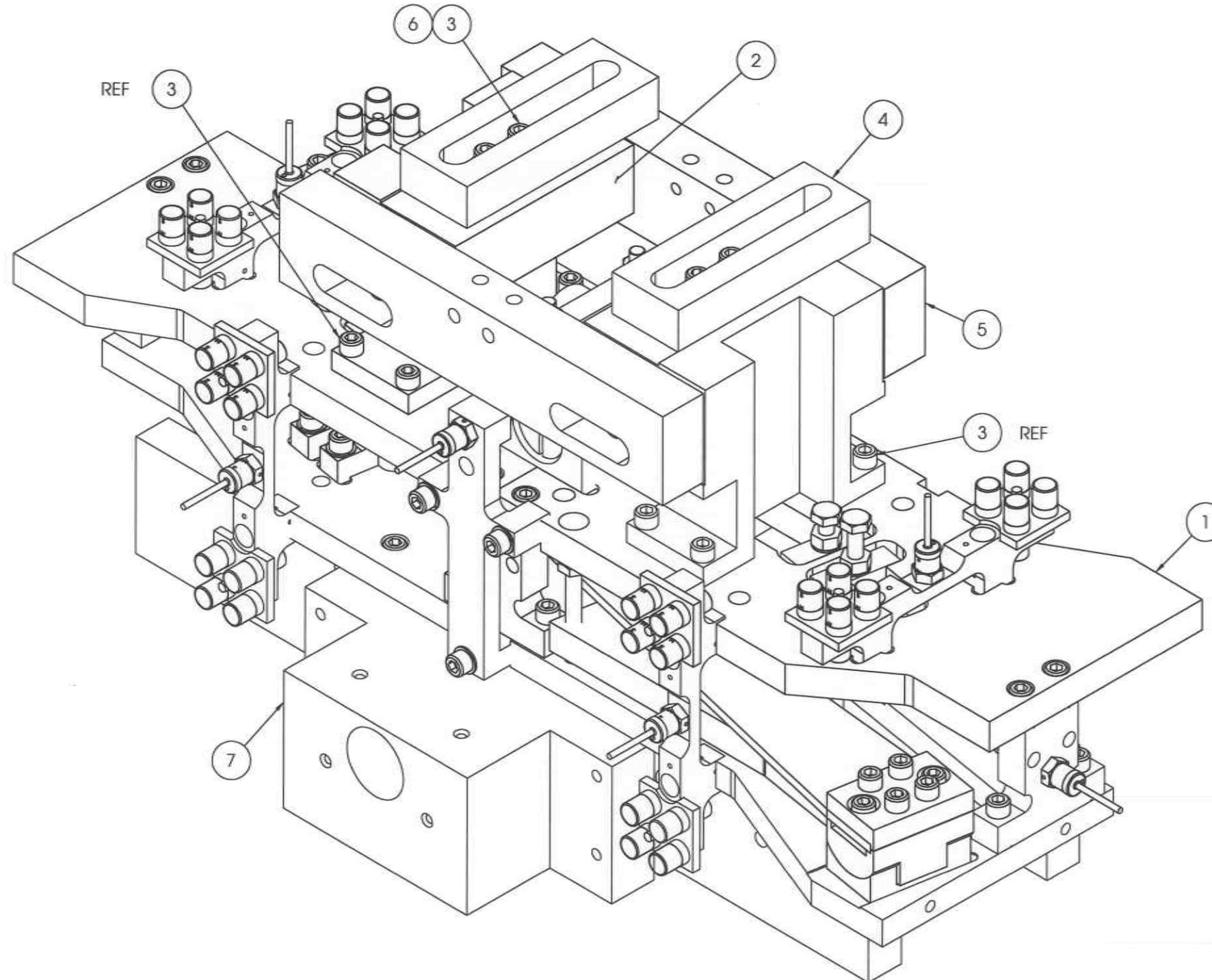


NOTES CONTINUED:  
 ① SCORBE, ENGRAVE (A VIBRATORY TOOL MAY BE USED), LASER MARK OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING PART NUMBER, REVISION (AND VARIANT OR "TYPE" IF APPLICABLE) ON NOTED SURFACE OF PART FOLLOWED ON THE NEXT LINE WITH A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS. UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. EXAMPLE: D1000000-VV, TYPE-XX, S/N XXX

REV.	DATE	DCN #	DRAWING TREE #
v1	23 JUN 2011	E1100351	-
-	-	-	-
-	-	-	-



**ASSEMBLED ISO VIEW**

NOTE: WEIGHT = 43.539 Kg.

ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	REQ	SPARE	TOTAL
7	D1000633	aLIGO TOP ADD MASS TEE	304 SSSL	2		2
6	WV-25	255 ID, .468 OD, .032 TH	18-8 SSSL	24		24
5	D1000656	aLIGO TOP ADD MASS SIDE SLOTTED BAR	304 SSSL	2		2
4	D1000655	aLIGO TOP MASS SIDE SLOTTED BAR	304 SSSL	2		2
3		SCREW, SOCKET HEAD CAP, 1/4-20 UNC-2A X 1 LONG (UCC COMP. OR EGLIV.)	Ag-PLATED 300 SSSL	24		24
2	D1000631	aLIGO TOP ADD MASS TOWER	304 SSSL	2		2
1	D1000442	aLIGO INTERMEDIATE MASS TOP ASSEMBLY	N/A	1		1
PARTS LIST						

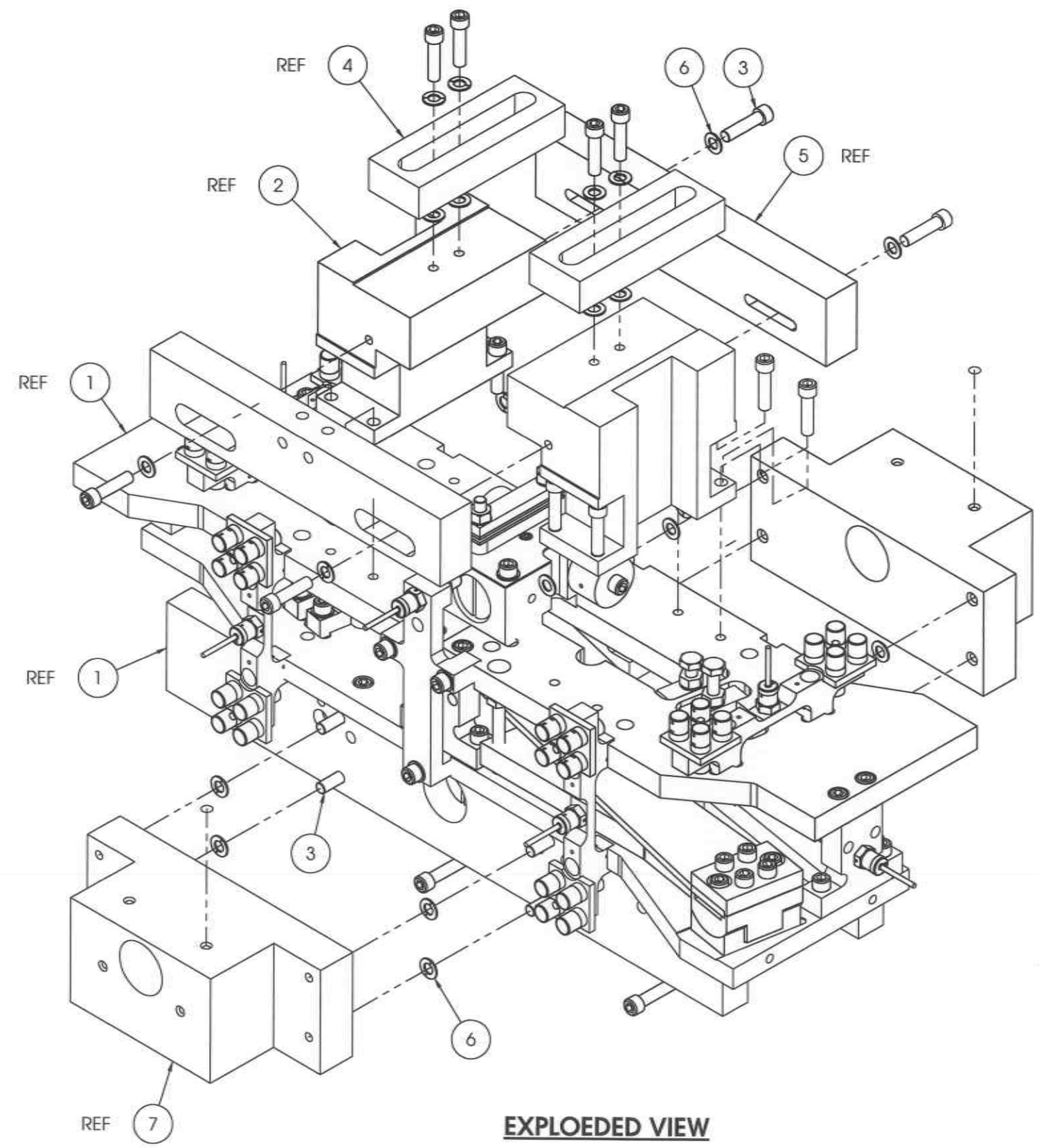
NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)	
DIMENSIONS ARE IN INCHES	
TOLERANCES: XX ± .02 XXX ± .010	
ANGULAR ± 1.0°	
MATERIAL	N/A
FINISH	N/A μinch

CALIFORNIA INSTITUTE OF TECHNOLOGY LIGO MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
SYSTEM	SUB-SYSTEM
	TRANSMON
NEXT ASSY	

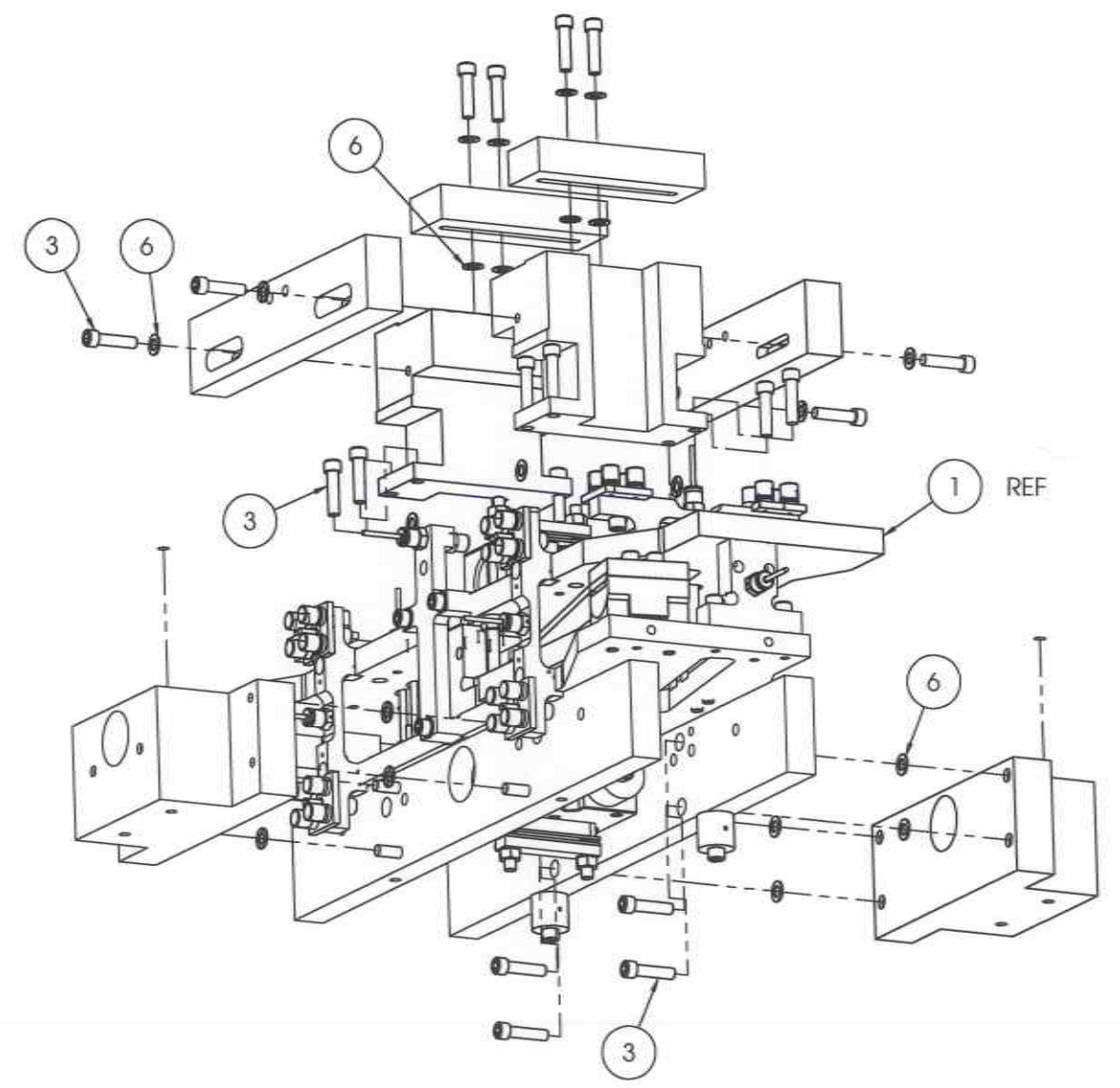
PART NAME		aLIGO INTERMEDIATE MASS TOP ASSY WITH ADDED MASS(22kg)	
DESIGNER	SIZE	DWG. NO.	REV.
DRAFTER	110MERO	4/16/10	
CHECKER	K MALAND	4/16/10	
APPROVAL	K MALAND	4/16/10	
SCALE: 1:2		PROJECTION:	SHEET 1 OF 3

D1000442 aLIGO INTERMEDIATE MASS TOP ASSY WITH ADDED MASS(22kg) PART PDM REV. K.017, DRAWING PDM REV. K.010

D:\00044 GUSO INTERMEDIATE MBS TOP ASBY WITH ACCID MARCOPRO PART FROM REV X:RTZ DRAWING FROM REV X:015

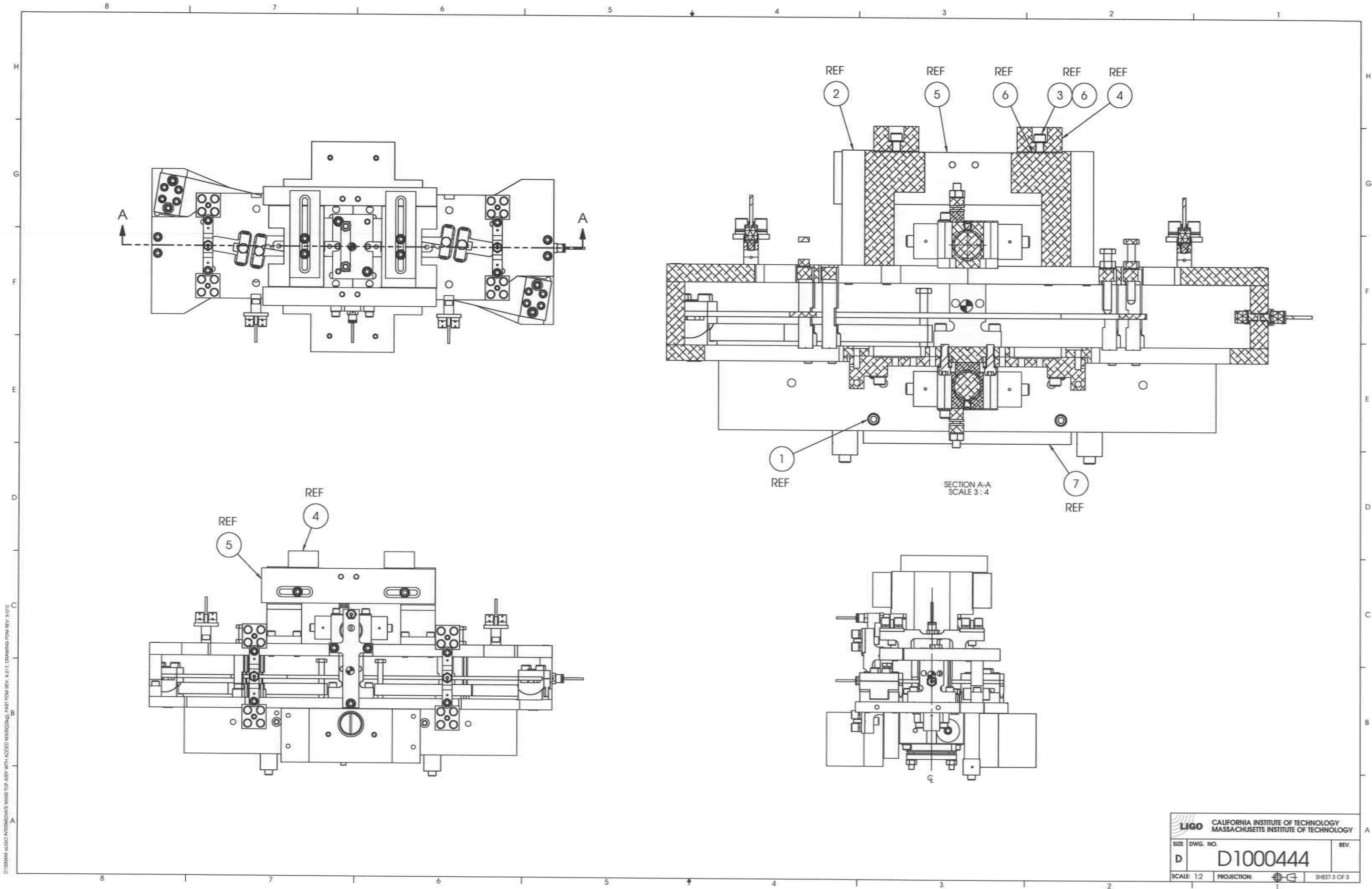


**EXPLODED VIEW**



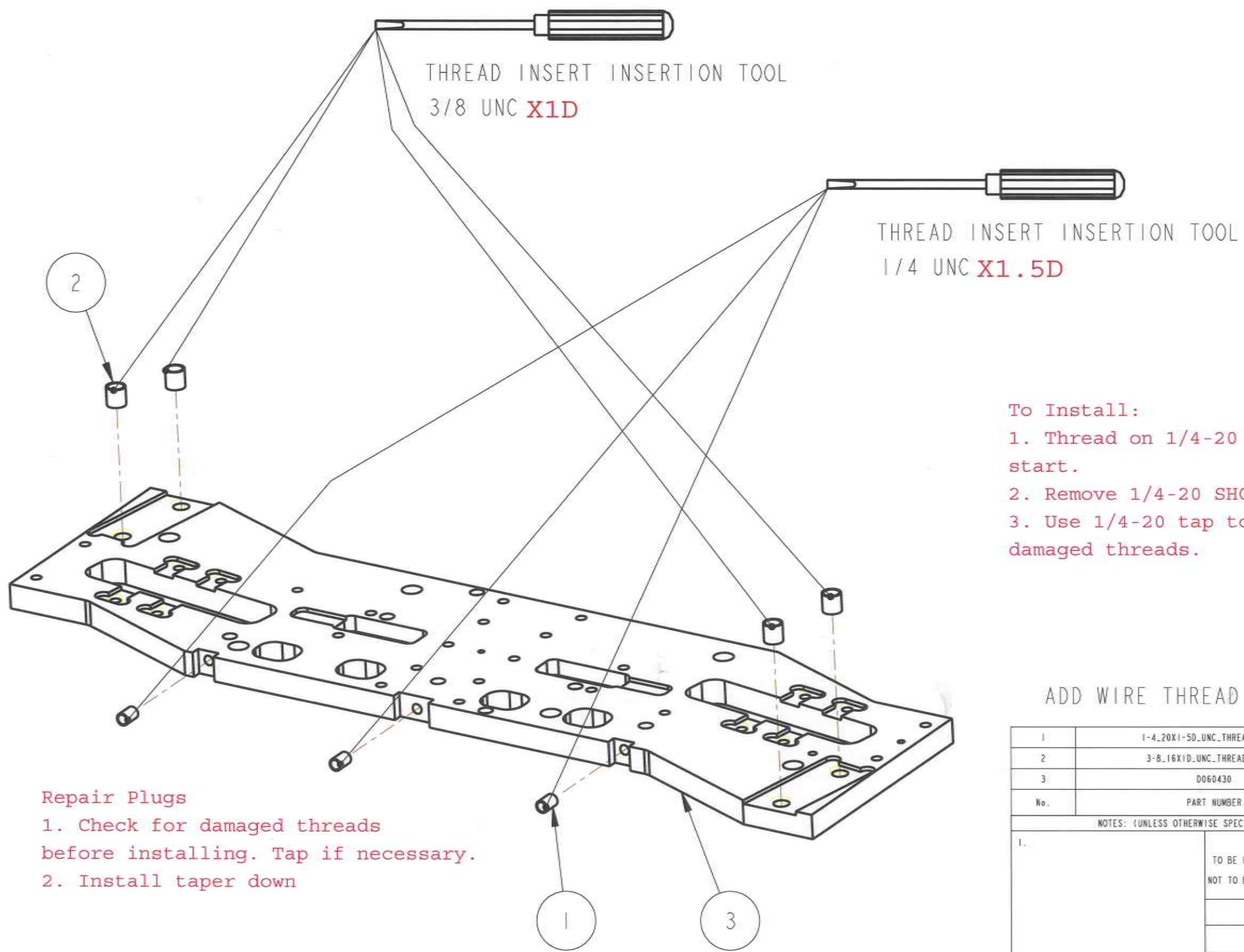
**EXPLODED VIEW**  
(FROM BOTTOM)

