Texas Driver Responsibilities:

Adverse Conditions

- **Visibility in Adverse Conditions**
- **Extreme Weather Conditions**
- **Protecting Occupants**
- **Roadway and Vehicle Technology**
- **Traction Loss Concerns**

GRADE HS
Module Eight Introduction

Module Eight. Driver Responsibilities—Adverse Conditions. The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.

Topic 1 – Visibility in Adverse Conditions. The student recognizes driver and vehicular responsibilities and limitations for reduced-visibility driving conditions such as glare, darkness, fog, precipitation, winter weather, or smoke and formulates predictions on vehicular and driver limitations before developing and executing appropriate responses.

Topic 2 – Extreme Weather Conditions. The student describes extreme weather conditions relative to driving such as flooding, heat, cold, or strong winds and formulates predictions on related vehicular and driver limitations before developing and executing appropriate responses.

Topic 3 – Protecting Occupants. The student lists proper use for vehicle occupant protection devices; associates occupant protection to seatbelts, airbags, child restraints, and vehicular and roadway technology; demonstrates proper use of a seatbelt; and distinguishes occupant protection devices as crash survival mechanisms.

Topic 4 – Roadway and Vehicle Technology. The student understands and properly uses survival mechanisms and protections provided by enhanced occupant protection features incorporated into highway and vehicular design technology and distinguishes highway and vehicular occupant protection devices as crash survival mechanisms.

Topic 5 – Traction Loss Concerns. The student recognizes vehicular imbalance and chooses appropriate countermeasures to prevent loss of vehicle control.

Minimum Time Frames
Module Eight-2.5 Hours (Required topic areas)

<table>
<thead>
<tr>
<th>Module Eight</th>
<th>Required Instructional Objective</th>
<th>Recommended Time Frames (Min)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Noncredit</td>
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<tr>
<td><strong>CLASSROOM INSTRUCTION</strong></td>
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<tr>
<td>Topic 1–Visibility in Adverse Conditions</td>
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<td>20</td>
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<td>Topic 2–Extreme Weather Conditions</td>
<td>Yes</td>
<td>20</td>
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<tr>
<td>Topic 3–Protecting Occupants</td>
<td>Yes</td>
<td>20</td>
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<tr>
<td>Topic 4–Roadway and Vehicle Technology</td>
<td>Yes</td>
<td>30</td>
</tr>
<tr>
<td>Topic 5–Traction Loss Concerns</td>
<td>Yes</td>
<td>30</td>
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<tr>
<td>Instructional Breaks</td>
<td>No</td>
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<tr>
<td>Supplement–Parent Orientation</td>
<td>No</td>
<td>55</td>
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<tr>
<td><strong>IN-CAR INSTRUCTION (OPTION 1)</strong></td>
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<tr>
<td>Behind the Wheel Instruction/Break</td>
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<tr>
<td>Observation</td>
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<td><strong>IN-CAR INSTRUCTION MULTIPHASE (OPTION 2)</strong></td>
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<td>Observation</td>
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<tr>
<td>Simulation</td>
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<td><strong>PARENTAL INVOLVEMENT</strong></td>
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### Module Eight Prerequisites:
Module Six completion

### Topic Title: Visibility in Adverse Conditions

<table>
<thead>
<tr>
<th>Topic 1 Time Frame:</th>
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<tbody>
<tr>
<td>30 minutes instructional time</td>
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<td>0 minutes discretionary break time</td>
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#### 26.5 Non-credit course (32 hrs)
#### 33.0 Multiphase course (40 hrs)
#### 35.0 Credit course (56 hrs/semester)

Module Eight, Topic 1 is not a required approved program element.

<table>
<thead>
<tr>
<th>Needed Resources</th>
<th>Instructor Activities</th>
<th>Time Frame</th>
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<tbody>
<tr>
<td></td>
<td>• Review Module Eight Transparencies T-8.0, “Module Introduction”</td>
<td>15-20 minutes</td>
</tr>
<tr>
<td></td>
<td>T-8.1, “Changing Visibility at Night”</td>
<td>(1-3 minutes)</td>
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<tr>
<td></td>
<td>T-8.2, “Changing Visibility at Night”</td>
<td>(1-3 minutes)</td>
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<tr>
<td></td>
<td>T-8.3, “Headlight Alignment and Speed”</td>
<td>(1-3 minutes)</td>
</tr>
<tr>
<td></td>
<td>T-8.4, “Headlight Alignment and Speed”</td>
<td>(1-3 minutes)</td>
</tr>
<tr>
<td></td>
<td>T-8.5, “Nighttime Precautionary Measures”</td>
<td>(1-3 minutes)</td>
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<tr>
<td></td>
<td>T-8.6, “Nighttime Precautionary Measures’”</td>
<td>(1-3 minutes)</td>
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<tr>
<td></td>
<td>T-8.7, “Visibility Limitations in Fog”</td>
<td>(1-3 minutes)</td>
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<tr>
<td></td>
<td>T-8.8, “Visibility Limitations in Fog”</td>
<td>(1-3 minutes)</td>
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<tr>
<td></td>
<td>T-8.9, “Visibility Limitations in Bad Weather”</td>
<td>(2-5 minutes)</td>
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<tr>
<td></td>
<td>T-8.10, “Precautions in Bad Weather”</td>
<td>(2-5 minutes)</td>
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<td>T-8.11, “Precautions in Bad Weather”</td>
<td>(2-5 minutes)</td>
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<tr>
<td>Student Worksheet W-8.1</td>
<td>• Review Student Worksheet W-8.1, “Adverse Conditions”</td>
<td>5-10 minutes</td>
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<tr>
<td>Fact Sheet F-8.1</td>
<td>• Review Fact Sheets F-8.1, “Driving in Night Time Conditions”</td>
<td>For instructor use or additional information</td>
</tr>
</tbody>
</table>
The Student is expected to:

(A) describe and provide sources for glare and darkness reduced-visibility driving conditions;


Reviews concepts as listed:

. Limitations
  - gathering information (Searching);
  - processing information (Evaluating).

. Factors
  - reduced illumination;
  - ability to adjust to glare conditions.


Reviews concepts as listed:

. Limited distance ahead;
. Limited illumination of headlights;
. Loss of contrast and distance judgment;
. Glare conditions exist;
. Glare recovery time.

The Instructor:

. Shows the AAA Foundation video entitled “Night Driving” to demonstrate some of the visibility problems associated with night driving.
Visibility in Adverse Conditions
LESSON CONTENT (Instructor Support Information)

Changing Weather and Conditions of Visibility

Prior to this lesson, information presented and discussed has concentrated on how to develop an effective search pattern and to gather information by determining line of sight and path of travel. Assessment of lane position for meeting, passing, turning, and crossing, and driving hills and curves has addressed these issues relative to establishing the best sightlines and paths of travel under routine conditions. Instruction will address problems that arise from factors such as limitations placed on visibility when driving at night, in fog, heavy rain, snow, and smoke. When encountering strong steady or gusting cross winds, methods for better coping with these challenging situations will be discussed.

Sources of Glare

- Oncoming and following vehicle headlights.
- High beam.
- Misaligned.
- Loaded Improperly.
- Dirty windshield.
- Paper on dashboard.
- Snow-covered landscape.
- Facing the sun at dawn or dusk.
- Flashing advertisement signs.
- Flood lights on businesses next to roadway.

Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
The Instructor:

. Uses Transparency T-8.3, “Headlight Alignment and Speed,” to lead discussions of the visual and speed problems associated with driving at night, and under other glare-inducing situations.

