FAA
Aviation Safety

SPECIAL AIRWORTHINESS INFORMATION BULLETIN

SAIB: HQ-18-08
SUBJ: Engine Fuel and Control – Operation with Contaminated Jet Fuel **Date:** December 20, 2017

This is information only. Recommendations aren't mandatory.

Introduction

This Special Airworthiness Information Bulletin (SAIB) advises airplane operators, Fixed Base Operators (FBOs), FAA repair stations and Flight Standard District Offices (FSDOs), and foreign civil aviation authorities of certain airplanes that operated with jet fuel contaminated with diesel exhaust fluid (DEF). This SAIB also requests feedback regarding any service difficulties or operational anomalies of the identified airplanes and recommends that the owners of those airplanes consult with the original equipment manufacturers (OEMs) of their airplane, engine, and auxiliary power unit (APU) to determine the appropriate inspection and corrective maintenance actions on their airplane.

At this time, the airworthiness concern is not considered an unsafe condition that would warrant airworthiness directive (AD) action under Title 14 of the Code of Federal Aviation Regulations (14 CFR) part 39.

Background

During the period between November 16 and November 21, 2017, thirty six airplanes with civilian registry identified in Appendix 1 along with 17 other airplanes were serviced with jet fuel containing DEF at Eppley Air Field Airport, Omaha, Nebraska (KOMA). The DEF was inadvertently used instead of fuel system icing inhibitor (FSII) on two refueling trucks at KOMA and injected into the fuel with each truck's FSII injection system. Only those airplanes identified in Appendix 1 received the contaminated fuel.

DEF is a urea-based chemical that is not approved for use in jet fuel. When mixed with jet fuel, DEF will react with certain jet fuel chemical components to form crystalline deposits in the fuel system. These deposits will flow through the aircraft fuel system and may accumulate on filters, fuel metering components, other fuel system components, or engine fuel nozzles. The deposits may also settle in the fuel tanks or other areas of the aircraft fuel system where they may potentially become dislodged over time and accumulate downstream in the fuel system as described above. Several of the identified airplanes have already experienced clogged fuel filters and fuel nozzle deposits that lead to service difficulties and unplanned diversions.

The crystalline deposits are not soluble in fuel, so they cannot be removed by flushing the airplane fuel system with jet fuel. The deposits are soluble in methanol and other polar solvents, but use of these chemicals may have adverse consequences on airplanes and engine fuel system materials. Consequently, OEMs should be contacted to develop inspection techniques and corrective maintenance actions appropriate for each specific aircraft model type.

Jet fuel that has been contaminated with DEF no longer meets the aviation fuel operating limitations of airplanes certificated to operate on Jet A fuel, and therefore cannot be used on those airplanes. Jet fuel that has been removed from airplanes listed in Appendix 1 should be downgraded to other non–aviation fuel grades and not used on airplanes in the future.

The FAA is monitoring the situation to determine if additional action is required. We are requesting that any service difficulties and maintenance and inspection findings on the aircraft identified in Appendix 1 be reported to us in support of this effort.

Recommendations

The FAA recommends the following:

1. Owners or operators of airplanes identified in Appendix 1 contact their airplane, engine, and APU OEMs to determine the appropriate inspections and maintenance actions to remove urea-based crystalline deposits from the fuel system. This may include the removal and replacement of fuel system parts or components affected by exposure to these deposits.

2. Owners or operators of airplanes identified in Appendix 1 report to the FAA any service difficulties (including fuel filter bypass and clogging incidents), fuel system repairs, and fuel system inspection results related to the presence of these urea-based crystalline deposits.

3. Jet fuel suspected of being contaminated with DEF that has been removed from the airplanes listed in Appendix 1 be downgraded to other non-aviation fuel grades, and not be used on airplanes.

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For Further Information Contact

Mark Rumizen, Senior Technical Specialist, FAA, 12 New England Executive Park, Burlington, MA 01803; phone: (781) 238-7113; mobile: (781) 402-4609; fax: (781) 238-7199; email: mark.rumizen@faa.gov.

