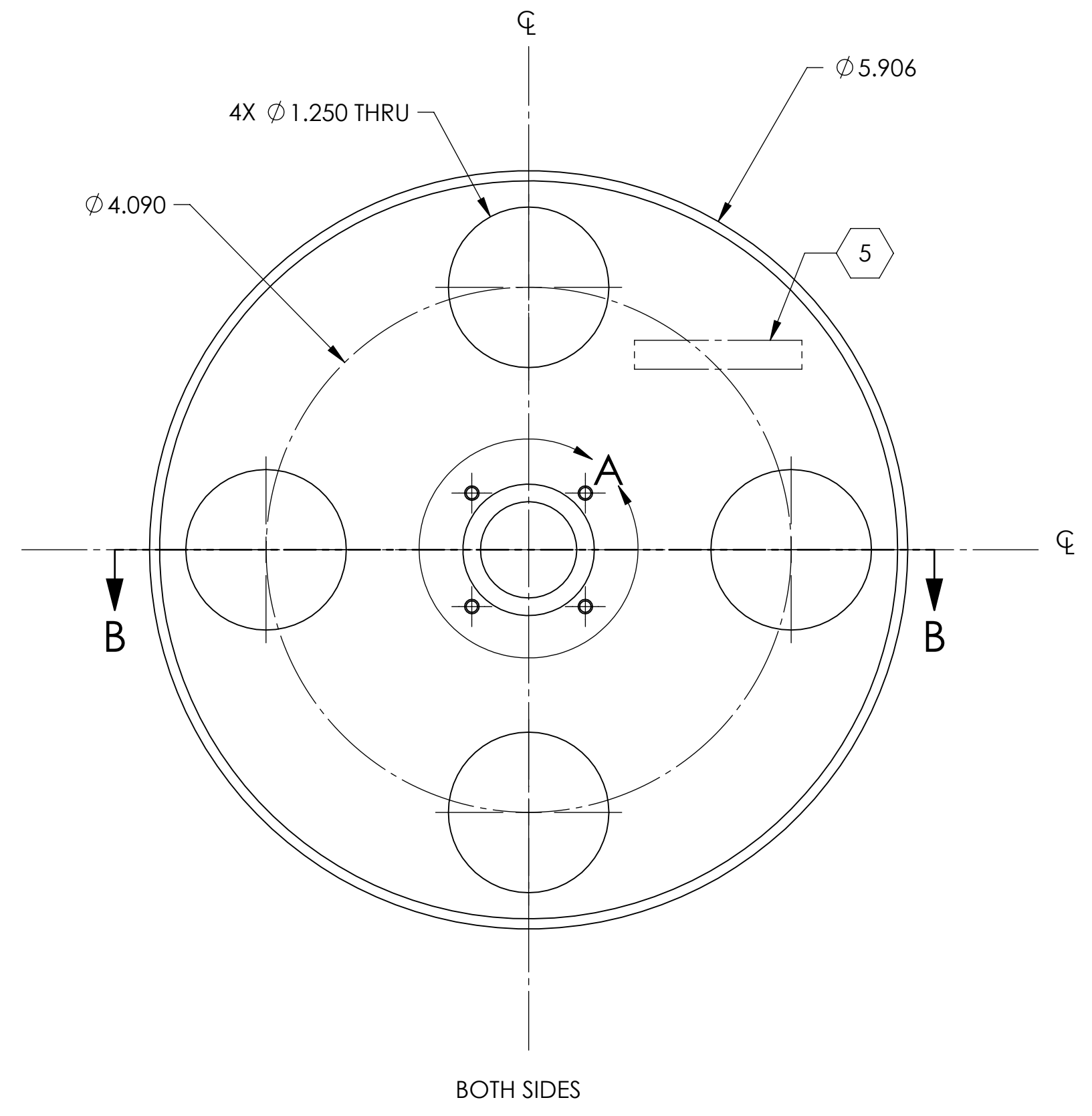
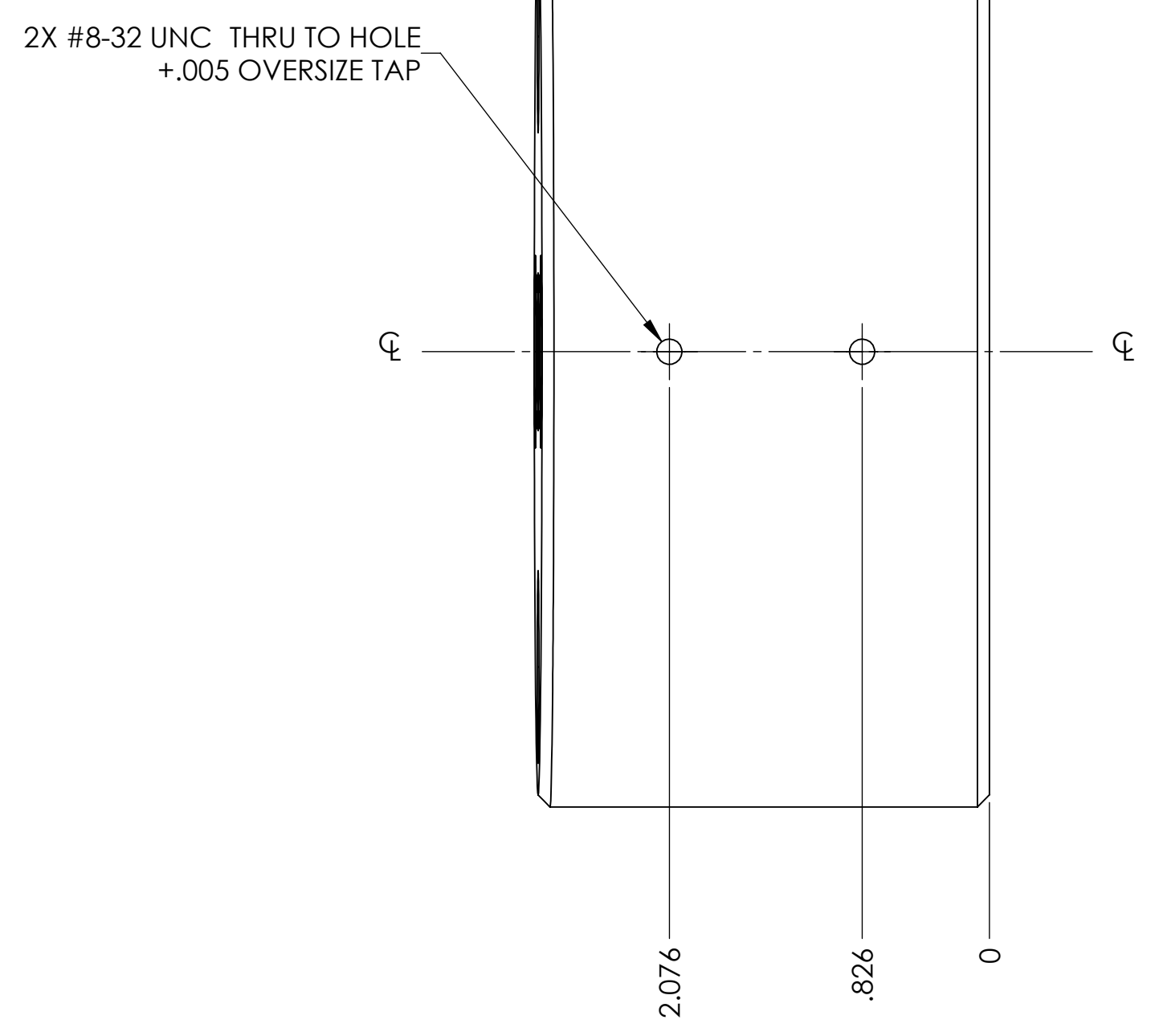
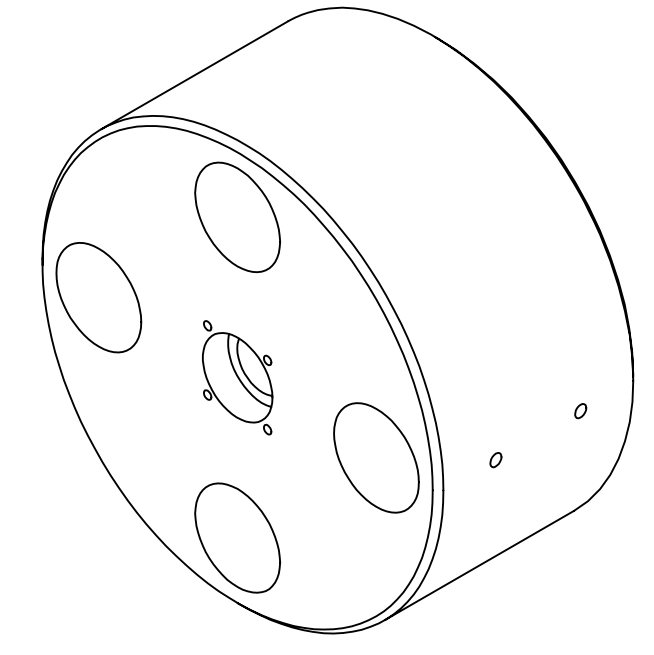
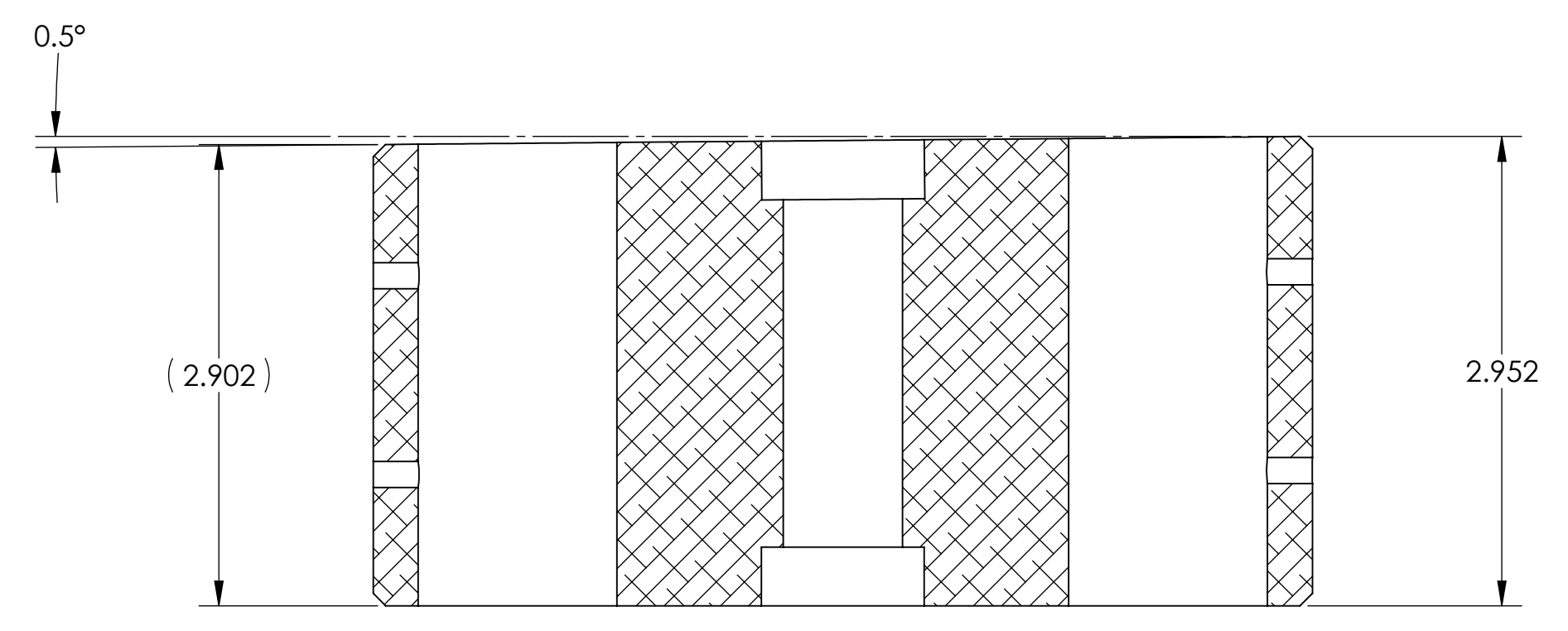
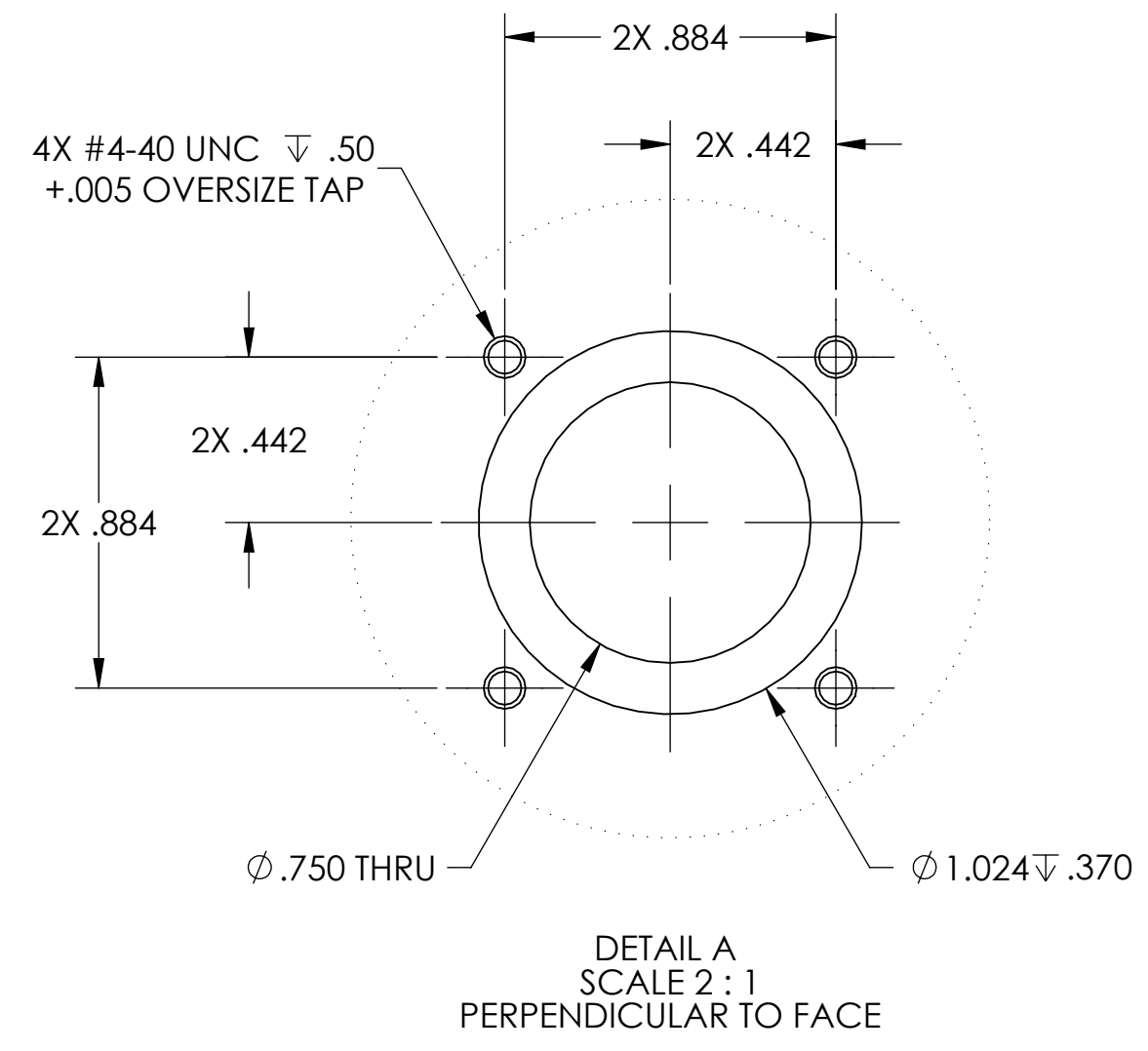
LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY D020534

PART NAME			MAGNET HOLDER BRACE		
DESIGNER	C. TORRIE	01 MAR 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	29 OCT 2009	A	D020211	v1
CHECKER	M. MEYER	29 OCT 2009			
APPROVAL			SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

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 101 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 = 6.245 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 #
A	24 JUN 2004	E040303-00	-
v1	30 DEC 2010	E0900507	E0900353
v2	18 JUN 2010	E1000219	E0900353



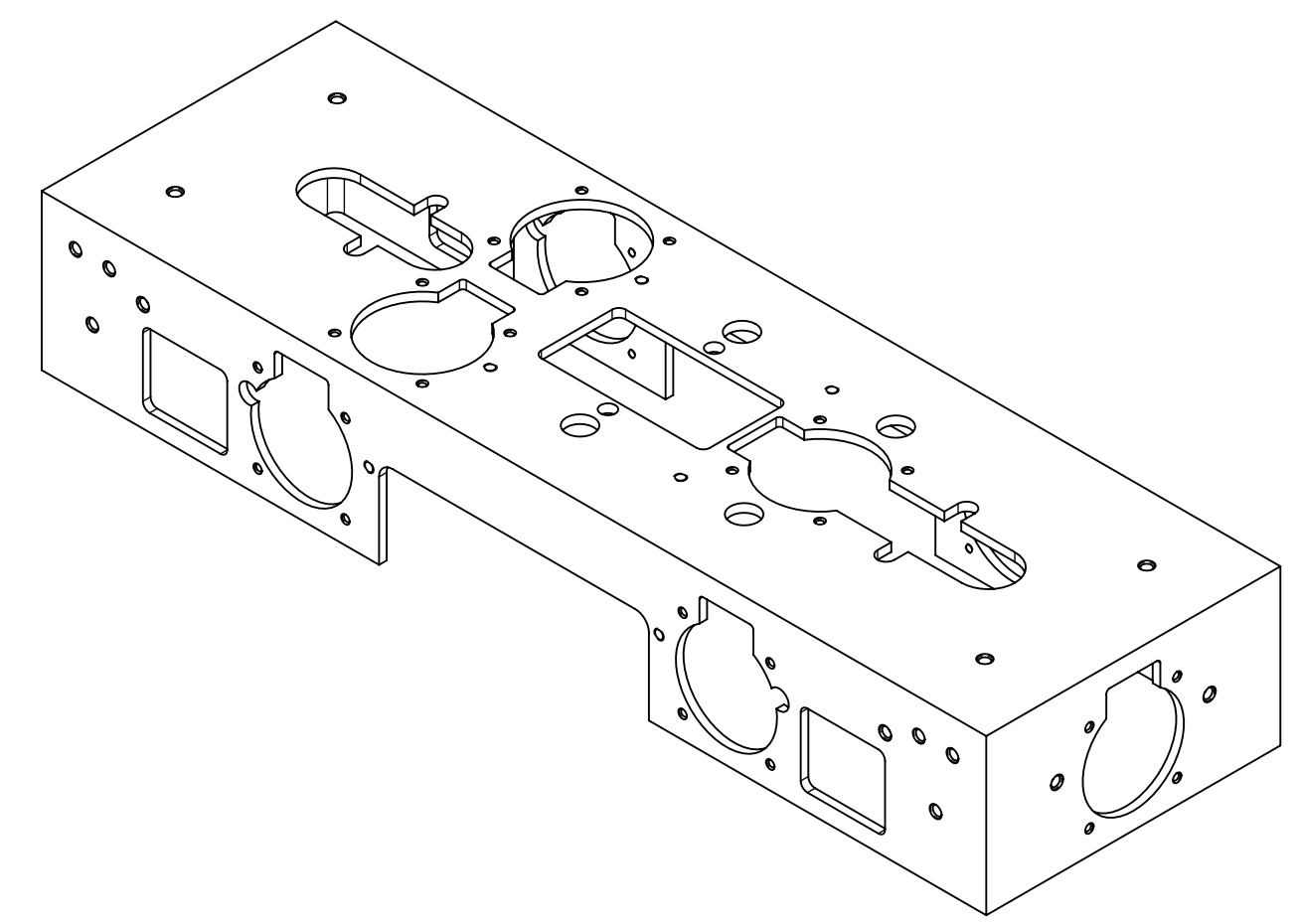
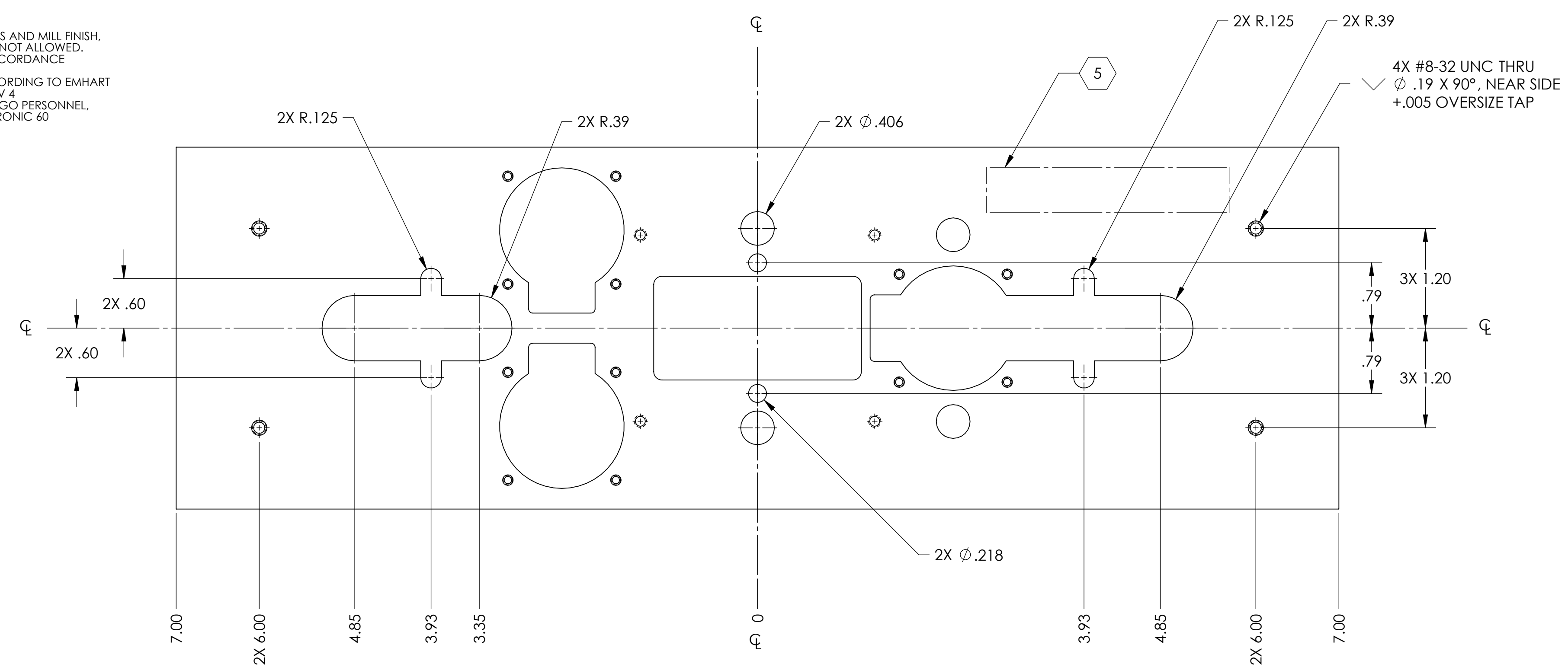
DIMENSIONS ARE IN INCHES		NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
TOLERANCES: .XX ± .01 .XXX ± .005		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		SYSTEM ADVANCED LIGO		SUB-SYSTEM SUS	
ANGULAR ± 0.1°		MATERIAL 6061-T6 Al		FINISH 32 μinch		NEXT ASSY D020700	
						DESIGNER M. MEYER 10 AUG 2009	
						DRAFTER B. MOORE 13 JAN 2010	
						CHECKER M. MEYER 14 JAN 2010	
						APPROVAL	
						SIZE DWG. NO. D D020234	
						REV. v2	
						SCALE: 1:1 PROJECTION:	
						SHEET 1 OF 1	

D020234.ctb LIGO_SUS_LITE_MetalLowerMass (MC), PART PDM REV: V1, DRAWING PDM REV: V1

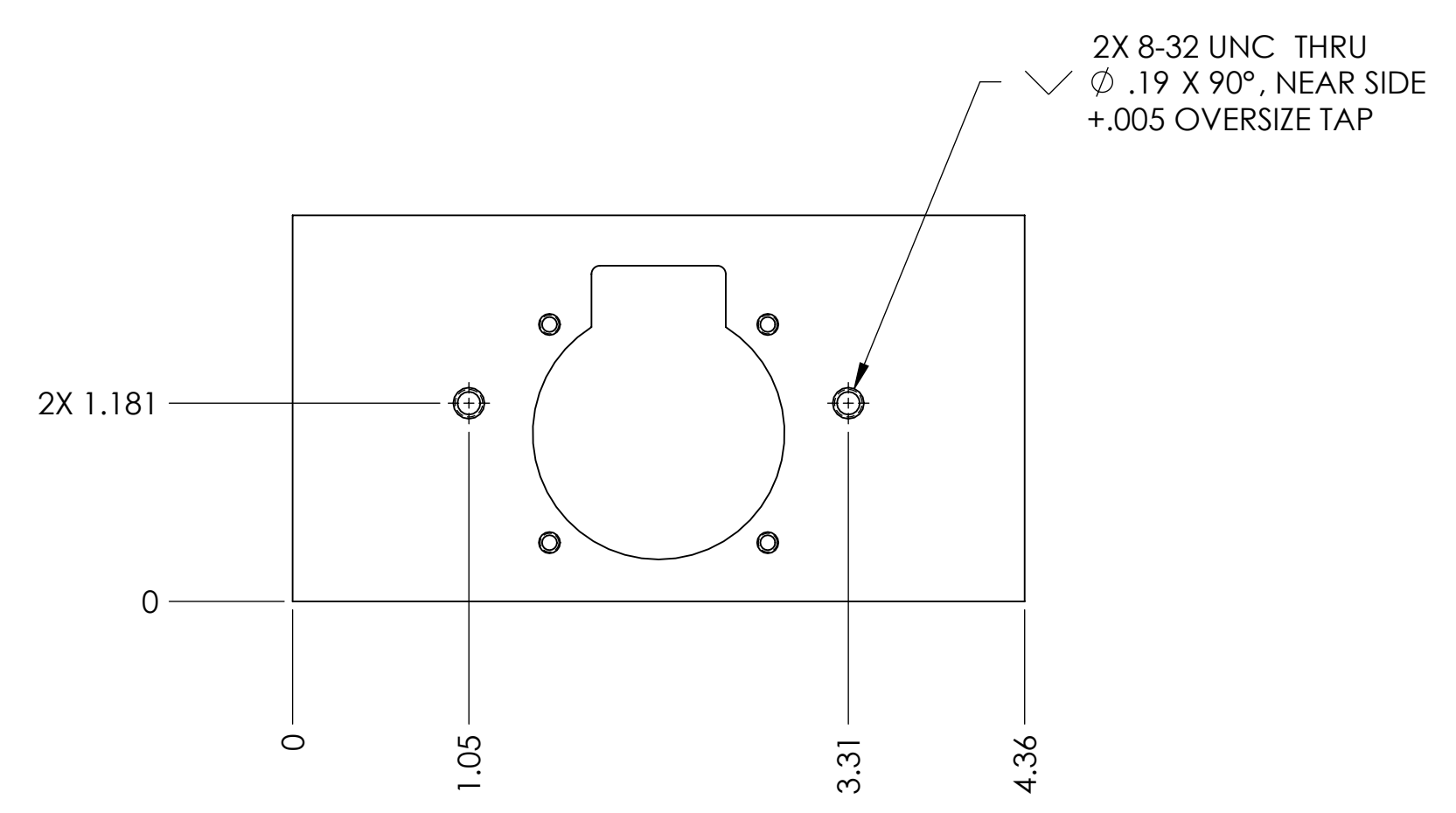
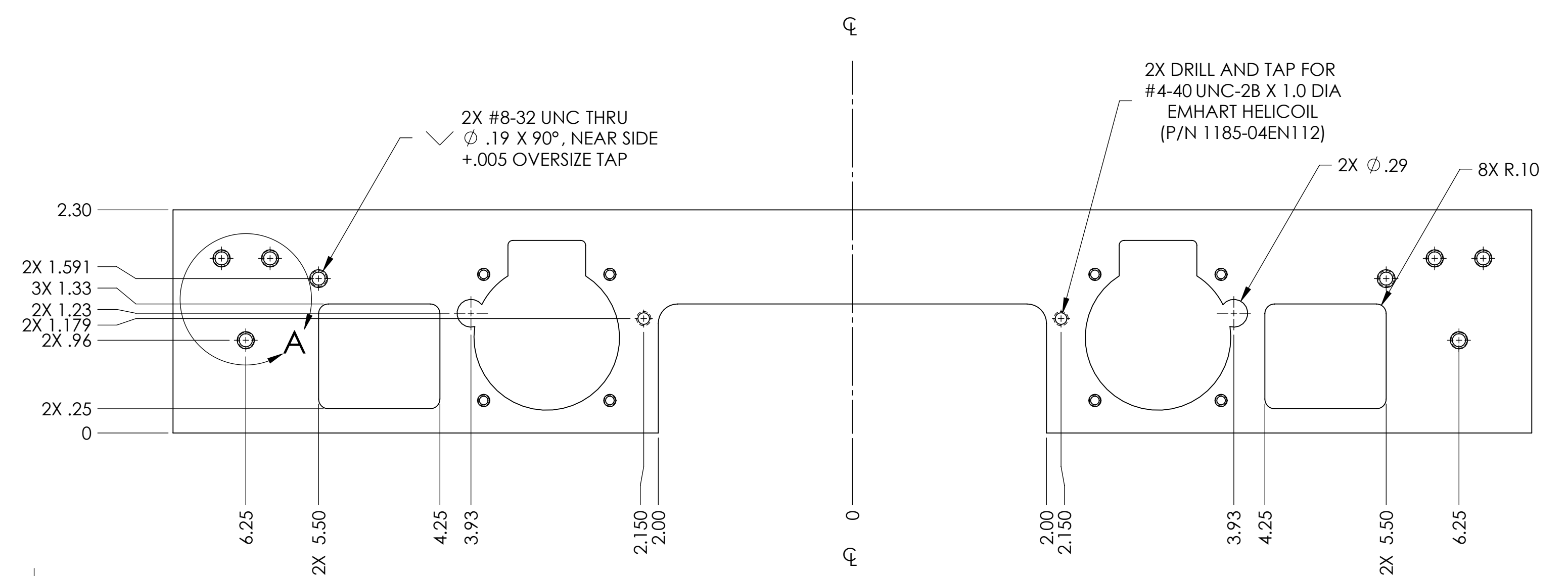
NOTES CONTINUED:

- 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 101 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 = 3.401 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 HELI-COIL HOLES TO BE PREPARED ACCORDING TO EMHART HELI-COIL PRODUCT CATALOG, HC2000, REV 4
- 10. ALL HELI-COIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-

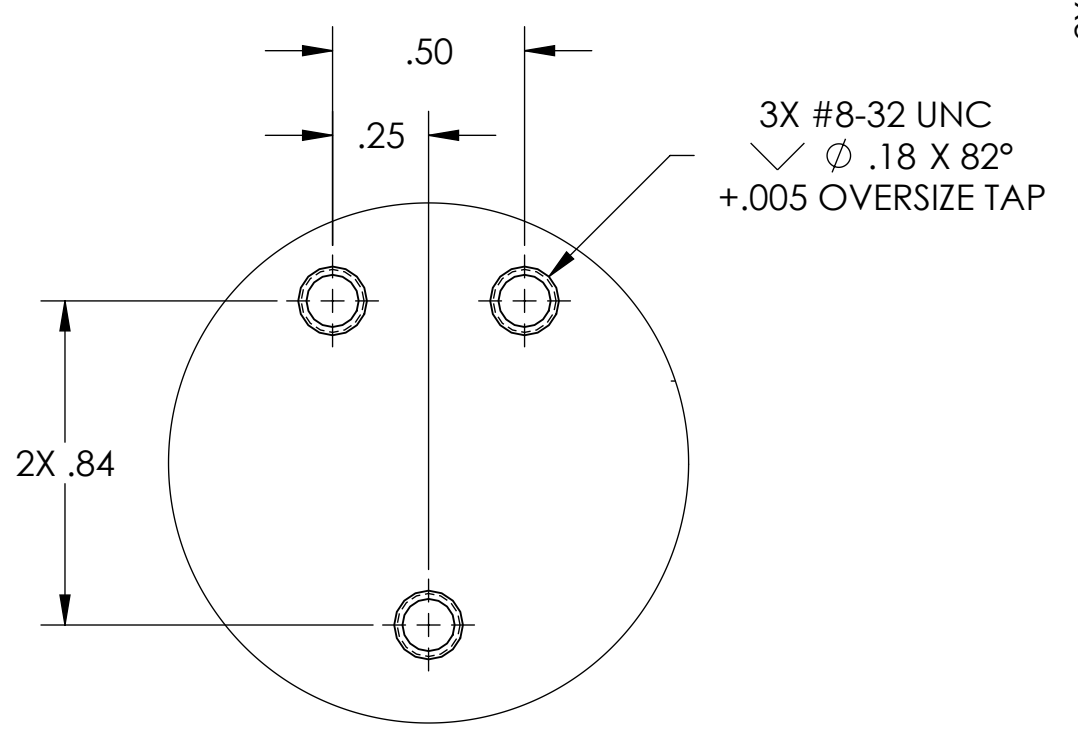


ISOMETRIC VIEW



BOTH SIDES

BOTH SIDES



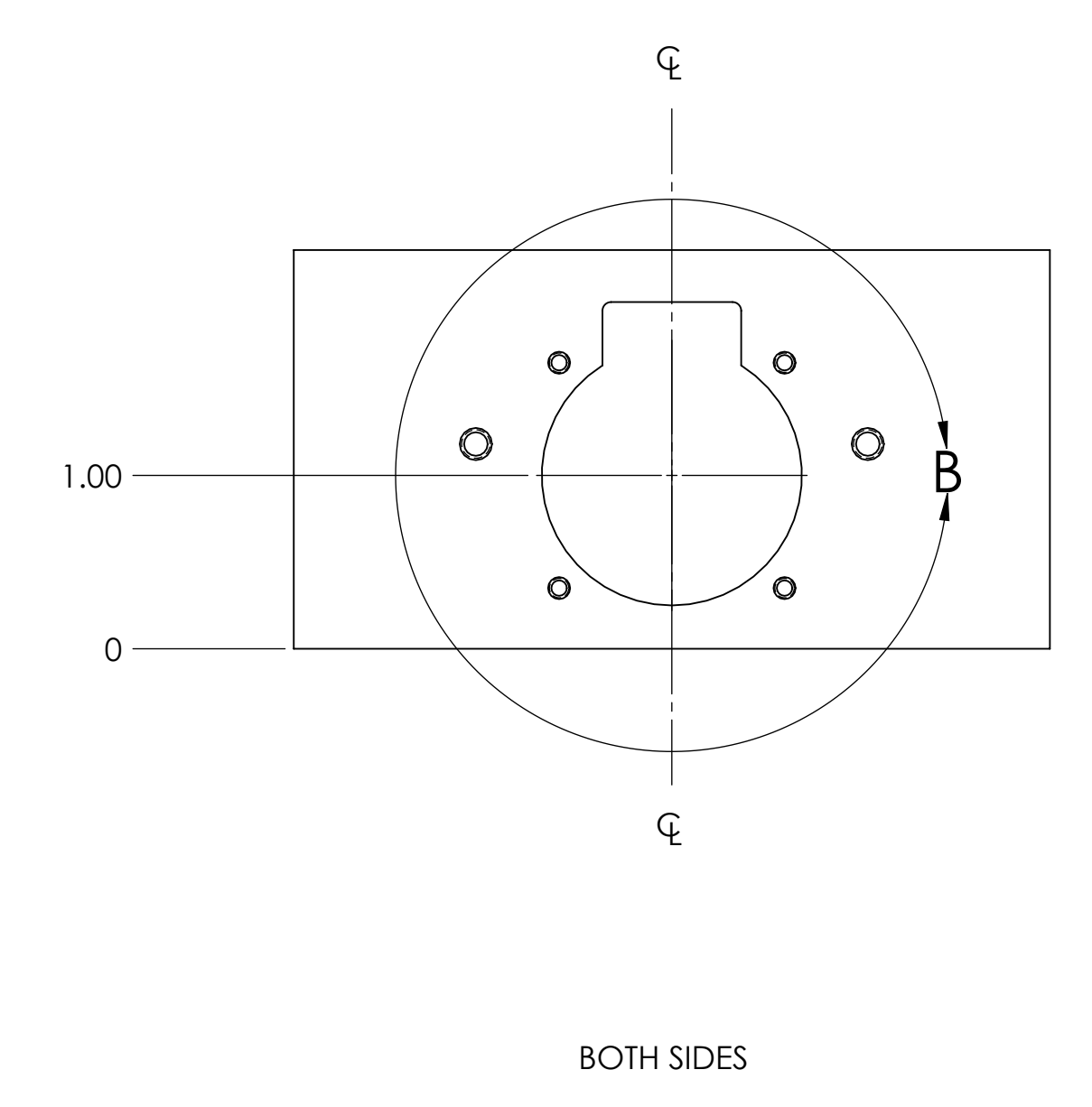
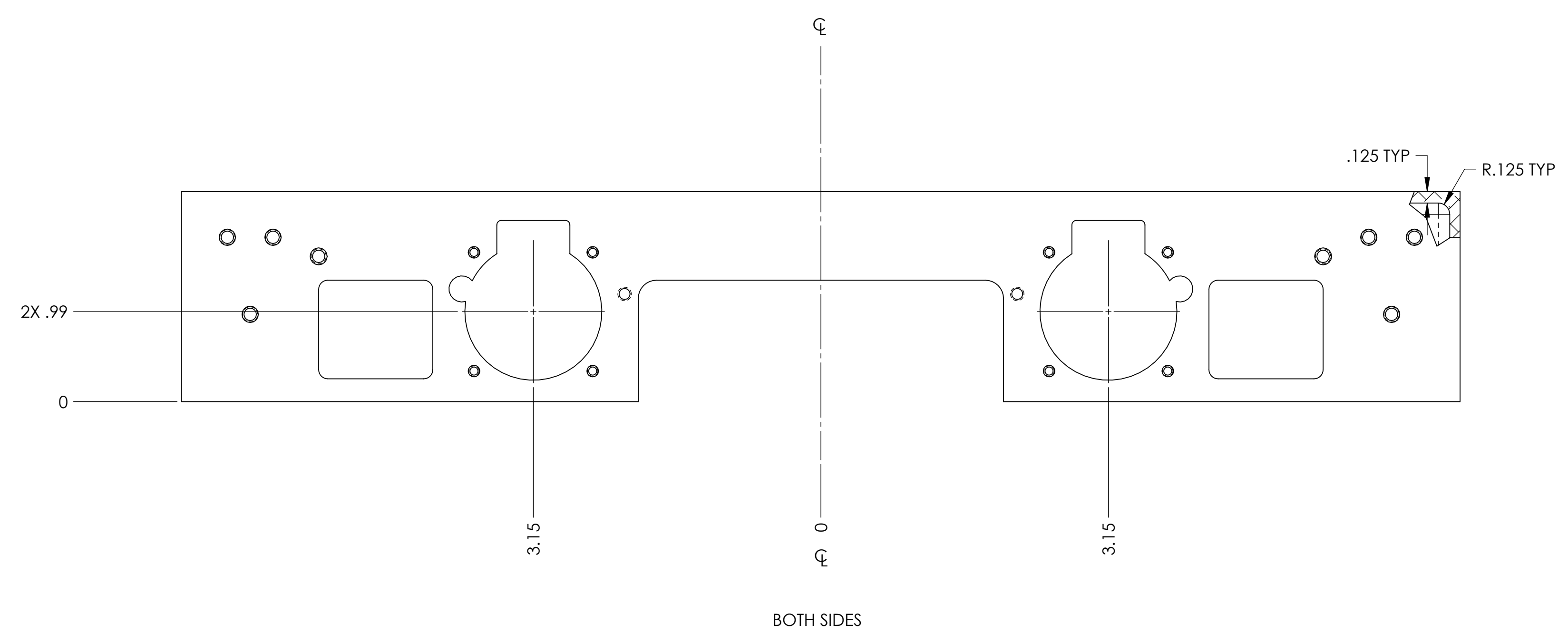
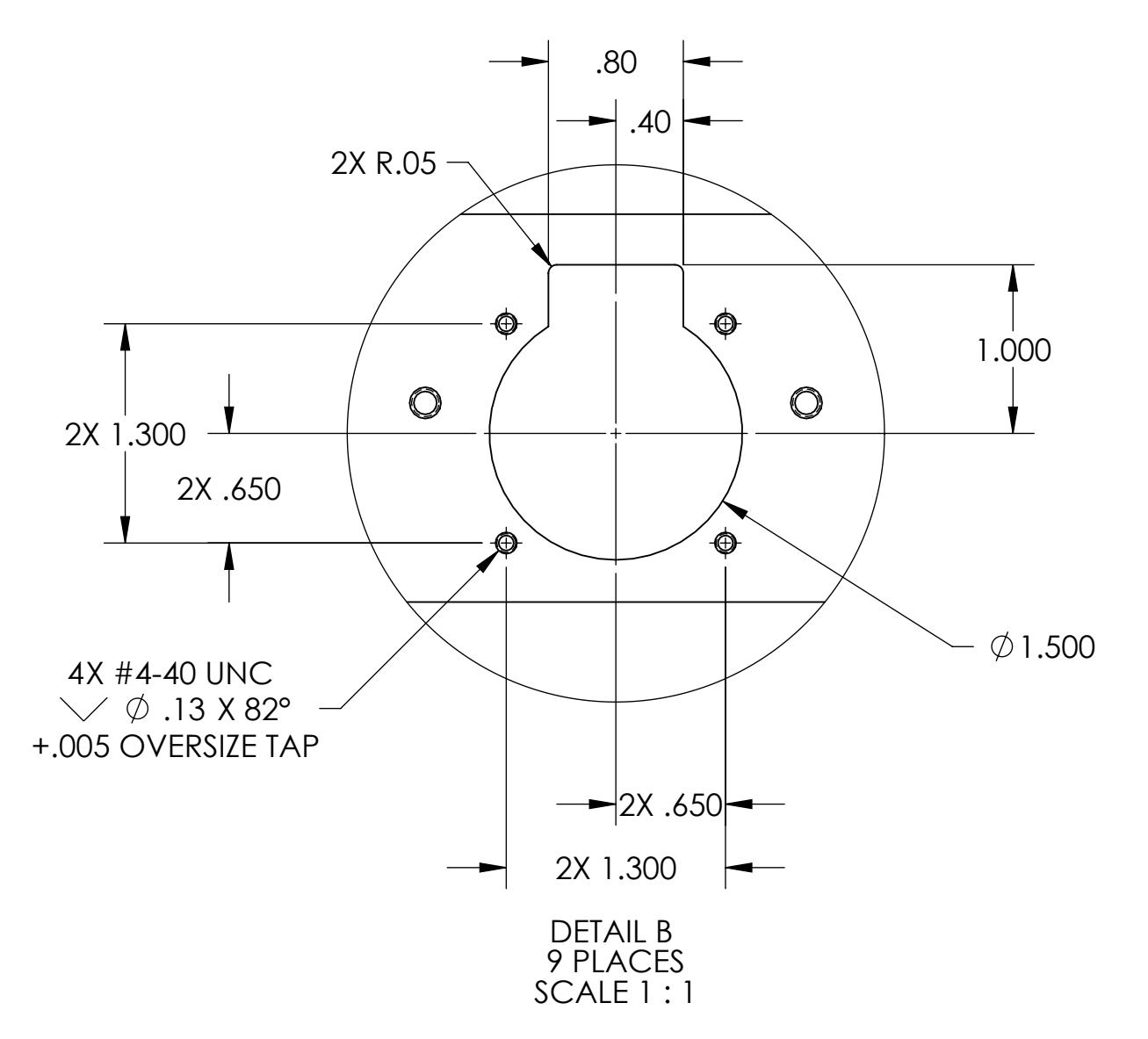
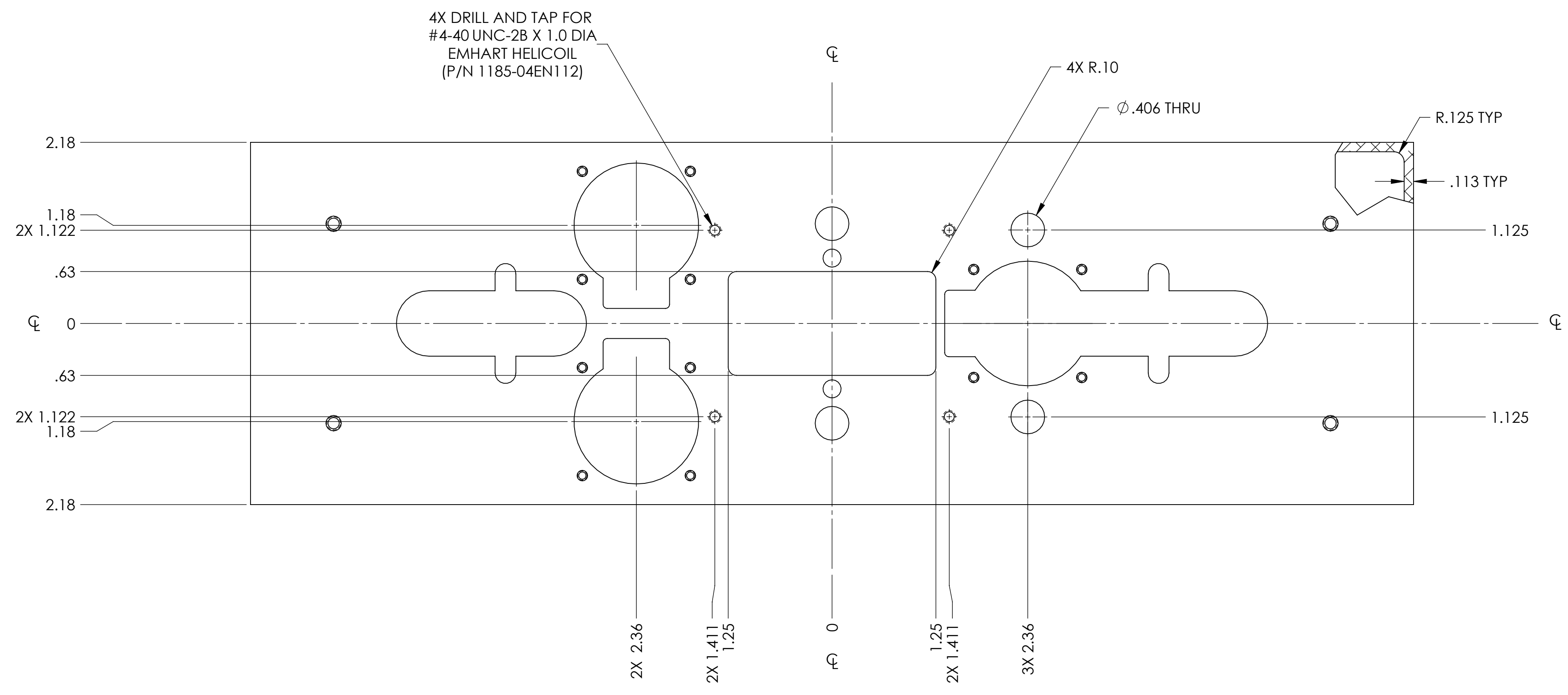
DETAIL A
2 PLACES
SCALE 2 : 1

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .01 .XXX ± .005	
ANGULAR ± 0.5°	
MATERIAL	FINISH
304, 316 OR 302 SSTL	32 μinch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SYSTEM	SUB-SYSTEM
ADVANCED LIGO	SUS
NEXT ASSY	
D020535	

PART NAME		HSTS COILHOLDER (TABLECLOTH)	
DESIGNER	B. MOORE	01 JULY 2009	SIZE DWG. NO.
DRAFTER	B. MOORE	12 NOV 2009	D
CHECKER	M. MEYER	21 DEC 2009	D020239
APPROVAL			REV. v1
SCALE: 1:1		PROJECTION:	SHEET 1 OF 2

D020239_c01h01d01u_1 PART PDM REV: X-017, DRAWING PDM REV: X-009



D020239_c01h01d01u_PARR PDM REV. X-017, DRAWING PDM REV. X-009

NOTES CONTINUED:

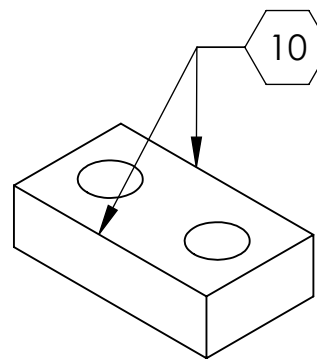
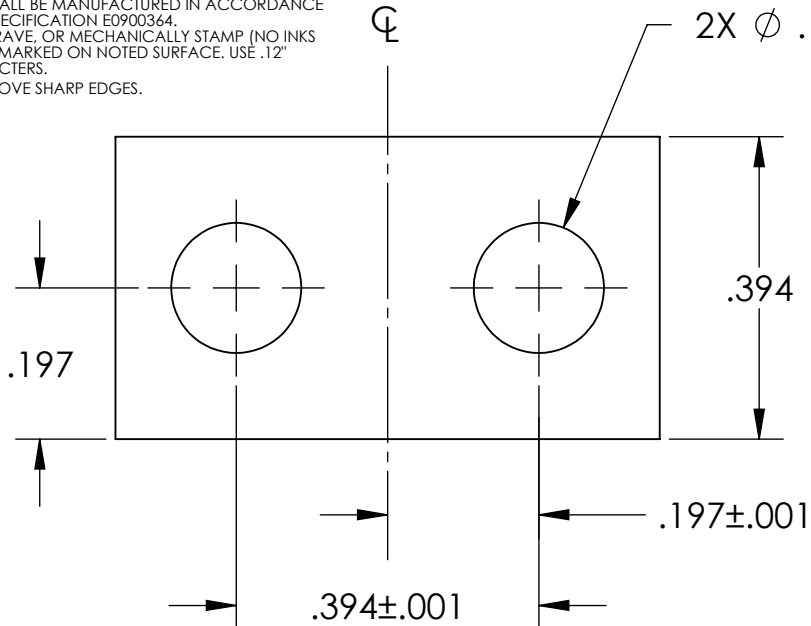
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.013 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.

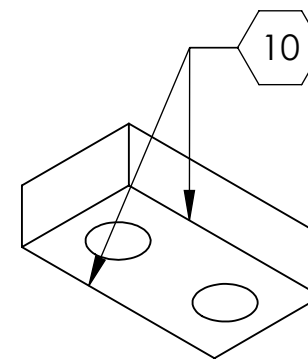
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

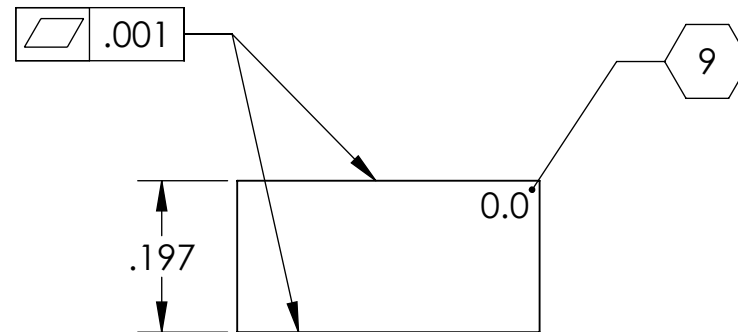
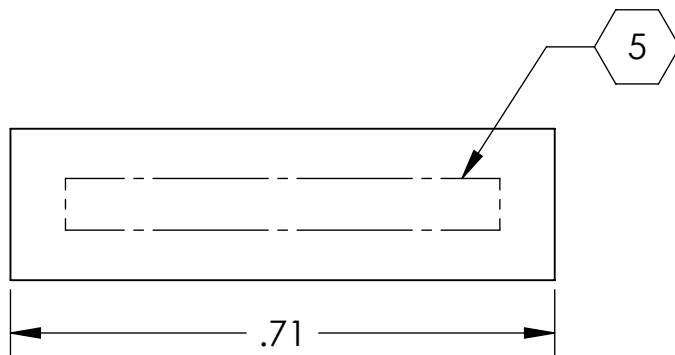
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	22 APR 2009	E09001 07-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
 FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **LOWER BLADE CLAMP, LOWER SIDE**

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	26 MAY 2010	A	D020308	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

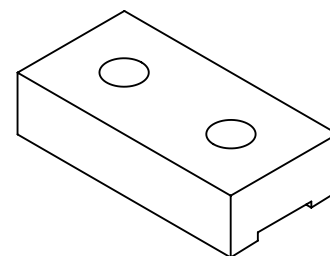
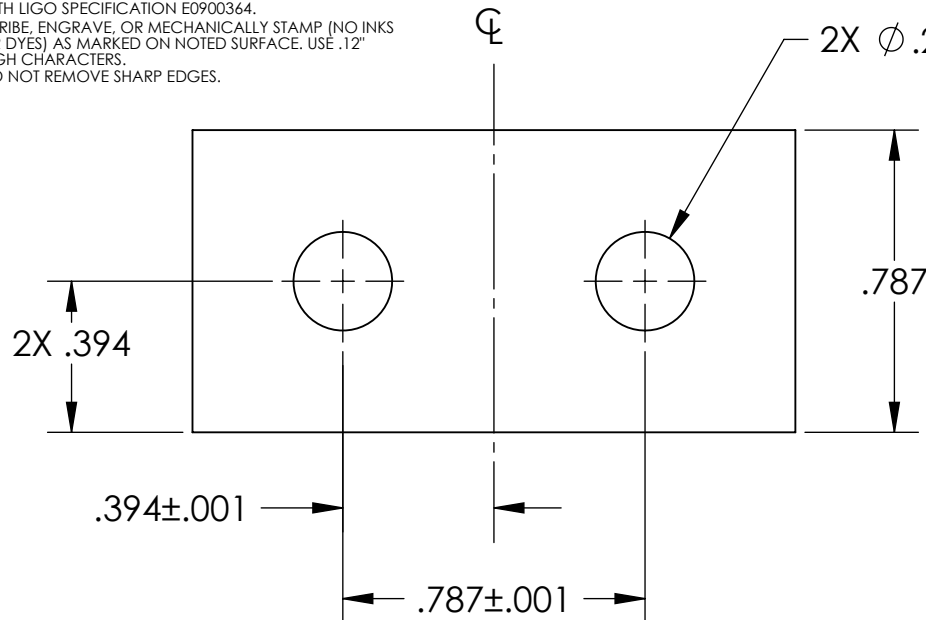
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.118 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.