Review concepts as listed:

. Properly aligned low beams:
  - Beam distance.
  - Illumination area.
  - Load distribution.
  - Safe speed that allows driver to stop.

. Uses Transparency T-8.4, “Headlight Alignment and Speed,” to continue discussions of the visual and speed problems associated with driving at night and under other glare-inducing situations.

Review concepts as listed:

. Properly aligned high beams:
  - Beam distance.
  - Illumination area.
  - Load distribution.
  - Safe speed that allows driver to stop.
Changing Weather and Conditions of Visibility

Countermeasures:

- Keep all glass, lights, and windows clean.
- Do not place paper or other objects on dashboard.
- Adjust sun visors and mirrors.
- Sit as high in the seat as possible.
- Wear sunglasses during the day.
- Adjust speed to visibility conditions.
### Module Eight. Texas Driver Responsibilities—Adverse Conditions

The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.

<table>
<thead>
<tr>
<th>Knowledge and Skills</th>
<th>The Student is expected to:</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>(C) formulate and utilize countermeasures to compensate for limitations of driving in darkness and glare;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The Instructor:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>. Uses Transparency T-8.5, “Nighttime Precautionary Measures,”</strong> to lead discussions of the methods used to increase visibility at night.</td>
</tr>
</tbody>
</table>

**Reviews concepts as listed:**
- Clean windshield.
- Clean lights.
- Reduce speed.
- Increase following interval.
- Look to right of oncoming traffic.

**. Uses Transparency T-8.6, “Nighttime Precautionary Measures,”** to lead discussions of the methods used to increase visibility at night.

**Reviews concepts as listed:**
- Interior light off.
- Proper high/low beam use.
- Use of parking lights.
- Safety measures when stopping.
- Rear view mirror day/night switch.
Changing Weather and Conditions of Visibility

Countermeasures:

- Keep all glass, lights and windows clean.
- Do not place paper or other objects on dashboard.
- Adjust sun visors and mirrors.
- Sit as high in the seat as possible.
- Wear sunglasses during the day.
- Adjust speed to visibility conditions.
Knowledge and Skills
The Student is expected to:

(D) analyze factors affecting headlight projection and efficiently and properly utilize vehicle illumination; and

The Instructor:

- Shows the AAA Foundation video entitled “Driving in Bad Weather” as a lead in to the next topic. Asks the students to look for problems and solutions associated with driving in the adverse conditions associated with bad weather.

- Uses Transparency T-8.7, “Visibility Limitations in Fog,” to lead discussions of the methods used to increase visibility in foggy situations.

Reviews concepts as listed:

- Drifting Fog
  - Reduce Speed.
  - Low Beam Use.
  - Use Wipers.
  - Defroster/Defogger may be needed.

- Uses Transparency T-8.8, “Visibility Limitations in Fog,” to lead discussions of the methods used to increase visibility in foggy situations.

Reviews concepts as listed:

- Heavy Fog
  - Reduce speed.
  - Flashers may be needed.
  - Look for exit or safe area off road.
  - Stop only beyond end of a guardrail for protection in regard to rear collision.
Visibility Limited by Fog, Smoke, Rain, or Snow:

Visibility as presented in this lesson deals with atmospheric conditions beyond control of the vehicle operator.

While all of these conditions limit visibility, an additional problem associated with smoke, rain, and snow is that of gusting or continuous high winds. In contrast, fog appears to settle over the roadway in a virtual blanket.

The strongest recommendation is not to knowingly drive into any of the conditions listed above.

**Fog**: Persons involved in multi-vehicle crashes in fog often state that they had driven through patches of light, drifting fog in the area, but nothing serious and had continued to travel at the prevailing speed. Suddenly it was impossible to see, they had braked hard, only to run into a vehicle stopped in the road ahead or to be rear-ended. The correct response would have been to reduce speed as soon as they were aware of drifting fog.

**If driving in fog:**
- Reduce speed.
- Make sure headlights are on low beam to reduce reflected glare.
- Turn on windshield wipers.
- Turn on defroster or air conditioner.

**If fog is heavy:**
- Further reduce speed but do not stop in a travel lane.
- Turn on emergency flashers.
- Look for an exit from the highway.
- If impossible to leave highway, stop beyond end of guardrail, back up to outboard of the guardrail and turn off all lights and wait for fog to lift.
Knowledge and Skills
The Student is expected to:

(E) describe and provide sources for fog related reduced visibility-driving conditions;

in Bad Weather,” to lead discussions about problems and solutions to driving in fog, smoke, rain, or snow. Has students use Worksheet W-8.1, “Adverse Conditions,” to record the solutions as reviewed:

. Reduce speed.
. Do Not Stop in travel lane.
. Low beams.
. Flashers below speed limits.
. Maintain lane position.

. Shows Transparency T-8.10, “Precautions in Bad Weather,” to continue discussion about problems and solutions to driving in fog, smoke, rain or snow:

. Wipers.
. Alert for stopped vehicles.
. Awareness of crosswinds.
. Smooth operation of vehicle necessary.

The Instructor:

. Continues to use Worksheet W-8.1 “Adverse Conditions,” during class discussions as study guide.

. Shows Transparency T-8.9, “Visibility Limitations in Bad Weather,” to lead discussions about problems and solutions to driving in fog, smoke, rain, or snow. Has students use Worksheet W-8.1, “Adverse Conditions,” to record the solutions as reviewed:

. Reduce speed.
. Do Not Stop in travel lane.
. Low beams.
. Flashers below speed limits.
. Maintain lane position.

Worksheet W-8.1
“Adverse Conditions”
Changing Weather and Conditions of Visibility

Heavy Smoke, Rain or Snow: In an instant:

- Smoke is evident ahead. Suddenly smoke and ashes from a large brush fire cover the road making it very difficult to see.
- It’s sprinkling. A few moments later rain is falling in a solid sheet, slashing across the road.
- Snow is falling in large lazy flakes. Two miles down the road it becomes a whiteout.

Precautionary measures should be taken as soon as any of the initial conditions become evident. In most instances brush fires will be restricted to a limited area and torrential rains are of short duration. The snow storm induced whiteout could cover a much greater area. In all three situations:

- Continue to reduce speed to limits imposed by visibility, but do not stop in travel lane or on shoulder near road.*
- Turn headlights to low beam.
- Turn on emergency flashers.
- Maintain lane position 1.
- Turn on windshield wipers.**
- Be alert for vehicles stopped in roadway.
- Be prepared for effects of gusting or strong steady crosswinds.
- Make steering, acceleration, and braking actions gently and smoothly.

* For snow condition look for exit from highway and turn on radio for weather report. If impossible to leave highway, stop beyond end outboard of guardrail. If available, use cell phone to check road conditions.

** Snow and smoke may require use of windshield washer.
Knowledge and Skills
The Student is expected to:

(E) describe and provide sources for fog related reduced visibility-driving conditions:

The Instructor:

. Shows Transparency T-8.11, “Precautions in Bad Weather,” to lead discussions about problems and solutions for driving in fog, smoke, rain, or winter weather.

. Snow — exit and listen for weather warnings.

. Stopping behind guardrail is critical.

. Low beams.

. Cell phone/radio to determine location of problem areas.

