

Standard Into-Plane Fueling Procedures Extracts

Edition 4

Guidance Material



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Standard Into-Plane Fueling Service Levels and Safety

These definitions and precautions are extracts from the IATA Guidance Material on Standard Into-Plane Fuelling Procedures 4th Edition.

| Version # | Revision Date (DD-MMM-YYYY) | SLA/Task # | Description of change |
|-----------|-----------------------------|------------|-----------------------------------|
| 1.00 | 17-FEB-2020 | | Updated for use in IFTP solution. |

Levels of Service

There are FOUR (4) Levels of Into-Plane Fueling Service ranging from the least complex, as outlined in Level 1 requirements, to the most complex, as outlined in Level 4.

The Fueling Personnel will be considered to be an Authorised Refueler, qualified to operate aircraft switches to refuel aircraft, if they have successfully completed the training provided by an Approved Fueling Instructor. Training will include each aircraft fleet type assigned to the station, including diversion fleet types.

Details of the requirements are identified in the Fueling operative Levels 1 through 4.

Level 1: Minimum Level of Service

The Fueling Personnel of the contracted company is essentially tasked to provide up-to plane service which includes:

- Operating a fuel vehicle, making necessary nozzle connections to fuel hydrant pit and aircraft;
- Operating the deadman control.

An airline-authorized refueler will perform all other into-plane fueling procedures and is responsible for all fuel servicing requirements.

Level 1 service includes only the following base level procedures:

- (1) Have proven knowledge of fueling vehicle systems and operations.

- (2) Approach and position the fueling vehicle at the aircraft in accordance with local and driving regulations.
- (3) Set fueling vehicle brake and install wheel chocks, if brake interlocks are not installed.
- (4) Bond fueling vehicle to aircraft.
- (5) Open aircraft wing fueling panel and remove fueling adapter caps (if installed).
- (6) Connect fueling hoses to aircraft.
- (7) Hydrant system – connect hydrant coupler to hydrant pit valve.
- (8) Provide fuel volume and density of fuel loaded, when requested.
- (9) Perform clear and bright fuel appearance checks at the aircraft in accordance with operating procedures, and perform chemical water detection test when required.
- (10) Engage and operate the deadman control under the direction and supervision of the Airline Authorised Refueler.
- (11) Monitor vehicle fueling pressures to ensure maximum limits are not exceeded.
- (12) At completion of fueling, disconnect fueling nozzle from aircraft, replace fueling adapter caps (if installed) and close fuel panel access door.
- (13) Hydrant system – close hydrant pit valve and disconnect hydrant coupler.
- (14) Disconnect bonding cable connection

- (15) Provide fuel delivery receipt to representative for signature prior to aircraft departure.
- (16) Provide assistance when defueling of aircraft is required.
- (17) The Fueling Personnel has final responsibility to verify that all hoses and static grounding/ bonding attachments have been disconnected from aircraft (including hydrant pit, where applicable) and are properly stowed prior to moving fueling vehicle.
- (18) Perform walk around inspection.

Level 2: Routine Fueling – Total Fuel Required

Level 2 service includes all the items listed in level 1 plus all the items listed in the following procedures below:

- (1) Obtain Total fuel figure from airline representative prior to fueling.
- (2) Perform gauge and system tests as appropriate for aircraft type.
- (3) Fuel aircraft to the Total fuel requirement using the aircraft Automatic fueling mode as determined by an airline representative.
- (4) Complete kilo/pounds or litre/gallons conversion, when required.
- (5) Set wing panel switches and gauges and control the amount of fuel being added to the aircraft using aircraft Automatic loading settings.
- (6) Communicate with opposite wing Fueling Operative when two fueling vehicles are used to fuel the aircraft.
- (7) Communicate with cockpit via headphone, if required.
- (8) Monitor wing panel gauges, vehicle pressure gauges and fuel tank vents for spills during fueling.
- (9) Deliver completed fuel service form (where supplied) to operations or cockpit crew.

Level 3: Routine Fueling – Distribution Required & Discrepancy Checking

Level 3 service includes all the items listed in levels 1 & 2 plus all the items listed in the following procedures below:

- (1) Obtain Aircraft ReFUEL SHEET from airline or fueling company representative prior to fueling.
- (2) Read refuel panel gauges before and after fueling and enter readings on to Aircraft ReFUEL SHEET.
- (3) Fuel aircraft per fuel uplift calculations as determined and entered on the Aircraft ReFUEL SHEET.
- (4) Set refuel panel switches and gauges and control the amount of fuel being added to the aircraft using aircraft manual or automatic loading settings.
- (5) When fueling various fleet types, be qualified to interpret Fuel Manual distribution charts and follow fuel distribution procedure in accordance with the specific fleet type.
- (6) Calculate Fuel weight in kilos/ pounds (from density) at aircraft on designated flights using hydrometer.
- (7) Calculate fueling discrepancy and compare with maximum allowable. If it is outside limits, contact a Level 4 / Airline Authorised Refueler to check fuel levels as required.



