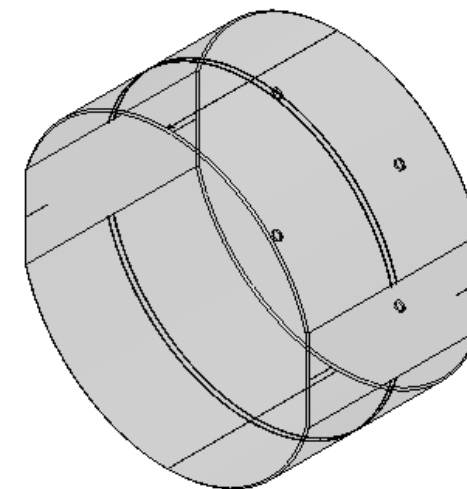
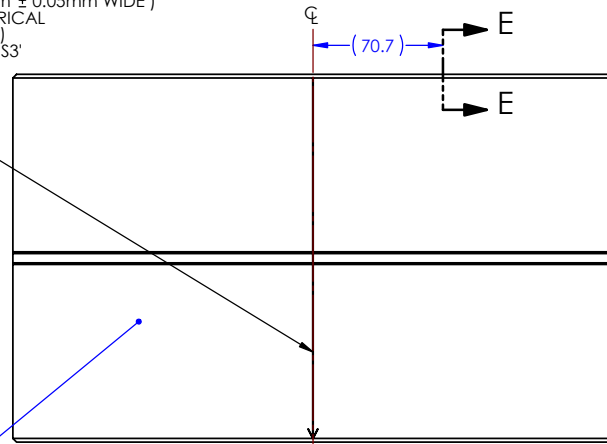


