


STEP	DESCRIPTION	PART#	QTY	TIME
1	BOLT D1000574 TOOLING TO OPTICS BENCH	SURFACE_TABLE	1	0.08
		TD-1084-038	1	
2	ADD BLADE CLAMP HELICOILS	1-4_20X1-5D_UNC_THREAD_INSERT	5	
		3-8_16X1-5D_UNC_THREAD_INSERT	4	
		D060326-000	1	
3	ASSEMBLE BLADE TO BLADE CLAMP INDEPENDANTLY OF ANT TOOLING	3-8_16_UNC_1-75_INCH	2	0.08
		3-8_INCH_WASHER	2	
		D060235	1	
		D060327_000	1	
4	ADD INTERFACE PIECE TO UNDERSIDE OF CLAMP AND BOLT IN PLACE	3-8_16_UNC_2-00INCH	2	0.08
		3-8_INCH_WASHER	2	
		D060367	1	
5	BOLT BLADE CLAMP ASSEMBLY INTO BLADE STREIGHTENING TOOLING	3-8_16_UNC_1-25INCH	2	
6	DRAW THE BLADE FLAT	D060235_FLAT	1	
7	HELICOIL ROTATIONAL ADJUSTER	1-4_20X1-5D_UNC_THREAD_INSERT	1	
		D060330	1	
8	ADD ROTATETIONAL ADJUSTMENT PLATE, AND BOLT IN PLACE	1-4_20_UNC_1-00INCH	5	0.08
9	HELICOIL BACKBONE	3-8_16X1-5D_UNC_THREAD_INSERT	1	
		D060329	1	
10	HELICOIL ROTATIONAL ADJUSTER BRACKET	1-4_20X1-5D_UNC_THREAD_INSERT	1	
		D060325	1	
11	ADD BLADE TIP STOP AND ROTATIONAL ADJUSTER BRACKET TO TS STIFF BACK	1-4_20_UNC_1-25INCH	2	0.08
		D060331	1	
12	ASSEMBLE BACKBONE TO THE REST OF THE BLADE CARTRIDGE	3-8_16_UNC_3-00INCH	2	
13	ADD TEMPORARY CLAMP	3-8_16_UNC_3-5INCH	2	0.08
		D060368	1	
14	REMOVE BLADE CARTRIDGE FROM TOOLING	3-8_16_UNC_1-25INCH	2	0.08
15	HELICOIL TEE-NUTS	3-8_16X1D_UNC_THREAD_INSERT	2	
		D060328	2	

16	BOLT TS ASSEMBLY TOGETHER WITH CAP SCREWS AND TEE-NUTS	3-8_16_UNC_3-00INCH	2	0.08
17	REMOVE REMAINING TOOLING	3-8_16_UNC_3-00INCH	2	0.08
		3-8_16_UNC_3-5INCH	2	
		D060367	1	
		D060368	1	
18	ADD ROTATIONAL ADJUSTER SCREWS	1-4_20_UNC_1-00INCH_ROUND_	1	0.08
		1-4_20_UNC_1-5INCH	1	

NOTES: (UNLESS OTHERWISE SPECIFIED)		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1GR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
1.	PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY	SYSTEM	aLIGO
	NOT TO BE USED FOR MANUFACTURE	SUB-SYSTEM	SUS
		NEXT ASSY	QUAD
		PART NAME	TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
	NAME	DATE	SIZE
DRAWN	J O'DELL	17/MAR/10	B
CHECKED	J'OD	18/MAR/10	DRG. NO.
APPROVED	JOD	18/MAR/10	D060370_ASM_PROCEDURE
	SCALE	PROJECTION	SHEET 1 OF 1

1

2


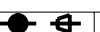
HEX L WRENCH SIZE: 3/16
TORQUE 10LB FT

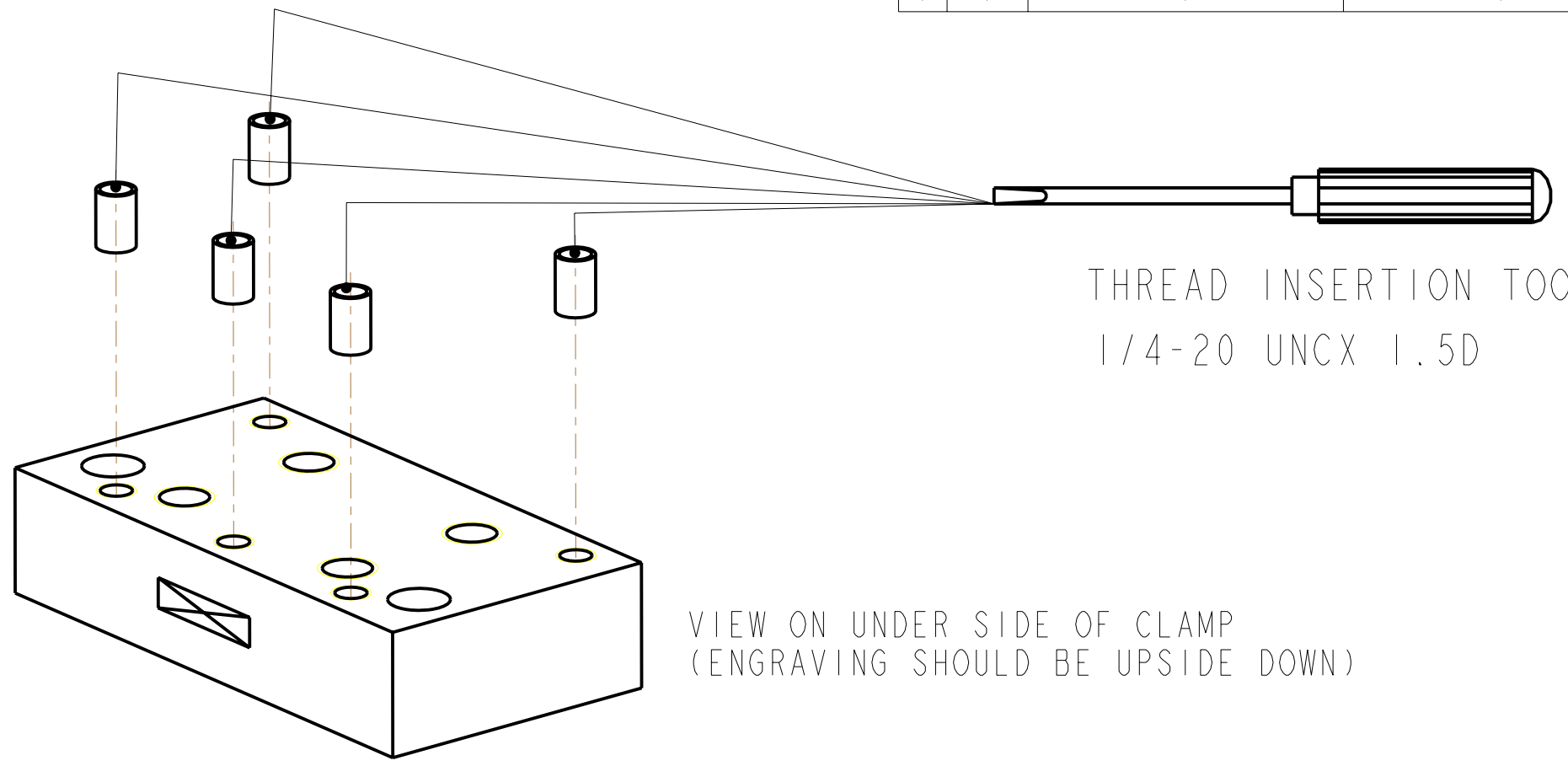
WARNING

A DANGEROUS LEVEL OF ENERGY IS STORED IN THE BLADE THROUGH MOST OF THIS PROCEDURE, GIVING IT THE POTENTIAL TO CAUSE SEIOUS INJURY. TO AVOID INJURY, THE ASSEMBLY INSTRUCTIONS SHOULD BE FOLLWED EXACTLY THROUGHOUT THE PROCEDURE!

NOTE:

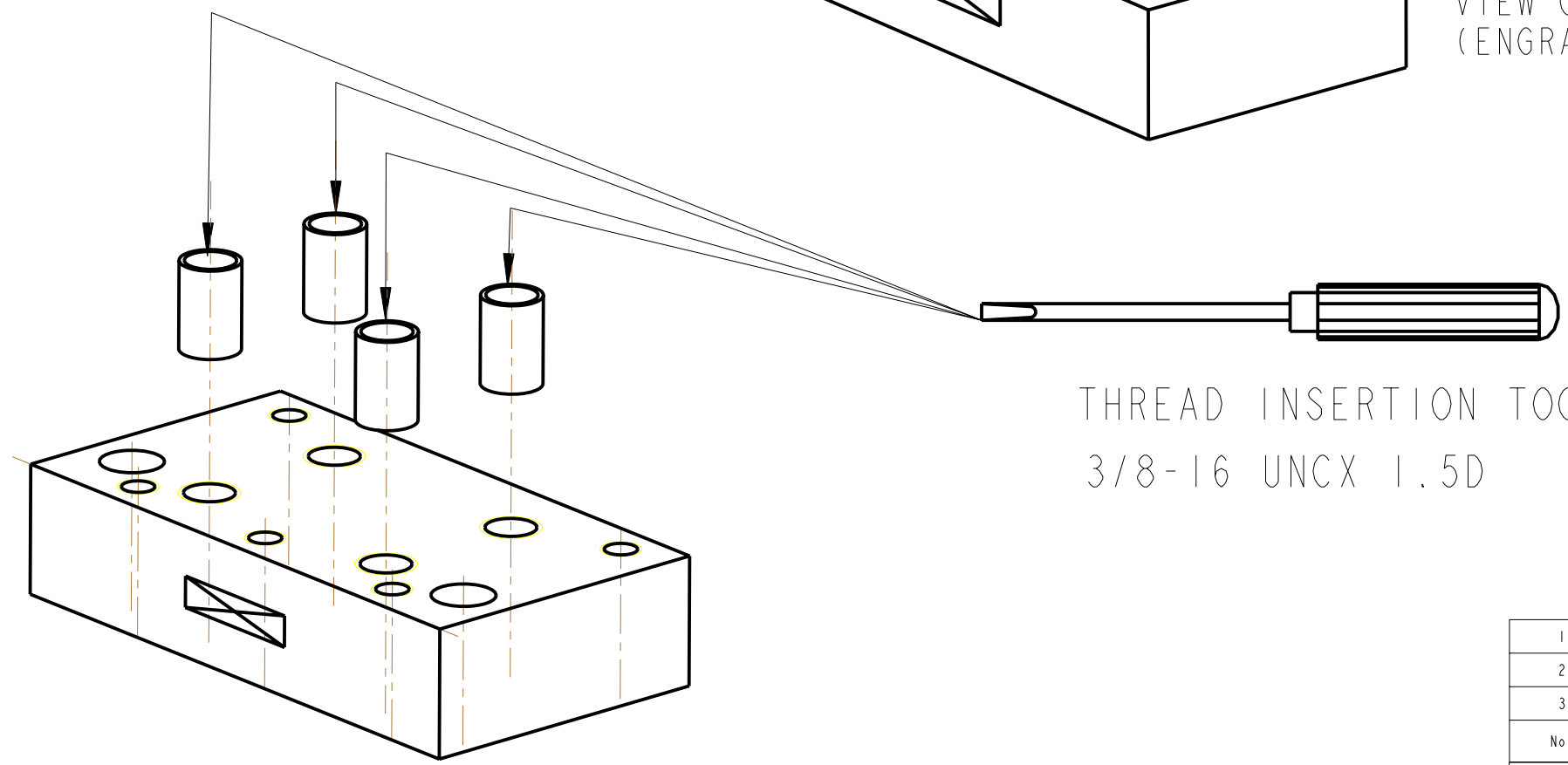
START WITH ASSEMBLY D1000574
BOLT D1000574 TOOLING TO OPTICS BENCH
USING SCREWS SHOWN IN THIS VIEW

