



Know Your Vehicle: Basic Operation, Starting Procedures, Stopping, & Steering

# Session Goals

1. Demonstrate familiarity with the location and navigation of owner's manuals regarding functions and operations of instruments in the vehicle.
2. Learn and demonstrate the importance of legal and safe starting, stopping and turning maneuvers.
3. Demonstrate and explain the importance of appropriate driving space and following distance to help ensure safe driving in all conditions.

# Key Vocabulary and Topics

- Accelerator pedal
- Air bags
- Area around the vehicle
- Body position
- Brake pedal
- Cruise/speed control
- Cover brake
- Enhanced mirror settings
- Gear selector lever
- Hazard flasher
- Owner's manual
- Parking brake
- Pre-drive procedures
- Pre-entry checks
- Temperature controls
- Odometer
- Fuel gauge
- Speedometer
- Occupant restraints
- Passive/active restraints
- Head rest
- Turn signals
- Trunk release

# Key Vocabulary and Topics cont.

- Fuel cap release
- Visual reference point
- Windshield wipers and washers
- Hazards/emergency flashers
- Head restraint
- Headlights (high and low beams)
- Hood release
- Ignition switch
- Instrument panel
- Key fob
- Mirrors/mirror settings
- Operating vehicles control devices
- Creep vs Inch vs Roll
- Blind spots and reference points
- SMOG - Signal, Mirror, Over the Shoulder, Go
- Safety, communication, comfort and convenience devices
- Dashboard icons and symbols
- Air condition control
- Air vents
- Back up lights
- Intermittent wipers
- 4 L's of Exiting: Look, Lever, Look, Leave

# Key Information from Owner's Manual

1. Initial vehicle set up
2. How to check vehicle fluids
3. Tips for better driving practices (Optimizing gas mileage)
4. How to troubleshoot common problems
5. How to clean vehicle surfaces
6. Vehicle specifications (tire size, oil type)
7. What does this “button” do?
8. Dashboard light recognition
9. What the warranty covers

# Recognizing Symbols and Dashboard Warning Lights

Though dashboard warning lights vary from vehicle to vehicle, some common warning symbols and controls are pictured on the following slides.

Why is it important to recognize dashboard warning lights?

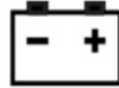
# Recognizing Symbols and Warning Lights



Air Bag Readiness



Anti-Lock Brake System



Battery Charging System



Check Engine



Door Lock/Unlock



Engine Temp Coolant



Fasten Safety Belts



Fuel



Hazard Flashers



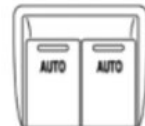
High Beams



Horn



Oil Light



Power Window Controls



Rear Window Defroster



Speed/Cruise Control



Tire Pressure Warning



Windshield Defroster



Stability Control System



Windshield Washer



Windshield Wipers

# Warning Light Recognition Activity

Explain the importance of the following warning lights

- Engine temperature
- Oil pressure
- Battery charging light
- Brake warning light
- Check engine light





# Developing Good Driving Habits

Good driving habits, including adequate preparation, are essential to safely and efficiently operating a vehicle.

What might you do to prepare yourself, your vehicle, and your passengers before driving?

What potential consequences could result if the driver, vehicle, or passengers are not prepared to drive?

# Pre-Driving Check Activity

- Working in pairs, draft a pre-drive checklist
  - Checklists should cover preparation for both the vehicle and the driver
  - Be prepared to discuss pre-drive checklists as a group

# As You Approach Your Vehicle

Name some actions you can perform that will keep you safe before you even get in the vehicle.

What might you check on the outside of your vehicle?

# Before You Start to Drive

Let's brainstorm and list some things we need to do before putting the car in drive.

# Adjusting the Vehicle

What adjustments can be made to better match the fit between you and your vehicle?