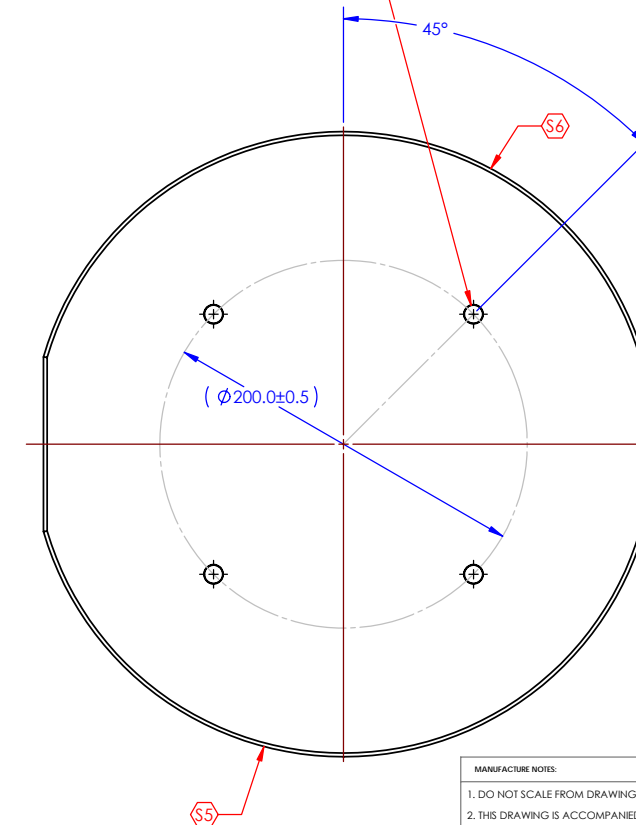
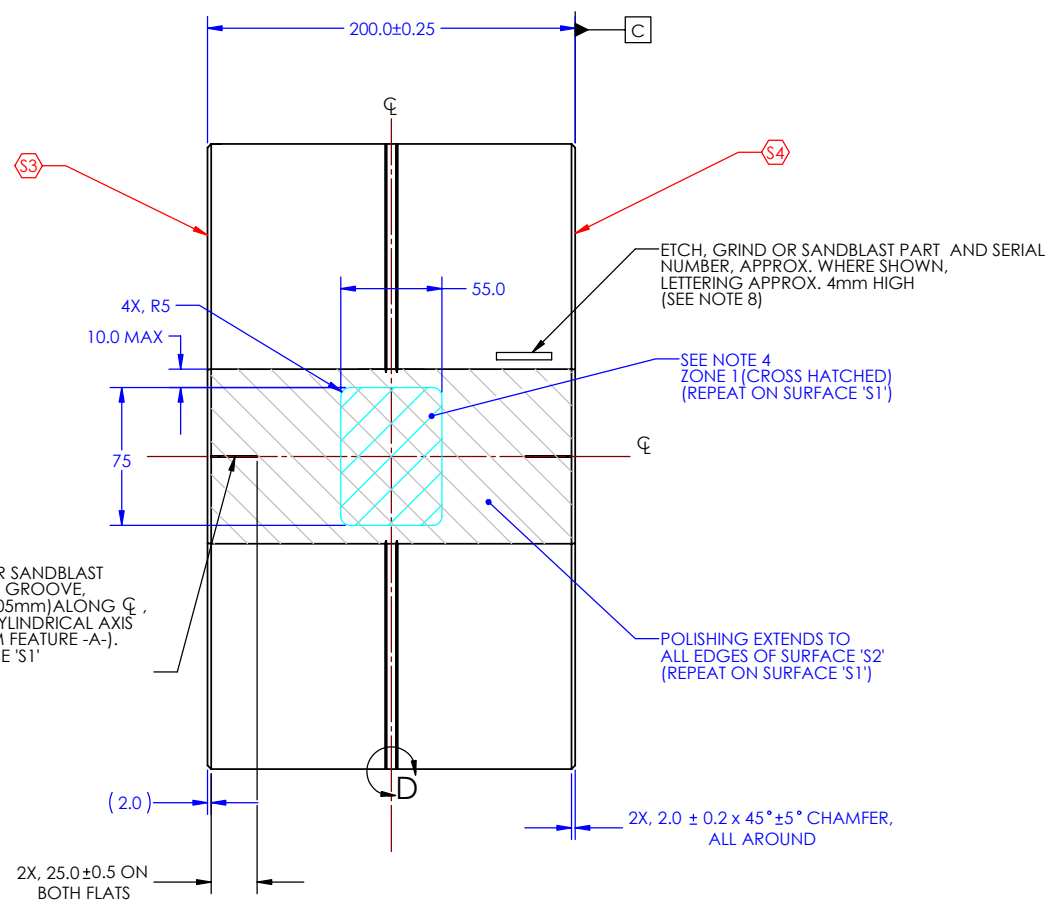
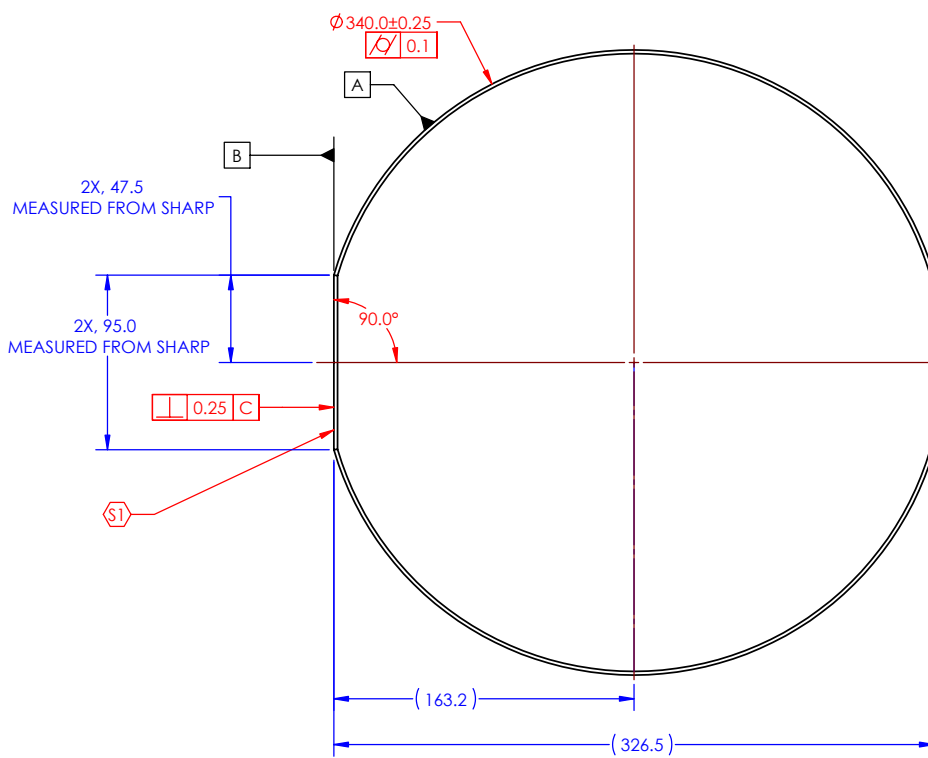
REV	DATE	DCN #	DRAWING TREE #
00	01/2008		INITIAL RELEASE BASED ON NP-type DRAWINGS
01	03/2008		ALTERATIONS BASED ON REVIEW BY G. BILLINGSLEY AND L. WILMUT
02	04/2008		ALTERATIONS TO SPECIFICATION (MATERIAL SELECTION LIST) BY K. STRAIN FOLLOWING DISCUSSION WITH G. BILLINGSLEY

ETCH, GRIND OR SANDBLAST LEGIBLE REFERENCE GROOVE (0.25mm ± 0.05mm WIDE) ALONG  $\phi$ , PARALLEL TO THE CYLINDRICAL AXIS (DEFINED BY DATUM FEATURE -A-) WITH ARROW POINTING TO SURFACE 'S3' WITHIN ±0.1mm

