



Emergency Response and Recovery

Session Goals

1. Demonstrate an understanding of strategies to minimize and respond to emergencies resulting from driver error.
2. Understand and demonstrate the ability to appropriately assess and respond to a vehicle failure emergency.
3. Demonstrate an understanding of the practices and procedures required to safely and effectively manage a roadside breakdown or accident scene.

Key Vocabulary and Topics

- Evasive Maneuvers
- Skidding
 - Power Skid
 - Braking Skid
 - Cornering Skid
 - Blowout Skid
- DMV Reporting Requirements
- Vehicle Traction Emergencies
- Vehicle Malfunction Emergencies
- Work Zone Safety Awareness
- Move Over Law

Emergency Response

Three Ways to Control the Vehicle

- Steering to avoid a collision
- Braking to avoid a collision
- Accelerating to avoid a collision

Emergency Response

Driver Emergency Responses

- Evasive Steer Right
- Evasive Steer Left
- Brake and hold
- Accelerate

It often takes less time and space to steer to avoid a situation than to brake, so stay alert and always have a plan for a way out.

Types of Collisions and Emergencies

Off-Road Recovery

- Intersection Collision (Side Collision)
- Rear End Collision
- Head On Collision

Off-Road Recovery Recommendation

Try to remain calm and do the following:

- Resist the tendency of the vehicle to pull towards the shoulder if it is soft
- Keep a firm grip on the steering wheel
- Take your foot off the accelerator, so the car slows down
- When control is obtained and the car is moving much slower, ease the car to the left and get back on the roadway
- Counter steer slightly to straighten it out

Skidding

Loss of traction due to driver/vehicle malfunction

- Power Skid – accelerating too hard, too quickly
 - Ease off the accelerator, gentle steering maneuvers
- Braking Skid – stomping on the brakes, losing steering/stopping control
 - Ease off the brake, gentle steering maneuvers
- Hydroplaning – driving through standing water, snow, ice
 - Ease off the accelerator, do not brake, gentle steering maneuvers

Skidding

Loss of traction due to driver/vehicle malfunction

- Cornering Skid– entering a curve too quickly, turning too quickly
 - Slow down before curves, glide through the curve, accelerate out of the curve, gentle steering maneuvers
- Blowout Skid – tire(s) suddenly lose(s) pressure
 - Hold the wheel firmly, do not brake, decelerate, pull to the shoulder as smoothly/quickly as possible

Preventing Skidding

Usually skidding occurs on slippery roads.

- Adjust vehicle speed to maintain control
- Avoid sudden braking or steering movements
- If you find yourself in a skid, take your foot off the pedals (stop braking or accelerating)
- Always steer the wheel in the direction you want to go

