

Module Two Transparencies

Texas Driver Responsibilities: Preparing to Operate a Vehicle

Topic 1 Driver Preparation Procedures

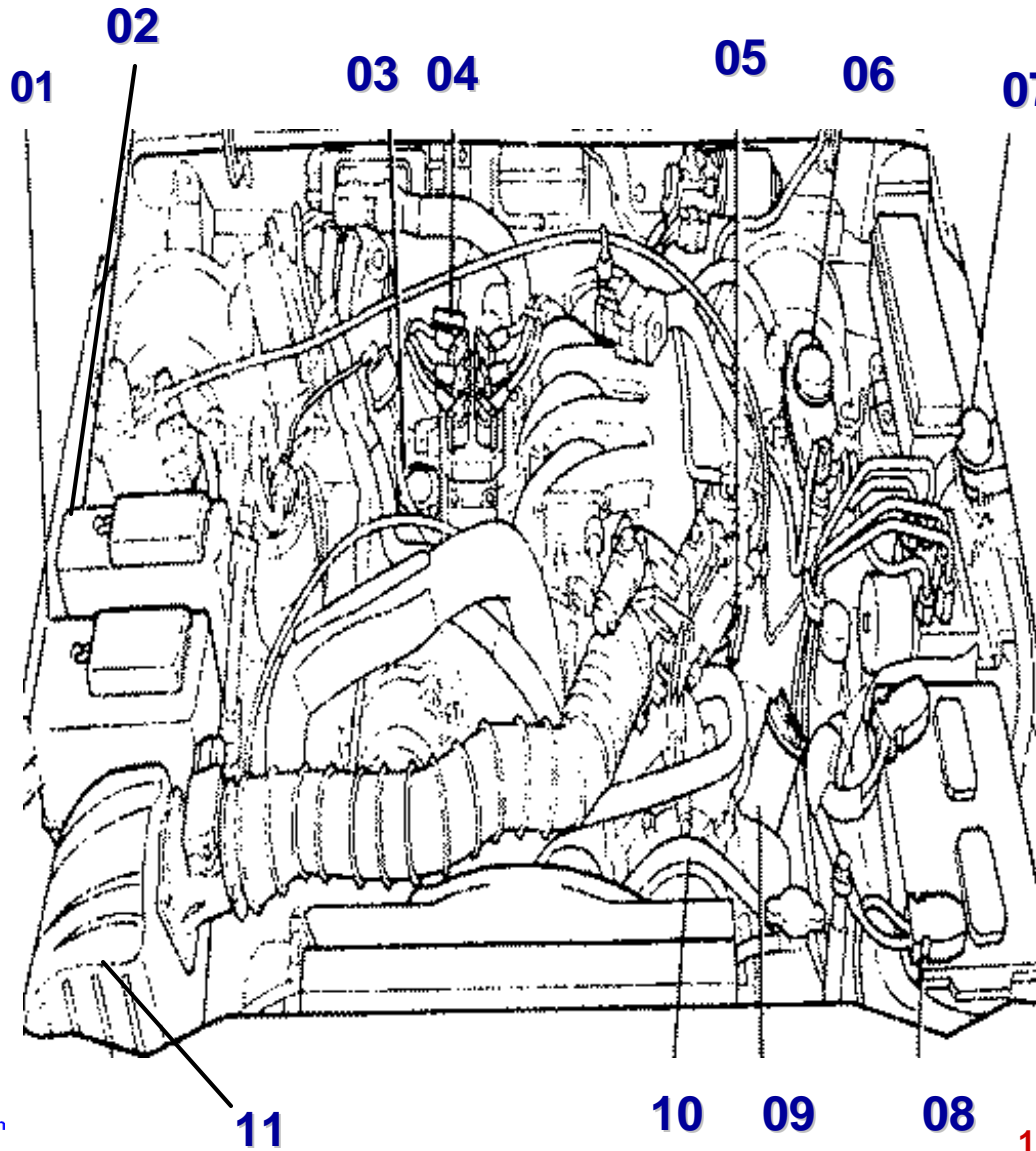
Topic 2 Identifying Vehicle Control Devices

Topic 3 Operating Vehicle Control Devices

Topic 4 Vehicle Balance Considerations

Topic 5 Standard Vehicle Reference Points

Under the Hood Checks



- 01. Engine Coolant Reservoir
- 02. Windshield Washer Fluid Reservoir
- 03. Engine Oil Filler Cap
- 04. Transaxle/Transmission Fluid Dipstick (Automatic)
- 05. Engine Oil Dipstick
- 06. Brake Fluid Reservoir
- 07. Clutch Fluid Reservoir (when equipped)
- 08. Battery
- 09. Power Steering Fluid Reservoir
- 10. Accessory Drive Belts
- 11. Air Filter Assembly

Pre-Drive Tasks

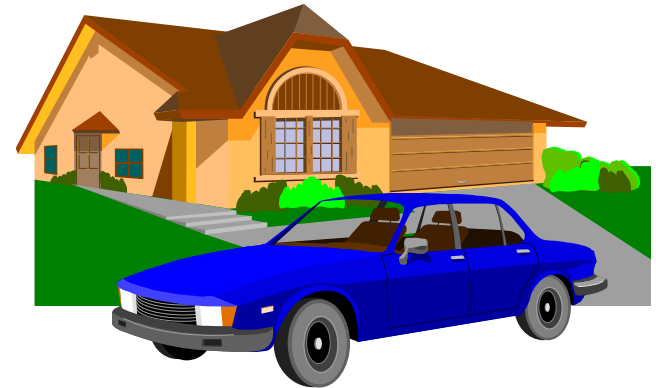
- **Check around the outside of vehicle for:**
 - broken glass (windows, lights)
 - body damage
 - condition of tires
 - fluid leaks
 - direction front tires are turned
 - which way will vehicle move when placed in gear?
 - debris on the ground that could interfere with movement.

- **Check for small children or pets near vehicle.**



Pre-Drive Tasks

- **Store valuables in trunk of vehicle**
 - books and book bags have less chance of slipping off seats
 - the vehicle is a classroom with no room for
 - food, candy, and sodas
 - homework and inattention in the rear
- **When parked at the curb**
 - approach from front of car
 - increase awareness of oncoming traffic
 - approach driver's door with key in hand



Pre-Drive Tasks

- **When parked in parking lot**
 - approach from rear of car
 - increase awareness of persons and objects in area
 - driver's door with key in hand
- **Unlock doors**
- **Check traffic flow**
- **Enter the vehicle**





Driver Readiness Tasks

■ Security

- Check passengers for safe entry
- Lock doors

■ Seating Position

- Adjust for driver foot pedal and dead pedal position
- Adjust for driver steering wheel reach and hand position
- Adjust for driver visual needs



Driver Readiness Tasks

■ Restraints

- Safety belt adjustment and appropriate air bag position
- Head restraint position (rear and side protection)

■ Mirrors

- Rear view mirror settings (200 feet to rear)
- Side view mirror settings (15 degrees out will gain side views)
 - rear view needed when inside mirror view is blocked



Starting Tasks

- 1. Check or set parking brake**
- 2. Place foot on service brake**
- 3. Place key in ignition**
- 4. Ensure gear selector is in park (P)**



Starting Tasks

- **(DO NOT PUSH ON ACCELERATOR BEFORE START – KEEP FOOT ON SERVICE BRAKE)**
- **Turn ignition to “on” for alert/warning lights**
 - airbag, seat belts, ABS, traction alerts, etc.
- **Turn ignition to “start”**
- **Check alert lights and gauges**
 - are all systems functioning and ready to use?
- **Set needed accessories**
 - heating, ventilation, and air conditioning (HVAC), wipers, lights, etc.



Securing Tasks

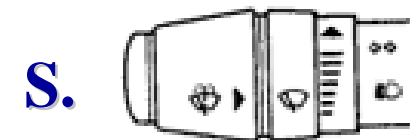
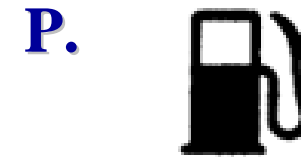
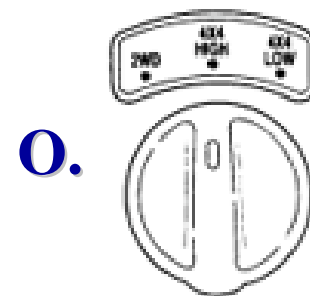
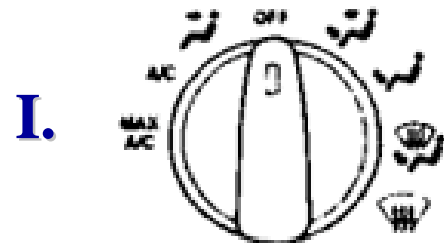
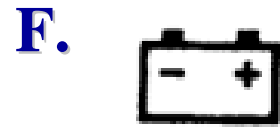
- 1. Stop within a legal, secure parking space**
 - parked within appropriate distances of fire hydrant, intersection, RR crossing, legal parking zone, etc.
 - keep foot on service brake
- 2. Set parking brake**
 - recommended in most new vehicle owner's manuals
 - protects transaxle and constant velocity joints
- 3. Place gear selector in (P)ark.**
 - place in recommended gear for standard shift transaxle or transmission
- 4. Turn off any vehicle accessories**
 - are all systems functioning and ready to use for next time?



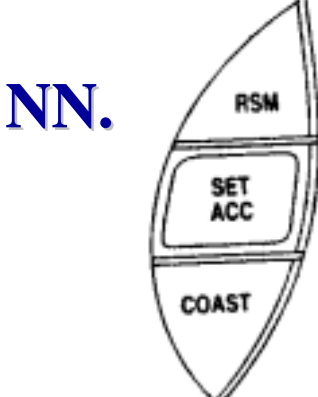
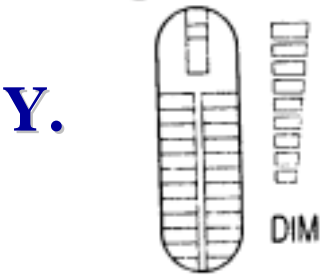
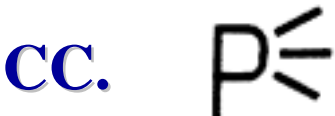
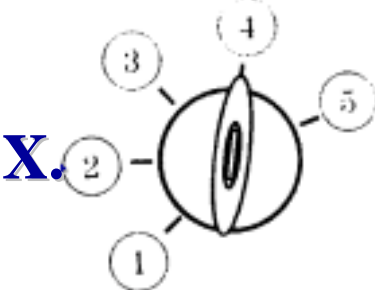
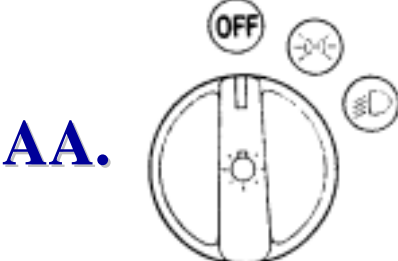
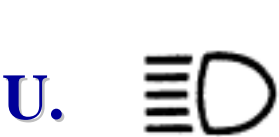
Securing Tasks

- **Turn ignition switch to “off”**
 - the engine should shut off at this time with all accessories off
- **Lock ignition switch and remove key**
 - required to remove the key in most vehicles
- **Remove occupant restraints**
 - Some shoulder restraints operate when the door is opened
- **Check traffic and exit vehicle**
 - check traffic flow to rear prior to opening the door
 - rear child safety door locks may need to be opened from the driver’s door
- **Secure doors and windows**
 - protects valuables and unauthorized entry by others

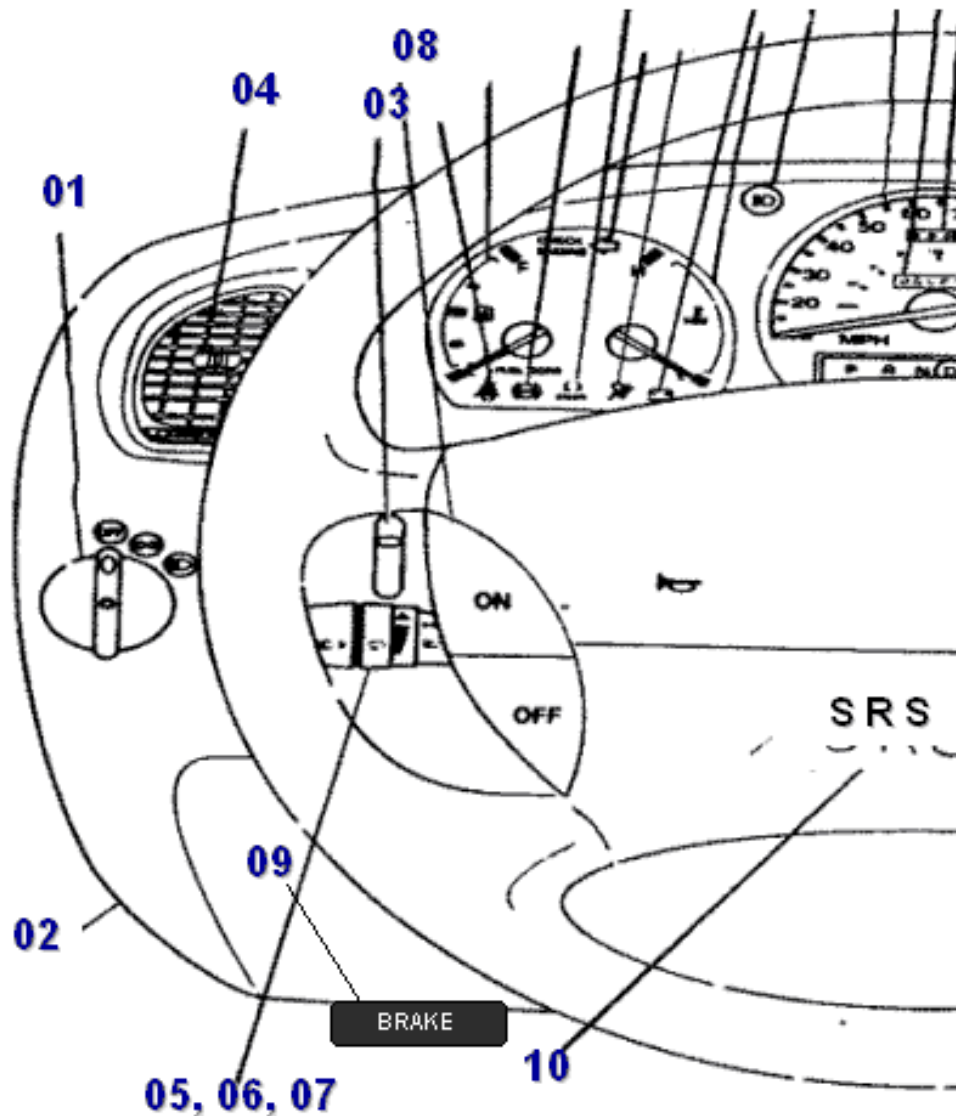
Alert/Warning Symbols and Controls



Alert/Warning Symbols and Controls



Control, Information, Comfort, and Safety Devices



Left Control Panel

- 01. Headlamp control
- 02. Fuse panel
- 03. Instrument panel dimmer switch
- 04. Side vent

