



Barbados Civil Aviation  
Department

BCAD Document AAC-030

**AIRWORTHINESS**

**ADVISORY**

**CIRCULAR**

# AVIATION FUEL INSTALLATIONS AND AIRCRAFT FUELLING



**AVIATION FUEL INSTALLATIONS**

1. Introduction.....4

2. Fuel Installations.....4

3. Operators’s Responsibility.....6

4. Operators’s Private Fuel Bowser.....6

# AVIATION FUEL INSTALLATIONS

## 1. Introduction.

- 1.1. The Barbados Civil Aviation Regulations requires that the persons responsible for the management of an aviation fuel installation shall, satisfy themselves that on delivery, fuel is of a grade appropriate to the installation to which it is supplied. Also they shall ensure that the installation is capable of storing and dispensing fuel in a state fit for use in aircraft and that the installation is properly marked to show the grade or grades of fuel it contains. The responsible person shall be satisfied by sampling and testing that the fuel is fit for use before it is delivered into an aircraft. Written records shall be kept which show dates, quantities and grades of all bulk deliveries with details of all samples taken and results of tests. Details of maintenance and cleaning shall also be recorded. These records shall be preserved for twelve months or for a longer period as required by the Authority. On request, such records shall be produced to an Authorised person within a reasonable time.
- 1.2. All fuels to be used in aircraft require very special handling. Negligence in the receipt, storage and handling of fuel or, an error in fuelling can endanger an aircraft and the lives of all on board. Therefore it is essential that the correct grade and quantity of fuel is supplied and that it is in a condition fit for use in aircraft.
- 1.3. The operator must be satisfied with the quality of all fuel taken on board his aircraft, particularly in respect of water contamination.

## 2. Fuel Installations

- 2.1. The monitoring of aviation fuel installations on aerodromes in Barbados will be carried out by a planned programme of auditing. Each fuel installation will be audited every twelve months or more frequently if poor performance dictates.
- 2.2. The audit will look at all aspects of fuel receipt, storage and delivery as follows:
  - 2.2.1. Management and management responsibilities.

It is the responsibility of the fuel supplier to ensure that on delivery, fuel is fit for aviation purposes. The person responsible for the management of an aerodrome fuel installation will be appointed in Barbados by the fuel company. He is responsible for all fuel delivery, safekeeping, quality control and proper delivery to the aircraft.

- 2.2.2. Personnel and personnel training.

Staff should be fully trained in company procedures, specific operator procedures and emergency procedures and their jobs clearly defined.

### **2.2.3. Receiving bulk fuel supplies.**

This section covers the actual delivery of fuel to the installation; however, it may be necessary to investigate further the method of delivery, especially if this is to a dock from a tanker or from an oil terminal via pipe lines.

### **2.2.4. Storage of fuels in bulk.**

All facilities which are used for handling aviation fuel must be fully segregated from other products. Different grades of aviation fuels must also be segregated. Ideally installations should have separate delivery and suction lines.

### **2.2.5. Aircraft fuelling vehicles.**

The requirements of this section apply to all types of aircraft fuelling vehicles which include those used for delivery from hydrants and bowsers used in hangers and small aircraft ramps and helipads.

### **2.2.6. Hydrant systems.**

There are currently no hydrant systems in Barbados.

### **2.2.7. De-fuelling procedures.**

When an aircraft is to be defuelled, whether in total or in part, instructions on the disposal of the fuel should be obtained from the aircraft operator. Fuel must not be returned to aircraft tanks unless satisfactory quality checks are obtained.

### **2.2.8. Sampling procedures.**

During the handling and storage of aviation, fuels sampling checks will be required to ensure that fuel intended for use is in a fit state for that purpose.

### **2.2.9. Barrelled supplies.**

Fuel kept in barrels must be correctly marked and stored and the method of dispensing this into the aircraft tanks must be controlled.

### **2.2.10. Emergency procedures.**

All staff must be aware of the airport and company emergency procedures and regular exercises should be carried out to test these procedures.

### **2.2.11. Aircraft fuelling**

The aircraft operator has certain responsibilities in respect of the safety measures to be taken during fuelling operations. Guidance on these safety

measures is given in the Operators' procedures.

### **3. Operators Responsibilities.**

**3.1.** The Operator is required to:

**3.1.1.** Keep a record of the fuelling arrangements at each station where fuel is uplifted, indicating the company or person responsible for monitoring the fuel supplier. This may be a nominated airline at each location, or the operator may, himself, choose to monitor the suppliers quality performance.

**3.1.2.** Institute a fuel uplift sampling programme, taking into account such matters as:

- Known supplier quality performance, including any history of contamination.
- Local environmental conditions, e.g. likely sources of contamination including microbiological contamination.
- Supply facilities.
- Frequency of use.
- Provide flight crew guidance on the accomplishment of fuel uplift sample checks and clear instructions as to when these are to be carried out.
- Provide maintenance personnel with guidance, in respect of fuel quality sampling, in relation to their station. Ensure that persons engaged in refueling activities are properly trained for their tasks.
- Audit the arrangements as defined, to ensure the continuing acceptability of fuel quality throughout the operation.

**3.1.3.** The minimum frequency of fuel contamination checking, at the point of uplift, must be declared in guidance material to maintenance personnel and must be acceptable to the BCAD.

### **4. Operators Private Fuel Bowser.**

Some Operators may wish to obtain and use a fuel bowser in order to acquire fuel from the airport fuel installation and then retain it at their facilities for their own use.

All such operations must be submitted to the BCAD for approval prior to commencement of operations. Approval will be dependant on the following:

- The bowser must be specifically designed for the purpose and must meet a recognized national standard.
- All fuelling equipment should be constructed of either aluminium alloy, stainless steel or mild steel protected internally with an epoxy lining.
- Grade identification labels should be carried in prominent positions on the bowser. Fuel inlets and outlets including, hoses and nozzles should be marked accordingly.
- Tank compartments, whether lined or unlined, should be kept clean and precautions taken to prevent the entry of contaminants. All open ended hoses,

pipes and sampling points should be fitted with dust caps, plugs or other suitable protection which should be properly replaced after use.

- Tank compartments must drain to a low point sump fitted with a drain line valve. Drain lines should have a constant downward slope with a drain plug fitted at the lowest point overall which will permit complete draining of the tank.
- Tank compartments should be drained and inspected internally within a twelve month inspection cycle.
- All fuelling vehicles containing AVGAS should be fitted with a 5 micron filter. Vehicles containing Jet-A1 should be fitted with a filter separator or monitor with a 5 micron rating.
- 150micron (100 mesh) rating hose end filters should be fitted which should be inspected at least monthly and if necessary, cleaned, repaired or replaced.
- All fuelling equipment should be purged of water and sediment.

a) Before the first aircraft refueling each day.

b) After each filling of the bowser and after defuelling.

c) After vehicle washing or prolonged heavy rain.

- After the bowser has been filled, samples should not be taken until 10 minutes settling time has been allowed. No deliveries either from or into the vehicle should be made until satisfactory samples are made.
- All hoses shall comply with a recognized national standard and should be tested to that standard annually
- Records should be kept of all fuel deliveries both into and from the bowser together with the results of all sampling and purging checks.
- Results of tank inspections should be recorded along with a record of all rectification and maintenance work.