 PRESSURE REFUELING - SERVICING

Use of Fuel Bicocide Additive When Pressure Refueling

A. Tools and Equipment

REFERENCE          DESIGNATION
Commercially Available Pneumatic Injector
Commercially Available Shop Air, 90 t10 psi (620.53 *68.95 kPa)
Commercially Available Test Panel, Pressure Regulating, 0-100 psi

B. Job Set-Up

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE A FUEL ADDITIVE. FUEL ADDITIVES ARE DANGEROUS BECAUSE THEY CAN BE FLAMMABLE, POISONOUS AND CAN CAUSE INJURY.
- USE SAFETY GOGGLES
- PUT ON PROTECTIVE CLOTHING
- DO NOT LET BIOCIDE FUEL ADDITIVE TOUCH YOUR SKIN, EYES, AND MOUTH
- DO THE WORK IN AN AREA THAT HAS A GOOD FLOW OF CLEAN AIR
- DO THE WORK IN AN AREA THAT HAS NO SPARKS, FLAME, OR HOT SURFACES
- OBEY THE MANUFACTURER'S INSTRUCTIONS
- GET MEDICAL AID IF YOU GET THE FUEL ADDITIVE IN YOUR EYES OR MOUTH, OR IF IRRIGATION OCCURS.

(1)Obey all safety precautions when you use fuel bicocide additives.

CAUTION: DO NOT PUT A CONCENTRATION OF BIOCIDE IN THE FUEL TANKS. USE THE METERED INJECTION METHOD TO MIX THE BIOCIDE DIRECTLY WITH A FLOW OF FUEL. IF YOU PUT BIOCIDE DIRECTLY IN THE FUEL TANK, SALT PARTICLES CAN OCCUR AND CAN CAUSE DAMAGE.

(2)Do not put concentrated fuel bicocide additives directly in the fuel tank. This can cause damage to the equipment.

C. Procedure

(1)To add fuel bicocide additive to the fuel, do the steps that follow:
(a)Connect the fuel bicocide injector to the fuel nozzle.
(b)Connect the test panel and shop air to the fuel bicocide injector.
(c)Set the fuel bicocide additive in the concentration that follows during the gravity refueling procedure.
(d)Add the fuel bicocide additive at a mixture of 135 parts per million (ppm) by weight. To get the fluid ounces necessary to get the correct mixture of 135 ppm of fuel bicocide additive, multiply the pounds of fuel needed by 0.002.
(e) Add fuel biocide additive as follows:

<table>
<thead>
<tr>
<th>FUEL (Note 1)</th>
<th>BIOBOR JF ADDITIVE (135 ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pounds (U.S.)</td>
<td>Gallons (Imp.)</td>
</tr>
<tr>
<td>670</td>
<td>100</td>
</tr>
<tr>
<td>1340</td>
<td>200</td>
</tr>
<tr>
<td>2010</td>
<td>300</td>
</tr>
<tr>
<td>2680</td>
<td>400</td>
</tr>
<tr>
<td>3350</td>
<td>500</td>
</tr>
<tr>
<td>6700</td>
<td>1000</td>
</tr>
<tr>
<td>13400</td>
<td>2000</td>
</tr>
</tbody>
</table>

Note 1:
Do not add to JP4 grade fuel if prepared to MIL-T-5624H. This fuel contains a 0.1 to 0.15% (by volume) concentration of the biocide.

(f) Do the pressure refueling of the aircraft.

**Pressure Refueling**

1. Obey all fuel-system safety precautions.
2. Move the wheel chocks approximately 6.0 in (152.4 mm) forward and aft of the tires (main landing gear and nose landing gear).

**NOTE:** You need to do this to easily remove the wheel chocks. It is possible for the tires to expand from the weight of the fuel.

**WARNING: REMOVE ALL PERSONS, MATERIALS, AND EQUIPMENT FROM BELOW THE AIRCRAFT BEFORE YOU DO THE REFUEL PROCEDURE. THE WEIGHT OF THE FUEL ADDED WILL COMPRESS THE LANDING GEAR AND LOWER THE AIRCRAFT. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE EQUIPMENT.**

3. Make sure that you remove all personnel and equipment from below the aircraft.
4. Make sure that the aircraft is on level ground.
5. Make sure that the fuel tender, and the aircraft are correctly grounded.
6. Open the Refuel/Defuel Control Panel and Pressure access door.
7. Do the operational test of the pressure relief valves.
8. Do the operational test of the center tank pressure-relief-valve.
9. Do the operational test of the vent system.

**Procedure**

Refer to Figure 301, 302, and 303.

To do the pressure refueling in the automatic mode, with the external REFUEL / DEFUEL panel, do the steps that follow:

**NOTE:** Make sure that you only use fuel specified in the Global Express Airplane Flight Manual.
If necessary, add fuel biocide additive to the fuel.
If necessary, add fuel anti-icing additive to the fuel.
(a) Make sure that the switches on the REFUE/DEFUEL control panel are as follows:

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASTER</td>
<td>OFF</td>
</tr>
<tr>
<td>AFT</td>
<td>OFF</td>
</tr>
<tr>
<td>START/STOP</td>
<td>Center</td>
</tr>
<tr>
<td>REFUEL/AUTO</td>
<td>AUTO REFUEL</td>
</tr>
<tr>
<td>REFUEL/DEFUEL</td>
<td></td>
</tr>
<tr>
<td>LEFT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>CTR</td>
<td>CLOSE</td>
</tr>
<tr>
<td>RIGHT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>AFT</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

(b) Connect the fuel tender to the aircraft as follows:
1. Remove the cap from the refuel/defuel adapter.

WARNING: MAKE SURE THAT THE FUEL TENDER, THE AIRCRAFT, AND THE FUEL NOZZLE ARE GROUNDED BEFORE YOU REFUEL/DEFUEL THE AIRCRAFT. A STATIC ELECTRICAL SPARK DURING THE PROCEDURE CAN CAUSE AN EXPLOSION OR FIRE.

2. Connect the fuel nozzle ground to the aircraft grounding point.
3. Connect the fuel nozzle to the refuel/defuel adapter.
4. Set the fuel pressure on the fuel tender to no more than 45 psig (310.27 kPa).
(c) Refuel the aircraft as follows:
1. Set the MASTER switch to ON.

NOTE: When the MASTER switch is set to ON, a BITE test starts. The BITE test is completed when the fuel quantities for each tank show in the display.

2. Make sure that a fuel quantity shows in the display for each tank and in the TOTAL display. The fuel quantity in the TOTAL and PRESEL displays must be the same.
3. Use the INCR/DECR switch to set the quantity of fuel in the PRESEL display.
4. If it is necessary to have fuel in the aft tank, set the AFT ON/OFF switch to ON.
5. Set the START/STOP switch to START.
6. Make sure that the fuel quantity increases on the display while you add fuel.
(d) Do a check of the refuel shutoff valves as follows:
1. Push and hold the SHUTOFF TEST switch.

