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HYDROCARBON SECTOR
SKILL COUNCIL

Participant Handbook

Sector
Hydrocarbon Industry

Sub-Sector
Downstream

Occupation
Transportation (Oil & Gas)

Reference ID: **HYC/ Q 3301**
NSQF Level 4

Tank Lorry Driver (Petroleum Products)

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> Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission.

Shri Narendra Modi
Prime Minister of India

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Certificate

COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

HYDROCARBON SECTOR SKILL COUNCIL

for

SKILLING CONTENT : PARTICIPANT HANDBOOK

Complying to National Occupational Standards of

Job Role/ Qualification Pack: **'Tank Lorry Driver (Petroleum Products)'**

QP No. **'HYC/ Q 3301 NSQF Level 4'**

Date of Issuance: April 9th, 2016
Valid up to*: April 10th, 2018

*Valid up to the next review date of the Qualification Pack or the 'Valid up to' date mentioned above (whichever is earlier)

Authorised Signatory
(Construction Skill Development Council)

About this book

This participant Handbook is designed to enable training for the specific Qualification Pack (QP) of Hydrocarbon Industry.

Tank lorry Driver deliver gasoline, fuel oil, liquefied petroleum gas, lubricant oil etc. to customers. His main work includes positioning of the truck to filling rack, open valves, start pumps, connect the respective hoses to tank, records amount delivered ,maintain the check list and drive the truck to the respective outlet.

It involves safety practices while driving .

The symbols used in this book are described below.

Symbols Used


Key Learning Outcomes


Steps


Time


Tips


Notes


Unit Objectives

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Table of Contents

Before driving do the following basic habits in this order

1. Lock your doors.
2. Adjust your seat and seat back.
3. Adjust your head restraint.
4. Adjust your inside and outside rear view mirrors.
5. Fasten your seat belt.

Documents to be carried while driving

- Valid driving licence
- Vehicle registration certificate (Form 23)
- Road tax certificate
- Valid vehicle's insurance certificate
- Permit and vehicle's certificate of fitness (applicable only to transport vehicles)
- Valid Pollution Under Control Certificate

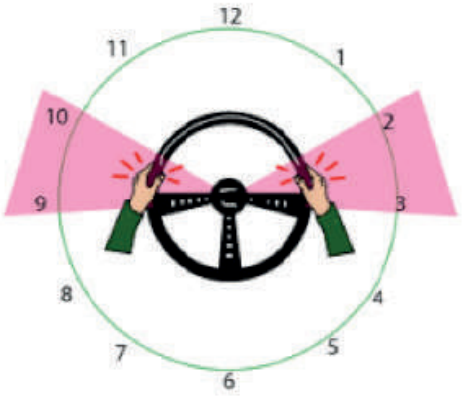
UNIT: 1. Leg Controls while driving

Accelerator
Increases or decreases the speed of the vehicle. This is operated by right foot of the driver. Pressing it down will increase the speed of engine and relieving it will reduce the engine speed. Accelerator control is critical as slight pressure on it will increase speed of engine. To control its movement one should support heel on floor and operate it with toe.

p**Brake Pedal**
Is used to reduce speed of vehicle or to bring the vehicle to a stop. This pedal is also operated by right foot. More you press the pedal, the braking effort increases. Since this pedal needs to be used in emergency, to apply brake quickly one has to lift foot from accelerator & press with force.

Clutch Pedal
To engage or disengage transmission from engine during gear changes & stopping of vehicle. This pedal is operated always by left foot, keep heel on floor and use it as a pivot to operate pedal with the toe.

UNIT: 2. Hand Controls while driving



Steering
Think of the steering wheel as a clock. To have the best vehicle control, place your left hand at about the 9 o'clock position. Your right hand should be at about the 3 o'clock position. If this is not possible due to the design of the steering. The steering wheel should normally be held lightly with both hands. Gripping the wheel too tightly can lead to fatigue and prevent smooth movement when steering.

Gear Shift Lever

Manual Transmission – Generally most of the vehicles will have 5 forward and 1 reverse gear. Some of the vehicles may be equipped with 4 forward and 1 reverse gear. Gears are provided to improve the ability of engine to pull the vehicle. When you want, start rolling the vehicle use 1st gear. In this position, maximum torque (turning force) will be provided to wheels. As the vehicle speeds up one starts shifting to higher gears. Higher gear ensure that engine moves slowly thus giving more mileage from each liter/kg of fuel consumed. Use 5th gear (overdrive gear) at speeds above 40kmph. Avoid overtaking or accelerating in 5th gear as engine will have very little torque. Shift to lower gear, accelerate and come quickly to 5th gear again. During downshift ensure that you do not shift to lower gear at very high speeds this action may damage engine and gearbox. Avoid shifting to 1st gear while downshifting as it will reduce the life of synchronizer. Automatic Transmission – In case of automatic transmission the lever will have a knob attached to it, lever will not move till you press this knob. You can use D position and gears will change automatically as per pre-defined program. Alternatively you can select 1st, 2nd or 3rd or higher gear as per your speed requirement, if equipped.

Parking Brake Lever

The parking brake, also called hand brake or mergency brake is used to keep the vehicle stationary and in many cases also perform an emergency stop. Parking brakes on older vehicles often consist of a cable connected to two wheel brakes at one end and the other end to a pulling mechanism which is operated with the driver's hand or foot. The mechanism may be a hand-operated lever, at floor level beside the driver, or a straight pull handle located near the steering column, or a (foot-operated) pedal located beside the drivers leg

Head lamp / Parking Light Switch & Fog Lamp

Combination switch: Combi switch is mounted on steering column. It has 2 levers. One lever is for operating turn signals, head lamps, parking lamps and number plate lamps. This lever is mounted on RH side on RHD vehicles and LH side on LHD vehicles.

Head lights

Position 1 - Low beam
Position 2 - High beam
Position 3 - High beam (flash)

Turn signals

Position 4 - Turn signal right
Position 5 - Turn signal left

Self-cancellation turn signal arrangement is provided. When turn signal option is used, this lever will return to neutral position on its own when steering wheel is brought back to straight ahead position.

Lights

Lights are operated by turning the knob of this lever as indicated below First notch (PL position) Parking lights, instrument panel lights, number plate lights, control backlights and top marker lights are switched 'ON'.

Second notch (HL position)In addition to parking, instrument panel, control backlights, number plate lights and top marker lights, headlights are also switched ON. OFF-position

All lights are switched off in this position

Hazard warning switch

Combi switch assembly also has a switch for operating hazard warning device. To switch ON hazard warning, pull the knob located behind steering wheel. All turn signals lights will flash simultaneously to warn other road users about the hazardous condition of vehicle. Push back this knob to original position when hazard warning requirement is over.

Wiper Switch

Is used to switch on/off windshield wipers at various speeds like intermittent, slow and fast speed. By pulling it towards you wiper spray gets activated on windshield. Some cars are also equipped with variable speed intermittent position.

Horn

Is used to switch on/off windshield wipers at various speeds like intermittent, slow and fast speed. By pulling it towards you wiper spray gets activated on windshield. Some cars are also equipped with variable speed intermittent position.

Mirrors

All vehicles are equipped with inside rear view mirror. Some vehicles may be equipped with day/night mirror – advantage of this mirror is the driver need not worry about glare. Outside rear view mirror is normally on right side of the door while some Vehicles will be equipped with left side mirror as well. These mirrors aid you in driving safely by apprising you of traffic around you. Adjustment of mirrors can be manual/internal or remote.

Ignition Switch

Ignition switch helps you start/stop the engine. This can be operated by key or some cars may have push button start switch.

UNIT: 3. Visual Controls while driving

Instrument Panel – Some of these indicators may or may not be present in your vehicle depending on variant and fuel option.

Speedometer Indicates speed in mph. Vehicle Controls

Odometer Records total distance covered by the vehicle.

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.

Tachometer Indicates engine speed in RPM (Revolutions per Minute) – this helps you save fuel and guides when to change gears at most appropriate speed.

Fuel Gauge Indicates amount of fuel left in the tank. It can be analoge or digital.

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.

AC cabin for all the trucks in India.

The trucks to have air conditioned cabins for drivers, a mandatory norm by the central government, the move is aimed at reducing the number of road accidents which claim lot of lives and injure three lakh people every year.

Symbols seen on the dashboard and other switches

1		**Brake Warning Indicators**
2		**Engine Coolant Temperature Indicator Symbols**
3		**Engine Oil Level or Oil Pressure Warning Light Symbol** Oil Pressure Lamp Indicates insufficient oil pressure. If this lamp comes on, switch off the engine immediately as it may result in engine seizure.
4		**Engine Oil Sensor and Level Indicators**
5		**Charging System Warning Light Symbols** Battery Charging Light Indicates charging system is not working. Can also be a result of fan belt breakage. Vehicle can be driven but get it repaired urgently.
6		**Seat Belt Reminder Indicator Symbol** Driver Seat Belt Reminder This lamp lights up when you do not buckle up safety belt and try to start the vehicle.
7		**Fuel or Low Fuel Indicator Symbol**
8		**Windshield Washer Fluid Low Indicator**
9		**Check Engine Light Symbols** Engine Malfunction If this lamp lights up it indicates problem with one of the engine sensors. Take the vehicle to workshop as early as possible.
10		**Head lamp indicator** 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.

11		**Headlamp Levelling System Symbols**
12		**Turn Signal Indicators**
13		**SRS Air Bag Indicator Symbols** If this lamp does not go off indicates problem with air bag, contact workshop immediately.
14		**Parking Brake Indicators** Parking Brake/Brake Fluid 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.
15		**Antilock Brake System Trouble Lights** If this lamp comes on it indicates problem in ABS system. Now the system will work as ordinary brake system without ABS.
16		**Low Brake Fluid Indicator Symbol**
17		**Power Steering Trouble Light** Power Steering Fault Indicator indicates some problem with power steering system.

UNIT: 4. Replacement element

Fuel injectors: Repair and replace at intervals required by the engine manufacturer's maintenance schedule. Worn fuel injectors can lead to excessive fuelling and more soot generation and accumulation in the filter. Fix worn hydraulic injectors to stop lube oil leaks into the fuel.

Air filters: Replace at intervals required by the engine manufacturer. Dirty air filters reduce air flow to the engine leading to more soot generation.

Turbocharger: Check turbocharger for proper operation and excessive wear. Turbochargers that do not produce sufficient air or have leaking seals lead to more soot or the presence of lube oil in the exhaust.

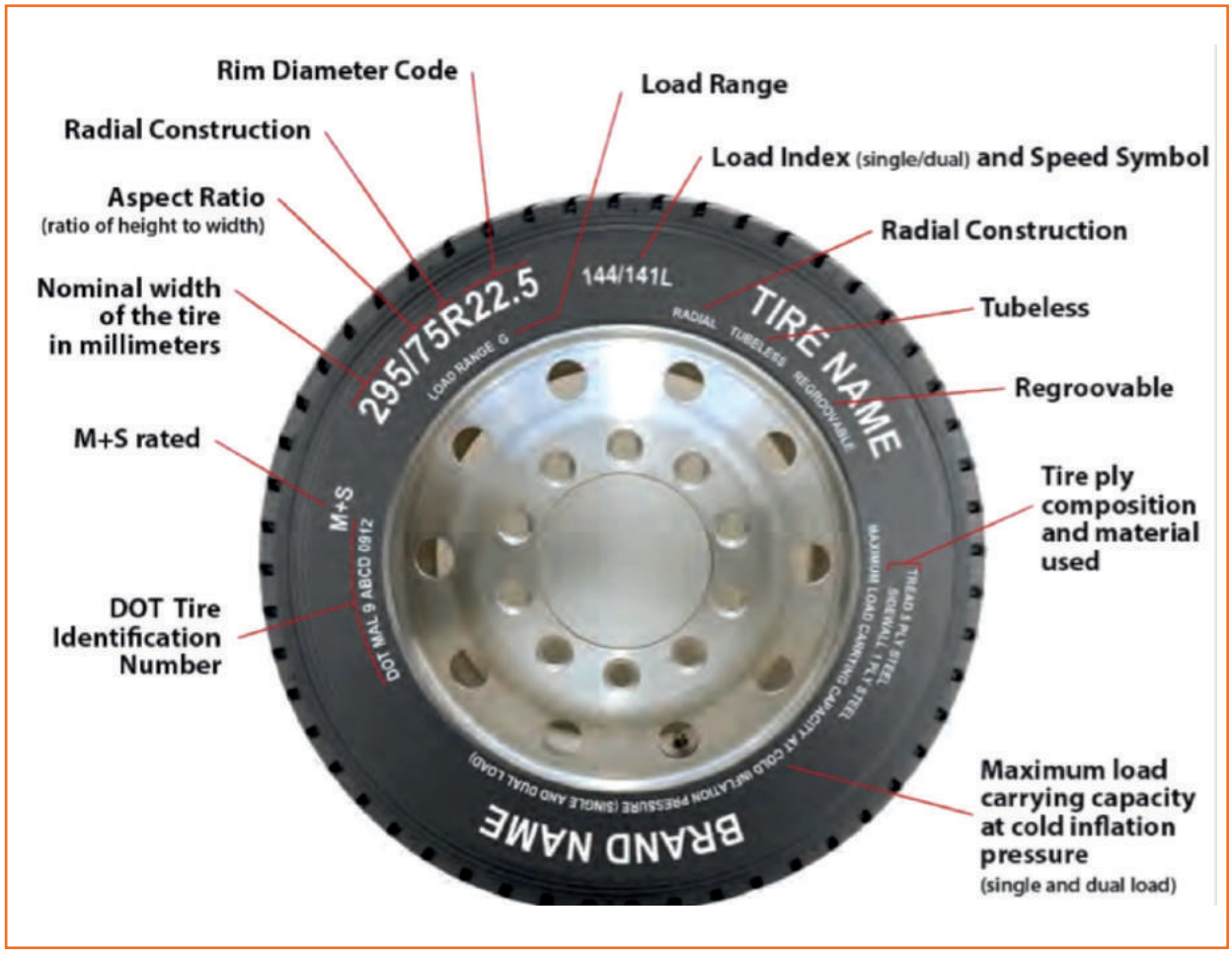
Fuel filter: Replace at prescribed intervals. Look for the presence of lube oil in the fuel filter during regularly scheduled maintenance. A blackening of the filter may indicate that oil from the crank case is mixing with the fuel due to a leaky injector.

Fuel: Periodically inspect fuel in the on-board fuel tank for signs of lube oil contamination (black in colour). Inspection should be done prior to refuelling. A blackening of the fuel may indicate mixing of crankcase oil with the fuel.

Coolant: Monitor coolant consumption. Keep a log of the coolant added to the engine. Coolant leakage can poison the DPF catalyst and/or cause filter plugging.

Lube oil: Change the lube oil at mileage intervals indicated by the engine manufacturer. Track usage.

Tyres: Information moulded onto their sidewall. It shows the brand and model name of the tire, its size, whether it is tubeless or tube type, the maximum load and the corresponding inflation pressure, safety warning(s), and much more. Shows typical information on the sidewall of truck tires.



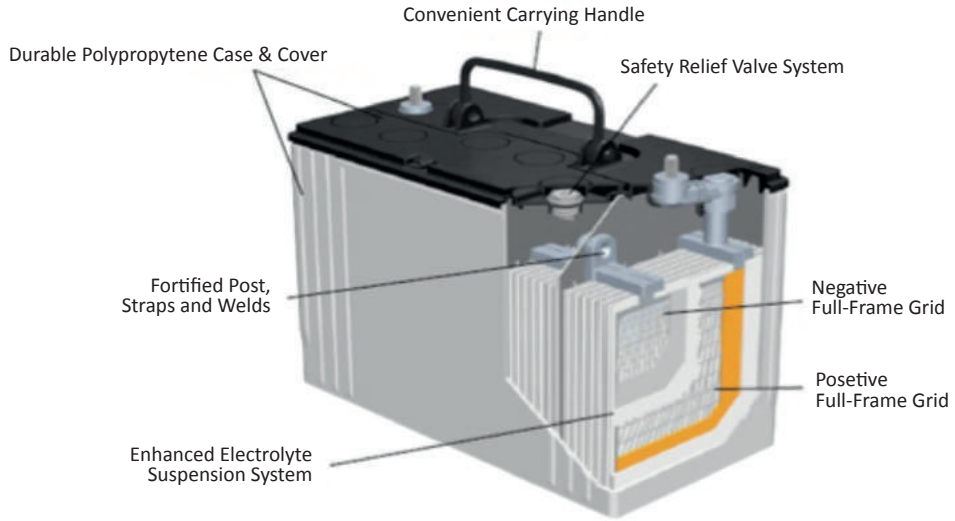
Proper Tire Inflation

Tire inflation pressure is typically measured in pounds per square inch (psi). Under inflation causes excessive heat build-up and internal structural damage that may lead to a tire failure, including tread/belt separation, even at a later date. The pressure marked on the sidewall that corresponds to the maximum load of the tire is typically the maximum pressure recommended by the tire manufacturer for that tire.

Battery

Prior to any testing, visually inspect the battery look for:

- Cracked or broken case or cover
- Loose cable connections
- Leaking case-to-cover seal
- Corrosion
- Damaged or leaking terminals

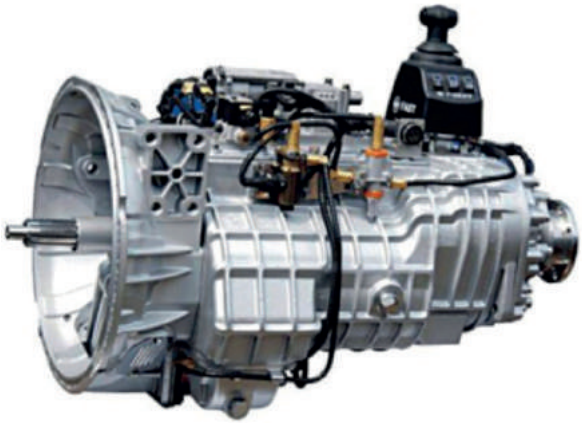


Truck Engine

An engine or motor is a machine designed to convert one form of energy into mechanical energy.

Gear Box

A transmission is a machine in a power transmission system, which provides controlled application of the power. Often the term transmission refers simply to the gearbox that uses gears and gear trains to provide speed and torque conversions from a rotating power source to another device.



Truck Suspension

Suspension is the system of tires, tire air, springs, shock absorbers and linkages that connects a vehicle to its wheels and allows relative motion between the two

Truck axel:

In rear-wheel drive trucks, the engine turns a driveshaft (also called a propeller shaft or tail shaft) which transmits rotational force to a drive axle at the rear of the vehicle. The drive axle may be a live axle, but modern rear wheel drive automobiles generally use a split axle with a differential.

Leaf spring

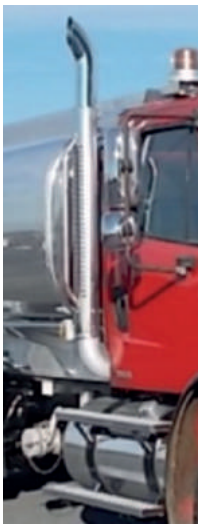
A leaf spring is a simple form of spring commonly used for the suspension in wheeled vehicles.

Chassis

A chassis cab or cab chassis is a body style, and type of vehicle construction, often found in medium duty truck commercial vehicles. Instead of supplying the customer with a factory pre-assembled flatbed, cargo container, or other equipment—the customer is given the vehicle with just “chassis” rails and a “cab”.