Functional Levers

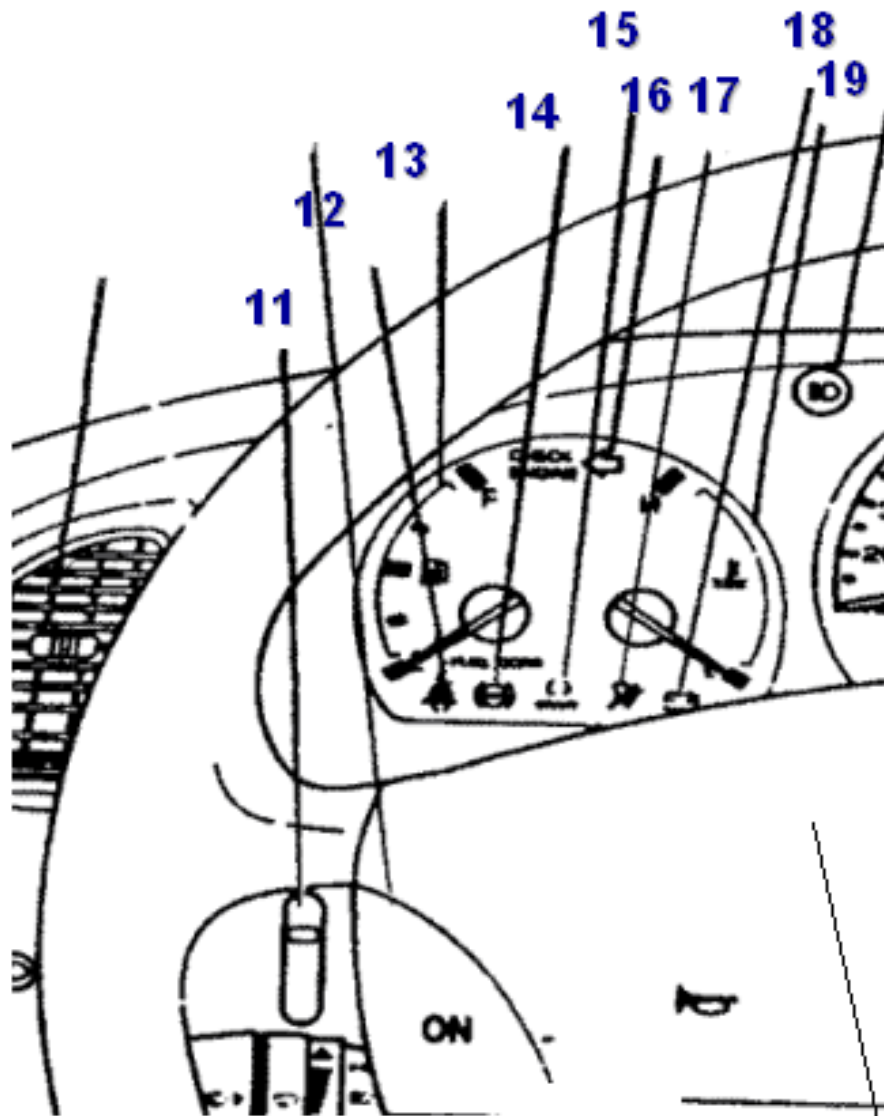
- 05. Headlight high/low beam switch
- 06. Windshield wiper/washer control
- 07. Turn signal switch
- 08. Speed/Cruise control
- 09. Parking brake release

Passive Restraint

- 10. Driver air bag (SRS)

1999 Ford F150 Pickup Control Panel

Control, Information, Comfort, and Safety Devices

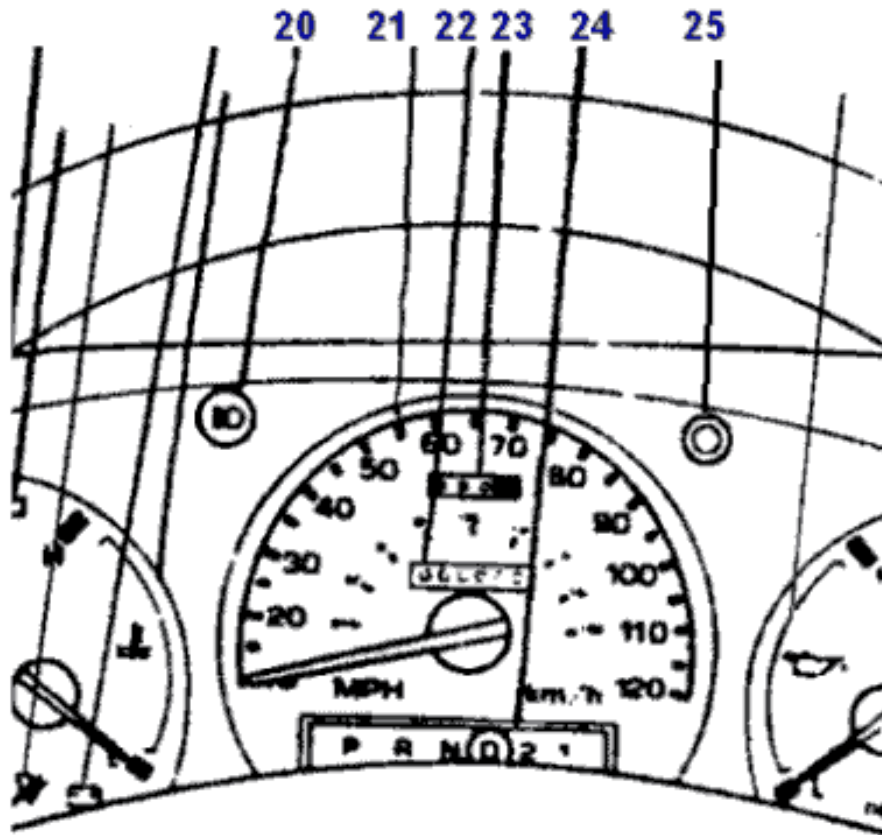


Left Instrument Cluster

- 11. Cruise control on/off
- 12. Safety belt alert light
- 13. Fuel level indicator
- 14. Antilock brakes alert light
- 15. Brake warning light
- 16. Left turn indicator light
- 17. Air bag alert light
- 18. Battery warning light
- 19. Engine temperature

1999 Ford F150 Pickup Control Panel

Control, Information, Comfort, and Safety Devices



Center Instrument Cluster

20. High beam indicator

21. Speedometer

- Miles per hour
- Kilometers per hour

22. Mileage odometer

23. Trip mileage odometer

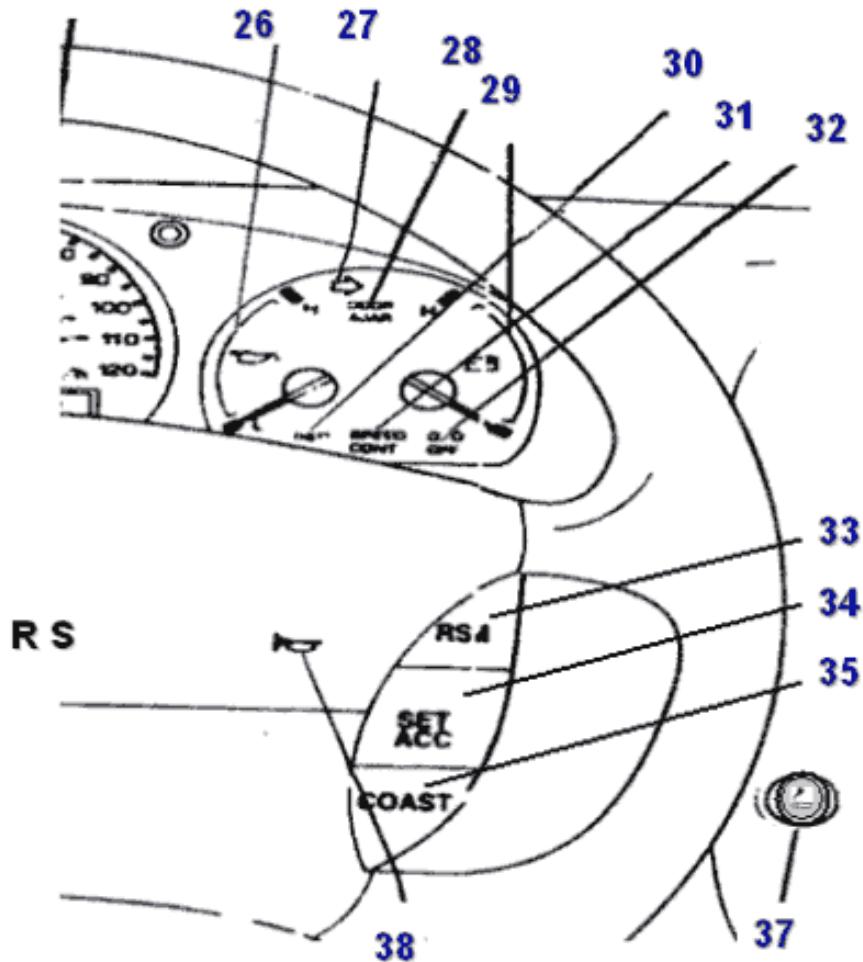
24. Gear selection indicator

- (P)ark, (R)everse,
- (N)eutral, (D)rive,
- (2)nd gear, (1)st gear

25. Trip mileage reset

1999 Ford F150 Pickup Control Panel

Control, Information, Comfort, and Safety Devices

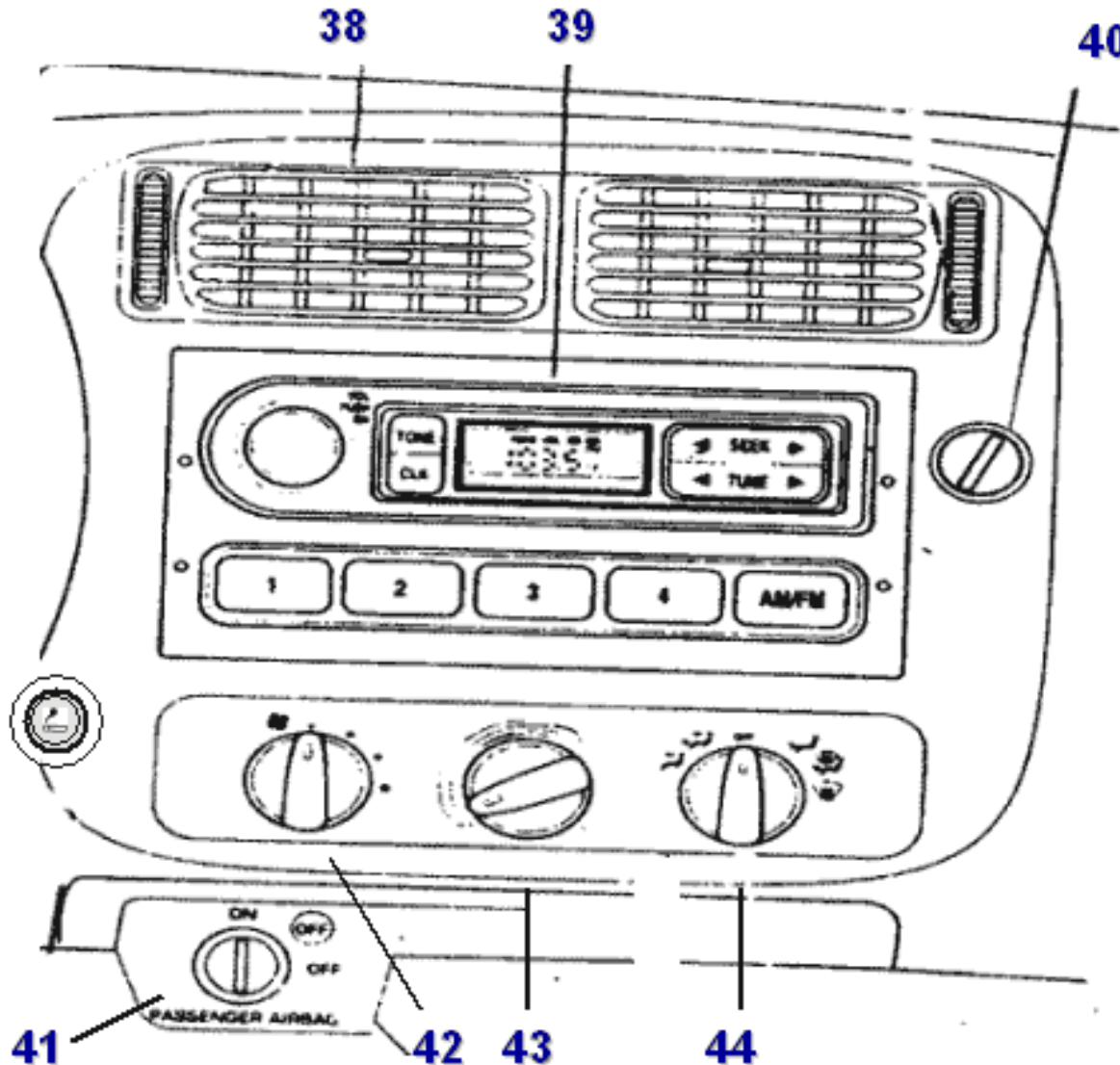


Right Instrument Cluster

26. Oil pressure gauge
27. Right turn indicator light
28. Door ajar
29. Battery voltage gauge
30. Theft/Security system
31. Speed control light
32. Overdrive off
33. Resume cruise speed
34. Set/Adjust cruise speed
35. Coast/Reduce cruise speed
36. Cigarette/Cigar lighter
37. Horn control

1999 Ford F150 Pickup Control Panel

Control, Information, Comfort, and Safety Devices



Auxiliary Panel Controls

- 38. Center air vent controls
- 39. Sound system controls
- 40. Auxiliary power port
- 41. Passenger air bag cut off switch
- 42. HVAC fan speed control
- 43. HVAC temperature control
- 44. HVAC air flow control

1999 Ford F150 Pickup Control Panel

Operating Vehicle Control Devices

- **Maintain Steering Position and Control**
 - Adjusting information devices
 - Adjusting comfort devices
 - Adjusting control devices
- **Move Steering Wheel Toward Path of Travel**
 - Moving forward
 - Moving backward
- **Adjust Wheel Height/Angle**
 - Airbag deployment
 - Hand position [wheel should be no higher than your chin]
 - Wheel movement



Operating Vehicle Control Devices

■ Accelerator Pedal Use

- Used to stabilize, increase, and decrease speed
- The driver can
 - cover accelerator, progressive acceleration, thrust acceleration, lift-off accelerator

■ Brake Pedal Use

- Used to stabilize, and decrease speed
- The driver can
 - cover brake, trail brake, controlled squeeze braking, threshold brake, lock brake, ABS, jab (stab) brake, lift-off brake



Operating Vehicle Control Devices

■ Gear Selector Lever Use

- What are the different gears...in order?