<b>LIGO</b> CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
SIZE	DWG. NO.	REV.
D	D1000444	
SCALE: 1:2	PROJECTION:	SHEET 2 OF 3



D:\000444\000444\INTERMEDIATE\MASS TOP ASBY WITH ADDED MASS\000444.PART FROM REV. X217, DRAWING FROM REV. X410

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY		
SIZE	DWG. NO.	REV.
D	D1000444	
SCALE: 1:2	PROJECTION:	SHEET 3 OF 3



To Install:

1. Thread on 1/4-20 SHCS (only 4 threads) and start.
2. Remove 1/4-20 SHCS
3. Use 1/4-20 tap to install plug and chase damaged threads.

Repair Plugs

1. Check for damaged threads before installing. Tap if necessary.
2. Install taper down

ADD WIRE THREAD INSERTS INTO BASE PLATE.

1	1-4.20X1.5D.UNC.THREAD.INSERT	1/4-20 x 1.5D UNC THREAD INSERT	3
2	3-8.16X1D.UNC.THREAD.INSERT	3/8-16 x 1D UNC THREAD INSERT	4
3	D060430	BASE PLATE	1
No.	PART NUMBER	PART DESCRIPTION	NO. REQD

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY  
NOT TO BE USED FOR MANUFACTURE

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IGR, GLASGOW UNIVERSITY GEO 600 GROUP  
RUTHERFORD APPLETON LABORATORIES

SYSTEM **ADVANCED LIGO**

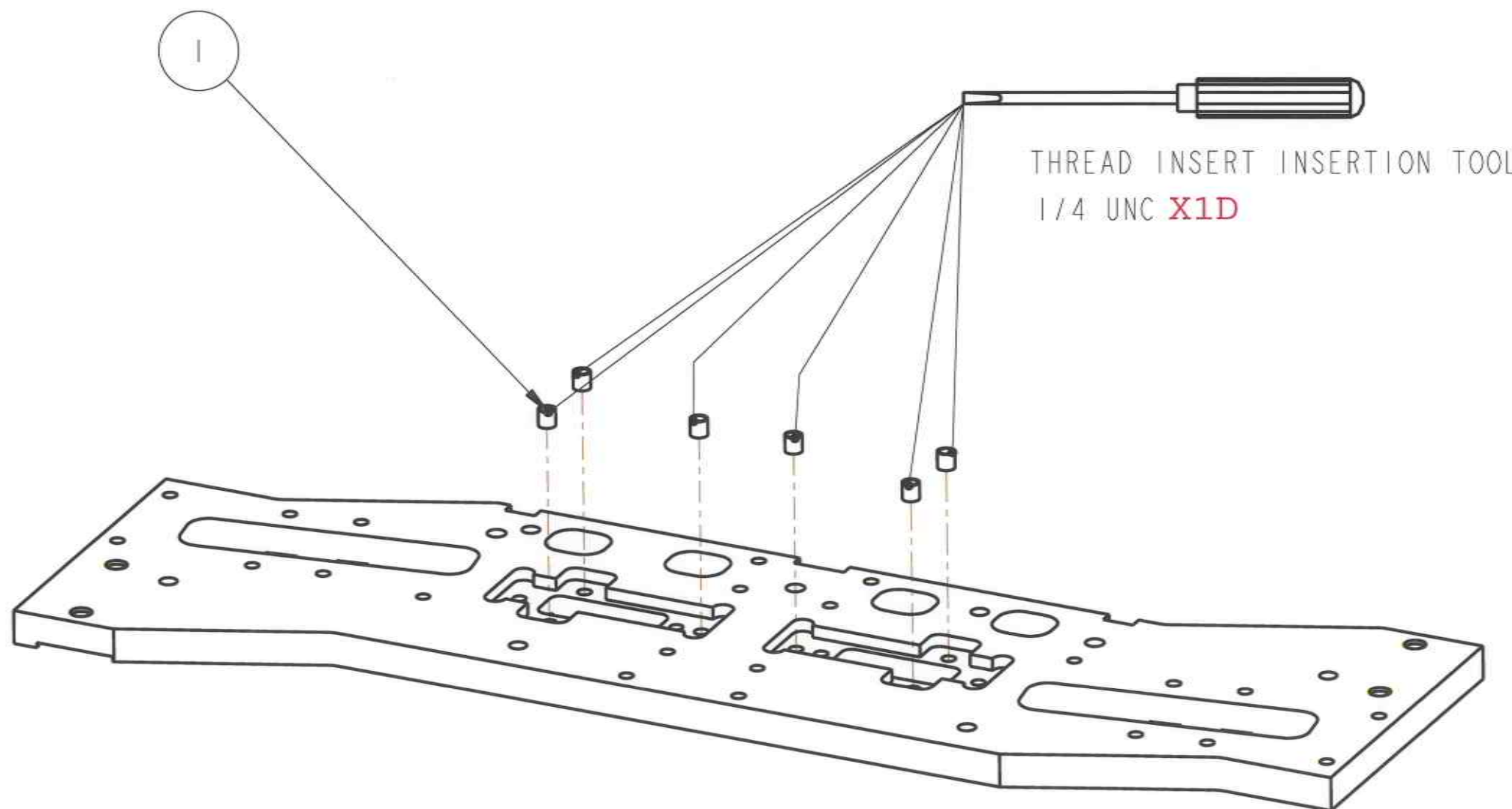
SUB-SYSTEM **SUS**

NEXT ASSY **aLIGO QUAD**

PART NAME **TOP MASS ASM SEQUENCE TEST/REACTION CHAIN**

NAME	DATE	SIZE	DRG. NO.	REV
DRAWN J O'DELL	08/SEP/09	B	D060403.ASM.PROCEDURE	B
CHECKED IW	08/SEP/09			
APPROVED J O'DELL	08/SEP/09			

SCALE 1:2 | PROJECTION: | SHEET 2 OF 2

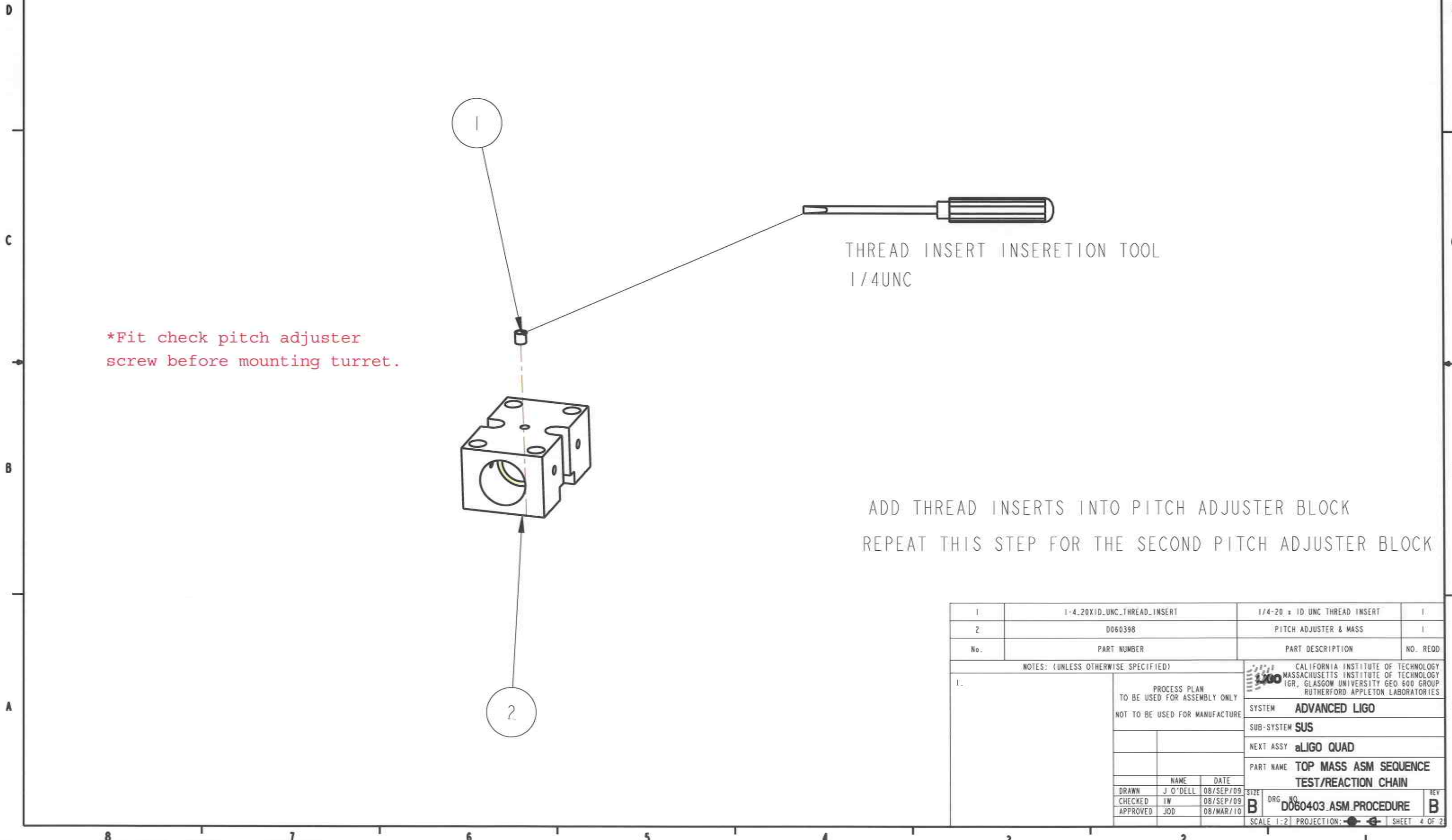


THREAD INSERT INSERTION TOOL  
1/4 UNC X1D

ADD WIRE THREAD INSERTS INTO BOTTOM OF BASE

1	1-4_20X1D_UNC_THREAD_INSERT	1/4-20 x 1D UNC THREAD INSERT	6
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
	NAME	DATE	
DRAWN	J O'DELL	08/SEP/09	
CHECKED	J O'DELL	08/SEP/09	
APPROVED	J O'DELL	08/SEP/09	
	SIZE	DRG. NO.	REV.
	B	D060403.ASM.PROCEDURE	B
SCALE 1:2   PROJECTION:    SHEET 3 OF 2			

REV.	DATE	DCN #	DRAWING TREE #



THREAD INSERT INSERTION TOOL  
1/4UNC

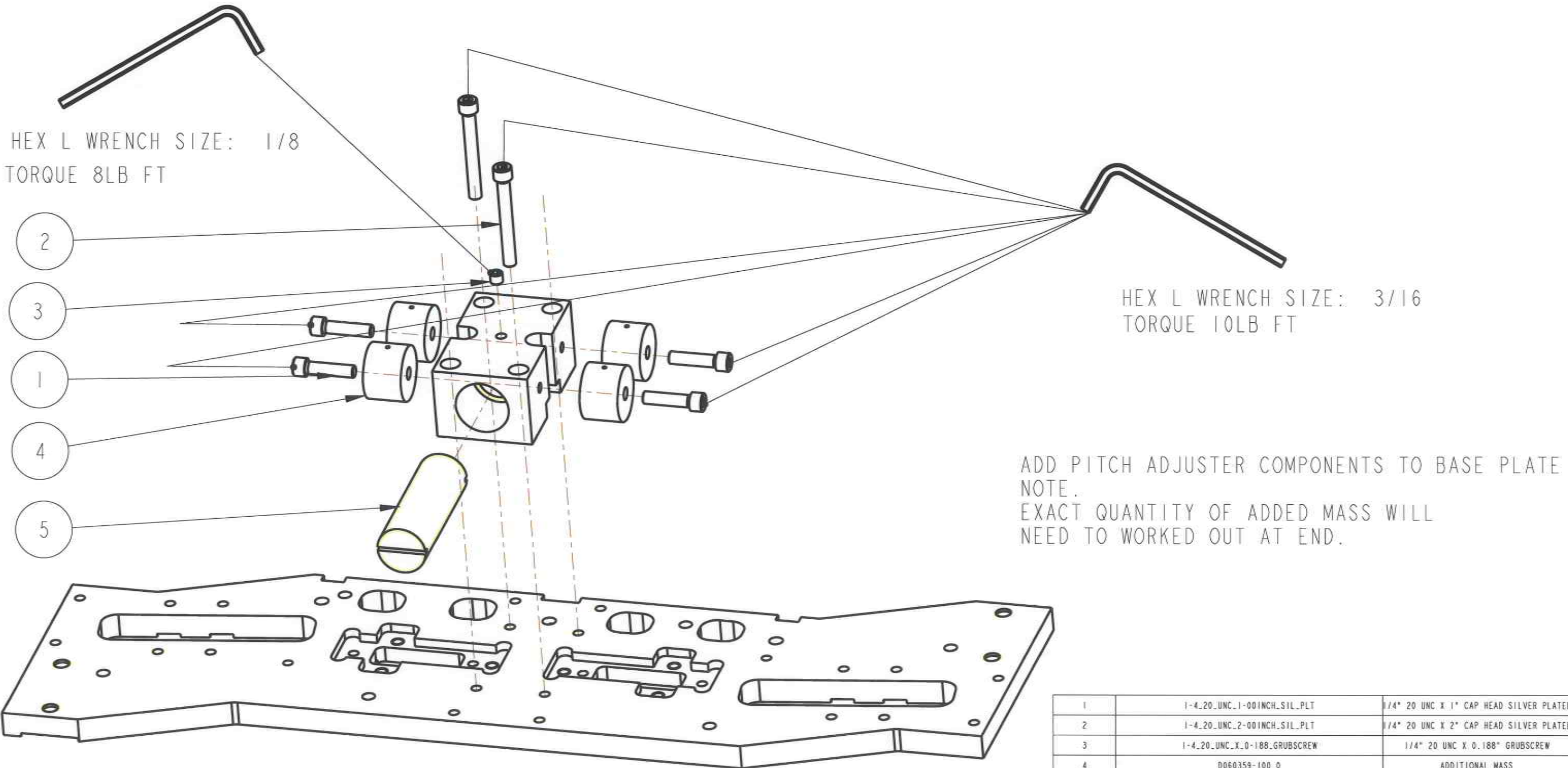
\*Fit check pitch adjuster screw before mounting turret.

ADD THREAD INSERTS INTO PITCH ADJUSTER BLOCK  
REPEAT THIS STEP FOR THE SECOND PITCH ADJUSTER BLOCK

No.	PART NUMBER	PART DESCRIPTION	NO. RECD
1	1-4.20X1D.UNC.THREAD.INSERT	1/4-20 x 1D UNC THREAD INSERT	1
2	D060398	PITCH ADJUSTER & MASS	1

NOTES: (UNLESS OTHERWISE SPECIFIED)		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		
SYSTEM <b>ADVANCED LIGO</b>		
SUB-SYSTEM <b>SUS</b>		
		NEXT ASSY <b>aLIGO QUAD</b>
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>
DRAWN	J O'DELL 08/SEP/09	SIZE <b>B</b>
CHECKED	IW 08/SEP/09	DRG. NO. <b>D060403.ASM_PROCEDURE</b>
APPROVED	JOD 08/MAR/10	REV <b>B</b>
		SCALE 1:2   PROJECTION:    SHEET 4 OF 2



HEX L WRENCH SIZE: 1/8  
TORQUE 8LB FT

HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

ADD PITCH ADJUSTER COMPONENTS TO BASE PLATE  
NOTE:  
EXACT QUANTITY OF ADDED MASS WILL  
NEED TO WORKED OUT AT END.

\*Check threads: have had  
some bad threads in turret.

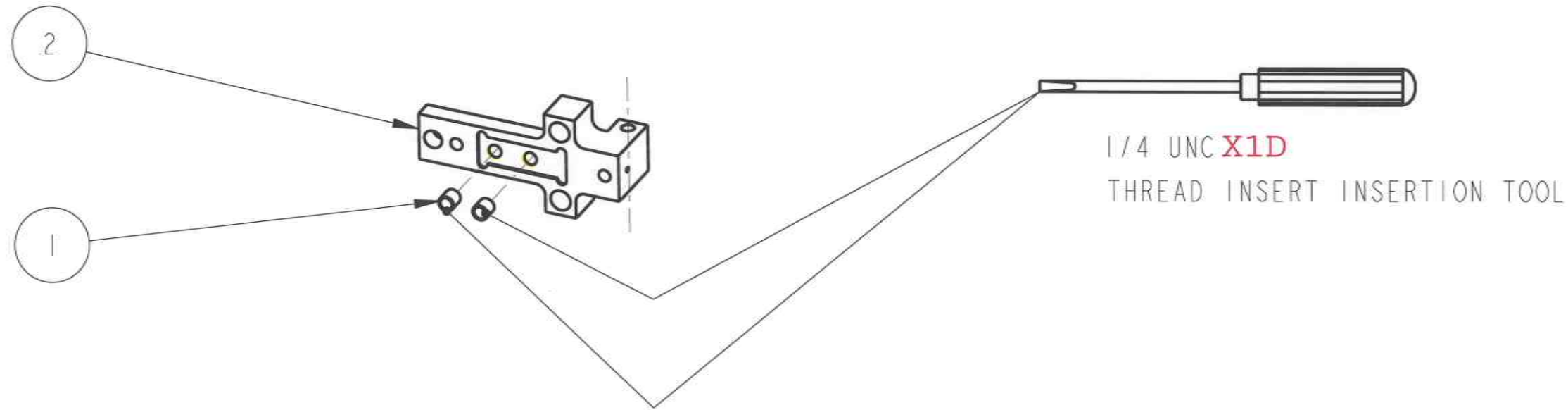
1	1-4_20 UNC .1-00INCH.SIL.PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	4
2	1-4_20 UNC .2-00INCH.SIL.PLT	1/4" 20 UNC X 2" CAP HEAD SILVER PLATED	2
3	1-4_20 UNC .X.0-188 GRUBSCREW	1/4" 20 UNC X 0.188" GRUBSCREW	1
4	D060359-100_0	ADDITIONAL MASS	4
5	D060405	PITCH ADJUSTER	1
No.	PART NUMBER	PART DESCRIPTION	NO. REQD

NOTES: (UNLESS OTHERWISE SPECIFIED)

1.