Level 4: Non - Routine Fueling

At this level of service, the Fueling Personnel of the Contracted Fuel Supplier provides full into-plane fueling capability that includes all routine and alternate fueling requirements for aircraft scheduled for that station.

Level 4 service includes all the items listed in levels 1, 2 & 3 plus all the items listed in the following procedures below:

- (1) Be qualified to interpret Fuel Manual drip stick tables and drip stick conversion charts.
- (2) Operate and read measuring stick measurements to determine tank quantity:
 - When requested by the Flight Crews.
 - When quantity added exceeds tolerance (discrepancy).
 - For tank with an inoperative gauge.
 - To verify pre-service differences.
- (3) Perform non-routine fueling procedure when any one cockpit gauge is inoperative, using measuring sticks and fuel vehicle meter or measuring sticks and operative aircraft gauges, to provide a known quantity in the tank with the inoperative gauge.
- (4) Enter cockpit when a refuel panel gauge is inoperative and direct fueling, via headphone, using operative cockpit gauge to determine tank quantity.
- (5) Perform tank to tank transfer or defuel aircraft using boost pumps, override pumps, and cross feeds when required. Loading limitations per Aircraft manuals must be followed.
- (6) Carry out overwing fueling of pressure fueled aircraft when required.

Safety

This procedure is only valid in conjunction with AIRCRAFT MAINTENANCE MANUAL; FUEL SYSTEM - SERVICING; ATA 12-11 or ATA 28-25 depending on aircraft model. Effectivity: ALL and Airline and Into-Plane Companies Manuals.

Safety precautions prior to commencing fueling

| Responsibility: F = Fueling Company A = Airline | | |
|--|----|--|
| 1 | F | Ensure the Fueling Vehicle and equipment conforms to the relevant, recognised standards and are subject to a regular maintenance programme. |
| 2 | F | Fuel vehicles and systems should be fitted with emergency shut-off mechanisms. |
| 3 | AF | Ensure a locally agreed Fueling Area and/or Fueling Zone is established with the airport authority. |
| 4 | AF | All personnel involved in the operation should be made aware that during the fueling operation; potentially flammable vapour is expelled via the aircraft vent points. Electrical equipment and vehicles with hot parts must not be positioned close to the fuel vent points. Refer to Aircraft Maintenance Manual for vent points clearances. |
| 5 | AF | All personnel involved in the fueling of aircraft should be familiar with how to summon the Airport Fire Service. |
| 6 | AF | A fueling supervisor or fueling safety person may need to be appointed in some locations and all fueling vehicles should be under the control of a least one competent, trained person. |
| 7 | AF | Tank fuelers and hydrant dispensers should have a clear exit path at all times. |
| 8 | AF | Fueling shall be suspended when electrical storms are in close proximity. Guidance may be sought from the Airport Authority, Air Traffic Control or the Flight Deck Crew, as appropriate. |
| 9 | A | Ensure that there is no equipment below the aircraft, which could cause damage when the aircraft descends during refueling. |
| 10 | A | Ensure that the aircraft wheel chocks have been positioned in accordance with normal operating procedures. Make sure that their chocks do not touch the tires. The added fuel weight can cause the tires to compress and subsequently prevent the removal of the chocks. |
| 11 | F | Fueling vehicles should be positioned such that they do not obstruct access to the aircraft for rescue or fire fighting vehicles or obstruct the evacuation routes, including chute deployment areas. |
| 12 | F | When in position, the driver shall not leave the cabin until the parking brakes have been applied and locked in position. |
| 13 | AF | Suitable fire extinguishers should be provided and readily accessible. |
| 14 | A | Do NOT refuel the aircraft if a fire or engine overheat warning is displayed on the flight deck. |
| 15 | AF | Do NOT refuel the aircraft if any part of the landing gear appears unusually hot, e.g. hot brakes. The Fire Service should be called in this event. |
| 16 | AF | Make sure that the overboard vents are not blocked. If they are blocked, damage to the fuel tanks can occur. Refer to Aircraft Maintenance Manual for overboard vent locations. |
| 17 | A | Do NOT refuel the aircraft within 30m of radar or HF radio equipment that is under test or operating in aircraft or ground installations. |