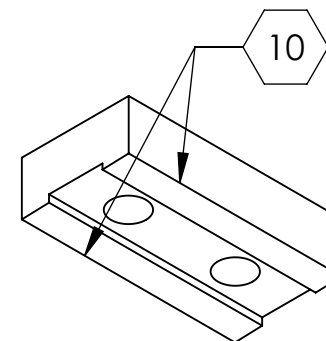
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

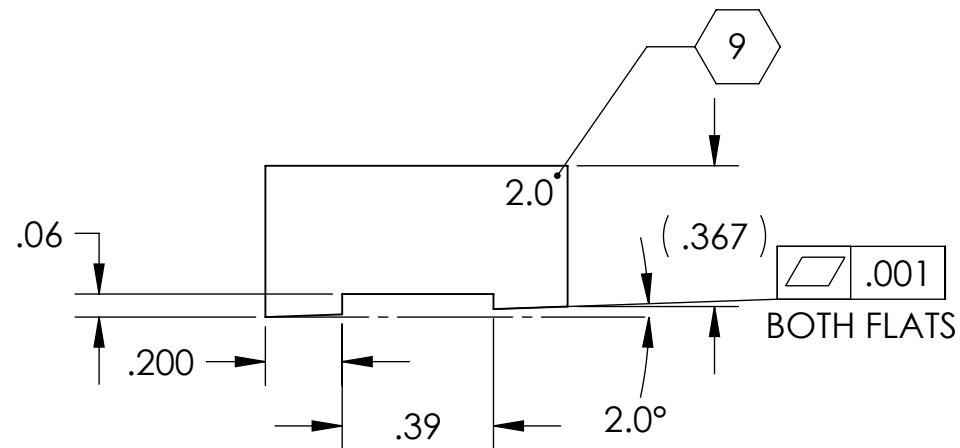
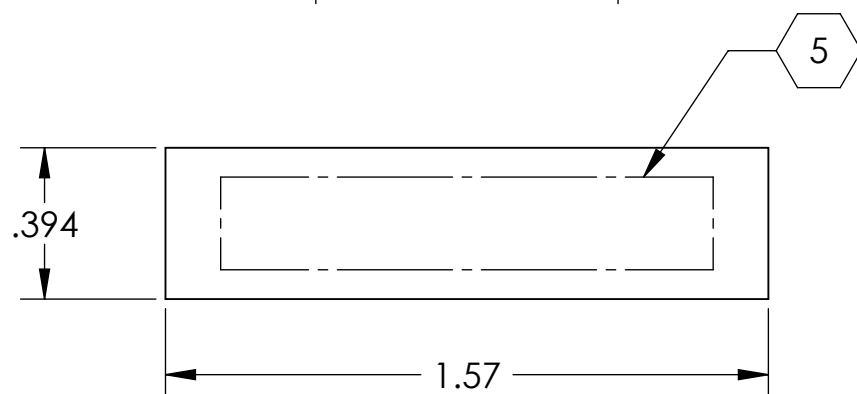
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY D020677

PART NAME UPPER BLADE CLAMP, UPPERSIDE ANGLED 2 DEG

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	24 MAY 2010	A	D020312	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

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 101 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

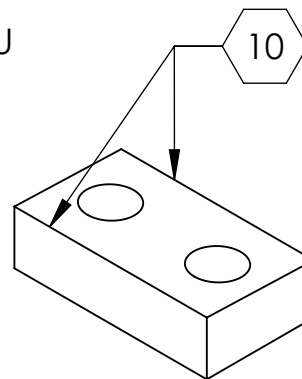
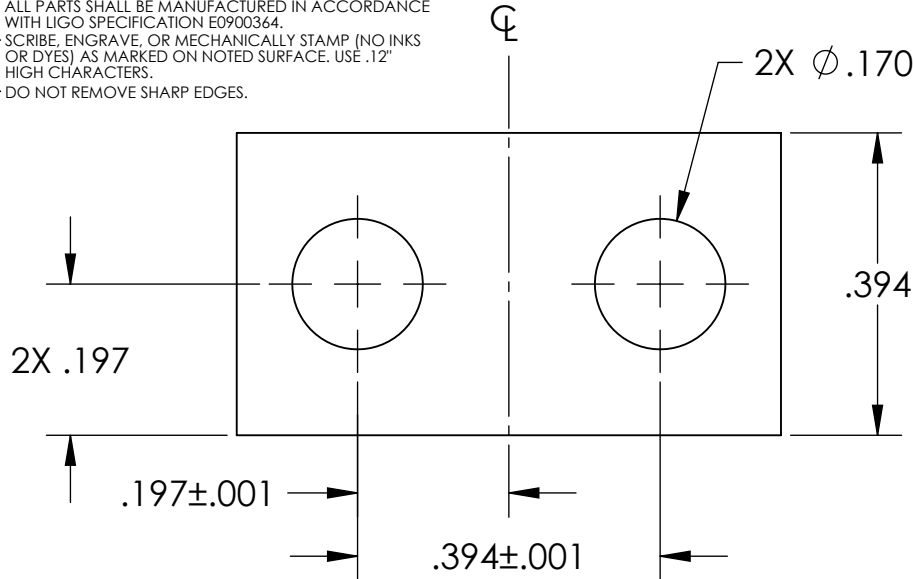
6. APPROXIMATE WEIGHT = 0.013 LB.
7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

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

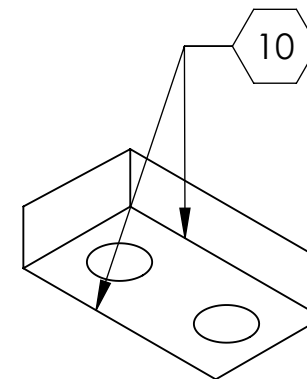
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

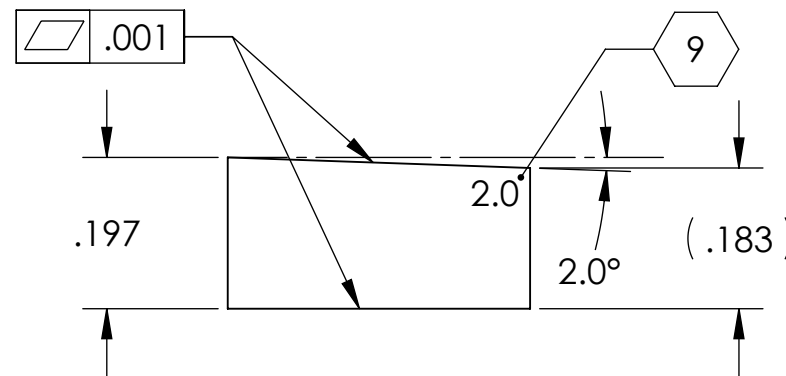
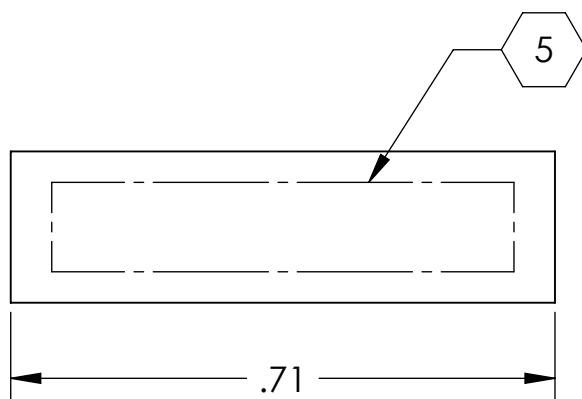
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **LOWER BLADE CLAMP LOWERSIDE ANGLED 2.0 DEG**

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020313	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

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 101 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

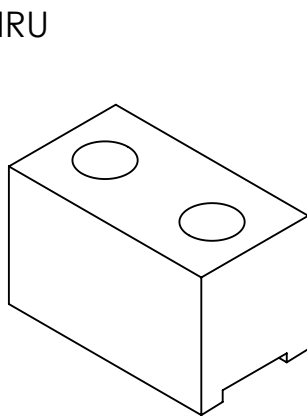
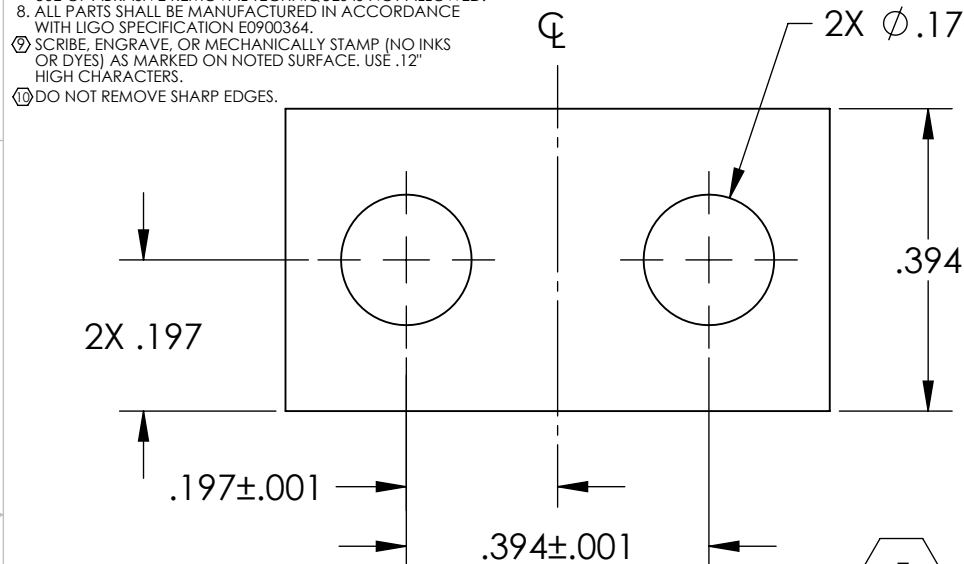
6. APPROXIMATE WEIGHT = 0.028 LB.
7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

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

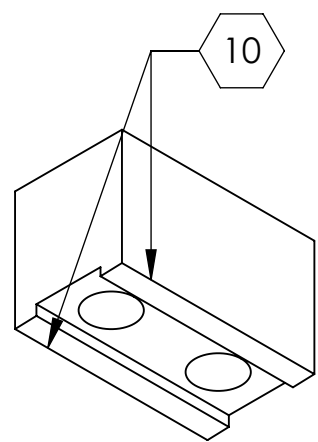
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

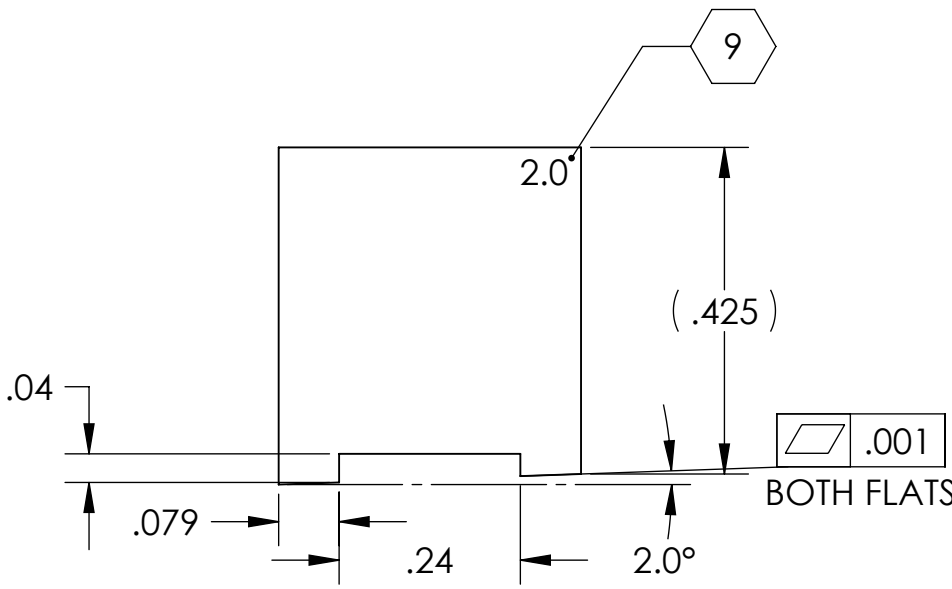
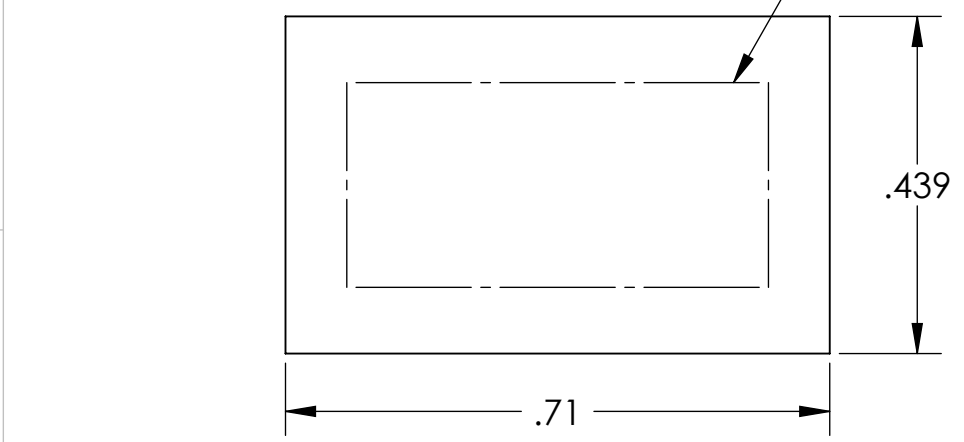
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES
TOLERANCES:
.XX ± .03
.XXX ± .005
ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**
NEXT ASSY **D020677**

PART NAME **LOWER BLADE CLAMP, UPPERSIDE ANGLED 2.0**
DESIGNER CJI/RJ 01 MAY 2002 SIZE **A** DWG. NO. **D020314** REV. **v2**
DRAFTER B. MOORE 01 JUN 2010
CHECKER M. MEYER 01 JUN 2010
APPROVAL
SCALE: 4:1 PROJECTION: SHEET 1 OF 1

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 101 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 = 0.119 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



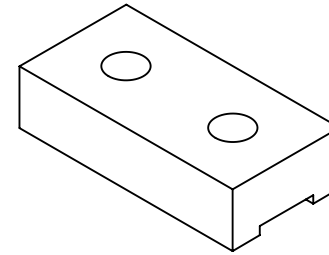
2X Ø .257 THRU

.787

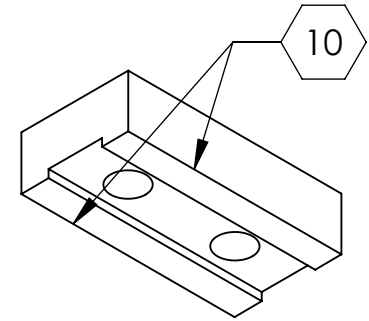
2X .394

.394±.001

.787±.001



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW

.394

1.57

5

.06

.200

.39

0.5

(.387)

.5°

BOTH FLATS

.001

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
 .XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
 FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
 NEXT ASSY D020677

PART NAME UPPER BLADE CLAMP, UPPER SIDE, ANGLED 0.5

DESIGNER	M. MEYER	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	21 MAY 2010	A	D020325	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

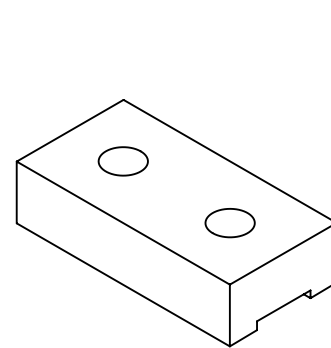
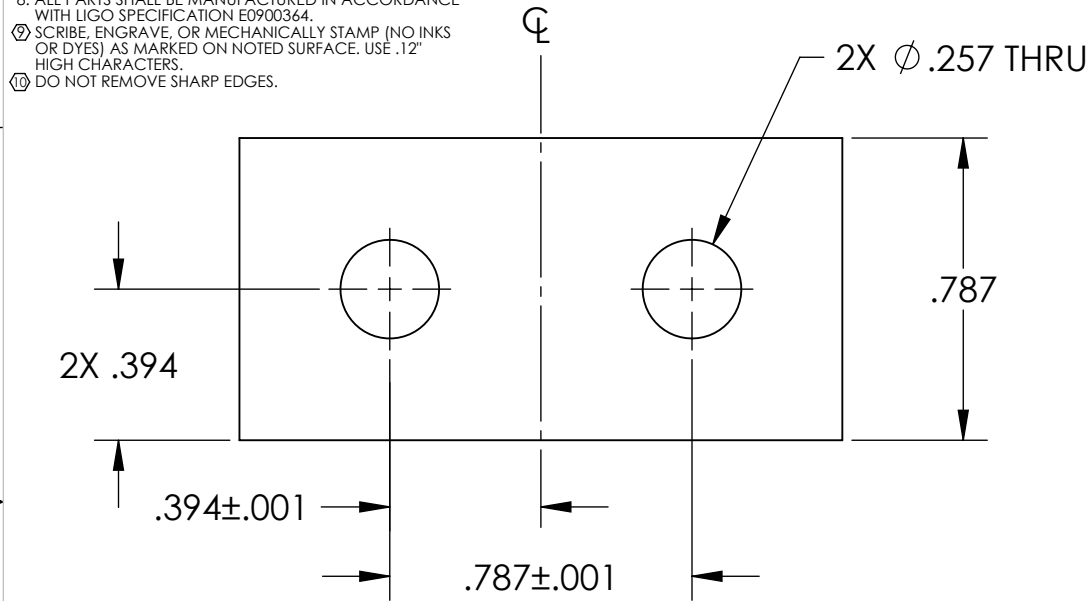
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.118 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.

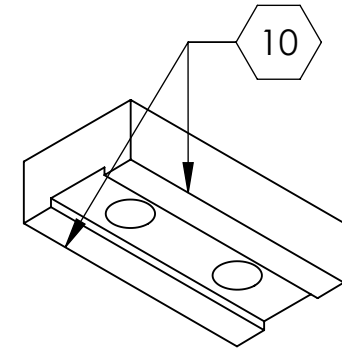
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

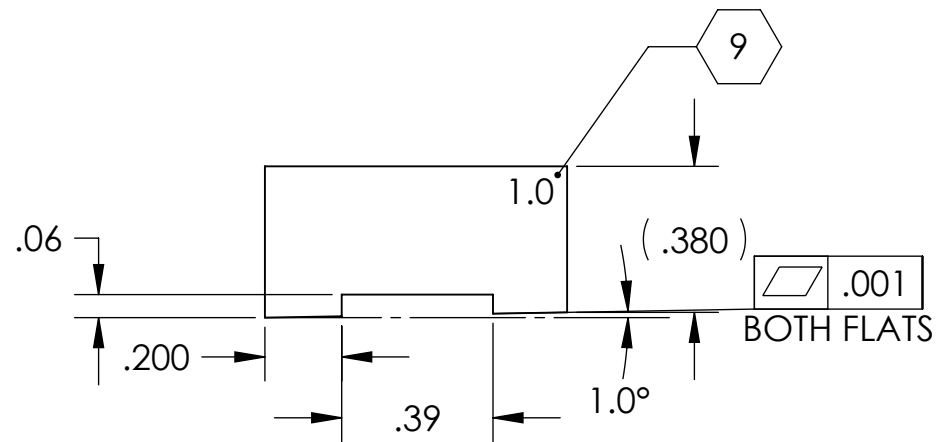
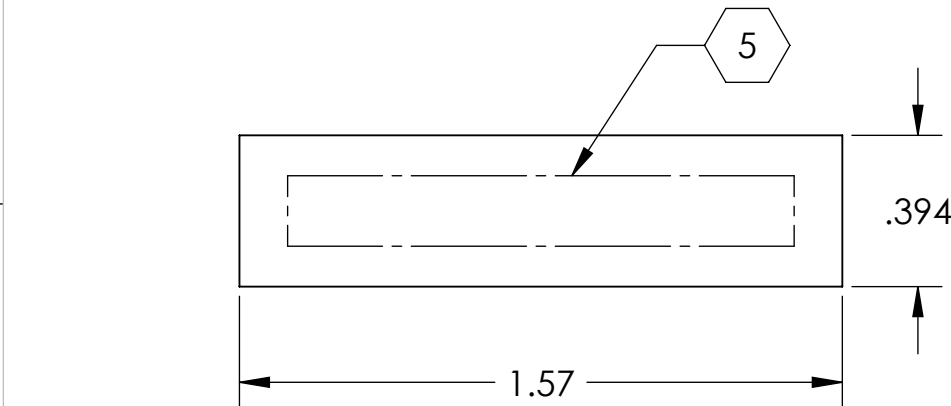
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

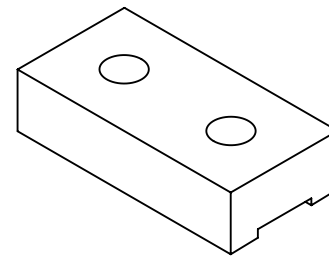
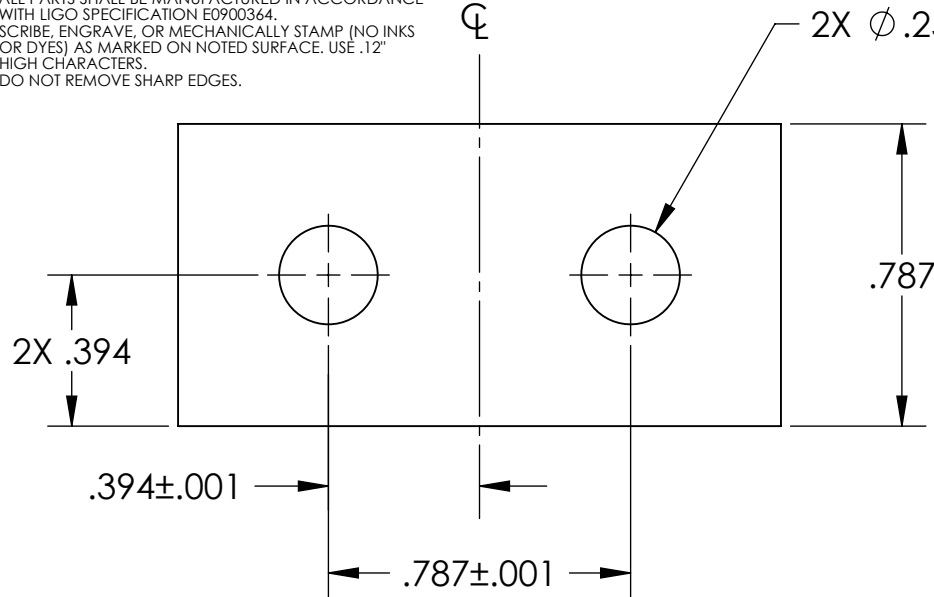
PART NAME **UPPER BLADE CLAMP, UPPER SIDE, ANGLED 1.0**

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	25 MAY 2010	A	D020326	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

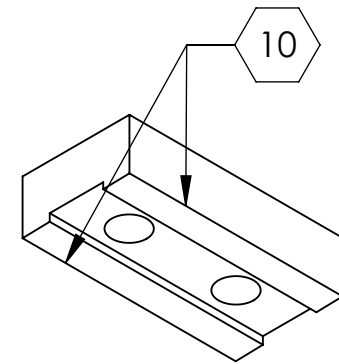
NOTES CONTINUED:

- 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 101 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 = 0.118 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.
- 10. DO NOT REMOVE SHARP EDGES.

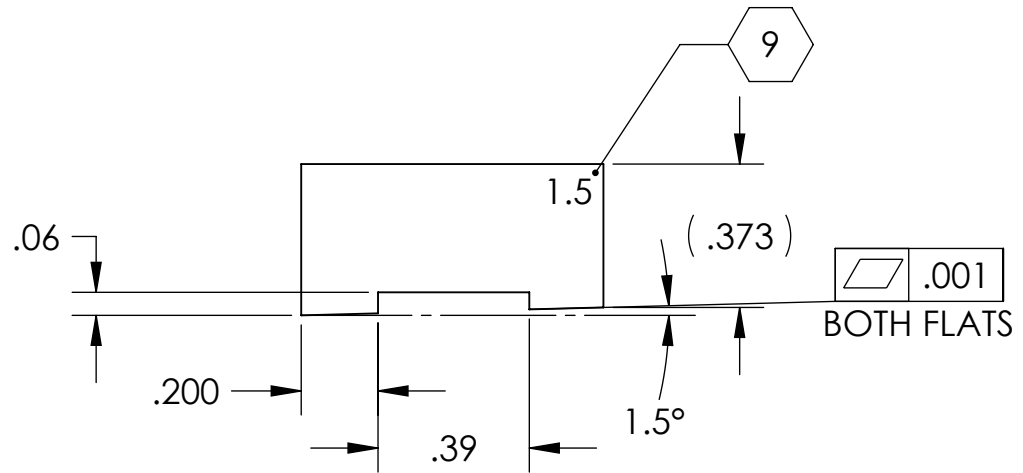
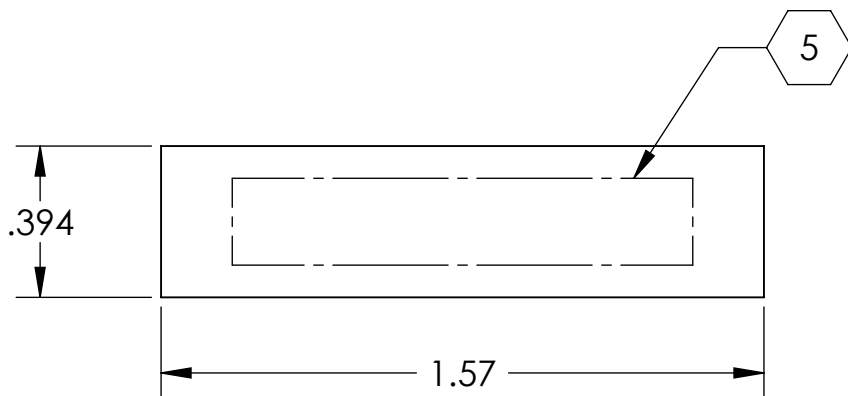
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES
 TOLERANCES:
 .XX ± .03
 .XXX ± .005
 ANGULAR ± 0.2°

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
304, 316 OR 302 SSSL

FINISH
32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: **ADVANCED LIGO** SUB-SYSTEM: **SUS**

NEXT ASSY: **D020677**

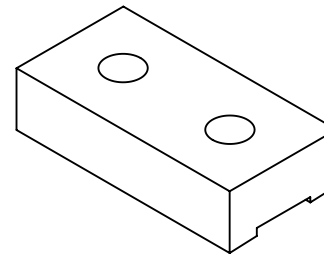
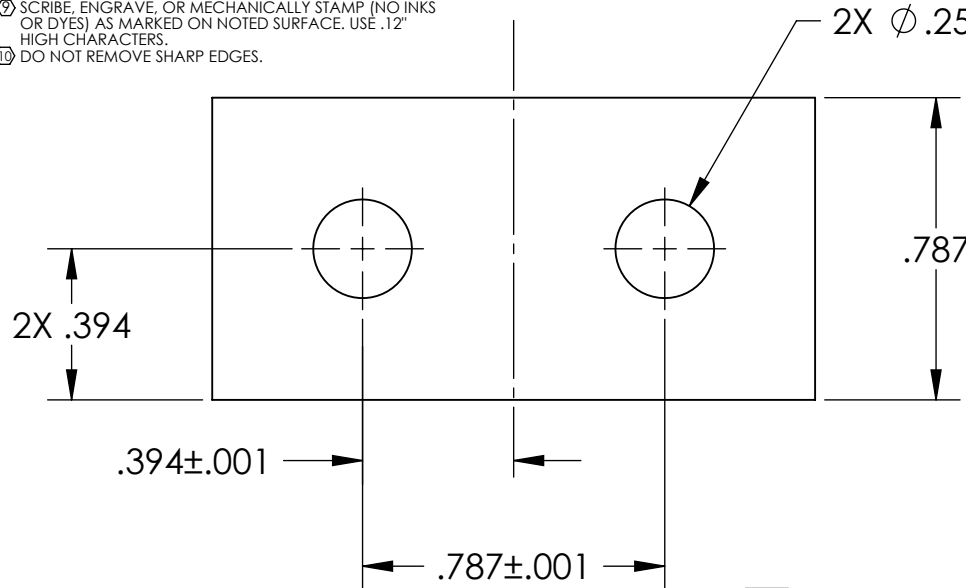
PART NAME: **UPPER BLADE CLAMP, UPPER SIDE, ANGLED 1.5**

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	24 MAY 2010	A	D020327	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

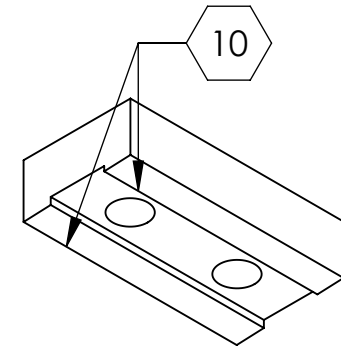
NOTES CONTINUED:

- 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 101 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 = 0.116 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.
- 10. DO NOT REMOVE SHARP EDGES.

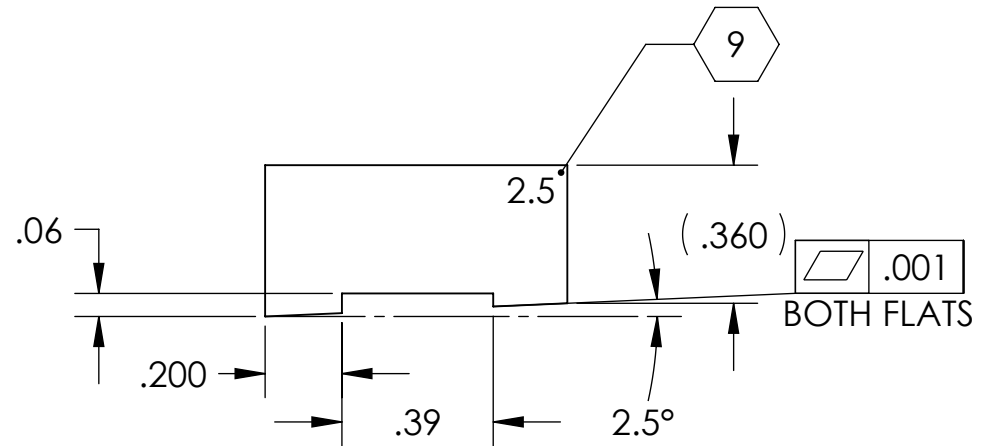
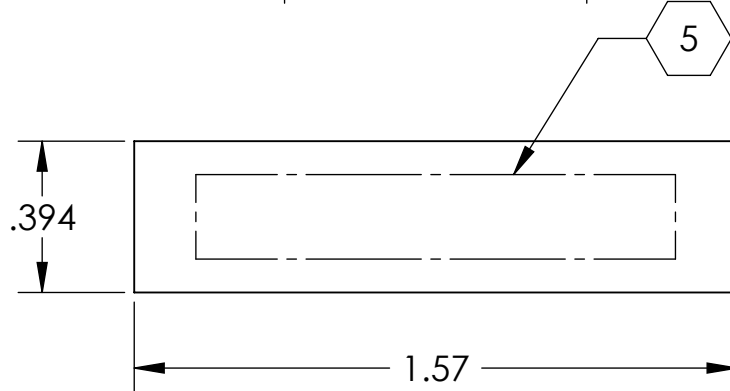
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES
 TOLERANCES:
 .XX ± .03
 .XXX ± .005
 ANGULAR ± 0.2°

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
304, 316 OR 302 SSSL

FINISH
32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: **ADVANCED LIGO** SUB-SYSTEM: **SUS**

NEXT ASSY: **D020677**

PART NAME
UPPER BLADE CLAMP, UPPER SIDE ANGLED 2.5 DEG

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	24 MAY 2010	A	D020328	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

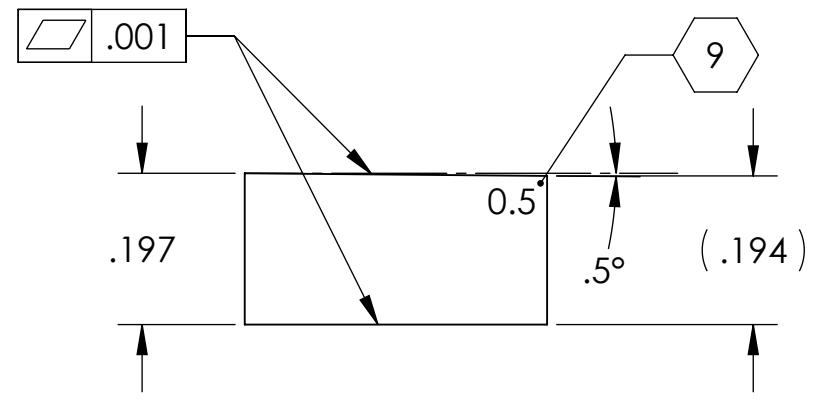
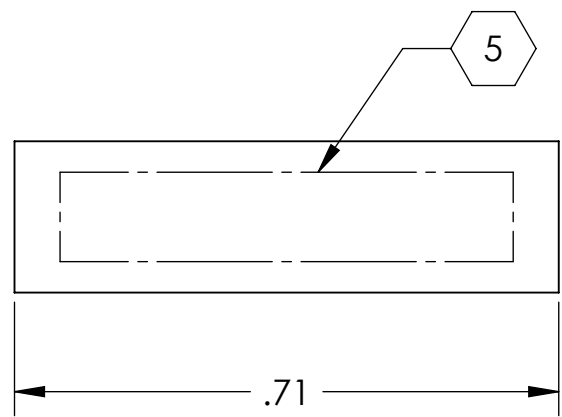
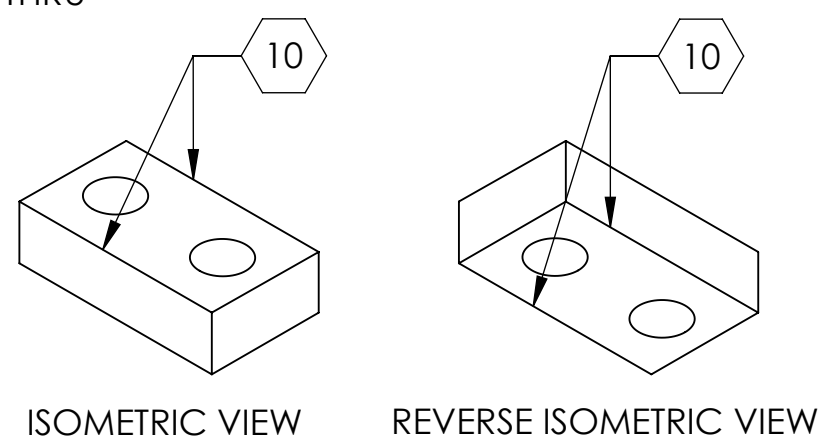
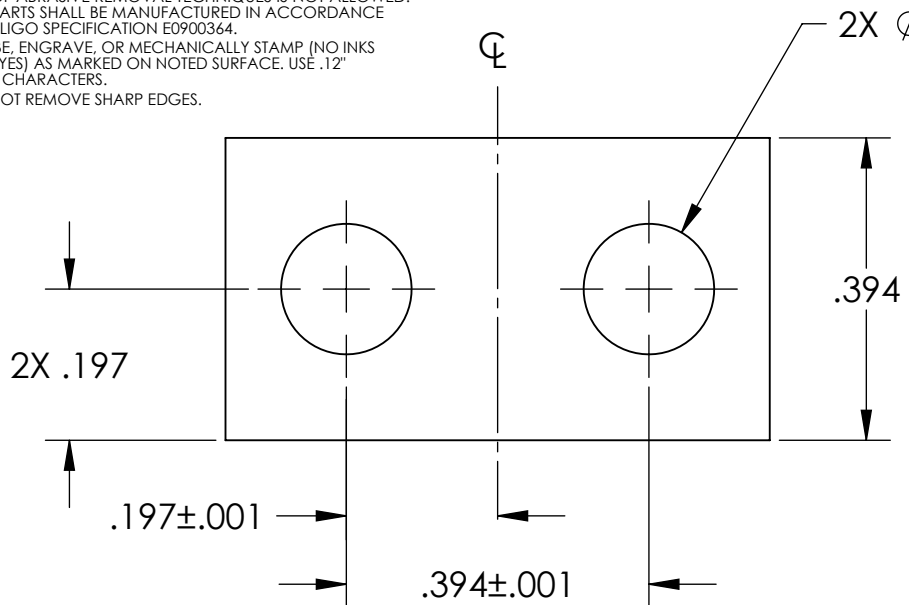
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.013 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES	1. INTERPRET DRAWING PER ASME Y14.5-1994.
TOLERANCES: .XX ± .03 .XXX ± .005	2. REMOVE ALL SHARP EDGES, R.02 MIN.
ANGULAR ± 0.2°	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	304, 316 OR 302 SSSL
FINISH	32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: **ADVANCED LIGO** SUB-SYSTEM: **SUS**

NEXT ASSY: **D020677**

PART NAME				LOWER BLADE CLAMP, LOWER SIDE, ANGLED 0.5 DEG			
DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.		
DRAFTER	B. MOORE	26 MAY 2010	A	D020333	v2		
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1		
APPROVAL							

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 101 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 = 0.013 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353

D

D

C

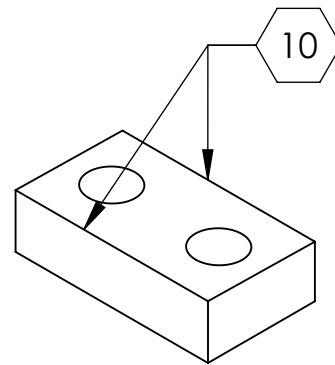
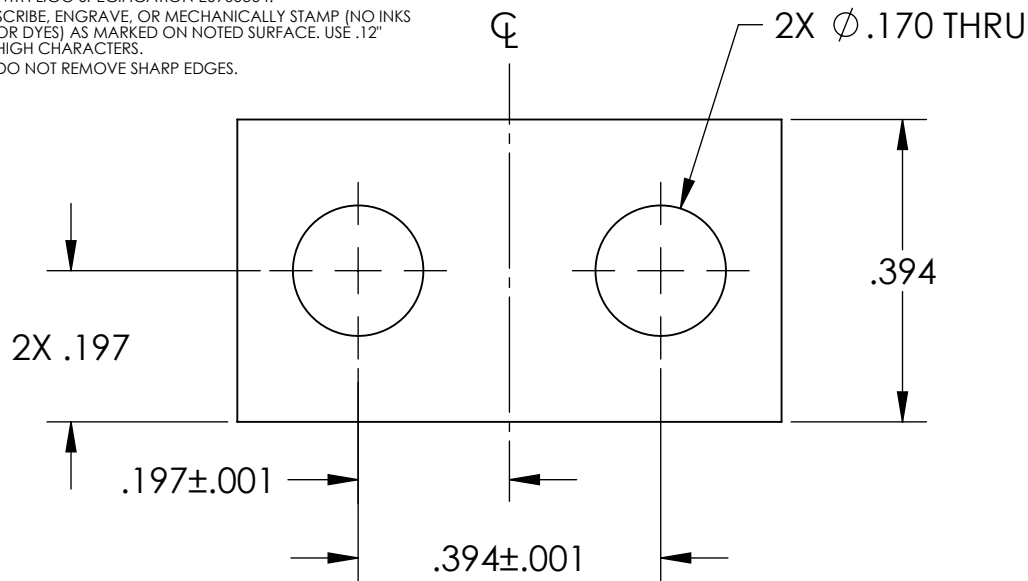
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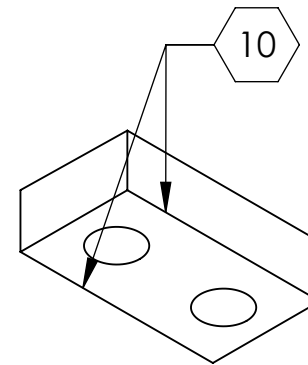
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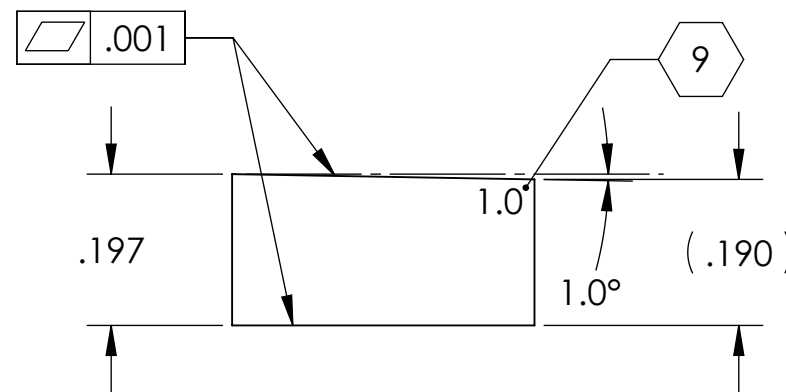
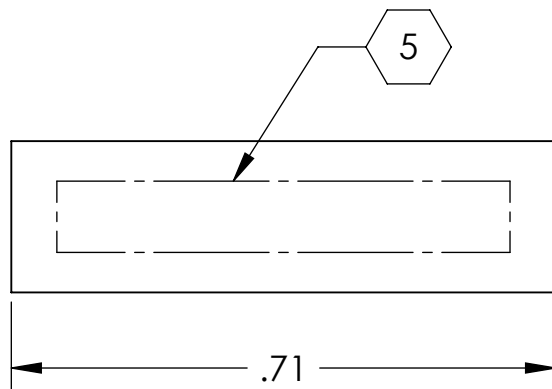
A



ISOMETRIC VIEW



REVERSE ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **LOWER BLADE CLAMP, LOWER SIDE, ANGLED 1.0 DEG**

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020334	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

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 101 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 = 0.013 LB.

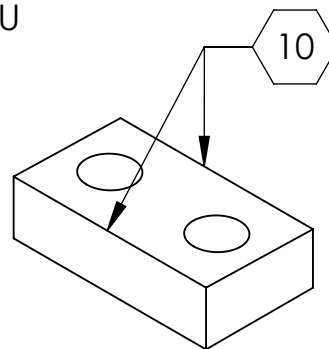
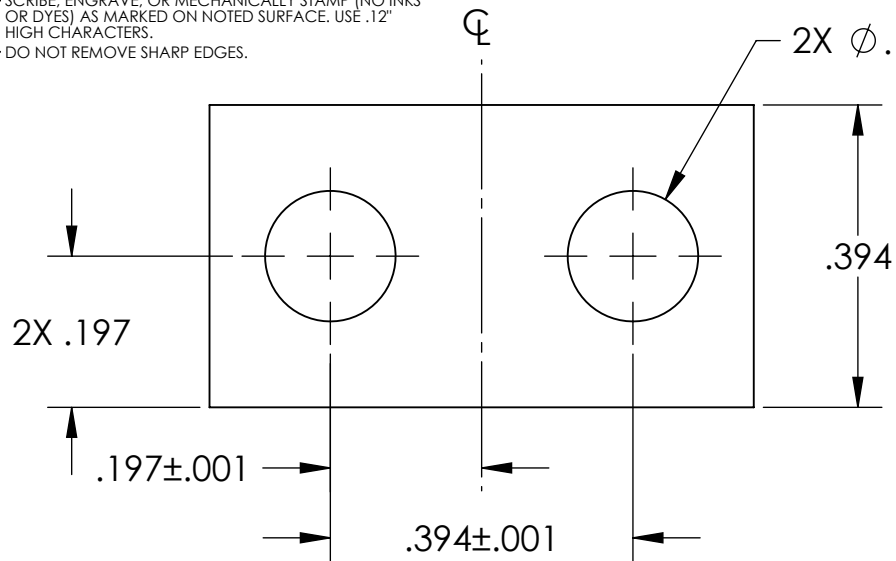
7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

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

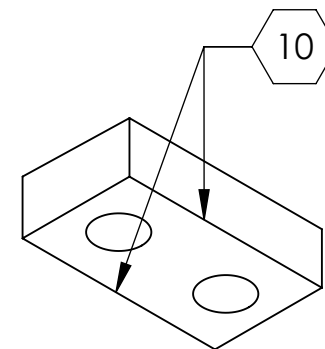
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

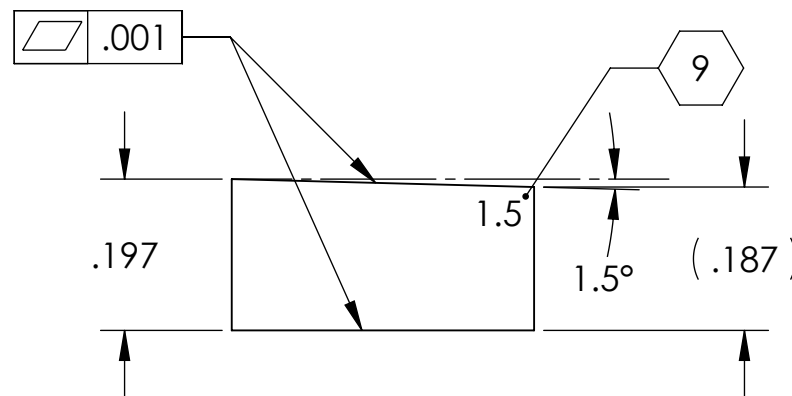
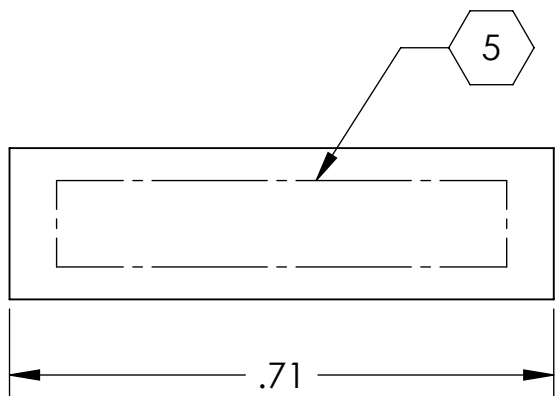
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



REVERSE ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **LOWER BLADE CLAMP, LOWER SIDE, ANGLED 1.5 DEG**

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020335	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

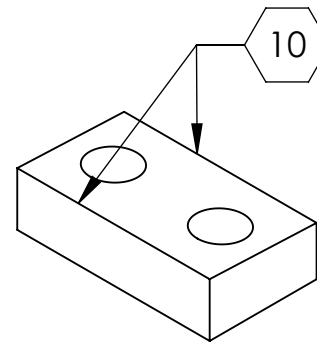
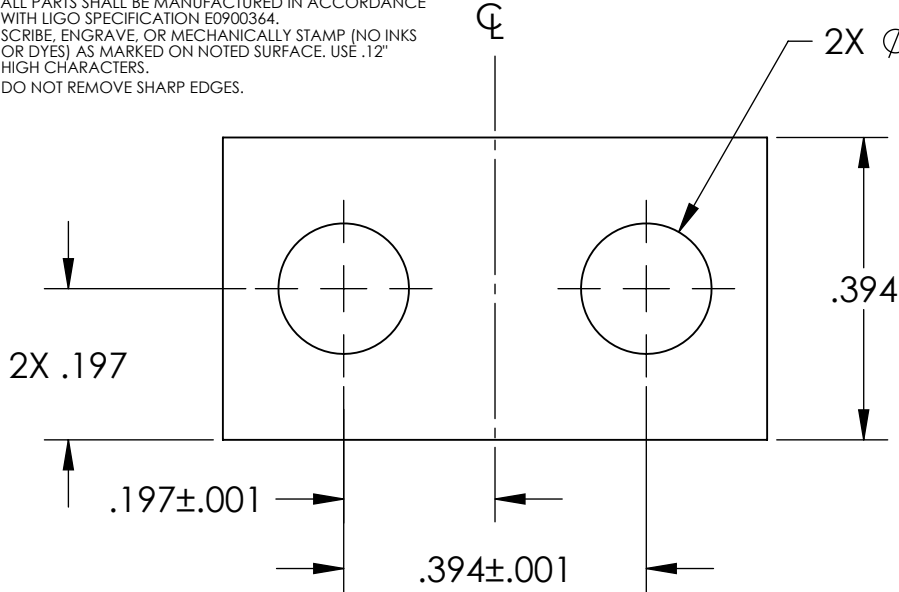
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.013 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.

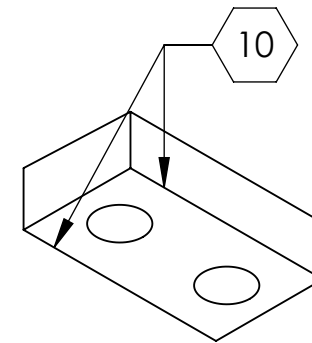
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

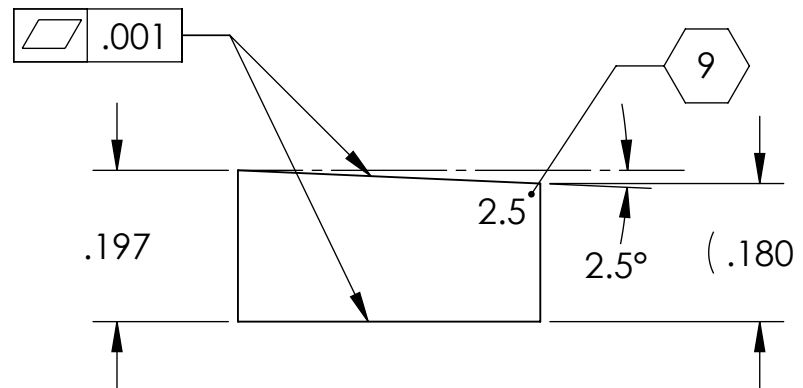
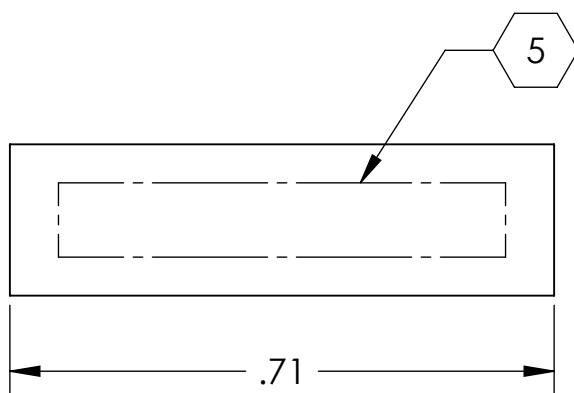
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch



SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY D020677

PART NAME LOWER BLADE CLAMP, LOWER SIDE, ANGLED 2.5 DEG

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020336	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

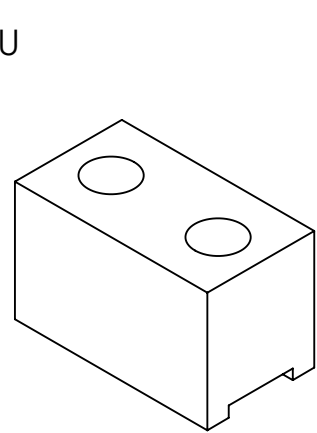
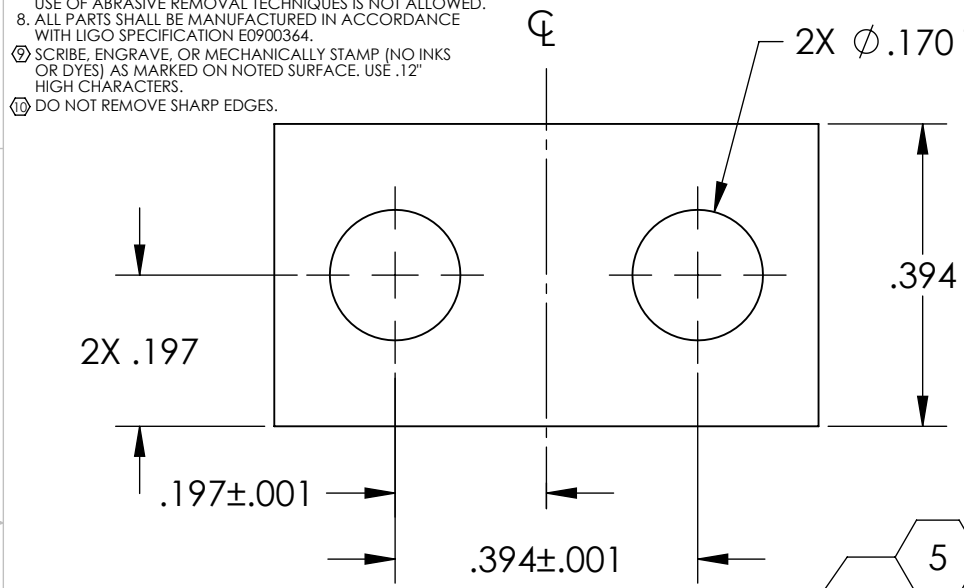
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.028 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.

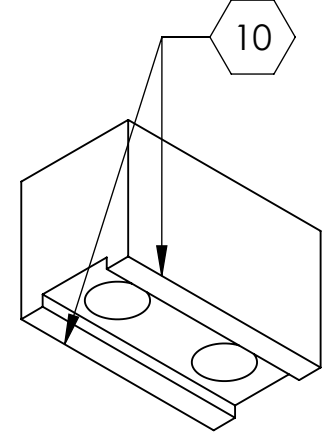
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

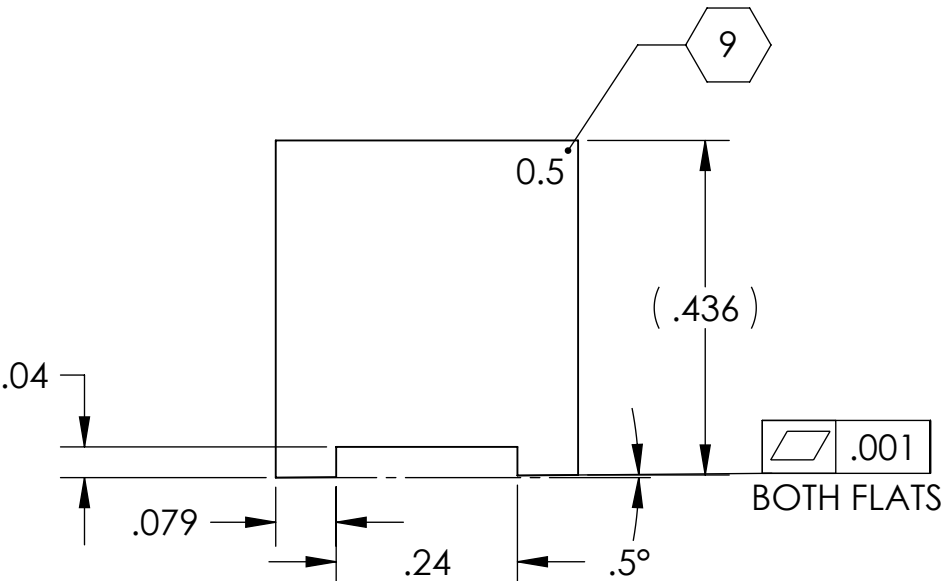
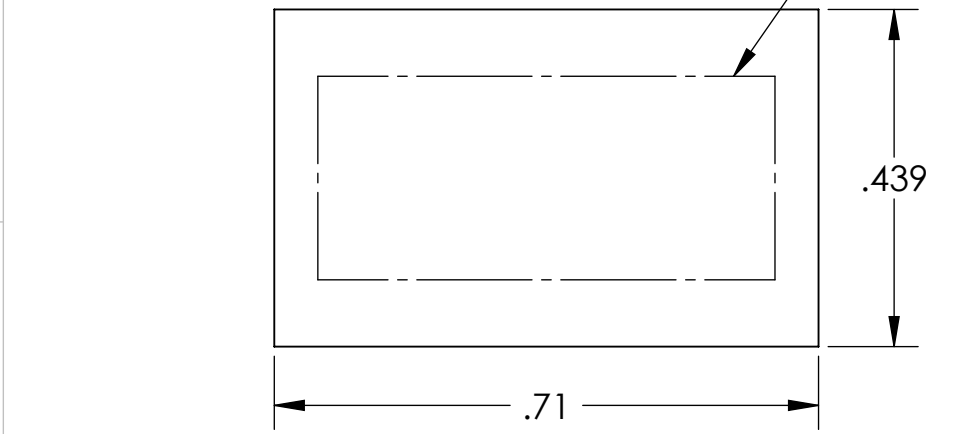
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-00	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



BOTH FLATS

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES	1. INTERPRET DRAWING PER ASME Y14.5-1994.
TOLERANCES: .XX ± .03 .XXX ± .005	2. REMOVE ALL SHARP EDGES, R.02 MIN.
ANGULAR ± 0.2°	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 304, 316 OR 302 SSSL	FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM
ADVANCED LIGO

SUB-SYSTEM
SUS

NEXT ASSY
D020677

PART NAME LOWER BLADE CLAMP, UPPER SIDE, ANGLED .05 DEG			
DESIGNER CIT/RJ	01 MAY 2002	SIZE A	DWG. NO. D020337
DRAFTER B. MOORE	01 JUN 2010	REV. v2	
CHECKER M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:
APPROVAL			SHEET 1 OF 1

NOTES CONTINUED:

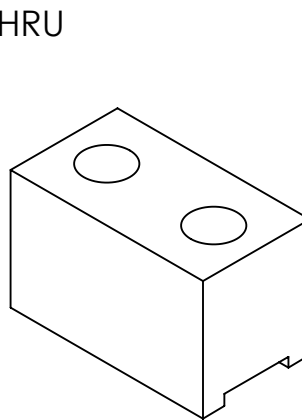
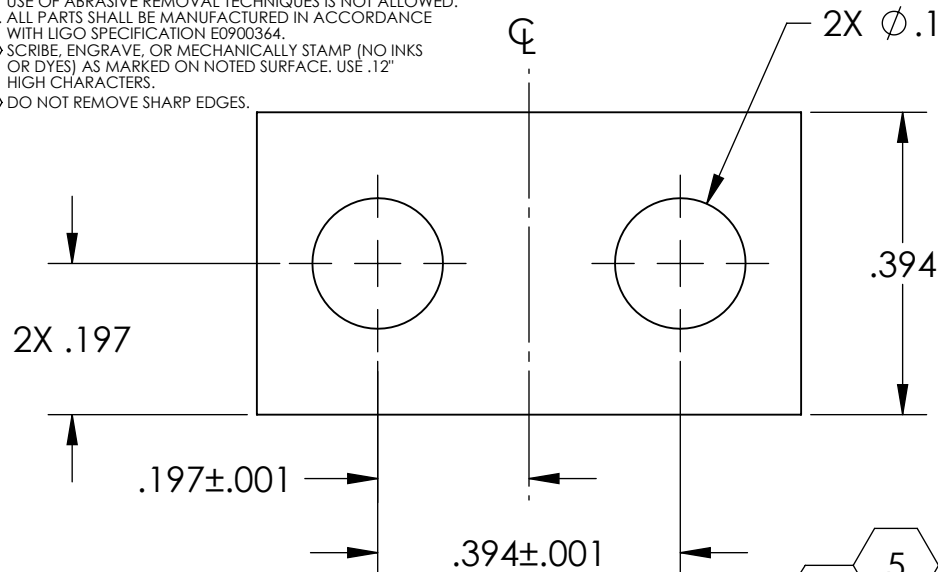
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.026 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.