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1GR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
NAME	DATE	SIZE	REV
DRAWN J O'DELL	08/SEP/09	B	B
CHECKED IW	08/SEP/09	DRG NO <b>D060403_ASM_PROCEDURE</b>	
APPROVED JOD	08/MAR/10	SCALE 1:2   PROJECTION:    SHEET 5 OF 2	

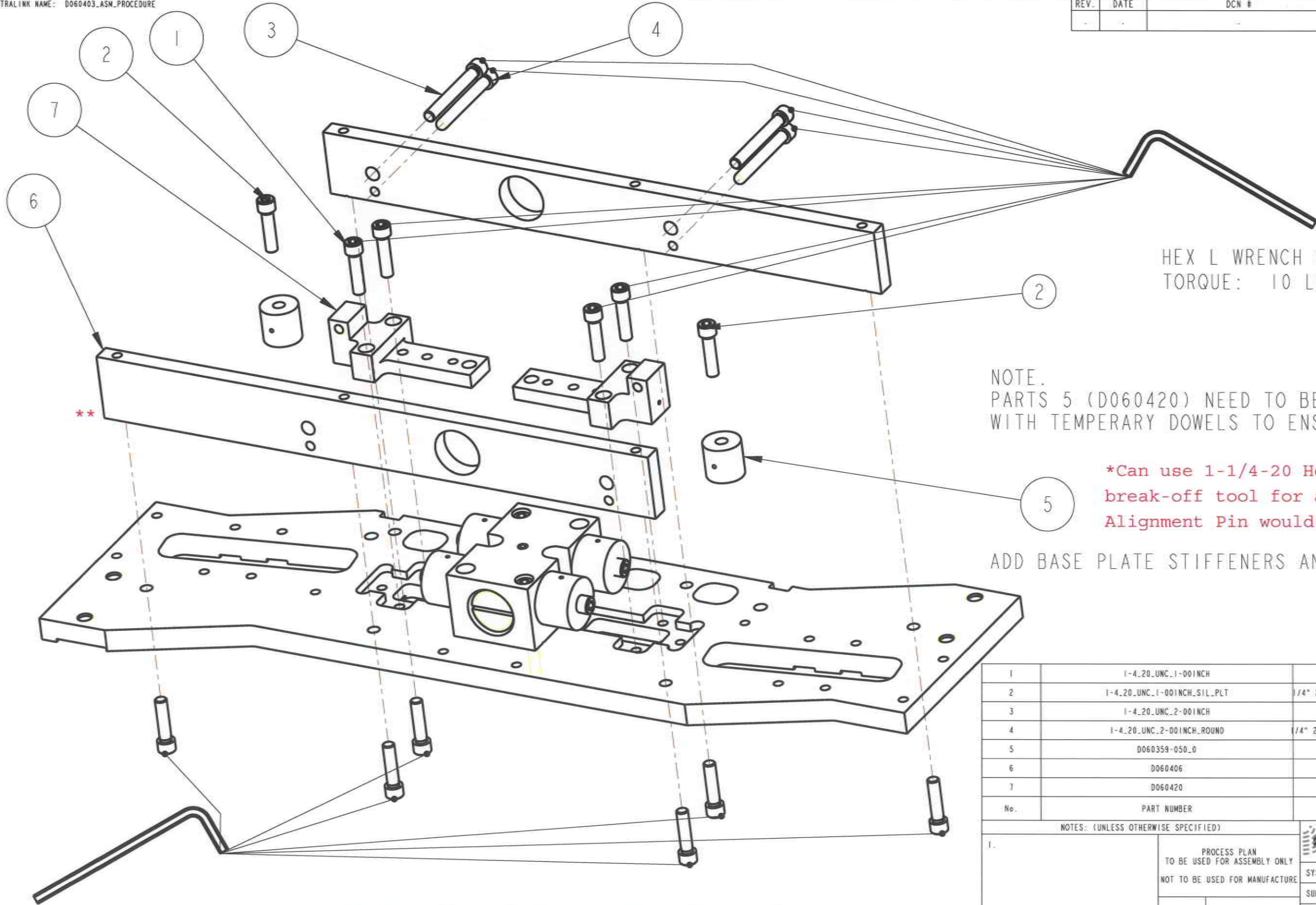
Install these before turret.



ADD THREAD INSERTS INTO WIRE CLAMP  
REPEAT THIS STEP FOR THE SECOND WIRE CLAMP

1	1-4.20X1D.UNC.THREAD.INSERT	1/4-20 x 1D UNC THREAD INSERT	2
2	D060420	WIRE CLAMP ADJUSTMENT BLOCK	1
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY. <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN	J O'DELL	08/SEP/09	SIZE
CHECKED	IW	08/SEP/09	DRG. NO.
APPROVED	JOD	08/MAR/10	REV
SCALE 1:2			PROJECTION:
SHEET 6 OF 2			





HEX L WRENCH SIZE: 3/16  
TORQUE: 10 LB FT

NOTE:  
PARTS 5 (D060420) NEED TO BE ALIGNED  
WITH TEMPORARY DOWELS TO ENSURE ALIGNMENT.

\*Can use 1-1/4-20 Helicoil  
break-off tool for alignment tool.  
Alignment Pin would be better!

ADD BASE PLATE STIFFENERS AND WIRE CLAMPS.

\*\*

HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

\*\* Check surface fit between base plate and  
stiffener- Variation can be taken out when  
drawing down mounting bolts.

1	1-4.20 UNC .1-001NCH	1/4" 20 UNC X 1" CAP HEAD	12
2	1-4.20 UNC .1-001NCH SIL.PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	2
3	1-4.20 UNC .2-001NCH	1/4" 20 UNC X 2" CAP HEAD	2
4	1-4.20 UNC .2-001NCH.ROUND	1/4" 20 UNC X 2" CAP HEAD, SPHERICAL TIP	2
5	D060359-050_0	ADDITIONAL MASS	2
6	D060406	BASE PLATE STIFFENER	2
7	D060420	WIRE CLAMP ADJUSTMENT BLOCK	1
No.	PART NUMBER	PART DESCRIPTION	NO. REQD

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY  
NOT TO BE USED FOR MANUFACTURE

SYSTEM **ADVANCED LIGO**

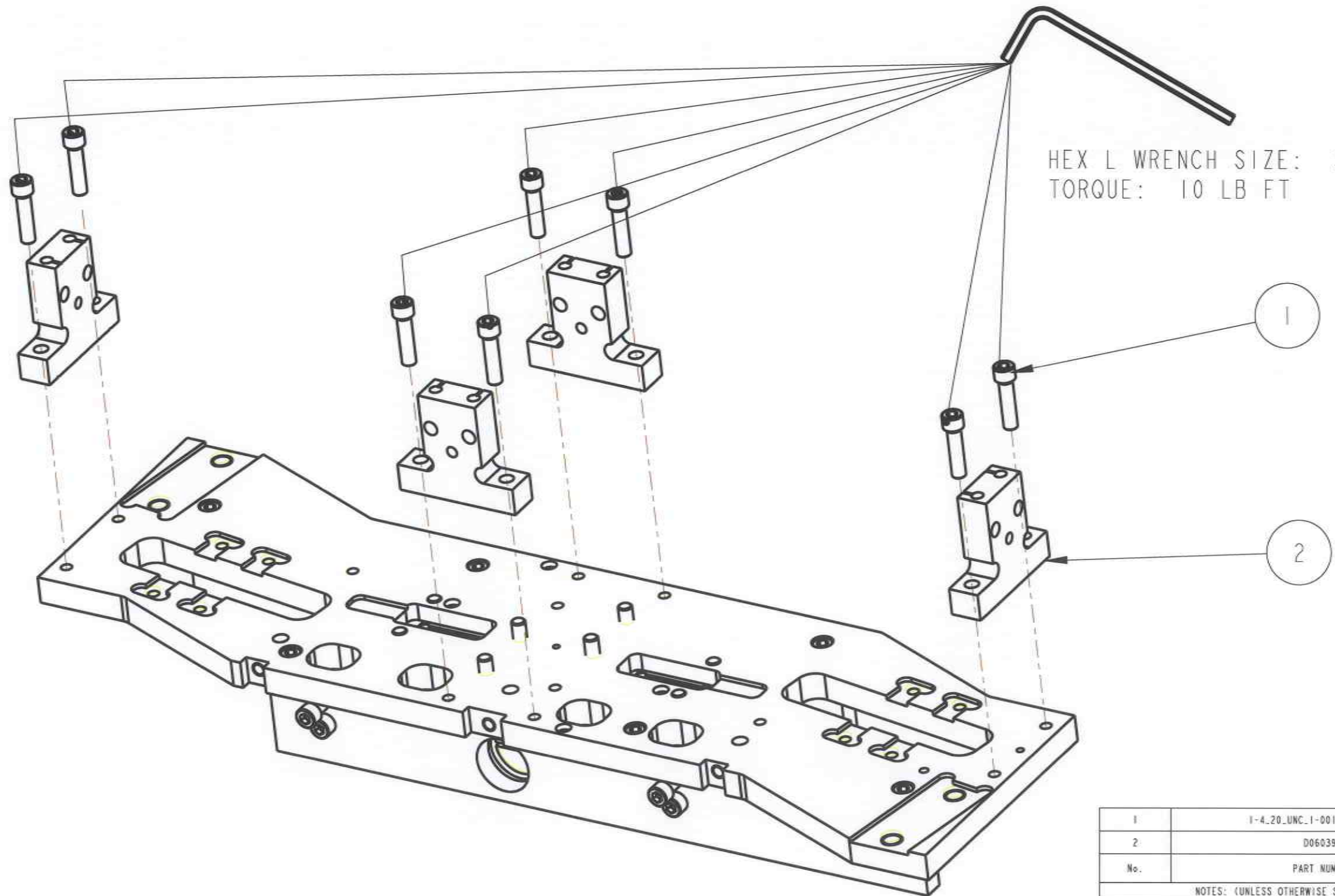
SUB-SYSTEM **SUS**

NEXT ASSY **aLIGO QUAD**

PART NAME **TOP MASS ASM SEQUENCE TEST/REACTION CHAIN**



DRAWN	J O'DELL	08/SEP/09
CHECKED	IW	08/SEP/09
APPROVED	JOD	08/MAR/10

SCALE 1:2 | PROJECTION: | SHEET 7 OF 2

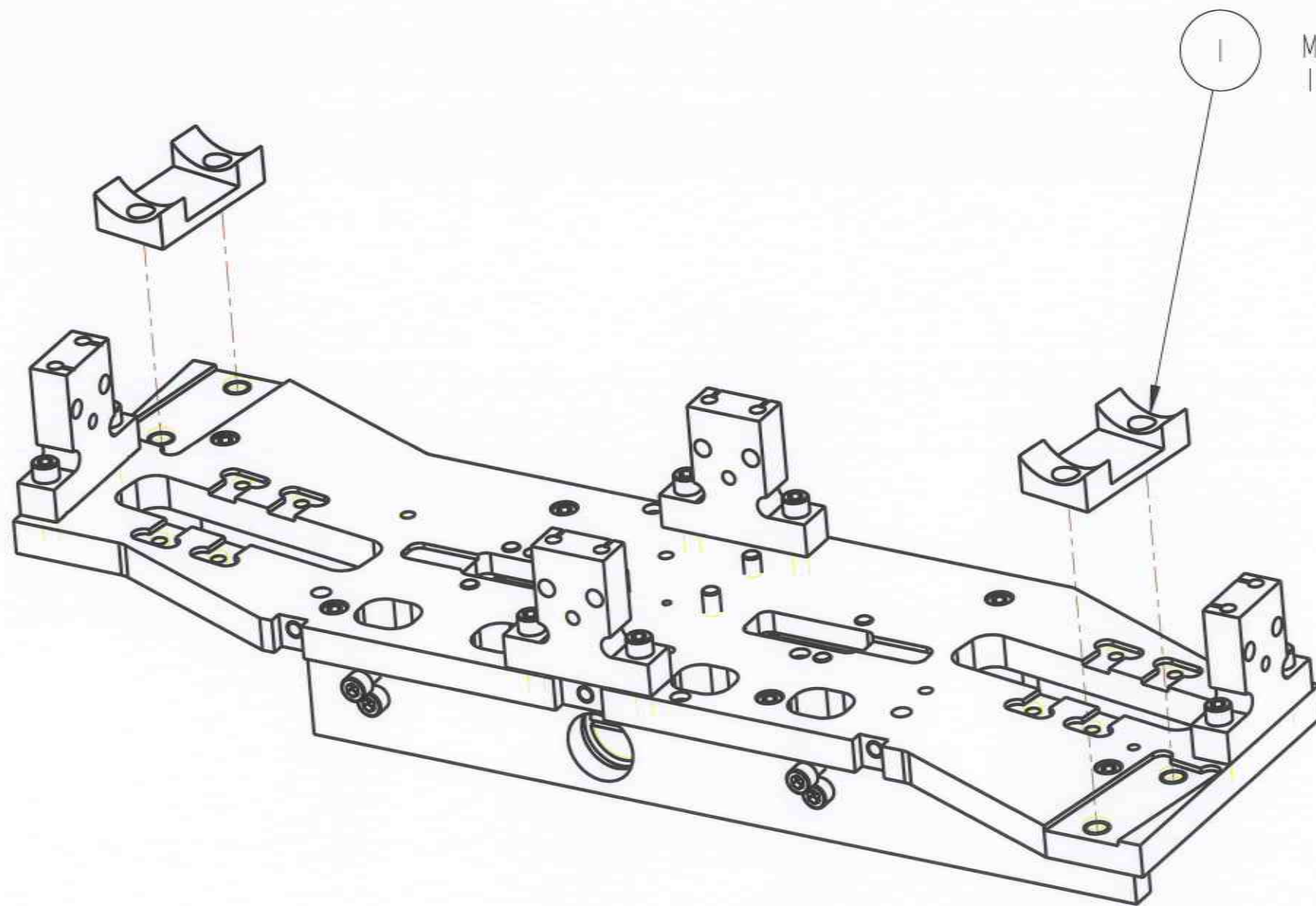


HEX L WRENCH SIZE: 3/16  
TORQUE: 10 LB FT

ADD TOP MASS SPACERS.



1	I-4_20 UNC X 1-00 INCH SIL PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	8
2	D060397	TOP MASS SPACER	4
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY: <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN	J. O'DELL	DATE	08/SEP/09
CHECKED	IW	DATE	08/SEP/09
APPROVED	JOD	DATE	08/MAR/10
SIZE	DRG. NO.		REV.
B	D060403.ASM.PROCEDURE		B
SCALE 1:2			PROJECTION:  SHEET 8 OF 21

REV.	DATE	DCN #	DRAWING TREE #

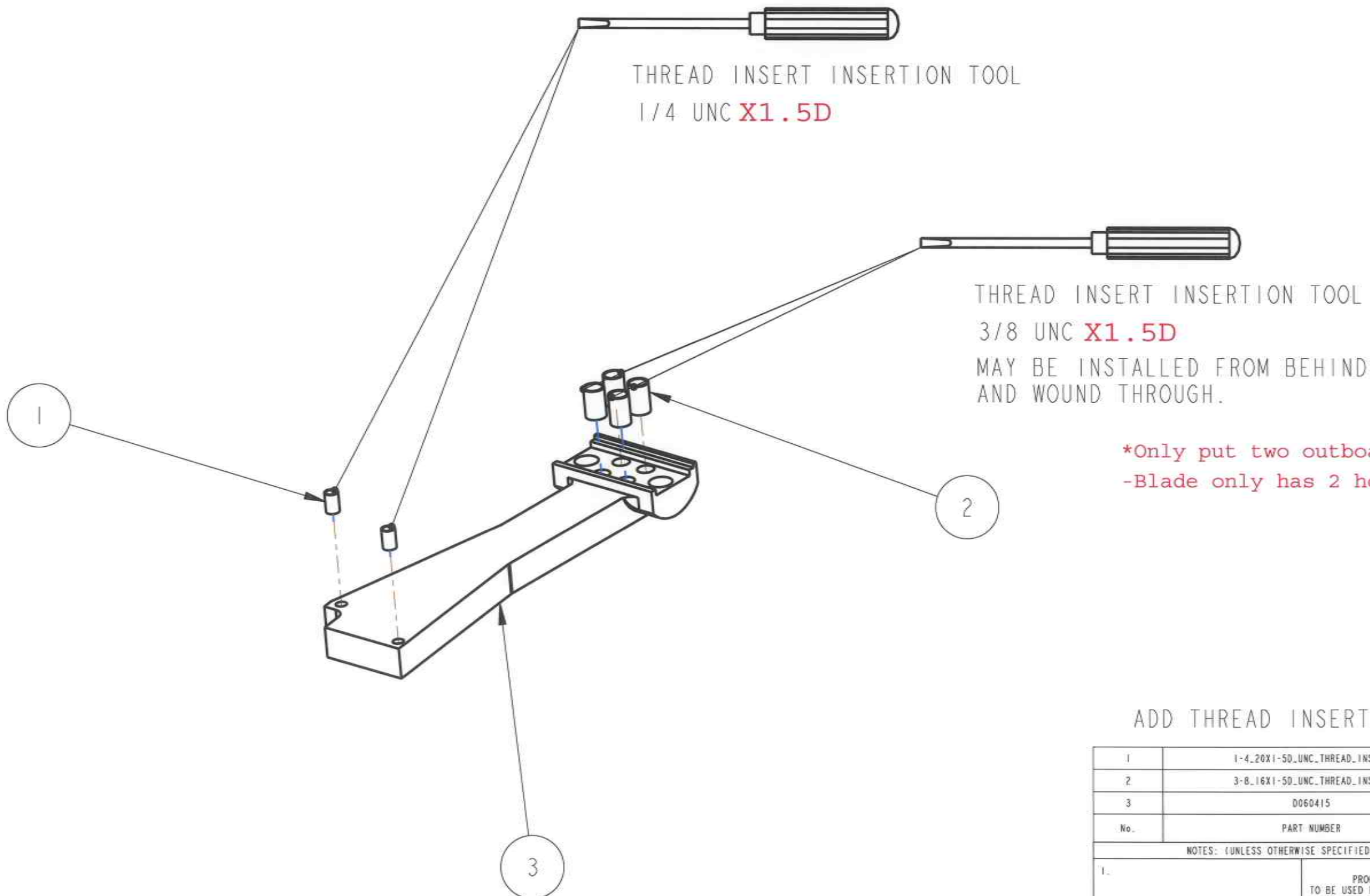


1 MAY NEED TO BE TAPPED IN WITH RUBBER Mallet.

ADD BLADE TIP Z POSITION ADJUSTER

1	D060414	BLADE TIP Z POSITION ADJ	2
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
	NAME	DATE	
DRAWN	J O'DELL	08/SEP/09	SIZE
CHECKED	IW	08/SEP/09	DRG. NO.
APPROVED	JOD	08/MAR/10	REV
			<b>B</b>
			<b>D060403_ASM_PROCEDURE</b>
			<b>B</b>
SCALE 1:2   PROJECTION:    SHEET 9 OF 21			

