

D060145-A

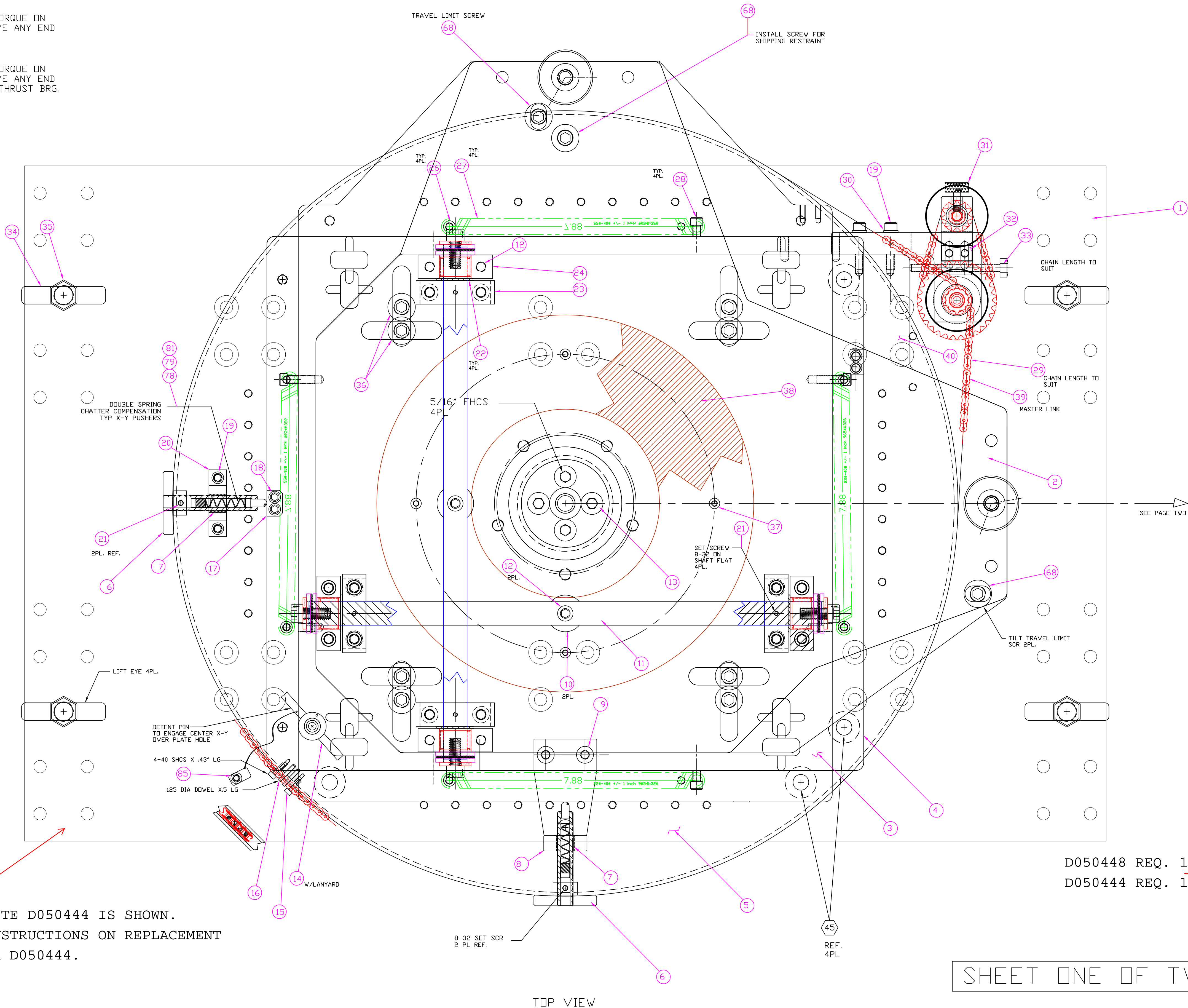
NOTES: (UNLESS OTHERWISE SPECIFIED)

1. PLATING AT STEVES PLATING  
BURBANK

2. USE ONLY LIGHT TORQUE ON  
SCREW #76 TO REMOVE ANY END  
PLAY

3. USE ONLY LIGHT TORQUE ON  
SCREW #65 TO REMOVE ANY END  
PLAY AND PRE-LOAD THRUST BRG.

REV	DATE	DN #	DRAWING TREE #
A	2-16-96	LIGD-E060004-00	



PLEASE NOTE D050444 IS SHOWN.  
FOLLOW INSTRUCTIONS ON REPLACEMENT  
SHEET FOR D050444.

D050448 REQ. 1  
D050444 REQ. 1

SHEET ONE OF TWO

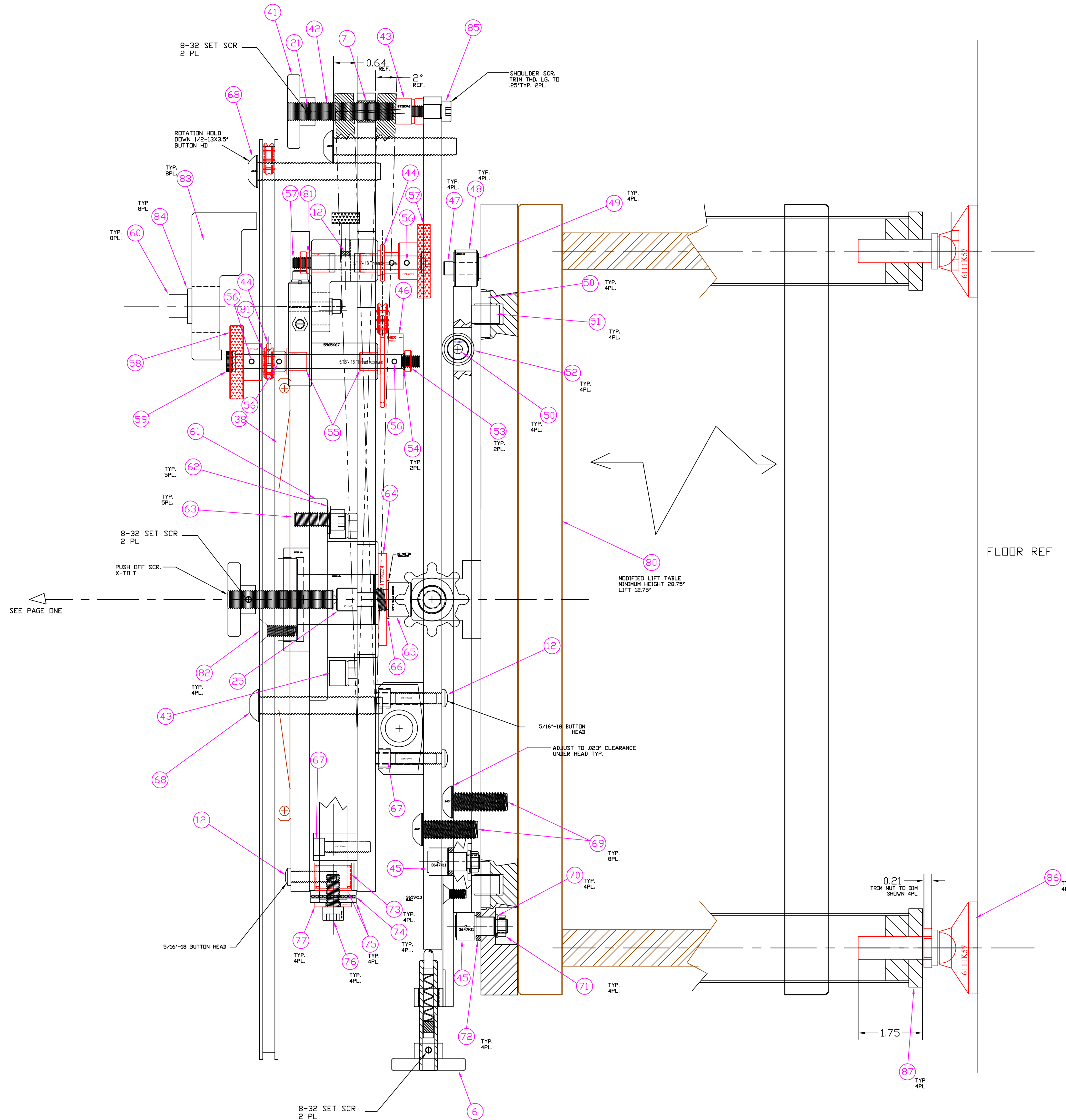
ITEM NO.	REQ.	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
40	1			DWG # D050449-A	ROLL PLATE QUAD FIXTURE	
39	2			MCM #6264K2	25-S.S. CONNECTOR LINK	MCMaster CARR
38	1			MCM #1544T3	12" DIA FLAT BEARING	MCMaster CARR
37	4			MCM #92949A240	10-24 S.S. BUTTON HD X.375" LG.	MCMaster CARR
36	8			MCM #92949A716	1/2-13 S.S. BUTTON HD X1.5" LG.	MCMaster CARR
35	4			MCM #91847A540	5/8-11 S.S. HEX NUT	MCMaster CARR
34	4			MCM #3014T148	5/8-11 EYE BOLT	MCMaster CARR
33	1			MCM #92240A554	1/4-20 S.S. SHCS X3.0" LG	MCMaster CARR
32	1			DWG #D060011-A	WASHER PLATE	
31	4			MCM #91185A511	5/16-24 PLASTIC S.S. X.5" LG. RED	MCMaster CARR
30	2			MCM #90313A204	.266 ID X .56 OD X .056" THK	MCMaster CARR
29	8'			MCM #6264K1	25-S.S. ROLLER CHAIN 8' LG.	MCMaster CARR
28	4			MCM #92196A541	1/4-20 S.S. SHCS X.87" LG	MCMaster CARR
27	4			MCM #9654K326	TENSION SPRING	MCMaster CARR
26	4			MCM #92196A543	1/4-20 S.S. SHCS X1.25" LG	MCMaster CARR
25	1			MCM #8511A31	S.S. 5/8 DIA X 5/8" TALL PAD	MCMaster CARR
24	4			#D060003-A	FIXTURE TILT BEARING BRACKET	
23	4			#D060006-A	TILT SHAFT BRACKET	
22	4			MCM #98126A745	.75" ID X1.12" OD X .06" THK WASHER	MCMaster CARR
21	8			MCM #91375A188	8-32 SHSET SCR. X 1.25" LG.	MCMaster CARR
20	1			#D060004-A	X-PLATE ADJUSTMENT BRACKET	
19	4			MCM PART#	1/4-20 S.S. SHCS X1" LG.	MCMaster CARR
18	2			MCM #92196A546	1/4-20 S.S. SHCS X1.5" LG.	MCMaster CARR
17	2			#D060009-A	X-PLATE ADJUSTER FOOT	
16	2			MCM #98381A218	.125" DIA DDWEL X .43" LG	MCMaster CARR
15	2			MCM #92196A110	4-40 S.S. SHCS X.5" LG.	MCMaster CARR
14	1			MCM #98470A762	1/2" DIA DETENT PIN	MCMaster CARR
13	4			MCM PART#91266A533	5/16-18 FHCS X 1" LG	MCMaster CARR
12	10			MCM #91306A410	BUTTON HD 5/16-18 X1.5" LG.	MCMaster CARR
11	2			#D060007-A	TILT AXIS SHAFT	
10	2			#D060014-A	SHAFT SPACER PLATE.	
9	2			MCM #92210A539	FHCS S.S. 1/4-20X .75 LG.	MCMaster CARR
8	1			DWG #D060017-A	Y-PL. ADJ. BRACKET ALT	
7	4			#1185-8EN500	1/2-13 NITRONIC 60 INSERT .5" LG.	AIRBORNEWARE 1-800-342-4460
6	2			#D060068-A	X-Y PUSHER KNOB MOD	MCMaster CARR
5	1			D050450-A	ROTARY PLATE QUAD FIXTURE.	
4	1			D050446-A	X-PLATE QUAD FIXTURE	
3	1			#D050447-A	Y-PLATE QUAD INSTALL FIXTURE	
2	X			D050448-A	PITCH PLATE QUAD FIXTURE	
1	X			D050444-A	BASE PLATE QUAD FIXTURE	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		DATE	NAME	PARTS LIST	
DRAWN	2-16-96	KEM	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
CHECKED			SYSTEM	LHD /LLO	
			SUB-SYSTEM	TCS	
			NEXT ASSY	NONE	
			PART NAME	QUAD SUS FIXTURE ASSEMBLY	
			SIZE	DWG. NO.	REV
			D	D060145-A	
			SCALE:	SHEET 1 OF 2	

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. SEE SHEET ONE.

REV.	DATE	BY	APP.	DRAWING TREE #
A	2-16-06	KEM		



SIDE VIEW

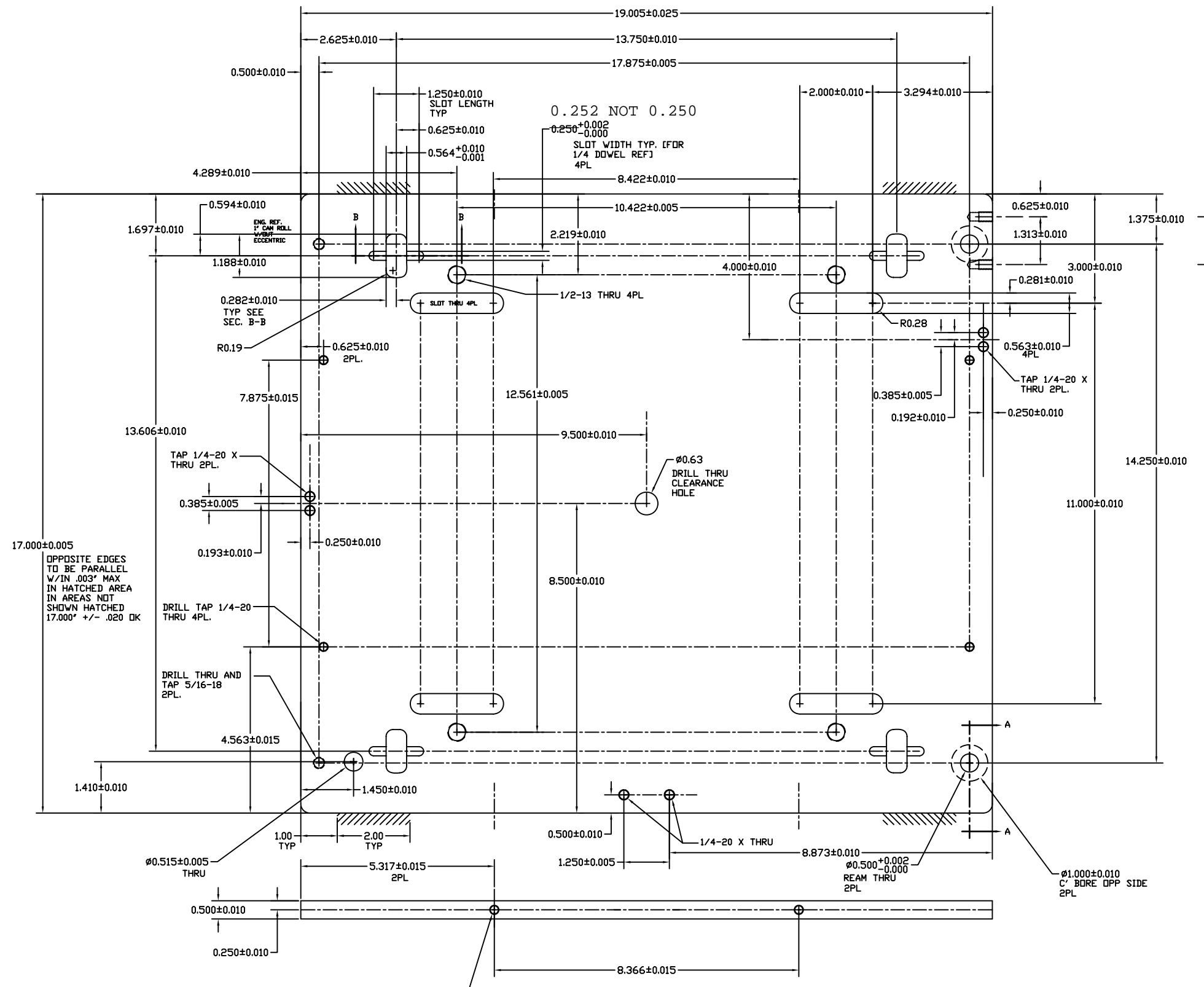
SHEET TWO OF TWO

ITEM NO.	REQ. QUANTITY	SPARE QUANTITY	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
87	4			#D060168-A	TABLE FOOT PAD	
86	4			MCM #6111K57	LEVELING FOOT	MCMaster CARR
85	1			MCM #91306A343	10-24 X .50" LG BUTTON HD.	MCMaster CARR
84	8			MCM #98370A013	.28" ID X .5" OD X .07" THK WASHER	MCMaster CARR
83	8			DWG #D060066-A	DOG CLAMP	
82	4			MCM #91263A575	5/16-18 X 1.0" LG. FLAT HD SCR.	MCMaster CARR
81	2			MCM #9657K231	25" OD SPRING	MCMaster CARR
80	1				24" X 36" LIFT TABLE MODIFIED	W.W. GRANGER
79	2			MCM #9657K65	SPRING PLUNGER [USE PARTS]	MCMaster CARR
78	2			MCM #3126A121	SPRING PLUNGER [USE PARTS]	MCMaster CARR
77	4			MCM #98370A021	3/8" ID X 1.0" OD X .13" THK WASHER	MCMaster CARR
76	4			MCM #93705A622	SHCS S.S. 3/8-16 X .75" LG.	MCMaster CARR
75	8			MCM #5909K59	.75" ID X 1.25" OD X .126" THK WASHER	MCMaster CARR
74	4			MCM #5909K33	.75" ID X 1.25" OD X .14" THK THRUST BRG.	MCMaster CARR
73	4			MCM #5905K67	.75" ID X 1.0" OD NEEDLE BRG.	MCMaster CARR
72	4			MCM #98126A837	.5" ID X .75" OD X .125" THK	MCMaster CARR
71	4			MCM #93839A815	3/8-24 HEX NUT	MCMaster CARR
70	4			MCM #98126A736	WASHER .37" ID X .62" OD X .06" THK	MCMaster CARR
69	8			MCM #91306A437	SHCS 1/2-13 X 1.5" LG.	MCMaster CARR
68	1			MCM #92949A724	BUTTON HS S.S. 1/2-13 X 3" LG	MCMaster CARR
67	8			MCM #91274A248	SHCS 5/16-18 X 1.25" LG.	MCMaster CARR
66	1			MCM #91114A035	LOCK WASHER-TOOTH STYLE	MCMaster CARR
65	1			MCM #91251A796	5/8-11 X 1.25" LG SHCS	MCMaster CARR
64	1			MCM #91117A234	5/8" ID X 2.5" OD .25" THK WASHER	MCMaster CARR
63	5			MCM #91205A624	3/8-16 X 1" LG. SHCS	MCMaster CARR
62	5			MCM #98029A046	3/8" ID X 1" OD X .10" THK WASHER	MCMaster CARR
61	1			DYNAPAK #WH513115	5 BOLT FRONT WHEEL HUB	ZINC AUTO PARTS 91-94 MUSTANG
60	8			MCM #92196A552	1/4-20 S.S. SHCS X 2.5" LG	MCMaster CARR
59	8			D060069-A	LONG SHAFT SCREW MOD.	MCMaster CARR
58	1			#D060013-A	ROTATION KNOB MOD SHORT C'BORE	MCMaster CARR
57	1			#D060010-A	ROTATION KNOB MOD LONG C'BORE	MCMaster CARR
56	5			MCM #92373A215	5/32" DIA X .75" LG ROLL PIN	MCMaster CARR
55	4			MCM #7815K19	3/8" ID FLANGE BRG.	MCMaster CARR
54	2			MCM #90089A325	5/16" ID S.S. WASHER	MCMaster CARR
53	2			MCM #94252A706	5/16-18 S.S. HEX NUT	MCMaster CARR
52	4			MCM 6831K42	7/8" ODX.56" WX.25" ID CAM ROLL	MCMaster CARR
51	4			MCM #6831K41	3/4" ODX.56" WX.25" ID CAM ROLL	MCMaster CARR
50	8			MCM #98381A544	1/4" DIA X 1.25" LG DDWEL	MCMaster CARR
49	4			MCM #90313A206	WASHER .33" ID X .63" OD X .06" THK	MCMaster CARR
48	4			MCM #6831K43	CAM ROLLER 1" DIA	MCMaster CARR
47	4			92196A585	5/16-18 S.S. SHCS X 1.25" LG	MCMaster CARR
46	1			#D060015-A	LARGE SPROCKET MODIFICATION	MCMaster CARR
45	4			MCM #3647K11	ECCENTRIC CAM ROLL .75" OD	MCMaster CARR
44	2			DWG. # D060016-A	MCM #2737T3 11-T #25 SPROCKET	MCMaster CARR
43	4			MCM #8958A2	S.S. STOP	MCMaster CARR
42	2			#TST-0510 X 3-SB	1/2-13 X 3" LG. BALL END SCR.	FAIRLANE CORP. 1-586-494-6000
41	2			#D060077-A	S.S. KNOB MOD MCM #6020K42	MCMaster CARR