NOTE: The refueling stops and the message SOV TEST shows in the PRESEL display.

2. Make sure that in 30 seconds or less, the message SOV STOP or SOV FAIL shows in the PRESEL display.

NOTE: If the test is successful the SOV STOP message shows. If the test fails the SOV FAIL message shows.
3. If the SOV STOP message shows, do as follows:
   a. Release the SHUTOFF TEST switch.
   b. Set the START/STOP switch to START.
4. If the SOV FAIL message shows, do as follows:

CAUTION: IF THE SOV FAIL MESSAGE SHOWS, FUEL FLOW WILL NOT STOP WHEN THE TANK IS FULL. STOP THE FUEL TENDER PUMP TO MAKE SURE THAT FUEL DOES NOT SPILL.
a. Make sure that the fuel flow stops to the tanks that passed the test.

NOTE: FAIL message shows in window of tank with the defective shutoff valve.

b. Release the SHUTOFF TEST switch.

c. Set the START/STOP switch to START.

d. Shut off the fuel tender pump to make sure that fuel does not spill from the tank with the defective shutoff valve.

(e) When the pressure refueling procedure is completed, do the steps that follow:

NOTE: The pressure refueling procedure is completed when the quantity in the TOTAL and the PRESEL displays are equal.

1. Set the AFT ON/OFF switch to OFF.
2. Set the MASTER switch to OFF.

(f) Disconnect the fuel tender from the aircraft as follows:
1. Set the fuel pressure on the fuel tender to 0 psig (0 kPa).
2. Disconnect the fuel nozzle from the refuel/defuel adapter.
3. Disconnect the fuel nozzle ground from the aircraft grounding point.
4. Install the cap on the refuel/defuel adapter.

To do the pressure refueling in the manual mode, with the external REFUEL/DEFUEL panel, do the steps that follow:

NOTE: Make sure that you only use fuel specified in the Global Express Airplane Flight Manual.

If necessary, add fuel biocide additive to the fuel.

Fuel Loading Schedule - Servicing
Figure 303
If necessary, add fuel anti-icing additive to the fuel.

(a) Make sure that the switches on the REFUEL/DEFUEL control panel are set as follows:

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<thead>
<tr>
<th>DESIGNATION</th>
<th>POSITION</th>
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<tbody>
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<td>MASTER</td>
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<td>AFT</td>
<td>OFF</td>
</tr>
<tr>
<td>START/STOP</td>
<td>Center</td>
</tr>
<tr>
<td>REFUEL/AUTO</td>
<td>AUTO REFUEL</td>
</tr>
<tr>
<td>REFUEUDEFUEL</td>
<td>AUTO REFUEL</td>
</tr>
<tr>
<td>LEFT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>CTR</td>
<td>CLOSE</td>
</tr>
<tr>
<td>RIGHT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>AFT</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

(b) Connect the fuel tender to the aircraft as follows:

1. Remove the cap from the refuel/defuel adapter.

**WARNING:** MAKE SURE THAT THE FUEL TENDER, THE AIRCRAFT, AND THE FUEL NOZZLE ARE GROUNDED BEFORE YOU REFUEUDEFUEL THE AIRCRAFT. A STATIC ELECTRICAL SPARK DURING THE PROCEDURE CAN CAUSE AN EXPLOSION OR FIRE.

2. Connect the fuel nozzle ground to the aircraft grounding point.
3. Connect the fuel nozzle to the refuel/defuel adapter.
4. Set the fuel pressure on the fuel tender to no more than 45 psig (310.27 kPa).

**WARNING:** WHEN YOU REFUEL THE AIRCRAFT (PRESSURE OR GRAVITY), OBEY THE INSTRUCTIONS THAT FOLLOW:

- DURING THE REFUELING PROCEDURE, MAKE SURE THE WEIGHT DIFFERENCE BETWEEN THE LEFT AND RIGHT WING FUEL TANKS IS NOT MORE THAN 200 LBS (90.72 KG).

- WHEN YOU COMPLETE THE REFUELING PROCEDURE, MAKE SURE THE WEIGHT DIFFERENCE BETWEEN THE LEFT AND RIGHT WING FUEL TANKS IS NOT MORE THAN 200 LBS (90.72 KG).

**IF THE WEIGHT DIFFERENCE IS MORE THAN THE LIMIT, THE AIRCRAFT CAN MOVE AND CAUSE INJURY TO PERSONS AND DAMAGE TO THE EQUIPMENT.**

Refuel the aircraft as follows:

1. Set the MASTER switch to ON.

**NOTE:** When the MASTER switch is set to ON, a BITE test starts. The BITE test is completed when the fuel quantities for each tank show in the display.

2. Make sure that a fuel quantity shows in the display for each tank and in the TOTAL display. The PRESEL display will show MANUAL.
3 Set the REFUEL/AUTO REFUEL/DEFUEL switch to REFUEL.
4 Set the applicable manual tank switch to OPEN.
5 Make sure that the fuel quantity increases on the display while you add fuel.

Do a check of the refuel shutoff valves as follows:

1 Push and hold the SHUTOFF TEST switch.

**NOTE:** The refueling stops and the message SOV TEST shows in the PRESEL display.

2 Make sure that in 30 seconds or less, the message SOV STOP or SOV FAIL shows in the PRESEL display.

**NOTE:** If the test is successful the SOV STOP message shows. If the test fails the SOV FAIL message shows.

3 If the SOV STOP message shows, do as follows:
   (a) Release the SHUTOFF TEST switch.
   (b) Set the START/STOP switch to START.
4 If the SOV FAIL message shows, do as follows:

**CAUTION:** IF THE SOV FAIL MESSAGE SHOWS, FUEL FLOW WILL NOT STOP WHEN THE TANK IS FULL. STOP THE FUEL TENDER PUMP TO MAKE SURE THAT FUEL DOES NOT SPILL.

   (a) Make sure that the fuel flow stops to the tanks that passed the test.

**NOTE:** FAIL message shows in window of tank with the defective shutoff valve.

   (b) Release the SHUTOFF TEST switch.
   (c) Set the START/STOP switch to START.
   (d) Shut off the fuel tender pump to make sure that fuel does not spill from the tank with the defective shutoff valve.

Stop the refueling procedure when the applicable tanks have the necessary fuel as follows:

1 Set the applicable manual tank switch to CLOSE.
2 Make sure that the quantity of fuel in the display for the applicable tank is the quantity that is necessary.
3 Set the MASTER switch to OFF.

