LOS ANGELES POLICE DEPARTMENT
DRIVER TRAINING EVOC SKID RECOVERY
1850-21157
Expanded Course Outline

Instructional Goal: The student will be able to drive a law enforcement vehicle in a precise way in confined areas at low speeds and to provide the student with the ability to recognize the causes of the various types of skids and be able to take appropriate action to regain control of the vehicle if it goes into an over acceleration skid, an all-wheel lock skid, an oversteer skid, or an understeer skid.

Performance Objective: Using practical application, the student will demonstrate through a series of low speed exercises an understanding and working knowledge of precision driving at low speeds. The student will also learn to identify the cause of various skids. The student will create an acceleration skid, all wheel lock skid, oversteer skid, and understeer skid. Then, apply the appropriate techniques needed to regain control of the vehicle.

Classroom Interactivity: The students will participate in exercises in the classroom using video case studies and small and large group discussion.

Practical Application: The student will experience an acceleration skid on the skid pan, an understeer skid in the skid platform car, an all-wheel lock skid and an oversteer skid on the skid recovery course, and the ability to recover from an oversteer skid on the skid recovery course. These skills occur during the hands-on driving portion of the course.

References: Instructors, facilitators and training supervisors shall ensure that current references are utilized

I. DRIVER TRAINING SKID RECOVERY COURSE ORIENTATION and INTRODUCTION (15 min) (PSP II a)

A. Welcome and Introduction

1. Welcome participants

2. Instructor introductions

B. Administrative Duties

1. POST roster

2. Grading sheets-Testing Overview
   a) The test is pass or fail.
   b) If the student does not pass, he/she will have to be remediated and meet the PSP obligation in driver training at a future date.

3. Course Safety Expectations
   a) Prior to any participation in Driver Training, the assigned supervisor at the scene will ensure all personnel are familiar with the techniques to be used during exercise, which will take place at the training site.
   b) All participants will be responsible to adhere to all guidelines.
   c) Instructor/Student Ratios
      1) Lecture 1: 18
      2) Rotations Practical Applications on track 1:3

4. General Safety Policy Procedures
   a) Anyone participating in the training, whether student, observer, or instructor, has the authority to “STOP” the exercise if they observe an unsafe act or

condition that may cause imminent injury or death and/or damage to the facilities.

b) Students shall immediately notify an instructor(s), or the training staff of any injury sustained during training and use the following steps in the event of a serious injury:
    1) Render first aid and obtain appropriate medical assistance. Notify the Fire Department rescue ambulance (213-485-6185) via telephone, cellular phone, or police radio. Give specific directions to the location of the incident.
    2) In case of a serious injury, all Injury Illness Prevention Program (IIPP) notifications and protocol shall be followed.
    3) At each training location, there is a notebook located in the training unit's office, which also contains the emergency plan that is in place.
    4) The supervisor will ensure that the necessary worker compensation forms (PDAS-43), Employee Injury (Form 1.66), and other reports, (Employee Notification Form 15.7) are completed in a timely manner.
    5) Transport to the local hospital for all minor injuries.
    6) Request a Rescue Ambulance (RA) for all major injuries.

5. Course Specific Safety Rules
    a) Seat belts shall be worn at all times.
    b) Speed limits have been mandated and shall be adhered to.
    c) Helmets and racing harnesses shall be worn at the direction of the Emergency Vehicle Operations Course (EVOC) instructors.
    d) Operate emergency equipment and radios as directed by the EVOC instructors.
    e) Immediately report all injuries to the on-site safety officer and supervisor.
    f) Immediately report any unsafe conditions observed on the facility.
    g) Immediately report any damage to vehicles or property.
    h) The blue strobe lights indicate training in progress.
    i) The red strobe lights indicate all training shall cease.

II. DRIVER TRAINING SKID RECOVERY OVERVIEW (45 min) (PSP II b, c, d, e)

A. Review of Los Angeles Police Department Policy

1. Skidding is a result of exceeding the vehicle tires traction limits.

2. Skidding increases the potential for loss of control of the vehicle.

3. Police officers should avoid skidding and recognize the increased risk inherent in exceeding the vehicles limitations.

