



Advisory on Flood Damaged Vehicles

Flood damaged vehicles cannot be reliably estimated for the cost of damage repair by insurers and body repair shops prior to the work being substantially complete

Of particular concern is the nature of the water caused vehicle damage. Traditional damage estimates used for collision repairs are based upon visual inspection of physical damage done before any repair work is started. It is done by an adjustor before any repair work is authorized for approval. An estimate is prepared based upon visual identification of compromised vehicle, with physical damage visually determined and parts and labor times are computed for repair using computer estimating software to total the parts and labor times needed for the repair.

Once a collision repair is started it is typical to expect a 'supplement' of expected hidden damage which was not visible until after the repair estimate has been written and only once the repair process has started. The average supplement can add about an average of \$300-\$500 to the final cost of a typical insurance repair.

However, in the case of a flood damaged vehicle, the visible damage once the vehicle has been superficially washed often does not show any physically deformed components. Since electrical failures and water damaged mechanical components cannot be identified without dismantling the vehicle for detailed inspection and often cannot be determined without using manufacturer supplied diagnostic equipment which is not even available at a body repair shop. The insurer and body shop are actually not able to estimate the cost of repair of water and flood damage vehicles using collision estimating systems since the estimates they are running do not itemize specific components that have failed, and the cost of replacement of those components. If one looks at hundreds of estimates of unrepaired insurance total loss flood vehicles and were to ask for specific justification of the estimated repair costs one would discover that they do not meet the normal standard of having specific failed components identified, with costs of parts and cost of labor specified. The parties needed to make such identification and repair are dealer repair technicians and not body repairer employed at body shops. The estimates on these flood damaged units are often not specific, not based upon diagnostic investigation of the vehicle. IN fact they routinely tend to be highly arbitrary, speculative and unsubstantiated.

If in fact, such a flood vehicle were to be brought to a car dealership for a real repair estimate, the dealership cannot write up a valid repair estimate in any case even after running diagnostics without pulling all components, disassembling them to inspect for water and corrosion damage, and to first clean and inspect electrical connections to try and minimize progressive corrosion. Anyone who has brought a flood vehicle to a dealership that has been in standing water for a period of time would quickly recognize from the process employed by any dealership that this would be so. Dealership always provide extremely wide ranges of cost for a preliminary estimate, and caution that until the repair process is completed the estimates are little more than guesses. Individual components can cost hundreds to thousands of dollars, and until the repair process is complete a failed diagnostic can usually only identify a failed system which is made up of several possible failed components – one or more of which could be involved in the diagnostic failure.

Complete and stable repairs of flood damaged vehicles is not easy to insure

The National Salvage Vehicle Reporting Program (NSVRP) is a not-for-profit 501 (C) (3). The organization was founded to support law enforcement and to promote and support efforts to advance the National Motor Vehicle Title Information System (NMVTIS). NSVRP's mission is to support initiatives to control auto-theft and title abuse. NSVRP's Board of Directors consists of representatives of major law enforcement groups, and is an independent third party standards provider for NMVTIS. NSVRP has been recognized both by the Department of Justice and the FBI for 'Exceptional Service in the Public Interest' for its public policy efforts.

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A typical collision body repair can be reasonably easy to verify if the initial damage is known. The repairs can be inspected, the vehicle checked for alignment and drivability, and the vehicle can be checked with diagnostics. A good test drive can also check for noises, rattles, steering and acceleration, gear shifting, and the general comfort of a repair. Fit and finish of the paint job can also be easily inspected by a qualified party.

When electrical components have failed – either intermittently or solidly – the components have to be removed individually and substituted on a trial and error basis to determine which are failing and then they would need to be individually replaced and tested before a successful system test using manufacturer supplied test equipment can determine that a system is functioning. That is a very laborious process that only a dealer repair shop can do and which is far beyond the scope of what a body repair shop used by an insurance estimator can do to prepare an estimate. Many of these components are also quite costly, and can add thousands of dollars to the cost of the repairs.

