

# The Consultant

An Engineering and Investigations Newsletter

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## TOOLS OF THE TRADE: CAN AUTOMOBILE "BLACK BOXES" BE READ?

By Tom Owen, PE

Technology to read automobile manufacturer installed "black boxes" is now becoming more available. Other terms are used for the "black box", such as Event Data Recorder

and System Diagnostic Module (SDM). These systems can provide useful data to accident investigators and reconstructionists. Data can typically include, but is not limited to, speed, brakes, engine rpm, seat belt use, throttle position, and passenger air bag status.

Some General Motors (GM) products - Buick, Cadillac, Chevrolet, GEO, GMC, Hummer, Oldsmobile, Pontiac, and Saturn - have had black boxes since the early 1990's. Since the late 1990's to present, almost all are provided with black boxes. Since 2001, Ford and Isuzu have some limited availability of modules that can be read. (See page 2 for complete listing of SEAL's download availability.) There is indication that other manufacturers may soon be added to the list. Some manufacturers have boxes

that can only be read by the manufacturer. Newer commercial vehicles (18-wheelers) also may have black boxes.

SEAL has equipment that interfaces with "black box" modules for automobile manufacturers that have been willing to share a license agreement with an outside vendor. If you think you need a "black box" downloaded, call SEAL as soon as practical before data is lost.



### Why downloading data soon after an accident is important:

- ⌚ If the vehicle is totaled and sold for salvage, it may no longer be available without traveling a long distance. It could also be crushed and disposed of - destroying the module.
- ⌚ If the vehicle is repaired and returned to use, the data is cleared after 250 ignition cycles. At three or four ignition cycles per day, the data could be gone and lost in 60 to 80 days after repairs are complete.

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SEAL Service Center



System Engineering  
And Laboratories (SEAL)  
is an independent  
testing laboratory,  
forensic engineering  
and investigative  
consulting firm.

### Did you know SEAL newsletters are available electronically?



Upon request, we will add you to our list to receive the electronic version of this printed newsletter. In the future, we intend to enhance our electronic version to be more interactive and include animated graphics.

We respect your privacy and would only use your email address with your permission. If you are interested in receiving our newsletter via email, please contact me at [kcook@sealcorp.com](mailto:kcook@sealcorp.com).

PAST ISSUES OF OUR NEWSLETTER ARE AVAILABLE ONLINE AT [www.sealcorp.com](http://www.sealcorp.com).

## SEAL's "Black Box" Download Availability

Make	Model	Years	Make	Model	Years	Make	Model	Years
Chevrolet	Express	96-05	Oldsmobile	Alero	99-04	Chevrolet	Impala	95-05
Chevrolet	Impala	95-05	Oldsmobile	Aurora	96-03	Chevrolet	Kodiak	03-05
Buick	LeSabre	95-04	Oldsmobile	Bravada	98-04	Chevrolet	Lumina	95-01
Buick	Park Avenue	95-05	Oldsmobile	Cutless	95-99	Chevrolet	Malibu Clas.	97-04
Buick	Rainier	04	Oldsmobile	Cutless Sup.	95-97	Chevrolet	Metro	95-01
Buick	Regal	95-04	Oldsmobile	Eighty Eight	95-99	Chevrolet	Monte Carlo	95-05
Buick	Rendezvous	02-04	Oldsmobile	Intrique	98-02	Chevrolet	S10	98-04
Buick	Riviera	96-99	Oldsmobile	Ninety Eight	95-96	Chevrolet	S10 Electric	98-99
Buick	Roadmaster	94-96	Oldsmobile	Regency	97-98	Chevrolet	Silverado	97-05
Buick	Skylark	96-98	Oldsmobile	Silhouette	97-04	Chevrolet	SSR	03-05
Cadillac	Concours	95-97	Oldsmobile	Trans Sport	97-99	Chevrolet	Suburban	97-05
Cadillac	Commercial	94-04	Pontiac	Aztek	01-05	Chevrolet	Tahoe	97-05
Cadillac	CTS	03-04	Pontiac	Bonneville	95-05	Chevrolet	Tracker	98-04
Cadillac	Deville	95-04	Pontiac	Firebird	96-02	Chevrolet	TrailBlazer	02-05
Cadillac	Eldorado	95-02	Pontiac	Firefly	95-01	Chevrolet	Venture	97-05
Cadillac	Escalade	99-04	Pontiac	Grand Am	96-05	GEO	Tracker	96-97
Cadillac	EXT	04	Pontiac	Grand Prix	94-04	GM	EV1	97/99
Cadillac	Fleetwood	94-96	Pontiac	Montana	00-04	GMC	Canyon	04-05
Cadillac	XLR Roadster	03-04	Pontiac	Sunfire	96-04	GMC	Envoy	02-05
Cadillac	Seville	95-04	Saturn	All cars	95-05	GMC	Jimmy	98-01
Cadillac	SRX	04	Saturn	ION	03-04	GMC	Safari	96-05
Chevrolet	Avalanche	02-05	Saturn	VUE	02-05	GMC	Savana	96-05
Chevrolet	Astro	96-05	Ford	Crown Vict.	01-03	GMC	Sierra	97-05
Chevrolet	Blazer	98-04	Ford	Taurus	01	GMC	Sonoma	98-04
Chevrolet	Camero	96-02	Ford	Windstar	01-03	GMC	Suburban	97-00
Chevrolet	Caprice	94-96	Lincoln	Town Car	01-03	GMC	Top Kick	03-05
Chevrolet	Colorado	04-05	Mercury	Grand Mar.	01-03	GMC	Yukon	97-05
Chevrolet	Cavalier	96-05	Mercury	Sable	01	GMC	Yukon XL	01-05
Chevrolet	Classic	04-05	Isuzu	Hombre	00-02	Hummer	H2	03-05
Chevrolet	Corvette	97-04	Isuzu	Ascender	03-04	Oldsmobile	Achieva	96-98
Chevrolet	Equinox	05						

