



U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Anti-Misfueling Devices: Their
Availability and Use

Date: 1/29/91

AC No: 20-122A

Initiated by: AFS-300

Change:

- 1 **PURPOSE.** This advisory circular (AC) explains the benefits of fitting reciprocating engine-powered general aviation aircraft with devices and the fitting of fuel dispensing equipment with special fuel hose nozzle spouts.
- 2 **CANCELLATION.** AC 20-122, Anti-Misfueling Devices: Their Availability and Use, dated October 5, 1984, is cancelled.
- 3 **AUDIENCE.** This AC applies to all persons involved in aircraft refueling, defueling, servicing, and maintaining fuel dispensing equipment. All involved are strongly encouraged to review the information in this AC and apply the techniques, as appropriate.
- 4 **REGULATIONS.**
 - 4.1 **Title 14 of the Code of Federal Regulations (14 CFR):**
 - Part 23, § 23.1557;
 - Part 27, § 27.1557;
 - Part 43, §§ 43.3 and 43.5;
 - Part 91, §§ 91.3(a) and 91.5; and
 - Part 139, § 139.321.
- 5 **RELATED READING MATERIAL (current editions).**
 - AC 00-34, Aircraft Ground Handling and Servicing;
 - AC 20-43, Aircraft Fuel Control;
 - AC 20-116, Marking Aircraft Fuel Filler Openings With Color Coded Decals; and
 - AC 150/5230-4, Aircraft Fuel Storage, Handling, and Dispensing on Airports.
- 6 **BACKGROUND.**
 - 6.1 Aviation statistics indicate that the use of improper fuel has caused or contributed to an inordinate number of accidents and incidents. Most of these have involved single-engine general aviation aircraft (and some multiengine) that were misfueled with jet or turbine engine fuel instead of gasoline, which these aircraft use. Misfueling a reciprocating

engine-powered aircraft with jet or turbine engine fuel can and has produced catastrophic results when engines failed during the critical takeoff phase of flight.

- 6.2** A specification developed by the General Aviation Manufacturers Association (GAMA), Specification No. 3, issued on July 1, 1982, provides a standard color-coded decal to be affixed adjacent to aircraft fuel tank filler openings and corresponding color decal bands to be affixed to refuelers' fuel hoses. Both decals were designed to alert servicing personnel as to the proper fuel to be used.
- 6.3** The National Air Transportation Association (NATA) and GAMA are cooperating in an additional effort which will significantly mitigate the chances of misfueling. Fuel tank filler openings in reciprocating engine-powered aircraft may be equipped with pilot-installed adapter rings reducing the opening size from 3 inches to 2.3 inches in diameter. Jet or turbine engine fuel nozzle assemblies will be equipped with spouts with a minimum diameter of 2.6 inches, thereby reducing the probability of introducing jet or turbine engine fuel nozzles into the filler openings of aircraft requiring gasoline.

7 DISCUSSION.

- 7.1** The down-size adapter rings are being made available through the aircraft manufacturers' Original Equipment Manufacturer (OEM). Individual OEMs have developed, or are developing, service information for each conversion kit to ensure proper type and installation. Owners and operators of reciprocating engine-powered aircraft should seriously consider equipping each fuel tank filler opening with these adapters since safety will be significantly enhanced, and in some cases, the cost is being defrayed by insurance companies. Check with your aircraft manufacturer or insurance company to determine its participation. Since January 1, 1985, all GAMA member companies' newly produced airplanes have fueling ports that meet the dimensions defined in SAE Aerospace Standard (AS) 1852.
- 7.2** Fuel tank filler opening adapters may be installed by pilots only when accomplished in accordance with OEM service information. Consistent with § 43.3(g), the fuel tank filler opening adapters may be installed by at least a certificated pilot. The installations must be approved for return to service under § 43.7 and recorded as required by § 43.9(a).

Note: The installation of these adapters may be performed on an aircraft owned or operated by the holder of a pilot certificate issued under 14 CFR part 61, as long as the aircraft is not used under 14 CFR part 121, 129, or 135.

- 7.3** In the interest of safety and standardization, it is recommended that Fixed-Base Operators (FBO) and other aviation fuel suppliers equip their turbine fueling equipment (trucks, islands, pumps, etc.) with the larger size nozzles designated in SAE AS 1852 to prevent misfueling reciprocating engine aircraft with turbine fuel. SAE AS 1852 defines maximum free opening dimensions for airframe refueling ports on civil aircraft that require the exclusive use of Aviation Gasolines (AVGAS), and minimum free opening dimensions for airframe refueling ports on civil aircraft that operate with turbine fuels as a primary type fuel. In addition, the AS defines the minimum refueling nozzle tip

dimensions for turbine fuel ground service equipment and the maximum refueling nozzle tip diameter dimension for AVGAS ground service equipment.

- 7.4** Airport owners should amend their airport operations manual to encourage FBOs and other suppliers to meet the new size specifications for jet fuel nozzle spouts, and to do so within a specified time period.
- 7.5** For more information, interested parties should contact the manufacturer of their aircraft or the General Aviation Manufacturers Association, 1400 K Street NW., Suite 801, Washington, DC 20005, telephone: (202) 393-1500; the National Air Transportation Association, 818 Connecticut Avenue NW, Suite 900, Washington, DC 20006, telephone: (203) 774-1535 or toll-free at (800) 808-6282; or the Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, telephone: (724) 772-8572.

ORIGINAL SIGNED BY

/s/ Thomas C. Accardi
Acting Director, Flight Standards Service

Advisory Circular Feedback Form

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by contacting the Flight Standards Directives Management Officer at 9-awa-afs-140-directives@faa.gov.

Subject: AC 20-122A, Anti-Misfueling Devices: Their Availability and Use

Date: _____

Please check all appropriate line items:

An error (procedural or typographical) has been noted in paragraph _____ on page _____.

Recommend paragraph _____ on page _____ be changed as follows:

In a future change to this AC, please cover the following subject:
(Briefly describe what you want added.)

Other comments:

I would like to discuss the above. Please contact me.

Submitted by: _____

Date: _____