Presentation Instructions

Who is this presentation for?

The trainer and learners.

What is in this Presentation?

- Course information that matches the Learner Guide content.
- Review questions and model answers.
- Slides contain summarised content, with full notes and information for the trainer, visible when the slide show is shown in "Presenter View" (see instructions on next slide).
- Use this presentation to support and reinforce the training information from the Learner Guide.

What do you need to do before you use it for the first time?

1. Rebrand the presentation.
2. Review the presentation as part of your validation process.

Instructions for Viewing in Presenter View

NOTE: This view is only applicable when the computer is connected to a second screen or a data projector.

Once the second screen/projector is connected make sure that the "Use Presenter View" box is ticked.
This is found in the "SLIDE SHOW" tab as shown below.

RTVEH305E

OPERATE AND MAINTAIN A FOUR WHEEL DRIVE VEHICLE

TRAINING PRESENTATION

Training Presentation Sections

Click on a box to go to that section.

Section 1: Introduction to 4WDs

Section 2: Prepare for Operations

Section 3: Drive the 4WD

Section 4: Recover 4WD & Finish Work

RIIVEH305F

Section 1: Introduction to 4WDs

1.1 Introduction

This course is based on the unit of competency **RIIVEH305F Operate and Maintain a Four Wheel Drive Vehicle.**

The material covers the operation and maintenance of four-wheel drive vehicles and includes:

- Types of four-wheel drive (4WD) vehicles.
- Minimising environmental impact while driving the 4WD.
- Checking the 4WD before leaving and planning the journey.
- Four-wheel driving techniques.
- 4WD recovery techniques.
- 4WD maintenance and minor repairs.

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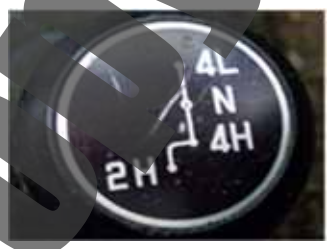
- 4WD recovery techniques.
- 4WD maintenance and minor repairs.

1.2 Introduction to Wheel Drives

There are different types of wheel drives:

- Two-wheel drive (2WD, 4x2).
- Four-wheel drive (4WD, 4x4).
- All-wheel drive (AWD).
- Individual-wheel drive (IWD).



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1.2.1 2WD and 4WD

2WD are vehicles that have 2 of the 4 wheels being driven under power. The driven wheels can be either back or front wheels but are usually the back wheels.

4WD are vehicles that have all 4 wheels being driven under power. This helps to maintain traction (grip) and control of the 4WD over rough, slippery or uneven ground.