REV.	DATE	DCN #	DRAWING TREE #



ADD THREAD INSERTS INTO BLADE ADJUSTER

1	1-4.20X1-5D_UNC.THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	2
2	3-8.16X1-5D_UNC.THREAD_INSERT	3/8-16 x 1.5D UNC THREAD INSERT	4
3	D060415	BLADE TIP Z POSITION ADJ	1
No.	PART NUMBER	PART DESCRIPTION	NO. RECD

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE

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IGR, GLASGOW UNIVERSITY GEO 600 GROUP  
RUTHERFORD APPLETON LABORATORIES

SYSTEM **ADVANCED LIGO**

SUB-SYSTEM **SUS**

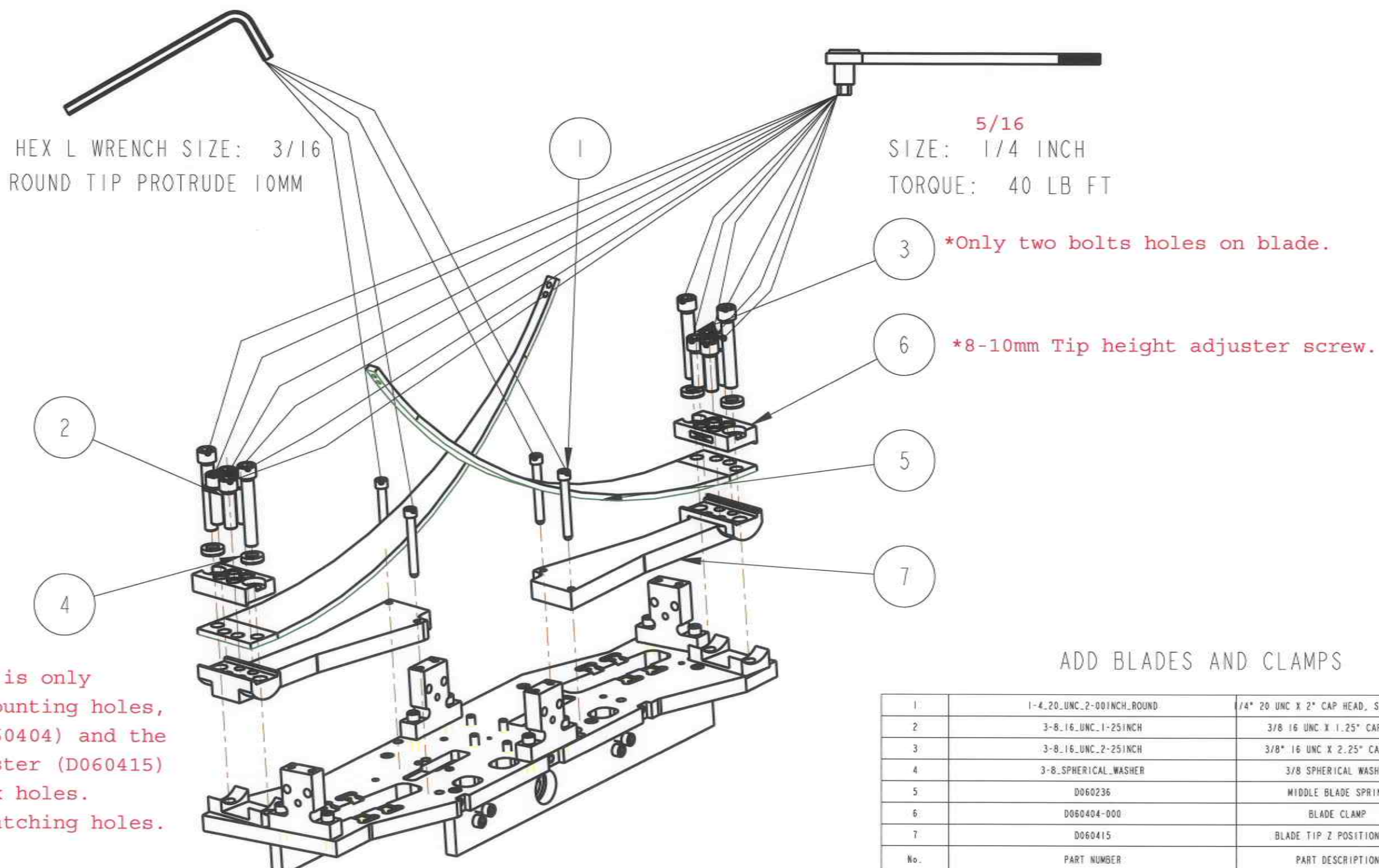
NEXT ASSY **aLIGO QUAD**

PART NAME **TOP MASS ASM SEQUENCE TEST/REACTION CHAIN**

NAME	DATE	SIZE	REV
DRAWN J O'DELL	08/SEP/09	B	B
CHECKED IW	08/SEP/09		
APPROVED JOD	08/MAR/10		

DRG NO **D060403\_ASM.PROCEDURE**

SCALE 1:2 | PROJECTION: | SHEET 10 OF 5



HEX L WRENCH SIZE: 3/16  
ROUND TIP PROTRUDE 10MM

5/16  
SIZE: 1/4 INCH  
TORQUE: 40 LB FT

\*Only two bolts holes on blade.

\*8-10mm Tip height adjuster screw.

\*The Blade (D060236) is only drilled with four mounting holes, while the Clamp (D060404) and the Tip Z position adjuster (D060415) are drilled with six holes. Only use the four matching holes.

ADD BLADES AND CLAMPS

1.	1-4_20 UNC 2-00 INCH ROUND	1/4" 20 UNC X 2" CAP HEAD, SPHERICAL TIP	4
2.	3-8_16 UNC 1-25 INCH	3/8 16 UNC X 1.25" CAP HEAD	8
3.	3-8_16 UNC 2-25 INCH	3/8" 16 UNC X 2.25" CAP HEAD	4
4.	3-8 SPHERICAL WASHER	3/8 SPHERICAL WASHER	4
5.	D060236	MIDDLE BLADE SPRING	2
6.	D060404-000	BLADE CLAMP	2
7.	D060415	BLADE TIP Z POSITION ADJ	1
No.	PART NUMBER	PART DESCRIPTION	NO. RECD

NOTES: (UNLESS OTHERWISE SPECIFIED)

NOTE.  
ALL 3/8 BOLTS MUST BE TORQUED UP TO THE RQUIRED TO THE RQUIRED TORQUE.  
A TORQUE WRENCH IS NEEDED FOR THIS.

PROCESS PLAN  
TO BE USED FOR ASSEMBLY ONLY  
NOT TO BE USED FOR MANUFACTURE

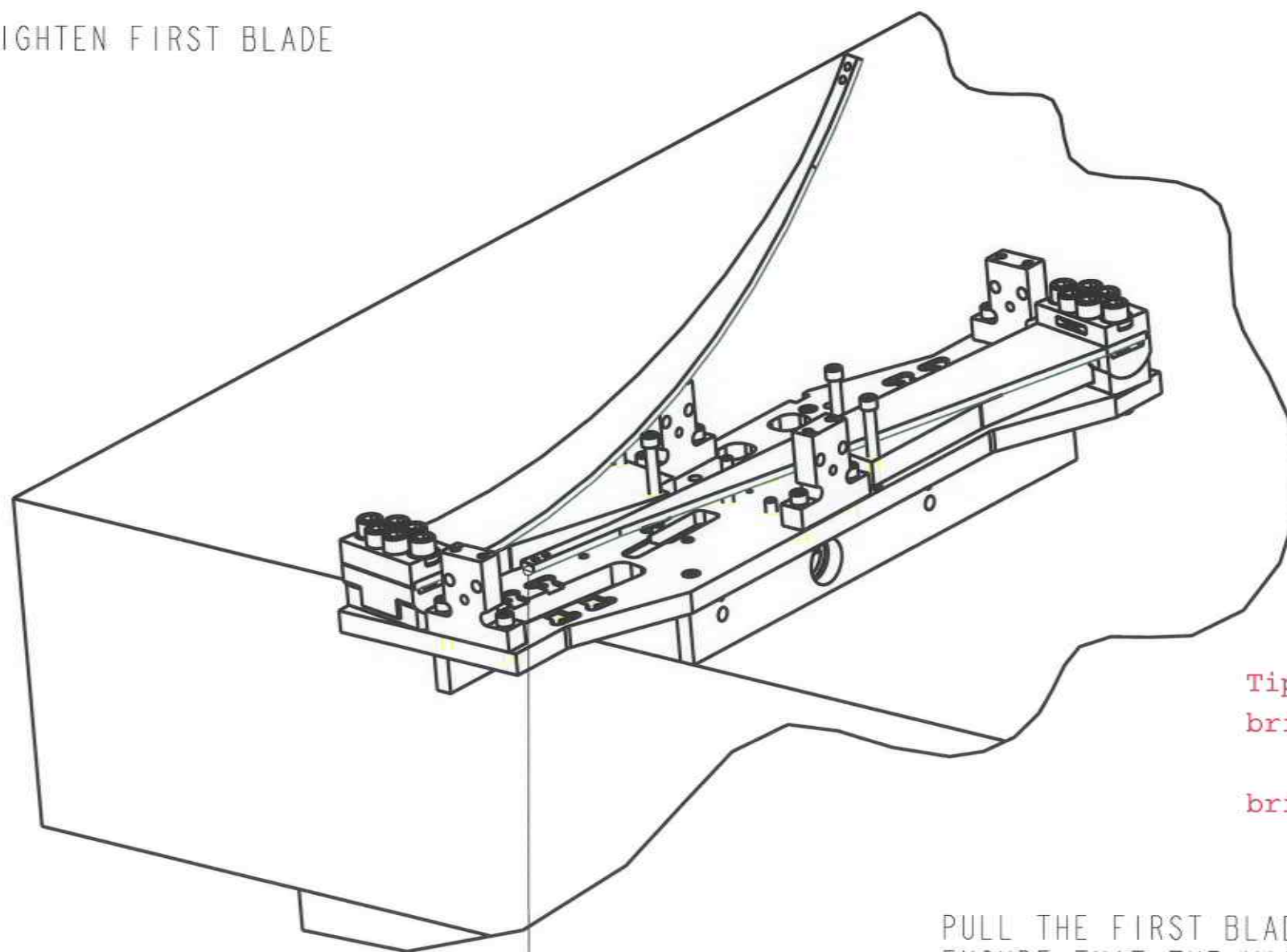
CALIFORNIA INSTITUTE OF TECHNOLOGY  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
IGR, GLASGOW UNIVERSITY GEO 500 GROUP  
RUTHERFORD APPLETON LABORATORIES

SYSTEM **ADVANCED LIGO**  
SUB-SYSTEM **SUS**  
NEXT ASSY **aLIGO QUAD**  
PART NAME **TOP MASS ASM SEQUENCE TEST/REACTION CHAIN**

NAME	DATE
DRAWN J O'DELL	08/SEP/09
CHECKED IW	08/SEP/09
APPROVED JOD	08/MAR/10

SCALE 3:10 PROJECTION: SHEET 11 OF 15

STRAIGHTEN FIRST BLADE

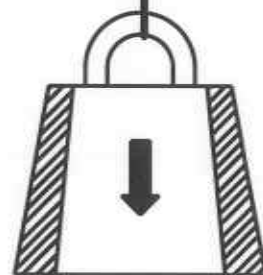


\*Build hold down flat bar with hole for 1/4-20 bolt.



Tip = 9.6mm from top cut in stop bridge for blade.  
5mm side to side blade to stop bridge.

PULL THE FIRST BLADE FLAT BY HANGING MASS FROM THE TIP ENSURE THAT THE MASS IS SECURELY CLAMPED TO A ROBUST TABLE DURING THIS PROCEDURE

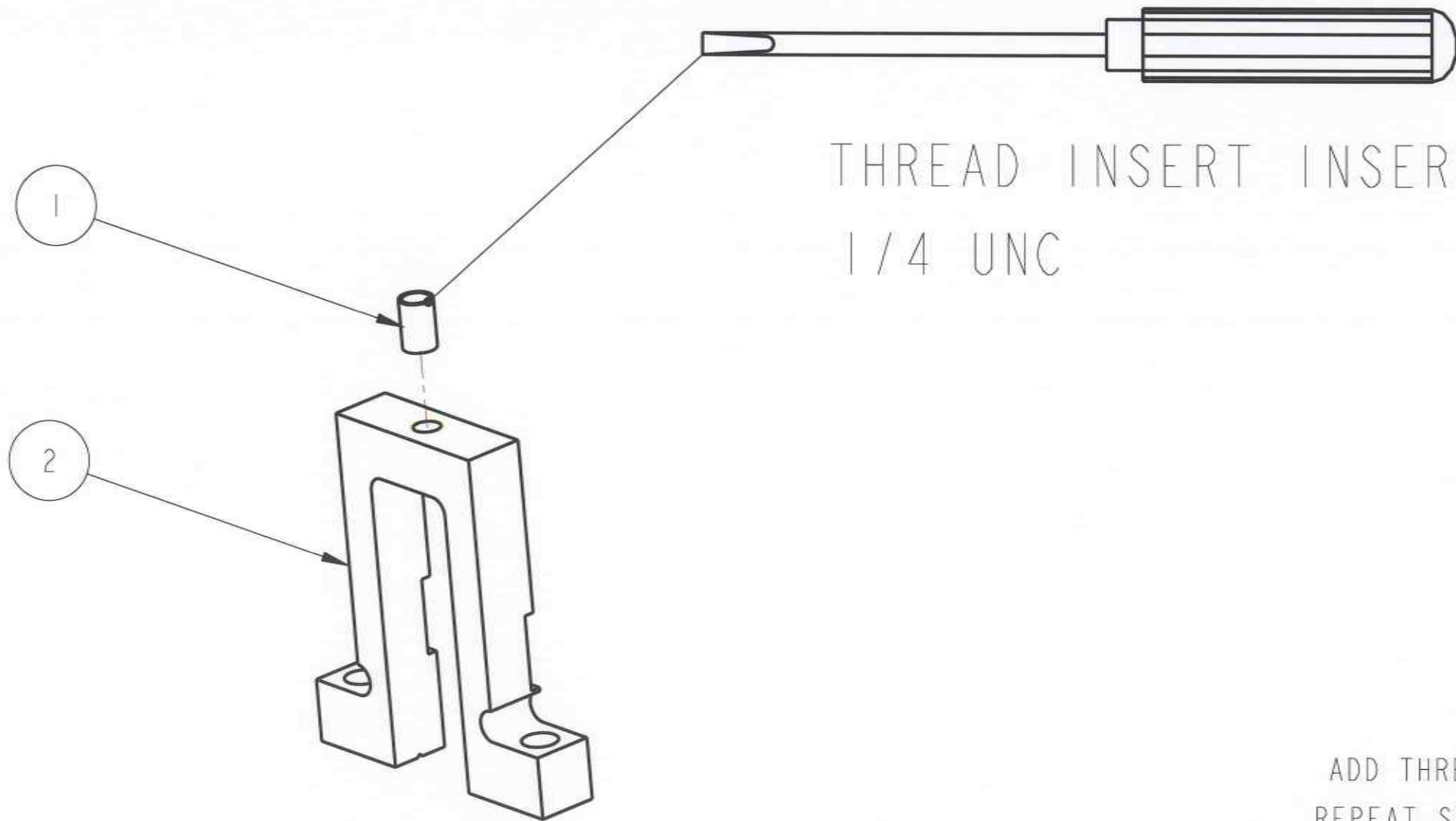
\*Put wire clamp tooling in outboard hole to clear stop bridge.



