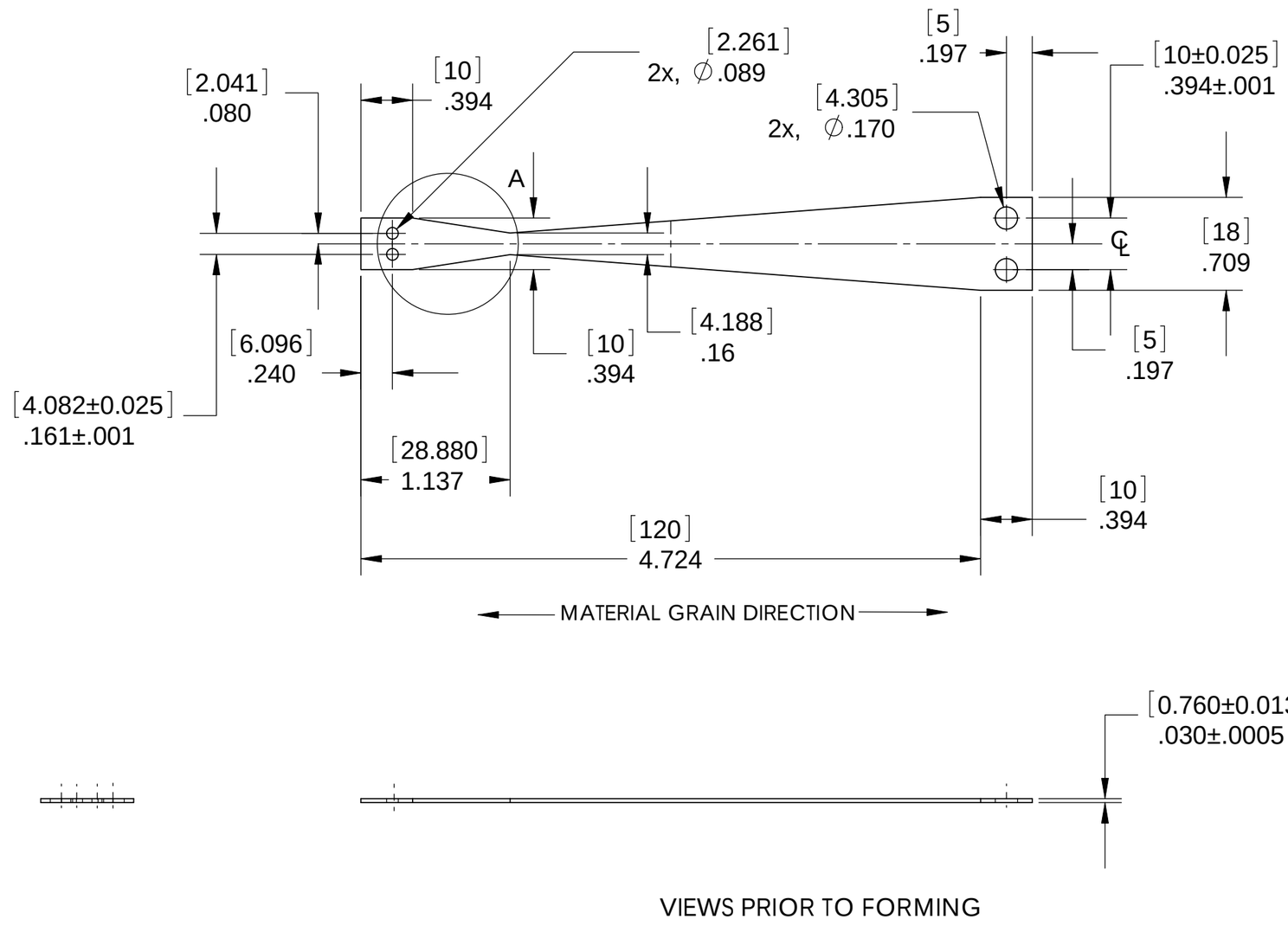
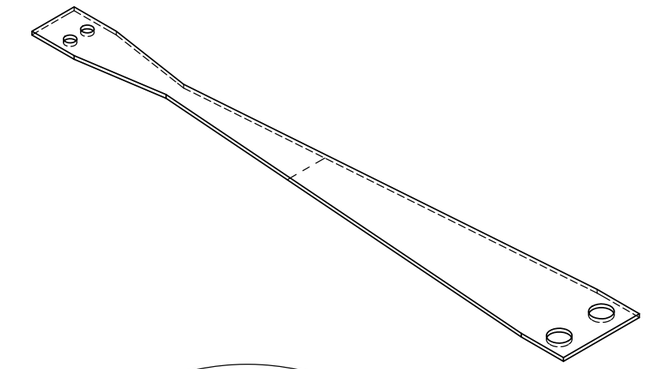
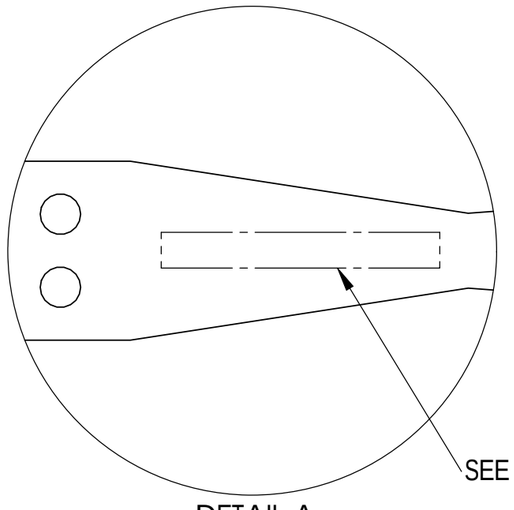
REV.	DATE	DCN #	DRAWING TREE #
v1	5 JAN 09	E0900001-v1	
v2	1 APR 09	E0900101-v1	



