Module 2 Lesson Plan

Preparing to Operate a Vehicle

Content

Essential Knowledge and Skills 2—5

- Approaching, Entering, and Adjusting Vehicle Tasks
- Locating and Operating Vehicle Control Devices
- Location, Operation, and Function of Safety, Communication, Comfort and Convenience Devices
- Identify Instrument Panel Content
- Securing and Exiting the Vehicle
- Assignment
- Assessment

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Module 2—Preparing to Operate a Vehicle

Lesson Objective: The student will describe and demonstrate procedures for: approaching, entering, and adjusting vehicle tasks; locating and operating vehicle control devices; locating and operating communication, comfort and convenience devices; identifying instrument panel content; securing and exiting the vehicle.

Instructional Topic	Content	Slide
APPROACHING, ENTERING, AND ADJUSTING VEHICLE TASKS	Introduce, model, practice and discuss	
	Awareness of oncoming traffic	T 2-0
	• From curbside approach from front of vehicle	
	• In parking lot approach from rear	T 2-1
	Upon arrival	
◆ Approaching	• With keys in hand, walk around and check:	T 2-2
	... objects in your path	
	... small children or pets near vehicle	
	fluid leaks	
	... tire inflation/direction tires facing	
	... body damage	
	... lights are clean	
	... inside for unwanted passengers	
	• Store valuables, packages, books in the trunk	T 2-3
◆ Entering	Check traffic, unlock, open door and enter quickly	
	• Check door swing	T 2-4
	• Lock all doors	
	... review automatic, manual, child safety locks	
	... check passengers for safe entry	
	• Place key in the ignition—right side of steering column	
	... some keys are different for trunk/door lock and ignition switch	
◆ Adjusting Seat	Introduce, model, practice and discuss	
	Seat adjustments usually located at lower front or left side of driver's seat	
	• Manual lever adjustment usually at lower front	
	• Electronic adjustments usually left side of driver's seat or to left on door panel	T 2-5
	• Seat back adjustment to the left near junction of backrest to seat	

Student Learning Activities	Resources

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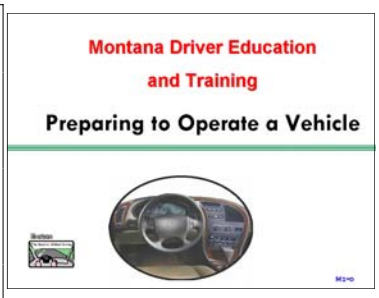

