

INTRALINK NAME: D060341.PROCESS

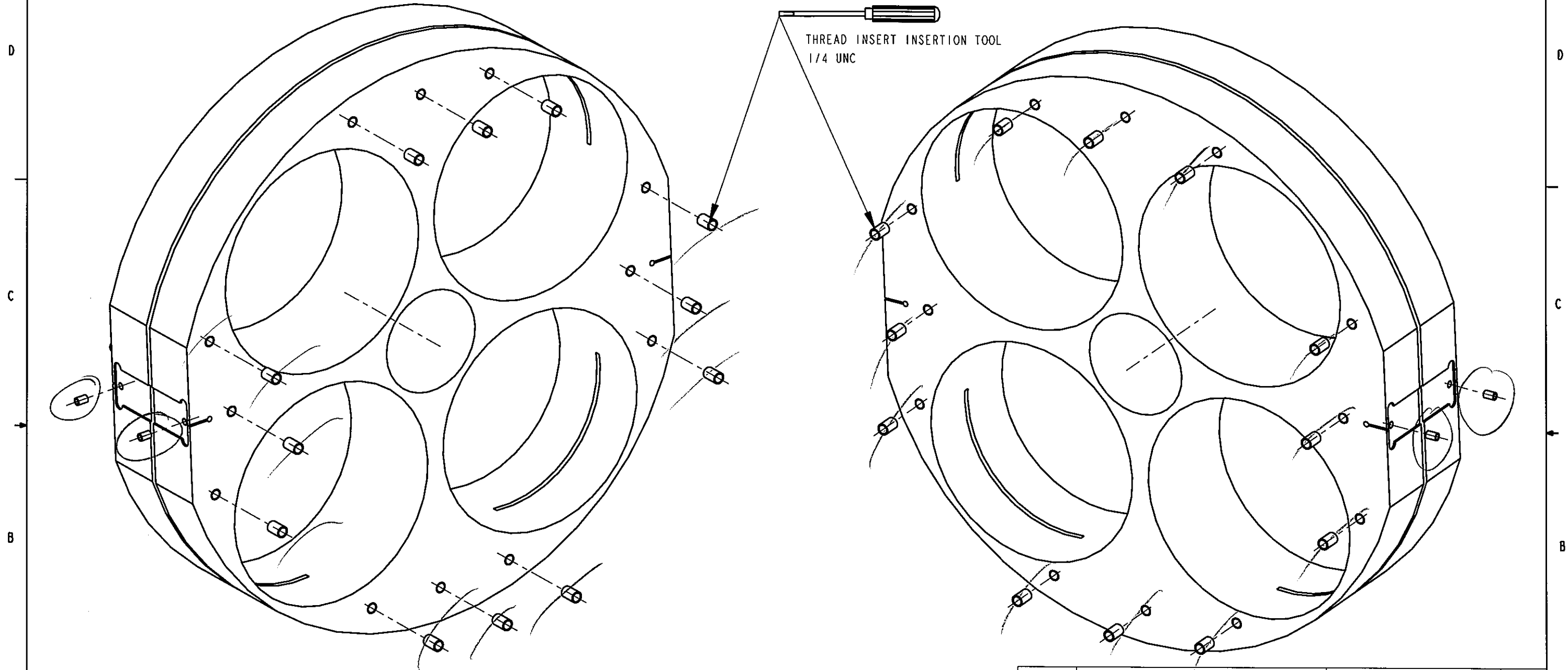
REV.	DATE	DCN #	DRAWING TREE #

STEP	DESCRIPTION	PART#	QTY	TIME
1	ADD THREAD INSERTS TO D060341	1-4.20X1-5D.UNC.THREAD.INSERT	24	
		8-32X1-5D.UNC.THREAD.INSERT	4	
		D060342	1	
2	ADD BACK PLATE, AND BOLT IN PLACE	1-4.20.UNC.1-00INCH	8	
		D060343	1	
3	HELICOIL BACK PLATE AND BOLT IN PLACE	1-4.20.UNC.1-00INCH	8	
		8-32X1-5D.UNC.THREAD.INSERT	4	
		D060344	1	
4	ASSEMBLE AND INSTALL PITCH MASS	1-4.20X1-5D.UNC.THREAD.INSERT	1	
		1-4.20.UNC.2-00INCH.ROUND	1	
		D060353	1	
5	HELICOIL CAN FRONT PLATE	D060354	1	
		8-32X1D.UNC.THREAD.INSERT	2	
6	ADD THREAD INSERTS TO D060348 (4 ASSEMBLIES)	D060347	1	
		8-32X0-5D.UNC.THREAD.INSERT	2	
7	ASSEMBLE OSEM X-Y STAGE TO OSEM CAN FRONT PLATE (4 ASSEMBLIES)	D060348	1	
		8-32.UNC.0-625INCH	2	
		D060336	2	

STEP	DESCRIPTION	PART#	QTY	TIME
8	ASSEMBLE OSEM AND OSEM Z ADJUSTER TO OSEM CAN ASSEMBLY (4 ASSEMBLIES)	2-56.UNC.0-375INCH	1	
		8-32.UNC.0-625INCH	2	
		8-32.UNC.1-50INCH	2	
		D000069	1	
9	ADD THREAD INSERTS TO CAN BODY AND ASSEMBLE CAN BODY TO CAN (4 ASSEMBLIES)	D060350	1	
		D060351	1	
		8-32X1-5D.UNC.THREAD.INSERT	7	
10	ADD STOP SCREWS AND WASHERS TO BACK OF OSEM CANS (4 ASSEMBLIES)	8-32.UNC.0-625INCH	4	
		D060346	1	
11	ASSEMBLE 4 OSEM CANS TO MASS AND BOLT IN PLACE	8-32.UNC.0-625INCH	3	
		8-32.UNC.BIG.WASHER	3	
		8-32.UNC.0-625INCH	4	
12	ADD ADDED MASS TO MASS	8-32.UNC.BIG.WASHER	4	
		D060345	3	
		1-4.20.UNC.1-00INCH	4	
		D060359-100_0	8	