Disconnect the fuel tender from the aircraft as follows:

1 Set the fuel pressure on the fuel tender to 0 psig (0 kPa).
2 Disconnect the fuel nozzle from the refuel/defuel adapter.
3 Disconnect the fuel nozzle ground from the aircraft grounding point.
4 Install the cap on the refuel/defuel adapter.

To do the pressure refueling in the automatic mode, with the external REFUEL/DEFUEL panel, do the steps that follow:
**NOTE:** Make sure that you only use fuel specified in the Global Express Airplane Flight Manual.
If necessary, add fuel biocide additive to the fuel.
If necessary, add fuel anti-icing additive to the fuel.

(a) The table that follows is a list of error messages that you can see on the REFUE/DEFUEL control panel:

<table>
<thead>
<tr>
<th>MESSAGE</th>
<th>When you will see this message</th>
</tr>
</thead>
</table>
| **INHIB:** | In manual refuel or defuel mode when a tank switch is in OPEN before you make a selection on the MANUAUL/AUTO REFUE/DEFUEL switch. In pressure defuel mode when an ENGINE RUN switch is ON and the left and right engine fire handles are not pulled. In auto mode when the pre-selected fuel quantity is not valid as follows:  
  - The pre-selected quantity is less than the total quantity in the aircraft  
  - The aircraft is in CAIMS maintenance mode  
  - The SOV shutoff test fails. |
| **FULL:** | When the high level shutoff is activated. |
| **LOAD ERR:** | In auto refuel mode when you selected an invalid fuel distribution. |
| **IMBAL:** | When there is a pre-determined fuel quantity imbalance between the left and right wings. In the PRESEL window of the last REFUEL/DEFUEL control panel |
| **REPEATER:** | selected when the two panels are on. The first panel that is on is in control and the second panel has quantity display only. |
|          | Dashes displayed for a fuel quantity if the value is invalid. |
MESSAGE  When you will see this message
  Displayed in the PRESEL window if
  the REFUEL/DEFUEL control panel
  is not functional.
  FMOGC displayed in the TOTAL
  window and FAILURE in the PRESEL
  FMOGC -
  FAILURE:  control panel does not communicate
  with the fuel management and quantity
  gauging computer.

NOTE: The external REFUEL/DEFUEL control panel will not have control if you select it
after the panel in the flight compartment is on (see the message REPEATER in the above table).

(b)Make sure that the switches on the REFUEL/DEFUEL control panel are set as follows:

NOTE: You can set the two MANUAL/AUTO rotary switches (on the external and flight
compartment REFUEL/DEFUEL control panel) out of the OFF position. The MANUAL/AUTO
rotary switch which is first set out of OFF position will control the refuel/defuel system. If the
first MANUAL/AUTO rotary switch is set to OFF, the second MANUAL rotary switch will then
control the refuel/defuel system.

<table>
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<tr>
<th>DESIGNATION</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUAL/AUTO</td>
<td>OFF</td>
</tr>
<tr>
<td>START/STOP/SOV TEST</td>
<td>Center</td>
</tr>
<tr>
<td>MANUAL LEFT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL CENTER</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL RIGHT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL AFT</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

(c)Connect the fuel tender to the aircraft as follows:
  1  Remove the cap from the refuel/defuel adapter.

FUEL NOZZLE ARE GROUNDED BEFORE YOU REFUEL/DEFUEL THE
AIRCRAFT. A STATIC ELECTRICAL SPARK DURING THE PROCEDURE CAN
CAUSE AN EXPLOSION OR FIRE.

  2  Connect the fuel nozzle ground to the aircraft grounding point.
  3  Connect the fuel nozzle to the refuel/defuel adapter.
  4  Set the fuel pressure on the fuel tender to no more than 45 psig (310.27 kPa).

(d)Refuel the aircraft as follows:

  1  Set the MANUAL/AUTO switch as follows:

NOTE: When the MANUAL/AUTO switch is set to a REFUEL position, a BITE test starts. The
BITE test is completed when the fuel quantities for each tank show in the display.
a  To refuel the wing and center fuel tanks, set the switch to the AUTO/REFUEL NO AFT position.
b  To refuel the wing, center, and aft fuel tanks, set the switch to the AUTO/REFUEL position.
2  Make sure that a fuel quantity shows in the display for each tank and in the TOTAL display. The fuel quantity in the TOTAL and PRESEL displays must be the same.
3  Use the INCR/DECR switch to set the quantity of fuel in the PRESEL display.
4  Set the START/STOP/SOV TEST switch to START.

**NOTE:** START message shows in PRESEL window and alternates with the preselected quantity.

5  Make sure that the fuel quantity increases on the display while you add fuel.

(e) Do a check of the refuel shutoff valves as follows:

1  Put the START/STOP/SOV TEST switch to the STOP/SOV TEST position and hold.

**NOTE:** The refueling procedure stops and the message SOV TEST shows in the PRESEL display.

2  Make sure that in 30 seconds or less, the message SOV STOP or SOV FAIL shows in the PRESEL display.

**NOTE:** If the test is successful the SOV STOP message shows. If the test fails the SOV FAIL message shows.

3  If the SOV STOP message shows, do as follows:
   a  Release the START/STOP/SOV TEST switch.
   b  Set the START/STOP/SOV TEST switch to START.

**NOTE:** The START message shows in the PRESEL window and alternates with the preselected quantity.

4  If the SOV FAIL message shows, do as follows:

**CAUTION:**  **IF THE SOV FAIL MESSAGE SHOWS, FUEL FLOW WILL NOT STOP WHEN THE TANK IS FULL. STOP THE FUEL TENDER PUMP TO MAKE SURE THAT FUEL DOES NOT SPILL.**

   a  Make sure that the fuel flow stops to the tanks that passed the test.

**NOTE:** FAIL message shows in window for the defective shutoff valve and alternates with the fuel quantity.

   b  Set the START/STOP/SOV TEST switch to START.

**NOTE:** The START message shows in the PRESEL window and alternates with the preselected quantity.

   c  Shut off the fuel tender pump to make sure that fuel does not spill from the tank with the defective shutoff valve.
(f) When the pressure refueling procedure is completed, do the steps that follow:

**NOTE:** The pressure refueling procedure is completed when the quantity in the TOTAL and the PRESEL displays are equal. COMPLETE message shows in PRESEL window and alternates with the preselected quantity after all related valves close at the end of the auto refuel.

1. Set the MANUAL/AUTO switch to the OFF position.

(g) Disconnect the fuel tender from the aircraft as follows:

1. Set the fuel pressure on the fuel tender to 0 psig (0 kPa).
2. Disconnect the fuel nozzle from the refuel/defuel adapter.
3. Disconnect the fuel nozzle ground from the aircraft grounding point.
4. Install the cap on the refuel/defuel adapter.