VIEWS PRIOR TO FORMING





DETAIL A
SCALE 3 : 1

MANUFACTURING NOTES: (UNLESS OTHERWISE SPECIFIED)

1.1 FABRICATE PER BLADE PROCESS SPECIFICATION, LIGO-E0900023-v4

1.2 ENGRAVE OR MECHANICALLY STAMP (NO DYES OR INKS) DRAWING PART NUMBER AND REVISION IN NOTED LOCATION 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 0.07" HIGH CHARACTERS.

EXAMPLE:
D080761-v1 SN 001

A VIBRATORY TOOL MAY BE USED.

1.3 REMOVE ALL SHARP EDGES, R.02 MIN.

OTHER NOTES (FOR INTERNAL USE)

2.1 SHAPE FACTOR FOR LOWER BLADE = 1.54 AND YOUNGS MODULUS USED IS 1.86e11 Pa.
2.2 LOAD ON LOWER BLADE (FLAT) = 1.435 KG AND UNCOUPLED LOAD = 0.7175 kg.
2.3 PREDICTED UNCOUPLED SUSPENSION FREQUENCY = 2.21 Hz
2.4 PREDICTED FIRST BLADE INTERNAL FREQUENCY = 199 Hz
2.5 MAXIMUM STRESS = 975 MPa
2.6 MID TO MID DEFLECTION = 102.0 mm FROM THE EXCEL SPREADSHEET. NOT VALID FOR EXTREME CURVATURE.
2.7 MID TO MID DEFLECTION (MEASURED TOP TO TOP) FROM FEA WAS 78.4mm FOR RADIUS OF CURVATURE 74.1mm
2.8 LENGTH IS 120mm (130mm INCLUDING CLAMPING LENGTH), THICKNESS is 0.76mm AND WIDTH IS 18mm.
2.9 RADIUS IS 74mm DETERMINED BY FEA 74 mm. BRACCINI eqn (TRIANGLE SHAPE) GIVES 72.5 mm.
2.10 IN THE CURVED SKETCH IN SW PART ADD MID TO MID DEFLECTION AND ADJUST RADIUS UNTIL ATTAIN DESIRED LENGTH.
2.11 IN SW PART, BLADE IS DRAWN WITH SHEET METAL AND EXTRUDED VERTICALLY DOWNWARDS.
2.12 ON SW DRAWING, SOLIDWORKS RADIUS VALUE IS THE VALUE MEASURED DIRECT FROM SW USING THE DIMENSION TOOL.

DUAL DIMENSIONS [mm] INCHES

TOLERANCES:
.XX ± .01
.XXX ± .005

ANGULAR ± 0.5 °

MATERIAL
MARAGING STEEL C250

FINISH

	NAME	DATE
DESIGNER	J ROMIE	5 JAN 2009
DRAWN	B MOORE	19 MAR 2009
CHECKED	N ROBERTSON, D. COYNE	30 MAR 2009

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM	ADVANCED LIGO
SUB-SYSTEM	SUS
NEXT ASSY	HSTS
PART NAME	LOWER BLADE, ALTERNATE

