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Prevention comes from understanding the specific causes of on-board fires

If a bus burns, property and vehicle damage will be significant. Not to mention the fact that the bus will be out of service. If the fire gets into the passenger area it tends to engulf the majority of the bus and the result can be costly if you lose your bus and need to replace it. There are also the costs that may result from passengers' loss of property, or even worse if they fall, trip, or hurt themselves while evacuating.

Another alarming downside for operators who suffer bus fires is the negative public relations effect of a photo of the burnt-out shell of a bus appearing in a local newspaper. So, what can be done to prevent a fire from breaking out? Bus Ride recently spoke with Lancer Insurance Company's Randy O'Neill, senior vice president, and Bob Crescenzo, vice president of safety, for some insight into what causes bus fires and how they can be prevented.

Dirty engines

Cause: One of the major causes of engine fires is accumulated grease on the engine block, which through wear and heat over time will ignite. **Prevention:** Steam-cleaning engines and making sure in pre-trip inspections that there aren't any fluids on the block. Also, when the driver conducts the post-trip inspection, any type of drippings or accumulation of fluids on the block should be noted on the post-trip report that is left on the vehicle for the maintenance department to look at.

Worn-out wiring

Cause: Over time the wires or the insulation on the wires start to fray and lead to sparking and ignition of either accumulated materials on the engine or a fuel line rupture.

Prevention: During the pre-trip inspection, check for cracks that could lead to a rupture of a fuel line by looking for any drippings underneath the vehicle when it's parked. A driver or a mechanic should check this with regularly scheduled maintenance. Again, common sense and vigilance are your best allies as far as checking fuel lines.

Also check on any wiring that conceivably could short and send a spark into the fuel

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block and ignite any flammable fluids. When wires are in close proximity to the engine block and to fuel sources, they obviously become more critical and need to have more vigilance paid to them.

Electrical problems

Cause: Bus companies need to pay attention to manufacturer's maintenance recommendations, and discourage any type of repair by unqualified people on electrical components. Electronic devices such as VCRs, DVDs and other electronic devices where there's more wiring involved sometimes use an additional generator, and thus needs to have more attention paid to the detail of how that wiring is done. In one case, you're either asking the engine to provide more power to things that it really wasn't built to do, or you are asking mechanics to check another power source such as an additional generator as closely as they check the power plant of the motorcoach - the engine. The more power, the more wires, and, hence, the more potential for problems.

Prevention: It's an additional responsibility for the mechanics to check the wiring before the vehicle goes out on the road. It's a combination of what the manufacturer would recommend for the maintenance schedule and just common sense on things that need to be checked depending upon usage. Electronics such as VCRs are probably used very heavily, and like any machine, the wiring needs to be checked to make sure that things aren't fraying. A motorcoach mechanic may need more specific technical training in proper preventive maintenance in these matters and they should avail themselves of the free training that is available from the motorcoach manufacturer or the company who manufactured the equipment.

Tire combustion

Cause: A tire fire is probably one of the more common types of fire that we see from a claim's standpoint because of the dual tires. When there is a problem with an inner dual and it goes flat, it doesn't take much time at highway speed for a fire to ignite. It's kind of spontaneous combustion from the friction. The driver may only first notice the fire when he/she sees smoke or more likely another motorist will be trying to point it out.

Prevention: If there's a problem with the tire such as under-inflation prior to the coach leaving the yard, that is something that can be remedied. The challenge for the driver in noticing an under-inflated inner dual is that he/she has to be able to see the inside dual. It's not something that would become readily apparent if the driver is just doing a casual walk around the bus. The driver should use a tire knocker to bang the inside tires and make sure they are properly inflated.

Drivers should be trained to know and understand how the vehicle is handling in the event of a flat tire. If the vehicle appears to be pulling to the left or right or bouncing or not running smoothly, the driver should stop and investigate and take care of the problem before it becomes more serious.

