



XII. Adverse Driving Conditions

1. Driving At Night
2. Visibility
 - Glare
 - Fog, Smoke, Rain, Snow

Lessons and Hints to Work With
Your New Teen Driver
Part 12



Be Ready, Be Safe, Be Responsible

ADVERSE CONDITIONS THAT AFFECT SAFE DRIVING

Controlling What You Have No Control Over

DO have control over

- Decisions that you can make to reduce the risk:
 - Be aware of changing conditions
 - Postpone, cancel trip
 - Leave earlier
 - Change route
- Be prepared for increased risk
- Vehicle condition **pre-check** (II. Pre-Entry Procedures (PPT.))
 - tires, lights, wipers, fluid, fuel
 - potential for delays, stuck in traffic, etc.

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LESSON BENEFITS

- These lessons will allow you to become aware of the effects that changing environmental conditions have on you, your vehicle, and the countermeasures and approach that you should take when driving in these conditions.
- You can't change the weather conditions or time of day, but you can reduce risk by adapting your driving to them.

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OBJECTIVES

Visibility

TO:

- ▶ **Demonstrate a knowledge of the problems associated with reduced visibility such as driving at night, in fog, in rain, snow, smoke and glare conditions.**

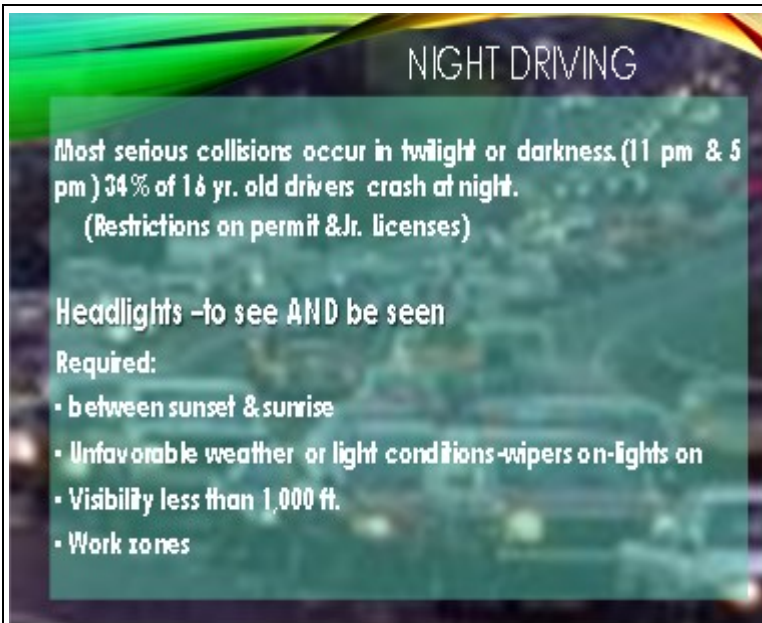
To make the students aware of what constitutes adverse conditions;

To inform the students of the risks created by low visibility at night;

To show the students what constitutes low visibility and how it creates adverse driving conditions;

To show the students that reduced visibility can be caused by weather, the highway environment, other traffic, and one's own vehicle;

To increase the students' knowledge and skill for addressing the problems associated with low visibility;



NIGHT DRIVING

Most serious collisions occur in twilight or darkness. (11 pm & 5 pm) 34% of 16 yr. old drivers crash at night.
(Restrictions on permit & Jr. licenses)

Headlights –to see AND be seen

Required:

- between sunset & sunrise
- Unfavorable weather or light conditions-wipers on-lights on
- Visibility less than 1,000 ft.
- Work zones

Night Driving
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Reduced visibility increases the risk of a collision. Death rates at night are two and one-half times greater in rural areas and three times greater in urban areas when compared to daylight death rates.

