



South Central College

AST 2432 Rear Axle/Differential

Course Outcome Summary

Course Information

Description	This course will cover the operation and proper repair procedures of current differentials used on late model vehicles. (Prerequisite: Admission into the Automotive Service program and AST1112 or instructor approval)
Total Credits	2
Total Hours	48

Types of Instruction

Instruction Type	Credits/Hours
Lecture	1/16
Lab	1/32

Pre/Corequisites

Admission into the Automotive Service program

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

- 1. Exhibit Professionalism**
Learning Objectives
Identify safety practices
Perform shop safety
- 2. Identify differential components/types**
Learning Objectives
Identify drive axle terms
Describe differential power flow
Calculate drive axle ratios
- 3. Perform drive axle minor service**
Learning Objectives

Check and clean axle vent and hoses
Inspect and replace companion flange and pinion seal
Check companion flange run-out
Diagnose limited slip differential / noise / slippage and chatter concerns; determine necessary action

4. Inspect drive axle fluid level and leakage concerns; determine necessary action

Learning Objectives

Identify differential lubricant types
Clean and inspect drive drive axle housing, flush, and fill with correct lubricant
Perform road test

5. Analyze axle noise and vibration concerns, determine necessary action

Learning Objectives

Diagnose axle shafts, seals, bearings for noise, vibration and leaks; determine necessary action
Remove and replace axle shafts
Measure and adjust axle shaft endplay and runout
Service axle shaft bearings / seals / retainers / and wheel studs
Service C style axle bearing and seal
Service B style axle bearing and seal
Check pinion angle
Adjust pinion angle
Perform road test

6. Inspect ring gear / measure backlash; determine necessary action

Learning Objectives

Measure ring gear run-out: determine necessary action
Disassemble, inspect, reassemble or replace differential case / pinion gears / shaft / side gears / bearings and thrust washers
Disassemble / inspect and reinstall drive pinion, ring gear, spacers, sleeves, and bearings
Measure and adjust pinion depth
Install / measure and adjust pinion bearing preload
Adjust ring and pinion backlash and ring gear run-out on differential carrier
Install / measure and adjust differential bearing preload, threaded, or shim type adjustment
Check ring and pinion tooth contact pattern; perform necessary action
Inspect and reinstall limited slip differential case clutch components / measure rotating torque
Perform road test

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

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