

Coach's **In-Car Guide**



SKID
Monster

March 2003

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Ten Habits Presented in the Sets

The activities in this guide reference Ten Habits from the book Your Car is a Monster! Ten Habits Will Keep It Caged!

Each of the activity sets from A to X provide the trainee with opportunities to be introduced to, or to practice, one or more of the Ten Habits. The following chart shows the Sets that each Habit is presented in.

Habit	Presented In Sets
1	A,D,E,G,H,I
2	B,D,E,F,G,H,I,N,O,Q,R,V,W
3	B,D,E,F,G,H,I,N,O,P,Q,R,V
4	I,J,K,L,M,N,O,Q,R,S,U,V,W
5	K,L,O,Q,R,S,T,U,W
6	J,K,L,N,O,P,Q,R,S,T,U,W
7	B,C,D,E,J,K,L
8	J,K,L,M,S,T
9	B,D,E,T,U
10	J,K,L,M,U

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Skid Monster Coach's In-Car Guide

Welcome to the exciting adventure of helping drivers to reduce and manage risk by the use of Skid Monster activities.

The Skid Monster gives trainees an opportunity to acquire lasting habits that can prevent, detect, manage, or correct, situations that can or does place the driver in harms way. The basis for the development of driver habit is structured in parallel with those habits presented in the book [Your Car is a Monster! Ten Habits Will Keep it Caged!](#)

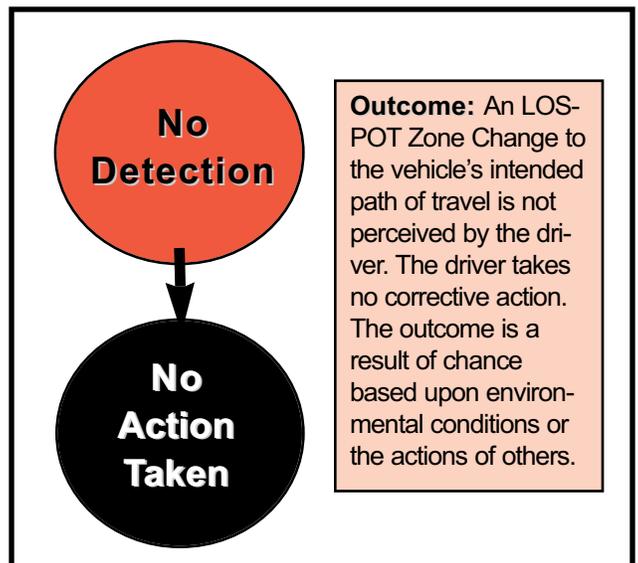
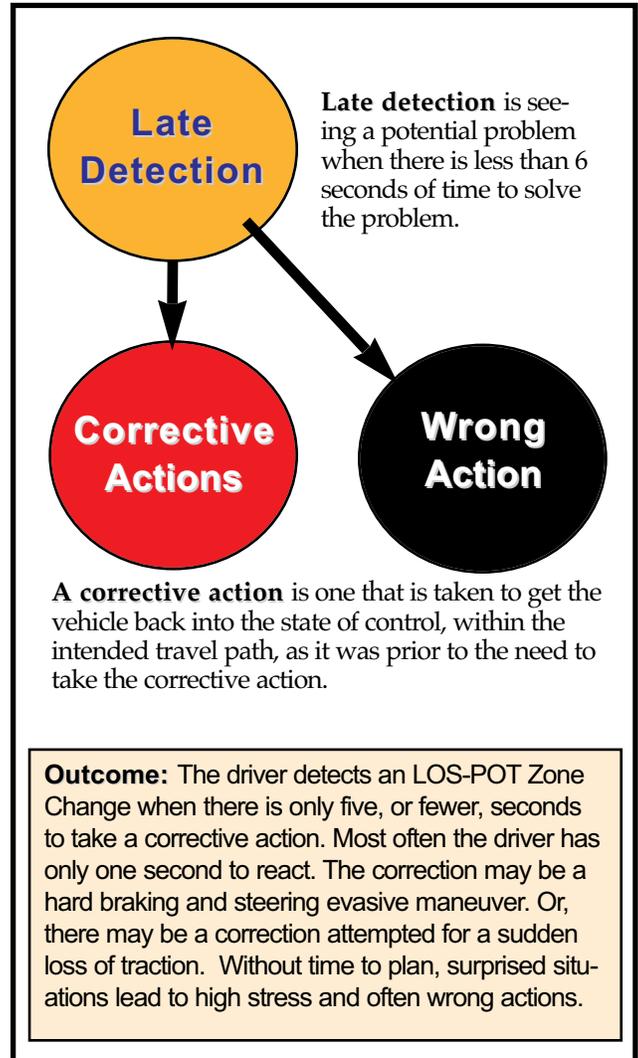
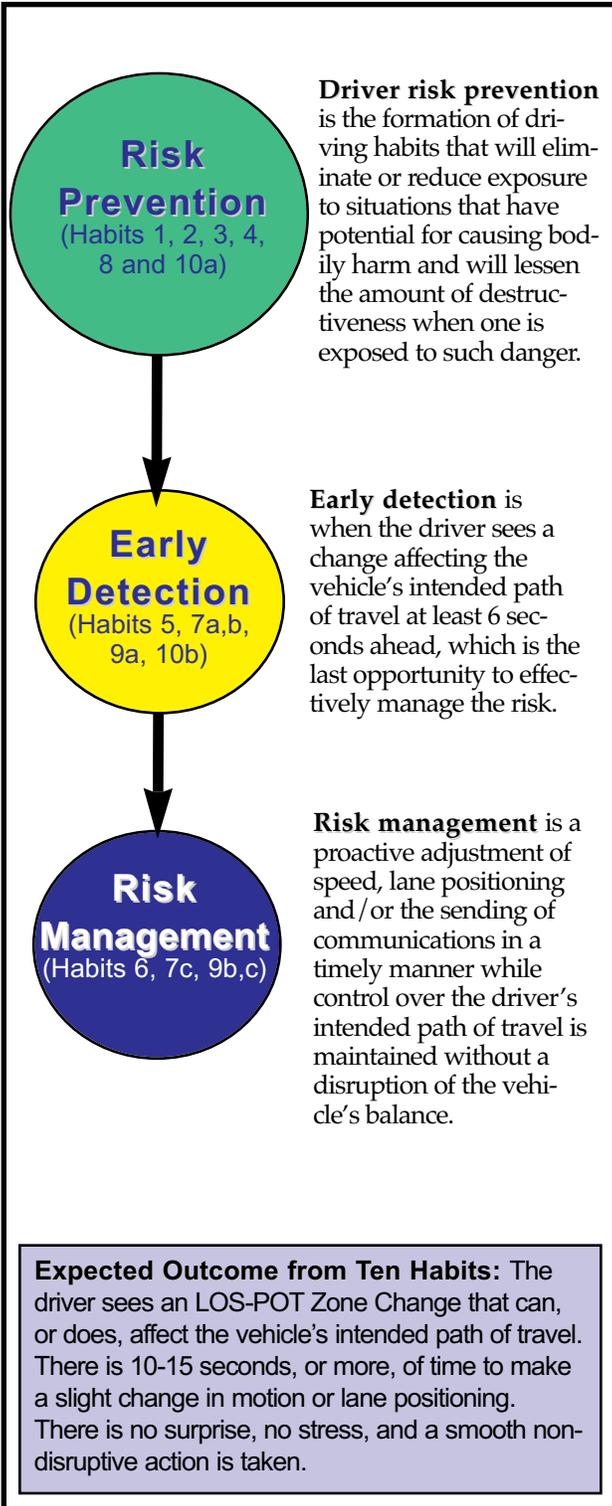
The ten habits are structured into those that will help the driver to prevent risk by receiving an early detection of situations that need to be managed. This allows the driver to proactively manage risk into non-eventful situations.

In order to effectively manage risk, there must be detection of the risk. There are three stages of Detection: an Early Detection, a Late Detection and No Detection. With Early Detection, there is time to make a speed adjustment, a change in lane positioning, or send a communication to manage the risk. With Late Detection there may only be time to take a Corrective Action, which may place a high demand on the driver's car control skills. When No Detection of a problem is made, elimination of the problem is left to chance and circumstances outside the driver's control. With the Ten Habits a driver is more likely to detect a problem, and be able to do so in a timely manner.

The activities in the Skid Monster are structured to simulate situations whereby the trainee is able to learn how to acquire and value an Early Detection of a problem. The activities also develop the skills that are needed to take Corrective Actions when a Late Detection occurs.

The following pages illustrate how Risk Management requires the Ten Habits and an Early Detection.

Risk Management Requires Ten Habits and Early Detection



Applying the Ten Habits to Risk Management

Risk Prevention Habits

Risk Prevention (Habits 1, 2, 3, 4, 8 and 10a)

- 1. Establish Driver-Vehicle Readiness** (page 4, Your Car is a Monster!)
 - Driver Fitness: mental/physical
 - Butt In Seating Position
 - Safety Belts On, Head Restraints Up
- Doors Locked, Windows Up
- Headlights On during daytime
- 2. See Path Before Putting Car in Motion** (page 6, Your Car is a Monster!)
 - See that the Targeting Path you intend to use is clear.
 - Turn head in direction of intended movement before turning steering wheel.
- 3. Keep the Car in Balance** (page 11, Your Car is a Monster!)
 - Make smooth and effective starts, stops, and steering actions.
 - Use transition pegs for effective transfer of braking, acceleration and steering forces.
- 4. Use Reference Points** (page 14, Your Car is a Monster!)
 - Know within 3-6" where your car is positioned to the roadway.
 - Know where the car's sides and front are in relation to intersections.
- 8. Get Rear Zone Control** (page 35, Your Car is a Monster!)
 - When your foot goes onto the brake, check the rearview mirror.
 - Before moving to either side, check mirror and blind spot.
 - When backing, check all mirrors continuously.
- 10. Interact Courteously With Others** (page 44, Your Car is a Monster!)
 - a. Empower yourself and reduce stress by being courteous, rather than competitive, while driving.

Early Detection Habits

Early Detection (Habits 5, 7a,b, 9a, 10b)

- 5. Do the Zone Control LOS-POT Searching Dance** (page 18)
 - Search to the Target Area.
 - Evaluate Targeting Path for LOS-POT (Line-Of-Sight, Path-Of-Travel) blockage.
- Detect LOS-POT blockage.
- Check other related zones.
- Re-evaluate LOS-POT at 4-second danger zone.
- 7. Control the Intersection** (page 30)
 - a. Identify LOS blockage.
 - b. Check for clear left, front and right zones before entering.
- 9. Get Control With a Vehicle in Front** (page 40)
 - a. When approaching a vehicle, close in gradually.
- 10. Interact Courteously With Others** (page 44)
 - b. Send and receive communications in a timely manner.

Risk Management Habits

Risk Management (Habits 6, 7c, 9b,c)

- 6. Turn Decisions into Zone Control Actions** (page 25)
 - Solve LOS-POT blockage while 12-15 seconds away.
- Get the best: speed control, lane positioning, and communication.
- Be prepared to make adjustments when you are 4 seconds away.
- Know your Stopping Distance and your Point-Of-No-Return.
- 7. Control the Intersection** (page 30)
 - c. With a red light, or stopped traffic, reduce speed to time your arrival into an open zone.
- 9. Get Control With a Vehicle in Front** (page 40)
 - b. When traveling at same speed, keep 4 seconds following time.
 - c. When stopped behind a vehicle, see its rear tires touching the road.

Safety Operation

Skid Monster Readiness:

- Check tire pressure: 60-65psi for casters, 38-40 for front tires of Skid Monster before the start of each training day.
- Remove the safety pin.
- Check security of air tank and objects in trunk, turn air valve on.
- Start each training day with at least 100 p.s.i. in the air tank.
- Have no loose object on the dashboard or on the rear window shelf.
- Clean windshield and side window before start of training.
- Keep **Windows up** (no guillotines), and doors locked during training.

Safe Skid Monster Operation:

- Establish that the trainee is capable of understanding and following your directions.
- **Never give directions or commands that you do not want the trainee to execute**, such as to “trick” the trainee into making a wrong response.
- Stay a minimum of 20 feet (a car length) from any object you don’t want to hit
- Maximum speed is 20 mph
- **Learn how the Skid Monster is going to respond** when approaching a course boundary. For example, is the back going to spin, and in which direction? Or, is the car going to travel too wide of a path and drift beyond the course’s boundary?
- **A common error by the trainee that results in the car going “too wide”** takes place when the trainee is approaching a corner too fast and doesn’t want to spin the car out of control so he/she puts in too little steering making the car go too wide and off course. Do one of the following to eliminate the problem.
- **Command** the driver to “brake” if the car is going too fast into a situation where it may go dangerously off course. Let the trainee know that you commanded the use of brake because speed was too fast to stay on course.
- **Emergency Stop** of the Skid Monster can be made **by you shifting the car into neutral** and pulling down on the steering wheel to spin it out, while at the same time **commanding the driver to “brake”**.
- You should be capable of **steering the car in the Monster mode** from the instructor’s seat.

Skid Monster Performance

Skid Monster's Design

The Skid Monster is designed to give drivers an opportunity to experience the consequences of losing control of the car, and to develop into habit the behaviors necessary to prevent, or correct, situations where the car gets out of control and turns into a "monster". As the coach, you have choices. The car can be operated with the rear wheels in the non-monster mode, which means the rear wheels are not able to caster; or, you can flip a switch to the "monster mode" to have the rear wheels caster .

The Monster Mode

When the wheels are in the "monster mode"(able to caster) the effect upon the car is chiefly dictated by four elements: 1. The speed of the car. 2. Turning of the steering wheel. 3. Braking actions. 4. And, by the upgrade or downgrade slope of the course. An excessive speed (there is never a need to go more than 20 m.p.h. to have effective training take place) coupled together with an incorrectly timed acceleration or braking action, or combined with a steering response that is too late, too early, not enough or too much, will cause the rear of the car to spin out of control. Correct usage of acceleration, braking, and steering is dependent upon visual inputs, which are experienced throughout the activity sets of this guide.



Situation A, shows the car on target while in the non-monster mode. Notice the effect the downgrade of the course has upon the "skid" when the switch is made to the "monster mode" in B and C. **Situation B** shows an "early detection" of the car "off target", which can be corrected by a small steering input to the right. **Situation C** shows a "late detection", which will require a very fast and full steering input to the left. Vision dictates where to steer and how fast to do it. Seeing the front of the car quickly moving off-target tells the driver to quickly turn the steering wheel to get back on target.

When to Go and When to Slow

If the car is in a "go" situation, one that does not require the car to stop, such as coming out of a turn, timely acceleration can sometimes assist the steering effort to get the car back on target. If there is a "slow" situation, one that requires a braking action or a reduction of speed, then the option to use the accelerator is not available. As a general rule, "if in doubt, leave the pedals out"—no braking, no acceleration. Vision will tell you what's correct.

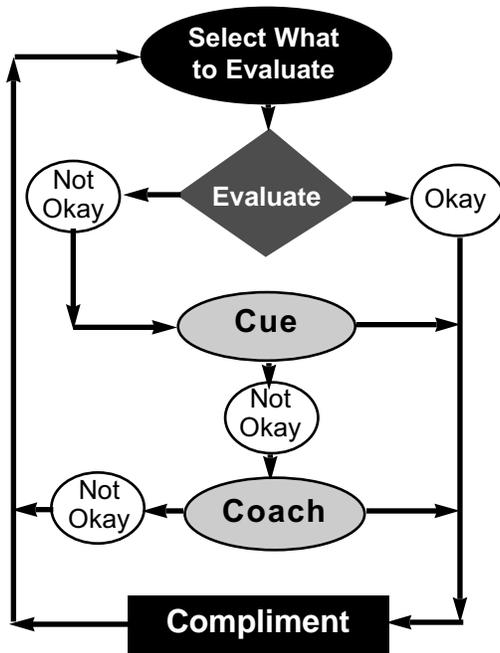
Introduction to this Guide

Every two pages contain a set of activities that have specific behavioral patterns for you to guide the trainee through. The left-hand page of each set contains preparation information for you to aid in the conducting of the activity. The right-hand page is a listing of the behavioral patterns that you will want the trainee to successfully perform. The sets are designed with a simple-to-complex structure to guide the trainee from one skill level to another. Each level builds upon the skills from previous sets.

