





Transforming the skill landscape



Participant Handbook

Sector Automotive

Sub-Sector Road Transportation

Occupation Driving

Reference ID: ASC/Q9703, Version 1.0, NSQF Level 4

> Commercial Vehicle Driver

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Shri Narendra Modi Prime Minister of India







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COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

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AUTOMOTIVE SKILLS DEVELOPMENT COUNCIL

for

SKILLING CONTENT : PARTICIPANT HANDBOOK

Complying to National Occupational Standards of

Job Role/ Qualification Pack: <u>Commercial Vehicle Driver</u> QP No. <u>'ASC/Q 9703 NSQF Level 4'</u>

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About this Book —

Indian Auto Industry is one of the largest in the world. The industry is expected to contribute 10% to India's GDP as per Automotive Mission Plan 2016-26 and create 65 million additional jobs. The sector offers big potential for jobs across the length and breadth of the country. In line with the rapid technological advancement in this field, there are exciting prospects for a fulfilling career in this industry.

This book is designed to enable a candidate to acquire skills that are required for employment. The content of this book is completely aligned to the National Occupation Standards QP/NOS and conform to the National Skills Qualification Framework (NSQF).

The Qualification pack of a Commercial Vehicle Driver, Level 4 includes the following NOS's which have all been covered across the units:

Assess and ensure road worthiness of the vehicle (ASC/N9703)

Drive safely and efficiently on the assigned route including long distance trips (ASC/N9705)

Coordinate with depot/branch office (ASC/N9701)

Work effectively in a team (ASC/N0002)

Practice HSE and security related guidelines (ASC/N0012)

Key Learning Objectives for the specific NOS mark the beginning of the unit/s for that NOS. The symbols used in this book are described below.

Happy learning!!



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The book on New Employability Skills is available at the following location: https://eskillindia.org/Home/handbook/NewEmployability







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1. Introduction

- Unit 1.1 Road Conditions in India
- Unit 1.2 Commercial Vehicles
- Unit 1.3 The Road User and the Law
- Unit 1.4 Alarming Status of Road Safety
- Unit 1.5 Job Role of Commercial Vehicle Driver



Key Learning Outcomes

At the end of the module, you will be able to:

- 1. Explain the road conditions in India
- 2. Explain what a commercial vehicle is
- 3. Illustrate the characteristics of a road user and the laws in place to govern the use of roads
- 4. List the types of commercial vehicles used in India
- 5. Outline the responsibilities of a commercial vehicle driver
- 6. List the personal attributes of a commercial vehicle driver

UNIT 1.1: Road Conditions in India

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Jnit	Obi	ectives

At the end of this unit, you will be able to:

To explain the current road conditions in India and the traffic that is affected by such road conditions

1.1.1 Introduction to the Indian Road Scenario

India has the one of the biggest and most complex road networks in the world which connects villages, towns and cities. The roads include multiple lane roads in towns and cities, the State and National Highways and rural roads. The types of such roads are increasing with each day which include modern expressways in various parts of the country

This means this is a massive number of vehicles on the roads, and the typical road in India will present a very chaotic scenario. Non-motorized vehicles such as bullock carts, cycles and Rickshaws make the traffic worse and messier.

Indian roads are on the whole unpredictable; hence it is advisable to assume non-response to adverse traffic situation from other drivers. Drivers have a tendency to run red lights and merge into busy traffic without signaling through horn or headlights. Pedestrians also flout traffic rules to a certain extent which adds to the traffic risk.



Fig 1.1.1 Traffic Jam in India

Even though the network of roads in India is large, the quality of said roads is bad. Most roads have huge potholes and speed breakers which are improperly designed.

Accidents usually lead to altercations and road rage and vice versa. The speed limit should also be maintained while driving. Another concern is the presence of protestors who air grievances out on the open road and block traffic, affecting pedestrians as well.

But the roads are slowly improving in the country with roads being designed better, being able to handle lots of traffic. India follows the Left Hand Driving system, meaning vehicles will always drive on the left side of the road.

Driving a vehicle in India needs a License and there are certain procedures and policies in place to obtain a Driver's license. A person can get a Driving License after reaching 18 years of age for a Light Motor Vehicle (LMV). After reaching 20 years of age person can apply for a Heavy Motor Vehicle License.

India has detailed rules and regulation on Traffic regulation, which has been covered in the coming units. A driver in India will need to have a Driving License according to the category/type of vehicle which will be driven.

Driving is a critical technical skill and is a demanding profession. The person who is driving should be of good health and fitness to work well for long hours.

UNIT 1.2: Commercial Vehicles

- Unit Objectives 💆

At the end of this unit, you will be able to:

- 1. Explain what a commercial vehicle is
- 2. List the types of commercial vehicles available in India

1.2.1 Commercial Vehicle Definition

The term commercial vehicle describes a vehicle which is designed to transport goods or passengers. Trucks and buses in India are major commercial vehicle for transporting goods and passengers.

A vehicle may be viewed as a commercial vehicle if it:

- Is owned by a company or corporation
- Is utilized for business, but is in an individual's name, for example, a sole proprietor
- Is a rented vehicle and in the name of the financial institution that owns it
- Exceeds a specific weight or class and therefore, is "classified" as commercial even though it may not be commercially used or commercially owned.
- Is utilized to haul any hazardous material.

Given below are typical examples of Commercial Vehicles found in India:

- 1. Bharat Benz Trailer Truck
- 2. Bharat Benz Heavy Goods Truck
- 3. Bharat Benz Medium Goods Truck
- 4. Volvo Buses



Fig 1.2.1 Typical Commercial Vehicle Set in India



Fig 1.2.2 Examples of Vehicle Types

Given above are a few examples of the types of vehicles available in the Indian automobile market today

1.2.2 Automobile Classification According to Weight

SIAM or Society of Indian Automobile Manufacturers divides the Indian passenger vehicles in the segments A1, A2, A3, A4, A5, A6, B1, B2 and SUV. Classification of all commercial vehicles in India given below according to weight:

Class	Category	Passenger/ Weight limit (in tones)	Vehicle type
II	N1	3.5	Goods Carrier
	A1	2	Mini Truck
	A2	2 - 3.5	Pick Ups
III	M2	More than 8+1 passengers 5	Passenger Carrier
А		5	
	A1	No. of seats including driver not exceeding 13	
	A2	No. of seats including driver exceeding 13	
IV	N2	3.5 - 12	Goods Carrier
А		3.5 - 12	
	A1	3.5 - 6	LCV
	A2	6 – 7.5	LCV
	A3	7.5 – 10	ICV
	A4	10 - 12	ICV
V	M3	More than 5	Passenger Carrier
Α		5 - 7.5	
	A1	No. of seats including driver exceeding 9 but not exceeding 13	
	A2	No. of seats including driver exceeding 13	
В		7.5 - 12	
	B1	No. of seats including driver exceeding 9 but not exceeding 13	
	B2	No. of seats including driver exceeding 13	
С		12 - 16.2	
	C1	No. of seats including driver exceeding 9 but not exceeding 13	
	C1	No. of seats including driver exceeding 13	
D		No. of seats including driver exceeding 13 More than 16.2	
VI	N3	More than 12	Goods Carrier
А		16.2	
	A1	12 - 16.2	LCV

В		More than 16.2	
	B1		Rigid Vehicles
	(a)	16.2 - 26.4	
	(b)	More than 25	
	B2		Haulage Tractor (Tractor – Semi Trailer/ Trailer)
	(a)	16.2 - 26.4	
	(b)	26.4 - 35.2	
	(c)	35.2 - 40	
	(d)	40 - 49	
	(e)	49 and above	

Table 1.2.3 Classification According to Weight



UNIT 1.3: The Road User and the Law

		_		
Unit	0	bi	iect	ive

At the end of this unit, you will be able to:

Explain the concept of a road user and the laws related to road users

1.3.1 The Average Road User in India —

There are a large number of vehicles that use the roads in India, there has to be well-defined laws and regulations to govern the behavior of public and motorists alike. The next module will cover the several rules and regulations that govern how vehicles are used in the country.

The person who uses the road is a road user. And the road user has to be aware of all the rules set forth by the Indian government and must abide by them. This includes laws that govern the behavior of non-motorists as well, such as pedestrians who walk on the footpath and/or cross the road occasionally. It also includes people riding manually powered bicycles and so on.

Every road user should respect each other presence on roads by observing following laws.

For Pedestrians:

The pedestrian must pay attention to the following while on road.

- 1. Always walk on the footpath.
- 2. Don't drink and walk
- 3. Do not read newspapers while walking on the road
- 4. Do not walk on motorways
- 5. Cross road where there are pedestrian crossings only
- 6. Do not run after a moving bus

For School Children:

- 1. Always walk on footpath only
- 2. Cross only when you see green signal
- 3. Before crossing ensure all lanes are clear
- 4. Cross only at zebra crossing, foot over bridges, traffic signal.

For Cyclists:

- 1. Always wear helmet and ride cycle
- 2. Use the cycle lane, if not provided ride on the left side of the road
- 3. Do not enter when you see "No Entry Sign"
- 4. Never ride cycle on a footpath
- 5. Maintain safe distance between vehicle
- 6. Never overtake any motor vehicle
- 7. Give way to the traffic coming from behind

For drivers:

Refer 3.2.1, 3.3 for detailed information

UNIT 1.4: Alarming Status of Road Safety



At the end of this unit, you will be able to:

Summarize the disordered road and traffic conditions in India

1.4.1 The Average Road User in India -

India has the ever-present issue of over-population. This has led to some serious traffic problems throughout the nation in cities as well as rural areas. The population in both urban and rural areas is growing faster than the government can provide for, in terms of basic amenities such as water, electricity and also roads.

Given below is the representation of road accidents in India 2015, after being grouped according to type of vehicle.



Fig 1.4.1 Road Accidents According to the Vehicle Type in 2015 in India

This has led to regular traffic jams at peak times and at busy areas in cities as well as towns and rural areas. This in turn has led to strain on traffic management in the respective areas, leading to chaotic road conditions.

UNIT 1.5: Job Role of Commercial Vehicle Driver

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At the end of this unit, you will be able to:

Explain the nature of the job with regard to commercial vehicle driver

1.5.1 Role of a Commercial Vehicle Driver

Candidates in this job are required to drive commercial vehicle such as trucks, bus, school van, etc., while following safety regulations set forth by the Indian Government. This job needs the person to have appropriate technical skills needed to resolve most problems that arise such as breakdowns and any probable accidents while driving through rough terrain and or long distances. The person is also supposed to meet other key performance indicators such as fuel efficiency, delivering the goods on time. Driver must safely transport passengers and also deal with people and situations in a calm and agreeable manner.

This job profile needs the person to drive for long periods under demanding conditions such as fatigue and heavy traffic etc. Also, the individual must be reliable enough to be trusted with assets such as the vehicle to be driven and goods to be delivered. The person should also be able to interact with a wide variety of people and communicate effectively with a wide range of people on a daily basis.

Summary 🗵

- 1. Be aware of current traffic conditions in India.
- 2. Be prepared for the long hours of work when taking up the profession of a commercial vehicle driver.
- 3. Be familiar with all commercial vehicles available in the current market.
- 4. India follows the left hand driving system, meaning vehicles will always drive on the left side of the road.

Notes	<u> </u>			

- .	Explain the Classification of Commercial Vehicles in India
2.	How do you define a commercial vehicle?
3.	How do traffic conditions affect driving in India?
4.	Which of these is not a commercial vehicle?
1	
100	

– Activity 🎉

- 1. Demonstrate how to drive a commercial vehicle in any city in India
- 2. Show a pedestrian how to react when seeing a commercial vehicle while crossing
- 3. Demonstrate the desirable character attributes in a commercial vehicle driver





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2. Assess and Ensure Road Worthiness of the Vehicle

- Unit 2.1 Vehicle Road Worthiness
- Unit 2.2 Advanced Features
- Unit 2.3 Basic Technical Check Before the Trip
- Unit 2.4 Escalation of Technical Problem
- Unit 2.5 Organizational Context



Key Learning Outcomes

At the end of the module, you will be able to:

- 1. Summarize the CMVR guidelines and local regulations
- 2. Inspect vehicle service documentation to find any history of technical faults or urgent servicing requirements such as oil and/or filter change
- 3. Perform basic technical checks as per vehicle manual checklist/procedure
- 4. Report existing or probable defects to the service supervisor or senior driver in sufficient detail so they can detect the issue
- 5. Record deviations observed during the vehicle inspection and during the trip
- 6. Ensure fuel availability in the vehicle before starting the journey
- 7. List government initiatives to reduce road accidents
- 8. Conclude about the road worthiness of vehicle in consultation with superiors and if found unfit to decide to use another vehicle
- 9. Perform routine checks and regular servicing help in keeping the vehicle in good working condition
- 10. Explain company policies which cover road worthiness requirement, fundamental compliance to technical requirements and standards.
- 11. Outline organizational structure and make use of escalation procedures within the organization

UNIT 2.1: Vehicle Road Worthiness



At the end of this unit, you will be able to:

- 1. Determine whether the vehicle passes standards regarding fundamental legal and compliance requirements including CMVR guidelines, local RTOs and STUs rulebooks, along with safety and environment guidelines
- 2. Create the list of previous technical defects in the vehicle. Identify and meet immediate servicing needs such as changing the oil/filter
- 3. List all deviations that occur when conducting points 1 and 2
- 4. List the deviations that come up during the journey

2.1.1 CMVR Rules and Local Regulations

Transportation in India is governed by the following

Central Motor Vehicles Rules (CMVR), 1989, issued by Ministry Of Road Transport and Highways (MORTH)

Rules framed by State Transport Undertakings (STUs)

Rules framed by Regional Transport Office (RTO) or Regional Transport Authority (RTA)

The above rules cover the following

- Licensing of drivers of motor vehicles
- Registration of motor vehicles
- Control of transport vehicles (permits to operate)
- Construction and maintenance of motor vehicles
- Safety Security and Environmental Guidelines
- Insurance of motor vehicles
- Offences and punishment for violation of rules

Commercial Vehicle drivers should follow the above rules without fail



Transportation in India is governed by the Central Motor Vehicles Rules, 1989 and various other state rules.

Given below is a representation of the government bodies involved in framing automotive regulations:



Fig 2.1.2 Institutional Framework for Automotive Regulations

Commercial Vehicle drivers should ensure that their vehicle meets the STUs, CMVR and other guidelines issued by the Regional Transport Authority as given below:

1. Ensuring road worthiness of the vehicle

Road worthiness of a means whether a vehicle is fit for road usage or not. Vehicle roadworthiness plays a critical role in ensuring that people drive safely on roads. Research shows that around 1 million people die in traffic accidents every year. This means road worthiness is important and drivers throughout the country should be aware of it.

To control this situation, the India Government along with State Governments has taken many initiatives. According to the Central Motor Vehicles Act, 1988 and the Central Motor Vehicles Rules, 1989 (CMVR-1989), transport vehicles have to undergo an annual vehicle fitness test at the RTO where they are registered. Under the provisions of Motor Vehicle Act, vehicle registration is treated as valid only if the vehicle has valid certificate of fitness.

- For Commercial Vehicles A New vehicle is given fitness certificate for 2 year and afterward renewed for 1 year
- For Private Vehicle Fitness certificate is valid for first 15 years, post which it has to be renewed in every 5 years

Vehicle fitness certificate is given after inspection of vehicle which is designed to assess important safety features, smooth functioning of vehicle and its reliability. Certificate is issued only if vehicle clear all parameters successfully.

Below are the few steps, which one needs to follow before taking a vehicle on road:

- 1. Knowledge about parts of motor vehicle
- 2. Basic technical check by driver
- 3. Troubleshooting of technical problem by driver, if possible

- 4. Escalate/Consult to Senior/supervisor
- 5. Decide regarding road worthiness of vehicle

We will discuss all the above steps in the upcoming sections. Given below is an example of a Fitness Certificate:

	[See	DRM 38 rule 62 (1)] E OF FITNESS
	t, 1988, and the 1	ertified as complying with the provisions of rules made thereunder. The certificate will
DateXX-XX-XXXX	A	gnature and designation of Inspecting uthority or holder of the letter of authority f the authorised testing station.
The certificate of f	itness is hereby re	newed:
From	to	
From	to	20
From	to	
		Signature and Inspecting Authority or the holder of the letter of authority of the authorised testing station.

Fig 2.1.3 Fitness Certificate (FC) Example

2. Follow Traffic compliance

A Commercial Vehicle driver must know the traffic rules, safe driving norms, regulations and various traffic signs. He should be aware of the changes taking place in traffic and regulations as well as new laws and fines list even if passed recently. Always keep yourself updated about below mentioned points:



- Routing Know and understand the route to be taken.
- City knowledge You should know the main landmarks and major areas of the city.
- Avoid Distracted driving as indicated in the figure above (Avoid using a cellphone while driving)
- Since year 2012, the use of completely (100%) dark or tinted glasses in vehicles (both commercial and otherwise) has been banned in India. Tinted glass that is used on a vehicle should have a visibility of 70% in the windshield and the side windows should have a visibility of 50%.
- Overloading the vehicle is a punishable offence.
- Follow traffic signals while driving as indicated in the table below:

Sign	Description
	On seeing red light slow down and stop the vehicle before the stop line.
	The amber light means you should clear the road when the signal is becoming red.
	If you pass the amber signal and get caught in the middle of a large road crossing, do not give accelerator in panic, see around and continue.
Flashing Amber Light	A Flashing red light means you should come to a complete stop and give way to all other traffic and road users. Flashing amber light means you should slow down and move ahead carefully.
	Green light means you have to look around, if safe, move ahead smoothly



Table 2.1.5 Traffic Signals and Signs and their Meaning

3. Documents to be carried while starting to drive

a) Driving License

A driving license is an official document which permits its holder to operate a vehicle and is issued by the regional transport authority (RTO) of that particular state.

The motor vehicles act of 1988 states that no individual without the DL is authorized to drive a motor vehicle in public place.

In India driving licenses are segregated as Motorcycle license, LMV (Light Motor Vehicle) license and HMV (Heavy Motor Vehicle) license.

The motor vehicles act of 1988 states that no individual without the DL is authorized to drive motor vehicle in public place. A driving license is an official document which permits its holder to operate a vehicle and is issued by the regional transport authority (RTO) of that particular state.

The commercial vehicle driver should have a Commercial Driving License (CDL) to drive a commercial vehicle. CDL certifies that the holder can drive in public places and on highways. Commercial Driving License (CDL) is issued one year after LMV (Light Motor Vehicle) license is issued to any individual. Exemption from this rule is given to the applicants who have completed training in government recognized driving schools.

General procedure for obtaining CDL

- 1. Submit application in the RTA office along with the following documents and pay the stipulated fee
- Proof of Address- Any of the following documents
 - Passport
 - Aadhaar card
 - Voter ID
 - Ration card
 - Utility bills
- Proof of Identity- Any of the following documents

- Aadhaar Card
- PAN card
- Passport
- Birth Certificate
- X marks card
- Medical Fitness Certificate
- Certificate from Driving School recognized by the government
- 2. Attend Driving Test on the day and time intimated to you by the office
- 3. CDL will be issued within 21 working days

Typical smart card driving license is shown in below picture.

This card has a small memory chip



Fig 2.1.6 Driving License

Information such as name of the driver, DL Number, Date of issue, License validity, Date of birth, etc., are stored in a small memory chip and also displaced on the card as seen in below image.

b) Driver badge

Under Central Motor Vehicles Act (CMVR), 1988, a commercial vehicle driver must have public service vehicle badge for driving a passenger vehicle in India and has to be renewed after expiry of its validity.

Sample of a badge is shown in below fig:

CR. No. MH11 19730000017 Valid Tat. 22-01-2019 (TR)	DOI 28-15-1973	MA
	DLR 09-02-2015	Start Inco
ALTINGARGANION PO C	WHILE FOLLOWING CLASS	All Property lies
COV DOI		6.00
TRANS 29-11-10	373	1000
		100
		- N
11439# 3194 PB (2011 10-10-10		Concerna of
LAD MININ	41. U.S.	
EAN of		
OF AP WORANAHARTAH COLONY, NOR	SAVE.	
AL & DIST-SATARA	NUMER CARD	
W 415000 (316)	200	And in case of the local division of the loc
Zather & D of MHT 1 2018109	Signe	store/Thymb

Fig 2.1.7 Typical Commercial Vehicle Driver Badge

Steps to get a badge number:

- Submit an application in RTA or Road Transport Authority along with proof of Identity like Aaadhar card and proof of address like Voting card
- Pay the fees which are typically from 300-500 Rupees (fees may vary with state)
- Badge will be issued within 2-3 weeks.

c) Registration Certificate (RC)

The RC is an official document which serves as proof that the vehicle details are recorded by the Government of India. The RC can be obtained from the relevant RTO when the commercial vehicle is purchased, if new. The RC is valid as long as the Fitness Certificate is valid. The RC must be renewed upon the expiry of the Fitness Certificate for transport vehicles.

The data such as Reg No., engine No, Vehicle model, Body type, fuel type, etc., are stored in small memory chip and also displayed on the card as below.



Fig 2.1.8 Typical Registration Certificate (RC)

d) Vehicle Insurance

Vehicle Insurance refers to a contract between an insuring company and the commercial vehicle driver wherein the commercial vehicle driver pays a certain amount of money called premium at regular intervals to the company. The company in turn pays for any damage of the vehicle, or property or personal health problems that result due to an accident while driving the vehicle.

Steps to Buy/Renew Insurance for a transport vehicle:

- Fill in the application form either on paper or online with relevant vehicle details such as make and model etc.
- Choose the insurance cover (amount for which the vehicle is insured against) and premium to pay
- Make the premium payment as needed
- You will get the insurance certificate typically in a few days
- Vehicle insurance has to be renewed every year after the expiry of its validity. Given below is a sample insurance form:



Fig 2.1.9 Insurance Certificate (IC)

e) Pollution under control (PUC) Certificate

The Pollution under Control certificate for a vehicle states that the vehicle meets the emission and pollution control regulations as stated by the government of India (Please Refer PUC Test Limit Criteria Table below). The PUC for a commercial vehicle has to be renewed every 6 months.

Year	Reference	Test	CO	HC	NO.	PM	
1992	-	ECE R49	17.3-32.6	2.7-3.7	NA	-	
1996	-	ECE R49	11.20	2.40	14.4	-	
2000	Euro I	ECE R49	4.5	1.1	8.0	0.36*	
2005+	Euro II	ECE R49	4.0	1.1	7.0	0.15	
2010+	Euro III	ESE	2.1	0.66	5.0	0.10	
		ETC	5.45	0.78	5.0	0.16	
2010+	Euro IV	ESC	1.5	0.46	3.5	0.2	
		ETC	4.0	0.55	3.5	0.3	
0.612 for engines below 85KW							

Below table shows emission standards for heavy duty diesel engines having GVW > 3,500 kg

Table 2.1.10 Emission Standard for Heavy Duty Diesel Vehicles, g/km

Below table shows emission standards for light duty diesel vehicles having GVW ≤ 3,500 kg

Year	Reference	CO	HC	HC+NO	NO.	PM
1992	-	17.3-32.6	2.7-3.7	-	-	-
1996	-	5.0-9.0	-	2.0-4.0	-	-
2000	Euro I	2.72-6.90	-	0.97-1.70	0.14-0.25	-
2005+	Euro II	1.0-1.5	-	0.7-1.2	0.08-0.17	-
2010+	Euro III	0.64	-	0.56	0.50	0.05
		0.80		0.72	0.65	0.07
		0.5		0.86	0.78	0.10
2010+	Euro IV	0.50	-	0.30	0.25	0.025
		0.63		0.39	0.33	0.04
		0.74		0.46	0.39	0.06

Table 2.1.11 Emission Standard for Light Duty Diesel Vehicles, g/km

Below table shows emission standards for petrol vehicles having GVW ≤ 3,500 kg

Year	Reference	СО	HC	HC+NO	NO.	
1991	-	14.3-27.1	2.0-2.9	-	-	
1996	-	8.68-12.4	-	3.00-4.36	-	
1998*	-	4.34-6.20		1.50=2.18	-	
2000	Euro 1	2.72-6.90	-	0.97-1.70	-	
2005+	Euro 2	2.2-5.0	-	0.5-0.7	-	
2010+	Euro 3	2.3	0.20	-	0.15	
		4.17	0.25		0.18	
		5.22	0.29		0.21	
2010+	Euro 4	1.0	0.1	-	0.25	
		1.81	0.13		0.33	
		2.27	0.16		0.39	
*vehicle fitt	*vehicle fitted with catalytic converter					
Table 2.1.12 Emission Standards for Petrol Vehicles						

A typical PUC certificate is shown below.

