

| NHTI-CONCORD'S COMMUNITY COLLEGE MANUFACTURING PROCESS SHEET | | PART NAME: HAMMER HANDLE | | | DRAWING NO. MP101 - MF111- RB110 HANDLE | |
|---|--|-------------------------------|--------------------------------------|-------------|---|-----------------|
| LAB SECTION: MP101 RB110 MF111 | | START DATE: TBD | COMPLETION DATE: TBD | QUANTITY: 1 | MATERIAL: 1020 CD STEEL | SHEET 1 of 3 |
| OPERATION NUMBER | OPERATION DESCRIPTION | EQUIPMENT | MACHINE SETTINGS | | TOOL(S) | |
| | | | FEED | SPEED | | |
| 1 | Cut a length of 5/8" round stock and deburr both ends. Allow extra length on each end for facing operations. 8 3/4" is suggested length of cut. | Cutoff Saw | Auto | Fixed | 12" Rule Hand file | |
| 2 | (a) Set-up piece on Lathe in the 3-jaw chuck, Face the end & Center Drill to proper depth. (b) Reverse workpiece, Face the opposite end, Remove and apply Dykem. Scribe overall length using height gage and surface plate (c) Reload workpiece and Face to specified length, Center Drill to proper depth. (Maximum facing cutting depth 0.020" per cut) | LeBlond Lathe Compound 90° | Cross Feed: Manually feed | 654 RPM | 3-jaw chuck 55°Diamond RH Insert tool #4 Center Drill 1" micrometer Height Gage Surface plate Blue Dykem | |
| 3 | (a) Setup piece (end down) on surface plate and scribe both the .844" and 4.50" length dimensions using the height gage (b) Set-up piece on the Lathe in the 3-jaw chuck with the .844" dimension end extended approximately 1 1/2" out of chuck. (c) Turn the 3/8-16 UNC-2B major thread diameter to proper size (see MHB) to .844" length (Maximum cutting depth 0.025" per cut) MHB: Machinery's Handbook (thread specification) | LeBlond Lathe Compound 90° | Long Feed: Auto-feed 0.004/rev | 654 RPM | 55°Diamond RH Insert tool 1" micrometer Height Gage Surface plate Blue Dykem | |

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| OPERATION NUMBER | OPERATION DESCRIPTION | EQUIPMENT | MACHINE SETTINGS | | TOOL(S) | |
| | | | FEED | SPEED | | |
| 4 | (a) Cut the .03" X 45° Chamfer on end using the Chamfer Tool (b) Create thread relief groove using the Grooving Tool to proper diameter and length. Only feed tool radially to cut groove | LeBlond Lathe Compound 90° | Long Feed: Auto-feed 0.004"/rev Chamfer & Grooving: Manually- Feed | Chamfer 256 RPM Turning 654 RPM Grooving 256 RPM | 3-jaw Chuck. Chamfer Tool Insert Groove Tool 1" Micrometer | |
| 5 | (a) *Using the same part setup as Operation #4 setup the lathe for single point thread cutting (b) *Cut the 3/8-16 UNC-2A threads using the compound rest dial (set at 29°), the lead screw, split nut, and thread chasing dial. (c) Check thread for fit using standard 3/8-16 nut *Instructions for Threading Setup will be given by the instructor. Reference MHB for thread data. | LeBlond Lathe Compound 29° | Auto-feed with Lead Screw and thread dial 16 TPI | 45 RPM | 3-Jaw Chuck 60° Thread Insert Tool Center Gage 1" Micrometer Thread pitch micrometer | |
| 6 | (a) Position part with threaded end extended approximately 4 3/8" beyond jaws. (4.50" scribe line visible) support RH end with live center (b) Turn the .468" diameter oversize (leave .030-.040" oversize) Shorten length of cut to allow for the .06" Radius to be done in a later operation | LeBlond Lathe Compound 90° | Long Feed: Auto-feed 0.004"/rev. | 654 RPM | 3-Jaw Chuck Live Center 55°RH Tool 1" Micrometer | |

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| OPERATION NUMBER | OPERATION DESCRIPTION | EQUIPMENT | MACHINE SETTINGS | | TOOL(S) |
| | | | FEED | SPEED | |
| 7 | (a) Set-up the workpiece with threaded end in 3-Jaw Chuck and live center in tailstock supporting the RH end. (b) Turn the .594" diameter | LeBlond Lathe Compound 90° | Long Feed: Auto-feed 0.004"/rev | 654 rpm | 3 Jaw chuck Live Center 55°RH Tool 1" Micrometer |
| 8 | (a) *Set-up knurling tool, knurl the handle end (b) Add .06" X 45° chamfer on end with chamfer tool *Instruction for setup of knurling will be given by instructor | LeBlond Lathe Compound 90° | Long Feed: Knurling Auto-feed 0.010"/rev Chamfer: Manual feed | Knurling 95 rpm Chamfer 256 rpm | 3 Jaw chuck Live Center Knurling tool Chamfer tool |
| 9 | (a) Set-up piece on lathe with knurled end held in 3-jaw chuck, (use cardboard between jaws and knurled surface) support RH end with live center (b) Finish Turn the Ø.468 to size (c) Chamfer RH end of .468" diameter section (d) Add the R.06 with radius tool to LH end of the .468" diameter section | LeBlond Lathe Compound 90° | Long Feed: Auto-feed 0.004"/rev | 654 rpm | 3 Jaw chuck Live Center 55°RH Tool Chamfer Tool Radius Tool Radius gage 1" Micrometer |
| 10 | (a) Inspect part and complete Inspection Report (b) Submit Inspection Report and physical part to the instructor for grading | Optical Comparator | n/a | n/a | Inspection Tools as needed |

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