



# Operational Safety Instruction

## Fuelling of Aircraft

It is the responsibility of all employers to ensure that relevant OSIs are brought to the attention of their staff. However, individuals remain responsible for their own actions and those who are in any doubt should consult their Supervisor or Manager.

### 1. Introduction

- 1.1** The purpose of this OSI is to inform the airport community of into plane fuelling procedures at Heathrow Airport.
- 1.2** This OSI should be read in-conjunction with guidance contained within, JIG 1 (standard aviation fuel quality control & operating standards for into-plane fuelling services) and JIG 2 (aviation fuel quality control & operating standards for airport depots and hydrants), 'DSEAR' Dangerous Substances and Explosive Atmosphere Regulations 2002 and shall be aware of and have regard to Operational Safety Instruction (OSI) 'ASEnv\_OSI\_059 Spillage & Incident Reporting Procedures' which covers environmental impacts of fuel spillages. Heathrow (HAL) is required to enforce safety precautions during aircraft refuelling operations and the fuelling organisation each have responsibilities in respect to the safety measures to be taken during fuelling operations.
- 1.3** HAL should verify, either by itself or through arrangements with third parties, that organisations involved in storing and dispensing of fuel to aircraft, implement procedures to:
- 1.3.1** Maintain the installations and equipment for storing and dispensing the fuel in such condition so as not to render unfit for use in aircraft.
  - 1.3.2** Mark such installations and equipment in a manner appropriate to the grade of the fuel.
  - 1.3.3** Take fuel samples at appropriate stages during the storing and dispensing of fuel to aircraft and maintain records of such samples.
  - 1.3.4** Use adequately qualified and trained staff in storing, dispensing, and otherwise handling fuel on the aerodrome.



**1.3.5** Red bars have been added to the left-hand side of this document to draw the reader's attention where changes or clarifications have been incorporated.

**1.4** ASGrOps\_OSI\_019 v 1.0 is hereby cancelled.

## 2. Definitions

Abbreviation	Description
APOC	Airport Operations Centre
CAP	Civil Aviation Publication
FSB	Fuel emergency Stop Button
HAL	Heathrow Airport Limited
HHOpCo	Heathrow Hydrant Operating Company
JIG	Joint Inspection Group

For the purpose of this Instruction, the use of the terms;

- i. 'Fuelling' embraces both fuelling and de-fuelling, as well as the associated maintenance activities undertaken by the Heathrow Hydrant Operating Company (HHOpCo).
- ii. 'Fuelling operative' is the person trained and designated to undertake fuelling activities on behalf of the into-plane agent.
- iii. 'Fuelling Overseer' is the person to whom the fuelling is delegated and is responsible for liaison with the fuel company's fuelling operative(s).
- iv. 'Hydrant Dispenser' is the vehicle used to transfer fuel between the fuel hydrant point on the stand and the aircraft. These units are regarded as 'mobile fuelling equipment'. Dispensers contain a relatively small amount of fuel within the dispensing system and do not present a significant risk in the event of a fuel fire.
- v. 'Hydrant Access Point', is the underground refuelling valve that is accessed by the fuelling operative and HHOpCo. It is also any other vent, valve, low point, chamber or similar in the hydrant system.
- vi. 'Hydrant maintenance' is the maintenance tests and checks performed by the HHOpCo to the hydrant access points. HHOpCo are also responsible for the maintenance and testing of the Head of Stand Fuel Emergency Stops.
- vii. 'Fuel Bowser/Fuel Tanker' is the vehicle or trailer used to transport bulk quantities of fuel between the fuel depot and the aircraft stand.



- viii. Industry best practice calls for the establishment of 'Fuelling Safety Zones'. This is made up of areas with a radius of at least 3 metres from filling and venting points on the aircraft, hydrant pits and the fuelling vehicle, including its hoses and bonding cables in use (JIG 12). This is also the case when HHOPCO require access to the hydrant access points.