MASS: 50 KG  
50650g



NOTES: (UNLESS OTHERWISE SPECIFIED)		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
1.		PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
	NAME	DATE	SIZE
DRAWN	J O'DELL	08/SEP/09	B
CHECKED	IW	08/SEP/09	DRG. NO.
APPROVED	JOD	08/MAR/10	D060403_ASM_PROCEDURE
		SCALE 3:10	PROJECTION: 
		SHEET 12 OF 15	

REV.	DATE	DCN #	DRAWING TREE #



THREAD INSERT INSERTION TOOL  
1/4 UNC

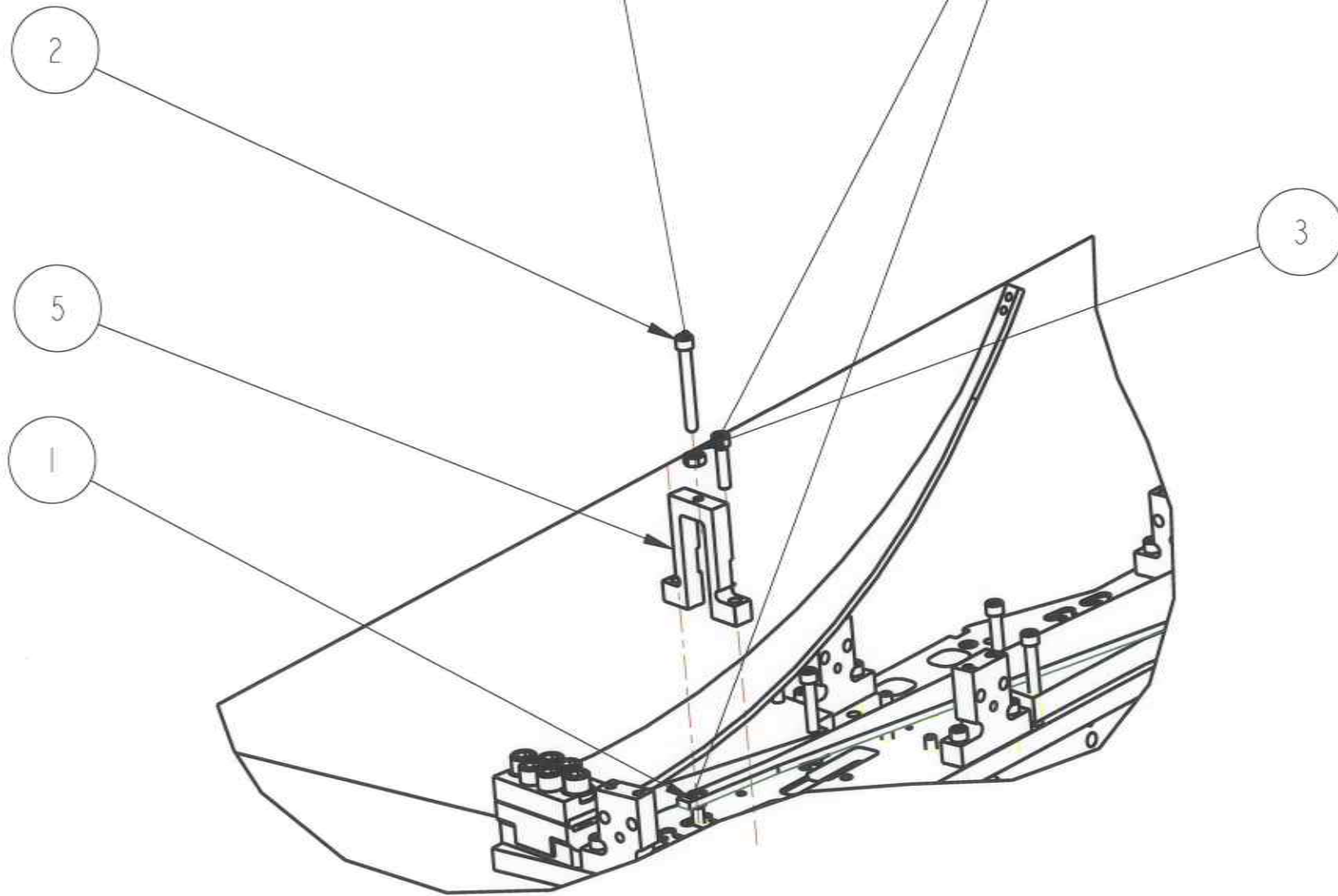
ADD THREAD INSERT INTO STOP BRIDGE  
REPEAT STEP FOR ALL BRIDGES (4 OFF)

1	1-4.20X1-5D_UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	1
2	D060399	STOP BRIDGE	1
No.	PART NUMBER	PART DESCRIPTION	NO. RECD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY: <b>aLIGO QUAD</b>	
		PART NAME: <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
	NAME	DATE	
DRAWN	J O'DELL	08/SEP/09	SIZE
CHECKED	IM	08/SEP/09	DRG. NO.
APPROVED	JOD	08/MAR/10	REV
			<b>B</b>
SCALE 1:1			PROJECTION: 
			SHEET 13 OF 15

REV.	DATE	DCN #	DRAWING TREE #
-	-	-	-

HEX L WRENCH SIZE: 3/16  
 SCREW BOLT THROUGH BLADE STOP  
 UNTILL IT TOUCHES THE BLADE

HEX L WRENCH SIZE: 3/16  
 TORQUE 10LB FT



ADD STOP BRIDGE

REPEAT LAST TWO STEPS WITH OTHER BLADE  
 LEAVE LOCK-NUT LOOSE

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	1-4_20 UNC 1-00 INCH SIL PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	2
2	1-4_20 UNC 2-00 INCH ROUND	1/4" 20 UNC X 2" CAP HEAD, SPHERICAL TIP	1
3	1-4_20 UNC NUT	1/4 20 UNC NUT	1
4	D060236_FLAT	MIDDLE BLADE SPRING	1
5	D060399	STOP BRIDGE	1

NOTES: (UNLESS OTHERWISE SPECIFIED)

1.

PROCESS PLAN  
 TO BE USED FOR ASSEMBLY ONLY  
 NOT TO BE USED FOR MANUFACTURE

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 MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
 IGR, GLASGOW UNIVERSITY GEO 600 GROUP  
 RUTHERFORD APPLETON LABORATORIES

SYSTEM **ADVANCED LIGO**

SUB-SYSTEM **SUS**

NEXT ASSY **aLIGO QUAD**

PART NAME **TOP MASS ASM SEQUENCE  
 TEST/REACTION CHAIN**

	NAME	DATE
DRAWN	J O'DELL	08/SEP/09
CHECKED	IW	08/SEP/09
APPROVED	JOD	08/MAR/10

SCALE 3:10 PROJECTION: SHEET 14 OF 15



HEX L WRENCH SIZE: 3/16  
LEAVE BOLT LOOSE

HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

2

1

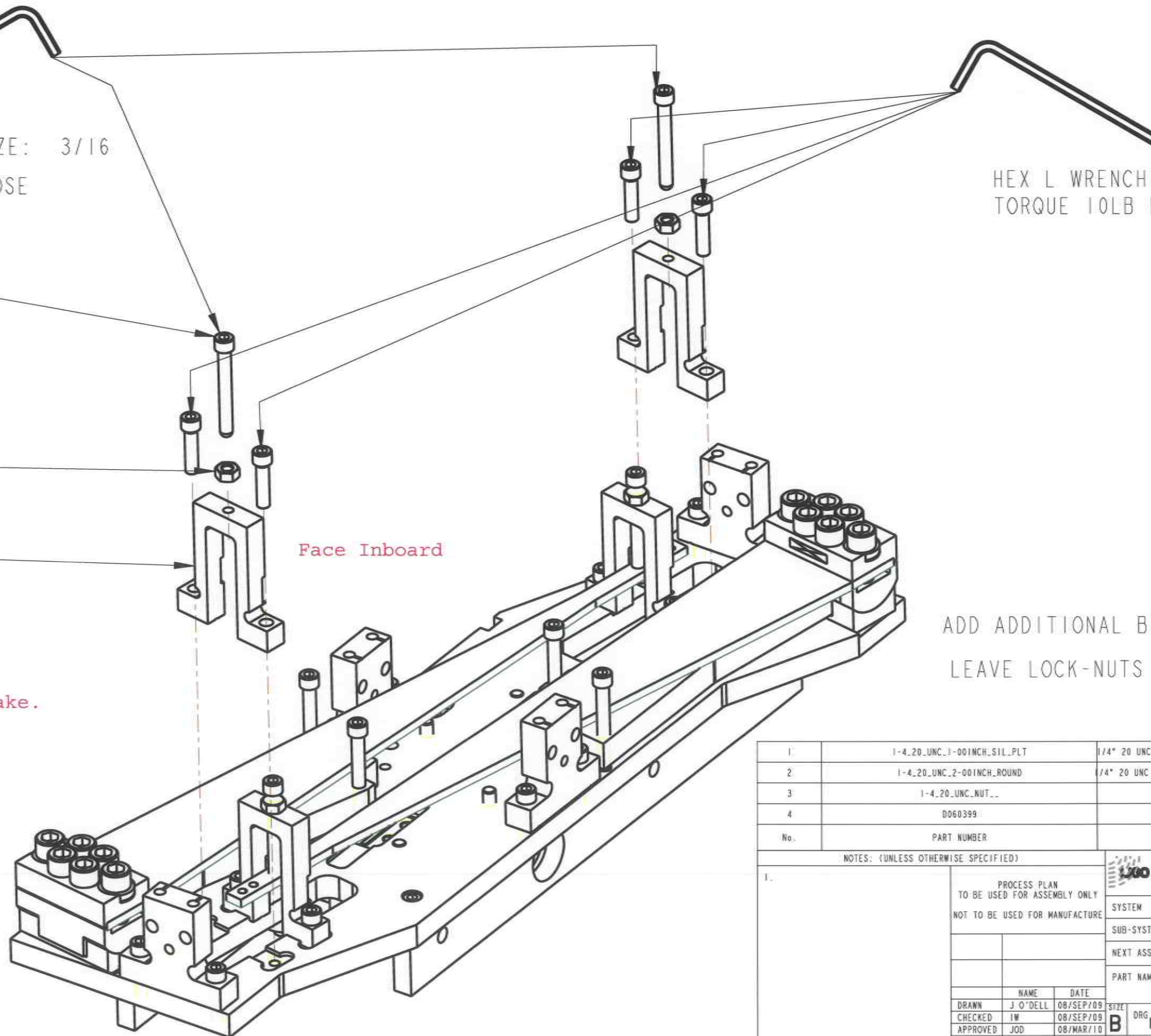
3

4

Face Inboard

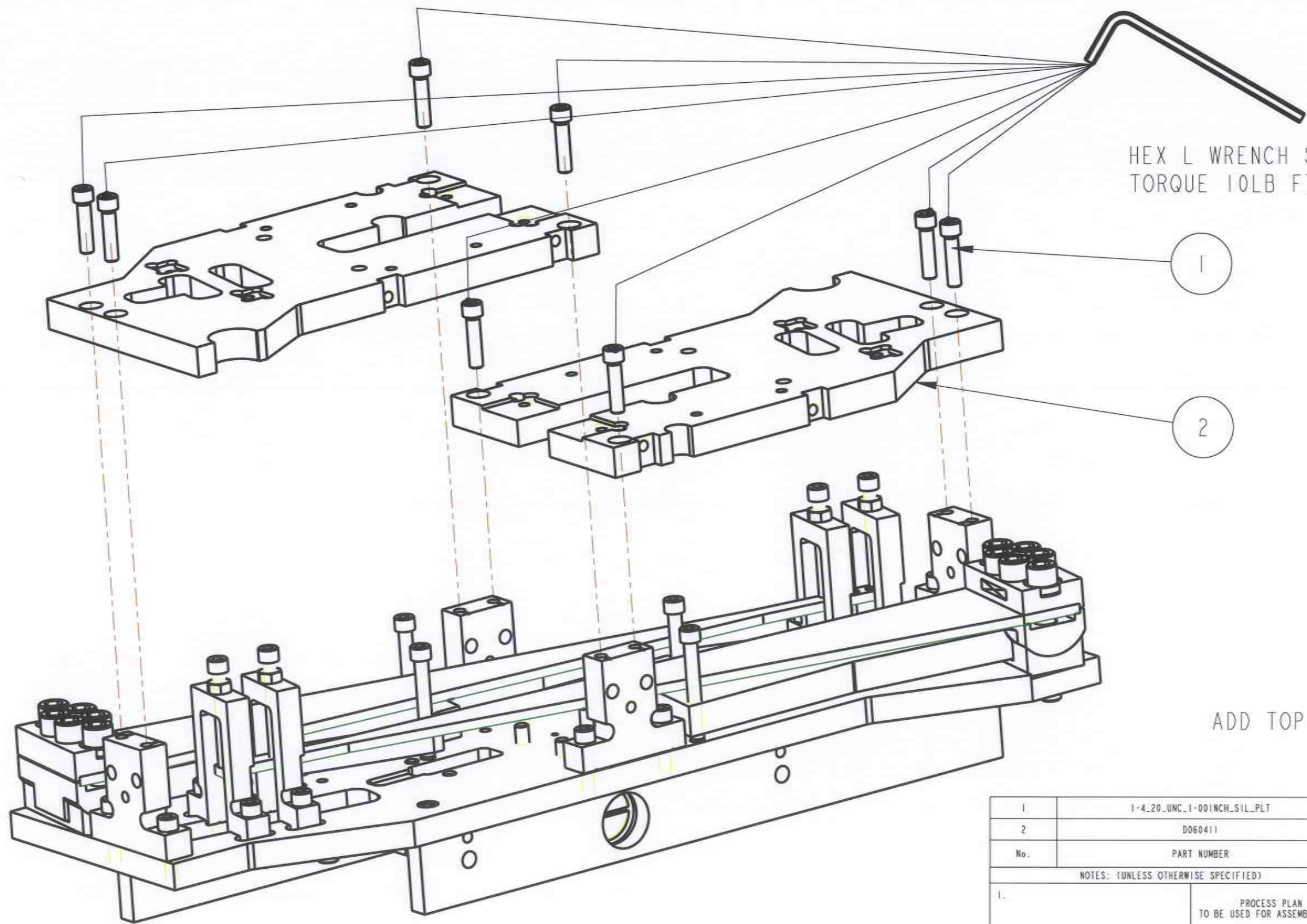
\*STOP HERE for creak bake.

ADD ADDITIONAL BLADE CLAMPS  
LEAVE LOCK-NUTS LOOSE



1	1-4_20_UNC_1-00INCH_SIL_PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	6
2	1-4_20_UNC_2-00INCH_ROUND	1/4" 20 UNC X 2" CAP HEAD, SPHERICAL TIP	3
3	1-4_20_UNC_NUT_	1/4 20 UNC NUT	3
4	D060399	STOP BRIDGE	2
No.	PART NUMBER	PART DESCRIPTION	NO. REQD

NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN	J O'DELL	08/SEP/09	SIZE
CHECKED	IW	08/SEP/09	DRG NO
APPROVED	JOD	08/MAR/10	<b>B</b> D060403_ASM_PROCEDURE <b>B</b>
SCALE 1:2   PROJECTION:    SHEET 13 OF 13			





HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

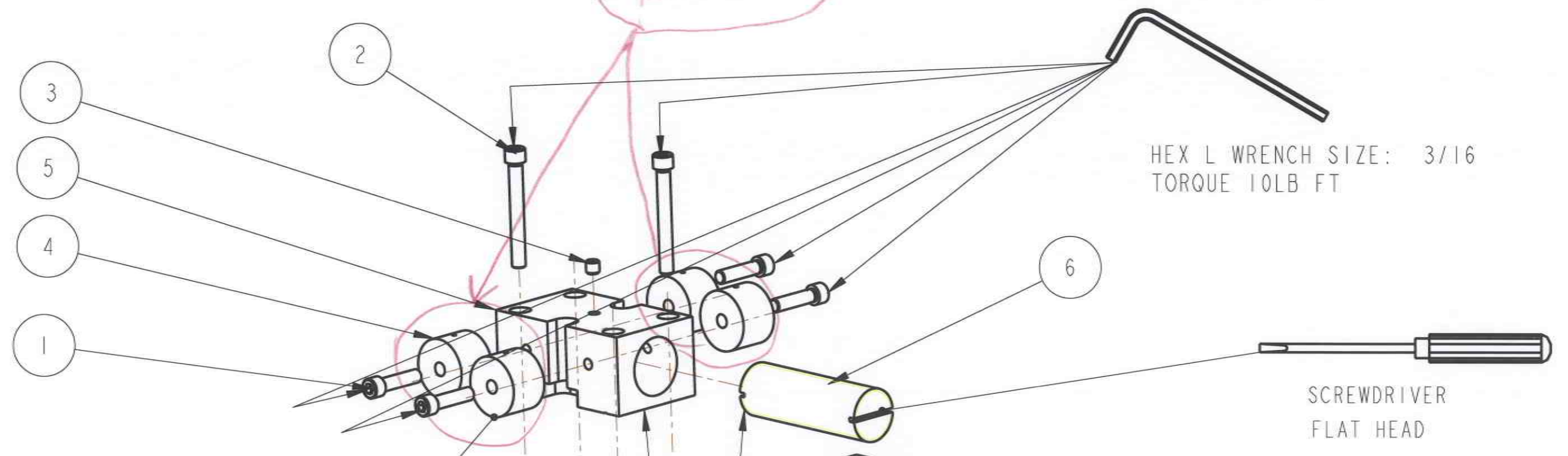
1

2

ADD TOP PLATES

1	1-4_20 UNC 1-00INCH SIL PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	8
2	D060411	TOP PLATE	2
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1GR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>ALIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN	J O'DELL	08/SEP/09	SIZE
CHECKED	IW	08/SEP/09	<b>B</b>
APPROVED	JDD	08/MAR/10	DRG. NO. <b>D060403_ASM_PROCEDURE</b>
		SCALE 1:2	PROJECTION:  SHEET 16 OF 15

WEIGHT MASSES NOT USED

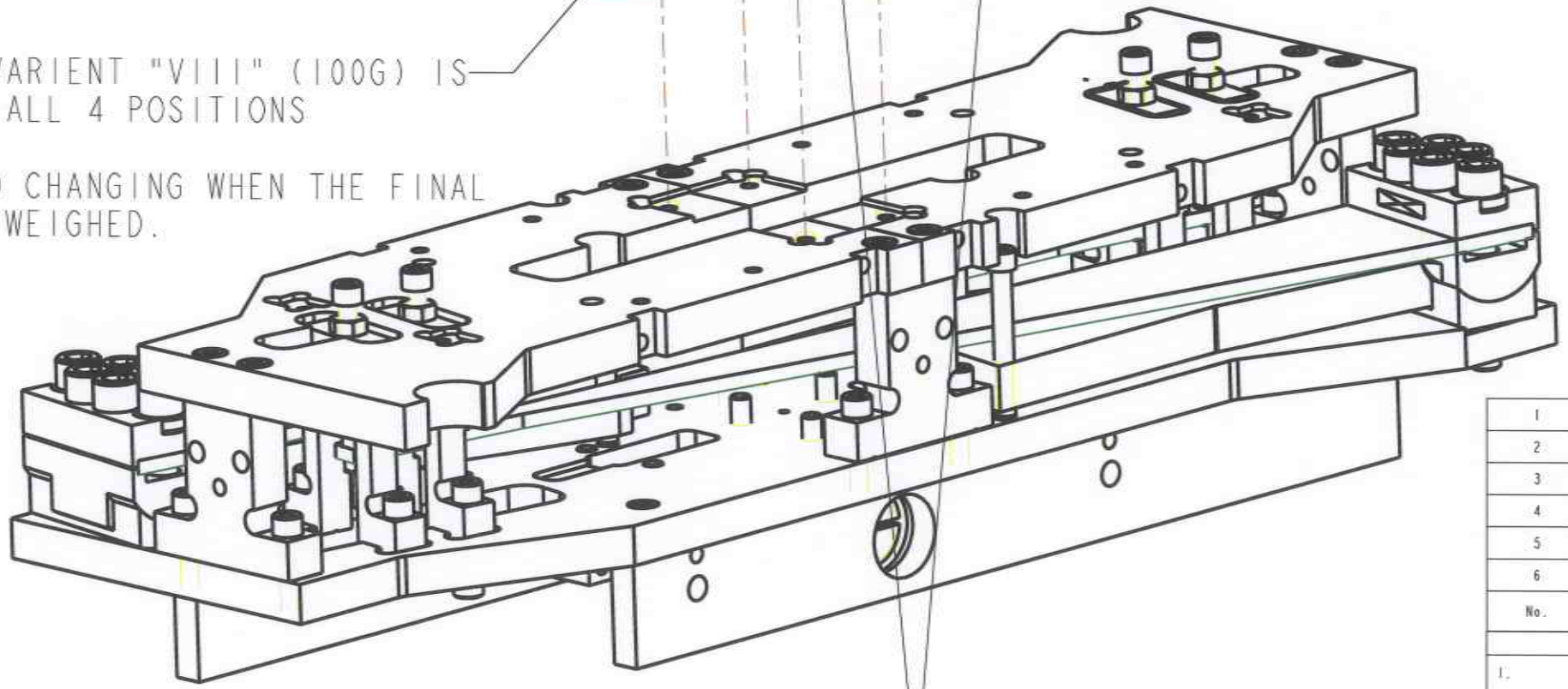


HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT



ENSURE VARIENT "VIII" (100G) IS USED IN ALL 4 POSITIONS  
NOTE.  
MAY NEED CHANGING WHEN THE FINAL MASS IS WEIGHED.