1	SURFACE TABLE	1
2	TD-1084-038	STREIGHTENING ASSEMBLY
No.	PART NUMBER	PART DESCRIPTION NO. REOD
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 aLIGO
		SUB-SYSTEM SUS
		NEXT ASSY QUAD
		PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
	NAME DATE	SIZE
DRAWN	J O'DELL 02/11/09	B
CHECKED	J'OD 18/MAR/10	
APPROVED	JOD 18/MAR/10	
		DRG. NO. D060370_ASM_PROCEDURE REV. A.
		SCALE 1:5 PROJECTION:  SHEET 2 OF 1



THREAD INSERTION TOOL
1/4-20 UNC X 1.5D

VIEW ON UNDER SIDE OF CLAMP
(ENGRAVING SHOULD BE UPSIDE DOWN)



THREAD INSERTION TOOL
3/8-16 UNC X 1.5D

ADD BLADE CLAMP HELICOILS

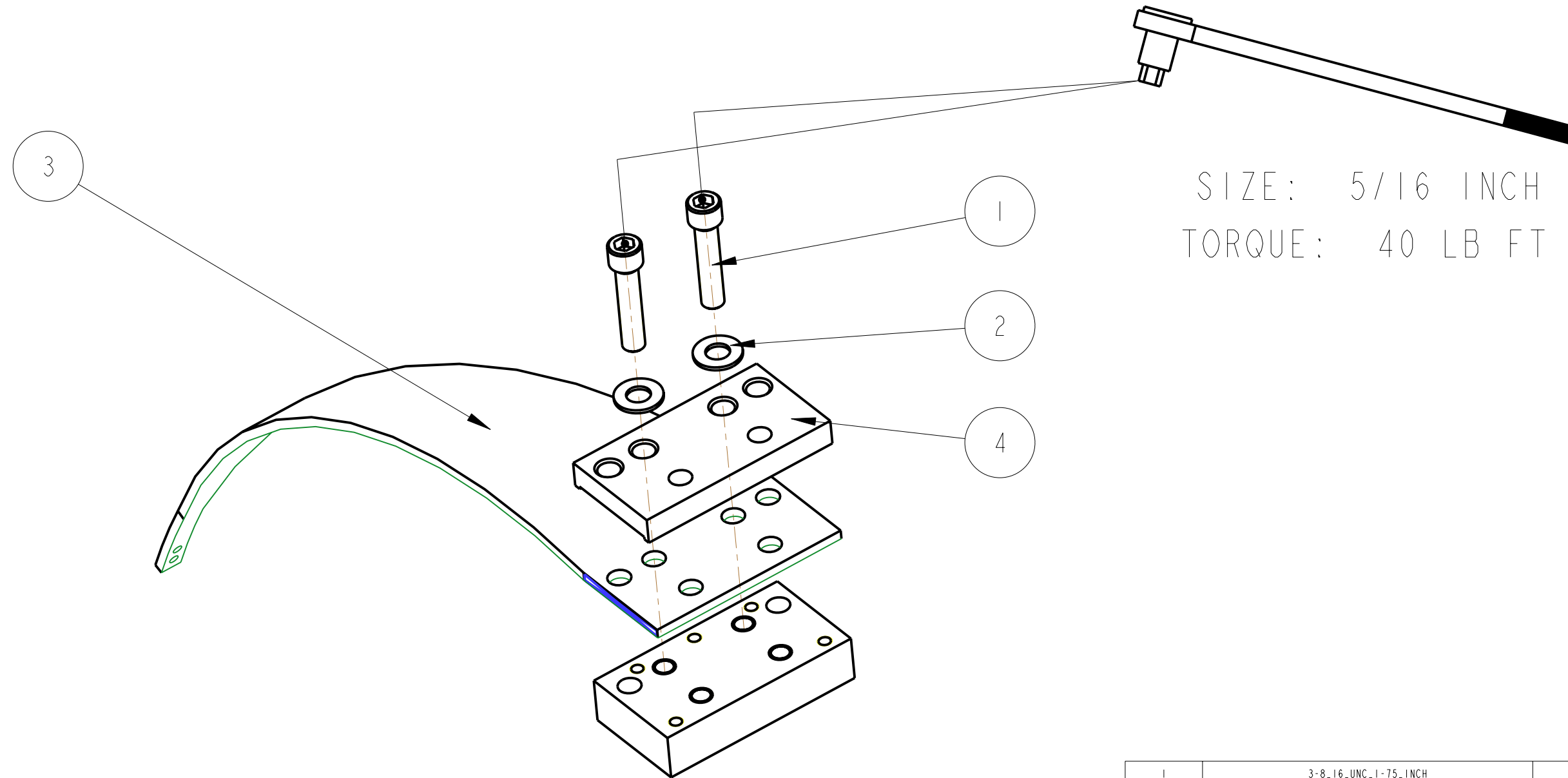
VIEW ON TOP SIDE OF CLAMP

1	1-4_20X1-5D_UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	5
2	3-8_16X1-5D_UNC_THREAD_INSERT	3/8-16 x 1.5D UNC THREAD INSERT	4
3	D060326-000	BLADE CLAMP	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

NAME	DATE	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES
DRAWN J O'DELL	10/11/09	
CHECKED J'OD	18/MAR/10	
APPROVED JOD	18/MAR/10	SYSTEM aLIGO SUB-SYSTEM SUS NEXT ASSY QUAD PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
SCALE 1:1	PROJECTION:	SIZE B DRG. NO. D060370_ASM_PROCEDURE REV A. SHEET 3 OF 1



SIZE: 5/16 INCH
TORQUE: 40 LB FT

ASSEMBLE BLADE TO BLADE CLAMP INDEPENDANTLY OF ANT TOOLING

No.	PART NUMBER	PART DESCRIPTION	NO. REOD
1	3-8_16 UNC_1-75_1 INCH	3/8-16 UNC X 1.75" CAP HEAD	2
2	3-8_1 INCH_WASHER	3/8 FLAT WASHER	2
3	D060235	TOP STAGE BLADES	1
4	D060327_000	BLADE CLAMP	1

NOTES: (UNLESS OTHERWISE SPECIFIED)

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

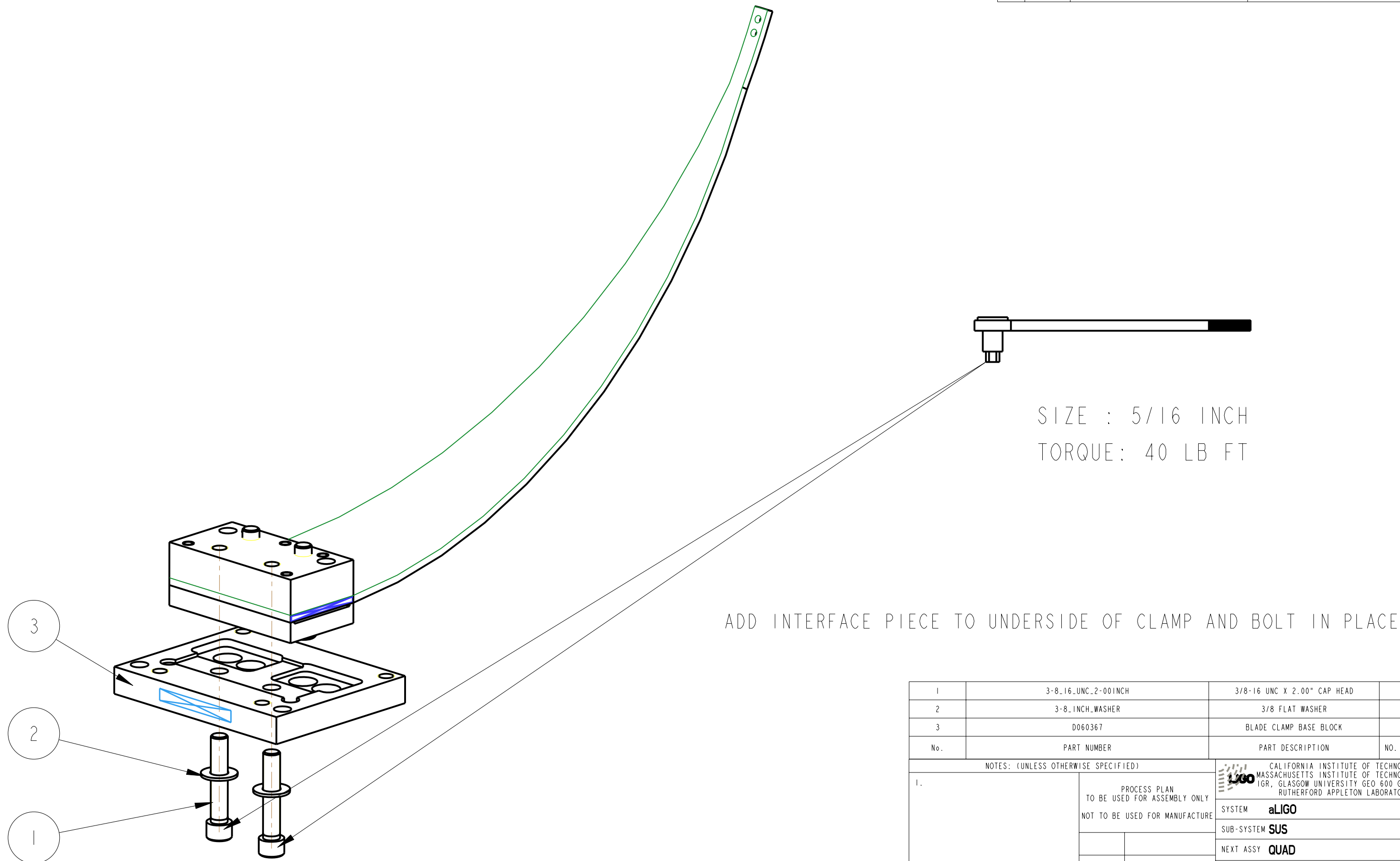
DRAWN	J O'DELL	02/11/09
CHECKED	J'OD	18/MAR/10
APPROVED	JOD	18/MAR/10

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

SYSTEM **aLIGO**
 SUB-SYSTEM **SUS**
 NEXT ASSY **QUAD**
 PART NAME **TS ASSEMBLY PROCEDURE
 QUAD TS AND TOOLING**

SCALE 1:2 PROJECTION: SHEET 4 OF 1

REV.	DATE	DCN #	DRAWING TREE #



1	3-8_16 UNC_2-00 INCH	3/8-16 UNC X 2.00" CAP HEAD	2
2	3-8_16 UNC_WASHER	3/8 FLAT WASHER	2
3	D060367	BLADE CLAMP BASE BLOCK	1
No.	PART NUMBER	PART DESCRIPTION	NO. REOD