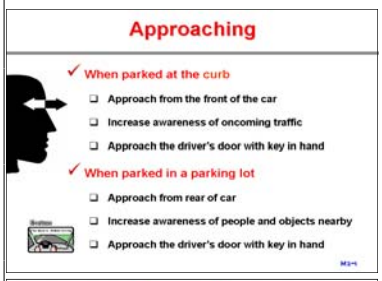

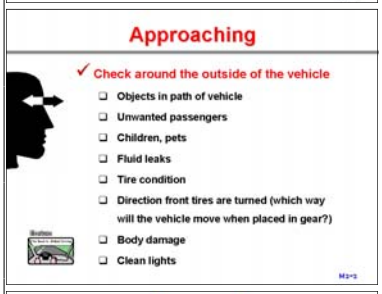

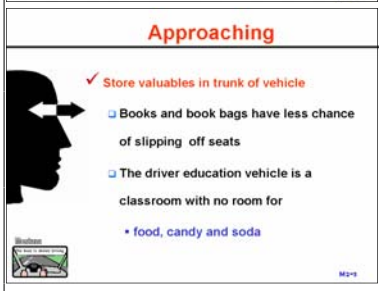

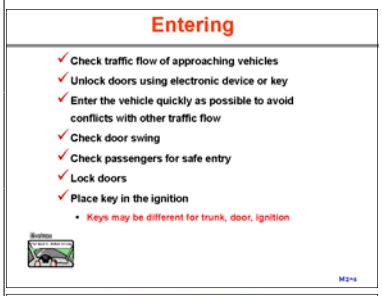

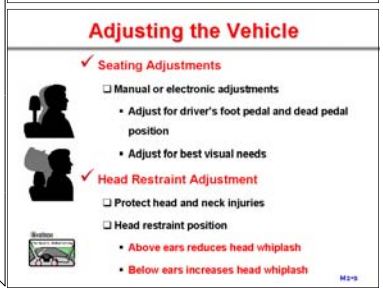

Instructional Topic	Content	Slide
◆ Adjusting Seat (Cont.)	• Adjust for comfortable position ... back and shoulders against the back of seat • Knees slightly bent • Right heel rests on floorboard between brake and accelerator for ease of pivoting foot as needed • Left foot rests on "dead pedal" ... flat floorboard area to the left of the service brake ... establishes seating balance as legs help form triangle with seat • Sit high enough to have top of steering wheel between shoulders and chin • Use secured seat cushion if needed	
◆ Adjusting Head Restraint	Top of restraint reaches top of ears • Protect against head and neck injuries • Settings below ear level can lead to severe neck whiplash injuries in crash	
◆ Adjusting Steering Wheel	Adjust so you are at least 10 inches from the steering wheel hub • Hand position is dictated by airbag, steering wheel, and balanced steering inputs • Angle adjustment with lever on left (or right side in some vehicles) • In some vehicles the steering column can adjust • In some vehicles a height adjustment lever is below the steering column • Extend arms over steering wheel to where fingers bend over wheel for arm position adjustment from steering wheel and airbag • Hands drop balanced position based on steering wheel position grips and airbag ... grip positions are usually at 9-3 or 8-4 on airbag equipped modern vehicles ... 10, 2, or 6 positions are dangerous when airbags are deployed due to venting hot gasses after deployment ... 11, 12, or 1 hand positions are dangerous due to hand being thrust into face during air bag deployment	T 2-6
◆ Adjusting Rearview and Sideview Mirrors	Power or Manual Control • Electronic buttons/levers permit adjustment up, down, in, or out for sideview mirrors • Manual requires physically adjusting the rearview and sideview mirrors • Check rearview mirror lower button/lever and pull it forward for daytime settings • Pushing button/lever will provide night glare reduction setting • Provides the widest field of view and important information about traffic to the rear ... show as much of the rear window as possible	T 2-7

Student Learning Activities	Resources

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Instructional Topic	Content	Slide
◆ Adjusting Rearview and Sideview Mirrors	Traditional mirror setting • Rearview mirror is adjusted to see an area that is 200 feet to the rear of the vehicle and the complete rear window • Each sideview mirror is adjusted to see the edge of the vehicle and an area 200 feet to the rear • Each sideview mirror provides a field of view of about one-half that of the rearview mirror and a slight amount of each side of the vehicle • Able to perform mirror check without moving head • To check the mirror blind zones to the side ... drivers look to the right into an area not visible in right sideview mirror to the right of vehicle ... drivers look to the left into an area not visible in left sideview mirror to the left of vehicle	T 2-8 T 2-9
	Blind Zone Glare Elimination (BGE) setting (Enhanced Setting) Recommended by George Pfatzer, Engineer, Society of Automotive Engineers (SAE, 1996). Due to increased traffic flows on each side of driver on modern roadways it is difficult to move eyes to check mirror blind zones without losing contact with path of travel • Set left sideview mirror 15 degrees to outside ... position head against window ... adjust mirror to show a slight amount of the left side of the vehicle ... two views are now available for driver — view to side into blind zone to the left — view to rear when pulling from curb by moving head to window • Set right sideview mirror 15 degrees to outside ... position head in center of vehicle in line with rearview mirror ... adjust mirror to show a slight amount of the right side of the vehicle ... two views are now available for driver — view to side into blind zone to the right — view to rear when pulling from curb by moving head to center • Mirror views using rearview and sideview in combinations will eliminate mirror blind zones to the right or left • Drivers may still use visual checks when sideview mirrors are clear as drivers will begin to recognize that vehicles in sideview mirrors are to the side and not to the rear of vehicle	T 2-10
◆ Adjusting Seatbelt	Wear both lap and shoulder belts • Seat belts are designed to fit across strong portions of the human anatomy that can withstand the force of a collision. The lap belt goes across the bony pelvic girdle; the shoulder belt goes over collarbone and rib cage.	T 2-11

