STANDARD KEMAHIRAN PEKERJAAN KEBANGSAAN
(NATIONAL OCCUPATIONAL SKILLS STANDARD)

CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION
LEVEL 3

JPK

JABATAN PEMBANGUNAN KEMAHIRAN
KEMENTERIAN SUMBER MANUSIA, MALAYSIA

CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION LEVEL 3

STANDARD KEMAHIRAN PEKERJAAN KEBANGSAAN
(NATIONAL OCCUPATIONAL SKILLS STANDARD)

STANDARD PRACTICE& STANDARD CONTENTS
FOR

CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION

LEVEL 3

JPK

Jabatan Pembangunan Kemahiran
Kementerian Sumber Manusia, Malaysia

Department of Skills Development (DSD)

Ministry of Human Resources

62530 PUTRAJAYA, MALAYSIA

STANDARD KEMAHIRAN PEKERJAAN KEBANGSAAN
(NATIONAL OCCUPATIONAL SKILL STANDARD)

FOR

CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION LEVEL3

GLOSSARY

Car accessories	Car accessories are an additional part install or affix to standard passenger car. The function is to add value, additional cosmetics elements, enhance comfortable, driving assistance and enhance car handling while driving.
Customization	Customization is the process in which an individual or a group of parts or product or to be assembled to suit customer requirement.
Tinted film	Tinted film is a thin film/laminate retrofit coating upgrade that can be installed to the interior of glass surfaces in automobiles.
Driving assistance	Driving assistance are parts/systems install to passenger car to help the driver in the driving process which able to increase car and road safety while driving.
Body kit	Body kit is a collection of exterior modifications to a car, typically composed of front and rear bumpers, side skirts, spoilers, paint jobs, and sometimes front and rear side guards and roof scoops.
Suspension System	Suspension is the term given to the system of springs, shock absorbers and linkages that connects a vehicle to its wheels and allows relative motion between the two. Suspension systems serve a dual purpose — contributing to the vehicle's road holding/handling and braking for good active safety and driving pleasure, and keeping vehicle occupants comfortable and reasonably well isolated from road noise, bumps, and vibrations etc
Stabilizer Bar	A sway bar or anti-roll bar or stabilizer bar is a part of an automobilesuspension that helps reduce the body roll of a vehicle during fast cornering or over road irregularities. It connects opposite (left/right) wheels together through short lever arms linked by a torsion spring. A sway bar increases the suspension's roll stiffness—its resistance to roll in turns, independent of its spring rate in the vertical direction.
Shock Absorber	A shock absorber is a mechanical device designed to smooth out or dampshock impulse, and convert kinetic energy to another form of energy (usually thermal energy, which can be easily dissipated).
Coil spring	Acoil spring, also known as a *helical spring*, is a mechanical device, which is typically used to store energy due to resilience and subsequently release it, to absorb shock, or to maintain a force between contacting surfaces.
Roof rack	Aroof rack is a set of bars secured to the roof of a motor car.It is used to carry bulky items such as luggage, bicycles, canoes, kayaks, skis, or various carriers and containers.
Kangaroo bar	A kangaroo bar is a device fitted to the front of a vehicle to protect its occupants from collisions, whether an accidental collision with a large animal in rural roads, or an intentional collision with another vehicle in police usage

NVH	Noise, vibration, and harshness (NVH), also known as noise and vibration (N&V), is the study and modification of the noise and vibration characteristics of vehicles, particularly cars and trucks.
Sticker	A sticker is a type of label: a piece of printed paper or plastic with pressure sensitive adhesive on one side. They can be used for decoration, depending on the situation. They can come in many different shapes, sizes and colours and are put on things such as lunchboxes, in children's rooms, on paper, lockers, notebooks and so on.
Power window	Power windows or electric windowsare an automobilewindows which can be raised and lowered by depressing a button or switch, as opposed to using a hand-turned crank handle.
Car entertainment	Car entertainment or in-vehicle infotainmentis a collection of hardware devices installed into automobiles, or other forms of transportation, to provide audio and/or audio/visual entertainment, as well as automotive navigation systems.
Car alarm	Acar alarm is an electronic device installed in a vehicle in an attempt to discourage theft of the vehicle itself, its contents, or both. Car alarms work by emitting high-volume sound when the conditions necessary for triggering are met.
Central locking	Central locking or Power door locks allow the driver or front passenger to simultaneously lock or unlock all the doors of an automobile or truck, by pressing a button or flipping a switch.
Immobiliser	An immobiliser or immobilizer is an electronic security device fitted to an automobile that prevents the engine from running unless the correct key (or other token) is present. This prevents the car from being "hot wired" after entry has been achieved.
Troubleshooting	Troubleshooting is a form of problem solving, often applied to repair failed products or processes. It is a logical, systematic search for the source of a problem so that it can be solved, and so the product or process can be made operational again.
Instruction Manual	An Instruction manual is an instructional book or booklet that is supplied with almost all technologically advanced consumer products such as vehicles, home appliances and computer peripherals. Information contained in the owner's manual typically includes safety instructions, assembly instructions, installation instructions, maintenance instructions, troubleshooting instructions, product technical specifications etc.
CAN Bus	A Controller Area Network (CAN) refers to a network of independent controllers. It is a serial communications protocol that efficiently supports distributed real-time control with a very high level of security. The CAN bus standard was developed by Bosch and Intel and the version of the current standard has been in use since 1990

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1. INTRODUCTION

1.1 Market information

According to a study by a local market research firm specializing in automotive research, consumers are more willing to spend money on additional auto accessories now more than ever

The study also found that the availability of accessories was influential to selecting a dealer by 23 percent of all buyers. Only 39 percent of salespeople actually tried to sell accessories and less than half of dealers have accessorized vehicles on display. Accessories played an influential role in the sale of 12 percent of all vehicles sold.

The detailed accessory report includes breakout data by vehicle brand, segment, geography and accessory type (appearance, performance, comfort/utility and protection)

Market forecasts show the long term industry outlook and Automotive Parts & Accessories Stores future growth trends. The five-years forecast utilize advanced econometric techniques that project both short-term and long-term market growth outlook. The industry outlook can be used to set a strategy applicable to economic realities.

1.2 Occupational overview

Car accessories are an additional part to be installed or affixed to standard passenger car in Malaysia. The function on car accessories is add value, an additional cosmetics elements for the car, enhance comfortable and car handling while driving.

Automotive accessories & customization may specialize in the type of vehicle to be work on or the types of accessories to be installed. For example, they primarily may work on cars, trucks, vans or commercial vehicles or they may specialize in installing one or more types of after-market products as follows;

- Body kits, window protector, spoilers or other accessories
- Film for tinting windows
- Noise, Vibration and Harshness Damping material
- Suspension upgrading
- Hands-free communication systems.
- Fog lamp, Horn, Day Running Light (DRL), Third Brake Light and internal Cabin Roof Light

Automobile accessories installers are employed by automotive specialty shops. Experienced technician or installers may advance to service manager or shop foreperson positions. Some start their own businesses or purchase existing businesses. Automobile accessories installers, inspectors and testers are part of the larger Motor Vehicle Assemblers in Malaysia. People employed in this classification also can work in the following industries:

- Manufacturing
- Retail trade
- Repair
- Wholesale Trade

2. EXISTING OCCUPATIONAL STRUCTURE

SECTOR	**AUTOMOTIVE INDUSTRY**				
SUB-SECTOR	**AFTER SALES**				
AREA	**PASSENGER VEHICLE**				
JOB AREA	Motor Vehicle		Air Conditioning	Tyre	Accessories
LEVEL 5	Motor vehicle After sales Manager		No Level	No Level	No Level
LEVEL 4	Motor vehicle After sales Manager		No Level	No Level	No Level
LEVEL 3	Motor Vehicle Senior Technician	Motor Vehicle Service Consultant	Air Conditioning Senior Technician	Tyre Technician	Accessories Installation Senior Technician
LEVEL 2	No Level	No Level	No Level	No Level	Accessories Installation Technician
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Fig. 1.1 Existing Occupational Structure for Car Accessories Installation and Customization in Malaysia

Occupational Area Structure

SECTOR	**AUTOMOTIVE INDUSTRY**				
SUB-SECTOR	**AFTER SALES**				
AREA	**PASSENGER VEHICLE**				
JOB AREA	Motor Vehicle		Air Conditioning	Tyre	Accessories
LEVEL 5	Motor vehicle After sales Management		No Level	No Level	No Level
LEVEL 4	Motor vehicle After sales Operation		No Level	No Level	No Level
LEVEL 3	Motor Vehicle Diagnosis	Motor Vehicle Service Consultant	Air Conditioning Installation & Servicing	Tyre Servicing	Car Accessories Installation and Customization
LEVEL 2	No Level	No Level	No Level	No Level	Car Accessories Installation and Customization
LEVEL 1	No Level	No Level	No Level	No Level	No Level

Fig. 1.1 Occupational Area Structure (OAS) for Car Accessories Installation and Customization in Malaysia

3. DEFINITION OF COMPETENCY LEVELS

The NOSS is developed for various occupational areas. Candidates for certification must be assessed and trained at certain levels to substantiate competencies. Below is a guideline of each NOSS Level as defined by the Department of Skills Development, Ministry of Human Resources, Malaysia.

Malaysia Skills Certificate Level 1: (Operation Level)	Competent in performing a range of varied work activities, most of which are routine and predictable.
Malaysia Skills Certificate Level 2: (Operation Level)	Competent in performing a significant range of varied work activities, performed in a variety of contexts. Some of the activities are non-routine and required individual responsibility and autonomy.
Malaysia Skills Certificate Level 3: (Supervisory Level)	Competent in performing a broad range of varied work activities, performed in a variety of contexts, most of which are complex and non-routine. There is considerable responsibility and autonomy and control or guidance of others is often required.
Malaysia Skills Diploma Level 4: (Executive Level)	Competent in performing a broad range of complex technical or professional work activities performed in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and allocation of resources is often present.
Malaysia Skills Advanced Diploma Level 5: (Managerial Level)	Competent in applying a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources features strongly, as do personal accountabilities for analysis, diagnosis, planning, execution and evaluation.

4. AWARD OF CERTIFICATE

Candidates after being assessed and verified and fulfilled Malaysian Skill Certification requirements shall be awarded with Malaysia Skills Certificate for Level 3 (Car Accessories Installation and Customization)

5. JOB COMPETENCIES

A Car accessories installation Level 3 is competent in performing:

- Electronic Accessories System Installation
- Entertainment System Installation
- Car Security System Installation
- Electrical Accessories System Trouble Shooting and Repair
- Entertainment System Trouble Shooting and Repair
- Car Security System Trouble Shooting and Repair
- Car Accessories Installation Administrative Function
- Audio System Upgrading

6. WORKING CONDITIONS

Generally they work from under normal working hour from morning to evening depending on organisation nature of business. They may be required to work extra hours to fulfil internal and external requirement. In this operation, they may be needed to work at night to accommodate customer requirements. They need to use / wear appropriate attire and PPE during the commencement of their jobs. They may work individually or in a modular group. The occupation requires high level of physical fitness & alertness, not colour blind, good communication skill, cooperative and ability to understand & execute work instructions from superior

7. EMPLOYMENT PROSPECTS

There are excellent prospect in private sectors due to shortage of hands-on expert in car accessories installation operation. Car accessories installation L3 trained under this training program is eligible to be employed in the mechanical & electrical service and maintenance sector. This area has a very good job market potential abroad for skilled personnel due to shortage of such highly skilled personnel in this region.

Other related occupation with respect to employment opportunities are:

- Car accessories installation Instructor/ Trainer
- Car accessories installation Equipment Sales & Trading

Other related industries with respect to employment opportunities are:

- Education
- Facilitator
- Training Institution
- Manufacturing
- Services & Utilities

8. CAREER ADVANCEMENT

As for career advancement, most competent car accessories installation L3 learns their competency on the job. They usually begin as technician and gradually learn their new skills as they gain experience for career advancement.

9. SOURCES OF ADDITIONAL INFORMATION

LOCAL

- **Jabatan Pengangkutan Jalan (JPJ)**
  Ibu Pejabat
  Jabatan Pengangkutan Jalan
  Aras 1-5, Blok D4, Kompleks D
  Pusat Pentadbiran Kerajaan Persekutuan
  62620 Wilayah Persekutuan Putrajaya
  Umum +603 8886 6400
  Faks +603 8888 9645
  E-mel aduan@jpj.gov.

