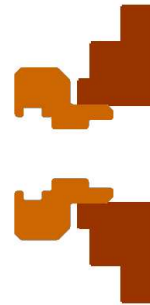
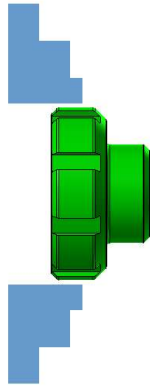


Setup Sheet for MULTI - AXIS MILL / TURN LATHE 2 - 2

General Information

Date & Time: Tuesday, October 20, 2015 9:47 PM	Machine Group: Machine Group-1	Units: Inch
Project: Sample Varco Setup Sheet	Customer: Varco Reporting	
Programmer: Jim Varco	Note 1:	
Drawing:	Note 2:	
Revision:	Note 3:	
Mastercam File: V:\VARCO REPORTING\MASTERCAM PART FILES\LATHE W-MILL EXAMPLE.MCX-9		



Top


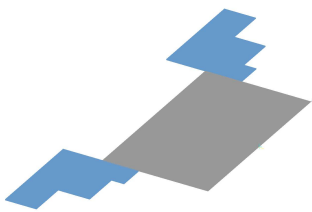
1.5018 in
Inch

Chuck:	Left	Right	Stock:	Left	Right
Grip Length:	0.0"	0.0"	Shape:	NA	Box
Height:	2.0"	2.0"	Outside Dia:	NA	NA"
Width:	1.5"	1.5"	Inside Dia.:	NA	NA"
Thickness:	0.625"	0.625"	Length:	NA	NA"
Reference:	X-1.375", Z1.775"	X15.0", Z1.0"	Z Reference:	NA	NA"
H. Step:	0.25"	0.25"	Material:	STEEL inch - 1030 - 200 BHN	
V. Step:	0.5"	0.5"	Mtl. Comment:	MEDIUM CARBON	




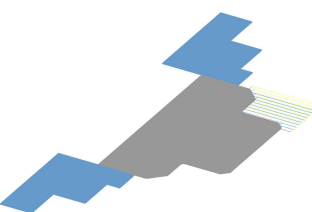
Operations List for "LATHE WITH MILL EXAMPLE.NC"

Lathe- OP# 1: Rough Face Z+.005"

	Name: Lathe Face	Cycle Time: 00h, 00m, 27s	
	Prg. No.: 0	% of Prg. Cycle: 0.30%	
	Stk. to Leave Z: 0.005"	Coolant: Off	
Tool:			
	Mfg. Code:	Spindle Speed: 200 CSS	
	Comment: Rough Face Z+.005"	Use CSS: Yes	
	Dia. Offset: 0	Tool Type: General Turning Tool	Spindle Max: 10000 RPM
	Turret: Upper	Number: 1	Fast Feed: 0.01 inch/rev
	Station: 1	Alias: T0101	
	Spindle: Left	Nose Radius: 0.0313"	
	Lng. Offset: 1		


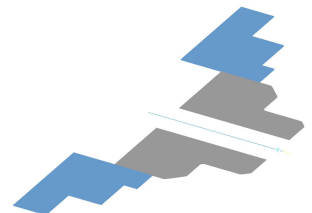
Operation- Coolant is Off

Lathe- OP# 2: Rough Turn OD X+.01, Z+.005"

	Name: Lathe Rough	Cycle Time: 00h, 04m, 17s	
	Prg. No.: 0	% of Prg. Cycle: 2.82%	
	Stk. to Leave X: 0.01"	Coolant: Off	
	Stk. to Leave Z: 0.005"		
Tool:			
	Mfg. Code:	Spindle Speed: 200 CSS	
	Comment: Rough Turn OD X+.01, Z+.005"	Use CSS: Yes	
	Dia. Offset: 0	Tool Type: General Turning Tool	Spindle Max: 10000 RPM
	Turret: Upper	Number: 1	Fast Feed: 0.01 inch/rev
	Station: 1	Nose Radius: 0.0313"	
	Spindle: Left		
	Lng. Offset: 1		


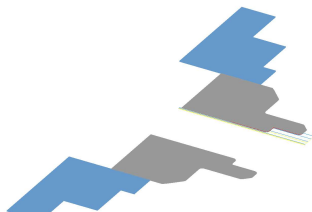
Operation- Coolant is Off

Lathe- OP# 3: Dill

	Name: Lathe Drill	Cycle Time: 00h, 01m, 17s	
	Prg. No.: 0	% of Prg. Cycle: 0.84%	
		Coolant: Off	
Tool:			
	Mfg. Code:	Spindle Speed: 200 RPM	
	Comment: Dill	Use CSS: No	
	Dia. Offset: 0	Tool Type: Drill	Spindle Max: 5000 RPM
	Turret: Upper	Number: 125	Fast Feed: 0.01 inch/rev
	Station: 125	Alias: T125125	
	Spindle: Left		
	Lng. Offset: 125		