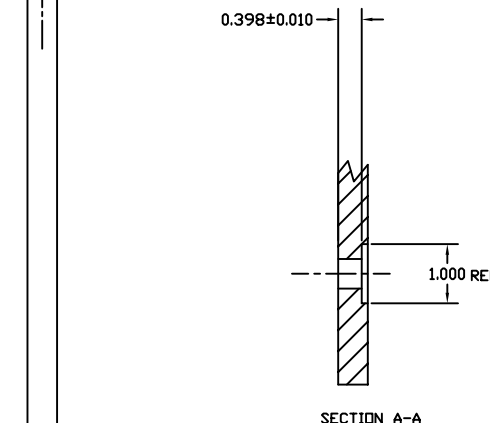
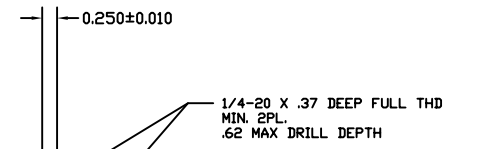
ITEM NO.	REQ. QUANTITY	SPARE QUANTITY	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
87	4			#D060168-A	TABLE FOOT PAD	

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV	DATE	BY	CHK	DWG NO	DRAWING TITLE
A	3-3-06			LIGO-E060004-00	



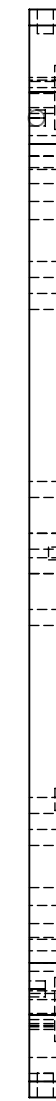
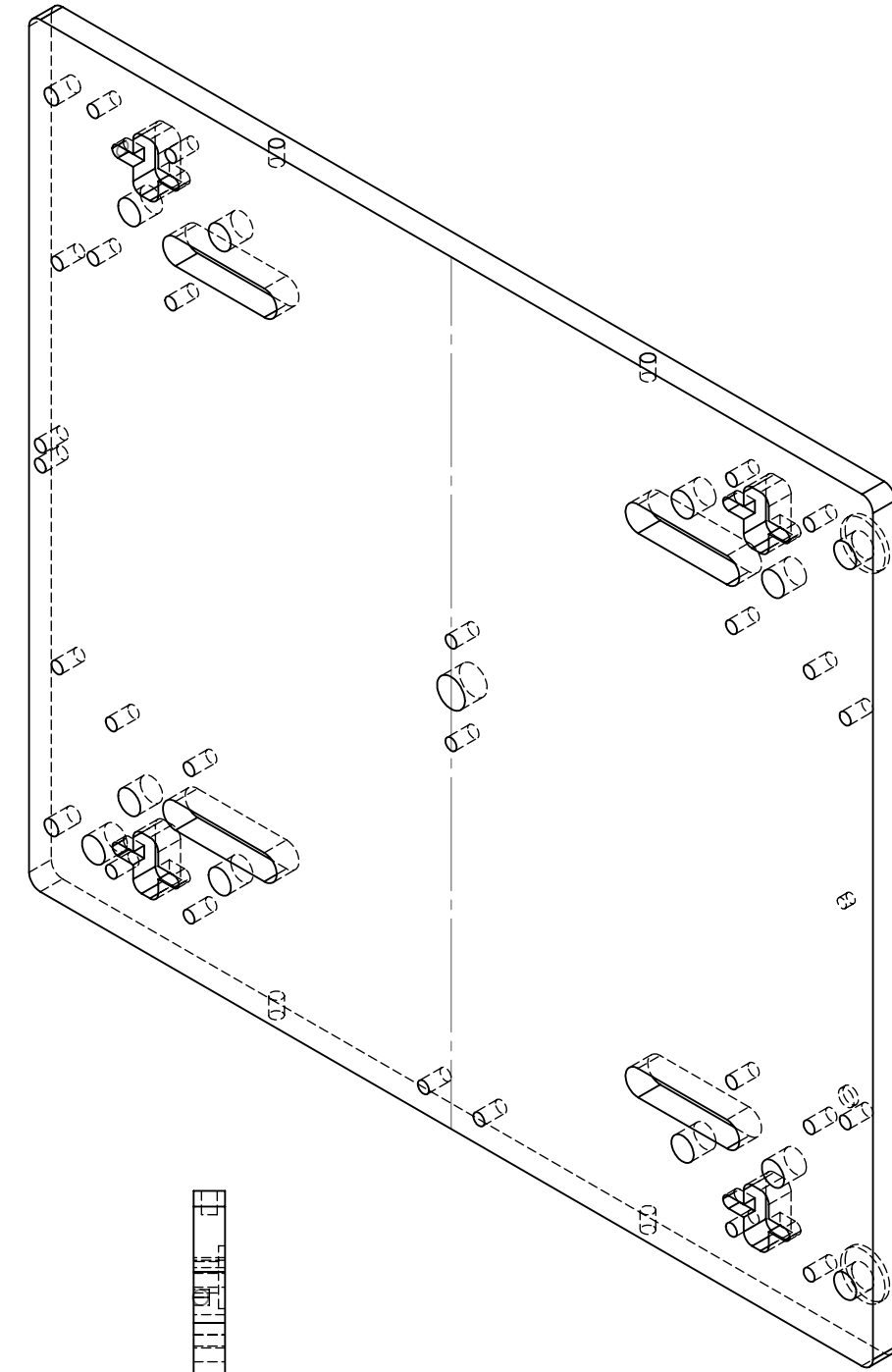
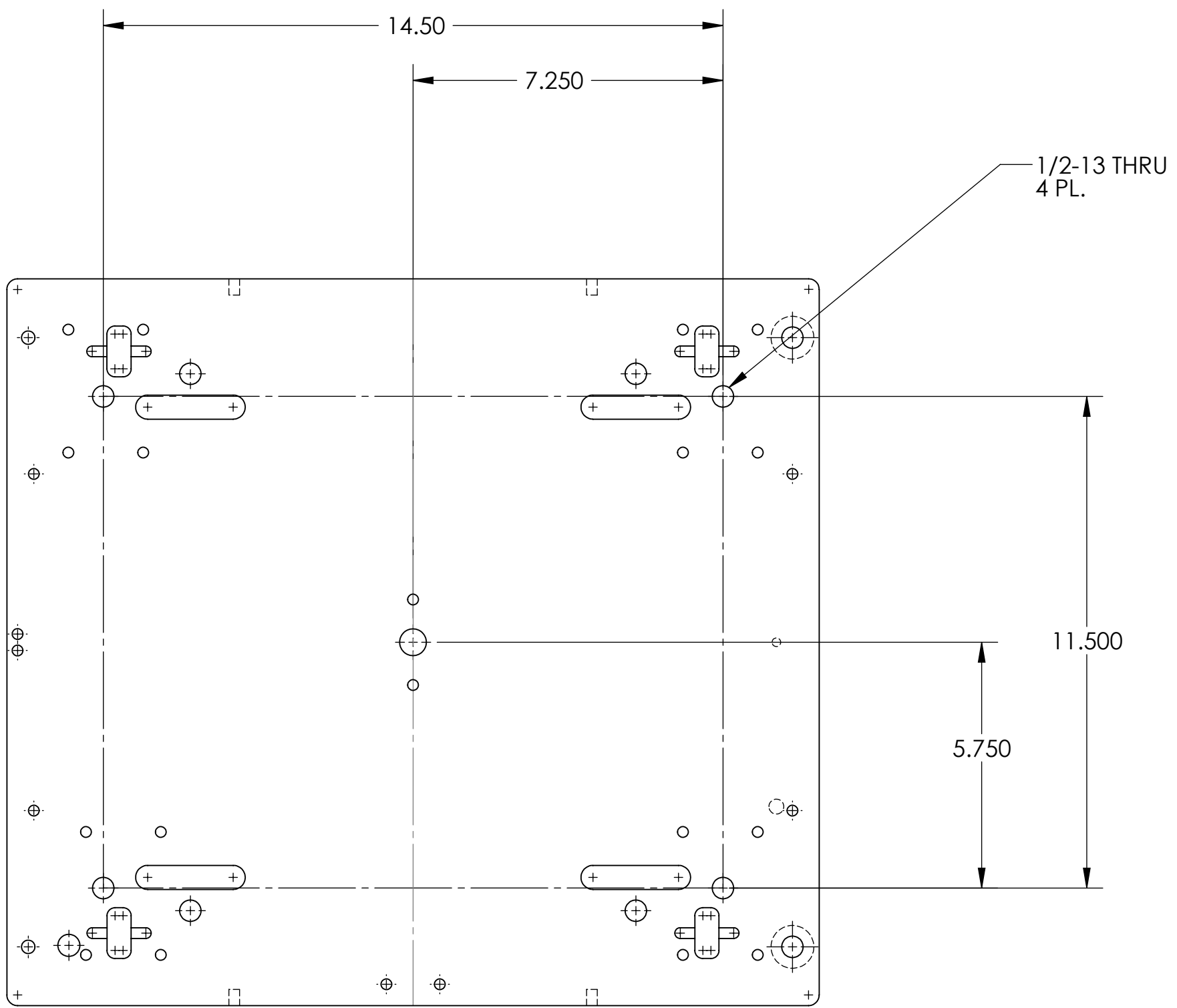
OPPOSITE EDGES TO BE PARALLEL W/IN .003" MAX IN HATCHED AREA IN AREAS NOT SHOWN HATCHED 17.000" +/- .020 OK



0.250±0.005 THE 4 DOWEL PIN POCKETS TO BE CO-PLANAR W/IN .005"

MAKE 1

UNLESS OTHERWISE SPECIFIED		DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES		3-3-06	REIN	SYSTEM	LASTI
TOLERANCES:				SUB-SYSTEM	QUAD SUSPENSION
XXX ±				NEXT ASSY	D06045-A
ANGULAR ±				PART NAME	X PLATE, QUAD INSTALL FIXTURE
MATERIAL	BLANKHARD GRIND STEEL	COMMENTS	WATER JET FROM PLATE	SIZE	DWG. NO. D050446-A
FINISH	FLASH CHROME 2000"			SCALE:	REV
					SHEET 1 OF 1



MODIFY EXISTING PLATE

THIS IS A MISSING DIMENSIONS CLARIFIED FOR D050446-A.

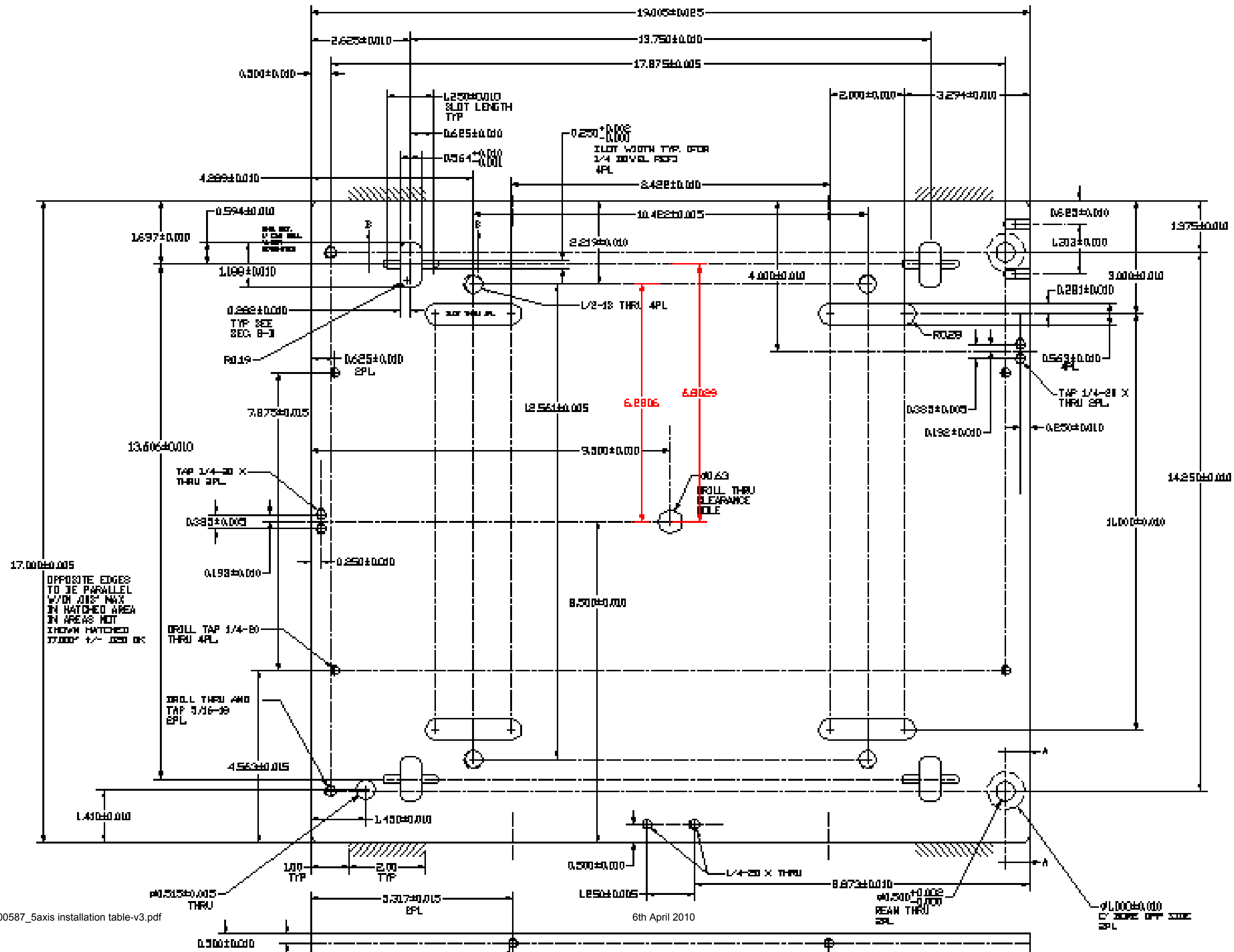
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6th April 2010

		UNLESS OTHERWISE SPECIFIED:	NAME	DATE
		DIMENSIONS ARE IN INCHES	DRAWN	
		TOLERANCES:	CHECKED	
		FRACTIONAL ±	ENG APPR.	
		ANGULAR: MACH ± BEND ±	MFG APPR.	
		TWO PLACE DECIMAL ±	Q.A.	
		THREE PLACE DECIMAL ±	COMMENTS:	
		INTERPRET GEOMETRIC TOLERANCING PER:		
		MATERIAL		
		FINISH		
NEXT ASSY	USED ON	32		
APPLICATION		DO NOT SCALE DRAWING		

SIZE	DWG. NO.	REV
<b>plate-SLDPROO</b>		
SCALE: 1:4	WEIGHT: 43.69	SHEET 1 OF 1

THIS IS ALSO A MISSING DIMENSIONS CLARIFIED FOR D050446-A.



DRAWING D050444-A HAS BEEN REMOVED.

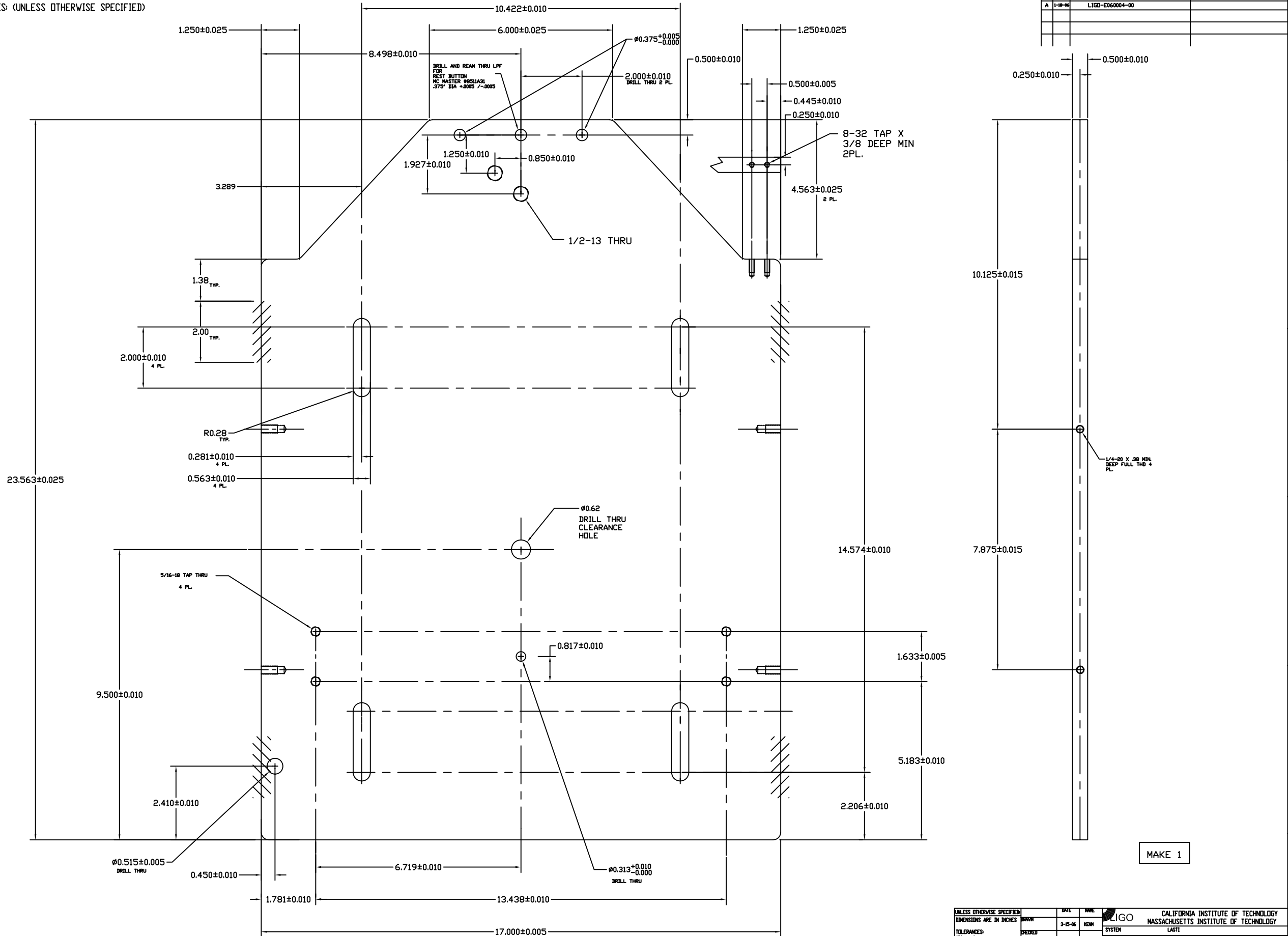
INSTEAD OF MAKING D050444-A AS SHOWN IN THE BILL OF MATERIALS PLEASE MAKE A SECOND COPY OF D050446-A (INCLUDING THE REVISION).