- **Jabatan Alam Sekitar (JAS)**
  Kementerian Sumber Asli dan Alam Sekitar,
  Aras 1 - 4, Podium 2 & 3
  Wisma Sumber Asli No.25
  Persiaran Perdana, Presint 4
  Pusat Pentadbiran Kerajaan Persekutuan
  62574 Putrajaya, Malaysia

  Tel : 03-8889 1972
  Hotline : 1-800-88-2727
  Fax : 03-8888 9987 / 03-8889 1040
  Email aduan_k@doe.gov.my

- **Malaysian Automotive Association (MAA)**
  F-1-47, Block F, Jalan PJU 1A/3
  Taipan Damansara 2, Parcel 1
  Ara Damansara, 47301 Petaling Jaya
  Selangor Darul Ehsan
  Tel: +6 03-7843 9947
  Fax: +60 03- 7843 0847
  Email : secretariat@maa.gov.my

- **Malaysian Automotive Institute (MAI)**
  Block 2280,
  Jalan Usahawan 2, Cyber 6
  63000 Cyberjaya, Selangor
  Tel : +603 8318 7742
  Fax : +603 8318 7743
  Email : info@mai.org.my

- **National Institute of Occupational Safety & Health (NIOSH)**
  Lot 1, Jalan 15/1, Section 15
  43650 Bandar Baru Bangi
  Selangor Darul Ehsan

  Tel : 03-8769 2100/03-8911 3800
  Fax : 03-8926 2900
  Email : general@niosh.com.my

INTERNATIONAL

- **American Society of Mechanical Engineers (ASME)**
  Two Park Avenue
  New York, NY 10016-5990
  800-843-2763 (U.S/Canada)
  001-800-843-2763 (Mexico)
  973-882-1170 (outside North America)
  Email: CustomerCare@asme.org

10. ACKNOWLEDGEMENT

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11. COMMITTEE MEMBERS FOR DEVELOPMENT OF STANDARD PRACTICE (SP), COMPETENCY PROFILE CHART (CPC), COMPETENCY PROFILE (CP) AND CURRICULUM of COMPETENCY UNIT (CoCU)

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5.	En. Hairul Anwar Bin Amat	Supervisor Perodua Sdn Bhd
6.	En. Shamsuliza Bin Shiferuddin	QC Inspector Perodua Sdn Bhd
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FACILITATOR		
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COMPETENCY PROFILE CHART (CPC)

SECTOR	AUTOMOTIVE INDUSTRY		
SUB SECTOR	AFTER SALES		
JOB AREA	PASSENGER VEHICLE		
NOSS TITLE	CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION		
JOB LEVEL	THREE (3)	NOSS CODE	TP-034-3:2014

COMPETENCY ← → COMPETENCY UNIT

CORE	ELECTRONIC ACCESSORIES SYSTEM INSTALLATION TP-034-3:2014-C01	ENTERTAINTMENT SYSTEM INSTALLATION TP-034-3:2014-C02	CAR SECURITY SYSTEM INSTALLATION TP-034-3:2014-C03	ELECTRICAL ACCESSORIES SYSTEM TROUBLE SHOOTING & REPAIR TP-034-3:2014-C04
	ENTERTAINTMENT SYSTEM TROUBLE SHOOTING & REPAIR TP-034-3:2014-C05	CAR SECURITY SYSTEM TROUBLE SHOOTING & REPAIR TP-034-3:2014-C06	CAR ACCESSORIES INSTALLATION ADMINISTRATIVE FUNCTION TP-034-3:2014-C07	
ELECTIVE	AUDIO SYSTEM UPGRADING TP-034-3:2014-E01			

COMPETENCY PROFILE (CP)

SECTOR	**AUTOMOTIVE INDUSTRY**		
SUB SECTOR	**AFTER SALES**		
JOB AREA	**PASSENGER VEHICLE**		
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**		
LEVEL	**THREE (3)**	**NOSS CODE**	**TP-034-3:2014**

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
1 ELECTRONIC ACCESSSORIES SYSTEM INSTALLATION	*TP-034-3:2014-C01*	Electronic accessories system installation describes the competency in installing electronic accessories system parts in the passenger car, including of assessing and select parts as customer requirement, install parts as assembly instruction manual, test the installation and handover car to customer. The electronic accessories parts involved are Auto Cruise, Turbo Timer, Auto Sensor and Power Window. The person who is competent in electronic accessories system installation shall be able to assess electronic accessories system installation requirement, install drive assistance/convenience parts, install wiper and rain sensor, install headlamp and light sensor, install/replace power window system and close the assign job.	1. Assess electronic accessories system installation requirement	1.1 Electronic accessories system parts installation scope of work determined and confirmed according to customer requirement and job order 1.2 Car registration particular recorded and actual car condition inspected according to workshop procedure 1.3 Installation works area determined and confirmed according to electronic accessories system installation requirement. 1.4 Installation tools and equipment selected, checked and arranged according to electronic accessories system installation procedure 1.5 Personal Protective Equipment (PPE) and Fender Cover used and

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
		The outcome of this competency is the ability to install and perform testing to the convenience electronic system parts to meet customer requirement		applied according to workshop procedure. 1.6 Electronic accessories system parts instruction manual determined and interpreted. .
			2. Install Driving assistance/ convenience parts	2.1 Driving assistance parts determined and selected according to customer requirement and job order 2.2 Existing drive assistances parts removed 2.3 Safety to car wiring system installation adhered 2.4 Existing driving assistance parts and car wiring circuit diagram checked and interpreted 2.5 Correct connection determined and socket inserted to car wiring circuit. 2.6 Driving assistance parts installed and adjusted 2.7 Driving assistance parts condition checked and functionality assessed according to instruction manual.
			3. Install wiper and rain sensor	3.1 Rain sensor type determined and selected according to customer requirement and job order

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				3.2 Existing rain sensor removed 3.3 Safety to car wiring system installation adhered. 3.4 Rain sensor and car wiring circuit diagram checked and interpreted 3.5 Correct connection determined and socket inserted to car wiring circuit. 3.6 Rain sensor condition checked and functionality assessed according to instruction manual.
			4. Install Headlamp and light sensor	4.1 Light sensor type determined and selected according to customer requirement and job order 4.2 Existing light sensor removed 4.3 Safety to car wiring system installation adhered 4.4 Light sensor and car wiring circuit diagram checked and interpreted 4.5 Correct connection determined and socket inserted to car wiring circuit. 4.6 Light sensor checked and functionality assessed according to instruction manual.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			5. Install / replace Power window system	5.1 Power window determined and selected according to customer specification and job order 5.2 Door trim and water proof film removed 5.3 Existing power window removed 5.4 Safety to car wiring system installation adhered. 5.5 Power window and car wiring circuit diagram checked and interpreted 5.6 Correct connection determined and socket inserted to car wiring circuit. 5.7 Power window module fixed and bolt tightened to required torque value 5.8 Power window system condition checked and functionality assessed according to instruction manual.
			6. Close the assign job	6.1 Electronic accessories functionality tested and condition checked according to customer requirement 6.2 Completed job order checked and submitted to superior/cashier according to workshop practices

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				6.3 Complete car handed over to customer 6.4 Work area, tools and equipment cleanse and properly arranged according to workshop housekeeping procedure
2 ENTERTAINTMENT SYSTEM INSTALLATION	*TP-034-3:2014-C02*	Entertainment system installation describes the competency in installing entertainment system in the passenger car, including of assessing and select parts as customer requirement, install parts as assembly instruction manual, test the installation and handover car to customer. The entertainment system parts involved are Radio, Navigator, LCD Player/ Screen, Amplifier, Speaker, Antenna Camera and Reverse Sensor. The person who is competent in entertainment system installation shall be able to assess entertainment system installation requirement, install entertainment system, install camera &reverse sensor, and close the assign job The outcome of this competency is the ability to install and perform testing to the entertainment system to meet customer	1. Assess entertainment system installation requirement	1.1 Entertainment system parts installation scope of work determined and confirmed according to customer requirement and job order 1.2 Car registration particular recorded and actual car condition inspected according to workshop procedure 1.3 Installation works area determined and confirmed according to entertainment system installation requirement. 1.4 Installation tools and equipment selected, checked and arranged according to entertainment system installation procedure 1.5 Personal Protective Equipment (PPE) used and Fender Cover selected and applied according to workshop procedure. 1.6 Entertainment system parts instruction manual

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
		requirement		determined and interpreted.
			2. Install entertainment system	2.1 Entertainment system type determined and confirmed according to customer requirement and job order 2.2 Existing entertainment system removed 2.3 Safety to car wiring system installation adhered 2.4 Entertainment system and car wiring circuit diagram checked and interpreted 2.5 Correct connection determined and socket inserted to car wiring circuit 2.6 Entertainment system parts position identified and confirmed according to customer requirement 2.7 Entertainment system installation bracket matching and hole position checked and confirmed 2.8 Audio parameter set and tuned according to customer requirement. 2.9 Entertainment system checked and functionality tested according to instruction manual.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			3. Install camera and reverse sensor	3.1 Type and model Camera and Reverse Sensor determined and confirmed according to customer requirement and job order. 3.2 Existing Camera and Reverse Sensor removed 3.3 Safety to car wiring system installation adhered. 3.4 Camera & Reverse Sensor and car wiring circuit diagram checked and interpreted 3.5 Correct connection determined and socket inserted to car wiring circuit. 3.6 Camera and reverse sensor position adjusted 3.7 Camera and reverse sensor condition checked and functionality tested according to customer requirement
			4. Close the assign job	4.1 Entertainment system functionality tested and condition checked according to customer requirement 4.2 Completed job order checked and submitted to superior/cashier according to workshop practice 4.3 Complete car handed over to customer 4.4 Work area, tools and equipment cleanse and properly arranged according

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				to workshop housekeeping procedure.
3 CAR SECURITY SYSTEM INSTALLATION	*TP-034-3:2014-C03*	Car security system installation describes the competency in installing car security system in the passenger car, including of assessing and select parts as customer requirement, install parts as assembly instruction manual, test the installation and handover car to customer. The car security parts are Alarm System, Central Locking, Immobilizer and Locking Device. The person who is competent in car security system installation shall be able to assess car security system installation requirement, install car alarm system, install car central locking system, install car immobilizer system, install car locking device and close the assign job The outcome of this competency is the ability to install and perform testing to the car security system parts to meet customer requirement	1. Assess car security system installation requirement	1.1 Car security system installation scope of work determined and confirmed according to customer requirement and job order 1.2 Car registration particular recorded and actual car condition inspected according to workshop procedure 1.3 Installation works area determined and confirmed according to car security system installation requirement. 1.4 Installation tools and equipment selected, checked and arranged according to car security system installation procedure 1.5 Personal Protective Equipment (PPE) and Fender Cover used and applied according to workshop procedure. 1.6 Car security system parts instruction manual determined and interpreted.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			2. Install car alarm system	2.1 Car alarm system type determined and confirmed according to customer requirement. 2.2 Existing car alarm system component removed 2.3 Safety to car wiring system installation adhered. 2.4 Car alarm system and car wiring circuit diagram identified and interpreted 2.5 Correct connection determined and socket inserted to car wiring circuit. 2.6 Car alarm system fixed and tuned according to instruction manual 2.7 Car alarm system checked and functionality assessed according to instruction manual.
			3. Install car central locking system	3.1 Car central locking determined and confirmed according to customer requirement 3.2 Existing central locking system component removed 3.3 Safety to car wiring system installation adhered. 3.4 Central locking and car wiring circuit diagram inspected and interpreted

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				3.5 Correct connection determined and socket inserted to car wiring circuit 3.6 Central locking system checked and functionality assessed according to instruction manual.
			4. Install car immobilizer system	4.1 Car immobilizer determined and selected according to customer requirement and job order. 4.2 Existing Immobilizer system component removed 4.3 Immobilizer system component fixed according to instruction manual. 4.4 Installed immobilizer system checked functionality assessed according to instruction manual.
			5. Install car locking device	5.1 Car locking device determined and selected according to customer requirement and job order. 5.2 Existing locking device removed 5.3 Locking device installation bracket matching and hole position checked according to instruction manual. 5.4 Locking device fixed and bolt tightened to required torque

