Kansas City Flight Standards Office

Airworthiness Facts

Date FY20 3rd Quarter

Federal Aviation Administration

Airworthiness Section
Arno Boyle……..…..….(816) 329-4008
(Avionics)
David Johnson ……...…(816) 329-4019
(Airworthiness)
Rusty Knox…….,..……..(816) 329-4021
(Airworthiness)
James Seabolt ……(816) 329-4009
(Airworthiness)
David Wood ..……..…..….(816) 329-4027
(Avionics)
Tom Davis ..…..……..……(816) 329-4022
(Airworthiness)
Chip Taylor.…….……..……(816) 329-4024
(Airworthiness)
Donald Halbert..……...…..(816) 329-4017
(FAASTeam)

Ferry Permits
Is your aircraft airworthy?
Do you need a Special Flight Permit?
The process for Special Flight Permits (Ferry Permits) is changing. At this time you can still call your Principle Inspector for you Special Flight Permit. But a word of advice, make sure you have all the required information available. The one of the forgotten requirements is a letter from the owner giving you permission to act as agent for the aircraft.

But coming to a Flight Standard Office near you, there is an automated system being put in place, it is call The ASKME Segment II Airworthiness Certification (AWC) Tool. It will allow the Applicants (You) to complete and submit the FAA Form 8130-6, Application for U.S. Airworthiness Certificates online. This system will be used by FAA Aviation Safety Inspectors or a Designee to process Airworthiness applications for the following:
Standard Certificates,
Special Certificates,
Special Flight Permits,
Special Flight Authorizations,
Amended Certificates,
Exchange Certificates
Multiple Certificates

So contact your principle inspector for their preferred method of submitting an application for an Airworthiness Certificate, and look for the changes to happening at a FSO near you.

FAA SafetyTeam Airworthiness, Topic of the Quarter

DEF Fuel Contamination Prevention

DEF Fluid: *In the advent of recent EPA regulations, Large and Medium sized Diesel powered engines, produced after 2014, installed in any equipment will need Selective Catalytic Reduction (SCR) systems installed. This includes a device (Catalytic Converter using different technologies than our gasoline powered cars/trucks) and Diesel Exhaust Fluid (DEF) injected into the catalytic converter.*

There have been several DEF Fluid events, involving at least 9 aircraft where DEF has been mixed into Jet Fuel and the aircraft was operated. Fortunately. Due to proper training and reactions of the involved flight crews, no aircraft accidents occurred, although that potential was imminent.

What is the Problem?
There is now 2 different chemicals that can appear on airports that may be packaged very similarly, and yet are very different chemically.

1. *Diesel Exhaust Fluid (DEF)*
2. *Fuel System Ice Inhibitor (FSII)*

Trade names include: Prist, DICE Flash 190, and ICE-5
They are both clear fluids with similar viscosities

What Happened?

There have been at least 9 civilian aircraft and several military aircraft that were fueled with contaminated fuels, three of those aircraft had engine failures in flight, two had dual engine flameouts (one Falcon 50 with 3 engines, the other was a Cessna Citation 550 with 2 engines). Fortunately all of the aircraft involved landed safely on airports with no further damage or any injuries.

How do we Mitigate this issue?

The key will be careful labeling, segregation of the fluids and training

Where do we find help?

NBAA, AOPA, FAA SAFO's and a Joint Committee have produced reports and suggestions to eliminate this problem. These publications are available online.

Background:

The Tale of Two Chemicals

Diesel Exhaust Fluid (DEF) is a mix of Urea and Water (35% to 65%). Urea has been used by farmers for many years as a fertilizer, it is a non-petroleum based chemical that is clear and has an ammonia type odor.

• Required on New Airport Diesel Vehicles as of 2014: The EPA Tier 4 mandates that all newly manufactured diesel powered equipment, (Heavy Duty Trucks, Pickups, etc., Stationary Equipment, Farm Equipment, Construction Equipment, etc.) with a horsepower rating over 75 horsepower are required to have the Selective Catalytic Reduction system (SCR).

This system injects Urea into the exhaust stream (never into the engine) and uses the ammonia with the materials in the Catalytic Converter to reduce Nitrous Oxide (NOx) emissions.

DEF is never to be mixed with Diesel fuel as it will harm the pumps, clog filters and fuel injectors in trucks and any other equipment. Urea will crystallize when mixed with Kerosene, Diesel Fuel and any other similar chemicals.

Fuel System Icing Inhibitor (FSII):

Also is a clear liquid, but with a very different odor (more like alcohol) from DEF. It is mixed into the Jet fuel and has 2 purposes. First it is a deicing fluid, second it is a microbial contamination eliminator.

-Injected (or mixed) into Aviation Fuel to Prevent Water (in fuel) from Freezing

-Typically required on smaller turbine engine powered aircraft FSII is not often used among the Air Carriers as they have fuel heating systems in their fuel systems on their aircraft and enough fuel flows through the system to combat the microbial contamination risk.

How is FSII Mixed into Aviation Fuel?

FSII can be injected into the fuel at the nozzle with aerosol cans FSII can be injected in the fuel delivery hose from the truck to the aircraft, there will be a reservoir for the FSII on the truck that is refilled periodically.

• Jet Fuel can be ordered with FSII pre-mixed before delivery to the local fuel farm.

The side benefit to FSII is that it inhibits microbial growth in the jet fuel. Many operators ask for FSII year round for this purpose.