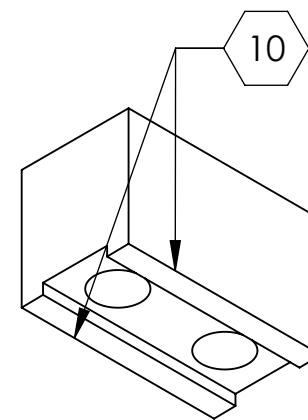
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

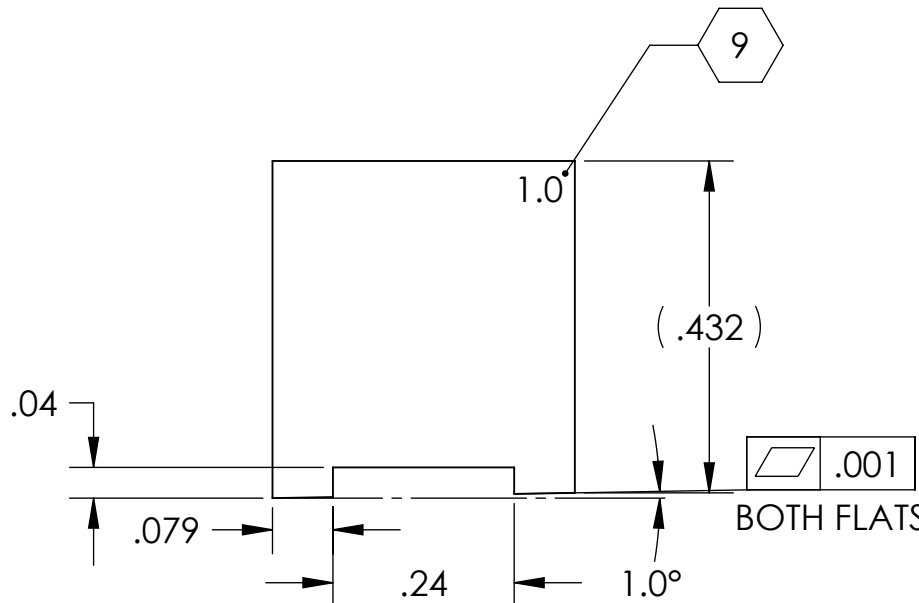
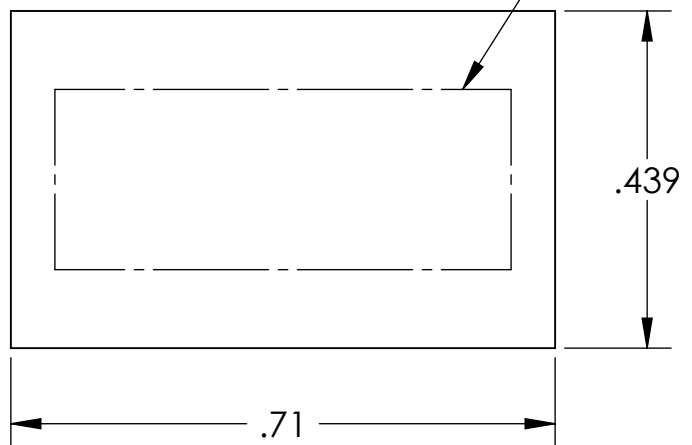
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E030303-00	-
v1	24 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY D020677

PART NAME LOWER BLADE CLAMP, UPPER SIDE, ANGLED 1.0 DEG

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020338	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

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 101 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 = 0.028 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353

D

D

C

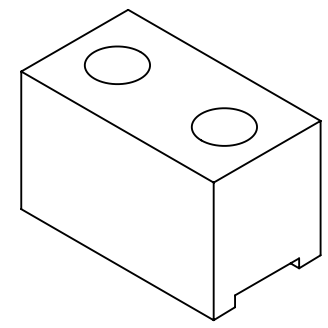
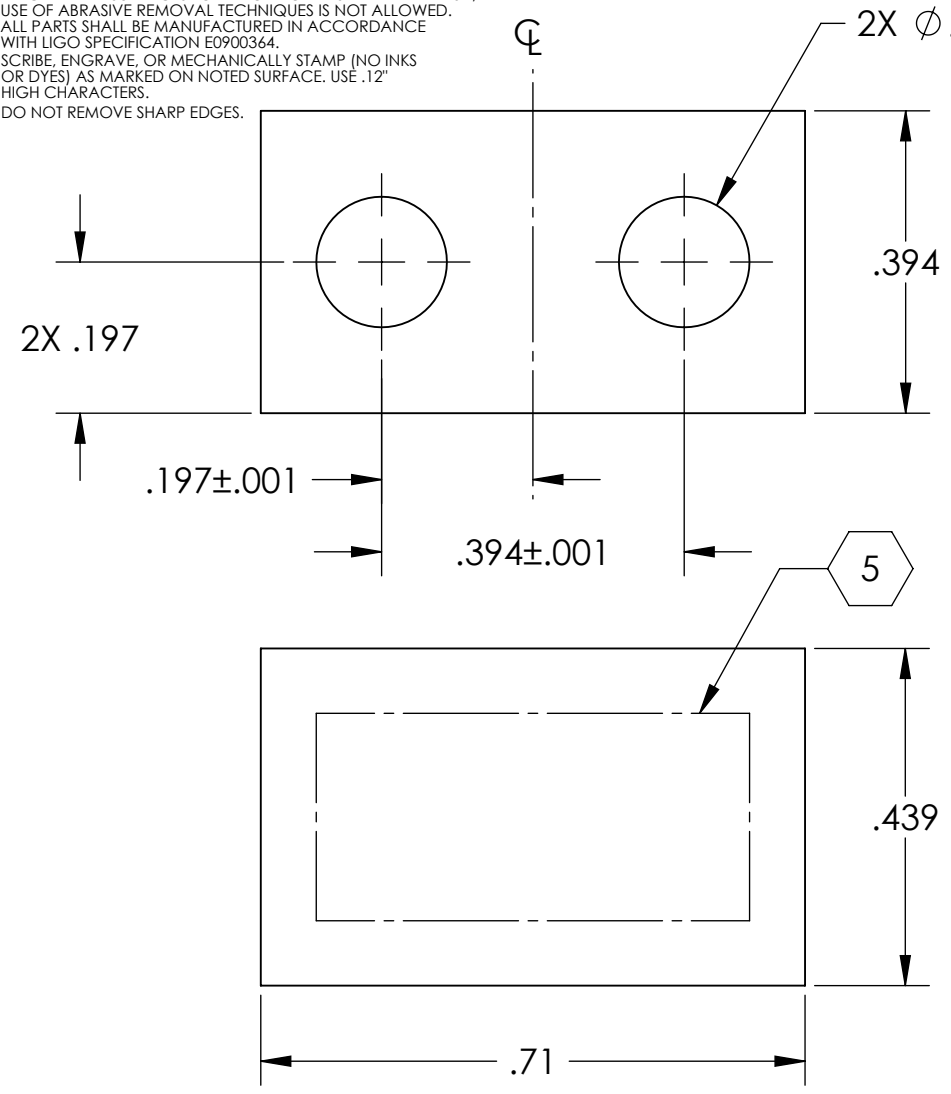
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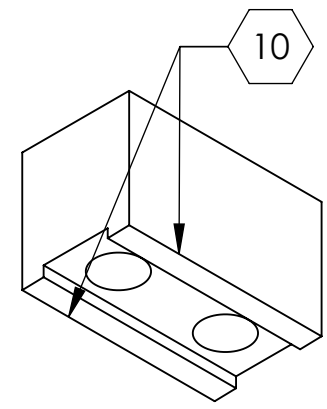
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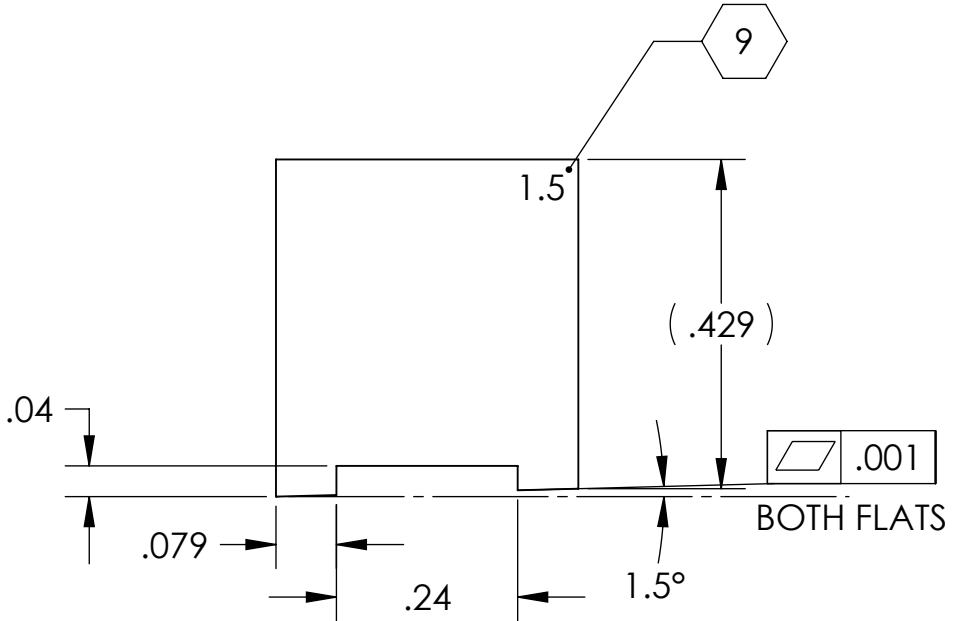
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ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES
 TOLERANCES:
 .XX ± .03
 .XXX ± .005
 ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
 FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY D020677

PART NAME LOWER BLADE CLAMP, UPPER SIDE, ANGLED 1.5 DEG

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020339	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

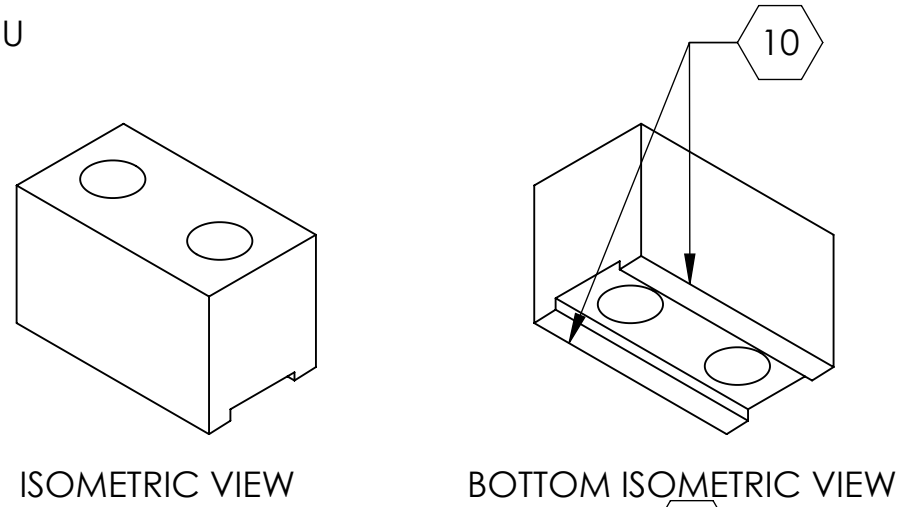
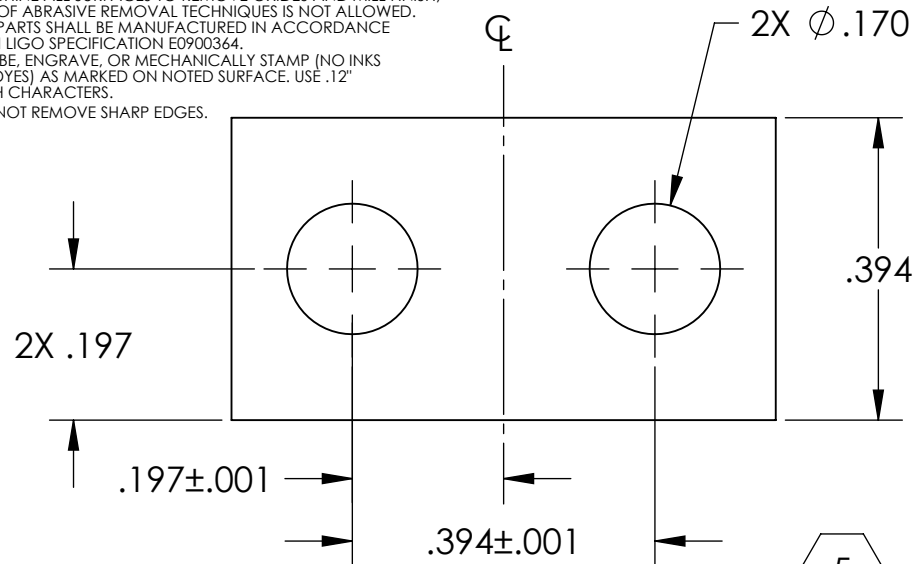
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.026 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

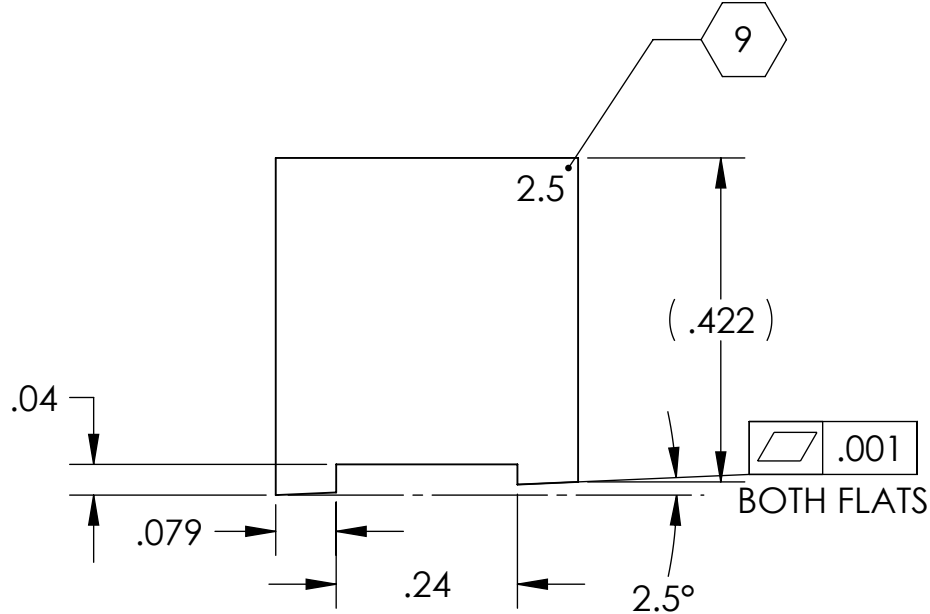
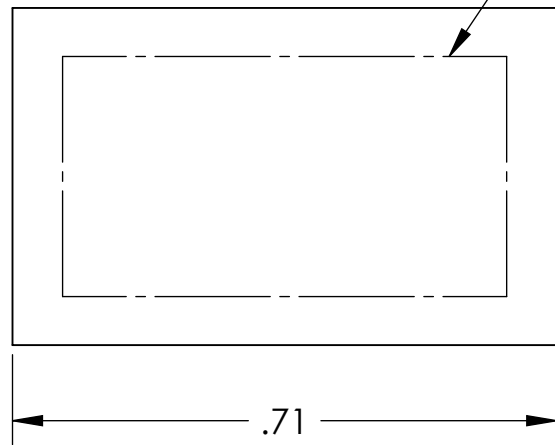
10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW

BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME
LOWER BLADE CLAMP, UPPER SIDE, ANGLED 2.5 DEG

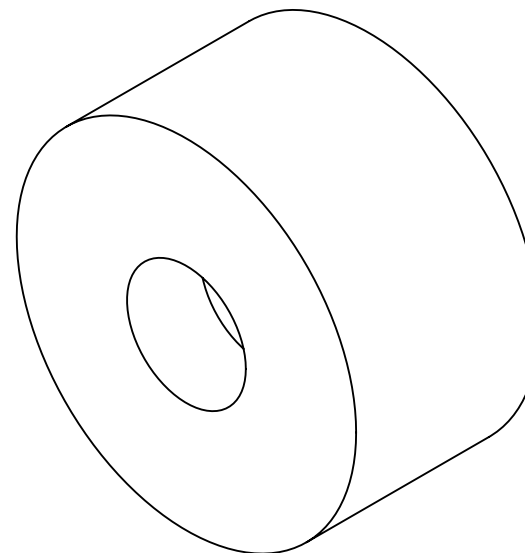
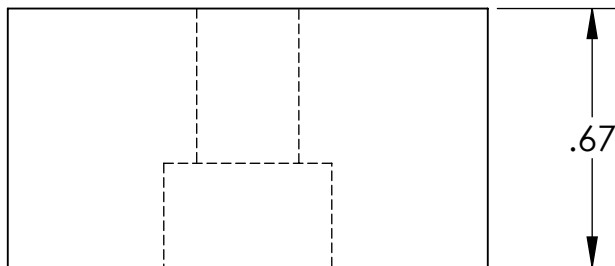
DESIGNER	CJT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020340	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

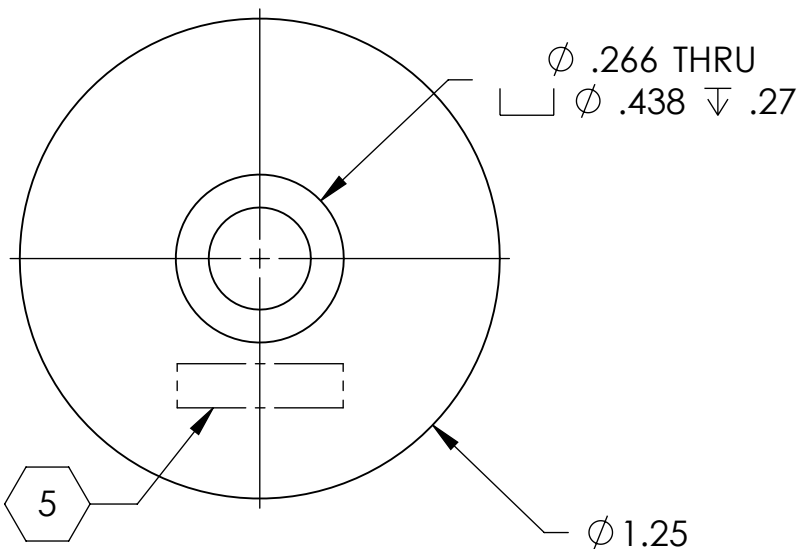
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 100g
- 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 #
A	24 JUN 2004	E040303-00	-
v1	22 APR 2009	E0900107-v1	-
v2	30 DEC 2009	E0900503	E0900353
v3	17 JUN 2010	E1000219	E0900353



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .01
 .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 304, 316 OR 302 SSSL
 FINISH 32 μ inch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
 NEXT ASSY MULTIPLE

PART NAME ADD-ON MASS, 100g

DESIGNER	C. TORRIE	28 JUN 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 DEC 2009	A	D020350	v3
CHECKER	M. MEYER	01 DEC 2009			
APPROVAL			SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

4

3

2

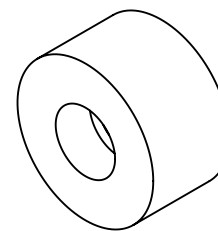
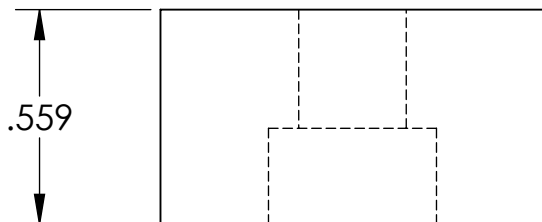
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NOTES CONTINUED:

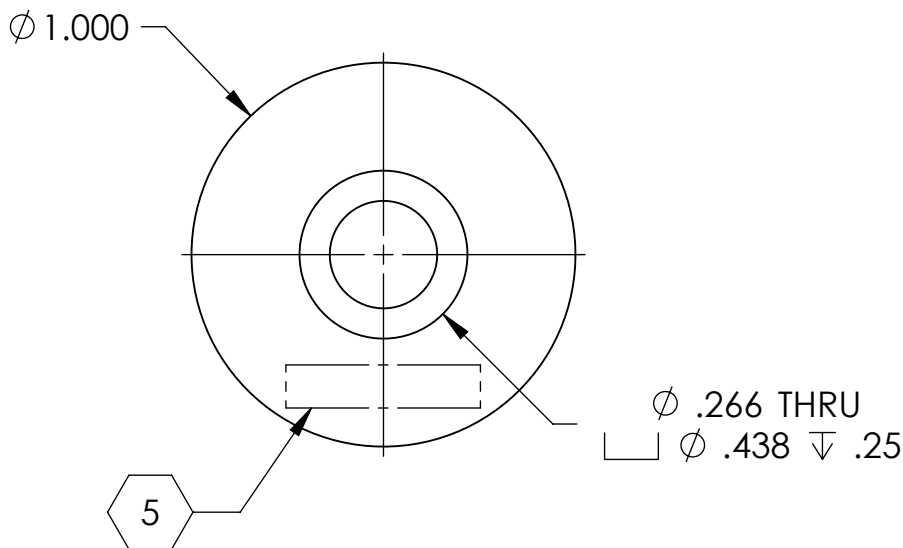
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 =50g
- 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 #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	09 JUN 2010	E0900503	E0900353



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .01
.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 304, 316 OR 302 SSTL **FINISH** 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO **SUB-SYSTEM** SUS

NEXT ASSY MULTIPLE

PART NAME				ADD-ON MASS, 50g	
DESIGNER	C. TORRIE	28 JUN 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	11 JAN 2009	A	D020351	v2
CHECKER	M. MEYER	12 JAN 2009	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

4

3

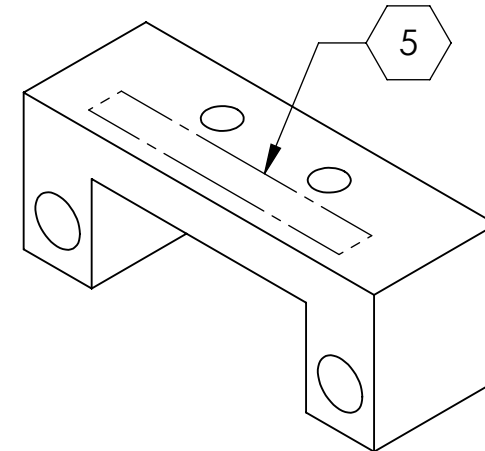
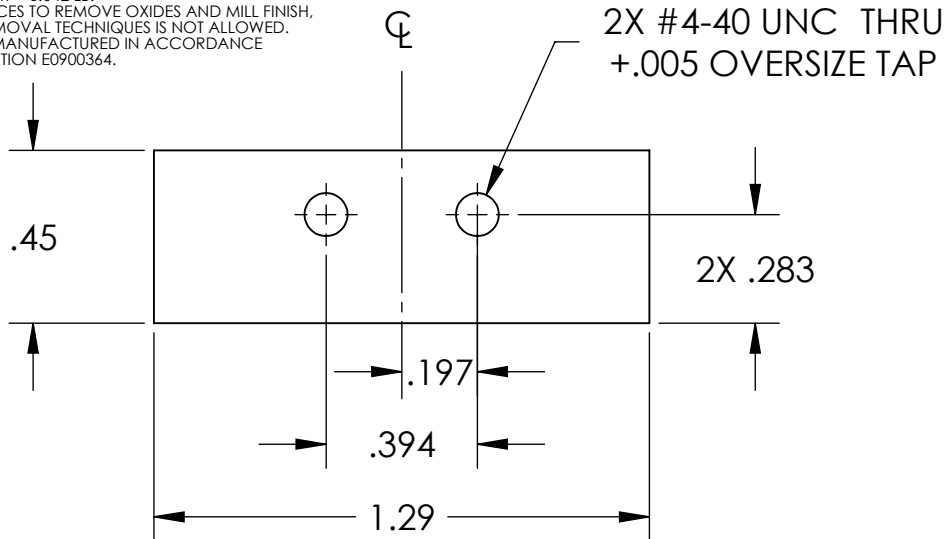
2

1

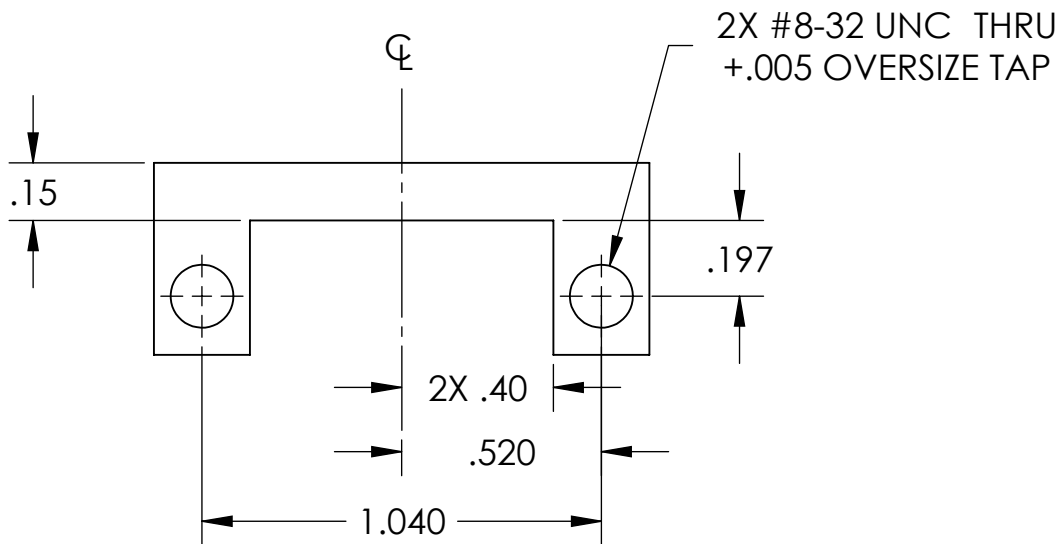
NOTES CONTINUED:

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 101 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 = 0.042 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.



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY D0901854

PART NAME

UPPER MASS C CLAMP

DESIGNER MPL 16 OCT 2002
DRAFTER B. MOORE 18 NOV 2009
CHECKER M. MEYER 15 DEC 2009
APPROVAL

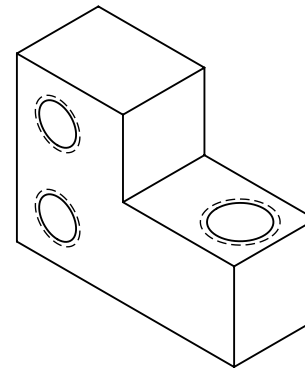
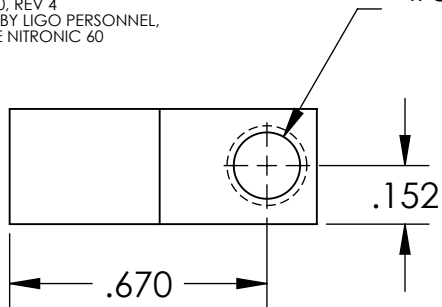
SIZE DWG. NO. A D020481
REV. v1

SCALE: 2:1 PROJECTION: SHEET 1 OF 1

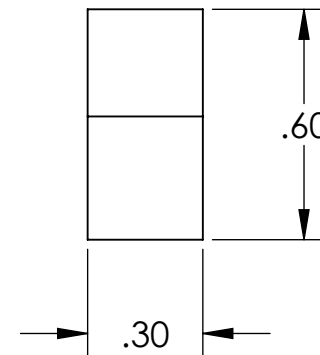
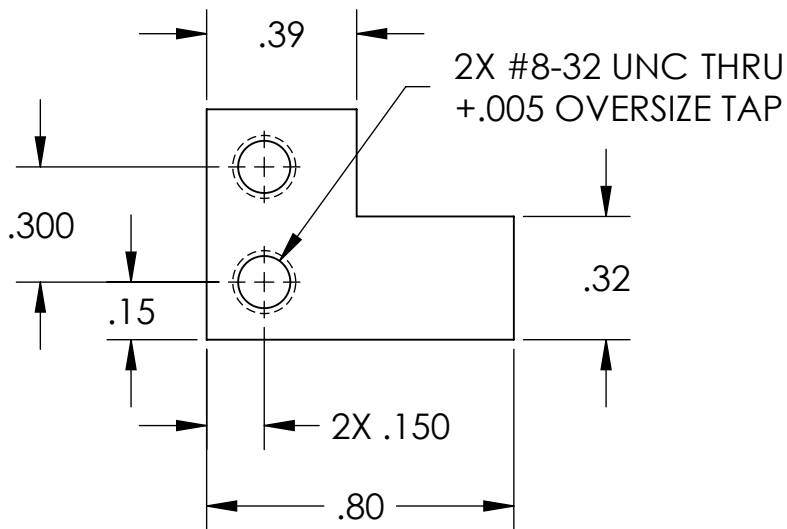
NOTES CONTINUED:

- 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 101 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 = 0.009 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 HELI-COIL HOLES TO BE PREPARED ACCORDING TO EMHART HELI-COIL PRODUCT CATALOG, HC2000, REV 4
- 10. ALL HELI-COIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL, AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.

DRILL AND TAP FOR
#8-32 UNC-2B X 1.5 DIA
EMHART HELICOIL
(P/N 1185-2EN246)



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES	1. INTERPRET DRAWING PER ASME Y14.5-1994.
TOLERANCES: .XX ± .03 .XXX ± .005	2. REMOVE ALL SHARP EDGES, R.02 MIN.
ANGULAR ± 0.5°	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	32 μinch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SYSTEM	ADVANCED LIGO
SUB-SYSTEM	SUS
NEXT ASSY	D020534

PART NAME				SCREW DRIVE SYSTEM, UPPER MASS			
DESIGNER	MPL	16 OCT 2002	SIZE	DWG. NO.		REV.	
DRAFTER	B. MOORE	16 DEC 2009	A	D020482		v2	
CHECKER	M. MEYER	16 DEC 2009					
APPROVAL			SCALE: 2:1	PROJECTION:			SHEET 1 OF 1

4

3

2

1

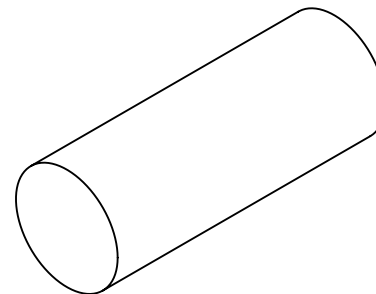
NOTES CONTINUED:

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.

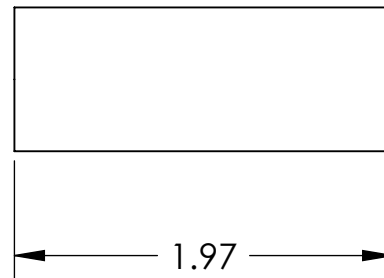
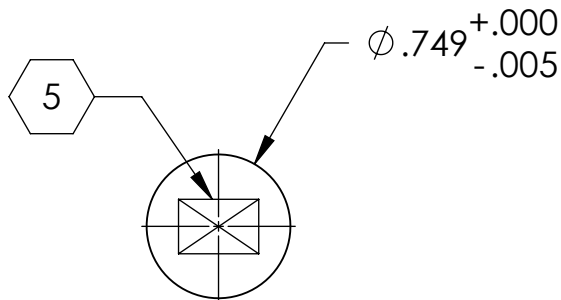
EXAMPLE (PART): 101-v1
 EXAMPLE (TAG): DXXXXXX-VY, TYPE-XX, QTY: TBD

- 6. APPROXIMATE WEIGHT = 0.251 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 #
A	24 JUN 2004	E040303-00	-
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .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 304, 316 OR 302 SSSL
 FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY D020534

PART NAME			ROLL INSERT, T-SECTION		
DESIGNER	C. TORRIE	22 NOV 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	15 DEC 2009	A	D020676	v1
CHECKER	M. MEYER	18 JAN 2010	SCALE: 1:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

4

3

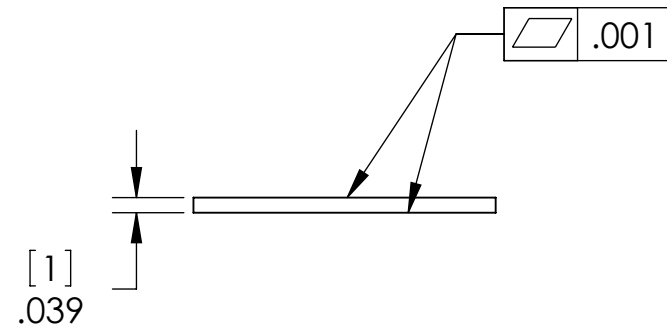
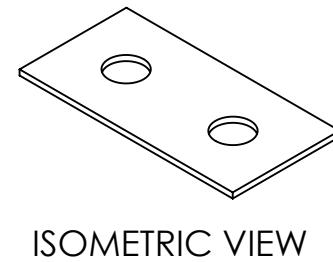
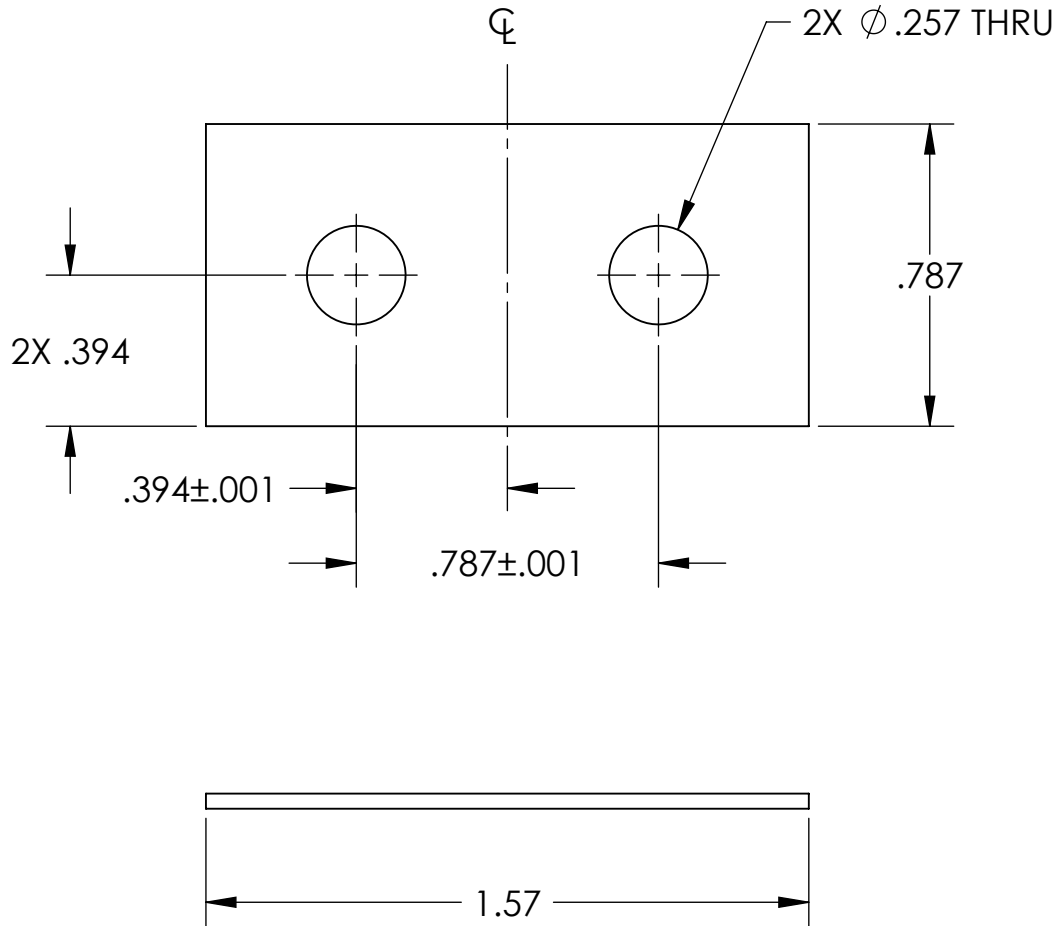
2

1

NOTES CONTINUED:

- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.
EXAMPLE (TAG): DXXXXXX-y, TYPE-xx, QTY: TBD
- 6. APPROXIMATE WEIGHT = 0.013 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 #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES [MM]	1. INTERPRET DRAWING PER ASME Y14.5-1994.
TOLERANCES: .XX ± .03 .XXX ± .005	2. REMOVE ALL SHARP EDGES, R.02 MIN.
ANGULAR ± 0.2°	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
304, 316 OR 302 SSSL	32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: **ADVANCED LIGO** SUB-SYSTEM: **SUS**

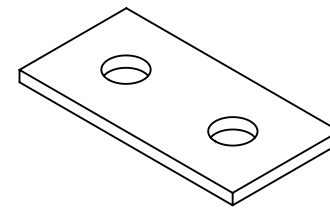
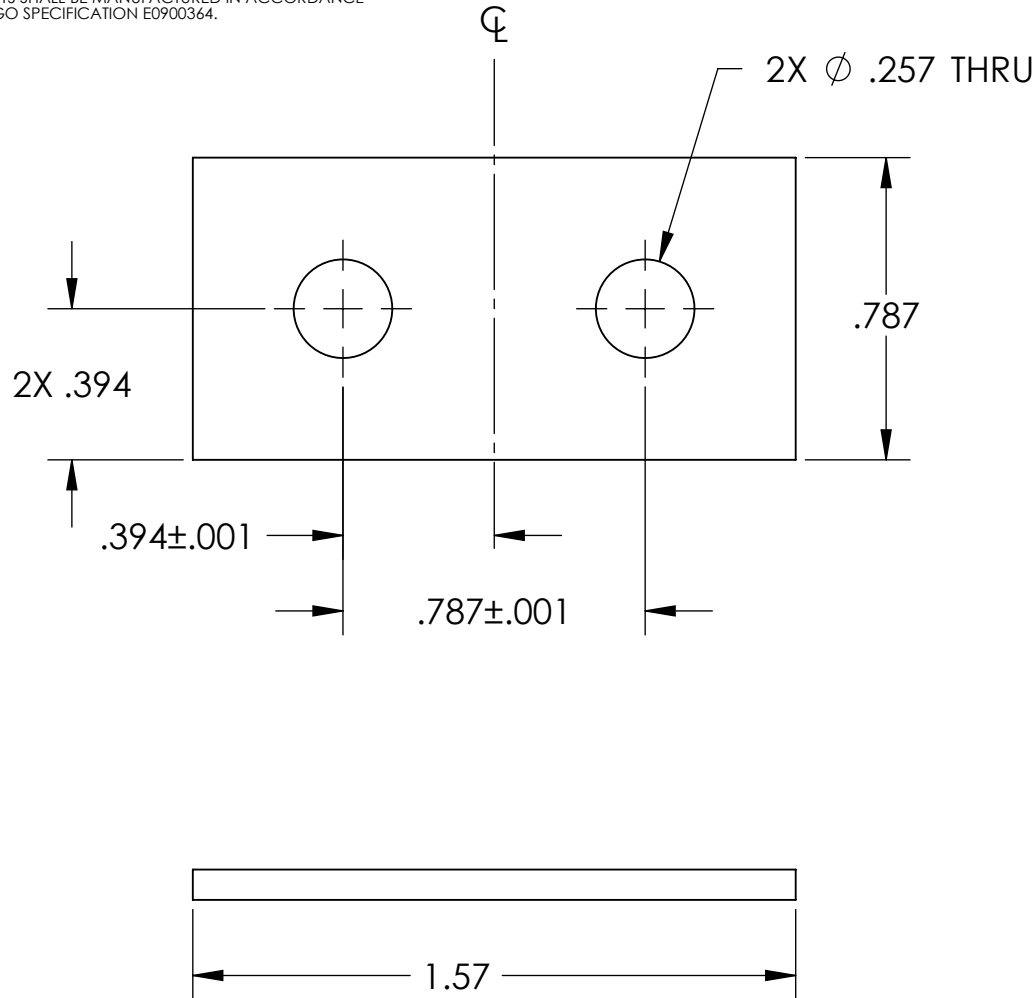
NEXT ASSY: **D020677**

PART NAME				UPPER BLADE CLAMP LOWERSIDE SHIM 1mm			
DESIGNER	CIT	01 MAY 2010	SIZE	DWG. NO.	REV.		
DRAFTER	B. MOORE	26 MAY 2010	A	D020679	v2		
CHECKER	M. MEYER	01 JUN 2010					
APPROVAL			SCALE: 2:1	PROJECTION:			
				SHEET 1 OF 1			

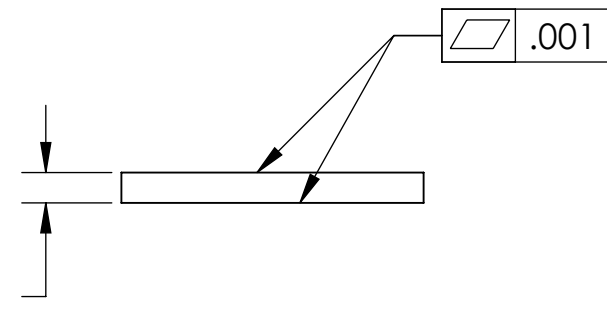
NOTES CONTINUED:

- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.
EXAMPLE (TAG): DXXXXXX-vY, TYPE-XX, QTY: TBD
- 6. APPROXIMATE WEIGHT = 0.026 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 #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.XXX ± .005

ANGULAR ± 0.5°

- 1. INTERPRET DRAWING PER ASME Y14.5-1994.
- 2. REMOVE ALL SHARP EDGES.
- 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 304, 316 OR 302 SSSL **FINISH** 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO **SUB-SYSTEM** SUS

NEXT ASSY MULTIPLE ASSY

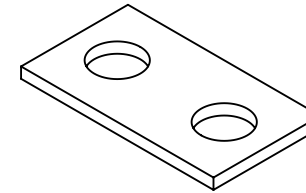
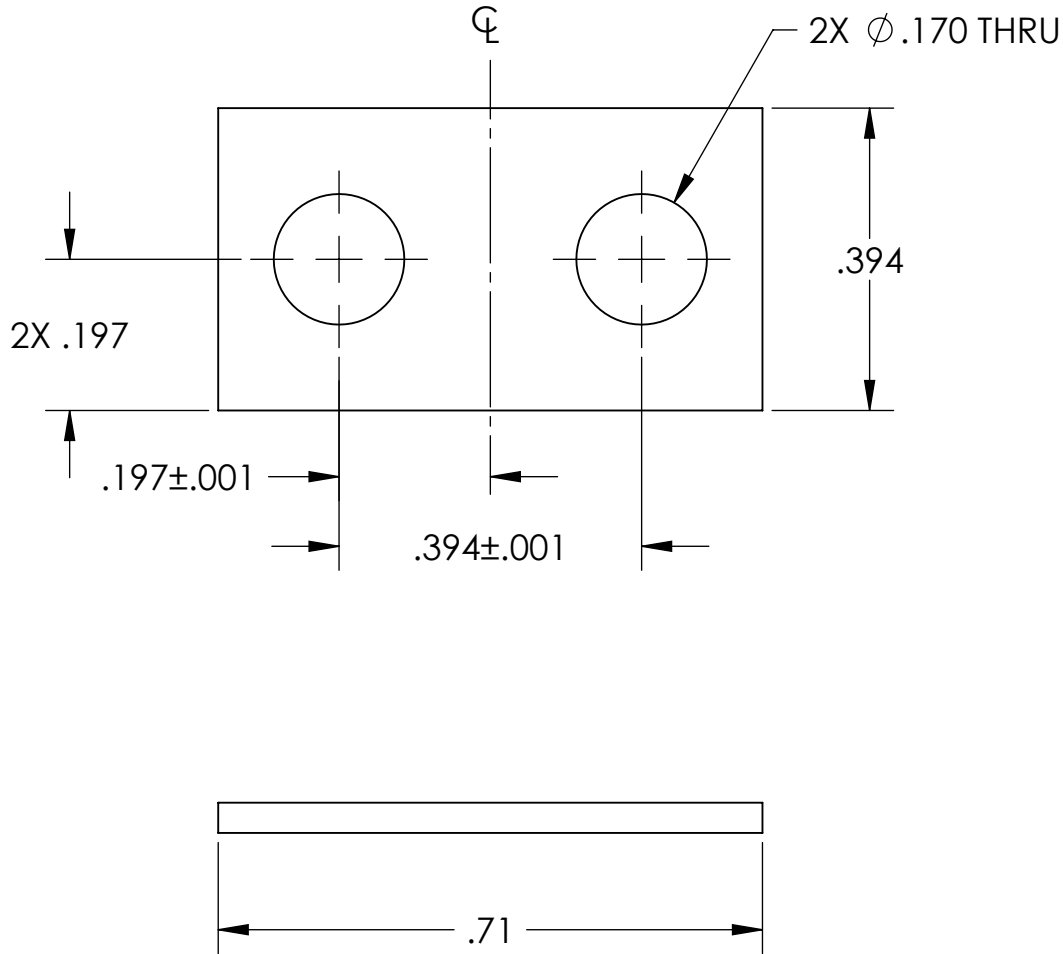
PART NAME UPPER BLADE CLAMP LOWERSIDE SHIM 2mm

DESIGNER	C. TORRIE	01 MAR 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	25 NOV 2009	A	D020680	v2
CHECKER	M. MEYER	25 NOV 2009			
APPROVAL			SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

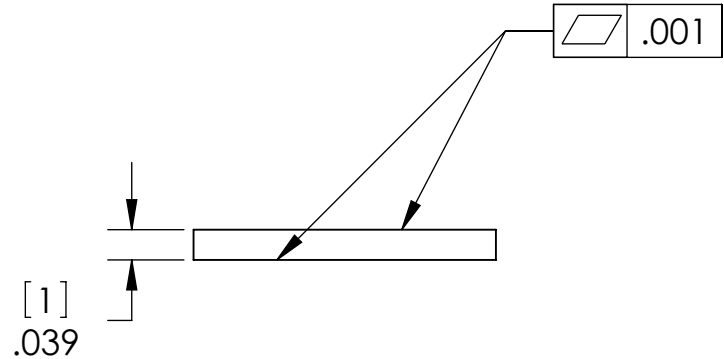
NOTES CONTINUED:

- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.
EXAMPLE (TAG): DXXXXXX-vY, TYPE-XX, QTY: TBD
- 6. APPROXIMATE WEIGHT = 0.003 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 #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

- 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 304, 316 OR 302 SSSL **FINISH** 32 μinch



SYSTEM ADVANCED LIGO **SUB-SYSTEM** SUS

NEXT ASSY D020677

PART NAME

LOWER BLADE CLAMP SHIM 1MM

DESIGNER	CIT/RJ	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	01 JUN 2010	A	D020682	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

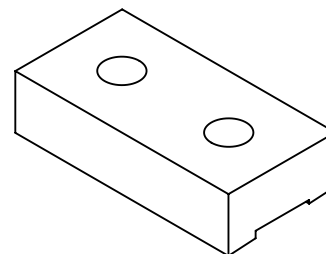
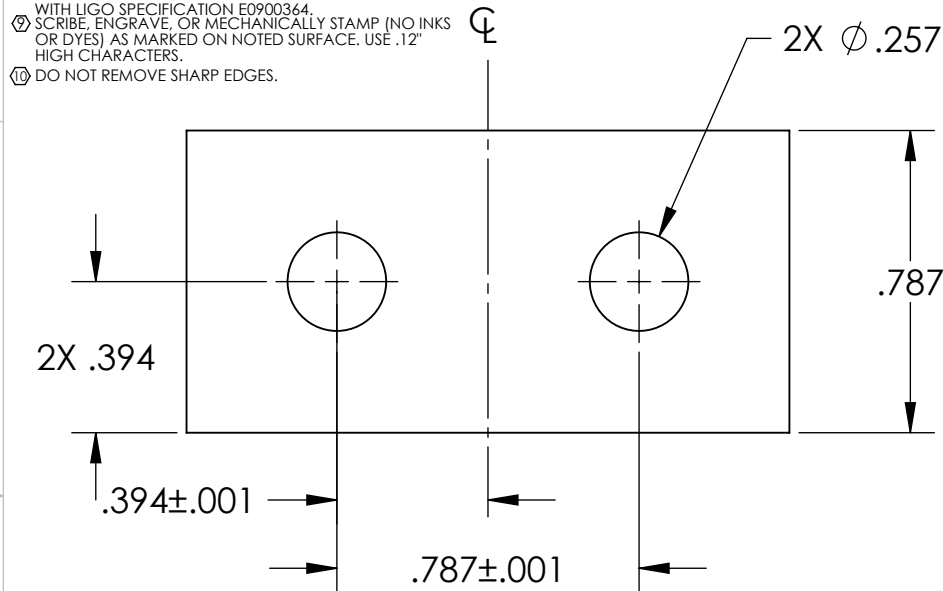
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.116 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.

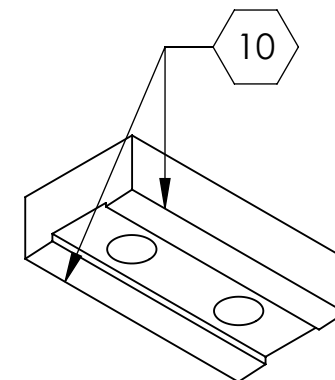
9. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

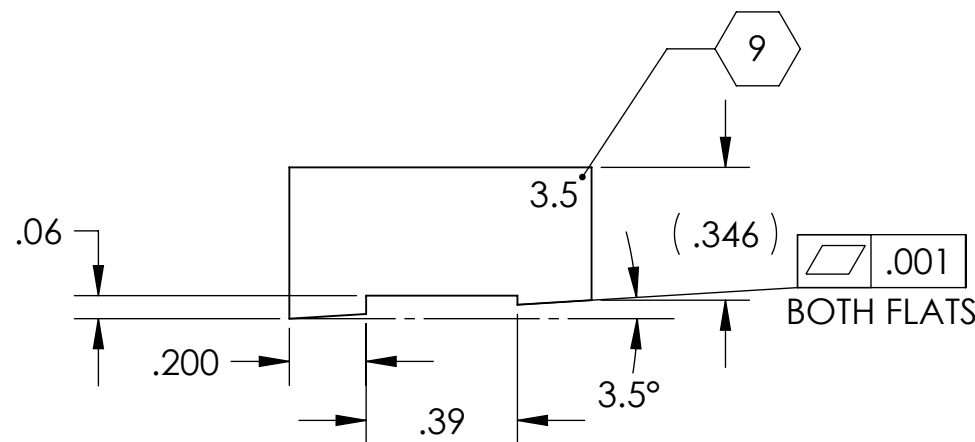
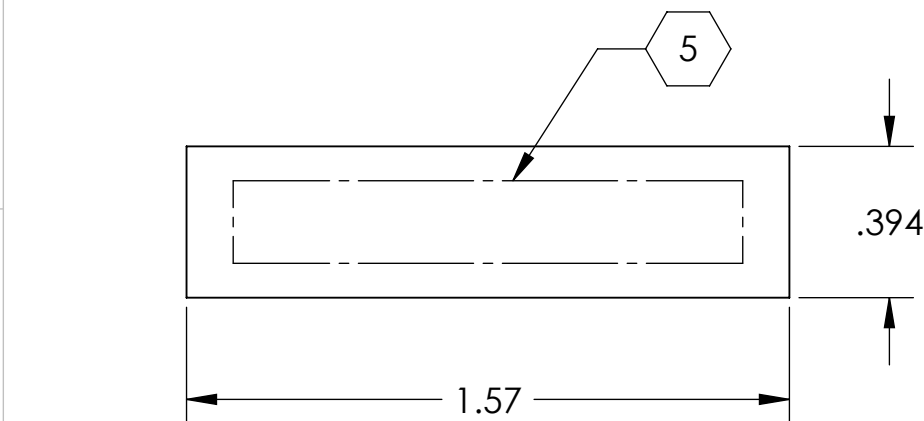
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2002	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY D020677

PART NAME UPPER BLADE CLAMP, UPPER SIDE, ANGLED 3.5 DEG

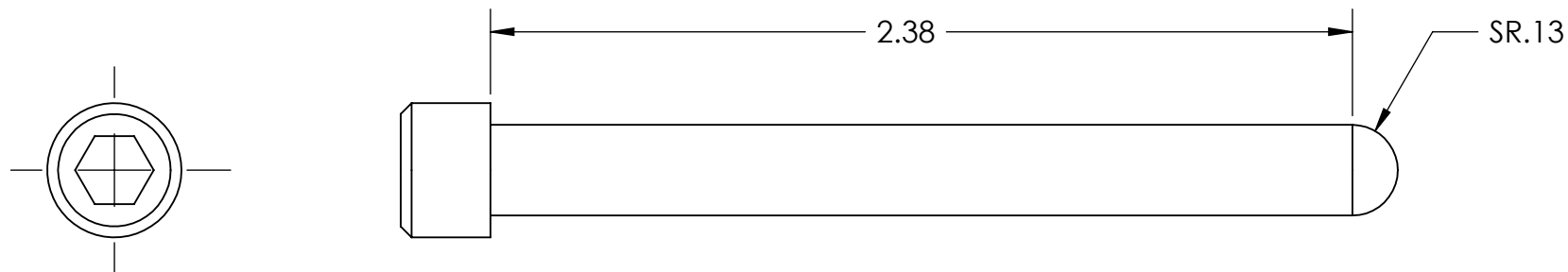
DESIGNER C. TORRIE	01 MAY 2002	SIZE DWG. NO.	REV.
DRAFTER B. MOORE	26 MAY 2010	A	D020690
CHECKER M. MEYER	01 JUN 2010		v2
APPROVAL		SCALE: 2:1	PROJECTION:

SHEET 1 OF 1

NOTES CONTINUED:

5. PART IS TO BE MADE FROM STOCK
 SOCKET HEAD CAP SCREW, 1/4-20
 UNC-2A, FULLY THREADED.

REV.	DATE	DCN #	DRAWING TREE #
A	JUL 2004	E040303	-
B	30 MAY 2008	E080195	-
v1	8 MAY 2009	E0900129	-



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .01
 .XXX ± .005

ANGULAR ± 0.1°

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 SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CINCINNATI MILACRON'S CIMTECH 410.

MATERIAL: 300 SSSL
 FINISH: N/A μinch



SYSTEM: ADVANCED LIGO
 SUB-SYSTEM:

NEXT ASSY: MULTIPLE ASSYS

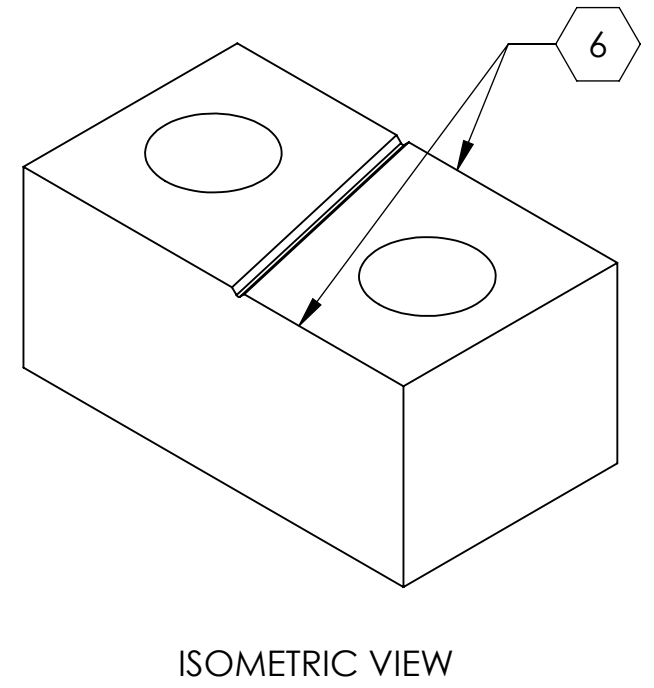
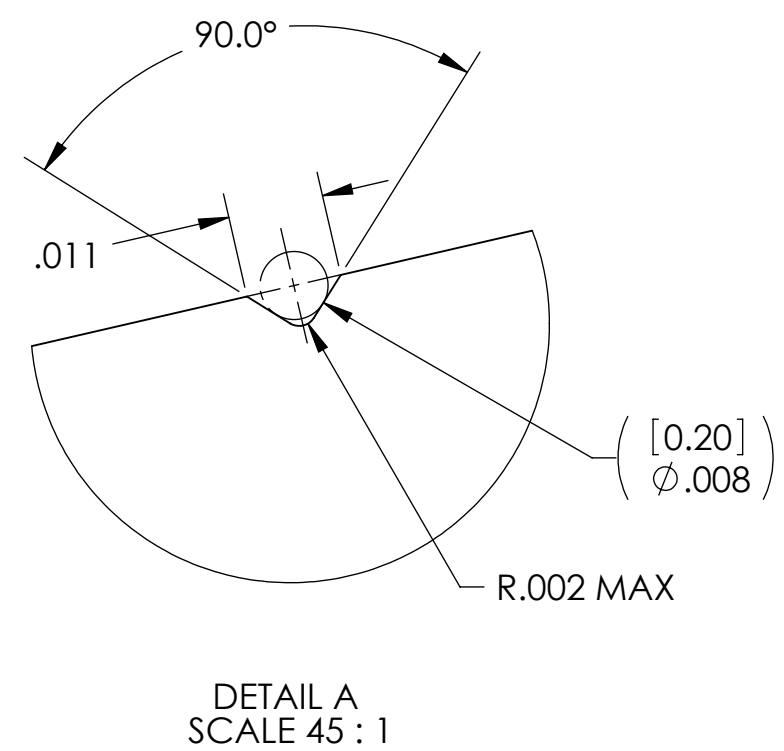
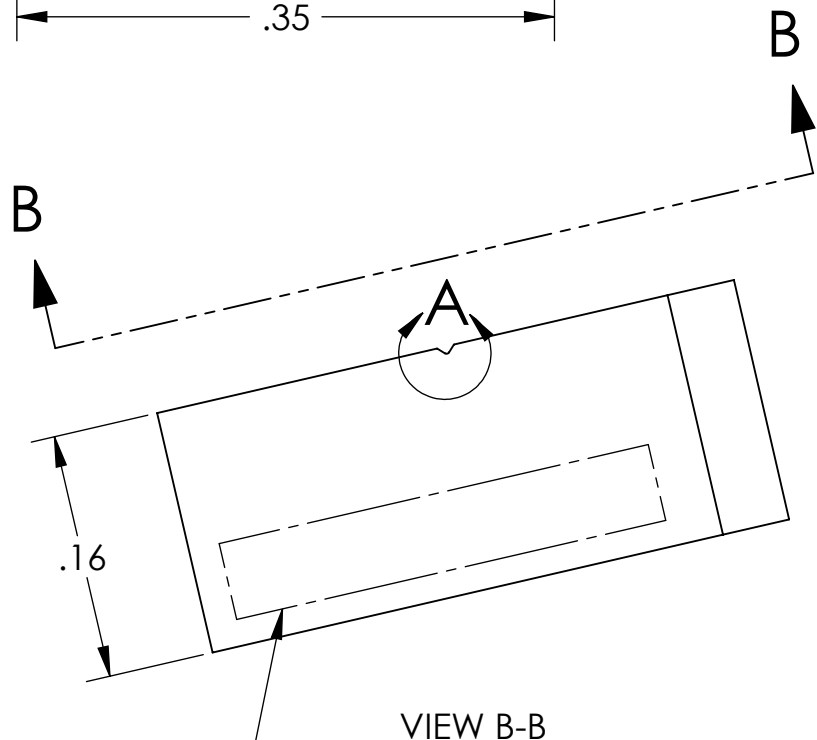
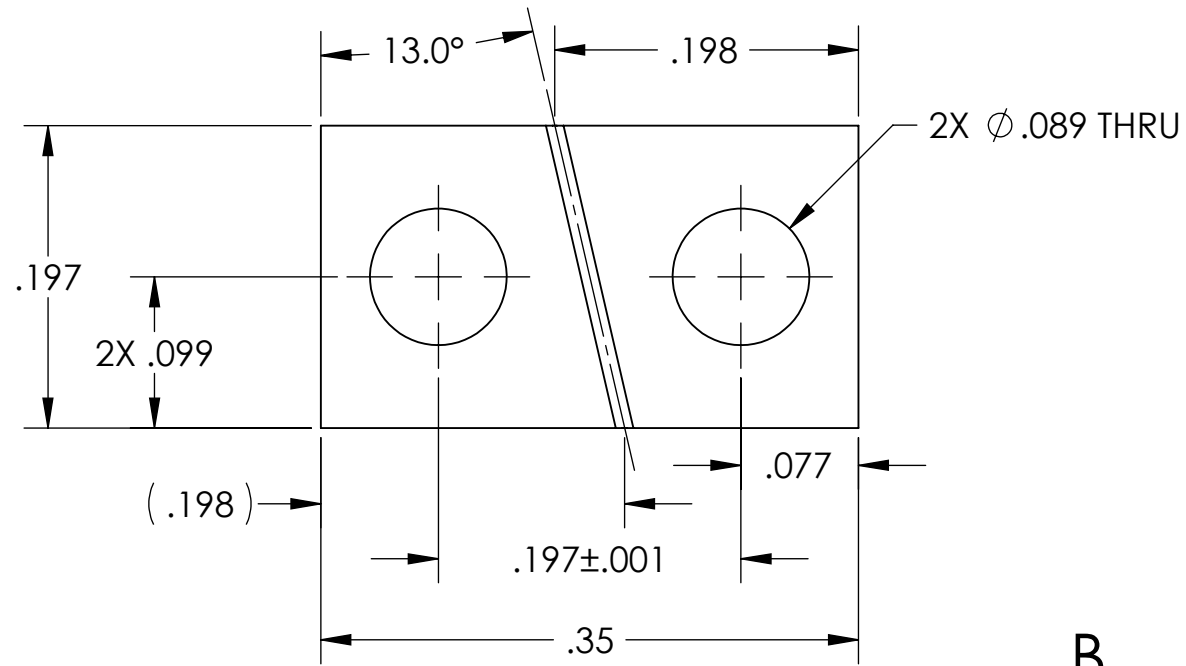
PART NAME: SCREW, SOCKET HEAD CAP, 1/4-20 UNC-2A X 2.5 LONG, FULLY THREADED, ROUNDED END

DESIGNER		SIZE	DWG. NO.	REV.
DRAFTER	D. BRIDGES 8 MAY 2009	A	D030021	v1
CHECKER	M. MEYER 8 MAY 2009	SCALE: 2:1		PROJECTION:
APPROVAL		SHEET 1 OF 1		

D030044_LOWERBLADE_WIRECLAMP_PLATE_THICK, PART PDM REV: X-005, 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 101 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. DO NOT BREAK INDICATED SHARP EDGES.
 - 7. APPROXIMATE WEIGHT = 0.003 LB.
 - 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 #
A	24 JUN 2004	E040303-00	-
v1	09 JUN 2010	E0900500	E0900353
-	-	-	-



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES [MM]				ADVANCED LIGO		LOWER BLADE WIRE CLAMP PLATE ANGLED	
TOLERANCES: .XX ± .01 .XXX ± .005				SUB-SYSTEM SUS		DESIGNER M. MEYER 03 SEP 2009	
ANGULAR ± 0.5°				MATERIAL 304, 316 OR 302 SSTL		DRAFTER B. MOORE 24 NOV 2009	
				FINISH 32 μinch		CHECKER M. MEYER 24 NOV 2009	
				NEXT ASSY D0901905		APPROVAL	
						SCALE: 8:1 PROJECTION: SHEET 1 OF 1	
						SIZE DWG. NO. D030044	
						REV. v1	

8 7 6 5 4 3 2 1

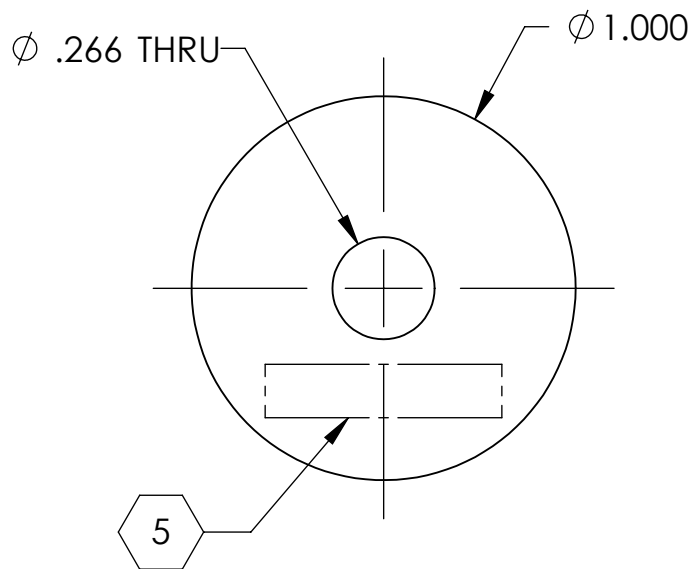
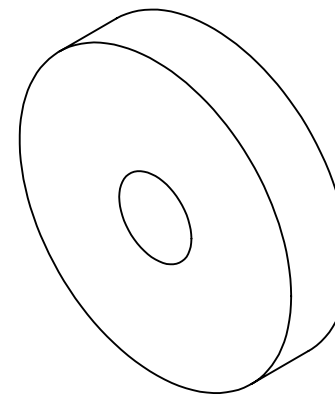
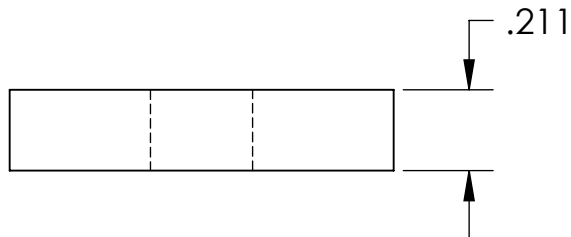
D C B A

D C B A

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 101 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 = 20g
- 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 #
A	24 JUN 2004	E040303	-
v1	21 APR 2009	E0900107-v1	-
v2	09 JUN 2010	E0900503	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .01
 .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 304, 316 OR 302 SSSL
 FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
 NEXT ASSY MULTIPLE