- Seat position/head restraint
- Steering wheel
- Mirrors
- Seat belt

# Body Position

How should the driver's body be positioned, relative to the vehicle controls? Indicate if the following statement is true or false



- T Have good posture and sit up straight in the seat.
- T Your legs should comfortably reach all the pedals. Don't drive cramped...and certainly don't sit so far away from the pedals that you have stretch to reach them.
- T Your arms should be outreached to the steering wheel with a slight bend—not locked straight, nor too cramped. 10-12 inches is about right.

# Adjusting the Head Restraint

- Adjust the top of the head restraint so it is level with the top of your head. This will protect you from whiplash injury should you crash.
- [See How to Save Your Neck in a Rear-End Crash](#)

Consumer reports



# Steering Wheel-Hand Position

- Hand position-check for thumb tabs
- Check for ability to reach secondary controls and pedals





# Adjusting the Steering Wheel/Column

- Some cars even allow for the steering wheel to push into or away from the dash (telescopic). Consult your owner's manual for this adjustment.



# Adjusting the Seat Belts

Using your seat belt is the single most effective way to protect yourself in the event of a crash.

- The lap belt and shoulder belt should be secured across the pelvis and rib cage, which is better able to withstand crash forces than other parts of the body.
- Place the shoulder belt across the middle of the chest and away from the neck.
- The lap belt should rest across the hips, not the stomach.
- NEVER put the shoulder belt behind the back or under the arm.

# Seat Belt Height Adjustment

- The shoulder harness can be adjusted for better fit by adjusting the anchor height above the driver's left shoulder.
- Check your owner's manual for further information

# Mirror Settings

- It is important know how to adjust your mirrors, what can and can't be seen in them, where your blind spots are.
- Let's review different strategies for setting your mirrors as well as the associated advantages and disadvantages.

## [Strategies for Setting Your Mirrors](#)

*Oregon Driver Risk Prevention Curriculum Playbook.*  
Oregon Department of Transportation



# Adjusting Rearview Mirror

- Adjust the rearview mirror so you can see out the entire rear window.
- Do not move your head to see the mirror, but instead just glance between the front window and the rearview mirror.



# Know Where Important Controls are Located

- Door locks
- Window controls
- Mirror adjustments
- Windshield wipers
- Headlights
- Emergency hazards
- Hood release
- Trunk release
- Fuel door release



# Starting the Engine

- Check the gear shifter to ensure it is in (P)Park or (N)Neutral
- Place your foot on the brake pedal
- Turn the ignition key or press the Start button
- Stop turning the key/pressing the Start button as soon as the engine starts
- Check all your gauges to make sure there are no warning lights
- Turn on your day-time running lights/low beam headlights
- With foot still on brake, shift the car into (D)Drive. When you release the brake, the car will move (idling).

# Steering Techniques

Three steering techniques:

- Hand-over-hand steering
- Hand-to-hand steering
- One-hand steering

Keep your thumbs poised on the outside of the wheel rather than a full, tight grip. Just relax.



# Hand-Over-Hand Steering

- Grasp the steering wheel with your right hand at 3 o'clock and your left hand at 9 o'clock
- Use the opposite hand of the turning direction to start the turn
- One hand pushes the steering wheel up, past the 12 o'clock position, while the other hand reaches up to the 12 o'clock position, and pulls down towards 9 or 3 o'clock rotating the wheel in this fashion for the degree of turning needed.
- Hence called "hand-over-hand", H-O-H technique.



Used with permission from National Highway Traffic Safety Association. *Using Efficient Steering Techniques.*

# Hand-to-Hand Steering

- This is another steering method that may be used for making turns
- Starting at the 9 & 3 position on the wheel, one hand pushes up on the steering wheel to the 12 o'clock position while the other hand slides to the top and then pulls the wheel down, repeating the action until the turn is complete
- This is something called “feeding” the wheel or “H-T-H” hand to hand steering technique. Both hands are always employed in the steering and wrists never cross.
- Try testing both H-O-H or H-T-H to see which technique works best for you



Used with permission from National Highway Traffic Safety Association. *Using Efficient Steering Techniques.*

# One-Handed Steering

- Why isn't One-Handed Steering recommended to use when driving?
- One-handed steering is only recommended when you are backing up.
- Steering with just your palm on the wheel is dangerous as your hand may slip from the wheel.



