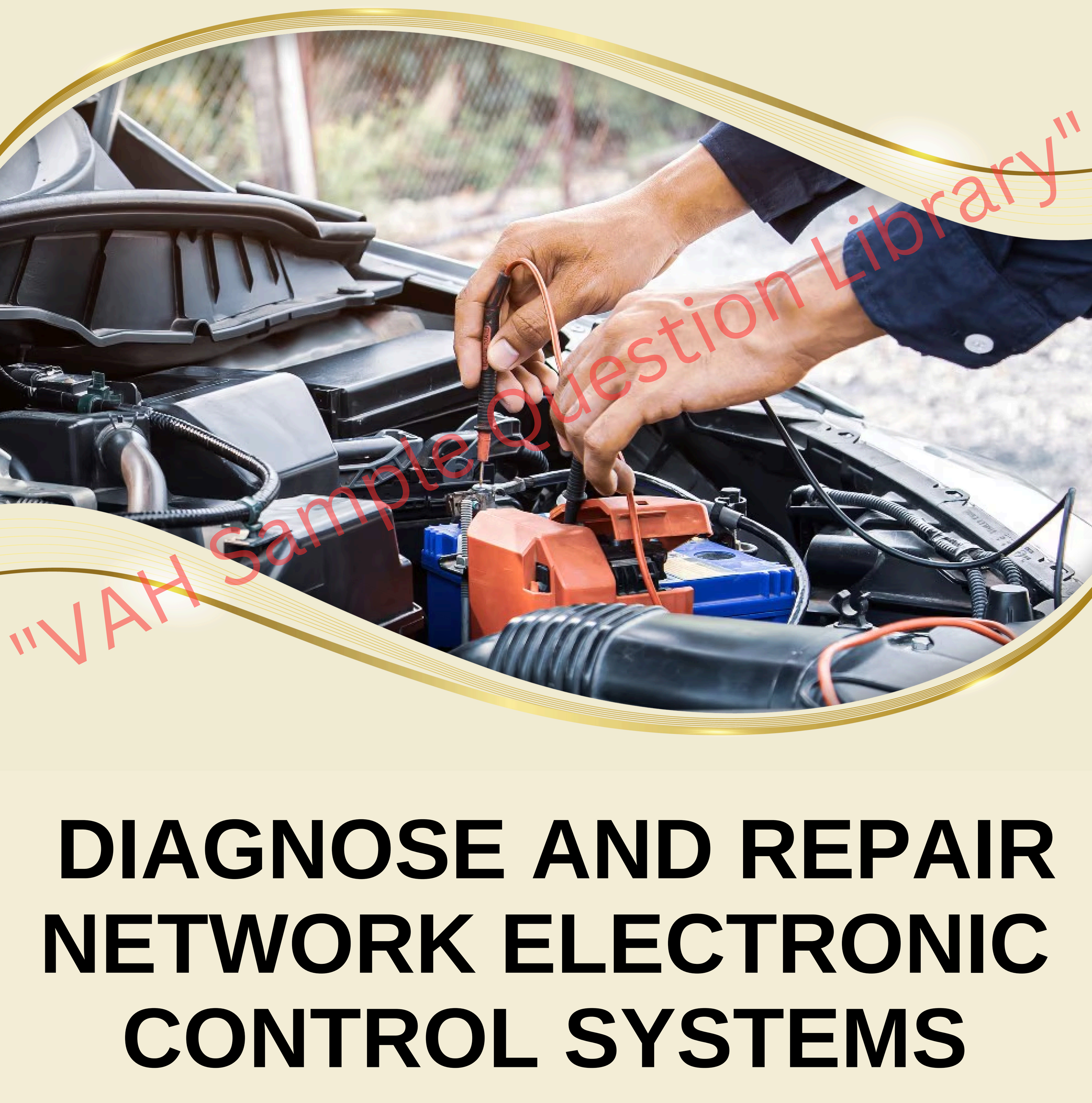
AURETR120



DIAGNOSE AND REPAIR NETWORK ELECTRONIC CONTROL SYSTEMS

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PART 1: Assessment information: This part contains information on the assessment for this unit of competency and how an assessment will be conducted throughout this unit to achieve the competency. It includes:

- Purpose of assessment.
- Elements, performance evidence and knowledge evidence requirements of the unit.
- Conditions, context, required resources and location of the assessment.
- Assessment tasks.
- Outline of evidence to be collected.
- Administration, recording and reporting of the requirements including special adjustments, appeals, reasonable adjustments and assessors' intervention.

