

D060145-A

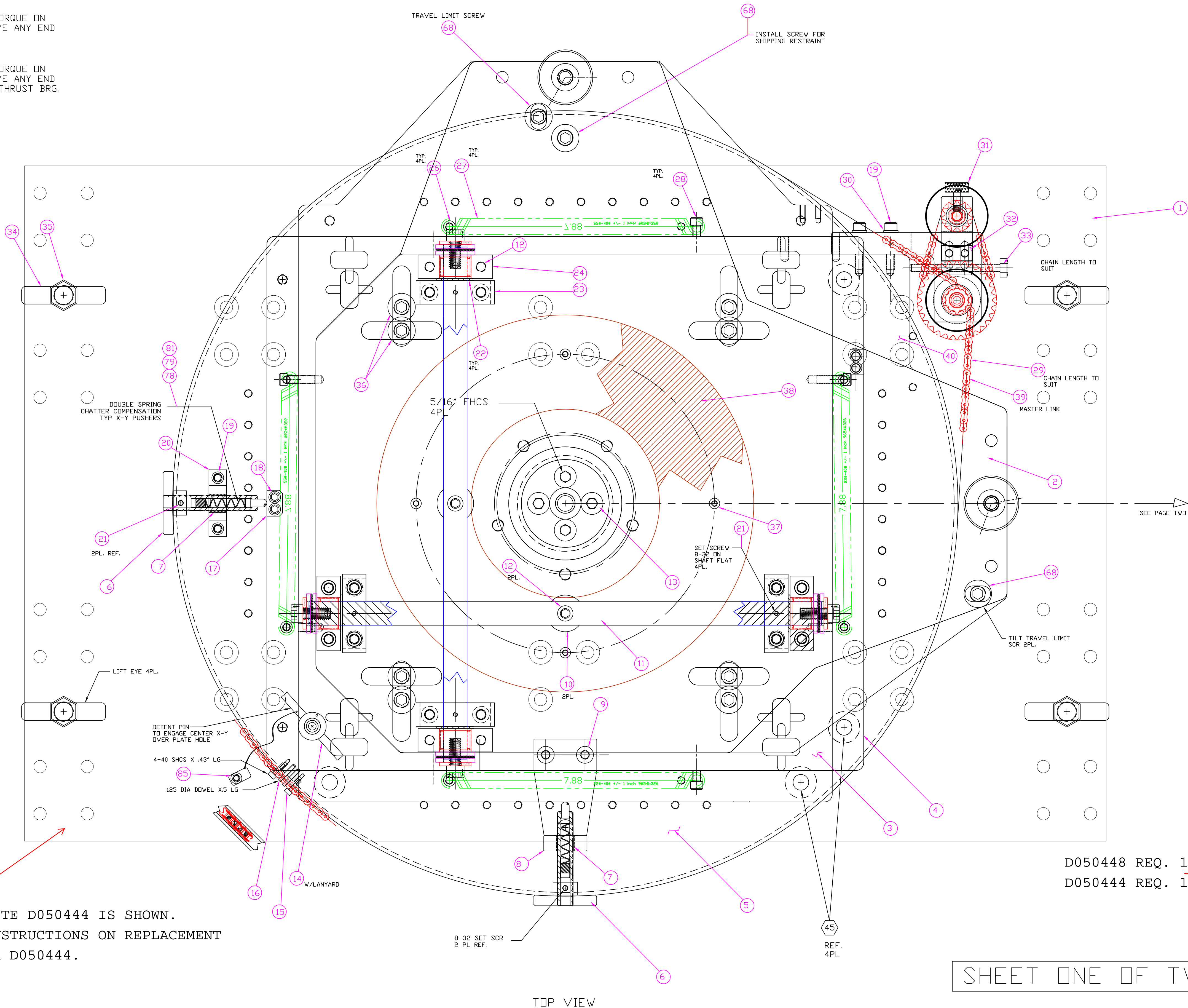
NOTES: (UNLESS OTHERWISE SPECIFIED)

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	2-18-06	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

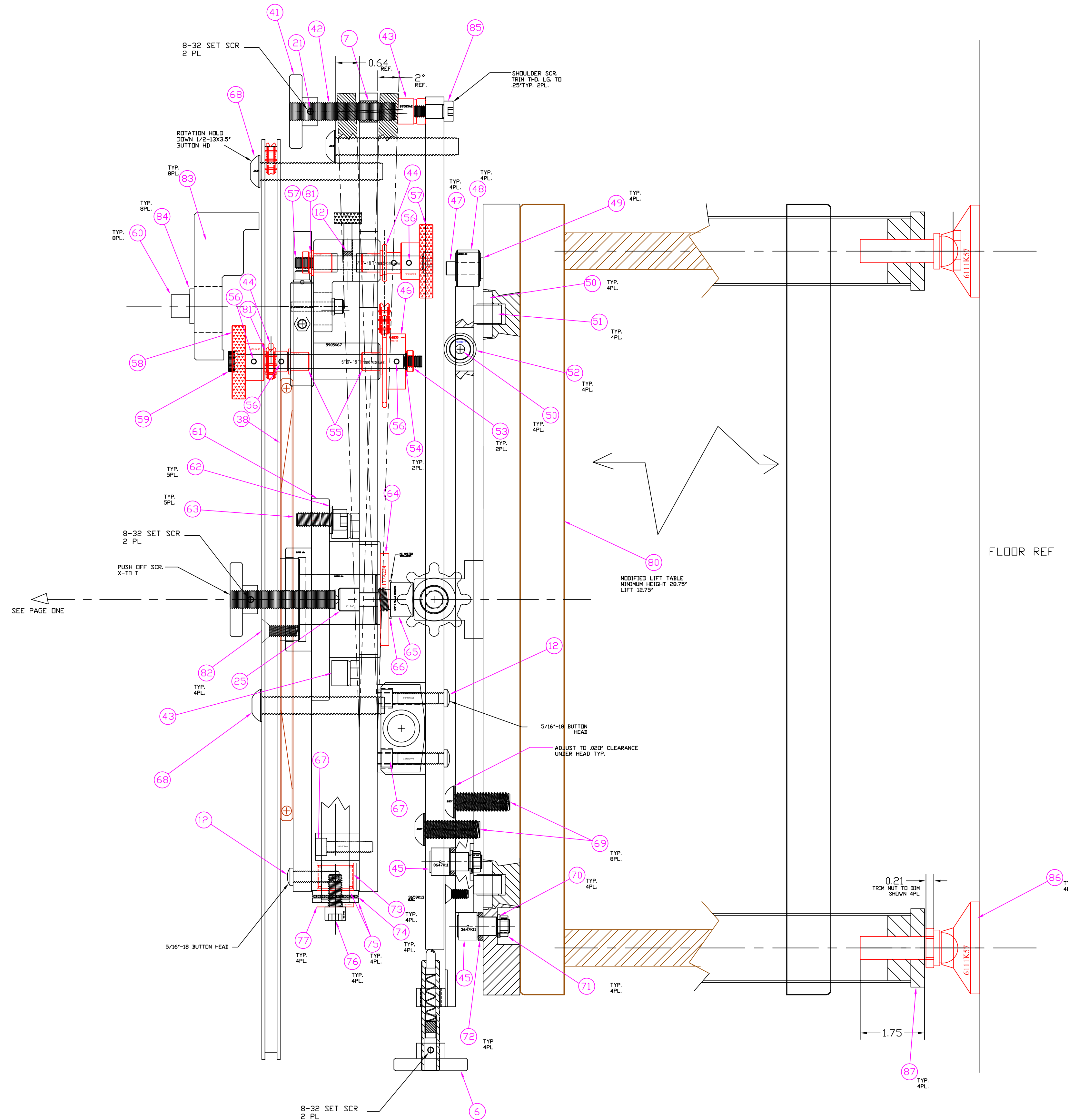
ITEM NO.	REQ.	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
40	1			DWG # D050449-A	ROLL PLATE QUAD FIXTURE	
39	2			MCM #6264K2	25-S.S. CONNECTOR LINK	MCMaster CARR
38	1			MCM #1544T3	12" DIA FLAT BEARING	MCMaster CARR
37	4			MCM #92949A240	10-24 S.S. BUTTON HD X.375" LG.	MCMaster CARR
36	8			MCM #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 X 1.12" 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 DOWEL 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	2-16-06	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		

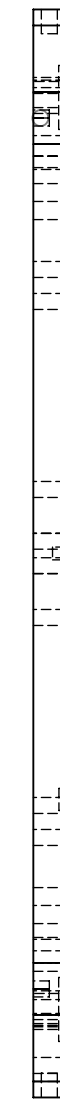
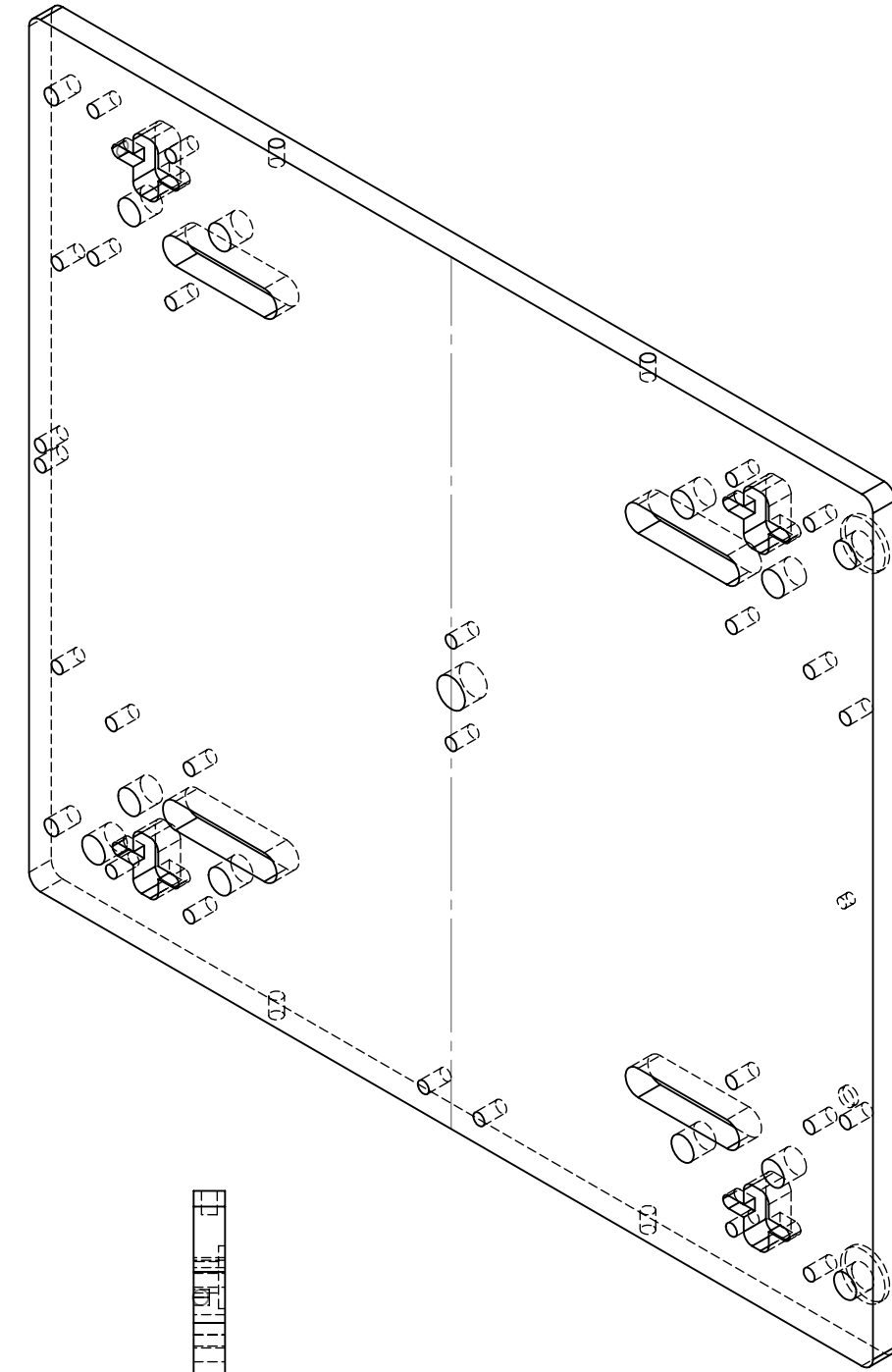
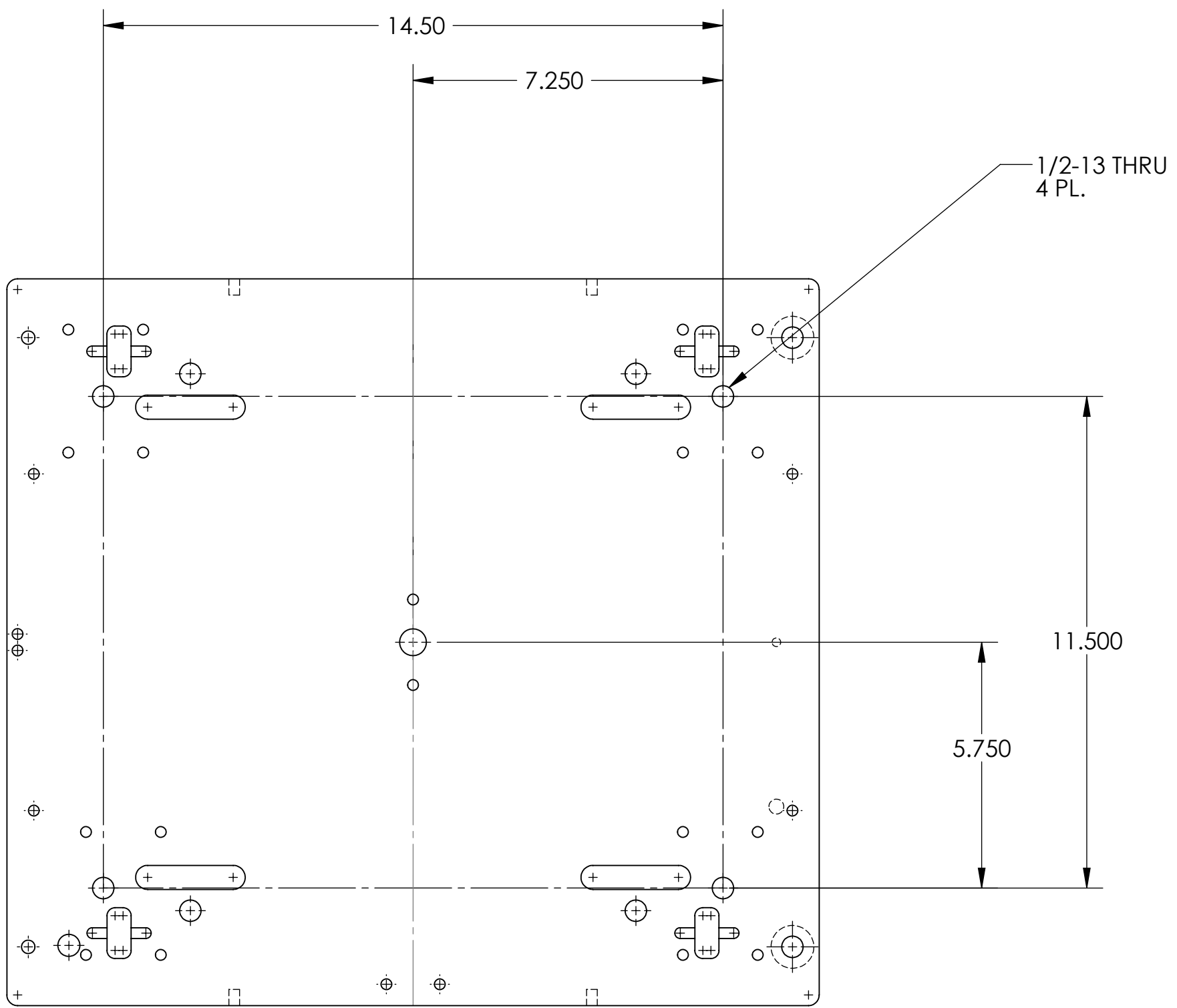


SIDE VIEW

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\"/>	

UNLESS OTHERWISE SPECIFIED		DATE	NAME	PARTS LIST	
DIMENSIONS ARE IN INCHES		BRAWN	2-16-06	KEM	LIGO
TOLERANCES:		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY			
XX ±		SYSTEM LHO /LLO			
XXX ±		SUB-SYSTEM TCS			
ANGULAR ±		NEXT ASSY NONE			
INTERIAL		PART NAME QUAD SUS FIXTURE ASSEMBLY			
FINISH		SCALE: D	DWG. NO. D060145-A	REV	



MODIFY EXISTING PLATE

THIS IS A MODIFICATION TO D050446-A AND SHOULD BE INCLUDED AS PART OF THE QUOTE.