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# Steering Wheel Grip

There is no need for a death grip on your steering wheel. Comfortably, grip your steering wheel at the 9 & 3 position, or the 8 & 4 position. Do what is more comfortable for you, the driver.

A tense driver is not a safe driver. Be relaxed – don't lock your elbows, but instead have a slight bend in your outreached arms.



Used with permission from National Highway Traffic Safety Association. Using Efficient Steering Techniques.

# Steering Errors

A substantial percentage of crashes involving 16-year old drivers result from failure to make improper evasive steering.

Of the three controls a driver has when driving after, (accelerating, braking and steering) steering is the “primary function”.

- What steering errors could drivers commit?
- What could be the results of such errors?

# Operating Foot Pedals

Tips for operating the accelerator and brake pedals smoothly:

- Wear good shoes (No flip flops!)
- Rest the heel of your right foot on the floor in front of the brake pedal
- Pivot on your heel, so that your foot alternates between the accelerator and brake
- Make sure you can press the brake fully without toes slipping off the pedals



# Accelerating the Vehicle

Accelerating the vehicle takes practice as there are a range of accelerations that you'll need to master to be a great driver.



# Braking and Decelerating

Like acceleration, braking requires practice to perform smooth and precise braking.





# Occupant Protection-Vehicle Integrity

How do these safety features help protect you?

- Seat belts – shoulder belt and lap belt
- Head restraints – adjustable vs stationary
- Air bags – side and frontal protection, other types
- Collapsible steering column and padded dash
- Driver compartment crumple zones

# Communication and Visibility Features

These are considered secondary controls:

- Horn
- Turn Signals
- Hazard flashers
- Windshield wipers and washers
- Headlights

**Can you list any others?**



# Tips on Using the Primary and Secondary Controls

- Gear selector – Don't get ahead of yourself – always check which gear you are in
- Accelerator pedal – Understand that once you reach cruising speed light pressure is only needed to maintain speed
- Brake pedal – Braking is used to slow down the vehicle, but the driver's foot should not rest on the pedal; This gives off false messages to following drivers by way of activating the brake lights.
- Clutch pedal – In manual shift vehicle the driver must use this to switch gears and hold the vehicle on a hill. Don't stop too close to the vehicle in front of you as the vehicle may roll backwards.