A REAL PROPERTY AND A REAL	: KL 15 7181 21-Dec-2010 A/LEYLAND 4W	ule 115 (2) of C.M.	V. Rules 198 Serial No. Time Year of Mani Speedomete Oil Tempera	t ufacture er Reading :	KLDP000366 11:45:47 AM 1996 0
Test No.	K. Value (1/m)	ACTUAL RPM			
TI			-	1 Contraction	
T2	0.68				
T3	0.61				
T4	1.01				
T5 T6	0.89		-		
T7		11-11-11-11-11-11-12-22	DI ISTAN		and the second second
T8	0.53				MAN THE REAL
T9	0.83	Inca Marca			
T10					And in boundary
HSU Average	30.01	K. Value: 0.83			
KAF		E POLLUTION TEST	and the second se		Y SIX MONTHS

Fig 2.1.13 Pollution Under Control (PUC)

3. Safety, Security and Environmental guidelines

Below Figure shows regulatory requirements for passenger vehicles with respect to safety, security and environmental issues.

Since it is difficult to explain the entire set of CMVR guidelines in this book, Please refer to the site http://www.tn.gov.in/sta/Cmvr1989.pdf

Given below is a sample chart explaining how trucks are loaded according to maximum load tolerated by the Commercial vehicle axle.

Transport Vehicles Category		Max GVW Tonne	Maximum Safe Axle Weight
1	2	3	4
l Rig	id Vehicles		
(i)	Two Axle Ome tyre on front axle, and two tyres on rear axle,	9.00	3 tonnes on front axle 6 tonnes on rear axle
(ii)	Two Axle Two tyres on each axle	12.00	6 tonnes on front axle 6 tonnes on rear axle
(iii)	Two Axle Two tyres on front axle,and Four tyres on rear axle	16.2	6 tonnes on front axle 10.2 tonnes on rear axle

(iv)	Three Axle Two tyres on front axle, and Eight tyres on rear tandem axle	25.0	6 tonnes on front axle 19 tonnes on rear tandem axle
(v)	Four Axle Four tyres on front axle, and Eight tyres on rear tandem axle	31.0	12 tonnes on two front axle 19 tonnes on rear tandem axle
ll Se	mi-Articulated Vehicles		
(i)	Two Axle Tractor Single Axle Trailer Tractor: 2 tyres on front axle 4 tyres on rear axle Trailer: 4 tyres on single axle	26.4	6 tonnes on front axle 10.2 tonnes on rear axle 10.2 tonnes on single trailer axle
(ii)	Two Axle Tractor Tandem Axle Trailer Tractor: 2 tyres on front axle 4 tyres on rear axle Trailer: 8 tyres on tandem axle	35.2	6 tonnes on front axle 10.2 tonnes on rear axle 19 tonnes on tandem axle
(iii)	Two Axle Tractor Three Axle Trailer Tractor: 2 tyres on front axle 4 tyres on rear axle Trailer: 12 tyres on 3 axles	40.2	6 tonnes on front axle 10.2 tonnes on rear axle 19 tonnes on tandem axle
(iv)	Three Axle Tractor Single Axle Trailer Tractor: 2 tyres on front axle 8 tyres on rear axle Trailer: 8 tyres on single axle	35.2	6 tonnes on front axle 19 tonnes on rear axle 10.2 tonnes on single axle
(v)	Three Axle Tractor Tandem Axle Trailer Tractor: 2 tyres on front axle 8 tyres on tandem axle Trailer: 8 tyres on tandem axle	44.0	6 tonnes on front axle 19 tonnes on rear tandem axle 19 tonnes on tandem axle

Table 2.1.14 Axle Load Limit Specified by the National Highway Authority of India (NHAI)

– 2.1.2 Traffic Offences and Penalties in MV Act 1988 –

Common traffic offences and their penalties are shown in below table.

S.No.	Description of offence	Section/Rules	Maximum of Punishment Team of Imprisonment/Fine
1	Driving without driver's license	S.3r/w.S181 of M.V. Act.	500 INR or three months or both
2	Minor Driving the vehicle	S.4r/w.S.181 of M. V. Act.	500 INR or three months or both

3	Owner of the vehicle allowing a minor to drive it.	S.5r/w.5.180 of M. V. Act.	1000 INR or three months or both
4	Holder of a driving license permitting it to be used by other person	5.6(2) r/w.5 177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
5	 (I) Disqualified person driving a vehicle or (ii) applying for or obtaining a driving license or (iii) seeking a license without disclosing endorsements made on driving license previously held. 	S.23r/w.S182(1) of M.V. Act.	3 months or 500 INR
6	 I) Disqualified conductor acting as conductor or (ii) applying for or obtaining a conductor's license or (iii) seeking a license without disclosing endorsements made on license previously held 	S.36r/w.5. 182 of M. V. Act.	One month or 100 INR or both
7	Running driving school without a license	R.24 of C.M.V. Rules r/w S.177 of M.V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
8	Driving a vehicle at an excessive speed	S.112r/w S.183(1) Of M.V. Act.	400 INR for 1st offence 1000 INR for 2nd or subsequent offence
9	Any person permitting his employee or a person subject to his control to drive a vehicle at an excessive speed	S. 112 r/w S.183 (2) ofM. V. Act.	300 INR for 1st offence 500 INR for 2nd or subsequent offence
10	Driving permitting to drive a vehicle carrying excess load	Ss.113(3),114,115 r/w S.194(1) of M. V. Act.	Minimum 2000 INR and additional 1000 INR per ton of excess load together with charges for off-loading the excess load.
11	Driving refusing to stop and submit his vehicle to weighing or removing the load prior to weighing	S.114 r/w S.194 (2) of M. V. Act.	3000 INR
12	Any person driving or permitting to drive any vehicle with a left-hand steering control unless equipped with a device of a prescribed nature	S.120 r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
13	Driving dangerously / its abetment	S.184/S.188 of M. V. Act.	6 months or 1000 INR for first offence or both 2 years or 2000 INR for second or subsequent offence within three years of previous commission or both
14	Driving by a drunken person or by a person under influence of drugs/its abetment	S.185/S.188 of M. V. Act.	6 month or INR 2000 for 1st offence or both. Two Years or 300 INR for 2nd or Subsequent offence committed within three year of previous commission or both.
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15	Driving when mentally or physically unfit to drive/its abetment	S.186/S.188 of M. V. Act.	200 INR for 1st offence 500 INR for 2nd or subsequent offence
16	Driving an uninsured vehicle.	S.146 r/w. S. 196 of M. V. Act.	Three months or 1000 INR or both
17	Driver's failure to obey traffic signs (Red light jumping, violation of yellow line, changing lane Without indication, etc.)	S.119 r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
18	Driver's failure to make prescribed signals on prescribed occasions	S.121 r/w. S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
19	Violation of restriction of time on HTVs on specified roads/areas	S.115 r/w S. 194 of M. V. Act.	2000 INR
20	Driver allowing any person to obstruct his control of the vehicle (Sitting at a place so as to hamper Driving etc.)	S.125 r/w S.177 of M. v. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
21	Driver of a two-wheeler/motor cycle carrying more then one person in addition to himself(Triple riding)	S.128 (1) r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
22	Driver and pillion rider failing to wear protective head gear (Helmet)	S.129 r/w S. 177 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence
23	Any person in-charge or a vehicle or a trailer abandoning or permitting to abandon, etc. in a public place (Improper and obstructive parking)	Ss.122, 127 r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence Owner of the vehicle shall also be liable for towing costs)
24	Any person in-charge of a vehicle carrying or permitting to carry any person on the running board etc.	S.123(1) r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
25	Any person in charge of a vehicle keeping or permitting to keep a vehicle stationery without the required precautions	S.126 r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
26	Failure to take precautions at unguarded Railway level crossings	S.131 r/w S. 177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence

27	Failure of driver to stop in certain cases	S.132 r/w S. 177 Of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
28	Using mobile phone while driving a vehicle	R.21(25) of C.M.V. rules r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
29	Carrying persons in excess of seating capacity in goods carriage	R.21 (10) of C.M.V. Rules r/w S.177 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence
30	Demanding excess fare by Auto rickshaw /Taxi	R.21 (23) of C.M.V. Rules r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
31	Driving motor vehicle without number plates (Not displaying number plate)	R.50 of C.M.V. Rules r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
32	Carrying of explosive and highly inflammable substance in transport vehicle.	S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
33	Any person traveling on the running board or on the top or on the bonnet of a motor vehicle.	S.123 (2) r/w S. 177 Of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence
34	Any person keeping a disabled vehicle in any public place so as to cause impediment to the free flow of traffic	S. 201 of M.V. Act.	50 INR per hour besides towing charges
35	Failure to intimate changes of residence or place of business by owner of a vehicle within time prescribed.	S.49 r/w S. 177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence (However, State Government may prescribe different amounts having regard to period of delay)
36	Failure to report to Registering Authority fact of transfer of vehicle within time prescribed	S.50 r/w S.177 of M. V. Act.	100 INR for 1st offence 300 INR for 2nd or subsequent offence (However, State Government may prescribe different a mounts having regard to period of delay)
37	Unauthorized alteration in vehicle (including those facilitating its operation by a different type of fuel)	S.52 r/w S.177 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence (However, State Government may prescribe different amounts having regard to period of delay)

38	Driver, in a public place, failing to produce his license, on demand, to any police officer in uniform	S.130(1) r/w S.1771 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence
39	Conductor, in any public place, failing to produce his license, on demand, by any officer of the Motor Vehicles Department	S.130(2) r/w S.177 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence
40	Owner or driver or person in-charge of a motor vehicle, on demand by a registering authority, or any other officer of the Motor Vehicles Department failing to produce (I) The certificate of insurance of the vehicle, and where the vehicle is a. transport vehicle (ii) certificate of fitness, and (iii) permit	S.130(3) r/w S.177 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence
41	 Any person driving a motor vehicle in any public place, on demand by a police officer in uniform or officers of Motor Vehicles Department, failing to produce (a) The certificate of insurance. (b) The certificate of registration. (c) The driving license & in case of a transport vehicle. (d) Certificate of fitness and (e) The permit 	S.158 r/w S.177 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence
42	When the driver or conductor of a motor vehicle is accused of any offence under the M. V. Act. The owner of such vehicle failing, on demand, by a police officer authorized to give information regarding the name and address of and the license held by the driver or conductor.	S.133 r/w S.187 of M. V. Act	Three months or INR 500 for the first offence or both Six months or INR 1000 for subsequent offence or both
43	 When any person is injured or any property of a third party is damaged in a motor vehicle accident, the driver or person in-charge of the vehicle. (a) Not providing medical aid to the victim of the accident. (b) Not giving information regarding the accident, etc. on demand by a police officer or at the nearest police station. (c) Not giving the information regarding accident to the insurer. 	S.134 r/w S.187of M. V. Act	Three months or INR 500 for the first offence or both Six months or INR 1000 for subsequent offence or both

44	Any person driving or owner permitting to drive vehicle without effective registration or displaying false registration marks in any public or in any other place (Using "unregistered vehicles" or displaying" "Applied for")	S.39 (1) r/w S. 192(1) of M. V. Act	Up to INR 5000 for first offence but not less than 2000 INR. One year or up to 10000 INR for 2nd or subsequent offence but not less than INR 5000 or both.
45	Plying a vehicle with registration mark or other State for more than 12 months	S.47 r/w S.177 of M. V. Act	100 INR for 1st offence 300 INR for 2nd or subsequent offence
46	Any person driving or permitting to drive a vehicle without the necessary permit for the route or area in which or for the purpose for which it is being used	S.66 (1) r/w S.192- A of M. V. Act	Up to 5000 INR for 1st offence but not less than 2000 INR Up to one year but not being less than 3 months, up to 10000 INR for 2nd or subsequent offence but not less than 5000 INR
47	Any manufacturer using sub-standard articles or process	S.109 (3) r/w S.182- A of M. V. Act	1000 INR for 1st offence 5000 INR for 2nd or subsequent offence
48	Any person driving or permitting to drive in any public place a defective motor vehicle or trailer, if such defect results in an accident causing bodily injury or damage to property	S.190 (1) of M. V. Act	Three months or INR 1000 or both
49	Any person driving or permitting to drive in any public place any motor vehicle which violates the standards prescribed in relation to road safety, control of noise and air pollution. (Using vehicle with defective or without silence, etc.)	S. 190(2) of M. V. Act	1000 INR for 1st offence 2000 INR for 2nd or subsequent offence
50	Any person driving or permitting to drive in any public place a motor vehicle which violates the provisions of M. V. Act or Rules relating to Dangerous or hazardous goods.	S. 190(3) of M. V. Act	1 year or 3000 INR for first offence or both 3 years or 5000 INR for 2nd or subsequent offence or both.
51	Any importer or dealer selling, delivering or offering to sell or deliver a motor vehicle or trailer in such a condition or altered condition that its use in a public place would contravene Chap. VII of M. V. Act.	S. 191 of M. V. Act	500 INR
52	Any person traveling in a stage carriage without ticket or pass, or not producing ticket or pass on requisition	S. 124 r/w S.178(1) of M. V. Act	500 INR

53	Conductor of a stage carriage willfully or negligently failing to accept fare or issue ticket or supplies a ticket of a lesser value or Checking inspector willfully or negligently failing or refusing to check pass or ticket	S. 178(2) of M. V. Act	500 INR
54	Permit holder or contract carriage refusing to ply or to carry passengers : (a) (a) in the case of two-wheelers or three-wheelers (b) (b) in the case of others	S. 178(2) of M. V. Act	50 INR 200 INR
55	Any person disobeying directions given by any person or authority empowered, or obstructing any person or authority in the discharge of his functions under the M. V. Act	S. 179(1) of M. V. Act	500 INR
56	Any passenger withholding the required information or giving false information	S. 179(2) of M. V. Act	One month or 500 INR or both
57	Racing and trials of speed	S. 189 of M. V. Act	One month or 500 INR or both
58	Any person engaging himself as an agent or canvasser in contravention of S. 93 or Rules made there under	S. 93 r/w S.193 of M. V. Act	1000 INR for 1st offence six month or 5000 INR for 2nd or subsequent offence or both
59	Taking vehicle without authority	S. 197 of M. V. Act	Three months or 500 INR or both
60	Unauthorized interference with vehicle	S. 198 of M. V. Act	100 INR

- 2.1.3 In Case of Accident -

An accident is when a vehicle collides with another vehicle, object, property or person causing damage and injury to the vehicle and person respectively.

In the event of an accident, the escalation procedure that the commercial vehicle driver should follow is as given below

Actions to be taken after the accident

There is always a chance that commercial vehicle driver may be involved in an accident while driving. And there is an equal chance of your vehicle breaking down. Given below is a sequence of steps telling what you should do in case you are involved in an accident

1. Check whether you and others involved in the accident have any injuries

You will first have to check that you yourself are physically alright. You can check by moving your hands, legs and head to detect any pain. You can also see if there are any bruises, cuts and if you are bleeding.



Fig 2.1.16 Check Breathing

If the injured person is not breathing or if you do not see chest movement, immediately arrange for medical aid if possible by calling the ambulance and the police on phone numbers 101 and 100 respectively. You can perform CPR on a person as explained in the table below.





Continue until medical help arrives

Table 2.1.17 CPR Procedure

2. Call for Help

After seeing that you are physically fine, you should drive the commercial vehicle to the side of the road. If it can't be driven then you can call for a Towing service. Some Insurance policies have "Road Side Assistance" which will tow your vehicle to a garage, or fix and repair it right on the spot- this does not come with all policies, check with your insurance provider for details.

3. Gather Evidence

For legal procedures and filing insurance claims it is necessary to take photographs of damage to your vehicle and other vehicles and property involved in the accident. Also take photos of injuries you and others have suffered in the accident. If other people object to your taking photos, then make a note of the damage and injuries.



Fig 2.1.18 Taking Photos of Damage Done to Vehicle

4. Gather Information about other vehicles and people involved in the accident

Note down information about other people and their vehicles involved in the accident such as the name of the person driving the vehicle, and the owner of the vehicle (in case the owner of the vehicle is not driving it), their personal contact details such as phone number, email id and postal address of residence. Also collect their vehicle's insurance details such as policy number, insuring company, and vehicle make and model and so on.



Fig 2.1.19 Gathering Information About People and Vehicles Involved in the Accident

5. File a Police Report

If the Police do not reach the scene in time, you should go to the nearest police station and file an FIR or First Information Report. The FIR will explain in detail the sequence of events that happened corresponding to the Evidence that is collected. Ensure to note down the complaint number.

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Fig 2.1.20 FIR Report to be Filed in a Police Station

6. File an Insurance Claim

Once you are done with the steps given above, you can file an insurance claim to repair your vehicle either at no or a very low cost.

Next, call your insurance company to schedule an inspection. This is where the insurance company will send a person to assess the damage to the vehicle and award a claim settlement amount accordingly. Given below is a typical example of an Insurance claim form

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2.1.4 Rights of a Good Samaritan Helping Accident Victims

With regard to a vehicle accident, a Good Samaritan is someone who helps the people involved in the traffic accident.



Fig 2.1.22 Good Samaritan Helping Accident Victims

In order to help good Samaritans, the Government of India has declared that a Good Samaritan will have certain rights such as:

- The Good Samaritan will be treated with respect and without discrimination based on nationality, religion, gender, caste.
- Any person (apart from an eyewitness) calling the police to inform about an accidental injury or death is not required to disclose his/her details such as phone number, address, or full name.
- The police should not force the person (Good Samaritan) to reveal his/her full name, address and any other personal details for noting down in the police log or register.
- The police should also not force any Good Samaritan in getting information or anything else.
- The police should let the Good Samaritan to leave after providing the information he/she can, and no other questions should be asked of him/her if they do not wish to act as a witness to the incident.
- In some cases the Good Samaritan will receive a monetary reward for helping accident victims.



In case the Good Samaritan agrees to act as witness, the police authorities should ensure:

- The Good Samaritan should be examined with the highest respect and care.
- The examination should be conducted at a place and time of the Good Samaritan's choosing and the investigating person shall be dressed in plain clothes (not in uniform)
- If and when the Good Samaritan is needed to visit the police station, the reasons for the same shall be noted by the investigation personnel in writing.
- Once in the police station, the Good Samaritan shall be examined in a single sitting and within a reasonable time constraint, without any delays.
- If and when the Good Samaritan declares to be an eyewitness, he/she will be permitted to provide evidence through an affidavit.

2.1.5 Duties of Doctors with Regard to Accident Victims -

All private and government hospitals shall publish a charter at their entrance which will list the professional obligation of the hospital and doctor towards accident victims

All Doctors, regardless of working in a government or private hospital have the professional obligation to provide their services in order to protect life. No State action or law can interfere to prevent or delay the discharge their medical duty as doctors to save and protect life.

The treatment of accident victims should happen without delay due to legal formalities or the arrival of police. Such accident victims must be provided with immediate medical aid without any delays caused due to legal documentation.



Fig 2.1.24 Doctor Treating Accident Victims with Care

2.1.6 Parts of a Commercial Vehicle and its Technical Features -

A typical vehicle has two main parts:

- Body
- Chassis



Fig 2.1.25 Structure of a Truck

Body

The body is constructed of metal and is mounted on the chassis, which means body and chassis are joined together.

Chassis

This is the section of the vehicle which includes a connected set of components that are responsible for the moving the vehicle in the desired direction and nothing else. All other systems and components relating to the body are not included in this.

Following are the parts of a chassis, named from front to rear.

- Front axle unit and wheels
- Steering connections
- Engine
- Gear box
- Propeller shaft
- Rear axle and wheels
- Fuel tank, air tank, Fuel tank, Suspension and braking system



Fig 2.1.26 Chassis

Engine

In India, Heavy Motor Vehicles are generally fitted with diesel engines which are Compression Ignition (CI) type. The basic principle of the engine operation involves the combustion of fuel – air mixture inside the engine.

In this process, power is generated by injecting fuel at high pressure into the compressed air in the cylinder head, which causes combustion.



2.1.7 Vehicle Systems

Every commercial driver should know the different systems of a vehicle and their working principles. Given below are some of the most important systems in any vehicle:

Cooling Systems

During combustion, high temperatures are produced inside the engine cylinder.

For the engine to work smoothly, excess heat must be released, and the engine parts must be sufficiently cooled, or else the Engine will seize.



Fig 2.1.28 Engine Cooling System

Two basic types of cooling systems are used in combustion engines to absorb and disperse the heat away from the heated cylinder:

- Air-cooled system
- Liquid-cooled system

Air-cooled system

Not in use currently, used only in older vehicles aged beyond 10 years from current date

Liquid-cooled engine

In such engines, layers surrounding heated components such as cylinder valves, combustion chambers, and more.

Coolant liquid or simply water is circulated through heated engine components; the coolant liquid is passed through a radiator and cooled by incoming air. This air is supplied by a fan located at the front of the vehicle inside the front grill. The cooled water is circulated back to the pump and so on in a cycle.

Lubrication System

A lubrication system is used to reduce friction and prevent direct contact between surfaces which are generally made of metal. This ensures that the engine will run smoothly and excess heat generated due to operation is dissipated.

Fuel System Diesel

The fuel system consists of

- Fueltank
- Gauge
- Feed pump
- Filters
- Fuel injection pump with governor
- High pressure pipe line and
- Injectors



Fig 2.1.29 Diesel Engine Fuel System

Transmission

The transmission is used to transfer power from the engine to the wheels smoothly, for all roads and load conditions, experienced by the vehicle during operation.

The different components involved in transmission and their path of drive transfer is:

- Fly wheel,
- Clutch,
- Gear box,
- Propeller shaft,

- Differential unit,
- Half shaft and
- Road wheels

The operation of each part is as follows:

Clutch

This is needed to smoothly engage and disengage the engine power to the gear box.

Propeller shaft

This is used to transfer the force from the gear box to the final drive.



Fig 2.1.30 Gear Box

Gear box

This is system is used to transmit power from the engine to the wheels

Differential assembly

This unit further reduces and distributes power to both the wheels when the vehicle is moving straight or turning in either direction without skidding.

Half shaft and wheels

The power output of the differential assembly is transferred to the wheels using the half shaft or rear axle shaft making the wheels move.

Steering System

Steering refers to the collection of parts, linkages etc. which allow a vehicle to follow a course as desired by the driver. Most trucks use the "re-circulating ball" mechanism for steering. The parts of a steering system are:

- Steering wheel,
- Steering shaft,
- Steering gear box,
- Pitman arm (or drop arm),
- Pull and push rod,
- Steering arm,
- Tie rod ends and
- Road wheels.