**To pressure refuel in the manual mode, with the external REFUEL/DEFUEL panel, do the steps that follow:**

**NOTE:** Make sure that you only use fuel specified in the Global Express Airplane Flight Manual.

If necessary, add fuel biocide additive to the fuel.
If necessary, add fuel anti-icing additive to the fuel.

The table that follows is a list of error messages that you can see on the REFUEL/DEFUEL control panel:

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<thead>
<tr>
<th>MESSAGE</th>
<th>When you will see this message</th>
</tr>
</thead>
<tbody>
<tr>
<td>INHIB:</td>
<td>make a selection on the MANU/AUTO REFUEL/DEFUEL switch.</td>
</tr>
<tr>
<td></td>
<td>In pressure defuel mode when an ENGINE RUN switch is ON and the left and right engine fire handles are not pulled.</td>
</tr>
<tr>
<td></td>
<td>In auto mode when the pre-selected fuel quantity is not valid as follows:</td>
</tr>
<tr>
<td></td>
<td>- The pre-selected quantity is less than the total quantity in the aircraft</td>
</tr>
<tr>
<td></td>
<td>- The aircraft is in CAIMS maintenance mode</td>
</tr>
<tr>
<td></td>
<td>- The SOV shutoff test falls.</td>
</tr>
<tr>
<td>FULL:</td>
<td>When the high level shutoff is activated.</td>
</tr>
<tr>
<td>LOAD ERR:</td>
<td>In auto refuel mode when you selected an invalid fuel distribution.</td>
</tr>
</tbody>
</table>
IMBAL: When there is a pre-determined fuel quantity imbalance between the left and right wings.

In the PRESEL window of the last REFUEL/DEFUEL control panel selected when the two panels are on.

REPEATER: The first panel that is on is in control and the second panel has quantity display only.

________ Dashes displayed for a fuel quantity if the value is invalid.

FAILED: Displayed in the PRESEL window if the REFUEL/DEFUEL control panel is not functional.

FMOGC displayed in the TOTAL window and FAILURE in the PRESEL window if the

FMOGC - FAILURE: REFUEL/DEFUEL control panel does not communicate with the fuel management and quantity gauging computer.

NOTE: The external REFUEL/DEFUEL control panel will not have control if you select it after the panel in the flight compartment is on (see the message REPEATER in the above table).

Make sure that the switches on the REFUEL/DEFUEL control panel are set as follows:

NOTE: You can set the two MANUAL/AUTO rotary switches (on the external and flight compartment REFUEL/DEFUEL control panel) out of the OFF position. The MANUAL/AUTO rotary switch which is first set out of OFF position will control the refuel/defuel system. If the first MANUAL/AUTO rotary switch is set to OFF, the second MANUAL rotary switch will then control the refuel/defuel system.

<table>
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<tr>
<th>DESIGNATION</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>OFF</td>
</tr>
<tr>
<td>START/STOP/SOV TEST</td>
<td>Center</td>
</tr>
<tr>
<td>MANUAL LEFT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL CENTER</td>
<td>CLOSE</td>
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<tr>
<td>MANUAL AFT</td>
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Connect the fuel tender to the aircraft as follows:

1. Remove the cap from the refuel/defuel adapter.

**WARNING:** MAKE SURE THAT THE FUEL TENDER, THE AIRCRAFT, AND THE FUEL NOZZLE ARE GROUNDED BEFORE YOU REFUEL/DEFUEL THE AIRCRAFT. A STATIC ELECTRICAL SPARK DURING THE PROCEDURE CAN CAUSE AN EXPLOSION OR FIRE.

2. Connect the fuel nozzle ground to the aircraft grounding point.
3. Connect the fuel nozzle to the refuel/defuel adapter.
4. Set the fuel pressure on the fuel tender to no more than 45 psig (310.27 kPa).

**WARNING:** WHEN YOU REFUEL THE AIRCRAFT (PRESSURE OR GRAVITY), OBEY THE INSTRUCTIONS THAT FOLLOW:

DURING THE REFUELING PROCEDURE, MAKE SURE THE WEIGHT DIFFERENCE BETWEEN THE LEFT AND RIGHT WING FUEL TANKS IS NOT MORE THAN 200 LBS (90.72 KG).

WHEN YOU COMPLETE THE REFUELING PROCEDURE, MAKE SURE THE WEIGHT DIFFERENCE BETWEEN THE LEFT AND RIGHT WING FUEL TANKS IS NOT MORE THAN 200 LBS (90.72 KG).

IF THE WEIGHT DIFFERENCE IS MORE THAN THE LIMIT, THE AIRCRAFT CAN MOVE AND CAUSE INJURY TO PERSONS AND DAMAGE TO THE EQUIPMENT.

**Refuel the aircraft as follows:**

1. Set the MANUAL/AUTO switch to the MANUAL/REFUEL position.

**NOTE:** When the MANUAL/AUTO switch is set to a REFUEL position, a BITE test starts. The BITE test is completed when the fuel quantities for each tank show in the display.

2. Make sure that a fuel quantity shows in the display for each tank and in the TOTAL display. The PRESEL display will show MANUAL.

3. Set the applicable manual tank switch to OPEN.
4. Make sure that the fuel quantity increases on the display while you add fuel.

**Do a check of the refuel shutoff valves as follows:**

1. Put the START/STOP/SOV TEST switch to the STOP/SOV TEST position and hold.

**NOTE:** The refueling procedure stops and the message SOV TEST shows in the PRESEL display.

2. Make sure that in 30 seconds or less, the message SOV STOP or SOV FAIL shows in the PRESEL display.
NOTE: If the test is successful the SOV STOP message shows. If the test fails the SOV FAIL message shows.

3. If the SOV STOP message shows, do as follows:
   a. Release the START/STOP/SOV TEST switch.
   b. Set the START/STOP/SOV TEST switch to START.

NOTE: The START message shows in the PRESEL window and alternates with the preselected quantity.

4. If the SOV FAIL message shows, do as follows:

CAUTION: IF THE SOV FAIL MESSAGE SHOWS, FUEL FLOW WILL NOT STOP WHEN THE TANK IS FULL. STOP THE FUEL TENDER PUMP TO MAKE SURE THAT FUEL DOES NOT SPILL.

   a. Make sure that the fuel flow stops to the tanks that passed the test.

NOTE: FAIL message shows in window for the defective shutoff valve and alternates with the fuel quantity.

   b. Set the START/STOP/SOV TEST switch to START.

NOTE: The START message shows in the PRESEL window and alternates with the preselected quantity.

   c. Shut off the fuel tender pump to make sure that fuel does not spill from the tank with the defective shutoff valve.