The ECCC Coaching Model

Your role is to provide opportunity for the trainee to perform successfully. There are three levels at which the trainee is able to successfully perform. Listed from the most effective to the least effective demonstration of the trainee's skill level they are:

1. **Evaluate** a correct performance.
 2. **Cue** and get a correct performance.
 3. **Coach** and get a correct performance.
- Compliment** the trainee after observing correct performance.



Give positive feedback for one behavior as it is successfully performed. When it is not performed, work on repeating an opportunity to "cue" for the correct performance of the same behavior. When giving "cues" is not successful, give the trainee another chance to perform the same behavior. This time you should "coach" step-by-step, if needed, until proper performance is successfully achieved. Give positive feedback even when you need to coach for success.

Part One Skill Development

Objective

During this set the trainee will demonstrate rules to follow for safe operation of the Skid Monster. The trainee will also experience the *key behavioral patterns* that appear in **bold italics** under each activity. All drivers should demonstrate successful performance of this set's key behaviors before going on to the next set.

Course Set-up

No set-up is required for this set.

Directions

Before driving, review the safe operating procedure and vehicle readiness with the trainee.

Evaluation

The trainee should have received information prior to attending the in-car session. You should ask the trainee to explain or demonstrate the *key behavioral patterns* meanings and applications.

Coaching Tips

There are several levels of coach-trainee interactions that can take place. Some are more educationally effective for the development of lifelong habits than others. You can:

1. Tell the trainee what to do
2. Ask trainee to demonstrate correct performance
3. Ask trainees to explain reasons for performing a behavior correctly

The least effective level is number 1, to tell the trainee what to do. The most effective is to have the trainee demonstrate correctly and be able to explain why it is beneficial to perform correctly.

At all times observe the correct performance of the **key behavioral patterns**. When the trainee performs correctly, give him/her positive feedback of the specific behavior. When the trainee does not perform correctly, coach him/her to do so, then give positive feedback after successful performance.

If you have more than one trainee in the Skid Monster you need not go over all items with each trainee. You can, however, ask trainees in the back-seat to answer questions from this set. You should evaluate each driver by the behaviors of "Driver Readiness" before he/she drives.

Safe Skid Monster Operation:

- Trainee is able to understand and follow directions and commands
- Stay a minimum of 20 feet (a car length) from any object you don't want to hit
- Maximum speed is 20 mph

Vehicle Readiness:

- Check tire pressure at least once a month (*Skid Monster tires are checked, by the Coach, each day before training begins*)
- Check security of objects inside passenger compartment and in trunk
- Check operation of all equipment, instruments, and lights on a regular basis
- Check for clean windshield before driving
- **Windows up** (no guillotines), doors locked

Driver Readiness:

- **Butt-in** seating position (slide butt all the way back)
- **Seat adjustment:** height, distance (wrist even with top of steering wheel)
- **Safety belts on** all occupants
- **Heel of right foot in alignment with brake pedal**, ball of foot on brake
- Be able to **pivot foot from brake to accelerator** without lifting heel
- **Balanced hand position** on steering wheel; 9-3 preferred



Habits Introduced in this Set

Habit 1. Establish Driver-Vehicle Readiness

Objective

This set is the beginning of training in the efficient use of vision for targeting to achieve motion control. With motion control efficient use of acceleration, braking and steering actions keep the pitch, roll and yaw forces of the car in balance. Also, use of the tire concept is introduced.

Course Set-up

See the Exercise Set-Up section of this book for complete information.

Directions

Begin each run in non-monster mode, then switch to the MONSTER mode during acceleration. Have the trainee go from one target to the other. Have them make a complete stop before they get any closer to the barrier than where they can still see the base of it (like seeing the tires of a stopped car). Make the comparison to stopping to see the base of the target object to that of seeing the rear tires of a stopped car.

Say to the Trainee:

- Our objective is to drive from one target to the other. Once we begin to turn around target A, our goal is then to drive to target B. We will be repeating this process going from one target to the other
- We will be using these two barriers as targets. One we will call "target A" the other "target B".
- Accelerate to 15 m.p.h. for target A and then slam on the brake and make a smooth stop (release slight pedal pressure during last two seconds of braking) while keeping the car on target.
- Have the stops make where the base of the barrier is just in view with no part of the parking lot seen.
- To turn the vehicle around we will go around the outside of the target, keeping as close to it as possible.

Evaluation and Coaching

Observe whether the trainee performs the **key behavioral patterns** that are listed on the page to the right. You may only be able to observe two or three of the behaviors each time an approach to the target is performed. You must know ahead of time which behaviors you are going to observe. If the trainee performs correctly say, "I liked the way you ...". If incorrect performance is evaluated, then have the trainee repeat the exercise and coach him/her for successful performance, then give positive feedback.



Habits Introduced in this Set

- Habit 2. See Path Before Putting Car in Motion
- Habit 3a. Keep the Car in Balance
- Habit 7. Control the Intersection
- Habit 9c. When Stopped, See Rear Tires

Direct Vision to Target

- *Checks the left, front and right zones before moving*
- *Turns head on target before turning steering wheel*
- *Positions Car on Target*, avoids over correction of steering
- *Uses Central and Fringe Vision* (see target with central vision, see car to target with fringe vision)

Steering Techniques:

- Uses a *balanced hand position* on the steering wheel
- Uses the *Hand-Over-Hand* or *Pull-Push* method effectively
- *Knuckles and thumbs on outside* when holding and turning wheel

Acceleration Techniques:

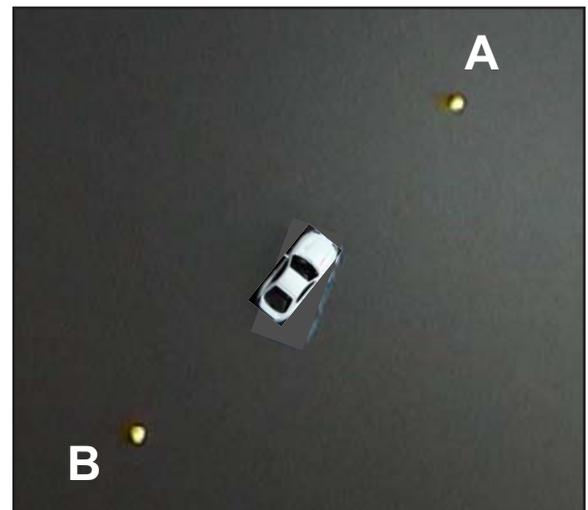
Cycle the **Skid Mode** on and off randomly

- *Sees open space before accelerating*
- *Sets Car into motion smoothly* (idle speed, then accelerate gradually)

Braking Techniques:

For some of the target approaches ask the trainee to accelerate rapidly and smoothly to 15 m.p.h. then direct him/her to SLAM on the brakes and make a fast smooth stop.

- Applies the *brake with the right foot* (unless physically restricted)
- Uses *controlled threshold braking* efficiently without locking the wheels
- Brings the vehicle to a *smooth stop*.
- Stop to see the base of the barrier to represent the *tire concept* before steering around the barrier to the other target.



Objective

This set provides practice in the use of targeting and the efficient use of vision, motion control (acceleration and braking) and steering control to keep the car in balance.

Course Set-up

No cones are needed, nor used. Use targets that appear around the perimeter of the parking lot. Even targets that are in the distance, such as: a church steeple, a billboard, a part of a building, can be used.

Directions

Say to the Trainee:

- Find the "pole" target and then get on target.
- Accelerate to 15 m.p.h. then slam on the brake and make a smooth stop while keeping the car on target.
- Turn the vehicle around to "tree" target 180 degrees in the opposite direction.

Evaluation

You should ask the trainee to perform a maneuver such as the commands listed above under "Directions" without any cuing or coaching. Observe whether the trainee performs the **key behavioral patterns**. You may only be able to observe two or three of the behaviors each time a maneuver is performed. You must know ahead of time which behaviors you are going to observe. If the trainee performs correctly say, "I liked the way you ...". If incorrect performance is evaluated, then have the trainee repeat the exercise and coach him/her for successful performance, then give positive feedback.

Coaching Tips

- **Begin** to establish names for various targets around the perimeter of the training area. For example, "Target the pole" ... "Target the tree" ... "Target the building" ... "Target the bush". (A large object may require targeting a part of it, like the corner of the building). Keep consistent names for the targets. These target names will come in handy as training progresses.
- If the parking lot has a camber, the back of the car will tend to move in the downside direction. Coach the trainee to immediately correct the sliding action to get the car moving towards the target. The longer the "off-target" condition takes place, the greater the "yaw" angle becomes which requires more turning of the steering wheel for a corrective action.

Target Selection:

Select and identify one target for the trainee, then turn the car 180 degrees and identify another target. Begin each run in non-monster mode, then put switch to the MONSTER mode during acceleration.

- *Checks the left, front and right zones before moving*
- *Turns head on target before turning steering wheel*
- *Positions Car on Target*, avoids over correction of steering
- *Uses Central and Fringe Vision* (see target with central vision, see car to target with fringe vision)

Steering Techniques:

- Uses a *balanced hand position* on the steering wheel
- Uses the *Hand-Over-Hand* or *Pull-Push* method effectively
- *Knuckles and thumbs on outside* when holding and turning wheel

Acceleration Techniques:

Cycle the **Skid Mode** on and off randomly

- *Sees open space before accelerating*
- *Sets Car into motion smoothly* (idle speed, then accelerate gradually)
- Uses *transition pegs* effectively

Braking Techniques:

- Applies the *brake with the right foot* (unless physically restricted)
- Uses *controlled threshold braking* efficiently without locking the wheels
- Holds the brake until at the *transition peg* for turns made without stopping.
- Brings the vehicle to a *smooth stop*. (Release slight pedal pressure by pulling toes slightly off the brake during last two seconds of braking to gradually ease the pitch force).



Habits Practiced in this Set

- Habit 1. Establish Driver-Vehicle Readiness
- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 7. Control the Intersection
- Habit 9c. When Stopped, See Rear Tires

Objective

This set gives the trainee practice time to build upon the skills that were introduced and experienced in sets A -D.

Course Set-up

No cones are needed, nor used. Use the same targets that were used in set "D". You can randomly select new targets around the perimeter that the trainee is to search for and drive to.

Directions

- Have trainees make turns from a stopped position by selecting a target before the turn is made.
- Then have trainees make turns to other targets without making a full stop by holding partial brake pressure until at the transition peg.

Evaluation

- If you have a student eye monitor mirror, use it to view where the student's head and eyes are directed before, during and after the turn is made.
- Otherwise, you can adjust the inside mirror for viewing the student during this stage of training.

Coaching Tips

- Eyes and head should be directed towards the target before a steering action is taken.
- Give trainees an opportunity to perform while you observe one or two key behavioral patterns.
- When you observe correct behavior give positive feedback such as, "turning your head on target was good".
- When you observe incorrect behavior, set up the same opportunity, but this time cue the student for the correct response such as, "turn your head to the target before you begin to steer".



Habits Practiced in this Set

- Habit 1. Establish Driver-Vehicle Readiness
- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 7. Control the Intersection
- Habit 9c. When Stopped, See Rear Tires

Targeting From Stopped and Moving Positions – 180 degree turns:

- *Searches left, front and right* zones before moving
- *Smooth Acceleration* on Starts: no pitch forces felt
- On Moving Turns: *Applies brake effectively before steering*
- *Turns Head On Target* before turning steering wheel
- *Detects and Corrects Skid yaw* immediately
- *Off pedals during skid* (no gas, no brake)
- *Keeps head turned towards target* during skid recovery
- *Steering recovery* initiated at *Transition Peg* (corner post for left turns, rear view mirror for right turns)
- On stops: *Smooth Braking*, no pitch forces felt

Braking Techniques

- Applies the *brake with the right foot* (unless physically restricted)
- Uses *controlled threshold braking* efficiently without locking the wheels
- On Moving Turns: *Keeps Partial Braking Pressure* until *Transition Peg*
- Brings the vehicle to a *smooth stop*. (Release slight pedal pressure by pulling toes slightly off the brake during last two seconds of braking to gradually ease the pitch force).



The car is on target for the stop sign.

F Demo of Transition Pegs and Vision for Turns

Objective

This activity demonstrates how important timing of brake release and initiation of acceleration is while making a moving turn. When the brake is released too soon, or when acceleration takes place too soon, the car gets out of balance and can become uncontrollable. With effective timing of brake release and acceleration positive energy is applied. Hold partial brake until at the transition peg. To release the brake before the transition peg will add more energy to the vehicle's inertia making it more difficult to turn. Once beyond the transition peg (more than halfway into turn) the brake can be released and acceleration should take place without delay.

Directions

- This activity is explained as it would be used to demonstrate to a group. You (the Skid Monster Coach) will drive the car and perform the activity as noted on the following page.
- It is important that each of the three demonstrations be performed in the same manner to make the concepts easily understood by the audience. For example, in the second demonstration if you accelerate very slowly the audience may think that the vehicle failed to spin out because you did not accelerate rapidly, rather than conveying the fact that acceleration took place at the incorrect moment.

NOTE: This activity could also be incorporated as part of Skid Monster training with a trainee after he/she has demonstrated successful and consistent use of transition pegs for making turns. The activity will essentially be the same except that the trainee will be driving.

Evaluation and Coaching Tips

- When having trainees do this demonstration you will need to evaluate, and be prepared to coach, the trainee to stay focused on the target and not to give heavy acceleration until at the transition peg.
- If you are demonstrating to an outside group roll down your window to explain what you are doing before each demo. Get their reaction after each demo. Ask two of them to be inside the car as passengers. However, they should first be aware of the potential of the back of the car to spin.



Habits Demonstrated

- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance

F Demo of Transition Pegs and Vision for Turns

Safe Skid Monster Operation:

Choose an open area. Keep outside observers a safe distance from where you will perform the demonstration.

Demonstrations:

Value of Transition Pegs into Turns

1. Place Skid Monster in non-MONSTER mode.

First Demo: *Wrong behavior with no consequence = positive feedback for negative behavior*

- Select a target 90 degrees to the left.
- Rapidly accelerate while turning the steering wheel.
- Ask: "How did you feel the car handled?"

You may get answers such as: "It felt pretty good", "It felt a little funny" or "It handled fine".

NOTE: the car should handle pretty well because it was *not* in the "Skid Mode".

2. Place Skid Monster in MONSTER mode.

Second Demo: *Wrong behavior with consequence = negative feedback for negative behavior*

- Select a target 90 degrees to the left.
- Rapidly accelerate while turning the steering wheel. (the car will spin out)
- Ask: How did you feel the car handled?

Make the point that vision was incorrectly used and acceleration was applied too early in both cases. However, this time with the car in the monster mode it was like hitting a patch of sand or an oil slick. It was just that one additional risk factor that caused the car to go out of control when wrong behavior was used.

3. Place Skid Monster in MONSTER mode.

Third Demo: *Correct behavior no consequence = positive feedback for positive behavior*

Explain that this time you will correctly use vision to see a transition peg to determine the moment to accelerate. Make the same turn.

- Explain and show that the driver's windshield post (A pillar) when lined up with the target is the transition peg for a left turn.
- Select a target 90 degrees to the left - Use slightly more than idle speed to move the car into the left turn.
- At the **Transition Peg**, accelerate rapidly while focusing on the target.
- The car was in the Skid (monster) mode. Explain to the group how the car remains in control when vision is used properly to determine when to accelerate.

Objective

- C This set adds the introduction of the use of transition pegs for effective acceleration and braking to keep the forces of the car in balance.

Course Set-up

Use the same set-up as that used for B set.

Directions

- This is similar to Set B except you will not have the trainee make a complete stop before turning around the barrier to head back to the other target. Begin each run in non-monster mode, then switch to the MONSTER mode during acceleration.
- To introduce the trainee to transition pegs when the car is on the backside of the barrier have the trainee stop the car when it is at the transition peg so they can clearly know how the transition peg is viewed in relation to the target.
- Do the transition pegs for left and right turns.
- Remember you can see your transition peg as a coach that is the mirror image of what the driver sees.
- For you as a coach, you see the left-turn transition peg when the rearview mirror is aligned with the target, and the right-turn transition peg when the passenger-side windshield corner post is aligned with the target.

