

Vehicle Servicing and Repairing Level II

Learning guide

Unit of Competence: - Select and Use Bearings, Seals, Gaskets, Sealants and Adhesives

Module Title: Selecting and Use Bearings, Seals, Gaskets, Sealants and Adhesives

LG Code: EIS VSR2 M09 L05-

TTLM Code: EIS VSR2 TTLM 0919v1

L05: Prepare vehicle component for use or storage

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

- Complete documentation
- Make final inspection of vehicle safety feature
- Make final inspection of workplace
- Clean equipment
- Process job car

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 –

- Select Appropriate sealants and adhesives in accordance with work requirement.
- Use Sealants and adhesives in accordance with manufacturer instructions.
- Store Sealants and adhesives in accordance with manufacturer instructions.

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 7.
3. Read the information written in the “Information Sheets 1-3”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1” in page 6 and Self-check 2 in page 12.
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 1).
6. If you earned a satisfactory evaluation proceed to “learning guide-19”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to “Information Sheet 1-3”.
7. Submit your accomplished Self-check1 in page 6 and Self-check2. This will form part of your training portfolio.
8. Read the information written in the “Learning Guide-19”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
9. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work

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Documentation is a set of documents provided on paper, or online, or on digital or analog media, such as audio tape or CDs. Examples are user guides, white papers, on-line help, quick-reference guides. It is becoming less common to see paper (hard-copy) documentation. Documentation is distributed via websites, software products, and other on-line applications.

Procedures and techniques

The procedures of documentation vary from one sector, or one type, to another. In general, these may involve document drafting, formatting, submitting, reviewing, approving, distributing, reposting and tracking, etc., and are convened by associated A **standard operating procedure (SOPs)** in a regulatory industry. It could also involve creating content from scratch. Documentation should be easy to read and understand. If it's too long and too wordy, it may be misunderstood or ignored. Clear, Short, Familiar words should be used to a maximum of 15 words to a sentence. Only gender hyper neutral word should be used and cultural biases should be avoided. Procedures should be numbered when they are to be performed

Documentation should be prepared by qualified specialists. The key to good documentation is to correctly identify the problem to be solved, and hence to specify an appropriate solution. The nature and extent of the work must then be clearly conveyed to those who will do it. This information sheet discusses firstly what to document and secondly how.

Most documents contain lists (known as schedules) of components such as windows or floor finishes. For conservation work, schedules of repairs are commonly prepared for each room or other element. Schedules are an effective way to summarise the works to be done. Poorly documented repair works could result in the work making matters worse rather than better.

The Need to Document

Documenting maintenance and renewal information enables repair and maintenance work to be conducted efficiently and effectively. It also provides key information to the owners, supervisors and depreciation report providers. These documents are also important in order to provide proper maintenance to ensure home warranty insurance coverage.

Follow these three general principles to develop records and documents:

1. Keep it short and simple. Use bullet points and flow diagrams instead of long sentences and lengthy paragraphs.
2. Clarity is important. Step-by-step instructions are easily understood.
3. Use a standardized, consistent format. Although different programs may need different documents and records, using a similar approach will help staff learn quickly.

Problem reporting procedures

- Inspect/test the vehicle accordance with manufacturer procedure
- Record/ capture the problem with the necessary information
- Order the recorded problems in accordance with their damaging area
- Report to the assigned person for these problems
- Maintain damaging parts according to maintenance procedure
- Preparing reports have no error/discrepancy

Make final inspection of vehicle safety features

Regulated business realizes the importance of keeping up on their vehicles' maintenance. What are not always clearly understood, however, is the vehicle maintenance records the Federal Motor Carrier Safety Administration (FMCSA) requires. This includes the specific documents that need to be kept, the manner in which information is to be maintained and the retention periods. These regulations apply to any owned or leased vehicle (provided the leased vehicle is being operated for at least 30 days) that meets one or more of the following requirements:

- Has a Gross Vehicle Weight Rating (GVWR) or Gross Combination Weight Rating (GCWR) of 10,001 pounds or more
- Carries hazardous materials and requires placarding

Vehicle Maintenance Files (VMFs)

The FMCSA requires that individual files be maintained for all CMVs. Many companies do retain maintenance records; however they are often disorganized and kept in one file. In the event of a FMCSA audit, this can make it difficult for the safety auditor to make an accurate assessment of the company's maintenance methods. And that means headaches – and possibly hefty fines – for the company.