Calum I. Torrie

D050444-A

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	BY	CHKD	APP'D	DWG. NO.	DWG. TITLE
A	1-10-06				LIGO-E060004-00	



MAKE 1

17.000±0.005  
OPPOSITE EDGES  
TO BE PARALLEL  
W/IN .003" MAX  
IN HATCHED AREA  
IN AREAS NOT SHOWN HATCHED  
17.000" +/- .020 IS OK

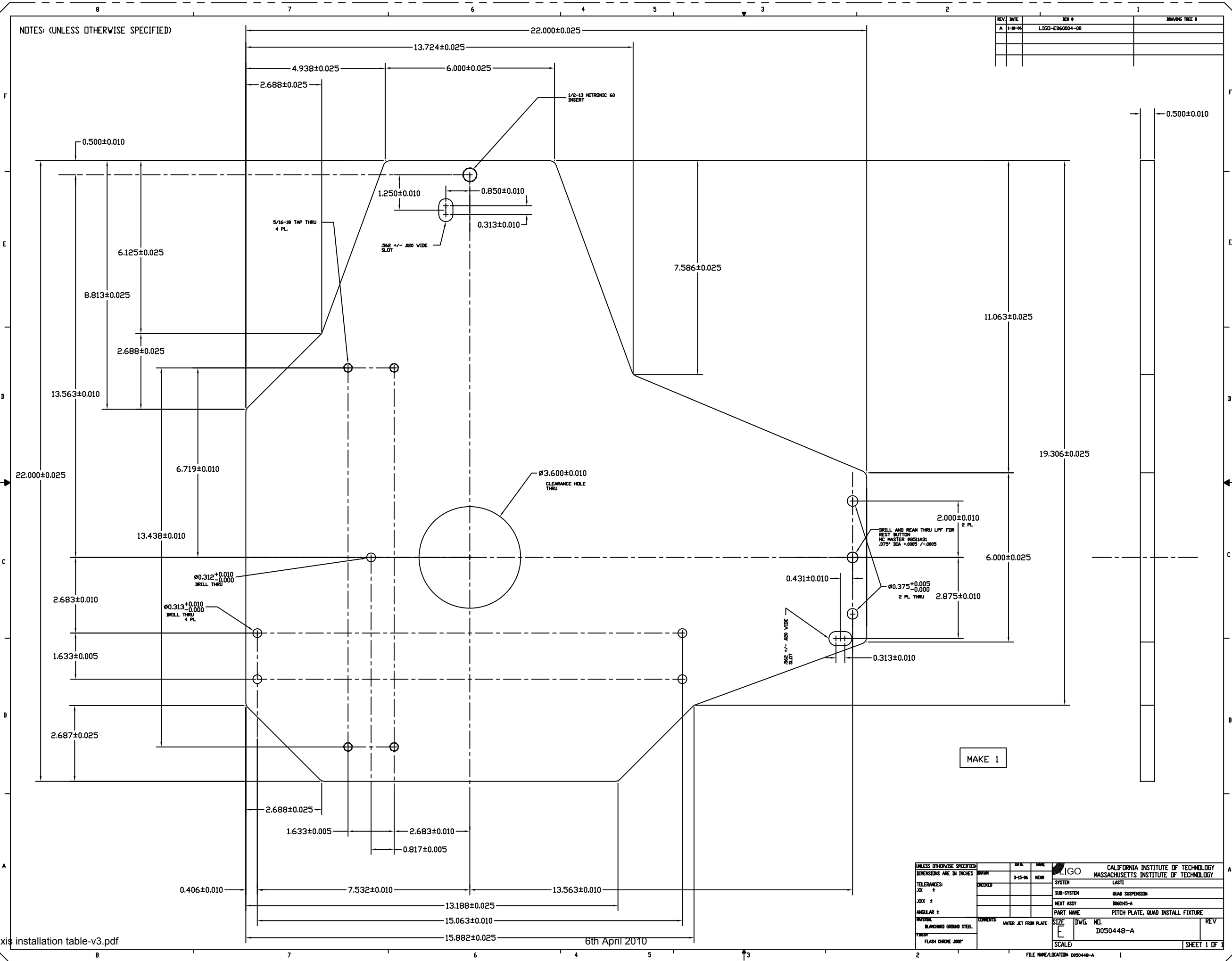
6th April 2010

UNLESS OTHERWISE SPECIFIED		DATE	BY	CHKD	APP'D	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DIMENSIONS ARE IN INCHES		9-15-06	KEVIN			
TOLERANCES:		CHECKED				SYSTEM
X ±						LASTI
Y ±						SUB-SYSTEM
Z ±						QUAD SUSPENSION
ANGULAR ±						NEXT ASSY
WELDING:						D06045-A
BLANCHARD GRIND STEEL	CURRENTS					PART NAME
FLASH CHROME ANNEAL	WATER JET FROM PLATE					Y-PLATE, QUAD INSTALL FIXTURE
						SIZE
						DWG. NO.
						D050447-A
						SCALE
						REV
						SHEET 1 OF 1



NOTES: (UNLESS OTHERWISE SPECIFIED)

REV	DATE	BY	CHKD	APPV	DESCRIPTION
A	1-18-06				LIQD-E060004-00



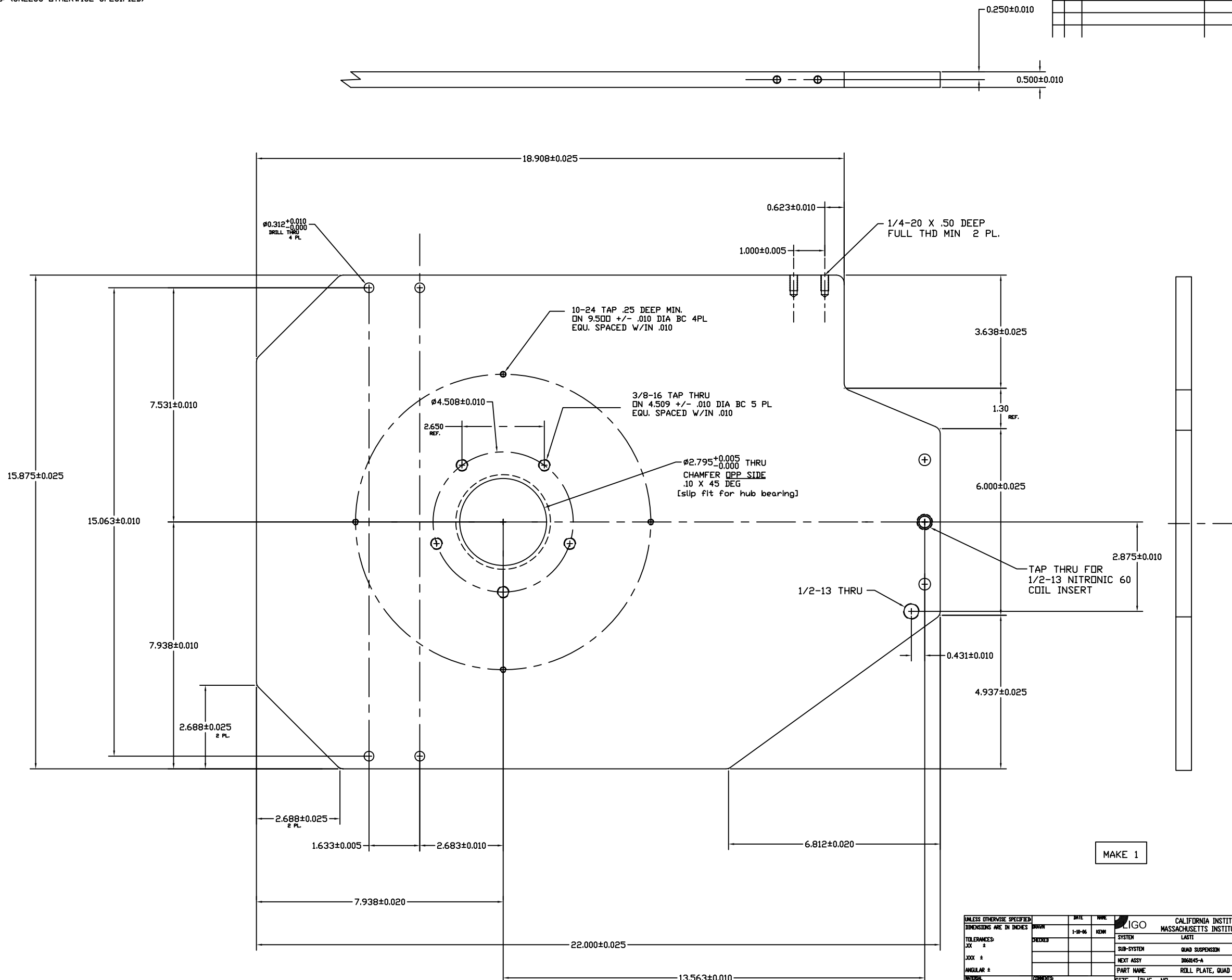
MAKE 1

6th April 2010

UNLESS OTHERWISE SPECIFIED		DATE	BY	CHKD	APPV	DESCRIPTION
DIMENSIONS ARE IN INCHES		9-15-06				LIQD-E060004-00
TOLERANCES:						
XXX ±						
XXX ±						
ANGULAR ±						
MATERIAL: BLANKED GROUND STEEL		COMMENTS: WATER JET FROM PLATE		SIZE	DWG. NO.	REV
FINISH: FLASH CHROME .002"				E	D050448-A	
				SCALE:		SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	BY	CHKD	DWG. NO.	DRAWING TREE #
A	1-18-04			LIGO-ED60004-00	



MAKE 1

UNLESS OTHERWISE SPECIFIED		DATE	BY	CHKD	FILE NAME/LOCATION
DIMENSIONS ARE IN INCHES		1-18-04			D050444-A
TOLERANCES:					
XXX ±					
XXX ±					
ANGULAR ±					
MATERIAL:	COMMENTS:				
BLANKED GROUND STEEL	WATER JET FROM PLATE				
FRESH					
FLASH CHROME ANNE					

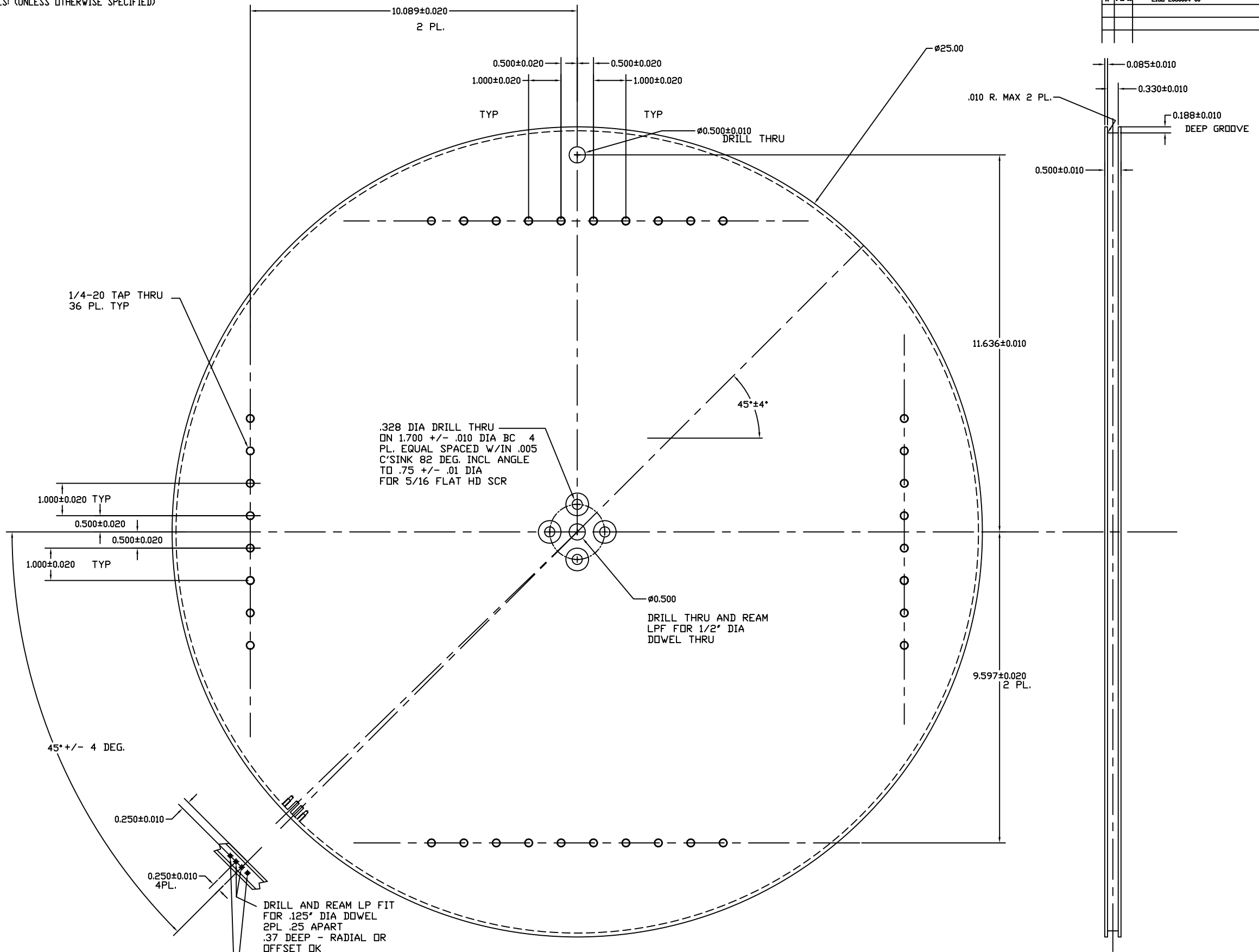
  

SYSTEM	LIGO	CALIFORNIA INSTITUTE OF TECHNOLOGY
LASTI		MASSACHUSETTS INSTITUTE OF TECHNOLOGY
SUB-SYSTEM	QUAD SUSPENSION	
NEXT ASSY	D06045-A	
PART NAME	ROLL PLATE, QUAD INSTALL FIXTURE	
SIZE	DWG. NO.	REV
E	D050444-A	
SCALE:		SHEET 1 OF 1

6th April 2010

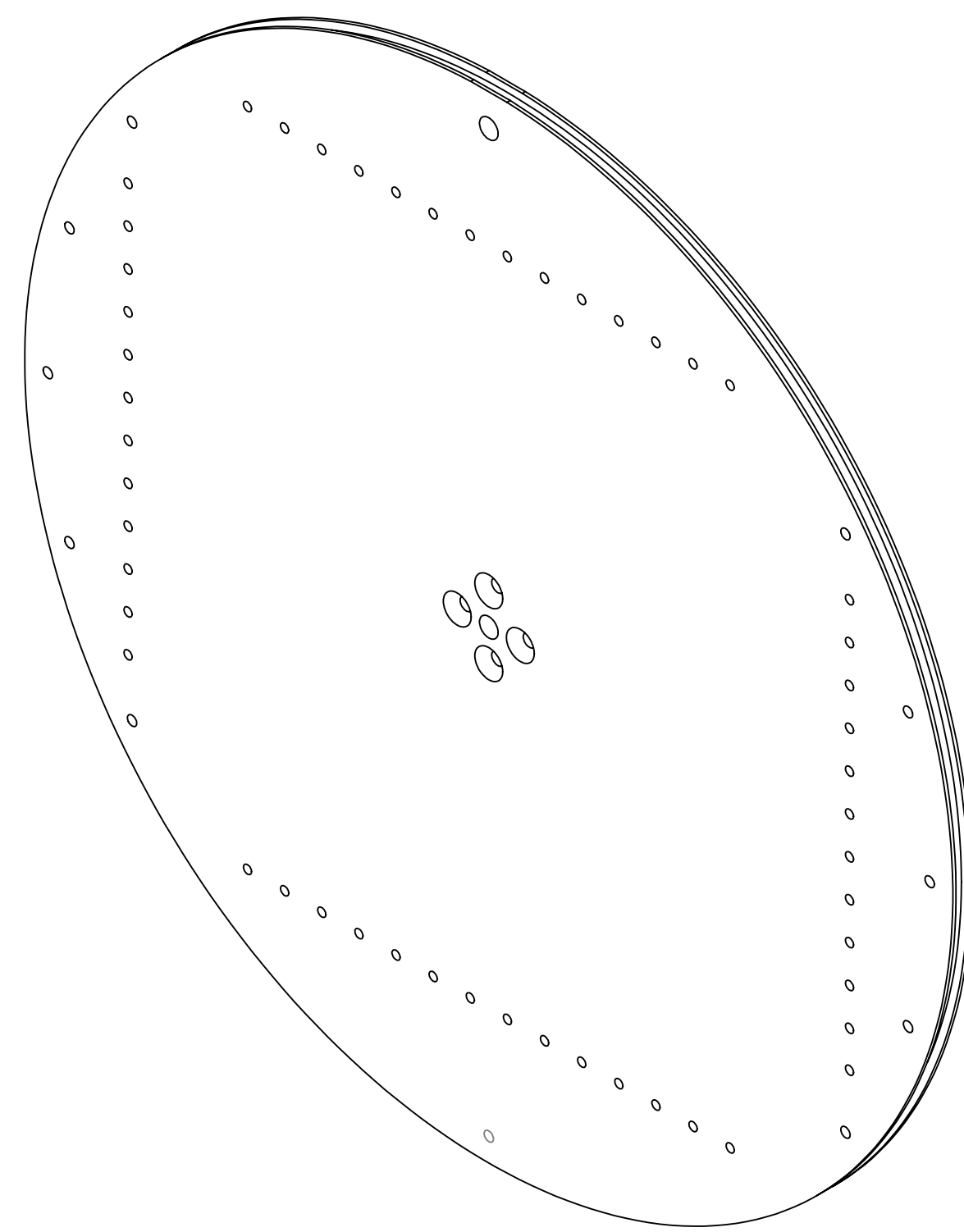
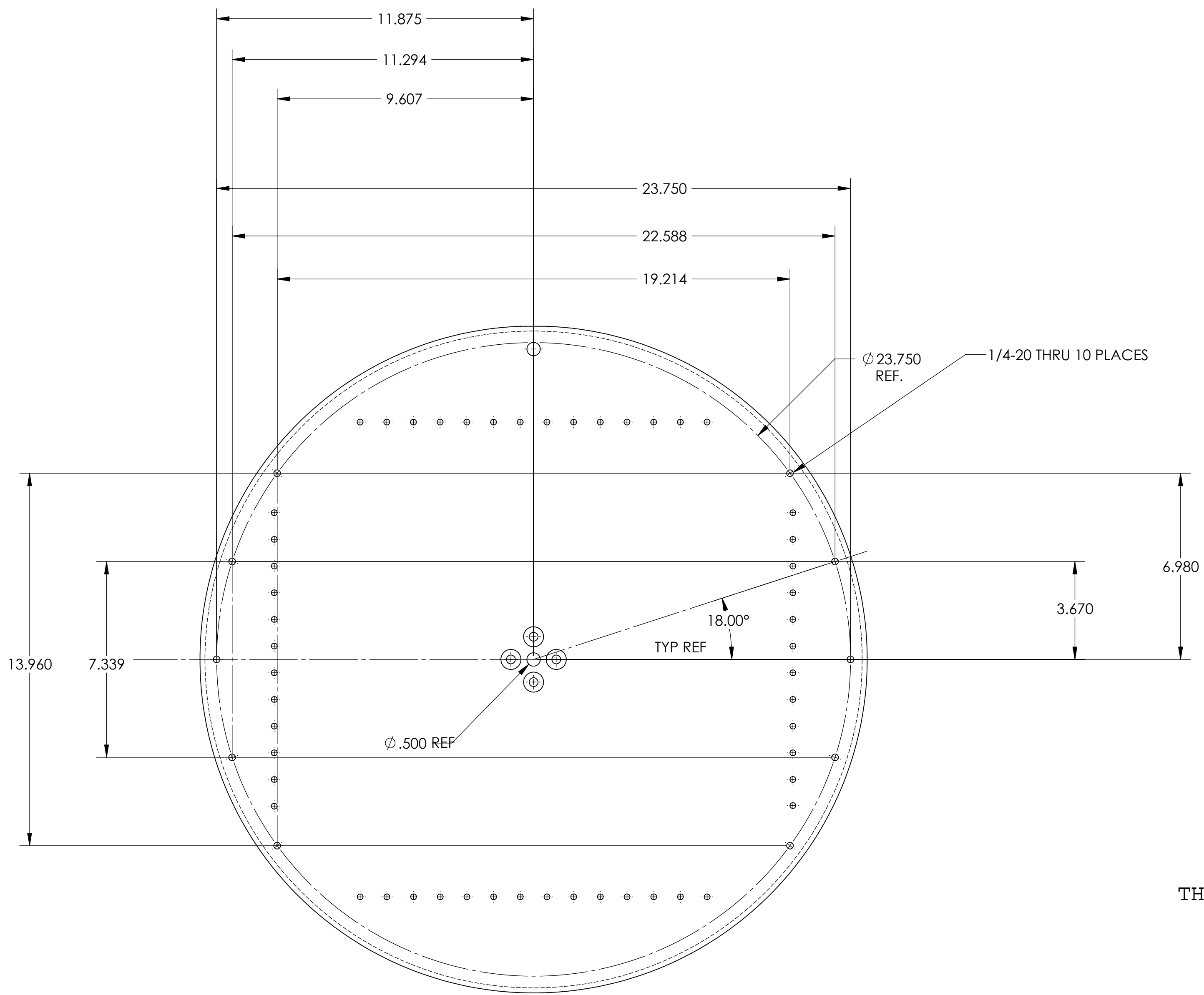
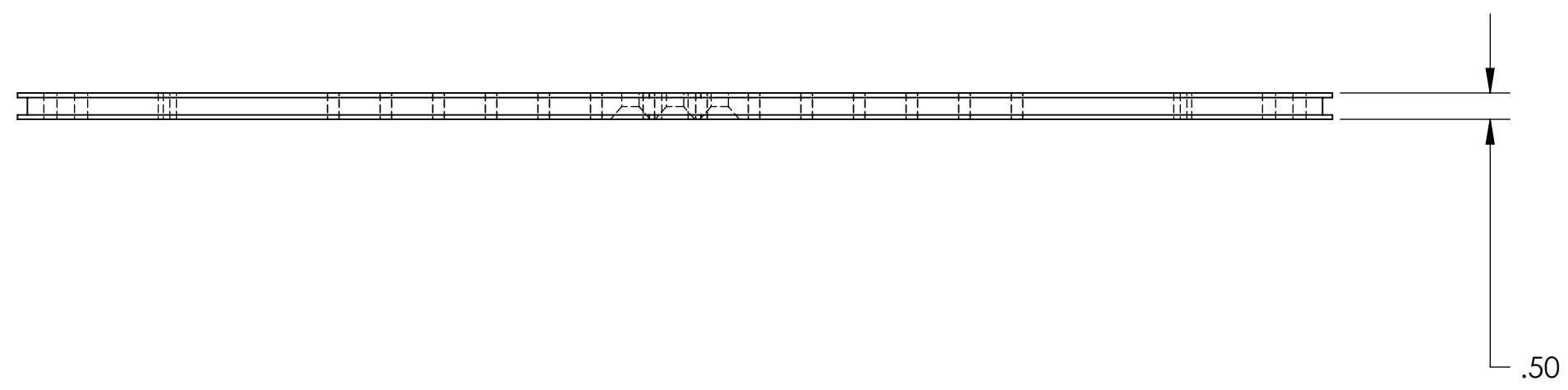
NOTES: (UNLESS OTHERWISE SPECIFIED)

