San Bernardino County Sheriff's Department

Expanded Course Outline

Post ID # 2330 - 33621

Traffic Collision Investigation – Motor Vehicle Inspection
(40 Hours)

Monday:

I. Introduction

1) Shop Safety
   a) Reasons
   b) Hazards
   c) Personal Protection Equipment
2) Reasons for Inspection
   a) Fatal Collisions
   b) Liability
   c) Rule out / find mechanical reasons for collision
3) What not to do
   a) Preconceived ideas
   b) Make assumptions
4) Photography
   a) Reasons
   b) 8 points
   c) Specific components
   d) Documentation

II. Inspection:

(1) Tires and Wheels
   (a) Definitions
   (b) Sidewall Information
   (c) DOT numbers / identification
   (d) Problems / issues
   (e) Documentation
(2) Speedometers
   (a) Speed slap
   (b) Issues
   (c) Speedometer Cables
   (d) Documentation

Tuesday:

III. Inspection:

(1) Brake Systems
- (a) Drums
- (b) Discs
- (c) Master Cylinder
- (d) Power Assist – Power / Vacuum
- (e) Hydraulic / Air Brakes
- (f) ABS Brake Systems
- (g) Documentation

(2) Steering systems
- (a) Worm and Sector / Recirculating Ball
- (b) Rack and Pinion
- (c) Power / Non-Power (manual)
- (d) Components
- (e) Documentation

(3) Seatbelts
- (a) Stretching
- (b) Latches
- (c) Types / Webbing
- (d) Documentation

Wednesday

IV. Inspections

(1) Suspension Systems
- (a) Front Suspension
  - (i) Independent / Straight Axle
  - (ii) Upper/Lower Control arms
  - (iii)MacPherson Strut
  - (iv) Coil
  - (v) Torsion Bar
- (b) Rear Suspension
  - (i) Leaf Spring
  - (ii) Air Bags
  - (iii) Coils / MacPherson
  - (iv) Trailing Arm
- (c) Documentation

(2) Throttle Systems
- (a) Throttle Bodies
- (b) Cable / "Fly by wire"
- (c) Linkage

(d) Open / Closed – bound
(e) Spring condition
(f) Importance
(g) Documentation

(2) Computers
(a) EDR (Electronic Data Recorder)
(i) Data that is recorded
1. speed
2. brake switch on/off
3. seat belts worn
4. rpm
5. ABS / Yaw control
6. throttle percentage
(ii) Retrieval
(iii) Removing box vs. leaving in vehicle
(iv) Legal issues
1. search warrants
2. impound section (VC 22655.5 vs VC 22651)

Thursday

V. How to Inspect Vehicle (Hands On Assignment)

(1) Methods
(a) Logical order
(b) Independent systems
(i) Brakes
(ii) Steering
(iii)Suspension
(iv)Throttle
(v) Tires / wheels
(vi)Frames and other components
(2) Documentation while inspecting
(a) Forms
(b) Photography
(c) Evidence Procedures

VI. Report Writing / Court Testimony

(1) How to document
(a) Who, What, Where, Why, When, How
(b) Deficiencies – contributing / non-contributing?
(c) Pre-existing condition?
(d) Use of photos in report – integrating photos in narrative

(2) Courtroom Testimony
  (a) Only testify to what you know
  (b) Don't guess
  (c) Know your expertise
  (d) Read your report beforehand
  (e) Be brief and to the point
  (f) Professionalism
    (i) Dress
    (ii) Demeanor
  (g) Integrity / Honesty

VII. Final Exam

(1) Report Review
(2) Mock Trial
(3) Final Exam

Traffic Collision Investigation – Mechanical Inspection

SHOP SAFETY CHECKLIST

The following are common, important safety guidelines to remember when working in the shop environment:

- Under no circumstances should unapproved people be allowed to use the shop equipment. Do not allow unauthorized persons to visit or loiter in the shop.
- Secure the shop when no one is present. It goes without saying that you should *never* leave a machine in operation while it is unattended.
- Check emergency equipment such as first aid kits, emergency lighting, fire extinguishers and eye wash stations at start of class daily.
- Periodically check all hand tools, portable power tools and larger shop equipment.
- Check to make sure all cleaning baths and parts washers are safe to use. Take this opportunity to check area lighting, ventilation and fusible links on the self-closing covers.
- Good safety practices start with *good housekeeping*. Use the following guidelines for your shop maintenance:
    - Clean up spills immediately.
    - Keep walkways and stairs free of tripping hazards.
    - Store oily rags in a covered metal container and be sure to empty it every night.
    - Periodically remove excess cutting oils and filings from shop machinery.
    - Keep all tools in their place and red-tag tools that need repair.
- Never wear jewelry or loose clothing around rotating machinery. Be cautious of any item that may become entangled, including long hair.
- Remember to follow all the proper steps when utilizing a lockout/tagout procedure. Never cut corners because you think it's going to save time.
- If you have any doubts or questions about the operation of a particular piece of shop machinery, never hesitate to ask your supervisor or a qualified co-worker.
- Shop privileges are open only to students currently enrolled in the Mechanical Inspection class and all work done in the shop must pertain to instructor’s assignments.
- Students are not allowed to work on any vehicle that does not pertain to the instructor’s assignment without the instructor’s approval.
- All class periods begin in the classroom. Shop assignments will be given as well as any other special instructions in the classroom.
- All shop work must be completed during the regular class time. No work may be started early, or continued after the regular class time without instructor’s approval.
- All students must wear safety glasses at all times in the shop area.
- All students working in the laboratory must wear closed-toe shoes (no sandals).
- All students working in the laboratory must wear long pants or jeans, shorts and skirts are not permitted for safety reasons.
- Never stand in front of a vehicle to “guide” the driver into a space or lift area. Stand to the side.
- Never bring a vehicle into the shop that has a gasoline leak. Notify the instructor if a leak is discovered after the vehicle is brought in.

- A fire extinguisher must be next to the vehicle if work is being done that will present a danger of fire. The fire extinguisher must be returned to the proper place after work is completed.
- Get permission and proper instruction from the instructor before using any hoist, lift, or jack.
- Use the proper lift points when raising a vehicle. If you are unsure of the lift points, do not proceed until you have cheeked the service manuals or with the instructor. Use a droplight to ensure proper saddle placement. Lift the vehicle while watching for overhead obstructions and lower slowly after making sure that nothing is under the vehicle (including hoses and cords). Raise the vehicle a few inches and shake gently to ensure good saddle contact.
- Use the appropriate lift safety devices before going under the vehicle.
- Always use safety stands before going under the vehicle. Place the safety stands in the proper places and gently shake the vehicle before beginning work.
- When working under the hood, watch out for rotating parts. Students with long hair must wear a cap that will contain the hair. Loose clothing must not be worn.
- Rings, watches, and jewelry must not be worn in the shop area when working on vehicles.
- Students are expected to clean up the area in which they have worked. Clean up includes all oil (or other liquids) spills/leaks, coffee cups, paper towels, etc. In some cases it may be necessary to wet the floor, apply soap, scrub the floor, rinse the floor, and squeegee the floor.
- Students are expected to act in a mature and safe manner at all times in the laboratory.

- Horseplay will not be tolerated. Students who fail to obey the safety policies will lose shop privileges and be asked to leave the premises.