. Windshield washer use.
Changing Weather and Conditions of Visibility

Heavy Smoke, Rain or Snow: In an instant:
• Smoke is evident ahead. Suddenly smoke and ashes from a large brush fire cover the road making it very difficult to see.
• It’s sprinkling. A few moments later rain is falling in a solid sheet, slashing across the road.
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• Maintain lane position 1.
• Turn on windshield wipers.**
• Be alert for vehicles stopped in roadway.
• Be prepared for effects of gusting or strong steady crosswinds.
• Make steering, acceleration, and braking actions gently and smoothly.

* For snow condition, look for exit from highway and turn on radio for weather report. If impossible to leave highway, stop beyond end outboard of guardrail. If available, use cell phone to check road conditions.

** Snow and smoke may require use of windshield washer.
Module Eight Topic 1 Resources

Module Eight Topic 1 Transparencies:
T-8.0, Module Introduction;
T-8.1, Changing Visibility at Night;
T-8.2, Changing Visibility at Night;
T-8.3, Headlight Alignment and Speed;
T-8.4, Headlight Alignment and Speed;
T-8.5, Nighttime Precautionary Measures;
T-8.6, Nighttime Precautionary Measures;
T-8.7, Visibility Limitations in Fog;
T-8.8, Visibility Limitations in Fog;
T-8.9, Visibility Limitations in Bad Weather;
T-8.10, Precautions in Bad Weather;
T-8.11, Precautions in Bad Weather.

Worksheets:
W-8.1, Adverse Conditions.

Fact Sheet:
F-8.1, Driving in Nighttime Conditions.

Videos:
“Night Driving,” AAA Foundation, latest ed.;
“Driving in Bad Weather,” AAA Foundation, latest ed.;
“Teaching Your Teens to Drive. Part 13”, AAA Foundation, latest ed.

Texts:
“Drive Right” Ch.12;
“How to Drive” Ch. 9;
“Handbook Plus” Ch. 13;
“License To Drive” Ch. 14,15;
“Responsible Driving” Ch. 12.

Assessment:
MA 8.1, Driving in Adverse Conditions.
### Module Eight Prerequisites:
Module Six completion

### Topic Title:  Extreme Weather Conditions

#### Topic 2 Time Frame:
- **20 minutes instructional time**
- **10 minutes discretionary break time**

### Needed Resources

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<tr>
<th>Instructor Activities</th>
<th>Time Frame</th>
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<tbody>
<tr>
<td>Review recommended Module Eight Lesson Plans</td>
<td>15 minute (prior to lesson)</td>
</tr>
<tr>
<td>Review Student Worksheet W-8.1 and W-8.2</td>
<td>5-10 minutes</td>
</tr>
<tr>
<td>Review Fact Sheets F-8.2 and F-8.3</td>
<td>5-10 minutes</td>
</tr>
<tr>
<td>Review Assessment MA-8.1, “Driving in Adverse Conditions”</td>
<td>10-15 minutes</td>
</tr>
</tbody>
</table>

### Resources Available:
- Video, “Driving in Bad Weather”
- Video, “Teaching Your Teens to Drive. Part 13”
- “Drive Right” Ch. 12
- “How to Drive” Ch. 9;
- “Handbook Plus” Ch. 13;
- “License To Drive” Ch. 14.15;
- “Responsible Driving” Ch. 12.

### Assessment
- MA-8.1, “Driving in Adverse Conditions”
The Student is expected to:

(A) describe and provide source for flooding, heat, cold, and strong wind-related, reduced-visibility driving conditions;


. Flash flooding conditions.
. A Texas problem.
. Not specific to time of year.
. Dangerous condition for drivers and vehicles.


. 50% are vehicle-related.
. Search for flood prone areas.
. All vehicles can float.
. Six inches of water can cause loss of control.

Module Eight. Texas Driver Responsibilities–Adverse Conditions. The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.
Low Water Crossings

Nearly half of all flash flood fatalities are vehicle related. In your automobile, look out for flooding at highway dips, bridges, and low areas.

Even the largest and heaviest of vehicles will float. As little as six inches of water may cause you to lose control of your vehicle. Two feet of water will carry most cars away. Do not drive through flowing water.

A hidden danger awaits most motorists where a road without a bridge dips across a creek bed. Motorists develop false confidence when they normally or frequently pass through dry low-water crossings.

Roadbeds may have been scoured or even washed away during flooding, creating unsafe driving condition. Those people who repeatedly drive through flooded low-water crossings do not recognize the dangers of a small increase in the water level.

Driving too fast through low water will cause the vehicle to hydroplane and lose contact with the road surface. Visibility is limited at night, increasing the vulnerability of the driver to any hidden dangers.

Heed all flood and flash flood watches and warnings. Keep abreast of road conditions through the news media.

Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
The Student is expected to:

(B) describe vehicular and driver limitations associated to flooding, heat, cold, and strong winds; and

The Instructor:


. Two feet of water carries a car.
. Hidden dangers when visibility is limited.
. Listen to flood watches and warnings.
. Keep aware of conditions.

. Shows Transparency T-8.15, “Hot and Cold Temperatures” and uses Worksheet W-8.1, “Adverse Weather Conditions,” to introduce a discussion associated with driving in very hot or very cold conditions.

. Demand on Systems.
. Problems.


. Demand on tires.
. Inflation critical.
. Radiator coolant and hoses.

Module Eight. Texas Driver Responsibilities—Adverse Conditions. The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.
**Extreme temperatures** place demands on the vehicle that could increase risk.

**Cold weather** vehicle checks include:

- Tires.
- Tire inflation.
- Anti-freeze, hoses and connections.
- Heater/defroster.
- Drive belts.
- Washer fluid.
- Wiper blades.
- Lights and windows.
Knowledge and Skills
The Student is expected to:

(C) formulate and utilize countermeasures to compensate for limitations to driving in winter weather, smoke, and rain conditions.

The Instructor:


. HVAC systems.
. Drive belts.
. Wiper blades and fluids.
. Clear lights and glass areas.


. Tire inflation needs.
. HVAC systems.
. Drive belts.

. Finishes this topic area with a class discussion regarding the actions to take when the vehicle is buffeted by strong gusts of wind.

. Fact Sheet F-8.3, “Dealing with Strong Windy Conditions,” can be used to support this area.

Module Eight. Texas Driver Responsibilities—Adverse Conditions. The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.
Hot weather checks include:

- Tires and inflation.
- Coolant, hoses, connections.
- Drive belts.

Strong winds create a problem called buffeting. These conditions occur on bridges such as the Galveston Bay Bridge, through mountain passes and ravines, and when being passed by large trucks. These wind gusts and blasts can cause total loss of vehicle control. If your vehicle encounters strong gusts of wind, do the following:

- Reduce speed.
- Check for oncoming traffic.
- Adjust lane position.
- Do not oversteer responding to the gust.
- Prepare to countersteer.
- Stay off the brake.
Module Eight Topic 2 Resources

Module Eight, Topic 2 Transparencies:
T-8.12, Low Water Crossings;
T-8.13, Low Water Crossings;
T-8.14, Low Water Crossings;
T-8.15, Hot and Cold Temperatures;
T-8.16, Cold Weather Precautions;
T-8.17, Cold Weather Checks;
T-8.18, Hot Weather Checks.

Worksheets:
W-8.2, Low Water Crossings;
W-8.1, Adverse Conditions.

Fact Sheets:
F-8.2, Low Water Crossings;
F-8.3, Dealing with Strong Windy Conditions.