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Unfavorable weather or light conditions-
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Work zones



NIGHT DRIVING

- Distance you can see ahead is limited
- Headlights provide limited illumination of off-road areas
- Loss of contrast and impaired distance judgment
- Glare from lights of oncoming and following vehicles and glare recovery time

Night Driving
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At night, high beams allow for approximately 500 feet of visual acuity when the vehicle is not moving and low beams allow for approximately 150 feet of visual acuity. When the vehicle is moving at approximately 30 mph, visual acuity on low beams drops to approximately 90 feet.



**CONDITIONS OF VISIBILITY
NIGHT DRIVING**

- Driving at night is more dangerous because-
 1. Vision is severely limited at night (90% of reactions depend on vision)
- Color vision, depth and distance perception are all reduced.
 - Difficult to make safe gap judgments because landmarks and references aren't visible.
 - Difficult to see pedestrians and bicyclists
 - Look for reflection from clothing, reflective tape or reflectors

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At night, a driver can add anywhere from one and one-half to two seconds to their normal reaction time because of low light conditions and the need to focus longer on something before identifying what it is.

The road surface is used as a reference point to assist depth perception. At night, it is difficult to use the road surface as a reference point and speed of closure is difficult to measure when using oncoming headlights or ongoing taillights.

Longer fixation on areas of the environment is needed to acquire and process information.

On unlit roads, the driver needs to glance at the road edges and surfaces to help in positioning the vehicle.

NIGHT DRIVING

Reducing the Effects of Headlight Glare

1. Look toward the opposite side of the road as the car passes.
 - **DO NOT** stare into the headlights
2. Use the Enhanced Mirror Settings and flip the inside rearview for night driving.
3. Keep the windows clean.

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NIGHT DRIVING

Other Precautions

- Wipe all lights clean (50 to 90 percent loss of headlight efficiency due to road grime)
- Reduce speed compared to daytime.
(Light doesn't bend around curves or into dips)
- Increase following distance.
(shorter reaction distance)
- Turn off or dim interior convenience lights
- Proper use of high/low headlight beams
- Use parking lights only when parked

Night Driving

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SOME THINGS TO WATCH FOR...

Reflections	Movement/ Changes in Contrast
<ul style="list-style-type: none"> ▪ Road signs ▪ Lane markings, center line & edge markers ▪ Animal eyes ▪ Metal/glass on the road 	<ul style="list-style-type: none"> ▪ Vehicle driving with lights off ▪ Pedestrian in dark clothes ▪ Dark spot in the road surface-pothole or obstacle

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SOME THINGS TO DO... AND NOT TO DO

Do	Do	Do Not
dim your high beams to oncoming vehicles (500 ft.) and when following vehicles (300ft.)	flash your high beams once to warn oncoming drivers if they do not dim.	Don't "punish" oncoming drivers who don't dim- can blind them and drivers behind them cause collision.

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Do Not

- "punish" oncoming drivers who don't dim- can blind them and drivers behind them cause collision.



- Don't look into oncoming headlights
- Look away to edge of road.

SOME THINGS TO DO... AND NOT TO DO

Do Not "overdrive" your headlights.

Your search area and the area that you react, is limited to how far you can see-

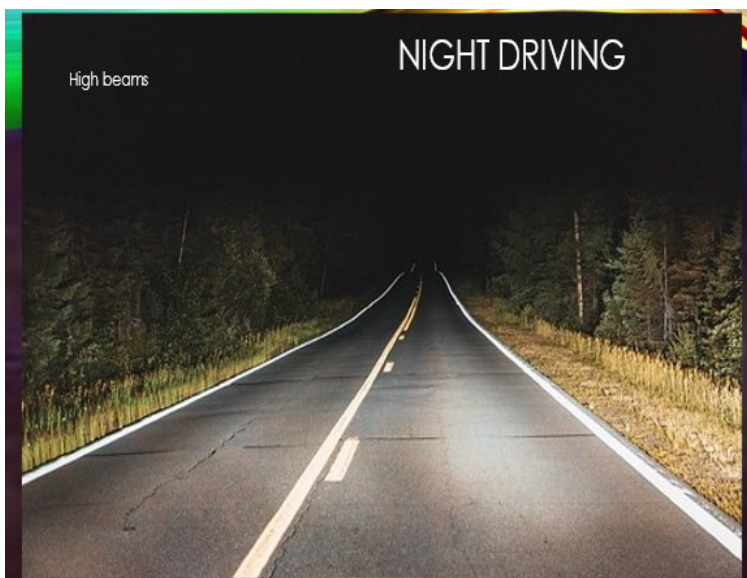
- Visibility of about 255 ft. w/properly aligned low beams - allow for a maximum safe speed of 40-45 mph.
- Visibility of about 300 ft. w/properly aligned high beams allow for a maximum safe speed of 55-60 mph