NOTES: (UNLESS OTHERWISE SPECIFIED)

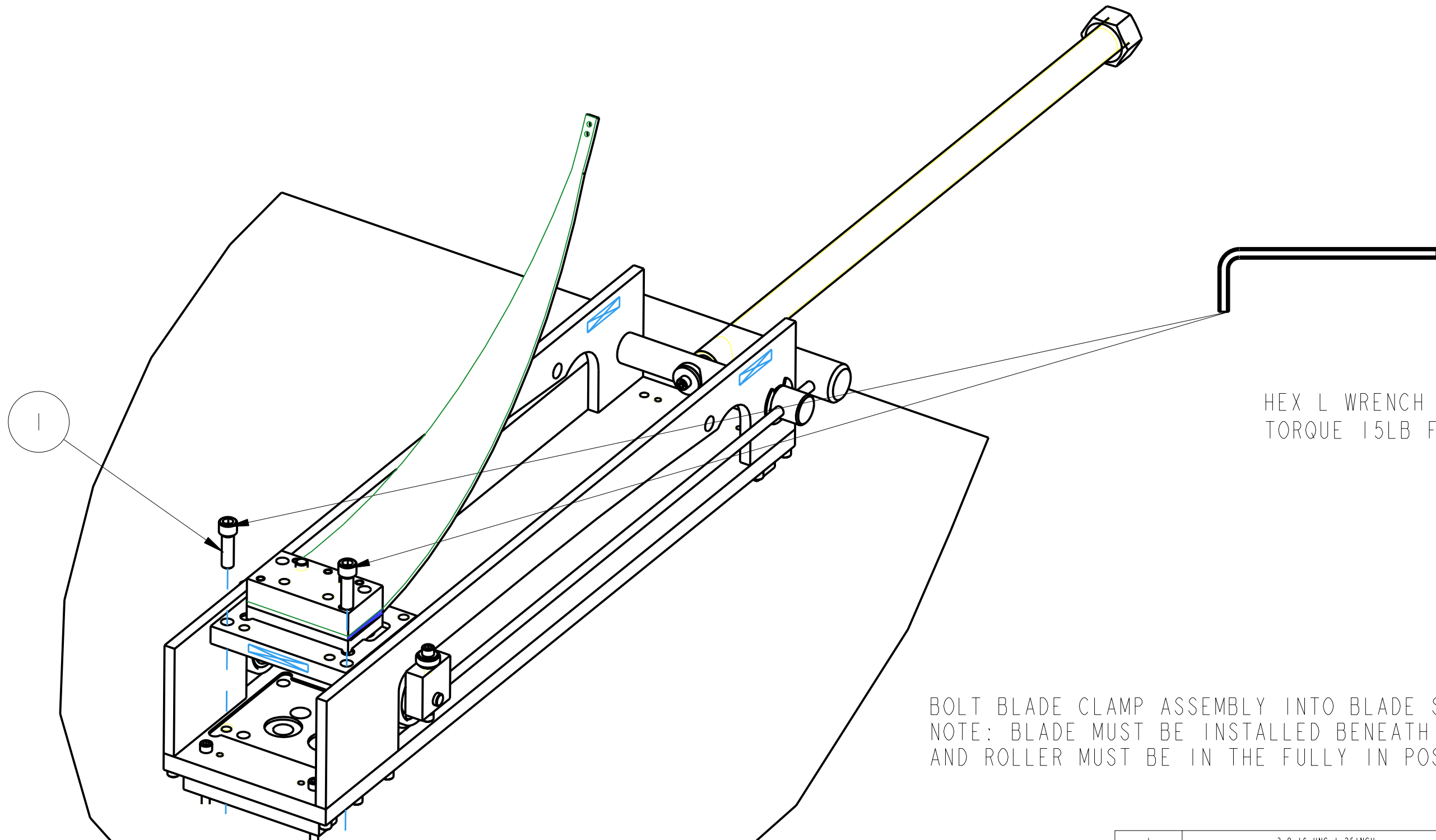
1. PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE

CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1GR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
SYSTEM	aLIGO
SUB-SYSTEM	SUS
NEXT ASSY	QUAD
PART NAME	TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
SCALE	1:2
PROJECTION	1st Angle
SHEET	5 OF 1

DRAWN	J O'DELL	02/11/09
CHECKED	J'OD	18/MAR/10
APPROVED	JOD	18/MAR/10



DRG. NO. **D060370_ASM_PROCEDURE** REV. **A.**

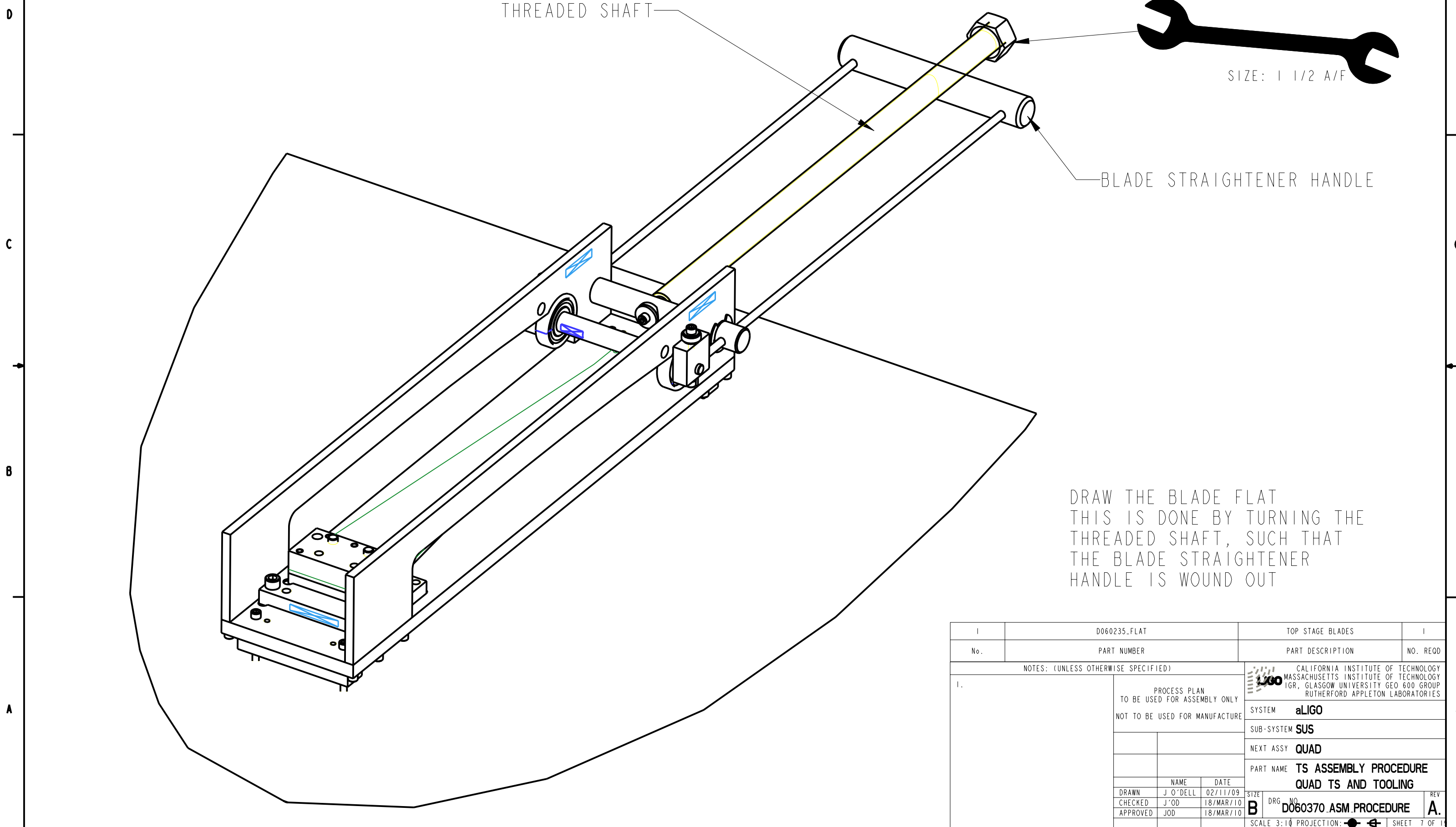
REV.	DATE	DCN #	DRAWING TREE #




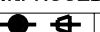
HEX L WRENCH SIZE: 5/16
TORQUE 15LB FT

BOLT BLADE CLAMP ASSEMBLY INTO BLADE STREIGHTENING TOOLING
NOTE: BLADE MUST BE INSTALLED BENEATH ROLLER,
AND ROLLER MUST BE IN THE FULLY IN POSITION

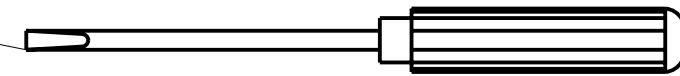
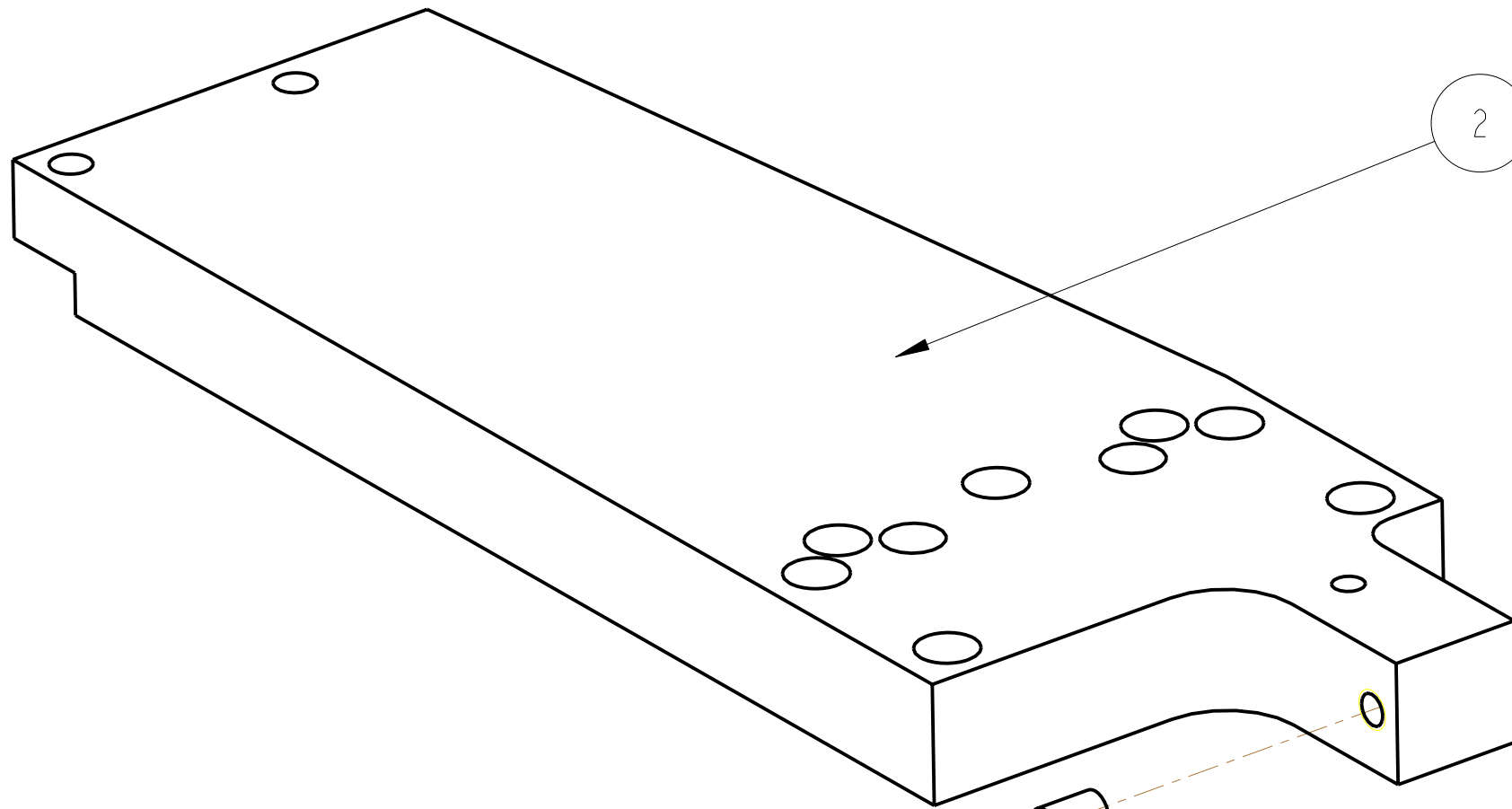
1	3-8.16 UNC 1-25 INCH	3/8 16 UNC X 1.25" CAP HEAD	2
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.	PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM	aLIGO
		SUB-SYSTEM	SUS
		NEXT ASSY	QUAD
		PART NAME	TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
	NAME	DATE	SIZE
	DRAWN J O'DELL	02/11/09	B
	CHECKED J'OD	18/MAR/10	DRG. NO. D060370_ASM_PROCEDURE
	APPROVED JOD	18/MAR/10	REV. A.
SCALE 3:10 PROJECTION:  SHEET 6 OF 1			