Fig 2.1.31 Steering System

When the driver turns the steering wheel left or right, the motion of the hand wheel is transferred from the steering shaft to the steering gear box. From the gear box the motion is passed on to the pitman (or drop arm), pull and push rod, steering and the tie rod, which passes the motion on to both wheels.

Braking System

Brakes of a motor vehicle are used to control the speed of the vehicle and bring it to a complete stop whenever needed. It is also used to keep the vehicle stationary in a place without the presence of the driver. This is used after it has actually been brought to a complete stop.

There are two types of Brakes:

- Drum Brakes Here metal strips known as brake shoes grip the wheel hub to reduce wheel and therefore vehicle speed
- Disc Brakes- Here a brake caliper grips a ventilated disk attached to the wheel hub to reduce wheel and therefore vehicle speed.



Fig 2.1.32 Brake Types

Tire tread

You can check the wear on the vehicle tires by visual observation. If the tread are worn out as shown in the images below, then it is time to change the tire as needed.

Type of wearing pattern due to in-proper inflation pressure has to be informed.



Fig 2.1.33 Tire Wear Patterns

Electrical System

This system plays an important role in the operation of modern vehicles. The object of the system is to produce, store, and supply electrical power to different electrical parts. Electrical system comprises of:

Storage battery

This is needed for electrical lights, fuel pump, horn, starter motor and instrument panel.



Fig 2.1.34 Storage Battery

Starter motor

It converts electrical energy to mechanical energy, and is needed for starting the vehicle.

Lighting system

It is grouped into external and internal systems.

Internal lighting system

It provides and gives hidden lighting for all gauges and the cabin.

External lighting system

It is provided to light the road at night and to signal oncoming vehicles or the vehicle following you.

Electrical Accessories

These include the horn, wind screen wiper and windscreen washer. The horn warns other road users about the presence of the vehicle. The wiper helps by giving a clear vision of the road ahead during rain and foggy; the windscreen washer motor helps when wind screen is dirty. The motor helps to spray water on to the wind screen for cleaning.

Electrical Measuring Instruments:

Ammeter

It indicates charging and discharging status of the battery.

Fuel gauge

This indicates the quantity of fuel left in the fuel tank.



Water temperature gauge

It shows the temperature of water/coolant inside the engine.

Oil pressure gauge

It indicates the pressure of the oil in the lubrication system.

Air low pressure buzzer

This alarm indicates that the pressure in the tank is low and will automatically switch off when the pressure reaches the target pressure.

High beam indicator lamp

This lamp lights up when high beam is turned on or flashed.

UNIT 2.2: Advanced Features



At the end of this unit, you will be able to:

• List and explain the advanced features in a commercial vehicle

All vehicles today will typical come equipped with one or more advanced technical features as given below:

2.2.1 Cruise Control —

Cruise control also known as speed control/auto cruise is a system that automatically controls the speed of a motor vehicle. The system takes over vehicle throttle to maintain a constant speed set by the commercial vehicle driver.

Operation:

The driver must bring the vehicle up to desired speed manually and use a specified button to set the cruise control to the current speed.



Fig 2.2.1 Cruise Control Dashboard Lamp and Dashboard Button

All cruise control systems must be capable of being turned off both manually and automatically when the driver presses the brake, and often also the clutch.

Cruise control often includes a memory feature to resume the set speed after braking, and a coast feature to decrease the set speed without braking.

Advantages:

- Its usefulness for long drives minimizing driver fatigue, enhancing driver comfort by enabling safer positioning changes across highways and lightly populated roads.
- Some drivers use it to avoid unknowingly violating speed limits. A driver who otherwise tends to unintentionally increase speed over the course of a highway journey can avoid speeding.
- Cruise Control is mainly useful when driving in top gear throughout the drive duration on highways or motorways.

2.2.2 Anti-Lock Braking System

An anti-lock braking system (ABS) is a safety system that allows the wheels on a motor vehicle to continue rotating under a set speed even during full braking by the driver. This prevents the vehicle wheels from locking into position due to braking, which avoids skidding.



Fig 2.2.2 Anti-Lock Braking System

Mainly, ABS helps maintain control of the vehicle even through the duration of braking.

Functions:

- ABS generally provides enhanced vehicle control and reduces stopping distances on both dry and wet, slippery surfaces for drivers.
- ABS regulates the brake line pressure independent of the pedal force, regulating the wheel speed to a level needed for optimal braking performance.

Advantages:

- Enables Drivers to maintain steering control while braking therefore helping maintain vehicle direction while driving.
- It is Safe and effective.
- Automatically changes the brake fluid pressure at each wheel to maintain optimum brake performance.
- ABS absorbs the unwanted breaking shockwaves and regulates the reaction forces thus allowing the wheel to continue turning under maximum braking pressure.

2.2.3 Electronic Stability Control -

Electronic stability control (ESC), also called electronic stability program (ESP) or dynamic stability control (DSC).

It is a computerized technology that improves vehicle safety and stability by identifying and minimizing loss of traction or reduces skidding.

When ESC detects loss of steering control, it will automatically apply the brakes to support vehicle steering in the desired direction with reduced instability.

Here, the Braking is applied automatically to each wheel, to compensate for understeer (too less steering) and oversteer (too much steering



Fig 2.2.3 Electronic Stability Control

Functions:

- ESC immediately identifies when a vehicle has moved away from the driver's steered direction and lost control of the vehicle. This is done using several advanced sensors as part of the ESC.
- ESC stabilizes the vehicle by selectively braking specific wheels and reducing engine torque to bring it back on course.
- ESC uses parts of ABS and traction control together to stabilize the vehicle. But independently, ABS and traction control only work in the driving direction.
- ESC also helps the commercial vehicle driver control sideways movements which create instability. This helps control the vehicle stability completely
- Some ESC systems also reduce engine power till the time control is recovered. ESC does not enhance a vehicle's cornering performance; instead, it helps to reduce the loss of control.

2.2.4 Crash Avoidance Technology –

It is a collision avoidance system which works as an automobile safety system. It is designed to reduce the intensity of a collision.

It is also called a pre-crash system, and forward collision warning system.



Functions:

- It uses radar and sometimes laser and camera sensors to detect a crash that is going to happen if the current driving direction is not corrected. Radar is Suitable for all-weather conditions and laser and camera sensors are ineffective during bad weather.
- After detection, these systems either provide a warning to the driver when there is an impending collision or take action autonomously without any driver input in the form of braking, steering or both.
- Collision avoidance by braking is best for low vehicle speeds such as below 50 km/hr., while collision avoidance by steering is appropriate at higher vehicle speeds.

2.2.5 Parking Assistance

This is Intelligent Parking Assist System (IPAS), and is also called the Advanced Parking Guidance System (APGS).

This technology helps drivers in parking their vehicle. The vehicles equipped with the IPAS, through dashboard screen and button controls



Fig 2.2.5 Parking Assistance

Functions:

- System having newer versions permit reverse or parallel parking.
- The reverse parking operation is basically indistinguishable to the parallel parking technique. The driver approaches the parking spot, advancing and turning, situating the vehicle in place for backing into the reverse parking space.
- The reverse parking camera system get s activated automatically when the vehicle gear is put in reverse.
- After you examine the parking area and start the reverse park method, the same correct parking process happens as the vehicle reverse parks into the spot.
- The system is set up so that whenever the driver of commercial vehicle touches the steering wheel or presses the brake firmly, the automatic parking will stop.

2.2.6 Steering Lock System

Modern vehicles are fitted with a steering lock which is an anti-theft device. It is fitted to the steering column normally underneath the steering wheel. The lock is associated with the ignition switch and disengaged engaged either by a mechanical start key or electronically from the vehicles ECU (Electronic control unit).



Functions:

• This is a theft prevention feature that disables the steering wheel by locking the main steering shaft to the column tube when the ignition key is removed.

Fig 2.2.6 Steering Lock Use in Vehicles

• The function of the lock is to protect your ignition switch and steering column being used by unwanted people.

2.2.7 Push Button Ignition –

Some vehicles have keyless, push-button ignition. Here, an electronic key fob is recognized by the vehicle to enable driving and use of power accessories.

The electronic key fob is mostly an oval shaped key which has a transmitter. It sends a unique signal to the vehicle dashboard to automatically unlock the vehicle.

This fob can be carried in the commercial vehicle driver's pocket or bag. And in this case the ignition switch is a simple button on the dashboard.



Features:

The function of this system is to just turn the truck on and off, making it a simple operation of pressing a button

Procedure to Start the Vehicle

After you get into the vehicle, you should press the brake pedal, after which you should press and hold the engine start/stop button until the engine turns on. To turn off the vehicle, press and hold the engine start/stop button until engine turns off. Always check that the vehicle is in parked gear before turning off.

Helpful Instructions for Use of Push Button Ignition

Check that the vehicle engine is completely turned off before getting out of the vehicle. This minimizes the risk of Carbon Monoxide poisoning once you leave the vehicle in a closed space.

Like all other cars, apply the parking brake after turning off the engine to eliminate the risk of letting the vehicle roll away.

2.2.8 Self-Diagnostic System

Automotive scan tool

An automotive scan tool (scanner) is an electronic device used to communicate or interface with, diagnose and, sometimes, reprogram and update vehicle control modules



Functions:

- It may only read out diagnostic trouble codes or DTC's depending on the particular tool
- Actual scan tools will display live data including inputs and outputs. They also have bi-directional controls meaning the ability to make the controllers do things outside of normal operations. It can also calibrate or program modules within specific parameters or conditions.

Scan Tool

Steps to Identify and repair problems using advanced On Board diagnosis (OBD) or Scanners.

- Connect the probes of the scanner to the port near the steering
- Switch on the scanner and vehicle
- Diagnose all the sensors and devices
- It identifies software related problems with the vehicle in detail
- Software related problems can be rectified by the scanner itself, whereas important issues like wiring issues, mechanical breakdown of sensors etc. has to be done manually.
- After correcting the issue, run the scanner again to ensure all the issues are corrected.
- After completing the process, remove the probes carefully from the socket and switch off the engine.

On Board diagnosis (OBD)

On-board diagnostics (OBD) is an automotive term which refers to a vehicle's self-diagnostic and reporting ability. This system gives the driver and repair technician access to the status of the various vehicle subsystems.

2.2.9 Lane Departure Warning Systems -

This system is a mechanism used to warn the driver when the vehicle begins to distract from its lane without a turn signal in that direction being on. This is meant for use on highways and main roads.



Fig 2.2.9 Lane Keeping System, LKS

There are two main types of warning systems:

- Lane departure warning (LDW) It warns the driver if the vehicle is deviating its lane. It can be visual, audio or vibration warnings.
- Lane keeping system (LKS) It warns the driver. And it automatically takes steps to keep the vehicle in its lane when no action is taken.

UNIT 2.3: Basic Technical Check before the Trip



At the end of this unit, you will be able to:

Oversee all fundamental checks to perform according to standard procedures as specified by organizational procedures and checklists

2.3.1 Maintenance of Vehicle -

A commercial vehicle driver is directly responsible for any type of servicing due for the vehicle; it's daily and periodic maintenance.

- Make sure to enter all records of service and maintenance in a service book.
- Try to solve minor issues and servicing such as, topping up engine oil, brake oil, coolant, checking belt tension, filling air in tires and more and for difficult or major repairs take the vehicle to the nearest service station.
- You can verify the procedures in the owner's manual of the vehicle and implement them as necessary.
- You should stay with the mechanic if possible to oversee the work that is done.

2.3.2 Safety Fittings and Equipment's

A commercial vehicle driver should check all required safety fittings and keep them in order.

Seat belts

Always fasten seatbelts before driving to prevent being thrown out of the vehicle, due to accidental impact



Fig 2.3.1 Fastening a Seatbelt Securely

First aid box

This should include bandages, cotton swabs, Band-Aids, painkiller tablets and creams, Paracetamol tablets, antiseptic creams, Dettol, reliable First Aid Manual including CPR procedure, Curved Scissors, Burn cream/salve, cotton, gauze, Anti-histamines etc.

Fire extinguisher

This is necessary to put out fires in and around the vehicle caused due to electrical faults and miscellaneous reasons.



Fig 2.3.2 Placement of Fire Extinguisher Inside Truck Cabin

Warning triangle

It must be placed around 40 to 50 meters behind the vehicle in case there is Break-down. This is made of special reflective material of high night visibility.



Fig 2.3.3 Warning Triangle

Torch

This is used at night.

Tool kit

You must always carry a proper tool kit in your vehicle for emergency road side repairs. It should include:



Fig 2.3.4 A Set of Double End Spanners



Fig 2.3.5 A Set of Ring Spanners



Fig 2.3.6 Two End Screw Driver



Fig 2.3.7 Pliers



Fig 2.3.8 Wooden Block



Fig 2.3.9 Small Hammer



Fig 2.3.10 Wheel Brace



Fig 2.3.11 Jack



Fig 2.3.12 Towing Rope/Bar



Fig 2.3.13 Space Radiator Hoses/Rubber Items



Fig 2.3.14 Fan Belts



Fig 2.3.15 M Seal

2.3.3 Dashboard Visual Indicators —

The commercial vehicle driver should be aware of the vehicle dashboard signs and controls. Important functions of a vehicle will usually be indicated on the dashboard of the vehicle.

Given below is a list of dashboard indications that will help a driver detect an issue with the vehicle:

Device	Function	Picture	
Speedometer	Indicates speed in km/h.	11//// 140 rd0 rd0 140 rd0	

Odometer	Records total distance covered by the vehicle.	4:39
Trip Meter	Records distance covered in a trip can be reset by pressing of the knob. Some models are equipped with up to three different trip meters.	" <u>85.5</u> km 2
Tachometer	Indicates engine speed in RPM (Revolutions per Minute)– this helps you save fuel and guides when to change gears at most appropriate speed.	Techometer
Fuel Gauge	Indicates amount of fuel left in the tank. It can be analog or digital.	E F
Temperature Gauge	Indicates temperature of engine coolant. In case engine temperature goes up it is indicated by needle going towards H mark or temperature lamp lights up.	H
Oil Pressure Lamp	Indicates insufficient oil pressure. If this lamp comes on, switch off the engine immediately as it may result in engine seizure.	

Parking Brake/Brake Fluid Warning Lamp	This lamp warns of either the parking brake is engaged or the brake fluid level has gone down. If parking brake is disengaged check the brake fluid level, top up if necessary.	
Battery Charging Light	Indicates charging system is not working, And can also be a result of fan belt breakage. Vehicle can be driven but get it repaired urgently.	- +
Turn cum Hazard Light Indicators	Indicate if a turn signal or hazard warning switch is on.	
High Beam Indicator Lamp	Indicates headlamp is on in high beam. In cities with street lighting, main beam should not be switched on as it may dazzle the eyes of oncoming drivers.	ED
Warm-up Coil Indicator	You should not try to crank a diesel engine as long as this lamp is on.	00
Water in Fuel Filter	This means that there is water in the fuel tank. The fuel tank has to be drained as soon as possible.	

Service Vehicle Soon (SVS) Lamp	Get the vehicle checked by workshop.	d'o
Power Steering Fault Indicator	Indicates some problem with power steering system.	
Engine Malfunction Indicator Lamp	If this lamp lights up it indicates problem with one of the engine sensors. Take the vehicle to workshop as early as possible.	₽ T T
Air Bag Fault	If this lamp does not go off indicates problem with air bag, contact workshop immediately.	
Immobilizer System	If this light blinks, then your vehicle will not start, you have to contact workshop.	
Driver Seat Belt Reminder	This lamp lights up when you do not buckle up safety belt and try to start the vehicle.	

Immobilizer System	If this lamp comes on it indicates problem in ABS system. Now the system will work as ordinary brake system without ABS.	(ABS)
Door Open Warning Lamp	If any of the door is open this indicator will come on.	
Rear and Front Fog Light Indicator	This comes on when rear fog lamp is switched on.	0‡

2.3.4 Checking Tires —

- Check visually if the air pressure in the tires, is sufficient
- Air pressure is to be checked when the tires are cold. Less air pressure results in excessive wear of treads, decreased mileage due to excess traction with road surface.



Fig 2.3.17 Under-Inflated Tire

- Check the tube's nozzle for any crack or leakage of air from the valve. Check the dust cap which prevents any blockage of the nozzle.
- Check wheel nuts for their tightness, loose nuts may result in wheel coming off.
- Check tires for any contact with oil and lubricants and foreign objects in- between the tire grip/tread. Oil and lubricants reduce the life of rubber.

- Check and make sure tires have no stones in them. They may damage the inner layer of tire while in motion.
- Check treads for correct depth. Since less tread will result in loss of traction and vehicle will take longer time/distance to stop while braking



Fig 2.3.18 Worn Out Tires

Check tires for cuts. Cuts may result in tire burst while the vehicle is running or stationary.

2.3.5 Tire Rotation

Tire rotation refers to the process of changing the position of the tires with respect to the wheel hub. This is done to ensure uniform tire wear. Tire wear can be used as a tool to extend the life of tires.

Need for Rotation

Tire rotation is needed to balance tire wear both side-to-side and front-to-side. Tires will wear depending upon the way you drive the vehicle, which side of the vehicle the tire is, the roads that you are driving on, and the weather that you are driving in.

Following manufacturers guidelines when rotating tires

Always stick to manufacture guidelines when it comes to tire rotation. This is because different manufacturers use different tires, and are meant for different engine loads. For example it is important for front-wheel-drive cars to ensure that front tires are not worn out fast, since they handle power directly from the engine.

Tire Rotation Needs

There are different tire rotation patterns based on the type of vehicle and tires. The pattern also depends on it being a front-wheel drive as mentioned above, if the tires are of different or same sizes, if the tires are non-directional and if the vehicle is an all-wheel drive vehicle.

It is also a good practice to rotate the spare tire if it is identical to every other tire on the vehicle.

In case manufacturer guidelines are not given, you can ask your service technician to follow the below mentioned patterns for your commercial vehicle:

First rotation: Rotate the front tires for every 6000Km irrespective of wear (Even wear/Uneven wear)

Second rotation: After the first rotation, rotate the front tires for the next 6000Km. Repeat the above mentioned process.

Repeat the first and second rotation at regular intervals of 6000Km to avoid uneven wear. Given below are the most common tire rotation patterns used by all manufacturers world-wide.



2.3.6 Tips on Better Tire Performance

The tires of a commercial vehicle are one of the most important parts of the vehicle. The tires will decide the ride quality as well as ride safety. Given below are a few tips to ensure better tire performance:

1. Changing tires as suggested by manufacturers

The right time to replace a tire would be after 6-10 years, depending on usage. This interval between replacements of tires can depend on driving style, types of roads and the weather experienced during driving

2. Size of the wheel bolts

The wheel bolts are typically provided by a manufacturer. In case they are not provided, make sure to use bolts of accurate length. If the length is too short, then the wheel may pop out. If the bolts are too long the vehicle suspension maybe affected.


Fig 2.3.20 Wheel Bolts

3. Tire rotation is important

As discussed earlier, tire rotation is really important for a vehicle. Check with your manufacturer and service technician for details on how and when to rotate your tires.

4. Smooth driving/avoiding harsh driving

Ensure that you drive the vehicle within the speed limits and not drive at high speeds. This is a fundamental rule that is applicable to every part of a vehicle. It is advised

5. Check air pressure

Air pressure needs to be checked periodically to ensure the tires are not under or over inflated.



Fig 2.3.21 Checking Tire Pressure

6. Don't mix and match the tire type

Ensure you don't use tires of different types for a vehicle. Always use tires recommended by the manufacturer for a particular vehicle.

7. Wheel alignment

Wheel alignment is checking if the wheels of the vehicle are aligned parallel to the driving direction. This is very essential for tire wear, as well as overall driving safety

2.3.7 Using Genuine Parts for Repairing the Vehicle

Whenever a commercial vehicle needs to be serviced, sometimes parts of the vehicle have to be replaced. It may be anything ranging from a door handle to a critical engine part. Also, vehicles will need replacement parts after a collision or during regular service and maintenance. Always buy vehicle parts through manufacturer/company authorized stores; otherwise you will be at risk of buying a spurious part.

Genuine parts

Such parts made by the manufacturer are thoroughly tested by them to meet high quality, performance and safety standards. This will ensure that the vehicle will function as meant to. Always buy genuine vehicle parts from original equipment manufacturer dealers only.



Fig 2.3.22 The Impact of Counterfeit Automobile Parts in the Market

Non-genuine parts

Non-genuine vehicles parts are those which are not made by the manufacturing company of the vehicle itself. Even though non-genuine parts look like the vehicle part you need, they will most probably not be approved by your vehicle manufacturer. Such parts cannot guarantee the quality and safety of a OEM part.

These are the different types of non-genuine parts available:

1. Parallel parts

These are parts made by the vehicle manufacturer, or with the approval of the manufacturer, but are not produced for use in a particular region of the country, or for different countries. In these cases, the risk is that the components may not fit correctly. This is because the parts have not come through the correct supply chain.

2. Counterfeit parts

These are illegal imitations of the part which are being sold as being genuine. Such parts maybe stamped with serial numbers and vehicle logos to dupe the customer into thinking they are original parts. These parts pose high risks as they will be poorly manufactured using sub-standard materials.

3. Salvaged parts

These parts are vehicle components which have been removed from damaged vehicle of the same make. Such parts are cleaned up and if needed, repaired to a certain extent and then sold to customers. The person selling it may or may not reveal that it is a salvaged part, and the risk here is that the component may not have the life of a fresh, original component. This will surely affect vehicle performance and user safety.

4. Aftermarket parts

Such parts will be produced by other companies for your vehicle and it is used as an alternative to a genuine part. These parts are risky to use since they won't have the same quality and product life as the original, and may damage the vehicle

Benefits of OEM Parts

Here are the benefits of using genuine vehicle parts:

- Manufacturer produced parts/ Original Equipment Manufacturer (OEM) parts will be of greater quality and will ensure good vehicle performance. When non-genuine parts are used it may cause damage to the vehicle and result in loss of performance. This might also compromise your safety and even passenger safety. Items which are genuine will fit the vehicle perfectly and without much effort.
- Even though the cost of genuine parts maybe higher, the additional quality and safety offered by genuine parts will justify the cost.
- Another advantage with using genuine vehicle parts is that there is no guess work involved. The mechanic will just have to look up what part was originally used, then replace it with the exact part offered by the manufacturer.
- All OEM/manufacturer produced parts will come with a warranty. Therefore if the component fails or gets damaged within the warranty period, then it is either repaired or replaced entirely, free of cost.

2.3.8 Performing Technical Checks

- Park the vehicle on hard and level ground to start all pre checks.
- This will help you measure the correct levels of lubricants, coolants and electrolytes in the battery.
- While doing all the pre-checks, you must use the hand brake to prevent any rolling or unwanted movement of the vehicle in any direction.

- Vehicle's wheels to be chocked, meaning driving a chock or wedge in between the wheel and the ground to stop it from moving or rolling away
- You should engage the hand brake and also chock the wheels of the vehicle as an extra safety measure.

1. Underneath the Vehicle

Leaf springs suspension

Check leaf springs for any cracks in the plates, and also check lubrication and tightening.



Fig 2.3.23 Leaf Springs

Propeller shaft

Check propeller shaft nuts for tightness.

Piston Cylinder Shock absorbers

Check shock absorbers for correct mounting and oil leaks.

Bell crank

Check bell crank's inspection cover. If it is opened then dust will enter the flywheel and damage the release bearing and clutch facing.

Mounting pads

Check all the mounting pads of chassis, engine, leaf springs, and shock absorbers for any damage, cracks or failure.

Chassis mounting

Check whether chassis is mounted properly or any mounting nut is loose.



Fig 2.3.24 Truck Chassis

Fuel tank mountings

Check the mounting of the fuel tank. It should be fully secure and tight.