APPENDIX 1
Civilian Aircraft Fueled by TAC Air (KOMA), Nov. 16-21, 2017

DATE	AIRCRAFT REGISTRATION	AIRCRAFT MAKE, MODEL SERIES	S/N	FUEL QTY (gals)
11/16/2017	N141JT	PIAGGIO AERO INDUSTRIES, P-180	1141	252
11/16/2017	N56NG	PILATUS AIRCRAFT LTD., PC-12/47E	1556	180
11/16/2017	N559RA	GATES LEARJET CORP., LR-55C	146	790
11/16/2017	N624PL	CESSNA, CE-550	550-0402	50
11/16/2017	N230UH	PILATUS AIRCRAFT LTD., PC-12/45	230	132
11/16/2017	N232CL	DASSAULT, MYSTERE FALCON 900	9	1039
11/16/2017	N451CL	DASSAULT, FALCON 50	223	516 & 484
11/16/2017	N334RJ	CESSNA, CE-550	550-0228	550
11/17/2017	N959MA	PILATUS AIRCRAFT, LTD., PC-12/47	684	140
11/17/2017	N50VP	BEECHCRAFT, BE-C90A	LJ-1185	105 & 108
11/17/2017	N61GB	RAYTHEON AIRCRAFT CO., BE-400A	RK-341	393
11/17/2017	N904HD	LEARJET, INC., LR-45	149	331
11/17/2017	N846BE	BEECHCRAFT, BE-300	FA-16	119
11/17/2017	N109NS	RAYTHEON AIRCRAFT CO., BE-400A	RK-452	286
11/17/2017	N355UA	GATES LEARJET CORP., LR-55	114	635
11/18/2017	N813JB	BEECHCRAFT, BE-C90	LJ-899	131
11/18/2017	N334RJ	CESSNA AIRCRAFT CO., CE-550	550-0228	350
11/18/2017	N426GF	RAYTHEON AIRCRAFT CO., BE-400A	RK-218	162
11/19/2017	N393GH	RAYTHEON AIRCRAFT CO., BE-400A	RK-240	481
11/19/2017	N624PL	CESSNA AIRCRAFT CO., CE-550	550-0402	100

DATE	AIRCRAFT REGISTRATION	AIRCRAFT MAKE, MODEL SERIES	S/N	FUEL QTY (gals)
11/19/2017	N200RS	BEECHCRAFT, BE-200	BB-1481	330
11/20/2017	N793DC	BEECHCRAFT, BE-200	BB-1404	299
11/20/2017	N460EM	RAYTHEON AIRCRAFT CO., BE-C90A	LJ-1593	210
11/20/2017	N61GB	RAYTHEON AIRCRAFT CO., BE-400A	RK-341	445
11/20/2017	N426GF	RAYTHEON AIRCRAFT CO., BE-400A	RK-218	147
11/20/2017	N355CD	ROCKWELL INTERNATIONAL CORP., NA-265-65	465-57	301
11/20/2017	N45HF	LEARJET INC., LR-45	121	555
11/20/2017	N600CL	LEARJET INC., LR-60	110	620
11/21/2017	N381XP	RAYTHEON AIRCRAFT CO., BE-400A	RK-381	358 & 30
11/21/2017	N32WK	PILATUS AIRCRAFT LTD., PC-12/47E	1046	85 & 85
11/21/2017	N904HD	LEARJET INC., LR-45	149	585
11/21/2017	N546DH	LEARJET INC., LR-45	150	265
11/21/2017	N393GH	RAYTHEON AIRCRAFT CO., BE-400A	RK-240	335
11/21/2017	N426GF	RAYTHEON AIRCRAFT CO., BE-400A	RK-218	353
11/21/2017	N109NS	RAYTHEON AIRCRAFT CO., BE-400A	RK-452	240 & 99
11/21/2017	N924BD	RAYTHEON AIRCRAFT CO., BE-400A	RK-95	151