DRAW THE BLADE FLAT
THIS IS DONE BY TURNING THE
THREADED SHAFT, SUCH THAT
THE BLADE STRAIGHTENER
HANDLE IS WOUND OUT

I	D060235_FLAT	TOP STAGE BLADES	I
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
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 aLIGO	
		SUB-SYSTEM SUS	
		NEXT ASSY QUAD	
		PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING	
	NAME	DATE	SIZE
DRAWN	J O'DELL	02/11/09	B
CHECKED	J'OD	18/MAR/10	
APPROVED	JOD	18/MAR/10	
		DRG. NO. D060370_ASM_PROCEDURE	
		SCALE 3:10 PROJECTION:  SHEET 7 OF 1	

REV.	DATE	DCN #	DRAWING TREE #




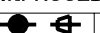
1/4 UNC
THREAD INSERTION TOOL

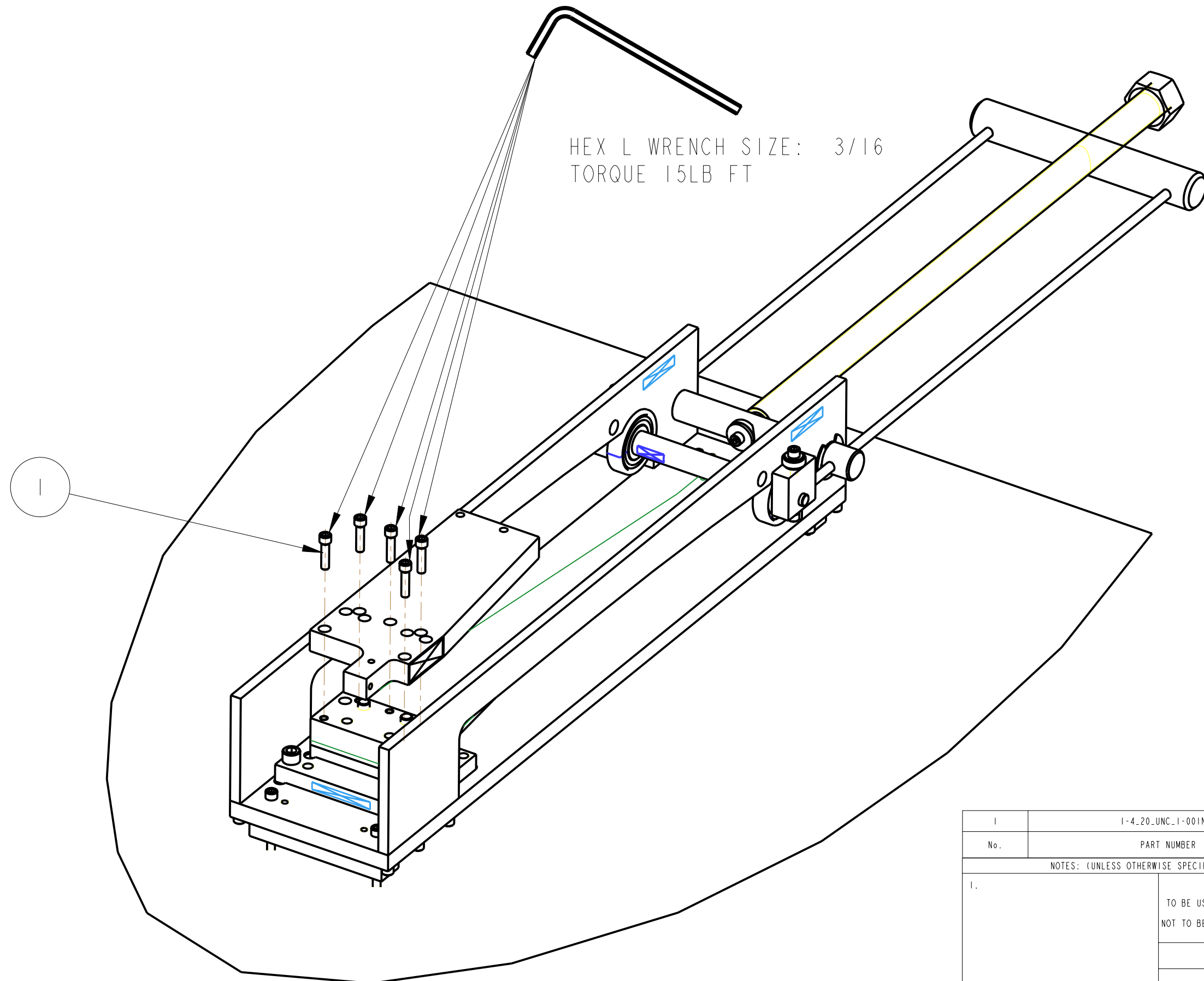
HELICOIL ROTATIONAL ADJUSTER

1	1-4_20X1-5D_UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	1
2	D060330	ROTATIONAL ADJUSTER	1
No.	PART NUMBER	PART DESCRIPTION	NO. REOD

NOTES: (UNLESS OTHERWISE SPECIFIED)



1.

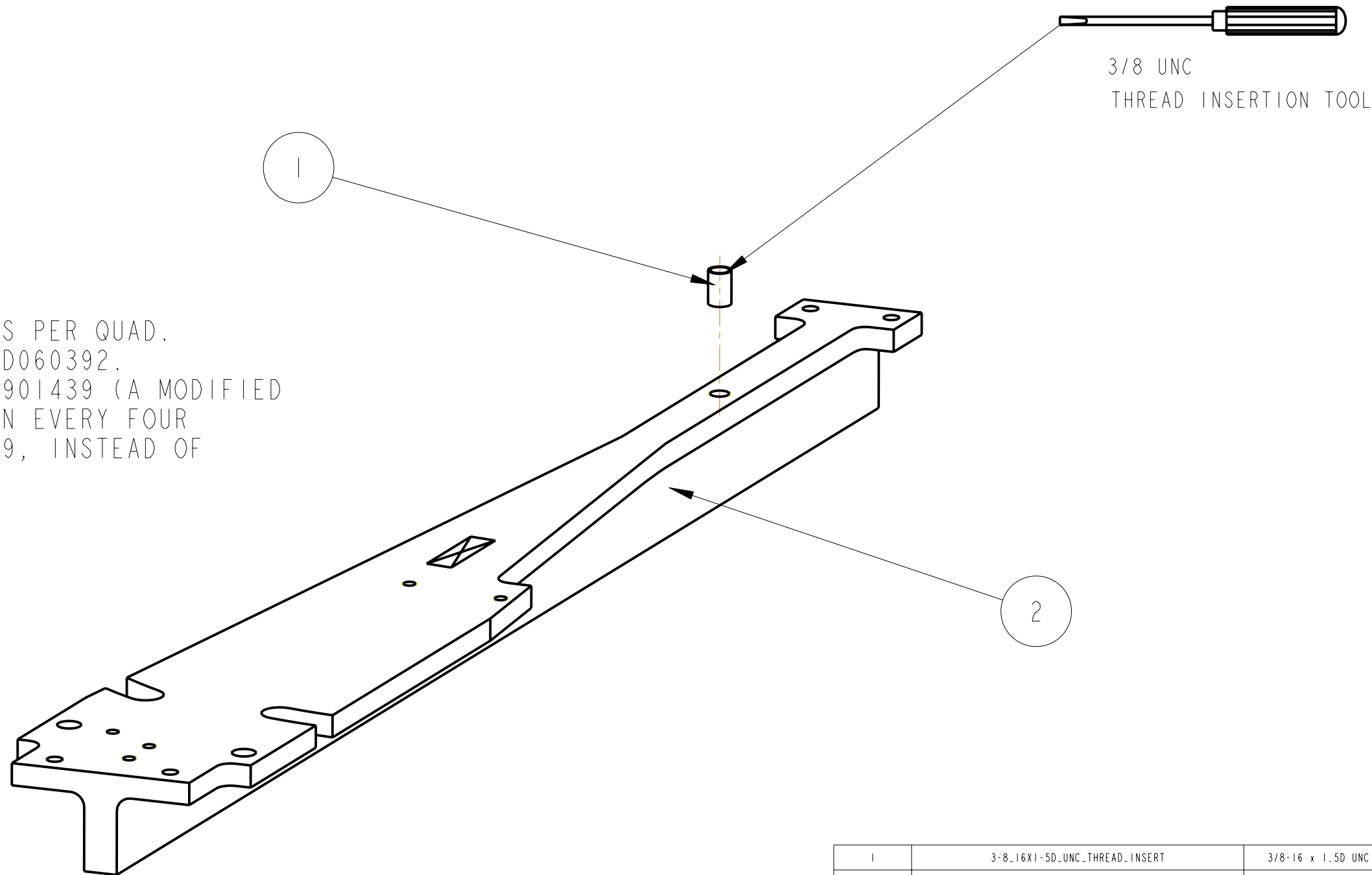
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES
SYSTEM aLIGO		
SUB-SYSTEM SUS		
NEXT ASSY QUAD		
PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING		SIZE B DRG. NO. D060370_ASM_PROCEDURE REV. A.
DRAWN J O'DELL 18/03/10 CHECKED J'OD 18/MAR/10 APPROVED JOD 18/MAR/10	SCALE 1:1 PROJECTION:  SHEET 8 OF 1	



