

## Chapter 6

# Crime Scene: Vehicles

## Overview

A vehicle is often a part of a crime scene. A vehicle can be burglarized, vandalized, stolen, or used in the commission of a crime. Vehicles are also the primary subjects in traffic collision scenes. During these types of investigations the vehicles, and the evidence related to them, must be thoroughly photographed.

## Burglary to Vehicles

When called upon to photograph a vehicle burglary, normally you will have only one chance to photograph the vehicle and its associated evidence. Once the crime scene investigation, including the photography and collection of evidence, is completed, the control of the vehicle is usually given back to the owner. Therefore, it is important that you get all the photographs needed for documenting the case—and get them done properly—on the first attempt.

The first step in photographing a vehicle burglary is to photographically identify the vehicle. This can be done by photographing the vehicle identification number (VIN) and the license plate.

The VIN is normally on a metal plate found on the driver's side of the dash board and is viewed through the windshield. When photographing a VIN plate you will need to fill the frame of the camera's viewfinder with the VIN plate, so you will



VIN plate photographed through a windshield.

usually need to use a macro lens or close-up accessory to position the camera about six inches from the plate. Also, since depth-of-field is shallow in close-up photographs, you must position the camera with the film plane parallel with the VIN plate so all the letters and numbers will be in sharp focus.

Many times the VIN is easy to see and can be photographed without difficulty. If you can see the VIN clearly in your camera's

viewfinder, and can read the letters and numbers on the plate, then no additional special photographic techniques are necessary. Just take the photograph.

However, if you cannot read the letters and numbers on the plate as you look through your camera's viewfinder, then one of two situations is likely interfering with your view. One is glare or reflection on the windshield that obscures your view. You might even see your own reflection from the windshield in the camera's viewfinder. To eliminate all or part of the glare and reflection from glass you must use a polarizing filter over the camera's lens. As you rotate the polarizing filter on the lens you will see the glare and reflection lessen. More information about using polarizing filters is found in Chapter 2—Camera and Lighting.

The other situation that could be interfering with your view is inadequate lighting. To improve lighting you can position a flashlight inside the vehicle on the dash to shine its light across the VIN plate. This works especially well on VIN plates with embossed or stamped letters and numbers—the oblique lighting creates small shadows that make the letters and numbers more visible. You can then take a photograph with the illumination provided by the flashlight, or you can place an electronic flash in its place for the photograph. If you use an electronic flash be sure to position the flash far enough away from the VIN plate to avoid washing out the letters and numbers with too much light.

One additional problem that may present itself when photographing a VIN plate through a windshield is focusing with an auto-focus lens. Some auto-focus lenses have difficulty focusing accurately through glass. They may focus on the windshield instead of the VIN plate. Since the depth-of-field will be shallow for this type of close-up photograph, you must be sure the camera is focused on the VIN plate, not the windshield. If appears the camera is focusing on the windshield, switch off the auto-focus feature and manually focus the lens.



This photograph was taken to show where a vehicle identification plate had been removed. The rivets that held the VIN plate remain.

In addition to the VIN plate, there are identifying numbers and stickers in other locations on a vehicle. Some are hidden while others are easy to locate. A VIN sticker is usually located on the driver's side door or door frame. If license plates or the VIN plate on the dash are missing or appear to have been switched or altered, the additional stickers and numbers should be photographed. An auto theft investigator or department of motor vehicles investigator may have to be

consulted for the photographer to learn the location of hidden vehicle numbers. Use the same techniques discussed above when photographing VIN stickers and hidden numbers.



Vehicle license plates are photographed close enough to show detail of the registration renewal sticker.

The vehicle's license plate should also be photographed to identify the vehicle. When photographing a license plate you will need to fill the frame of the camera's viewfinder with the license plate. This should be done so the numbers on any registration renewal stickers are visible in the photograph. Reflectorized license plates can be a problem to photograph with an electronic flash. If the electronic flash

is positioned on the camera and is pointing directly toward the license plate, the light will reflect back into the camera's lens, obscuring the letters and numbers. If you must use an electronic flash (e.g., a vehicle photographed at night) take the electronic flash off of the camera and position the flash at about a 45 degree angle to provide oblique lighting.

The second step in photographing a vehicle burglary is to photographically identify the location of the vehicle. This is done with overview photographs of the scene which include a landmark, such as a street sign or building address. If the vehicle is in a location without distinctive landmarks (e.g., on a dirt road in the desert) then the references to the vehicle's location in the investigator's report will have to do. In some cases investigators will use a GPS device to pinpoint the location of a vehicle for the report.

The third step is to photograph all four sides of the vehicle. This will show the overall condition of the vehicle, such as broken windows, points of forced entry to the vehicle and the presence and absence of other damage caused by the burglars. These photographs should be made by filling the frame of the camera's viewfinder with the side of the vehicle in order to show as much detail as possible.