Once a tire fire starts, it can develop into something much more serious, because it will not only burn the tire, it will burn everything else it can.

If the driver has noticed smoke coming from the tire and extinguishes it; it's important to remember that what started the fire was the friction from the road. Even if the fire appears to be out and the driver tries to move that bus again, there's a very good chance that it will re-ignite.

Problems from the factory

Cause: Manufacturer's defects.

Prevention: If you get a manufacturer's notice of a problem - pay attention to it and get it fixed. Read the notice carefully and if it requires immediate attention get it corrected and have the manufacturer do it. There's no need to try to fix the problem yourself if there is someone who is willing to take care of it.

Using improper parts

Cause: Using non-recommended replacement parts on exhaust components like mufflers or tail pipes.

Prevention: Assuming that those are the correct components and there hasn't been any type of recall, they need to be replaced with the manufacturer's specified equipment. Don't jury-rig by using non-manufacturer's recommended parts, because this is an area that produces a lot of heat. If you have used replacement parts, make sure they are specified for that particular motorcoach model. Operators may be tempted to try and save some money, but they shouldn't because that's an area where guessing wrong can prove devastating.

On-board tobacco use

Cause: Passenger error from starting fires on-board with the use of tobacco products may seem like a mute point because most trips are non-smoking. However, in the event that the coach operator does allow smoking, the driver should point out in his pre-trip announcements the proper disposal procedure for lit cigarettes, cigars, pipes. However, if it is a new bus without ashtrays, the answer has to be that no smoking is allowed so passengers don't start jury-rigging ashtrays.

Prevention: The driver is the captain of the ship and he or she has to assert his or her authority right up front just like on an airplane and state that the passengers are on a non-smoking coach and not to use the lavatory for smoking.

Does the driver know what to do?

Lancer Insurance shares some training tips for fire extinguisher and evacuation procedures

BR: What are some tips for maintaining fire extinguishers?

Lancer: Fire extinguishers need to be serviced. Maintenance departments should be aware of dated service requirements. Meanwhile, drivers should be trained in the use of the on-board fire extinguisher. In the pre-trip inspection, the driver should:

- A. Check to make sure that the fire extinguisher is there.
- B. Check to see if it's charged.
- C. Make sure they know how to use it and that they understand what the fire extinguisher is meant to do, as not all fire extinguishers meet the qualifications for all types of fires.

BR: If a fire does break out, what should the driver do to keep his passengers safe?

Lancer: The driver is the captain of the ship. When he or she makes the pre-departure announcements, whether or not they allude to evacuations specifically, they have to get across very clearly that they're the boss on board. If the bus needs to be evacuated, instruct passengers to follow instructions and remain calm. Instruct people in the front to leave first; ask all passengers to leave orderly - row by row. The more advance instruction that has been provided prior to an emergency, the better off the passengers will be. The confidence that the passengers have in the driver is what's really going to keep heads cool during an emergency. Everyone should just evacuate the bus immediately; leave all the belongings behind; and get to safety and worry about belongings after. The driver should get them a safe distance away from harm; make sure to check the restroom; call for emergency assistance; and call his or her company to let them know of the situation and arrange for another vehicle to pick up passengers.

BR: When should drivers use the fire extinguisher?

Lancer: Once the passengers are a safe distance away from the coach, the driver could inspect the area and use the fire extinguisher to put out any obvious small fire. But drivers aren't qualified to deal with serious fires; at that point their job is to ensure the safety of their passengers. Having already called for assistance, it comes down to

prudence, common sense and good judgment in determining the use of the on-board extinguisher. If it looks as if it is beyond the control of the abilities of an on-board extinguisher, they should get themselves out of harm's way after making that determination.

Their place is with the passengers, remembering that the bus was carrying dozens of passengers who, perhaps, have just found themselves on a high-speed highway and they didn't plan on being there. So it's important for the driver to keep the passengers calm, keep everybody safe, and assure everyone that help is on the way.



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