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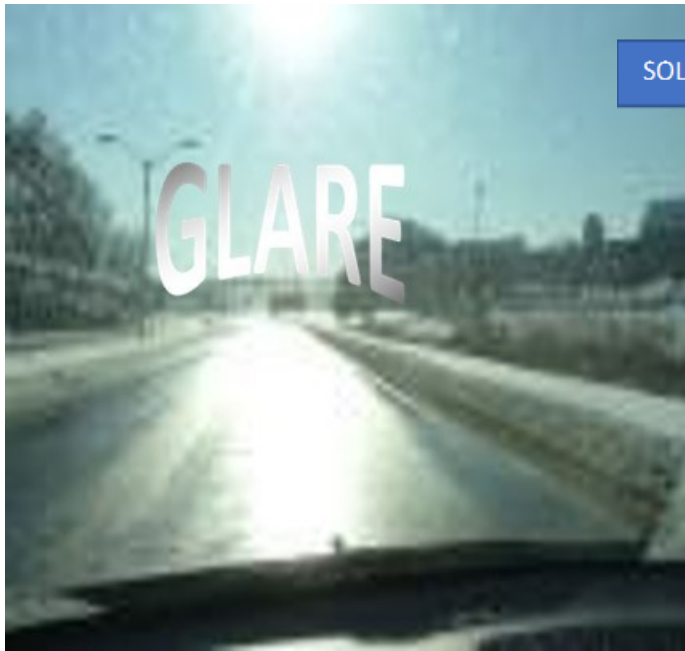
GLARE

How to fight it...

- Clean all windows and lights
- Keep objects off dashboard
- Adjust sun visors
- Adjust mirrors
- Sit high in the seat-use windshield tint
- Wear sunglasses on sunny days-
 - Snow glare
- Adjust speed to visibility conditions



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SOLUTION



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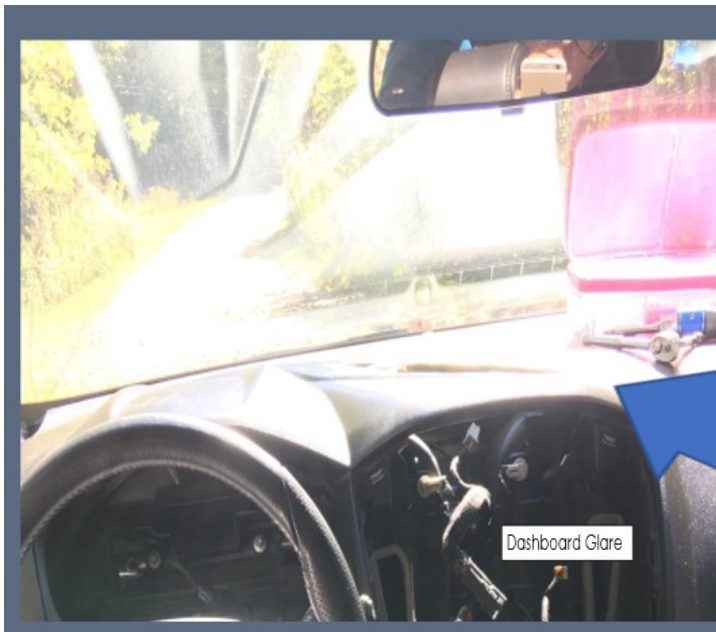