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				value 5.5 Locking device condition checked and functionality assessed according to instruction manual.
			6. Close the assign job	6.1 Car security system functionality tested and condition checked according to customer requirement 6.2 Completed job order checked and submitted to superior/cashier according to workshop practice 6.3 Complete car handed over to customer 6.4 Work area, tools and equipment cleanse and properly arranged according to workshop housekeeping procedure
4 ELECTRICAL ACCESSORIES SYSTEM TROUBLE SHOOTING & REPAIR	*TP-034-3:2014-C04*	Electrical accessories system trouble shooting & repair describes the competency in trouble shooting & repairing of electrical accessories system in the passenger car including of assessing the trouble shooting & repair requirement, identify electrical accessories system malfunction, repair or replace defective parts, test electrical accessories system functionality	1. Assess electrical accessories system trouble shooting & repair requirement	1.1 Electrical accessories system parts trouble shooting & repair scope of work determined and confirmed according to customer requirement and job order 1.2 Car registration particular recorded and actual car condition inspected according to workshop procedure

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
		and handover car to customer. The electrical accessories parts involved are Fog Lamp/ Spot Light, Day Running Light (DRL), Auto Cruise, Third Brake Light, Cabin Roof Light, Horn, Turbo Timer, Auto Sensor and Power Window. The outcome of this competency is the ability to perform trouble shooting and repair of electrical accessories system as customer requirement.		1.3 Installation works area determined and confirmed according to electrical accessories system trouble shooting & repair requirement. 1.4 Trouble shooting & repair tools and equipment selected, checked and arranged according to electrical accessories system trouble shooting & repair procedure 1.5 Personal Protection Equipment (PPE) and Fender Cover used and applied according to workshop procedure 1.6 Electrical accessories system parts instruction manual determined and interpreted
			2. Identify electrical accessories system malfunction	2.1 Existing electrical accessories parts function interpreted 2.2 Electrical accessories and car wiring circuit diagram interpreted 2.3 Safety to car wiring system trouble shooting adhered 2.4 Existing electrical accessories parts checked and evaluated according to

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				instruction manual 2.5 Existing electrical accessories parts malfunction determined
			3. Repair or replace defective parts	3.1 Negative battery cable terminal removed 3.2 Defective parts specification determined and confirmed according to instruction manual. 3.3 Defective selected 3.4 Defective parts replaced according to instruction manual.
			4. Test electrical accessories system functionality	4.1 Electrical accessories system condition checked and functionality tested according to instruction manual 4.2 Electrical accessories system functionality analysed according to instruction manual.
			5. Close the assign job order.	5.1 Electrical accessories system functionality tested and condition checked according to customer requirement 5.2 Completed job order checked and submitted to superior/cashier according to workshop practice

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				5.3 Complete car handed over to customer 5.4 Work area, tools and equipment cleanse and properly arranged according to workshop housekeeping procedure.
5 ENTERTAINTMENT SYSTEM TROUBLE SHOOTING & REPAIR	*TP-034-3:2014-C05*	Entertainment system trouble shooting & repair describes the competency in trouble shooting & repairing of electrical entertainment system in the passenger car including of assessing the trouble shooting & repair requirement, identify entertainment system malfunction, repair or replace defective parts, test entertainment system functionality and handover car to customer. The entertainment system parts involved are Radio, Navigator, LCD Player/ Screen, Amplifier, Speaker, Antenna Camera and Reverse Sensor. The outcome of this competency is the ability to perform trouble shooting and repair of entertainment system as customer requirement.	1. Assess entertainment system trouble shooting & repair requirement	1.1 Entertainment system parts trouble shooting & repair scope of work determined and confirmed according to customer requirement and job order 1.2 Car registration particular recorded and actual car condition inspected according to workshop procedure 1.3 Installation works area determined and confirmed according to entertainment system trouble shooting & repair requirement. 1.4 Trouble shooting & repair tools and equipment selected, checked and arranged according to electrical accessories system trouble shooting & repair procedure. 1.5 Personal Protection Equipment (PPE) and Fender Cover used and

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				applied according to workshop procedure 1.6 Entertainment system parts instruction manual determined and interpreted
			2. Identify entertainment system malfunction	2.1 Existing entertainment system parts function interpreted 2.2 Electrical accessories wiring circuit diagram interpreted 2.3 Safety to car wiring system trouble shooting adhered 2.4 Existing entertainment system parts checked and evaluated according to instruction manual 2.5 Existing entertainment system parts malfunction determined
			3. Repair or replace defective parts	3.1 Negative battery cable terminal removed 3.2 Defective parts specification determined and confirmed according to instruction manual. 3.3 Defective selected 3.4 Defective parts replaced according to instruction manual.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			4. Test electrical entertainment system functionality	4.1 Entertainment system condition checked and functionality tested according to instruction manual 4.2 Entertainment system functionality analysed according to instruction manual
			5. Close the assign job order.	5.1 Entertainment system functionality tested and condition checked according to customer requirement 5.2 Completed job order checked and submitted to superior/cashier according to workshop practice 5.3 Complete car handed over to customer 5.4 Work area, tools and equipment cleanse and properly arranged according to workshop housekeeping procedure.
6 CAR SECURITY SYSTEM TROUBLE SHOOTING & REPAIR	*TP-034-3:2014-C06*	Car security system trouble shooting & repair describes the competency in trouble shooting & repairing of car security system in the passenger car including of assessing the trouble shooting & repair requirement, identify car	1. Assess car security system trouble shooting & repair requirement	1.1 Car security system parts trouble shooting & repair scope of work determined and confirmed according to customer requirement and job order

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
		security system malfunction, repair or replace defective parts, test car security system functionality and handover car to customer. The car security parts involved are Alarm System and Central Locking The outcome of this competency is the ability to perform trouble shooting and repair of car security system as customer requirement.		1.2 Car registration particular recorded and actual car condition inspected according to workshop procedure 1.3 Installation works area determined and confirmed according to car security system trouble shooting & repair requirement. 1.4 Trouble shooting & repair tools and equipment selected, checked and arranged according to car security system trouble shooting & repair procedure. 1.5 Personal Protection Equipment (PPE) and Fender Cover used and applied according to workshop procedure 1.6 Car security system parts instruction manual determined and interpreted
			2. Identify car security system malfunction	2.1 Existing car security system parts function interpreted 2.2 Electrical car security wiring circuit diagram interpreted 2.3 Safety to car wiring system trouble shooting adhered.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				2.4 Existing car security system parts checked and evaluated according to instruction manual 2.5 Existing car security system parts malfunction determined
			3. Repair or replace defective parts	3.1 Negative battery cable terminal removed 3.2 Defective parts specification determined and confirmed according to instruction manual. 3.3 Defective selected 3.4 Defective parts replaced according to instruction manual.
			4. Test electrical car security system functionality	4.1 Car security system condition checked and functionality tested according to instruction manual 4.2 Car security system functionality analysed according to instruction manual
			5. Close the assign job order.	5.1 Car security system functionality tested and condition checked according to customer requirement

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				5.2 Completed job order checked and submitted to superior/cashier according to workshop practice 5.3 Complete car handed over to customer 5.4 Work area, tools and equipment cleanse and properly arranged according to workshop housekeeping procedure.
7 CAR ACCESSORIES INSTALLATION ADMINISTRATIVE FUNCTION	*TP-034-3:2014-C07*	Car accessories installation administrative function is to administer and supervise the work process in car accessories installation at workshop. The person whom is competent in car accessories installation administrative function shall be able to attend customer request, arrange manpower deployment and scheduling, arrange spare parts issuance, monitor work progress performance, and monitor shop floor cleanliness & safety compliances. The outcome of this competency is to inculcate supervisory skills so that workshop is administered professionally in accordance with workshop requirements	1. Attend customer request 2. Arrange manpower deployment and scheduling	1.1 Greet customer cordially 1.2 Customer request consulted according to customer requirement. 1.3 Job order filled according to workshop practices 2.1 Job order interpreted according to customer 2.2 Work schedule produced according to job requirement 2.3 Technician availability and capability identified. 2.4 Equipment availability and functionality determined according to job requirement 2.5 Lead time determined according to job requirement 2.6 Job distribution arranged according to work schedule.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			3. Arrange spare parts storage and issuance	3.1 Job order interpreted 3.2 Spare parts determined according to job order 3.3 Spare parts issued to technician 3.4 Spare parts quantity updated in stock card. 3.5 Stock count conducted according to workshop practices.
			4. Monitor work progress performance	4.1 Work progress checked according to work schedule requirement 4.2 Liaison with customer conducted. 4.3 Section meeting conducted according to workshop practices 4.4 Work progress report produced 4.5 Work progress report submitted to superior according to workshop practices.
			5. Monitor shop floor cleanliness and safety compliances	5.1 Workshop cleaning schedule produced 5.2 Safety procedure generated according to regulatory body requirement 5.3 Work shop cleaning activity monitored according to cleaning schedule.

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				5.4 Schedule waste disposal arranged according to regulatory body requirement 5.5 Cleanliness and safety report submitted to superior according to workshop practices
8 AUDIO SYSTEM UPGRADING	*TP-034-3:2014-E01*	Audio system upgrading describes the competency in installing audio system upgrading in the passenger car, including of assessing and select parts as customer requirement, install parts as instruction manual, test the installation and handover car to customer. The person who is competent in audio system upgrading shall be able to assess audio system upgrading requirement, identify specific location for audio system upgrading parts, perform audio system upgrading installation, tune audio system performance, reduce vibration noise and close the assigned job The outcome of this competency is the ability to install and perform testing the audio system upgrading to meet customer requirement.	1. Assess audio system upgrading requirement	1.1 Audio system upgrading scope of work determined and confirmed according to customer requirement and job order 1.2 Car registration particular recorded and actual car condition inspected according to workshop procedure 1.3 Installation works area determined and confirmed according to audio system upgrading requirement. 1.4 Installation tools, equipment and material selected, checked and arranged according to audio system upgrading. 1.5 Personal Protective Equipment (PPE) and Fender Cover selected and applied according to workshop procedure. 1.6 Audio system upgrading parts instruction manual

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
				determined and interpreted.
			2. Identify specific location for audio system upgrading parts	2.1 Part capacity calculated and suitability determined according to instruction manual. 2.2 Part size determined based on space available 2.3 Location selected based on customer requirement. 2.4 Installation bracket and fasteners determined 2.5 Box Holder determined according to requirement.
			3. Perform audio system upgrading installation	3.1 Audio system upgrading parts fixed 3.2 Wiring circuit connected to related audio parts 3.3 Additional battery location identified and fixed (if necessary) 3.4 Upholstery (carpet, facia, paint) fixed based on customer requirement.
			4. Tune audio system performance	4.1 Left and right sound balanced 4.2 Front and rear sound fader balanced 4.3 Bass and treble tuned based on customer requirement

CU Title	CU Code	CU Descriptor	CU Work Activities	Performance Criteria
			5. Reduce vibration noise	5.1 Maximum volume at 50% set 5.2 Vibration area identified and marked 5.3 Sound proof installed based on workshop SOP
			6. Close the assigned job	6.1 Audio system upgrading functionality tested and condition checked according to customer requirement 6.2 Completed job order checked and submitted to superior/cashier according to workshop practices. 6.3 Complete car handed over to customer. 6.4 Work area, tools and equipment cleanse and properly arranged according to workshop housekeeping procedure

CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**ELECTRONIC ACCESSSORIES SYSTEM INSTALLATION**						
LEARNING OUTCOME	The person who is competent in this competency unit shall be able to install electronic accessories system parts of passenger vehicle (car accessories). Upon completion of this competency unit, trainees will be able to:- • Assess electronic accessories system installation requirement • Install Driving assistance/ convenience parts • Install wiper and rain sensor • Install headlamp and light sensor • Install / replace Power window system • Close the assign job						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-C01	**LEVEL**	3	**TRAINING DURATION**	142	**SKILL CREDIT**	14

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Assess electronic accessories system installation requirement.	i. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive ii. Electronic accessories system installation works. • New installation • Repair	i. Evaluate electronic accessories system installation requirement and scope of work ii. Prepare job/service & order - car registration number, scope of work and assign responsible	<u>Attitude:</u> i. Patience in assessing electronic accessories system requirement. ii. Communicate effectively with customer on job scope	4 hours 14 hours	Lecture Demonstration & Observation	i. Electronic accessories system installation work listed and explained ii. Method of job / service order processing explained iii. Working area

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Modification iii. Job service/ & repair order format and content • Car registration particular • Scope of works iv. Purpose of electronic accessories system installation v. Communication skill vi. Car accessories suitable working area vii. Type and function of electronic accessories system installation tool and equipment • Tool ▪ Hand tool sets ▪ Allen key set ▪ Wrench set ▪ Screw driver set • Digital Multi meter • Personal Protection Equipment (PPE) ▪ Goggle ▪ Overall ▪ Glove ▪ Safety shoes viii. Purpose of having instruction manual ix. Understanding of instruction manual content.	technician. iii. Locate working area iv. Prepare electronic accessories system installation tools and equipment v. Prepare Personal Protection Equipment (PPE) vi. Select electronic accessories system instruction manual				selected iv. Installation tools and equipment determined as per job requirement v. Personal Protection Equipment (PPE) used based on safety procedure. vi. Instruction manual chosen based on job requirement. vii. Required electrical safety procedure on electronic accessories system installation adhered. viii. Communication skill demonstrated according to company's Standard Operation Procedure (SOP) ix. Method and technique in

