Hail, Theft, Vandalism Damage Analysis

Video Scripts

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Module 1 - Analyzing Vandalism

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Video: Determining Fuel Contamination

(HOST) Fuel contaminants are just about anything that can make it down a fuel filler neck. Water, sand, sugar, soda are all common contaminants that vandals may use to disable or damage an engine. Indications of possible fuel contamination include an engine that's misfiring, stalling, stuttering, or won't even start. These symptoms are similar to a clogged fuel filter or malfunctioning fuel pump that comes from everyday use. That is why it is important to determine if vandalism is the cause of these mechanical issues.

This is our technician Eddie. How do we determine if vandalism is the cause of a fuel system problem?

(EDDIE) We're going to start with an initial inspection, checking for residue around the fuel fill area that may indicate if something was dumped into the fuel tank. Looking at the fuel fill area, I don't see any residue that was left behind from someone dumping any contaminants into the fuel tank.

The next step is often to examine the fuel system and the fuel itself. For this, we will disconnect the fuel line that leads from the fuel tank. Depending on the vehicle, this disconnection point can vary. On this vehicle, we're going to take a sample from where the fuel line enters the engine compartment. The sample will come from the bottom of the tank since that's where the fuel tank draws from. Therefore, any contaminants such as water, which sinks to the bottom of the tank, will drain out and be pretty easy to identify. If there are any solids in the tank, such as sugar, this often clogs the fuel filter, and little to no fuel will drain from the fuel line.

In this sample that we collected, we can see that there is a separation of fluid. The water is at the bottom of the container, and a layer of gasoline is at the top. This is an indication that water has contaminated the fuel system.

(HOST) All right, we figured out what the problem is, now how do we fix it?

(EDDIE) In order to fix water in your fuel tank, you're going to have to drain all of the fuel and water out of your fuel tank, flush your fuel line of any contaminants, clean your fuel injectors, and possibly replace or clean your fuel filter.

Video: Raw Egg Damage And Repair

(HOST) You would think that something as harmless as a common poultry egg would not do much damage to a vehicle. After all, one is made out of steel, and the other, a much

softer and lighter material. However, eggs and egg shells can do quite a bit of damage to a vehicle's finish.

The yolk and egg white can etch the clearcoat. This damage is not immediate, but when left to dry, and in some cases, bake onto the finish, it will eat away at the clearcoat. That is why it's important to remove any egg residue as soon as possible.

There may also be damage at the point of impact, depending on the speed at which the egg hit the vehicle. If you look closely at the finish, you will see spider web-type cracks in the color coat. There are two types of repair methods for egg damage. If damage is only to the top layer of the clearcoat, a buffer and buffing compound can be used to restore the gloss. The technician will start with the lightest grit and work to one that effectively removes the damage to the clearcoat.

However, for deeper damage, such as this impact area where the color coat is cracked, the finish will have to be sanded and blended. It is not uncommon to remove the finish down to the bare metal to ensure all the egg contamination is removed.

So the best way to remove the amount of damage caused by eggs is to remove any residue from the finish as soon as possible. However, when the damage is deeper, the only option is to refinish the panel.

Video: Key Scratch Repair

(HOST) Key scratches are an unfortunate and costly form of vandalism that requires the proper repair to restore both the finish and corrosion protection. When you're analyzing key scratch damage, there are essentially two repair methods, either buffing or refinishing.

To determine if buffing is a repair option, drag your finger across the scratch. If it catches, it means the scratch is at least two mils deep, which is too deep for buffing even with the heaviest grit. This appears to be the case for this area of the key scratch. On this vehicle, however, we notice that the scratch is not an even depth.

On the rear door, we are unable to feel the scratch, so buffing can be used to repair this area of the door. For this reason, it's important to inspect all panels carefully, because all scratches may not be the same.

Module 2 - Theft Analysis

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Video: Break-In Theft Damage Analysis

(HOST) Vehicle break-ins happen every day across the country. These crimes lead to physical damage to the vehicle and lost personal property. Analyzing this damage presents its own unique challenges. A damage appraiser has to assess the physical damage to the vehicle, along with assessing what personal property was lost.

This is our damage appraiser, Scott. Can you go about telling us how you analyze a break-in claim?

(SCOTT) Yeah, the first thing we have to do is determine how the vehicle was broken into. In this case it was pretty obvious, they were able to smash the window. Some of the other methods include using slim jims or coat hangers to pull up the lock mechanism or bending out the door frame in order to gain access. The method varies with the vehicle type and the creativity of the criminal.

(HOST) Is there damage that can happen from other types of entry?

(SCOTT) Yeah, they can damage the door handles. Also, they can damage the electronics inside the door when they are digging around for the door lock mechanism. They can also bend the door frame, as well as put scratches into the vehicle finish. These are all areas we have to look at when doing the appraisal.

(HOST) When preparing the estimate, what do we need to consider with the broken glass and the interior of the vehicle?