Optional Resources:
Video, “Driving in Bad Weather;”
Video, “Teaching Your Teens to Drive. Part 13;”
“Drive Right” Ch.12;
“How to Drive” Ch. 9;
“Handbook Plus” Ch. 13;
“License To Drive” Ch. 14,15;
“Responsible Driving” Ch. 12.

Assessment:
MA-8.1, Driving in Adverse Conditions.

In-car Lesson:
BTW-8.1
Topic Title: Protecting Occupants

Module Eight, Topic 3 is not a required approved program element.

<table>
<thead>
<tr>
<th>Needed Resources</th>
<th>Instructor Activities</th>
<th>Time Frame</th>
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</thead>
<tbody>
<tr>
<td>Resources Available: Video, “Reducing Your Risks in the Crash” Video, “Teaching Your Teens to Drive. Part 1” “Drive Right” Ch. 5; “How to Drive” Ch. 3; “Handbook Plus” Ch. 11; “License To Drive” Ch. 16; “Responsible Driving” Ch. 7, 14.</td>
<td>• Review Student Worksheet W-8.3, “Occupant Protection”</td>
<td>5-10 minutes</td>
</tr>
<tr>
<td>Assessment MA-8.1</td>
<td>• Review Assessment MA-8.1, “Driving in Adverse Conditions”</td>
<td>10-15 minutes</td>
</tr>
</tbody>
</table>
Module Eight. Texas Driver Responsibilities—Adverse Conditions. The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.

GRADE: HS  MODULE: EIGHT  TOPIC: 3

TOPIC ACTIVITIES

Knowledge and Skills
The Student is expected to:

(A) define and list devices of adult and youth occupant protection;

The Instructor:

° Shows the optional AAA Foundation video, “Reducing Your Risks In the Crash” as an introduction to the need for occupant protection.


° Adjusting lap belt.

° Adjusting shoulder belt.

° Snug fit important.

° Students will complete Worksheet W-8.3, “Occupant Protection,” during this section.

° Uses T-8.20, “Safety Restraints for Adults,” to lead a discussion of the proper use and precautions necessary when using occupant protection devices.

° Adjusting seat back.

° Occupant movement.

° Locking devices.
Protecting Occupants

For most persons the term “occupant protection” refers to safety belts, child restraints, driver and passenger side air bags. In the context of this lesson the term “occupant protection” is much more inclusive, incorporating technological advances in vehicle integrity in the event of a crash and response capability. Advances in roadway and off road design and re-engineering of crash barriers to meet changes in motor vehicle weight and size have added substantially to crash survival.

**Adults**

Safety Belt:
- Snug lap belt after fastening across hips or thighs.
- Adjust center post mounting for height if vehicle is equipped.
- Belt over top of shoulder and across chest to distribute force in event of crash—check frequently for snug fit (see T-8.19).

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**Texas Essential Knowledge and Skills:** § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
The Student is expected to:

(B) describe how adult and youth occupant protection devices operate and provide crash survival protection;

. Air bags and passengers.
. Protection device.
. Speed of inflation and clearance.


. Adjusting steering wheel.
. Hand position.
. Avoiding hot gas blow hole.


. Side protection with air bags.
. Seating young persons.
. Adjusting head restraints.
Adults

- Keep seat back in upright position to avoid submarining in frontal crash.
- Movement of belted occupant in 31 mph crash (see T-8.27).
- Types of locking devices (see T-8.28).

**Air Bags/dash and steering wheel:**
- No passenger under 12 years of age in front seat.
- Protect against head and chest injuries (see T-8.21).
- Speed of inflation.
- Driver should adjust seat for minimum 10 inch clearance between chest and steering wheel.
- Raise seat (no power seat - use wedge-shaped cushion), adjust steering wheel downward if possible to direct air bag at chest instead of face.

**Air Bags/side impact protection:**
- Upper door frame.
- Seat edge/door panel.

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**Texas Essential Knowledge and Skills:** § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Knowledge and Skills

The Student is expected to:

1. Seats.
2. Belts.
3. Restraints.

   - Shoulder restraint devices.
   - Air bag components.
   - Air bag hot gas vent hole locations.

   - Ejection.
   - Fire and Water Immersion.
   - Impact Protection.

   - Against Ejection from Vehicle
   - Against Fire and Water Immersion
   - Protects Child from Impact
     - Instead of holding child on your lap
   - Protects Occupants at Point of Impact
Children and Youth
- Safest if seated in the rear seat.
- Use infant seat for under 20 lbs.
- Face infant seat to rear in rear seat.
- Child seats required to 40 lbs.
- Booster seat required to 60 lbs.

Head Restraints
- Use infant seat for under 20 lbs.
- Face infant seat to rear in rear seat.
- Child seats required to 40 lbs.

Occupant Protection
- System Parts.
- Passive Devices.
- Active Devices.

Occupant Protection
- Ejection.
- Fire and Water.
- Impact.

Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Grade: HS  Module: Eight  Topic: 3

Knowledge and Skills

The Student is expected to:

(D) formulate and utilize countermeasures to compensate for limitations of occupant restraint devices.

The Instructor:


. Head.

. Chest.

. Pelvis.


. Normal position allows movement.

. Lock position restrains occupant.


. Lap belt position.

. Shoulder belt position.
Occupant Protection

- Movement.
- Locking Devices.
- Proper Fit.
Module Eight Topic 3 Resources

Module Eight, Topic 3 Transparencies:
T-8.19, Safety Restraints for Adults;
T-8.20, Safety Restraints for Adults;
T-8.21, Safety Restraints for Adults;
T-8.22, Safety Restraints for Adults;
T-8.23, Safety Restraints for Adults;
T-8.24, Safety Restraints for Youth;
T-8.25, Occupant Protection;
T-8.26, Restraints Protect;
T-8.27, Movement of Belted Occupant;
T-8.28, Types of Belt-Locking Systems;
T-8.29, Adjusting Belts for Proper Fit.

Worksheets:
W-8.3, Occupant Protection.

Optional Resources Available:
Video, “Reducing Your Risks in the Crash;”
Video, “Teaching Your Teens to Drive. Part 1;”
“Drive Right” Ch. 5;
“How to Drive” Ch. 3;
“How Handbook Plus” Ch. 11;
“License To Drive” Ch. 16;
“How Responsible Driving” Ch. 7, 14.

Assessment:
MA-8.1, Driving in Adverse Conditions.

In-car lesson:
BTW-8.1
### Module Eight Prerequisites:
Module Six completion

### Topic Title:
Roadway and Vehicle Technology

#### Topic 4 Time Frame:
- **Instructional time:** 20 minutes
- **Discretionary break time:** 0 minutes

#### 28.5 Non-credit course (32 hrs)
- 20 minutes instructional time
- 0 minutes discretionary break time

#### 35.5 Multiphase course (40 hrs)
- 20 minutes instructional time
- 5 minutes discretionary break time

#### 40.5 Credit course (56 hrs/semester)
- 20 minutes instructional time
- 10 minutes discretionary break time

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*Module Eight, Topic 4 is not a required approved program element.*

<table>
<thead>
<tr>
<th>Needed Resources</th>
<th>Instructor Activities</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fact Sheets F-8.4</td>
<td>• Review Student Worksheet W-8.4, “Highway Design Features”</td>
<td>5-10 minutes</td>
</tr>
<tr>
<td>Optional Resources Available: Video, “Making Safer Roads” Video, “New Vehicle Technology” “Drive Right” Ch. 13; “How to Drive” Ch. 1; “Handbook Plus” Ch. 9,13; “License To Drive” Ch. 6; “Responsible Driving” Ch. 11.</td>
<td>• Review Fact Sheets F-8.4, “New Vehicle Technology”</td>
<td>For instructor use or additional information</td>
</tr>
<tr>
<td>Assessment MA-8.1</td>
<td>• Review Assessment MA-8.1, “Driving in Adverse Conditions”</td>
<td>10-15 minutes</td>
</tr>
<tr>
<td>In-car Lesson BTW-8.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The Student is expected to:

- describe the crash survival features incorporated into highway and vehicular design;

. Intersections.
. Shoulders.
. Edge strips.
. Median.
. Calming devices.

