

Wheel Truing 101

Roger D. Collen



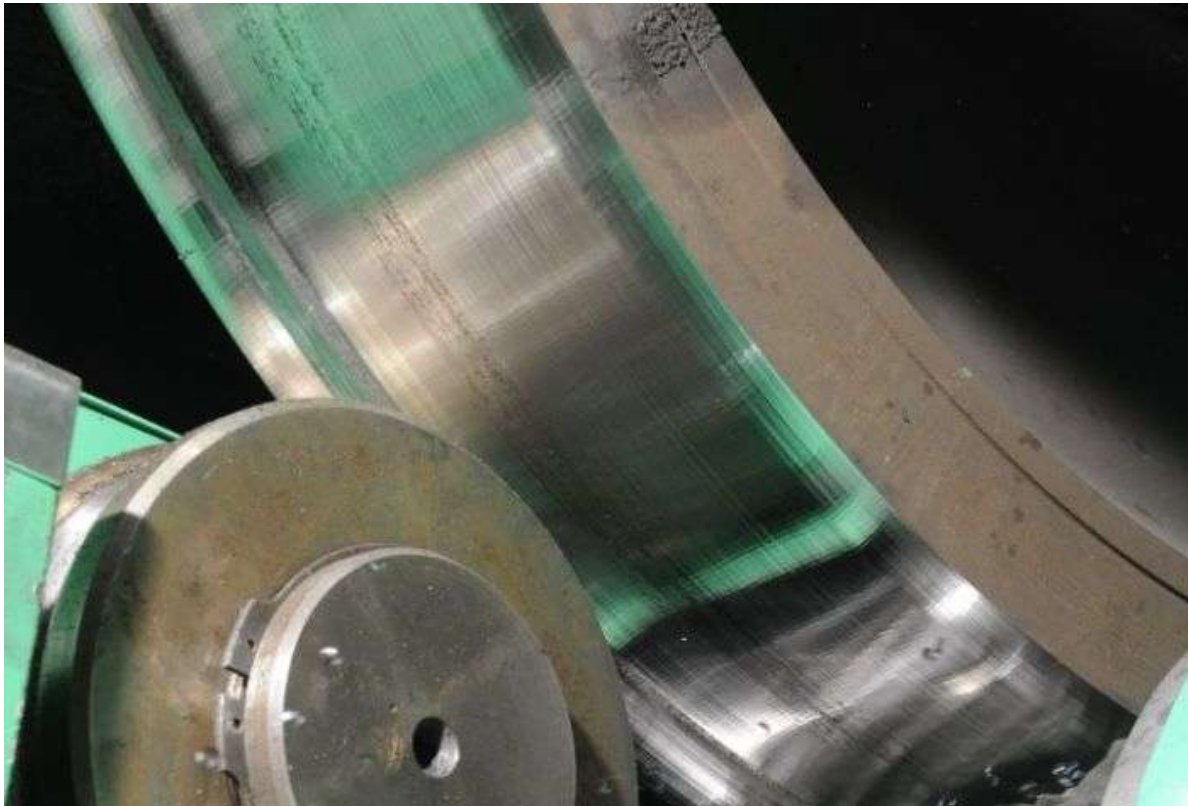
Disclaimer

This equipment is warranted to be free from defects in both materials and workmanship. Should any part of this equipment be defective, it will be repaired or replaced, at option, free of charge (except incoming shipping charges) for a period of one (1) year from the date of original purchase. No charge will be made for parts or labor during this period. Proof of purchase (such as a copy of bill of sale or canceled check) must be submitted to obtain the benefits of this warranty.



What is Wheel Truing?

Restore the profile of the tread



Presentation Preview

- Why True Wheels
- Truing Processes
- Truing Equipment Options
- Vehicle Application Notes
- Wheel Truing Auxiliary Systems



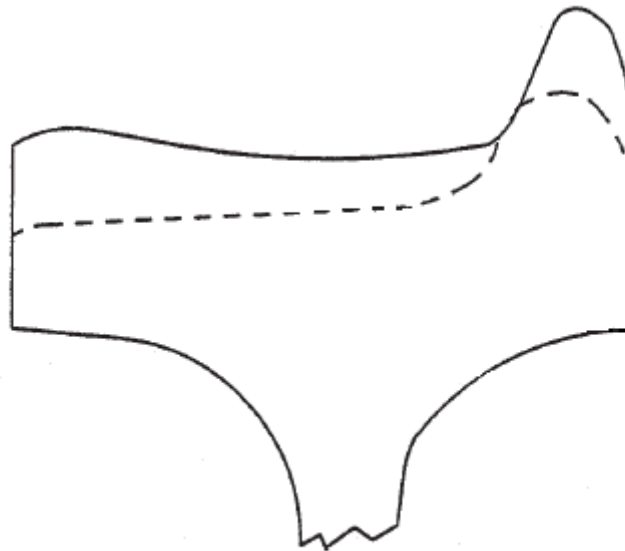
Why True Wheels

- Economics
 - Cost of replacement wheels
 - Cost of labor to produce and swap wheel sets from rail vehicle