■ Location of Parking Brake and Use

- Texas Traffic Law requires use when leaving vehicle
- Holds vehicle in place when (P)arked

■ Cruise / Speed Control

- Purpose of cruise control
- Danger of cruise control

■ Ignition Switch

- Location
- Function



Safety, Communication, and Convenience Devices

■ Mirrors

- Rear view adjustments
- Side view adjustments



■ Safety Belts

- Adjusting for maximum effectiveness

■ Head Restraints

- Protecting against whiplash

■ Horn

- Location
- Appropriate use



Safety, Communication, and Convenience Devices

- **Turn Signals**
 - Location and appropriate use prior to maneuver
 - Lane change device
- **Door Locks**
 - Manual / Power devices
 - Child proof rear
- **Hazard Flashers**
 - Location and use
- **Windshield Wipers & Washers**
- **Headlights / Running Lights**
 - Location and use
 - Pull / push lights lever [arm] to change from high to low beam



Safety, Communication, and Convenience Devices

- **Hood Release**
 - **Location and use**
- **Trunk Release**
 - **Location and use**
- **Fuel Door Release**
 - **Location and alternate opening device**
- **Heat, Ventilation, and Air Conditioner (HVAC) Controls**
 - **Fan, temperature, and ventilation location**
 - **Defroster/Defogger operates air conditioning system**
- **Seat Adjustment**
 - **Power / Manual controls**





Controlling Vehicle Balance

- **Vehicle Balance**

- Specific amount of weight or down force on each tire patch
- Best balance is at rest with no movement
- Based on weight, suspension, and tire pressure

- **Vehicle movement**

- Creates changes to the vehicle balance
- Due to suspension and pressure changes



- **Vehicle Balance Technical Terms**

- **Roll:** vehicle moves from side to side
- **Pitch:** vehicle moves forward or backward
- **Yaw:** vehicle moves left or right



Controlling Vehicle Balance

Maintaining Vehicle Balance

- **Steering Wheel Balance**
 - Smaller steering wheel
 - Rack and pinion steering
- **Changes In Steering Ratios and Mechanism**
 - Less steering needed for wheel response
 - Amount of steering from left lock to right lock
 - Prior to 1980 (4-5 turns), after 1980 (2-3 turns)
- **Precise Steering, Braking and Accelerator Input Needed**
 - Less steering movements
 - Squeeze brake
 - Smooth acceleration and deceleration





Controlling Vehicle Balance

■ Seating

- Driver position behind the wheel
- Safety belt and dead pedal use
- Driver must be balanced to recognize vehicle balance

■ Changing Vehicle Balance Side to Side (Roll)

– Sudden Steering Wheel Movements

- Affect the amount of side to side movements
- Driver feels vehicle tilt to right or left



– Sudden Brake Application And Steering Combinations

- Affects the amount of side to side movements
- Driver feels movement tilt to the right or left corner of vehicle

VEHICLE CONTROL...weight shifts where?

■ Changing Vehicle Balance Front to Rear (Pitch)

- Releasing brake
- Covering accelerator
- Light accelerator pressure
- Progressive accelerator pressure
- Thrust accelerator pressure



■ Changing Vehicle Balance Rear to Front (Pitch)

- Differences between vehicles
- Driver position for best brake pedal control
- Releasing the accelerator
- Covering the brake
- Controlled brake (Squeeze on)
- Threshold brake
- Trail braking (Squeeze off)





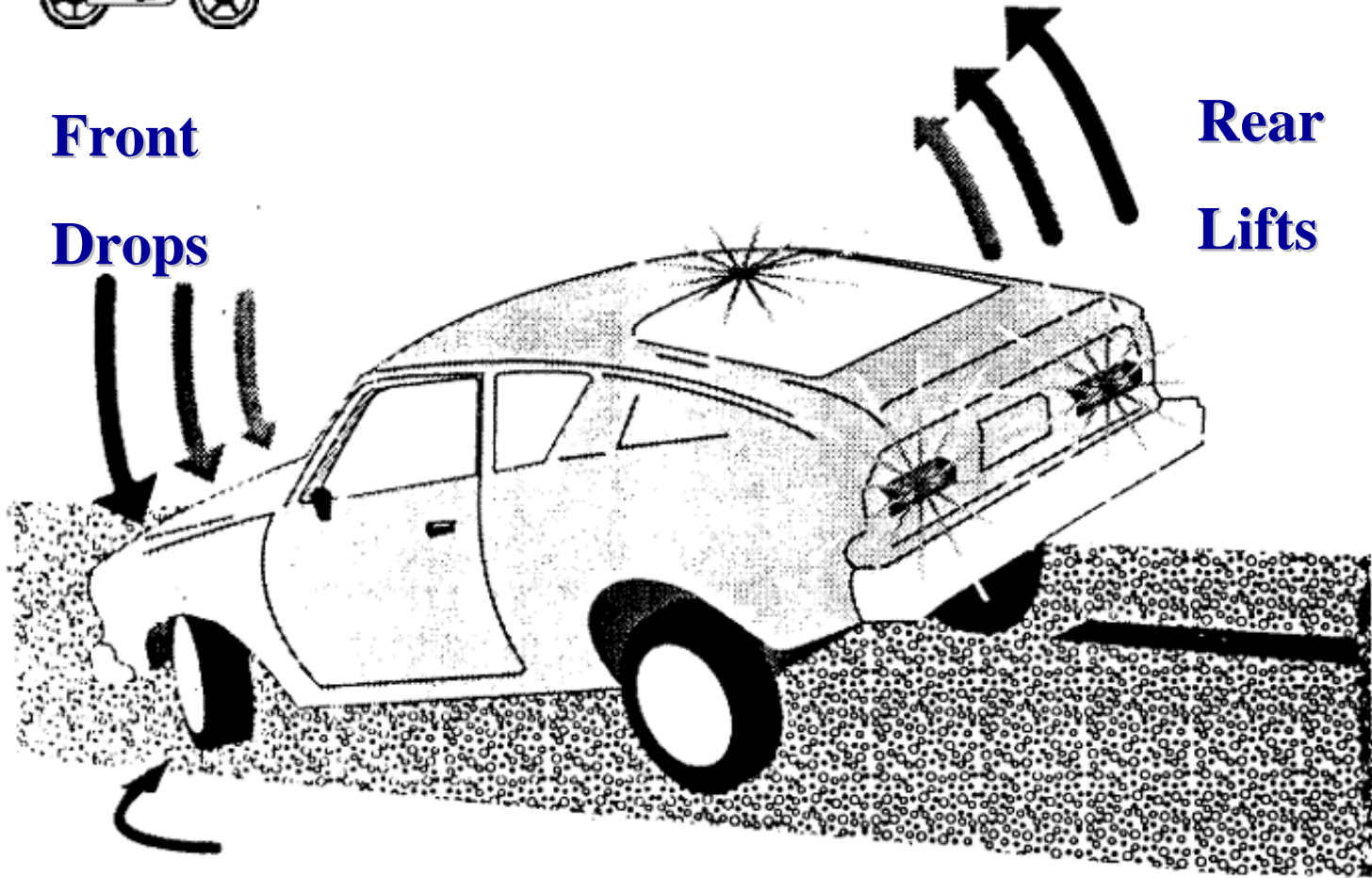
VEHICLE CONTROL

Front

Drops

Rear

Lifts



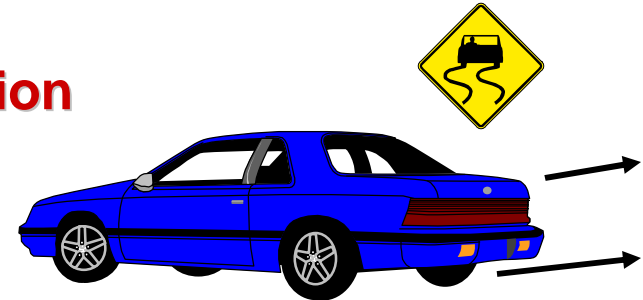
Balance Change During Sudden Braking and Excessive Steering



VEHICLE CONTROL

■ Changing Vehicle Balance Left to Right (Yaw)

- Sudden brake
- Sudden or excessive acceleration
- Sudden or excessive steering
- Road tilted to right
- Traction loss to right rear



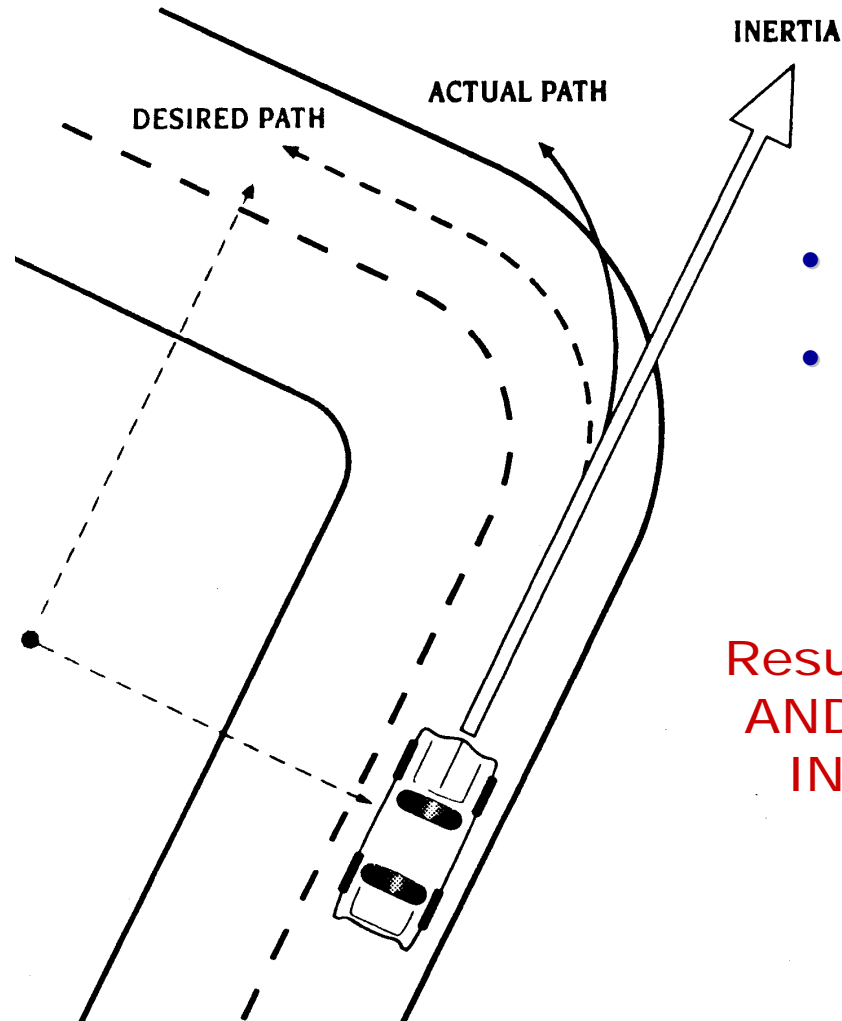
■ Changing Vehicle Balance Right to Left (Yaw)

- Sudden brake
- Sudden or excessive acceleration
- Sudden or excessive steering
- Road tilted to left
- Traction loss to left rear





VEHICLE CONTROL



Changes to Right Front Tire Patch and Pressure

- Tire with low pressure
- Excessive speed and steering into the turn

Result: TIRE PATCH CHANGES AND RIM MAY TOUCH OR DIG INTO THE ROAD SURFACE



VEHICLE CONTROL

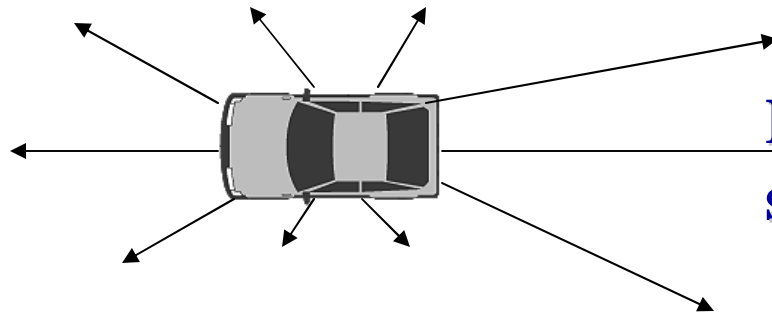
Steering Wheel Control

- **Hand position on steering wheel**
 - Holding top of Wheel (Poor balance & Air bag threat !!!)
 - On upper half of wheel (Less balance & Air bag threat !!!)
 - On lower half of wheel (Better balance with smaller wheel)
- **Steering techniques**
 - Hand to Hand steering (recommended for air bag equipped))
 - Hand over Hand steering (very low speed maneuvers)
 - Limited evasive steering (ABS limitation to steering input)
 - One hand steering (8 or 9 wheel position recommended)
 - **Side (8,9) or (3,4)** to reach controls
 - **Top (12)** when backing straight (limited air bag threat)
 - **Bottom (5,6,7)** when backing trailer device