- Uses Transparency T-8.30, “Highway Safety Design Features,” to lead a discussion of the features incorporated into highway design to enhance occupant safety. During the discussion, students will complete Worksheet W-8.4, “Highway Design Features.”

. Sign supports.
. Guard rails.
. Crash attenuators.

- Uses Transparency T-8.31, “Highway Safety Design Features,” to lead a discussion of the features incorporated into highway design to enhance occupant safety. During the discussion, students will complete Worksheet W-8.4, “Highway Design Features.”

. Turn bays.
. Special lanes for travel.
. Message signs.

- Uses Transparency T-8.32, “Highway Safety Design Features,” to continue discussion of the features incorporated into highway design to enhance occupant safety.

The Instructor:

- Uses Transparency T-8.30, “Highway Safety Design Features,” to lead a discussion of the features incorporated into highway design to enhance occupant safety. During the discussion, students will complete Worksheet W-8.4, “Highway Design Features.”

- Uses Transparency T-8.31, “Highway Safety Design Features,” to lead a discussion of the features incorporated into highway design to enhance occupant safety. During the discussion, students will complete Worksheet W-8.4, “Highway Design Features.”

- Uses Transparency T-8.32, “Highway Safety Design Features,” to continue discussion of the features incorporated into highway design to enhance occupant safety.
Highway Design Features

- Wide, clearly-marked lanes and clear highway shoulders.
- Rumble strips.
- New design median barriers.
- Break away sign support posts.
- New design guard rails.
- Crash attenuators.
- Protected left and right turn bays.

Extended Hour Classroom (40 and 56) programs should use the video, “Making Safer Roads,” Insurance Institute for Highway Safety, to illustrate the newer safety features being designed into roadways today and in the future.

Texas Essential Knowledge and Skills: § 110.42. (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Module Eight. Texas Driver Responsibilities--Adverse Conditions. The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.

Knowledge and Skills
The Student is expected to:

(B) summarize the protection provided by highway and vehicular design technology; and

(C) list ways to reduce the consequences of an impending crash.

The Instructor:


. Anti-lock Brakes.

. Traction Control Devices.

. Suspension Control Devices.

. Electronic Stability/Active Handling Systems.

. Crumple Zones.

. Door Latches.

. Glass.

. Headlights.


. Uses Transparencies T-8.34 and T-8.35, “Controlling Consequences,” to lead a discussion of how the driver can avoid consequences by using advances in automotive design and construction to contribute to occupant safety.

. Avoiding collisions.

. Avoiding consequences.
Technology

- ABS (Anti-lock Braking System).
- TCS (Traction Control System).
- ESP (Electronic Stability Program).
- Crumple zones.
- Door latches.
- Safety glass.
- Headlights.

Extended Hour Classroom (40 and 56) programs should use the video, “New Vehicle Technology,” National Safety Council, to illustrate the newer safety features being designed into vehicles today and in the future.

Controlling consequences:

- Avoid head-on collisions.
- Drive off road rather than skid off road.
- Hit something soft before something hard.
- Hit something going your way rather than something stationary.
- Hit stationary object with glancing blow.
- Hit stationary object rather than an approaching object.
- Steer to avoid oncoming traffic.

Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Module Eight Topic 4 Resources

Module Eight, Topic 4 Transparencies:
T-8.30, Highway Safety Design Features;
T-8.31, Highway Safety Design Features;
T-8.32, Highway Safety Design Features;
T-8.33, Automotive Technology;
T-8.34, Controlling Consequences;
T-8.35, Controlling Consequences.

Worksheets:
W-8.4, Highway Design Features.

Fact Sheet:
F-8.4, New Vehicle Technology.

Optional Resources Available:
Video, “Making Safer Roads” Insurance Institute for Highway Safety;
Video, “New Vehicle Technology” National Safety Council;
“Drive Right” Ch. 13;
“How to Drive” Ch. 1;
“How Handbook Plus” Ch. 9,13;
“License To Drive” Ch. 6;
“Responsible Driving” Ch. 11.

Assessment:
MA-8.1, Driving in Adverse Conditions.

In-car Lesson:
BTW-8.1
## Module Eight Prerequisites:
Minimum age for entry into program

### Topic 5 Time Frame:
<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Non-credit course (32 hrs)</th>
<th>Multiphase course (40 hrs)</th>
<th>Credit course (56 hrs/semester)</th>
</tr>
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<tr>
<td>55 minutes</td>
<td>29.5</td>
<td>36.5</td>
<td>43.0</td>
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<tr>
<td>instructional time</td>
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<td>5 minutes</td>
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<tr>
<td>discretionary break</td>
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Module Eight, Topic 5 is not a required approved program element.

### Needed Resources

<table>
<thead>
<tr>
<th>Instructor Activities</th>
<th>Time Frame</th>
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</thead>
<tbody>
<tr>
<td>• Review recommended Module Eight Lesson Plans</td>
<td>15 minutes</td>
</tr>
<tr>
<td>• Review Module Eight Transparencies</td>
<td>35-45 minutes</td>
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<tr>
<td>T-8.36, &quot;Condition of the Road Surface&quot;</td>
<td>(prior to lesson)</td>
</tr>
<tr>
<td>T-8.37, &quot;Condition of the Road Surface&quot;</td>
<td>(1-3 minutes)</td>
</tr>
<tr>
<td>T-8.38, &quot;Traction Loss Causes&quot;</td>
<td>(1-3 minutes)</td>
</tr>
<tr>
<td>T-8.39, &quot;Traction Loss Causes&quot;</td>
<td>(3-5 minutes)</td>
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<tr>
<td>T-8.40, &quot;Traction Loss Considerations&quot;</td>
<td>(3-5 minutes)</td>
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<tr>
<td>T-8.41, &quot;Traction Loss Considerations&quot;</td>
<td>(2-5 minutes)</td>
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<tr>
<td>T-8.42, &quot;Traction Loss Considerations&quot;</td>
<td>(2-5 minutes)</td>
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<tr>
<td>T-8.43, &quot;Traction Loss Considerations&quot;</td>
<td>(2-5 minutes)</td>
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<tr>
<td>T-8.44, &quot;Traction Loss to Front Tires&quot;</td>
<td>(4-6 minutes)</td>
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<tr>
<td>T-8.45, &quot;Front Traction Loss Correction&quot;</td>
<td>(4-6 minutes)</td>
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<tr>
<td>T-8.46, &quot;Traction Loss to Rear Tires&quot;</td>
<td>(4-6 minutes)</td>
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<tr>
<td>T-8.47, &quot;Rear Traction Loss Correction&quot;</td>
<td>(4-6 minutes)</td>
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<tr>
<td>T-8.48, &quot;Off-Road Recovery&quot;</td>
<td>(4-6 minutes)</td>
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<tr>
<td>T-8.49, &quot;Module 8 Closing Transparency&quot;</td>
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<tr>
<td>• Review Student Worksheet</td>
<td>5-10 minutes</td>
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<tr>
<td>W-8.5, &quot;Front Wheel Traction Loss&quot;</td>
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<tr>
<td>W-8.6, &quot;Rear Wheel Traction Loss&quot;</td>
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<tr>
<td>W-8.7, &quot;Destinition Driving Activty&quot;</td>
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<tr>
<td>• Review Fact Sheets</td>
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<tr>
<td>F-8.5, &quot;Changing Traction Conditions&quot;</td>
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<tr>
<td>F-8.6, &quot;Traction Concerns&quot;</td>
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<td>F-8.7, &quot;Detecting Traction Loss&quot;</td>
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<tr>
<td>F-8.8, &quot;Responding to Front Wheel Traction Loss&quot;</td>
<td>(For instructor use or additional information)</td>
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<tr>
<td>F-8.9, &quot;Responding to Rear Wheel Traction Loss&quot;</td>
<td>10-15 minutes</td>
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<tr>
<td>F-8.10, &quot;Stability Enhancement Systems&quot;</td>
<td></td>
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<tr>
<td>• Review Assessment</td>
<td></td>
</tr>
<tr>
<td>MA-8.1, Driving in Adverse Conditions</td>
<td></td>
</tr>
</tbody>
</table>