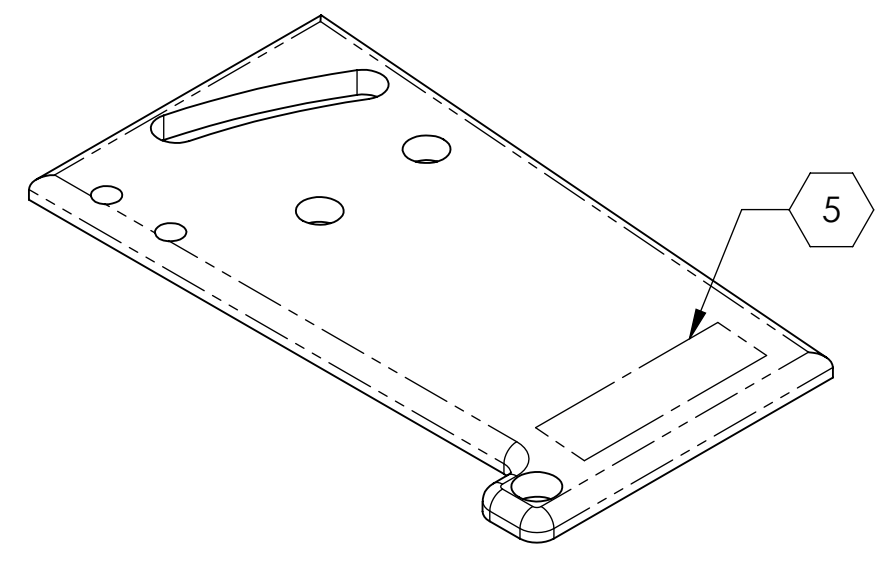
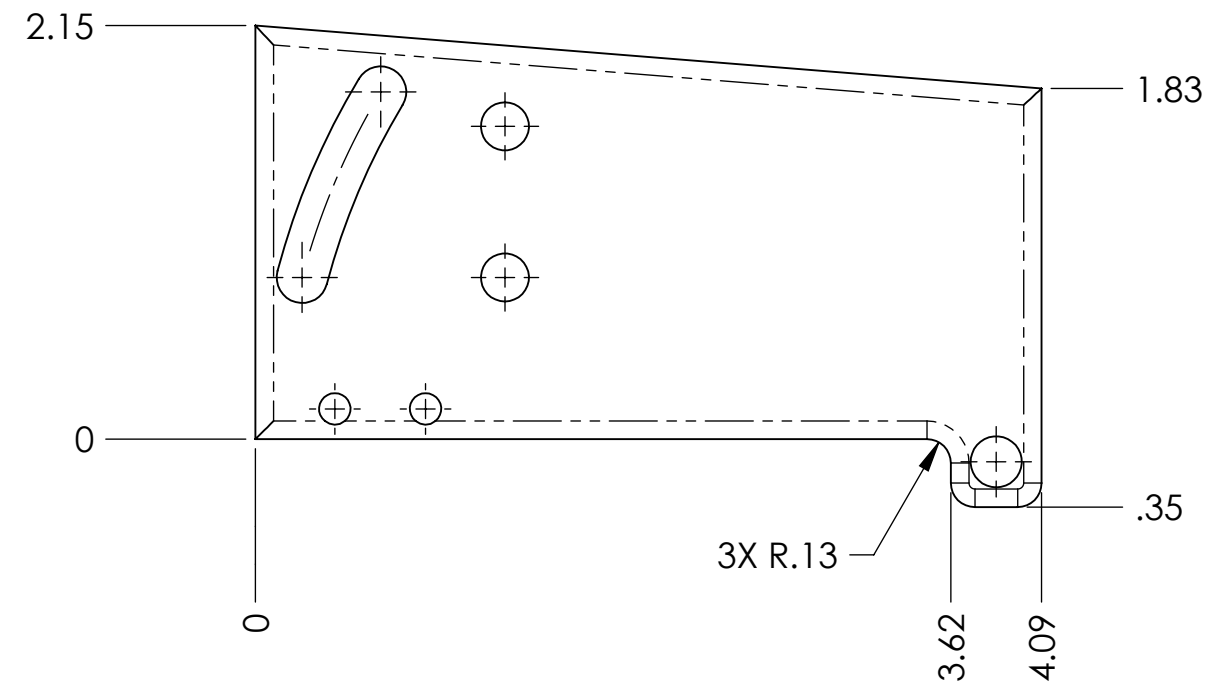
PART NAME ADD-ON MASS, 20g

DESIGNER C. TORRIE	28 JUN 2002	SIZE DWG. NO. A	D030078	REV. v2
DRAFTER W. RASCH	23 NOV 2009			
CHECKER M. MEYER	23 NOV 2009			
APPROVAL				

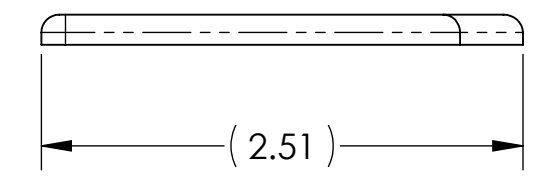
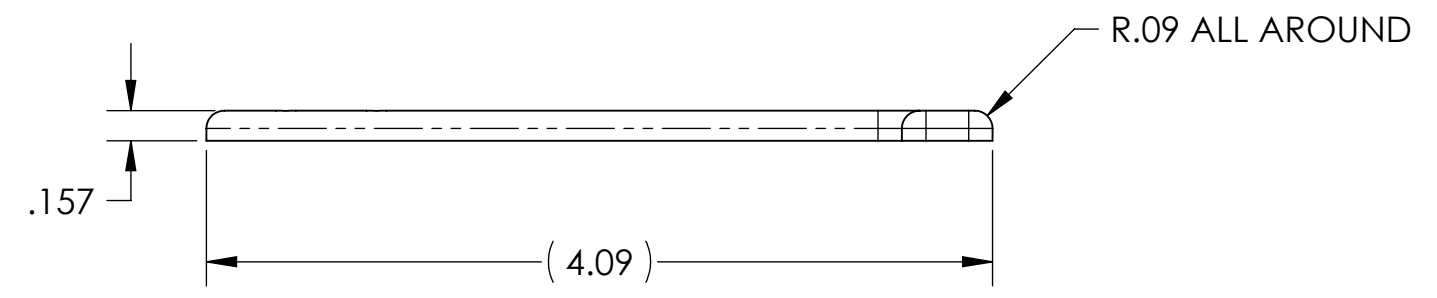
SCALE: 2:1 PROJECTION: SHEET 1 OF 1

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 101 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 = 0.347 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 #
A	24 JUN 2004	E040303-00	-
B	09 APR 2008	E080156-00	-
v1	21 APR 2009	E0900107-v1	-
v2	09 JUN 2010	E0900499	E0900353



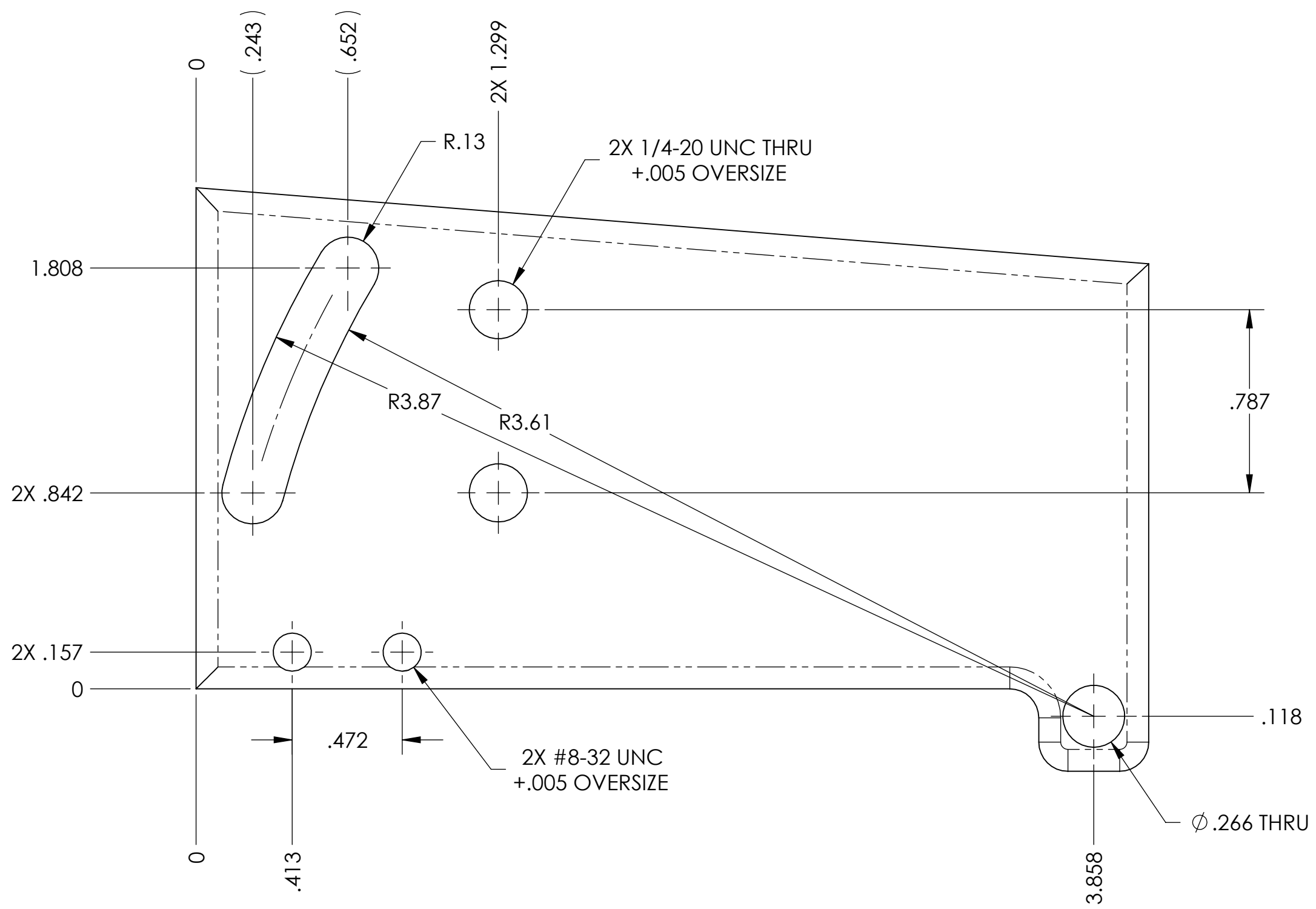
ISOMETRIC VIEW



D030447_RotationalAdjuster_RotatingPlate, PART PDM REV: V1-002, DRAWING PDM REV: V1-008

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX ± .03 .XXX ± .005 ANGULAR ± 0.5°				1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		ROTATING PLATE	
						MATERIAL 304, 316 OR 302 SSSL FINISH 32 μinch	
				SYSTEM ADVANCED LIGO SUB-SYSTEM SUS		SIZE DWG. NO. B D030447	
				NEXT ASSY MULTIPLE ASSY		REV. v2	
				SCALE: 1:1 PROJECTION:		SHEET 1 OF 2	

D030447_RotationalAdjuster_RotatingPlate, PART PDM REV: V1-002, DRAWING PDM REV: V1-008

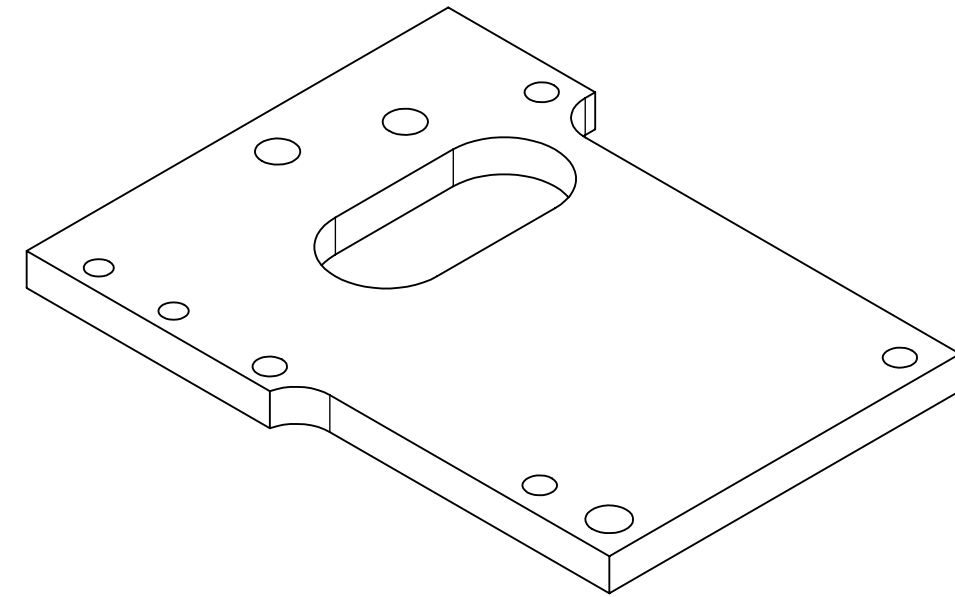
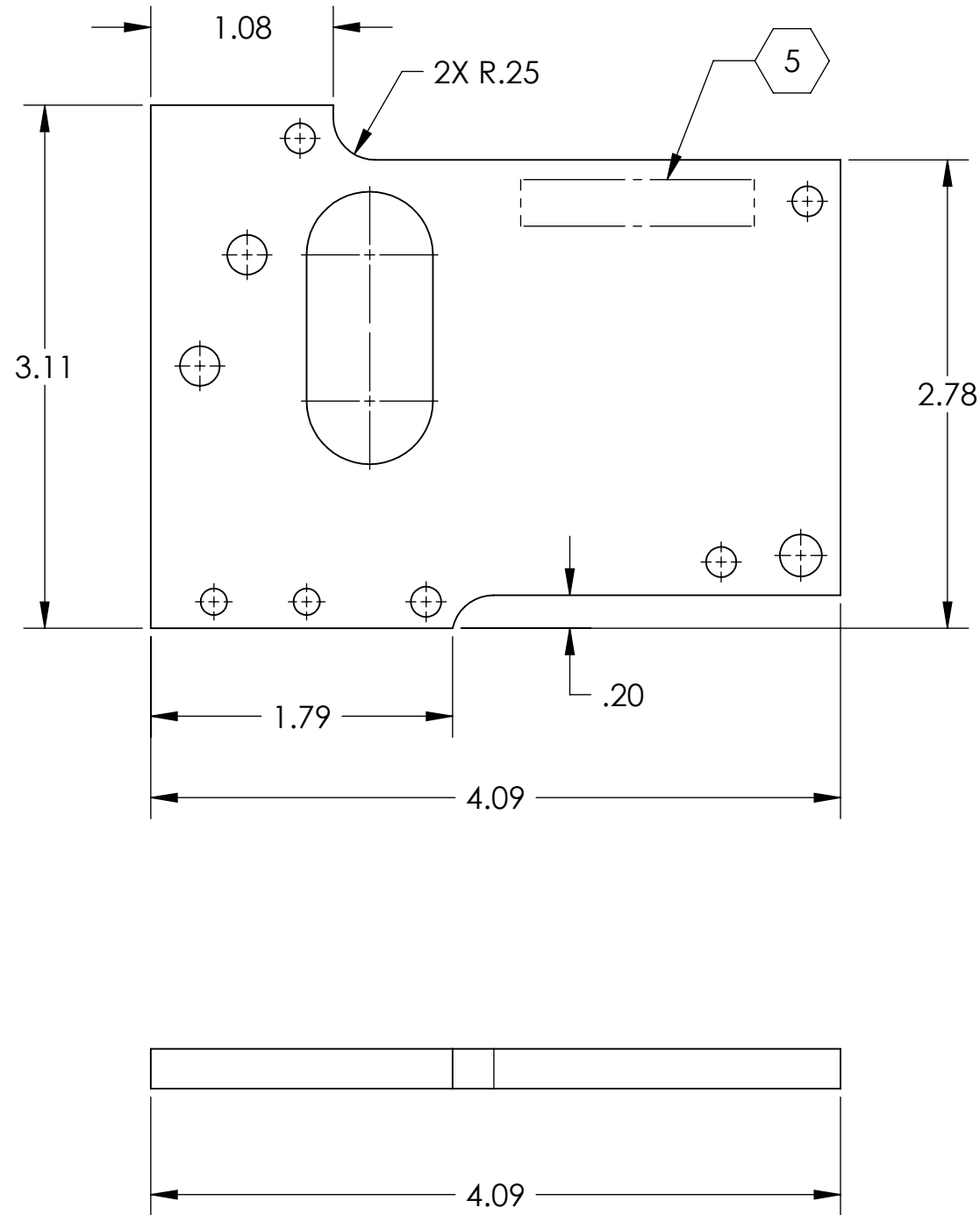


 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SIZE B	DWG. NO. D030447
SCALE: 2:1	REV. v2
PROJECTION: 	SHEET 2 OF 2

D030448_RotationalAdjuster_BasePlate, PART PDM REV: V1-002, DRAWING PDM REV: V1-010

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 101 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 = 0.229 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 #
A	24 JUN 2004	E040303-00	-
v1/B	09 APR 2008	E080156-00	-
v2	09 JUN 2010	E0900499	E0900353



ISOMETRIC VIEW

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

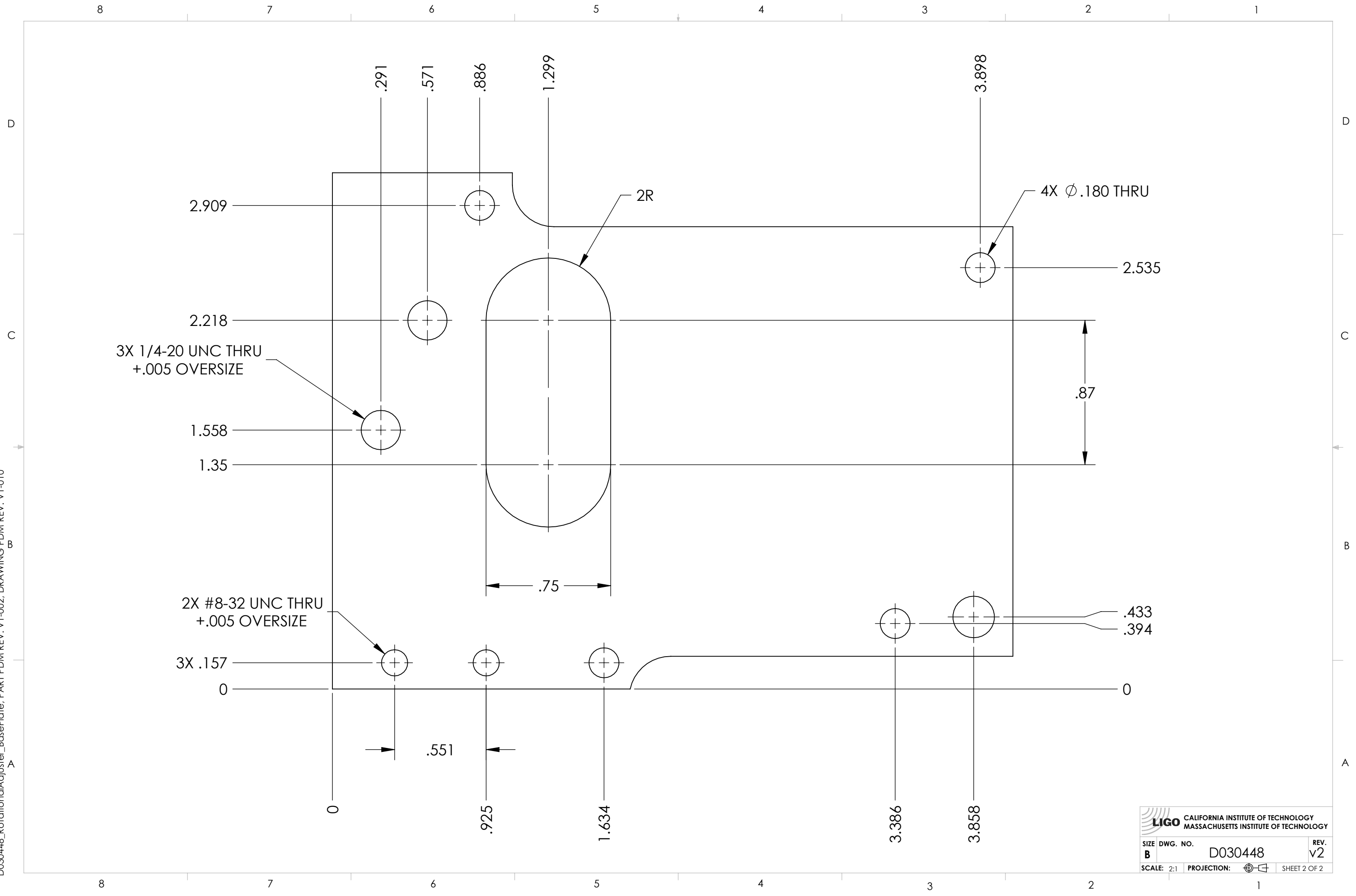
DIMENSIONS ARE IN INCHES
 TOLERANCES:
 .XX ± .03
 .XXX ± .005
 ANGULAR ± 0.5°


1. INTERPRET DRAWING PER ASME Y14.5-1994.
 2. REMOVE ALL SHARP EDGES AND CORNERS.
 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 32 μinch

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME		BASE PLATE	
SYSTEM	ADVANCED LIGO	SUB-SYSTEM	SUS	DESIGNER	MPL 04 SEP 2003
NEXT ASSY	MULTIPLE ASSY	DRAFTER	B. MOORE 31 AUG 2009	CHECKER	M. MEYER 31 AUG 2009
				SIZE	DWG. NO.
				B	D030448
				REVISION	v2
				SCALE: 1:1	PROJECTION: SHEET 1 OF 2

D030448_RotationalAdjuster_BasePlate, PART PDM REV: V1-002, DRAWING PDM REV: V1-010

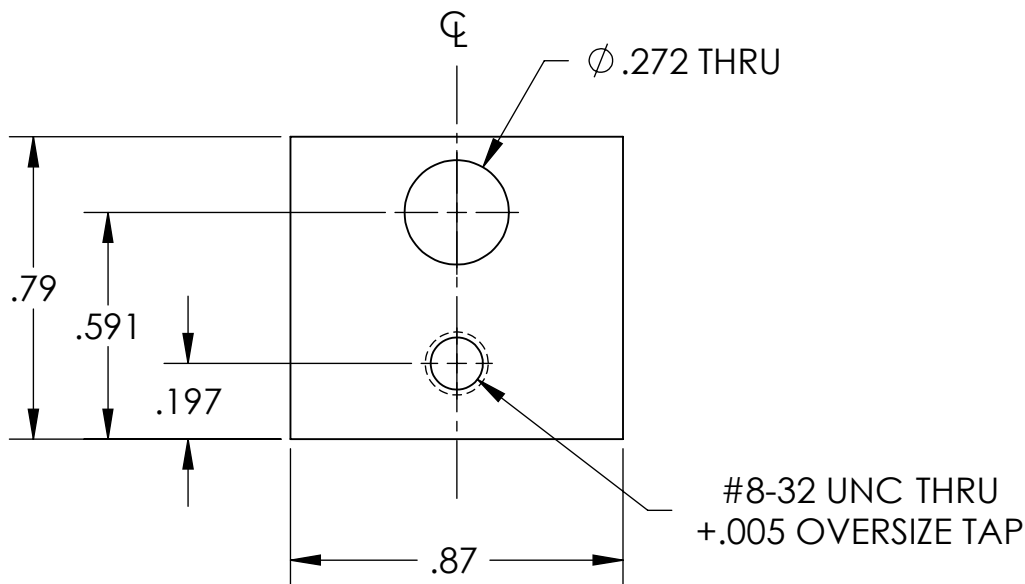
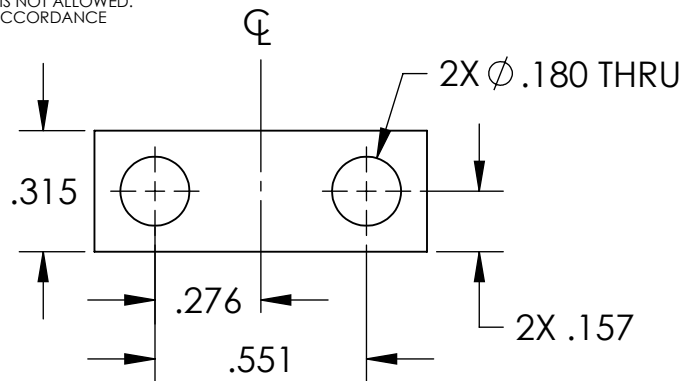


 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
SIZE	DWG. NO.	REV.
B	D030448	v2
SCALE: 2:1	PROJECTION:	SHEET 2 OF 2

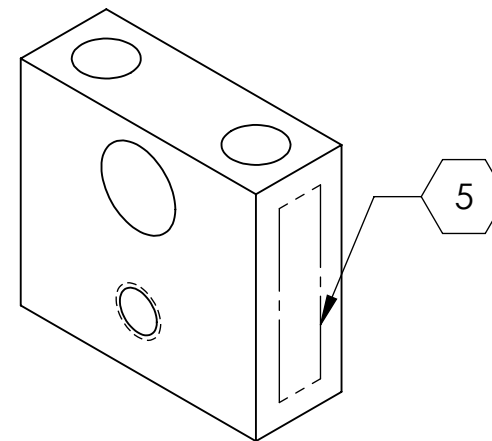
NOTES CONTINUED:

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 101 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 = 0.044 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 #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0960107-v1	-
v2	09 JUN 2010	E0900499	E0900353



ISOMETRIC VIEW

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.5°

- 1. INTERPRET DRAWING PER ASME Y14.5-1994.
- 2. REMOVE ALL SHARP EDGES.
- 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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY MULTIPLE ASSY

PART NAME

PUSH PLATE

DESIGNER MPL 04 SEP 2003
DRAFTER W. RASCH 31 AUG 2009
CHECKER M. MEYER 31 AUG 2009
APPROVAL

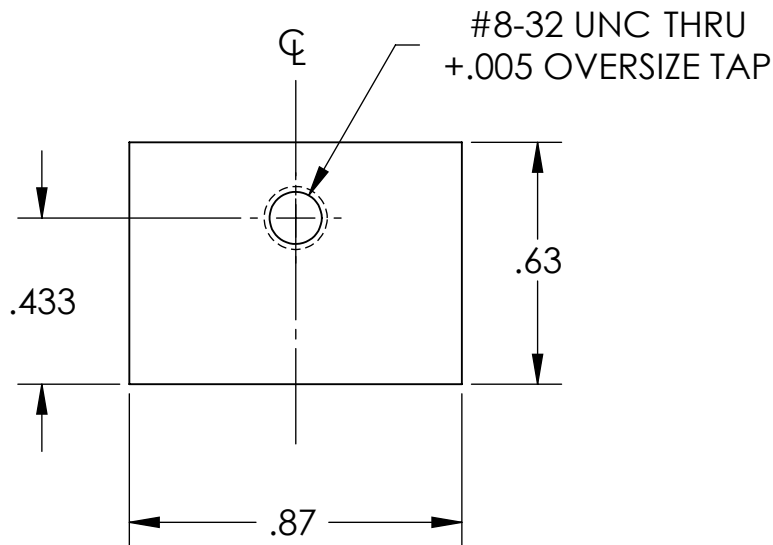
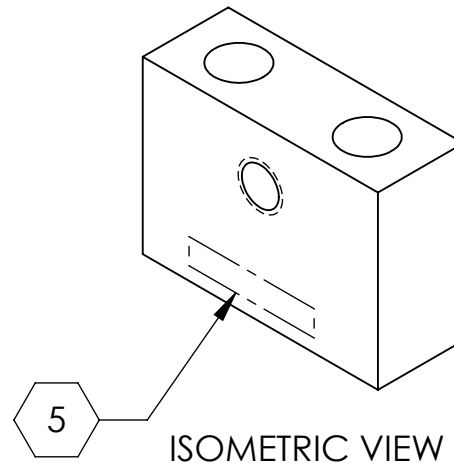
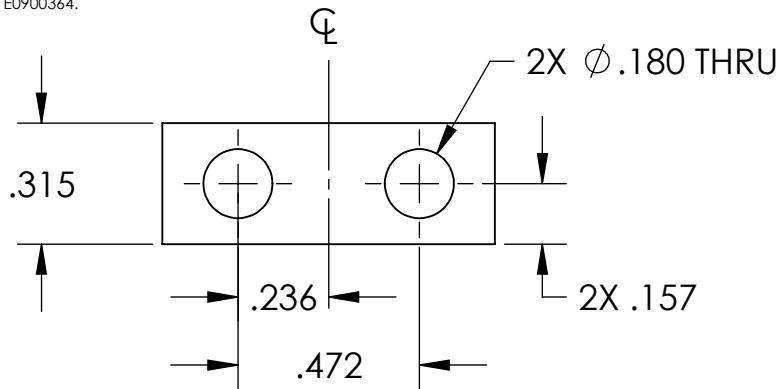
SIZE DWG. NO. A D030449
REV. v2

SCALE: 2:1 PROJECTION: SHEET 1 OF 1

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 101 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 = 0.039 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 #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	09 JUN 2010	E0900499	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.5°

- 1. INTERPRET DRAWING PER ASME Y14.5-1994.
- 2. REMOVE ALL SHARP EDGES.
- 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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY MULTIPLE ASSY

PART NAME

PULL PLATE

DESIGNER MPL 04 SEP 2003
 DRAFTER W. RASCH 23 NOV 2009
 CHECKER M. MEYER 23 NOV 2009
 APPROVAL

SIZE DWG. NO. A D030450
 REV. v2

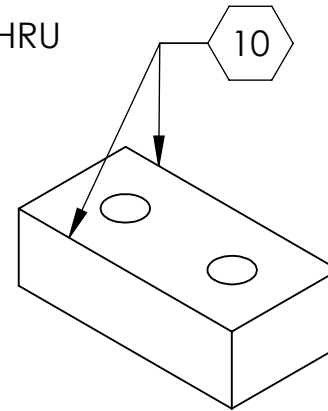
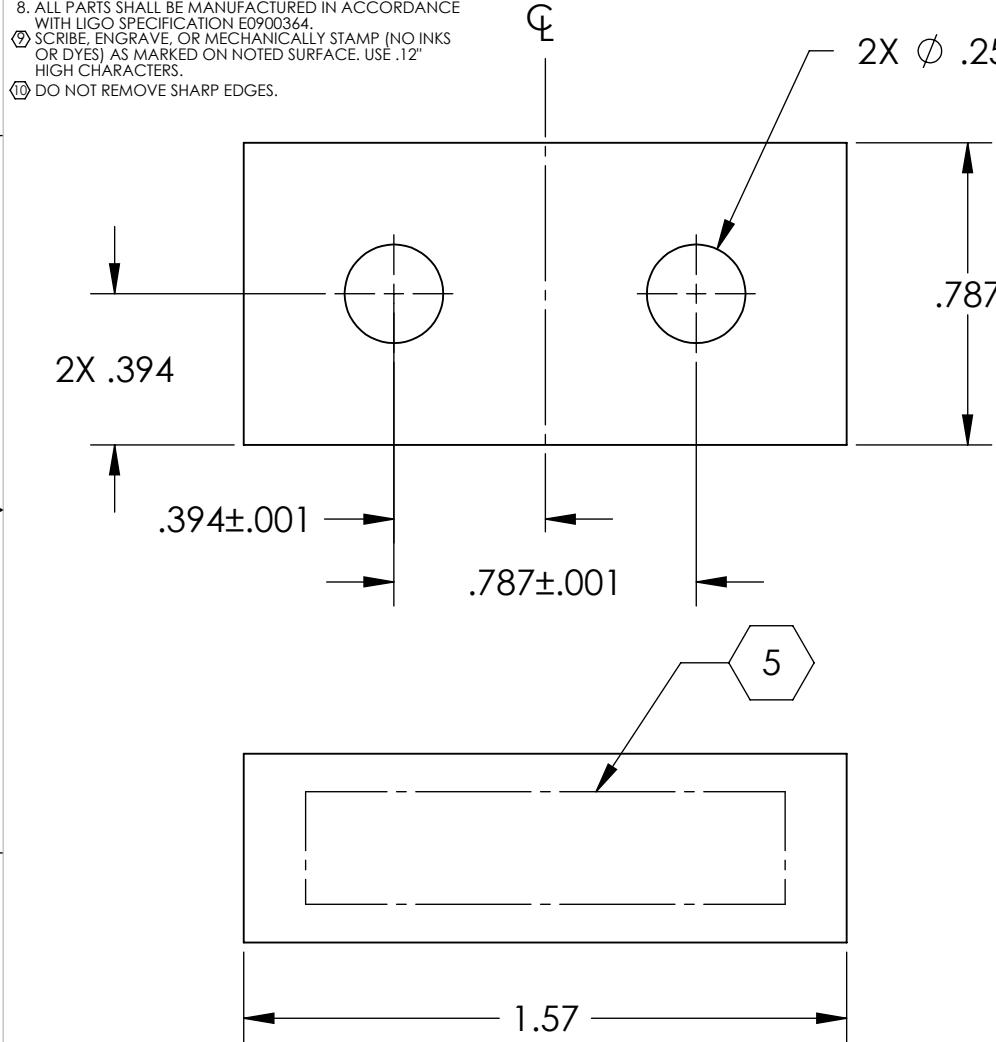
SCALE: 2:1 PROJECTION: SHEET 1 OF 1

NOTES CONTINUED:

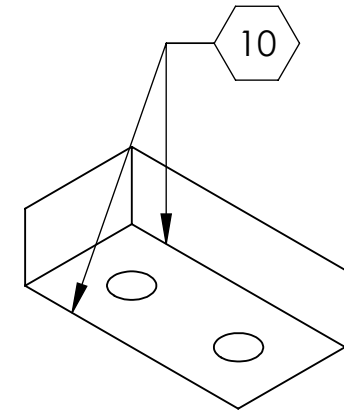
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.162 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.
- 10. DO NOT REMOVE SHARP EDGES.

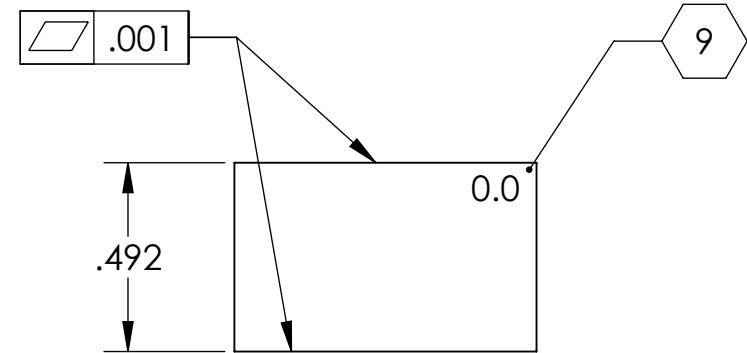
REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	12 MAY 2010	E0900499	E0900353
v3	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW



BOTTOM ISOMETRIC VIEW

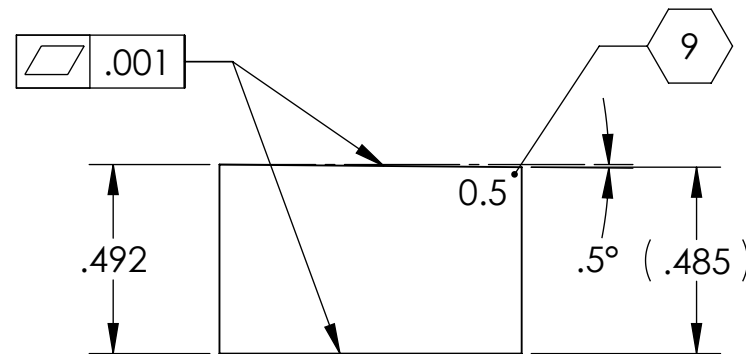
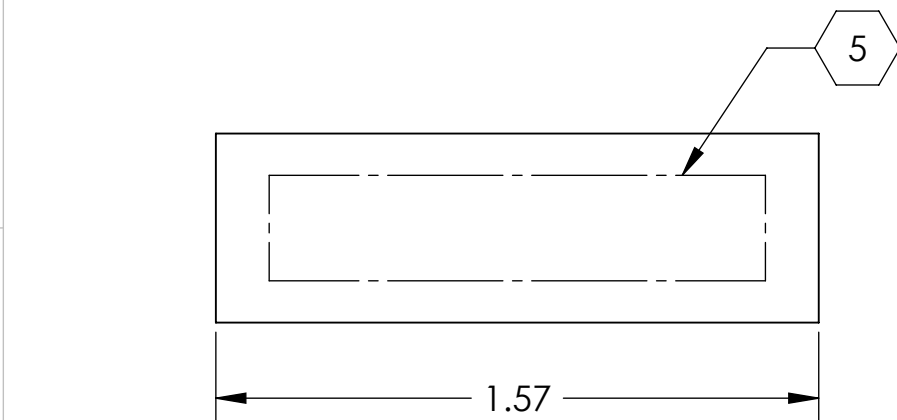
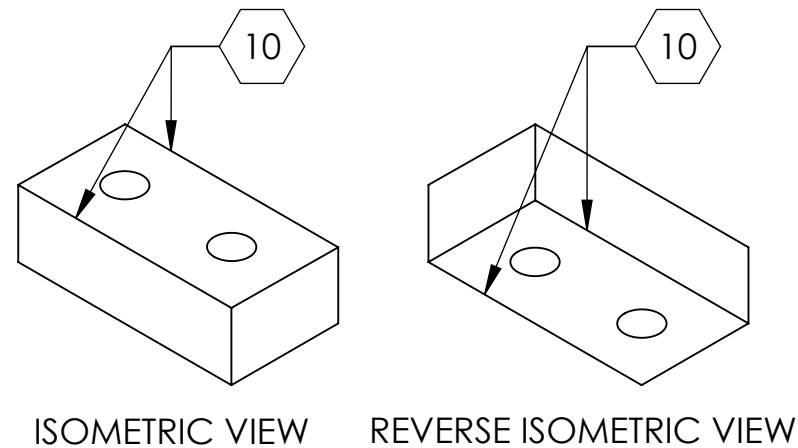
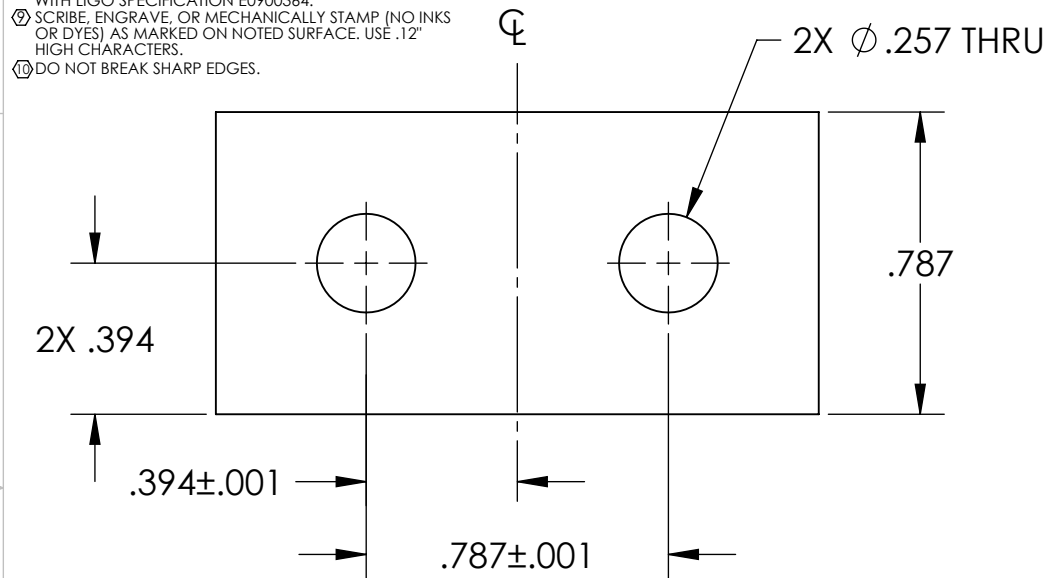


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME					
DIMENSIONS ARE IN INCHES				SYSTEM		RA UPPER BLADE CLAMP LOWER SIDE 0.0 DEGREE					
TOLERANCES: .XX ± .03 .XXX ± .005				SUB-SYSTEM		DESIGNER		SIZE		DWG. NO.	
ANGULAR ± 0.2°				NEXT ASSY		C. TORRIE		A		D030459	
MATERIAL				ADVANCED LIGO		B. MOORE		21 DEC 2009		REV.	
304, 316 OR 302 SSSL				SUS		M. MEYER		22 DEC 2009		v3	
FINISH				MULTIPLE ASSY		APPROVAL		SCALE: 2:1		PROJECTION:	
32 μinch										SHEET 1 OF 1	

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 101 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 = 0.160 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.
- 10. DO NOT BREAK SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES
 TOLERANCES:
 .XX ± .03
 .XXX ± .005
 ANGULAR ± 0.2°

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
304, 316 OR 302 SSSL

FINISH
32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: **ADVANCED LIGO** SUB-SYSTEM: **SUS**

NEXT ASSY: **D020677**

PART NAME
UPPER BLADE CLAMP, LOWER SIDE ANGLED 0.5 DEGREE

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	25 MAY 2010	A	D030460	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

NOTES CONTINUED:

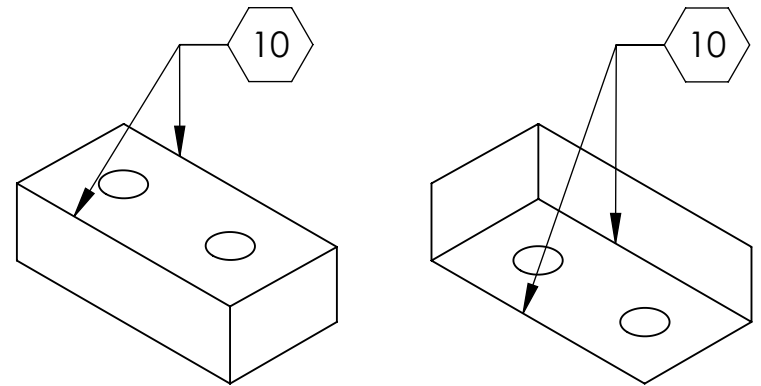
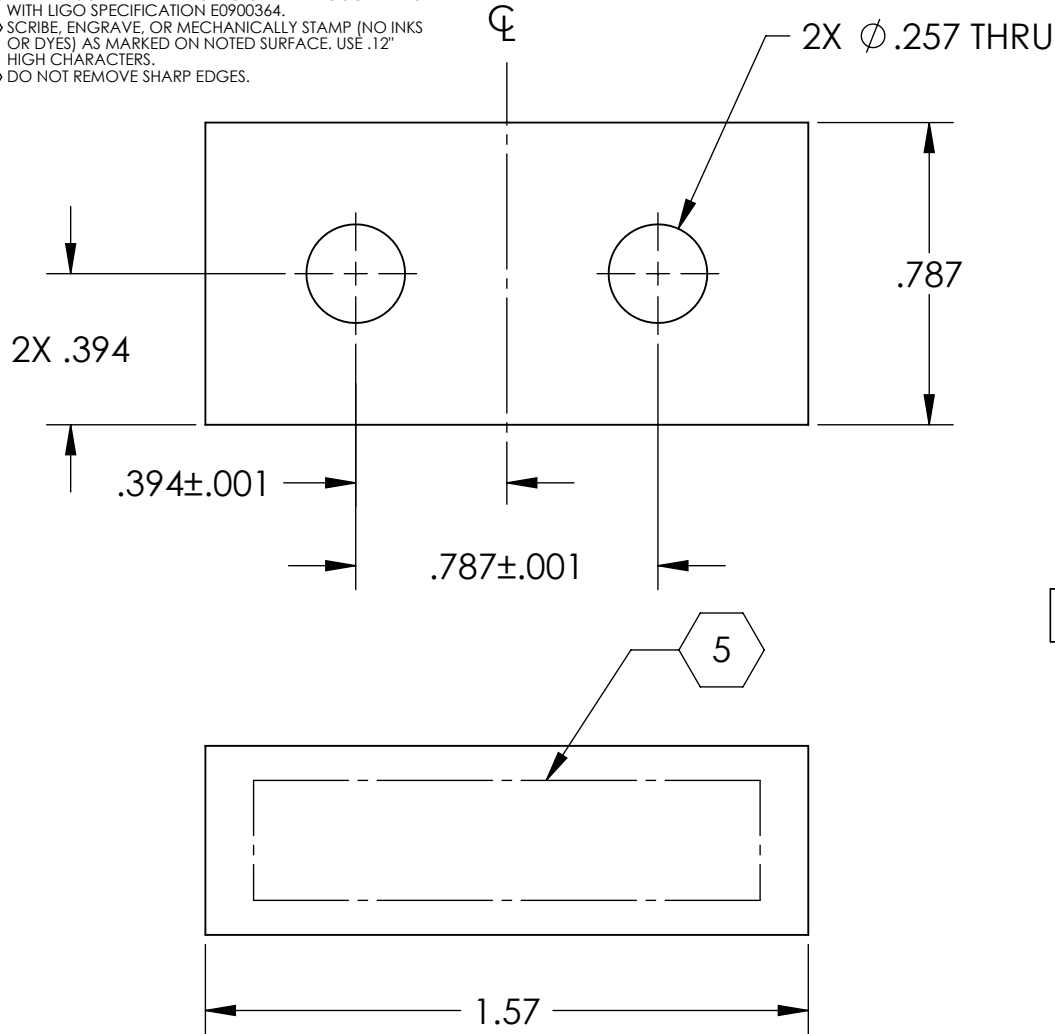
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.159 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

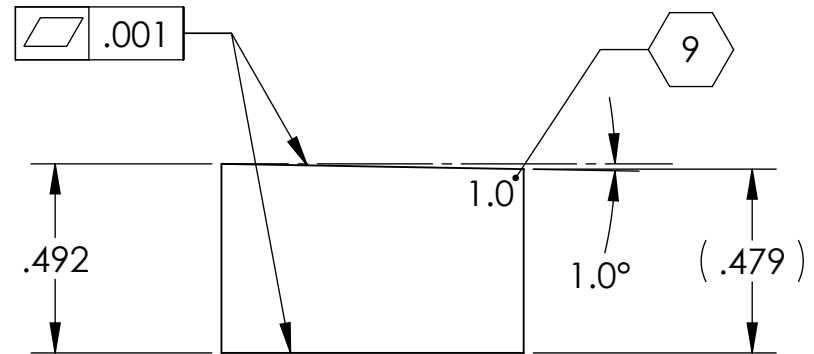
10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



ISOMETRIC VIEW

REVERSE ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **UPPER BLADE CLAMP, LOWER SIDE ANGLED 1.0 DEGREE**

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	25 MAY 2010	A	D030461	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

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 101 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 = 0.156 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353

D

D

C

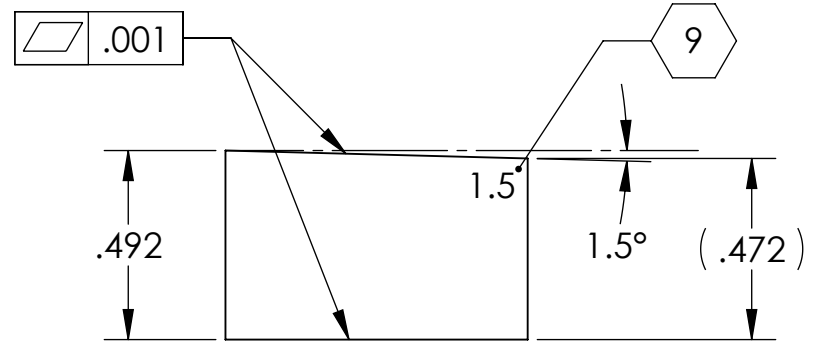
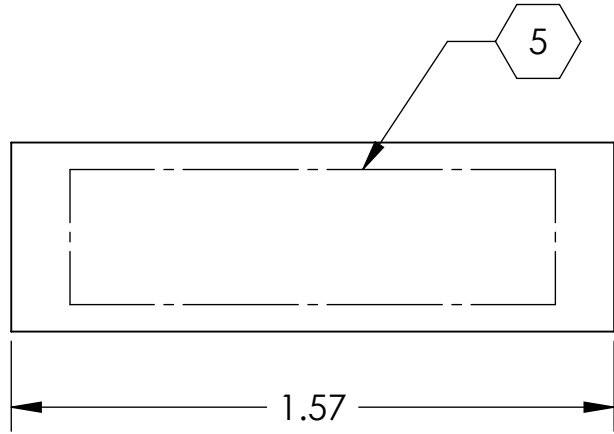
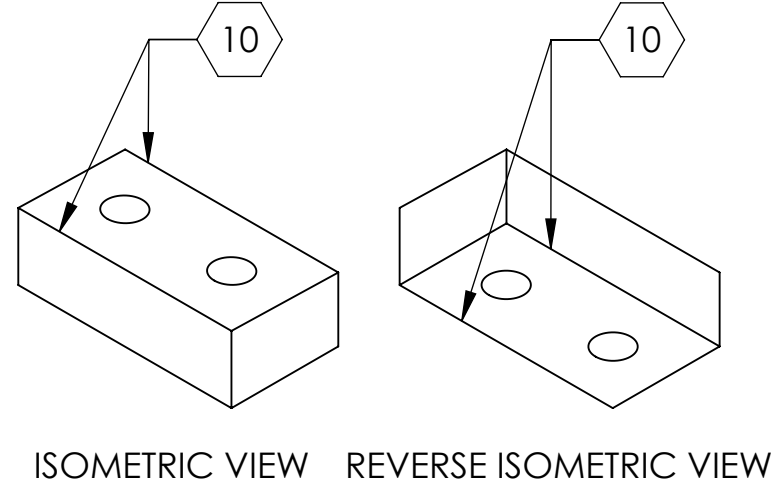
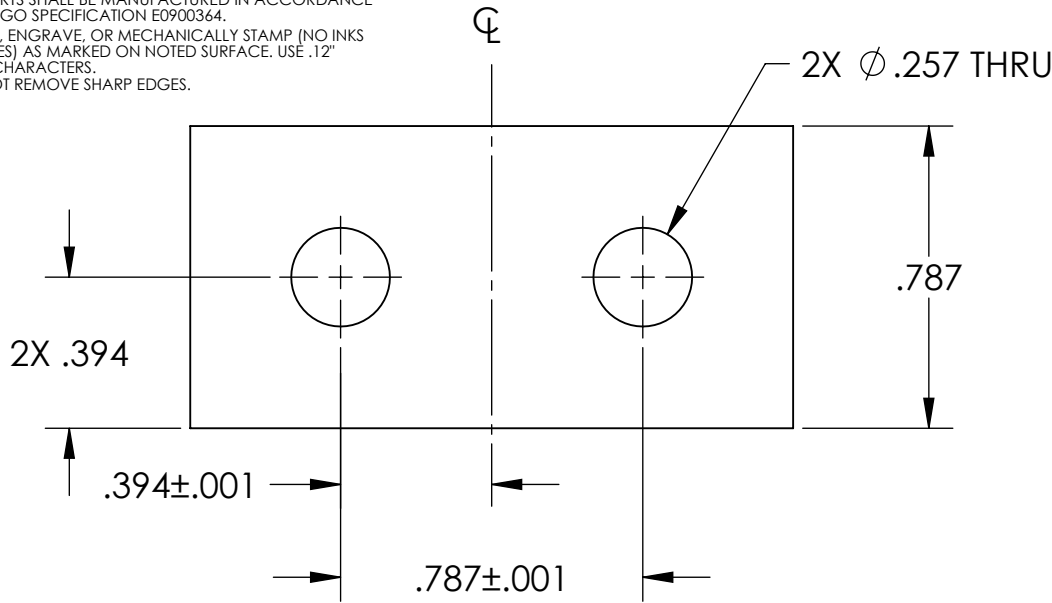
C

B

B

A

A



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **UPPER BLADE CLAMP LOWER SIDE ANGLED 1.5 DEGREE**

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	25 MAY 2010	A	D030462	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

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 101 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 = 0.289 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E0400303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353

D

D

C

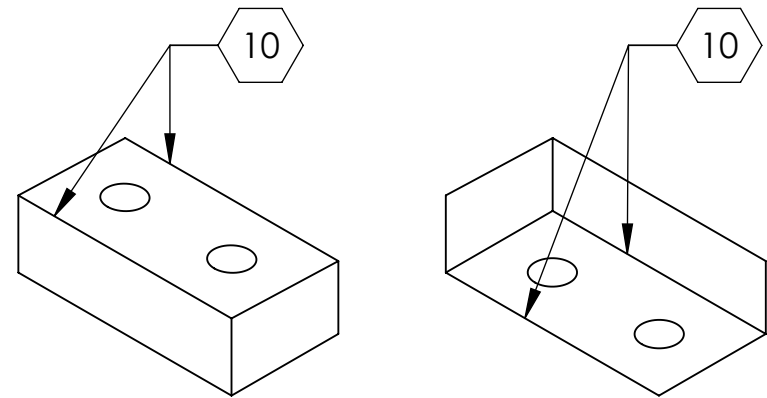
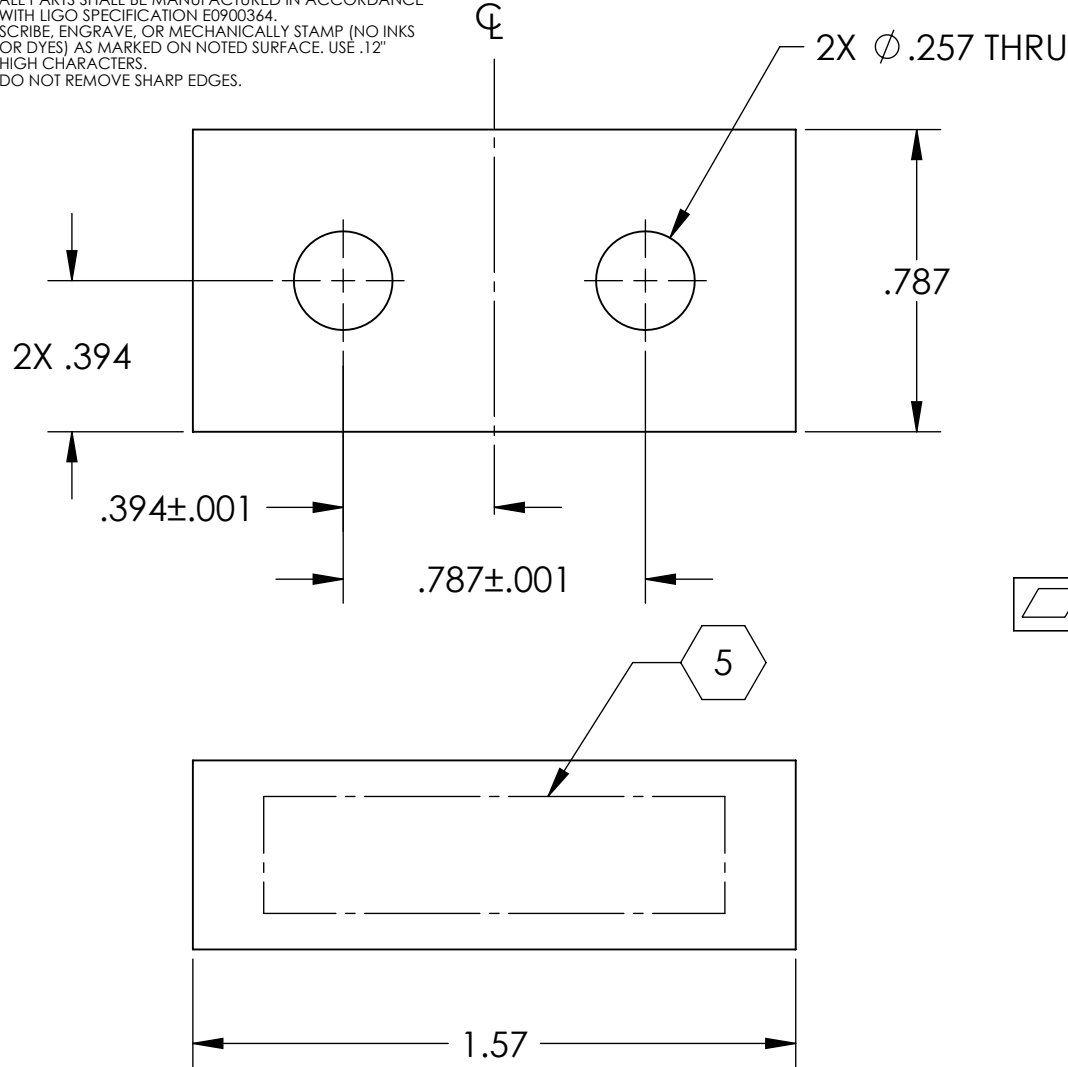
C

B

B

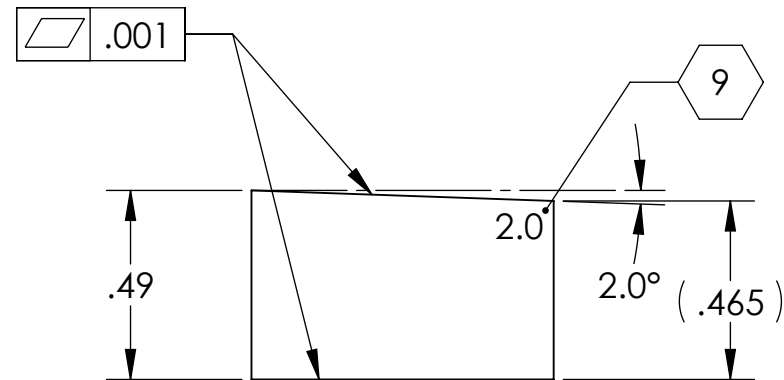
A

A



ISOMETRIC VIEW

REVERSE ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
 FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **UPPER BLADE CLAMP, LOWER SIDE 2.0 DEGREE**

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	25 MAY 2010	A	D030463	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

NOTES CONTINUED:

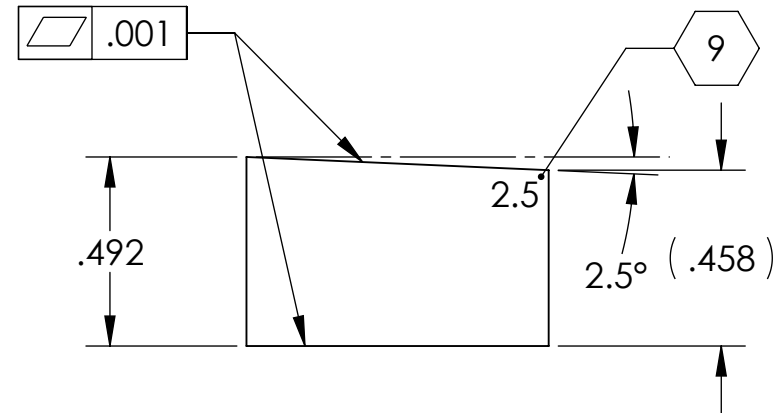
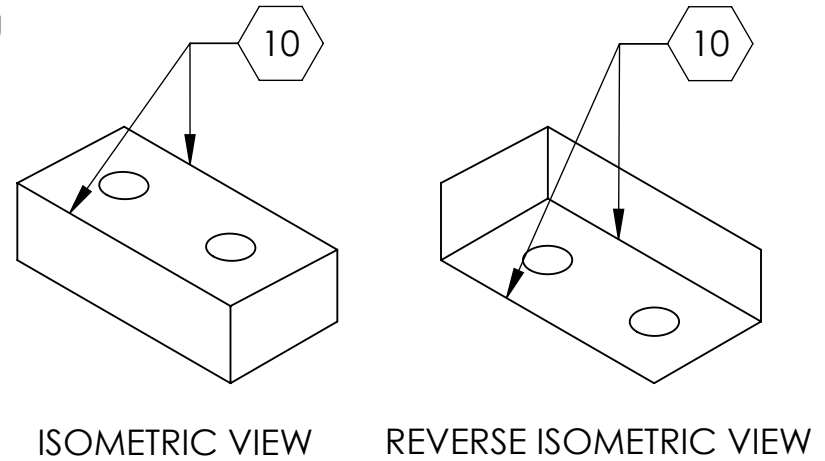
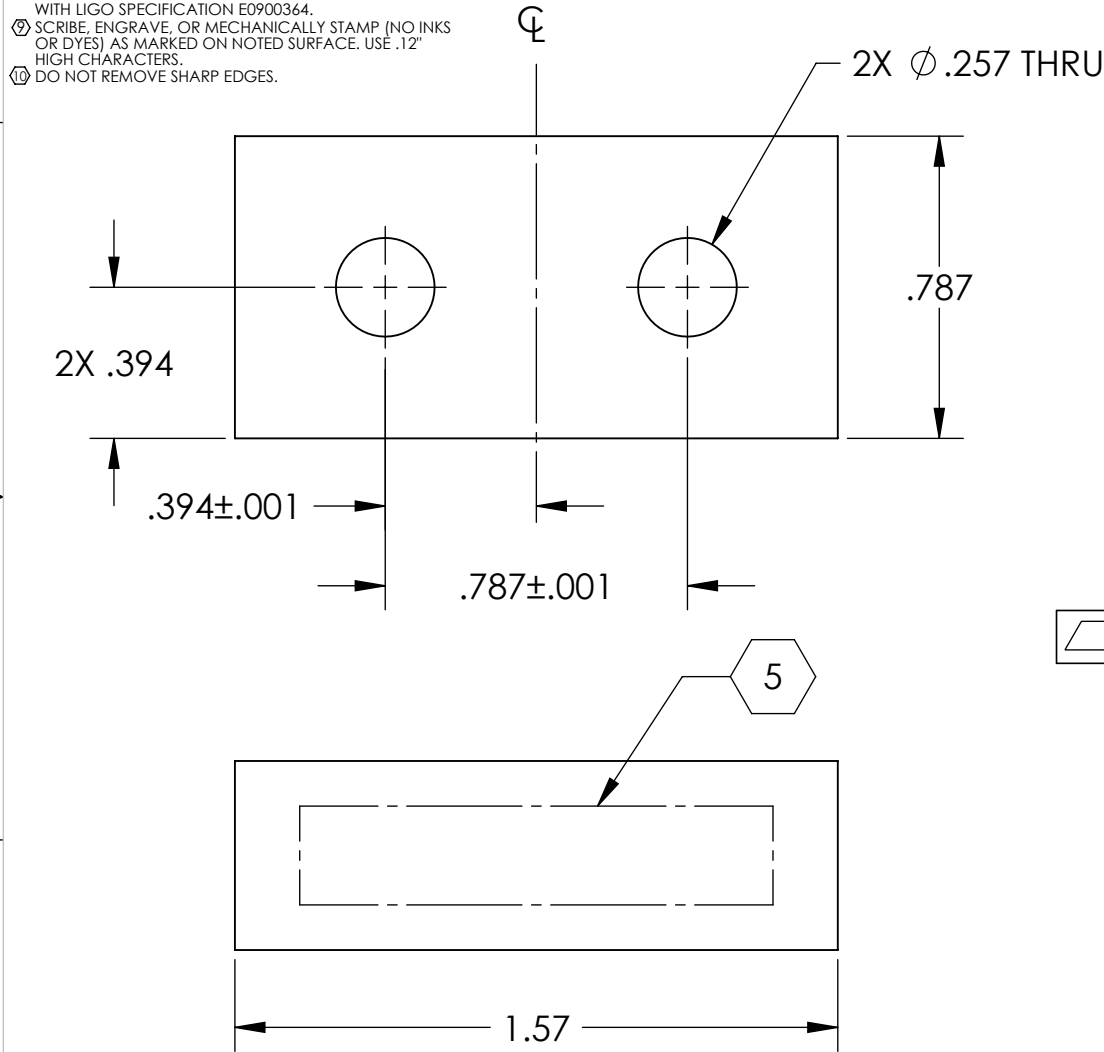
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.155 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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
304, 316 OR 302 SSSL