Pipeline mountings

Check all the pipelines for any leakage and cracks.

Air pressure tank (reservoir)

This should be fully secured and sufficiently tight. Drain the air pressure tank regularly to eliminate any water.

Air pipelines

Check for tightness of all air pipelines for any cracks, openings and leakages.

Leaks

Check for oil leaks from all assemblies under the chassis.



Fig 2.3.25 Example of Standard Tractor and Trailer Inspection

2. Electrical Checks - Physical and Functional

Battery

Check the battery for proper mounting, tightness of terminals and arresting any corrosion. Check for correct level of distilled water and ensure air vent holes are open. Any blocked air vent holes can lead to a battery burst due to heat buildup while charging the battery.

Check Battery Terminals for corrosive salt deposits & clean immediately.

Recommended to use petroleum jelly on battery terminals & cable connections to avoid corrosive deposits



Fig 2.3.26 Battery Corrosion at Terminals

Wipers

Check wipers, whether fully secure and functioning properly. Check wipers blade rubber, it should not be cracked or sticky.

Head lights

Check head lights for proper mounting, serviceability and correct focus of high/low beam.

Tail lights

Check tail lights for functioning, proper mounting and colour of its cover meaning the colour should not be faded.

Indicators and brake lights

Check mounting and functioning of both the indicator and brake light. The Colour of the tail light cover should not be faded.

Fog lamps

Check fog light for proper mounting and functioning. They should be covered after the foggy season.

Hazard lights

Check hazard lights for proper mounting and functioning.



Fig 2.3.27 Hazard Lights

Roof and cabin lights

Check mounting and functioning of roof and cabin lights.

Panel lights

Check functioning of all the panel lights.

Fuse box

Check fuse box for correct fuse fitment. Keep extra fuses in your spare kit.

Horn

Check horn for its serviceability and mounting.

3. Opening the Bonnet

Given below are the steps to check the problems under the bonnet of the vehicle:

- Fix the bonnet stand firmly. It should be fully secure.
- Use an inspection light when it is dark.
- Check radiator fins for leaks and proper mounting. No objects such as different kinds of debris should be there in between the fins.
- Always check coolant level in reservoir. And only open the radiator cap to check and refill coolant fluid in the reservoir. Open Radiator Cap only after the Coolant / Fluid has cooled off. Otherwise severe burn or scalding may take place from steam coming out.
- Check the oil level in the engine using the dip stick. It should not be less than the required level, which might lead to overheating and the engine will seize
- Check brake fluid for correct level. When low, fill up to the given mark in the fluid container.
- Wiper water bottle should be kept clean and filled up to required level.
- Clutch fluid should be checked for its correct level, top up if low.



Fig 2.3.28 Things to Check Under the Vehicle Bonnet

- Inspect fan belt for tension, cracks & fraying on the edges
- Check the air filter regularly.
- Inspect mountings of engine, AC, alternator, starter motor and other parts.
- Check all hoses and pipes for any leaks, cracks and proper fitting check all hose clamps for proper tightening & locking.

- Check the accelerator linkage for proper fitting and tighten if loose.
- Clean the engine, and keep it free from dust and oil spillage.
- Bonnet fastener to be checked for proper fitting

4. Other Checks

- Check condition of seat, to see if it's in good condition and not torn. Also inspect seatbelt for cleanliness and proper functioning and mirrors for proper mountings and settings.
- Inspect windscreen for visibility and cleanliness. There should not be any cracks, stickers, or scratches on it.
- Windscreen wipers should function properly. They should make even contact on the entire area windscreen area.
- Switch on and warm up engine slowly for building air pressure.
- Inspect all gauges for proper functioning including oil pressure, ammeter, and fuel, engine RPM, and air pressure gauges
- Any unusual noises and sounds coming from the engine must be systematically checked to identify any issues

5. Brake Pedal

Inspect vehicle brakes to detect any leakage, sponginess (looseness), hardness, excessive play and clean brake pedal rubber shoes (covering).

6. Check Cabin

- Inspect cabin cleanliness.
- Inspect, identify and remove any inflammable items present in the cabin.
- Inspect first aid box for availability of all items and verify expiry date printed on the medicines.
- Check for any items kept at the rear of the vehicle hampering driving view, they can increase blind zones.
- Fire extinguisher must be properly fastened and fully secured.
- No loose or unsecured items should be kept in the vehicle. They may hit you during an accident or when braking suddenly.
- Check that air duct is secured unblocked by anything.
- Check that sun shield is properly mounted and is clean.



Fig 2.3.29 Clean Truck Cabin

2.3.9 Loading and Transporting Goods -

Loading is an important factor that affects the vehicles stability, controls and maneuvering. Each vehicle has a specified load capacity and a maximum seating capacity.

Loading beyond its capacity leads to vehicle damage and loss of control. This can lead to dangerous situations and loss of control while driving.

Always find out the maximum load permitted by law (Local laws or Central Government Laws as applicable) for your commercial vehicle.

- Never overload the vehicle. Do not cross the specified limits (kgs/length/width/height).
- Every transport item or package has to be put in a place where it is safe. It has to be secured and lashed.

• Never store loose items like tools, water bottles, fire extinguisher, stove, buckets, tow chain etc. unsecured in the cabin. In case you brake suddenly, these items will fly around the cabin and can become dangerous weapons causing injuries to the helper or to you. This may lead to loss of control.

Given below is an image of how to load a truck in proper manner and how to avoid loading the truck improperly:



Fig 2.3.30 Proper and Improper Loading of a Truck

• The load should not block your all round driving vision.

• Always be careful while transporting passengers and goods together. Separate the goods by category, then stack and store the goods safely within vehicle storage space. The commercial vehicle driver is also responsible for the safe transportation of passengers. Do not carry more passengers than seats available or as per the carrying capacity.



Fig 2.3.31 Properly and Improperly Covered Goods on a Commercial Vehicle

• Cover the load in the right way so that it isn't exposed to the weather.

2.3.10 Transportation of Hazardous Material

There has been a steady increase in the transports of the hazardous substances thorough out country and this has led to greater chances for accidents involving transport of such substances.

Since such accidents involve high risk to life and material assets, such instances should be reduced to the minimum. If any incident happens, it should be resolved immediately.

Since accidents in transit happen outside the manufacturing facility, handling such incidents require

high levels of coordination with public authorities.

The driver should follow the emergency plan for the corresponding district as per the Environment Protection Act, 1986. It has provisions which help resolve issues with the Manufacture, Storage and import of Hazardous Chemicals Rules 1989.

Rules to be followed by commercial vehicle driver while transporting hazardous goods.

- 1. Ensure that the information related to hazardous goods to which it relates are always kept in the cabin.
- 2. Take necessary precautions to prevent fire, explosion or escape of hazardous goods while the vehicle is in motion.
- 3. During break time, the driver should ensure that the vehicle is parked in a safe place away from fire, explosion and any other risk.
- 4. Vehicle should remain under the control and supervision of driver always.
- 5. Lock vehicle at all times while in transit to ensure safety of goods.

6. While carrying dangerous goods, the drive must ensure that the vehicle is marked with an emergency information panel in each of the 3 places as shown below.



UNIT 2.4: Escalation of Technical Problem



At the end of this unit, you will be able to:

- 1. Decide about the road worthiness of vehicle after consulting with superiors and if found unfit to decide to utilize another vehicle.
- 2. List actual or likely defects and report to the senior commercial driver or service supervisor in sufficient detail so that they can identify the issue

2.4.1 Troubleshooting -

The checks needed to find out the troubles/ defects with the vehicle mentioned below:

1. Dead Battery

If the vehicle does not switch on then the issue is most probably due to a battery with low charge or a dead battery. In this case, call a close by garage or Auto Shop to help charge the dead battery. Given below is an image of an auto mechanic jumpstarting a vehicle



Fig 2.4.1 Mechanic Jump Starting a Car

2. Vehicle getting stuck

When the vehicle gets stuck in a pothole or in mud and slush, it may not respond to the accelerator in the normal way. In this case switch to the first gear for maximum pulling power, and slowly accelerate the vehicle to get the vehicle moving again. Given below is an image of a truck getting stuck in a muddy road



Fig 2.4.2 Truck Stuck in the Mud

3. Overheated Engine

If there is smoke coming out of the vehicle bonnet, it is most likely due to the engine overheating. In this case, immediately slow down and drive to the side of the road and switch off the engine. Use a cloth to open the radiator cap and fill either water or liquid coolant to cool the engine down. Given below is the image of a vehicle with an overheated engine, with smoke/steam coming out of the radiator.



Fig 2.4.3 Overheated Engine

4. Punctured tire/Flat Tire

If one or more of the vehicle tires gets punctured, then you will have to drive to the side of the road and switch off the engine. Next, call a nearby Auto shop or garage to get the flat/punctured tire changed. Given below is an image of a mechanic changing a flat tire.



Fig 2.4.4 Changing a Punctured Tire

5. Faulty and/or Loose Brakes

In case the vehicle brakes are not working properly, take the vehicle to a garage as soon as possible to fix the brakes

6. Towing and Driving Safely with a Trailer

You will be required occasionally to drive a towing vehicle either for emergency or evryday work. In such situations it is advisable to follow the below mentioned guidelines:

a. Check vehicle Manual

This first step in towing a vehicle is checking the owner's manual for the weight that your vehicle can safely haul. Make sure to stay within the weight limit, and do not overload the vehicle. This will surely lead to an accident.

b. Practice driving on empty roads

Before towing any load, practice towing on roads with little or no traffic. Only after you are sure of driving well, should you start driving in heavy traffic.

c. Check Towing attachments

Before drivng on the roads, ensure all your towing attachments are in order. Check all lights, safety chains and links and other joints.

d. Keep a good distance between vehicles

Ensure you keep a greater distance between you and the vehicle in front of you when compared to driving without a towing attachment. The extra twoing weight will increase the braking distance of the vehicle.

e. Make Wider turns

Since you are hauling a towing load, your vehicle length will have increased, which means you have to take proportionately wider turns so as to not dent your or other vehicles.

f. Practice Driving in Reverse

You will also have to reverse the towing vehicles with the towing load. So it is better you practice driving a similar setup in reverse before setting out on a journey.

g. Drive Slowly

Increased braking distance due to the towing load means you have to drive a lot slower than if you were driving without a towing load.

h. Practice Parking

Since the vehicle with the towing load will be considerably longer and possibly widder, it is best to know how to park. If not familiar with parking, it is best to take the assistance of another person while parking the vehicle.

You should also remember these points while towing a vehicle:

- 1. Two-wheeled motor vehicle shall not be towed by another vehicle.
- 2. While towing a vehicle the maximum speed shall not exceed twenty-five kilometres per hour
- 3. The distance between the towed and towing vehicle must not exceed five meters;
- 4. The tow ropes or chains must be clearly visible to all other road users.
- 5. A retro reflective "ON TOW" sign ≥ ten centimetres in height and two centimetres in width with spacing of two centimetres between the letters on white background must be shown both on the front of the towing vehicle and rear of the vehicle being towed.
- 6. A driver must not tow a vehicle at night, in darkness or in bad weather conditions unless the hazard warning lights of both vehicles are turned on
- 7. If the hazard warning lights of the vehicle being towed are not functional, it must not be towed

2.4.2 Reporting to and Consulting with Senior Regarding Vehicle Issues

It is important to report all vehicle issues to your senior periodically. Given below are the ways to report to your senior at work:

- If there is a breakdown/accident while driving the commercial vehicle, inform your senior (such as manager) as soon as you are able to. This will ensure you will receive timely help and that your will keep your senior informed of your status
- When informing senior about vehicle breakdown, the driver should also give the exact location information of the commercial vehicle, including road or national highway route number, nearest landmark, direction of travel, city, state and phone number where he can be reached.
- When informing senior about vehicle breakdown, the driver should also provide suggested diagnosis of the cause of the breakdown.
- Based on the driver inputs, the road worthiness of the vehicle shall be concluded by the company. If the vehicle is found to be irreparable then the driver should not use the commercial vehicle on road else it may risk the lift of driver himself as well others on the road.
- In case there are minor issues with the vehicle which you have fixed yourself, then inform your senior during scheduled meetings through phone or in person
- If there are major repairs that the vehicle needs, then inform your senior at the next weekly or daily meeting with the senior. This will give your senior time to sanction funds and instructions for repair of vehicle; meanwhile you will be given a functioning vehicle to continue services.

Problem Escalation Procedure

Escalation in a work environment refers to the formal process of highlighting an issue or a problem currently being faced to higher authority according to standard procedures.

The goal of an escalation is to raise the priority of an issue to an extent wherein solving it becomes necessary. It is done to ensure immediate resolution of a problem or an issue at hand.

When the Commercial Vehicle Driver is not able to perform his duties of driving the commercial vehicle, then the driver will have to escalate the issue to resolve it in the shortest time possible with maximum efficiency.

Escalating problems with regard to a commercial vehicle means solving problems related to the commercial vehicle. The problems can be an overheated engine, a punctured tire and so on. For detailed information on problem escalation procedures, please refer Section 2.4.



Given below is the typical organizational structure in a goods company:

2.4.2.1 List of Emergency Contacts —

The Government of India has made 112 as the single emergency number for all services such as ambulance, Fire Services, Police and so on. This is done based on the suggestion by the Telecom Regulatory Authority of India (TRAI).

However the following emergency also serves the purpose of emergencies as given below:



181	Women's helpline	18: Mm
1033	Emergency Relief Centre on National Highways	SAFER HIGHWAYS, QUICKER ASSISTANC
1073	Road Accident Emergency Service	L 1073
1097	AIDS helpline	АIDS Heinline 1097
1090	Senior Citizen's Helpline	Senior Citizen's Helpline
1098	Child abuse hotline	Child Helpline
+91 9540161344	Air Ambulance	

UNIT 2.5: Organizational Context



At the end of this unit, you will be able to:

- 1. Explain company's policies on vehicle road worthiness requirement.
- 2. List the reporting structure and appropriate escalation procedures in case of problems at work.

2.5.1 Company Policies -

Organizations are responsible for creating and maintaining set of policies for driving at work. Such policies should include procedures for employees using their own vehicle for work purposes.

These policies generally can be found on employee bulletin board, emails and letters. Driver should always strictly follow these policies to avoid road accidents and also ensure safety of others on road.

Employers should frame policies for driving at work based on Section 2.1.1 and should make sure that employees maintain their vehicle using the measures mentioned in Section 2.3

Below are sample policies that can be adapted for use by the driver.

- 1. Inform reporting manager about vehicle defects and never drive vehicle that could be unsafe
- 2. Be aware of what action needs to be taken in a crisis circumstance
- 3. Ensure you are physically fit to drive the commercial vehicle
- 4. Inform reporting manage of any health issues or personal problems that could make driving unsafe
- 5. Don't drive if you are under medication or consumed alcohol
- 6. Be aware that some prescription drugs can affect your driving skills and always check with your doctor or pharmacist
- 7. Have your vision tested regularly and wear corrective lenses if necessary
- 8. Never use mobile phone while driving
- 9. Follow the speed limits sings on roads to avoid accidents
- 10. Follow instructions given on route planning supplied by your reporting manager
- 11. Ensure adequate break to prevent fatigue
- 12. Always have additional trip time and breaks to compensate for bad weather, traffic congestion etc.,
- 13. Stay calm and relaxed while driving
- 14. Avoid road rage
- 15. Always plan ahead before driving to ensure safety of self, Passengers and goods.

2.5.2 Reporting Structure -

The reporting structure in a commercial vehicle company is as shown in the figure below:



Fig 2.5.1 Typical Organizational Structure for a Commercial Vehicle Driver

The typical commercial driver in a company would report to a senior driver. The senior driver in turn will report to a manager according to the office they report to in a city/town. The set of managers will in turn report to a regional manager who will handle a large area within a state/district.

Summary 2

- 1. Always maintain your vehicle to meet compliance requirements from CMVR and other Road transport Authorities
- 2. Always keep a record of vehicle malfunctions which has occurred previously and during the trip
- 3. Try to meet organizational standards for vehicle maintenance
- 4. Be aware of escalations procedures for all situations in the company

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Notes		

Exercise

8 Answer the following:

1. List Two Differences between ABS and ECS

2. What is the difference between a commercial vehicle and a taxi?

3. What are the functions of Electrical Measuring Instruments on a Vehicle Dashboard?

4. Identify the type of commercial vehicle shown in the image below



5. What does this dashboard light on the vehicle dashboard mean?





- 1. Visit a truck driving school in your city and note down your observations
- 2. Demonstrate how to safely park a commercial vehicle
- 3. Demonstrate at least two preventative measures to carry out before starting a journey in a commercial vehicle





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Transforming the skill landscape



3. Drive Safely and Efficiently on the Assigned Route Including Long Distance Trips

Unit 3.1 - Conformance to Standard Driving Practices Unit 3.2 - Conformance to Traffic Regulation Unit 3.3 - General Conduct on Road



Key Learning Outcomes

At the end of the module, you will be able to:

- 1. Determine that all checks to verify the road worthiness of the vehicle has been carried out
- 2. Identify all necessary documents needed for driving and store in the vehicle
- 3. Inspect all vehicle gauges on the dashboard for any malfunction and take action accordingly
- 4. List all activities to be executed for ensuring the customer/passenger has a smooth ride
- 5. Maximize fuel efficiency of the vehicle through good driving practices
- 6. Comply with traffic regulations while driving
- 7. Make use of necessary hand and vehicle signals to indicate driving direction
- 8. Minimize conflicts with people while driving and stay calm and collected
- 9. Utilize vehicle functions to add to driving safety
- 10. Prioritize the well-being of the elderly, children and differently abled customers over other people while driving

UNIT 3.1: Conformance to Standard Driving Practices



At the end of this unit, you will be able to:

- Conclude that all checks are carried out for road worthiness of the vehicle
- Determine and conclude if necessary documents are available for self, passengers and goods
- Inspect the vehicle gauges for adequate functioning of the vehicle when you start the vehicle for the first time along with the MCT and navigation systems
- List all the activities to be carried out to achieve a smooth ride for the passenger such as
 - Changing gears seamlessly, leading to a smooth ride
 - Steer the vehicle optimally using all controls and systems available such as ECS, crash avoidance, ABS etc.
 - Use driving instruments and accessories such as windows, window wipers, A/c Controls etc.
 - Monitor signs and warning lights on the dashboard and take appropriate action to resolve indicated Check for vehicle malfunction and respond immediately to fix malfunction, and report said malfunction to elicit help
 - Inspect the MCT and GPS periodically throughout the journey

3.1.1 Adherence to Standard Driving Practices

Vehicle road worthiness pre-checks has been covered Under Section 2.2.3 Performing Technical Checks.

Testing Brake Pedal

After starting the vehicle, test the brakes by accelerating slightly for a short distance (such as a few meters) and then pressing the brake pedal gently. This will reveal to you how responsive the brakes are.



Fig 3.1.1 Applying Brakes



Best Practices for safe driving

In order to operate a vehicle smoothly, you have to make sure to use the accelerator, clutch, gear system and the brakes in conjunction with each other efficiently as possible.

- Check the accelerator, clutch and brake pedals for even resistance (meaning the pedals mentioned should not be too tight or too loose).
- Next, you have to start the engine of the vehicle with the gear in neutral and the handbrake on.
- Once started, release the handbrake, and switch the vehicle into the first gear using the clutch and gear as mentioned previously.
- It is important to remember, after switching the vehicle into gear, release the clutch pedal at the same rate at which you press down on the accelerator pedal.
- If this is not done, the vehicle will jerk, and the engine stall or switch off by itself.
- Once you are in the first gear and moving, make sure you glance the rear view and side view mirrors from time to time to check for vehicles emerging from the rear, and vehicles approaching from the sides respectively.



Fig 3.1.3 Person Checking Rear and Side View Mirror

• Make sure your hands are in the 9 and 3 position, at the exact center of the wheel. As shown below



- Always indicate a turn using the vehicle indicator or a hand signal if indicator isn't working
- Always remember to buckle up while driving and slow down at a stop sign
- Avoid driving while constantly holding down the clutch, and also avoid changing gears too often
- Minimize or eliminate frequent braking beyond what is required and avoid excessive engine idling
- And also to keep your vehicle running smoothly, ensure to fill fuel only at authorized fuel stations and obtain a proportionate bill for the same

Maintain a minimum safe distance between vehicles while driving, and do not tailgate. Tailgating is to follow too closely behind other vehicles. Given below is a chart stating minimum safe distance between your commercial vehicle and the vehicle in front of you in different weather & road conditions.



Fig 3.1.5 Typical Stopping Distance of a Vehicle in Different Weather Conditions

Use of Ventilation controls for Clear Visibility

Windows

The vehicle windows can be used to control ventilation within the vehicle environment by rolling up or down the windows.

Demister

This button is used to clear condensation on the windshield of the vehicle and is a part of the air conditioning system of the vehicle

Air Conditioning

The air conditioning is the main component or system in the vehicle which is responsible for climate control. It controls the temperature and humidity in the vehicle.

Climate Control

This is basically a "smart" air conditioning system using which one can set a particular desired temperature and the temperature in the vehicle is automatically controlled to remain at the desired temperature. This works through a series of temperature sensors that is connected to a control unit/thermostat which regulates the temperature as needed



Fig 3.1.6 Climate Control in Vehicle

Ventilation Controls

This mainly refers to manual cranks to roll up or down the windows or power windows which roll windows up or down by pressing a button. Ventilation Controls in some cases also refers to air conditioning.

Maneuvering the vehicle safely in both Forward and Reverse Gear

Advanced features in a commercial vehicle such as ABS, ECS, Cruise Control and more can help a Commercial Vehicle driver drive safely in forward gear. Such features are covered in detail in Section 2.2.

While in reverse gear, you can use the parking assistant functionality mentioned in Section 2.2.5. If you are not equipped with that function, you can use the help of another person to navigate into a parking space while in reverse gear. This can be done using rear view and side view mirrors.

Vehicle gauges in a commercial vehicle will indicate to the commercial vehicle driver if there are any issues/problems with the vehicle. And the driver can troubleshoot the problems accordingly and solve them – this is given in detail in Section 2.3.3. And as a commercial vehicle driver you can handle breakdown by troubleshooting the problem as stated in section 4.2.1, Point 3.

3.1.2 Driving under Special Conditions

1. Driving in Snow/Ice

People living in areas where it snows might have to drive when it is snowing. In this case before the winter season starts, it is advisable to put on snow tyres which are specially designed for use on snow and ice having tread design with bigger gaps to increase traction on snow and ice. If you are living in areas with heavy snowfall then you will have to strap chains onto your tyres. When it is snowing, the braking distance will increase by many times. People who do not have Anti Lock Brake Systems should use the brake pedal sparingly and release the brake ass soon as the vehicle starts skidding. Do not sleep in the truck out in the open when it is snowing outside snow may cover the vehicle. This may result in suffocation and the occupants of the vehicle may not be able to open the doors to get out.



Fig 3.1.7 Driving in the Snow

Below picture illustrates vehicle fitted with strap chains on tyres to control braking and steering on snow and ice and also provide maximum traction.



Fig 3.1.8 Truck Tire Fitted with Strap Chains

2. Hill Driving

When you are driving in the hills, it is important to keep in mind these points :

- 1. When Going downhill, do not use the clutch to reduce speed, first press the brakes and then press the clutch to change gears, or stop.
- 2. Do not drive downhill with the engine off, this will cause the brakes to wear down very fast.
- 3. Use the same gears you used while driving uphill, for downhill driving as well.
- 4. Always yield to traffic coming uphill
- 5. Blow the vehicle horn whenever you see a horn sign
- 6. Try to drive at low speeds using acceleration and braking as the gradient makes it harder to drive.
- 7. Do not overtake if the vehicle ahead of you does not permit it. It maight be dangerous to do so.



