VEHICLE SERVICING AND REPAIRING

NTQF Level II

Learning Guide-#12

Unit of Competence: - Use Garage Information System

Module Title: - Using Garage Information System

LG Code: EIS VSR2 M04 LO3-LG-12

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LO3. Apply for Information

Instruction Sheet	Learning Guide 12

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- **Identify characteristic of surface of System**
- **Identify operation of system**
- **Apply for Information**

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- **Identify characteristic of surface of System**
- **Identify operation of system**
- **Apply for Information**

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 31 to 34
3. Read the information written in the "Information Sheets 5". Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the "Self-check 5" in page 31
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 5).
6. If you earned a satisfactory evaluation proceed to "Information Sheet 6". However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #.....
7. Submit your accomplished Self-check. This will form part of your training portfolio.
8. Read the information written in the "Information Sheet 6-8". Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
9. Accomplish the "Self-check 6-8" in page __.
10. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 5).
11. Read the information written in the "Information Sheets". Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
12. Accomplish the "Self-checks" in page __.
13. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-checks.

Information Sheet- 1	Apply for Information

Apply for Information

Source suitable components of information system

- Best Management Practices For Automotive Repair Shops Best Management Practices for Auto Repair Shops are utilized to manage and control wastes generated by these and related facilities to minimize or prevent releases to the environment. During normal vehicle repair and maintenance activities, vehicle fluids may drip or spill or otherwise enter floor drains or sinks in service areas. Following the practices and using the equipment described in the BMPs below (and additional referenced resources) will help your facility conduct business in a way that protects drinking water.

- Running a Dry Shop. This management approach involves minimizing wastewater produced by a shop through a variety of techniques. Some of the most prominent practices are as following ways:
- Prevent spills from ever reaching the shop floor by installing secondary containment in storage areas; using safety cans, drip pans and trays, and funnel drum covers when transferring fluids; and installing bulk, pressurized, overhead fluid delivery systems, where appropriate.
- Immediate cleanup of spills can be promoted if employees carry rags for small spills; clean with reusable cloth rags; use absorbent materials such as hydrophobic mops to remove medium-size or larger spills; wring out absorbed fluids into suitable containers for reuse or recycling; and carefully mark and make available all spill cleanup material.
- Keep the floor clean and dry by sweeping every day; using only a damp mop for general cleanups; never hosing work areas; 1and sealing the shop floor with impervious materials, if possible.

Examples of commercially available secondary containment systems

- Connecting Floor Drains to Holding Tanks or Sanitary Sewer. This BMP provides an appropriate method to dispose of potentially contaminated wash water through floor drains, if it is not possible to eliminate the use of water altogether. If using an above ground or underground holding tank, make sure it meets all federal, state, and local requirements; monitor the fluid level and schedule regular pump-outs by certified waste haulers; and check for leaks and drips on a regular basis. If connecting floor drains to a municipal sanitary sewer, make sure the hookup is legal and approved by the local sewage treatment plant; do not connect floor drains to a storm drain or storm sewer; and discharge only allowable wastewater to the sanitary sewer.

Schematic

The advantages of a good job card are:

- To reduce idle time by giving technicians the information and tools to be productive and efficient.
- To provide clear, logical and suitable information to the technician and to the person costing the job.
- To provide a very effective automatic link between the workshop and the front office
- To provide particulars of each job accurately to provide detailed information on the vehicle both at the time of repair and on future visits to the workshop.

The job card should contain the following information:

- **Job number**: - Larger workshops use job numbers to identify vehicles and to allow technicians to easily find jobs when required. These can sometimes also be customer numbers. It's important to only refer to job and customer numbers in-house and not directly with a customer. Always refer to a customer by name and their vehicle by make and model.
- Customer's name and full contact details: - Correct customer information is very important. Names must be spelt correctly and any titles clearly noted. Make sure the contact phone number is the one on which the customer will be available, and the correct mailing address so you can send them a thank you letter or service reminder. Most point of sale programs will print this out on your job card, but you should always ensure details are correct.
- **Complete vehicle details: -** This would include rego number, make and model, manufacture details including VIN number, manufacture date, engine code and number of cylinders. Such detail is vital when ordering parts. Kilometers travelled must be noted, particularly if related to warranty. Other details might include when the vehicle is due for service or service interval, and registration renewal.

- **Jobs required:** -A very clear and precise job description and detailed explanation of the issues including the history of the issue, if any. If any doubts remain about any issues, the technician working on the job may need to contact and talk to the right person to gain all the information to correctly diagnose the vehicle.
- **Time the vehicle is required by the customer:** -This is important for all technicians to know so priority can be given to jobs.