PART 2: Assessment tasks: This part contains the information to successfully undertake the assessment task. In each assessment task, yous will find the following information:

- Task instructions.
- Marking checklists
- Information on resources required, where applicable

PART 1: Assessment information

Purpose of assessment: The purpose of assessment is to determine competency in the unit AURETR120 Diagnose and repair network electronic control systems, which required to diagnose and repair network electronic control systems. These systems include two-wire high and low speed (CAN-bus) and single wire low speed (LIN-bus)

networked circuits essential to control engine powertrain, vehicle dynamic control functions and body control functions. They include vehicle infotainment and climate control systems. The systems used vary based on the work context. The unit involves preparing for the task, sourcing a diagnostic testing strategy, diagnosing the cause of the fault, carrying out the repair, performing post-repair testing, and completing workplace processes and documentation

Performance evidence: Before competency can be determined, individuals must demonstrate they can perform the following according to the standard defined in this unit's elements, performance criteria, range of conditions and foundation skills:

- Prepare to diagnose and repair network electronic control system
- Diagnose network electronic control system
- Repair network electronic control system
- Complete work processes
- Diagnose and repair a fault in at least three different network electronic control circuits that set network communication diagnostic trouble codes (DTCS), including one single wire circuit (LIN-bus) and one two-wire circuit (CAN-bus).
- Carry out a diagnostic test in the course of the above work for at least one of the following faults:
    - High resistance in an input system
    - Worn or damaged wiring or connectors
    - Shorted system components.
- Methods to locate and interpret information required to diagnose and repair network electronic control systems, including:
    - Information provided by customers and supervisors
    - Manufacturer specifications and procedures or equivalent documentation
- Workplace procedures required to diagnose and repair network electronic control systems, including:
    - Establishing serviceability of tools and equipment
    - Documentation procedures
    - Housekeeping procedures, including:
        - Examination of tools and equipment
        - Storage of equipment
        - Identification, tagging and isolation of faulty equipment
        - Disposal of excess materials
        - Recycling procedures
- Workplace health and safety (WHS) requirements relating to diagnosing and repairing network electronic control systems, including procedures for identifying hazards and controlling risks associated with:
    - Working on vehicle high voltage ignition systems
    - Wearing jewellery while working around high current wiring systems
- Environmental procedures relating to diagnosing and repairing network electronic control systems.
- Diagnostic testing procedures for network electronic control systems, including:
    - Using diagnostic flow charts
    - Accessing and interpreting scan tool system data, including:
        - DTCS, including 'U' type communication codes
        - Live data
        - Freeze frame data
        - Waveforms
    - Testing electrical systems, including procedures for:

        - Accessing electrical terminals and using test probes without damaging connectors, fuse holders or wiring
        - Determining damage to system wiring and connectors
- Repair procedures for network electronic control systems, including:
    - Connector removal and replacement procedures
    - Removal and replacement procedures for vehicle network electronic control system components
- Post-repair testing procedures for network electronic control systems, including:
    - Confirming fault rectification
    - DTC clearing procedures
    - Checking for electrical connector mating
- Operating principles of network electronic control systems and associated components, including:
    - Assurance of message delivery, non-conflicting messages, minimum time of delivery, and electromagnetic field (EMF) noise resilience
    - Network topographies
    - Network protocols, including characteristics and data speeds
- Purpose and operation of network electronic control systems and components, including:
- Controlled area network (CAN), including:
    - Nodes: host processor, CAN controller, and transceiver
    - Gateway modules
    - Terminating resistors
    - Data transmission
    - Vehicle data logic connector (DLC)
- Local interconnect network (LIN), including:
    - Master and slaves
    - Data transmission.