HEX L WRENCH SIZE: 3/16
TORQUE 15LB FT

I

1	1-4_20 UNC_1-001NCH	1/4" 20 UNC X 1" CAP HEAD	5
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
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	aLIGO
		SUB-SYSTEM	SUS
		NEXT ASSY	QUAD
		PART NAME	TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
	NAME	DATE	SIZE
	DRAWN J O'DELL	02/11/09	B
	CHECKED J'OD	18/MAR/10	DRG. NO. D060370_ASM_PROCEDURE
	APPROVED JOD	18/MAR/10	REV A.
SCALE 3:10 PROJECTION:  SHEET 9 OF 11			



NOTE:

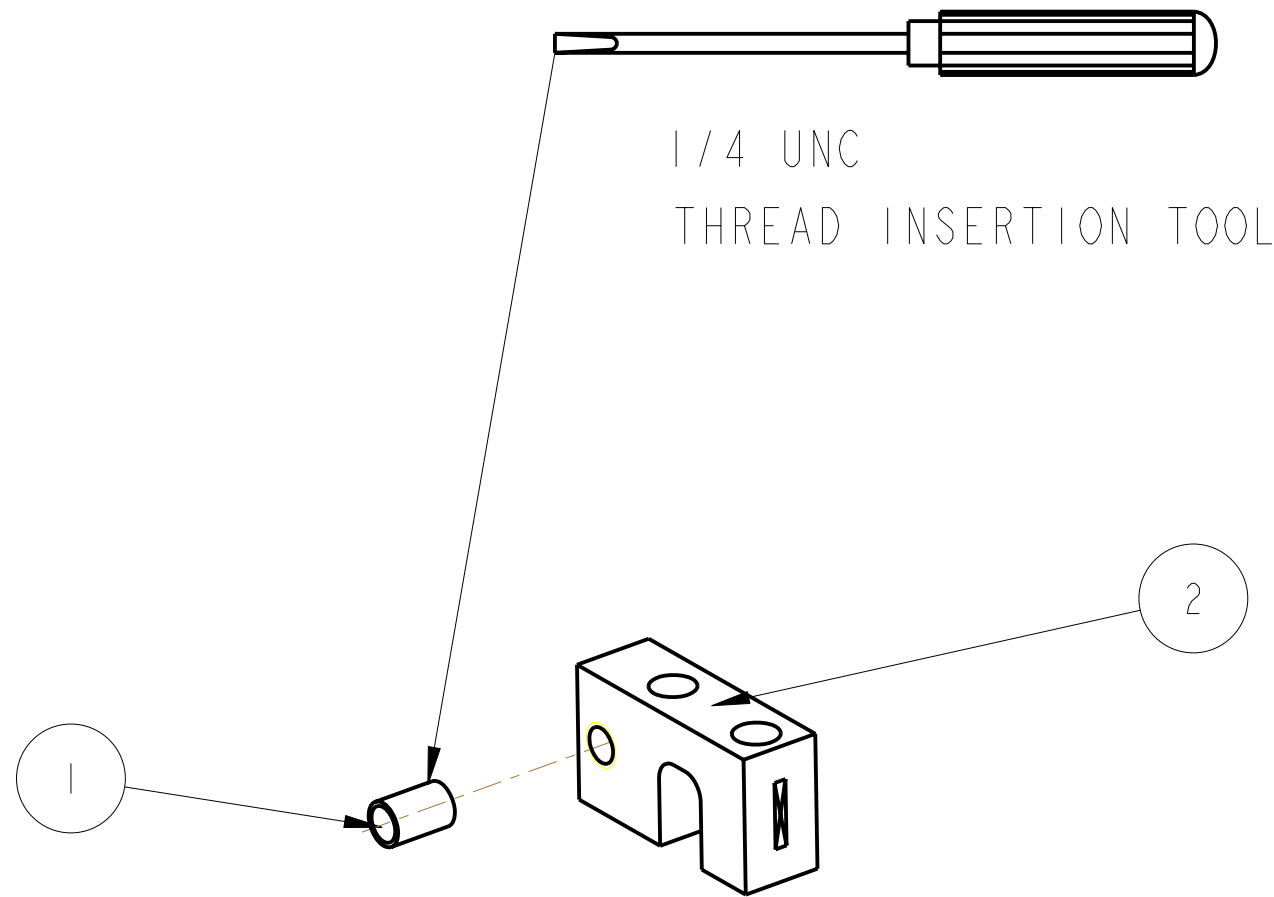
THERE ARE FOUR TOP STAGE UNITS PER QUAD.
 THREE OF THESE USE PART 2 AS D060392.
 IN ONE INSTANCE, PART 2 IS D0901439 (A MODIFIED
 BACKBONE VERSION) MAKE ONE IN EVERY FOUR
 TOP STAGE UNITS USING D0901439, INSTEAD OF
 D060329, SHOWN IN THIS VIEW.

HELICOIL ROTATIONAL ADJUSTER

No.	PART NUMBER	PART DESCRIPTION	NO. REOD
1	3-8_16X1-5D_UNC_THREAD_INSERT	3/8-16 x 1.5D UNC THREAD INSERT	1
2	D060329	TOP STAGE STIFF BACK	1

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 aLIGO							
			SUB-SYSTEM SUS							
			NEXT ASSY QUAD							
		PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING								
	<table border="1"> <tr> <th>NAME</th> <th>DATE</th> </tr> <tr> <td>DRAWN J O'DELL</td> <td>18/03/10</td> </tr> <tr> <td>CHECKED J'OD</td> <td>18/MAR/10</td> </tr> <tr> <td>APPROVED JOD</td> <td>18/MAR/10</td> </tr> </table>	NAME	DATE	DRAWN J O'DELL	18/03/10	CHECKED J'OD	18/MAR/10	APPROVED JOD	18/MAR/10	SCALE 1:2 PROJECTION: SHEET 10 OF 9
NAME	DATE									
DRAWN J O'DELL	18/03/10									
CHECKED J'OD	18/MAR/10									
APPROVED JOD	18/MAR/10									
		DRG. NO. D060370_ASM_PROCEDURE REV. A.								