Stop the refueling procedure when the applicable tanks have the necessary fuel as follows:

1. Set the applicable manual tank switch to CLOSE.
2. Make sure that the quantity of fuel in the display for the applicable tank is the quantity that is necessary.
3. Set the MANUAIJAUTO switch to the OFF position.

Disconnect the fuel tender from the aircraft as follows:

1. Set the fuel pressure on the fuel tender to 0 psig (0 kPa).
2. Disconnect the fuel nozzle from the refuel/defuel adapter.
3. Disconnect the fuel nozzle ground from the aircraft grounding point.
4. Install the cap on the refuel/defuel adapter.
Use of Fuel Anti-Icing Additive When Pressure Refueling

Tools and Equipment

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<th>REFERENCE</th>
<th>DESIGNATION</th>
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<tr>
<td>Commercially Available</td>
<td>Pneumatic Injector</td>
</tr>
<tr>
<td>Commercially Available</td>
<td>Shop Air, 90110 psi (620.53168.95)</td>
</tr>
<tr>
<td>I Commercially Available</td>
<td>Test Panel, Pressure Regulating, 0-</td>
</tr>
<tr>
<td>Available</td>
<td>100 psi</td>
</tr>
</tbody>
</table>

Job Set-Up

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE A FUEL ADDITIVE. FUEL ADDITIVES ARE DANGEROUS BECAUSE THEY CAN BE FLAMMABLE, POISONOUS AND CAN CAUSE INJURY.

* USE SAFETY GOGGLES
* PUT ON PROTECTIVE CLOTHING
* DO NOT LET BIOCIDE FUEL ADDITIVE TOUCH YOUR SKIN, EYES, AND MOUTH
* DO THE WORK IN AN AREA THAT HAS A GOOD FLOW OF CLEAN AIR
* DO THE WORK IN AN AREA THAT HAS NO SPARKS, FLAME, OR HOT SURFACES
* OBEY THE MANUFACTURER'S INSTRUCTIONS
* GET MEDICAL AID IF YOU GET THE FUEL ADDITIVE IN YOUR EYES OR MOUTH, OR IF IRRITATION OCCURS.

(1) Obey all safety precautions when you use fuel anti-icing additives.

CAUTION: DO NOT PUT A CONCENTRATION OF BIOCIDE IN THE FUEL TANKS. USE THE METERED INJECTION METHOD TO MIX THE BIOCIDE DIRECTLY WITH A FLOW OF FUEL. IF YOU PUT BIOCIDE DIRECTLY IN THE FUEL TANK, SALT PARTICLES CAN OCCUR AND CAN CAUSE DAMAGE.

(2) Do not put concentrated fuel anti-icing additives directly in the fuel tank; this can cause damage to the equipment.

Procedure

To add fuel anti-icing additive to the fuel, do the steps that follow:

(a) Connect the fuel anti-icing injector to the fuel nozzle.
(b) Connect the test panel and shop air to the fuel anti-icing injector.
(c) Set the fuel anti-icing additive in the concentration that follows, during the pressure refueling procedure.
(d) Add the fuel anti-icing additive at a mixture of 100 parts per million (ppm) by weight. To get the correct mixture of 100 ppm of fuel anti-icing additive, multiply the pounds of fuel needed by 0.0001.
(e) Add fuel anti-icing additive as follows:
<table>
<thead>
<tr>
<th>Pounds (U.S.)</th>
<th>Gallons (U.S.)</th>
<th>Gallons (Imp.)</th>
<th>Liters</th>
<th>Pounds (U.S.)</th>
<th>Gallons (U.S.)</th>
<th>Ounces (Imp.)</th>
<th>Liters</th>
</tr>
</thead>
<tbody>
<tr>
<td>670</td>
<td>100</td>
<td>120.09</td>
<td>378.5</td>
<td>9.0</td>
<td></td>
<td>1.20</td>
<td>3.78</td>
</tr>
<tr>
<td>1340</td>
<td>200</td>
<td>240.19</td>
<td>757.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>300</td>
<td>360.28</td>
<td>1135.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2680</td>
<td>400</td>
<td>480.38</td>
<td>1514.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3350</td>
<td>500</td>
<td>600.47</td>
<td>1892.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6700</td>
<td>1000</td>
<td>1201.0</td>
<td>3785.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13400</td>
<td>2000</td>
<td>2402.0</td>
<td>7570.0</td>
<td>1.80</td>
<td>2.0</td>
<td>2.40</td>
<td>5.57</td>
</tr>
</tbody>
</table>

Note 1:
Do not add to JP4, JP5, and JP8 grade fuels. These fuels contain the additive.

Note 2:
The Gate-Pack Model 2000-B Injector automatically mixes the additive at a ratio of
1 gal (3.78 L) per 1000 gal (3785.40 L) of fuel.

(f) Pressure refuel the aircraft.

**SUCTION DEFUELING**

**Suction Defueling**

**Job Set-Up**

1. Obey all fuel-system safety precautions.
2. Make sure that the aircraft is on level ground.
3. Make sure that the fuel tender and the aircraft are correctly grounded.
4. Open the REFUEL/DEFUEL PANEL access door (142AR).

**Procedure Pre SB 700-28-002**
Refer to Figure 301.
Suction Defueling
(Pre SB 700-28-002)
Figure 301
(1) To do the suction defueling, do the steps that follow:
   (a) For A/C 9002 to 9035, make sure that the switches on the REFUEL/DEFUEL PANEL
       are set as follows:

       | DESIGNATION       | POSITION |
       |-------------------|----------|
       | MASTER            | OFF      |
       | AFT               | OFF      |
       | START/STOP        | Center   |
       | REFUEL/AUTO       | AUTO     |
       | REFUEL/DEFUEL     | REFUEL   |
       | MANUAL LEFT       | CLOSE    |
       | MANUAL CTR        | CLOSE    |
       | MANUAL RIGHT      | CLOSE    |
       | MANUAL AFT        | CLOSE    |

   (b) For AC 9036 and subs, make sure that the switches on the REFUEUDEFUEL PANEL
       are set as follows:

       | DESIGNATION       | POSITION |
       |-------------------|----------|
       | MANUAL/AUTO       | OFF      |
       | START/STOP/SOV    | Center   |
       | TEST              |          |
       | MANUAL LEFT       | CLOSE    |
       | MANUAL CENTER     | CLOSE    |
       | MANUAL RIGHT      | CLOSE    |
       | MANUAL AFT        | CLOSE    |

   (c) Connect the fuel tender to the aircraft as follows:
       1. Remove the cap from the refuel/defuel adapter.

       **WARNING: MAKE SURE THAT THE FUEL TENDER, THE AIRCRAFT, AND THE
        FUEL NOZZLE ARE GROUNDED BEFORE YOU REFUEUDEFUEL THE AIRCRAFT.
        A STATIC ELECTRICAL SPARK DURING THE PROCEDURE CAN CAUSE AN
        EXPLOSION OR FIRE.