Student Learning Activities	Resources

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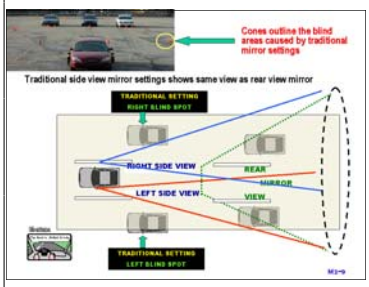

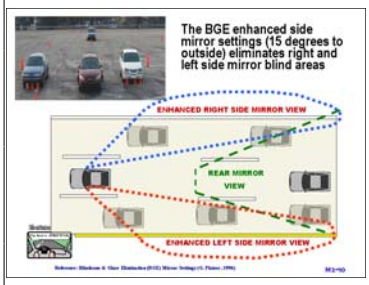

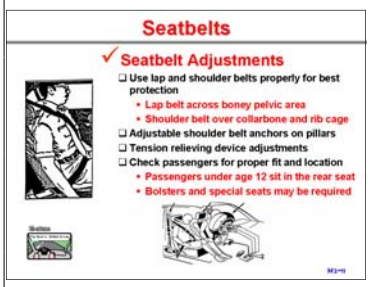

Instructional Topic	Content	Slide
◆ Adjusting Seatbelt (Cont.)	Adjust and Secure Seatbelt • Positioned low and snug across hips • Shoulder strap crosses the collarbone ... fits snugly across your chest ... never slipped behind the back or under the arm • Many new vehicles have adjustable shoulder belt anchors that can be raised or lowered to ensure good fit across collarbone rather than neck • Some vehicles have a tension-relieving device that should be adjusted to remove slack • After fastening, pull upward on lap belt to remove slack and allow movement • Ensure all passengers are buckled up or placed in appropriate child carrier	
LOCATING AND OPERATING VEHICLE CONTROL DEVICES	Introduce, model, practice and discuss	
◆ Accelerator Pedal	Accelerator pedal is suspended from the firewall on the right side of the driver's position • Speed is controlled by adjusting pressure on the pedal with heel resting on floor ... To operate, pivot the foot and use the ball of the foot to apply pressure	T 2-12
◆ Brake Pedal	Brake pedal is located left of the accelerator pedal • Vehicle slowed by applying downward pressure with ball of foot, heel on the floor; use force of ankle and toes • Amount vehicle slows depends upon how rapidly pressure is applied and the friction between the tires and the road surface	
◆ Clutch Pedal (if equipped)	Clutch pedal located to the left of the foot brake pedal; push down to shift gears. • Clutch pedal is used with manual transmission only • Keep heel down, find friction point, and flex ankle for smooth shifting	T 2-13
◆ Parking Brake	Parking brake holds vehicle in place while parked • Foot-operated parking brake: ... to set, push firmly on the pedal ... to release, either push down until a click is heard, then release the brake ... or a lever may be located above the foot brake, pull to release • Hand-operated parking brake may be located on a center console, on the floor, or under dash to the right of the steering column ... to set, pull back on the handle ... to release, press thumb down on the button on the top of lever and lower it • Should be set prior to placing the shifter into Park gear and released after placing shifter in the appropriate gear before movement	

