



Fuel Manual

Manual Number 310

Revision 5

12/08/23

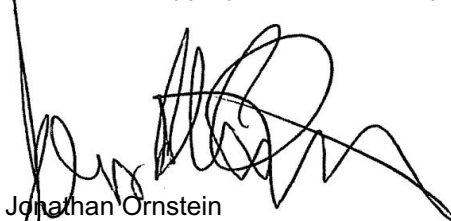
Mesa Airlines, Inc. Safety Policy Statement

The Accountable Executive of Mesa Airlines, Inc. recognizes that an effective Safety Management System (SMS) is vital to the success and longevity of the Company. Therefore the Accountable Executive is committed to implementing and maintaining a fully functional SMS and to the continuous improvement of the level of safety throughout Mesa Airlines, Inc.

- The Accountable Executive of Mesa Airlines, Inc. is committed to establishing and fulfilling specific safety-related objectives and will publish and distribute to all employees those objectives and plans annually.
- These safety objectives will be monitored, measured, and tracked to ensure overall corporate safety objectives are met. All employees and individuals in the Company have the responsibility to perform their duties and activities in the safest practical manner.
- The Mesa Airlines, Inc. Accountable Executive is committed to providing the necessary financial, personnel, and other resources to implement and maintain a fully functional SMS.
- The Mesa Airlines, Inc. Accountable Executive is dedicated to establishing a confidential employee reporting system to report all hazards, accidents, incidents, and safety issues without fear of reprisal.
- Activities involving intentional disregard for FAA regulations, Company policies and procedures, illegal activities, and/or drugs or alcohol may be subject to disciplinary action.
- As a component of the SMS, the Mesa Airlines, Inc. Accountable Executive is committed to establishing, maintaining, and annually exercising an emergency response procedure and plan that provides for the safe transition from normal to emergency operations.
- The Safety Policy in its entirety can be found within the Mesa Airlines, Inc. *Safety Management System Manual* (Manual #550).

The Accountable Executive will convey this expectation to all employees through postings, intranet site, Company newsletter, and any other means to ensure all employees are aware of the Company's SMS, their duties and responsibilities, and our safety policy.

This safety policy will be reviewed annually by the Accountable Executive to ensure it remains relevant and appropriate to the Company.



Jonathan Ornstein
Accountable Executive
CEO, Mesa Airlines, Inc.

Summary of Changes

Changes included with this revision are listed in the table below:

Page	Description
COVER.2	Updated: Safety Policy Statement
1.4	Added: Content regarding fuel vendor employee responsibility
1.8	Changed: "Stations" to "Regulatory Compliance - MX"
1.9	Added: IATA Fuel Quality Pool (IFQP) sub-section regarding IFQP membership
1.10	Updated: Content
1.11	Added: Caution
1.11	Removed: "Additionally, a physical inspection of the elements within the preceding 12 months is required. This must be verified for all coalescer filters either by the date displayed on the filter vessel, or on the form used to document the physical inspection."
1.11	Changed: "or the Vice President of Maintenance and Engineering for approval" to "at Fuel@mesa-air.com"
1.12	Changed: "or the Vice President of Maintenance and Engineering for approval" to "at Fuel@mesa-air.com"
1.12	Changed: "or F" to "or E"
1.12	Changed: "or the Vice President of Maintenance and Engineering for approval" to "at Fuel@mesa-air.com"
2.6	Changed: "737-400" to "737-400/800"
2.11	Changed: "737-400" to "737-400/800"
2.13	Changed: "737-400" to "737-400/800"
2.16	Updated: Content
2.16	Added: "The flight attendants are responsible for ensuring all exits and routes to exits are unobstructed. The captain will verify that the areas outside the exits are unobstructed."
2.16	Added: Content
2.17	Added: NOTE
2.17	Added: "Communication between the fueler and the flight crew has been established and must be maintained."
2.18	Added: "Communication between the fueler and the flight crew has been established and must be maintained."
7.6	Changed: "737-400 (Full)" to "737-400/800 (Full)"



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Chapter 1: Fuel Program Responsibility

1.1 Authority and Manual Scope

14 CFR: 121.105 121.135 121.137

- A. This manual contains the comprehensive policies and procedures for fuel servicing of Mesa Airlines, Inc. operated aircraft. The manual was developed in accordance with the respective fleet-specific Aircraft Maintenance Manual (AMM) procedures, 14 CFR 121.105, 121.135, 121.137, and relevant Federal Aviation Administration (FAA) Advisory Circulars (AC) and publications. The content of this manual is designed to ensure Mesa Airlines, Inc. maintains a safe and reliable operation and to prevent any hazards to the safety of flight that can be introduced during aircraft fueling operations.
- B. The Vice President of Maintenance and Engineering maintains ultimately authority and responsibility over the fuel program and this manual. The Senior Manager of Regulatory Compliance, or designee, holds the delegated authority over the program to include revising the content of this manual, modifying or establishing fueling policies and procedures, and the daily administration over vendor compliance and safety reporting relating to fueling operations.
- C. The policies and procedures contained herein are intended to:
1. Provide guidance and reference materials for all personnel who perform fuel servicing of any Mesa Airlines, Inc. aircraft to ensure the fuel delivered is and remains usable and free of contamination.
 2. Set the policies employees and vendors must follow to properly protect personnel and passengers from fire and fire hazards, such as static electricity, during fuel servicing.
 3. Set forth the standard procedures and guidelines that must be adhered to by all personnel involved in the storage of fuel, airport fuel transportation and into-plane dispensing of fuel for Mesa Airlines, Inc. aircraft.
 4. Describe the initial and recurrent training program that all Designated Trainers (DT) and frontline fueling agents must take prior to being permitted or assigned to fuel Mesa Airlines, Inc. aircraft unsupervised.
 5. Provide a method of reporting instances of noncompliance or safety hazards that could affect the safe operation of Mesa Airlines, Inc. flights to company leadership for response, investigation and proper vendor follow-up.

NOTE

In accordance with the Mesa Airlines, Inc. *Safety Management System Manual* (#550), all safety or security concerns involving fueling operations must be reported to the Senior Manager of Regulatory Compliance, or designee, and the Vice President of Safety and Security at Fuel@mesa-air.com or mesasafety@mesa-air.com.



1.2 Manual Standards and Policy

MISC: ATA 103

- A. The Senior Manager of Regulatory Compliance, or designee, will ensure that all fueling of Mesa Airlines, Inc. aircraft meet the requirements as outlined in this manual. A copy of the most current revision of this manual will be available in electronic format to all vendors who are involved in the fueling process for Mesa Airlines, Inc. aircraft via the Mesa Airlines, Inc. Technical Publications website: <https://employeeportal.mesa-air.com/TechPubs/>.
- B. On an annual basis, the Senior Manager of Regulatory Compliance, or designee, will review this manual in its entirety for the content's currency, effectiveness and to ensure the manual remains in accordance with the Code of Federal Regulations (CFR) and industry standards.
- C. When an external standard or publication is revised, the Senior Manager of Regulatory Compliance, or designee, will review the changes to the source document for potential interface with this manual and initiate program changes required to maintain conformance with the source document. This includes revisions to the ATA 103 standard, revised CFRs and publications of relevant Advisory Circulars or changes to the International Air Transport Association (IATA) standards. In all instances, the policies and procedures for changing this program will be in accordance with the Mesa Airlines, Inc. *Safety Management System Manual* (#550) and the *Technical Publications Procedures Manual* (Manual #430).
- D. When a revision to this manual is approved for distribution, the Senior Manager of Regulatory Compliance, or designee, will notify all fuel vendors of the revision.

1.2.1 Interfaces

- A. Each Mesa Airlines, Inc. fuel vendor must maintain current Mesa Airlines, Inc. manuals as well as manuals pertaining to the local vendor procedures, where applicable. Manuals must be available to employees and Business Partners during all hours of operation. These manuals may be maintained in paper or electronic form.
- B. All required manuals can be accessed online at Mesa Tech Pubs (<http://mesanet.mesaair.com/TechPubs/>) or by following the references in Table 1-1 "Fuel Standards and Source Documents".
- C. All manuals referenced herein are understood to be those published and controlled by Mesa Airlines, Inc. unless otherwise noted.
- D. Where Mesa Airlines, Inc. contracts for fueling operations, Mesa Airlines, Inc. will ensure a contract exists through agreements and/or appropriate third-party vendors that specifies details for compliance with the operating standards contained in this manual.
- E. Compliance with the standards of this manual is expected for all personnel employed by or working on behalf of Mesa Airlines, Inc.
- F. For detailed manual interface procedures, refer to the Technical Publications Procedures Manual.

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1.2.2 Controls

Controls are incorporated throughout the manual with processes and procedures to make sure:

- A. Adherence to procedures, design, and manuals, etc.
- B. Personnel meet the requirements (e.g., trained and qualified)
- C. Inputs for this program meet the requirements (e.g., equipment, services, and information)
- D. Outputs meet the requirements and standards, etc.
- E. Hand-offs and interfaces do not create problems

1.3 Fuel Standards and Source Documents

- A. This manual incorporates standards from the following sources. Each standard is reviewed by the Senior Manager of Regulatory Compliance, or designee, when a revision is published, and these documents are an accepted part of the Mesa Airlines, Inc. Fuel Program. [Refer to Table 1-1: "Fuel Standards and Source Documents"](#) for a complete list of incorporated industry documents.

Table 1-1: Fuel Standards and Source Documents

Publication	Controlling Organization
ATA Specification 103: Standards for Jet Fuel Quality Control at Airports	Airlines for America
ATA Specification 104: Guidelines for Aircraft Maintenance Training	Airlines for America
NFPA 70: National Electric Code	NFPA
NFPA 407: Standard for Aircraft Fuel Servicing	NFPA

- 1. ATA Specification documents may be found on the Mesa Airlines, Inc. Technical Publications website at <https://employeeportal.mesa-air.com/TechPubs/>.
- 2. Standards from the National Fire Protection Association (NFPA) are available on the NFPA website, <http://nfpa.org>, for free access.
- B. While these standards are incorporated into the Mesa Airlines, Inc. *Fuel Manual*, it is the fuel vendor's responsibility to ensure that local policies and requirements, company policies, procedures and industry standards are adhered to, in addition to those listed herein. For further information regarding fuel vendor responsibilities, [refer to "Fuel Vendor Responsibility"](#) in this chapter.
- C. It is acknowledged that Fuel Storage and Into-Plane vendors will base their operating procedures on industry standards, or their own company standards that are based on industry standards for aviation fuel storage, handling and dispensing.

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1.4 International Standards and Exceptions

MISC: ATA 103 CSA B836 JIG

The following standards are reviewed by the Senior Manager of Regulatory Compliance, or designee, to ensure the requirements are interfaced and noted within this program, where possible. Vendors adhering to a standard listed within this section in place of the ATA 103 will be audited to the respective requirements of that standard and the requirements of this manual.

1.4.1 Fuel Vendors for Stations in Canada

The Canadian Standards Association (CSA) B836 is accepted as an alternative standard to the ATA 103 and fuel vendors in Canada may use this standard, in conjunction with the stated requirements described within this manual.

1.4.2 Fuel Vendors for Stations in Mexico and Other Countries

The Joint Inspection Group (JIG) fuel standard is accepted as an alternative standard to the ATA 103 and fuel vendors outside of the United States may use this standard, in conjunction with the stated requirements described within this manual.

1.5 Fuel Vendor Responsibility

MISC: ATA 103 NFPA 407

Mesa Airlines, Inc. contracts fuel services from local vendors at each station it operates flights to. All vendors providing either one, or both, fuel storage and into-plane fuel services shall adhere to the contents of this manual and the following responsibilities:

- A. The general manager, or designee, at each local fuel vendor is responsible for ensuring their operation complies with the policies, procedures and precautions listed within this manual. Failure to adhere to these standards, failure to understand them or a failure to provide documentation supporting the performance of these procedures, when requested, can result in the cancellation of the vendor service agreement with Mesa Airlines, Inc., or its partners. Mesa Airlines, Inc. reserves the right to cancel these agreements at any time for a failure to adhere to the requirements of this manual.
- B. Any fuel vendor employee that is Mesa trained and qualified to perform the fuel servicing functions is designated as the person responsible during fueling operations. The fueler's employer will be the responsible organization.
- C. Fuel vendors will adhere to the contents of industry standards and publications as described within this chapter.
- D. Fuel vendor management will ensure all personnel adhere to the safety policies listed within [Chapter 2: "Safety and General Procedures"](#) in addition to the aircraft specific procedures located within this manual. These policies are implemented to ensure safe fueling operations at all locations where Mesa Airlines, Inc. operates.

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- E. Fuel vendor management agree to adhere to the specific requirements listed in [Chapter 6: "Fuel Vendor Required Quality Inspections"](#) and the exceptions permitted by this manual for stations not operating under the ATA 103 guidelines. These policies are intended to monitor the quality and reliability of fuel and fueling equipment onsite and ensure the fuel delivered to Mesa Airlines, Inc. aircraft meets industry standards.
- F. If any issues arise that would prevent the fuel vendor from fulfilling any provisions listed within this manual, fuel vendor management shall immediately advise the Senior Manager of Regulatory Compliance, or designee, and request a waiver. Information and procedures for requesting policy or procedural exception waivers can be found in the ["Local Exceptions \(Waiver Request\)"](#) section of this chapter.
- G. The into-plane fuel vendor will ensure at least one local fuel vendor employee is certified as a Designated Trainer for the station at all times. During periods of turnover or transition, the general manager, or designee, must request assistance from the Senior Manager of Regulatory Compliance, or designee, via Fuel@mesa-air.com to ensure a qualified individual is selected and provided training. For further information on fuel training, [refer to Chapter 7: "Personnel Duties and Training"](#).
- H. The vendor is responsible for maintaining a sufficient number of trained and qualified fueling personnel assigned to the fueling operation to fulfill local demand without compromising safety.
- I. Vendors will not permit any personnel not fully qualified and trained in accordance with this manual to be assigned to fuel Mesa Airlines, Inc. aircraft without supervision by a Designated Trainer.
- J. The vendor will ensure all personnel involved in the fueling operations are trained in all fueling policies and procedures, both listed specifically within this manual and those required for local operations, before being assigned to fuel aircraft unsupervised. Fueling personnel should be able to read, write, understand and speak English fluently in order to fuel Mesa Airlines, Inc. aircraft.
- K. All vendor personnel must be able to access and be knowledgeable on where to find this manual and other local policies and procedures. These documents must remain accessible to fueling personnel during all of the fuel vendor's hours of operations.
- L. All fuel vendors will maintain a current copy of the ATA 103, or equivalent standard in use, at the location and keep the document accessible to fueling personnel during all of the fuel vendor's hours of operations.
- M. Fuel vendors will ensure that all fueling equipment remains in an operational status, or is taken out of service and repaired, prior to being returned to service. All fueling equipment must conform to the requirements of the ATA 103, or equivalent standard, NFPA 407 and the provisions outlined within this manual.
- N. Fuel vendor management understand that the contents of this manual must be adhered to for all fueling of Mesa Airlines, Inc. aircraft and that any deviation from these procedures is not permitted without prior written authorization from the Senior Manager of Regulatory Compliance, or designee.

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- O. Fuel vendor management are required to notify Mesa Airlines, Inc. for all instances listed in the ["Required Vendor Notifications"](#) section of this chapter.
- P. Vendors will ensure that employees adhere to the policies and procedures within this manual, or provide the employee correction when necessary.
- Q. Vendors will provide sufficient safety equipment, including ladders, required for fueling procedures. Any damaged equipment must be taken out of service and repaired or replaced.
- R. All personnel must be provided personal protective equipment, such as eye and ear protection, in accordance with all applicable laws.
- S. Fuel vendors will provide aircraft with uncontaminated fuel in the quantities and Jet A fuel type, as specified by Mesa Airlines, Inc.
- T. All fuel storage operations including, but not limited to, purity inspections, receipt, calibration, tests, documentation and system checks will be conducted in accordance with ATA 103, unless otherwise authorized by this manual.
- U. The fueling vendor will ensure their fuel storage facility and all fuel vehicles, hydrant and delivery systems comply with all safety regulations including, but not limited to, the ATA 103 or equivalent standard, NFPA Standard 407, and this manual and must be maintained in proper, safe condition.
- V. Refueling equipment containing two separate types of fuel, for example, Jet A and Avgas, is not permitted to be used for fueling operations on Mesa Airlines, Inc. aircraft.

1.6 Local Exceptions (Waiver Request)

MISC: ATA 103

- A. All vendors are required to adhere to the provisions of this manual and the associated source documents listed in ["Fuel Standards and Source Documents"](#). The ATA 103 is the industry standard that Mesa Airlines, Inc. uses for guidance on jet fuel storage and handling. However, these procedures and guidelines may not always be possible due to local conditions. In these instances, a waiver must be requested to provide the vendor relief from the requirement so long as suitable controls are put in place of the waived requirement. For stations outside of the United States using a standard other than the ATA 103, [refer to "International Standards and Exceptions"](#) for information regarding exceptions already permitted by this manual.
- B. If it is determined by the local fuel vendor general manager, or designee, that a provision of the ATA 103, or this manual, cannot be adhered to, local management will discuss the specifics of the situation with the Senior Manager of Regulatory Compliance, or designee.
- C. Waiver requests shall include all information as described in the ATA 103 section for waiver requests. Specifically, the intent of the provision, the policy or procedure to be waived and any proposed controls that will be substituted for the waived provision(s).

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- D. All waivers requested will be tracked by the Senior Manager of Regulatory Compliance, or designee. Approved waivers will be analyzed during vendor audits to ensure they remain implemented and effective in their intent. The Senior Manager of Regulatory Compliance, or designee, will notify the vendor any time a waiver is no longer being accepted, and the justification and required follow-up action required.
- E. A copy of the approved waiver must be kept by the fuel vendor at all times it is active to be presented to any regulatory official or Mesa Airlines, Inc. personnel that request it.
- F. Previously approved fuel waivers will remain in effect until they expire and are reissued, or until the Senior Manager of Regulatory Compliance, or designee, notifies a vendor the waiver is no longer in effect. All approval waivers issued on or after April 1st, 2020, must have an expiration date listed.

1.7 Required Vendor Notifications

If any of the situations described within this section occur with the fuel vendor's operation, the vendor must provide written notification to the Senior Manager of Regulatory Compliance, or designee, at Fuel@mesa-air.com at the earliest practical opportunity, as described here.

- A. Prior to new, modified or used equipment being introduced for the storage, on-site transportation or refueling of Mesa Airlines, Inc. aircraft. The vendor must provide notification of the equipment type, the intended use in refueling Mesa Airlines, Inc. aircraft, and any special considerations.
- B. Any time a fuel supply used for Mesa Airlines, Inc. aircraft is suspected of contamination, or there is suspicion of use of off-specification product. In addition to written notification, the fuel vendor must immediately advise Mesa Airlines, Inc. System Operations Control (SOC) for any fuel contamination that could impact current Mesa Airlines, Inc. flights. This includes any Diesel Exhaust Fluid contamination.
 - 1. SOC can be reached 24-hours a day/365 days per year at: 888-634-6372
- C. For any situations which lead to the fueling system shut down or an inability to refuel Mesa Airlines, Inc. aircraft normally, immediate notification shall be made to both the Senior Manager of Regulatory Compliance, or designee, and SOC.
- D. In accordance with the Mesa Airlines, Inc. *Safety Management System Manual* (#550), all safety or security concerns involving fueling operations must be reported to the Senior Manager of Regulatory Compliance, or designee, and the Vice President of Safety and Security at Fuel@mesa-air.com or mesasafety@mesa-air.com.

1.8 Fuel Anti-Ice Additives

- A. Mesa Airlines, Inc. does not normally use fuel with Anti-Ice additives. However, some fuel vendors may supply Jet A fuel with Anti-Ice additive already mixed, which is permitted for Mesa Airlines, Inc. aircraft. At no time are Anti-Ice additives permitted to be added directly to Mesa Airlines, Inc. aircraft fuel tanks (in a manner that is not pre-mixed), without prior written authorization from the Senior Manager of Regulatory Compliance, or designee.
- B. On E-175 aircraft, the only approved additive is:
 - 1. Diethylene Glycol Monomethyl Ether in amounts and concentrations approved by the aircraft manufacturer.

1.9 Approved Fuel Vendor List

- A. The Senior Manager of Regulatory Compliance, or designee, will maintain an updated list of all approved fuel farm and into-plane fuel vendors in use at the stations it operates scheduled and charter service to.
- B. This list will be reviewed and updated monthly to ensure that all fuel vendors are included for new stations, charter stations and any fuel vendor or Designated Trainer updates.
- C. The listed will be maintained on the Mesa Airlines, Inc. P: Drive server, in the Regulatory Compliance - MX folder. A copy will also be made available to System Operations Control and Maintenance Control personnel.
- D. All fuel vendors included on the Approved Fuel Vendor listed will have an audit in accordance with Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*, prior to being added to the list.
- E. If a fuel vendor's audit exceeds the permitted time interval described within Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*, the vendor will be removed from the Approved Fuel Vendor List until the vendor is brought back into compliance with the delinquent requirements.
- F. When Mesa Airlines, Inc. stops or suspends service to the station, the fuel vendor will remain on the Approved Fuel Vendor List until their audit interval expires. Fuel vendors may be audited and kept on the list given operational needs or historical scheduling.

1.10 Fuel Program Oversight

The Senior Manager of Regulatory Compliance, or designee, maintains the delegated authority for the oversight and vendor compliance with the fuel program.

1.10.1 Regular Fuel Farm and Into-Plane Vendor Quality Assurance Audits

- A. All fuel farm and into-plane fuel vendors at stations that have regular service by Mesa Airlines, Inc. will have a vendor audit performed in accordance with the policies and procedures located within Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*.
- B. All vendors will have an audit, at a minimum, every 24 months, unless otherwise authorized in accordance with Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*.
- C. Both the Senior Manager of Regulatory Compliance, or designee, and the Vice President of Safety and Security monitor safety concerns, occurrence reports and all submissions of noncompliance with the policies and procedures related to the contents of this manual. Additional fuel vendor audits may be performed outside of their regular audit interval based on these inputs.
- D. The checklist for fuel audits is available on the Mesa Airlines, Inc. P: Drive server or by emailing a request to Fuel@mesa-air.com.

1.10.2 IATA Fuel Quality Pool (IFQP)

- A. Mesa Airlines, Inc. is an active member of the IATA Fuel Quality Pool (IFQP) and will maintain qualified inspectors responsible for conducting allocated IFQP fuel inspections, in accordance with IFQP's policies, processes and procedures.
- B. IFQP manuals, reference documents, inspection reports, and other relevant documents are stored and available in the IFQP database.
- C. Regular fuel vendor audits not covered by IFQP will be conducted in accordance with the "[Fuel Program Oversight](#)" section of this chapter and Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*.

1.10.3 Charter Fuel Operations

For all stations that are scheduled to have charter passenger flight service that do not have a regularly used and approved fuel vendor, the Senior Manager of Regulatory Compliance, or designee, will ensure that a remote or onsite audit is completed in accordance with the policies and procedures located within Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*.

1.10.3.1 Procedure

- A. The Operations Planning & Scheduling department will provide a schedule of all planned charter flight activity to the Senior Manager of Regulatory Compliance, or designee.
- B. The Senior Manager of Regulatory Compliance, or designee, will:
 - 1. Interface with the codeshare partner and Mesa Airlines, Inc. representatives to determine the fuel vendor.
 - 2. Determine the charter flight frequency, flight date(s), and determine whether a remote or onsite audit will be required, in accordance with Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*.
 - 3. Ensure the fuel vendor is provided access to the fueling policy and procedures of Mesa Airlines, Inc.
 - 4. Ensure the audit is satisfactory. Notify the Vice President of Maintenance and Engineering, or designee, if the audit is not satisfactory or if the selected fuel vendor is not permitted for use.
 - 5. Update the Charter section of the Approved Fuel Vendor List.

1.10.4 Other Airline Audits

- A. Mesa Airlines, Inc. accepts audits from other Part 121 air carriers, operating at least one of the same fleet types, or from a mainline codeshare partner, in accordance with Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*. Prior to acceptance of another airline's audit of a fuel vendor, the Senior Manager of Regulatory Compliance, or designee, will review the other airline's audit criteria to ensure it meets the minimum requirements of the Mesa Airlines, Inc. Fuel Program and aviation fuel industry standards.
- B. Mesa Airlines, Inc. accepts IFQP inspection reports conducted by qualified IFQP inspectors and in accordance with IFQP policies, processes, and procedures.
- C. Mesa Airlines, Inc. accepts audits of fuel vendors conducted under the Coordinating Agency for Supplier Evaluation (CASE) program for fuel.

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1.11 One-Time Approval of Fuel Vendors for Diversions and Irregular Operations

Vendors not included on the revised Approved Fuel Vendor List that are performing fueling operations for Mesa Airlines, Inc. aircraft during diversions or irregular operations must have a quality assessment accomplished by Mesa Airlines, Inc. in accordance with this section prior to fueling the aircraft.

1.11.1 One-Time Approval Procedures

- A. The flight crew, onboard mechanic (when applicable) or a local contract maintenance provider will accomplish the fuel quality assessment under the direction of Maintenance Control. Maintenance Control personnel must be contacted prior to the commencement of each one-time approval process, and may be reached through System Operations Control.
- B. All vendors approved using the following process will be supervised directly during fueling by the onboard mechanic or a member of the flight crew.
- C. Personnel performing the fuel quality assessment will request the following from the fuel vendor:
 1. Determine whether the fuel vendor uses filter monitors or filter coalescer elements in their fuel filtration systems.
 2. Inspect the filter of the refueling equipment (hydrant cart or tanker truck dispensing the fuel into the aircraft) to verify that the last date the filter elements were changed:
 - a. For Filter Monitors:
 - 1) Within the preceding 12 months.

CAUTION

Facet-brand filter monitors shall be discontinued from service by the date established by A4A. The list of other acceptable filter monitor elements is located in the latest revision of the ATA 103.

- b. For Filter Coalescer Elements:
 - 1) Within the preceding 36 months.

NOTE

For filter elements that are due to be changed the same month of the one-time fuel quality assessment (e.g., elements due to be changed in April, and the date of the diversion is April 15th), request a copy of the daily record of filter differential pressure readings for the preceding 30 days of service on the refueling equipment in question. If the differential pressure has been below 10 PSI for the preceding 30 days, the equipment may be used. If the conditions of this section are not met, contact the Senior Manager of Regulatory Compliance, or designee, at Fuel@mesa-air.com.

3. Request a copy of the daily check form used on the refueling equipment. Ensure the equipment has been checked on each proceeding day that the fuel vendor used the equipment, and that the checks for that day are being performed prior to the fueling the aircraft. If any of the following checks are not being recorded, contact the Senior Manager of Regulatory Compliance, or designee, at Fuel@mesa-air.com.
 - a. Review the check for “Static Reels, Cables and Clamps” section, or similar. This check is for the equipment used to electrostatically bond the fueling equipment to the aircraft. Verify this has been marked “S”, or Satisfactorily, each of the preceding days of use.
 - b. Review the “Filter Sump” section, or similar, and verify that the sumps have been consistently rated either a 1 or 2 and “A” or “B” over each of the proceeding 15 days of operation. These ratings will be recorded as the numerical rating followed by the letter, such as “1A”. Any ratings of 3 or higher or with the letters C, D, or E require approval from the Senior Manager of Regulatory Compliance, at Fuel@mesa-air.com.
 - c. Review the “Nozzle Pressure” section, or similar, and verify the pressure is being recorded in PSI each day and the readings have not exceeded 50 PSI.

NOTE

Using nozzle pressure above 50 PSI can damage the aircraft's fueling system components and is never permitted.

4. Request a filter sump for a fuel appearance test (e.g., Clean and Bright/White Bucket Test) from the refueling equipment prior to fueling the aircraft.
 - a. Verify that the sample is taken from the sump line and the fuel is free of water or particulates contaminating it. If after three sumps there is still free water or particulate contamination in the fuel, the refueling equipment must not be permitted to refuel any Mesa Airlines, Inc. aircraft and another piece of equipment must be approved using the procedures outlined in this section.
 - b. The color of the fuel should range from water white to slight amber color.

NOTE

The visual examination is preferably taken in a clean glass container with a diameter of no less than 3 inches (32 oz. Mason jar is suitable), or a white bucket.

- D. Ensure the individual performing the fuel servicing is currently qualified in another part 121 air carrier's fuel training of the same fleet type, and secure a copy of the training record. If no fuelers have been trained on the fleet type previously, Maintenance Control personnel will provide appropriate procedures from this manual and assist local personnel as needed.

- E. Records of the above steps will be emailed, or delivered by other means, and retained. The following records, at a minimum, must be forwarded to Fuel@mesa-air.com by Maintenance Control personnel for review by the Senior Manager of Regulatory Compliance, or designee, each time this procedure is utilized:
1. Daily Inspection Log (daily check form) for the proceeding 30 days for the refueling equipment.
 2. A record of the last date the filter elements were changed. A picture of the filter placard stating the date when the filter elements were changed last, and the date of the most recent physical inspection (if applicable), or a filter element change form are acceptable records.
 3. If the differential pressure reading in PSI, the daily sump results and the nozzle pressure reading are not recorded on the daily check form, records of these documents must be retained in addition to the daily inspection log.
 4. Training records, if applicable, of the fueling agent from another part 121 carrier of the same aircraft fleet type.
 5. Any additional documentation that is requested from the station to verify the fuel quality must also be forwarded with the document package to be retained.
 6. The documents will be retained on the Mesa Airlines, Inc. P: Drive server for a minimum of two years from the occurrence date. Access to these files may be requested from the Senior Manager of Regulatory Compliance, or designee.

END



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Chapter 2: Safety and General Procedures

2.1 Emergencies

- A. For all emergencies, it is imperative that the flight crew is informed by the most rapid means possible if the situation requires, or could require, the evacuation of the aircraft. All fuel agents must be familiar with how and when such emergency communication must take place and be able to communicate in conjunction with emergency response procedures. If other ground personnel are in danger, alert them too.
- B. The following forms of communication are examples, but do not make a complete list:
 - 1. Fuel panel interphone.
 - 2. Face-to-face communication.
 - 3. Hand signals (in the event of a fire).
 - 4. Relaying information through other ground personnel nearby.

2.1.1 Fire

If the hydrant cart, fuel truck or fuel ignites, do the following:

- A. **IMMEDIATELY STOP FUELING** (release the deadman control; activate the emergency shut-off system if necessary).
- B. Notify the flight crew and/or flight attendants as quickly as possible and direct an evacuation of the aircraft through all available safe exits. Assist passengers at the overwing emergency exits in getting safely to the ground, if able.
- C. Immediately notify, or direct another ramp employee to notify, the local fire department and emergency services. **DO NOT DELAY CALLING FOR ANY REASON WHEN FIRE IS PRESENT.**
- D. Use all means necessary to fight the fire with equipment available to stop the spread of the fire and prevent injury to persons and damage to equipment.

2.1.2 Fuel Spill

- A. Any time a fuel spill occurs, quick action must be taken to control the spill and any sources of fuel. Fuel leaks associated with fueling facilities or equipment must be corrected immediately. Local policies will dictate the exact procedures for cleaning up any fuel spills once any hazardous situation has been mitigated.
- B. Any time fuel has spilled into the aircraft or onto the aircraft skin or structure, it must be cleaned completely and all fuel removed. Special care must be taken to all flight surfaces to ensure all fuel has been cleaned from the aircraft skin.

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- C. Mesa Airlines, Inc. categorizes spills in three sizes:
1. Small: Spills less than 18 sq. in.
 2. Medium: Spills between 18 sq. in. and 6 sq. ft.
 3. Large: Spills greater than 6 sq. ft. in size or of a continuous nature.
- D. Immediately upon recognition of a fuel spill, do the following:
1. Stop all fueling and determine the source of the fuel spill. Ensure that no more fuel is spilling or take immediate action to correct this.
 2. Notify, or direct another ramp employee to notify, local emergency services immediately for all medium and large spills, or if the fuel flow cannot be stopped.
 3. Notify the flight crew as quickly as possible and direct an evacuation of the aircraft through any and all safe exits available, if necessary. Assist passengers at the overwing emergency exits at getting safely to the ground, if able.
 - a. Medium-sized fuel spills require a precautionary deplanement of the aircraft, and large spills require an expeditious evacuation of the aircraft, appropriate to the situation at that time.
 4. Do not leave the spill unattended for any reason. For medium and large spills, ensure ramp personnel are stationed to monitor the spill with available firefighting equipment as to be prepared to extinguish any flames in the event the fuel spill ignites.

2.2 Precautions and Warnings

2.2.1 Fire Hazards and Smoking

- A. Aircraft fuel is a combustible material which means it is highly flammable. Flammable vapors released during fueling are heavier than air. They may settle and travel considerable distances along the ground and collect in depressions where they may not readily dissipate. This is particularly true under calm wind conditions. If it is possible for spectators or passengers to come within 50 ft. of the fueling operations, “No Smoking” signs should be posted in obvious places throughout the area. Spectators and passengers should be warned against striking matches or cigarette lighters in the area.
- B. To prevent fire, the first precaution is avoiding any flame or spark that could cause aircraft fuel or other flammable materials to ignite.
- C. Smoking is prohibited within and around 50 ft. of fueling trucks or equipment, where fueling equipment is stored and within 50 ft. of the fuel farm or any fuel storage facilities.
- D. “No smoking” signs shall be posted in the cabs of all fuel servicing vehicles.

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2.2.2 Lightning and Hazardous Weather

MISC:: ATA 103 CSA B836

- A. All fuel servicing and ramp operations must be suspended when lightning is present within a close range of the airport. Local procedures are required to identify at what distance from the airport a lightning strike will determine ramp closure and require the suspension of all fuel servicing.
- B. During lightning or hazardous weather, local policies shall be followed and all personnel moved to a safe structure until cleared to resume normal operations, in accordance with the local policies.
- C. In Canada, the B836 standard requires that fueling operations be suspended when lightning is present within 5 miles (8 km) of the airport.

2.2.3 Jet Blast Hazard Areas

Always avoid walking, driving or positioning equipment in the direct path of potential jet blast or engine ingestion zones. Remain clear of the hazard areas until spool-down is complete. Do not approach until the individual blades in the engine inlet can be seen. [Refer to Figure 2-1: "CRJ Fleet Jet Blast Zone"](#), [Figure 2-2: "E-175 Jet Blast Area"](#) and [Figure 2-3: "B-737-400/800 Jet Blast Area"](#) for the jet blast zones of the respective aircraft type.

