



## SAFETY CIRCULAR 03/2023

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January 2023

### REMOTE FUEL TANK MODIFICATIONS ON SOME LIGHT TANKERS

#### Key Message

Engineering controls have been made to pump sets on some Light Tankers, moving the fuel tank away from the pump set. This has created additional risks to operators.

Operators of Light Tankers with remote unleaded fuel tanks are to refer to [Annex 1](#) of this document until the fuel tank is reverted. Operators of Light Tankers with unleaded fuel tanks above the pump set are to follow [Annex 2](#) of this document for safe work procedures.

#### What happened? / What's been happening?

A remote fuel tank modification on Light Tanker pump sets has been implemented on over 100 appliances since 2017. The intent of the modification was to reduce risks of burns to firefighters when refuelling. A review of this fuel delivery configuration on these Light Tanker pump sets has concluded that a reversion is required because new hazards have been created. Light Tankers fitted with the modified fuel delivery system will gradually be reverted to the original design.

#### What does it mean for me? / What do I need to do?

Operational crews with Light Tankers are to review [SOP 3.5.10 – Crew Safety at Bushfires](#) which provides safety instructions on removing fuel cans from operational appliances before they arrive at firegrounds. Crews are required to allow Light Tanker pump sets time to cool away from the fireground prior to refuelling operations, which should occur ONLY at water points and staging areas.

Affected crews with Light Tankers that have the remote fuel tank modification are to follow the Interim Safety Management Plan and Interim Risk Management Plan ([Annex 1](#)) and Control Measures when the Pump Set Over-Tank is Reinstated ([Annex 2](#)).

#### Further information / Want to know more?

For further information related to the Light Tanker pump set re-fuelling system, contact Manager Fleet Development, Jon Kirk via email [jon.kirk@dfes.wa.gov.au](mailto:jon.kirk@dfes.wa.gov.au) or for information regarding the Safety Plans in Annexes 1 and 2 contact Senior Health and Safety Consultant, Steve Wickham via email [steve.wickham@dfes.wa.gov.au](mailto:steve.wickham@dfes.wa.gov.au).

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Target Audience: BFB Volunteers				
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Page 1 of 4	Jan 2023	<a href="mailto:Jon.Kirk@dfes.wa.gov.au">Jon.Kirk@dfes.wa.gov.au</a>		



## Annex 1 – Interim Safety Management Plan

### Light Tankers with Remote Fuel Tank Delivery System to Pump set

#### Overview

A remote fuel tank modification on Light Tanker Pump sets has been implemented on over 100 Appliances since 2017 to reduce risks of burns to firefighters when refuelling. A review of this fuel delivery configuration on these Light Tanker pump sets has concluded that a reversion is required because new hazards have been created. Light Tankers fitted with the modified fuel delivery system will gradually be converted back to the original design.



Figure 1 - Remote fuel tank (being removed) shown above with pump set and hosereel to its left.

#### Description of Hazards

Hazards identified with the modified fuel delivery systems include:

1. Inadvertent pumping of fuel onto appliance rear decks
2. Over-pressurisation of the fuel delivery system leading to fuel spillage onto appliance rear decks
3. Fuel ingress into pump set engine sumps damaging/destroying engines
4. Component failures resulting in loss of containment and fuel spillage
5. Reliability issues in fuel delivery due to fuel circulation issues
6. Reliability issues of the power module/safety cut-out switch
7. Other problems have also been identified, including the cross threading of fuel caps which render the tanks unserviceable because they are fixed in place.

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Page 2 of 4	Jan 2023	<a href="mailto:Jon.Kirk@dfes.wa.gov.au">Jon.Kirk@dfes.wa.gov.au</a>	Fleet Development	



## Interim Risk Management Plan

Reliability issues can involve risks to firefighters if failures occur during firefighting operations. The following interim safety control measures are required to be undertaken by operators of Light Tankers with the remote fuel tank delivery system before the reversions back to the over-tank arrangement take place:

1. Crews are to remain situationally aware in case failures occur. OICs are to ensure preventative maintenance inspections occur and any faults are rectified immediately.
2. Fasteners and couplings on the fuel delivery systems are to be regularly inspected, tested, and tightened as necessary in the interim.
3. Each affected crew is to closely monitor the integrity of the remote fuel tank modification on each Light Tanker until the revision to original design is completed.
4. Plant and Equipment Services will develop a remediation plan and provide to BGUs so they know when the retrofitting activities will take place and manage the situation.