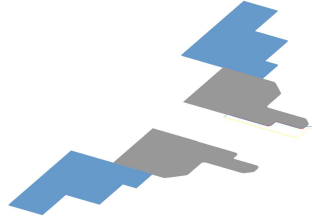
Operation- Coolant is Off

Lathe- OP# 4: Rough Bore X+.01", Z+.005"

	Name: Lathe Rough	Cycle Time: 00h, 00m, 54s	
	Prg. No.: 0	% of Prg. Cycle: 0.59%	
	Stk. to Leave X: 0.01"	Coolant: Off	
	Stk. to Leave Z: 0.005"		
Tool:			
	Mfg. Code:	Spindle Speed: 200 CSS	
	Comment: Rough Bore X+.01", Z+.005"	Use CSS: Yes	
	Dia. Offset: 0	Tool Type: Boring Tool	Spindle Max: 10000 RPM
	Turret: Upper	Number: 75	Fast Feed: 0.01 inch/rev
	Station: 75	Nose Radius: 0.0313"	
	Spindle: Left		
	Lng. Offset: 75		


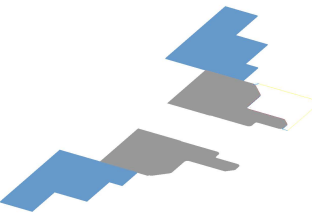
Operation- Coolant is Off

Lathe- OP# 5: Finish Bore

 Name: Lathe Finish	Cycle Time: 00h, 00m, 31s	
Prg. No.: 0	% of Prg. Cycle: 0.34%	
Stk. to Leave X: 0.0"	Coolant: Off	
Stk. to Leave Z: 0.0"		
Tool:		
Mfg. Code:	Spindle Speed: 200 CSS	
Comment: Finish Bore	Use CSS: Yes	
Dia. Offset: 0	Tool Type: Boring Tool	Spindle Max: 10000 RPM
Turret: Upper	Number: 85	Fast Feed: 0.01 inch/rev
Station: 85	Nose Radius: 0.0313"	
Spindle: Left		
Lng. Offset: 85		


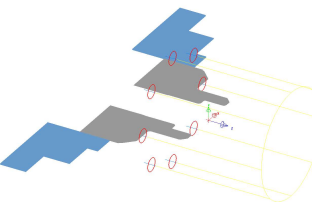
Operation- Coolant is Off

Lathe- OP# 6: Finish Turn & Face

 Name: Lathe Finish	Cycle Time: 00h, 02m, 39s	
Prg. No.: 0	% of Prg. Cycle: 1.74%	
Stk. to Leave X: 0.0"	Coolant: Off	
Stk. to Leave Z: 0.0"		
Tool:		
Mfg. Code:	Spindle Speed: 200 CSS	
Comment: Finish Turn & Face	Use CSS: Yes	
Dia. Offset: 0	Tool Type: General Turning Tool	Spindle Max: 10000 RPM
Turret: Upper	Number: 21	Fast Feed: 0.005 inch/rev
Station: 21	Nose Radius: 0.0156"	
Spindle: Left		
Lng. Offset: 21		



Operation- Coolant is Off

Mill- OP# 7: Spot Drill Face Holes

 Name: Drill/Counterbore	Cycle Time: 00h, 02m, 09s	
Prg. No.: 0	% of Prg. Cycle: 1.42%	
WCS Plane Name: Top	Top of Stock: -0.875"	
T-Plane Name: Right side	Min. Z Depth: -1.0562"	
Work Offset Code: G54	Coolant: Off	
Tool:		
Mfg. Code:	RPM: 534	
Comment: 3/85 SPOTDRILL	SFM: 69.8953	
Tool Type: Spot Drill	Feedrate: 1.0696	
Turret: Upper	Alias: T0600	Feed/Tooth: 0.0010 inch/rev
Station: 0	Diameter: 0.5"	Plunge Feed: 1.0696
Spindle: Left	Flute Lng.: 2.0"	Retract Feed: 1.0696 inch/min
Lng. Offset: 0	Flutes: 2	

Operation- Coolant is Off
 Tool- Length offset 0 exceeds allowed range of 1 to 999
 Tool- Length offset add to tool mis-match, length offset is 0, should be 6



Lathe- OP# 8: Pickoff spindle - Unclamp and eject part

 Name: Lathe Chuck	
Prg. No.: 0	



Lathe- OP# 9: Pickoff spindle - Move to clearance distance

 Name: Lathe Chuck	
Prg. No.: 0	



Lathe- OP# 10: Pickoff spindle - Move to grip position

 Name: Lathe Chuck	
Prg. No.: 0	

Lathe- OP# 11: Pickoff spindle - Clamp

 Name: Lathe Chuck	
Prg. No.: 0	

Lathe- OP# 12: Stock spindle - Unclamp

 Name: Lathe Chuck	
Prg. No.: 0	


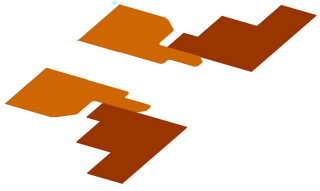
Lathe- OP# 13: Transfer stock to pickoff spindle

