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NICORE

Training and Development

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APPLY THE TECHNIQUES FOR OPERATING FOUR WHEEL DIRVE (4WD) VEHICLES, IN ON-ROAD AND OFF-ROAD CONDITIONS

US 254135
NQF Level: 03
Credits: 4

COURSE OVERVIEW

US 254135
Apply The Techniques For Operating Four Wheel Drive (4WD) Vehicles, In On-Road And Off-Road Conditions

PURPOSE OF THE UNIT STANDARD

This unit standard is for learners seeking to apply the basic concepts of 4WD. This unit standard will enable the learner to practically demonstrate the basic knowledge and skills required to handle a 4WD, on-road and off-road, perform vehicle preparation, understand preventative maintenance and handle basic recovery situations and equipment, in an environmentally considerate manner. 4WD vehicles include all terrain vehicles (ATVs), Quad and Off-road Motor Bikes.

The qualifying learner is capable of:

- Identifying the range of features, vehicle options and capabilities of a 4WD vehicle or an ATV or a Quad Bike or an Off road Motor Bike.
- Demonstrating an understanding of the preparation of a vehicle for off-road conditions.
- Demonstrating a basic understanding of the various chassis and suspension configurations.
- Demonstrating a basic understanding of a drive train.
- Operating a 4WD vehicle in off-road conditions.

This unit standard include all-terrain vehicles (ATVs), Quad and Off-road Motor Bikes, however, learners that are found competent to operate a standard 4WD vehicle or an ATV will not be competent to operate a Quad or an Off-road Motor Bike unless they repeat this unit standard for a Quad or an Off-road Motor Bike and vice versa.

Specific Outcomes and Assessment Criteria:

SPECIFIC OUTCOME 1
Identify the range of features, vehicle options and capabilities of a 4WD vehicle.

ASSESSMENT CRITERIA

1. The criteria applied when selecting a vehicle for a specific application are explained with examples.
2. A range of vehicles, options and capabilities are identified with examples.
3. The limitations of 4WD vehicles and the definition of limiting angles and dimensions are explained with examples.
4. The power sources and options for various models are explained with examples.
5. An understanding of the braking system is explained with examples.
6. The location and operation of all controls on vehicle explained in relation to the operator handbook (owner's manual).

SPECIFIC OUTCOME 2
Demonstrate an understanding of the preparation of a vehicle for off-road conditions.

ASSESSMENT CRITERIA

1. Fuel, oil and water levels are determined for off-road requirements.
2. The use of lights when operating a vehicle off-road is demonstrated in various contexts.
3. Required tyre pressure and ways to maintain tyre pressure are explained with examples.

4. The tools required to fix and maintain vehicle for off-road conditions are explained in relation to the purpose of each.
5. Recovery equipment is identified with examples.
6. Safety and health equipment are explained in terms of their purpose limitations, advantages and disadvantages.
7. The vehicle safety features are explained in relation to various operating conditions.

SPECIFIC OUTCOME 3
Demonstrate basic understanding of the various chassis and suspension configurations.

ASSESSMENT CRITERIA
1. The chassis and body type construction are explained with reference to benefits and various operating conditions.
2. The role of springs (load carrier) is explained in relation to various operating conditions.
3. The role of shock absorbers (damping) is explained in relation to various operating conditions.
4. The axle and springs characteristics are explained as they relate to various operating conditions.

SPECIFIC OUTCOME 4
Demonstrate a basic understanding of a vehicle's drive train.

ASSESSMENT CRITERIA
1. The use of the clutch for various conditions are explained in the context of on-road and off-road conditions.
2. The functions of manual and automatic gearboxes are explained in relation to various operating conditions.
3. The function of a propshaft, an axles and a driveshaft is explained in relation to how they affect various operating conditions.
4. Hubs are explained in relation to manually and automatically locking hubs.

SPECIFIC OUTCOME 5
Operate a 4WD vehicle in off-road conditions.

ASSESSMENT CRITERIA
1. Off-road obstacles and off-road route selection is explained with references to the regulatory framework.
2. Permanent and part-time 4WD are engaged in various operating conditions.
3. High and low range drives are engaged in various operating conditions.
4. Axle differential locks are engaged in various operating conditions.
5. A route through evaluated obstacles is determined in accordance with best practices.
6. Stall starts are applied in relation to various obstacles and off-road terrain in accordance with best practices.
7. A 4WD vehicle is operated over various obstacles and off-road terrain in accordance with best practices.