WARNING

Do NOT approach any aircraft with engines operating. Aircraft rotating beacons will be illuminated when engines are operating.

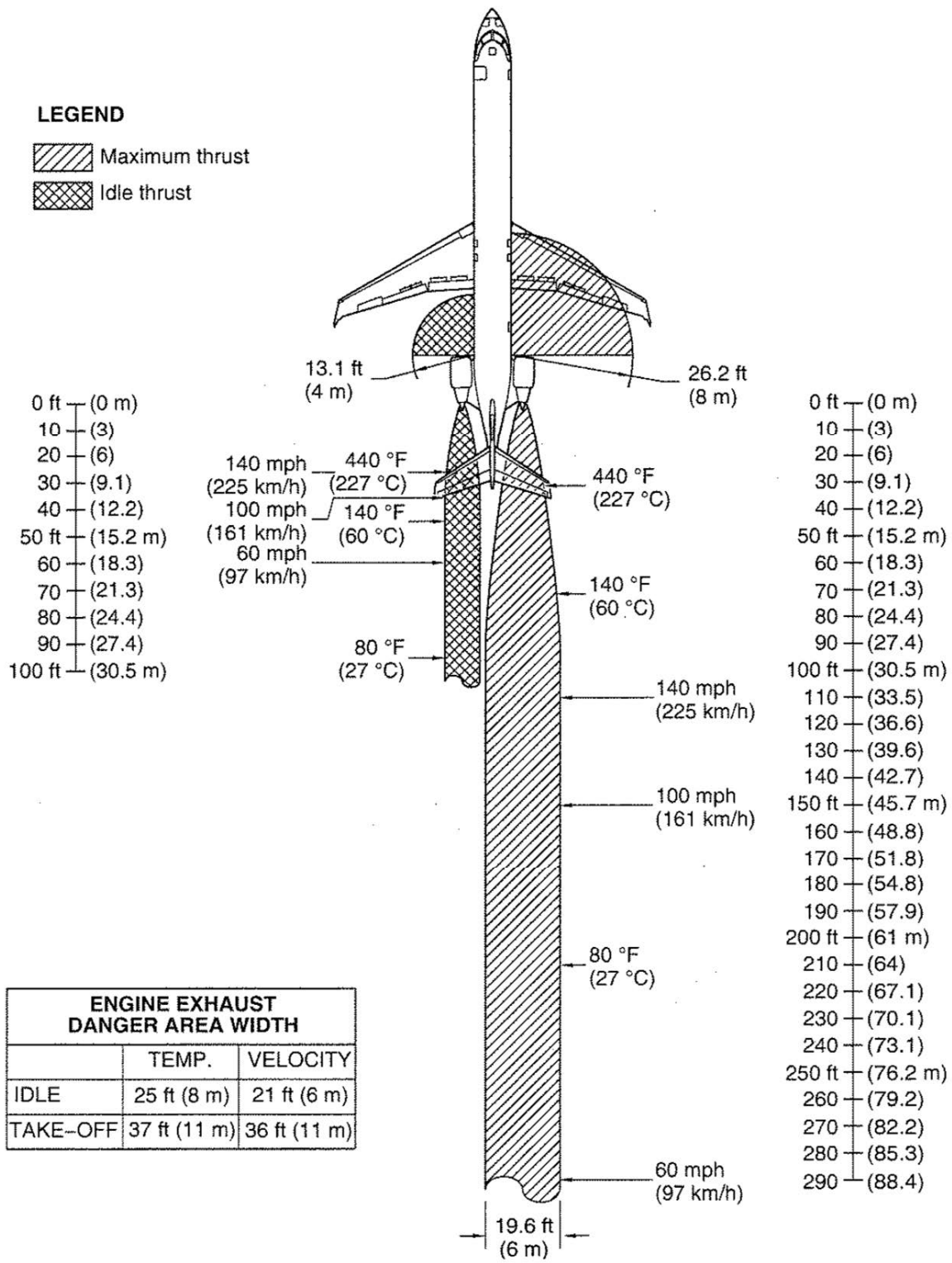


Figure 2-1: CRJ Fleet Jet Blast Zone

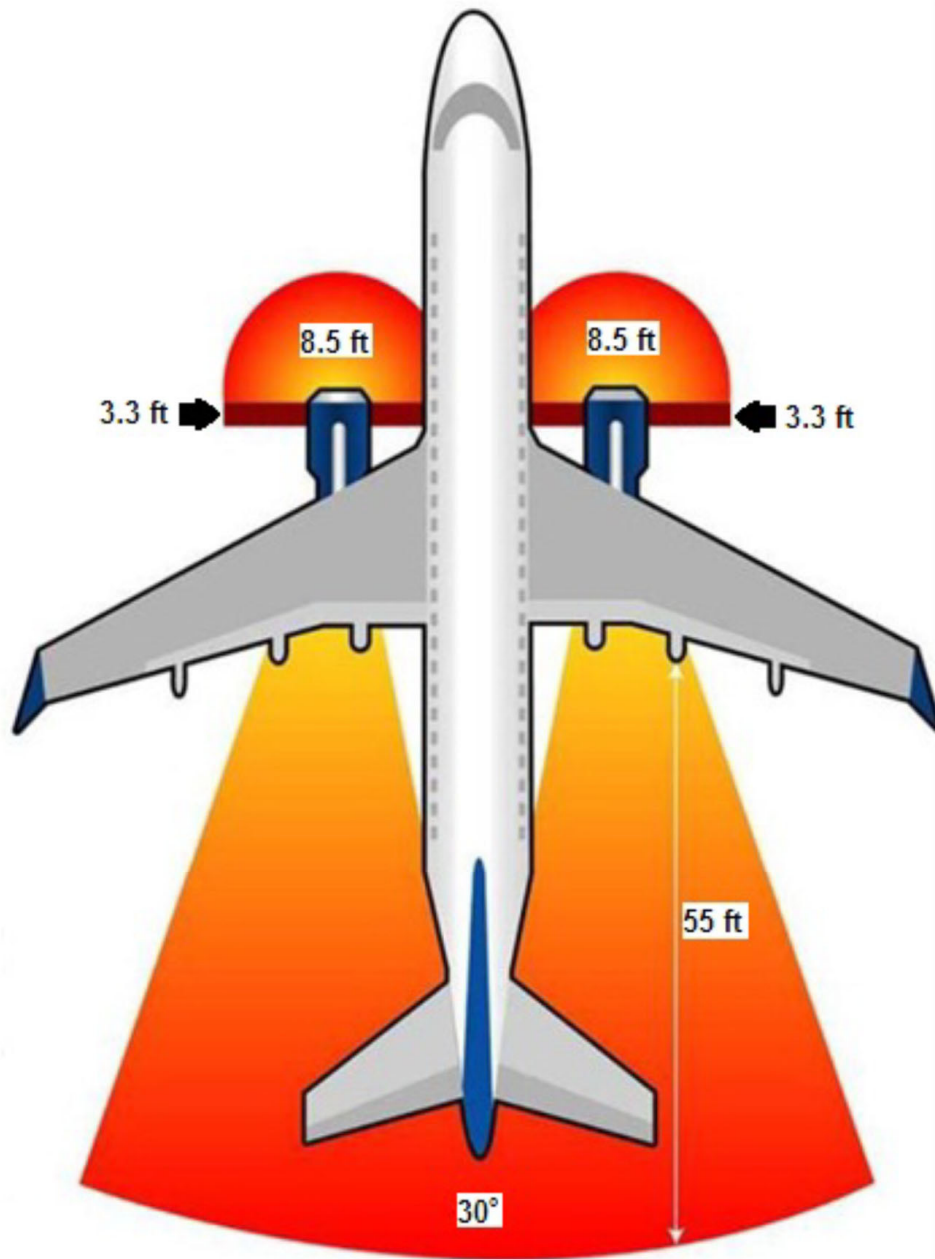


Figure 2-2: E-175 Jet Blast Area

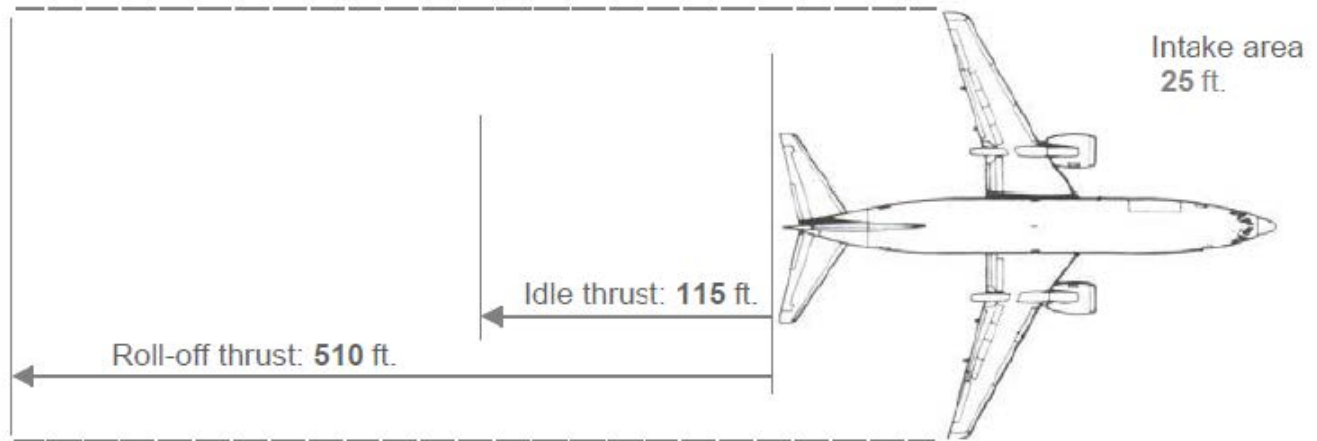


Figure 2-3: B-737-400/800 Jet Blast Area

2.2.4 Conditions Prohibited During Fuel Servicing

MISC: NFPA 407

- A. All smoking (cigarettes, cigars or pipes), inclusive of all electronic smoking devices (personal vaporizers or nicotine delivery systems).
- B. Maintenance work requiring an open flame or other ignition source.
- C. Maintenance work involving aircraft battery installation or removal.
- D. Use of equipment such as flare pots, open flame lights, welding torches, exposed flame heaters (including gasoline or kerosene heaters), drills or buffers within 50 ft. of the aircraft.
- E. The main and APU battery chargers will not be connected, operated or disconnected during fuel servicing.
- F. External power must not be connected or disconnected during fuel servicing.
- G. All flap, wing and external tank controls will not be operated during fueling.
- H. Aircraft radar must remain OFF.
- I. Fueling operations must never take place within 300 ft. of any energized ground-based radar systems, or within 100 ft. of any energized, stationary airborne radar equipment.

2.2.5 Hot Refueling

- A. For the CRJ and E-175 fleets, fueling while one or both engines are running, also referred to as “Hot Refueling”, is NEVER permitted. The aircraft engines must both be shut down prior to fueling Mesa Airlines, Inc. CRJ and E-175 aircraft.
- B. For the 737-400/800 aircraft, refueling with one engine operating is permitted when following the policies and procedures outlined in ["Fueling with One Engine Operating"](#).

2.3 Safety Guidelines

MISC: ATA 103 CSA B836 NFPA 407

A. All instances of noncompliance with the policies and procedures of this manual, or any safety concerns shall be reported to the Senior Manager of Regulatory Compliance, or designee, via email at Fuel@mesa-air.com.

B. Fire extinguisher requirements for the protection of fueling equipment and fuel servicing operations are below:

1. Aircraft Fuel Servicing Vehicle Minimum

a. Hydrant Carts: One (1) 20 lbs. (9 kg) BC Fire Extinguisher.

NOTE

Hydrant carts in Canada are required to have two (2) 20 lbs. BC rated extinguishers, in accordance with the B836 standard.

b. Tanker Trucks: Two (2) 20 lbs. (9 kg) BC Fire Extinguishers, mounted on opposite sides.

2. Minimum requirements for extinguishing equipment at airports and facilities is designed to be in accordance with local requirements and/or accepted industry standards or practices including the ATA 103 and NFPA publications.

C. The aircraft ramp area can be a very busy area with congested roadways, different pieces of ground servicing equipment, environmental hazards and various personnel working around the aircraft. All fuel agents must remain aware of their surroundings and notify appropriate personnel of any hazards or safety concerns, and take immediate action to correct the hazard, when able.

D. Stationary hydrant carts must be positioned in designated or permanently marked ramp locations at all times.

E. At stations where hydrant system fueling is performed, an indicating marker (such as a visible flag or safety cone) should be placed in close proximity to the hydrant fueling pit to indicate that the pit cover is open for fueling operations.

F. All hydrant vehicle/carts hose couplers shall be disconnected from hydrant pits after servicing fuel to aircraft. Leaving unattended hydrant couplers connected to a hydrant pit is prohibited.

G. Hydrant pit covers shall be kept closed when not in use.

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- H. Any time fueling equipment is discovered to be defective, or fuel is leaking from the aircraft or refueling equipment, stop refueling immediately and correct the problem. If fuel has spilt, follow the procedures for a fuel spill described in the ["Fuel Spill"](#) section of this chapter.
1. All issues with refueling equipment must be reported to local vendor management immediately and the equipment taken out of service until the source of the issue can be determined. If refueling equipment is inoperative, it must be tagged as "Out of Service", according to local procedures, and not permitted to be used in fueling operations until the issue has been resolved.
- I. All fueling agents shall be aware and familiar with local operating procedures and comfortable using the fueling equipment (including driving tanker trucks) prior being assigned unsupervised fueling. This includes familiarization with the use of all emergency switches, controls and the procedures to follow in the event of a hazardous or emergency situation.
- J. Fueling operations shall not be conducted inside enclosed hangers or buildings.
- K. All overwing fueling of Mesa Airlines, Inc. aircraft require the use of wing mats to prevent any scratching of the aircraft skin surface. Approved wing mats must be specifically designed as anti-scratch/damage pads, and are not permitted to be of a mesh or "bar mat" style.
- L. Do not walk underneath the aircraft unless required for servicing.
1. Never walk or cross underneath the aircraft fuselage.
 2. Avoid walking under the wing of the CRJ aircraft fleet unless specifically for electrostatically bonding or refueling the aircraft.
 3. For the E-175 and 737 aircraft fleets, walking underneath the wing of the aircraft from the outside edge of the engine cowling to the wingtip is permissible for fueling related tasks. [Refer to Figure 2-4: "E-175/737 Walk Under the Wing Zone"](#) for a visual representation of where walking is always permitted. If necessary for aircraft fuel servicing to go between the aircraft fuselage and the inner edge of the cowling, use caution to prevent damaging the aircraft and maintain awareness of your surroundings to prevent injury.

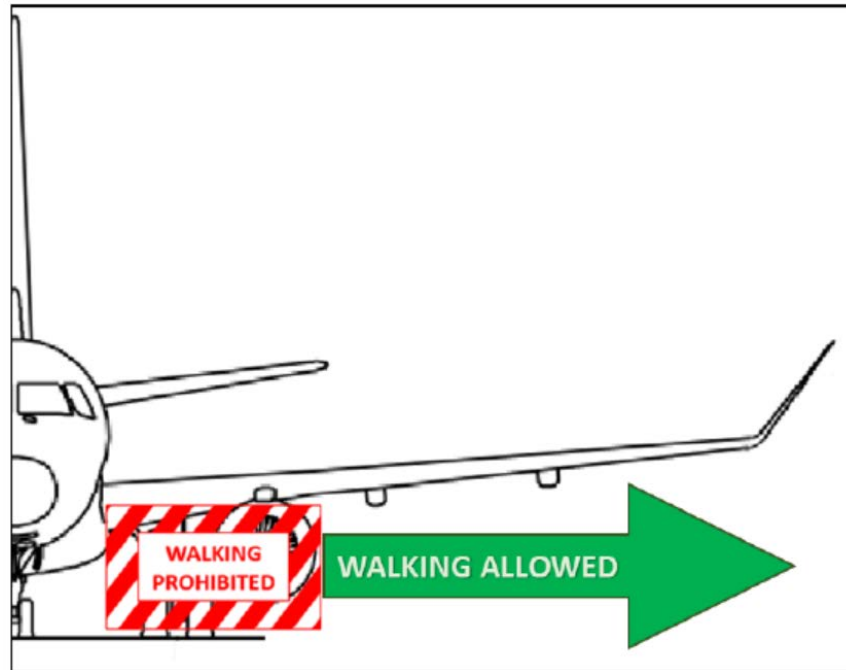


Figure 2-4: E-175/737 Walk Under the Wing Zone

- M. Ensure the following during all fueling procedures:
1. Never fuel an aircraft unless it has been chocked. Chocks prevent unintended aircraft movement which can occur as the aircraft weight changes during ground servicing and as passengers or cargo move on and off the aircraft.
 2. All fuel servicing must be done outdoors and at a safe distance from buildings or areas that contain potential sources of ignition.
 3. Ensure the aircraft is on level ground.
 4. Never permit a means of egress to be removed from the aircraft while fueling is in progress. If egress is removed, fueling must be stopped immediately.
 5. Never drag the fuel hose or fuel nozzle on the ground. Always carry the nozzle to prevent any foreign objects from entering the nozzle and potentially contaminating the fuel.
 6. Never leave the overwing nozzle unattended in the fuel filler opening.
 7. Never block or fix deadman controls open. Deadman controls must always be handheld during refueling operations and fuel flow activated only by the intended normal operation of the deadman switch.
 8. Ensure all aircraft fuel vents remain clear of ground servicing equipment during refueling operations. A 10 ft. radius shall be maintained at all times.

Fuel Manual

9. If a fuel spill occurs during normal operations, it may indicate a failure or malfunction of a component of the fuel system. Stop fueling immediately and investigate the leak further and take appropriate emergency action, if required.
10. If an interruption occurs to fueling operations and the fueling vehicle cannot be constantly attended, the aircraft fueling nozzle shall be disconnected and the fueling procedures started from the beginning when resuming fueling.

2.3.1 Personnel Guidelines During Fuel Servicing

MISC: NFPA 407

- A. Matches, lighters and electronic smoking devices will not be carried by any person engaged in fueling operations.
- B. At no time is smoking permitted during fuel servicing, including the use of cigarettes, cigars, pipes or any electronic smoking devices (personal vaporizers or nicotine delivery systems).
- C. Remove any loose objects that could potentially fall into fuel tanks.
- D. Never wear clothing made of wool or nylon or other synthetic fabrics. These can build up large amounts of static electricity which can produce a spark.
- E. Only wear non-sparking shoes, without any metal spikes or nails located within the base of the shoe.
- F. Fueling personnel are not permitted to use cellular phones when involved with the fueling operation. This includes all times while driving or operating fueling equipment.

2.4 Driving and Parking Near Mesa Airlines, Inc. Aircraft

- A. Caution must always be taken when maneuvering tanker trucks near aircraft to avoid injury to personnel, passengers and damage to equipment. Reckless driving of any sort will not be tolerated and must be reported to a direct supervisor immediately.
- B. Distractions are anything that draws attention away from the task at hand and increases the risk of injury, damage, and making errors. To avoid distractions:
 1. Stay alert and keep your eyes and mind on what you are doing and where you are going.
 2. Follow the proper procedures at all times.
 3. Don't distract others.
 4. Use the acronym, STOP – Stop, Think, Observe, Proceed, to remind yourself to focus on your actions ensure you are avoiding any distractions.
- C. Guide Person Policy
 1. A guide person must be used when backing fueling equipment up to or away from aircraft in tight spaces. This includes any time a fuel truck is backing out around an aircraft's wing or must navigate between two parked aircraft.

Fuel Manual

2. The guide person must remain in the line of sight of the fuel truck driver and provide directions to the driver to ensure the truck remains clear of the aircraft and any other obstacles when moving.

NOTE

For vehicles equipped with an operational back up video camera and cab monitor, the use of a guide person is not required. Any time the system is inoperative, a guide person must be used.

- D. Aircraft always have the total right-of-way.
- E. Drivers should accelerate slowly and stop slowly.
- F. Always come to a full stop when required.
- G. The use of a cellular phone or mobile device, either for business or personal use, is never permitted when driving or operating fueling equipment.

2.4.1 Approaching Mesa Airlines, Inc. Aircraft

- A. Ensure the area around the aircraft is clear and that both engines have been shut down. The flight crew will turn off the rotating beacon lights on the aircraft once this occurs.

NOTE

When Hot Refueling the 737-400/800 aircraft, follow the policies outlined in ["Fueling with One Engine Operating"](#).

- B. Before getting close to the aircraft, test the brakes and ensure they are operating. The truck must remain under control at all times.
- C. Ensure the aircraft is chocked and, if visible, that the aircraft marshaller has received confirmation of the aircraft parking brake being set.
- D. When approaching a parked aircraft with a fueling truck, do not exceed a speed at which a stop can be safely made with the hand (parking) brake.

CAUTION

When the vehicle is positioned at the aircraft, shift to NEUTRAL or PARK immediately, as required. Set the parking brake before leaving the driver's position.

2.4.2 Parking Fuel Trucks Near Mesa Airlines, Inc. Aircraft

- A. Never position a fuel truck in a way that permits exhaust from the truck to be under any part of the wing or engine nacelle.
- B. Equipment performing aircraft servicing functions shall not be positioned within a 3 m (10 ft.) radius of aircraft fuel system vent openings.
- C. Always ensure a clear path of egress is maintained from the aircraft and that the fuel truck does not obstruct the egress path.

Fuel Manual

- D. When possible, position the fueling vehicle so that it may be rapidly driven or towed away from the aircraft in the event of an emergency. Keep sufficient space between the fuel truck and any potential obstacle to firefighting equipment in the event of a fire or explosion.
- E. Equipment must never be parked in a manner which could result in damage to an aircraft or other equipment.
- F. For CRJ aircraft, never park tanker trucks within the Safety Diamond ([refer to "Parking Near CRJ Fleet Aircraft"](#)). For the E-175 and 737 aircraft fleets, never park tanker trucks in the no-drive zone ([refer to "Parking Near E-175/737 Aircraft"](#)).

2.4.2.1 Parking Near CRJ Fleet Aircraft

Equipment performing aircraft servicing functions shall remain outside the Safety Diamond ([refer to Figure 2-5: "CRJ Safety Diamond"](#)). The Safety Diamond is established by placing delineators (or safety cones, represented by orange circles in [Figure 2-5](#)) five feet from each wing tip, the tail and at the nose of the aircraft.

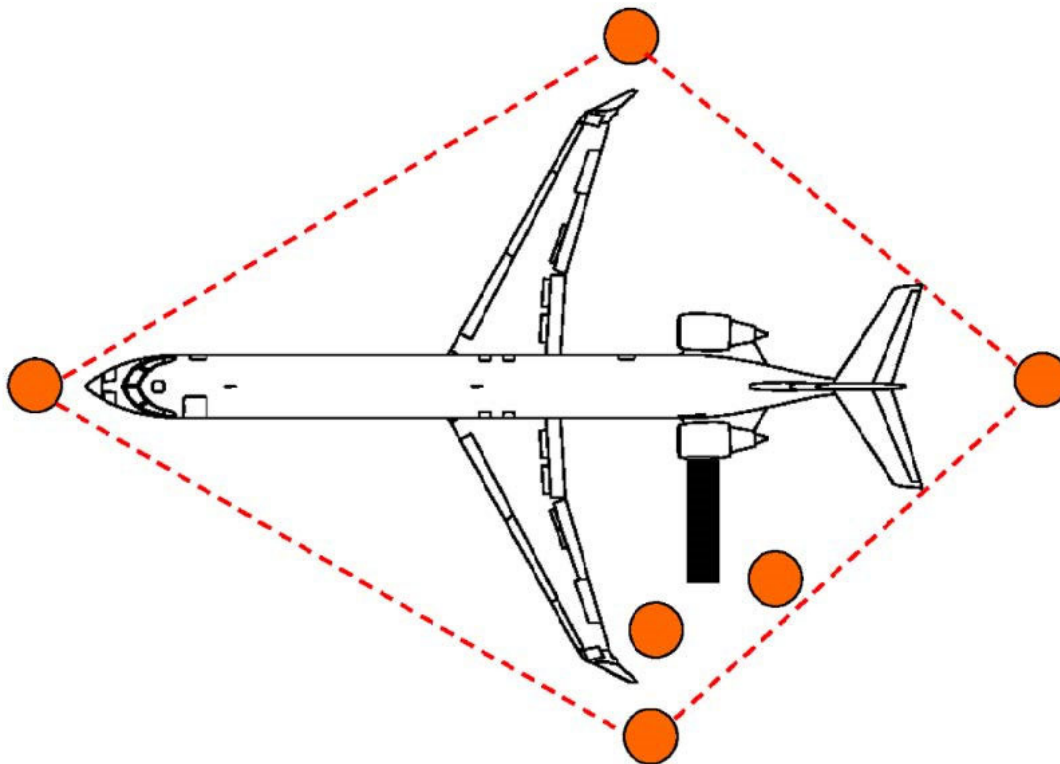


Figure 2-5: CRJ Safety Diamond

2.4.2.2 Parking Near E-175/737 Aircraft

Both the 737-400/800 and E-175 aircraft have a 3 ft. no-drive zone around the entire aircraft perimeter. In [Figure 2-6: "E-175/737 No Drive Zone"](#), this zone is displayed, as well as the Operational Safety Zone boundary that fuel trucks must remain out of any time the aircraft engine(s) are still running.

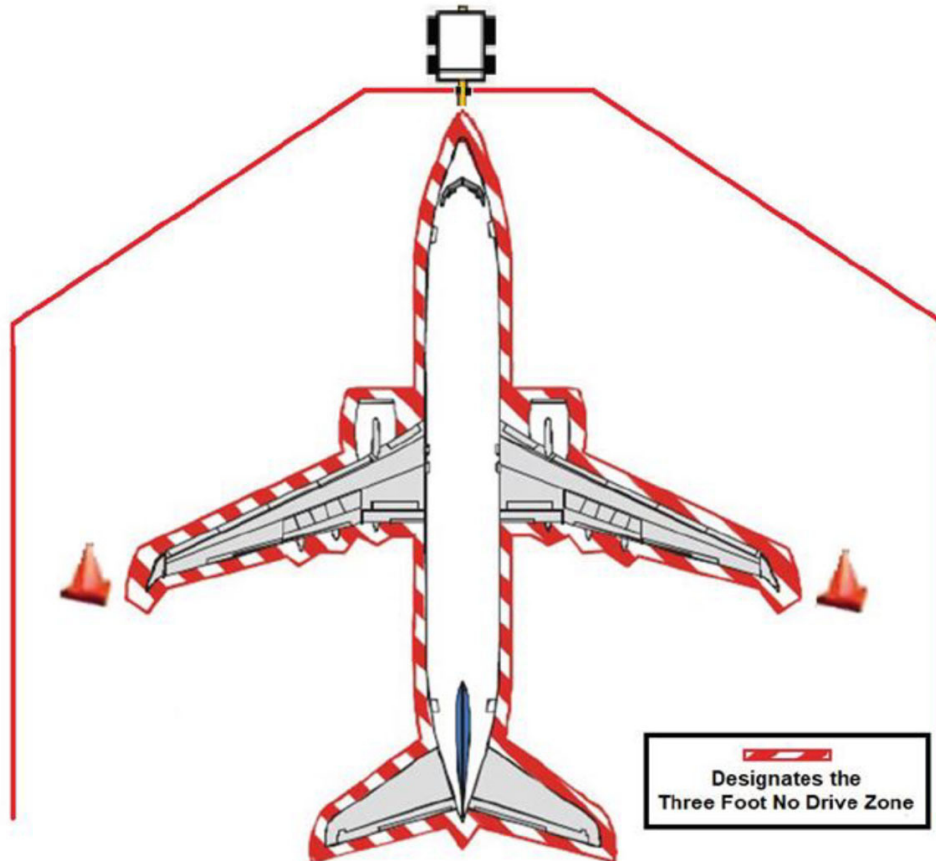


Figure 2-6: E-175/737 No Drive Zone

2.5 Aircraft Bonding

MISC: NFPA 407

- A. Static electricity, which can produce sparks, is a constant threat to safe fueling. It is impossible to prevent the presence of flammable vapors in the areas adjacent to the fuel tank opening. Therefore, it is essential that the static that accumulates on the aircraft, or the fueling equipment, is not permitted to discharge as a spark. An effective bonding connection, if made before fueling, will safely equalize any static electricity that has been built up on the aircraft and the fueling equipment.
- B. Fueling equipment is bonded to the aircraft by the use of a cable with either a bayonet (plug style) connector or a clamp (alligator style) connector. This provides a conductive path to equalize potential between the fueling equipment and aircraft.
- C. Prior to making any fueling connection to the aircraft, the fueling equipment shall be bonded to the aircraft by use of a bonding cable, thus providing a conductive path to equalize potential between the fueling equipment and aircraft. The bond shall be maintained until fueling connections have been removed.
- D. For approved aircraft fleet-specific bonding locations, [refer to Chapter 3: "CRJ Fueling Procedures"](#), [Chapter 4: "E-175 Fueling Procedures"](#) or [Chapter 5: "B-737-400/800 Fueling Procedures"](#).
- E. When fueling using overwing ports (gravity refueling), the nozzle shall be bonded through the utilization of a bayonet type bonding plug. At the appropriate bonding location at each filler port:
 - 1. The bond connection shall be made before the filler cap is removed.
 - 2. If there is no plug receptacle or means for attaching a clip, the operator shall touch the filler cap with the nozzle spout before removing the cap so as to equalize the potential between the nozzle and the filler port.
 - 3. The spout shall be kept in contact with the filler neck until the fueling is completed.
- F. When a hydrant cart is used for fueling, the hydrant coupler shall be connected to the hydrant system prior to bonding the fuel equipment to the aircraft to ensure the entire fuel tender system is bonded prior to the fuel nozzle connection to the aircraft.
- G. Bonding and fueling connections shall be disconnected in the reverse order of connection.
- H. Mesa Airlines, Inc. has taken every effort to comply with all safety related guidelines, including industry standards regarding the prevention of electrostatic discharge during fueling operations. It should be understood that all state, local or federal requirements pertaining to grounding and bonding during servicing of aircraft will be strictly adhered to, and at no time will Mesa Airlines, Inc. policies or procedures take precedence over more restrictive regulations.

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2.6 General Fueling Procedures

For aircraft fleet-specific fueling procedures, [refer to Chapter 3: "CRJ Fueling Procedures"](#), [Chapter 4: "E-175 Fueling Procedures"](#) or [Chapter 5: "B-737-400/800 Fueling Procedures"](#) for detailed information.

CAUTION

Observe all safety guidelines and precautions when fueling aircraft. Always monitor the fuel control panel for warnings and error codes displayed during the fueling operation.

- A. The fuel load will be provided to the fuel vendor in advance of the flight, when possible, and can be confirmed with the flight crew or with the flight release containing the required fuel load. This information may also be relayed to station personnel in advance of the inbound flight via the in-range call from the flight crew.
- B. Ensure the flight crew is prepared for fueling and aware that the fuel serving is about to commence.
- C. At no time will the maximum nozzle pressure for fueling operations exceed:
 - 1. 45 PSI (310 kPA) for the CRJ 700/900.
 - 2. 50 PSI (345 kPA) for the E-175.
 - 3. 55 PSI (379kPA) for the B737-400/800.
- D. Ensure a GPU is connected and in use. Aircraft batteries are available to provide power to the aircraft, if no GPU is available. The aircraft must have electrical power prior to fueling.

NOTE

Aircraft battery power can be used, but external ground power is the preferred method for Mesa Airlines, Inc. aircraft.

- E. Prior to making any fuel connections to the aircraft, ensure the fuel tender and aircraft have been properly bonded to prevent sparks caused by static electricity. If using a hydrant cart, ensure the aircraft is bonded after the hydrant cart is connected to the airport fuel hydrant system to ensure the entire system and aircraft are bonded.
- F. Verify the area beneath the aircraft is and remains free of people and equipment. As fueling begins, the aircraft's weight will increase and can cause the landing gear to compress, lowering the aircraft.
- G. Always monitor the total fuel quantity in the main left and right fuel tanks. Stop fueling immediately if a tank imbalance occurs that is greater than that aircraft's maximum allowable tank imbalance.

NOTE

The B-737 aircraft does not have a maximum imbalance limit.

- H. Any time a high-level tank warning is detected, stop fueling immediately to prevent overfilling the fuel tank.

Fuel Manual

- I. Fuel in automatic mode whenever possible. If fueling in manual mode, use caution when fueling the tanks to higher capacities, especially during warm weather, as heat causes the fuel and air inside the tanks to expand. This can lead to fuel leaking from the tank vents when fueling in manual mode.
- J. Follow the aircraft specific fueling procedures located in their respective chapter, as listed in the beginning of this section.

2.7 Fueling while Passengers are Onboard, Boarding or Disembarking (Passenger-Only Operations)

The flight and cabin crew will operate under the safety premise that the aircraft is considered to be in a constant state of “fueling service” when the main entry door is open and a means of egress is available. When the door is closed, fueling is considered complete. During all fueling, the aircraft parking brake must remain set at all times. Fueling of Mesa Airlines, Inc. aircraft with passengers onboard is permitted in accordance with the policies described within this section.

NOTE

Crewmembers are not required to be present during fueling if there are no passengers onboard.

- A. For all fleet types, when at the gate, fueling is permitted once the following conditions have been met:
 1. At all times during fueling with passengers onboard the aircraft, a means of egress must be available and maintained. When at the gate, the main cabin door must remain open and the jetbridge or airstairs connected, or the door-stairs and handrails extended, if equipped.
 2. All aircraft exits, and the ground beneath them, must remain clear and available in the event of an evacuation during fueling. These areas are designated as rapid deplanement areas and must always be kept clear of obstruction. The flight attendants are responsible for ensuring all exits and routes to exits are unobstructed. The captain will verify that the areas outside the exits are unobstructed.
 3. If passengers are boarding the aircraft from the ramp, via airstairs or aircraft-equipped door-stairs, they must be monitored by ground handling personnel to ensure they do not compromise the safety of fueling operations.
 4. EICAS will provide notification to the flight crew when fueling is about to begin and has been completed.
 5. Communication between the fueller and the flight crew has been established and must be maintained.
 6. The fuel tender is bonded to the aircraft and must remain connected until fueling is complete.