There should be space on the job card for this kind of information:

- **Parts used on the job:** - This could include part numbers, description and quantity. Any part not on the job card might get left off the invoice and therefore lower profitability.
- **Work performed:** -This must be in detail. Technicians may have to be taught the importance of this information, because it directly influences the invoiced amount. If a technician encounters a problem with a job, they should inform the right person as well as write it on the job card. The time taken is as important as the information on the type of work performed. You could have a section on the job card for recommended time for certain jobs. This can be useful where a technician becomes expert at a particular repair through experience and the time taken is reduced. In situations like this, it is not logical to reduce the invoice amount to match because the repair job still should retain its full value, regardless of how good a technician becomes at performing it.
- **Service details:** - These would include things like brakes, including percentage of brake wear front and back, brake and clutch fluid test results. Tires, including tire size and percentage of wear on all tires including the spare, tire pressures before and after the service.

If previous job cards have been properly noted, they will contain a lot of important information that won't necessarily appear on an invoice. Before working on the vehicle, technicians should check what was reported last time the vehicle was worked on. Notes about previous behaviors noticed with the vehicle will prompt the technician to go back and check related components or systems. This means you are well on the way to making up your new 'shopping list'.

Note: Every technician who works on the car must see the job card and make their repair notes or observations on the card. Only through a cooperative effort can you be sure that the job card contains all the necessary information**.**

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Self-Check -1	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next Page:-

1. Define the term components of information system?
2. Identify and discus Best Management Practices For Automotive Repair Shops?
3. Write about Service details?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____

Information Sheet- 2	Use capacity of information system.

Use capacity of information system.

Capacity of information system.

For Office Use Only

Location Number:.....
Access Card No: _____
Start Date: _____
Account Name: _____

Service m. Application for:

Company/Individual _____ **Group:** _____

Location and Rate Information

DEACTIVATION _____

Location Name: 1999 Broadway
Location Address: 1999 Broadway, Denver CO

Monthly Rate: $ /Month ***(Includes in and out privileges)***

Start Date: _____
Return Date: _____
***Please note that 30 day advance notice is**

Last Name	First Name	Company, Suite #

Street Address (if no company enter home address)	Apt or Box #	City	State	Zip Code

Business Phone	Evening Telephone	E-Mail Address

VEHICLE INFORMATION

Primary Vehicle	Secondary Vehicle
State/ Tag #	State/Tag #

Color	Color
Year/ Make	Year/ Make
Model	Model

Please complete this application and email to tpiotrowski@lazparking.com
It can also be mailed to: PO Box 8315, Denver CO 80202
For additional information, please call (303)291-1111.

INVOICES WILL BE EMAILED ON OR AROUND THE 15TH OF EACH MONTH.
ALL PAYMENTS WILL BE DUE ON THE 1ST OF THE MONTH.

Card Holder's Signature: _____ **Date: _____**

Self-Check -2	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next Page:

1. Define the term Parking Key Card?
2. Identify and discus about Conditions for Use of a Parking Key Card?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ **Date:** _____

Information Sheet- 3	Erase maintenance indicator signal by diagnosis tool

3.3.1. Maintenance

, , , key programming

- **Service schedules**

Scheduling

- Scheduling is the process of determining times and dates to achieve specific objectives. Schedules, like plans, can be long term or short term. Often, short-term schedules are very important and linked to long-term schedules. When working with an organizational or institutional schedule, it is important that the different players working on a project coordinate their schedules and have access to one another's schedules to ensure a smooth work flow.

➢ Service parts

Vehicle preparation involves all final steps prior to painting/refinishing

Foolish to apply any kind of finish to a surface that is not properly prepared

Even if original finish is in good condition, it should be lightly sanded after washing

If paint surface is in poor condition, paint should be removed down to bare metal

Provides a good foundation for new finish

- **VIN-Plate-location**

VIN's purpose

A car's vehicle identification number (VIN) is the automotive equivalent of human "DNA".

It sets your vehicles apart from the millions of vehicles out there.

Each character or digit has a particular purpose.It displays a car's uniqueness and heritage and provides a form of factory to scrap yard identification.

It can be used to track recalls, registrations, warranty claims, thefts and insurance coverage.

Understanding the cars vehicle identification number has become very popular with car collectors for new and old vehicles alike.It displays a car's uniqueness and heritage and provides a form of factory to scrap yard identification.

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- **Location**

The Vehicle Identification Number is also imprinted on the:

Vehicle Safety Certification Label. And Frame rail.

- **Timing chain**

Important:

There are three colored links on the timing chain. Two links are of matching color, and one link is of a unique color. Use the following procedure to line up the links with the sprockets. Orient the chain so that the colored links are visible. Always use new sprocket bolts. Assemble the intake camshaft sprocket to the timing chain with the timing mark lined up with the uniquely Colored link Hand tightens a new intake camshaft sprocket bolt.Lower the timing chain through the opening in the cylinder head. Use care to ensure that the chain goes around both sides of the cylinder block bosses always installs new sprocket bolts. Install the exhaust camshaft sprocket and a new bolt loosely onto the exhaust camshaft.

Align the timing mark on the sprocket with the last matching colored link Install the bolt finger tight.Notice: Do not rotate either camshaft more than half turn in either direction with crankshaft at top dead center (TDC). To do so may cause valve to piston contact resulting in a damaged valve and/or a damaged piston. If the camshaft is 180 degrees out of time, use the following procedure to realign the cam. Using a 24 mm wrench, first turn the intake camshaft until the

alignment feature on the back of theCamshaft sprocket seats in the notch in the front of the intake camshaft.