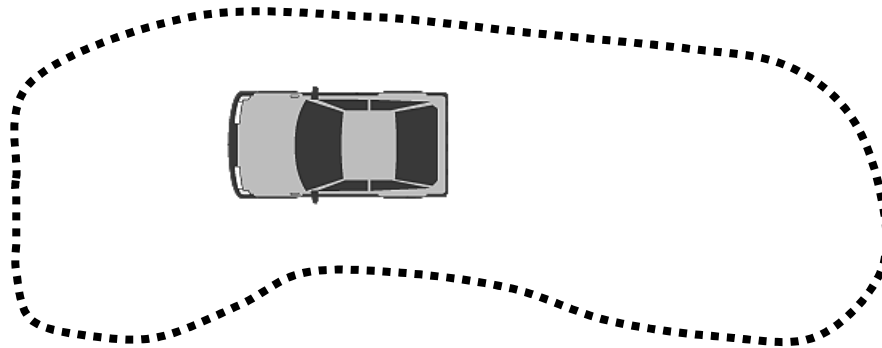
Targeting and Visual Requirements

- **Targeting is a visual function**
 - Directed use of focus vision
 - **Maintaining an open line of sight**
 - From target to front of vehicle
 - Use of fringe vision (central vision)
 - **Targeted path of travel**
 - Determines projected path of vehicle travel
 - **Referencing vehicle to roadway position**
 - **Using standard references**
 - Vehicle placement within lane
 - Vehicle placement to front and rear
 - Vehicle placement to the side
- **Effective Targeting: Plan ahead; look far ahead; use the searching process; and visualize the space you intend to occupy.**

Determining Vehicle Operating Space

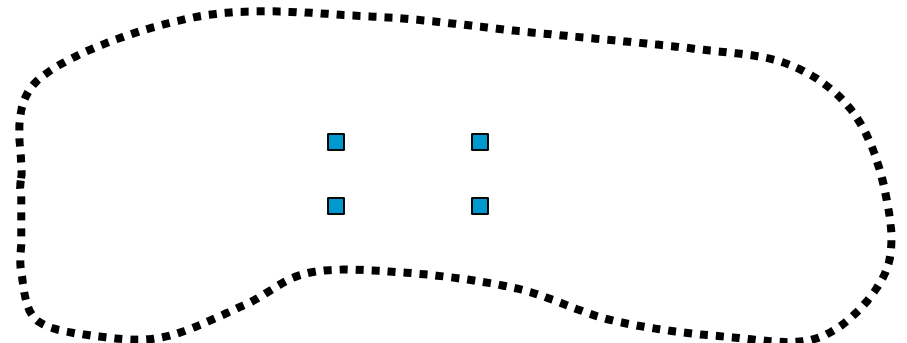


Placing markers at edge of sightlines

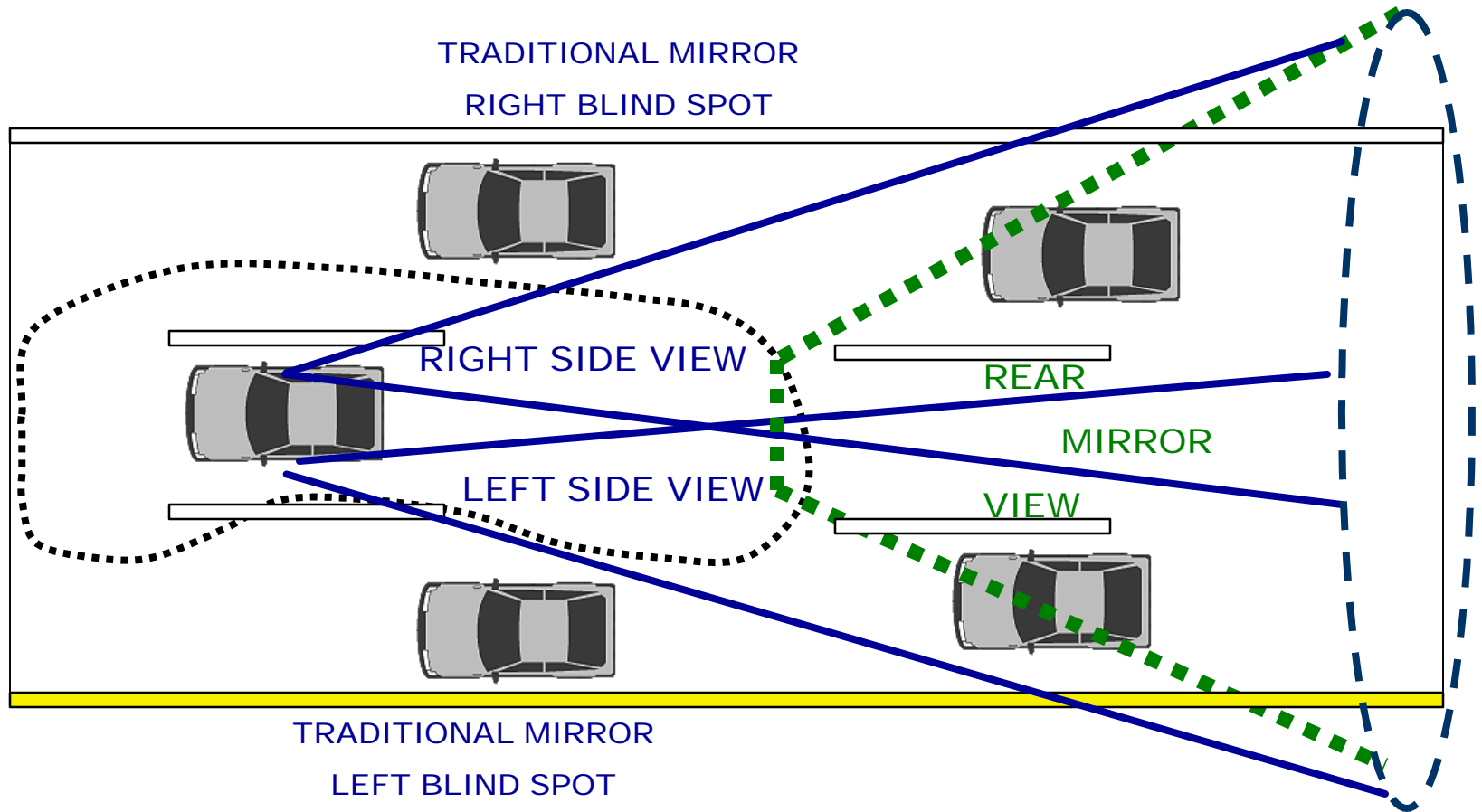


Drawing the central space area for true vehicle blind spot

Mark the tire patches prior to moving vehicle



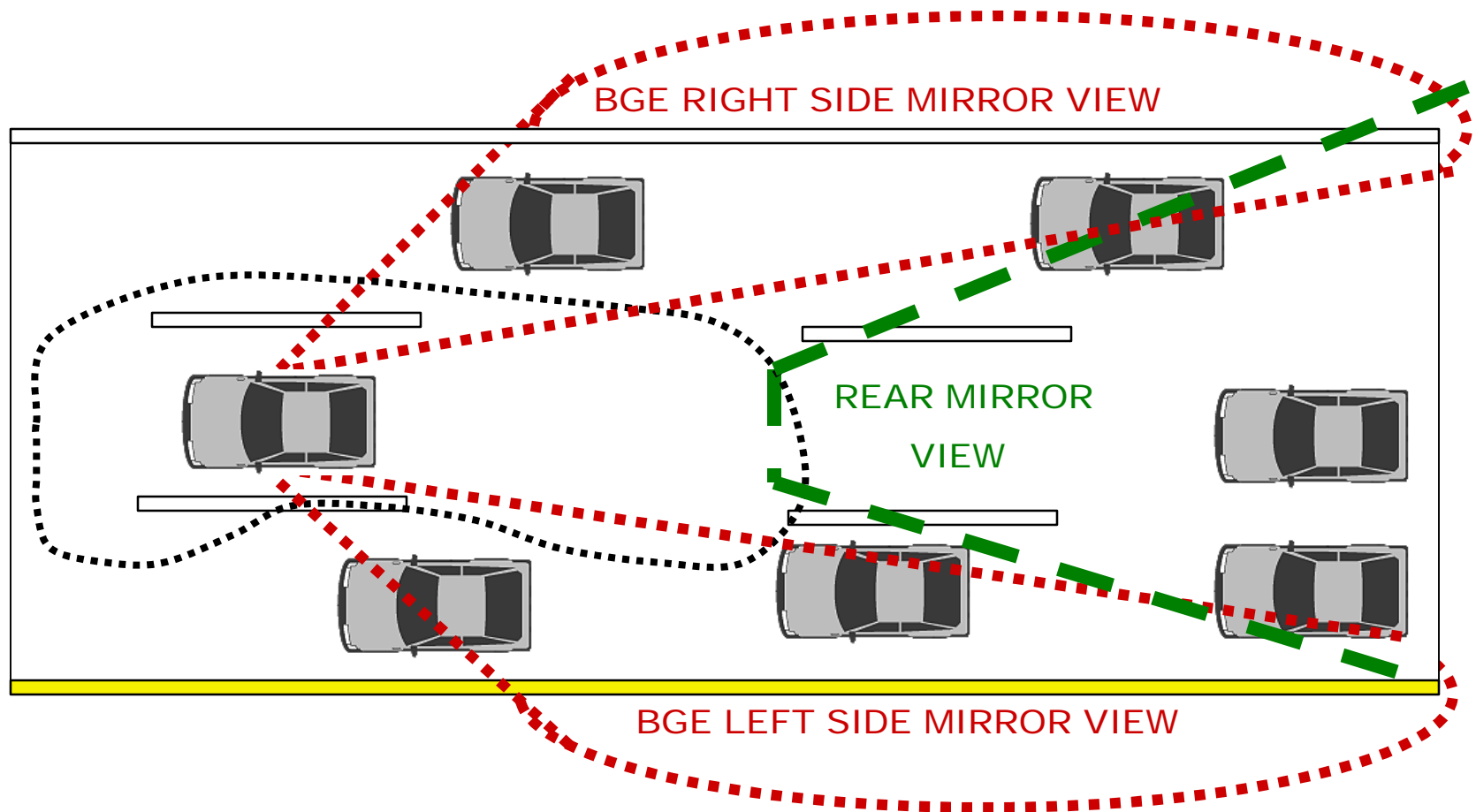
Traditional Mirror Views and Blind Spots



**Place markers at edge of traditional mirror view areas.
Traditional side view mirror settings show same as rear view
mirror field of view.**

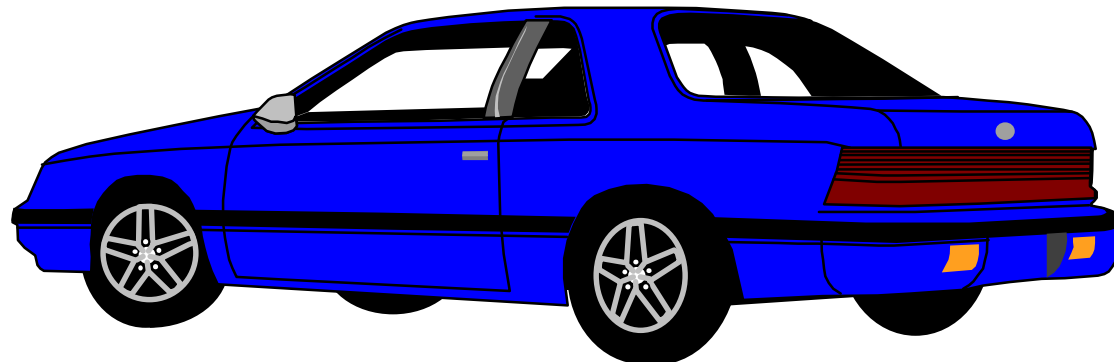
Mirror Blind Spot and Glare Elimination (BGE)

The BGE side mirror settings (15 degrees to outside) will allow for view to the side in addition to the rear view.



Standard Reference Points

- Relates part of the vehicle to some part of the roadway.
- Helpful visual relationship of your vehicle within the operating space.
- Will know your vehicle placement within a lane at all times.
- Will allow for reduced-risk lane placements

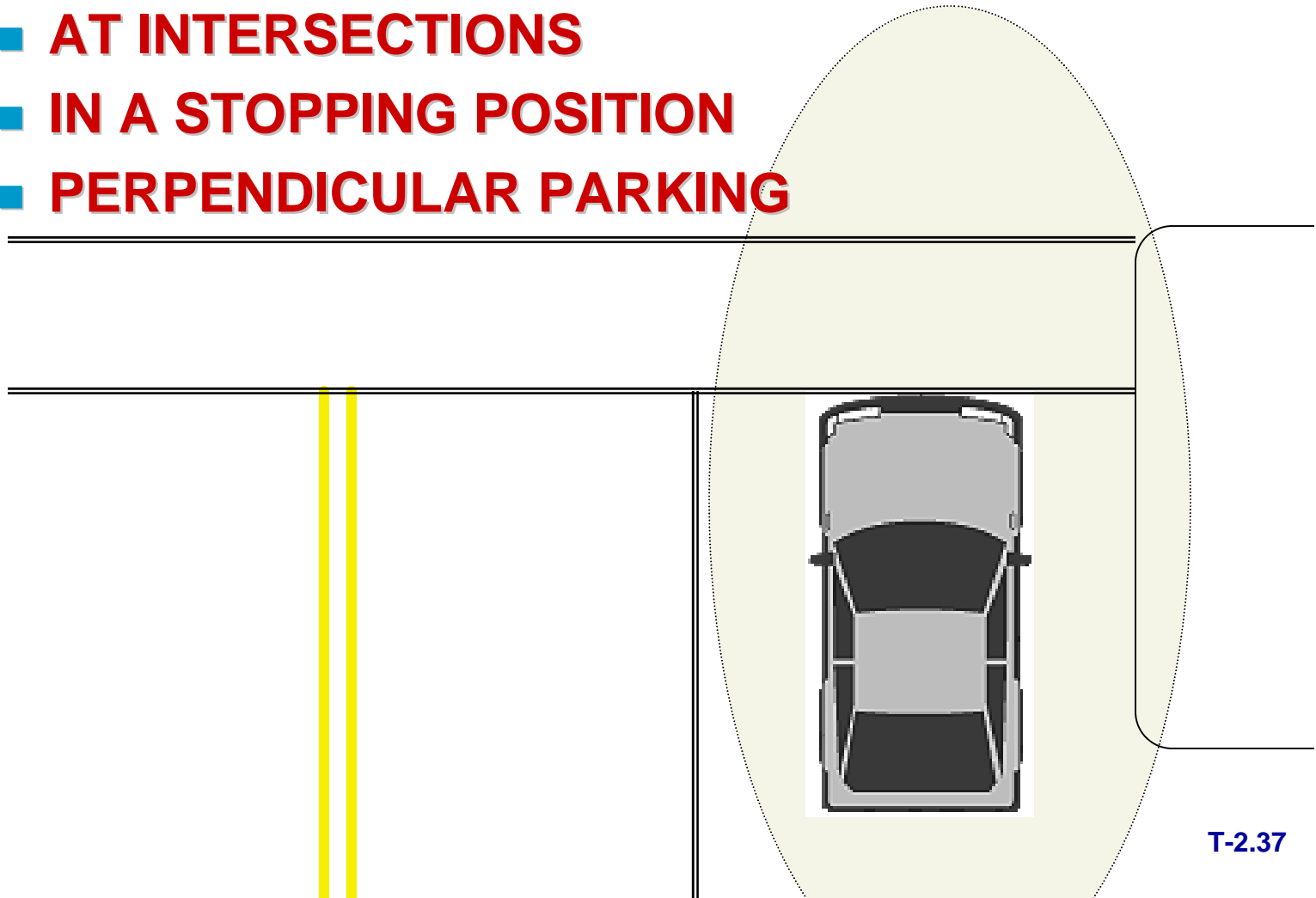


Reference: Mottola, F. R. (1997). "Empower Yourself with Zone Control Driving"