REV.	DATE	DCN #	DRAWING TREE #

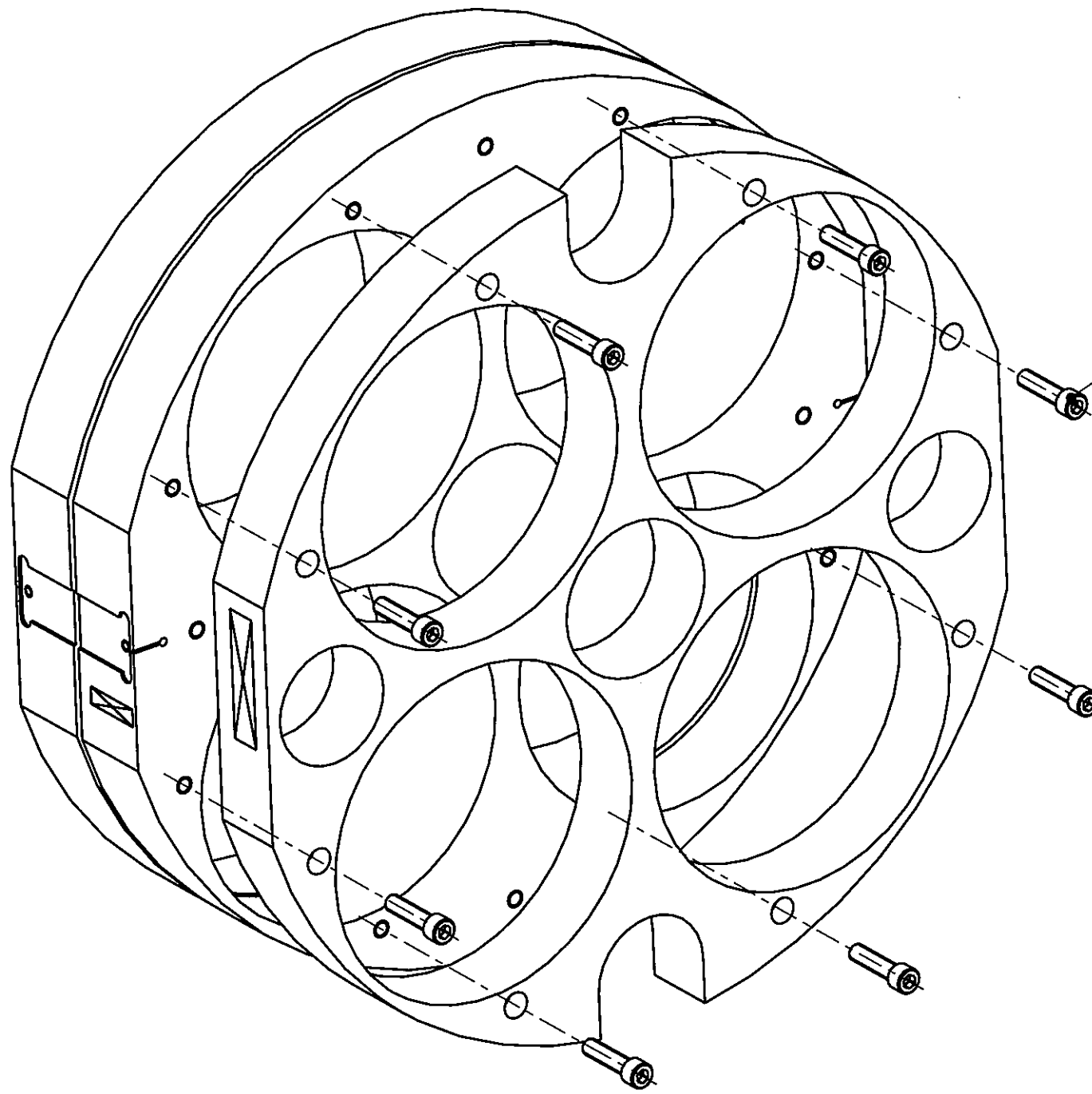


ADD THREAD INSERTS TO D060341

1	1-4_20X1-5D_UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	24
2	8-32X1-5D_UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	4
3	D060342	CENTRAL MASS	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		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 N-PTYPE
		PART NAME	
		NAME	DATE
	DRAWN	---	25/Jun/07
	CHECKED	---	--/---/---
	APPROVED	---	--/---/---
	SIZE	DRG. NO. D060341.PROCESS	
	SCALE 1:2		PROJECTION: SHEET 2 OF 1



INTRALINK NAME: D060341.PROCESS

REV.	DATE	DCN #	DRAWING TREE #



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

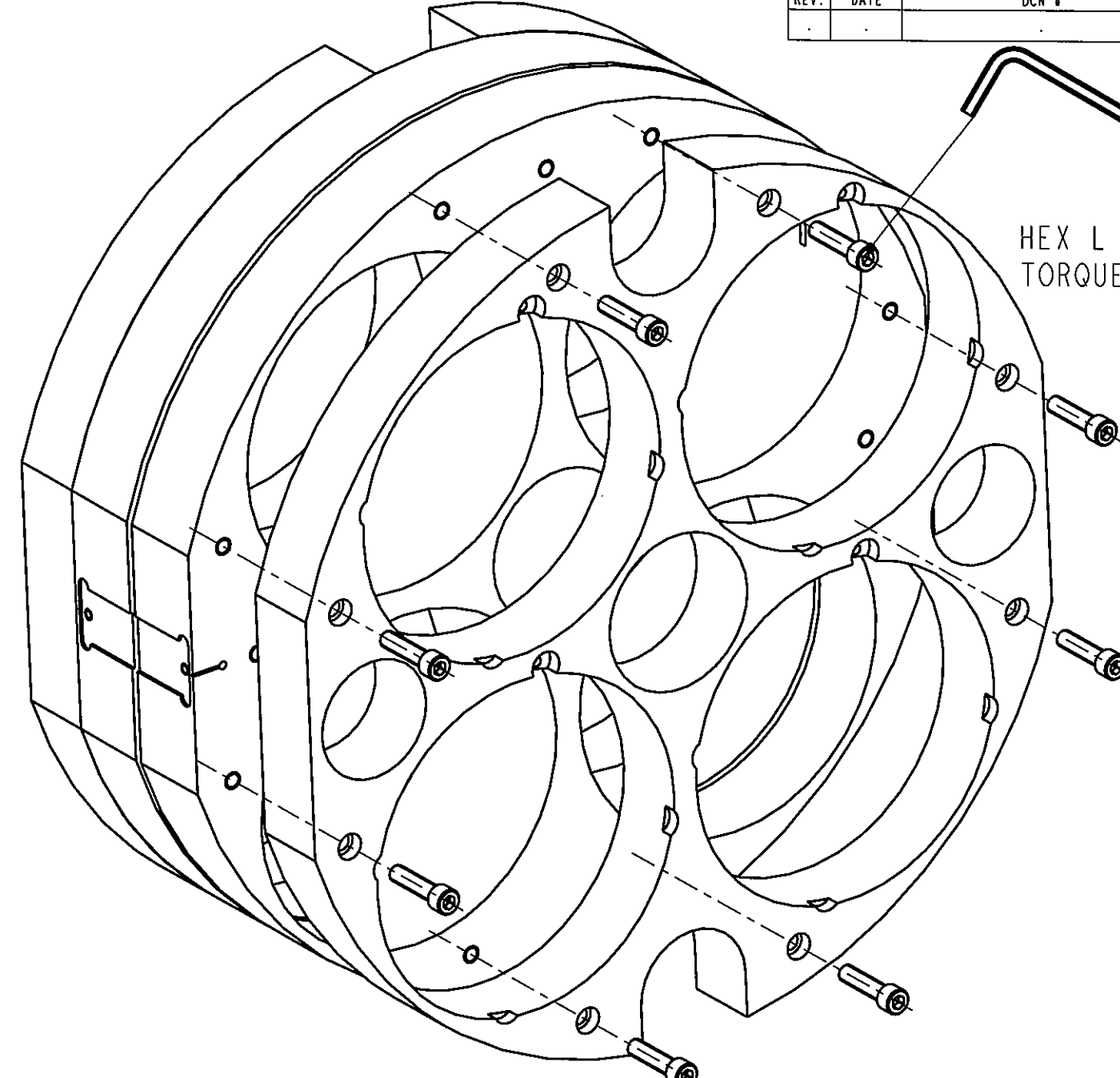
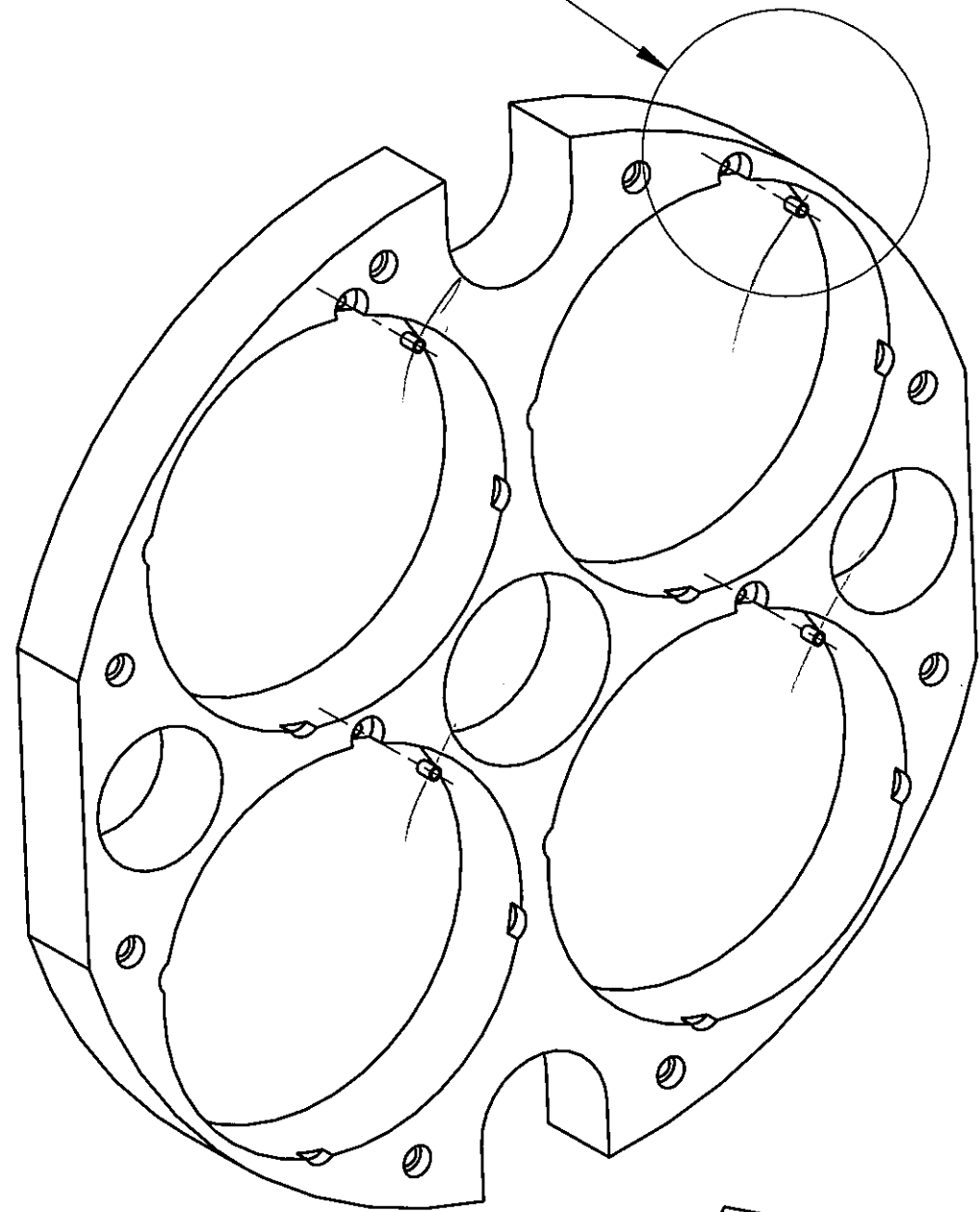
ADD BACK PLATE, AND BOLT IN PLACE