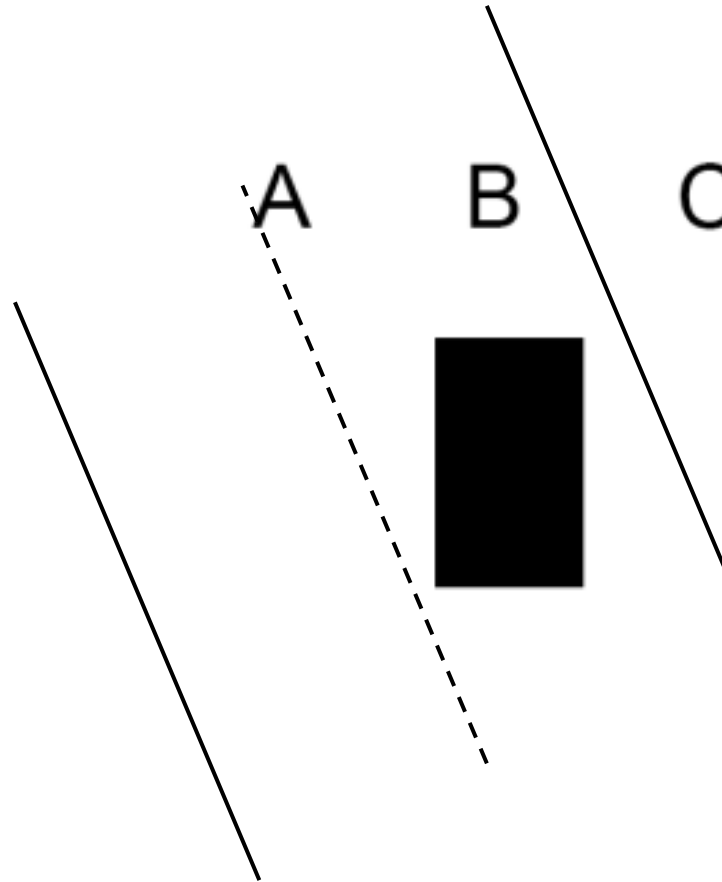
Types of Skids and Recovery Techniques

Type of Skid	Recovery Technique
Front-tire Skid	<ul style="list-style-type: none">• Continue to look and steer in the direction you want to travel• Lift your foot off the accelerator carefully
Rear-tire Skid	<ul style="list-style-type: none">• Continue to look and steer in the direction you want to travel• Decelerate carefully and do not apply the brakes• As the rear tires regain traction, continue to steer to where you want to go

Test Your Knowledge

The driver in the illustration is skidding off the road, where should he look?

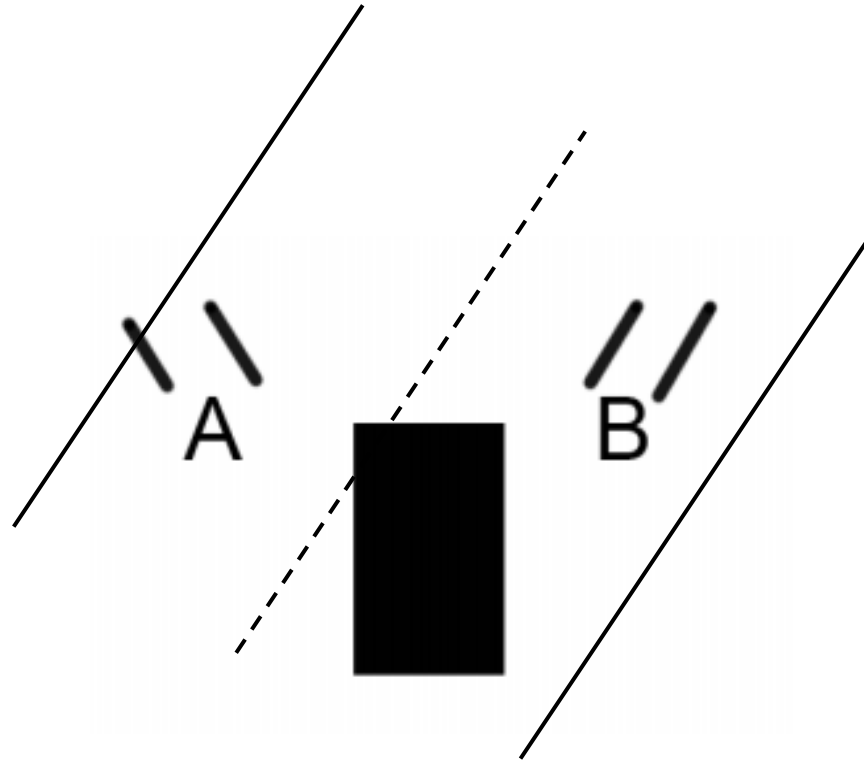
- Look Towards A
- Look Towards B
- Look Towards C



Test Your Knowledge

The driver in the illustration is skidding off the road, where should she steer?

- Steer Towards A
- Steer Towards B



Test Your Knowledge

- Discuss the three steps a driver should take to control a front-wheel skid.
- If a vehicle does not have ABS, name and describe the technique the driver should use to stop quickly.
- Demonstrate the direction the front tires would be turned when the front of the vehicle skids to the left off target.

Preventing Traction Emergencies

- Increase following distance
- Reduce speed
- Ride in tire tracks of vehicle ahead
- Gently steer
- Gently accelerate

All actions should be done moderately.

Vehicle Traction Emergencies

Common Driver Errors:

- Late Braking/Panic Stops
- Abrupt Steering
- Aggressive Acceleration

Vehicle Traction Emergencies

- Road conditions affect traction.
- Traction problems can impact vehicle control and emergencies.
- What controls and/or gauges inside the vehicle can help make drivers aware of potential traction problems?