Individuals must be able to demonstrate knowledge of:

- Knowledge of methods to locate and interpret information required to diagnose and repair network electronic control systems, including:
    - information provided by customers and supervisors
    - manufacturer specifications and procedures or equivalent documentation
- Knowledge of workplace procedures required to diagnose and repair network electronic control systems, including:
    - establishing serviceability of tools and equipment
    - documentation procedures
    - housekeeping procedures, including:
        - examination of tools and equipment
        - storage of equipment
        - identification, tagging and isolation of faulty equipment
        - disposal of excess materials
        - recycling procedures
- Knowledge of workplace health and safety (WHS) requirements relating to diagnosing and repairing network electronic control systems, including procedures for identifying hazards and controlling risks associated with:
    - working on vehicle high voltage ignition systems
    - wearing jewellery while working around high current wiring systems
- Knowledge of environmental procedures relating to diagnosing and repairing network electronic control systems.
- Knowledge of diagnostic testing procedures for network electronic control systems, including:
    - using diagnostic flow charts
    - accessing and interpreting scan tool system data, including:
        - DTCs, including 'U' type communication codes
        - live data

    - freeze frame data
    - waveforms
- Knowledge of testing electrical systems, including procedures for:
    - accessing electrical terminals and using test probes without damaging connectors, fuse holders or wiring
    - determining damage to system wiring and connectors
- Knowledge of repair procedures for network electronic control systems, including:
    - connector removal and replacement procedures
    - removal and replacement procedures for vehicle network electronic control system components
- Knowledge of post-repair testing procedures for network electronic control systems, including:
    - confirming fault rectification
    - DTC clearing procedures
    - checking for electrical connector mating
- Knowledge of operating principles of network electronic control systems and associated components, including:
    - assurance of message delivery, non-conflicting messages, minimum time of delivery, and electromagnetic field (EMF) noise resilience
    - network topographies
    - network protocols, including characteristics and data speeds
- Knowledge of purpose and operation of network electronic control systems and components, including:
- Knowledge of controlled area network (CAN), including:
    - nodes: host processor, CAN controller, and transceiver
    - gateway modules
    - terminating resistors
    - data transmission
    - vehicle data logic connector (DLC)
- Knowledge of local interconnect network (LIN), including:
    - master and slaves
    - data transmission.

Context and conditions for assessment:

- Training will be conducted in blended delivery mode on a full-time basis in a classroom and automotive workplace environment.
- Classrooms for the theory component of the course will be delivered at campus location.
- The practical component of the course will be delivered in the simulated environment i.e., AIT Automotive Workshop. The location is identified in the timetable.

Please Note:

- Workshop suitability will be conducted to determine the suitability of the venue, including equipment and documents specified in the unit of AURETR120 Diagnose and repair network electronic control systems.

Resources required: The assessor will ensure that the assessment is conducted in a safe environment and that yous have access to the following resources for the unit.

- automotive repair workplace or simulated workplace
- workplace instructions
- manufacturer instrument and warning system specifications
- two different vehicles, vessels or machinery with instrument and warning system faults

- diagnostic equipment for instruments and warning systems, including multimeter
- tools, equipment and materials appropriate for repairing vehicle, vessel or machinery instruments and warning systems.

Clustering/holistic assessment: There is no provision for clustering of assessments in this unit.

- **Competency requirements:** To be judged competent in this unit, a you will be required to demonstrate all indicators which are shown in the Marking Guides given with each task (assessor's document).

Yous must satisfactorily complete all assessment tasks to be Competent (C) in the unit. Yous with unsatisfactory completion of any of the assigned tasks will be deemed Not Yet Competent (NYC).

Assessors will ensure that the evidence collected meets the requirements of the Rules of Evidence (authentic, current, sufficient and valid) prior to entering results into the competency record sheet.

Yous unsuccessful at achieving competency at the first attempt will be given two further opportunities for re-assessment at a mutually agreed time and date (a total of 3 attempts, including the original). If a learner fails the re-assessment after three attempts, they will be advised to re-enrol in the unit. Refer to the institute's Assessment Policy and Procedures for more details.

Assessment Task 1 - Knowledge Test

Provide your response to each question in the box below.

