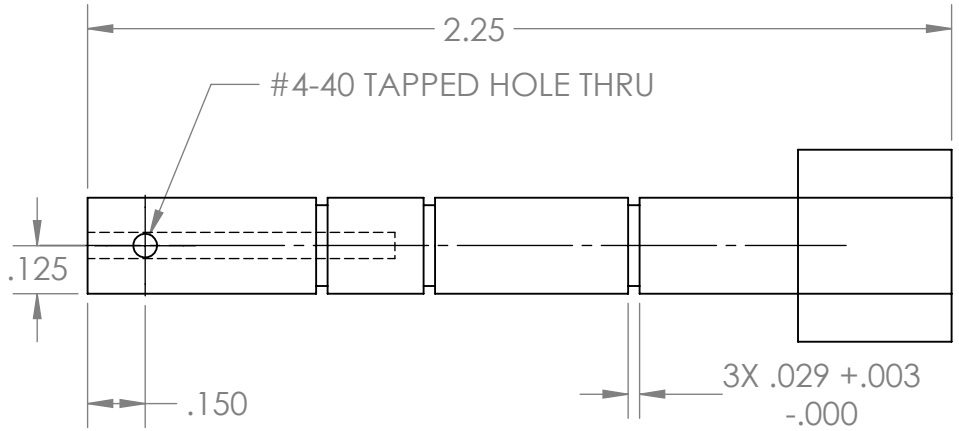

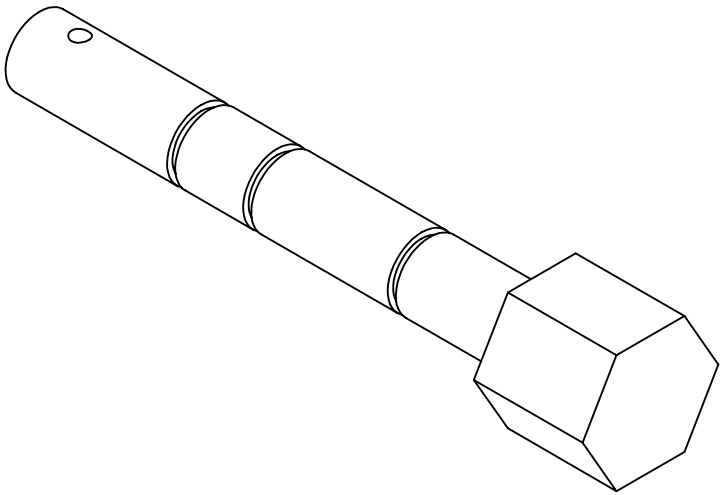

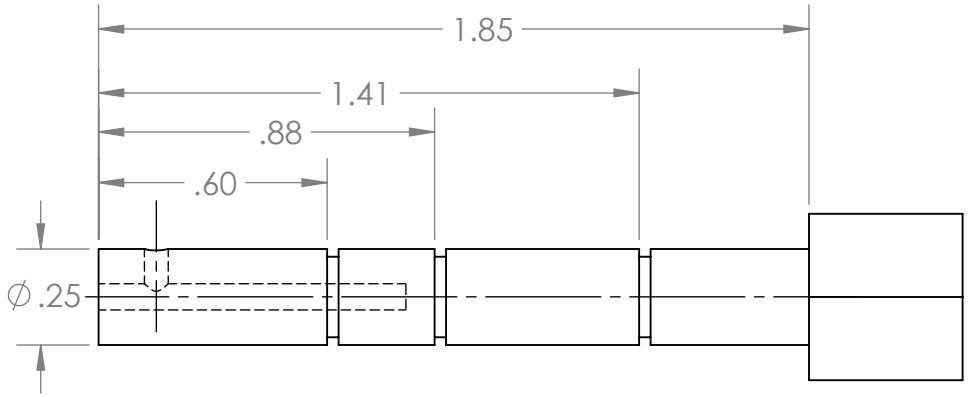

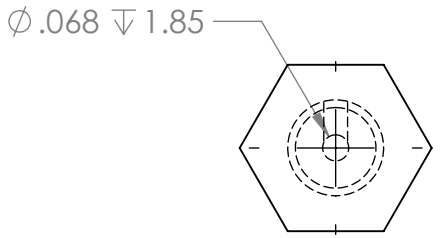

DRAWING & MANUF. PLAN CHECKS:
- PART FULLY DIMENSIONED
- APPROPRIATE DATUM LINES
- TOLERANCES SPECIFIED
- MATERIAL/QUANTITY SPECIFIED
- IF APPLICABLE, REAMER CALLED OUT
- APPROPRIATE TOOL SPEEDS
- APPROPRIATE DRILL/TAP SIZES
- SPECIFIED ALL NECESSARY TOOLS/SIZES NECESSARY
- RAW STOCK CUT OVERSIZED
- STEPS TO GET ALL ALL MACHINED/STOCK SURFACES

REVISION BLOCK	
REV 1	INITIAL RELEASE
REV 2	FIXED DIMENTIONS

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES

TOLERANCES:
MACHINED ANGULAR: ± 1°
BENT ANGULAR: ± 3°
TWO PLACE DECIMAL: ± 0.01
THREE PLACE DECIMAL: ± 0.005

INTERPRET GEOMETRIC TOLERANCES PER: ASME Y14.5-2009

MATERIAL: Aluminum .5" hex stock

FINISH: BURR FREE

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	ABIRNB	11/20/21
CHECKED	ABIRNB	11/22/21
GSI/IA APPR.		
SHOP APPR.		
INSPECTED		

COMMENTS:

ME 250 TEAM 103

TITLE:

WHEEL AXEL

SIZE	DWG. NO.	REV
A	P103_24	2

SCALE: 2:1 | QUANTITY: 4 | SHEET 1 OF 2

MANUFACTURING PLAN

RAW MATERIAL STOCK: **1/2" Aluminum Hex**

STEP	PROCESS DESCRIPTION	MACHINE	FIXTURE	TOOL(S)	SPEED (RPM)
1	Cut down to 3"	Band Saw	-	-	300 ft/min
2	Deburr the ends of the surfaces	Lathe	-	FIle	-
3	Place in lathe and face off to get a machined surface	Lathe	Hex Collet	Cutting tool	750
4	Deburr the part	Lathe	Hex Collet	File	-