The placement of these components in modern vehicles are throughout the vehicle, including under the base of the seats, in the side panels near the base of the vehicle, and even under the floor mat in the side and bottom of the truck area. As such water damage that reaches no higher than the lowest few inches of the vehicle interior can render a vehicle severely compromised.

Adding to the problem is that this water damage can also be progressive. Components can fail over time even if they at first seem to be working. Electrical wiring can corrode, and signal connects that worked shortly after the flood event has been dried out can fail progressively over time to a point that the vehicle cannot work reliably without a total replacement of many electrical components and wiring.

Airbag systems that worked can also have progressive electrical failures in wiring and sensors over time.

Finally water can damage engines and other drive-train, steering and brake system components. Some damage can be severe and immediate; others can fail progressively over time.

A true validation of the completed repair is often impossible to verify and insure – even by a highly qualified repair specialist since much of the damage may only surface over time.

Flood vehicles are easy to sold in ways that defraud the public – especially over the Internet

These flood vehicles – since they often have no physical impact damage can be washed and prepped, and can be sold in a way that disguises the current and progressive damage. Buying them over the Internet where the bidder is not present and where the sales take place on an ‘as is’ ‘where-is’ basis opens great opportunities for consumer fraud to take place.

Many examples of fraud resulted from Katrina cars – including a large number that were the result of commercial parties transferring and reselling insurance total loss vehicles through salvage auctions and over the Internet.

Partly as a result of Katrina, the National Motor Vehicle Title Information System (NMVTIS) was finally implemented. It is important that we insure reporting of these flood damaged vehicles – both by insurers,

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parties that handle abandoned vehicles, and by others engage in the commerce of automobiles who are subject to NMVTIS reporting to help minimize the great risks for public fraud and for safety concerns that will flow from the undisclosed resale of these flood damaged vehicles. Since many of these units are also saltwater damaged vehicles, the risk of progressive and non-restorable damage is very great, - and rapid and proper reporting of the flood status of these units is imperative. Efforts by parties to subvert and bypass the reporting process should be dealt with quickly and sternly.

Note: The following presentation is a description of how one specific cosmetic repair was done to a water damaged vehicle where there was no material electrical, mechanical or other damage to the vehicle.

Even in this simple case the repair is a complex process, but when there is any electrical corrosion or there is general water damage to mechanical components assurance of a complete repair is far more expensive and may be impossible to complete with total assurance of sustainability and completeness. In addition, much damage will be progressive and over time will exhibit continual system failures that can render a vehicle intermittently or even terminally inoperable. This presentation was made by a repairer based in Great Brittan, and while not applicable to cleaning cosmetic water damage to any specific vehicle, it does show that even the simplest water damage repair requires a great deal of careful work.

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Flood Damaged Car Restoration



Flooded car arrives by transporter.

We received a Ford Focus from an insurance company. We have seen quite a few flood damaged cars and we have become quite expert in dealing with water damage -- in fact in the same week we treated a taxi that had stalled while crossing a deep ford. This Ford Focus had been caught out by a burst water main which meant that the water involved was fairly clean - last year, Gary's car was flooded when heavy rain made the drains back-up - this water wasn't quite as clean as it contained sewage! In such cases we wear protective clothing. We have developed a process that can deal with virtually any level of contamination and we use the same technique on all flooded cars. Luckily, that was not the case with this vehicle.

We arranged for the car to be collected on a transporter - although the water hadn't caused much mechanical or electrical damage and the car was drivable, the seats were soaked and there was flood water sloshing around in the foot wells. The car had been sitting for a while and it also begun to smell. We can [arrange transporters from anywhere in the country](#) (or Europe) at very reasonable rates and in this case it was considered to be the best option.



Crash damaged caused by the flood.

While the car was floating down the flooded road, it had sustained some minor crash damage (shown in photo above) and this problem was to be dealt with by a body shop after we had cleaned up the interior, so other than a wash to clean up the silt, there was no need for us to do anything with the exterior, the body shop would prefer to do this themselves.



Water level of the flood.