4. If skidding occurs because of the speed of the pursuit, environmental factors (I.E. rain), or mechanical failure, officers should evaluate the necessity for the continuation of the pursuit (Volume 4/205.17 LAPD Manual Continuation/Termination of Pursuit).

B. Four Types of Skids

1. Acceleration skid

    a) Excessive acceleration for the roadway conditions
    b) Often occurs from a standing start or while exiting a turn
    c) Loss of traction occurs at the drive wheels
    d) ***LEARNING ACTIVITY****:* Small Group (10 mins)

    Procedures: Large group discussion and small group activity

        1) Facilitate and discuss with students when excessive acceleration is likely to occur while operating an emergency vehicle.
        2) Have students work in small groups to create a real-life driving scenario where an acceleration skid may occur.
        3) Discuss why the acceleration skid could likely cause a dangerous driving condition, and how to correct this type of skid.
        4) Key Learning Points:
            (a) While in a turn, a harsh or excessive use of the throttle may cause the inside rear tire to lose traction.
            (b) This will cause the vehicle to turn more than the intended path.
            (c) Come off the throttle and steer the car toward your intended path.

2. All wheel locked skid
    a) A loss of rolling friction
    b) Loss of steering control
    c) Response to potential hazard is one-dimensional.
    d) Stopping distance is increased.
    e) Facilitate discussion with class regarding a “Panic Stop” prior to the advent of anti-lock braking.

3. Oversteer Skid
    a) Rear wheels lose traction while front wheels maintain traction.
    b) Common cause is excessive acceleration exiting a turn.

4. Understeer Skid
    a) Front wheels lose traction while rear wheels maintain traction.
    b) Common cause is entering a turn too fast.

5. Oversteer and Understeer skids occur during turning motions.
    a) Factors to consider when determining if, when, and how, a vehicle will skid.
    b) Traction
        1) Adhesion of tires to the road surface
        2) Limit of traction is a tires performance limit with a force exerted against it.
    c) Centrifugal force
        1) The force the tires must overcome in a turn.
            (a) Made up of motion combined with directional change
            (b) Byproduct is weight transfer.
        2) Determines the duration and severity of skid.

3) More steering equals less potential controlled speed.
4) Less steering equals more potential controlled speed.

6. How do you control a skid?
    a) Three tools to control a vehicle while it is in motion
        1) Steering
        2) Throttle
        3) Brake pedal
    b) These are used together in a pattern to create the intended results.
    c) Oversteer
        1) Steering control
            (a) Turn into the skid to the degree of angle of the skid.
            (b) Keep front wheels pointing on the path you would want the vehicle to travel on if it was not skidding.
            (c) Recover steering at a controlled rate to minimize spring loading as the skid is reduced.
        2) Throttle control
            (a) Skids caused by over acceleration, come off throttle
            (b) If in a high-speed turn at full throttle, maintain throttle and control skid with steering.
            (c) Add throttle if coming out of a skid before you want to.
        3) Brake control
            (a) Avoid brake application due to weight transferring forward thus taking weight off the rear tires.
            (b) What might occur when applying the brakes while already in an oversteer skid.
                (i) Applying brakes would make the skid worse
                (ii) Applying brakes could cause one to lose control of the vehicle.
    d) Understeer
        1) Steering control
            (a) Recover input of steering
            (b) Get back to the point where the understeer started to occur.
        2) Throttle control
            (a) Come off throttle to reduce speed.
            (b) Don't re-apply throttle until the understeer is no longer present
        3) Brake control
            (a) Apply brake to slow vehicle
            (b) This will transfer weight to the front of the vehicle potentially aiding in the recovery of rolling friction **(ABS Only).**

7. ***LEARNING ACTIVITY*****:** Video-Case Study, Group Discussion and Debrief (5 min)

    Procedures:

    a) Advise student that while watching the video-Case Study they should be looking for:
        1) The primary cause of the understeer skid.

2) Any possible way the CHP Officer could have avoided the accident even after the skid occurred.

b) **SHOW VIDEO:** CHP Crash
This is a 30 second video showing a CHP Officer in pursuit enters a turn with too much speed. The vehicle understeers and crashes into a building.

c) After watching the video-Case Study, have the students in their small groups discuss the key issues.

d) Key Learning Points:
1) The CHP officer enters the turn with too much speed. The mistake was so severe even the most skilled driver could not have possibly negotiated the turn once the mistake was made.
2) Options that may have prevented the accident from occurring:
(a) The driver should have slowed down much more prior to entering the turn.
(b) Once the mistake was made, the driver could have given up on trying to negotiate the turn and continued straight. In this case, there was clear roadway in front of the officer.
(c) Understeer is a difficult skid to recover from even for the most skilled drivers. The best fix is NOT to let this happen to you. Slow down before entering turns!