Ø Summary 1. See to it that you follow all safe driving practices to ensure your safety along with the safety of the goods /passengers being transported 2. Always be prepared for all types of breakdowns and emergencies regardless of different routes and geographies 3. Be aware of how to manage people and property in tough situations such as accidents and conflicts. 4. Always drive efficiently to save fuel Notes



Answer the following:

1. Identify the type of commercial vehicle shown below:



2. What are the different kinds of commercial vehicles available in India?

3. List at least 2 good driving practices

4. IWhat are the first 3 steps in handling a breakdown while driving?

Activity



- 1. Demonstrate the right way to park a truck or any other commercial vehicle
- 2. Demonstrate how to park a commercial vehicle in reverse gear
- 3. Simulate a foggy windshield and then demonstrate how to eliminate such visibility conditions

UNIT 3.2: Conformance to Traffic Regulation



At the end of this unit, you will be able to:

Identify local traffic regulations according to the state currently in, and follow said regulations such as:

- Change lanes in traffic while staying within speed limit
- Maintain a safe distance from other vehicles in traffic by keeping a check on speed
- Use appropriate hand or vehicle signals while driving to ensure other drivers know your manoeuvres well in advance
- Use all available vehicle functions to aid in driving safely
- Solve any issues you encounter while driving by keeping a calm mindset and thinking things through without losing your cool.

3.2.1 Complying with Traffic Rules

Commercial Vehicle Drivers should conform to state specific traffic regulations such as:

- Change lanes properly at suitable speeds while watching for traffic conditions
- Use correct signaling while overtaking other road users according to traffic conventions
- Park on an even surface with no or minimal incline in conjunction with the hand brake and use wheel chocks to keep up the position of the vehicle to stop it from rolling away.



Fig 3.2.1 Vehicle Parked Using Wheel Chocks

- Constantly watch the speed and distance in connection to vehicles ahead, behind and on the sides and keep up a safe distance from other vehicles. Also keep a track of speed and distance with regard to vehicles on all sides.
- While driving, make your intentions clear to other road users, by using vehicle indicator signals while turning left/right, systematically. Keep the vehicle cabin organized as shown below:


Fig 3.2.2 Well Organized Truck Cabin

- Respond as required to every signal including traffic policeman hand signals, road signs and markings, along with conventional traffic signals, both permanent and temporary
- Choose a safe and convenient location on the journey to park and use the parking light when you stop your vehicle
- Always look for oncoming traffic which includes two wheelers, pedestrians and more while opening your vehicle door.
- Keep your cool in the event of a stressful situation such as a traffic jam, an accident etc. Avoid any arguments or conflict of any kind with other drivers, pedestrians and passengers.

3.2.2 Traffic Signs -

Traffic signs (also known as a road Signals or signs) are signboards placed on the side of road to provide information to road users regarding the use of the road. They are mostly made of metal or in some cases stone or wood.

Not knowing the meaning of a road sign may lead to loss of life or property. This applies to both pedestrians and commercial vehicle drivers. Road signs typically have only pictures and symbols instead of words to show road users how to use the road, or what precautions to take while using the road. Therefore road signs overcome all language barriers, and all people who read them can understand their meaning, regardless of the languages they understand.

Commercial Vehicle drivers need to know roads signs well in order to ensure safety of self, passengers and other road users while driving.

Road safety signs are mainly of three types:

1. Mandatory Signs

These are signs which are important and required by law to inform road users of laws related to road use. The absence of such signs may lead to accidents or damage to property. And people violating these signs can be punished by the law.

Ex: "One Way Road", "No Left Turn".







One way







Truck Prohibited





Table 3.2.3 Mandatory Signs

2. Cautionary Signs

These signs are even more important than mandatory signs, as without following them, there is a high probability of the road user experiencing an accident or causing harm to life and property.

These signs are put up to allow the road user to take adequate action while driving in unsafe road conditions.

Ex: "Unguarded level crossing" where the driver will have to slow down for a railway crossing without a retractable fence.





Table 3.2.4 Cautionary Signs

3. Informatory Signs

These signs are less critical than mandatory and cautionary signs because, the road user will not come into any immediate harm if the user will not see such a sign. However, the presence of these signs will increase the convenience of road users.

Ex: Signs showing the distance to essential facilities such as nearby hotels, hospitals and public toilets and even signs showing alternate routes to destinations.





Table 3.2.5 Informatory Signs

Hand Signal Used by Traffic policemen

	Traffic Police Hand Signals	
To start one sided vehicles	To stop vehicles coming	To stop vehicles approaching
	from front.	from behind
		No.
To stop vehicles approaching simultaneously from front and behind	To stop vehicles approaching simultaneously from right and left	To start vehicle approaching from left
N.		K
To start vehicles coming from right	To change sign	To start one side vehicles



Table 3.2.6 Traffic Policeman Signals

Typical Hand signals used by drivers





3.2.3 Road Marking and Furniture's -

Road Markings

Road marking give you warning or direction. They are painted on the roadway, raised edge of a road or different surfaces. It is illicit to drive over newly painted, wet pavement markings.

Yellow lines

Yellow lines separate traffic movement in opposite directions. If a yellow line is found to your left, that means traffic movement is towards you on the opposite side of that yellow line.



Broken line – Passing is allowed when safe



Broken line and solid line – you may pass only when it is safe and the broken line is on your side



Single yellow line – vehicles travelling in either direction may pass when it is safe



Double broken yellow line – Lane is reversible – 1 a n e control signal will show whether you may use this lane



Double solid line – no passing allowed



Two - way left - turn lane drivers travelling in opposite directions share this lane for le turns – markings may be reversed (solid lines inside the broken lines)



Table 3.2.8 Road Markings

All installations and fixtures on the road refer to road furniture. For examples this can be a traffic cone, a lane divider and more. It can also include signposts, crash barriers and more.

Hazards or obstructions in the road can be averted by using appropriate road furniture.

Motorcyclists are especially susceptible to injury since they are not protected by a metal enclosure as in a truck/Bus. So road furniture is more important for a two wheeler.

Crash barriers

These are metal barriers which are used for preventing the vehicle from going off the road. It is useful four wheelers, but also simultaneously poses a risk of collision for two wheelers.



Fig 3.2.9 Crash Barriers

Wire rope

Rope fences are mostly made of interwoven metal strands for increased strength. They are similar to crash barriers and are used to prevent vehicles from going off the road.



Fig 3.2.10 Wire Rope

Guideposts/Delineators/Reflectors

These are light reflecting installations on the road which are used to guide traffic through lane changes, such as at intersections. These are especially important in the night time or in low light conditions, as it will help the driver see the lane clearly



Fig 3.2.11 Guideposts

Traffic Cones

These are cone-shaped markers that are used on roads to direct traffic temporarily when needed. In the figure given below, traffic cones are placed around a pothole in the road to prevent accidents.



Fig 3.2.12 Traffic Cones

Rumble Strips

This is a raised pattern on the road to enable motorists to know when they are exceeding the speed limit. Motorists will know when they hear an audible vibration while driving over the rumble strip.



Fig 3.2.13 Rubber Strips

Summary

- 1. Ensure compliance with all relevant traffic rules and regulations
- 2. Handle unpleasant incidents with officials and pedestrians while remaining calm
- 3. Ensure the goods are delivered on time without any delays
- 4. Navigate during the drive effectively using GPS and asking pedestrians and locals

Notes	

	swer the following:
1.	List at least three traffic rules
2	List different ways to cope with stressful situations
۷.	List uncrent ways to cope with stressrul situations
3.	Explain the precautions to take while parking the vehicle
4.	Explain the significance of the image given below:
4.	Explain the significance of the image given below:
4.	
4.	
4.	
4.	
4.	No-Zone
4.	No-Zone

- 1. Demonstrate how to interact with the general public in a difficult situation
- 2. Show how to handle goods of varying types when loading onto the vehicle
- 3. Talk to a veteran Commercial Vehicle driver for tips on how to drive with ease

UNIT 3.3: General conduct on the road

- Unit Objectives 🤷

At the end of this unit, you will be able to:

- 1. Show special consideration to children, the differently abled and elderly while driving
- 2. Elaborate all rules pertaining to the general public and be careful of stray animals while driving

3.3.1 Different types of Road Users -

Given below are ways help handle different kinds of Pedestrians on the road:

1. The Elderly and the Differently Abled

As a Commercial vehicle driver you should always be considerate to pedestrians along with the elderly and the differently abled. Here are a few tips to do the same:

- Always give way to people crossing on a zebra crossing on any road
- Watch out for pedestrians who might emerge from between parked vehicles on busy roads
- Be patient with differently abled and the elderly who are bound to take a longer time to cross the road



Fig 3.3.1 Elderly Couple Crossing the Street

• Also look out for people getting down from buses and other vehicles close to the edge of the road

2. Children

Children may not completely understand traffic rules and regulations. And most who understand them would either forget it or ignore them in part or in whole.

- It is important to make allowances for children while driving:
- Since children are usually no taller than 4 to 5 feet, it is advisable to look out for children while driving near schools and playgrounds
- Also it is important to look out for children near parking areas since they may be obscured from view by other vehicles, structures or objects

• Support & pay attention to traffic volunteers who help regulate traffic as shown in the figure below:



Fig 3.3.2 Traffic Volunteer Helping a Child Cross

- Always keep an eye out for children passing by when the vehicle is in reverse gear
- Always use your horn generously to make your presence known when around children
- 3. Stray Animals
- India being the melting pot of cultures that it is, will always have stray animals littered in the street such as cows, stray dogs and in some cases horses.
- In the event of a stray animal obstructing your path, the best course of action would be to either wait for the animal to pass, or cross the road by itself, or use the horn sparingly to encourage the animal to move away.
- It is also best not to overuse the horn in such cases as it may scare the animal, leading to more problems. Given below is an image of a stray animal crossing the road



Fig 3.3.3 Stray Animal Crossing the Road

4. The Differently Abled

When a person is in a condition which limits their physical or mental abilities in the form of movement, use of the senses (sight, hearing, touch) or more, the person is said to be differently abled. For example if a person can't see, or hear or walk, etc.



Fig 3.3.4 Blind People Walking on a Street

- The commercial vehicle driver should look out for differently abled people on the road and make way for any such individuals as shown in the image above.
- If a person is missing a limb such as a hand or a leg, or is using a walking stick to walk with or without dark sunglasses (blind person), then the person is differently abled.
- If a differently abled person is walking the street, then allow more time for the individual to cross the street.

5. Drunken Drivers, Rash Drivers and Inexperienced Drivers

Everyone who has a driving license does not necessarily drive properly, all the time. This means, a commercial vehicle driver may encounter all kinds of bad drivers on the road. Here are some measures you can take to ensure bad drivers on the road don't affect your driving:

- Try as much as possible to practice defensive driving, which includes maintaining a safe distance between other vehicles while driving
- Do not engage in an argument or any kind of conversation with drunk, rash and inexperienced drivers
- Do not violate traffic rules even when the traffic is low or not existent.

3.3.2 Right of Way -

Right of Way is the legal right of a pedestrian or vehicle to proceed with priority over other others in specific situations or locations. All people using roads have the right of way depending on the specific situation or location.

For example, Pedestrians will always have the right of way on zebra crossing. Cyclists will have the right of way on the cycle lane. Similarly an Ambulance or a Fire Truck also need priority passage.



Fig 3.3.5 Right of Way

Emergency tending vehicles such as fire engines, ambulances and police vehicles should be given right of way. In some cases not yielding to emergency vehicles is punishable by law. Vehicles going uphill should be given right of way by vehicles coming downhill.

AmbulanceFire Engine

Vehicles should give way to traffic on the right at city road crossings and roundabouts

Fig 3.3.6 Emergency Vehicles

You should also remember these points while driving:

1. When you see a "STOP" sign on the road, you should

- Stop before crossing the line marked as a stop line before the "STOP" sign.
- If there is no "STOP" line marked, then you will have to stop immediately before "STOP" sign
- Yield to traffic on the main roads and enter the main road only when it is clear of vehicles



Fig 3.3.7 Stop Sign

2. When you see a "Give Way" sign on the road along with single/double "Give Way" road markings you should slowdown and yield to traffic and drive ahead with caution



Fig 3.3.8 Blind People Walking on a Street

- 3. If there is no pedestrian crossing marked preceding the "Give Way" or "STOP" sign, you should give way to pedestrians
- 4. Vehicles entering the road from a property bordering the road should yield to traffic and proceed cautiously.

- 3.3.3 National Speed Limit -

Sl.No.	Class of Motor Vehicles	Max speed/ hour in KM
(1)	(2)	(3)
1	Motor vehicles used for carriage of passengers involving nine or more seats in addition to the driver's seat	80
2	Motor vehicles used for carriage of passengers involving not more than 8 seats in addition to the driver's seat	100
3	Motor vehicles used for carriage of goods	80
4	Quadricycle	70
5	3 wheeled vehicles	60
6	Motor cycles	80

Summary 🗵

- 1. Keep in mind that the elderly, differently abled and children need our attention and consideration while driving
- 2. Be patient when dealing with a stray animal you encounter while driving on the road
- 3. Respect the right of way given to pedestrians and be understanding when it comes to their presence on the road

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1.	List out the precautions to take when driving a commercial vehicle in a city
2.	Explain at least two traffic regulations in favor of the general public
3.	. Name a few good driving practices to help elderly pedestrians.

- 2. Simulate a problematic scenario with an elderly person on the road, while showing how to handle the situation
- 3. Demonstrate two good driving habits to show special consideration for children





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4. Coordinate with Depot/ Branch Office

Unit 4.1 - Compliance to Duty Unit 4.2 - Escalation of Problems

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Key Learning Outcomes

At the end of the module, you will be able to:

- 1. Prioritize coming to work on time according to the company schedule
- 2. Explain the function of a depot/branch office
- 3. List the details of delivery schedule periodically along with special instructions if needed
- 4. Perform duty closure procedures as needed after completion of a workday
- 5. Identify and carry out appropriate escalation procedures in the event of vehicle breakdown or accident while staying in constant communication with depot/branch office

UNIT 4.1: Compliance to Duty



At the end of this unit, you will be able to:

- 1. Show up to work on time according to planned schedule
- 2. Execute appropriate duty closure procedures upon completion of journeys for the day
- 3. Outline information on the driving route and the delivery plan along with any other instructions needed for successfully completing the trip
- 4. Compose the log register details including date, Serial numbers and so on.
- 5. Handing over goods and delivery note according to company procedures and planning

4.1.1 Compliance to Duty -

In order to ensure safety for those on the road and also those inside the vehicle, it is important that the driver strictly comply with the duty guidelines. These include several aspects such as reporting on time, maintenance of vehicle, safety & health regulations amongst others. Details regarding these are covered in the subsequent sections.

4.1.2 Punctuality

Always come to work fifteen minutes before the fixed time at the workplace.

At all times, be ahead of time, so that any activities such as loading of luggage in the vehicle, working out the route and destination is clearly planned without wasting any time

Pre-Trip Preparation

Always document the details of a journey using a log register. A log register is a notebook used to record important details of the journey for a commercial vehicle driver. The data from a log register will be typically used to calculate monthly salary, incentives, efficiency of the driver and so on.

Gather information regarding your trips in advance, for example collect or be aware of the driving schedules well in advance, either on a weekly or a daily basis. Check for any special instructions on designated routes.

Fill details in the log register such as date, distance travelled, commercial vehicle driver name, odometer reading and so on

			Vehicle Log B	ook			
Name:			Employee No:				
og for the mont	:h of:		Vehicle Type:		Vehicle Regis	tration:	
Date the journey Began Ended	Odometer Reading Start Finish	Kms Travelled	Purpose of the journey	Date of Entry	Name of the Driver	Person of the making entry	Signature of person making entry

Fig 4.1.1 Log Register

Navigation systems

Most Commercial vehicles are installed with navigation systems that help the commercial vehicle driver locate the destination to help deliver the desired goods.

Given below is how a Global Positioning System (GPS) works:



Commercial Vehicle driver must follow below mentioned points before the trip

- Operate the system safely and make all the necessary adjustment/inputs to reach the destination/ passenger drop point safely.
- Do not follow the directions if they violate road traffic laws.



Fig 4.1.3 Typical GPS Enabled Map

• Review the map before starting out the journey to ensure the system is displaying the shortest practical route to reach the destination.

4.1.2 Information Management -

Before a driver starts a trip, it is important that he/she collects all information pertaining to the route, delivery schedule and special instructions if any. This will allow proper planning of the trip and improve overall efficiency through following methods.

- 1. In case a driver has to deliver good at multiple locations, he could choose the most optimal route which would save time and fuel.
- 2. Prior information would also enable the driver to deliver the goods on time, depending on the priority of the delivery.
- 3. Depending on the material transported, driver could also take additional measures at the start of journey to comply with healthy and safety regulations

Driver should ensure that the information pertaining to batch no. and transportation details are properly logged in the system before departure. This could help the deliver with the following:

- 1. The status of the good under transportation could be tracked at all times using batch no.
- 2. In case of any confusion, the details could be re-confirmed or cross-verified using the batch id
- 3. In case of any exigencies or accidents, the status of the shipment could be updated in the system immediately

Once the shipment reaches the destination, the driver should comply with the following in order to ensure smooth closure:

- 1. Deposit good and material as per instruction note
- 2. Follow the delivery closure procedure outlined by the company and take a sign-off on the same from the customer
- 3. Complete the duty and report the same back to the organization to update the status in the system.
- 4. In case of any discrepancy, report the same immediately to the supervising officer or the concerned person in the organization to resolve.

Driving Route and Delivery Plan

Companies using commercial vehicles need to plan their transportation routes and schedules. Such companies have to use methods which account for real-time events that affect the business on a daily basis.

Companies have to plan for customer short-notice requirements, vehicle issues and route availability. This has to be done fast in order to minimize the cost of transportation of goods and passengers.

Basics of Route Planning

The goal of Route Planning is to develop routes which cover all pickups and deliveries to and from various customers. Therefore such route planning should help the commercial driver with the most efficient route for pickup and safe delivery of the goods. The route planning should also take into account the number of hours that the driver can operate the vehicle.



Fig 4.1.4 Route Planning Process

Three factors will decide how the route planning is done:

Products – the product which needs to be delivered from the place of manufacture to the place of consumption will play the most important role in deciding the route to take for delivery. The product can be measured using parameters of weight and volume which are critical factors to consider while transporting said goods or products. For example if the vehicle to be transported is a liquid, then the commercial vehicle will be a tanker of a certain capacity/volume. If the product is lumber (wood) then the transport can be a truck with adequate length

Vehicles – the commercial vehicle that is used for transport is very important in goods delivery. For example if a large set of granite slabs is to be delivered and if the route to be taken will pass through steep inclines, then a multi-axle truck with enhanced torque/pulling power can be used. This will ensure safe delivery of the granite slabs.

Personnel – the commercial driver himself will form the most important part of the goods transport. The commercial driver chosen must be ready to drive for the planned number of hours and take only scheduled breaks. This will ensure that the goods are delivered on time.

4.1.3 Goods and Service Tax (GST)

Goods and Service Tax (GST) is a single indirect tax for the entire country to make the nation a consolidated market. This tax is levied on a multi-stage basis, and also based on destination. Every time there is value addition done to a product or a service, GST will be levied on the particular product or service. GST is a consolidated form of various state and central taxes into a single Goods and Service Tax.

Under Goods and Service Tax, tax is levied on supply. Therefore any transfer of stock (such as products and goods) is considered taxable. If a Business organization has more than one registration for taxes, then all of them are taxable. Intrastate transfer of goods using any vehicle is also taxable.

The implication of GST would be the unification of goods and product inventories across the country to reduce taxation resulting from transfer of goods. Given below is the tax to be paid on the purchase of new vehicles in India.

The goods and services tax would bring down the tax incidence in most automobile categories.									(in t	
Segment	Excise	CST	VAT	Infrastructure CESS	Luxury cess	Total pre GST rate	GST	Cess	Effective GST	Change
Two/three wheelers	12.5	2	13.5	NA	NA	30.2	28	0	28	-2.2
Small cars (length<4m)	12.5	2	13.5	1	NA	30.2	28	1	29	-1.2
Mid segment cars	24	2	13.5	4	NA	47.3	28	15	43	-4.3
Large cars (engine>1,500 cc)	27	2	13.5	4	1	49	28	15	43	-6
Sport utility vehicles	30	2	13.5	4	1	55.3	28	15	43	-12.3
Commercial vehicles	125	2	13.5	NA	NA	30.2	28	0	28	-2.2

Fig 4.1.5 GST Details

4.1.4 Duty Closure Procedure

After a commercial vehicle driver drops the passenger/goods at the destination, he should report to the depot/branch office.

The commercial vehicle driver receives the information of the next passenger or goods through the MCT System. The details of the Pickup passenger or goods are displayed on the screen. The In- Built GPS system helps the commercial vehicle driver to have a track on the location for further trips or goods delivery.



On completion of the duties for the day, the commercial vehicle driver has to communicate certain necessary details such as the distance covered, fuel consumed, etc.

Summary 🗵

- 1. Always make sure you show up to work on time according to the schedule
- 2. Make it a point to gather information periodically according to the set schedule and follow special instructions as required.
- 3. Keep the log register filled at all times including all relevant details ranging from date and time to distance covered and more.
- 4. Follow the duty closure procedure as needed, after completing all work-related tasks for the day
- 5. Ensure that goods are deposited according to procedure and instructions, including the necessary delivery note.

— Notes	

1.	swer the following: Explain how to make changes to a delivery schedule when you face an unexpected delay
2.	List the different documents that a commercial vehicle driver should fill on a daily basis
3.	What are the do's and don'ts of documentation in a commercial vehicle company

2. Demonstrate how to write a goods delivery note

UNIT 4.2: Escalation of Problems



At the end of this unit, you will be able to:

- 1. Inform the depot/branch office when unable to reach pick up point due to traffic jams or vehicle breakdowns
- 2. Inform the depot/branch office in case of accidents and break downs during the journey
- 3. Notify the depot/branch office when there is a dispute between any passengers and other parties such as the general public, government officials such as traffic police etc.
- 4. Describe the escalation procedures for the points 1,2 and 3

4.2.1 Escalation Procedure

Escalation in a work environment refers to the formal process of highlighting an issue or a problem currently being faced to higher authority according to standard procedures.

The goal of an escalation is to raise the priority of an issue to an extent wherein solving it becomes necessary. It is done to ensure immediate resolution of a problem or an issue at hand.

When the Commercial vehicle Driver is not able to perform his duties of driving the commercial vehicle, then he will have to escalate the issue to resolve it in the shortest time possible with maximum efficiency.

Given below is a typical escalation procedure in a company. It is shown how the issue (called a support ticket here) is passed on to a technician on the phone who will connect the commercial vehicle driver to the supervisor in charge. If the problem is not resolved at this level the issue/problem is passed on to the shift in-charge and then to the manager until the problem is solved.



Fig 4.2.1 Typical Escalation Process

Given below are the major reasons why the Commercial Vehicle driver would be unable to reach the pickup point in time, and the escalation procedures he/she has to execute to resolve the issue at hand:

1. Traffic Jams

This is one of the top reasons why Commercial drivers are sometimes unable to reach the destination for passengers/goods delivery. The escalation procedure is as given below

• If you are stuck in traffic jam for a long time then immediately inform the depot/branch office about the expected delay in reaching the desired destination for the passenger or the delivery of the goods.

• Notify the details of the estimated delay with depot/branch office



Fig 4.2.2 Traffic Jam

2. Accident

An accident is when a vehicle slams into another vehicle, object, property or person causing damage and injury to the vehicle and person respectively.