Student Learning Activities	Resources

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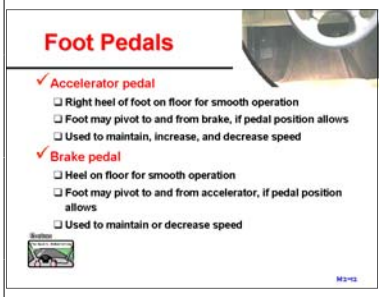
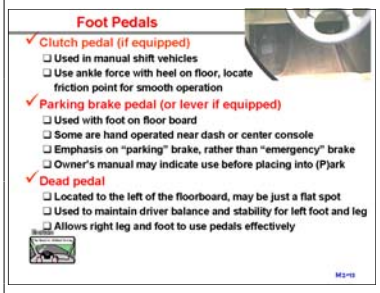
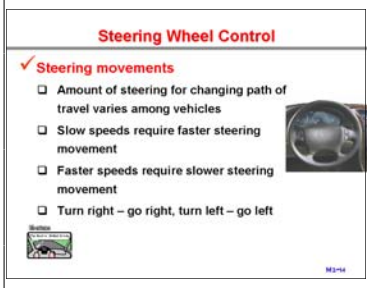




Instructional Topic	Content	Slide
◆ Dead Pedal	Dead Pedal • Located to left of floorboard, may be just a flat spot • Used to maintain driver balance and stability for left foot and leg • Allows right leg and foot to use pedals effectively	
◆ Steering Wheel	Steering wheel controls the direction of the front wheels • Amount of steering input and energy needed will vary according to the type of steering, number of turns lock-to-lock, power assistance; and speed of travel • In general, slower speeds require faster steering input; faster speeds require less steering movements • Turn right to move the vehicle to the right when looking to the right • Turn left to move the vehicle to the left when looking to the left • Use the same steering procedure when looking and backing to the right or left	T 2-14
◆ Cruise Control	Cruise control is usually located on the steering column as an optional feature • Allows vehicle to maintain desired speed without using brake or accelerator pedals • Operate by setting speed, then cruise control switch, then set button/switch • Cancel by tapping brake or touching the cruise off button/switch • Should not be engaged in bad weather due to inadvertent acceleration	T 2-15
◆ Gear Selector Lever	Automatic transmission • Lever is located on the steering column or on the center console • Push in the button with the thumb to release and move the selector lever • Lever will slide from Reverse to Drive without button or pullback • Lever will slide into Neutral from Drive without button or pullback Manual transmission • The gear shift lever is located on the floor or console to the right of the driver • In some older vehicles it may be on the right side of the steering column • Requires using the clutch pedal to change gears • Gear pattern is located on shifter or just to side of lever on console	
◆ Ignition Switch	Ignition switch is located on the right side of the steering column near the dashboard or in the dashboard • Enables the driver to start and turn off the engine or use the accessories • Locks the steering wheel and shifting lever • Diesel ignition switch requires waiting for the glow light to go off before starting the engine	