Vehicle Traction Emergencies

Keeping on Top of Vehicle Maintenance:

- Brakes
- Tire Tread
- Tire Inflation Levels

Minimizing the Risk of a Collision

- Accelerate to avoid a rear end collision
- Avoid a head on collision – ALMOST ALWAYS STEER RIGHT
 - Why?
- Drive off the right side of the road rather than skid off road
- Hit soft stationary objects vs. moving objects
- Hit stationary objects with “glancing blows”/ “Side-swipe”
- Hit a soft object vs. a hard object



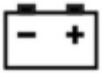





Vehicle Failures

Be prepared for the unexpected. Vehicles are mechanical and can break down when we least expect it.

- Use flares or other high-visibility warning devices such as reflective triangles to be seen.
- Put your hazard lights on.
- Raise the hood and possibly create a signal flag using a cloth or a bag to attach in a visible spot, such as on the antenna, door handle or side-view mirror.
- With the car off the road, it is safest to stay in your car and call for assistance.

Vehicle Icon Meanings Activity

Your vehicle can provide you valuable information about its performance, but **ONLY** if you know what the symbols mean.

Symbol	Meaning
	Check Engine
	Brake System Warning
	Battery Charging System Problem
	Tire Pressure Warning
	Oil Light Warning – low oil pressure
	Anti-lock Braking System
	Engine Temperature Coolant
	Hazard Flashers

Small Group Work – Vehicle Malfunctions Activity

Instructions – In groups of 3, list the steps to minimize the risk of your assigned malfunction. Be prepared to share with the class.

- Loss of Brakes
- Engine Overheating
- Car Fire
- Stuck Accelerator
- Tire Blowout/Loss of Wheel
- Steering Failure
- Hood Flies Up
- Loss of Headlights

Vehicle Malfunction Emergencies

Loss of Brakes:

- Pump the brakes to build pressure.
- Shift to a lower gear (to produce engine drag and slow the vehicle).
- Use the emergency brake.
- Find a safe area.

Vehicle Malfunction Emergencies

Overheating Engine:

- Turn off the a/c
- Turn on the heat
- Shift to neutral
- Pull off the road
- DO NOT touch the radiator cap
- Add coolant/water when safe
- Call for help if necessary

Vehicle Malfunction Emergencies

Car Fire:

- How will you know?
 - You may smell burning rubber or an electrical odor
- What should you do?
 - Remain calm
 - Steer to the side of the road
 - Turn off the ignition
 - Get everyone out and away from the vehicle
 - Call for help

Vehicle Malfunction Emergencies

Stuck Accelerator:

- Try to pry pedal up with toe
- Shift to Neutral
- Steer and brake gently
- Pull safely off the road

Vehicle Malfunction Emergencies

Tire Blowout/Loss of a Wheel:

- DO NOT PANIC
- Hold the wheel firmly
- Immediately put on your flashers
- Ease off accelerator
- Steer straight ahead (counter steer if necessary)
- Do not brake until the car is under control
- Allow car to slow and begin looking for a place to move to
- Pull over in a safe area, dry and level if possible
- NOTE: on a reduced size donut/space, do not exceed 50 mph and do not drive more than 50 miles on the spare tire (50/50 rule)

Vehicle Malfunction Emergencies

Steering Failure:

- DO NOT PANIC
- Hold the wheel firmly
- Ease off accelerator
- Downshift/brake
- Allow car to slow and use flashers
- Pull over to a safe area

Other Malfunction Emergencies

Hood Flies Up/Windshield Wiper Failure:

- Roll down windows for visibility
- Look low under the hood through the windshield to pull over
- Pull to side of road
- If wiper fails or is scratching the window use a rag to protect the window or lift the arm of the wiper to avoid having it scrape the window

Headlight Failure:

- Use 4-way flashers, directional signals or high beam
- Pull off the road and get help

Carbon Monoxide (CO) Poisoning and Your Vehicle

- Have a mechanic check your exhaust system yearly. A small leak can lead to a build-up of CO in the vehicle.
- Always open the door to a detached garage to let fresh air in when running your vehicle inside.
- Never run your vehicle inside a garage attached to a house, even with the garage door open.

New Technology

- Anti-lock brakes
- Automatic emergency braking system
- Traction control
- Suspension control
- Lane assist
- Electronic stability program (ESP)
- Passive engineering (interior and restraints)
- Tempered glass
- Improved headlight projection
- Your vehicle may be equipped with run flat tires, check your owner's manual

Common Break Downs Discussion

What is your plan if any of the following situations occur:

- Tire blow out vs. a slow leak?
- Running out of gas vs. running low on fuel?
- Engine overheating vs. burning smell
- Loss of battery power vs. vehicle won't start
- Vehicle lock out vs. frozen door lock

Break Down Awareness

- **Pull to a safe spot** out of traffic (right shoulder)
- **Warn other drivers** – fluorescent triangles, cones, flares
- **Protect yourself** – stay in vehicle, use judgment with unwanted helpers
- **Notify and decide** – police, tow truck, fix it yourself

What Should You Do If You are Involved in a Collision?