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7. Flight attendants must remain near their assigned stations.
8. No announcement by the flight attendants is required to inform passengers of fueling when parked at the gate.

NOTE

The designated fueler will notify the crew in the most expedient manner by appropriate means of communication, such as use of a/c communication system, direct person-to-person contact, or other methods that ensure direct and timely communication in the event of a hazardous condition or situation.

CAUTION

The removal of means of egress while fueling is in progress is prohibited; if egress is removed, fueling must stop immediately.

2.7.1 Fueling the CRJ Fleet with Passengers Onboard Away from the Gate

NOTE

This procedure is created to enable the aircraft to be refueled at a remote location due to a diversion or delays. This procedure shall not be utilized when an aircraft is positioned at a gate.

The following conditions must be met prior to fueling being commenced, and remain in place until all fuel servicing has stopped and the fuel connections removed from the aircraft.

- A. Communication between the fueler and the flight crew has been established and must be maintained.
- B. The main cabin door must remain open and connected to airstairs with a mobile bridge adapter, or with the door-stairs extended and handrails raised.
- C. All aircraft exits, and the ground beneath them, must remain clear and available in the event of an evacuation during fueling. These areas are designated as rapid deplanement areas and must always be kept clear of obstruction.
- D. All aircraft engines must be shut down and the fleet-specific fueling procedures followed.
- E. When away from the gate, the flight crew will communicate to the flight attendants that fueling away from the gate will be taking place.
- F. Flight Attendant 1 (FA1) will make the "Refueling Announcement". Refer to the Mesa Airlines, Inc. *Flight Attendant Manual* (Manual #610) for the announcement.
- G. Flight attendants must remain near their assigned stations.
- H. Flight attendants will establish a secondary exit and keep it clear during fueling.
- I. Flight attendants will notify the captain and fueling will be terminated if fuel vapors are detected in the cabin during fueling.

2.7.2 Fueling the E-175 Aircraft with Passengers Onboard Away from the Gate

NOTE

This procedure is created to enable the aircraft to be refueled at a remote location due to a diversion or delays. This procedure shall not be utilized when an aircraft is positioned at a gate.

The following conditions must be met prior to fueling being commenced, and remain in place until all fuel servicing has stopped and the fuel connections removed from the aircraft.

- A. Communication between the fueler and the flight crew has been established and must be maintained.
- B. The main cabin door must remain connected to airstairs, if available. If not, ensure the main cabin door emergency exit slide is ARMED, and the area beneath the main cabin door remains free of any obstructions.
- C. The flight crew will ensure that the Emergency Slide deployment areas are clear of obstructions (i.e., vehicles or equipment) during the fueling process, in case of an emergency evacuation, by using cockpit windows, including opening the Direct View (DV) windows as necessary. The Pilot-in-Command (PIC) shall suspend refueling if obstructions enter the Emergency Slide deployment areas.
- D. The aircraft emergency door exit slides must be ARMED and remain ARMED through the duration of fueling.
- E. All aircraft engines must be shut down and the fleet-specific fueling procedures followed.
- F. When away from the gate, Flight Attendant 1 (FA1) will make the "Refueling Announcement". Refer to the Mesa Airlines, Inc. *Flight Attendant Manual* (Manual #610) for the announcement.
- G. Flight attendants must remain near their assigned stations.
- H. Flight attendants will notify the captain and fueling will be terminated if fuel vapors are detected in the cabin during fueling.

2.7.3 Fuel Spills while Fueling Away from the Gate

If a spill is discovered during fueling away from the gate, the flight crew shall:

- A. Communicate this to the fueling agents and instruct the agents to immediately to stop the flow of fuel.
- B. Do not start aircraft engines.
- C. Confirm the leak has been stopped and that the fuel spill procedures are being followed. Communicate to the fuel agents by opening the Direct View (DV) window, if necessary.
- D. Contact ground personnel to tow the aircraft free from the spill.
- E. In the event a fire should result from the spill, the aircraft should be immediately evacuated using emergency exits and associated slides which are safe from the effects of the fire.

2.8 General Aircraft Defueling Policies

- A. For aircraft fleet-specific defueling procedures, [refer to Chapter 3: "CRJ Fueling Procedures"](#), [Chapter 4: "E-175 Fueling Procedures"](#) or [Chapter 5: "B-737-400/800 Fueling Procedures"](#) for detailed information.
- B. No fuel removed from an aircraft will be transferred in such a manner that it becomes reintroduced to another aircraft or placed into a fuel truck, fuel farm or any fuel holding vehicle, with the potential to transfer contamination to an otherwise clean fuel service.
- C. Fuel removed from Mesa Airlines, Inc. aircraft during a defueling procedure may only be placed back into a Mesa Airlines, Inc. aircraft, and must go through filtration again prior to reintroduction to a Mesa Airlines, Inc. aircraft.
- D. Prior to the reintroduction of fuel to the aircraft's fuel system, the following must occur:
 - 1. Fuel will be filtered in such a manner as to remove particulates/solids and all waterborne contamination.
 - 2. All defuel equipment must be visually inspected prior to each defueling operation to ensure that it is free from evidence of microbial growth or contamination.
- E. Normal suction defueling for aircraft may be performed by the fuel vendor without the assistance of maintenance personnel, using the approved, fleet-specific procedures located within this manual. All other defueling operations are required to be performed by, or under the direct control of, maintenance personnel.
- F. Fuel removed from an aircraft because of possible contamination shall be held in quarantine until laboratory tests have been performed to determine its acceptability.

END



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Chapter 3: CRJ Fueling Procedures

3.1 Bonding of the Aircraft

- A. Before commencing any fuel servicing on Mesa Airlines, Inc. aircraft, ensure the aircraft has been properly bonded to the fuel tender. [Refer to Figure 3-1: "CRJ Grounding Points"](#) and [Figure 3-2: "CRJ Grounding Lug"](#) for reference to the following procedures.
- B. Always follow the policies, general fueling procedures, warnings and precautions in [Chapter 2: "Safety and General Procedures"](#) during aircraft fuel servicing.

WARNING

Before refueling/defueling the aircraft, the fuel tender, the aircraft and the fuel nozzle must be bonded. A static electric spark during the procedure can result without bonding these elements properly and cause an explosion or a fire.

- C. The CRJ aircraft have five different bonding locations:
 - 1. Nose Landing Gear Compartment (clamp style only) ([refer to Figure 3-1](#) – Label A).
 - 2. Wing Leading Edges (plug style only) ([refer to Figure 3-1](#) – Label B).
 - 3. Right or Left Main Landing Gear (MLG) (clamp style only) ([refer to Figure 3-1](#) and [Figure 3-2](#) – Label C).
 - 4. Fuel Access Panel Grounding Lug ([refer to Figure 3-1](#) and [Figure 3-2](#) – Label D).
- D. Use the appropriate style connection for the grounding wire connector:
 - 1. For Alligator Clamp Connectors: Attach the alligator clamp (1) to the grounding lug (2) on the right side wall of the nosegear compartment, on the fuel panel access grounding lug (D) or on one of the MLG grounding lugs (C).
 - 2. For a Plug Connector: Insert the metal plug connector (3) into the nearest ground stud receptacle (4) on the wing leading edge.

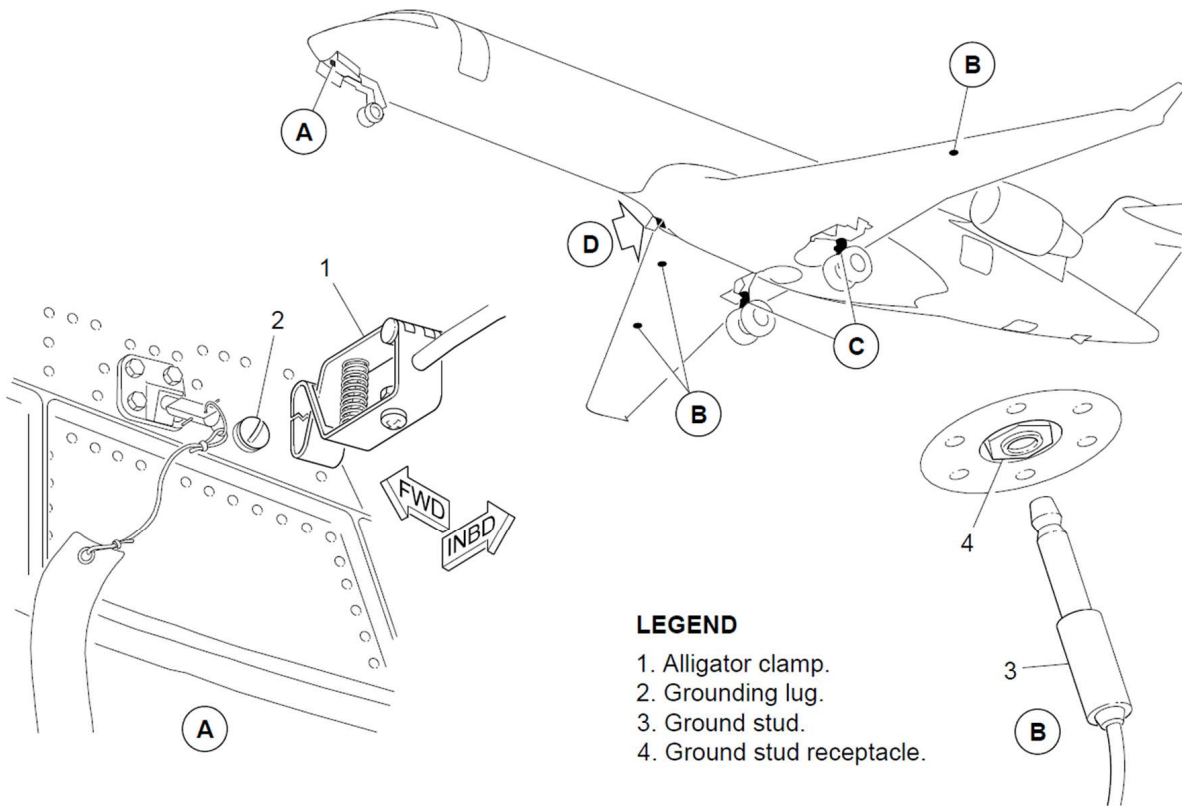


Figure 3-1: CRJ Grounding Points

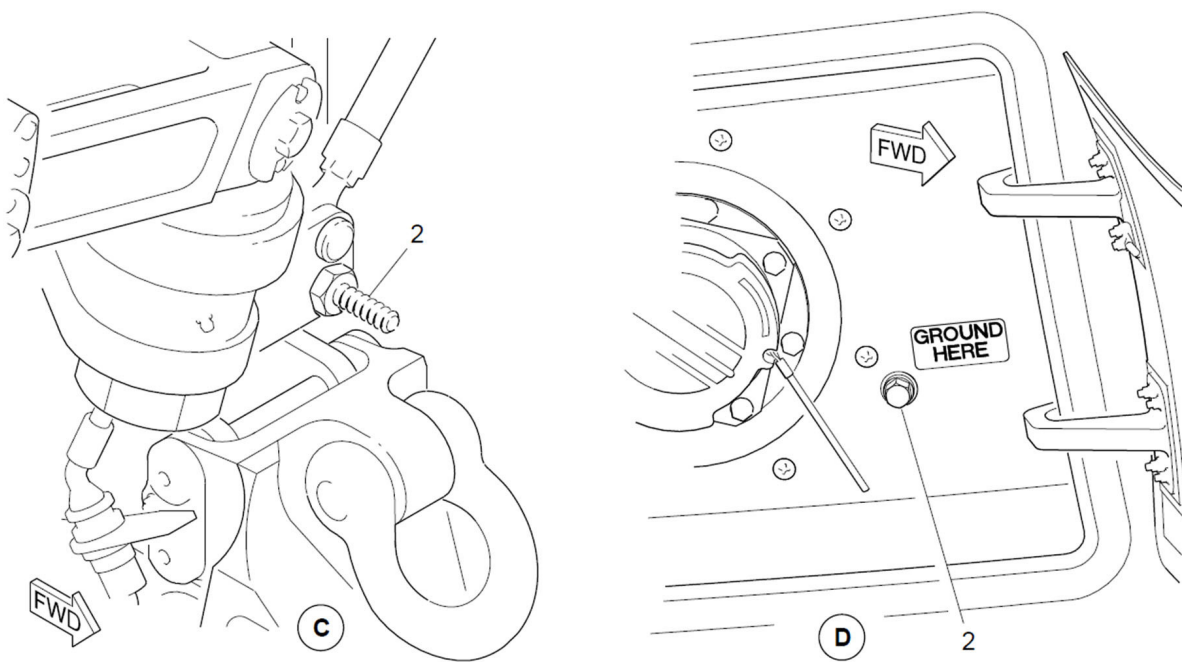


Figure 3-2: CRJ Grounding Lug

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3.2 CRJ Tank Specifications

3.2.1 Tank Imbalances

During fuel servicing, never allow the difference between fuel quantities in the main fuel tanks (left and right) to be greater than the following limit:

Table 3-1: CRJ Fuel Tank Imbalance Limit

Fleet Type	Maximum Allowable Fuel Tank Imbalance
CRJ 700/900	2500 lbs. (1134 kg)

WARNING

Do not allow the difference between fuel quantities of the main left and right tanks to be greater than the maximum imbalance limit, or the aircraft can move and cause injury to persons and/or damage to equipment.

3.2.2 Tank Capacities – CRJ 700/900

Table 3-2: CRJ 700/900 Tank Capacities

Location	Usable Fuel	Unusable Fuel	Total Volume
Left Main Tank	7435.5 lbs. (3372.7 kg)	57 lbs. (25.9 kg)	7492.5 lbs. (3398.5 kg)
Right Main Tank	7435.5 lbs. (3372.7 kg)	57 lbs. (25.9 kg)	7492.5 lbs. (3398.5 kg)
Center Tank	4583.3 lbs. (2079 kg)	27 lbs. (12.2 kg)	4610.3 lbs. (2091 kg)
Total Fuel Capacity		19595 lbs. (8888 kg)	

3.3 Automatic Pressure Refueling

- A. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 3-3: "CRJ Fuel Control Panel"](#) for the visual diagram of the fuel panel.

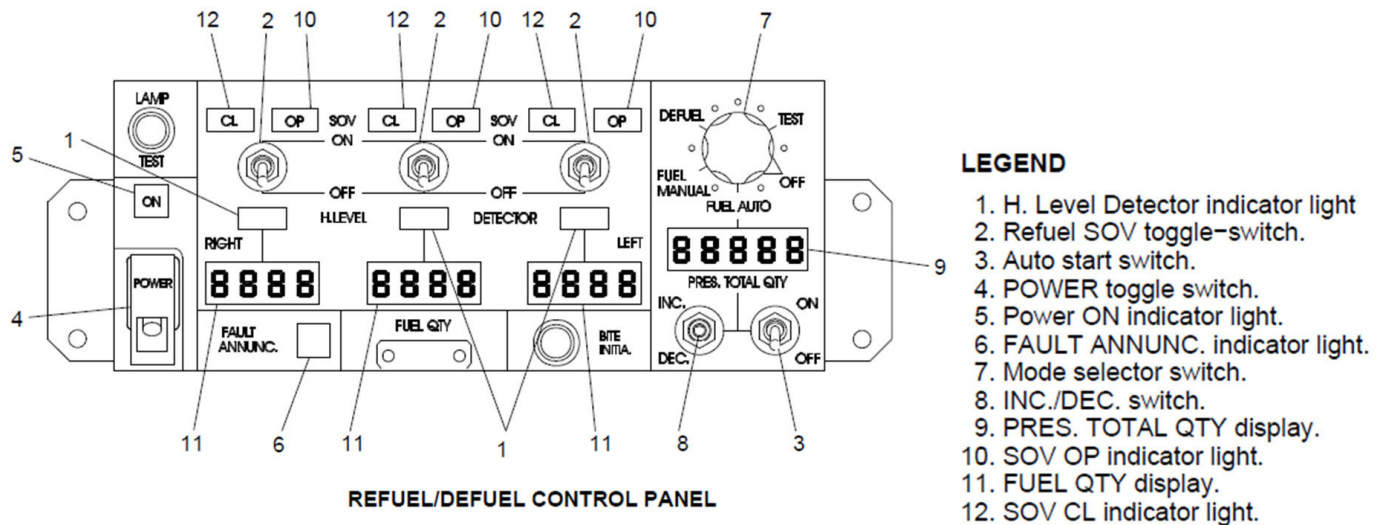


Figure 3-3: CRJ Fuel Control Panel

- B. Open the aircraft fuel access panels.
- C. Remove the fuel cap from the single-point fuel port on the aircraft and connect the fuel nozzle from the fuel tender.
- D. Ensure the following controls on the fuel control panel are set:
1. Set all three refuel SOV toggle-switches (2) to OFF.
 2. Set the auto start switch (3) to OFF.
- E. Pressurize the fuel nozzle to approximately 45 PSI (310 kPa).

CAUTION

Never pressurize the fuel nozzle above 50 PSI (345 kPa) for any CRJ aircraft. Pressure above 50 PSI can cause damage to the aircraft fuel system. If pressure exceeds 50 PSI, the fuel flow must be stopped and the nozzle pressure recalibrated to be within limits.

- F. Slowly open the handle on the fuel nozzle to fill the manifold.

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- G. Lift the guard off the POWER toggle switch (4) and set to ON. Ensure the Power ON indicator light (5) illuminates.

NOTE

If the FAULT ANNUNC. indicator light (6) comes on, notify the PIC or station personnel and do not fuel the aircraft until the fault has been cleared by Mesa Airlines, Inc. maintenance personnel.

- H. Test the aircraft fuel system as follows:
1. Locate the BITE INITIA. Button below the Left Tank FUEL QTY display (11) and press the button for at least 30 seconds.
 2. Look at the PRES. TOTAL QTY display (9) for any codes. Record any displayed codes and provide them to the PIC or Mesa Airlines, Inc. maintenance personnel before refueling the aircraft.
 3. Push the LAMP TEST button in the top, left corner of the fuel control panel and ensure that all the lights on the panel come on. When released, all lights except the Power ON indicator light (5) should go off.
 4. Push and release the BITE INITIA. Button again. Ensure the RIGHT, CENTER and LEFT FUEL QTY displays (11) show "888".
 5. Set the mode selector switch (7) to "Test".
 - a. Ensure that the three shutoff-valve (SOV) OP indicator lights (10) come on for 5 to 20 seconds in sequence.
 - b. Ensure that the three H. LEVEL DETECTOR indicator lights (1) also come on and go off in sequence.
 - c. Ensure that the three SOV OP indicator lights (10) go off and the SOV CL indicator lights (12) come on.
 - d. Ensure the FAULT ANNUNC. indicator light is off, or record the codes and provide them to the PIC or Mesa Airlines, Inc. maintenance personnel.
- I. Set the mode selector switch (7) to FUEL AUTO. Make sure that the PRES. TOTAL QTY display (9) comes on.
- J. Use the INC./DEC. switch (8) and set the necessary fuel quantity on the PRES. TOTAL QTY display (9).
- K. Set the auto start switch (3) to ON.
- L. Ensure the applicable SOV OP indicator lights (10) illuminate showing the shutoff valves are open. Monitor the fuel quantity in each tank to ensure the maximum tank imbalance limit between the main left and right tanks is not exceeded.

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- M. When the preselected fuel quantity is reached, the refueling stops automatically.
- N. If the tanks are filled to their full capacity, the following will also happen:
 - 1. The H. LEVEL DETECTOR indicator lights (1) come on.
 - 2. The SOV OP indicator lights (10) go off.
 - 3. The SOV CL indicator lights (12) come on.
- O. Wait 10 seconds after fuel flow stops to move the auto start switch (3) to OFF.
- P. Set the mode selector switch (7) to OFF.
- Q. Set the POWER toggle switch (4) to OFF and closed the guard over the switch. Make sure that the Power ON indicator light (5) goes off.
- R. Set the nozzle pressure to 0 PSI (0 kPa) and disconnect the fuel nozzle from the single-point fuel port and reinstall the fuel cap.
- S. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- T. Close all open panels and ensure they are securely latched.

3.4 Manual Pressure Refueling

- A. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 3-3: "CRJ Fuel Control Panel"](#) for the visual diagram of the fuel panel.
- B. Open the aircraft fuel access panels.
- C. Remove the fuel cap from the single-point fuel port on the aircraft and connect the fuel nozzle from the fuel tender.
- D. Ensure the following controls on the fuel control panel are set:
 - 1. Set all three refuel SOV toggle-switches (2) to OFF.
 - 2. Set the auto start switch (3) to OFF.
- E. Pressurize the fuel nozzle to approximately 45 PSI (310 kPa).

CAUTION

Never pressurize the fuel nozzle above 50 PSI (345 kPa). Pressure above 50 PSI can cause damage to the aircraft fuel system. If pressure exceeds 50 PSI, the fuel flow must be stopped and the nozzle pressure recalibrated to be within limits.

- F. Slowly open the handle on the fuel nozzle to fill the manifold.

Fuel Manual

- G. Lift the guard off the POWER toggle switch (4) and set to ON. Ensure the Power ON indicator light (5) illuminates.

NOTE

If the FAULT ANNUNC. indicator light (6) comes on, notify the PIC or station personnel and do not fuel the aircraft until the fault has been cleared by Mesa Airlines, Inc. maintenance personnel.

- H. Test the aircraft fuel system as follows:
1. Locate the BITE INITIA. Button below the Left Tank FUEL QTY display (11) and press the button for at least 30 seconds.
 2. Look at the PRES. TOTAL QTY display (9) for any codes. Record these codes and provide them to the PIC or Mesa Airlines, Inc. maintenance personnel before refueling the aircraft.
 3. Push the LAMP TEST button in the top, left corner of the fuel control panel and ensure that all the lights on the panel come on. When released, all lights except the Power ON indicator light (5) should go off.
 4. Push and release the BITE INITIA. Button again. Ensure the RIGHT, CENTER and LEFT FUEL QTY displays (11) show "888".
 5. Set the mode selector switch (7) to "Test".
 - a. Ensure that the three shutoff-valve (SOV) OP indicator lights (10) come on for 5 to 20 seconds in sequence.
 - b. Ensure that the three H. LEVEL DETECTOR indicator lights (1) also come on and go off in sequence.
 - c. Ensure that the three SOV OP indicator lights (10) go off and the SOV CL indicator lights (12) come on.
 - d. Ensure the FAULT ANNUNC. indicator light is off, or record the codes and provide them to the PIC or Mesa Airlines, Inc. maintenance personnel.
- I. Set the mode selector switch (7) to FUEL MANUAL. Make sure that the PRES. TOTAL QTY display (9) comes on. Confirm the auto start switch (3) is set to OFF.

CAUTION

Add fuel to the center tank only after filling the main tanks or when all tanks are filled at the same time and the main tanks have at least 4400 lbs. (1995.80 kg) of fuel in each tank.

- J. For the tanks to be fueled, move the respective refuel SOV toggle switches (2) to ON.

Fuel Manual

- K. Ensure the applicable SOV OP indicator lights (10) illuminate showing the shutoff valves are open. Monitor the fuel quantity in each tank to ensure the maximum tank imbalance limit between the main left and right tanks is not exceeded.
- L. As the tank quantities reach their desired amount, move the respective refuel SOV toggle switches (2) to OFF.
- M. If the tanks are filled to their full capacity, the following will also happen:
 - 1. The H. LEVEL DETECTOR indicator lights (1) come on.
 - 2. The SOV OP indicator lights (10) go off.
 - 3. The SOV CL indicator lights (12) come on.
- N. Once fueling is complete and all SOV toggle switches (2) are OFF.
- O. Set the mode selector switch (7) to OFF.
- P. Set the POWER toggle switch (4) to OFF and closed the guard over the switch. Make sure that the Power ON indicator light (5) goes off.
- Q. Set the nozzle pressure to 0 PSI (0 kPa) and disconnect the fuel nozzle from the single-point fuel port and reinstall the fuel cap.
- R. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- S. Close all open panels and ensure they are securely latched.

3.5 Gravity Refueling (Overwing)

- A. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 3-3: "CRJ Fuel Control Panel"](#) for the visual diagram of the fuel panel.
- B. Open the aircraft fuel access panel for the fuel control panel.
- C. Lift the guard off the POWER toggle switch (4) and set to ON. Ensure the Power ON indicator light (5) illuminates. Skip this step if the fuel control panel is inoperative.
 - 1. If the fuel control panel is inoperative, monitor the fuel quantity supplied to the aircraft via other monitoring means. Use caution not to overfill the fuel tanks.
- D. Remove the gravity fuel port filler cap from the applicable tank(s) and place the anti-scratch/damage wing mat onto the wing. Each main tank has an adapter at the center of each upper wing skin. The center tank has an adapter at the inboard end of the upper-right wing skin.

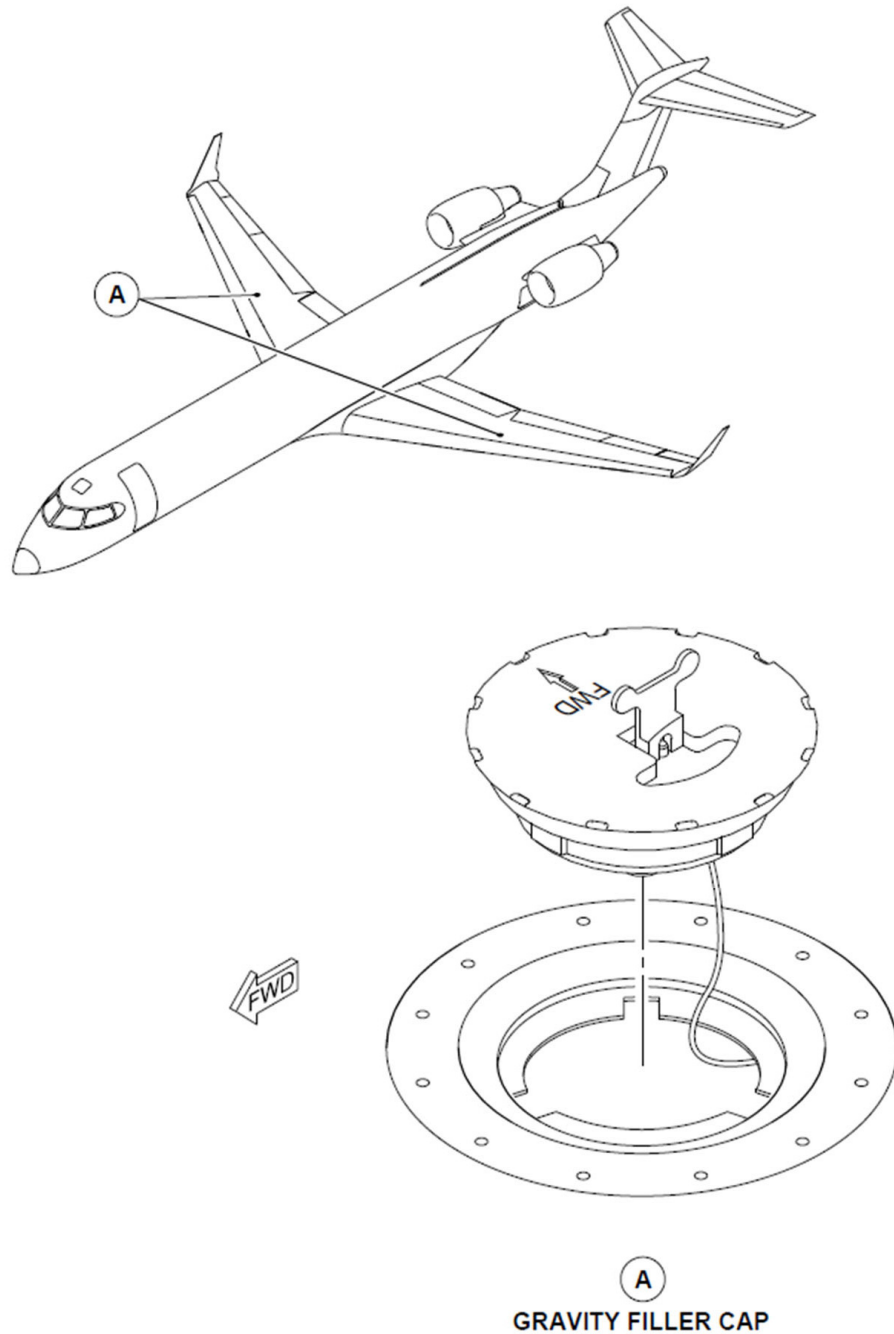


Figure 3-4: CRJ Gravity Fuel Port

NOTE

Mesa Airlines, Inc. allows for simultaneous fueling of the left and right fuel tanks, as long as there is one fueling agent per refueling hose and the dispensed fuel quantity is monitored during overwing refueling. If fueling one tank and then the other, ensure the tank quantities do not exceed the maximum imbalance limit of 2500 lbs. for the CRJ.

Fuel Manual

- E. Insert the fuel nozzle into the overwing fuel port taking care not to touch the bottom of the fuel tank with the fuel nozzle. Fill the fuel tank with the necessary quantity of fuel.
- F. When the desired fuel quantity has been dispensed, remove the nozzle from the fuel tank and replace the gravity fuel port cap.
- G. If applicable, select the POWER toggle switch (1) to OFF and cover the switch with the guard. Ensure the Power ON indicator light (2) goes off.
- H. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- I. Close all open panels and ensure they are securely latched.

3.6 Suction Defueling

- A. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 3-3: "CRJ Fuel Control Panel"](#) for the visual diagram of the fuel panel. Adhere to all defueling policies and safety guidelines listed within [Chapter 2: "Safety and General Procedures"](#).
- B. Open the aircraft fuel access panels.
- C. Remove the fuel cap from the single-point fuel port on the aircraft and connect the fuel nozzle from the defueling equipment.
- D. Ensure the following controls on the fuel control panel are set:
 - 1. Set all three refuel SOV toggle-switches (2) to OFF.
 - 2. Set the auto start switch (3) to OFF.
- E. Pressurize the fuel nozzle to approximately -8 PSI (-55 kPa).

CAUTION

Never pressurize the fuel nozzle below -8 PSI. Pressure below -8 PSI can cause damage to the aircraft fuel system. If pressure extends below -8 PSI, the defuel process must be stopped and the nozzle pressure recalibrated to be within limits.

- F. Slowly open the handle on the fuel nozzle.
- G. Lift the guard off the POWER toggle switch (4) and set to ON. Ensure the Power ON indicator light (5) illuminates.

NOTE

If the FAULT ANNUNC. indicator light (6) comes on, notify the PIC or station personnel and do not fuel the aircraft until the fault has been cleared by Mesa Airlines, Inc. maintenance personnel.

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- H. Test the aircraft fuel system as follows:
1. Locate the BITE INITIA. Button below the Left Tank FUEL QTY display (11) and press the button for at least 30 seconds.
 2. Look at the PRES. TOTAL QTY display (9) for any codes. Record these codes and provide them to the PIC or Mesa Airlines, Inc. maintenance personnel before refueling the aircraft.
 3. Push the LAMP TEST button in the top, left corner of the fuel control panel and ensure that all the lights on the panel come on. When released, all lights except the Power ON indicator light (5) should go off.
 4. Push and release the BITE INITIA. Button again. Ensure the RIGHT, CENTER and LEFT FUEL QTY displays (11) show "888".
 5. Set the mode selector switch (7) to "Test".
 - a. Ensure that the three shutoff-valve (SOV) OP indicator lights (10) come on for 5 to 20 seconds in sequence.
 - b. Ensure that the three H. LEVEL DETECTOR indicator lights (1) also come on and go off in sequence.
 - c. Ensure that the three SOV OP indicator lights (10) go off and the SOV CL indicator lights (12) come on.
 - d. Ensure the FAULT ANNUNC. indicator light is off, or record the codes and provide them to the PIC or Mesa Airlines, Inc. maintenance personnel.
- I. Set the mode selector switch (7) to DEFUEL.
- NOTE**
- Always defuel the center fuel tank completely before the left and right main fuel tanks.
- J. Set the applicable refuel SOV toggle-switches (2) to ON.
1. Make sure that the applicable SOV OP indicator lights (10) come on and the applicable SOV CL indicator lights (12) are off.
- K. If the tanks are defueled to a specified quantity:
1. Monitor the applicable FUEL QTY DISPLAYS (11).
 2. Set the refuel SOV toggle-switches (2) to OFF when the applicable tanks are defueled to the necessary quantity.
- L. If the tanks are to be fully defueled:
1. Monitor the applicable FUEL QTY DISPLAYS (11).
 2. Set the refuel SOV toggle switches (2) to OFF when the applicable SOV CL indicator lights (12) come on.

