

L-02

TOOLMAKER TRAINING

SKILL CHECK GUIDE

Duty L: External Grinder

L-02: Grind Surfaces

Issued 06/01/98

Rationale

This Skill Development Guide provides the knowledge a Learner needs to use an external grinding machine to grind surfaces on a workpiece (part). With a part set up in an external grinder, the Learner must be able to prepare the grinder, check specifications, grind the surface of the part, and check the finished part against specifications.

Skill Check Set-Up

Select an available external grinding machine and arrange to use it for the Skill Check. Identify a suitable part for grinding. Obtain the prints specifying the final dimensions and surface finish of the part, and the process sheet for making it. The part should require the grinding of a groove, OD, radius, taper, face, or some combination of these surfaces. Set up the grinding machine for the part. Mount the part between centers or in other suitable fixtures. Make sure an appropriate grinding wheel and wheel dressing equipment is available for the necessary grinding. Also make measuring instruments available for checking the finished part against specifications.

What You Will Need

This section contains the safety information, tools, and resources you will need to use an external grinding machine to grind surfaces.

SAFETY FIRST

DON'T TAKE
CHANCES

- Follow all Caterpillar facility safety standards when performing this task.
- The grinding wheel is extremely hazardous. Touching a spinning wheel, even lightly, instantly removes flesh. If the wheel is defective, it may explode and cause extensive damage to the machine and severe injury to personnel.
- Be aware of the turning part, and the automatic movements of the table and grinding head.



- external grinder, equipped with wheel and coolant
- part (workpiece to be ground)
- fixtures and/or tooling to adapt the part to the external grinder
- dressing stone or other wheel dressing equipment
- measuring instruments to check the dimensions of the ground part
- piece of wood
- marking tool
- Allen wrenches
- sine bar
- gage bar



- print specifying part finish, dimensions, and tolerances
- process sheet specifying how the part should be made
- external grinder documentation
- conversion charts



Skill Check

Given a part set up in an external grinding machine, the print of the part, and the process sheet for the job, check specifications, prepare the grinder, and grind the part.

Needs
Mastered Practice

Safe Work Practices

- | | | |
|-------|-------|---|
| _____ | _____ | 1. Follow all Caterpillar facility safety standards when performing this task. |
| _____ | _____ | 2. The grinding wheel is extremely hazardous. Touching a spinning wheel, even lightly, instantly removes flesh. If the wheel is defective, it may explode and cause extensive damage to the machine and severe injury to personnel. |
| _____ | _____ | 3. Be aware of the turning part, and the automatic movements of the table and grinding head. |

Task Standards

- | | | |
|-------|-------|--|
| _____ | _____ | 1. The part must be ground to the finish, dimensions, and tolerances specified in the print and process sheet. |
| _____ | _____ | 2. There must be no damage to the external grinder. |
| _____ | _____ | 3. All safety requirements must be demonstrated. |



Evaluator's Sign-Off

The Learner has demonstrated safe work practices and competent performance of the task.

Evaluator: _____ Date: _____

Learner: _____ Clock No: _____