Q1:	1.1 Where can you find the information required in the table below? 1.2 Where can you find the information provided by the customer or your supervisor that you will need for diagnosing and repairing network electronic control systems? Give three (3) examples. 1.3 List three (3) methods you can use to locate the required information to diagnose and repair the network electronic control systems.	Satisfactory response	
		Yes ☐	**No** ☐

1.1

Item	**Location** **List three (3) examples**	**Content** **List three (3) examples**
Workplace procedures related to diagnosis and repair of network electronic control systems?	• Reception desk • Supervisors area • Google • Safe work Australia	• Safe working procedures • Hazard management procedures • Emergency information •

Manufacturer specifications related diagnosis and repair of network electronic control systems?	• Owner manual • Manufacturer Website • Repair manual of the vehicle	• Data Testing procedures • EMS systems specifications • EMS Pressure specifications

Q2:	2.1 Explain the workplace procedures required to diagnosis and repair a network electronic control system? Answer using 10 - 30 words for each in the table below. 2.2 Describe the housekeeping procedures required when diagnosing and repairing network electronic body management systems. Answer using 10 - 30 words for each in the table below.	**Satisfactory response**	
		Yes ☐	**No** ☐

2.1

Establish serviceability of tools and equipment.	
Documentation procedures	

2.2

Examination of tools and equipment	
Storage and examination of equipment procedures	
Identification, tagging and isolation of faulty equipment procedures	
Safe disposal of excess material procedures	
Recycling procedures	

Q3:	Describe the Workplace Health and Safety requirements relating to diagnosing and repairing the network electronic control systems, including procedures for working with high current wiring systems.	**Satisfactory response**	
		Yes ☐	**No** ☐

WHS requirements for working on vehicles high voltage ignition systems List five (5)	
Identifying hazards and controlling risks associated with wearing jewelry while working around high current wiring systems.	<table><tr><td>Identified Hazards List two (2)</td><td>Associated Risks List four (4)</td></tr><tr><td></td><td></td></tr></table>

Q4:	Describe the environmental procedures relating to diagnosing and repairing the network electronic control system that will mitigate risks.	Satisfactory response	
		Yes ☐	**No** ☐

Environmental Requirement	Environmental Requirements and procedures
Risk of Explosion List three (3)	
Risk of Fire List three (3)	
Risk of expelling oils List three (3)	
Risk of expelling Battery Acid List three (3)	

Q5:	Using the table below, describe the purpose and operation of electronically controlled steering systems and components, including those listed in the table below.	**Satisfactory response**	
		Yes ☐	**No** ☐

Using diagnostic flow charts Answer using 50 - 100 words	
Diagnostic trouble codes (DTC) Including 'U' type communication codes Answer using 50 - 100 words	
Waveforms Answer using 20 - 50 words.	
Live Data Answer using 20 - 50 words	
Freeze frame data. Answer using 20 - 50 words	

Q6:	**Describe the testing procedures for network electronic control systems for, determining the following, listed in the table below.**	Satisfactory response	
		Yes ☐	**No** ☐

Accessing electrical terminals and using probes without damaging connectors, fuse holders or wiring. Answer using 20 - 50 words.	
Determining damage to systems wiring and connectors Answer using 50 - 100 words.	

Q7:	**Describe the repair procedures for network electronic control systems listed in the table below:**	Satisfactory response	
		Yes ☐	**No** ☐

Connector removal and replacement procedures Answer using 20 - 50 words.	
Removal and replacement procedures for network electrical control system components. Answer using 50 - 100 words.	

Q8:	Describe the post repair procedures for the network electronic control systems listed in the table below.	**Satisfactory response**	
		Yes ☐	**No** ☐

ECS Systems	Description
1. DTC Clearance procedures Answer using 50 - 100 words.	
2. Checking for electrical connector mating Answer using 50 - 100 words.	
3. Confirming fault rectification Answer using 20 - 50 words.	

Q9:	Describe the operating principles of network electronic control systems and associated components listed in the table below. • Assurance of message delivery. • Non conflicting messages. • Minimum time delivery.	**Satisfactory response**	
		Yes ☐	**No** ☐

	• Electromagnetic field (EMF) noise resilience. • Network protocols • Network topographic • Network characteristics • Data speed		

Assurance of message delivery Answer using 50 - 100 words.
Non conflicting messages Answer using 20 - 50 words.
Minimum time delivery Answer using 20 - 50 words.
Electromagnetic field (EMF) noise resilience Answer using 20 - 50 words.
Network protocols Answer using 20 - 50 words.
Network Topographic Answer using 20 - 50 words.
Network characteristics Answer using 20 - 50 words.
Data speed Answer using 20 - 50 words.