Optional Resources Available:
- Video, “Get A Grip”
- Video, “Get Ready, Get Set, Go in the Snow”
- “Drive Right” Ch. 5,12,13;
- “How to Drive” Ch. 9;
- “Handbook Plus” Ch. 9,13;
- “License To Drive” Ch. 14,15,17;
- “Responsible Driving” Ch. 12,14.

Assessment MA-8.1

In-car Lesson BTW-8.1

### Topic Title: Traction Loss Concerns
Module Eight. Texas Driver Responsibilities—Adverse Conditions. The student appraises inclement and extreme weather conditions and formulates predictions on vehicular and driver limitations before developing and executing responses; investigates roadway and vehicle technology including occupant protection to develop an understanding of the related uses as crash and injury protections; demonstrates proper use of occupant protection devices; and utilizes map reading and route planning techniques to avoid adverse driving conditions.

Knowledge and Skills
The Student is expected to:

(A) define traction and vehicle balance;

The Instructor:

. Begins discussion by asking students to give examples of the types of problems and circumstances that may cause a loss of traction.

. Shows one of the optional traction-related videos: “Get a Grip,” “Get Ready, Get Set, Go In Snow,” or a Ford Series video relating to traction loss or driving in the rain or snow.

. Shows Transparency T-8.36, “Condition of the Road Surface,” and asks the class to describe the following roadway conditions that can create traction loss:

. Ice and snow.

. Wet areas.

. Hard rain.

. Muddy areas.

. Shows Transparency T-8.37, “Condition of the Road Surface,” and asks the class to describe the following roadway conditions that can create traction loss:

. Wet leaves.

. Uneven road surfaces.

. Sand or gravel covered areas.

. Negative banked curve.
Traction Loss Concerns

LESSON CONTENT (Instructor Support Information)

Changing Traction Conditions

If asked about traction loss, skidding, or problems of directional control, most drivers think of winter with wet snow or ice-covered roads. In fact, skidding is a major contributor to traffic crashes at all times of the year. For instance, run-off roadway events with subsequent loss of control and crashes account for over 50 percent of all occupant deaths. This lesson will address the causes of traction loss, detection of the onset of a loss of directional control, and measures to correct the problem.

**Traction:**  Traction or adhesion is the grip between the tires and the road surface which allows a vehicle to start, stop, and/or change direction. Three types of traction influence the control/or movement of a motor vehicle. They are: **Static, rolling (dynamic), and sliding.**

A stationary vehicle parked on a flat surface with its brakes set is an example of static traction. It has greatest resistance to movement.

There is greater traction between a stationary wheel and the road than there is between a sliding wheel and the road. Sliding traction does not grip the road as well as static traction.

There is more traction between a rolling wheel and the road than there is between a sliding wheel and the road. This is why a driver needs to keep the wheels rolling and not lock the brakes when trying to steer or stop a vehicle that is sliding.

Traction between the tires and the road does not remain constant. For example, sand, gravel, or water on the road decrease the level of traction. As speed increases, traction between the tires and the road decreases. With decreased traction, the possibility of skidding or sliding increases.

**Road surface conditions**
- Ice, snow or frost:
  - Wet surface.
  - Standing water.
  - Mud.
  - Wet leaves.
  - Uneven surface.
  - Sand or gravel.
  - Curves.
### Knowledge and Skills

The Student is expected to:

1. **shows** Transparency T-8.38, “Traction Loss Causes,” to discuss common vehicle factors that affect traction loss.
   - Brake adjustment.
   - Tire tread.
   - Tire pressure.

2. **Shows** Transparency T-8.39, “Traction Loss Causes,” to discuss common driver actions that affect traction loss.
   - Sudden steering.
   - Sudden speed changes.
   - Sudden braking.
   - Aggressive clutch engagement.

3. **Shows the optional video** “Get A Grip” at this point to relate loss of traction of front and rear wheels to driver actions for controlling a skid.

   - Sudden shifts of vehicle.
   - Simultaneous actions.
   - Traction loss compounds losses.

### The Instructor:

- **Shows Transparency T-8.38, “Traction Loss Causes,”** to discuss common vehicle factors that affect traction loss.
  - Brake adjustment.
  - Tire tread.
  - Tire pressure.

- **Shows Transparency T-8.39, “Traction Loss Causes,”** to discuss common driver actions that affect traction loss.
  - Sudden steering.
  - Sudden speed changes.
  - Sudden braking.
  - Aggressive clutch engagement.

- **Shows the optional video** “Get A Grip” at this point to relate loss of traction of front and rear wheels to driver actions for controlling a skid.

  - Sudden shifts of vehicle.
  - Simultaneous actions.
  - Traction loss compounds losses.
Vehicle factors:
- Misadjusted brakes.
- Worn tires.
- Uneven tire pressure.
- Different tires on front wheel drive vehicles.

Driver actions:
- Sudden steering actions.
- Sudden changes in speed.
- Panic stops.
- Sudden clutch usage (standard transmission).

Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
The Instructor:

- Shows Transparency T-8.41, “Traction Loss Considerations,” to discuss common driver braking actions that affect traction loss.
- Braking too hard.

- Weight shifts to front of car.
- Traction loss can occur.
- Recognize hood movement downward.

- Accelerating too hard.
- Weight shifts to rear of car.
- Traction loss can occur.
- Recognize hood movement upward.

- Sudden steering or too much steering.
- Weight shifts to the side and front of car.
- Traction loss can occur.
- Recognize hood movement upward on one side and downward on other side.
Recognizing Traction Loss

The driver must understand the process of traction loss and begin to recognize which part of the vehicle is losing traction in order to activate the technology needed to correct the problem. The concepts of “steering into it” should no longer be used. Besides the fact that it does not work for understeer situations, it makes the driver try to identify what the back of the vehicle is doing. In a vehicle with a short wheelbase, this delays the process of responding with the steering wheel. A quicker response can be made by identifying when the vehicle is off-target in relation to the path of travel. The driver then takes immediate steering response toward the targeted path of travel.

