

B-20: Cut Profile (Spherical Radius)

SAFETY FIRST

- Follow all Caterpillar facility safety standards when performing this task.

EQUIPMENT

- Mazak QuickTurn 28N

RESOURCES

- Mazatrol T32-2 Operating Manual
- Mazatrol T32-2 Programming Manual
- print
- process sheet

Cut Profile (Spherical Radius)

Note: Inspect the piece between processes, as necessary. Correct the process and re-machine the piece as required. Be prepared to adjust the tool setup for cutter compensation.

1. Verify machine set up.
2. Set the machine zero as shown in the Toolmaker procedures to program a CNC lathe.
3. Select a program number as shown in the Toolmaker procedures to program a CNC lathe.

PNo.0

1. Enter the part parameters as shown in the Toolmaker procedures to program a CNC lathe.

PNo.1 (Turn on the coolant)

1. Turn on the coolant as shown in the Toolmaker procedures to program a CNC lathe.

PNo.2 (Face off the end)

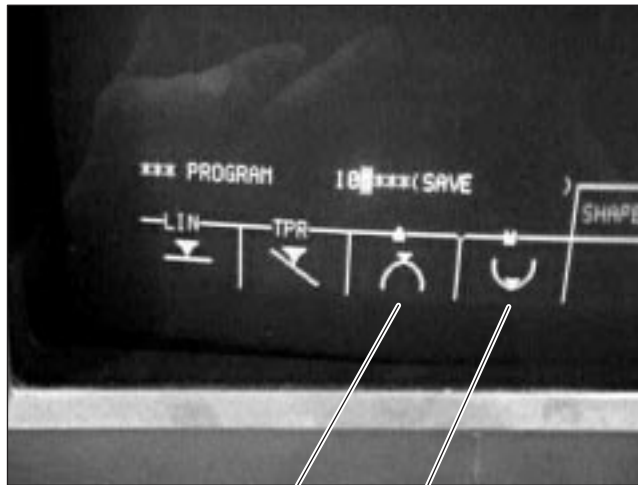
1. Enter the parameters to face off the piece as shown in the Toolmaker procedures to program a CNC lathe.

**PNo.3 (Bar –Turn Piece)**

1. Press the <Bar> software key.
2. Press the In or Out key as determined by the print.
3. Type 0 to select the cutting pattern.
4. Type the cutting point for X and press <Input>.
5. Type the cutting point for Z and press <Input>.
6. Press the <Auto Set> key to automatically calculate the RV, FV, R-feed, and R-Dep cutting parameters.
 - Change the R-Dep (Roughness Depth), if needed.
7. Enter the Roughing Tool number, and press <Input> twice.
8. Enter the Finish Tool number, and press <Input> twice.

PNo.3 Seq. 1 (Set a Radius)

1. Press the <Convex> or <Concave> softkey, as required.



2. Press <Corner R> softkey to enter a required radius.
3. Type the value of the radius, and press <Input>.
4. Specify the required radius, if a chamfer is not required, and press <Input>.
5. Enter the start point for X.
6. Enter the start point for Z.
7. Type the final point – X and press <Input>.
8. Type the final point- Z and press <Input>.
9. Type the final CNR-C (Corner or Chamfer) value, and press <Input>.
10. Enter the radius of the arch.

11. Enter the surface finish feed rate.

- Press the <roughness> softkey.
- Press the <5> softkey.

PNo.3 Seq. 2 (Establish the Radius Center)

1. Press the <CNTR> softkey.
2. Type the required value from the print for the SPT X, and press <Input>.
3. Type the required value from the print for the SPT Z, and press <Input>.
4. Press the key that establishes the relationship of the center of the arc in relationship to the starting point of the cut.
5. Press the key that establishes the relationship of the center of the arc in relationship to the final point of the cut.

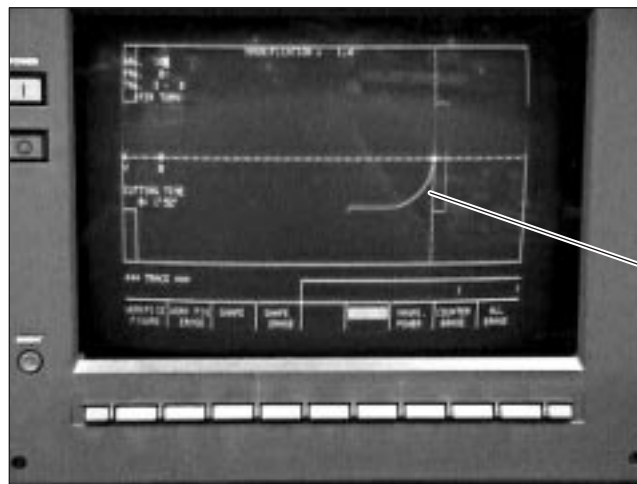
PNo.3 Seq. 3

1. Press the <Lin> softkey.
2. Press the right arrow key to skip the chamfer field.
3. Press the right arrow key to skip all fields with a diamond.
 - The program will display a diamond if the value is known.
4. Type the value for the FPT X, and press <Input>.
 - Determine the value from the print.
5. Type the value for the FPT Z, and press <Input>.
 - Determine the value from the print.
6. Enter a feed rate of <5>.



Finishing the Program

1. Continue entering sequences to the process until all sequences are complete.
2. Enter any other processes, as needed.
3. Press <Shape End> to finish the program.
4. Check the program for errors as shown in the Toolmaker procedures to program a CNC lathe.
5. View the simulation as shown in the Toolmaker procedures to program a CNC lathe.

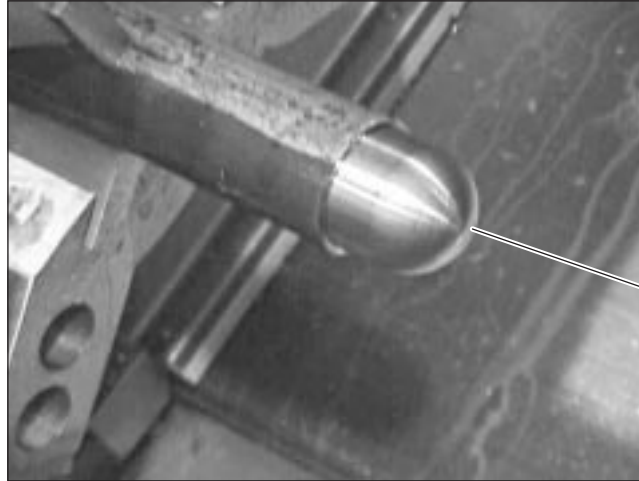


Simulated
Spherical Radius

6. Verify the Tool Layout as shown in the Toolmaker procedures to program a CNC lathe.
7. Run the program.

8. Inspect the piece.

- Verify that the piece meets the requirements of the process sheet and the print.



Spherical Radius