1	1-4-20-UNC-1-00INCH	1/4" 20 UNC X 1" CAP HEAD	8
2	D060343	FRONT PLATE	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	 CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY YGR, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES	
		SYSTEM	ADVANCED LIGO
		SUB-SYSTEM	SUS
		NEXT ASSY	QUAD N-PTYPE
		PART NAME	
		NAME	DATE
	DRAWN	---	22/Jun/07
	CHECKED	---	---/---/---
	APPROVED	---	---/---/---
		SIZE	DRG. NO. D060341.PROCESS
		B	REV. -
		SCALE 1:2	PROJECTION:  SHEET 3 OF 4

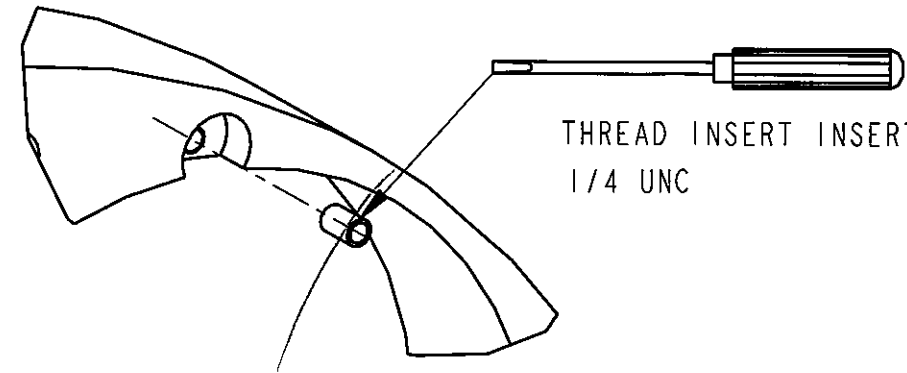
INTRALINK NAME: D060341.PROCESS

REV.	DATE	DCN #	DRAWING TREE #

SEE DETAIL A



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





THREAD INSERT INSERTION TOOL
1/4 UNC

HELICOIL BACK PLATE AND BOLT IN PLACE

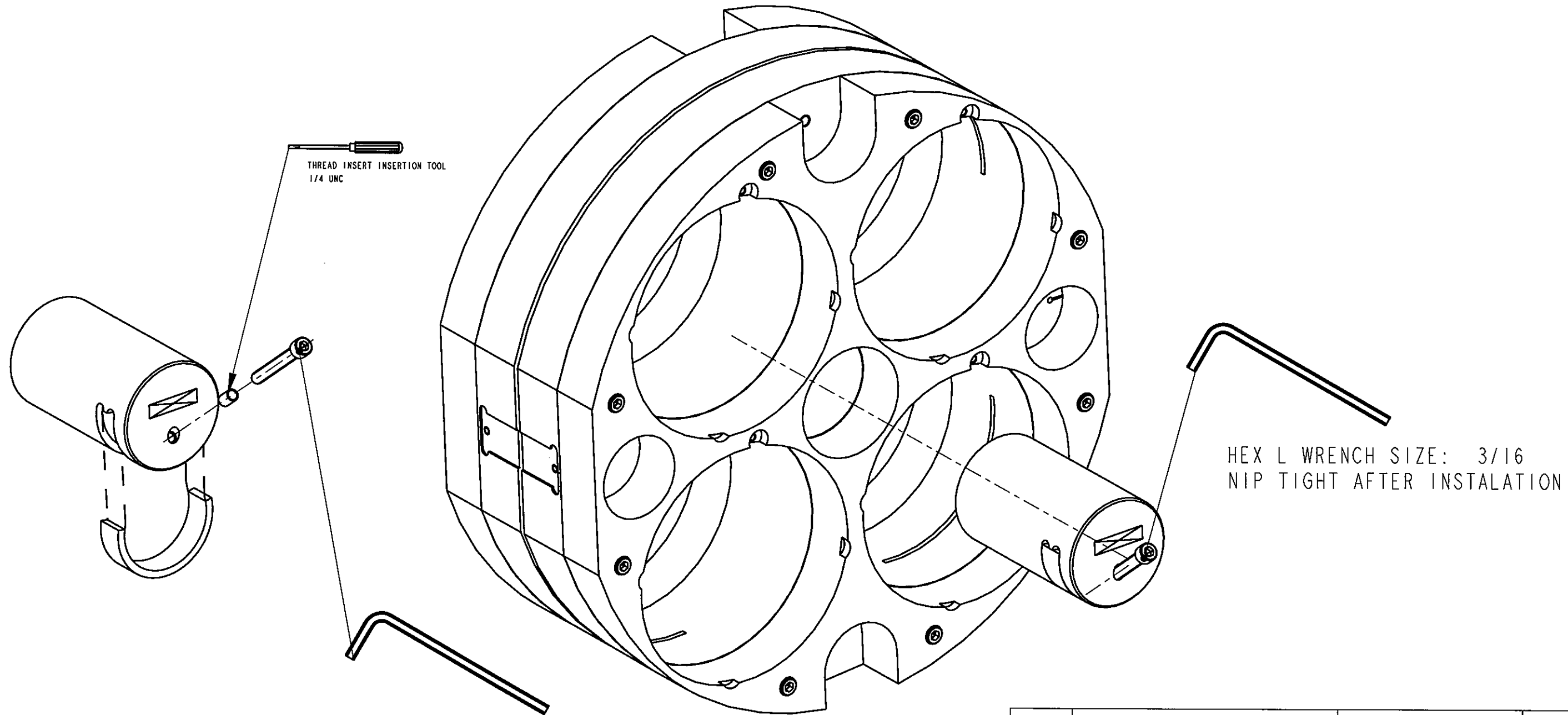
DETAIL A
SCALE 1:1

No.	PART NUMBER	PART DESCRIPTION	NO. RECD
1	1-4_20 UNC_1-00 INCH	1/4" 20 UNC X 1" CAP HEAD	8
2	8-32X1-50 UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	4
3	D060344	BACK PLATE	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 ADVANCED LIGO SUB-SYSTEM SUS NEXT ASSY QUAD N-PTYPE PART NAME									
	<table border="1"> <thead> <tr> <th>NAME</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td>DRAWN</td> <td>22/Jun/07</td> </tr> <tr> <td>CHECKED</td> <td>---</td> </tr> <tr> <td>APPROVED</td> <td>---</td> </tr> </tbody> </table>	NAME	DATE	DRAWN	22/Jun/07	CHECKED	---	APPROVED	---	SIZE B DRG. NO. D060341.PROCESS REV - SCALE 1:2 PROJECTION:  SHEET 4 OF 1
NAME	DATE									
DRAWN	22/Jun/07									
CHECKED	---									
APPROVED	---									