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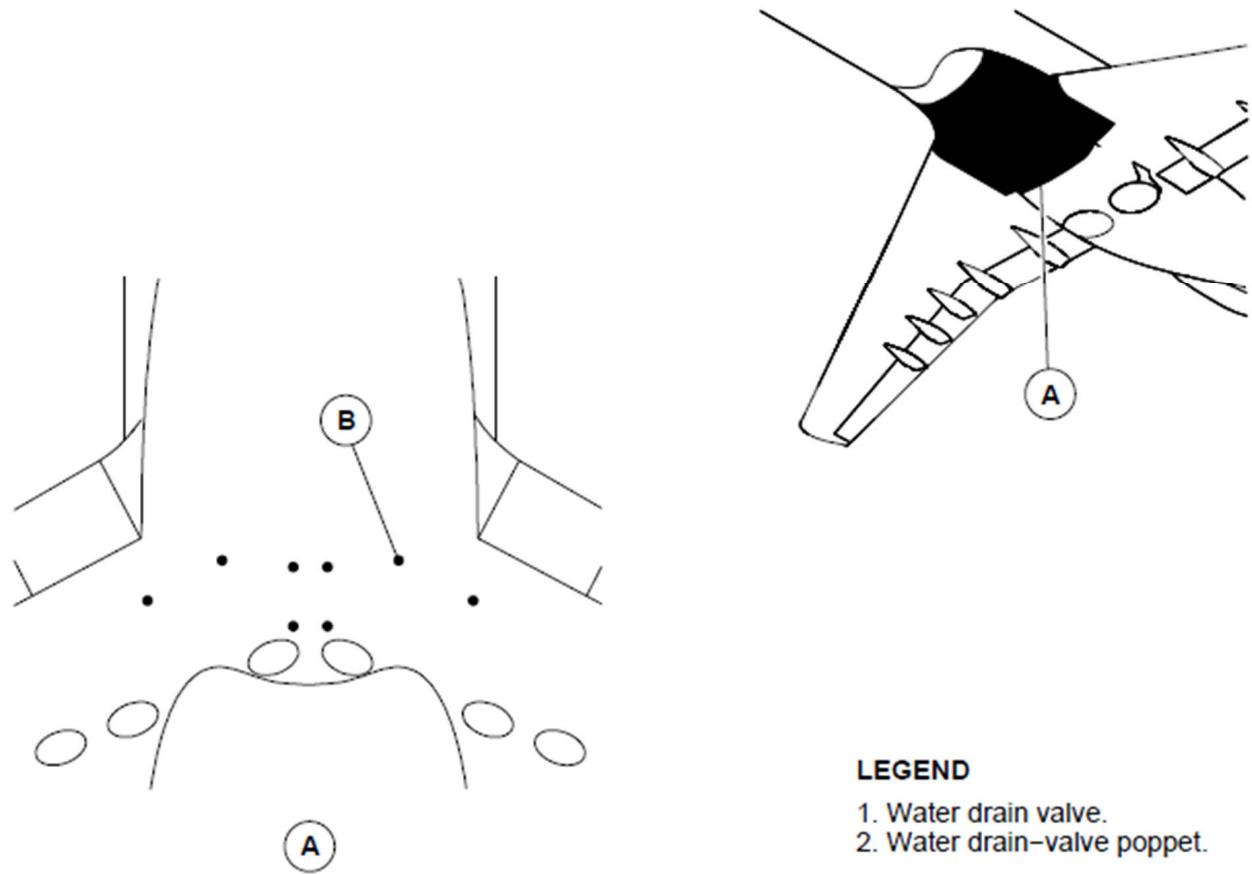
- M. Set the POWER toggle switch (4) to OFF and close the guard over the switch. Make sure that the Power ON indicator light (5) goes off.
- N. Set the nozzle pressure to 0 PSI (0 kPa) and disconnect the fuel nozzle from the single-point fuel port and reinstall the fuel cap.
- O. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- P. Drain any remaining fuel using the procedures in the section of this chapter "Gravity Defueling".
- Q. Close all open panels and ensure they are securely latched.

NOTE

Fuel removed from Mesa Airlines, Inc. aircraft during a defueling procedure may only be placed back into a Mesa Airlines, Inc. aircraft, and must go through filtration again prior to reintroduction to a Mesa Airlines, Inc. aircraft.

3.7 Gravity Defueling

- A. Ensure the aircraft is properly bonded. [Refer to Figure 3-5: "CRJ Water Drain Valve"](#) for the location of gravity defueling drain valves. Adhere to all defueling policies and safety guidelines listed within [Chapter 2: "Safety and General Procedures"](#).



LEGEND

- 1. Water drain valve.
- 2. Water drain-valve poppet.

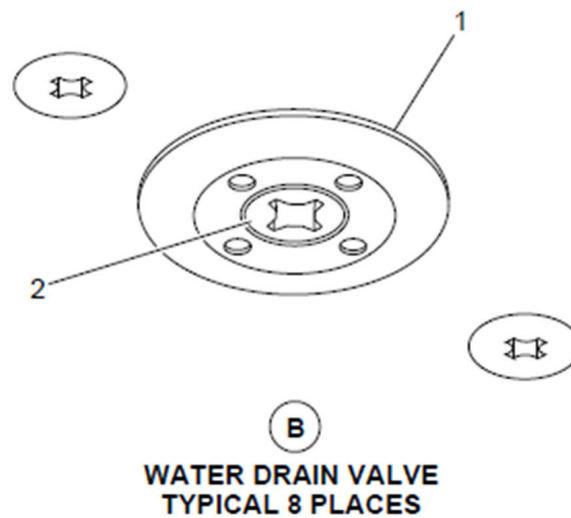


Figure 3-5: CRJ Water Drain Valve

Fuel Manual

- B. Put the fuel container below the applicable water drain valve (1).
- C. Put the screwdriver in the water drain-valve poppet (2) and turn clockwise until the valve poppet (2) is fully extended.
- D. When the fuel flow stops, use the screwdriver to insert the valve poppet (2) to its original position and turn counterclockwise until the valve poppet (2) is locked closed.
- E. Seal the fuel container with an appropriately fitted covering and follow local policies for defueled product.
- F. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- G. Close all open panels, valves and caps and ensure they are securely latched in their original, closed and locked position.

NOTE

Fuel removed from Mesa Airlines, Inc. aircraft during a defueling procedure may only be placed back into a Mesa Airlines, Inc. aircraft, and must go through filtration again prior to reintroduction to a Mesa Airlines, Inc. aircraft.

END



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Chapter 4: E-175 Fueling Procedures

4.1 Bonding of the Aircraft

- A. Before commencing any fuel servicing on Mesa Airlines, Inc. aircraft, ensure the aircraft has been properly bonded to the fuel tender. [Refer to Figure 4-1: "E-175 Wing Bonding Locations"](#) and [Figure 4-2: "E-175 Right MLG Bonding Location"](#) for reference to the following procedures.
- B. Always follow the policies, procedures and warnings in [Chapter 2: "Safety and General Procedures"](#) during aircraft fuel servicing.

WARNING

Before refueling/defueling the aircraft, the fuel tender, the aircraft and the fuel nozzle must be bonded. A static electric spark during the procedure can result without bonding these elements properly and cause an explosion or a fire.

- C. E-175 aircraft have three different bonding locations:
 - 1. Left or Right Wing Leading Edges (plug style only) ([refer to Figure 4-1: "E-175 Wing Bonding Locations"](#)).
 - 2. Right Main Landing Gear (MLG) (clamp style only) ([refer to Figure 4-2: "E-175 Right MLG Bonding Location"](#)).

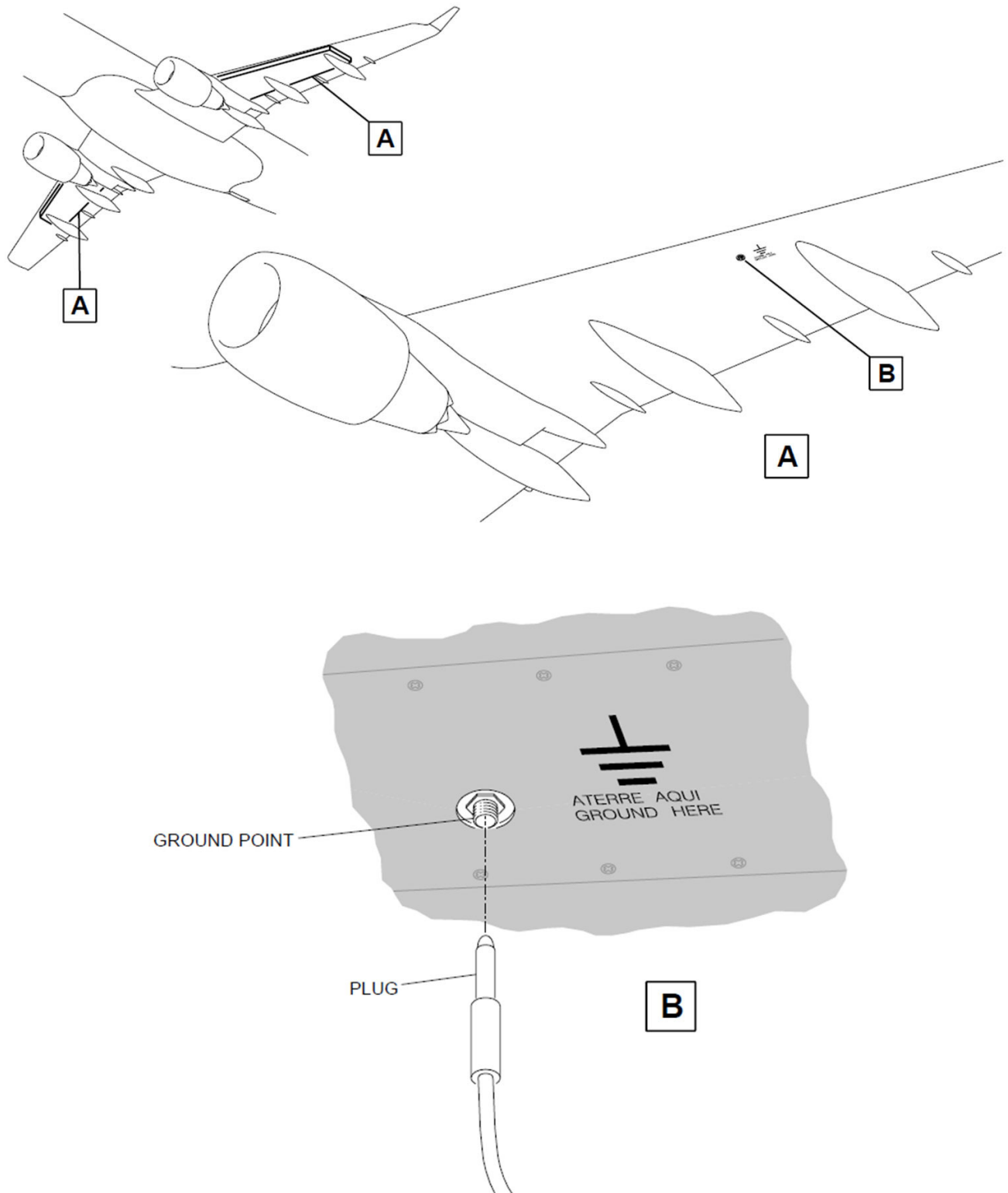


Figure 4-1: E-175 Wing Bonding Locations

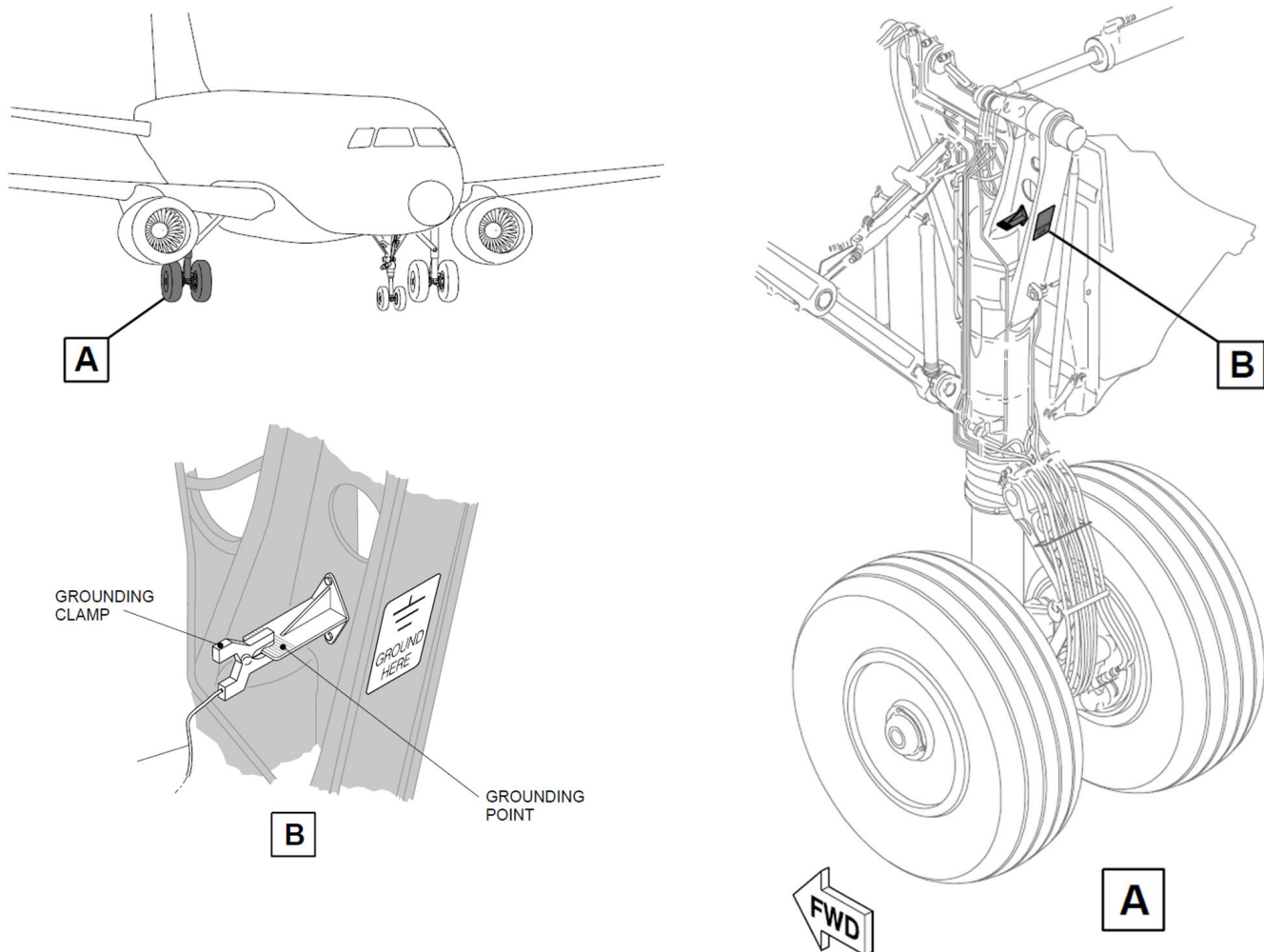


Figure 4-2: E-175 Right MLG Bonding Location

- D. Use the appropriate style connection for the grounding wire connector:
1. For a Plug Connector: Insert the metal plug connector into the nearest ground stud receptacle ([Figure 4-1](#)) on the wing leading edge.
 2. For Alligator Clamp Connectors: Attach the alligator clamp to the grounding point ([Figure 4-2](#)) on the right main landing gear.

4.2 E-175 Tank Specifications

A. Tank Imbalances

During fuel servicing, never allow the difference between fuel quantities in the main fuel tanks (left and right) to be greater than the following limit:

Table 4-1: E-175 Fuel Tank Imbalance Limit

Fleet Type	Maximum Allowable Fuel Tank Imbalance
E-175	794 lbs. (360 kg)

WARNING

Do not allow the difference between fuel quantities of the main left and right tanks to be greater than the maximum imbalance limit, or the aircraft can move and cause injury to persons and/or damage to equipment.

B. Tank Capacities

Table 4-2: E-175 Tank Capacities

Location	Usable Fuel	Unusable Fuel	Total Volume
Left Main Tank	10392.5 lbs. (4714 kg)	75 lbs. (34 kg)	10467.5 lbs. (4748 kg)
Right Main Tank	10392.5 lbs. (4714 kg)	75 lbs. (34 kg)	10467.5 lbs. (4748 kg)
Total Fuel Capacity		20935 lbs. (9495.5 kg)	

4.3 Automatic Pressure Refueling

- A. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 4-3: "E-175 Fuel Control Panel"](#) for the visual diagram of the fuel panel.

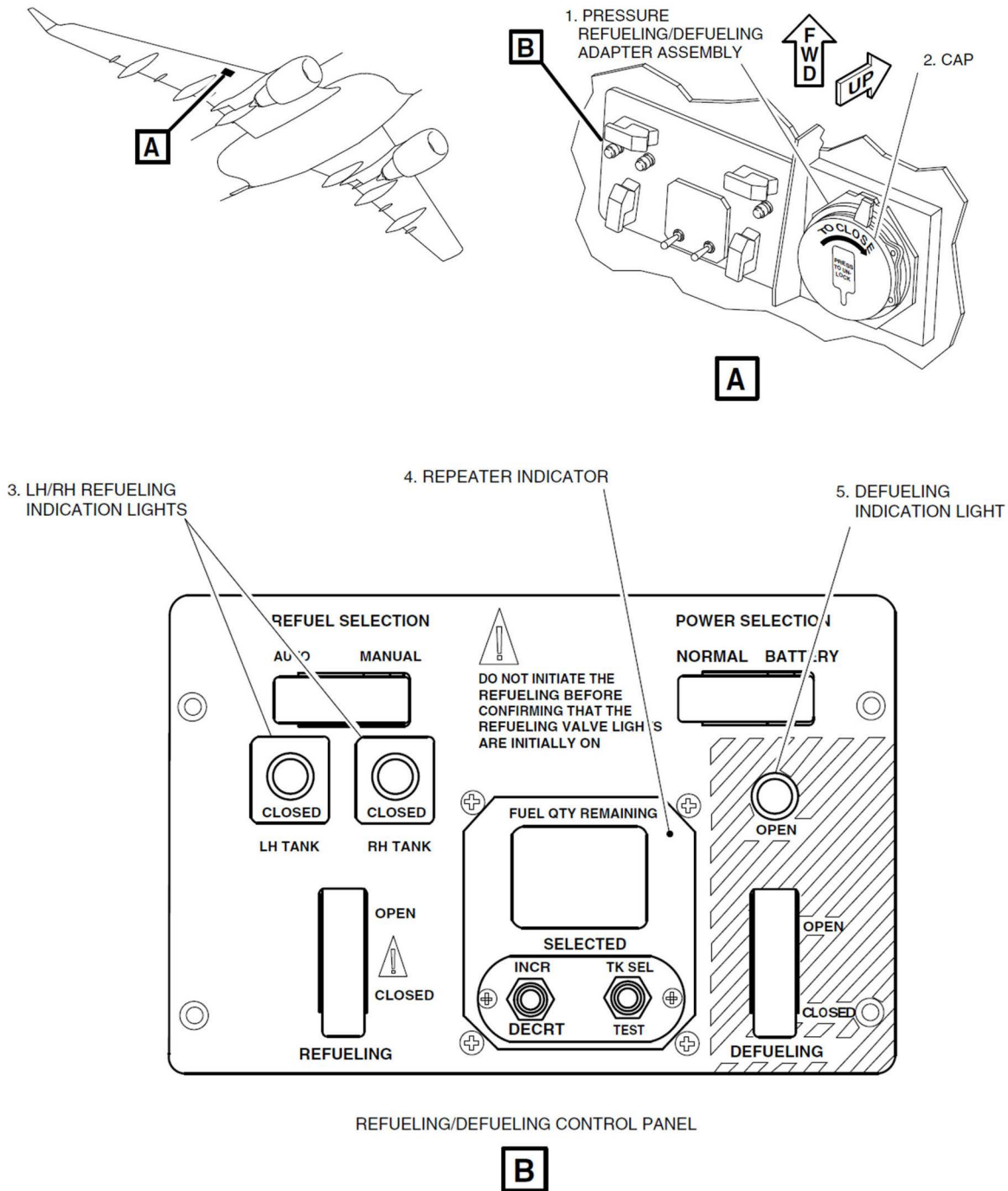


Figure 4-3: E-175 Fuel Control Panel

Fuel Manual

- B. Open the aircraft fuel servicing panel to reveal the refueling/defueling adapter assembly (1) and fuel control panel (B).
- C. Ensure that the REFUELING switch is in the CLOSED position.
- D. Make sure that the LH (left-hand) and RH (right-hand) refueling indication lights (3) are both off.
- E. Make sure that the defueling indication light (5) is off.
- F. Set the REFUEL SELECTION switch to the AUTO position.
- G. Set the repeater indicator (4) to the necessary fuel quantity.
- H. Remove the fuel cap (2) from the refueling/defueling adapter assembly (1) on the aircraft and verify the refueling connections are in good condition and have no signs of cracks or contamination.
- I. Connect the fuel nozzle from the fuel tender.
- J. Pressurize the fuel nozzle to approximately 40 PSI (276 kPa).

WARNING

Never pressurize the fuel nozzle above 50 PSI (345 kPa) for E-175 aircraft. Pressure above 50 PSI can cause damage to the aircraft fuel system. If pressure exceeds 50 PSI, the fuel flow must be stopped and the nozzle pressure recalibrated to be within limits.

- K. Slowly open the handle on the fuel nozzle to fill the manifold.
- L. Make sure that the LH and RH refueling indication lights (3) come on and there is no fuel flow.
- M. Set the REFUELING switch to the OPEN position and make sure that the LH and RH refueling indication lights (3) go off.

CAUTION

Stop the refueling operation if blackout occurs or any message is displayed on the refuel panel. If you do not obey this precaution, fuel leakage or occur and cause damage to the aircraft.

- N. If the STOP R OVER, STOP L OVER, or STOP L/R OVER message shows on the repeater indicator (4), immediately remove the fuel pressure that comes from the refueling source and stop the refueling procedure.

CAUTION

During the refueling procedure, look at the pressure relief valve area in the left and right wing tanks to see if there is a fuel overflow. Overfilling causes a fuel overflow through the air inlet and pressure relief valve. If an overflow occurs and the pressure relief valve does not open, damage to the aircraft structure can occur.

- O. When the necessary fuel quantity has been dispensed, make sure that the LH and RH refueling indication lights (3) come on and that the fuel flow stops.
- P. Set the REFUELING switch to the CLOSED position.

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- Q. Close the valve handle on the fuel nozzle to stop the flow. Set the nozzle pressure to 0 PSI (0 kPa).
- R. Disconnect the fuel nozzle from the refueling/defueling adapter assembly (1).
- S. Check the refueling/defueling adapter assembly (1) for indication of leakage and reinstall the fuel cap. Close the fuel access panel in the wing.

NOTE

Never leave the power selection on the fuel control panel in the BATTERY position unless actively using the aircraft batteries for refueling service. Return the switch to the NORMAL position at the end of all fuel servicing of E-175 aircraft.

- T. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- U. Close all open panels and ensure they are securely latched.

4.4 Manual Pressure Refueling

- A. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 4-3: "E-175 Fuel Control Panel"](#) for the visual diagram of the fuel panel.
- B. Open the aircraft fuel servicing panel to reveal the refueling/defueling adapter assembly (1) and fuel control panel (B).
- C. Ensure that the REFUELING switch is in the CLOSED position.
- D. Make sure that the LH and RH refueling indication lights (3) are off.
- E. Make sure that the defueling indication light (5) is off.
- F. Set the REFUEL SELECTION switch to the MANUAL position.
- G. Remove the fuel cap (2) from the refueling/defueling adapter assembly (1) on the aircraft and verify the refueling connections are in good condition and have no signs of cracks or contamination.
- H. Connect the fuel nozzle from the fuel tender.
- I. Pressurize the fuel nozzle to approximately 40 PSI (276 kPa).

WARNING

Never pressurize the fuel nozzle above 50 PSI (345 kPa) for E-175 aircraft. Pressure above 50 PSI can cause damage to the aircraft fuel system. If pressure exceeds 50 PSI, the fuel flow must be stopped and the nozzle pressure recalibrated to be within limits.

- J. Slowly open the handle on the fuel nozzle to fill the manifold.
- K. Make sure that the LH and RH refueling indication lights (3) come on and there is no fuel flow.

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- L. Set the REFUELING switch to the OPEN position and make sure that the LH and RH refueling indication lights (3) go off as fuel flow begins.

CAUTION

Stop the refueling operation if blackout occurs or any message is displayed on the refuel panel. If you do not obey this precaution, fuel leakage or occur and cause damage to the aircraft.

- M. If the STOP R OVER, STOP L OVER, or STOP L/R OVER message shows on the repeater indicator (4), immediately remove the fuel pressure that comes from the refueling source and stop the refueling procedure.

CAUTION

During the refueling procedure, look at the pressure relief valve area in the left and right wing tanks to see if there is a fuel overflow. Overfilling causes a fuel overflow through the air inlet and pressure relief valve. If an overflow occurs and the pressure relief valve does not open, damage to the aircraft structure can occur.

- N. When the necessary fuel quantity has been dispensed, set the REFUELING switch to the CLOSED position.
- O. Make sure that the LH and RH refueling indication lights (3) come on and the fuel flow stops.
- P. Close the valve handle on the fuel nozzle to stop the flow. Set the nozzle pressure to 0 PSI (0 kPa).
- Q. Disconnect the fuel nozzle from the refueling/defueling adapter assembly (1).
- R. Check the refueling/defueling adapter assembly (1) for indication of leakage and reinstall the fuel cap. Close the fuel access panel in the wing.

NOTE

Never leave the power selection on the fuel control panel in the BATTERY position unless actively using the aircraft batteries for refueling service. Return the switch to the NORMAL position at the end of all fuel servicing of E-175 aircraft.

- S. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- T. Close all open panels and ensure they are securely latched.

4.5 Gravity Refueling (Overwing)

- A. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 4-4: "E-175 Gravity Fuel Port"](#) for the visual diagram of the fuel panel.
- B. Remove the gravity fuel port filler cap(s) from the applicable tank(s) and place the anti-scratch/damage wing mat onto the wing. Each main tank has an adapter at the center of each upper wing skin ([Figure 4-4: "E-175 Gravity Fuel Port"](#)).

Fuel Manual

- C. Insert the fuel nozzle into the overwing fuel port and begin dispensing fuel.
- D. When the desired fuel quantity has been dispensed, stop the fuel flow and remove the nozzle from the fuel tank.
- E. Replace the gravity fuel port cap(s).
- F. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- G. Close all open panels and ensure they are securely latched.

4.6 Suction Defueling

Adhere to all defueling policies and safety guidelines listed within [Chapter 2: "Safety and General Procedures"](#).

- A. Two fueling agents, or one fueling agent and a qualified employee in the flight deck, are required for defueling in the E-175.
 - 1. One agent is to perform the defueling actions on the fuel control panel at the wing and monitor the fuel connection.
 - 2. The second agent or qualified employee will perform the functions within the flight deck required for defueling.
- B. After the aircraft is bonded, ensure that power is being supplied to the aircraft. [Refer to Figure 4-3: "E-175 Fuel Control Panel"](#) for the visual diagram of the fuel panel.
- C. Open the aircraft fuel servicing panel to reveal the refueling/defueling adapter assembly (1) and fuel control panel.
- D. Ensure that the REFUELING switch is in the CLOSED position.
- E. Make sure that the LH and RH refueling indication lights (3) are off.
- F. Verify that the defueling indication light (3) is off.
- G. Remove the fuel cap (2) from the refueling/defueling adapter assembly (1) on the aircraft and verify the refueling connections are in good condition and have no signs of cracks or contamination.
- H. Connect the fuel nozzle from the defuel equipment.
- I. Open the valve handle on the fuel nozzle.

CAUTION

If applying suction during the procedure, do not exceed -4 PSI (-27 kPa). Damage to the aircraft can result if pressure extends below -4 PSI.

- J. Set the DEFUELING switch to the OPEN position and make sure that the defueling indication light (3) comes on.

Fuel Manual

K. For the individual within the flight deck, refer to [Figure 4-5: "E-175 Flight Deck Defueling Controls"](#) for a visual reference to the procedure.

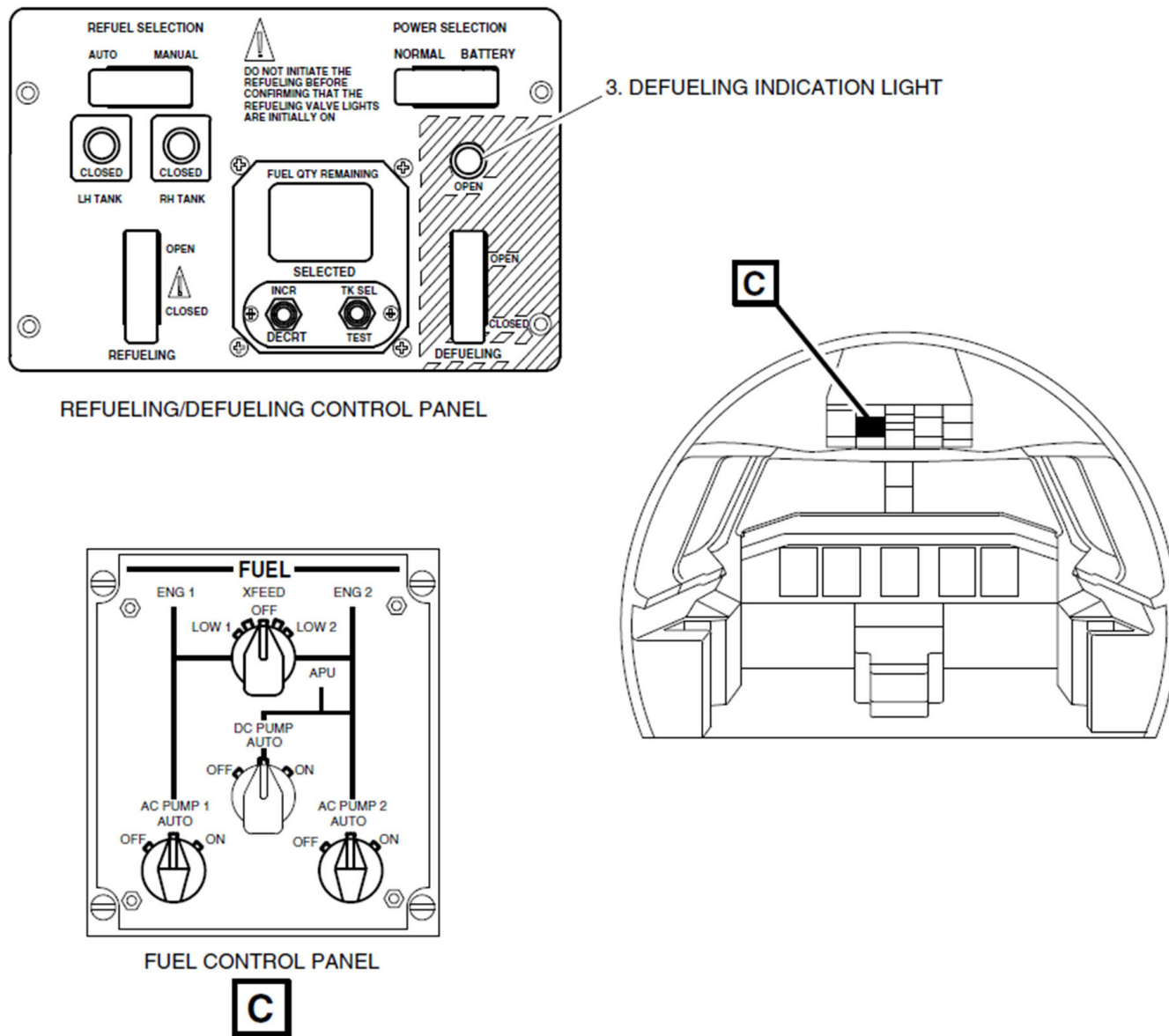


Figure 4-5: E-175 Flight Deck Defueling Controls

1. On the FUEL CONTROL PANEL, set the XFEED switch as applicable:
 - a. To defuel the two tanks, set the switch to the LOW 2 position or LOW 1 position.
 - b. To defuel the LH tank, set the switch to the OFF position.
 - c. To defuel the RH tank, set the switch to the LOW 1 position.

Fuel Manual

- L. Apply suction to the fuel nozzle and/or set the AC PUMP switches on the FUEL control panel, as applicable:
1. To defuel the two tanks, set the AC PUMP 1 and AC PUMP 2 switches to the ON position.
 2. To defuel the LH tank, set the AC PUMP 1 switch to the ON position.
 3. To defuel the RH tank, set the AC PUMP 2 switch to the ON position.

NOTE

If applying suction to the fuel nozzle with the AC PUMP on, the pressure defueling procedure can be done in less time.

- M. After completing the defueling operation, set the DEFUELING switch to the CLOSED position and make sure that the defueling indication light (3) goes off.

CAUTION

When fully defueling the tank, you must stop when the indicator shows 0. In this situation there is a small quantity of fuel in the tank that prevents damage to the fuel pump. Damage to the fuel pump will occur if it operates with no fuel (dry peration).

- N. In the flight deck:
1. Set the XFEED switch to the OFF position.
 2. Set the AC PUMP 1 and AC PUMP 2 switches to the AUTO position.
- O. Close the valve handle on the fuel nozzle and remove any suction pressure.
- P. Disconnect the fuel nozzle from the refueling/defueling adapter assembly (1) and reinstall the cap (2).
- Q. Disconnect the grounding point from the aircraft and remove all tools and supplies before leaving the area.
- R. Close all open panels and ensure they are securely latched.

NOTE

Fuel removed from Mesa Airlines, Inc. aircraft during a defueling procedure may only be placed back into a Mesa Airlines, Inc. aircraft, and must go through filtration again prior to reintroduction to a Mesa Airlines, Inc. aircraft.

END



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Chapter 5: B-737-400/800 Fueling Procedures

5.1 B-737 Systems

5.1.1 General

The Wing Refueling Station, [refer to Figure 5-1: "B-737-400 Wing Refueling Station"](#) and [Figure 5-2: "B-737-800 Wing Refueling Station"](#) respectively, is located in the right wing outboard of right-hand engine. The refueling adapter as shown has a nominal rating of 500 GPM (1893 liters per minute) at 55 PSI (374 kPa).