SUNRISE/SUNSET

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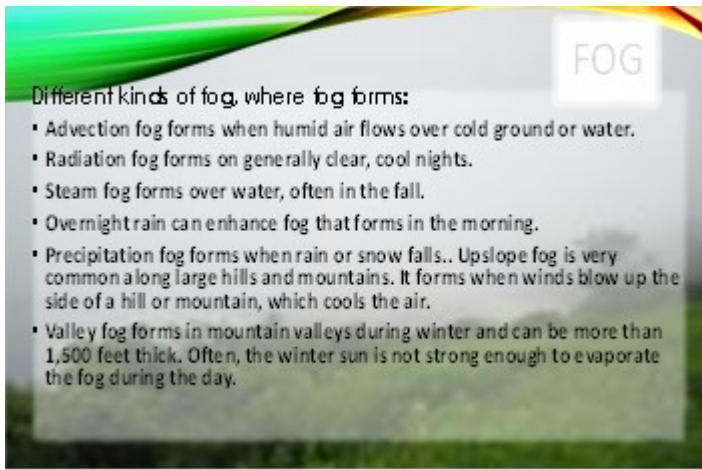
SOLUTION



KEEP DASH CLEAR



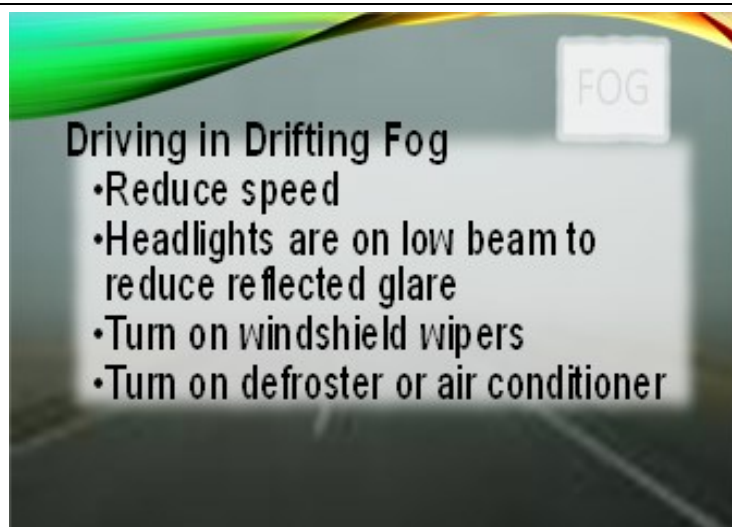
Fog forms when the air cools to a point at which water vapor in it begins to condense into tiny water droplets. The temperature at which water vapor will begin condensing from the air at any particular time is called the "dewpoint".



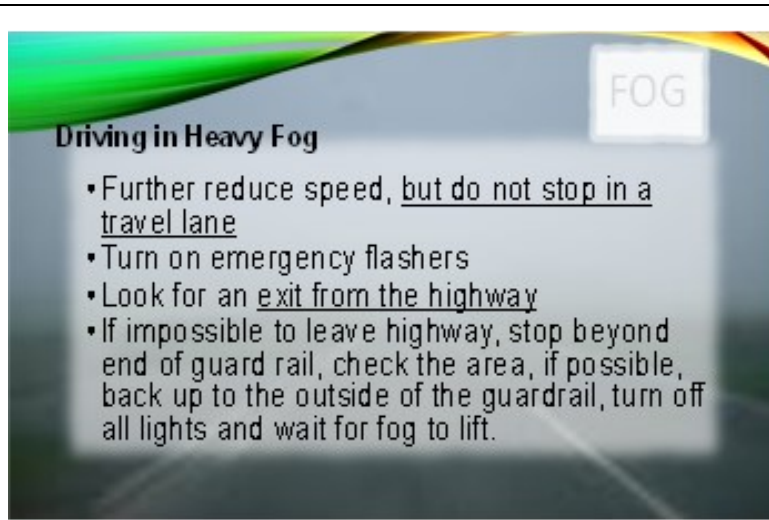
Different kinds of fog, where fog forms:
 Advection fog forms when humid air flows over cold ground or water.
 Radiation fog forms on generally clear, cool nights.
 Steam fog forms over water, often in the fall.
 Overnight rain can enhance fog that forms in the morning.
 Precipitation fog forms when rain or snow falls.