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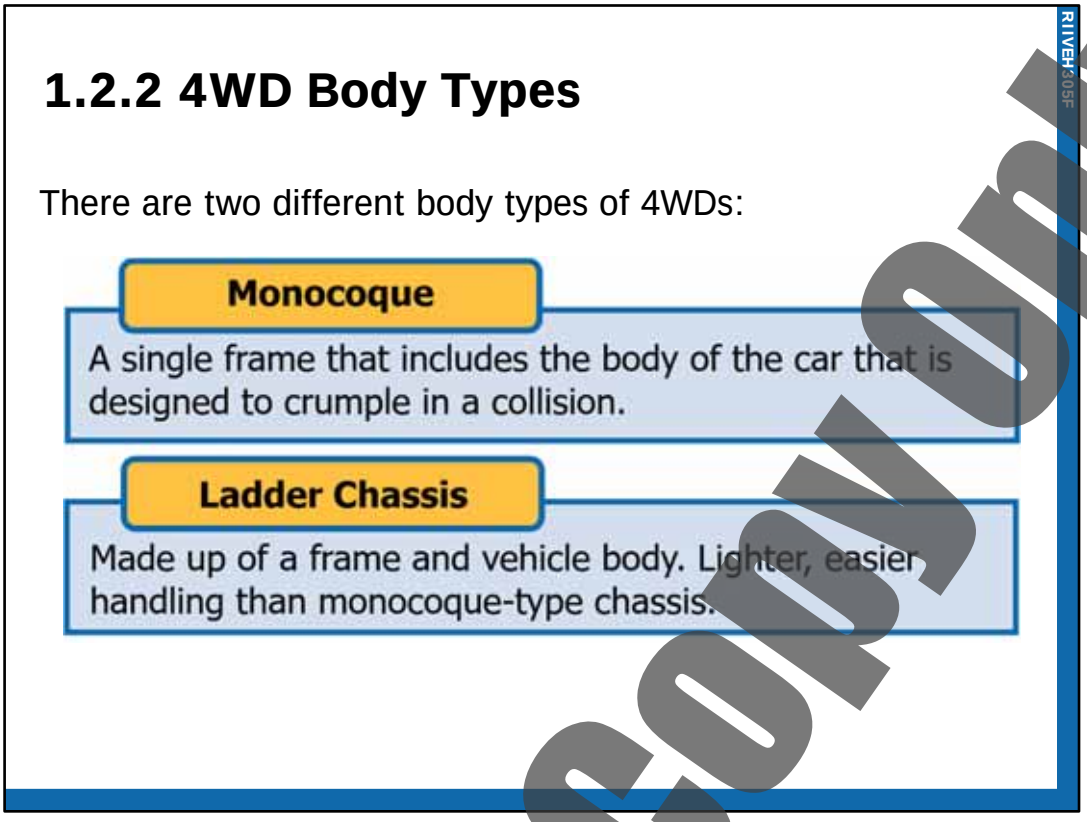
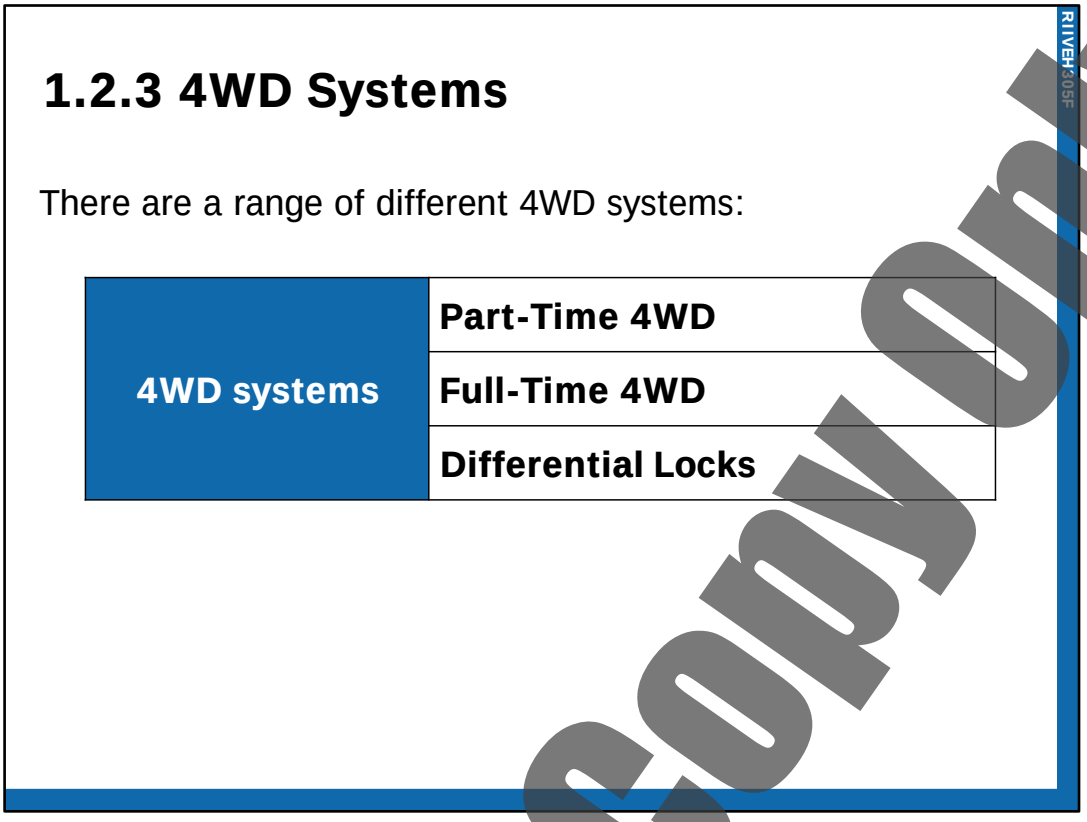