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	x. Introduction to safety procedure on electrical accessories system installation.					assessing electronic accessories requirement demonstrated according to company's Standard Operation Procedure (SOP).
2. Install driving assistance/ convenience parts	i. Purpose of driving assistances parts installation ii. Type of driving assistance parts • Auto cruise • Turbo timer iii. Introduction to basic wiring diagram • Open circuit • Close circuit • Short circuit iv. Understanding of car circuit wiring diagram – Control Area Network (CAN) Bus wiring system v. Method and technique of installation driving assistance parts as instruction manual. vi. Method and technique	i. Select driving assistances parts ii. Remove existing drive assistance part iii. Comply to safety precaution on electrical accessories system installation iv. Interpret driving assistance and car wiring circuit diagram (CAN Bus system) v. Identify correct connection wiring socket vi. Install drive assistance parts • Auto cruise • Turbo timer vii. Check driving assistance parts functionality	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts. <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on electrical	4hours 14 hours	Lecture Demonstration & Observation	i. Type of driving assistances parts listed and explained. ii. Existing Driving assistances parts removed iii. Required electrical safety procedure on driving assistances parts installation adhered. iv. Basic wiring diagram listed and explained. v. Driving assistance

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	of functionality test • Appearance • Brightness • Focus length and height • Sense/ detection • Speed reading (auto cruise) • Timer cut-off. vii. Introduction to safety precaution on car wiring diagram viii. Personal Protective equipment (PPE) • Glove • Goggle • Apron • Safety shoes		accessories system installation iii. Avoid to use Test Lamp to check electronic parts			parts and car wiring circuit diagram (CAN Bus system) interpreted vi. Correct connection wiring socket determined vii. Driving assistances parts installed according to instruction manual. viii. Driving assistances parts condition checked and functionality test according to instruction manual. ix. Wire and electrical parts properly checked and confirmed for connection according to instruction manual.

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						x. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).
3. Install wiper and rain sensor	i. Purpose of rain sensor installation ii. Rain sensor wiring diagram. iii. Method and technique of auto sensor installation as instruction manual iv. Method and technique of functionality test • Connectivity • Signal trigger/ sensitivity.	i. Identify rain sensor ii. Remove rain sensor iii. Comply to safety precaution on sensor installation iv. Interpret rain sensor and car wiring circuit diagram (CAN Bus system) v. Identify correct connection wiring socket vi. Install rain sensor vii. Check auto sensor functionality.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts. <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on electrical accessories	6 hours 30 hours	Lecture Demonstration & Observation	i. Purpose of rain sensor installation explained. ii. Existing rain sensor part removed. iii. Required electrical safety procedure on auto sensor installation adhered iv. Rain sensor and car wiring circuit diagram (CAN Bus system) interpreted. v. Correct connection wiring socket determined

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			system installation			vi. Rain sensor installed according to instruction manual. vii. Rain sensor condition checked and functionality test according to instruction manual viii. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. ix. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Install headlamp and light sensor	i. Purpose of light sensor installation ii. Light sensor wiring diagram iii. Method and technique of light sensor installation as instruction manual iv. Method and technique of functionality test • Connectivity • Signal trigger/ sensitivity.	i. Identify light sensor ii. Remove existing light sensor iii. Comply to safety precaution sensor installation iv. Interpret light sensor and car wiring circuit diagram (CAN Bus system) v. Identify correct connection wiring socket vi. Install light sensor vii. Check auto sensor functionality	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts. <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on electrical accessories system installation	6 hours 30 hours	Lecture Demonstration & Observation	i. Purpose of light sensor installation explained ii. Existing auto sensor part removed. iii. Required electrical safety procedure on light sensor installation adhered iv. Light sensor and car wiring circuit diagram (CAN Bus system) interpreted. v. Correct connection wiring socket determined vi. Light sensor installed according to instruction manual. vii. Light sensor condition checked and functionality test according to instruction manual

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						viii. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. ix. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).
5. Install / Replace Power Window System	i. Purpose of power window installation ii. Type of power window system • Direct • Auto return iii. Method of power window removal iv. Method and technique of power window installation v. Technique of functionality test • Smoothness • Abnormal sound	i. Select power window module ii. Remove door trim and water proof film. iii. Remove existing power window module iv. Comply to safety precaution on power window installation (handling of glass window) v. Interpret power window and car wiring circuit diagram (CAN Bus system)	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts.	12 hours 42 hours	Lecture Demonstration & Observation	i. Type pf power window listed and explained ii. Door trim and power window removed. iii. Required electrical safety procedure on power window module installation adhered iv. Power window and car wiring

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	vi. Introduction to safety precaution on handling glass window	vi. Identify correct connection wiring socket. vii. Install power window module viii. Check and test power window functionality	<u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on electrical accessories system installation			circuit diagram (CAN Bus system) interpreted v. Correct connection wiring socket determined vi. Power window module installed according to instruction manual vii. Power window module condition checked and functionality test according to instruction manual. viii. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. ix. Careful and concern on handling car demonstrated according to

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						Standard Operation Procedure (SOP).
6. Close the assign job	i. Function of electronic accessories system and related parts ii. Procedure of hand over car to customer iii. Type of work order iv. Workshop Standard Operating Procedure (SOP) in completing the job order. v. Technique of cleaning and tools arrangement	a. Test electrical accessories system functionality with customer. b. Complete job order c. Submit job order to superior/cashier d. Hand over car to customer e. Clean work area	<u>Attitude:</u> i. Cleanliness at work area ii. Meticulous in completing job order. iii. Communicate politely with customer	4 hours 12 hours	Lecture Demonstration & Observation .	i. Electronic accessories check based on customer requirement listed and explained. ii. Job order updated and submitted to superior iii. Method of car handed over to customer listed and explained. iv. Working area cleaned and arranged based on workshop requirement.

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals. 03.10 Provide consultations and counselling. 03.11 Monitor and evaluate performance of human resources. 03.12 Provide coaching/on-the-job training. 03.13 Develop and maintain team harmony and resolve conflicts. 03.14 Facilitate and coordinate teams and ideas. 03.16 Identify and assess client/customer needs. 03.17 Identify staff training needs and facilitate access to training. 04.06 Allocate work.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

05.01 Implement project/work plans. 05.02 Inspect and monitor work done and/or in progress.	

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Job Sheet	1:1
2. Allen Key Set	1:5
3. Cable Tie	1:5
4. PVC – Black Tape	1:5
5. Wrench Set	1:5
6. Screw Driver Set	1:5
7. Male/ Female cable clamper	1:5
8. Digital Multi meter	1:5
9. Soldering sets	1:5
10. Electrical tool sets	As required
11. Polarity meter sets	As required
12. Cable & wire	1:1
13. Cleaning agent.	1:5
14. Personal Protective Equipment (PPE)	1:5
15. Driving assistance parts	1:5
16. Auto Sensor	1:5
17. Power window module	1:5
18. Model Car	1:5

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CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**ENTERTAINTMENT SYSTEM INSTALLATION**						
LEARNING OUTCOME	The person who is competent in this competency unit shall be able to install entertainment system parts of passenger vehicle (car accessories). Upon completion of this competency unit, trainees will be able to:- • Assess entertainment system installation requirement • Install entertainment system • Install camera and reverse sensor • Close the assign job						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-C02	**LEVEL**	3	**TRAINING DURATION**	174	**SKILL CREDIT**	17

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Assess entertainment system installation requirement	i. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive ii. Entertainment system installation works. • New installation • Repair • Modification iii. Job service/ & repair	i. Evaluate entertainment system installation requirement and scope of work. ii. Prepare job/service & order - car registration number, scope of work and assign responsible technician.	<u>Attitude:</u> i. Patience in assessing entertainment system installation requirement ii. Communicate effectively with customer on job scope.	4 hours 14 hours	Lecture Demonstration & Observation	i. Entertainment system installation work listed and explained ii. Method of job / service order processing explained iii. Working area selected

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	order format and content • Car registration particular • Scope of works iv. Purpose of entertainment system installation v. Communication skill vi. Car accessories suitable working area vii. Type and function of entertainment system installation tool and equipment • Tool ▪ Hand tool sets ▪ Allen key set ▪ Wrench set ▪ Screw driver set • Digital Multi meter • Electrical tool sets • Polarity meter test • Soldering sets • Personal Protection Equipment (PPE) ▪ Goggle ▪ Overall ▪ Glove ▪ Safety shoes	iii. Locate working area iv. Prepare entertainment system installation tools and equipment. v. Prepare Personal Protection Equipment (PPE) vi. Select entertainment system instruction manual				iv. Installation tools and equipment determined as per job requirement v. Personal Protection Equipment (PPE) used based on safety procedure vi. Instruction manual chosen based on job requirement vii. Required electrical safety procedure on entertainment system installation adhered. viii. Communication skill demonstrated according to company's Standard Operation Procedure (SOP). ix. Method and technique in assessing entertainment

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	viii. Purpose of having instruction manual ix. Understanding of instruction manual content. x. Introduction to safety procedure on entertainment system installation.					requirement demonstrated according to company's Standard Operation Procedure (SOP).
2. Install entertainment system	i. Purpose of entertainment system parts installation ii. Type of entertainment system parts • Radio • Navigator • LCD Player/Screen • Amplifier • Speaker/ woofer/ twitter • Antenna iii. Introduction to basic wiring diagram • Open circuit • Close circuit • Short circuit iv. Understanding of car circuit wiring diagram – Control Area Network (CAN) Bus wiring system v. Method and technique of installation entertainment system	i. Select type of entertainment system ii. Remove existing entertainment system parts. iii. Comply to safety precaution on entertainment system installation. iv. Interpret entertainment system and car wiring circuit diagram (CAN Bus system) v. Identify correct connection wiring socket vi. Install entertainment system parts • Radio • Navigator • LCD Player/ Screen • Amplifier • Antenna vii. Check entertainment	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts. <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on entertainment system installation	20 hours 72 hours	Lecture Demonstration & Observation	i. Type of entertainment system parts listed and explained. ii. Existing entertainment system parts removed iii. Required electrical safety procedure on entertainment system parts installation adhered iv. Basic wiring diagram listed and explained. v. Entertainment system and car wiring circuit diagram (CAN Bus system) interpreted

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	parts as instruction manual. vi. Method and technique of functionality test • Frequency reception • Noise • Connectivity • Timer cut-off. vii. Introduction to safety precaution on car wiring diagram viii. Personal Protective equipment (PPE) • Glove • Goggle • Apron. • Safety shoes	system parts functionality	iii. Avoid to use Test Lamp to check electronic parts			vi. Correct connection wiring socket determined vii. Entertainment system parts installed according to instruction manual. viii. Entertainment system parts condition checked and functionality test according to instruction manual ix. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. x. Careful and concern on handling car demonstrated according to Standard Operation Procedure

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Install camera and reverse sensor	i. Purpose of camera and reverse sensor parts installation ii. Type of camera and reverse sensor parts • Radius detection • Image clarity • Location iii. Introduction to basic wiring diagram • Open circuit • Close circuit • Short circuit iv. Understanding of car circuit wiring diagram – Control Area Network (CAN) Bus wiring system v. Method and technique of installation camera and reverse sensor parts as instruction manual. vi. Method and technique of functionality test • Connectivity • Signal trigger/ sensitivity • Sense object vii. Introduction to safety precaution on car wiring diagram	i. Select type of camera and reverse sensor ii. Remove existing camera and reverse sensor parts. iii. Comply to safety precaution on camera and reverse sensor installation iv. Interpret camera and reverse sensor and car wiring circuit diagram (CAN Bus system) v. Identify correct connection wiring socket. vi. Install camera and reverse sensor parts vii. Check camera and reverse sensor parts functionality.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts *<u>Safety:</u>* i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on entertainment system installation iii. Avoid to use Test Lamp to check electronic parts	12 hours 42 hours	Lecture Demonstration & Observation	i. Type of camera and reverse sensor parts listed and explained. ii. Existing camera and reverse sensor removed. iii. Required electrical safety procedure on camera and reverse sensor installation adhered. iv. Basic wiring diagram listed and explained. v. Camera & reverse sensor and car wiring circuit diagram (CAN Bus system) interpreted vi. Correct connection wiring socket determined vii. Camera and reverse sensor installed according to instruction

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	viii. Personal Protective equipment (PPE) • Glove • Goggle • Apron. • Safety shoes					manual. viii. Camera and reverse sensor condition checked and functionality test according to instruction manual ix. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. x. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Close the assign job	i. Function of entertainment system and related connected parts. ii. Procedure of hand over car to customer iii. Type of work order iv. Workshop Standard Operating Procedure (SOP) in completing the job order. v. Technique of cleaning and tools arrangement	i. Test entertainment system functionality with customer. ii. Complete job order iii. Submit job order to superior/cashier iv. Hand over car to customer v. Clean work area	<u>Attitude:</u> i. Responsible to organisation ii. Cleanliness at work area iii. Meticulous in completing job order. iv. Communicate politely with customer <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	2 hours 8 hours	Lecture Demonstration & Observation	i. Entertainment system check based on customer requirement listed and explained. ii. Job order updated and submitted to superior iii. Method of car handed over to customer listed and explained. iv. Working area cleaned and arranged based on workshop requirement.

