

Fire Assessment/Investigation**Date of report: 17-Aug-21****Vehicle No.: YM9835J****Claim No.: AVS21/1720 (CMPO)****Description of the loss – Driver story**

07 June 2021

Dear Person in Charge,

I am goods transfer class 4 driver, Hee Whye Yu, Marx. I am writing to report the fire incident of truck YM9835J that happened last night.

I arrived work on 06 June 2021 at 8.30pm. I was allocated to drive truck YM9835J from Penjuru warehouse to Changi South Lane warehouse. I started driving off around 8.55pm

I took my usual route via Clementi Ave 6. Halfway through, along exiting PIE, suddenly there was audible alarm to warn that the truck is overheated. I stopped by the road shoulder along PIE to check. After checking, I decided to drive off PIE and stopped at Bukit Timah road (towards Singapore NgeeAnn Poly) and consulted my supervisor for advice through whatsapp groupchat.

One of colleague came down with 6 bottles of water with intention to top up the coolant. However, the coolant was filled with water when we opened up. Therefore, we concluded that it is not the coolant overheating issue and seek advice via whatsapp groupchat again.


Another senior colleague arrived to assist. After the truck has cooled down (1 hour plus later), we attempt to drive the truck again but there was weird noises coming from the front engine and decided to stop. That was when my supervisor advised me to call for tow service, from the decal on the wind screen of YM9835J - Cosmopolitan Engrg. Services Pte Ltd, 98310566.

Tow driver arrived at 11.51pm. I stood-by by the side and let him do the necessary. After securing the chain to truck YM9835J. I went back to release the handbrake as advised by the tow driver and ready to move off. At around 12.20am (07 Jun 2021), the tow driver suddenly pulled over by the road shoulder after noticing smoke coming from the back of truck YM9835J. Tow driver then mentioned that he should have known this truck is operated by air-pressure (我忘记注意这辆车是走风的). Both of us then rushed down to check what is happening. This happened at PIE towards Changi (near Bedok North Flyover). I called 995 immediately.

The tow driver rushed to his tow truck to take a bottle water after seeing flame on the left rear inner wheel. Upon seeing him trying to put out the flame with water, I also took 6 bottles of water that was previously brought to me by my colleague. The flame persisted. Tow driver then went back to his truck to carry out a big bucket of water but could not put out flame burning around the rear inner wheel. At that point, the metal around the rear wheel was already red burning. While tow driver continue putting out the fire, he asked me to flag down any vehicle that may have fire extinguisher as his truck does not have one.

I managed to stop a SBS bus, the bus captain quickly handover to me the fire extinguisher. I then handed over to the tow driver while I tried to flag down another vehicle for more fire extinguisher. This time, the police car arrived. There was no time to explain much and quickly took another extinguisher from the police car boot. Once I managed to put out a bit of fire around the wheel, I realized the fire had spread underneath the truck and the flame has gotten out of control.

To save time, I opened the tail gate and sliding doors (hoping to create easy access for fire fighter to put out the fire). The fire fighter arrived soon after, told me to stand at the safe side as they took over situation. I was taken away by the ambulance thereafter.

Incident reported by  X 7709901-H
Hee Whye Yu, Marx
Employee ID
202101385

Findings during the survey

The first survey was conducted on 11/06/2021 at Cosmopolitan Eng Svc Pte Ltd and there was a second inspection on 13/07/2021 for collecting some extra photos and material for this report.

On a first look it can be seen the severe damages caused by the fire prominently in the cargo area (Box).

The following are some photos that illustrate my 1st survey on the front view:



Possibility Cause of the fire - Analysis



- The fire is more prominent in the lower zone of the left side of the truck.
- There are big flames in the cabin box, supporting the driver story.

There are two key elements in this case for starting the analysis:

1. Once the towing personnel arrived and secure the chain to tow vehicle, the driver went back to the vehicle to release the handbrake as he was advised of before moving off. After towed the vehicle for certain period and distance, the towing driver pulled over by the road shoulder after noticing smoke came out from the back of the truck. They realized that the left rear wheel portion of the lorry and cabin box caught in flames.
2. The photo gotten on the fire scene and attached to GIA report is a great source of information:

So, now focused around the LH rear wheel area, I pointed my assessment on the potential cause of the fire and, after a quick look, I found that the LH rear wheel rim, tyres and brake system as a whole were damaged by very intense heat. But this heat wasn't a consequence of the fire itself, it was the origin of the loss, specifically the brakes system of the rear left wheels.

First, the brake system in any vehicle is designed under the physical principle of friction, transforming the kinetic energy of the vehicle in heat which is dissipated accordingly.

In other words, heat is always involved in the normal brakes functioning, but in this case, we have an overheating (out of normal heat generation) caused by the vehicle being towed while the brakes were partially activated.

What can cause this severe "Brake overheating"?

There are a few potential options that can match here:

1. Handbrake system not/partially released during the towing.
2. Brake hose leaking air.
 - a. "Air brake systems", like this lorry, have a safety feature that engage the brakes if the truck has no compressed air in its system.
 - b. So, if the truck was leaking air during the towing, the brakes of all the wheels should have started to be activated but the rear left wheel was the more affected starting the fire.
3. Finally, it could be just a mechanical failure in the brake components of the rear left wheel causing its unintended engaging. If so, that could explain why the lorry engine was overheating before the towing (driving the lorry with one wheel partially braked requires more power from the engine and that could be the reason of the breakdown)

The following are some photos that shows in a clearer way my words:



*Brake Air
Hose*

*Master
Brake
Assembly*



*Brake
Diaphragm*

*Wear Off
Marks on
Tyres*



Other Findings



During reinspection on 13/07/2021, most of the damaged parts had already been dismantled and replaced by the workshop. We regret to inform that the critical components (Air Brake Hose and Air Brake Shoe) were already disposed.

However, there is no other indication of the cause of fire rather than the brake engaging while the vehicle was towed – eg. Short circuit (electrical, wiring) or intentional act (cigarette butt).

Conclusion

The fire was clearly due to the rear left brake overheating which could be caused by either of the options mentioned before. However, even when we have three reasons for the unintended rear left brake activation that produced an abnormal friction followed by extreme heat that ended in this loss, there is a common factor in all of them:

It is the duty of the towing personnel to check this issue and only proceed to tow the vehicle if it's safe to do it. In other words, regardless if the cause of the brake activation is a mistake releasing the handbrake, an air leak, or a problem with the brakes of the rear left wheel, the towing personnel is responsible for it.

Inspected by: Mr Kaharudin

Signature: 