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SC-03-23	Issue Date:	Contact:	Fleet Development	
Page 3 of 4	Jan 2023	<a href="mailto:Jon.Kirk@dfes.wa.gov.au">Jon.Kirk@dfes.wa.gov.au</a>		



## Annex 2 – Control Measures when Pump Set Over-Tank is Reinstated

### Overview

There are inherent hazards that must be controlled when refuelling Light Tanker pump sets in operating and training environments. These hazards include, but are not limited to, fire due to fuel spillage that is ignited when refuelling, and uncontrolled release of fuel from containers. The boiling point of petrol is often below the ambient temperature, which means explosive escape of “vapourised” fuel from containers during refuelling, is considered likely.

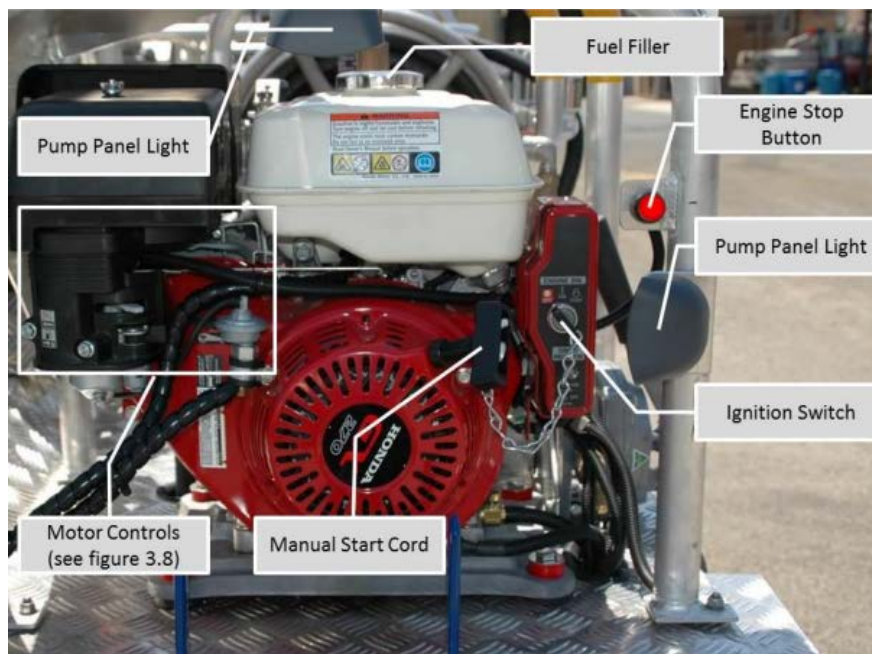


Figure 2 - photo depicts the pump set over-tank arrangement

### Hazards and Controls for Refuelling Pump sets with Over-Tank Arrangement

The following controls must be in place whenever refuelling Light Tanker pump sets with the standard over-tank arrangement fitted to the pump set:

1. Full compliance with [SOP 3.5.10 – Crew Safety at Bushfires](#), with particular attention to be given to the “Refuelling” section on page 3.
2. PPE is to be worn, covering the body, head, and face to protect against spills and burns.
3. Fuel containers should be opened and depressurised, in a safe and cool environment, **away** from any heat or ignition source (water points and staging areas).
4. Where possible, two firefighters/persons are to complete the refuelling task.

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Page 4 of 4	Jan 2023	<a href="mailto:Jon.Kirk@dfes.wa.gov.au">Jon.Kirk@dfes.wa.gov.au</a>	Fleet Development	