Traction can be lost to the front tires or the rear tires. Sometimes combinations may lead to the two side tires sliding if the front and rear tires are actually leading the vehicle (sideways traction loss). The concepts of traction loss are important for recognizing when to activate the ABS or TCS to regain vehicle control. The following information is designed to provide procedures to encourage detection of traction loss in hopes of preventing the problem. When prevention fails, the student will have the

Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Knowledge and Skills
The Student is expected to:

- Recognizing traction loss to front tires.
- Technical term is understeer.
- Driver identifies unusual movement off-target.
- Recognize hood movement straight forward even when steering.

- Shows Transparency T-8.45, “Front Traction Loss Correction,” to discuss correction of vehicle balance problems to control traction loss to front.
  - Direct vision on targeted path of travel.
  - Activate ABS if equipped.
  - Release pedals and Jab Brake if not ABS equipped.
  - Ease off steering inputs and point to path of travel.
  - Regain balance and rolling traction to front tires.

- Students complete Worksheet W-8.5, “Front Wheel Traction Loss,” during this section.

The Instructor:

vision, motion, and steering skills to minimize the traction loss and its potential consequences.

A vehicle can lose traction in the front or rear when the driver steers, brakes, or accelerates improperly for the situation. The resulting traction loss will initially be a loss of traction to the front or rear tires. If the driver can recognize the traction loss to the front, then ABS is a helpful tool to regain steering while slowing. Keep in mind that it is totally against past principles of keeping your foot off the pedals in a skid. If the driver can recognize traction loss to the rear tires, then the TCS is a helpful tool to regain steering while accelerating gently. The concept of gentle acceleration is also against past instruction for handling a traction loss. So the only difference in controlling a front and rear traction loss is the brake and acceleration use. This creates a weight transfer to aid in maintaining the rolling traction rather than sliding traction. A vehicle has more traction with rolling traction versus sliding traction.

**Front-wheel skid (loss of traction)**
- Termed understeer.
- Vehicle moving straight ahead in spite of steering input.
- May first be identified visually.
- Tires tend to roll under.
- Rear wheels tend to push front straight ahead.
- Direct vision to targeted path of travel.
- Ease off steering.
- Reestablish rolling traction.
- Jab brake to shift weight forward encouraging rolling traction to front.

**Texas Essential Knowledge and Skills:** § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Knowledge and Skills

The Student is expected to:

(D) describe how vehicular technology systems reduce traction loss concerns and detail proper use of the systems; and

. Recognizing traction loss to rear tires.

. Technical term is "oversteer."

. Driver identifies unusual movement off-target.

. Recognize hood movement to left or right off-target even while not initiating steering inputs.


. Shows Transparency T-8.47, “Rear Traction Loss Correction,” to discuss correction of vehicle balance problems to control traction loss to rear.

. Direct vision on targeted path of travel.

. Activate TCS if equipped.

. Release pedals and accelerate (2 mph target speed).

. Direct steering to targeted path of travel until traction is regained to rear.

. Regain balance and rolling traction to rear tires.

. Uses Worksheet W-8.6, “Rear Wheel Traction Loss,” during this section.

.Reviews Fact Sheets F-8.9, “Responding to Rear Wheel Traction Loss” and F-8.10, “Stability Enhancement Systems” for details about traction loss and technology to aid the driver when traction is lost.
Rear-wheel skid (loss of traction)
- Termed oversteer.
- Locked wheels try to assume front position.
- Generated by slick surface, speed, braking or sudden steering input.
- Identified visually as front of vehicle moves left or right of travel path without steering input in that direction.
- Direct vision to targeted path of travel.
- Ease off brake or accelerator.
- Steer toward path of travel.
- Target travel lane not road shoulder.
- Adjust steering input as needed.
- Light progressive acceleration may be needed to return rolling traction to rear.

Regaining Control

You realize you’re skidding:
- Identify an open path of travel.
- Release the pedal you are pushing (brake or accelerator).
- Steer in the direction you want to go.
- Be alert for lateral forces.
- Continually steer to open path of travel.

Vehicle balance is critical to traction. Any change in balance changes traction.
- Balance loss = traction loss.
- Simultaneous driver input affects balance.
- Traction loss compounds crash results:
  - Brakes applied or accelerator applied.
  - Weight transfer of vehicle.

Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Knowledge and Skills

The Student is expected to:

(E) list the procedures to countermeasure off-road recovery loss of traction.

The Instructor:


. Direct vision on targeted path of travel.

. Ease off accelerator pedal and activate ABS

. Direct steering to targeted path of travel until traction is regained to rear.

. Regain balance and rolling traction to rear tires.

. Shows optional the video “Get A Grip” at this point to relate loss of traction of front and rear wheels to driver actions for controlling a skid as a culminating activity.

. Explains Worksheet W-8.7, “Destination Driving Activity,” for student to develop an in-car lesson that will include activities learned throughout lessons and to be used as a self-evaluation for student and parent. This activity will be used as a parent activity and be handed to the instructor for evaluation and possibly used as a destination drive in the BTW-9.1 session.

. The students complete the Module 8 assessment as required by the local school entity.

Traction Loss Concerns

LESSON CONTENT (Instructor Support Information)

**Antilock Brake System** - helps maintain control by preventing any of the wheels from locking while applying a hard brake. The pedal vibrates when pushed, but steering control can be maintained with the rolling traction.

**Traction Control System** - helps maintain control by preventing any of the wheels from spinning while applying a hard acceleration. The accelerator pedal may be pushed, but the vehicle does maintain steering control with the rolling traction.

**Off-road recovery**
- Don’t panic and oversteer.
- Ease off the accelerator and do not brake.
- Sight vehicle with edge of roadway.
- Check all traffic.
- When clear, bring wheel back to road surface by turning steering wheel 1/8 to 1/4 turn.
- As wheels touch the road surface, countersteer 1/4 or 1/2 turn, turn steer straight.

**Destination Driving: Planning an Trip (Worksheet W-8.7)**
- Plan an in-car lesson.
- Plan a trip within a time period.
- Develop trip planning skills.
- Develop map reading skills.
- Develop a self-evaluation.

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**Texas Essential Knowledge and Skills:** § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker’s message.
Module Eight, Topic 5 Transparencies:

T-8.36, Condition of the Road Surface;
T-8.37, Condition of the Road Surface;
T-8.38, Traction Loss Causes;
T-8.39, Traction Loss Causes;
T-8.40, Traction Loss Considerations;
T-8.41, Traction Loss Considerations;
T-8.42, Traction Loss Considerations;
T-8.43, Traction Loss Considerations;
T-8.44, Traction Loss of Front Tires;
T-8.45, Front Traction Loss Correction;
T-8.46, Traction Loss to Rear Tires;
T-8.47, Rear Traction Loss Correction;
T-8.48, Off-Road Recovery.

Worksheets:

F-8.5, Front Wheel Traction Loss;
F-8.6, Rear Wheel Traction Loss;
F-8.7, Destination Driving Activity.

Fact Sheet:

F-8.5, Traction Loss
F-8.6, Traction Concerns;
F-8.7, Detecting Traction Loss;
F-8.8, Responding to Front Wheel Traction Loss;
F-8.9, Responding to Rear Wheel Traction Loss;

Optional Resources:

Video: “Get a Grip,” Goodyear/ADTSEA;
Video: “Get Ready, Get Set, Go In Snow,” AAA video production;
“Drive Right” Ch. 12, 17;
“Handbook Plus” Ch. 18;
“How To Drive” Ch. 8, 11;
“License To Drive” Ch. 18;
“Responsible Driving” Ch. 11.