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF <INSERT COMPANY NAME HERE>. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF <INSERT COMPANY NAME HERE> IS PROHIBITED.

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	32		
APPLICATION	DO NOT SCALE DRAWING		

SIZE	DWG. NO.	REV
SCALE: 1:4	WEIGHT: 43.69	SHEET 1 OF 1

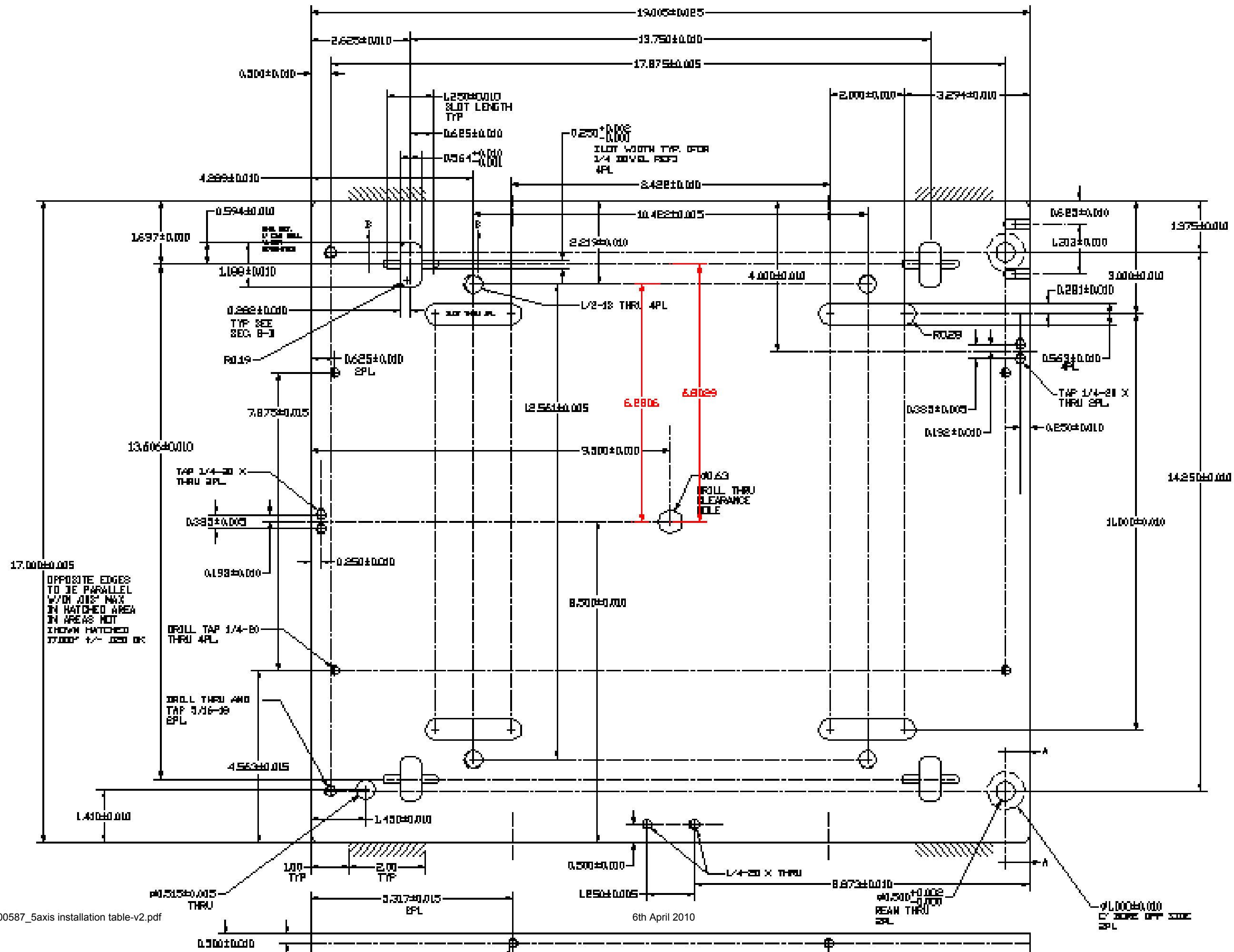
DRAWING D050444-A HAS BEEN REMOVED.

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

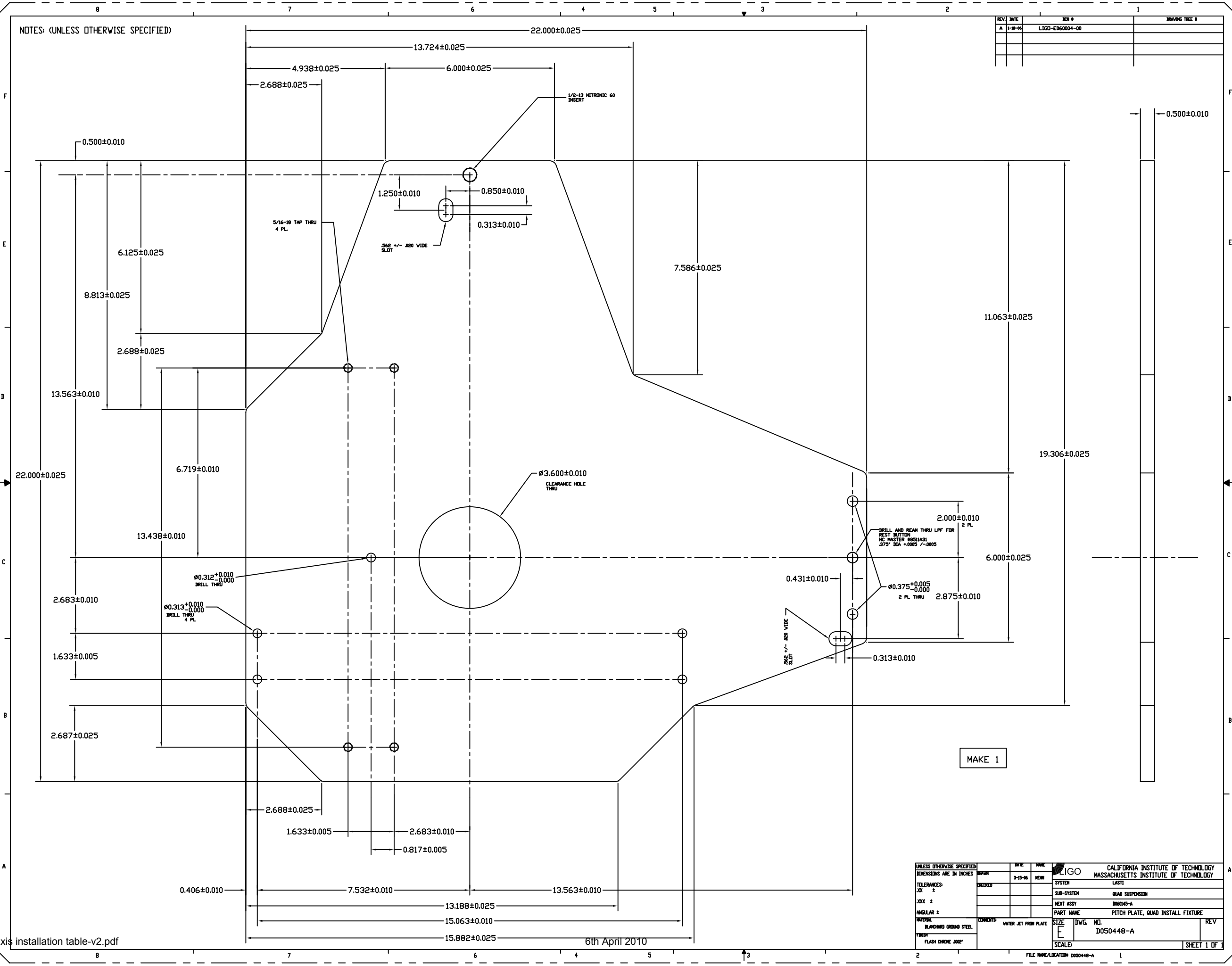
D050444-A

THIS IS A MISSING DIMENSIONS CLARIFIED FOR D050446-A.



NOTES: (UNLESS OTHERWISE SPECIFIED)

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



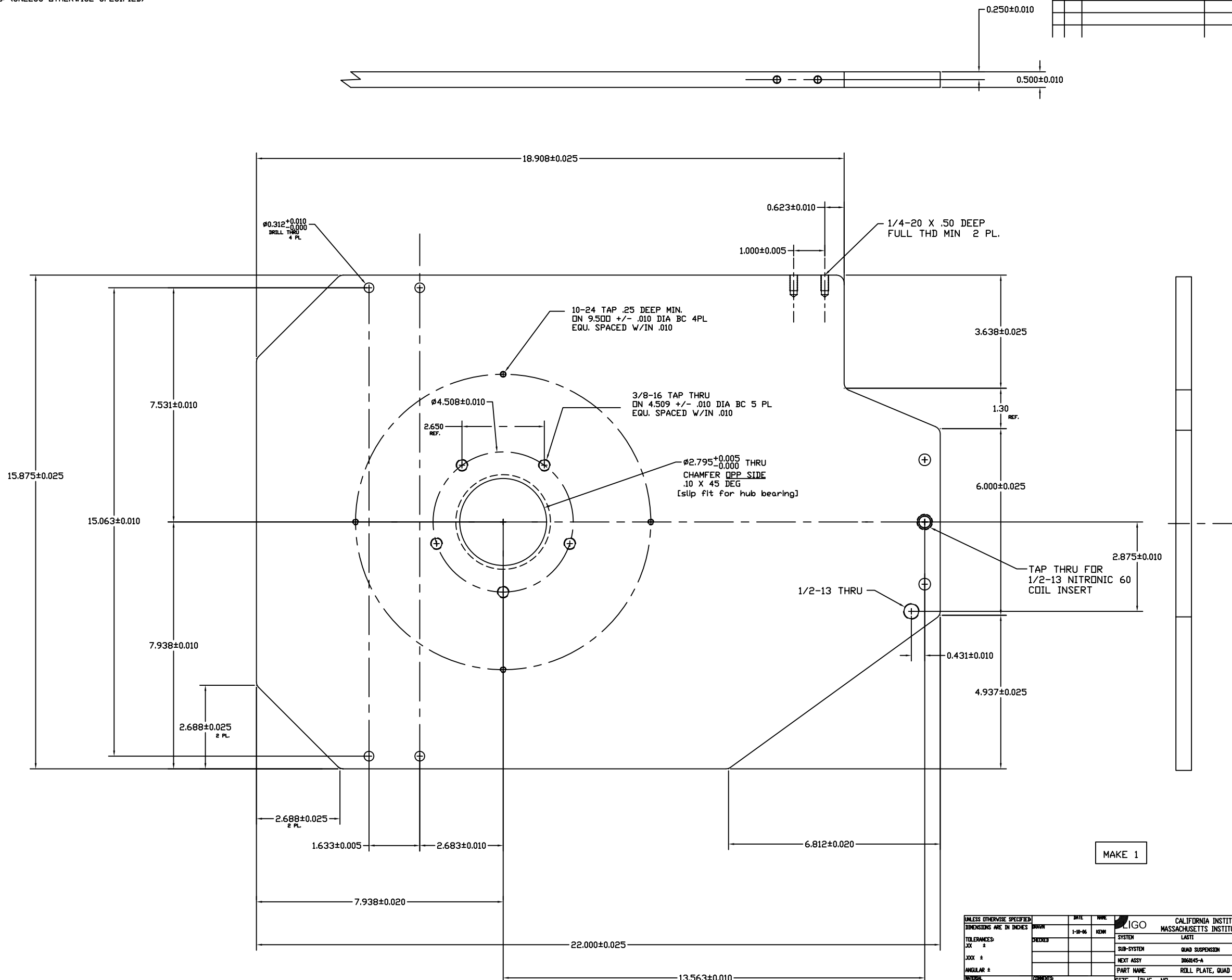
MAKE 1

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

6th April 2010

NOTES: (UNLESS OTHERWISE SPECIFIED)

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



MAKE 1

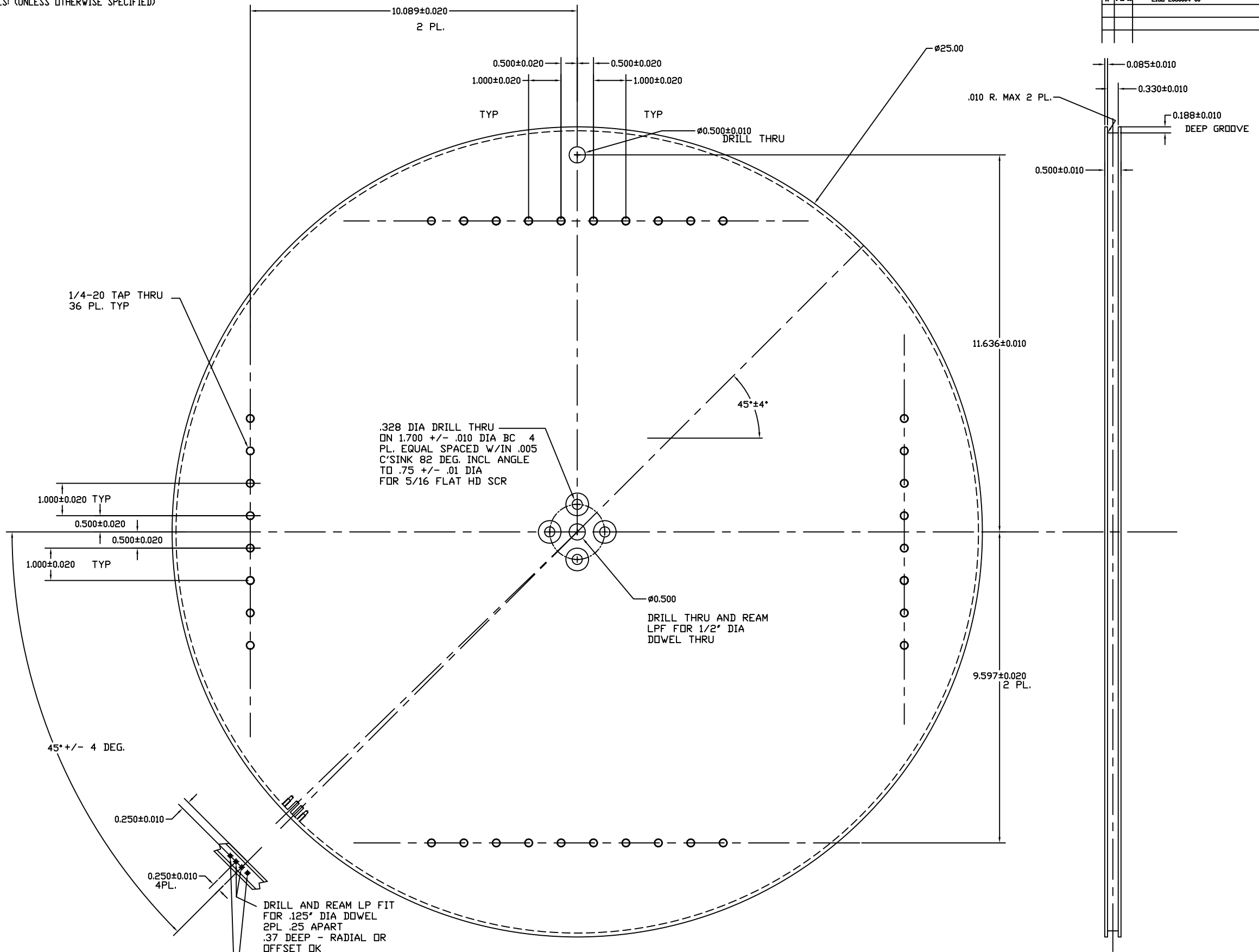
UNLESS OTHERWISE SPECIFIED		DATE	BY	CHKD	FILE NAME/LOCATION
DIMENSIONS ARE IN INCHES		1-18-04			D050444-A
TOLERANCES:					
XXX ±					
XXX ±					
ANGULAR ±					
MATERIAL:	COMMENTS:				
BLANKED GROUND STEEL	WATER JET FROM PLATE				
FRESH					
FLASH CHROME ANNE					