In the event of an accident, the escalation procedure that the Commercial Vehicle Driver should follow is as given below

- If you are in an accident then check for injuries to yourself and others around you, and checking damage to the vehicle and the vehicles and property around you. (Handling an accident mentioned in earlier module)
- Once you feel able to do so, and after performing first aid on yourself and others if necessary, report all and any damage and injuries to the depot/branch office
- After discussing with the depot/branch office, decide on the best course of action- such as to go to the hospital for treatment, report the accident to the nearest police station or take leave for the day to recover from the accident
- Please refer to Section 2.4.2 for information on reporting an accident to a senior at work



Fig 4.2.3 Truck in an Accident

3. Breakdown

A breakdown of a vehicle is when the vehicle stops working due to an issue such as engine failure, flat tire and so on.

In the event of a breakdown, the escalation procedure is as follows:

- Immediately report the breakdown to the depot/branch office
- Please refer Section 2.4.1 to troubleshoot the problem with the vehicle, report to the depot/branch office the estimated time needed to fix the vehicle and get it in working condition.
- If the vehicle issue is minor then fix it yourself promptly and try to reach your destination with minimal delay, while keeping the depot/branch office apprised of your location status and journey progress.
- If the vehicle issue is major then take the vehicle to the nearest service station for repairs while intimating the depot/branch office at the same time. Request for another Commercial Vehicle driver to take over your driving duties for the particular assignment, or until the repairs are done.
- Please refer to Section 2.4.2 for information on reporting a Breakdown to a senior at work



Fig 4.2.4 Breakdown Due to Flat Tire

4. Personal Issues

In case you are experiencing personal issues which will affect your duties as a commercial vehicle driver, then the escalation procedures are as follows:

- If you are facing issues such as ill health yourself, or need to take care of someone in your family, then you need to inform the depot/branch office if you need a leave of absence.
- If you know well in advance that you need a leave from work, then apply for a leave through standard company procedures and get it approved by senior management. If you require a leave on an immediate basis, then make sure to contact both the depot/branch office and your work supervisor and inform them of your leave and the reason for taking leave.
- If possible, try to arrange another commercial vehicle driver to take on your duties for the days you will be absent.
- When you return, make sure you carry out necessary reporting and documentation to get the leave sanctioned, and try to clear pending driving assignments.
- Please refer to Section 2.4.2 for information on reporting personal issues to a senior at work.

5. Disputes or Minor Altercations between passengers, fellow motorists and other parties

In the event of a dispute breaking out between passengers/customers and the general public, traffic police etc. the escalation procedure is as follows:

- If the passengers riding in the vehicle start an argument with passing pedestrians or someone they know, tell them to calm down and try to diffuse the tension in the situation
- In the event of passengers engaging in an unnecessary argument with government officials such as the traffic police, then tell the passenger to cease the discussion immediately and excuse yourself from the situation
- In the event a dispute or a minor altercation turns into a situation beyond your control, park the vehicle to the side of the road to avoid disturbing oncoming traffic. Intimate the depot/branch office of the situation and in decides on a suitable course of action.
- If the passenger picks a fight with you (commercial vehicle driver), then try to be patient and resolve the issue at hand. If you cannot handle the dispute/conflict, inform the control room of the situation, and at the same time seek the help of local authorities (Police, government officials)
- If all else fails, politely ask the passenger to alight from the vehicle until the situation is resolved





Summary 🗵

- 1. Always inform the depot/branch office regarding any travel issues such as accidents, breakdowns etc.
- 2. Make it a point to report any disturbances such as arguments between passengers and the public, during the trip
- 3. Ensure that you report points 1 and 2 to the senior at work if unable to reach the depot/branch office immediately.

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Ch	oose the correct answer:
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1.	In case of traffic jam/accidents the commercial vehicle driver has to
	A. Inform the depot/branch office
	B. Help in clearing traffic
	C. Inform to friend
	D. None of the above
2.	Explain the procedure for handling an accident or a breakdown.
-	
3.	Write down the differences between an accident and a breakdown
4.	What is meant by log register?

- Activity 🛞
- 1. Demonstrate the use of navigation system in the commercial vehicle
- 2. Demonstrate how to handle a conflict between a passenger and a government official with an example
- 3. Perform a role-play showing how to update depot/branch office about journey status
- 4. Visit the depot/branch office of a Courier company and observe and record its workings





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5. Work Effectively as Team

- Unit 5.1 Interact & Communicate Effectively with Colleagues Including Member in the Own Group as well as other Groups
- Unit 5.2 Organizational Context
- Unit 5.3 Technical Knowledge



Key Learning Outcomes

At the end of the module, you will be able to:

- 1. Develop clear lines of communication with colleagues using face-face interaction, telephonic and other means
- 2. Ensure you keep to the work schedule and deliver on commitments made to other colleagues and peers.
- 3. Prioritize and show respect for colleagues while performing work
- 4. Identify, prioritize and meet commitments made to colleagues
- 5. Inform colleagues of delays in meeting commitments in advance
- 6. Recognize any problems with colleagues and take the initiative to resolve them
- 7. Apply and practice all existing procedures and policies with regard to working with colleagues
- 8. Explain Organizational Policies and Procedures
- 9. Illustrate the Importance of Effective communication and different techniques to communicate
- 10. Identify the need for a workplace driven by mutual trust and respect
- 11. Analyze the effect of your work on the schedule and work of others in the organization
- 12. Elaborate the importance of information required by colleagues and provide the said information to them
- 13. Outline the importance of supporting colleagues in their work.

UNIT 5.1: Interact & Communicate Effectively with Colleagues Including Member in the Own Group as well as <u>other Groups</u>

Unit Objectives

At the end of this unit, you will be able to:

- 1. Make use of various media such as online means and face-face interactions to establish and sustain clear lines of communication with colleagues.
- 2. Tell colleagues important information according to organizational needs using verbal and non-verbal means.
- 3. Illustrate to colleagues important information as required by organizational need through verbal and non-verbal means.
- 4. Ensure that the way you work will show respect to all other colleagues and peers at the workplace.
- 5. Tell colleagues in advance about delays in meeting commitments or the inability to meet the commitment completely.
- 6. Find problems with regard to working with colleagues and try to solve them by taking the initiative.
- 7. Recall organizational policies and processes with regard to working with colleagues.

5.1.1 Communication Skills -

Communication is sending and receiving information between two or more people.

People exchange information by speaking, writing or signing. Information is also sent and received involuntarily through body language.

5.1.1.1 The Process of Communication

The process of communication includes a sender, receiver and a message sent between them, and feedback. And in some cases there will be interference. And the surroundings in which the communication is happening is called environment.



Fig 5.1.1 Process of Communication

1. Sender/Source

The person who shares information, ideas or solutions to other with a purpose is called sender or communicator.

2. Message

This can be any type of information sent by the sender.

3. Receiver

The person receiving the message is called the receiver. The receiver usually doesn't just receive the message but also understands and acts on it.

4. Feedback

This involves understanding and confirming that the message received.

5. Environment

This includes the physical space and the current mindset of the participants. The physical layout refers to the room or outside space in which the communication is happening, the lighting, ambient noise and so on. The mindset of the participants refers to the attitudes between the sender and the receiver – toward each other

6. Interference

This refers to the presence of factors that will change the meaning of the message. This may range from ambient noise, extreme temperatures or even the bias that people hold against each other (positive or negative)

7. Channel

This refers to the medium used to communicate the message which may range from spoken words to written words, using online (computers, cell phones) and offline (face-face speaking, notepad or Blackboard) means.

5.1.1.2 Components of Effective Communication

Scientific Research has shown that effective communication consists of three components as given below

- 1. Verbal communication/what is actually said with Tone of Voice/how it is said
- 2. Body Language/ an involuntary combination of posture and gestures

The chart below indicates the composition of the three components used every time communication occurs:



5.1.1.3 Body Language

While it is important to watch what you say, it is even more important to know how to say what you to.

Even before you start talking, the way you stand, sit, and walk along with what you do with your hands will affect what you are trying to convey through words. Facial expression will also add to the clarity of what is being said.

For example, Let us assume you as a commercial vehicle driver you wish the customer/passenger a good morning with a louder voice than normal, with a genuine cheerful expression on the face. Then you will have communicated to the passenger that you as a driver will ensure to make the vehicle ride comfortable and pleasant. (But make sure not to startle the customer/passenger while greeting them).



Fig 5.1.3 Body Language Chart

And considering another example, if the customer or passenger requests for a different route while riding and you refuse to oblige the request without an adequate explanation, then the communication has failed. It wouldn't matter if you used polite words; if the tone of voice is stressed or annoyed then the customer would become uncomfortable. In this case the best thing to do is explain that you cannot follow a route because of traffic conditions, or other valid reasons, after which you have to apologize politely for any inconvenience it may cause to the customer/Passenger.

5.1.1.4 Verbal Communication

This consists of the spoken word and the tone of voice that one uses to convey a message. To communicate well verbally you should maintain clarity of speech, keep calm and stay focused on the message at hand.

You should also focus on inflection which refers to stressing on the right part of a sentence. The tone of voice plays large role in verbal communication. The tone of voice can convey happiness, tension, frustration, cheerfulness, fear and so on.



5.1.2 How to Communicate Effectively at Work

One of the most crucial business skills is communication, irrespective of the industry or domain being referred to. Therefore it is good to know the fundamental principles behind business communication. Here is a step-wise guide to become an effective communicator at work:

1. Listening – this is the first step towards being an effective communicator, and probably the most important. As a commercial vehicle driver you should not interrupt the customer/passenger, try to predict what the customer/passenger says before they say something. Make sure you listen to what the customer is saying when he/she is saying it.



Fig 5.1.5 Driver Listening

2. **Observing and responding to Body language** – as mentioned earlier, body language can convey a lot about the person trying to communicate. For example, if the customer/passenger says it is ok that temperature from outside the vehicle isn't bothering them, but says so with stressed tone of voice or sweating, then you can go ahead and roll the vehicles windows and switch on the AC.



Fig 5.1.6 Body Language (Customer Sweating)



Fig 5.1.7 Good Communication

3. **Preferred Mode of Communication** – each person will have favored choice of communication. In the case of a commercial vehicle driver, this may mean communicating with the senior driver or transport manager through email or telephone according to personal preference (of the senior driver or manager)



Be Aware of your Speaking Volume

Some people just don't know how to loud they are, especially when their attention is focused on the person on the other line. **Don't Answer your phone when meeting with others**

If you answer a call, you're basically telling the person you're meeting that someone else is more deserving of your time that they are.

Don's place your phone on the table when meeting others. Otherwise, it looks like you're ready to drop them and connect with someone else

Let the other person know when you have them on speakerphone

If you must put someone on speakerphone, make sure you immediately let them know who else is in the room with you.

Email



Use a professional email address

Never use email addresses (perhaps remnants of your gradeschool days) that are not appropriate for use in the workplace, such as "diva@..." or "babygairl@..."

Use exclamation points sparingly

If you choose to use an exclamation point, use only one to convey excitement.

Think twice before hitting "Reply all"

No one wants to read 20 emails that have nothing to do with them.

Be cautious with humor

What may be funny when said out loud can come across differently when written. When in doubt, leave it out.

Fig 5.1.8 Communicating Over Phone and Email

Instant Message



You should know the person

If you only know the person through social media but have never actually met them, you shouldn't IM them.

Keep the Conversation short

If the message will require the receiver to take time to think about their response, you might want to send an email or call them instead.

Never send bad news via IM

IM is too casual a medium to have an important conversations, particularly one that's negative.

Texting



Be careful with abbreviations Shortcuts are more common today, but make sure it's appropriate for 'u' to be that informal. **Don't change meeting times or venues in a text** potential attendees may not check their phones in time

Fig 5.1.9 Communicating Over Instant Message and Text Message



Look at the Camera

Looking at the computer screen will make it seem like you are looking down, but when you look directly at the camera, you will appear to be looking your contact in the eye. **Don't gesture too much**

Although such expressiveness may be acceptable in person, it may be too much whey you fit it all in one window.

Fig 5.1.10 Communicating Over Video Chat

- 4. **Tone of Voice** Always sense the tone of voice of the customer/passenger or the senior colleague at work in order to get the right message. This means knowing when a customer agrees to a different route with a frustrated tone of voice, in this case you will have to ask the customer/passenger again if they are comfortable with the route choice.
- 5. **Keep it Formal** always ensure as a commercial vehicle driver you keep your communication strictly formal with the customer/passenger and not get casual. Being casual with the customer is mostly unprofessional and might be interpreted as a sign of disrespect.
- 6. **Keep Communication Objective** while driving customers, you are bound to pick up frustrated, irritated or stressed people once in a while at least. In this case, make sure that you are patient with the customer and answer customer queries without using emotional responses. Meaning if the customer is rude to you because of a traffic jam making him/her late, then calmly explain that you are doing your best to reach the destination and not reply rudely.
- 7. **Restate what you hear** it is advisable to repeat the name of the destination, or any instruction the customer says clearly, back to the customer to re-confirm what was said. This will make the passenger/customer feel they are being heard and will prevent any miscommunication which may lead to delays later.
- 8. Always keep improving make sure you keep practicing these habits for getting better at good communication.

5.1.3 Respecting your Colleagues, Peers and Clients

A work environment where everybody is respected will minimize the probability of conflict between team members. In the case of a commercial vehicle driver the person working will have to interact most of the time with the customer/passenger and for a limited amount of time with the other company employees.

1. Be Kind and Courteous

Make it a point to ask for the customer's name and prefix the name with Sir or Madam. And when in the company or other employing organization make sure to learn everyone's name and always address them by it.

Example: Greeting and saying Goodbye to the customer



Fig 5.1.11 Greetings

An important part of a commercial vehicle driver's job is to greet the customer/passenger who gets into the vehicle. This is especially important for beginner drivers who are new to dealing with customers. Such fresh drivers can go through and try out which would be the best way to say hello, and the most appropriate way to address women and men based on the language in the region. The same procedure should be followed when the customer/passenger exits the cab. You can say thank you and goodbye when the passenger/customer exits the cab.



2. Respect Personal Space and Boundaries

This applies to the customer as well as the employees in the company. The commercial vehicle driver will have to ensure that the customer/passenger has his/her privacy. This means not talking to the passenger unless it is to answer a query.

3. Be Reliable and Consistent

Always show up to work on time and meet all work commitments such as completing customer rides within time and filling the log register before signing off for the day. And if you are to take a leave of absence then inform a replacement driver to take on your driving duties for the day. Make sure to keep the company management apprised of all changes in schedule, well in advance.

4. Be Objective

Ensure to leave emotion out of work activities, especially if they are negative. This means you as a commercial vehicle driver will have to answer queries posed by the customers and senior colleagues in an unbiased, calm and neutral manner. In case of conflict with either the customer or a colleague, make sure to resolve it immediately when you get the chance.

5. Be Collaborative

As a commercial vehicle driver you must be ready to pick up the slack for others when the opportunity presents itself. This means taking on another colleagues shift when they cannot show up to work on a particular day.

5.1.4 Honoring Commitments at Work -

5When working for an organization it is important to complete work according to the planned schedule. This will ensure high productivity in the workplace and better morale amongst colleagues and peers. Given below are some ways to ensure you meet work commitments as planned:

1. Make and choose your commitments on purpose and according to plan

Always ensure that any commitments you make are well thought out and planned. Never make a commitment that you are not completely sure of keeping. With regard to a commercial vehicle driver this means that you have to pick and choose your driving assignments according to your state of mind (relaxed or tense), whether you are rested and alert (getting adequate sleep, or feeling sleepy) and so on.

2. Make sure your Decisions are firm and resolute

Once you make up your mind about a commitment make sure your mind does not waiver about the decision made. For a Commercial vehicle driver this means that you will have to plan pick-ups well in advance and not change your mind about the pick-up after accepting it, unless there is a genuine emergency.

3. Know the Consequences of not meeting a commitment

Always ensure that you know the adverse effects of not following up with a commitment. And remember it when you are thinking about ignoring, or overlooking a commitment. This will serve as a negative incentive to keep the commitment. In the case of a commercial vehicle driver you will have to think of the fare you might lose for delaying or cancelling a pickup.



Fig 5.1.13 Delayed Pickup

5.1.5 Handling Conflict at Work -

Every workplace is sure to have situations where colleagues will find themselves on the opposite sides of an argument. This means that friction and conflict between colleagues is a common occurrence, but colleagues will have to see to its immediate resolution to ensure a harmonious workplace

1. Address the Issue Sooner than Later

Whenever there is a problem at work it is best to bring it up the next available opportunity and resolve it. If this is not done, the productivity of work may be affected and may lead to bigger issues in the immediate future. For example if customer is found to be smoking, politely explain your view that smoking is not permitted in the vehicle.



Fig 5.1.14 Commercial Vehicle Driver Addressing the Issue.

If in case a commercial vehicle driver has a problem with the company management or employees, then he/she should bring it up with face to face interaction and try to resolve it immediately.

2. Try and Find Common Ground

If the customer is frustrated with a traffic jam and a route chosen to reach a destination, then the driver can start off by pointing out that the traffic in a city cannot be controlled by any single individual.



Fig 5.1.15 Traffic Jam

3. Listen to the passenger/customer while keeping an open mind

Commercial vehicle drivers have to listen to the grievance of the passenger/customer patiently and not be affected by the intensity of the discussion.



Fig 5.1.16 Driver Listening to Passenger/Customer Grievance

4. Stay Calm and Speak in a soothing tone when it is your turn to talk

When talking to the customer/passenger, the commercial vehicle driver should speak with detachment and should not respond emotionally to the customer



Fig 5.1.17 Driver Responding to the Customer Calmly

5. Be aware when a third party is required

When you are in the middle of an argument that is going out of control, it is best to bring in a third person or authority that is neutral to the situation. This will ensure that the dispute between people is halted, and a consensus is reached between the parties/individuals. When a commercial vehicle driver is in an argument with a customer/passenger, he can call the company to mediate a resolution or take the help of a government official such as a traffic policeman to diffuse and resolve the situation



Fig 5.1.18 Traffic Policeman Resolving the Situation

6. Learn from resolution as well as the conflict itself

Ensure that, when you have the time, you analyze the cause of the argument/conflict and prevent such situations from repeating again. Also make it a point to remember how the entire conflict was resolved in the end.

Summary 🗵

- 1. Always develop and maintain clear lines of communication with colleagues.
- 2. Stick to the planned Work Schedule and keep commitments with regard to work
- 3. Respect colleagues while executing work and keep people informed of any delays that are expected
- 4. Make it a point to keep a good rapport with colleagues and customers and solve any issue that arises out of conflict
- 5. Ensure that you follow company policies and procedures as needed at work

Notes		

1.	Write the process of communication?
2.	How do you improve verbal communication?
3.	What are the components of non-verbal communication?
4.	What are the ways to resolve conflict?

- 1. Use role-play to show the right and wrong ways to handle a conflict at work
- 2. Conduct a group discussion regarding effective communication methods.

UNIT 5.2: Organizational Context



At the end of this unit, you will be able to:

- 1. List the organizational policies and procedures relating to working with colleagues and roles and responsibilities linked to the same
- 2. Explain the importance of various ways to communicate and the situations in which they can be used.
- 3. Illustrate the need to create a workplace where colleagues and peers trust and respect each other
- 4. Analyze the impact our work will have on another colleague/teams work and their planned schedule.

5.2.1 Compliance with Company Policies and Procedure

A major part of following organizational policies is to work within the range of your job role and its responsibilities. Therefore it is important for a commercial vehicle driver to know the limits of a job role and procedures to follow when there is a doubt about a particular task is part of your job role.

5.2.2 Working within Organizational Roles & Responsibilities

When job roles are not defined properly, it might lead to low productivity and poor quality of work in the workplace. When required, employees in an organization should clarify doubts regarding their job role and work instructions.

This can be achieved by:

- Looking out for consistent and periodic support from senior colleagues, supervisors or managers as is required
- Utilizing consultation with work colleagues and along with staff meetings with superiors
- Referring to professional guidelines within the organization for use within and outside the organization
- Getting your position in the company stated in clear terms, or refer company manuals and professional standards and legislative provisions which are universally applicable
- Getting your core competencies analyzed through systematic assessment
- Keeping a record of all your work according to organizational standards for documentation

5.2.3 Clarifying Work Instructions

As a commercial vehicle driver the instructions that you need to follow may change in meaning or be unclear in its terms. Such instructions can be both written and verbal. As an employee you should bring to notice of the management or person in charge of any such issues involving job role and responsibility. This is especially true when the work quality is affected, or a dangerous situation is created.



Fig 5.2.1 Organizational Policy, Process and Procedure

Verbal Instructions

When you need to clarify a verbal instruction, as an employee you can ask the individual delivering the instruction to rephrase or repeat the instruction. This repetition or rephrasing should serve the purpose of clarifying the doubt about the instruction. When you choose to obtain clarification from another employee, you should make sure the individual should be able to provide precise information about the task to be performed.

If you are still not clear on the work instruction, the next step would be to ask for the instruction in writing and/or refer the existing workplace policies and procedures.

There are also cases where the organizational policy itself is not clear and needs to be re-written altogether with consultation from higher management.

Specialist advice is another option that can be leveraged when the written policies are unclear. This can be the actual individual who has written or sanctioned the actual policy or a member of the higher management as the situation requires.

With regard to a commercial vehicle driver this means that instructions regarding customer service and driving etiquette have to be clarified. This can be anything ranging from the way to load and unload the luggage to the number of trips a commercial vehicle driver is allowed to make in a day.

5.2.4 Good Work Relationships

Human beings are social living beings who need positive interactions in the form of friendships and other such positive interactions. Established research has shown that after food, water and safety the next thing that man needs are relationships such as friendships and other ties in life which fulfill a human's need to belong in an environment.

And since a people spend at least half of their waking hours at work, the individual will have to have good working relationships to have a balanced and fulfilling life.

The qualities of a good working relationship include, but are not restricted to

1. Trust and Open Communication

This forms the basis of every functional and healthy relationship. When there is trust among team

members and between teams, communication will be more effective with room for more open and honest information exchange.

2. Mindfulness

In this context Mindfulness means taking full responsibility of one's words and actions. Mindful individuals are careful about what they say and do. Try to be as objective as possible while dealing with the employing organization or the passenger/customer and leave out your personal bias and judgment.

3. Welcoming Diversity

This is very important to a commercial vehicle driver since the driver is bound to come across people from different parts of the country and in some cases, the world. This can be the customer/passenger or company management/employing organization.

For example if as a commercial vehicle driver you come across different opinions about how to treat a customer from written organizational policies and what your supervisor tells you – then you should carefully consider what has been said by the senior driver or supervisor, apply the insights of higher management into existing practices and policies. This will lead to a more productive workflow and better customer happiness.

4. Mutual Respect

Make sure to value the opinions of both the employing organization and the customer/passenger and find a good balance in between. This will ensure you respect everyone associated with the organization and make way for a smooth workflow.

5. Where to Build Good Work Relationships

This will depend on the stakeholders in a particular organization. In the case of a company/ employing organization the stakeholders from the perspective of a commercial vehicle driver is the customer, the supervisor/senior driver at work, other similar driver colleagues within the same company. It may also include higher management within the employing organization.



5.2.5 How to Build Good Work Relationships

Now that we have established the individuals and the location where to start off build good work relationships, you can now focus on how to go about doing it:

1. Develop your people skills

This is extremely important to a commercial vehicle driver who has to interact with people from different social and economic backgrounds and cultures on a daily basis. This means the individual will have to accommodate the customer in any possible, making the ride a pleasant one. You as a driver will need to collaborate, communicate and resolve conflicts on the spot to make sure you are considered as a good commercial vehicle driver.