There are two different body types of 4WDs:

Monocoque - A single frame that includes the body of the car that is designed to crumple in a collision.

Ladder Chassis - Made up of a frame and vehicle body. Lighter, easier handling than monocoque-type chassis.



There are a range of different 4WD systems:

Part-Time 4WD - Vehicles with part-time 4WD use a drive system that can power all 4 wheels when going off-road, or just the back 2 wheels when driving on normal roads.
These vehicles have separate front and rear differentials and freewheeling hubs (front wheel hubs) that let the front wheels turn freely (not under power).
WARNING: Driving constantly with all hubs engaged may cause transmission wind-up. This is where the transmission locks and the vehicle will not move forward. It can also be caused by uneven rolling diameters of tyres. If you think transmission wind-up is starting, reverse and shift to high 4.

Full-Time 4WD - Vehicles with full-time 4WD run in constant 4x4 mode (all wheels are powered all the time) and do not have freewheeling hubs. These 4WDs make use of high and low gears. Low gears provide more torque to help with driving off-road.

Differential Locks (Diff Locks) - Diff locks can be engaged in both part and full time 4WDs to lock the differential. This causes each wheel to always spin at the same rate of rotation to provide better traction.

1.2.4 4WD Capabilities

Departure and Approach Angles

These are the angles between the point where the tyre touches the ground and the bumper or structure of the 4WD.

The bigger the angle the less chance of the vehicle hitting the ground while driving up or down an incline.

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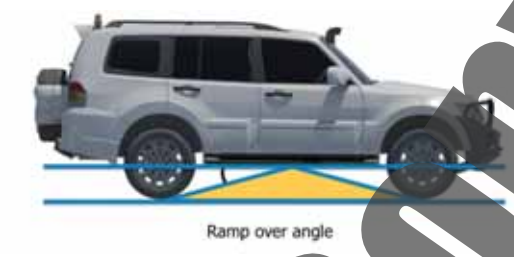
See image.

1.2.4 4WD Capabilities

Ramp Over Angle

This is the angle that a 4WD can drive over without scraping the bottom of the vehicle.



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Suspension Travel

Suspension or wheel travel is the amount of vertical (up and down) movement that the suspension allows a wheel to move.

Being able to achieve larger amounts of wheel travel means you can keep more wheels on the ground while traveling over uneven terrain. This improves the traction and stability of the 4WD.

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1.2.5 4WD Tyres

Tyre pressure is important and can affect the way the vehicle drives and handles. The pressure should be the same in all tyres and not be too high or too low.

Tyre pressure that is too high or too low can cause tyre wear and poor mileage.

Having different pressures in different tyres can make steering and handling more difficult and make the vehicle less stable.

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1.2.5.1 Tyre Ratings

4WD tyres are rated by the maximum load bearing capacity at the speed indicated:

Rating / Speed			
J	100 km/h	**Q**	160 km/h
K	110 km/h	**R**	170 km/h
L	120 km/h	**S**	180 km/h
M	130 km/h	**T**	190 km/h
N	140 km/h	**U**	200 km/h
P	150 km/h	**H**	210 km/h

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Monocoque and Ladder Chassis.