Title	**Demonstrate knowledge of automotive electronic security systems**		
Level	**3**	**Credits**	**5**

Purpose	People credited with this unit standard are able to demonstrate knowledge of: transponder key systems; immobilizer systems; electronic locking systems; and programming options for electronic car access and starting systems.

Classification	Mechanical Engineering> Locksmithing

Available grade	Achieved

Guidance Information

1 References and legislation
Health and Safety at Work Act 2015.
Master Locksmiths Association (MLA) Code of Ethics.

2 Definitions
EEPROM – Electrically Erasable Programmable Read Only Memory. Within the Locksmithing industry, this term refers to most general Integrated Circuit (IC) memory devices where keys or relevant information is stored.
Engine Control Unit (ECU) – also known as powertrain control module (PCM) is an embedded system that uses microprocessors/computers to control a series of functions to ensure that cars perform at optimum levels. These computers are hardwired into various parts of a car monitoring and managing many aspects of the car.
Passive Keyless Entry (PKE) system is a proximity system that provides the user with the convenience of unlocking a car door without pressing any buttons.
Remote Keyless Entry (RKE) system enables the locking and unlocking of the car doors without having to insert a key into the door lock.
Transponder keys – keys which contain a Radio Frequency device used for electronic authorisation to disarm the immobiliser.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of transponder key systems.

Performance criteria

1.1 The evolution of the transponder key systems is described.

1.2 The various types of transponder systems available are described and their characteristics compared.

Outcome 2

Demonstrate knowledge of immobilizer systems.

Performance criteria

2.1 The structure of a typical immobilizer system is described.

2.2 The operation of an immobilizer is described.

Range basic components and operation.

Outcome 3

Demonstrate knowledge of electronic locking systems.

Performance criteria

3.1 Typical terminology used in electronic locking systems is explained.

Range EEPROM, MCU, PKE, RKE, Capacitors, Potentiometers, Oscillators, Relays, Switches, Resistors, Semiconductors, RFID, Transponder, Encryption, Mutual Authentication.

3.2 Electronic locking systems and conventional mechanical key locking systems are described and compared.

Outcome 4

Demonstrate knowledge of programming options for electronic car access and starting systems.

Performance criteria

4.1 Programming systems for vehicle electronic key systems are described.

Range may include – ECU reading, hardware, software.

4.2 Method and processes for programming an additional electronic key is described.

4.3 Relevant tools and equipment are identified.

Planned review date	31 December 2023

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	1 March 2018	N/A

Consent and Moderation Requirements (CMR) reference	0013

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.