IFTP Standard Fueling Procedures

| Responsibility: F = Fueling Company A = Airline | | |
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| 18 | A | Do NOT operate the aircraft main engines during the fueling operation, (except when following specific procedures). |
| 19 | F | Do NOT approach the aircraft until the aircraft anti-collision lights have been switched off and the aircraft is chocked. |
| 20 | A | Do NOT fill or change oxygen bottles during the fueling operation. |
| 21 | A | Do NOT use aircraft combustion heaters. |
| 22 | A | Only checking and limited maintenance work such as the exchange of units shall be allowed on radio, radar and electrical equipment during fueling. Installation or removal of aircraft batteries or associated equipment should not be allowed. Testing of such equipment should be deferred until fueling is completed. |
| 23 | A | Ensure procedures are in place if fueling with passengers on board, embarking or disembarking. |
| 24 | AF | Ensure procedures are in place stating action required in the event of a fuel spill. Suspend fueling immediately if a leakage is observed at the aircraft fuel vent points or refueling overfilling alert is displayed on panel. Contact ramp staff for further actions. |
| 25 | A | Do NOT start or stop the APU during the refuel/defuel task on aircraft with body-mounted APUs. APU Start attempts and Shutdowns are permitted on aircraft with tail-mounted APUs. |
| | A | The following procedures apply to all aircraft types: No Start attempt of the APU is allowed during the refuel/defuel task following an Automatic Shutdown or Failed Start. 'Normal' APU Shutdown must be carried out in the event of a fuel spill during a refuel/defuel task. |
| | F | If the APU exhaust discharges cross the upper surface of an aircraft wing, overwingfueling must not be carried out while the APU is running. |
| | F | If the APU exhaust discharges to the side or rear of the aircraft, fueling vehicles should be positioned to avoid any risk of coming in the path of the exhaust stream. Refer to Aircraft Maintenance Manual for clearances. |
| | A | In the event of a fire in an APU, the unit shall be stopped, the APU fire extinguishing system activated, and the flight crew and/or cabin crew and the Airport Fire Services shall be alerted. |
| | AF | In the event of a fuel spill, fueling shall be stopped and the airline representative or aircraft crew informed immediately. Unload and Shutdown the APU. The APU must NOT be restarted until the spillage is removed and there is no further risk from fuel or vapours. |
| 26 | A | Ground Power Unit's (GPU's) should not be positioned within 6 metres (or value specified in Aircraft Maintenance Manual) of fueling equipment and vent points. |
| 27 | A | Within the Fuel Safety Zone ensure that: Smoking and use of naked lights is prohibited. Radios, mobile, ipad and radio telephones, pagers, torches, lamps and lighting systems are intrinsically safe, or are of an approved type. Only authorised persons and vehicles are permitted. No all metal wheels or metal studded tyres are used. Photographic flash equipment shall not be used within 6 metres of fueling equipment and vent points. All personnel working in or around the aircraft must assume fueling is taking place while an aircraft is being prepared for service. Passengers should not be permitted. Vehicle engines should not be left running unnecessarily. |

CAUTION

Electrostatic charge may accumulate on the surface of the aircraft or fueling vehicle. The aircraft and the fueling vehicles must be electrically bonded together throughout the fueling operation to ensure that no difference in potential exist between the units.

Static grounding of the aircraft by positive grounding means is not necessary when performing:

- Pressure refueling or pressure defueling.
- When the airplane is parked or is being serviced during turnaround operation.

Static grounding of the aircraft by positive grounding means is recommended when performing:

- Overwing refueling or other fuel related activities.

Electrical bonding between the aircraft and fueling vehicle is required in all cases.

Electrostatic charge may also build up in the fuel during fueling and if the charge is of sufficient potential, can cause sparking within the aircraft tank. The use of a static dissipater additive in the fuel can contribute materially to reducing the risk involved. A reduction in flow rate may be necessary if a static dissipater is not in the fuel.

Strong winds can also cause a build-up of static electricity. Large charges of static electricity can develop on support equipment while parked.

On some aircraft, changing or removing the electrical power source or electrical power transients, during the fueling operation may close the aircraft fueling valves, which can result in damage to the fueling equipment.

FUELING WITH PASSENGERS ON BOARD, EMBARKING OR DISEMBARKING

Based upon regulations from ICAO Annexes 6 and 14, fueling operations (fueling and defueling), where passengers are on board, embarking or disembarking may be carried out provided:

It is permitted by local airport regulations and is requested by the airline;

The following provisions are instituted:

- A qualified person / supervisor (approved by the aircraft operator or airport authority) is present.
- The qualified person / supervisor is able to communicate in the local language and in English.
- The qualified person / supervisor is capable of executing the following procedures:
 - Activating airport emergency procedures (e.g. fire protection, fire-fighting etc.) in an expeditious manner should a hazardous situation develop.