(SCOTT) Well, as you can see, the glass just gets everywhere. It falls down inside the vents. Also, it goes down into the door shell, where it can get into the lock mechanism and the window regulator. It also gets all over the seats, and when the criminals go in for the personal belongings, a lot of times they kneel on that glass and it ends up tearing the seat. So we have to watch out for that so we can get that on our initial estimate.

(HOST) How do you determine what personal belongings were taken from the car?

(SCOTT) Well, we pretty much rely on the customer to tell us what was taken. In this case, a purse, an iPod, and a GPS were all stolen. We do like to verify these items with a receipt, product packaging, or an owner's manual. We also look for any mounting

brackets, or wiring that may have gone along with those devices. In this case, we didn't have any of those. But the customer did have proof of ownership.

(HOST) It's important to examine all areas of a vehicle beyond those of obvious damage. Broken door locks, damaged trim panels, cut fabric and damaged glove boxes are all common with break-in theft.

Module 3 - Analyzing Damage From Natural Causes

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Video: Paintless Dent Repair

(HOST) Hail dents, door dings, even baseballs, we've all seen them damage vehicle panels, but the question is "what is the proper repair method?" If there is no damage to the vehicle finish, paintless dent repair, or PDR, is a repair option. PDR is the removal of dents using specific tools and techniques. When doing PDR, there is no use of fillers or refinishing.

With us today is David from Dentsmart. David, can you tell us what makes a dent a good candidate for PDR?

(DAVID) Sure, the most important thing would be the size, obviously, with depth, width, and also location on the panel as far as access. In the case of hail damage, it would be the count or saturation of the panel. Those are the issues that I face as I go to repair a car.

(HOST) How do you repair a dent without damaging the finish?

(DAVID) One of the advantages that we have today is much more flexible metal. As we move this metal to change the memory back to pre-accident condition, certainly the flexibility helps. Second, because of the flexibility of the metal, these paints are more flexible today. It's almost like a marriage between rubber and paint.

The most important tools that we use, obviously, are our eyes, and very graphic lighting which illuminates the dent so that we can see how well we're repairing it, and when it's done.

I've got a full tool set here. They are all specific to panels. We'll just say this will be more the brace-type tools, these longer rods would be roofs and long quarter panels. Our fender tools are right here, usually pretty short panels so I have different kinds of tools for the fenders. For hard-to-access panels, we'll utilize glue and glue tabs to remove the dents.

John, the most important tool I have in my bag is a light, so that we can illuminate the dent and see what's going on. I've got a three-pronged light, so obviously you can see that dent in the light. I like the three lights, that way I can get more surface area to repair. Obviously you can see this dent as well. So that's why I like the big graphic lights.

Now this first dent is in a brace, a pretty tight brace. I'm going to use a specific tool for braces. You enter from the bottom. Now I'll do a couple of quick flexes, almost like a finger under a blanket to see where I'm at. Once I start to see where I'm at, my goal is to center this dent, put a pressure point or memory change right in the center of the dent. I want to make a more shallow version of itself. So as I bring this up, it's starting to get a little more shallow. Now even though it doesn't look like it's changing, we are changing the memory, we are making memory changes just very slight. You have to be slow on the front end so that you can finish on the back end well. Accuracy is extremely important at this stage so that you can camouflage your repair. The natural texture of the paint is like an orange peel I want to camouflage the work into the orange peel texture.

As you can see, it's really starting to shape up. I've gotten it into a shallower version of itself and I'm just taking out any imperfections that I see in it. And one little tiny low spot right here, and maybe one right there, and even though that looks repaired, to me, I still see the tiny little bits left over. And that should just about pass any experts opinion of a repair.

(HOST) PDR worked really well for that dent, now what would be a dent you wouldn't consider for PDR repair?

(DAVID) Well, obviously the condition of the paint, you need that reflection. So if there's paint missing or chipped out of the middle, for example, that could be a hindrance to our repair. It could be that it's not a candidate for us to repair. The second thing, John, would be the size of the dent. The general rule of thumb would be a credit card length versus the width. Once it's passed that length, most of the time that's embedded or stretched metal especially in the case of hail damage and it would lessen its ability to repair in a paintless way.

John, also dents that are closer to the edge are tougher to repair than dents that are out here in the more flexible area of the panel. One other thing to consider is the saturation, or count, especially for hail damage. If this panel, especially a bolton panel, were to have hundreds and hundreds of dents, it may be less expensive to just replace the panel versus having a PDR technician work on it.

(HOST) The first repair we saw was on steel. Now a lot of newer vehicles are made out of higher strength steel or aluminum. What techniques do you use when approaching those materials?

(DAVID) John, it's really the same technique. There is a lot more exertion to repair aluminum versus steel and high-strength steel. The good news is it's better access, but it's 25 – 50 percent more exertion just to get the dents out of this panel.

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