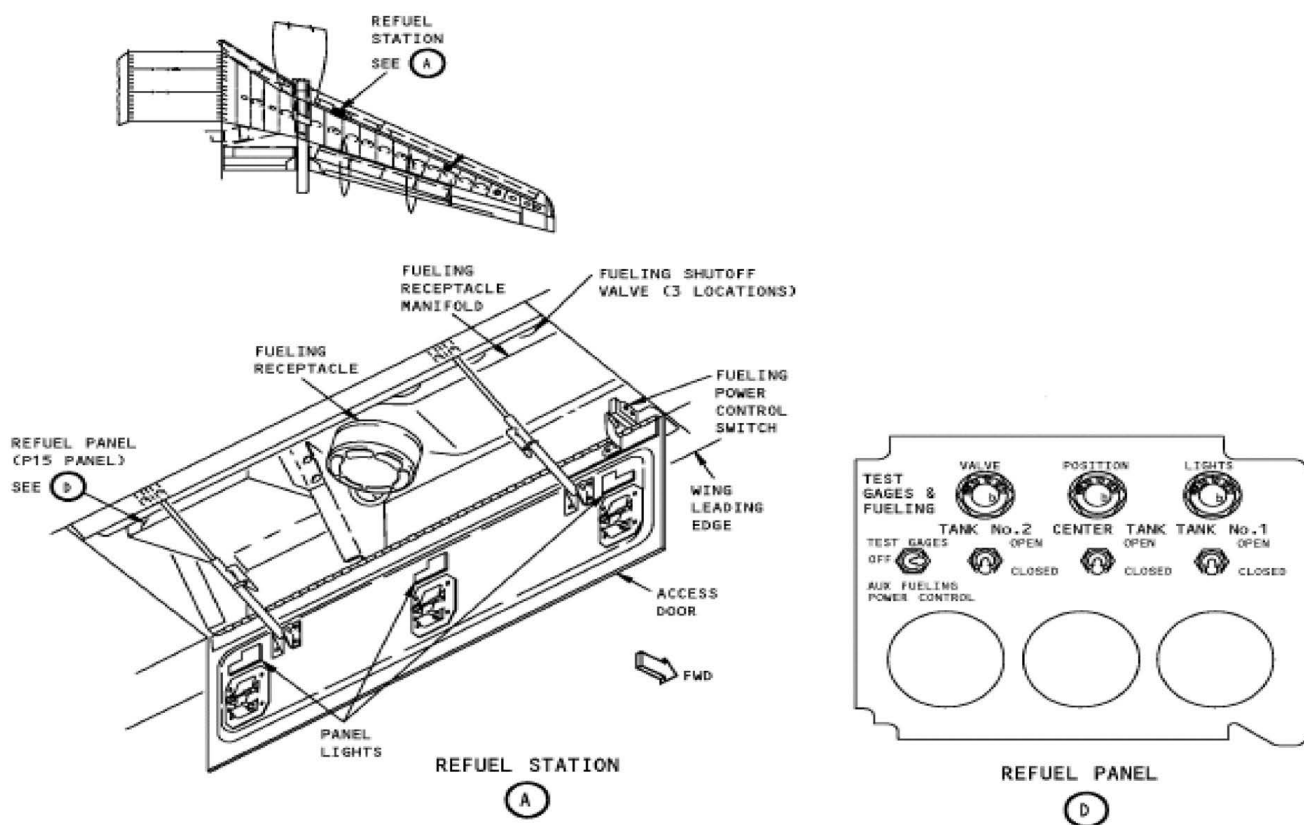


Figure 5-1: B-737-400 Wing Refueling Station

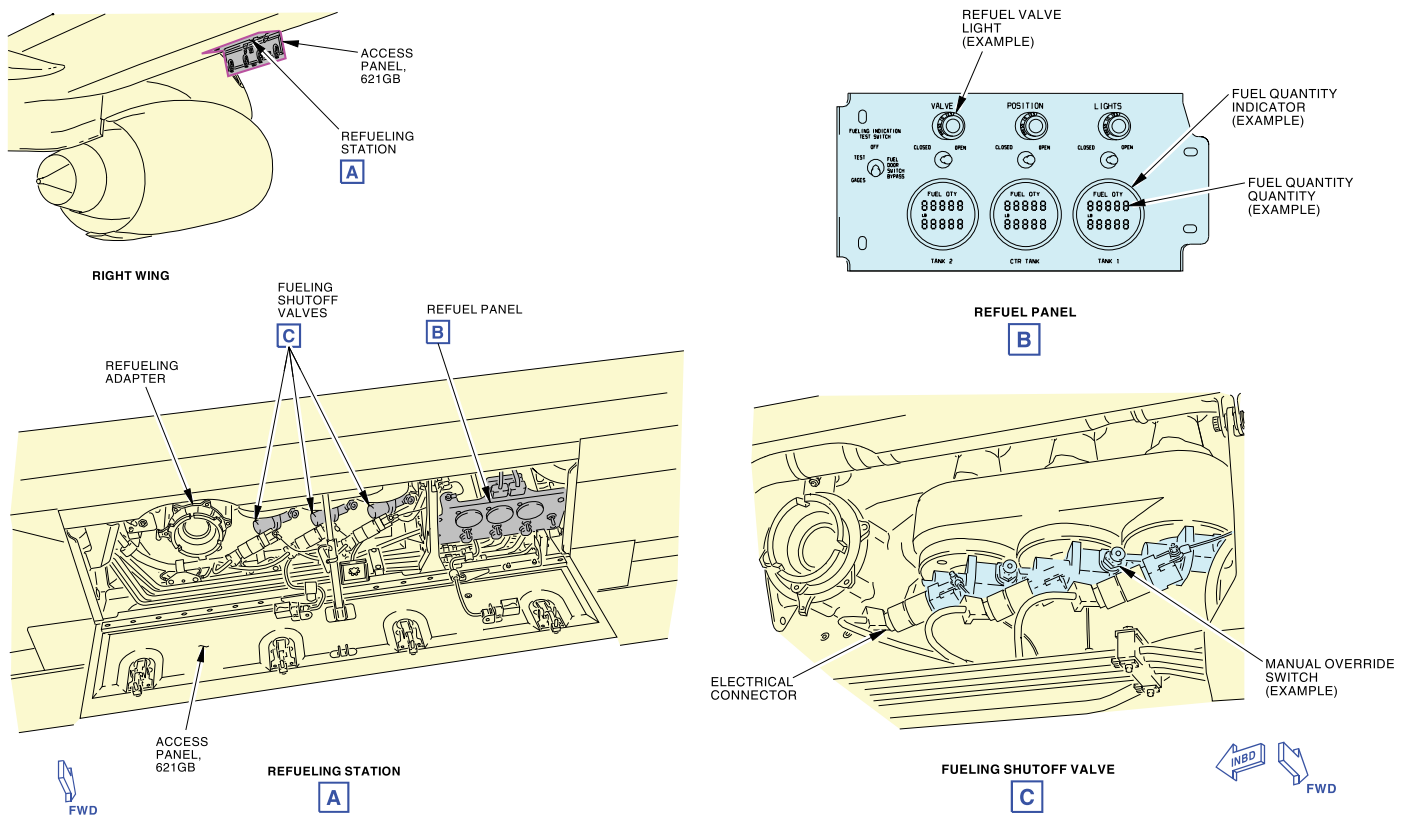


Figure 5-2: B-737-800 Wing Refueling Station

5.1.2 Fuel Sticks

- A. The fuel measuring sticks provide a means of manually measuring fuel quantity.
1. The B-737-400 has five measuring stick assemblies installed through the bottom of each wing, for a total of ten assemblies, [refer to Figure 5-3: "B-737-400 Fuel Measuring Stick Assembly"](#).
 2. The B-737-800 has six measuring sticks in main tank 1 and main tank 2. Each fuel measuring stick is on a fuel tank access door, [refer to Figure 5-4: "B-737-800 Fuel Measuring Stick Assembly"](#). There are four fuel tank measuring sticks in the center tank. Two fuel tank measuring sticks are on fuel tank access panels and two are on the wing skin.

Fuel Manual

B. If fuel stick readings are required to calculate the fuel quantity in the tank, refer to the following manufacturer manuals:

1. B-737-400: Boeing Fuel Measuring Stick Manual D634W126.
2. B-737-800: Boeing Fuel Measuring Stick Manual D634A122.

NOTE

These documents are available on the Mesa Airlines, Inc. Tech Pubs website at: <https://employeeportal.mesa-air.com/TechPubs/>.

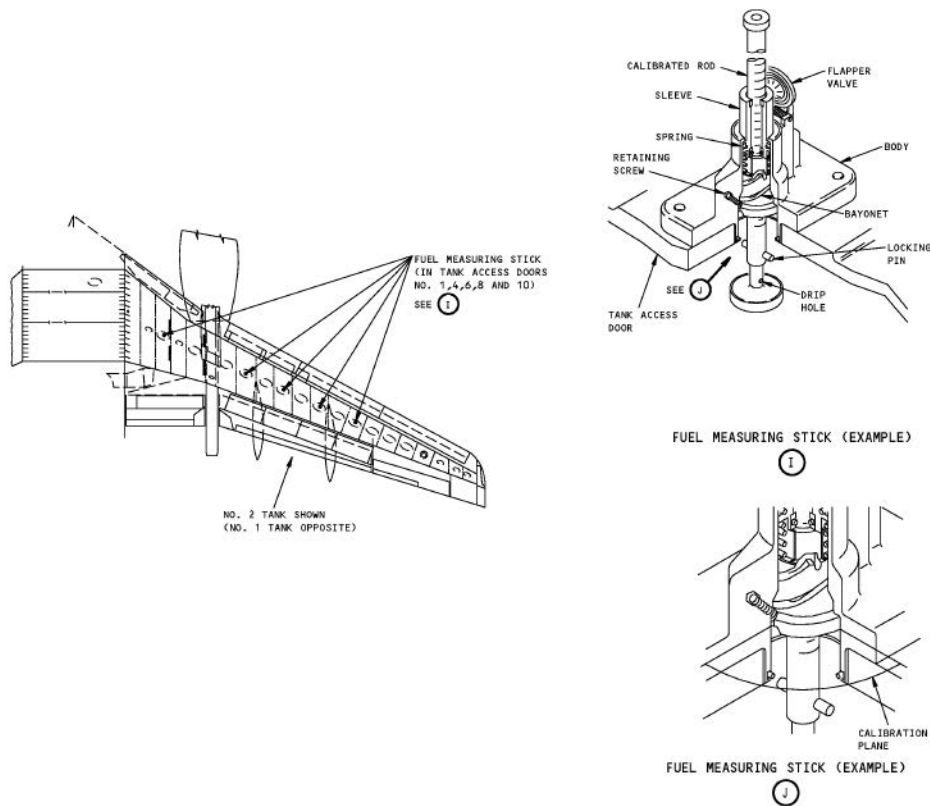


Figure 5-3: B-737-400 Fuel Measuring Stick Assembly

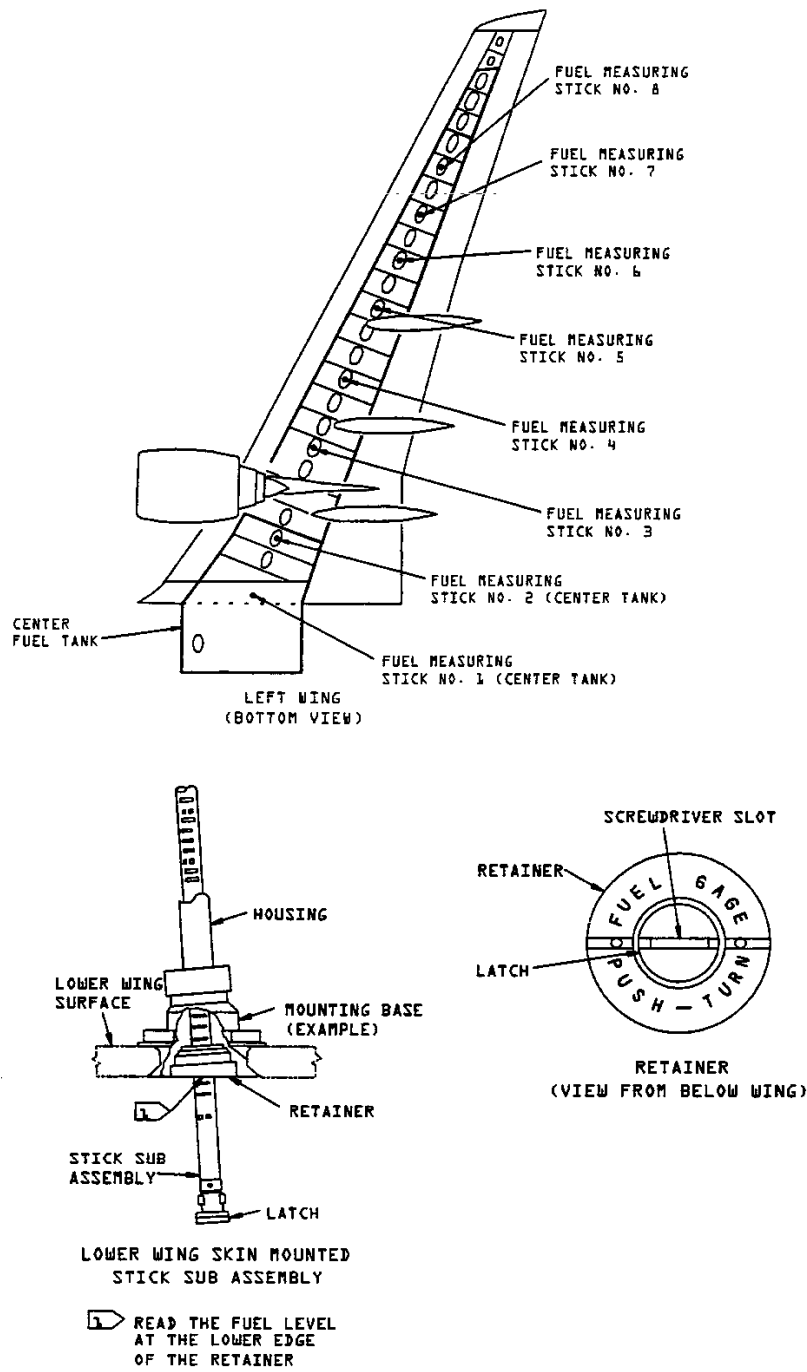


Figure 5-4: B-737-800 Fuel Measuring Stick Assembly

Fuel Manual

5.1.3 Defueling

- A. The fuel system is designed to permit complete or partial defueling of one or more tanks, or to permit fuel transfer to other tanks while the airplane is on the ground.
- B. To do the defueling or fuel transfer, parts of the pressure fueling, engine fuel feed, and defueling systems are used in combination. The fastest defueling of one or more tanks done if you attach a fuel truck hose nozzle to the fueling station receptacle, put the applicable fuel system valves in the open position, and operate the fuel truck defueling pumps and the respective airplane fuel tank boost pumps.

5.1.4 Fuel Sump Drains

- A. Fuel sump areas are found at the lowest point of each tank. Sump drain valves at these sump areas let contaminants be drained from the fuel tank. The sump drain valves also lets all fuel that remains after a tank is defueled to be removed.

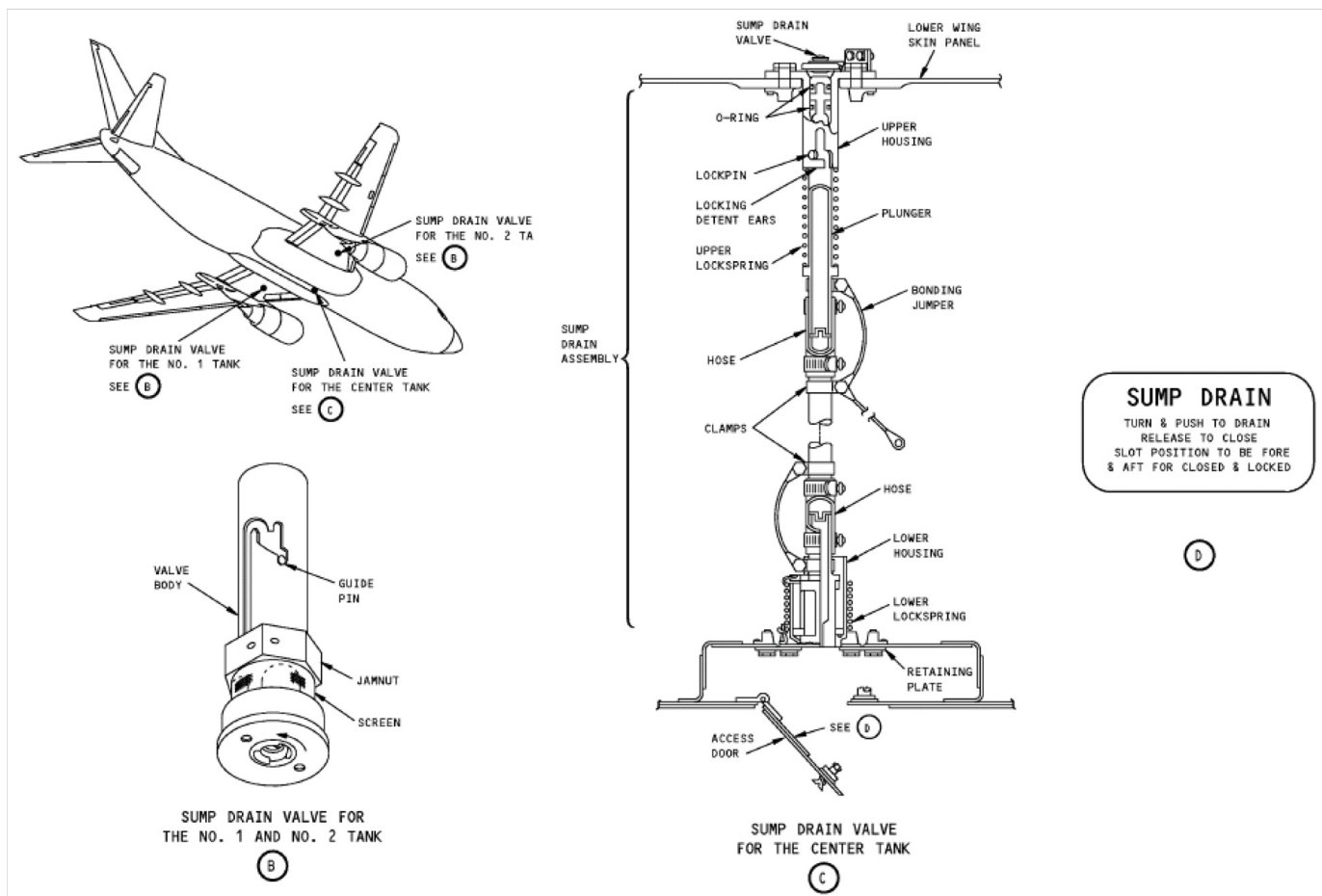


Figure 5-5: B-737-400 Fuel Sump Drains

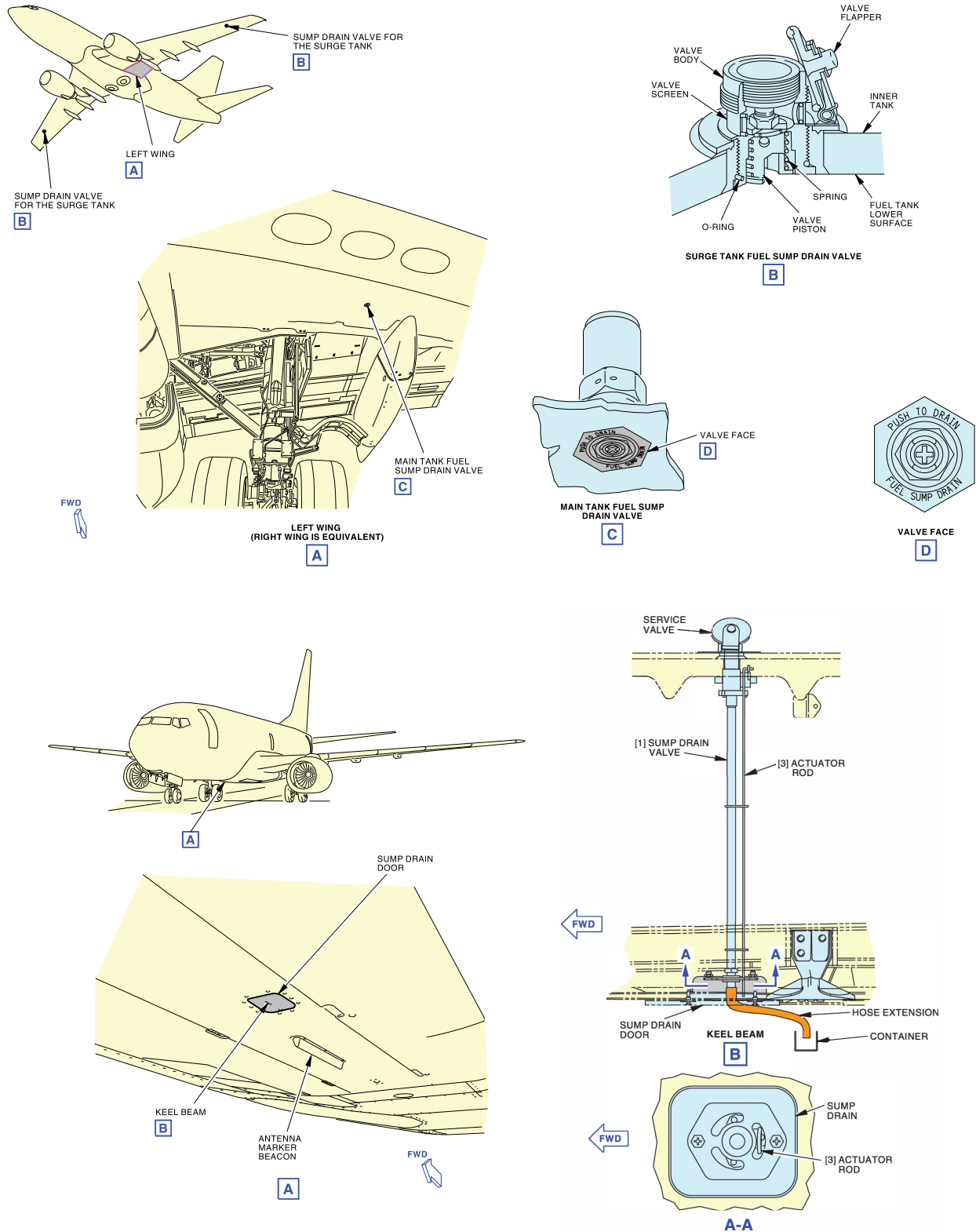


Figure 5-6: B-737-800 Fuel Sump Drains

Fuel Manual

- B. Jet A is a formulated kerosene compound with a range of allowable densities. Fuel density varies with the specific formulation and changes with the season and fuel supplier. The weight of the fuel per gallon (density) changes with differing fuel types and fuel temperature. The mass of fuel that an aircraft can carry varies with the density of fuel loaded. When comparing the indicated fuel mass to fuel loading sheet predicted value, the effects of the difference between the actual fuel density and nominal fuel density must be accounted for. A low density fuel results in less fuel mass being loaded at volumetric shutoff than the loading sheet may predict.
- C. The normal fuel rate for pressure point refueling is approximately 500 gallons (1900 liters) per minute with 50 PSI hose pressure at the fill port. Refuel the airplane at pressures between 35-55 PSI. Never permit pressure to exceed 55 PSI when refueling the B-737 aircraft.
- D. When a full fuel load is necessary, the fueling shutoff valves close automatically once the fuel tanks are full. When a partial fuel load is necessary, the refuel quantity indicators are monitored, and the fueling shutoff valves are closed by moving the fueling shutoff valve switches to OFF when the selected fuel quantity is reached.

CAUTION

Do not try to put more fuel into the tank after the refuel operation stops automatically. The fuel will flow out of the tank vents.

- E. If a tank has an inoperative fuel quantity indicator or electrical power is not available, the fuel quantity can be measured with the measuring sticks in the wing lower skin by following the procedures, [refer to "Fuel Stick Measurements"](#).
- F. The B-737 aircraft has three fuel tanks. The Left (No. 1) and Right (No. 2) Main Fuel Tanks and the Center Fuel Tank.

Table 5-1: B-737-400 Fuel Tank Capacities

Fuel Tank	U.S. Gallons	Liters
Center Tank	2313	8756
Left Main Tank	1499	5674
Right Main Tank	1499	5674
Total Fuel	5311	20104

Table 5-2: B-737-800 Fuel Tank Capacities

Fuel Tank	U.S. Gallons	Liters
Center Tank	4299	16273
Left Main Tank	1288	4876
Right Main Tank	1288	4876
Total Fuel	6875	26025

5.1.5 Fuel Tank Locations

The following figure shows the fuel tank arrangement:

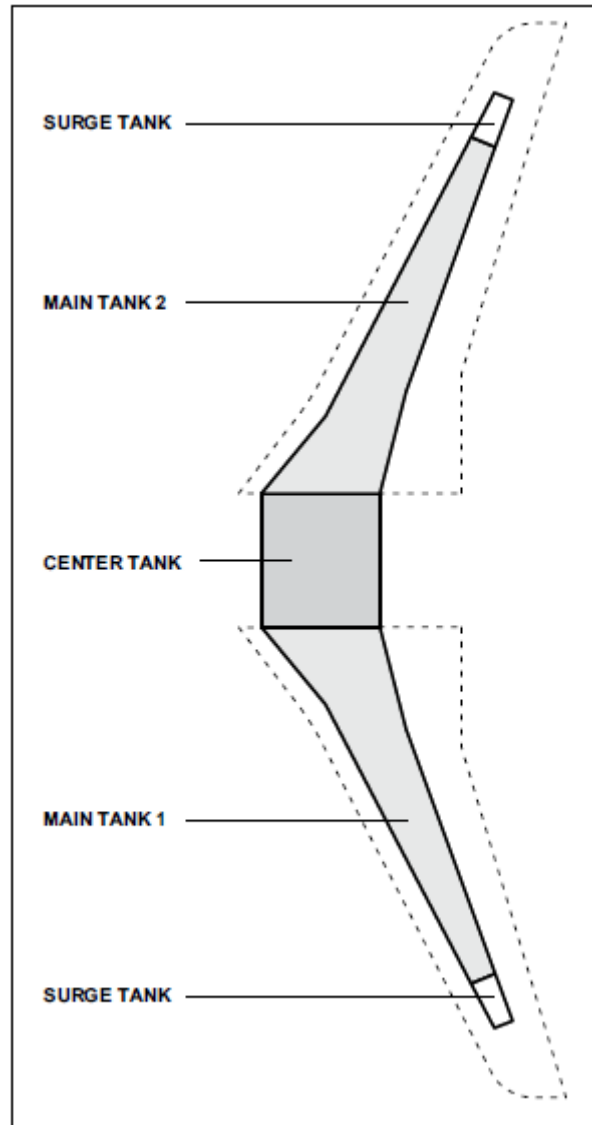


Figure 5-7: Fuel Tank Locations

Fuel Manual

5.1.6 Usable Fuel Quantities and Locations

The following table provides volume and center of gravity data for unusable fuel.

Table 5-3: B-737-400 Under Wing Fueling

Fuel Category	Fuel Location	Volume		B.A. in
		Gallons	Liters	
Drainable Usable	Main Tank 1	1499.0	5674.3	650.7
	Main Tank 2	1499.0	5674.3	650.7
	Center Tank	2313.0	8755.7	600.4
	Feed Lines ¹	4.6 ²	17.4 ²	603.0
	Engines	1.1 ²	4.2 ²	559.4
Total Usable		5316.7	20125.9	628.8

- 1 All fuel in lines between boost pump check valves and engine pump inlets, bypass valves, defuel valves, and APU fuel control. Pump inlet line volume included in tank volume.
- 2 These volumes are not gauged.

Table 5-4: B-737-800 Under Wing Fueling

Fuel Category	Fuel Location	Volume		B.A. in
		Gallons	Liters	
Drainable Usable	Main Tank 1	1288.0	4875.6	700.2
	Main Tank 2	1288.0	4875.6	700.2
	Center Tank	4299.0	16273.4	605.4
	Total Drainable	6875.0	26024.6	640.9
Trapped Usable	Feed Lines ¹	5.1 ²	19.3 ²	635.9
	Engines	0.4 ²	1.5 ²	583.1
	Total Trapped	5.5 ²	20.8 ²	632.1
Total Usable		6880.5	26045.4	640.9

- 1 All fuel in lines between boost pump check valves and engine pump inlets, bypass valves, defuel valves, and APU fuel control. Pump inlet line volume included in tank volume.
- 2 These volumes are not gauged.

Table 5-5: B-737-400 Over Wing Fueling

Fuel Category	Fuel Location	Volume		B.A. in
		Gallons	Liters	
Drainable Usable	Main Tank 1	1494.0	5655.4	650.4
	Main Tank 2	1494.0	5655.4	650.4
Total Usable		2988.0	11310.8	650.4

5.1.7 Unusable Fuel Quantities and Locations

The following table provides unusable fuel quantities and locations.

Table 5-6: B-737-400 Unusable Fuel Quantities and Locations

Fuel Category	Fuel Location	Volume		B.A. in
		Gallons	Liters	
Drainable Usable	Main Tank 1	4.3	16.3	599.0
	Main Tank 2	4.3	16.3	599.0
		2.3	8.7	600.9
	Total Drainable	10.9	41.3	599.4
Trapped Unusable ¹	Main Tank 1	0.3	1.1	598.0
	Main Tank 2	0.3	1.1	598.0
	Center Tank	5.6	21.2	599.4
	Feed Lines ²	0.9	3.4	554.9
	Fueling Manifold	1.1	4.2	577.6
	Engines	4.2	15.9	599.3
	Pumps	0.2	0.8	603.0
	Total Trapped	12.6	47.7	581.0
Total Usable		23.5	89.0	589.5

- 1 Based on an airplane nominal ground attitude of 0.15 degrees nose down and 0 degrees roll.
- 2 All fuel in lines between boost pump check valves and engine pump inlets, bypass valves, defuel valves, and APU fuel control. Pump inlet line volume included in tank volume.

Table 5-7: B-737-800 Unusable Fuel Quantities and Locations

Fuel Category	Fuel Location	Volume		B.A. in
		Gallons	Liters	
Drainable Unusable ¹	Main Tank 1	2.2	8.3	659.4
	Main Tank 2	2.2	8.3	659.4
	Center Tank	1.2	4.5	596.7
	Total Drainable	5.6	21.1	646.0
Trapped Unusable ¹	Main Tank 1	1.7	6.4	660.8
	Main Tank 2	1.7	6.4	660.8
	Center Tank	1.7	6.4	596.7
	Feed Lines ²	6.4	24.2	635.9
	Manifold	1.0	3.8	665.8
	Engines	0.4	1.5	583.1
	APU Feed Line	0.5	1.9	665.8
	Total Trapped	13.4	50.6	639.0
Total Unusable		19.0	71.7	641.1

- 1 Based on an airplane nominal ground attitude of 1.14 degrees nose down and 0 degrees roll.
- 2 All fuel in lines between boost pump check valves and engine pump inlets, bypass valves, defuel valves, and APU fuel control. Pump inlet line volume included in tank volume.

5.1.8 Load Limitations

- A. First, load the left and right main tanks (No. 1 and No. 2) to the desired quantity or until full.
- B. Load additional fuel in the center tank. The left and right main tanks must be scheduled to be full if the center tank contains more than 1000 lbs. (453 Kg) of fuel.

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5.1.9 Approved Bonding Locations

- A. Before commencing any fuel servicing on Mesa Airlines, Inc. aircraft, ensure the aircraft has been properly bonded to the fuel tender. [Refer to Figure 5-8: "B-737 Bonding Locations"](#) for reference to the following procedures.
- B. Always follow the policies, general fueling procedures, warnings and precautions in [Chapter 2: "Safety and General Procedures"](#) during aircraft fuel servicing.

WARNING

Before refueling/defueling the aircraft, the fuel tender, the aircraft and the fuel nozzle must be bonded. A static electric spark during the procedure can result without bonding these elements properly and cause an explosion or a fire.

- C. The B-737 aircraft have two different bonding locations:
 1. On the inside of the wheel well of the left and right main landing gear, which can be attached to with an alligator (clamp-style) connector (refer to "A" below).
 2. On the underside of each wing where a bayonet (plug-style) connector can be inserted.

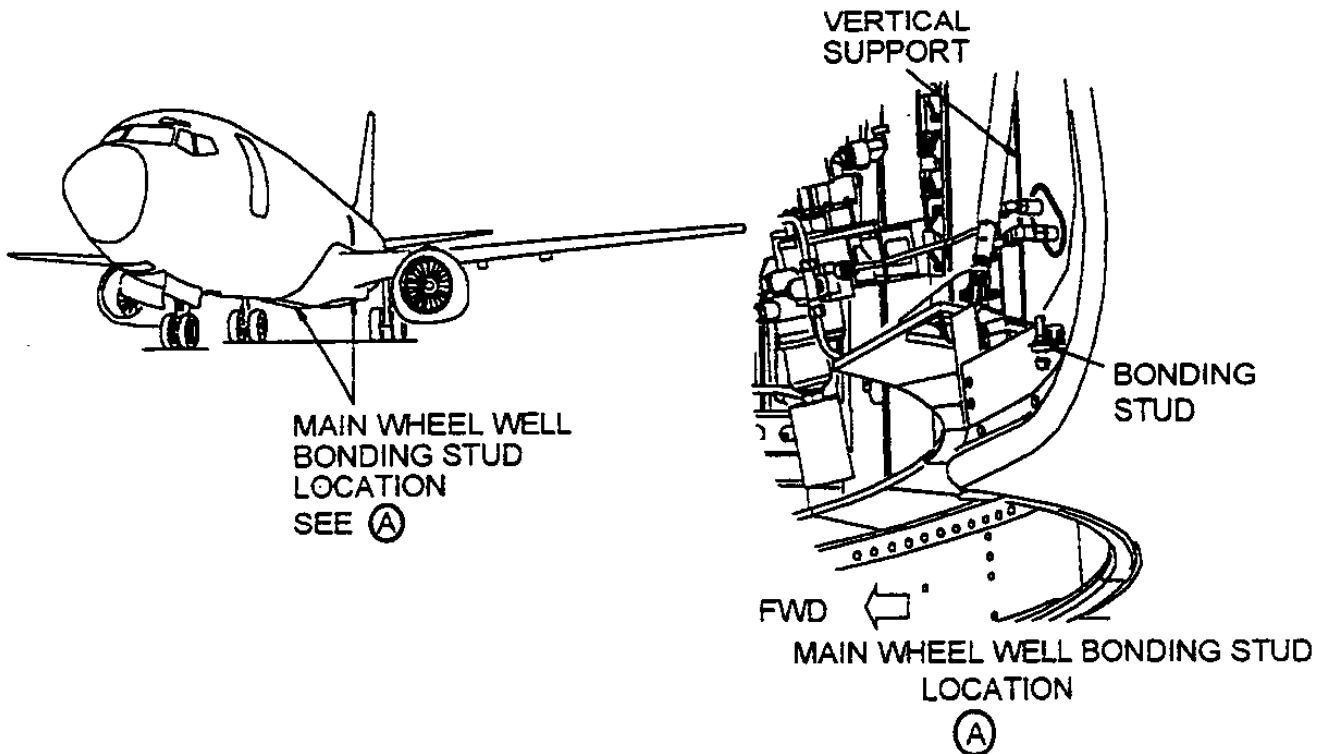


Figure 5-8: B-737 Bonding Locations

Fuel Manual

5.2 B-737 Normal Fueling

5.2.1 Normal Refuel Procedures

A. For normal fueling operations, the fueling agent must:

1. Ensure the aircraft has been bonded via an approved bonding location and that there is power being supplied to the aircraft.
2. Open the fuel access panel installed on the right wing.
3. Connect the refuel nozzle and set the pressure to approximately 50 PSI.