REV.	DATE	DCN #	DRAWING TREE #



HEX L WRENCH SIZE: 3/16
LOOSE

HEX L WRENCH SIZE: 3/16
NIP TIGHT AFTER INSTALATION

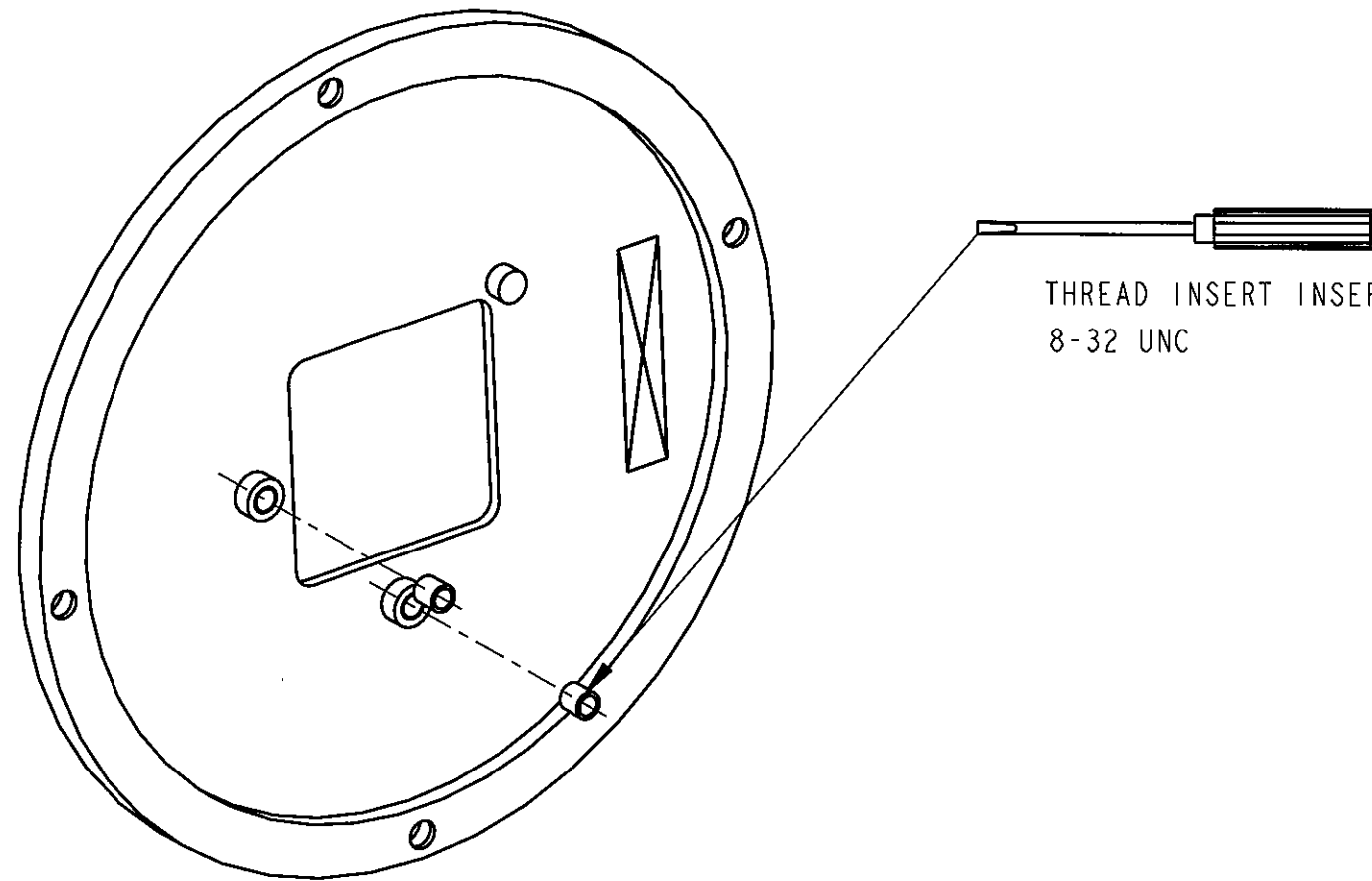
ASSEMBLE AND INSTALL PITCH MASS

No.	PART NUMBER	PART DESCRIPTION	NO. RECD
1	1-4_20X1-5D_UNC_THREAD_INSERT	1/4-20 x 1.5D UNC THREAD INSERT	1
2	1-4_20_UNC_2-00INCH_ROUND	1/4" 20 UNC X 2" CAP HEAD, SPHERICAL TIP	1
3	D060353	PEN RE PITCH MASS	1
4	D060354	CLAMPING COLLAR	1

PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE		LIGO	
		SYSTEM ADVANCED LIGO	
		SUB-SYSTEM SUS	
		NEXT ASSY QUAD N-PTYPE	
		PART NAME	
NAME	DATE	SIZE	REV
DRAWN	22/Jun/07	B	-
CHECKED	---		
APPROVED	---		
		DRG. NO. D060341.PROCESS	
		SCALE 1:2 PROJECTION: SHEET 5 OF 11	

INTRALINK NAME: D060341.PROCESS

REV.	DATE	DCN #	DRAWING TREE #



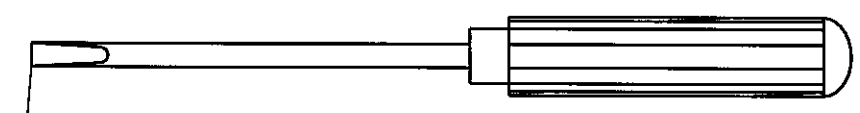
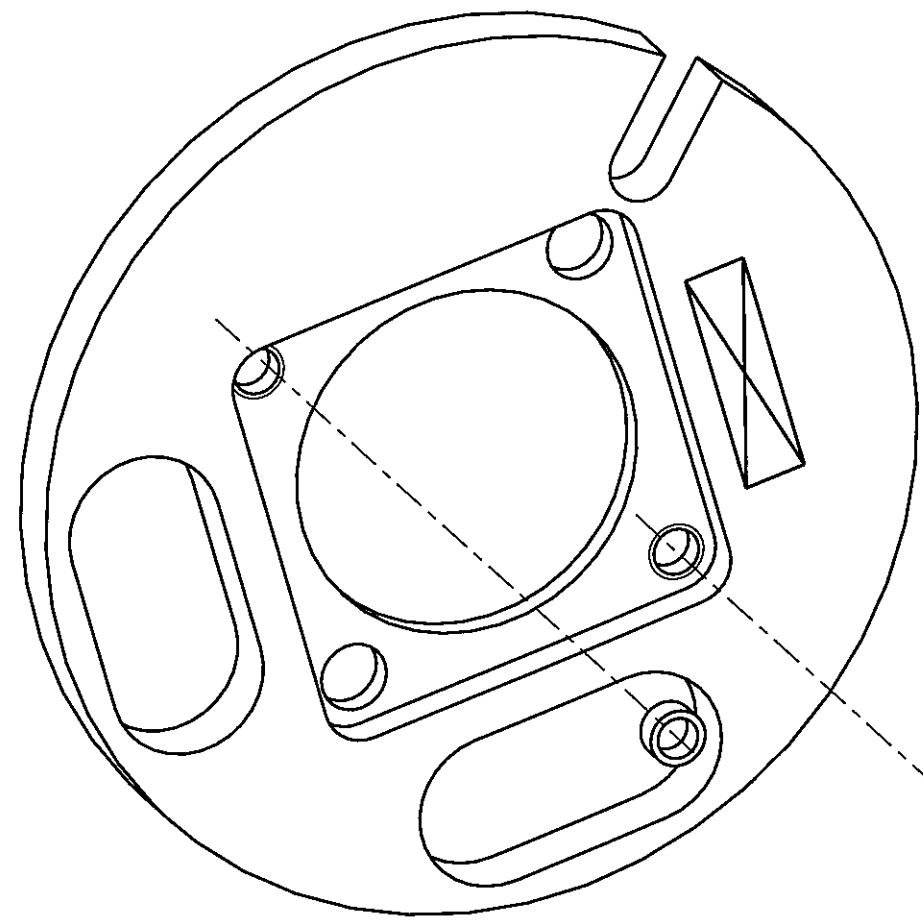
THREAD INSERT INSERTION TOOL
8-32 UNC

HELICOIL CAN FRONT PLATE

1	8-32X1.0 UNC_THREAD_INSERT	1/4-20 x 1.50 UNC THREAD INSERT	2
2	D060347	CAN FRONT PLATE	1
No.	PART NUMBER	PART DESCRIPTION	NO. RECD
NOTES: (UNLESS OTHERWISE SPECIFIED)			
1.		<p>PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE</p>	<p>LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY 16R, GLASGOW UNIVERSITY GEO 600 GROUP RUTHERFORD APPLETON LABORATORIES</p> <p>SYSTEM ADVANCED LIGO</p> <p>SUB-SYSTEM SUS</p> <p>NEXT ASSY OP</p> <p>PART NAME</p>
	NAME	DATE	
	DRAWN	22/ Jun/07	
	CHECKED	---	
	APPROVED	---	
SIZE	DRG. NO. D060341.PROCESS		REV
B			-
SCALE 1:1 PROJECTION: SHEET 6 OF 1			