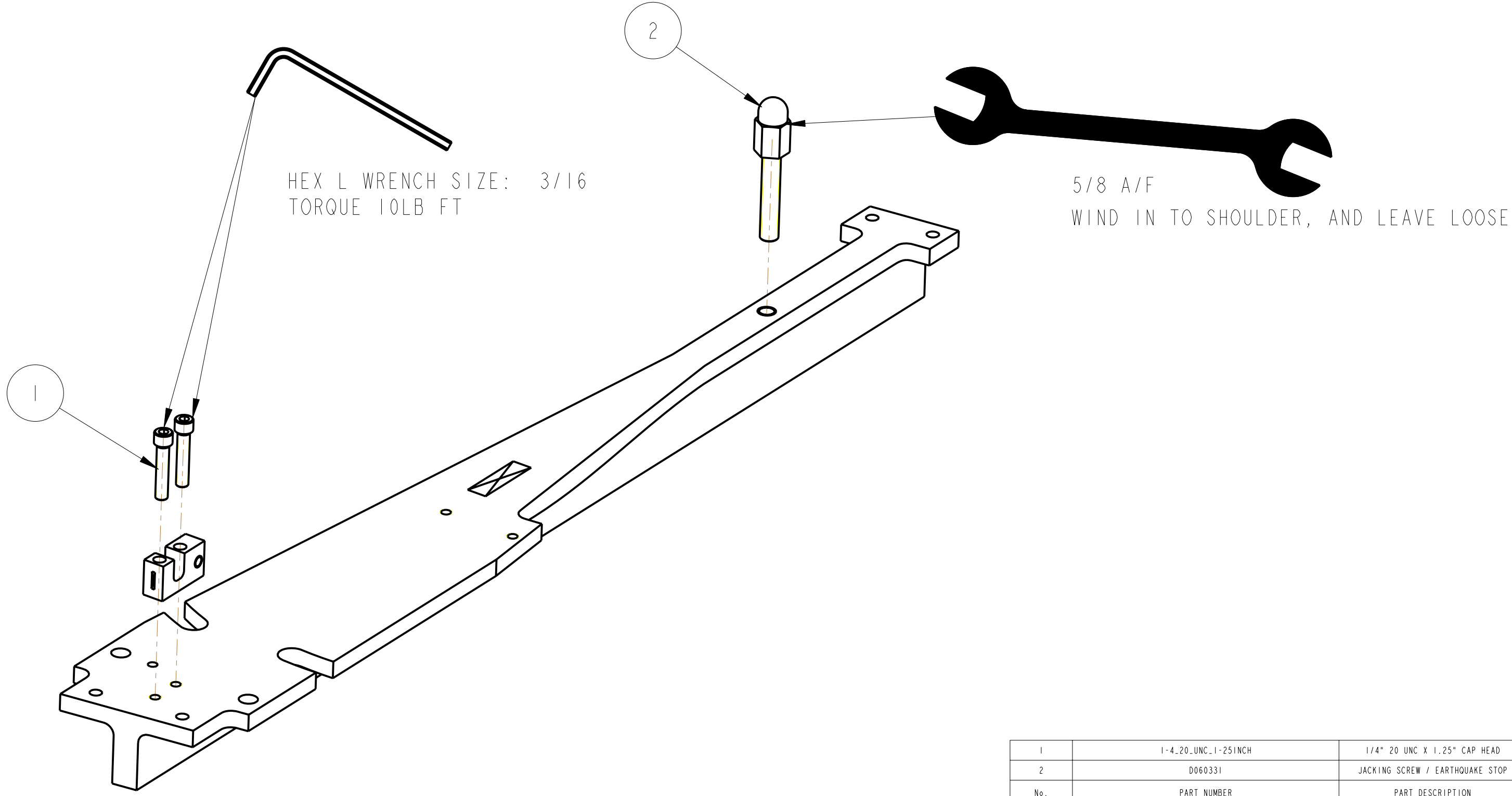
REV.	DATE	DCN #	DRAWING TREE #



HELICOIL ROTATIONAL ADJUSTER BRACKET

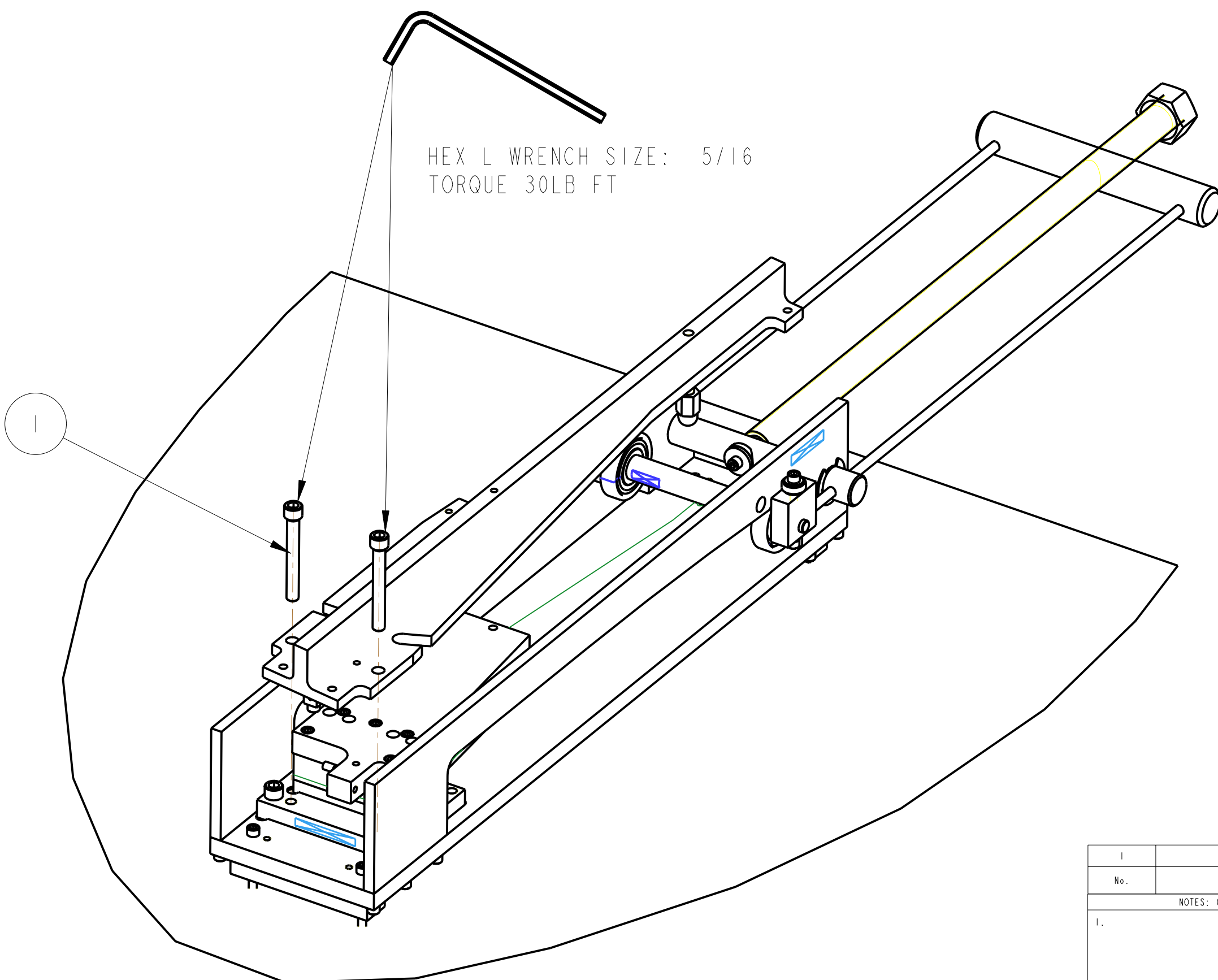
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
1	1-4_20X1-5D_UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	1
2	D060325	ROTATIONAL ADJUSTER	1

NOTES: (UNLESS OTHERWISE SPECIFIED)		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1GR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
1.	PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		SYSTEM aLIGO
			SUB-SYSTEM SUS
			NEXT ASSY QUAD
		PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING	
	NAME DATE	SIZE B DRG. NO. D060370_ASM_PROCEDURE REV A.	
DRAWN	J O'DELL 18/03/10	SCALE 1:1 PROJECTION:	
CHECKED	J'OD 18/MAR/10	SHEET 11 OF 19	
APPROVED	JOD 18/MAR/10		



ADD BLADE TIP STOP AND ROTATIONAL ADJUSTER BRACKET TO TS STIFF BACK

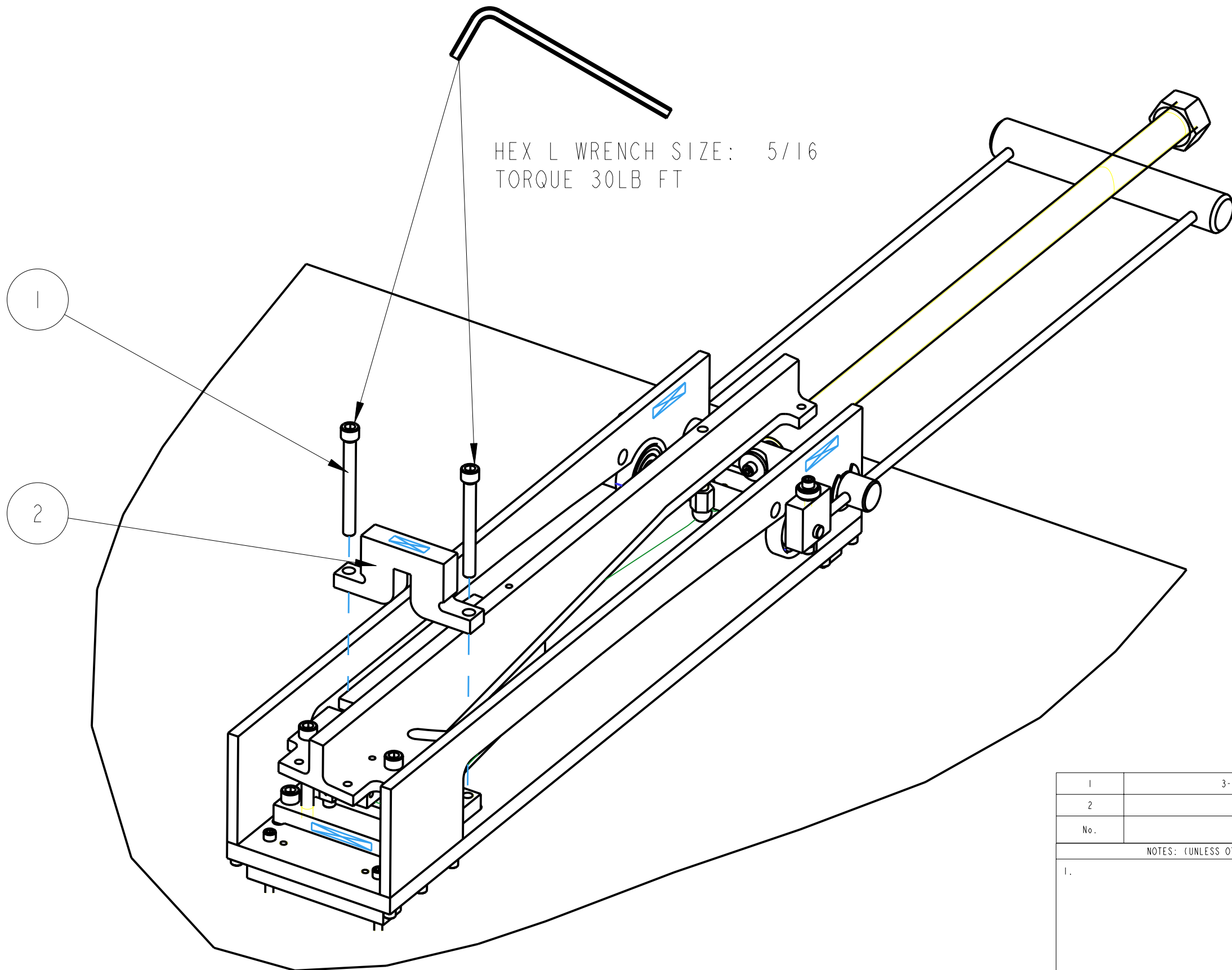
1	1-4_20_UNC_1-25INCH	1/4" 20 UNC X 1.25" CAP HEAD	2
2	D060331	JACKING SCREW / EARTHQUAKE STOP	1
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		<p>PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE</p> <p>CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES</p> <p>SYSTEM aLIGO</p> <p>SUB-SYSTEM SUS</p> <p>NEXT ASSY QUAD</p> <p>PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING</p>	
	NAME	DATE	SIZE
DRAWN	J O'DELL	02/11/09	B
CHECKED	J'OD	18/MAR/10	DRG. NO. D060370_ASM_PROCEDURE
APPROVED	JOD	18/MAR/10	REV A.
SCALE 1:2		PROJECTION:	SHEET 12 OF 9



HEX L WRENCH SIZE: 5/16
TORQUE 30LB FT

ASSEMBLE BACKBONE TO THE REST OF THE BLADE CARTRIDGE

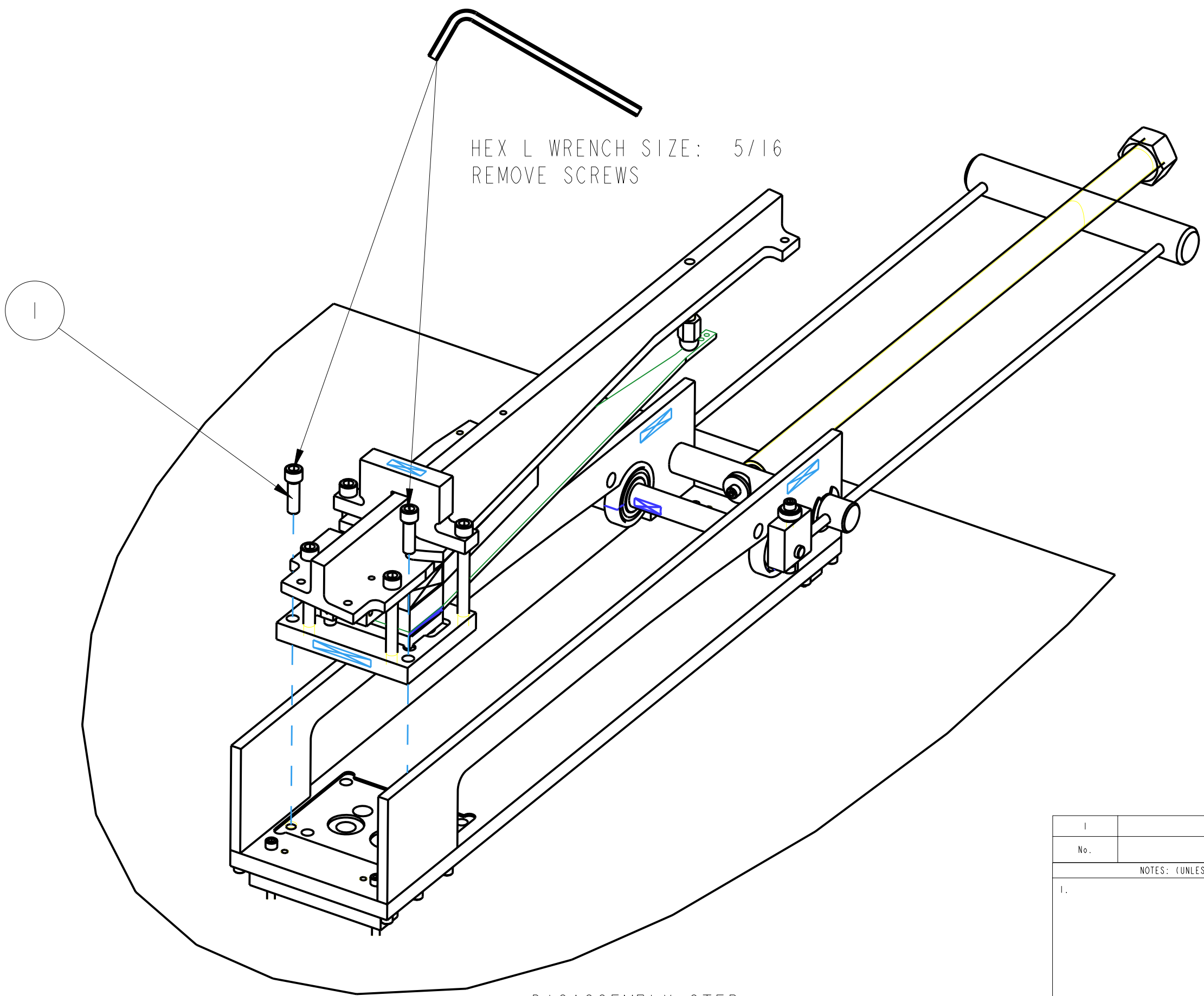
I	3-8_16 UNC_3-00INCH	3/8-16 UNC X 3.0" CAP HEAD	2
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		SYSTEM aLIGO	
		SUB-SYSTEM SUS	
		NEXT ASSY QUAD	
		PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING	
	NAME	DATE	
DRAWN	J O'DELL	02/11/09	
CHECKED	J'OD	18/MAR/10	
APPROVED	JOD	18/MAR/10	
SIZE	DRG. NO. D060370_ASM_PROCEDURE		REV A.
SCALE 3:10 PROJECTION:			SHEET 13 OF 19