# Tips on Using the Primary and Secondary Controls

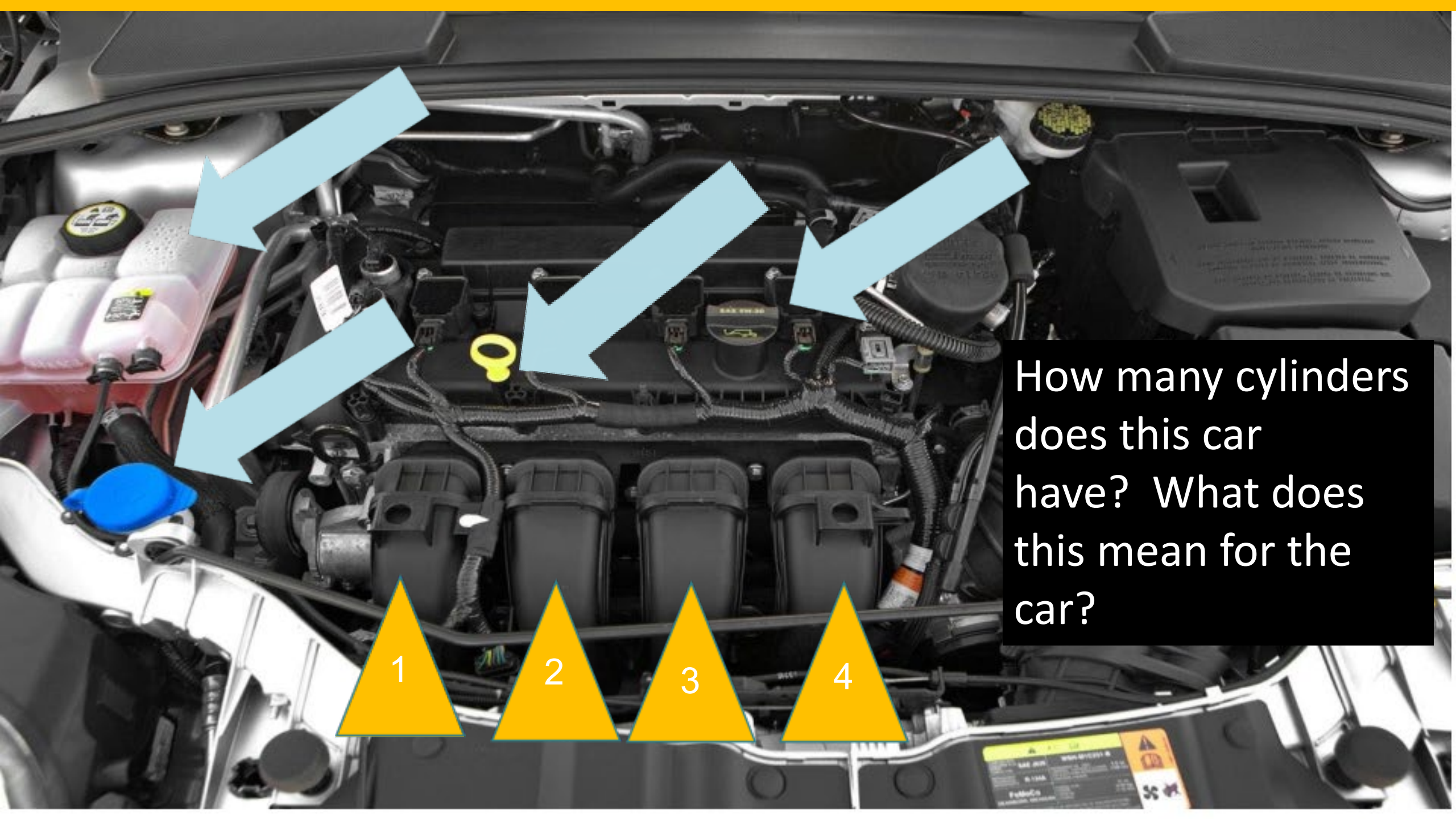
- Parking brake - When to use? Always when on hills in addition to curbing your front wheels.
- Cruise/speed control - On long drives that cover straight flat roads this can help reduce foot/leg fatigue. Identify when and when not to use cruise control.
- Special technology is being developed to help identify lane drifting, following distance and other controls. Which ones are in your vehicle?

# Checking Under the Hood

Knowing what to check to make sure your vehicle can operate properly is important. Perform checks at least once a month or have a mechanic help you. We will discuss this further in one of the later sessions.

# Checking Under the Hood-Check List

- Battery (clean terminals and charge level)
- Engine coolant reservoir (radiator fluid level)
- Windshield washer fluid reservoir
- Power steering fluid reservoir
- Drive belts (tension and cracking)
- Engine oil dipstick (Oil level)
- Transmission fluid dipstick (automatic transmission only)
- Brake fluid reservoir
- Air filter assembly



How many cylinders does this car have? What does this mean for the car?

- 1
- 2
- 3
- 4

# References

- Used with permission from Western Oregon University. *Oregon Driver Risk Prevention Curriculum Playbook*. Oregon Department of Transportation.
- Consumer reports. *How to Save your Neck in a Rear-End Crash*.