The photo (right) shows the 'tide marks' which are well above the level of the bottom doors and boot. The interior was filled with water, and although this water was clean when it left the water main, it had picked up plenty of mud and clay which made up a silt that coated everything.



Flood damaged car filled with silt.

The water level was far above the level of the base of the seats, *but luckily below the level of most of the electrics.*



Centre consul covered in silt. Water still in the cup holders.

However, removing the silt is no easy task! To properly treat this car we need to take it apart piece-by-piece, clean it, disinfect it, and put it back together.



Flooded footwell

Everything in the car had become sodden, including maps and papers which had floated around and disintegrated.



Silt on door shuts.

This above shows the silt on the door shuts. This amount of silt is also on the carpets and seats, to avoid any problems in the future with odours, this will all have to be washed out.



Mark washes flood water off of car.

Our first stage is to wash off contamination from the outside of the vehicle, we use a special disinfectant that runs through our hot pressure washer. We use the same products that are used in

treating flooded houses, and many of the same techniques. The car was cleaned in detail, including the wheel arches and the underside.

We also sprayed the whole interior with enzymes. Right away this process made a large difference to the smell of the vehicle which up until this point had smelt much like a swamp.



We then began dismantling the interior, removing the back seats and boot carpet. (A.K.A. Trunk Carpet in the U.S.)



Silt from clay has penetrated through the carpets.

The photos above and below show the clay silt deposited by the flood water.



Mark hot pressure washes the boot carpet to remove silt and all traces of the flood.

As each item was removed from the car it was cleaned and disinfected. Many of the items could be washed using a hot pressure washer with disinfectant run through it.



Flood water in the spare wheel area.

Our pressure washers are far more powerful than the kind found on petrol station forecourts and we can increase the temperature up to 80° Celsius. This means that we can blast the dirt and the silt right out of the carpets.

As soon as each item was washed, it was hung to dry - this is actually the slowest part of the process, as it's no good us placing the upholstery back in the car if it is still wet. The seats and the carpet underlay are very thick and can take a long time to dry, even when we use air blowers and dehumidifiers.



Flooded footwells, with the carpet removed you can see the amount of water and silt still in the car.

With seats and carpets removed, we were left with a bare shell that was full of dirty water (although disinfectant had already been added) The photos above and right show just how much flood water was still in the car.



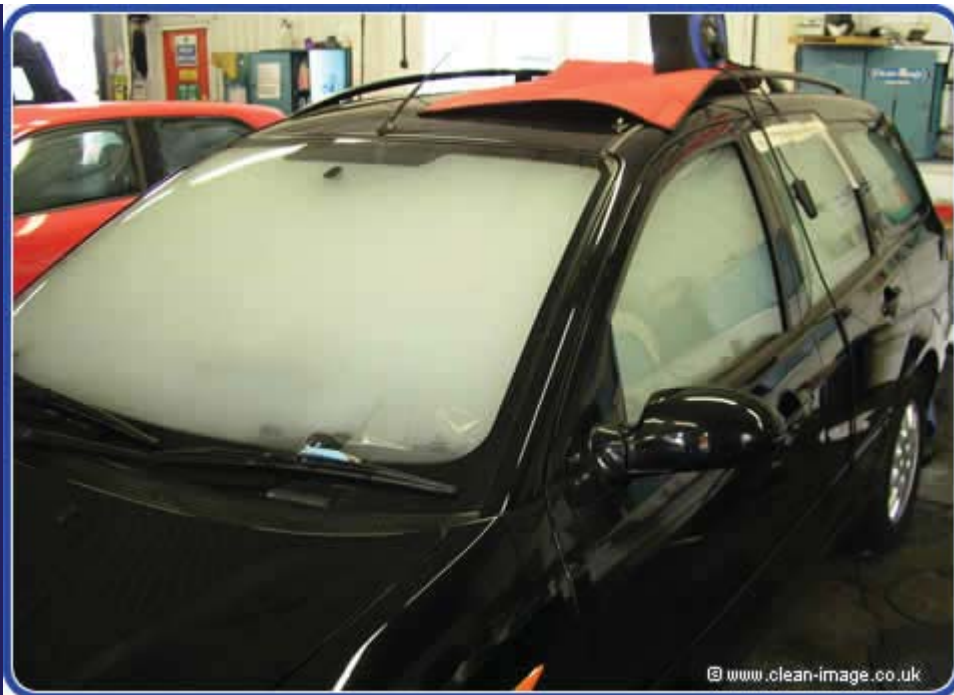
Lots of soap and water! Mark scrubs the car with disinfectant and wet vacs it out again.

