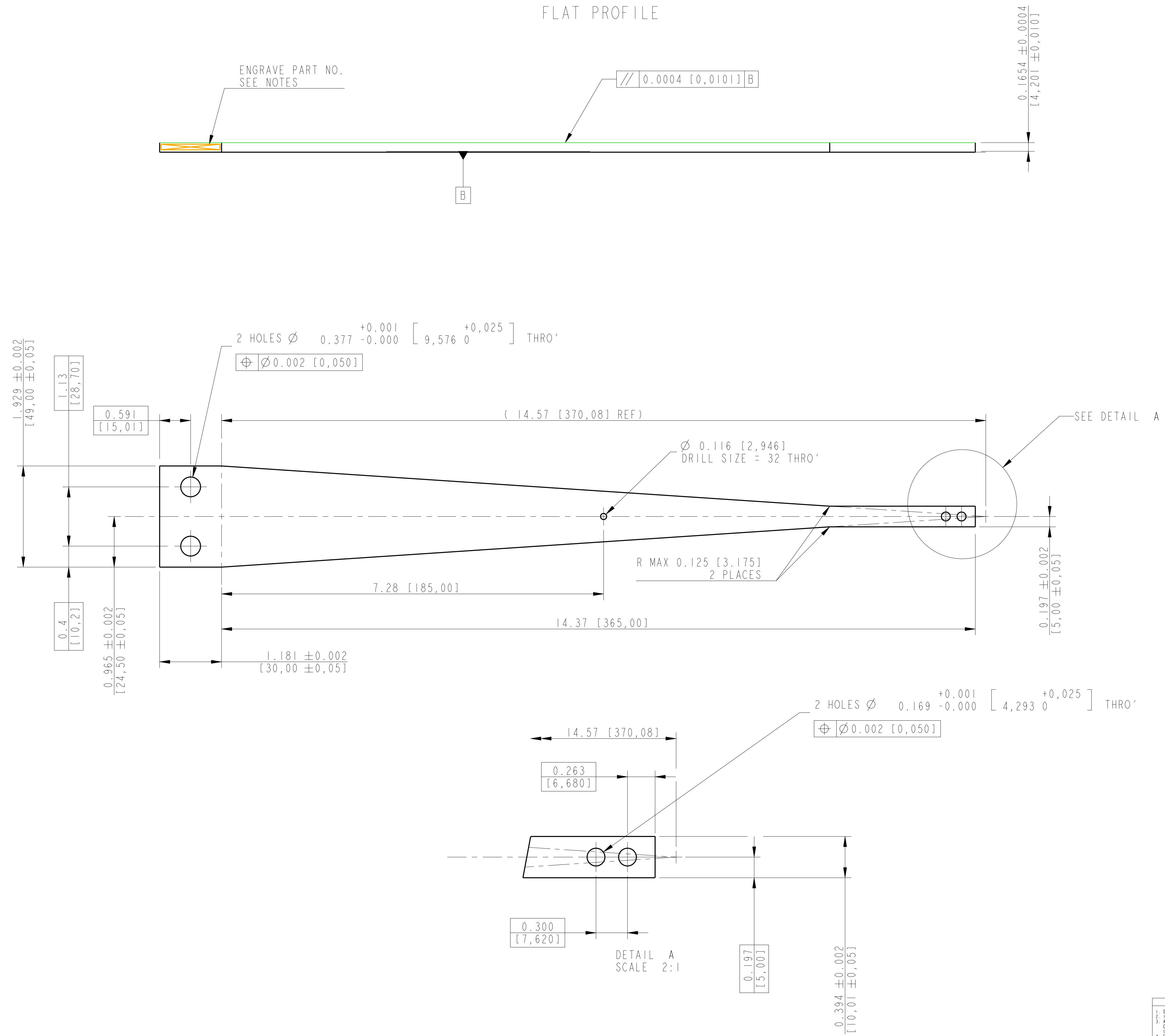


REV.	DATE	DCN #	DRAWING TREE #
A	02/JUL/04	E040312-01-K	-
B	20/JUL/04	E040345-01-K	-
C	26/JUL/04	E040355-01-K	-

FLAT PROFILE



NOTES: (UNLESS OTHERWISE SPECIFIED)

- DO NOT SCALE FROM DRAWING.
- INTERPRET DIMENSIONS PER: ANSI Y14.5 1982
- ALL MACHINING FLUIDS SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CINCINNATI MILACON'S CIMTECH 410 (STAINLESS STEEL).
- FABRICATE FROM SHEET MATERIAL. FORM RADIUS BY ROLLING.
- REMOVE ALL SHARP EDGES. 0.02 MIN.
- SCRIBE, ENGRAVE OR STAMP DRAWING PART NUMBER ON NOTED SURFACE OF PART AND A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST PART AND PROCEED CONSECUTIVELY. USE "0" HIGH CHARACTERS. EXAMPLE: 000100P-001. A VISEGRATORY TOOL MAY BE USED.
- AFTER PARTS ARE ROLLED TO RADIUS, HARDEN FOR HEAT TREATMENT AT 435 DEG C FOR 100 HOURS AND AIR COOL. PARTS MUST BE SUPPORTED WITH TOOLING DURING HEAT TREATMENT TO AVOID RADIUS CHANGE DUE TO SELF WEIGHT. TOOLING FOR HEAT TREATMENT MAY BE A "SHAKE BACK" TYPE OF TOOL THAT WILL ALLOW THE PARTS TO BE MOUNTED ON THEIR SIDES. PARTS MAY BE ROLLED AGAIN AFTER HEAT TREATMENT TO ADJUST RADIUS TO SPECIFICATION.