REV	DATE	BY	CHKD	APPV	DESCRIPTION
A	1-28-06				LIGO-E060004-00



MAKE 1

UNLESS OTHERWISE SPECIFIED		DATE	BY	CHKD	APPV	DESCRIPTION
DIMENSIONS ARE IN INCHES		9-25-06				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
TOLERANCES:						SYSTEM LASTI
XXX ±						SUB-SYSTEM SUS
XXX ±						NEXT ASSY 086045-A
ANGULAR ±						PART NAME ROTARY PLATE, QUAD INSTALL FIXTURE
MATERIAL:	BLANKHARD GRIND STEEL	COMMENTS:	WATER JET FROM PLATE	SIZE	DWG. NO.	REV
TYPICAL:	FLASH CHROME .002"			E	D050450-A	
				SCALE:		SHEET 1 OF 1



ADD 1/4-20 TAP HOLES TO EXISTING PLATE AS SHOWN

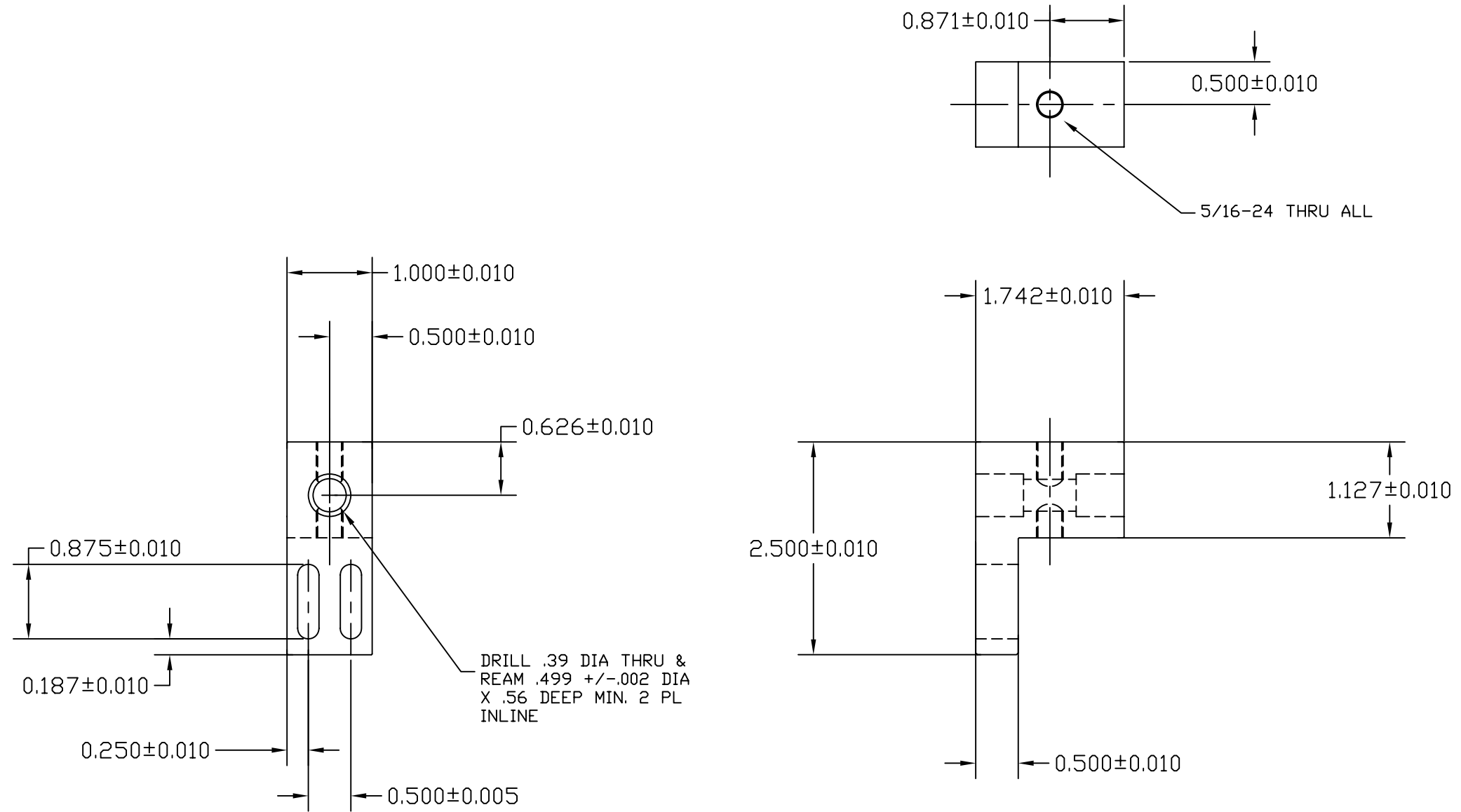
THIS IS A MODIFICATION TO D050450-A AND SHOULD BE INLCUDED AS PART OF THE QUOTE.

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UNLESS OTHERWISE SPECIFIED:		DRAWN	NAME	DATE	TITLE:
DIMENSIONS ARE IN INCHES		CHECKED			
TOLERANCES:		ENG APPR.			G.A.
FRACTIONAL ±		MFG APPR.			
ANGULAR: MACH ±		COMMENTS:			
BEND ±					
TWO PLACE DECIMAL ±					
THREE PLACE DECIMAL ±					
INTERPRET GEOMETRIC TOLERANCING PER:					
MATERIAL:					
NEXT ASSY	USED ON	FINISH			
APPLICATION					
SIZE DWG. NO.		REV			
SCALE: 1:4		WEIGHT:		SHEET 1 OF 1	

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	



ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	1/6/06	KENN
TOLERANCES:				CHECKED		
XX ± .01						
XXX ± .005						
ANGULAR ± 3 DEG						
MATERIAL				COMMENTS:	SIZE	DWG. NO.
6061 T-6 AL.					C	D060001-A
FINISH					SCALE:	REV
N/A						
FILE NAME/LOCATION: D060001-A						SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

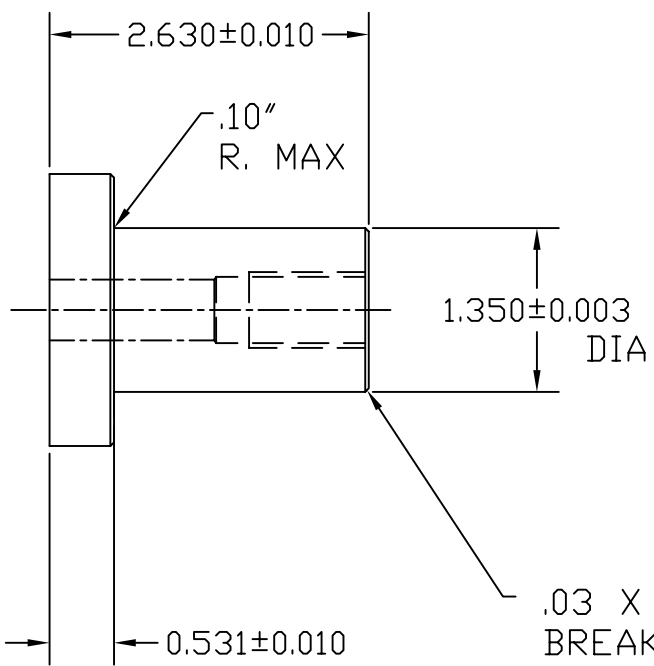
REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

5/16-18 TAP THRU  
ON 1.700 +/- .010 DIA  
BC 4 PL. EQUAL  
SPACED W/IN .005

Ø0.500  
DRILL THRU AND REAM  
LPF FOR 1/2" DIA  
DOWEL .62" DEEP MIN.

Ø2.240±0.010

5/8-11 TAP  
.87 DEEP FULL  
THD MIN.



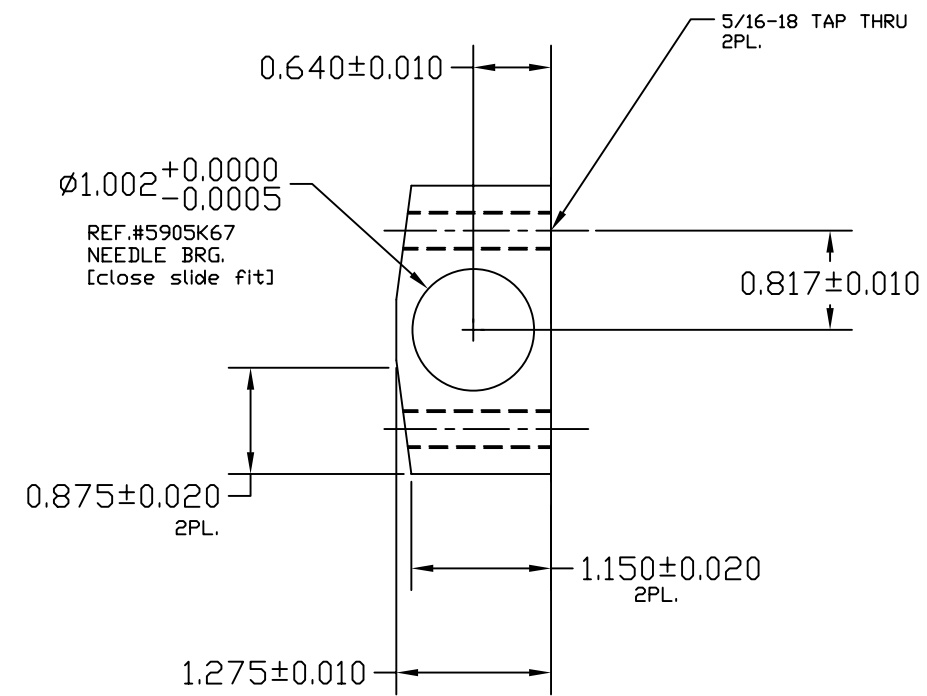
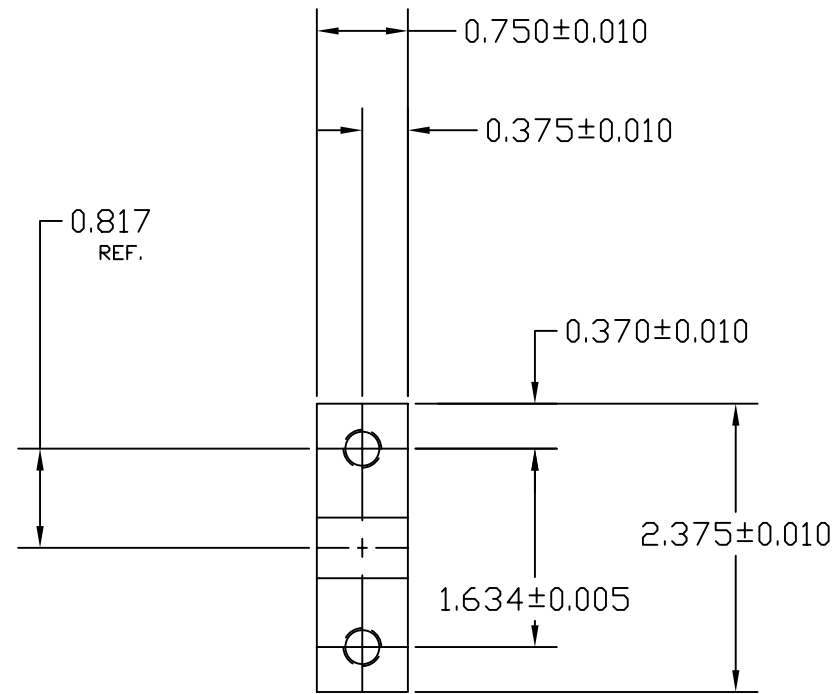
.03 X 45 DEG  
BREAK EDGE 2PL

MAKE 1

ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06	KENN
TOLERANCES: .01				CHECKED		
XX ±						
XXX ± .005						
ANGULAR: 3 DEG						
MATERIAL				COMMENTS:	SIZE	DWG. NO.
303 S. S.					C	D060002-A
FINISH					SCALE:	REV
N/A						

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

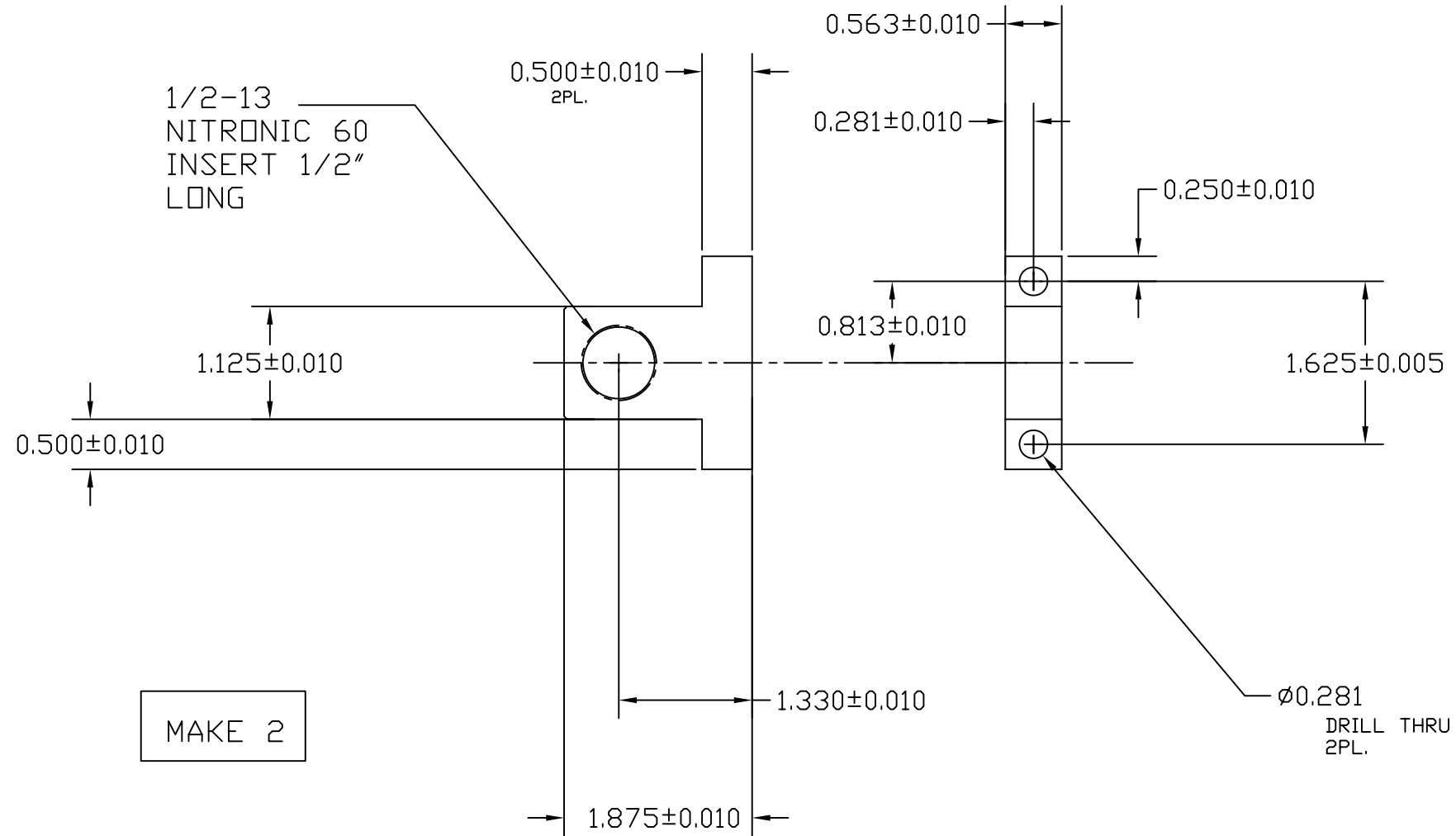


QTY 4

ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DIMENSIONS ARE IN INCHES				DRAWN	1/6/06	KENN
TOLERANCES:				CHECKED		SYSTEM LASTI
XX ± .01						SUB-SYSTEM QUAD SUSPENSION
XXX ± .005						NEXT ASSY D060145-A
ANGULAR ± 3 DEG						PART NAME FIXTURE TILT BEARING BRACKET
MATERIAL				COMMENTS:	SIZE	DWG. NO. D060003-A
303 stainless					C	REV
FINISH					N/A	SCALE:
						FILE NAME/LOCATION: D060003-A
						SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	



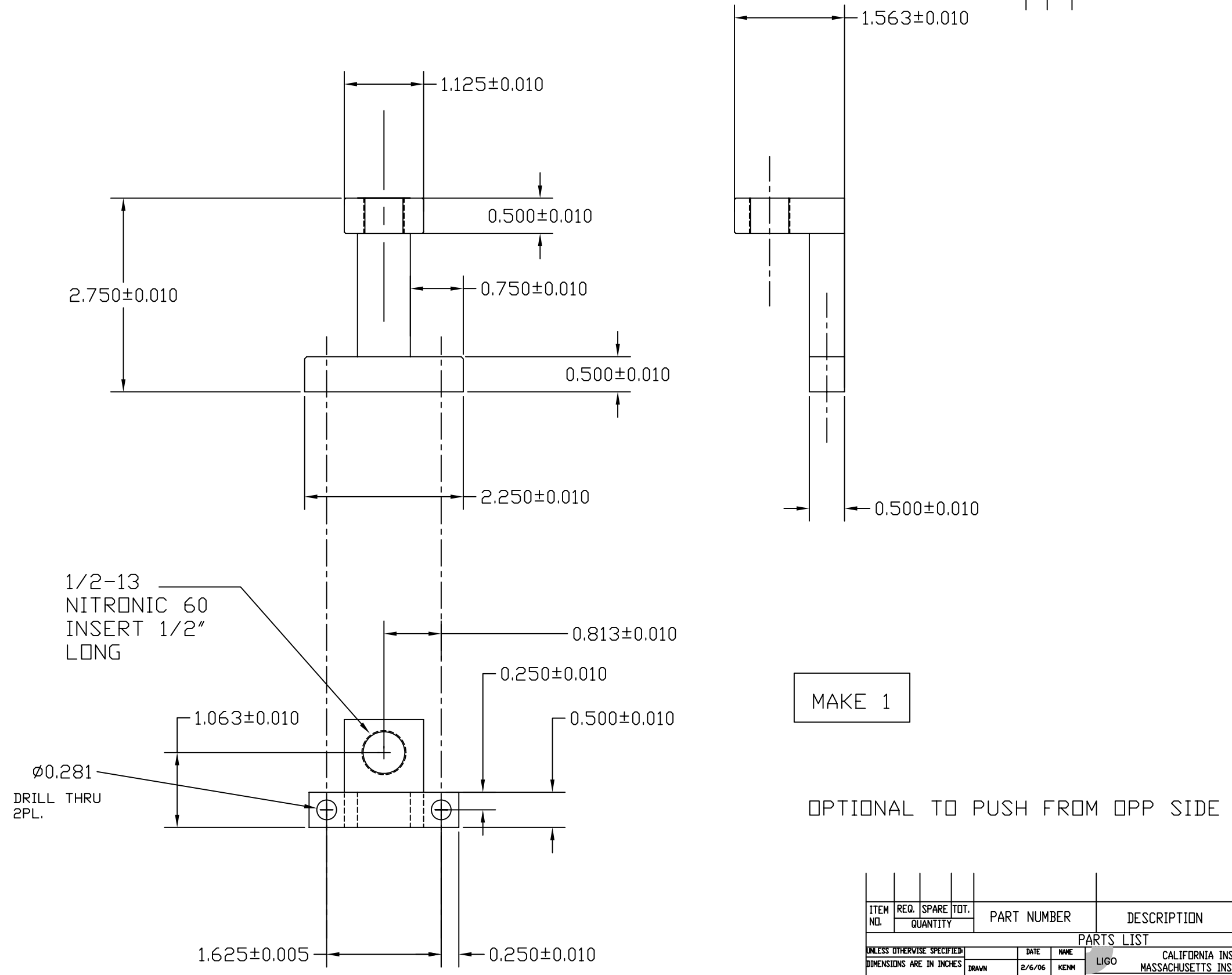
ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06	KENN
TOLERANCES:				CHECKED		
XX ± .01						
XXX ± .005						
ANGULAR: 3 DEG						
MATERIAL				COMMENTS:	SIZE	DWG. NO.
ALUM 6061 T-6					C	D060004-A
FINISH					SCALE:	REV
N/A						