We used an extractor (wet vacuum cleaner) to remove the water, and to wash the interior down further. Above you can see Mark working with a brush and soap spray.



Panels and trim are removed.

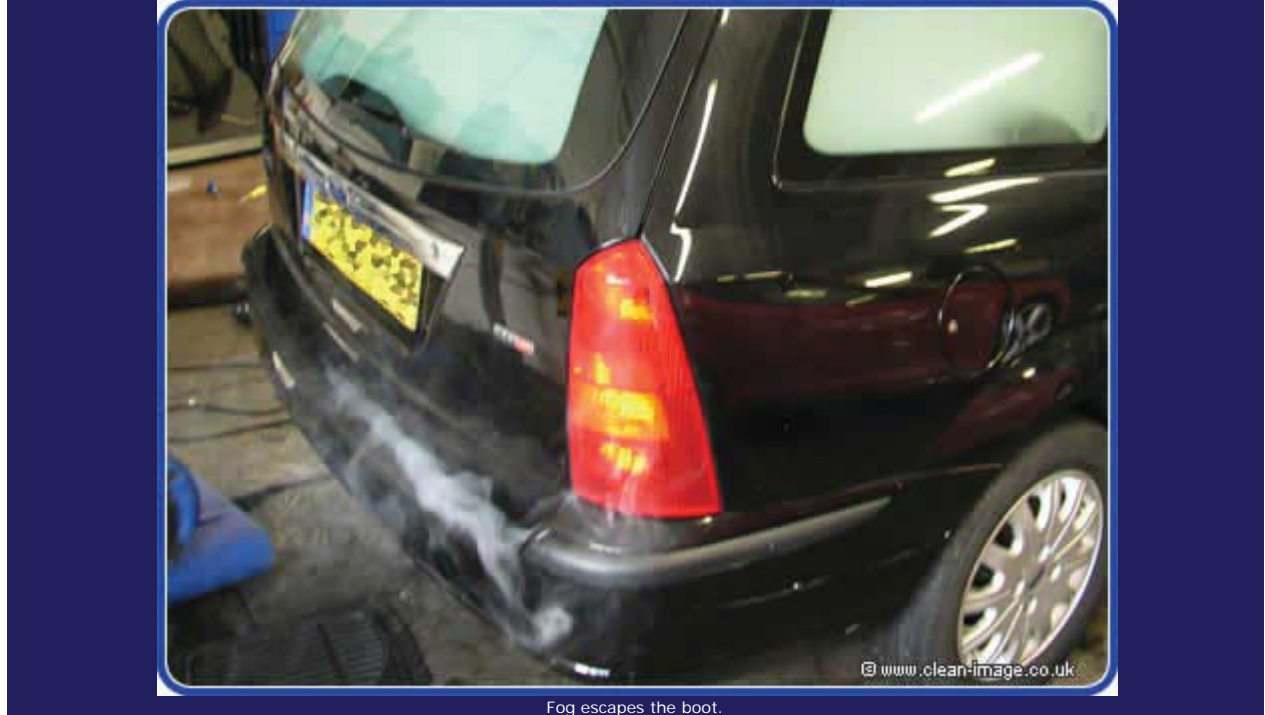
We used an extractor (wet vacuum cleaner) to remove the water, and to wash the interior down further. Above you can see Mark working with a brush and soap spray.



To remove the smell of the flood, we fogged the car with a fragrance.

Once clean, the car was fogged while most of the interior removed.

By using a fogger (atomizer) to turn our chemical products into a fog, they are able to permeate through every area of the car. We use the same chemical treatments that are used in restoring flood damaged houses and commercial buildings.