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Job Sheet	1:1
2. Allen Key Set	1:5
3. Cable Ties	1:5
4. PVC Black Tape	1:5
5. Wrench Set	1:5
6. Screw Driver Set	1:5
7. Male/ Female cable clamper	1:5
8. Digital Multi meter	1:5
9. Soldering sets	1:5
10. Electrical tool sets	1:5
11. Polarity meter sets	1:5
12. Cable & wire	As required
13. Cleaning agent.	As required
14. Personal Protective Equipment (PPE)	1:1
15. Entertainment system parts	1:5
16. Camera	1:5
17. Reverse sensor	1:5
18. Power window module	1:5
19. Model Car	1:5

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1. Jefferson Bryant (2009), How to Design and Install In-Car Entertainment Systems, CarTech Inc, ISBN 1932494944, 9781932494945
2. Tony Candela (2009), Automotive Wiring and Electrical Systems, CarTech Inc, ISBN 1932494871, 9781932494877
3. Jason Syner, How to Install Automotive Mobile Electronic Systems, Motor Books International, ISBN 161060993X, 9781610609937
4. Dennis W. Parks, John Kimbrough (2011), Automotive Wiring, Motor Books International, ISBN 1610597966, 9781610597968
5. Matt Strong (2009), Wiring Kits, & Car Audio Installations for Street Rods, Muscle Cars, Race Cars, Trucks & Restorations, Penguin, ISBN 1101046287, 9781101046289
6. Jon S. Wilson (2005), Sensor Technology Handbook, Newnes, ISBN 0750677295, 9780750677295
7. Douglas C. Hart (1996), The Camera Assistant: A Complete Professional Handbook, Taylor & Francis, ISBN 0240800427, 9780240800424

CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**CAR SECURITY SYSTEM INSTALLATION**						
LEARNING OUTCOME	The person who is competent in this competency unit shall be able to install car security system of passenger vehicle (car accessories). Upon completion of this competency unit, trainees will be able to:- • Assess car security system installation requirement • Install car alarm system • Install car central locking system • Install car immobilizer system • Install car locking device • Close the assign job						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-C03	**LEVEL**	3	**TRAINING DURATION**	200	**SKILL CREDIT**	20

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Assess car security system installation requirement	i. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive ii. Car security system installation works. • New installation • Repair • Modification	i. Evaluate car security system installation requirement and scope of work ii. Prepare job/service & order - car registration number, scope of work and assign responsible technician.	<u>Attitude:</u> i. Patience in assessing security system requirement ii. Communicate effectively with customer on job scope	4 hours 14 hours	Lecture Demonstration & Observation	i. Car security system installation work listed and explained ii. Method of job / service order processing explained iii. Working area selected

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iii. Job service/ & repair order format and content • Car registration particular • Scope of works iv. Purpose of car security system installation v. Communication skill vi. Car accessories suitable working area vii. Type and function of car security system installation tool and equipment • Tool ▪ Hand tool sets ▪ Allen key set ▪ Wrench set ▪ Screw driver set • Digital Multi meter • Electrical tool sets • Polarity meter test • Soldering sets • Personal Protection Equipment (PPE) ▪ Goggle ▪ Overall ▪ Glove ▪ Safety shoes	iii. Locate working area iv. Prepare car security system installation tools and equipment. v. Prepare Personal Protection Equipment (PPE). vi. Select car security system instruction manual				iv. Installation tools and equipment determined as per job requirement. v. Personal Protection Equipment (PPE) used based on safety procedure vi. Instruction manual chosen based on job requirement vii. Required electrical safety procedure on car security system installation adhered. viii. Communication skill demonstrated according to company's Standard Operation Procedure (SOP). ix. Method and technique in assessing entertainment

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	viii. Purpose of having instruction manual ix. Understanding of instruction manual content. x. Introduction to safety procedure on car security system installation.					requirement demonstrated according to company's Standard Operation Procedure (SOP).
2. Install car alarm system	i. Purpose of car alarm system installation ii. Type of car alarm system • Passive • Active iii. Introduction to basic wiring diagram • Open circuit • Close circuit • Short circuit iv. Understanding of car alarm wiring diagram – Control Area Network (CAN) Bus wiring system v. Method and technique of installation car alarm system as instruction manual. vi. Method and technique of functionality test • Detection sensitivity • Alarm sound	i. Select type of car alarm system ii. Remove existing car alarm system parts. iii. Comply to safety precaution on car alarm system installation. iv. Interpret car alarm system and car wiring circuit diagram (CAN Bus system) v. Identify correct connection wiring socket. vi. Install car alarm system parts. vii. Check car alarm system parts functionality.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts *<u>Safety:</u>* i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on car alarm system installation iii. Avoid to use Test Lamp to	10 hours 26 hours	Lecture Demonstration & Observation	i. Type of car alarm system parts listed and explained. ii. Existing car alarm system parts removed iii. Required electrical safety procedure on car alarm system parts installation adhered iv. Car alarm system and car wiring circuit diagram (CAN Bus system) interpreted v. Correct connection wiring socket determined

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Reset function vii. Introduction to safety precaution on car wiring diagram viii. Personal Protective equipment (PPE) • Glove • Goggle • Apron • Safety shoes		check electronic parts			vi. Car alarm system parts installed according to instruction manual vii. Car alarm system condition checked and functionality test according to instruction manual. viii. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. ix. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Install car central locking system	i. Purpose of car central locking installation ii. Introduction to sensor and actuator iii. Understanding of car central locking wiring circuit diagram – Control Area Network (CAN) Bus wiring system. iv. Method and technique of installation car central locking system as instruction manual. v. Method and technique of functionality test • Lock/ unlock • Connectivity • Sensitivity	i. Select type of car central locking. ii. Remove existing car central locking parts. iii. Comply to safety precaution on car central locking installation iv. Interpret car central locking and car wiring circuit diagram (CAN Bus system) v. Identify correct connection wiring socket vi. Install car central locking parts vii. Check car central locking parts functionality	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts. <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on car alarm system installation iii. Avoid to use Test Lamp to check electronic parts	12 hours 50 hours	Lecture Demonstration & Observation	i. Type of car central locking system parts listed and explained. ii. Existing car central locking parts removed. iii. Required electrical safety procedure on car central locking parts installation adhered. iv. Car central locking and car wiring circuit diagram (CAN Bus system) interpreted v. Correct connection wiring socket determined vi. Car central locking system installed according to instruction manual. vii. Car central locking system condition checked and

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						functionality test according to instruction manual viii. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. ix. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).
4. Install car immobilizer system	i. Purpose of car immobilizer system installation ii. Understanding of car immobilizer system function iii. Method and technique of car immobilizer system installation iv. Method and technique of functionality test	i. Select car immobilizer parts ii. Remove existing immobilizer system (if any) iii. Interpret immobilizer and car wiring circuit diagram (CAN Bus system) iv. Install new immobilizer system	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and	6 hours 22 hours	Lecture Demonstration & Observation	i. Type of car immobilizer listed and explained. ii. Existing car immobilizer parts removed iii. Car Immobilizer and car wiring circuit diagram

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Engine start / off	v. Test immobilizer functionality	electrical parts. *Safety:* i. Wear Personal Protective Equipment (PPE) ii. Avoid to use Test Lamp to check electronic parts.			(CAN Bus system) interpreted. iv. Car immobilizer installed according to instruction manual v. Car immobilizer condition checked and functionality test according to instruction manual. vi. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. vii. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
5. Install car locking device	i. Purpose of locking device installation ii. Type of locking device • Steering lock • Brake paddle lock • Gear lever lock iii. Method and technique of installation car locking device iv. Method and technique of functionality test • Lock • Unlock	i. Select locking device parts ii. Remove existing locking device (Gear lever lock) iii. Check locking device installation bracket matching iv. Install new locking device v. Test locking device functionality.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	6 hours 22 hours	Lecture Demonstration & Observation	i. Type of car locking device listed and explained ii. Existing car locking device parts removed iii. Car locking device installed according to instruction manual iv. Car locking device checked and functionality test according to instruction manual. v. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
6. Close the assign job	i. Function of car security system and related connected parts ii. Procedure of hand over car to customer iii. Type of work order iv. Workshop Standard Operating Procedure (SOP) in completing the job order. v. Technique of cleaning and tools arrangement	i. Test car security system functionality with customer. ii. Complete job order iii. Submit job order to superior/cashier iv. Hand over car to customer v. Clean work area	<u>Attitude:</u> i. Responsible to organisation ii. Cleanliness at work area iii. Accountable to work	2 hours 6 hours	Lecture Demonstration & Observation	i. Car security system check based on customer requirement listed and explained ii. Job order updated and explained. iii. Method of car handed over to customer listed and explained iv. Working area cleaned and arranged based on workshop requirement.

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Job Sheet	1:1
2. Allen Key Set	1:5
3. Cable Tie	1:5
4. PVC Black Tape	1:5
5. Wrench Set	1:5
6. Screw Driver Set	1:5
7. Male/ Female cable clamper	1:5
8. Digital Multi meter	1:5
9. Soldering sets	1:5
10. Electrical tool sets	1:5
11. Polarity meter sets	1:5
12. Cable & wire	As required
13. Cleaning agent.	As required
14. Personal Protective Equipment (PPE)	1:5
15. Car Alarm sets	1:5
16. Central Locking sets	1:5
17. Immobilizer	1:5
18. Locking Device	1:5
19. Model Car	1:5

REFERENCES

1. Dennis W. Parks, John Kimbrough (2011), Automotive Wiring, Motor Books International, ISBN 1610597966, 9781610597968
2. Tony Candela (2009), Automotive Wiring and Electrical Systems, CarTech Inc, ISBN 1932494871, 9781932494877
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CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**ELECTRICAL ACCESSORIES SYSTEM TROUBLE SHOOTING & REPAIR**						
LEARNING OUTCOME	The person who is competent in this competency unit shall be able to trouble shoot & repair of electrical accessories system passenger vehicle (car accessories). Upon completion of this competency unit, trainees will be able to:- • Assess electrical accessories system trouble shooting & repair requirement • Identify electrical accessories system malfunction • Repair or replace defective parts • Test electrical accessories system functionality • Close the assign job						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-C04	**LEVEL**	3	**TRAINING DURATION**	171	**SKILL CREDIT**	17

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Assess electrical accessories system trouble shooting & repair requirement	i. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive ii. Electrical accessories system trouble shooting & repair works.	i. Evaluate electrical accessories system trouble shooting & repair requirement and scope of work ii. Prepare job/service & order - car registration number, scope of work and assign	<u>Attitude:</u> i. Patience in assessing electrical accessories system trouble shooting & repair requirement.	4 hours 14 hours.	Lecture Demonstration & Observation	i. Electrical accessories system trouble shooting & repair work listed and explained ii. Method of job / service order processing

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iii. Job service/ & repair order format and content • Car registration particular • Scope of works iv. Communication skill v. Car accessories suitable working area vi. Type and function of electrical accessories system trouble shooting & repair tool ▪ Hand tool sets ▪ Allen key set ▪ Wrench set ▪ Screw driver set • Digital Multi meter • Electrical tool sets • Polarity meter test • Soldering sets • Personal Protection Equipment (PPE) ▪ Goggle ▪ Overall ▪ Glove ▪ Safety shoes vii. Purpose and benefit of having of instruction manual	responsible technician. iii. Locate working area iv. Prepare electrical accessories system trouble shooting & repair tools and equipment. v. Prepare Personal Protection Equipment (PPE). vi. Select car electrical accessories instruction manual	ii. Communicate effectively with customer on job			explained iii. Working area selected iv. Installation tools and equipment determined as per job requirement. v. Personal Protection Equipment (PPE) used based on safety procedure vi. Instruction manual chosen based on job requirement vii. Required electrical safety procedure on electrical accessories system trouble shooting & adhered. viii. Communication skill demonstrated according to company's Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	viii. Understanding of instruction manual content. ix. Introduction to safety procedure on car electrical accessories parts.					ix. Method and technique in assessing electrical accessories trouble shooting requirement demonstrated according to company's Standard Operation Procedure (SOP).
2. Identify electrical accessories system malfunction	i. Existing electrical accessories system function. ii. Introduction to instruction manual contents iii. Purpose of electrical accessories system installation • Fog lamp/ Spot light • Day Running Light (DRL) • Auto Cruise • Third Brake Light • Cabin roof light • Horn • Turbo Timer • Auto sensor	i. Understand existing electrical accessories system functionality ii. Interpret electrical accessories system and car wiring circuit diagram (CAN Bus system) iii. Check & test existing electrical accessories parts condition • Fog lamp/ Spot light • Day Running Light (DRL) • Auto Cruise • Third Brake Light • Cabin roof light • Horn	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Analytical thinking and problem solving iv. Meticulous in connecting wire and electrical parts	14 hours 58 hours	Lecture Demonstration & Observation	i. Function of electrical accessories parts listed and explained. ii. Inspection and remedy flow demonstrated according to instruction manual. iii. Required electrical safety procedure on electrical accessories trouble shooting adhered.