SYSTEM	LIGO	DWG. NO.	D050449-A
LASTI		REV	
SUB-SYSTEM	QUAD SUSPENSION	SCALE:	
NEXT ASSY	D06045-A		
PART NAME	ROLL PLATE, QUAD INSTALL FIXTURE		
SHEET 1 OF 1			

6th April 2010

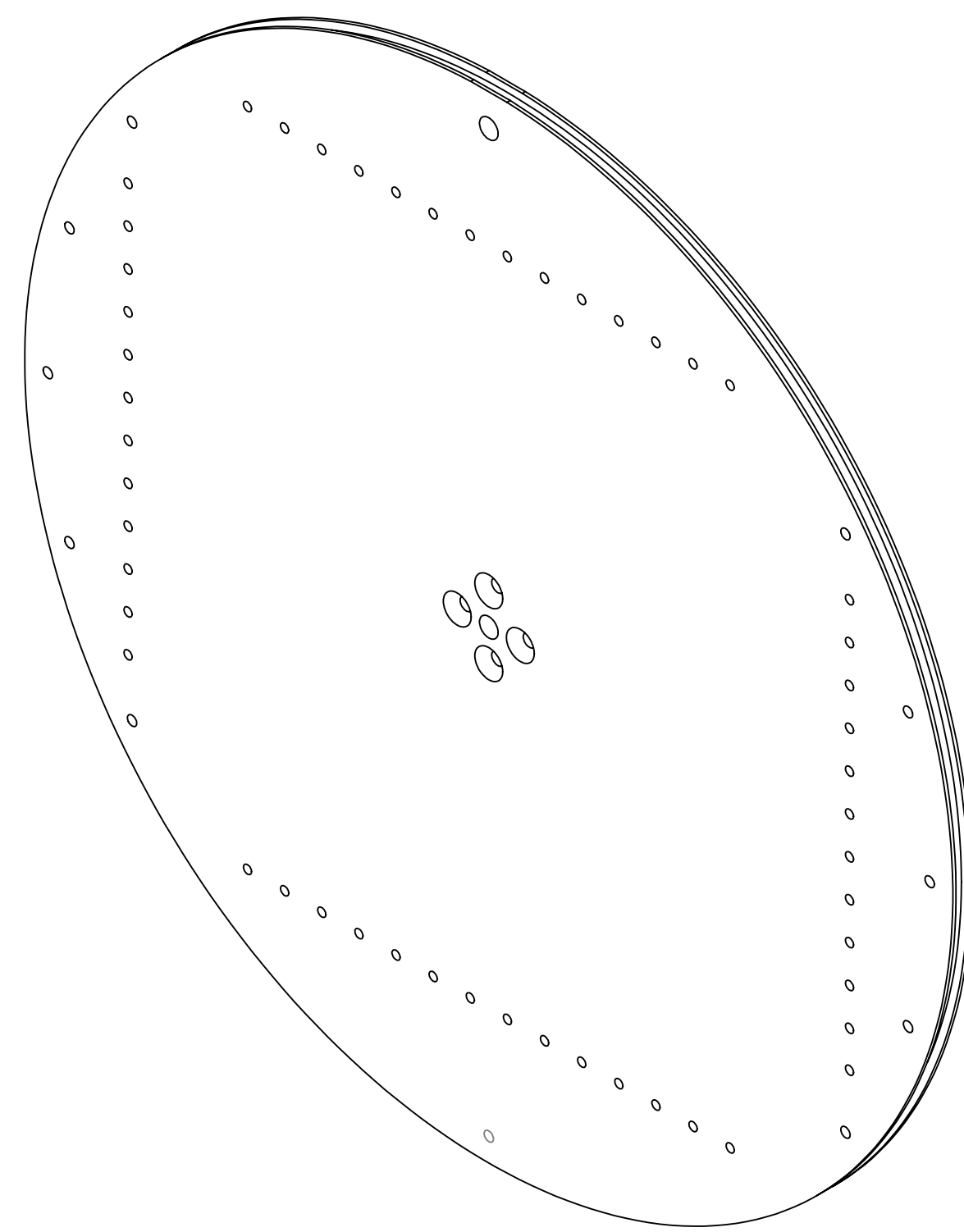
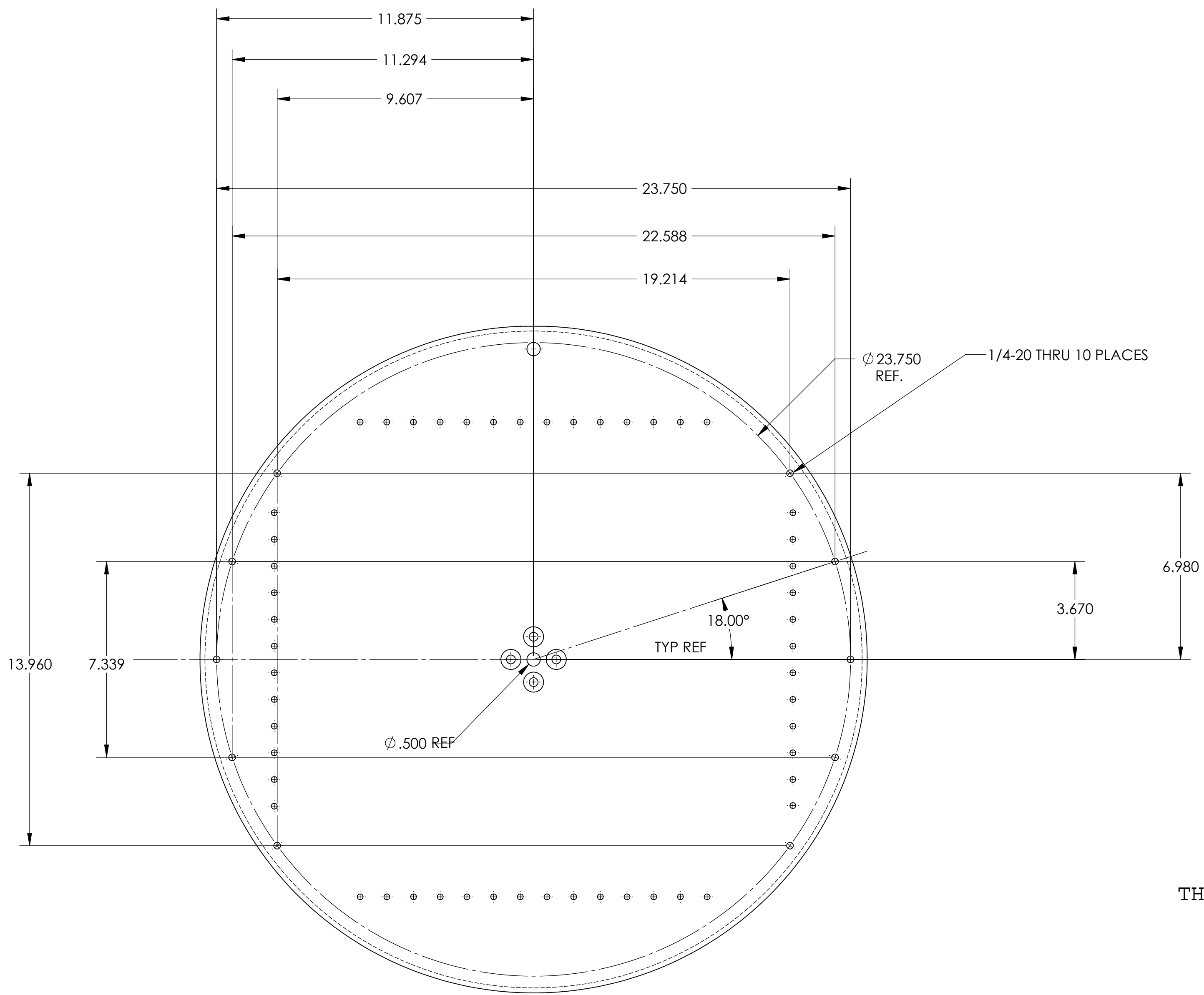
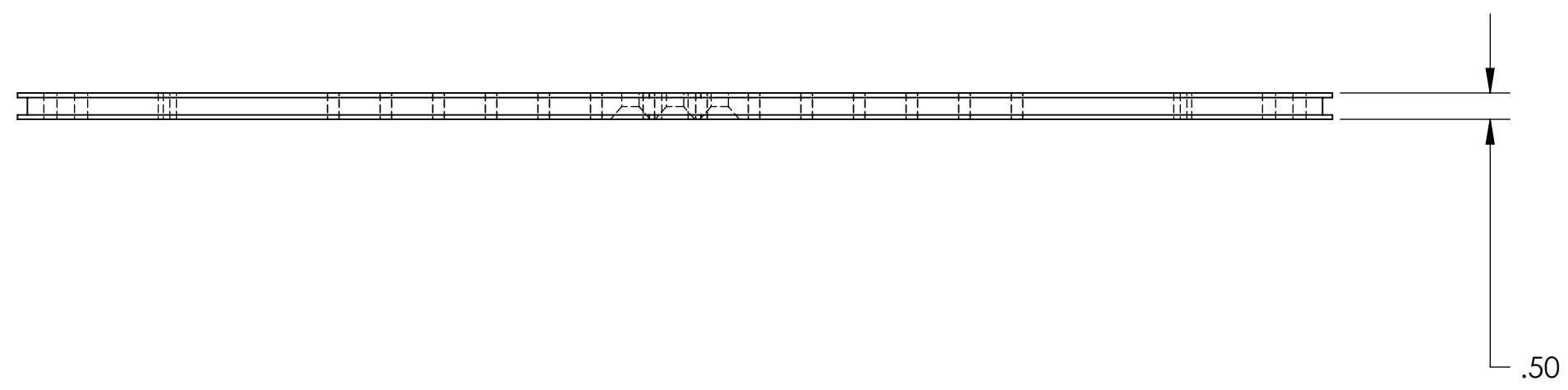
NOTES: (UNLESS OTHERWISE SPECIFIED)

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		
FINISH: 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.

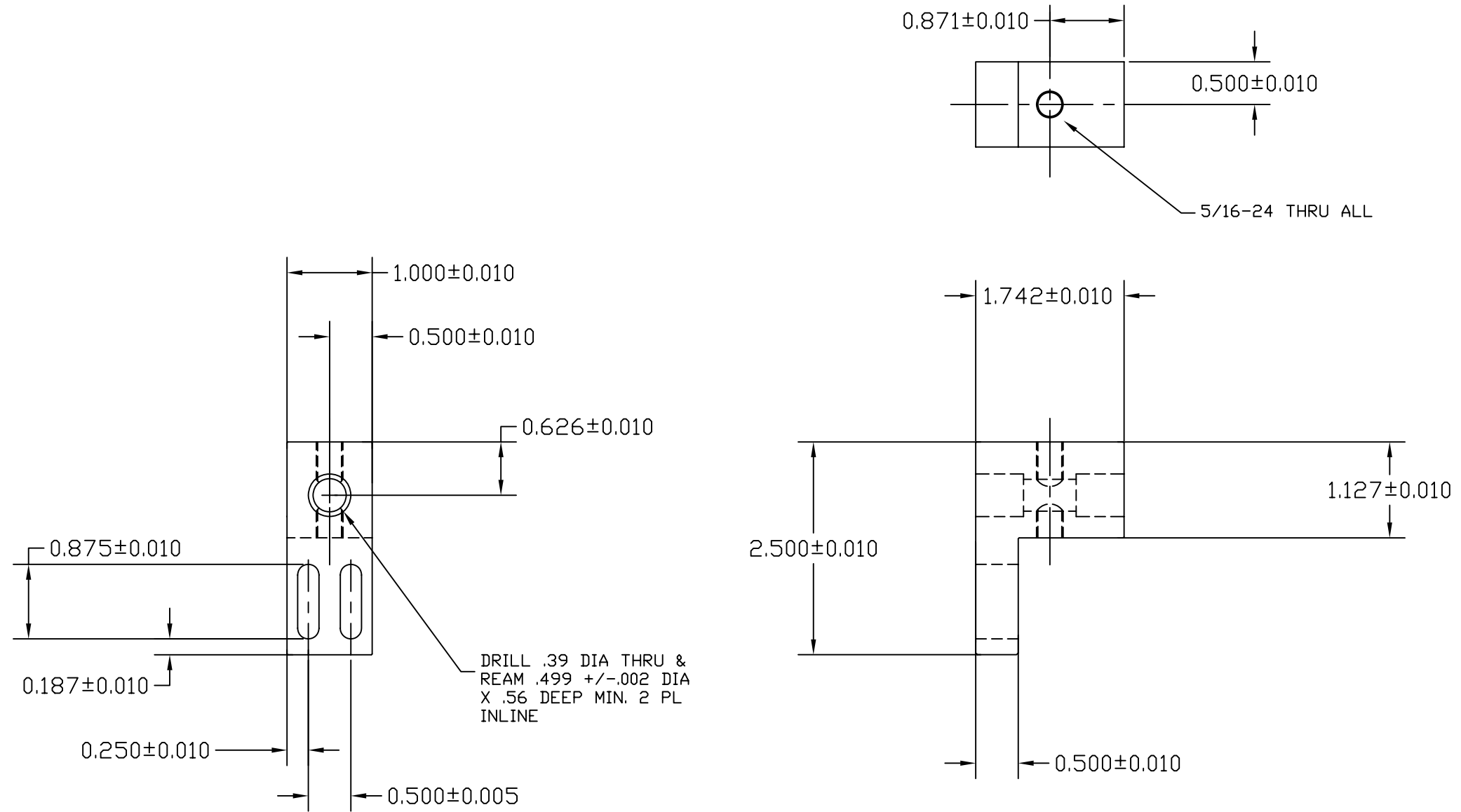
PROPRIETARY AND CONFIDENTIAL
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		UNLESS OTHERWISE SPECIFIED:	DRAWN	NAME	DATE
		DIMENSIONS ARE IN INCHES	CHECKED		
		TOLERANCES:	ENG APPR.		
		FRACTIONAL ±	MFG APPR.		
		ANGULAR: MATCH ±	Q.A.		
		BEND ±	COMMENTS:		
		TWO PLACE DECIMAL ±			
		THREE PLACE 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)

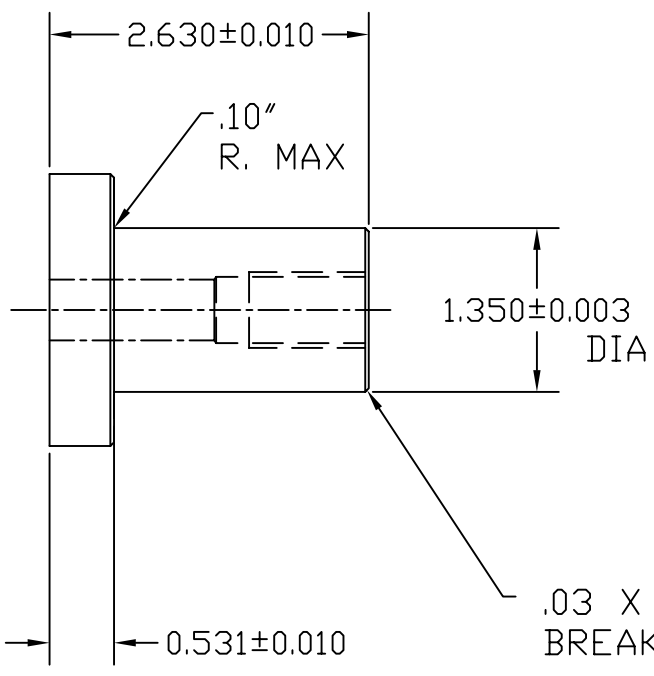
REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	

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

$\phi 2.240 \pm 0.010$

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

$\phi 0.500$
DRILL THRU AND REAM
LPF FOR 1/2" DIA
DOWEL .62" DEEP MIN.