Exhaust

An exhaust system is usually piping used to guide reaction exhaust gases away from a controlled combustion inside an engine or stove. The entire system conveys burnt gases from the engine and includes one or more exhaust pipes.



Signalling

Signal lights and brake lights tell other drivers what you are going to do. You must use your signal light when you are:

- moving away from the curb or parking lane
- turning left or right
- changing lanes

When you are driving your vehicle, your ability to control your speed depends on looking where you want to go and using the accelerator correctly. Gradually press on the accelerator to move the vehicle, and then hold it at the proper position for the selected speed. This will take some practice.

Keep the following in mind:

- Accelerate smoothly.
- Adjust to the weather, road and traffic conditions.
- Do not accelerate or reduce speed unnecessarily.
- Never exceed the posted speed limit.
- Do not accelerate so quickly that the vehicle's tires spin.
- Drive with the flow of traffic to reduce the risk of being in a collision. Driving too slowly can be a hazard.
- Glance occasionally at your speedometer to check your speed.

Stopping time and distance

Knowing how much time and distance it takes to apply your brakes to completely stop your vehicle can help avoid errors in judgment that can lead to a collision.

Many factors affect your stopping time and distance. These include road and weather conditions. Some factors you can control are:

- Visual search skills as you scan the roadway ahead
- Decision-making ability
- Alertness and level of fatigue
- Use of alcohol or other drugs
- Vehicle's speed
- Condition of your vehicle's brakes and tires

Braking

- When stopping, begin braking early.If you brake too late, your braking distance may not be sufficient.
- Release pressure on the accelerator before applying the brake to reduce your speed.
- To finish braking smoothly, release pressure on the brake pedal slightlyand then reapply pressure on the pedal just before you come to a stop.
- If you must stop quickly, use threshold braking. This is applying the brakes without locking the wheels. This is where braking efficiency is at its maximum while still allowing you to steer your vehicle.

Most vehicles are equipped with an anti-lock braking system (ABS). The ABS allows you to steer while the brakes are being applied. ABS applies brake pressure at each wheel, cycling from locked to slightly rolling. You will feel this as a vibration through the brake pedal.

With ABS you can brake as hard as you need without losing your ability to steer.

To brake in an emergency, follow these steps:

- Apply steady firm pressure to the brake pedal.
- Do not pump or release the brake pedal.

- Look and steer in the direction you want to go.
- Be sure to check your vehicle's owner's manual for more information on emergency braking techniques.

If your vehicle does not have ABS brakes In vehicles without ABS, braking hard can cause the wheels to stop rolling. The wheels are 'locked' when the brakes are applied and they stop rolling. This can cause you to lose steering control. If your wheels lock, ease off the brake pedal. Brake again but not as hard.

To brake in an emergency, follow these steps:

- Press firmly on the brake pedal to the point just before the wheels lock. This is called threshold braking.
- If the wheels lock, release the brake pedal slightly to regain steering control.
- Press the brake pedal firmly again without locking the wheels.
- Look and steer in the direction you want the front of the vehicle to go.

Reversing

All reversing must be done at a crawl or slow walking speed. Before reversing, look behind the vehicle and only drive in reverse when your path is clear of traffic, pedestrians and obstacles. Before reversing out of a driveway, walk around the vehicle and check for possible dangers behind the vehicle.

To reverse in a straight line, do the following:

- Place your left hand at the top of the steering wheel and shift slightly onto your right hip. For support, place your right hand on the back of the passenger seat.
- Look over your right shoulder through the rear window. Reverse slowly while covering your brake pedal.
- Glance to the front to be sure that the front of the vehicle does not contact anything.
- To correct your steering, turn the steering wheel no more than a quarter turn in the same direction that you want the rear of your vehicle to go.

When reversing to the left or right, do the following:

- Use both hands on the steering wheel at about 9 and 3 o'clock if you need to turn more than one-half turn.
- To reverse to the left, look over your left shoulder with frequent glances to the front.
- To reverse to the right, look over your right shoulder with frequent glances to the front.
- Turn the steering wheel in the direction you want the rear of the vehicle to go.

Parking

Parking requires good control of the vehicle, accurate judgment and steering skill.

Check your mirrors before parking. Poorly adjusted mirrors could result in you losing perspective while parking. This can hurt your ability to gauge the distance between your vehicles and obstructions. You'll want as clear and complete a view of the area around your vehicle as possible.

Give yourself plenty of space. The more space you have to pull into your spot, the more space you'll have to manoeuvre and make adjustments while parking. You might give yourself more space by parking in an empty part of a parking lot, or you could also choose a spot that is surrounded by smaller, more compact vehicles. Park slowly and brake early. The increased weight of a large vehicle will require you to brake sooner than you would for a normal car, especially if you have a heavy load you are transporting.

UNIT: 5. Good driving practice

1. **Get Plenty of Sleep:** If you have a long trip to make, be sure that you get a good night's sleep before you go. Never start a long trip if you are already tired.

2. **Timing Your Trip:** Your body gets used to sleeping during certain hours. If you drive during these hours, you will be tired. If possible, try to make long trips during the hours when you would normally be awake. This will not always be possible because of traffic restrictions that limit heavy vehicles to driving at night in some parts of Dubai. If you need to drive at night you need to be extra careful.

3. **Avoid Medicines:** Some medicines may cause drowsiness. Always ask your doctor or pharmacist about possible effects on driving while on medication, whether the medication is prescribed by your doctor or bought over the counter.Common medicines that may cause drowsiness are cold tablets, hay-fever and allergy medicines. If you have to drive while you have a cold, hay fever or allergy, it is much safer to drive with these symptoms than to take medicines which will cause drowsiness at the wheel.

4. **Do Not Use Drugs:** There are no known drugs that can overcome your feeling of tiredness. Some substances may keep you awake for a while, but will not make you alert. Later on, you may be even more tired than if you had not taken them at all! Sleep is the only thing that can overcome tiredness, so if you have started driving and begin to feel tired, stop and sleep. You will know when you are getting tired. You may start to yawn or find that you are blinking more often, finding it difficult to keep your eyes open.

5. **Do Not Drink Alcohol and Drive:** Alcohol affects your judgement and makes it more difficult to judge risks, such as speed of your own vehicle as well as the speed of others. It makes it difficult to assess distance. Alcohol also gives you a false sense of confidence, which may encourage you to take risks that you would not otherwise take. It makes it difficult to concentrate and do more than one thing at a time, slows your reaction time and makes you more likely to crash. Some drivers actually think that they are better drivers when intoxicated. This is absolutely wrong. Alcohol is a major cause of fatal road crashes.

6. **Take Breaks:** Short breaks keep you alert. Take them before you become tired. Never drive for more than 10 hours in any 24 hour period. Walk around and inspect the vehicle. It also helps to do some simple physical exercises, such as running on the spot, touching your toes or knee-bends

7. **Keep Your Mind on the Road:** You can also do many things to keep your mind alert, like counting cars with different number plates or noting landmarks as you approach them. Invent your own ways of keeping your mind on the road and on the job. Long, straight roads can become very boring, especially at night.

8. **Watch Your Food:** Fresh fruit and vegetables are much better for you at any time. Eating these foods on a trip will stop you from being tired after a meal. Do not eat foods such as bread, pasta, potatoes, pies, and French fries while you are on a long trip. Do not eat a heavy meal before you begin driving because big meals will make you tired. Eating smaller quantities of food more frequently will help you to stay alert.

9. **Keep Comfortable:** Adjusting the driving seat is very important for drivers. If you are uncomfortable, you get tired more quickly and you spend less time looking at the road.

If you can adjust your seat, this is what you should do:

1. Sit in the seat with your back and shoulders against the back rest.
2. Put your feet flat on the floor in front of the seat.

3. Sit comfortably so your feet can reach the pedals.
4. Adjust your seat forward and back so that your foot can push the clutch pedal completely to the floor while your leg still has a small bend at the knee (about 15 to 20 degrees).

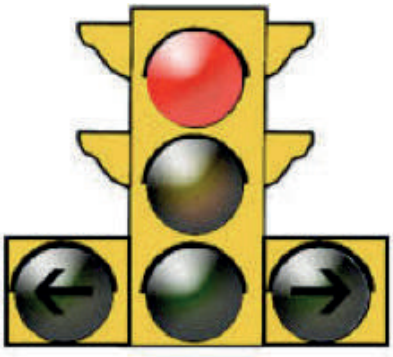
10. **Keep Cool:** Try to keep as cool as possible. Depending on the weather, keep the windows and vents open to get fresh air into the cabin. Use the air conditioner if the vehicle is fitted with one.

Road Signals

STOP:
Stop well before the stop line, and don't crowd the intersection. This not only obstructs a clear view of the intersection for other road users, but also make the zebra crossing unsafe for the pedestrians. You are allowed to turn left at the red signal unless there is a sign specifically forbidding you to do so. When turning, yield the right of way to pedestrians and vehicles from other directions.

BE ALERT:
The Amber light gives time to vehicles to clear the road when the signal is changing from green to red. If caught in the Amber signal in the middle of a large road crossing do not press your accelerator in panic but do continue with care.

GO:
If first in line, do not go tearing off at the green signal but pause to see whether vehicles from other directions have cleared the road. Sometimes you are allowed to turn left or right too, unless separate signs exist for each direction. If turning, yield the right of way to pedestrians and vehicles from other directions.



Road Signs (Mandatory)

All the compulsory signs are indicated in a circular form. The violation of traffic or road regulations indicated buy these signs is a legal offence

	Straight prohibited or No entry
	One Way Sign
	One Way Sign
	Vehicle Prohibited in both directions
	All motor vehicles prohibited
	Truck prohibited

	Bullock cart prohibited
	Tonga prohibited
	Hand cart prohibited
	Cycle prohibited
	Pedestrians prohibited
	Right turn prohibited
	Left turn prohibited

	U-turn prohibited
	Overtaking prohibited
	Horn prohibited
	Bullock cart & cart prohibited
	Length limit
	Speed limit
	Load limit

	Height limit
	Width limit
	Axle load limit
	Restriction ends sign
	No parking
	No stopping or standing
	Compulsory ahead only

	Compulsory keep left
	Compulsory turn left
	Compulsory turn right
	Compulsory turn right ahead
	Compulsory turn left ahead
	Compulsory ahead or turn left
	Compulsory ahead or turn right

	Compulsory cycle track
	Compulsory sound horn
	Right hand curve
	Left hand curve
	Hair pin bend right
	Hair pin bend left
	Right reverse bend

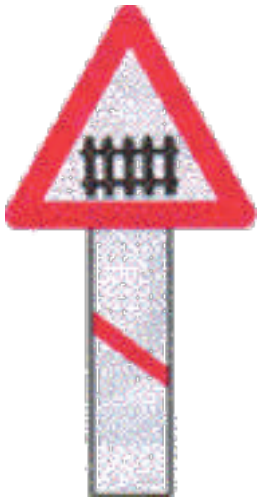
	Left reverse bend
	Steep ascent
	Steep decent
	Narrow road ahead
	Wide road ahead
	Narrow bridge
	Slippery road

	Loose gravel
	Cycle crossing
	Pedestrian crossing
	School ahead
	Men at work
	Cattle
	Falling rocks

	Ferry
	Cross road
	Gap in median
	Side road Left
	Side road Right
	Y-intersection
	Y-intersection

	Y-intersection
	T- intersection
	Staggered intersection
	Staggered intersection
	Major road ahead
	Major road ahead
	Roundabout

	Dangerous dip
	Hamp or rough road
	Barrier ahead
	200 metres ahead. Un-garded level crossing
	50-100 metres in plain and rolling terrain and 30-60 metres in hilly terrain Un-garded level crossing

	200 metres ahead .Garded level crossing
	50-100 metres in plain and rolling terrain and 30-60 metres in hill terrain Garded level crossing

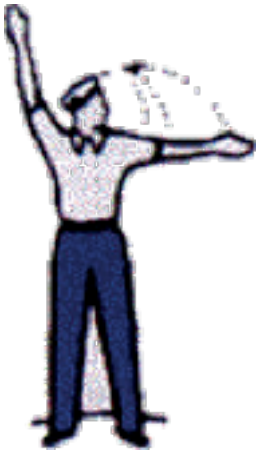
In-formatory Signs

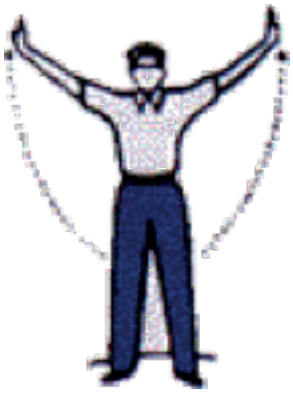
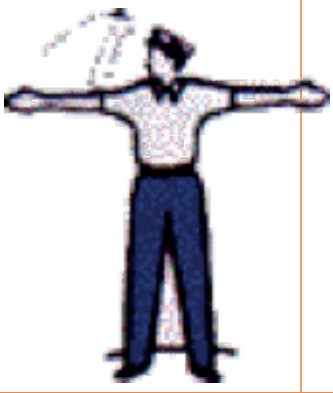
	Public telephone
	Petrol pump

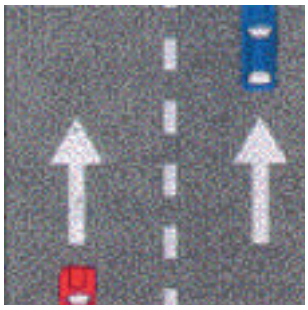
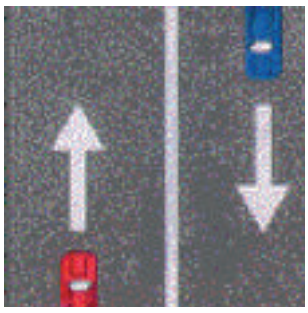
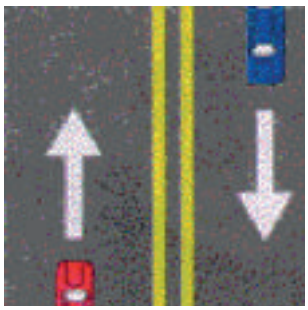
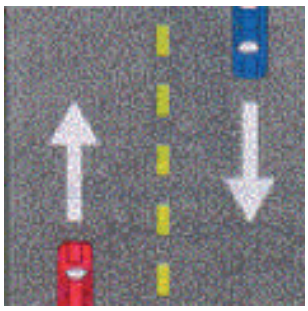
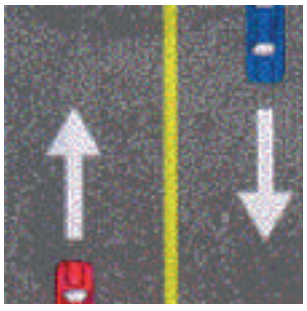
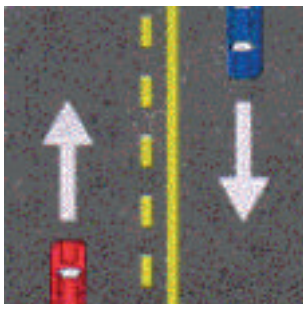
	Hospital
	First aid post
	Eating place
	Light refreshment
	Resting place
	No thorough road

	Park this side
	Scooter and motorcycle stand
	No thorough side road
	Parking both sides
	Cycle stand

	Taxi stand
	Auto rickshaw stand
	To stop vehicles approaching from behind
	To stop vehicles approaching simultaneously from front and behind.

	To stop vehicles approaching from the right to allow vehicles from the left to turn right.
	To stop vehicles approaching from the left and wanting to turn right.
	To stop vehicles coming from front.
	Beckoning vehicles approaching from left.

	To allow vehicles coming from the right and turning right by stoping traffic approaching from the left.
	Warning signal closing all vehicles
	Beckoning vehicles approaching from right.
	Beckoning vehicles from front.

	**Single Broken** Separation of lanes on which travel is in the same direction, with crossing from one to the other permitted.
	**Single Solid** Separation of lanes or of a lane and shoulder where lane changing is discouraged
	**Double Solid** Separation of lanes overtaking is prohibited in both directions. Right turn manoeuvres across this marking are not permitted
	**Single Broken** Separation of lanes on which travel is in the opposite direction, and where overtaking with care is permitted.
	**Single Solid** This line is found on busy main roads and traffic intersection. Here crossing this line and overtaking is prohibited.
	**Solid + Broken** Separation of lanes where overtaking is permitted with care for traffic adjacent to the broken line, but prohibited for traffic adjacent to solid line.

UNIT: 6. Government statutory bodies in transport in India

The bodies which are involved in transport of petroleum products are

- Central Pollution Control Board (CPCB)
- Ministry of Petroleum and Natural Gas (MoPNG)
- Ministry of Road Transport and Highways (MoRTH)
- Bureau of Indian Standards (BIS)

Central Pollution Control Board (CPCB)

The Central Pollution Control Board (CPCB) of India is a statutory organisation under the Ministry of Environment, Forest and Climate Change (MoEF&CC). It was established in 1974 under the Water (Prevention and Control of Pollution). CPCB is also entrusted with the powers and functions under the Air (Prevention and Control of Pollution) It serves as a field formation and also provides technical services to the Ministry of Environment and Forests under the provisions of the Environment (Protection)

Ministry of Petroleum and Natural Gas (MoPNG)

The Ministry of Petroleum and Natural Gas (MOP&NG) is a ministry of the Government of India. It is responsible for the exploration, production, refining, distribution, marketing, import, export, and conservation of petroleum, natural gas, petroleum products, and liquefied natural gas in India.

Ministry of Road Transport and Highways

The Ministry of Road Transport and Highways, is a ministry of the Government of India, is the apex body for formulation and administration of the rules, regulations and laws relating to road transport, and transport research, in order to increase the mobility and efficiency of the road transport system in India. Road transport is a critical infrastructure for economic development of the country.

Bureau of Indian Standards (BIS)

The Bureau of Indian Standards (BIS) is the national Standards Body of India working under the aegis of Ministry of Consumer Affairs, Food & Public Distribution, Government of India. It is established by the Bureau of Indian Standards Act, 1986 which came into effect on 23 December 1986.

CMVR - Central Motor Vehicles Rules What does CMVR stand for?

CMVR stands for Central Motor Vehicles Rules (India) The CMVR - Technical Standing Committee (CMVR-TSC) advises MoRT&H on various technical aspects related to CMVR. This Committee has representatives from various organisations namely; Ministry of Heavy Industries & Public Enterprises (MoHI&PE), MoRT&H, Bureau of Indian Standards (BIS), Testing Agencies such as International Centre for Automotive Technology (ICAT), Automotive Research Association of India (ARAI), Vehicle Research and Development Establishment (VRDE), Central Institute of Road Transport (CIRT), industry representatives from Society of Indian Automobile Manufacturers (SIAM), Automotive Component Manufacturers Association (ACMA) and Tractor Manufacturers Association (TMA) and representatives from State Transport Departments.

MoRT&H

The Ministry of Road Transport and Highways, a ministry of the Government of India, is the apex body for formulation and administration of the rules, regulations and laws relating to road transport, and transport research, in order to increase the mobility and efficiency of the road transport system in India. Road transport is a critical infrastructure for economic development of the country. It influences the pace, structure and

pattern of development. In India, roads are used to transport over 60% of the total goods and 85% of the passenger traffic. Hence, development of this sector is of paramount importance for the India and accounts for a significant part in the budget.