### 3. Airport Fuelling

**3.1** The majority of aircraft stands at Heathrow are equipped with hydrant refuelling facilities.

**3.2** A Fuel emergency Stop Button (FSB) is located at the head of each stand (or the head of one or more stands for MARS stands) in the form of a break-glass unit. Activation of this break-glass will result in the fuel supply within the hydrant system being cut off from both the stand on which the break-glass was activated and a number of stands adjacent to it.

**3.2.1** Example of an FSB:



**3.3** In the event of a FSB not being in service, HHOpCo will place stickers on the FSB with contact details for the HHOpCo control room which should be contacted in the event of a fuel emergency or radio contact between the fuelling operator and a location with an operable fuel stop button. Other airport users may contact APOC who will contact HHOpCo to support this operation.

**3.4** The area in front of the FSB is to remain free of vehicles. The area is highlighted by hatched paint markings. Parking in this area is strictly prohibited.



**3.5** The use of the FSB is covered in section 8 below.

**3.6** Any faults should be reported to the Heathrow Engineering Help Centre on ext. 666555 or 0208 976 6555.

#### **4. Fuel Company Equipment**

**4.1** All fuelling vehicles (Hydrant Dispenser, Bowser/Tanker) are to be fitted with a 'Dead Man Control' that allows the fuelling operator to stop the flow of fuel quickly in an emergency.

**4.2** Fuelling companies are responsible for ensuring that fire extinguishers for the protection of the fuelling equipment are readily available, before the transfer of fuel begins. These extinguishers shall be maintained to the standards recommended by the manufacturers. Fuelling company personal shall be trained in their use.

#### **5. Refuelling of Aircraft with Passengers on Board and Embarkation / Disembarkation During Refuelling**

**5.1** It is the responsibility of the aircraft operator to determine whether fuelling of the aircraft should take place with passengers on board or boarding (embarking or disembarking) and the method by which this is carried out.

**5.2** Airlines that wish to fuel whilst passengers are boarding or remaining on board the aircraft shall establish procedures to meet the requirements set out in CAA 965-2012 Air Operations AMC GM (AMC1 CAT.OP.MPA.195).

**5.3** When passengers are boarding or disembarking via the apron, their route shall avoid any fuelling zone areas, and they shall be under the direct supervision of airline staff. This supervision shall include ensuring passengers do not use mobile phones or other electronic devices.

**5.4** At all times the 'No Smoking Policy' is to be strictly enforced.

**5.5** In the unlikely event that passenger-baggage reconciliation work is being undertaken on the ramp while fuelling is taking place, it shall be done outside the fuelling zones.

**5.6** Any airline wishing to carry out the above will need to submit their risk assessment and procedure to HAL Standards and Assurance to review and agree this procedure if new at Heathrow.



## 6. Supervision of Fuelling

- 6.1** Heathrow mandates that the appointed supervision of fuelling procedures fall upon aircraft operating companies in line with JIG 1 recommendations.
- 6.2** The technical aspects of the aircraft fuelling operation may be undertaken by other competent persons (e.g. fuelling company employee), appointed by the Airlines and instructed in the requirements of aircraft fuelling.