- Stay Calm – avoid talking to other drivers and never admit guilt. Aid the injured if qualified.
- Stop – as close to the crash scene as possible. (Remember the original vehicle locations for police report).
- Warn – other drivers with cones, flares, or reflective triangles.
- Notify – police, medical help, 911
- Get names of witnesses
- Exchange information – insurance/ID, name, phone number
- Take Photos of the scene and the people
- Get license plate of other vehicles/registration information
- Take notes on collision for police report
- Do not leave the scene until the police officer tells you it is ok

Reports to DMV

Traffic crashes involving the following MUST be reported to DMV

- Property damage over \$1000
- Personal injury
- Fatality

Use [MV-104 Accident Report form](#) (available from any motor vehicle office, most insurance agents and DMV website: must be filed within 10 days). Failure to report is a criminal offense (misdemeanor) and can mean the suspension or revocation of your driver's license and/or registrations and those of the vehicle owner.

If the driver is injured and unable to complete the report, a passenger or the vehicle owner may do so.

Will You Need Emergency Road Service?

If you need emergency road service for your vehicle you will need to pay for this service.

Joining an auto club or having this type of insurance coverage can help give you peace of mind.

A vehicle emergency service usually can change a flat tire, get gas for you, help with a locked vehicle or perform minor repairs on the spot.

If you need a tow, find out:

- If it's covered by your roadside assistance program or how much the towing will cost.
- Where the tow truck will take your vehicle and how many miles away the garage is located. Is the mileage within the allotted mileage your service provides.
- You may need to make arrangements for your own personal transportation.

Creating an Emergency Kit Learning Activity

Break into groups and come up with a list of items that you should keep in your car in case of an emergency.

If You Hit an Animal

- Use the SIPDE process to anticipate the action of animals.
- Do not put yourself in danger to avoid an animal, particularly a very small animal.
- Use controlled braking to brake significantly before hitting the animal, let off just before impact so as not to “dip” and scoop up the animal.

Avoid the low hit as the animal can be diverted over the vehicle where there is little protection on the hood.

- Try to hit the animal at the front or back, rather than head on.
- Stop immediately – call 911 to report.



Who To Call If An Animal is Hit

- If it is a domestic animal (e.g. dog, cat), you must make an attempt to contact the owner by knocking on nearby houses.
- Call the police and report the incident.
- Don't try to move the animal.
- If you leave the scene, you could be charged with leaving the scene of a crash.

Work Zone Safety Awareness

How would you like to work at a location that claims a life every 10 hours and injures someone every 13 minutes?

- A work zone crash occurs once every 5.4 minutes
- Every day, 70 work zone crashes occur that result in at least one injury
- Every week, 12 work zone crashes occur that result in at least one fatality.



Safety Tips in Work Zones

- Expect the unexpected.
- Read the signs.
- Remember that a flagger has the same authority as a regulatory sign.
- Stay calm.
- Merge as soon as you see that there is a lane closure.
- Slow down – Give the workers “a brake.”
- Leave two seconds of braking distance between you and the vehicle in front of you.
- Plan ahead – check GPS for information regarding work zones.
- Know when you’ve left the work zone.

Work Zones

- Increased police presence in work zones to enforce posted speed reductions.
- Increased deployment of radar speed display signs in work zones to provide visible reminders of motorist speed.
- When a person is convicted of two or more work zone speeding violations, a suspension of the driver's license and doubled fines are potential repercussions.
- An additional surcharge for speeding in work zones, with the proceeds devoted to a newly established Highway Construction and Maintenance Safety Education Fund could also be imposed.

New York State Move Over Law

Drivers MUST use due care when approaching an emergency vehicle or hazard vehicle including police vehicles, fire trucks, ambulances, construction and maintenance vehicles and tow trucks. The Move Over Law applies to both sides of the roadway, not just the shoulder on the right.

References

- U.S. Department of Transportation: Federal Highway Administration. FHWA Work Zone Facts and Statistics.