FINISH
32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM
ADVANCED LIGO

SUB-SYSTEM
SUS

NEXT ASSY
D020677

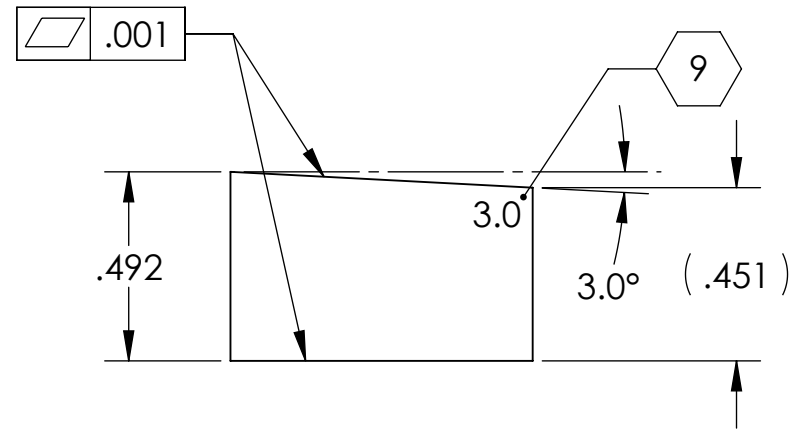
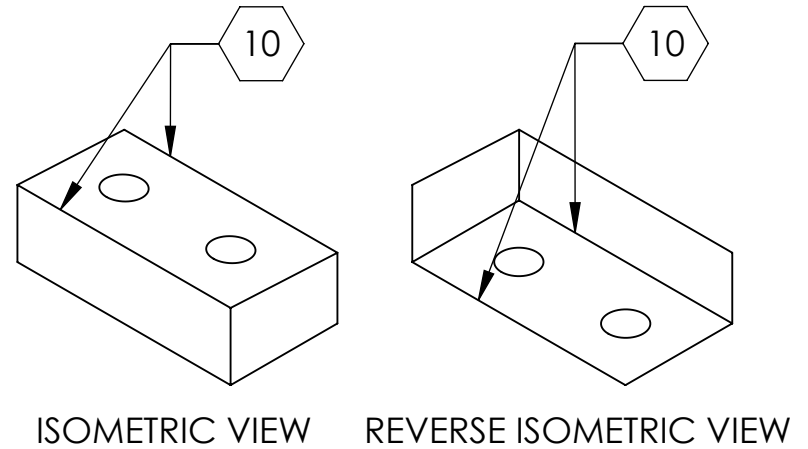
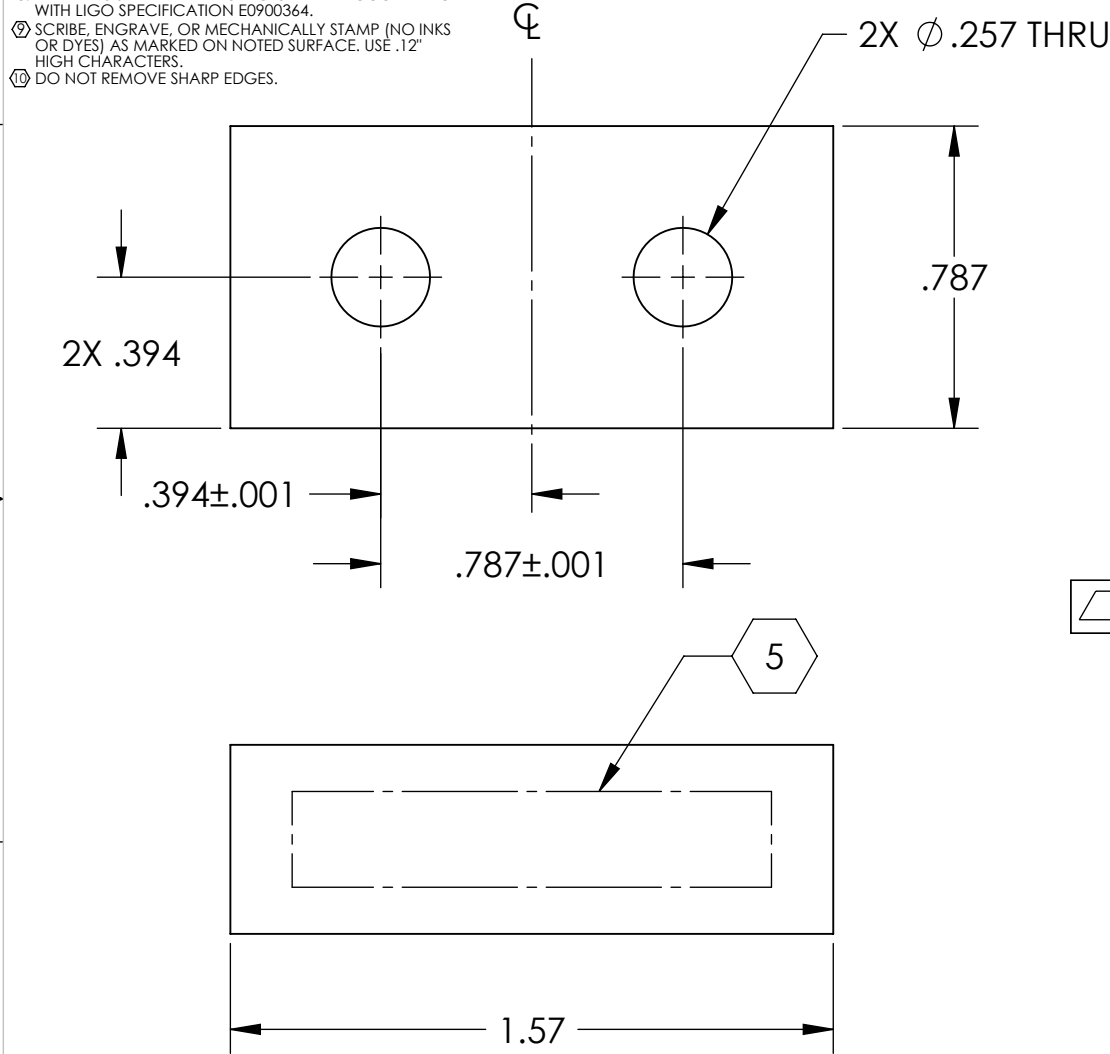
PART NAME
UPPER BLADE CLAMP, LOWER SIDE ANGLED 2.5 DEGREE

DESIGNER C. TORRIE	01 MAY 2002	SIZE A	DWG. NO. D030464	REV. v2
DRAFTER B. MOORE	25 MAY 2010			
CHECKER M. MEYER	01 JUN 2010			
APPROVAL		SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

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 101 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 = 0.154 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.
- 10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX \pm .03
.XXX \pm .005

ANGULAR \pm 0.2°

- 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 304, 316 OR 302 SSSL
FINISH 32 μ inch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY D020677

PART NAME UPPER BLADE CLAMP, LOWER SIDE ANGLED 3.0 DEGREE

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	25 MAY 2010	A	D030465	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

NOTES CONTINUED:

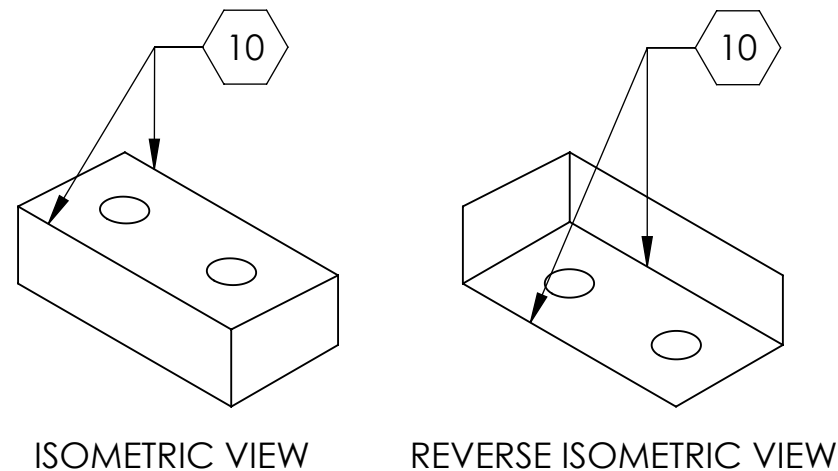
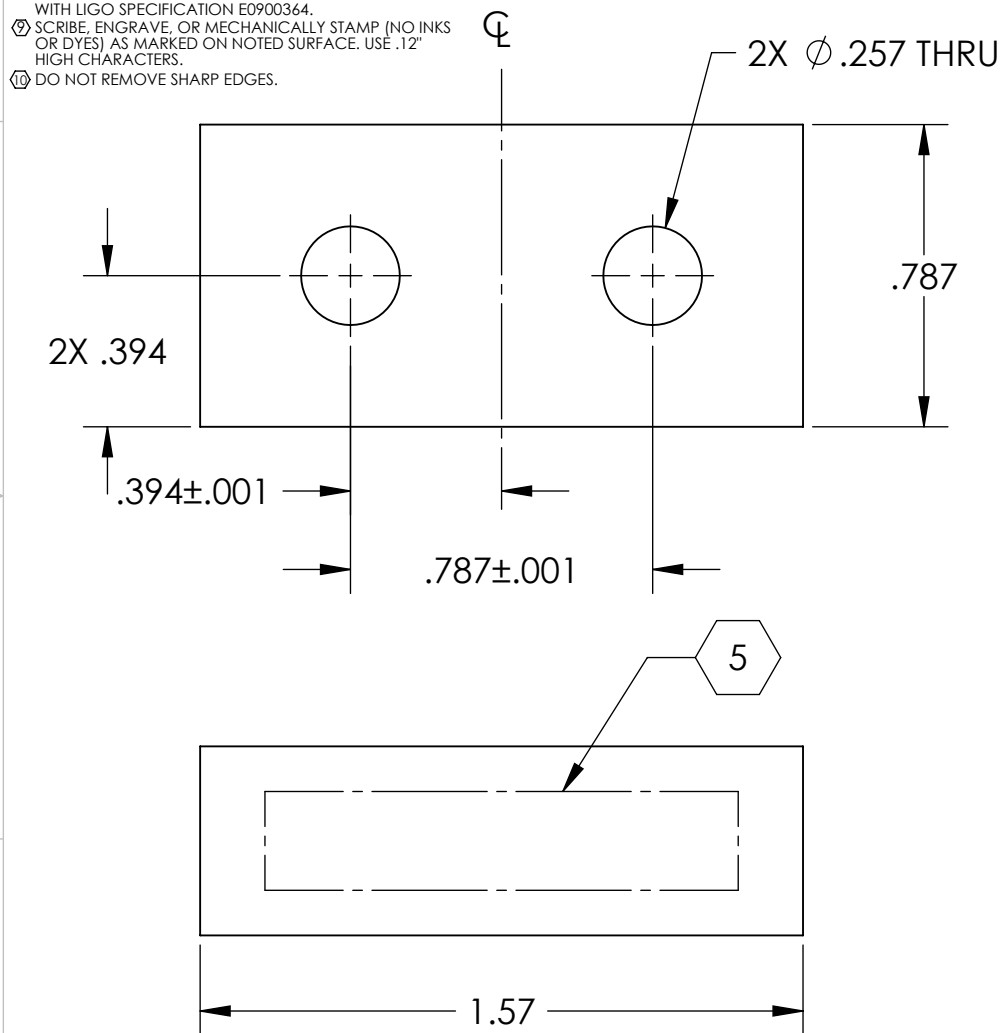
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.153 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. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) AS MARKED ON NOTED SURFACE. USE .12" HIGH CHARACTERS.

10. DO NOT REMOVE SHARP EDGES.

REV.	DATE	DCN #	DRAWING TREE #
A	24 JUN 2004	E040303-00	-
v1	21 APR 2009	E0900107-v1	-
v2	25 JUN 2010	E0900424	E0900353



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020677**

PART NAME **UPPER BLADE CLAMP, LOWER SIDE ANGLED 3.5 DEGREE**

DESIGNER	C. TORRIE	01 MAY 2002	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	26 MAY 2010	A	D030466	v2
CHECKER	M. MEYER	01 JUN 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

4

3

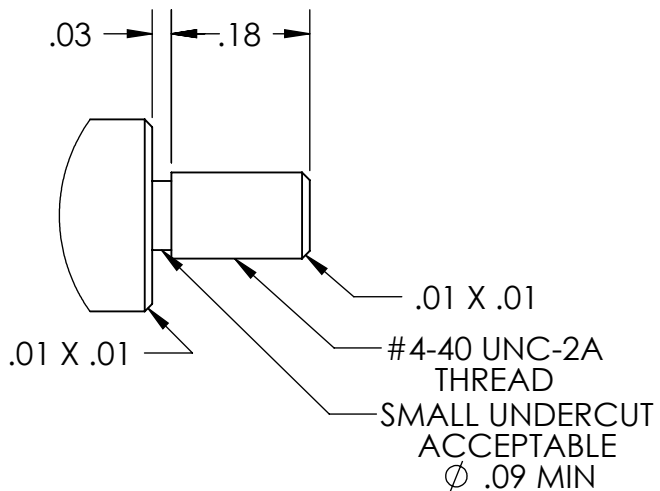
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1

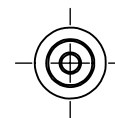
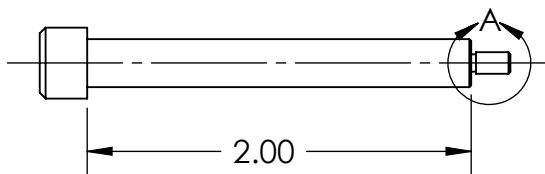
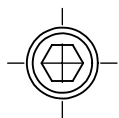
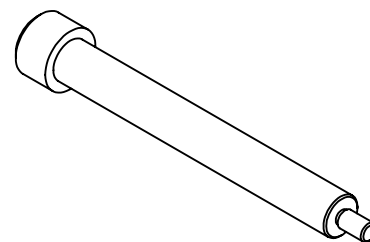
NOTES CONTINUED:

- 5. BAG ALL ITEMS INDIVIDUALLY AND MARK OR TAG EACH BAG WITH DRAWING NUMBER, REVISION, AND QUANTITY. EXAMPLE: DXXXXXX-VY, QTY: 1
- 6. PART IS TO BE FABRICATED FROM STOCK 1/4-20 UNC-2A SOCKET HEAD CAP SCREW, FULLY THREADED.

REV.	DATE	DCN #	DRAWING TREE #
v1	3 MAR 2009	E0900066	-
-	-	-	-
-	-	-	-



DETAIL A
SCALE 4 : 1



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .01
 .XXX ± .005

ANGULAR ± 0.1°

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 SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CINCINNATI MILACRON'S CIMTECH 410.

MATERIAL 300 SSSL FINISH N/A μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **MULTIPLE ASSYS**

PART NAME **EARTHQUAKE STOP ADJUSTER AND MOUNT, 2 INCH**

DESIGNER	D. BRIDGES	6 MAY 2009	SIZE	DWG. NO.	REV.
DRAFTER	D. BRIDGES	15 MAY 2009	A	D0900906	v1
CHECKER	M. MEYER	15 MAY 2009	SCALE: 1:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

4

3

2

1

4

3

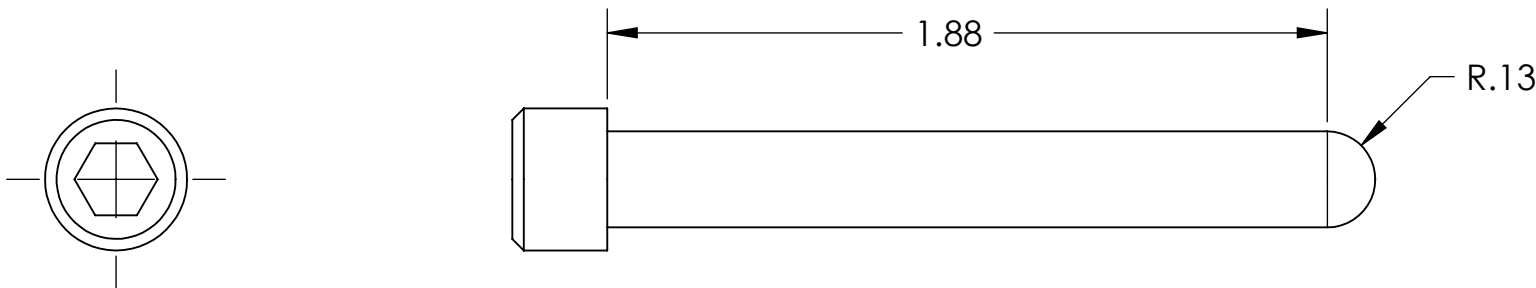
2

1

NOTES CONTINUED:

- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.
EXAMPLE (PART): 001-v1
EXAMPLE (TAG): DXXXXXX-VY, TYPE-XX, QTY: TBD
- 6. PART IS TO BE MADE FROM STOCK SOCKET HEAD CAP SCREW, 1/4-20 UNC-2A, FULLY THREADED.

REV.	DATE	DCN #	DRAWING TREE #
v1	12 AUG 2009	E0900239	-
v2	30 DEC 2009	E0900505	-
-	-	-	-



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .01
.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: 300 SSSL
FINISH: N/A μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: ADVANCED LIGO
SUB-SYSTEM: MULTIPLE ASSYS
NEXT ASSY:

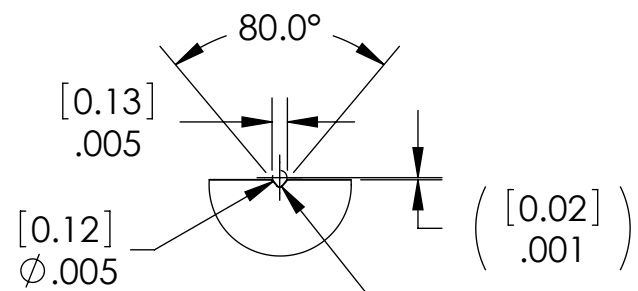
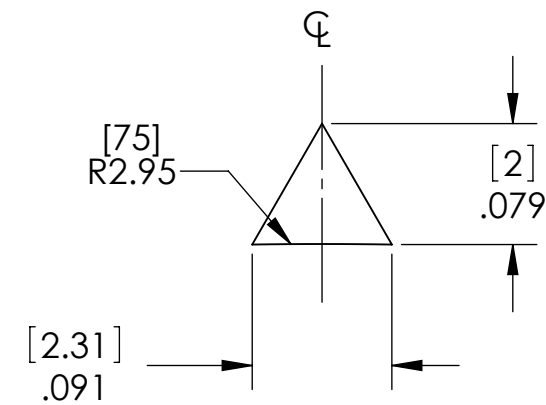
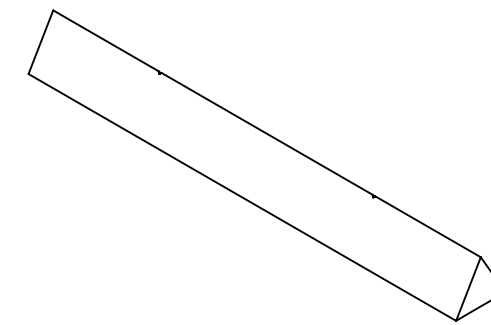
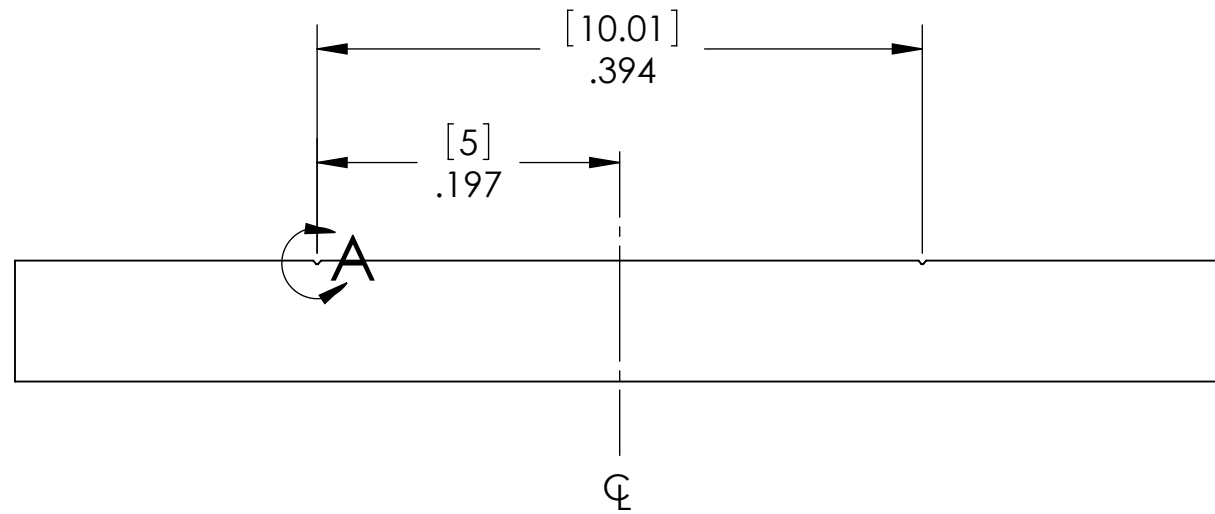
PART NAME: SCREW, SOCKET HEAD CAP,
1/4-20 UNC-2A X 2 LONG, FULLY THREADED, ROUNDED END

DESIGNER	D. BRIDGES	12 AUG 2009	SIZE	DWG. NO.	REV.
DRAFTER	D. BRIDGES	24 FEB 2010	A	D0900999	v2
CHECKER	M. MEYER	24 FEB 2010	SCALE: 2:1 PROJECTION:		
APPROVAL			SHEET 1 OF 1		

D0901278_AdvLIGO_HSTS_Secondary Metal Prism, PART PDM REV: V1, DRAWING PDM REV: V1

NOTES CONTINUED:
 ⑤ SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.
 EXAMPLE (PART): XXX-V1
 EXAMPLE (TAG): DXXXXXX-VY, TYPE-XX, QTY: TBD

REV.	DATE	DCN #	DRAWING TREE #
v1	30 DEC 2009	E0900507	E0900353
-	-	-	-
-	-	-	-

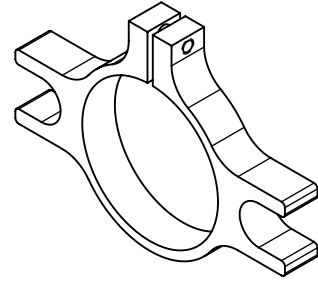
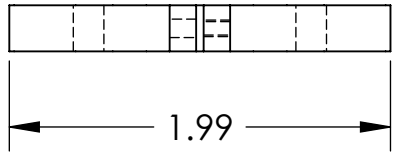


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME					
DIMENSIONS ARE IN INCHES TOLERANCES: .XX ± .01 .XXX ± .005 ANGULAR ± 0.5°				1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		ADVANCED LIGO		SUS		HSTS SECONDARY METAL PRISM	
MATERIAL 304, 316 OR 302 SSSL		FINISH 32 μinch		NEXT ASSY MULTIPLE		DESIGNER M. MEYER		DATE 17 JUN 2009		SIZE DWG. NO. B	
				DRAFTER B. MOORE		DATE 13 JAN 2010		SCALE 8:1		PROJECTION 	
				CHECKER M. MEYER		DATE 14 JAN 2010		DWG. NO. D0901278		REV. v1	
				APPROVAL				SHEET 1 OF 1			

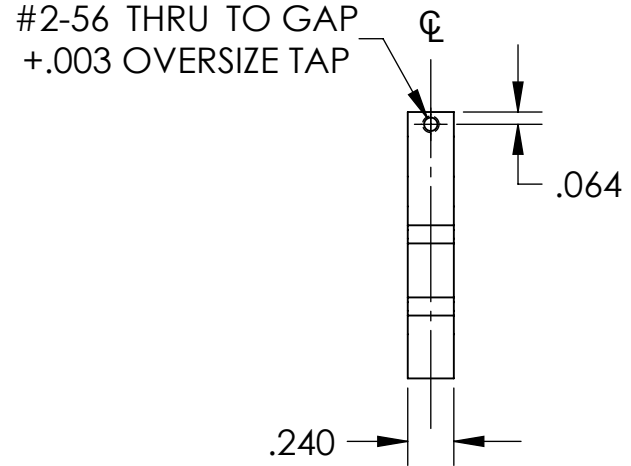
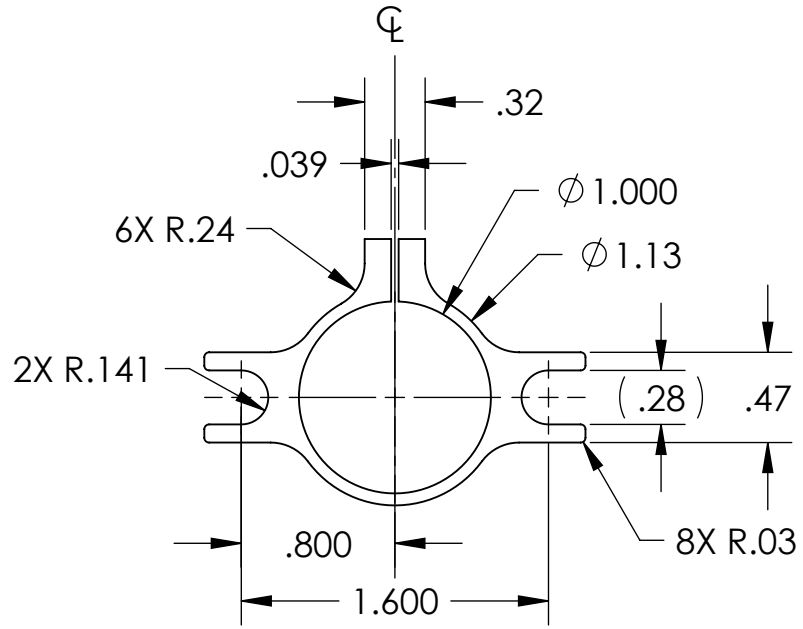
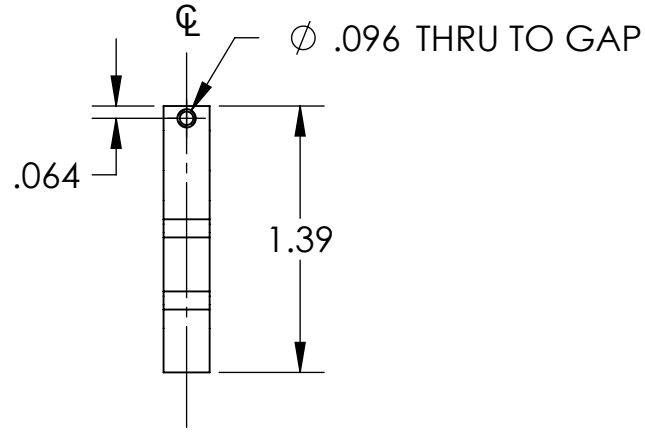
D0901548_Advanced_LIGO_SUS_AOSEM_Adjustment_Collar, PART PDM REV: V1-002, DRAWING PDM REV: V1-003

NOTES CONTINUED:
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.
 EXAMPLE (PART): XXX-v1
 EXAMPLE (TAG): DXXXXXX-VY, TYPE-XX, QTY: TBD
 6. APPROXIMATE WEIGHT = 0.198 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	17 AUG 2009	E0900243	-
v2	01 JUN 2010	E0900505	E0900353
-	-	-	-



ISOMETRIC VIEW

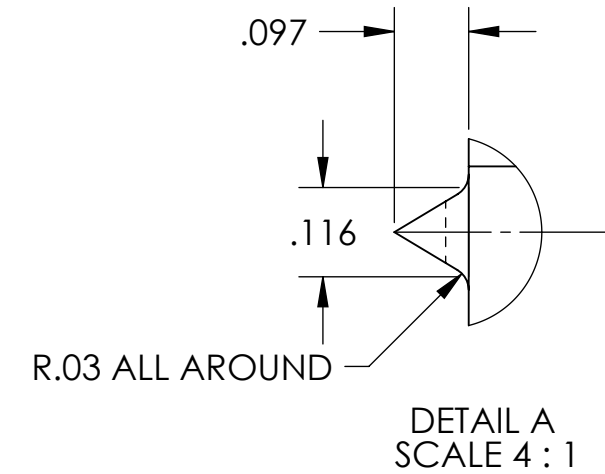
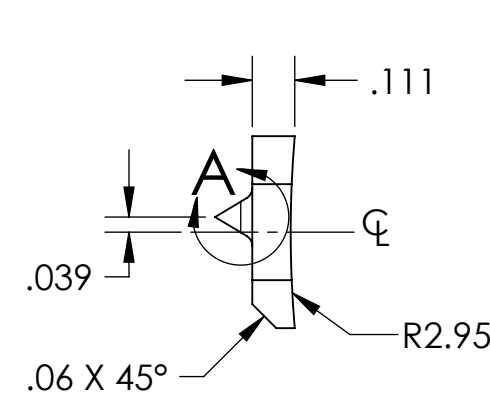
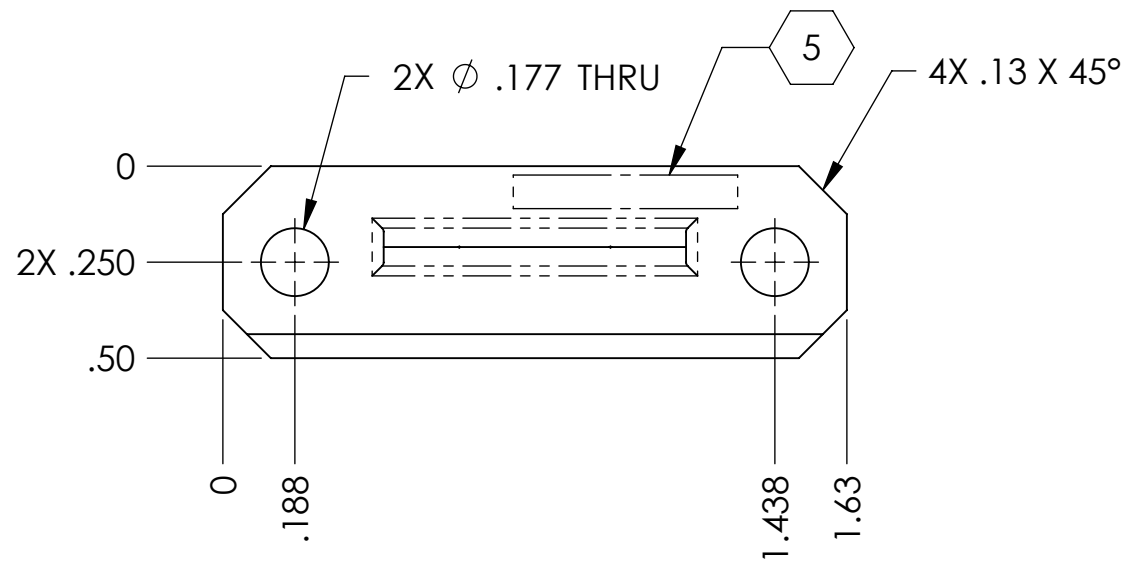
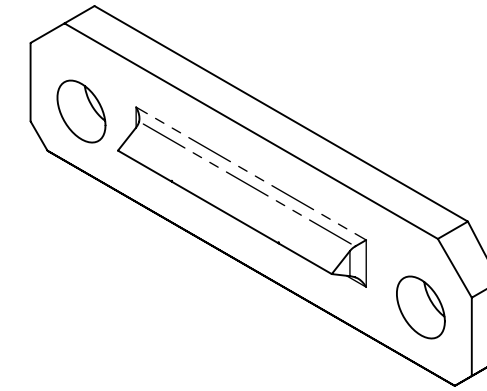
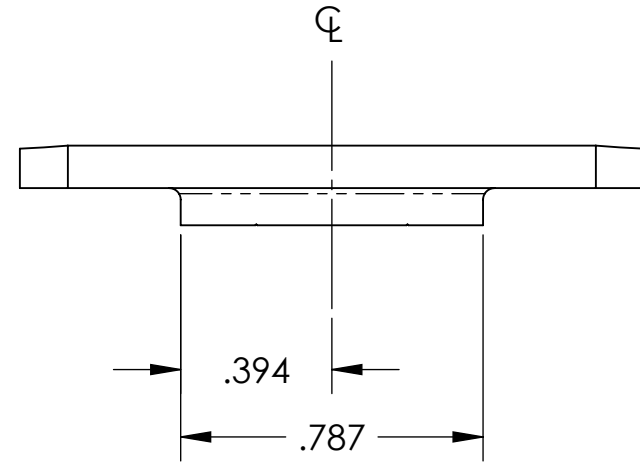


NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.		ADVANCED LIGO		AOSEM ADJUSTMENT COLLAR	
TOLERANCES: .XX ± .01 .XXX ± .005		MATERIAL 6061-T6 Al		SUB-SYSTEM SUS		DESIGNER B. MOORE 18 AUG 2009	
ANGULAR ± 0.5°		FINISH 32 μinch		NEXT ASSY MULTIPLE ASSYS		DRAFTER B. MOORE 18 AUG 2009	
				CHECKER D. BRIDGES 18 AUG 2009		SIZE DWG. NO. B D0901548	
				APPROVAL		REV. v2	
				SCALE: 1:1		PROJECTION: SHEET 1 OF 1	

D0901790_AdvLIGO_SUS_HSTS_Primary Metal Breakoff Prism, PART PDM REV: V1, DRAWING PDM REV: V1

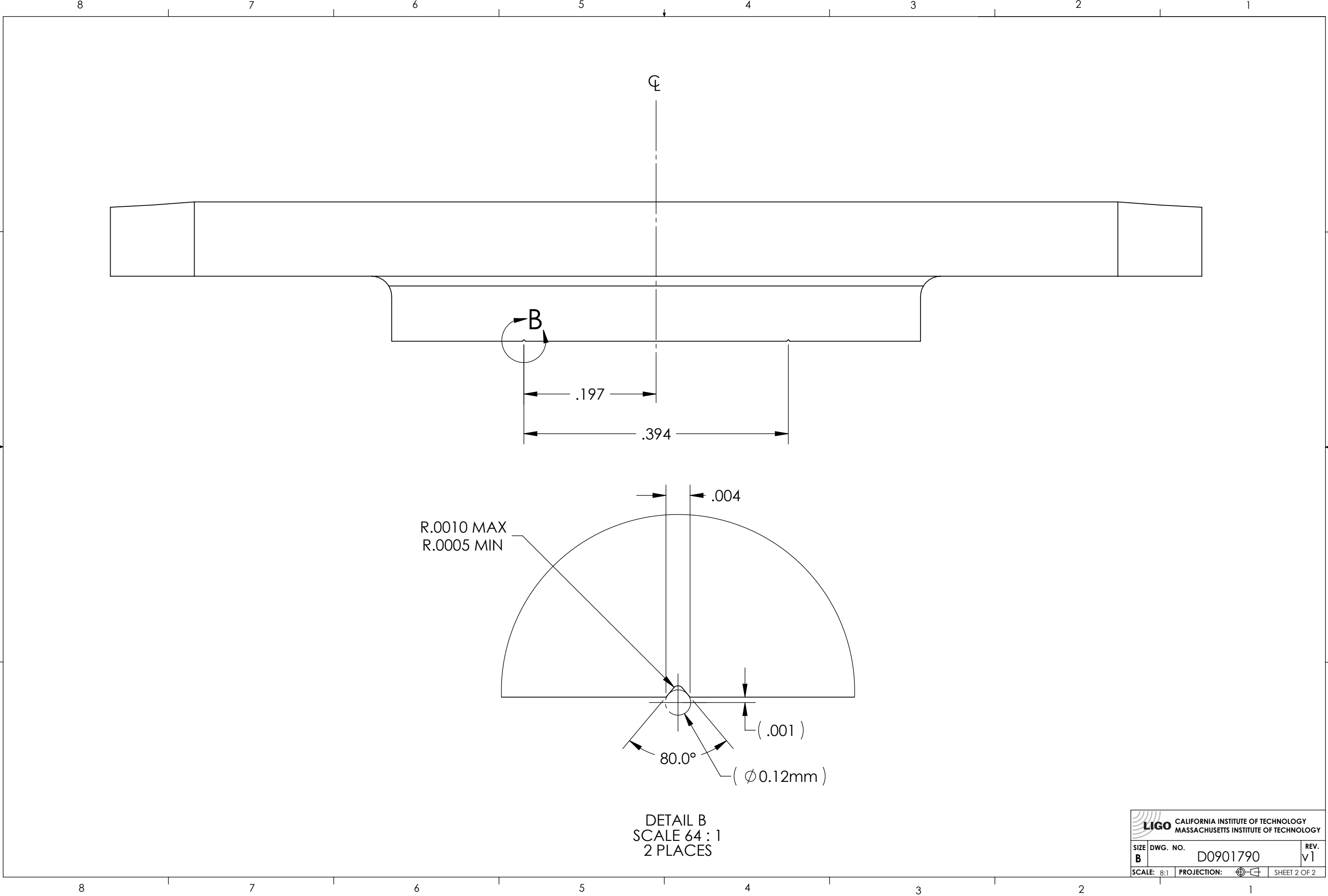
NOTES CONTINUED:
 ⑤ SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. 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

REV.	DATE	DCN #	DRAWING TREE #
v1	30 DEC 2009	E0900507	E0900353
-	-	-	-
-	-	-	-





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 SUS		PRIMARY METAL BREAKOFF PRISM, HSTS					
TOLERANCES: .XX $\pm .01$.XXX $\pm .005$		MATERIAL 304, 316 OR 302 SSSL		FINISH 32 μinch		NEXT ASSY D0901791		DESIGNER M. MEYER	17 AUG 2009	SIZE B	DWG. NO. D0901790	REV. v1	
ANGULAR $\pm 0.5^\circ$								CHECKER M. MEYER	14 JAN 2010	SCALE: 2:1		PROJECTION:	SHEET 1 OF 2

D0901790_AdvLIGO_SUS_HSTS_Primary_Metal_Breakoff_Prism, PART PDM REV: V1, DRAWING PDM REV: V1

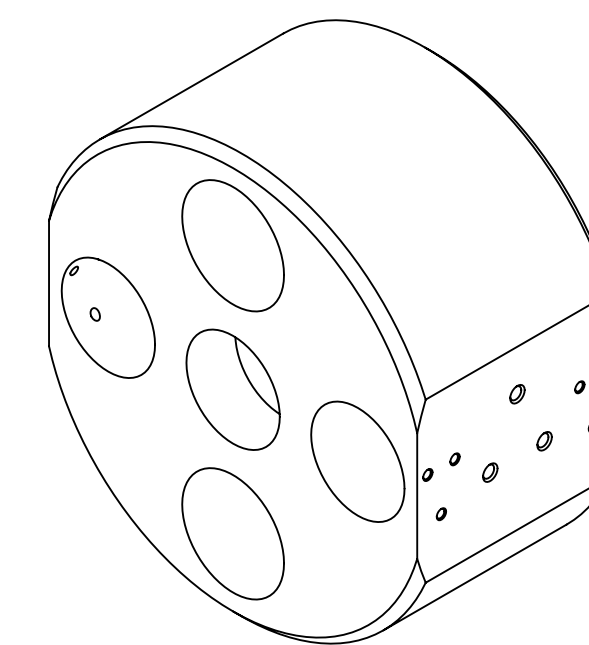
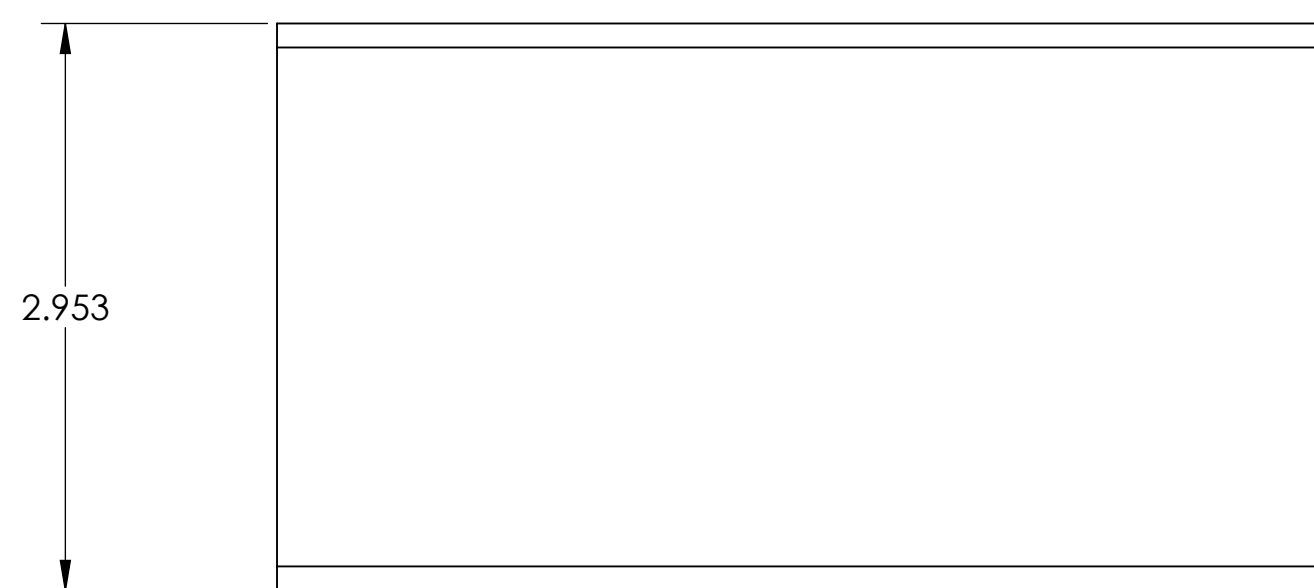


DETAIL B
SCALE 64 : 1
2 PLACES

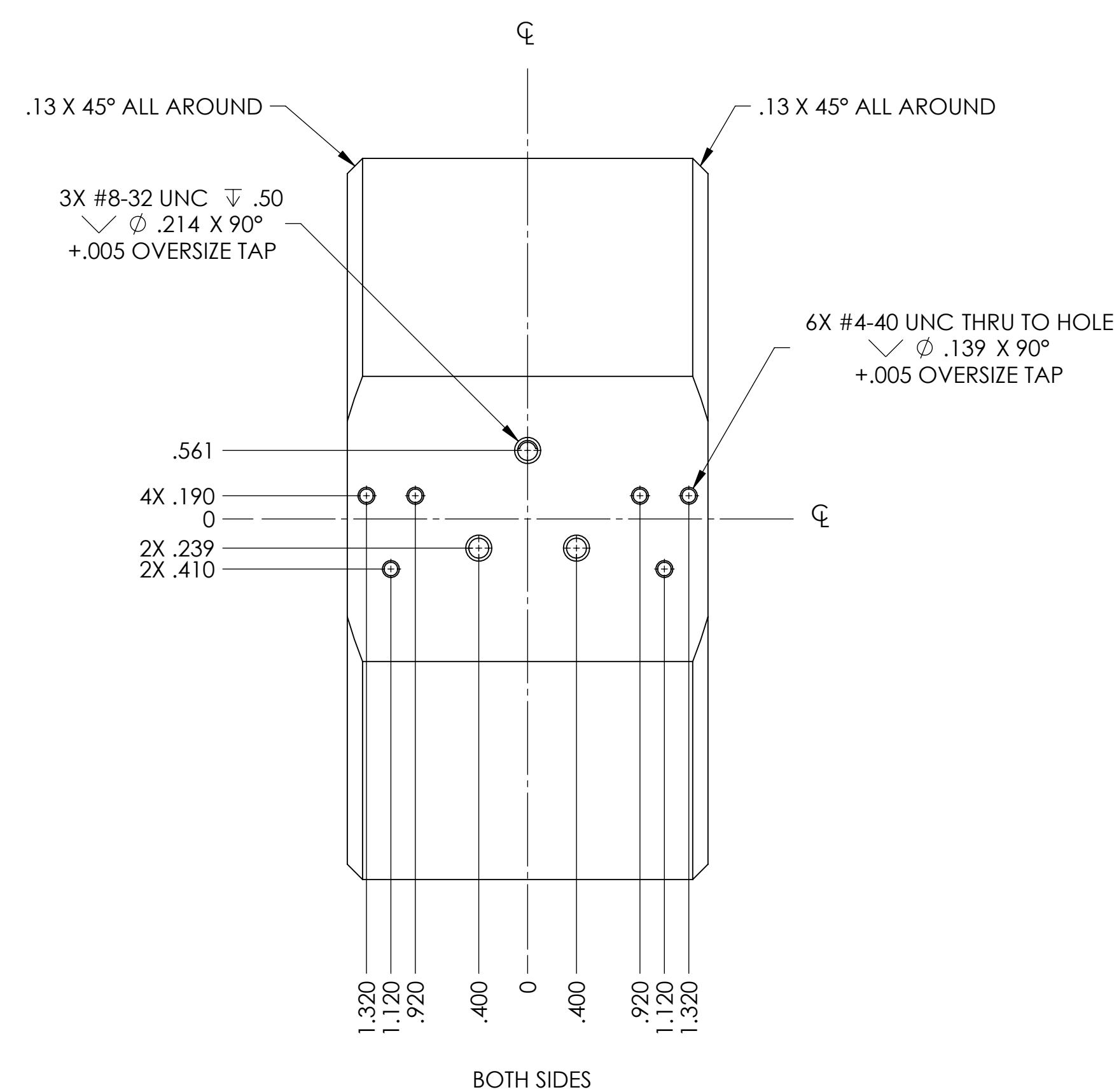
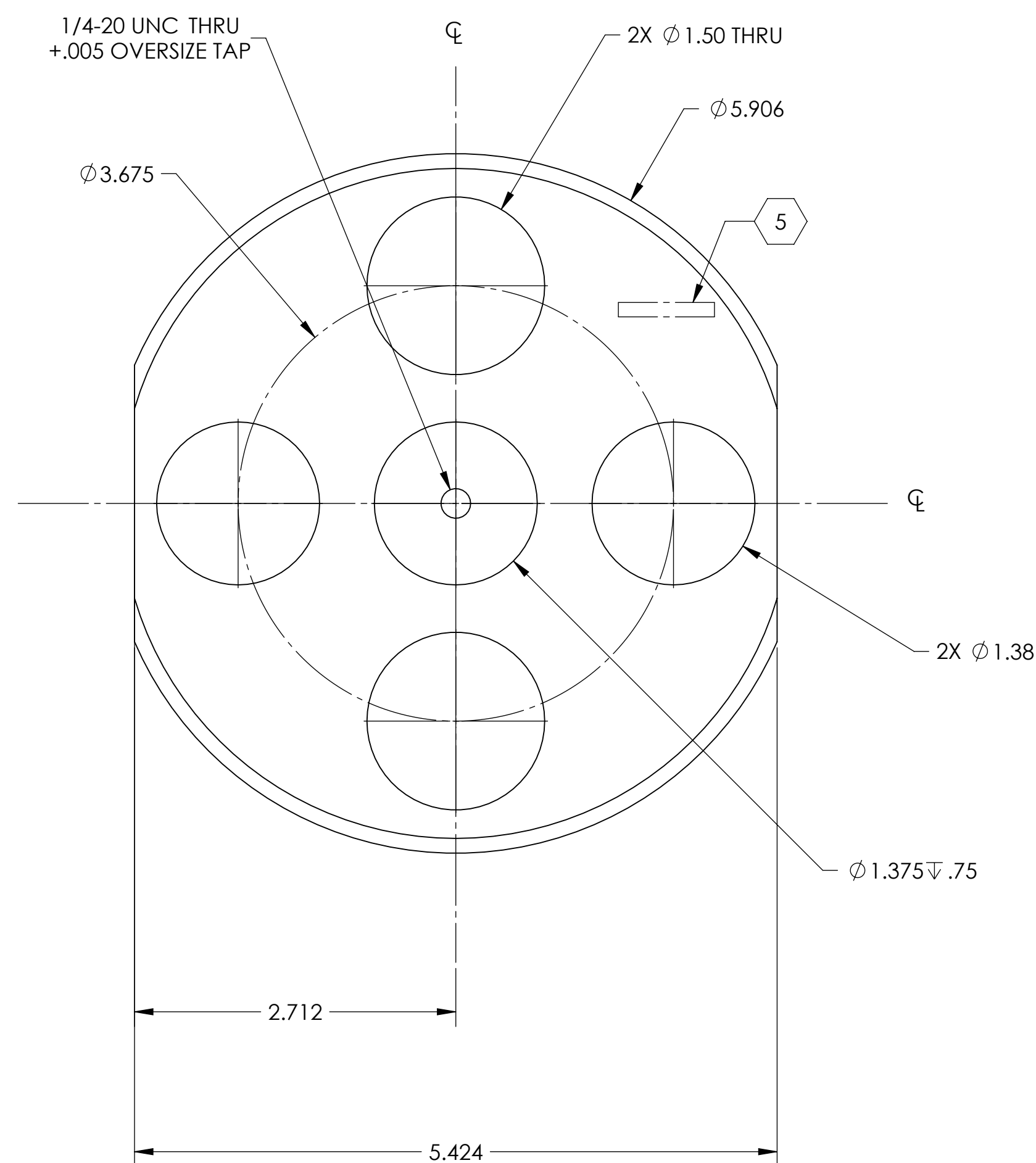
 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
SIZE B	DWG. NO. D0901790	REV. v1
SCALE: 8:1	PROJECTION: 	SHEET 2 OF 2

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 101 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 = 5.552 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	30 DEC 2009	E0900503	E0900353
v2	17 JUN 2010	E1000219	E0900353
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .01 .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	FINISH
6061-T6 Al	32 μinch

 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	PART NAME	
	INTERMEDIATE MASS, HSTS	
SYSTEM	SUB-SYSTEM	DESIGNER
ADVANCED LIGO	SUS	M. MEYER
NEXT ASSY		DRAFTER
D020700		B. MOORE
		CHECKER
		M. MEYER
		APPROVAL

DATE	10 AUG 2009	SIZE	DWG. NO.	REV.
DESIGNER	M. MEYER	SCALE	D	D0901792
DRAFTER	B. MOORE	PROJECTION		v2
CHECKER	M. MEYER			
APPROVAL				
SCALE: 1:1		PROJECTION:		SHEET 1 OF 1

D0901792_A01.dwg; HSTS; Intermediate Mass; PART PDM REV: V1-001; DRAWING PDM REV: V1-000

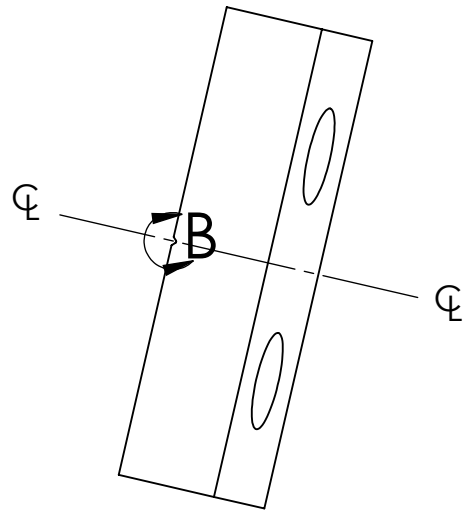
NOTES CONTINUED:

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 101 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

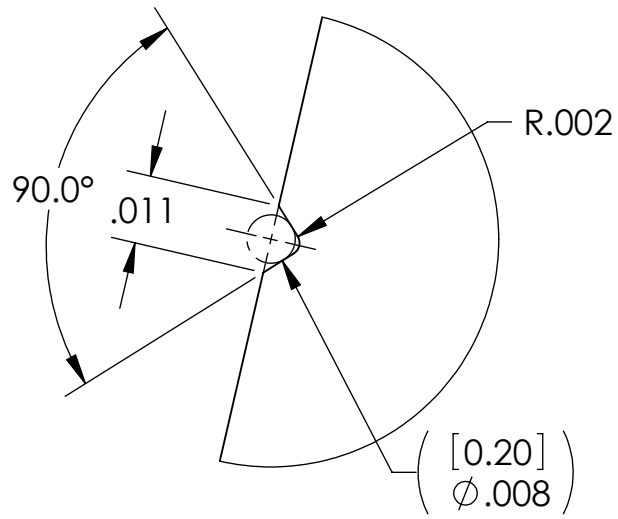
6. DO NOT BREAK INDICATED SHARP EDGES.