MAKE 2



NOTES: (UNLESS OTHERWISE SPECIFIED)

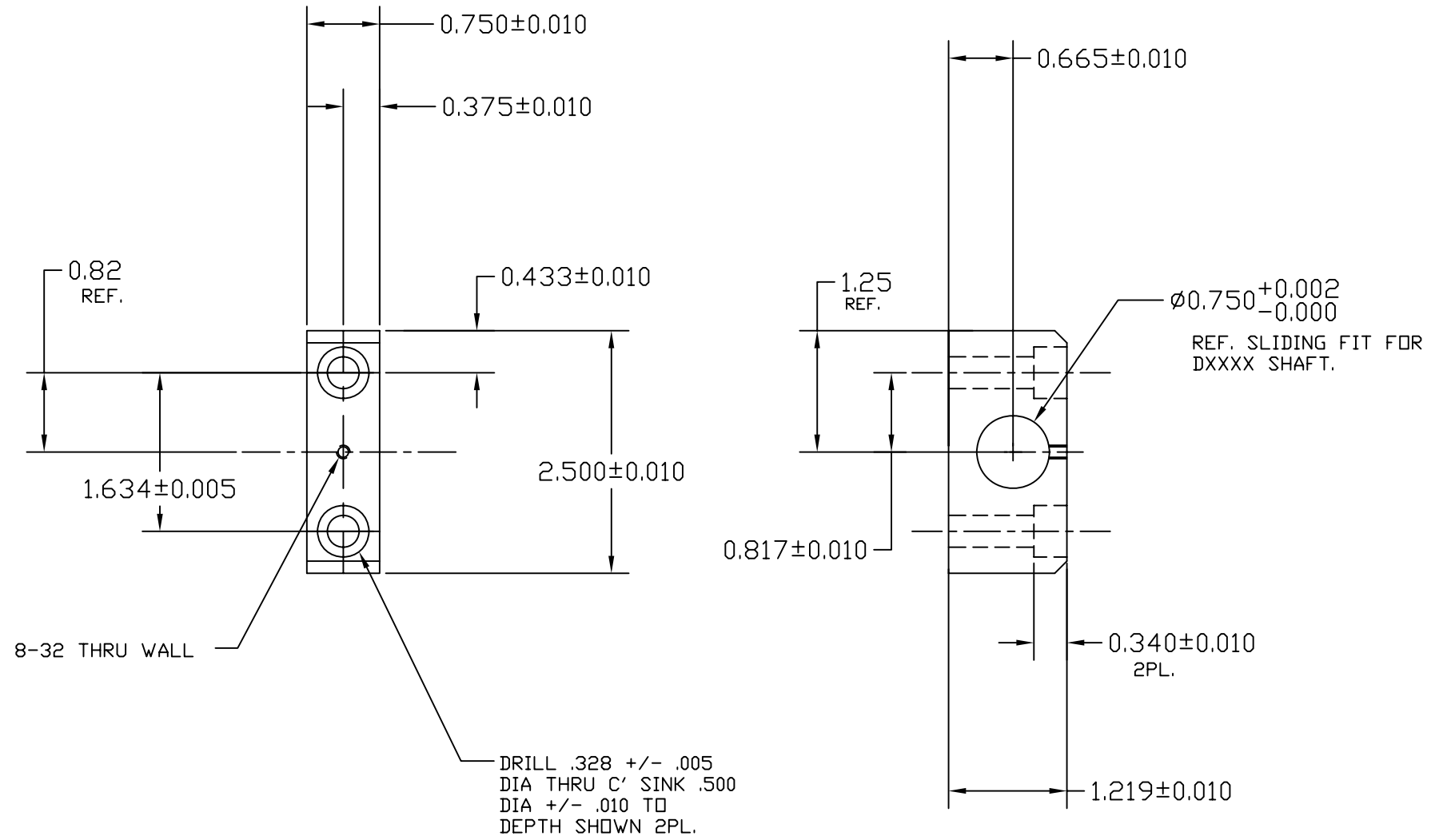
REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	



ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				2/6/06	KENN	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
TOLERANCES:				CHECKED		SYSTEM LASTI
XX ± .01						SUB-SYSTEM QUAD SUSPENSION
XXX ± .005						NEXT ASSY D060145-A
ANGULAR ± 3 DEG						PART NAME Y-PLATE ADJUSTMENT BRACKET
MATERIAL ALUM 6061 T-6				COMMENTS:	SIZE DWG. NO. D060005-A	REV
FINISH N/A					SCALE:	SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

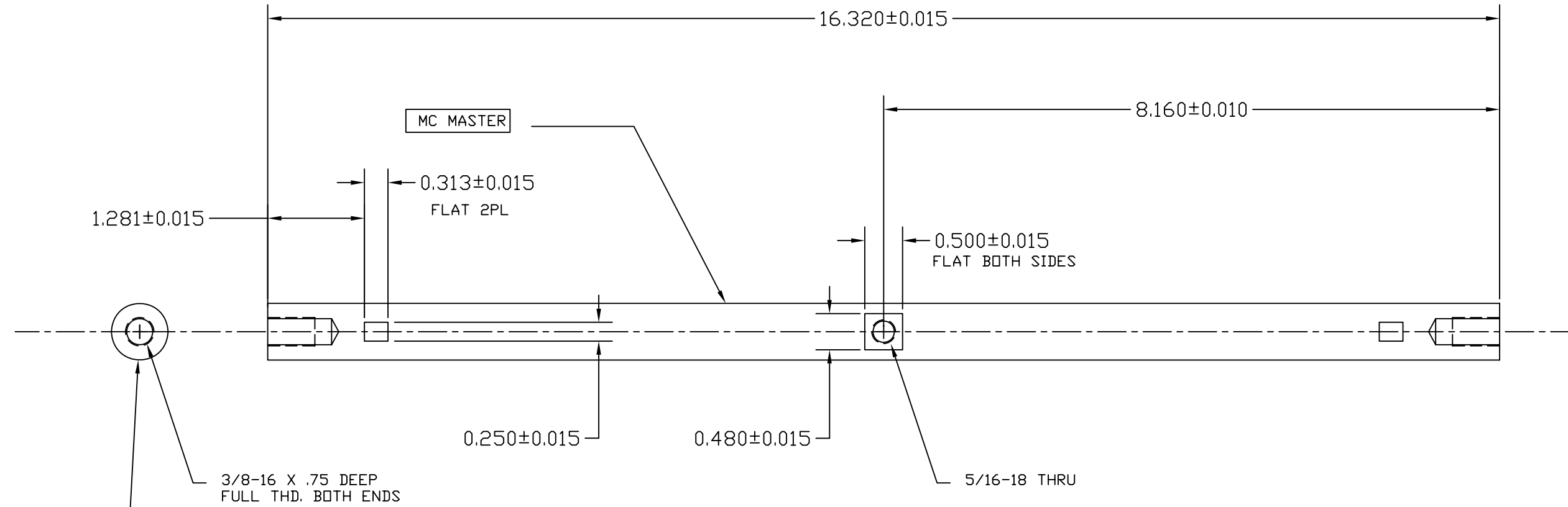


QTY 4

ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	1/6/06	KENN
TOLERANCES:				CHECKED		
XX ± .01						
XXX ± .005						
ANGULAR ± 3 DEG						
MATERIAL				COMMENTS:		
303 stainless						
FINISH						
N/A						
					SIZE	REV
					C	
					DWG. NO.	D060006-A
					SCALE:	
						SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

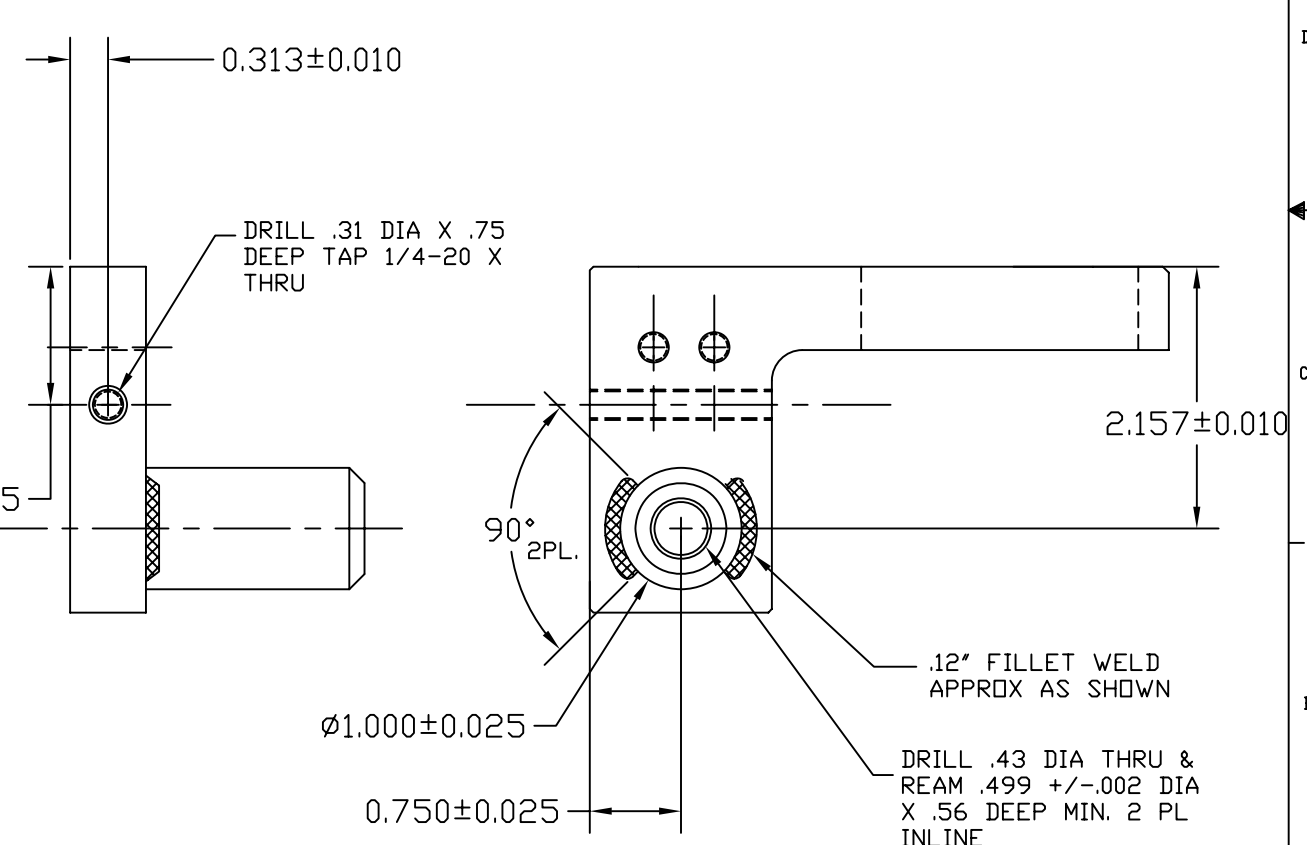
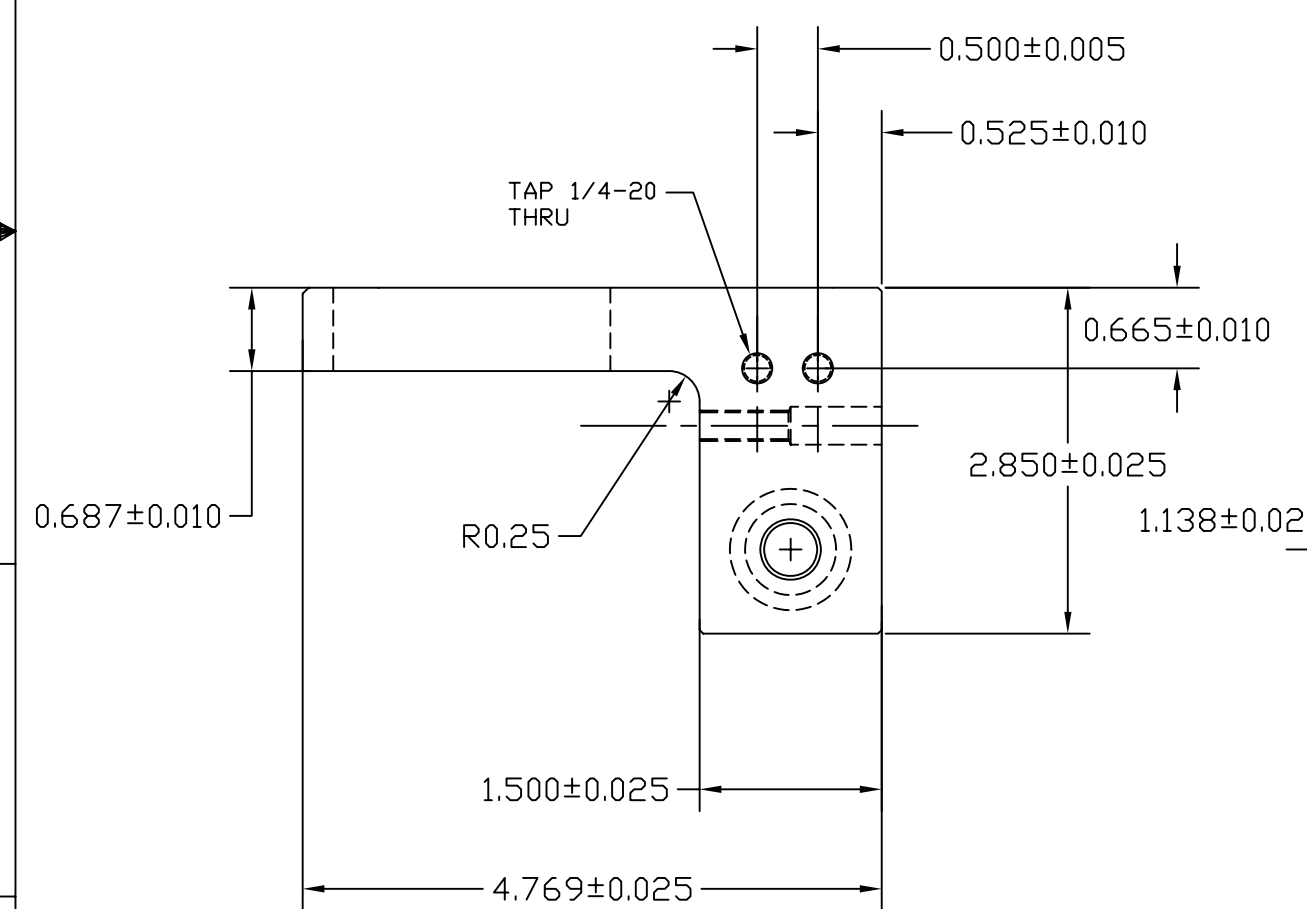
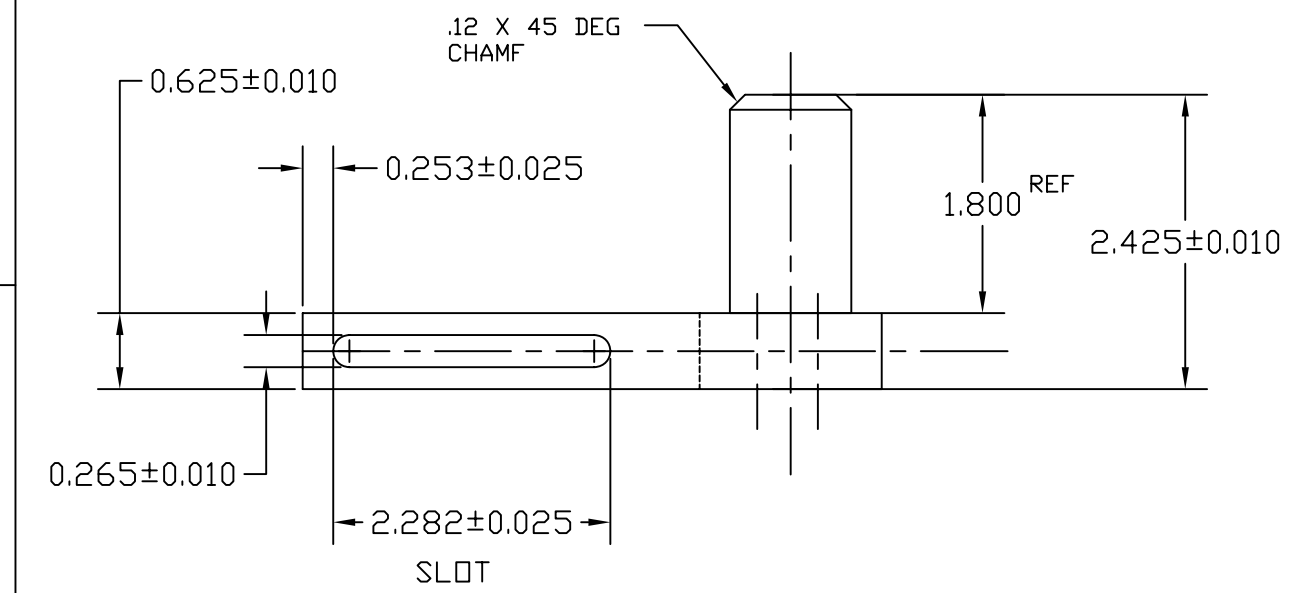


MAKE 2

ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06	KENN
TOLERANCES:				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY		
XX ± .01				MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
XXX ± .005				SYSTEM LASTI		
ANGULAR ± 3 DEG				SUB-SYSTEM QUAD SUSPENSION		
MATERIAL: MCMASTER 6061K44				NEXT ASSY D060145-A		
FINISH: N/A				PART NAME TILT AXIS SHAFT		
				SIZE	DWG. NO.	REV
				C	D060007-A	
				SCALE:	SHEET 1 OF 1	

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

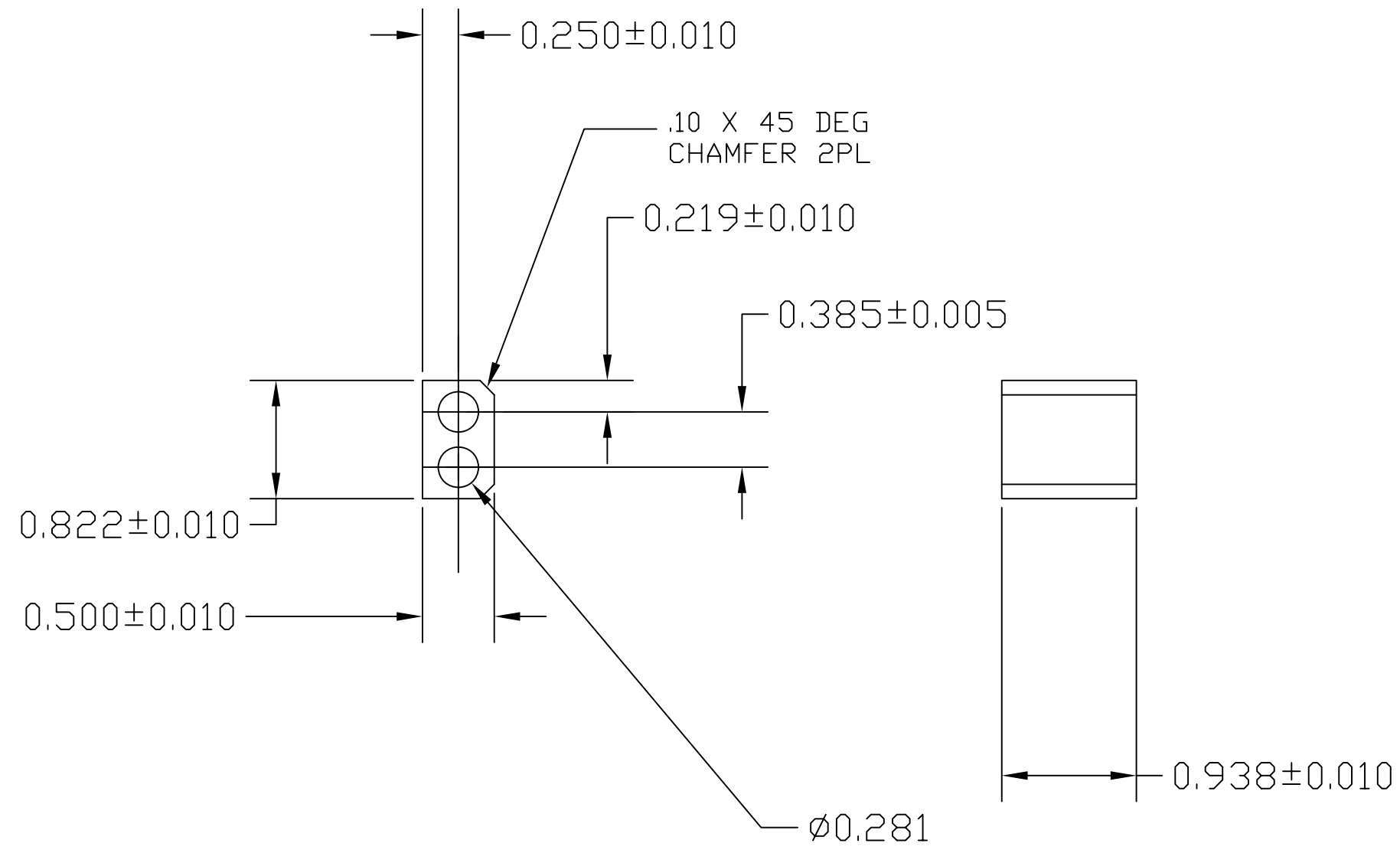


MAKE 1

ITEM NO.	REQ. QUANTITY	SPARE QUANTITY	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06	KENN MASSACHUSETTS INSTITUTE OF TECHNOLOGY
TOLERANCES:				CHECKED		SYSTEM LASTI
XX ± .01						SUB-SYSTEM QUAD SUSPENSION
XXX ± .005						NEXT ASSY D060145-A
ANGULAR: 3 DEG						PART NAME CHAIN TENSION BRACKET
MATERIAL ALUM 6061				COMMENTS:	SIZE DWG. NO.	REV
FINISH N/A					C	D060008-A
					SCALE:	SHEET 1 OF 1

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

NOTES: (UNLESS OTHERWISE SPECIFIED)



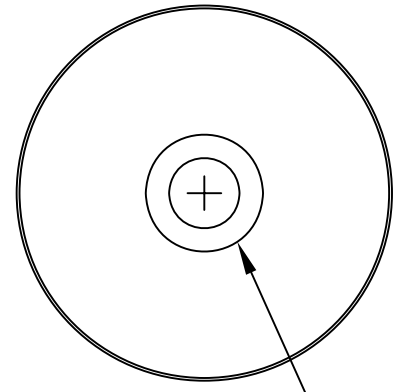
DRILL THRU  
2PL.