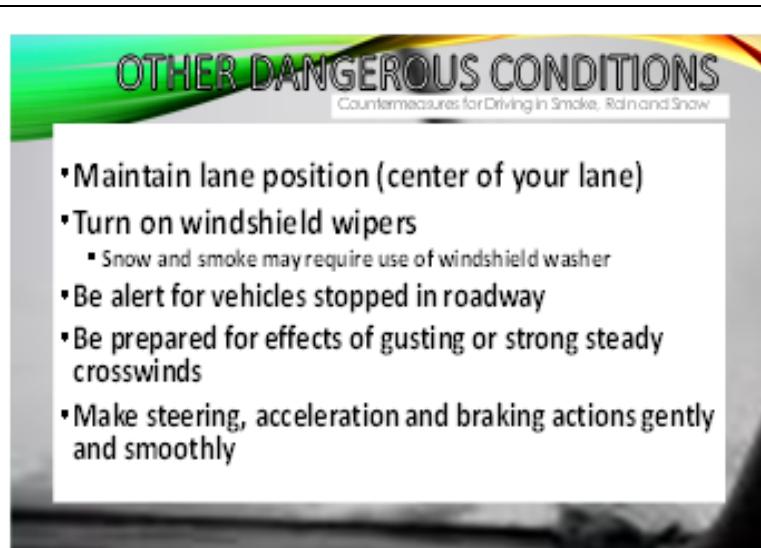
Upslope fog is common along large hills and mountains. It forms when winds blow up the side of a hill or mountain, which cools the air.
 Valley fog forms in mountain valleys during winter and can be more than 1,500 feet thick. Often, the winter sun is not strong enough to evaporate the fog during the day.



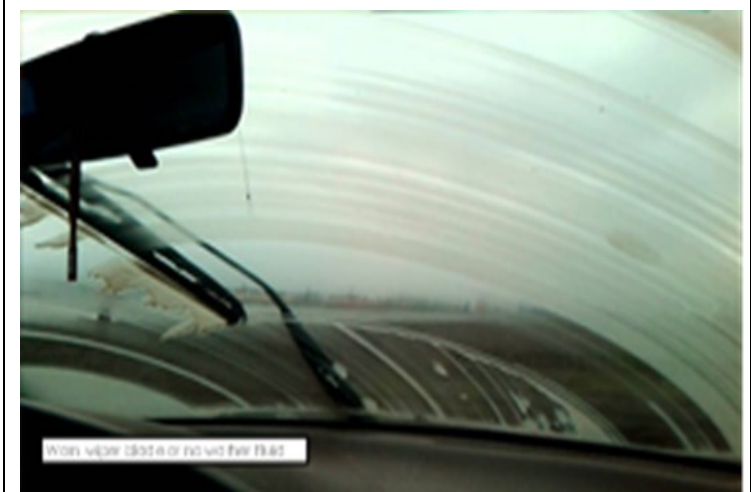
Driving in Drifting Fog
 Reduce speed
 Headlights are on low beam to reduce reflected glare
 Turn on windshield wipers
 Turn on defroster or air conditioner