## TIPS FOR GENERAL ACCIDENT SCENE PHOTOGRAPHY

By Allan Collins & Tom Owen, PE

Photographs are essential for good vehicle accident investigation. Photographs are a permanent visual record of the vehicle(s), roadway, visibility conditions, and any other physical factor that may have played a part in an accident. Photographs may be used to support, clarify, corroborate, or contradict oral testimony.

Police often take photos at major accident scenes; however, the photos may not always be available at a later date. Furthermore, some accidents may be considered too minor for official



police photos, but most certainly not for an insurance company.

*(Continued on next page)*












## TIPS *(Continued from Page 2)*

Cameras today range from expensive high-tech models to disposable cameras that may be purchased at any convenience store. Use of digital cameras has become common; however, when enlarging digital photos, details may not be there that would be on a conventional film negative. A simple ten dollar single-use camera may indeed take a picture worth a million

dollars. It would be a good idea to at least carry one or two of these throw-away cameras at all times, especially if you do not carry a regular camera. Just remember that a single-use camera usually has film for no more than 24 to 27 photos. Film is cheap; take as many rolls of film as needed to document the accident scene and vehicles.



### **Suggested Photos to Take at an Accident Scene:**

-  **Entire accident scene from 4 sides - square with highway or road and at 90° to the road.**
-  **Skid marks and gouges - show entire skid or gouge in relation to overall accident scene. Start beyond the skid(s), so it is clear where they start.**
-  **Vehicles at a distance showing positions and angles on the road, as well as point of rest position in relation to other vehicle or objects.**
-  **General photos of damage to vehicles - Four views square with the vehicle (front, back, left, and right sides) will help investigators evaluate the angle of collision and the amount of crush.**
-  **Longer distance photos from both directions of travel to show hills, curves, or any other visibility obstructions.**
-  **Note time of day, lighting, and weather conditions at the time of the accident. Note time and date photographs were taken. Photograph mile marker, highway speed and warning signs at the scene, or other reference background features. This can help locate a scene at a later date.**
-  **License plates and identification numbers of trailers, tractors, and vehicles.**
-  **If possible, take photos of the accident scene after vehicles are removed. General photos of skids and gouges are very important to accident investigators and reconstructionists. This may need to be done for all vehicles involved. A wide view of the point of impact skids should also be included. Close-ups for details of evidence are good, but without wider overview photographs showing where evidence is in relation to the overall road geometry, it makes it difficult to locate at a later date.**
-  **Remember, do not interfere with police or emergency personnel.**
-  **Do not obstruct traffic or become an accident victim while taking photos.**
-  **Archive negatives. If a digital camera was used, transfer the digital files to a CD or have prints made at a professional photo shop.**



# On The Fire Scene

with Fire Cause Investigations

*a division of SEAL*

## WATER HEATER FAILURES RESULTING IN FIRE

By Gary Jackson,  
PE, CSP, CFEI

There are basically 2 types of water heaters: those fueled by either natural gas or propane, and those powered with electricity. The failures we see most commonly are fires associated with either natural gas or propane. These fires can cause large losses and, although rarely, a loss of life.

If the fire and combustion process stays within the confines of the combustion chamber, no accidental fires occur. However, there are several causes that will allow the flame to escape the combustion chamber and extend outside the water heater. If there are any nearby combustibles that are easily ignited, a fire usually ensues. One ignition cause is a blocked exhaust path or flue; creating back pressure and disturbing the natural ventilation path. This can cause the flames of the combustion chamber to extend outside the burner section. Another cause could be a malfunctioning thermostat; causing either low flow or high flow. If the gas pressure is restricted, low gas flow can exit the burner without being ignited. The gas can then accumulate and produce a dangerous flammable mixture.

### Other Water Heater Failures:

External leakage because of corrosion or failure in the storage tank, valves or piping systems.

Fire from a failure in the burner section of natural gas or propane fueled water heaters.

Fire from electrical problems on electric water heaters.

Incomplete combustion of a fuel powered water heater resulting in carbon monoxide byproduct.

Then when it is ignited a much larger flame and rollout occur, which can ignite nearby combustibles. In the high flow condition, soot can accumulate and create a hazard similar to an unclean chimney, or the flame can get large enough to extend outside the burner section. Gas line leakage external to the water heater is also possible. In such cases, odorant testing of the gas is important.

Manufacturers have recently started making flammable vapor ignition resistant gas-fired water heaters.

System Engineering and Laboratories and Fire Cause Investigations have engineers, fire investigators, test equipment and experience for these type fires.

[www.cause-and-origin.com](http://www.cause-and-origin.com)



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