8. KEY LEARNING POINTS: Skid Control

a) Look where you want the car to go not where the car is skidding.
b) Early recognition of the skid is critical to controlling the skid.
c) Accurate coordination of steering, throttle, and possibly brake is necessary to control the skid.
d) Control spring loading by accurate recovery of steering. This reduces the chances of a secondary skid.

C. Key Issues Related to the LAPD Skid Courses

1. Course construction and design
a) Skid Pan and Recovery courses are made of polished concrete.
b) Purpose is to teach skid control in a safe, low speed environment.
c) Skid control techniques are the same on dry and wet pavement.

2. Skid Pan
a) Learn to initiate a skid.
b) Recognize what type of skid is occurring.
c) Control skid through the turn.
d) Recover skid exiting the turn.
e) Experience acceleration skid.

3. Skid Recovery Course
a) Learn to initiate and control a primary skid.
b) Learn to initiate and control a secondary skid.
c) Experience all wheel lock skid.

4. Skid Platform Car
a) Learn to initiate an under-steer skid.

b) Use brake, steering, and throttle appropriately to recover from skid.

D. Overview Skid Course Safety Issues

1. Skid Pan
   a) Maximum of two vehicles on course at a time.
   b) Maximum speed is 15 mph.
   c) Keep one half-course separation between vehicles.
   d) Follow primary instructor's directions.

2. Skid Recovery Course
   a) Maximum speed is 25 mph.
   b) Only one vehicle skidding on course at a time.
   c) Follow primary instructor's directions.

3. Skid Platform Car
   a) Maximum of two vehicles on course at a time.
   b) Follow primary instructor's directions.

III. DRIVER TRAINING SKID RECOVERY ROTATIONS Practical Application (2 hrs.) (PSP II a, d, g, h)

Purpose: To experience and practice the different types of skids to update and develop the manipulative skills (Psychomotor aspects) to recover from a skid.

Procedure: Students break up into small groups six (6) for three (3) one (1) hour rotations in:

- Skid Recovery
- Skid Platform
- Skid Pan

A. Skid Platform Car Exercise

1. The student will induce and recover from an understeer skid to successfully negotiate a turning motion.

2. The student may have to look for escape options if negotiation of the turn is not possible.
   a) Decision making
   b) Risk assessment

3. The instructor will explain to the student that weight will be taken off the front tires
   a) This will limit the front tires' ability to adhere to the road.
   b) This will create a scenario, which is likely to cause an understeer condition as the student enters the turn even if the speed is relatively low.

4. A student will drive through a prescribed course with the instructor in the vehicle.
   a) As many as 2 other students may be in the back seat observing and experiencing the understeer skid.
   b) Two Skid Platform Cars may be operating on the course simultaneously.

5. The instructor will divide the rotation time equally amongst the students.

6. Key learning points for the students:
    a) Look where you want the car to go and not where the car is skidding.
    b) Early recognition of the skid is critical to controlling the skid.
    c) Accurate coordination of steering, throttle, and possibly brake, is necessary to control the skid.
    d) If unable to complete the intended path of travel, find and drive to open roadway.

B. Skid Pan Exercise

1. The student will experience, recognize, and recover from both an understeer condition and an oversteer condition while negotiating turning motions.

2. The student will induce an acceleration skid exiting a turn.

3. This exercise will be conducted on the **wet** Skid Pan, which will limit the vehicle traction capability thus causing the vehicle to skid at a relatively slow speed.

4. The type of skid the student will experience will depend on the student.
    a) If the student enters a turn on the skid pan too fast, the likely event would be an understeer.
    b) If the student exits the turn with excessive throttle, the likely event would be oversteer.
    c) The instructor should encourage or direct the student appropriately, so they may experience both skid conditions and remind the student on how to correct the skid if needed.