CAUTION

Never pressurize the fuel nozzle above 55 PSI (379 kPa) for any B-737 aircraft. Pressure above 55 PSI can cause damage to the aircraft fuel system. If pressure exceeds 55 PSI, the fuel flow must be stopped and the nozzle pressure recalibrated to be within limits.

4. Press the indicator test button and ensure all of the fuel indicators are working properly.
5. Put the refuel valve control switches in the OPEN position and verify the indicator lights come on.
6. Start the fuel flow. If fueling the aircraft to capacity, the fuel shutoff valves close automatically and stop the fuel flow.
7. Put the refuel valve control switches in the CLOSED position after automatic shutoff, or when the required fuel load has been fueled.

CAUTION

Do not try to put more fuel into the tank after the refuel operation stops automatically. The fuel will flow out of the tank.

8. Stop the fuel flow and set the nozzle pressure to 0 PSI.
9. Remove the fuel nozzles.
10. Disconnect the bonding connection from the aircraft and remove all tools and supplies before leaving the area.
11. Close all open panels and ensure they are securely latched.

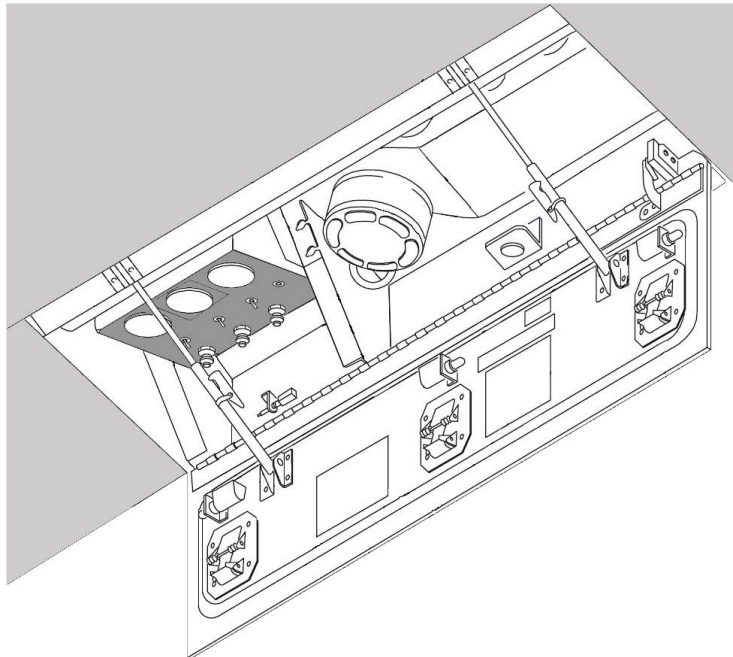
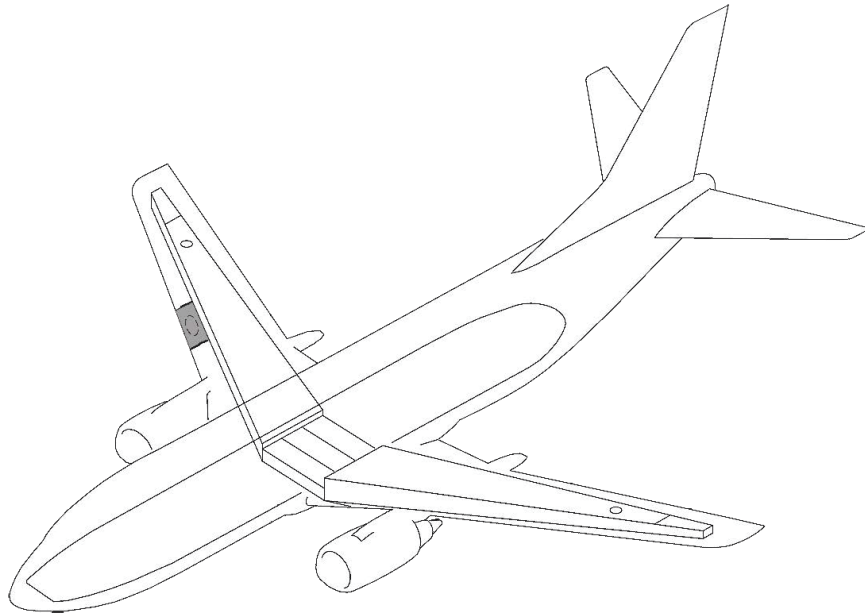


Figure 5-9: B-737-400 Wing Refueling Station

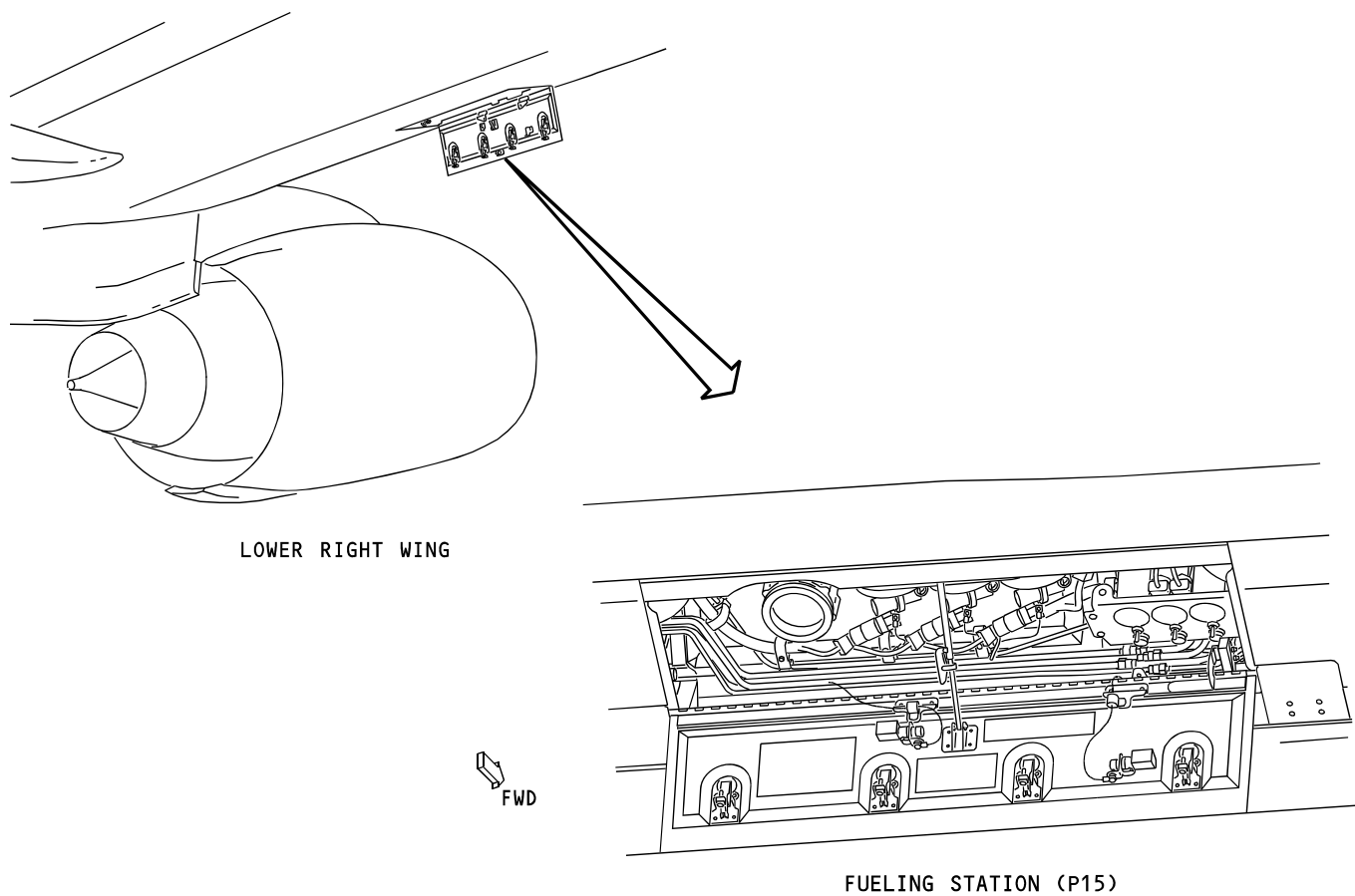
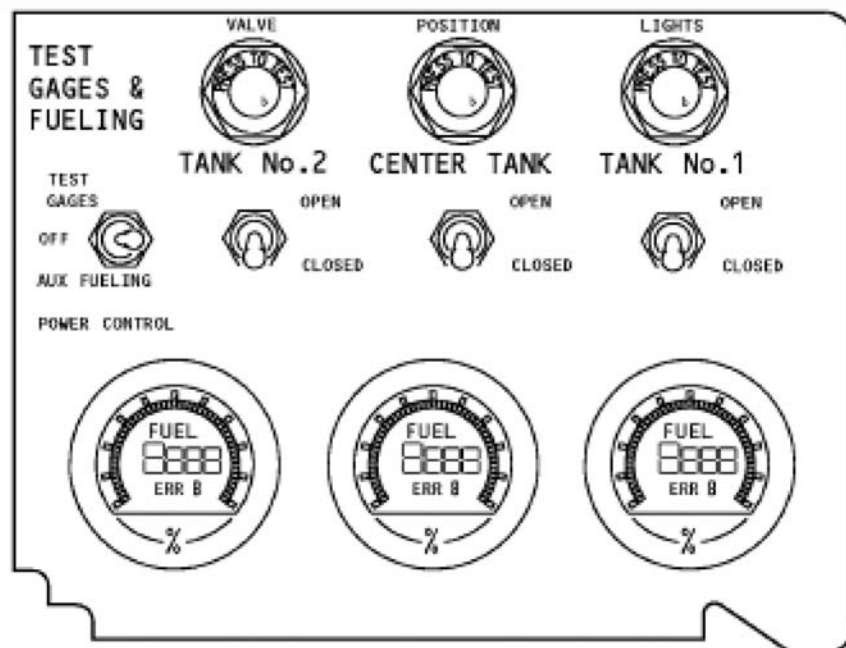


Figure 5-10: B-737-800 Wing Refueling Station



REFUEL PANEL

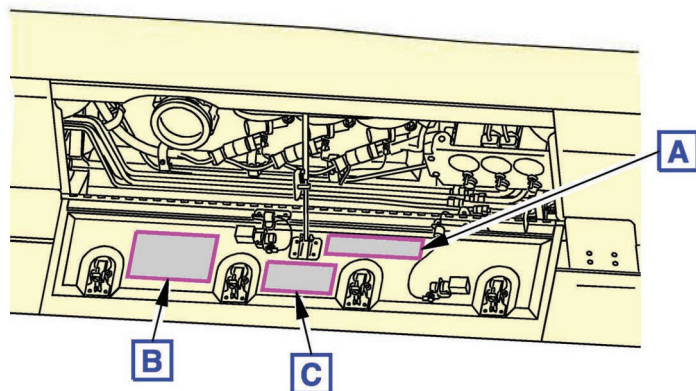
FUELING INSTRUCTIONS

1. INSTALL GROUNDING JACKS, THEN REMOVE CAP AND COUPLE FUELING NOZZLE.
2. TEST GAGES AND VALVE POSITION LIGHTS.
3. OPEN CONTROL SWITCHES FOR TANKS TO BE SERVICED. BEGIN FUEL FLOW.
4. CLOSE CONTROL SWITCHES AT THE REQUIRED FUEL QUANTITY OR FILL TO AUTOMATIC SHUT-OFF. UNCOUPLE NOZZLE, INSTALL CAP, THEN REMOVE JACKS.
5. ALL CONTROL SWITCHES AND VALVES MUST BE IN THE CLOSED POSITION BEFORE FLIGHT. VERIFY VALVE POSITION-BLUE LIGHT OFF-BULB OPERATIVE.

NOTE: BLUE LIGHT INDICATES VALVE ENERGIZED OPEN FOR FUELING OPERATION.

FUELING INSTRUCTIONS

Figure 5-11: B-737-400 Refuel Valve Control Unit



USABLE FUEL CAPACITY		
TANK NO. 1	CENTER TANK	TANK NO. 2
XX U.S. GALLONS	XX U.S. GALLONS	XX U.S. GALLONS
XX LITERS	XX LITERS	XX LITERS

(EXAMPLE)

A

FUELING INSTRUCTIONS

1. INSTALL GROUNDING JACKS AND COUPLE FUELING NOZZLE.
2. TOGGLE SWITCH TO "TEST GAGES" POSITION-VERIFY ALL UPPER AND LOWER DISPLAYS READ 88888.
3. PRESS BLUE "VALVE POSITION LIGHTS"-VERIFY LIGHTS ILLUMINATE.
4. OPEN CONTROL SWITCHES FOR TANKS TO BE SERVICED. BEGIN FUEL FLOW.
CAUTION-FLASHING UPPER GAGE INDICATES MAXIMUM TANK CAPACITY HAS BEEN EXCEEDED. STOP FUELING AT TRUCK.
5. CLOSE CONTROL SWITCHES WHEN FUELING STOPS AT FULL TANK OR DESIRED QUANTITY IS REACHED.
6. UNCOUPLE NOZZLE AND REMOVE JACKS.
7. VERIFY ALL CONTROL SWITCHES ARE RETURNED TO THE OFF POSITION AND BLUE "VALVE POSITION LIGHTS" ARE OFF.

NOTE:
BLUE LIGHT INDICATES VALVE ENERGIZED OPEN FOR FUELING OPERATION.

(EXAMPLE)

B

CAUTION

DO NOT EXCEED 55 PSIG/379 kPa FUEL PRESSURE.
MINIMUM DEFUEL PRESSURE IS -5 PSIG/-35 kPa.
SERVICE THIS AIRPLANE WITH
JET FUEL SPEC. GE D50TF2 EXCEPT:
DO NOT USE WIDE CUT FUELS
(CLASS B PER GE D50TF2, JET B OR JP-4)

(EXAMPLE)

C

Figure 5-12: B-737-800 Refuel Valve Control Unit

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5.3 B-737 Abnormal Fueling Procedures

5.3.1 Fueling with One Engine Operating

- A. This alternate procedure may be used only when an engine cannot be restarted because of inoperative ground or aircraft starting equipment, and where not prohibited by airport regulation.
- B. The following requirements must be met to fuel with one engine operating:
 - 1. No persons other than required for fuel servicing may be within 50 feet of the aircraft.
 - 2. The aircraft must be positioned at least 50 feet away from the loading area of the terminal building and from other aircraft.
 - 3. The aircraft must be in a position where the nose of the aircraft is into the wind.
 - 4. A mobile piece of airport firefighting equipment must be positioned on the aircraft, properly manned and with the engine running.
 - 5. Personnel involved must be briefed fully before the fueling operation may be started.
 - 6. Personnel not directly involved are to stay a safe distance away from the aircraft.
 - 7. Adequate precautions must be established to keep other persons away from the area of the running engine.
 - 8. The running engine must be closely monitored.
 - 9. Communications between personnel on the ground and the flight deck must be maintained at all times.

CAUTION

Fueling equipment must never enter the engine jet blast zone of the aircraft's operating engine. Refer to Figure 2-3: "B-737-400/800 Jet Blast Area" for a visualization.

5.3.2 Fueling with Inoperative Fuel Valves

Refer to Figure 5-13: "B-737-400 Fuel Shut Off Valve" and Figure 5-14: "B-737-800 Fuel Shut Off Valve" for diagrams of the B-737-400 and B-737-800 manual controls for fuel valves.

- A. When the valve control is set to the open position and a valve light does not come on, it shows that the valve is not open.
- B. If a refuel valve cannot be opened by the normal electrical means, the valve can be opened manually. When a refuel valve has been opened manually and desired fuel quantity has been serviced, fueling must be stopped. After closing the refuel valve manually, fueling of other tanks can be resumed as required.

CAUTION

There is no automatic refuel shutoff or overfill protection when the refuel valves are opened manually. Do not fuel tanks above their capacity, fuel can spill into the surge tanks and possibly overboard.

CAUTION

Do not manually use the refuel valves to slow or stop the refueling. If the refuel valves are manually closed during fueling, pressure surges and damage to the equipment can occur.

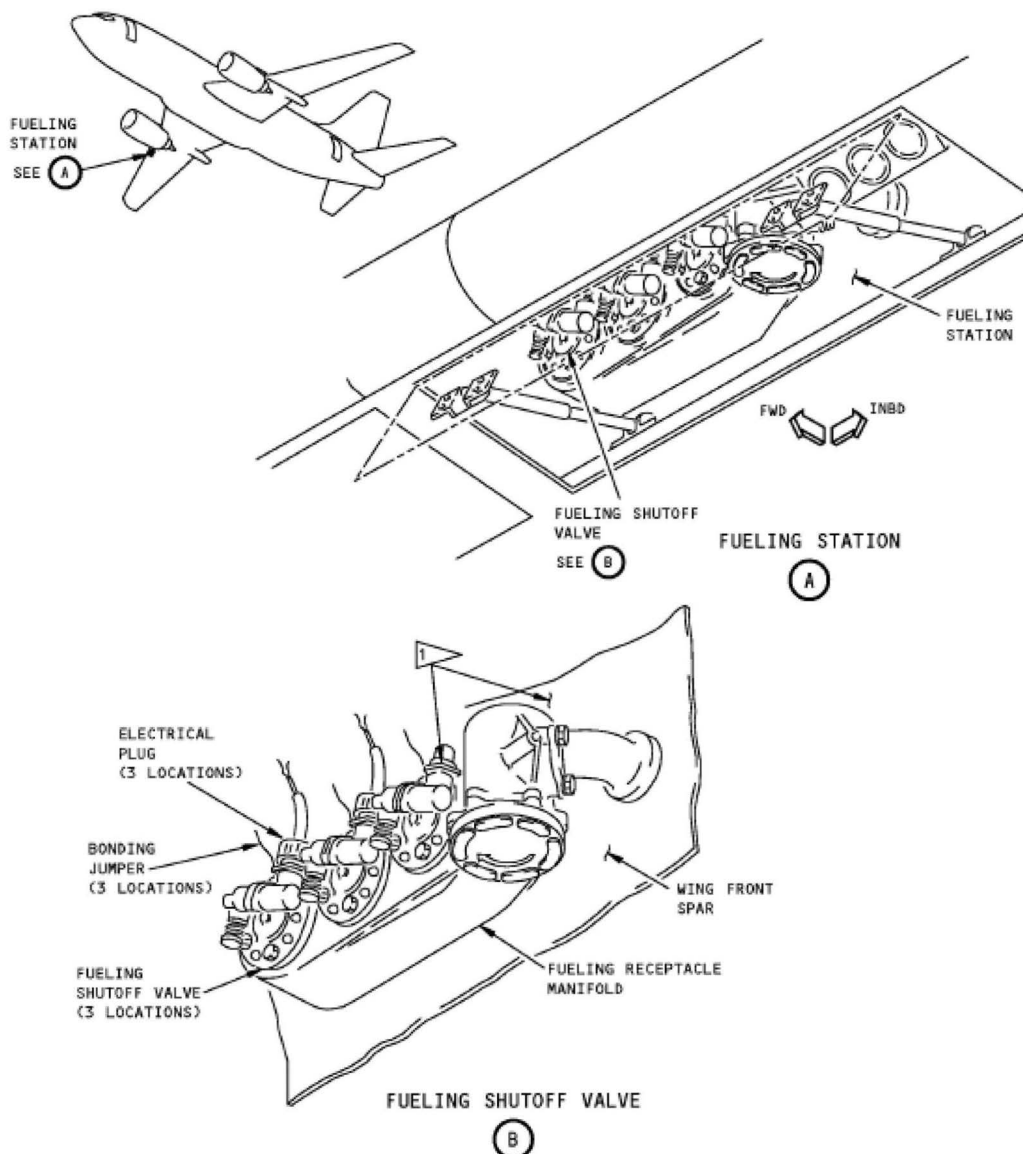


Figure 5-13: B-737-400 Fuel Shut Off Valve

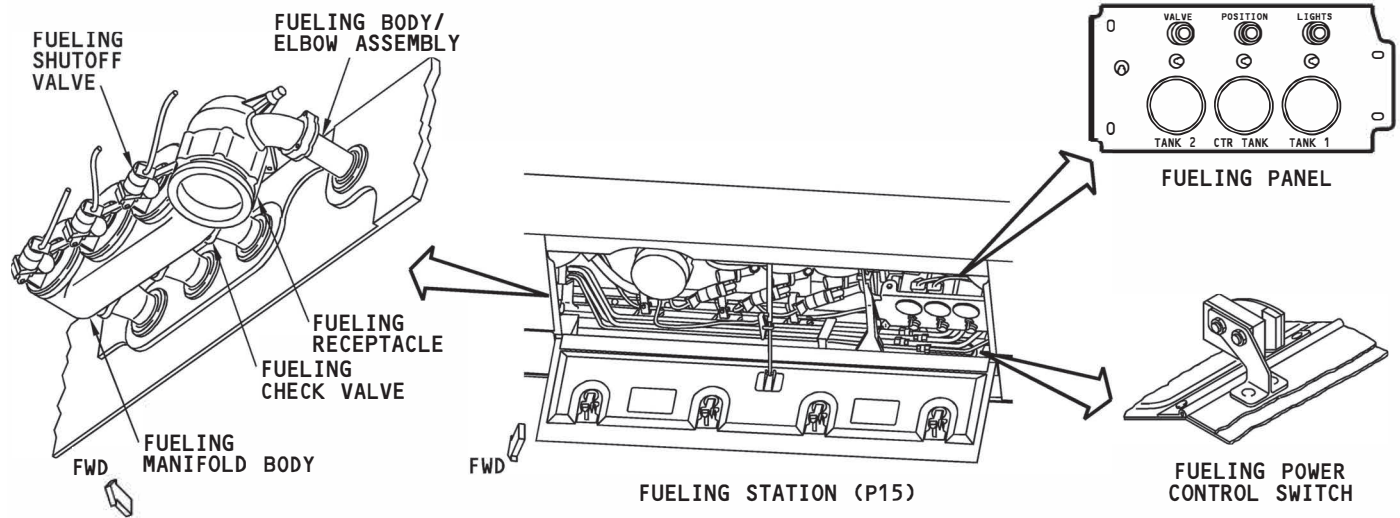


Figure 5-14: B-737-800 Fuel Shut Off Valve

5.3.3 Fueling with Inoperative Fuel Quantity Display

Fueling agents can refuel a tank with a fuel quantity indicating system that does not operate correctly (a bad indicator) by using the following methods:

- A. Calculate the fuel quantity from the values on the fuel measuring sticks using the procedures in "[Fuel Stick Measurements](#)", and then commence fueling normally until the desired quantity has been dispensed into the aircraft.
- B. Fuel can also be moved to refuel one of the wing tanks as an alternative to the fuel measuring stick procedure, as described in "[Tank Transfer Method](#)".
- C. Move fuel from a different tank if the center tank requires refueling when its indicators do not operate.
- D. Use the conversion tables from the applicable fuel measuring stick manual to find what the stick indication should be for the final refuel quantity in the tank.

5.3.4 Fuel Stick Measurements

The following is the refuel procedure used by fueling agent if fuel quantity for a tank does not show on the refuel panel. The Boeing documents D634W126 and D634A122, also referred to as the Fuel Stick Measuring Manual, are available on the Mesa Airlines, Inc. Tech Pubs website at: <https://employeeportal.mesa-air.com/TechPubs/>.

- A. Use the conversion tables from the fuel measuring stick manual to find what the stick indication should be for the refuel quantity in the tank. [Refer to "Fuel Stick Measurements"](#) for further information.
- B. Ensure the attitude of the aircraft is determined in accordance with the procedure described within the Fuel Stick Measuring Manual.

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- C. Set a container that can catch fuel below each of the extended fuel dripstick.
- D. Open the access panel on the right wing.
- E. Connect the refuel nozzle to the refuel receptacle.
- F. Start the fueling source.
- G. Put fuel into the tank until fuel starts to fall in drops from the fuel dripstick.
- H. Stop the refuel operation.
- I. Permit the fuel level in the tanks to become stable for five minutes.
- J. Examine the fuel dripstick to confirm quantity is at desired level.
- K. Continue to refuel the tanks and permit the fuel level to become stable until the fuel continues to fall from the fuel dripstick after the five minute time.
- L. Lock the fuel dripstick in the retracted position.
- M. Do the necessary procedure to refuel the remaining tanks.

5.3.5 Tank Transfer Method

The following is the refuel procedure used by fueling agents if fuel quantity for a tank does not show on the refuel panel.

CAUTION

Obey all of the applicable safety precautions and the load limits to prevent damage to the aircraft.

- A. Left, Right or Center Tank Indication Inoperative:
 - 1. Move the fuel from the tank with the bad indicators to a different tank or tanks.
 - 2. Calculate the weight of the quantity of fuel that must be put into the tank with the bad indicator.
 - 3. Move the quantity of fuel (calculated before) from a tank with good fuel quantity indicators to the defueled tank.
 - 4. Refuel the tank that was emptied into the tank with the inoperative indicator.
 - 5. Do the necessary procedure to refuel the remaining tank.
- B. Center Tank Indication Inoperative with wing tanks full:
 - 1. Record left and right wing fuel tank full (top off) quantity indications.
 - 2. Pump fuel from wing tanks to the center tank until the fueling transfer stops by the activation of the center tank fueling float switch.
 - 3. Record current left and right wing tank indications and subtract from previously recorded full indications and add both. Record this calculation as center fuel quantity added to bring the center tank quantity to full (top off).

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4. Refill the left and right wing tanks by pumping fuel from the center tank to the wing tanks until they are full (indication agrees with full values recorded in the first step).
5. Subtract the center fuel quantity added from the full center tank quantity of 15,497 lbs. for the B-737-400 and 30,522 lbs. for the B-737-800. This value provides the current center fuel tank quantity.

5.3.6 Overwing Refueling

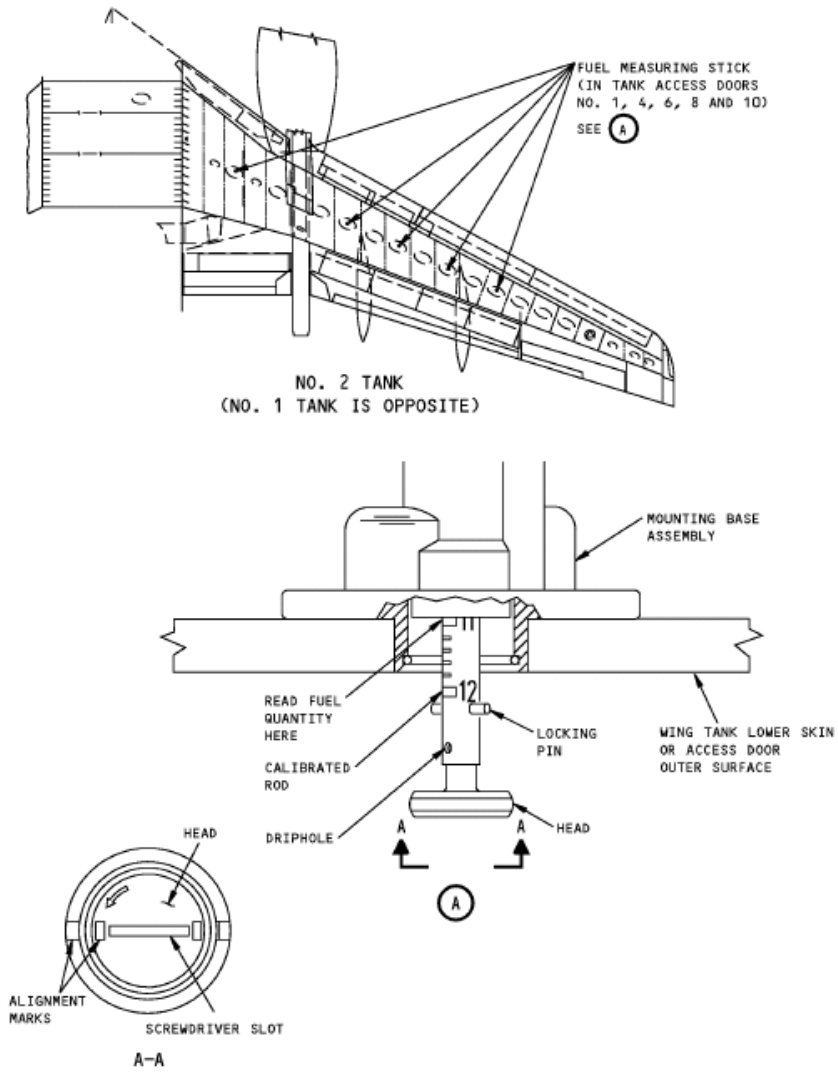
Refer to [Figure 5-17: "Overwing Fill Port"](#) for the fill port locations on the surface of the B-737 wings.

- A. The B-737 left and right main tanks can be fueled with the overwing refuel procedure. Fuel can also be moved from the two main tanks into the center tank with the fuel boost pumps.
- B. The overwing refuel procedure can be used without electrical power if the fuel measuring sticks and the applicable conversion manual is used.
- C. If the refuel quantity indicators must be operated during the over wing refuel operation, external power can be used.

CAUTION

Make sure the fuel level is below the level of the cap before removing the cap. Fuel can flow from the port to the surface of the wing.

- D. For overwing refueling:
 1. Ensure the aircraft has been bonded via an approved bonding location and that there is power being supplied to the aircraft, if required.
 2. Remove the caps from the overwing fill ports in the left and right main tanks.
 3. Put the refuel nozzles into the overwing fill ports.
 4. Fill the left and right main tanks.
 5. If it is required to refuel the center tank, move fuel from the main tanks.
 6. Fill the left and right main tanks with fuel again to replace the quantity that was moved to the center tank.
 7. When the necessary quantity of fuel is in the tanks, remove the refuel nozzles from the overwing fill ports.
 8. Install the caps on the overwing fill ports.
 9. Disconnect the bonding connection from the aircraft and remove all tools and supplies before leaving the area.
 10. Close all open panels and ensure they are securely latched.