Fig 5.2.3 Commercial Vehicle Driver Interacting with Different People

2. Build Emotional Intelligence

This is a more specific detail of the point mentioned above. As a commercial vehicle driver it means to know when to offer help to the customer, and when not to. It also means being sensitive to the moods and hardships faced in booking and boarding the vehicle. This will help you serve your customer/passenger on an emotional level.



3. Manage your Boundaries

This is also largely helpful to commercial vehicle driver in terms of knowing when not to cross the line in terms of necessary conversation, actions and help offered. For example to start a conversation on your own and expecting the customer to talk would be violating the customer's choice to remain silent or not speak.

4. Difficult Relationships

This refers more to interaction between the commercial vehicle driver and the supervisor/senior driver and other peers at the office or in the field. Every once in a while you as a driver are bound to be forced to work with people with whom you don't necessarily get along. In such cases you should make a conscious effort to make sure professional interactions are not hampered and no conflicts arise.

5.2.6 Choosing the Right Method to Communicate at Work

The process of transmitting information about and within the organization and its products and services is called business communication.

1. Recognize your target audience

The first step towards communicating effectively is to make a note of whom you are communicating with. If it is the customer then it is best to call or message the customer since they are direct forms of communication and convey a sense of urgency when they are initiated.





When it comes to your supervisor/senior driver or higher management at the employing organization it is best to organize a face to face communication or write an official email addressing the issue. In case of emergencies such as conflict with the passenger/customer you can call the employing organization

2. Analyze the Message

The next step in this process would be to consider the content of the communication or the message in mind. The criticality, length and overall function of the message will also help decide how to communicate.

For example – if a commercial vehicle driver wants to apply for a leave on the fly, then the driver will have to call the supervisor/senior driver in charge to quickly get the leave sanctioned and allow time for the employing organization to assign a replacement driver to take your place.

If the commercial vehicle driver wants to address an issue at length, for example an existing workplace policy that needs to be updates will need an appointment for a face to face meeting or at least an elaborate formal email listing the details of the issue and its possible resolutions.

3. Using Interactive Channels

This is rare circumstances where the commercial vehicle driver will need feedback on the quality of his driving from the supervisor/senior driver or even the customer/passenger as required. It may also be required when you dealing with work appraisals which have to be approved by the person in charge at work. One can use app data (Customer feedback) or online feedback forms to get such interactive feedback information.

5.2.7 Creating a Work Environment which Supports Mutual Respect and Trust

A commercial vehicle driver can contribute towards making the workplace one that fosters mutual trust and respect by following all organizational policies and procedures right down to a t and encouraging others to do the same.

As a driver you will also have to be accountable for the work you do and not create delays for others in the workplace. This will be explained below.

5.2.8 Accountability and Transparency at the Workplace

This will involve using all the methods given above to achieve complete accountability in terms of the tasks executed at work and documentation file in view of the same.

Accountability with regard to a commercial vehicle driver is to work according to company procedure and policy, and documenting the work done on a daily basis. And this can be done through these activities :

This means the commercial vehicle driver will have to follow proper sign in and sign out procedures as set down by the employing organization. End of day closure procedures play a large role in this, with the driver completing the daily log register as required by the company



Fig 5.2.6 Levels of Accountability

The driver will have to register the time spent driving customers, filing grievances, long breaks taken within the work day and unscheduled holidays and leaves applied for, and those that were sanctioned accordingly

If all work done at the workplace (in this case driving the employing organization) is documented according to company policy, then transparency into work process is said to be achieved on an enterprise level.

Your work should not have a negative impact on your colleagues or supervisors at work. That is the main aim of being accountable at the workplace.

Summary 🗵

- 1. Always keep in mind the importance of a workplace based on mutual trust and respect
- 2. Make sure to use the right method of communication for the right individual at the right time
- 3. Work in a way which maximizes positive impact on peers and colleagues and minimizes negative impact

Notes			

L.	List the obstacles to the meaningful implementation of organizational policy at the workplace
2.	How do you ensure mutual respect and trust at the workplace?
3.	Why is accountability essential to a workplace?

- 1. Conduct a group discussion among your peers and arrive at conclusion about a topic
- 2. Role-play the scenario at the workplace which deals with non-compliance

UNIT 5.3: Technical Knowledge



At the end of this unit, you will be able to:

- 1. Explain the types and forms of information that colleagues will need, and the need to provide such information when there is a requirement.
- 2. List the ways in which you can help colleagues with issues, so that desired quality in work is achieved

5.3.1 Definition of Technical Knowledge

A complete understanding of anything that can be applied to any issue or application is called as technical knowledge. It can also be used for reasoning in any form, to solve a problem or perform a task or procedure. It can be used as a tool to understand a work or job along with the help of modern technology and its working.

5.3.2 Information Sharing and Knowledge Management

Within the context of an enterprise, information sharing refers to the set of activities and processes through which skills, information and expertise are exchanged between colleagues and team members within and outside the organization as required.

On a similar note, Knowledge management refers to the process making the right knowledge available to the right people and at the right time. It is about ensuring that an organization and its employees can learn, and that it will be able to recover and use its knowledge resources in existing applications as and when they are needed.



Fig 5.3.1 Knowledge Management (KM) Process Model

1. Use the right Channels for Cross-Functional Communication

From the perspective of a commercial vehicle driver you need to communicate with fellow drivers and supervisors etc. In case of doubts regarding organizational policy you can email your senior at work or arrange a face to face meeting according to need.

In case of repairs to be performed on the vehicle, the minimum requirement is a telephone call and the appropriate medium of communication would be meeting face to face to point out the issues in the vehicle.

2. Eliminate Communication Barriers

Even if there is an open work culture aiding the commercial vehicle driver interacting with other departments such as the call center, vehicle service technicians and fellow drivers and seniors, the communication may still be hampered. This is mostly due to lack of infrastructure needed for communication. This can be anything ranging from a smartphone, to a two way radio to on-board computers for sending emails.

3. Encourage Information Sharing

From the viewpoint of a commercial vehicle driver this means that information regarding efficient routes, vehicle operation and so on can be shared with other drivers and management as well. This will facilitate an open work culture, which will lead to increased productivity and collaboration amongst colleagues.

5.3.3 Supporting Colleagues with Work Issues

To foster a productive work environment, one has to ensure they help their peers and colleagues with regard to work activities. A commercial vehicle driver can help out other colleagues new to the organization or Company by helping them in areas known to be problematic such as closure procedures and end of day reporting.

The commercial vehicle driver can also help drivers new to the organization by helping them understand company policy and help them stick to it.

Summary 🗵

- 1. Always see to information sharing at work with each other for the betterment of self and the organization as a whole
- 2. Make it a point to help colleagues and peers in any way you can

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	What is the need for Technical Knowledge at work?
2.	Explain the difference between information sharing and knowledge management
3.	What are the different ways in which you can support colleagues and peers at work?
5.	

- 1. Role-play the conversation between a driving instructor and a driving student amongst the class
- 2. Visit your local emission testing center and observe an emission test being performed on a commercial vehicle. Note down the procedure.





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Transforming the skill landscape



6. Practice HSE and Security Related Guidelines

- Unit 6.1 Communicating Potential Accident Points
- Unit 6.2 Cleanliness and Hygiene
- Unit 6.3 Limit Damage to People/Client and Public
- Unit 6.4 Organizational Context
- Unit 6.5 Technical Knowledge



Key Learning Outcomes

At the end of the module, you will be able to:

- 1. Inspect and list possible safety issues while driving
- 2. Comply with guidelines and regulations stated by transport authorities
- 3. Comply with organizational rules and policies to prevent problems associated with health, safety and environment
- 4. Ensure the vehicle is kept clean
- 5. Outline and escalate problems regarding hygiene and cleanliness to the related department
- 6. Outline and escalate problems concerning hazardous material to the relevant authority both internal and external or the employing company and the passenger
- 7. Perform emergency procedures to reduce the danger to life and damage to goods
- 8. Perform procedures according to set rules and instructions to reduce damage and danger
- 9. Escalate issues when you cannot handle them by yourself
- 10. Ensure you give accurate information to others to help them take necessary corrective action
- 11. Identify and inform relevant personnel about safety issues according organizational guidelines
- 12. List out difficulties faced in complying with organization health and safety guidelines in detail to the management.
- 13. Test vehicle exhaust as stated by guidelines and ensure it is up to par with emission regulations.
- 14. Plan and execute disposal of waste resulting from vehicle cleaning according to environmental regulations
- 15. Notify relevant authority in case of safety and emergency issues
- 16. Explain activities to be carried out as part of safety procedures
- 17. Outline efficient ways to inform others of safety incidents or emergency situations and how to prevent them
- 18. Recall the ways to get help during emergency and safety situations
- 19. Explain the usage of relevant equipment and alarm systems to minimize danger
- 20. Plan and define alternate routes in the event of natural calamity or road diversion
UNIT 6.1: Communicating Potential Accident Points



At the end of this unit, you will be able to:

- 1. Inspect and list possible safety issues which may come up while driving
- 2. Comply with guidelines and regulations stated by transport authorities
- 3. Comply with organizational rules and policies to prevent problems associated with health, safety and environment

6.1.1 Introduction to Health, Safety and Environment (HSE) -

The Health, Safety and Environment department of an organization deals with the well-being of the employees, and the customers of the organization.

Health – this deals with the welfare of the employees in general who work for the organization. The health function will focus on the effect of driving for long periods with short breaks in a company.

Safety – this deals with the safety aspect of an employee in the organization. Working as a commercial vehicle driver has a few risks, and the safety function aims to minimize such risks for the drivers.

Environment – this deals with the effect that an organization will have on the environment. With regard to a company this will deal with waste management and exhaust emissions.

6.1.2 Driver Training

It is the responsibility of a driver to update their required skills and knowledge according to the regulations and organizational needs which tend to change with time.

Drivers who are out of touch with driving or need to adapt to handling new and complicated driving systems need to undergo training aimed at refreshing skills with regard to driving and related safety tips.



Fig 6.1.1 Driving Training with Instructor

Simulators in Driver Training

Before driving a real commercial vehicles, the drivers should first practice driving using simulators. With a driving simulator, commercial vehicle driver can practice driving in a virtual environment.

Simulator consists of a stationary truck/bus cabin with all controls such as brake, clutch, Steering etc., and also a real dashboard assembly & controls and uses computer software to resemble real life road situations and responds as per driver inputs.

Simulators helps commercial vehicle drivers in familiarizing with controls of the Truck/buses, learn correct driving practices and gives them full confidence before they learn to drive the real commercial vehicles on the road.

Below typical image of a driving simulator.



Fig 6.1.2 Typical Full Cabin Bus Simulator

6.1.3 Driver Qualification and Authorization

The employing organization should state in clear terms the policies and procedures which govern the work schedule of a commercial vehicle driver in a company. Such policies and procedures will generally indicate the rules and regulations with regard to driver qualifications and safety regulations for the vehicle.

For details on the documents that a qualified driver will have to carry to drive a vehicle, please refer Section 2.1. For information on the pre-trip checks that have to be carried out on the vehicle are described in Section 2.2. And information on the escalation of problems found during inspection are covered in detail in Section 2.3



Fig 6.1.3 Qualified Commercial Vehicle Driver

An important pre-requisite for a driver to operate a vehicle for transport is to keep oneself and the employing organization appraised of any adverse health conditions that may affect driving, and related safety.

Details of any medical conditions related to driving must be immediately reported to the employing organization at the next available opportunity.

6.1.4 Factors affecting Driving Performance

A commercial vehicle driver should consider and factor in physical and psychological health equally along with emotional state and their overall attitude towards driving for work. To ensure that the above mentioned factors are in line with organizational standards you should make sure that you consider

- 1. Fatigue
- 2. Temporary illness
- 3. Pre-existing medical conditions
- 4. Use of prescription medication and recreational drugs along with alcohol
- 5. Daily stress levels while reporting to work



Fig 6.1.4 Factors Affecting Driving Performance

1. Fatigue

This one of the major causes which leads to serious and sometimes fatal accidents from vehicular collisions. Most accidents that happen are due to tired drivers who can't focus on the road and can't keep the speed in check. Therefore the impact that happens occurs at high speeds.

Fatigue will result when drivers keep driving without adequate rest/sleep, or monotonous roads without many turns and disturbances in the road.

Drivers should:

- Ensure that you are well rested, and on the whole feeling fit and healthy and not under any medication before beginning long journeys
- For long trips, ensure you take regular and scheduled breaks of a predetermined duration.
- Always make sure you do not undertake long drive after a full day's work.



Fig 6.1.5 Factors Adversely Affecting Driving

In general it is a good practice to avoid driving during the time you are supposed to sleep – early morning or late in the night. If you have to take up driving in theses hours, then make sure that you are well rested and alert before setting out for a drive.

If you are feeling sleepy while in the middle of a driving assignment, make sure to inform the customer/passenger you have to stop for a caffeinated beverage and consume tea or coffee accordingly



2. Temporary Illness

This may be anything from cough and cold to recurring bouts of fever and non-fatal illnesses. In this case the driver will have to make ensure adequate rest, nutrition and medication prescribed by a doctor of medicine.

3. Pre-existing Medical conditions

Asthmatic individuals, people with knee and joint problems will have to ensure that such conditions will not hamper driving efficiency. Such conditions are called pre-existing because the individuals will have them at the time of joining.

Use of prescription medication and recreational drugs along with alcohol

If a person is taking medication prescribed by a doctor there is a high probability that some such medicines may cause drowsiness and loss of focus. Such side effects may seriously affect driving and lead to safety incidents.

4. Daily Stress Levels

The stress level of the driver operating the vehicle is usually ignored by the employing organization. If the commercial vehicle driver has been driving on routes with heavy traffic with minimal breaks, then the driver is bound to be irritable and will be susceptible to bouts of road rage.

When dealing with elevated levels of stress at work, the individual (driver) should immediately report the cause of stress to the line manager.

5. Pre-drive Vehicle Checks with regard to contents of transport

As a commercial vehicle driver the individual should consider whether the vehicle if fit to perform transport task. This can be done by ensuring:

When transporting passengers, you should check and verify if each occupant in the vehicle has a seatbelt, and if they are secured with said seatbelt

When transporting children using the vehicle, check to ensure the availability of a child seat and/or child restraints for each child in the vehicle

When transporting an animal such as a pet (cat/dog etc) or any heavy load, check to see if the load is secured.

6. Maintain your company vehicles properly

Vehicle maintenance should always be done thoroughly. It is not helpful just as a preventative measure but also helps up the fuel efficiency and vehicle life and overall ride quality.



Fig 6.1.7 Maintaining a Vehicle

You have to follow and fulfill the maintenance requirements as specified by the manufacturer, according to the set schedule they provide or recommend. This means the commercial vehicle driver will have to schedule the vehicle for the downtime (time away from productive and functional use). And only qualified and certified personnel should work on and service the vehicles

7. Tire checks

This is a vital part of vehicle maintenance. This is because historic and recent research has shown that around 60% of crashes which turn fatal are due to badly maintained tires. This means the driver will have to check tire depth and pressure on a regular basis. Below picture depicts properly inflated, under inflated and over inflated tire. Commercial vehicle driver should always refer vehicle owner's manual for recommended tire pressure.



8. Safety Belt Checks

Drivers should look out for fraying, fading, cuts in the tire and its flexibility as well.



Fig 6.1.9 Safety Belt Check

9. Rust Checks

This is just as important as the last few checks. Such rust checks should be performed on the core structural components of the vehicle. Rusted components should be eliminated immediately and any residual rust must be removed early on to stop its spreading. This will save money by prolonging the life of the vehicle



Fig 6.1.10 Rust Maintenance

10. Exhaust System Checks

Consistent and periodic checks to inspect and rectify any issues with the exhaust system of the vehicle will go a long way in increasing ride safety of the vehicle. A major concern with exhaust systems is the detection and prevention of Carbon Monoxide poisoning.



Fig 6.1.11 Faulty Exhaust System of Commercial Vehicle

11. Special Equipment

All vehicles, especially the ones meant for transport must be fitted with safety equipment such as a portable fire extinguisher, a reflective triangle for breakdowns, a torch, a first aid kit, and a reflective vest for high visibility during breakdowns.



Fig 6.1.12 Fire Extinguisher Placement in a Truck



1.	List the ways to inspect the safety issues in a vehicle
2.	Explain the various guidelines related to safety set by the government

UNIT 6.2: Cleanliness and Hygiene



At the end of this unit, you will be able to:

- 1. Ensure the vehicle is kept clean
- 2. Outline and escalate problems regarding hygiene and cleanliness to the related department

6.2.1 General Guidelines for Hassle-Free Driving

The Windscreen and rear windows of the vehicle should always be kept free from clutter and other unwanted items to offer an unobstructed view of the road and the rear traffic flow. This will also be helpful to aid efficient demisting of the windscreen when it is cold outside.



Fig 6.2.1 Keeping the Vehicle Windshield Clean

The dashboard of the vehicle should always be kept clear and should be completely free of loose items. Any items that are present on the dashboard should be affixed to the dashboard itself using a stand or some kind of grip. This is important since at the very least, loose items will move every time there is braking, or a sharp turn is taken – which will be distracting and will make the driver to lose focus on driving.



Fig 6.2.2 Mistakes to Avoid While Driving

A more serious issue is when the loose items fall from the dashboard and gets lodged between the brake pedals.

Larger items in the vehicle should be kept low and close to the vehicle floor. This is so that the vehicle will have better balance when being driven at higher speeds.

6.2.2 How to Keep your Vehicle Clean —

It is good practice to keep the vehicle clean, starting from the vehicle cabin. Since a commercial vehicle driver will spend a majority of your time in the vehicle cabin. It will help eliminate some of the stress associated with driving for long hours.

1. Using a Vacuum Cleaner

The simplest way to clean a vehicle cabin is by using a vacuum cleaner to eliminate all the dust and debris present in the truck/bus. You can remove dust from hard to reach places in a vehicle cabin using a vacuum cleaner.



Fig 6.2.3 Vacuuming a Vehicle Cabin

2. Reduce and Eliminate Unnecessary Items

Make it a point to keep only useful and functional items in the vehicle. Anything that is not absolutely required must be removed from the vehicle. It is also good to keep the windows rolled up when you can, to avoid buildup of dust inside the vehicle cabin.

3. Use Appropriate Footwear

One of the most common ways a vehicle cabin gets dirty is through the use of footwear. One can use a comfortable pair of footwear to drive the cab, and another pair to tread outside the cab for longer periods. This will prevent the buildup of mud and sand inside the vehicle.

4. Designated Places for items

Always ensure you keep all items needed in the vehicle in their designated place. For example a tissue box can be placed either at the center of the dashboard or behind the rear seats. Loose change and coins can be kept in the cup holder or other such holder in the vehicle. You can also use item organizers which help keep things in order in the truck/bus.



Fig 6.2.4 Organizer for a Vehicle

5. Clean and/ or Change the Carpets Periodically

Most dirt, grime and unwanted smells originate from the carpet that lines the vehicle cabin. This means that just cleaning the carpet on the floor of the vehicle will increase how clean it will look and feel.



Fig 6.2.5 Vehicle Carpet Before and After Cleaning

6. Wipe down Surfaces

The next major area to target in the vehicle cabin is any open surface, be it metal, plastic or fibre. Such areas accessible by customers will be subjected to dirt, sweat and other things which are undesirable. By using a wet wipe or a simple cotton cloth dipped in disinfectant over such surfaces can lead to a much cleaner vehicle.



Fig 6.2.6 Wiping Down Surfaces

6.2.3 Personal Hygiene —

In order to ensure safety for those on the road and also those inside the vehicle, it is important that the driver strictly comply with the duty guidelines. These include several aspects such as reporting on time, maintenance of vehicle, safety & health regulations amongst others. Details regarding these are covered in the subsequent sections.



Fig 6.2.7 Ways to Groom Yourself

Driver health n hygiene (may be fit into 6.2.7) covering common possibilities i.e. AIDS, Vision, Hearing, BP, Sugar, Heart ailment - Symptoms, precautions and recommendations - To be included in Common Module

6.2.4 Commercial Vehicle Driver Health Issues

A commercial vehicle driver will spend a majority of his working hours driving the vehicle. Such long hours of driving without proper rest can be harmful to an individual. Such individuals will sit in a small space inside the vehicle without any change in movement. Also, the driver will most commonly eat unhealthy foods. Such factors may lead to serious health conditions. Therefore it is important for such individuals to pay attention to such symptoms of ill health.

Given below are a few symptoms of ill health observed in commercial vehicle drivers and ways to stay healthy:

A Healthy Heart

A non-active lifestyle will directly lead to obesity (being overweight) and impairment of general bodily functions. Without eating healthy and exercising, a person will suffer from high blood pressure, blood sugar, unhealthy cholesterol levels and so on. This will in turn lead to heart disease such as heart attack which will prove fatal without immediate medical attention.

Prevention of heart disease

A truck driver will have to eat healthy, on-time, avoid meal-skipping and stay away from smoking and drinking alcohol. Regular exercise in free time is recommended for all commercial vehicle drivers. This is because they will require physical activity to compensate for their inactive lifestyle.



Fig 6.2.8 Exercises for Commercial Vehicle Drivers

The driver should eat at hygienic places, or if possible, pack food from home. The individual should avoid fried food and excessive consumption of sweets and junk food. It is recommended that the individual maintain a healthy and balanced diet including green vegetables and fruits for dessert.



Fig 6.2.9 Healthy Eating for Drivers

Stress at Work

Commercial vehicle drivers will face stress in the form of physical strain of driving and being confined to the vehicle cabin for long periods. This might lead to loneliness and depression and all-round poor health.



Fig 6.2.10 Stress from Driving

work will help lead a more balanced life and will also keep you active. If you are facing the symptoms of stress it is best to seek medical help.

If the stress is mainly because of high workloads, you can speak to management to reduce the number of work-hours. At the very least, you can do better route planning to save time while driving.

Vision

It is very important for a commercial vehicle driver to get eyesight checked periodically. A driver must be able to see the road ahead clearly and should not suffer from short sight or long sight when using spectacles/visual aid.

If you are unable to see or read clearly you should immediately get your eyesight checked by a certified optometrist. And if corrective lenses are prescribed, the you should wear them regularly.

Acquired Immuno Deficiency Syndrome (AIDS)

AIDS is a disease which completely disables the immune system of a person, and is caused by a virus. As a commercial vehicle driver, you can prevent the contraction of AIDS by:

- Limiting the number of sexual partners when on the road
- Not hiring commercial sex workers
- Using a condom when having sexual intercourse with a person you don't know

Seek Health Care

Since commercial vehicle drivers spend most of their time driving, it is hard for them to access good health care. This means, as a driver you have to notice symptoms of stress and ill health and immediately seek help when possible.

Drivers who are diabetic should be extra careful of what they eat to keep their sugar levels in check. It is recommended that they carry insulin with them as they travel and use it as directed by the doctor

Find a Place to Sleep

A major cause of stress for drivers is not finding a place to sleep. It is best to use a rest stop/hotel to get good sleep. Most drivers tend to park their vehicle on the road side to sleep for a while. This may not be healthy to get good sleep for the driver since the vehicle cabin in most cases is not built for sleeping, only sitting. Another concern for drivers is safety while sleeping. Sleeping in a vehicle is not safe and increases the risk of being attacked, robbed or burgled.