INTRALINK NAME: D060341.PROCESS

REV.	DATE	DCN #	DRAWING TREE #



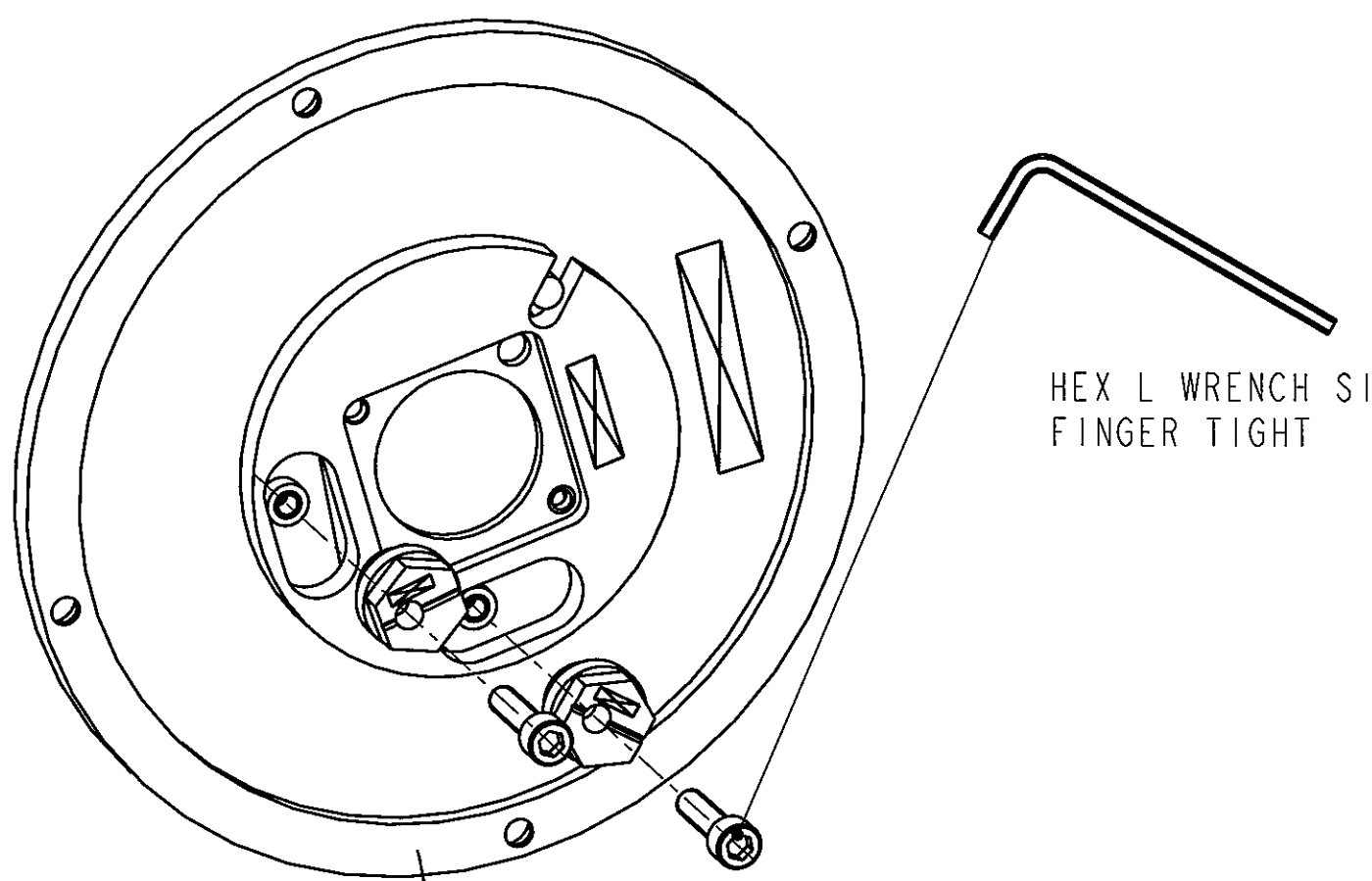
THREAD INSERT INSERTION TOOL
8-32 UNC

ADD THREAD INSERTS TO D060348 (4 ASSEMBLIES)

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	8-32X0.5D.UNC.THREAD.INSERT	1/4-20 x 1.5D UNC THREAD INSERT	2
2	D060348	OSEM TRANSLATION PLATE	1

NOTES: (UNLESS OTHERWISE SPECIFIED)		CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 800 GROUP RUTHERFORD APPLETON LABORATORIES
1.	PROCESS PLAN TO BE USED FOR ASSEMBLY ONLY NOT TO BE USED FOR MANUFACTURE	
	SYSTEM ADVANCED LIGO	
	SUB-SYSTEM SUS	
		NEXT ASSY QUAD N-PTYPE
		PART NAME .
		SIZE B DRG. NO. D060341.PROCESS
		SCALE 2:1 PROJECTION: SHEET 7 OF 1

REV.	DATE	DCN #	DRAWING TREE #



HEX L WRENCH SIZE: 9/64
FINGER TIGHT

This is new D080167

ASSEMBLE OSEM X-Y STAGE TO OSEM CAN FRONT PLATE (4 ASSEMBLIES)

No.	PART NUMBER	PART DESCRIPTION	NO. REOD
1	8-32 UNC_0.625 INCH	8-32 UNC X 0.625" CAP HEAD	2
2	D060336 <i>D080167</i>	2MM CAM	2

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
1GR, GLASGOW UNIVERSITY GEO 600 GROUP
RUTHERFORD APPLETON LABORATORIES

SYSTEM **ADVANCED LIGO**

SUB-SYSTEM **SUS**

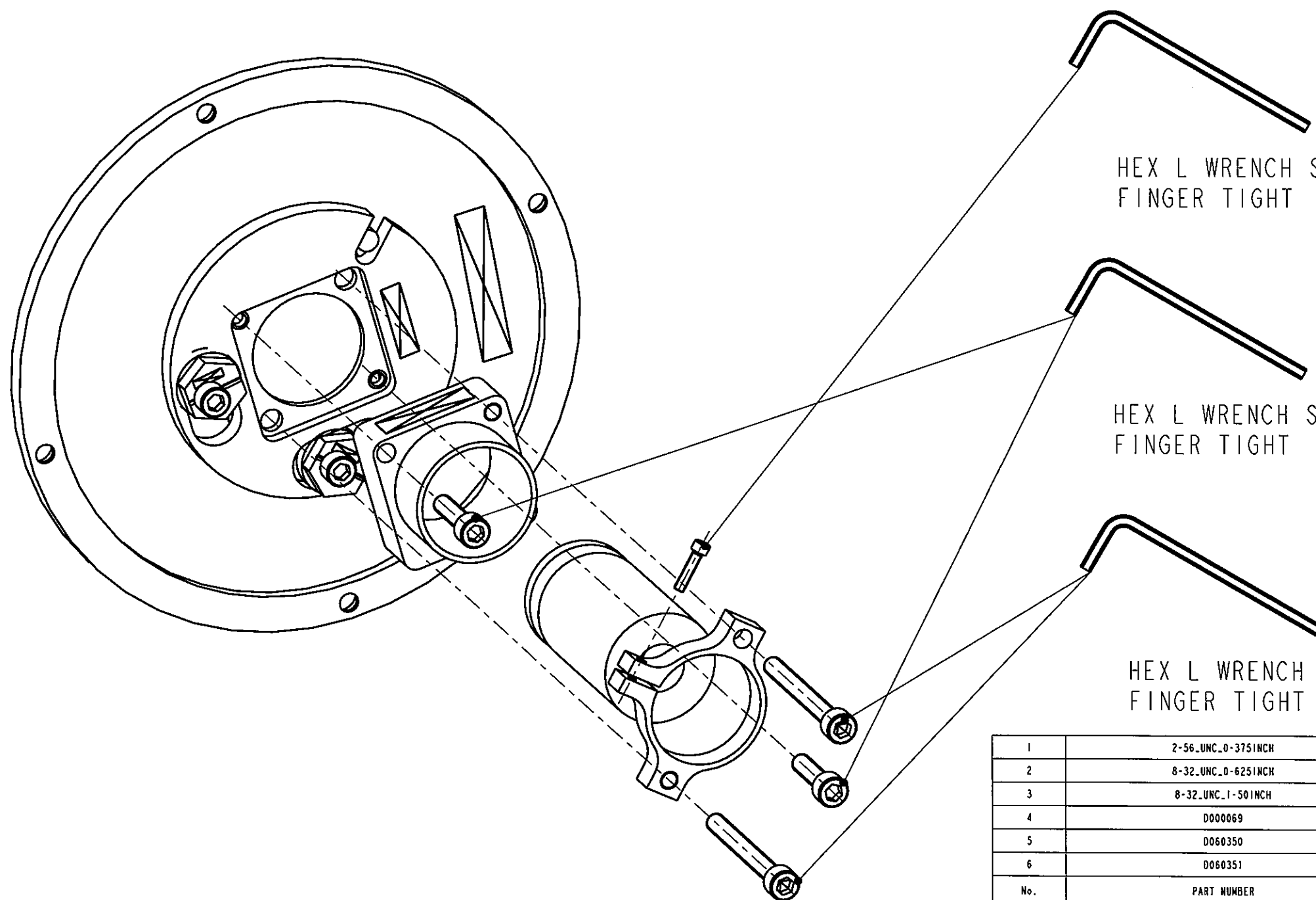
NEXT ASSY **QUAD N-PTYPE**

PART NAME .