	Name: Lathe Stock Transfer	Cycle Time: 00h, 00m, 25s
	Prg. No.: 0	% of Prg. Cycle: 0.27%
		Coolant: Off


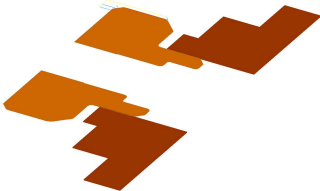
Lathe- OP# 14: Pickoff spindle - Retract

	Name: Lathe Chuck	Cycle Time: 00h, 00m, 25s
	Prg. No.: 0	% of Prg. Cycle: 0.27%
		Coolant: Off


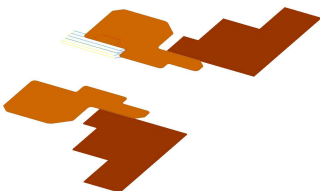
Lathe- OP# 15: Rough Face Z+.005"

	Name: Lathe Face	Cycle Time: 00h, 00m, 25s
	Prg. No.: 0	% of Prg. Cycle: 0.27%
	Stk. to Leave Z: 0.005"	Coolant: Off
Tool:		
Mfg. Code:	Spindle Speed: 200 CSS	
Comment: Rough Face Z+.005"	Use CSS: Yes	
Dia. Offset: 0	Tool Type: General Turning Tool Spindle Max: 10000 RPM	
Turret: Upper	Number: 1	
Station: 1	Alias: T0101	
Spindle: Right	Fast Feed: 0.01 inch/rev	
Lng. Offset: 1	Nose Radius: 0.0313"	
Operation- Coolant is Off		


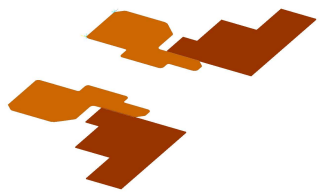
Lathe- OP# 16: Rough Turn X+.01", Z+.005"

	Name: Lathe Rough	Cycle Time: 00h, 00m, 44s
	Prg. No.: 0	% of Prg. Cycle: 0.48%
	Stk. to Leave X: 0.01"	Coolant: Off
	Stk. to Leave Z: 0.005"	
Tool:		
Mfg. Code:	Spindle Speed: 200 CSS	
Comment: Rough Turn X+.01", Z+.005"	Use CSS: Yes	
Dia. Offset: 0	Tool Type: General Turning Tool Spindle Max: 10000 RPM	
Turret: Upper	Number: 1	
Station: 1	Fast Feed: 0.01 inch/rev	
Spindle: Right	Nose Radius: 0.0313"	
Lng. Offset: 1		
Operation- Coolant is Off		


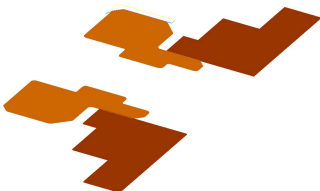
Lathe- OP# 17: Rough Bore X+.01", Z+.005"

	Name: Lathe Rough	Cycle Time: 00h, 00m, 48s
	Prg. No.: 0	% of Prg. Cycle: 0.53%
	Stk. to Leave X: 0.01"	Coolant: Off
	Stk. to Leave Z: 0.005"	
Tool:		
Mfg. Code:	Spindle Speed: 200 CSS	
Comment: Rough Bore X+.01", Z+.005"	Use CSS: Yes	
Dia. Offset: 0	Tool Type: Boring Tool Spindle Max: 10000 RPM	
Turret: Upper	Number: 75	
Station: 75	Fast Feed: 0.01 inch/rev	
Spindle: Right	Nose Radius: 0.0313"	
Lng. Offset: 75		
Operation- Coolant is Off		

Lathe- OP# 18: Finish Face


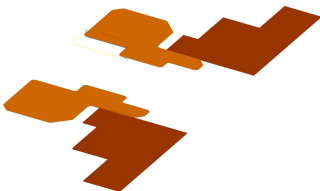
	Name: Lathe Face	Cycle Time: 00h, 00m, 38s
	Prg. No.: 0	% of Prg. Cycle: 0.42%
	Stk. to Leave Z: 0.0"	Coolant: Off
Tool:		
Mfg. Code:	Spindle Speed: 200 CSS	
Comment: Finish Face	Use CSS: Yes	
Dia. Offset: 0	Tool Type: General Turning Tool Spindle Max: 10000 RPM	
Turret: Upper	Number: 21	
Station: 21	Alias: T2121	
Spindle: Right	Fast Feed: 0.005 inch/rev	
Lng. Offset: 21	Nose Radius: 0.0156"	
Operation- Coolant is Off		