Let's take a moment to look at a situation that although hypothetical, The owner of a home services company undergoes an FMCSA compliance review. When the safety auditor requests to see vehicle maintenance records, the owner is confident knowing that he is on top of maintaining his CMVs. He plunks down a large file that he has been keeping for years containing repair receipts, DMV records, insurance forms, etc. What he's not prepared for is the excruciating 4-hour examination of documents by a stringent auditor who has to rummage through a mass of disorganized paperwork. He receives several violations for failing to keep records of inspection and vehicle maintenance. The owner is shocked.....he has been maintaining all of his records for years, isn't it obvious he takes care of his vehicles?

Filing methods and documentation of repairs and maintenance

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A good way to make sure you set up acceptable Vehicle Maintenance Files (VMFs) is to put yourself in the auditor's shoes for just a minute. Would you want to go through a jumbled mass of years of paperwork, trying to sift out pertinent documents?

Here are three steps to keep in mind when creating and maintaining your own files:

1. Create one separate file for each vehicle (including trailers)

The auditor wants to be able to select a vehicle file and be able to immediately and clearly identify the vehicle. Therefore, the first stand-alone document should be a Vehicle Identification Record that contains identifying information such as the make, model, year and VIN.

2. Clearly identify receipts of repairs and regular maintenance

It's important to keep receipts, but the auditor needs to be able to tell what the receipt is for. For example: you purchase new windshield wipers, light bulbs and batteries. You also throw in some air fresheners, heavy duty garbage bags and a pack of gum. You should keep a document or form of the vehicle purchases and staple the receipt to it, highlighting the date and the purchases that pertain to the vehicle.

4. Document roadside inspections

Any time a roadside inspection occurs, whether violations are found or not, you need to keep the roadside inspection report in the vehicle's file. Moreover, if defects (aka violations) are found, it is crucial to get them fixed promptly and to staple evidence of the repair to the inspection report.

Your VMFs need to reflect that you are on top of all regular maintenance needs, and that you repair all defects in a timely manner. An auditor wants to be certain that your vehicle is able to be safely operated on public roadways. Therefore, not only do you want to be able to document when you last had maintenance performed, but also when you project it will next be needed.

Retention Periods

All vehicle maintenance records must be retained for a minimum of 12 months with one exception: Annual DOT Inspection Reports must be retained for 14 months.

Periodic/Annual Inspections and Reports

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Annual or Periodic DOT Inspection Reports are a crucial aspect of maintenance records that are often overlooked. These are the inspections in which you receive a sticker on the CMV indicating that it has passed its annual inspection. Even if you are not expecting a FMCSA audit in the near future, do not put off getting organized and implementing an effective Vehicle Maintenance Filing System.

Making final inspection of work place

Final inspection is identifying whether work done/repaired parts normal operation, work tool/equipment's and working area can be operated, adjusted and maintained safely. final inspection is necessary for any working activity work area, tools/ equipments where significant risks to health and safety may arise from incorrect repairing/maintaining, installation, reinstallation, deterioration or any other circumstances. The need for final inspection and inspection frequencies should be determined through risk assessment.

Importance of inspection

As an essential part of a health and safety program, the work done,/and workplaces should be inspected. Inspections are important as they allow you to:

- listen to the concerns of workers and supervisors
- gain further understanding of jobs and tasks
- identify existing and potential hazards
- determine underlying causes of hazards
- monitor hazard controls (personal protective equipment, engineering controls, policies, procedures)
- recommend corrective action

Some common poor work practices include:

- using machinery or tools without authority
- operating at unsafe speeds or in other violation of safe work practice
- removing guards or other safety devices, or rendering them ineffective
- using defective tools or equipment or using tools or equipment in unsafe ways
- using hands or body instead of tools or push sticks
- overloading, crowding, or failing to balance materials or handling materials in other unsafe ways, including improper lifting
- repairing or adjusting equipment that is in motion, under pressure, or electrically charged
- failing to use or maintain, or improperly using, personal protective equipment or safety devices
- creating unsafe, unsanitary, or unhealthy conditions by improper personal hygiene, by using compressed air for cleaning clothes, by poor housekeeping, or by smoking in unauthorized areas

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- standing or working under suspended loads, scaffolds, shafts, or open hatches

Inspection Procedures

When conducting inspections, follow these basic procedures:

- Draw attention to the presence of any immediate danger--other items can await the final report.
- Shut down and "lock out" any hazardous items that cannot be brought to a safe operating standard until repaired.
- Do not operate equipment. Ask the operator for a demonstration. If the operator of any piece of equipment does not know what dangers may be present, this is cause for concern. Never ignore any item because you do not have knowledge to make an accurate judgment of safety.
- Look up, down, around and inside. Be methodical and thorough. Do not spoil the inspection with a "once-over-lightly" approach.
- Clearly describe each hazard and its exact location in your rough notes. Allow "on-the-spot" recording of all findings before they are forgotten. Record what you have or have not examined in case the inspection is interrupted.
- Ask questions, but do not unnecessarily disrupt work activities. This may interfere with efficient assessment of the job function and may also create a potentially hazardous situation.
- Consider the static (stop position) and dynamic (in motion) conditions of the item you are inspecting. If a machine is shut down, consider postponing the inspection until it is functioning again.
- Discuss as a group, "Can any problem, hazard or accident generate from this situation when looking at the equipment, the process or the environment?" Determine what corrections or controls are appropriate.
- Do not try to detect all hazards simply by relying on your senses or by looking at them during the inspection. You may have to monitor equipment to measure the levels of exposure to chemicals, noise, radiation or biological agents.
- Take a photograph if you are unable to clearly describe or sketch a particular situation

Cleaning equipment/engine for use storage

Cleaning is not just a measure of respect for the workspace, it also removes hazards. Plan to easily and regularly remove trash and debris. Enforce a strict clean-up policy throughout the workspace. Work areas need to be well lit and clean. Ventilation and/or air filtering is required for many tools. The equipment itself needs to be as safe as possible. Tools should be well maintained and not have safety features removed or defeated.

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Kinds of Cleaning Solvents

Solutions are homogeneous mixture of two or more components. They can be gaseous, liquid or solid. When we speak of a solution, we usually think of a solid dissolved in water. While water is the most common solvent, other liquids are frequently employed as solvents for certain substances for example wax maybe dissolved in gasoline. The dissolved material in a solution is termed as solute (e.g. wax) while the dissolving medium is called solvent (e.g. gasoline). However, the term can be interchanged depending on which substance is of greater amount.

Solvent is a component of a solution that dissolves solute and is usually present in large proportion or amount. It can be classified as polar or non-polar. Polar solvents are solvents which dissolve/are soluble in water; while non-polar solvents are solvents which do not dissolve/are insoluble in water.

Solvents usually used for cleaning in automotive shops are: water, gasoline, kerosene, thinner and detergent soap.

The table below shows the kinds of cleaning solvents based on their solubility in water.

Cleaning Solvents	Solubility in Water	Polar	Nonpolar
a. water	soluble	x	
b. gasoline	insoluble		x
c. kerosene	insoluble		x
d. thinner	insoluble		x
e. detergent soap	soluble	x	

Properties of Cleaning Solvents

A useful generalization much quoted is that “Like dissolves like”. More specifically, high solubility occurs when the molecules of the solute are similar in structure and electrical properties to the molecules of the solvent.

When there is a similarity of electrical properties; e.g. high dipole element between solute and solvent, the solute-solvent attractions are particularly strong. When there is dissimilarity, solute-solvent attractions are weak. For this reason, a polar substance such as H₂O usually is a good solvent for a polar substance such as detergent soap but a poor solvent for a non polar substance such as gasoline.

Uses of Cleaning Solvents

Cleaning Solvents

Uses

1. Gasoline----- - It is used to wash oil/greasy tools/equipment.
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2. Diesoline----- - It is used to wash oil engine, transmission and other
- parts of the vehicle.
3. Kerosene ----- - It is used to remove dust, grease oil, paint, etc.

- 4. Thinner ----- -It is used to remove spilled paint on the floor, walls and tools.
- 5. Soap and water ----- - It is used to wash/clean upholstered furniture such as seats, tables, cabinets, etc.

Occupational Health and Safety Practices in Handling Cleaning Solvents

A great percentage of eye injury and cuts results from a disregard for the simplest of rules in handling cleaning solvents. You should never use compressed air to clean your clothes, hands or body. The pressure could cause the cleaning solvents and dirt particles to penetrate your skin, resulting in infection and /or blood poisoning. Do not use compressed air to clean an object immediately after it has been removed from a hot cleaning tank. First, rinse the cleaning solvents away with water. Do not use carbon tetrachloride as a cleaning solution. The fumes, when inhaled can cause serious internal injury and possibly result in death. When steam-cleaning, place the object to be cleaned on a pallet and wear a face shield and rubber gloves for protection against loose debris.

If a job or cleaning task requires the use of gloves, use the appropriate gloves. Do not for instance use welding gloves when removing an object from a hot tank, or rubber gloves when welding. If you have cut, nicked, or burned yourself, or something has got into your eyes, report immediately to the first-aid person.

Keep all inflammable cleaning solvents in closed tin containers and whenever possible, store them in a separate area.

Clean up procedures

- ✓ Clean up every time whenever you leave an area, including sweeping the floor.
- ✓ Clean and return all tools to where you got them.
- ✓ Use compressed air sparingly; never aim it at another person or use it to clean hair or clothes.
- ✓ Shut off and unplug machines when cleaning, repairing, or oiling.
- ✓ Never use a rag near moving machinery.
- ✓ Use a brush, hook, or a special tool to remove chips, shavings, etc. from the work area. Never use the hands.
- ✓ Keep fingers clear of the point of operation of machines by using special tools or devices, such as, push sticks, hooks, pliers, etc.
- ✓ Keep the floor around machines clean, dry, and free from trip hazards. Do not allow chips to accumulate.
- ✓ Mop up spills immediately and put a chair or cone over them if they are wet enough to cause someone to slip.

Prepare job card

The job card is meant to ensure that the technician working on the vehicle, has a detailed 'patient' file which will help ensure that every job is completed professionally and every vehicle receives the technician's full attention and application.

The job card is also a great tool for your technicians to highlight additional repairs or maintenance items that they notice and which really need attention. This is where your job card works in conjunction with your cross selling lists, a subject to be covered as part of this series of business strategies.

Let's face it, technicians are only human, and they have lazy or bad days, and they might forget things. So the number one role of the job card is to prompt technicians to undertake every job to your workshop's high standard and to the customer's expectations.

To make this work, your job card must contain every item you would like your technicians to check and report on. The job card can be as detailed as you like.

Processing Job card with workplace procedures

Job card is a record card relating to a job and giving details of the time taken to do a piece of work and the materials used. This is used to allocate direct labour and materials costs. a card in a cost-accounting system on which the detailed costs of an order are accumulated cost sheet . cost sheet is a sheet on which detailed cost elements relating to a specific production order or process are assembled —called also cost card. so every technician should be prepare job cards after completion of work, allocate / assign a whole item of cost, or of revenue, to a single cost unit, centre, account or time period (like labour and material cost)

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

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- 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:

1. 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.

2. 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.

3. 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. Kilometres 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.

4. 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.

5. 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

- Suspension, a good fair and fail option on front and back suspension.
- Timing belt – note whether the vehicle has a timing belt and if it has a service history.
- Drive belts – good, fair or fail on drive belts and tensioners.
- Coolant – good, fair or fail based on coolant testing.
- Battery test results.

Part suppliers

On hand reference to trace where parts came from. Include a phone number, contact person, parts ordered or quote received, your price and retail price and time of order

Report section

This is a spot for technicians to write a report on other items found requiring attention or to expand on any issues already listed. This is where a note may be made to recheck something next service, or to highlight something quirky about the vehicles.

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Job Card

Job No

123456

Customer Name Big Top Inc. **Date** 1-Jul-05

Department Service **Standard Material Mark-up Rate** 33.00%

Serial No. **Account No.** **Standard Hourly Billing Rate** \$60.00

Serial No.	Labor Tasks	Activity Code	Total Hours	Billable? No (N)	Billable Hours	Billing Rate	Billing Value
1	Test Loose Connections	ABC042	0:30		0:30	\$50.00	\$25.00
2	Run Diagnostics	DIAG01	1:15	N			
3	Remove Power Supply	DOCM	3:20		3:20		\$200.00
4	Fit New Power Supply	TST1	4:20		4:20	\$75.00	\$325.00
5	Run Diagnostics	DIAG01	2:20		2:20		\$140.00
6	Clean Keyboard	PRES	0:20	N			
7	Update all peripheral drivers	ANYL	1:30		1:30		\$90.00
8	Defrag all disc drives	DOCM	3:45		3:45	\$40.00	\$150.00
9							
10							
Labour Totals			17:20		15:45		\$930.00

Serial No.	Materials	Part No.	No of Units	Unit Cost	Material Cost	Mark-up (%)	Material Charge
1	Power Supply	PW001	1.00	\$25.00	\$25.00	20.00%	\$30.00
2	Power Cord 250 Volt	PC003	2.00	\$10.00	\$20.00		\$26.60
3	Magnetic Media	MMA2B	3.00	\$5.00	\$15.00		\$19.95
4	Cleaning Materials	CLNA	1.00	\$15.00	\$15.00	50.00%	\$22.50
5	Sundry Items	SNDRY	1.00	\$25.00	\$25.00		\$33.25
6							
7							
8							
9							
10							
Materials Totals					\$100.00		\$132.30

Signed _____

Approved _____

Total Labour	\$930.00
Total Materials	\$132.30
Tax	\$15.00
Total Charge	\$1,077.30

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Give a short answer

1. What is job card?
2. What are the advantages of good job card?
3. What parts contains the job card?
4. What is the meaning of documentation?(4)
5. least at list five common poor work practices.(5)
6. Least the importance of inspection (6).

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