## 7. Fuelling Operation – Precautions

- 7.1** The aircraft operator shall ensure that all personnel working on, inside or in the immediate vicinity of the aircraft are made aware that fuelling is taking place.
- 7.2** De-fuelling shall not be carried out during any type of maintenance to aircraft landing gear/undercarriage on the apron, as de-fuelling itself is considered a non-routine activity.
- 7.3** Several airlines permit re-fuelling during certain maintenance activities to landing gear/undercarriage. The permission is dependent on several factors, including the required type of maintenance and aircraft model. Airlines must have detailed operating procedures in place for fuelling during tasks such as wheel changes or brake changes on main landing gear/undercarriage.
- 7.4** Where fuelling during maintenance is unavoidable, it shall be covered by a special agreement with the airline and its into plane refuelling company. Any special procedures agreed with the airline, into plane refuelling company must be submitted to Heathrow Airside Safety department with a risk assessment for approval.
- 7.5** When fuelling is taking place, all vehicles and equipment should be positioned to allow the unobstructed egress of person(s) using the designated exits, including the chute deployment areas, from the aircraft in an emergency if the aircraft is being fuelled when passengers are onboard.
- 7.6** The fuelling operative and the airline Turnaround Coordinator shall ensure that a clear path is maintained from the aircraft to allow for the quick removal of any fuelling bowser/tanker/hydrant vehicle.
- 7.7** Sufficient clearance must be maintained between the fuelling equipment and the aircraft wing so that the aircraft does not 'sink' onto the vehicle as fuel is transferred.
- 7.8** Fuelling equipment must be positioned so that there is no requirement for vehicles to reverse before departure.
- 7.9** Flags and other devices must be used to ensure couplings and hoses are clearly visible.





**7.10** A pit valve lanyard is to be connected and easily accessible.

**7.11** Pit lids must be laid flat during re-fuelling operations, the lid will initially open to 120 degrees and then be pushed downwards to the ground until it is flat or pulled upwards and be rotated against a second hinge before it is pushed towards the ground. Where some pit lids are not lay flat, they should all be tethered. Any pit lids not tethered should be reported to HHOpc on: 0208 745 8762.

**7.12** During fuelling operations, air and fuel vapours are displaced from the aircraft fuel tanks. Vehicles (other than fuelling vehicles or similar specifically designed vehicles) shall not be in the fuelling zones and vents while fuelling or hydrant maintenance is taking place. If this is not possible, the aircraft operating company shall undertake an appropriate risk assessment in conjunction with the fuelling company and vehicle operator.

**7.13** Ground Power Units (GPUs) may be operated provided that they are positioned more than 6 metres from aircraft filling and venting points, hydrant valves and other fuelling equipment when in use. When used, GPUs should be started and electrical connections made before fuelling begins. During fuelling the GPU should not be disconnected or the switches operated. In an emergency the engine of the GPU should be stopped immediately but the electrical circuits and switches left untouched.

**7.14** HHOpc are required to carry out regular maintenance to hydrant access points on all aircraft stands and other parts of the airfield. This includes providing emergency maintenance when there is a live aircraft on stand.

**7.15** Service providers shall exercise caution when approaching areas that HHOpc are working within. Service providers should avoid impeding the ability of HHOpc to access the hydrant access points.

**7.16** Mobile phones and other electronic mobile devices that can be a distraction or source of ignition shall not be used during fuelling operations or hydrant maintenance by anyone within 3m distance of the fuelling zone. Only ATEX approved devices can be used with permission from HAL Standards and Assurance Team.

**7.17** Operators should expect interruptions to refuelling operations and some ground handling activities whenever lightning is in the vicinity of the airfield. For further details refer to ASWeather\_OSI\_054 Adverse Weather.

## 8. Incident & Emergency Procedures

**8.1** It is the responsibility of the airline or its appointed agent to ensure that appropriate actions are carried out in the event of a fuel related incident

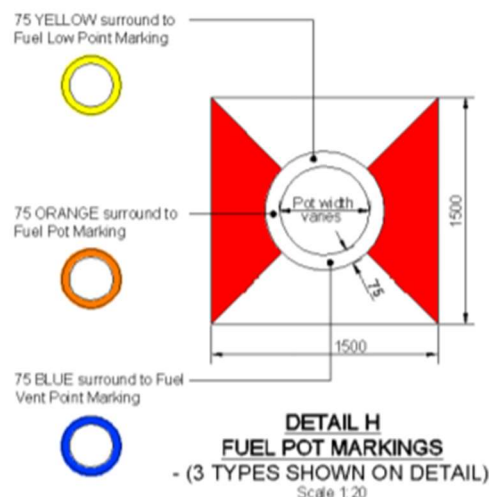
**8.2** Damage to fuelling equipment and the spillage of fuel, during the fuelling process, requires the attendance of the Airport Fire & Rescue Service (AFRS). The AFRS can be called by



using the stand telephone and dialling 222 or using an external telephone and dialling 0208 759 1212. The exact nature of the incident and the location should be stated clearly.