MAKE 2

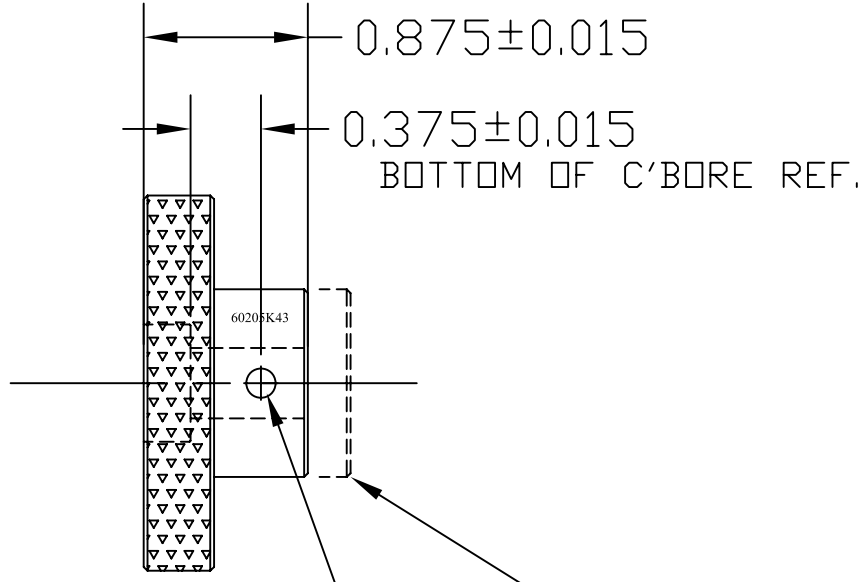
ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06		KENM
TOLERANCES:				CHECKED			
.XX±:							
.XXX±:							
ANGULAR±:							
MATERIAL				COMMENTS:		SYSTEM LASTI SUB-SYSTEM QUAD SUSPENSION NEXT ASSY D060145-A PART NAME X-PLATE ADJUSTER FOOT	
303/304 STAINLESS						SIZE DWG. NO. D060009-A REV	
FINISH N/A						SCALE: SHEET 1 OF 1	

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

NOTES: (UNLESS OTHERWISE SPECIFIED)



C'BORE .625+/- .015 DIA  
X .250+/- .010 DEEP



MAKE 1

TRIM TO LENGTH SHOWN

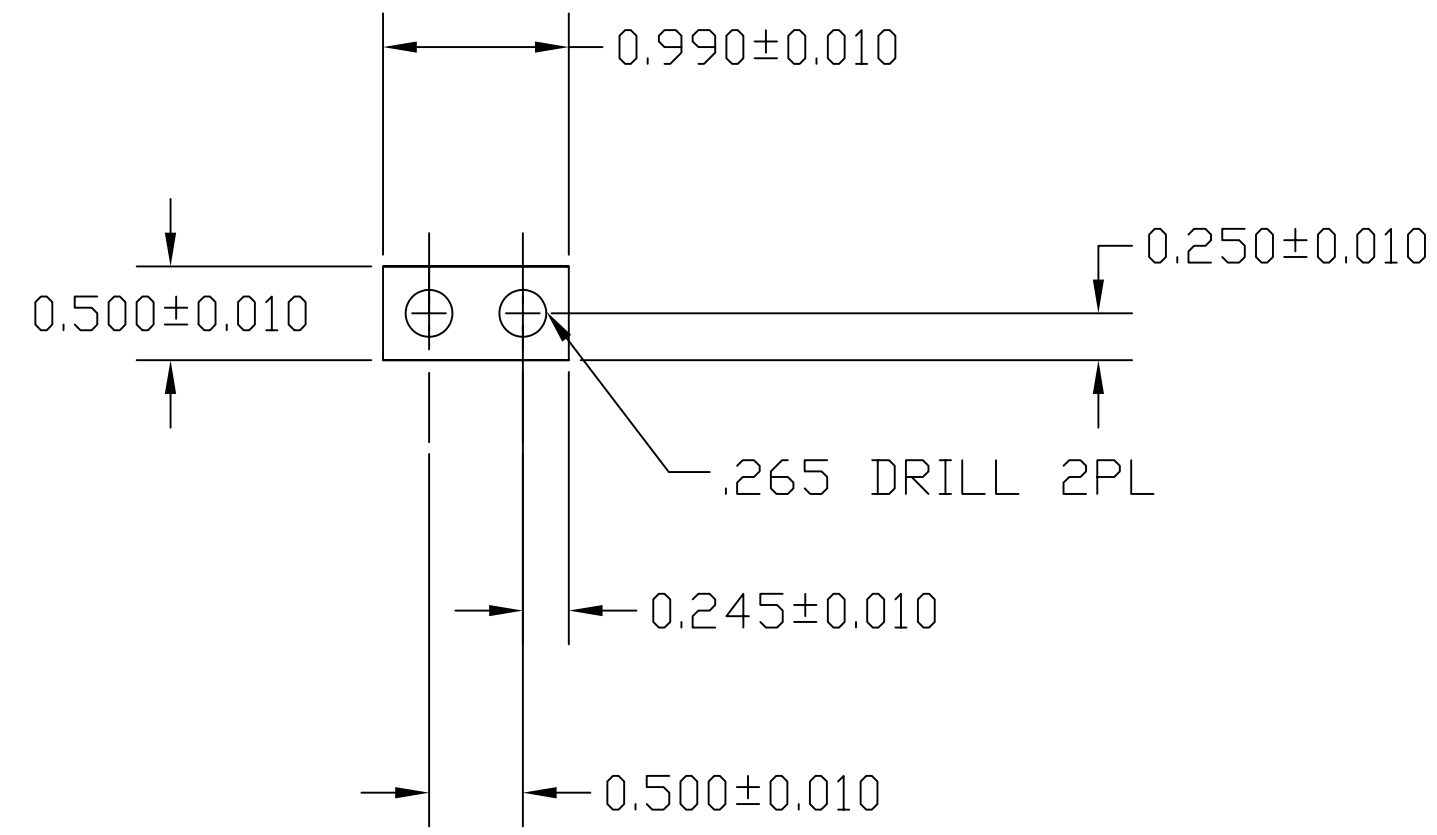
DRILL AND REAM LPF FOR  
.156 DIA ROLL PIN THRU  
BOTH WALLS INLINE

see assembly for  
adjacent part short  
screw shaft

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DIMENSIONS ARE IN INCHES				DRAWN	2/11/06	
TOLERANCES:				CHECKED		SYSTEM LASTI
.XX±:						SUB-SYSTEM QUAD SUSPENSION
.XXX±:						NEXT ASSY D060145-A
ANGULAR±:						PART NAME ROTATION KNOB MODIFICATION
MATERIAL				COMMENTS:		SIZE DWG. NO. REV
MCMaster #60205K43 303 stainless w/.37 hole thru						B D060010-A
FINISH						SCALE: SHEET 1 OF 1
N/A						22

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

NOTES: (UNLESS OTHERWISE SPECIFIED)



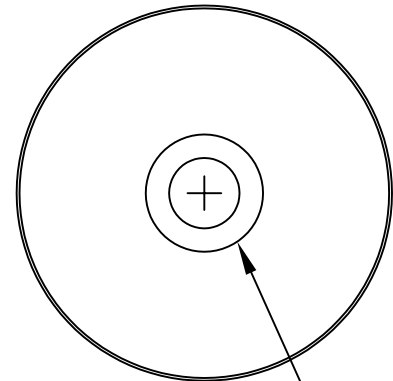
$.09/.12$  THK

MAKE 1

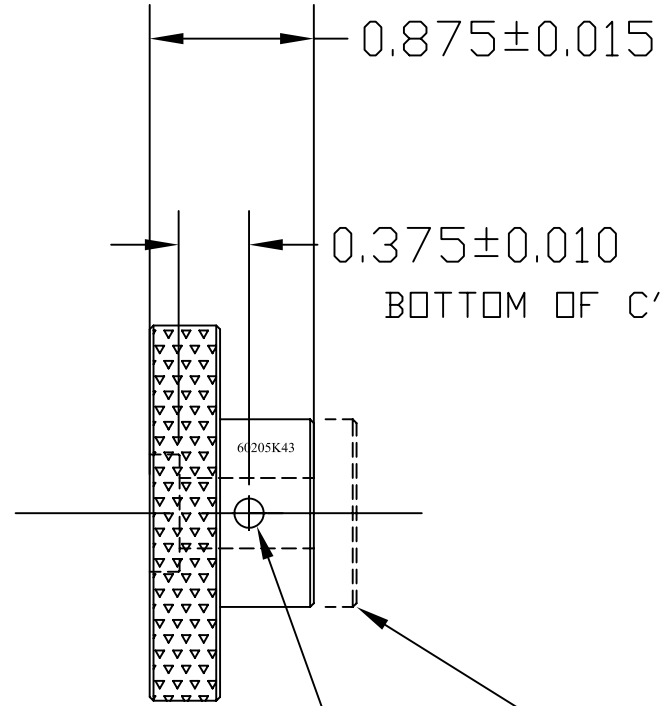
ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06		KENM
TOLERANCES:				CHECKED			
.XX±:							
.XXX±:							
ANGULAR±:							
MATERIAL				COMMENTS:		SYSTEM LASTI SUB-SYSTEM QUAD SUSPENSION NEXT ASSY D060145-A PART NAME WASHER PLATE	
303/304 STAINLESS STL						SIZE DWG. NO. D060011-A REV	
FINISH N/A						SCALE: SHEET 1 OF 1	

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

NOTES: (UNLESS OTHERWISE SPECIFIED)



C'BORE .625+/- .015 DIA  
X .160+/- .010 DEEP



0.875±0.015

0.375±0.010

BOTTOM OF C'BORE REF.

60205K43

MAKE 1

TRIM TO LENGTH SHOWN

DRILL AND REAM LPF FOR  
~~.156 DIA ROLL PIN THRU~~  
BOTH WALLS INLINE

see assembly for  
adjacent part long screw  
shaft

drill thru #20 [.161 dia]  
not LPF for .156

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:						
DIMENSIONS ARE IN INCHES				DRAWN	DATE	NAME
TOLERANCES:				CHECKED		
.XX±:						
.XXX±:						
ANGULAR±:						
MATERIAL				COMMENTS:		
MCMaster #60205K43				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY		
303 stainless w/.37				MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
hole thru				SYSTEM LASTI		
FINISH				SUB-SYSTEM QUAD SUSPENSION		
N/A				NEXT ASSY D060145-A		
				PART NAME ROTATION KNOB MOD SHORT C'BORE		
SIZE B		DWG. NO.		REV		
		D060013-A				
SCALE:						SHEET 1 OF 1



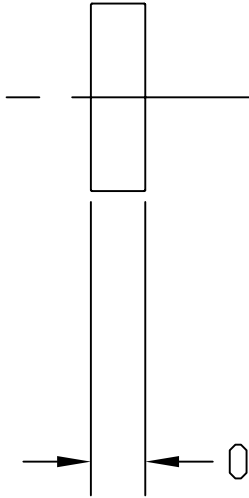
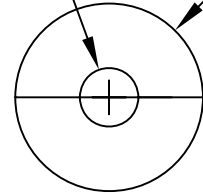
8 7 6 5 4 3 2 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	


$\varnothing 0.313 \pm 0.005$

$\varnothing 1.000 \pm 0.010$



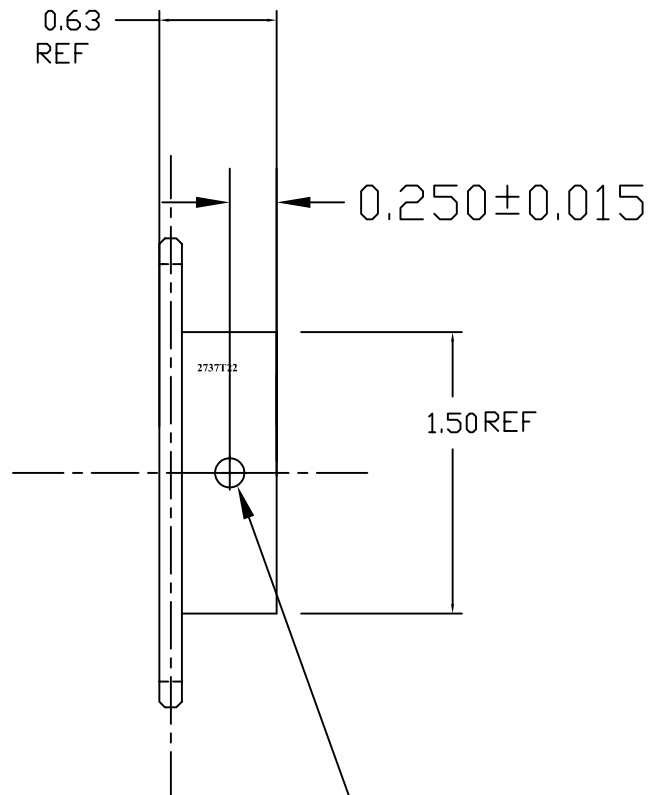
$0.290 \pm 0.005$

MAKE 2

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06		KENM
TOLERANCES:				CHECKED			
.XX±							
.XXX±							
ANGULAR:±							
MATERIAL				COMMENTS:		SYSTEM	
6061-T6						LASTI	
FINISH						SUB-SYSTEM	
N/A						QUAD SUSPENSION	
						NEXT ASSY	
						D060145-A	
						PART NAME	
						SHAFT SPACER PLATE	
				SIZE	DWG. NO.	REV	
				B	D060014-A		
				SCALE:	SHEET 1 OF 1		

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

NOTES: (UNLESS OTHERWISE SPECIFIED)



MAKE 1

DRILL AND REAM LPF FOR  
~~.156 DIA ROLL THRU BOTH~~  
WALLS

[center in one of the  
existing set screw holes]

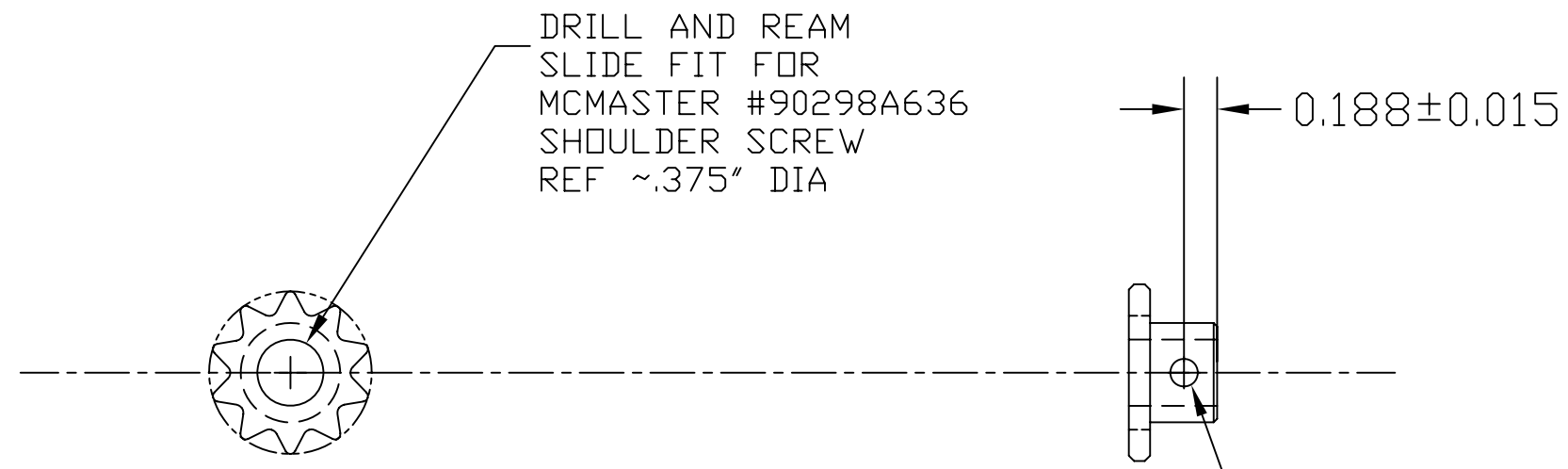
see assembly for  
adjacent part

drill #20 [.161 dia]  
not LPF .156

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	2/11/06		KENM
TOLERANCES:				CHECKED			
.XX±:							
.XXX±:							
ANGULAR±:							
MATERIAL				COMMENTS:		SYSTEM	
MCMASTER SPROCKET						SUB-SYSTEM	
#2737T22						NEXT ASSY	
FINISH						PART NAME	
N/A						LARGE SPROCKET MODIFICATION	
				SIZE	DWG. NO.	REV	
				B	D060015-A		
				SCALE:		SHEET 1 OF 1	

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

NOTES: (UNLESS OTHERWISE SPECIFIED)