	NAME	DATE
DRAWN		22/Jun/07
CHECKED		
APPROVED		

SCALE 1:1 PROJECTION: SHEET 8 OF 14

REV.	DATE	DCN #	DRAWING TREE #



HEX L WRENCH SIZE: 5/64
FINGER TIGHT

HEX L WRENCH SIZE: 9/64
FINGER TIGHT

HEX L WRENCH SIZE: 9/64
FINGER TIGHT

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	2-56 UNC .0-375 INCH	2-56 UNC X .375" CAP HEAD	1
2	8-32 UNC .0-625 INCH	8-32 UNC X 0.625" CAP HEAD	2
3	8-32 UNC .1-50 INCH	8-32 UNC X 1.5" CAP HEAD	2
4	D000069	LIGO I OSEM	1
5	D060350	CONTROL RING	1
6	D060351	BASE PLATE	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 **ADVANCED LIGO**

SUB-SYSTEM **SUS**

NEXT ASSY **QUAD N-PTYPE**

PART NAME

NAME	DATE	SIZE	REV
DRAWN	22/Jun/07	B	-
CHECKED	---		
APPROVED	---		

DRG. NO. **D060341.PROCESS**

SCALE 1:1 PROJECTION: SHEET 9 OF 13

ASSEMBLE OSEM AND OSEM Z ADJUSTER TO OSEM CAN ASSEMBLY (4 ASSEMBLIES)

INTRALINK NAME: D060341.PROCESS

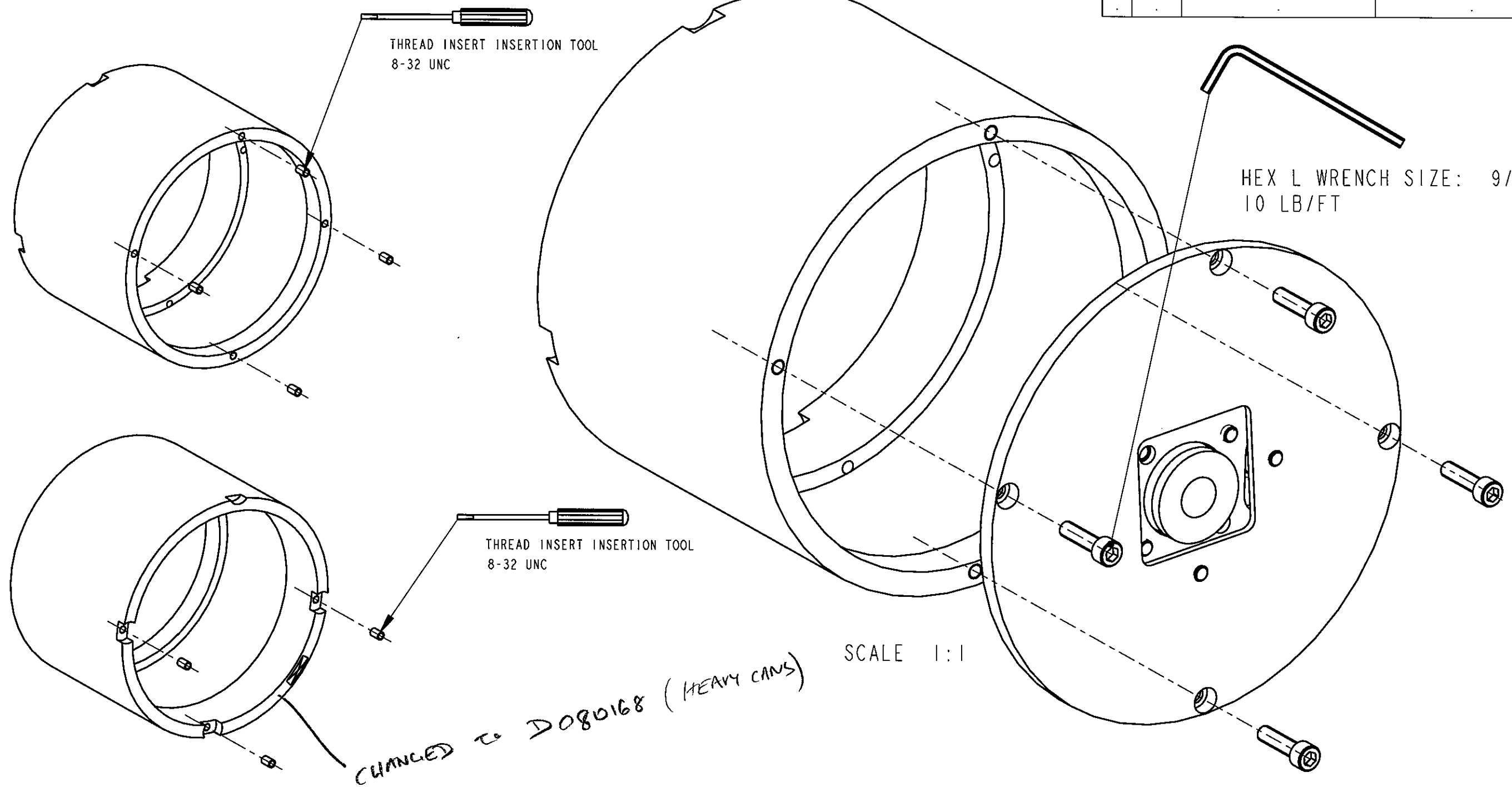
REV.	DATE	DCN #	DRAWING TREE #

D

C

B

A



CHANGED TO D080168 (HEAVY CANS)

SCALE 1:1

ADD THREAD INSERTS TO CAN BODY AND ASSEMBLE CAN BODY TO CAN (4 ASSEMBLIES)