- 8.3** The emergency stop fuel button/break-glass must be used in the event of an aircraft fire, a major hydrant leak, or a vehicle fire near an aircraft, whilst fuelling is taking place. Operation of the button/break-glass must be followed by a 222 telephone call to request the attendance of the Airport Fire & Rescue Service.
- 8.4** If fuelling has been interrupted where the fuel stop button has been activated, the fuelling operative is to establish contact with the Heathrow Airside Operations, as well as any contact with their company operations control, to establish if fuelling can re-commence. Heathrow Airside Operations can be contacted on 020 8745 6024 or internally on 656024.
- 8.5** All staff involved in the aircraft turnaround shall be familiar with the location of the stand telephone, and the location and operation of the emergency stop fuel button. All staff must ensure there is clear access to these facilities at all times.
- 8.6** Fuel hydrant pits shall be indicated by a marking in red and white, subject to the agreement of the operator of the equipment in the pit, see below. Vehicles and equipment should not be parked directly over these.

**8.6.1** Example of a fuel hydrant pit:



## 9. Fuel Spillage

**9.1** In the event of a fuel spillage, action should be taken to stop the fuel flow, and the aircraft commander / crew must be informed.

**9.2** In the event of any fuel spillage, a call must be made on 222 (airport landline) or 0208 759 1212 (from a mobile phone).

**9.3** In the case of a spillage occurring which measures greater than 2 metres in diameter the aircraft operator or agent acting on their behalf shall:

- i. Consider evacuation of the area. It is generally safer upwind and upslope of any fuel spill.
- ii. Prevent the movement of persons or vehicles into the affected area and ensure that all activities in the vicinity are restricted to reduce the risk of ignition.
- iii. Ensure that engines of vehicles within 6m of a spillage are switched off or not started until the area is declared safe.

**9.4** If a large-scale spillage occurs, steps should be taken, provided there is no danger to staff involved, to isolate or contain the spillage. Companies must ensure that all in-house spillage procedures are fully understood by their employees.

**9.5** Companies must ensure that spillage clean-up, reporting procedures and incident records are available for audit purposes by Heathrow.

**9.6** HHOpc must be informed to carry out any primary investigation to see if the spillage has occurred from the hydrant system.

**9.7** This section should be read and actioned in conjunction with Operational Safety Instruction (OSI) 'ASEnv\_OSI\_059 – Spillage and Incident Reporting Procedures' which covers environmental impacts of fuel spillages.

## 10. Helicopters

Due to the design features on helicopters i.e. the proximity of fuel intakes and tanks to the passenger's compartments; passengers cannot be allowed to remain in the aircraft or in the fuelling zone during fuelling operations.

## 11. Audits

HAL may conduct incremental audits, which may include (but not be limited to) a yearly audit on into plane refuelling companies and HHOpc to audit against operating standards and the





management of risks associated with aviation fuel storage, hydrant and into-plane operations as stated within the Ground Operations Licence.

## 12. Enquiries

Any questions concerning this Instruction should be addressed to the Heathrow Ground Handling and Aviation Fuel Manager, [airside@heathrow.com](mailto:airside@heathrow.com)

## 13. References

[ASWeather OSI 054 Adverse Weather](#)

[ASEnv OSI 59 Spillages and Incident Reporting](#)

[JIG 1 Guidelines for Aviation Fuel Quality Control & Operation Procedures for Joint Into-Plane Fuelling Services](#)

[JIG 2 Guidelines for Aviation Fuel Quality Control & Operating Standards For Airport Depots & Hydrants](#)

[CAA 965-2012 Air Operations AMC GM](#)