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Power window iv. Understanding of car wiring diagram – Control Area Network (CAN) Bus wiring system v. Method and technique to detect malfunction parts as instruction manual. • Wire connectivity/ continuity • Fuse • Connector • Bulb • Switch • Sensor • Module • Relay	• Turbo Timer • Auto sensor • Power window iv. Identify malfunction parts.	<u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on electrical accessories system trouble shooting & repair iii. Avoid to use Test Lamp to check electronic parts			iv. Electrical accessories and car wiring circuit diagram (CAN Bus system) interpreted. v. Existing condition of electrical accessories parts checked and confirmed according to instruction manual. vi. Malfunction parts determined and confirmed according to instruction manual. vii. Problem solving and analytical thinking demonstrated in identifying malfunction parts viii. Wire and electrical parts properly checked and confirmed for connection

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						according to instruction manual. ix. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).
3. Repair or replace defective parts	i. Understanding to parts specification as instruction manual • Dimensional • Ampere • Volts • Sensitivity • Resistance / load ii. Workshop parts issuance procedure iii. Method and technique of repair or replace defective parts	i. Identify defective part specification ii. Obtain new part iii. Install new parts.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on electrical	8 hours 28 hours	Lecture Demonstration & Observation	i. Defective parts specification determined and confirmed according to instruction manual. ii. Parts issuance procedure listed and explained. iii. New part determined and confirmed. iv. New part assembled according to assembly procedure. v. Wire and electrical parts properly

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
			accessories system trouble shooting & repair			checked and confirmed for connection according to instruction manual. vi. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).
4. Test electrical accessories system functionality	i. Understand existing electrical accessories system functionality ii. Technique of electrical accessories system functionality check • Signal • Voltage • Current iii. Analysis tool and format • Check sheet • Bar chart • Graft iv. Introduction to electrical accessories inspection method • Detection	i. Test condition and functionality of electrical accessories parts ii. Analyse electrical accessories system functionality	<u>Attitude:</u> i. Accountable to work ii. Analytical thinking and problem solving <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	8 hours 28 hours	Lecture Demonstration & Observation	i. Condition and functionality electrical accessories parts checked and confirmed according to instruction manual. ii. Type of analysis tool listed and presented. iii. Electrical accessories system functionality analysis data presented

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	sensitivity • Brightness • Sound • Sensor sensitivity					iv. Problem solving and analytical thinking demonstrated in testing of electrical accessories parts.
5. Close the assign job	i. Function of electrical accessories system and related connected parts ii. Procedure of hand over car to customer iii. Type of work order iv. Workshop Standard Operating Procedure (SOP) in completing the job order. v. Technique of cleaning and tools arrangement	i. Test electrical accessories system functionality with customer ii. Complete job order iii. Submit job order to superior/cashier iv. Hand over car to customer v. Clean work area.	<u>Attitude:</u> i. Cleanliness at work area ii. Meticulous in completing job order. iii. Communicate politely with customer <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	2 hours 8 hours	Lecture Demonstration & Observation	i. Electrical accessories system check based on customer requirement listed and explained. ii. Job order updated and explained. iii. Method of car handed over to customer listed and explained iv. Working area cleaned and arranged based on workshop requirement .

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Job Sheet	1:1
2. Allen Key Set	1:5
3. Cable Tie	1:5
4. PVC Black Tape	1:5
5. Wrench Set	1:5
6. Screw Driver Set	1:5
7. Male and female cable clamper	1:5
8. Digital Multi meter	1:5
9. Soldering sets	1:5
10. Electrical tool sets	1:5
11. Polarity meter sets	1:5
12. Cable & wire	As required
13. Parts Instruction manual	1:5
14. Spare parts – Wire connector, Fuse, Switches, Battery Terminal, Bulb, Relay	As required
15. Cleaning agent.	As required
16. Personal Protective Equipment (PPE)	1:1
17. Model Car	1:5

REFERENCES

1. Tony Candela (2009), Automotive Wiring and Electrical Systems, CarTech Inc, ISBN 1932494871, 9781932494877
2. Jason Syner, How to Install Automotive Mobile Electronic Systems, MotorBooks International, ISBN 161060993X, 9781610609937
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7. Andrew Livesey (2013), Repair of vehicle bodies, Routledge, ISBN 1135120498, 9781135120498

CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**ENTERTAINTMENT SYSTEM TROUBLE SHOOTING & REPAIR**						
LEARNING OUTCOME	The person who is competent in this competency unit shall be able to trouble shoot & repair car entertainment system of passenger vehicle (car accessories). Upon completion of this competency unit, trainees will be able to:- • Assess entertainment system trouble shooting & repair requirement • Identify entertainment system malfunction • Repair or replace defective parts • Test entertainment system functionality • Close the assign job						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-C05	**LEVEL**	3	**TRAINING DURATION**	172	**SKILL CREDIT**	17

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Assess entertainment system trouble shooting & repair requirement	i. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive ii. Entertainment system trouble shooting & repair works. iii. Job service/ & repair order format and content	i. Evaluate entertainment system trouble shooting & repair requirement and scope of work. ii. Prepare job/service & order - car registration number, scope of work and assign responsible technician. iii. Locate working area	<u>Attitude:</u> i. Patience in assessing car security system trouble shooting & repair requirement ii. Communicate effectively with customer on job scope	4 hours 14 hours	Lecture Demonstration & Observation	i. Entertainment system trouble shooting & repair work listed and explained ii. Method of job / service order processing explained. iii. Working area selected

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Car registration particular • Scope of works iv. Communication skill v. Car accessories suitable working area vi. Type and function of entertainment system trouble shooting & repair tool ▪ Hand tool sets ▪ Allen key set ▪ Wrench set ▪ Screw driver set • Digital Multi meter • Electrical tool sets • Polarity meter test • Soldering sets • Personal Protection Equipment (PPE) ▪ Goggle ▪ Overall ▪ Glove ▪ Safety shoes vii. Purpose and benefit of having of instruction manual viii. Understanding of instruction manual content.	iv. Prepare entertainment system trouble shooting & repair tools and equipment v. Prepare Personal Protection Equipment (PPE). vi. Select car entertainment system instruction manual				iv. Installation tools and equipment determined as per job requirement. v. Personal Protection Equipment (PPE) used based on safety procedure vi. Instruction manual chosen based on job requirement vii. Required electrical safety procedure on entertainment system trouble shooting & repair adhered. viii. Communication skill demonstrated according to company's Standard Operation Procedure (SOP). ix. Method and technique in assessing entertainment

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	ix. Introduction to safety procedure on car entertainment system parts.					system trouble shooting requirement demonstrated according to company's Standard Operation Procedure (SOP).
2. Identify entertainment system malfunction	i. Existing entertainment system function. ii. Introduction to instruction manual contents iii. Purpose of entertainment system installation. • Radio • Navigator • LCD Player/Screen • Amplifier • Speaker/woofer/twitter • Antenna • Camera and reverse sensor iv. Understanding of car wiring diagram – Control Area Network (CAN) Bus wiring system	i. Understand existing entertainment system functionality ii. Interpret entertainment system and car wiring circuit diagram (CAN Bus system) iii. Check & test existing entertainment parts condition • Radio • Navigator • LCD Player/Screen • Amplifier • Speaker/woofer/twitter • Antenna • Camera and reverse sensor iv. Identify malfunction parts.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Analytical thinking and problem solving iv. Meticulous in connecting wire and electrical parts <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	14 hours 58 hours	Lecture Demonstration & Observation	i. Function of entertainment system parts listed and explained. ii. Required electrical safety procedure on electrical accessories trouble shooting adhered. iii. Entertainment system and car wiring circuit diagram (CAN Bus system) interpreted. iv. Existing condition of entertainment system parts checked and

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	v. Method and technique to detect malfunction parts as instruction manual. • Wire connectivity/ continuity • Fuse • Connector • Switch • Sensor		ii. Adhere to safety procedure on entertainment system trouble shooting & repair iii. Avoid to use Test Lamp to check electronic parts			confirmed according to instruction manual. v. Malfunction parts determined and confirmed according to instruction manual. vi. Problem solving and analytical thinking demonstrated in identifying malfunction parts vii. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. viii. Careful and concern on handling car demonstrated according to Standard Operation Procedure

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Repair or replace defective parts	i. Understanding to parts specification as instruction manual • Dimensional • Ampere • Volts • Sensitivity • Resistance / load ii. Workshop parts issuance procedure iii. Method and technique of repair or replace defective parts	i. Identify defective part specification ii. Obtain new part iii. Install new parts.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on entertainment system trouble shooting & repair	8 hours 28 hours	Lecture Demonstration & Observation	i. Defective parts specification determined and confirmed according to instruction manual. ii. Parts issuance procedure listed and explained iii. New part determined and confirmed. iv. New part assembled according to assembly procedure. v. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. vi. Careful and concern on handling car demonstrated according to Standard Operation Procedure

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Test entertainment system functionality	i. Understand existing entertainment system functionality ii. Technique of entertainment system functionality check • Signal • Voltage • Current iii. Analysis tool and format • Check sheet • Bar chart • Graft iv. Introduction to entertainment system inspection method • Frequency capture • Detection sensitivity • Location detection • Image Brightness • Sensor sensitivity	i. Test condition and functionality of entertainment system parts ii. Analyse entertainment system functionality	<u>Attitude:</u> i. Cleanliness at work area ii. Accountable to work iii. Analytical thinking and problem solving <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	8 hours 28 hours	Lecture Demonstration & Observation	i. Condition and functionality entertainment system checked and confirmed according to instruction manual. ii. Type of analysis tool listed and presented. iii. Entertainment system functionality analysis data presented. iv. Problem solving and analytical thinking demonstrated in testing of entertainment parts

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
5. Close the assign job	i. Function of entertainment system and related connected parts ii. Procedure of hand over car to customer iii. Type of work order iv. Workshop Standard Operating Procedure (SOP) in completing the job order. v. Technique of cleaning and tools arrangement	i. Test entertainment system functionality with customer ii. Complete job order iii. Submit job order to superior/cashier iv. Hand over car to customer v. Clean work area	<u>Attitude:</u> i. Cleanliness at work area ii. Meticulous in completing job order. iii. Communicate politely with customer <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	2 hours 8 hours	Lecture Demonstration & Observation	i. Entertainment system check based on customer requirement listed and explained. ii. Job order updated and explained. iii. Method of car handed over to customer listed and explained iv. Working area cleaned and arranged based on workshop requirement

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Job Sheet	1:1
2. Allen Key Set	1:5
3. Cable Tie	1:5
4. PVC Black Tape	1:5
5. Wrench Set	1:5
6. Screw Driver Set	1:5
7. Male and female cable clamper	1:5
8. Digital Multi meter	1:5
9. Soldering sets	1:5
10. Electrical tool sets	1:5
11. Polarity meter sets	1:5
12. Cable & wire	1:5
13. Parts Instruction manual	As required
14. Spare parts – Wire connector, Fuse, Switches, Battery Terminal, Bulb, Relay	1:5 As required
15. Cleaning agent.	As required
16. Personal Protective Equipment (PPE)	1:1
17. Model Car	1:5

