B-02: Machine Taper

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

Machine Taper

1. **Verify the machine set up.**

Note: Steps 2-6 are shown in the Toolmaker procedures to program a CNC lathe.

2. **Set the machine zero.**

3. **Select a program number.**

PNo.0

1. **Enter the part parameters.**

PNo.1 (Turn on the coolant)

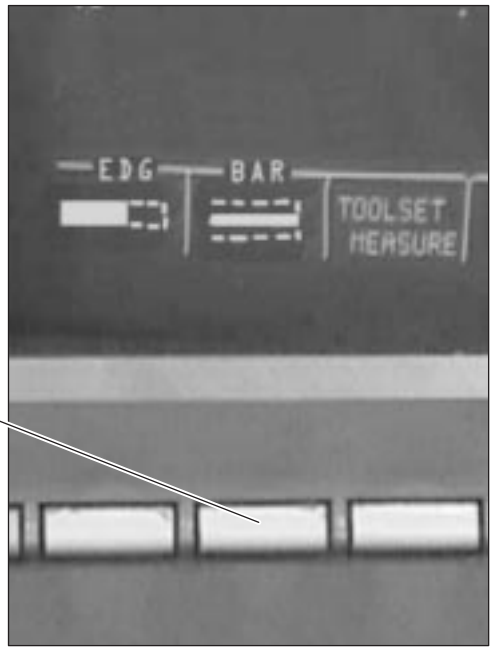
1. **Turn on the coolant.**

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.

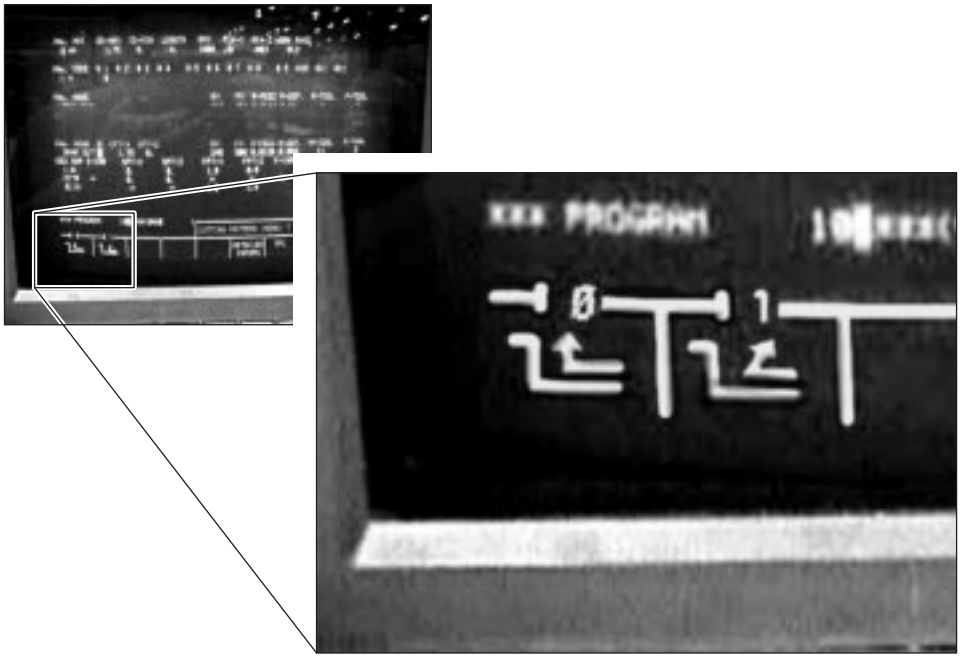
PNo.3 (Bar –Turn Piece)

1. Press the <Bar> softkey.



2. Press the In or Out key as required 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 (Roughness Depth) cutting parameters.**

