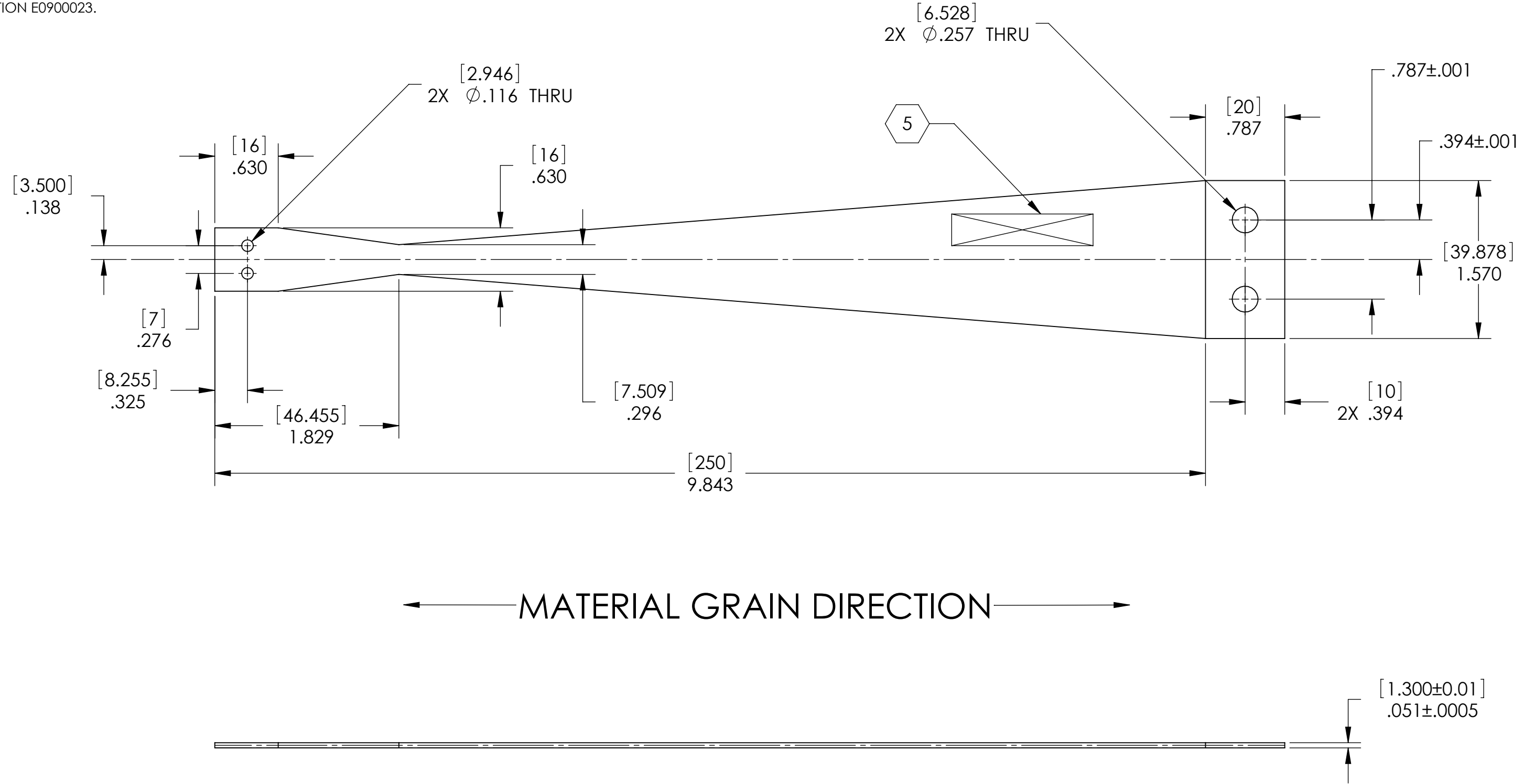


- NOTES:**
1. INTERPRET DRAWING PER ASME Y14.5-1994.
 2. REMOVE ALL SHARP EDGES, R.02 MIN.
 3. DO NOT SCALE FROM DRAWING.
 4. ALL MACHINING FLUIDS MUST BE FULLY SYNTHETIC, FULLY WATER SOLUBLE AND FREE OF SULFUR, SILICONE, AND CHLORINE.
 5. SCRIBE, ENGRAVE, OR MECHANICALLY STAMP (NO INKS OR DYES) DRAWING 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 500 FOR THE FIRST ARTICLE AND PROCEED CONSECUTIVELY. USE MINIMUM 0.12" HIGH CHARACTERS, UNLESS THE SIZE OF THE PART DICTATES SMALLER CHARACTERS. A VIBRATORY TOOL MAY BE USED. EXAMPLE: DXXXXXX-VY, TYPE-XX, S/N XXX
 6. ALL PARTS SHALL BE MANUFACTURED IN ACCORDANCE WITH LIGO SPECIFICATION E0900023.

REV.	DATE	DCN #	DRAWING TREE #
v1	28 JUL 2010	E1000255	-
v2	23 DEC 2010	E1000889	



VIEWS PRIOR TO FORMING

- INTERNAL LIGO NOTES:**
1. EXCEL SPREADSHEET REF T1000352-v2
 2. SHAPE FACTOR FOR UPPER BLADE = 1.32 AND YOUNGS MODULUS USED IS 1.86×10^{11} Pa.