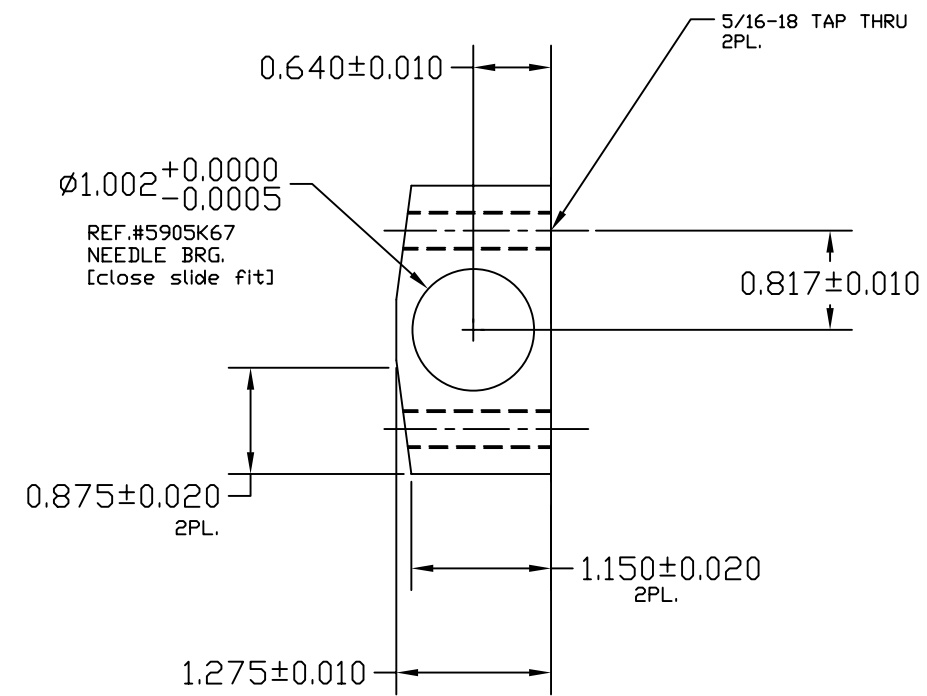
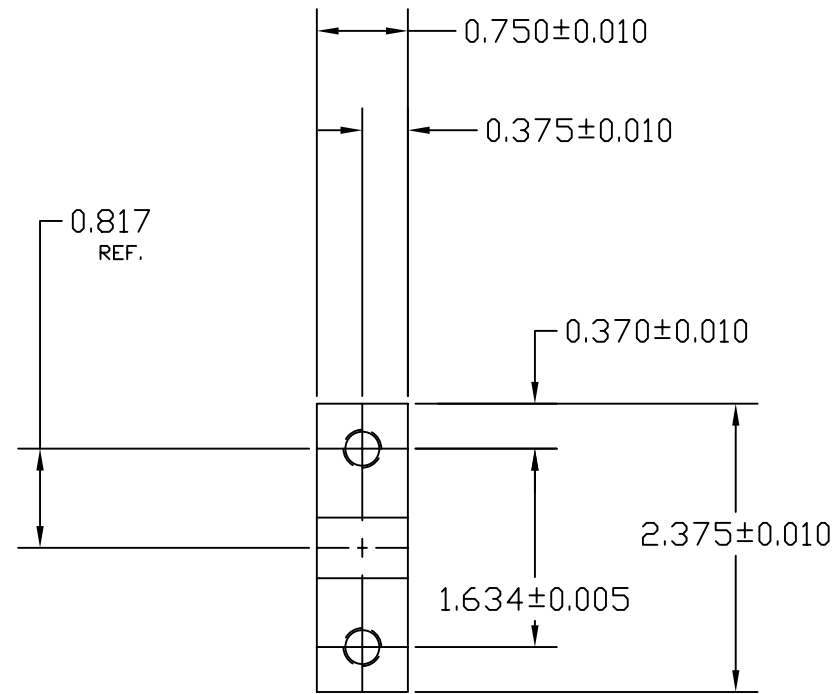


MAKE 1

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				PART NAME		
303 S. S.				FIXTURE CENTER SHAFT		
FINISH				SCALE	SIZE DWG. NO.	REV
N/A				C	D060002-A	
				SCALE:		SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

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

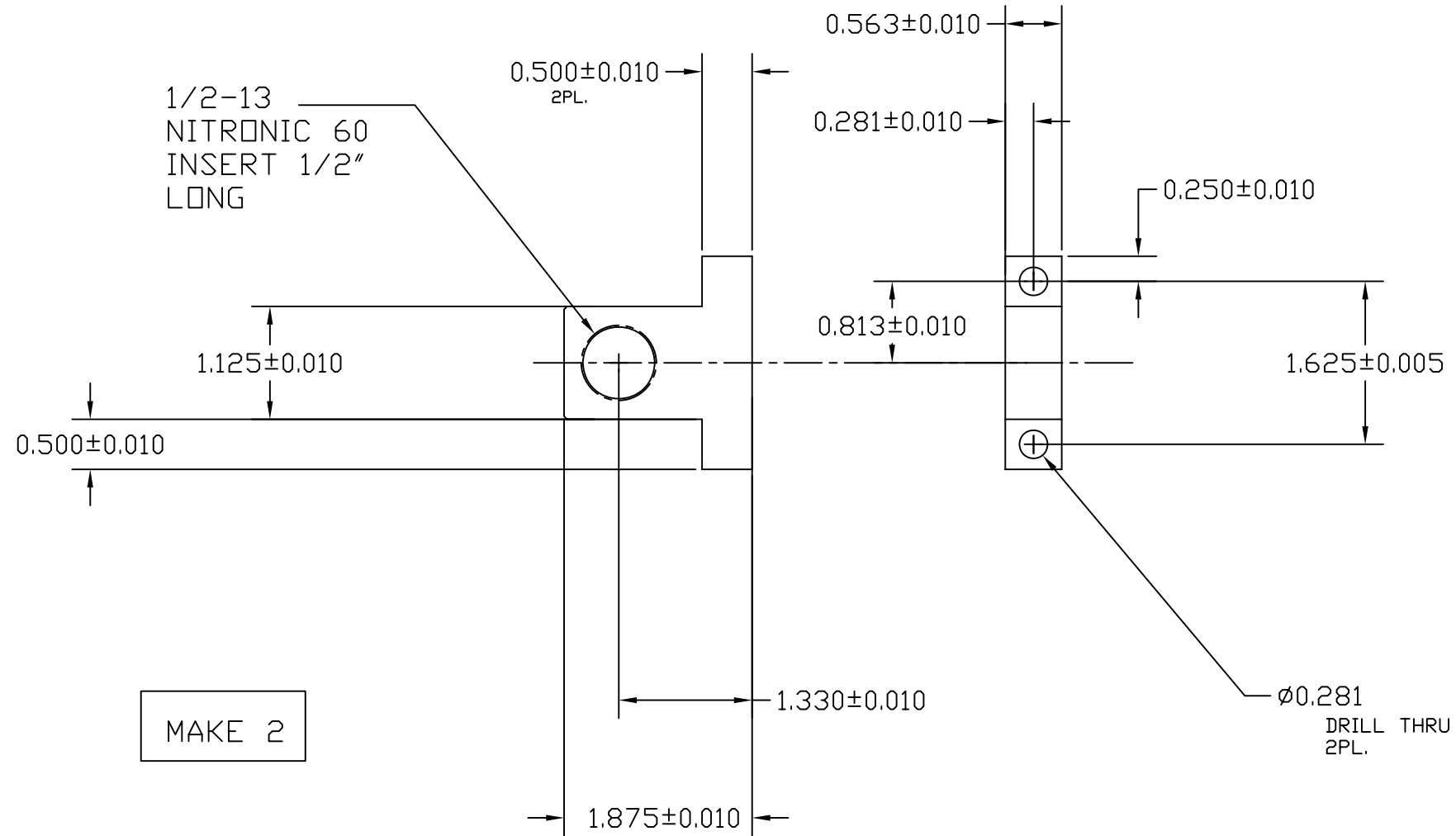


QTY 4

ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	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	

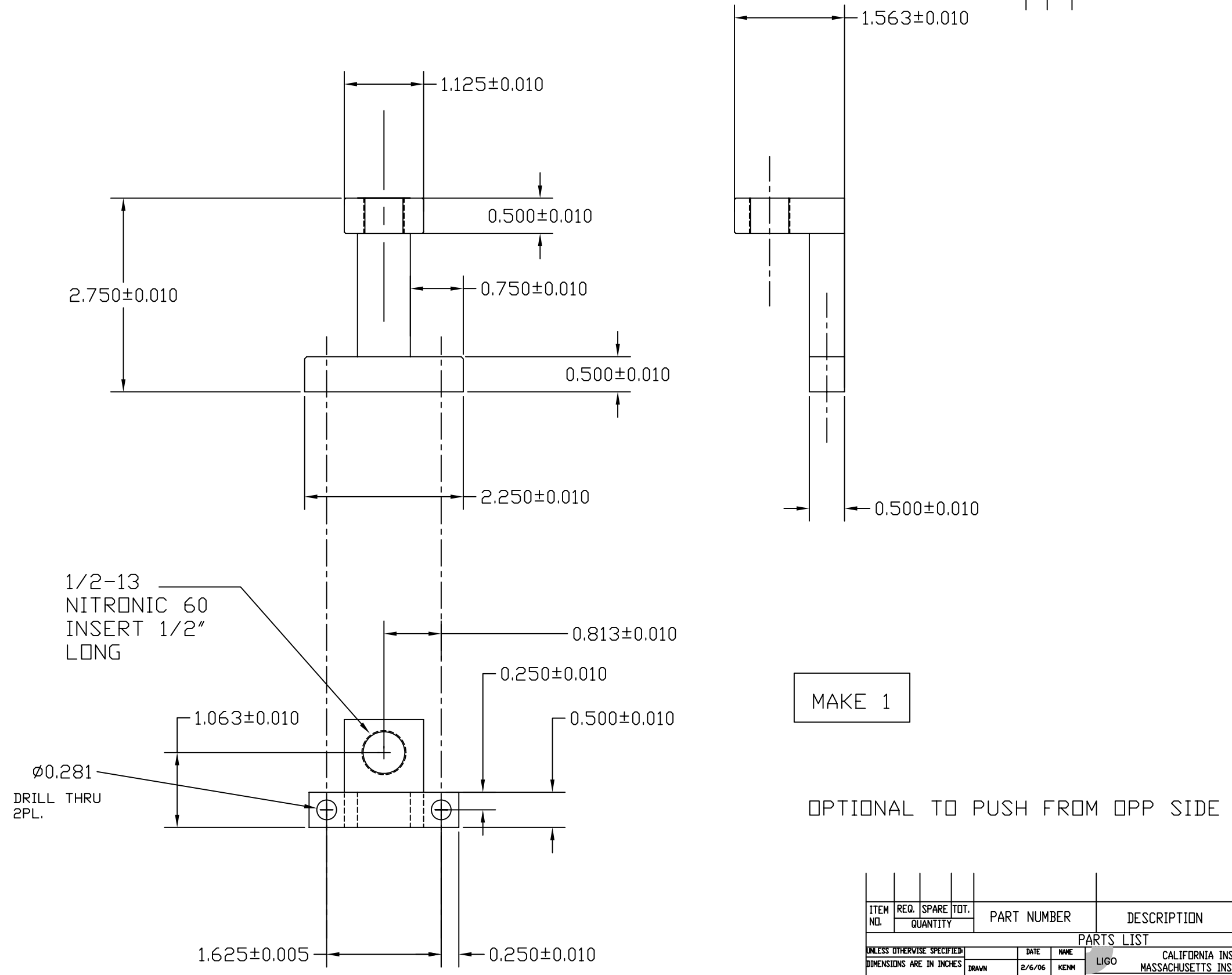


ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06	KENN
TOLERANCES:				CHECKED		
XX ± .01						
XXX ± .005						
ANGULAR ± 3 DEG						
MATERIAL				COMMENTS:	SIZE	DWG. NO.
ALUM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

MAKE 2

NOTES: (UNLESS OTHERWISE SPECIFIED)

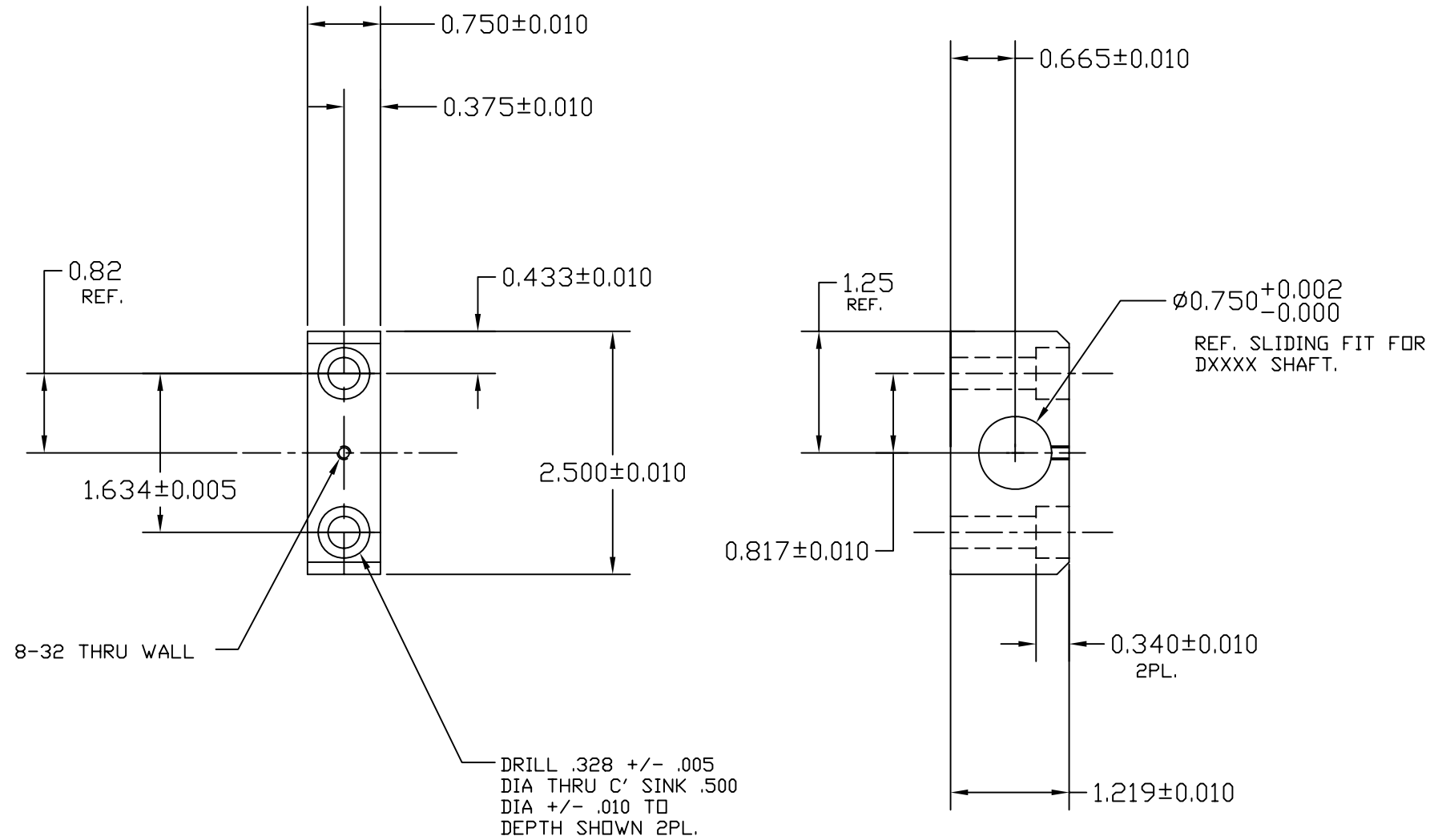
REV.	DATE	DCH #	DRAWING TREE #
A	1-18-06	LIGO-E060004-00	



ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	2/6/06	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				NEXT ASSY D060145-A		
ALUM 6061 T-6				PART NAME Y-PLATE ADJUSTMENT BRACKET		
FINISH N/A				COMMENTS:	SIZE DWG. NO.	REV
					C D060005-A	
				SCALE:		SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

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

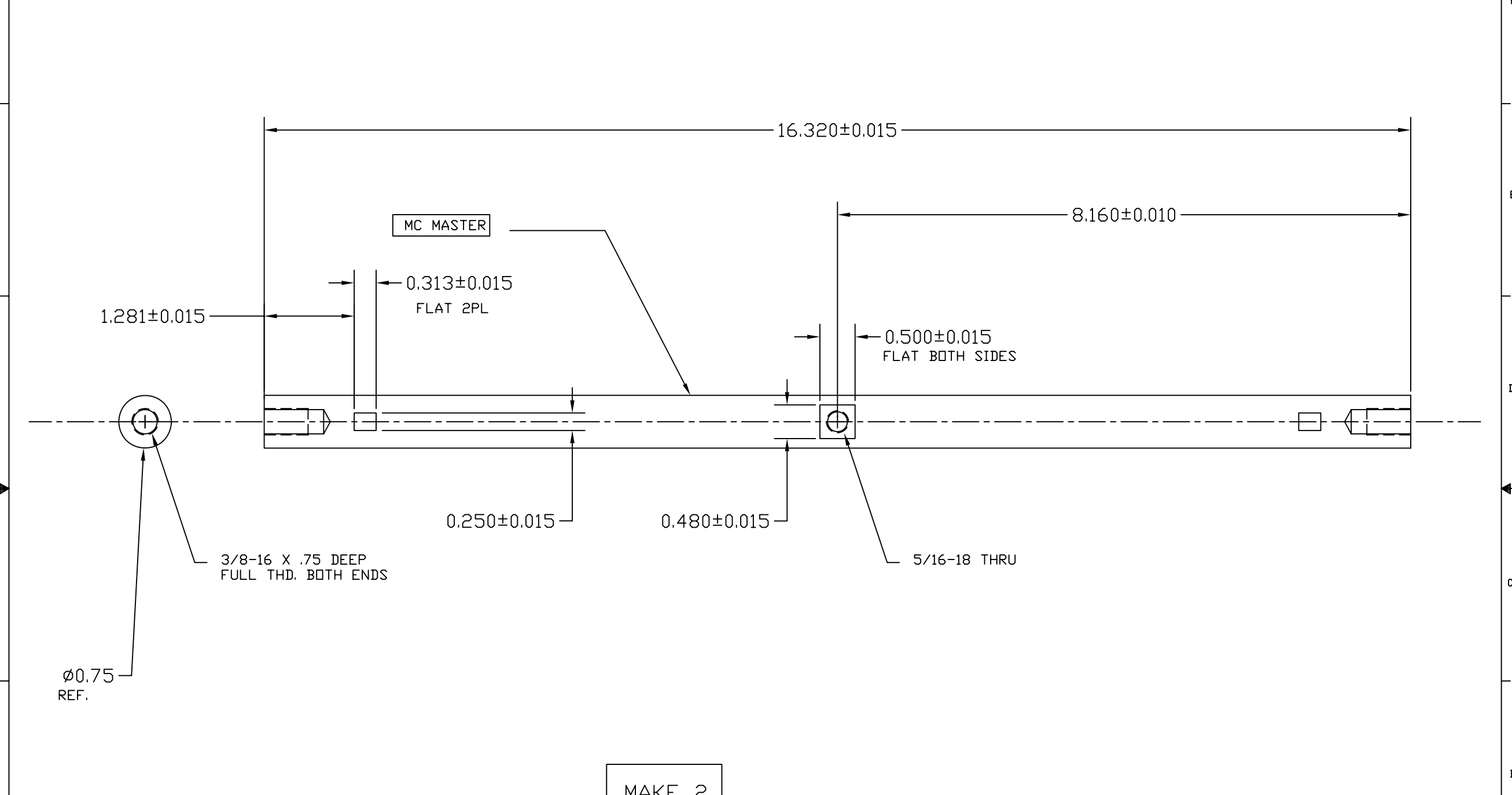


QTY 4

ITEM NO.	REQ. QUANTITY	SPARE QUANTITY	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.
303 stainless					C	D060006-A
FINISH					SCALE:	REV
N/A						
						SHEET 1 OF 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

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

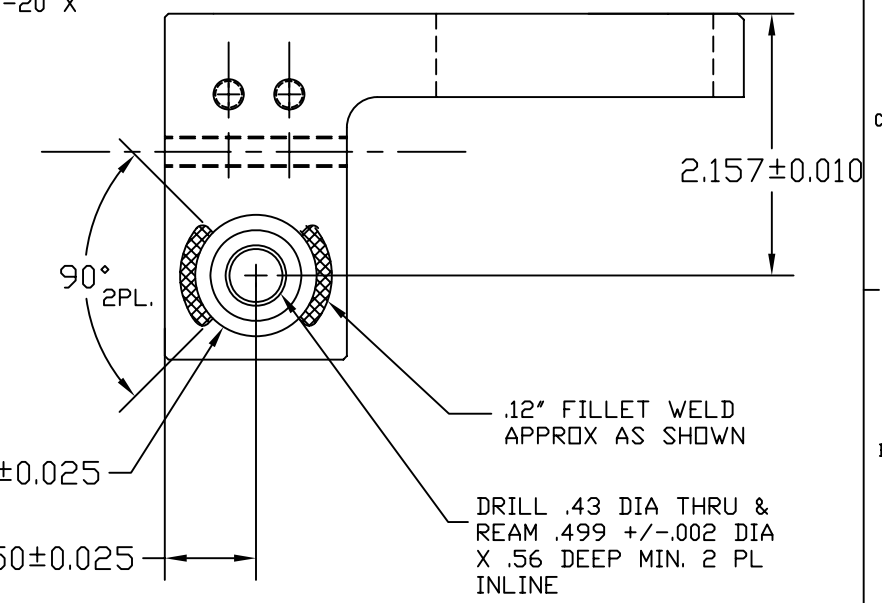
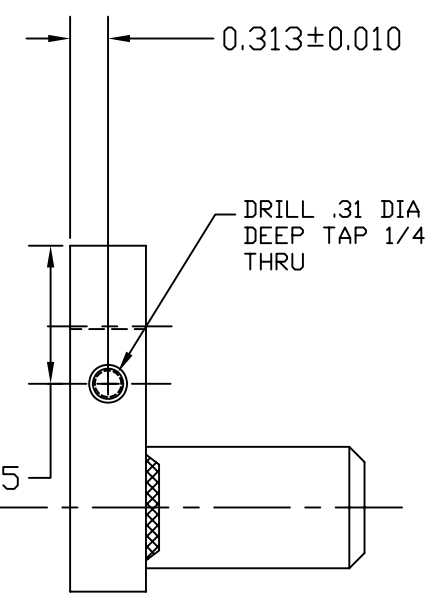
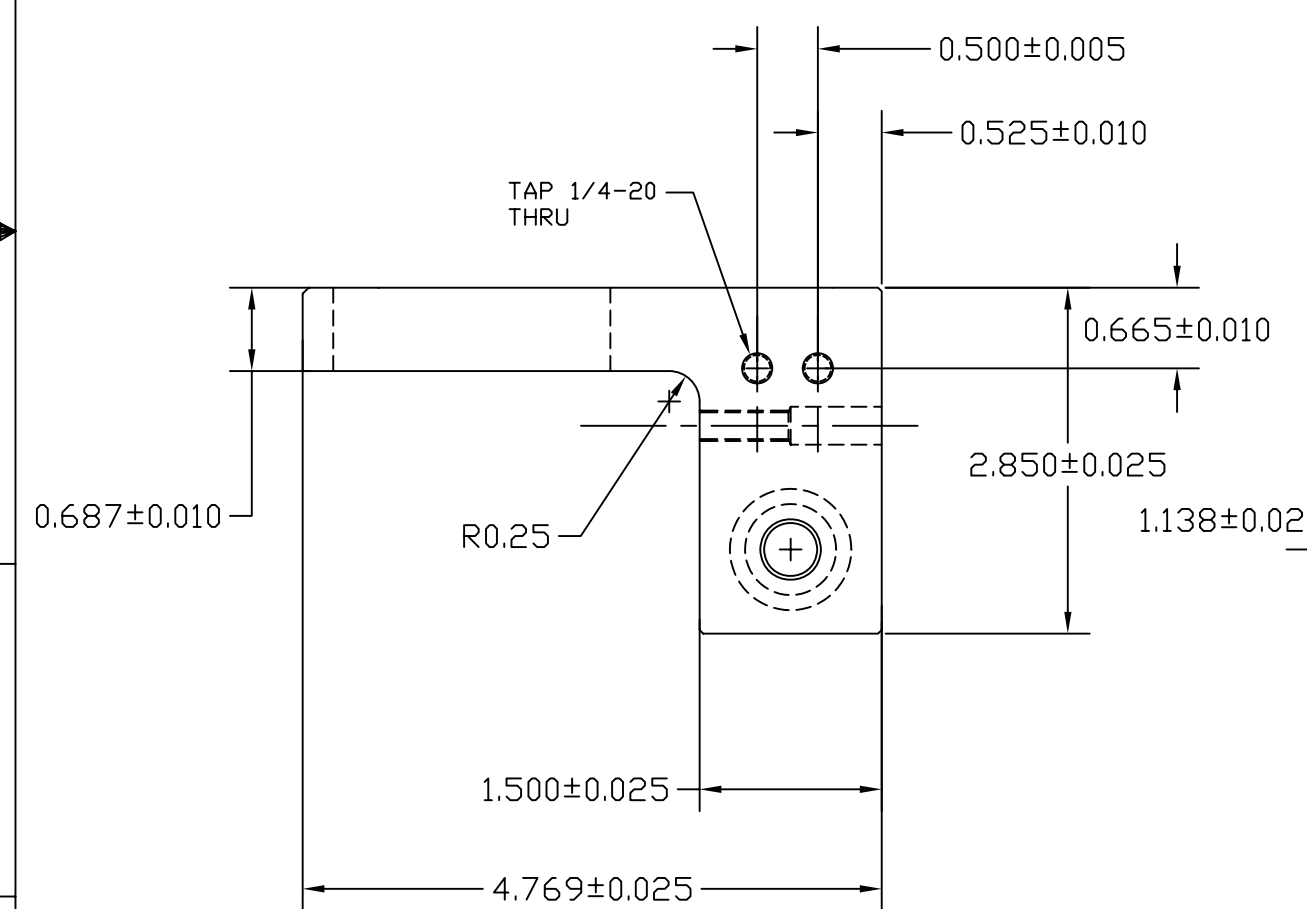
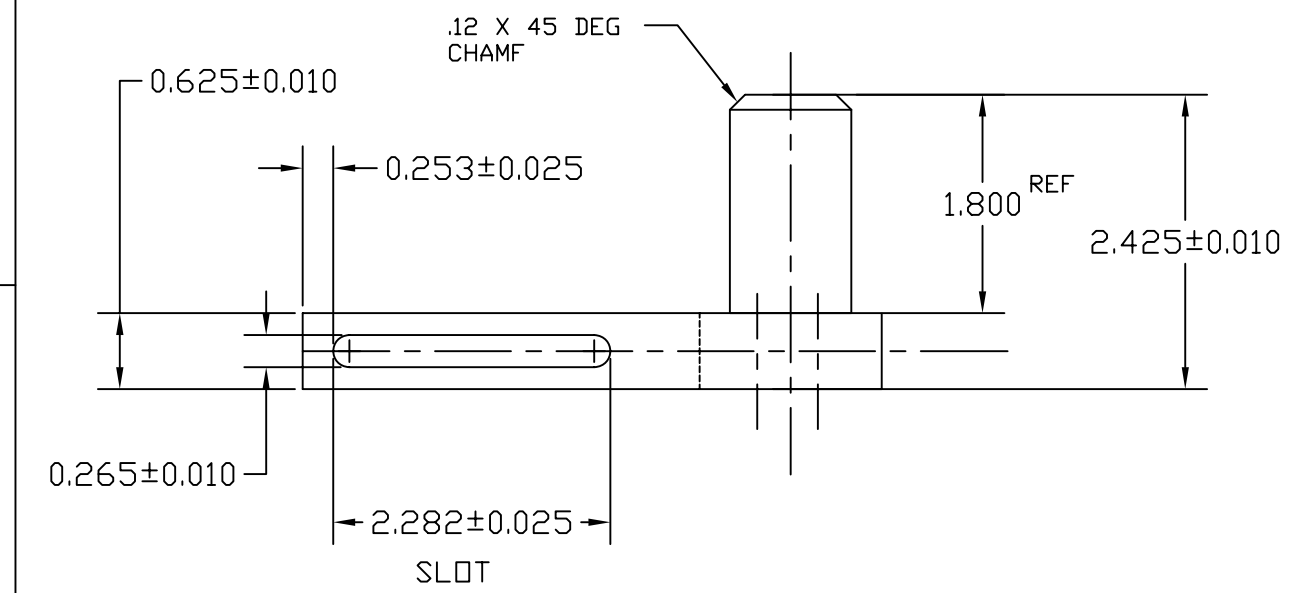


ITEM NO.	REQ. QUANTITY	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06	KENN
TOLERANCES:				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
XX ± .01				SYSTEM LASTI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

MAKE 2

NOTES: (UNLESS OTHERWISE SPECIFIED)

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

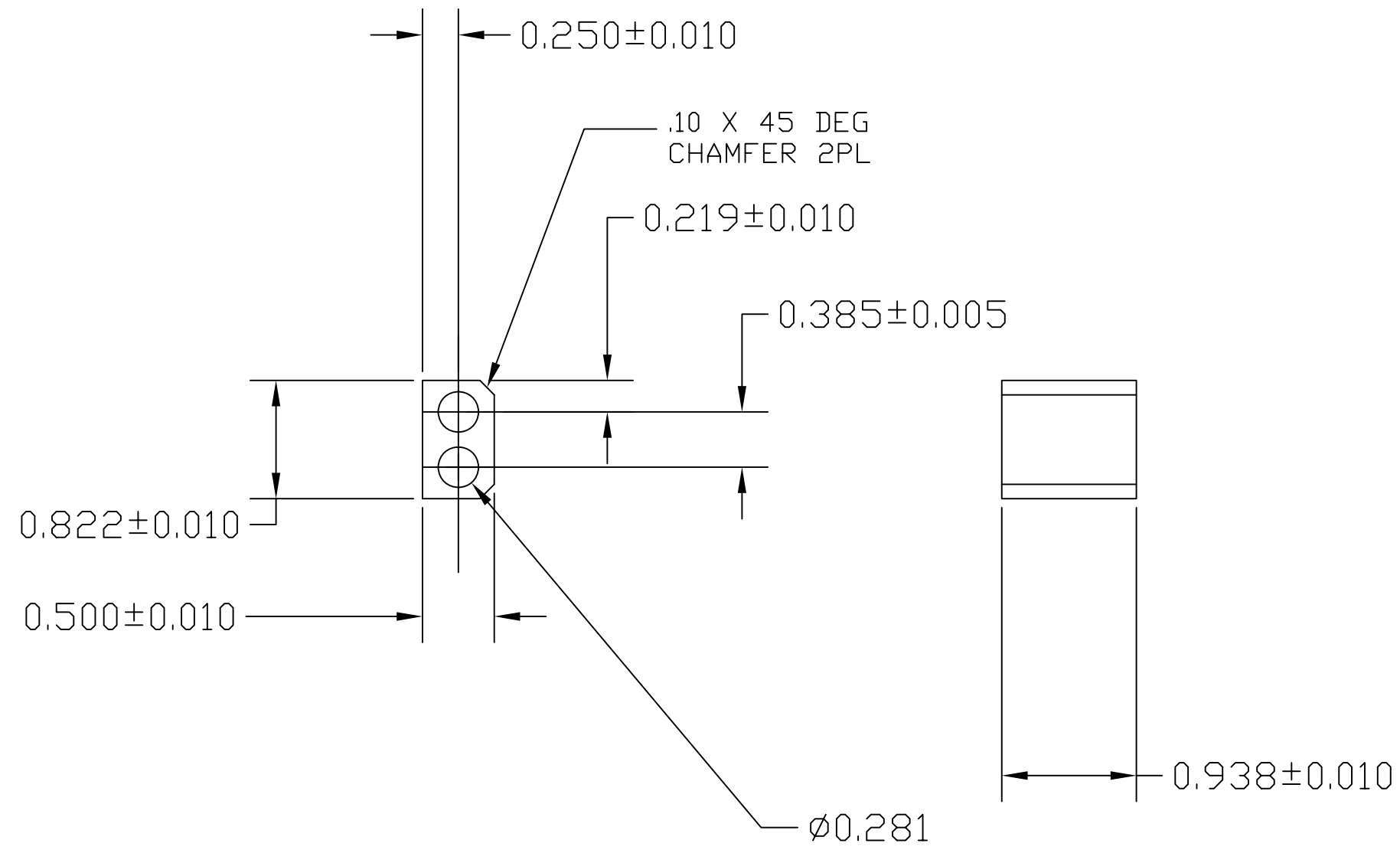


MAKE 1

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:				CHECKED		
XX ± .01						
XXX ± .005						
ANGULAR: 3 DEG						
MATERIAL: ALUM 6061				COMMENTS:		
FINISH: N/A						
					SYSTEM	CALIFORNIA INSTITUTE OF TECHNOLOGY
					SUB-SYSTEM	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
					LASTI	
					SUB-SYSTEM	QUAD SUSPENSION
					NEXT ASSY	D060145-A
					PART NAME	CHAIN TENSION BRACKET
					SIZE	DWG. NO. D060008-A
					SCALE:	REV
						SHEET 1 OF 1


