IMILV18

Conduct diagnostic consultations with customers in light vehicle environments

Overview

This NOS is about carrying out diagnostic consultations with customers to investigate their concerns relating to their vehicle. It includes making recommendations to ensure that the customer's concerns are addressed and explaining the results of diagnostic activities to enable customers to fully understand the problem(s) with their vehicle.

Performance criteria

You must be able to:

P1 respond to customer's concerns in a positive and professional manner
P2 give a positive impression of yourself and your organisation when dealing with customers
P3 obtain sufficient, detailed **information** using suitably structured questions
P4 carry out a suitable road test to obtain further detailed **information** on, or clarification of, customer's concerns, when appropriate
P5 provide customers with accurate, current and relevant **advice** and **information** on any further investigation(s) needed
P6 clearly explain the implications of any investigation(s) that may be needed
P7 give technical **advice and information** accurately, and in a form and manner which the customer will understand
P8 make clear and relevant recommendations for the next course of action
P9 liaise with the customer or other relevant person(s) to agree the next course of action
P10 explain to customers the action that has been taken regarding their vehicle clearly and in a manner the customer will understand, when appropriate
P11 ensure your records are complete, accurate, in the format required and signed by the customer, when necessary
P12 suggest possible methods for improving the customer care process to your manager, when necessary

Knowledge and understanding

You need to know and understand:

Legislative and organisational requirements and procedures

K1 the legislation and workplace procedures relevant to:
- K1.1 health and safety
- K1.2 the environment (including waste disposal)
- K1.3 appropriate personal and vehicle protective equipment

K2 legal requirements relating to the vehicle (including road safety requirements)
K3 your workplace procedures for:
- K3.1 recording fault location and correction activities
- K3.2 reporting the results of tests
- K3.3 the referral of problems
- K3.4 gaining up to date technical **information** and repair methods

K4 the importance of working to recognised diagnostic procedures and processes and obtaining the correct **information** for diagnostic activities to proceed and how to formulate and construct your own diagnostic procedures and processes in order for diagnostic activities to proceed
K5 the importance of documenting diagnostic and rectification **information**
K6 the relationship between time, costs and profitability

Electrical and electronic principles

K7 the hazards associated with working on or near high energy electrical vehicle components
K8 electrical and electronic principles including types of sensors and actuators, their application and operation
K9 how electrical and electronic vehicle systems operate, including electrical component function, electrical inputs, outputs, voltages and oscilloscope patterns, digital and fibre optics principles
K10 the interaction between electrical, electronic, mechanical and hydraulic/pneumatic components and systems within a vehicle, including multiplexing
K11 electrical symbols, units and terms
K12 electrical safety procedures

Use of diagnostic and rectification equipment

K13 how to prepare and check the accuracy of diagnostic testing equipment
K14 how to use diagnostic and rectification equipment for mechanical, electrical, electronic, hydraulic/pneumatic and fluid systems, specialist repair tools and general workshop equipment

Vehicle system faults, their diagnosis and correction

K15 how vehicle mechanical, electrical, electronic, hydraulic/pneumatic and fluid systems are constructed and operate
K16 the types and causes of vehicle mechanical, electrical, electronic, hydraulic/pneumatic and fluid system, component and unit faults and failures
K17 vehicle mechanical, electrical, electronic, hydraulic/pneumatic and fluid component and unit replacement procedures, the circumstances which will necessitate replacement and other possible courses of action
K18 how to find, interpret and use sources of **information** on vehicle mechanical, electrical, electronic, hydraulic/pneumatic and fluid system **operating specifications**, diagnostic test procedures, repair procedures and legal requirements
K19 how to select the most appropriate diagnostic testing method for the symptoms presented
K20 how to carry out systematic diagnostic testing of vehicle mechanical, electrical, electronic, hydraulic/pneumatic and fluid systems
K21 how to interpret, evaluate and analyse test results and vehicle data in order to identify the location and cause of vehicle system faults
K22 how to carry out the rectification activities in order to correct faults in the vehicle mechanical, electrical, electronic, hydraulic/pneumatic and fluid systems
K23 your workplace policy and procedure for:
- K23.1 work carried out under warranty
- K23.2 liaising with manufacturers and outside agencies