       2. Connect the fuel nozzle ground to the aircraft grounding point.
       3. Connect the fuel nozzle to the refuel/defuel adapter.
       4. Set the fuel pressure on the fuel tender to no more than -8 psig (-55 kPa).

   (d) Defuel the aircraft as follows:

       **NOTE:** Do not empty the wing tanks with the aft tank full.

       For A/C 9002 to 9035,
       1. Set the MASTER switch on the REFUEUDEFUEL PANEL to ON.

       **NOTE:** When the MASTER switch is set to ON, a BITE test starts. The BITE test is complete
       when the fuel quantities for each tank show in the display.

       For AC 9036 and subs,
       Set the rotary switch to DEFUEL.
**NOTE:** When the rotary switch is set to DEFUEL, a BITE test starts. The BITE test is complete when the fuel quantities for each tank show in the display.

2. Make sure that the fuel quantity shows in the display for each tank and in the TOTAL display.
3. For A/C 9002 to 9035,
   - Set the REFUEL/AUTO REFUEUDEFUEL switch to DEFUEL.
4. Set the applicable manual tank switches to OPEN.
5. Make sure that the fuel quantity display shows a decrease in fuel quantity as fuel is removed.

(e) Stop the defueling procedure when the applicable tanks have the necessary fuel removed as follows:
   1. Set the applicable manual tank switch to CLOSE.
   2. Make sure that the quantity of fuel in the display for the applicable tank is the quantity that is necessary.
   3. When all the fuel tanks have the correct amount of fuel removed, do as follows:
      - For A/C 9002 to 9035,
      - Set the MASTER switch to OFF.
      - For AC 9036 and subs,
      - Set the rotary switch to OFF.
(f) Disconnect the fuel tender from the aircraft as follows:
   1. Set the fuel pressure on the fuel tender to 0 psig (0 kPa).
   2. Disconnect the fuel nozzle from the fuel/defuel adapter.
   3. Disconnect the fuel nozzle ground from the aircraft grounding point.
   4. Install the cap on the refuel/defuel adapter.

**Procedure Post SIB 700-28-002**
Refer to Figure 302.

To do the suction defueling with the external or the flight compartment REFUEL/DEFUEL PANEL, do the steps that follow:

(a) Make sure that the switches on the REFUEL/DEFUEL PANEL are set as follows:

**NOTE:** You can use the two REFUEL/DEFUEL PANELS at the same time. The first panel that you use will control the refuel/defuel system. If you shut off the first panel, the second panel will then control the refuel/defuel system.
Suction Defueling
(Post SB 700-28-002)
Figure 302
For the external REFUEL/DEFUEL PANEL on A/C 9002 to 9035, make sure that the switches are set as follows:

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASTER</td>
<td>OFF</td>
</tr>
<tr>
<td>AFT</td>
<td>OFF</td>
</tr>
<tr>
<td>START/STOP</td>
<td>Center</td>
</tr>
<tr>
<td>REFUEL/AUTO</td>
<td>AUTO REFUEL</td>
</tr>
<tr>
<td>REFUEL/DEFUEL</td>
<td></td>
</tr>
<tr>
<td>MANUALL LEFT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL CTR</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL RIGHT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>(MANUAL AFT)</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

For the external panel on AC 9036 and subs and for the flight compartment panel, make sure that the switches are set as follows:

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUAL/AUTO</td>
<td>OFF</td>
</tr>
<tr>
<td>START/STOP/SOV TEST</td>
<td>Center</td>
</tr>
<tr>
<td>MANUAL LEFT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL CENTER</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL RIGHT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL AFT</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>
(b) Connect the fuel tender to the aircraft as follows:
   1. Remove the cap from the refuelVdefuel adapter.

**WARNING:** MAKE SURE THAT THE FUEL TENDER, THE AIRCRAFT, AND THE FUEL NOZZLE ARE GROUNDED BEFORE YOU REFUEL/DEFUEL THE AIRCRAFT. A STATIC ELECTRICAL SPARK DURING THE PROCEDURE CAN CAUSE AN EXPLOSION OR FIRE.

   2. Connect the fuel nozzle ground to the aircraft grounding point.
   3. Connect the fuel nozzle to the refuelVdefuel adapter.
   4. Set the fuel pressure on the fuel tender to no more than -8 psig (-55 kPa).

(c) Defuel the aircraft as follows:

**NOTE:** Do not empty the wing tanks with the aft tank full.

   1. For the external panel on A/C 9002 to 9035,
      Set the MASTER switch to ON.

**NOTE:** When the MASTER switch is set to ON, a BITE test starts. The BITE test is complete when the fuel quantities for each tank show on the display.

   For the external panel on AC 9036 and subs and for the flight compartment panel,
   Set the rotary switch to DEFUEL.

**NOTE:** When the rotary switch is set to DEFUEL, a BITE test starts. The BITE test is complete when the fuel quantities for each tank show in the display.

   2. Make sure that the fuel quantity shows in the display for each tank and in the TOTAL display. The PRESEL display will show DEFUEL.
   3. For the external panel on A/C 9002 to 9035,
      Set the REFUEL/AUTO REFUEL/DEFUEL switch to DEFUEL.

   4. Set the applicable manual tank switches to OPEN.
   5. Make sure that the fuel quantity display shows a decrease in fuel quantity as fuel is removed.

(d) Stop the defueling procedure when the applicable tanks have the necessary fuel removed as follows:
   1. Set the applicable manual tank switches to CLOSE.
   2. Make sure that the quantity of fuel in the display for the applicable tank is the quantity that is necessary.
   3. When all the fuel tanks have the correct amount of fuel removed, do as follows:
      a. For the external panel on A/C 9002 to 9035,
         Set the MASTER switch to OFF.
      For the external panel on AC 9036 and subs and for the flight compartment panel,
         Set the rotary switch to OFF.
Disconnect the fuel tender from the aircraft as follows:

1. Set the fuel pressure on the fuel tender to 0 psig (0 kPa).
2. Disconnect the fuel nozzle from the refuel/defuel adapter.
3. Disconnect the fuel nozzle ground from the aircraft grounding point.
4. Install the cap on the refuel/defuel adapter.

Close Out

(1) Remove all tools, equipment, and unwanted materials from the work area.
(2) Close the REFUEL/DEFUEL PANEL access door (142AR).

GRAVITY REFUELING

Use of Fuel Biocide Additive When Gravity Refueling

Tools and Equipment

REFERENCE DESIGNATION
Commercially Available Pneumatic Injector
Commercially Available Shop Air, 90:10 psi (620.53:68.95 kPa)
Commercially Available Test Panel, Pressure Regulating, 0-100 psi

Job Set-Up

WARNING: OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE A FUEL ADDITIVE. FUEL ADDITIVES ARE DANGEROUS BECAUSE THEY CAN BE FLAMMABLE, POISONOUS AND CAN CAUSE INJURY.