Fig 6.2.11 Avoid Sleeping in the Vehicle

It is best for you as a driver to plan routes well in advance so that you make time for adequate sleep at an appropriate location. This will greatly help and increase driving performance and decrease work-related stress and other health related issues

– Summary 뾛

- 1. Always ensure the vehicle you drive is clean and spotless
- 2. Make it a point to notify management about problems with vehicle hygiene and cleanliness

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the ways and tools required to clean yo	ur vehicle	
scribe the difficulties a driver would face	e while cleaning the vehicle	
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UNIT 6.3: Limit Damage to People/ client and Public



At the end of this unit, you will be able to:

- 1. Execute instantaneous actions to minimize the damage or danger to life and goods accordingly
- 2. Perform actions as specified by rule or detailed instructions to minimize all kinds of damage and danger
- 3. Raise the issue instantly when you cannot handle the situation on your own effectively, for example reporting the issue to the police control room
- 4. Explain instructions clearly and give precise information to others to enable them to take needed action
- 5. List and notify any issue at work that may endanger people or property according to operator manual or guidelines
- 6. Inform management of any difficulty you face in complying with organizational health and safety guidelines along with precise details of non-compliance
- 7. Inspect vehicle exhaust as required by the guidelines and validate that the vehicle is complying with emission regulations. If it is not within regulation limits, then take corrective action with the help of a service technician
- 8. Organize proper disposal of waste which results from servicing and cleaning the vehicle. Such waste disposal should be within environmental regulations

6.3.1 Occupational Hazards

A hazard or danger that is naturally associated with a profession or a job and that is specific to that particular job role is called an occupational hazard.

For example – miners will face the occupational hazard of respiratory disorders due to the constant exposure to air contaminants.





Check to see if Passengers are Buckled in



Plan for the Best Route



Stay Healthy and Presentable



Always buckle in your Seatbelt

Fig 6.3.1 Practices to Limit Danger While Driving

As a commercial vehicle driver an individual will be working mostly alone and any incidents such as accidents and lapses in driving safety have to be handled on one's own. Risks such as robbery, abusive and aggressive customers/passengers, physical assaults, road rage, and unpredictable health issues such as a heart attack or an asthma attack are possibilities while transporting people and goods.

1. The effect of Noise on the commercial vehicle driver

Drivers face the risk of losing their hearing partially or completely in proportion to the levels of noise they are exposed. Tinnitus is another medical condition where there is continuous ringing in one's years caused by over-exposure to noise.

Such unnecessary exposure to traffic and other ambient noise above tolerable levels can be vehicle.

2. The effect of Vibration on the commercial vehicle driver

Vibration in this context refers to the shaking that is conducted from the vehicle engine to the driver through indirect contact.

Excessive vibration can lead to disorders such as carpal tunnel syndrome which refers a numbness and tingling in the hand and/or arm due to a pinched nerve in the wrist.

Also possible is sensory nerve damage along with muscle and joint pain, which if left uncorrected will lead to permanent damage. In extreme cases it may lead to complex heart conditions and even permanent digestive disorders.

3. Motor Disorders

A commercial vehicle driver must drive for long hours without many breaks, scheduled or otherwise. This means not changing one's posture while in a seated position. If the seat in the vehicle is badly designed or if the driver does not correct his posture accordingly it may lead to serious damage to his motor system. The motor system of a person consists of a set of nerves and muscles responsible for movement in a person.



Fig 6.3.2 Commercial Vehicle Driver in Seated Position

Drivers are commonly exposed to risk factors dealing with back pain. These include:

Prolonged seating in an individual posture according to vehicle cabin and seat design,

The overall posture of the body due to the vibration experienced by the body as a whole while driving

The overall posture which is affected by manual activities such as lifting luggage and helping elderly and disabled passengers throughout the day

6.3.2 Countermeasures to Prevent Back Problems

- 1. Adjust the seat so that you are comfortable and can reach the driving controls easily with minimal effort and strain
- 2. Adjust mirrors in the vehicle including the rear view and side view mirrors in order to minimize body twisting
- 3. Make it a point to take timely breaks in order to change seating posture and promote healthy blood circulation to the limbs



6.3.3 Other Occupational Hazards -

Apart from the obvious difficulties that a commercial vehicle driver will face while driving, There are also several other notable ways in which a commercial vehicle driver may put himself or the customer in harm's way by not following proper procedure.

1. Luggage handling

- a. Ensure you keep the luggage as close to the body as possible when handling it. This applies to both loading and unloading
- b. Do not lift luggage with the back completely bent or twisted
- c. In case you cannot handle the load of a luggage, be sure to take help from a porter
- d. Ensure that you test the weight of the luggage/load before lifting it.
- e. Ensure you seek help from qualified professional when you are dealing with sprain or strain injuries



Fig 6.3.4 How to Lift Loads



Fig 6.3.5 How not to Lift Loads

2. Assisting people with disabilities or mobility issues

- a. Ensure you discuss passenger needs before the trip begins and check whether you can meet them on your own, or will need help
- b. Do not try to physically lift passengers into the vehicle even if they are disabled



Fig 6.3.6 Cause of Traffic Violations

3. Risk factors associated with the environment include

- a. Roads made on an incline or a slope poses a risk to picking up customers, especially with regard to disabled or wheelchair bound customers/passengers
- b. High Speed Traffic in close proximity to the commercial vehicle
- c. Objects or obstacles on the curb such as parked cars which throttle visibility and reduce the space to drive in
- d. Uneven terrain or bad roads in general such as a road which laid with cobble stone
- e. Any form of precipitation such as rain, snow or ice which will drastically increase the probability of slipping both for the vehicle and the customer who is boarding the vehicle

4. Aggressive/Violent customers or Fellow Drivers

As a commercial vehicle driver you may come across a significant number of customers who are frustrated, irritated or plain aggressive and hostile. This might be due to several reasons such as the individuals or set of individuals being intoxicated (drunk), having had a bad day and so on. In such situations as a commercial vehicle driver you will have to handle the customer with caution.

What to do in case you are faced with an aggressive customer:

- a. Always be polite and focus on good customer service. Make eye contact with the customer for the appropriate amount of time but do not overdo it, else it might be mistaken for intimidation
- b. Always act in a non-confrontational even when faced with an argumentative customer
- c. Do not try to aggravate the situation by responding to physical threats
- d. Try as much as possible not to leave the vehicle which you are driving as it is the safest place you can be during a confrontation or an argument
- e. If you feel uncomfortable with a job, or feel unsafe accepting it, do not do so
- f. Try as much as possible not to offer personal information to customers/passengers if it is not needed.



Fig 6.3.7 Aggressive Driving

5. How to avoid dangerous situations during Pick up

Commercial Vehicle drivers can avoid the risk of being attacked by violent individuals or being robbed. This can be done by avoiding poorly lit locations while picking up customers/passengers.

- Always ask the customer/passenger to select a boarding/pick up point which is well lit.
- If the commercial vehicle driver picks up the passenger/customer in a dark area then there is a risk of being assaulted or robbed by the person you are picking up, and even if you call for help people will not be able to come to your aid soon enough. Therefore it is advisable to pick up customers from well-lit areas and locations

Summary

- 1. Always perform immediate emergency procedures to minimize damage and danger to life and goods
- 2. Always ensure the actions taken are according to company policy
- 3. Make it a point to bring up issues with management, when you cannot handle said issues on your own
- 4. Always ensure instructions about emergency actions and communication to colleagues are precise.
- 5. Notify all issues/problem as per company guidelines
- 6. Difficulty in complying with company policy must be immediately reported to management
- 7. Always make it a point to inspect exhaust systems to comply with environmental norms
- 8. Dispose of waste from cleaning responsibly

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	swer the following:
1.	List the types of waste generate by cleaning your vehicle
2.	List situations in the company where it is difficult to comply with company policy
3.	Explain how to inspect an exhaust system

- 1. Conduct a role-play between a management representative and an employee regarding discussion of company policy
- 2. Visit a local vehicle wash facility and list the types of wastes that is generated while cleaning vehicles

UNIT 6.4: Organizational Context



At the end of this unit, you will be able to:

- 1. Safety and emergency issues should be reported to the appropriate personnel/ department as specified by organization guidelines
- 2. List all actions you can perform to minimize danger caused by hazards at work
- 3. Explain the most effective and relevant ways to communicate to others about safety and emergency situation and how safety incidents can be prevented
- 4. List the ways and places to obtain help in handling emergency and safety situations

6.4.1 Hazard Identification and Reporting -

Industrial and organizational guidelines often state that the presence of any hazard in the workplace must be immediately reported to the supervisor. This will act as the first step to eliminate or neutralize the aforementioned hazard and minimize its impact on the employees and their productivity.

Every hazard should be reported to the next in charge/supervisor/line manager. When the required personnel are not available, you should make an effort to reach the next individual responsible for managing hazards.

6.4.2 Incident and Injury

An incident with regard to health, safety and environment is the happening of any unplanned event that interrupts and negatively affects the normal completion of a work activity. An injury is damage or physical/psychological hurt caused to an individual due to external agents or circumstances.

Usually an incident means there is minimal or no injury to the individual.

For example, a commercial vehicle driver denting another vehicle while driving in peak traffic will be an incident, and the driver and the customer won't have suffered any injury

Injuries can result from hazards at work which can be physical, chemical, or biological in nature. In case of a commercial vehicle driver, physical hazards can be speeding vehicles, chemical hazards can be the vehicular exhaust inhaled during driving and biological hazards maybe any infectious diseases contracted while driving.

6.4.3 Issue/Problem —

In a workplace, an issue/problem is the result of a collection of number of incidents with regard to a particular aspect. An issue is significantly more serious than an incident and needs immediate and thorough resolution by higher management, to avoid incidents in the future.

While Issues/problems are not incidents, the existence of a problem means that there is a high chance of a particular incident repeating.

6.4.4 Reporting Incidents and Issues to Line Manager/Supervisor

Any workplace or job profile will come with a set of risks related to work activities. During the time of employment if you come across an incident or a safety issue, it is your responsibility as an employee to report such incidents and issues to the Line Manager/Supervisor.

If you or your colleague or customer is in immediate danger then you should take prioritize and take immediate action to minimize risk and danger to the individual and those around the individual.



Fig 6.4.1 Hierarchy of Controls Process



But if the situation does not need immediate attention then you should report such events to the concerned authority according to organizational guidelines and follow procedure. The steps to report such events are as given below:

1. Check and Validate/Verify the Problem

Before reporting the problem you have to ensure that you have all the information needed to state the problem in its entirety along with the possible resolutions. This will show that the issue has been analyzed and significant enough to take action on.

2. Follow Chain of Command

When reporting safety incidents, be sure to report according to hierarchy set up at work. This means a commercial vehicle driver must first report to the supervisor followed by the next-in-charge and so on. The commercial vehicle driver should not notify top management directly, since this will be ineffective in terms of documentation and protocol.

3. Report Objectively

Irrespective of how the issue has affected you or your colleagues or customers, it is advisable to leave out subjective/emotional assessment of such an issue. This will help get the details of the issue across clearly and will improve chances of resolving the issue greatly.

4. Preventing Injury at Work

Injury at the workplace is undesirable for both the employed individual and the organization. This is because the injured individual may be physically/psychologically hurt reducing the capacity to work. The reduction in productivity of its employee will directly reduce the organization's revenue. It may also lead to extra costs in terms of insurance and hospitalization payments along with replacement of work equipment and machinery. Therefore it is essential to carry out activities that will help reduce the amount of risk of damage to people and equipment according to the points given below:

5. **Keep Your Workspace Organized-** in the case of a commercial vehicle driver this means keeping the vehicle cabin clear and free of clutter and unnecessary items. The commercial vehicle driver can keep the workspace clean by organizing items such as tissue paper box, loose change, reading material such as magazines and more. Also one can arrange items such as water bottles and snacks in the right place such as cup holders and doors compartments.



Fig 6.4.3 Clean Truck Cabin

6. **Inspect Vehicle and Comply with Safety Measures** – a commercial vehicle driver can do this by checking the vehicle for malfunctioning parts and systems and correcting the same

- 7. Avoid shortcuts it is of great importance for the individual (commercial vehicle driver) to carry out safety inspection procedures in their entirety and not skip any portion of the inspection procedure. This will help prevent any problem in the future.
- 8. **Request for Training** it is your right as an employee to be trained as needed for a particular job profile as specified by most government regulations and guidelines. This is especially true in case of safety procedures and processes.
- 9. Use Personnel Protective Equipment (PPE) the commercial vehicle driver can use PPE to help work better such as driving gloves and driving glasses and so on.



Fig 6.4.4 Driving Gloves

10. Improving Safety at work through Effective Communication

Communication with regard to safety at work includes various types of policies and procedures, risk assessments, hazard and incident reports, workplace statistics and training.

It is essential to involve and engage work staff in the use of effective communication methods to ensure their and cooperation and support with regard to safety methods compliance.

Such methods, techniques and procedures must support and enhance the existing technical and practical safety plans.

Clear safety communication will enhance an individual's knowledge and understanding of workplace hazards and risks. This will promote safe work practices and immediately add to productivity on an organizational level.





6.4.5 Types of Safety Communication

Some of the most commonly used methods to communicate safety strategies are given below:

1. Health Safety and Environment (HSE) mission statement, policy and strategic plan

A HSE mission statement and policy will help define and communicate the path of the safety process

It will also offer a reference point for making HSE decisions in the organization as well as on an individual level. A good HSE strategic plan can communicate the priorities and objectives that are in line with the complete business plan.



Fig 6.4.6 HSE Report in a Company

2. HSE statistics

An establishment can communicate its performance through graphs showing the down time/lost time; medical treatments availed by its employees, and other workers. It also includes compensation rates, severity and the number of incidents. This will also include other positive performance indicators.

These are used to enable progressive enhancement of the accountability of line management (supervisors/managers) with regard to organizational HSE objectives.

3. Safety induction

HSE supervisors and certified practitioners can provide on-site rules and requirements, through a safety induction meeting conducted periodically – either weekly or monthly. This will help employees perform their work activities in a safe manner.

Commercial vehicle drivers can pick up parking procedures and use of safety and hazard equipment form such sessions.

4. Risk assessment

Since an individual can be at risk without even knowing it, risk assessment is vital to all personnel on the workforce. Hazards such as chemicals, moving parts and so on will pose an immediate risk of injury. By listing all work activities and hashing out all risks associate with the said activity you can complete risk assessment.


Fig 6.4.7 Risk Management

Commercial vehicle drivers may also be subjected to risks without knowing of it. This can be the silent inhalation of Carbon Monoxide (vehicular exhaust) without knowing it. This risk can be averted by rolling up windows or using face masks.

5. Manuals, checklists and operating procedures

Safety manuals are a complete collection of rules, regulations and process and procedural requirements needed to work safely in an organization.

Checklists are a list of activities that need to be carried out in order to achieve the objective of the checklist. These checklists can include the ways to prevent incidents and hazards at the workplace and can help make informed decisions about an issue or an incident.



Fig 6.4.8 Manuals and Documentation

For a commercial vehicle driver this may mean using the Pre-Drive Checklist to ensure the vehicle is safe to drive.

Maintenance logbooks give a historical profile of plant and machinery. Working methodology give guidance on safe work practices. The lockout or tagout of faulty equipment or work in progress can convey potential danger.

6. Training

One of the most effective ways to bring awareness with regard to HSE is to train the employees periodically. This is different from safety induction as it is more comprehensive, covering every incident possible at work. Safety induction is also a part of training but while every company will have safety induction at the start of employment, ongoing training in safety procedures is rare.

Training is organized by companies to cover any gaps in knowledge and understanding related to safety. Such training can either be comprehensive or cover every section of the workforce, or it can target a certain section of the workforce to solve specific problems.

A commercial vehicle driver can be trained in every aspect of HSE, or a company can target high risk group such as new joiners and drivers on the night shift. Such high-risk employees will face a much percentage of risk.

6.4.6 Emergency Situations and Getting Help -

Awareness of what to do during emergency situations and safety incidents is really important for the smooth functioning of any organization. Given below are some of the most common emergency scenarios faced by commercial vehicle drivers:

1. Vehicular Collision/Accident – a commercial vehicle driver has to be aware of the risk of accident while driving. If ever an accident happens he has to get help by calling to the employing organization or the line manage/supervisor. Following traffic rules and routine vehicle checks will help prevent accidents.



Fig 6.4.9 Commercial Vehicle in a Collision

2. Lifting – as a commercial vehicle driver you will have to occasionally lift customer luggage or wheel in a disabled person into the vehicle. While doing so, you stand a chance of getting hurt by using improper lifting methods or lifting loads which are too heavy. Such a risk can be minimized by simply eliminating the need to lift wherever possible. And when lifting is done, always do it the right way, with personnel protective equipment and tools such as trolleys, gloves and so on. Also ask for assistance when the load is too much to carry for you on your own.



Fig 6.4.10 Truck Driver Handling Goods

3. **Burglary/Theft** – as a commercial vehicle driver you can minimize the risk of being burgled or robbed by parking the vehicle in a safe place. You should also not stop in areas that are not well lit during the night and also staying out of areas in the city with high crime rates. Also when faced with assault or threat of force n an isolated part of the city, it is best not to fight back or resist – since help would be far away.



Fig 6.4.11 Theft of Commercial Vehicle

4. **Fire** – in case there is a fire in the vehicle you are driving, you need to use the fire extinguisher in the vehicle to douse the flames. After the fire is brought under control, you can call a service technician to see what caused the fire and fix it. Inflammable goods can also sometimes be the cause of such fires.

Follow below steps if you're driving and a fire starts inside the vehicle:

a. Move the vehicle to the nearest safe place to stop immediately



Fig 6.4.12 Pick-up Truck on Fire, Parked on Roadside

- b. Turn off the ignition
- c. Get every passenger out of the vehicle
- d. In case the passenger in the vehicle catches on fire, try to put out the fire using a blanket. If it doesn't go out, use the fire extinguisher.
- e. Keep safe distance from burning vehicle to avoid toxic fumes
- f. Call 101
- g. Warn oncoming traffic of danger if possible

Summary

1. Always follow company policy when it comes to reporting safety and emergency issues

- 2. Make it a point to know what actions to take to reduce danger at work
- 3. Always stay updated about safety communication
- 4. Retain an understanding of how and where to get help in emergency situations.

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- 1. Visit a local four wheeler servicing center and observe the health and safety procedures in practice there
- 2. Conduct a role-play between an employee and a certified HSE professional

UNIT 6.5: Technical Knowledge



At the end of this unit, you will be able to:

- 1. Explain the usage of relevant equipment and alarm systems to minimize danger
- 2. Plan and define alternate routes in the event of natural calamity or road diversion

6.5.1 Fire Extinguishers and Vehicle Security Systems

The main parts of safety and security systems in a vehicle are fire extinguishers and vehicle alarm systems. Given below are details of both components.

Fire Extinguishers

A fire extinguisher is used to control a fire.

High working temperatures, complex electrical systems in vehicles, engine heat and the presence of fuel in close proximity to each other means that a vehicle is susceptible to fire hazard.

Vehicle fire extinguishers come in smaller volumes as compared to the ones available for buildings.

The various parts of a fire extinguisher are shown below:



SI. No	Type of Fire	Pictogram	Intended use	Mnemonic (Memory aid)
1	Class A		Wood, Cloth, Paper, trash, Plastics-Solids that are not metal	A for "Ash"
2	Class B		Petrol, Fuel	B for "Barrel"
3	Class C		Electrical-Energized electrical equipment	C for "Current"
4	Class D	D	Metals-Potassium, Sodium, Aluminum and Magnesium	D for "Dynamite"

There are different kinds of fire extinguishers having color codes; the color explains what kinds of fires the fire extinguisher is useful for:

Table 6.5.2 Types of Fire Extinguishers

How to Use Fire Extinguisher

Given below are the steps to use a fire extinguisher:



Step:2		Aim the nozzle at the base of the fire.
Step:3		Squeeze the lever hard.
Step:4	STILL ST	Use fire extinguisher from a safe distance, then slowly move forward

Table 6.5.3 Method to Use a Fire Extinguisher

1. ABC Dry Powder Fire Extinguisher

The most efficient type of fire extinguisher to store in a truck in case of emergency is the ABC Dry Powder extinguisher. This is because it can be used on petrol and diesel and textiles and plastics usually found in vehicles. It can also be used to put out electrical fires. But it is not suitable for putting out engine fires as it makes the engine vulnerable to corrosion. If it is used on engine fires, ensure that you wipe of powder residue to keep the engine safe from corrosion.

2. Size/Volume of Fire Extinguisher for Vehicles

It is best to keep a 1Kg or 2Kg ABC Dry Powder Fire Extinguisher. The size of the vehicle should be used to decide whether you need to go for 1Kg or 2 Kg.

3. Location of Fire Extinguisher

It should be placed well within your (the driver) reach – for example either at the base of the driver's seat or the front passenger seat. It has to be installed and secured properly to prevent unwanted discharge of its content.



Fig 6.5.4 Fire-Extinguisher in a Vehicle

6.5.2 Vehicle Security Systems

Security systems for vehicles have their main objective as preventing theft. There are vehicle alarms that go off loudly to alert anyone in the vicinity of unauthorized access. Other alarms silently alert of the vehicle owner of the undesirable activity related to the vehicle.

There are different types of commercial vehicle alarms as shown below:

1. Passive Vehicle Alarms

This is an alarm which has only two modes – on and off. There are no features in this type of alarm that can be used individually. These alarms are activated as soon as the vehicle is locked. When a person tries to touch the vehicle after activating the alarm, the alarm system will trigger a series of loud noises that will get the attention of people closest to the vehicle. This audio alarm is used to deter theft.

2. Active Vehicle Alarms

This is a type of vehicle alarm that depends on user interaction. Just locking the doors of the vehicle will not activate the vehicle lock. The user will have to turn on the alarm manually when needed. This is useful for people using vehicle alarms only when needed. For example, a commercial vehicle driver won't need the alarm when parking it at the employing organization or at the place of residence. Then the driver can leave the vehicle without activating the alarm.

3. Remote Start Vehicle Alarms

An important function of a vehicle security system is to disable the ignition of a commercial vehicle remotely. This is the main difference between the passive types. The remote ignition feature is an extra feature in this.

4. Two-Way Paging Vehicle Alarms

This is an advanced version of a vehicle alarm where the features of active and remote alarms are combined. On top letting the user to control when the alarm is activated, it sends status alerts regarding the safety of the vehicle. The alerts are displayed as text on an LCD display available with the user. It can indicate to the user if the alarm has gone off, for what reason the alarm went off and also if the vehicle has been broken into.

5. GPS Vehicle Alarms

This is incrementally better than the last alarm mentioned. Here the vehicle owner can know the location of the vehicle at all times.

6. Silent Vehicle Alarms

These alarms do not emit a loud noise when the vehicle is tampered with, but it sends a message to the vehicle owner when the vehicle is at risk. This is useful for people who don't like noisy vehicle alarms.

6.5.3 Alternate Routes during Emergencies

The commercial vehicle driver can plan different routes when there is a natural calamity such as flood, an earthquake or a snowstorm/hailstorm.

The first step for a commercial vehicle driver would be to listen to the local news through a television, the internet or even the current radio broadcast.

After finding out which areas are most affected by the natural calamity, one can use GPS to navigate and find a route which has fewer risks.

Summary 🗵

- 1. Always be familiar with the type of fire extinguishers available for vehicles and install them in your vehicle
- 2. Get to know the type of vehicle alarm system suits your vehicle best and install accordingly
- 3. When faced with an emergency or a natural calamity plan your routes to avoid danger while traveling.

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	swer the following: List the types of vehicle alarms available in the market.
1.	List the types of vehicle diarms available in the market.
2.	Explain how to plan alternate routes in times of calamity
۷.	Explain now to plan alternate routes in times of calamity
3.	Outline the advantages of ABC Dry Powder Fire Extinguisher

- 1. Conduct a detailed Role-play of how to use a fire-extinguisher
- 2. Research online about the vehicle alarms available in the current market
- 3. Research online the effects of a natural calamity on transport facilities





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