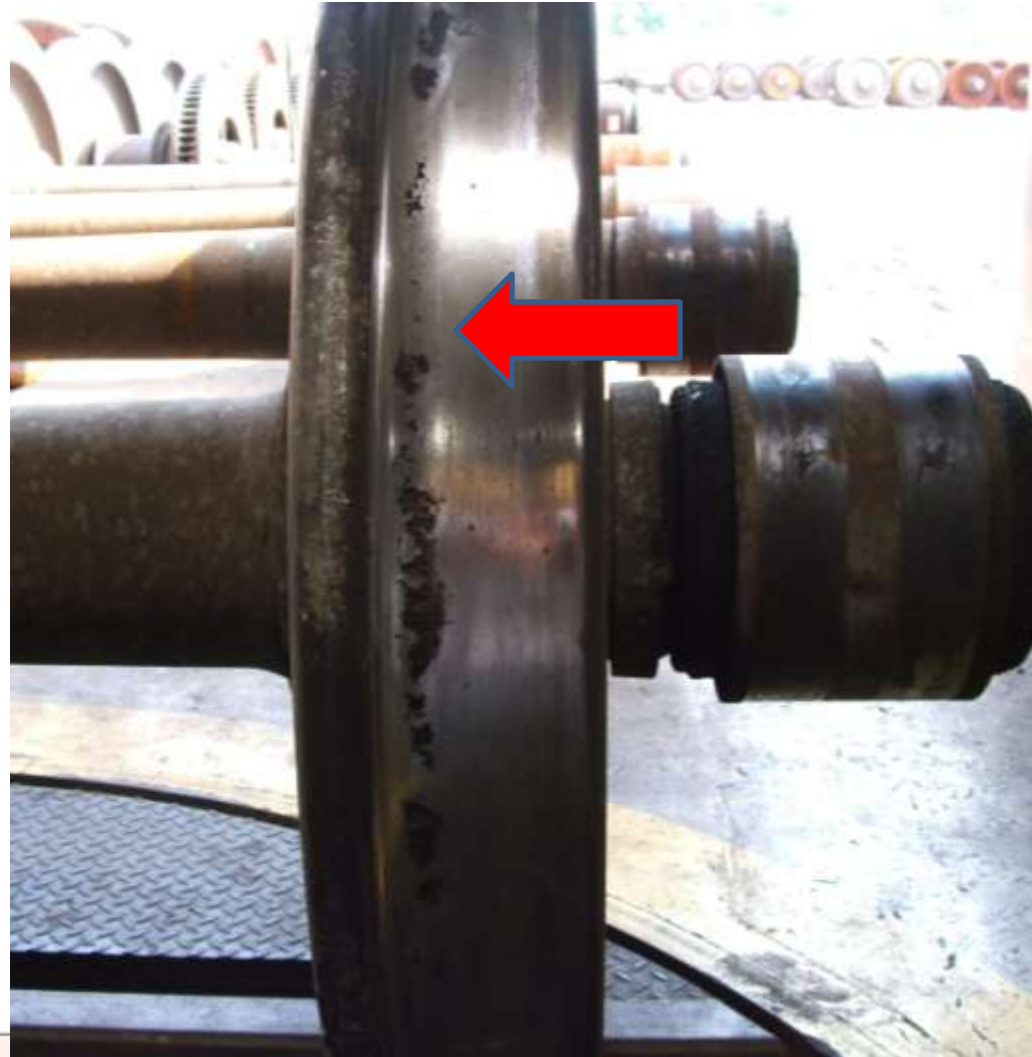
Why True Wheels

- Wear



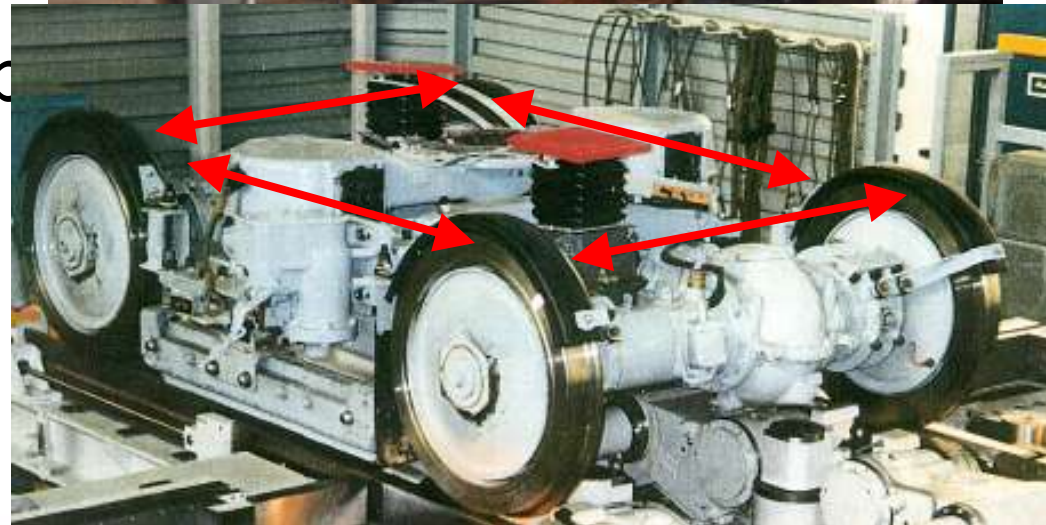
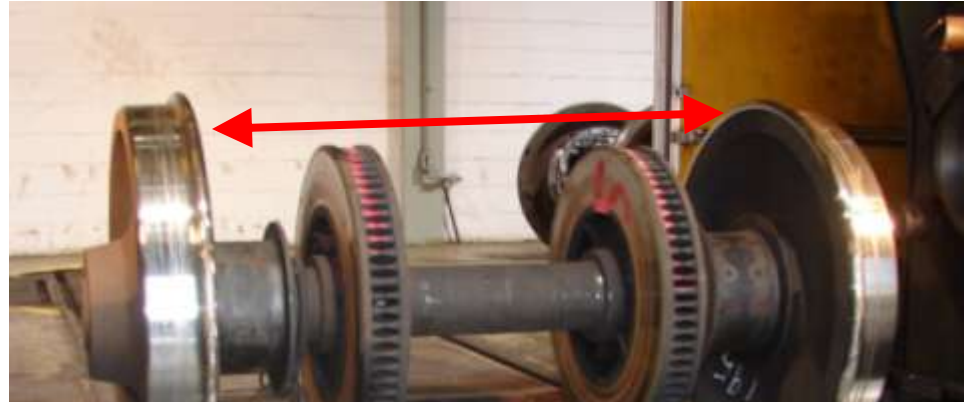
Why True Wheels

- Wear
- Defects
 - High / thin flange
 - Flat spots
 - Shelling / Built up
 - Cracks
 - Out of round



Why True Wheels

- Wear
- Defects
 - High / thin flange
 - Flat spots
 - Shelling / Built up
 - Cracks
 - Out of round
- Parity



Truing Processes

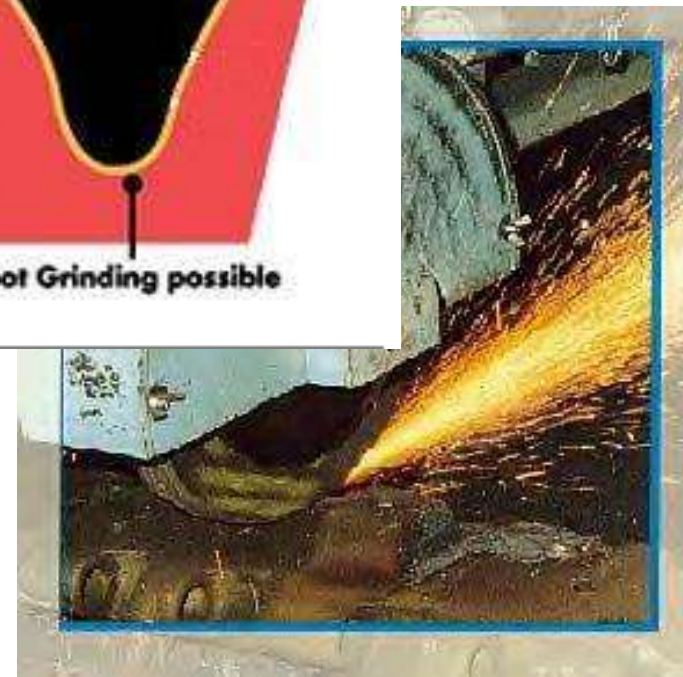
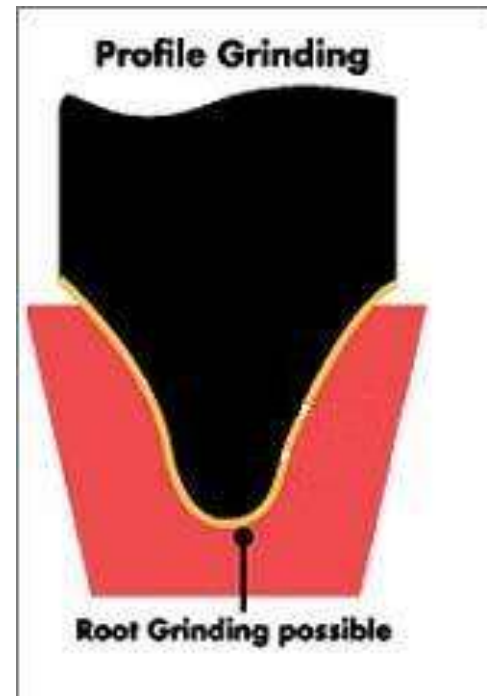
- Grinding
- Milling
- Turning