Lathe- OP# 19: Finish Turn

	Name: Lathe Finish	Cycle Time: 00h, 02m, 12s	
	Prg. No.: 0	% of Prg. Cycle: 1.45%	
	Stk. to Leave X: 0.0"	Coolant: Off	
	Stk. to Leave Z: 0.0"		
Tool:			
	Mfg. Code:	Spindle Speed: 200 CSS	
	Comment: Finish Turn	Use CSS: Yes	
	Dia. Offset: 0	Tool Type: General Turning Tool	Spindle Max: 10000 RPM
	Turret: Upper	Number: 21	Fast Feed: 0.005 inch/rev
	Station: 21	Nose Radius: 0.0156"	
	Spindle: Right		
	Lng. Offset: 21		


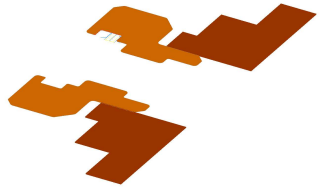
Operation- Coolant is Off

Lathe- OP# 20: Finish Bore

	Name: Lathe Finish	Cycle Time: 00h, 00m, 29s	
	Prg. No.: 0	% of Prg. Cycle: 0.32%	
	Stk. to Leave X: 0.0"	Coolant: Off	
	Stk. to Leave Z: 0.0"		
Tool:			
	Mfg. Code:	Spindle Speed: 200 CSS	
	Comment: Finish Bore	Use CSS: Yes	
	Dia. Offset: 0	Tool Type: Boring Tool	Spindle Max: 10000 RPM
	Turret: Upper	Number: 85	Fast Feed: 0.01 inch/rev
	Station: 85	Nose Radius: 0.0313"	
	Spindle: Right		
	Lng. Offset: 85		



Operation- Coolant is Off

Lathe- OP# 21: Groove ID

	Name: Lathe Groove	Cycle Time: 00h, 02m, 25s	
	Prg. No.: 0	% of Prg. Cycle: 1.59%	
		Coolant: Off	
Tool:			
	Mfg. Code:	Spindle Speed: 200 CSS	
	Comment: Groove ID	Use CSS: Yes	
	Dia. Offset: 0	Tool Type: Grooving Tool	Spindle Max: 5000 RPM
	Turret: Upper	Number: 53	Fast Feed: 0.0025 inch/rev
	Station: 53	Alias: T5353	
	Spindle: Right	Nose Radius: 0.005"	
	Offset- Back: 53		


Operation- Coolant is Off

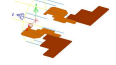
Mill- OP# 22: Spot Drill Face Holes

	Name: Drill/Counterbore	Cycle Time: 00h, 02m, 06s	
	Prg. No.: 0	% of Prg. Cycle: 1.38%	
	WCS Plane Name: Top	Top of Stock: 0.0"	
	T-Plane Name: SUB FACE MILLING	Min. Z Depth: -0.1813"	
	Work Offset Code: G55	Coolant: Off	
Tool:			
	Mfg. Code:	RPM: 534	
	Comment: Sub- 1/2 SPOTDRILL	SFM: 69.8953	
	Tool Type: Spot Drill	Feedrate: 1.0696	
	Turret: Upper	Alias: T0600	Feed/Tooth: 0.0010 inch/rev
	Station: 0	Diameter: 0.5"	Plunge Feed: 1.0696
	Spindle: Right	Flute Lng.: 2.0"	Retract Feed: 1.0696 inch/min
	Lng. Offset: 0	Flutes: 2	

Operation- Coolant is Off
 Tool- Length offset 0 exceeds allowed range of 1 to 999
 Tool- Length offset add to tool mis-match, length offset is 0, should be 6

Mill- OP# 23: Drill 5/16" Face Holes


	Name: Peck Drill	WCS Plane Name: Top	Cycle Time: 00h, 04m, 54s
	Prg. No.: 0	T-Plane Name: SUB FACE MILLING	% of Prg. Cycle: 3.23%
		Work Offset Code: G55	Top of Stock: 0.0"
			Min. Z Depth: -1.2289"
			Coolant: Off


Tool: 

Mfg. Code:	RPM: 855
Comment: Sub- 5/16 DRILL	SFM: 69.9444
Tool Type: Drill	Feedrate: 4.2442
Turret: Upper	Alias: T11700
Station: 0	Diameter: 0.3125"
Spindle: Right	Flute Lng.: 2.0"
Lng. Offset: 0	Flutes: 2
	Feed/Tooth: 0.0025 inch/rev
	Plunge Feed: 4.2442
	Retract Feed: 4.2442 inch/min

Operation- Coolant is Off
 Tool- Length offset 0 exceeds allowed range of 1 to 999
 Tool- Length offset add to tool mis-match, length offset is 0, should be 117