USE SAFETY GOGGLES

PUT ON PROTECTIVE CLOTHING

DO NOT LET BIOCIDE FUEL ADDITIVE TOUCH YOUR SKIN, EYES, AND MOUTH

DO THE WORK IN AN AREA THAT HAS A GOOD FLOW OF CLEAN AIR

DO THE WORK IN AN AREA THAT HAS NO SPARKS, FLAME, OR HOT SURFACES

OBEY THE MANUFACTURER'S INSTRUCTIONS

GET MEDICAL AID IF YOU GET THE FUEL ADDITIVE IN YOUR EYES OR MOUTH, OR IF IRRITATION OCCURS.

A. Obey all safety precautions when you use fuel biocide additives.

CAUTION: DO NOT PUT A CONCENTRATION OF BIOCIDE IN THE FUEL TANKS. USE THE METERED INJECTION METHOD TO MIX THE BIOCIDE
DIRECTLY WITH A FLOW OF FUEL. IF YOU PUT BIOCIDES DIRECTLY IN THE FUEL TANK, SALT PARTICLES CAN OCCUR AND CAN CAUSE DAMAGE.

B. Do not put concentrated fuel biocide additives directly in the fuel tank; this can cause damage to the equipment.

C. Procedure
   (1) To add fuel biocide additive to the fuel, do the steps that follow:
       (a) Connect the fuel biocide injector to the fuel nozzle.
       (b) Connect the test panel and shop air to the fuel biocide injector.
       (c) Set the fuel biocide additive in the concentration that follows during the gravity refueling procedure.
       (d) Add the fuel biocide additive at a mixture of 135 parts per million (ppm) by weight. To get the fluid ounces necessary to get the correct mixture of 135 ppm of fuel biocide additive, multiply the pounds of fuel needed by 0.002.

Add fuel biocide additive as follows:

<table>
<thead>
<tr>
<th>FUEL (Note 1)</th>
<th>BIOBOR JF ADDITIVE (135 ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pounds</td>
<td>Gallons (U.S.)</td>
</tr>
<tr>
<td>670</td>
<td>100</td>
</tr>
<tr>
<td>1340</td>
<td>200</td>
</tr>
<tr>
<td>2010</td>
<td>300</td>
</tr>
<tr>
<td>2680</td>
<td>400</td>
</tr>
<tr>
<td>3350</td>
<td>500</td>
</tr>
<tr>
<td>6700</td>
<td>1000</td>
</tr>
<tr>
<td>13400</td>
<td>2000</td>
</tr>
</tbody>
</table>

Note 1:
Do not add to JP4 grade fuel if prepared to MIL-T-5624H. This fuel contains a 0.1 to 0.15% (by volume) concentration of the biocide.

Gravity Refueling

A. Reference Information

Grounding of the Aircraft

Use of Fuel Biocide Additive When Gravity Refueling

Use of Fuel Anti-Icing Additive When Gravity Refueling

Fuel-System Safety Precautions

B. Job Set-Up

(1) Obey all fuel-system safety precautions (TASK 28-00-00-910-801).

(2) Move the wheel chocks approximately 6 in (152.4 mm) forward and aft of the MLG and the NLG tires.
NOTE: It is possible for the tires to expand from the weight of the fuel and get caught between the wheel chocks.

WARNING: REMOVE ALL PERSONS, MATERIALS, AND EQUIPMENT FROM BELOW THE AIRCRAFT BEFORE YOU DO THE REFUEL PROCEDURE. THE WEIGHT OF THE FUEL ADDED WILL COMPRESS THE LANDING GEAR AND LOWER THE AIRCRAFT. THIS CAN CAUSE INJURY TO PERSONS AND DAMAGE TO THE EQUIPMENT.

(3) Make sure that you remove all personnel and equipment from below the aircraft.
(4) Make sure that the aircraft is on level ground.
(5) Open the REFUEL/DEFUEL PANEL access door (142AR).

C. Procedure
Refer to Figure 301.

(1) Do the gravity refueling as follows:

NOTE: During the gravity refueling operation, the REFUEUDEFINE PANEL is used to monitor the fuel tank quantities only.

Make sure that you only use fuel specified in the Global Express Airplane Flight Manual.

If necessary, add fuel biocide additive to the fuel.

If necessary, add fuel anti-icing additive to the fuel.

(a) For A/C 9002 to 9035 make sure that the switches on the external REFUEUDEFINE PANEL are set as follows:

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MASTER</td>
<td>OFF</td>
</tr>
<tr>
<td>AFT</td>
<td>OFF</td>
</tr>
<tr>
<td>START/STOP</td>
<td>Center</td>
</tr>
<tr>
<td>REFUEL/AUTO</td>
<td>AUTO REFUEL</td>
</tr>
<tr>
<td>AUTO REFUEL/DEFUEL</td>
<td></td>
</tr>
<tr>
<td>MANUAL LEFT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL CTR</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL RIGHT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL AFT</td>
<td>I CLOSE</td>
</tr>
</tbody>
</table>
(b) For A/C 9036 and subs make sure that the switches on the external REFUEDETFUEL PANEL are set as follows:

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>POSITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>MANUAL/AUTO</td>
<td>OFF</td>
</tr>
<tr>
<td>START/STOP/SOV TEST</td>
<td>Center</td>
</tr>
<tr>
<td>MANUALLF</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL CENTER</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL RIGHT</td>
<td>CLOSE</td>
</tr>
<tr>
<td>MANUAL AF</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

(c) Connect the fuel container to the applicable fuel tank on the aircraft as follows:

1. Remove the applicable gravity filler cap that follows:

<table>
<thead>
<tr>
<th>ACCESS</th>
<th>DESIGNATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>521 BT</td>
<td>Left Wing Gravity Filler Cap</td>
</tr>
<tr>
<td>621 AT</td>
<td>Center Wing Gravity Filler Cap</td>
</tr>
<tr>
<td>621 BT</td>
<td>Right Wing Gravity Filler Cap</td>
</tr>
</tbody>
</table>

WARNING: MAKE SURE THAT THE FUEL TENDER, THE AIRCRAFT, AND THE FUEL NOZZLE ARE GROUNDED BEFORE YOU REFUEL/DEFUEL THE AIRCRAFT. A STATIC ELECTRICAL SPARK DURING THE PROCEDURE CAN CAUSE AN EXPLOSION OR FIRE.