Student Learning Activities	Resources

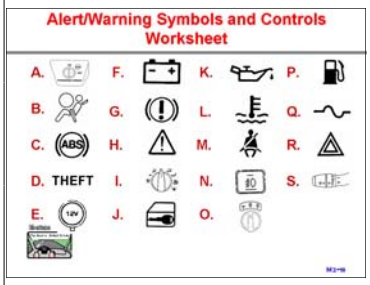


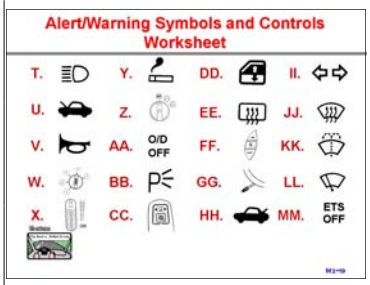
Instructional Topic	Content	Slide
LOCATION AND OPERATION AND FUNCTION OF SAFETY, COMMUNICATION COMFORT AND CONVENIENCE DEVICES	Introduce, model, practice and discuss Turn signal lever is located on left side of steering column • For turns and pulling away from stopped positions ... lever is moved up to signal a movement to the right and down for a movement to the left ... stops flashing when the steering wheel is straight ... may need to cancel manually if the turn is only slightly away from curb, etc. • For lane changes, hook thumb on steering wheel, hold lever up or push down with fingers halfway for signal prior to lane change • During lane change, or if lane change is altered due to problem, release lever to cancel	T 2-16
◆ Turn Signal Lever		
◆ Hazard Flasher	Hazard flasher used to warn others your vehicle may be in the way • Usually on the steering column or instrument panel • When on, both front and rear turn signal lights flash	
◆ Windshield Wipers/ Washers	Wipers/washers can be on the front and rear windows • Front wipers/washers usually located on the turn signal lever or opposing lever on right side of wheel • Rear wiper/washer located on steering column or dashboard • Contains windshield washer control, liquid container is located under the hood • Wiper speed may have variable speed control • Refer to vehicle owner's manual for accurate use and directions	
◆ Lights	Lights controlled usually by a knob or switch located on the left of the dash or a lever on the steering column • Controls headlights, taillights, side marker lights, instrument panel, and license plate ... pull lever toward you or push away to change from low to high beam refer to vehicle owner's manual for accurate use and directions • Newer vehicles may be equipped with daytime running lights ... headlights at a reduced level, the taillights may not be activated ... refer to vehicle owner's manual for accurate use and directions • Dashboard and accessory lights may also be controlled with a separate dimmer switch ... refer to vehicle owner's manual for accurate use and directions • The National Highway Traffic Safety Administration recommends using headlights whenever the vehicle is in motion, making the vehicle more visible to others	
◆ Horn	Horn is usually located on the steering wheel • Typically has a horn symbol to mark the location • Useful as warning device to indicate a danger or problem only	

Student Learning Activities	Resources

Instructional Topic	Content	Slide
◆ Hood Release	Hood release is usually located on the left side under the instrument panel • Pull the lever to release the hood • A second latch under the hood also needs to be released • Often brake release and hood release are confused by drivers be careful	T 2-17
◆ Trunk Release	If equipped, the trunk release is located on the floor to the left of driver, or may be a button in the glove box	
◆ Fuel Door Release	If equipped, the fuel door release can be a lever on floor to the left of the driver's seat or may be located in the glove box	
◆ Sun Visor	Sun visor is located above the windshield — pull down with left hand; push away from head for glare protection	
◆ Heater/ Ventilation/Air Conditioner (HVAC)	Heater/Ventilation/Air Conditioner (HVAC) • Controls are typically located on the instrument panel usually containing temperature control, fan speeds, and location of air flow movement • Ventilation/defroster system keeps windshield and windows moisture free as air is moved through the vehicle • Some vehicles have an optional switch for the rear window defroster • Refer to vehicle owner's manual for accurate use and directions	
IDENTIFY INSTRUMENT PANEL CONTENT	Introduce, model, practice and discuss • Start with worksheet and explanation of alert and warning lights ... Alert lights indicate system is functioning; warning lights indicate system problem	
◆ Instrument Panel	Instrument panel is directly in front of the driver • Location of gauges, controls, alert and warning symbols/lights varies from one vehicle to another • Refer to vehicle owner's manual for accurate use and directions • Instrument panel is usually back-lit at night • Some vehicles have a "rheostat" to regulate the intensity of the light	T 2-18 T 2-19
◆ Speedometer	Speedometer indicates the speed of the vehicle in miles per hour and/or kilometers per hour	T 2-20
◆ Tachometer	Tachometer on some vehicles; indicates engine revolutions per minute • Red zone indicates engine damage area if exceeded	