Evaluation and Coaching

- Observe the head movement of the trainee while turning the car from one target to the other. When properly performed give the trainee positive feedback. When not, coach for a correct response.
- Be prepared for the trainee to make the common error of releasing brake pressure before the car is at the transition peg.
- When speed is slow enough during the turn-around that braking is not needed, the trainee should increase acceleration when the car is at the transition peg. A common error occurs when there is a premature increase in acceleration before the car reaches the transition peg.
- Keep in mind that these are new behavioral patterns for most drivers. You will get the best results if you cue the driver by saying "hold the brake, hold the brake" and then say "accelerate" when you see the transition peg.



Habits Introduced in this Set

- Habit 3b. Keeps the Car In Balance
• Use Transition Pegs

Direct Vision to Target

- Checks the *left, front and right zones before moving*
- Turns head on target before turning steering wheel
- Positions Car on Target, avoids over correction of steering
- Uses *Central and Fringe Vision* (see target with central vision, see car to target with fringe vision)

Steering Techniques:

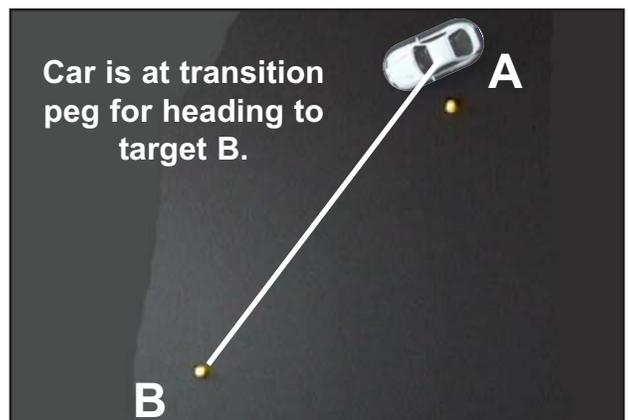
- Uses a *balanced hand position* on the steering wheel
- Uses the *Hand-Over-Hand* or *Pull-Push* method effectively
- *Knuckles and thumbs on outside* when holding and turning wheel

Acceleration Techniques:

- Explain and show that the driver's windshield post (A pillar) when lined up with the target is the transition peg for a left turn. The rearview mirror is the transition peg for right turns.
 - *Sees open space before accelerating*
 - *Sets Car into motion smoothly* (idle speed, then accelerate gradually)
 - *Increases acceleration at transition peg* while focusing on the target.

Braking Techniques:

- Applies the *brake with the right foot* (unless physically restricted)
- Uses *controlled threshold braking* efficiently without locking the wheels
- Brings the vehicle to a *smooth stop*.
- Holds partial braking until at the *Transition Peg* then go from braking to acceleration without delay.



Objective

This exercise simulates the driver being on a limited access highway when suddenly a passenger says, "Here's our exit, TAKE IT". The car very quickly gets out of balance and frequently out of control. The trainee experiences the relationship of how excessive speed and excessive steering executed during a surprise situation results in the car going out of control.

Course Set-up

No cones are used. Targets on the perimeter of the parking lot, as those previously identified, will be used.

Directions

- While the car is straight and on target, switch to the Monster mode. Observe at this time how quickly the trainee corrects for the yaw when the switch to Monster mode is made.
- With the car's speed at 15 mph, **tell the trainee, in a voice expressing urgency, "TURN RIGHT (or left) FOR THE!"** The target you select should require at least a 90-degree movement of the car.
- If the driver does all the correct actions of reducing speed before steering, give positive feedback. Then you may want to set-up a demonstration by telling him/her that you want them to make a fast, hard cut to the new target to see what happens when such actions are taken.00
- Make the analogy that many drivers, rather than miss their exit on a highway, will make the mistake of attempting a hard braking and steering action to exit at which time the car turns into a monster.
- **Give the trainee quick changes from one target to another** to experience how speed and large steering inputs affects car control.

Evaluation

- Observe whether the trainee applies the brake to get a speed reduction, and holds the brake before taking a steering action.
- The common error is the trainee will turn the steering wheel in response to the urgency of your voice.
- You want the trainee to see the effects that speed and a late decision has upon causing the skid and reducing the opportunity for a successful skid recovery.

Simulated Late Exiting:

Continue to use the same targets previously selected. Direct students to get on target and then in a voice with a quick, urgent tone, say, "**TURN RIGHT FOR THE!"** The target you select should require at least a 90-degree movement of the car.

Observe these Behaviors first

- Applies brake and *reduces speed before steering to new target*
- *Turns Head On Target* before turning steering wheel

Behaviors to Maintain Control

- *Detect and Correct Skid yaw* immediately (stay off pedals during skid recovery)
- *Keeps head turned towards target* during skid recovery
- On Moving Turns: *Keeps Partial Braking Pressure* until *transition peg*
- *Steering recovery* initiated at *Transition Peg* to avoid corrective steering
- *Smooth Acceleration* on Starts: no pitch forces felt
- On stops: *Smooth Braking*, no pitch forces felt



Habits Practiced in this Set

- Habit 1. Establish Driver-Vehicle Readiness
- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance

Objective

This exercise, which has two parts, simulates the car going off target into a rear wheel skid. First, it gives the trainee an opportunity to detect the beginning of a skid and to make timely and appropriate corrections.

Second, it lets the trainee experience the relationship of how excessive speed and excessive steering reduces the opportunity to correct a skid. This exercise also provides skills that will be needed to perform successful evasive steering maneuvers.

Course Set-up

Targets on the perimeter of the parking lot will be used.

Directions

First Part: • Direct the trainee to various targets with the Monster mode in the off position.

- While the car is straight and on target, switch to the Monster mode. Observe at this time how quickly the trainee corrects for the yaw when the switch to Monster mode is made.

Second Part: • After the trainee demonstrates proficiency in detecting and correcting skids do this part.

- Begin with the switch in the Monster mode and the car on target.
- You will tell the trainee that you are going to move the car off target. **You can move the car off target to the left (or to the right) as far as the transition peg.**
- **Place your left hand on the steering wheel** at the three position. You can then move the steering wheel up or down to get the car off target.
- Begin with small, slow movements off target, then as success is achieved, increase the angle off target and the quickness of your movement of the steering wheel.
- Have the trainee see how far off target corrections can be made at given speeds.

Evaluation

- During this activity always observe that the trainee keeps his/her head and eyes on target while you are causing the car to go off-target.
- You want the trainee to take his/her foot off the accelerator or brake pedal as soon as they see the car begin to move off target. (You can keep your hand on the wheel in the 3 o'clock position for a few seconds without moving the wheel to be certain the trainee is reacting to the car's movement off target, rather than to the movement of your hand on the wheel).
- As soon as you move the car off target, take your hand away from the steering wheel and observe how effectively the trainee is using eyes, head, and steering movements.

On Target/Off Target:

- Direct the trainee to get on target. Tell the trainee, "I am going to move the car off target. The more off target I move the car the quicker your actions to correct it must be".
- Begin with a speed of 10 m.p.h. and slight movement of the steering wheel off target. As success is achieved you can have the trainee bring the speed up to a maximum of 15 m.p.h. You can deflect the steering wheel off target as far as slightly beyond the transition peg.
 - See that trainee's foot comes off the pedals as you move the *steering wheel off target*
 - **Trainee Keeps Head On Target** as steering wheel moves car off target
 - **Detect and Correct Skid yaw** immediately (stay off pedals during skid recovery)
 - **Keeps head turned towards target** during skid recovery
- After recovery, as trainee is Making a Turn for the New Target:
 - **Keeps Partial Braking Pressure** until *transition peg*
 - **Steering recovery** initiated at *Transition Peg* to avoid corrective steering
 - **Smooth Acceleration** on Starts: no pitch forces felt
 - On stops: **Smooth Braking**, no pitch forces felt



The stop sign is the target. The car is off target. Steer to the right to get back on target.



Habits Practiced in this Set

- Habit 1. Establish Driver-Vehicle Readiness
- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance

Trainee Gets On/Off Target

Objective

This exercise lets the trainee experience the relationship between excessive speed and excessive steering and the opportunity a driver has to correct a skid. This exercise also provides skills that will be needed to perform successful evasive steering maneuvers.

Course Set-up

Targets on the perimeter of the parking lot will be used.

Directions

- Direct the trainee to various targets with the Monster mode in the off position.
- While the car is straight and on target, switch to the Monster mode. Observe how quickly the trainee corrects for the yaw when the switch to Monster mode is made.
- With the switch in the Monster mode and the car on target tell the trainee to move the car off target.
- Have them begin with small, slow, movements off target. As success is achieved, have them increase the angle off target and the quickness of their movement of the steering wheel.
- Have the trainee see how far off target corrections can be made at given speeds.

Evaluation

- During this activity always observe that the trainee keeps his/her head and eyes on target while getting the car off-target.
- Start by having the trainee make small movements off target. And, eventually have them move the car off target until the transitions pegs go past the target.
- The more movement off target, the faster and greater the steering action must be to get back on target.
- Trainees will either not turn enough off target to get a skidding action, or they will delay taking a corrective steering action which results in failure.
- You want the trainee to move the car off target rapidly and make corrections rapidly until they can clearly see the effect that speed and a late detection has upon skid recovery.

Trainee Gets On/Off Target

On Target/Off Target:

- Direct the trainee to get on target. With the car on target, tell the trainee, "Move the car off target. The more off target the car is moved, the quicker your actions to correct it must be".
- Begin with a speed of 10 m.p.h. As success is achieved you can have the trainee bring the speed up to a maximum of 15 m.p.h. The steering wheel can be moved off target as far as slightly beyond the transition peg.
 - Foot off pedals to reduce speed before **steering off target**
 - **Keeps Head On Target** before turning steering wheel off target
 - **Detect and Correct Skid yaw** immediately (stay off pedals during skid recovery)
 - **Keeps head turned towards target** during skid recovery
- After recovery, as trainee is the Making Turn for a New Target:
 - **Keeps Partial Braking Pressure** until **transition peg**
 - **Steering recovery** initiated at **Transition Peg** to avoid corrective steering
 - **Smooth Acceleration** on Starts: no pitch forces felt
 - On stops: **Smooth Braking**, no pitch forces felt



Habits Practiced in this Set

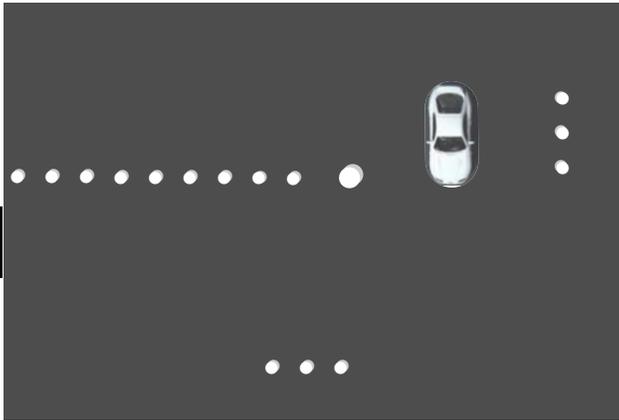
- Habit 1. Establish Driver-Vehicle Readiness
- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance

Objective

During this set the trainee is able to apply the key behavioral patterns presented from Sets A-G to making a turn from a stopped position.

Course Set-up

See the exercise Set-up section of this book. **While making left turns**, the three outer cones represent the edge of a mountain over which the car should not plunge. **While making right turns**, the three cones represent the center of the road with on coming traffic.



Directions

Making Turns From a Stopped Position

- Approach the corner as if it is a stop sign controlled intersection.
- Give the trainee an opportunity to drive fast enough to experience failure. However, avoid telling the trainee to “go faster”. If the trainee is only going 5 mph, you may want to say, “increase your speed to ten miles per hour.”

Turn MONSTER mode on and off

- Once the trainee feels comfortable with the speed of the course, put the MONSTER mode on while braking during the approach to the turn.
- After success, put the MONSTER mode on during the turn, which is most difficult.
- Repeat the on and off use of the MONSTER mode.
- Establish a speed at which success occurs with the MONSTER mode.

Evaluation

- Use the student eye monitor mirror. You should see a change in eye and head movement when the driver is turning. The head should be turned into the turn before steering begins.
- As the car is completing the turn you should see the head straighten to be aligned with the target and the steering wheel.

Left and Right Turns–Stopped Position

Go around the course once in the non-monster mode to identify targets. **Then mix up the turns, some in MONSTER mode, others not.** Point out to trainees the effects the parking lot camber has upon making right turns as compared to the left turns.

- *Signals for turn 5 seconds* before stop
- Begins *braking effectively* on approach
- *Check rearview mirror* when foot goes on brake
- *Makes smooth stop*
- Uses side position *reference point*
- Uses *reference points* for stop position
- Selects *Target before beginning turn*
- *Searches intersection* for clear left, front, right zones
- Uses forward position *reference point*
- *Turns head* onto target *before accelerating*
- See cones with *peripheral vision*
- *Accelerates at Transition Pegs*
- Uses *effective steering* technique
- *Detects and correct skid yaw* (off pedals during skid)
- *Timely Acceleration* to 15 mph when space permits



Habits Introduced in this Set

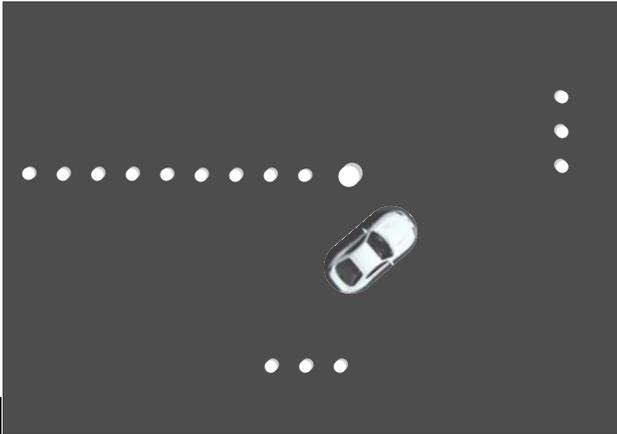
- Habit 4. Use Reference Points
- Habit 5. Do Zone Control LOS-POT Search Dance
- Habit 6. Turn Decisions into Zone Control Actions
- Habit 7. Control the Intersection
- Habit 8. Get Rear Zone Control
- Habit 10b. Interact Courteously With Others

Objective

During this set the trainee is able to apply the key behavioral patterns presented from Sets A-H and apply them to making turns without stopping.

Course Set-up

Use the same course layout as that of Set J.



Directions

Speed Selection Entering Turn

- Allow the trainee to select the speed he/she feels most comfortable with.
- Give the trainee an opportunity to drive fast enough to require speed to be controlled by the brake pedal before beginning to steer into the turn.

Turn MONSTER mode on and off

- Have the MONSTER mode off to get the car straight on target during the beginning of the approach.
- Put the MONSTER mode on while approaching the turn or while in the process of turning.
- Repeat the on and off use of the MONSTER mode.
- Establish a speed at which success occurs when the car is at the apex cone with the MONSTER mode.

Evaluation

- Evaluate all the key behavioral patterns listed on the next page. Give the trainee positive feedback.
- Observe the speed selection while approaching the curve. Look for too early or too hard of a braking action which requires the driver to reapply acceleration before reaching the transition peg.
- When ineffective braking occurs, evaluate which of the following conditions are taking place:
 1. The driver applies the brake too late, requiring too much braking and steering at the same time.
 2. The driver applies too much brake too early requiring a premature release of brake, or acceleration, before the transition peg.

Left and Right Turns—Moving Position:

Approach some turns in the MONSTER mode, others not. First activate the MONSTER mode only while approaching the turns. After trainee demonstrates competency, you can also activate the MONSTER mode during the turn. You can treat this course as if a turn is being made at a tee intersection (signal lights should be used) or as a 90 degree curve in the road (no use of signal lights).