DIMENSIONS ARE IN INCHES (mm)

X.XX ±0.01 TO 250 mm)
X.XXX ±0.005
ANGULAR ±0.250 °

MATERIAL: MACHINING STEEL 250

FINISH: CLEAN AND DEGREASED
√(µin Ra) Ra = 32 (TO 81)

DRAWN: J. MILWOT 26/JUL/04
CHECKED: R.JG 23/JUL/04
APPROVED: [Signature]

CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
IGR, GLASSBORO UNIVERSITY GEO 600 GROUP
WORTHINGTON APPLETON LABORATORIES

SYSTEM: **ADVANCED LIGO**

SUB-SYSTEM: **SUS**

NEXT ASSY: **UPPER INTERMEDIATE MASS**

PART NAME: **BOTTOM BLADE SPRINGS**

QUAD CONTROLS PROTOTYPE

DRG. NO: **D040296**

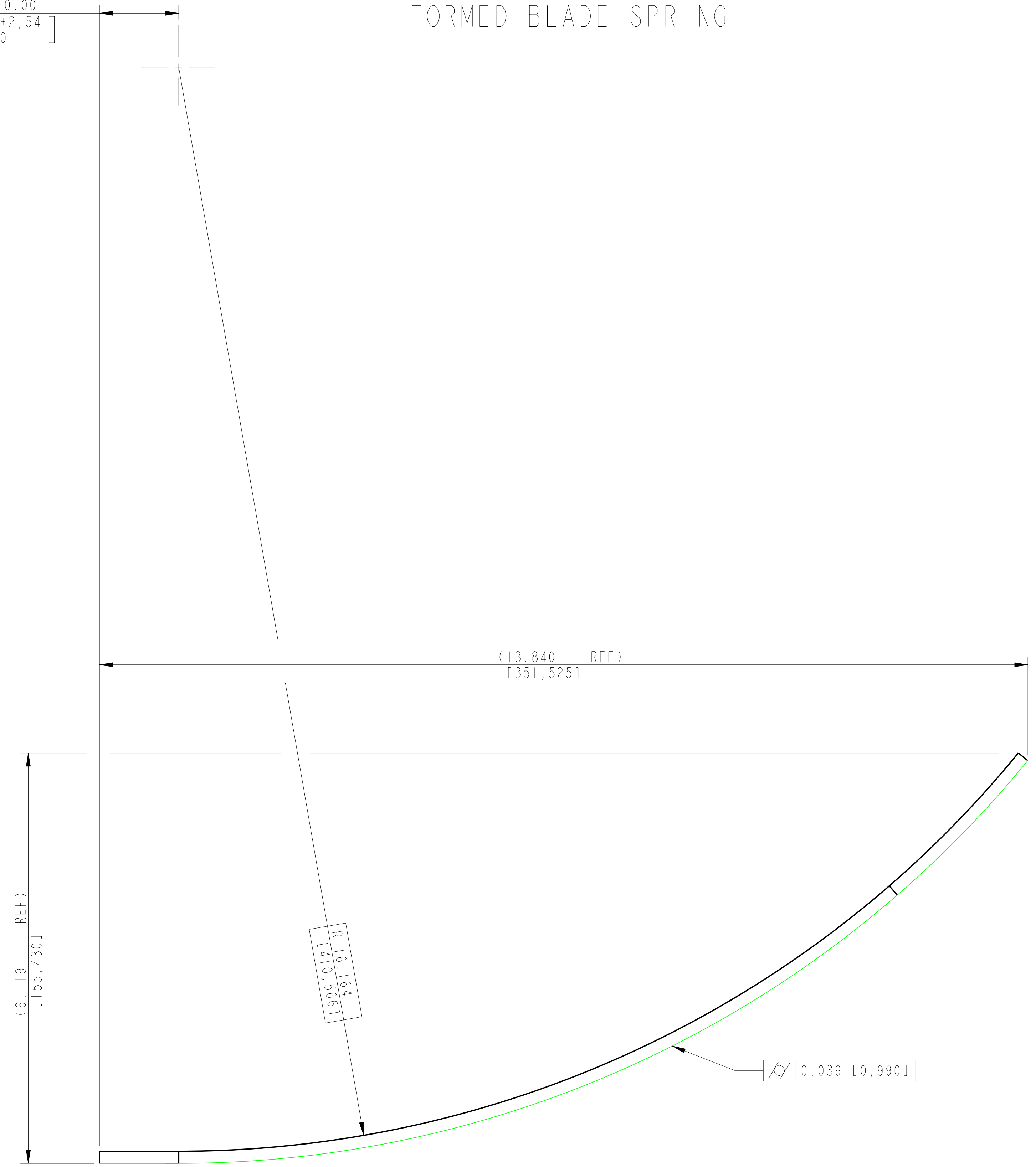
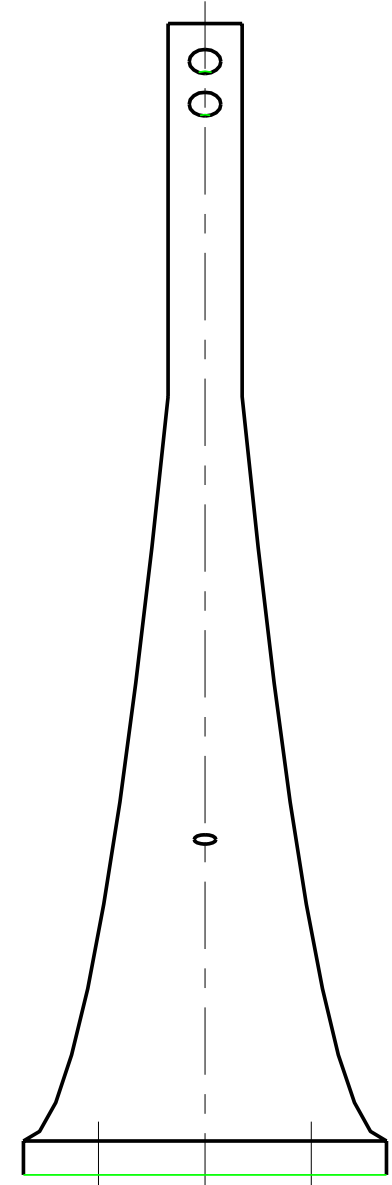
SCALE: 1:1 PROJECTION: [Symbol] SHEET 1 OF 1