Truing Processes

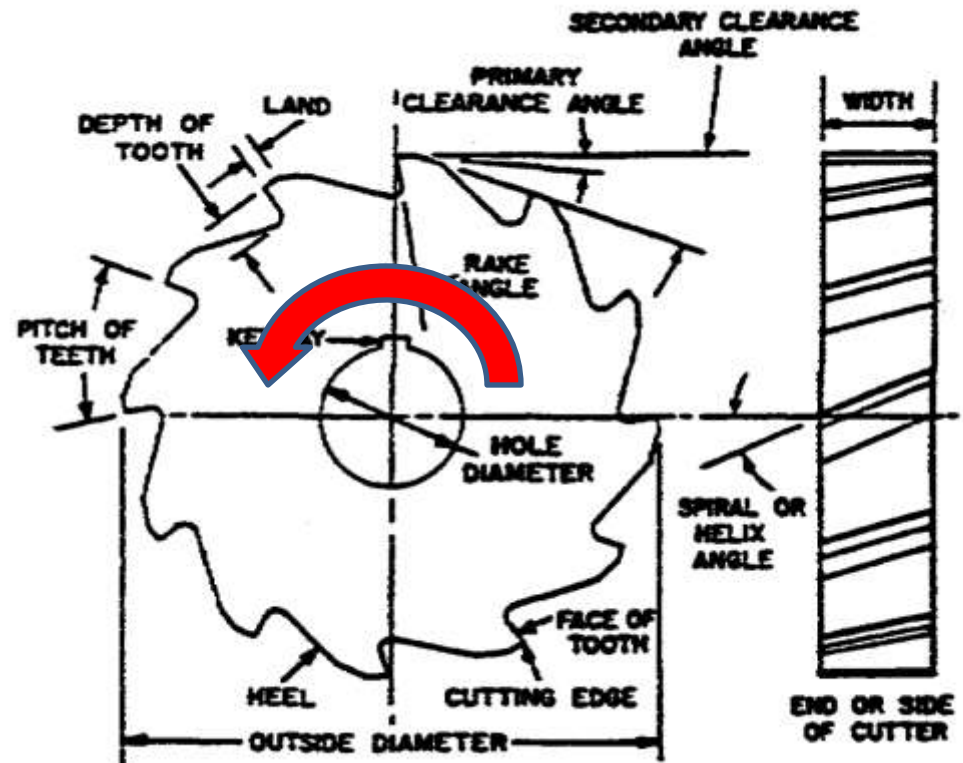
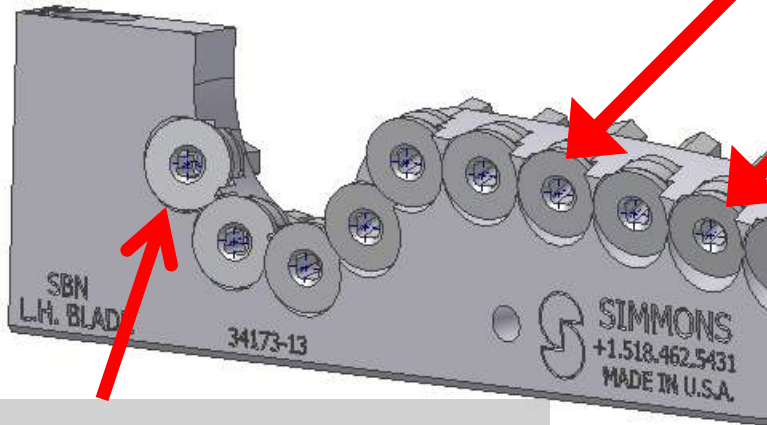
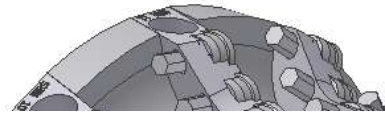
– Grinding

Process not used in NA for wheel profiling due to very low material removal rate resulting in low productivity