HEX L WRENCH SIZE: 5/16
TORQUE 30LB FT


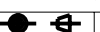
ADD TEMPORARY CLAMP

1	3-8.16 UNC 3-5 INCH	3/8-16 UNC X 3.5" CAP HEAD	2
2	D060368	BLADE CLAMP TOP BLOCK	1
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
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 aLIGO	
		SUB-SYSTEM SUS	
		NEXT ASSY QUAD	
		PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING	
	NAME	DATE	SIZE
DRAWN	J O'DELL	18/03/10	B
CHECKED	J'OD	18/MAR/10	
APPROVED	JOD	18/MAR/10	
		DRG. NO. D060370_ASM_PROCEDURE	
		SCALE 3:10 PROJECTION: SHEET 14 OF 19	

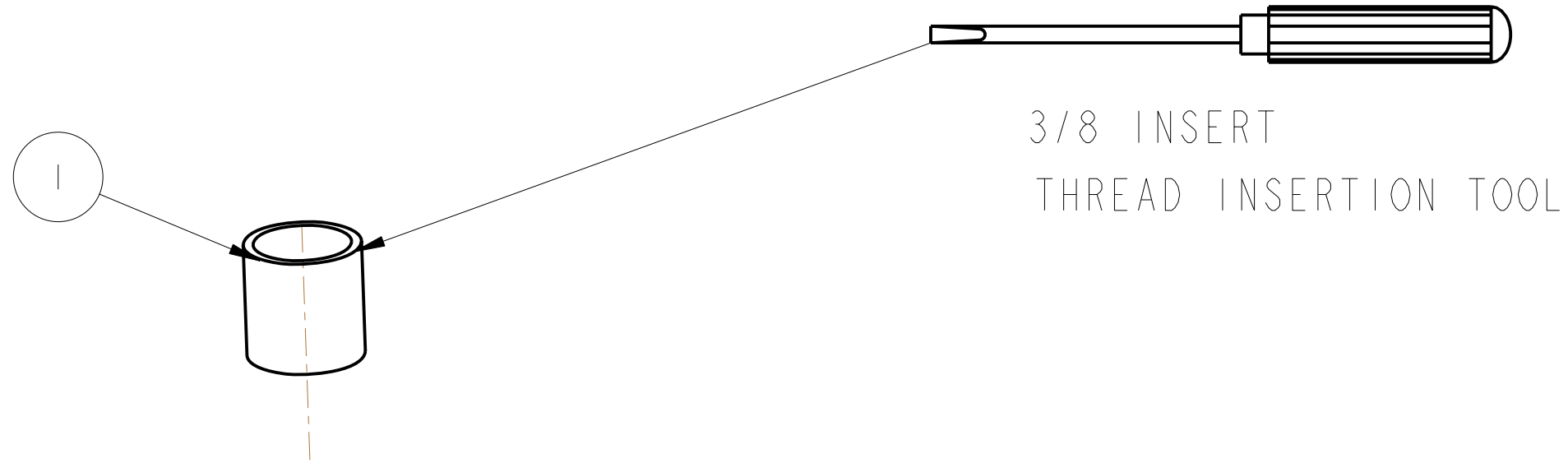


HEX L WRENCH SIZE: 5/16
REMOVE SCREWS

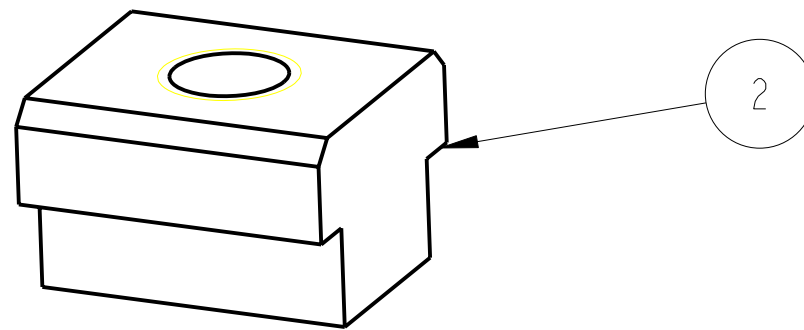
DISASSEMBLY STEP
REMOVE BLADE CARTRIDGE FROM TOOLING

1	3-8.16 UNC 1-25 INCH	3/8 16 UNC X 1.25" CAP HEAD	2
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
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	aLIGO
		SUB-SYSTEM	SUS
		NEXT ASSY	QUAD
		PART NAME	TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
	NAME	DATE	SIZE
	DRAWN J O'DELL	02/11/09	B
	CHECKED J'OD	18/MAR/10	DRG. NO. D060370_ASM_PROCEDURE
	APPROVED JOD	18/MAR/10	REV A.
SCALE 3:10 PROJECTION: 			SHEET 15 OF 19

REV.	DATE	DCN #	DRAWING TREE #



3/8 INSERT
THREAD INSERTION TOOL



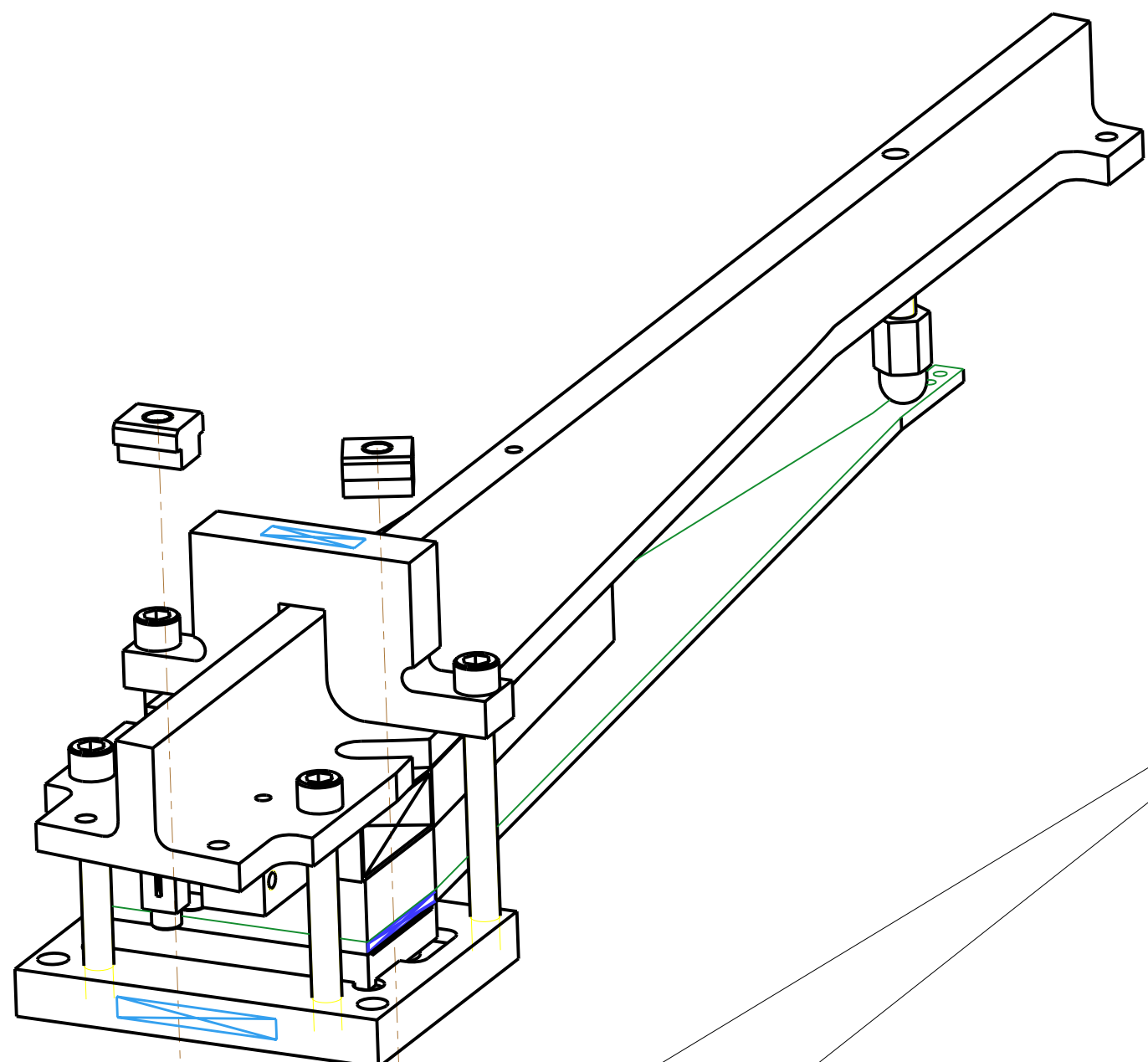
SCALE 2:1

HELICOIL TEE-NUTS
X 2

No.	PART NUMBER	PART DESCRIPTION	NO. REOD
1	3-8-.16XID.UNC.THREAD.INSERT	3/8-16 x ID UNC THREAD INSERT	2
2	D060328	3/8-16 UNC T NUT	2


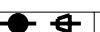
NOTES: (UNLESS OTHERWISE SPECIFIED)		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1GR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES												
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	SYSTEM aLIGO													
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	PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING													
	<table border="1"> <tr> <td></td> <td>NAME</td> <td>DATE</td> </tr> <tr> <td>DRAWN</td> <td>J O'DELL</td> <td>18/03/10</td> </tr> <tr> <td>CHECKED</td> <td>J'OD</td> <td>18/MAR/10</td> </tr> <tr> <td>APPROVED</td> <td>JOD</td> <td>18/MAR/10</td> </tr> </table>		NAME	DATE	DRAWN	J O'DELL	18/03/10	CHECKED	J'OD	18/MAR/10	APPROVED	JOD	18/MAR/10	SIZE B DRG. NO. D060370_ASM_PROCEDURE REV A.
	NAME	DATE												
DRAWN	J O'DELL	18/03/10												
CHECKED	J'OD	18/MAR/10												
APPROVED	JOD	18/MAR/10												
SCALE 1:1		PROJECTION:												