Q10:	**Describe the purpose and operation of network electronic control systems and components listed in the table below.**	Satisfactory response	
		Yes ☐	**No** ☐

Control area network Answer using 20 - 50 words.	
Nodes: Host processor CAN controller Transceiver Answer using 50 - 100 words.	
Gateway modules Answer using 20 - 50 words.	
Terminating resistors Answer using 20 - 50 words.	
Data transmissions Answer using 20 - 50 words.	
Vehicle data logic connector Answer using 20 - 50 words.	
Local interconnect network (LIN) Answer using 20 - 50 words.	
Master and slaves Answer using 20 - 50 words.	

Q11:	Describe the post repair procedures for the network electronic control systems listed in the table below.	**Satisfactory response**	
		Yes ☐	**No** ☐

DTC Clearance procedures Answer using 50 - 100 words.	
Checking for electrical connector mating Answer using 50 - 100 words.	
Static and dynamic performance tests of network electronic control systems. Answer using 50 - 100 words.	

Q12:	List six (6) steps for documenting and reporting findings and recommendations from the diagnostic and repairing faults on the network electronic control systems.	Satisfactory response	
		Yes ☐	**No** ☐
Q13:	Once the work processes have been completed, list the three (3) essential processes that must be adhered to.	Satisfactory response	
		Yes ☐	**No** ☐

AT2 – Skills Demonstration

Unit Title: Diagnose and repair network electronic control systems	**Unit Code: AURETR120**
Assessment Method and Description	The purpose of this assessment is to assess your knowledge and skills with regards to • Skills to identify job requirements from workplace instructions • Skills to identify required information for diagnosis activity • Skills to analyse diagnostic options and source testing strategy to identify cause of fault using workplace and manufacturer procedures • Skills to identify hazards and environmental issues associated with diagnose and repair activity, assess potential risks and implement control measures in line with workplace policies and procedures • Skills to identify tools and equipment required for testing strategy and establish serviceability according to workplace procedures • Skills to implement diagnostic tests set out in testing strategy according to manufacturer and workplace procedures, and workplace health and safety requirements • Skills to identify cause of fault through analysis of diagnostic test results • Skills to confirm and report cause of fault according to workplace procedures • Skills to develop and report recommendations for necessary repairs according to workplace procedures • Skills to identify required information for repair activity • Skills to identify required repair tools, equipment and materials required for repair activity and establish serviceability according to workplace procedures • Skills to carry out repairs according to workplace and manufacturer procedures, manufacturer specifications, workplace health and safety and environmental requirements • Skills to carry out post-repair testing according to workplace procedures, workplace health and safety and environmental requirements

	• Skills to conduct final inspection according to workplace procedures and confirm vehicle is ready for use • Skills to clear work area and dispose of or recycle materials according to workplace procedures • Skills to complete documentation according to workplace procedures
Context of assessment	This assessment will be conducted in the workshop at the date and time agreed upon between yous and the assessor with access to equipment and resources outlined below.
Resources Required	The following resources must be made available: ▪ Workplace personnel/stakeholders to participate in the questioning session requires active participation in a range of creative thinking activities ▪ Please refer to the roles and responsibilities section for more information ▪ Automotive repair workplace or simulated workplace ▪ Workplace instructions ▪ Manufacturer specifications for network electronic control systems ▪ Two different network electronic control circuits ▪ Diagnostic equipment for network electronic control circuits, including: o Multimeter o Scan tool o Oscilloscope ▪ Tools, equipment and materials appropriate for repairing network electronic control circuits. ▪
Instructions to the You	• This is an individual assessment. • The purpose of this assessment task is to assess your performance with regards to: o diagnose and repair a fault in at least three different network electronic control circuits that set network communication diagnostic trouble codes (DTCs), including one single wire circuit (LIN-bus) and one two-wire circuit (CAN-bus). o carry out a diagnostic test in the course of the above work for at least one of the following faults: ▪ high resistance in an input system ▪ worn or damaged wiring or connectors ▪ shorted system components. • To ensure your responses are satisfactory, you should consult a range of learning resources and other information such as handouts, textbooks, learner resources etc. • All questions must be answered in order to gain competency for this assessment. • This skill test must be performed automotive repair workplace or simulated workplace. • The training organisation will arrange the following: o Three different network electronic control circuits o One must be a single wire circuit (LIN-bus) and one must be a two wire circuit (CAN-bus) o manufacturer specifications for network electronic control systems o two different network electronic control circuits o diagnostic equipment for network electronic control circuits, including:

	▪ multimeter ▪ scan tool ▪ oscilloscope ● tools, equipment and materials appropriate for repairing network electronic control circuits.