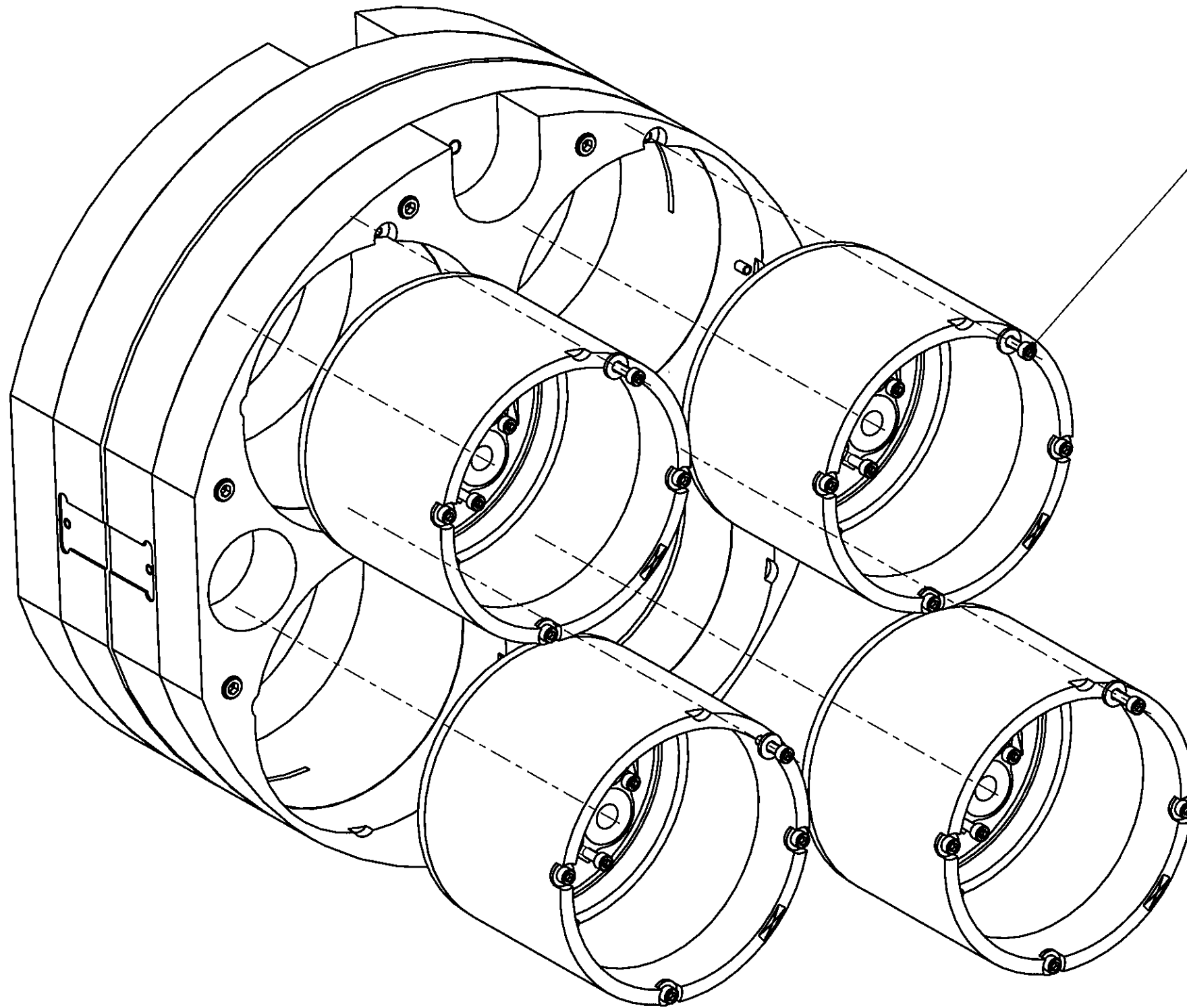
No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	8-32X1.5D.UNC.THREAD.INSERT	1/4-20 x 1.5D UNC THREAD INSERT	7
2	8-32.UNC.0-625INCH	8-32 UNC X 0.625" CAP HEAD	4
3	D060346	CAN BODY	1

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 ADVANCED LIGO									
		SUB-SYSTEM SUS									
		NEXT ASSY QUAD N-PTYPE									
		PART NAME .									
		<table border="1"> <tr> <th>NAME</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>	NAME	DATE							
NAME	DATE										
		<table border="1"> <tr> <td>DRAWN</td> <td>---</td> <td>22/Jun/07</td> </tr> <tr> <td>CHECKED</td> <td>---</td> <td>---</td> </tr> <tr> <td>APPROVED</td> <td>---</td> <td>---</td> </tr> </table>	DRAWN	---	22/Jun/07	CHECKED	---	---	APPROVED	---	---
DRAWN	---	22/Jun/07									
CHECKED	---	---									
APPROVED	---	---									
		SIZE B DRG. NO. D060341.PROCESS REV. - SCALE 1:2 PROJECTION: SHEET 10 OF 14									

INTRALINK NAME: D060341.PROCESS

REV.	DATE	DCN #	DRAWING TREE #





HEX L WRENCH SIZE: 9/64
TORQUE 10LB FT

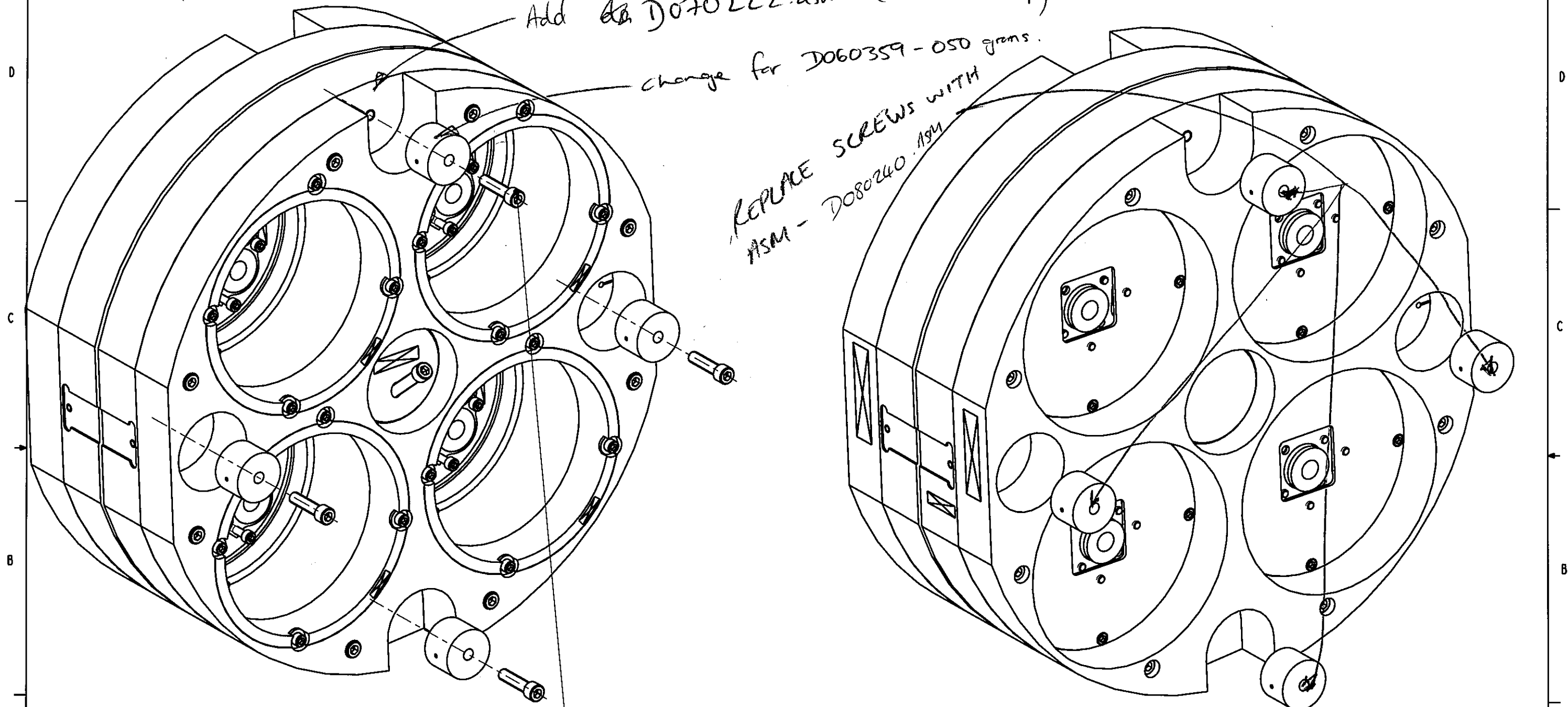
ASSEMBLE 4 OSEM CANS TO MASS AND BOLT IN PLACE

No.	PART NUMBER	PART DESCRIPTION	NO. REQD
1	8-32 UNC 0-625 INCH	8-32 UNC X 0.625" CAP HEAD	4
2	8-32 UNC BIG WASHER	8-32 UNC WASHER	4
3	D060345	ETM OSEM CAN	3

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 QUAD N-PTYPE PART NAME		
	NAME	DATE	SIZE
	DRAWN	227 Jun 07	B
	CHECKED	---	DRG. NO. D060341.PROCESS
	APPROVED	---	REV. -
SCALE 1:2			PROJECTION:  SHEET 12 OF 4



REV.	DATE	DCN #	DRAWING TREE #



Add ~~D070222~~ D070222.asm (cable clamp)
 change for D060359-050 grams.
 REPLACE SCREWS WITH
 ASM - D080240.ASM