- **Signals for turn 5 seconds** before turn
- Uses **Target Area Searching** when approaching the turn
- Begins **constant braking** during approach
- **Check rearview mirror** when foot goes on brake
- **Brake controls speed before turning** (Use of brake to reduce speed before turning prevents skid. Stay off brake during skid.)
- **Searches intersection** for clear left, front, right zones
- **Turns head** to new target area **before steering**
- **Holds partial braking** (at least 30%) **until Transition Peg**
- **Detects and corrects skid yaw** without hesitation
- **Keeps head and eye focused** to target area
- Uses **effective steering** technique
- **At Transition Peg**, effectively **accelerates w/o hesitation** to straighten the car on target. (This action can be used to demonstrate the use of “throttle” to “pull” the car out of a rear wheel loss of traction, which can be of value in limited applications.)



Habits Practiced in this Set

- Habit 4. Use Reference Points
- Habit 5. Do Zone Control LOS-POT Search Dance
- Habit 6. Turn Decisions into Zone Control Actions
- Habit 7. Control the Intersection
- Habit 8. Get Rear Zone Control
- Habit 10b. Interact Courteously With Others



Turns Demonstration

Objective

This set gives the trainee opportunity to see the effects that proper or improper use of the brakes has upon car control while making turns. Also, trainees are able to experience the effects 2 additional miles per hour of speed has upon car control.

Course Set-up

Use the same set-up as that of set "J" with cones defining four corners.

Directions

- **Premature release of brake demo:** Explain that most drivers make the mistake of releasing the brake before the car is at the transition peg. To show the consequences you are having the trainee intentionally make the error of releasing the brake just before steering begins.
- **Demonstrate no use of brakes:** tell the trainees to travel around the four corner exercise by controlling speed only with the accelerator. They cannot use the brake. Trainees will be able to experience how you cannot go fast into turns without losing control. Braking is very valuable to speed control.
- **Increase speed by 2mph:** allow the trainee to use the brake in a normal manner. Have the trainee start to turn the steering wheel into a left turn at 10 mph. You view the speedometer to say what the speed is. Then go into the remaining turns also at 10 mph. Take note of the effects that the camber of the parking lot has upon control into each turn. Continue to increase the speed by 2 mph increments for each turn until the trainee is not able to maintain control of the car.

Evaluation

These exercises gives you an opportunity to evaluate the autonomous targeting and skid recovery corrections skills that a trainee has. While emphasis is placed upon performing the demonstration, the trainee is less likely to concentrate on the key behaviors, which makes it easy for you to evaluate all the key behaviors to see if they are being performed.

Coaching Tips

Pay attention to how the trainee turns his/her head on target, makes an early detection of the skid and initiates a corrective action without delay.

Turns Demonstration



Demonstration of Premature Release of Brake for right or left turns:

Have trainee take his/her foot off the brake prematurely while making a turn to experience the negative consequences.

Demonstration of No Use of Brake while making right or left turns:

Have trainee travel around the course a few times without being allowed to use the brake pedal. This is a demonstration of how important correct braking is before and during turns.

Right and Left Turns Compare Speed of Success and Failure Approaches:

Allow trainee to resume use of brake as needed. Mix up the MONSTER and non-monster mode. **Have the trainee start at an approach speed of about 10 mph (the speed when steering begins). Then increase successive approaches by 2 mph increments.** Have trainee compare the difference 2 mph faster approach has upon control.

- Uses *Target Area Searching* when approaching the turn.
- *Applies brake before turning* (On brake to prevent skid, off brake during skid)
- *Check rearview mirror* when foot goes on brake
- *Searches intersection* for clear left, front, right zones
- *Turns head* to new target area *before steering*
- *Holds partial braking* (at least 30%) *until Transition Peg*
- *Detects and corrects skid yaw* without hesitation
- *Keeps head and eyes focused* to target area
- Uses *effective steering* technique
- Uses *acceleration effectively without hesitation* after the halfway point when car is in control



Habits to Demo in this Set

- Habit 4. Use Reference Points
- Habit 5. Do Zone Control LOS-POT Search Dance
- Habit 6. Turn Decisions into Zone Control Actions
- Habit 7. Control the Intersection
- Habit 8. Get Rear Zone Control
- Habit 10b. Interact Courteously With Others

Objective

This lesson will give the trainee an opportunity to learn and practice the use of lane positions one, two and three. Lane positions 1, 2 and 3 are the most frequently used positions. You can, after evasive maneuver activities have been completed—and if time and circumstances permit—introduce lane positions four and five using this same set-up.

Course Set-up

Make an 18 foot wide lane. See the Set-up section for more information. The reason an 18 foot wide simulated lane is used is to give the trainee a clearer image of the difference between the three lane positions being used.

Directions

- To begin with, have the trainee drive with the least effect from the camber. Allow students to experience the effect that an upgrade and downgrade camber has upon an effective speed selection.
- Explain to the trainee the way the course set-up is to be used.

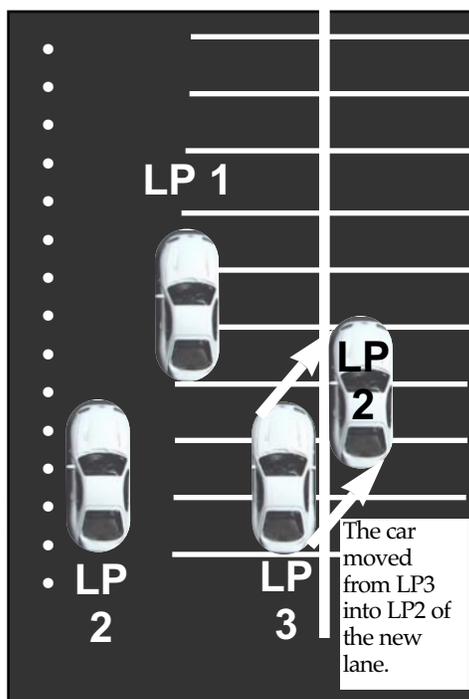
Evaluation

- Observe the trainee's performance of specific behaviors. Give feedback as to which behavioral pattern is being performed successfully.

Coaching Tips

- Coach the trainee to immediately correct the sliding action to get the car moving towards the target. The longer the "off-target" condition takes place, the greater the "yaw" angle becomes.

Give Positive Feedback!
At all times observe each behavioral pattern. When the trainee performs correctly, give positive feedback. If not correct, **Cue, Coach, Compliment** one behavior at a time.



Introduction to Lane Position Usage:

Begin this activity In Non-Monster Mode. After success do activity in Monster Mode. **Have trainee start in LP2 near the set-up cones while the caster is locked.** Direct the trainee to move into LP1. Then, go back to LP2 and have the trainee move into LP3. Do this a few times at various speeds.

- *Positions Car in LP2 accurately* (demonstrates or explains which reference points are being used)
- *Positions Car in LP1 accurately*
- *Positions Car in LP3 accurately*
- *Moves from LP3 to LP2* (simulates making a right lane change)
- *Moves from LP2 to LP3* (simulates making a left lane change)



Habits Practiced in this Set

- Habit 4. Use Reference Points
- Habit 8. Get Rear Zone Control
- Habit 10b. Interact Courteously With Others

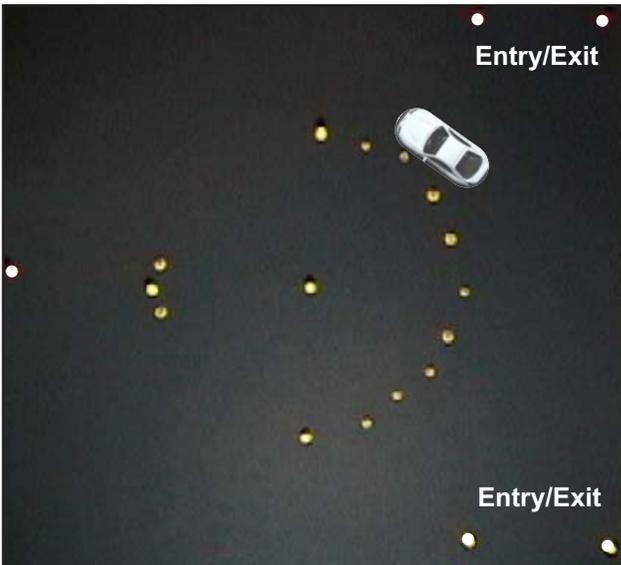
Constant Radius Circle Speed Control

Objective

This lesson will give the trainee an opportunity to learn the effects speed has upon the control of various radii curves.

Course Set-up

See the Exercise Set-up section of this book for complete information.



Directions

- Follow the directions stated on the next page.
- As soon as the car spins out, flip the switch forward to the non-monster mode and direct the student to travel around the circle in the opposite direction that the car was traveling before it spun out. This will allow the castering wheel to rotate so that the locking pin can fall back into the hole.
- When the car stalls it may roll backwards. Get an immediate braking action from the trainee to prevent the car from rolling off course.

Evaluation and Coaching Tips

- Observe the trainee's performance of specific behaviors. Give positive feedback for specific behavior that you evaluated as being correct.
- Always try to avoid telling the trainee what they did wrong. **Emphasis what they did correctly.**
- When you see the trainee doing something incorrect, coach him/her to get a correct action.
- When you flip the switch while the car is going into the downgrade camber it will have the most violent effects. Point out to the trainee the effects that the camber has upon the ability to keep car control.

Constant Radius Circle Speed Control

Safe Skid Monster Operation:

- Leave 20 or more feet of empty space outside the path the car will be traveling.
- Be prepared to tell the trainee to "brake" if the car begins to roll backwards.
- When the car stalls, it is a good opportunity for the trainee to use "open palm" shifting into neutral to restart without delay.

Establish Speed of 10 mph, after success increase speed to 12 mph:

Begin the activity in the Non-Monster Mode position. Ask the trainee to drive 10 mph while holding the car close to the outside of the circle of cones. Keep the car close to the cones. After a few revolutions switch to the MONSTER mode (represents hitting "black ice." Repeat process with turns to the right.

- Establishes *constant speed*
- *Detects front of the car's movement* off its constant radius (yaw angle)
- Has *central vision focused through curve*, not at yaw angle
- Uses *fringe vision* to keep car on course
- *Takes corrective steering action* without hesitation
- Keeps car in *travel path*
- *Controls speed* of car

Establish Speed of 14 mph:

- *Demonstrate the effect that a few miles per hour has* in losing vehicle control
- After car is beyond the controllable speed, reduce speed to show how control is gained with a speed reduction

Begin in Monster Mode Position:

Tell the driver to travel around the circle to represent a constant radius **left curve**. Have the driver stay close to the cones and keep increasing speed until he/she is not able to maintain a controlled yaw. Repeat process with turns to the right.

- *Detects front of the car's movement* off its constant radius (yaw angle)
- Has *vision focused through curve*, not at yaw angle
- *Takes corrective steering action* without hesitation



Habits Practiced in this Set

- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 4. Use of Reference Points
- Habit 6b. Get speed control, lane positioning



Constant Radius Circle Entering Curves

Objective

This set will give the trainee practice using vision, braking and acceleration techniques to approach and enter a curve. Opportunity to experience the consequences of a premature brake release will also take place.

Course Set-up

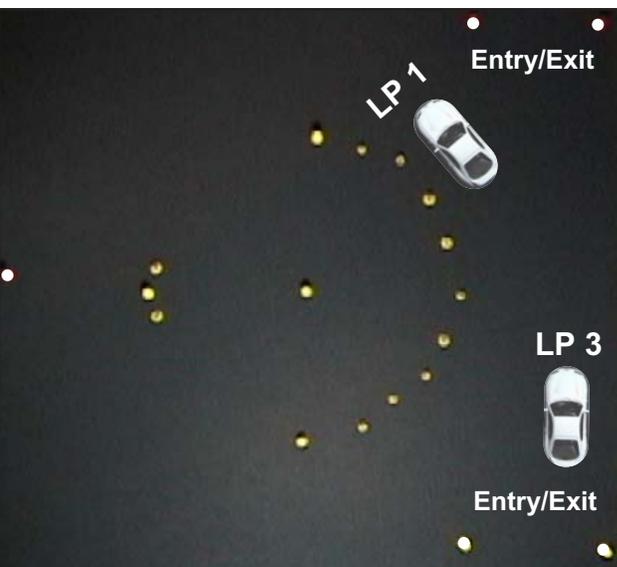
The same curve of Set "N" will be used. This activity will make use of the entry and exit gates.

Directions

- Use the longest approach you can depending upon the amount of space you have in the parking lot. The longer the approach, the more effectively you are able have the trainees practice braking techniques.
- Have the trainee approach the curve by using the entry gate. Treat the exercise as if it is a curve in the roadway.

Evaluation

Observe how the trainee is performing all of the key behaviors for each activity.



Constant Radius Circle Entering Curves



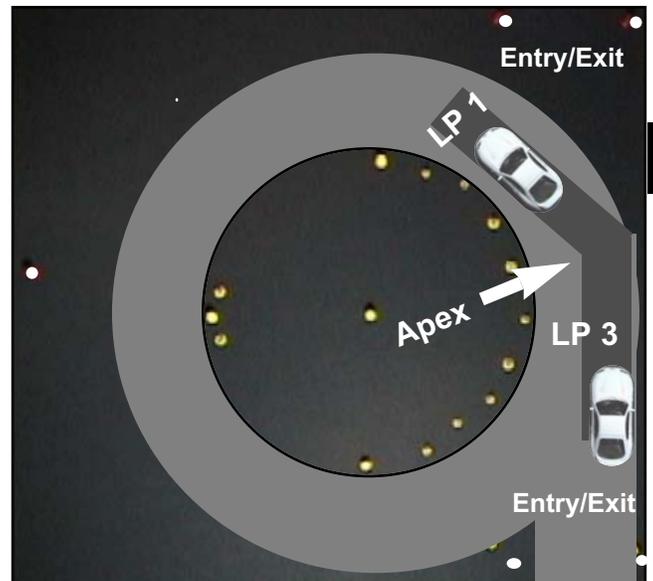
Entering Curves:

Begin this activity in the Monster Mode. Have the driver start on a straight path as far away from one of the entry gates. Get the car up to 15 mph before entering the gate. Observe how the driver is using the brakes, vision and steering when entering the radius of the curve.

- Uses *Target Area Searching* when approaching the curve.
- Lane Position: *Constant LEFT CURVES: approach LP3, apex LP1, exit LP1*
- Lane Position: *Constant RIGHT CURVES: approach LP2, apex LP1, exit LP1*
- Effective use of *speed control*
- *Applies brake before turning*

(On brake to prevent skid, off brake during skid)

- *Turns head to look into curve* before steering
- *Detects and corrects skid yaw* without hesitation
- Uses *effective steering technique*



Habits Practiced in this Set

- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 4. Use of Reference Points
- Habit 5. Zone Control LOS-POT Search Dance
- Habit 6b. Get speed control, lane positioning

Constant Radius Circle Demonstration

Objective

This set will give the trainee practice using vision, braking and acceleration techniques to approach and enter a curve. Opportunity to experience the consequences of a premature brake release will also take place.

Course Set-up

The same curve of Set "N" will be used. This activity will make use of the entry and exit gates.

Directions

- Have the trainees experience the demonstrations to see how much easier the car goes out of control when there is a curve with a downgrade as compared to one with an upgrade.

Evaluation

Observe how the trainee is performing all of the key behaviors for each activity.

Constant Radius Circle Demonstration

Demonstrate the effects that a downgrade and road camber has upon speed control.

- With the driver traveling at 12 mph while on the upgrade switch to monster mode.
- Then with car in non-monster mode while traveling at 12 mph place the car in the monster mode when the car is on the downgrade.
- Compare the effects that a downgrade has upon the quickness of the skidding action.

- **Demonstrate** control while "hitting black ice" *on an upgrade*
- **Demonstrate** control while "hitting black ice" *on a downgrade*

Demonstration of early brake release:

- After successful approaches into the curve, have the driver release the brake before steering to experience the consequences of a premature brake release.

Loss of traction to the rear wheels will cause the front of the car to move towards the inside of the curve.