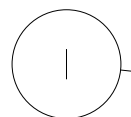
REV.	DATE	DCN #	DRAWING TREE #

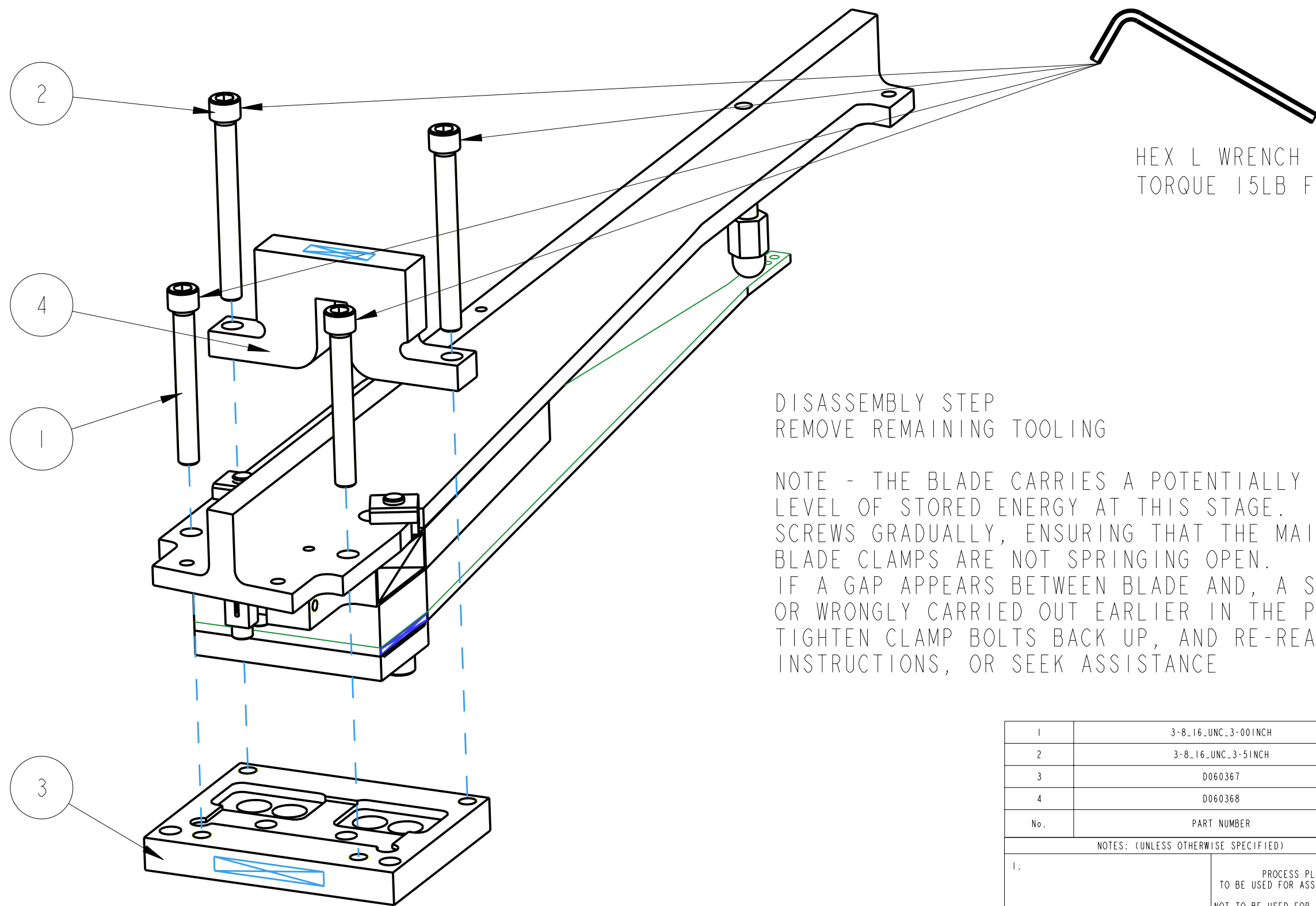


BOLT TS ASSEMBLY TOGETHER WITH
CAP SCREWS AND TEE-NUTS

HEX L WRENCH SIZE: 5/16
TORQUE 40LB FT

1	3-8.16 UNC.3-001NCH	3/8-16 UNC X 3.0" CAP HEAD	2
No.	PART NUMBER	PART DESCRIPTION	NO. REOD
NOTES: (UNLESS OTHERWISE SPECIFIED)		 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 1GR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
1.	PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE	SYSTEM	aLIGO
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	CHECKED	J'OD	18/MAR/10
	APPROVED	JOD	18/MAR/10
	SIZE	DRG. NO.	REV
	B	D060370_ASM_PROCEDURE	A.
	SCALE 1:2	PROJECTION: 	SHEET 17 OF 19





DISASSEMBLY STEP
REMOVE REMAINING TOOLING

NOTE - THE BLADE CARRIES A POTENTIALLY DANGEROUS LEVEL OF STORED ENERGY AT THIS STAGE. RELEASE CLAMPING SCREWS GRADUALLY, ENSURING THAT THE MAIN (PERMINENT) BLADE CLAMPS ARE NOT SPRINGING OPEN. IF A GAP APPEARS BETWEEN BLADE AND, A STEP HAS BEEN MISSED OR WRONGLY CARRIED OUT EARLIER IN THE PROCEDURE. TIGHTEN CLAMP BOLTS BACK UP, AND RE-READ EARLIER INSTRUCTIONS, OR SEEK ASSISTANCE

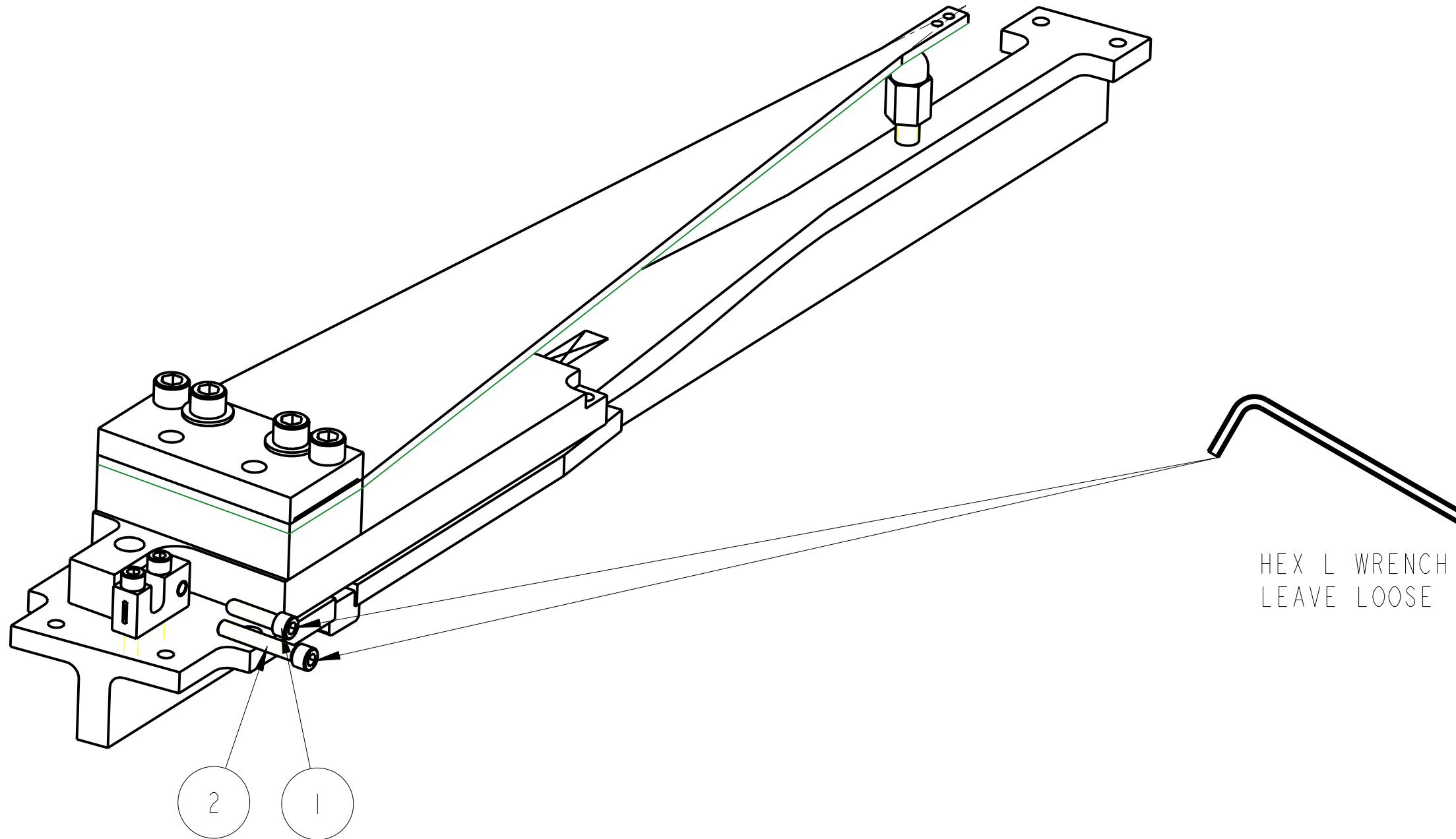
1	3-8.16 UNC.3-001NCH	3/8-16 UNC X 3.0" CAP HEAD	2
2	3-8.16 UNC.3-51NCH	3/8-16 UNC X 3.5" CAP HEAD	2
3	D060367	BLADE CLAMP BASE BLOCK	1
4	D060368	BLADE CLAMP TOP BLOCK	1
No.	PART NUMBER	PART DESCRIPTION	NO. REOD

NOTES: (UNLESS OTHERWISE SPECIFIED)

1.

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		SYSTEM aLIGO
		SUB-SYSTEM SUS
		NEXT ASSY QUAD
		PART NAME TS ASSEMBLY PROCEDURE QUAD TS AND TOOLING
NAME	DATE	SIZE B DRG. NO. D060370_ASM_PROCEDURE REV A. SCALE 1:2 PROJECTION: SHEET 18 OF 19
DRAWN	J O'DELL 18/03/10	
CHECKED	J'OD 18/MAR/10	
APPROVED	JOD 18/MAR/10	

REV.	DATE	DCN #	DRAWING TREE #



ADD ROTATIONAL ADJUSTER SCREWS

THIS STEP COMPLETES THE ASSEMBLY OF A QUAD TOP STAGE UNIT.
THERE ARE FOUR OF THESE UNITS REQUIRED FOR EACH QUAD

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	1-4.20 UNC. 1-00INCH. ROUND.	1/4" 20 UNC X 2" CAP HEAD, SPHERICAL TIP	1
2	1-4.20 UNC. 1-5INCH	1/4-20 UNC X 1.5" CAP HEAD	1

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CHECKED	J'OD 18/MAR/10	
APPROVED	JOD 18/MAR/10	
SCALE 1:2		PROJECTION: