

**EXCITING WORLD OF
AUTOMOBILES**



STUDENT WORKBOOK

Curriculum :AUTO-SRV L2-NQ²⁰¹²

Unit :AUTO-SRV L2U6

Reading of Service Manual

**Vocational Learning Material for
Schools**

PSSCIVE-ASDC

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This student workbook was developed, with active involvement of the Automobile Skill Development Council (ASDC) keeping in view the National Occupation Standard (NOS) for Service Technician L4 developed by ASDC.

This project for development of the student workbook was coordinated by the PSS Central Institute of Vocational Education, a constituent unit of National Council of Educational Research and Training, which is under Ministry of Human Resource Development, Government of India.

Student Details

Student Name: _____

Student Roll Number: _____

Batch Start Date: _____

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About this Workbook

This workbook is to assist students with completing the Auto Sector **L2U6-NQ2012** unit of competency: Reading of Service Manual. Students should study the workbook in class or in their own time.

This workbook contains sessions for imparting knowledge & skills on various aspects of the unit of competency. The workbook also includes information, exercises, and assessment activities to complete. The assessment plan has been included in the workbook to assist you in scheduling your time for completing the assignments. Each assessment activity is followed by a checklist for meeting the assessment criteria. The criteria will help you to ensure that you have fulfilled all of the assessment requirements to receive a 'competency' grading/Certification by ASDC.

Unit Information

Unit name: Reading of Service Manual

Unit code: Auto L2U6-NQ2012

Unit descriptor:

This unit provides introductory knowledge & related skills covering the service manual of a vehicle.

Resource Required:

- Notebooks, Pen, Pencil, Eraser, Computer, Open Source Software for making digital presentation, LCD projector. Pictures, sketches, drawings & posters for building awareness about various types of vehicle. Service manual of a vehicle.

Nominal hours: 4 hours

Elements and Performance Criteria

- Elements define the critical learning outcomes of a unit of competency.
- Performance criteria specify the level of performance required to demonstrate the achievement of the Competency Element.

Element	Performance Criteria
Importance of Service manual	<ul style="list-style-type: none">• Able to identify service manuals of respective vehicles.• Able to read and use the service manuals

Relevant Knowledge and Skills

1. Relevant Knowledge

- Importance of Service manual,

2. Skills

- Able to identify service manuals of different vehicles.
- Able to read and use the service manual

Assessment Plan

Session No.	Assessment method	Due Date	Completion Date
1.	Fill in the Blanks		
2.	Fill in the Blanks		
3.	Fill in the Blanks		



Introduction

Maintenance is the key to any successful maintenance program for motor vehicles. Through preventive maintenance, vehicles are inspected, repaired, and kept in such a way that defects are prevented from surfacing before a violation or accident can occur.

If vehicles are only brought into the service centres when they need something, the program is not preventive, it is reactionary. The problem with reactionary maintenance programs is that they are based on failure, i.e., you notice something has failed and you fix it. This type of maintenance program is destined to lead to down-time and the resulting costs of idle equipment.

A maintenance program, on the other hand, brings vehicles in for inspection and maintenance on a schedule, and repairs any items that are at, or even approaching, an established cut-off point. This allows you to make repairs on *your* schedule, prevent violations and accidents, and keep the vehicles rolling.

Whenever a vehicle is purchased, a company provides an Service Manual. This manual provides all details of the vehicle including schedule maintenance and regular servicing. Customer/mechanic should regularly refer and use the same.

Session 1: Service manual of respective vehicle

Relevant Knowledge

It's quite important to know the criticality of maintenance/service manual, which comes with every new vehicle at the time of purchase. All the details and information about a vehicle are written in the manual, but very few of us acknowledge the importance of the same. And in order to ensure reliability of your vehicle with optimum performance all you need is to go through the service/maintenance manual for performing the basic checks mentioned in the owner's manual.

The useful information given in the owner's manual actually needs to be followed on schedule in order to enhance the fuel mileage of vehicle. If the vehicle is properly maintained, you'll surely experience improved fuel mileage with fewer car troubles. Every bit of information related to the maintenance of a vehicle is mentioned in the maintenance manual, and it is the easiest option source to know when your car requires a particular check or upkeep.

Cars not only run on fuel, but also need oil change, transmission fluid, coolant or antifreeze, and other fluids in order to function and the same is mentioned in the manual. As per service manual, it's mandatory to check the engine oil and washer fluid after every time you fill your tank. On the contrary, the transmission and other fluids need to be checked on monthly basis. Also, you must fill up the fluids when they are low; the manual clearly mentions what type of fluid you must use and the complete procedure to do it yourself.

From checking the engine oil level to transmission fluid or checking the tyre pressure, everything is clearly mentioned in the manual and it can be easily done if you follow the steps properly. Most important is the engine oil level, which should be checked when the engine is cold and best time to get the accurate reading is in the morning before starting up the engine. Every car manufacturer recommends scheduled maintenance and the same is given in the service manual.

The timely detailed maintenance must be followed as per schedule to keep the vehicle running flawlessly without any troubles. If the same is ignored or delayed with time, your vehicle may trouble you in between the driving, thus hampering your journey as well as leading to expensive repairs. Therefore,

every auto expert or car maker hands over an owner's manual that guides you through a complete process of maintenance and ensures that the necessary checks are performed timely.

Session 1 : Service manual of respective vehicle

Exercise: Assignment

1. List the content of vehicle service manual seen.

S.No.	Name of Content
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

2. Writ the part number of following components

- a. Clutch disc
- b. Diskpad
- c. Headlight
- d. backlight
- e. Piston

Session 1: Service manual of respective vehicle

Answer the following questions

(Use additional sheets of paper if necessary)

Fill in the blanks

1. Service manual are important for _____ .

2. Service manual is used for _____,
3. Service manual is available with a _____.
4. Electronic stability systems help in _____.

Session 1: Service manual of respective vehicle

Checklist for Assessment Activity

Use the following checklist to see if you've met all the requirements for Assessment Activity.

Part A

- Able to read and understand the vehicle service manual.

Part B

Discussed in class the following :

- Importance of service maintenance manual.
- What are advantages of using service manual?
- How does the service manual helps in adjustments of components?

Performance standards/criteria covered by this assessment

Performance standards	Yes	No
Able to use service manual		
Able to identify the number of item in service manual.		

Session 2: Reading and use of the service manual

Relevant Knowledge

As we know that service manual is very important help to the user as well as any technician. We should know how to use and read the service manual. We should keep it properly at safe place in the workshop and must be handled carefully.

Manual consists of the following contents which may be followed while using service manual in a workshop or home.

1. Index
2. How to use service manual
3. Periodic maintenance activities
4. Standard shop practices and safety
5. List of spare parts and their part number
6. Disassembly and assembly procedures of different units like engine, gearbox, clutch etc.
7. Standard tolerances, adjustment and serviceability of each component
8. Testing procedure and workability

Mechanic should read it regularly and use the manual while doing any maintenance work

Session 2 : Reading and use of the service manual

Exercise: Assignment

1. List the component of vehicle service manual read.

S.No.	Name of Content
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10	

2. Writ the part number of following components

- a. Engine
- b. Tyre
- c. Rim
- d. Wiper
- e. Steering
- f. Clutch plate

Session 2 : Reading and use of the service manual

Answer the following questions

(Use additional sheets of paper if necessary)

Fill in the blanks

3. Service manual helps in identifying _____ .
4. Specification of parts are given in _____ ,
3. Every vehicle have a _____
4. Service manual is available with each _____.

Session 2 : Reading and use of the service manual

I

Checklist for Assessment Activity

Use the following checklist to see if you've met all the requirements for

Assessment Activity.

Part A

- Able to read and understand the vehicle service manual.

Part B

Discussed in class the following:

- Service manual role in servicing
- Why we use service manual?
- How price and specifications are available in the service manual?

Performance standards/criteria covered by this assessment

Performance standards	Yes	No
Able to use service manual in servicing		
Able to read and recall contents in service manual.		

Suggested Reading

Books

Title	Author	Publisher
Automobile Engineering Vol I	Kirpal Singh	Standard Publishers
Automobile Engineering Vol II	Kirpal Singh	Standard Publishers
Text Book of Automobile Engineering	R K Rajput	Laxmi Publications
Automobile Engineering	R K Singal	S. K. Kataria and Sons
Automobile Engineering Theory	Kapil Dev	Computech Publications
Automobile Engineering,	K. M. Moeed	S. K. Kataria and Sons

Websites

auto.indiamart.com/auto-technology

www.automobileindia.com/consumer-guide/automobile-technology

auto.indiamart.com/auto-technology

books.google.com/books/about/Automobile_Engineering.html

www.bikeadvice.org

www.wikipedia.com

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