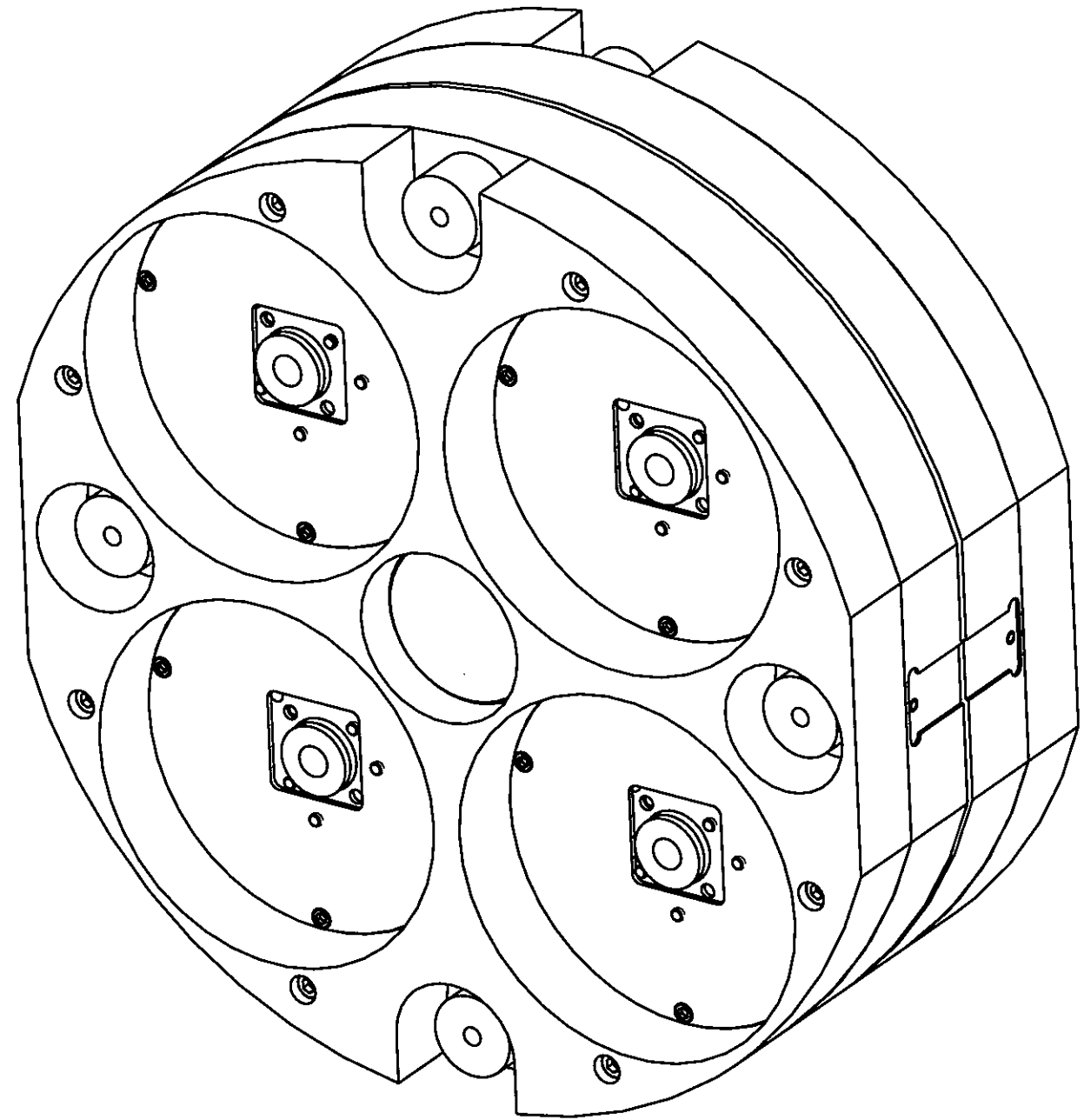
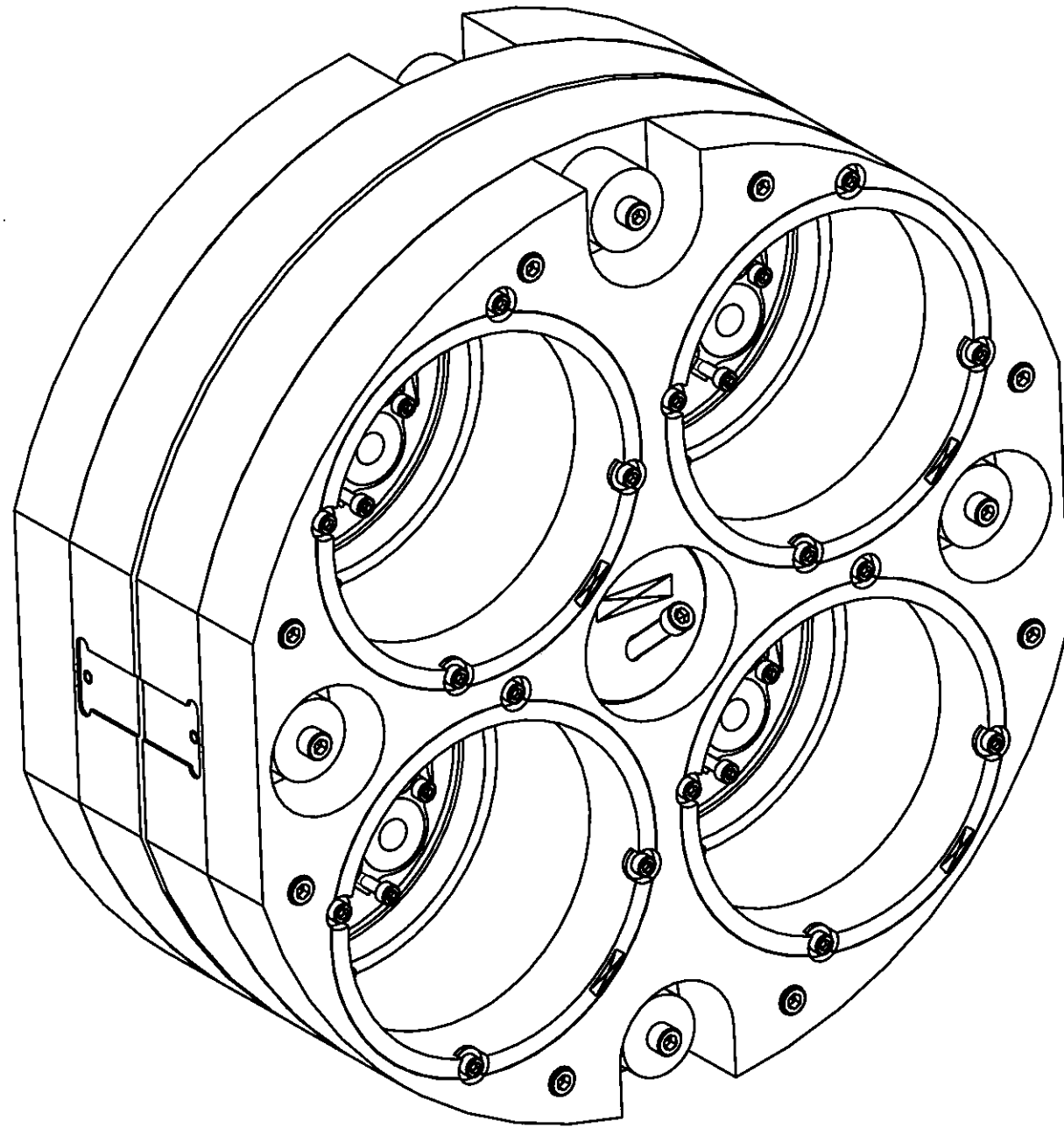
ADD ADDED MASS TO MASS

HEX L WRENCH SIZE: 3/16
 NIP TIGHT AFTER INSTALATION

1	1-4_20 UNC_1-00 INCH	1/4" 20 UNC X 1" CAP HEAD	4
2	D060359-100_0	ADDITIONAL MASS	8
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	QUAD N-PTYPE
		PART NAME	
	NAME	DATE	
	DRAWN	22/ Jun/07	
	CHECKED	---	
	APPROVED	---	
	SIZE	B	DRG. NO. D060341.PROCESS
	SCALE	1:2	PROJECTION:  SHEET 13 OF 14

INTRALINK NAME: D060341.PROCESS

REV.	DATE	DCN #	DRAWING TREE #



NOTES: (UNLESS OTHERWISE SPECIFIED)

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

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

SYSTEM **ADVANCED LIGO**

SUB-SYSTEM **SUS**

NEXT ASSY **QUAD N-PTYPE**

PART NAME

	NAME	DATE
DRAWN	---	22/Jun/07
CHECKED	---	--/---/---
APPROVED	---	--/---/---

SIZE **B** ORG. NO. **D060341.PROCESS** REV

SCALE 1:2 PROJECTION: SHEET 14 OF 4