Mill- OP# 24: Rough & Finish Slots

	Name: 2D High Speed (2D)	WCS Plane Name: Top	Cycle Time: 00h, 13m, 52s
	Prg. No.: 0	T-Plane Name: SUB- SLOT 292.5	% of Prg. Cycle: 9.13%
	Stk. to Leave XY: 0.0"	Work Offset Code: G55GREE	Top of Stock: 1.7399"
	Stk. to Leave Z: 0.0"		Min. Z Depth: Unavailable
			Coolant: Off

Tool: 

Mfg. Code:	RPM: 2139
Comment: Sub- 1/4 FLAT ENDMILL	SFM: 139.9869
Tool Type: Flat Endmill	Feedrate: 6.4176
Turret: Upper	Alias: T23500
Station: 0	Diameter: 0.25"
Spindle: Left	Flute Lng.: 2.0"
Lng. Offset: 0	Flutes: 4
Dia. Offset: 0	
	Feed/Tooth: 0.0008 inch/rev
	Plunge Feed: 6.4176
	Retract Feed: 6.4176 inch/min


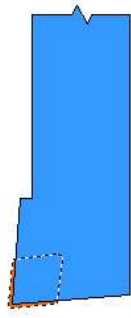
Operation- Minimum Z Depth Not Calculated
 Operation- Coolant is Off
 Tool- Length offset 0 exceeds allowed range of 1 to 999
 Tool- Length offset add to tool mis-match, length offset is 0, should be 235
 Tool- Diameter offset 0 exceeds allowed range of 1 to 999
 Tool- Diameter offset add to tool mis-match, diameter offset is 0, should be 235

Mill- OP# 25:

	Name: Transform/Rotate
	Prg. No.: 0

Tool List for "LATHE WITH MILL EXAMPLE.NC" (Not Sorted)

Lathe- T0101: OD ROUGH RIGHT - 80 DEG.


	Tool Type: General Turning Tool	Cycle Time: 00h, 04m, 44s	
	Mfg. Code:	% of Prg. Cycle: 3.12%	
	Turret: Upper	Coolant: Off	
	Spindle: Left	Spindle Dir.: CCW	
	Units: Inch	Spindle Speed: 200 CSS	
	Holder	Spindle Max: 10000 RPM	
	Name: DCGNR-164D	Fast Feed: 0.01 inch/rev	
	Length:	Slow Feed: 0.005 inch/rev	
	Width: 1.25"		
	Orientation: Vertical		
	Hand: Right		
	Angle: 0.0°		


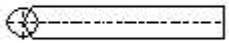
Tool- Coolant is Off

Operations using tool "Lathe- T0101: OD ROUGH RIGHT - 80 DEG."

No.	Type	Comment
1	1 - Lathe Face	Rough Face Z+.005"
2	2 - Lathe Rough	Rough Turn OD X+.01, Z+.005"

Lathe- T125125: DRILL .75 DIA.

	Tool Type: Drill		Cycle Time: 00h, 01m, 17s
	Mfg. Code:		% of Prg. Cycle: 0.84%
	Turret: Upper	Lng. Offset: 125	Coolant: Off
	Spindle: Left	Insert Up: No	Spindle Dir.: CCW
	Units: Inch		Spindle Speed: 200 RPM
	<u>Holder</u>	<u>Tool</u>	Spindle Max: 5000 RPM
	Name:	Material: Carbide	Fast Feed: 0.01 inch/rev
	Length:	Diameter: 0.75"	Slow Feed: 0.0 inch/min
	Width: 0.0"	Shank Dia.: 0.75"	
Orientation: Horizontal		Cut Length: 4.0"	
Hand: Right		Flute Length: 3.75"	
Angle: 0.0°		Flutes: 2	
		Flute Angle: 70.0°	
		Tip Angle: 118.0°	







Tool- Coolant is Off

Operations using tool "Lathe- T125125: DRILL .75 DIA."

No.	Type	Comment
3	3 - Lathe Drill	Dill

Lathe- T7575: Sub- ID ROUGH MIN. .625 DIA. - 75 DEG.

	Tool Type: Boring Tool		Cycle Time: 00h, 00m, 54s
	Mfg. Code:		% of Prg. Cycle: 0.59%
	Turret: Upper	Lng. Offset: 75	Coolant: Off
	Spindle: Left	Insert Up: No	Spindle Dir.: CCW
	Units: Inch		Spindle Speed: 200 CSS
	<u>Holder</u>	<u>Insert</u>	Spindle Max: 10000 RPM
	Name:	Name: 5-16 ic triangle	Fast Feed: 0.01 inch/rev
	Length:	Shape: E (75 deg.)	Slow Feed: 0.005 inch/rev
	Width: 0.5"	Radius: 0.0313"	
Orientation: Horizontal		Material: Carbide	
Hand: Right			
Angle: 0.0°			







Tool- Coolant is Off

Operations using tool "Lathe- T7575: Sub- ID ROUGH MIN. .625 DIA. - 75 DEG."