FRONT LIMITATION

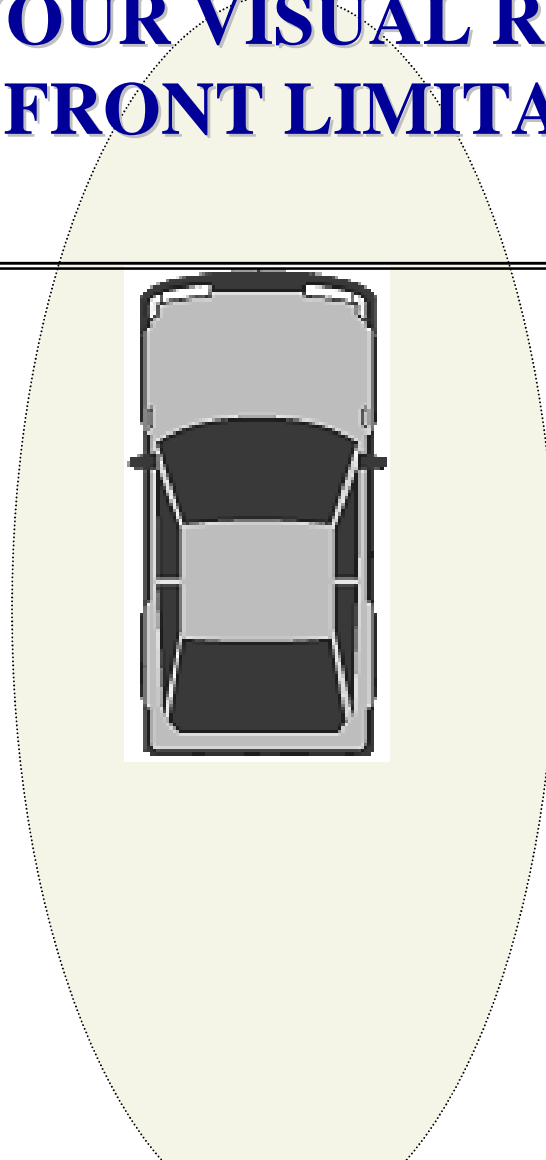
Knowing where the front end of your vehicle is when you are:

- AT INTERSECTIONS
- IN A STOPPING POSITION
- PERPENDICULAR PARKING



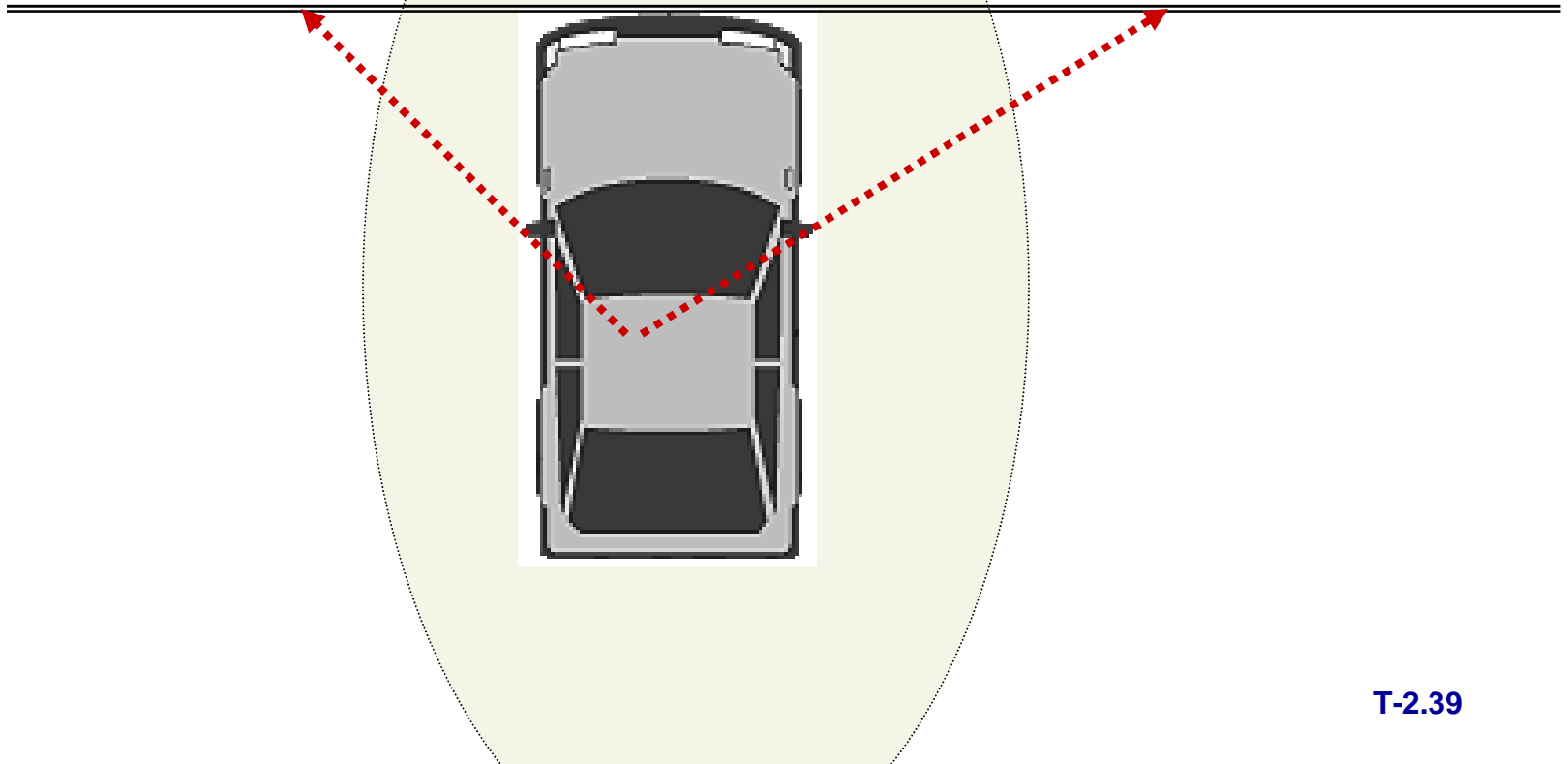
FRONT LIMITATION

WHERE ARE YOUR VISUAL REFERENCE POINTS FOR FRONT LIMITATION?



FRONT LIMITATION

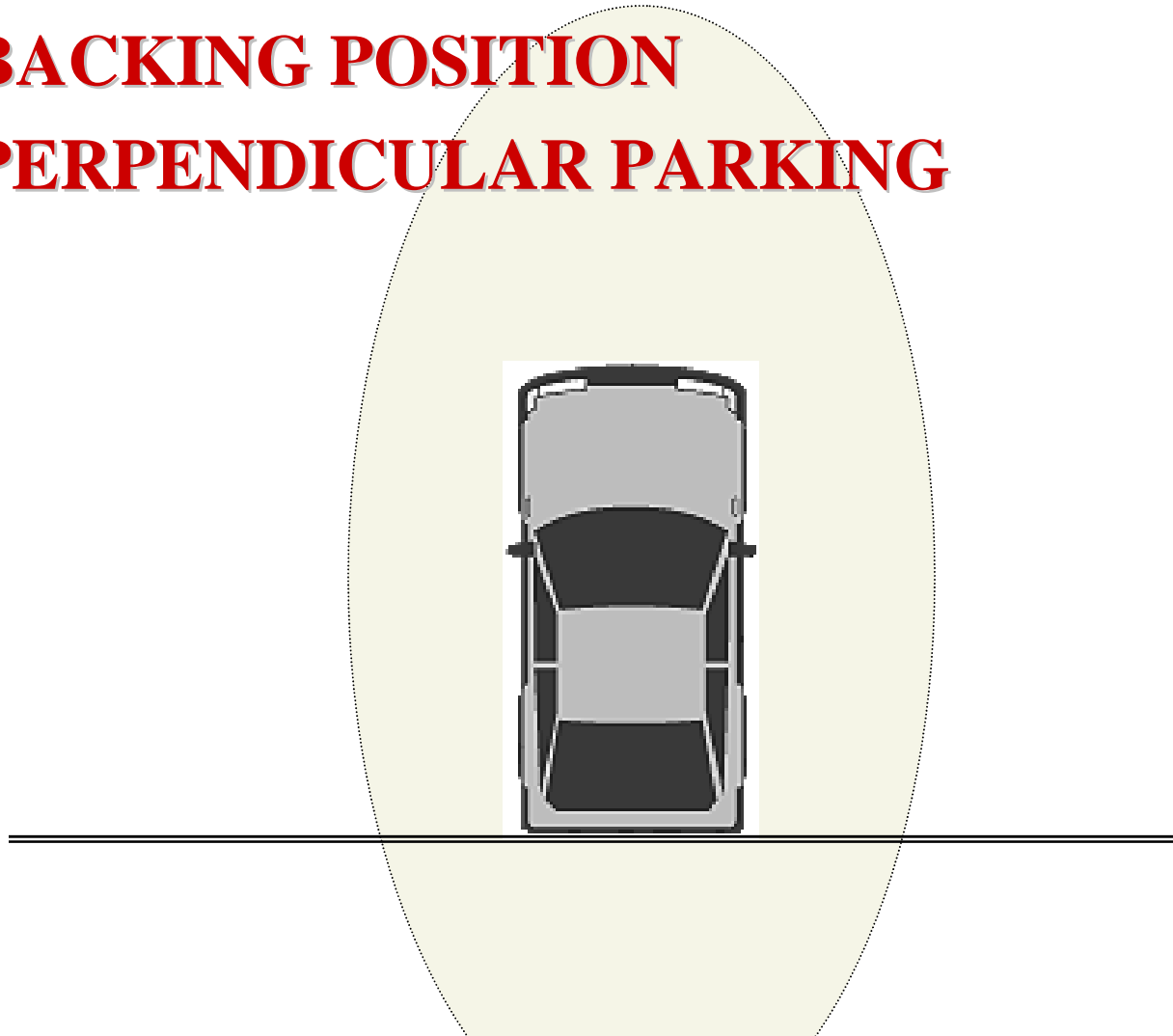
- **Target the line to the side of the vehicle and look from the line under the side view mirrors to the curb.**
- **Together they will help you determine where the front limitation of your vehicle is.**



REAR LIMITATION

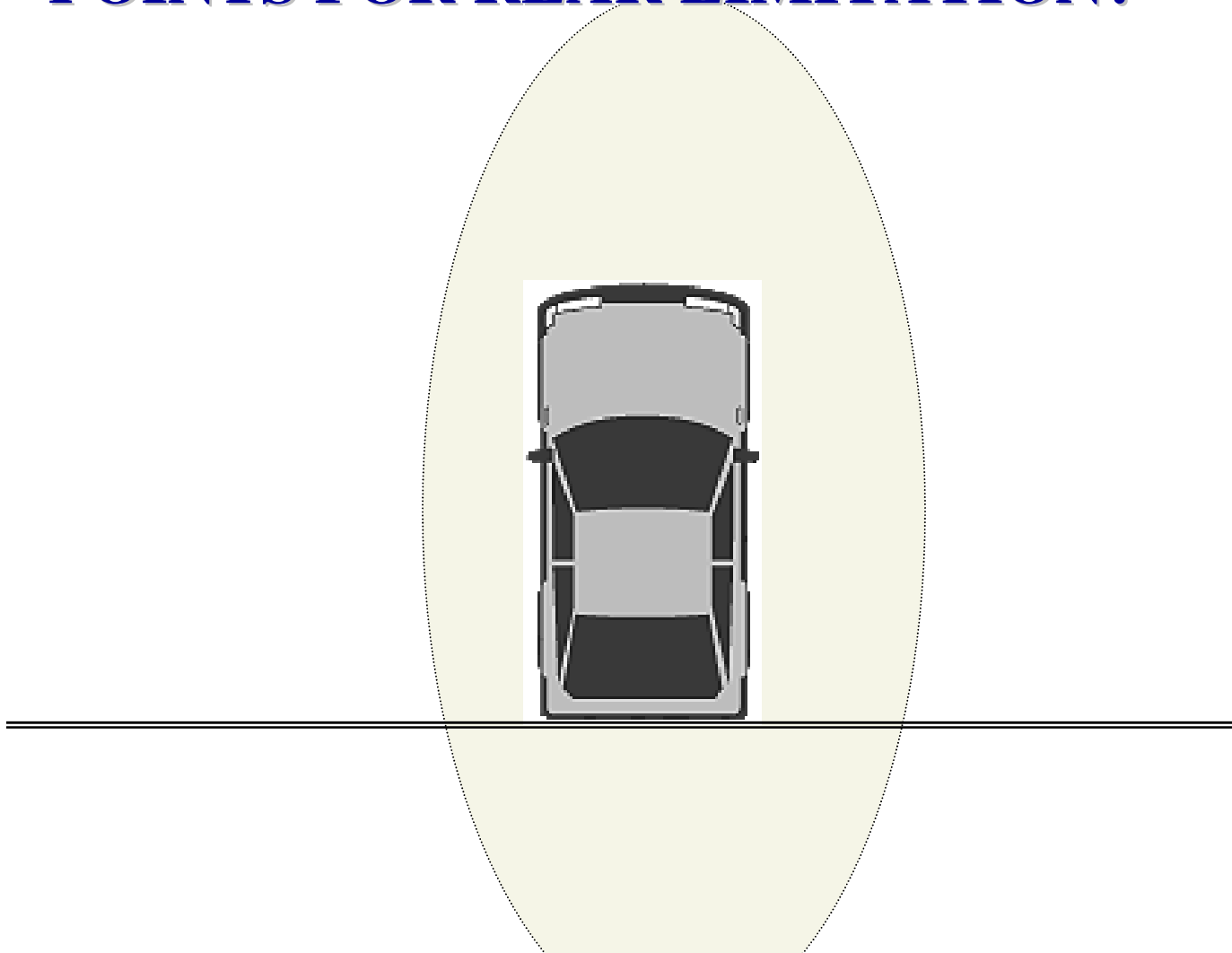
Knowing where the rear end of your vehicle is when you are:

- **BACKING POSITION**
- **PERPENDICULAR PARKING**



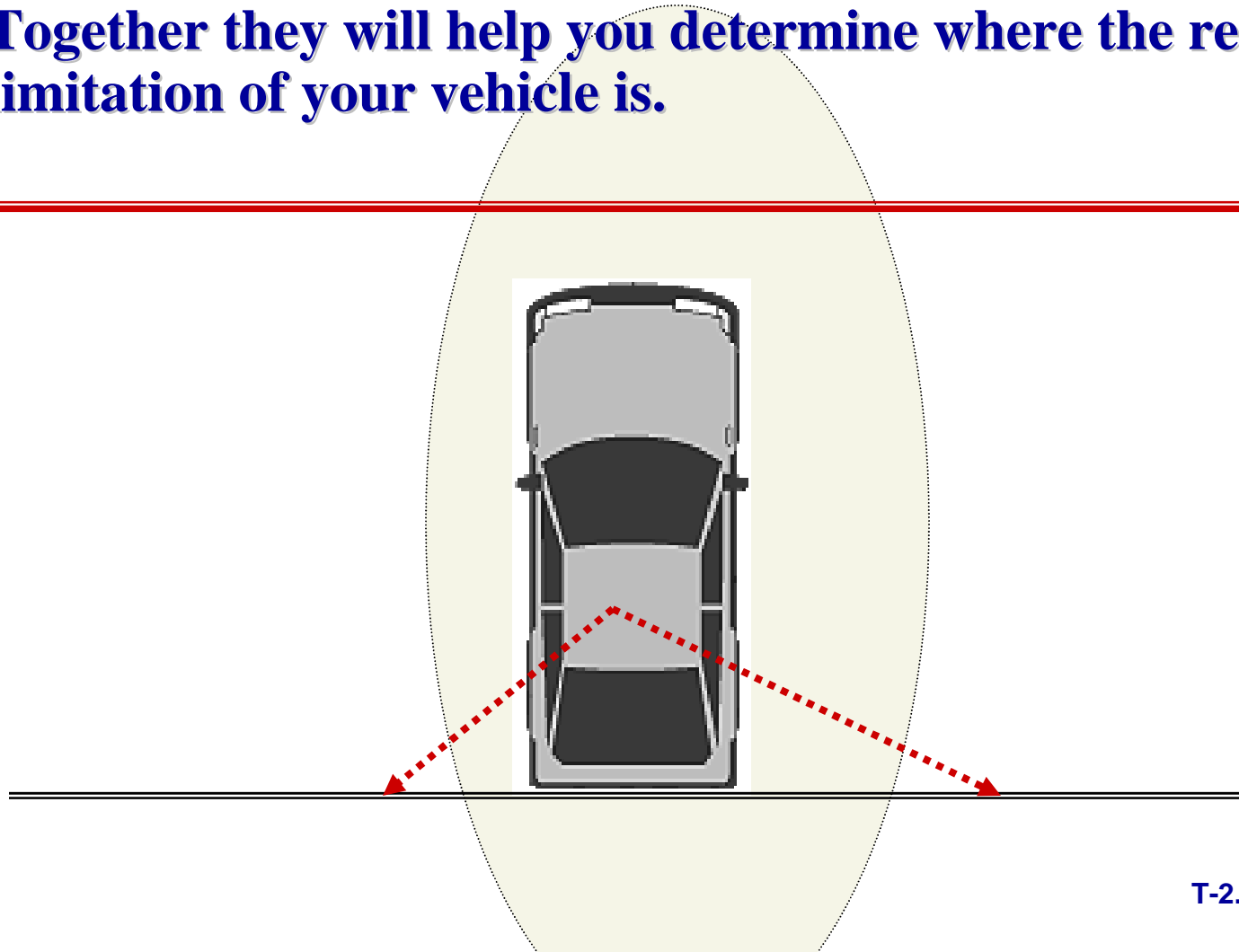
REAR LIMITATION

WHERE ARE YOUR VISUAL REFERENCE POINTS FOR REAR LIMITATION?



REAR LIMITATION

- **Target the line to either side of the vehicle and look for the line through the windows to the left and right rear.**
- **Together they will help you determine where the rear limitation of your vehicle is.**



Reference Points

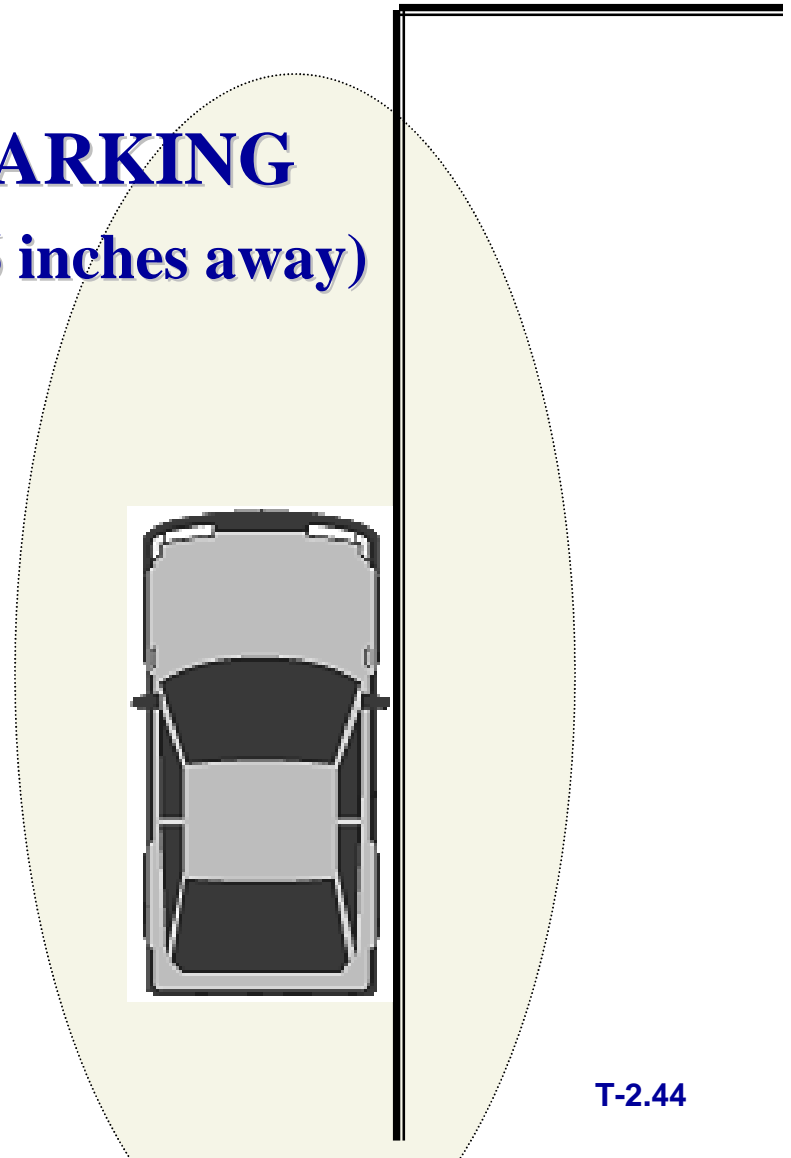
The reference point to tell where the right tires are located is the hood ornament.

If the car doesn't have a hood ornament, the curb would appear to be at the center of the hood. When the front of the car is even with a line, the driver will see that line appear near the passenger's side mirror.

When the car is 3-6 inches away from a line to the left, the driver will see that line appear to be one foot in from the edge of the left fender.

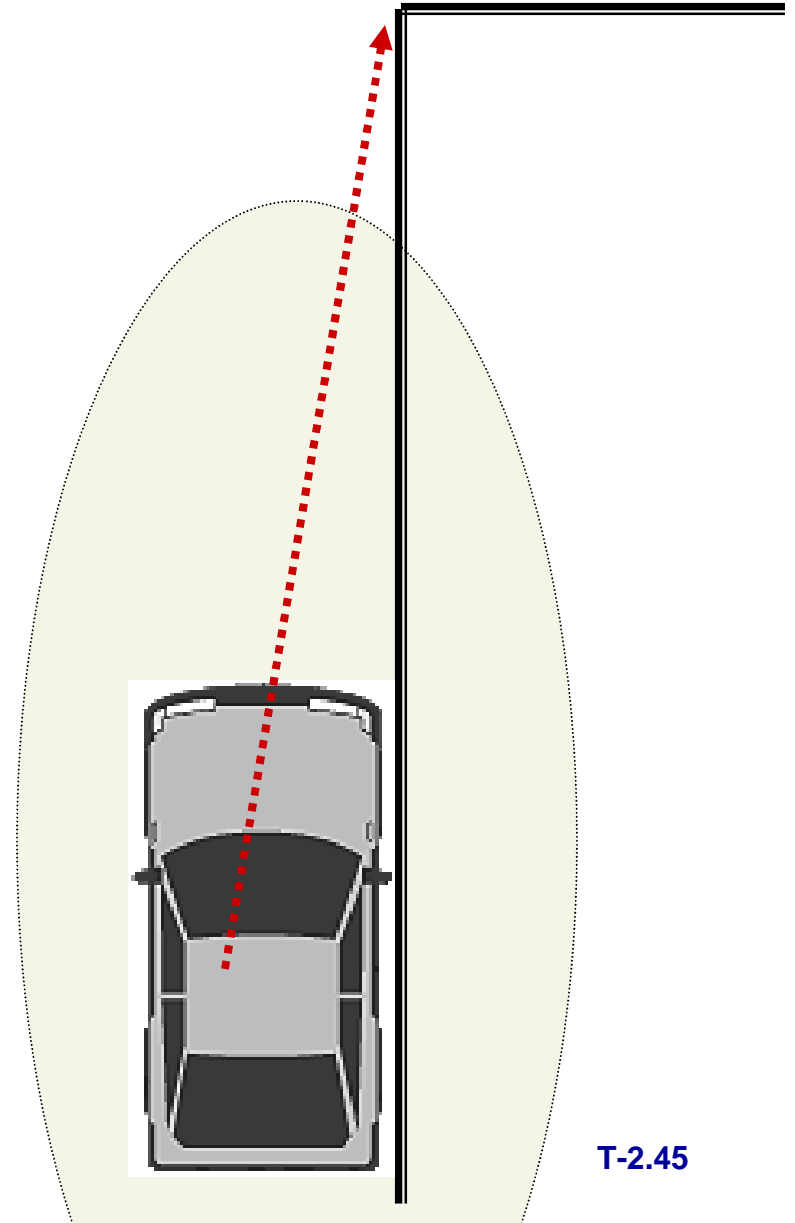
RIGHT SIDE LIMITATION

- **LANE POSITION # 3**
- **RIGHT SIDE CURB PARKING**
 - **Parallel to the curb (0-6 inches away)**



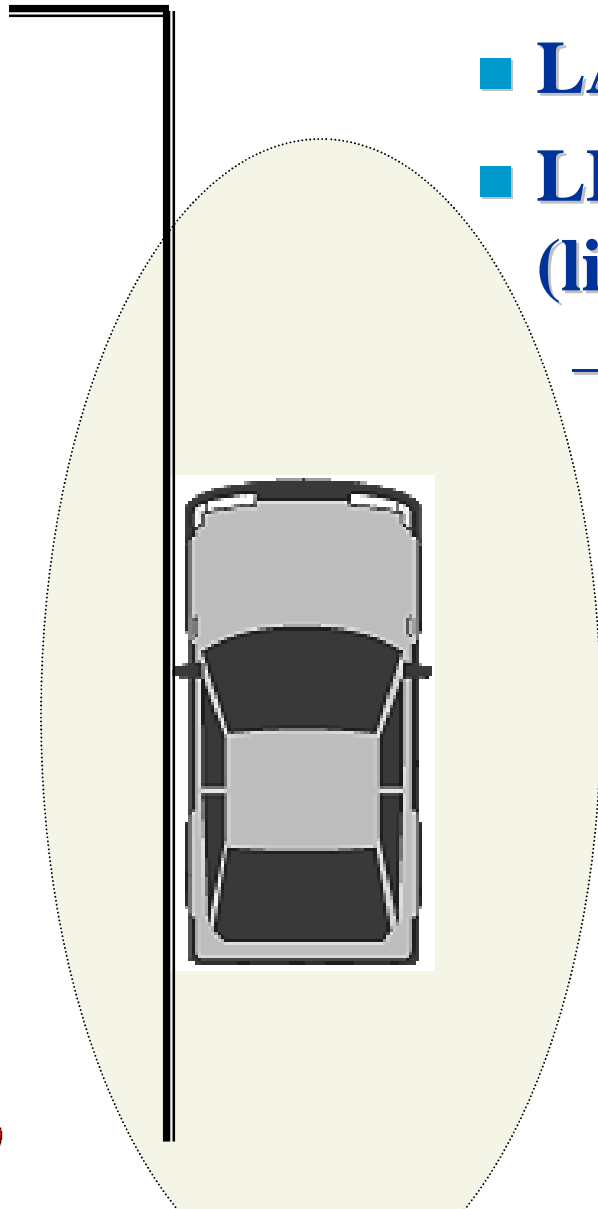
RIGHT SIDE LIMITATION

Your line of sight reference is aligning the middle of your vehicle to the curb or the edge line of roadway.