Student Learning Activities	Resources



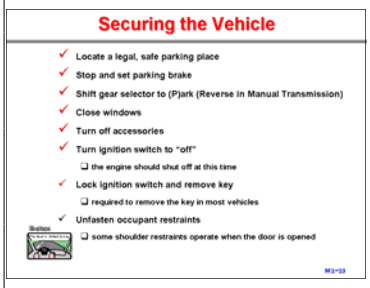


Instructional Topic	Content	Slide
◆ Odometer	Odometer keeps track of total number of miles driven • some vehicles have multiple trip odometers	T 2-20 Cont.
◆ Fuel Gauge	Fuel gauge shows amount of fuel remaining in the fuel tank	
◆ Temperature Light/Gauge	Temperature light or gauge indicates the cooling system function. • A warning light may indicate the engine is too hot; overheating can damage the engine	
◆ Oil Pressure Alert & Warning Light/ Gauge	Oil pressure alert light indicates the system is functioning • A warning light or gauge indicates the oil is not circulating at the proper pressure • This device does not indicate amount of oil in engine • Low oil flow may trigger device due to oil pump inability to pick up fluid	
◆ Alternator Alert & Warning Light/ Gauge	The alternator provides electrical current to the battery • When the alert light goes on, it indicates the system is functioning • When the warning light goes on, it indicates the battery is not getting enough energy to maintain its charge • Turn off electrical devices and have system checked without delay	
◆ Airbag Alert & Warning Light	When the ignition is turned on, the airbag resets the computer and sensor • The airbag symbol alert light comes on for a few seconds indicating that the system is functioning ... The warning light will stay on when the system is not functioning • Stop and turn off ignition for ten seconds, then restart to let system reset • If warning light remains, call the dealership immediately, do not move the vehicle until the airbag system is functioning	
◆ Brake System Warning Light	The brake system warning light serves multiple purposes: • Reminds you to release the parking brake before moving • If it comes on while pressing the brake, or while driving, it means part or all of the system is not working properly • Contact dealership to have brake system corrected immediately	

Student Learning Activities	Resources

Instructional Topic	Content	Slide
◆ Anti-Lock Brake System (ABS) Alert and Warning	The ABS alert symbol comes on when the ignition is turned on, then it goes out indicating the system is functioning. • ABS helps maintain steering control during hard braking by keeping the wheels from locking, therefore, keep rolling traction and steer ability • If the warning light goes on when the system is engaged, a problem exists • If it stays on, pull to the side and restart the vehicle after ten seconds to reset • Check with dealership; vehicle can be driven with regular braking system intact • Vehicles may be equipped with four-wheel ABS, but some trucks may only have rear-wheel ABS	
◆ Turn Signal Indicator	The turn signal indicator lights indicate the direction you have signaled to turn • Usually a green arrow flashes when activated and stops flashing after the turn is completed or when cancelled	T 2-21
◆ High Beam Indicator	High beam Indicator (blue light) indicates the high beam headlights are on • Must be dimmed when following within 200 feet or approaching within 500 feet • Need to be alert to indicator when turning on lights at any time Add other gauges and warning lights as needed • Refer to vehicle owner's manual for accurate use and directions	
◆ Other	Discuss other equipment as appropriate	T 2-22
SECURING AND EXITING THE VEHICLE	Introduce, model, practice and discuss Check for signs, fire hydrants, lane markings for legal parking area	
◆ Securing	• Stop in a safe location, set Park Brake, and then shift to Park ... Refer to vehicle owner's manual for accurate use and directions ... Shift to Reverse in a manual transmission vehicle • Close all windows • Turn off and check all accessories • Turn off the ignition switch, move to locked position • Remove the key • Unfasten your safety belt	T 2-23

Student Learning Activities	Resources



Instructional Topic	Content	Slide
◆ Exiting	Exit the Vehicle • Check rearview and sideview mirrors for safe exit path • Glance over shoulder before exiting, check with passengers for safe exit • With key in hand, when safe, open the door and exit quickly • Lock the doors ... use keys or locking device to avoid locking keys in the car • Rear door safety locks may need to be opened • When near a traffic flow, walk around the rear of the vehicle, facing traffic	T 2-24
ASSIGNMENT	Give reading and class assignment	
ASSESSMENT	Sample review questions What do you look for when approaching a vehicle? (objects in your path, small children or pets near vehicle, fluid leaks, tire inflation/direction tires facing, body damage, lights are clean, inside for unwanted passengers) What must be adjusted for each driver? (seat, head restraint, steering wheel, mirrors, safety belts) What are the vehicle control devices? (accelerator, brake, clutch, parking brake, steering wheel, cruise control, gear selector lever, ignition switch) What are four communication devices? (turn signal lever, hazard flasher, lights, horn) What is an example of a safety device? (windshield wipers/washers; sun visor, seatbelt, head restraint) In what direction do you walk when leaving a vehicle parked on the street? (toward traffic)	

Student Learning Activities	Resources

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