Duty Time and schedule

Punctuality is necessary in any type of workplace. Being on time conveys more than just a sense of timing; It shows your reliability, your organisation and ultimately, that you take pride yourself. Your arrival time determines your work ethic and shows your interest in the company. Arriving on time also shows that you take in pride in yourself, which gives people a reason to respect you.

What is SOP

All drivers are reminded that they are responsible for the vehicle being used and ensuring all documentation is in order, the vehicle is safe, legal for use and used in accordance with the law. Standard operating procedure based on requirement and policy of the organisation.

What is Crude Oil?

Crude oil is a naturally occurring, unrefined petroleum product composed of hydrocarbon deposits and other organic materials. A type of fossil fuel, crude oil can be refined to produce usable products such as gasoline, diesel and various forms of petrochemicals. It is a non-renewable resource, which means that it can't be replaced naturally at the rate we consume it and is therefore a limited resource.

Fuels

- **butane**
- **diesel fuel**
- **fuel oil**
- **gasoline**
- **kerosene**
- **liquefied natural gas**
- **liquefied petroleum gas**
- **propane**

Fuels

Butane, either of two colourless, odourless, gaseous hydrocarbons (compounds of carbon and hydrogen), members of the series of paraffinic hydrocarbons. Their chemical formula is C4H10. The compound in which the carbon atoms are linked in a straight chain is denoted normal butane, or n-butane; the branched-chain form is isobutane. Both compounds occur in natural gas and in crude oil and are formed in large quantities in the refining of petroleum to produce gasoline.

Diesel fuel, also called **diesel oil**, combustible liquid used as fuel for diesel engines, ordinarily obtained from fractions of crude oil that are less volatile than the fractions used in gasoline. In diesel engines the fuel is ignited not by a spark, as in gasoline engines, but by the heat of air compressed in the cylinder, with the fuel injected in a spray into the hot compressed air. Diesel fuel releases more energy on combustion than equal volumes of gasoline, so diesel engines generally produce better fuel economy than gasoline engines. In addition, the production of diesel fuel requires fewer refining steps than gasoline, so retail prices of diesel fuel traditionally have been lower than those of gasoline (depending on the location, season, and taxes and regulations). On the other hand, diesel fuel, at least as traditionally formulated, produces greater quantities of certain air pollutants such as sulfur and solid carbon particulates, and the extra refining steps and emission-control mechanisms put into place to reduce those emissions can act to reduce the price advantages of diesel over gasoline.

Fuel oil, also called **furnace oil**, fuel consisting mainly of residues from crude-oil distillation. It is used primarily for steam boilers in power plants, aboard ships, and in industrial plants. Commercial fuel oils usually are blended with other petroleum fractions to produce the desired viscosity and flash point. Flash point is usually higher than that of kerosene. The term fuel oil ordinarily does not include such fuels as kerosene.

Gasoline, also spelled **gasolene**, also called **gas** or **petrol**, mixture of volatile, flammable liquid hydrocarbons derived from petroleum and used as fuel for internal-combustion engines. It is also used as a solvent for oils and fats. Originally a by-product of the petroleum industry (kerosene being the principal product), gasoline became the preferred automobile fuel because of its high energy of combustion and capacity to mix readily with air in a carburetor.

Kerosene, also spelled kerosine, also called paraffin or paraffin oil, flammable hydro carbon liquid commonly used as a fuel. Kerosene is typically pale yellow or colourless and has a not-unpleasant characteristic odour. It is obtained from petroleum and is used for burning in kerosene lamps and domestic heaters or furnaces, as a fuel or fuel component for jet engines, and as a solvent for greases and insecticides.

Liquefied natural gas (LNG), natural gas (primarily methane) that has been liquefied for ease of storing and transporting. LNG takes up about 1/600 the space that natural gas does in its gaseous form, and it can be easily shipped overseas. LNG is produced by cooling natural gas below its boiling point, −162 °C (−259 °F), and is stored in double-walled cryogenic containers at or slightly above atmospheric pressure. It can be converted back to its gaseous form by simply raising the temperature.

Liquefied petroleum gas, also called **LP gas**, or **LPG**, any of several liquid mixtures of the volatile hydrocarbons propene, propane, butene, and butane. It was used as early as 1860 for a portable fuel source, and its production and consumption for both domestic and industrial use have expanded ever since. A typical commercial mixture may also contain ethane and ethylene as well as a volatile mercaptan, an odorant added as a safety precaution.

Propane, a colourless, easily liquefied, gaseous hydrocarbon (compound of carbon and hydrogen), the third member of the paraffin series following methane and ethane. The chemical formula for propane is C3H8. It is separated in large quantities from natural gas, light crude oil, and oil-refinery gases and is commercially available as liquefied propane or as a major constituent of liquefied petroleum gas (LPG).

Other petroleum products	➢ **microcrystalline wax** ➢ **napalm** ➢ **naphtha** ➢ **naphthalene** ➢ **paraffin wax** ➢ **petroleum jelly** ➢ **petroleum wax** ➢ **refined asphalt** ➢ **refined bitumen**

Terminal/delivery instructions

Clear understanding and definition of roles and responsibilities, and assurance of competence in those roles, are essential to achieve a highly reliable work at the delivery point.

Importance of proper parking for loading or unloading to prevent backing up situations.

Prior to loading/unloading

- Visually check all hoses for leaks and wet spots.
- Verify that sufficient volume is available in the storage tank or truck.
- Secure the tank vehicle with wheel chocks and interlocks.
- Verify that the vehicle's parking brakes are set.
- Verify proper alignment of valves and proper functioning of the pumping system.
- Establish adequate bonding/grounding prior to connecting to the fuel transfer point.
- Turn off cell phone
- No smoking

During loading/unloading

- Driver must stay with the vehicle at all times during loading/unloading activities.
- Facility manager or designee should observe the delivery driver during loading/unloading.
- Periodically inspect all systems, hoses and connections.
- When loading, keep internal and external valves on the receiving tank open along with the pressure relief valves.
- When making a connection, shut off the vehicle engine. When transferring Class 3 materials, shut off the vehicle engine unless it is used to operate a pump.
- Maintain communication with the pumping and receiving stations.
- Monitor the liquid level in the receiving tank to prevent overflow.
- Monitor flow meters to determine rate of flow.
- When topping off the tank, reduce flow rate to prevent overflow.

After loading/unloading

- Make sure the transfer operation is completed.
- Close all tank and loading valves before disconnecting.
- Securely close all vehicle internal, external, and dome cover valves before disconnecting.
- Secure all hatches.
- Disconnect grounding/bonding wires.
- Make sure the hoses are drained to remove the remaining oil before moving them away from the connection. Use a drip pan.
- Cap the end of the hose and other connecting devices before moving them to prevent uncontrolled leakage.
- Remove wheel chocks and interlocks.
- Inspect the lowermost drain and all outlets on tank truck prior to departure. If necessary, tighten, ad just, or replace caps, valves, or other equipment to prevent oil leaking while in transit.

PPE (Personal Protective Equipment)

What is personal protective equipment?

Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal protective equipment may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.

	Safety Boots
	Flame resistant clothing
	Hard Hat
	Safety glass
	Flame resistant glows
	Respiratory mask
	Reflective west

Specific Loading Procedures

Top Loading: Top loading involves transferring product from the terminal in through the top of the receiving tank.

1. Review Terminal Instructions
2. Position Vehicle
   - Position truck
   - Set brakes.
   - Turn of ignition sources.
3. Put on PPE
4. Prepare for Loading
   - Set safety cones.
   - Connect grounding/bonding cables.
   - Check hoses, valves for wear or damage.
   - Ensure valves are closed.
   - Replace ID tags and placards
   - Remove all loose objects from upper pockets so they do not fall
   - Lower the ramp to the truck
   - Ensure rails are in place and/or use fall protection.
5. Check Compartments
   - Ensure compartments are clean and have capacity to hold product.
   - Flush (if necessary).
6. Top loading procedure
   - Position the tank truck at loading spot. Set brakes and leave in low gear. Shut off the truck motor. Tank truck should be positioned so that the drop tube, when extended into the dome opening, is as near vertical as possible. The bottom of drop tube must touch the bottom of the compartment being filled.
   - Connect grounding interlock before opening any dome cover. Make sure compartment safety valves are closed.
   - Insert bill of lading ticket in meter printer
   - Open only the dome cover for the compartment being loaded. Keep all other dome covers closed.
   - Prior to loading always touch the end of the loading spout to the top of the tank at a point at least three feet away from the open hatch, in order to ground any possible static charge.
   - Insert downspout, extending it near the bottom of the compartment. Physical contact must be main tained between the loading arm and the compartment being filled.
   - Set meter stop for quantity desired. (Optional, depending on equipment at rack).
   - Start flow of product by opening the loading valve. To avoid overfilling stay with valves as long as product is flowing.
   - Load only one compartment at a time.
   - Close loading valve.
   - Repeat the proper steps for filling each compartment.
   - When loading all compartments is completed, swing downspout into proper idle position. Seal dome covers and valves as required.
   - Disconnect grounding interlock. Remove bill of lading ticket from meter printer.
7. Complete Walk-Around Inspection
   - Check for leaks and ensure valves are closed.
   - Store equipment.
   - Confirm placards are correct.
   - Remove chock blocks.
   - Put away safety cones.

8. Complete Paperwork

- Pick up shipping document & verify proper products have been loaded.
- Leave copy at terminal.

Before loading each load, verify that every compartment is empty. This is crucial when loading Kerosene. Do not load into a compartment that previously contained gasoline. Draining the compartment of all residual products before loading is mandatory safe practice.

Bottom Loading Procedures

- Stop delivery vehicle at the loading rack stop line.
- At stop line, turn off all lights, radio, and other electrical equipment (and follow any other posted local plant procedures).
- Check tires and suspension for broken springs.
- If rack is not clear, set parking brakes and shut off engine.
- When rack is clear, start engine, pull forward, and spot truck for loading.
- Re-set parking brake.
- Shut off engine.
- Eye protection and bump hat must be worn at all times during the transfer of product.
- Under no circumstances should the driver leave the loading area unless due to an emergency.
- No one other than the driver is to be in the loading area except:
- An authorized instructor training that driver.
- Persons authorized by the petroleum company who have a legitimate reason to be in that area during the loading process.
- No driver, while filling his trailer, will allow his attention to be diverted from the loading process.
- Examples of activities that unnecessarily divert attention from the proper focus of the loading process are:
  (a) Eating or drinking
  (b) Reading or writing
- Connect vapour recovery hose and close both cam-lock (“ears”) levers completely on the hose.
- Open fitting box and open internal valves as required.
- Connect the appropriate loading arms. When connecting a loading arm coupler to the trailer pipe, slide the collar on the adapter before actuating the lever, which locks the collar and opens the valve. Do not force the collar on with the lever cam. This damages the lever arm and shear pin.
- Open internal valves as required.
- Clear registers and set pre-sets for the proper gallons for each compartment. Know the capacities of all compartments on the trailer. The pre-set counter must never be set to an amount greater that the legal/safe fill capacity of the compartment being filled.
- Start the appropriate product pumps.
- At each meter:
  a. Verify product, pre-set gallon amount and loading arm connection to the correct compartment.
  b. Actuate start mechanism.
  c. Verify that the pre-set meter countdown is working properly.
  d. Verify there are no leaks.
- Observe slow-flow shutdown of all meters. If slow-flow does not engage at 50-30 gallons, stop flow immediately by pressing stop button on pre-set. Do not bypass slow-flow. Report to management.
- After each compartment is loaded, close the internal valve for that compartment. When a compartment is filled beyond safe-fill capacity, the loading rack high level control monitor will not permit further loading. If additional loading is necessary, the driver must follow local procedures for draining product (which will include notifying plant management) so that the loading rack high-level control monitor returns to a permissive state. On units equipped with an on-board overfill indicator, it may be necessary to press a reset button to get a green light on the rack monitor.
- After loading is completed, disconnect and stow loading arms.

- Make sure drop heads are hooked up and interlock bar is down and locked. Close fitting box doors and secure.
- Disconnect vapour recovery hose. Secure vapour hose to its holder on the rack and lock cam-lock ("ears").
- Disconnect high level fibre optic cable and secure. Remember, this is the first thing connected and the last disconnected.
- Immediately look down the right side of the trailer to ensure that all loading equipment has been dis connected and stowed in its proper position.
- Move unit from the loading rack to designated parking area.
  a. Set parking brakes
  b. Shut off engine
  c. Do not leave unit under rack area after loading
- Report any spills or loading rack equipment malfunctions to plant management.
- Collect bill of lading/invoice and all other necessary documents. This procedure may vary for each loading terminal.
- Ensure that the OSHA product identification labels and the emergency response guidebook are available in the truck cab
- It is because procedures may change from one loading facility to another that you must become familiar with each loading facility's rules and regulations.

UNIT: 7. Safety practices while driving

The Ten Golden Rules to Safe Driving

As per the road safety experts, if every driver follows these Ten Golden Rules to Safe Driving, the road trauma rate would be dramatically reduced.

These Ten Golden Rules are:

1. Drive at a safe speed
2. Don't drink and drive
3. Obey the road rules
4. Concentrate at all times and be alert
5. Be patient, and when in doubt, don't proceed
6. Plan your moves well in advance
7. Give correct signals
8. Be very alert, particularly at intersections
9. Know your vehicle; and always
10. Be polite and considerate toward other road users

Driving at safe speed /Two second braking rule

Need for speed

Speed is perhaps one of the major forces moving the progress and one of the biggest addictions on this planet and around. You want to get from point A to point B as fast as possible. And you want to feel the joy of moving really fast, even if you do not have any need to go from point A to point B. Those were the reasons automobile was invented in the first place and also the major reasons anyone buys the car. Those are the major goals for the majority of trips. Yet, if one goes too fast, one might never arrive. How fast is too fast, though?

This thing is big

No, it is huge. Worse, everyone has his own opinion on this. Still, many people aggressively defend variations of the official opinion. Official answer is simple – anything above speed limit is too fast, no matter what.

Limiting speed as per the restriction

As soon as it can be proved your speed is above speed limit, you are wrong and guilty, and you get pulled over. As easy as that. Authorities would restrict your speed with the road conditions changing and the limiting speed displayed is to be adhered to. This speed needs to be low in the left highway lane.

What should the max speed be?

We do try and figure out what is the maximum possible speed that is actually safe under given circumstances? And, given this maximum possible speed, how fast we actually want to drive right now?

Factors affecting the speed

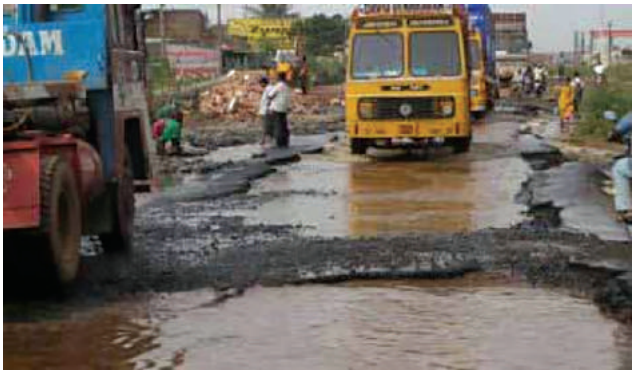
By and large, there are three major variables to this safe speed equation – the driver, the car, and the road. Let's talk about those variables in some detail.

The driver

it means everything related to driver, his knowledge, skills, experience, physical and mental shape, mood, focus on the task at hand, his judgement ability, his personality, etc

Our job as a driver is to constantly assess all those variables and decide what is the maximum safe speed for every one of them, and then to pick the lowest – this will give you the speed that is safe from all three points of view. In other words, the maximum speed a particular driver on particular moment in particular vehicle on particular road part can safely drive. A professional racer on a new performance car on a nice warm day would drive about the speed of a pedestrian on a tight residential lane, because he just has almost no room to react if children suddenly run into the road in front of his car.

All this does not mean you have to drive exactly at the maximum safe speed. Most of the times an experienced driver will drive slower than this, in order to not to push himself, or his vehicle, or environment to the limit, and to give himself some room for error. It usually depends on the current trip goal. If you were sightseeing, you probably would drive much slower, and if you were delivering your wife to the hospital, you probably would push it to the limit or even further, which is again a mistake.



Alertness and fatigue management

Driver fatigue, i.e. driving when you are tired, is a major road safety hazard. Crashes due to driver's fatigue tend to be severe because sleepy drivers are not able to generally take evasive action. The risk of serious injury to a driver, passengers or the occupants of other vehicles in this type of crash is very high.

What is driver fatigue?

Fatigue is a common term that refers to mental and physical tiredness. Fatigue causes loss of alertness, drowsiness resulting in poor judgement, slower reactions, reduced driving skill and may cause you to fall asleep at the wheel.

If you are a driver and you become drowsy, you can drift into 'mircosleep', which is a brief nap that lasts of around three to five seconds. At 80 Km per hour your vehicle can travel over 80 metres in that time, which is enough time for it to run off the road bumping into a tree, another vehicle or a pedestrian.

The main causes of fatigue

Body Clock Factors

Your body runs on a natural biological cycle of 24 – 26 hours – often called your 'body clock'. Your body clock programs you to sleep at night and to stay awake during the day. Your body clock is controlled partly by light and dark and partly by what you do. If you normally work from 9 am to 5 pm. some of the things that happen to you as a result of your body clock are:

- The morning light tells your body clock to make you more alert (wakes you up);
- During the morning your body clock keeps you alert;
- After lunch, it will turn your alertness down of a couple of hours;
- Your body clock will make you most alert and aware in the late afternoon and early evening;
- Darkness in the evening tells your body clock to turn your alertness down again so you can get ready to sleep; and
- After midnight your body clock will turn your alertness right down so that you are 'switched off' be tween 2 am and 6 am. At this time all your body functions are at their lowest level.

What all this means for you as a driver, is that you will usually be at your best, most alert and safest when driving during the morning, the late afternoon and early evening. You will usually be at your worst between midnight and 6 am when the body clock turns your alertness down. This is a dangerous time for drivers. Information from road crashes shows this is true. Although there are fewer drivers on the road between midnight and 6 am, statistics show they can be up to 20 times more likely to have a crash during those hours.

Sleep Factors

There is only one way to prevent fatigue, and that is to get enough sleep. Six to seven hour's sleep is generally recognized as an average and normal need. If you get much less than this you will suffer fatigue. You will feel tired during the day but you will feel much worse at night when your body clock turns your alertness down. You will also be a danger to yourself and others on the road. If you have not had any sleep for 17 – 18 hours, your ability to drive will be the same as if you have had a BAC of 0.05 per cent. You may like to go out at night and stay out, until the early hours of the morning. Just be aware that if you drive when you have not had enough sleep you are taking a big risk. If you crash because you are not alert, you are likely to be held responsible.

Work Factors

Long working hours or study hours or physically tiring work can affect your ability to drive. If you are a shift worker then you need to take extra care. Research shows that shift workers are six times more likely to be involved in 'fatigue-related' road crashes than other workers.

Health Factors

There are a number of medical factors that can prevent you from getting the long periods of sleep that you need to feel refreshed and alert. If you had enough sleep during the night but you still feel tired and drowsy during the day you should consult your doctor. Look after your health and fitness. The healthier and fitter you are, the better you will sleep and the more alert your will be when driving. Don't take stimulant drugs to keep you awake – these only delay sleep. When they wear off there can be a sudden onset of sleepiness, which is very dangerous, especially if you are driving.