Point of entry on a vehicle burglary.

The next step is to photograph the point of entry to show as much detail as possible. A mid-range photograph will show the location of the point of entry on

the vehicle and close-up photographs will show the detail of the point of entry. Evidence such as broken glass, pry marks and damaged locks are photographed. If anything you photograph can later be used to compare with a tool, such as pry marks, then a scale must be used on the same plane as the evidence in the photograph while positioning the camera so the film plane is parallel with the pry mark surface. More information on positioning the camera and scale for this type of photography is detailed in Chapter 7, Photographing Evidence—Basic Concepts.



Photographs of the interior of the vehicle show the condition of the interior and the presence of evidence.

The interior of the vehicle must also be photographed. These photographs will show the condition of the interior and the presence or absence of evidence. You will normally encounter deep shadows when photographing the interior of vehicles. If you expose the photographs of the interiors of vehicles using the daylight entering the vehicles through windows as your only light source, your photographs will usually include deep shadows that can

conceal detail. It is best to use electronic flash whenever photographing the interior of a vehicle.

Other evidence in and around the vehicle must be photographed. Evidence may include footwear impressions on the ground, damaged interiors, broken ignition switches, severed wires, tools left behind by the suspects, fingerprints before they are lifted, etc. Mid-range photographs will show the locations of the evidence and



Photographing into a vehicle with existing light — exposures with strong sunlight entering a vehicle compartment usually result in photographs with deep shadows. Detail in the deep shadow areas may not be recorded on the film.



Photographing into a vehicle using electronic flash — detail in the deep shadow areas is recorded. Electronic flash is also useful for photographing into vehicle trunks and engine compartments.

close-up photographs will show the detail of the evidence. If you photograph a footwear impression or tool mark that later might be used to compare with a suspect's shoe or tool, then a scale must be used in the photograph on the same plane as the evidence while positioning the camera so the film plane is parallel with the evidence.

### **Other crime scenes involving vehicles**

Most of the steps and techniques that were just described for photographing vehicle burglaries will also apply to other crimes involving vehicles, such as sexual assaults, arsons, vandalisms, and recovered stolen vehicles.

## **Collision Involving Vehicles**

Traffic collision photographs should be taken as soon as possible. Every minute that passes increases the chance that important evidence can be altered or destroyed. Normally, you will have only one chance to photograph the scene, vehicles and associated evidence in a vehicle collision. Once the vehicle collision investigation, including the photography and collection of evidence, is completed, the control of the vehicle is usually given back to the owner or is towed to a vehicle storage yard for safe keeping. Therefore, it is important that you get all the photographs needed for documenting the case on the first attempt.



Investigators photographing a traffic collision scene.

overview photographs, photographs of view obstructions and photographs taken to show drivers' points of view.

In all traffic collision investigations a diagram is drawn to document the roadway, marks on the roadway, final resting place of vehicles, etc. It may be helpful for other investigators who review your photographs to understand them if you indicate some of your camera locations on the diagram. Another technique would be to draw a separate field sketch that only shows the camera locations. This is most valuable to help orient the viewer for

When photographing a collision scene, it is best to start from the outside edges of the scene and work toward the center. However, if the scene has not been stabilized and you are ready to begin photography, you may want to first photograph those things that may be changing. Examples include vehicles before they are cut apart in

an attempt to remove injured occupants and vehicles before they are moved to open lanes to allow traffic to flow.

Use photographs to show the relationship of each vehicle with each other. If possible, include some permanent, recognizable landmark, such as a street sign, in some of the views to help orient the photographs. In some cases, such as multiple vehicle or fatal collisions, it may be helpful to show the overall scene with aerial photography.

Photograph debris or marks on the roadway, such as broken glass and gouges in the road surface. Photograph scrub marks on curbs, and damage to guardrails, utility poles and trees.



Photograph debris and marks on the roadway.

Photograph tire marks on roadway surfaces. Take one photograph of the direction of the mark to show the direction the vehicle was traveling. Take another photograph from the side to show the length of the tire mark. For long tire marks you may need to take a series of overlapping photographs beginning at the location the mark began and finishing where the mark ends. Photograph for the greatest depth of field

possible. Often, the angle of the sun causes a glare or reflection on roadway surfaces and obscures clear views of tire marks. To eliminate all or part of the glare and reflection from the roadway surface you must use a polarizing filter over the camera's lens. As you rotate the polarizing filter on the lens you will see the glare and reflection lessen. Photograph the contact patch on the tire and the top of the tire mark to show tire tread type.