ADD TOP PITCH ADJUSTER



INSERT PART AND SCREW INTO TURRET,  
UNTILL IT IS CENTRAL IN THE BLOCK

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	1-4_20 UNC X 1-00 INCH SIL PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	4
2	1-4_20 UNC X 2-00 INCH SIL PLT	1/4" 20 UNC X 2" CAP HEAD SILVER PLATED	2
3	1-4_20 UNC X 0-188 GRUBSCREW	1/4" 20 UNC X 0.188" GRUBSCREW	1
4	D060359-100_0	ADDITIONAL MASS	4
5	D060398	PITCH ADJUSTER & MASS	1
6	D060405	PITCH ADJUSTER	1

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY  
NOT TO BE USED FOR MANUFACTURE

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1GR, GLASGOW UNIVERSITY GEO 600 GROUP  
RUTHERFORD APPLETON LABORATORIES

SYSTEM **ADVANCED LIGO**

SUB-SYSTEM **SUS**

NEXT ASSY **ALIGO QUAD**

PART NAME **TOP MASS ASM SEQUENCE TEST/REACTION CHAIN**

NAME	DATE	REV
DRAWN J O'DELL	08/SEP/09	B
CHECKED IW	08/SEP/09	B
APPROVED JOD	08/MAR/10	B

SCALE 1:2 | PROJECTION: | SHEET 17 OF 15

**When Building Flags:**

1. Check fit of steel disk into mount with magnet for pull out loose disk.
2. Check flag for true alignment.
3. Be careful - Aluminum mounts are FRAGILE.

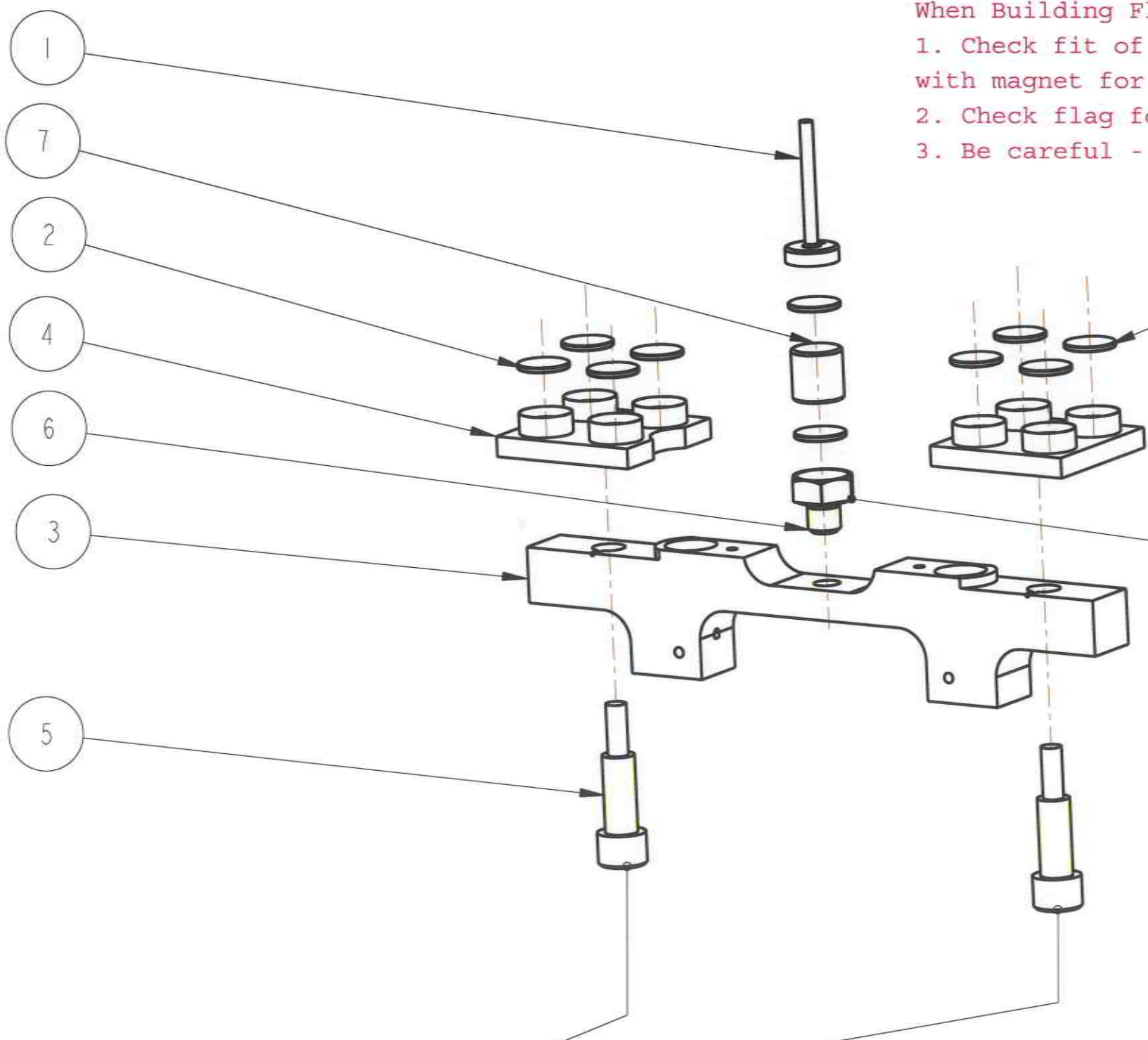
NOTE:  
DISC TO BE PRESSED IN WITH BENCH PRESS.

7/16 Socket for Torque Wrench



1/2 INCH  
10 LB FT

ASSEMBLE BACKBONE  
REPEAT STEP FOR ALL 4 BACKBONES



HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

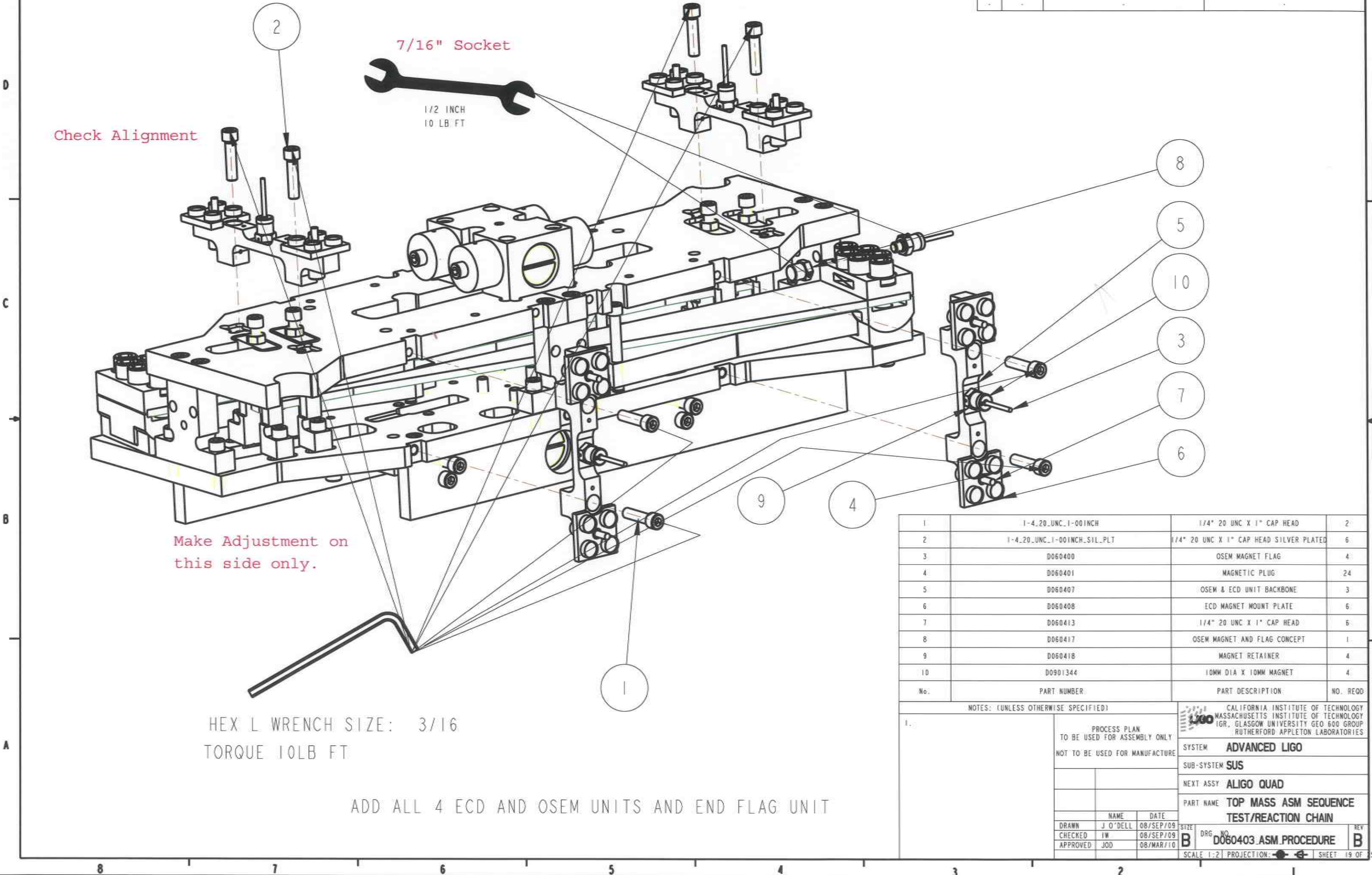
\*Add 2 1/4-20 Flat Washer to all D060418

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	D060400	OSEM MAGNET FLAG	1
2	D060401	MAGNETIC PLUG	10
3	D060407	OSEM & ECD UNIT BACKBONE	1
4	D060408	ECD MAGNET MOUNT PLATE	2
5	D060413	1/4" 20 UNC X 1" CAP HEAD	2
6	D060418	MAGNET RETAINER	1
7	D0901344	10MM DIA X 10MM MAGNET	1

NOTES: (UNLESS OTHERWISE SPECIFIED)

1.

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>ALIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN	J O'DELL	DATE	08/SEP/09
CHECKED	IW	DATE	08/SEP/09
APPROVED	JOD	DATE	08/MAR/10
SIZE	<b>B</b>	DRG. NO.	<b>D060403.ASM.PROCEDURE</b>
SCALE 1:1		PROJECTION:	SHEET 18 OF 55



Check Alignment

7/16" Socket

1/2 INCH  
10 LB FT

Make Adjustment on  
this side only.

HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

ADD ALL 4 ECD AND OSEM UNITS AND END FLAG UNIT

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	1-4_20 UNC 1-001NCH	1/4" 20 UNC X 1" CAP HEAD	2
2	1-4_20 UNC 1-001NCH SIL PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	6
3	D060400	OSEM MAGNET FLAG	4
4	D060401	MAGNETIC PLUG	24
5	D060407	OSEM & ECD UNIT BACKBONE	3
6	D060408	ECD MAGNET MOUNT PLATE	6
7	D060413	1/4" 20 UNC X 1" CAP HEAD	6
8	D060417	OSEM MAGNET AND FLAG CONCEPT	1
9	D060418	MAGNET RETAINER	4
10	D0901344	10MM DIA X 10MM MAGNET	4

NOTES: (UNLESS OTHERWISE SPECIFIED)

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY  
NOT TO BE USED FOR MANUFACTURE

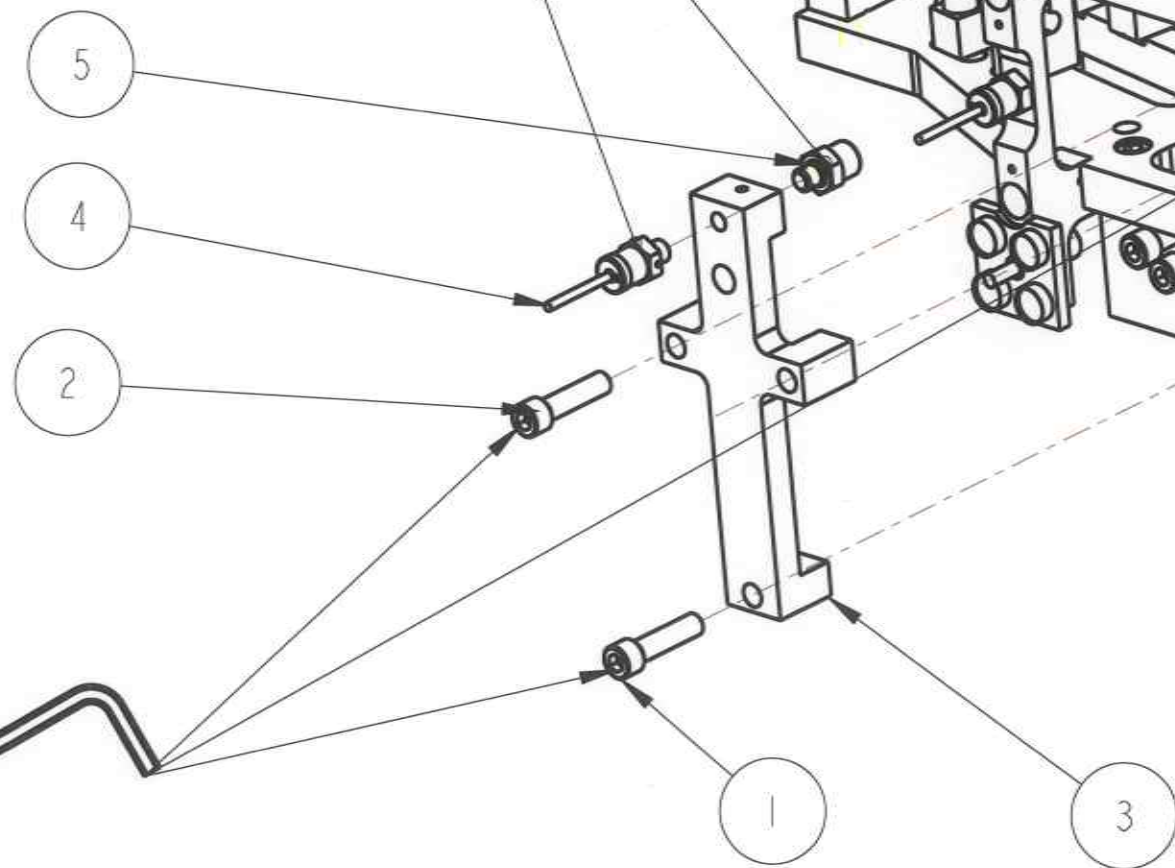
SYSTEM **ADVANCED LIGO**  
SUB-SYSTEM **SUS**  
NEXT ASSY **ALIGO QUAD**  
PART NAME **TOP MASS ASM SEQUENCE TEST/REACTION CHAIN**

DRAWN	J O'DELL	08/SEP/09
CHECKED	IW	08/SEP/09
APPROVED	JOD	08/MAR/10

SCALE 1:2 | PROJECTION: | SHEET 19 OF 25



SIZE: 1/2 INCH  
 TORQUE: 10LB FT  
 7/16" Socket



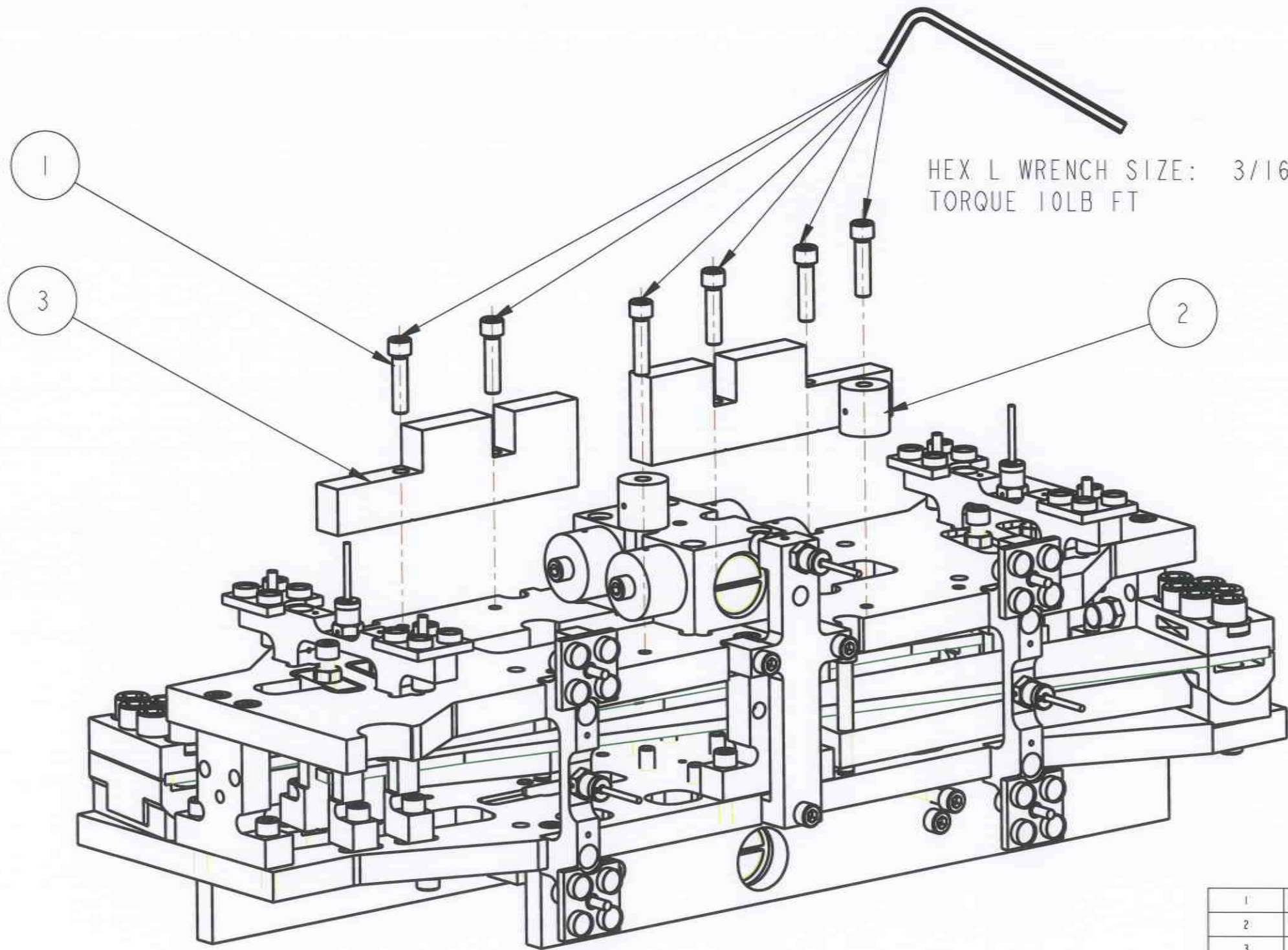
HEX L WRENCH SIZE: 3/16  
 TORQUE 10LB FT

ADD FINAL OSEM MAGNET FLAG ASSEMBLY

1	1-4.20 UNC.1-00INCH	1/4" 20 UNC X 1" CAP HEAD	1
2	1-4.20 UNC.1-00INCH.SIL.PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	2
3	D060412	OSEM BRACKET (TOP OSEM)	1
4	D060416	OSEM MAGNET AND FLAG	1
5	D060417	OSEM MAGNET AND FLAG CONCEPT	1
No.	PART NUMBER	PART DESCRIPTION	NO. REQD

NOTES: (UNLESS OTHERWISE SPECIFIED)

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>ALIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN	J O'DELL	08/SEP/09	SIZE
CHECKED	IW	08/SEP/09	DRG. NO.
APPROVED	JOD	08/MAR/10	<b>B</b> D060403.ASM.PROCEDURE <b>B</b>





HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

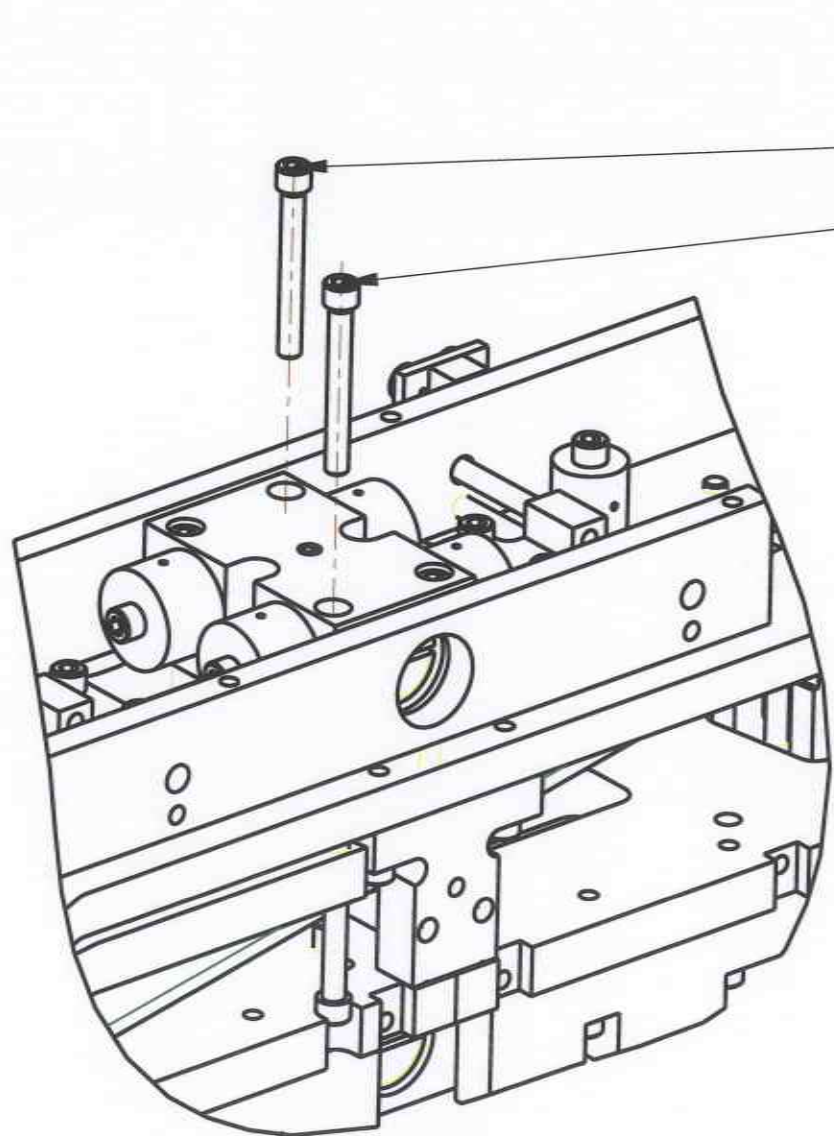
ADD ADDITIONAL MASS / SUPPORT MEMBER

1	1-4_20 UNC 1-00INCH.SIL.PLT	1/4" 20 UNC X 1" CAP HEAD SILVER PLATED	6
2	D060359-050_0	ADDITIONAL MASS	2
3	D060421	MASS AND SUPPORT MEMBER	2
No.	PART NUMBER	PART DESCRIPTION	NO. REQD

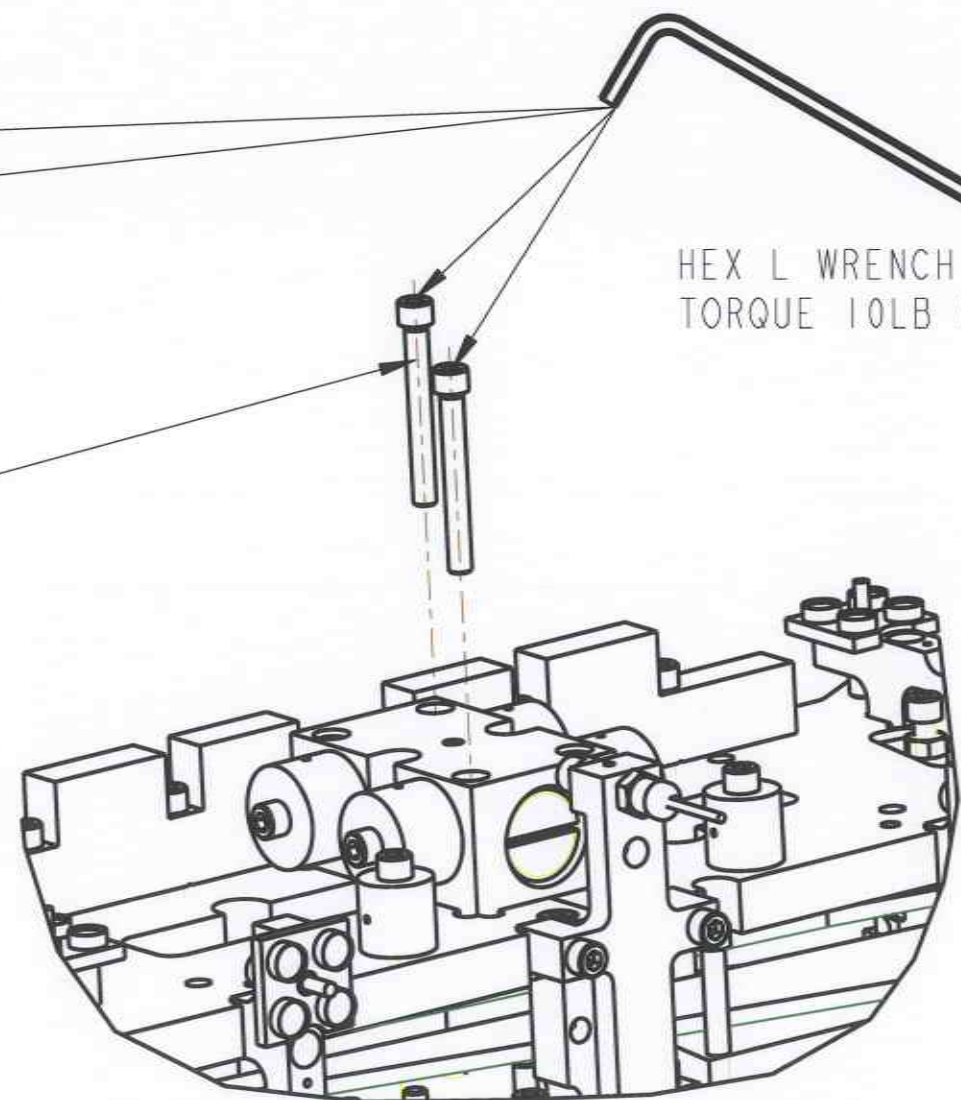
NOTES: (UNLESS OTHERWISE SPECIFIED)

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY: <b>ALIGO QUAD</b>	
		PART NAME: <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
NAME	DATE	SIZE	REV
DRAWN J O'DELL	08/SEP/09	B	B
CHECKED IW	08/SEP/09	DRG. NO. <b>D060403_ASM_PROCEDURE</b>	
APPROVED JOD	08/MAR/10	SCALE 1:2   PROJECTION:  SHEET 21 OF 5	

# MAIN CHAIN ONLY





VIEW ON UNDER SIDE OF MASS



HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

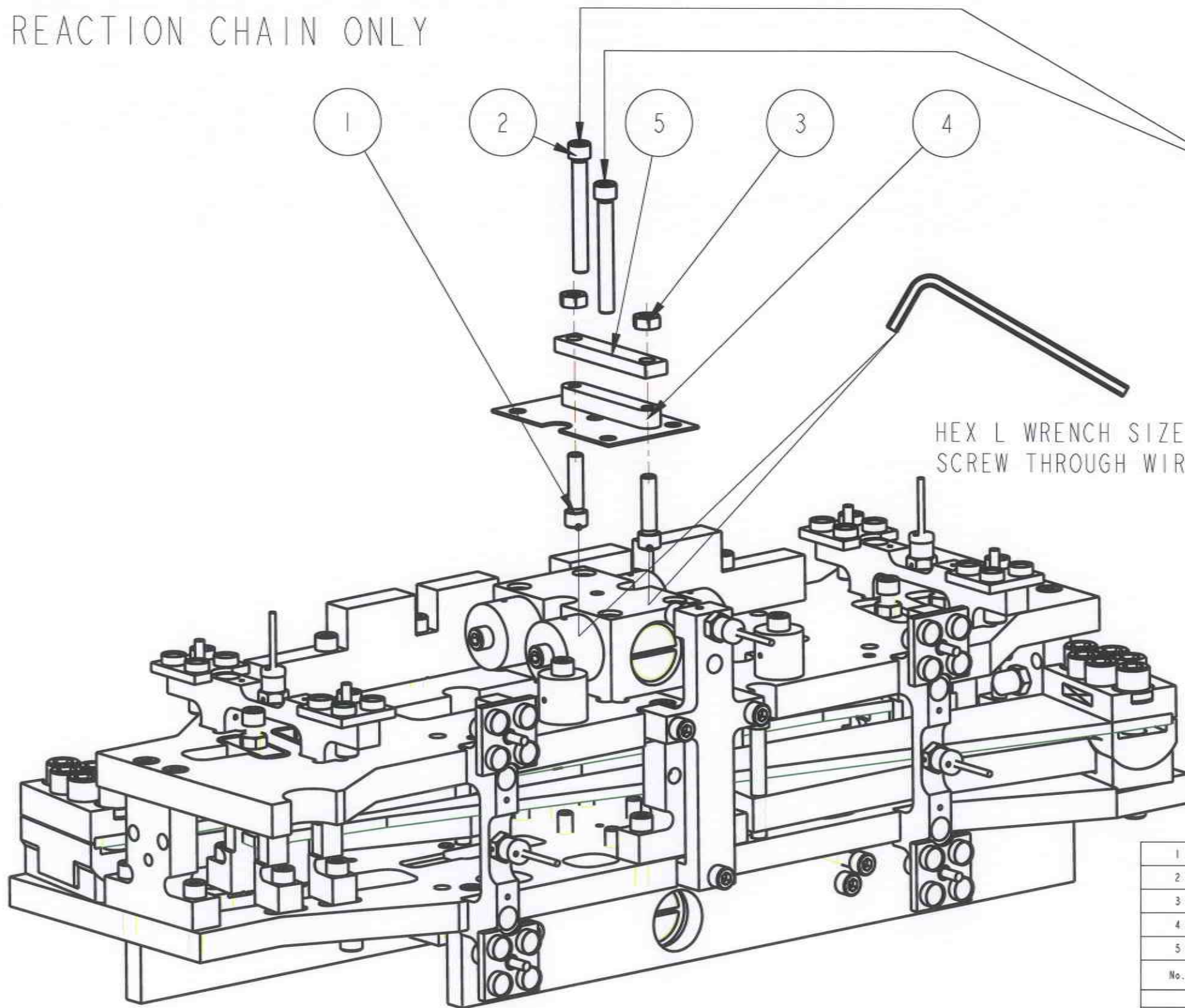
VIEW ON TOP SIDE OF MASS

ADD TURRET SCREWS (MAIN CHAIN ONLY)

1	1-4.20.UNC.2-00INCH.SIL.PLT	1/4" 20 UNC X 2" CAP HEAD SILVER PLATED	4
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>aLIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN	J O'DELL	11/03/10	SIZE <b>B</b>
CHECKED	IW	08/SEP/09	DRG NO. <b>D060403_ASM.PROCEDURE</b>
APPROVED	JOD	08/MAR/10	REV <b>B</b>
SCALE 1:2   PROJECTION:    SHEET 22 OF 25			



# REACTION CHAIN ONLY



HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

HEX L WRENCH SIZE: 3/16  
SCREW THROUGH WIRE CLAMP BASE PLATE, UP TO SCREW SHOULDER

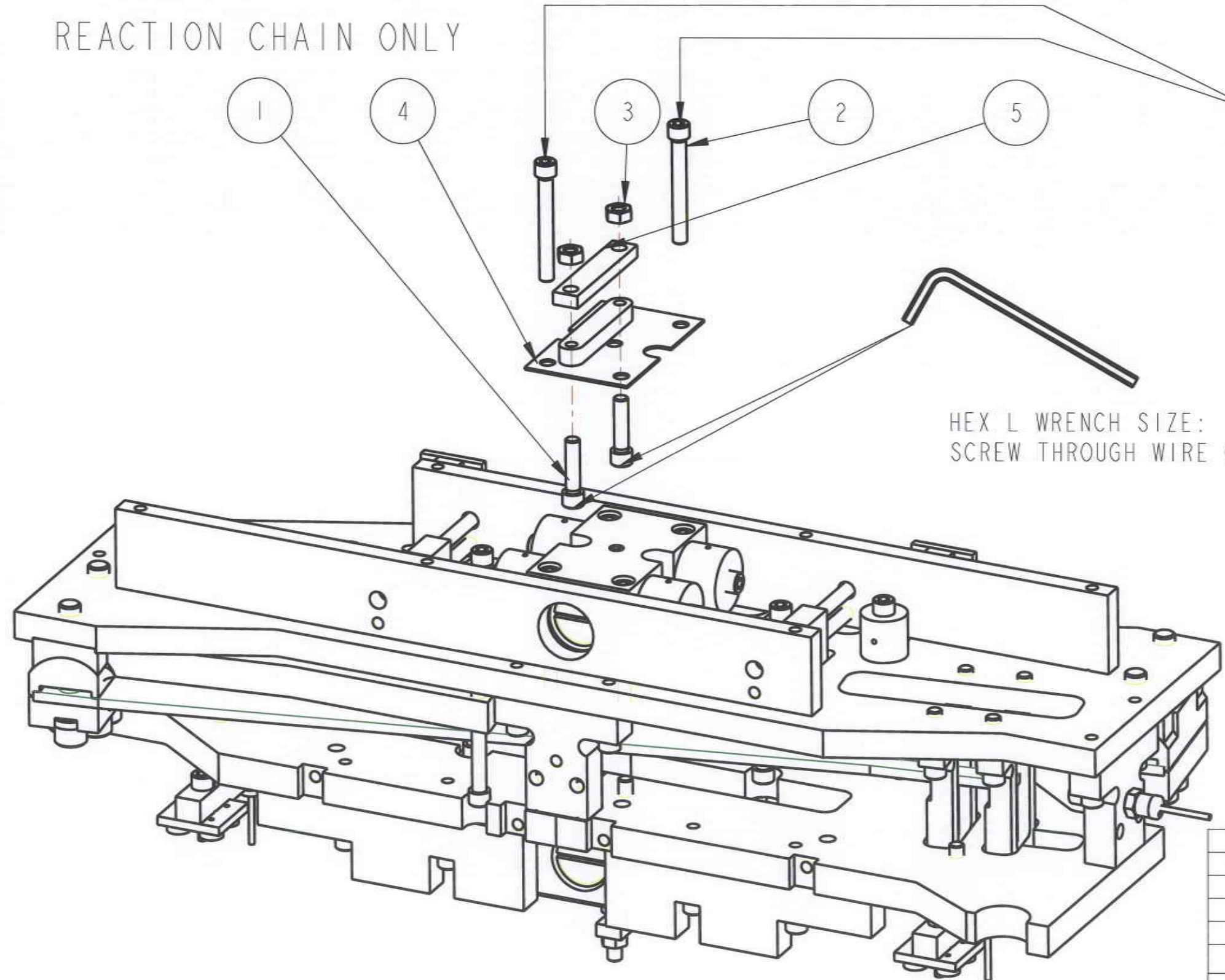
ADD UPPER CABLE CLAMP

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	1-4.20 UNC. 1-00 INCH	1/4" 20 UNC X 1" CAP HEAD	2
2	1-4.20 UNC. 2-00 INCH SIL. PLT	1/4" 20 UNC X 2" CAP HEAD SILVER PLATED	2
3	1-4.20 UNC. NUT	1/4 20 UNC NUT	2
4	D070219	MASS WIRE CLAMP BASE	1
5	D070226	CABLE CLAMP JAW	1

NOTES: (UNLESS OTHERWISE SPECIFIED)

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 16R, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM <b>ADVANCED LIGO</b>	
		SUB-SYSTEM <b>SUS</b>	
		NEXT ASSY <b>ALIGO QUAD</b>	
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
NAME	DATE	SIZE	REV
DRAWN J O'BELL	08/SEP/09	B	B
CHECKED IW	08/SEP/09	DRG. NO. <b>D060403.ASM.PROCEDURE</b>	
APPROVED JOD	08/MAR/10	SCALE 1:2   PROJECTION:    SHEET 23 OF 25	

# REACTION CHAIN ONLY



HEX L WRENCH SIZE: 3/16  
TORQUE 10LB FT

HEX L WRENCH SIZE: 3/16  
SCREW THROUGH WIRE CLAMP BASE PLATE, UP TO SCREW SHOULDER

ADD LOWER CABLE CLAMP

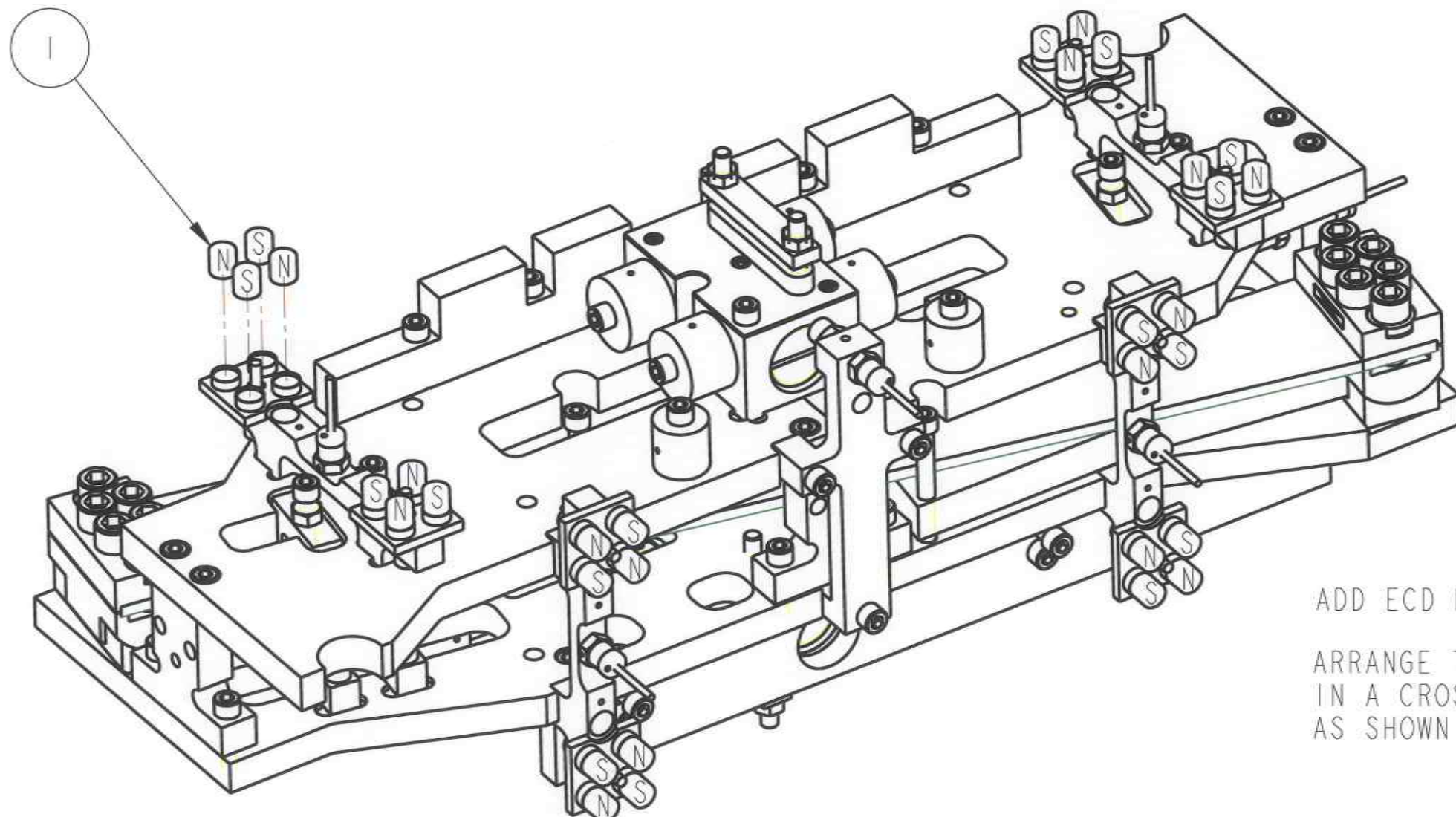
1	1-4.20.UNC.1-00INCH	1/4" 20 UNC X 1" CAP HEAD	2
2	1-4.20.UNC.2-00INCH.SIL.PLT	1/4" 20 UNC X 2" CAP HEAD SILVER PLATED	2
3	1-4.20.UNC.NUT..	1/4 20 UNC NUT	2
4	D070219	MASS WIRE CLAMP BASE	1
5	D070226	CABLE CLAMP JAW	1
No.	PART NUMBER	PART DESCRIPTION	NO. REQD