5	Remove part from lathe and flip	-	-	-	-
6	Repeat steps 3 and 4	Callipers	-	-	-
7	Remove part from lathe and measure with callipers	Lathe	-	-	-
8	touch off with parting tool and zero x. Cut to length taking passes of 0.050" or less	Lathe	Hex Collet	Cutting Tool	750
9	drill end with center drill to create a divot and install live center	Lathe	Hex Collet	Cutting Tool	750
10	Lathe down to .25" dameter with passes going to 1.75" with the final pass going to 1.85"	Lathe	Hex Collet	Cutting Tool	750
11	0 the x direction. Move tool towards part the thickness of the groove tool in the x direction and rezero the x direction. Move lathe distance to the groove in x and touch off in the z direction Move lathe an additional 0.03" in z direction to cut the groove	Lathe	Hex Collet	Cutting Tool	750
12	Repeat step 10 for other 2 E clip holes	Lathe	Hex Collet	Cutting Tool	
13	Centerdrill	Lathe	Hex Collet	Centerdrill with drill chuck	1600
14	Drill .068" hole to depth of 1.85"	Lathe	Hex Collet	#50 drill with drill chuck	
15	Deburr the part	Mill	-	File	-
16	Use edgefinder to locate X and Y coordinates of edges	Mill	Vise 1	Edge FInder with drill chuck	1000
17	Centerdrill	Mill	Vise 1	centerdrill with drill chuck	1600
18	Drill a thru hole .15" off the thin end with a .062" diameter	MIll	Vise 1	1/16 Drill with drill chuck	1600
19	Tap 4-40 thread	Mill	Vise 1	4-40 Tap drill chuck, drill chuck tap fixture	
20	Deburr the part	-	-	file	-