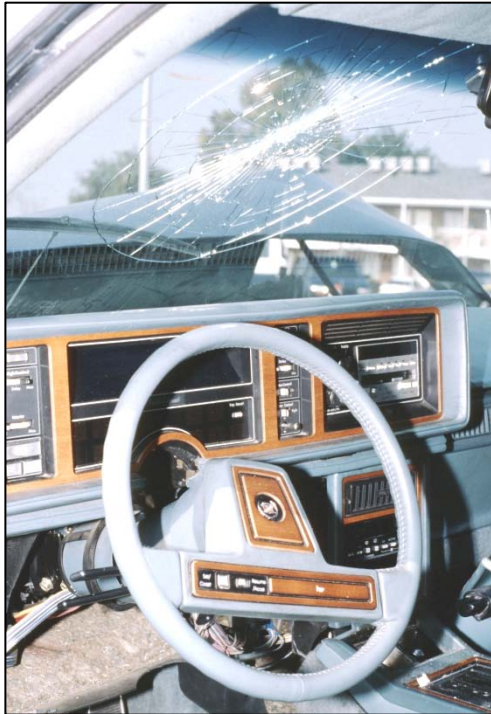
It is also important to show, with photographs, the view each driver had approaching the key point of the accident. This will show any view obstructions the driver may have had (e.g., fog, crests of hills, parked vehicles, overgrown vegetation), missing or damaged traffic control devices, etc. You can take these photographs either by taking the photographs from inside a similar vehicle at different points leading up to the point of impact, or by placing your



Photograph view obstructions and defective traffic control devices. This photograph was taken from inside the driver's vehicle to show a defective stop sign.

camera on a tripod at the driver's eye level and taking a series of photographs leading up to the collision point. A 35mm lens, or a zoom lens set at 35mm, will provide a good representation of a person's view.

If there are witnesses to the collision, consider photographing the view from the point each witness observed the accident, at their eye level. Again, a 35mm lens, or a zoom lens set at 35mm, will provide a good representation of a person's view.



Photograph anything in the interior that indicates body contact, such as the hair and blood in this broken windshield.

When photographing an injury or fatal collision, be sure to photograph the vehicle's interior. Show anything in the interior that indicates body contact. In the case of fatal collisions where the body is still inside the vehicle, photograph the body from all

available angles. Be sure to use an electronic flash when photographing the interiors of vehicles.

### Hit and run collision scenes



A vehicle struck from the rear received minor damage. An imprint in the dust on the rear bumper shows the other vehicle's license number. The dust imprint was photographed at the scene with diffused side lighting.

When photographing a hit and run collision scene you must photograph any evidence that may identify the hit and run vehicle. Photograph paint transfer, height of damage, pieces of suspect vehicle left at scene, tire impressions, and blood.

### Photographing collision scenes at night

Photographing traffic collision scenes at night can be difficult if you attempt to do so with electronic flash. Most electronic flash units will not provide adequate lighting for large areas at night. Typically, foregrounds in flash photographs will be bright and the backgrounds will be dark.

It is best to use either multiple flash, painting with light, or available light techniques for nighttime traffic collision scenes. These techniques can evenly light large scenes, extra long tire marks, and the position of vehicles which are some distance apart. These lighting techniques are discussed in Chapter 2—Camera and lighting.



Painting with light — This large scene was photographed at night using “painting with light” to provide even lighting throughout the view. Photograph courtesy of the Huntington Beach (CA) Police Department.



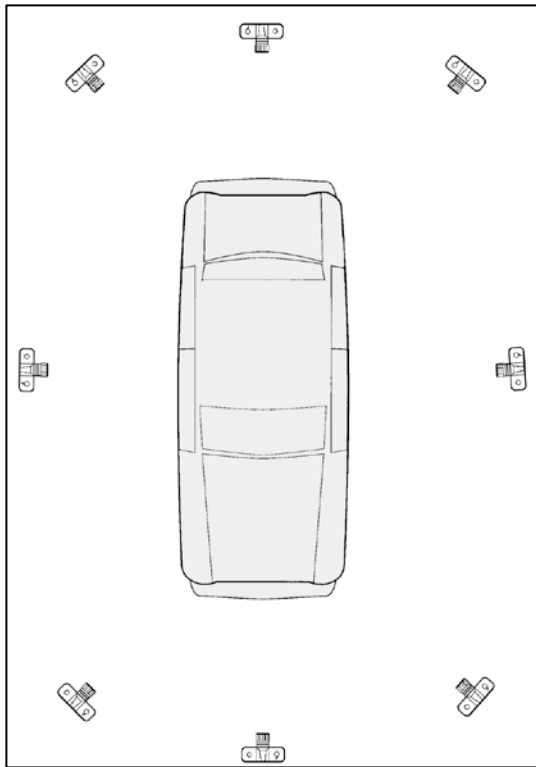
Ambient light — This scene was photographed at night utilizing the ambient light provided by street lights.