DRILL AND REAM  
SLIDE FIT FOR  
MCMASTER #90298A636  
SHOULDER SCREW  
REF ~.375" DIA

0.188 ± 0.015

MAKE 2

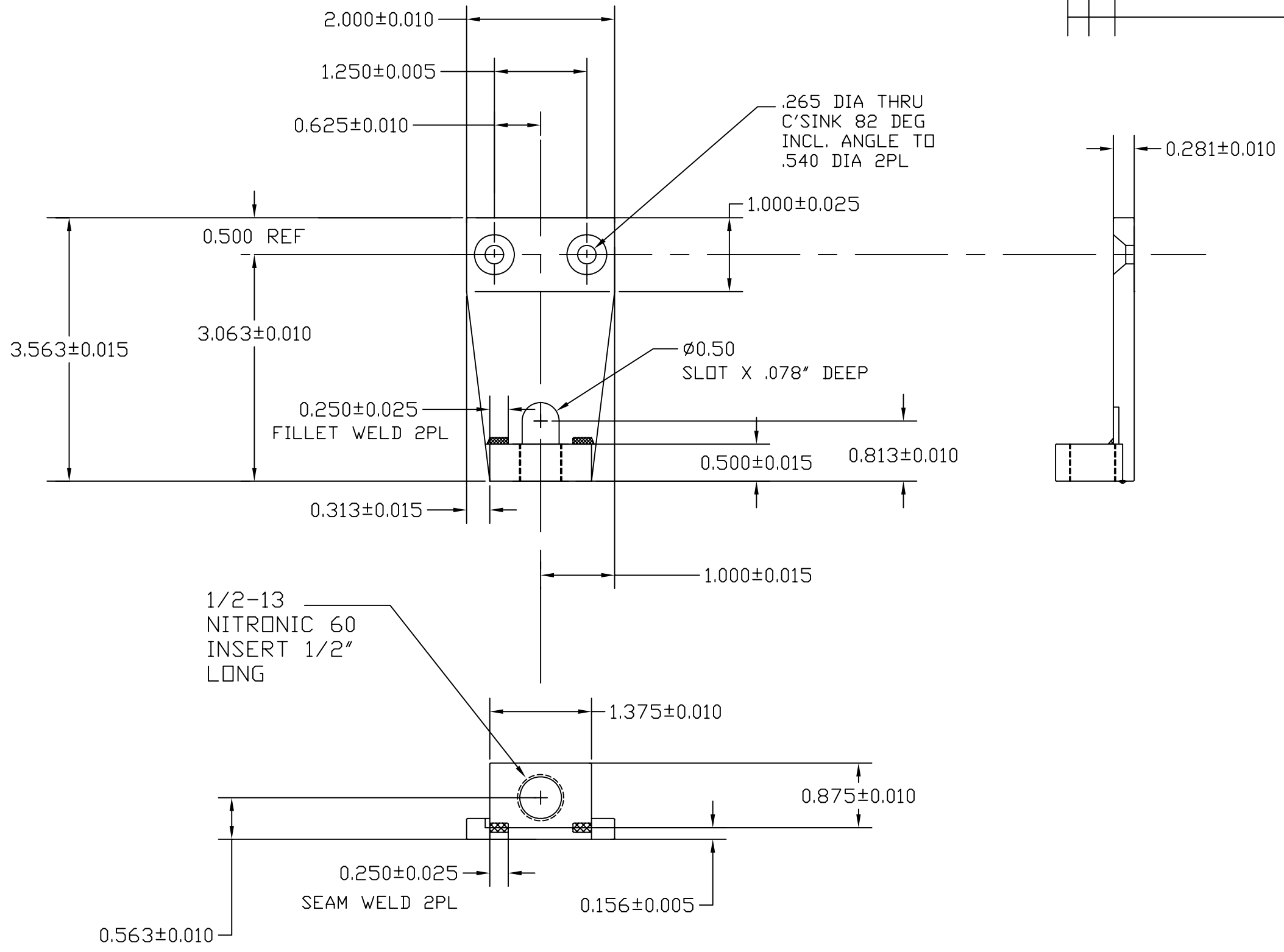
MATCH DRILL AND REAM  
~~LPF FOR .156~~ DIA ROLL PIN  
THRU ALL [center in  
existing set screw hole]  
see assembly for  
adjacent part

drill thru #20 [.161 dia]  
not LPF .15 CIT

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	2/11/06		KENM
TOLERANCES:				CHECKED			
.XX±:							
.XXX±:							
ANGULAR±:							
MATERIAL				COMMENTS:		SYSTEM	
MCMASTER SPROCKET						LASTI	
#2737T22						SUB-SYSTEM	
FINISH						QUAD SUSPENSION	
N/A						NEXT ASSY	
						D060145-A	
						PART NAME	
						SMALL SPROCKET MODIFICATION	
SIZE		DWG. NO.		REV			
B		D060016-A					
SCALE:		FILE NAME/LOCATION:			SHEET 1 OF 1		
		D060016-A			27		

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

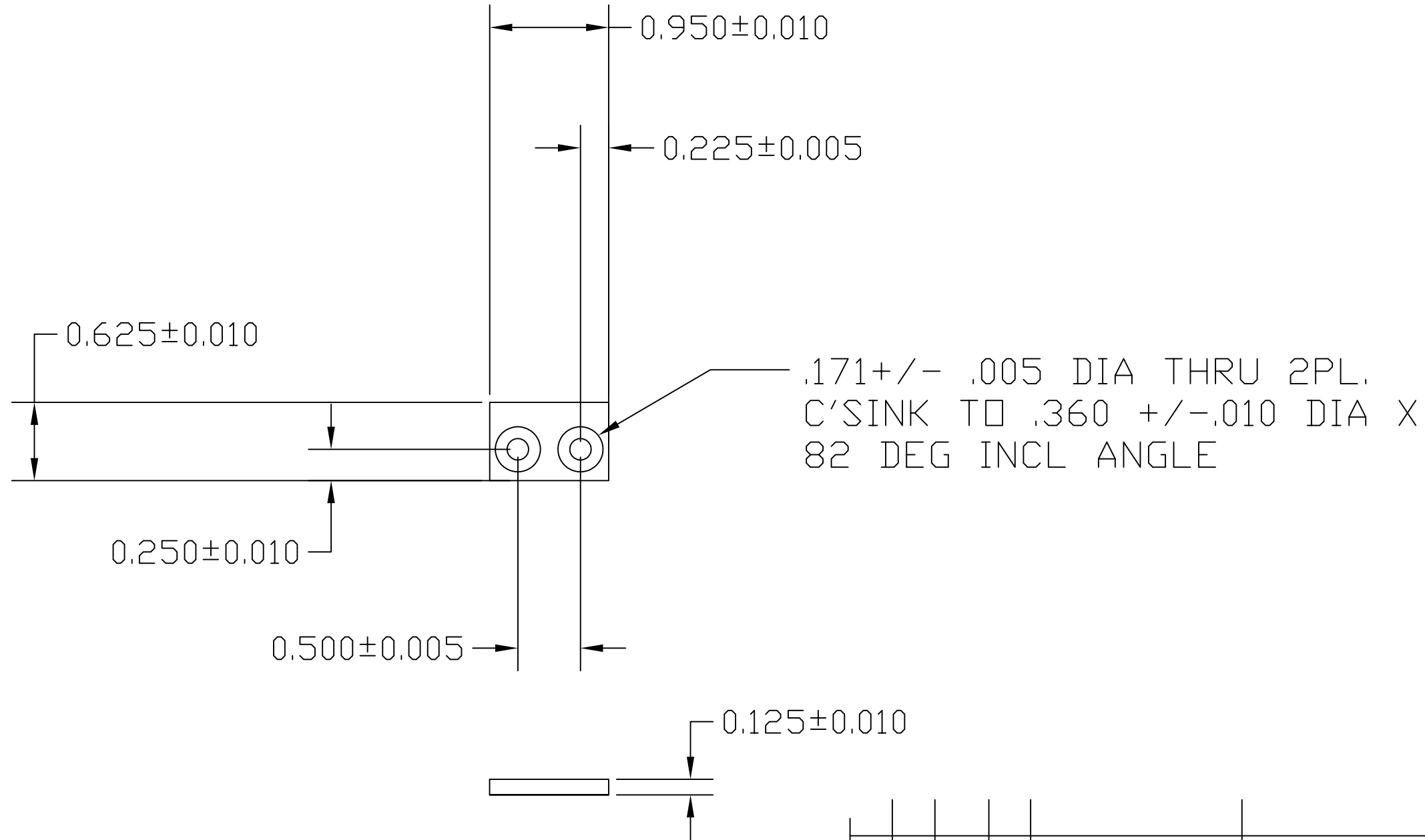


MAKE 1

ITEM NO.	REQ. QUANTITY	SPARE QUANTITY	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	2/6/06	KENN
TOLERANCES:				CHECKED		
XX ± .01						
XXX ± .005						
ANGULAR ± 3 DEG						
MATERIAL				COMMENTS:	SIZE	DWG. NO.
303/304 STAINLESS					C	D060017-A
FINISH					SCALE:	REV
N/A						

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	

NOTES: (UNLESS OTHERWISE SPECIFIED)

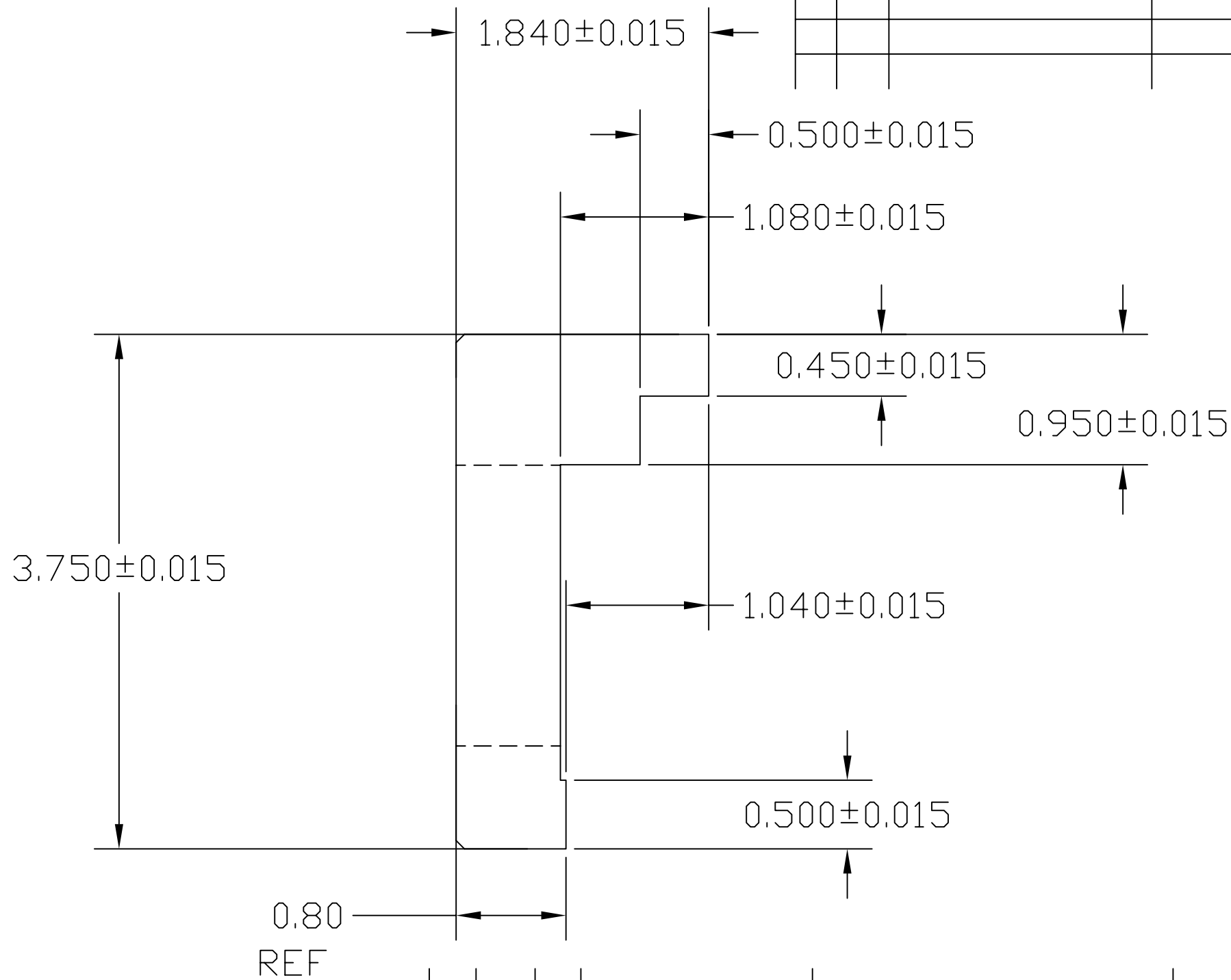
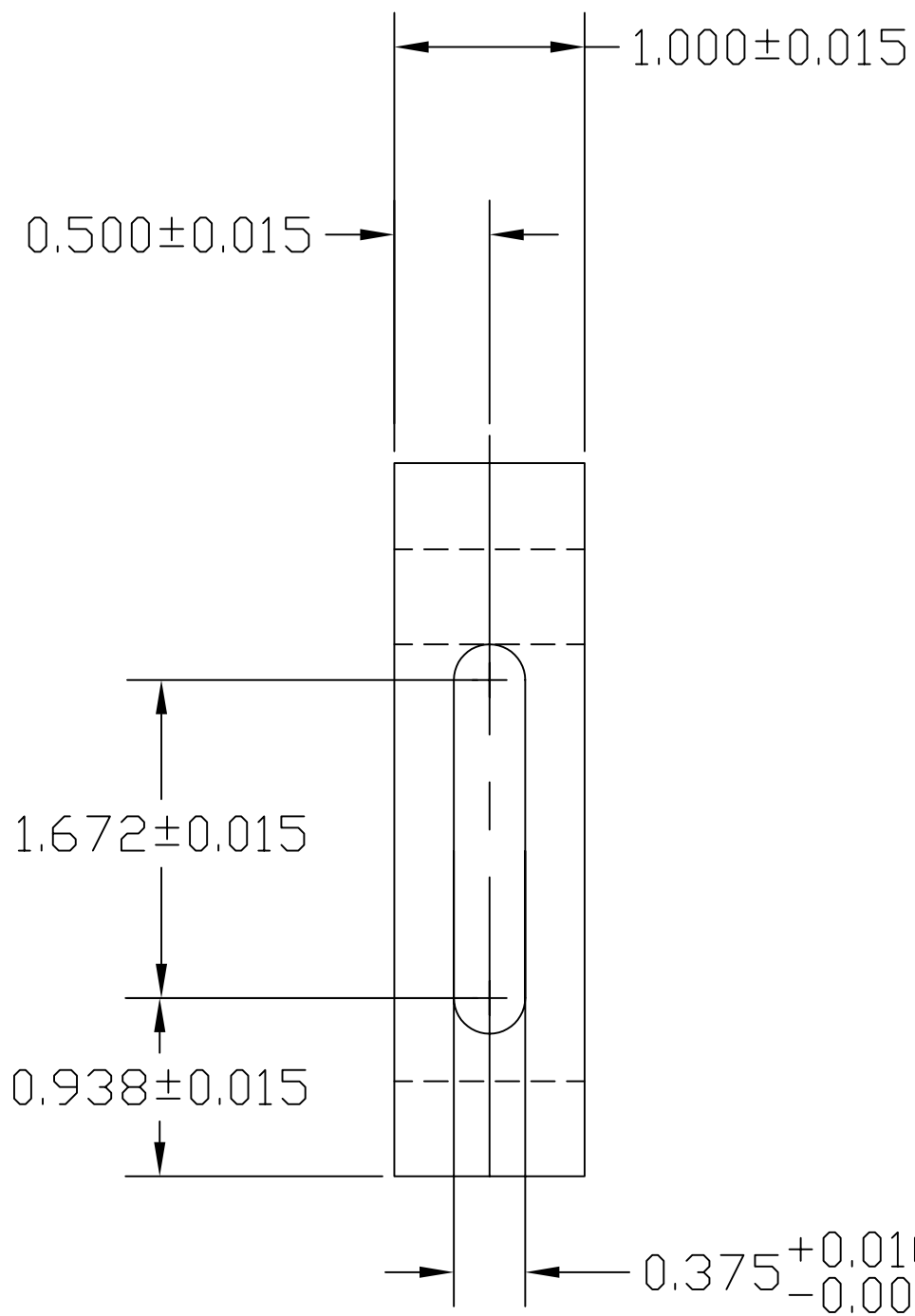


MAKE 1

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06		KENM
TOLERANCES:				CHECKED			
.XX±:							
.XXX±:							
ANGULAR±:							
MATERIAL				COMMENTS:		SYSTEM LASTI SUB-SYSTEM QUAD SUSPENSION NEXT ASSY D060145-A PART NAME Y-PUSH PLATE	
303/304 SS						SIZE DWG. NO. D060047-A REV	
FINISH N/A						SCALE: SHEET 1 OF 1	

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	



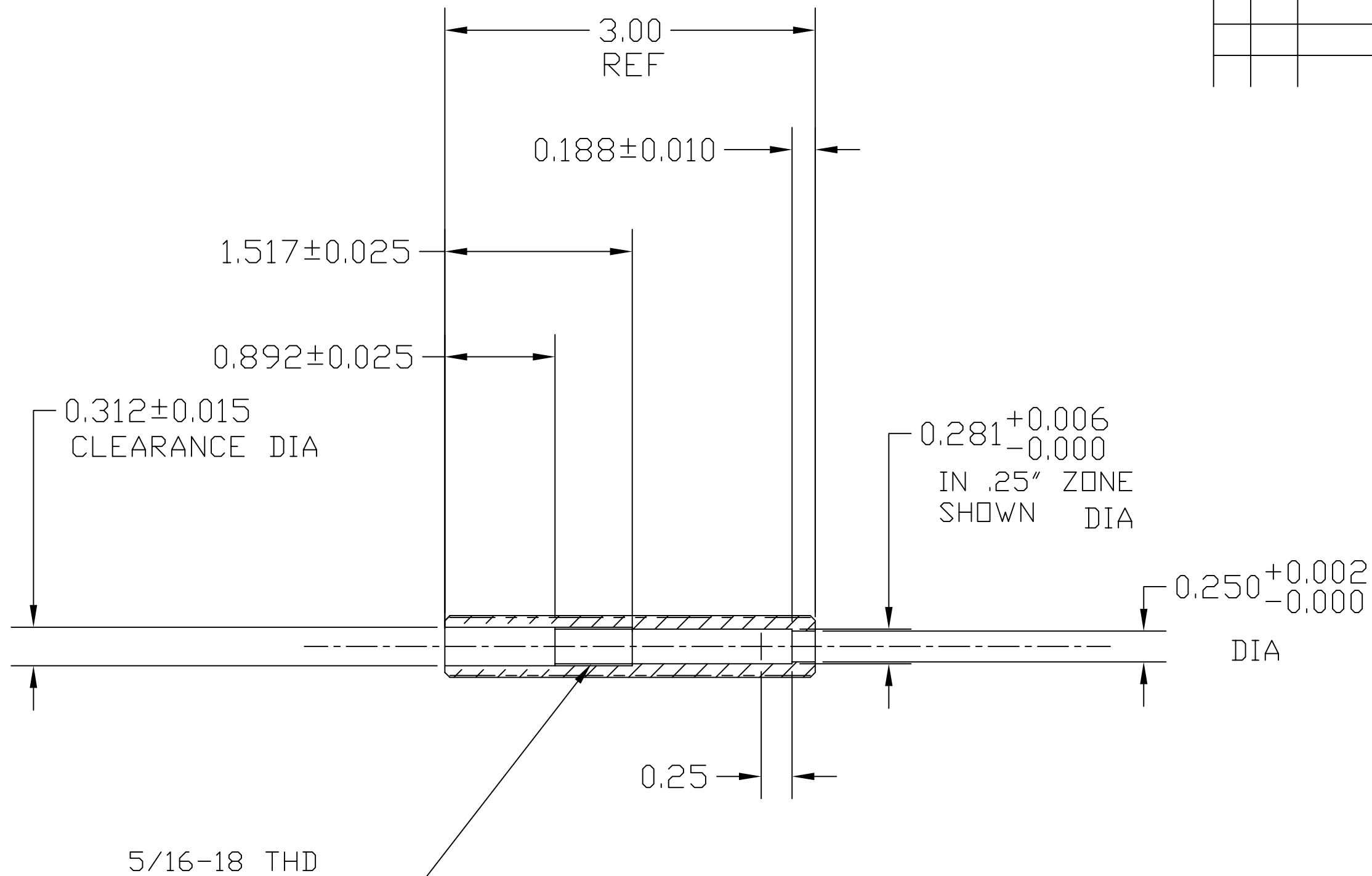
BREAK EDGES TYP.