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CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**CAR SECURITY SYSTEM TROUBLE SHOOTING & REPAIR**						
LEARNING OUTCOME	The person who is competent in this competency unit shall be able to trouble shoot & repair car security system of passenger vehicle (car accessories). Upon completion of this competency unit, trainees will be able to:- • Assess car security system trouble shooting & repair requirement • Identify car security system malfunction • Repair or replace defective parts • Test car security system functionality. • Close the assign job						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-C06	**LEVEL**	3	**TRAINING DURATION**	172	**SKILL CREDIT**	17

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Assess car security system trouble shooting & repair requirement	i. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive ii. Car security system trouble shooting & repair works. iii. Job service/ & repair order format and	i. Evaluate car security system trouble shooting & repair requirement and scope of work. ii. Prepare job/service & order - car registration number, scope of work and assign responsible	<u>Attitude:</u> i. Patience in assessing car security system trouble shooting & repair requirement. ii. Communicate effectively with customer on job scope	4 hours 14 hours	Lecture Demonstration & Observation	i. Car security system trouble shooting & repair work listed and explained ii. Method of job / service order processing explained

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	content • Car registration particular • Scope of works iv. Communication skill v. Car accessories suitable working area vi. Type and function of car security system trouble shooting & repair tool ▪ Hand tool sets ▪ Allen key set ▪ Wrench set ▪ Screw driver set • Digital Multi meter • Electrical tool sets • Polarity meter test • Soldering sets • Personal Protection Equipment (PPE) ▪ Goggle ▪ Overall ▪ Glove ▪ Safety shoes vii. Purpose and benefit of having instruction manual	technician. iii. Locate working area iv. Prepare car security system trouble shooting & repair tools and equipment. v. Prepare Personal Protection Equipment (PPE). vi. Select car security system instruction manual				iii. Working area selected iv. Installation tools and equipment determined as per job requirement. v. Personal Protection Equipment (PPE) used based on safety procedure vi. Instruction manual chosen based on job requirement. vii. Required electrical safety procedure on car security system trouble shooting & repair adhered. viii. Communication skill demonstrated according to company's Standard Operation Procedure (SOP). ix. Method and technique in

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	viii. Understanding of instruction manual content. ix. Introduction to safety procedure on car security system parts.					assessing car security system trouble shooting requirement demonstrated according to company's Standard Operation Procedure (SOP)
2. Identify car security system malfunction	i. Existing car security system function. ii. Introduction to instruction manual contents iii. Purpose of car security system installation. • car alarm system • car central locking system iv. Understanding of car wiring diagram – Control Area Network (CAN) Bus wiring system v. Method and technique to detect malfunction parts as instruction manual. • Wire connectivity/ continuity • Fuse	i. Understand existing car security system functionality ii. Interpret car security system and car wiring circuit diagram (CAN Bus system) iii. Check & test existing car security system condition • car alarm system • car central locking system iv. Identify malfunction parts.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Analytical thinking and problem solving iv. Meticulous in connecting wire and electrical parts <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE)	14 hours 58 hours	Lecture Demonstration & Observation	i. Function of car security system parts listed and explained. ii. Car security system and car wiring circuit (CAN Bus system) diagram interpreted. iii. Existing condition of car security system parts checked and confirm according to instruction manual iv. Malfunction parts determined and

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Connector • Switches • Transmitter battery • Alarm sound • Engine start/off • Locking device lock/ unlock.		ii. Adhere to safety procedure on car security system trouble shooting & repair			confirmed according to instruction manual. v. Problem solving and analytical thinking demonstrated in identifying malfunction parts. vi. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. vii. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Repair or replace defective parts	i. Understanding to parts specification as instruction manual • Dimensional • Ampere • Volts • Sensitivity • Resistance / load ii. Workshop parts issuance procedure iii. Method and technique of repair or replace defective parts	i. Identify defective part specification ii. Obtain new part iii. Install new parts.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts <u>*Safety:*</u> i. Wear Personal Protective Equipment (PPE) ii. Adhere to safety procedure on car security system trouble shooting & repair.	8 hours 28 hours	Lecture Demonstration & Observation	i. Defective parts specification determined and confirmed according to instruction manual ii. New part determined and confirmed. iii. New part assembled according to assembly procedure iv. Parts issuance procedure listed and explained. v. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. vi. Careful and concern on handling car demonstrated according to Standard Operation Procedure

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
4. Test car security system functionality	i. Understand existing car security system functionality ii. Technique of car security system functionality check • Signal • Voltage • Current • Abnormal detection. iii. Analysis tool and format • Check sheet • Bar chart • Graft iv. Introduction to car security system inspection method • Frequency capture • Detection sensitivity	i. Test condition and functionality of car security system parts ii. Analyse car security system functionality	<u>Attitude:</u> i. Accountable to work ii. Analytical thinking and problem solving *<u>Safety:</u>* i. Wear Personal Protective Equipment (PPE)	8 hours 28 hours	Lecture Demonstration & Observation	i. Condition and functionality car security system checked and confirmed according to instruction manual. ii. Type of analysis tool listed and presented. iii. Car security system functionality analysis data presented iv. Problem solving and analytical thinking demonstrated in testing of entertainment parts.
5. Close the assign job	i. Function of car security system and related connected parts ii. Procedure of hand over car to customer iii. Type of work order iv. Workshop Standard	i. Test car security system functionality with customer ii. Complete job order iii. Submit job order to superior/cashier iv. Hand over car to customer v. Clean work area	<u>Attitude:</u> i. Cleanliness at work area ii. Meticulous in completing job order. iii. Communicate politely with customer	2 hours 8 hours	Lecture Demonstration & Observation	i. Car security system check based on customer requirement listed and explained. ii. Job order updated and

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	Operating Procedure (SOP) in completing the job order. v. Technique of cleaning and tools arrangement		*Safety:* i. Wear Personal Protective Equipment (PPE)			explained. iii. Method of car handed over to customer listed and explained. iv. Working area cleaned and arranged based on workshop requirement

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Job Sheet	1:5
2. Allen Key Set	1:5
3. Cable Tie	1:5
4. PVC Black Tape	1:5
5. Wrench Set	1:5
6. Screw Driver Set	1:5
7. Male and female cable clamper	1:5
8. Digital Multi meter	1:5
9. Soldering sets	1:5
10. Electrical tool sets	1:5
11. Polarity meter sets	1:5
12. Cable & wire	As required
13. Parts Instruction manual	1:5
14. Spare parts – Wire connector, Fuse, Switches, Battery Terminal, Bulb, Relay	As required
15. Cleaning agent.	As required
16. Personal Protective Equipment (PPE)	1:1
17. Model Car	1:5

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2. Tony Candela (2009), Automotive Wiring and Electrical Systems, CarTech Inc, ISBN 1932494871, 9781932494877
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CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**CAR ACCESSORIES INSTALLATION ADMINISTRATIVE FUNCTION**						
LEARNING OUTCOME	The person who is competent in car accessories administrative function shall be able to supervise group of technician to carry car accessories installation according to workshop procedure and instruction manual. Upon completion of this competency unit, trainees will be able to :- • Attend customer request • Arrange manpower deployment and scheduling • Arrange spare parts storage and issuance. • Monitor work progress performance • Monitor shop floor cleanliness and safety compliances						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-C07	**LEVEL**	3	**TRAINING DURATION**	110	**SKILL CREDIT**	11

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Attend customer request	i. Procedure on welcome and greet customer ii. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive iii. Car accessories scope of works iv. Workshop procedure	i. Greet customer ii. Consult on customer request iii. Fill job order iv. Communicate well with customer v. Explain product features to customers.	*Attitude:* i. Patience in assessing customer request. ii. Meticulous in identifying requirements of jobs order.	4 hours 12 hours	Lecture Demonstration & Observation	i. Procedure of greeting customer listed and explained ii. Car accessories scope of works explained. iii. Method of consulting customer

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	v. Communication skill vi. Car accessories product knowledge vii. Car accessories selling skill					listed and explained iv. Method to explain product features to customer listed and explained. v. Standard Operation Procedure (SOP) of job order / service processing explained
2. Arrange manpower deployment and scheduling	i. Types of resources • Technician • Spare parts • Equipment ii. Work schedule format • Job name • Lead time • Completion time iii. Type of equipment and function iv. Job distribution based on • Technician availability • Equipment availability • Time estimation	i. Interpret job order ii. Produce work schedule iii. Identify capable technician to perform installation job iv. Determine equipment availability and functionality v. Determine job completion lead time vi. Arrange job distribution	*Attitude:* i. Resourceful in interpreting work schedule ii. Precise in communicating with technician	6 hours 20 hours	Lecture Demonstration & Observation	i. Job order interpreted ii. Type of resources identified and listed based on job requirement. iii. Work scheduling/job order requirements identify and listed iv. Equipment availability and functionality

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						listed and explained based on job requirement v. Job completion time explained. vi. Job distribution listed and explained
3. Arrange spare parts storage and issuance.	i. Job scope and related spare parts ii. Spare part list iii. Workshop spare parts issuance procedure iv. Introduction to spare part racking and arrangement. v. Introduction to stock take procedure vi. Introduction to workshop spare part ordering system	i. Interpret job order ii. Determine spare parts according to job order iii. Issue spare part to technician iv. Update spare part stock v. Conduct spare part stock count vi. Place order spare parts.	*Attitude:* i. Meticulous in issuing spare parts and updating stock card.	6 hours 20 hours	Lecture Demonstration & Observation	i. Job order interpreted ii. Spare parts list generated based on workshop procedure. iii. Method of spare parts issuance listed and explained iv. Method to update spare parts stock listed and explained based on workshop procedure. v. Method to conduct spare

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						parts stock counting listed and explained based on workshop procedure.
4. Monitor work progress performance	i. Workshop organization chart ii. Communication skill iii. How to conduct meeting effectively. iv. Workshop progress report submission procedure.	i. Communicate with technician ii. Check work progress status. iii. Communicate with customer on job progress. iv. Conduct sectional meeting v. Update work progress check sheet. vi. Submit work progress check sheet.	*Attitude:* i. Resourceful in updating progress status ii. Meticulous in acquiring information. *Safety:* i. Ensure PPE meet Safety Regulation and Standard	6 hours 20 hours	Lecture Practical Demonstration	i. Communication skill with technician demonstrated. ii. Method to communicate with customer listed and explained iii. Progress status report produced based on workshop procedure iv. Method to conduct sectional meeting demonstrated based on workshop procedure

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
5. Monitor workshop cleanliness and safety compliances	i. Workshop schedule format ii. Standard Operation Procedure (SOP) format and content iii. Safety and Regulatory body requirement (JAS) iv. Schedule waste type and disposal regulation v. Safety & Health equipment vi. Material Safety Data Sheet (MSDS)	i. Generate workshop cleaning schedule ii. Establish safety procedure iii. Update cleaning status activity iv. Arrange schedule waste disposal v. Monitor workshop cleanliness and safety compliances vi. Update cleanliness and safety report.	*Attitude:* i. Responsible in disposing waste disposal *Safety:* i. Adhere to safety requirement	4 hours 12 hours	Lecture Practical Demonstration	i. Workshop cleaning schedule generated ii. Content of Safety procedure listed and explained according to statutory and regulatory requirement iii. Schedule waste type listed and explained according to statutory and regulatory requirement. iv. Method to dispose schedule waste explained according to statutory and regulatory requirement. v. Workshop cleanliness and safety compliances adhered

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						according to workshop procedure. vi. Cleanliness and safety report updated and submit to superior.