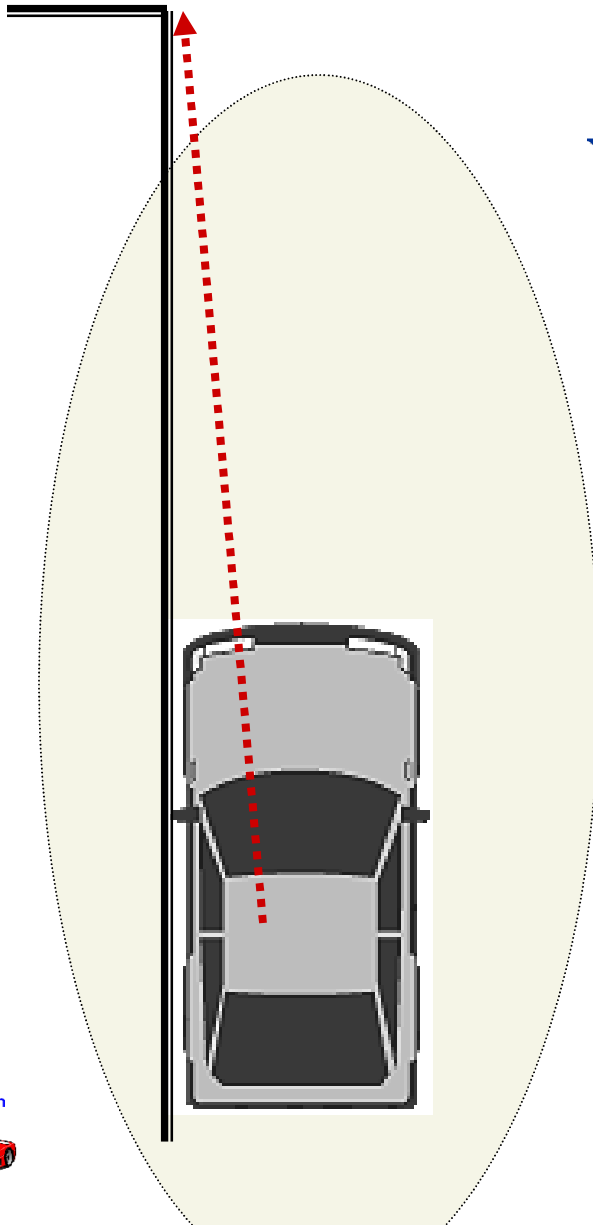


LEFT SIDE LIMITATION

- **LANE POSITION # 2**
- **LEFT SIDE CURB PARKING**
(like on a one-way street).
 - (0-6 INCHES)



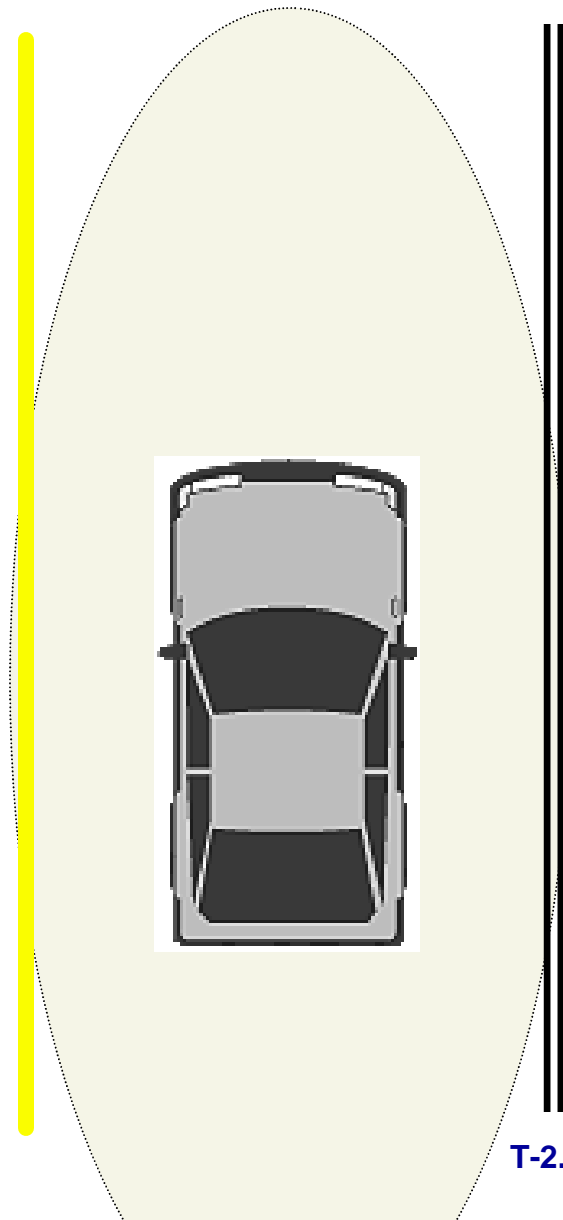
LEFT SIDE LIMITATION



Your line of sight reference is about 1 foot from left side or may be the crack line between your left fender and hood of your vehicle to the curb.

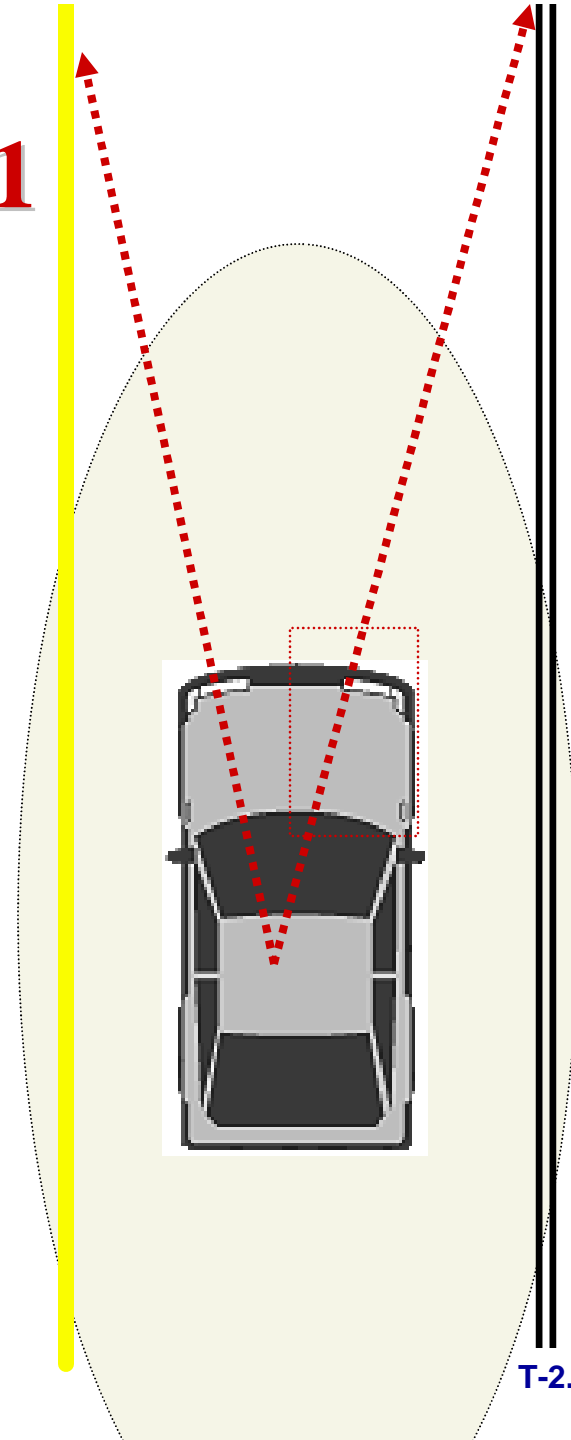
LANE POSITION # 1

- **CENTER OF YOUR LANE.**
- **CAR IS 3 FEET AWAY FROM LINE TO RIGHT OR LEFT**



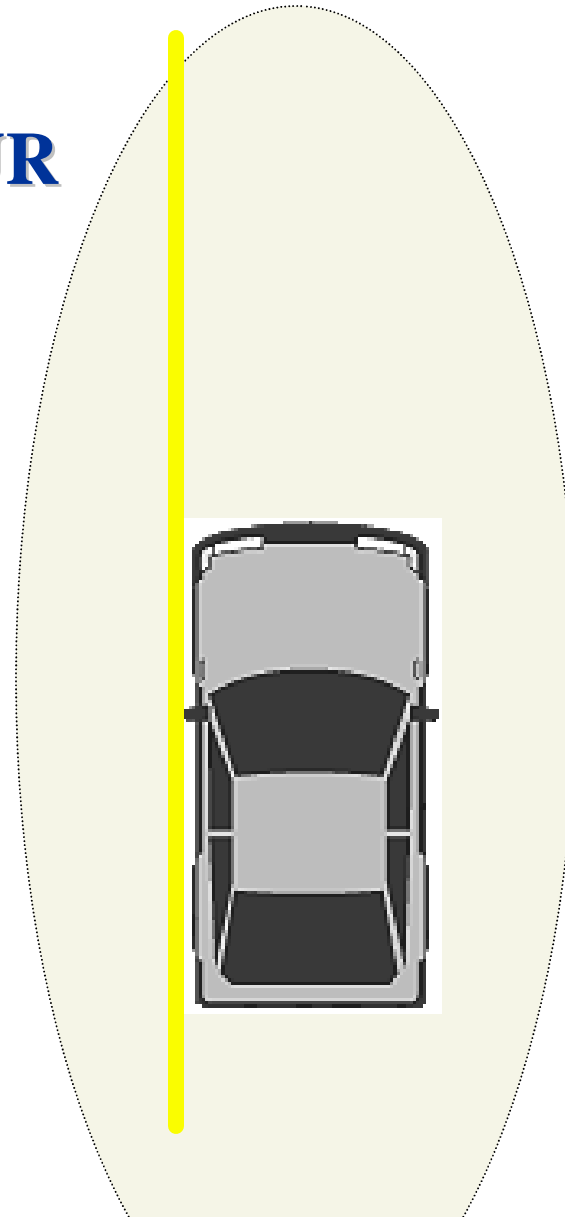
LANE POSITION # 1

- Your line of sight through the driver's side left fender to the center line.
- Your line of sight through the center of passenger's side right half of the hood to the edge or edge line of the roadway.



LANE POSITION # 2

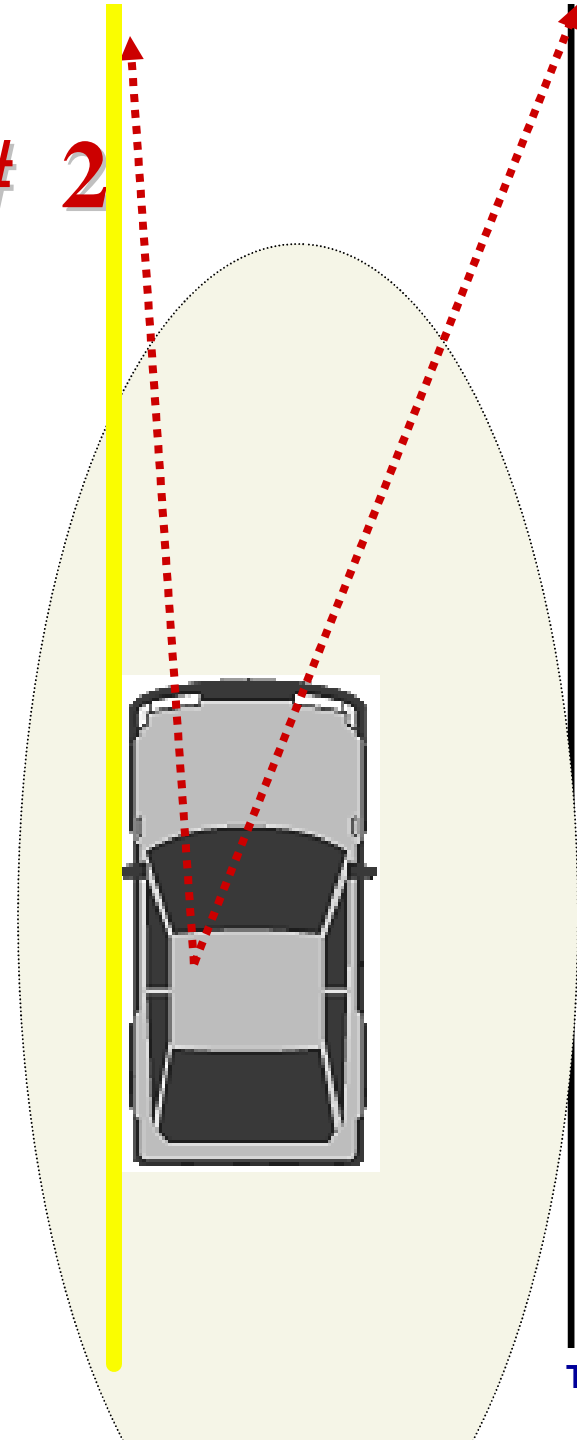
- **LEFT SIDE OF YOUR LANE.**
- **CAR IS 0-6 INCHES AWAY FROM LINE TO LEFT**



T-2.50

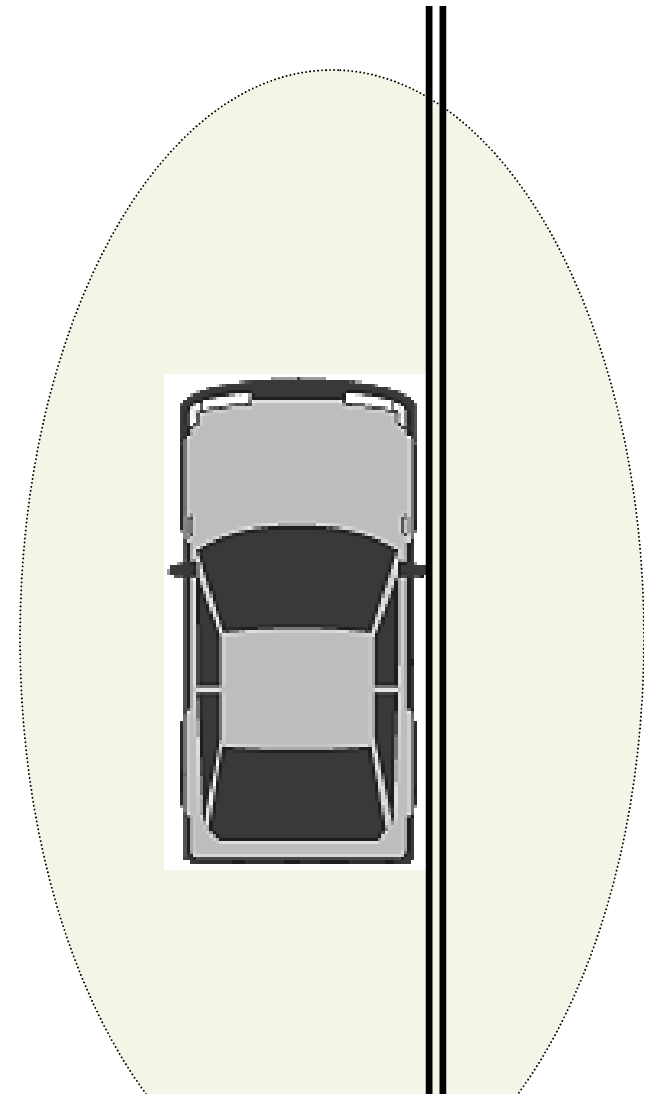
LANE POSITION # 2

- Your line of sight reference is about 1 foot from left side or may be the crack line between your left fender and hood of your vehicle to the curb.
- Your line of sight through the right side of the hood to the edge or edge line of the roadway.



