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

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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 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**

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