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

NOTES: (UNLESS OTHERWISE SPECIFIED)



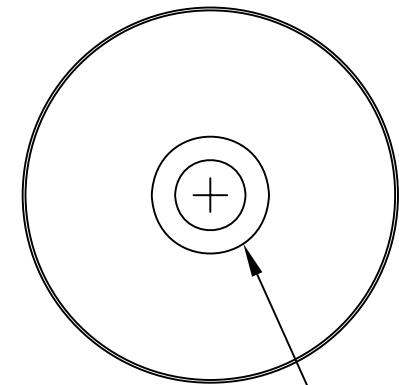
DRILL THRU
2PL.

MAKE 2

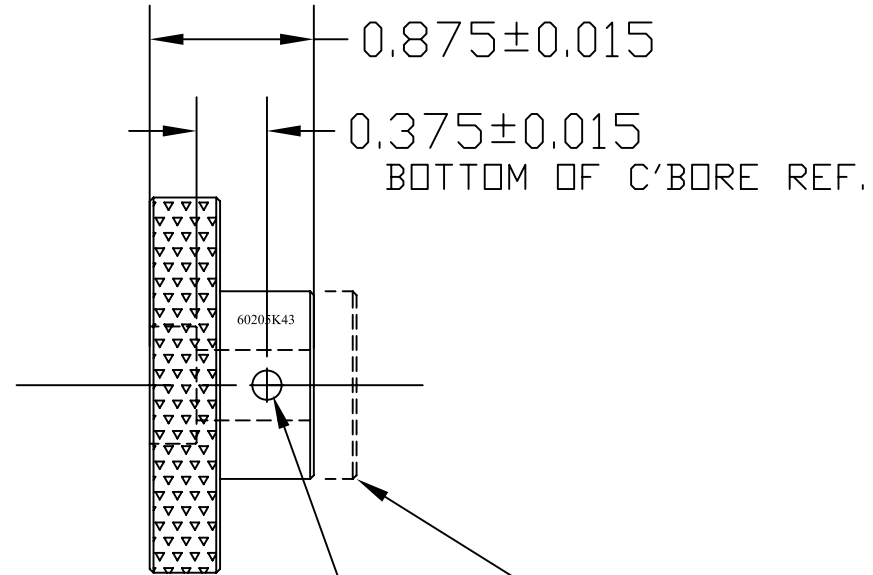
ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER
PARTS LIST						
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DIMENSIONS ARE IN INCHES				DRAWN	KENM	
TOLERANCES:				CHECKED		
.XX±:						
.XXX±:						SYSTEM
ANGULAR±:					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

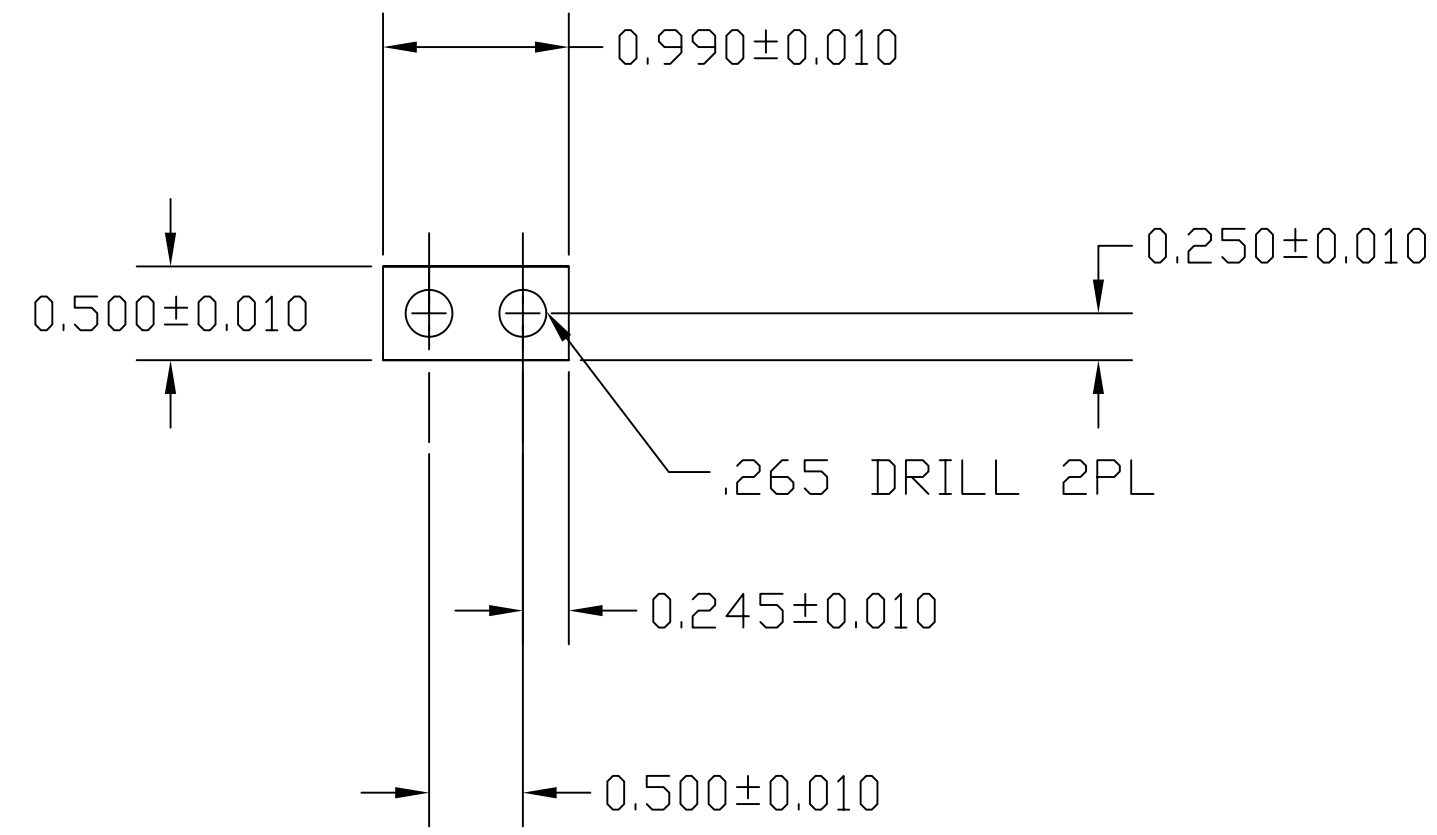
DRILL AND REAM LPF FOR
.156 DIA ROLL PIN THRU
BOTH WALLS INLINE

see assembly for
adjacent part short
screw shaft

ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	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 LASTI SUB-SYSTEM QUAD SUSPENSION NEXT ASSY D060145-A PART NAME ROTATION KNOB MODIFICATION	
MCMaster #60205K43 303 stainless w/.37 hole thru						SIZE DWG. NO. D060010-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)



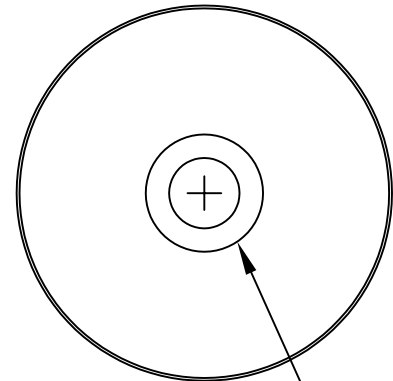
$.09/.12$ THK

MAKE 1

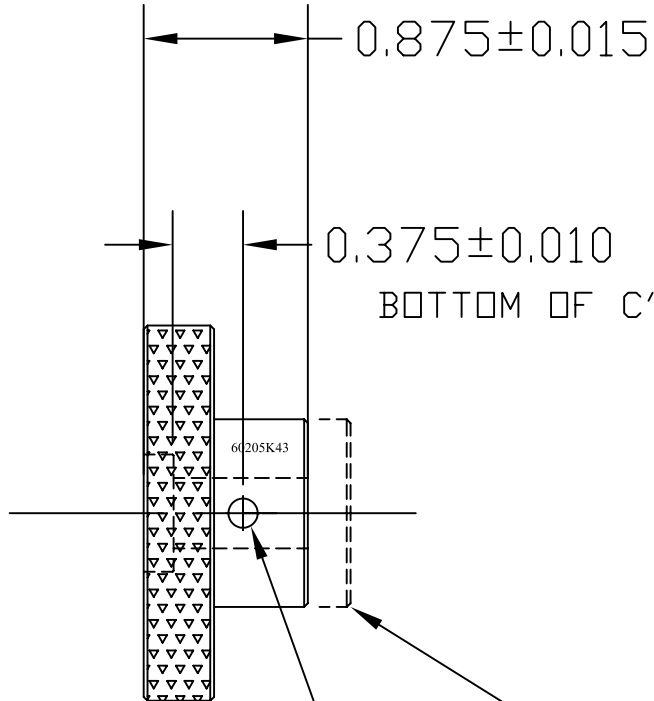
ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	1/11/06		KENM
TOLERANCES:				CHECKED			
.XX±:							
.XXX±:							
ANGULAR±:							
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

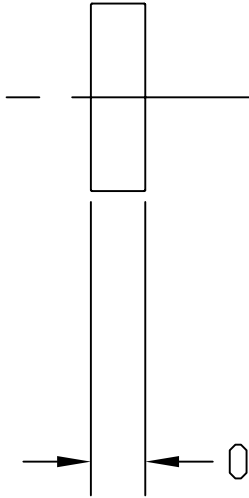
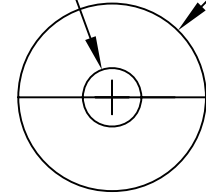
ITEM NO.	REQ.	SPARE	TOT.	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	2/11/06		KENM
TOLERANCES:				CHECKED			
.XX±							
.XXX±							
ANGULAR±							
MATERIAL				COMMENTS:		SYSTEM LASTI SUB-SYSTEM QUAD SUSPENSION NEXT ASSY D060145-A PART NAME ROTATION KNOB MOD SHORT C'BORE	
MCMaster #60205K43 303 stainless w/.37 hole thru						SIZE B DWG. NO. D060013-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	


$\varnothing 0.313 \pm 0.005$

$\varnothing 1.000 \pm 0.010$



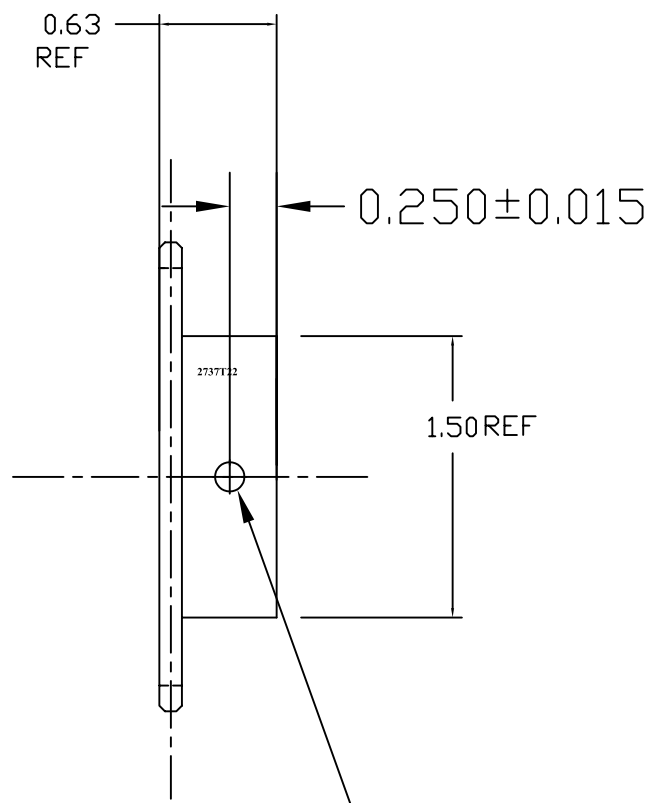
0.290 ± 0.005

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	KENM		
TOLERANCES:				CHECKED			
.XX±							
.XXX±						SYSTEM	LASTI
ANGULAR:±						SUB-SYSTEM	QUAD SUSPENSION
MATERIAL				COMMENTS:		NEXT ASSY	D060145-A
6061-T6						PART NAME	SHAFT SPACER PLATE
FINISH						SIZE	DWG. NO. D060014-A
N/A						REV	
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]

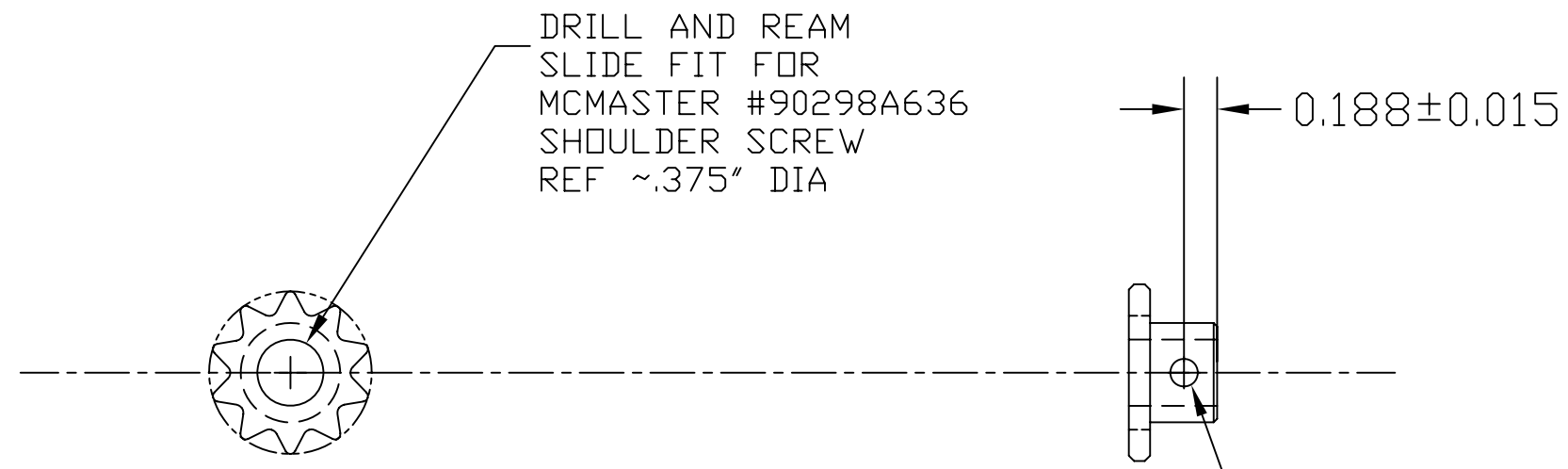
see assembly for
adjacent part

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						LASTI	
#2737T22						SUB-SYSTEM	
FINISH						QUAD SUSPENSION	
N/A						NEXT ASSY	
						D060145-A	
						PART NAME	
						LARGE SPROCKET MODIFICATION	
SIZE		DWG. NO.		REV			
B		D060015-A					
SCALE:				SHEET 1 OF 1			
				26			