No.	Type	Comment
4	4 - Lathe Rough	Rough Bore X+.01", Z+.005"

Lathe- T8585: ID FINISH MIN. .75 DIA. - 55 DEG.

	Tool Type: Boring Tool		Cycle Time: 00h, 00m, 31s
	Mfg. Code:		% of Prg. Cycle: 0.34%
	Turret: Upper	Lng. Offset: 85	Coolant: Off
	Spindle: Left	Insert Up: No	Spindle Dir.: CCW
	Units: Inch		Spindle Speed: 200 CSS
	<u>Holder</u>	<u>Insert</u>	Spindle Max: 10000 RPM
	Name:	Name: 5-16 ic triangle	Fast Feed: 0.01 inch/rev
	Length:	Shape: D (55 deg.)	Slow Feed: 0.005 inch/rev
	Width: 0.5"	Radius: 0.0313"	
Orientation: Horizontal		Material: Carbide	
Hand: Right			
Angle: 0.0°			






Tool- Coolant is Off

Operations using tool "Lathe- T8585: ID FINISH MIN. .75 DIA. - 55 DEG."

No.	Type	Comment
5	5 - Lathe Finish	Finish Bore

Lathe- T2121: OD FINISH RIGHT - 35 DEG.


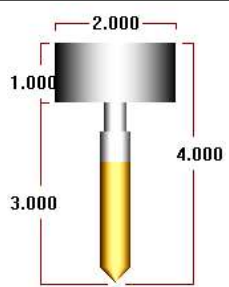
	Tool Type: General Turning Tool	Cycle Time: 00h, 02m, 39s	
Mfg. Code:		% of Prg. Cycle: 1.74%	
Turret: Upper	Lng. Offset: 21	Coolant: Off	
Spindle: Left	Insert Up: No	Spindle Dir.: CCW	
Units: Inch		Spindle Speed: 200 CSS	
<u>Holder</u>	<u>Insert</u>	Spindle Max: 10000 RPM	
Name: MVJNR-164D	Name: VNMG-431	Fast Feed: 0.005 inch/rev	
Length:	Shape: V (35 deg.)	Slow Feed: 0.002 inch/rev	
Width: 1.25"	Radius: 0.0156"		
Orientation: Vertical	Material: Carbide		
Hand: Right			
Angle: 0.0°			

Tool- Coolant is Off

Operations using tool "Lathe- T2121: OD FINISH RIGHT - 35 DEG."

No.	Type	Comment
6	6 - Lathe Finish	Finish Turn & Face

Mill- T6: 3/85 SPOTDRILL


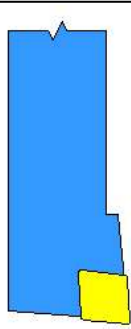
	Tool Type: Spot Drill	Cycle Time: 00h, 02m, 09s	
Mfg. Code:		% of Prg. Cycle: 1.42%	
Turret: Upper	Material: HSS	Max. Stock Top: -0.875"	
Spindle: Left	Diameter: 0.5"	Min. Z Depth: -1.0562"	
Units: Inch	Overall Lng.: 3.0"	Spindle Dir.: CW	
Holder Name: DEFAULT HOLDER		RPM: 534	
Holder Lng.: 1.0"	Shoulder Lng.: 2.5"	SFM: 70	
Lng. Offset: 0	Flute Lng.: 2.0"	Feedrate: 1.0696 inch/min	
	Flutes: 2	Feed/Tooth: 0.0010 inch/rev	
	Tip Angle: 90.0°		

Tool- Length offset 0 exceeds allowed range of 1 to 999
 Tool- Length offset add to tool mis-match, length offset is 0, should be 6

Operations using tool "Mill- T6: 3/85 SPOTDRILL"

No.	Type	Comment
7	7 - Drill/Counterbore	Spot Drill Face Holes

Lathe- T0101: Sub- OD ROUGH RIGHT - 80 DEG.



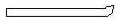

	Tool Type: General Turning Tool	Cycle Time: 00h, 01m, 09s	
Mfg. Code:		% of Prg. Cycle: 0.76%	
Turret: Upper	Lng. Offset: 1	Coolant: Off	
Spindle: Right	Insert Up: Yes	Spindle Dir.: CCW	
Units: Inch		Spindle Speed: 200 CSS	
<u>Holder</u>	<u>Insert</u>	Spindle Max: 10000 RPM	
Name: DCGNR-164D	Name: CNMG-432	Fast Feed: 0.01 inch/rev	
Length:	Shape: C (80 deg.)	Slow Feed: 0.005 inch/rev	
Width: 1.25"	Radius: 0.0313"		
Orientation: Vertical	Material: Carbide		
Hand: Right			
Angle: 0.0°			

Tool- Coolant is Off

Operations using tool "Lathe- T0101: Sub- OD ROUGH RIGHT - 80 DEG."