5. Two vehicles may be on the Skid Pan at one time.
    a) There will be a student driver
    b) An instructor in the vehicle
    c) As many as 2 student passengers in the back seat observing.

6. The instructor will divide the rotation time up equally amongst the students.

7. The key learning points the instructor should reinforce in this exercise:
    a) Recognize the type of skid you have.
    b) Look where you want the car to go and not where the car is skidding.
    c) Accurate coordination of steering, throttle, and possibly brake, is necessary to control the skid.
    d) Control spring loading by accurate recovery of steering. This reduces the chances of a secondary skid.

C. Skid Recovery Course Exercise and Test

1. The student will experience an all-wheel lock skid (ABS disabled).

    Note: This will be demonstrated by the instructor with the students in the vehicle.

a) The instructor will drive on the wet surface of the Skid Recovery Course, and aggressively apply the brake to the point where all tires are no longer rolling. The instructor will then turn the steering wheel.
b) The student will recognize if the wheels are not rotating. No directional change will occur.

2. There will only be one vehicle at a time attempting the skid recovery.

3. There will be a maximum of 2 students in a vehicle at one time (passenger and driver) and a maximum of 3 vehicles involved in the exercise.

4. The student will practice for approximately 20 minutes.

5. The student will induce and recover (correct) from an oversteer skid and any secondary skid that may occur.
    a) The student will drive onto the **wet** Skid Recovery Course and steer the vehicle until a skid occurs
        1) The skid will be an oversteer skid because the rear tires are bald.
        2) The speed should be approximately 25mph, but this may vary slightly due to depth of water and tire condition.
    b) The student will attempt to recover from the skid by steering the car toward the designated exit ramp.
    c) A successful run would be one in which the student regains traction and the car does not spin out.
    d) Remind the students of the key learning points:
        1) Look where you want the car to go not where the car is skidding.
        2) Early recognition of the skid is critical to controlling the skid.
        3) Control spring loading by accurate recovery of steering. This reduces the chances of a secondary skid.

6. Test
    a) The student will be tested on their last 5 runs.
        1) The student will be notified when the testing is beginning.
        2) The student is required to be successful on 3 of 5 attempts
    b) Half way through the rotation the passenger and driver will switch, and the process will repeat itself.

IV, **SESSION 3G-Skills Driving (Slow Speed Precision Driving) Practical Application (1Hr) (PSP II e, d, f, g, h)**

A. Skills Exercise (Slow speed vehicle placement) and Test (Equipment used:

emergency police vehicle with three-point seat belt).

1. The instructor will demonstrate the three exercises below, which are set up

on the Skills Course:

a. Off Set Lane

i. The instructor will demonstrate the TSR and exit the vehicle.

b. Parallel Park

c. Back and Turn Around

1. The recruit will practice the three exercises on the Skills Course.

   a. The student will demonstrate the TSR and exit the vehicle on the Off Set Lane exercise. (LD 19. I. G.)

2. The student will perform an exercise that requires the student to drive a law enforcement vehicle and demonstrate a series of slow speed precision driving maneuvers, that include at least **three (3) tested maneuvers** contained in the Emergency Vehicle Operations Course Instructor Manual.

   (LD 19 V. L.)

   a. The student will demonstrate competency in the following performance dimensions:

      i. Safety

      ii. Situational awareness

      iii. Braking Technique

      iv. Steering Technique

      v. Throttle Control

      vi. Speed Judgment

      vii. Vehicle Placement

      viii. Backing

      ix. Tactical Seatbelt Removal (TSR)

      x. Rate of Performance

      xi. Fluency of Performance

   b. The student must complete the three low speed exercises without contacting any of the delineator cones, reflectors, or stanchions.

   c. The student must be successful on at least two of the three exercises to meet the passing criteria.

D. Driving Course Debrief

1. Debrief Skid Recovery Rotation Exercises

2. Key Learning Points
    a) Look where you want the car to go not where the car is skidding.
    b) Early recognition of the skid is critical to controlling the skid.
    c) Accurate coordination of steering, throttle, and possibly brake, is necessary to control the skid.
    d) Control spring loading by accurate recovery of steering. This reduces the chances of a secondary skid.
    e) Skidding increases the chances for a loss of control of the vehicle. The best thing is NOT TO SKID!