Truing Processes

- Grinding
- Milling



Carbide Inserts



Truing Processes

- Grinding
- Milling

Wheel profile built
into cutter blade



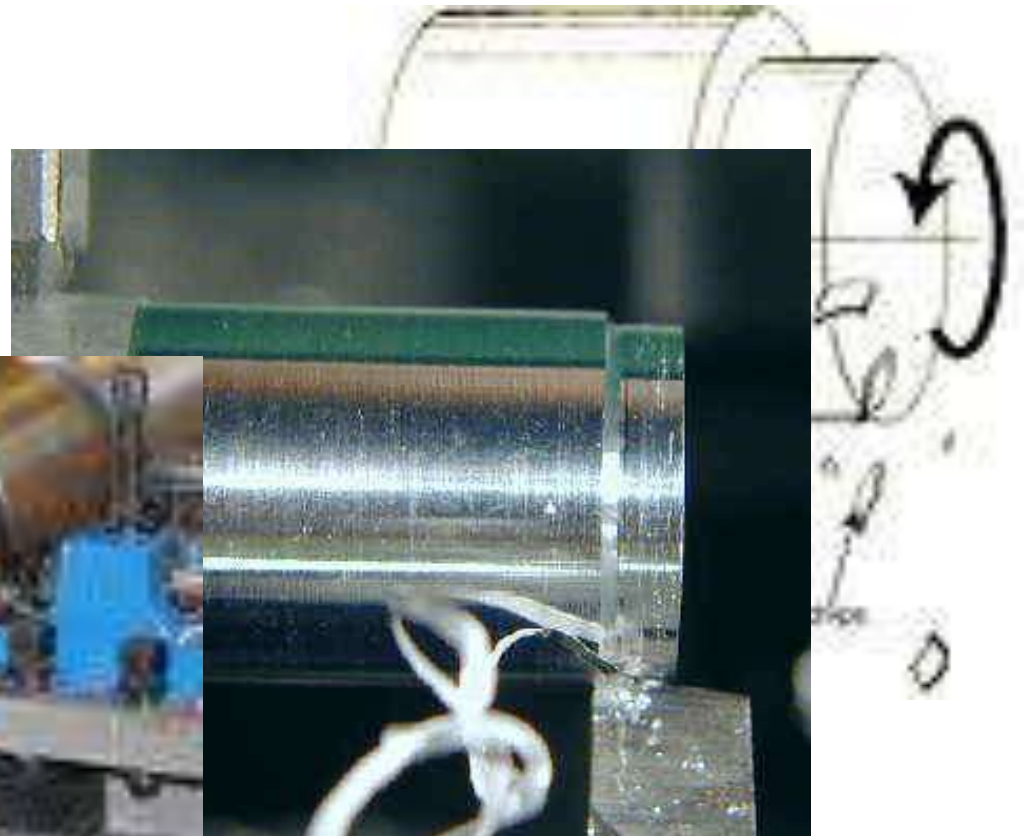
Truing Processes

- Grinding
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Truing Processes

- Grinding
- Milling
- Turning



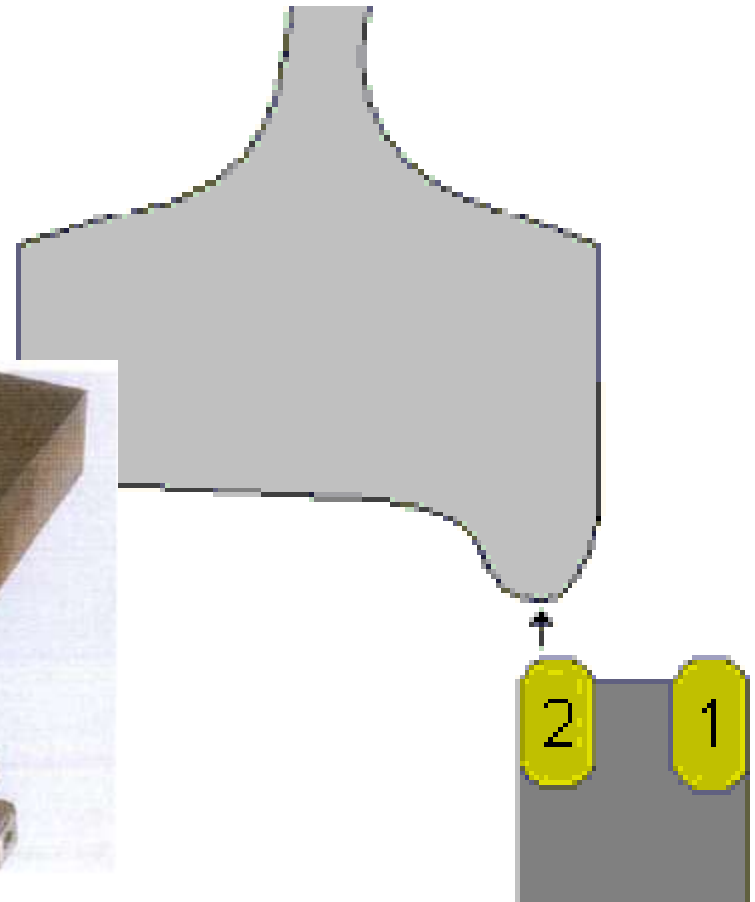
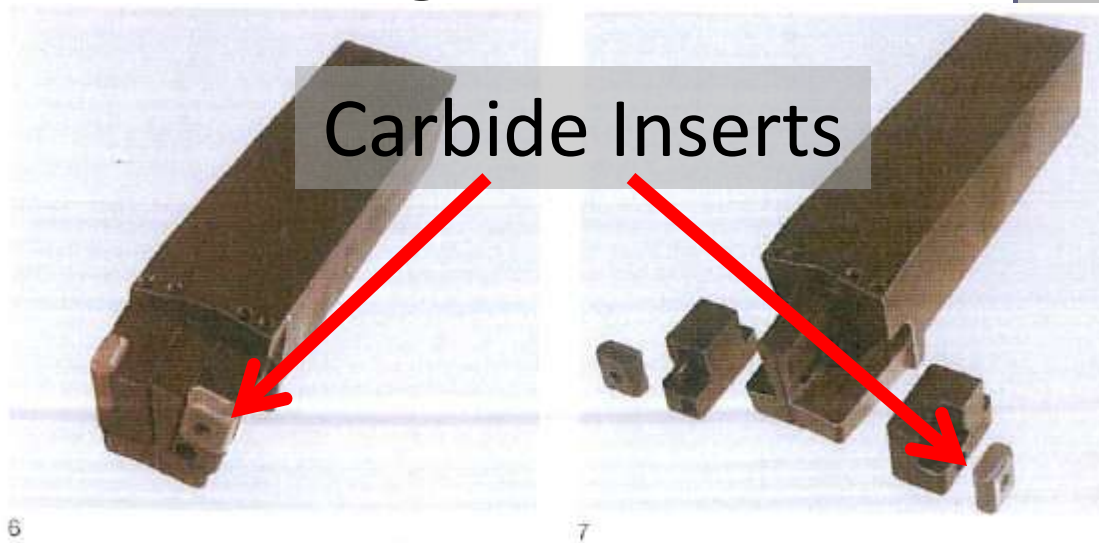
Truing Processes

- Grinding
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- Turning



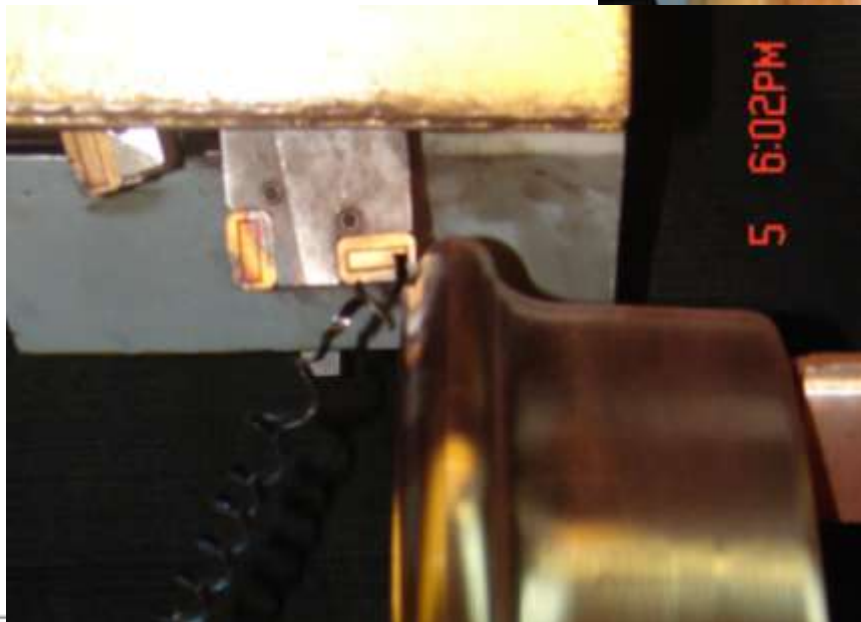
Truing Processes

- Grinding
- Milling
- Turning



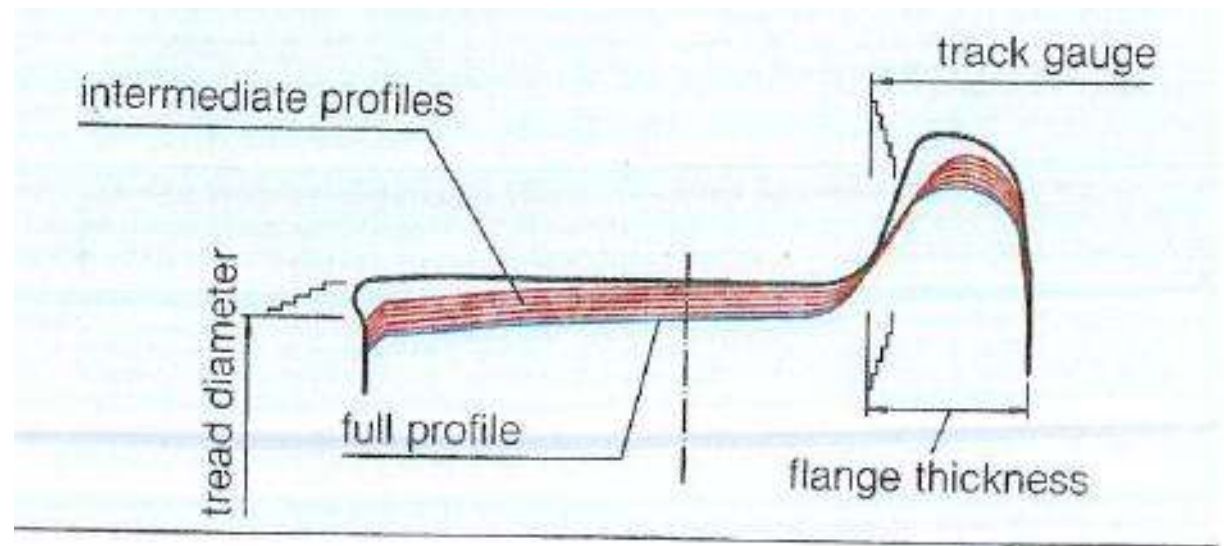
Truing Processes

- Grinding
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Truing Processes

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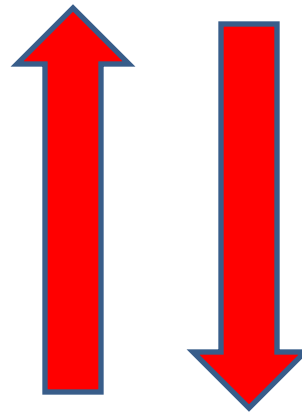