FOR INTERNAL USE ONLY:

E=186Gpa
 ALPHA=1.35
 TOTAL SUSP MASS = 39 KG
 P MASS = 19.2 KG
 PREDICTED:
 F = 1.804Hz
 1st INTERNAL MODE = 115.5Hz
 σ MAX = 983MPa
 REF: COMMUNICATION WITH BLADE COMMITTEE

FORMED BLADE SPRING

+0.10
 1.18 -0.00
 [30,00 0]



NOTES: (UNLESS OTHERWISE SPECIFIED)

- DO NOT SCALE FROM DRAWING.
- INTERPRET DIMENSIONS PER: ANSI Y14.5 1982
- ALL MACHINING FLUIDS SHALL BE WATER SOLUBLE AND FREE OF SULFUR, CHLORINE AND SILICONE, SUCH AS CINCINNATI MILACON'S CIMTECH 410 (STAINLESS STEEL).
- FABRICATE FROM SHEET MATERIAL. FORM RADIUS BY ROLLING.
- REMOVE ALL SHARP EDGES. R 0.02 MIN.
- ENGRAVE OR STAMP DRAWING PART NUMBER ON NOTED SURFACE OF PART AND A THREE DIGIT SERIAL NUMBER. SERIAL NUMBERS START AT 001 FOR THE FIRST PART AND PROCEED CONSECUTIVELY. USE "0" HIGH CHARACTERS.
- EXAMPLE: 00010P-001. A VISEGRATORY TOOL MAY BE USED.
- AFTER PARTS ARE ROLLED TO RADIUS, HARDEN FOR HEAT TREATMENT AT 435 DEG C FOR 100 HOURS AND AIR COOL. PARTS MUST BE SUPPORTED WITH TOOLING DURING HEAT TREATMENT TO AVOID RADIUS CHANGE DUE TO SELF WEIGHT. TOOLING FOR HEAT TREATMENT MAY BE A "SHAKE BACK" TYPE OF TOOL THAT WILL ALLOW THE PARTS TO BE MOUNTED ON THEIR SIDES. PARTS MAY BE ROLLED AGAIN AFTER HEAT TREATMENT TO ADJUST RADIUS TO SPECIFICATION.

DIMENSIONS ARE IN INCHES (mm)

X.XX ±0.01 (0.250 mm)
 X.XXX ±0.005
 ANGULAR ±0.250 °

MATERIAL: MARAGING STEEL 250
 FINISH: CLEAN AND DEGREASED
 SURF. RA: 32 (0.8)
 SURF. RA: 16 (0.4)

DATE	NAME
26/JUL/04	J.M.W.M.T.
DATE	NAME
23/JUL/04	R.J.G.
DATE	NAME

SCALE: 1:1 PROJECTION: SHEET 2 OF 2

CALIFORNIA INSTITUTE OF TECHNOLOGY
 MASSACHUSETTS INSTITUTE OF TECHNOLOGY
 IGR, GLASSON UNIVERSITY GED 600 GROUP
 WORTHINGTON APPELTON LABORATORIES

SYSTEM: **ADVANCED LIGO**

SUB-SYSTEM: **SUS**

NEXT ASSY: **UPPER INTERMEDIATE MASS**

PART NAME: **BOTTOM BLADE SPRINGS**

QUAD CONTROLS PROTOTYPE

DRG. NO: **D040296**