Loss of traction to the front wheels will cause the car to move towards the outside of the curve.



Habits Demonstrated

- Habit 3. Keep the Car in Balance
Habit 6b. Get speed control, lane positioning



Decreasing Radius and Exiting Curves

Objective

During this set the trainee will be able to practice the use of vision and acceleration to effectively exit a curve. Trainees learn the consequences of excessive speed while exiting a curve from a constant radius to a decreasing radius when the vehicle is at its traction limitation.

Directions

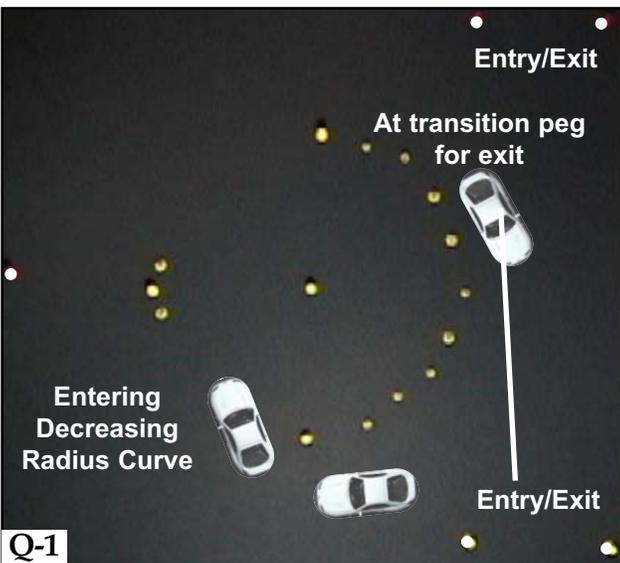
- Use the directions that are on the next page.

Evaluation

- Use the student eye monitor mirror to view where the eyes are directed during travel around the curve.
- Observe in the eye monitor whether there is a change in the trainee's head and eye movement from that used during travel in the constant curve. You should see an additional movement of the eyes and head toward the decreasing curve.
- You should see a change in eye and head movement when the driver is exiting. The head should at least be in alignment with the transition peg. Then as the car is completing the exit you should see the head straighten to be aligned with the target and the steering wheel.

Coaching Tips

Background: When a curve has a decreasing radius, it means that the curve becomes tighter requiring more steering into the curve. You may find this type of curve occurring on a cloverleaf designed exit ramp. Speed selection is the primary behavior that results in success or failure. With excessive speed at the limitation of control during the first part of the curve, which has the larger radius, the driver is unable to put more steering in at the point where the curve tightens. There is no more steering available and the car goes out of control.



Q-1

Decreasing Radius Curve and Exiting Curves



Decreasing Radius Curve:

- **Part 1:** Have the driver travel in a constant radius curve. After driving around the circle a few times at the maximum controllable speed, have the driver turn into the inside gates of the curve.
- **Part 2:** Do the same activity at a slower speed around the constant radius before turning into the decreasing radius gates. Compare the control one has when speed is not excessive.

- *Detects front of the car's movement* off its constant radius (yaw angle)
- Has *vision focused through curve*, not at yaw angle
- *Takes corrective steering action* without hesitation

Exiting Curves:

Begin this activity in the Monster Mode. After having the driver travel at least one or two times around the circle direct him/her to exit the circle, which will represent exiting a curve. This will give you an opportunity to evaluate whether the driver is looking through the curve to a new target area where the the road becomes a straightaway.

- Sets up correct lane position in preparation for exiting
- Lane Position for **LEFT CURVES: apex LP1, exit LP1**
- Lane Position for **RIGHT CURVES: apex LP1, exit LP1**
- Effective use of *speed control*
- *Turns head to new target area* before steering
- *Detects and corrects skid yaw* without hesitation
- *Keeps head and eyes focused* to target area
- With car in control, *goes from brake to acceleration effectively* without hesitation when car is *at Transition Peg* (corner post, rear view mirror)



Habits Practiced in this Set

- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 4. Use of Reference Points
- Habit 5. Zone Control LOS-POT Search Dance
- Habit 6b. Get speed control, lane positioning

Part Two

Skill Practice

Curves, Turns and Roundabouts

Objective

This set gives the trainee the opportunity to practice all the behavioral patterns from sets H-M. The trainee will practice entering and exiting curves and turns, constant and decreasing radii curves, the effect that speed has on approach to curves, and how to maximize speed and control. The consequences of excessive speed when the vehicle is at its traction limitation is experienced.

Course Set-up and Directions

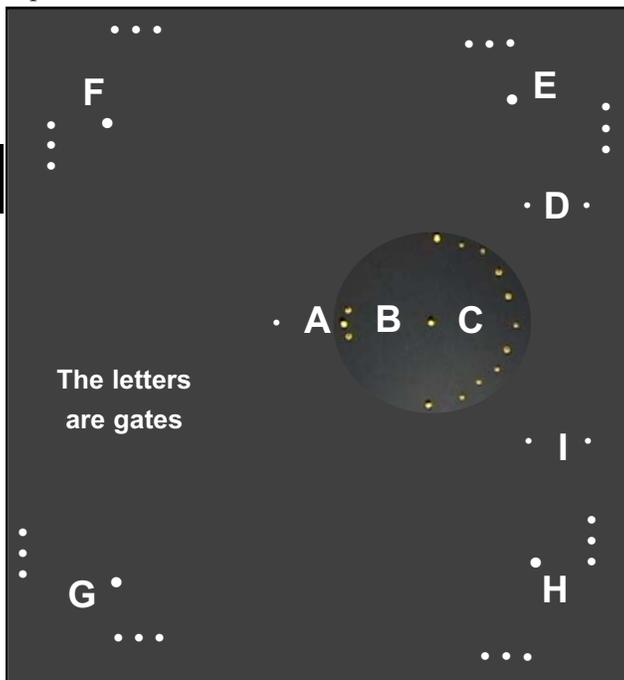
- Use the four corners and the curve set-up "N". Have the trainees drive in various patterns. You can use a letter to identify each gate and have the trainee drive through a prescribed course designated by going from one gate to another.

Evaluation

Have the driver observe how important reducing speed while approaching a curve is to vehicle control. **The smaller the radius, the slower the speed must be. Generally, trail braking should be maintained until the driver has a straight unrestricted view to the target area.**

Coaching Tips

- Make changes in speed verbalizing the speed the car is traveling.
- Get students to feel the reduced traction before entering the curve.
- Have trainees consciously demonstrate vision usage and the transition peg.
- At all times observe the performance of all behavioral patterns.



Curves, Turns and Roundabouts

Curves, Turns and Roundabouts

Compare Speed of Success and Failure Approaches (LP=Lane Position)

- Uses *Target Area Searching* when approaching the curve.
- LP for Constant **LEFT CURVES**: *approach LP3, apex LP1, exit LP1*
- LP for Constant **RIGHT CURVES**: *approach LP2, apex LP1, exit LP1*
- Effective use of *speed control*
- *Applies brake before turning*
(On brake to prevent skid, off brake during skid)
- *Turns head to new target area* before steering
- When Braking is needed, *holds partial brake pressure* of 20-30% (trail braking) *until at Transition Peg* (corner post, rear view mirror)
- *Detects and corrects skid yaw* without hesitation
- *Keeps head and eyes focused* to target area
- Uses *effective steering technique*
- With car in control, *goes from brake to acceleration effectively* without hesitation when car is *at Transition Peg* (corner post, rear view mirror)
- Entering and leaving **Roundabouts** effectively. (travels counter clockwise at all times)
- Experiences *effects of curve's radius* on speed control
- Experiences *effects of road grade and camber* on car control
- Experiences *effects of One or Two Excessive miles per hour* on control



Habits Practiced in this Set

- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 4. Use of Reference Points
- Habit 5. Zone Control LOS-POT Search Dance
- Habit 6b. Get speed control, lane positioning

Objective

This activity will give the trainee an opportunity to demonstrate the ability to make precision lane changes. The value of making smooth steering actions for a gradual lane change, lane position by lane position, becomes evident during this activity.

Course Set-up

Use the same Set-up from set M.

Directions

- Ask the trainee to perform a precision lane change, lane position by lane position, on a conscious level by you first asking the trainee to demonstrate how and why the lane positions are used.

Evaluation

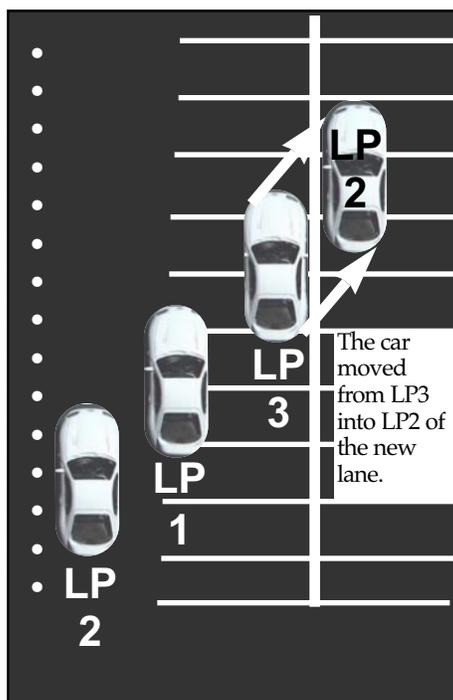
- Direct the trainee to begin in LP1 and make a lane change to the right. Observe a pause at each of the lane positions: from LP1 to LP3 to LP2. Then request a left lane change.
- You should be able to see a defined pause at each of the exiting and entering lane positions.
- Observe the trainee's performance of specific behaviors. Give feedback as to which behavioral pattern is being performed successfully.

Coaching Tips

- Coach the trainee to immediately correct the sliding action to get the car moving towards the target. The longer the "off-target" condition takes place, the greater the "yaw" angle becomes.

Give Positive Feedback!

At all times observe each behavioral pattern. When the trainee performs correctly, give positive feedback. If not correct, Cue, Coach, Compliment one behavior at a time.



Make Precision Lane Changes:

Mix up the MONSTER mode to activate the MONSTER mode at various moments during the lane change. See how quickly the trainee recognizes that there is a reduced traction situation. See how quickly the yaw angle is corrected.

- Evaluate zones for *open Path of Travel*
 - *Mirror and blind spots checks*
 - *Use of Lane Change Signal Indicator* (keep finger on lever)
 - *Uses small steering input* making lane change
 - Begins from *LP2 to LP3*, or from *LP3 to LP2*
 - Makes *final blind spot check*
 - *Enters new lane* in LP2 or LP3
 - *Recognizes yaw condition* without delay
 - *Uses targetting* effectively
 - *Takes effective corrective action*
-
- Sees *value* of making *gradual lateral movements*



Habits Introduced in this Set

Habit 8. Get Rear Zone Control

Habits Practiced in this Set

Habit 2. See Path Before Putting Car in Motion
 Habit 4. Use of Reference Points
 Habit 5. Zone Control LOS-POT Search Dance
 Habit 6b. Get speed control, lane positioning

Objective

This exercise will give the trainee an opportunity to experience behavioral patterns necessary for effectively avoiding the surprise situation that results in the need to perform an evasive steering action.

Directions

- Begin with a speed no more than 10 miles per hour. Then, as the trainee performs successfully you can increase the approach speed to a maximum of 20 mph.
- There is no value to going faster!
- **Always have the MONSTER Mode selected before the steering wheel is to be turned.**
- As the trainee approaches the obstruction (three cones or a prop), you will tell him/her to go to the "left", to the "right" or to "stop".
- **Switch to Non-Monster Mode after the car has stopped at the stop gate or while returning to the entry gate.**



Use Course Set-up "T"

Evaluation

- Use the student eye monitor mirror to view where the eyes are directed during the steering action. A common error is for the trainee to look at the obstruction, or where the car is going, rather than to look at the target area.
- Two of the most common errors in steering are: 1. The driver will turn too much on the first steering action. 2. There will be a delay taking the second steering action.
- Be prepared to observe two or three of the key behavioral patterns during each run. When you see errors being made, coach the trainee for success.

Behavioral Patterns For Evasive Lane Change:

- **Holds the steering** with both hands for a **9-3 position**
- **Focuses on target area** — not on what is being avoided
- Makes **initial steering** without taking hands off the wheel
- **Stays off the brake and the gas pedals** while steering
- **Takes counter steering actions** to keep roll axis in balance
- When car goes into a skid, **turns steering rapidly towards target**
- When **steering is controlled**, applies **brake or acceleration** as needed

Behavioral Patterns For Braking:

- **Checks rearview mirror** when foot goes on the brake
- **Holds the steering** with both hands for a **9-3 position**
- **Focuses on target area** — not on what is being avoided
- For **ABS brakes: applies firm pressure** and holds pedal
- No ABS brakes: **uses controlled threshold braking** without locking the wheels
- If car skids, releases brake pressure and **turns steering rapidly towards target**

Quick Guide EVASIVE Lane Change

1. **Keep Both Hands On Wheel** (for initial turn)
2. **Focus On Target Area**
3. **Use Minimum Turning**
4. **Take Counter Steering Action Immediately** If car skids, turn wheel rapidly towards target
5. **Stay Off Gas and Brake Pedals** until steering is complete
6. **Keep Head and Eyes On Target**



Habits Practiced in this Set

Habit 5, 6, 7, 8, and 9

Objective

The value of having awareness of one's targeting path becomes evident during this demonstration. The importance of keeping four seconds of following time is clearly contrasted to the disadvantage of keeping a lesser following time. Techniques that are necessary to perform an evasive braking or steering action are demonstrated and practiced.

Course Set-up

See the Exercise Set-up section of this book for complete information.



Directions

Demonstrates Value of Four Second Following Time

- Place switch in the MONSTER Mode before the evasive action is to be taken. The three obstruction cones represent a car that suddenly stopped in front.
- The number of seconds the car is away from the "stopped car" when the command to go "left" or "right" or "stop" is given will be represented by marker cones placed at 4, 3, 2, and 1 seconds away.
- Have the trainee experience how much greater the control is when he/she is four seconds away from the car compared to a lesser amount.
- For the first approach wait until the front of the car is at the 1-second mark before calling left or right (give the "stop" command after they do the left or right movement from the 4-second mark).
- Do an approach at the 4-second mark for the trainee to see the control gained with more time and space.
- When time permits you can repeat this sequence, doing the evasive from one second away, then from four seconds. The contrast of lost of control

Directions (Continued)

Demonstrate Evasive Braking

- In Monster Mode, when you are at the 1-second cone give the command to "stop". Observe trainees' rearview mirror use, and eyes on target steering.
- On the next run, give the command to "stop" when you are at the 4-second cone. Compare the difference following time makes for less stressful braking.

Demonstrates Value of proper Lane Positioning

- Place switch in the MONSTER Mode before the evasive actions is to be taken.
- The three cones represent a car that was parked on the right side of the road that suddenly pulls into our path of travel.
- Have the trainee get into the wrong lane position, lane position three, and give the command to make a left lane change. The trainee will experience incorrect lane positioning if an evasive is necessary.
- Then have the driver get into lane position two, which represents the correct lane position after seeing the parked car. Have the trainee take an evasive steering action to the left. The trainee experiences the difference between correct and incorrect lane positioning. The correct lane position required only half a lane change to complete the evasive.

Variables You Can Demo in this Set:

- Effects Speed has upon car control
- Effects Lane Positioning has upon steering inputs
- Effects Following Time has upon taking an evasive braking or steering action.

Demonstrates Value of Four Second Following Time

- Experiences the *effect following time* has upon *car control for evasive steering and braking*
- Experiences the *effect following time* has upon *reducing driver stress*

Demonstrates Value of Lane Positions

- Experience the value of an *early detection of an LOS-POT blockage*
- Experiences the importance of using the *proper lane position*
- Experiences the importance of *minimizing steering action*



Habits Practiced in this Set

- Habit 4. Use of Reference Points
- Habit 5. Do the Zone Control LOS-POT Search
- Habit 6. Turn Decisions into Z. Control Actions
- Habit 9. Get Control with a Vehicle in Front
- Habit 10. Interact Courteously With Others

Objective

During this set the trainee will demonstrate use of lower fringe vision to see the reference points in relation to the cones and central vision to see to the target area. Steering, braking and acceleration for traveling through the serpentine with accuracy while minimizing the effects of the car being out of balance will be experienced.