K24 the relationship between test methodology and the faults repaired – the use of appropriate testing methods
K25 how to make cost effective recommendations for rectification

Personal Skills

K26 how to give straightforward presentations on technical matters
K27 how to communicate effectively with and listen to customers
K28 how to recognise and handle different customer reactions
K29 how to adapt your language when explaining technical matters to customers
K30 how to use effective questioning techniques
K31 how to care for customers and achieve customer satisfaction
K32 your organisation's requirements for personal appearance and conduct when dealing with customers
K33 how successful resolution of customer concerns and problems contributes to customer loyalty and improves relationships

Scope/range

1. Information, Advice and **Guidance**:

1.1. mechanical fault finding
1.2. electrical fault finding
1.3. electronic fault finding
1.4. hydraulic fault finding
1.5. customer handling
1.6. road testing
1.7. time
1.8. tools
1.9. equipment
1.10. materials
1.11. technical information

2. Operating specifications include:

2.1. limits
2.2. fits
2.3. tolerances

Glossary

This section contains examples and explanations of some of the terms used but does not form part of the standard.

Body language:
Non-verbal communication in which physical behaviours, as opposed to words, are used to express or convey the information. Such behaviours include facial expressions, body posture, gestures, eye movement, touch and the use of space.

Courses of action:
Examples include servicing, repair, replacement and customising vehicle features, no action, explanation of the correct operation of the vehicle and its systems.

Customer reactions:
Examples include anger, confusion and frustration.

Diagnostic consultation:
Examples include face to face and telephone questioning, road tests (very often these will take place with customers to identify and resolve their concerns). It also includes giving technical advice and product information and clarification of technical issues after diagnostic work has been completed.

Positive impression:
Personal presentation and verbal/non-verbal communication and behaviour that encourages the customer to have a favourable attitude to the company and its representatives.

Relevant person(s):
Examples include managers, vehicle manufacturer and original equipment manufacturers.

Suitably structured questions:
Questions which follow a logical and systematic approach to diagnosis and problem solving.

Vehicles:
These can be any of the following – light vehicles. Additionally, these vehicles may be SI, CI, Hybrid, Electric or Alternative fuel vehicles.

Alternative fuel:
This is defined as any type of fuel that may be used to power an internal combustion engine, examples would include LPG, bio ethanol etc.

VEHICLE AREAS -

Engine area:
Engines, cooling systems, electronic ignition, petrol fuel injection, diesel fuel injection, engine management systems, hybrid systems and alternative fuels, starting and charging systems.

Transmission and driveline area:
Clutch assemblies, clutch operating systems, manual gear boxes, automatic gear boxes (including electronic control), drivelines and hubs and final drive assemblies.

Chassis or Frame area:
Suspension systems, assisted steering systems, non-assisted steering systems, braking systems, ABS/traction control, wheels and tyres, stability systems, bodywork and related areas.

Electrical area:
Body electrical systems (including wiring harnesses, lighting systems, auxiliaries, CANBUS systems, fibre optics, vehicle condition and monitoring, comfort and convenience, alarm systems), starting and charger systems, supplementary restraint systems (SRS), heating and air conditioning systems, climate control, communication equipment, navigation systems and entertainment equipment.

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Developed by	IMI
Version Number	3
Date Approved	March 2020
Indicative Review Date	March 2024
Validity	Current
Status	Original
Originating Organisation	IMI Ltd
Original URN	LV18
Relevant Occupations	Engineering; Vehicle Trades; Light Vehicle Diagnostic Technician (Automotive); Light Vehicle Master Technician (Automotive); Light Vehicle Fleet/Service Manager (Automotive); Managers and Senior Officials; Managers in construction
Suite	Maintenance and Repair - Light Vehicle
Keywords	Diagnostic; consultations; customers; motor; vehicle; light