MAKE 8

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	3/1/06	KENM
TOLERANCES:				CHECKED		
.XX±:						
.XXX±:						
ANGULAR±:						
MATERIAL				COMMENTS:		
303 SS						
FINISH						
N/A						
			SYSTEM	CALIFORNIA INSTITUTE OF TECHNOLOGY		
			SUB-SYSTEM	MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
			NEXT ASSY	LASTI		
			PART NAME	QUAD SUSPENSION		
				D060145-A		
			SIZE	DWG. NO.	REV	
			B	D060066-A		
			SCALE:	SHEET 1 OF 1		

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	



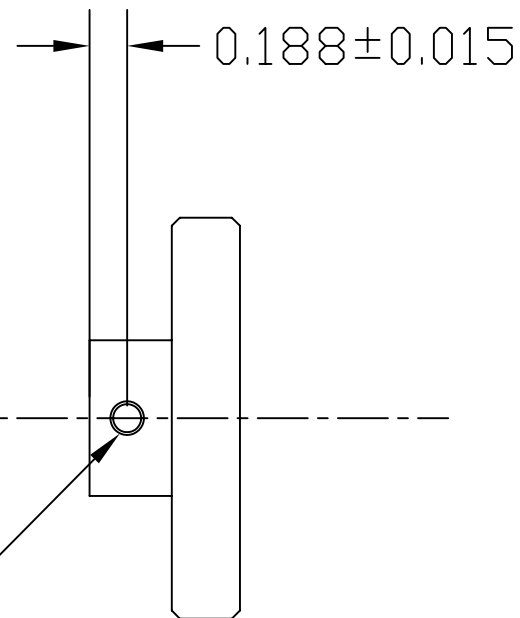
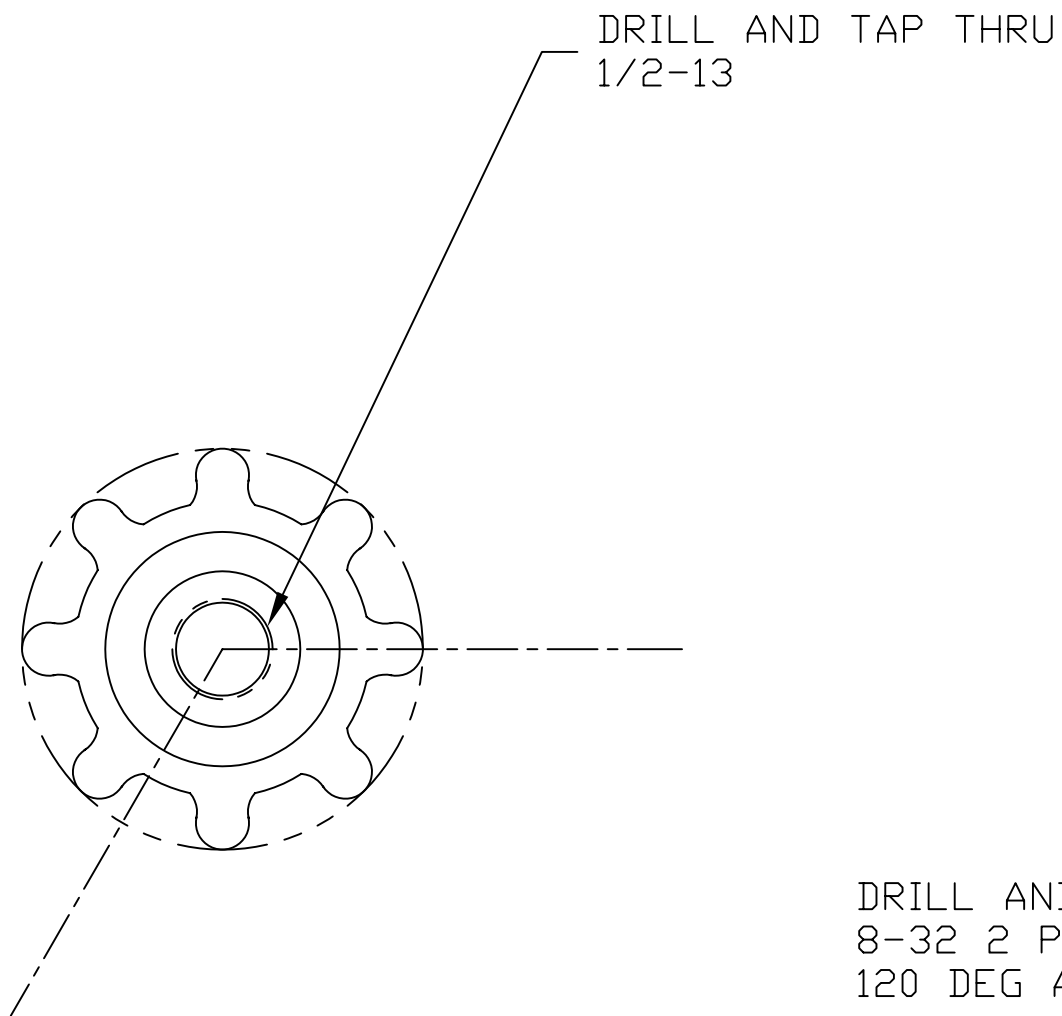
BREAK EDGES TYP.

MAKE 2

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DIMENSIONS ARE IN INCHES				DRAWN	3/1/06	KENM
TOLERANCES:				CHECKED		
.XX±:						SYSTEM LASTI
.XXX±:						SUB-SYSTEM QUAD SUSPENSION
ANGULAR±:						NEXT ASSY D060145-A
MATERIAL				PART NAME PUSHER SCREW MODIFICATION		
1/2-13 S. STEEL THD ROD				COMMENTS:	SIZE DWG. NO.	REV
FINISH N/A					B D060067-A	
SCALE:					SHEET 1 OF 1	

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	

NOTES: (UNLESS OTHERWISE SPECIFIED)



BREAK EDGES TYP.

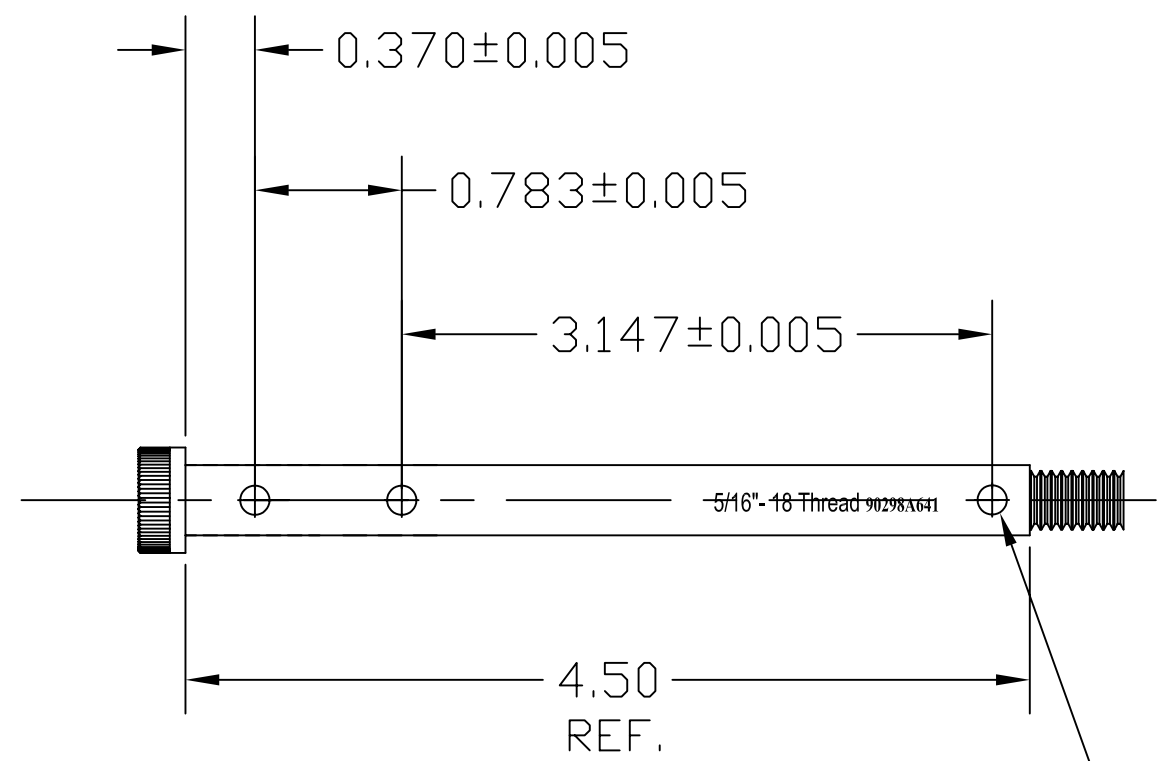
MAKE 2

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	3/1/06	KENM
TOLERANCES:				CHECKED		
.XX±:						
.XXX±:						
ANGULAR±:						
MATERIAL				COMMENTS:		
MC MASTER ALUM KNOB						
FINISH						
N/A						
LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY						
SYSTEM LASTI						
SUB-SYSTEM QUAD SUSPENSION						
NEXT ASSY D060145-A						
PART NAME X-Y PUSHER SCREW KNOB MOD						
SIZE	DWG. NO.				REV	
B	D060068-A					
SCALE:						SHEET 1 OF 1



REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	

NOTES: (UNLESS OTHERWISE SPECIFIED)



DRILL AND REAM LPF FOR .156 DIA  
ROLL PIN THRU 3 PL.

see assembly for adjacent part  
long screw shaft

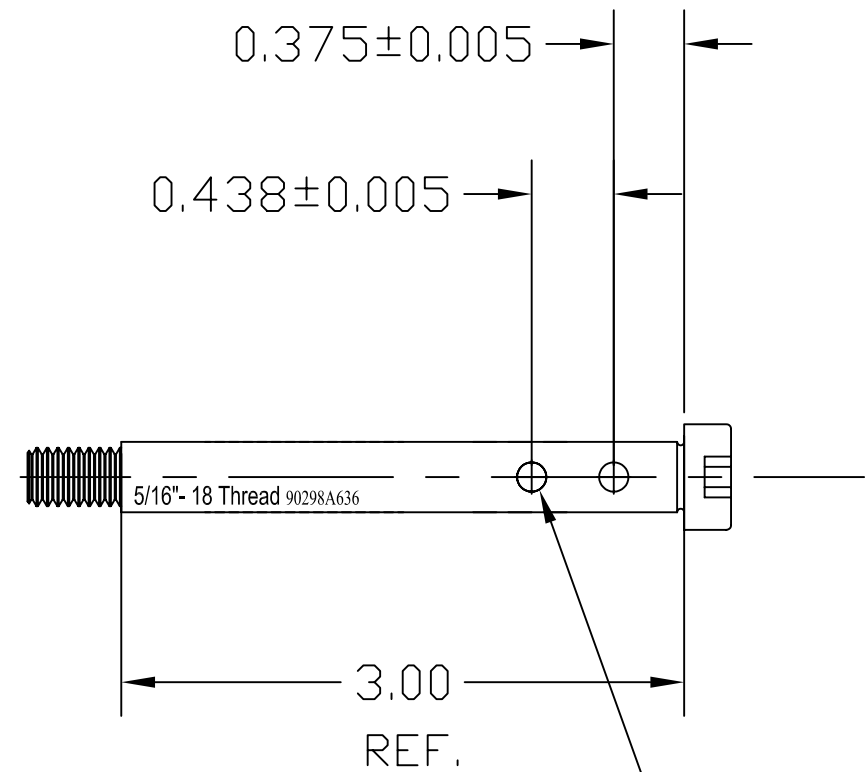
drill #20 [.161 dia thru]  
not LPF .156

MAKE 1

ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES				DATE	NAME	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
TOLERANCES: .XX±: .XXX±: ANGULAR±:				DRAWN	2/11/06		KENM
MATERIAL				CHECKED			SYSTEM LASTI
FINISH							SUB-SYSTEM QUAD SUSPENSION
MC MASTER PART				COMMENTS:		NEXT ASSY D060145-A	
N/A						PART NAME LONG SHAFT SCREW MOD	
				SIZE	DWG. NO.	REV	
				B	D060069-A		
				SCALE:	SHEET 1 OF 1		

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	


NOTES: (UNLESS OTHERWISE SPECIFIED)



DRILL AND REAM LPF FOR .156 DIA ROLL PIN THRU 2 PL.

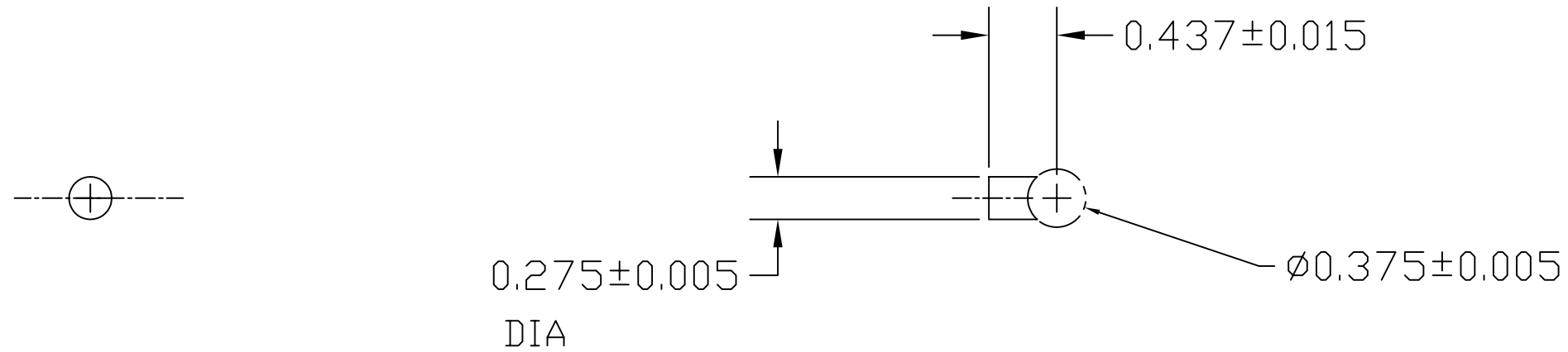
see assembly for adjacent part long screw shaft

MAKE 1

ITEM NO.	REQ. QUANTITY	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	2/11/06		KENM
TOLERANCES:				CHECKED			
.XX±							
.XXX±							
ANGULAR±							
MATERIAL				COMMENTS:		SYSTEM	
MC MASTER PART						SUB-SYSTEM	
FINISH						NEXT ASSY	
N/A						PART NAME	
						SHORT SHAFT SCREW MOD	
						SIZE	
						DWG. NO.	
						D060070-A	
						REV	
						SCALE:	
						SHEET 1 OF 1	

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	

NOTES: (UNLESS OTHERWISE SPECIFIED)

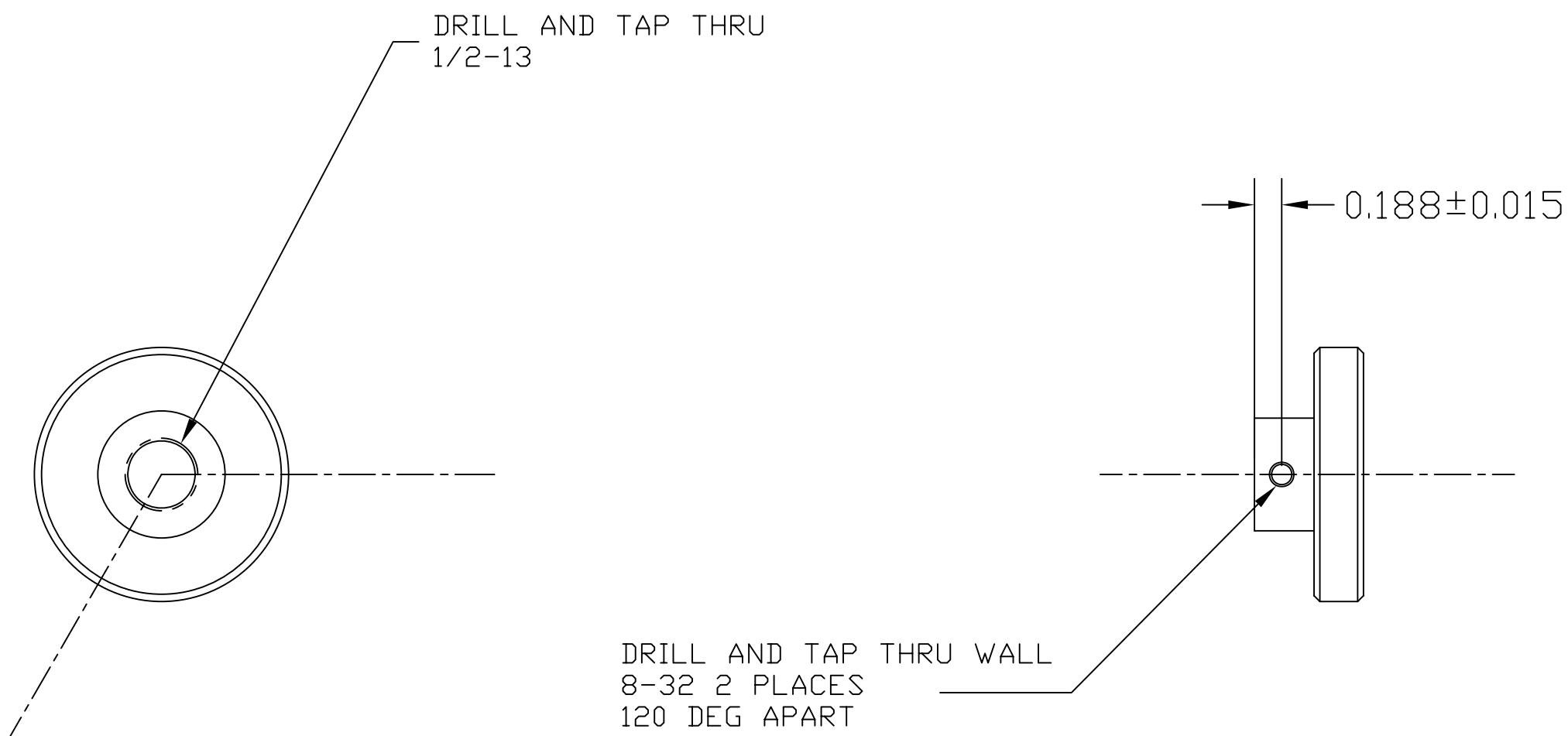


MAKE 1

ITEM NO.	REQ. QUANTITY	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES				DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
TOLERANCES: .XX±: .XXX±: ANGULAR±:				DRAWN	2/11/06	KENM
MATERIAL BRONZE				CHECKED		SYSTEM LASTI
FINISH N/A						SUB-SYSTEM QUAD SUSPENSION
						NEXT ASSY D060145-A
						PART NAME BRAKE PLUG
				COMMENTS:		SIZE DWG. NO. D060071-A
						REV
						SCALE:
						SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	



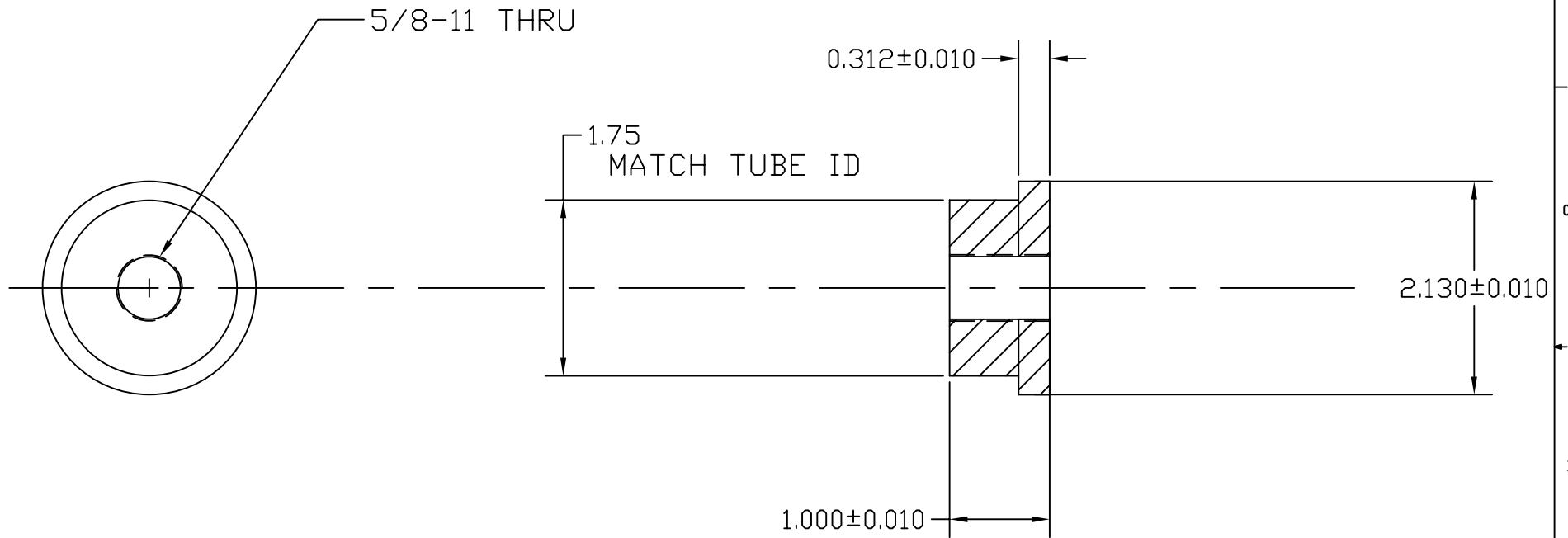
BREAK EDGES TYP.

MAKE 2

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DIMENSIONS ARE IN INCHES				DRAWN	3/1/06	
TOLERANCES:				CHECKED		SYSTEM LASTI
.XX±:						SUB-SYSTEM QUAD SUSPENSION
.XXX±:						NEXT ASSY D060145-A
ANGULAR±:						PART NAME X-Y TILT SCREW KNOB MOD
MATERIAL MC MASTER ALUM KNOB 60205K42				COMMENTS:		SIZE DWG. NO. D060077-A
FINISH N/A						REV
SCALE:						SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

REV.	DATE	DCN #	DRAWING TREE #
A	1-18-06	E060004-00-D	



BREAK EDGES TYP.

MAKE 4

ITEM NO.	REQ. QUANTITY	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES				DATE	NAME	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
TOLERANCES: .XX± .XXX± ANGULAR±				DRAWN	3/1/06	KENN
MATERIAL: MILD STEEL				CHECKED		SYSTEM LASTI
FINISH: N/A						SUB-SYSTEM QUAD SUSPENSION
						NEXT ASSY NA
						PART NAME: TABLE LEVELING FOOT PAD
				SIZE	DWG. NO.	REV
				B	D060168-A	
				SCALE:	SHEET 1 OF 1	

FILE NAME/LOCATION: D060168-A