Course Set-up

See the Exercise Set-up page for complete details.

Directions

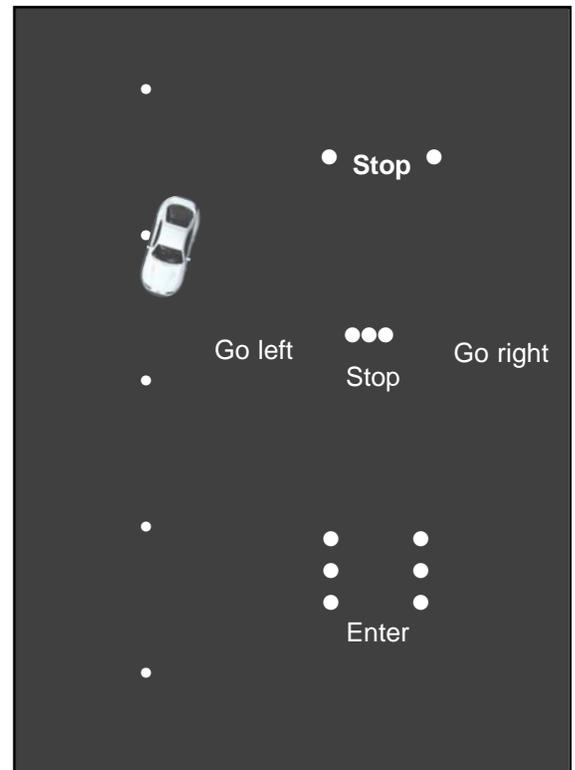
Have the trainee travel through the serpentine when returning from the stopped position of the evasive.

Evaluation

- Use the student eye monitor mirror to view where the eyes are directed during the steering action. A common error is the trainee will look at the cones rather than to look towards the target area.
- Two common errors which result in the car hitting cones are: 1. The driver will turn too far away from the cones, which causes too large of an angle of attack increasing the swing through the cones. 2. Speed will not be appropriate for the amount of steering. The less steering the faster the car can go. When excessive steering occurs speed needs to be reduced.
- To prevent a large angle of attack, have the trainee visualize the cones of the serpentine as a straight line to the target. They should see the "line" with their lower fringe vision while seeing the "target" with central vision. They can turn the steering wheel only enough to have the transition peg become in alignment with the target. For example, when a turn to the right is made to enter the serpentine, steering should be reversed (wheel turned to the left) when the driver's side windshield post appears to be on target and in alignment with the cone "line". The turn to the right will be made when the target (or line) is at the rearview mirror transition peg. And, it repeats from one transition peg to the other.

Approaching Serpentine

- **Holds the steering** with both hands for a **9-3 position**
- **Focuses on target area** — not on the cones
- **Uses reference points** to position the rear tires close to the cones without hitting them
- Makes **initial steering** without taking hands off the wheel
- Is **smooth with steering, acceleration and braking**
- is aware of where the **vehicles tires are tracking**
- Keeps the angle of attack shallow by **turning at the transition pegs**
- Maintains an **efficient speed** through the course



Habits Practiced in this Set

- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 4. Use of Reference Points

Objective

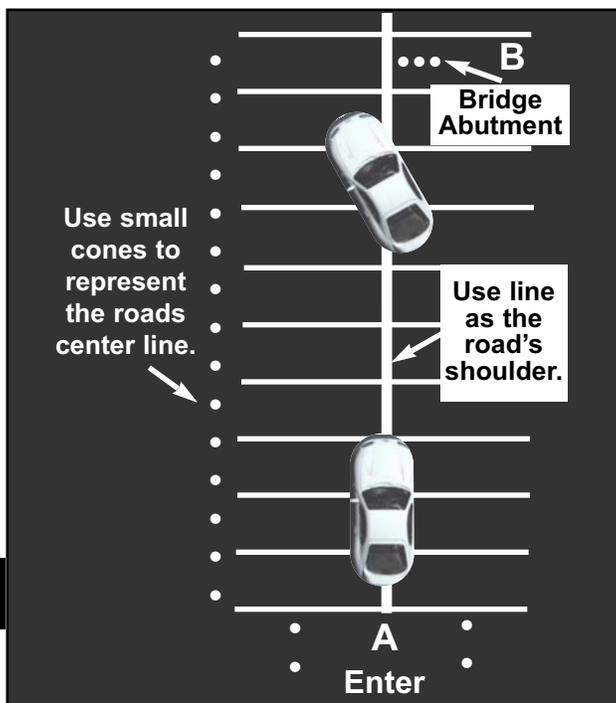
This activity will give the trainee an opportunity to experience behavioral patterns necessary for effectively recovering and maintaining control when the right tires drop off the pavement onto the shoulder of the roadway and there is limited space to bring the car to a stop.

Directions

Have the MONSTER Mode selected. **Begin with a speed of 10 miles per hour.** As the car travels over point A the trainee is to take all necessary behaviors to get back onto the pavement before hitting the "wall" at point B. As success is achieved, increase approach speed by increments of two miles per hour.

Evaluation and Coaching

- Use the student eye monitor mirror to view where the eyes are directed during the steering action. A common error is the trainee will look at where the car is going, rather than to look to the target area.
- Be aware that the trainee may delay the counter steering action after the first steering movement is made.
- Cue the trainee, if needed, to have him/her look to the target area and concentrate on steering to make the car go in that direction.
- Cue the trainee to get off the pedals until the steering action is completed.
- With the car in the Monster Mode, there will be skidding actions that represents the driver hitting a patch of sand or loose gravel while attempting to get back onto the travel lane.



Experience Behavioral Patterns for Performing Off-Road Recovery:

- *Holds the steering firmly* with both hands for a *9-3 position*
- *Releases acceleration* pressure and *stay off the brake*
- Moves into *Lane Position 5* to *straddle the pavement edge*
- Checks *left-rear zone* and *signal for re-entry* into traffic (when possible)
- Focuses on the *target area*
- *Cuts steering wheel a quarter turn towards pavement* without taking hands off the wheel
- Immediately *takes counter steering action towards target area* to keep roll axis in balance
- If car goes into a skid, *turns steering rapidly towards target*
- When *steering is controlled*, resumes acceleration, or initiates braking

The Trainee Should be able to Experience the Following:

- The importance of having *targeting path awareness*
- The *effect speed has* upon control
- The *importance of two hands on wheel* during initial steering action
- The *effects of excessive steering* inputs
- Proper *targeting techniques* for control
- Proper techniques for *initial steering and recovery behavior* to re-enter the pavement

Directions to Simulate Falling Asleep:

- After the trainee has practiced the above, do this:
- While approaching gate A, you hold the steering wheel and tell the trainee to close his/her eyes to simulate falling asleep. You steer the car into gate A.
- As soon as the car enters gate A, tell the trainee to open his/her eyes and get the car back on the travel lane. When trainees are reluctant to close their eyes you can hold a paper in front of them to block vision.



Habits Practiced in this Set

- Habit 2. See Path Before Putting Car in Motion
- Habit 3. Keep the Car in Balance
- Habit 4. Use of Reference Points
- Habit 5. Do the Zone Control LOS-POT Search
- Habit 6. Turn Decisions into Z. Control Actions

Objective

During this set the trainee will demonstrate the ability to cope with simulated vehicle failure.

Course Set-up

No set-up is needed.

Directions

- You can present this set at anytime during the training sequence depending upon your schedule and the trainees' performance.
- The three activities: shifting into neutral, stalled engine and tire blowout could be presented separately. Each on a different session. However, when they are first being learned they should not be presented out of order. For example, the trainee should learn how to effectively shift into neutral before being presented with the "stalled engine" problem.
- While doing the stalled engine, have the car moving into a situation that requires turning of the steering wheel. The trainee will be able to experience the loss of power steering when engine power is loss. Steering will need to be very forceful, but nevertheless achievable.



Open Palm Shifting into neutral takes place with the hand on top of the shift level knob placing pressure on it while pushing it towards the dashboard. This photo shows the driver shifting open palm into neutral.

With the car stopped, have the trainee demonstrate that he/she is able to place the shifter in neutral without looking at the shift indicator.

Open Palm Shift into Neutral

- Use a shifter on the steering column
 - Trainee places **hand over shift knob**
 - With the **shift knob in the palm**, have the fingers extended, not gripping
 - The **palm presses down** on the shift knob and **pushes it forward** towards the dash
 - This action will allow **the shift to stop in neutral**
 - **There is no need** to look at the indicator

With the car moving at 10 m.p.h. and in the Monster Mode, reach over and turn the ignition off. Have the trainee, maintain steering and restart the car without more than three seconds lapse of time.

Stalled Engine

- Steer firmly during turns or hold steady on a straight away.
- Slap the shift selector into neutral using open palm method.
- After shifting into neutral, quickly turn the key to restart the engine without a need to come to a stop.
- Shift to Drive by pulling the shifter down one notch.
- Continue to drive your course.
- If the car doesn't start immediately, look for an escape path while there is still momentum.

With the car moving at 10 m.p.h. and in the Monster Mode, reach over and move the steering wheel quickly in either direction while at the same time say, "Your tire just blew out". The trainee is to regain control of the car. This activity is best performed after the trainee has completed Sets "H" and "I". It is best to surprise the trainee with this action.

Tire Blowout

- See that trainee's foot comes off the pedals as you move the **steering wheel off target** to simulate the tire blowout
- **Trainee Keeps Head On Target** as steering wheel moves car off target
- **Detect and Correct Skid yaw** immediately (stay off pedals during skid recovery)
- **Keeps head turned towards target** during skid recovery
- With car back in control, **selects a safe location to deal with the failed tire**

Rational of Behavioral Patterns from Activity Sets

In Set A

- **Windows up** (no guillotines)

During a crash the head of occupants can be thrown into the side window. When the window is all the way up there is greater protection for reducing injury to the head. When the window is partially open, especially halfway the head of occupants can be severed or scalped by hitting the windows edge. If broadsided by a car running a red light at 40 mph, an occupant's head could hit the window with as much force as diving head first out of a four story building. And, when the window is open all the way, there is a greater chance that an occupants head can be outside the car during a vehicle rollover, even when safety belts are used. Therefore, the least risk for occupants is to drive with the windows up.

- **Butt-in** seating position (slide butt all the way back).

By first pushing your buttocks to the back of the seat before sitting up straight you are able to gain the best lumbar support which will help to prevent back problems associated with driving. You are also able to be in position for making a maximum braking effort as there will not be a siding of your body rearward as you are applying the brake. And, during evasive steering actions your body is firmly in the seat which will help to give you best steering control.

- **Seat adjustment:** height, distance (wrist even with top of steering wheel).

When the seat is properly adjusted you are able to use the pedals and steering wheel most effectively without increased muscle cramps or fatigue.

- **Safety belts on** all occupants.

There are many reasons to have safety belts on. They can help you to stay out of crashes by keeping you in the driver's seat at a time when critical car controlling actions must be taken. During a crash they keep you away from the crash forces and prevent occupants from becoming flying missiles fired into the driver's compartment taking away opportunities to reduce the crash forces. With safety belts on the occupants body comes to a stopped position more slowly than what occurs without belts on, this reduces the force of impact upon the body. Within the body the brain and other organs are slamming to the skull and chest cavity of the body at a significantly slower rate.

- **Heel of right foot in alignment with brake pedal,** ball of foot on brake.

With the foot in this position you are able to pivot your

foot to the accelerator with the foot positioned at approximately a 30 degree angle. This position tends to be natural angle for the foot to be at. When a braking action is taken, the foot is pivoted onto the brake to be in a straight line with the leg and shoulder. This allows you to apply maximum braking force if needed. If the foot is at an angle while applying the brake you may lose 20 percent of your braking capacity, and under certain conditions your foot could slip off of the brake pedal costing you valuable stopping distance.

• ***Pivot foot from brake to accelerator without lifting heel.***

By keeping your heel on the floor you are best able to make both smooth finessed stops as well as gain maximum braking when needed.

• ***Balanced hand position*** on steering wheel; 9-3 preferred.

With a balanced hand position you are best able to take evasive steering actions in either direction. And, by keeping your hands on the steering wheel during an evasive steering action you will not make a common error of over steering during the initial steering action.

In Set B

• ***Checks the left, front and right zones before moving.***

Before putting the vehicle in motion, you want to check the left, front and right zones to be certain that nothing is going to compete with you for the space that you intend to occupy. When the car is stopped you have an opportunity to make a 90-degree check to your left and to your right as well as checking the front zone. A 90-degree check left or right requires that you turn your head in the direction your shoulder is pointing. This will allow you to gain the maximum amount of information when stopped at intersections to best locate a gap or hole in the traffic flow. When you drive into an intersection, you are exposed to the highest risk location, where the largest percentage of multiple vehicle crashes take place. The most common excuse given after an intersection crash is, "I didn't see it". **We see with our mind.** Our mind tells the eyes what to look for. If we know where to look, and what to look for, the odds are more favorable that we will "see" what is being searched for. Search the left, front, and right zones of intersections before entering. The sequence of searching the three zones will vary according to LOS conditions. When there is an LOS restriction blocking your view, that should be the direction of the final search before entering the intersection. Often, you must make more than one search of a zone. When

making a turn, always make your last search in the direction you are turning.

• ***Turns head on target before turning steering wheel.***

The eyes should always lead the vehicle. This behavior of turning the head before turning the steering wheel will pay dividends each day you drive by having you mentally ahead of the vehicle before you even begin to put it in motion. Many drivers get into the habit of pressing on the accelerator and then looking to see what is ahead. By turning your head first you are able to avoid accelerating into a situation that requires you to stop or reduce the amount of acceleration you put into the vehicle. Turning your head before turning the steering wheel gets you in the habit of looking to your target area so that in critical traction situations you will be able to put the correct amount of steering and acceleration into the vehicle.

• ***Positions Car on Target,*** avoids over correction of steering.

The first skill to accomplish with your vision is the ability to put the front of the car heading toward a designated target. A target is a stationary object that appears in the center of the space we intend to occupy. For this training exercise we will select various objects that are beyond the perimeter of the parking lot. The purpose the target serves is to give you a specific object that you can aim the vehicle toward. Once you learn the concept of target usage you will not need to use specific targets as you will know exactly where your vision should be directed. So, targets are merely a temporary learning tool that we are using. When the car is positioned on target it is heading straight as an arrow for the selected target.

• ***Uses Central and Fringe Vision*** (see target with central, see car to target with fringe).

The target is seen with your central vision. Central vision is the part of our vision that we use to clearly make identifications. When you "look" at something, you are seeing it with your central vision. While you are reading these words, you are seeing them with your central vision. Central vision takes in information within a narrow cone of 5-10 degrees. Surrounding the narrow cone of clear central vision is the fringe (or peripheral) vision. You are not able to identify objects with the fringe vision but you can detect motion and color. As you are reading these words, pause momentarily by fixing your vision on one word. Without shifting your

central vision you will only be able to see one or two additional words to either side, as well as above and below, the word you are staring at. The other words on the page are seen as blurs with your fringe vision. The further away from your central vision the words are the more blurring takes place. You see the target with your central vision. See the target aligned with the steering wheel with your fringe vision.

- ***Hand-Over-Hand*** or ***Pull-Push*** method used effectively.

There are applications for the use of both methods of steering. When there is a need for quick steering inputs, such as during a skid recovery or while making a moving right turn (you need twice as much steering inputs to make a tight right turn as you do to make a left turn) then hand-over-hand steering could be the most efficient. However, when you want small steering inputs with good control, such as when entering a curve, or when making a lane change, then a pull-push method may be best. A pull-push technique can give smoother steering motion than a push-pull. Use of the pull-push technique will be safer if the airbag deploys. The driver's arms are less likely to be in the path of the airbag.

- ***Knuckles and thumbs on outside*** when holding and turning the steering wheel.

There is nothing to gain by having the thumbs wrapped around the steering wheel. And, during a crash the weight of your body may be supported by the thumbs resulting in injuries to them. Also, if a rapid steering action needs to take place you would not want your thumbs in the way.