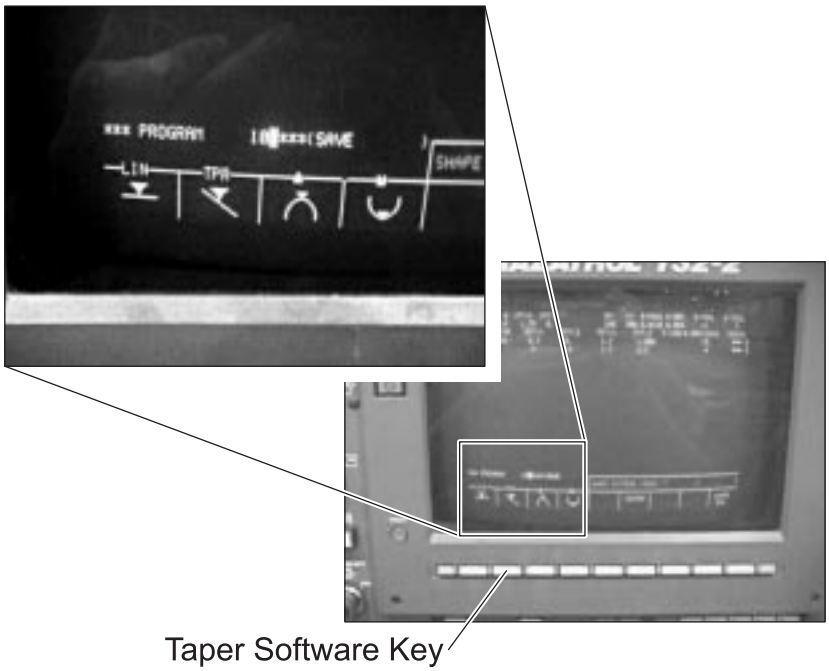
   ☐ Change the R-Dep, if needed.

7. **Enter the Roughing Tool number, and press <Input> twice.**

8. **Enter the Finish Tool number, and press <Input> twice.**

PNo.3 - Seq. 1 (TPR)

1. **Press the <TPR> softkey.**



2. **Press the <Corner R> softkey to enter a required radius.**

3. **Type the value of the radius, and press <Input>.**

4. **Type the SPT – X, as shown on the print, and press <Input>.**

5. **Type the SPT – Z, as shown on the print, and press <Input>.**

6. **Type the FPT – X, as shown on the print, and press <Input>.**

7. **Type the FPT – Z, as shown on the print, and press <Input>.**

   ☐ Type a question mark (?) if the value is unknown. The computer will calculate the value after all parameters are entered.

8. **Type the final CNR-C (corner or chamfer) value, and press <Input>, if necessary.**

   ☐ Press the right arrow key to skip the field if no chamfer is required.

9. Type the taper angle value, and press <Input>.

- ☐ Enter the taper angle value in decimals. (i.e., 16 degrees 35 minutes = 16.58333)

10. Enter the surface finish feed rate.

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

Finishing the Program

1. Continue entering sequences to the process until all sequences are complete.

2. Enter other required processes, as needed.

3. Press <Shape End> to finish the program.

Note: Steps 4-6 are shown in the Toolmaker procedures to program a CNC lathe.

4. Check the program for errors.

5. View the simulation.

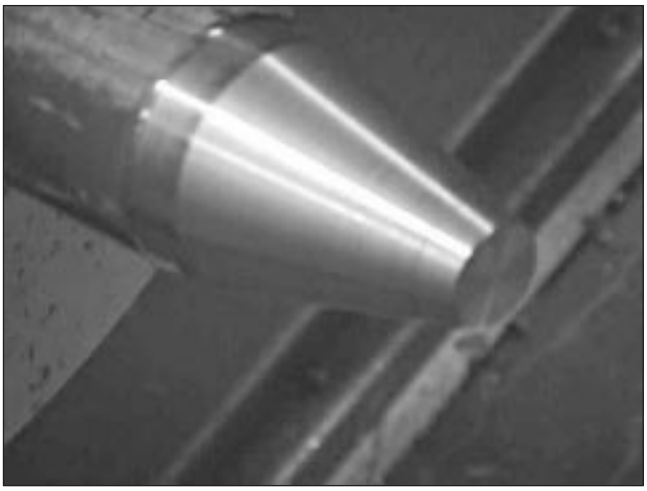
Simulated Taper

6. Verify the Tool Layout.

7. Run the program.

8. Inspect the piece.

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



Inspect the Taper