Assessment:

MA-8.1, Driving in Adverse Conditions.
Module Eight Prerequisites:
Module Six completion

Topic Title: Parent Supplement

Needed Resources

<table>
<thead>
<tr>
<th>Instructor Activities</th>
<th>Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review Fact Sheets F-8.1, F-8.2, F-8.3, F-8.4, F-8.5, F-8.6, F-8.7, and F-8.8</td>
<td>Multiphase course (40 hrs)</td>
</tr>
</tbody>
</table>

Optional Resources Available:
- Video, “Night Driving”
- Video, “Driving in Bad Weather”
- Video, “Reducing Your Risks in the Crash”
- Video, “Teaching Your Teens to Drive. Part 1, 13”
- Video, “Making Safer Roads”
- Video, “New Vehicle Technology”
- Video, “Get A Grip”
- Video, “Get Ready, Get Set, Go in the Snow”
- “Drive Right” Ch.5, 12, 13
- “How to Drive” Ch. 1, 3, 9
- “Handbook Plus” Ch. 9, 11,13
- “License To Drive” Ch. 6, 14,15, 16
- “Responsible Driving” Ch. 7, 11, 12, 14.

In-car Lesson BTW-8.1

Destination Driving Project and Self-Assessment
Module Six—Information Processing: Complex Risk Environments. The student applies risk reducing strategies to utilize multiple lane roadways at speeds up to 70 miles per hour in complex risk environments including expressways.
Texas Essential Knowledge and Skills: § 110.42. English I (b) (4) The student uses writing as a tool for learning. (B) to discover, organize, and support what is known and what needs to be learned. (14) The student listens attentively for a variety of purposes. (A) focus attention on speaker's message.
Prerequisites: Classroom Module Eight and BTW-7.2

Learning Goals: Student will relate the reasons for speed and lane position changes in complex traffic situations and demonstrate passing techniques on multiple lane roadways.

Performances: During this session the student will demonstrate reduced-risk speed and position adjustments in complex traffic situations during planned exercises involving speed control, steering control, lane position, lane changing, lane selection, intersecting, following, being followed, traffic flow adjustments, oncoming traffic, merging, and entering and exiting from parking space. Commentary driving is used for determining proper speed and position adjustment.

Assessment: Self-assessment of commentary driving regarding reasons for changing speed or lane position. Teacher assessment of precision in completion of each task listed and driver decisions regarding speed and lane position changes. Student self-assessment of skills will be placed in portfolio.

<table>
<thead>
<tr>
<th>Instructor Activities</th>
<th>Ref</th>
<th>Student Activities</th>
<th>Materials Needed or Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Review on-street route for changes or obstructions.</td>
<td>Mod 8</td>
<td>Group activity segment</td>
<td>Rear Seat Driver</td>
</tr>
<tr>
<td>• Review objectives and commentary driving for lesson with drivers.</td>
<td>Mod 1</td>
<td>• Review objectives, show permit, ask questions regarding lesson activities.</td>
<td>• Shows permit at the start of lesson.</td>
</tr>
<tr>
<td>• Prepare vehicle for lesson.</td>
<td>Mod 8</td>
<td>Session activity</td>
<td>• Listens to review of procedures and commentary concepts.</td>
</tr>
<tr>
<td>• Evaluate pre-start, start, and moving from curb procedures.</td>
<td>Mod 8</td>
<td>• 1st driver performs pre-start, starting, and moving from curb procedures.</td>
<td>• Asks questions regarding procedures.</td>
</tr>
<tr>
<td>• Review speed and position adjustment procedures with driver.</td>
<td>Mod 8</td>
<td>• Enters traffic flow with smooth and precise movements from curb.</td>
<td>• Verbally performs zone control procedures for driver and instructor.</td>
</tr>
<tr>
<td>• Review procedures and need for precision in performing task in complex traffic flow.</td>
<td>Mod 2</td>
<td>• Reviews zone control process.</td>
<td>• Completes student evaluation of changes in zones/spaces and marks changes in speed/position.</td>
</tr>
<tr>
<td>• Involve driver in a minimum of 3 speed control, steering control, lane position, lane changing, lane selection, intersecting, following, being followed, traffic flow adjustments, oncoming traffic, merging, and parking entry/exit for evaluation.</td>
<td>Mod 8</td>
<td>• Responds vocally to open and closed zones and changes to speed and position.</td>
<td>• Prepares for driving sequence.</td>
</tr>
<tr>
<td>• Evaluate speed and space changes in response to passing another vehicle.</td>
<td>Asses on Student Record Card.</td>
<td>• Performs 3 steering control.</td>
<td>Rear Driver Activities</td>
</tr>
<tr>
<td>• Evaluate stopping, securing procedures.</td>
<td></td>
<td>• Performs 3 lane position.</td>
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<tr>
<td>Repeat tasks with next driver.</td>
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<td>• Performs 3 lane changes.</td>
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<td>• Performs 3 lane selection.</td>
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<td>• Performs 3 lane changing.</td>
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<td>• Performs 3 lane selection.</td>
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<td>• Performs 3 lane changing.</td>
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<tr>
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<td>• Performs 3 lane selection.</td>
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<td>• Performs 3 intersecting.</td>
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<td>• Performs 3 following.</td>
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<td>• Performs 3 being followed.</td>
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<td>• Performs 3 flow adjustment.</td>
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<td>• Performs 3 oncoming traffic.</td>
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<td>• Performs 3 merges.</td>
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<td>• Performs 3 park entries.</td>
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<td>• Performs 3 park exits.</td>
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<td>• Performs speed and position changes while passing another vehicle.</td>
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<td>• Performs stopping, securing procedures.</td>
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<td>• Assesses tasks performed.</td>
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</tbody>
</table>
PASSING TECHNIQUES

Open/Closed/Changing Space Areas

Position Changes

Precision Task Concerns

steering control
- hand position
- stability
- balance

being followed
- space control
- mirrors
- speed

speed and position changes
- accuracy
- timing
- communication

lane position
- consistency
- selection
- balance

traffic flow adjustments
- speed control
- space management
- communication

starting/stopping/securing procedures
- accuracy
- timing
- communication

lane changes
- procedure
- communication
- smoothness

oncoming traffic
- lane position
- space management
- communication

vision
- sightline/travelpath
- head checks
- mirror checks
- scanning

lane selection
- timing
- response to zone
- accuracy

intersecting
- approach
- communication
- speed

following
- space
- speed
- adjustments

passing
- timing
- communication
- speed control

Rear Seat Tally Sheet

<table>
<thead>
<tr>
<th>Areas</th>
<th>Front</th>
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<th>Rear</th>
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</thead>
<tbody>
<tr>
<td>Speed Changes</td>
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<tr>
<td>Position Changes</td>
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</table>
Module 8 Recommended Simulation Laboratory Session

**Suggested Titles:**
- “Evasive Action Skills” ... DORON Video or Laserdisc
- “Handling Weather Conditions” ... DORON Video or Laserdisc
- “Avoiding Collisions” ... SSI Safe Driver Training Series
- “Testing Driver Performance II” ... SSI Safe Driver Training Series

**Learning Goals:** The simulation student demonstrates comprehension of speed control and vehicle positioning in lane which will increase student's ability to position vehicle for complex risk vehicle maneuvers.

**Performances:** Performances are based on simulation video used for this section. Demonstrate the correct position for vehicle control.

**Assessment:** Instructor assessment of speed, positions, and techniques on the district on-street records form. Student assessment of simulation activities may be added to the student portfolio.

<table>
<thead>
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