- ***Sees open space before accelerating***

Before engaging the vehicle in motion, get your eyes in motion to see that the space you intend to occupy is open. This behavior formed into habit will eliminate many premature accelerations whereby the driver puts the car in motion only to then apply the brake because of some event which closed the needed space. This type of start and stop often leads to stress and riskful actions that are not good for our health.

- ***Sets Car into motion smoothly*** (idle speed, then accelerate gradually)

When the car is set in motion from a rest position a great amount of force is applied initially to get the car rolling. Once the vehicle is rolling the amount of force needed is significantly reduced. Did you ever try pushing a stalled vehicle or sliding a heavy object?

When the vehicle is at rest, it takes a great amount of force to get it moving, once it is moving there is rolling friction rather than static friction which takes less force to keep it moving compared to setting it in motion. When ready to move the vehicle, take your foot off the brake and allow the car to move by its idle speed before pressing the accelerator pedal. By releasing the foot from the brake and allowing the car to get rolling by the idle speed, the correct amount of energy is applied to get the vehicle moving. This will give a smooth movement when acceleration takes place by allowing a gradual transition of the pitch forces. When the car is accelerated there is a downward pitch on the rear tires. With rapid acceleration, occupants feel their body pushed against the back of the seat. The more rapid the acceleration occurs from a stopped position, the greater the pitch forces are out of balance, resulting in less car control. Once the car is moving then additional energy is applied to move the rolling tires and there is no pitch force felt.

- ***Applies brake with the right foot*** (unless physically restricted)

There is no advantage to having the habit of using the left foot on the brake in routine situations and there can be disadvantages. In some applications, such as starting the car in motion while on an upgrade, you would stop the vehicle with the right foot, then transfer holding the brake pedal with the left foot while the right foot is ready to apply acceleration. A driver that uses left foot braking is more likely to get confused between brake and acceleration usage during critical situations and as an elderly driver. When the right foot is used with the heel planted on the floorboard, you are able to have your foot in better alignment to apply the brake then if you were to use your left foot. The brake pedal in most vehicles is aligned with the right leg which makes it less efficient to move your left leg over to apply the brake with your left foot.

- ***Uses controlled threshold braking*** efficiently without locking the wheels.

Threshold braking is applying the brake hard and quick to achieve maximum braking force without causing wheel lock-up. Without ABS brakes, if the brakes are slammed on with full force, the tires will stop rotating which will reduce braking effectiveness and cause loss of steering. By use of threshold braking you should be able to slam on the brakes hard but only to the point just before the tires are ready to lock up. It is at the threshold of wheel lock-up that braking is most effective. A driver highly trained in how to apply threshold braking can stop a vehicle in a shorter distance than an

untrained driver using an ABS braking system. With proper driving habits, surprise situations are minimized. But, if you get behind the eight ball and must take a critical braking action, the brakes are applied as hard as possible without causing the wheels to lock up. When you don't have an ABS equipped vehicle, you have to be your own computer. You can apply the brakes hard, and then as soon as you feel or hear the wheels sliding, slightly release braking pressure (similar to the technique used for making smooth stops). **Do not pump the brakes.** A constant pressure on the brake pedal should be used.

- **Makes smooth stops.**

As you step on the brake pedal and apply pressure, the front of the vehicle is pulled in a downward pitch. Making a smooth braking action requires a gradual release of braking pressure before the vehicle comes to a complete stop. Curl your toes back while the ball of your foot is on the brake pedal to release a slight amount of braking pressure so that the pitch forces will be in a level, balanced position just before the vehicle comes to a complete rest. A smooth braking action should be strived for by any driver. In addition to giving comfort to passengers, a smooth style of braking can give the driver a highly refined feedback system for determining if the vehicle is balanced. If routine braking consistently results in jerky braking actions, the driver becomes accustomed to that type of feeling. It feels normal for the vehicle to be out of balance, so when a surprise traffic situation requires the driver to make a harsh, unplanned, jerky braking response, it doesn't seem extraordinary, and there is no feedback to the driver that something went wrong!

In Set C

- **Transition Peg**, accelerate rapidly while focusing on the target.

The transition peg identifies the placement of the vehicle to the target while a turn is being made. It is the precise moment when a change in steering, acceleration or braking should take place to have the best balance of the vehicle. **Transition Peg For Steering:**

At this moment steering should begin to return to a straight (recovery) position. **Transition Peg For Acceleration:** At this moment an acceleration action will have a positive effect upon the vehicle's movement. **Transition Peg For Braking:** When the brake is applied into a turn it should be partially held until the car is at the transition peg.

In Set E

- **Applies brake effectively before steering** on Moving Turns.

Applying the brake before taking a steering action separates the braking and steering demands for traction, which gives you advantages. First, you get into the habit of reducing speed while still traveling straight which can tip you off if there is reduced traction. When speed is greater than the amount of traction for tire/road grip you are able to best keep car control by reducing speed before steering.

When you apply the brake while traveling straight you have a better opportunity to detect and correct tire slip than if you are braking and steering. With your foot on the brake while you are steering you are able to best keep the car's pitch and roll forces in balance.

- **Detects and Correct Skid yaw** immediately.

An essential skill to maintaining car control is the immediate detection when the skidding action is initiated to have an opportunity to correct it. When the front of the car moves ever so slightly off the intended target path, a steering action must be taken instinctively and correctly without allowing the skid yaw to increase. The smaller the yaw angle the better the chance of correcting the skid.

- **Off pedals during skid** (no gas, no brake).

When the car loses traction to the tires and skidding occurs, the first response should be to get off of the accelerator and off of the brake pedals. This will prevent you from putting in additional energy and give the car's tires an opportunity to regain traction.

- **Keeps head turned towards target** during skid recovery.

The vehicle will tend to be steered toward where the eyes are looking. With the head pointing toward the target your steering action will follow most correctly. When the vehicle goes into a skid you don't have time to think about which way the steering wheel should be turned. When your head is pointing to the target you automatically are able to make correct steering inputs.

- ***Keeps Partial Braking Pressure*** until ***Transition Peg*** on Moving Turns.

Holding at least 30% of the braking force will keep the front of the car pitched forward which gives you the maximum tire footprint for best steering action. Holding the brake will also help stabilize the roll forces of the car by keeping the suspension system compressed to prevent the front end from bouncing up while starting the steering action.

- ***Steering recovery*** initiated at ***Transition Peg*** (corner post, rear view mirror).

This is mostly of value to a novice driver to know at which stage of the turn the steering wheel needs to be recovered to the straight ahead position. By use of the transition peg, the driver is able to gain a visual picture of precisely when to begin straightening the steering wheel.

In Set I

- ***Selects Target before beginning turn***

During this exercise you will select a target before beginning the turn to gain practice in looking as far as you are able to in the direction you will be turning. This same behavior translates during traffic situations into gaining a mindset of what conditions will be in your target area before making a turn. In actual driving situations you would not need to “select a target”, however it would be desirable to have the habit of getting your mind far to your new targeting path before making the decision to turn.

- ***Searches intersection for clear left, front, and right zones***

There are three locations that must always be searched before entering an intersection; the left, front and right zones.

The depth of the search in each direction should be all the way to where a target would be if you were to look to the left and to the right. The front zone requires more of a sweeping search to be certain that nothing will enter the space you need to occupy before making the turn. The direction of the search, whether it is searching left, front, right or right, left, front or any other sequence should be based upon the conditions in the intersection and the direction of travel. When you have a LOS restriction, there may not be opportunity to see beyond it until you are within a 45 degree line of sight from it. Therefore, the final direction of the

sequence will be where the greatest LOS restriction is. And, when making a turn the final direction you should be searching is the direction of your turn.

- ***See cones with peripheral vision***

The normal tendency when driving through a course outlined with cones is to drop vision to look at the cones. You will need to concentrate on seeing the cones with your lower fringe (peripheral) vision rather than to look at them with your central vision. Seeing the cones with your peripheral vision will also be the same usage that you need to see reference points with to position the vehicle's placement on the road.

- ***Accelerates at Transition Pegs***

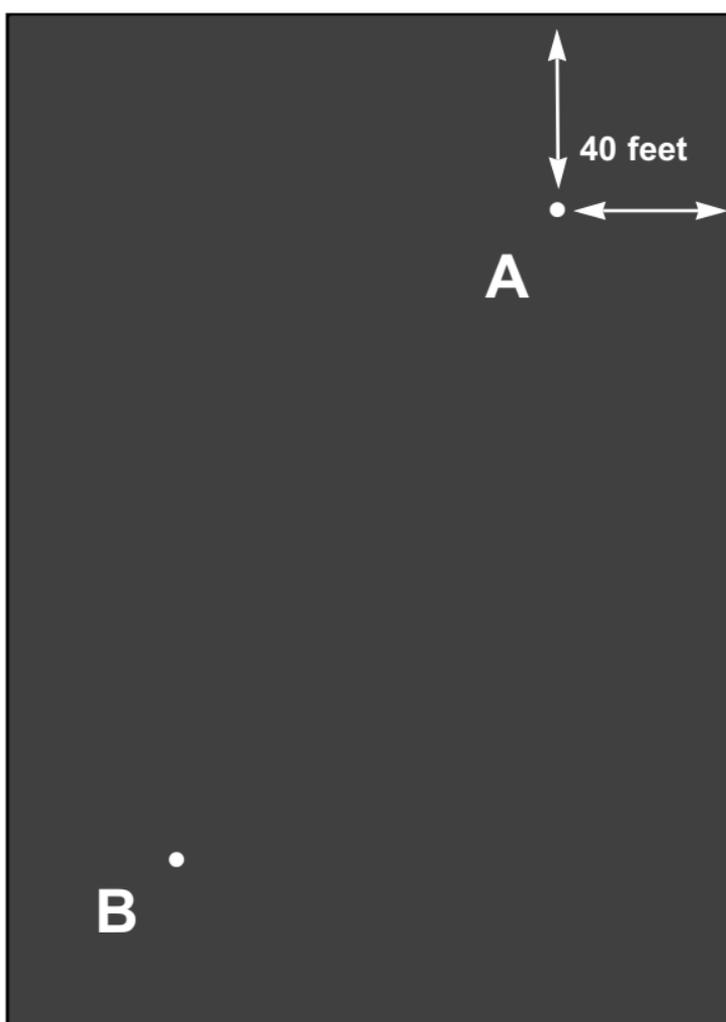
The use of transition pegs provides a visual reference which scientifically pinpoints the ideal moment to apply acceleration in a timely manner to increase speed most efficiently. To keep the vehicle's roll forces in balance it is best to go from a braking action to an acceleration action without any hesitation.

- ***Target Area Searching*** when approaching the turn.

Target area searching is getting a mental picture of conditions to the target area for the purpose of evaluating your targeting path. This will give you an opportunity to detect any condition which could affect your movement into the intersection prior to making a turn.

Set-Up

B

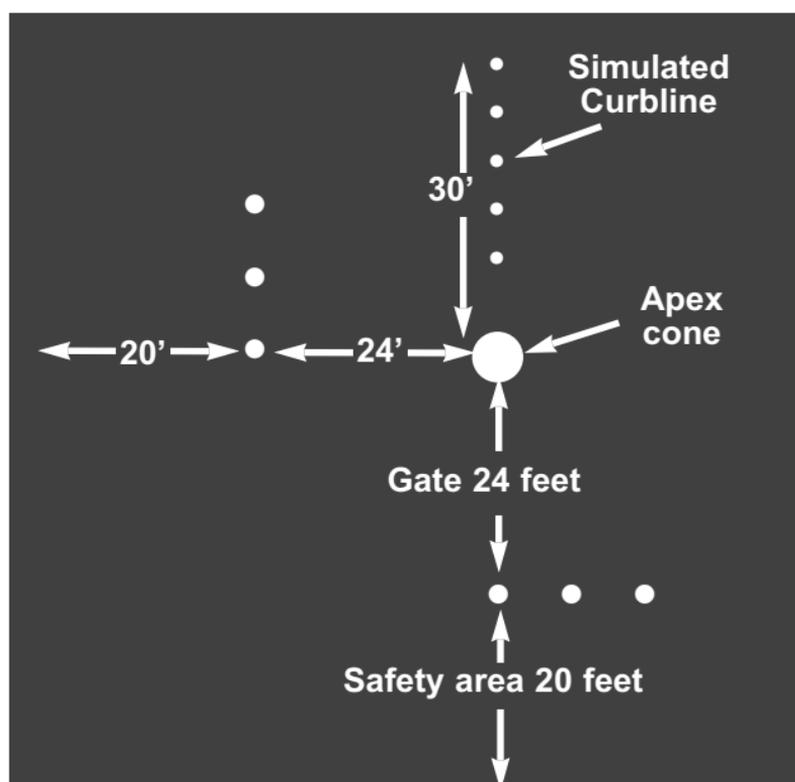
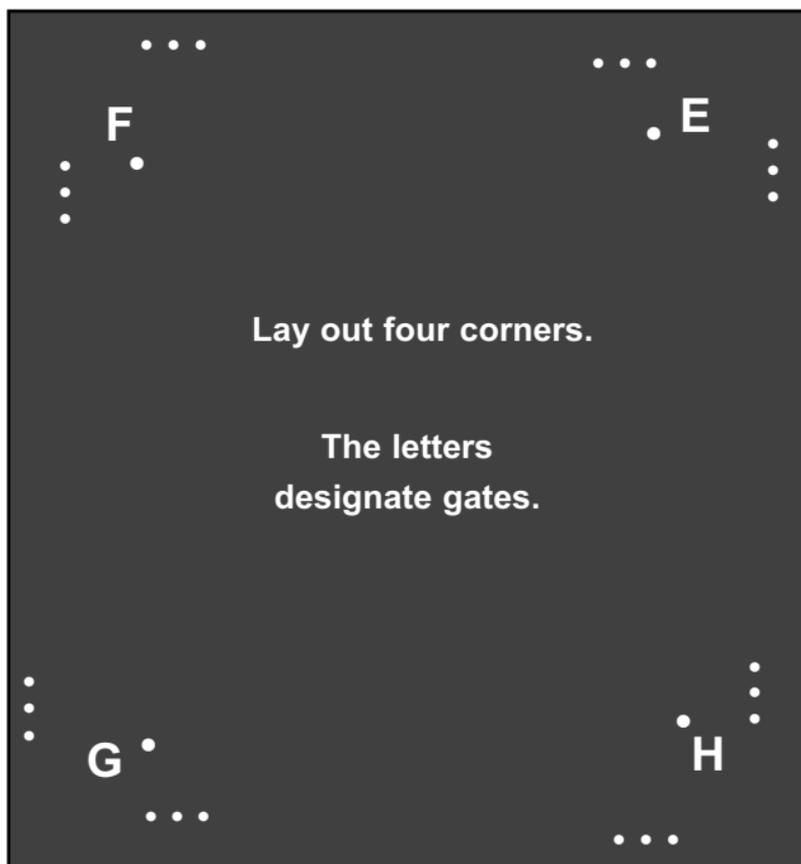


Course Set-up

- Use two large barriers that are at eye level, or higher. Have the two objects (which will become targets) as far apart as space permits.
- Leave at least 40 feet of empty space to the back-side of the cone. This is needed for space to turn around the cone and to be clear from any objects.
- Consider the slopes in the parking lot when you place the cones. When possible have turns made to the upgrade of the slope for the first four or five turns, then when you do the downgrade turns they will be more dramatic.

Set-Up

J



Course Set-up

- Gates can be 18 feet to 36 feet wide. The standard width is 24 feet. When you want the car to be driven slower, you make the gate narrower.
- Use a larger cone for the apex and small 2-4 inch cones for the three limitation cones, which are spaced about 4 feet apart.
- At two gates add a 30' row of small cones spaced 3' apart to represent a simulated curbline for use of reference points when right turns are being made.