 3. LOAD ON UPPER BLADE (FLAT) = 4.483 kg AND UNCOUPLED LOAD = 1.564 kg.
 4. PREDICTED UNCOUPLED SUSPENSION FREQUENCY = 1.79 Hz.
 5. PREDICTED FIRST BLADE INTERNAL FREQUENCY = 78 Hz.
 6. MAXIMUM STRESS = 979 MPa
 7. MID TO MID DEFLECTION = 223 mm FROM THE EXCEL SPREADSHEET. NOT VALID FOR EXTREME CURVATURE.
 8. MID TO MID DEFLECTION (MEASURED TOP TO TOP FROM FEA IS 176.4 mm FOR RADIUS OF CURVATURE 126.0 mm.
 9. LENGTH IS 250 mm (270 mm INCLUDING CLAMPING LENGTH), THICKNESS IS 1.3 mm AND WIDTH IS 39.878 mm.
 10. RADIUS IS 126.0 mm DETERMINED BY FEA, COMPARE TO $R = EI/M = 120$ mm.
 11. IN THE CURVED SKETCH IN SW PART ADD MID TO MID DEFLECTION AND ADJUST RADIUS UNTIL DESIRED LENGTH IS ATTAINED.
 12. IN SW PART, BLADE IS DRAWN WITH SHEET METAL AND EXTRUDED VERTICALLY DOWNWARDS.
 13. ON SW DRAWING, SOLIDWORKS RADIUS VALUE IS THE VALUE MEASURED DIRECT FROM SW USING THE DIMENSION TOOL.

NOTES AND TOLERANCES: (UNLESS OTHERWISE SPECIFIED)

DIMENSIONS ARE IN INCHES [MM]