SIZE	DWG. NO.	REV.
B	D080761	v2

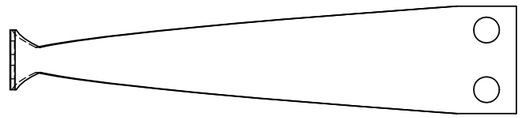
SCALE: 1:1 PROJECTION: SHEET 1 OF 2

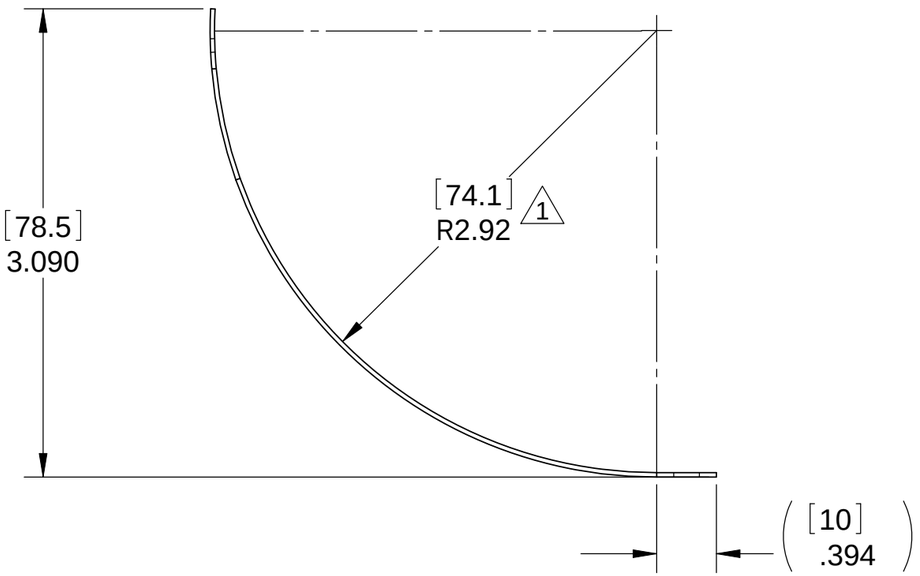
D080761_Lower Blade Alternate, PART PDM REV: V1, DRAWING PDM REV: V1

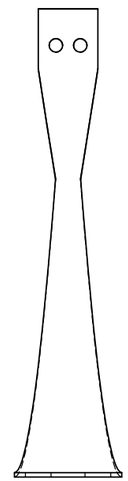
REV.	DATE	DCN #	DRAWING TREE #
v2		SEE SHEET 1	

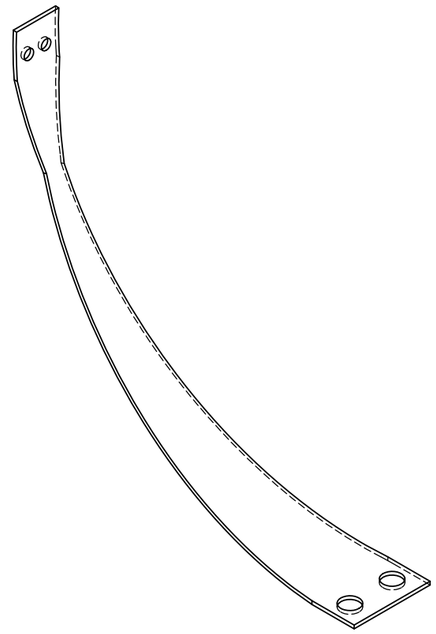
1. THE RADIUS OF CURVATURE IS THE INSIDE RADIUS.

2. THE OVERALL DEFLECTION IS MEASURED FROM THE BOTTOM OF THE BASE POINT TO THE HIGHEST POINT ON THE TIP OF THE BLADE.









VIEWS AFTER FORMING AND HEAT TREATMENT

DUAL DIMENSIONS [mm] INCHES

TOLERANCES:
.XX ± .01
.XXX ± .005

ANGULAR ± 0.5 °

MATERIAL: MARAGING STEEL C250

FINISH:

	NAME	DATE
DESIGNER	J ROMIE	5 JAN 2009
DRAWN	B MOORE	19 MAR 2009
CHECKED	N. ROBERSON D. COYNE C. TORIE	30 MAR 2009

CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM: ADVANCED LIGO

SUB-SYSTEM: SUS

NEXT ASSY: HSTS

PART NAME: LOWER BLADE, ALTERNATE

SIZE: B | DWG. NO.: D080761 | REV.: v2

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

D080761_Lower Blade Alternate, PART PDM REV: V1, DRAWING PDM REV: V1