TB115 (Rev1) - Bar Puller on Lathe

Overview

This document describes the steps to write two subprograms that will work using a bar puller on a lathe equipped with a hydraulic chuck to pull the material out. You will be using M98 & M99 Call Subprogram (Chapter 12) and G65 - Call Macro (Chapter 11). The following will describe how to write the programs for two different types of bar pullers. One bar puller comes in from the side with spring tension fingers, (can be a bar puller only or combination of bar puller and cut off tool), the other bar puller comes in from the end using grippers or fingers.

Tooling

Bar puller - Determine the type you are using. Follow manufactures instructions for setting bar puller for the correct size for the material you are pulling.

Example #1:

Barpuller comes in from the side and is also a cut-off tool. Follow instructions in Chapter 5 - Tool Setup for setting bar puller offsets. (Note: Use the same Tool number for the bar puller and cut off, but different offsets. Example: T0707 for cut off and T0717 for the bar puller. Offsets for Z can be the same. For X you may need a different offset.)

In the EDITOR [F6] hit NEW [F9] to create a new program called "barpull.cnc". This program will use variable parameters with the values assigned to it from another program.

Type in the following information.(";" semi-colon is a comment line explaining what the variables are used for.)

You do not have to type the information in ITALICS.

;Part bar pull subprogram (barpull.cnc)

;#t = tool number with 0 offset (Example: T0700)

;#r = tool number with offset number (Example: T0717)

;#a = stock diameter + clearance

;#b = Z position of end stock plus .05 (The .05 is to allow clearance for the cut-off blade)

;#c = diameter to move to clamp (This usually will be X0.0)

;#d = Incremental move = part length + cut off tool width + face-off material (W= incremental move in Z)

g28 t#t

m5

```
m9

g4p2

g0 x#a z#b t#r

g98g1 x#c f50.

m11

g4p.5

g1w#df30

m10

g4p.5

x#a f70.

g28 t#t

m99
```

Hit F2 [SAVE] to save the program

Hit F9 [NEW] to enter second program "barpull.sub". Type in the information below. This program uses G65 to call macro program "barpull.cnc". ("xxx is to be replace with values you need for your particular part.)

Type in the following information.

```
;Part bar pull macro subprogram (barpull.sub)

;#t = tool number with 0 offset (Example: T0700)

;#r = tool number with offset number (Example: T0717)

;#a = stock diameter + clearance

;#b = Z position of end stock plus .05 (The .05 is to allow clearance for the cut-off blade)

;#c = diameter to move to clamp (This usually will be X0.0)

;#d = Incremental move = part length + cut off tool width + face-off material (W= incremental move in Z)


;"YOUR PART NAME"- To start, pull MATERIAL xxx from jaws.

g65"barpull.cnc" axxx bxxx cxxx dxxx txxx rxxx

m99
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The following is an example of the G65 line above (Z0.0 is set at the front of the part):

g65 "barpull.cnc" a2.4 b-.655 c0.0 d.735 t0700 r0717

This G65 used T0717 (tool 7 offset 17) for the offsets for the barpuller. The main program used T0707 for the cut-off tool. (This was a combination barpuller and cut-off tool.)

The following will happen when "barpull.sub" is run:

G65 calls "barpull.cnc" and puts in the values in the variables.

g28 t#t the turret will index to tool 7 with no offset at the G28 position.

m5 spindle is shut off

m9 coolant is turned off

g4p2 There is a 2 second delay to make sure spindle has time to stop before barpuller grips.

g0 x#a z#b t#r X and Z rapid to X2.4000 Z-.655 and turn on the offset 17 for tool 7.

g98g1 x#c f50. X will feed to X0.0000 at 50 inches per minute.

m11 Chuck will unclamp

g4p.5 There is .5 second delay after the chuck opens.

g1w#df30 Z feeds out an incremental value of .735 inches (W is an incremental move in Z)

m10 Chuck will clamp

g4p.5 There is a .5 second delay after the chuck closes.

x#a f70. X feeds out to the clearance X2.4000

g28 t#t Machine will rapid to the G28 position and turn the offset off for tool 7.

m99 M99 will return to the program that called this subprogram.

Note: In intercon you can call the program "barpull.sub" by inserting an M&G Code - m98 "barpull.sub" -.

Note: "barpull.sub" can be a different name such as part number or name with the extension ".sub". This way there would be a subprogram for each one of your the parts. You can also put all of your G65's in the same program and put ";"(semi-colon) in front of all the G65's except for the one you want to run):

Example:

;"YOUR PART NAME #1"- To start, pull MATERIAL .750 from jaws.

;g65"barpull.cnc" a2.4 b-.655 c0.0 d.735 t0700 r0717

;"YOUR PART NAME #2"- To start, pull MATERIAL .750 from jaws.

;g65"barpull.cnc" a2.4 b-.547 c0.0 d.625 t0700 r0717

;"YOUR PART NAME #3"- To start, pull MATERIAL 1.000 from jaws.

g65"barpull.cnc" a2.4 b-1.7630 c0.0 d1.843 t0700 r0717

The third g65 would be read and used. The first two have ";" in front of them and would be ignored. If using this method make sure you have the ";"(semi-colon) in front of all the G65's except the one you want to use.

Example 2:

Barpuller comes in from the end. Follow instructions in Chapter 5 - Tool Setup for setting bar puller offsets.

In the EDITOR [F6] hit F9 [NEW} to create a new subprogram called "barpull.cnc". This program will use variable parameters with the values assigned to it from another program. Type in the following information (?; " is a comment line explaining what the variables are used for.)

;Part bar pull subprogram (barpull.cnc)

;#t = tool number with 0 offset (Example: T0700)

;#r = tool number with offset number (Example: T0717)

;#a = end of stock + clearance

;#b = Z travel to engage gripers or fingers

;#c = Incremental move = part length + cut off tool width + face-off material (W= incremental move in Z)

;#d = incremental move to disengage the griper on the barpull

g28 t#t

m5

m9

g4p2

```
g0 x0.00 z#a t#r

g98g1 z#b f50.

m11

g4p.5

g1w#cf30

m10

g4p.5

w#d f70.

g28 t#t

m99
```

Note: If your bar puller used coolant pressure to release fingers, you would need to follow the manufactures instruction when to turn the coolant on and off to release the fingers and insert those commands in the program

Hit F2 [SAVE] to save the program

Hit F9 [NEW] to enter second program "barpull.sub". Type in the information below. This program uses G65 to call macro program "barpull.cnc". ("xxx is to be replace with values you need for your particular part.)

```
;Part bar pull macro subprogram (barpull.sub)

;#t = tool number with 0 offset (Example: T0700)

;#r = tool number with offset number (Example: T0717)

;#a = end of stock + clearance

;#b = Z to travel to engage gripers or fingers

;#c = Incremental move = part length + cut off tool width + face-off material (W= incremental move in Z)

;#d = incremental move to disengage the griper on the barpull

;"YOUR PART NAME"- To start, pull MATERIAL xxx from jaws.

g65"barpull.cnc" axxx bxxx cxxx dxxx txxx rxxx

m99
```

Document History

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