1.1. Turn the crankshaft 45 degrees in either direction.

1.2. Turn the intake cam to the appropriate location.

1.3. Turn the crankshaft back to top dead center

When the sprocket seats on the cam, tighten the sprocket bolt hand tight

❖ Tire pressure

- ❑ As the temperature of a tire *increases,* the pressure inside the tire also *increases.* The general amount of pressure *gain* (when temperatures increase) or *loss* (when temperatures decrease) is as follows:

- ✓ *10°F increase causes 1 PSI increase.*
- ✓ *10°F decrease causes 1 PSI decrease.*

REGULAR TYRE PRESSURE CHECKS

You should check your tires' pressures at least once a month, before each trip, and each morning you drive during a trip.

Ideally, tire pressure should be measured when tires are cold - that is, before doing any driving on the tires. Otherwise, your tiresmay have heated up, increasing the air pressure inside them by several pounds. Thes is normal and as a rule never "bleed" or reduce the air pressure from a hot tire, since this could result in under-inflation. Only "bleed" or reduce air pressure from a hot tire when you need to lower pressures to drive on particular terrain (see "Tire Pressure Guide page 5) but remember to re-inflate your tires when you reach your destination or return to terrain that requires higher pressures.

- ✓ MEASURING TYRE PRESSURE

It's important to be accurate in filling your tires. Don't try to "eyeball" the pressure – a tire can lose half its pressure without looking flat. Instead, use a reliable tire pressure gauge. It's also a good idea to have your own gauge.

- ✓ UNDER-INFLATION

If your vehicle's tires are under-inflated by as little as 6 psi, it could lead to tire damage. Additionally, the tire's tread lifecould be reduced significantly with tires wearing more on theoutside shoulders. Lower inflation pressure allows the tire to flex more as it rolls causing internal heat to build up which could lead to tire failures. Low pressures increase rolling resistance and cause a reduction in fuel economy. You would also find a significant loss of steering precision and cornering stability. While 6 psi doesn't seem excessively low, remember, it usually represents about 20% of the tire's recommended
pressure. You should also be aware that the load capacity of your tyres is reduced at lower pressures.

- ✓ OVER-INFLATION

If your tyres are over-inflated by as little as 6 psi, they could be damaged more easily when driving over potholes or debris on the road. Over inflation also causes tyres to wear in the centre

of the tire's tread which will reduce the tread life. Higher inflated tyres will also give you a much harsher ride.

- ✓ IMPORTANT FACTORS IN SELECTING

TYRE PRESSURES

There is no universal "right" pressure for all tires. The proper inflation level is dependent on many factors such as what tiresyou have, type of vehicle, amount of load, how the vehicle is being driven and the condition of the road to name a few.The important thing to remember is, as load increases, you will need to increase pressure but never exceed the maximum pressure stamped on the sidewall of the tire. For harsher road surfaces, a lower pressure with lower speed may be needed to avoid tire damage.

- ✓ The wheel, along with the tyre has to take the vehicle load provide a cushioning effect, and cope with the steering control. The various requirements of an automobile wheel are:-

  - It should be lightest possible so that the un sprung weight is least.
  - It should be balanced both statically as well as dynamically.
  - It should be possible to remove or mount the wheel easily.
  - Its material should not deteriorate with weathering and age.
  - Good ability of heat dissipation (frictional braking heat)

❖ Wheel alignment

Wheel Alignment - *Is the adjustment of the suspension and steering to ensure proper vehicle handling with minimum tire wear.*

- ❖ When a vehicle is *new*, the alignment angles are set at the *factory*.
- ❖ After many miles and/or months of driving, the alignment angles can change slightly.
- ❖ By adjusting the suspension and steering components, proper alignment angles can be restored.
- ❑ *Refers to the five different angles between the two front wheels.*

  It includes:

- ✓ Camber
- ✓ Caster
- ✓ Steering axis inclination *SAI* (kingpin inclination
- ✓ Toe (toe-angle, toe-in and toe-out)

Turning radius (wheel angle, turning angle

This refers to proper steering geometry i.e, castor and camber angle, ring pin inclination, and toe-in and toe-out distances. If proper angles and distance are not maintained the wheels skid along the road instead of rolling freely. Improper camber angle in the front wheels causes the tread to wear on one side. Improper causes tire wobbling.

❖ Technical Data

Service manual or repair manual

Service or Repair manual provides information concerning the removal, installation, inspection and adjustment procedures in various types of components and unit assemblies.

Volume of service or repair manuals varies with the contents, model and year.

Self-Check -7	Written Test

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next Page:-

1. What are tire pressures?
2. Write precautions for the care of tools should be observed?
3. Write important factors in selecting tire pressures?
4. What is wheel aliment?

Note: **Satisfactory rating - 5 points** **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Name: _____ Date: _____