TOLERANCES:
 .XX ± .01
 .XXX ± .005

ANGULAR ± 0.5°

MATERIAL
 MARAGING STEEL C250

FINISH
 32 μinch

LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY

SYSTEM
 ADVANCED LIGO

SUB-SYSTEM
 SUS

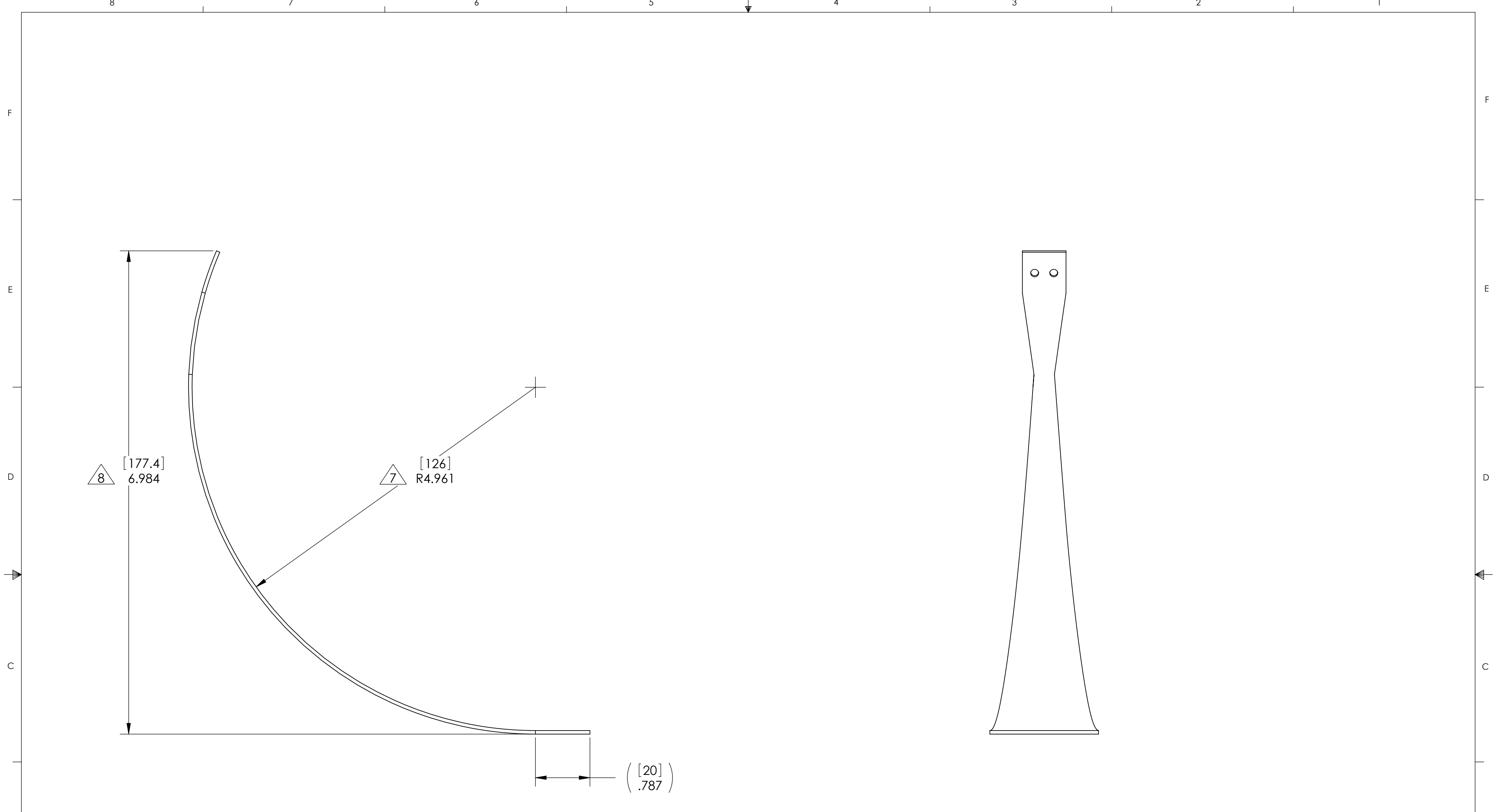
NEXT ASSY
 D1000045

PART NAME



HSTS UPPER BLADE



DESIGNER	M. MEYER	26 JUL 2010
DRAFTER	M. MEYER	27 JUL 2010
CHECKER	C. TORRIE	28 JUL 2010
APPROVAL		

SIZE	DWG. NO.	REV.
c	D1001812	v2
SCALE: 1:2	PROJECTION:	SHEET 1 OF 2



VIEWS AFTER FORMING AND HEAT TREATMENT

-  THE RADIUS OF THE CURVATURE IS THE INSIDE RADIUS
-  THE OVERALL DEFLECTION IS MEASURED FROM THE BOTTOM OF THE BASE POINT TO THE HIGHEST POINT ON THE TIP

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SIZE C	DWG. NO. D1001812	REV. v2
SCALE: 1:1	PROJECTION: 	SHEET 2 OF 2