As you can see from the photo above, the fog finds every gap and will find it's way into all the nooks and crannies. While the atomizer is pumping out the fog, we often use an air blower to help circulate the fog, we also put the car's heating system on so that the fog flows down the air vents.



Flood damaged seats filled with silt.

As each item was removed from the car it was cleaned and disinfected. Items such as the seats had been treated with bio-active enzymes shortly after we had received the car and so had been given plenty of time to work. Although similar in principal to enzymes used in some domestic products, the enzymes we use are especially designed for this kind of work undertake. We are told that given time, our fast acting enzymes can penetrate one meter of concrete. After activation, we apply pure enzymes to the car, they will not attack any living thing and so are totally safe, but they will eat anything that bacteria can eat, and when the bacteria starves and dies, they then eat the bacteria.

The above photo shows the state of the seats before washing. As these contained no electrical gizmos such as heating elements, air bags or sensors, we were able to flush them through with lots of water - giving them a shampoo isn't quite enough in these cases as they contain a lot of silt, plenty of hot water is the answer for flushing them through and washing the sediment away. Of course, we did shampoo them after we washed them. Luckily, the sponge padding inside the seat is molded and tends to have a rather smooth shiny surface that the silt won't penetrate.



Mark pressure washes the carpets.

We were also able to pressure wash the carpets and underlay with disinfectant and hot water. These items are made from synthetic materials and are quite safe to wash in this way, although carpet underlay can be delicate and may not stand up to pressure washing. Sometimes in cases of flood damage it may be preferable to replace the underlay, but in this case we were able to salvage it.



Centre consul and plastic trim.

The centre console, plastic trim and panels was also cleaned and disinfected. If you were thinking that Mark drinks too much coffee, the plastic cups are used for keeping screws and clips in so that they don't get lost - you may often see them in our photos, now you know why! The white bottles are special fragranced chemicals that we use for odour elimination.



Valeting the door panels.



Air mover dried flooded vehicle

We were able to start drying out the car before the final parts were removed.

We used an air blower to circulate air inside the vehicle, and we also used an industrial dehumidifier to ambient dry the vehicle and it's parts.



Mark sprays disinfectant into the doors.

Although the door panels were sealed with a skin, flood water and silt had still managed to find it's way inside.



Silt and sediment from the flood behind the door skin.

In the above photo, Mark pulls back the door skin to reveal the sediment - this too was cleaned and disinfected.



Carpet underlay replaced in car

We then began to re-assemble the car.

The photo above shows the carpet underlay in place, freshly cleaned and dried and as good as new.



We also re-greased bare metal and mechanical items to prevent corrosion.



Detailing and lubricating the underside of the seats.

Before each item was replaced in the car it was cleaned and inspected, and any mechanical items such as the seat adjusters were re-greased.



Valeted Interior.



Key clean.

Final details. The key was also covered in silt, so I took it apart and cleaned it with dri-gard.



Independent inspection

The final stage was to commission an inspection from an independent motor mechanic to ensure that we have put the car back together properly - the photo above shows David from [Hemming & Reynolds](#) checking the seatbelt fixtures with a torque wrench. Dave Hemmings has at least 45 years experience in motor repairs.

We can expect a lengthy and rigorous inspection by the insurance company, during which their inspector will remove panels and shine his torch into all the recesses, he will also view our photographic record of the work. I have to confess that we enjoy such visits because we know that this way our work is fully appreciated - there is an enormous sense of job satisfaction in flood and [fire damage](#) recovery.



Valeted Interior.

We were able to return the car as good as new, odour free, silt free and completely dry.



Flood damage recovery

Each and any vehicle caught in a flood is a potential insurance write-off, some will be economically viable to restore, some are not, and the cleaning of the interior is only one factor that needs to be taken into consideration. But our flood recovery service gives insurers and buyers of salvaged vehicles a cheaper option than replacing parts.



As good as new.

Our service includes a full written description of the work to be undertaken, full description, specs and MSDS on the products we use as well as a photographic record of the work as it is undertaken.

