



Interagency Aviation Safety Alert



No. IA SA 11-02

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Subject: Dip Tanks
Area of Concern: Aerial Fire Fighting
Distribution: All Aviation Activities

Discussion: Recently, a type 1 helicopter was sent to perform water drops on a fire. The dipsite included two Fol-Da-Tanks that were filled by hoses laying over the sides into the middle of the tanks. During the hover-dip process, the helicopter's snorkel became entangled in the tanks framing and lifted it off the ground. As a result, the tank was severely damaged. The next day, a different type of tanks (Heliwell) tank was set up for use.



Fol-Da-Tanks are not listed in the Aviation Management Tech Tips published by the San Dimas Technology & Development Center (March 2008). The Tech Tips, titled *Helicopter Dip Tank Capabilities and User's Guide* provides helicopter field operators with information needed to match the proper dip tank with the equipment in use. The following criteria for dip tanks not listed in the guide will assist you in determining whether to use a non-listed tank. In this particular event, the second criteria was certainly not met.

First, inspect for sharp surfaces. Nothing sharp or pointed should be inside the tank and at the upper outside sections of the tank. These areas are most likely to come in contact with a helicopter bucket or snorkel. Examples of sharp objects are jagged edges of a sheet metal, exposed screws or bolt heads, hooks, and pipes with sharp ends.

Second, look for any object that will create interference with a bucket or snorkel. These objects can be ladders that have the potential to catch the side of a snorkel, edges that are not flush, support beams that can tangle with the bucket line, and pipes that can snag another object.

Third, the dip tank must have a stable base. Its bottom has to rest on the ground or have support points that rest on the ground. The supports need to have large ground-contact pads so it does not sink into any soft soil or pavement. These supports not only prevent road damage but prevent the tank from tipping over if it starts to sink unevenly. A tank towed in by truck needs support other than its wheels. The brakes on the wheels can fail on a sloped surface and allow the tank to shift with unpredictable results.



Fol-Da-Tank Portable Dip Tank

Fourth, the dip tank has to accommodate the largest buckets expected to be used in the incident. A dip tank is no good if a bucket will not fit in it.

In October 2006, a Type-1 helitanker was substantially damaged while attempting to hover-dip from a 5000-gallon portable retardant tank (PRT) when the snorkel became lodged on the lip (ring) surrounding the tank's frame. Recommendations from this accident included:



1. Advise all helicopter flight crews and Incident Command Teams of the external snagging hazard presented by certain dip tank frames.
2. Inspect all portable tanks that are to be used for helicopter snorkel or bucket operations for this hazard.
3. Ensure that there are no rings or protrusions around the perimeter of the tank that a snorkel or bucket can "catch" either by removing the hazard or shielding it from the snorkel/bucket assembly.
4. Review the Helicopter Dip Tank Capabilities and Users Guide, available on line at: http://www.fs.fed.us/eng/php/library_card.php?p_num=0657%201306P
5. If hazardous tank assemblies are found, require the vendor or the appropriate authority (if government owned) to provide appropriate modifications immediately.
6. If the parts can't be removed or the hazard can't be otherwise mitigated by shielding/wrapping , remove the tank from service.
7. If contracted, ensure that the contracting officer is informed of the tanks that are removed from service.

Fortunately, history didn't repeat itself and an accident was avoided. Recommendations made in 2007 are just as applicable today as they were then (see IA Safety Alert 07-02).

Remember: "If we don't learn from the past we are condemned to repeat it."

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