What are the warning signs of driver fatigue?

There are a number of warning signs to indicate that you are becoming too tired to drive safely. Some of the warning signs are:

- You keep yawning;
- Your eyes feel sore or heavy;
- You start daydreaming and not concentrating on your driving;
- Your vehicle wanders over the road;
- You start hallucinating;
- Your reactions seem slow; or
- Your driving speed increases or decreases unintentionally.

Ways to reduce driver fatigue

Here are some tips to help you keep alert at the wheel:

- Get plenty of sleep before you start driving on long trips;
- Provide adequate time for sleep, rest and food during long trips;
- Take regular breaks (at least every two hours) to walk and have a stretch;
- Get fresh air into your vehicles (smoke and stale air can contribute to drowsiness); and
- Learn to recognize the signs of sleepiness and pull over as soon as possible for a short break.

Once fatigue sets in, there is nothing you can do about it except stop immediately and take a break or a nap or rest.

Alcohol and Drugs

If you drive after drinking alcohol or taking other drugs, you are more likely to be involved in a crash. Alcohol or drugs by themselves are dangerous but the combined effect can be deadly.
Enforcement of drink driving and drug driving saves lives. Remember that every police vehicle may look for such checks and the probability that you will be randomly breath tested is high.

Your licence is a valuable privilege. Don't risk your licence, your life or the lives of others by driving after you have consumed alcohol and/or taken any drugs that affect your driving.

IT IS AN OFFENCE TO DRIVE OR ATTEMPT TO DRIVE WHILE IMPAIRED BY ALCOHOL OR DRUGS.

The effects of alcohol on driving

Alcohol is absorbed quickly into the blood and travels rapidly to all parts of the body. It affects your brain's ability to make judgements and process information. It also impairs your consciousness and vision. No amount of coffee or soft drink will sober you up – only time can do that
If you drink alcohol and drive, you will find it difficult to:

- Judge the speed of your vehicle;
- Judge the distance between your car and other cars;
- Notice traffic control signals, pedestrians and other potential hazards;
- Concentrate on the task of driving;
- Keep your balance, especially on a motorcycle (or on a bicycle, or as a pedestrian); and
- Stay awake when you are driving.

Alcohol also gives you a false sense of confidence. You may take more risks than you could normally – but remember, alcohol slows down your reaction time to road hazards.

Blood Alcohol Concentration (BAC)

Blood alcohol concentration is the quantity of alcohol in the body. It is measured by the weight in grams of alcohol present in 100 millilitres of blood. A person's BAC can be determined by analyzing a blood, breath or urine sample.
As soon as you start drinking, your BAC begins to rise and could take up to two hours to reach its highest concentration especially if you have eaten a substantial meal at the same time. Even though you may not have had a drink for an hour or more, your BAC may still be rising.

How long does alcohol stay in your body?

The body breaks down alcohol very slowly. A healthy person will take about one hour to get rid of the alcohol from one standard drink. So, if you have four standard drinks in an hour, it will take about four hours to get it all out of your system. Remember, no amount of coffee or soft drink will speed up the breakdown of alcohol in your body.

Effect of alcohol and other drugs on driving.

Many prescribed and non-prescribed and medicines can seriously affect you driving ability. Drugs such as sedatives or tranquillisers may impair your concentration, make you drowsy and slow down your reaction time. Medications for the common cold or travel sickness can have the same effect. These side effects may last several hours. If you are taking any drugs or medication, check with your doctor or chemist about the effect they may have on your driving ability.

Never combine alcohol and drugs.

The effects of alcohol and drugs vary and can become much stronger when they are used in combination. This can be very dangerous and even deadly. Don't drink and then drive.

If you want to drink, plan ahead. Your options include:

- Arranging a lift with a friend who isn't drinking;
- Arranging to stay the night after a party;
- Hiring a minibus, if it is for a group;
- Appointing a skipper;
- Using public transport;
- Phoning someone to come and collect you ; or
- Taking a taxi.

Don't drive after drinking. In doing so, you face an increased risk that you will:

- Lose your life or cause others to lose their lives;
- Injure yourself or someone else;
- Be charged by the police;
- Lose your licence;
- Be fined or imprisoned;
- Have your vehicle confiscated; or
- Damage your car or someone else's property.

If you have a crash while you are over the BAC level, or you are impaired by drugs, you will not be covered by insurance.

Diabetes and Driving

Diabetes is a condition that has the potential to make driving less safe or unsafe. People with diabetes should be aware of the risks involved when driving.

Most people with disabilities can get a driver licence, and most people who have a driver licence and subsequently acquire a disability can continue to drive. Vehicle technology such as power steering and automatic transmission offers many more opportunities for people with disabilities to drive. Virtually any standard production vehicle can be modified for a person with a disability.

1. What are temporary disabilities?

Ans: Disabilities such as broken arms or legs, migraine etc., may not stop a person from driving but in all cases will require them to make a decision as to their safety and the safety of other road users. Plaster casts may cause discomfort and can cause difficulties in controlling the vehicle. The person will need to be guided by their doctor as to how the plaster cast will affect their ability to operate all vehicle controls.

2. What are progressive disabilities?

Ans: Multiple sclerosis, arthritis, Parkinson's disease, loss of hearing or vision and ageing may subject a person's body to changes that interfere with their ability to drive safely. It is important that people know of the effect these conditions may have on a person's ability to control a vehicle safely. It is not safe to assume that a person's driving will be unaffected. Someone with a progressive disability may need to adjust their driving as changes occur. If a person takes medication, or if any medication changes, care will be needed to ensure that their driving is not affected. Medical guidance should be obtained.

3. What about an Amputees?

Ans: A person who has undergone an amputation will need to consult with their doctor, who may:

Issue a doctor's certificate that states the person should be restricted to an automatic vehicle and/or the vehicle should be fitted with special mechanical devices;

Refer them to a driving assessment service.

There is usually no difficulty in adapting an artificial limb to a vehicle or a vehicle to a limb. For more information contact a driving assessment service.

4. Can a deaf person drive?

There is no reason why a deaf person cannot drive a private motorcar. However, the possibility of additional rear vision mirrors may need to be considered.

5. What are the factors affecting driving ability?

The following is a list of skills that every driver should have to ensure they can safely operate a vehicle:

Good vision in front and out of the corners of the eyes;
Quick reactions and reflexes (to be able to brake or turn to avoid crashes);
Good co-ordination between eyes, hands and legs;
Ability to make decisions quickly;
Ability to make judgements about what is happening on the road.

6. How a head injury can affect driving?

A head injury may affect people in different ways. Listed below are some of the consequences of a head injury which could affect someone's driving. It is important to remember that certain medications can affect co-ordination and reaction times while driving

Driver Health Insurance / Auto insurance etc

In India, auto insurance is mandatory for all new vehicles, be it commercial or for personal use.
Auto insurance, also commonly known as vehicle insurance or motor insurance, is an insurance which consumers can purchase for cars, trucks, and other vehicles. In other words, it is a contract between the owner of a vehicle and the insurance company. According to the contract, the vehicle owner agrees to pay the premium and the insurance company agrees to pay the losses as defined in the policy.

Handling Emergencies

How to Handle Emergencies?

You must not use the horn or any other warning instrument on your vehicle, except in an emergency or to prevent injury to a person or property

- Breakdown on the road
- Tyre blow- out (rapid puncture)

- A stuck accelerator
- Brake Failure
- Possible head – on collision
- Forced on to the gravel
- Bonnet flies up
- Shattered windscreen
- Stalled on a railway crossing

Fuel saving tips

1. Keep your tyres properly inflated.
2. Lighten up your car and don't carry anything you don't absolutely need.
3. Remove bicycle, extra loads on top or ski racks in between trips.
4. Don't fly flags on your car
5. Do not fill your tank up completely
6. Fill your tank at the coolest time of day
7. Try not to accelerate more than you need to
8. Similarly the other way, try not to slam on your brakes
9. Use the landscape to your advantage
10. If you have more than one car, use the one with the best fuel mileage for daily commuting
11. Plan your route to avoid traffic jams
12. Optimize your route
13. Consider walking or using a bicycle for short trips
14. Consider car pooling if possible
15. Use a credit card with rebates or cash back offers on fuel
16. Should you use low octane fuel?
17. Do you need to do a tune-up?
18. Do we need to quit using A/C?
19. Should we avoid excessive idling?
20. Do we need to use cruise control?
21. Should we stop warming up your car on cold mornings and start driving right away?
22. Do we need to shop around for better fuel prices?
23. Should you drive in a higher gear?
24. Do you need to slow down to 55 kmph to save fuel?
25. Do you need to replace your air filter?
26. Do you need to replace the fuel filter?
27. Do you need to inflate your tyres up to the numbers shown on a tyre sidewall?
28. Do we need to use fuel saving devices?
29. Do we need to use higher octane fuel or octane booster?
30. Do we need to use a fuel injector cleaner?
31. When in extreme winter the car gets covered with snow and ice, try to remove as much as you can, not just clearing a hole in the windshield

List of safety concerns

- Chemical exposure - exposure to toxic chemicals
- Fire and explosion - arise spontaneously
- Oxygen deficiency - Oxygen concentrations lower than 16 percent can result in nausea and vomiting, brain damage
- Biologic hazards- Wastes from hospitals and research facilities may contain disease-causing organisms that could infect site personnel.
- Safety hazards- Holes or ditches, Precariously positioned objects, such as drums or boards that may fall, Sharp objects, Slippery surfaces, Steep grades, Uneven terrain.

- Electrical hazards- Overhead power lines, downed electrical wires, and buried cables all pose a danger
- Heat stress- Heat stress is a major hazard, especially for workers
- Cold exposure- Cold injury (frostbite and hypothermia) and impaired ability to work are dangers at low temperatures and when the wind-chill factor is low.
- Noise- Work around large equipment often creates excessive noise

Address Unsafe condition

- Follow established procedures and perform job duties as you've been trained.
- Be cautious and plan ahead.
- Always use required PPE
- Make sure all containers are properly labelled and that the material is contained in an appropriate container.
- Read labels and the material safety data sheet (MSDS) before using any material to make sure you understand hazards and precautions.
- Use all materials solely for their intended purpose. Don't, for example, use solvents to clean your hands, or gasoline to wipe down equipment.
- Never eat or drink while handling any materials.
- Store all materials properly, separate incompatibles, and store in ventilated, dry, cool areas.
- Keep you and your work area clean.
- Learn about emergency procedures and equipment.

Recording and informing the incident

Inform by Phone: nature of incident, including measures to bring the situation under control and whether they were successful, and any injuries or harm.
Type and amount of dangerous goods, explosives or security risk substances involved;
Location of incident
Time and date of incident
Contact details (name, company, position, phone numbers and email address)
Witnesses
Anyone injured or affected

Man made	Natural Calamities	Extraneous
Heavy Leakage	Flood	Riots/Civil Disorder/ Mob Attack
Fire	Earth Quake	Terrorism
Explosion	Cyclone	Sabotage
Failure of Critical Control system	Outbreak of Disease	Bomb Threat
Design deficiency	Excessive Rains	War / Hit by missiles
Unsafe acts	Tsunami	Abduction
In-adequate maintenance		Food Poisoning/ Water Poisoning

Positive culture

1. **Define safety responsibilities**: Do this for each level within your organization. This should include policies, goals and plans for the safety culture.
2. **Share your safety vision**: Everyone should be in the same boat when establishing goals and objectives for their safety culture.
3. **Enforce accountability**: Create a process that holds everyone accountable for being visibly involved, especially managers and supervisors. They are the leaders for a positive change.

4. **Provide multiple options**: Provide different options for employees to bring their concerns or issues full-face. There should be a chain of command to make sure supervisors are held accountable for being responsive.
5. **Report, report, report**: Educate employees on the importance of reporting injuries, first aids and near misses. Prepare for an increase in incidents if currently there is under-reporting. It will level off eventually.
6. **Rebuild the investigation system**: Evaluating the incident investigation system is critical to make sure investigations are conducted in an effective manner. This should help get to the root cause of accidents and incidents.
7. **Build trust:** When things start to change in the workplace, it is important to keep the water calm. Building trust will help everyone work together to see improvements.
8. **Celebrate success:** Make your efforts public to keep everyone motivated and updated throughout the process.

UNIT: 8. Work effectively in a team

Work with colleagues

Building effective workplace relationships is an extremely important skill for any employee. The strength of our relationship-building skills can affect our ability to negotiate effectively, deliver projects and meet deadlines. Here we outline the fundamental aspects of successful working partnerships and offer some practical suggestions on how to further develop your existing relationships at work.

Respect

A mutual respect between individuals should underpin all working relationships. Demonstrating respect is fundamental to gaining trust and will form the foundations of a relationship in which ideas and opinions can be shared openly. Respect can be earned in a number of ways:

- **Treat one another as equals**. Even in relationships in which individuals have different levels of organiza tional seniority, colleagues should treat each other equally. 'Pulling rank' can make others in the relationship feel less valued.
- **Share your knowledge with your colleagues**. Offer them the benefit of your experience and encourage them to do the same.
- **Recognize the achievements** of others and make them aware that you value the contribution they make to your working relationship.
- **Be honest**. Committing to unrealistic time frames or making promises that can't be kept can be very d amaging to working relationships. Be upfront with your colleague if you face constraints on time or resources, and suggest an alternative solution that is more achievable.

Understanding

- Taking the time to understand your colleagues can be of real benefit to your working relationships. This means taking the time to learn what motivates and drives them to achieve their goals. Understanding can be developed in a number of ways, for example by:
- Arranging an introductory meeting when you start working with someone for the first time to establish what you can expect from one another in the working relationship.
- Establishing shared objectives when embarking upon a new project or initiative to allow you to work towards a common goal.
- Using active listening skills during meetings and discussions. Active listening means listening intently to what someone is saying and making it clear to them throughout that you have heard and understood them.

External working relationships

In many organizations, developing relationships with people who do not work in the same location as you (e.g. colleagues based elsewhere, clients and suppliers) is a key aspect of working life. In these situations, face-to-face contact is often limited, or simply not possible, so it can take a little longer to build relationships. Suggestions for conducting successful relationships in this context are outlined below:

- Where possible, try to arrange at least one face-to-face meeting at the beginning of the relationship, to establish rapport.
- Without visual cues, it is easier to misunderstand someone when you are communicating by phone or email so ensure you maintain a straightforward communication style and avoid making comments that could be misinterpreted.
- Check understanding and any agreed actions at the end of phone calls. Make it clear in emails that you are available if further information is required.
- Maintain regular contact to keep the relationship on track. A short 'how are things?' email or quick courtesy phone call can work wonders in helping to maintain a healthy working relationship. Always apply the same levels of professionalism as you would to internal relationships. Your conduct reflects your organization as well as you.

Addressing differences

It is inevitable that, at some point, you will encounter challenges in your working relationships. When a difficult situation occurs, it is important that it is addressed promptly. There are number of ways you can do this, for example:

- Have an open conversation with the person concerned. This may seem awkward at first, but failing to address problems can lead to more serious issues. Outline your concerns concisely, supporting your points with examples. Stress your commitment to the relationship and your wish to find a solution that works for you both.
- Listen carefully to your colleague's point of view and take their comments on board. Clarify any actions you or your colleague might need to take to help the relationship get back on track.
- Avoid the temptation to badmouth your colleague or approach the issue with their manager before you have discussed it with them personally. If you are unsure whether speaking to your colleague directly is the right thing to do, take the advice of someone you trust in the organization, such as another manager or director.

Pass on information to colleagues in line with organizational requirement

Information Sharing Agreements (ISAs) or Information Sharing Protocols (ISPs) are more detailed documents that set out what information will be shared by organizations. They usually include details of how this information will be shared, who will be responsible for decisions on sharing information, what security arrangements will be in place, and how information that is shared can be used.

Work in ways that show respect for colleagues

A respectful work environment reduces the potential for conflict, increases morale and results in lower absenteeism and turnover. In turn, this creates a more productive environment for the employer and a friendlier place for employees to work. Having respect for your colleagues earns you respect in return, and creates an atmosphere where collaboration, trust and teamwork are valued.

Be kind

Learn your co-workers' names and acknowledge them with friendly greetings. Offer congratulations, when appropriate, and express encouraging remarks about their work efforts.

Let them work
In a close work environment, where desks are only a few feet apart, it can be easy to let a casual conversation overlap into work time. Keep personal chitchat to a minimum and don't monopolize your colleague's time when you both should be working.

Respect boundaries
Allow your colleagues privacy. If an office door is shut, a person is on the phone or in conversation with someone else, walk away and come back later. Don't try to push your way in when someone is in conversation with a customer or other stakeholder.

Be reliable
Arrive for work on time, don't leave early, and meet all of your deadlines. If someone is counting on you to cover a shift or help with a project, don't leave them in the lurch.

Don't gossip
Don't talk about your colleagues, repeat gossip, spread rumors or discuss unsubstantiated information. This makes you look unprofessional and you could unwittingly promote information that is untrue.

Be honest
If you have a problem with a colleague, or disagree with something she said or did, confront her directly and have an honest and respectful conversation. Don't stew and get angry or bring other colleagues into the dispute, but have the professionalism to air grievances in a private.

Share credit
Give public credit to colleagues where it is due, like on team projects and collaborative group efforts. Sharing credit shows respect for your co-workers' time and talent and establishes you as a fair individual.

Don't interrupt
Don't finish your co-workers' sentences, interrupt presentations or trains of thought, or jump into the middle of debates. This shows an inherent lack of respect and establishes you as a controlling individual.

Collaborate
Participate in teamwork and group initiatives, like brainstorming and problem-solving. Be willing to offer ideas and suggestions and provide helpful feedback.

Don't Criticize
Don't criticize a colleague's work or put down an idea or suggestion, particularly in a public forum like a meeting. Respect your co-workers enough to let them speak their minds and describe their own concepts without judgment. Expect the same treatment from them in return.

Carry out commitment made to colleagues

What should a work plan or work schedule cover? Ensure that the following are included:

- Timescales and deadlines
- The people involved
- Targets and objectives
- The standards to be worked to

Effective working relationships with people both within and outside the company are based upon open, honest and friendly behavior whilst maintaining a professional attitude. Within the organization, it is important that everyone works efficiently together to meet common objectives and targets. This often involves providing advice and information to colleagues and supervisors/managers.

Problems in working with colleagues

If you've been working for awhile, you've experienced workplaces in which all sorts of dysfunctional approaches to dealing with a difficult coworker have been tried. How to handle a conflict with a coworker:

- Discuss the problem face to face
- Keep an open mind and listen
- When it's your turn to talk ,stay calm
- Know when you need to involve a third party
- Learn from both the conflict and the solution
- Address the conflict sooner rather than later

Organization's policies and procedures for working with colleagues

Each service needs to have policies and procedures to help them guide the actions of all individuals involved in the service. They ensure and endorse the well-being of all families, children, staff, volunteers and everyone who is connected to the service. When policies and procedures are well thought out and, most importantly, implemented they provide common understanding and agreement on how things should be done at the service. Procedures provide clear instructions and guidelines on what should/must be done in a particular set of circumstances or with regard to a particular issue.
Policies and procedures help new staff and families to familiarize themselves with the service's practices and give them information about what to expect from the service. Policies should be 'living' documents that must be regularly reviewed to ensure that they meet all the needs of those working in the service, and take into account the possible changes that have happened in the service and within the wider community.