- Coordinating communications with fueller, qualified person on board the aircraft and the gate staff

Two-way communication is established through the aircraft's intercommunication system or other suitable means, including, but not limited to:

- If the aircraft is equipped with an intercom panel, an alert has to be given to the qualified person on board and communication takes place with a qualified person / supervisor, via the headset. In cases where a headset is not available, a horn is to be used.
- For aircrafts lacking an intercom panel, a suitable position for the qualified person / supervisor is selected before fueling activity commences. This means a visible or audible direct person-to-person communication is established between the qualified person/supervisor and qualified person on board the aircraft.

FUEL SAFETY ZONE

The OEMs have agreed to the following harmonized Fuel Safety Zone

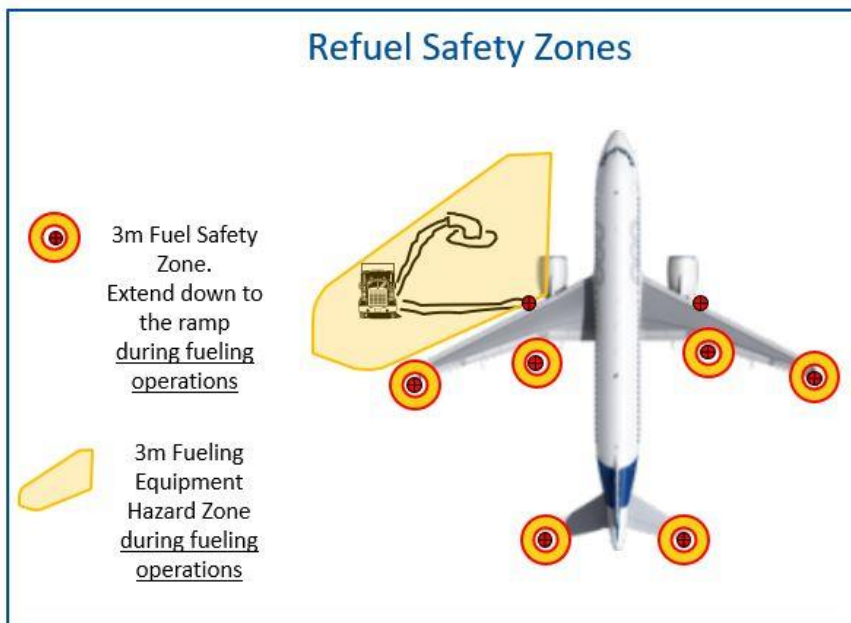
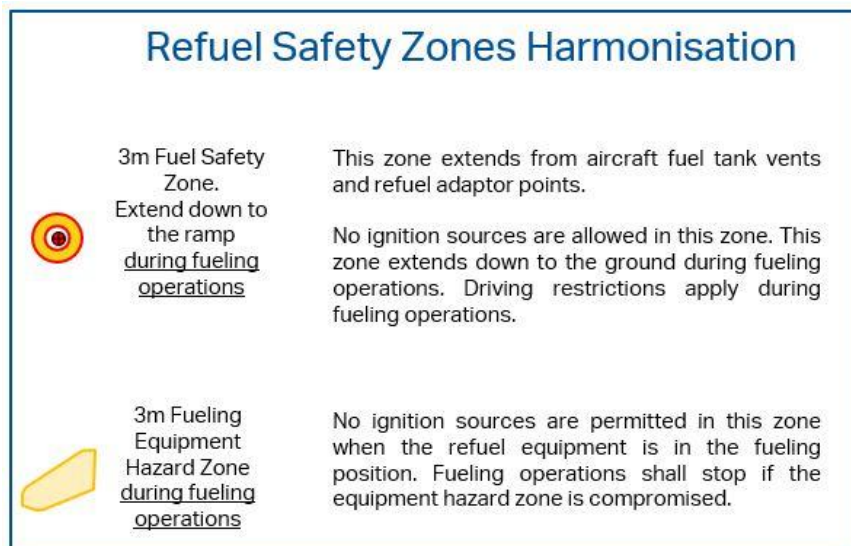
3m radius Fuel Safety Zone, during fueling operations:

- This zone extends from aircraft fuel tank vents and refuel adaptor points.
- No ignition sources are allowed in this zone.
- This zone extends down to the ground during fueling operations.

- Driving restrictions apply during fueling operations.

3m Refuel Equipment Hazard Zone during fueling operations:

- No ignition sources are permitted in this zone when the refuel equipment is in the fueling position.
- Fueling operations shall stop if the equipment hazard zone is compromised.





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