7. APPROXIMATE WEIGHT = 0.008 LB.
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.

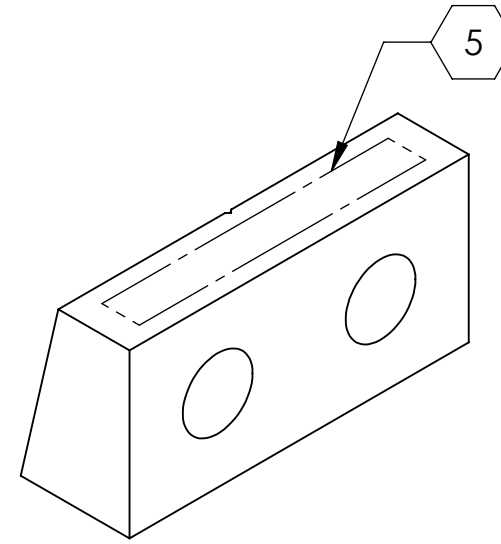
REV.	DATE	DCN #	DRAWING TREE #
v1	01 JUN 2010	E0900500	E0900353
-	-	-	-
-	-	-	-



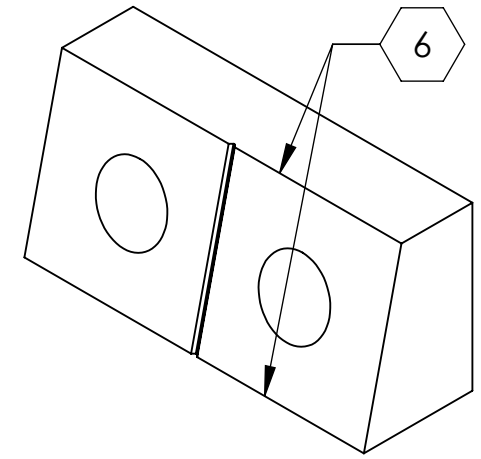
VIEW A-A



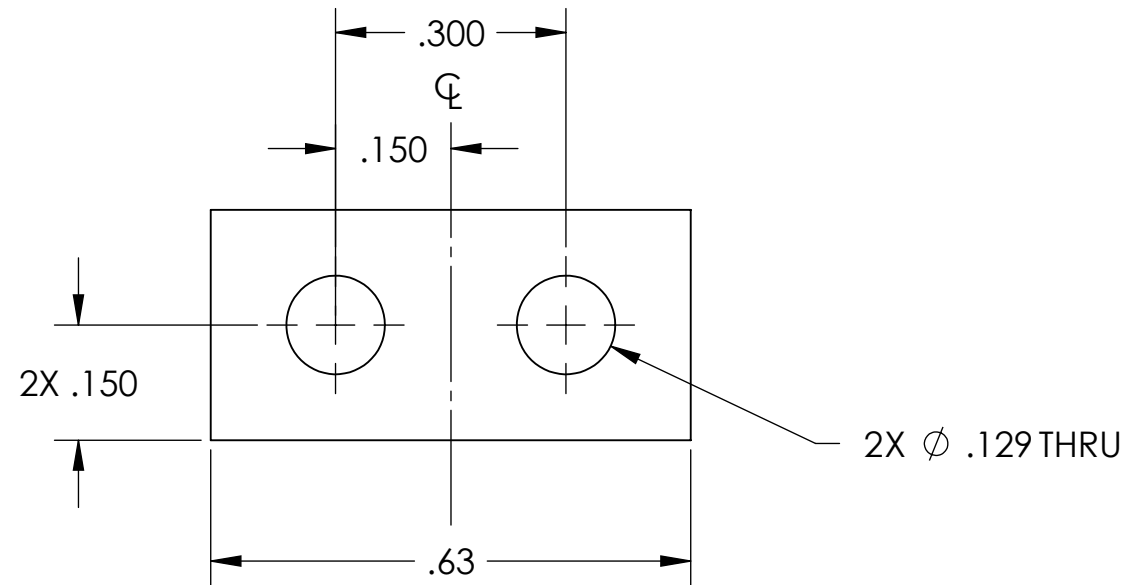
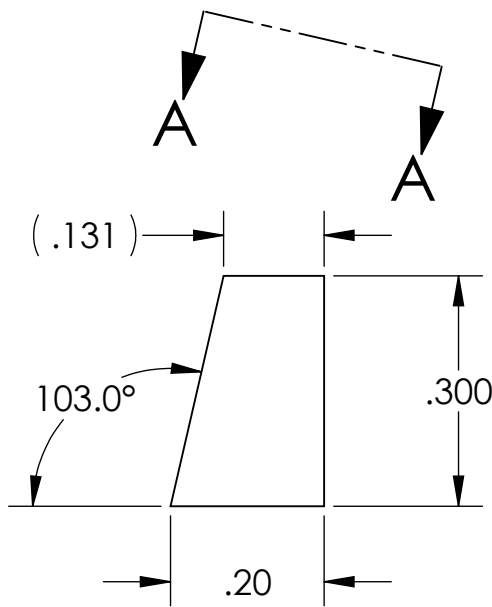
DETAIL B
SCALE 32 : 1



ISOMETRIC VIEW



REVERSE ISO VIEW



D0901903_AdvLIGO_SUS_HSTS_Intermediate Wire Clamp (Lower), PART PDM REV: X-005, DRAWING PDM REV: X-009

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

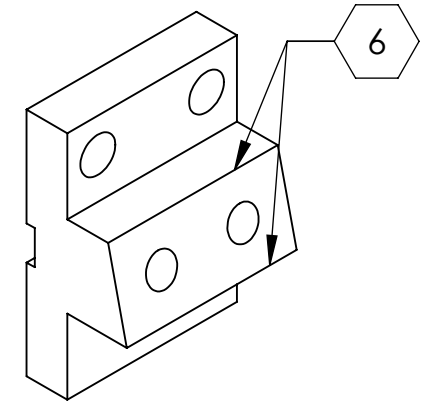
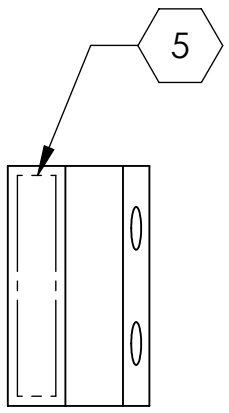
DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .01 .XXX ± .005 ANGULAR ± 0.5°	
MATERIAL	FINISH
304, 316 OR 302 SSSL	32 μinch

 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	PART NAME	
	INTERMEDIATE WIRE CLAMP, OUTSIDE, HSTS	
	SYSTEM	SUB-SYSTEM
ADVANCED LIGO	SUS	DESIGNER
NEXT ASSY	D0901905	M. MEYER
		DRAFTER
		B. MOORE
		CHECKER
		M. MEYER
		APPROVAL

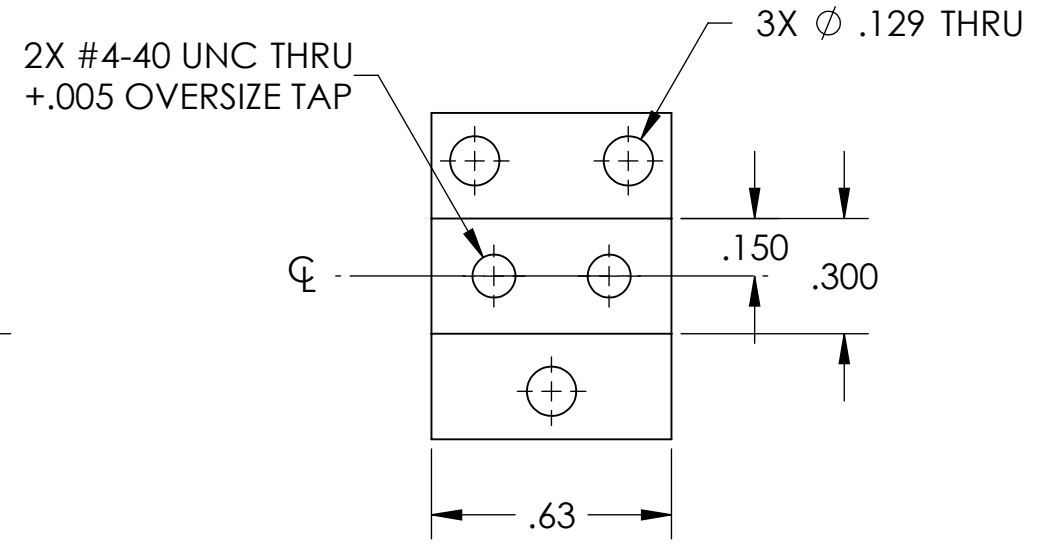
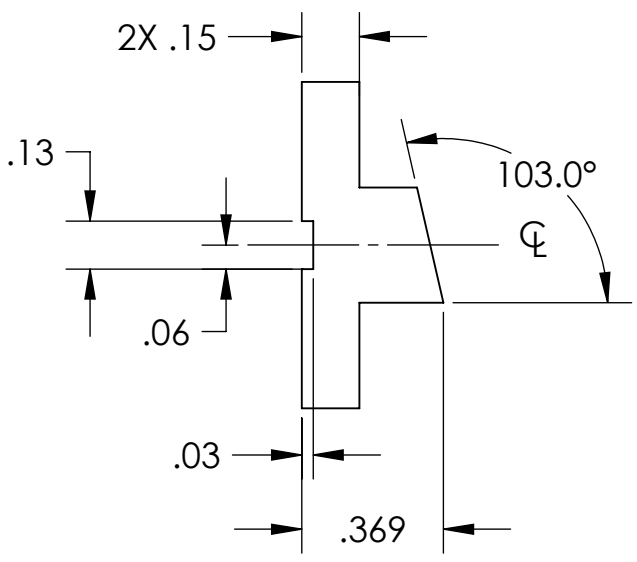
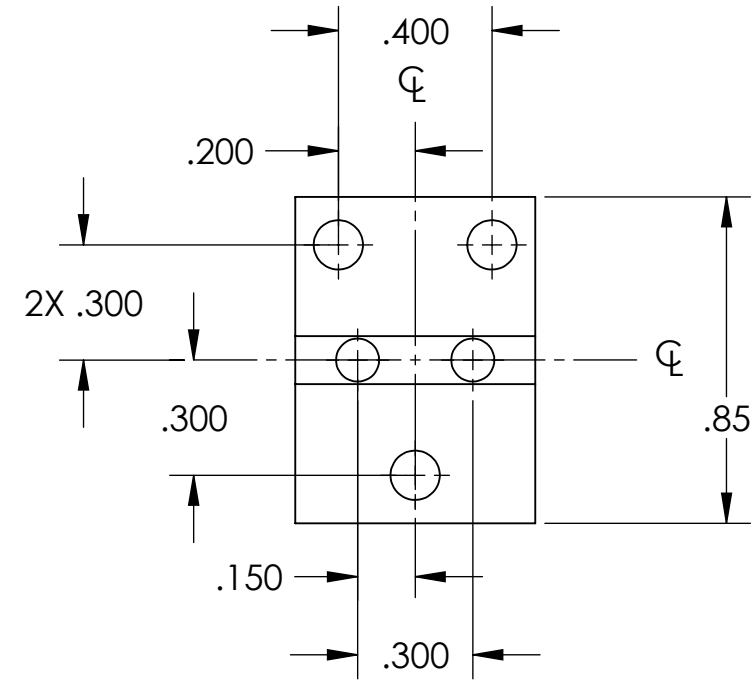
DATE	01 SEP 2009	SIZE	DWG. NO.	REV.
DESIGNER	M. MEYER	B	D0901903	v1
DRAFTER	B. MOORE			
CHECKER	M. MEYER			
APPROVAL				
		SCALE: 4:1	PROJECTION:	SHEET 1 OF 1

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 101 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. DO NOT BREAK INDICATED SHARP EDGES.
 7. APPROXIMATE WEIGHT = 0.029 LB.
 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	09 JUN 2010	E0900500	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



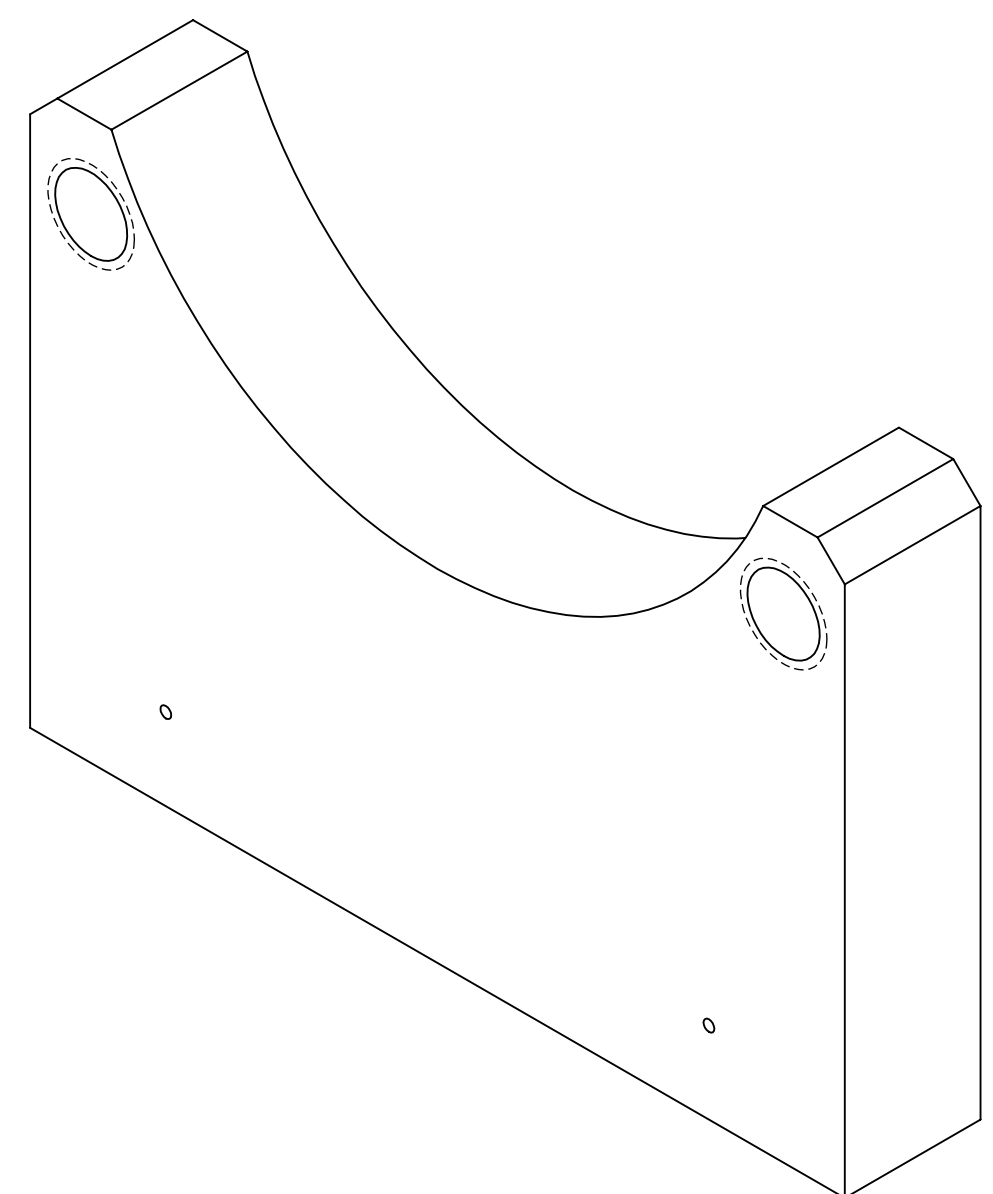
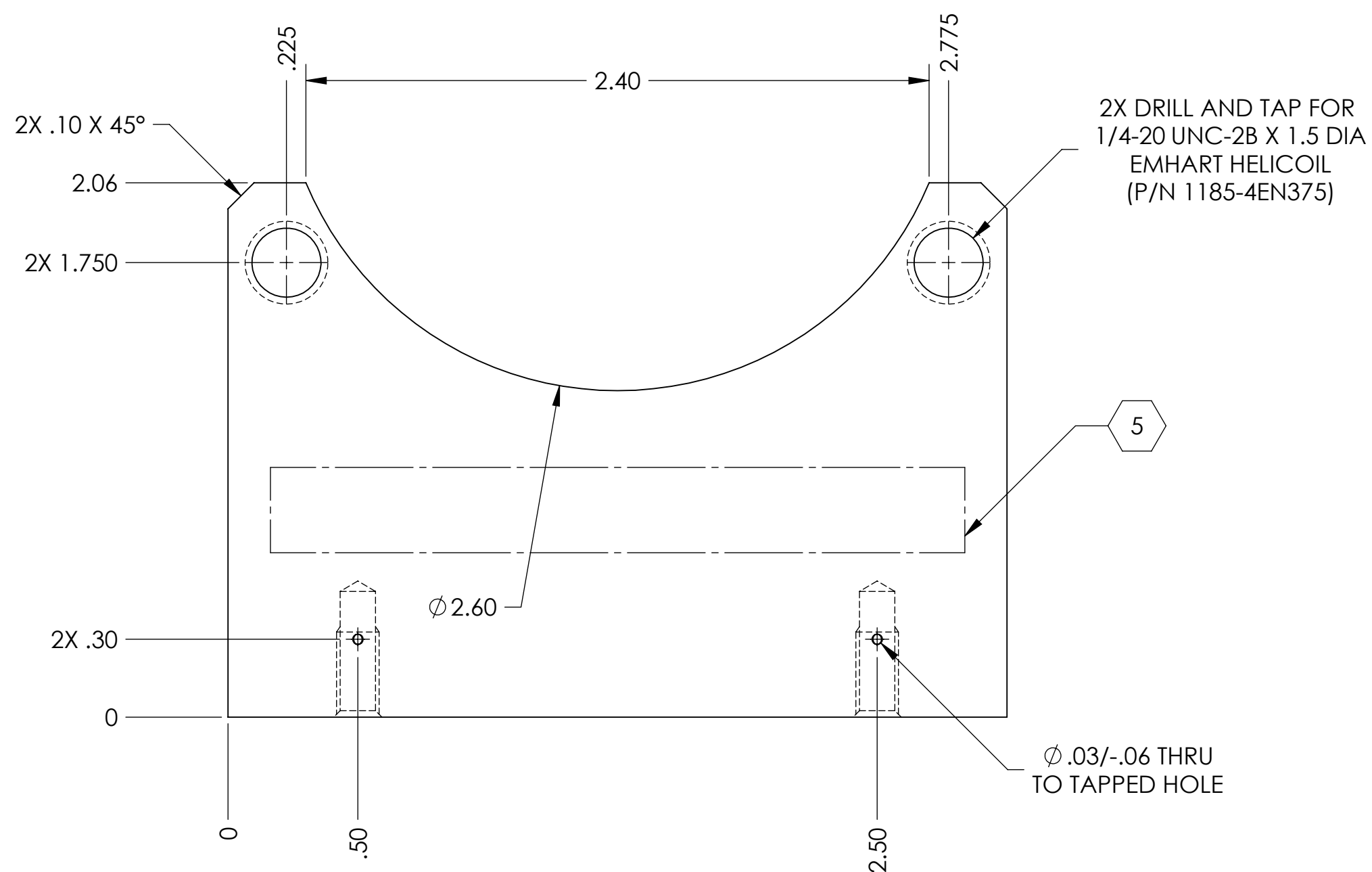
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO		PART NAME	
DIMENSIONS ARE IN INCHES TOLERANCES: .XX ± .03 .XXX ± .005 ANGULAR ± 0.5°				CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		INTERMEDIATE WIRE CLAMP MOUNT (LOWER), HSTS	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, EXCEPT WHERE INDICATED. 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 SUS	
MATERIAL 304, 316 OR 302 SSSL				FINISH 32 μinch		NEXT ASSY D0901905	
		DESIGNER M. MEYER		DATE 01 SEP 2009		SIZE DWG. NO. B D0901904	
		DRAFTER B. MOORE		DATE 27 JAN 2010		REV. v1	
		CHECKER M. MEYER		DATE 28 JAN 2010		SCALE: 2:1 PROJECTION:	
		APPROVAL		SHEET 1 OF 1			

D0901904_AdvLIGO_SUS_HSTS_Intermediate Wire Clamp Mount (Lower), PART PDM REV: X-006, DRAWING PDM REV: X-006

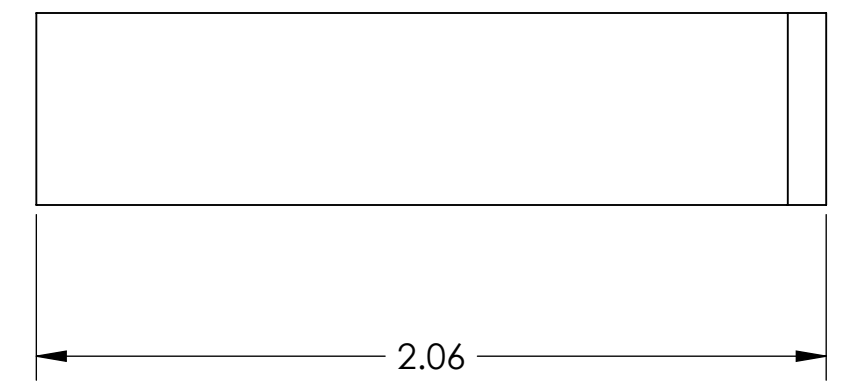
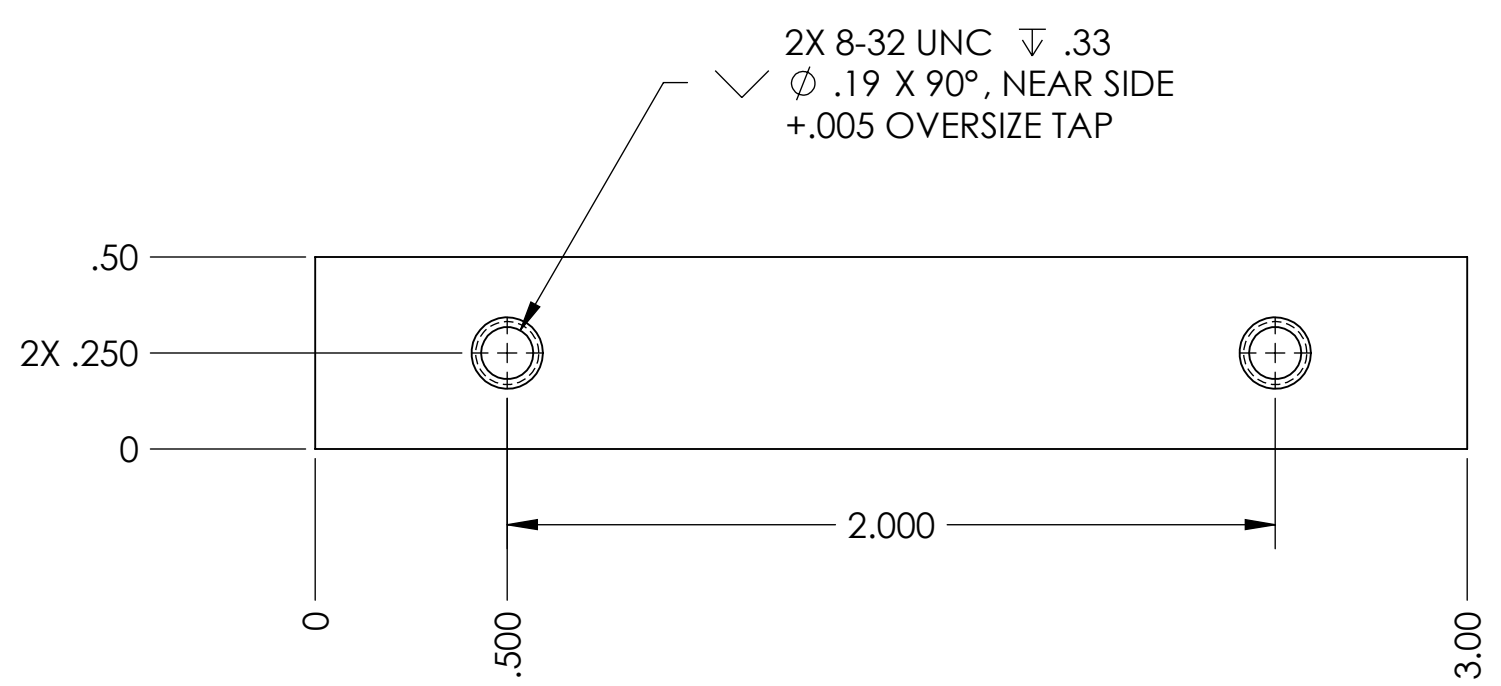
NOTES CONTINUED:

- 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 101 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 = 0.226 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	16 JUN 2010	E0900504	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

- 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	32 μ inch
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LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

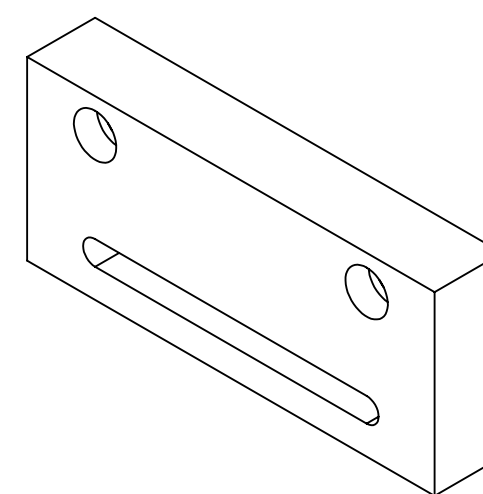
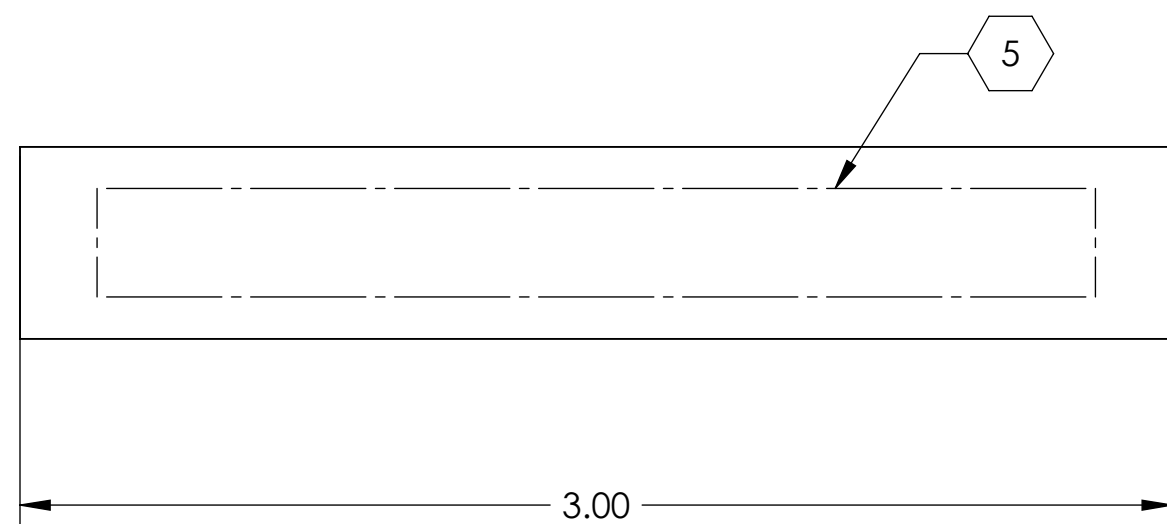
SYSTEM	ADVANCED LIGO	SUB-SYSTEM	SUS
NEXT ASSY	D0902205		

PART NAME				FACE EQ STOP BRACKET, HSTS LOWER MASS			
DESIGNER	W. RASCH	10 OCT 2009	SIZE	DWG. NO.	REV.		
DRAFTER	B. MOORE	18 MAY 2010	c	D0901922	v1		
CHECKER	M. MEYER	01 JUN 2010				SCALE: 2:1	PROJECTION:
APPROVAL							

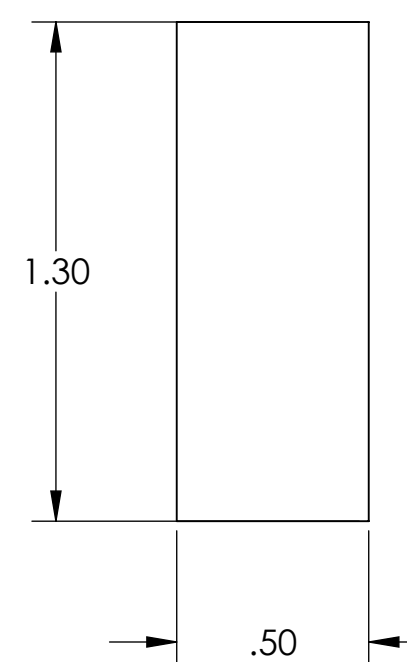
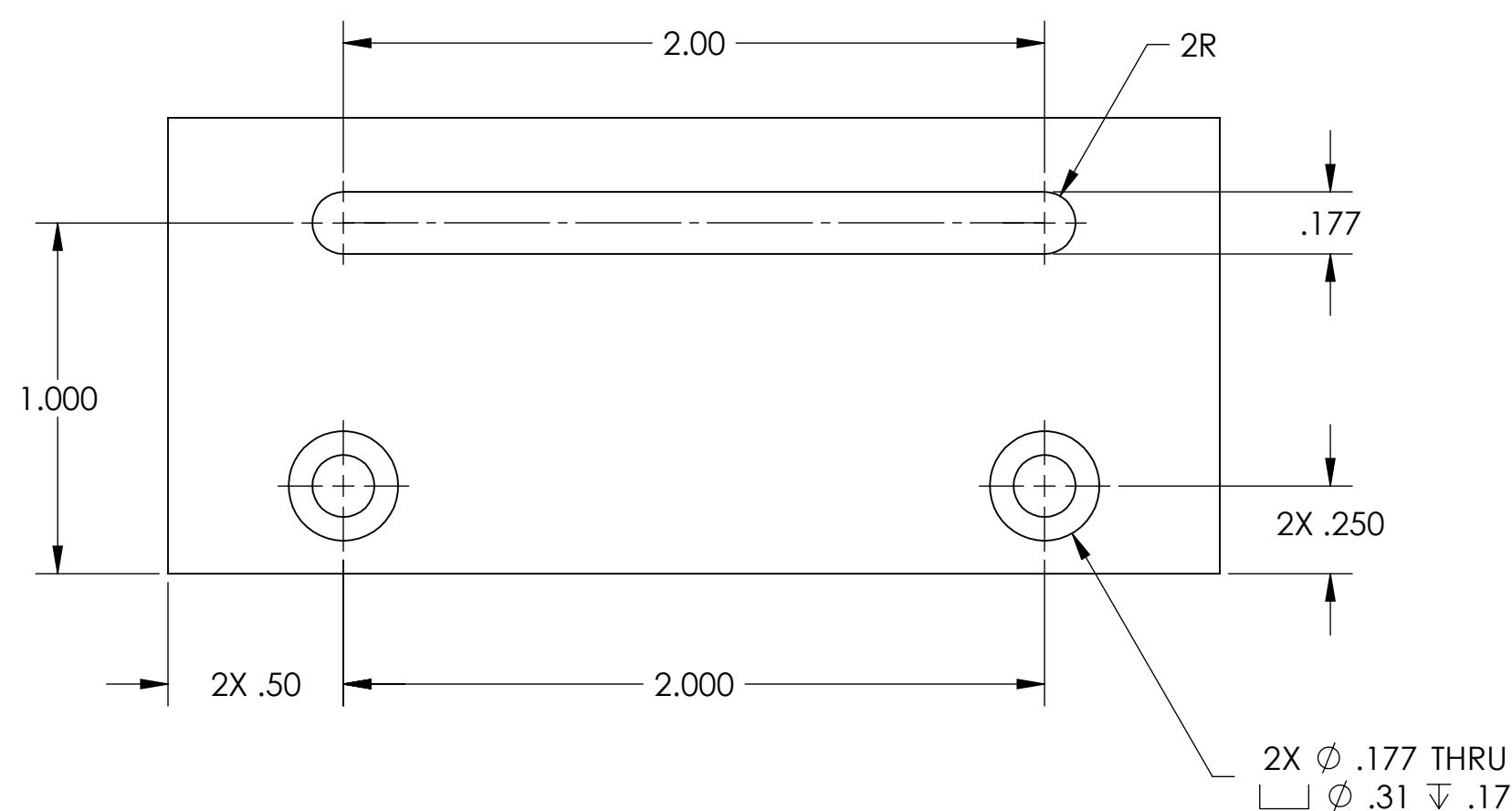
NOTES CONTINUED:

- 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 101 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 = 0.168 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	16 JUN 2010	E0900504	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

- 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: 32 μinch



SYSTEM: ADVANCED LIGO
 SUB-SYSTEM: SUS

NEXT ASSY: MULTIPLE ASSY

PART NAME: HSTS FACE EQ STOP BASE

DESIGNER	W. RASCH	14 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	18 MAY 2010	c	D0901923	v1
CHECKER	M. MEYER	01 JUN 2010			
APPROVAL			SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

DIMENSIONS ARE IN INCHES

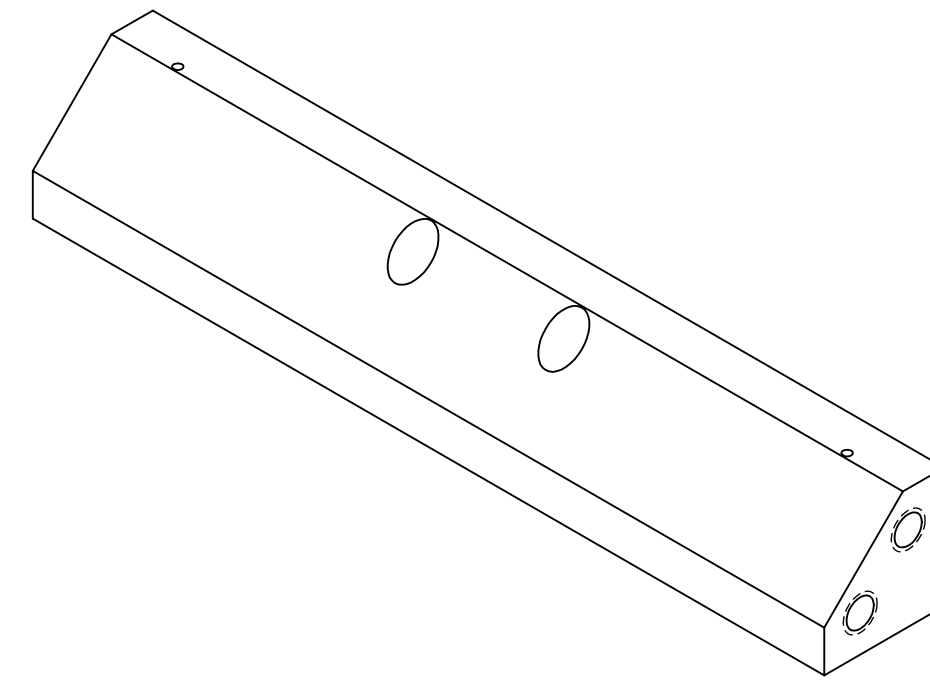
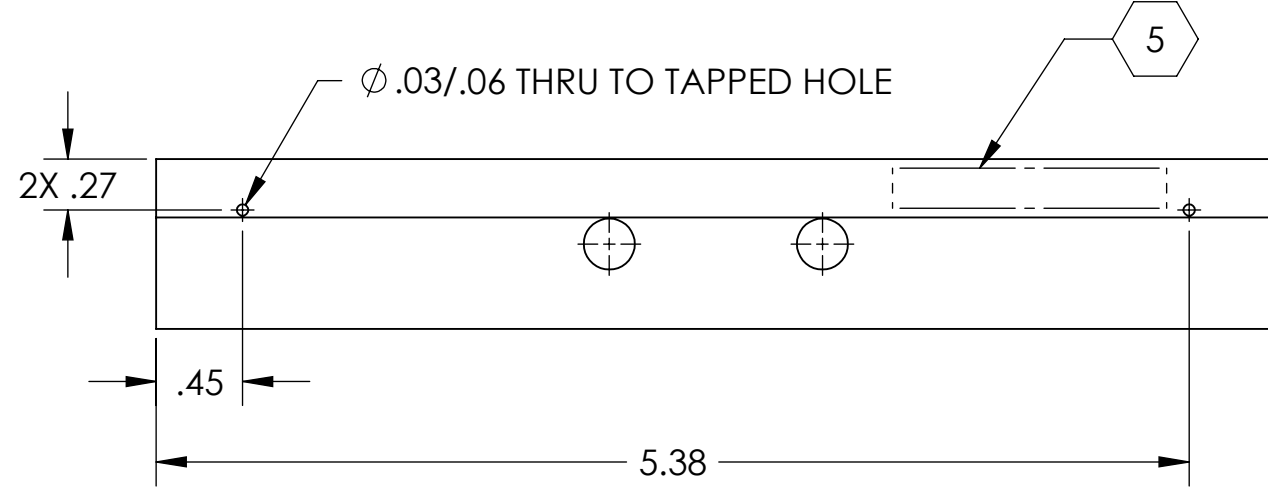
TOLERANCES:
 .XX ± .01
 .XXX ± .005

ANGULAR ± 0.5°

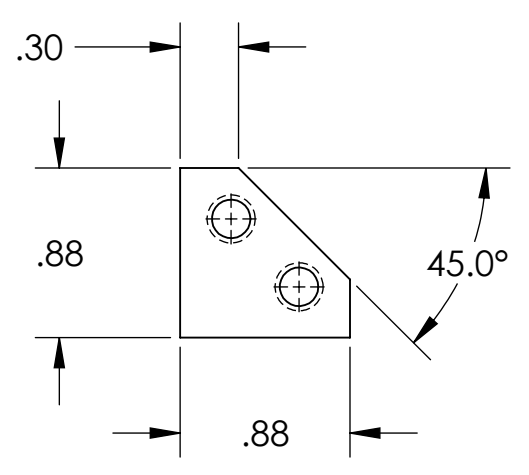
NOTES CONTINUED:

- 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 101 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 = 0.334 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.

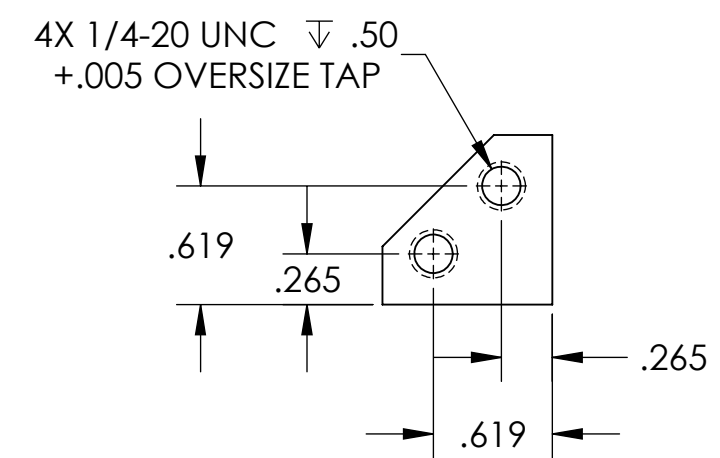
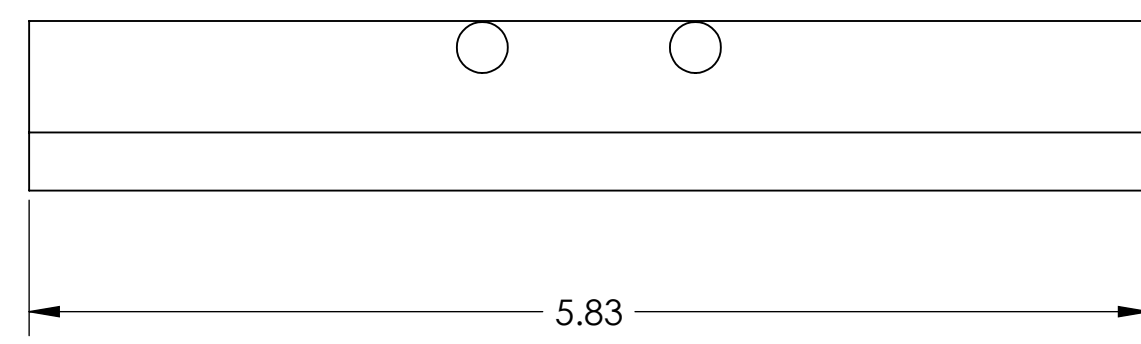
REV.	DATE	DCN #	DRAWING TREE #
v1	16 JUN 2010	E0900504	E0900353
-	-	-	-
-	-	-	-



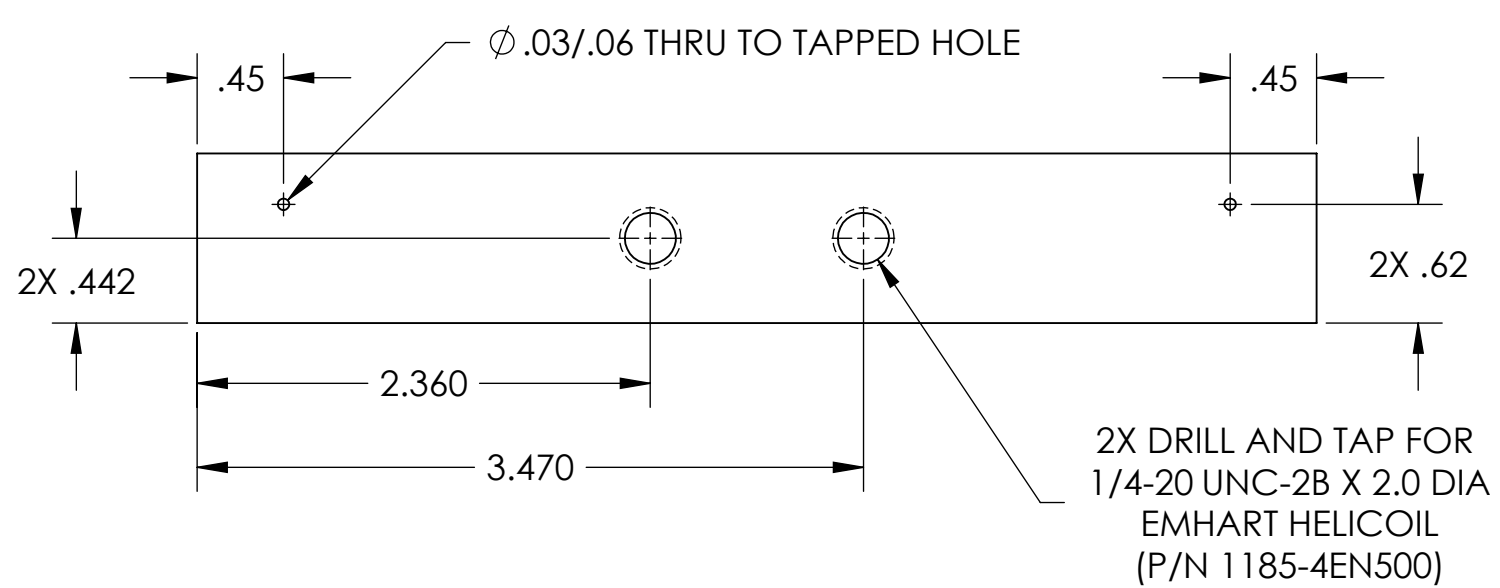
ISOMETRIC VIEW



BOTH SIDES



BOTH SIDES



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

- 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: 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: ADVANCED LIGO SUB-SYSTEM: SUS

NEXT ASSY: D0902203

PART NAME: BARREL EQ STOP CROSSBAR, INT. WIRE

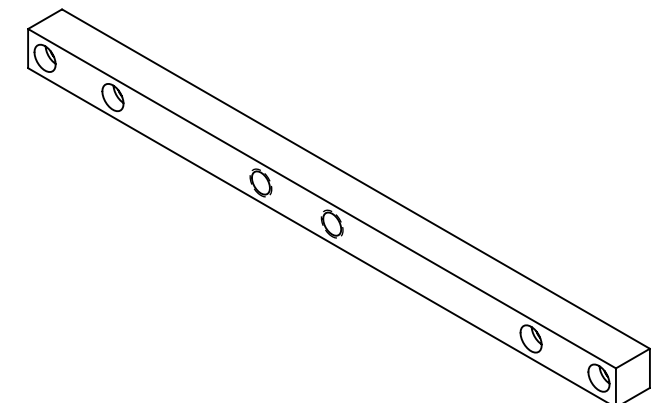
DESIGNER: W. RASCH	10 OCT 2009	SIZE: c	DWG. NO. D0901925	REV. v1
DRAFTER: B. MOORE	14 MAY 2010			
CHECKER: M. MEYER	17 MAY 2010			
APPROVAL:		SCALE: 1:1	PROJECTION:	SHEET 1 OF 1

8 7 6 5 4 3 2 1

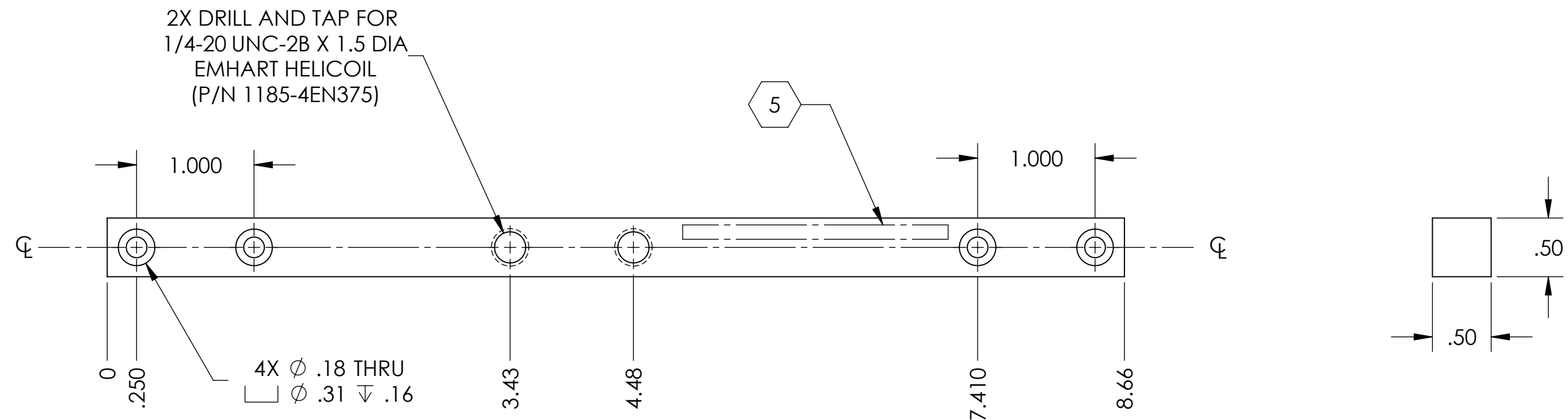
NOTES CONTINUED:

- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, 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 101 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 = 0.198 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 HELI-COIL HOLES TO BE PREPARED ACCORDING TO EMHART HELI-COIL PRODUCT CATALOG, HC2000, REV 4
- 10. ALL HELI-COIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.

REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUN 2010	E0900498	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



2X DRILL AND TAP FOR
1/4-20 UNC-2B X 1.5 DIA
EMHART HELICOIL
(P/N 1185-4EN375)

D0901935_Blade_Guard_Crosspiece_HSTS, PART PDM REV: X-004, 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 TOLERANCES: .XX ± .03 .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.		ADVANCED LIGO		SUB-SYSTEM		BLADE GUARD CROSSBEAM	
						MATERIAL 6061-T6 Al		FINISH 32 μinch		NEXT ASSY D0901934	
						DRAFTER B. MOORE 13 MAY 2010		CHECKER M. MEYER 13 MAY 2010		REV. v1	
						APPROVAL		SCALE: 1:1		PROJECTION: SHEET 1 OF 1	

8 7 6 5 4 3 2 1

NOTES CONTINUED:

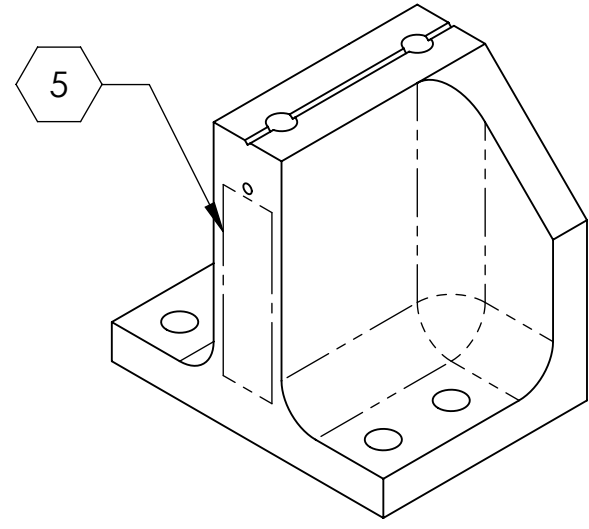
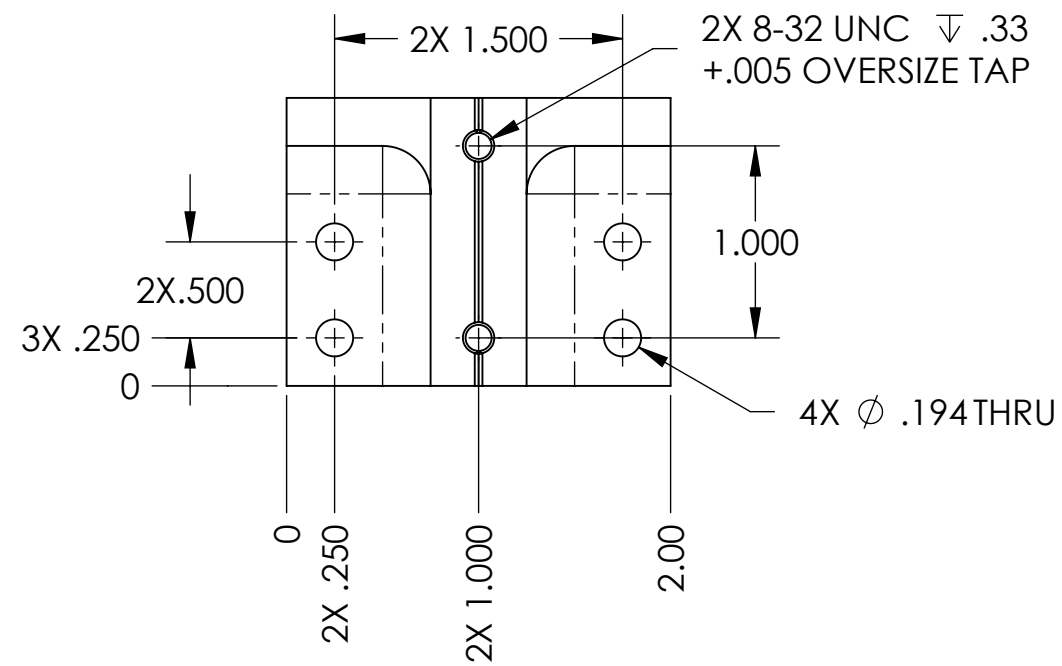
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.244 LB.

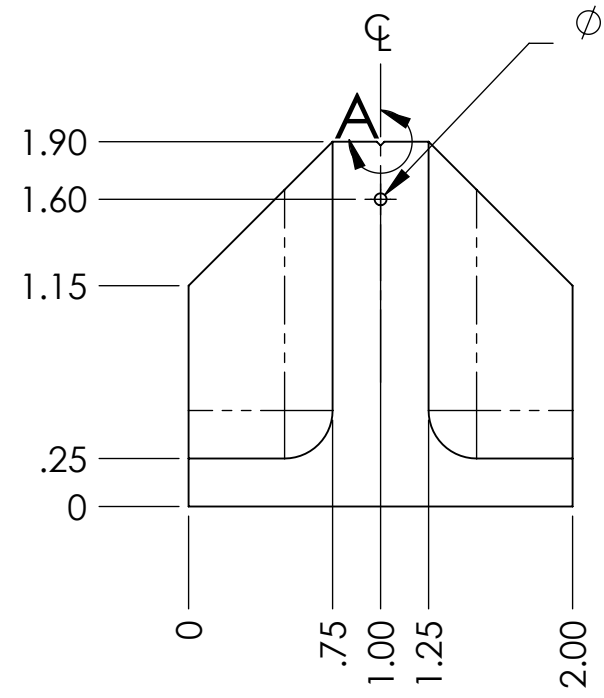
7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

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

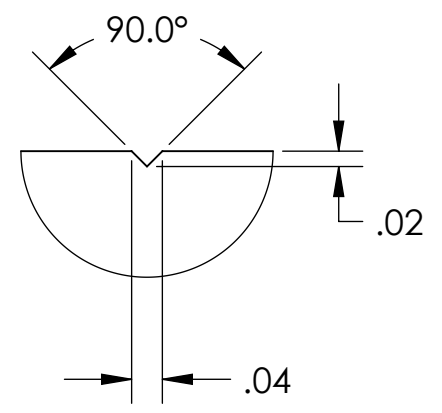
REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUN 2010	E0900498	E0900353
-	-	-	-
-	-	-	-



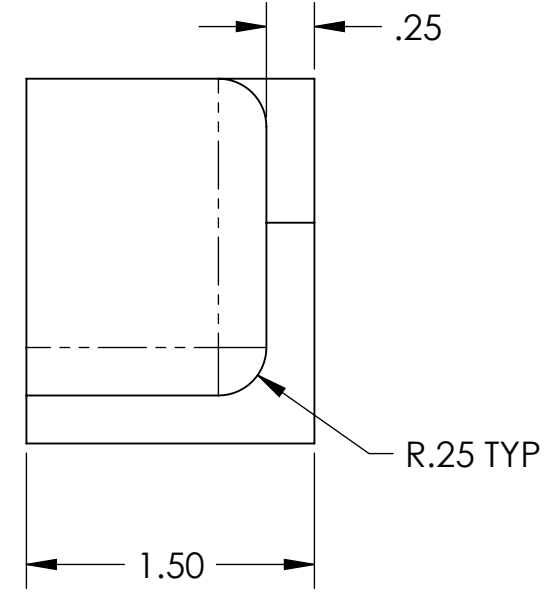
ISOMETRIC VIEW



ϕ .03/.06 VENT HOLE THRU TO TAPPED HOLE BOTH SIDES



DETAIL A
SCALE 4:1



D0901936_Blade_Guard_Riser_HSTS, PART PDM REV: X-006, DRAWING PDM REV: X-009

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
DIMENSIONS ARE IN INCHES				ADVANCED LIGO		BLADE GUARD RISER, HSTS	
TOLERANCES: .XX \pm .03 .XXX \pm .005				SUB-SYSTEM SUS		DESIGNER W. RASCH	01 SEP 2009
ANGULAR \pm 0.5°				NEXT ASSY D0901934		DRAFTER B. MOORE	13 MAY 2010
MATERIAL 6061-T6 Al				FINISH 32 μ inch		CHECKER M. MEYER	13 MAY 2010
						APPROVAL	
						SCALE: 1:1	PROJECTION:
						SIZE DWG. NO. B D0901936	REV. v1
						SHEET 1 OF 1	

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 101 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

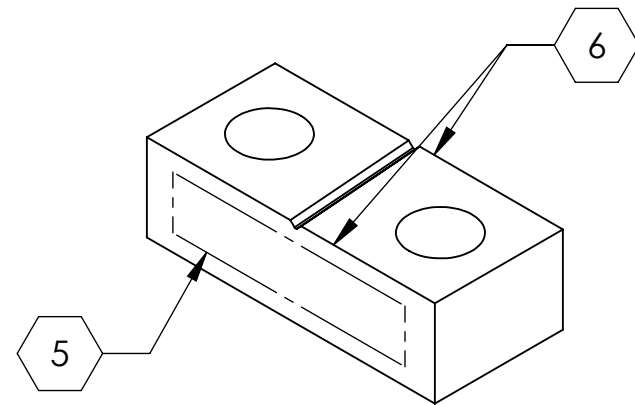
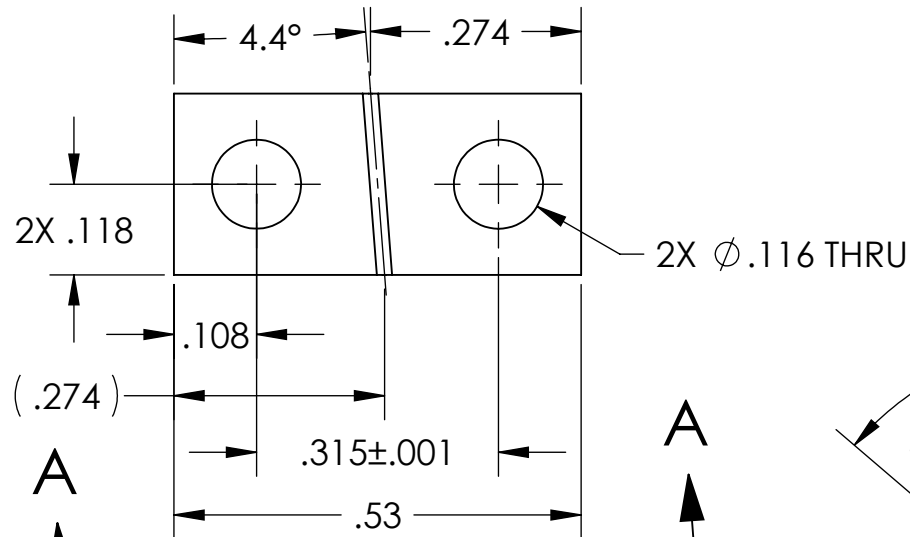
⑥ DO NOT BREAK SHARP EDGES.

7. APPROXIMATE WEIGHT = 0.005 LB.

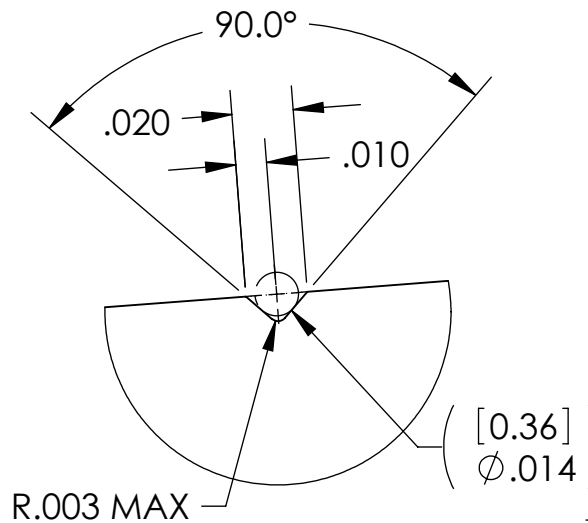
8. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

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

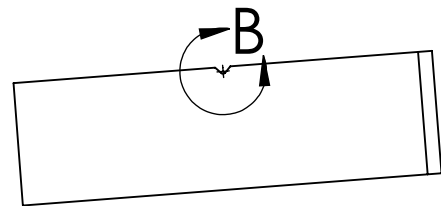
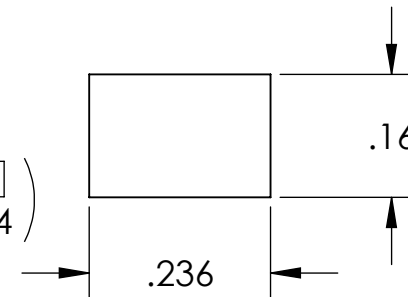
REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUN 2010	E0900500	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



DETAIL B
SCALE 16:1



VIEW A-A

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.XXX ± .005

ANGULAR ± 0.5°

1. INTERPRET DRAWING PER ASME Y14.5-1994.
2. REMOVE ALL SHARP EDGES, EXCEPT WHERE INDICATED.
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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

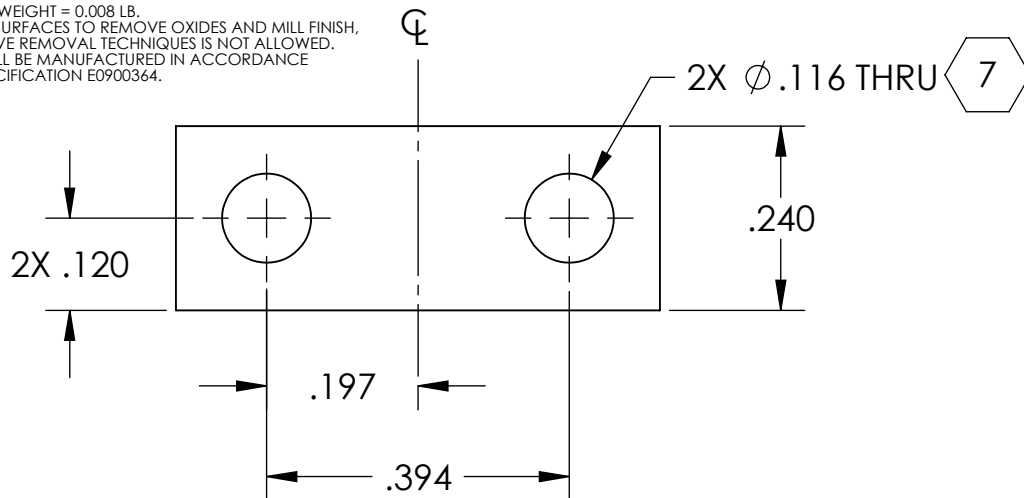
SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY D0901854

PART NAME UPPER BLADE WIRE CLAMP, OUTSIDE, ANGLED

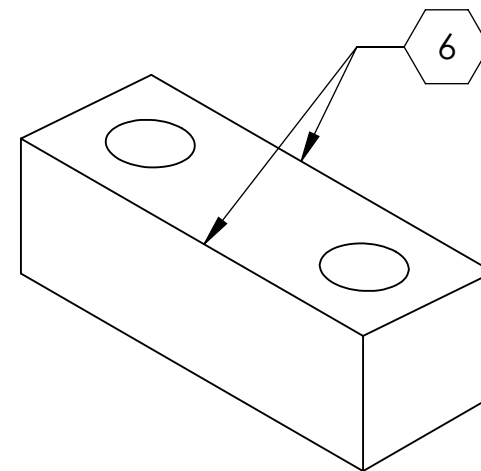
DESIGNER	M. MEYER	08 SEP 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	10 FEB 2010	A	D0901994	v1
CHECKER	M. MEYER	08 SEP 2009	SCALE: 4:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

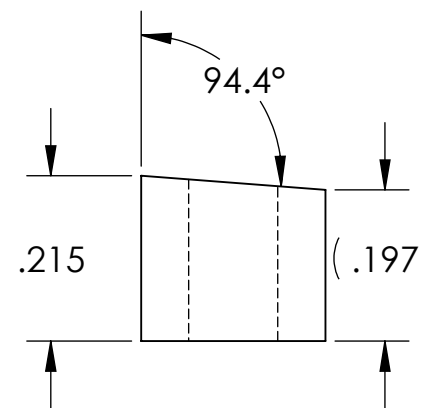
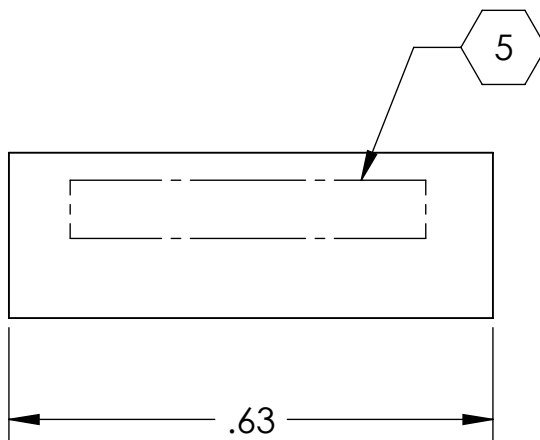
- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR 'TYPE' IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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. DO NOT BREAK SHARP EDGES.
- 7. HOLES ARE PERPENDICULAR TO FLAT BOTTOM SURFACE.
- 8. APPROXIMATE WEIGHT = 0.008 LB.
- 9. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
- 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.



REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUN 2010	E0900500	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.XXX ± .005

ANGULAR ± 0.5°

- 1. INTERPRET DRAWING PER ASME Y14.5-1994.
- 2. REMOVE ALL SHARP EDGES, EXCEPT WHERE INDICATED.
- 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 304, 316 OR 302 SSSL **FINISH** 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D0901854**

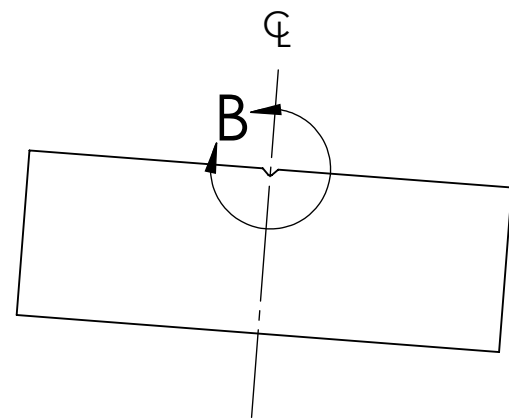
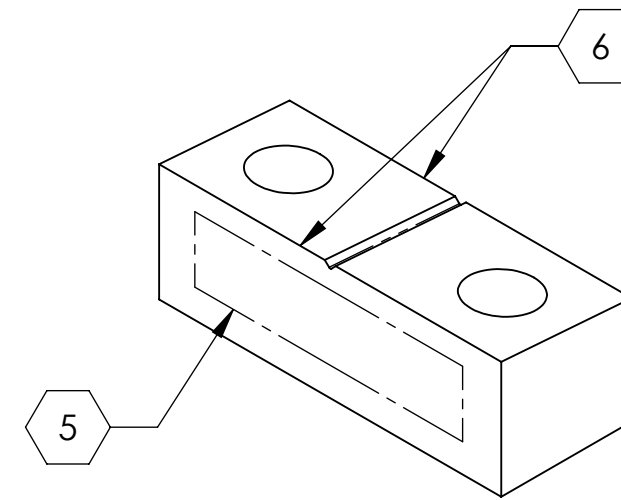
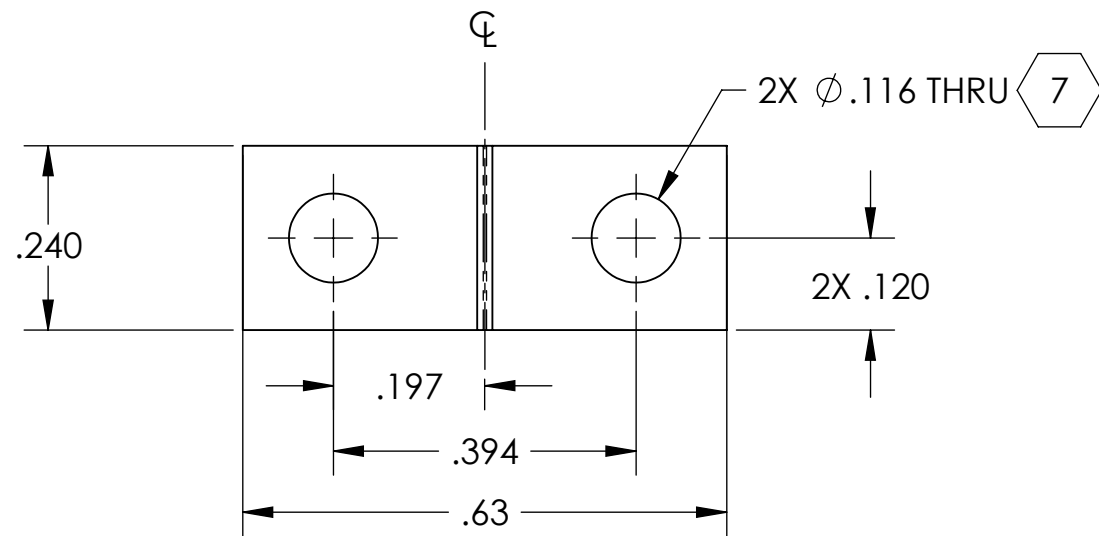
PART NAME UPPER MASS WIRE CLAMP, OUTSIDE, ANGLED

DESIGNER M. MEYER	08 SEP 2009	SIZE DWG. NO.	D0901998	REV.
DRAFTER B. MOORE	10 DEC 2009	A		v1
CHECKER M. MEYER	10 DEC 2009	SCALE: 4:1		PROJECTION:
APPROVAL				SHEET 1 OF 1

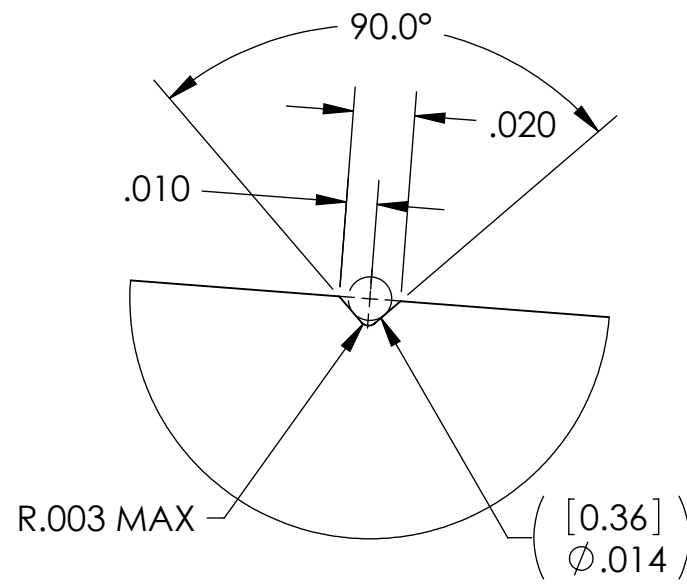
D0901999_AdvLIGO_SUS_HSTS_Upper Mass Wire Clamp, Inside, Angled, PART PDM REV: X-004, DRAWING PDM REV: X-015

- 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 101 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. DO NOT BREAK SHARP EDGES.
 - 7. HOLES ARE PERPENDICULAR TO FLAT BOTTOM SURFACE.
 - 8. APPROXIMATE WEIGHT = 0.008 LB.
 - 9. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.
 - 10. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900364.