To summaries good, well thought out and implemented policies and procedures ensure:

- Good practice
- Helps to establish a professional and effective organization
- They provide consistency amongst staff, parents and children
- They can prevent any ambiguity about how particular situations/issues should be handled in the service
- They promote harmony among staff
- More efficient and effective delivery of service

Share resources with other members as per the priority of tasks

Setting priorities when you have a range of competing demands on your time, you may find that you try to complete more than one task at a time. However, this may result in all of the tasks being done to a lower quality than you would have achieved otherwise. Alternatively, you may feel paralysed by indecision about what to do first.

Setting priorities can help you complete your work more effectively, as you clearly establish the order in which you should complete tasks and you can

UNIT:9. Health safety and security procedures

Bad habit of alcohol, smoking, drugs etc.

Tank drivers have challenging jobs and too often they put their own health and safety, as well as others', in danger by taking stimulants and other drugs to get through a shift, a new study suggests.Alcohol and driving don't mix, and the case for marijuana is similar; both increase sleepiness, decrease concentration and could lead to accidents .

Kick the habit

Breaking bad habits, on the other hand, will have an almost immediate effect on every single aspect of life. This is without having to do literally anything else. Stop smoking, stop drinking, and stop gambling, whatever bad habit anyone could have. The second after it's interrupted will bring nothing but good things.
A better health for example or a better appearance in regards to your skin will be one of the many amazing side effects that leaving alcohol for good has. Lungs will slowly start to heal after you quit smoking. Wallet won't be constantly drained when give up on gambling. It's all positive and good things that in the end could also be counted as new and useful resources to achieve bigger and better things.
Employee body itself will feel much better and energized. Employee mood will shift towards a more positive one and this will also lead to a better outlook on life as well. Motivation can start to burst out of nowhere; inspiration can be waiting just around the corner.

All the resources to do anything you want and that feels good. The time you used to spend on binge drinking, partying and escaping from reality will become extra time you will have. Time to face things as they are and enjoy it because at the end of the day that's what life's about

Good food habit, dressing sense, sound sleep etc.

Promoting healthy diets at the workplace People should begin their day with a healthy breakfast and partake in a regular lunch to be more productive. An environment where there is availability of healthy food choices is key to promoting healthy diets that can become the norm in the workplace. Workplace cafeterias need to be pleasant and hygienic.

Display of food samples, healthy combinations and calories per serving should be established. Healthy choice labelling and messages reminding staff to select such foods over other foods made with refined carbohydrates and high in fat, sugars or salt, and water placed around the cafeteria and other areas where food is served or eaten are good investments at the workplace

Healthy eating:

- Select whole grains, brown rice over refined cereals
- Select healthy fats and proteins. For vegetarians, at least one plant-based option such as tofu or beans
- Choose poultry, fish, or lean meat
- Avoid processed, salted meats and fish
- Avoid adding excess salt or high salt flavor enhancers and always use iodized salt
- Select small portions if weight loss is the goal

- Eat adequate fruits and vegetables as part of your daily diet For employers and cafeteria management:
- Serve plenty of vegetables to make it the main bulk of a meal
- Vegetables should be cooked just adequately, or served raw (thoroughly washed)
- Offer a variety of fresh vegetables and fruits
- Cooking methods: use low-fat options and bake, broil or grill foods
- Avoid serving products that contain industrial trans fats
- Limit sugar and salt usage in cooking
- Dressings, condiments, pickles and sauces should always be served on the side, and in small portions
- Serve small portions of food using appropriate-sized serving utensils
- Avoid adding sugar in fruit salads or adding sugar syrups

Regular health check-up and attend classes on addition, aids awareness etc.

Pre-employment health check-up is a significant part of employee benefit for any organization. This ensures and informs the company the present health status and well-being of the newly hired candidate on work. Today it is customary for many companies to get the health check-up for employees done at the time of hiring and on annual basis as well.

Pre-employment check-up includes the basic screening investigations needed to determine the candidate's medical fitness required for employment

Road safety and vehicle maintenance for long trips

Before you leave make sure vehicle is safe for the road, and safe for you and your passengers. Make sure you get enough rest and plan ahead. You should always plan your trip before travelling the many highways through Queensland

Good preparation for your long trip includes:

- Checking your vehicle is safe for the trip
- Know what to do if your vehicle breaks down
- Know what road conditions or obstacles you may encounter on your trip
- Decide what route you will take to get there and how long it will take
- Know what to do if you have an accident or breakdown
- Pack enough food and water and a little extra in case your trip takes longer.

Plan for on the road

Drive to the conditions as highway speed limits are greater and the faster you drive, the longer it will take for you to stop.
Make sure drive to the conditions of the road and remember:

- Use headlights/fog lights if visibility is poor, or pull over for a break until the conditions improve.
- Drive with caution.
- Sunrise and sunset may also limit vision of the road.
- Watch out for wildlife on the road and on the side of the road—especially at dawn and dusk. Slow down, flash your lights and beep your horn to alert the animal.
- Watch out for cattle and sheep—slow down or stop until the animal has moved off the road.
- Watch out for potholes, loose gravel and other obstructions on the road

Unsafe condition in your work place

Unsafe conditions exist all around us:

We are surrounded by hazards that could cause harm, but most of the time we safely negotiate these hazards and arrive at our destination safely.

Stop any work that becomes unsafe

If you have any doubts on whether the work you are doing or your workplace is safe, stop work and inform your line manager/ supervisor. You have the legal right to stop work if you feel you are in serious and imminent danger. Also if you see anyone else working unsafely you should report this to your line manager/ supervisor or local Safety Officer.

Record all near miss incident, damages, illness or injury

Recording and reporting accidents and ill health at work is a legal requirement under the reporting of injuries, diseases and dangerous occurrences regulations

Applicable laws, regulation and codes as per standard

Acts give a general overview of how to make workplaces safe and healthy. They outline your legal responsibilities and duties as an employer and business owner.

Regulations set out the standards you need to meet for specific hazards and risks, such as noise, machinery, and manual handling. They also set out the licenses you need for specific activities, the records you need to keep, and the reports you need to make.

Regulating agencies (also known as regulators) administer health and safety laws. They're responsible for inspecting workplaces, providing advice and help, and handing out notices and penalties where necessary.

Promote and maintain a positive safety culture

Safety Culture

A positive safety culture in the workplace is absolutely a vital part of a successful and effective health and safety program. Find the idea of building or changing your safety culture daunting because the way it is at your workplace has fallen into a pattern of complacency. The effects of complacency can be catastrophic: accidents, injuries, illnesses, even loss of life could result. Don't allow this to happen in your workplace.

Safe storage of hazardous substances:

Safe storage of dangerous or hazardous materials. Under the Control of Substances Hazardous to Health Regulations (COSHH) you must ensure chemicals and dangerous substances are stored and handled in a way that minimizes the risks and limits people's exposure to them and storing incompatible substances separately.

Assess the threats and to protect from the threats

Threat assessment, risk management and s**afety planning** are processes that you can use to recognize and respond to the risk of workplace domestic violence. In this guide we give you information and resources that can help you to respond appropriately to workplace domestic violence.

Report all incidents to the superior or concerned

Reporting near misses

Reporting Procedure: - Employees

1. All accidents must be entered in the appropriate Accident Book either by the injured person or, if this is not practical, someone else present at the time.
2. An accident Report form (Part 1 only) is also to be completed by the same person who should then give the form to the Immediate Supervisor of the injured person.
3. The Immediate Superior must then:-

- Note that the accident has occurred.

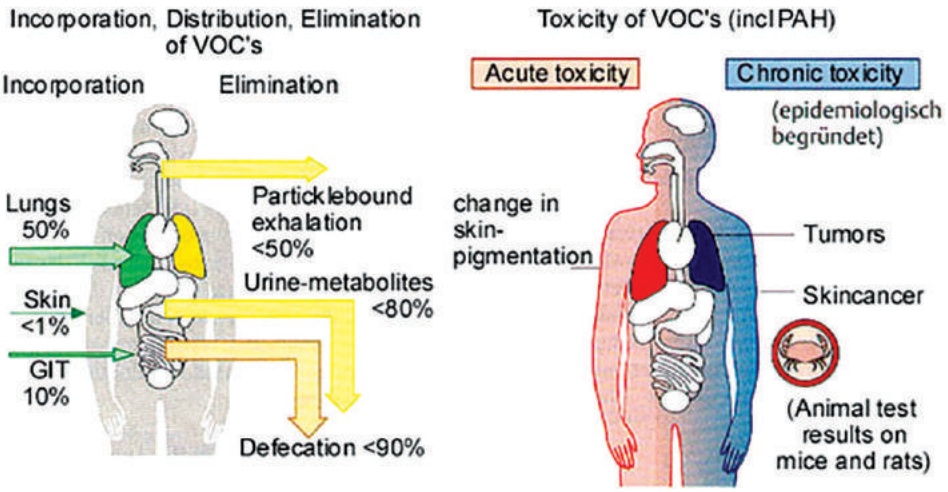
- Ensure that the Accident Book has been correctly and fully completed
- Immediately pass the Accident Report form to the Safety Manager.
- Enter on clock card, or other such notification to the Wages Department, the words “Injured at Work”.

4. The Safety Manager will then:-

- Ensure that, where applicable, the requirements of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 are met.
- Complete Part II of the Company Accident Report form, recording the findings of the subsequent investigation.
- Discuss the accident and the contributory factors with the Departmental head
- Report findings to the Director responsible for Health & Safety and, if necessary, instigate any disciplinary proceedings.

How can volatile organic compounds affect my health?

The health effects of volatile organic compounds can vary greatly according to the compound, which can range from being highly toxic to having no known health effects. The health effects of volatile organic compounds will depend on the nature of the volatile organic compound, the level of exposure, and the length of exposure.



Benzene and formaldehyde are listed as human carcinogens in the Fourteenth Report on Carcinogens published by the National Toxicology Program;

- Diesel exhaust particulates,
- Perchloroethylene, and
- Styrenes are listed as “reasonably anticipated to be human carcinogens.”

People at the highest risk of long-term exposure to these three volatile organic compounds are industrial workers who have prolonged exposure to the compounds in the workplace; cigarette smokers; and people who have prolonged exposure to emissions from heavy motor vehicle traffic.

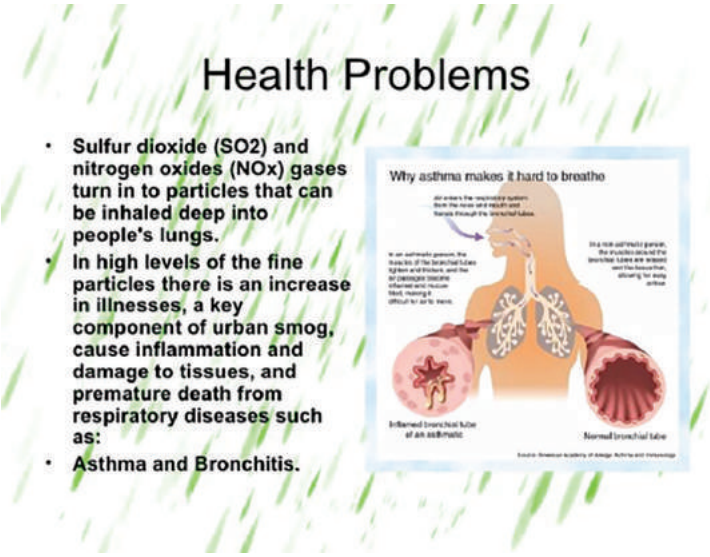
Health Effects

Health effects may include:

- Eye, nose and throat irritation
- Headaches, loss of coordination and nausea
- Damage to liver, kidney and central nervous system
- Some organics can cause cancer in animals, some are suspected or known to cause cancer in humans.

Key signs or symptoms associated with exposure to VOCs include:

- conjunctival irritation
- nose and throat discomfort
- headache
- allergic skin reaction
- dyspnea
- declines in serum cholinesterase levels
- epistaxis
- fatigue
- dizziness



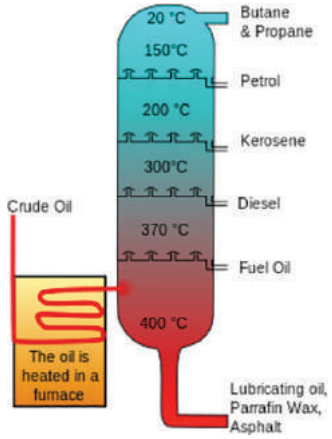
Petroleum products

- **Light distillates**

Petroleum products are usually grouped into four categories: light distillates (LPG, gasoline, and naphtha), middle distillates (kerosene, jet fuel, and diesel), heavy distillates and residuum (heavy fuel oil, lubricating oils, wax, and asphalt).

- **Middle distillates**

Middle distillate refers to a range of refined products situated between lighter fractions, such as LPG or gasoline, and heavier products such as fuel oil. Typically they include jet fuel, heating kerosene, and gas and diesel oils, such as marine bunker fuels. Diesel is mainly used for transportation.



Middle Distillates / Gasoil

A middle distillate is a clear, colorless to light yellow, flammable liquid. It has between ten and twenty carbon atoms, a density of not more than 0.860 kg/l at 15°C, and a flashpoint above 60°C

Operates and handle spills and respond to the spills

A spill occurs when the contents of something, usually in liquid form, is emptied out onto a surface, person or clothes, often unintentionally.

Spill may also refer to:

- Oil spill
- Chemical spill
- Data spill
- Leadership spill
- Spill (audio), where audio from one source is picked up by a microphone intended for a different source

First Responders

First Responders will typically be a driver on route or a staff member who notices a spill in the bus lot. As soon as a spill is discovered, the initial action should be to protect personal safety and to prevent the pollutant from entering nearby drainage ditches or storm water drop inlets. The person observing the spill should take immediate action to prevent further spillage and to confine the spilled material.

The general instructions to contain a spill are:

- Notify the on-duty Supervisor as soon as the spill is discovered.
- If possible to do so safely, stop the cause of the spill. This may include securing fluid/fuel caps or attempting to plug or cover punctures or gashes in lines. Do not attempt to stop the spill if the situation creates any degree of personal danger
- If the spill is noticed while on route, do not attempt to move the bus or vehicle unless specifically instructed to do so by a Supervisor

Ability to handle different firefighting in emergencies

Water also smothers the fire, taking away oxygen. Some firefighters use foam as an alternative to water. Fire extinguishers also use foam to fight fires. Removing the fuel is another fire fighting method

For the purposes of understanding this Code of Practice, the following definitions are provided. Please note that these definitions are not included in the OHS legislation, but are helpful in applying the legislation.

"**Emergency incident**" means the circumstances giving rise to a specific operation;

"**Emergency operation**" means activities relating to rescue, fire suppression, emergency medical care and special operations, and includes the response to the scene of an incident and all functions performed at the scene;

"**Firefighter**" means a worker whose duties include:

(i) emergency operations, fire inspection and fire investigation, and
(ii) training for the activities mentioned in SOP, and includes a worker whose duties include directing any or all of the activities mentioned in SOP

Firefighters may be employed as volunteer, part time, full time or any combination of these.

"**Standard operating procedure**" or "standard operating guideline" means an operational directive prepared by an employer that establishes a standard course of action for the emergency incidents to which a firefighter is required to respond.

"**Structural firefighting**" means the activities of rescue, fire suppression and property conservation involving buildings, enclosed structures, vehicles, vessels, aircraft or other large objects that are involved in a fire or emergency incident.

UNIT: 10. Firefighting equipment

Fire Extinguishers

Always be aware of the dangers of the incorrect use of firefighting equipment. This is true for all firefighting equipment, including fire extinguishers.

A fire extinguisher should never be used to prop open a door. It should always be fixed to the wall, and it should be checked monthly by a service technician.

Most modern fire extinguishers are developed to deal with many different fire scenarios. Fire extinguishers can be filled with powder, water additive, foam, or carbon dioxide.

When choosing a fire extinguisher, be sure to pick one that will fight the fires that are most likely to develop in your business or home.

Fire Hoses

The fire hose reel lets out a powerful stream of water that extinguishes large fires. The hoses usually come in a fire hose reel, which holds 30 metres of tubing.

This makes the hose easy to unravel so a fire can be fought quickly. Fire brigades can also attach different nozzles to the end of the hose to fight a variety of fire situations.

A fire hose is one of the standard types of firefighting equipment, and it is efficient against even the largest fires.

Fire Buckets

A fire bucket is considered the simplest piece of firefighting equipment, but still serves a purpose. The standard red bucket has the word 'Fire' written on it and it is made of metal or plastic. It can be filled with water or you can fill it with a flame smothering powder like Flamezorb. To use, dump the bucket over the fire and keep repeating the process until the fire is out.

Fire and Welding Blankets

Fire blankets are used to smother small fires that start in the workplace or at home. Economy fire blankets or white kitchen blankets are a good choice for a small kitchen or for a caravan.

A larger workshop or restaurant kitchen should have a 1.2m x 1.2m blanket in case of emergencies.

If the work in a commercial kitchen or in a place that stores flammable liquids, you'll want the large 1.8m x 1.75m fire blanket. These blankets have a special pull tab that allows you to open them quickly. Welding blankets are used to protect welders from sparks and splatter. These blankets come in three different weights and sizes.

Flamezorb

Flamezorb is a powder that effectively smothers fires. It's non-toxic and easy to clean up. Each bag of Flamezorb has enough powder to fill a ten litre fire bucket.

If you work in an area like a garage forecourt where this is a high potential of spillage, Flamezorb is good to have around.

UNIT: 11. Wheels and Tyres

As the sole point of contact between the trailer and the road, it is vital that your trailer wheels and trailer tyres are checked for any damage, pressure or wear issues.

- The tyre pressure is shown on the tyre sidewall and is shown with the load capacity of the tyre (check our recent blog on trailer wheels and trailer tyres for information on this, and also our tyre wall markings download). The pressure required can vary greatly depending on tyre size and even tyre manufacturer, so it is essential to check the correct amount of air is in the tyre.

- Check the depth of tread on the trailer tyres. The same laws apply as with a car – the depth of the tread must be a minimum of 1.6mm on the centre three-quarters of the tyre.
- Make sure that there are no bulges, cracks or tears in the tyre sidewall; make sure there are no nails, glass and other items stuck in the tyre to cause a puncture.
- Check over the trailer rims for any damage or anything untoward.
- Check the torque of the trailer wheel bolts and wheel nuts to make sure they are the correct tightness. We at Trident Towing sell wheel nut indicators to easily see if a wheel bolt or wheel nut has moved and slackened.

Vehicle Lighting

Traditional trailer bulb lighting is notorious for being faulty because of the constant vibration and road shock whilst towing. Thus, it is essential that this is checked before commencing your journey.

With the trailer coupled to the tow vehicle, turn on the vehicle side lights, brakes, indicators, fog light and reverse light (if fitted) and check around the trailer to see if these are all working. If possible have someone to operate the vehicle lights for you.

Check the trailer electrics plug for any damage to the metal pins or the casing, and that the wires are secured inside.

- Look at the trailer electrics cabling going from the plug for any damage, exposed wire or any wire breaks.
- Many trailer lighting faults are from blown bulbs – take the light lens off and look at the faulty bulb to see if the filament is broken.
- Make sure the trailer lights themselves are not cracked or damaged.

Last minute checks:

Just before you head off on your trailer journey, Make sure the jockey wheel and prop-stands on the trailer are fully wound up and secure enough so they do not drop to the ground during transport.