No.	Type	Comment
15	15 - Lathe Face	Rough Face Z+.005"
16	16 - Lathe Rough	Rough Turn X+.01", Z+.005"

Lathe- T7575: Copy (Slot #8) of ID ROUGH MIN. .625 DIA. - 75 DEG.





	Tool Type: Boring Tool	Cycle Time: 00h, 00m, 48s		
	Mfg. Code:	% of Prg. Cycle: 0.53%		
	Turret: Upper	Lng. Offset: 75		Coolant: Off
	Spindle: Right	Insert Up: Yes		Spindle Dir.: CCW
	Units: Inch			Spindle Speed: 200 CSS
	<u>Holder</u>	<u>Insert</u>		Spindle Max: 10000 RPM
	Name:	Name: 5-16 ic triangle		Fast Feed: 0.01 inch/rev
	Length:	Shape: E (75 deg.)		Slow Feed: 0.005 inch/rev
	Width: 0.5"	Radius: 0.0313"		
	Orientation: Horizontal	Material: Carbide		
	Hand: Right			
	Angle: 0.0°			

Tool- Coolant is Off

Operations using tool "Lathe- T7575: Copy (Slot #8) of ID ROUGH MIN. .625 DIA. - 75 DEG."

No.	Type	Comment
17	17 - Lathe Rough	Rough Bore X+.01", Z+.005"

Lathe- T2121: Sub- OD FINISH RIGHT - 35 DEG.





	Tool Type: General Turning Tool	Cycle Time: 00h, 02m, 50s		
	Mfg. Code:	% of Prg. Cycle: 1.87%		
	Turret: Upper	Lng. Offset: 21		Coolant: Off
	Spindle: Right	Insert Up: Yes		Spindle Dir.: CCW
	Units: Inch			Spindle Speed: 200 CSS
	<u>Holder</u>	<u>Insert</u>		Spindle Max: 10000 RPM
	Name: MVJNR-164D	Name: VNMG-431		Fast Feed: 0.005 inch/rev
	Length:	Shape: V (35 deg.)		Slow Feed: 0.002 inch/rev
	Width: 1.25"	Radius: 0.0156"		
	Orientation: Vertical	Material: Carbide		
	Hand: Right			
	Angle: 0.0°			

Tool- Coolant is Off

Operations using tool "Lathe- T2121: Sub- OD FINISH RIGHT - 35 DEG."

No.	Type	Comment
18	18 - Lathe Face	Finish Face
19	19 - Lathe Finish	Finish Turn

Lathe- T8585: Sub-f ID FINISH MIN. .75 DIA. - 55 DEG.


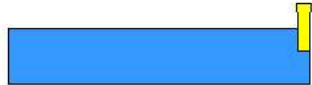
	Tool Type: Boring Tool	Cycle Time: 00h, 00m, 29s		
	Mfg. Code:	% of Prg. Cycle: 0.32%		
	Turret: Upper	Lng. Offset: 85		Coolant: Off
	Spindle: Right	Insert Up: Yes		Spindle Dir.: CCW
	Units: Inch			Spindle Speed: 200 CSS
	<u>Holder</u>	<u>Insert</u>		Spindle Max: 10000 RPM
	Name:	Name: 5-16 ic triangle		Fast Feed: 0.01 inch/rev
	Length:	Shape: D (55 deg.)		Slow Feed: 0.005 inch/rev
	Width: 0.5"	Radius: 0.0313"		
	Orientation: Horizontal	Material: Carbide		
	Hand: Right			
	Angle: 0.0°			

Tool- Coolant is Off

Operations using tool "Lathe- T8585: Sub-f ID FINISH MIN. .75 DIA. - 55 DEG."

No.	Type	Comment
20	20 - Lathe Finish	Finish Bore

Lathe- T5353: ID GROOVE - MIN. .75 DIA.


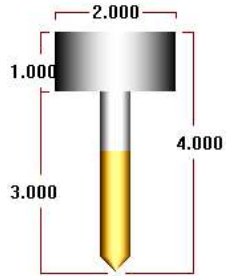
 Tool Type: Grooving Tool	Cycle Time: 00h, 02m, 25s		
Mfg. Code:	% of Prg. Cycle: 1.59%		
Turret: Upper	Offset- Front: 53		Coolant: Off
Spindle: Right	Offset- Back: 53		Spindle Dir.: CCW
Units: Inch	Insert Up: Yes		Spindle Speed: 200 CSS
<u>Holder</u>	<u>Insert</u>		Spindle Max: 5000 RPM
Name:	Name: NG-226L		Fast Feed: 0.0025 inch/rev
Length:	Shape: E (75 deg.)		Slow Feed: 0.002 inch/rev
Width: 0.7"	Radius: 0.005"		
Orientation: Horizontal	Material: Carbide		
Hand: Right			
Angle: 0.0°			

Tool- Coolant is Off

Operations using tool "Lathe- T5353: ID GROOVE - MIN. .75 DIA."