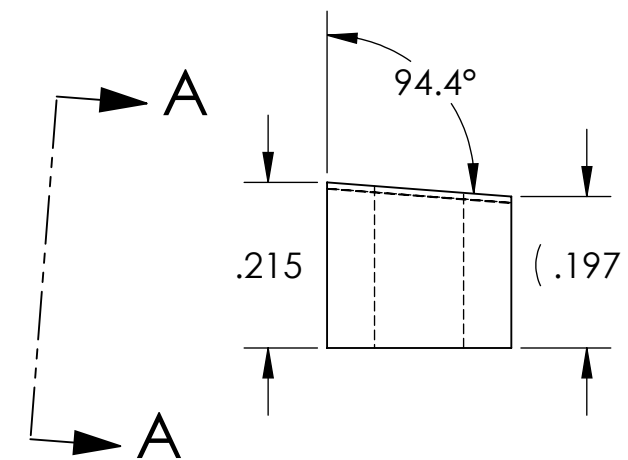
REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUN 2010	E0900500	E0900353
-	-	-	-
-	-	-	-



VIEW A-A



DETAIL B
SCALE 16:1



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES	
TOLERANCES: .XX ± .01 .XXX ± .005	
ANGULAR ± 0.5°	
1. INTERPRET DRAWING PER ASME Y14.5-1994.	
2. REMOVE ALL SHARP EDGES, EXCEPT WHERE INDICATED.	
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
304, 316 OR 302 SSSL	32 μinch

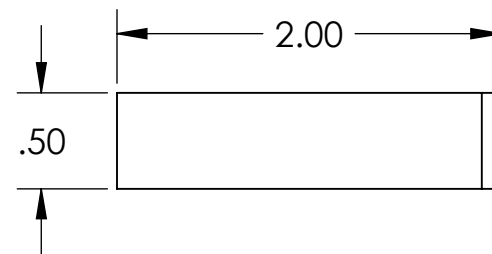
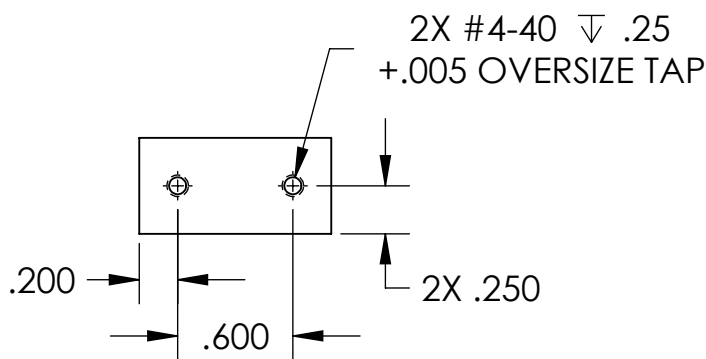
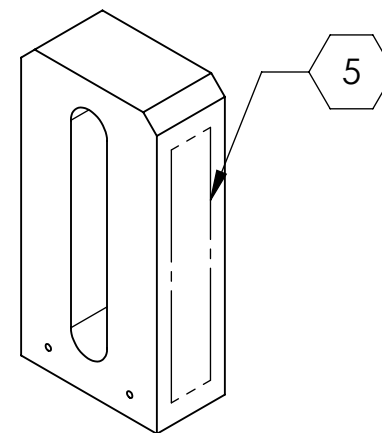
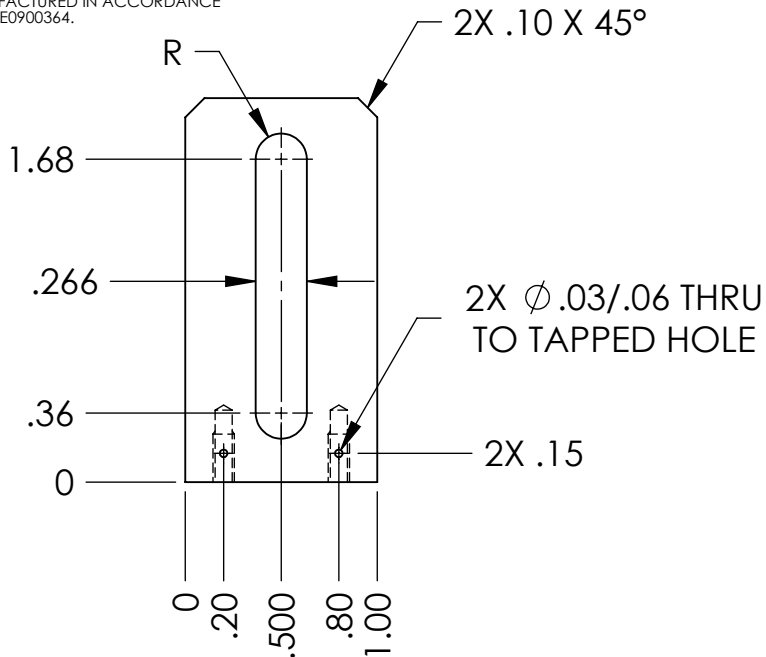
CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	PART NAME	
	UPPER MASS WIRE CLAMP, INSIDE, ANGLED	
SYSTEM	SUB-SYSTEM	DESIGNER
ADVANCED LIGO	SUS	M. MEYER
NEXT ASSY		DRAFTER
D0901854		B. MOORE
		CHECKER
		M. MEYER
		APPROVAL

DATE	08 SEP 2009	SIZE	DWG. NO.	REV.
DRAWN	14 DEC 2009	B	D0901999	v1
CHECKED	16 DEC 2009	SCALE: 4:1		PROJECTION:
		SHEET 1 OF 1		

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 101 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 = 0.077 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)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.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 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

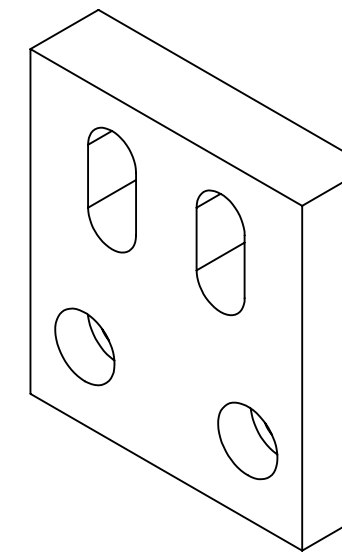
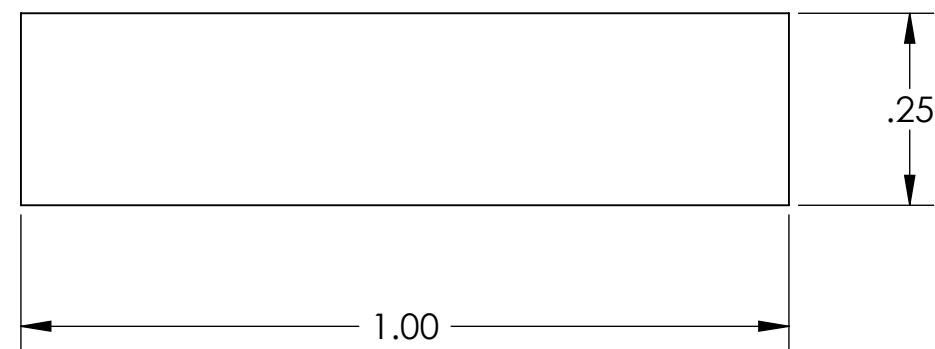
SYSTEM ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY D0902007

PART NAME				BARREL EQ STOP BRACKET			
DESIGNER	W. RASCH	09 OCT 2009	SIZE	DWG. NO.	REV.		
DRAFTER	W. RASCH	23 OCT 2009	A	D0902008	v1		
CHECKER	M. MEYER	23 OCT 2009	SCALE: 1:1	PROJECTION:	SHEET 1 OF 1		
APPROVAL							

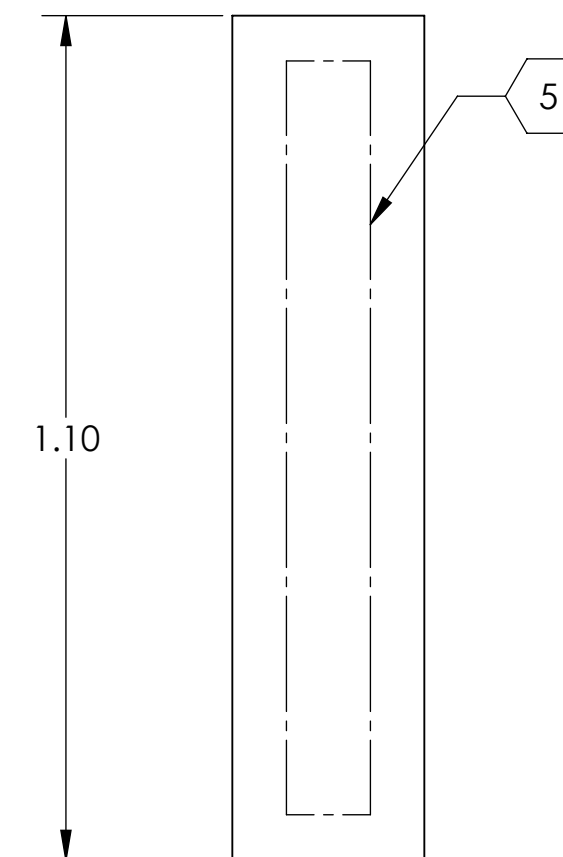
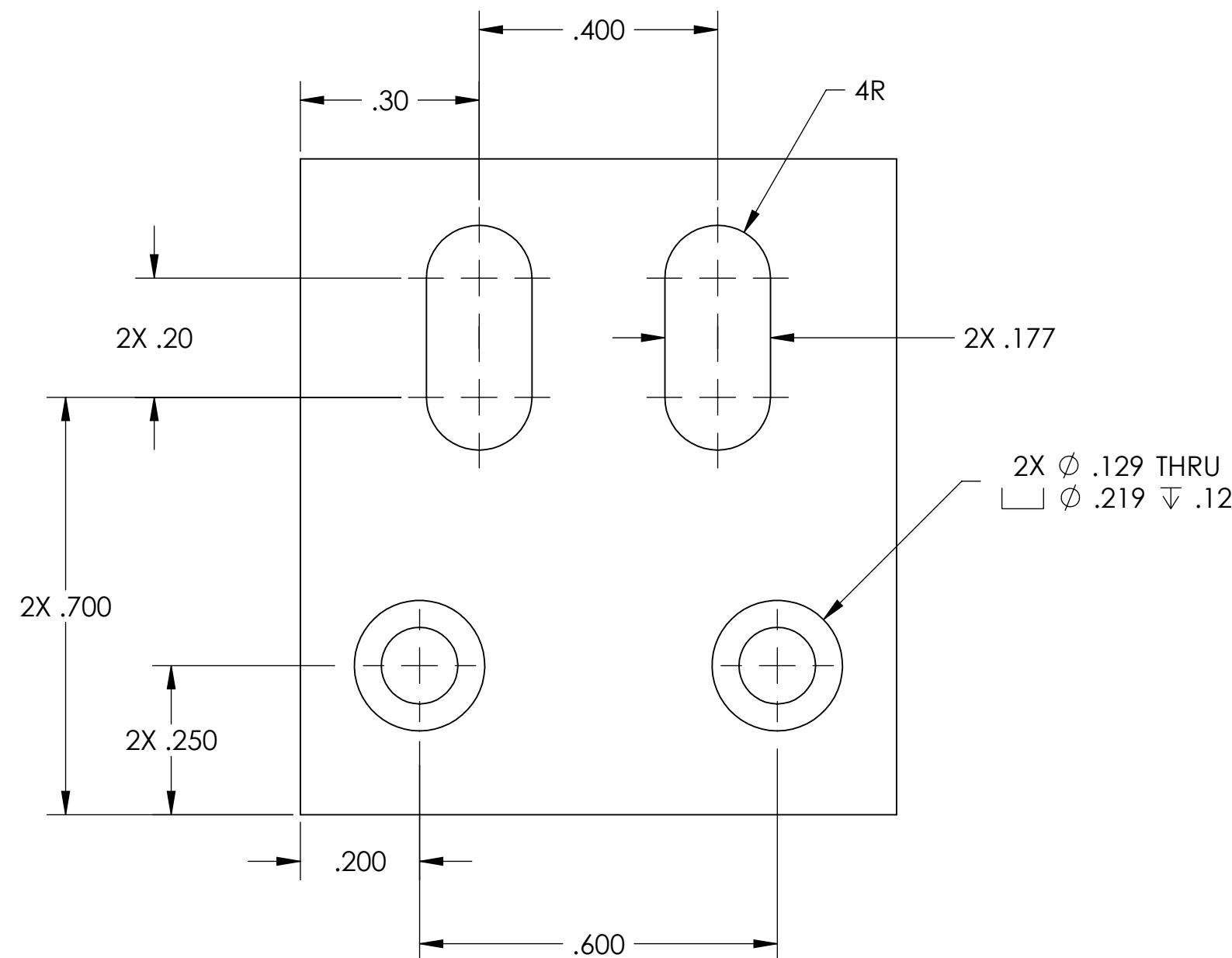
NOTES CONTINUED:

- 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 101 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 = 0.023 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	16 JUN 2010	E0900504	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

- 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: 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

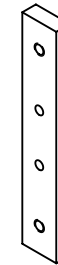
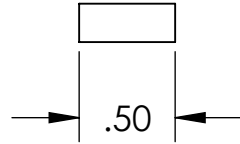
SYSTEM: ADVANCED LIGO
 SUB-SYSTEM: SUS
 NEXT ASSY: D0902007

PART NAME		DESIGNER		DATE		SIZE		DWG. NO.		REV.	
BARREL EQ STOP BASE		W. RASCH	09 OCT 2009	c	D0902009	v1					
		B. MOORE	23 OCT 2009								
		M. MEYER	23 OCT 2009								
				SCALE: 4:1		PROJECTION:		SHEET 1 OF 1			

NOTES CONTINUED:

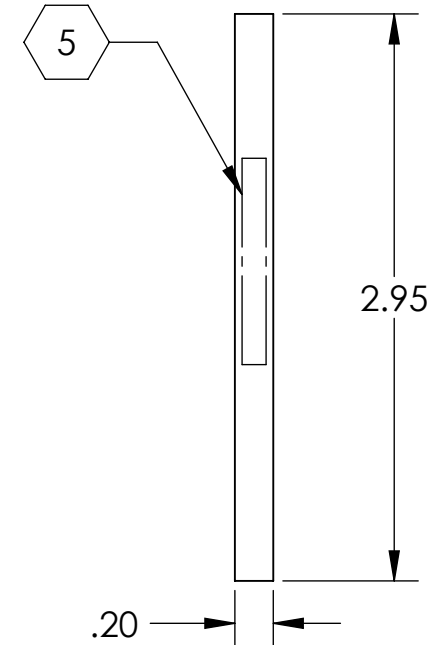
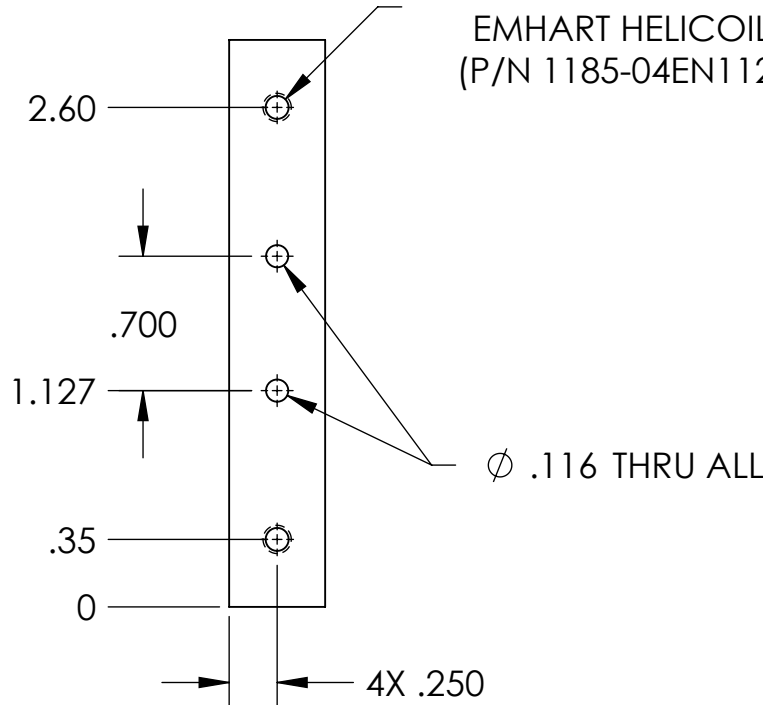
- 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.083 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 HELI-COIL HOLES TO BE PREPARED ACCORDING TO EMHART HELI-COIL PRODUCT CATALOG, HC2000, REV 4
- 10. ALL HELI-COIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL, AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.

REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW

2X DRILL AND TAP FOR #4-40 UNC-2B X 1.0 DIA EMHART HELICOIL (P/N 1185-04EN112)



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .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 304, 316 OR 302 SSTL
 FINISH 32 μinch



SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY D020534

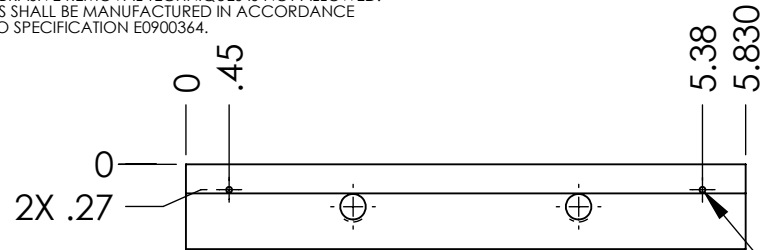
PART NAME BLADE GUARD, UPPER MASS

DESIGNER	B. MOORE	01 SEP 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	02 JUN 2010	A	D0902030	v1
CHECKER	M. MEYER	02 JUN 2010	SCALE: 1:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

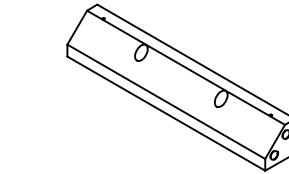
NOTES CONTINUED:

- 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 101 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 = 0.334 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.

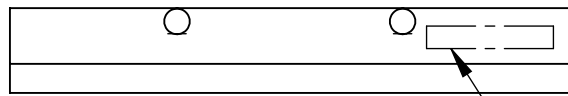
REV.	DATE	DCN #	DRAWING TREE #
v1	16 JUN 2010	E0900504	E0900353
-	-	-	-
-	-	-	-



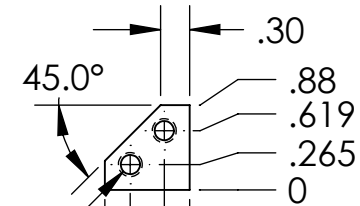
2X \varnothing .03/.06 THRU TO TAPPED HOLE



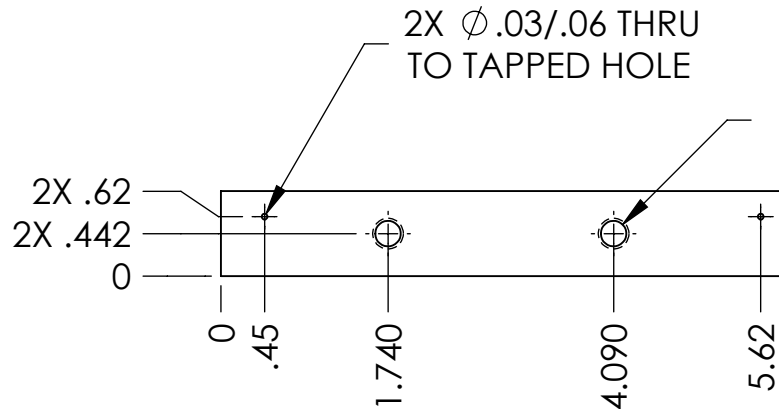
ISOMETRIC VIEW



2X 1/4-20 ∇ .50
+.005 OVERSIZE TAP



BOTH SIDES



2X \varnothing .03/.06 THRU TO TAPPED HOLE

2X DRILL AND TAP FOR 1/4-20 UNC-2B X 2.0 DIA EMHART HELICOIL (P/N 1185-4EN500)

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES
TOLERANCES:
.XX \pm .01
.XXX \pm .005
ANGULAR \pm 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 32 μ inch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS
NEXT ASSY D0902201

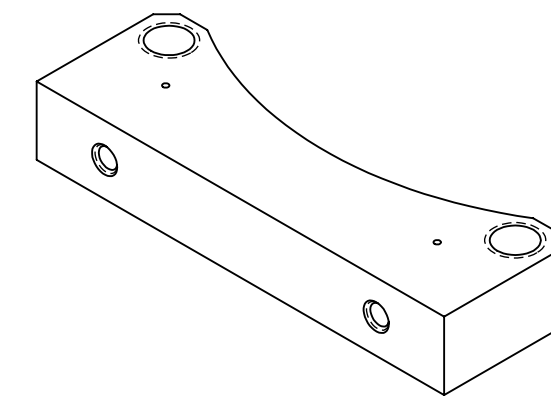
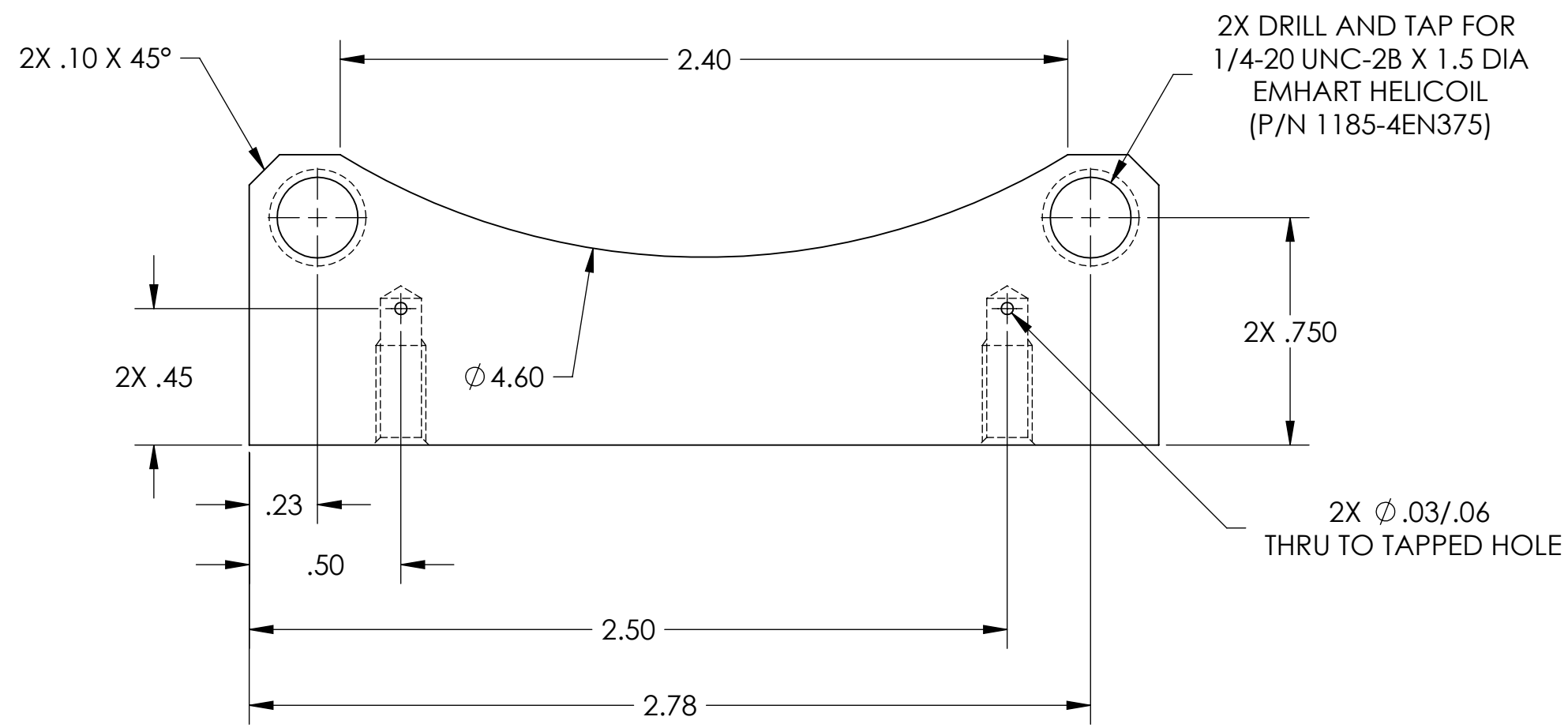
PART NAME BARREL EQ STOP CROSSBAR, LOWER WIRE

DESIGNER	W. RASCH	05 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	W. RASCH	23 OCT 2009	A	D0902202	v1
CHECKER	M. MEYER	23 OCT 2009	SCALE: 1:2	PROJECTION:	SHEET 1 OF 1
APPROVAL					

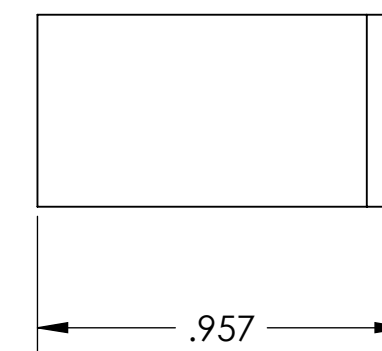
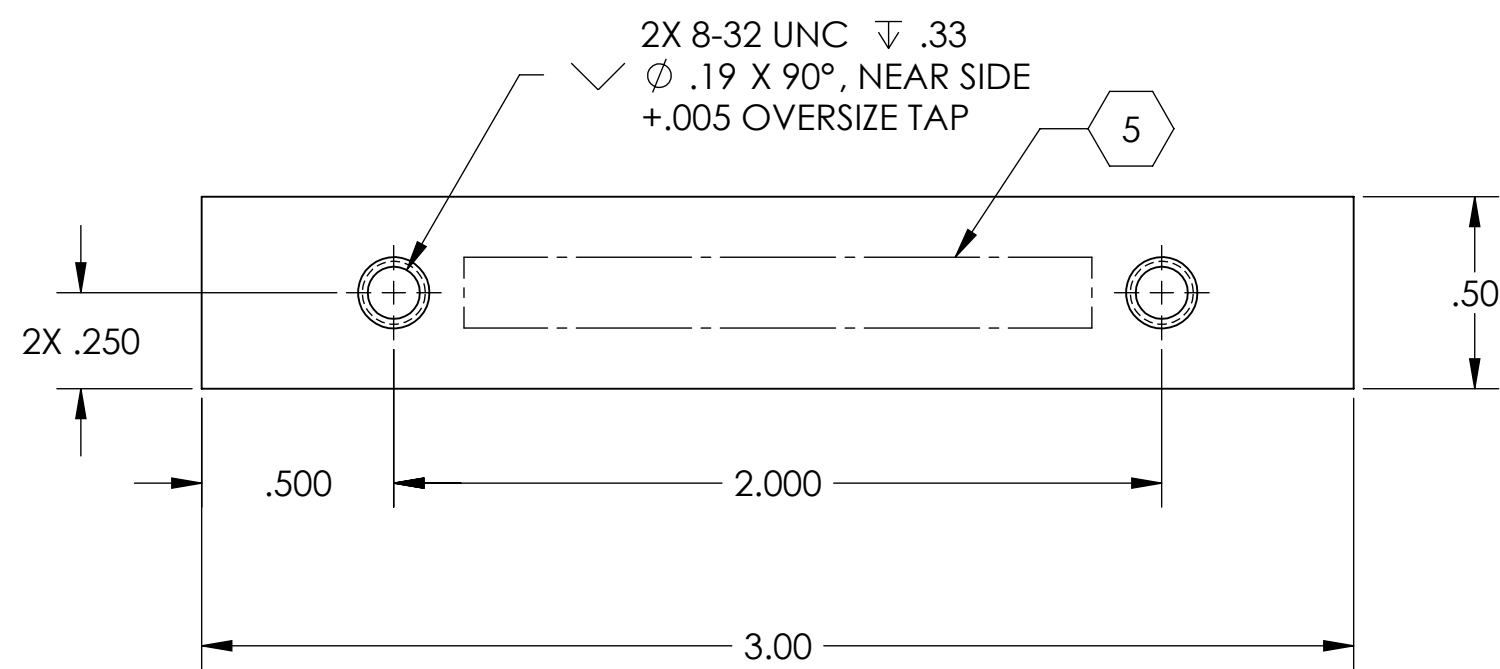
NOTES CONTINUED:

- 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 101 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 = 0.106 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	16 JUN 2010	E0900504	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

- 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: 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: ADVANCED LIGO
 SUB-SYSTEM: SUS

NEXT ASSY: D0902413

PART NAME: FACE EQ STOP BRACKET, HSTS INTER. MASS

DESIGNER	W. RASCH	12 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	18 MAY 2010	c	D0902204	v1
CHECKER	M. MEYER	01 JUN 2010			
APPROVAL			SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

DIMENSIONS ARE IN INCHES

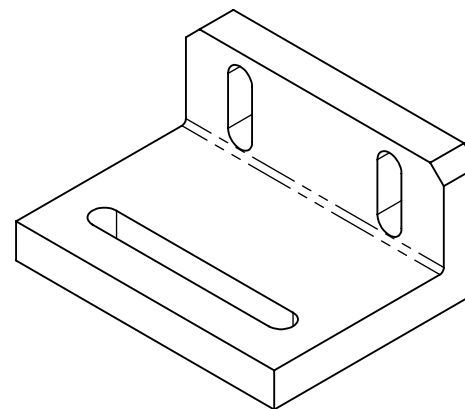
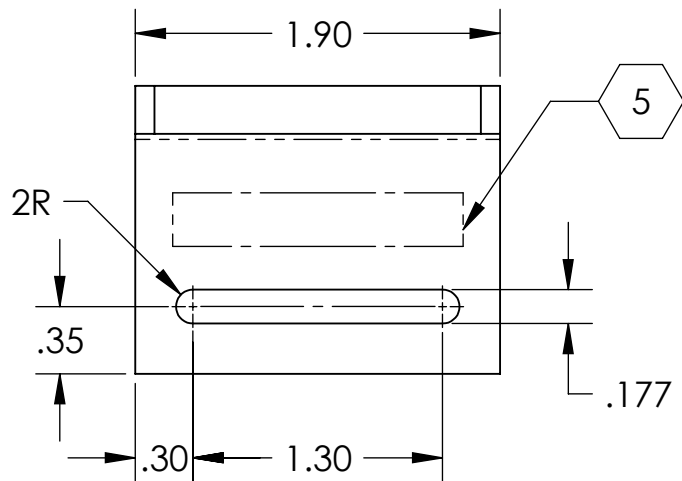
TOLERANCES:
 .XX ± .03
 .XXX ± .005

ANGULAR ± 0.5°

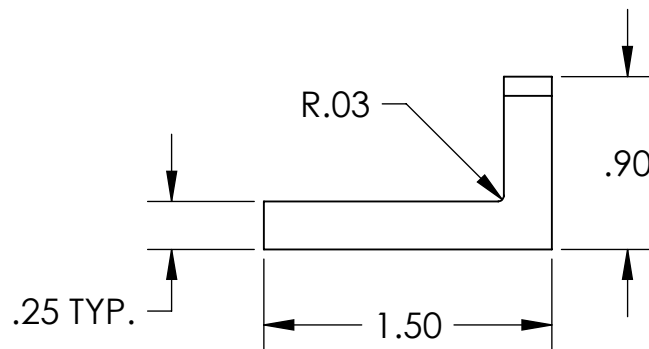
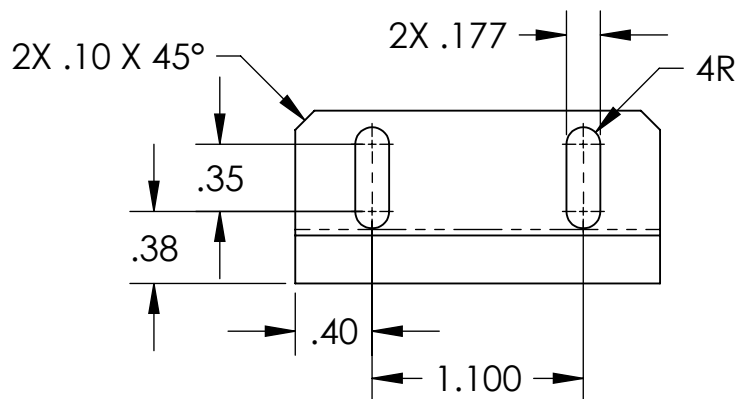
NOTES CONTINUED:

- 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 101 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 = 0.089 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	16 JUN 2010	E0900505	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.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

32 μinch



SYSTEM
ADVANCED LIGO

SUB-SYSTEM
SUS

NEXT ASSY
D0901924

PART NAME

AOSEM ALIGNMENT BRACKET MOUNT, INT. MASS

DESIGNER B. MOORE 11 OCT 2009

DRAFTER B. MOORE 03 MAY 2010

CHECKER M. MEYER 04 MAY 2010

APPROVAL

SIZE DWG. NO.

A D0902206

REV.

v1

SCALE: 1:1

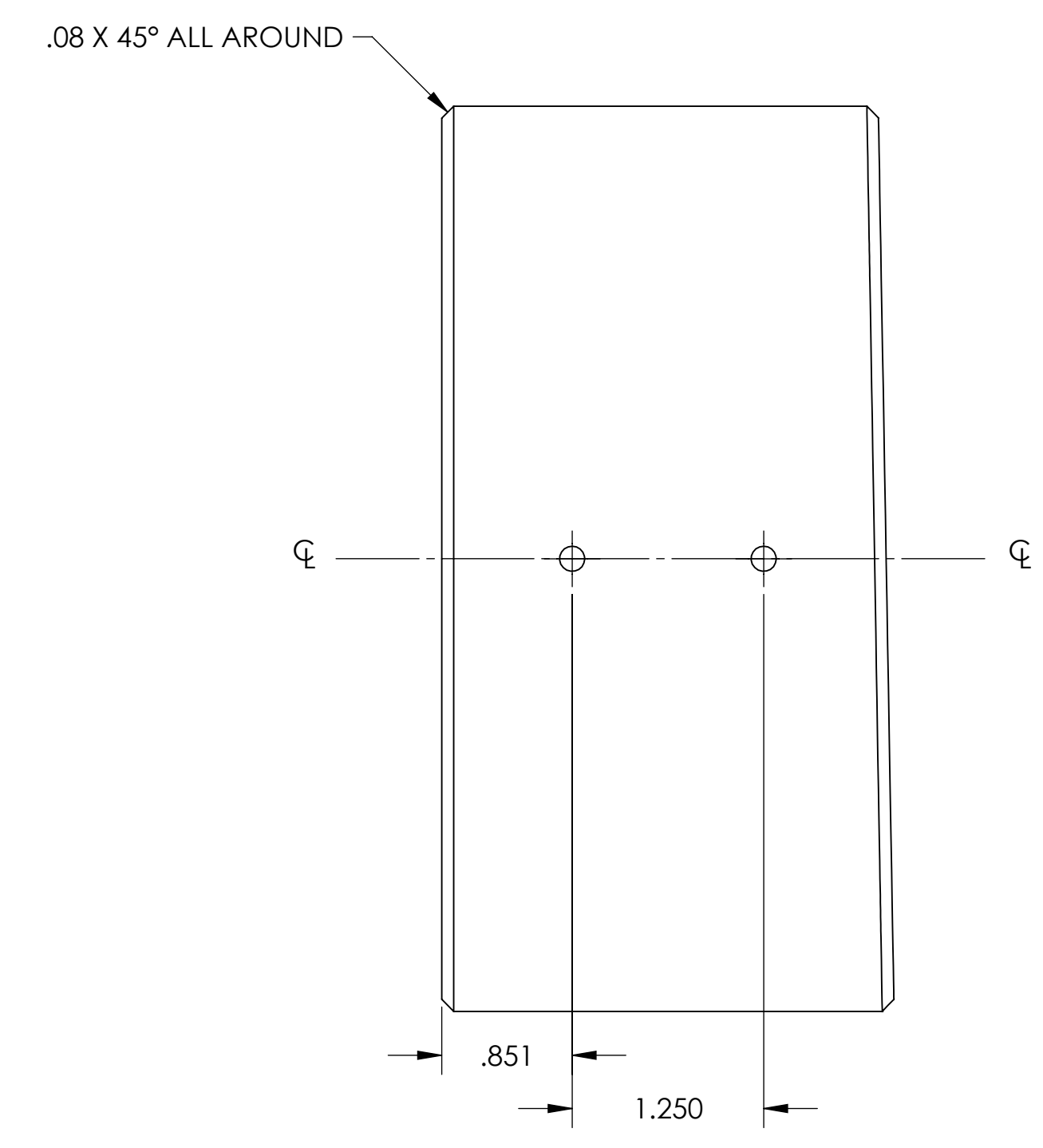
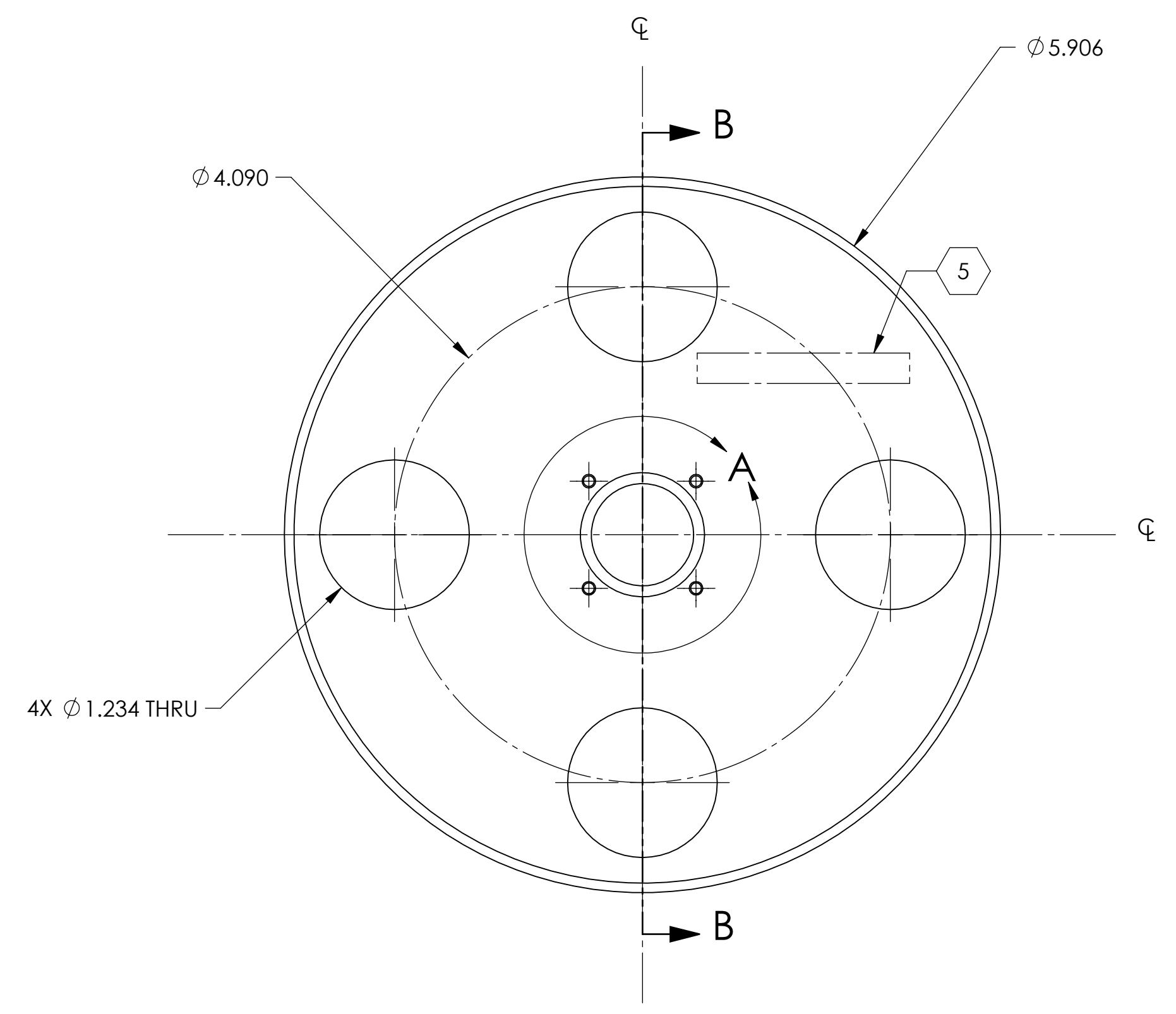
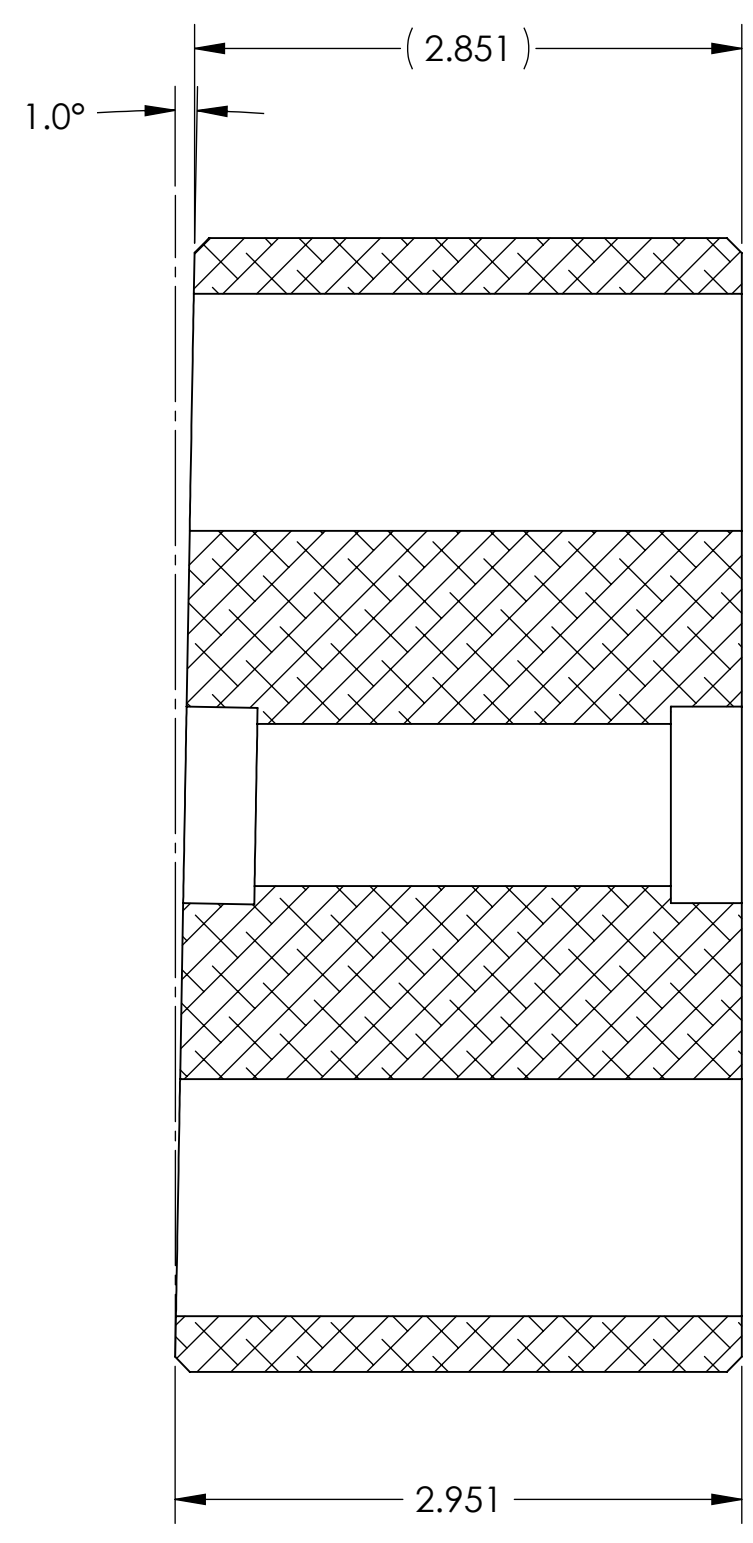
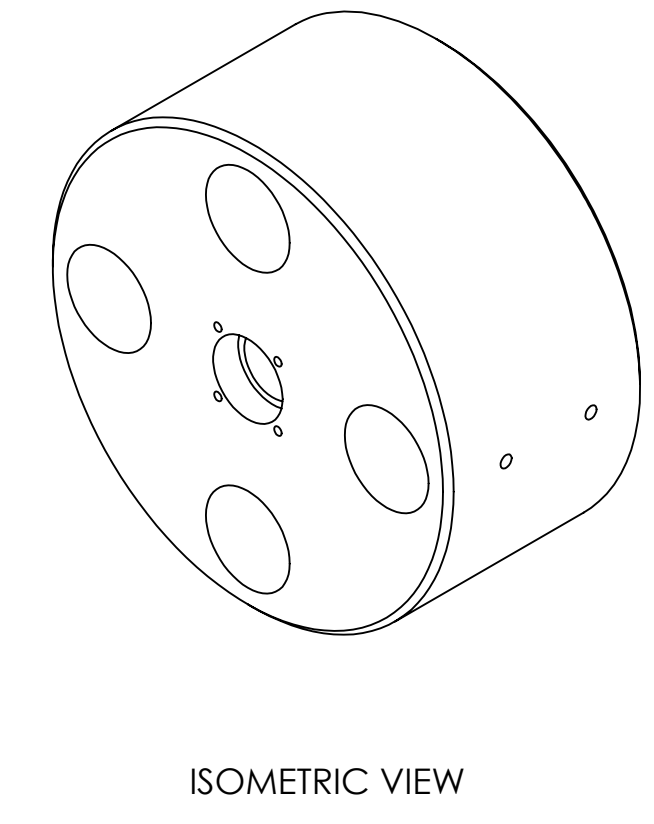
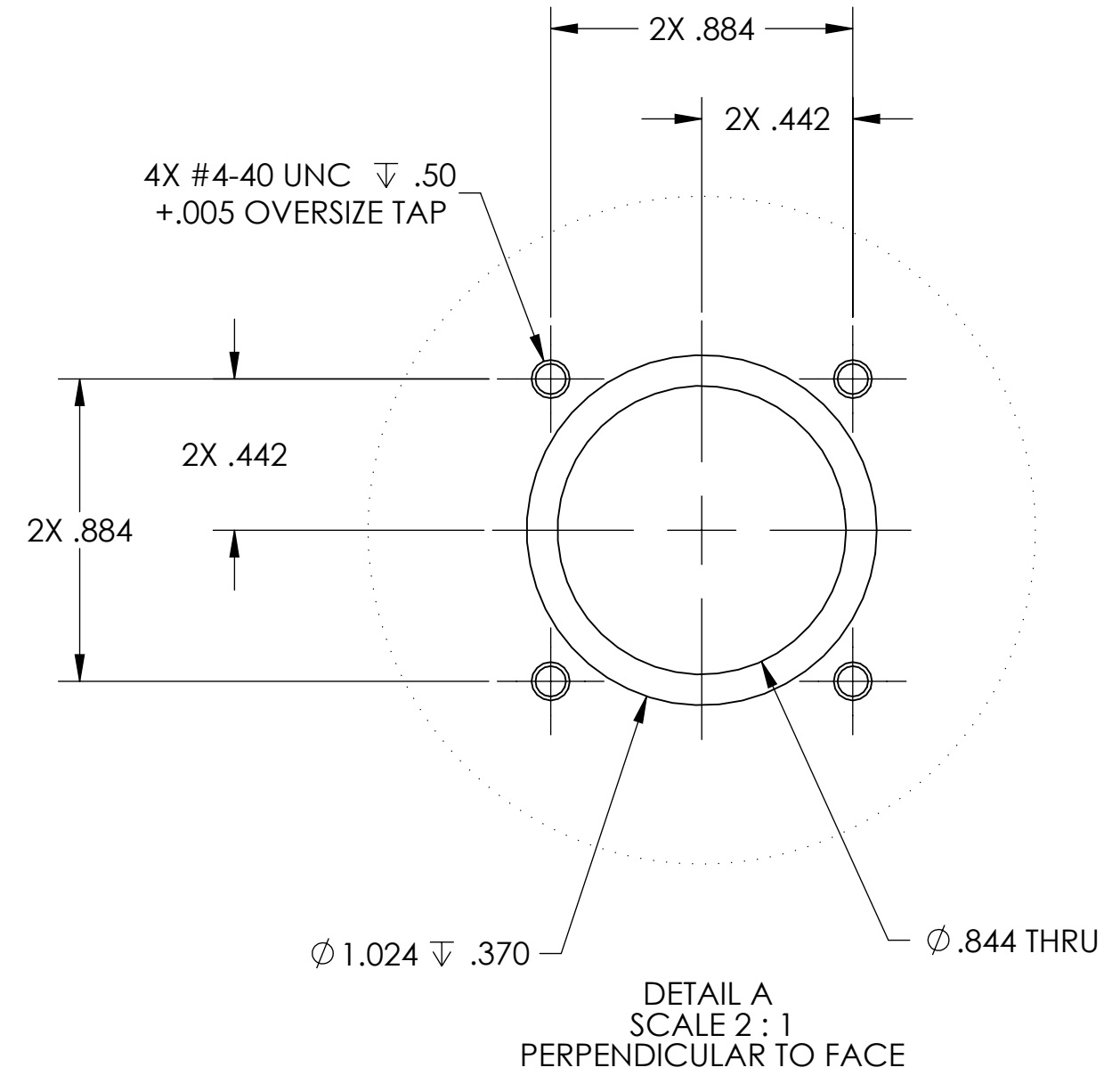
PROJECTION:



SHEET 1 OF 1

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 101 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 = 6.201 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.

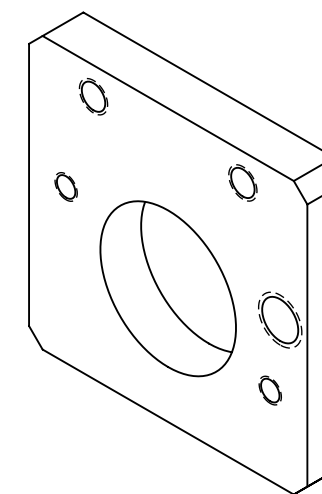
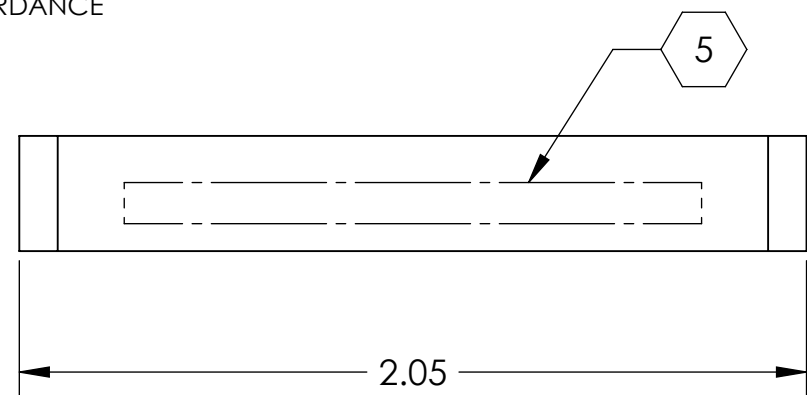
REV.	DATE	DCN #	DRAWING TREE #
v1	30 DEC 2009	E0900507	E0900353
v2	18 JUN 2010	E1000219	E0900353
-	-	-	-



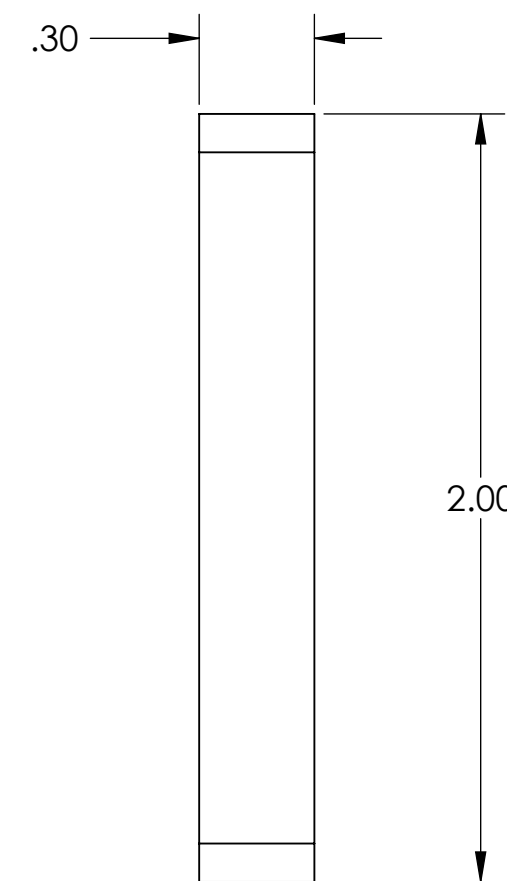
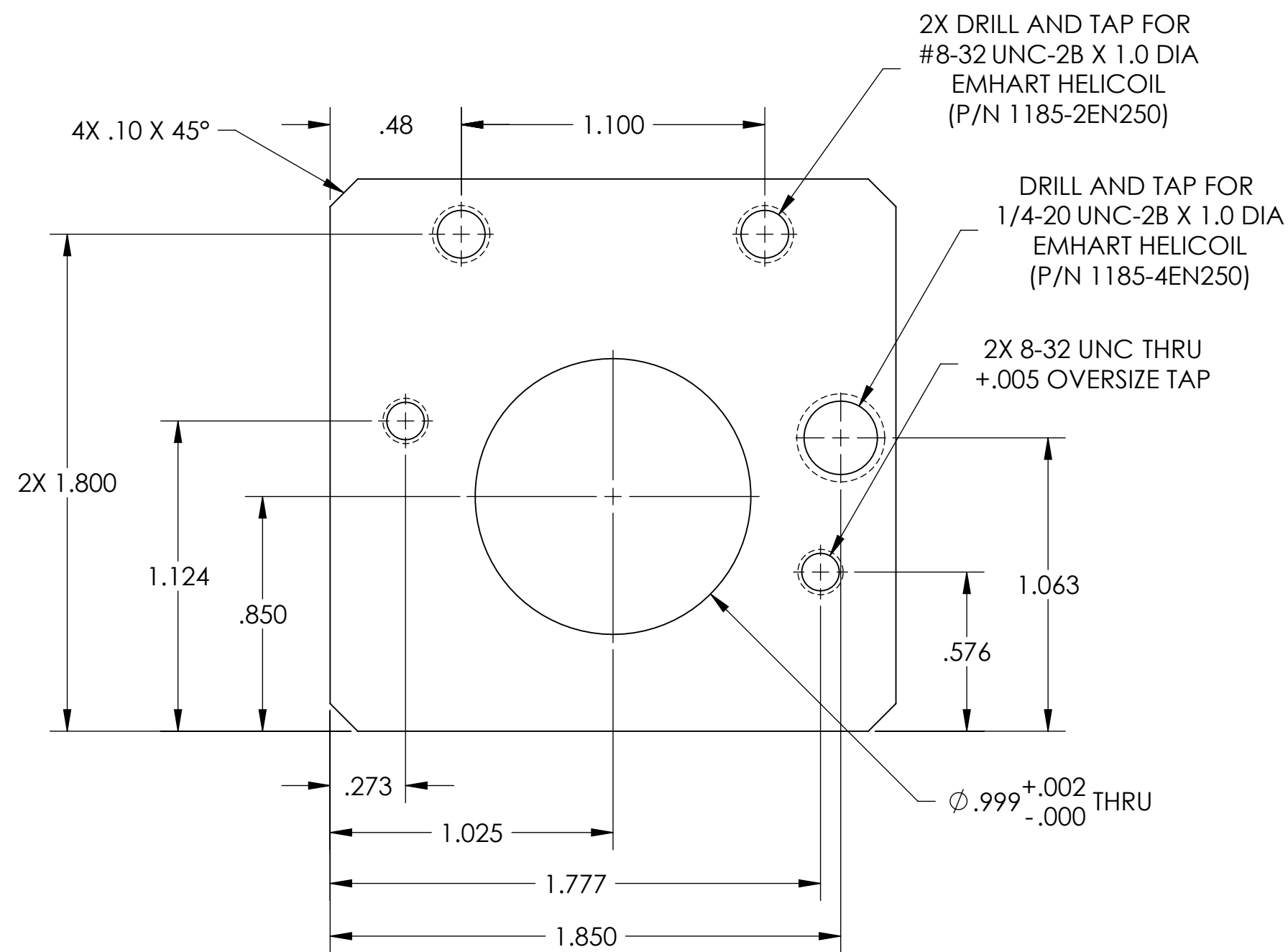
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
1. INTERPRET DRAWING PER ASME Y14.5-1994. 2. REMOVE ALL SHARP EDGES, R.02 MIN. 3. DO NOT SCALE FROM DRAWING. 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.				ADVANCED LIGO		METAL LOWER MASS (PR/SR), HSTS	
TOLERANCES: .XX $\pm .01$.XXX $\pm .005$ ANGULAR $\pm 0.1^\circ$		MATERIAL 6061-T6 Al		FINISH 32 μinch		DESIGNER M. MEYER DRAFTER B. MOORE CHECKER M. MEYER APPROVAL	
				SYSTEM D020700		DATE 10 AUG 2009 SIZE D DWG. NO. D0902332	
				REVISION v2		SCALE: 1:1 PROJECTION:	
						SHEET 1 OF 1	

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 101 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 = 0.093 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.