Sharply pull up and down on the trailer drawbar or A-Frame to ensure it is properly coupled to the tow ball.

If you are towing a trailer or caravan which is wider than your towing vehicle you would need additional towing mirrors to ensure you can see along the trailer sides. We sell a selection of towing mirrors if required, including the excellent award-winning Milenco Aero mirrors which are available in Convex Glass or Flat Glass versions.

If you do find any problems with your trailer, we at Trident Towing Kent have a dedicated trailer servicing department and we will take care of your trailer efficiently, quickly and thoroughly.

Just fill in our online trailer servicing enquiry form and send this to us, and we will get back to you straight away with a quotation. Alternatively, you can contact us over the phone and we will be pleased to discuss the trailer service with you.

With our servicing staffs' extensive knowledge, and the huge array of spare parts at our depot, you can be assured that your trailer is in safe hands with us.

Repair of Road Tank Wagons

Adequate care should be taken to prevent any ignition source that may arise whilst maintenance/ repair is being carried out on a tank that may contain petroleum or its vapours.

1. The owner of a vehicle used to transport liquid or gaseous petroleum in bulk should ensure that if the vehicle is to be brought into a building to carry out service or repair work on its cabin, chassis or engine the following requirements are observed before the vehicle is brought into the building:

1.1. Every transport tank and all piping and hoses on the vehicle should be emptied of liquid contents.

1.2. All primary shut-off valves should be closed and all outlet or inlet connections should be capped.

1.3. The person in charge of the workshop should be told of the nature of any residue in the transport tanks and bulk containers and that valves and fittings are not to be tampered with.

1.4. No repair work should be performed on a transport tank or on any primary tank shut-off valve un less the tank and every compartment of it has been:
- purged free of dangerous goods; and
- Inspected and tested in a manner sufficient to ensure that the tank is free of dangerous goods.

The above procedures should be documented and distributed to all persons involved in the maintenance and repair of road tank wagons.

Inspection and Retesting

1. General

Each cargo tank in operation should be periodically inspected and retested according to the manufacturer's specification or legislation applicable to such an issue. Inspection should be done by an independent authorized testing agency recognized by the authority having jurisdiction.

2. Conditions requiring testing and inspection

A cargo tank should be tested and inspected in accordance with this section prior to further use if:

a. The cargo tank inspection or test has become due according to guidelines specified herein.

b. The cargo tank shows evidence of bad dents, corroded or abraded areas, leakage, or any other condi tion that might render it unsafe for transportation service.

c. The cargo tank has been in an accident and has been damaged to an extent that may adversely **affect** its lading retention capability. .

d. The cargo tank has been out of hazardous materials transportation service for a period of one year or more. Each cargo tank that has been out of hazardous materials transportation service for a period of one year or more should be pressure tested.

e. The cargo tank has been modified from its original design specification.

f. The authorities having jurisdiction as to the use of such tanks are not satisfied with the degree of safety displayed in its us

Periodic Testing

1. External Visual Inspection and Testing

Where insulation precludes external visual inspection, the cargo tank, other than tanks in high-pressure service, should be given a visual internal inspection. The tank should be hydrostatically or pneumatically tested where:

- Visual inspection is precluded by internal lining or coating, or The cargo tank is not
- Equipped with a manhole or inspection opening.

Internal Visual Inspection

When the cargo tank is not equipped with a manhole or inspection opening, or the cargo tank design pre-cludes an internal inspection, the tank should be hydrostatically or pneumatically tested.
The internal visual inspection should include as a minimum the following: a.

- The tank shell and heads should be inspected for corroded and abraded areas, dents, distortions, de fects in welds, and any other condition that might render the tank unsafe for transportation service.
- Tank liners should be inspected. Corroded or abraded areas of the cargo tank wall should be thickness tested. The results of the internal visual inspection should be recorded

Leakage Test

The leakage test should include product piping with all valves and accessories in place and operative, ex-cept that any venting devices set to discharge at less than the leakage test pressure should be removed or rendered inoperative during the test.

Thickness Test

- Thickness testing should be performed in the following areas of the cargo tank wall, as a minimum: i. Areas of the tank shell and heads and shell and head area around any piping that retains lading; ii.
- Areas of high shell stress such as the bottom center of the tank; iii.
- Areas near openings; iv.
- Areas around weld joints; v.
- Areas around shell reinforcements; vi.
- Areas around appurtenance attachments; vii.
- Areas near upper coupler (fifth wheel) assembly attachments; viii.
- Known thin areas in the tank shell and nominal liquid level lines; ix.
- Areas near suspension system attachments and connecting structures; x.
- Connecting structures joining multiple cargo tanks of carbon steel in a self-supporting cargo tank motor vehicle.

The in-service minimum thickness of any area should be no less than 90 percent of the specified manufactured thickness.

Engines, Pumps and Compressors
Internal Combustion Engines

a. Internal combustion engines installed or carried on a road tank wagon transporting Class I liquids for the purpose of providing power for the operation of pumps or other devices should be made safe
b. A spark ignition engine should not be used for powering a pump for flammable and/or combustible products.
c. The engine air intake should be equipped with an effective flame arrester or an air cleaner having effec tive flame arrester characteristics. Such fitting should be designed so that any backfire is contained within.
d. Exhaust system of internal combustion engines should be fitted with means of spark suppression. The routing of the exhaust should not compromise the safety of the cargo or persons.
e. The fuel supply for auxiliary equipment should be constructed such that no impediment to access to
c argo operations, safety, or fire hazard is introduced. Suitable shielding against physical impact or heat should be provided

Pumps and Compressors

a. All positive displacement pumps/ compressors should be provided with a pressure relief system capable of preventing over-pressuring of the system.
b. All rotating and reciprocating parts of pumps and other appurtenances should be adequately guarded.
c. When a pump is used to deliver products, automatic means shall be provided to prevent pressure in excess of the design working pressures of the accessories, piping and hose.
d. An electric motor should not be used to power a pump unless the motor and all electrical fittings and equipment are suitable for that use.

Safety and Contingency Planning

Main features of a Contingency plan should be (minimum requirements):
a. Emergency response Plan.
b. Systematic response plan in the event of spillage or accidental damage to tank.
c. Driver and/ or attendant training in emergency operating response procedures.
d. Functional communication devices (e.g. radio, cell phone) on the vehicle.
e. Designation of an Emergency Control Coordinator to manage any accidents that may occur during operation of the transport vehicle.

Operation of Road Tank Wagon

General
a. Road tank wagons should not be operated unless they are in acceptable state of repair.
b. All covers excepting those being used for pressure control should be kept closed in transit.
c. Cargo tanks, lines and hoses should be compatible with intended cargo.
d. Class II or Class III liquids should not be loaded into adjacent compartments to Class I liquids unless double bulkheads are provided, nor should chemically non-compatible chemicals be loaded into adjacent compartments unless separated by double bulkheads.
e. No road tank wagon should be:
   - Operated with cargo at a temperature in excess of the maximum allowable cargo temperature specified on the warning sign required.
   - Loaded or transported at a temperature above its ignition temperature.

Loading and unloading of road tank wagons should only be done at approved locations

Precautions against Ignition by Static Charges
Electrical bonding is essential when handling petroleum products that can form ignitable mixtures.

Some exceptions where bonding is not required are:

a. When filling underground tanks
b. When loading and unloading through tight connections
c. When loading or unloading asphalt, crude oil, or a product containing substantial proportions of crude residuum or other liquids with low resistivity

Extinguishers

a. Each road tank wagon should be provided with at least one fire extinguisher having a rating of at least 20-BC. When more than one fire extinguisher is provided, each extinguisher should have at least 10-B rating.
b. Fire extinguishers should be kept in good operating conditions satisfying the authority having jurisdiction.
c. Fire extinguishers should be accessible and be protected from the environment and impact.

Tank Capacity.

a. In this part, "the tank forming part of a tank vehicle" shall be deemed to include any number of tanks on the same chassis and any limitation herein specified on the capacity of a tank shall be construed so as to permit of the tank containing the quantity specified under varying degrees of temperature.
b. The net carrying capacity of a tank shall be 97 percent of its gross carrying capacity in the case of petroleum Class A and petroleum Class B and 98 percent, in the case of petroleum Class C.
c. The net carrying capacity of a tank truck or a tank semi-trailer shall not exceed 25 kilolitres of petroleum except in case of air-craft refueller in which case it should not exceed 50 kilolitres and the net carrying capacity of any tank trailer should not exceed 5 kilolitres of petroleum.
d. The maximum safe carrying capacity in weight of petroleum that can be carried in a tank vehicle shall not exceed the difference between the unladen weight of the vehicle and the maximum gross weight permitted for the class of vehicle under the appropriate transport regulations.

Maximum quantity allowed to be carried.

Petroleum Class A may be transported otherwise in bulk by a country craft or steam or motor vessel other than un-berthed passenger ship as defined in the Merchant Shipping Act, 1958 (44 of 1958), subject to the provisions of rules 29, 30, 39 and 54 to 60 (both inclusive), if the quantity of petroleum does not exceed

a. in the case of country craft, the licensed carrying capacity of the vessel after taking into account the weight of barrels or tins in which the petroleum is carried; or
b. in the case of steam or motor vessels, 15 tonnes.

The Importance of Wearing a Seat Belt

Safety devices are very important in our everyday life. Many accidents happen every single day and proper uses of safety restraints have saved many lives. It is important to recognize the importance of wearing one. But also the importance of the proper use of seat belts.

Seat belts were first required by federal law, under Title 49 of the United States Code, Chapter 301, Motor Vehicle Safety Standard, on January 1st, 1968. This law required all vehicles, except for buses, to be equipped with seat belts in each designated seating position.

Use of Seat Belt Safety Restraint Saves Lives: In 2014, according to the National Highway Traffic Safety Administration (NHTSA), there were 9,385 fatalities on US roads due to unbuckled passenger vehicle occupants. Between 2010 and 2014, 63,000 lives were saved in vehicle accidents, because they were using a seat belt restraint device.

Seat belts save lives. To reinforce this fact, the State of Texas will often place digital road signs along busy highways and roads that remind drivers that wearing a seat belt is the law, and show statistics of drivers killed in vehicular accidents on Texas roads.

Here are the top five reasons why wearing a safety belt saves lives:

- Passengers in a vehicle who are not wearing a seat belt can become projectiles during an accident. Un buckled passengers can very easily be ejected through the front, rear or side windows, resulting in death.
- Passengers in the rear seat of an automobile who use both lap and should safety belts are 44% more likely to survive in crash. The percentage increases to 73% for rear seat passengers in Vans or SUV vehicles.
- Texans die every day in vehicle accidents. In 2015, of the 3,518 automobile accidents reported across the state, 2,369 of those accidents resulted in a fatality or serious bodily harm.
- Trucks are not immune. In 2015, 467 fatalities were reported of drivers of pickup trucks. Of those re ported fatalities, 216 were not wearing a seat belt device.
- Wearing a seat belt prevents passenger ejection during a severe accident that involves a rollover. The chances of surviving this type of accident increase 45% when wearing a proper safety restraint device. In pickup trucks, that number increases to 60%.

UNIT: 12. Central Government Act. The Motor Vehicles Act- 1988

1. Short title, extent and commencement.—

a. This Act may be called the Motor Vehicles Act, 1988.

b. It extends to the whole of India.

c. It shall come into force on such date1 as the Central Government may, by notification in the Official Gazette, appoint; and different dates may be appointed for different States and any reference in this Act to the commencement of this Act shall, in relation to a State, be construed as a reference to the coming into force of this Act in that State.

2. Definitions.—In this Act, unless the context otherwise requires,

a. “area”, in relation to any provision of this Act, means such area as the State Government may, having regard to the requirements of that provision, specify by notification in the Official Gazette;

b. “articulated vehicle” means a motor vehicle to which a semi-trailer is attached;

c. “axle weight” means in relation to an axle of a vehicle the total weight transmitted by the several wheels attached to that axle to the surface on which the vehicle rests;

d. “certificate of registration” means the certificate issued by a competent authority to the effect that a motor vehicle has been duly registered in accordance with the provisions of Chapter IV

Owning a car or a two wheeler has become a quintessential part of the modern city dwellers life. Growing population and inadequate public transportation facilities have forced people to turn to their own motor vehicles. But it is not enough if you just own a motor vehicle, to ride a motor vehicle on Indian roads you must be licenced. Yes, you must possess a driving licence in India to legally take your motor vehicles on roads. Read on to find more about driving licence and how to apply for a driving licence in India.

Fuel and Oil handling procedures:

Spills, leaks, and overfilling can occur during handling of fuels and petroleum-based materials, even in small volumes, representing a potential source of storm water pollution. This Standard Operating Procedure addresses a variety of ways by which fuels and petroleum-based materials can be delivered, as well as steps to be taken when petroleum products (such as waste oil) are loaded onto vehicles for offsite disposal or recycling. Delivery, unloading, and loading of waste oils are hereafter referred to as "handling".

For all manners of fuel and oil handling described below, a member of the facility's Pollution Prevention Team (or another knowledgeable person familiar with the facility) shall be present during handling procedures. This person shall ensure that the following are observed:

1. There is no smoking while fuel handling is in process or underway.
2. Sources of flame are kept away while fuel handling is being completed. This includes smoking, lighting matches, carrying any flame, or carrying a lighted cigar, pipe, or cigarette.
3. The delivery vehicle's hand brake is set and wheels are chocked while the activity is being completed.
4. Catch basins and drain manholes are adequately protected.
5. No tools are to be used that could damage fuel or oil containers or the delivery vehicle.
6. No flammable liquid shall be unloaded from any motor vehicle while the engine is operating, unless the engine of the motor vehicle is required to be used for the operation of a pump.
7. Local traffic does not interfere with fuel transfer operations.
8. The attending persons should watch for any leaks or spills

a. Any small leaks or spills should be immediately stopped, and spilled materials absorbed and disposed of properly. Refer to SOP, "Spill Response and Cleanup Procedures", for examples of spill cleanup and response materials.

b. In the event of a large spill or one that discharges to surface waters or an engineered storm drain system, the facility representative shall activate the facility's Storm water Pollution Prevention Plan (SWPPP) and report the incident as specified within.

Delivery by Bulk (Tanker) Truck

Procedures for the delivery of bulk fuel shall include the following:

1. The truck driver shall check in with the facility upon arrival.
2. The facility representative shall ensure that the appropriate spill cleanup and response equipment and personal protective equipment are readily available and easily accessible. Refer to SOP, "Spill Response and Cleanup Procedures", for examples of spill cleanup and response materials.
3. The facility representative shall check to ensure that the amount of delivery does not exceed the availa ble capacity of the tank.
   a. A level gauge can be used to verify the level in the tank.
   b. If a level gauge is not functioning or is not present on the tank, the tank should be stick tested prior to filling.
4. The truck driver and the facility representative shall both remain with the vehicle during the delivery process.
5. The truck driver and the facility representative shall inspect all visible lines, connections, and valves for leaks.
6. When delivery is complete and the hoses are removed, buckets should be placed underneath connec tion points to catch drippings.
7. The delivery vehicle shall be inspected prior to departure to ensure that the hose is disconnected from the tank.
8. The facility representative shall inspect the fuel tank to verify that no leaks have occurred, or that any leaked or spilled material has been cleaned and disposed of properly.

9. The facility representative shall gauge tank levels to ensure that the proper amount of fuel is delivered, and collect a receipt from the truck driver.

Delivery of Drummed Materials

Drummed materials may include motor oil, hydraulic fluid, transmission fluid, or waste oil from another facility (as approved). Procedures for the delivery of drummed materials shall include the following:

1. The truck driver shall check in with the facility upon arrival.
2. The facility representative shall ensure that the appropriate spill cleanup and response equipment and personal protective equipment are readily available and easily accessible. Refer to SOP 4, "Spill Response and Cleanup Procedures", for examples of spill cleanup and response materials.
3. The facility representative shall closely examine the shipment for damaged drums.
   a. If damaged drums are found, they shall be closely inspected for leaks or punctures.
   b. Breached drums should be removed to a dry, well-ventilated area and the contents transferred to other suitable containers.

c. Drums shall be disposed of in accordance with all applicable regulations.

4. Drummed materials shall not be unloaded outdoors during wet weather events.
5. The truck driver and the facility representative shall both remain with the vehicle during the delivery process.
6. Drums shall be handled and unloaded carefully to prevent damage.
7. Upon completion of unloading, the facility representative shall inspect the unloading point and the drums to verify that no leaks have occurred, that any leaked or spilled material has been cleaned up and disposed of properly, and that the unloaded drums are not leaking.
8. The facility representative shall check to ensure that the proper amount of fuel is delivered, and collect a receipt from the truck driver.

Removal of Waste Oil from the Facility

When waste oil or similar oil products need to be removed from the premises, only haulers certified to transport waste oil should be utilized. Procedures for the draining of bulk oil tanks shall include the following:

1. The disposal truck driver shall check in with the facility upon arrival.
2. The facility representative shall ensure that the appropriate spill cleanup and response equipment and personal protective equipment are readily available and easily accessible. Refer to SOP, "Spill Response and Cleanup Procedures", for examples of spill cleanup and response materials.
3. The facility representative shall verify that the volume of waste oil in the tank does not exceed the available capacity of the disposal hauler's vehicle.
4. The truck driver and the facility representative shall both remain with the vehicle during the tank draining process.
5. When draining is complete and the hoses are removed, buckets should be placed underneath connection points to catch drippings.
6. The disposal hauler vehicle shall be inspected prior to departure to ensure that the hose is disconnected from the tank.
7. The facility representative shall inspect the loading point and the tank to verify that no leaks have occurred or that any leaked or spilled material has been cleaned up and disposed of properly.
8. The facility representative shall collect a receipt from the truck driver.

Basic Responsibilities and Duties of a Fire and Safety Watch

One of the effective ways to eliminate and control fire hazards is to have a fire and safety watch. This is a requirement whenever welding and other operations posing fire hazards are done in the workplace.

Here are the basic responsibilities of a fire and safety watch:

- Watch out for fire hazards in the workplace while work is performed by other employees.
- Maintain the conditions and requirements stated on the safety permit.
- Keep flammable materials from ignition sources.
- In the event of fire, extinguish it immediately or turn a fire alarm on.
- Call the emergency alarm number.
- Stop operations if you find any hazardous condition.

Any condition in the workplace, whether usual or unexpected, determines your basic duties as a fire or safety watch. Some of them are the following:

UNIT: 13. Knowledge of GPRS and ability to use the equipment

Definition:

GPRS stands for 'General Packet Radio Service' and was the first popular data standard for mobile phones. GPRS was used for WAP and MMS messages and offered modest connection speeds - typically 30-40 Kbit/s, although the theoretical maximum is 115 Kbit/s. GPRS is known as a '2.5G' technology.

GPRS (Ground Penetrating Radar system) vehicle tracking system

Functionality of a two-way system of communication between dispatchers and drivers and the ability to track location information and vital vehicle statistics in real time then a system with GPRS functionality is clearly the direction you need to go

GPS Tracking

GPS tracking is service where user can remotely use information about status and position of a particular tracked object (person, vehicle or a building).
Information availability is regulated in accordance to user privileges.