Fuel Measuring Stick Extended Position (Example)

Figure 5-15: B-737-400 Fuel Measuring Sticks

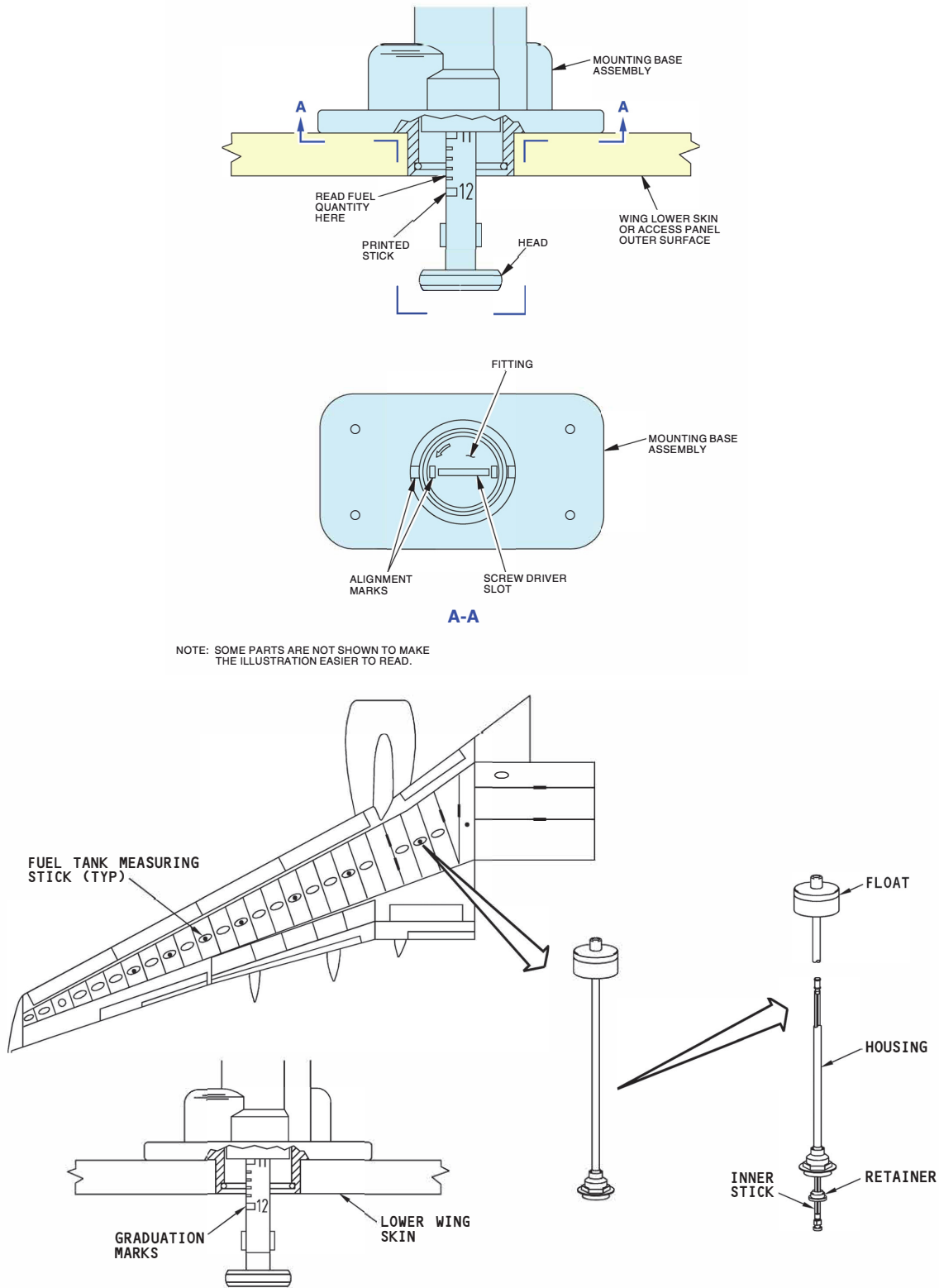


Figure 5-16: B-737-800 Fuel Measuring Sticks

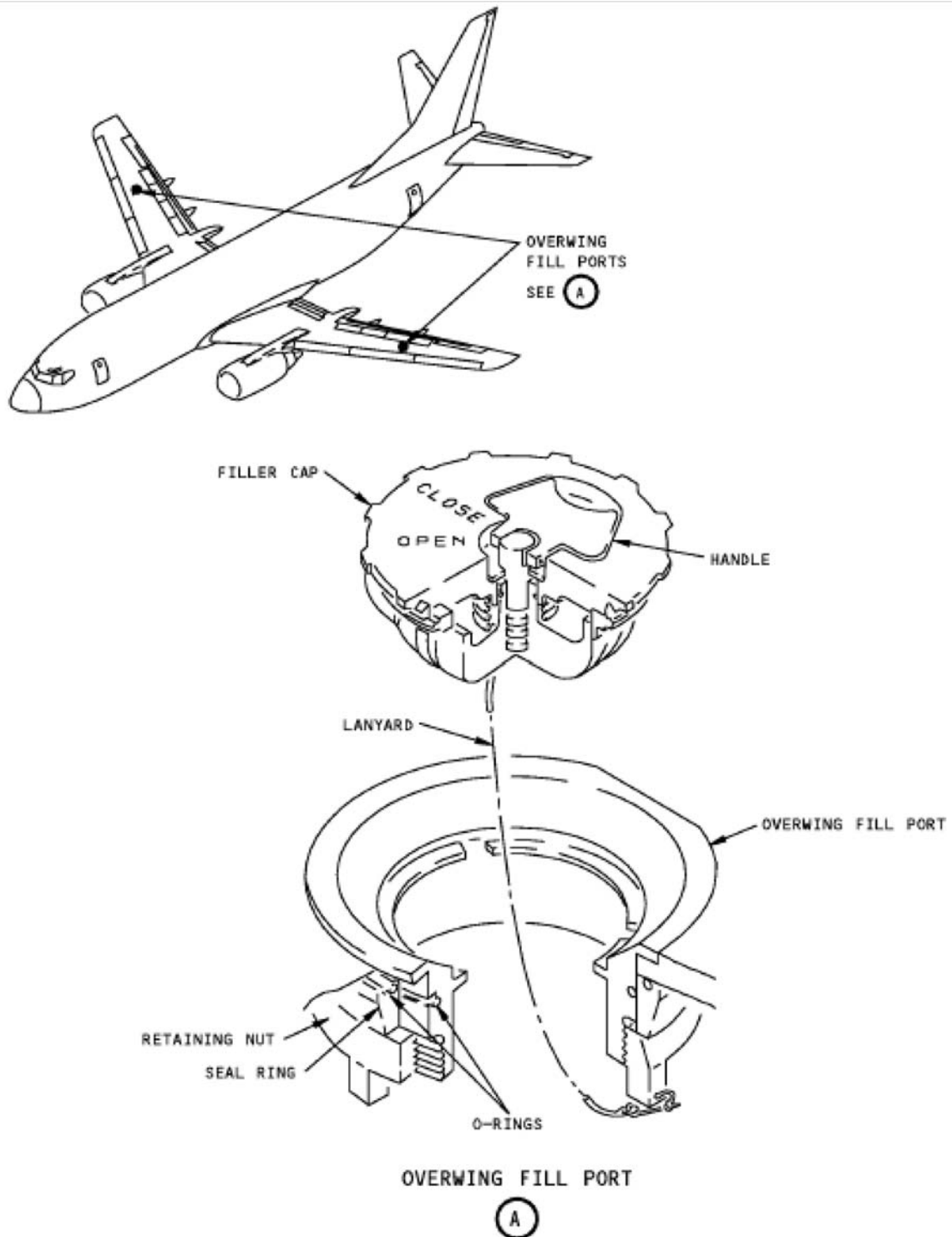


Figure 5-17: Overwing Fill Port

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5.4 Fuel Stick Measurements

5.4.1 General

- A. The Boeing documents D634W126 and D634A122, also referred to as the Fuel Stick Measuring Manual, is available on the Mesa Airlines, Inc. Tech Pubs website at: <https://employeeportal.mesa-air.com/TechPubs/>.
- B. The B-737 primary fuel quantity gaging system remains accurate for the entire range of operation in flight and on the ground.
- C. Five incrementally marked dripsticks are located in the fuel tank access doors. A dripstick installation and markings in inches is shown [Figure 5-20: "Dripstick"](#).

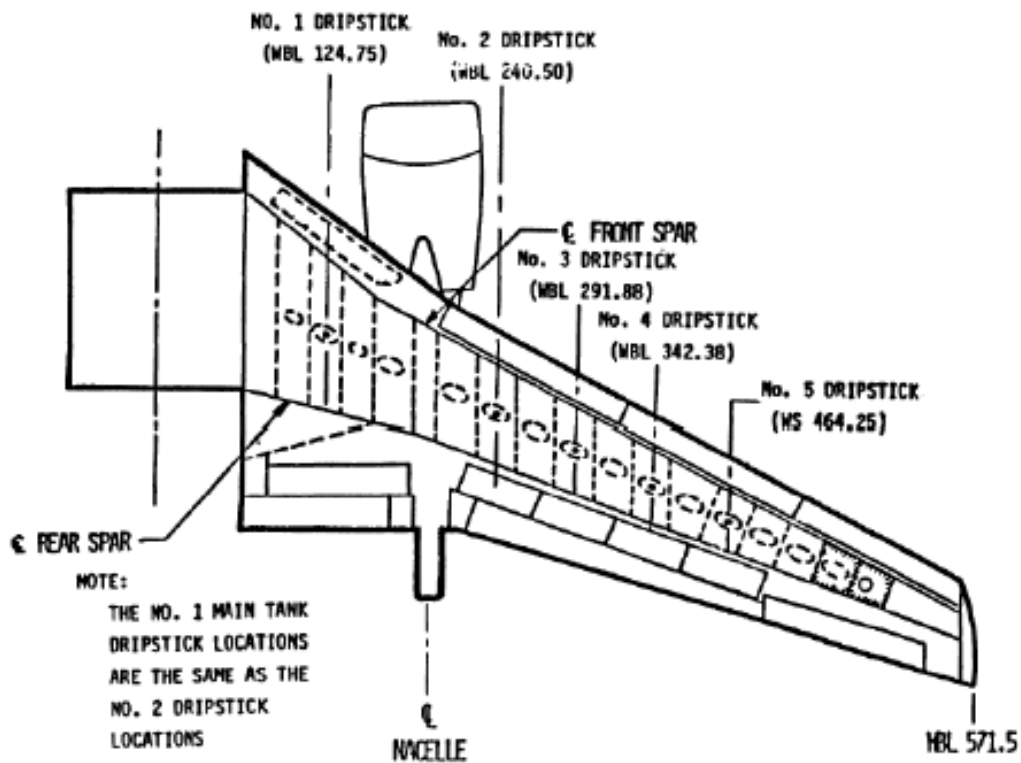


Figure 5-18: B-737-400 Main Tank Dripstick Tank Location

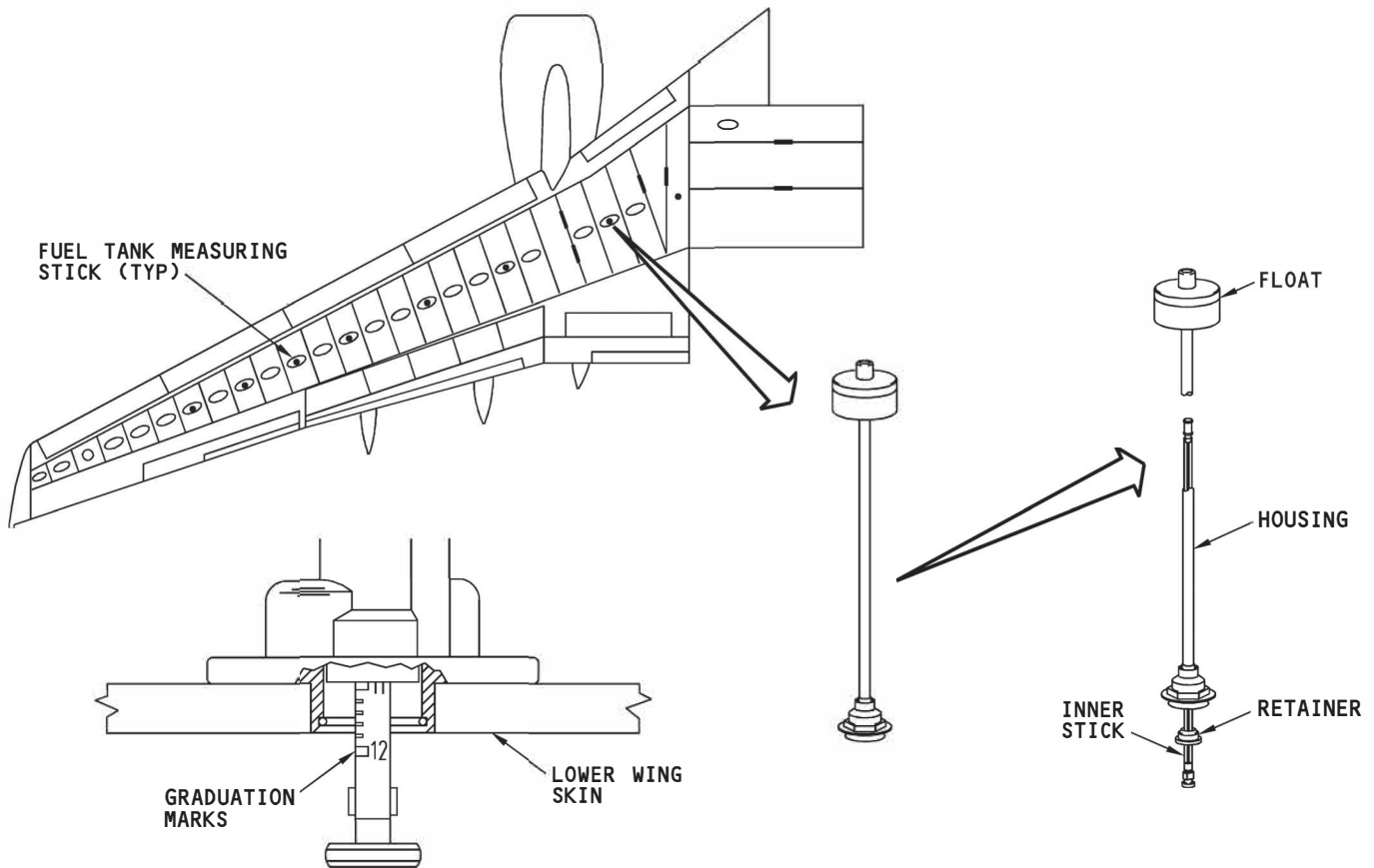


Figure 5-19: B-737-800 Main Tank Dripstick Tank Location

- D. When the aircraft is on the ground, dripsticks can be used to confirm a suspected main tank gauge malfunction or to determine the fuel quantity in the main tank with an inoperative gauge.
- E. Checks on a gauge in the center tank, which is not equipped with dripsticks, can be obtained indirectly. With the center tank established at sump level, a known quantity of fuel may be pumped from either main tank and compared with the gauge reading. This method uses the rapid inter-tank ground transfer capability of the B-737 fuel system in conjunction with another tank gauge as a quantity reference.
- F. The Fuel Measuring Stick Manual contains the information and procedure necessary to find the fuel quantity in each tank with the use of the fuel sticks.

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5.4.2 Airplane Attitude

- A. Aircraft attitude can be determined by the use of a plumb bob with reference to the pitch attitude scale in the right wheel well. [Refer to Figure 5-21: "Pitch Attitude Scale"](#) for a diagram of the plumb bob.
- B. Pitch attitude may be read directly from the scale. Roll attitude may be determined by measuring the lateral displacement of the plumb bob from the pitch reference line. The plumb bob will move the same distance laterally per degree of roll as it does fore and aft per degree of pitch. Therefore, the pitch scale may be used as a reference for roll.
- C. The Fuel Measuring Stick Manual contains the information and procedure necessary to find the aircraft attitude.

5.4.3 Fuel Level Measurement

- A. The measuring sticks are used to measure the fuel quantity in the left and right main tanks by mechanical means.
- B. The B-737-400 has five measuring sticks for each main tank, located in wing fuel tank access panels number 1, 4, 6, 8, and 10.
- C. The B-737-800 have six measuring sticks in main tank 1 and main tank 2, numbered 3 – 8 from inboard to outboard, and four measuring sticks in the center tank, numbered 1 – 2 from inboard to outboard.
- D. The measuring stick consists of a fiberglass tube in a housing attached to the access panel. The tube is graduated in inches or pounds. At the side of the housing is a removal valve, which allows stick removal without defueling.
- E. To determine the fuel quantity in the tank, the measuring stick is unlocked and slowly lowered until the fuel enters the upper end of the stick and drips out of the lower end.
- F. The drip hole is marked on the base of the measuring stick with a red arrow. To operate the fuel measuring stick, apply a slight pressure and turn the fuel measuring stick 90 degrees in the counterclockwise direction, for the B-737-800, it can be turned 90 degrees in either direction.
- G. Slowly lower the fuel measuring stick until fuel appears from the drip hole, refer to below figure. Read the fuel quantity on the fuel measuring stick to find the quantity of fuel in the fuel tank.
- H. Use the aircraft attitude and fuel stick indication to calculate the fuel quantity in the tank using the Fuel Measuring Stick Manual.

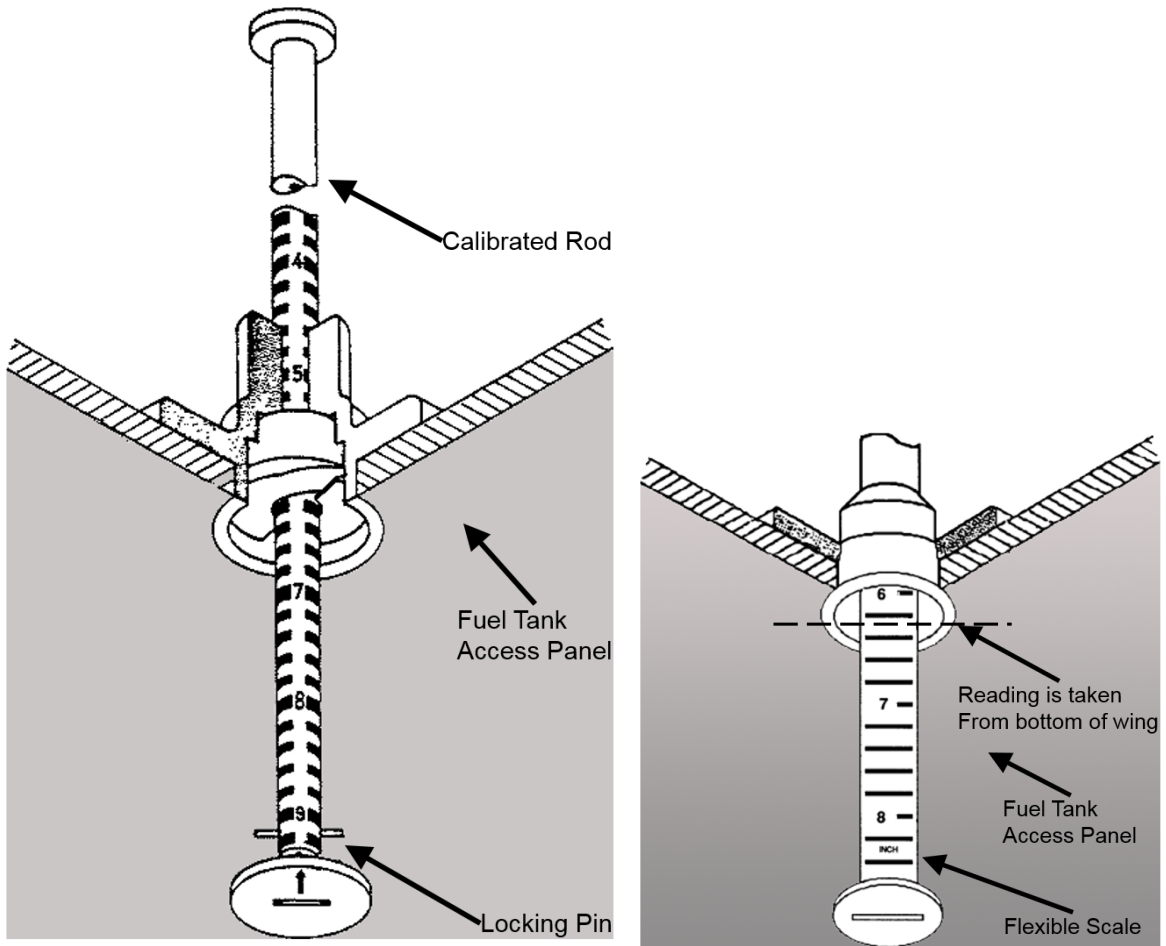


Figure 5-20: Dripstick

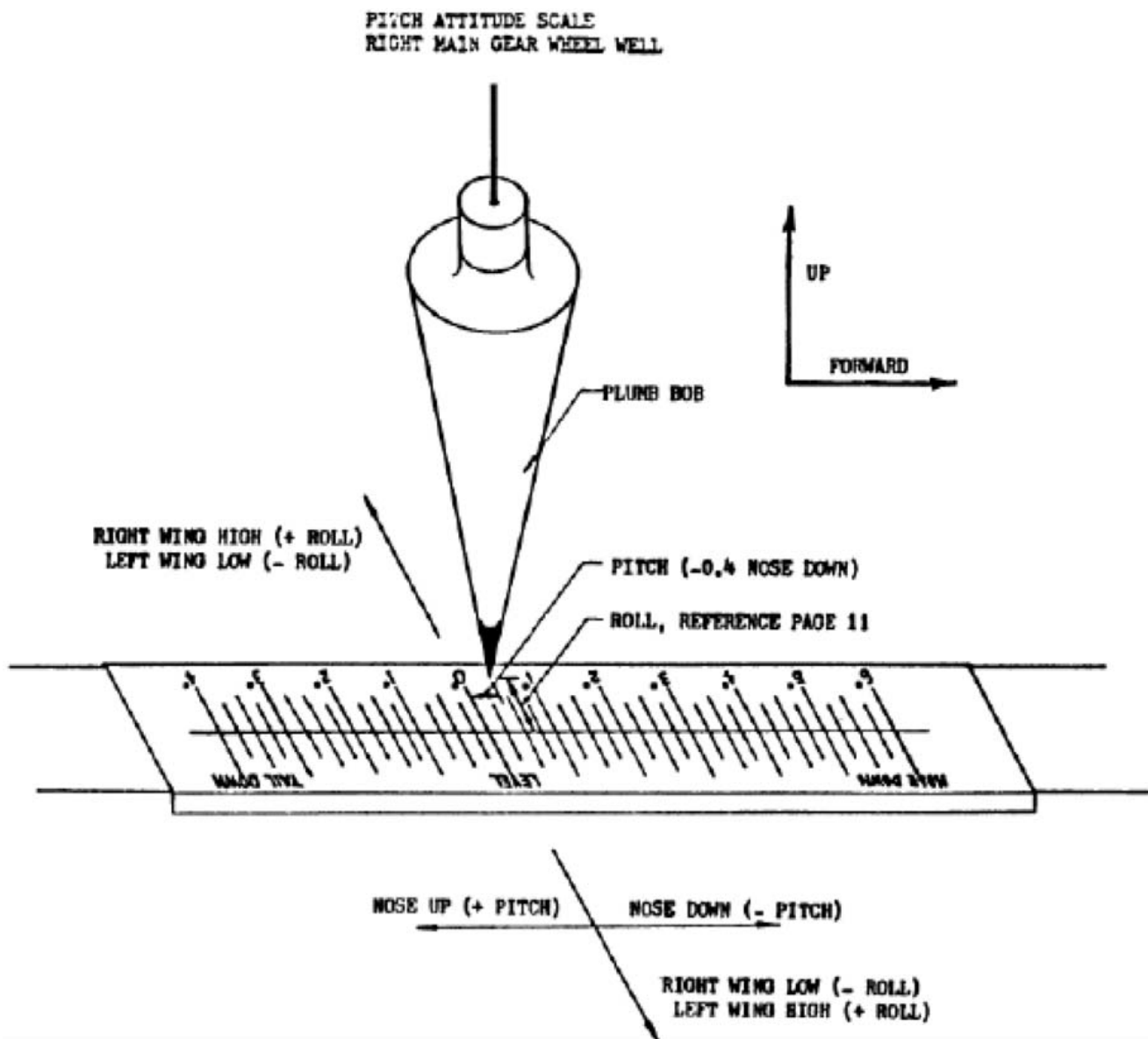


Figure 5-21: Pitch Attitude Scale

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5.5 B-737 Defueling

5.5.1 General

- A. The fuel system is designed to permit complete or partial defueling of one or more tanks while the aircraft is on ground.
- B. Defueling the B-737 aircraft requires at least 2 qualified personnel; one in the cockpit to operate the fuel boost pump switches and another to perform the defueling outside of the aircraft.
- C. The fastest defueling of the No. 2 tank is completed by:
 - 1. Attaching a fuel truck hose nozzle to the fueling station (right wing) receptacle
 - 2. Putting the applicable fuel system valves in position
 - 3. Operating the fuel truck defueling pumps and the respective airplane fuel tank boost pumps.
- D. Fuel remaining in the tanks (unusable, trapped) after the pumps stop drawing fuel is drained into containers when the sump drain valves are open.

5.5.2 Defuel Valve

- A. The defueling valve is a manually operated, semi-submerged, slide-type shutoff valve which controls fuel flow from the engine fuel feed line to the pressure fueling receptacle.
- B. The valve is installed on the wing front spar of the right wing. The access door cannot be closed while the defueling valve is in the open position.

5.5.3 Fuel Tank Defueling

- A. All valves can be operated electronically or manually, as required, for defueling.
- B. To defuel with the external power control unit, valves must be opened and closed manually.
- C. Following the below procedure, defuel through the pressure fueling receptacle with the aircraft boost pumps and the defueling (suction) pump on the fuel truck.

NOTE

[Refer to Figure 5-24: "P5 Panel"](#) for the location of the switches in the cockpit required to be operated during this procedure.

- 1. Bond the fuel truck to the aircraft and ensure power is being supplied to the aircraft.
- 2. Set the cross feed valve control on the panel to OPEN the cross feed valve.
- 3. Connect defueling hose nozzle to the fueling receptacle adapter.
- 4. Make sure the valve position lights are off.
- 5. Open the defueling valve access door.
- 6. Open the defuel valve handle.

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7. Open the fueling valve(s) for the tank(s) to be defueled.
8. Make sure the valve position light is dim (blue), indicating fueling valve solenoid is energized. The defuel valve opens when fuel pressure is available.
9. On the panel, set the switches for the fuel boost pumps to the positions shown below based on which tank is to be defueled.

Table 5-8: Switch Position for Defueling

Fuel Boost Pump Switch	Switch Position for Defueling		
	Tank 1	Tank 2	Center Tank
Fuel Pumps AFT 1	ON	OFF	OFF
Fuel Pumps FWD 1	ON	OFF	OFF
Fuel Pumps AFT 2	OFF	ON	OFF
Fuel Pumps FWD 2	OFF	ON	OFF
Fuel Pumps L CTR	OFF	OFF	ON
Fuel Pumps R CTR	OFF	OFF	ON

10. Start the defueling pump on the fuel truck.
 - a. Defuel the applicable tank(s) until the fuel quantity indicator shows the specified quantity of fuel in the tank or the applicable low pressure light goes on.
 - b. Set the applicable boost pump switches to OFF once the desired quantity is reached.
11. Stop the defueling pump on the fuel truck.
12. Close the fueling valve(s) on the aircraft, and close the defuel valve and panel.
13. Disconnect the bonding connection from the aircraft and remove all tools and supplies before leaving the area.
14. Close all open panels and ensure they are securely latched.

5.5.4 Tank to Tank Fuel Transfer

- A. It is permitted to defuel a tank by moving fuel into another tank. Instead of removing fuel through the refuel adapters at the refuel station, open the refuel valves for the tank to transfer the fuel to.
- B. To move fuel from one tank to another the fuel agent must use the engine feed, defuel, and refuel systems.
- C. Fuel agent follows the below steps for tank-to-tank transfer:
 1. Do a test of the indicators and defuel valve open light.
 2. Move the defuel valve lever to open.

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3. Turn on the fuel pumps in the tank that is to be defueled.
 4. Open cross feed valve if necessary.
 5. Move the refuel valve switches to open in the tank that will receive the transferred fuel.
- D. To defuel the tank, the fuel agent lets the pump operate until the tank is empty.
1. To move only part of the fuel, use the refuel valve control switches to stop the fuel flow.
 2. Open a cross feed valve to remove fuel from the left main tank through the engine feed manifold.

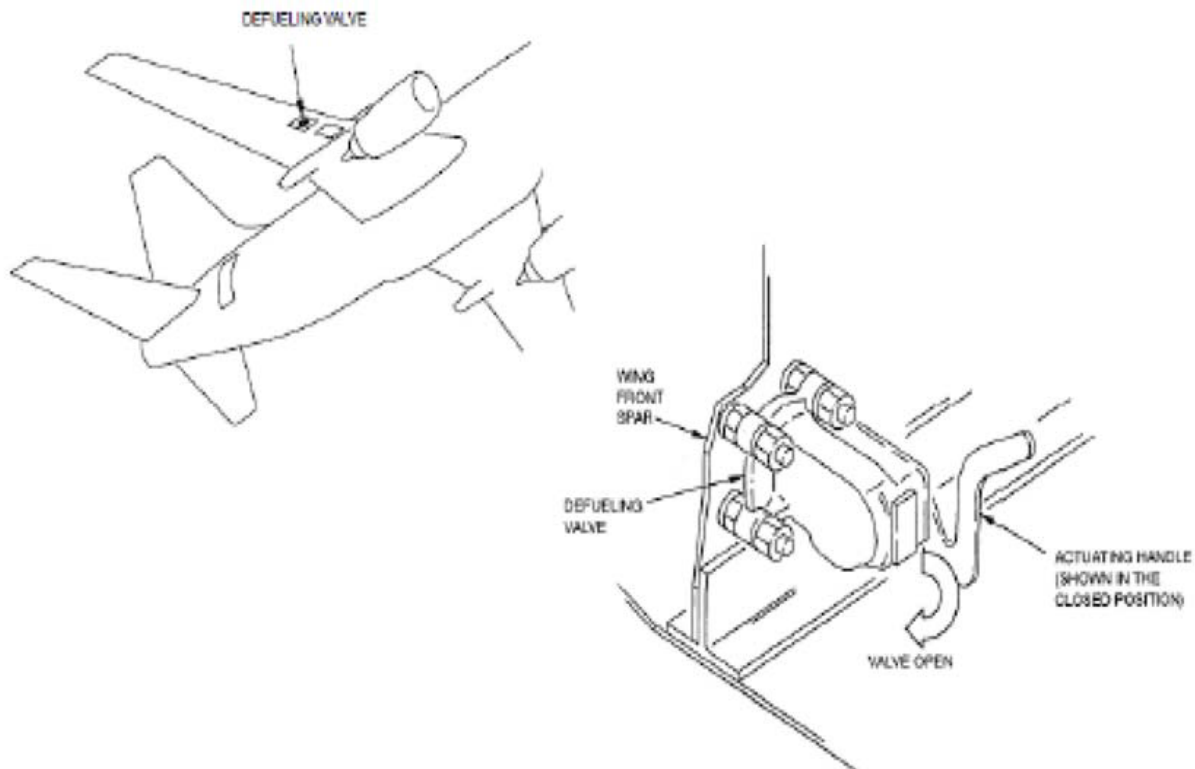


Figure 5-22: B-737-400 Defuel Valve

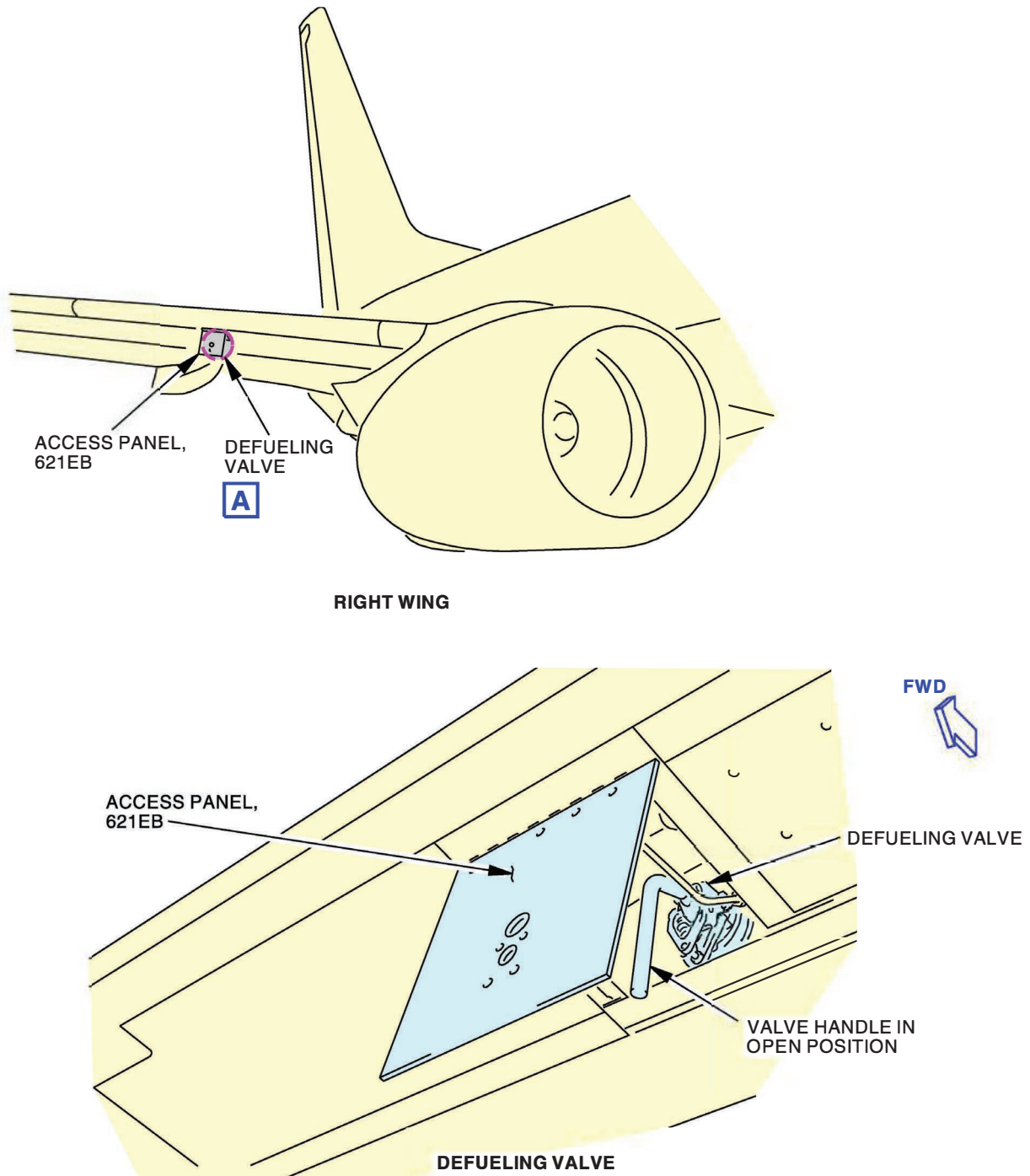


Figure 5-23: B-737-800 Defuel Valve

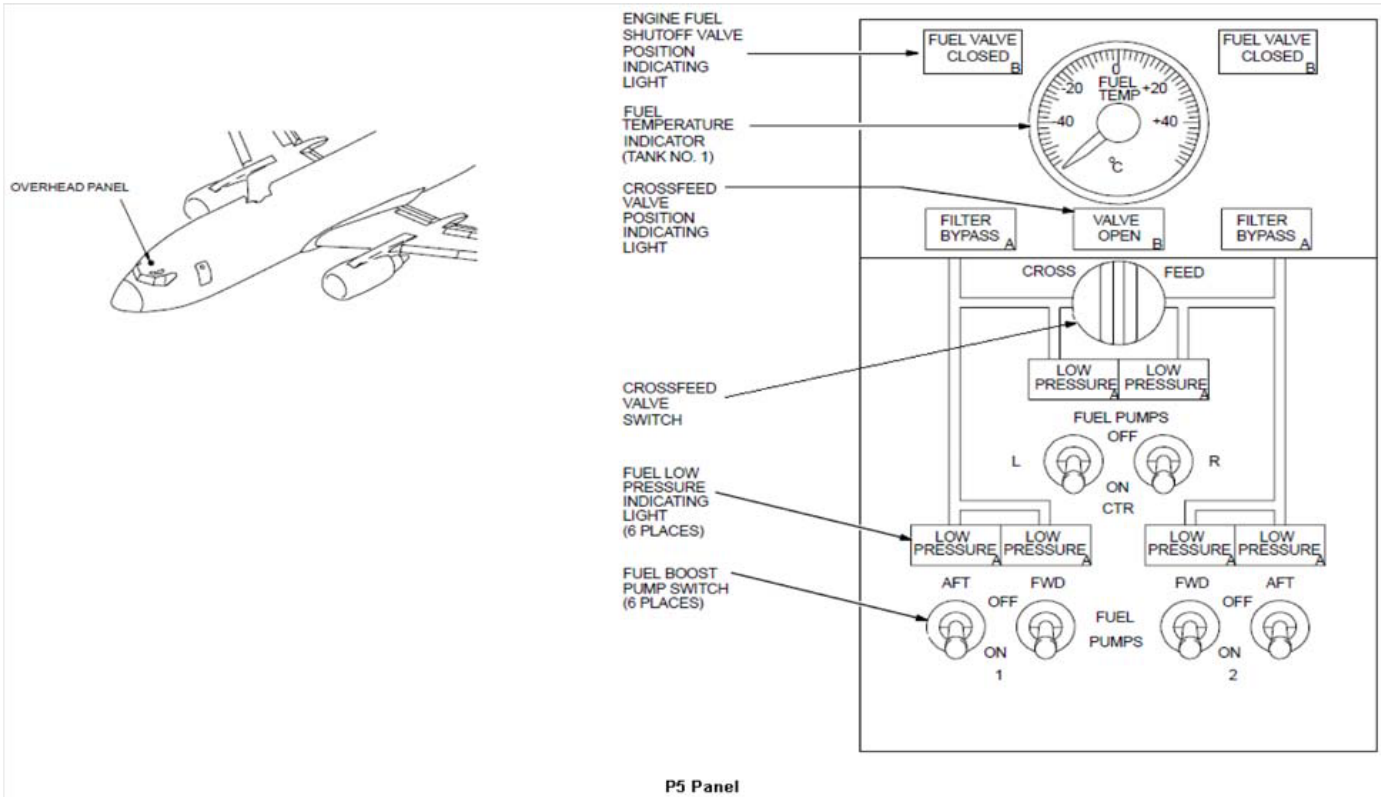


Figure 5-24: P5 Panel

END



Chapter 6: Fuel Vendor Required Quality Inspections

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Chapter 6: Fuel Vendor Required Quality Inspections

6.1 General

MISC: ATA 103

- A. All fuel vendors will maintain a current copy of the ATA 103, or equivalent standard in use at the location, on file and accessible to fueling personnel during all of the fuel vendor's operating hours.
- B. All relevant operational guidelines, documents, policies, procedures and forms must be onsite, available and readily accessible to all fueling personnel during the vendor's operating hours.
- C. All fueling operations will be conducted in a safe, timely and efficient manner. The fuel vendor is responsible for the quality of the fueling process.
- D. It is understood that the requirements within this chapter are derived from the ATA 103 standard. All exceptions listed within this manual are specific to stations operating under the identified approved standard, and not the ATA 103. The requirements within these chapters are meant to interface fully with the ATA 103. Any discrepancies discovered between guidance in this chapter and the ATA 103 shall be forwarded to the Senior Manager of Regulatory Compliance, or designee, via Fuel@mesa-air.com.
- E. All requirements of the ATA 103 that are not expressly excepted for Mesa Airlines, Inc., either within this manual or via the waiver/exception process described in [Chapter 1: "Fuel Program Responsibility"](#), must be adhered to, even if not specifically mentioned within this manual.