Task 1 Simulated assessment scenario

You are required to diagnose and repair network electronic control systems. You are required to read and understand a predetermined issue and/or situation and participate in a number of assessment activities.

The following are the activities you need to complete this assessment task:

- Identify the job requirements from the workplace instructions
- Identify the information required for the diagnosis activity
- Analyse the diagnostic options and source a testing strategy to identify the cause of fault using workplace and manufacturer procedures
- Identify hazards and environmental issues associated with the diagnose and repair activity, assess potential risks and implement control measures in line with workplace policies and procedures
- Identify the tools and equipment required for the testing strategy and establish serviceability according to workplace procedures
- Implement the diagnostic tests set out in the testing strategy according to manufacturer and workplace procedures, and workplace health and safety requirements
- Identify the cause of fault through analysis of the diagnostic test results
- Confirm and report the cause of fault according to workplace procedures
- Develop and report your recommendations for necessary repairs according to workplace procedures
- Identify the required information for the repair activity
- Identify the repair tools, equipment and materials required for the repair activity and establish serviceability according to workplace procedures
- Carry out the repairs according to workplace and manufacturer procedures, manufacturer specifications, workplace health and safety and environmental requirements
- Carry out the post-repair testing according to workplace procedures, workplace health and safety and environmental requirements
- Conduct a final inspection according to workplace procedures and confirm the vehicle is ready for use
- Clear the work area and dispose of or recycle materials according to workplace procedures
- Complete the documentation according to workplace procedures

A supervisor will be assigned to you by your training organisation. The supervisor can answer your questions related to understanding the requirements associated with the assessment task. The supervisor will act according to job role and responsibilities.

The supervisor can be your trainer or assessor or a different trainer or assessor or a staff member (including mentors) from the training organisation.

Roles and responsibilities

As part of your job role, you have the following responsibilities:

- Locate required sources of information efficiently
- Develop a sequenced plan for a specific task

- Organise and interpret technical information from workplace procedures, manufacturer procedures and manufacturer specifications
- Interpret text, symbols and wiring diagrams in information relating to electrical system testing and repair equipment from manufacturer specifications and workplace instructions and procedures
- Clarify instructions
- Obtain information from customers and supervisors
- Match electrical components and part identification numbers to workplace instructions, vehicle, machinery and component part lists, and manufacturer specifications
- Read and interpret vehicle electrical measurements and readings
- Measure voltage, current and resistance and uses mathematical operations
- Calculate deviations from manufacturer specifications
- Plan own work requirements
- Prioritise actions to achieve required outcomes
- Ensure tasks are completed within workplace timeframes
- Use specialised diagnostic equipment.

Task requirements

This assessment task requires you to repair wiring harnesses and looms. The assessment activities are mentioned within the assessment task.

Task 2 Simulated assessment scenario

You are working in an automotive workshop. Three (3) clients have brought in three (3) different vehicles that require diagnosis and repairs to the network electronic control circuits.

As part of your job role, you have the following responsibilities:

- Locate required sources of information efficiently
- Develop a sequenced plan for a specific task
- Organise and interpret technical information from workplace procedures, manufacturer procedures and manufacturer specifications
- Interpret text, symbols and wiring diagrams in information relating to electrical system testing and repair equipment from manufacturer specifications and workplace instructions and procedures
- Clarify instructions
- Obtain information from customers and supervisors
- Match electrical components and part identification numbers to workplace instructions, vehicle, machinery and component part lists, and manufacturer specifications
- Read and interpret vehicle electrical measurements and readings
- Measure voltage, current and resistance and uses mathematical operations
- Calculate deviations from manufacturer specifications
- Plan own work requirements
- Prioritise actions to achieve required outcomes
- Ensure tasks are completed within workplace timeframes
- Use specialised diagnostic equipment.

Your task is to diagnose and repair three (3) different network electronic control circuits that set network communication diagnostic trouble codes (DTC's), including one (1) single wire circuit (LIN-bus) and one (1) two wire circuit (CAN-bus).

You must also carry out a diagnostic tests for one (1) of the following faults:

- High resistance in an input system

- Worn or damaged wiring or connectors
- Shorted system components

Your assessor will be acting as your supervisor and delegate work to you.