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

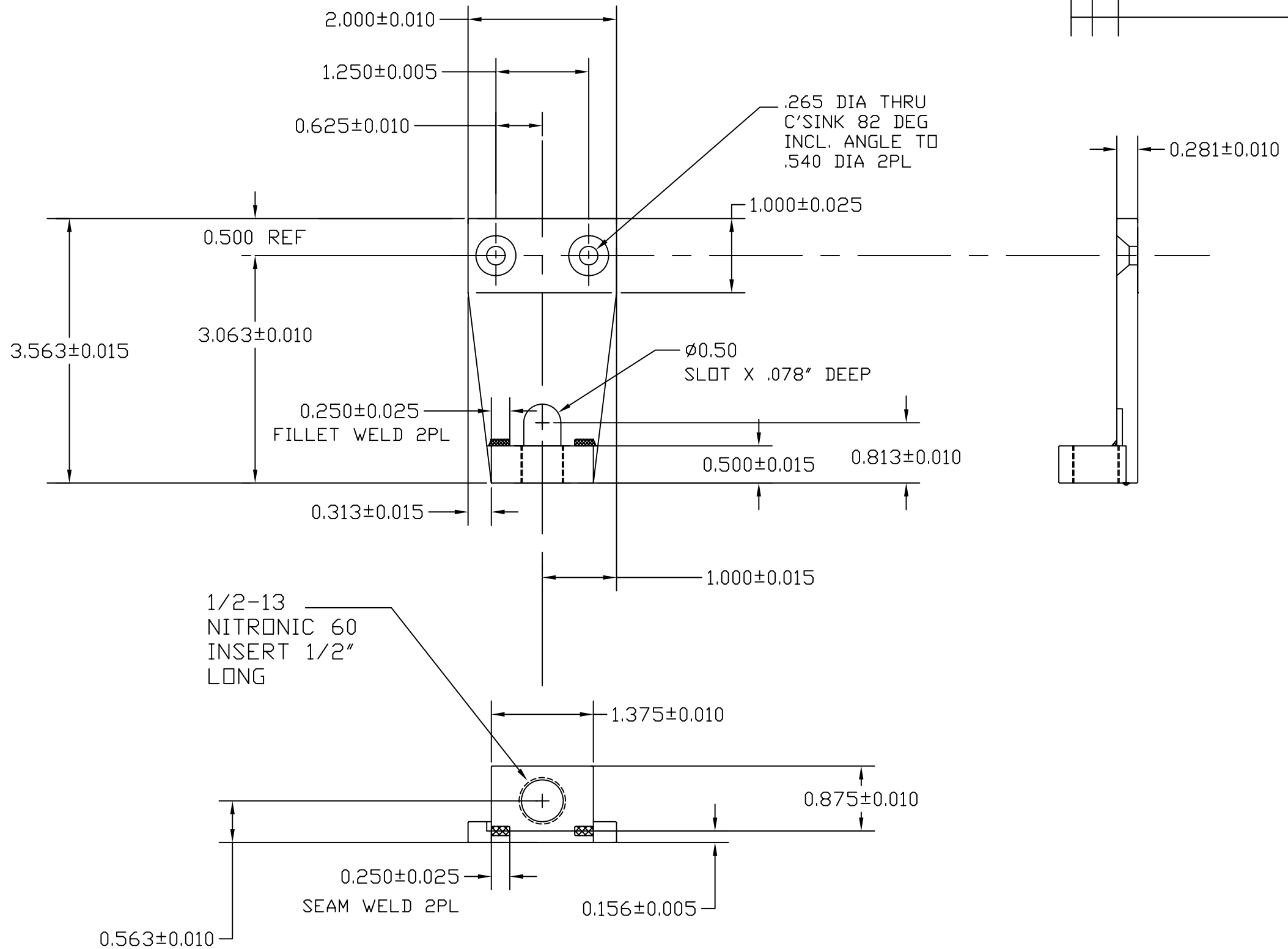
MATCH DRILL AND REAM
~~LPF FOR .156~~ DIA ROLL PIN
THRU ALL [center in
existing set screw hole]
see assembly for
adjacent part

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 LASTI SUB-SYSTEM QUAD SUSPENSION NEXT ASSY D060145-A PART NAME SMALL SPROCKET MODIFICATION	
MCMASTER SPROCKET #2737T22						SIZE DWG. NO. D060016-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	



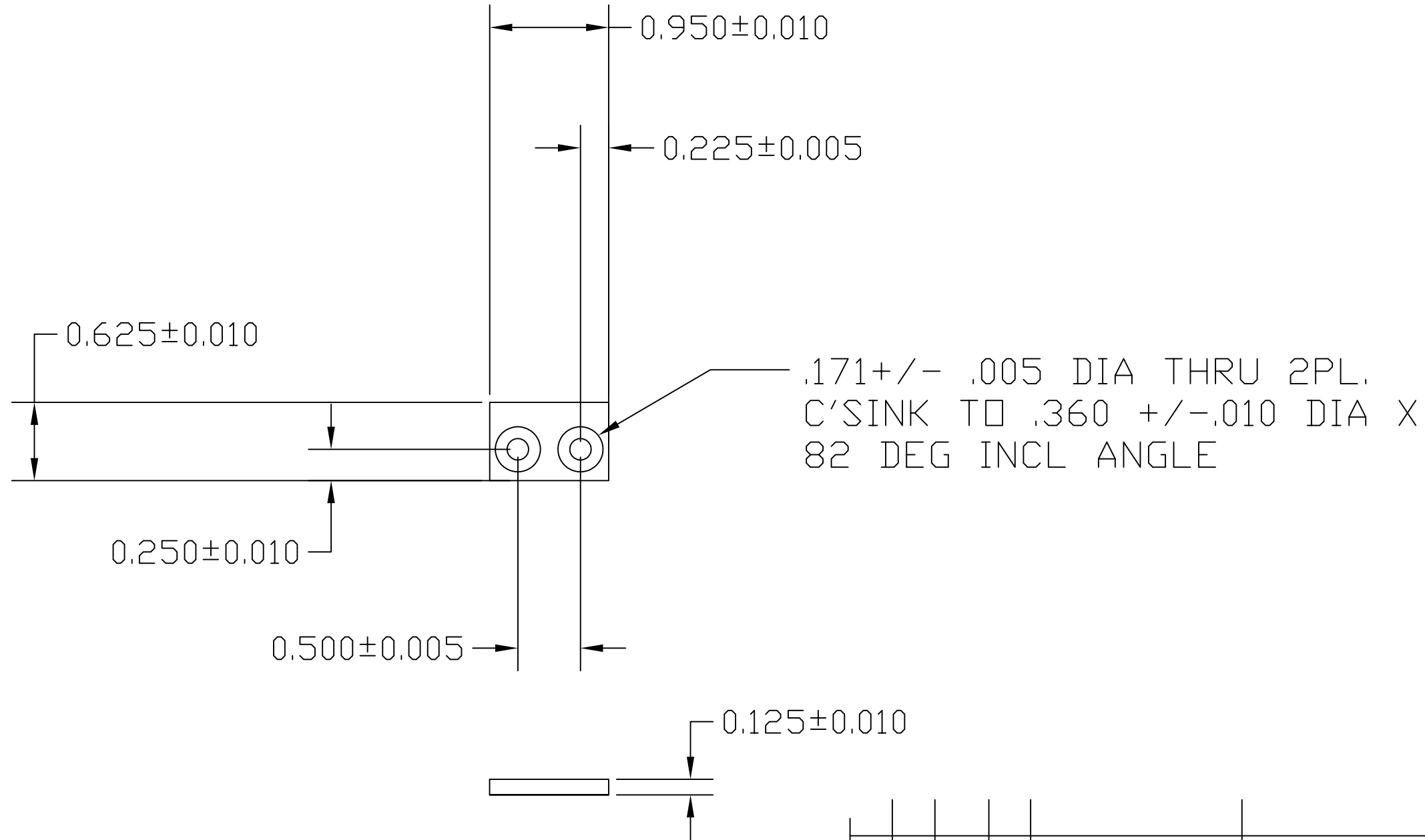
MAKE 1

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:				LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
XX ± .01				CHECKED		SYSTEM LASTI
XXX ± .005						SUB-SYSTEM QUAD SUSPENSION
ANGULAR ± 3 DEG						NEXT ASSY D060145-A
MATERIAL				PART NAME Y-PLATE ADJ. BRACKET ALT.		
303/304 STAINLESS				COMMENTS:	SIZE DWG. NO.	REV
FINISH N/A					C D060017-A	
				SCALE:		SHEET 1 OF 1

6th April 2010

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

NOTES: (UNLESS OTHERWISE SPECIFIED)

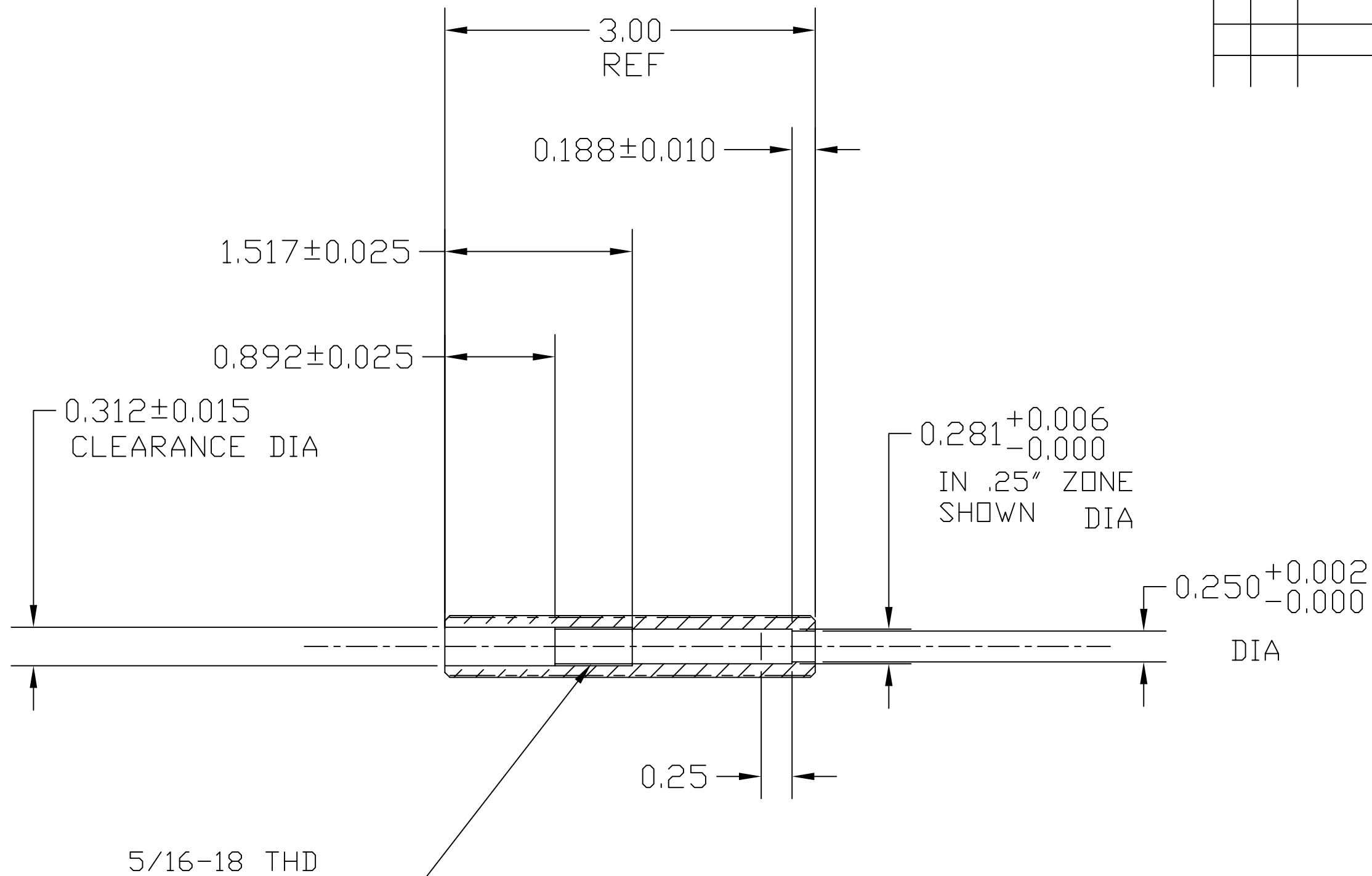


MAKE 1

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	



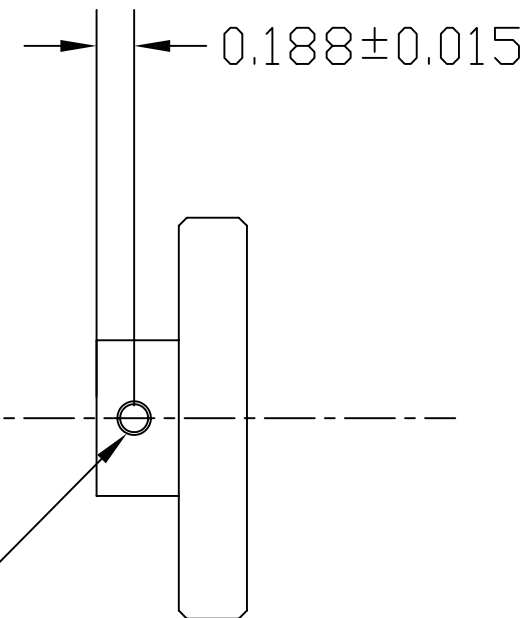
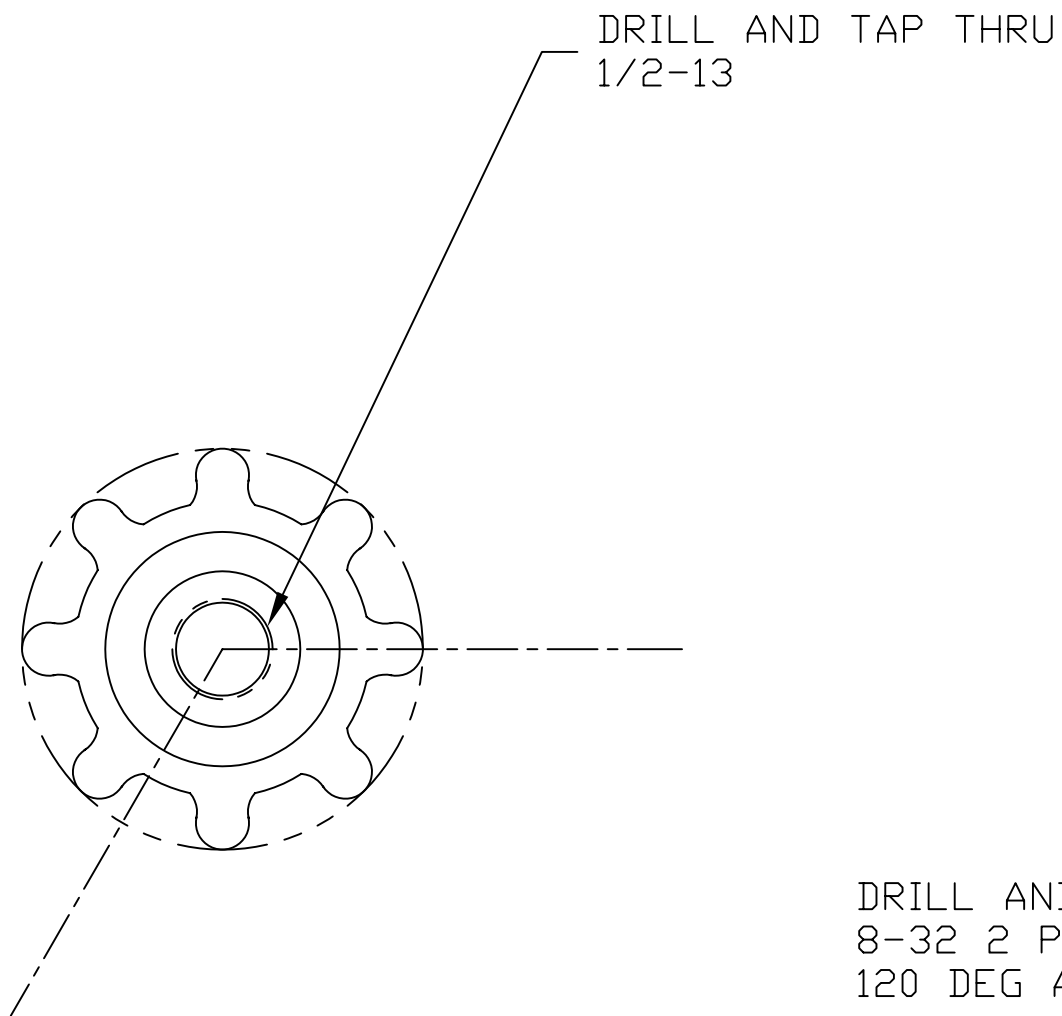
BREAK EDGES TYP.