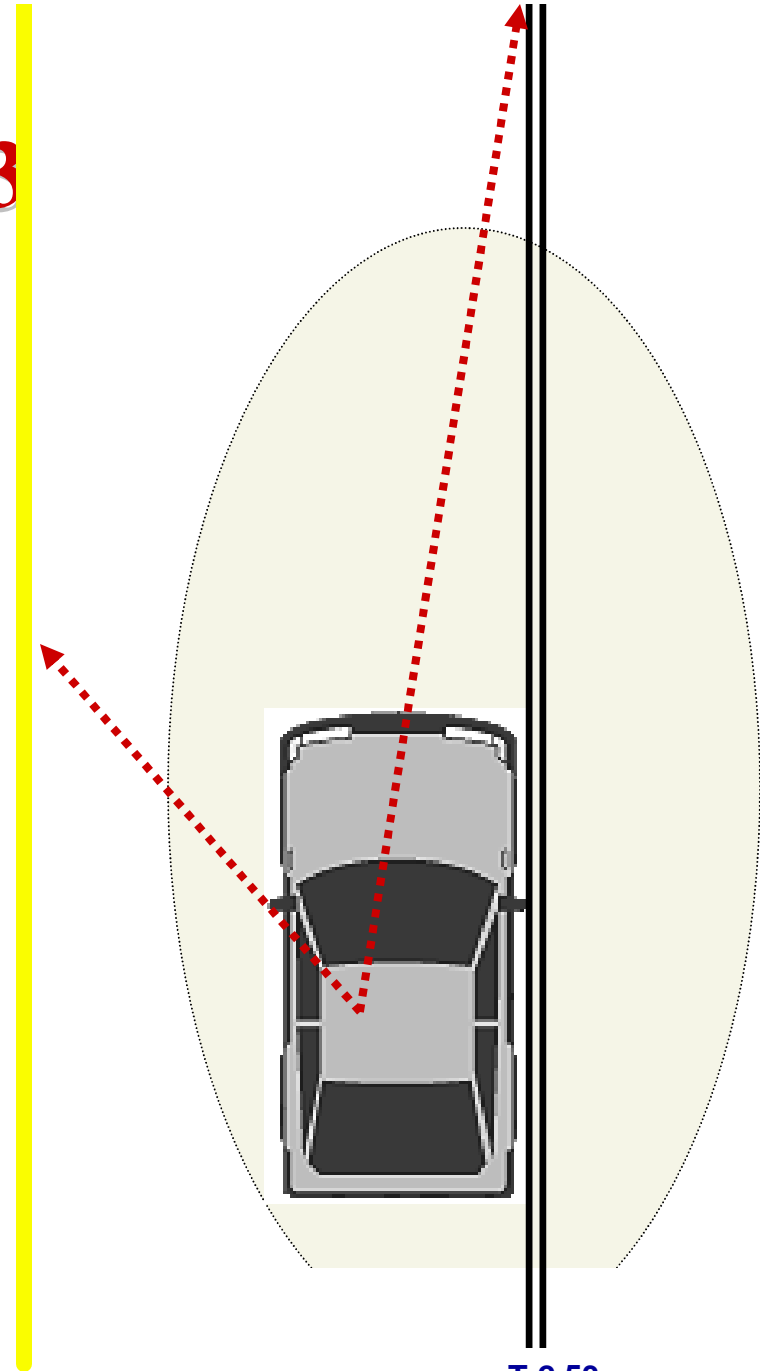
LANE POSITION # 3

- **RIGHT SIDE OF LANE.**
- **CAR IS 0-6 INCHES AWAY FROM EDGE OR EDGE LINE TO THE RIGHT**



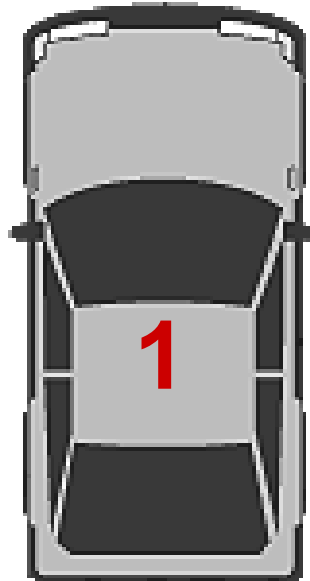
LANE POSITION # 3

- Your line of sight reference is the edge of the side mirror to the left.
- Your line of sight through the center of your hood to the right edge or edge line of the roadway.



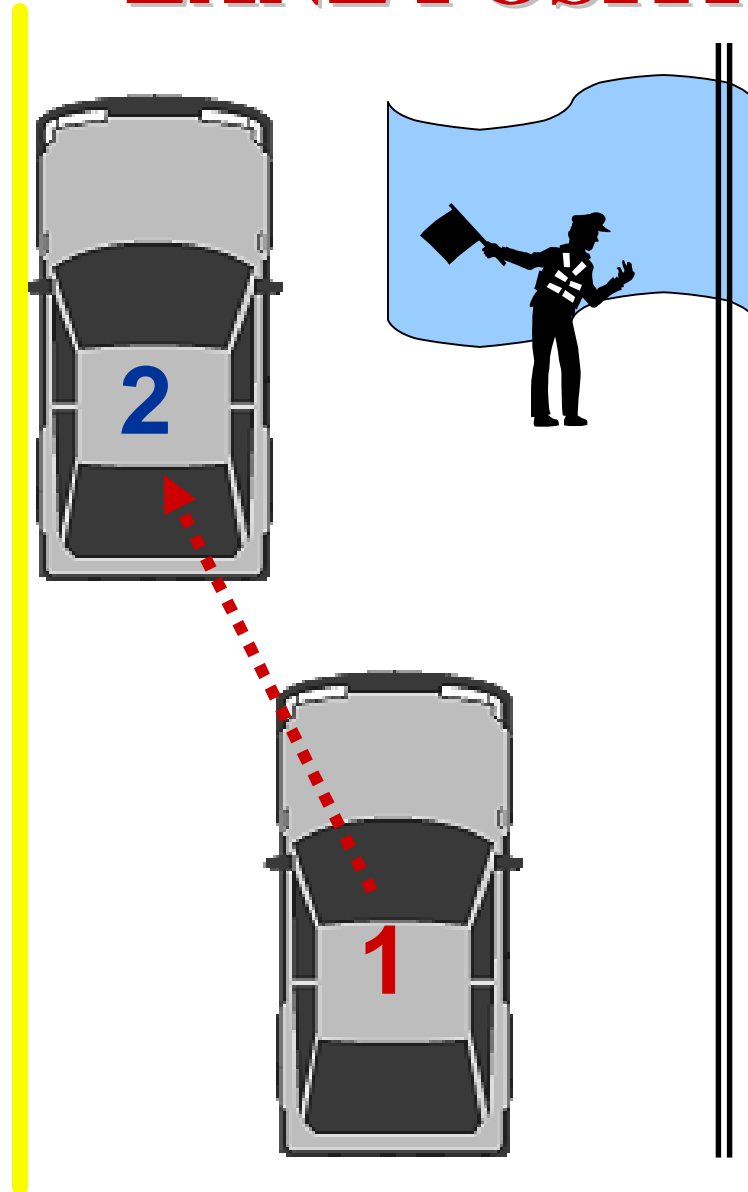
T-2.53

LANE POSITIONS



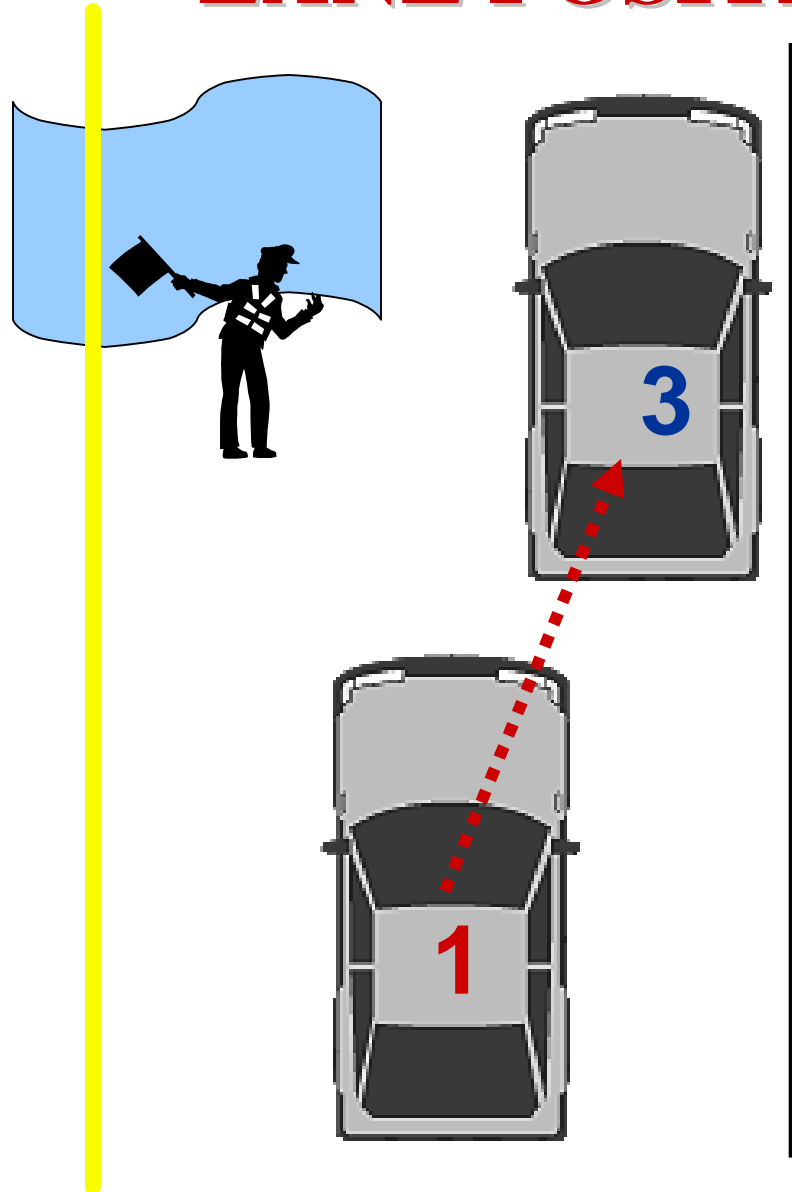
Position 1 is in the middle of lane and will be used for the majority of driving situations

LANE POSITIONS



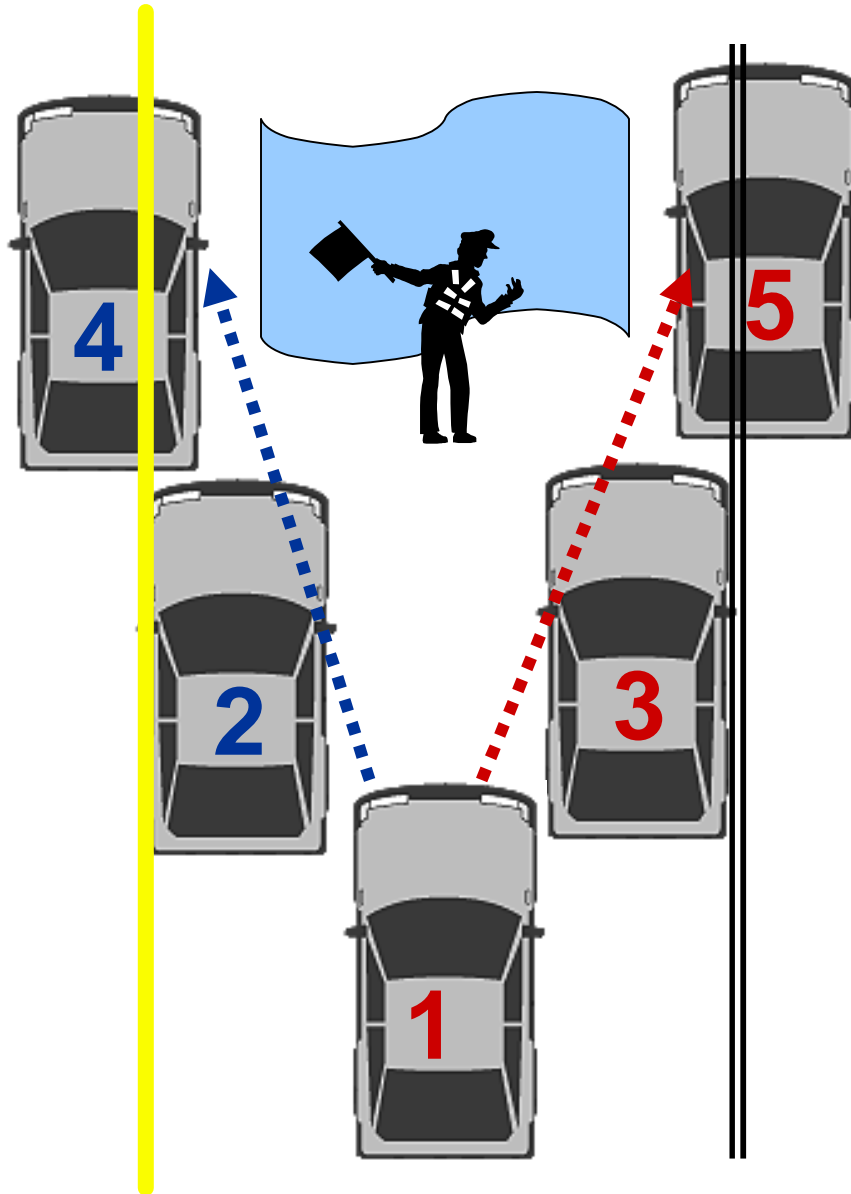
Position 2 is a placement to the left when a restriction to your path of travel or your line of sight exists, without having to move out of the lane of travel.

LANE POSITIONS



Position 3 is a vehicle placement to the right when a restriction to your path of travel or your line of sight exists, without having to move out of the lane of travel.

POSSIBLE LANE POSITIONS



Lane positions or placement will allow the driver to make adjustments to potential problems and create more space between the car and problem situations.

ANGLE PARKING POSITION & TURNING POINT

Place vehicle 5 feet from right side, target the middle of the parking space, and use right front turn point to initiate steering into middle of space.