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Meeting schedule	1:1
2. Minutes of meeting form	1:1
3. Computer with application office software	1:5
4. Standard Operation Procedure (SOP) format	1:1
5. Printer	1:25
6. Workshop spare part list	1:5
7. Stock card sheet	1:5
8. Material Safety Data Sheet (MSDS)	1:5
9. Schedule waste disposal procedure	1:5
10. Workshop Standard Operation Procedure (SOP)	1:5
11. Workshop safety measures guidelines	1:5
12. Jobs list	1:5
13. Attendant sheet	1:1

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CURRICULUM of COMPETENCY UNIT (CoCU)

SECTOR	**AUTOMOTIVE**						
SUB SECTOR	**AFTER SALES**						
JOB AREA	**PASSENGER VEHICLE**						
NOSS TITLE	**CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION**						
COMPETENCY UNIT TITLE	**AUDIO SYSTEM UPGRADING**						
LEARNING OUTCOME	The person who is competent in this competency unit shall be able to trouble shoot & repair car entertainment system of passenger vehicle (car accessories). Upon completion of this competency unit, trainees will be able to:- • Assess audio system upgrading requirement • Identify specific location for audio system upgrading parts • Perform audio system upgrading installation • Tune audio system performance • Reduce vibration noise • Close the assign job						
PRE-REQUISITE (if appreciable)							
COMPETENCY UNIT ID	TP-034-3:2014-E01	**LEVEL**	3	**TRAINING DURATION**	228	**SKILL CREDIT**	22

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
1. Assess audio system upgrading requirement	i. Type of passengers vehicle • Saloon • Compact car • Hatchback • 4 wheel drive ii. Audio system upgrading scope of works	i. Evaluate audio system upgrading requirement and scope of work. ii. Prepare job/service & repair order - Car registration number, scope of work and assign responsible	<u>Attitude:</u> i. Patience in audio system upgrading requirement ii. Communicate effectively with customer on job scope	6 hours 20 hours	Lecture Demonstration & Observation	i. Audio system upgrading work listed and explained ii. Method of job / service order processing explained. iii. Working area selected

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	iii. Job service/ & repair order format and content • Car registration particular • Scope of works iv. Communication skill v. Car accessories suitable working area vi. Introduction to audio upgrading parts • Audio/player (head unit) • Noise suppressor • Pre amplifier • Amplifier • Woofer • Twitter • Cross over • Equalizer • Power cable • Capacitor vii. Type and function of audio system installation tool ▪ Hand tool sets ▪ Allen key set ▪ Wrench set ▪ Screw driver set • Digital Multi meter • Electrical tool sets • Polarity meter	technician iii. Locate working area iv. Prepare audio system upgrading tools, equipment and material v. Prepare Personal Protection Equipment (PPE) vi. Select audio system upgrading instruction manual				iv. Installation tools and equipment determined as per job requirement v. Instruction manual chosen based on job requirement vi. Personal Protection Equipment (PPE) used based on safety procedure vii. Required electrical safety procedure on audio system installation adhered. viii. Communication skill demonstrated according to company's Standard Operation Procedure (SOP). ix. Method and technique in assessing audio system upgrading

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	test • Soldering sets viii. Type and function of audio system upgrading equipment ix. Purpose and benefit of having of instruction manual x. Understanding of instruction manual content. xi. Introduction to safety procedure on electrical and audio system parts.					requirement demonstrated according to company's Standard Operation Procedure (SOP).
2. Identify specific location for audio system upgrading parts	i. Capacity and suitability of audio system parts • Ampere • Power (volt) • Resistance/ load • Sensitivity ii. Method and technique to calculate and select of audio system parts iii. Audio parts instruction manual iv. Type and capacity of bracket and fasteners v. Box Holder type • Material • Size	i. Determine parts capacity and suitability ii. Determine size of parts iii. Select suitable location iv. Select installation bracket and fasteners v. Select Box Holder.	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts <u>*Safety:*</u> i. Adhere to safety procedure on audio system	10 hours 38 hours	Lecture Demonstration & Observation	i. Audio system part selection listed and explained. ii. Audio part capacity calculated according to instruction manual iii. Audio parts and car wiring circuit (CAN Bus system) diagram interpreted iv. Audio parts size determined

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
	• Shape vi. Understanding to car wiring circuit diagram – Control Area Network (CAN) Bus wiring system vii. Understanding to audio system wiring circuit diagram.		installation			based on available space and customer requirement. v. Location for audio parts selected vi. Bracket and fasteners selected based on assembly requirement. vii. Box holder selected based on type of car and variant. viii. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. ix. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
3. Perform audio system upgrading installation	i. Method of audio system parts arrangement • Size • Suitability • Customer requirement ii. Wire and cable size selection iii. Method and technique to lay cable routing and termination iv. Type of battery and capacity v. Upholstery type • Carpet • Facia • Paint vi. Method and technique to install upholstery material.	i. Install audio system upgrading parts ii. Lay out wiring circuit iii. Install additional battery (if necessary) iv. Fix upholstery (carpet, facia, paint)	<u>Attitude:</u> i. Handle equipment with care ii. Awareness on customer's car condition and safety iii. Meticulous in connecting wire and electrical parts <u>*Safety:*</u> i. Adhere to safety procedure on audio system installation	14 hours 58 hours	Lecture Demonstration & Observation	i. Audio parts installed according to instruction manual. ii. Wire and cable size determined according to audio capacity. iii. Wiring circuit laid out based on parts requirement. iv. Additional battery installed based on audio system requirement. v. Upholstery installed based on customer requirement. vi. Wire and electrical parts properly checked and confirmed for connection according to instruction manual. vii. Careful and concern on handling car demonstrated

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
						according to Standard Operation Procedure
4. Tune audio system performance	i. Classification of audio system sound ii. Method and technique to tune treble and bass iii. Method and technique to adjust sound balancing	i. Tune Treble ii. Tune Bass iii. Tune Fader iv. Adjust Balancing (Front / Rear, LH/RH)	<u>Attitude:</u> i. Awareness on customer's car condition and safety ii. Meticulous in assessing audio sound	10 hours 38 hours	Lecture Demonstration & Observation	i. Classification of audio sound listed and explained ii. Treble, bass and fader tuned based on customer requirement. iii. Sound balancing (Front/ Rear, LH/RH) adjusted based on instruction manual. iv. Method and technique on audio sound assessing demonstrated. v. Careful and concern on handling car demonstrated according to Standard Operation Procedure

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
5. Reduce vibration noise	i. Vibration noise ii. Generation of vibration noise iii. Method and technique to identify vibration noise iv. Type of sound proof v. Method and technique to install sound proof.	i. Set audio to maximum volume 50% ii. Identify and mark vibration area iii. Install sound proof	<u>Attitude:</u> i. Meticulous in assessing vibration noise ii. Awareness on customer's car condition and safety. *<u>Safety:</u>* i. Wear Personal Protective Equipment (PPE)	6 hours 20 hours	Lecture Demonstration & Observation	i. Type of vibration noise listed and explained. ii. Vibration noise identify according to instruction manual. iii. Sound proof installed based on workshop procedure. iv. Method and technique on vibration noise assessing demonstrated. v. Careful and concern on handling car demonstrated according to Standard Operation Procedure (SOP).

Work Activities	Related Knowledge	Related Skills	Attitude/Safety/ Environmental	Training Hours	Delivery Mode	Assessment Criteria
6. Close the assign job	i. Function of audio system ii. Procedure of hand over car to customer iii. Type of work order iv. Workshop Standard Operating Procedure (SOP) in completing the job order. v. Technique of cleaning and tools arrangement	i. Test audio system functionality with customer ii. Complete job order iii. Submit job order to superior/cashier iv. Hand over car to customer v. Clean work area	Attitude: i. Cleanliness at work area ii. Meticulous in completing job order. iii. Communicate politely with customer *Safety:* i. Wear Personal Protective Equipment (PPE) *:*	2 hours 6 hours	Lecture Demonstration & Observation	i. Audio system check based on customer requirement listed and explained. ii. Job order updated and explained. iii. Method of car handed over to customer listed and explained. iv. Working area cleaned and arranged based on workshop requirements

Employability Skills

Core Abilities	Social Skills
01.01 Identify and gather information. 01.02 Document information procedures or processes. 02.01 Interpret and follow manuals, instructions and SOP's. 02.03 Communicate clearly. 02.04 Prepare brief reports and checklist using standard forms. 02.05 Read/Interpret flowcharts and pictorial information. 03.02 Demonstrate integrity and apply practical practices. 03.03 Accept responsibility for own work and work area. 03.04 Seek and act constructively upon feedback about work performance. 03.05 Demonstrate safety skills. 03.06 Respond appropriately to people and situations. 06.01 Understand systems. 06.03 Identify and highlight problems. 06.04 Adapt competencies to new situations/systems. 03.08 Develop and maintain a cooperation within work group. 04.01 Organize own work activities. 04.02 Set and revise own objectives and goals. 04.03 Organize and maintain own workplace. 04.05 Demonstrate initiative and flexibility. 01.07 Utilize database applications to locate a process information. 01.08 Utilize spreadsheets applications to locate and process information. 01.11 Apply thinking skills and creativity. 02.09 Prepare flowcharts. 02.10 Prepare reports and instructions. 02.11 Convey information and ideas to people. 03.09 Manage and improve performance of individuals.	1. Communication skills 2. Conceptual skills 3. Interpersonal skills 4. Learning skills 5. Leadership skills 6. Multitasking and prioritising 7. Self-discipline 8. Teamwork

Tools, Equipment and Materials (TEM)

ITEMS	RATIO (TEM : Trainees)
1. Job Sheet	1:1
2. Allen Key Set	1:5
3. Wrench Set	1:5
4. Screw Driver Set	1:5
5. Male and female cable clamper	1:5
6. Digital Multi meter	1:5
7. Soldering sets	1:5
8. Electrical tool sets	1:5
9. Polarity meter sets	1:5
10. Cable & wire	1:5
11. Cleaning agent.	As required
12. Personal Protective Equipment (PPE)	As required
13. Audio system parts	1:1
14. Model Car	1:5
	1:5

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SUMMARY OF TRAINING DURATION FOR CAR ACCESSORIES INSTALLATION AND CUSTOMIZATION (LEVEL 3)

CU ID	COMPETENCY UNIT TITLE	WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	HOURS	TOTAL
			(A)	(B)	(A+B)	(HOURS)
CU 01	Eletronic Accessories System Installation	1. Assess electronic accessories system installation requirem	4	14	18	178
		2. Install driving assistance/ convenience parts	4	14	18	
		3. Install wiper and rain sensor	6	30	36	
		3. Install head lamp and light sensor	6	30	36	
		4. Install/ Replace Power Window System	12	42	54	
		5. Close the assign job	4	12	16	
CU 02	Entertaintment System Installation	1. Assess entertainment system installation requirement	4	14	18	174
		2. Install entertainment system	20	72	92	
		3. Install camera and reverse sensor	12	42	54	
		4. Close the assign job	2	8	10	
CU 03	Car Security System Installation	1. Assess car security system installation requirement	4	14	18	200
		2. Install car alarm system	10	46	56	
		3. Install car central locking system	12	50	62	
		4. Install car immobilizer system	6	22	28	
		5. Install car locking device	6	22	28	
		6. Close the assign job	2	6	8	
CU 04	Electrical Accessories System Trouble Shooting & Repair	1. Assess car security system trouble shooting & repair requir	4	14	18	172
		2. Identify car security system malfunction	14	58	72	
		3. Repair or replace defective parts	8	28	36	
		4. Test car security system functionality	8	28	36	
		5. Close the assign job	2	8	10	
CU 05	Entertaintment System Trouble Shooting & Repair	1. Assess entertainment system trouble shooting & repair rec	4	14	18	172
		2. Identify entertainment system malfunction	14	58	72	
		3. Repair or replace defective parts	8	28	36	
		4. Test entertainment system functionality	8	28	36	
		5. Close the assign job	2	8	10	

CU ID	COMPETENCY UNIT TITLE	WORK ACTIVITIES	RELATED KNOWLEDGE	RELATED SKILLS	HOURS	TOTAL
			(A)	(B)	(A+B)	(HOURS)
CU 06	Car Security System Trouble Shooting & Repair	1. Assess car security system trouble shooting & repair requi	4	14	18	172
		2. Identify car security system malfunction	14	58	72	
		3. Repair or replace defective parts	8	28	36	
		4. Test car security system functionality	8	28	36	
		5. Close the assign job	2	8	10	
CU 07	Car Accessories Installation Administrative Function	1. Attend customer request	4	12	16	110
		2. Arrange manpower deployment and scheduling	6	20	26	
		3. Arrange spare parts issuance.	6	20	26	
		4. Monitor work progress performance	6	20	26	
		5. Monitor workshop cleanliness and safety compliances	4	12	16	
TOTAL HOURS (Core Competencies)			248	930	1178	1178
CU 08	Audio System Upgrading	1. Assess audio system upgrading requirement	6	20	26	228
		2. Identify specific location for audio system upgrading parts	10	38	48	
		3. Perform audio system upgrading installation	14	58	72	
		4. Tune audio system performance	10	38	48	
		5. Reduce vibration noise	6	20	26	
		6. Close the assign job	2	6	8	
TOTAL HOURS (Elective Competencies)			48	180	228	228