2. Connect the ground wires for the fuel nozzle and fuel container to the aircraft ground point.

3. Put the fuel nozzle in the gravity filler adapter.

WARNING: WHEN YOU REFUEL THE AIRCRAFT (PRESSURE OR GRAVITY), OBEY THE INSTRUCTIONS THAT FOLLOW:

DURING THE REFUELING PROCEDURE, MAKE SURE THE WEIGHT DIFFERENCE BETWEEN THE LEFT AND RIGHT WING FUEL TANKS IS NOT MORE THAN 200 LBS (90.72 KG).

WHEN YOU COMPLETE THE REFUELING PROCEDURE, MAKE SURE THE WEIGHT DIFFERENCE BETWEEN THE LEFT AND RIGHT WING FUEL TANKS IS NOT MORE THAN 200 LBS (90.72 KG).

IF THE WEIGHT DIFFERENCE IS MORE THAN THE LIMIT, THE AIRCRAFT CAN MOVE AND CAUSE INJURY TO PERSONS AND DAMAGE TO THE EQUIPMENT.

(d) Do the following step:

1. For total fuel loads of less than 3 000 lb (1360.78 kg), all fuel will go in the wing tanks.

(e) Gravity refuel the aircraft as follows:

1. Set the MASTER switch to ON.

NOTE: When the MASTER switch is set to ON, a BITE test starts. The BITE test is complete when the fuel quantities for each tank are shown in the display.
2. Make sure that a fuel quantity is shown in the display for each tank and in the TOTAL display.
3. Start the gravity refueling.
4. Monitor the refuel operation on the REFUEL/DEFUEL PANEL.
5. Use two persons to refuel the aircraft to a required level. One person to monitor the quantity display on the REFUEL/DEFUEL PANEL and the other to do the operation.

(f) When the gravity refueling procedure is complete, do the steps that follow:
1. Stop the gravity refueling.
2. Set the MASTER switch to OFF.
3. Remove the fuel nozzle from the gravity filler adapter.
4. Disconnect the ground wires for the fuel nozzle and fuel container from the aircraft ground point.
5. Install the applicable gravity filler cap that follows:

<table>
<thead>
<tr>
<th>ACCESS</th>
<th>DESIGNATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>521 BT</td>
<td>Left Wing Gravity Filler Cap</td>
</tr>
<tr>
<td>621AT</td>
<td>Center Wing Gravity Filler Cap</td>
</tr>
<tr>
<td>f 621 BT</td>
<td>Right Wing Gravity Filler Cap</td>
</tr>
</tbody>
</table>

(2) Do a visual check of the external surface of the fuel tank for leaks.

D. Close Out

(1) Remove all tools, equipment, and unwanted materials from the work area.
(2) Close the REFUEL/DEFUEL PANEL access door (142AR).
Gravity Refueling
Figure 301
3. Use of Fuel Anti-Icing Additive When Gravity Refueling

   A. Tools and Equipment

<table>
<thead>
<tr>
<th>REFERENCE</th>
<th>DESIGNATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercially Available</td>
<td>Pneumatic Injector</td>
</tr>
<tr>
<td>Shop Air, 90 ± 10 psi</td>
<td>(620.53 ± 68.95 kPa)</td>
</tr>
<tr>
<td>Test Panel, Pressure</td>
<td></td>
</tr>
<tr>
<td>Regulating, 0-100 psi</td>
<td></td>
</tr>
</tbody>
</table>

   B. Job Set-Up

   **WARNING:** OBEY THE PRECAUTIONS THAT FOLLOW WHEN YOU USE A FUEL ADDITIVE. FUEL ADDITIVES ARE DANGEROUS BECAUSE THEY CAN BE FLAMMABLE, POISONOUS AND CAN CAUSE INJURY.

   **USE SAFETY GOGGLES.**

   **PUT ON PROTECTIVE CLOTHING.**

   **DO NOT LET BIOCIDE FUEL ADDITIVE TOUCH YOUR SKIN, EYES, AND MOUTH.**

   **DO THE WORK IN AN AREA THAT HAS A GOOD FLOW OF CLEAN AIR.**

   **DO THE WORK IN AN AREA THAT HAS NO SPARKS, FLAME, OR HOT SURFACES.**

   **OBEY THE MANUFACTURER'S INSTRUCTIONS.**

   **GET MEDICAL AID IF YOU GET THE FUEL ADDITIVE IN YOUR EYES OR MOUTH, OR IF IRRITATION OCCURS.**

       (1) Obey all safety precautions when you use fuel anti-icing additives.

   **CAUTION:** DO NOT PUT A CONCENTRATION OF BIOCIDE IN THE FUEL TANKS. USE THE METERED INJECTION METHOD TO MIX THE BIOCIDE DIRECTLY WITH A FLOW OF FUEL. IF YOU PUT BIOCIDE DIRECTLY IN THE FUEL TANK, SALT PARTICLES CAN OCCUR AND CAN CAUSE DAMAGE.

       (2) Do not put concentrated fuel anti-icing additives directly in the fuel tank; this can cause damage to the equipment.

   C. Procedure

   To add fuel anti-icing additive to the fuel, do the steps that follow:

   (a) Connect the fuel anti-icing injector to the fuel nozzle.

   (b) Connect the test panel and shop air to the fuel anti-icing injector.

   (c) Set the fuel anti-icing additive in the concentration that follows, during the gravity refueling procedure.

   (d) Add the fuel anti-icing additive at a mixture of 100 parts per million (ppm) by weight.

       To get the correct mixture of 100 ppm of fuel anti-icing additive, multiply the pounds of fuel needed by 0.0001.

   (e) Add fuel anti-icing additive as follows:
<table>
<thead>
<tr>
<th>Pounds</th>
<th>FUELS (Note 1)</th>
<th>ANTI-ICING ADDITIVE (Note 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gallons (U.S.)</td>
<td>Gallons (Imp.)</td>
</tr>
<tr>
<td>670</td>
<td>100</td>
<td>83.27</td>
</tr>
<tr>
<td>1340</td>
<td>200</td>
<td>166.54</td>
</tr>
<tr>
<td>2010</td>
<td>300</td>
<td>249.81</td>
</tr>
<tr>
<td>2680</td>
<td>400</td>
<td>333.08</td>
</tr>
<tr>
<td>3350</td>
<td>500</td>
<td>416.35</td>
</tr>
<tr>
<td>6700</td>
<td>1000</td>
<td>832.68</td>
</tr>
<tr>
<td>13400</td>
<td>2000</td>
<td>1665.36</td>
</tr>
</tbody>
</table>

**Note 1:**
Do not add to JP4, JP5, and JP8 grade fuels. These fuels contain the additive.

**Note 2:**
The Gate-Pack Model 2000-B Injector automatically mixes the additive at a ratio of 1 gal (3.78 L) per 1000 gal (3785.40 L) of fuel.