No.	Type	Comment
21	21 - Lathe Groove (Chain)	Groove ID

Mill- T6: Sub- 1/2 SPOTDRILL


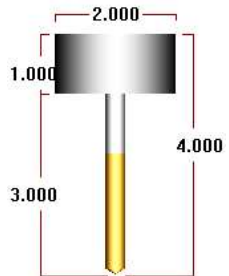
 Tool Type: Spot Drill	Cycle Time: 00h, 02m, 06s		
Mfg. Code:	% of Prg. Cycle: 1.38%		
Turret: Upper	Material: HSS		Max. Stock Top: 0"
Spindle: Right	Diameter: 0.5"		Min. Z Depth: -0.1813"
Units: Inch	Overall Lng.: 3.0"		Spindle Dir.: CW
Holder Name: DEFAULT HOLDER			RPM: 534
Holder Lng.: 1.0"	Shoulder Lng.: 2.5"		SFM: 70
Lng. Offset: 0	Flute Lng.: 2.0"		Feedrate: 1.0696 inch/min
	Flutes: 2		Feed/Tooth: 0.0010 inch/rev
	Tip Angle: 90.0°		

Tool- Length offset 0 exceeds allowed range of 1 to 999
 Tool- Length offset add to tool mis-match, length offset is 0, should be 6

Operations using tool "Mill- T6: Sub- 1/2 SPOTDRILL"

No.	Type	Comment
22	22 - Drill/Counterbore	Spot Drill Face Holes

Mill- T117: Sub- 5/16 DRILL


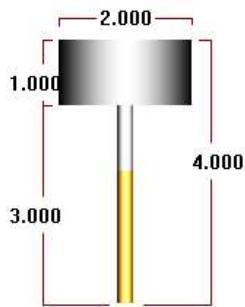
 Tool Type: Drill	Cycle Time: 00h, 04m, 54s		
Mfg. Code:	% of Prg. Cycle: 3.23%		
Turret: Upper	Material: HSS		Max. Stock Top: 0"
Spindle: Right	Diameter: 0.3125"		Min. Z Depth: -1.2289"
Units: Inch	Overall Lng.: 3.0"		Spindle Dir.: CW
Holder Name: DEFAULT HOLDER			RPM: 855
Holder Lng.: 1.0"	Shoulder Lng.: 2.5"		SFM: 70
Lng. Offset: 0	Flute Lng.: 2.0"		Feedrate: 4.2442 inch/min
	Flutes: 2		Feed/Tooth: 0.0025 inch/rev
	Tip Angle: 118.0°		

Tool- Length offset 0 exceeds allowed range of 1 to 999
 Tool- Length offset add to tool mis-match, length offset is 0, should be 117

Operations using tool "Mill- T117: Sub- 5/16 DRILL"

No.	Type	Comment
23	23 - Peck Drill	Drill 5/16" Face Holes

Mill- T235: Sub- 1/4 FLAT ENDMILL

 Tool Type: Flat Endmill	Cycle Time: 00h, 13m, 52s		
Mfg. Code:	% of Prg. Cycle: 9.13%		
Turret: Upper	Material: HSS		Max. Stock Top: 1.7399"
Spindle: Left	Diameter: 0.25"		Min. Z Depth: Unavailable
Units: Inch	Overall Lng.: 3.0"		Spindle Dir.: CW
Holder Name: DEFAULT HOLDER			RPM: 2139
Holder Lng.: 1.0"	Shoulder Lng.: 2.5"		SFM: 140
Lng. Offset: 0	Flute Lng.: 2.0"		Feedrate: 6.4176 inch/min
Dia. Offset: 0	Flutes: 4		Feed/Tooth: 0.0008 inch/rev
			Plunge Feed: 6.4176 inch/min
			Retract Feed: 6.4176 inch/min

Tool- Length offset 0 exceeds allowed range of 1 to 999
Tool- Length offset add to tool mis-match, length offset is 0, should be 235
Tool- Diameter offset 0 exceeds allowed range of 1 to 999
Tool- Diameter offset add to tool mis-match, diameter offset is 0, should be 235
Tool- Minimum Z Depth Not Calculated
Operation- #24- Minimum Z Depth Not Calculated

Operations using tool "Mill- T235: Sub- 1/4 FLAT ENDMILL"

No.	Type	Comment
24	24 - 2D High Speed (2D Dynamic Peel Mill)	Rough & Finish Slots

Work Offset List for "LATHE WITH MILL EXAMPLE.NC"

CNC Code	Mastercam No.	View
G54	0	Right side
G55	1	LATHE UPPER RIGHT [TOP] 2
G54.1P4	9	