Truing Processes

– Surface finish

- Grinding – 16 micro inch
- Milling – 150 to 200 micro inch
- Turning – 60 to 150 micro inch

Improved
Surface Finish



Productivity
Reduced



Wheel Truing Equipment Options

- Portable
- Above floor
- Under floor



Wheel Truing Equipment Options

- Portable
 - Individual wheel unit



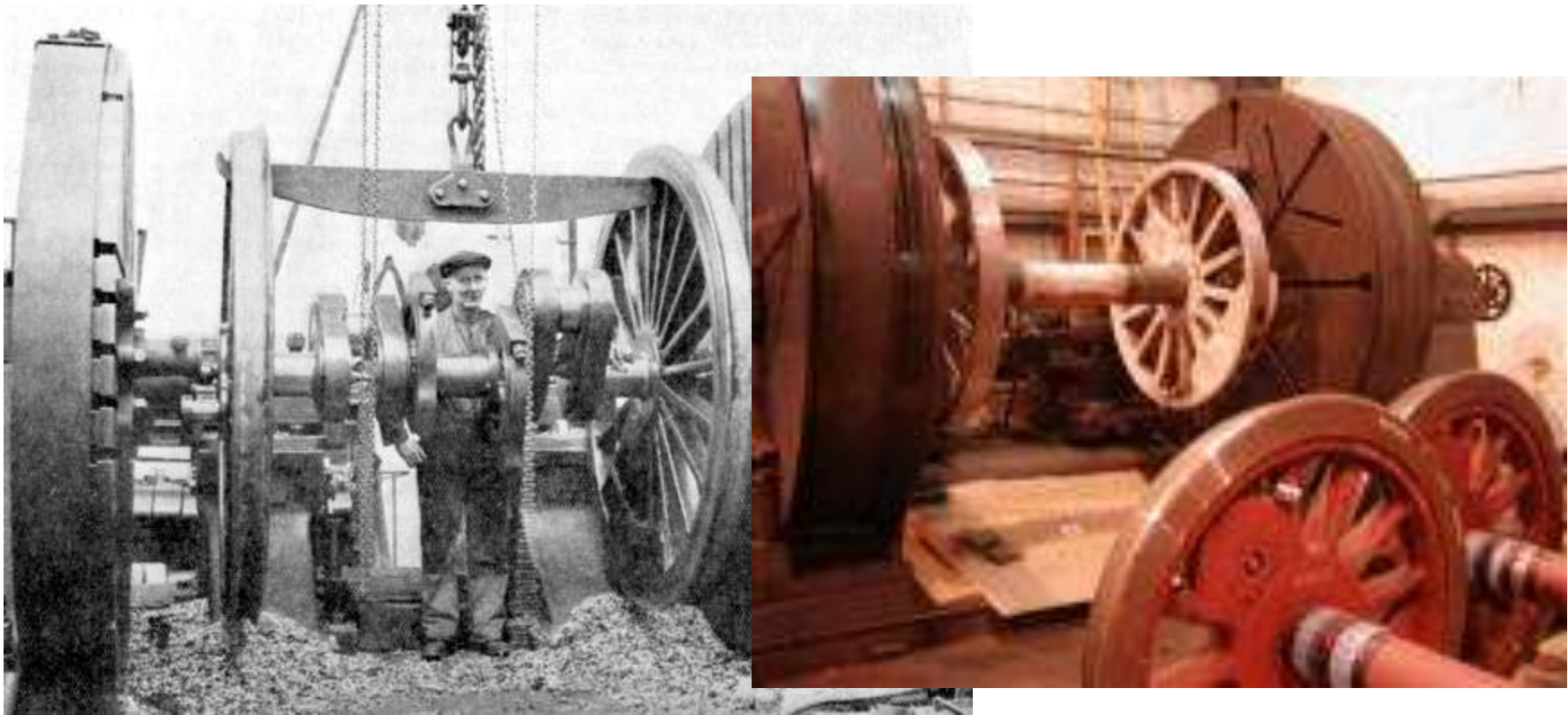
Wheel Truing Equipment Options

- Portable
 - Mobiturn®



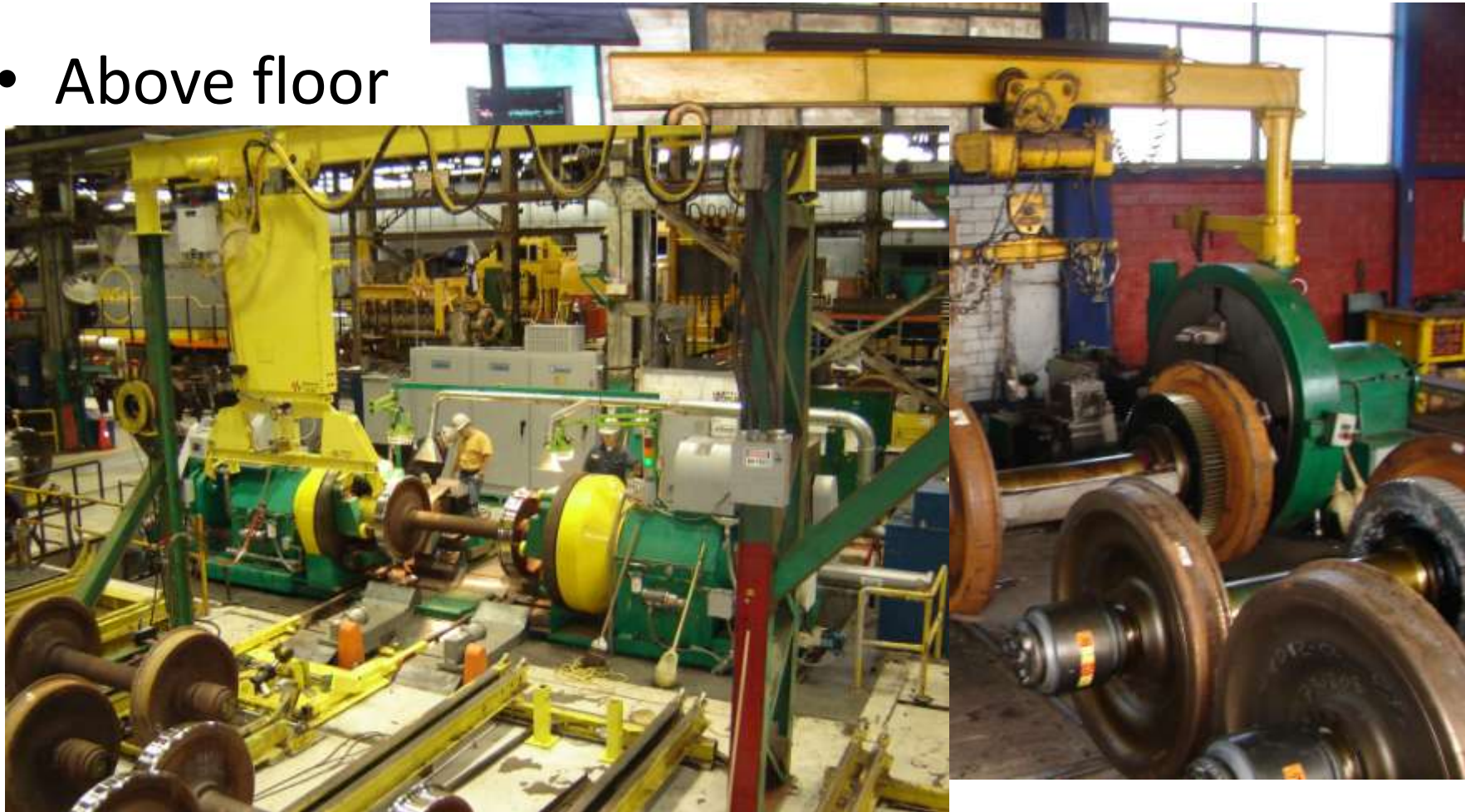
Wheel Truing Equipment Options

- Above floor



Wheel Truing Equipment Options

- Above floor



Wheel Truing Equipment Options

- Above floor – Portal style



Wheel Truing Equipment Options

- Under floor
 - Milling – Wheel Truing Machine
 - Turning – Underfloor Wheel Lathe