The role of the supervisor (trainer/assessor) is to allocate the tasks, activities and responsibilities you will be required to undertake to complete these assessments. Your trainer/assessor will also observe you when you are completing the activities and evaluate your performance based on benchmarking in the performance checklists.

Your trainer/assessor will advise you which network electronic control systems you are to make the diagnosis. The fault will be different on each system.

After each activity, you will find a Performance Checklist. The list outlines the tasks you need to perform, and your supervisor (your assessor) will observe. These assessment tasks are given to you as repair orders.

You need to:

- Identify the job requirements from the workplace instructions
- Identify the information required for the diagnosis activity
- Analyse the diagnostic options and source a testing strategy to identify the cause of fault using workplace and manufacturer procedures
- Identify hazards and environmental issues associated with the diagnose and repair activity, assess potential risks and implement control measures in line with workplace policies and procedures
- Identify the tools and equipment required for the testing strategy and establish serviceability according to workplace procedures
- Implement the diagnostic tests set out in the testing strategy according to manufacturer and workplace procedures, and workplace health and safety requirements
- Identify the cause of fault through analysis of the diagnostic test results
- Confirm and report the cause of fault according to workplace procedures
- Develop and report your recommendations for necessary repairs according to workplace procedures
- Identify the required information for the repair activity
- Identify the repair tools, equipment and materials required for the repair activity and establish serviceability according to workplace procedures
- Carry out the repairs according to workplace and manufacturer procedures, manufacturer specifications, workplace health and safety and environmental requirements
- Carry out the post-repair testing according to workplace procedures, workplace health and safety and environmental requirements
- Conduct a final inspection according to workplace procedures and confirm the vehicle is ready for use
- Clear the work area and dispose of or recycle materials according to workplace procedures
- Complete the documentation according to workplace procedures

You need to read the supervisor's instructions on the repair order underneath, discuss the tasks listed with your supervisor for clarification and fill the vehicle's details and other information on top of the repair order before starting the work. Your supervisor will provide you with a time limit for finishing the activities.

You must also fill out the following documents:

- The Testing Strategy Template to outline the test strategy you are going to use.
- The Diagnose Preparation template to outline the tests you are going to perform.
- The Preliminary Inspection Report to record the outcomes of your testing.

- The Repair Template which outlines how your repair work will be assessed.
- The Post-Repair testing template to confirm the status of the instrument and warning systems, if a final inspection has been completed, systems presented ready for use, tools checked and stored, and all workplace documentation processed.
- Finalise the information on the Repair Order.

Activity 1:

Repair Order 1

Business Name: ABCD Motors **Address:** 22 Spring Grove Sunshine **Phone:** 7125 2356 **ABN#:** 923 556 412 **Technician's Name:** **Technician' signature:**	**R/O #: 001** **Date:**
Customer's details Full name: Address: Contact number: Date: Customer's declaration: By signing this repair order I give my consent to ABCD automotive to diagnose and repair the network electronic control systems at my cost. Signature:	**System's details** Make: Model: Year: Colour: I.D. Number #: Vehicle Chassis #: ODO/Millage:
Concern: <u>Supervisor's instruction</u>: • Collect the technical procedures and information for the diagnosis and repair • Analyse the diagnostic options and source your testing strategy to identify the cause of fault • Identify hazards associated with the work and manage risks • Test the electrical control systems • Compare the inspection and test results with the manufacturer's specifications. • Identify faults from the test results and determine the causes of the faults. • Confirm and report fault according to workplace procedures. • Develop and report recommendations for repairs. • Carry out the repairs • Carry out post-repair testing • Make final inspection	
Cause:	
Rectifiction:	
Recommendation:	
Parts used (if any) and quantity:	

Testing Strategy Template Source a testing strategy to diagnose the cause of faults.	
Explain how you identified the Job Requirements. Write your answer using 50 – 100 words.	
List the information you required for the diagnosis activity.	
Explain how you analyse the diagnostic options and source a testing strategy to identify the cause of fault. Write your answer using 200 – 250 words.	
Select your testing strategy/ies and explain the reasoning behind your choice. Write your answer using 100 – 150 words.	