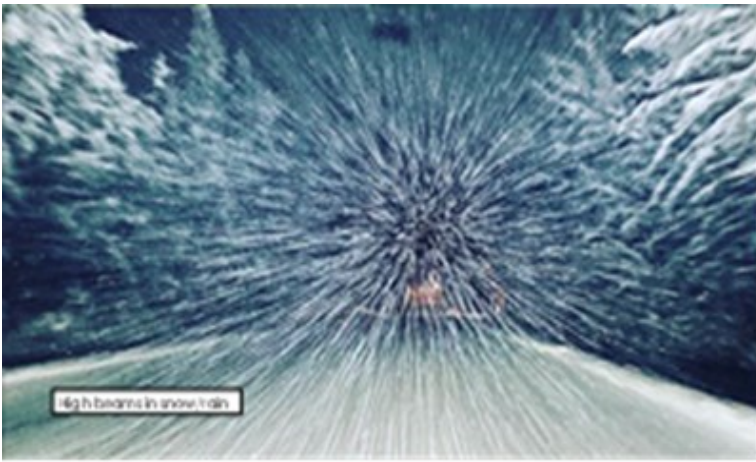


Driving in Heavy Fog
 Further reduce speed, but do not stop in a travel lane
 Turn on emergency flashers
 Look for an exit from the highway
 If impossible to leave highway, stop beyond end of guard rail, check the area, if possible, back up to the outside of the guardrail, turn off all lights and wait for fog to lift.

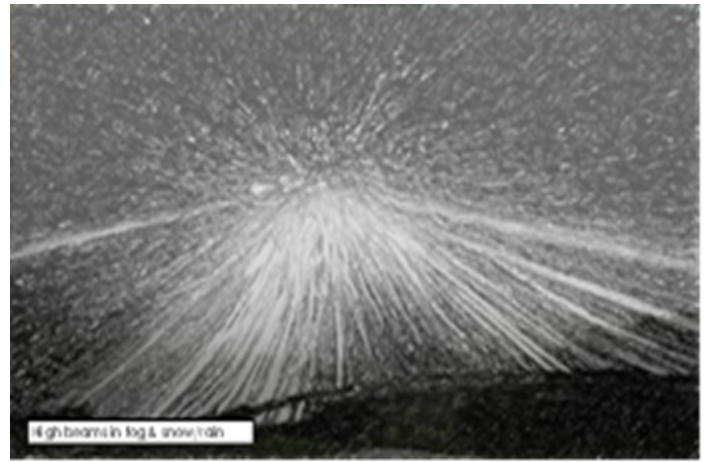


Other Dangerous Conditions
 Maintain lane position (center of your lane)
 Turn on windshield wipers
 Snow and smoke may require use of windshield washer
 Be alert for vehicles stopped in roadway
 Be prepared for effects of gusting or strong steady crosswinds
 Make steering, acceleration and braking actions gently and smoothly

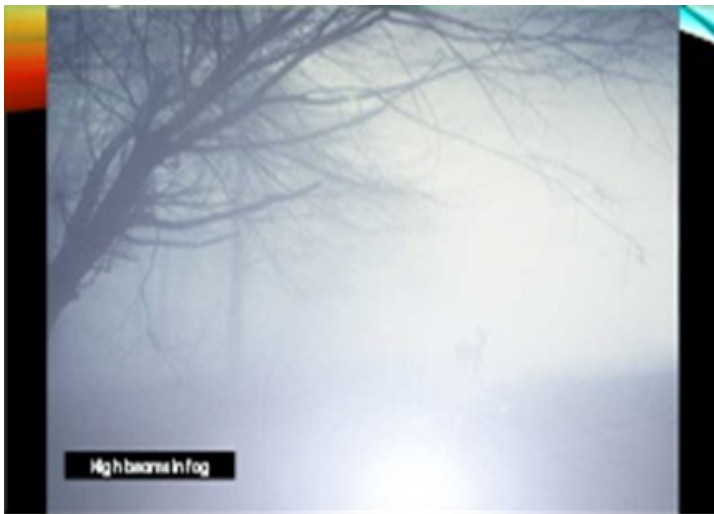




High beams in snow/rain



High beams in fog & snow/rain



High beams in fog



Glare at night in rain

DANGEROUS CONDITIONS
 Countermeasures for Driving in Smoke, Rain and Snow

- Reduce speed to limits imposed by visibility and road conditions, but do not stop in travel lane or on shoulder near road
 - For snow conditions, look for exit from highway and turn on radio for weather report
 - If impossible to leave highway, stop beyond end of guardrail
- Turn headlights to low beams
- Turn on emergency flashers

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