NOTES: (UNLESS OTHERWISE SPECIFIED)

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES
		SYSTEM <b>ADVANCED LIGO</b>
		SUB-SYSTEM <b>SUS</b>
		NEXT ASSY <b>ALIGO QUAD</b>
		PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>
NAME	DATE	SIZE
DRAWN J O'DELL	08/SEP/09	B
CHECKED IW	08/SEP/09	DRG NO. <b>D060403.ASM.PROCEDURE</b>
APPROVED JDD	08/MAR/10	REV <b>B</b>

SCALE 1:2 | PROJECTION: | SHEET 24 OF 25

MAIN AND REACTION CHAINS - THE REACTION CHAIN IS SHOWN HERE



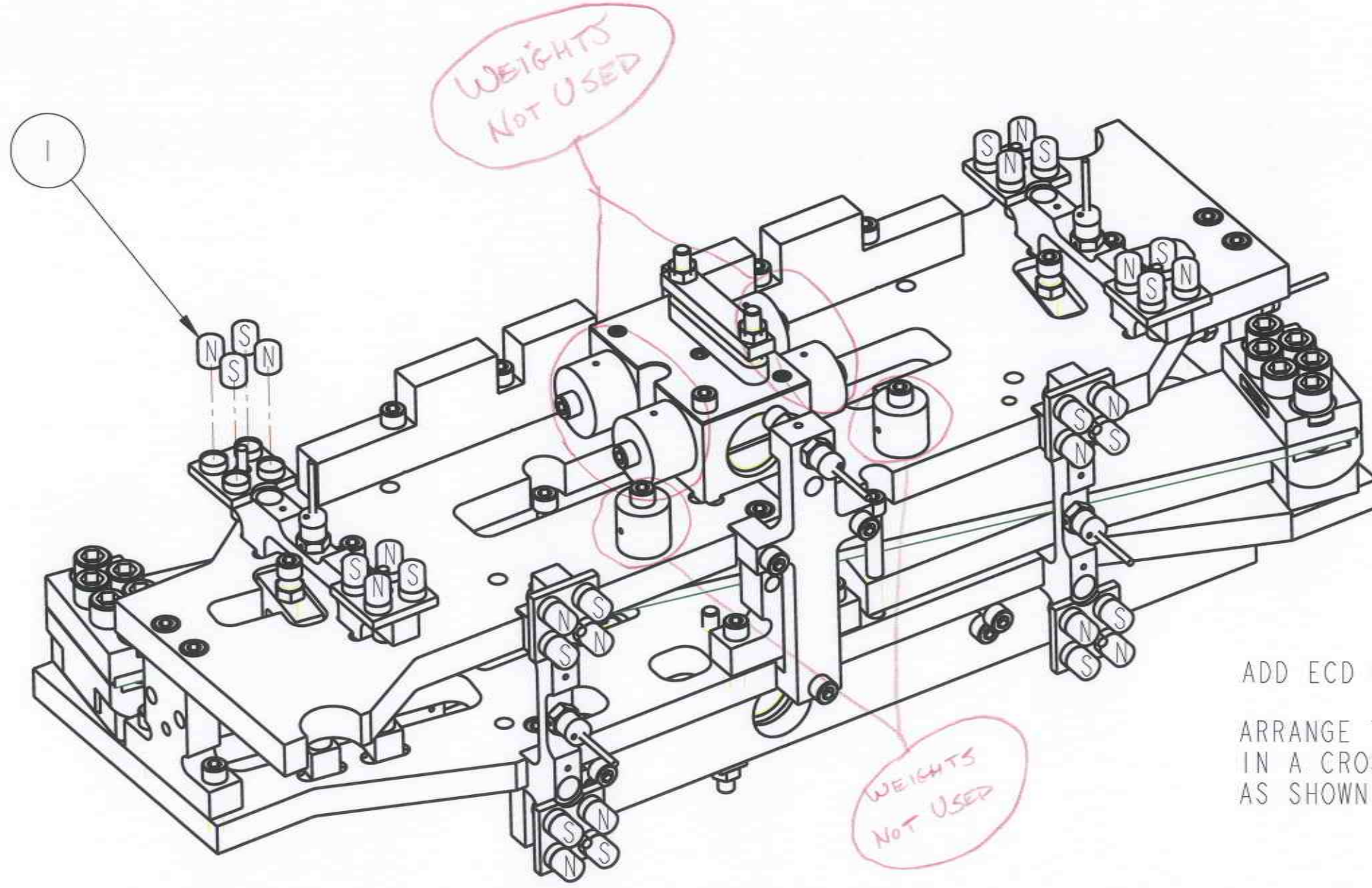
40 Magnets Total -If counter magnet added to Right side flag.

ADD ECD MAGNETS Enjoy

ARRANGE THESE WITH ALTERNATE POLARITIES N/S IN A CROSS OVER THE FRONT AND TOP OF THE MASS AS SHOWN IN THIS VIEW

1	D0901344	10MM DIA X 10MM MAGNET	32
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
I.		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		SYSTEM <b>ADVANCED LIGO</b> SUB-SYSTEM <b>SUS</b> NEXT ASSY <b>ALIGO QUAD</b> PART NAME <b>TOP MASS ASM SEQUENCE TEST/REACTION CHAIN</b>	
DRAWN J O'DELL 08/SEP/09 CHECKED IW 08/SEP/09 APPROVED JOD 08/MAR/10		SIZE <b>B</b> DRG NO <b>D060403.ASM.PROCEDURE</b>	REV <b>B</b> SCALE 1:2 PROJECTION:  SHEET 25 OF 25

MAIN AND REACTION CHAINS - THE REACTION CHAIN IS SHOWN HERE

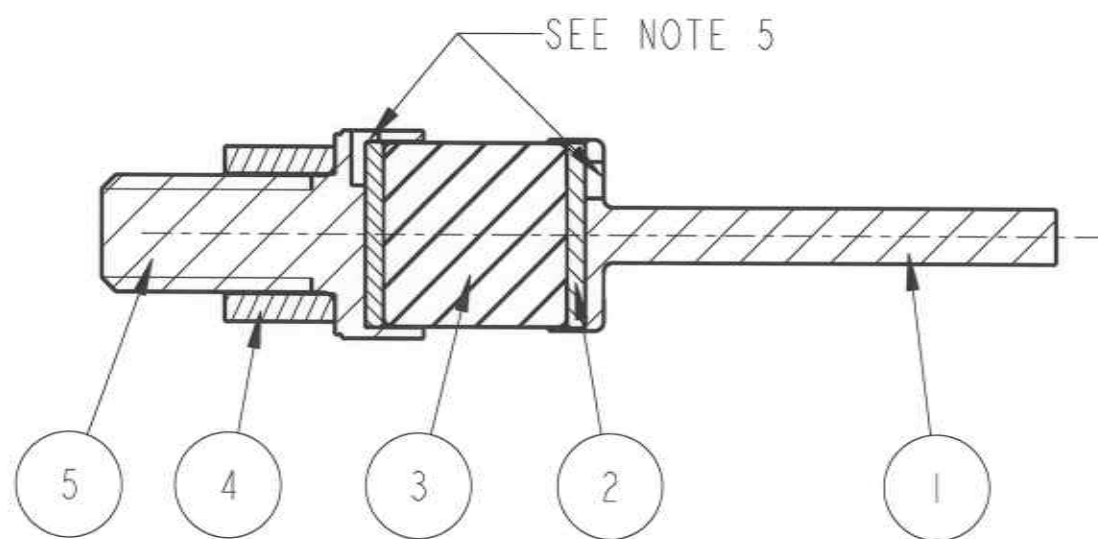
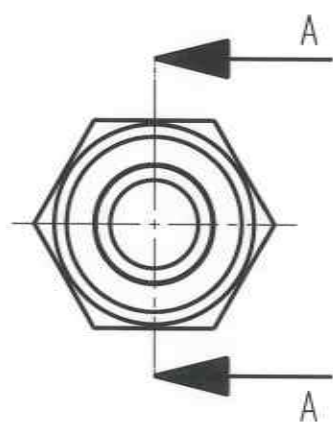


ADD ECD MAGNETS

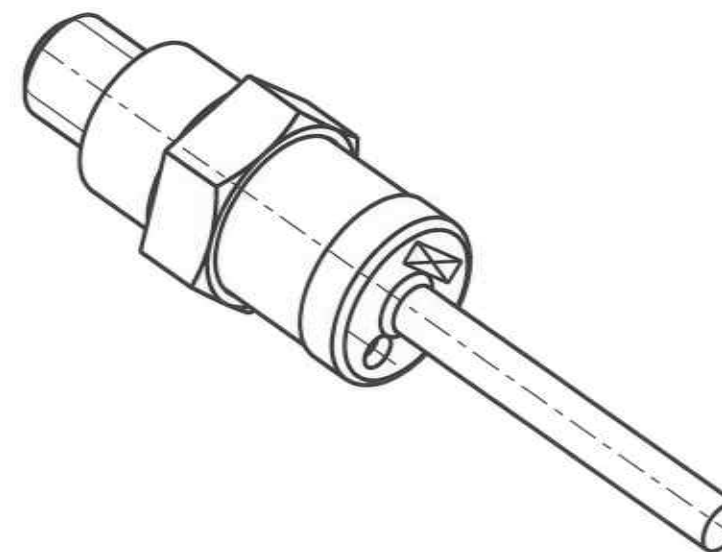
ARRANGE THESE WITH ALTERNATE POLARITIES N/S IN A CROSS OVER THE FRONT AND TOP OF THE MASS AS SHOWN IN THIS VIEW

1	D0901344	10MM DIA X 10MM MAGNET	32
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES
		SYSTEM	ADVANCED LIGO
		SUB-SYSTEM	SUS
		NEXT ASSY	ALIGO QUAD
		PART NAME	TOP MASS ASM SEQUENCE TEST/REACTION CHAIN
	NAME	DATE	REV
	DRAWN J O'DELL	08/SEP/09	B
	CHECKED IW	08/SEP/09	B
	APPROVED JOD	08/MAR/10	B
SCALE 1:2		PROJECTION	SHEET 25 OF 5

REV.	DATE	DCN #	DRAWING TREE #
A	19/OCT/06	E060248	
B	17/DEC/07	E060248-B	
H	15/JULY/08	E080368	



SECTION A-A



3-D VIEW

ADDITIONAL NOTES:

- 5. STEEL PLUGS ARE PRESS FITTED IN TO ALU AND SS PARTS
- 6. SUPPLY ALL ASSEMBLIES IN PART FORM

ITEM	QTY	SPARE	TOTAL	PART NUMBER	DESCRIPTION	MATERIALS
1	1			D060400	OSEM MAGNET FLAG; (MAGNETIC DESIGN)	ALUMINIUM: 5082
2	2			D060401	MAGNETIC PLUG; .	STAINLESS STEEL: 416
3	1			D0901344	10MM DIA X 10MM MAGNET; .	AS PAR SPEC: -----
4	1			D1003126	FLAG SPACER; QUAD TOP MASS	AL ALLOY: 6061/5083
5	1			D1003127	MAGNET RETAINER; (MODIFIED 1/4-20 HEX HEAD SCREW)	STAINLESS STEEL: 304/316
PARTS LIST						

NOTES: (UNLESS OTHERWISE SPECIFIED)

- REMOVE ALL SHARP EDGES, R.02 MIN.
- DO NOT SCALE FROM DRAWING.
- ALL MACHINING FLUIDS SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CINCINNATI MILACRON'S CIMTECH 410 (STAINLESS STEEL)
- SCRIBE, ENGRAVE OR STAMP DRAWING PARTNUMBER ON NOTED SURFACE OF PART AND A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST PART AND PROCEED CONSECUTIVELY. USE .07" HIGH CHARACTERS. EXAMPLE: D020188- 001. A VIBRATORY TOOL MAY BE USED.

DIMENSIONS ARE IN mm (INCHES)  
TOLERANCES:  
X.XX ± .mm  
ANGULAR ± °

MATERIAL: AS DRAWING  
FINISH: AS DRW  
√µm (µin) Ra = -----

NAME	DATE
DRAWN I WILMUT	30/03/11
CHECKED MB	15/MAR/10
APPROVED JOD	15/MAR/10

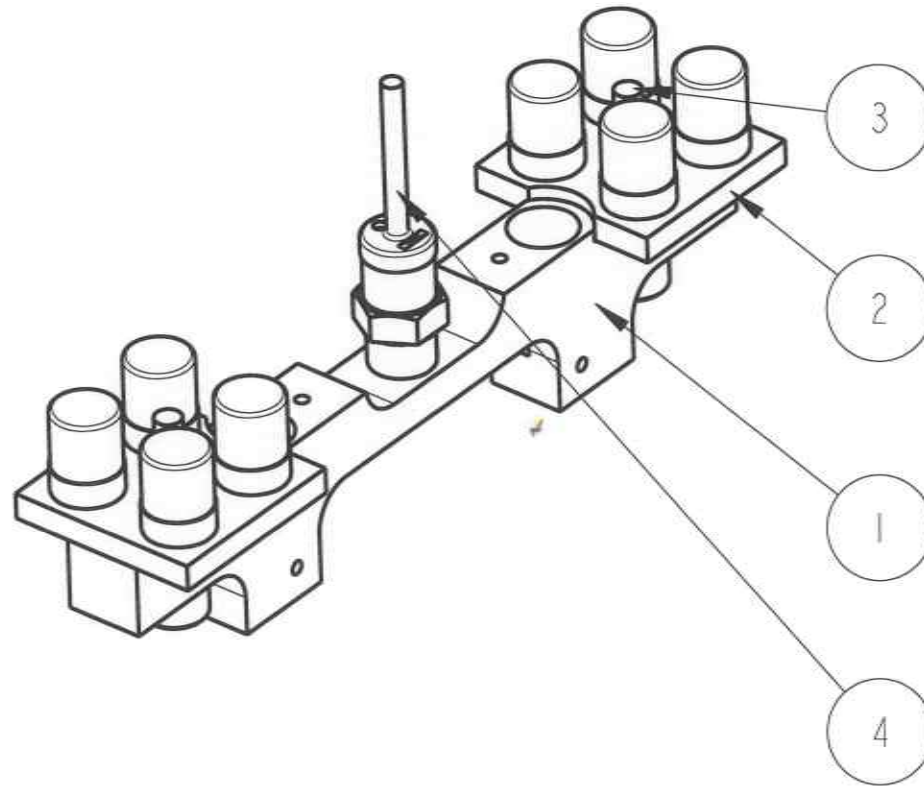
SCALE 5:2 PROJECTION: SHEET 1 OF 1

CALIFORNIA INSTITUTE OF TECHNOLOGY  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
IGR, GLASGOW UNIVERSITY GEO 600 GROUP  
RUTHERFORD APPLETON LABORATORIES

SYSTEM **ADVANCED LIGO**  
SUB-SYSTEM **SUS**  
NEXT ASSY **QUAD TOP MASS**  
PART NAME **OSEM MAGNET AND FLAG**

DRG. NO. **D060416** REV **K.**

REV.	DATE	DCN #	DRAWING TREE #
A	19/OCT/06.	E060248	
B	17/DEC/07	E060248-B	
H	15/JULY/08	E080368	



ITEM	QTY	SPARE	TOTAL	PART NUMBER	DESCRIPTION	MATERIALS
1	1			D060407	OSEM & ECD UNIT BACKBONE; OSEM & ECD UNIT	AL ALLOY: 5083
2	2			D060410	OSEM MAGNET ASSEMBLY; .	SEE ITEMS LIST: -----
3	2			D060413	1/4" 20 UNC X 1" CAP HEAD; OSEM & ECD UNIT	ST. STEEL: 304/316
4	1			D060416	OSEM MAGNET AND FLAG; .	AS DRAWING: -----
PARTS LIST						

NOTES: (UNLESS OTHERWISE SPECIFIED)

1. REMOVE ALL SHARP EDGES, R.02 MIN.
2. DO NOT SCALE FROM DRAWING.
3. ALL MACHINING FLUIDS SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CINCINNATI MILACRON'S CIMTECH 410 (STAINLESS STEEL)
4. SCRIBE, ENGRAVE OR STAMP DRAWING PARTNUMBER ON NOTED SURFACE OF PART AND A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST PART AND PROCEED CONSECUTIVELY. USE .07" HIGH CHARACTERS. EXAMPLE: D020188- 001. A VIBRATORY TOOL MAY BE USED.

DIMENSIONS ARE IN mm (INCHES)  
TOLERANCES:

X.XX ± .mm  
ANGULAR ± °

MATERIAL: AS DRW  
AS DRAWN

FINISH: -----  
√µm (µin) Ra = AS DRAWN

	NAME	DATE
DRAWN	J O'DELL	22/NOV/05
CHECKED	NB	15/MAR/10
APPROVED	JOD	15/MAR/10

 CALIFORNIA INSTITUTE OF TECHNOLOGY  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
1GR, GLASGOW UNIVERSITY GEO 600 GROUP  
RUTHERFORD APPLETON LABORATORIES

SYSTEM **aLIGO**  
SUB-SYSTEM **SUS**  
NEXT ASSY: **TOP MASS QUAD**  
PART NAME **OSEM ECD UNIT**

SIZE	ORG. NO.	REV
<b>B</b>	<b>D060409</b>	<b>K.</b>