Diagnose Preparation Template	
Diagnostic option/s selected	Reason to use this specific diagnostic option
Tools, equipment and material required for the testing and repair work	

Tool, equipment and material name	Used for	Checked Y/N
PPE Required for testing and repairs		
Hazards identified	Safety Measures	

Preliminary Inspection Report

Date:

Time

Vehicle Identification number:

Odometer reading:

Last service date:

Preliminary inspection conducted by:

Job assigned to mechanic:

Serial No	Inspection	Result/Findings	Manufacturer Specifications	Recommendations

Analysis of faults based on diagnostic test results
Cause of fault confirmed
Recommended repairs

Reported to	
Date	

Repair template

Access the following documentation prior to the repair work:

• Workplace procedures • Manufacturer procedures and specifications • Workplace health and safety requirements • Environmental requirements		
Did you:	**Yes/No**	**Outline the work you completed.** Include the technical information you sourced from workplace procedures, manufacturer procedures and specifications, diagrams, workshop literature either as links or attachments. Copies of any diagrams used with information related to electrical system testing and repair equipment from manufacturer specifications and workplace instructions and procedures either as links or attachments. You need to also include; Matches of electrical components and part identification numbers to workplace instructions, vehicle, machinery and component part lists, and manufacturer specifications Your interpretations of vehicle electrical measurements and readings Any measures of voltage, current and resistance and use of mathematical operations Any calculations of deviations from manufacturer specifications The details must include the diagnose and repair procedure and include: • The diagnose and repair of the fault in the network electronic control system component/s • The details of the diagnostic testing
Carry out repairs according to workplace procedures? You must ensure that you have a current copy of the workplace procedures provided to you from your workplace to safely carry out the repairs.		
Carry out repairs according to manufacturer procedures and specifications? You must ensure that you have a current copy of the manufacturers' procedures and specifications provided to you		

from your workplace to safely carry out the repairs.		
Carry out repairs according to work, health and safety requirements? You must ensure that you have read the current WHS/OHS Act to ensure you understand the health and safety requirements in your workshop. You must also ensure that you have access to and have read the workplace WHS/OHS policies and procedures.		
Carry out repairs according to environmental requirements? You must ensure that you have read the current environmental and sustainability guidelines and practices to ensure you understand the requirements in your workshop. E.g., Noise minimisation, air pollution, environmental purchasing practices, use of natural resources, recycling water, waste and any other materials and resources used and energy conservation practices. You must also ensure that you have access to and have read the workplace environmental and sustainability policies and procedures.		

Post-Repair Testing **Date: __/__/_____**	
Vehicle Identification Number:	Odometer reading:
Vehicle owner's name and address:	Technician name & number
Problem reported:	
Action taken:	

Visual inspection comments:	
Type of post-service testing carried out:	
Remarks	
Final inspection carried out vehicle presented ready for use:	YES/NO
Work area cleaned, waste and non-recyclable material disposed of and recyclable material collected	YES/NO
Tools and equipment checked and stored	YES/NO
Workplace documentation processed and completed	YES/NO
Technician Signature	Date:

Performance Checklist

Your task must address the following performance checklist.

To be assessed as satisfactory (S) in this assessment task the participant needs to demonstrate competency in the following critical aspects of evidence. Did the you:	S	N/S	Trainer/Assessor to complete (Comment and feedback to yous)
a) Determine job requirements according to workplace instructions?	❑	❑	
b) Access and interpret manufacturers specifications and other technical information and procedures?	❑	❑	
c) Analyse the diagnostic options and source a testing strategy?	❑	❑	
d) Identify hazards associated with the work and manage risks?	❑	❑	

e) Identify, select and prepare tools, equipment and materials required to support the diagnostic process for use?	❑	❑	
f) Implement the diagnostic tests set out in the testing strategy?	❑	❑	
g) Analyse the test results and identify the cause of fault?	❑	❑	
h) Confirm and report the cause of fault?	❑	❑	
i) Develop and report recommendations for repairs?	❑	❑	
j) Identify the information required for repair activity?	❑	❑	
k) Carry out the repairs?	❑	❑	
l) Carry out post-repair testing?	❑	❑	
m) Make final inspection to ensure work is to workplace expectations and present the systems ready for use?	❑	❑	
n) Clear the work area, dispose of waste and non-recyclable materials, and collect recycled material?	❑	❑	
o) Process workplace documentation according to workplace procedures?	❑	❑	
p) Complete the activity within the time limit provided?	❑	❑	