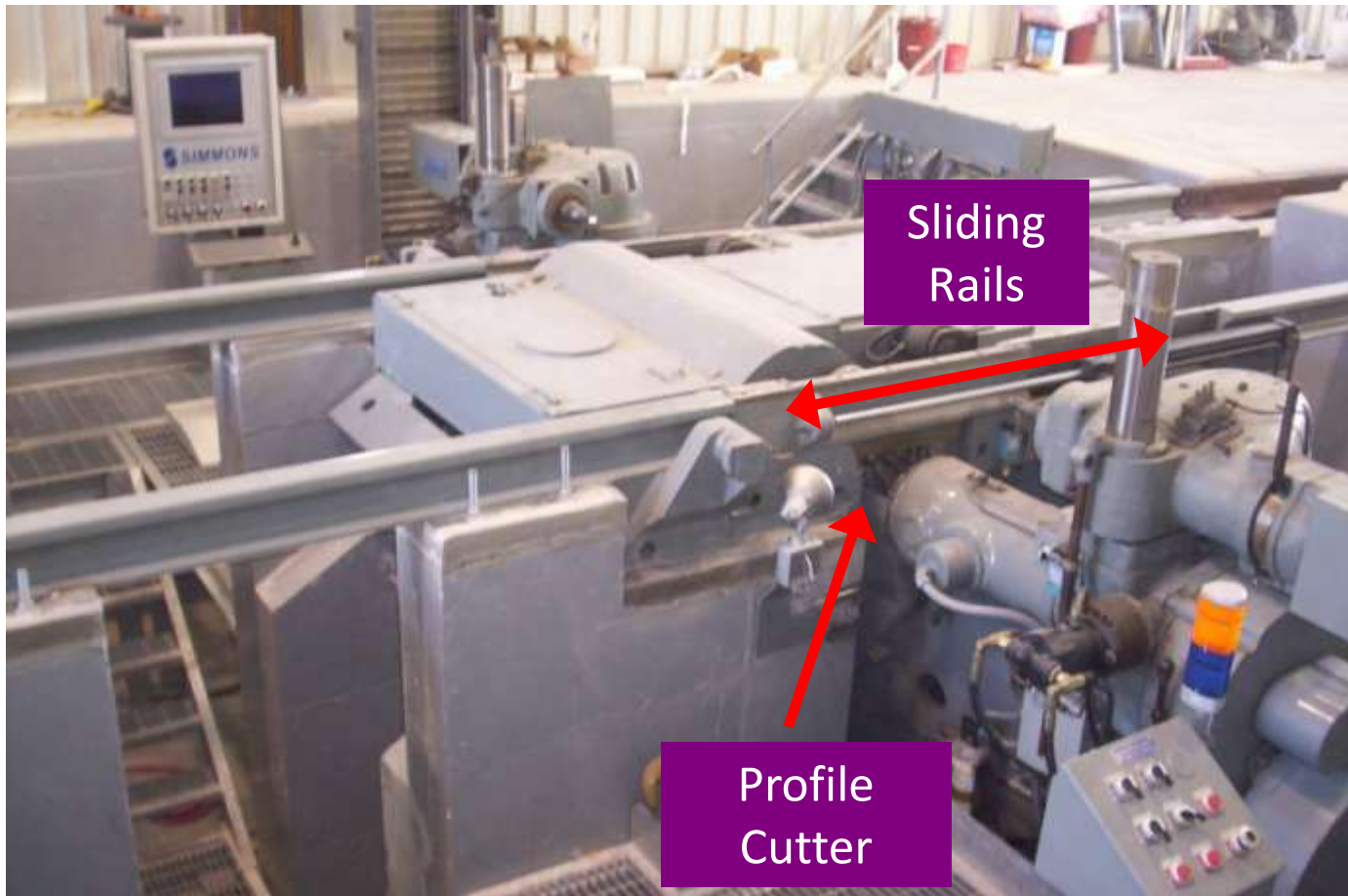


Wheel Truing Equipment Options

- Under floor
 - Milling – Wheel Truing Machine



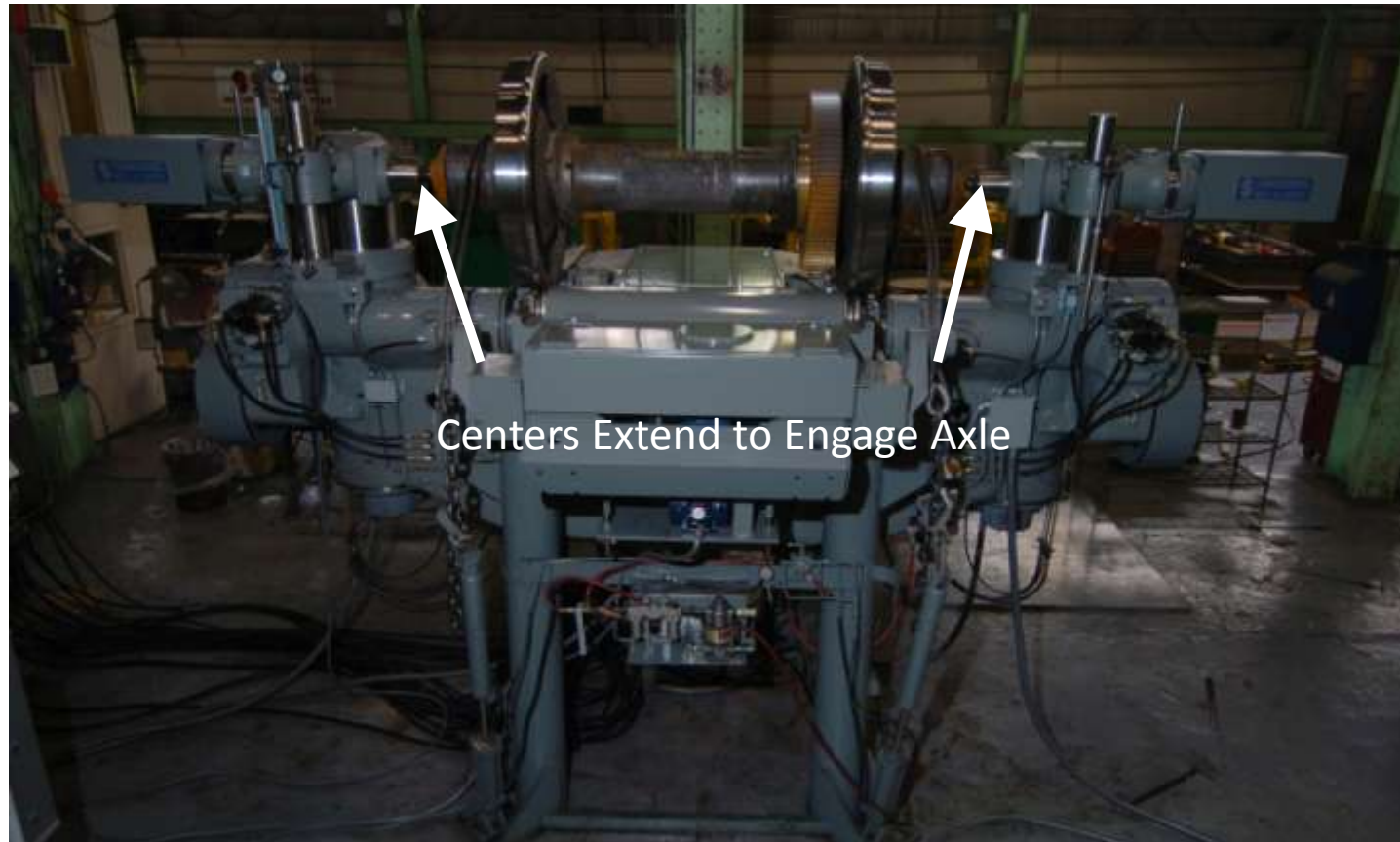
Wheel Truing Equipment Options



Wheel Truing Equipment Options



Wheel Truing Equipment Options



Wheel Truing Machine in Test Stand at' Manufacturing Facility



Wheel Truing Equipment Options



Wheel Truing Equipment Options

- Under floor
 - Lathe – Underfloor Wheel Lathe



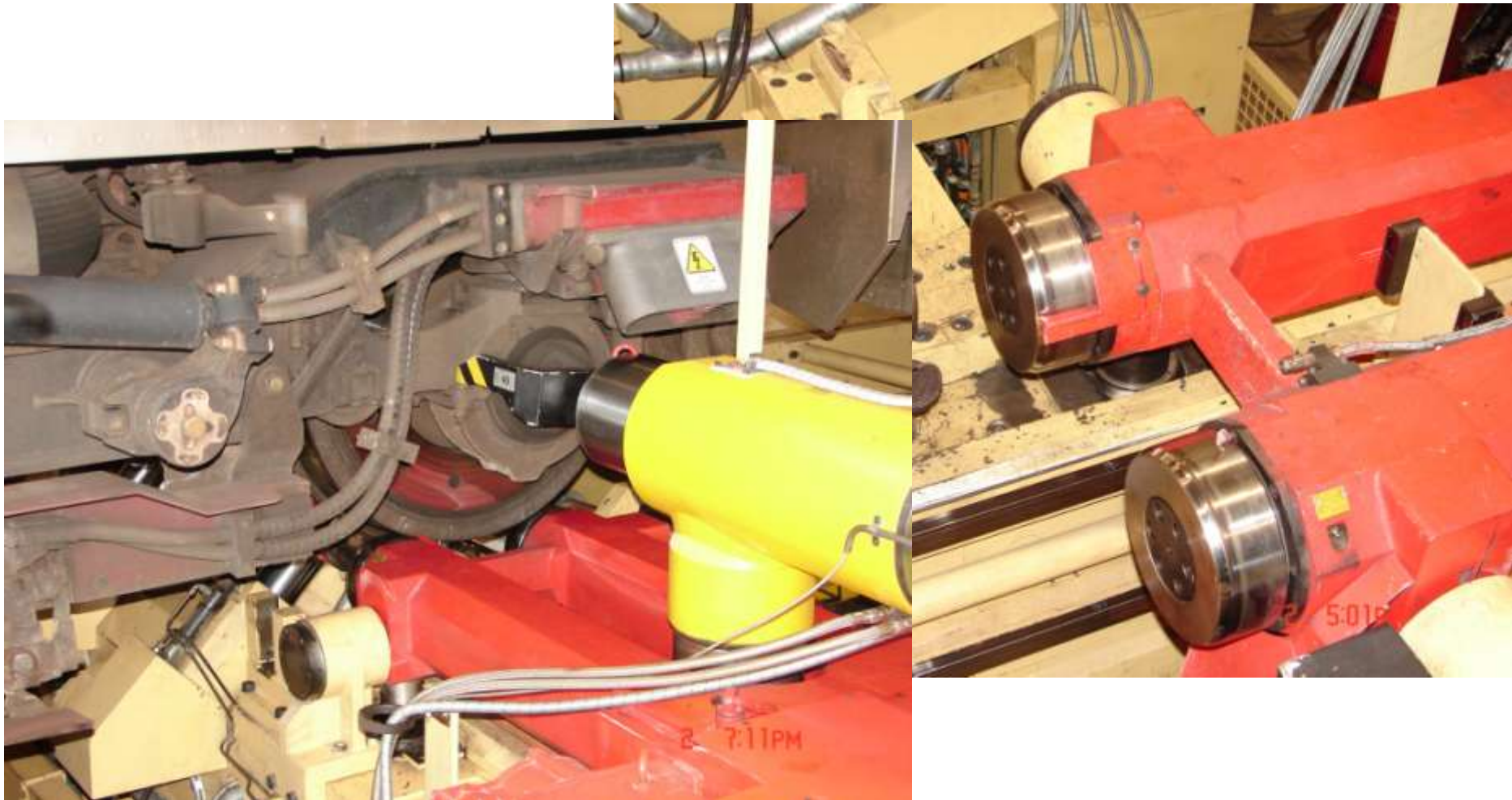
Wheel Truing Equipment Options



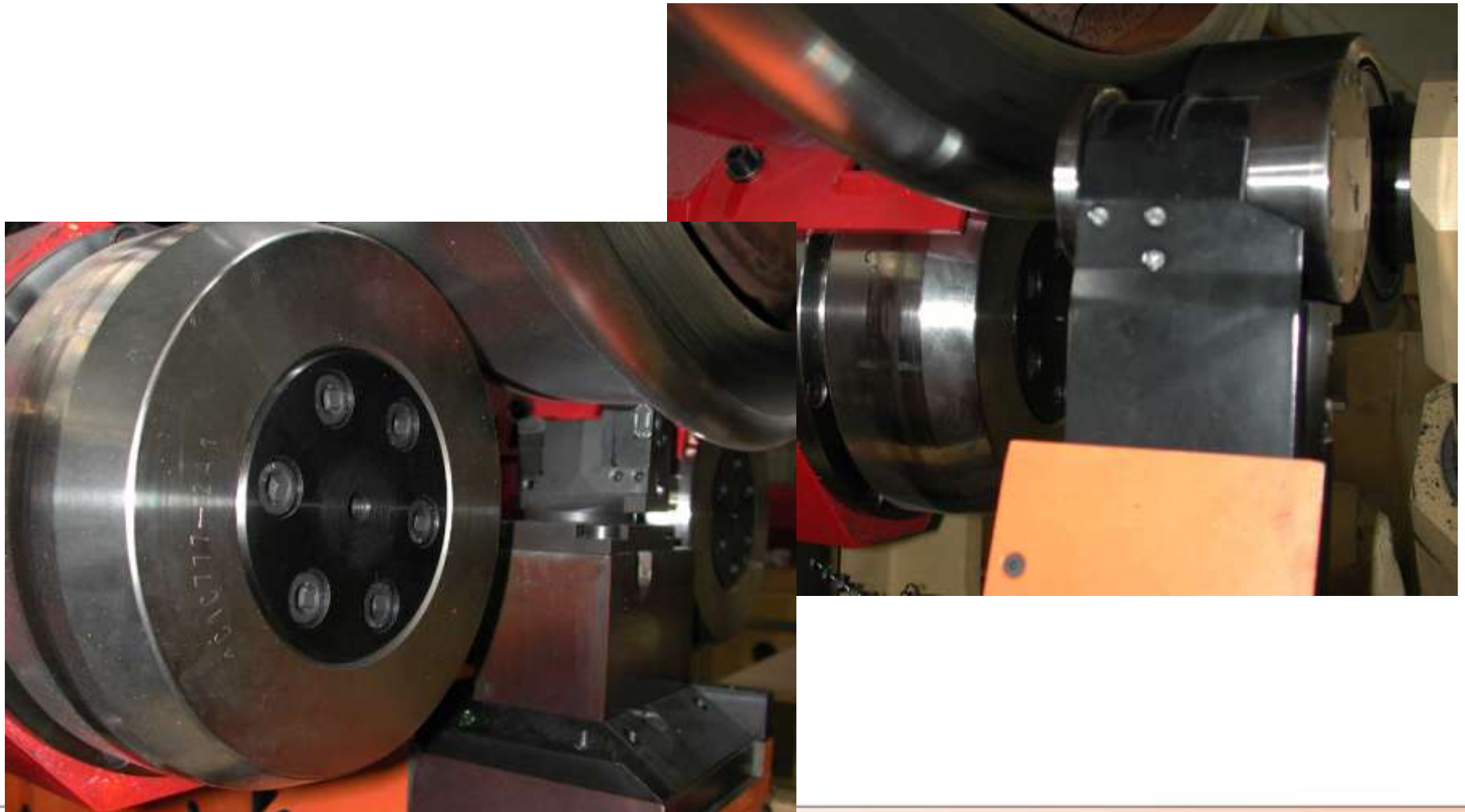
Wheel Truing Equipment Options



Wheel Truing Equipment Options



Wheel Truing Equipment Options