GPS tracking is technically a process in the terminal device which captures data from GPS receiver and other sources (vehicle, building installations) and then sends the data to the remote server via any of available networks (Radio communication, GPRS or satellite)

GPS tracking Sledat

GPS tracking Sledat is the new generation of tracking or escorting vehicles, vessels, persons or animals. It offers the holistic solution to all types of users; from the individual natural persons, which use one terminal, to the large companies, which in different segments of business need unified and reliable offer of this type of services. Every individual part of our system is the fruit of our own development, which is already present without interruption for more than 4 years and which constantly, completes and perfects our offer.

UNIT: 14. Appraise the points and effects

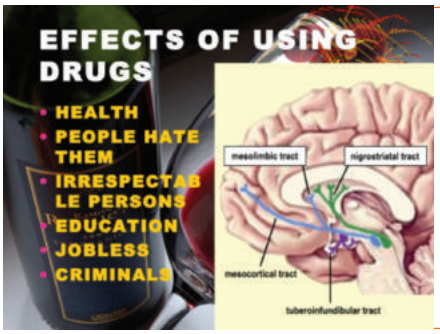
Effects of Distractions and Interruptions.

Attending to the new task increases the risk of an error with one or both of the tasks because the stress of thedistraction or interruption causes cognitive fatigue, which leads to omissions, mental slips or lapses, and mistakes.

Distractions and interruptions impact the prospective memory, or the ability to remember to do something that must be deferred.

It may be obvious that when distracted at work, can't concentrate and are more apt to make mistakes. But even more drastic consequences could result if alleviate the distractions and develop a professional atmosphere. At the same time, some distraction may be good for mood and attitude and help to get through the day feeling motivated and eager to work.

Effect of medication and substance abuse



Drugs are chemicals. Different drugs, because of their chemical structures, can affect the body in different ways. In fact, some drugs can even change a person's body and brain in ways that last long after the person has stopped taking drugs, maybe even permanently.

Hazardous license

This involves the skills and knowledge required to handle dangerous goods and hazardous substances in accordance with relevant work health safety (WHS)/occupational health and safety (OHS) regulations concerning the safe handling of dangerous goods and hazardous substances, within the transport and logistics industry.

It includes identifying requirements for working with dangerous goods and/or hazardous substances, confirming site incident procedures and selecting handling techniques. Work is performed under general supervision. No licensing, legislative or certification requirements apply to this unit at the time of publication.

UNIT: 15. Importance of prescribed rest breaks and duty hours

No adult motor transport worker shall be required or allowed to work for more than eight hours in any day and forty-eight hours in any week:

Provided that where any such motor transport worker is engaged in the running of any motor transport service on such long distance routes, or on such festive and other occasions as may be notified in the prescribed manner by the prescribed authority, the employer may, with the approval of such authority, require or allow such motor transport worker to work for more than eight hours in any day or forty-eight hours in any week but in no case for more than ten hours in a day and fifty-four in hours in a week, as the case may be :

Provided further that in the case of a breakdown or dislocation of a motor transport service or interruption of traffic or act of God, the employer may, subject to such conditions and limitations as may be prescribed, require or allow any such motor transport worker to work for more than eight hours in any day or more than forty-eight hours in any week.

Hours of work for adolescents employed as motor transport workers.
No adolescent shall be employed or required to work as a motor transport worker in any motor transport undertaking:

- For more than six hours a day including rest interval of half-an-hour;
- Between the hours of 10 P.M. and 6 A.M.

Daily intervals for rest:

- The hours of work in relation to adult motor transport workers on each day shall be so fixed that no period of work shall exceed five hours and that no such motor transport worker shall work for more than five hours before he has had on interval for rest for at least half-an-hour; Provided that the provisions of this sub-section in so far as they relate to interval for rest shall not apply to a motor transport worker who is not required to work for more than six hours on that day.

- The hours of work on each day shall be so fixed that a motor transport worker is, except in any case referred to in the second provision to section 13, allowed a period of rest of at least nine consecutive hours between the termination of duty on any one day and the commencement of duty on the next following day.

Weekly rest:

- The State Government may, by notification in the Official Gazette, make rules providing for a day of rest in every period of seven days, which shall be allowed to all motor transport workers.
- Not with standing anything contained in sub-section (1), an employer may, in order to prevent any dislocation of a motor transport service, require a motor transport worker to work on any day of rest which is not a holiday

So, however, that the motor transport worker does not work for more than ten days consecutively without a holiday for a whole day intervening.

- Nothing contained in sub-section (1) shall apply to any motor transport worker whose total period of employment including any day spent on leave is less than six day.

Traffic Management

A traffic management plan for the task is to be discussed between the involved parties, for example at a toolbox talk, prior to loading and unloading. A trucking operator representative may attend this toolbox meeting. The traffic management plan will be discussed and appropriate controls to be implemented, including traffic cones designating specific work areas and safe zones.

Specific traffic management requirements, such as oversize loads, must be communicated to appropriate KPA personnel such as the Gatehouse and third parties to ensure the traffic plan is understood.

No more than 2 trucks per cargo vessel are to be in the Maritime Security Zone and where possible heavy vehicles should drive forward into position.

Refer to the Traffic Management SOP for further information

Work Zones

When identifying the work zones it is important to consider the following:

- Other pedestrians not related to your job
- Driver safe zone
- KPA employee safe zone,
- Effective system of communication
- Effective loading and unloading operations in progress warnings; e.g. spotter,
- And signage

UNIT: 16. Mobile Phones

Mobile phone use is to be limited and restricted to operational needs only and must not be used within the work zone. It is recognized that Supervisors are required to use mobiles more frequently for operational reasons. Supervisors must ensure it is safe to take the call and they must leave the work area and/or take the call in the marked safe zone.

Stay Alert and Minimize Distractions

- Dedicate your full attention to the roadway
- Avoid changing the radio station, using a mobile phone, eating, or other distractions that can remove your concentration from the road

Keep Your Headlights On - Pay Attention to the Road

- "Listen to the signs"
- Watch brake lights on vehicles ahead
- Watch traffic around you and be prepared to react

Merge into the Proper Lane

- Merge well before you reach the lane closure
- Be aware that traffic patterns can change daily

Don't tailgate

- Follow other vehicles at a safe distance

Obey the Posted Speed Limit

- Workers may be present just feet away
- Fines may be doubled for moving traffic violations
- Be prepared to slow down further if conditions indicate the need

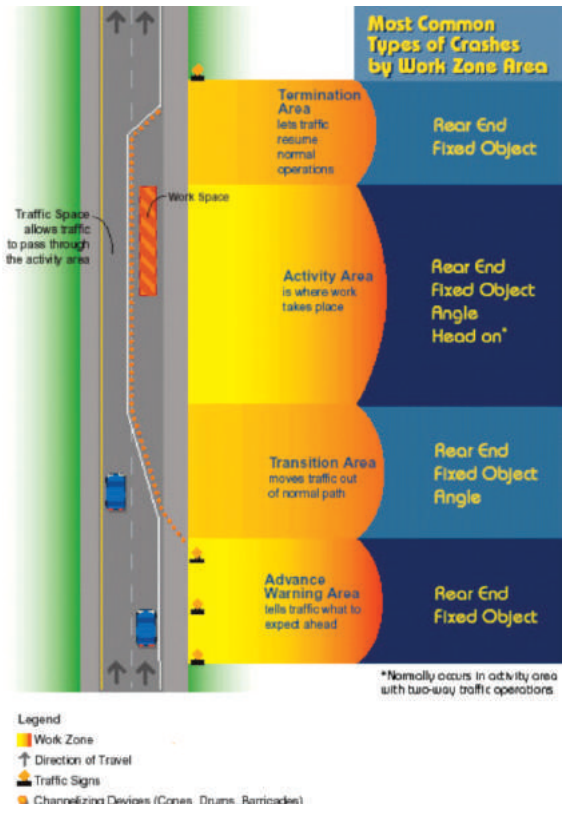
Change Lanes Safely

- Change lanes only where pavement markings indicate, and only when traffic conditions permit

Follow Instructions from Flaggers - Expect the Unexpected

- Workers, work vehicles, or equipment may enter your lane without warning
- Other vehicles may slow, stop, or change lanes unexpectedly

Most Common Types of Crashes by Work Zone Area



Below is the recommended guide for a color coding system. Post a copy of the color coding system in an easy to find spot for quick reference. Use clearly printed labels with colors.

Signs, tags and tickets should follow the same basic colors.

The Standard Color-Code System:

- RED - Denotes fire safety equipment and safety containers for flammables. Identifies emergency devices (emergency shut-off switches, stop bar, buttons).
- ORANGE - Be aware of machinery or equipment that can cut, crush, shock or cause other injury
- YELLOW - Cautions against physical dangers (slipping, tripping, falling, caught-between and striking-against hazards).
- GREEN - Locates first-aid equipment.
- BLUE - Cautions against the use or movement of equipment being repaired or the starting of equipment.
- MAGENTA AND YELLOW or BLACK AND YELLOW - Warns of radiation hazards.
- BLACK, WHITE OR A COMBINATION - Controls and designates traffic movement, marks aisle, housekeeping areas and similar areas.

Review the Following Points

- All employees should be familiar with the color coding plan used on the farm or in the workplace.
- Post a copy of the color coding system where all employees can see it.
- It is important to follow a color coding system to identify hazards.

Default speed limits

Where there is no posted speed limit sign, default speed limits apply.
In NSW there are two default speed limits, default urban speed limit for roads in built-up areas (ie where there are buildings next to the road or where there is street lighting) and a default speed limit for all other roads.

- Default urban speed limit is 50 km/h.
- Default speed limit for all other roads is 100 km/h.

Speed limit signs

There are two types of speed limit signs – regulatory and advisory speed signs.

Regulatory speed limit signs have a white background with the speed limit shown inside a red circle.

It is illegal to drive faster than the posted speed limit.

Advisory speed signs have a yellow background. These signs indicate the recommended maximum speed in good driving conditions for the average car.

Advisory speed signs are generally placed before curves, bends and crests.

Areas without speed signs

Some roads do not have speed signs, such as unsealed roads and roads in remote areas. On these roads an end speed limit or speed de-restriction sign indicates you are entering an area without speed signs. In these areas the default speed limits apply and you must drive to the conditions.

Left image: End speed limit sign. Centre image: Speed de-restricted sign. Right image: State limit 100 applies, drive to conditions.

Local traffic areas

A local traffic area is an area of local streets that have a speed limit of 40 km/h.
The lower speed limit means greater safety for all road users and more peace and quiet for people living in the area.
Look out for bicycle riders, pedestrians and children.

Shared traffic zone

A shared traffic zone is usually a street where pedestrians, bicycle riders and other vehicles can share the road safely. These zones have a speed limit of 10 km/h.
Be sure to keep to the speed limit for the safety of all road users.
A driver in a shared traffic zone must give way to all pedestrians.

Work site

Where a road work speed limit sign is displayed, the speed limit is enforceable and must be obeyed. When approaching road works pay attention to all signs and obey reduced speed signs.

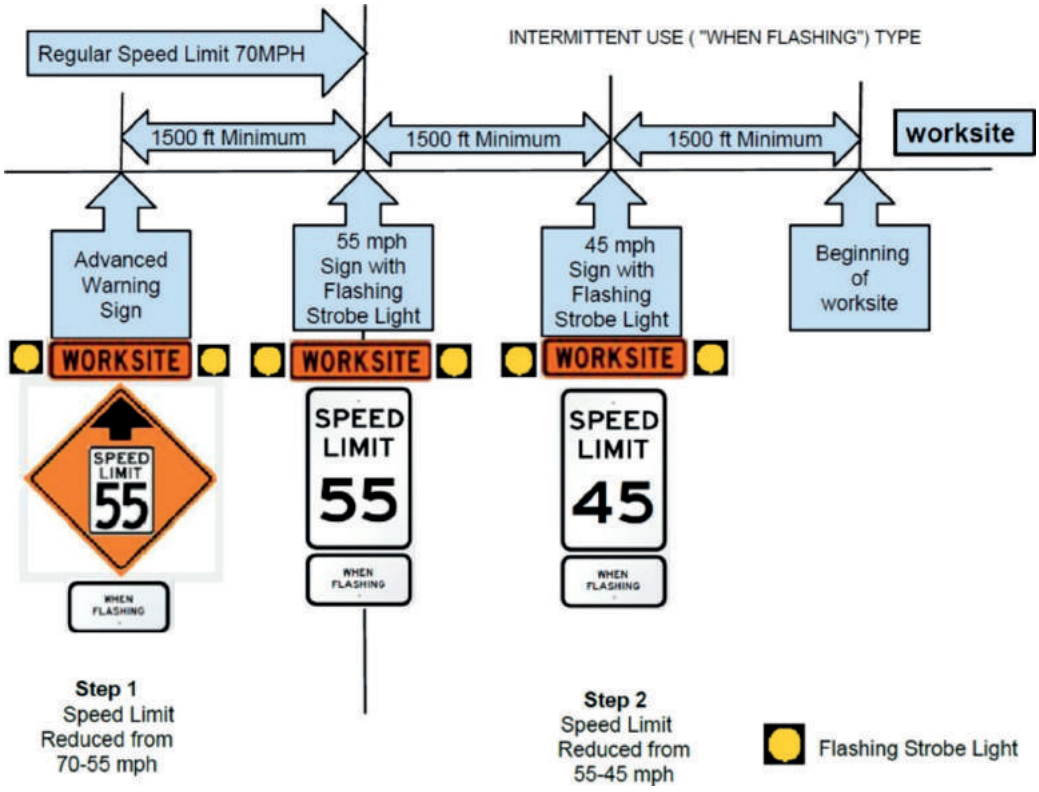
School zone

A school zone is the area around a school with a speed limit of 40 km/h. between the 'SCHOOL ZONE' and 'END SCHOOL ZONE' signs you must obey the school zone speed limit. The school zone limit only applies on notified school days and during the times shown on the sign.

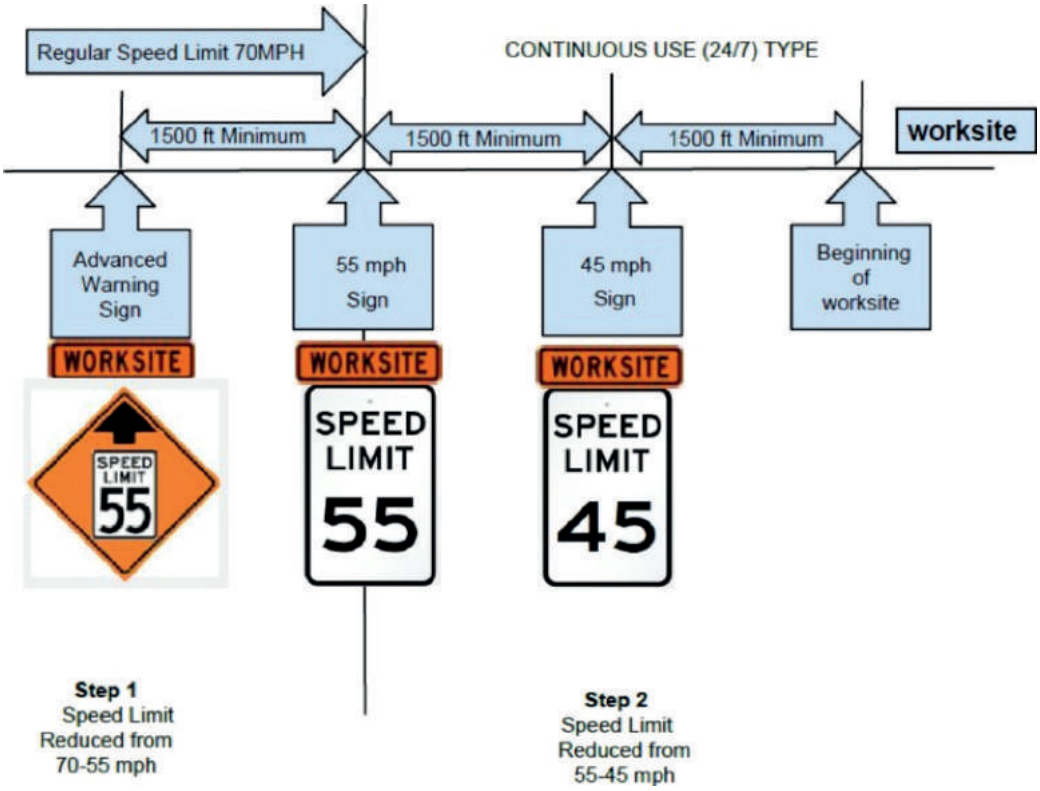
School bus stop zone

School bus stop zone signs tell you to drive at 40 km/h because you are near a busy school bus stop. Between the SCHOOL BUS STOP ZONE and END SCHOOL BUS STOP ZONE signs, do not drive faster than 40 km/h. This special speed limit only applies when a bus, with flashing rear orange lights (wigwag), is driving between the signs.

Indian Road safety Rules: Examples - 1



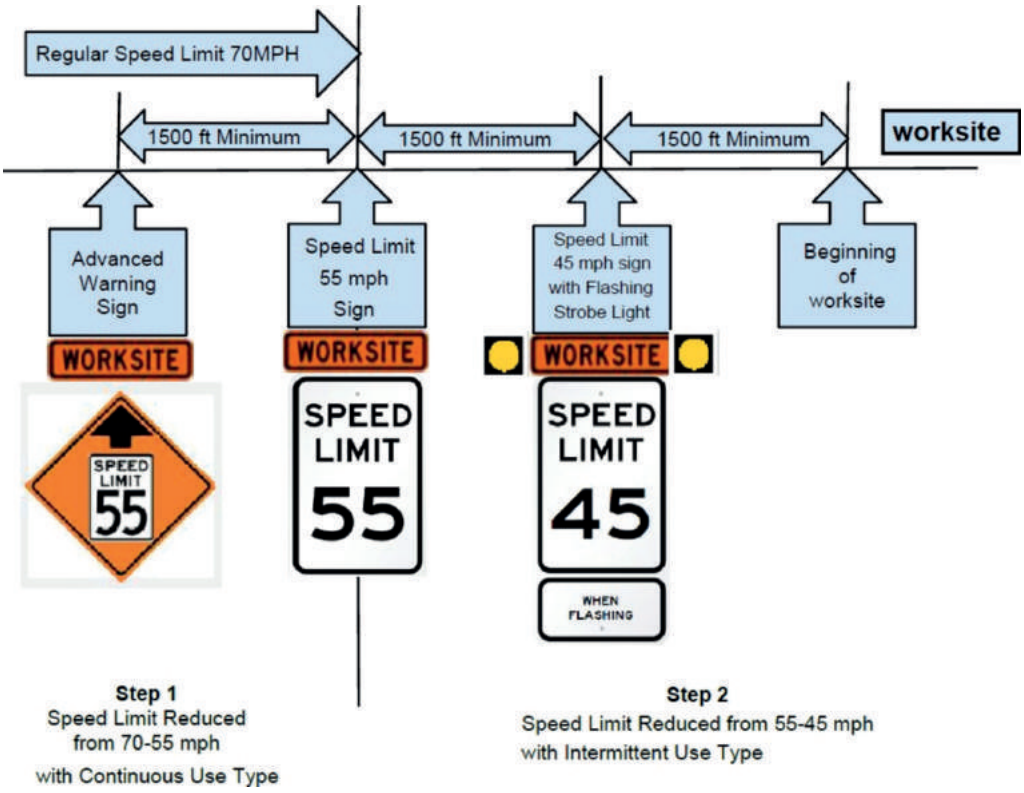
Indian Road safety Rules: Examples - 2



Two step speed reduction using continuous use type signage are appropriate in the same circumstances that a temporary official action would be. It is used when roadway geometry and features present additional challenges to drivers necessitating speeds that are much lower than the posted speed limit (whether workers are present or not).