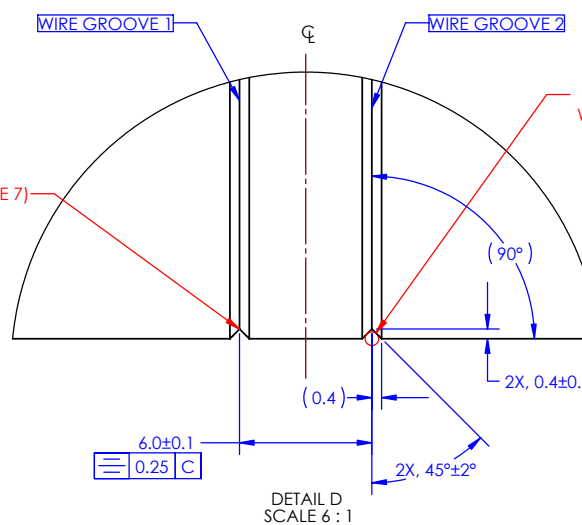
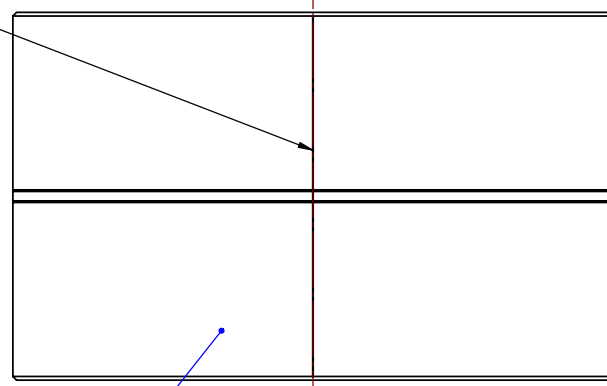


4X,  $\phi$  10.0 $\pm$ 2.0 EQUALLY SPACED ON A  $\phi$  200 $\pm$ 0.5 BOLT CIRCLE. EDGE CHIPPING TO BE MINIMISED. (SEE ALSO DETAIL 'F' ABOVE)

INSPECTION POLISH (SEE NOTE 3)



ETCH, GRIND OR SANDBLAST LEGIBLE REFERENCE GROOVE (0.25mm ± 0.05mm WIDE) ALONG  $\phi$ , PARALLEL TO THE CYLINDRICAL AXIS (DEFINED BY DATUM FEATURE -A-) WITHIN ±0.1mm



FOR PHYSICS REFERENCE ONLY:  $\phi$  0.62 (DIAMETER OF PENULTIMATE WIRES - AS TAKEN FROM T010103-05)

MANUFACTURE NOTES:

- DO NOT SCALE FROM DRAWING.
  - THIS DRAWING IS ACCOMPANIED BY LIGO SPECIFICATION 'E080090'
  - INSPECTION POLISH ALL FACES (SURFACES S3, S4, S5, AND S6) EDGES AND CHAMFERS. SURFACES SHALL APPEAR TRANSPARENT WITH NO GREY, SCUFFS OR SCRATCHES VISIBLE TO THE NAKED EYE WHEN VIEWED WITH A NORMAL ROOM LIGHT AGAINST A BLACK BACKGROUND.
  - SURFACE S2: POLISH FLAT TO  $\lambda/10$  PEAK TO VALLEY OVER APERTURE ZONE 1 (55mm x 75mm BOND AREA CENTERED ON FLAT).
  - $\lambda = 633\text{nm}$  FOR SURFACE MEASUREMENTS
  - SURFACE S1: ADD FEATURES AND POLISH AS PER INSTRUCTIONS FOR SURFACE S2.
  - WIRE GROOVES 1 and 2, SHOWN IN DETAIL 'D' ARE REQUIRED TO LOCATE TWO STEEL WIRE LOOPS ( $\phi$  0.62mm). GROOVES MUST EXTEND AROUND THE FULL CIRCUMFERENCE OF THE MASS IN THE POSITIONS SHOWN. THE SEPARATION OF THE GROOVES FROM THE CENTRE OF MASS ( $\phi$ ), AND EACH OTHER IS CRITICAL. GROOVES SHOULD BE APPROXIMATELY 'V-SHAPED' WITH A MAX. RADIUS OF 0.25mm AT THE BASE OF EACH GROOVE.
  - ETCH, GRIND OR SANDBLAST PART AND SERIAL NUMBER, APPROX. WHERE SHOWN, USE LETTERING APPROX. 4mm HIGH.
- THE SERIAL NUMBER SHOULD BE OF THE FORMAT: D08017-YY-Z WHERE 'YY' IS INCREMENTAL FOR EACH SUBSTRATE, STARTING AT '01', AND 'Z' IS THE CURRENT REVISION LETTER OF THIS SPECIFICATION. EXAMPLES: D08017-01-A, D08017-02-A, ...D08017-09-A, ...AND SO ON.

NOTES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN MILLIMETERS		LIGO		CALIFORNIA INSTITUTE OF TECHNOLOGY		MASSACHUSETTS INSTITUTE OF TECHNOLOGY		IGR, GLASGOW UNIVERSITY GEO 400 GROUP	
TOLERANCES:									
X ± 0.1									
XX ± 0.05									
ANGLES ± 0.1°									
MATERIAL	AS PER LIGO-E080090	SUB-SYSTEM	SUS	SYSTEM	ADVANCED LIGO	PROJECT			
FINISH	SEE NOTES	PART NAME	ETM QUAD						
DRAWN	D	DATE							
CHECKED		SCALE							
APPROVED		PROJECTION							