6.2 Fuel System/Equipment Check Intervals

MISC: ATA 103 2.1 ATA 103 2.5 ATA 103 2.7 ATA 103 2.9

- A. All daily, weekly, monthly, quarterly, semi-annual and annual checks will be performed in accordance with the intervals, requirements and processes described in the following ATA 103 sections and subsections:
 - 1. 2.1: General
 - 2. 2.5: Fuel Facility Checks
 - 3. 2.7: Hydrant System Checks
 - 4. 2.9: Aircraft Fueling Equipment Checks
- B. All daily refueling equipment checks must be performed and documented on the appropriate form, as described within the ATA 103, prior to the first fueling operation of the day. Tanker truck sumps are permitted to be taken during the first fueling operation of the day, however, other checks should be done prior to the first fuel service using that equipment.

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- C. Any time a fuel agent discovers possible contamination of fuel, fueling must be discontinued from that source and Mesa Airlines, Inc. SOC contacted following the procedures in this manual ([refer to "Required Vendor Notifications" in Chapter 1](#)). Do not resume fueling until the contamination can be positively confirmed or the fuel and fuel system found to be free of contamination.

6.3 Fuel System Check Forms and Records

MISC: ATA 103 Chapter 6 CSA B836

- A. All fuel vendor equipment maintenance and quality assurance records are to be available for inspection and review during normal business hours. Records, paper or electronic, shall be completed by the person performing the tasks, or by the person accepting responsibility for performance of the tasks.
- B. All fuel vendors must maintain a roster or list of all trained and qualified employees, which includes each person's legibly printed name, signature, initials and employee number (where applicable). The roster must be updated regularly. Separate rosters should be maintained for personnel trained specifically in fuel receipt procedures.
- C. Record Retention Requirements

Table 6-1: Record Retention Requirements

Record Type	Record Retention Length
Daily Check Records	12 months
Weekly Check Records	
Monthly Check Records	
Quarterly Check Records	
Semi-Annual Check Records	
Annual Check Records	
Fuel Receipt Records	
Fuel Quality Test Records	

Table 6-1: Record Retention Requirements

Record Type	Record Retention Length
Filter Change Records	36 months
Filter Inspection Records	
Product Reclaim Tank Inspection and Cleaning Records	
Sump Separator Tank Inspection and Cleaning Records	
Refueler Tank Inspection and Cleaning Records	
Storage Tank Inspection and Cleaning Records	Indefinitely

NOTE

Stations in Canada may retain the records listed in the above table in accordance with the revised B836 standard.

- D. The use of sample forms in Chapter 6: “Forms” of ATA 103 is recommended but not required. If local forms are created and used, they must, at a minimum, contain all the information required on the respective ATA 103 form.

6.4 General Provisions

- MISC: ATA 103 2.1.11 ATA 103 2.1.12 ATA 103 2.1.13 ATA 103 2.1.14
- MISC: ATA 103 2.2

The following provisions, and relevant subsections of the ATA 103, shall be adhered to as described within the standard, and will be verified during oversight audits:

- A. 2.1.11: Deficiency Reporting
- B. 2.1.12: Tool Calibration
- C. 2.1.13: Operations & Maintenance Manuals
- D. 2.1.14: Aviation Fuel Regulatory Bulletins and Directives
- E. 2.2: Jet Fuel Specification & Quality Requirements for Acceptance

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6.5 Fuel Receipt

MISC: ATA 103 2.3

When product is being received into local airport storage tanks, the policies and procedures within Section 2.3 of the ATA 103, “Fuel Receipts Into Airport Storage”, must be adhered to for each incoming fuel receipt.

6.5.1 Fuel Receipt Methods

MISC: ATA 103 2.3.2 ATA 103 2.3.3

- A. For pipeline deliveries: All requirements of Section 2.3.2, “Pipeline Deliveries”, and all subsections, must be adhered to when receiving fuel from a pipeline transfer or marine vessel.
- B. For truck deliveries: All requirements of Section 2.3.3, “Transport Truck Deliveries”, and all subsections, must be adhered to when receiving fuel from a transport truck or railroad car.

6.6 Fuel Storage Facilities

MISC:	ATA 103 2.4.2	ATA 103 2.4.3	ATA 103 2.4.4	ATA 103 2.4.5
MISC:	ATA 103 2.4.6	ATA 103 2.4.7	ATA 103 2.4.8	ATA 103 2.4.9
MISC:	ATA 103 2.4.10	ATA 103 2.4.11	ATA 103 2.4.12	ATA 103 2.4.13
MISC:	ATA 103 2.4.14			

- A. For the storage of any fuel at vendor facilities, or fuel that is to be supplied by the fuel vendor to Mesa Airlines, Inc., either directly or through an into-plane vendor, the following sections, and their subsections, of the ATA 103 must be adhered to:
 - 1. 2.4.2: Storage Tanks
This includes all above-ground vertical tanks, above-ground horizontal tanks and underground tanks, as appropriate.
 - 2. 2.4.3: Filters
This section specifically covers fuel storage facility filters.
 - 3. 2.4.4: Physically Segregated Systems
 - 4. 2.4.5: Emergency Fuel Shutoff System
 - 5. 2.4.6: Fire Extinguishers with Inspection Tags
 - 6. 2.4.7: Fuel Hoses
One critical component of the fuel system is maintaining its integrity of being contaminant free. Dust caps prevent foreign contaminants from entering the fuel system, and on all fuel hoses, are required to be properly secured to the hose opening whenever the hose is not in use.

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7. 2.4.8: “No Smoking”, “Flammable”, and Product Identification Signs

Additionally, all fuel vehicles are required to have a “No Smoking” sign posted inside the cab of the vehicle.

8. 2.4.9: Facility Identification and Color Coding

9. 2.4.10: Metal Underground Tanks and Piping

10. 2.4.11: Relaxation Chambers (if equipped)

Mesa Airlines, Inc. applies the requirements contained within this section of the ATA 103 for all storage tanks used in the same manner as a relaxation chamber, and not only tanks specifically identified as such.

11. 2.4.12: Bulk Air Eliminator

12. 2.4.13: Refueling Truck Loading Station

13. 2.4.14: Product Reclamation

This section specifically contains policies for reclamation tanks. For more information about Mesa Airlines, Inc. policies for product defueled from Mesa Airlines, Inc. aircraft, [refer to "General Aircraft Defueling Policies" in Chapter 2.](#)

- B. For provisions covering routine checks of storage facilities, [refer to "Fuel System/Equipment Check Intervals"](#) in this chapter.

6.7 Hydrant Systems

MISC:	ATA 103 2.6	ATA 103 2.6.4	ATA 103 2.6.7	ATA 103 2.6.8
MISC:	ATA 103 2.6.10			

- A. For airports that use hydrant systems, the requirements of ATA 103 Section 2.6, “Hydrant System Requirements”, and its subsections, must be adhered to as described. The following sections are some, but not all, of the sections that apply:
- 2.6.4: Low Point Water Drains and High Point Vents
 - 2.6.7: Cathodic Protection
 - 2.6.8: Hydrant Pits
 - 2.6.10: Emergency Fuel Shut Off or Shut Down Controls (EFSO)
- B. For provisions covering routine checks of hydrant systems, [refer to "Fuel System/Equipment Check Intervals"](#) in this chapter.

6.8 Aircraft Fuel Delivery Equipment (Tanker Trucks/Hydrant Cart Requirements)

MISC:	ATA 103 2.8	ATA 103 2.8.2	ATA 103 2.8.3	ATA 103 2.8.4
MISC:	ATA 103 2.8.5	ATA 103 2.8.6	ATA 103 2.8.7	ATA 103 2.8.8
MISC:	ATA 103 2.8.10	ATA 103 2.8.12	ATA 103 2.8.13	ATA 103 2.8.14
MISC:	ATA 103 2.8.15	ATA 103 2.8.17	ATA 103 2.8.18	ATA 103 2.10

- A. All fuel vendors must maintain the fueling equipment in accordance with the contents of ATA 103 Section 2.8, "Aircraft Fueling Equipment Requirements". Specifically:
- 2.8.2: Filters
This section specifically covers fuel filter for fueling equipment.
 - 2.8.3: Pressure Controls
 - 2.8.4: Deadman Control System
 - 2.8.5: Emergency Fuel Shutoff System
 - 2.8.6: Fire Extinguishers
 - 2.8.7: Safety Interlock System
 - 2.8.8: Aircraft Fueling Hoses
 - 2.8.10: Dust Covers
 - 2.8.12: Aircraft Fuel Pressure Gauges/Venturi Pressure Gauges
 - 2.8.13: Fuel Quantity Measurement Meter
 - 2.8.14: Electrostatic Bonding System
 - 2.8.15: Signs, Placards & Labels
 - 2.8.17: Lift Platforms
 - 2.8.18: Additional Requirements for Refueling Trucks
 - 2.10: Refueling Truck Loading
- B. For provisions covering routine checks of fueling equipment, [refer to "Fuel System/Equipment Check Intervals"](#) in this chapter.



6.9 Fuel Quality Procedures and Tests

MISC:	ATA 103 Chapter 3	ATA 103 3.1	ATA 103 3.2	ATA 103 3.3
MISC:	ATA 103 3.4	ATA 103 3.5	ATA 103 3.7	ATA 103 3.9
MISC:	ATA 103 3.10	ATA 103 3.11	ATA 103 3.12	ATA 103 3.13
MISC:	ATA 103 3.14	ATA 103 3.15	ATA 103 3.17	

When performing tests to verify fuel is free of water, solids or other possible contamination, follow the procedures covered in Chapter 3 of the ATA 103, "Procedures and Tests". Specifically, the following sections:

- A. 3.1: Appearance Tests
- B. 3.2: Membrane Color Filtration Test
- C. 3.3: Free Water Test
- D. 3.4: Fuel Density Test (API Gravity)
- E. 3.5: Water Separation Test (MSEP or WSI)
- F. 3.7: Detection of Microorganisms
- G. 3.9: Filter Vessel Differential Pressure
- H. 3.10: Bonding Cable Continuity Check
- I. 3.11: Fuel Storage Tank Inspection and Cleaning
- J. 3.12: Water Defense Systems
- K. 3.13: Filter Element Change Procedures
- L. 3.14: Filter Element Replacement Criteria
- M. 3.15: Flushing Standards and Specifications
- N. 3.17: Aircraft Fueling Nozzle Strainer Cleaning Procedure for Fueling Equipment with Filter Monitors

END

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Chapter 7: Personnel Duties and Training

Training described within this chapter is intended for personnel involved in Mesa Airlines, Inc. into-plane fueling operations to cover carrier-specific policies and procedures. This training does not fulfill any training requirement that is otherwise required for fueling personnel by local, state or federal guidelines.

7.1 Fueling Personnel

- A. The full duties and responsibilities for both the Vice President of Maintenance and Engineering and the Senior Manager of Regulatory Compliance, or designee, can be found in the Mesa Airlines, Inc. *General Procedures Manual* (Manual #210).
- B. The Senior Manager of Regulatory Compliance, or designee, has the delegated authority over the improvement and administration of the fuel training program described herein, including the management of all online courses through Mesa Airlines, Inc. Comply365
- C. All personnel qualified to audit fuel vendors, in accordance with Chapter 17 of the Mesa Airlines, Inc. *General Procedures Manual*, will be familiar with the current policies and procedures located within this manual and all Mesa Airlines, Inc. fuel training courses.
- D. All personnel involved in aircraft fueling operations must be completely familiar with all emergency procedures relative to fueling. This includes familiarization with:
 - 1. Emergency procedures to stop the flow of all fuel from different sources.
 - 2. Procedures to follow if a fuel spill occurs.
 - 3. Location of emergency and firefighting equipment and its proper use.
- E. Fuel agents, as referred to within this manual, covers any frontline fuel vendor personnel who are responsible for the dispensing of fuel into Mesa Airlines, Inc. aircraft.
 - 1. Fuel agents are required to successfully be trained in accordance with the training program found within this chapter, by the local vendor Designated Trainer (DT).
 - 2. Fuel agents must be able to perform the normal functions required during fueling procedures, as well as any actions that may be required of personnel in the event of an emergency.
 - 3. Fuel agents are responsible for the safe transportation and dispensing of fuel for aircraft during all fueling operations and will notify appropriate personnel when a hazard is observed or identified.
 - 4. All fuel agents are required to observe the policies and procedures located within this manual when fueling Mesa Airlines, Inc. aircraft.

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- F. Designated Trainers, or DTs, are individuals selected by fuel vendor management to receive Mesa Airlines, Inc. version of a “Train the Trainer” course and train local fuel agents in Mesa Airlines, Inc. policies and procedures related to fueling operations.
1. Designated Trainers should possess adequate prior knowledge and fueling experience in order to answer any questions regarding the fueling operation and why policies and procedures may be in place.
 2. Designated Trainers are required to meet the minimum requirements as a fuel agent, and additionally be able to fluently read, write, understand and speak English, in addition to the language of fuel agents they train, where applicable.
 3. Designated Trainers are required to maintain current fuel training on all Mesa Airlines, Inc. fleet types, as determined by the codeshare serving that station.
 4. Designated Trainers are required to train and certify fuel agents at their station in accordance with the training program, as described within this chapter.
 5. Designated Trainers are responsible for the complete and valid documenting of training records for vendor personnel that they train and following the local procedures for training record retention.
 6. Designated Trainers will ensure a copy of their fuel training record is available at the vendor during all hours of operation and includes all LMS course certificates.
 7. Designated Trainers are responsible for not certifying any fuel agent to fuel Mesa Airlines, Inc. aircraft unless the agent has demonstrated that they are fully knowledgeable and capable of performing fuel servicing safely and without direct supervision, in accordance with this manual and training program.

7.2 Training Policy

14 CFR: 121.9

- A. All training personnel will adhere to the provisions of 14 CFR 121.9, and will:
1. Not make any fraudulent or intentionally false statement, on any application, test results or training records required by this manual or the Code of Federal Regulations.
 2. Not make any fraudulent or intentionally false statement, or a known omission from, any record or report that is made, kept or used to show compliance with the requirements of this manual or the Code of Federal Regulations.
- B. Designated Trainers are authorized to train fuel agents, but may not under any circumstance certify another individual as a Designated Trainer. All DTs must have their own online account, requested via Fuel@mesa-air.com.

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7.2.1 Training Validity Period

- A. Designated Trainers are certified annually using the online Comply365 website, unless otherwise delivered via the Manager of Airport Operations & Regulatory Compliance. This certification lasts through December 31st of the following year. During the following year, each DT must take recurrent training on Comply365, and each year after, to remain an active Designated Trainer.
- B. An individual fuel agent's training is valid for one year from the date of training and expires on the last day of the month of the following year. For example, fuel agents certified on April 15th would require recurrent training provided by their local DT prior to May 1st of the following year to remain current as an active fueling agent.

7.2.2 Training Program Updates and Recurrent Training

- A. This training program will be reviewed annually by the Senior Manager of Regulatory Compliance, or designee, to ensure the program is meeting its goal to adequately inform and prepare fuel agents and DTs in safely fueling Mesa Airlines, Inc. aircraft in accordance with this manual.
- B. Training for all fuel agents and Designated Trainers must be reviewed and updated within the first three months of each calendar year. A notification will be sent to all DTs when new training content has been posted to their online account or when training content for fuel agents has been updated.
- C. Recurrent training for fuel agents is provided by the local DT in accordance with the policies of this manual.

7.2.3 Controls

- A. Test Scores: [Refer to "Tests and Test Scores"](#) in this chapter.
- B. Training Record Signature: [Refer to "Training Records for Fueling Personnel"](#) in this chapter.

7.3 Training Delivery Methods

7.3.1 Learning Management System (LMS)

- A. DTs will be determined by local vendor management and account access may be requested via email at Fuel@mesa-air.com. The same email address can be used for any account access issues or LMS questions.
- B. DTs will be given an online account to the Mesa Airlines, Inc. Comply365 website for online training, or Learning Management System (LMS). DTs may login to the training portal via: <https://mesa-air.comply365.net/login.aspx?local=1>.
- C. Individual fuel agents that are not DTs are not provided an online account through Comply365, and will be trained by their local DT in accordance with the policies within this chapter.

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7.3.2 Classroom

- A. DTs will provide classroom training to all fuel agents, which includes the use of Mesa Airlines, Inc. provided PowerPoint presentations and any additional video, lecture or other style of training that takes place in a classroom environment.
- B. All fuel agent training that reviews the Mesa Airlines, Inc. provided content will be delivered in a classroom format, where the DT teaching the fuel agents is available for questions the agents may have.
- C. The DT is responsible for all class preparation and securing sufficient supplies and facilities in order to complete the training.

7.3.3 On-the-Job Training (OJT)

- A. For any fuel agents unfamiliar with aircraft fueling, local airport facilities and areas, or for agents that are unfamiliar with an aircraft fleet type that Mesa Airlines, Inc. will be regularly servicing, On-the-Job Training (OJT) will be provided by the local DT.
- B. OJT consists of hands-on examples and supervised agent experience provided by the DT to fuel agents, after classroom training, to provide a real-world teaching environment that will prepare fuel agents for what they will be tasked with during regular, unsupervised fueling operations.
- C. OJT is not required to be documented, but should be provided by DTs in any case where there is doubt a fuel agent is fully knowledgeable with the policies and procedures of Mesa Airlines, Inc. aircraft.

7.4 Designated Trainer Curriculum

- A. All Designated Trainers must complete all initial courses assigned to their account prior to training local fuel agents. The Senior Manager of Regulatory Compliance, or designee, will ensure that a new DT's training is complete for all new stations prior to the start of service.
- B. The curriculum for all DTs contains subject matter covering the following:
 - 1. Mesa Airlines, Inc. Fuel Program, resources, policies and procedures overview.
 - 2. Responsibilities and duties for all Designated Trainers.
 - 3. Policies for all fuel vendors serving Mesa Airlines, Inc. aircraft.
 - 4. An overview of the fuel training program and policies for training fuel agents.
 - 5. Fuel vendor training records.
 - 6. Additional resources for DTs.
- C. In addition to the Designated Trainer course, all DTs must take the assigned initial Fuel Basics Course and aircraft fleet specific courses on Comply365 prior to being fully certified to train other fuel agents.

7.5 Fuel Course Curriculum

All courses mentioned within this section require a test at the end of the training to validate that personnel took the course with the DT and have an understanding on the policies and procedures for Mesa Airlines, Inc. aircraft. For more information on testing requirements, [refer to "Tests and Test Scores"](#) in this chapter.

7.5.1 Fuel Basics

1. Safety guidelines, warnings and precautions for all fueling personnel.
2. General policies and procedures for fuel servicing of Mesa Airlines, Inc. aircraft.
3. Emergency policies and procedures regarding fueling Mesa Airlines, Inc. aircraft.
4. Policies for fuel vendors driving near Mesa Airlines, Inc. aircraft.
5. Aircraft electrostatic bonding and static electricity.

7.5.2 CRJ (Full)

1. Approved aircraft bonding locations.
2. Fleet tank specifications and imbalance limits.
3. Familiarization with CRJ aircraft fuel controls.
4. Fleet specific fueling procedures:
 - a. Testing the aircraft fuel system.
 - b. Automatic pressure fueling.
 - c. Manual pressure fueling.
 - d. Gravity (overwing) fueling.
 - e. Suction defueling.
 - f. Gravity defueling.

7.5.3 E-175 (Full)

1. Approved aircraft bonding locations.
2. Fleet tank specifications and imbalance limits.
3. Familiarization with E-175 aircraft fuel controls.
4. Fleet specific fueling procedures:
 - a. Automatic pressure fueling.
 - b. Manual pressure fueling.
 - c. Gravity (overwing) fueling.
 - d. Suction defueling.

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7.5.4 737-400/800 (Full)

1. Approved aircraft bonding locations.
2. Familiarization with the 737 aircraft fuel system and controls.
3. Fleet specific fueling procedures:
 - a. Normal fueling procedures.
 - b. Abnormal fueling procedures.
 - c. Defueling procedures.
 - d. Determining fuel quantity fuel tank quantity using fuel sticks

7.5.5 Additional Information to be Provided to New Vendor Employees

In addition to the courses listed within this section, provided by Mesa Airlines, Inc. to Designated Trainers for their use in training fuel agents, all new vendor employees are expected to be provided information related to the following.

NOTE

These do not require a test or any documentation on Mesa Airlines, Inc. training records.

- A. Local policies and procedures related to fueling and properly performing equipment checks.
- B. Local emergency procedures and the use of emergency equipment.
- C. Local policies for hazardous weather.
- D. Familiarization with all local fueling equipment, trucks and fueling areas.
- E. Familiarization with truck reloading procedures, where applicable.

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7.6 Differences Curriculum

7.6.1 Qualifications

In order for a fuel agent to be certified under differences, they must already possess full, unexpired training on the same aircraft fleet type in question from another 14 CFR 121 certificated air carrier. A copy of the other air carrier's training record(s) must be kept in the fuel agent's training file with their Mesa Airlines, Inc. training record.

7.6.2 Training

- A. Once a DT validates that a fuel agent meets the qualifications to be certified under the differences curriculum of one or more fleet types, they will provide the agent with either classroom or self-study training on the required fleet-specific aircraft course(s) and Fuel Basics Course.
- B. If it is agreed between the DT and fuel agent to use self-study, provide the agent a copy of or access to the courses mentioned previously. Complete their training record once it is verified they have reviewed the material completely and are aware of any differences between Mesa Airlines, Inc. aircraft fleet fueling policies and those of other carriers they are trained on.
- C. If a fuel agent meets the qualification for differences training for one, but not all of the aircraft fleets they are required to be trained on, they may still be certified via differences for the fleet type they do have full, unexpired training from another carrier on, so long as full training is provided for fleet type(s) where the agent does not qualify for differences training.
- D. For any aircraft fleet type that a fuel agent does not have equivalent full, unexpired training on from another Part 121 carrier, they must be trained and certified using the full training program provided by Mesa Airlines, Inc.
- E. No test is required for the fleet-specific training course(s) if the fuel agent is certified using differences for that fleet. If an agent is trained on the full Mesa Airlines, Inc. aircraft specifics course, a test is required for that aircraft-specific training. The Fuel Basics Course must be reviewed, but does not require a test for any fuel agent provided differences training on one or more aircraft fleet types for Mesa Airlines, Inc.

EXAMPLE

An agent at a station is required to be trained on both the CRJ and E-175 fleets:

1. If the agent qualifies for and is provided differences training for the E-175, and is provided full training by the DT for the CRJ fleet, the agent would only be required to take a test for the CRJ course.
2. If the agent qualifies for and is provided differences training for both the CRJ and E-175 fleets, the agent would not be required to take any test for Mesa Airlines, Inc. training courses.

7.7 Tests and Test Scores

7.7.1 Full Training

- A. All new fuel agents not previously certified in Mesa Airlines, Inc. fuel training program that additionally do not qualify for differences training must be provided full, fleet-specific training by the DT. The DT must also provide the Fuel Basics Course.
- B. All fuel agents trained in the full training program for Mesa Airlines, Inc. will be required to take and satisfactorily pass a test for each course they are trained in prior to their certification and assignment to unsupervised fuel servicing of Mesa Airlines, Inc. aircraft.
- C. Retention of the physical paper tests or electronic files of the actual test taken by the fuel agent is not required by Mesa Airlines, Inc. The training record for Mesa Airlines, Inc. provides an area to fill out the passing test score of each fuel agent as a record of their successful passing.
- D. Each Designated Trainer will be subject to the same testing criteria within this section for all courses taken, including the Designated Trainer course. Failure of any online test requires notification to Fuel@mesa-air.com in order to reset the training. It is understood that many DTs also perform other leadership or supervisor roles in the fueling operation. Thus, if a DT must leave the test taken on Comply365 due to operational needs, it will be marked as a failure due to an incomplete test. This is not counted against the DT, and the DT must email the aforementioned address for a reset of the online training.
- E. For each test administered, the individual must answer 75% of the total number of questions correctly in order to satisfactorily pass. If the individual fails to do so, they must be subject to focused retraining with the DT, and retake the test in full. If a fuel agent fails to pass a test two times, notify local leadership and ensure a plan is put in place to train the fuel agent to proficiency.
- F. At no time may fueling personnel who have not passed the fleet-specific test, or certified via differences training, be permitted to or assigned unsupervised fueling duties on Mesa Airlines, Inc. aircraft.

7.7.2 Differences Training

- A. For each agent provided an aircraft specifics course via differences training, no test is required. A training record must be completed by the DT in accordance with the procedures located within this chapter.
- B. If an agent is trained on one or more aircraft fleet types via differences, the Fuel Basics Course must be reviewed, but does not require a test for the agent.

7.8 Training Records for Fueling Personnel

- A. The Into-Plane Fuel Personnel Training Record (Form #T-009) is the official record that must be completed by the Designated Trainer that trained the agent in question. No other form may be used or substituted to document Mesa Airlines, Inc. fuel training.
- B. A new T-009 form is used each time an agent's training is due. The new training record supersedes the previous one once training is complete.

7.8.1 Designated Trainer Procedures for Completing the T-009 Training Record

The DT will do the following:

- A. Download a blank copy of the form from the Mesa Airlines, Inc. TechPubs page (<https://employeeportal.mesa-air.com/TechPubs/>). Fill in the agent's information, including first and last name, station location code, vendor name and employee ID number (where applicable).
- B. Verify the agent is aware of how to access Mesa Airlines, Inc. *Fuel Manual* (Manual #310), enter the date of verification (month, day and year) in the appropriate box, and affix their signature and employee number in the appropriate DT location.
- C. For each full training course:
 - 1. For each full training course where a test is taken, enter the final passing test score, the date of passing (month, day and year), and affix their signature and employee number in the appropriate DT location.
- D. For any course delivered via differences:
 - 1. Mark "N/A" in the box where a test score would normally be entered.
 - 2. Validate the agent completely reviewed the required materials, print the date of validation (month, day and year) in the appropriate box, and affix their signature and employee number in the appropriate DT location.
 - 3. Place a copy of the other air carrier's training record(s) in the fuel agent's training file.

NOTE

Copies of the other air carrier's training record(s) must be kept with the fuel agent's Mesa Airlines, Inc. training record.

- E. Provide the completed form to the fuel agent, and ask them to review the form for accuracy of the training provided to them. If they agree with the statement printed at the bottom of the form, the agent shall affix their signature, employee ID number and the date at the bottom of the form, as indicated.



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7.8.2 Signatures

7.8.2.1 Designated Trainers

Signatures applied to training records by the DT are considered the DT's verification that they have validated that the fuel agent's training record is accurate, and that the agent has completed the indicated training in accordance with the policies in this manual and as indicated.

- A. This ensures that the fuel vendor is able to track and verify all fuel agents that are certified to fuel Mesa Airlines, Inc. aircraft.

7.8.2.2 Fuel Agents

The signature on the bottom of the T-009 form by the fuel agent is considered the agent's verification that they have been trained as indicated on their training record and that they are fully aware of and responsible for abiding by the policies and procedures for fuel servicing of Mesa Airlines, Inc. aircraft.

7.8.3 Designated Trainer Records

- A. Designated Trainers are trained online via the Comply365 website, which issues and stores electronic training certificates that can be saved or printed by DTs. These certificates are linked to each DT's training account and can be accessed by the DT at any time, or, if required, by emailing Fuel@mesa-air.com.
- B. In the event a DT is unable to be trained via LMS, or if there is an issue with the certificate, the S101F form may be used to document Designated Trainer certification, by the Senior Manager of Regulatory Compliance, or designee.

7.8.4 Record Retention

- A. All training records must remain onsite and accessible at the fuel vendor's location during all hours of operation. These records must be provided to Mesa Airlines, Inc. representatives when requested for review, and may also be requested and reviewed by regulatory entities with oversight over Mesa Airlines, Inc. or the fuel vendor's operations.
- B. Training records must be maintained on file by the vendor for 24 months, or for 90 calendar days past the last date the agent was employed by the vendor.
- C. Once recurrent training has been completed for a fuel agent and a new T-009 form completed, the old T-009 forms with outdated training records may be discarded by the DT in accordance with local policy. However, all training records for the previous 24 months must remain on file.

7.8.5 Audit of Training Records

As a portion of all regular vendor oversight audits, auditors will sample and validated local DT and fuel agent training to ensure the training program is being administered in accordance with this manual.



7.9 Weight and Balance Curriculum (Mexico Stations)

- A. Mesa Airlines, Inc. does not require that agents trained in this program also receive training on the weight and balance procedures, however, for stations in Mexico that are serviced by the E-175, a weight and balance training is available for vendor personnel. Training for the weight and balance is done completely through Comply365, and the training record retention policies apply to these if taken.
- B. This course is designed to meet the requirements of Mexico's General Bureau of Civil Aviation (Spanish acronym DGAC).
- C. DTs may email a request, along with each fuel agents first and last name, position, employer and a work email address (personal email address will be accepted only when work email addresses are not provided to employees) to Fuel@mesa-air.com if their personnel require the training.
- D. No test or recurrent certification is required for this course.

7.10 Training Resources

- A. To access Comply365, DTs may follow this link to the log-in page of the site: <https://mesa-air.comply365.net/login.aspx?local=1>. DTs may review the Designated Trainer course at any time by logging into their account and navigating to their completed courses.
- B. All training presentations, tests, test keys and this manual are available via the Mesa Airlines, Inc. Technical Publications website: <https://employeeportal.mesa-air.com/TechPubs/>. No username or password is required to download the documents, however, all test keys are password protected.

END



Appendix A: Abbreviations and Definitions

A.1 Abbreviations 1
A.2 Definitions 1

Appendix A: Abbreviations and Definitions

A.1 Abbreviations

Table A-1: Abbreviations

Abbreviation	Definition
API	American Petroleum Institute
GPM	Gallons per Minute
Kg	Kilograms
kPa	Kilopascal
Lbs.	Pounds
PSI	Pounds per Square Inch

A.2 Definitions

- A. **Aircraft Fueling Equipment:** Mobile or fixed equipment that is used to transfer aviation fuel to an aircraft.
- B. **Coalescence:** The property of a coalescer element to bring together very fine droplets of free water to form large droplets heavy enough to fall to the bottom (sump) of a filter-separator vessel.
- C. **Coalescer Element:** Filter contents that remove solid particles and coalesces free water from fuel and is the first stage cartridge in the filter-separator vessel. It is upstream of the separator cartridge.
- D. **Contaminants:** Substances either foreign or native that may be present in jet fuel that detracts from its performance.
- E. **Deadman Control:** A mechanical or electronic device which requires a positive continuing action of an operator to allow the flow of fuel.
- F. **Differential Pressure:** The difference in pressure between two points, generally at the inlet and outlet of a filter separator or filter vessel. Measured in PSI (or kPa).
- G. **Dissolved Water:** Water that is in solution in jet fuel. This water is not free water and cannot be removed by conventional means.
- H. **Elements:** A generic term given to different types of decontamination media installed in various types of filtration vessels.

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- I. **Filter Monitors:** A vessel that contains water-absorbing elements and monitors the fuel continuously as the fuel passes through it. It is generally installed to filter particulate matter and absorbs water as the last filter prior to the aircraft but can be used anywhere in the fuel system as it may provide a shut-off of flow when the level of water or solids in the fuel system is unacceptable.
- J. **Filter-separator:** A two-stage filter system that coalesces and separates free water from fuel and filters particulate matter down to the micron size specified.
- K. **Floating Suction:** A suction device that swings on a sealed swing joint under the buoyancy of floats and draws from only the upper layers of the fuel in storage.
- L. **Free Water:** Water other than dissolved water, generally in droplets that can cause cloudiness and settle because of gravity and form a defined layer at the bottom of a container.
- M. **Hot Refueling:** Fuel servicing operations that are performed while one or more of the aircraft's engines are running.
- N. **Hydrant System:** A type of fixed fueling system that includes an underground system of pipes and valves used to transfer fuel directly from a fuel storage facility to one or more designated aircraft parking positions.
- O. **Particulates:** Solid contaminants found in jet fuel (e.g., dirt, rust, sand, fibers, etc.).
- P. **Separator Element:** The second-stage cartridge or shroud in a filter-separator vessel that allows passage of fuel but rejects fuel water droplets. The separator element is downstream of the coalescer cartridge.
- Q. **Vendor:** A person who operates and maintains fixed fuel storage or delivery facilities, mobile refueling equipment, providing service to aircraft operators.

END

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