Wheel Truing Equipment Options



Some Vehicle Application Notes

- Wheel Truing Machine requires access to the axle centers of the wheel set
- Underfloor Wheel Lathe can be “centerless” requiring no access to axle centers
- Low floor vehicles have obstructions to axle centers and independent wheels

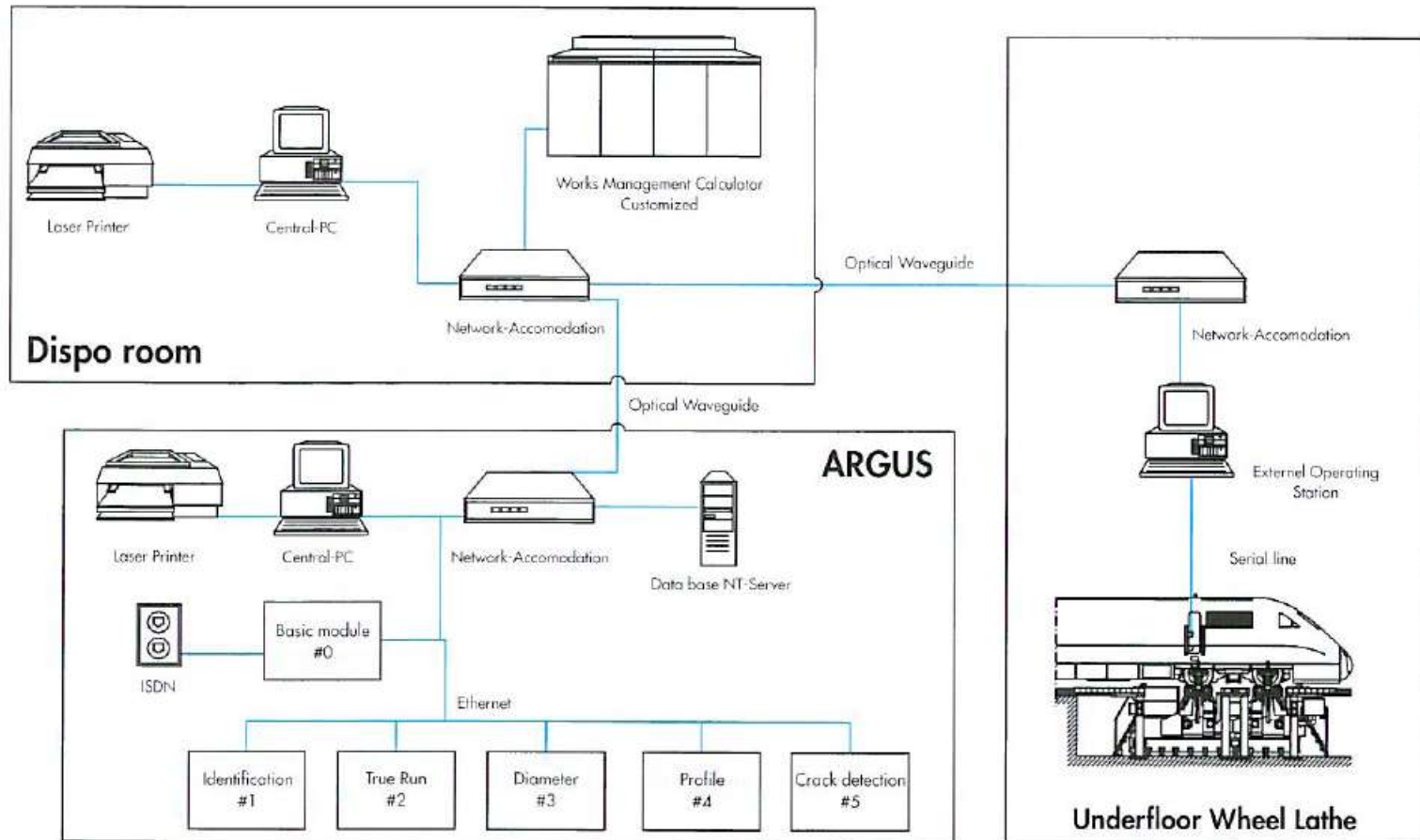
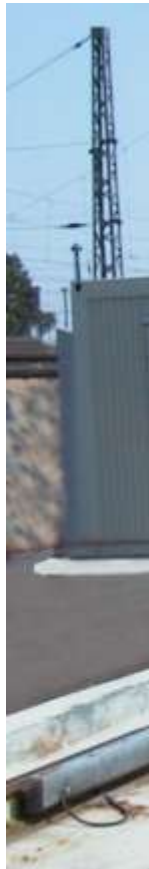


Wheel Truing Auxiliary Systems

- Wheel Management
 - Data interface with authority database to allow for transfer of wheel measurements and machine performance data to allow for trending analysis
- In-Rail Wheel Inspection Systems
 - In rail wheel inspection systems supply worn wheel data to the wheel truing machine directly or via the wheel management system



In-Rail Wheel Inspection Systems



Wheel Truing Auxiliary Systems

- Machine Inspection Systems
 - Optional equipment is available to perform ultrasonic inspection of the profiled wheel for cracks
- Vehicle Progression Systems
 - Multiple type systems are available for progression of vehicles across the wheel truing equipment



Vehicle Progression Systems



Wheel Truing Auxiliary Systems

- Chip Collection Systems
 - Chip shredders are available for breaking stringers generated by turning into manageable pieces
 - Vacuum chip conveying systems provide means for dust collection as well as housekeeping tools



Questions