So far, the contamination events have involved fuel trucks that use a system that injects the FSII into the fueling hose from a reservoir mounted on the truck.

There are several container types in which FSII is shipped. It can be shipped and stored in anything from aerosol cans with self-dispensing tubes and nozzles to 55 gallon drums. Those who use the aerosol cans are

much less likely to have a contamination issue than those who buy the fluid in bulk and rely on a tank and injection pump on their trucks for mixing. Any of the blue or clear barrels need special handling to ensure that DEF is not used instead of FSII in aviation fuel dispensing.

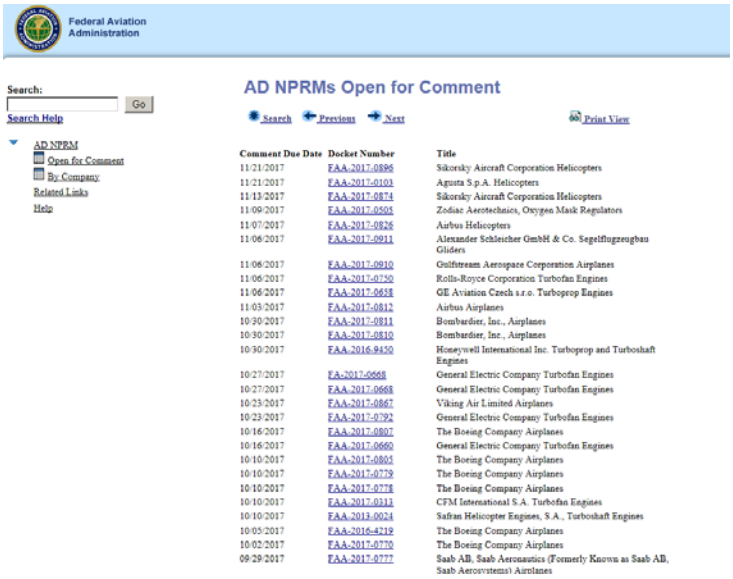
Often, both fluids are delivered, from the vendors, in white or clear plastic drums or other containers. They are appropriately marked, but the overall visual ques can be confusing or at least non-descript.
-It is becoming more prevalent at airports with newer truck and other equipment using the SCR systems
-Both DEF and FSII are clear liquids with very similar viscosities
-If purchased in large containers, both are poured into smaller containers and added to reservoirs in the fuel trucks
-With these similarities, we have had 3 contamination events that affected several aircraft, mostly from line personnel pouring the wrong fluid into the FSII tanks mounted on fueling trucks.
-The primary risk is to general aviation, turbine powered aircraft. The risk has been felt in Military aircraft as they can purchase fuels from local FBO's

With this information let's work toward eliminating the DEF and FSII problem.

Notice of Proposed Rules Airworthiness Directives:
Notice of Proposed Rule Making is your chance to make a difference, yes if you go through the process you can make a difference.

This link is for Proposed Rules Airworthiness Directives;

http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgADNPRM.nsf/MainFrame?OpenFrameSet



New Airworthiness Directives:
This link is for Airworthiness Directives, for all aircraft.

http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgAD.nsf/MainFrame?OpenFrameSet

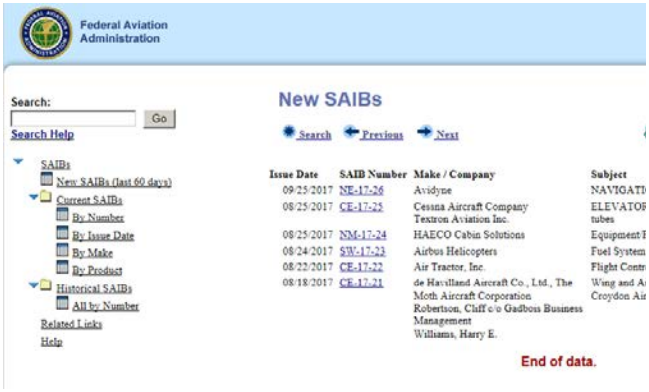
Service Difficulty Program:
When a system, component or part of an aircraft (power-plants, propellers, or appliances) functions badly or fails to operate in the normal or usual manner, it has malfunctioned and should be reported. Also, if a system, component, or part has a flaw or imperfection which impairs function or which may impair future function, it is defective and should be reported. While at first sight it appears this will generate numerous insignificant reports, the Service Difficulty Program is designed to detect trends. Any report can be very

constructive in evaluating design or maintenance reliability.

The reports can be filed electronically or by paper, for electronic go to http://av-info.faa.gov/sdrx/. For paper submission the form can be downloaded at www.faa.gov/documentlibrary/media/form/faa8010-4.pdf, you may have to cut and paste this Link into your browser.

Service Airworthiness Information Bulletins:

http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/Frameset?OpenPage



Kansas City Flight Standards Office Information

To include Designees, Airworthiness Representatives, Designated Mechanic Examiners, and Designated Parachute Rigger Examiners information.
Current Link:
https://www.faa.gov/about/office_org/field_offices/fsdo/mci/

Next Quarter: Data

Airworthiness Facts are published on a quarterly basics and available via email only. If you would like to receive Airworthiness Facts or be removed from the mailing list, contact the Kansas City FSDO FAASTeam Program Managers

Donald Halbert,
Donald.D.Halbert@FAA.gov
Marvin Moore,
Marvin.L.Moore@FAA.gov