## Technical Photographs of Damage to a Vehicle

Vehicle damage is photographed to help reconstruct the collision. An expert in collision reconstruction can use photographs to determine speeds of vehicles, how one vehicle fitted against another vehicle or fixed object, from what direction the major force came, whether the vehicle rolled over, whether it had more than one collision during the accident, etc. These determinations can help prove or disprove a driver’s statements or even identify vehicle defects that may have been the cause of the collision. It is best to take vehicle damage photographs at the scene before the vehicles are moved so they will show no additional damage due to removal operations.



The first photograph should be taken to identify the vehicle. Photograph the vehicle identification number (VIN) either on the VIN plate or VIN sticker, and the license plate.



"Basic eight" photographs of a collision vehicle.

Next, photographs of the exterior of the vehicle are taken. Begin with the "basic eight" photographs of the vehicle. These include one photograph of the front of the vehicle, the rear, both sides, and a 45 degree angle shot of each corner of the vehicle. The "basic eight" photographs will show what areas are damaged as well as undamaged areas.

Next, more detailed photographs are taken of exterior damage. It is important to eliminate deep shadows in photographs of damage. Shadows will conceal detail within the damage that must be seen to do an adequate reconstruction of the collision. The best way to eliminate deep shadows is to use an electronic flash when photographing damage. When using an electronic flash be aware that a flash mounted directly on the camera can cause reflections off of surfaces including metal, plastic and glass.

For many damage photographs it will be necessary to take the flash off of the camera and position the flash to provide oblique lighting.



Collision damage photographed with normal lighting — shadows conceal the extent of the damage.



Collision damage photographed with electronic flash — shadows are filled in with lighting to reveal the extent of the damage.

When photographing details of collision damage it is important to take at least two photographs of each damage area. The first photograph shows where on the vehicle the damage is located and the second photograph shows the detail of the damage. The first is necessary since a close-up photograph of damage may not indicate where the damage is located on the vehicle. For example, damage on a door may look the same whether it is the left or right door. All close-up photographs of damage must include a scale. Use a scale with markings and numbers large enough to be seen clearly in the photograph. Position scales on the same plane as the damage to show height from the ground and the size of the damage. More information on positioning the camera and scale for this type of photography is detailed in Chapter 7, Photographing Evidence—Basic Concepts.

Photographs of the vehicle roof should also be taken. This may show the amount of crush, principal direction of force and, in cases of rollover, the direction the vehicle rolled. While it is best to photograph the roof from directly overhead, keeping the camera's film plane parallel with the roof, you may have to settle for photographing at different angles while standing on a ladder.



When photographing collision damage, use an electronic flash to fill in shadows and scales with large, easy to read numbers.

Many times it is important to view damage to the undercarriage of the vehicle. If the vehicle is going to be towed you can ask the tow truck operator to lift one end of the vehicle as high as possible so you can photograph the undercarriage.

Damage to wheels and tires should be photographed. This may reveal the condition of the tire prior to the collision (e.g., amount of tread on the tire, uneven wear from misalignment, improper inflation) and damage to the tire or wheel (e.g., blow out, dents in rim). When photographing the tread on a tire you may need to use oblique lighting to best show wear patterns, depth of tread and defects.



This photograph of the tread on a tire was photographed with oblique lighting.

Since modifications to vehicles can change the vehicle's performance characteristics, and possibly contribute to the cause of the collision, be sure to photograph any modifications to the vehicle. This includes tinted windows that may have obscured a driver's vision.

Any other damage or conditions of interest on the exterior of the vehicle should be photographed. This might include the filaments of light bulbs to determine if the light was on at the time of breakage, paint transfer from other vehicles, and damage that appears to have occurred in a previous collision.

Next, the vehicle's interior should be photographed. Photograph blood stain and any areas where it appears the occupants' bodies came into contact with interior surfaces of the vehicle. Photograph the condition of seat belts and air bags that have deployed during the collision. Photograph the condition of the seats, child restraint systems, steering wheel and rearview mirror. Complete your photographs of the interior by including any damage or conditions of interest.



The filament in a broken lamp can best be photographed in a laboratory setting.

Some items of evidence will be collected and can be photographed in more detail in the crime laboratory. For example, the filament in a broken lamp can best be photographed in a laboratory setting. A piece of broken headlight glass found at the scene of a hit-and-run collision can be matched with the broken headlight on a suspect's vehicle. More information on this type of evidence photography is detailed in Chapter 9, Photographing Evidence—In the Laboratory.

## Summary

Vehicles, whether involved in property crimes, crimes against persons, or traffic collisions, can provide a great deal of evidence for investigations. When the crime scene photographer carefully and completely photographs vehicles and their related evidence the investigation will benefit with valuable documentation that can be used by investigators and, ultimately, a court or jury to understand exactly how evidence appeared at the time of the incident.

