

Automotive Service Technician Program

Competency Profile - Manual Drive Train and Axles-A3

Student Information

Last Name
First Name
Telephone

Directions: Evaluate the student according to the rating scale to indicate the degree of competency. The rating for each competency should indicate employability readiness, rather than the grades given in class.

2012 NATEF Standards for Automotive Service Technology

Student Rating Scale:

- 1 = NO EXPOSURE - no experience or knowledge in this area
- 2 = KNOWLEDGE - can recall, explain, or has been exposed to this information
- 3 = LIMITED SKILLED - requires instruction and close supervision
- 4 = MODERATELY SKILLED - can perform job completely with limited supervision
- 5 = SKILLED - can work independently with no supervision

Score	<i>A. Drive Train Diagnosis</i>	Date Completed
	1. Identify and interpret drive train concerns; determine necessary action. P1	
	2. Research applicable vehicle and service information fluid type, vehicle service history, service precautions, and technical service bulletins. P1	
	3. Check fluid condition; check for leaks; determine necessary action. P1	
	4. Drain and refill manual transmission/transaxle and final drive unit. P1	

B. Clutch Diagnosis and Repair

	1. Diagnose clutch noise, binding, slippage, pulsation, and chatter; determine necessary action. P1	
	2. Inspect clutch pedal linkage, cables, automatic adjuster mechanisms, brackets, bushing pivots, and springs; perform necessary action. P1	
	3. Inspect and replace clutch pressure plate assembly, clutch disc, release (throw-out) bearing and linkage, and pilot bearing/bushing (as applicable). P1	
	4. Bleed clutch hydraulic system. P1	
	5. Check and adjust clutch master cylinder fluid level; check for leaks. P1	
	6. Inspect flywheel and ring gear for wear and cracks; determine necessary action. P1	
	7. Measure flywheel runout and crankshaft end play; determine necessary action. P2	

C. Transmission/Transaxle Diagnosis and Repair

	1. Inspect, adjust, and reinstall shift linkages, brackets, bushings, cables, pivots, and levers. P2	
	2. Describe the operational characteristics of an electronically-controlled manual transmission/transaxle. P3	

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D. Drive Shaft and Half Shaft, Universal and Constant-Velocity (CV) Joint Diagnosis and Repair

1. Diagnose constant-velocity (CV) joint noise and vibration concerns; determine necessary action. P1	
2. Diagnose universal joint noise and vibration concerns; perform necessary action. P21	
3. Inspect, remove, and replace front wheel drive (FWD) bearings, hubs, and seals. P1	
4. Inspect, service, and replace shafts, yokes, boots, and universal/CV joints. P1	
5. Check shaft balance and phasing; measure shaft runout; measure and adjust driveline angles. P2	

E. Drive Axle Diagnosis and Repair

1. Ring and Pinion Gears and Differential Case Assembly

1. Clean and inspect differential housing; check for leaks; inspect housing vent. P2	
2. Check and adjust differential housing fluid level. P1	
3. Drain and refill differential housing. P1	
4. Inspect and replace companion flange and pinion seal; measure companion flange runout. P2	

2. Drive Axles

1. Inspect and replace drive axle wheel studs. P1	
2. Remove and replace drive axle shafts. P1	
3. Inspect and replace drive axle shaft seals, bearings, and retainers. P2	
4. Measure drive axle flange runout and shaft end play; determine necessary action. P2	

3. Four-wheel Drive/All-wheel Drive Component Diagnosis and Repair

1. Inspect, adjust, and repair shifting controls (mechanical, electrical, and vacuum), bushings, mounts, levers, and brackets. P3	
2. Inspect front-wheel bearings and locking hubs; perform necessary action(s). P3	
3. Check for leaks at drive assembly seals; check vents; check lube level. P3	
4. Identify concerns related to variations in tire circumference and/or final drive ratios. P3	