Conditions for which this strategy might be considered include but are not limited to. Long term merges, narrow lanes. Narrow or no shoulders, restricted sight distances, poor pavement condition, or when obstructed are located within the obstruction free zone (e.g. culvert headwalls, bridge piers, barrier wall ends).

Indian Road safety Rules: Examples - 3



UNIT: 17. Prepare an accident report

The following are useful tips regarding the filing an accident report:

1. Always file a police report, even when the accident seems minor. This is to protect you from injuries or damage that may not be evident at the time of the accident.
2. Offer detailed and truthful information: you will probably be a little startled right after the accident, and that feeling of vulnerability may get you worried about getting in to more trouble. Despite this instinc tive reaction, it is not advisable to lie to the officer as it may prolong the claims process, or even land you in jail.

3. Gather as much information as you can while still at the scene: you can write down some information as you wait for the authorities to arrive, like the make,

    a. model and plate number of vehicles involved;
    b. full name,
    c. contact information,
    d. license number,
    e. insurance provider and policy number of the drivers involved;
    f. details on how the collision occurred;
    g. extend of damage on the vehicle;
    h. names and contact information of witnesses;
    i. description of the accident scene;
    j. condition of your injuries;
    k. names and bade numbers of the responding officers;
    l. towing information;
    m. And ambulance information.

4. Take pictures: considering your emotional state, it is unlikely that you will be able to recall the tiny details. So, write down as much as you can, and take pictures of the damaged vehicles, skid marks, injuries, and contributing factors, like blocked traffic signs.

With those helpful tips in mind, you should be able to write a clear and helpful accident report which will make the police and insurance company's jobs much easier. Remember

UNIT: 18. Mandatory procedure while loading

Turn off the vehicle, Establish a loading / unloading area:

- Area should be level to help maintain stability of the truck and trailer. The ground should be free of potholes and debris.
- Area should be free of overhead electric lines.
- Area should be clear of other traffic – vehicles or foot. Pedestrians, the truck driver, or other employees not involved in the loading/ unloading process should be clear of the area.
- Area should have sufficient lighting for early morning or evening loading or unloading.
- If possible, the designated area should be a one-way route to prevent the need for vehicles to back up. If a driver is required to back the vehicle, a spotter should be used to protect pedestrians and property.

Guide lines for Drivers:

- When unloading, the driver should proceed to the designated area and remove tarps, straps or other load securement devices. Secure this material so it is not an obstruction to the forklift operator during the unloading process.
- The driver should secure vehicle, apply brakes and turn off engine, as appropriate, to prevent unsafe movement during the loading/ unloading operation.
- The driver should proceed to a designated area (safe zone) located away from the truck and outside of the loading/unloading area. The driver should remain in that area during the operation.
- NO material should be loaded/unloaded, nor should any forklifts be operating in the area around the truck until the driver has completed all of the tasks above and moved to the designated safe zone

Switch off the main control

Pull the hand break

Parking brakes on older vehicles often consist of a cable connected to two wheel brakes at one end and the other end to a pulling mechanism which is operated with the driver's hand or foot.

The mechanism may be a hand-operated lever, at floor level beside the driver, or a straight pull handle located near the steering column, or a (foot-operated) pedal located beside the drivers leg. In most automobiles the parking brake operates only on the rear wheels

In road vehicles, the parking brake, also called hand brake, emergency brake, or e-brake, is used to keep the vehicle stationary and in many cases also perform an emergency stop.

Put the wooden chock (obstacle) place in drive out position

Basic Wheel Chock Use and Safety Tips

A pyramid style wheel chock used to prevent the wheels from unintentionally moving.

Wheel chocks are used for safety and accident prevention.
Chocking, also known as blocking, is done to prevent trucks and trailers from unintentionally moving, like rolling or overturning, while workers are loading, unloading, hitching, unhitching or servicing the vehicle. Unintentional movement is a scary and dangerous situation. It can cause injury and in some cases death.

Basic Chocking

Make sure you invest in chocks that are specifically designed for the type of vehicle you are driving, especially paying attention to size.

Never use a make-shift chock. That includes lumber, bricks, rocks or any other creative contraption you come up with on the fly. Use only proper wheel chocks that are manufactured and regulated to do the job right.

Make sure to keep sets of chocks in the truck or trailer, you cannot rely on the docks to always have them. That being said, it is best practice for the docks to have wheel chocks, and for that matter wheel chocks that are chained to the dock to prevent theft or loss.

Chocking at a Dock

Upon arrival, set the brakes and activate the locking mechanism included on the dock. You'll need to be parked as firmly and as closely to the dock as possible. Engage the chocks on both the left and right wheels that are closest to the loading dock.

Be extremely mindful when you know a forklift will be driving in and out of the trailer from the edge of the dock. When the wheels are not chocked, or blocked, the trailer can become dislodged creating a space between the dock and the trailer. Forklift operators can get caught in that space or fall into the gap that is created. Do not drive a forklift into a trailer until you are sure the wheels are properly and safely chocked.

Chocking a Free Standing Trailer: Chock both the left and right rear axle wheels. It is best practice to chock both the front and back wheels on both sides of the vehicle. Sometimes it's even better to chock the front and back of each tire

Keep the fire extinguisher in front of the truck

Is it really necessary to have a fire extinguisher for trucks & cars? In the past installing any type of fire safety equipment in a vehicle was reserved for mainly commercial vehicles with a high risk of fire and first response vehicles. Today's drivers are more aware of safety risks and many look to find ways to minimize the danger that comes with any vehicle fire.

Logically, it makes a lot of sense to install a fire extinguisher for trucks & cars for several reasons:

- Vehicles inherently have a higher risk of fire due to the high temperatures of engines combined with batteries, fuel and electrical wiring.
- Crashes that result in a vehicle fire are more likely to have serious injuries or death.
- There have been a notable number of vehicle recalls because of manufacturer faulty wiring that can result in fire

Here are some points to consider when evaluating a fire extinguisher for trucks & cars:

- Is the fire extinguisher UL listed? Any safety equipment with an Underwriters Laboratories rating has been thoroughly reviewed and tested to insure public safety and reliability. Manufacturers of fire safety equipment who participate in the UL listing will undergo continuous scrutiny and testing.
- What type of fire extinguisher is needed? A fire extinguisher for trucks & cars should use a class B or C. The types of extinguishers include
- Who needs a fire extinguisher for trucks & cars? If you are on the road a great deal, it is wise to keep fire safety equipment readily available. For people who have recreational vehicles such as caravans or family vehicles, a fire extinguisher is highly recommended. Business and commercial vehicles should consider a fire extinguisher even if they do not regularly transport flammable items.
- Where the device should be kept? It is recommended to mount the fire extinguisher securely so it does not roll around and break. Mounting on the front driver seat or directly behind the seat is advisable.
- What size fire extinguisher? For most trucks and cars a smaller size extinguisher, about 1.5Kg with a hose or so, should be adequate to attack most vehicle fires

External visual inspection and testing

Vehicle safety inspection procedure:

Check vehicle exterior

- Check high and low beam headlights.
- Check headlights for proper aim.
- Check parking lights, tail lights, signal lights, brake lights, marker lights and reflectors.
- Check for the proper color of lights.
- Check tires for proper inflation, wear and damage.
- Check body, fenders, door, hood latches and bumpers
- Check for broken glass, parts and accessories.
- Check window tinting. Measure light transmittance on front side windows and windshield. Record reading on Safety Inspection Certificate.

Check under Hood

- Check belts.
- Check hoses.

- Check power steering pump.
- Check wiring.
- Check exhaust manifold.
- Check master cylinder.
- Check for fuel leaks

Internal visual inspection

Check vehicle interior (Can be done from parking area to inspection stall)

- Check for impaired visibility through windshield.
- Check for adequate visibility from required mirrors.
- Check seatbelts for proper operation.
- Check for looseness in steering.
- Check for play in brake pedal.
- Check emergency brake for proper operation.
- Check horn. Horn must be audible at 200 feet.
- Check windshield wiper / washer operations.
- Check heater/defroster operation.

Pressure test

Regular tyre pressure check:

Should check your tyres' pressures at least once a month, before each trip, and each morning you drive during a trip. Ideally, tyre pressure should be measured when tyres are cold - that is, before doing any driving on the tyres.

Otherwise, vehicle tyres may have heated up, increasing the air pressure inside them by several pounds. These are normal and as a rule never "bleed" or reduce the air pressure from a hot tyre, since this could result in under-inflation. Only "bleed" or reduce air pressure from a hot tyre when you need to lower pressures to drive on particular terrain (see "Tyre Pressure Guide page 5) but remember to re-inflate your tyres when you reach your destination or return to terrain that requires higher pressures.

Measuring tyre pressure:

It's important to be accurate in filling your tyres. Don't try to "eyeball" the pressure - a tyre can lose half its pressure without looking flat.

Instead, use a reliable tyre pressure gauge. It's also a good idea to have your own gauge.

Leakage test including tanker safety valve

Check suspension and under carriage:

- Check wheel bearings.
- Check ball joints.
- Check tie rod ends.
- Check idler arms.
- Check shock absorbers.

- Check springs.
- Check exhausts system.
- Check floor pans.
- Check fuel system lines.

Check wheel and brakes:

- Check for loose or missing lug nuts.
- Check for cracked wheels.
- Check pads and/or shoes.
- Check rotors and/or drums.
- Brake measurements must be recorded on the inspection certificate.
- Check for fluid leaks.
- Check brake hoses.

UNIT: 19. Carryout different operation in delivery and loading site

Loading/Unloading Procedures:

All suppliers must meet the minimum requirements and regulations for tank truck loading/unloading established by the Department of Transportation. Procedures will be established so that the vendor(s) understands the site layout, knows the protocol for entering the Site and unloading product, and has the necessary equipment to respond to a discharge from the vehicle or fuel delivery hose.

The departmental manager or his/her designee supervises oil deliveries for all new suppliers, and periodically observes deliveries for existing, approved suppliers.

by operating personnel trained in proper discharge prevention procedures. The driver or equipment operating personnel will remain with the vehicle/equipment at all times while fuel is being transferred. Transfer operations are performed according to the minimum procedures outlined in the table below.

Task Description	Procedures
Prior to loading/unloading	• Visually check all hoses for leaks and wet spots. • Verify that sufficient volume is available in the storage tank or truck. • Secure the tank vehicle with wheel chocks and interlocks. • Verify that the vehicle's parking brakes are set. • Verify proper alignment of valves and proper functioning of the pumping system. • Establish adequate bonding/grounding prior to connecting to the fuel transfer point. • Turn off cell phone.

During loading/unloading	• Driver must stay with the vehicle at all times during loading/ unloading activities. • Facility manager or designee should observe the delivery driver during loading/unloading. • Periodically inspect all systems, hoses and connections. • When loading, keep internal and external valves on the receiving tank open along with the pressure relief valves. • When making a connection, shut off the vehicle engine. When transferring Class 3 materials, shut off the vehicle engine unless it is used to operate a pump. • Maintain communication with the pumping and receiving stations. • Monitor the liquid level in the receiving tank to prevent overflow. • Monitor flow meters to determine rate of flow. • When topping off the tank, reduce flow rate to prevent overflow.
After loading/unloading	• Make sure the transfer operation is completed. • Close all tank and loading valves before disconnecting. • Securely close all vehicles internal, external, and dome cover valves before disconnecting. • Secure all hatches. • Disconnect grounding/bonding wires. • Make sure the hoses are drained to remove the remaining oil before moving them away from the connection. Use a drip pan. • Cap the end of the hose and other connecting devices before moving them to prevent uncontrolled leakage. • Remove wheel chocks and interlocks. • Inspect the lowermost drain and all outlets on tank truck prior to departure. If necessary, tighten, adjust, or replace caps, valves, or other equipment to prevent oil leaking while in transit.

How to develop the highly motivated safety culture and making progress towards an accident free operation:

Culture-building tips

Creating an effective safety culture is an ongoing process and is a large commitment on behalf of the entire company, however, the effort results in a positive attitude toward safety and a reduction in accidents and incidents.

Here are a couple of tips from OSHA to get you started on building a strong safety culture at your organization:

1. **Define safety responsibilities:**
Do this for each level within your organization. This should include policies, goals and plans for the safety culture.

2. **Share your safety vision:**
Everyone should be in the same boat when establishing goals and objectives for their safety culture.

3. **Enforce accountability:**
Create a process that holds everyone accountable for being visibly involved, especially managers and supervisors. They are the leaders for a positive change.

4. **Provide multiple options:**
Provide different options for employees to bring their concerns or issues full-face. There should be a chain of command to make sure supervisors are held accountable for being responsive.

5. **Report, report, report:**
Educate employees on the importance of reporting injuries, first aids and near misses. Prepare for an increase in incidents if currently there is under-reporting. It will level off eventually.

6. **Rebuild the investigation system**:
Evaluating the incident investigation system is critical to make sure investigations are conducted in an effective manner. This should help get to the root cause of accidents and incidents.

7. **Build trust:**
When things start to change in the workplace, it is important to keep the water calm. Building trust will help everyone work together to see improvements.

8. **Celebrate success:**
Make your efforts public to keep everyone motivated and updated throughout the process.

Able to check the following on product receipt Recording of the item

Recording Four-Point Temperature Density

While recording a four-point analysis, you can access Four-Point Temperature Density to complete temperature and density information. The system uses this information to convert ambient quantities to standard.

Field	Explanation
Loaded	The amount of product loaded from the tank to the Vessel.
Discharged	The quantity discharged (unloaded) from the vessel.
Opening on Board	The standard quantity of product already on the vessel Before loading additional product.

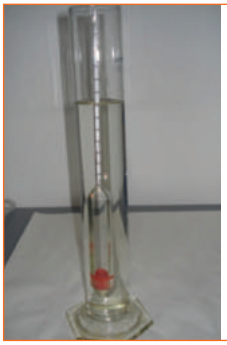
Security locking system

There are many types of seal, each designed for a particular type of application, but whatever the type, each seal will bear a unique identification number that allows the user to check that the seal applied at the start of a journey or process is the one still in position at the end.

Seals can`t be reused (or reapplied once removed), so provided the numbered seal is intact at the end of its journey the user can be sure that there`s been no unauthorized access to or tampering with the protected items.

Fuel dipping can detect water and pollutants in your fuel storage tanks

Dip Measurement
Water contamination in fuel tanks can cause anything from intermittent power loss to engine failure, and the damage done can range from blown injectors to cracked components and cost thousands of dollars to fix. More than that, if you're a retailer one bad batch can do untold damage to your future sales potential.



Density checking
Standard test method for Density, Relative Density

Objects: liquid fuels and biofuels, other petroleum products, multifunctional additives for fuels. Accurate determination of the density, relative density, or API gravity of petroleum and its products is necessary for the conversion of measured volumes to volumes or masses, or both, at the standard reference temperatures during custody transfer. Density is an important quality indicator for automotive, aviation and marine fuels, where it affects storage, handling and combustion.
Hydrometer Method Unit: kg/m3

Fuel Efficient Driving.

The Consumption of petroleum product is increasing day by day. To meet the requirements its being imported from foreign countries.

Follow simple PCRA tips on good driving habits &good maintenance practices to save more money and get more mileage.

UNIT: 20. 15 Simple tips on better maintenance of trucks.

1. **Stop fuel leak at once.**
Loss of one drop of fuel per second, amounts to a loss of 2000 litres per year. Check Diesel Tank, fuel lines and fuel pump regularly and ensure that there is no leakage anywhere.

2. **Avoid spillage**
Ensure that the fuel tank cap of your vehicle has a good rubber seal.

3. **Use recommended grade of lubricating oil**
Check the "vehicles" manual and oil manufacturers recommendations, before using any particular grade of oil. Always use Multi-grade oil equivalent to CF-4/CH-4 type for added benefits. Engine oil that is thicker than the recommended oil can cause 2% increase in fuel consumption. Change oil filter along with engine oil.

4. **Check tyre pressure regularly**
Maintain recommended tyre pressure as it helps save diesel and increase tyre life.

5. **Ensure cleanliness of air filters**
Dirt is your engine's worst enemy. Check cleanliness of air filter and change oil periodically (in case of wet type filters) unfiltered air wears out cylinder bores 45 times faster and piston rings 115 times faster than normal.

6. **Always keep your vehicle ready for instant starting**
Avoid idling. Idling at even short halts wastes fuel. Check battery, alternator, fan belt regularly.

7. **Check fuel filters regularly**
Fuel filtration is important as dirty fuel harms the engine. Use filters of good quality and replace them at recommended intervals, but not all at the same time.

8. **Keep the engine well-tuned**
Tappet clearance of valves should be checked every month, with a feeler, gauge. Also check idling speed.

9. **Ensure fuel injectors are clean and working properly**
In case of engine trouble, check the opening pressure and spray pattern of injectors.

10. **Ensure brakes do not bind, check wheel drag**
Check for free rotation of wheels by jacking up, also check brake pedal free play. Check the linings/pads, drums/discs to ensure that they are not worn out.

11. **Keep wheels properly aligned**
Improper alignment leads to wobling which results in extra diesel consumption and reduced tyre life.

12. **Prevent Clutch Slipping**
It causes loss of transmission and rapid wear of clutch components. Replace worn out liners and fingers.

13. **Ensure silencers are not choked**
Check periodically for carbon deposits. Replace the silencer, if necessary.

14. **Always keep the engine in good condition**
If the compression pressure is low or if the engine emits black or dark grey smoke or consumes abnormal quantities of fuel and oil, have the engine overhauled immediately.

15. **Ensure Correct Calibration and proper mounting of fuel injection Pump**
Always get the pump calibrated at well-equipped authorized service centers. Also ensure mounting of the calibrated pump as per recommendation.

UNIT: 21. 6 Simple tips on better driving of trucks

1. **Do not drive fast**
Driving fast is not economical Extra diesel is consumed in overcoming increased air resistance at high speeds. The ideal driving speed for saving diesel is 40-50 KMPH.

2. **Do not idle engine when the vehicle is stationary**
Idling wastes diesel at the rate of 2 litres per hour. Switch off engine at red light.

3. **Always drive in the correct gear**
Driving in wrong gears can increase diesel consumption by 10% use the same gear for coming down as for going up the same gradient

4. **Stop your vehicle gently by anticipating stops and bends**
Make use of engine as the brake. Applying brake suddenly wastes engine powder and diesel. Tests prove that a vehicle driven at 50kmph can travel a distance of 650 meters. Without consuming additional diesel.

5. **Drive at a steady speed**
Accelerate gradually, sudden acceleration injects more diesel than necessary .Always maintain a steady speed while driving.

6. **Avoid using clutch pedal as a footrest**
This causes loss of transmission and rapid wear of clutch components. Avoid holding the vehicle on the slope by using clutch and accelerator –use the hand brake instead.

UNIT: 22. Drivers checks before every journey

1. Levels of engine oil and radiator water.
2. Leakage of diesel, lubricating oils or water.
3. Fan belt tension and condition.
4. Freeplay of clutch and brake pedals.
5. Tyre Pressure and condition.
6. Engine oil Pressure, ampere meter charging rate, air tank pressure and radiator water temperature.

Notes

Notes