MAKE 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)



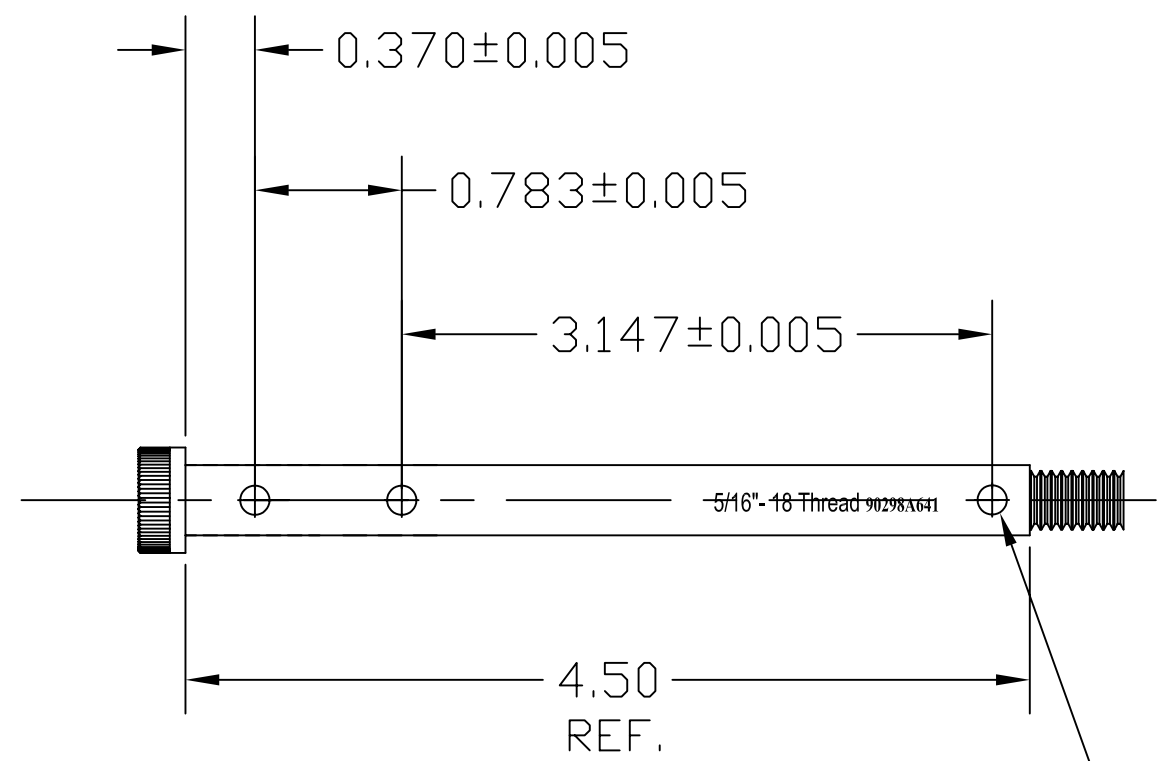
BREAK EDGES TYP.

MAKE 2

ITEM NO.	REQ.	SPARE	TOT. QUANTITY	PART NUMBER	DESCRIPTION	SUPPLIER	
PARTS LIST							
UNLESS OTHERWISE SPECIFIED:				DATE	NAME	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
DIMENSIONS ARE IN INCHES				DRAWN	3/1/06		KENM
TOLERANCES:				CHECKED			
.XX±:							
.XXX±:							
ANGULAR±:							
MATERIAL				COMMENTS:		SYSTEM	
MC MASTER ALUM KNOB						LASTI	
FINISH						SUB-SYSTEM	
N/A						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

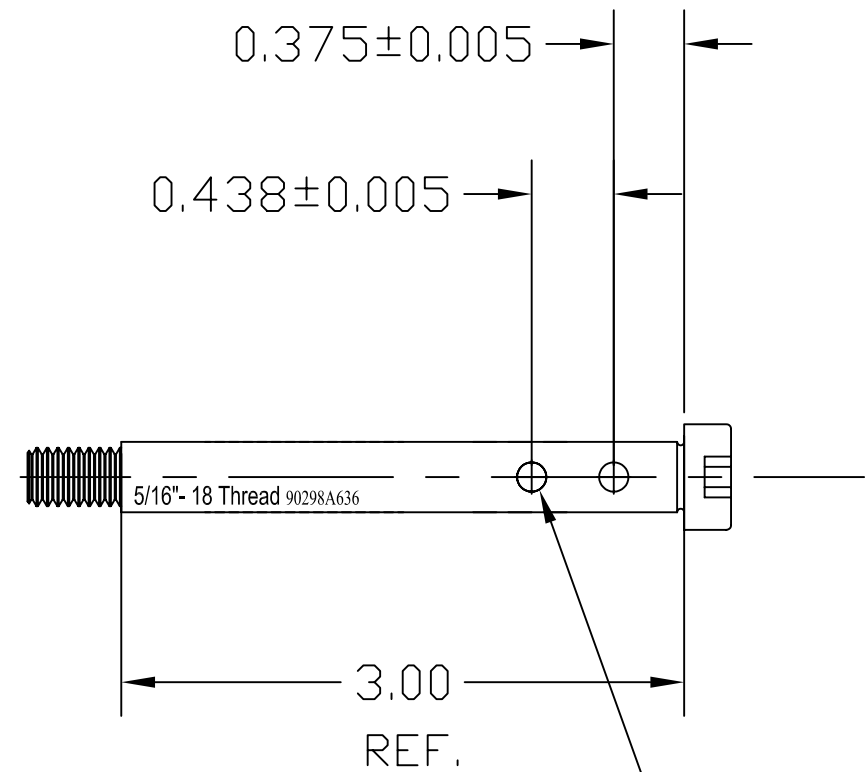
drill #20 [.161 dia thru]
not LPF .156

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 MC MASTER PART				CHECKED			
FINISH N/A				COMMENTS:			
				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

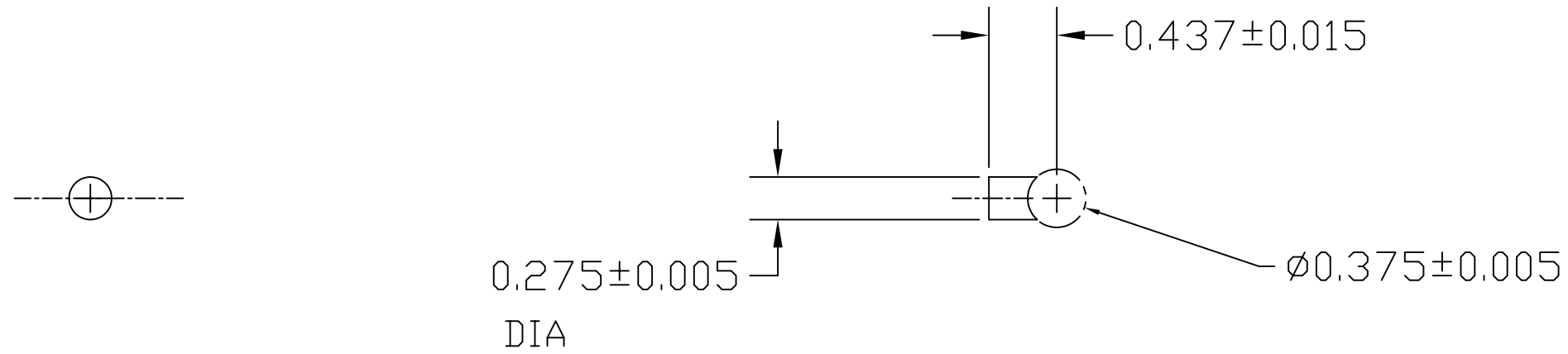
MAKE 1

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	


8 7 6 5 4 3 2 1

NOTES: (UNLESS OTHERWISE SPECIFIED)

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

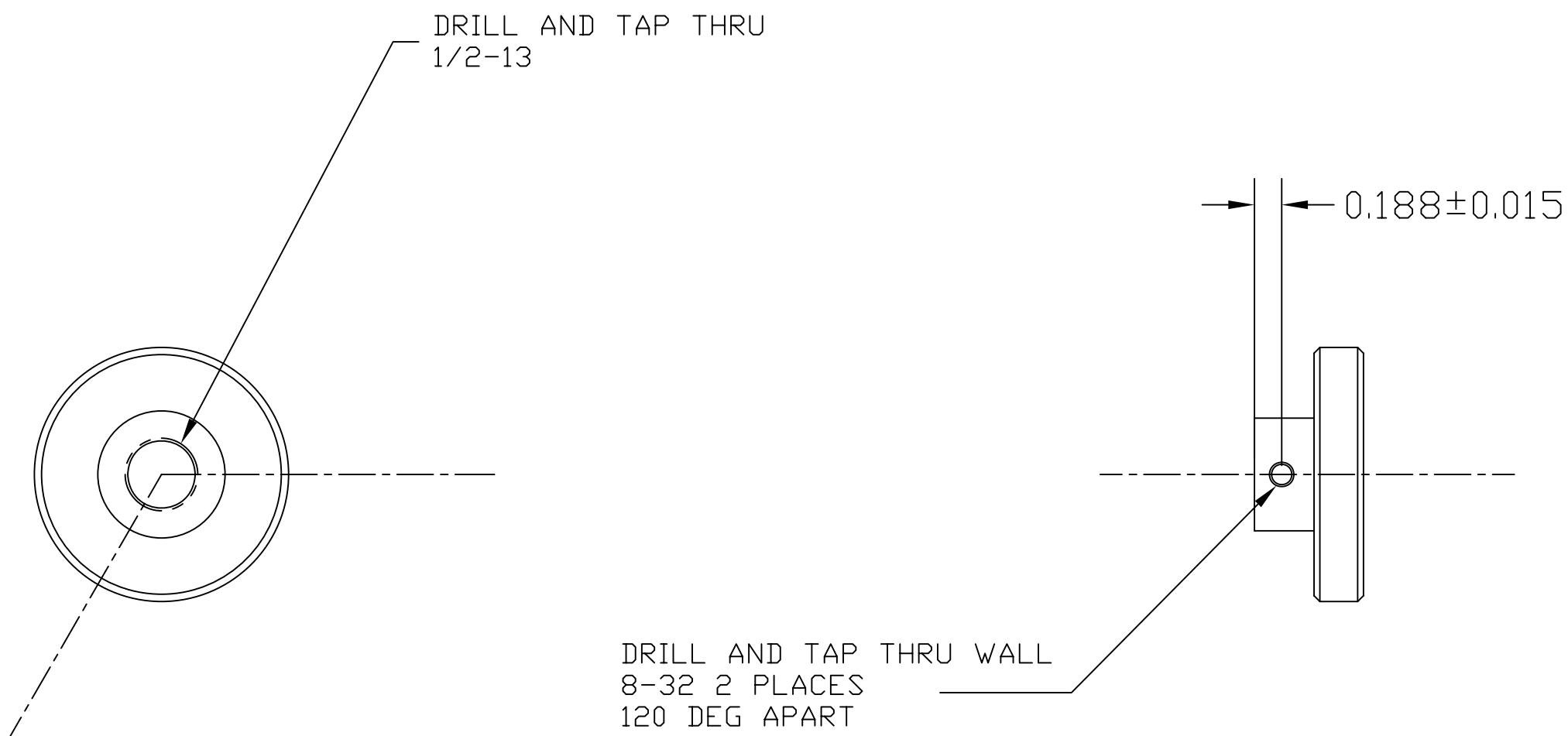


MAKE 1

ITEM NO.	REQ. QUANTITY	SPARE	TOT.	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	KENM	
MATERIAL BRONZE				CHECKED		
FINISH N/A						
				COMMENTS:	SYSTEM LASTI SUB-SYSTEM QUAD SUSPENSION NEXT ASSY D060145-A PART NAME BRAKE PLUG	
				SIZE B	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	



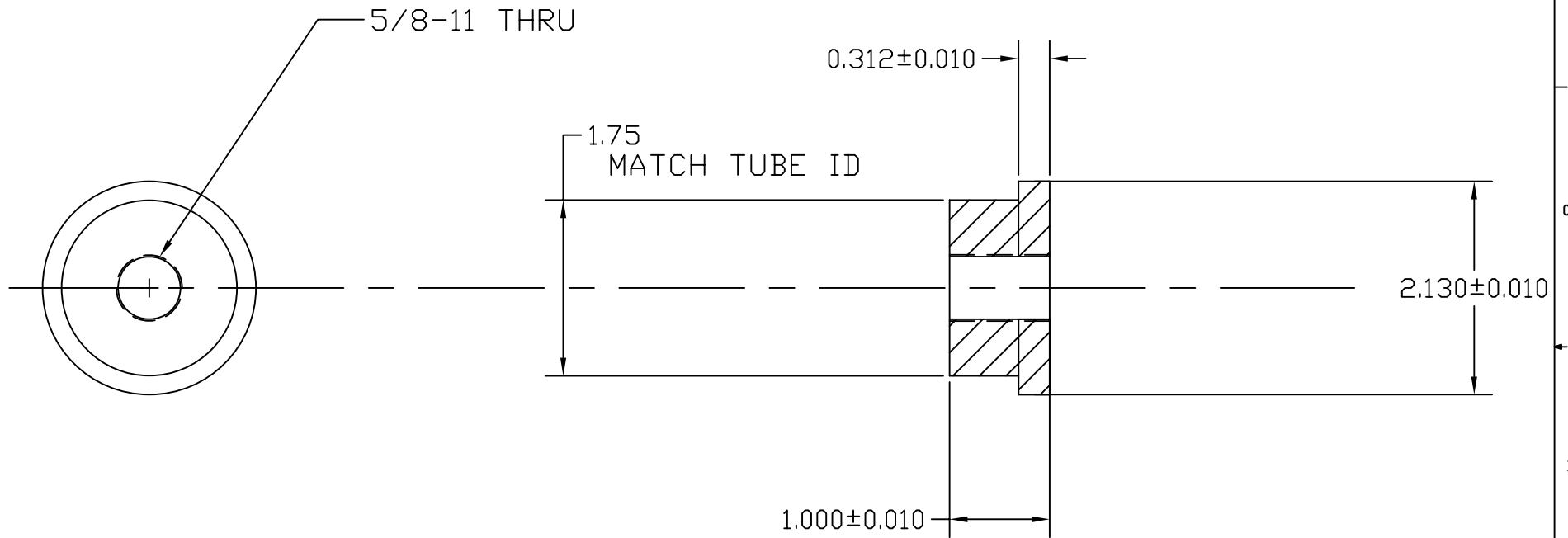
BREAK EDGES TYP.

MAKE 2

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