ISOMETRIC VIEW



REV.	DATE	DCN #	DRAWING TREE #
v1	16 JUN 2010	E0900505	E0900353
-	-	-	-
-	-	-	-

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

- 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: 32 μ inch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: ADVANCED LIGO
 SUB-SYSTEM: SUS

NEXT ASSY: D0901924

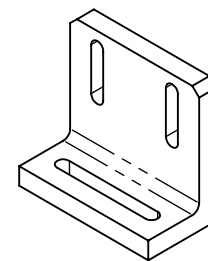
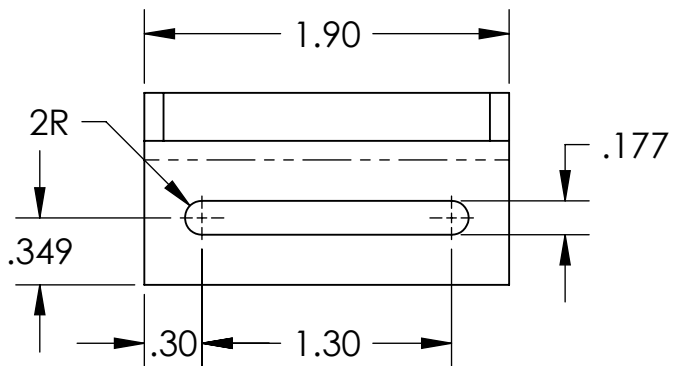
PART NAME: AOSEM ALIGNMENT BRACKET, INTER. MASS

DESIGNER	B. MOORE	06 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	03 MAY 2010	c	D0902414	v1
CHECKER	M. MEYER	04 MAY 2010			
APPROVAL			SCALE: 2:1	PROJECTION:	SHEET 1 OF 1

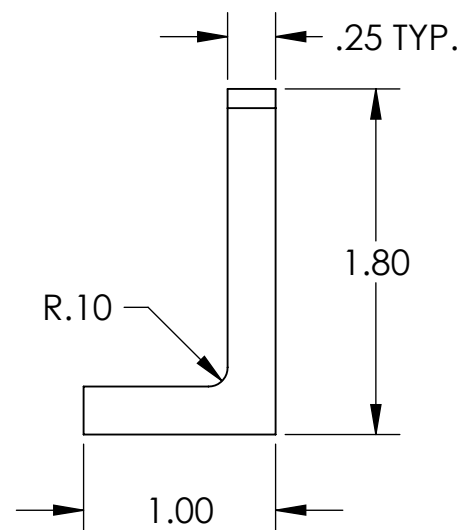
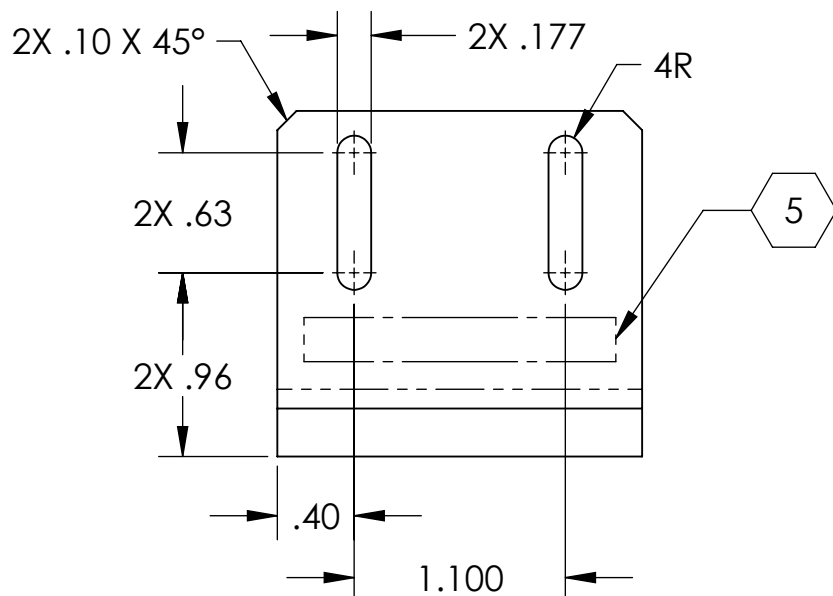
NOTES CONTINUED:

- 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 101 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 = 0.105 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	16 JUN 2010	E0900505	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.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 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D0902208**

PART NAME **AOSEM ALIGNMENT BRACKET MOUNT**

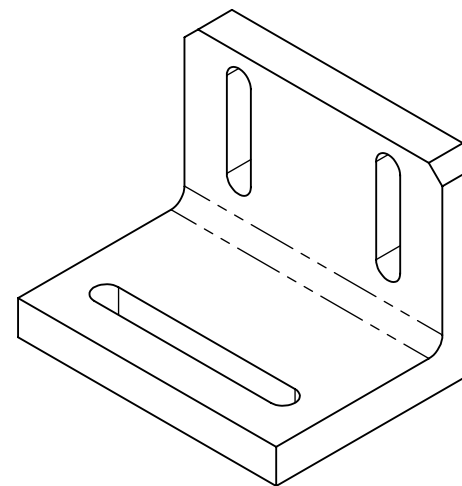
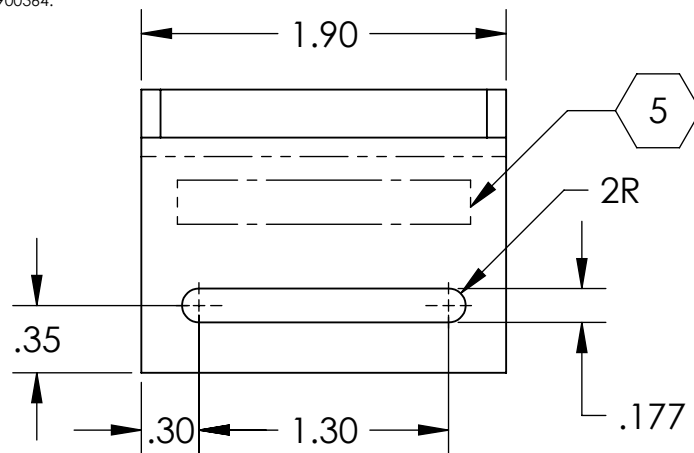
DESIGNER	B. MOORE	10 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	22 APR 2010	A	D0902415	v1
CHECKER	M. MEYER	23 APR 2010	SCALE: 1:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

NOTES CONTINUED:

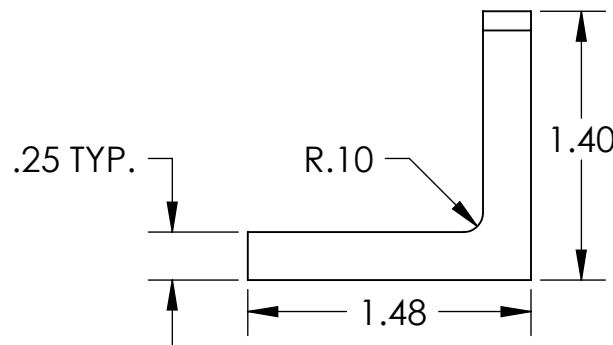
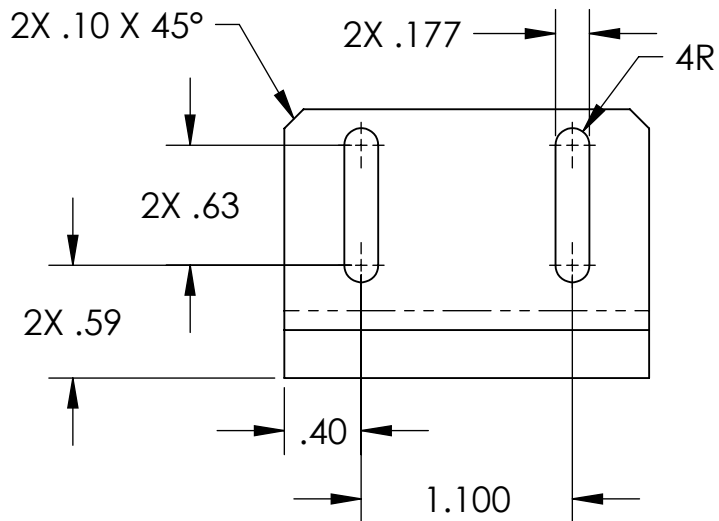
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.097 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	16 JUN 2010	E0900505	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .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 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY D0902207

PART NAME AOSEM ALIGNMENT BRACKET MOUNT, INT. MASS

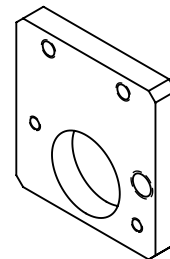
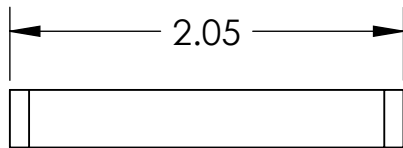
DESIGNER	B. MOORE	19 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	28 APR 2009	A	D0902416	v1
CHECKER	M. MEYER	29 APR 2009	SCALE: 1:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

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 101 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 = 0.102 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	16 JUN 2010	E0900505	E0900353
-	-	-	-
-	-	-	-



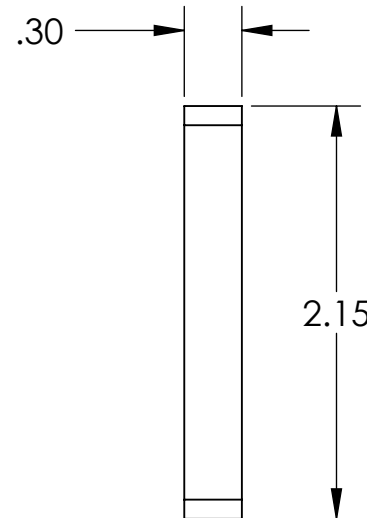
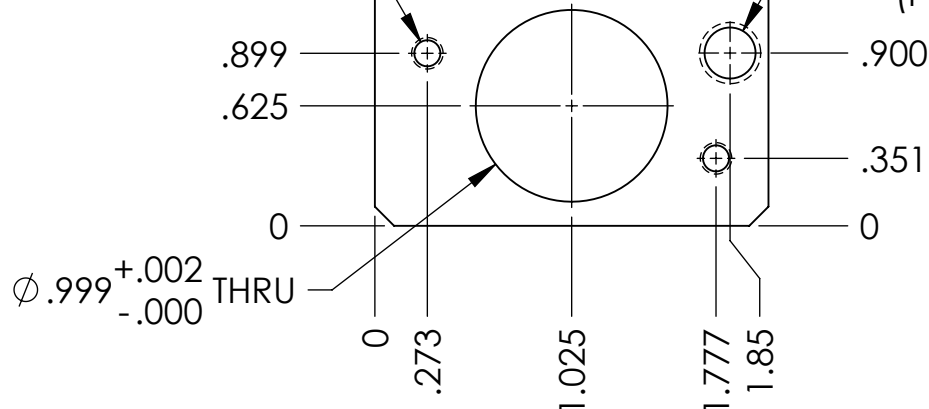
ISOMETRIC VIEW

2X DRILL AND TAP FOR #8-32 UNC-2B X 1.0 DIA EMHART HELICOIL (P/N 1185-2EN250)

2X 1.950
 2X #8-32 UNC THRU +.005 OVERSIZE TAP

4X .10 X 45°

DRILL AND TAP FOR 1/4-20 UNC-2B X 1.0 DIA EMHART HELICOIL (P/N 1185-4EN250)



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .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

32 μinch



SYSTEM
 ADVANCED LIGO

SUB-SYSTEM
 SUS

NEXT ASSY
 MULTIPLE ASSY

PART NAME

AOSEM ALIGNMENT BRACKET

DESIGNER	B. MOORE	11 OCT 2009
DRAFTER	B. MOORE	22 APR 2010
CHECKER	M. MEYER	23 APR 2010
APPROVAL		

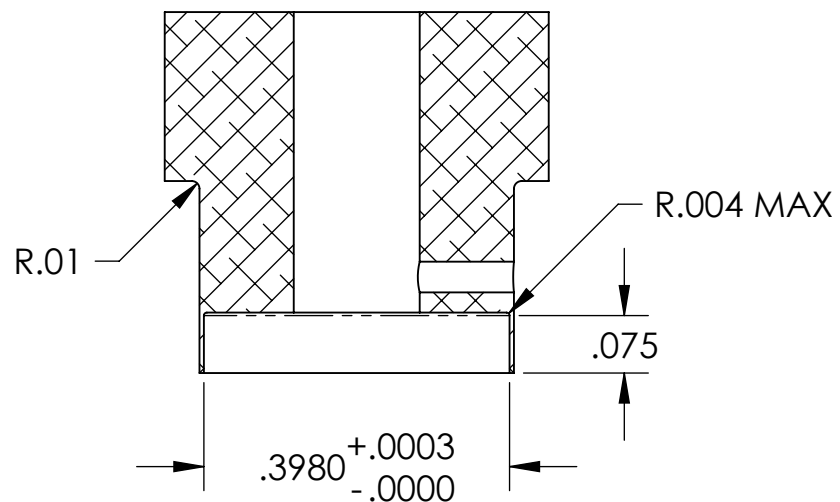
SIZE DWG. NO.
 A D0902417

REV.
 v1

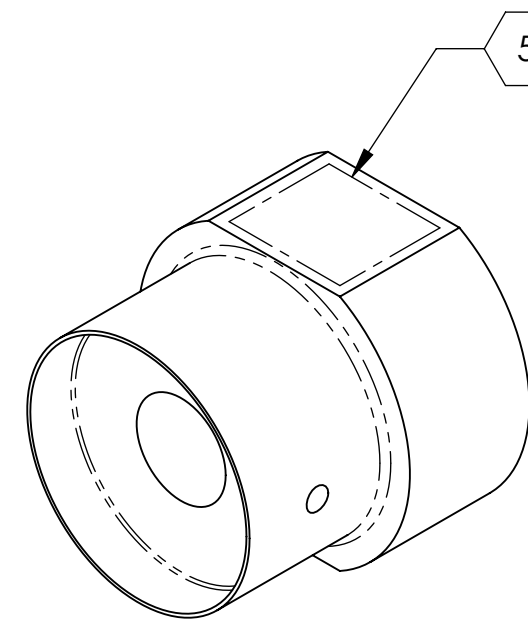
SCALE: 1:1 PROJECTION: SHEET 1 OF 1

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 101 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 = 2.463g
 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.

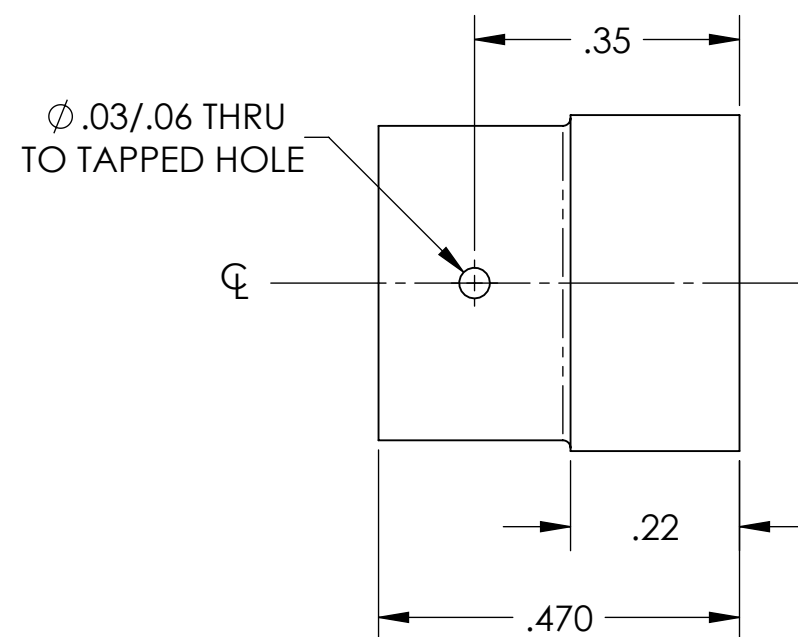
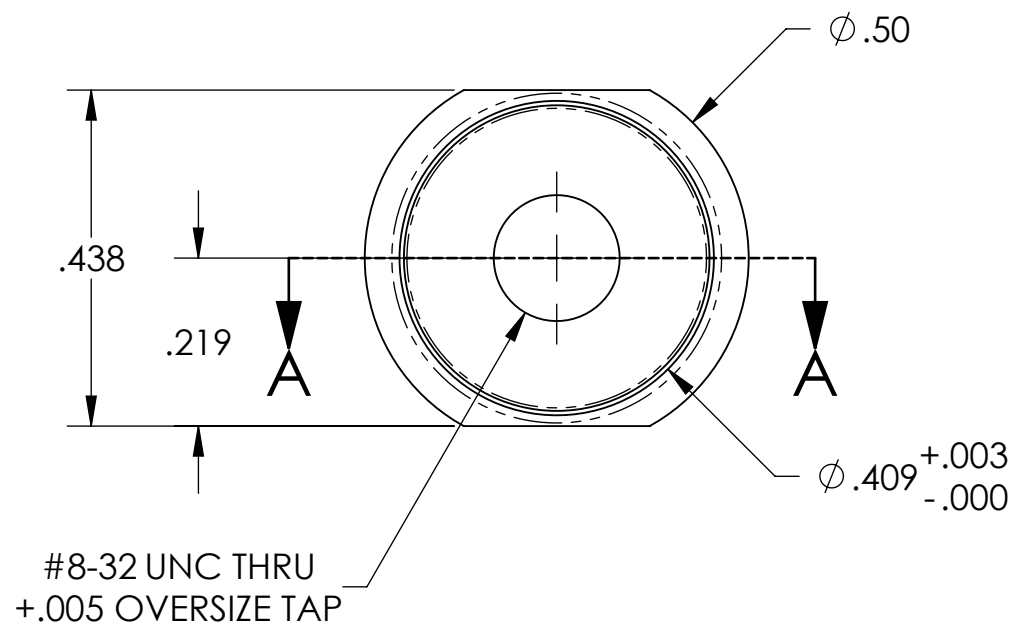
REV.	DATE	DCN #	DRAWING TREE #
V1	09 JUL 2010	E0900501	E0900353
-	-	-	-
-	-	-	-



SECTION A-A



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES		1. INTERPRET DRAWING PER ASME Y14.5-1994.	
TOLERANCES:		2. REMOVE ALL SHARP EDGES, R.02 MIN.	
.XX ± .03		3. DO NOT SCALE FROM DRAWING.	
.XXX ± .005		4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.	
ANGULAR ± 0.5°			
MATERIAL	6061-T6 Al	FINISH	32 μinch

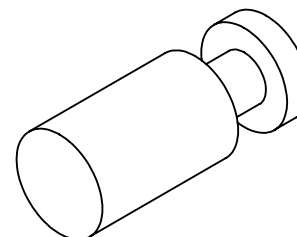
LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		PART NAME	
ADVANCED LIGO		MAGNET HOLDER (LONG), UPPER MASS	
DESIGNER	M. MEYER	12 OCT 2009	SIZE DWG. NO.
DRAFTER	B. MOORE	14 APR 2010	B D0902423
CHECKER	M. MEYER	15 APR 2010	REV.
APPROVAL			v1
NEXT ASSY		SCALE: 4:1 PROJECTION: SHEET 1 OF 1	
D0902418			

D0902423_AdvLIGO_SUS_HSTS_Magnet Holder (Long), Upper Mass, PART PDM REV: X-008, DRAWING PDM REV: X-007

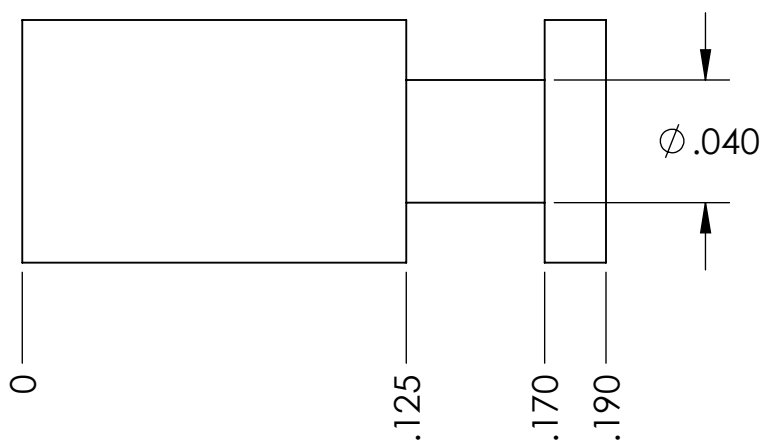
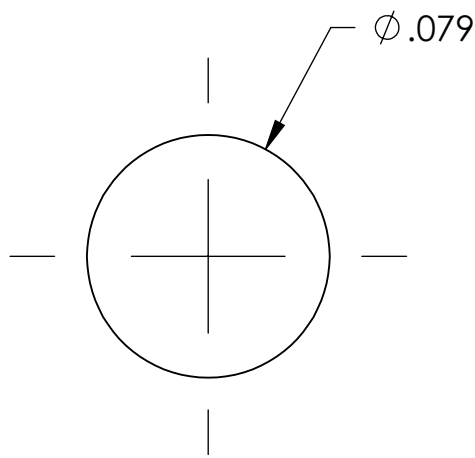
NOTES CONTINUED:

- 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 101 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 = 0.034g
- 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	16 JUN 2010	E0900507	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .01
.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 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY HSTS TEST MASS

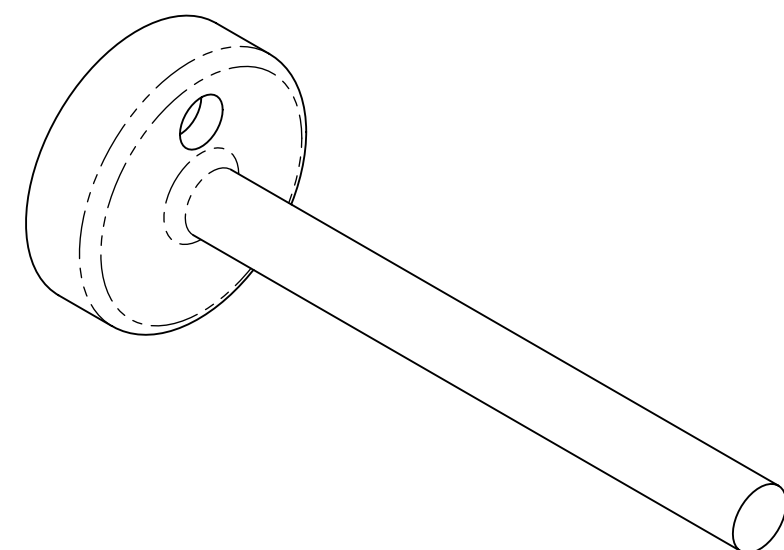
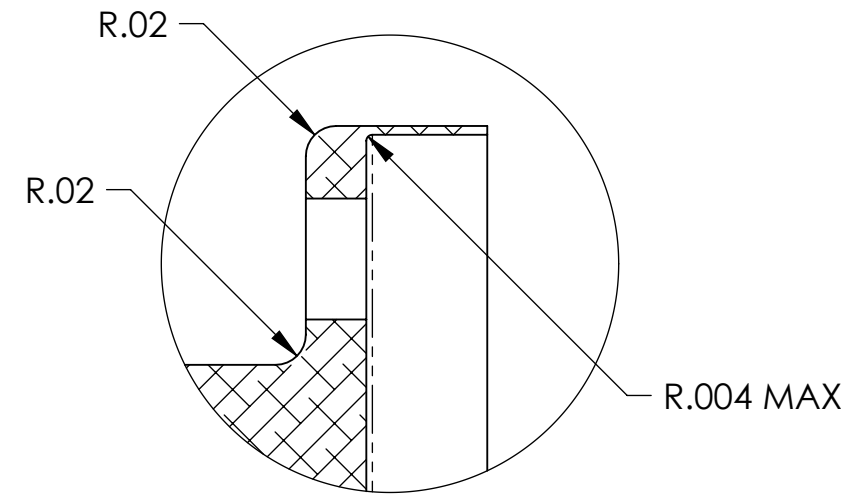
PART NAME MAGNET STANDOFF, HSTS TEST MASS

DESIGNER	M. MEYER	14 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	18 NOV 2009	A	D0902431	v1
CHECKER	M. MEYER	19 NOV 2009	SCALE: 16:1 PROJECTION:		
APPROVAL			SHEET 1 OF 1		

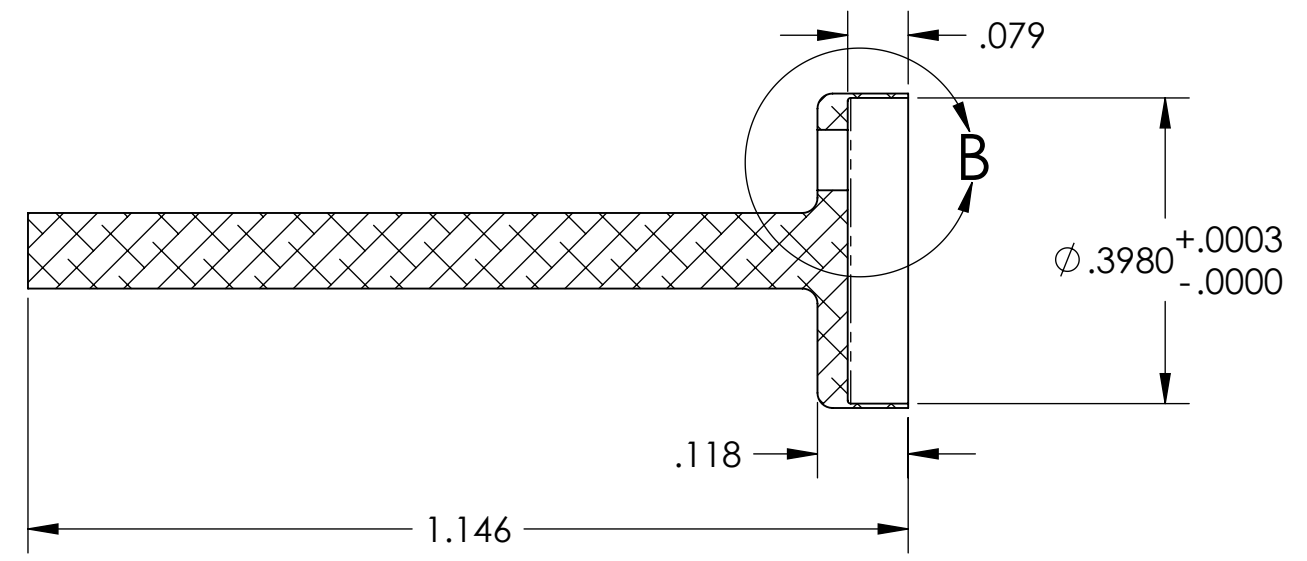
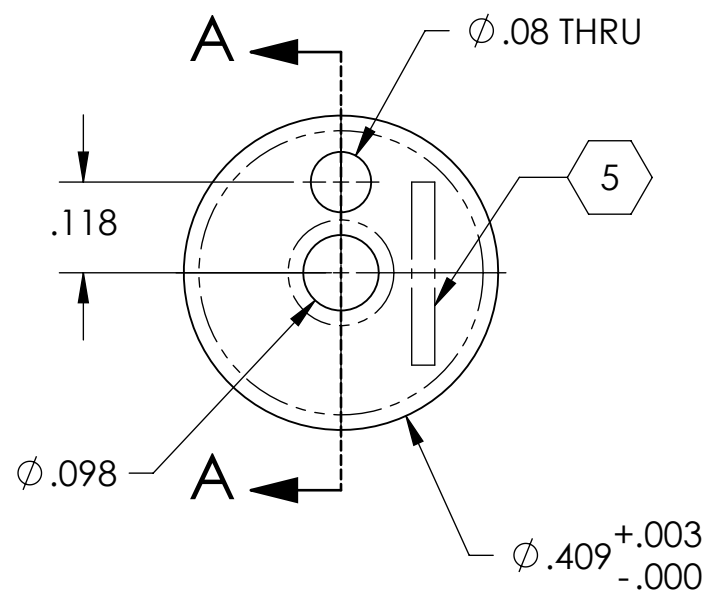
D0902491_AdvLIGO_SUS_HSTS_Magnet Flag, Upper Mass, PART PDM REV: X-004, DRAWING PDM REV: X-006

NOTES CONTINUED:
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.
 EXAMPLE (PART): XXX-v1
 EXAMPLE (TAG): DXXXXXX-vy, TYPE-xx, QTY: TBD
 6. APPROXIMATE WEIGHT = 0.589g
 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	09 JUL 2010	E0900501	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



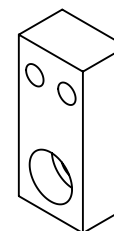
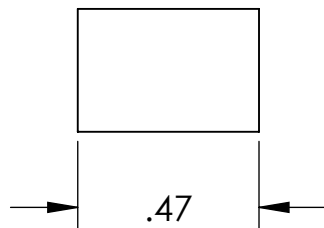
SECTION A-A

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. 2. REMOVE ALL SHARP EDGES, R.02 MIN.		SYSTEM		SUB-SYSTEM		DESIGNER		M. MEYER 27 OCT 2009		
TOLERANCES: .XX ± .01 .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.		ADVANCED LIGO		SUS		DRAFTER		B. MOORE 17 NOV 2009		
ANGULAR ± 0.5°		MATERIAL		FINISH		NEXT ASSY		CHECKER		M. MEYER 28 NOV 2009		
		6061-T6 Al		32 μinch		MULTIPLE ASSY		APPROVAL		SCALE: 4:1 PROJECTION:		
										SIZE DWG. NO.		REV.
										B D0902491		v1
										SHEET 1 OF 1		

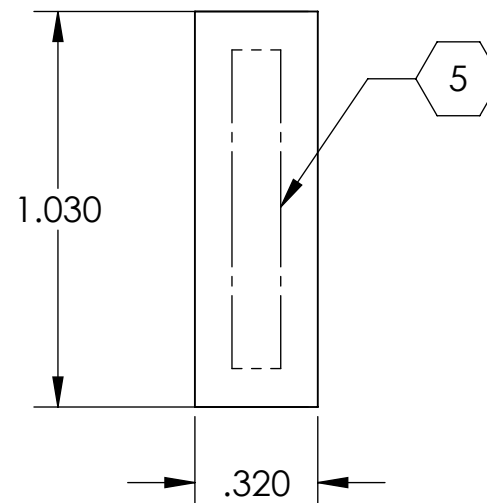
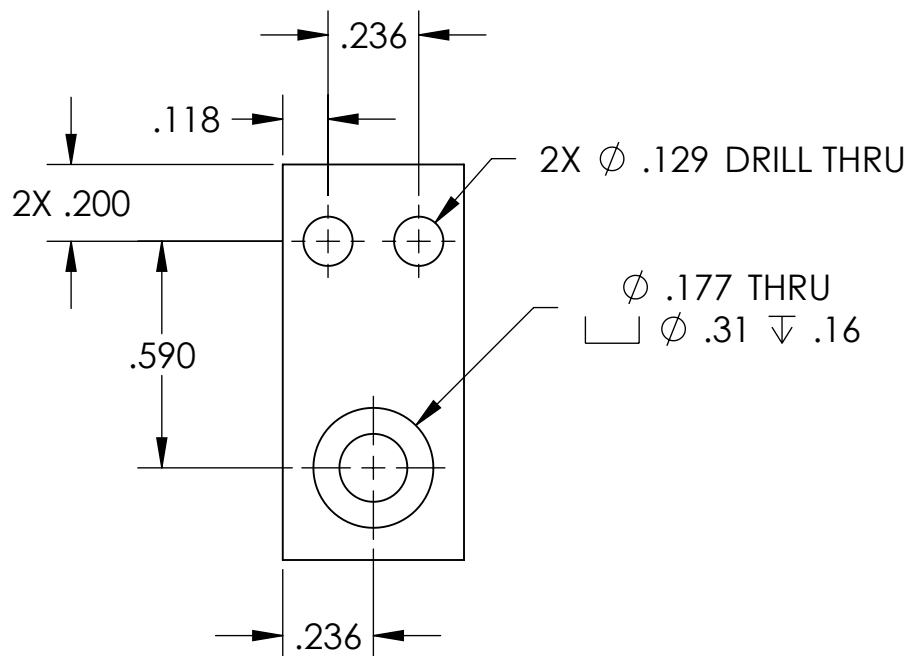
NOTES:

- 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 101 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 = 0.013 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	09 JUL 2010	E0900501	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.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 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY D020534

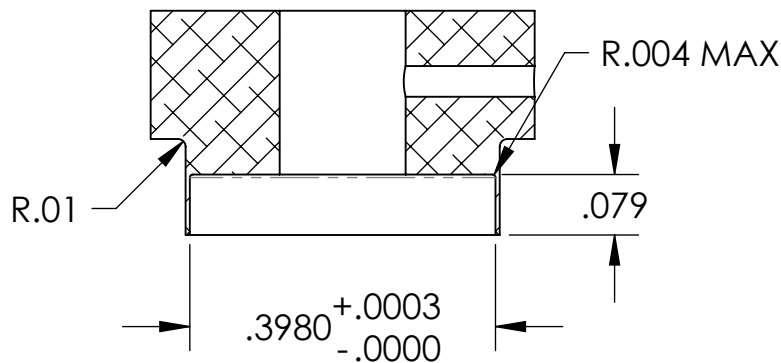
PART NAME MAGNET/FLAG ASSY BASE PLATE, UPPER MASS

DESIGNER	M. MEYER	26 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	13 APR 2010	A	D0902493	v1
CHECKER	M. MEYER	14 APR 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

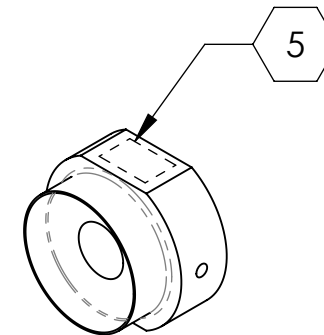
NOTES CONTINUED:

- 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 101 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 = 1.461g
- 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.

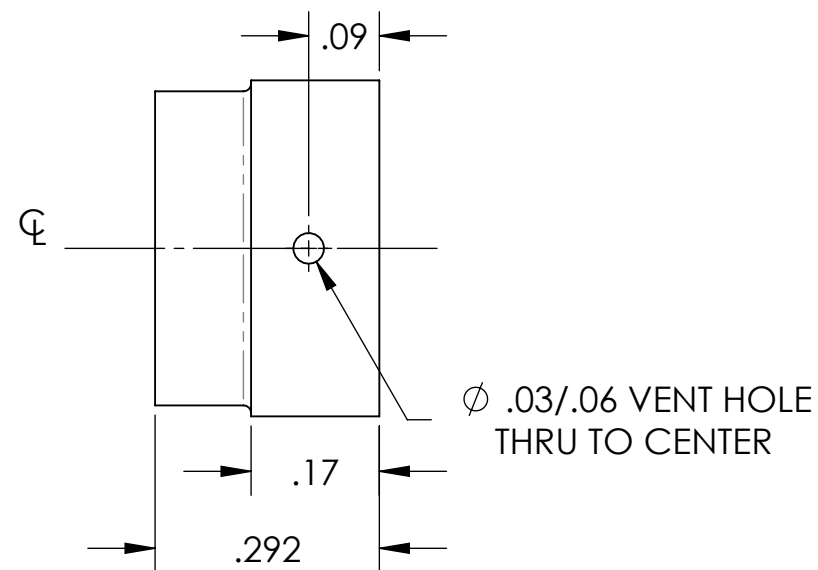
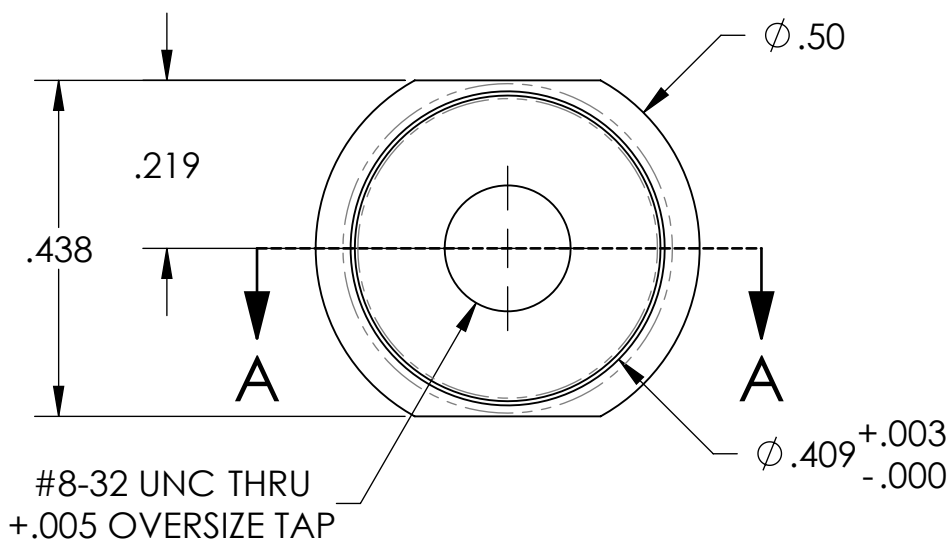
REV.	DATE	DCN #	DRAWING TREE #
v1	-	INTERNAL REV	-
v2	09 JUL 2010	E0900501	E0900353
-	-	-	-



SECTION A-A



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.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 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY D0902492

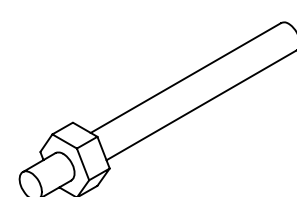
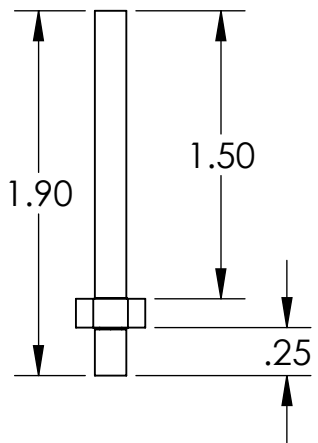
PART NAME
MAGNET HOLDER (SHORT), UPPER MASS

DESIGNER	M. MEYER	12 OCT 2009	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	14 APR 2010	A	D0902494	v2
CHECKER	M. MEYER	15 APR 2010			
APPROVAL			SCALE: 4:1	PROJECTION:	SHEET 1 OF 1

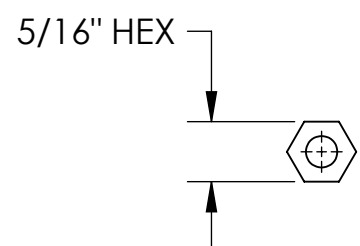
NOTES CONTINUED:

- 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 101 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 = 0.014 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	16 JUN 2010	E0900505	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



5/16" HEX

#8-32 UNC-2A THREAD

#8-40 UNS-2A THREAD

MIN R

SMALL UNDERCUT ACCEPTABLE
Ø.12 MIN

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES	1. INTERPRET DRAWING PER ASME Y14.5-1994.
TOLERANCES: .XX ± .03 .XXX ± .005	2. REMOVE ALL SHARP EDGES, R.02 MIN.
ANGULAR ± 0.5°	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
304, 316 OR 302 SSSL	32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: **ADVANCED LIGO** SUB-SYSTEM: **SUS**

NEXT ASSY: **MULTIPLE ASSY**

PART NAME			ADJUSTER SHAFT		
DESIGNER	B. MOORE	17 MAR 2010	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	26 MAR 2010	A	D1000659	v1
CHECKER	M. MEYER	26 MAR 2010	SCALE: 1:1	PROJECTION:	
APPROVAL					SHEET 1 OF 1

4

3

2

1

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 101 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 VICTREX 450G OR EQUIVALENT. VIRGIN PEEK RESIN, NO OTHER ADDITIVES.

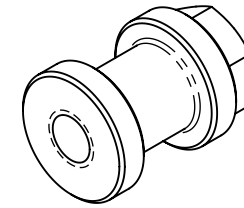
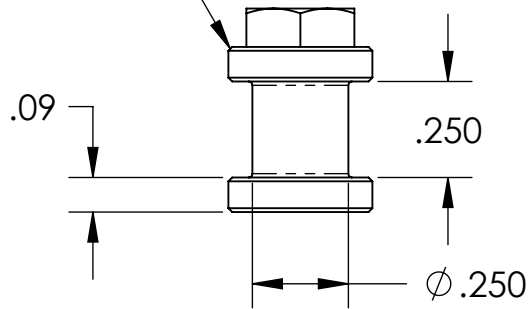
7. APPROXIMATE WEIGHT = 0.673g

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.

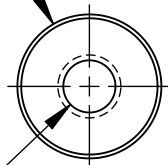
REV.	DATE	DCN #	DRAWING TREE #
v1	16 JUN 2010	E0900505	E0900353
-	-	-	-
-	-	-	-

.01 X 45° TYP.



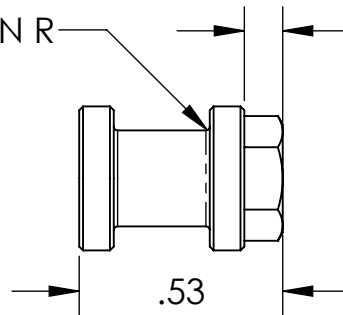
ISOMETRIC VIEW

Ø .38

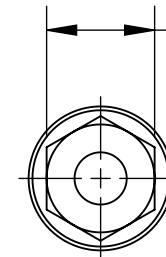


#8-40 UNS-2B THRU

MIN R .10



9/32" HEX



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .03
.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

PEEK ⑥

FINISH

32 μinch



CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM

ADVANCED LIGO

SUB-SYSTEM

SUS

NEXT ASSY

MULTIPLE ASSY

PART NAME

ADJUSTMENT NUT

DESIGNER B. MOORE 17 MAR 2010

DRAFTER B. MOORE 26 MAR 2010

CHECKER M. MEYER 26 MAR 2010

APPROVAL

SIZE

A

DWG. NO.

D1000660

REV.

v1

SCALE: 2:1

PROJECTION:



SHEET 1 OF 1

4

3

2

1

4

3

2

1

NOTES CONTINUED:

5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO DYES OR INKS) A UNIQUE THREE DIGIT SERIAL NUMBER & REVISION NUMBER ON EACH PART. SERIAL NUMBERS & REVISION NUMBER ON EACH PART. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. BAG AND TAG PARTS WITH THEIR DRAWING PART NUMBER, REVISION, VARIANT OR "TYPE" (IF APPLICABLE), AND QUANTITY. IF PARTS ARE TOO SMALL TO SCRIBE, BAGGING AND TAGGING ALONE IS SUFFICIENT.

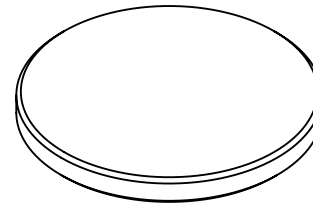
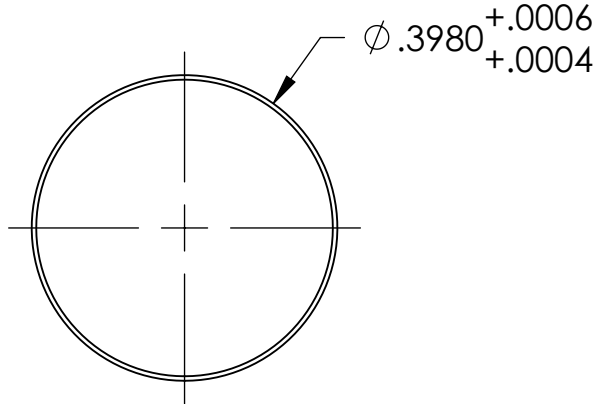
EXAMPLE (PART): XXX-v1
 EXAMPLE (TAG): DXXXXXX-VY, TYPE-XX, QTY: TBD

6. APPROXIMATE WEIGHT = 0.644g

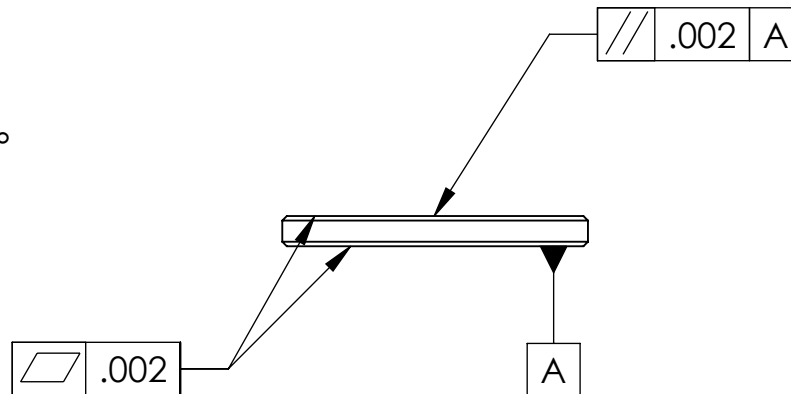
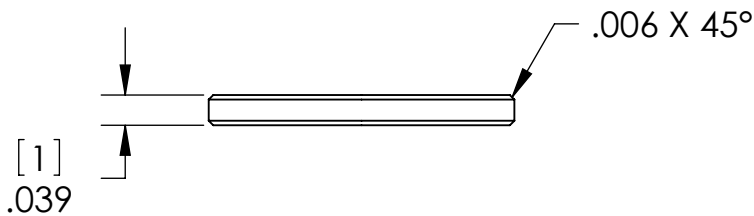
7. MACHINE ALL SURFACES TO REMOVE OXIDES AND MILL FINISH. USE OF ABRASIVE REMOVAL TECHNIQUES IS NOT ALLOWED.

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

REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
 .XX ± .03
 .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 416 SSSL FINISH 32 μinch



SYSTEM ADVANCED LIGO SUB-SYSTEM SUS

NEXT ASSY MULTIPLE ASSY

PART NAME				MAGNETIC PLUG		DESIGNER	M. MEYER	14 JUN 2010	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	14 JUN 2010	A	D1001534		v1					
CHECKER	M. MEYER	16 JUN 2010									
APPROVAL			SCALE: 4:1	PROJECTION:			SHEET 1 OF 1				

4

3

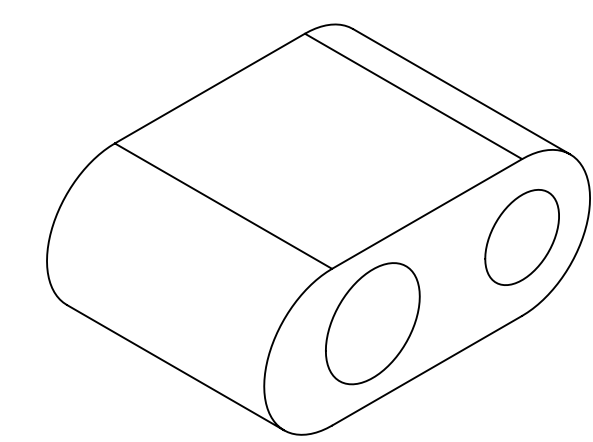
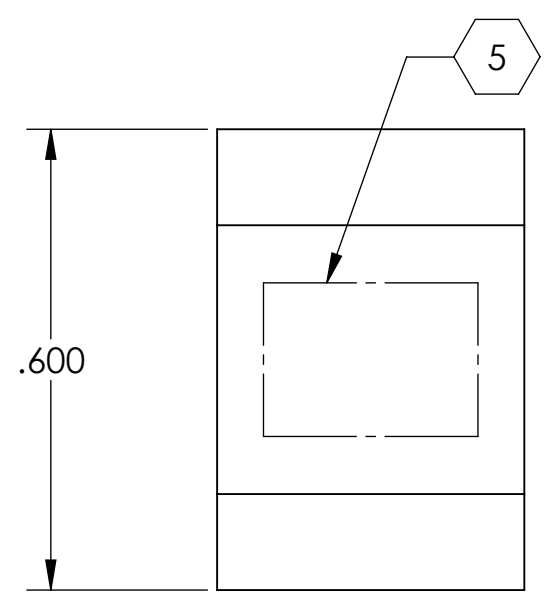
2

1

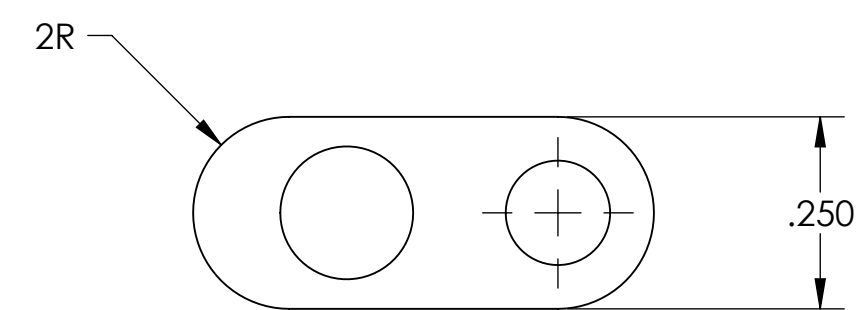
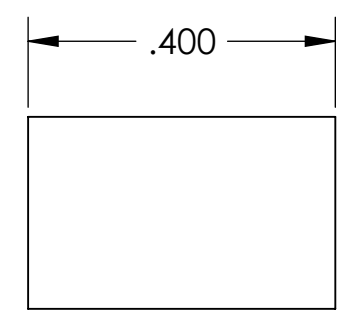
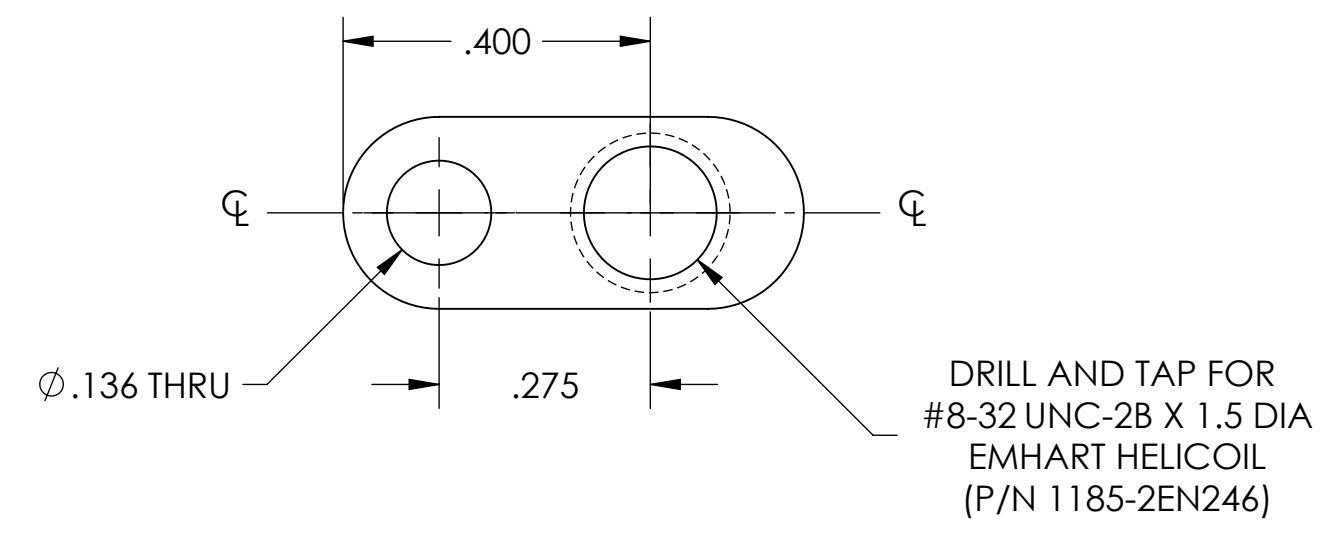
NOTES CONTINUED:

- 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 101 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 = 0.012 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 HELI-COIL HOLES TO BE PREPARED ACCORDING TO EMHART HELI-COIL PRODUCT CATALOG, HC2000, REV 4
- 10. ALL HELI-COIL INSERTS TO BE INSTALLED BY LIGO PERSONNEL. AFTER DELIVERY OF FINISHED PARTS, USE NITRONIC 60 THREADED INSERTS.

REV.	DATE	DCN #	DRAWING TREE #
v1	09 JUL 2010	E0900501	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



<p>NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)</p> <p>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.</p>		<p>LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY</p>		<p>PART NAME LOCKING ASSY, BLADE GUARD</p>							
<p>DIMENSIONS ARE IN INCHES</p> <p>TOLERANCES: .XX ± .03 .XXX ± .005</p> <p>ANGULAR ± 0.5°</p>		<p>SYSTEM ADVANCED LIGO</p>		<p>SUB-SYSTEM SUS</p>		<p>DESIGNER B. MOORE 06 JUL 2010 DRAFTER B. MOORE 08 JUL 2010 CHECKER M. MEYER 08 JUL 2010 APPROVAL</p>		<p>SIZE DWG. NO. c D1001656</p>		<p>REV. v1</p>	
<p>MATERIAL 304, 316 OR 302 SSTL</p>		<p>FINISH 32 μinch</p>		<p>NEXT ASSY D020535</p>		<p>SCALE: 4:1 PROJECTION: </p>		<p>SHEET 1 OF 1</p>			

4

3

2

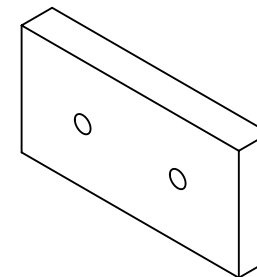
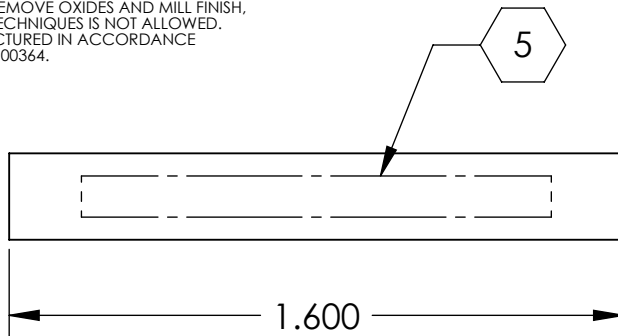
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NOTES CONTINUED:

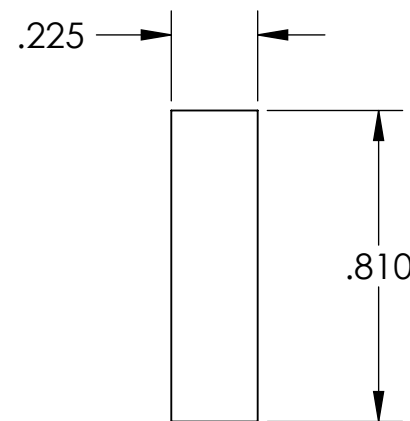
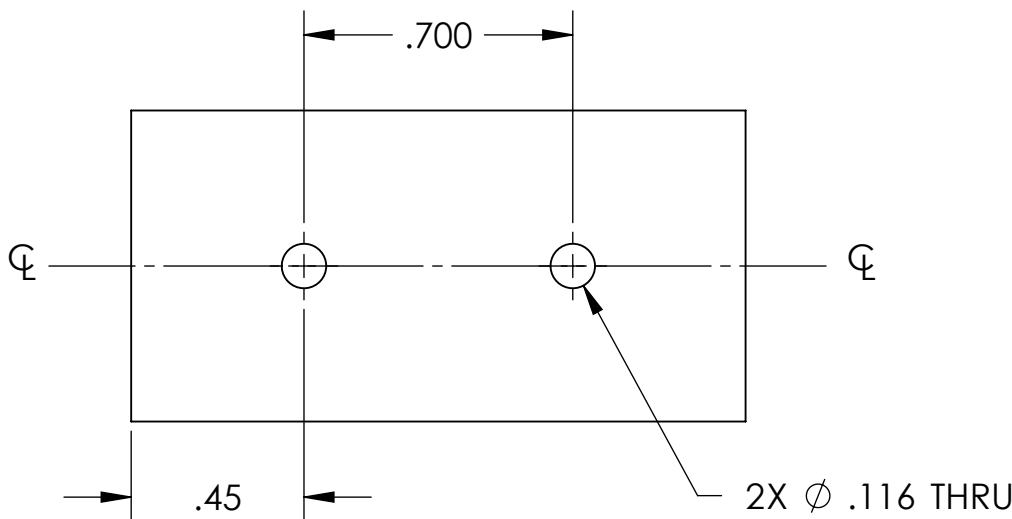
5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 101 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 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 = 0.083 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	09 JUL 2010	E0900501	E0900353
-	-	-	-
-	-	-	-



ISOMETRIC VIEW



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:
.XX ± .03
.XXX ± .005

ANGULAR ± 0.2°

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 304, 316 OR 302 SSSL
FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **D020534**

PART NAME **REPLACEMENT WEIGHT, UPPER MASS, HSTS**

DESIGNER	B. MOORE	06 JULY 2010	SIZE	DWG. NO.	REV.
DRAFTER	B. MOORE	08 JUL 2010	A	D1001686	v1
CHECKER	M. MEYER	08 JUL 2010	SCALE: 2:1	PROJECTION:	SHEET 1 OF 1
APPROVAL					

4

3

2

1

4

3

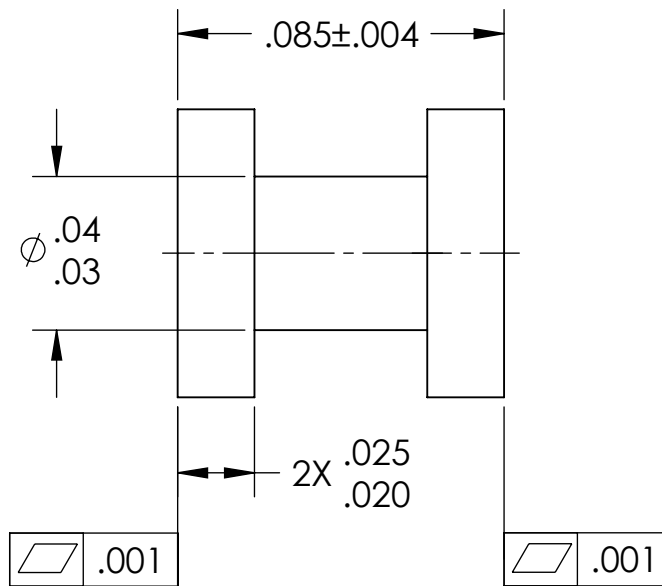
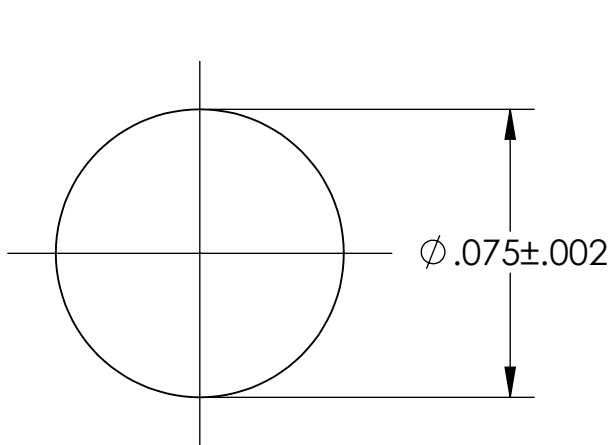
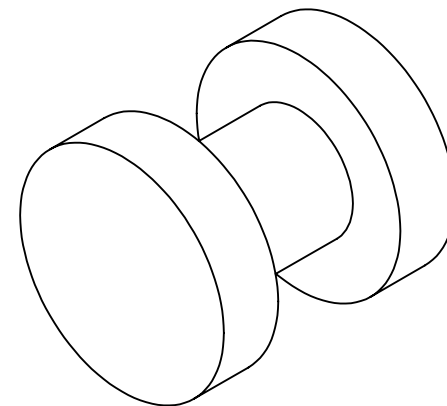
2

1

NOTES CONTINUED:

Ⓢ BAG ALL ITEMS AND MARK OR TAG EACH BAG WITH DRAWING NUMBER, REVISION, AND QUANTITY. EXAMPLE: DXXXXXX-VY, QTY: Z

REV.	DATE	DCN #	DRAWING TREE #
A	30 JUL 1997	E970121	-
v1	06 JUL 2009	E0900189	-
-	-	-	-



NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES

TOLERANCES:

.XX ± .01
.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.

MATERIAL 6061-T6 Al FINISH 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM **ADVANCED LIGO** SUB-SYSTEM **SUS**

NEXT ASSY **MULTIPLE ASSYS**

PART NAME **DUMBBELL STANDOFF**

DESIGNER C. TORRIE 12 JUL 2004	SIZE DWG. NO. A D970075	REV. v1
DRAFTER D. BRIDGES 14 JUL 2009		
CHECKER M. MEYER 15 JUL 2009		
APPROVAL	SCALE: 20:1	PROJECTION:

SHEET 1 OF 1

4

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1