Set-Up

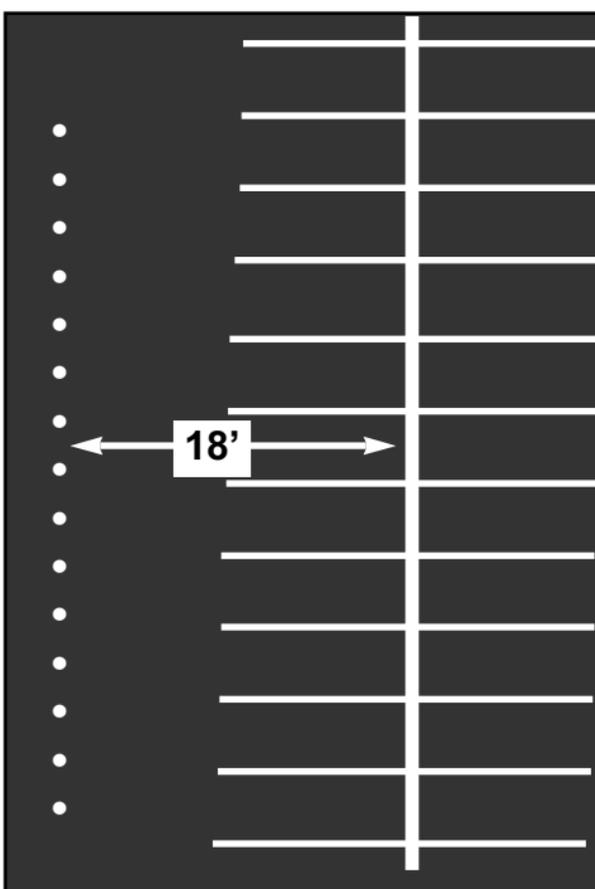
S

M

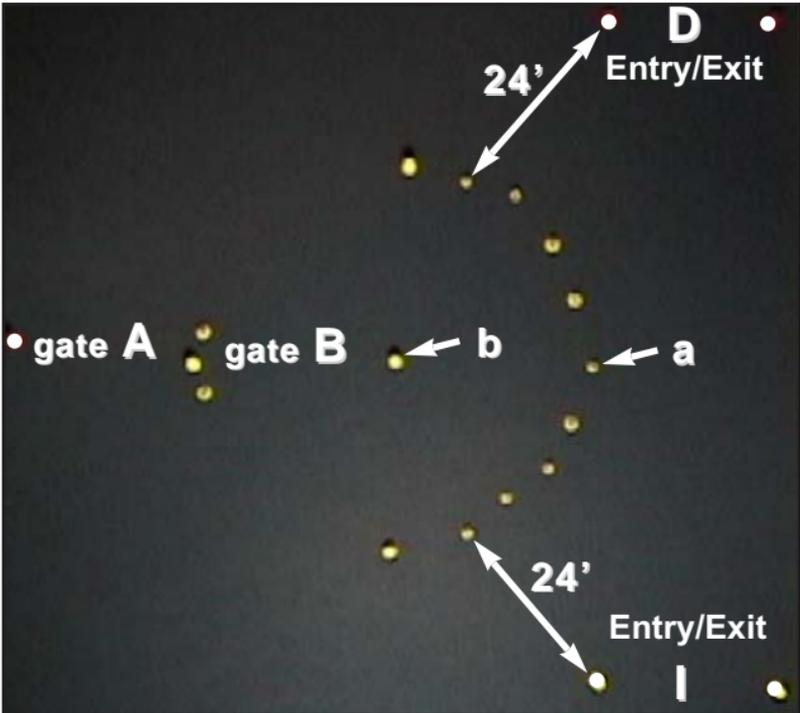
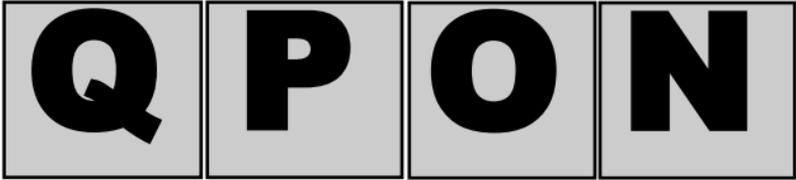
Course Set-up

Use small two-inch motorcycle cones placed 18 feet from the dividing line of two parking rows, as illustrated below, to make an 18 foot wide lane. If there are no suitable lines on the pavement, use two rows of the small cones. Take note of the camber of the parking lot to design the slope, if any, into the exercise.

The reason an 18 foot wide simulated lane is used is to give the trainee a clearer image of the difference between the three lane positions being used.



Set-Up



Course Set-up

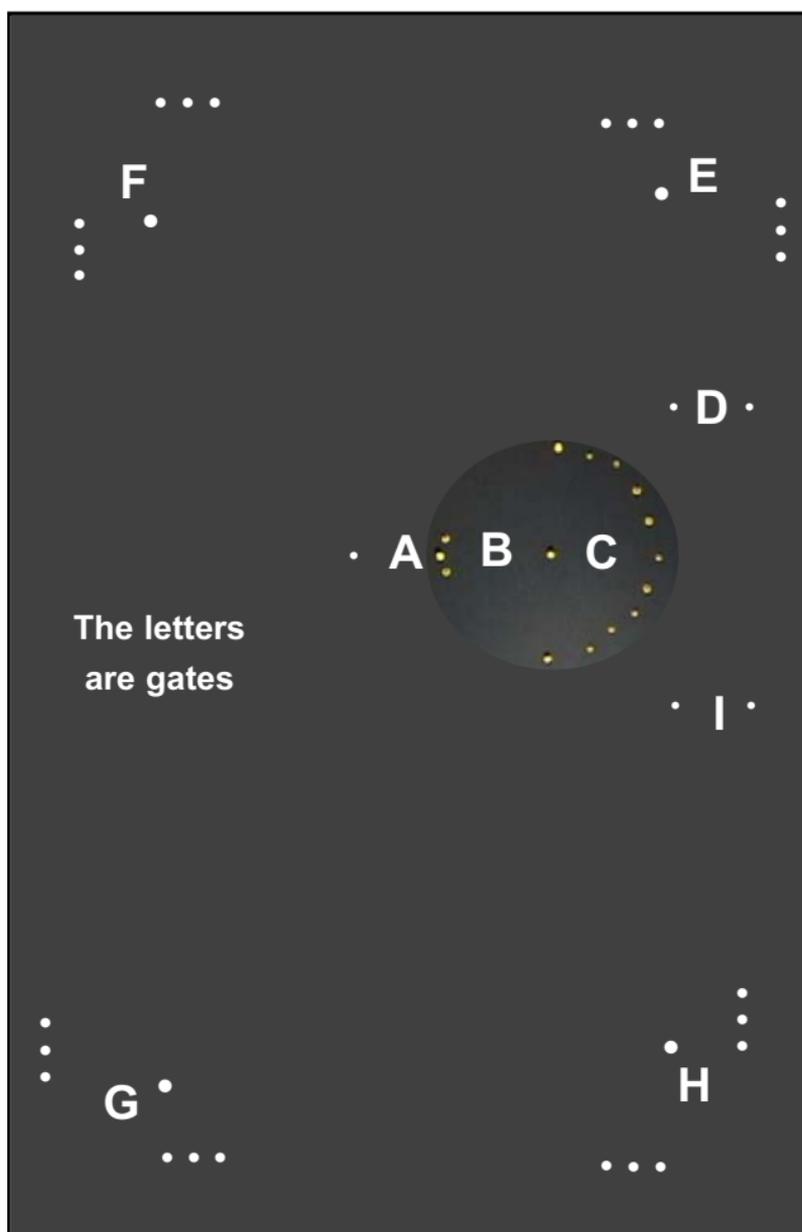
Use 2-4 inch cones for the curve and 12 inch or larger cones for the exiting gates. For cone "b" use a large pylon 36" or higher.

To Set Up Course:

- Line up cone "a" with the inside of gates "E" and "H" from the Four Corners Set J.
- The inside cones for gates "D" and "I" should also be aligned with cone "a".
- Decide on what size radius to make the circle. The radius of the circle should be 18-36 feet depending upon the size of the parking lot and the speed you want the car to travel.
- If you have space begin with a 30 foot radius, which will give you adequate options for variation of speed selection.
- Measure the 30 foot radius from cone "a" to cone "b" to select the center point for the circle.
- Use a measuring tape, or rope, as a compass to mark the circumference of the circle. One person holds the rope at cone "b". Another holds the rope at the length of the circle's radius and walks around the circumference laying down a cone every 3-4 feet.
- Leave half of the circle without cones, as illustrated, to make it into gate "B".
- Make entry/exit gates "D" and "I" 24 feet wide.
- Take note of the camber of the parking lot to design the slope, if any, into the exercise.

Set-Up

R



To Set Up Course:

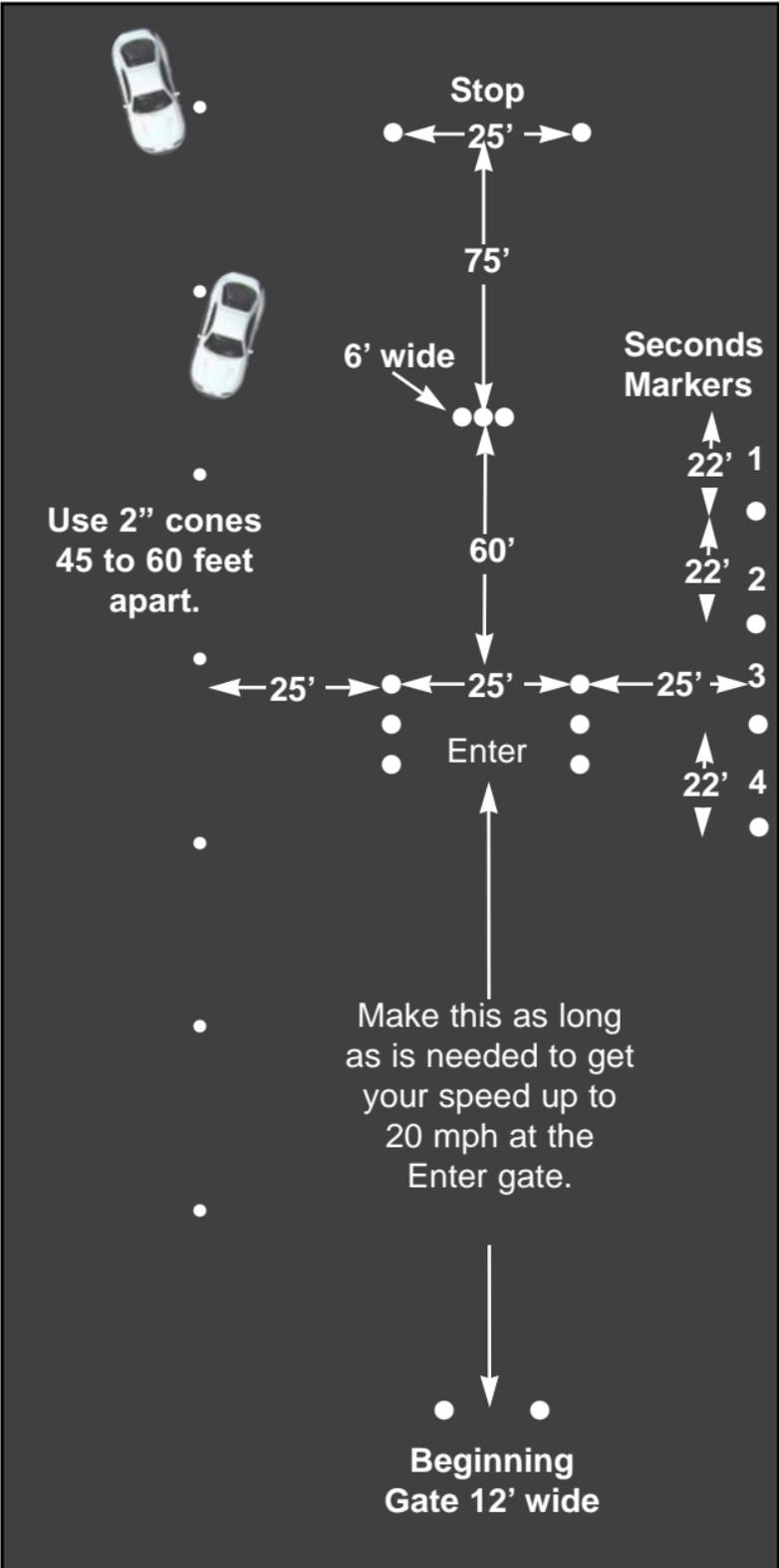
- Use the same set-up as that used for set N.

Set-Up

V

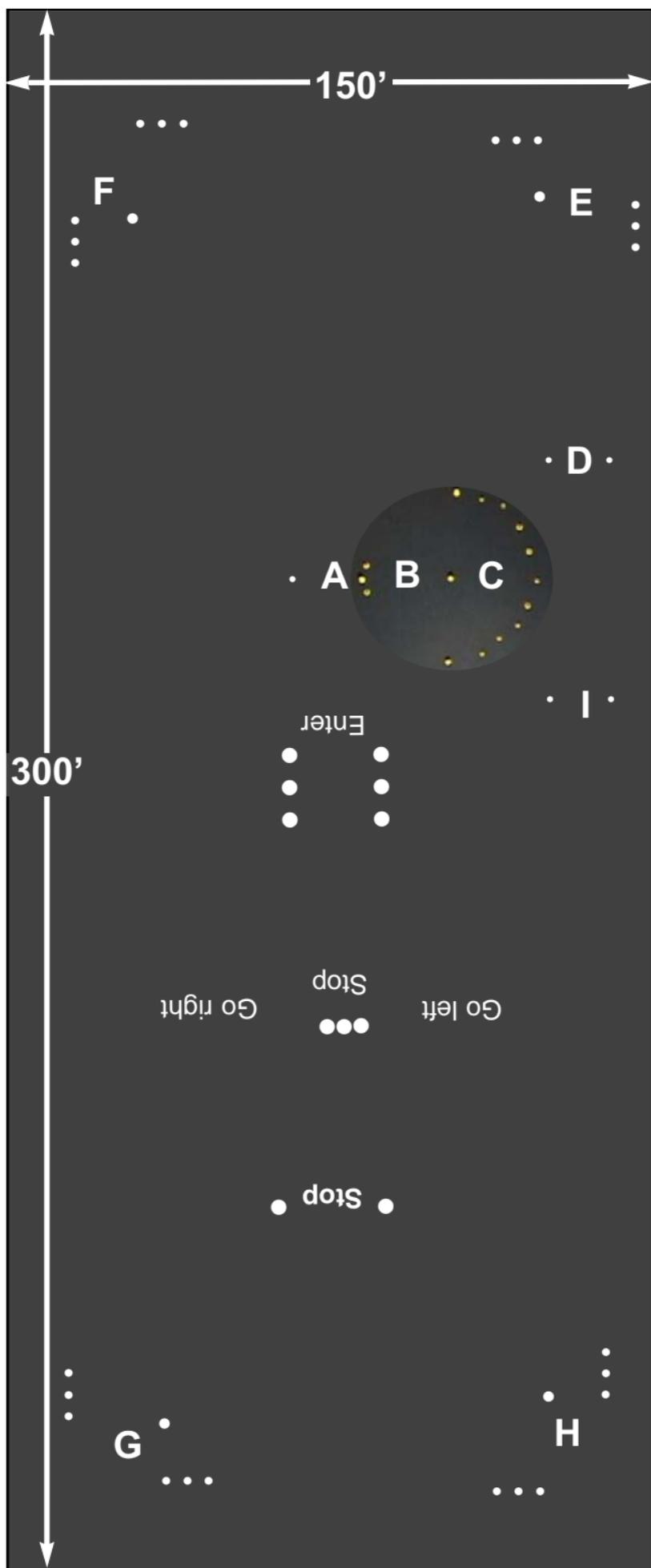
U

T



The "Seconds Marker" cones indicate where 1, 2, 3 and 4 seconds of space is from the object to be avoided when traveling at 15 m.p.h.. Use 12-18" cones for the markers. Place a 10" number on each cone to show the seconds marker.

All Set-Ups



To Set Up Course:

- If you have a 150 feet by 300 feet training area, this is one example (not to scale) of how all the exercises can be set-up. The exercises that are not illustrated can be placed after these exercises are set-up so that they will not interfere.